

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 1

Attention, astronomical year style is used: The year -4900 in astronomical counting style is the year 4901 BCE in historical counting style.

|                  |                      |                                       |             |                  |                      |                                       |             |
|------------------|----------------------|---------------------------------------|-------------|------------------|----------------------|---------------------------------------|-------------|
| retrograde       | -4900 Jan 27 j 21:50 | 19° $\overline{00}$ '48               |             | opposition       | -4894 Apr 30 j 22:52 | 0° $\underline{50}$ '32               | 5°40'52     |
| min. Earth dist. | -4900 Apr 15 j 03:13 | 17° $\overline{00}$ '42'06            | 29.81023 AU |                  | -4894 Jun 05 j 14:12 | 30° $\overline{00}$ ' $\overline{00}$ |             |
| opposition       | -4900 Apr 16 j 15:00 | 17° $\overline{00}$ '39'44            | 9°26'54     | direct           | -4894 Jul 19 j 19:34 | 29° $\overline{00}$ '31'44            |             |
| direct           | -4900 Jul 05 j 11:32 | 16° $\overline{00}$ '18'26            |             |                  | -4894 Aug 31 j 07:34 | 0° $\underline{00}$ '                 |             |
| evening set      | -4900 Oct 04 j 17:41 | 18° $\overline{00}$ '19'06            |             | evening set      | -4894 Oct 16 j 04:13 | 1° $\underline{00}$ '21'34            |             |
| conjunction      | -4900 Oct 17 j 05:52 | 18° $\overline{00}$ '47'20            | 8°34'12     | conjunction      | -4894 Oct 30 j 11:48 | 1° $\underline{00}$ '52'17            | 5°02'28     |
| minimum elong    | -4900 Oct 17 j 06:13 | 18° $\overline{00}$ '47'22            | 8°34'17     | minimum elong    | -4894 Oct 30 j 12:01 | 1° $\underline{00}$ '52'19            | 5°02'29     |
| max. Earth dist. | -4900 Oct 18 j 18:48 | 18° $\overline{00}$ '50'50            | 31.86510 AU | max. Earth dist. | -4894 Nov 01 j 15:08 | 1° $\underline{00}$ '56'55            | 32.95302 AU |
| morning rise     | -4900 Oct 29 j 19:03 | 19° $\overline{00}$ '15'39            |             | morning rise     | -4894 Nov 13 j 20:35 | 2° $\underline{00}$ '23'08            |             |
| retrograde       | -4899 Jan 29 j 10:45 | 21° $\overline{00}$ '16'46            |             | retrograde       | -4893 Feb 11 j 18:53 | 4° $\underline{00}$ '14'36            |             |
| min. Earth dist. | -4899 Apr 17 j 15:11 | 19° $\overline{00}$ '58'35            | 29.96846 AU | min. Earth dist. | -4893 May 01 j 04:17 | 2° $\underline{00}$ '59'03            | 31.05958 AU |
| opposition       | -4899 Apr 19 j 06:17 | 19° $\overline{00}$ '56'01            | 8°49'54     | opposition       | -4893 May 03 j 09:16 | 2° $\underline{00}$ '55'41            | 5°02'52     |
| direct           | -4899 Jul 08 j 00:56 | 18° $\overline{00}$ '35'09            |             | direct           | -4893 Jul 22 j 08:05 | 1° $\underline{00}$ '37'15            |             |
| evening set      | -4899 Oct 06 j 19:05 | 20° $\overline{00}$ '33'50            |             | evening set      | -4893 Oct 18 j 05:59 | 3° $\underline{00}$ '25'31            |             |
| conjunction      | -4899 Oct 19 j 16:34 | 21° $\overline{00}$ '02'42            | 7°59'28     | conjunction      | -4893 Nov 01 j 18:07 | 3° $\underline{00}$ '56'24            | 4°26'56     |
| minimum elong    | -4899 Oct 19 j 16:54 | 21° $\overline{00}$ '02'44            | 7°59'31     | minimum elong    | -4893 Nov 01 j 18:18 | 3° $\underline{00}$ '56'25            | 4°26'55     |
| max. Earth dist. | -4899 Oct 21 j 09:15 | 21° $\overline{00}$ '06'31            | 32.03045 AU | max. Earth dist. | -4893 Nov 03 j 23:13 | 4° $\underline{00}$ '01'09            | 33.15436 AU |
| morning rise     | -4899 Nov 01 j 14:48 | 21° $\overline{00}$ '31'39            |             | morning rise     | -4893 Nov 16 j 07:49 | 4° $\underline{00}$ '27'25            |             |
| retrograde       | -4898 Jan 31 j 20:40 | 23° $\overline{00}$ '31'00            |             | retrograde       | -4892 Feb 14 j 00:20 | 6° $\underline{00}$ '17'30            |             |
| min. Earth dist. | -4898 Apr 20 j 03:46 | 22° $\overline{00}$ '13'16            | 30.13444 AU | min. Earth dist. | -4892 May 02 j 11:58 | 5° $\underline{00}$ '02'20            | 31.26227 AU |
| opposition       | -4898 Apr 21 j 20:50 | 22° $\overline{00}$ '10'35            | 8°12'30     | opposition       | -4892 May 04 j 18:55 | 4° $\underline{00}$ '58'51            | 4°24'58     |
| direct           | -4898 Jul 10 j 16:14 | 20° $\overline{00}$ '50'10            |             | direct           | -4892 Jul 23 j 17:47 | 3° $\underline{00}$ '40'49            |             |
| evening set      | -4898 Oct 08 j 20:56 | 22° $\overline{00}$ '46'55            |             | evening set      | -4892 Oct 19 j 07:32 | 5° $\underline{00}$ '27'35            |             |
| conjunction      | -4898 Oct 22 j 02:35 | 23° $\overline{00}$ '16'19            | 7°24'24     | conjunction      | -4892 Nov 02 j 23:53 | 5° $\underline{00}$ '58'34            | 3°51'30     |
| minimum elong    | -4898 Oct 22 j 02:54 | 23° $\overline{00}$ '16'21            | 7°24'28     | minimum elong    | -4892 Nov 03 j 00:03 | 5° $\underline{00}$ '58'34            | 3°51'29     |
| max. Earth dist. | -4898 Oct 23 j 20:40 | 23° $\overline{00}$ '20'14            | 32.20301 AU | max. Earth dist. | -4892 Nov 05 j 08:00 | 6° $\underline{00}$ '03'32            | 33.36180 AU |
| morning rise     | -4898 Nov 04 j 09:20 | 23° $\overline{00}$ '45'49            |             | morning rise     | -4892 Nov 17 j 17:35 | 6° $\underline{00}$ '29'40            |             |
| retrograde       | -4897 Feb 03 j 08:45 | 25° $\overline{00}$ '43'27            |             | retrograde       | -4891 Feb 15 j 03:51 | 8° $\underline{00}$ '18'27            |             |
| min. Earth dist. | -4897 Apr 22 j 13:59 | 24° $\overline{00}$ '26'15            | 30.30752 AU | min. Earth dist. | -4891 May 04 j 18:45 | 7° $\underline{00}$ '03'42            | 31.47125 AU |
| opposition       | -4897 Apr 24 j 10:21 | 24° $\overline{00}$ '23'22            | 7°34'48     | opposition       | -4891 May 07 j 03:50 | 7° $\underline{00}$ '00'06            | 3°47'15     |
| direct           | -4897 Jul 13 j 04:56 | 23° $\overline{00}$ '03'22            |             | direct           | -4891 Jul 26 j 04:24 | 5° $\underline{00}$ '42'27            |             |
| evening set      | -4897 Oct 10 j 22:44 | 24° $\overline{00}$ '58'18            |             | evening set      | -4891 Oct 21 j 09:05 | 7° $\underline{00}$ '27'50            |             |
| conjunction      | -4897 Oct 24 j 12:03 | 25° $\overline{00}$ '28'09            | 6°49'06     | conjunction      | -4891 Nov 05 j 04:44 | 7° $\underline{00}$ '58'50            | 3°16'13     |
| minimum elong    | -4897 Oct 24 j 12:20 | 25° $\overline{00}$ '28'11            | 6°49'07     | minimum elong    | -4891 Nov 05 j 04:52 | 7° $\underline{00}$ '58'51            | 3°16'11     |
| max. Earth dist. | -4897 Oct 26 j 09:18 | 25° $\overline{00}$ '32'20            | 32.38198 AU | max. Earth dist. | -4891 Nov 07 j 14:10 | 8° $\underline{00}$ '03'53            | 33.57539 AU |
| morning rise     | -4897 Nov 07 j 02:19 | 25° $\overline{00}$ '58'06            |             | morning rise     | -4891 Nov 20 j 02:08 | 8° $\underline{00}$ '29'59            |             |
| retrograde       | -4896 Feb 05 j 17:38 | 27° $\overline{00}$ '54'07            |             | retrograde       | -4890 Feb 17 j 09:42 | 10° $\underline{00}$ '17'33           |             |
| min. Earth dist. | -4896 Apr 24 j 01:46 | 26° $\overline{00}$ '37'16            | 30.48688 AU | min. Earth dist. | -4890 May 06 j 23:59 | 9° $\underline{00}$ '03'17            | 31.68676 AU |
| opposition       | -4896 Apr 25 j 23:22 | 26° $\overline{00}$ '34'20            | 6°56'55     | opposition       | -4890 May 09 j 11:58 | 8° $\underline{00}$ '59'31            | 3°09'45     |
| direct           | -4896 Jul 14 j 17:18 | 25° $\overline{00}$ '14'45            |             | direct           | -4890 Jul 28 j 11:28 | 7° $\underline{00}$ '42'17            |             |
| evening set      | -4896 Oct 12 j 00:37 | 27° $\overline{00}$ '07'55            |             | evening set      | -4890 Oct 23 j 10:32 | 9° $\underline{00}$ '26'21            |             |
| conjunction      | -4896 Oct 25 j 20:38 | 27° $\overline{00}$ '38'08            | 6°13'37     | conjunction      | -4890 Nov 07 j 09:11 | 9° $\underline{00}$ '57'21            | 2°41'10     |
| minimum elong    | -4896 Oct 25 j 20:54 | 27° $\overline{00}$ '38'09            | 6°13'39     | minimum elong    | -4890 Nov 07 j 09:18 | 9° $\underline{00}$ '57'21            | 2°41'08     |
| max. Earth dist. | -4896 Oct 27 j 19:24 | 27° $\overline{00}$ '42'25            | 32.56686 AU | max. Earth dist. | -4890 Nov 09 j 21:45 | 10° $\underline{00}$ '02'38           | 33.79510 AU |
| morning rise     | -4896 Nov 08 j 17:48 | 28° $\overline{00}$ '08'27            |             | morning rise     | -4890 Nov 22 j 09:23 | 10° $\underline{00}$ '28'29           |             |
|                  | -4895 Jan 24 j 14:17 | 0° $\underline{00}$ '                 |             | retrograde       | -4889 Feb 19 j 12:44 | 12° $\underline{00}$ '14'55           |             |
| retrograde       | -4895 Feb 07 j 03:44 | 0° $\underline{00}$ '02'53            |             | min. Earth dist. | -4889 May 09 j 06:01 | 11° $\underline{00}$ '01'02           | 31.90834 AU |
|                  | -4895 Feb 20 j 19:33 | 30° $\overline{00}$ ' $\overline{00}$ |             | opposition       | -4889 May 11 j 19:11 | 10° $\underline{00}$ '57'13           | 2°32'33     |
| min. Earth dist. | -4895 Apr 26 j 10:34 | 28° $\overline{00}$ '46'33            | 30.67208 AU | direct           | -4889 Jul 30 j 19:07 | 9° $\underline{00}$ '40'25            |             |
| opposition       | -4895 Apr 28 j 11:29 | 28° $\overline{00}$ '43'24            | 6°18'54     | evening set      | -4889 Oct 25 j 11:59 | 11° $\underline{00}$ '23'15           |             |
| direct           | -4895 Jul 17 j 07:24 | 27° $\overline{00}$ '24'13            |             |                  |                      |                                       |             |
| evening set      | -4895 Oct 14 j 02:30 | 29° $\overline{00}$ '15'41            |             | conjunction      | -4889 Nov 09 j 12:50 | 11° $\underline{00}$ '54'11           | 2°06'23     |
| conjunction      | -4895 Oct 28 j 04:35 | 29° $\overline{00}$ '46'12            | 5°38'03     | minimum elong    | -4889 Nov 09 j 12:56 | 11° $\underline{00}$ '54'11           | 2°06'20     |
| minimum elong    | -4895 Oct 28 j 04:50 | 29° $\overline{00}$ '46'13            | 5°38'04     | max. Earth dist. | -4889 Nov 12 j 02:21 | 11° $\underline{00}$ '59'30           | 34.02054 AU |
| max. Earth dist. | -4895 Oct 30 j 05:51 | 29° $\overline{00}$ '50'40            | 32.75715 AU | morning rise     | -4889 Nov 24 j 15:31 | 12° $\underline{00}$ '25'16           |             |
|                  | -4895 Nov 03 j 12:44 | 0° $\underline{00}$ '                 |             | retrograde       | -4888 Feb 21 j 18:23 | 14° $\underline{00}$ '10'37           |             |
| morning rise     | -4895 Nov 11 j 07:58 | 0° $\underline{00}$ '16'49            |             | min. Earth dist. | -4888 May 10 j 09:36 | 12° $\underline{00}$ '57'16           | 32.13559 AU |
| retrograde       | -4894 Feb 09 j 12:33 | 2° $\underline{00}$ '09'44            |             | opposition       | -4888 May 13 j 01:45 | 12° $\underline{00}$ '53'17           | 1°55'41     |
| min. Earth dist. | -4894 Apr 28 j 20:39 | 0° $\underline{00}$ '53'45            | 30.86301 AU | direct           | -4888 Aug 01 j 00:24 | 11° $\underline{00}$ '36'55           |             |
|                  |                      |                                       |             | evening set      | -4888 Oct 26 j 13:12 | 13° $\underline{00}$ '18'37           |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 2

Attention, astronomical year style is used: The year -4888 in astronomical counting style is the year 4889 BCE in historical counting style.

|                  |                      |                    |             |                  |                      |                    |             |
|------------------|----------------------|--------------------|-------------|------------------|----------------------|--------------------|-------------|
| conjunction      | -4888 Nov 10 j 15:48 | 13° <u>♁</u> 49'26 | 1°31'55     | retrograde       | -4881 Mar 06 j 03:31 | 26° <u>♁</u> 59'03 |             |
| minimum elong    | -4888 Nov 10 j 15:52 | 13° <u>♁</u> 49'27 | 1°31'53     | min. Earth dist. | -4881 May 24 j 04:26 | 25° <u>♁</u> 48'28 | 33.82070 AU |
| max. Earth dist. | -4888 Nov 13 j 08:01 | 13° <u>♁</u> 54'57 | 34.25097 AU | opposition       | -4881 May 27 j 05:15 | 25° <u>♁</u> 44'08 | -2°09'15    |
| morning rise     | -4888 Nov 25 j 20:15 | 14° <u>♁</u> 20'25 |             | direct           | -4881 Aug 15 j 05:55 | 24° <u>♁</u> 30'37 |             |
| retrograde       | -4887 Feb 22 j 21:58 | 16° <u>♁</u> 04'47 |             | evening set      | -4881 Nov 08 j 20:41 | 26° <u>♁</u> 05'54 |             |
| min. Earth dist. | -4887 May 12 j 14:56 | 14° <u>♁</u> 51'49 | 32.36777 AU |                  |                      |                    |             |
| opposition       | -4887 May 15 j 07:50 | 14° <u>♁</u> 47'49 | 1°19'13     | conjunction      | -4881 Nov 23 j 21:45 | 26° <u>♁</u> 34'55 | -2°17'21    |
| direct           | -4887 Aug 03 j 05:13 | 13° <u>♁</u> 31'54 |             | minimum elong    | -4881 Nov 23 j 21:40 | 26° <u>♁</u> 34'54 | 2°17'28     |
| evening set      | -4887 Oct 28 j 14:28 | 15° <u>♁</u> 12'31 |             | max. Earth dist. | -4881 Nov 26 j 22:16 | 26° <u>♁</u> 40'47 | 35.94326 AU |
|                  |                      |                    |             | morning rise     | -4881 Dec 09 j 01:03 | 27° <u>♁</u> 04'07 |             |
| conjunction      | -4887 Nov 12 j 18:20 | 15° <u>♁</u> 43'11 | 0°57'49     | retrograde       | -4880 Mar 07 j 02:37 | 28° <u>♁</u> 42'54 |             |
| minimum elong    | -4887 Nov 12 j 18:22 | 15° <u>♁</u> 43'12 | 0°57'45     | min. Earth dist. | -4880 May 25 j 05:53 | 27° <u>♁</u> 32'35 | 34.06884 AU |
| max. Earth dist. | -4887 Nov 15 j 11:51 | 15° <u>♁</u> 48'46 | 34.48582 AU | opposition       | -4880 May 28 j 06:37 | 27° <u>♁</u> 28'16 | -2°42'00    |
| morning rise     | -4887 Nov 28 j 00:02 | 16° <u>♁</u> 14'02 |             | direct           | -4880 Aug 16 j 07:13 | 26° <u>♁</u> 15'05 |             |
| retrograde       | -4886 Feb 25 j 01:09 | 17° <u>♁</u> 57'27 |             | evening set      | -4880 Nov 09 j 21:02 | 27° <u>♁</u> 49'38 |             |
| min. Earth dist. | -4886 May 14 j 17:39 | 16° <u>♁</u> 44'59 | 32.60404 AU |                  |                      |                    |             |
| opposition       | -4886 May 17 j 12:57 | 16° <u>♁</u> 40'52 | 0°43'11     | conjunction      | -4880 Nov 24 j 20:11 | 28° <u>♁</u> 18'16 | -2°48'04    |
| direct           | -4886 Aug 05 j 11:56 | 15° <u>♁</u> 25'23 |             | minimum elong    | -4880 Nov 24 j 20:06 | 28° <u>♁</u> 18'16 | 2°48'10     |
| evening set      | -4886 Oct 30 j 15:46 | 17° <u>♁</u> 05'00 |             | max. Earth dist. | -4880 Nov 27 j 21:24 | 28° <u>♁</u> 24'09 | 36.19159 AU |
|                  |                      |                    |             | morning rise     | -4880 Dec 09 j 21:31 | 28° <u>♁</u> 47'05 |             |
| conjunction      | -4886 Nov 14 j 20:13 | 17° <u>♁</u> 35'29 | 0°24'07     |                  | -4879 Jan 25 j 03:25 | 0° <u>♁</u>        |             |
| minimum elong    | -4886 Nov 14 j 20:14 | 17° <u>♁</u> 35'29 | 0°24'04     | retrograde       | -4879 Mar 09 j 02:36 | 0° <u>♁</u> 25'14  |             |
| max. Earth dist. | -4886 Nov 17 j 15:07 | 17° <u>♁</u> 41'07 | 34.72400 AU |                  | -4879 Apr 22 j 10:19 | 30° <u>♁</u>       |             |
| morning rise     | -4886 Nov 30 j 02:48 | 18° <u>♁</u> 06'08 |             | min. Earth dist. | -4879 May 27 j 04:31 | 29° <u>♁</u> 15'18 | 34.31906 AU |
| retrograde       | -4885 Feb 27 j 04:08 | 19° <u>♁</u> 48'40 |             | opposition       | -4879 May 30 j 07:13 | 29° <u>♁</u> 10'53 | -3°14'08    |
| min. Earth dist. | -4885 May 16 j 21:29 | 18° <u>♁</u> 36'35 | 32.84361 AU | direct           | -4879 Aug 18 j 08:09 | 27° <u>♁</u> 58'02 |             |
| opposition       | -4885 May 19 j 17:36 | 18° <u>♁</u> 32'27 | 0°07'38     | evening set      | -4879 Nov 11 j 21:29 | 29° <u>♁</u> 31'56 |             |
| direct           | -4885 Aug 07 j 16:55 | 17° <u>♁</u> 17'24 |             |                  |                      |                    |             |
| desc. node       | -4885 Aug 07 j 02:33 | 17° <u>♁</u> 17'24 |             | conjunction      | -4879 Nov 26 j 18:12 | 0° <u>♁</u> 00'10  | -3°18'12    |
| evening set      | -4885 Nov 01 j 16:53 | 18° <u>♁</u> 56'04 |             | minimum elong    | -4879 Nov 26 j 18:05 | 0° <u>♁</u> 00'09  | 3°18'19     |
|                  |                      |                    |             |                  | -4879 Nov 26 j 16:13 | 0° <u>♁</u>        |             |
| conjunction      | -4885 Nov 16 j 21:40 | 19° <u>♁</u> 26'19 | -0°09'13    | max. Earth dist. | -4879 Nov 29 j 20:36 | 0° <u>♁</u> 06'05  | 36.44192 AU |
| minimum elong    | -4885 Nov 16 j 21:40 | 19° <u>♁</u> 26'19 | 0°09'18     | morning rise     | -4879 Dec 11 j 17:19 | 0° <u>♁</u> 28'34  |             |
| behind sun begin | -4885 Nov 16 j 16:16 | 19° <u>♁</u> 25'54 |             | retrograde       | -4878 Mar 11 j 01:57 | 2° <u>♁</u> 06'08  |             |
| behind sun end   | -4885 Nov 17 j 03:03 | 19° <u>♁</u> 26'45 |             | min. Earth dist. | -4878 May 29 j 03:58 | 0° <u>♁</u> 56'30  | 34.57174 AU |
| max. Earth dist. | -4885 Nov 19 j 18:12 | 19° <u>♁</u> 32'03 | 34.96484 AU | opposition       | -4878 Jun 01 j 07:14 | 0° <u>♁</u> 52'05  | -3°45'37    |
| morning rise     | -4885 Dec 02 j 04:20 | 19° <u>♁</u> 56'45 |             |                  | -4878 Jul 12 j 09:50 | 30° <u>♁</u>       |             |
| retrograde       | -4884 Feb 29 j 04:16 | 21° <u>♁</u> 38'28 |             | direct           | -4878 Aug 20 j 07:25 | 29° <u>♁</u> 39'34 |             |
| min. Earth dist. | -4884 May 18 j 00:09 | 20° <u>♁</u> 26'47 | 33.08544 AU |                  | -4878 Sep 27 j 04:32 | 0° <u>♁</u>        |             |
| opposition       | -4884 May 20 j 21:26 | 20° <u>♁</u> 22'36 | -0°27'25    | evening set      | -4878 Nov 13 j 21:36 | 1° <u>♁</u> 12'50  |             |
| direct           | -4884 Aug 08 j 22:49 | 19° <u>♁</u> 07'58 |             |                  |                      |                    |             |
| evening set      | -4884 Nov 02 j 18:09 | 20° <u>♁</u> 45'43 |             | conjunction      | -4878 Nov 28 j 15:47 | 1° <u>♁</u> 40'39  | -3°47'44    |
|                  |                      |                    |             | minimum elong    | -4878 Nov 28 j 15:40 | 1° <u>♁</u> 40'38  | 3°47'52     |
| conjunction      | -4884 Nov 17 j 22:30 | 21° <u>♁</u> 15'43 | -0°41'59    | max. Earth dist. | -4878 Dec 01 j 19:43 | 1° <u>♁</u> 46'40  | 36.69462 AU |
| minimum elong    | -4884 Nov 17 j 22:28 | 21° <u>♁</u> 15'42 | 0°42'04     | morning rise     | -4878 Dec 13 j 12:04 | 2° <u>♁</u> 08'38  |             |
| max. Earth dist. | -4884 Nov 20 j 19:17 | 21° <u>♁</u> 21'25 | 35.20748 AU | retrograde       | -4877 Mar 12 j 21:06 | 3° <u>♁</u> 45'40  |             |
| morning rise     | -4884 Dec 03 j 05:07 | 21° <u>♁</u> 45'53 |             | min. Earth dist. | -4877 May 31 j 02:11 | 2° <u>♁</u> 36'23  | 34.82661 AU |
| retrograde       | -4883 Mar 02 j 04:48 | 23° <u>♁</u> 26'49 |             | opposition       | -4877 Jun 03 j 06:35 | 2° <u>♁</u> 31'55  | -4°16'27    |
| min. Earth dist. | -4883 May 20 j 02:06 | 22° <u>♁</u> 15'32 | 33.32920 AU | direct           | -4877 Aug 22 j 09:09 | 1° <u>♁</u> 19'46  |             |
| opposition       | -4883 May 23 j 00:49 | 22° <u>♁</u> 11'17 | -1°01'56    | evening set      | -4877 Nov 15 j 21:41 | 2° <u>♁</u> 52'28  |             |
| direct           | -4883 Aug 11 j 01:37 | 20° <u>♁</u> 57'03 |             |                  |                      |                    |             |
| evening set      | -4883 Nov 04 j 19:02 | 22° <u>♁</u> 33'56 |             | conjunction      | -4877 Nov 30 j 12:39 | 3° <u>♁</u> 19'49  | -4°16'41    |
|                  |                      |                    |             | minimum elong    | -4877 Nov 30 j 12:30 | 3° <u>♁</u> 19'49  | 4°16'49     |
| conjunction      | -4883 Nov 19 j 22:52 | 23° <u>♁</u> 03'38 | -1°14'18    | max. Earth dist. | -4877 Dec 03 j 16:43 | 3° <u>♁</u> 25'48  | 36.94930 AU |
| minimum elong    | -4883 Nov 19 j 22:49 | 23° <u>♁</u> 03'38 | 1°14'23     | morning rise     | -4877 Dec 15 j 06:02 | 3° <u>♁</u> 47'22  |             |
| max. Earth dist. | -4883 Nov 22 j 21:41 | 23° <u>♁</u> 09'28 | 35.45156 AU | retrograde       | -4876 Mar 13 j 17:22 | 5° <u>♁</u> 23'55  |             |
| morning rise     | -4883 Dec 05 j 04:41 | 23° <u>♁</u> 33'31 |             | min. Earth dist. | -4876 May 31 j 23:45 | 4° <u>♁</u> 15'00  | 35.08362 AU |
| retrograde       | -4882 Mar 04 j 03:03 | 25° <u>♁</u> 13'41 |             | opposition       | -4876 Jun 04 j 05:29 | 4° <u>♁</u> 10'29  | -4°46'37    |
| min. Earth dist. | -4882 May 22 j 04:35 | 24° <u>♁</u> 02'43 | 33.57424 AU | direct           | -4876 Aug 23 j 08:44 | 2° <u>♁</u> 58'41  |             |
| opposition       | -4882 May 25 j 03:30 | 23° <u>♁</u> 58'28 | -1°35'53    | evening set      | -4876 Nov 16 j 21:33 | 4° <u>♁</u> 30'51  |             |
| direct           | -4882 Aug 13 j 05:17 | 22° <u>♁</u> 44'36 |             |                  |                      |                    |             |
| evening set      | -4882 Nov 06 j 20:00 | 24° <u>♁</u> 20'40 |             | conjunction      | -4876 Dec 01 j 09:16 | 4° <u>♁</u> 57'46  | -4°45'01    |
|                  |                      |                    |             | minimum elong    | -4876 Dec 01 j 09:07 | 4° <u>♁</u> 57'45  | 4°45'09     |
| conjunction      | -4882 Nov 21 j 22:36 | 24° <u>♁</u> 50'02 | -1°46'06    | max. Earth dist. | -4876 Dec 04 j 15:21 | 5° <u>♁</u> 03'52  | 37.20575 AU |
| minimum elong    | -4882 Nov 21 j 22:32 | 24° <u>♁</u> 50'02 | 1°46'11     | morning rise     | -4876 Dec 15 j 23:08 | 5° <u>♁</u> 24'51  |             |
| max. Earth dist. | -4882 Nov 24 j 21:17 | 24° <u>♁</u> 55'49 | 35.69677 AU | retrograde       | -4875 Mar 15 j 12:10 | 7° <u>♁</u> 00'58  |             |
| morning rise     | -4882 Dec 07 j 03:27 | 25° <u>♁</u> 19'35 |             | min. Earth dist. | -4875 Jun 02 j 22:12 | 5° <u>♁</u> 52'21  | 35.34212 AU |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 3

Attention, astronomical year style is used: The year -4875 in astronomical counting style is the year 4876 BCE in historical counting style.

|                  |                      |            |             |                  |                      |            |             |
|------------------|----------------------|------------|-------------|------------------|----------------------|------------|-------------|
| opposition       | -4875 Jun 06 j 03:53 | 5°M.47'51  | -5°16'07    | conjunction      | -4869 Dec 12 j 22:02 | 15°M.52'20 | -7°46'11    |
| direct           | -4875 Aug 25 j 08:24 | 4°M.36'25  |             | minimum elong    | -4869 Dec 12 j 21:49 | 15°M.52'19 | 7°46'21     |
| evening set      | -4875 Nov 18 j 21:23 | 6°M.08'07  |             | max. Earth dist. | -4869 Dec 16 j 06:12 | 15°M.58'17 | 38.99424 AU |
|                  |                      |            |             | morning rise     | -4869 Dec 26 j 03:27 | 16°M.15'46 |             |
| conjunction      | -4875 Dec 03 j 05:20 | 6°M.34'33  | -5°12'44    | retrograde       | -4868 Mar 26 j 00:01 | 17°M.49'43 |             |
| minimum elong    | -4875 Dec 03 j 05:10 | 6°M.34'32  | 5°12'52     | min. Earth dist. | -4868 Jun 13 j 19:46 | 16°M.43'03 | 37.13970 AU |
| max. Earth dist. | -4875 Dec 06 j 11:13 | 6°M.40'35  | 37.46334 AU | opposition       | -4868 Jun 17 j 02:40 | 16°M.38'37 | -8°23'54    |
| morning rise     | -4875 Dec 17 j 15:34 | 7°M.01'09  |             | direct           | -4868 Sep 05 j 09:04 | 15°M.29'24 |             |
| retrograde       | -4874 Mar 17 j 09:14 | 8°M.36'52  |             | evening set      | -4868 Nov 30 j 17:38 | 16°M.58'43 |             |
| min. Earth dist. | -4874 Jun 04 j 18:22 | 7°M.28'39  | 35.60153 AU |                  |                      |            |             |
| opposition       | -4874 Jun 08 j 01:43 | 7°M.24'05  | -5°44'56    | conjunction      | -4868 Dec 13 j 15:20 | 17°M.21'26 | -8°09'37    |
| direct           | -4874 Aug 27 j 05:20 | 6°M.13'00  |             | minimum elong    | -4868 Dec 13 j 15:07 | 17°M.21'25 | 8°09'48     |
| evening set      | -4874 Nov 20 j 21:12 | 7°M.44'16  |             | max. Earth dist. | -4868 Dec 16 j 22:59 | 17°M.27'19 | 39.24433 AU |
|                  |                      |            |             | morning rise     | -4868 Dec 26 j 14:58 | 17°M.44'18 |             |
| conjunction      | -4874 Dec 05 j 01:07 | 8°M.10'13  | -5°39'50    | retrograde       | -4867 Mar 27 j 18:05 | 19°M.18'02 |             |
| minimum elong    | -4874 Dec 05 j 00:57 | 8°M.10'12  | 5°39'59     | min. Earth dist. | -4867 Jun 15 j 12:55 | 18°M.11'40 | 37.39141 AU |
| max. Earth dist. | -4874 Dec 08 j 08:17 | 8°M.16'18  | 37.72122 AU | opposition       | -4867 Jun 18 j 21:04 | 18°M.07'11 | -8°48'04    |
| morning rise     | -4874 Dec 19 j 07:18 | 8°M.36'20  |             | direct           | -4867 Sep 07 j 02:41 | 16°M.58'13 |             |
| retrograde       | -4873 Mar 19 j 05:44 | 10°M.11'41 |             | evening set      | -4867 Dec 02 j 16:30 | 18°M.27'20 |             |
| min. Earth dist. | -4873 Jun 06 j 16:22 | 9°M.03'43  | 35.86102 AU |                  |                      |            |             |
| opposition       | -4873 Jun 09 j 23:01 | 8°M.59'13  | -6°13'05    | conjunction      | -4867 Dec 15 j 08:12 | 18°M.49'28 | -8°32'26    |
| direct           | -4873 Aug 29 j 01:42 | 7°M.48'30  |             | minimum elong    | -4867 Dec 15 j 07:59 | 18°M.49'27 | 8°32'37     |
| evening set      | -4873 Nov 22 j 20:55 | 9°M.19'22  |             | max. Earth dist. | -4867 Dec 18 j 16:38 | 18°M.55'22 | 39.49365 AU |
|                  |                      |            |             | morning rise     | -4867 Dec 28 j 01:54 | 19°M.11'45 |             |
| conjunction      | -4873 Dec 06 j 20:33 | 9°M.44'49  | -6°06'19    | retrograde       | -4866 Mar 29 j 12:52 | 20°M.45'18 |             |
| minimum elong    | -4873 Dec 06 j 20:21 | 9°M.44'48  | 6°06'28     | min. Earth dist. | -4866 Jun 17 j 07:36 | 19°M.39'07 | 37.64269 AU |
| max. Earth dist. | -4873 Dec 10 j 03:43 | 9°M.50'51  | 37.97881 AU | opposition       | -4866 Jun 20 j 15:10 | 19°M.34'42 | -9°11'35    |
| morning rise     | -4873 Dec 20 j 22:16 | 10°M.10'25 |             | direct           | -4866 Sep 08 j 19:05 | 18°M.26'01 |             |
| retrograde       | -4872 Mar 20 j 02:43 | 11°M.45'26 |             | evening set      | -4866 Dec 04 j 15:15 | 19°M.54'56 |             |
| min. Earth dist. | -4872 Jun 07 j 12:14 | 10°M.37'49 | 36.11983 AU |                  |                      |            |             |
| opposition       | -4872 Jun 10 j 19:51 | 10°M.33'17 | -6°40'34    | conjunction      | -4866 Dec 17 j 00:50 | 20°M.16'29 | -8°54'38    |
| direct           | -4872 Aug 29 j 21:48 | 9°M.22'54  |             | minimum elong    | -4866 Dec 17 j 00:37 | 20°M.16'28 | 8°54'50     |
| evening set      | -4872 Nov 23 j 20:31 | 10°M.53'25 |             | max. Earth dist. | -4866 Dec 20 j 09:38 | 20°M.22'22 | 39.74271 AU |
|                  |                      |            |             | morning rise     | -4866 Dec 29 j 12:05 | 20°M.38'11 |             |
| conjunction      | -4872 Dec 07 j 15:24 | 11°M.18'20 | -6°32'12    | retrograde       | -4865 Mar 31 j 05:24 | 22°M.11'35 |             |
| minimum elong    | -4872 Dec 07 j 15:12 | 11°M.18'19 | 6°32'22     | min. Earth dist. | -4865 Jun 19 j 00:15 | 21°M.05'41 | 37.89362 AU |
| max. Earth dist. | -4872 Dec 10 j 22:38 | 11°M.24'20 | 38.23521 AU | opposition       | -4865 Jun 22 j 08:30 | 21°M.01'15 | -9°34'25    |
| morning rise     | -4872 Dec 21 j 12:36 | 11°M.43'25 |             | direct           | -4865 Sep 10 j 12:28 | 19°M.52'49 |             |
| retrograde       | -4871 Mar 21 j 22:14 | 13°M.18'09 |             | evening set      | -4865 Dec 06 j 13:57 | 21°M.21'37 |             |
| min. Earth dist. | -4871 Jun 09 j 09:05 | 12°M.10'46 | 36.37741 AU |                  |                      |            |             |
| opposition       | -4871 Jun 12 j 16:25 | 12°M.06'17 | -7°07'23    | conjunction      | -4865 Dec 18 j 16:55 | 21°M.42'34 | -9°16'13    |
| direct           | -4871 Aug 31 j 17:52 | 10°M.56'12 |             | minimum elong    | -4865 Dec 18 j 16:42 | 21°M.42'33 | 9°16'24     |
| evening set      | -4871 Nov 25 j 20:01 | 12°M.26'24 |             | max. Earth dist. | -4865 Dec 22 j 01:26 | 21°M.48'24 | 39.99147 AU |
|                  |                      |            |             | morning rise     | -4865 Dec 30 j 21:46 | 22°M.03'39 |             |
| conjunction      | -4871 Dec 09 j 10:10 | 12°M.50'47 | -6°57'28    | retrograde       | -4864 Mar 31 j 21:23 | 23°M.36'57 |             |
| minimum elong    | -4871 Dec 09 j 09:58 | 12°M.50'46 | 6°57'37     | min. Earth dist. | -4864 Jun 19 j 17:12 | 22°M.31'19 | 38.14446 AU |
| max. Earth dist. | -4871 Dec 12 j 18:09 | 12°M.56'48 | 38.49007 AU | opposition       | -4864 Jun 23 j 01:45 | 22°M.26'53 | -9°56'36    |
| morning rise     | -4871 Dec 23 j 02:16 | 13°M.15'20 |             | direct           | -4864 Sep 11 j 05:59 | 21°M.18'44 |             |
| retrograde       | -4870 Mar 23 j 14:28 | 14°M.49'46 |             | evening set      | -4864 Dec 07 j 12:16 | 22°M.47'25 |             |
| min. Earth dist. | -4870 Jun 11 j 05:02 | 13°M.42'39 | 36.63313 AU |                  |                      |            |             |
| opposition       | -4870 Jun 14 j 12:13 | 13°M.38'10 | -7°33'33    | conjunction      | -4864 Dec 19 j 08:43 | 23°M.07'46 | -9°37'11    |
| direct           | -4870 Sep 02 j 16:35 | 12°M.28'24 |             | minimum elong    | -4864 Dec 19 j 08:29 | 23°M.07'45 | 9°37'23     |
| evening set      | -4870 Nov 27 j 19:30 | 13°M.58'17 |             | max. Earth dist. | -4864 Dec 22 j 18:35 | 23°M.13'40 | 40.23996 AU |
|                  |                      |            |             | morning rise     | -4864 Dec 31 j 06:42 | 23°M.28'15 |             |
| conjunction      | -4870 Dec 11 j 04:20 | 14°M.22'07 | -7°22'08    | retrograde       | -4863 Apr 02 j 10:00 | 25°M.01'28 |             |
| minimum elong    | -4870 Dec 11 j 04:08 | 14°M.22'06 | 7°22'18     | min. Earth dist. | -4863 Jun 21 j 10:22 | 23°M.56'05 | 38.39469 AU |
| max. Earth dist. | -4870 Dec 14 j 11:18 | 14°M.28'02 | 38.74301 AU | opposition       | -4863 Jun 24 j 18:31 | 23°M.51'41 | -10°18'08   |
| morning rise     | -4870 Dec 24 j 15:21 | 14°M.46'07 |             | direct           | -4863 Sep 13 j 01:47 | 22°M.43'50 |             |
|                  | -4869 Jan 01 j 15:52 | 15°M.      |             | evening set      | -4863 Dec 09 j 10:50 | 24°M.12'26 |             |
| retrograde       | -4869 Mar 25 j 08:11 | 16°M.20'17 |             |                  |                      |            |             |
| min. Earth dist. | -4869 Jun 12 j 23:53 | 15°M.13'27 | 36.88717 AU | conjunction      | -4863 Dec 21 j 00:13 | 24°M.32'10 | -9°57'33    |
| opposition       | -4869 Jun 16 j 07:40 | 15°M.08'57 | -7°59'03    | minimum elong    | -4863 Dec 20 j 24:00 | 24°M.32'09 | 9°57'44     |
|                  | -4869 Jun 22 j 23:32 | 15°K.M.    |             | max. Earth dist. | -4863 Dec 24 j 09:08 | 24°M.37'58 | 40.48772 AU |
| direct           | -4869 Sep 04 j 12:38 | 13°M.59'28 |             | morning rise     | -4862 Jan 01 j 15:14 | 24°M.52'02 |             |
|                  | -4869 Nov 12 j 10:22 | 15°M.      |             | retrograde       | -4862 Apr 04 j 01:37 | 26°M.25'12 |             |
| evening set      | -4869 Nov 29 j 18:34 | 15°M.29'03 |             | min. Earth dist. | -4862 Jun 23 j 01:44 | 25°M.20'07 | 38.64404 AU |
|                  |                      |            |             | opposition       | -4862 Jun 26 j 10:45 | 25°M.15'41 | -10°39'01   |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 4

Attention, astronomical year style is used: The year -4862 in astronomical counting style is the year 4863 BCE in historical counting style.

|                  |                      |                            |             |                  |                      |                        |             |
|------------------|----------------------|----------------------------|-------------|------------------|----------------------|------------------------|-------------|
| direct           | -4862 Sep 14 j 18:04 | 24° $\mathbb{M}$ 08'07     |             | conjunction      | -4856 Dec 30 j 05:14 | 4° $\mathbb{A}$ 01'17  | -12°04'10   |
| evening set      | -4862 Dec 11 j 09:13 | 25° $\mathbb{M}$ 36'40     |             | minimum elong    | -4856 Dec 30 j 05:01 | 4° $\mathbb{A}$ 01'17  | 12°04'23    |
|                  |                      |                            |             | max. Earth dist. | -4855 Jan 02 j 12:08 | 4° $\mathbb{A}$ 06'43  | 42.15676 AU |
| conjunction      | -4862 Dec 22 j 15:30 | 25° $\mathbb{M}$ 55'48     | -10°17'19   | morning rise     | -4855 Jan 08 j 12:06 | 4° $\mathbb{A}$ 16'34  |             |
| minimum elong    | -4862 Dec 22 j 15:17 | 25° $\mathbb{M}$ 55'47     | 10°17'31    | retrograde       | -4855 Apr 13 j 04:24 | 5° $\mathbb{A}$ 49'54  |             |
| max. Earth dist. | -4862 Dec 26 j 01:15 | 26° $\mathbb{M}$ 01'37     | 40.73416 AU | min. Earth dist. | -4855 Jul 02 j 13:51 | 4° $\mathbb{A}$ 46'09  | 40.31837 AU |
| morning rise     | -4861 Jan 02 j 23:19 | 26° $\mathbb{M}$ 15'02     |             | opposition       | -4855 Jul 05 j 19:44 | 4° $\mathbb{A}$ 41'59  | -12°48'25   |
| retrograde       | -4861 Apr 05 j 16:33 | 27° $\mathbb{M}$ 48'12     |             | direct           | -4855 Sep 24 j 05:34 | 3° $\mathbb{A}$ 36'01  |             |
| min. Earth dist. | -4861 Jun 24 j 19:09 | 26° $\mathbb{M}$ 43'18     | 38.89178 AU | evening set      | -4855 Dec 22 j 21:33 | 5° $\mathbb{A}$ 04'46  |             |
| opposition       | -4861 Jun 28 j 02:49 | 26° $\mathbb{M}$ 38'57     | -10°59'16   |                  |                      |                        |             |
| direct           | -4861 Sep 16 j 10:21 | 25° $\mathbb{M}$ 31'40     |             | conjunction      | -4855 Dec 31 j 18:29 | 5° $\mathbb{A}$ 19'16  | -12°20'04   |
| evening set      | -4861 Dec 13 j 07:34 | 27° $\mathbb{M}$ 00'11     |             | minimum elong    | -4855 Dec 31 j 18:18 | 5° $\mathbb{A}$ 19'16  | 12°20'18    |
|                  |                      |                            |             | max. Earth dist. | -4854 Jan 04 j 01:27 | 5° $\mathbb{A}$ 24'40  | 42.38398 AU |
| conjunction      | -4861 Dec 24 j 06:25 | 27° $\mathbb{M}$ 18'41     | -10°36'30   | morning rise     | -4854 Jan 09 j 16:22 | 5° $\mathbb{A}$ 33'51  |             |
| minimum elong    | -4861 Dec 24 j 06:12 | 27° $\mathbb{M}$ 18'40     | 10°36'42    | retrograde       | -4854 Apr 14 j 18:23 | 7° $\mathbb{A}$ 07'17  |             |
| max. Earth dist. | -4861 Dec 27 j 15:37 | 27° $\mathbb{M}$ 24'26     | 40.97874 AU | min. Earth dist. | -4854 Jul 04 j 04:38 | 6° $\mathbb{A}$ 03'38  | 40.54683 AU |
| morning rise     | -4860 Jan 04 j 06:35 | 27° $\mathbb{M}$ 37'18     |             | opposition       | -4854 Jul 07 j 09:16 | 5° $\mathbb{A}$ 59'34  | -13°04'36   |
| retrograde       | -4860 Apr 06 j 09:04 | 29° $\mathbb{M}$ 10'27     |             | direct           | -4854 Sep 25 j 18:22 | 4° $\mathbb{A}$ 53'48  |             |
| min. Earth dist. | -4860 Jun 25 j 10:13 | 28° $\mathbb{M}$ 05'49     | 39.13724 AU | evening set      | -4854 Dec 24 j 19:52 | 6° $\mathbb{A}$ 22'39  |             |
| opposition       | -4860 Jun 28 j 18:26 | 28° $\mathbb{M}$ 01'28     | -11°18'55   |                  |                      |                        |             |
| direct           | -4860 Sep 17 j 00:44 | 26° $\mathbb{M}$ 54'27     |             | conjunction      | -4853 Jan 02 j 07:32 | 6° $\mathbb{A}$ 36'28  | -12°35'26   |
| evening set      | -4860 Dec 14 j 06:00 | 28° $\mathbb{M}$ 22'58     |             | minimum elong    | -4853 Jan 02 j 07:20 | 6° $\mathbb{A}$ 36'27  | 12°35'39    |
|                  |                      |                            |             | max. Earth dist. | -4853 Jan 05 j 14:38 | 6° $\mathbb{A}$ 41'50  | 42.60959 AU |
| conjunction      | -4860 Dec 24 j 21:08 | 28° $\mathbb{M}$ 40'50     | -10°55'07   | morning rise     | -4853 Jan 10 j 19:51 | 6° $\mathbb{A}$ 50'20  |             |
| minimum elong    | -4860 Dec 24 j 20:54 | 28° $\mathbb{M}$ 40'49     | 10°55'20    | retrograde       | -4853 Apr 16 j 07:42 | 8° $\mathbb{A}$ 23'53  |             |
| max. Earth dist. | -4860 Dec 28 j 05:51 | 28° $\mathbb{M}$ 46'30     | 41.22066 AU | min. Earth dist. | -4853 Jul 05 j 17:37 | 7° $\mathbb{A}$ 20'27  | 40.77360 AU |
| morning rise     | -4859 Jan 04 j 13:42 | 28° $\mathbb{M}$ 58'48     |             | opposition       | -4853 Jul 08 j 22:28 | 7° $\mathbb{A}$ 16'23  | -13°20'12   |
|                  | -4859 Feb 15 j 04:15 | 0° $\mathbb{A}$            |             | direct           | -4853 Sep 27 j 07:13 | 6° $\mathbb{A}$ 10'48  |             |
| retrograde       | -4859 Apr 08 j 02:41 | 0° $\mathbb{A}$ 31'58      |             | evening set      | -4853 Dec 26 j 18:07 | 7° $\mathbb{A}$ 39'50  |             |
|                  | -4859 May 31 j 10:57 | 30° $\mathbb{R}\mathbb{M}$ |             |                  |                      |                        |             |
| min. Earth dist. | -4859 Jun 27 j 02:38 | 29° $\mathbb{M}$ 27'30     | 39.37995 AU | conjunction      | -4852 Jan 03 j 20:00 | 7° $\mathbb{A}$ 52'56  | -12°50'15   |
| opposition       | -4859 Jun 30 j 09:52 | 29° $\mathbb{M}$ 23'14     | -11°37'58   | minimum elong    | -4852 Jan 03 j 19:49 | 7° $\mathbb{A}$ 52'55  | 12°50'29    |
| direct           | -4859 Sep 18 j 13:30 | 28° $\mathbb{M}$ 16'27     |             | max. Earth dist. | -4852 Jan 07 j 02:16 | 7° $\mathbb{A}$ 58'13  | 42.83362 AU |
| evening set      | -4859 Dec 16 j 04:24 | 29° $\mathbb{M}$ 44'59     |             | morning rise     | -4852 Jan 11 j 22:40 | 8° $\mathbb{A}$ 06'04  |             |
|                  | -4859 Dec 25 j 04:08 | 0° $\mathbb{A}$            |             | retrograde       | -4852 Apr 16 j 21:24 | 9° $\mathbb{A}$ 39'48  |             |
|                  |                      |                            |             | min. Earth dist. | -4852 Jul 06 j 06:42 | 8° $\mathbb{A}$ 36'33  | 40.99899 AU |
| conjunction      | -4859 Dec 26 j 11:45 | 0° $\mathbb{A}$ 02'13      | -11°13'12   | opposition       | -4852 Jul 09 j 11:33 | 8° $\mathbb{A}$ 32'30  | -13°35'14   |
| minimum elong    | -4859 Dec 26 j 11:32 | 0° $\mathbb{A}$ 02'12      | 11°13'24    | direct           | -4852 Sep 27 j 19:17 | 7° $\mathbb{A}$ 27'09  |             |
| max. Earth dist. | -4859 Dec 29 j 20:35 | 0° $\mathbb{A}$ 07'51      | 41.45958 AU | evening set      | -4852 Dec 27 j 16:32 | 8° $\mathbb{A}$ 56'24  |             |
| morning rise     | -4858 Jan 05 j 20:12 | 0° $\mathbb{A}$ 19'31      |             |                  |                      |                        |             |
| retrograde       | -4858 Apr 09 j 15:21 | 1° $\mathbb{A}$ 52'42      |             | conjunction      | -4851 Jan 04 j 08:32 | 9° $\mathbb{A}$ 08'45  | -13°04'32   |
| min. Earth dist. | -4858 Jun 28 j 18:14 | 0° $\mathbb{A}$ 48'26      | 39.61919 AU | minimum elong    | -4851 Jan 04 j 08:20 | 9° $\mathbb{A}$ 08'44  | 13°04'45    |
| opposition       | -4858 Jul 02 j 00:52 | 0° $\mathbb{A}$ 44'12      | -11°56'26   | max. Earth dist. | -4851 Jan 07 j 15:36 | 9° $\mathbb{A}$ 14'04  | 43.05627 AU |
|                  | -4858 Aug 08 j 08:41 | 30° $\mathbb{R}\mathbb{M}$ |             | morning rise     | -4851 Jan 12 j 01:03 | 9° $\mathbb{A}$ 21'08  |             |
| direct           | -4858 Sep 20 j 06:26 | 29° $\mathbb{M}$ 37'39     |             | retrograde       | -4851 Apr 18 j 06:55 | 10° $\mathbb{A}$ 55'06 |             |
|                  | -4858 Nov 01 j 02:23 | 0° $\mathbb{A}$            |             | min. Earth dist. | -4851 Jul 07 j 20:19 | 9° $\mathbb{A}$ 52'01  | 41.22271 AU |
| evening set      | -4858 Dec 18 j 02:52 | 1° $\mathbb{A}$ 06'12      |             | opposition       | -4851 Jul 11 j 00:13 | 9° $\mathbb{A}$ 48'01  | -13°49'43   |
|                  |                      |                            |             | direct           | -4851 Sep 29 j 10:17 | 8° $\mathbb{A}$ 42'54  |             |
| conjunction      | -4858 Dec 28 j 01:54 | 1° $\mathbb{A}$ 22'46      | -11°30'43   | evening set      | -4851 Dec 29 j 15:17 | 10° $\mathbb{A}$ 12'24 |             |
| minimum elong    | -4858 Dec 28 j 01:41 | 1° $\mathbb{A}$ 22'45      | 11°30'56    |                  |                      |                        |             |
| max. Earth dist. | -4858 Dec 31 j 09:10 | 1° $\mathbb{A}$ 28'16      | 41.69501 AU | conjunction      | -4850 Jan 05 j 20:44 | 10° $\mathbb{A}$ 23'59 | -13°18'18   |
| morning rise     | -4857 Jan 07 j 02:10 | 1° $\mathbb{A}$ 39'24      |             | minimum elong    | -4850 Jan 05 j 20:34 | 10° $\mathbb{A}$ 23'58 | 13°18'33    |
| retrograde       | -4857 Apr 11 j 04:05 | 3° $\mathbb{A}$ 12'37      |             | max. Earth dist. | -4850 Jan 09 j 02:33 | 10° $\mathbb{A}$ 29'12 | 43.27722 AU |
| min. Earth dist. | -4857 Jun 30 j 08:55 | 2° $\mathbb{A}$ 08'32      | 39.85513 AU | morning rise     | -4850 Jan 13 j 02:43 | 10° $\mathbb{A}$ 35'37 |             |
| opposition       | -4857 Jul 03 j 15:27 | 2° $\mathbb{A}$ 04'20      | -12°14'20   | retrograde       | -4850 Apr 19 j 18:30 | 12° $\mathbb{A}$ 09'50 |             |
| direct           | -4857 Sep 21 j 22:22 | 0° $\mathbb{A}$ 57'59      |             | min. Earth dist. | -4850 Jul 09 j 08:15 | 11° $\mathbb{A}$ 07'00 | 41.44450 AU |
| evening set      | -4857 Dec 20 j 01:05 | 2° $\mathbb{A}$ 26'35      |             | opposition       | -4850 Jul 12 j 12:37 | 11° $\mathbb{A}$ 03'00 | -14°03'39   |
|                  |                      |                            |             | direct           | -4850 Sep 30 j 23:30 | 9° $\mathbb{A}$ 58'06  |             |
| conjunction      | -4857 Dec 29 j 15:48 | 2° $\mathbb{A}$ 42'28      | -11°47'43   | evening set      | -4850 Dec 31 j 14:09 | 11° $\mathbb{A}$ 27'54 |             |
| minimum elong    | -4857 Dec 29 j 15:36 | 2° $\mathbb{A}$ 42'27      | 11°47'56    |                  |                      |                        |             |
| max. Earth dist. | -4856 Jan 01 j 23:47 | 2° $\mathbb{A}$ 48'00      | 41.92723 AU | conjunction      | -4849 Jan 07 j 08:45 | 11° $\mathbb{A}$ 38'43 | -13°31'34   |
| morning rise     | -4856 Jan 08 j 07:32 | 2° $\mathbb{A}$ 58'26      |             | minimum elong    | -4849 Jan 07 j 08:34 | 11° $\mathbb{A}$ 38'42 | 13°31'48    |
| retrograde       | -4856 Apr 11 j 15:06 | 4° $\mathbb{A}$ 31'42      |             | max. Earth dist. | -4849 Jan 10 j 14:49 | 11° $\mathbb{A}$ 43'55 | 43.49587 AU |
| min. Earth dist. | -4856 Jul 01 j 00:38 | 3° $\mathbb{A}$ 27'43      | 40.08798 AU | morning rise     | -4849 Jan 14 j 03:47 | 11° $\mathbb{A}$ 49'34 |             |
| opposition       | -4856 Jul 04 j 05:49 | 3° $\mathbb{A}$ 23'35      | -12°31'40   | retrograde       | -4849 Apr 21 j 07:21 | 13° $\mathbb{A}$ 24'05 |             |
| direct           | -4856 Sep 22 j 15:23 | 2° $\mathbb{A}$ 17'26      |             | min. Earth dist. | -4849 Jul 10 j 22:00 | 12° $\mathbb{A}$ 21'24 | 41.66375 AU |
| evening set      | -4856 Dec 20 j 23:18 | 3° $\mathbb{A}$ 46'05      |             | opposition       | -4849 Jul 14 j 00:48 | 12° $\mathbb{A}$ 17'29 | -14°17'03   |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 5

Attention, astronomical year style is used: The year -4849 in astronomical counting style is the year 4850 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
| direct           | -4849 Oct 02 j 11:09 | 11°♄12'50 |             | retrograde       | -4842 Apr 29 j 14:41 | 21°♄49'50 |             |
| evening set      | -4848 Jan 02 j 13:34 | 12°♄42'58 |             | min. Earth dist. | -4842 Jul 19 j 10:14 | 20°♄48'06 | 43.09106 AU |
|                  |                      |           |             | opposition       | -4842 Jul 22 j 07:10 | 20°♄44'34 | -15°37'30   |
| conjunction      | -4848 Jan 08 j 20:39 | 12°♄52'59 | -13°44'19   | direct           | -4842 Oct 10 j 17:06 | 19°♄41'09 |             |
| minimum elong    | -4848 Jan 08 j 20:29 | 12°♄52'58 | 13°44'35    |                  |                      |           |             |
| max. Earth dist. | -4848 Jan 12 j 02:05 | 12°♄58'07 | 43.71186 AU | conjunction      | -4841 Jan 17 j 02:19 | 21°♄18'10 | -15°01'01   |
| morning rise     | -4848 Jan 15 j 04:00 | 13°♄03'01 |             | minimum elong    | -4841 Jan 17 j 02:12 | 21°♄18'09 | 15°01'16    |
| retrograde       | -4848 Apr 21 j 19:51 | 14°♄37'53 |             | max. Earth dist. | -4841 Jan 20 j 02:34 | 21°♄22'48 | 45.11425 AU |
| min. Earth dist. | -4848 Jul 11 j 09:51 | 13°♄35'25 | 41.87984 AU | retrograde       | -4841 Apr 30 j 23:27 | 22°♄59'47 |             |
| opposition       | -4848 Jul 14 j 12:39 | 13°♄31'31 | -14°29'57   | min. Earth dist. | -4841 Jul 20 j 20:49 | 21°♄58'11 | 43.28085 AU |
| direct           | -4848 Oct 02 j 22:05 | 12°♄27'05 |             | opposition       | -4841 Jul 23 j 17:15 | 21°♄54'41 | -15°47'08   |
| evening set      | -4847 Jan 03 j 13:22 | 13°♄57'37 |             | direct           | -4841 Oct 12 j 04:46 | 20°♄51'24 |             |
|                  |                      |           |             |                  |                      |           |             |
| conjunction      | -4847 Jan 09 j 08:13 | 14°♄06'47 | -13°56'37   | conjunction      | -4840 Jan 18 j 12:27 | 22°♄28'01 | -15°10'11   |
| minimum elong    | -4847 Jan 09 j 08:03 | 14°♄06'46 | 13°56'51    | minimum elong    | -4840 Jan 18 j 12:19 | 22°♄28'00 | 15°10'26    |
| max. Earth dist. | -4847 Jan 12 j 12:21 | 14°♄11'48 | 43.92431 AU | max. Earth dist. | -4840 Jan 21 j 11:06 | 22°♄32'32 | 45.30144 AU |
| morning rise     | -4847 Jan 15 j 03:22 | 14°♄15'57 |             | retrograde       | -4840 May 01 j 08:43 | 24°♄09'12 |             |
| retrograde       | -4847 Apr 23 j 09:27 | 15°♄51'13 |             | min. Earth dist. | -4840 Jul 21 j 06:54 | 23°♄07'45 | 43.46838 AU |
| min. Earth dist. | -4847 Jul 12 j 22:52 | 14°♄48'54 | 42.09220 AU | opposition       | -4840 Jul 24 j 03:16 | 23°♄04'16 | -15°56'18   |
| opposition       | -4847 Jul 16 j 00:28 | 14°♄45'05 | -14°42'22   | direct           | -4840 Oct 12 j 15:07 | 22°♄01'08 |             |
| direct           | -4847 Oct 04 j 08:21 | 13°♄40'51 |             |                  |                      |           |             |
| evening set      | -4846 Jan 05 j 14:09 | 15°♄11'50 |             | conjunction      | -4839 Jan 18 j 22:29 | 23°♄37'21 | -15°18'55   |
|                  |                      |           |             | minimum elong    | -4839 Jan 18 j 22:23 | 23°♄37'21 | 15°19'10    |
| conjunction      | -4846 Jan 10 j 19:58 | 15°♄20'07 | -14°08'27   | max. Earth dist. | -4839 Jan 21 j 21:41 | 23°♄41'54 | 45.48633 AU |
| minimum elong    | -4846 Jan 10 j 19:48 | 15°♄20'06 | 14°08'42    | retrograde       | -4839 May 02 j 16:11 | 25°♄18'08 |             |
| max. Earth dist. | -4846 Jan 14 j 00:07 | 15°♄25'07 | 44.13274 AU | min. Earth dist. | -4839 Jul 22 j 18:17 | 24°♄16'46 | 43.65339 AU |
| morning rise     | -4846 Jan 16 j 01:52 | 15°♄28'23 |             | opposition       | -4839 Jul 25 j 13:07 | 24°♄13'22 | -16°05'00   |
| retrograde       | -4846 Apr 24 j 19:01 | 17°♄04'04 |             | direct           | -4839 Oct 14 j 03:18 | 23°♄10'24 |             |
| min. Earth dist. | -4846 Jul 14 j 11:35 | 16°♄01'52 | 42.30011 AU |                  |                      |           |             |
| opposition       | -4846 Jul 17 j 11:48 | 15°♄58'08 | -14°54'19   | conjunction      | -4838 Jan 20 j 08:26 | 24°♄46'14 | -15°27'13   |
| direct           | -4846 Oct 05 j 21:38 | 14°♄54'06 |             | minimum elong    | -4838 Jan 20 j 08:19 | 24°♄46'14 | 15°27'27    |
| evening set      | -4845 Jan 07 j 15:54 | 16°♄25'37 |             | max. Earth dist. | -4838 Jan 23 j 06:21 | 24°♄50'41 | 45.66880 AU |
|                  |                      |           |             | retrograde       | -4838 May 04 j 01:20 | 26°♄26'37 |             |
| conjunction      | -4845 Jan 12 j 07:17 | 16°♄32'54 | -14°19'51   | min. Earth dist. | -4838 Jul 24 j 03:23 | 25°♄25'26 | 43.83575 AU |
| minimum elong    | -4845 Jan 12 j 07:09 | 16°♄32'54 | 14°20'05    | opposition       | -4838 Jul 26 j 22:31 | 25°♄22'02 | -16°13'16   |
| max. Earth dist. | -4845 Jan 15 j 09:23 | 16°♄37'46 | 44.33675 AU | direct           | -4838 Oct 15 j 13:33 | 24°♄19'14 |             |
| morning rise     | -4845 Jan 16 j 22:46 | 16°♄40'12 |             |                  |                      |           |             |
| retrograde       | -4845 Apr 26 j 05:51 | 18°♄16'23 |             | conjunction      | -4837 Jan 21 j 18:07 | 25°♄54'42 | -15°35'05   |
| min. Earth dist. | -4845 Jul 15 j 22:57 | 17°♄14'22 | 42.50362 AU | minimum elong    | -4837 Jan 21 j 18:02 | 25°♄54'42 | 15°35'21    |
| opposition       | -4845 Jul 18 j 23:02 | 17°♄10'39 | -15°05'48   | max. Earth dist. | -4837 Jan 24 j 15:18 | 25°♄59'05 | 45.84836 AU |
| direct           | -4845 Oct 07 j 09:09 | 16°♄06'47 |             | retrograde       | -4837 May 05 j 12:39 | 27°♄34'42 |             |
| evening set      | -4844 Jan 09 j 18:56 | 17°♄38'55 |             | min. Earth dist. | -4837 Jul 25 j 14:33 | 26°♄33'37 | 44.01504 AU |
|                  |                      |           |             | opposition       | -4837 Jul 28 j 08:01 | 26°♄30'19 | -16°21'06   |
| conjunction      | -4844 Jan 13 j 18:17 | 17°♄45'08 | -14°30'48   | direct           | -4837 Oct 16 j 21:56 | 25°♄27'41 |             |
| minimum elong    | -4844 Jan 13 j 18:08 | 17°♄45'07 | 14°31'03    |                  |                      |           |             |
| morning rise     | -4844 Jan 17 j 17:37 | 17°♄51'21 |             | conjunction      | -4836 Jan 23 j 03:41 | 27°♄02'48 | -15°42'33   |
| max. Earth dist. | -4844 Jan 16 j 20:21 | 17°♄49'57 | 44.53638 AU | minimum elong    | -4836 Jan 23 j 03:35 | 27°♄02'48 | 15°42'48    |
| retrograde       | -4844 Apr 26 j 14:11 | 19°♄28'09 |             | max. Earth dist. | -4836 Jan 26 j 00:40 | 27°♄07'09 | 46.02468 AU |
| min. Earth dist. | -4844 Jul 16 j 11:57 | 18°♄26'11 | 42.70288 AU | retrograde       | -4836 May 05 j 23:12 | 28°♄42'26 |             |
| opposition       | -4844 Jul 19 j 10:06 | 18°♄22'34 | -15°16'50   | min. Earth dist. | -4836 Jul 26 j 00:27 | 27°♄41'29 | 44.19056 AU |
| direct           | -4844 Oct 07 j 22:56 | 17°♄18'51 |             | opposition       | -4836 Jul 28 j 17:13 | 27°♄38'13 | -16°28'31   |
| evening set      | -4843 Jan 11 j 00:49 | 18°♄51'48 |             | direct           | -4836 Oct 17 j 06:05 | 26°♄35'45 |             |
|                  |                      |           |             |                  |                      |           |             |
| conjunction      | -4843 Jan 14 j 05:13 | 18°♄56'45 | -14°41'19   | conjunction      | -4835 Jan 23 j 13:10 | 28°♄10'32 | -15°49'38   |
| minimum elong    | -4843 Jan 14 j 05:05 | 18°♄56'44 | 14°41'34    | minimum elong    | -4835 Jan 23 j 13:06 | 28°♄10'32 | 15°49'54    |
| morning rise     | -4843 Jan 17 j 09:31 | 19°♄01'42 |             | max. Earth dist. | -4835 Jan 26 j 08:10 | 28°♄14'45 | 46.19696 AU |
| max. Earth dist. | -4843 Jan 17 j 06:11 | 19°♄01'29 | 44.73221 AU | retrograde       | -4835 May 07 j 09:59 | 29°♄49'48 |             |
| retrograde       | -4843 Apr 28 j 01:38 | 20°♄39'17 |             | min. Earth dist. | -4835 Jul 27 j 10:25 | 28°♄48'58 | 44.36184 AU |
| min. Earth dist. | -4843 Jul 17 j 22:26 | 19°♄37'29 | 42.89849 AU | opposition       | -4835 Jul 30 j 02:15 | 28°♄45'46 | -16°35'32   |
| opposition       | -4843 Jul 20 j 20:39 | 19°♄33'52 | -15°27'24   | direct           | -4835 Oct 18 j 13:55 | 27°♄43'26 |             |
| direct           | -4843 Oct 09 j 09:24 | 18°♄30'18 |             |                  |                      |           |             |
| evening set      | -4842 Jan 13 j 12:08 | 20°♄04'25 |             | conjunction      | -4834 Jan 24 j 22:44 | 29°♄17'54 | -15°56'21   |
|                  |                      |           |             | minimum elong    | -4834 Jan 24 j 22:40 | 29°♄17'54 | 15°56'36    |
| conjunction      | -4842 Jan 15 j 15:49 | 20°♄07'45 | -14°51'23   | max. Earth dist. | -4834 Jan 27 j 17:27 | 29°♄22'05 | 46.36466 AU |
| minimum elong    | -4842 Jan 15 j 15:41 | 20°♄07'45 | 14°51'39    |                  | -4834 Feb 22 j 21:57 | 0°♄       |             |
| morning rise     | -4842 Jan 17 j 19:20 | 20°♄11'05 |             | retrograde       | -4834 May 08 j 15:59 | 0°♄56'48  |             |
| max. Earth dist. | -4842 Jan 18 j 15:54 | 20°♄12'24 | 44.92461 AU |                  | -4834 Jul 25 j 13:54 | 30°♄      |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 6

Attention, astronomical year style is used: The year -4834 in astronomical counting style is the year 4835 BCE in historical counting style.

|                  |                      |   |             |                  |                      |                                 |             |
|------------------|----------------------|---|-------------|------------------|----------------------|---------------------------------|-------------|
| min. Earth dist. | -4834 Jul 28 j 21:20 | 29° $\overline{\text{A}}$ 56'01                 | 44.52812 AU | min. Earth dist. | -4826 Aug 06 j 20:21 | 8° $\overline{\text{B}}$ 37'37  | 45.71224 AU |
| opposition       | -4834 Jul 31 j 11:12 | 29° $\overline{\text{A}}$ 52'55                 | -16°42'11   | opposition       | -4826 Aug 09 j 03:19 | 8° $\overline{\text{B}}$ 34'54  | -17°21'52   |
| direct           | -4834 Oct 20 j 01:44 | 28° $\overline{\text{A}}$ 50'44                 |             | direct           | -4826 Oct 28 j 21:26 | 7° $\overline{\text{B}}$ 33'38  |             |
|                  | -4833 Jan 09 j 12:24 | 0° $\overline{\text{B}}$                        |             |                  |                      |                                 |             |
| conjunction      | -4833 Jan 26 j 07:59 | 0° $\overline{\text{B}}$ 24'52                  | -16°02'42   | conjunction      | -4825 Feb 04 j 03:58 | 9° $\overline{\text{B}}$ 05'23  | -16°40'25   |
| minimum elong    | -4833 Jan 26 j 07:55 | 0° $\overline{\text{B}}$ 24'52                  | 16°02'58    | minimum elong    | -4825 Feb 04 j 03:57 | 9° $\overline{\text{B}}$ 05'23  | 16°40'41    |
| max. Earth dist. | -4833 Jan 29 j 00:40 | 0° $\overline{\text{B}}$ 28'54                  | 46.52740 AU | max. Earth dist. | -4825 Feb 06 j 13:18 | 9° $\overline{\text{B}}$ 08'51  | 47.69148 AU |
| retrograde       | -4833 May 09 j 23:39 | 2° $\overline{\text{B}}$ 03'23                  |             | retrograde       | -4825 May 18 j 20:10 | 10° $\overline{\text{B}}$ 41'17 |             |
| min. Earth dist. | -4833 Jul 30 j 06:16 | 1° $\overline{\text{B}}$ 02'45                  | 44.68936 AU | min. Earth dist. | -4825 Aug 08 j 04:47 | 9° $\overline{\text{B}}$ 41'18  | 45.84655 AU |
| opposition       | -4833 Aug 01 j 19:50 | 0° $\overline{\text{B}}$ 59'39                  | -16°48'28   | opposition       | -4825 Aug 10 j 10:41 | 9° $\overline{\text{B}}$ 38'39  | -17°25'08   |
|                  | -4833 Oct 07 j 05:20 | 30° $\overline{\text{R}}$ $\overline{\text{A}}$ |             | direct           | -4825 Oct 30 j 01:38 | 8° $\overline{\text{B}}$ 37'30  |             |
| direct           | -4833 Oct 21 j 12:02 | 29° $\overline{\text{A}}$ 57'36                 |             | conjunction      | -4824 Feb 05 j 12:01 | 10° $\overline{\text{B}}$ 09'02 | -16°43'30   |
|                  | -4833 Nov 04 j 14:17 | 0° $\overline{\text{B}}$                        |             | minimum elong    | -4824 Feb 05 j 12:01 | 10° $\overline{\text{B}}$ 09'02 | 16°43'46    |
| conjunction      | -4832 Jan 27 j 17:03 | 1° $\overline{\text{B}}$ 31'23                  | -16°08'42   | max. Earth dist. | -4824 Feb 07 j 21:24 | 10° $\overline{\text{B}}$ 12'30 | 47.82351 AU |
| minimum elong    | -4832 Jan 27 j 16:59 | 1° $\overline{\text{B}}$ 31'23                  | 16°08'57    | retrograde       | -4824 May 19 j 02:04 | 11° $\overline{\text{B}}$ 44'39 |             |
| max. Earth dist. | -4832 Jan 30 j 08:45 | 1° $\overline{\text{B}}$ 35'21                  | 46.68516 AU | min. Earth dist. | -4824 Aug 08 j 13:27 | 10° $\overline{\text{B}}$ 44'45 | 45.97716 AU |
| retrograde       | -4832 May 10 j 09:31 | 3° $\overline{\text{B}}$ 09'33                  |             | opposition       | -4824 Aug 10 j 17:51 | 10° $\overline{\text{B}}$ 42'10 | -17°28'02   |
| min. Earth dist. | -4832 Jul 30 j 16:56 | 2° $\overline{\text{B}}$ 08'55                  | 44.84585 AU | direct           | -4824 Oct 30 j 10:30 | 9° $\overline{\text{B}}$ 41'10  |             |
| opposition       | -4832 Aug 02 j 04:26 | 2° $\overline{\text{B}}$ 05'57                  | -16°54'23   | conjunction      | -4823 Feb 05 j 19:53 | 11° $\overline{\text{B}}$ 12'27 | -16°46'15   |
| direct           | -4832 Oct 21 j 20:19 | 1° $\overline{\text{B}}$ 04'00                  |             | minimum elong    | -4823 Feb 05 j 19:53 | 11° $\overline{\text{B}}$ 12'27 | 16°46'30    |
| conjunction      | -4831 Jan 28 j 02:00 | 2° $\overline{\text{B}}$ 37'27                  | -16°14'21   | max. Earth dist. | -4823 Feb 08 j 03:09 | 11° $\overline{\text{B}}$ 15'48 | 47.95167 AU |
| minimum elong    | -4831 Jan 28 j 01:56 | 2° $\overline{\text{B}}$ 37'27                  | 16°14'37    | retrograde       | -4823 May 20 j 07:43 | 12° $\overline{\text{B}}$ 47'49 |             |
| max. Earth dist. | -4831 Jan 30 j 17:04 | 2° $\overline{\text{B}}$ 41'21                  | 46.83854 AU | min. Earth dist. | -4823 Aug 09 j 21:00 | 11° $\overline{\text{B}}$ 48'01 | 46.10353 AU |
| retrograde       | -4831 May 11 j 17:54 | 4° $\overline{\text{B}}$ 15'15                  |             | opposition       | -4823 Aug 12 j 00:55 | 11° $\overline{\text{B}}$ 45'28 | -17°30'37   |
| min. Earth dist. | -4831 Aug 01 j 01:40 | 3° $\overline{\text{B}}$ 14'43                  | 44.99800 AU | direct           | -4823 Oct 31 j 19:29 | 10° $\overline{\text{B}}$ 44'35 |             |
| opposition       | -4831 Aug 03 j 12:39 | 3° $\overline{\text{B}}$ 11'46                  | -16°59'56   | conjunction      | -4822 Feb 07 j 03:50 | 12° $\overline{\text{B}}$ 15'39 | -16°48'42   |
| direct           | -4831 Oct 23 j 04:49 | 2° $\overline{\text{B}}$ 09'55                  |             | minimum elong    | -4822 Feb 07 j 03:51 | 12° $\overline{\text{B}}$ 15'39 | 16°48'57    |
| conjunction      | -4830 Jan 29 j 10:42 | 3° $\overline{\text{B}}$ 43'03                  | -16°19'37   | max. Earth dist. | -4822 Feb 09 j 10:13 | 12° $\overline{\text{B}}$ 18'56 | 48.07512 AU |
| minimum elong    | -4830 Jan 29 j 10:40 | 3° $\overline{\text{B}}$ 43'03                  | 16°19'52    | retrograde       | -4822 May 21 j 14:00 | 13° $\overline{\text{B}}$ 50'45 |             |
| max. Earth dist. | -4830 Jan 31 j 23:51 | 3° $\overline{\text{B}}$ 46'49                  | 46.98791 AU | min. Earth dist. | -4822 Aug 11 j 06:22 | 12° $\overline{\text{B}}$ 50'58 | 46.22495 AU |
| retrograde       | -4830 May 13 j 03:40 | 5° $\overline{\text{B}}$ 20'29                  |             | opposition       | -4822 Aug 13 j 07:53 | 12° $\overline{\text{B}}$ 48'32 | -17°32'53   |
| min. Earth dist. | -4830 Aug 02 j 10:37 | 4° $\overline{\text{B}}$ 20'01                  | 45.14660 AU | direct           | -4822 Nov 02 j 04:21 | 11° $\overline{\text{B}}$ 47'45 |             |
| opposition       | -4830 Aug 04 j 20:39 | 4° $\overline{\text{B}}$ 17'08                  | -17°05'06   | conjunction      | -4821 Feb 08 j 11:41 | 13° $\overline{\text{B}}$ 18'35 | -16°50'50   |
| direct           | -4830 Oct 24 j 11:25 | 3° $\overline{\text{B}}$ 15'23                  |             | minimum elong    | -4821 Feb 08 j 11:42 | 13° $\overline{\text{B}}$ 18'35 | 16°51'04    |
| conjunction      | -4829 Jan 30 j 19:20 | 4° $\overline{\text{B}}$ 48'13                  | -16°24'31   | max. Earth dist. | -4821 Feb 10 j 16:44 | 13° $\overline{\text{B}}$ 21'46 | 48.19366 AU |
| minimum elong    | -4829 Jan 30 j 19:17 | 4° $\overline{\text{B}}$ 48'13                  | 16°24'47    | retrograde       | -4821 May 22 j 21:18 | 14° $\overline{\text{B}}$ 53'24 |             |
| max. Earth dist. | -4829 Feb 02 j 08:48 | 4° $\overline{\text{B}}$ 52'00                  | 47.13402 AU | min. Earth dist. | -4821 Aug 12 j 13:39 | 13° $\overline{\text{B}}$ 53'42 | 46.34118 AU |
| retrograde       | -4829 May 14 j 09:38 | 6° $\overline{\text{B}}$ 25'18                  |             | opposition       | -4821 Aug 14 j 14:43 | 13° $\overline{\text{B}}$ 51'18 | -17°34'51   |
| min. Earth dist. | -4829 Aug 03 j 19:57 | 5° $\overline{\text{B}}$ 24'54                  | 45.29202 AU | direct           | -4821 Nov 03 j 11:53 | 12° $\overline{\text{B}}$ 50'35 |             |
| opposition       | -4829 Aug 06 j 04:34 | 5° $\overline{\text{B}}$ 22'05                  | -17°09'52   | conjunction      | -4820 Feb 09 j 19:07 | 14° $\overline{\text{B}}$ 21'10 | -16°52'41   |
| direct           | -4829 Oct 25 j 21:27 | 4° $\overline{\text{B}}$ 20'26                  |             | minimum elong    | -4820 Feb 09 j 19:09 | 14° $\overline{\text{B}}$ 21'10 | 16°52'56    |
| conjunction      | -4828 Feb 01 j 03:33 | 5° $\overline{\text{B}}$ 52'59                  | -16°29'03   | max. Earth dist. | -4820 Feb 11 j 22:04 | 14° $\overline{\text{B}}$ 24'13 | 48.30704 AU |
| minimum elong    | -4828 Feb 01 j 03:32 | 5° $\overline{\text{B}}$ 52'59                  | 16°29'18    | retrograde       | -4820 May 23 j 07:14 | 15° $\overline{\text{B}}$ 55'43 |             |
| max. Earth dist. | -4828 Feb 03 j 15:29 | 5° $\overline{\text{B}}$ 56'39                  | 47.27735 AU | min. Earth dist. | -4820 Aug 12 j 22:12 | 14° $\overline{\text{B}}$ 56'01 | 46.45248 AU |
| retrograde       | -4828 May 14 j 16:18 | 7° $\overline{\text{B}}$ 29'45                  |             | opposition       | -4820 Aug 14 j 21:34 | 14° $\overline{\text{B}}$ 53'42 | -17°36'30   |
| min. Earth dist. | -4828 Aug 04 j 03:24 | 6° $\overline{\text{B}}$ 29'29                  | 45.43478 AU | direct           | -4820 Nov 03 j 16:39 | 13° $\overline{\text{B}}$ 53'04 |             |
| opposition       | -4828 Aug 06 j 12:19 | 6° $\overline{\text{B}}$ 26'39                  | -17°14'15   | conjunction      | -4819 Feb 10 j 02:45 | 15° $\overline{\text{B}}$ 23'24 | -16°54'13   |
| direct           | -4828 Oct 26 j 06:08 | 5° $\overline{\text{B}}$ 25'08                  |             | minimum elong    | -4819 Feb 10 j 02:48 | 15° $\overline{\text{B}}$ 23'24 | 16°54'28    |
| conjunction      | -4827 Feb 01 j 11:50 | 6° $\overline{\text{B}}$ 57'24                  | -16°33'13   | max. Earth dist. | -4819 Feb 12 j 05:32 | 15° $\overline{\text{B}}$ 26'26 | 48.41572 AU |
| minimum elong    | -4827 Feb 01 j 11:47 | 6° $\overline{\text{B}}$ 57'23                  | 16°33'27    | retrograde       | -4819 May 24 j 13:54 | 16° $\overline{\text{B}}$ 57'39 |             |
| max. Earth dist. | -4827 Feb 03 j 23:17 | 7° $\overline{\text{B}}$ 01'01                  | 47.41803 AU | min. Earth dist. | -4819 Aug 14 j 06:08 | 15° $\overline{\text{B}}$ 57'58 | 46.55914 AU |
| retrograde       | -4827 May 15 j 23:52 | 8° $\overline{\text{B}}$ 33'52                  |             | opposition       | -4819 Aug 16 j 04:02 | 15° $\overline{\text{B}}$ 55'44 | -17°37'51   |
| min. Earth dist. | -4827 Aug 05 j 12:48 | 7° $\overline{\text{B}}$ 33'39                  | 45.57491 AU | direct           | -4819 Nov 04 j 23:33 | 14° $\overline{\text{B}}$ 55'08 |             |
| opposition       | -4827 Aug 07 j 19:55 | 7° $\overline{\text{B}}$ 30'55                  | -17°18'15   | conjunction      | -4818 Feb 11 j 10:08 | 16° $\overline{\text{B}}$ 25'15 | -16°55'28   |
| direct           | -4827 Oct 27 j 15:14 | 6° $\overline{\text{B}}$ 29'31                  |             | minimum elong    | -4818 Feb 11 j 10:10 | 16° $\overline{\text{B}}$ 25'15 | 16°55'43    |
| conjunction      | -4826 Feb 02 j 20:06 | 8° $\overline{\text{B}}$ 01'31                  | -16°37'00   | max. Earth dist. | -4818 Feb 13 j 10:46 | 16° $\overline{\text{B}}$ 28'08 | 48.52020 AU |
| minimum elong    | -4826 Feb 02 j 20:06 | 8° $\overline{\text{B}}$ 01'31                  | 16°37'15    | retrograde       | -4818 May 25 j 20:31 | 17° $\overline{\text{B}}$ 59'12 |             |
| max. Earth dist. | -4826 Feb 05 j 07:06 | 8° $\overline{\text{B}}$ 05'06                  | 47.55623 AU | min. Earth dist. | -4818 Aug 15 j 12:52 | 16° $\overline{\text{B}}$ 59'35 | 46.66192 AU |
| retrograde       | -4826 May 17 j 09:36 | 9° $\overline{\text{B}}$ 37'41                  |             | opposition       | -4818 Aug 17 j 10:25 | 16° $\overline{\text{B}}$ 57'22 | -17°38'53   |
|                  |                      |   |             | direct           | -4818 Nov 06 j 06:05 | 15° $\overline{\text{B}}$ 56'50 |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 7

Attention, astronomical year style is used: The year -4817 in astronomical counting style is the year 4818 BCE in historical counting style.

|                  |                      |                          |             |                  |                      |                                   |             |
|------------------|----------------------|--------------------------|-------------|------------------|----------------------|-----------------------------------|-------------|
| conjunction      | -4817 Feb 12 j 17:16 | 17° $\overline{3}$ 26'43 | -16°56'23   | retrograde       | -4809 Jun 04 j 07:10 | 27° $\overline{3}$ 02'59          |             |
| minimum elong    | -4817 Feb 12 j 17:20 | 17° $\overline{3}$ 26'43 | 16°56'38    | min. Earth dist. | -4809 Aug 25 j 04:52 | 26° $\overline{3}$ 03'49          | 47.43442 AU |
| max. Earth dist. | -4817 Feb 14 j 17:25 | 17° $\overline{3}$ 29'34 | 48.62095 AU | opposition       | -4809 Aug 26 j 15:37 | 26° $\overline{3}$ 02'08          | -17°33'55   |
| retrograde       | -4817 May 27 j 00:08 | 19° $\overline{3}$ 00'25 |             | direct           | -4809 Nov 15 j 14:13 | 25° $\overline{3}$ 02'21          |             |
| min. Earth dist. | -4817 Aug 16 j 21:05 | 18° $\overline{3}$ 00'47 | 46.76124 AU |                  |                      |                                   |             |
| opposition       | -4817 Aug 18 j 16:46 | 17° $\overline{3}$ 58'39 | -17°39'36   | conjunction      | -4808 Feb 22 j 07:19 | 26° $\overline{3}$ 30'50          | -16°51'00   |
| direct           | -4817 Nov 07 j 15:38 | 16° $\overline{3}$ 58'11 |             | minimum elong    | -4808 Feb 22 j 07:25 | 26° $\overline{3}$ 30'50          | 16°51'13    |
|                  |                      |                          |             | max. Earth dist. | -4808 Feb 23 j 19:59 | 26° $\overline{3}$ 32'58          | 49.37689 AU |
| conjunction      | -4816 Feb 14 j 00:26 | 18° $\overline{3}$ 27'51 | -16°57'00   | retrograde       | -4808 Jun 04 j 14:41 | 28° $\overline{3}$ 02'45          |             |
| minimum elong    | -4816 Feb 14 j 00:28 | 18° $\overline{3}$ 27'51 | 16°57'15    | min. Earth dist. | -4808 Aug 25 j 11:12 | 27° $\overline{3}$ 03'36          | 47.49774 AU |
| max. Earth dist. | -4816 Feb 15 j 23:48 | 18° $\overline{3}$ 30'39 | 48.71871 AU | opposition       | -4808 Aug 26 j 21:05 | 27° $\overline{3}$ 01'59          | -17°31'57   |
| retrograde       | -4816 May 27 j 06:24 | 20° $\overline{3}$ 01'18 |             | direct           | -4808 Nov 15 j 18:47 | 26° $\overline{3}$ 02'14          |             |
| min. Earth dist. | -4816 Aug 17 j 03:13 | 19° $\overline{3}$ 01'46 | 46.85758 AU |                  |                      |                                   |             |
| opposition       | -4816 Aug 18 j 22:49 | 18° $\overline{3}$ 59'38 | -17°39'58   | conjunction      | -4807 Feb 22 j 14:00 | 27° $\overline{3}$ 30'34          | -16°49'02   |
| direct           | -4816 Nov 07 j 22:49 | 17° $\overline{3}$ 59'14 |             | minimum elong    | -4807 Feb 22 j 14:06 | 27° $\overline{3}$ 30'34          | 16°49'17    |
|                  |                      |                          |             | max. Earth dist. | -4807 Feb 24 j 01:47 | 27° $\overline{3}$ 32'39          | 49.43796 AU |
| conjunction      | -4815 Feb 14 j 07:22 | 19° $\overline{3}$ 28'42 | -16°57'17   | retrograde       | -4807 Jun 05 j 16:52 | 29° $\overline{3}$ 02'18          |             |
| minimum elong    | -4815 Feb 14 j 07:27 | 19° $\overline{3}$ 28'43 | 16°57'31    | min. Earth dist. | -4807 Aug 26 j 19:01 | 28° $\overline{3}$ 03'06          | 47.55602 AU |
| max. Earth dist. | -4815 Feb 16 j 05:09 | 19° $\overline{3}$ 31'24 | 48.81357 AU | opposition       | -4807 Aug 28 j 02:35 | 28° $\overline{3}$ 01'35          | -17°29'43   |
| retrograde       | -4815 May 28 j 15:55 | 21° $\overline{3}$ 01'56 |             | direct           | -4807 Nov 17 j 03:47 | 27° $\overline{3}$ 01'53          |             |
| min. Earth dist. | -4815 Aug 18 j 10:40 | 20° $\overline{3}$ 02'26 | 46.95111 AU |                  |                      |                                   |             |
| opposition       | -4815 Aug 20 j 04:58 | 20° $\overline{3}$ 00'22 | -17°40'01   | conjunction      | -4806 Feb 23 j 20:36 | 28° $\overline{3}$ 30'04          | -16°46'49   |
| direct           | -4815 Nov 09 j 02:18 | 19° $\overline{3}$ 00'04 |             | minimum elong    | -4806 Feb 23 j 20:43 | 28° $\overline{3}$ 30'04          | 16°47'02    |
|                  |                      |                          |             | max. Earth dist. | -4806 Feb 25 j 07:04 | 28° $\overline{3}$ 32'04          | 49.49445 AU |
| conjunction      | -4814 Feb 15 j 14:28 | 20° $\overline{3}$ 29'21 | -16°57'15   |                  | -4806 May 25 j 16:04 | 0° $\approx$                      |             |
| minimum elong    | -4814 Feb 15 j 14:32 | 20° $\overline{3}$ 29'21 | 16°57'30    | retrograde       | -4806 Jun 06 j 20:45 | 0° $\approx$ 01'36                |             |
| max. Earth dist. | -4814 Feb 17 j 12:14 | 20° $\overline{3}$ 32'03 | 48.90565 AU |                  | -4806 Jun 19 j 07:31 | 30° $\overline{R}$ $\overline{3}$ |             |
| retrograde       | -4814 May 29 j 21:54 | 22° $\overline{3}$ 02'21 |             | min. Earth dist. | -4806 Aug 28 j 00:27 | 29° $\overline{3}$ 02'27          | 47.60992 AU |
| min. Earth dist. | -4814 Aug 19 j 17:33 | 21° $\overline{3}$ 02'55 | 47.04161 AU | opposition       | -4806 Aug 29 j 07:42 | 29° $\overline{3}$ 00'57          | -17°27'14   |
| opposition       | -4814 Aug 21 j 10:49 | 21° $\overline{3}$ 00'55 | -17°39'44   | direct           | -4806 Nov 18 j 11:50 | 28° $\overline{3}$ 01'16          |             |
| direct           | -4814 Nov 10 j 08:55 | 20° $\overline{3}$ 00'42 |             |                  |                      |                                   |             |
|                  |                      |                          |             | conjunction      | -4805 Feb 25 j 02:56 | 29° $\overline{3}$ 29'19          | -16°44'20   |
| conjunction      | -4813 Feb 16 j 21:18 | 21° $\overline{3}$ 29'50 | -16°56'55   | minimum elong    | -4805 Feb 25 j 03:03 | 29° $\overline{3}$ 29'19          | 16°44'34    |
| minimum elong    | -4813 Feb 16 j 21:23 | 21° $\overline{3}$ 29'51 | 16°57'09    | max. Earth dist. | -4805 Feb 26 j 11:34 | 29° $\overline{3}$ 31'12          | 49.54681 AU |
| max. Earth dist. | -4813 Feb 18 j 17:08 | 21° $\overline{3}$ 32'25 | 48.99478 AU |                  | -4805 Mar 19 j 15:26 | 0° $\approx$                      |             |
| retrograde       | -4813 May 31 j 03:55 | 23° $\overline{3}$ 02'38 |             | retrograde       | -4805 Jun 08 j 05:18 | 1° $\approx$ 00'41                |             |
| min. Earth dist. | -4813 Aug 20 j 23:50 | 22° $\overline{3}$ 03'19 | 47.12902 AU | min. Earth dist. | -4805 Aug 29 j 07:28 | 0° $\approx$ 01'30                | 47.66010 AU |
| opposition       | -4813 Aug 22 j 16:42 | 22° $\overline{3}$ 01'20 | -17°39'08   | opposition       | -4805 Aug 30 j 13:00 | 0° $\approx$ 00'05                | -17°24'27   |
| direct           | -4813 Nov 11 j 14:55 | 21° $\overline{3}$ 01'13 |             |                  | -4805 Aug 30 j 14:35 | 30° $\overline{R}$ $\overline{3}$ |             |
|                  |                      |                          |             | direct           | -4805 Nov 19 j 15:20 | 29° $\overline{3}$ 00'25          |             |
| conjunction      | -4812 Feb 18 j 04:02 | 22° $\overline{3}$ 30'13 | -16°56'16   |                  | -4804 Feb 05 j 14:24 | 0° $\approx$                      |             |
| minimum elong    | -4812 Feb 18 j 04:06 | 22° $\overline{3}$ 30'13 | 16°56'30    |                  |                      |                                   |             |
| max. Earth dist. | -4812 Feb 19 j 23:24 | 22° $\overline{3}$ 32'46 | 49.08045 AU | conjunction      | -4804 Feb 26 j 09:14 | 0° $\approx$ 28'19                | -16°41'33   |
| retrograde       | -4812 May 31 j 08:42 | 24° $\overline{3}$ 02'51 |             | minimum elong    | -4804 Feb 26 j 09:22 | 0° $\approx$ 28'20                | 16°41'46    |
| min. Earth dist. | -4812 Aug 21 j 07:53 | 23° $\overline{3}$ 03'32 | 47.21262 AU | max. Earth dist. | -4804 Feb 27 j 17:48 | 0° $\approx$ 30'12                | 49.59575 AU |
| opposition       | -4812 Aug 22 j 22:37 | 23° $\overline{3}$ 01'40 | -17°38'14   | retrograde       | -4804 Jun 08 j 11:05 | 1° $\approx$ 59'31                |             |
| direct           | -4812 Nov 11 j 22:50 | 22° $\overline{3}$ 01'39 |             | opposition       | -4804 Aug 30 j 18:08 | 0° $\approx$ 58'58                | -17°21'23   |
|                  |                      |                          |             | min. Earth dist. | -4804 Aug 29 j 13:24 | 1° $\approx$ 00'21                | 47.70684 AU |
| conjunction      | -4811 Feb 18 j 10:59 | 23° $\overline{3}$ 30'31 | -16°55'20   |                  | -4804 Nov 12 j 04:42 | 30° $\overline{R}$ $\overline{3}$ |             |
| minimum elong    | -4811 Feb 18 j 11:06 | 23° $\overline{3}$ 30'32 | 16°55'35    | direct           | -4804 Nov 19 j 20:44 | 29° $\overline{3}$ 59'21          |             |
| max. Earth dist. | -4811 Feb 20 j 05:02 | 23° $\overline{3}$ 32'59 | 49.16216 AU |                  | -4804 Nov 27 j 13:36 | 0° $\approx$                      |             |
| retrograde       | -4811 Jun 01 j 14:50 | 25° $\overline{3}$ 02'59 |             |                  |                      |                                   |             |
| min. Earth dist. | -4811 Aug 22 j 13:55 | 24° $\overline{3}$ 03'47 | 47.29177 AU | conjunction      | -4803 Feb 26 j 15:29 | 1° $\approx$ 27'08                | -16°38'30   |
| opposition       | -4811 Aug 24 j 04:11 | 24° $\overline{3}$ 01'56 | -17°37'04   | minimum elong    | -4803 Feb 26 j 15:36 | 1° $\approx$ 27'08                | 16°38'43    |
| direct           | -4811 Nov 13 j 05:32 | 23° $\overline{3}$ 02'01 |             | max. Earth dist. | -4803 Feb 27 j 21:59 | 1° $\approx$ 28'53                | 49.64153 AU |
|                  |                      |                          |             | retrograde       | -4803 Jun 09 j 17:43 | 2° $\approx$ 58'10                |             |
| conjunction      | -4810 Feb 19 j 17:51 | 24° $\overline{3}$ 30'45 | -16°54'09   | opposition       | -4803 Aug 31 j 23:06 | 1° $\approx$ 57'40                | -17°18'01   |
| minimum elong    | -4810 Feb 19 j 17:56 | 24° $\overline{3}$ 30'45 | 16°54'22    | min. Earth dist. | -4803 Aug 30 j 19:00 | 1° $\approx$ 59'01                | 47.75059 AU |
| max. Earth dist. | -4810 Feb 21 j 09:39 | 24° $\overline{3}$ 33'04 | 49.23901 AU | direct           | -4803 Nov 21 j 00:38 | 0° $\approx$ 58'05                |             |
| retrograde       | -4810 Jun 02 j 23:54 | 26° $\overline{3}$ 03'03 |             |                  |                      |                                   |             |
| min. Earth dist. | -4810 Aug 23 j 21:47 | 25° $\overline{3}$ 03'51 | 47.36587 AU | conjunction      | -4802 Feb 27 j 21:47 | 2° $\approx$ 25'46                | -16°35'10   |
| opposition       | -4810 Aug 25 j 09:59 | 25° $\overline{3}$ 02'06 | -17°35'37   | minimum elong    | -4802 Feb 27 j 21:56 | 2° $\approx$ 25'47                | 16°35'23    |
| direct           | -4810 Nov 14 j 09:28 | 24° $\overline{3}$ 02'16 |             | max. Earth dist. | -4802 Mar 01 j 03:54 | 2° $\approx$ 27'30                | 49.68426 AU |
|                  |                      |                          |             | retrograde       | -4802 Jun 10 j 21:10 | 3° $\approx$ 56'39                |             |
| conjunction      | -4809 Feb 21 j 00:39 | 25° $\overline{3}$ 30'52 | -16°52'42   | min. Earth dist. | -4802 Sep 01 j 01:54 | 2° $\approx$ 57'29                | 47.79120 AU |
| minimum elong    | -4809 Feb 21 j 00:46 | 25° $\overline{3}$ 30'52 | 16°52'56    | opposition       | -4802 Sep 02 j 04:13 | 2° $\approx$ 56'14                | -17°14'22   |
| max. Earth dist. | -4809 Feb 22 j 15:58 | 25° $\overline{3}$ 33'10 | 49.31063 AU | direct           | -4802 Nov 22 j 07:59 | 1° $\approx$ 56'41                |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 8

Attention, astronomical year style is used: The year -4801 in astronomical counting style is the year 4802 BCE in historical counting style.

|                  |                      |          |             |                  |                      |          |             |
|------------------|----------------------|----------|-------------|------------------|----------------------|----------|-------------|
| conjunction      | -4801 Mar 01 j 03:50 | 3°24'17  | -16°31'33   | retrograde       | -4793 Jun 20 j 00:51 | 12°39'12 |             |
| minimum elong    | -4801 Mar 01 j 03:58 | 3°24'17  | 16°31'46    | opposition       | -4793 Sep 10 j 23:03 | 11°39'14 | -16°29'49   |
| max. Earth dist. | -4801 Mar 02 j 08:48 | 3°25'57  | 49.72402 AU | min. Earth dist. | -4793 Sep 10 j 07:49 | 11°39'57 | 47.96257 AU |
| retrograde       | -4801 Jun 12 j 00:56 | 4°55'02  |             | direct           | -4793 Dec 01 j 05:01 | 10°39'51 |             |
| min. Earth dist. | -4801 Sep 02 j 06:49 | 3°55'57  | 47.82858 AU |                  |                      |          |             |
| opposition       | -4801 Sep 03 j 09:07 | 3°54'41  | -17°10'25   | conjunction      | -4792 Mar 09 j 10:45 | 12°06'54 | -15°47'45   |
| direct           | -4801 Nov 23 j 14:51 | 2°55'11  |             | minimum elong    | -4792 Mar 09 j 10:55 | 12°06'55 | 15°47'58    |
|                  |                      |          |             | max. Earth dist. | -4792 Mar 10 j 03:01 | 12°07'50 | 49.88284 AU |
| conjunction      | -4800 Mar 01 j 09:56 | 4°22'42  | -16°27'40   | retrograde       | -4792 Jun 20 j 03:58 | 13°36'42 |             |
| minimum elong    | -4800 Mar 01 j 10:05 | 4°22'42  | 16°27'53    | opposition       | -4792 Sep 11 j 03:34 | 12°36'45 | -16°23'36   |
| max. Earth dist. | -4800 Mar 02 j 13:10 | 4°24'16  | 49.76030 AU | min. Earth dist. | -4792 Sep 10 j 14:07 | 12°37'24 | 47.95995 AU |
| retrograde       | -4800 Jun 12 j 07:55 | 5°53'21  |             | direct           | -4792 Dec 01 j 11:52 | 11°37'23 |             |
| opposition       | -4800 Sep 03 j 14:02 | 4°53'05  | -17°06'13   |                  |                      |          |             |
| min. Earth dist. | -4800 Sep 02 j 13:45 | 4°54'14  | 47.86233 AU | conjunction      | -4791 Mar 10 j 16:41 | 13°04'25 | -15°41'38   |
| direct           | -4800 Nov 23 j 19:27 | 3°53'37  |             | minimum elong    | -4791 Mar 10 j 16:52 | 13°04'25 | 15°41'50    |
|                  |                      |          |             | max. Earth dist. | -4791 Mar 11 j 07:46 | 13°05'16 | 49.87982 AU |
| conjunction      | -4799 Mar 02 j 16:15 | 5°21'04  | -16°23'31   | retrograde       | -4791 Jun 21 j 07:12 | 14°34'08 |             |
| minimum elong    | -4799 Mar 02 j 16:23 | 5°21'05  | 16°23'44    | opposition       | -4791 Sep 12 j 08:00 | 13°34'14 | -16°17'06   |
| max. Earth dist. | -4799 Mar 03 j 19:06 | 5°22'37  | 49.79267 AU | min. Earth dist. | -4791 Sep 11 j 18:30 | 13°34'52 | 47.95440 AU |
| retrograde       | -4799 Jun 13 j 14:58 | 6°51'36  |             | direct           | -4791 Dec 02 j 18:29 | 12°34'51 |             |
| opposition       | -4799 Sep 04 j 18:52 | 5°51'25  | -17°01'44   |                  |                      |          |             |
| min. Earth dist. | -4799 Sep 03 j 19:47 | 5°52'31  | 47.89163 AU | conjunction      | -4790 Mar 11 j 22:29 | 14°01'52 | -15°35'16   |
| direct           | -4799 Nov 24 j 23:37 | 4°52'00  |             | minimum elong    | -4790 Mar 11 j 22:39 | 14°01'53 | 15°35'27    |
|                  |                      |          |             | max. Earth dist. | -4790 Mar 12 j 11:55 | 14°02'38 | 49.87382 AU |
| conjunction      | -4798 Mar 03 j 22:25 | 6°19'23  | -16°19'07   |                  | -4790 Apr 27 j 04:15 | 15°      |             |
| minimum elong    | -4798 Mar 03 j 22:35 | 6°19'24  | 16°19'20    | retrograde       | -4790 Jun 22 j 13:11 | 15°31'34 |             |
| max. Earth dist. | -4798 Mar 04 j 22:37 | 6°20'47  | 49.82033 AU |                  | -4790 Aug 18 j 16:50 | 15°      |             |
| retrograde       | -4798 Jun 14 j 23:02 | 7°49'49  |             | opposition       | -4790 Sep 13 j 12:30 | 14°31'42 | -16°10'20   |
| opposition       | -4798 Sep 05 j 23:37 | 6°49'41  | -16°57'01   | min. Earth dist. | -4790 Sep 13 j 00:49 | 14°32'15 | 47.94599 AU |
| min. Earth dist. | -4798 Sep 05 j 01:38 | 6°50'44  | 47.91601 AU | direct           | -4790 Dec 03 j 23:06 | 13°32'21 |             |
| direct           | -4798 Nov 26 j 02:28 | 5°50'18  |             |                  |                      |          |             |
|                  |                      |          |             | conjunction      | -4789 Mar 13 j 04:24 | 14°59'22 | -15°28'37   |
| conjunction      | -4797 Mar 05 j 04:41 | 7°17'38  | -16°14'29   | minimum elong    | -4789 Mar 13 j 04:36 | 14°59'22 | 15°28'48    |
| minimum elong    | -4797 Mar 05 j 04:50 | 7°17'39  | 16°14'41    |                  | -4789 Mar 13 j 15:41 | 15°      |             |
| max. Earth dist. | -4797 Mar 06 j 03:52 | 7°18'58  | 49.84279 AU | max. Earth dist. | -4789 Mar 13 j 17:47 | 15°00'07 | 49.86507 AU |
| retrograde       | -4797 Jun 16 j 02:31 | 8°47'57  |             | retrograde       | -4789 Jun 23 j 19:55 | 16°29'01 |             |
| min. Earth dist. | -4797 Sep 06 j 08:50 | 7°48'49  | 47.93500 AU | opposition       | -4789 Sep 14 j 16:55 | 15°29'12 | -16°03'17   |
| opposition       | -4797 Sep 07 j 04:32 | 7°47'52  | -16°52'04   | min. Earth dist. | -4789 Sep 14 j 05:52 | 15°29'44 | 47.93454 AU |
| direct           | -4797 Nov 27 j 09:10 | 6°48'30  |             |                  | -4789 Oct 11 j 08:46 | 15°      |             |
|                  |                      |          |             | direct           | -4789 Dec 05 j 02:45 | 14°29'52 |             |
| conjunction      | -4796 Mar 05 j 10:46 | 8°15'46  | -16°09'38   |                  | -4788 Jan 28 j 01:46 | 15°      |             |
| minimum elong    | -4796 Mar 05 j 10:56 | 8°15'47  | 16°09'50    |                  |                      |          |             |
| max. Earth dist. | -4796 Mar 06 j 08:21 | 8°17'00  | 49.86005 AU | conjunction      | -4788 Mar 13 j 10:06 | 15°56'54 | -15°21'42   |
| retrograde       | -4796 Jun 16 j 05:35 | 9°45'58  |             | minimum elong    | -4788 Mar 13 j 10:17 | 15°56'55 | 15°21'53    |
| opposition       | -4796 Sep 07 j 09:15 | 8°45'56  | -16°46'53   | max. Earth dist. | -4788 Mar 13 j 21:13 | 15°57'32 | 49.85318 AU |
| min. Earth dist. | -4796 Sep 06 j 14:06 | 8°46'50  | 47.94870 AU | retrograde       | -4788 Jun 24 j 04:50 | 17°26'31 |             |
| direct           | -4796 Nov 27 j 16:51 | 7°46'34  |             | opposition       | -4788 Sep 14 j 21:22 | 16°26'46 | -15°55'58   |
|                  |                      |          |             | min. Earth dist. | -4788 Sep 14 j 11:14 | 16°27'15 | 47.91971 AU |
| conjunction      | -4795 Mar 06 j 16:53 | 9°13'46  | -16°04'32   | direct           | -4788 Dec 05 j 04:00 | 15°27'28 |             |
| minimum elong    | -4795 Mar 06 j 17:03 | 9°13'46  | 16°04'44    |                  |                      |          |             |
| max. Earth dist. | -4795 Mar 07 j 12:14 | 9°14'52  | 49.87207 AU | conjunction      | -4787 Mar 14 j 16:09 | 16°54'32 | -15°14'32   |
| retrograde       | -4795 Jun 17 j 12:25 | 10°43'51 |             | minimum elong    | -4787 Mar 14 j 16:22 | 16°54'33 | 15°14'43    |
| opposition       | -4795 Sep 08 j 13:54 | 9°43'50  | -16°41'27   | max. Earth dist. | -4787 Mar 15 j 02:36 | 16°55'08 | 49.83743 AU |
| min. Earth dist. | -4795 Sep 07 j 20:54 | 9°44'39  | 47.95750 AU | retrograde       | -4787 Jun 25 j 09:37 | 18°24'08 |             |
| direct           | -4795 Nov 28 j 21:13 | 8°44'28  |             | opposition       | -4787 Sep 16 j 01:46 | 17°24'26 | -15°48'25   |
|                  |                      |          |             | min. Earth dist. | -4787 Sep 15 j 17:51 | 17°24'48 | 47.90065 AU |
| conjunction      | -4794 Mar 07 j 23:03 | 10°11'37 | -15°59'12   | direct           | -4787 Dec 06 j 08:57 | 16°25'08 |             |
| minimum elong    | -4794 Mar 07 j 23:13 | 10°11'37 | 15°59'24    |                  |                      |          |             |
| max. Earth dist. | -4794 Mar 08 j 17:59 | 10°12'41 | 49.87952 AU | conjunction      | -4786 Mar 15 j 22:12 | 17°52'14 | -15°07'08   |
| retrograde       | -4794 Jun 18 j 17:58 | 11°41'36 |             | minimum elong    | -4786 Mar 15 j 22:23 | 17°52'15 | 15°07'18    |
| opposition       | -4794 Sep 09 j 18:30 | 10°41'36 | -16°35'46   | max. Earth dist. | -4786 Mar 16 j 07:00 | 17°52'44 | 49.81730 AU |
| min. Earth dist. | -4794 Sep 09 j 02:28 | 10°42'22 | 47.96186 AU | retrograde       | -4786 Jun 26 j 11:42 | 19°21'49 |             |
| direct           | -4794 Nov 30 j 01:51 | 9°42'14  |             | opposition       | -4786 Sep 17 j 06:12 | 18°22'09 | -15°40'37   |
|                  |                      |          |             | min. Earth dist. | -4786 Sep 16 j 22:47 | 18°22'30 | 47.87681 AU |
| conjunction      | -4793 Mar 09 j 04:48 | 11°09'19 | -15°53'36   | direct           | -4786 Dec 07 j 16:54 | 17°22'51 |             |
| minimum elong    | -4793 Mar 09 j 04:58 | 11°09'20 | 15°53'48    | evening set      | -4785 Mar 16 j 18:02 | 18°49'25 |             |
| max. Earth dist. | -4793 Mar 09 j 21:33 | 11°10'16 | 49.88293 AU |                  |                      |          |             |



## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 9

Attention, astronomical year style is used: The year -4785 in astronomical counting style is the year 4786 BCE in historical counting style.

|                  |                      |          |             |                  |                      |          |             |
|------------------|----------------------|----------|-------------|------------------|----------------------|----------|-------------|
| conjunction      | -4785 Mar 17 j 04:02 | 18°49'59 | -14°59'31   | direct           | -4779 Dec 14 j 04:50 | 24°05'29 |             |
| minimum elong    | -4785 Mar 17 j 04:14 | 18°50'00 | 14°59'41    | evening set      | -4778 Mar 18 j 01:42 | 25°24'52 |             |
| evening rise     | -4785 Mar 17 j 14:29 | 18°50'35 |             |                  |                      |          |             |
| max. Earth dist. | -4785 Mar 17 j 10:35 | 18°50'21 | 49.79201 AU | conjunction      | -4778 Mar 23 j 22:02 | 25°32'50 | -13°59'33   |
| retrograde       | -4785 Jun 27 j 16:52 | 20°19'33 |             | minimum elong    | -4778 Mar 23 j 22:16 | 25°32'51 | 13°59'42    |
| opposition       | -4785 Sep 18 j 10:50 | 19°19'54 | -15°32'35   | max. Earth dist. | -4778 Mar 23 j 18:48 | 25°32'39 | 49.48604 AU |
| min. Earth dist. | -4785 Sep 18 j 05:41 | 19°20'08 | 47.84771 AU | morning rise     | -4778 Mar 29 j 19:06 | 25°40'51 |             |
| direct           | -4785 Dec 08 j 22:35 | 18°20'35 |             | retrograde       | -4778 Jul 04 j 08:10 | 27°02'16 |             |
| evening set      | -4784 Mar 15 j 05:49 | 19°44'45 |             | opposition       | -4778 Sep 24 j 17:37 | 26°02'32 | -14°29'33   |
|                  |                      |          |             | min. Earth dist. | -4778 Sep 24 j 20:23 | 26°02'24 | 47.51865 AU |
| conjunction      | -4784 Mar 17 j 10:10 | 19°47'44 | -14°51'40   | direct           | -4778 Dec 15 j 06:21 | 25°02'55 |             |
| minimum elong    | -4784 Mar 17 j 10:21 | 19°47'44 | 14°51'49    | evening set      | -4777 Mar 18 j 21:10 | 26°21'47 |             |
| max. Earth dist. | -4784 Mar 17 j 16:01 | 19°48'04 | 49.76149 AU |                  |                      |          |             |
| morning rise     | -4784 Mar 19 j 14:57 | 19°50'44 |             | conjunction      | -4777 Mar 25 j 03:57 | 26°30'21 | -13°49'59   |
| retrograde       | -4784 Jun 27 j 22:32 | 21°17'16 |             | minimum elong    | -4777 Mar 25 j 04:09 | 26°30'21 | 13°50'08    |
| opposition       | -4784 Sep 18 j 15:12 | 20°17'37 | -15°24'19   | max. Earth dist. | -4777 Mar 25 j 00:21 | 26°30'08 | 49.42850 AU |
| min. Earth dist. | -4784 Sep 18 j 11:09 | 20°17'48 | 47.81323 AU | morning rise     | -4777 Mar 31 j 11:22 | 26°38'56 |             |
| direct           | -4784 Dec 09 j 03:05 | 19°18'16 |             | retrograde       | -4777 Jul 05 j 14:08 | 27°59'50 |             |
| evening set      | -4783 Mar 15 j 14:31 | 20°41'15 |             | opposition       | -4777 Sep 25 j 22:11 | 27°00'06 | -14°19'30   |
|                  |                      |          |             | min. Earth dist. | -4777 Sep 26 j 02:40 | 26°59'53 | 47.45814 AU |
| conjunction      | -4783 Mar 18 j 16:09 | 20°45'25 | -14°43'35   | direct           | -4777 Dec 16 j 10:36 | 26°00'27 |             |
| minimum elong    | -4783 Mar 18 j 16:22 | 20°45'26 | 14°43'46    | evening set      | -4776 Mar 18 j 17:33 | 27°18'53 |             |
| max. Earth dist. | -4783 Mar 18 j 19:22 | 20°45'36 | 49.72579 AU |                  |                      |          |             |
| morning rise     | -4783 Mar 21 j 18:19 | 20°49'38 |             | conjunction      | -4776 Mar 25 j 10:02 | 27°28'00 | -13°40'09   |
| retrograde       | -4783 Jun 29 j 06:20 | 22°14'55 |             | minimum elong    | -4776 Mar 25 j 10:16 | 27°28'01 | 13°40'18    |
| opposition       | -4783 Sep 19 j 19:39 | 21°15'15 | -15°15'50   | max. Earth dist. | -4776 Mar 25 j 05:08 | 27°27'43 | 49.36787 AU |
| min. Earth dist. | -4783 Sep 19 j 16:56 | 21°15'23 | 47.77380 AU | morning rise     | -4776 Apr 01 j 03:14 | 27°37'09 |             |
| direct           | -4783 Dec 10 j 05:46 | 20°15'52 |             | retrograde       | -4776 Jul 05 j 17:32 | 28°57'32 |             |
| evening set      | -4782 Mar 16 j 03:44 | 21°37'54 |             | opposition       | -4776 Sep 26 j 02:31 | 27°57'49 | -14°09'11   |
|                  |                      |          |             | min. Earth dist. | -4776 Sep 26 j 07:17 | 27°57'36 | 47.39421 AU |
| conjunction      | -4782 Mar 19 j 22:12 | 21°43'02 | -14°35'17   | direct           | -4776 Dec 16 j 17:12 | 26°58'10 |             |
| minimum elong    | -4782 Mar 19 j 22:25 | 21°43'03 | 14°35'26    | evening set      | -4775 Mar 19 j 14:20 | 28°16'11 |             |
| max. Earth dist. | -4782 Mar 20 j 00:33 | 21°43'10 | 49.68521 AU |                  |                      |          |             |
| morning rise     | -4782 Mar 23 j 17:12 | 21°48'12 |             | conjunction      | -4775 Mar 26 j 16:14 | 28°25'50 | -13°30'04   |
| retrograde       | -4782 Jun 30 j 10:40 | 23°12'29 |             | minimum elong    | -4775 Mar 26 j 16:27 | 28°25'51 | 13°30'13    |
| opposition       | -4782 Sep 21 j 00:04 | 22°12'48 | -15°07'06   | max. Earth dist. | -4775 Mar 26 j 09:15 | 28°25'26 | 49.30335 AU |
| min. Earth dist. | -4782 Sep 20 j 23:16 | 22°12'50 | 47.72974 AU | morning rise     | -4775 Apr 02 j 18:55 | 28°35'32 |             |
| direct           | -4782 Dec 11 j 11:31 | 21°13'21 |             | retrograde       | -4775 Jul 06 j 22:31 | 29°55'28 |             |
| evening set      | -4781 Mar 16 j 19:24 | 22°34'36 |             | opposition       | -4775 Sep 27 j 07:09 | 28°55'45 | -13°58'36   |
|                  |                      |          |             | min. Earth dist. | -4775 Sep 27 j 14:10 | 28°55'25 | 47.32613 AU |
| conjunction      | -4781 Mar 21 j 04:09 | 22°40'33 | -14°26'44   | direct           | -4775 Dec 17 j 23:03 | 27°56'05 |             |
| minimum elong    | -4781 Mar 21 j 04:21 | 22°40'34 | 14°26'54    | evening set      | -4774 Mar 20 j 11:41 | 29°13'43 |             |
| max. Earth dist. | -4781 Mar 21 j 05:05 | 22°40'37 | 49.64055 AU |                  |                      |          |             |
| morning rise     | -4781 Mar 25 j 13:27 | 22°46'32 |             | conjunction      | -4774 Mar 27 j 22:34 | 29°23'53 | -13°19'45   |
| retrograde       | -4781 Jul 01 j 13:57 | 24°09'58 |             | minimum elong    | -4774 Mar 27 j 22:48 | 29°23'54 | 13°19'53    |
| opposition       | -4781 Sep 22 j 04:21 | 23°10'16 | -14°58'07   | max. Earth dist. | -4774 Mar 27 j 15:02 | 29°23'27 | 49.23435 AU |
| min. Earth dist. | -4781 Sep 22 j 03:48 | 23°10'18 | 47.68185 AU | morning rise     | -4774 Apr 04 j 10:07 | 29°34'06 |             |
| direct           | -4781 Dec 12 j 17:56 | 22°10'46 |             |                  | -4774 Apr 24 j 02:17 | 0°       |             |
| evening set      | -4780 Mar 16 j 12:21 | 23°31'19 |             | retrograde       | -4774 Jul 08 j 04:35 | 0°53'36  |             |
|                  |                      |          |             |                  | -4774 Sep 23 j 03:57 | 30°      |             |
| conjunction      | -4780 Mar 21 j 10:00 | 23°38'00 | -14°17'56   | opposition       | -4774 Sep 28 j 11:41 | 29°53'54 | -13°47'47   |
| minimum elong    | -4780 Mar 21 j 10:13 | 23°38'01 | 14°18'05    | min. Earth dist. | -4774 Sep 28 j 19:43 | 29°53'31 | 47.25311 AU |
| max. Earth dist. | -4780 Mar 21 j 09:12 | 23°37'57 | 49.59216 AU | direct           | -4774 Dec 19 j 03:25 | 28°54'11 |             |
| morning rise     | -4780 Mar 26 j 08:17 | 23°44'42 |             |                  | -4773 Mar 12 j 20:54 | 0°       |             |
| retrograde       | -4780 Jul 01 j 18:38 | 25°07'25 |             | evening set      | -4773 Mar 21 j 09:25 | 0°11'27  |             |
| opposition       | -4780 Sep 22 j 08:51 | 24°07'41 | -14°48'51   |                  |                      |          |             |
| min. Earth dist. | -4780 Sep 22 j 10:15 | 24°07'37 | 47.63052 AU | conjunction      | -4773 Mar 29 j 04:49 | 0°22'07  | -13°09'12   |
| direct           | -4780 Dec 12 j 23:32 | 23°08'08 |             | minimum elong    | -4773 Mar 29 j 05:02 | 0°22'08  | 13°09'19    |
| evening set      | -4779 Mar 17 j 06:39 | 24°28'04 |             | max. Earth dist. | -4773 Mar 28 j 18:31 | 0°21'32  | 49.16027 AU |
|                  |                      |          |             | morning rise     | -4773 Apr 06 j 01:03 | 0°32'50  |             |
| conjunction      | -4779 Mar 22 j 16:06 | 24°35'24 | -14°08'52   | retrograde       | -4773 Jul 09 j 13:04 | 1°51'55  |             |
| minimum elong    | -4779 Mar 22 j 16:18 | 24°35'25 | 14°09'02    | opposition       | -4773 Sep 29 j 16:21 | 0°52'12  | -13°36'44   |
| max. Earth dist. | -4779 Mar 22 j 15:04 | 24°35'21 | 49.54058 AU | min. Earth dist. | -4773 Sep 30 j 01:52 | 0°51'45  | 47.17491 AU |
| morning rise     | -4779 Mar 28 j 02:06 | 24°42'47 |             |                  | -4773 Nov 23 j 19:56 | 30°      |             |
| retrograde       | -4779 Jul 02 j 23:33 | 26°04'49 |             | direct           | -4773 Dec 20 j 05:37 | 29°52'26 |             |
| opposition       | -4779 Sep 23 j 13:08 | 25°05'05 | -14°39'20   |                  | -4772 Jan 15 j 17:02 | 0°       |             |
| min. Earth dist. | -4779 Sep 23 j 15:05 | 25°04'59 | 47.57600 AU | evening set      | -4772 Mar 21 j 07:24 | 1°09'21  |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 10

Attention, astronomical year style is used: The year -4772 in astronomical counting style is the year 4773 BCE in historical counting style.

|                  |                      |                       |             |                  |                      |                        |             |
|------------------|----------------------|-----------------------|-------------|------------------|----------------------|------------------------|-------------|
| conjunction      | -4772 Mar 29 j 11:14 | 1° <del>1</del> 20'30 | -12°58'25   | direct           | -4766 Dec 26 j 18:49 | 6° <del>1</del> 42'12  |             |
| minimum elong    | -4772 Mar 29 j 11:28 | 1° <del>1</del> 20'31 | 12°58'33    | evening set      | -4765 Mar 27 j 01:17 | 7° <del>1</del> 57'06  |             |
| max. Earth dist. | -4772 Mar 28 j 23:50 | 1° <del>1</del> 19'51 | 49.08075 AU | max. Earth dist. | -4765 Apr 05 j 11:13 | 8° <del>1</del> 10'03  | 48.40283 AU |
| morning rise     | -4772 Apr 06 j 15:49 | 1° <del>1</del> 31'42 |             |                  |                      |                        |             |
| retrograde       | -4772 Jul 09 j 18:43 | 2° <del>1</del> 50'22 |             | conjunction      | -4765 Apr 06 j 08:33 | 8° <del>1</del> 11'17  | -11°36'09   |
| opposition       | -4772 Sep 29 j 21:08 | 1° <del>1</del> 50'38 | -13°25'28   | minimum elong    | -4765 Apr 06 j 08:46 | 8° <del>1</del> 11'17  | 11°36'16    |
| min. Earth dist. | -4772 Sep 30 j 08:44 | 1° <del>1</del> 50'04 | 47.09115 AU | morning rise     | -4765 Apr 16 j 16:39 | 8° <del>1</del> 25'30  |             |
| direct           | -4772 Dec 20 j 11:12 | 0° <del>1</del> 50'48 |             | retrograde       | -4765 Jul 17 j 08:38 | 9° <del>1</del> 41'47  |             |
| evening set      | -4771 Mar 22 j 05:57 | 2° <del>1</del> 07'22 |             | opposition       | -4765 Oct 07 j 06:37 | 8° <del>1</del> 41'38  | -11°59'18   |
|                  |                      |                       |             | min. Earth dist. | -4765 Oct 08 j 02:12 | 8° <del>1</del> 40'41  | 46.38999 AU |
| conjunction      | -4771 Mar 30 j 17:43 | 2° <del>1</del> 18'59 | -12°47'25   | direct           | -4765 Dec 28 j 02:16 | 7° <del>1</del> 41'10  |             |
| minimum elong    | -4771 Mar 30 j 17:56 | 2° <del>1</del> 19'00 | 12°47'32    | evening set      | -4764 Mar 27 j 01:19 | 8° <del>1</del> 55'53  |             |
| max. Earth dist. | -4771 Mar 30 j 04:30 | 2° <del>1</del> 18'14 | 48.99597 AU |                  |                      |                        |             |
| morning rise     | -4771 Apr 08 j 06:14 | 2° <del>1</del> 30'39 |             | conjunction      | -4764 Apr 06 j 15:18 | 9° <del>1</del> 10'27  | -11°23'21   |
| retrograde       | -4771 Jul 10 j 22:59 | 3° <del>1</del> 48'55 |             | minimum elong    | -4764 Apr 06 j 15:30 | 9° <del>1</del> 10'28  | 11°23'28    |
| opposition       | -4771 Oct 01 j 01:41 | 2° <del>1</del> 49'08 | -13°13'56   | max. Earth dist. | -4764 Apr 05 j 17:48 | 9° <del>1</del> 09'12  | 48.29347 AU |
| min. Earth dist. | -4771 Oct 01 j 13:53 | 2° <del>1</del> 48'32 | 47.00227 AU | morning rise     | -4764 Apr 17 j 05:52 | 9° <del>1</del> 25'04  |             |
| direct           | -4771 Dec 21 j 18:08 | 1° <del>1</del> 49'13 |             | retrograde       | -4764 Jul 17 j 13:20 | 10° <del>1</del> 41'07 |             |
| evening set      | -4770 Mar 23 j 04:35 | 3° <del>1</del> 05'28 |             | opposition       | -4764 Oct 07 j 11:37 | 9° <del>1</del> 40'55  | -11°45'54   |
| max. Earth dist. | -4770 Mar 31 j 08:51 | 3° <del>1</del> 16'40 | 48.90617 AU | min. Earth dist. | -4764 Oct 08 j 07:44 | 9° <del>1</del> 39'57  | 46.27735 AU |
|                  |                      |                       |             | direct           | -4764 Dec 28 j 09:00 | 8° <del>1</del> 40'22  |             |
| conjunction      | -4770 Apr 01 j 00:09 | 3° <del>1</del> 17'32 | -12°36'10   | evening set      | -4763 Mar 28 j 01:51 | 9° <del>1</del> 54'54  |             |
| minimum elong    | -4770 Apr 01 j 00:22 | 3° <del>1</del> 17'33 | 12°36'18    |                  |                      |                        |             |
| morning rise     | -4770 Apr 09 j 20:33 | 3° <del>1</del> 29'38 |             | conjunction      | -4763 Apr 07 j 22:08 | 10° <del>1</del> 09'52 | -11°10'18   |
| retrograde       | -4770 Jul 12 j 03:20 | 4° <del>1</del> 47'32 |             | minimum elong    | -4763 Apr 07 j 22:22 | 10° <del>1</del> 09'53 | 11°10'23    |
| opposition       | -4770 Oct 02 j 06:31 | 3° <del>1</del> 47'42 | -13°02'10   | max. Earth dist. | -4763 Apr 06 j 22:13 | 10° <del>1</del> 08'29 | 48.18068 AU |
| min. Earth dist. | -4770 Oct 02 j 21:00 | 3° <del>1</del> 47'00 | 46.90878 AU | morning rise     | -4763 Apr 18 j 19:18 | 10° <del>1</del> 24'53 |             |
| direct           | -4770 Dec 23 j 00:35 | 2° <del>1</del> 47'41 |             | retrograde       | -4763 Jul 18 j 21:53 | 11° <del>1</del> 40'42 |             |
| evening set      | -4769 Mar 24 j 03:21 | 4° <del>1</del> 03'38 |             | opposition       | -4763 Oct 08 j 16:39 | 10° <del>1</del> 40'28 | -11°32'13   |
|                  |                      |                       |             | min. Earth dist. | -4763 Oct 09 j 14:13 | 10° <del>1</del> 39'25 | 46.16111 AU |
| conjunction      | -4769 Apr 02 j 06:29 | 4° <del>1</del> 16'08 | -12°24'41   | direct           | -4763 Dec 29 j 11:48 | 9° <del>1</del> 39'50  |             |
| minimum elong    | -4769 Apr 02 j 06:42 | 4° <del>1</del> 16'08 | 12°24'48    | evening set      | -4762 Mar 29 j 02:31 | 10° <del>1</del> 54'12 |             |
| max. Earth dist. | -4769 Apr 01 j 14:48 | 4° <del>1</del> 15'14 | 48.81212 AU | max. Earth dist. | -4762 Apr 08 j 04:31 | 11° <del>1</del> 08'07 | 48.06379 AU |
| morning rise     | -4769 Apr 11 j 10:17 | 4° <del>1</del> 28'41 |             |                  |                      |                        |             |
| retrograde       | -4769 Jul 13 j 07:37 | 5° <del>1</del> 46'13 |             | conjunction      | -4762 Apr 09 j 05:14 | 11° <del>1</del> 09'33 | -10°56'59   |
| opposition       | -4769 Oct 03 j 11:13 | 4° <del>1</del> 46'18 | -12°50'09   | minimum elong    | -4762 Apr 09 j 05:27 | 11° <del>1</del> 09'34 | 10°57'04    |
| min. Earth dist. | -4769 Oct 04 j 02:13 | 4° <del>1</del> 45'35 | 46.81121 AU | morning rise     | -4762 Apr 20 j 08:34 | 11° <del>1</del> 24'57 |             |
| direct           | -4769 Dec 24 j 07:03 | 3° <del>1</del> 46'12 |             | retrograde       | -4762 Jul 20 j 05:24 | 12° <del>1</del> 40'34 |             |
| evening set      | -4768 Mar 24 j 02:30 | 5° <del>1</del> 01'51 |             | opposition       | -4762 Oct 09 j 21:58 | 11° <del>1</del> 40'16 | -11°18'17   |
|                  |                      |                       |             | min. Earth dist. | -4762 Oct 10 j 21:19 | 11° <del>1</del> 39'08 | 46.04040 AU |
| conjunction      | -4768 Apr 02 j 12:52 | 5° <del>1</del> 14'46 | -12°12'57   | direct           | -4762 Dec 30 j 16:34 | 10° <del>1</del> 39'33 |             |
| minimum elong    | -4768 Apr 02 j 13:05 | 5° <del>1</del> 14'47 | 12°13'04    | evening set      | -4761 Mar 30 j 03:26 | 11° <del>1</del> 53'45 |             |
| max. Earth dist. | -4768 Apr 01 j 18:51 | 5° <del>1</del> 13'44 | 48.71433 AU | max. Earth dist. | -4761 Apr 09 j 09:45 | 12° <del>1</del> 07'58 | 47.94232 AU |
| morning rise     | -4768 Apr 12 j 00:06 | 5° <del>1</del> 27'46 |             |                  |                      |                        |             |
| retrograde       | -4768 Jul 13 j 16:42 | 6° <del>1</del> 44'57 |             | conjunction      | -4761 Apr 10 j 12:12 | 12° <del>1</del> 09'30 | -10°43'24   |
| opposition       | -4768 Oct 03 j 15:54 | 5° <del>1</del> 44'58 | -12°37'51   | minimum elong    | -4761 Apr 10 j 12:25 | 12° <del>1</del> 09'31 | 10°43'30    |
| min. Earth dist. | -4768 Oct 04 j 08:04 | 5° <del>1</del> 44'11 | 46.71028 AU | morning rise     | -4761 Apr 21 j 21:38 | 12° <del>1</del> 25'17 |             |
| direct           | -4768 Dec 24 j 08:51 | 4° <del>1</del> 44'46 |             | retrograde       | -4761 Jul 21 j 12:33 | 13° <del>1</del> 40'40 |             |
| evening set      | -4767 Mar 25 j 01:52 | 6° <del>1</del> 00'08 |             | opposition       | -4761 Oct 11 j 03:17 | 12° <del>1</del> 40'19 | -11°04'05   |
|                  |                      |                       |             | min. Earth dist. | -4761 Oct 12 j 03:17 | 12° <del>1</del> 39'09 | 45.91484 AU |
| conjunction      | -4767 Apr 03 j 19:30 | 6° <del>1</del> 13'29 | -12°00'57   | direct           | -4761 Dec 31 j 22:34 | 11° <del>1</del> 39'29 |             |
| minimum elong    | -4767 Apr 03 j 19:44 | 6° <del>1</del> 13'30 | 12°01'04    | evening set      | -4760 Mar 30 j 04:43 | 12° <del>1</del> 53'34 |             |
| max. Earth dist. | -4767 Apr 03 j 01:05 | 6° <del>1</del> 12'26 | 48.61327 AU |                  |                      |                        |             |
| morning rise     | -4767 Apr 13 j 13:50 | 6° <del>1</del> 26'54 |             | conjunction      | -4760 Apr 10 j 19:28 | 13° <del>1</del> 09'41 | -10°29'36   |
| retrograde       | -4767 Jul 15 j 00:13 | 7° <del>1</del> 43'45 |             | minimum elong    | -4760 Apr 10 j 19:41 | 13° <del>1</del> 09'42 | 10°29'40    |
| opposition       | -4767 Oct 04 j 20:49 | 6° <del>1</del> 43'43 | -12°25'17   | max. Earth dist. | -4760 Apr 09 j 14:49 | 13° <del>1</del> 08'01 | 47.81571 AU |
| min. Earth dist. | -4767 Oct 05 j 14:30 | 6° <del>1</del> 42'52 | 46.60622 AU | morning rise     | -4760 Apr 22 j 10:57 | 13° <del>1</del> 25'50 |             |
| direct           | -4767 Dec 25 j 12:39 | 5° <del>1</del> 43'25 |             | retrograde       | -4760 Jul 21 j 18:08 | 14° <del>1</del> 41'02 |             |
| evening set      | -4766 Mar 26 j 01:30 | 6° <del>1</del> 58'32 |             | opposition       | -4760 Oct 11 j 08:43 | 13° <del>1</del> 40'35 | -10°49'38   |
| max. Earth dist. | -4766 Apr 04 j 06:15 | 7° <del>1</del> 11'11 | 48.50943 AU | min. Earth dist. | -4760 Oct 12 j 11:12 | 13° <del>1</del> 39'18 | 45.78419 AU |
|                  |                      |                       |             | direct           | -4759 Jan 01 j 05:24 | 12° <del>1</del> 39'39 |             |
| conjunction      | -4766 Apr 05 j 01:57 | 7° <del>1</del> 12'18 | -11°48'41   | evening set      | -4759 Mar 31 j 06:17 | 13° <del>1</del> 53'35 |             |
| minimum elong    | -4766 Apr 05 j 02:10 | 7° <del>1</del> 12'19 | 11°48'48    | max. Earth dist. | -4759 Apr 10 j 21:30 | 14° <del>1</del> 08'21 | 47.68415 AU |
| morning rise     | -4766 Apr 15 j 03:10 | 7° <del>1</del> 26'07 |             |                  |                      |                        |             |
| retrograde       | -4766 Jul 16 j 04:53 | 8° <del>1</del> 42'41 |             | conjunction      | -4759 Apr 12 j 02:57 | 14° <del>1</del> 10'04 | -10°15'32   |
| opposition       | -4766 Oct 06 j 01:36 | 7° <del>1</del> 42'35 | -12°12'26   | minimum elong    | -4759 Apr 12 j 03:10 | 14° <del>1</del> 10'05 | 10°15'38    |
| min. Earth dist. | -4766 Oct 06 j 19:19 | 7° <del>1</del> 41'44 | 46.49946 AU | morning rise     | -4759 Apr 24 j 00:04 | 14° <del>1</del> 26'35 |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 11

Attention, astronomical year style is used: The year -4759 in astronomical counting style is the year 4760 BCE in historical counting style.

|                  |                      |                      |             |                  |                      |                      |             |
|------------------|----------------------|----------------------|-------------|------------------|----------------------|----------------------|-------------|
| retrograde       | -4759 Jul 22 j 22:35 | 15° $\text{H}$ 41'36 |             | conjunction      | -4752 Apr 19 j 08:20 | 21° $\text{H}$ 19'11 | -8°29'43    |
| opposition       | -4759 Oct 12 j 14:12 | 14° $\text{H}$ 41'04 | -10°34'55   | minimum elong    | -4752 Apr 19 j 08:32 | 21° $\text{H}$ 19'12 | 8°29'46     |
| min. Earth dist. | -4759 Oct 13 j 17:21 | 14° $\text{H}$ 39'44 | 45.64858 AU | morning rise     | -4752 May 02 j 17:56 | 21° $\text{H}$ 38'09 |             |
| direct           | -4758 Jan 02 j 13:10 | 13° $\text{H}$ 39'59 |             | retrograde       | -4752 Jul 30 j 02:05 | 22° $\text{H}$ 52'22 |             |
| evening set      | -4758 Apr 01 j 08:00 | 14° $\text{H}$ 53'48 |             | opposition       | -4752 Oct 19 j 07:16 | 21° $\text{H}$ 51'08 | -8°44'03    |
| max. Earth dist. | -4758 Apr 12 j 02:11 | 15° $\text{H}$ 08'46 | 47.54785 AU | min. Earth dist. | -4752 Oct 20 j 18:14 | 21° $\text{H}$ 49'24 | 44.60332 AU |
|                  |                      |                      |             | direct           | -4751 Jan 09 j 05:12 | 20° $\text{H}$ 49'06 |             |
| conjunction      | -4758 Apr 13 j 10:11 | 15° $\text{H}$ 10'38 | -10°01'14   | evening set      | -4751 Apr 07 j 02:31 | 22° $\text{H}$ 02'38 |             |
| minimum elong    | -4758 Apr 13 j 10:24 | 15° $\text{H}$ 10'39 | 10°01'18    | max. Earth dist. | -4751 Apr 19 j 00:49 | 22° $\text{H}$ 19'32 | 46.50258 AU |
| morning rise     | -4758 Apr 25 j 13:06 | 15° $\text{H}$ 27'31 |             |                  |                      |                      |             |
| retrograde       | -4758 Jul 24 j 07:05 | 16° $\text{H}$ 42'21 |             | conjunction      | -4751 Apr 20 j 16:34 | 22° $\text{H}$ 21'54 | -8°13'29    |
| opposition       | -4758 Oct 13 j 19:46 | 15° $\text{H}$ 41'43 | -10°19'57   | minimum elong    | -4751 Apr 20 j 16:44 | 22° $\text{H}$ 21'55 | 8°13'32     |
| min. Earth dist. | -4758 Oct 15 j 00:25 | 15° $\text{H}$ 40'19 | 45.50865 AU | morning rise     | -4751 May 04 j 06:53 | 22° $\text{H}$ 41'11 |             |
| direct           | -4757 Jan 03 j 17:00 | 14° $\text{H}$ 40'30 |             | retrograde       | -4751 Jul 31 j 12:18 | 23° $\text{H}$ 55'23 |             |
| evening set      | -4757 Apr 02 j 09:49 | 15° $\text{H}$ 54'12 |             | opposition       | -4751 Oct 20 j 13:37 | 22° $\text{H}$ 54'04 | -8°27'03    |
| max. Earth dist. | -4757 Apr 13 j 09:11 | 16° $\text{H}$ 09'30 | 47.40738 AU | min. Earth dist. | -4751 Oct 22 j 01:08 | 22° $\text{H}$ 52'18 | 44.44259 AU |
|                  |                      |                      |             | direct           | -4750 Jan 10 j 10:38 | 21° $\text{H}$ 51'54 |             |
| conjunction      | -4757 Apr 14 j 17:42 | 16° $\text{H}$ 11'24 | -9°46'40    | evening set      | -4750 Apr 08 j 06:20 | 23° $\text{H}$ 05'30 |             |
| minimum elong    | -4757 Apr 14 j 17:55 | 16° $\text{H}$ 11'25 | 9°46'45     | max. Earth dist. | -4750 Apr 20 j 07:29 | 23° $\text{H}$ 22'38 | 46.34122 AU |
| morning rise     | -4757 Apr 27 j 01:59 | 16° $\text{H}$ 28'39 |             |                  |                      |                      |             |
| retrograde       | -4757 Jul 25 j 15:12 | 17° $\text{H}$ 43'19 |             | conjunction      | -4750 Apr 22 j 00:55 | 23° $\text{H}$ 25'06 | -7°56'59    |
| opposition       | -4757 Oct 15 j 01:24 | 16° $\text{H}$ 42'34 | -10°04'42   | minimum elong    | -4750 Apr 22 j 01:07 | 23° $\text{H}$ 25'06 | 7°57'01     |
| min. Earth dist. | -4757 Oct 16 j 07:37 | 16° $\text{H}$ 41'05 | 45.36482 AU | morning rise     | -4750 May 05 j 19:41 | 23° $\text{H}$ 44'43 |             |
| direct           | -4756 Jan 04 j 21:39 | 15° $\text{H}$ 41'12 |             | retrograde       | -4750 Aug 01 j 20:44 | 24° $\text{H}$ 58'54 |             |
| evening set      | -4756 Apr 02 j 11:59 | 16° $\text{H}$ 54'49 |             | opposition       | -4750 Oct 21 j 20:17 | 23° $\text{H}$ 57'29 | -8°09'45    |
| max. Earth dist. | -4756 Apr 13 j 15:06 | 17° $\text{H}$ 10'23 | 47.26348 AU | min. Earth dist. | -4750 Oct 23 j 10:07 | 23° $\text{H}$ 55'35 | 44.27780 AU |
|                  |                      |                      |             | direct           | -4749 Jan 11 j 17:58 | 22° $\text{H}$ 55'11 |             |
| conjunction      | -4756 Apr 15 j 01:10 | 17° $\text{H}$ 12'22 | -9°31'50    | evening set      | -4749 Apr 09 j 10:32 | 24° $\text{H}$ 08'51 |             |
| minimum elong    | -4756 Apr 15 j 01:22 | 17° $\text{H}$ 12'23 | 9°31'53     | max. Earth dist. | -4749 Apr 21 j 15:20 | 24° $\text{H}$ 26'14 | 46.17563 AU |
| morning rise     | -4756 Apr 27 j 14:52 | 17° $\text{H}$ 29'58 |             |                  |                      |                      |             |
| retrograde       | -4756 Jul 25 j 22:58 | 18° $\text{H}$ 44'30 |             | conjunction      | -4749 Apr 23 j 09:35 | 24° $\text{H}$ 28'46 | -7°40'12    |
| opposition       | -4756 Oct 15 j 07:04 | 17° $\text{H}$ 43'38 | -9°49'09    | minimum elong    | -4749 Apr 23 j 09:45 | 24° $\text{H}$ 28'46 | 7°40'14     |
| min. Earth dist. | -4756 Oct 16 j 13:30 | 17° $\text{H}$ 42'08 | 45.21778 AU | morning rise     | -4749 May 07 j 08:35 | 24° $\text{H}$ 48'42 |             |
| direct           | -4755 Jan 05 j 03:09 | 16° $\text{H}$ 42'07 |             | retrograde       | -4749 Aug 03 j 01:58 | 26° $\text{H}$ 02'53 |             |
| evening set      | -4755 Apr 03 j 14:22 | 17° $\text{H}$ 55'41 |             | opposition       | -4749 Oct 23 j 02:56 | 25° $\text{H}$ 01'21 | -7°52'10    |
| max. Earth dist. | -4755 Apr 14 j 21:09 | 18° $\text{H}$ 11'29 | 47.11637 AU | min. Earth dist. | -4749 Oct 24 j 17:18 | 24° $\text{H}$ 59'26 | 44.10842 AU |
|                  |                      |                      |             | direct           | -4748 Jan 13 j 03:23 | 23° $\text{H}$ 58'53 |             |
| conjunction      | -4755 Apr 16 j 08:49 | 18° $\text{H}$ 13'35 | -9°16'43    | evening set      | -4748 Apr 09 j 15:10 | 25° $\text{H}$ 12'37 |             |
| minimum elong    | -4755 Apr 16 j 09:01 | 18° $\text{H}$ 13'36 | 9°16'47     | max. Earth dist. | -4748 Apr 21 j 21:21 | 25° $\text{H}$ 30'08 | 46.00522 AU |
| morning rise     | -4755 Apr 29 j 03:46 | 18° $\text{H}$ 31'32 |             |                  |                      |                      |             |
| retrograde       | -4755 Jul 27 j 03:50 | 19° $\text{H}$ 45'56 |             | conjunction      | -4748 Apr 23 j 18:21 | 25° $\text{H}$ 32'51 | -7°23'10    |
| opposition       | -4755 Oct 16 j 12:57 | 18° $\text{H}$ 44'58 | -9°33'20    | minimum elong    | -4748 Apr 23 j 18:32 | 25° $\text{H}$ 32'52 | 7°23'12     |
| min. Earth dist. | -4755 Oct 17 j 21:18 | 18° $\text{H}$ 43'22 | 45.06789 AU | morning rise     | -4748 May 07 j 21:43 | 25° $\text{H}$ 53'07 |             |
| direct           | -4754 Jan 06 j 11:35 | 17° $\text{H}$ 43'19 |             | retrograde       | -4748 Aug 03 j 09:53 | 27° $\text{H}$ 07'18 |             |
| evening set      | -4754 Apr 04 j 16:58 | 18° $\text{H}$ 56'51 |             | opposition       | -4748 Oct 23 j 09:55 | 26° $\text{H}$ 05'38 | -7°34'18    |
| max. Earth dist. | -4754 Apr 16 j 04:51 | 19° $\text{H}$ 12'59 | 46.96674 AU | min. Earth dist. | -4748 Oct 25 j 02:14 | 26° $\text{H}$ 03'36 | 43.93421 AU |
|                  |                      |                      |             | direct           | -4747 Jan 13 j 10:10 | 25° $\text{H}$ 03'00 |             |
| conjunction      | -4754 Apr 17 j 16:36 | 19° $\text{H}$ 15'05 | -9°01'20    | evening set      | -4747 Apr 10 j 20:02 | 26° $\text{H}$ 16'47 |             |
| minimum elong    | -4754 Apr 17 j 16:48 | 19° $\text{H}$ 15'06 | 9°01'23     | max. Earth dist. | -4747 Apr 23 j 05:46 | 26° $\text{H}$ 34'34 | 45.82985 AU |
| morning rise     | -4754 Apr 30 j 16:28 | 19° $\text{H}$ 33'22 |             |                  |                      |                      |             |
| retrograde       | -4754 Jul 28 j 08:32 | 20° $\text{H}$ 47'41 |             | conjunction      | -4747 Apr 25 j 03:28 | 26° $\text{H}$ 37'20 | -7°05'51    |
| opposition       | -4754 Oct 17 j 18:55 | 19° $\text{H}$ 46'38 | -9°17'12    | minimum elong    | -4747 Apr 25 j 03:38 | 26° $\text{H}$ 37'21 | 7°05'52     |
| min. Earth dist. | -4754 Oct 19 j 03:22 | 19° $\text{H}$ 45'01 | 44.91553 AU | morning rise     | -4747 May 09 j 10:40 | 26° $\text{H}$ 57'54 |             |
| direct           | -4753 Jan 07 j 19:58 | 18° $\text{H}$ 44'51 |             | retrograde       | -4747 Aug 04 j 18:41 | 28° $\text{H}$ 12'06 |             |
| evening set      | -4753 Apr 05 j 19:45 | 19° $\text{H}$ 58'21 |             | opposition       | -4747 Oct 24 j 17:00 | 27° $\text{H}$ 10'17 | -7°16'09    |
| max. Earth dist. | -4753 Apr 17 j 10:20 | 20° $\text{H}$ 14'41 | 46.81470 AU | min. Earth dist. | -4747 Oct 26 j 10:51 | 27° $\text{H}$ 08'10 | 43.75512 AU |
|                  |                      |                      |             | direct           | -4746 Jan 14 j 16:23 | 26° $\text{H}$ 07'27 |             |
| conjunction      | -4753 Apr 19 j 00:12 | 20° $\text{H}$ 16'56 | -8°45'40    | evening set      | -4746 Apr 12 j 01:18 | 27° $\text{H}$ 21'19 |             |
| minimum elong    | -4753 Apr 19 j 00:24 | 20° $\text{H}$ 16'57 | 8°45'44     | max. Earth dist. | -4746 Apr 24 j 12:47 | 27° $\text{H}$ 39'16 | 45.64996 AU |
| morning rise     | -4753 May 02 j 05:11 | 20° $\text{H}$ 35'33 |             |                  |                      |                      |             |
| retrograde       | -4753 Jul 29 j 17:33 | 21° $\text{H}$ 49'49 |             | conjunction      | -4746 Apr 26 j 12:33 | 27° $\text{H}$ 42'10 | -6°48'16    |
| opposition       | -4753 Oct 19 j 01:05 | 20° $\text{H}$ 48'40 | -9°00'47    | minimum elong    | -4746 Apr 26 j 12:43 | 27° $\text{H}$ 42'10 | 6°48'18     |
| min. Earth dist. | -4753 Oct 20 j 10:46 | 20° $\text{H}$ 47'00 | 44.76083 AU | morning rise     | -4746 May 10 j 23:45 | 28° $\text{H}$ 03'02 |             |
| direct           | -4752 Jan 08 j 23:50 | 19° $\text{H}$ 46'45 |             | retrograde       | -4746 Aug 06 j 05:34 | 29° $\text{H}$ 17'15 |             |
| evening set      | -4752 Apr 05 j 22:52 | 21° $\text{H}$ 00'16 |             | opposition       | -4746 Oct 26 j 00:11 | 28° $\text{H}$ 15'16 | -6°57'42    |
| max. Earth dist. | -4752 Apr 17 j 18:12 | 21° $\text{H}$ 16'55 | 46.66010 AU | min. Earth dist. | -4746 Oct 27 j 18:41 | 28° $\text{H}$ 13'07 | 43.57181 AU |
|                  |                      |                      |             | direct           | -4745 Jan 15 j 21:26 | 27° $\text{H}$ 12'13 |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 12

Attention, astronomical year style is used: The year -4745 in astronomical counting style is the year 4746 BCE in historical counting style.

|                  |                      |                        |             |                  |                      |                        |             |
|------------------|----------------------|------------------------|-------------|------------------|----------------------|------------------------|-------------|
| evening set      | -4745 Apr 13 j 06:35 | 28° $\mathbf{K}$ 26'11 |             | conjunction      | -4739 May 04 j 09:07 | 5° $\mathbf{P}$ 27'03  | -4°37'13    |
| max. Earth dist. | -4745 Apr 25 j 20:25 | 28° $\mathbf{K}$ 44'21 | 45.46584 AU | minimum elong    | -4739 May 04 j 09:14 | 5° $\mathbf{P}$ 27'04  | 4°37'12     |
|                  |                      |                        |             | morning rise     | -4739 May 19 j 18:48 | 5° $\mathbf{P}$ 49'55  |             |
| conjunction      | -4745 Apr 27 j 21:42 | 28° $\mathbf{K}$ 47'20 | -6°30'25    | retrograde       | -4739 Aug 13 j 22:22 | 7° $\mathbf{P}$ 04'55  |             |
| minimum elong    | -4745 Apr 27 j 21:52 | 28° $\mathbf{K}$ 47'21 | 6°30'25     | opposition       | -4739 Nov 02 j 07:46 | 6° $\mathbf{P}$ 01'44  | -4°40'01    |
| morning rise     | -4745 May 12 j 12:35 | 29° $\mathbf{K}$ 08'30 |             | min. Earth dist. | -4739 Nov 04 j 09:16 | 5° $\mathbf{P}$ 59'10  | 42.20585 AU |
|                  | -4745 Jun 23 j 05:56 | 0° $\mathbf{Y}$        |             | direct           | -4738 Jan 23 j 08:55 | 4° $\mathbf{P}$ 57'12  |             |
| retrograde       | -4745 Aug 07 j 13:55 | 0° $\mathbf{Y}$ 22'45  |             | evening set      | -4738 Apr 20 j 06:45 | 6° $\mathbf{P}$ 12'34  |             |
|                  | -4745 Sep 22 j 02:57 | 30° $\mathbf{K}$ 8     |             | max. Earth dist. | -4738 May 03 j 10:13 | 6° $\mathbf{P}$ 32'07  | 44.09817 AU |
| opposition       | -4745 Oct 27 j 07:39 | 29° $\mathbf{K}$ 20'35 | -6°38'58    |                  |                      |                        |             |
| min. Earth dist. | -4745 Oct 29 j 04:14 | 29° $\mathbf{K}$ 18'19 | 43.38461 AU | conjunction      | -4738 May 05 j 19:48 | 6° $\mathbf{P}$ 35'43  | -4°17'19    |
| direct           | -4744 Jan 17 j 06:26 | 28° $\mathbf{K}$ 17'19 |             | minimum elong    | -4738 May 05 j 19:55 | 6° $\mathbf{P}$ 35'44  | 4°17'18     |
| evening set      | -4744 Apr 13 j 12:23 | 29° $\mathbf{K}$ 31'24 |             | morning rise     | -4738 May 21 j 08:06 | 6° $\mathbf{P}$ 58'51  |             |
| max. Earth dist. | -4744 Apr 26 j 05:25 | 29° $\mathbf{K}$ 49'48 | 45.27823 AU | retrograde       | -4738 Aug 15 j 07:52 | 8° $\mathbf{P}$ 14'05  |             |
|                  |                      |                        |             | opposition       | -4738 Nov 03 j 16:42 | 7° $\mathbf{P}$ 10'44  | -4°19'06    |
| conjunction      | -4744 Apr 28 j 07:12 | 29° $\mathbf{K}$ 52'51 | -6°12'16    | min. Earth dist. | -4738 Nov 05 j 20:13 | 7° $\mathbf{P}$ 08'03  | 41.99997 AU |
| minimum elong    | -4744 Apr 28 j 07:21 | 29° $\mathbf{K}$ 52'51 | 6°12'18     | direct           | -4737 Jan 24 j 18:09 | 6° $\mathbf{P}$ 06'00  |             |
|                  | -4744 May 03 j 04:39 | 0° $\mathbf{Y}$        |             | evening set      | -4737 Apr 21 j 15:06 | 7° $\mathbf{P}$ 21'40  |             |
| morning rise     | -4744 May 13 j 01:36 | 0° $\mathbf{Y}$ 14'18  |             | max. Earth dist. | -4737 May 04 j 20:53 | 7° $\mathbf{P}$ 41'27  | 43.89120 AU |
| retrograde       | -4744 Aug 07 j 20:39 | 1° $\mathbf{P}$ 28'36  |             |                  |                      |                        |             |
| opposition       | -4744 Oct 27 j 15:02 | 0° $\mathbf{P}$ 26'14  | -6°19'55    | conjunction      | -4737 May 07 j 06:47 | 7° $\mathbf{P}$ 45'06  | -3°57'08    |
| min. Earth dist. | -4744 Oct 29 j 11:52 | 0° $\mathbf{P}$ 23'58  | 43.19416 AU | minimum elong    | -4737 May 07 j 06:53 | 7° $\mathbf{P}$ 45'06  | 3°57'07     |
|                  | -4744 Nov 18 j 19:10 | 30° $\mathbf{K}$ 8     |             | morning rise     | -4737 May 22 j 21:17 | 8° $\mathbf{P}$ 08'29  |             |
| direct           | -4743 Jan 17 j 17:10 | 29° $\mathbf{K}$ 22'45 |             | retrograde       | -4737 Aug 16 j 17:01 | 9° $\mathbf{P}$ 23'58  |             |
|                  | -4743 Mar 17 j 17:44 | 0° $\mathbf{Y}$        |             | opposition       | -4737 Nov 05 j 01:52 | 8° $\mathbf{P}$ 20'27  | -3°57'53    |
| evening set      | -4743 Apr 14 j 18:37 | 0° $\mathbf{Y}$ 36'58  |             | min. Earth dist. | -4737 Nov 07 j 06:24 | 8° $\mathbf{P}$ 17'42  | 41.79002 AU |
| max. Earth dist. | -4743 Apr 27 j 12:44 | 0° $\mathbf{Y}$ 55'32  | 45.08754 AU | direct           | -4736 Jan 26 j 03:46 | 7° $\mathbf{P}$ 15'29  |             |
|                  |                      |                        |             | evening set      | -4736 Apr 22 j 00:17 | 8° $\mathbf{P}$ 31'29  |             |
| conjunction      | -4743 Apr 29 j 16:47 | 0° $\mathbf{Y}$ 58'43  | -5°53'51    | max. Earth dist. | -4736 May 05 j 05:42 | 8° $\mathbf{P}$ 51'21  | 43.68004 AU |
| minimum elong    | -4743 Apr 29 j 16:56 | 0° $\mathbf{Y}$ 58'43  | 5°53'51     |                  |                      |                        |             |
| morning rise     | -4743 May 14 j 14:41 | 1° $\mathbf{P}$ 20'27  |             | conjunction      | -4736 May 07 j 18:03 | 8° $\mathbf{P}$ 55'10  | -3°36'41    |
| retrograde       | -4743 Aug 09 j 05:27 | 2° $\mathbf{P}$ 34'50  |             | minimum elong    | -4736 May 07 j 18:09 | 8° $\mathbf{P}$ 55'10  | 3°36'39     |
| opposition       | -4743 Oct 28 j 22:49 | 1° $\mathbf{P}$ 32'18  | -6°00'34    | morning rise     | -4736 May 23 j 10:53 | 9° $\mathbf{P}$ 18'49  |             |
| min. Earth dist. | -4743 Oct 30 j 21:14 | 1° $\mathbf{P}$ 29'56  | 43.00109 AU | retrograde       | -4736 Aug 17 j 05:45 | 10° $\mathbf{P}$ 34'34 |             |
| direct           | -4742 Jan 19 j 00:56 | 0° $\mathbf{Y}$ 28'35  |             | opposition       | -4736 Nov 05 j 11:09 | 9° $\mathbf{P}$ 30'50  | -3°36'21    |
| evening set      | -4742 Apr 16 j 00:53 | 1° $\mathbf{P}$ 42'57  |             | min. Earth dist. | -4736 Nov 07 j 16:50 | 9° $\mathbf{P}$ 28'02  | 41.57592 AU |
| max. Earth dist. | -4742 Apr 28 j 22:26 | 2° $\mathbf{P}$ 01'47  | 44.89432 AU | direct           | -4735 Jan 26 j 10:21 | 8° $\mathbf{P}$ 25'38  |             |
|                  |                      |                        |             | evening set      | -4735 Apr 23 j 09:50 | 9° $\mathbf{P}$ 41'58  |             |
| conjunction      | -4742 May 01 j 02:30 | 2° $\mathbf{P}$ 04'59  | -5°35'08    | max. Earth dist. | -4735 May 06 j 16:09 | 10° $\mathbf{P}$ 02'00 | 43.46450 AU |
| minimum elong    | -4742 May 01 j 02:39 | 2° $\mathbf{P}$ 05'00  | 5°35'08     |                  |                      |                        |             |
| morning rise     | -4742 May 16 j 03:27 | 2° $\mathbf{P}$ 27'01  |             | conjunction      | -4735 May 09 j 05:46 | 10° $\mathbf{P}$ 05'55 | -3°15'56    |
| retrograde       | -4742 Aug 10 j 13:25 | 3° $\mathbf{P}$ 41'31  |             | minimum elong    | -4735 May 09 j 05:52 | 10° $\mathbf{P}$ 05'55 | 3°15'54     |
| opposition       | -4742 Oct 30 j 06:49 | 2° $\mathbf{P}$ 38'48  | -5°40'54    | morning rise     | -4735 May 25 j 00:24 | 10° $\mathbf{P}$ 29'49 |             |
| min. Earth dist. | -4742 Nov 01 j 05:53 | 2° $\mathbf{P}$ 36'23  | 42.80562 AU | retrograde       | -4735 Aug 18 j 17:56 | 11° $\mathbf{P}$ 45'50 |             |
| direct           | -4741 Jan 20 j 09:28 | 1° $\mathbf{P}$ 34'52  |             | opposition       | -4735 Nov 06 j 20:56 | 10° $\mathbf{P}$ 41'53 | -3°14'30    |
| evening set      | -4741 Apr 17 j 07:45 | 2° $\mathbf{P}$ 49'26  |             | min. Earth dist. | -4735 Nov 09 j 04:35 | 10° $\mathbf{P}$ 38'58 | 41.35759 AU |
| max. Earth dist. | -4741 Apr 30 j 06:43 | 3° $\mathbf{P}$ 08'26  | 44.69902 AU | direct           | -4734 Jan 27 j 19:37 | 9° $\mathbf{P}$ 36'25  |             |
|                  |                      |                        |             | evening set      | -4734 Apr 24 j 19:41 | 10° $\mathbf{P}$ 53'07 |             |
| conjunction      | -4741 May 02 j 12:22 | 3° $\mathbf{P}$ 11'45  | -5°16'07    | max. Earth dist. | -4734 May 08 j 02:52 | 11° $\mathbf{P}$ 13'18 | 43.24503 AU |
| minimum elong    | -4741 May 02 j 12:31 | 3° $\mathbf{P}$ 11'46  | 5°16'07     |                  |                      |                        |             |
| morning rise     | -4741 May 17 j 16:32 | 3° $\mathbf{P}$ 34'04  |             | conjunction      | -4734 May 10 j 17:26 | 11° $\mathbf{P}$ 17'18 | -2°54'53    |
| retrograde       | -4741 Aug 12 j 01:26 | 4° $\mathbf{P}$ 48'42  |             | minimum elong    | -4734 May 10 j 17:31 | 11° $\mathbf{P}$ 17'18 | 2°54'52     |
| opposition       | -4741 Oct 31 j 14:49 | 3° $\mathbf{P}$ 45'49  | -5°20'56    | morning rise     | -4734 May 26 j 13:54 | 11° $\mathbf{P}$ 41'26 |             |
| min. Earth dist. | -4741 Nov 02 j 14:22 | 3° $\mathbf{P}$ 43'23  | 42.60820 AU | retrograde       | -4734 Aug 20 j 06:24 | 12° $\mathbf{P}$ 57'44 |             |
| direct           | -4740 Jan 21 j 15:09 | 2° $\mathbf{P}$ 41'41  |             | opposition       | -4734 Nov 08 j 06:46 | 11° $\mathbf{P}$ 53'34 | -2°52'21    |
| evening set      | -4740 Apr 17 j 14:55 | 3° $\mathbf{P}$ 56'29  |             | min. Earth dist. | -4734 Nov 10 j 14:42 | 11° $\mathbf{P}$ 50'37 | 41.13556 AU |
| max. Earth dist. | -4740 Apr 30 j 15:55 | 4° $\mathbf{P}$ 15'42  | 44.50146 AU | direct           | -4733 Jan 29 j 07:15 | 10° $\mathbf{P}$ 47'49 |             |
|                  |                      |                        |             | evening set      | -4733 Apr 26 j 06:06 | 12° $\mathbf{P}$ 04'54 |             |
| conjunction      | -4740 May 02 j 22:38 | 4° $\mathbf{P}$ 19'05  | -4°56'49    | max. Earth dist. | -4733 May 09 j 12:43 | 12° $\mathbf{P}$ 25'10 | 43.02192 AU |
| minimum elong    | -4740 May 02 j 22:46 | 4° $\mathbf{P}$ 19'05  | 4°56'49     |                  |                      |                        |             |
| morning rise     | -4740 May 18 j 05:37 | 4° $\mathbf{P}$ 41'40  |             | conjunction      | -4733 May 12 j 05:29 | 12° $\mathbf{P}$ 29'19 | -2°33'34    |
| retrograde       | -4740 Aug 12 j 13:09 | 5° $\mathbf{P}$ 56'29  |             | minimum elong    | -4733 May 12 j 05:34 | 12° $\mathbf{P}$ 29'20 | 2°33'33     |
| opposition       | -4740 Oct 31 j 23:17 | 4° $\mathbf{P}$ 53'26  | -5°00'38    | morning rise     | -4733 May 28 j 03:32 | 12° $\mathbf{P}$ 53'41 |             |
| min. Earth dist. | -4740 Nov 03 j 00:40 | 4° $\mathbf{P}$ 50'54  | 42.40840 AU | retrograde       | -4733 Aug 21 j 17:59 | 14° $\mathbf{P}$ 10'18 |             |
| direct           | -4739 Jan 21 j 22:39 | 3° $\mathbf{P}$ 49'06  |             | opposition       | -4733 Nov 09 j 16:51 | 13° $\mathbf{P}$ 05'52 | -2°29'53    |
| evening set      | -4739 Apr 18 j 22:34 | 5° $\mathbf{P}$ 04'11  |             | min. Earth dist. | -4733 Nov 12 j 02:51 | 13° $\mathbf{P}$ 02'49 | 40.91039 AU |
| max. Earth dist. | -4739 May 02 j 01:47 | 5° $\mathbf{P}$ 23'36  | 44.30142 AU | direct           | -4732 Jan 30 j 18:26 | 11° $\mathbf{P}$ 59'49 |             |

Attention, astronomical year style is used: The year -4732 in astronomical counting style is the year 4733 BCE in historical counting style.

|                  |                      |                      |             |                  |                      |                      |             |
|------------------|----------------------|----------------------|-------------|------------------|----------------------|----------------------|-------------|
| max. Earth dist. | -4732 May 10 j 01:01 | 13° $\Upsilon$ 37'46 | 42.79592 AU | morning rise     | -4726 Jun 06 j 04:32 | 21° $\Upsilon$ 39'08 |             |
|                  |                      |                      |             | retrograde       | -4726 Aug 30 j 11:59 | 22° $\Upsilon$ 58'49 |             |
| conjunction      | -4732 May 12 j 17:53 | 13° $\Upsilon$ 41'58 | -2°11'58    | opposition       | -4726 Nov 18 j 00:30 | 21° $\Upsilon$ 52'38 | 0°16'05     |
| minimum elong    | -4732 May 12 j 17:57 | 13° $\Upsilon$ 41'58 | 2°11'54     | min. Earth dist. | -4726 Nov 20 j 15:58 | 21° $\Upsilon$ 49'10 | 39.28457 AU |
| morning rise     | -4732 May 28 j 17:12 | 14° $\Upsilon$ 06'33 |             | direct           | -4725 Feb 08 j 01:45 | 20° $\Upsilon$ 44'30 |             |
| retrograde       | -4732 Aug 22 j 02:54 | 15° $\Upsilon$ 23'30 |             | evening set      | -4725 May 06 j 11:59 | 22° $\Upsilon$ 05'48 |             |
| opposition       | -4732 Nov 10 j 03:15 | 14° $\Upsilon$ 18'49 | -2°07'06    | max. Earth dist. | -4725 May 19 j 17:05 | 22° $\Upsilon$ 26'58 | 41.16559 AU |
| min. Earth dist. | -4732 Nov 12 j 13:34 | 14° $\Upsilon$ 15'43 | 40.68257 AU |                  |                      |                      |             |
| direct           | -4731 Jan 31 j 06:58 | 13° $\Upsilon$ 12'28 |             | conjunction      | -4725 May 22 j 16:37 | 22° $\Upsilon$ 31'48 | 0°27'17     |
| evening set      | -4731 Apr 28 j 04:19 | 14° $\Upsilon$ 30'23 |             | minimum elong    | -4725 May 22 j 16:36 | 22° $\Upsilon$ 31'48 | 0°27'21     |
| max. Earth dist. | -4731 May 11 j 11:34 | 14° $\Upsilon$ 50'54 | 42.56755 AU | morning rise     | -4725 Jun 07 j 18:50 | 22° $\Upsilon$ 57'43 |             |
|                  |                      |                      |             | retrograde       | -4725 Sep 01 j 00:34 | 24° $\Upsilon$ 17'58 |             |
| conjunction      | -4731 May 14 j 06:21 | 14° $\Upsilon$ 55'15 | -1°50'04    | opposition       | -4725 Nov 19 j 13:19 | 23° $\Upsilon$ 11'32 | 0°41'00     |
| minimum elong    | -4731 May 14 j 06:24 | 14° $\Upsilon$ 55'15 | 1°50'01     | min. Earth dist. | -4725 Nov 22 j 05:59 | 23° $\Upsilon$ 07'59 | 39.04495 AU |
| morning rise     | -4731 May 30 j 06:56 | 15° $\Upsilon$ 20'03 |             | direct           | -4724 Feb 09 j 14:31 | 22° $\Upsilon$ 03'05 |             |
| retrograde       | -4731 Aug 23 j 14:57 | 16° $\Upsilon$ 37'22 |             | evening set      | -4724 May 07 j 03:44 | 23° $\Upsilon$ 25'04 |             |
| opposition       | -4731 Nov 11 j 13:54 | 15° $\Upsilon$ 32'26 | -1°44'01    | max. Earth dist. | -4724 May 20 j 06:31 | 23° $\Upsilon$ 46'14 | 40.92442 AU |
| min. Earth dist. | -4731 Nov 14 j 01:09 | 15° $\Upsilon$ 29'16 | 40.45291 AU |                  |                      |                      |             |
| direct           | -4730 Feb 01 j 16:16 | 14° $\Upsilon$ 25'46 |             | conjunction      | -4724 May 23 j 07:43 | 23° $\Upsilon$ 51'13 | 0°51'07     |
| evening set      | -4730 Apr 29 j 16:04 | 15° $\Upsilon$ 44'09 |             | minimum elong    | -4724 May 23 j 07:42 | 23° $\Upsilon$ 51'13 | 0°51'13     |
| max. Earth dist. | -4730 May 13 j 00:13 | 16° $\Upsilon$ 04'51 | 42.33740 AU | morning rise     | -4724 Jun 08 j 09:30 | 24° $\Upsilon$ 17'16 |             |
|                  |                      |                      |             | retrograde       | -4724 Sep 01 j 17:18 | 25° $\Upsilon$ 38'09 |             |
| conjunction      | -4730 May 15 j 19:15 | 16° $\Upsilon$ 09'14 | -1°27'53    | opposition       | -4724 Nov 20 j 02:34 | 24° $\Upsilon$ 31'25 | 1°06'13     |
| minimum elong    | -4730 May 15 j 19:18 | 16° $\Upsilon$ 09'14 | 1°27'49     | min. Earth dist. | -4724 Nov 22 j 19:47 | 24° $\Upsilon$ 27'50 | 38.80243 AU |
| morning rise     | -4730 May 31 j 20:34 | 16° $\Upsilon$ 34'14 |             | direct           | -4723 Feb 10 j 01:43 | 23° $\Upsilon$ 22'37 |             |
| retrograde       | -4730 Aug 25 j 03:57 | 17° $\Upsilon$ 51'57 |             | evening set      | -4723 May 08 j 20:03 | 24° $\Upsilon$ 45'20 |             |
| opposition       | -4730 Nov 13 j 01:01 | 16° $\Upsilon$ 46'45 | -1°20'37    | max. Earth dist. | -4723 May 21 j 20:39 | 25° $\Upsilon$ 06'31 | 40.68000 AU |
| min. Earth dist. | -4730 Nov 15 j 13:24 | 16° $\Upsilon$ 43'31 | 40.22179 AU |                  |                      |                      |             |
| direct           | -4729 Feb 03 j 01:11 | 15° $\Upsilon$ 39'48 |             | conjunction      | -4723 May 24 j 23:18 | 25° $\Upsilon$ 11'38 | 1°15'13     |
| evening set      | -4729 May 01 j 04:20 | 16° $\Upsilon$ 58'40 |             | minimum elong    | -4723 May 24 j 23:16 | 25° $\Upsilon$ 11'38 | 1°15'18     |
| max. Earth dist. | -4729 May 14 j 12:23 | 17° $\Upsilon$ 19'29 | 42.10612 AU | morning rise     | -4723 Jun 10 j 00:03 | 25° $\Upsilon$ 37'48 |             |
|                  |                      |                      |             | retrograde       | -4723 Sep 03 j 10:04 | 26° $\Upsilon$ 59'19 |             |
| conjunction      | -4729 May 17 j 08:14 | 17° $\Upsilon$ 23'57 | -1°05'25    | opposition       | -4723 Nov 21 j 16:21 | 25° $\Upsilon$ 52'18 | 1°31'43     |
| minimum elong    | -4729 May 17 j 08:16 | 17° $\Upsilon$ 23'57 | 1°05'21     | min. Earth dist. | -4723 Nov 24 j 11:36 | 25° $\Upsilon$ 48'34 | 38.55689 AU |
| morning rise     | -4729 Jun 02 j 10:22 | 17° $\Upsilon$ 49'10 |             | direct           | -4722 Feb 11 j 13:45 | 24° $\Upsilon$ 43'09 |             |
| retrograde       | -4729 Aug 26 j 18:43 | 19° $\Upsilon$ 07'18 |             | evening set      | -4722 May 10 j 13:01 | 26° $\Upsilon$ 06'37 |             |
| opposition       | -4729 Nov 14 j 12:18 | 18° $\Upsilon</$     |             |                  |                      |                      |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 14

Attention, astronomical year style is used: The year -4719 in astronomical counting style is the year 4720 BCE in historical counting style.

|                  |                      |                        |             |                  |                      |                         |             |
|------------------|----------------------|------------------------|-------------|------------------|----------------------|-------------------------|-------------|
| direct           | -4719 Feb 15 j 12:44 | 28° $\Upsilon$ 50'38   |             | morning rise     | -4713 Jun 24 j 08:10 | 10° $\mathcal{B}$ 02'54 |             |
|                  | -4719 May 04 j 12:22 | 0° $\mathcal{B}$       |             | retrograde       | -4713 Sep 18 j 21:34 | 11° $\mathcal{B}$ 33'19 |             |
| evening set      | -4719 May 14 j 20:15 | 0° $\mathcal{B}$ 16'36 |             | opposition       | -4713 Dec 06 j 10:34 | 10° $\mathcal{B}$ 23'03 | 6°00'13     |
| max. Earth dist. | -4719 May 27 j 10:42 | 0° $\mathcal{B}$ 37'43 | 39.67853 AU | min. Earth dist. | -4713 Dec 09 j 12:03 | 10° $\mathcal{B}$ 18'44 | 36.04068 AU |
|                  |                      |                        |             | direct           | -4712 Feb 26 j 06:26 | 9° $\mathcal{B}$ 10'06  |             |
| conjunction      | -4719 May 30 j 17:14 | 0° $\mathcal{B}$ 43'16 | 2°54'06     | evening set      | -4712 May 26 j 10:31 | 10° $\mathcal{B}$ 43'53 |             |
| minimum elong    | -4719 May 30 j 17:08 | 0° $\mathcal{B}$ 43'16 | 2°54'12     | max. Earth dist. | -4712 Jun 06 j 20:34 | 11° $\mathcal{B}$ 04'13 | 37.90283 AU |
| morning rise     | -4719 Jun 15 j 11:36 | 1° $\mathcal{B}$ 09'48 |             |                  |                      |                         |             |
| retrograde       | -4719 Sep 09 j 01:54 | 2° $\mathcal{B}$ 34'14 |             | conjunction      | -4712 Jun 10 j 06:55 | 11° $\mathcal{B}$ 10'24 | 5°54'41     |
| opposition       | -4719 Nov 27 j 03:10 | 1° $\mathcal{B}$ 25'54 | 3°16'26     | minimum elong    | -4712 Jun 10 j 06:42 | 11° $\mathcal{B}$ 10'23 | 5°54'50     |
| min. Earth dist. | -4719 Nov 30 j 01:00 | 1° $\mathcal{B}$ 21'56 | 37.55447 AU | morning rise     | -4712 Jun 25 j 00:22 | 11° $\mathcal{B}$ 36'45 |             |
| direct           | -4718 Feb 17 j 02:20 | 0° $\mathcal{B}$ 15'13 |             | retrograde       | -4712 Sep 19 j 18:50 | 13° $\mathcal{B}$ 08'21 |             |
| evening set      | -4718 May 16 j 15:57 | 1° $\mathcal{B}$ 42'07 |             | opposition       | -4712 Dec 07 j 05:46 | 11° $\mathcal{B}$ 57'43 | 6°28'07     |
| max. Earth dist. | -4718 May 29 j 03:59 | 2° $\mathcal{B}$ 03'14 | 39.42498 AU | min. Earth dist. | -4712 Dec 10 j 07:32 | 11° $\mathcal{B}$ 53'22 | 35.78660 AU |
|                  |                      |                        |             | direct           | -4711 Feb 26 j 23:43 | 10° $\mathcal{B}$ 44'21 |             |
| conjunction      | -4718 Jun 01 j 10:41 | 2° $\mathcal{B}$ 08'50 | 3°19'22     | evening set      | -4711 May 28 j 13:07 | 12° $\mathcal{B}$ 19'29 |             |
| minimum elong    | -4718 Jun 01 j 10:34 | 2° $\mathcal{B}$ 08'50 | 3°19'29     | max. Earth dist. | -4711 Jun 08 j 17:14 | 12° $\mathcal{B}$ 39'33 | 37.64630 AU |
| morning rise     | -4718 Jun 17 j 02:27 | 2° $\mathcal{B}$ 35'24 |             |                  |                      |                         |             |
| retrograde       | -4718 Sep 10 j 19:15 | 4° $\mathcal{B}$ 00'42 |             | conjunction      | -4711 Jun 12 j 04:29 | 12° $\mathcal{B}$ 45'52 | 6°21'03     |
| opposition       | -4718 Nov 28 j 19:10 | 2° $\mathcal{B}$ 52'02 | 3°43'14     | minimum elong    | -4711 Jun 12 j 04:15 | 12° $\mathcal{B}$ 45'51 | 6°21'13     |
| min. Earth dist. | -4718 Dec 01 j 18:00 | 2° $\mathcal{B}$ 47'59 | 37.30181 AU | morning rise     | -4711 Jun 26 j 16:37 | 13° $\mathcal{B}$ 12'03 |             |
| direct           | -4717 Feb 18 j 16:42 | 1° $\mathcal{B}$ 40'58 |             | retrograde       | -4711 Sep 21 j 17:01 | 14° $\mathcal{B}$ 44'54 |             |
| evening set      | -4717 May 18 j 12:43 | 3° $\mathcal{B}$ 08'51 |             | opposition       | -4711 Dec 09 j 01:52 | 13° $\mathcal{B}$ 33'53 | 6°56'08     |
| max. Earth dist. | -4717 May 30 j 21:42 | 3° $\mathcal{B}$ 29'56 | 39.17152 AU | min. Earth dist. | -4711 Dec 12 j 05:11 | 13° $\mathcal{B}$ 29'25 | 35.53132 AU |
|                  |                      |                        |             | direct           | -4710 Feb 28 j 17:30 | 12° $\mathcal{B}$ 20'05 |             |
| conjunction      | -4717 Jun 03 j 04:38 | 3° $\mathcal{B}$ 35'36 | 3°44'51     | evening set      | -4710 May 30 j 16:41 | 13° $\mathcal{B}$ 56'36 |             |
| minimum elong    | -4717 Jun 03 j 04:31 | 3° $\mathcal{B}$ 35'35 | 3°44'58     | max. Earth dist. | -4710 Jun 10 j 15:00 | 14° $\mathcal{B}$ 16'26 | 37.38874 AU |
| morning rise     | -4717 Jun 18 j 17:43 | 4° $\mathcal{B}$ 02'11 |             |                  |                      |                         |             |
| retrograde       | -4717 Sep 12 j 15:42 | 5° $\mathcal{B}$ 28'23 |             | conjunction      | -4710 Jun 14 j 02:21 | 14° $\mathcal{B}$ 22'48 | 6°47'29     |
| opposition       | -4717 Nov 30 j 11:22 | 4° $\mathcal{B}$ 19'23 | 4°10'15     | minimum elong    | -4710 Jun 14 j 02:06 | 14° $\mathcal{B}$ 22'47 | 6°47'38     |
| min. Earth dist. | -4717 Dec 03 j 09:44 | 4° $\mathcal{B}$ 15'22 | 37.04950 AU | morning rise     | -4710 Jun 28 j 08:55 | 14° $\mathcal{B}$ 48'48 |             |
| direct           | -4716 Feb 20 j 07:56 | 3° $\mathcal{B}$ 07'56 |             |                  | -4710 Jul 04 j 16:07 | 15° $\mathcal{B}$       |             |
| evening set      | -4716 May 19 j 10:23 | 4° $\mathcal{B}$ 36'54 |             | retrograde       | -4710 Sep 23 j 16:37 | 16° $\mathcal{B}$ 22'57 |             |
| max. Earth dist. | -4716 May 31 j 15:06 | 4° $\mathcal{B}$ 57'52 | 38.91823 AU | opposition       | -4710 Dec 10 j 22:23 | 15° $\mathcal{B}$ 11'31 | 7°24'15     |
|                  |                      |                        |             | min. Earth dist. | -4710 Dec 14 j 01:17 | 15° $\mathcal{B}$ 07'04 | 35.27521 AU |
| conjunction      | -4716 Jun 03 j 23:14 | 5° $\mathcal{B}$ 03'40 | 4°10'30     |                  | -4710 Dec 19 j 00:07 | 15° $\mathcal{B}$       |             |
| minimum elong    | -4716 Jun 03 j 23:05 | 5° $\mathcal{B}$ 03'39 | 4°10'37     | direct           | -4709 Mar 02 j 13:43 | 13° $\mathcal{B}$ 57'15 |             |
| morning rise     | -4716 Jun 19 j 09:08 | 5° $\mathcal{B}$ 30'15 |             |                  | -4709 May 12 j 09:41 | 15° $\mathcal{B}$       |             |
| retrograde       | -4716 Sep 13 j 11:31 | 6° $\mathcal{B}$ 57'25 |             | evening set      | -4709 Jun 01 j 21:25 | 15° $\mathcal{B}$ 35'14 |             |
| opposition       | -4716 Dec 01 j 04:22 | 5° $\mathcal{B}$ 48'06 | 4°37'28     | max. Earth dist. | -4709 Jun 12 j 12:08 | 15° $\mathcal{B}$ 54'41 | 37.13034 AU |
| min. Earth dist. | -4716 Dec 04 j 04:13 | 5° $\mathcal{B}$ 43'58 | 36.79755 AU |                  |                      |                         |             |
| direct           | -4715 Feb 20 j 23:37 | 4° $\mathcal{B}$ 36'17 |             | conjunction      | -4709 Jun 16 j 00:58 | 16° $\mathcal{B}$ 01'13 | 7°13'59     |
| evening set      | -4715 May 21 j 08:52 | 6° $\mathcal{B}$ 06'23 |             | minimum elong    | -4709 Jun 16 j 00:43 | 16° $\mathcal{B}$ 01'11 | 7°14'09     |
| max. Earth dist. | -4715 Jun 02 j 10:43 | 6° $\mathcal{B}$ 27'18 | 38.66517 AU | morning rise     | -4709 Jun 30 j 01:28 | 16° $\mathcal{B}$ 27'00 |             |
|                  |                      |                        |             | retrograde       | -4709 Sep 25 j 16:17 | 18° $\mathcal{B}$ 02'29 |             |
| conjunction      | -4715 Jun 05 j 18:17 | 6° $\mathcal{B}$ 33'07 | 4°36'20     | opposition       | -4709 Dec 12 j 19:28 | 16° $\mathcal{B}$ 50'38 | 7°52'27     |
| minimum elong    | -4715 Jun 05 j 18:08 | 6° $\mathcal{B}$ 33'06 | 4°36'28     | min. Earth dist. | -4709 Dec 15 j 23:56 | 16° $\mathcal{B}$ 46'03 | 35.01880 AU |
| morning rise     | -4715 Jun 21 j 00:35 | 6° $\mathcal{B}$ 59'40 |             | direct           | -4708 Mar 03 j 10:10 | 15° $\mathcal{B}$ 35'54 |             |
| retrograde       | -4715 Sep 15 j 06:06 | 8° $\mathcal{B}$ 27'52 |             | evening set      | -4708 Jun 03 j 03:17 | 17° $\mathcal{B}$ 15'23 |             |
| opposition       | -4715 Dec 02 j 21:49 | 7° $\mathcal{B}$ 18'15 | 5°04'53     | max. Earth dist. | -4708 Jun 13 j 12:08 | 17° $\mathcal{B}$ 34'33 | 36.87183 AU |
| min. Earth dist. | -4715 Dec 05 j 21:23 | 7° $\mathcal{B}$ 14'06 | 36.54570 AU |                  |                      |                         |             |
| direct           | -4714 Feb 22 j 18:58 | 6° $\mathcal{B}$ 06'04 |             | conjunction      | -4708 Jun 17 j 00:17 | 17° $\mathcal{B}$ 41'06 | 7°40'31     |
| evening set      | -4714 May 23 j 08:26 | 7° $\mathcal{B}$ 37'20 |             | minimum elong    | -4708 Jun 17 j 00:01 | 17° $\mathcal{B}$ 41'05 | 7°40'40     |
| max. Earth dist. | -4714 Jun 04 j 04:34 | 7° $\mathcal{B}$ 58'02 | 38.41192 AU | morning rise     | -4708 Jun 30 j 18:05 | 18° $\mathcal{B}$ 06'38 |             |
|                  |                      |                        |             | retrograde       | -4708 Sep 26 j 15:31 | 19° $\mathcal{B}$ 43'30 |             |
| conjunction      | -4714 Jun 07 j 13:50 | 8° $\mathcal{B}$ 04'02 | 5°02'19     | opposition       | -4708 Dec 13 j 17:20 | 18° $\mathcal{B}$ 31'14 | 8°20'40     |
| minimum elong    | -4714 Jun 07 j 13:40 | 8° $\mathcal{B}$ 04'01 | 5°02'27     | min. Earth dist. | -4708 Dec 16 j 21:33 | 18° $\mathcal{B}$ 26'38 | 34.76264 AU |
| morning rise     | -4714 Jun 22 j 16:22 | 8° $\mathcal{B}$ 30'33 |             | direct           | -4707 Mar 05 j 10:22 | 17° $\mathcal{B}$ 16'00 |             |
| retrograde       | -4714 Sep 17 j 02:21 | 9° $\mathcal{B}$ 59'50 |             | evening set      | -4707 Jun 05 j 10:13 | 18° $\mathcal{B}$ 57'04 |             |
| opposition       | -4714 Dec 04 j 15:48 | 8° $\mathcal{B}$ 49'53 | 5°32'28     | max. Earth dist. | -4707 Jun 15 j 10:30 | 19° $\mathcal{B}$ 15'47 | 36.61390 AU |
| min. Earth dist. | -4714 Dec 07 j 16:25 | 8° $\mathcal{B}$ 45'39 | 36.29368 AU |                  |                      |                         |             |
| direct           | -4713 Feb 24 j 12:19 | 7° $\mathcal{B}$ 37'19 |             | conjunction      | -4707 Jun 18 j 23:55 | 19° $\mathcal{B}$ 22'29 | 8°07'02     |
| evening set      | -4713 May 25 j 08:48 | 9° $\mathcal{B}$ 09'50 |             | minimum elong    | -4707 Jun 18 j 23:37 | 19° $\mathcal{B}$ 22'28 | 8°07'13     |
| max. Earth dist. | -4713 Jun 06 j 01:04 | 9° $\mathcal{B}$ 30'26 | 38.15794 AU | morning rise     | -4707 Jul 02 j 10:43 | 19° $\mathcal{B}$ 47'43 |             |
|                  |                      |                        |             | retrograde       | -4707 Sep 28 j 16:35 | 21° $\mathcal{B}$ 26'03 |             |
| conjunction      | -4713 Jun 09 j 10:06 | 9° $\mathcal{B}$ 36'28 | 5°28'26     | opposition       | -4707 Dec 15 j 15:48 | 20° $\mathcal{B}$ 13'21 | 8°48'52     |
| minimum elong    | -4713 Jun 09 j 09:55 | 9° $\mathcal{B}$ 36'27 | 5°28'36     | min. Earth dist. | -4707 Dec 18 j 20:21 | 20° $\mathcal{B}$ 08'42 | 34.50773 AU |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 15

Attention, astronomical year style is used: The year -4706 in astronomical counting style is the year 4707 BCE in historical counting style.

|                  |                      |                        |             |                  |                      |                         |             |
|------------------|----------------------|------------------------|-------------|------------------|----------------------|-------------------------|-------------|
| direct           | -4706 Mar 07 j 08:04 | 18° <del>8</del> 57'38 |             | max. Earth dist. | -4700 Jun 28 j 05:26 | 1° <del>II</del> 53'46  | 34.87296 AU |
| evening set      | -4706 Jun 07 j 18:12 | 20° <del>8</del> 40'21 |             |                  |                      |                         |             |
| max. Earth dist. | -4706 Jun 17 j 11:47 | 20° <del>8</del> 58'43 | 36.35736 AU | conjunction      | -4700 Jul 01 j 17:12 | 2° <del>II</del> 00'49  | 11°08'43    |
|                  |                      |                        |             | minimum elong    | -4700 Jul 01 j 16:49 | 2° <del>II</del> 00'48  | 11°08'55    |
| conjunction      | -4706 Jun 21 j 00:21 | 21° <del>8</del> 05'25 | 8°33'30     | morning rise     | -4700 Jul 12 j 09:23 | 2° <del>II</del> 22'21  |             |
| minimum elong    | -4706 Jun 21 j 00:02 | 21° <del>8</del> 05'24 | 8°33'40     | retrograde       | -4700 Oct 11 j 17:04 | 4° <del>II</del> 13'35  |             |
| morning rise     | -4706 Jul 04 j 03:19 | 21° <del>8</del> 30'17 |             | opposition       | -4700 Dec 28 j 02:35 | 2° <del>II</del> 58'03  | 12°02'11    |
| retrograde       | -4706 Sep 30 j 15:05 | 23° <del>8</del> 10'11 |             | min. Earth dist. | -4700 Dec 31 j 06:25 | 2° <del>II</del> 53'14  | 32.79500 AU |
| opposition       | -4706 Dec 17 j 15:03 | 21° <del>8</del> 57'03 | 9°17'01     | direct           | -4699 Mar 19 j 10:40 | 1° <del>II</del> 39'11  |             |
| min. Earth dist. | -4706 Dec 20 j 19:48 | 21° <del>8</del> 52'21 | 34.25469 AU | evening set      | -4699 Jun 23 j 16:36 | 3° <del>II</del> 36'14  |             |
| direct           | -4705 Mar 09 j 06:42 | 20° <del>8</del> 40'51 |             | max. Earth dist. | -4699 Jun 30 j 12:05 | 3° <del>II</del> 50'04  | 34.63403 AU |
| evening set      | -4705 Jun 10 j 03:31 | 22° <del>8</del> 25'19 |             |                  |                      |                         |             |
| max. Earth dist. | -4705 Jun 19 j 12:30 | 22° <del>8</del> 43'10 | 36.10311 AU | conjunction      | -4699 Jul 03 j 22:45 | 3° <del>II</del> 57'07  | 11°33'37    |
|                  |                      |                        |             | minimum elong    | -4699 Jul 03 j 22:21 | 3° <del>II</del> 57'05  | 11°33'49    |
| conjunction      | -4705 Jun 23 j 01:14 | 22° <del>8</del> 49'58 | 8°59'51     | morning rise     | -4699 Jul 14 j 02:23 | 4° <del>II</del> 17'48  |             |
| minimum elong    | -4705 Jun 23 j 00:55 | 22° <del>8</del> 49'57 | 9°00'03     | retrograde       | -4699 Oct 13 j 21:47 | 6° <del>II</del> 11'16  |             |
| morning rise     | -4705 Jul 05 j 20:08 | 23° <del>8</del> 14'26 |             | opposition       | -4699 Dec 30 j 07:37 | 4° <del>II</del> 55'20  | 12°28'39    |
| retrograde       | -4705 Oct 02 j 16:43 | 24° <del>8</del> 55'58 |             | min. Earth dist. | -4698 Jan 02 j 11:29 | 4° <del>II</del> 50'28  | 32.56026 AU |
| opposition       | -4705 Dec 19 j 14:54 | 23° <del>8</del> 42'25 | 9°45'04     | direct           | -4698 Mar 21 j 15:00 | 3° <del>II</del> 36'01  |             |
| min. Earth dist. | -4705 Dec 22 j 18:52 | 23° <del>8</del> 37'44 | 34.00431 AU | evening set      | -4698 Jun 26 j 12:25 | 5° <del>II</del> 35'30  |             |
| direct           | -4704 Mar 10 j 04:47 | 22° <del>8</del> 25'44 |             | max. Earth dist. | -4698 Jul 02 j 18:03 | 5° <del>II</del> 48'18  | 34.39746 AU |
| evening set      | -4704 Jun 11 j 14:03 | 24° <del>8</del> 12'03 |             |                  |                      |                         |             |
| max. Earth dist. | -4704 Jun 20 j 14:25 | 24° <del>8</del> 29'24 | 35.85144 AU | conjunction      | -4698 Jul 06 j 04:59 | 5° <del>II</del> 55'27  | 11°58'05    |
|                  |                      |                        |             | minimum elong    | -4698 Jul 06 j 04:35 | 5° <del>II</del> 55'25  | 11°58'17    |
| conjunction      | -4704 Jun 24 j 03:00 | 24° <del>8</del> 36'15 | 9°26'05     | morning rise     | -4698 Jul 15 j 19:28 | 6° <del>II</del> 15'13  |             |
| minimum elong    | -4704 Jun 24 j 02:40 | 24° <del>8</del> 36'13 | 9°26'16     | retrograde       | -4698 Oct 16 j 05:56 | 8° <del>II</del> 11'00  |             |
| morning rise     | -4704 Jul 06 j 12:59 | 25° <del>8</del> 00'15 |             | opposition       | -4697 Jan 01 j 13:13 | 6° <del>II</del> 54'39  | 12°54'41    |
| retrograde       | -4704 Oct 03 j 18:55 | 26° <del>8</del> 43'33 |             | min. Earth dist. | -4697 Jan 04 j 16:14 | 6° <del>II</del> 49'49  | 32.32812 AU |
| opposition       | -4704 Dec 20 j 15:40 | 25° <del>8</del> 29'35 | 10°12'58    | direct           | -4697 Mar 23 j 18:27 | 5° <del>II</del> 34'51  |             |
| min. Earth dist. | -4704 Dec 23 j 20:23 | 25° <del>8</del> 24'49 | 33.75684 AU | evening set      | -4697 Jun 29 j 09:50 | 7° <del>II</del> 36'54  |             |
| direct           | -4703 Mar 12 j 02:23 | 24° <del>8</del> 12'27 |             | max. Earth dist. | -4697 Jul 05 j 01:48 | 7° <del>II</del> 48'39  | 34.16345 AU |
| evening set      | -4703 Jun 14 j 02:05 | 26° <del>8</del> 00'42 |             |                  |                      |                         |             |
| max. Earth dist. | -4703 Jun 22 j 17:44 | 26° <del>8</del> 17'32 | 35.60289 AU | conjunction      | -4697 Jul 08 j 12:09 | 7° <del>II</del> 55'48  | 12°22'06    |
|                  |                      |                        |             | minimum elong    | -4697 Jul 08 j 11:44 | 7° <del>II</del> 55'46  | 12°22'19    |
| conjunction      | -4703 Jun 26 j 05:26 | 26° <del>8</del> 24'23 | 9°52'07     | morning rise     | -4697 Jul 17 j 12:19 | 8° <del>II</del> 14'33  |             |
| minimum elong    | -4703 Jun 26 j 05:05 | 26° <del>8</del> 24'21 | 9°52'19     | retrograde       | -4697 Oct 18 j 12:33 | 10° <del>II</del> 12'46 |             |
| morning rise     | -4703 Jul 08 j 05:58 | 26° <del>8</del> 47'52 |             | opposition       | -4696 Jan 03 j 19:56 | 8° <del>II</del> 55'59  | 13°20'12    |
| retrograde       | -4703 Oct 05 j 23:07 | 28° <del>8</del> 33'00 |             | min. Earth dist. | -4696 Jan 06 j 23:32 | 8° <del>II</del> 51'05  | 32.09882 AU |
| opposition       | -4703 Dec 22 j 17:09 | 27° <del>8</del> 18'39 | 10°40'41    | direct           | -4696 Mar 24 j 22:10 | 7° <del>II</del> 35'43  |             |
| min. Earth dist. | -4703 Dec 25 j 20:36 | 27° <del>8</del> 13'56 | 33.51250 AU | evening set      | -4696 Jul 01 j 09:20 | 9° <del>II</del> 40'25  |             |
| direct           | -4702 Mar 14 j 03:27 | 26° <del>8</del> 01'05 |             | max. Earth dist. | -4696 Jul 06 j 10:32 | 9° <del>II</del> 51'00  | 33.93274 AU |
| evening set      | -4702 Jun 16 j 15:16 | 27° <del>8</del> 51'23 |             |                  |                      |                         |             |
| max. Earth dist. | -4702 Jun 24 j 20:12 | 28° <del>8</del> 07'32 | 35.35714 AU | conjunction      | -4696 Jul 09 j 19:55 | 9° <del>II</del> 58'09  | 12°45'34    |
|                  |                      |                        |             | minimum elong    | -4696 Jul 09 j 19:31 | 9° <del>II</del> 58'07  | 12°45'47    |
| conjunction      | -4702 Jun 28 j 08:26 | 28° <del>8</del> 14'28 | 10°17'56    | morning rise     | -4696 Jul 18 j 04:39 | 10° <del>II</del> 15'45 |             |
| minimum elong    | -4702 Jun 28 j 08:05 | 28° <del>8</del> 14'27 | 10°18'07    | retrograde       | -4696 Oct 19 j 21:29 | 12° <del>II</del> 16'31 |             |
| morning rise     | -4702 Jul 09 j 22:57 | 28° <del>8</del> 37'23 |             | opposition       | -4695 Jan 05 j 03:20 | 10° <del>II</del> 59'17 | 13°45'07    |
|                  | -4702 Aug 28 j 23:44 | 0° <del>II</del>       |             | min. Earth dist. | -4695 Jan 08 j 05:25 | 10° <del>II</del> 54'27 | 31.87315 AU |
| retrograde       | -4702 Oct 08 j 05:01 | 0° <del>II</del> 24'28 |             | direct           | -4695 Mar 27 j 05:41 | 9° <del>II</del> 38'32  |             |
|                  | -4702 Nov 18 j 05:56 | 30° <del>R</del> 8     |             | evening set      | -4695 Jul 04 j 10:41 | 11° <del>II</del> 46'03 |             |
| opposition       | -4702 Dec 24 j 19:29 | 29° <del>8</del> 09'43 | 11°08'08    | max. Earth dist. | -4695 Jul 08 j 19:19 | 11° <del>II</del> 55'17 | 33.70593 AU |
| min. Earth dist. | -4702 Dec 27 j 23:42 | 29° <del>8</del> 04'56 | 33.27099 AU |                  |                      |                         |             |
| direct           | -4701 Mar 16 j 04:21 | 27° <del>8</del> 51'43 |             | conjunction      | -4695 Jul 12 j 04:29 | 12° <del>II</del> 02'29 | 13°08'25    |
| evening set      | -4701 Jun 19 j 06:09 | 29° <del>8</del> 44'10 |             | minimum elong    | -4695 Jul 12 j 04:04 | 12° <del>II</del> 02'26 | 13°08'39    |
| max. Earth dist. | -4701 Jun 27 j 01:35 | 29° <del>8</del> 59'42 | 35.11395 AU | morning rise     | -4695 Jul 19 j 20:33 | 12° <del>II</del> 18'46 |             |
|                  | -4701 Jun 27 j 05:07 | 0° <del>II</del>       |             | retrograde       | -4695 Oct 22 j 07:36 | 14° <del>II</del> 22'15 |             |
|                  |                      |                        |             | opposition       | -4694 Jan 07 j 11:47 | 13° <del>II</del> 04'33 | 14°09'22    |
| conjunction      | -4701 Jun 30 j 12:27 | 0° <del>II</del> 06'37 | 10°43'29    | min. Earth dist. | -4694 Jan 10 j 14:03 | 12° <del>II</del> 59'41 | 31.65198 AU |
| minimum elong    | -4701 Jun 30 j 12:05 | 0° <del>II</del> 06'35 | 10°43'41    | direct           | -4694 Mar 29 j 11:27 | 11° <del>II</del> 43'19 |             |
| morning rise     | -4701 Jul 11 j 16:04 | 0° <del>II</del> 28'52 |             | evening set      | -4694 Jul 07 j 14:23 | 13° <del>II</del> 53'49 |             |
| retrograde       | -4701 Oct 10 j 10:27 | 2° <del>II</del> 17'58 |             | max. Earth dist. | -4694 Jul 11 j 06:36 | 14° <del>II</del> 01'41 | 33.48412 AU |
| opposition       | -4701 Dec 26 j 22:33 | 1° <del>II</del> 02'50 | 11°35'19    |                  |                      |                         |             |
| min. Earth dist. | -4701 Dec 30 j 02:11 | 0° <del>II</del> 58'04 | 33.03184 AU | conjunction      | -4694 Jul 14 j 13:37 | 14° <del>II</del> 08'45 | 13°30'34    |
|                  | -4700 Feb 13 j 00:41 | 30° <del>R</del> 8     |             | minimum elong    | -4694 Jul 14 j 13:12 | 14° <del>II</del> 08'43 | 13°30'47    |
| direct           | -4700 Mar 17 j 08:26 | 29° <del>8</del> 44'25 |             | morning rise     | -4694 Jul 21 j 11:16 | 14° <del>II</del> 23'35 |             |
|                  | -4700 Apr 19 j 02:26 | 0° <del>II</del>       |             | retrograde       | -4694 Oct 24 j 17:57 | 16° <del>II</del> 29'56 |             |
| evening set      | -4700 Jun 20 j 22:40 | 1° <del>II</del> 39'07 |             | opposition       | -4693 Jan 09 j 21:01 | 15° <del>II</del> 11'48 | 14°32'50    |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 16

Attention, astronomical year style is used: The year -4693 in astronomical counting style is the year 4694 BCE in historical counting style.

|                  |                      |                        |             |                  |                      |                    |             |
|------------------|----------------------|------------------------|-------------|------------------|----------------------|--------------------|-------------|
| min. Earth dist. | -4693 Jan 12 j 21:20 | 15° $\Pi$ 07'01        | 31.43609 AU | direct           | -4686 Apr 16 j 05:38 | 29° $\Pi$ 36'04    |             |
| direct           | -4693 Mar 31 j 20:38 | 13° $\Pi$ 50'05        |             |                  | -4686 May 24 j 19:41 | 0° $\Theta$        |             |
| evening set      | -4693 Jul 10 j 20:51 | 16° $\Pi$ 03'46        |             | max. Earth dist. | -4686 Jul 30 j 01:00 | 2° $\Theta$ 06'35  | 31.95044 AU |
| max. Earth dist. | -4693 Jul 13 j 16:51 | 16° $\Pi$ 09'54        | 33.26803 AU |                  |                      |                    |             |
|                  |                      |                        |             | conjunction      | -4686 Aug 01 j 18:59 | 2° $\Theta$ 12'56  | 15°52'43    |
| conjunction      | -4693 Jul 16 j 23:34 | 16° $\Pi$ 17'00        | 13°51'55    | minimum elong    | -4686 Aug 01 j 18:41 | 2° $\Theta$ 12'55  | 15°52'57    |
| minimum elong    | -4693 Jul 16 j 23:09 | 16° $\Pi$ 16'58        | 13°52'09    | retrograde       | -4686 Nov 12 j 12:53 | 4° $\Theta$ 45'03  |             |
| morning rise     | -4693 Jul 23 j 00:55 | 16° $\Pi$ 30'09        |             | opposition       | -4685 Jan 28 j 08:03 | 3° $\Theta$ 24'02  | 17°02'05    |
| retrograde       | -4693 Oct 27 j 06:56 | 18° $\Pi$ 39'36        |             | min. Earth dist. | -4685 Jan 30 j 21:31 | 3° $\Theta$ 19'49  | 29.95236 AU |
| opposition       | -4692 Jan 12 j 07:02 | 17° $\Pi$ 21'01        | 14°55'25    | direct           | -4685 Apr 18 j 18:56 | 1° $\Theta$ 59'26  |             |
| min. Earth dist. | -4692 Jan 15 j 06:45 | 17° $\Pi$ 16'16        | 31.22645 AU | max. Earth dist. | -4685 Aug 01 j 19:44 | 4° $\Theta$ 31'23  | 31.78999 AU |
| direct           | -4692 Apr 02 j 05:32 | 15° $\Pi$ 58'52        |             |                  |                      |                    |             |
| evening set      | -4692 Jul 13 j 07:11 | 18° $\Pi$ 16'03        |             | conjunction      | -4685 Aug 04 j 11:04 | 4° $\Theta$ 37'32  | 16°05'00    |
| max. Earth dist. | -4692 Jul 15 j 06:28 | 18° $\Pi$ 20'21        | 33.05856 AU | minimum elong    | -4685 Aug 04 j 10:47 | 4° $\Theta$ 37'31  | 16°05'15    |
|                  |                      |                        |             | retrograde       | -4685 Nov 15 j 06:21 | 7° $\Theta$ 10'51  |             |
| conjunction      | -4692 Jul 18 j 10:25 | 18° $\Pi$ 27'17        | 14°12'25    | opposition       | -4684 Jan 31 j 01:22 | 5° $\Theta$ 49'30  | 17°14'45    |
| minimum elong    | -4692 Jul 18 j 10:01 | 18° $\Pi$ 27'15        | 14°12'38    | min. Earth dist. | -4684 Feb 02 j 12:12 | 5° $\Theta$ 45'27  | 29.79746 AU |
| morning rise     | -4692 Jul 23 j 12:24 | 18° $\Pi$ 38'25        |             | direct           | -4684 Apr 20 j 12:01 | 4° $\Theta$ 24'37  |             |
| retrograde       | -4692 Oct 28 j 19:13 | 20° $\Pi$ 51'16        |             | max. Earth dist. | -4684 Aug 03 j 13:38 | 6° $\Theta$ 57'48  | 31.63688 AU |
| opposition       | -4691 Jan 13 j 18:12 | 19° $\Pi$ 32'17        | 15°17'03    |                  |                      |                    |             |
| min. Earth dist. | -4691 Jan 16 j 16:16 | 19° $\Pi$ 27'37        | 31.02353 AU | conjunction      | -4684 Aug 06 j 03:44 | 7° $\Theta$ 03'52  | 16°15'50    |
| direct           | -4691 Apr 04 j 17:15 | 18° $\Pi$ 09'44        |             | minimum elong    | -4684 Aug 06 j 03:29 | 7° $\Theta$ 03'50  | 16°16'03    |
| evening set      | -4691 Jul 16 j 22:48 | 20° $\Pi$ 30'53        |             | retrograde       | -4684 Nov 17 j 01:27 | 9° $\Theta$ 38'20  |             |
| max. Earth dist. | -4691 Jul 17 j 18:32 | 20° $\Pi$ 32'42        | 32.85624 AU | opposition       | -4683 Feb 01 j 19:38 | 8° $\Theta$ 16'39  | 17°25'48    |
|                  |                      |                        |             | min. Earth dist. | -4683 Feb 04 j 05:06 | 8° $\Theta$ 12'41  | 29.65011 AU |
| conjunction      | -4691 Jul 20 j 21:45 | 20° $\Pi$ 39'37        | 14°31'56    | direct           | -4683 Apr 23 j 04:32 | 6° $\Theta$ 51'29  |             |
| minimum elong    | -4691 Jul 20 j 21:21 | 20° $\Pi$ 39'35        | 14°32'11    | max. Earth dist. | -4683 Aug 06 j 10:19 | 9° $\Theta$ 26'02  | 31.49183 AU |
| morning rise     | -4691 Jul 24 j 19:42 | 20° $\Pi$ 48'16        |             |                  |                      |                    |             |
| retrograde       | -4691 Oct 31 j 09:03 | 23° $\Pi$ 05'01        |             | conjunction      | -4683 Aug 08 j 20:52 | 9° $\Theta$ 31'48  | 16°25'06    |
| opposition       | -4690 Jan 16 j 06:08 | 21° $\Pi$ 45'40        | 15°37'38    | minimum elong    | -4683 Aug 08 j 20:39 | 9° $\Theta$ 31'46  | 16°25'21    |
| min. Earth dist. | -4690 Jan 19 j 02:33 | 21° $\Pi$ 41'04        | 30.82790 AU | retrograde       | -4683 Nov 19 j 19:46 | 12° $\Theta$ 07'20 |             |
| direct           | -4690 Apr 07 j 03:22 | 20° $\Pi$ 22'43        |             | opposition       | -4682 Feb 04 j 14:37 | 10° $\Theta$ 45'21 | 17°35'10    |
| max. Earth dist. | -4690 Jul 20 j 09:30 | 22° $\Pi$ 47'20        | 32.66116 AU | min. Earth dist. | -4682 Feb 06 j 21:34 | 10° $\Theta$ 41'32 | 29.51076 AU |
| evening set      | -4690 Jul 21 j 02:44 | 22° $\Pi$ 48'56        |             | direct           | -4682 Apr 25 j 23:54 | 9° $\Theta$ 19'54  |             |
|                  |                      |                        |             | max. Earth dist. | -4682 Aug 09 j 05:31 | 11° $\Theta$ 55'34 | 31.35552 AU |
| conjunction      | -4690 Jul 23 j 10:07 | 22° $\Pi$ 54'05        | 14°50'26    |                  |                      |                    |             |
| minimum elong    | -4690 Jul 23 j 09:45 | 22° $\Pi$ 54'03        | 14°50'40    | conjunction      | -4682 Aug 11 j 14:27 | 12° $\Theta$ 01'12 | 16°32'46    |
| morning rise     | -4690 Jul 25 j 16:41 | 22° $\Pi$ 59'09        |             | minimum elong    | -4682 Aug 11 j 14:16 | 12° $\Theta$ 01'11 | 16°32'59    |
| retrograde       | -4690 Nov 02 j 21:44 | 25° $\Pi$ 20'53        |             | retrograde       | -4682 Nov 22 j 15:56 | 14° $\Theta$ 37'44 |             |
| opposition       | -4689 Jan 18 j 18:59 | 24° $\Pi$ 01'11        | 15°57'05    | opposition       | -4681 Feb 07 j 10:02 | 13° $\Theta$ 15'27 | 17°42'44    |
| min. Earth dist. | -4689 Jan 21 j 14:26 | 23° $\Pi$ 56'37        | 30.63929 AU | min. Earth dist. | -4681 Feb 09 j 14:36 | 13° $\Theta$ 11'48 | 29.38043 AU |
| direct           | -4689 Apr 09 j 14:49 | 22° $\Pi$ 37'53        |             | direct           | -4681 Apr 28 j 17:28 | 11° $\Theta$ 49'45 |             |
| max. Earth dist. | -4689 Jul 22 j 23:43 | 25° $\Pi$ 03'59        | 32.47329 AU | max. Earth dist. | -4681 Aug 12 j 03:40 | 14° $\Theta$ 26'41 | 31.22879 AU |
|                  |                      |                        |             |                  |                      |                    |             |
| conjunction      | -4689 Jul 25 j 23:09 | 25° $\Pi$ 10'42        | 15°07'50    | conjunction      | -4681 Aug 14 j 08:40 | 14° $\Theta$ 31'57 | 16°38'42    |
| minimum elong    | -4689 Jul 25 j 22:47 | 25° $\Pi$ 10'39        | 15°08'05    | minimum elong    | -4681 Aug 14 j 08:31 | 14° $\Theta$ 31'56 | 16°38'57    |
| retrograde       | -4689 Nov 05 j 14:01 | 27° $\Pi$ 38'52        |             | retrograde       | -4681 Nov 25 j 11:33 | 17° $\Theta$ 09'25 |             |
| opposition       | -4688 Jan 21 j 08:46 | 26° $\Pi$ 18'50        | 16°15'20    | opposition       | -4680 Feb 10 j 06:23 | 15° $\Theta$ 46'52 | 17°48'25    |
| min. Earth dist. | -4688 Jan 24 j 02:00 | 26° $\Pi$ 14'24        | 30.45762 AU | min. Earth dist. | -4680 Feb 12 j 08:31 | 15° $\Theta$ 43'22 | 29.25970 AU |
| direct           | -4688 Apr 11 j 02:49 | 24° $\Pi$ 55'12        |             | direct           | -4680 Apr 30 j 14:03 | 14° $\Theta$ 20'59 |             |
| max. Earth dist. | -4688 Jul 24 j 15:40 | 27° $\Pi$ 22'51        | 32.29217 AU | max. Earth dist. | -4680 Aug 14 j 00:14 | 16° $\Theta$ 58'54 | 31.11253 AU |
|                  |                      |                        |             |                  |                      |                    |             |
| conjunction      | -4688 Jul 27 j 13:04 | 27° $\Pi$ 29'25        | 15°24'03    | conjunction      | -4680 Aug 16 j 03:02 | 17° $\Theta$ 03'59 | 16°42'52    |
| minimum elong    | -4688 Jul 27 j 12:43 | 27° $\Pi$ 29'23        | 15°24'17    | minimum elong    | -4680 Aug 16 j 02:54 | 17° $\Theta$ 03'58 | 16°43'05    |
| retrograde       | -4688 Nov 07 j 03:59 | 29° $\Pi$ 58'57        |             | retrograde       | -4680 Nov 27 j 09:07 | 19° $\Theta$ 42'18 |             |
| opposition       | -4687 Jan 22 j 23:42 | 28° $\Pi$ 38'35        | 16°32'18    | opposition       | -4679 Feb 12 j 03:15 | 18° $\Theta$ 19'31 | 17°52'09    |
| min. Earth dist. | -4687 Jan 25 j 16:25 | 28° $\Pi$ 34'10        | 30.28255 AU | min. Earth dist. | -4679 Feb 14 j 01:44 | 18° $\Theta$ 16'16 | 29.14953 AU |
| direct           | -4687 Apr 13 j 14:36 | 27° $\Pi$ 14'38        |             | direct           | -4679 May 03 j 10:07 | 16° $\Theta$ 53'28 |             |
| max. Earth dist. | -4687 Jul 27 j 08:17 | 29° $\Pi$ 43'45        | 32.11795 AU | max. Earth dist. | -4679 Aug 16 j 23:16 | 19° $\Theta$ 32'30 | 31.00731 AU |
|                  |                      |                        |             |                  |                      |                    |             |
| conjunction      | -4687 Jul 30 j 03:40 | 29° $\Pi$ 50'12        | 15°39'02    | conjunction      | -4679 Aug 18 j 22:02 | 19° $\Theta$ 37'12 | 16°45'11    |
| minimum elong    | -4687 Jul 30 j 03:20 | 29° $\Pi$ 50'10        | 15°39'17    | minimum elong    | -4679 Aug 18 j 21:58 | 19° $\Theta$ 37'12 | 16°45'25    |
|                  | -4687 Aug 03 j 10:20 | 0° $\Theta$            |             | retrograde       | -4679 Nov 30 j 04:25 | 22° $\Theta$ 16'18 |             |
| retrograde       | -4687 Nov 09 j 20:11 | 2° $\Theta$ 21'02      |             | opposition       | -4678 Feb 15 j 00:44 | 20° $\Theta$ 53'21 | 17°53'52    |
| opposition       | -4686 Jan 25 j 15:24 | 1° $\Theta$ 00'21      | 16°47'55    | min. Earth dist. | -4678 Feb 16 j 21:00 | 20° $\Theta$ 50'14 | 29.05025 AU |
| min. Earth dist. | -4686 Jan 28 j 05:32 | 0° $\Theta$ 56'06      | 30.11412 AU | direct           | -4678 May 06 j 06:00 | 19° $\Theta$ 27'12 |             |
|                  | -4686 Mar 07 j 14:48 | 30° $\mathbb{R}$ $\Pi$ |             | max. Earth dist. | -4678 Aug 19 j 21:14 | 22° $\Theta$ 07'06 | 30.91355 AU |



## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 17

Attention, astronomical year style is used: The year -4678 in astronomical counting style is the year 4679 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
| conjunction      | -4678 Aug 21 j 17:09 | 22°♄11'33 | 16°45'36    | conjunction      | -4670 Sep 11 j 09:00 | 13°♃08'34 | 15°39'52    |
| minimum elong    | -4678 Aug 21 j 17:07 | 22°♄11'32 | 16°45'49    | minimum elong    | -4670 Sep 11 j 09:16 | 13°♃08'36 | 15°40'03    |
| retrograde       | -4678 Dec 03 j 02:40 | 24°♄51'21 |             | max. Earth dist. | -4670 Sep 10 j 16:34 | 13°♃06'53 | 30.54810 AU |
| opposition       | -4677 Feb 17 j 22:33 | 23°♄28'15 | 17°53'32    |                  | -4670 Oct 31 j 10:04 | 15°♃      |             |
| min. Earth dist. | -4677 Feb 19 j 14:46 | 23°♄25'26 | 28.96196 AU | retrograde       | -4670 Dec 24 j 02:33 | 15°♃50'16 |             |
| direct           | -4677 May 09 j 02:59 | 22°♄02'02 |             |                  | -4669 Feb 19 j 06:38 | 15°♃♄     |             |
| max. Earth dist. | -4677 Aug 22 j 20:30 | 24°♄42'51 | 30.83090 AU | opposition       | -4669 Mar 11 j 16:49 | 14°♃26'38 | 16°36'12    |
|                  |                      |           |             | min. Earth dist. | -4669 Mar 12 j 08:27 | 14°♃25'32 | 28.62575 AU |
| conjunction      | -4677 Aug 24 j 12:45 | 24°♄46'56 | 16°44'06    | direct           | -4669 May 30 j 13:05 | 13°♃00'43 |             |
| minimum elong    | -4677 Aug 24 j 12:46 | 24°♄46'56 | 16°44'20    |                  | -4669 Aug 26 j 10:29 | 15°♃      |             |
| retrograde       | -4677 Dec 05 j 23:25 | 27°♄27'22 |             | conjunction      | -4669 Sep 14 j 04:25 | 15°♃45'19 | 15°23'12    |
| opposition       | -4676 Feb 20 j 20:59 | 26°♄04'09 | 17°51'07    | minimum elong    | -4669 Sep 14 j 04:44 | 15°♃45'21 | 15°23'22    |
| min. Earth dist. | -4676 Feb 22 j 11:15 | 26°♄01'27 | 28.88441 AU | max. Earth dist. | -4669 Sep 13 j 14:36 | 15°♃43'54 | 30.54999 AU |
| direct           | -4676 May 10 j 22:35 | 24°♄37'54 |             | retrograde       | -4669 Dec 27 j 00:20 | 18°♃26'44 |             |
| max. Earth dist. | -4676 Aug 24 j 19:38 | 27°♄19'27 | 30.75934 AU | opposition       | -4668 Mar 13 j 16:07 | 17°♃03'05 | 16°17'26    |
|                  |                      |           |             | min. Earth dist. | -4668 Mar 14 j 03:34 | 17°♃02'17 | 28.63053 AU |
| conjunction      | -4676 Aug 26 j 08:33 | 27°♄23'12 | 16°40'40    | direct           | -4668 Jun 01 j 12:28 | 15°♃37'18 |             |
| minimum elong    | -4676 Aug 26 j 08:36 | 27°♄23'13 | 16°40'53    |                  |                      |           |             |
|                  | -4676 Nov 22 j 16:13 | 0°♃       |             | conjunction      | -4668 Sep 15 j 23:42 | 18°♃21'19 | 15°04'44    |
| retrograde       | -4676 Dec 07 j 20:26 | 0°♃04'10  |             | minimum elong    | -4668 Sep 16 j 00:01 | 18°♃21'21 | 15°04'54    |
|                  | -4676 Dec 23 j 05:06 | 30°♃♄     |             | max. Earth dist. | -4668 Sep 15 j 14:41 | 18°♃20'24 | 30.56361 AU |
| opposition       | -4675 Feb 22 j 19:47 | 28°♄40'52 | 17°46'36    | retrograde       | -4668 Dec 28 j 19:18 | 21°♃02'23 |             |
| min. Earth dist. | -4675 Feb 24 j 05:52 | 28°♄38'28 | 28.81736 AU | opposition       | -4667 Mar 16 j 15:22 | 19°♃38'46 | 15°56'45    |
| direct           | -4675 May 13 j 21:22 | 27°♄14'37 |             | min. Earth dist. | -4667 Mar 16 j 23:46 | 19°♃38'10 | 28.64705 AU |
| max. Earth dist. | -4675 Aug 27 j 18:37 | 29°♄56'46 | 30.69833 AU | direct           | -4667 Jun 04 j 11:20 | 18°♃13'08 |             |
|                  |                      |           |             | evening set      | -4667 Sep 15 j 22:27 | 20°♃49'35 |             |
| conjunction      | -4675 Aug 29 j 04:28 | 0°♃00'13  | 16°35'19    |                  |                      |           |             |
| minimum elong    | -4675 Aug 29 j 04:34 | 0°♃00'14  | 16°35'32    | conjunction      | -4667 Sep 18 j 18:22 | 20°♃56'29 | 14°44'32    |
|                  | -4675 Aug 29 j 02:20 | 0°♃       |             | minimum elong    | -4667 Sep 18 j 18:44 | 20°♃56'31 | 14°44'41    |
| retrograde       | -4675 Dec 10 j 17:32 | 2°♃41'36  |             | max. Earth dist. | -4667 Sep 18 j 12:27 | 20°♃55'53 | 30.58953 AU |
| opposition       | -4674 Feb 25 j 19:02 | 1°♃18'13  | 17°40'00    | morning rise     | -4667 Sep 21 j 14:59 | 21°♃03'27 |             |
| min. Earth dist. | -4674 Feb 27 j 03:01 | 1°♃15'58  | 28.76052 AU | retrograde       | -4667 Dec 31 j 16:45 | 23°♃37'06 |             |
|                  | -4674 Apr 24 j 18:36 | 30°♃♄     |             | opposition       | -4666 Mar 19 j 14:06 | 22°♃13'33 | 15°34'14    |
| direct           | -4674 May 16 j 17:40 | 29°♄52'00 |             | min. Earth dist. | -4666 Mar 19 j 17:43 | 22°♃13'18 | 28.67578 AU |
|                  | -4674 Jun 07 j 09:05 | 0°♃       |             | direct           | -4666 Jun 07 j 10:47 | 20°♃48'08 |             |
| max. Earth dist. | -4674 Aug 30 j 18:32 | 2°♃34'40  | 30.64781 AU | evening set      | -4666 Sep 17 j 03:32 | 23°♃20'05 |             |
|                  |                      |           |             |                  |                      |           |             |
| conjunction      | -4674 Sep 01 j 00:40 | 2°♃37'45  | 16°28'01    | conjunction      | -4666 Sep 21 j 12:53 | 23°♃30'44 | 14°22'39    |
| minimum elong    | -4674 Sep 01 j 00:47 | 2°♃37'46  | 16°28'13    | minimum elong    | -4666 Sep 21 j 13:15 | 23°♃30'46 | 14°22'48    |
| retrograde       | -4674 Dec 13 j 14:58 | 5°♃19'25  |             | max. Earth dist. | -4666 Sep 21 j 11:30 | 23°♃30'36 | 30.62777 AU |
| opposition       | -4673 Feb 28 j 18:16 | 3°♃55'59  | 17°31'20    | morning rise     | -4666 Sep 25 j 22:49 | 23°♃41'27 |             |
| min. Earth dist. | -4673 Mar 01 j 22:24 | 3°♃54'00  | 28.71353 AU | retrograde       | -4665 Jan 03 j 11:46 | 26°♃10'51 |             |
| direct           | -4673 May 19 j 16:23 | 2°♃29'48  |             | opposition       | -4665 Mar 22 j 12:30 | 24°♃47'24 | 15°09'55    |
|                  |                      |           |             | min. Earth dist. | -4665 Mar 22 j 13:21 | 24°♃47'20 | 28.71662 AU |
| conjunction      | -4673 Sep 03 j 20:54 | 5°♃15'35  | 16°18'49    | direct           | -4665 Jun 10 j 09:01 | 23°♃22'15 |             |
| minimum elong    | -4673 Sep 03 j 21:05 | 5°♃15'36  | 16°19'01    | evening set      | -4665 Sep 18 j 17:26 | 25°♃50'34 |             |
| max. Earth dist. | -4673 Sep 02 j 17:17 | 5°♃12'46  | 30.60738 AU |                  |                      |           |             |
| retrograde       | -4673 Dec 16 j 12:06 | 7°♃57'27  |             | conjunction      | -4665 Sep 24 j 06:53 | 26°♃04'02 | 13°59'11    |
| opposition       | -4672 Mar 02 j 17:56 | 6°♃33'57  | 17°20'35    | minimum elong    | -4665 Sep 24 j 07:17 | 26°♃04'04 | 13°59'20    |
| min. Earth dist. | -4672 Mar 03 j 19:35 | 6°♃32'08  | 28.67646 AU | max. Earth dist. | -4665 Sep 24 j 08:51 | 26°♃04'14 | 30.67832 AU |
| direct           | -4672 May 21 j 14:31 | 5°♃07'48  |             | morning rise     | -4665 Sep 29 j 20:57 | 26°♃17'33 |             |
|                  |                      |           |             | retrograde       | -4664 Jan 06 j 07:15 | 28°♃43'33 |             |
| conjunction      | -4672 Sep 05 j 17:04 | 7°♃53'30  | 16°07'42    | opposition       | -4664 Mar 24 j 10:32 | 27°♃20'17 | 14°43'57    |
| minimum elong    | -4672 Sep 05 j 17:16 | 7°♃53'31  | 16°07'54    | min. Earth dist. | -4664 Mar 24 j 06:33 | 27°♃20'33 | 28.76934 AU |
| max. Earth dist. | -4672 Sep 04 j 17:42 | 7°♃51'06  | 30.57720 AU | direct           | -4664 Jun 12 j 07:34 | 25°♃55'26 |             |
| retrograde       | -4672 Dec 18 j 08:35 | 10°♃35'25 |             | evening set      | -4664 Sep 19 j 10:58 | 28°♃20'31 |             |
| opposition       | -4671 Mar 05 j 17:42 | 9°♃11'51  | 17°07'48    |                  |                      |           |             |
| min. Earth dist. | -4671 Mar 06 j 15:47 | 9°♃10'18  | 28.64920 AU | conjunction      | -4664 Sep 26 j 00:20 | 28°♃36'19 | 13°34'13    |
| direct           | -4671 May 24 j 14:35 | 7°♃45'47  |             | minimum elong    | -4664 Sep 26 j 00:44 | 28°♃36'21 | 13°34'22    |
|                  |                      |           |             | max. Earth dist. | -4664 Sep 26 j 06:12 | 28°♃36'54 | 30.74052 AU |
| conjunction      | -4671 Sep 08 j 13:06 | 10°♃31'14 | 15°54'43    | morning rise     | -4664 Oct 02 j 14:16 | 28°♃52'09 |             |
| minimum elong    | -4671 Sep 08 j 13:22 | 10°♃31'15 | 15°54'55    |                  | -4664 Nov 01 j 13:01 | 0°♃♅      |             |
| max. Earth dist. | -4671 Sep 07 j 16:09 | 10°♃29'05 | 30.55730 AU | retrograde       | -4663 Jan 08 j 01:11 | 1°♃15'11  |             |
| retrograde       | -4671 Dec 21 j 06:32 | 13°♃13'06 |             |                  | -4663 Mar 22 j 13:26 | 30°♃♄     |             |
| opposition       | -4670 Mar 08 j 17:15 | 11°♃49'29 | 16°53'00    | opposition       | -4663 Mar 27 j 08:21 | 29°♃52'06 | 14°16'24    |
| min. Earth dist. | -4670 Mar 09 j 12:06 | 11°♃48'10 | 28.63225 AU | min. Earth dist. | -4663 Mar 27 j 01:41 | 29°♃52'33 | 28.83345 AU |
| direct           | -4670 May 27 j 12:22 | 10°♃23'29 |             |                  |                      |           |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 18

Attention, astronomical year style is used: The year -4663 in astronomical counting style is the year 4664 BCE in historical counting style.

|                  |                      |                    |             |                  |                      |                        |             |
|------------------|----------------------|--------------------|-------------|------------------|----------------------|------------------------|-------------|
| direct           | -4663 Jun 15 j 04:08 | 28° $\Omega$ 27'35 |             | morning rise     | -4657 Oct 24 j 19:21 | 16° $\Pi$ 10'56        |             |
|                  | -4663 Aug 30 j 16:43 | 0° $\Pi$           |             | retrograde       | -4656 Jan 25 j 13:45 | 18° $\Pi$ 17'16        |             |
| evening set      | -4663 Sep 21 j 07:07 | 0° $\Pi$ 49'40     |             | opposition       | -4656 Apr 13 j 23:38 | 16° $\Pi$ 55'43        | 10°29'18    |
|                  |                      |                    |             | min. Earth dist. | -4656 Apr 12 j 18:54 | 16° $\Pi$ 57'38        | 29.55400 AU |
| conjunction      | -4663 Sep 28 j 17:26 | 1° $\Pi$ 07'29     | 13°07'51    | direct           | -4656 Jul 02 j 17:49 | 15° $\Pi$ 33'39        |             |
| minimum elong    | -4663 Sep 28 j 17:51 | 1° $\Pi$ 07'32     | 13°07'58    | evening set      | -4656 Oct 03 j 05:28 | 17° $\Pi$ 38'01        |             |
| max. Earth dist. | -4663 Sep 29 j 02:56 | 1° $\Pi$ 08'26     | 30.81397 AU |                  |                      |                        |             |
| morning rise     | -4663 Oct 06 j 04:17 | 1° $\Pi$ 25'21     |             | conjunction      | -4656 Oct 15 j 00:03 | 18° $\Pi$ 04'57        | 9°32'51     |
| retrograde       | -4662 Jan 10 j 19:34 | 3° $\Pi$ 45'38     |             | minimum elong    | -4656 Oct 15 j 00:25 | 18° $\Pi$ 04'59        | 9°32'55     |
| opposition       | -4662 Mar 30 j 05:20 | 2° $\Pi$ 22'45     | 13°47'24    | max. Earth dist. | -4656 Oct 16 j 06:46 | 18° $\Pi$ 07'54        | 31.59344 AU |
| min. Earth dist. | -4662 Mar 29 j 18:30 | 2° $\Pi$ 23'30     | 28.90825 AU | morning rise     | -4656 Oct 26 j 19:23 | 18° $\Pi$ 31'58        |             |
| direct           | -4662 Jun 18 j 01:39 | 0° $\Pi$ 58'35     |             | retrograde       | -4655 Jan 27 j 04:01 | 20° $\Pi$ 36'16        |             |
| evening set      | -4662 Sep 23 j 04:38 | 3° $\Pi$ 17'51     |             | min. Earth dist. | -4655 Apr 15 j 07:06 | 19° $\Pi$ 17'08        | 29.69323 AU |
|                  |                      |                    |             | opposition       | -4655 Apr 16 j 16:06 | 19° $\Pi$ 14'57        | 9°53'17     |
| conjunction      | -4662 Oct 01 j 09:57 | 3° $\Pi$ 37'27     | 12°40'11    | direct           | -4655 Jul 05 j 11:09 | 17° $\Pi$ 53'14        |             |
| minimum elong    | -4662 Oct 01 j 10:22 | 3° $\Pi$ 37'30     | 12°40'19    | evening set      | -4655 Oct 05 j 06:40 | 19° $\Pi$ 55'25        |             |
| max. Earth dist. | -4662 Oct 01 j 22:26 | 3° $\Pi$ 38'42     | 30.89774 AU |                  |                      |                        |             |
| morning rise     | -4662 Oct 09 j 15:52 | 3° $\Pi$ 57'06     |             | conjunction      | -4655 Oct 17 j 11:56 | 20° $\Pi$ 23'10        | 8°58'58     |
| retrograde       | -4661 Jan 13 j 12:06 | 6° $\Pi$ 14'49     |             | minimum elong    | -4655 Oct 17 j 12:18 | 20° $\Pi$ 23'12        | 8°59'01     |
| opposition       | -4661 Apr 02 j 02:03 | 4° $\Pi$ 52'10     | 13°17'04    | max. Earth dist. | -4655 Oct 18 j 22:30 | 20° $\Pi$ 26'27        | 31.74078 AU |
| min. Earth dist. | -4661 Apr 01 j 12:31 | 4° $\Pi$ 53'05     | 28.99319 AU | morning rise     | -4655 Oct 29 j 17:54 | 20° $\Pi$ 50'58        |             |
| direct           | -4661 Jun 20 j 20:57 | 3° $\Pi$ 28'21     |             | retrograde       | -4654 Jan 29 j 16:21 | 22° $\Pi$ 53'19        |             |
| evening set      | -4661 Sep 25 j 03:22 | 5° $\Pi$ 44'55     |             | min. Earth dist. | -4654 Apr 17 j 20:36 | 21° $\Pi$ 34'34        | 29.84201 AU |
|                  |                      |                    |             | opposition       | -4654 Apr 19 j 07:45 | 21° $\Pi$ 32'15        | 9°16'39     |
| conjunction      | -4661 Oct 04 j 01:59 | 6° $\Pi$ 06'06     | 12°11'20    | direct           | -4654 Jul 08 j 03:58 | 20° $\Pi$ 10'56        |             |
| minimum elong    | -4661 Oct 04 j 02:25 | 6° $\Pi$ 06'09     | 12°11'27    | evening set      | -4654 Oct 07 j 08:05 | 22° $\Pi$ 11'02        |             |
| max. Earth dist. | -4661 Oct 04 j 18:20 | 6° $\Pi$ 07'43     | 30.99137 AU |                  |                      |                        |             |
| morning rise     | -4661 Oct 13 j 01:01 | 6° $\Pi$ 27'20     |             | conjunction      | -4654 Oct 19 j 23:03 | 22° $\Pi$ 39'27        | 8°24'34     |
| retrograde       | -4660 Jan 16 j 03:18 | 8° $\Pi$ 42'36     |             | minimum elong    | -4654 Oct 19 j 23:24 | 22° $\Pi$ 39'29        | 8°24'37     |
| opposition       | -4660 Apr 03 j 22:07 | 7° $\Pi$ 20'11     | 12°45'30    | max. Earth dist. | -4654 Oct 21 j 12:10 | 22° $\Pi$ 42'58        | 31.89766 AU |
| min. Earth dist. | -4660 Apr 03 j 05:06 | 7° $\Pi$ 21'20     | 29.08751 AU | morning rise     | -4654 Nov 01 j 14:47 | 23° $\Pi$ 07'57        |             |
| direct           | -4660 Jun 22 j 17:41 | 5° $\Pi$ 56'43     |             | retrograde       | -4653 Feb 01 j 04:33 | 25° $\Pi$ 08'27        |             |
| evening set      | -4660 Sep 26 j 02:56 | 8° $\Pi$ 10'41     |             | min. Earth dist. | -4653 Apr 20 j 07:21 | 23° $\Pi$ 50'15        | 30.00028 AU |
|                  |                      |                    |             | opposition       | -4653 Apr 21 j 22:34 | 23° $\Pi$ 47'40        | 8°39'32     |
| conjunction      | -4660 Oct 05 j 17:22 | 8° $\Pi$ 33'18     | 11°41'25    | direct           | -4653 Jul 10 j 20:12 | 22° $\Pi$ 26'45        |             |
| minimum elong    | -4660 Oct 05 j 17:46 | 8° $\Pi$ 33'20     | 11°41'31    | evening set      | -4653 Oct 09 j 09:29 | 24° $\Pi$ 24'52        |             |
| max. Earth dist. | -4660 Oct 06 j 11:57 | 8° $\Pi$ 35'08     | 31.09420 AU |                  |                      |                        |             |
| morning rise     | -4660 Oct 15 j 08:26 | 8° $\Pi$ 55'58     |             | conjunction      | -4653 Oct 22 j 09:19 | 24° $\Pi$ 53'53        | 7°49'44     |
| retrograde       | -4659 Jan 17 j 19:59 | 11° $\Pi$ 08'53    |             | minimum elong    | -4653 Oct 22 j 09:38 | 24° $\Pi$ 53'55        | 7°49'45     |
| opposition       | -4659 Apr 06 j 17:37 | 9° $\Pi$ 46'40     | 12°12'51    | max. Earth dist. | -4653 Oct 24 j 01:30 | 24° $\Pi$ 57'39        | 32.06365 AU |
| min. Earth dist. | -4659 Apr 05 j 21:22 | 9° $\Pi$ 48'02     | 29.19104 AU | morning rise     | -4653 Nov 04 j 10:05 | 25° $\Pi$ 23'00        |             |
| direct           | -4659 Jun 25 j 11:01 | 8° $\Pi$ 23'34     |             | retrograde       | -4652 Feb 03 j 14:19 | 27° $\Pi$ 21'44        |             |
| evening set      | -4659 Sep 28 j 03:01 | 10° $\Pi$ 35'01    |             | min. Earth dist. | -4652 Apr 21 j 19:18 | 26° $\Pi$ 03'58        | 30.16782 AU |
|                  |                      |                    |             | opposition       | -4652 Apr 23 j 12:51 | 26° $\Pi$ 01'15        | 8°02'01     |
| conjunction      | -4659 Oct 08 j 08:13 | 10° $\Pi$ 58'54    | 11°10'30    | direct           | -4652 Jul 12 j 10:01 | 24° $\Pi$ 40'46        |             |
| minimum elong    | -4659 Oct 08 j 08:38 | 10° $\Pi$ 58'56    | 11°10'35    | evening set      | -4652 Oct 10 j 11:02 | 26° $\Pi$ 36'59        |             |
| max. Earth dist. | -4659 Oct 09 j 06:44 | 11° $\Pi$ 01'06    | 31.20595 AU |                  |                      |                        |             |
| morning rise     | -4659 Oct 18 j 13:50 | 11° $\Pi$ 22'50    |             | conjunction      | -4652 Oct 23 j 19:04 | 27° $\Pi$ 06'31        | 7°14'33     |
| retrograde       | -4658 Jan 20 j 09:47 | 13° $\Pi$ 33'29    |             | minimum elong    | -4652 Oct 23 j 19:21 | 27° $\Pi$ 06'33        | 7°14'36     |
| opposition       | -4658 Apr 09 j 12:23 | 12° $\Pi$ 11'30    | 11°39'11    | max. Earth dist. | -4652 Oct 25 j 14:24 | 27° $\Pi$ 10'33        | 32.23852 AU |
| min. Earth dist. | -4658 Apr 08 j 13:29 | 12° $\Pi$ 13'03    | 29.30319 AU | morning rise     | -4652 Nov 06 j 03:53 | 27° $\Pi$ 36'08        |             |
| direct           | -4658 Jun 28 j 07:01 | 10° $\Pi$ 48'45    |             | retrograde       | -4651 Feb 04 j 23:33 | 29° $\Pi$ 33'11        |             |
| evening set      | -4658 Sep 30 j 03:39 | 12° $\Pi$ 57'45    |             | min. Earth dist. | -4651 Apr 24 j 05:25 | 28° $\Pi$ 15'57        | 30.34391 AU |
|                  |                      |                    |             | opposition       | -4651 Apr 26 j 02:09 | 28° $\Pi$ 13'03        | 7°24'13     |
| conjunction      | -4658 Oct 10 j 22:13 | 13° $\Pi$ 22'46    | 10°38'43    | direct           | -4651 Jul 15 j 01:10 | 26° $\Pi$ 53'01        |             |
| minimum elong    | -4658 Oct 10 j 22:37 | 13° $\Pi$ 22'49    | 10°38'48    | evening set      | -4651 Oct 12 j 12:43 | 28° $\Pi$ 47'25        |             |
| max. Earth dist. | -4658 Oct 11 j 22:35 | 13° $\Pi$ 25'09    | 31.32628 AU |                  |                      |                        |             |
| morning rise     | -4658 Oct 21 j 17:30 | 13° $\Pi$ 47'52    |             | conjunction      | -4651 Oct 26 j 03:57 | 29° $\Pi$ 17'23        | 6°39'09     |
| retrograde       | -4657 Jan 23 j 01:23 | 15° $\Pi$ 56'19    |             | minimum elong    | -4651 Oct 26 j 04:14 | 29° $\Pi$ 17'24        | 6°39'10     |
| min. Earth dist. | -4657 Apr 11 j 03:41 | 14° $\Pi$ 36'19    | 29.42414 AU | max. Earth dist. | -4651 Oct 28 j 01:21 | 29° $\Pi$ 21'34        | 32.42130 AU |
| opposition       | -4657 Apr 12 j 06:14 | 14° $\Pi$ 34'33    | 11°04'39    | morning rise     | -4651 Nov 08 j 20:22 | 29° $\Pi$ 47'26        |             |
| direct           | -4657 Jul 01 j 00:35 | 13° $\Pi$ 12'08    |             |                  | -4651 Nov 14 j 17:12 | 0° $\Omega$            |             |
| evening set      | -4657 Oct 02 j 04:27 | 15° $\Pi$ 18'47    |             | retrograde       | -4650 Feb 07 j 09:23 | 1° $\Omega$ 42'53      |             |
|                  |                      |                    |             | min. Earth dist. | -4650 Apr 26 j 15:26 | 0° $\Omega$ 26'09      | 30.52788 AU |
| conjunction      | -4657 Oct 13 j 11:39 | 15° $\Pi$ 44'49    | 10°06'08    | opposition       | -4650 Apr 28 j 14:47 | 0° $\Omega$ 23'05      | 6°46'14     |
| minimum elong    | -4657 Oct 13 j 12:03 | 15° $\Pi$ 44'52    | 10°06'12    |                  | -4650 May 13 j 16:48 | 30° $\mathbb{R}$ $\Pi$ |             |
| max. Earth dist. | -4657 Oct 14 j 16:06 | 15° $\Pi$ 47'34    | 31.45534 AU | direct           | -4650 Jul 17 j 12:39 | 29° $\Pi$ 03'31        |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 19

Attention, astronomical year style is used: The year -4650 in astronomical counting style is the year 4651 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
|                  | -4650 Sep 16 j 04:08 | 0°♂       |             | retrograde       | -4643 Feb 21 j 06:34 | 16°♂01'45 |             |
| evening set      | -4650 Oct 14 j 14:23 | 0°♂56'11  |             | min. Earth dist. | -4643 May 10 j 20:59 | 14°♂48'02 | 31.97175 AU |
|                  |                      |           |             | opposition       | -4643 May 13 j 09:52 | 14°♂44'15 | 2°21'52     |
| conjunction      | -4650 Oct 28 j 12:21 | 1°♂26'30  | 6°03'35     | direct           | -4643 Aug 01 j 09:16 | 13°♂27'37 |             |
| minimum elong    | -4650 Oct 28 j 12:36 | 1°♂26'31  | 6°03'36     | evening set      | -4643 Oct 27 j 02:34 | 15°♂10'14 |             |
| max. Earth dist. | -4650 Oct 30 j 13:00 | 1°♂30'57  | 32.61125 AU |                  |                      |           |             |
| morning rise     | -4650 Nov 11 j 11:15 | 1°♂56'55  |             | conjunction      | -4643 Nov 11 j 04:05 | 15°♂41'09 | 1°56'22     |
| retrograde       | -4649 Feb 09 j 15:56 | 3°♂50'51  |             | minimum elong    | -4643 Nov 11 j 04:10 | 15°♂41'09 | 1°56'19     |
| min. Earth dist. | -4649 Apr 29 j 01:15 | 2°♂34'34  | 30.71864 AU | max. Earth dist. | -4643 Nov 13 j 17:51 | 15°♂46'29 | 34.08308 AU |
| opposition       | -4649 May 01 j 02:34 | 2°♂31'24  | 6°08'09     | morning rise     | -4643 Nov 26 j 07:09 | 16°♂12'13 |             |
| direct           | -4649 Jul 20 j 01:34 | 1°♂12'17  |             | retrograde       | -4642 Feb 23 j 08:02 | 17°♂57'17 |             |
| evening set      | -4649 Oct 16 j 16:20 | 3°♂03'18  |             | min. Earth dist. | -4642 May 13 j 01:27 | 16°♂44'00 | 32.19677 AU |
|                  |                      |           |             | opposition       | -4642 May 15 j 16:15 | 16°♂40'06 | 1°45'06     |
| conjunction      | -4649 Oct 30 j 19:59 | 3°♂33'53  | 5°27'57     | direct           | -4642 Aug 03 j 18:18 | 15°♂23'52 |             |
| minimum elong    | -4649 Oct 30 j 20:13 | 3°♂33'55  | 5°27'56     | evening set      | -4642 Oct 29 j 04:02 | 17°♂05'19 |             |
| max. Earth dist. | -4649 Nov 01 j 21:48 | 3°♂38'25  | 32.80745 AU |                  |                      |           |             |
| morning rise     | -4649 Nov 14 j 00:59 | 4°♂04'35  |             | conjunction      | -4642 Nov 13 j 06:54 | 17°♂36'07 | 1°22'00     |
| retrograde       | -4648 Feb 12 j 00:46 | 5°♂57'05  |             | minimum elong    | -4642 Nov 13 j 06:58 | 17°♂36'07 | 1°21'56     |
| min. Earth dist. | -4648 Apr 30 j 09:31 | 4°♂41'19  | 30.91563 AU | max. Earth dist. | -4642 Nov 15 j 21:42 | 17°♂41'29 | 34.31121 AU |
| opposition       | -4648 May 02 j 13:45 | 4°♂37'59  | 5°30'03     | morning rise     | -4642 Nov 28 j 11:46 | 18°♂07'04 |             |
| direct           | -4648 Jul 21 j 11:02 | 3°♂19'19  |             | retrograde       | -4641 Feb 25 j 11:27 | 19°♂51'08 |             |
| evening set      | -4648 Oct 17 j 18:04 | 5°♂08'46  |             | min. Earth dist. | -4641 May 15 j 04:49 | 18°♂38'17 | 32.42693 AU |
|                  |                      |           |             | opposition       | -4641 May 17 j 21:58 | 18°♂34'16 | 1°08'44     |
| conjunction      | -4648 Nov 01 j 03:03 | 5°♂39'33  | 4°52'19     | direct           | -4641 Aug 05 j 23:22 | 17°♂18'26 |             |
| minimum elong    | -4648 Nov 01 j 03:15 | 5°♂39'34  | 4°52'19     | evening set      | -4641 Oct 31 j 05:12 | 18°♂58'48 |             |
| max. Earth dist. | -4648 Nov 03 j 07:58 | 5°♂44'19  | 33.00911 AU |                  |                      |           |             |
| morning rise     | -4648 Nov 15 j 13:12 | 6°♂10'28  |             | conjunction      | -4641 Nov 15 j 09:17 | 19°♂29'26 | 0°47'59     |
| retrograde       | -4647 Feb 13 j 07:03 | 8°♂01'35  |             | minimum elong    | -4641 Nov 15 j 09:19 | 19°♂29'26 | 0°47'55     |
| min. Earth dist. | -4647 May 02 j 19:00 | 6°♂46'12  | 31.11784 AU | max. Earth dist. | -4641 Nov 18 j 02:53 | 19°♂35'00 | 34.54424 AU |
| opposition       | -4647 May 05 j 00:14 | 6°♂42'49  | 4°52'01     | morning rise     | -4641 Nov 30 j 15:06 | 20°♂00'13 |             |
| direct           | -4647 Jul 23 j 21:06 | 5°♂24'36  |             | retrograde       | -4640 Feb 27 j 11:47 | 21°♂43'22 |             |
| evening set      | -4647 Oct 19 j 20:05 | 7°♂12'33  |             | min. Earth dist. | -4640 May 16 j 08:50 | 20°♂30'53 | 32.66194 AU |
|                  |                      |           |             | opposition       | -4640 May 19 j 03:02 | 20°♂26'50 | 0°32'49     |
| conjunction      | -4647 Nov 03 j 09:29 | 7°♂43'28  | 4°16'45     | direct           | -4640 Aug 07 j 05:21 | 19°♂11'25 |             |
| minimum elong    | -4647 Nov 03 j 09:40 | 7°♂43'29  | 4°16'44     | evening set      | -4640 Nov 01 j 06:20 | 20°♂50'46 |             |
| max. Earth dist. | -4647 Nov 05 j 15:19 | 7°♂48'16  | 33.21552 AU |                  |                      |           |             |
| morning rise     | -4647 Nov 18 j 00:20 | 8°♂14'31  |             | conjunction      | -4640 Nov 16 j 10:53 | 21°♂21'11 | 0°14'24     |
| retrograde       | -4646 Feb 15 j 15:04 | 10°♂04'19 |             | minimum elong    | -4640 Nov 16 j 10:53 | 21°♂21'11 | 0°14'20     |
| min. Earth dist. | -4646 May 05 j 01:30 | 8°♂49'26  | 31.32476 AU | behind sun begin | -4640 Nov 16 j 07:47 | 21°♂20'56 |             |
| opposition       | -4646 May 07 j 09:38 | 8°♂45'54  | 4°14'07     | behind sun end   | -4640 Nov 16 j 14:00 | 21°♂21'26 |             |
| direct           | -4646 Jul 26 j 06:48 | 7°♂28'04  |             | max. Earth dist. | -4640 Nov 19 j 05:08 | 21°♂26'46 | 34.78181 AU |
| evening set      | -4646 Oct 21 j 21:56 | 9°♂14'36  |             | morning rise     | -4640 Dec 01 j 17:27 | 21°♂51'47 |             |
|                  |                      |           |             | retrograde       | -4639 Feb 28 j 14:57 | 23°♂34'03 |             |
| conjunction      | -4646 Nov 05 j 15:16 | 9°♂45'36  | 3°41'19     | desc. node       | -4639 Apr 23 j 22:51 | 22°♂56'00 |             |
| minimum elong    | -4646 Nov 05 j 15:25 | 9°♂45'37  | 3°41'19     | min. Earth dist. | -4639 May 18 j 10:34 | 22°♂22'03 | 32.90149 AU |
| max. Earth dist. | -4646 Nov 07 j 23:29 | 9°♂50'35  | 33.42607 AU | opposition       | -4639 May 21 j 07:23 | 22°♂17'52 | -0°02'38    |
| morning rise     | -4646 Nov 20 j 10:04 | 10°♂16'45 |             | direct           | -4639 Aug 09 j 07:55 | 21°♂02'52 |             |
| retrograde       | -4645 Feb 17 j 21:29 | 12°♂05'16 |             | evening set      | -4639 Nov 03 j 07:25 | 22°♂41'17 |             |
| min. Earth dist. | -4645 May 07 j 09:38 | 10°♂50'44 | 31.53599 AU |                  |                      |           |             |
| opposition       | -4645 May 09 j 18:34 | 10°♂47'10 | 3°36'26     | conjunction      | -4639 Nov 18 j 12:05 | 23°♂11'28 | -0°18'48    |
| direct           | -4645 Jul 28 j 16:15 | 9°♂29'45  |             | minimum elong    | -4639 Nov 18 j 12:04 | 23°♂11'28 | 0°18'53     |
| evening set      | -4645 Oct 23 j 23:33 | 11°♂14'54 |             | max. Earth dist. | -4639 Nov 21 j 08:47 | 23°♂17'12 | 35.02327 AU |
|                  |                      |           |             | morning rise     | -4639 Dec 03 j 18:44 | 23°♂41'49 |             |
| conjunction      | -4645 Nov 07 j 20:11 | 11°♂45'56 | 3°06'05     | retrograde       | -4638 Mar 02 j 16:33 | 25°♂23'16 |             |
| minimum elong    | -4645 Nov 07 j 20:19 | 11°♂45'57 | 3°06'03     | min. Earth dist. | -4638 May 20 j 13:51 | 24°♂11'38 | 33.14482 AU |
| max. Earth dist. | -4645 Nov 10 j 05:50 | 11°♂50'59 | 33.64079 AU | opposition       | -4638 May 23 j 11:00 | 24°♂07'27 | -0°37'33    |
| morning rise     | -4645 Nov 22 j 18:19 | 12°♂17'06 |             | direct           | -4638 Aug 11 j 09:53 | 22°♂52'52 |             |
| retrograde       | -4644 Feb 20 j 03:05 | 14°♂04'25 |             | evening set      | -4638 Nov 05 j 08:23 | 24°♂30'24 |             |
| min. Earth dist. | -4644 May 08 j 15:02 | 12°♂50'20 | 31.75150 AU |                  |                      |           |             |
| opposition       | -4644 May 11 j 02:35 | 12°♂46'37 | 2°58'59     | conjunction      | -4638 Nov 20 j 12:41 | 25°♂00'18 | -0°51'28    |
| direct           | -4644 Jul 30 j 01:44 | 11°♂29'35 |             | minimum elong    | -4638 Nov 20 j 12:39 | 25°♂00'18 | 0°51'33     |
| evening set      | -4644 Oct 25 j 01:13 | 13°♂13'27 |             | max. Earth dist. | -4638 Nov 23 j 10:13 | 25°♂06'04 | 35.26806 AU |
|                  |                      |           |             | morning rise     | -4638 Dec 05 j 18:58 | 25°♂30'24 |             |
| conjunction      | -4644 Nov 09 j 00:26 | 13°♂44'26 | 2°31'05     | retrograde       | -4637 Mar 04 j 18:15 | 27°♂11'04 |             |
| minimum elong    | -4644 Nov 09 j 00:33 | 13°♂44'27 | 2°31'03     | min. Earth dist. | -4637 May 22 j 14:38 | 25°♂59'55 | 33.39117 AU |
| max. Earth dist. | -4644 Nov 11 j 11:49 | 13°♂49'36 | 33.85961 AU | opposition       | -4637 May 25 j 14:00 | 25°♂55'37 | -1°11'55    |
| morning rise     | -4644 Nov 24 j 01:27 | 14°♂15'35 |             | direct           | -4637 Aug 13 j 13:27 | 24°♂41'27 |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 20

Attention, astronomical year style is used: The year -4637 in astronomical counting style is the year 4638 BCE in historical counting style.

|                  |                      |                                |                  |                      |                    |             |
|------------------|----------------------|--------------------------------|------------------|----------------------|--------------------|-------------|
| evening set      | -4637 Nov 07 j 09:16 | 26° <u>♂</u> 18'09             | conjunction      | -4631 Dec 02 j 02:31 | 7° <u>♂</u> 03'01  | -4°25'14    |
|                  |                      |                                | minimum elong    | -4631 Dec 02 j 02:22 | 7° <u>♂</u> 03'01  | 4°25'21     |
| conjunction      | -4637 Nov 22 j 12:36 | 26° <u>♂</u> 47'46 -1°23'39    | max. Earth dist. | -4631 Dec 05 j 05:53 | 7° <u>♂</u> 08'56  | 37.01531 AU |
| minimum elong    | -4637 Nov 22 j 12:32 | 26° <u>♂</u> 47'46 1°23'45     | morning rise     | -4631 Dec 16 j 18:42 | 7° <u>♂</u> 30'26  |             |
| max. Earth dist. | -4637 Nov 25 j 11:26 | 26° <u>♂</u> 53'35 35.51517 AU | retrograde       | -4630 Mar 16 j 06:18 | 9° <u>♂</u> 06'51  |             |
| morning rise     | -4637 Dec 07 j 18:10 | 27° <u>♂</u> 17'33             | min. Earth dist. | -4630 Jun 03 j 13:43 | 7° <u>♂</u> 57'57  | 35.14785 AU |
| retrograde       | -4636 Mar 05 j 19:49 | 28° <u>♂</u> 57'31             | opposition       | -4630 Jun 06 j 18:19 | 7° <u>♂</u> 53'30  | -4°55'33    |
| min. Earth dist. | -4636 May 23 j 16:48 | 27° <u>♂</u> 46'42 33.63983 AU | direct           | -4630 Aug 25 j 21:48 | 6° <u>♂</u> 41'45  |             |
| opposition       | -4636 May 26 j 16:37 | 27° <u>♂</u> 42'24 -1°45'42    | evening set      | -4630 Nov 19 j 12:30 | 8° <u>♂</u> 13'49  |             |
| direct           | -4636 Aug 14 j 16:13 | 26° <u>♂</u> 28'39             |                  |                      |                    |             |
| evening set      | -4636 Nov 08 j 10:05 | 28° <u>♂</u> 04'34             | conjunction      | -4630 Dec 03 j 22:55 | 8° <u>♂</u> 40'35  | -4°53'26    |
|                  |                      |                                | minimum elong    | -4630 Dec 03 j 22:46 | 8° <u>♂</u> 40'34  | 4°53'35     |
| conjunction      | -4636 Nov 23 j 12:18 | 28° <u>♂</u> 33'51 -1°55'19    | max. Earth dist. | -4630 Dec 07 j 03:14 | 8° <u>♂</u> 46'31  | 37.26742 AU |
| minimum elong    | -4636 Nov 23 j 12:14 | 28° <u>♂</u> 33'51 1°55'24     | morning rise     | -4630 Dec 18 j 11:41 | 9° <u>♂</u> 07'32  |             |
| max. Earth dist. | -4636 Nov 26 j 12:27 | 28° <u>♂</u> 39'44 35.76404 AU | retrograde       | -4629 Mar 18 j 04:14 | 10° <u>♂</u> 43'29 |             |
| morning rise     | -4636 Dec 08 j 16:30 | 29° <u>♂</u> 03'18             | min. Earth dist. | -4629 Jun 05 j 11:41 | 9° <u>♂</u> 34'50  | 35.40227 AU |
|                  | -4635 Jan 10 j 19:30 | 0° <u>♂</u>                    | opposition       | -4629 Jun 08 j 16:39 | 9° <u>♂</u> 30'24  | -5°24'55    |
| retrograde       | -4635 Mar 07 j 18:53 | 0° <u>♂</u> 42'35              | direct           | -4629 Aug 27 j 19:14 | 8° <u>♂</u> 18'58  |             |
|                  | -4635 May 05 j 11:03 | 30° <u>♂</u> 42                | evening set      | -4629 Nov 21 j 12:07 | 9° <u>♂</u> 50'33  |             |
| min. Earth dist. | -4635 May 25 j 17:34 | 29° <u>♂</u> 32'09 33.88983 AU | conjunction      | -4629 Dec 05 j 18:51 | 10° <u>♂</u> 16'50 | -5°21'01    |
| opposition       | -4635 May 28 j 18:20 | 29° <u>♂</u> 27'49 -2°18'55    | minimum elong    | -4629 Dec 05 j 18:41 | 10° <u>♂</u> 16'49 | 5°21'09     |
| direct           | -4635 Aug 16 j 20:06 | 28° <u>♂</u> 14'26             | max. Earth dist. | -4629 Dec 09 j 00:32 | 10° <u>♂</u> 22'50 | 37.52108 AU |
| evening set      | -4635 Nov 10 j 10:59 | 29° <u>♂</u> 49'38             | morning rise     | -4629 Dec 20 j 03:38 | 10° <u>♂</u> 43'18 |             |
|                  | -4635 Nov 15 j 21:32 | 0° <u>♂</u>                    | retrograde       | -4628 Mar 18 j 22:28 | 12° <u>♂</u> 18'50 |             |
| conjunction      | -4635 Nov 25 j 11:22 | 0° <u>♂</u> 18'33 -2°26'26     | min. Earth dist. | -4628 Jun 06 j 08:26 | 11° <u>♂</u> 10'32 | 35.65814 AU |
| minimum elong    | -4635 Nov 25 j 11:16 | 0° <u>♂</u> 18'32 2°26'32      | opposition       | -4628 Jun 09 j 14:19 | 11° <u>♂</u> 06'03 | -5°53'35    |
| max. Earth dist. | -4635 Nov 28 j 11:31 | 0° <u>♂</u> 24'23 36.01370 AU  | direct           | -4628 Aug 28 j 18:46 | 9° <u>♂</u> 54'56  |             |
| morning rise     | -4635 Dec 10 j 14:05 | 0° <u>♂</u> 47'39              | evening set      | -4628 Nov 22 j 11:52 | 11° <u>♂</u> 26'06 |             |
| retrograde       | -4634 Mar 09 j 17:44 | 2° <u>♂</u> 26'17              |                  |                      |                    |             |
| min. Earth dist. | -4634 May 27 j 17:50 | 1° <u>♂</u> 16'12 34.14065 AU  | conjunction      | -4628 Dec 06 j 14:20 | 11° <u>♂</u> 51'53 | -5°47'59    |
| opposition       | -4634 May 30 j 19:37 | 1° <u>♂</u> 11'50 -2°51'31     | minimum elong    | -4628 Dec 06 j 14:09 | 11° <u>♂</u> 51'52 | 5°48'08     |
|                  | -4634 Aug 09 j 19:39 | 30° <u>♂</u> 42                | max. Earth dist. | -4628 Dec 09 j 19:59 | 11° <u>♂</u> 57'50 | 37.77609 AU |
| direct           | -4634 Aug 18 j 21:06 | 29° <u>♂</u> 58'49             | morning rise     | -4628 Dec 20 j 19:08 | 12° <u>♂</u> 17'51 |             |
|                  | -4634 Aug 27 j 20:04 | 0° <u>♂</u>                    | retrograde       | -4627 Mar 20 j 17:28 | 13° <u>♂</u> 53'02 |             |
| evening set      | -4634 Nov 12 j 11:33 | 1° <u>♂</u> 33'18              | min. Earth dist. | -4627 Jun 08 j 04:25 | 12° <u>♂</u> 45'03 | 35.91553 AU |
|                  |                      |                                | opposition       | -4627 Jun 11 j 11:24 | 12° <u>♂</u> 40'32 | -6°21'34    |
| conjunction      | -4634 Nov 27 j 09:59 | 2° <u>♂</u> 01'50 -2°57'00     | direct           | -4627 Aug 30 j 16:14 | 11° <u>♂</u> 29'46 |             |
| minimum elong    | -4634 Nov 27 j 09:53 | 2° <u>♂</u> 01'49 2°57'07      | evening set      | -4627 Nov 24 j 11:20 | 13° <u>♂</u> 00'32 |             |
| max. Earth dist. | -4634 Nov 30 j 11:51 | 2° <u>♂</u> 07'46 36.26370 AU  |                  |                      |                    |             |
| morning rise     | -4634 Dec 12 j 10:30 | 2° <u>♂</u> 30'33              | conjunction      | -4627 Dec 08 j 09:31 | 13° <u>♂</u> 25'49 | -6°14'19    |
| retrograde       | -4633 Mar 11 j 13:12 | 4° <u>♂</u> 08'35              | minimum elong    | -4627 Dec 08 j 09:19 | 13° <u>♂</u> 25'48 | 6°14'27     |
| min. Earth dist. | -4633 May 29 j 18:30 | 2° <u>♂</u> 58'46 34.39163 AU  | max. Earth dist. | -4627 Dec 11 j 16:58 | 13° <u>♂</u> 31'53 | 38.03227 AU |
| opposition       | -4633 Jun 01 j 20:16 | 2° <u>♂</u> 54'26 -3°23'29     | morning rise     | -4627 Dec 22 j 09:44 | 13° <u>♂</u> 51'16 |             |
| direct           | -4633 Aug 21 j 00:06 | 1° <u>♂</u> 41'45              |                  | -4626 Feb 05 j 16:02 | 15° <u>♂</u>       |             |
| evening set      | -4633 Nov 14 j 12:06 | 3° <u>♂</u> 15'34              | retrograde       | -4626 Mar 22 j 10:35 | 15° <u>♂</u> 26'08 |             |
|                  |                      |                                |                  | -4626 May 07 j 19:26 | 15° <u>♂</u> 18    |             |
| conjunction      | -4633 Nov 29 j 08:01 | 3° <u>♂</u> 43'41 -3°27'00     | min. Earth dist. | -4626 Jun 10 j 01:15 | 14° <u>♂</u> 18'27 | 36.17380 AU |
| minimum elong    | -4633 Nov 29 j 07:53 | 3° <u>♂</u> 43'40 3°27'06      | opposition       | -4626 Jun 13 j 08:02 | 14° <u>♂</u> 13'58 | -6°48'53    |
| max. Earth dist. | -4633 Dec 02 j 09:26 | 3° <u>♂</u> 49'32 36.51384 AU  | direct           | -4626 Sep 01 j 14:21 | 13° <u>♂</u> 03'33 |             |
| morning rise     | -4633 Dec 14 j 06:12 | 4° <u>♂</u> 11'59              | evening set      | -4626 Nov 26 j 10:41 | 14° <u>♂</u> 33'58 |             |
| retrograde       | -4632 Mar 12 j 11:38 | 5° <u>♂</u> 49'27              |                  |                      |                    |             |
| min. Earth dist. | -4632 May 30 j 16:54 | 4° <u>♂</u> 39'59 34.64300 AU  | conjunction      | -4626 Dec 10 j 04:03 | 14° <u>♂</u> 58'43 | -6°40'01    |
| opposition       | -4632 Jun 02 j 20:17 | 4° <u>♂</u> 35'34 -3°54'50     | minimum elong    | -4626 Dec 10 j 03:51 | 14° <u>♂</u> 58'42 | 6°40'11     |
| direct           | -4632 Aug 21 j 23:27 | 3° <u>♂</u> 23'12              |                  | -4626 Dec 10 j 20:55 | 15° <u>♂</u>       |             |
| evening set      | -4632 Nov 15 j 12:20 | 4° <u>♂</u> 56'23              | max. Earth dist. | -4626 Dec 13 j 11:10 | 15° <u>♂</u> 04'43 | 38.28909 AU |
|                  |                      |                                | morning rise     | -4626 Dec 23 j 23:33 | 15° <u>♂</u> 23'39 |             |
| conjunction      | -4632 Nov 30 j 05:30 | 5° <u>♂</u> 24'04 -3°56'24     | retrograde       | -4625 Mar 24 j 06:10 | 16° <u>♂</u> 58'15 |             |
| minimum elong    | -4632 Nov 30 j 05:22 | 5° <u>♂</u> 24'04 3°56'32      | min. Earth dist. | -4625 Jun 11 j 19:50 | 15° <u>♂</u> 50'57 | 36.43255 AU |
| max. Earth dist. | -4632 Dec 03 j 08:33 | 5° <u>♂</u> 30'00 36.76421 AU  | opposition       | -4625 Jun 15 j 04:10 | 15° <u>♂</u> 46'23 | -7°15'30    |
| morning rise     | -4632 Dec 15 j 00:53 | 5° <u>♂</u> 51'57              |                  | -4625 Jul 22 j 08:26 | 15° <u>♂</u> 18    |             |
| retrograde       | -4631 Mar 14 j 08:36 | 7° <u>♂</u> 28'52              | direct           | -4625 Sep 03 j 09:30 | 14° <u>♂</u> 36'19 |             |
| min. Earth dist. | -4631 Jun 01 j 16:49 | 6° <u>♂</u> 19'37 34.89493 AU  |                  | -4625 Oct 15 j 00:15 | 15° <u>♂</u>       |             |
| opposition       | -4631 Jun 04 j 19:46 | 6° <u>♂</u> 15'15 -4°25'31     | evening set      | -4625 Nov 28 j 10:01 | 16° <u>♂</u> 06'26 |             |
| direct           | -4631 Aug 23 j 22:57 | 5° <u>♂</u> 03'12              |                  |                      |                    |             |
| evening set      | -4631 Nov 17 j 12:29 | 6° <u>♂</u> 35'47              | conjunction      | -4625 Dec 11 j 22:23 | 16° <u>♂</u> 30'40 | -7°05'06    |
|                  |                      |                                | minimum elong    | -4625 Dec 11 j 22:11 | 16° <u>♂</u> 30'39 | 7°05'15     |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 21

Attention, astronomical year style is used: The year -4625 in astronomical counting style is the year 4626 BCE in historical counting style.

|                  |                      |                        |             |                  |                      |                               |             |
|------------------|----------------------|------------------------|-------------|------------------|----------------------|-------------------------------|-------------|
| max. Earth dist. | -4625 Dec 15 j 06:37 | 16° $\mathbb{M}$ 36'42 | 38.54593 AU | conjunction      | -4618 Dec 21 j 20:42 | 26° $\mathbb{M}$ 47'21        | -9°43'36    |
| morning rise     | -4625 Dec 25 j 12:53 | 16° $\mathbb{M}$ 55'03 |             | minimum elong    | -4618 Dec 21 j 20:29 | 26° $\mathbb{M}$ 47'20        | 9°43'47     |
| retrograde       | -4624 Mar 25 j 01:30 | 18° $\mathbb{M}$ 29'25 |             | max. Earth dist. | -4618 Dec 25 j 05:09 | 26° $\mathbb{M}$ 53'08        | 40.30126 AU |
| min. Earth dist. | -4624 Jun 12 j 16:26 | 17° $\mathbb{M}$ 22'22 | 36.69113 AU | morning rise     | -4617 Jan 02 j 16:31 | 27° $\mathbb{M}$ 07'39        |             |
| opposition       | -4624 Jun 15 j 23:58 | 17° $\mathbb{M}$ 17'53 | -7°41'26    | retrograde       | -4617 Apr 04 j 23:13 | 28° $\mathbb{M}$ 40'52        |             |
| direct           | -4624 Sep 04 j 04:13 | 16° $\mathbb{M}$ 08'09 |             | min. Earth dist. | -4617 Jun 23 j 22:24 | 27° $\mathbb{M}$ 35'28        | 38.45527 AU |
| evening set      | -4624 Nov 29 j 09:14 | 17° $\mathbb{M}$ 38'00 |             | opposition       | -4617 Jun 27 j 05:48 | 27° $\mathbb{M}$ 31'07        | -10°24'45   |
|                  |                      |                        |             | direct           | -4617 Sep 15 j 11:58 | 26° $\mathbb{M}$ 23'17        |             |
|                  |                      |                        |             | evening set      | -4617 Dec 12 j 01:04 | 27° $\mathbb{M}$ 51'53        |             |
| conjunction      | -4624 Dec 12 j 16:25 | 18° $\mathbb{M}$ 01'41 | -7°29'33    |                  |                      |                               |             |
| minimum elong    | -4624 Dec 12 j 16:13 | 18° $\mathbb{M}$ 01'40 | 7°29'44     |                  |                      |                               |             |
| max. Earth dist. | -4624 Dec 16 j 00:43 | 18° $\mathbb{M}$ 07'40 | 38.80221 AU | conjunction      | -4617 Dec 23 j 12:13 | 28° $\mathbb{M}$ 11'27        | -10°03'49   |
| morning rise     | -4624 Dec 26 j 01:30 | 18° $\mathbb{M}$ 25'31 |             | minimum elong    | -4617 Dec 23 j 12:00 | 28° $\mathbb{M}$ 11'26        | 10°04'00    |
| retrograde       | -4623 Mar 26 j 21:21 | 19° $\mathbb{M}$ 59'40 |             | max. Earth dist. | -4617 Dec 26 j 21:10 | 28° $\mathbb{M}$ 17'14        | 40.54620 AU |
| min. Earth dist. | -4623 Jun 14 j 10:55 | 18° $\mathbb{M}$ 52'56 | 36.94866 AU | morning rise     | -4616 Jan 04 j 00:44 | 28° $\mathbb{M}$ 31'07        |             |
| opposition       | -4623 Jun 17 j 19:11 | 18° $\mathbb{M}$ 48'26 | -8°06'43    |                  | -4616 Mar 18 j 03:15 | 0° $\mathbb{M}$               |             |
| direct           | -4623 Sep 05 j 22:41 | 17° $\mathbb{M}$ 39'01 |             | retrograde       | -4616 Apr 05 j 15:12 | 0° $\mathbb{M}$ 04'15         |             |
| evening set      | -4623 Dec 01 j 08:35 | 19° $\mathbb{M}$ 08'39 |             |                  | -4616 Apr 24 j 04:36 | 30° $\mathbb{R}$ $\mathbb{M}$ |             |
|                  |                      |                        |             | min. Earth dist. | -4616 Jun 24 j 14:07 | 28° $\mathbb{M}$ 59'06        | 38.70198 AU |
| conjunction      | -4623 Dec 14 j 10:05 | 19° $\mathbb{M}$ 31'46 | -7°53'24    | opposition       | -4616 Jun 27 j 21:59 | 28° $\mathbb{M}$ 54'45        | -10°45'29   |
| minimum elong    | -4623 Dec 14 j 09:52 | 19° $\mathbb{M}$ 31'45 | 7°53'34     | direct           | -4616 Sep 16 j 03:51 | 27° $\mathbb{M}$ 47'09        |             |
| max. Earth dist. | -4623 Dec 17 j 18:06 | 19° $\mathbb{M}$ 37'42 | 39.05693 AU | evening set      | -4616 Dec 12 j 23:28 | 29° $\mathbb{M}$ 15'42        |             |
| morning rise     | -4623 Dec 27 j 13:42 | 19° $\mathbb{M}$ 55'03 |             |                  |                      |                               |             |
| retrograde       | -4622 Mar 28 j 16:27 | 21° $\mathbb{M}$ 28'59 |             | conjunction      | -4616 Dec 24 j 03:14 | 29° $\mathbb{M}$ 34'38        | -10°23'27   |
| min. Earth dist. | -4622 Jun 16 j 06:04 | 20° $\mathbb{M}$ 22'31 | 37.20460 AU | minimum elong    | -4616 Dec 24 j 03:00 | 29° $\mathbb{M}$ 34'37        | 10°23'39    |
| opposition       | -4622 Jun 19 j 14:01 | 20° $\mathbb{M}$ 18'03 | -8°31'20    | max. Earth dist. | -4616 Dec 27 j 11:39 | 29° $\mathbb{M}$ 40'20        | 40.79049 AU |
| direct           | -4622 Sep 07 j 16:24 | 19° $\mathbb{M}$ 08'56 |             | morning rise     | -4615 Jan 04 j 08:35 | 29° $\mathbb{M}$ 53'40        |             |
| evening set      | -4622 Dec 03 j 07:40 | 20° $\mathbb{M}$ 38'21 |             |                  | -4615 Jan 08 j 03:38 | 0° $\mathbb{M}$               |             |
|                  |                      |                        |             | retrograde       | -4615 Apr 07 j 06:37 | 1° $\mathbb{M}$ 26'46         |             |
| conjunction      | -4622 Dec 16 j 03:31 | 21° $\mathbb{M}$ 00'55 | -8°16'38    | min. Earth dist. | -4615 Jun 26 j 05:47 | 0° $\mathbb{M}$ 21'51         | 38.94818 AU |
| minimum elong    | -4622 Dec 16 j 03:18 | 21° $\mathbb{M}$ 00'54 | 8°16'49     | opposition       | -4615 Jun 29 j 13:57 | 0° $\mathbb{M}$ 17'30         | -11°05'35   |
| max. Earth dist. | -4622 Dec 19 j 12:14 | 21° $\mathbb{M}$ 06'52 | 39.30981 AU |                  | -4615 Jul 13 j 02:57 | 30° $\mathbb{R}$ $\mathbb{M}$ |             |
| morning rise     | -4622 Dec 29 j 01:07 | 21° $\mathbb{M}$ 23'37 |             | direct           | -4615 Sep 17 j 19:28 | 29° $\mathbb{M}$ 10'10        |             |
| retrograde       | -4621 Mar 30 j 07:01 | 22° $\mathbb{M}$ 57'22 |             |                  | -4615 Nov 20 j 08:02 | 0° $\mathbb{M}$               |             |
| min. Earth dist. | -4621 Jun 18 j 00:52 | 21° $\mathbb{M}$ 51'08 | 37.45833 AU | evening set      | -4615 Dec 14 j 21:43 | 0° $\mathbb{M}$ 38'40         |             |
| opposition       | -4621 Jun 21 j 08:28 | 21° $\mathbb{M}$ 46'42 | -8°55'19    |                  |                      |                               |             |
| direct           | -4621 Sep 09 j 13:35 | 20° $\mathbb{M}$ 37'53 |             | conjunction      | -4615 Dec 25 j 18:06 | 0° $\mathbb{M}$ 56'58         | -10°42'28   |
| evening set      | -4621 Dec 05 j 06:38 | 22° $\mathbb{M}$ 07'06 |             | minimum elong    | -4615 Dec 25 j 17:54 | 0° $\mathbb{M}$ 56'57         | 10°42'40    |
|                  |                      |                        |             | max. Earth dist. | -4615 Dec 29 j 03:41 | 1° $\mathbb{M}$ 02'43         | 41.03411 AU |
| conjunction      | -4621 Dec 17 j 20:19 | 22° $\mathbb{M}$ 29'04 | -8°39'17    | morning rise     | -4614 Jan 05 j 15:47 | 1° $\mathbb{M}$ 15'22         |             |
| minimum elong    | -4621 Dec 17 j 20:06 | 22° $\mathbb{M}$ 29'03 | 8°39'26     | retrograde       | -4614 Apr 08 j 17:56 | 2° $\mathbb{M}$ 48'27         |             |
| max. Earth dist. | -4621 Dec 21 j 03:54 | 22° $\mathbb{M}$ 34'54 | 39.56042 AU | min. Earth dist. | -4614 Jun 27 j 21:52 | 1° $\mathbb{M}$ 43'45         | 39.19342 AU |
| morning rise     | -4621 Dec 30 j 11:56 | 22° $\mathbb{M}$ 51'11 |             | opposition       | -4614 Jul 01 j 05:23 | 1° $\mathbb{M}$ 39'26         | -11°25'03   |
| retrograde       | -4620 Mar 30 j 22:38 | 24° $\mathbb{M}$ 24'47 |             | direct           | -4614 Sep 19 j 13:58 | 0° $\mathbb{M}$ 32'22         |             |
| min. Earth dist. | -4620 Jun 18 j 18:24 | 23° $\mathbb{M}$ 18'48 | 37.70997 AU | evening set      | -4614 Dec 16 j 20:01 | 2° $\mathbb{M}$ 00'52         |             |
| opposition       | -4620 Jun 22 j 02:32 | 23° $\mathbb{M}$ 14'21 | -9°18'38    |                  |                      |                               |             |
| direct           | -4620 Sep 10 j 09:00 | 22° $\mathbb{M}$ 05'48 |             | conjunction      | -4614 Dec 27 j 08:34 | 2° $\mathbb{M}$ 18'31         | -11°00'55   |
| evening set      | -4620 Dec 06 j 05:27 | 23° $\mathbb{M}$ 34'49 |             | minimum elong    | -4614 Dec 27 j 08:20 | 2° $\mathbb{M}$ 18'31         | 11°01'07    |
|                  |                      |                        |             | max. Earth dist. | -4614 Dec 30 j 17:07 | 2° $\mathbb{M}$ 24'11         | 41.27676 AU |
| conjunction      | -4620 Dec 18 j 12:57 | 23° $\mathbb{M}$ 56'12 | -9°01'19    | morning rise     | -4613 Jan 06 j 22:25 | 2° $\mathbb{M}$ 36'16         |             |
| minimum elong    | -4620 Dec 18 j 12:44 | 23° $\mathbb{M}$ 56'11 | 9°01'30     | retrograde       | -4613 Apr 10 j 08:09 | 4° $\mathbb{M}$ 09'23         |             |
| max. Earth dist. | -4620 Dec 21 j 21:36 | 24° $\mathbb{M}$ 02'04 | 39.80891 AU | min. Earth dist. | -4613 Jun 29 j 12:13 | 3° $\mathbb{M}$ 04'59         | 39.43752 AU |
| morning rise     | -4620 Dec 30 j 22:11 | 24° $\mathbb{M}$ 17'43 |             | opposition       | -4613 Jul 02 j 20:35 | 3° $\mathbb{M}$ 00'38         | -11°43'53   |
| retrograde       | -4619 Apr 01 j 13:20 | 25° $\mathbb{M}$ 51'10 |             | direct           | -4613 Sep 21 j 05:29 | 1° $\mathbb{M}$ 53'50         |             |
| min. Earth dist. | -4619 Jun 20 j 13:02 | 24° $\mathbb{M}$ 45'20 | 37.95964 AU | evening set      | -4613 Dec 18 j 18:05 | 3° $\mathbb{M}$ 22'22         |             |
| opposition       | -4619 Jun 23 j 20:00 | 24° $\mathbb{M}$ 40'58 | -9°41'19    |                  |                      |                               |             |
| direct           | -4619 Sep 12 j 04:01 | 23° $\mathbb{M}$ 32'40 |             | conjunction      | -4613 Dec 28 j 22:43 | 3° $\mathbb{M}$ 39'22         | -11°18'47   |
| evening set      | -4619 Dec 08 j 04:12 | 25° $\mathbb{M}$ 01'30 |             | minimum elong    | -4613 Dec 28 j 22:30 | 3° $\mathbb{M}$ 39'21         | 11°18'59    |
|                  |                      |                        |             | max. Earth dist. | -4612 Jan 01 j 07:59 | 3° $\mathbb{M}$ 45'03         | 41.51787 AU |
| conjunction      | -4619 Dec 20 j 05:07 | 25° $\mathbb{M}$ 22'17 | -9°22'45    | morning rise     | -4612 Jan 08 j 04:35 | 3° $\mathbb{M}$ 56'28         |             |
| minimum elong    | -4619 Dec 20 j 04:54 | 25° $\mathbb{M}$ 22'16 | 9°22'56     | retrograde       | -4612 Apr 10 j 22:40 | 5° $\mathbb{M}$ 29'38         |             |
| max. Earth dist. | -4619 Dec 23 j 13:05 | 25° $\mathbb{M}$ 28'04 | 40.05573 AU | min. Earth dist. | -4612 Jun 30 j 04:36 | 4° $\mathbb{M}$ 25'24         | 39.67980 AU |
| morning rise     | -4618 Jan 01 j 07:40 | 25° $\mathbb{M}$ 43'12 |             | opposition       | -4612 Jul 03 j 11:36 | 4° $\mathbb{M}$ 21'09         | -12°02'08   |
| retrograde       | -4618 Apr 03 j 05:53 | 27° $\mathbb{M}$ 16'31 |             | direct           | -4612 Sep 21 j 20:15 | 3° $\mathbb{M}$ 14'37         |             |
| min. Earth dist. | -4618 Jun 22 j 04:57 | 26° $\mathbb{M}$ 10'57 | 38.20789 AU | evening set      | -4612 Dec 19 j 16:26 | 4° $\mathbb{M}$ 43'12         |             |
| opposition       | -4618 Jun 25 j 13:01 | 26° $\mathbb{M}$ 06'33 | -10°03'21   |                  |                      |                               |             |
| direct           | -4618 Sep 13 j 20:41 | 24° $\mathbb{M}$ 58'28 |             | conjunction      | -4612 Dec 29 j 12:51 | 4° $\mathbb{M}$ 59'33         | -11°36'05   |
| evening set      | -4618 Dec 10 j 02:39 | 26° $\mathbb{M}$ 27'11 |             | minimum elong    | -4612 Dec 29 j 12:38 | 4° $\mathbb{M}$ 59'32         | 11°36'17    |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 22

Attention, astronomical year style is used: The year -4611 in astronomical counting style is the year 4612 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
| max. Earth dist. | -4611 Jan 01 j 21:39 | 5°♂05'09  | 41.75689 AU | conjunction      | -4604 Jan 08 j 08:02 | 14°♂01'30 | -13°22'38   |
| morning rise     | -4611 Jan 08 j 10:17 | 5°♂15'59  |             | minimum elong    | -4604 Jan 08 j 07:51 | 14°♂01'30 | 13°22'51    |
| retrograde       | -4611 Apr 12 j 13:28 | 6°♂49'13  |             | max. Earth dist. | -4604 Jan 11 j 13:41 | 14°♂06'42 | 43.33679 AU |
| min. Earth dist. | -4611 Jul 01 j 18:41 | 5°♂45'14  | 39.91951 AU | morning rise     | -4604 Jan 15 j 10:26 | 14°♂12'53 |             |
| opposition       | -4611 Jul 05 j 01:57 | 5°♂40'59  | -12°19'47   | retrograde       | -4604 Apr 21 j 07:29 | 15°♂47'14 |             |
| direct           | -4611 Sep 23 j 10:05 | 4°♂34'42  |             | min. Earth dist. | -4604 Jul 10 j 20:31 | 14°♂44'24 | 41.50260 AU |
| evening set      | -4611 Dec 21 j 14:48 | 6°♂03'23  |             | opposition       | -4604 Jul 13 j 23:19 | 14°♂40'29 | -14°08'05   |
|                  |                      |           |             | direct           | -4604 Oct 02 j 08:48 | 13°♂35'38 |             |
| conjunction      | -4611 Dec 31 j 02:38 | 6°♂19'04  | -11°52'51   | evening set      | -4603 Jan 02 j 05:13 | 15°♂05'35 |             |
| minimum elong    | -4611 Dec 31 j 02:26 | 6°♂19'03  | 11°53'04    |                  |                      |           |             |
| max. Earth dist. | -4610 Jan 03 j 10:31 | 6°♂24'34  | 41.99293 AU | conjunction      | -4603 Jan 08 j 19:59 | 15°♂16'09 | -13°35'48   |
| morning rise     | -4610 Jan 09 j 15:37 | 6°♂34'49  |             | minimum elong    | -4603 Jan 08 j 19:49 | 15°♂16'08 | 13°36'00    |
| retrograde       | -4610 Apr 14 j 05:25 | 8°♂08'09  |             | max. Earth dist. | -4603 Jan 12 j 00:17 | 15°♂21'14 | 43.55150 AU |
| min. Earth dist. | -4610 Jul 03 j 09:59 | 7°♂04'21  | 40.15608 AU | morning rise     | -4603 Jan 15 j 11:12 | 15°♂26'44 |             |
| opposition       | -4610 Jul 06 j 16:17 | 7°♂00'11  | -12°36'53   | retrograde       | -4603 Apr 22 j 19:34 | 17°♂01'21 |             |
| direct           | -4610 Sep 24 j 22:36 | 5°♂54'08  |             | min. Earth dist. | -4603 Jul 12 j 08:32 | 15°♂58'42 | 41.71831 AU |
| evening set      | -4610 Dec 23 j 13:04 | 7°♂22'55  |             | opposition       | -4603 Jul 15 j 11:20 | 15°♂54'49 | -14°21'23   |
|                  |                      |           |             | direct           | -4603 Oct 03 j 20:43 | 14°♂50'09 |             |
| conjunction      | -4609 Jan 01 j 16:14 | 7°♂37'55  | -12°09'06   | evening set      | -4602 Jan 04 j 04:40 | 16°♂20'27 |             |
| minimum elong    | -4609 Jan 01 j 16:01 | 7°♂37'54  | 12°09'18    |                  |                      |           |             |
| max. Earth dist. | -4609 Jan 05 j 00:19 | 7°♂43'25  | 42.22557 AU | conjunction      | -4602 Jan 10 j 07:48 | 16°♂30'12 | -13°48'28   |
| morning rise     | -4609 Jan 10 j 20:12 | 7°♂52'59  |             | minimum elong    | -4602 Jan 10 j 07:37 | 16°♂30'11 | 13°48'41    |
| retrograde       | -4609 Apr 15 j 17:34 | 9°♂26'26  |             | max. Earth dist. | -4602 Jan 13 j 12:49 | 16°♂35'18 | 43.76435 AU |
| min. Earth dist. | -4609 Jul 05 j 00:56 | 8°♂22'48  | 40.38883 AU | morning rise     | -4602 Jan 16 j 11:11 | 16°♂39'57 |             |
| opposition       | -4609 Jul 08 j 06:17 | 8°♂18'41  | -12°53'26   | retrograde       | -4602 Apr 24 j 04:50 | 18°♂14'55 |             |
| direct           | -4609 Sep 26 j 14:12 | 7°♂12'52  |             | min. Earth dist. | -4602 Jul 13 j 21:43 | 17°♂12'24 | 41.93193 AU |
| evening set      | -4609 Dec 25 j 11:36 | 8°♂41'47  |             | opposition       | -4602 Jul 16 j 23:13 | 17°♂08'35 | -14°34'10   |
|                  |                      |           |             | direct           | -4602 Oct 05 j 10:25 | 16°♂04'08 |             |
| conjunction      | -4608 Jan 03 j 05:32 | 8°♂56'05  | -12°24'49   | evening set      | -4601 Jan 06 j 04:37 | 17°♂34'50 |             |
| minimum elong    | -4608 Jan 03 j 05:21 | 8°♂56'04  | 12°25'02    |                  |                      |           |             |
| max. Earth dist. | -4608 Jan 06 j 11:58 | 9°♂01'27  | 42.45440 AU | conjunction      | -4601 Jan 11 j 19:09 | 17°♂43'42 | -14°00'37   |
| morning rise     | -4608 Jan 12 j 00:22 | 9°♂10'27  |             | minimum elong    | -4601 Jan 11 j 19:00 | 17°♂43'41 | 14°00'50    |
| retrograde       | -4608 Apr 16 j 05:55 | 10°♂44'01 |             | max. Earth dist. | -4601 Jan 14 j 23:04 | 17°♂48'43 | 43.97519 AU |
| min. Earth dist. | -4608 Jul 05 j 14:36 | 9°♂40'35  | 40.61784 AU | morning rise     | -4601 Jan 17 j 09:54 | 17°♂52'35 |             |
| opposition       | -4608 Jul 08 j 19:56 | 9°♂36'30  | -13°09'26   | retrograde       | -4601 Apr 25 j 15:12 | 19°♂27'57 |             |
| direct           | -4608 Sep 27 j 04:29 | 8°♂30'53  |             | min. Earth dist. | -4601 Jul 15 j 08:44 | 18°♂25'41 | 42.14334 AU |
| evening set      | -4608 Dec 26 j 10:01 | 9°♂59'56  |             | opposition       | -4601 Jul 18 j 10:50 | 18°♂21'50 | -14°46'26   |
|                  |                      |           |             | direct           | -4601 Oct 06 j 23:14 | 17°♂17'36 |             |
| conjunction      | -4607 Jan 03 j 18:39 | 10°♂13'32 | -12°40'02   | evening set      | -4600 Jan 08 j 05:20 | 18°♂48'46 |             |
| minimum elong    | -4607 Jan 03 j 18:27 | 10°♂13'31 | 12°40'15    |                  |                      |           |             |
| max. Earth dist. | -4607 Jan 07 j 01:24 | 10°♂18'53 | 42.67946 AU | conjunction      | -4600 Jan 13 j 06:28 | 18°♂56'42 | -14°12'18   |
| morning rise     | -4607 Jan 12 j 04:01 | 10°♂27'11 |             | minimum elong    | -4600 Jan 13 j 06:18 | 18°♂56'42 | 14°12'32    |
| retrograde       | -4607 Apr 17 j 16:48 | 12°♂00'54 |             | max. Earth dist. | -4600 Jan 16 j 10:15 | 19°♂01'41 | 44.18354 AU |
| min. Earth dist. | -4607 Jul 07 j 05:38 | 10°♂57'34 | 40.84314 AU | morning rise     | -4600 Jan 18 j 07:44 | 19°♂04'40 |             |
| opposition       | -4607 Jul 10 j 09:20 | 10°♂53'34 | -13°24'55   | retrograde       | -4600 Apr 26 j 04:17 | 20°♂40'31 |             |
| direct           | -4607 Sep 28 j 20:10 | 9°♂48'10  |             | min. Earth dist. | -4600 Jul 15 j 21:45 | 19°♂38'21 | 42.35208 AU |
| evening set      | -4607 Dec 28 j 08:39 | 11°♂17'23 |             | opposition       | -4600 Jul 18 j 22:15 | 19°♂34'36 | -14°58'12   |
|                  |                      |           |             | direct           | -4600 Oct 07 j 09:35 | 18°♂30'35 |             |
| conjunction      | -4606 Jan 05 j 07:25 | 11°♂30'14 | -12°54'45   | evening set      | -4599 Jan 09 j 07:27 | 20°♂02'19 |             |
| minimum elong    | -4606 Jan 05 j 07:14 | 11°♂30'14 | 12°54'59    |                  |                      |           |             |
| max. Earth dist. | -4606 Jan 08 j 13:03 | 11°♂35'29 | 42.90118 AU | conjunction      | -4599 Jan 13 j 17:45 | 20°♂09'15 | -14°23'31   |
| morning rise     | -4606 Jan 13 j 06:48 | 11°♂43'10 |             | minimum elong    | -4599 Jan 13 j 17:37 | 20°♂09'15 | 14°23'45    |
| retrograde       | -4606 Apr 19 j 06:08 | 13°♂17'03 |             | max. Earth dist. | -4599 Jan 16 j 21:05 | 20°♂14'11 | 44.38904 AU |
| min. Earth dist. | -4606 Jul 08 j 18:05 | 12°♂13'55 | 41.06531 AU | morning rise     | -4599 Jan 18 j 04:05 | 20°♂16'12 |             |
| opposition       | -4606 Jul 11 j 22:10 | 12°♂09'54 | -13°39'50   | retrograde       | -4599 Apr 27 j 16:33 | 21°♂52'36 |             |
| direct           | -4606 Sep 30 j 08:35 | 11°♂04'41 |             | min. Earth dist. | -4599 Jul 17 j 09:09 | 20°♂50'38 | 42.55739 AU |
| evening set      | -4606 Dec 30 j 07:15 | 12°♂34'06 |             | opposition       | -4599 Jul 20 j 09:19 | 20°♂46'54 | -15°09'30   |
|                  |                      |           |             | direct           | -4599 Oct 08 j 19:14 | 19°♂43'04 |             |
| conjunction      | -4605 Jan 06 j 19:49 | 12°♂46'13 | -13°08'57   | evening set      | -4598 Jan 11 j 11:13 | 21°♂15'30 |             |
| minimum elong    | -4605 Jan 06 j 19:38 | 12°♂46'12 | 13°09'10    |                  |                      |           |             |
| max. Earth dist. | -4605 Jan 10 j 01:06 | 12°♂51'25 | 43.12005 AU | conjunction      | -4598 Jan 15 j 04:42 | 21°♂21'19 | -14°34'17   |
| morning rise     | -4605 Jan 14 j 09:01 | 12°♂58'23 |             | minimum elong    | -4598 Jan 15 j 04:33 | 21°♂21'19 | 14°34'31    |
| retrograde       | -4605 Apr 20 j 19:42 | 14°♂32'29 |             | morning rise     | -4598 Jan 18 j 22:09 | 21°♂27'08 |             |
| min. Earth dist. | -4605 Jul 10 j 08:01 | 13°♂29'28 | 41.28506 AU | max. Earth dist. | -4598 Jan 18 j 06:25 | 21°♂26'07 | 44.59076 AU |
| opposition       | -4605 Jul 13 j 10:58 | 13°♂25'32 | -13°54'14   | retrograde       | -4598 Apr 29 j 04:33 | 23°♂04'13 |             |
| direct           | -4605 Oct 01 j 19:50 | 12°♂20'30 |             | min. Earth dist. | -4598 Jul 18 j 21:06 | 22°♂02'23 | 42.75882 AU |
| evening set      | -4604 Jan 01 j 06:02 | 13°♂50'09 |             | opposition       | -4598 Jul 21 j 20:15 | 21°♂58'44 | -15°20'19   |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 23

Attention, astronomical year style is used: The year -4598 in astronomical counting style is the year 4599 BCE in historical counting style.

|                  |                      |                      |             |                  |                      |                     |             |
|------------------|----------------------|----------------------|-------------|------------------|----------------------|---------------------|-------------|
| direct           | -4598 Oct 10 j 05:23 | 20° $\nearrow$ 55'05 |             | conjunction      | -4590 Jan 24 j 14:01 | 0° $\searrow$ 37'56 | -15°45'14   |
| evening set      | -4597 Jan 13 j 18:21 | 22° $\nearrow$ 28'25 |             | minimum elong    | -4590 Jan 24 j 13:56 | 0° $\searrow$ 37'55 | 15°45'27    |
|                  |                      |                      |             | max. Earth dist. | -4590 Jan 27 j 10:09 | 0° $\searrow$ 42'13 | 46.06155 AU |
| conjunction      | -4597 Jan 16 j 15:41 | 22° $\nearrow$ 32'54 | -14°44'37   | retrograde       | -4590 May 08 j 05:19 | 2° $\searrow$ 17'22 |             |
| minimum elong    | -4597 Jan 16 j 15:34 | 22° $\nearrow$ 32'54 | 14°44'51    | min. Earth dist. | -4590 Jul 28 j 11:18 | 1° $\searrow$ 16'20 | 44.22696 AU |
| morning rise     | -4597 Jan 19 j 12:56 | 22° $\nearrow$ 37'23 |             | opposition       | -4590 Jul 31 j 03:12 | 1° $\searrow$ 13'06 | -16°31'12   |
| max. Earth dist. | -4597 Jan 19 j 17:30 | 22° $\nearrow$ 37'41 | 44.78836 AU | direct           | -4590 Oct 19 j 19:50 | 0° $\searrow$ 10'34 |             |
| retrograde       | -4597 Apr 30 j 12:37 | 24° $\nearrow$ 15'21 |             |                  |                      |                     |             |
| min. Earth dist. | -4597 Jul 20 j 09:22 | 23° $\nearrow$ 13'36 | 42.95570 AU | conjunction      | -4589 Jan 25 j 23:21 | 1° $\searrow$ 45'12 | -15°52'12   |
| opposition       | -4597 Jul 23 j 07:00 | 23° $\nearrow$ 10'02 | -15°30'43   | minimum elong    | -4589 Jan 25 j 23:17 | 1° $\searrow$ 45'12 | 15°52'26    |
| direct           | -4597 Oct 11 j 18:34 | 22° $\nearrow$ 06'33 |             | max. Earth dist. | -4589 Jan 28 j 18:39 | 1° $\searrow$ 49'26 | 46.23240 AU |
| evening set      | -4596 Jan 16 j 09:22 | 23° $\nearrow$ 41'18 |             | retrograde       | -4589 May 09 j 15:09 | 3° $\searrow$ 24'17 |             |
|                  |                      |                      |             | min. Earth dist. | -4589 Jul 29 j 19:56 | 2° $\searrow$ 23'26 | 44.39759 AU |
| conjunction      | -4596 Jan 18 j 02:19 | 23° $\nearrow$ 43'57 | -14°54'32   | opposition       | -4589 Aug 01 j 12:04 | 2° $\searrow$ 20'12 | -16°38'05   |
| minimum elong    | -4596 Jan 18 j 02:11 | 23° $\nearrow$ 43'56 | 14°54'46    | direct           | -4589 Oct 21 j 04:25 | 1° $\searrow$ 17'50 |             |
| morning rise     | -4596 Jan 19 j 19:04 | 23° $\nearrow$ 46'35 |             |                  |                      |                     |             |
| max. Earth dist. | -4596 Jan 21 j 02:04 | 23° $\nearrow$ 48'35 | 44.98145 AU | conjunction      | -4588 Jan 27 j 08:25 | 2° $\searrow$ 52'09 | -15°58'45   |
| retrograde       | -4596 Apr 30 j 22:06 | 25° $\nearrow$ 25'56 |             | minimum elong    | -4588 Jan 27 j 08:21 | 2° $\searrow$ 52'09 | 15°58'58    |
| min. Earth dist. | -4596 Jul 20 j 20:01 | 24° $\nearrow$ 24'20 | 43.14798 AU | max. Earth dist. | -4588 Jan 30 j 02:38 | 2° $\searrow$ 56'17 | 46.40057 AU |
| opposition       | -4596 Jul 23 j 17:29 | 24° $\nearrow$ 20'47 | -15°40'40   | retrograde       | -4588 May 10 j 02:14 | 4° $\searrow$ 30'54 |             |
| direct           | -4596 Oct 12 j 06:12 | 23° $\nearrow$ 17'27 |             | min. Earth dist. | -4588 Jul 30 j 06:12 | 3° $\searrow$ 30'09 | 44.56539 AU |
|                  |                      |                      |             | opposition       | -4588 Aug 01 j 20:56 | 3° $\searrow$ 27'00 | -16°44'34   |
| conjunction      | -4595 Jan 18 j 12:53 | 24° $\nearrow$ 54'24 | -15°04'02   | direct           | -4588 Oct 21 j 11:18 | 2° $\searrow$ 24'48 |             |
| minimum elong    | -4595 Jan 18 j 12:46 | 24° $\nearrow$ 54'24 | 15°04'16    |                  |                      |                     |             |
| max. Earth dist. | -4595 Jan 21 j 12:11 | 24° $\nearrow$ 58'59 | 45.16990 AU | conjunction      | -4587 Jan 27 j 17:39 | 3° $\searrow$ 58'49 | -16°04'55   |
| retrograde       | -4595 May 02 j 07:11 | 26° $\nearrow$ 35'57 |             | minimum elong    | -4587 Jan 27 j 17:35 | 3° $\searrow$ 58'49 | 16°05'10    |
| min. Earth dist. | -4595 Jul 22 j 08:19 | 25° $\nearrow$ 34'22 | 43.33578 AU | max. Earth dist. | -4587 Jan 30 j 11:55 | 4° $\searrow$ 02'57 | 46.56566 AU |
| opposition       | -4595 Jul 25 j 03:40 | 25° $\nearrow$ 30'56 | -15°50'12   | retrograde       | -4587 May 11 j 11:03 | 5° $\searrow$ 37'13 |             |
| direct           | -4595 Oct 13 j 18:01 | 24° $\nearrow$ 27'44 |             | min. Earth dist. | -4587 Jul 31 j 15:42 | 4° $\searrow$ 36'36 | 44.72960 AU |
|                  |                      |                      |             | opposition       | -4587 Aug 03 j 05:21 | 4° $\searrow$ 33'32 | -16°50'38   |
| conjunction      | -4594 Jan 19 j 23:13 | 26° $\nearrow$ 04'15 | -15°13'08   | direct           | -4587 Oct 22 j 19:43 | 3° $\searrow$ 31'29 |             |
| minimum elong    | -4594 Jan 19 j 23:05 | 26° $\nearrow$ 04'15 | 15°13'21    |                  |                      |                     |             |
| max. Earth dist. | -4594 Jan 22 j 21:41 | 26° $\nearrow$ 08'46 | 45.35430 AU | conjunction      | -4586 Jan 29 j 02:36 | 5° $\searrow$ 05'13 | -16°10'43   |
| retrograde       | -4594 May 03 j 17:24 | 27° $\nearrow$ 45'20 |             | minimum elong    | -4586 Jan 29 j 02:33 | 5° $\searrow$ 05'13 | 16°10'56    |
| min. Earth dist. | -4594 Jul 23 j 18:17 | 26° $\nearrow$ 43'54 | 43.51967 AU | max. Earth dist. | -4586 Jan 31 j 18:42 | 5° $\searrow$ 09'12 | 46.72696 AU |
| opposition       | -4594 Jul 26 j 13:33 | 26° $\nearrow$ 40'28 | -15°59'17   | retrograde       | -4586 May 12 j 20:19 | 6° $\searrow$ 43'18 |             |
| direct           | -4594 Oct 15 j 04:07 | 25° $\nearrow$ 37'23 |             | min. Earth dist. | -4586 Aug 02 j 00:40 | 5° $\searrow$ 42'50 | 44.88978 AU |
|                  |                      |                      |             | opposition       | -4586 Aug 04 j 13:49 | 5° $\searrow$ 39'47 | -16°56'20   |
| conjunction      | -4593 Jan 21 j 09:00 | 27° $\nearrow$ 13'29 | -15°21'47   | direct           | -4586 Oct 24 j 03:53 | 4° $\searrow$ 37'54 |             |
| minimum elong    | -4593 Jan 21 j 08:54 | 27° $\nearrow$ 13'29 | 15°22'02    |                  |                      |                     |             |
| max. Earth dist. | -4593 Jan 24 j 06:13 | 27° $\nearrow$ 17'53 | 45.53509 AU | conjunction      | -4585 Jan 30 j 11:25 | 6° $\searrow$ 11'21 | -16°16'09   |
| retrograde       | -4593 May 05 j 05:38 | 28° $\nearrow$ 54'08 |             | minimum elong    | -4585 Jan 30 j 11:21 | 6° $\searrow$ 11'20 | 16°16'23    |
| min. Earth dist. | -4593 Jul 25 j 05:05 | 27° $\nearrow$ 52'46 | 43.70040 AU | max. Earth dist. | -4585 Feb 02 j 03:14 | 6° $\searrow$ 15'17 | 46.88385 AU |
| opposition       | -4593 Jul 27 j 23:23 | 27° $\nearrow$ 49'24 | -16°07'56   | retrograde       | -4585 May 14 j 02:23 | 7° $\searrow$ 49'06 |             |
| direct           | -4593 Oct 16 j 11:31 | 26° $\nearrow$ 46'26 |             | min. Earth dist. | -4585 Aug 03 j 11:19 | 6° $\searrow$ 48'41 | 45.04520 AU |
|                  |                      |                      |             | opposition       | -4585 Aug 05 j 22:14 | 6° $\searrow$ 45'45 | -17°01'40   |
| conjunction      | -4592 Jan 22 j 18:57 | 28° $\nearrow$ 22'09 | -15°30'02   | direct           | -4585 Oct 25 j 14:27 | 5° $\searrow$ 44'01 |             |
| minimum elong    | -4592 Jan 22 j 18:50 | 28° $\nearrow$ 22'08 | 15°30'15    |                  |                      |                     |             |
| max. Earth dist. | -4592 Jan 25 j 16:29 | 28° $\nearrow$ 26'33 | 45.71304 AU | conjunction      | -4584 Jan 31 j 20:18 | 7° $\searrow$ 17'09 | -16°21'15   |
|                  | -4592 Apr 21 j 02:59 | 0° $\searrow$        |             | minimum elong    | -4584 Jan 31 j 20:16 | 7° $\searrow$ 17'09 | 16°21'28    |
| retrograde       | -4592 May 05 j 13:48 | 0° $\searrow$ 02'21  |             | max. Earth dist. | -4584 Feb 03 j 10:29 | 7° $\searrow$ 20'59 | 47.03599 AU |
|                  | -4592 May 20 j 00:05 | 30° $\nearrow$       |             | retrograde       | -4584 May 14 j 10:00 | 8° $\searrow$ 54'35 |             |
| min. Earth dist. | -4592 Jul 25 j 15:28 | 29° $\nearrow$ 01'05 | 43.87830 AU | min. Earth dist. | -4584 Aug 03 j 19:39 | 7° $\searrow$ 54'17 | 45.19562 AU |
| opposition       | -4592 Jul 28 j 08:47 | 28° $\nearrow$ 57'46 | -16°16'08   | opposition       | -4584 Aug 06 j 06:17 | 7° $\searrow$ 51'22 | -17°06'40   |
| direct           | -4592 Oct 16 j 22:19 | 27° $\nearrow$ 54'56 |             | direct           | -4584 Oct 26 j 00:17 | 6° $\searrow$ 49'45 |             |
|                  |                      |                      |             |                  |                      |                     |             |
| conjunction      | -4591 Jan 23 j 04:35 | 29° $\nearrow$ 30'16 | -15°37'50   | conjunction      | -4583 Feb 01 j 04:57 | 8° $\searrow$ 22'35 | -16°26'00   |
| minimum elong    | -4591 Jan 23 j 04:30 | 29° $\nearrow$ 30'16 | 15°38'05    | minimum elong    | -4583 Feb 01 j 04:54 | 8° $\searrow$ 22'35 | 16°26'14    |
| max. Earth dist. | -4591 Jan 26 j 00:32 | 29° $\nearrow$ 34'34 | 45.88849 AU | max. Earth dist. | -4583 Feb 03 j 17:31 | 8° $\searrow$ 26'19 | 47.18309 AU |
|                  | -4591 Feb 12 j 02:28 | 0° $\searrow$        |             | retrograde       | -4583 May 15 j 21:16 | 9° $\searrow$ 59'41 |             |
| retrograde       | -4591 May 06 j 21:45 | 1° $\searrow$ 10'04  |             | min. Earth dist. | -4583 Aug 05 j 05:39 | 8° $\searrow$ 59'25 | 45.34119 AU |
| min. Earth dist. | -4591 Jul 27 j 00:38 | 0° $\searrow$ 08'57  | 44.05385 AU | opposition       | -4583 Aug 07 j 14:21 | 8° $\searrow$ 56'36 | -17°11'18   |
| opposition       | -4591 Jul 29 j 18:04 | 0° $\searrow$ 05'39  | -16°23'53   | direct           | -4583 Oct 27 j 06:25 | 7° $\searrow$ 55'05 |             |
|                  | -4591 Aug 03 j 10:00 | 30° $\nearrow$       |             |                  |                      |                     |             |
| direct           | -4591 Oct 18 j 08:37 | 29° $\nearrow$ 02'57 |             | conjunction      | -4582 Feb 02 j 13:26 | 9° $\searrow$ 27'37 | -16°30'26   |
|                  | -4591 Dec 29 j 18:41 | 0° $\searrow$        |             | minimum elong    | -4582 Feb 02 j 13:25 | 9° $\searrow$ 27'37 | 16°30'40    |
|                  |                      |                      |             | max. Earth dist. | -4582 Feb 05 j 01:40 | 9° $\searrow$ 31'18 | 47.32561 AU |

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Attention, astronomical year style is used: The year -4582 in astronomical counting style is the year 4583 BCE in historical counting style.

|                  |                      |                          |             |                  |                      |                          |             |
|------------------|----------------------|--------------------------|-------------|------------------|----------------------|--------------------------|-------------|
| retrograde       | -4582 May 17 j 05:22 | 11° $\overline{3}$ 04'22 |             | direct           | -4574 Nov 06 j 03:36 | 17° $\overline{3}$ 26'09 |             |
| min. Earth dist. | -4582 Aug 06 j 14:15 | 10° $\overline{3}$ 04'10 | 45.48223 AU |                  |                      |                          |             |
| opposition       | -4582 Aug 08 j 22:04 | 10° $\overline{3}$ 01'24 | -17°15'36   | conjunction      | -4573 Feb 12 j 11:46 | 18° $\overline{3}$ 56'26 | -16°54'37   |
| direct           | -4582 Oct 28 j 13:54 | 8° $\overline{3}$ 59'59  |             | minimum elong    | -4573 Feb 12 j 11:49 | 18° $\overline{3}$ 56'26 | 16°54'49    |
|                  |                      |                          |             | max. Earth dist. | -4573 Feb 14 j 14:28 | 18° $\overline{3}$ 59'27 | 48.45866 AU |
| conjunction      | -4581 Feb 03 j 21:38 | 10° $\overline{3}$ 32'12 | -16°34'30   | retrograde       | -4573 May 26 j 21:23 | 20° $\overline{3}$ 30'38 |             |
| minimum elong    | -4581 Feb 03 j 21:36 | 10° $\overline{3}$ 32'12 | 16°34'44    | min. Earth dist. | -4573 Aug 16 j 15:07 | 19° $\overline{3}$ 31'04 | 46.60340 AU |
| max. Earth dist. | -4581 Feb 06 j 07:52 | 10° $\overline{3}$ 35'45 | 47.46408 AU | opposition       | -4573 Aug 18 j 13:28 | 19° $\overline{3}$ 28'48 | -17°38'08   |
| retrograde       | -4581 May 18 j 13:31 | 12° $\overline{3}$ 08'37 |             | direct           | -4573 Nov 07 j 10:37 | 18° $\overline{3}$ 28'19 |             |
| min. Earth dist. | -4581 Aug 07 j 22:29 | 11° $\overline{3}$ 08'29 | 45.61965 AU |                  |                      |                          |             |
| opposition       | -4581 Aug 10 j 05:40 | 11° $\overline{3}$ 05'46 | -17°19'31   | conjunction      | -4572 Feb 13 j 19:22 | 19° $\overline{3}$ 58'24 | -16°55'42   |
| direct           | -4581 Oct 29 j 21:10 | 10° $\overline{3}$ 04'25 |             | minimum elong    | -4572 Feb 13 j 19:24 | 19° $\overline{3}$ 58'24 | 16°55'55    |
|                  |                      |                          |             | max. Earth dist. | -4572 Feb 15 j 21:08 | 20° $\overline{3}$ 01'21 | 48.56513 AU |
| conjunction      | -4580 Feb 05 j 05:47 | 11° $\overline{3}$ 36'21 | -16°38'14   | retrograde       | -4572 May 27 j 05:12 | 21° $\overline{3}$ 32'21 |             |
| minimum elong    | -4580 Feb 05 j 05:47 | 11° $\overline{3}$ 36'21 | 16°38'28    | min. Earth dist. | -4572 Aug 16 j 22:35 | 20° $\overline{3}$ 32'51 | 46.70722 AU |
| max. Earth dist. | -4580 Feb 07 j 16:09 | 11° $\overline{3}$ 39'54 | 47.59908 AU | opposition       | -4572 Aug 18 j 19:58 | 20° $\overline{3}$ 30'38 | -17°39'01   |
| retrograde       | -4580 May 18 j 17:50 | 13° $\overline{3}$ 12'26 |             | direct           | -4572 Nov 07 j 16:37 | 19° $\overline{3}$ 30'14 |             |
| min. Earth dist. | -4580 Aug 08 j 07:38 | 12° $\overline{3}$ 12'20 | 45.75368 AU |                  |                      |                          |             |
| opposition       | -4580 Aug 10 j 13:09 | 12° $\overline{3}$ 09'41 | -17°23'05   | conjunction      | -4571 Feb 14 j 02:43 | 21° $\overline{3}$ 00'06 | -16°56'31   |
| direct           | -4580 Oct 30 j 07:55 | 11° $\overline{3}$ 08'27 |             | minimum elong    | -4571 Feb 14 j 02:47 | 21° $\overline{3}$ 00'06 | 16°56'43    |
|                  |                      |                          |             | max. Earth dist. | -4571 Feb 16 j 02:00 | 21° $\overline{3}$ 02'54 | 48.66615 AU |
| conjunction      | -4579 Feb 05 j 13:51 | 12° $\overline{3}$ 40'06 | -16°41'36   | retrograde       | -4571 May 28 j 13:47 | 22° $\overline{3}$ 33'48 |             |
| minimum elong    | -4579 Feb 05 j 13:50 | 12° $\overline{3}$ 40'06 | 16°41'49    | min. Earth dist. | -4571 Aug 18 j 06:18 | 21° $\overline{3}$ 34'19 | 46.80579 AU |
| max. Earth dist. | -4579 Feb 07 j 22:45 | 12° $\overline{3}$ 43'33 | 47.73111 AU | opposition       | -4571 Aug 20 j 02:17 | 21° $\overline{3}$ 32'11 | -17°39'38   |
| retrograde       | -4579 May 19 j 23:50 | 14° $\overline{3}$ 15'52 |             | direct           | -4571 Nov 08 j 21:41 | 20° $\overline{3}$ 31'51 |             |
| min. Earth dist. | -4579 Aug 09 j 14:33 | 13° $\overline{3}$ 15'53 | 45.88483 AU |                  |                      |                          |             |
| opposition       | -4579 Aug 11 j 20:14 | 13° $\overline{3}$ 13'14 | -17°26'17   | conjunction      | -4570 Feb 15 j 10:02 | 22° $\overline{3}$ 01'31 | -16°57'02   |
| direct           | -4579 Oct 31 j 16:44 | 12° $\overline{3}$ 12'05 |             | minimum elong    | -4570 Feb 15 j 10:04 | 22° $\overline{3}$ 01'31 | 16°57'16    |
|                  |                      |                          |             | max. Earth dist. | -4570 Feb 17 j 08:55 | 22° $\overline{3}$ 04'18 | 48.76209 AU |
| conjunction      | -4578 Feb 06 j 21:39 | 13° $\overline{3}$ 43'28 | -16°44'36   | retrograde       | -4570 May 29 j 18:11 | 23° $\overline{3}$ 34'58 |             |
| minimum elong    | -4578 Feb 06 j 21:40 | 13° $\overline{3}$ 43'28 | 16°44'50    | min. Earth dist. | -4570 Aug 19 j 14:25 | 22° $\overline{3}$ 35'29 | 46.89940 AU |
| max. Earth dist. | -4578 Feb 09 j 05:42 | 13° $\overline{3}$ 46'52 | 47.86031 AU | opposition       | -4570 Aug 21 j 08:34 | 22° $\overline{3}$ 33'26 | -17°39'57   |
| retrograde       | -4578 May 21 j 08:20 | 15° $\overline{3}$ 18'57 |             | direct           | -4570 Nov 10 j 06:04 | 21° $\overline{3}$ 33'10 |             |
| min. Earth dist. | -4578 Aug 10 j 23:27 | 14° $\overline{3}$ 19'00 | 46.01325 AU |                  |                      |                          |             |
| opposition       | -4578 Aug 13 j 03:29 | 14° $\overline{3}$ 16'26 | -17°29'06   | conjunction      | -4569 Feb 16 j 16:59 | 23° $\overline{3}$ 02'38 | -16°57'17   |
| direct           | -4578 Nov 01 j 23:50 | 13° $\overline{3}$ 15'24 |             | minimum elong    | -4569 Feb 16 j 17:04 | 23° $\overline{3}$ 02'38 | 16°57'30    |
|                  |                      |                          |             | max. Earth dist. | -4569 Feb 18 j 14:01 | 23° $\overline{3}$ 05'18 | 48.85356 AU |
| conjunction      | -4577 Feb 08 j 05:22 | 14° $\overline{3}$ 46'32 | -16°47'16   | retrograde       | -4569 May 30 j 23:03 | 24° $\overline{3}$ 35'50 |             |
| minimum elong    | -4577 Feb 08 j 05:23 | 14° $\overline{3}$ 46'32 | 16°47'28    | min. Earth dist. | -4569 Aug 20 j 20:41 | 23° $\overline{3}$ 36'25 | 46.98880 AU |
| max. Earth dist. | -4577 Feb 10 j 13:21 | 14° $\overline{3}$ 49'54 | 47.98692 AU | opposition       | -4569 Aug 22 j 14:38 | 23° $\overline{3}$ 34'23 | -17°39'58   |
| retrograde       | -4577 May 22 j 16:49 | 16° $\overline{3}$ 21'44 |             | direct           | -4569 Nov 11 j 13:51 | 22° $\overline{3}$ 34'10 |             |
| min. Earth dist. | -4577 Aug 12 j 06:52 | 15° $\overline{3}$ 21'53 | 46.13876 AU |                  |                      |                          |             |
| opposition       | -4577 Aug 14 j 10:29 | 15° $\overline{3}$ 19'21 | -17°31'35   | conjunction      | -4568 Feb 17 j 23:59 | 24° $\overline{3}$ 03'27 | -16°57'14   |
| direct           | -4577 Nov 03 j 06:15 | 14° $\overline{3}$ 18'25 |             | minimum elong    | -4568 Feb 18 j 00:02 | 24° $\overline{3}$ 03'27 | 16°57'26    |
|                  |                      |                          |             | max. Earth dist. | -4568 Feb 19 j 19:59 | 24° $\overline{3}$ 06'02 | 48.94100 AU |
| conjunction      | -4576 Feb 09 j 13:00 | 15° $\overline{3}$ 49'20 | -16°49'35   | retrograde       | -4568 May 31 j 05:13 | 25° $\overline{3}$ 36'25 |             |
| minimum elong    | -4576 Feb 09 j 13:02 | 15° $\overline{3}$ 49'20 | 16°49'48    | min. Earth dist. | -4568 Aug 21 j 04:44 | 24° $\overline{3}$ 36'59 | 47.07450 AU |
| max. Earth dist. | -4576 Feb 11 j 19:01 | 15° $\overline{3}$ 52'34 | 48.11057 AU | opposition       | -4568 Aug 22 j 20:35 | 24° $\overline{3}$ 35'03 | -17°39'40   |
| retrograde       | -4576 May 23 j 02:35 | 17° $\overline{3}$ 24'15 |             | direct           | -4568 Nov 11 j 21:11 | 23° $\overline{3}$ 34'54 |             |
| min. Earth dist. | -4576 Aug 12 j 14:30 | 16° $\overline{3}$ 24'30 | 46.26121 AU |                  |                      |                          |             |
| opposition       | -4576 Aug 14 j 17:19 | 16° $\overline{3}$ 22'01 | -17°33'42   | conjunction      | -4567 Feb 18 j 06:59 | 25° $\overline{3}$ 03'59 | -16°56'52   |
| direct           | -4576 Nov 03 j 10:44 | 15° $\overline{3}$ 21'12 |             | minimum elong    | -4567 Feb 18 j 07:05 | 25° $\overline{3}$ 03'59 | 16°57'05    |
|                  |                      |                          |             | max. Earth dist. | -4567 Feb 20 j 02:34 | 25° $\overline{3}$ 06'32 | 49.02511 AU |
| conjunction      | -4575 Feb 09 j 20:45 | 16° $\overline{3}$ 51'54 | -16°51'34   | retrograde       | -4567 Jun 01 j 12:13 | 26° $\overline{3}$ 36'45 |             |
| minimum elong    | -4575 Feb 09 j 20:47 | 16° $\overline{3}$ 51'54 | 16°51'47    | min. Earth dist. | -4567 Aug 22 j 10:49 | 25° $\overline{3}$ 37'23 | 47.15687 AU |
| max. Earth dist. | -4575 Feb 12 j 02:40 | 16° $\overline{3}$ 55'07 | 48.23083 AU | opposition       | -4567 Aug 24 j 02:24 | 25° $\overline{3}$ 35'28 | -17°39'03   |
| retrograde       | -4575 May 24 j 08:26 | 18° $\overline{3}$ 26'34 |             | direct           | -4567 Nov 13 j 03:09 | 24° $\overline{3}$ 35'22 |             |
| min. Earth dist. | -4575 Aug 13 j 23:14 | 17° $\overline{3}$ 26'52 | 46.37983 AU |                  |                      |                          |             |
| opposition       | -4575 Aug 16 j 00:09 | 17° $\overline{3}$ 24'28 | -17°35'29   | conjunction      | -4566 Feb 19 j 13:34 | 26° $\overline{3}$ 04'17 | -16°56'12   |
| direct           | -4575 Nov 04 j 18:49 | 16° $\overline{3}$ 23'47 |             | minimum elong    | -4566 Feb 19 j 13:38 | 26° $\overline{3}$ 04'17 | 16°56'25    |
|                  |                      |                          |             | max. Earth dist. | -4566 Feb 21 j 07:08 | 26° $\overline{3}$ 06'43 | 49.10610 AU |
| conjunction      | -4574 Feb 11 j 04:15 | 17° $\overline{3}$ 54'15 | -16°53'14   | retrograde       | -4566 Jun 02 j 21:54 | 27° $\overline{3}$ 36'50 |             |
| minimum elong    | -4574 Feb 11 j 04:17 | 17° $\overline{3}$ 54'16 | 16°53'28    | min. Earth dist. | -4566 Aug 23 j 17:32 | 26° $\overline{3}$ 37'31 | 47.23635 AU |
| max. Earth dist. | -4574 Feb 13 j 08:25 | 17° $\overline{3}$ 57'23 | 48.34712 AU | opposition       | -4566 Aug 25 j 08:13 | 26° $\overline{3}$ 35'40 | -17°38'08   |
| retrograde       | -4574 May 25 j 13:30 | 19° $\overline{3}$ 28'41 |             | direct           | -4566 Nov 14 j 05:30 | 25° $\overline{3}$ 35'38 |             |
| min. Earth dist. | -4574 Aug 15 j 06:12 | 18° $\overline{3}$ 29'06 | 46.49410 AU |                  |                      |                          |             |
| opposition       | -4574 Aug 17 j 06:47 | 18° $\overline{3}$ 26'44 | -17°36'57   | conjunction      | -4565 Feb 20 j 20:19 | 27° $\overline{3}$ 04'24 | -16°55'14   |



## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 25

Attention, astronomical year style is used: The year -4565 in astronomical counting style is the year 4566 BCE in historical counting style.

|                  |                      |                          |             |                  |                      |                     |             |
|------------------|----------------------|--------------------------|-------------|------------------|----------------------|---------------------|-------------|
| minimum elong    | -4565 Feb 20 j 20:25 | 27° $\overline{3}$ 04'24 | 16°55'27    | conjunction      | -4557 Mar 01 j 00:29 | 5° $\approx$ 00'11  | -16°37'30   |
| max. Earth dist. | -4565 Feb 22 j 14:02 | 27° $\overline{3}$ 06'50 | 49.18426 AU | minimum elong    | -4557 Mar 01 j 00:37 | 5° $\approx$ 00'11  | 16°37'42    |
| retrograde       | -4565 Jun 04 j 03:54 | 28° $\overline{3}$ 36'45 |             | max. Earth dist. | -4557 Mar 02 j 07:15 | 5° $\approx$ 01'57  | 49.66567 AU |
| min. Earth dist. | -4565 Aug 25 j 00:41 | 27° $\overline{3}$ 37'28 | 47.31281 AU | retrograde       | -4557 Jun 11 j 22:46 | 6° $\approx$ 31'10  |             |
| opposition       | -4565 Aug 26 j 13:53 | 27° $\overline{3}$ 35'40 | -17°36'53   | min. Earth dist. | -4557 Sep 02 j 05:02 | 5° $\approx$ 32'01  | 47.77292 AU |
| direct           | -4565 Nov 15 j 11:29 | 26° $\overline{3}$ 35'43 |             | opposition       | -4557 Sep 03 j 08:28 | 5° $\approx$ 30'42  | -17°16'55   |
|                  |                      |                          |             | direct           | -4557 Nov 23 j 14:10 | 4° $\approx$ 31'07  |             |
| conjunction      | -4564 Feb 22 j 02:56 | 28° $\overline{3}$ 04'21 | -16°53'58   |                  |                      |                     |             |
| minimum elong    | -4564 Feb 22 j 03:01 | 28° $\overline{3}$ 04'21 | 16°54'10    | conjunction      | -4556 Mar 01 j 06:40 | 5° $\approx$ 58'43  | -16°34'07   |
| max. Earth dist. | -4564 Feb 23 j 18:56 | 28° $\overline{3}$ 06'41 | 49.25953 AU | minimum elong    | -4556 Mar 01 j 06:49 | 5° $\approx$ 58'44  | 16°34'19    |
| retrograde       | -4564 Jun 04 j 07:28 | 29° $\overline{3}$ 36'31 |             | max. Earth dist. | -4556 Mar 02 j 11:14 | 6° $\approx$ 00'22  | 49.70514 AU |
| min. Earth dist. | -4564 Aug 25 j 06:21 | 28° $\overline{3}$ 37'20 | 47.38615 AU | retrograde       | -4556 Jun 12 j 07:23 | 7° $\approx$ 29'32  |             |
| opposition       | -4564 Aug 26 j 19:26 | 28° $\overline{3}$ 35'33 | -17°35'21   | min. Earth dist. | -4556 Sep 02 j 11:25 | 6° $\approx$ 30'21  | 47.81004 AU |
| direct           | -4564 Nov 15 j 19:05 | 27° $\overline{3}$ 35'41 |             | opposition       | -4556 Sep 03 j 13:29 | 6° $\approx$ 29'06  | -17°13'14   |
|                  |                      |                          |             | direct           | -4556 Nov 23 j 16:59 | 5° $\approx$ 29'33  |             |
| conjunction      | -4563 Feb 22 j 09:32 | 29° $\overline{3}$ 04'11 | -16°52'24   |                  |                      |                     |             |
| minimum elong    | -4563 Feb 22 j 09:38 | 29° $\overline{3}$ 04'11 | 16°52'37    | conjunction      | -4555 Mar 02 j 12:55 | 6° $\approx$ 57'02  | -16°30'28   |
| max. Earth dist. | -4563 Feb 24 j 00:29 | 29° $\overline{3}$ 06'27 | 49.33133 AU | minimum elong    | -4555 Mar 02 j 13:03 | 6° $\approx$ 57'03  | 16°30'39    |
|                  | -4563 Apr 06 j 06:16 | 0° $\approx$             |             | max. Earth dist. | -4555 Mar 03 j 17:26 | 6° $\approx$ 58'41  | 49.74114 AU |
| retrograde       | -4563 Jun 05 j 12:12 | 0° $\approx$ 36'12       |             | retrograde       | -4555 Jun 13 j 13:12 | 8° $\approx$ 27'42  |             |
|                  | -4563 Aug 06 j 00:20 | 30° $\overline{R}$       |             | opposition       | -4555 Sep 04 j 18:19 | 7° $\approx$ 27'19  | -17°09'16   |
| min. Earth dist. | -4563 Aug 26 j 14:00 | 29° $\overline{3}$ 37'01 | 47.45582 AU | min. Earth dist. | -4555 Sep 03 j 17:35 | 7° $\approx$ 28'30  | 47.84379 AU |
| opposition       | -4563 Aug 28 j 00:56 | 29° $\overline{3}$ 35'20 | -17°33'30   | direct           | -4555 Nov 24 j 21:49 | 6° $\approx$ 27'46  |             |
| direct           | -4563 Nov 17 j 02:58 | 28° $\overline{3}$ 35'33 |             |                  |                      |                     |             |
|                  | -4562 Feb 20 j 20:50 | 0° $\approx$             |             | conjunction      | -4554 Mar 03 j 18:56 | 7° $\approx$ 55'10  | -16°26'33   |
|                  |                      |                          |             | minimum elong    | -4554 Mar 03 j 19:06 | 7° $\approx$ 55'11  | 16°26'44    |
| conjunction      | -4562 Feb 23 j 16:11 | 0° $\approx$ 03'55       | -16°50'33   | max. Earth dist. | -4554 Mar 04 j 21:44 | 7° $\approx$ 56'43  | 49.77418 AU |
| minimum elong    | -4562 Feb 23 j 16:18 | 0° $\approx$ 03'55       | 16°50'45    | retrograde       | -4554 Jun 14 j 17:49 | 9° $\approx$ 25'41  |             |
| max. Earth dist. | -4562 Feb 25 j 06:22 | 0° $\approx$ 06'08       | 49.39936 AU | opposition       | -4554 Sep 05 j 23:08 | 8° $\approx$ 25'22  | -17°05'00   |
| retrograde       | -4562 Jun 06 j 19:06 | 1° $\approx$ 35'46       |             | min. Earth dist. | -4554 Sep 04 j 22:29 | 8° $\approx$ 26'33  | 47.87473 AU |
| min. Earth dist. | -4562 Aug 27 j 19:57 | 0° $\approx$ 36'40       | 47.52123 AU | direct           | -4554 Nov 26 j 03:00 | 7° $\approx$ 25'51  |             |
| opposition       | -4562 Aug 29 j 06:18 | 0° $\approx$ 35'01       | -17°31'23   |                  |                      |                     |             |
|                  | -4562 Sep 30 j 15:06 | 30° $\overline{R}$       |             | conjunction      | -4553 Mar 05 j 00:51 | 8° $\approx$ 53'11  | -16°22'20   |
| direct           | -4562 Nov 18 j 08:28 | 29° $\overline{3}$ 35'18 |             | minimum elong    | -4553 Mar 05 j 00:59 | 8° $\approx$ 53'12  | 16°22'30    |
|                  | -4561 Jan 05 j 05:01 | 0° $\approx$             |             | max. Earth dist. | -4553 Mar 06 j 02:45 | 8° $\approx$ 54'40  | 49.80435 AU |
|                  |                      |                          |             | retrograde       | -4553 Jun 15 j 21:13 | 10° $\approx$ 23'36 |             |
| conjunction      | -4561 Feb 24 j 22:34 | 1° $\approx$ 03'33       | -16°48'26   | min. Earth dist. | -4553 Sep 06 j 05:15 | 9° $\approx$ 24'26  | 47.90275 AU |
| minimum elong    | -4561 Feb 24 j 22:41 | 1° $\approx$ 03'33       | 16°48'39    | opposition       | -4553 Sep 07 j 04:03 | 9° $\approx$ 23'20  | -17°00'27   |
| max. Earth dist. | -4561 Feb 26 j 10:25 | 1° $\approx$ 05'37       | 49.46278 AU | direct           | -4553 Nov 27 j 10:29 | 8° $\approx$ 23'52  |             |
| retrograde       | -4561 Jun 08 j 03:41 | 2° $\approx$ 35'15       |             |                  |                      |                     |             |
| min. Earth dist. | -4561 Aug 29 j 03:08 | 1° $\approx$ 36'08       | 47.58183 AU | conjunction      | -4552 Mar 05 j 06:58 | 9° $\approx$ 51'08  | -16°17'51   |
| opposition       | -4561 Aug 30 j 11:47 | 1° $\approx$ 34'34       | -17°29'00   | minimum elong    | -4552 Mar 05 j 07:09 | 9° $\approx$ 51'09  | 16°18'02    |
| direct           | -4561 Nov 19 j 11:49 | 0° $\approx$ 34'55       |             | max. Earth dist. | -4552 Mar 06 j 08:20 | 9° $\approx$ 52'36  | 49.83174 AU |
|                  |                      |                          |             | retrograde       | -4552 Jun 16 j 02:43 | 11° $\approx$ 21'27 |             |
| conjunction      | -4560 Feb 26 j 05:18 | 2° $\approx$ 03'02       | -16°46'05   | min. Earth dist. | -4552 Sep 06 j 10:10 | 10° $\approx$ 22'21 | 47.92769 AU |
| minimum elong    | -4560 Feb 26 j 05:26 | 2° $\approx$ 03'03       | 16°46'16    | opposition       | -4552 Sep 07 j 08:39 | 10° $\approx$ 21'17 | -16°55'38   |
| max. Earth dist. | -4560 Feb 27 j 16:33 | 2° $\approx$ 05'05       | 49.52113 AU | direct           | -4552 Nov 27 j 16:00 | 9° $\approx$ 21'52  |             |
| retrograde       | -4560 Jun 08 j 09:25 | 3° $\approx$ 34'33       |             |                  |                      |                     |             |
| min. Earth dist. | -4560 Aug 29 j 10:14 | 2° $\approx$ 35'26       | 47.63704 AU | conjunction      | -4551 Mar 06 j 12:57 | 10° $\approx$ 49'06 | -16°13'05   |
| opposition       | -4560 Aug 30 j 17:03 | 2° $\approx$ 33'57       | -17°26'22   | minimum elong    | -4551 Mar 06 j 13:07 | 10° $\approx$ 49'06 | 16°13'16    |
| direct           | -4560 Nov 19 j 17:34 | 1° $\approx$ 34'20       |             | max. Earth dist. | -4551 Mar 07 j 12:12 | 10° $\approx$ 50'25 | 49.85584 AU |
|                  |                      |                          |             | retrograde       | -4551 Jun 17 j 10:57 | 12° $\approx$ 19'20 |             |
| conjunction      | -4559 Feb 26 j 11:50 | 3° $\approx$ 02'20       | -16°43'28   | opposition       | -4551 Sep 08 j 13:27 | 11° $\approx$ 19'15 | -16°50'31   |
| minimum elong    | -4559 Feb 26 j 11:57 | 3° $\approx$ 02'20       | 16°43'40    | min. Earth dist. | -4551 Sep 07 j 16:29 | 11° $\approx$ 20'15 | 47.94921 AU |
| max. Earth dist. | -4559 Feb 27 j 20:40 | 3° $\approx$ 04'14       | 49.57425 AU | direct           | -4551 Nov 28 j 18:14 | 10° $\approx$ 19'53 |             |
| retrograde       | -4559 Jun 09 j 14:24 | 4° $\approx$ 33'40       |             |                  |                      |                     |             |
| opposition       | -4559 Aug 31 j 22:17 | 3° $\approx$ 33'07       | -17°23'29   | conjunction      | -4550 Mar 07 j 18:56 | 11° $\approx$ 47'05 | -16°08'05   |
| min. Earth dist. | -4559 Aug 30 j 16:06 | 3° $\approx$ 34'34       | 47.68704 AU | minimum elong    | -4550 Mar 07 j 19:06 | 11° $\approx$ 47'06 | 16°08'16    |
| direct           | -4559 Nov 20 j 23:53 | 2° $\approx$ 33'31       |             | max. Earth dist. | -4550 Mar 08 j 17:56 | 11° $\approx$ 48'24 | 49.87616 AU |
|                  |                      |                          |             | retrograde       | -4550 Jun 18 j 16:56 | 13° $\approx$ 17'15 |             |
| conjunction      | -4558 Feb 27 j 18:07 | 4° $\approx$ 01'23       | -16°40'37   | opposition       | -4550 Sep 09 j 18:11 | 12° $\approx$ 17'15 | -16°45'10   |
| minimum elong    | -4558 Feb 27 j 18:15 | 4° $\approx$ 01'24       | 16°40'48    | min. Earth dist. | -4550 Sep 08 j 22:43 | 12° $\approx$ 18'11 | 47.96647 AU |
| max. Earth dist. | -4558 Mar 01 j 01:43 | 4° $\approx$ 03'13       | 49.62218 AU | direct           | -4550 Nov 29 j 22:47 | 11° $\approx$ 17'57 |             |
| retrograde       | -4558 Jun 10 j 18:13 | 5° $\approx$ 32'32       |             |                  |                      |                     |             |
| min. Earth dist. | -4558 Aug 31 j 23:40 | 4° $\approx$ 33'22       | 47.73212 AU | conjunction      | -4549 Mar 09 j 00:58 | 12° $\approx$ 45'08 | -16°02'49   |
| opposition       | -4558 Sep 02 j 03:33 | 4° $\approx$ 32'02       | -17°20'20   | minimum elong    | -4549 Mar 09 j 01:09 | 12° $\approx$ 45'08 | 16°02'59    |
| direct           | -4558 Nov 22 j 07:16 | 3° $\approx$ 32'27       |             | max. Earth dist. | -4549 Mar 09 j 21:41 | 12° $\approx$ 46'19 | 49.89209 AU |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 26

Attention, astronomical year style is used: The year -4549 in astronomical counting style is the year 4550 BCE in historical counting style.

|                  |                      |          |             |                  |                      |          |             |
|------------------|----------------------|----------|-------------|------------------|----------------------|----------|-------------|
| retrograde       | -4549 Jun 19 j 22:22 | 14°15'13 |             | minimum elong    | -4541 Mar 17 j 00:47 | 20°27'09 | 15°12'25    |
| opposition       | -4549 Sep 10 j 22:46 | 13°15'17 | -16°39'34   | max. Earth dist. | -4541 Mar 17 j 09:51 | 20°27'40 | 49.84759 AU |
| min. Earth dist. | -4549 Sep 10 j 04:04 | 13°16'10 | 47.97903 AU | retrograde       | -4541 Jun 27 j 14:52 | 21°56'39 |             |
| direct           | -4549 Dec 01 j 03:47 | 12°16'01 |             | opposition       | -4541 Sep 18 j 10:57 | 20°56'54 | -15°46'00   |
|                  |                      |          |             | min. Earth dist. | -4541 Sep 18 j 02:51 | 20°57'17 | 47.90939 AU |
| conjunction      | -4548 Mar 09 j 07:08 | 13°43'11 | -15°57'20   | direct           | -4541 Dec 08 j 21:32 | 19°57'34 |             |
| minimum elong    | -4548 Mar 09 j 07:18 | 13°43'12 | 15°57'31    |                  |                      |          |             |
| max. Earth dist. | -4548 Mar 10 j 02:22 | 13°44'17 | 49.90286 AU | conjunction      | -4540 Mar 17 j 06:35 | 21°24'32 | -15°04'47   |
|                  | -4548 May 15 j 08:33 | 15°      |             | minimum elong    | -4540 Mar 17 j 06:46 | 21°24'32 | 15°04'56    |
| retrograde       | -4548 Jun 20 j 02:10 | 15°13'12 |             | max. Earth dist. | -4540 Mar 17 j 15:39 | 21°25'02 | 49.82567 AU |
|                  | -4548 Jul 26 j 02:46 | 15°      |             | retrograde       | -4540 Jun 27 j 20:56 | 22°54'00 |             |
| min. Earth dist. | -4548 Sep 10 j 11:26 | 14°14'06 | 47.98620 AU | opposition       | -4540 Sep 18 j 15:25 | 21°54'17 | -15°38'07   |
| opposition       | -4548 Sep 11 j 03:35 | 14°13'19 | -16°33'44   | min. Earth dist. | -4540 Sep 18 j 08:24 | 21°54'37 | 47.88458 AU |
| direct           | -4548 Dec 01 j 10:30 | 13°14'05 |             | direct           | -4540 Dec 09 j 01:52 | 20°54'57 |             |
|                  |                      |          |             | evening set      | -4539 Mar 17 j 06:02 | 22°20'13 |             |
| conjunction      | -4547 Mar 10 j 13:16 | 14°41'12 | -15°51'37   | conjunction      | -4539 Mar 18 j 12:24 | 22°21'56 | -14°57'04   |
| minimum elong    | -4547 Mar 10 j 13:28 | 14°41'13 | 15°51'46    | minimum elong    | -4539 Mar 18 j 12:37 | 22°21'57 | 14°57'14    |
| max. Earth dist. | -4547 Mar 11 j 07:15 | 14°42'14 | 49.90832 AU | morning rise     | -4539 Mar 19 j 19:13 | 22°23'41 |             |
|                  | -4547 Mar 24 j 09:06 | 15°      |             | max. Earth dist. | -4539 Mar 18 j 19:30 | 22°22'20 | 49.80045 AU |
| retrograde       | -4547 Jun 21 j 06:02 | 16°11'09 |             | retrograde       | -4539 Jun 29 j 03:35 | 23°51'23 |             |
| opposition       | -4547 Sep 12 j 08:05 | 15°11'19 | -16°27'40   | opposition       | -4539 Sep 19 j 19:44 | 22°51'42 | -15°29'59   |
| min. Earth dist. | -4547 Sep 11 j 16:31 | 15°12'03 | 47.98793 AU | min. Earth dist. | -4539 Sep 19 j 13:21 | 22°52'00 | 47.85628 AU |
|                  | -4547 Sep 22 j 07:05 | 15°      |             | direct           | -4539 Dec 10 j 05:05 | 21°52'22 |             |
| direct           | -4547 Dec 02 j 17:22 | 14°12'04 |             | evening set      | -4538 Mar 17 j 06:22 | 23°16'01 |             |
|                  | -4546 Feb 10 j 03:12 | 15°      |             |                  |                      |          |             |
| conjunction      | -4546 Mar 11 j 19:12 | 15°39'09 | -15°45'40   | conjunction      | -4538 Mar 19 j 18:21 | 23°19'25 | -14°49'07   |
| minimum elong    | -4546 Mar 11 j 19:21 | 15°39'10 | 15°45'50    | minimum elong    | -4538 Mar 19 j 18:33 | 23°19'26 | 14°49'15    |
| max. Earth dist. | -4546 Mar 12 j 10:36 | 15°40'02 | 49.90850 AU | max. Earth dist. | -4538 Mar 20 j 00:18 | 23°19'45 | 49.77134 AU |
| retrograde       | -4546 Jun 22 j 14:19 | 17°09'01 |             | morning rise     | -4538 Mar 22 j 06:48 | 23°22'51 |             |
| opposition       | -4546 Sep 13 j 12:43 | 16°09'12 | -16°21'21   | retrograde       | -4538 Jun 30 j 07:58 | 24°48'52 |             |
| min. Earth dist. | -4546 Sep 12 j 22:59 | 16°09'51 | 47.98469 AU | opposition       | -4538 Sep 21 j 00:14 | 23°49'12 | -15°21'36   |
| direct           | -4546 Dec 03 j 20:03 | 15°09'57 |             | min. Earth dist. | -4538 Sep 20 j 20:07 | 23°49'24 | 47.82381 AU |
|                  |                      |          |             | direct           | -4538 Dec 11 j 10:45 | 22°49'52 |             |
| conjunction      | -4545 Mar 13 j 01:10 | 16°36'59 | -15°39'29   | evening set      | -4537 Mar 17 j 16:51 | 24°12'27 |             |
| minimum elong    | -4545 Mar 13 j 01:22 | 16°37'00 | 15°39'39    | conjunction      | -4537 Mar 21 j 00:20 | 24°16'58 | -14°40'55   |
| max. Earth dist. | -4545 Mar 13 j 16:17 | 16°37'51 | 49.90390 AU | minimum elong    | -4537 Mar 21 j 00:32 | 24°16'58 | 14°41'03    |
| retrograde       | -4545 Jun 23 j 21:03 | 18°06'46 |             | max. Earth dist. | -4537 Mar 21 j 05:08 | 24°17'14 | 49.73786 AU |
| opposition       | -4545 Sep 14 j 17:15 | 17°06'57 | -16°14'48   | morning rise     | -4537 Mar 24 j 08:19 | 24°21'30 |             |
| min. Earth dist. | -4545 Sep 14 j 05:01 | 17°07'32 | 47.97677 AU | retrograde       | -4537 Jul 01 j 11:24 | 25°46'25 |             |
| direct           | -4545 Dec 04 j 23:33 | 16°07'41 |             | opposition       | -4537 Sep 22 j 04:38 | 24°46'47 | -15°12'59   |
|                  |                      |          |             | min. Earth dist. | -4537 Sep 22 j 01:07 | 24°46'57 | 47.78646 AU |
| conjunction      | -4544 Mar 13 j 07:06 | 17°34'42 | -15°33'03   | direct           | -4537 Dec 12 j 17:33 | 23°47'26 |             |
| minimum elong    | -4544 Mar 13 j 07:16 | 17°34'42 | 15°33'13    | evening set      | -4536 Mar 17 j 07:01 | 25°09'10 |             |
| max. Earth dist. | -4544 Mar 13 j 20:03 | 17°35'26 | 49.89506 AU |                  |                      |          |             |
| retrograde       | -4544 Jun 24 j 02:48 | 19°04'22 |             | conjunction      | -4536 Mar 21 j 06:24 | 25°14'35 | -14°32'29   |
| opposition       | -4544 Sep 14 j 21:35 | 18°04'35 | -16°08'00   | minimum elong    | -4536 Mar 21 j 06:37 | 25°14'35 | 14°32'36    |
| min. Earth dist. | -4544 Sep 14 j 09:53 | 18°05'08 | 47.96493 AU | max. Earth dist. | -4536 Mar 21 j 08:31 | 25°14'42 | 49.69915 AU |
| direct           | -4544 Dec 05 j 03:26 | 17°05'17 |             | morning rise     | -4536 Mar 25 j 06:22 | 25°20'02 |             |
| conjunction      | -4543 Mar 14 j 13:02 | 18°32'16 | -15°26'23   | retrograde       | -4536 Jul 01 j 18:21 | 26°44'02 |             |
| minimum elong    | -4543 Mar 14 j 13:15 | 18°32'17 | 15°26'32    | opposition       | -4536 Sep 22 j 09:07 | 25°44'25 | -15°04'07   |
| max. Earth dist. | -4543 Mar 15 j 00:56 | 18°32'57 | 49.88239 AU | min. Earth dist. | -4536 Sep 22 j 07:43 | 25°44'29 | 47.74379 AU |
| retrograde       | -4543 Jun 25 j 04:29 | 20°01'53 |             | direct           | -4536 Dec 12 j 21:17 | 24°45'03 |             |
| opposition       | -4543 Sep 16 j 02:08 | 19°02'05 | -16°00'56   | evening set      | -4535 Mar 17 j 23:23 | 26°06'03 |             |
| min. Earth dist. | -4543 Sep 15 j 16:24 | 19°02'33 | 47.94951 AU |                  |                      |          |             |
| direct           | -4543 Dec 06 j 11:36 | 18°02'47 |             | conjunction      | -4535 Mar 22 j 12:37 | 26°12'14 | -14°23'50   |
|                  |                      |          |             | minimum elong    | -4535 Mar 22 j 12:49 | 26°12'15 | 14°23'58    |
| conjunction      | -4542 Mar 15 j 18:48 | 19°29'44 | -15°19'27   | max. Earth dist. | -4535 Mar 22 j 14:05 | 26°12'19 | 49.65502 AU |
| minimum elong    | -4542 Mar 15 j 18:58 | 19°29'45 | 15°19'36    | morning rise     | -4535 Mar 27 j 02:22 | 26°18'28 |             |
| max. Earth dist. | -4542 Mar 16 j 06:06 | 19°30'23 | 49.86653 AU | retrograde       | -4535 Jul 03 j 01:00 | 27°41'42 |             |
| retrograde       | -4542 Jun 26 j 07:30 | 20°59'17 |             | opposition       | -4535 Sep 23 j 13:40 | 26°42'04 | -14°55'03   |
| opposition       | -4542 Sep 17 j 06:32 | 19°59'31 | -15°53'36   | min. Earth dist. | -4535 Sep 23 j 13:50 | 26°42'03 | 47.69555 AU |
| min. Earth dist. | -4542 Sep 16 j 20:55 | 19°59'58 | 47.93092 AU | direct           | -4535 Dec 14 j 01:01 | 25°42'39 |             |
| direct           | -4542 Dec 07 j 18:44 | 19°00'11 |             | evening set      | -4534 Mar 18 j 16:55 | 27°03'00 |             |
|                  |                      |          |             |                  |                      |          |             |
| conjunction      | -4541 Mar 17 j 00:35 | 20°27'09 | -15°12'15   | conjunction      | -4534 Mar 23 j 18:28 | 27°09'54 | -14°14'58   |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 27

Attention, astronomical year style is used: The year -4534 in astronomical counting style is the year 4535 BCE in historical counting style.

|                  |                      |          |             |                  |                      |          |             |
|------------------|----------------------|----------|-------------|------------------|----------------------|----------|-------------|
| minimum elong    | -4534 Mar 23 j 18:41 | 27°09'54 | 14°15'05    | morning rise     | -4528 Apr 05 j 21:00 | 3°06'15  |             |
| max. Earth dist. | -4534 Mar 23 j 17:31 | 27°09'50 | 49.60560 AU | retrograde       | -4528 Jul 09 j 14:26 | 4°25'33  |             |
| morning rise     | -4534 Mar 28 j 20:40 | 27°16'49 |             | opposition       | -4528 Sep 29 j 20:46 | 3°25'47  | -13°44'30   |
| retrograde       | -4534 Jul 04 j 08:12 | 28°39'21 |             | min. Earth dist. | -4528 Sep 30 j 05:15 | 3°25'22  | 47.24240 AU |
| opposition       | -4534 Sep 24 j 18:08 | 27°39'42 | -14°45'44   | direct           | -4528 Dec 20 j 11:14 | 2°26'01  |             |
| min. Earth dist. | -4534 Sep 24 j 19:05 | 27°39'39 | 47.64224 AU | evening set      | -4527 Mar 22 j 15:00 | 3°43'04  |             |
| direct           | -4534 Dec 15 j 04:05 | 26°40'15 |             |                  |                      |          |             |
| evening set      | -4533 Mar 19 j 11:28 | 27°59'59 |             | conjunction      | -4527 Mar 30 j 12:57 | 3°53'52  | -13°05'59   |
|                  |                      |          |             | minimum elong    | -4527 Mar 30 j 13:10 | 3°53'53  | 13°06'05    |
| conjunction      | -4533 Mar 25 j 00:33 | 28°07'32 | -14°05'52   | max. Earth dist. | -4527 Mar 30 j 03:53 | 3°53'21  | 49.15018 AU |
| minimum elong    | -4533 Mar 25 j 00:45 | 28°07'33 | 14°06'00    | morning rise     | -4527 Apr 07 j 11:37 | 4°04'43  |             |
| max. Earth dist. | -4533 Mar 24 j 22:14 | 28°07'24 | 49.55118 AU | retrograde       | -4527 Jul 10 j 17:33 | 5°23'36  |             |
| morning rise     | -4533 Mar 30 j 14:16 | 28°15'07 |             | opposition       | -4527 Oct 01 j 01:17 | 4°23'50  | -13°33'21   |
| retrograde       | -4533 Jul 05 j 10:47 | 29°36'59 |             | min. Earth dist. | -4527 Oct 01 j 09:51 | 4°23'25  | 47.16496 AU |
| opposition       | -4533 Sep 25 j 22:35 | 28°37'19 | -14°36'11   | direct           | -4527 Dec 21 j 18:17 | 3°24'02  |             |
| min. Earth dist. | -4533 Sep 26 j 01:49 | 28°37'10 | 47.58423 AU | evening set      | -4526 Mar 23 j 12:48 | 4°40'45  |             |
| direct           | -4533 Dec 16 j 11:29 | 27°37'48 |             |                  |                      |          |             |
| evening set      | -4532 Mar 19 j 06:58 | 28°57'00 |             | conjunction      | -4526 Mar 31 j 18:58 | 4°52'01  | -12°55'06   |
|                  |                      |          |             | minimum elong    | -4526 Mar 31 j 19:11 | 4°52'02  | 12°55'13    |
| conjunction      | -4532 Mar 25 j 06:40 | 29°05'09 | -13°56'31   | max. Earth dist. | -4526 Mar 31 j 07:45 | 4°51'23  | 49.07244 AU |
| minimum elong    | -4532 Mar 25 j 06:54 | 29°05'10 | 13°56'39    | morning rise     | -4526 Apr 09 j 02:00 | 5°03'21  |             |
| max. Earth dist. | -4532 Mar 25 j 03:29 | 29°04'58 | 49.49253 AU | retrograde       | -4526 Jul 11 j 23:42 | 6°21'51  |             |
| morning rise     | -4532 Mar 31 j 07:02 | 29°13'21 |             | opposition       | -4526 Oct 02 j 05:58 | 5°22'05  | -13°21'56   |
|                  | -4532 May 07 j 11:50 | 0°       |             | min. Earth dist. | -4526 Oct 02 j 16:30 | 5°21'34  | 47.08382 AU |
| retrograde       | -4532 Jul 05 j 13:32 | 0°34'37  |             | direct           | -4526 Dec 22 j 22:51 | 4°22'15  |             |
|                  | -4532 Sep 03 j 12:20 | 30°8     |             | evening set      | -4525 Mar 24 j 11:13 | 5°38'39  |             |
| opposition       | -4532 Sep 26 j 02:56 | 29°34'55 | -14°26'23   |                  |                      |          |             |
| min. Earth dist. | -4532 Sep 26 j 06:30 | 29°34'45 | 47.52216 AU | conjunction      | -4525 Apr 02 j 01:26 | 5°50'23  | -12°43'58   |
| direct           | -4532 Dec 16 j 19:00 | 28°35'21 |             | minimum elong    | -4525 Apr 02 j 01:39 | 5°50'24  | 12°44'04    |
| evening set      | -4531 Mar 20 j 02:46 | 29°54'02 |             | max. Earth dist. | -4525 Apr 01 j 13:49 | 5°49'43  | 48.99062 AU |
|                  | -4531 Mar 24 j 12:01 | 0°       |             | morning rise     | -4525 Apr 10 j 16:21 | 6°02'11  |             |
| conjunction      | -4531 Mar 26 j 12:34 | 0°02'46  | -13°46'56   | retrograde       | -4525 Jul 13 j 06:57 | 7°20'19  |             |
| minimum elong    | -4531 Mar 26 j 12:46 | 0°02'46  | 13°47'03    | opposition       | -4525 Oct 03 j 10:33 | 6°20'31  | -13°10'17   |
| max. Earth dist. | -4531 Mar 26 j 07:09 | 0°02'27  | 49.43000 AU | min. Earth dist. | -4525 Oct 03 j 22:27 | 6°19'57  | 46.99813 AU |
| morning rise     | -4531 Apr 01 j 23:06 | 0°11'32  |             | direct           | -4525 Dec 24 j 02:30 | 5°20'38  |             |
| retrograde       | -4531 Jul 06 j 20:33 | 1°32'15  |             | evening set      | -4524 Mar 24 j 10:06 | 6°36'44  |             |
| opposition       | -4531 Sep 27 j 07:22 | 0°32'32  | -14°16'19   | conjunction      | -4524 Apr 02 j 07:55 | 6°48'55  | -12°32'36   |
| min. Earth dist. | -4531 Sep 27 j 12:34 | 0°32'17  | 47.45664 AU | minimum elong    | -4524 Apr 02 j 08:08 | 6°48'56  | 12°32'43    |
|                  | -4531 Oct 27 j 05:46 | 30°8     |             | max. Earth dist. | -4524 Apr 01 j 17:42 | 6°48'07  | 48.90405 AU |
| direct           | -4531 Dec 17 j 22:07 | 29°32'54 |             | morning rise     | -4524 Apr 11 j 06:36 | 7°01'10  |             |
|                  | -4530 Feb 07 j 01:19 | 0°       |             | retrograde       | -4524 Jul 13 j 16:11 | 8°18'57  |             |
| evening set      | -4530 Mar 20 j 23:12 | 0°51'08  |             | opposition       | -4524 Oct 03 j 15:18 | 7°19'08  | -12°58'23   |
| conjunction      | -4530 Mar 27 j 18:39 | 1°00'24  | -13°37'05   | min. Earth dist. | -4524 Oct 04 j 04:13 | 7°18'31  | 46.90749 AU |
| minimum elong    | -4530 Mar 27 j 18:53 | 1°00'24  | 13°37'13    | direct           | -4524 Dec 24 j 04:28 | 6°19'10  |             |
| max. Earth dist. | -4530 Mar 27 j 13:09 | 1°00'05  | 49.36430 AU | evening set      | -4523 Mar 25 j 09:03 | 7°34'59  |             |
| morning rise     | -4530 Apr 03 j 14:46 | 1°09'43  |             | conjunction      | -4523 Apr 03 j 14:26 | 7°47'37  | -12°21'00   |
| retrograde       | -4530 Jul 08 j 02:18 | 2°29'56  |             | minimum elong    | -4523 Apr 03 j 14:40 | 7°47'37  | 12°21'05    |
| opposition       | -4530 Sep 28 j 11:48 | 1°30'11  | -14°05'59   | max. Earth dist. | -4523 Apr 02 j 22:47 | 7°46'43  | 48.81221 AU |
| min. Earth dist. | -4530 Sep 28 j 17:52 | 1°29'53  | 47.38803 AU | morning rise     | -4523 Apr 12 j 20:38 | 8°00'18  |             |
| direct           | -4530 Dec 19 j 02:35 | 0°30'30  |             | retrograde       | -4523 Jul 14 j 20:39 | 9°17'44  |             |
| evening set      | -4529 Mar 21 j 20:00 | 1°48'18  |             | opposition       | -4523 Oct 04 j 20:11 | 8°17'51  | -12°46'15   |
| conjunction      | -4529 Mar 29 j 00:34 | 1°58'06  | -13°26'59   | min. Earth dist. | -4523 Oct 05 j 11:25 | 8°17'07  | 46.81153 AU |
| minimum elong    | -4529 Mar 29 j 00:46 | 1°58'06  | 13°27'05    | direct           | -4523 Dec 25 j 10:54 | 7°17'49  |             |
| max. Earth dist. | -4529 Mar 28 j 17:13 | 1°57'41  | 49.29581 AU | evening set      | -4522 Mar 26 j 08:23 | 8°33'20  |             |
| morning rise     | -4529 Apr 05 j 05:54 | 2°07'57  |             | conjunction      | -4522 Apr 04 j 21:01 | 8°46'23  | -12°09'10   |
| retrograde       | -4529 Jul 09 j 09:43 | 3°27'40  |             | minimum elong    | -4522 Apr 04 j 21:14 | 8°46'24  | 12°09'16    |
| opposition       | -4529 Sep 29 j 16:15 | 2°27'55  | -13°55'22   | max. Earth dist. | -4522 Apr 04 j 04:09 | 8°45'25  | 48.71536 AU |
| min. Earth dist. | -4529 Sep 29 j 22:48 | 2°27'36  | 47.31668 AU | morning rise     | -4522 Apr 14 j 10:22 | 8°59'30  |             |
| direct           | -4529 Dec 20 j 05:23 | 1°28'11  |             | retrograde       | -4522 Jul 15 j 23:23 | 10°16'35 |             |
| evening set      | -4528 Mar 21 j 17:15 | 2°45'35  |             | opposition       | -4522 Oct 06 j 00:55 | 9°16'39  | -12°33'52   |
| conjunction      | -4528 Mar 29 j 06:45 | 2°55'54  | -13°16'37   | min. Earth dist. | -4522 Oct 06 j 16:41 | 9°15'53  | 46.71063 AU |
| minimum elong    | -4528 Mar 29 j 06:58 | 2°55'55  | 13°16'44    | direct           | -4522 Dec 26 j 19:20 | 8°16'30  |             |
| max. Earth dist. | -4528 Mar 28 j 22:27 | 2°55'26  | 49.22441 AU | evening set      | -4521 Mar 27 j 07:51 | 9°31'45  |             |
|                  |                      |          |             | max. Earth dist. | -4521 Apr 05 j 08:09 | 9°44'07  | 48.61366 AU |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 28

Attention, astronomical year style is used: The year -4521 in astronomical counting style is the year 4522 BCE in historical counting style.

|                  |                      |                               |             |                  |                      |                               |             |
|------------------|----------------------|-------------------------------|-------------|------------------|----------------------|-------------------------------|-------------|
| conjunction      | -4521 Apr 06 j 03:31 | 9° $\mathbf{\text{X}}$ 45'13  | -11°57'06   | evening set      | -4514 Apr 01 j 10:44 | 16° $\mathbf{\text{X}}$ 24'11 |             |
| minimum elong    | -4521 Apr 06 j 03:45 | 9° $\mathbf{\text{X}}$ 45'14  | 11°57'11    | max. Earth dist. | -4514 Apr 11 j 23:32 | 16° $\mathbf{\text{X}}$ 38'47 | 47.80567 AU |
| morning rise     | -4521 Apr 16 j 00:06 | 9° $\mathbf{\text{X}}$ 58'45  |             |                  |                      |                               |             |
| retrograde       | -4521 Jul 17 j 05:04 | 11° $\mathbf{\text{X}}$ 15'31 |             | conjunction      | -4514 Apr 13 j 03:08 | 16° $\mathbf{\text{X}}$ 40'23 | -10°25'21   |
| opposition       | -4521 Oct 07 j 05:50 | 10° $\mathbf{\text{X}}$ 15'30 | -12°21'14   | minimum elong    | -4514 Apr 13 j 03:21 | 16° $\mathbf{\text{X}}$ 40'24 | 10°25'25    |
| min. Earth dist. | -4521 Oct 07 j 23:36 | 10° $\mathbf{\text{X}}$ 14'38 | 46.60520 AU | morning rise     | -4514 Apr 24 j 20:20 | 16° $\mathbf{\text{X}}$ 56'39 |             |
| direct           | -4521 Dec 28 j 00:52 | 9° $\mathbf{\text{X}}$ 15'14  |             | retrograde       | -4514 Jul 24 j 04:17 | 18° $\mathbf{\text{X}}$ 11'45 |             |
| evening set      | -4520 Mar 27 j 07:37 | 10° $\mathbf{\text{X}}$ 30'13 |             | opposition       | -4514 Oct 13 j 17:30 | 17° $\mathbf{\text{X}}$ 11'18 | -10°45'09   |
|                  |                      |                               |             | min. Earth dist. | -4514 Oct 14 j 18:09 | 17° $\mathbf{\text{X}}$ 10'06 | 45.77525 AU |
| conjunction      | -4520 Apr 06 j 10:17 | 10° $\mathbf{\text{X}}$ 44'06 | -11°44'47   | direct           | -4513 Jan 03 j 10:54 | 16° $\mathbf{\text{X}}$ 10'23 |             |
| minimum elong    | -4520 Apr 06 j 10:30 | 10° $\mathbf{\text{X}}$ 44'07 | 11°44'52    | evening set      | -4513 Apr 02 j 12:07 | 17° $\mathbf{\text{X}}$ 24'13 |             |
| max. Earth dist. | -4520 Apr 05 j 14:32 | 10° $\mathbf{\text{X}}$ 42'58 | 48.50765 AU | max. Earth dist. | -4513 Apr 13 j 05:45 | 17° $\mathbf{\text{X}}$ 39'08 | 47.67739 AU |
| morning rise     | -4520 Apr 16 j 13:37 | 10° $\mathbf{\text{X}}$ 58'02 |             |                  |                      |                               |             |
| retrograde       | -4520 Jul 17 j 10:23 | 12° $\mathbf{\text{X}}$ 14'30 |             | conjunction      | -4513 Apr 14 j 10:29 | 17° $\mathbf{\text{X}}$ 40'48 | -10°11'11   |
| opposition       | -4520 Oct 07 j 10:39 | 11° $\mathbf{\text{X}}$ 14'24 | -12°08'20   | minimum elong    | -4513 Apr 14 j 10:41 | 17° $\mathbf{\text{X}}$ 40'49 | 10°11'15    |
| min. Earth dist. | -4520 Oct 08 j 05:26 | 11° $\mathbf{\text{X}}$ 13'29 | 46.49566 AU | morning rise     | -4513 Apr 26 j 09:25 | 17° $\mathbf{\text{X}}$ 57'26 |             |
| direct           | -4520 Dec 28 j 06:36 | 10° $\mathbf{\text{X}}$ 14'02 |             | retrograde       | -4513 Jul 25 j 11:30 | 19° $\mathbf{\text{X}}$ 12'24 |             |
| evening set      | -4519 Mar 28 j 07:40 | 11° $\mathbf{\text{X}}$ 28'46 |             | opposition       | -4513 Oct 14 j 23:06 | 18° $\mathbf{\text{X}}$ 11'53 | -10°30'19   |
|                  |                      |                               |             | min. Earth dist. | -4513 Oct 16 j 01:59 | 18° $\mathbf{\text{X}}$ 10'35 | 45.64319 AU |
| conjunction      | -4519 Apr 07 j 16:53 | 11° $\mathbf{\text{X}}$ 43'03 | -11°32'13   | direct           | -4512 Jan 04 j 16:15 | 17° $\mathbf{\text{X}}$ 10'53 |             |
| minimum elong    | -4519 Apr 07 j 17:07 | 11° $\mathbf{\text{X}}$ 43'03 | 11°32'17    | evening set      | -4512 Apr 02 j 14:04 | 18° $\mathbf{\text{X}}$ 24'39 |             |
| max. Earth dist. | -4519 Apr 06 j 19:08 | 11° $\mathbf{\text{X}}$ 41'48 | 48.39798 AU | max. Earth dist. | -4512 Apr 13 j 11:56 | 18° $\mathbf{\text{X}}$ 39'50 | 47.54453 AU |
| morning rise     | -4519 Apr 18 j 02:59 | 11° $\mathbf{\text{X}}$ 57'23 |             |                  |                      |                               |             |
| retrograde       | -4519 Jul 18 j 18:54 | 13° $\mathbf{\text{X}}$ 13'33 |             | conjunction      | -4512 Apr 14 j 18:00 | 18° $\mathbf{\text{X}}$ 41'35 | -9°56'45    |
| opposition       | -4519 Oct 08 j 15:35 | 12° $\mathbf{\text{X}}$ 13'22 | -11°55'11   | minimum elong    | -4512 Apr 14 j 18:13 | 18° $\mathbf{\text{X}}$ 41'36 | 9°56'48     |
| min. Earth dist. | -4519 Oct 09 j 11:04 | 12° $\mathbf{\text{X}}$ 12'26 | 46.38283 AU | morning rise     | -4512 Apr 26 j 22:29 | 18° $\mathbf{\text{X}}$ 58'35 |             |
| direct           | -4519 Dec 29 j 09:28 | 11° $\mathbf{\text{X}}$ 12'53 |             | retrograde       | -4512 Jul 25 j 16:14 | 20° $\mathbf{\text{X}}$ 13'24 |             |
| evening set      | -4518 Mar 29 j 07:34 | 12° $\mathbf{\text{X}}$ 27'24 |             | opposition       | -4512 Oct 15 j 04:37 | 19° $\mathbf{\text{X}}$ 12'50 | -10°15'13   |
|                  |                      |                               |             | min. Earth dist. | -4512 Oct 16 j 08:05 | 19° $\mathbf{\text{X}}$ 11'29 | 45.50623 AU |
| conjunction      | -4518 Apr 08 j 23:28 | 12° $\mathbf{\text{X}}$ 42'05 | -11°19'23   | direct           | -4511 Jan 05 j 01:06 | 18° $\mathbf{\text{X}}$ 11'43 |             |
| minimum elong    | -4518 Apr 08 j 23:40 | 12° $\mathbf{\text{X}}$ 42'06 | 11°19'27    | evening set      | -4511 Apr 03 j 16:12 | 19° $\mathbf{\text{X}}$ 25'25 |             |
| max. Earth dist. | -4518 Apr 08 j 00:49 | 12° $\mathbf{\text{X}}$ 40'47 | 48.28504 AU | max. Earth dist. | -4511 Apr 14 j 16:50 | 19° $\mathbf{\text{X}}$ 40'48 | 47.40650 AU |
| morning rise     | -4518 Apr 19 j 16:05 | 12° $\mathbf{\text{X}}$ 56'49 |             |                  |                      |                               |             |
| retrograde       | -4518 Jul 20 j 01:10 | 14° $\mathbf{\text{X}}$ 12'43 |             | conjunction      | -4511 Apr 16 j 01:35 | 19° $\mathbf{\text{X}}$ 42'43 | -9°42'05    |
| opposition       | -4518 Oct 09 j 20:44 | 13° $\mathbf{\text{X}}$ 12'27 | -11°41'44   | minimum elong    | -4511 Apr 16 j 01:47 | 19° $\mathbf{\text{X}}$ 42'44 | 9°42'09     |
| min. Earth dist. | -4518 Oct 10 j 17:57 | 13° $\mathbf{\text{X}}$ 11'26 | 46.26695 AU | morning rise     | -4511 Apr 28 j 11:38 | 20° $\mathbf{\text{X}}$ 00'04 |             |
| direct           | -4518 Dec 30 j 15:10 | 12° $\mathbf{\text{X}}$ 11'52 |             | retrograde       | -4511 Jul 26 j 22:14 | 21° $\mathbf{\text{X}}$ 14'45 |             |
| evening set      | -4517 Mar 30 j 08:01 | 13° $\mathbf{\text{X}}$ 26'12 |             | opposition       | -4511 Oct 16 j 10:30 | 20° $\mathbf{\text{X}}$ 14'06 | -9°59'52    |
| max. Earth dist. | -4517 Apr 09 j 06:54 | 13° $\mathbf{\text{X}}$ 39'56 | 48.16942 AU | min. Earth dist. | -4511 Oct 17 j 16:13 | 20° $\mathbf{\text{X}}$ 12'39 | 45.36414 AU |
|                  |                      |                               |             | direct           | -4510 Jan 06 j 08:01 | 19° $\mathbf{\text{X}}$ 12'52 |             |
| conjunction      | -4517 Apr 10 j 06:16 | 13° $\mathbf{\text{X}}$ 41'17 | -11°06'16   | evening set      | -4510 Apr 04 j 18:21 | 20° $\mathbf{\text{X}}$ 26'29 |             |
| minimum elong    | -4517 Apr 10 j 06:29 | 13° $\mathbf{\text{X}}$ 41'17 | 11°06'21    | max. Earth dist. | -4510 Apr 15 j 23:56 | 20° $\mathbf{\text{X}}$ 42'11 | 47.26336 AU |
| morning rise     | -4517 Apr 21 j 05:11 | 13° $\mathbf{\text{X}}$ 56'23 |             |                  |                      |                               |             |
| retrograde       | -4517 Jul 21 j 05:32 | 15° $\mathbf{\text{X}}$ 12'03 |             | conjunction      | -4510 Apr 17 j 09:13 | 20° $\mathbf{\text{X}}$ 44'08 | -9°27'10    |
| opposition       | -4517 Oct 11 j 01:40 | 14° $\mathbf{\text{X}}$ 11'44 | -11°28'01   | minimum elong    | -4510 Apr 17 j 09:25 | 20° $\mathbf{\text{X}}$ 44'09 | 9°27'12     |
| min. Earth dist. | -4517 Oct 11 j 22:52 | 14° $\mathbf{\text{X}}$ 10'42 | 46.14839 AU | morning rise     | -4510 Apr 30 j 00:25 | 21° $\mathbf{\text{X}}$ 01'50 |             |
| direct           | -4517 Dec 31 j 22:16 | 13° $\mathbf{\text{X}}$ 11'03 |             | retrograde       | -4510 Jul 28 j 04:14 | 22° $\mathbf{\text{X}}$ 16'24 |             |
| evening set      | -4516 Mar 30 j 08:42 | 14° $\mathbf{\text{X}}$ 25'14 |             | opposition       | -4510 Oct 17 j 16:23 | 21° $\mathbf{\text{X}}$ 15'39 | -9°44'15    |
| max. Earth dist. | -4516 Apr 09 j 11:46 | 14° $\mathbf{\text{X}}$ 39'12 | 48.05107 AU | min. Earth dist. | -4510 Oct 18 j 23:08 | 21° $\mathbf{\text{X}}$ 14'08 | 45.21691 AU |
|                  |                      |                               |             | direct           | -4509 Jan 07 j 14:47 | 20° $\mathbf{\text{X}}$ 14'17 |             |
| conjunction      | -4516 Apr 10 j 13:08 | 14° $\mathbf{\text{X}}$ 40'40 | -10°52'54   | evening set      | -4509 Apr 05 j 21:03 | 21° $\mathbf{\text{X}}$ 27'49 |             |
| minimum elong    | -4516 Apr 10 j 13:21 | 14° $\mathbf{\text{X}}$ 40'41 | 10°52'58    | max. Earth dist. | -4509 Apr 17 j 05:12 | 21° $\mathbf{\text{X}}$ 43'42 | 47.11534 AU |
| morning rise     | -4516 Apr 21 j 18:25 | 14° $\mathbf{\text{X}}$ 56'11 |             |                  |                      |                               |             |
| retrograde       | -4516 Jul 21 j 11:32 | 16° $\mathbf{\text{X}}$ 11'38 |             | conjunction      | -4509 Apr 18 j 16:58 | 21° $\mathbf{\text{X}}$ 45'49 | -9°11'59    |
| opposition       | -4516 Oct 11 j 06:58 | 15° $\mathbf{\text{X}}$ 11'15 | -11°14'00   | minimum elong    | -4509 Apr 18 j 17:10 | 21° $\mathbf{\text{X}}$ 45'49 | 9°12'02     |
| min. Earth dist. | -4516 Oct 12 j 05:55 | 15° $\mathbf{\text{X}}$ 10'08 | 46.02719 AU | morning rise     | -4509 May 01 j 13:30 | 22° $\mathbf{\text{X}}$ 03'51 |             |
| direct           | -4515 Jan 01 j 03:46 | 14° $\mathbf{\text{X}}$ 10'30 |             | retrograde       | -4509 Jul 29 j 13:59 | 23° $\mathbf{\text{X}}$ 18'18 |             |
| evening set      | -4515 Mar 31 j 09:29 | 15° $\mathbf{\text{X}}$ 24'32 |             | opposition       | -4509 Oct 18 j 22:12 | 22° $\mathbf{\text{X}}$ 17'26 | -9°28'22    |
|                  |                      |                               |             | min. Earth dist. | -4509 Oct 20 j 06:14 | 22° $\mathbf{\text{X}}$ 15'51 | 45.06512 AU |
| conjunction      | -4515 Apr 11 j 20:07 | 15° $\mathbf{\text{X}}$ 40'21 | -10°39'16   | direct           | -4508 Jan 08 j 18:26 | 21° $\mathbf{\text{X}}$ 15'54 |             |
| minimum elong    | -4515 Apr 11 j 20:21 | 15° $\mathbf{\text{X}}$ 40'22 | 10°39'20    | evening set      | -4508 Apr 05 j 23:52 | 22° $\mathbf{\text{X}}$ 29'23 |             |
| max. Earth dist. | -4515 Apr 10 j 18:43 | 15° $\mathbf{\text{X}}$ 38'53 | 47.92995 AU | max. Earth dist. | -4508 Apr 17 j 12:05 | 22° $\mathbf{\text{X}}$ 45'33 | 46.96281 AU |
| morning rise     | -4515 Apr 23 j 07:18 | 15° $\mathbf{\text{X}}$ 56'14 |             |                  |                      |                               |             |
| retrograde       | -4515 Jul 22 j 18:06 | 17° $\mathbf{\text{X}}$ 11'31 |             | conjunction      | -4508 Apr 19 j 00:59 | 22° $\mathbf{\text{X}}$ 47'44 | -8°56'33    |
| opposition       | -4515 Oct 12 j 12:13 | 16° $\mathbf{\text{X}}$ 11'06 | -10°59'43   | minimum elong    | -4508 Apr 19 j 01:12 | 22° $\mathbf{\text{X}}$ 47'44 | 8°56'36     |
| min. Earth dist. | -4515 Oct 13 j 11:58 | 16° $\mathbf{\text{X}}$ 09'56 | 45.90291 AU | morning rise     | -4508 May 02 j 02:26 | 23° $\mathbf{\text{X}}$ 06'07 |             |
| direct           | -4514 Jan 02 j 08:56 | 15° $\mathbf{\text{X}}$ 10'16 |             | retrograde       | -4508 Jul 29 j 22:34 | 24° $\mathbf{\text{X}}$ 20'27 |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 29

Attention, astronomical year style is used: The year -4508 in astronomical counting style is the year 4509 BCE in historical counting style.

|                  |                      |                           |             |                  |                      |                           |             |
|------------------|----------------------|---------------------------|-------------|------------------|----------------------|---------------------------|-------------|
| opposition       | -4508 Oct 19 j 04:20 | 23° $\text{H}$ 19'27      | -9°12'12    | max. Earth dist. | -4501 Apr 25 j 13:38 | 0° $\text{Y}$ 06'28       | 45.80837 AU |
| min. Earth dist. | -4508 Oct 20 j 14:16 | 23° $\text{H}$ 17'46      | 44.90912 AU |                  |                      |                           |             |
| direct           | -4507 Jan 09 j 00:18 | 22° $\text{H}$ 17'44      |             | conjunction      | -4501 Apr 27 j 11:26 | 0° $\text{Y}$ 09'14       | -7°00'45    |
| evening set      | -4507 Apr 07 j 02:53 | 23° $\text{H}$ 31'12      |             | minimum elong    | -4501 Apr 27 j 11:36 | 0° $\text{Y}$ 09'15       | 7°00'45     |
| max. Earth dist. | -4507 Apr 18 j 18:54 | 23° $\text{H}$ 47'38      | 46.80651 AU | morning rise     | -4501 May 11 j 19:57 | 0° $\text{Y}$ 29'52       |             |
|                  |                      |                           |             | retrograde       | -4501 Aug 07 j 04:23 | 1° $\text{Y}$ 44'00       |             |
| conjunction      | -4507 Apr 20 j 08:51 | 23° $\text{H}$ 49'52      | -8°40'51    | opposition       | -4501 Oct 27 j 02:13 | 0° $\text{Y}$ 42'07       | -7°10'46    |
| minimum elong    | -4507 Apr 20 j 09:02 | 23° $\text{H}$ 49'53      | 8°40'53     | min. Earth dist. | -4501 Oct 28 j 19:34 | 0° $\text{Y}$ 40'02       | 43.73435 AU |
| morning rise     | -4507 May 03 j 15:08 | 24° $\text{H}$ 08'35      |             |                  | -4501 Dec 04 j 07:01 | 30° $\text{R}$ $\text{H}$ |             |
| retrograde       | -4507 Jul 31 j 05:54 | 25° $\text{H}$ 22'49      |             | direct           | -4500 Jan 17 j 01:32 | 29° $\text{H}$ 39'16      |             |
| opposition       | -4507 Oct 20 j 10:23 | 24° $\text{H}$ 21'41      | -8°55'45    |                  | -4500 Feb 29 j 13:03 | 0° $\text{Y}$             |             |
| min. Earth dist. | -4507 Oct 21 j 20:26 | 24° $\text{H}$ 20'00      | 44.74964 AU | evening set      | -4500 Apr 13 j 08:13 | 0° $\text{Y}$ 53'04       |             |
| direct           | -4506 Jan 10 j 07:51 | 23° $\text{H}$ 19'48      |             | max. Earth dist. | -4500 Apr 25 j 22:25 | 1° $\text{Y}$ 11'11       | 45.63051 AU |
| evening set      | -4506 Apr 08 j 06:10 | 24° $\text{H}$ 33'14      |             |                  |                      |                           |             |
| max. Earth dist. | -4506 Apr 20 j 00:59 | 24° $\text{H}$ 49'53      | 46.64689 AU | conjunction      | -4500 Apr 27 j 20:42 | 1° $\text{Y}$ 13'59       | -6°43'05    |
|                  |                      |                           |             | minimum elong    | -4500 Apr 27 j 20:52 | 1° $\text{Y}$ 14'00       | 6°43'06     |
| conjunction      | -4506 Apr 21 j 16:51 | 24° $\text{H}$ 52'15      | -8°24'53    | morning rise     | -4500 May 12 j 08:54 | 1° $\text{Y}$ 34'55       |             |
| minimum elong    | -4506 Apr 21 j 17:03 | 24° $\text{H}$ 52'15      | 8°24'55     | retrograde       | -4500 Aug 07 j 11:00 | 2° $\text{Y}$ 49'06       |             |
| morning rise     | -4506 May 05 j 03:57 | 25° $\text{H}$ 11'17      |             | opposition       | -4500 Oct 27 j 09:30 | 1° $\text{Y}$ 47'05       | -6°52'14    |
| retrograde       | -4506 Aug 01 j 11:24 | 26° $\text{H}$ 25'27      |             | min. Earth dist. | -4500 Oct 29 j 03:38 | 1° $\text{Y}$ 44'58       | 43.55289 AU |
| opposition       | -4506 Oct 21 j 16:39 | 25° $\text{H}$ 24'10      | -8°39'00    | direct           | -4499 Jan 17 j 10:48 | 0° $\text{Y}$ 44'03       |             |
| min. Earth dist. | -4506 Oct 23 j 04:37 | 25° $\text{H}$ 22'23      | 44.58724 AU | evening set      | -4499 Apr 14 j 13:49 | 1° $\text{Y}$ 57'59       |             |
| direct           | -4505 Jan 11 j 15:35 | 24° $\text{H}$ 22'07      |             | max. Earth dist. | -4499 Apr 27 j 04:59 | 2° $\text{Y}$ 16'13       | 45.44803 AU |
| evening set      | -4505 Apr 09 j 09:38 | 25° $\text{H}$ 35'33      |             |                  |                      |                           |             |
| max. Earth dist. | -4505 Apr 21 j 09:09 | 25° $\text{H}$ 52'30      | 46.48456 AU | conjunction      | -4499 Apr 29 j 05:51 | 2° $\text{Y}$ 19'12       | -6°25'08    |
|                  |                      |                           |             | minimum elong    | -4499 Apr 29 j 06:01 | 2° $\text{Y}$ 19'12       | 6°25'08     |
| conjunction      | -4505 Apr 23 j 01:07 | 25° $\text{H}$ 54'53      | -8°08'37    | morning rise     | -4499 May 13 j 21:52 | 2° $\text{Y}$ 40'26       |             |
| minimum elong    | -4505 Apr 23 j 01:18 | 25° $\text{H}$ 54'54      | 8°08'38     | retrograde       | -4499 Aug 08 j 20:51 | 3° $\text{Y}$ 54'42       |             |
| morning rise     | -4505 May 06 j 16:39 | 26° $\text{H}$ 14'15      |             | opposition       | -4499 Oct 28 j 16:59 | 2° $\text{Y}$ 52'32       | -6°33'25    |
| retrograde       | -4505 Aug 02 j 16:24 | 27° $\text{H}$ 28'22      |             | min. Earth dist. | -4499 Oct 30 j 12:38 | 2° $\text{Y}$ 50'19       | 43.36686 AU |
| opposition       | -4505 Oct 22 j 23:04 | 26° $\text{H}$ 26'58      | -8°21'57    | direct           | -4498 Jan 18 j 16:47 | 1° $\text{Y}$ 49'18       |             |
| min. Earth dist. | -4505 Oct 24 j 11:26 | 26° $\text{H}$ 25'09      | 44.42215 AU | evening set      | -4498 Apr 15 j 19:40 | 3° $\text{Y}$ 03'21       |             |
| direct           | -4504 Jan 13 j 00:16 | 25° $\text{H}$ 24'45      |             | max. Earth dist. | -4498 Apr 28 j 13:35 | 3° $\text{Y}$ 21'50       | 45.26082 AU |
| evening set      | -4504 Apr 09 j 13:36 | 26° $\text{H}$ 38'11      |             |                  |                      |                           |             |
| max. Earth dist. | -4504 Apr 21 j 15:20 | 26° $\text{H}$ 55'20      | 46.31970 AU | conjunction      | -4498 Apr 30 j 15:28 | 3° $\text{Y}$ 24'52       | -6°06'55    |
|                  |                      |                           |             | minimum elong    | -4498 Apr 30 j 15:37 | 3° $\text{Y}$ 24'53       | 6°06'56     |
| conjunction      | -4504 Apr 23 j 09:24 | 26° $\text{H}$ 57'51      | -7°52'05    | morning rise     | -4498 May 15 j 10:50 | 3° $\text{Y}$ 46'24       |             |
| minimum elong    | -4504 Apr 23 j 09:35 | 26° $\text{H}$ 57'52      | 7°52'06     | retrograde       | -4498 Aug 10 j 06:44 | 5° $\text{Y}$ 00'44       |             |
| morning rise     | -4504 May 07 j 05:31 | 27° $\text{H}$ 17'32      |             | opposition       | -4498 Oct 30 j 00:36 | 3° $\text{Y}$ 58'24       | -6°14'18    |
| retrograde       | -4504 Aug 03 j 02:33 | 28° $\text{H}$ 31'37      |             | min. Earth dist. | -4498 Oct 31 j 22:03 | 3° $\text{Y}$ 56'06       | 43.17618 AU |
| opposition       | -4504 Oct 23 j 05:33 | 27° $\text{H}$ 30'06      | -8°04'36    | direct           | -4497 Jan 19 j 23:33 | 2° $\text{Y}$ 54'58       |             |
| min. Earth dist. | -4504 Oct 24 j 18:47 | 27° $\text{H}$ 28'14      | 44.25469 AU | evening set      | -4497 Apr 17 j 01:58 | 4° $\text{Y}$ 09'10       |             |
| direct           | -4503 Jan 13 j 04:02 | 26° $\text{H}$ 27'43      |             | max. Earth dist. | -4497 Apr 29 j 21:41 | 4° $\text{Y}$ 27'50       | 45.06928 AU |
| evening set      | -4503 Apr 10 j 17:41 | 27° $\text{H}$ 41'13      |             |                  |                      |                           |             |
| max. Earth dist. | -4503 Apr 22 j 23:22 | 27° $\text{H}$ 58'39      | 46.15227 AU | conjunction      | -4497 May 02 j 01:09 | 4° $\text{Y}$ 30'59       | -5°48'26    |
|                  |                      |                           |             | minimum elong    | -4497 May 02 j 01:18 | 4° $\text{Y}$ 30'59       | 5°48'26     |
| conjunction      | -4503 Apr 24 j 17:58 | 28° $\text{H}$ 01'12      | -7°35'15    | morning rise     | -4497 May 16 j 23:58 | 4° $\text{Y}$ 52'48       |             |
| minimum elong    | -4503 Apr 24 j 18:09 | 28° $\text{H}$ 01'12      | 7°35'16     | retrograde       | -4497 Aug 11 j 18:02 | 6° $\text{Y}$ 07'13       |             |
| morning rise     | -4503 May 08 j 18:15 | 28° $\text{H}$ 21'12      |             | opposition       | -4497 Oct 31 j 08:19 | 5° $\text{Y}$ 04'42       | -5°54'53    |
| retrograde       | -4503 Aug 04 j 11:45 | 29° $\text{H}$ 35'17      |             | min. Earth dist. | -4497 Nov 02 j 06:12 | 5° $\text{Y}$ 02'22       | 42.98134 AU |
| opposition       | -4503 Oct 24 j 12:22 | 28° $\text{H}$ 33'38      | -7°46'58    | direct           | -4496 Jan 21 j 06:59 | 4° $\text{Y}$ 01'02       |             |
| min. Earth dist. | -4503 Oct 26 j 03:10 | 28° $\text{H}$ 31'42      | 44.08454 AU | evening set      | -4496 Apr 17 j 08:38 | 5° $\text{Y}$ 15'25       |             |
| direct           | -4502 Jan 14 j 09:12 | 27° $\text{H}$ 31'06      |             | max. Earth dist. | -4496 Apr 30 j 05:38 | 5° $\text{Y}$ 34'14       | 44.87358 AU |
| evening set      | -4502 Apr 11 j 22:02 | 28° $\text{H}$ 44'41      |             |                  |                      |                           |             |
| max. Earth dist. | -4502 Apr 24 j 06:53 | 29° $\text{H}$ 02'21      | 45.98212 AU | conjunction      | -4496 May 02 j 11:03 | 5° $\text{Y}$ 37'31       | -5°29'40    |
|                  |                      |                           |             | minimum elong    | -4496 May 02 j 11:11 | 5° $\text{Y}$ 37'32       | 5°29'40     |
| conjunction      | -4502 Apr 26 j 02:29 | 29° $\text{H}$ 04'58      | -7°18'08    | morning rise     | -4496 May 17 j 13:03 | 5° $\text{Y}$ 59'37       |             |
| minimum elong    | -4502 Apr 26 j 02:40 | 29° $\text{H}$ 04'59      | 7°18'10     | retrograde       | -4496 Aug 12 j 02:26 | 7° $\text{Y}$ 14'09       |             |
| morning rise     | -4502 May 10 j 06:58 | 29° $\text{H}$ 25'18      |             | opposition       | -4496 Oct 31 j 16:18 | 6° $\text{Y}$ 11'27       | -5°35'10    |
|                  | -4502 Jun 05 j 16:42 | 0° $\text{Y}$             |             | min. Earth dist. | -4496 Nov 02 j 16:23 | 6° $\text{Y}$ 08'59       | 42.78281 AU |
| retrograde       | -4502 Aug 05 j 20:26 | 0° $\text{Y}$ 39'23       |             | direct           | -4495 Jan 21 j 16:01 | 5° $\text{Y}$ 07'33       |             |
|                  | -4502 Oct 06 j 18:58 | 30° $\text{R}$ $\text{H}$ |             | evening set      | -4495 Apr 18 j 15:31 | 6° $\text{Y}$ 22'07       |             |
| opposition       | -4502 Oct 25 j 19:10 | 29° $\text{H}$ 37'38      | -7°29'01    | max. Earth dist. | -4495 May 01 j 15:30 | 6° $\text{Y}$ 41'11       | 44.67457 AU |
| min. Earth dist. | -4502 Oct 27 j 10:16 | 29° $\text{H}$ 35'40      | 43.91134 AU |                  |                      |                           |             |
| direct           | -4501 Jan 15 j 17:14 | 28° $\text{H}$ 34'57      |             | conjunction      | -4495 May 03 j 21:08 | 6° $\text{Y}$ 44'30       | -5°10'36    |
| evening set      | -4501 Apr 13 j 02:57 | 29° $\text{H}$ 48'37      |             | minimum elong    | -4495 May 03 j 21:17 | 6° $\text{Y}$ 44'31       | 5°10'35     |
|                  | -4501 Apr 21 j 02:10 | 0° $\text{Y}$             |             | morning rise     | -4495 May 19 j 02:02 | 7° $\text{Y}$ 06'53       |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 30

Attention, astronomical year style is used: The year -4495 in astronomical counting style is the year 4496 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
| retrograde       | -4495 Aug 13 j 08:52 | 8°♊21'32  |             | conjunction      | -4488 May 12 j 01:43 | 14°♊49'41 | -2°49'02    |
| opposition       | -4495 Nov 02 j 00:25 | 7°♊18'39  | -5°15'09    | minimum elong    | -4488 May 12 j 01:47 | 14°♊49'41 | 2°48'58     |
| min. Earth dist. | -4495 Nov 04 j 00:43 | 7°♊16'10  | 42.58125 AU | morning rise     | -4488 May 27 j 22:35 | 15°♊13'52 |             |
| direct           | -4494 Jan 23 j 03:10 | 6°♊14'31  |             | retrograde       | -4488 Aug 21 j 11:40 | 16°♊30'14 |             |
| evening set      | -4494 Apr 19 j 22:43 | 7°♊29'18  |             | opposition       | -4488 Nov 09 j 16:05 | 15°♊26'02 | -2°46'10    |
| max. Earth dist. | -4494 May 02 j 23:20 | 7°♊48'29  | 44.47279 AU | min. Earth dist. | -4488 Nov 11 j 23:39 | 15°♊23'06 | 41.10952 AU |
|                  |                      |           |             | direct           | -4487 Jan 30 j 17:31 | 14°♊20'18 |             |
| conjunction      | -4494 May 05 j 07:08 | 7°♊51'57  | -4°51'16    | evening set      | -4487 Apr 27 j 14:00 | 15°♊37'25 |             |
| minimum elong    | -4494 May 05 j 07:15 | 7°♊51'58  | 4°51'14     | max. Earth dist. | -4487 May 10 j 22:27 | 15°♊57'48 | 42.99781 AU |
| morning rise     | -4494 May 20 j 15:03 | 8°♊14'37  |             |                  |                      |           |             |
| retrograde       | -4494 Aug 14 j 19:03 | 9°♊29'26  |             | conjunction      | -4487 May 13 j 13:47 | 16°♊01'53 | -2°27'38    |
| opposition       | -4494 Nov 03 j 08:46 | 8°♊26'20  | -4°54'49    | minimum elong    | -4487 May 13 j 13:51 | 16°♊01'53 | 2°27'36     |
| min. Earth dist. | -4494 Nov 05 j 10:16 | 8°♊23'47  | 42.37733 AU | morning rise     | -4487 May 29 j 12:19 | 16°♊26'18 |             |
| direct           | -4493 Jan 24 j 10:11 | 7°♊21'58  |             | retrograde       | -4487 Aug 23 j 01:51 | 17°♊43'00 |             |
| evening set      | -4493 Apr 21 j 06:20 | 8°♊36'59  |             | opposition       | -4487 Nov 11 j 02:17 | 16°♊38'35 | -2°23'38    |
| max. Earth dist. | -4493 May 04 j 09:42 | 8°♊56'26  | 44.26869 AU | min. Earth dist. | -4487 Nov 13 j 10:33 | 16°♊35'36 | 40.88760 AU |
|                  |                      |           |             | direct           | -4486 Feb 01 j 00:45 | 15°♊32'34 |             |
| conjunction      | -4493 May 06 j 17:40 | 8°♊59'56  | -4°31'37    | evening set      | -4486 Apr 29 j 00:54 | 16°♊50'06 |             |
| minimum elong    | -4493 May 06 j 17:48 | 8°♊59'56  | 4°31'36     | max. Earth dist. | -4486 May 12 j 09:22 | 17°♊10'36 | 42.77437 AU |
| morning rise     | -4493 May 22 j 04:05 | 9°♊22'51  |             |                  |                      |           |             |
| retrograde       | -4493 Aug 16 j 04:54 | 10°♊37'51 |             | conjunction      | -4486 May 15 j 02:11 | 17°♊14'48 | -2°05'58    |
| opposition       | -4493 Nov 04 j 17:20 | 9°♊34'34  | -4°34'10    | minimum elong    | -4486 May 15 j 02:15 | 17°♊14'48 | 2°05'54     |
| min. Earth dist. | -4493 Nov 06 j 19:56 | 9°♊31'57  | 42.17130 AU | morning rise     | -4486 May 31 j 01:55 | 17°♊39'26 |             |
| direct           | -4492 Jan 25 j 17:35 | 8°♊29'58  |             | retrograde       | -4486 Aug 24 j 15:00 | 18°♊56'29 |             |
| evening set      | -4492 Apr 21 j 14:31 | 9°♊45'16  |             | opposition       | -4486 Nov 12 j 12:56 | 17°♊51'50 | -2°00'47    |
| max. Earth dist. | -4492 May 04 j 19:09 | 10°♊04'53 | 44.06280 AU | min. Earth dist. | -4486 Nov 14 j 23:22 | 17°♊48'43 | 40.66174 AU |
|                  |                      |           |             | direct           | -4485 Feb 02 j 10:03 | 16°♊45'31 |             |
| conjunction      | -4492 May 07 j 04:19 | 10°♊08'28 | -4°11'41    | evening set      | -4485 Apr 30 j 12:29 | 18°♊03'30 |             |
| minimum elong    | -4492 May 07 j 04:26 | 10°♊08'29 | 4°11'40     | max. Earth dist. | -4485 May 13 j 21:23 | 18°♊24'09 | 42.54720 AU |
| morning rise     | -4492 May 22 j 17:20 | 10°♊31'39 |             |                  |                      |           |             |
| retrograde       | -4492 Aug 16 j 17:33 | 11°♊46'53 |             | conjunction      | -4485 May 16 j 14:58 | 18°♊28'25 | -1°44'01    |
| opposition       | -4492 Nov 05 j 02:08 | 10°♊43'25 | -4°13'12    | minimum elong    | -4485 May 16 j 15:01 | 18°♊28'25 | 1°43'58     |
| min. Earth dist. | -4492 Nov 07 j 04:49 | 10°♊40'47 | 41.96363 AU | morning rise     | -4485 Jun 01 j 15:49 | 18°♊53'15 |             |
| direct           | -4491 Jan 26 j 01:09 | 9°♊38'35  |             | retrograde       | -4485 Aug 26 j 03:12 | 20°♊10'40 |             |
| evening set      | -4491 Apr 22 j 22:54 | 10°♊54'12 |             | opposition       | -4485 Nov 13 j 23:35 | 19°♊05'45 | -1°37'38    |
| max. Earth dist. | -4491 May 06 j 04:36 | 11°♊13'59 | 43.85502 AU | min. Earth dist. | -4485 Nov 16 j 10:19 | 19°♊02'37 | 40.43232 AU |
|                  |                      |           |             | direct           | -4484 Feb 03 j 23:42 | 17°♊59'08 |             |
| conjunction      | -4491 May 08 j 15:06 | 11°♊17'40 | -3°51'28    | evening set      | -4484 May 01 j 00:40 | 19°♊17'35 |             |
| minimum elong    | -4491 May 08 j 15:13 | 11°♊17'40 | 3°51'27     | max. Earth dist. | -4484 May 14 j 08:03 | 19°♊38'16 | 42.31655 AU |
| morning rise     | -4491 May 24 j 06:21 | 11°♊41'06 |             |                  |                      |           |             |
| retrograde       | -4491 Aug 18 j 05:28 | 12°♊56'35 |             | conjunction      | -4484 May 17 j 04:00 | 19°♊42'43 | -1°21'47    |
| opposition       | -4491 Nov 06 j 11:18 | 11°♊52'56 | -3°51'54    | minimum elong    | -4484 May 17 j 04:02 | 19°♊42'43 | 1°21'43     |
| min. Earth dist. | -4491 Nov 08 j 15:44 | 11°♊50'12 | 41.75410 AU | morning rise     | -4484 Jun 02 j 05:45 | 20°♊07'45 |             |
| direct           | -4490 Jan 27 j 10:39 | 10°♊47'54 |             | retrograde       | -4484 Aug 26 j 15:36 | 21°♊25'33 |             |
| evening set      | -4490 Apr 24 j 07:49 | 12°♊03'51 |             | opposition       | -4484 Nov 14 j 10:47 | 20°♊20'22 | -1°14'11    |
| max. Earth dist. | -4490 May 07 j 15:42 | 12°♊23'52 | 43.64531 AU | min. Earth dist. | -4484 Nov 16 j 23:20 | 20°♊17'07 | 40.19990 AU |
|                  |                      |           |             | direct           | -4483 Feb 04 j 11:54 | 19°♊13'26 |             |
| conjunction      | -4490 May 10 j 02:18 | 12°♊27'35 | -3°30'56    | evening set      | -4483 May 02 j 13:01 | 20°♊32'22 |             |
| minimum elong    | -4490 May 10 j 02:24 | 12°♊27'35 | 3°30'55     | max. Earth dist. | -4483 May 15 j 21:21 | 20°♊53'13 | 42.08306 AU |
| morning rise     | -4490 May 25 j 19:38 | 12°♊51'16 |             |                  |                      |           |             |
| retrograde       | -4490 Aug 19 j 15:06 | 14°♊07'01 |             | conjunction      | -4483 May 18 j 17:13 | 20°♊57'41 | -0°59'16    |
| opposition       | -4490 Nov 07 j 20:28 | 13°♊03'12 | -3°30'18    | minimum elong    | -4483 May 18 j 17:15 | 20°♊57'42 | 0°59'12     |
| min. Earth dist. | -4490 Nov 10 j 01:02 | 13°♊00'27 | 41.54235 AU | morning rise     | -4483 Jun 03 j 19:26 | 21°♊22'56 |             |
| direct           | -4489 Jan 28 j 22:23 | 11°♊57'56 |             | retrograde       | -4483 Aug 28 j 02:19 | 22°♊41'09 |             |
| evening set      | -4489 Apr 25 j 17:24 | 13°♊14'16 |             | opposition       | -4483 Nov 15 j 22:14 | 21°♊35'41 | -0°50'25    |
| max. Earth dist. | -4489 May 09 j 00:53 | 13°♊34'22 | 43.43295 AU | min. Earth dist. | -4483 Nov 18 j 11:20 | 21°♊32'23 | 39.96496 AU |
|                  |                      |           |             | direct           | -4482 Feb 06 j 00:53 | 20°♊28'25 |             |
| conjunction      | -4489 May 11 j 13:47 | 13°♊38'15 | -3°10'08    | evening set      | -4482 May 04 j 02:11 | 21°♊47'53 |             |
| minimum elong    | -4489 May 11 j 13:52 | 13°♊38'15 | 3°10'06     | max. Earth dist. | -4482 May 17 j 09:07 | 22°♊08'46 | 41.84740 AU |
| morning rise     | -4489 May 27 j 09:09 | 14°♊02'12 |             |                  |                      |           |             |
| retrograde       | -4489 Aug 21 j 01:47 | 15°♊18'14 |             | conjunction      | -4482 May 20 j 06:42 | 22°♊13'23 | -0°36'28    |
| opposition       | -4489 Nov 09 j 06:07 | 14°♊14'14 | -3°08'23    | minimum elong    | -4482 May 20 j 06:43 | 22°♊13'23 | 0°36'24     |
| min. Earth dist. | -4489 Nov 11 j 12:28 | 14°♊11'23 | 41.32775 AU | morning rise     | -4482 Jun 05 j 09:28 | 22°♊38'49 |             |
| direct           | -4488 Jan 30 j 07:27 | 13°♊08'45 |             | retrograde       | -4482 Aug 29 j 15:52 | 23°♊57'29 |             |
| evening set      | -4488 Apr 26 j 03:23 | 14°♊25'27 |             | opposition       | -4482 Nov 17 j 09:49 | 22°♊51'44 | -0°26'21    |
| max. Earth dist. | -4488 May 09 j 12:22 | 14°♊45'45 | 43.21722 AU | min. Earth dist. | -4482 Nov 19 j 23:37 | 22°♊48'23 | 39.72832 AU |
|                  |                      |           |             | direct           | -4481 Feb 07 j 10:58 | 21°♊44'08 |             |

Attention, astronomical year style is used: The year -4481 in astronomical counting style is the year 4482 BCE in historical counting style.

|                  |                      |                         |             |                  |                      |                         |             |  |
|------------------|----------------------|-------------------------|-------------|------------------|----------------------|-------------------------|-------------|--|
| evening set      | -4481 May 05 j 15:51 | 23° $\Upsilon$ 04'10    |             |                  | -4475 Jan 03 j 09:54 | 30° $\kappa$ $\Upsilon$ |             |  |
| max. Earth dist. | -4481 May 18 j 22:30 | 23° $\Upsilon$ 25'10    | 41.61001 AU | direct           | -4475 Feb 14 j 14:39 | 29° $\Upsilon$ 38'36    |             |  |
|                  |                      |                         |             |                  | -4475 Mar 28 j 08:52 | 0° $\mathcal{B}$        |             |  |
| conjunction      | -4481 May 21 j 20:44 | 23° $\Upsilon$ 29'51    | -0°13'25    | evening set      | -4475 May 13 j 16:05 | 1° $\mathcal{B}$ 03'01  |             |  |
| minimum elong    | -4481 May 21 j 20:44 | 23° $\Upsilon$ 29'51    | 0°13'21     | max. Earth dist. | -4475 May 26 j 12:50 | 1° $\mathcal{B}$ 24'16  | 40.15798 AU |  |
| behind sun begin | -4481 May 21 j 17:09 | 23° $\Upsilon$ 29'38    |             |                  |                      |                         |             |  |
| behind sun end   | -4481 May 22 j 00:20 | 23° $\Upsilon$ 30'04    |             | conjunction      | -4475 May 29 j 16:28 | 1° $\mathcal{B}$ 29'32  | 2°10'36     |  |
| morning rise     | -4481 Jun 06 j 23:29 | 23° $\Upsilon$ 55'27    |             | minimum elong    | -4475 May 29 j 16:24 | 1° $\mathcal{B}$ 29'32  | 2°10'42     |  |
| retrograde       | -4481 Aug 31 j 06:17 | 25° $\Upsilon$ 14'38    |             | morning rise     | -4475 Jun 14 j 14:22 | 1° $\mathcal{B}$ 55'56  |             |  |
| opposition       | -4481 Nov 18 j 22:02 | 24° $\Upsilon$ 08'36    | -0°01'59    | retrograde       | -4475 Sep 08 j 03:36 | 3° $\mathcal{B}$ 19'02  |             |  |
| min. Earth dist. | -4481 Nov 21 j 13:11 | 24° $\Upsilon$ 05'10    | 39.49027 AU | opposition       | -4475 Nov 26 j 07:09 | 2° $\mathcal{B}$ 11'25  | 2°30'20     |  |
| asc. node        | -4481 Dec 18 j 10:12 | 23° $\Upsilon$ 32'06    |             | min. Earth dist. | -4475 Nov 29 j 02:41 | 2° $\mathcal{B}$ 07'38  | 38.03473 AU |  |
| direct           | -4480 Feb 08 j 21:39 | 23° $\Upsilon$ 00'41    |             | direct           | -4474 Feb 16 j 03:50 | 1° $\mathcal{B}$ 01'35  |             |  |
| evening set      | -4480 May 06 j 06:09 | 24° $\Upsilon$ 21'19    |             | evening set      | -4474 May 15 j 10:47 | 2° $\mathcal{B}$ 26'52  |             |  |
| max. Earth dist. | -4480 May 19 j 12:15 | 24° $\Upsilon$ 42'25    | 41.37151 AU | max. Earth dist. | -4474 May 28 j 04:06 | 2° $\mathcal{B}$ 48'03  | 39.90810 AU |  |
|                  |                      |                         |             |                  |                      |                         |             |  |
| conjunction      | -4480 May 22 j 10:57 | 24° $\Upsilon$ 47'10    | 0°10'00     | conjunction      | -4474 May 31 j 09:26 | 2° $\mathcal{B}$ 53'29  | 2°35'28     |  |
| minimum elong    | -4480 May 22 j 10:56 | 24° $\Upsilon$ 47'10    | 0°10'06     | minimum elong    | -4474 May 31 j 09:20 | 2° $\mathcal{B}$ 53'28  | 2°35'34     |  |
| behind sun begin | -4480 May 22 j 05:45 | 24° $\Upsilon$ 46'50    |             | morning rise     | -4474 Jun 16 j 05:24 | 3° $\mathcal{B}$ 19'57  |             |  |
| behind sun end   | -4480 May 22 j 16:07 | 24° $\Upsilon$ 47'29    |             | retrograde       | -4474 Sep 09 j 22:48 | 4° $\mathcal{B}$ 43'50  |             |  |
| morning rise     | -4480 Jun 07 j 13:37 | 25° $\Upsilon$ 12'55    |             | opposition       | -4474 Nov 27 j 22:13 | 3° $\mathcal{B}$ 35'54  | 2°56'40     |  |
| retrograde       | -4480 Aug 31 j 22:14 | 26° $\Upsilon$ 32'39    |             | min. Earth dist. | -4474 Nov 30 j 19:49 | 3° $\mathcal{B}$ 31'59  | 37.78422 AU |  |
| opposition       | -4480 Nov 19 j 10:26 | 25° $\Upsilon$ 26'21    | 0°22'41     | direct           | -4473 Feb 17 j 17:42 | 2° $\mathcal{B}$ 25'42  |             |  |
| min. Earth dist. | -4480 Nov 22 j 01:15 | 25° $\Upsilon$ 22'55    | 39.25131 AU | evening set      | -4473 May 17 j 06:16 | 3° $\mathcal{B}$ 51'54  |             |  |
| direct           | -4479 Feb 09 j 09:36 | 24° $\Upsilon$ 18'06    |             | max. Earth dist. | -4473 May 29 j 21:13 | 4° $\mathcal{B}$ 13'05  | 39.65561 AU |  |
| evening set      | -4479 May 07 j 21:08 | 25° $\Upsilon$ 39'25    |             |                  |                      |                         |             |  |
| max. Earth dist. | -4479 May 21 j 01:22 | 26° $\Upsilon$ 00'33    | 41.13199 AU | conjunction      | -4473 Jun 02 j 02:52 | 4° $\mathcal{B}$ 18'34  | 3°00'34     |  |
|                  |                      |                         |             | minimum elong    | -4473 Jun 02 j 02:46 | 4° $\mathcal{B}$ 18'34  | 3°00'40     |  |
| conjunction      | -4479 May 24 j 01:35 | 26° $\Upsilon$ 05'26    | 0°33'35     | morning rise     | -4473 Jun 17 j 20:39 | 4° $\mathcal{B}$ 45'06  |             |  |
| minimum elong    | -4479 May 24 j 01:34 | 26° $\Upsilon$ 05'26    | 0°33'40     | retrograde       | -4473 Sep 11 j 15:54 | 6° $\mathcal{B}$ 09'47  |             |  |
| morning rise     | -4479 Jun 09 j 03:51 | 26° $\Upsilon$ 31'20    |             | opposition       | -4473 Nov 29 j 13:46 | 5° $\mathcal{B}$ 01'31  | 3°23'16     |  |
| retrograde       | -4479 Sep 02 j 12:57 | 27° $\Upsilon$ 51'39    |             | min. Earth dist. | -4473 Dec 02 j 11:23 | 4° $\mathcal{B}$ 57'35  | 37.53124 AU |  |
| opposition       | -4479 Nov 20 j 23:21 | 26° $\Upsilon$ 45'06    | 0°47'39     | direct           | -4472 Feb 19 j 10:59 | 3° $\mathcal{B}$ 50'55  |             |  |
| min. Earth dist. | -4479 Nov 23 j 15:49 | 26° $\Upsilon$ 41'33    | 39.01152 AU | evening set      | -4472 May 18 j 02:34 | 5° $\mathcal{B}$ 18'04  |             |  |
| direct           | -4478 Feb 10 j 22:13 | 25° $\Upsilon$ 36'33    |             | max. Earth dist. | -4472 May 30 j 12:53 | 5° $\mathcal{B}$ 39'06  | 39.40072 AU |  |
| evening set      | -4478 May 09 j 12:35 | 26° $\Upsilon$ 58'34    |             |                  |                      |                         |             |  |
| max. Earth dist. | -4478 May 22 j 16:41 | 27° $\Upsilon$ 19'50    | 40.89146 AU | conjunction      | -4472 Jun 02 j 20:34 | 5° $\mathcal{B}$ 44'47  | 3°25'52     |  |
|                  |                      |                         |             | minimum elong    | -4472 Jun 02 j 20:27 | 5° $\mathcal{B}$ 44'47  | 3°25'59     |  |
| conjunction      | -4478 May 25 j 16:37 | 27° $\Upsilon$ 24'44    | 0°57'27     | morning rise     | -4472 Jun 18 j 11:54 | 6° $\mathcal{B}$ 11'21  |             |  |
| minimum elong    | -4478 May 25 j 16:35 | 27° $\Upsilon$ 24'44    | 0°57'33     | retrograde       | -4472 Sep 12 j 09:17 | 7° $\mathcal{B}$ 36'53  |             |  |
| morning rise     | -4478 Jun 10 j 18:10 | 27° $\Upsilon$ 50'47    |             | opposition       | -4472 Nov 30 j 05:47 | 6° $\mathcal{B}$ 28'16  | 3°50'07     |  |
| retrograde       | -4478 Sep 04 j 02:10 | 29° $\Upsilon$ 11'44    |             | min. Earth dist. | -4472 Dec 03 j 04:58 | 6° $\mathcal{B}$ 24'13  | 37.27642 AU |  |
| opposition       | -4478 Nov 22 j 12:37 | 28° $\Upsilon$ 04'56    | 1°12'54     | direct           | -4471 Feb 20 j 03:12 | 5° $\mathcal{B}$ 17'16  |             |  |
| min. Earth dist. | -4478 Nov 25 j 05:16 | 28° $\Upsilon$ 01'21    | 38.77045 AU | evening set      | -4471 May 19 j 23:30 | 6° $\mathcal{B}$ 45'23  |             |  |
| direct           | -4477 Feb 12 j 13:40 | 26° $\Upsilon$ 56'05    |             | max. Earth dist. | -4471 Jun 01 j 07:25 | 7° $\mathcal{B}$ 06'25  | 39.14413 AU |  |
| evening set      | -4477 May 11 j 05:06 | 28° $\Upsilon$ 18'52    |             |                  |                      |                         |             |  |
| max. Earth dist. | -4477 May 24 j 06:06 | 28° $\Upsilon$ 40'05    | 40.64931 AU | conjunction      | -4471 Jun 04 j 14:52 | 7° $\mathcal{B}$ 12'08  | 3°51'23     |  |
|                  |                      |                         |             | minimum elong    | -4471 Jun 04 j 14:44 | 7° $\mathcal{B}$ 12'07  | 3°51'31     |  |
| conjunction      | -4477 May 27 j 08:06 | 28° $\Upsilon$ 45'10    | 1°21'35     | morning rise     | -4471 Jun 20 j 03:10 | 7° $\mathcal{B}$ 38'42  |             |  |
| minimum elong    | -4477 May 27 j 08:03 | 28° $\Upsilon$ 45'10    | 1°21'41     | retrograde       | -4471 Sep 14 j 00:46 | 9° $\mathcal{B}$ 05'08  |             |  |
| morning rise     | -4477 Jun 12 j 08:51 | 29° $\Upsilon$ 11'21    |             | opposition       | -4471 Dec 01 j 22:17 | 7° $\mathcal{B}$ 56'09  | 4°17'10     |  |
|                  | -4477 Jul 16 j 05:54 | 0° $\mathcal{B}$        |             | min. Earth dist. | -4471 Dec 04 j 21:59 | 7° $\mathcal{B}$ 52'02  | 37.02031 AU |  |
| retrograde       | -4477 Sep 05 j 18:09 | 0° $\mathcal{B}$ 32'58  |             | direct           | -4470 Feb 21 j 21:00 | 6° $\mathcal{B}$ 44'43  |             |  |
|                  | -4477 Oct 28 j 04:59 | 30° $\kappa$ $\Upsilon$ |             | evening set      | -4470 May 21 j 21:19 | 8° $\mathcal{B}$ 13'52  |             |  |
| opposition       | -4477 Nov 24 j 02:13 | 29° $\Upsilon$ 25'55    | 1°38'26     | max. Earth dist. | -4470 Jun 03 j 00:31 | 8° $\mathcal{B}$ 34'44  | 38.88662 AU |  |
| min. Earth dist. | -4477 Nov 26 j 20:03 | 29° $\Upsilon$ 22'16    | 38.52769 AU |                  |                      |                         |             |  |
| direct           | -4476 Feb 14 j 01:38 | 28° $\Upsilon$ 16'46    |             | conjunction      | -4470 Jun 06 j 09:21 | 8° $\mathcal{B}$ 40'36  | 4°17'05     |  |
| evening set      | -4476 May 11 j 22:15 | 29° $\Upsilon$ 40'20    |             | minimum elong    | -4470 Jun 06 j 09:13 | 8° $\mathcal{B}$ 40'36  | 4°17'13     |  |
|                  | -4476 May 23 j 22:23 | 0° $\mathcal{B}$        |             | morning rise     | -4470 Jun 21 j 18:38 | 9° $\mathcal{B}$ 07'11  |             |  |
| max. Earth dist. | -4476 May 24 j 21:51 | 0° $\mathcal{B}$ 01'37  | 40.40492 AU | retrograde       | -4470 Sep 15 j 19:59 | 10° $\mathcal{B}$ 34'33 |             |  |
|                  |                      |                         |             | opposition       | -4470 Dec 03 j 15:12 | 9° $\mathcal{B}$ 25'11  | 4°44'27     |  |
| conjunction      | -4476 May 28 j 00:13 | 0° $\mathcal{B}$ 06'46  | 1°45'58     | min. Earth dist. | -4470 Dec 06 j 15:08 | 9° $\mathcal{B}$ 21'02  | 36.76376 AU |  |
| minimum elong    | -4476 May 28 j 00:10 | 0° $\mathcal{B}$ 06'46  | 1°46'04     | direct           | -4469 Feb 23 j 12:03 | 8° $\mathcal{B}$ 13'19  |             |  |
| morning rise     | -4476 Jun 12 j 23:32 | 0° $\mathcal{B}$ 33'04  |             | evening set      | -4469 May 23 j 20:00 | 9° $\mathcal{B}$ 43'34  |             |  |
| retrograde       | -4476 Sep 06 j 09:12 | 1° $\mathcal{B}$ 55'25  |             | max. Earth dist. | -4469 Jun 04 j 19:26 | 10° $\mathcal{B}$ 04'20 | 38.62866 AU |  |
| opposition       | -4476 Nov 24 j 16:32 | 0° $\mathcal{B}$ 48'05  | 2°04'15     |                  |                      |                         |             |  |
| min. Earth dist. | -4476 Nov 27 j 11:43 | 0° $\mathcal{B}$ 44'20  | 38.28250 AU | conjunction      | -4469 Jun 08 j 04:35 | 10° $\mathcal{B}$ 10'16 | 4°42'57     |  |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 32

Attention, astronomical year style is used: The year -4469 in astronomical counting style is the year 4470 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
| minimum elong    | -4469 Jun 08 j 04:25 | 10°810'15 | 4°43'06     | retrograde       | -4463 Sep 27 j 01:33 | 21°839'04 |             |
| morning rise     | -4469 Jun 23 j 10:04 | 10°836'49 |             | opposition       | -4463 Dec 14 j 06:28 | 20°827'09 | 7°59'20     |
| retrograde       | -4469 Sep 17 j 14:25 | 12°805'11 |             | min. Earth dist. | -4463 Dec 17 j 09:16 | 20°822'39 | 34.98401 AU |
| opposition       | -4469 Dec 05 j 08:47 | 10°855'26 | 5°11'54     | direct           | -4462 Mar 05 j 22:01 | 19°812'21 |             |
| min. Earth dist. | -4469 Dec 08 j 09:51 | 10°851'12 | 36.50728 AU | evening set      | -4462 Jun 05 j 14:59 | 20°852'05 |             |
| direct           | -4468 Feb 25 j 04:02 | 9°843'09  |             | max. Earth dist. | -4462 Jun 15 j 22:19 | 21°811'11 | 36.83788 AU |
| evening set      | -4468 May 24 j 19:40 | 11°814'32 |             |                  |                      |           |             |
| max. Earth dist. | -4468 Jun 05 j 15:06 | 11°835'12 | 38.37118 AU | conjunction      | -4462 Jun 19 j 10:24 | 21°817'44 | 7°46'59     |
|                  |                      |           |             | minimum elong    | -4462 Jun 19 j 10:08 | 21°817'43 | 7°47'08     |
| conjunction      | -4468 Jun 09 j 00:11 | 11°841'11 | 5°08'58     | morning rise     | -4462 Jul 03 j 02:41 | 21°843'11 |             |
| minimum elong    | -4468 Jun 09 j 00:01 | 11°841'10 | 5°09'06     | retrograde       | -4462 Sep 29 j 01:07 | 23°820'22 |             |
| morning rise     | -4468 Jun 24 j 01:45 | 12°807'39 |             | opposition       | -4462 Dec 16 j 04:33 | 22°808'03 | 8°27'29     |
| retrograde       | -4468 Sep 18 j 12:05 | 13°837'05 |             | min. Earth dist. | -4462 Dec 19 j 08:45 | 22°803'26 | 34.73051 AU |
| opposition       | -4468 Dec 06 j 02:52 | 12°826'58 | 5°39'31     | direct           | -4461 Mar 07 j 18:13 | 20°852'48 |             |
| min. Earth dist. | -4468 Dec 09 j 03:15 | 12°822'45 | 36.25163 AU | evening set      | -4461 Jun 07 j 22:21 | 22°834'09 |             |
| direct           | -4467 Feb 25 j 21:33 | 11°814'15 |             | max. Earth dist. | -4461 Jun 17 j 22:23 | 22°852'52 | 36.58208 AU |
| evening set      | -4467 May 26 j 20:04 | 12°846'51 |             |                  |                      |           |             |
| max. Earth dist. | -4467 Jun 07 j 10:03 | 13°807'19 | 38.11443 AU | conjunction      | -4461 Jun 21 j 10:25 | 22°859'29 | 8°13'26     |
|                  |                      |           |             | minimum elong    | -4461 Jun 21 j 10:07 | 22°859'28 | 8°13'37     |
| conjunction      | -4467 Jun 10 j 20:12 | 13°813'25 | 5°35'07     | morning rise     | -4461 Jul 04 j 19:28 | 23°824'37 |             |
| minimum elong    | -4467 Jun 10 j 20:01 | 13°813'24 | 5°35'15     | retrograde       | -4461 Oct 01 j 02:49 | 25°803'19 |             |
| morning rise     | -4467 Jun 25 j 17:20 | 13°839'49 |             | opposition       | -4461 Dec 18 j 03:08 | 23°850'35 | 8°55'39     |
|                  | -4467 Aug 24 j 03:37 | 15°8      |             | min. Earth dist. | -4461 Dec 21 j 06:49 | 23°845'59 | 34.47699 AU |
| retrograde       | -4467 Sep 20 j 10:23 | 15°810'23 |             | direct           | -4460 Mar 08 j 16:40 | 22°834'52 |             |
|                  | -4467 Oct 17 j 19:31 | 15°88     |             | evening set      | -4460 Jun 09 j 06:51 | 24°817'56 |             |
| opposition       | -4467 Dec 07 j 21:36 | 13°859'54 | 6°07'17     | max. Earth dist. | -4460 Jun 18 j 21:48 | 24°836'08 | 36.32630 AU |
| min. Earth dist. | -4467 Dec 10 j 23:15 | 13°855'35 | 35.99701 AU |                  |                      |           |             |
| direct           | -4466 Feb 27 j 14:47 | 12°846'46 |             | conjunction      | -4460 Jun 22 j 11:05 | 24°842'54 | 8°39'51     |
| evening set      | -4466 May 28 j 21:36 | 14°820'40 |             | minimum elong    | -4460 Jun 22 j 10:46 | 24°842'52 | 8°40'00     |
| max. Earth dist. | -4466 Jun 09 j 07:37 | 14°841'00 | 37.85868 AU | morning rise     | -4460 Jul 05 j 12:23 | 25°807'40 |             |
|                  |                      |           |             | retrograde       | -4460 Oct 02 j 04:46 | 26°847'57 |             |
| conjunction      | -4466 Jun 12 j 17:01 | 14°847'07 | 6°01'21     | opposition       | -4460 Dec 19 j 02:35 | 25°834'48 | 9°23'45     |
| minimum elong    | -4466 Jun 12 j 16:48 | 14°847'06 | 6°01'29     | min. Earth dist. | -4460 Dec 22 j 07:31 | 25°830'05 | 34.22403 AU |
|                  | -4466 Jun 19 j 20:44 | 15°8      |             | direct           | -4459 Mar 10 j 14:30 | 24°818'36 |             |
| morning rise     | -4466 Jun 27 j 09:15 | 15°813'23 |             | evening set      | -4459 Jun 11 j 16:22 | 26°803'26 |             |
| retrograde       | -4466 Sep 22 j 06:35 | 16°845'08 |             | max. Earth dist. | -4459 Jun 20 j 23:56 | 26°821'13 | 36.07128 AU |
| opposition       | -4466 Dec 09 j 16:43 | 15°834'18 | 6°35'10     |                  |                      |           |             |
| min. Earth dist. | -4466 Dec 12 j 17:59 | 15°829'59 | 35.74329 AU | conjunction      | -4459 Jun 24 j 12:15 | 26°827'59 | 9°06'10     |
|                  | -4465 Jan 03 j 20:45 | 15°88     |             | minimum elong    | -4459 Jun 24 j 11:55 | 26°827'57 | 9°06'21     |
| direct           | -4465 Mar 01 j 11:11 | 14°820'46 |             | morning rise     | -4459 Jul 07 j 05:05 | 26°852'20 |             |
|                  | -4465 Apr 25 j 19:00 | 15°8      |             | retrograde       | -4459 Oct 04 j 06:19 | 28°834'16 |             |
| evening set      | -4465 May 31 j 00:22 | 15°856'02 |             | opposition       | -4459 Dec 21 j 02:39 | 27°820'41 | 9°51'46     |
| max. Earth dist. | -4465 Jun 11 j 03:30 | 16°816'04 | 37.60356 AU | min. Earth dist. | -4459 Dec 24 j 07:08 | 27°815'58 | 33.97215 AU |
|                  |                      |           |             | direct           | -4458 Mar 12 j 16:15 | 26°804'00 |             |
| conjunction      | -4465 Jun 14 j 14:22 | 16°822'20 | 6°27'41     | evening set      | -4458 Jun 14 j 03:22 | 27°850'41 |             |
| minimum elong    | -4465 Jun 14 j 14:09 | 16°822'19 | 6°27'50     | max. Earth dist. | -4458 Jun 23 j 00:42 | 28°807'50 | 35.81766 AU |
| morning rise     | -4465 Jun 29 j 01:28 | 16°848'28 |             |                  |                      |           |             |
| retrograde       | -4465 Sep 24 j 04:59 | 18°821'28 |             | conjunction      | -4458 Jun 26 j 14:05 | 28°814'45 | 9°32'22     |
| opposition       | -4465 Dec 11 j 12:37 | 17°810'17 | 7°03'09     | minimum elong    | -4458 Jun 26 j 13:45 | 28°814'44 | 9°32'32     |
| min. Earth dist. | -4465 Dec 14 j 14:44 | 17°805'53 | 35.49022 AU | morning rise     | -4458 Jul 08 j 22:07 | 28°838'38 |             |
| direct           | -4464 Mar 02 j 06:39 | 15°856'21 |             |                  | -4458 Aug 28 j 16:47 | 0°II      |             |
| evening set      | -4464 Jun 01 j 04:01 | 17°833'02 |             | retrograde       | -4458 Oct 06 j 09:52 | 0°II22'18 |             |
| max. Earth dist. | -4464 Jun 12 j 02:03 | 17°852'52 | 37.34855 AU |                  | -4458 Nov 14 j 18:03 | 30°88     |             |
|                  |                      |           |             | opposition       | -4458 Dec 23 j 03:16 | 29°808'17 | 10°19'39    |
| conjunction      | -4464 Jun 15 j 12:25 | 17°859'10 | 6°54'05     | min. Earth dist. | -4458 Dec 26 j 07:58 | 29°803'31 | 33.72230 AU |
| minimum elong    | -4464 Jun 15 j 12:11 | 17°859'09 | 6°54'13     | direct           | -4457 Mar 14 j 16:14 | 27°851'06 |             |
| morning rise     | -4464 Jun 29 j 17:35 | 18°825'06 |             | evening set      | -4457 Jun 16 j 15:35 | 29°839'44 |             |
| retrograde       | -4464 Sep 25 j 02:03 | 19°859'26 |             | max. Earth dist. | -4457 Jun 25 j 04:28 | 29°856'22 | 35.56621 AU |
| opposition       | -4464 Dec 12 j 09:19 | 18°847'54 | 7°31'13     |                  | -4457 Jun 27 j 00:49 | 0°II      |             |
| min. Earth dist. | -4464 Dec 15 j 12:07 | 18°843'25 | 35.23714 AU |                  |                      |           |             |
| direct           | -4463 Mar 04 j 02:43 | 17°833'32 |             | conjunction      | -4457 Jun 28 j 16:46 | 0°II03'16 | 9°58'22     |
| evening set      | -4463 Jun 03 j 09:01 | 19°811'43 |             | minimum elong    | -4457 Jun 28 j 16:25 | 0°II03'14 | 9°58'34     |
| max. Earth dist. | -4463 Jun 13 j 23:37 | 19°831'11 | 37.09345 AU | morning rise     | -4457 Jul 10 j 15:02 | 0°II26'37 |             |
|                  |                      |           |             | retrograde       | -4457 Oct 08 j 11:28 | 2°II12'06 |             |
| conjunction      | -4463 Jun 17 j 11:01 | 19°837'37 | 7°20'31     | opposition       | -4457 Dec 25 j 04:57 | 0°II57'40 | 10°47'19    |
| minimum elong    | -4463 Jun 17 j 10:45 | 19°837'36 | 7°20'41     | min. Earth dist. | -4457 Dec 28 j 09:40 | 0°II52'51 | 33.47508 AU |
| morning rise     | -4463 Jul 01 j 10:07 | 20°803'21 |             |                  | -4456 Feb 06 j 12:05 | 30°88     |             |



Attention, astronomical year style is used: The year -4456 in astronomical counting style is the year 4457 BCE in historical counting style.

|                  |                      |                     |             |                  |                      |                     |             |
|------------------|----------------------|---------------------|-------------|------------------|----------------------|---------------------|-------------|
| direct           | -4456 Mar 15 j 17:15 | 29° <b>8</b> 40'00  |             | morning rise     | -4450 Jul 20 j 12:34 | 13° <b>II</b> 55'24 |             |
|                  | -4456 Apr 22 j 05:11 | 0° <b>II</b>        |             | retrograde       | -4450 Oct 22 j 12:07 | 15° <b>II</b> 56'43 |             |
| evening set      | -4456 Jun 18 j 05:12 | 1° <b>II</b> 30'39  |             | opposition       | -4449 Jan 07 j 15:32 | 14° <b>II</b> 39'28 | 13°50'33    |
| max. Earth dist. | -4456 Jun 26 j 07:37 | 1° <b>II</b> 46'37  | 35.31788 AU | min. Earth dist. | -4449 Jan 10 j 17:09 | 14° <b>II</b> 34'40 | 31.85158 AU |
|                  |                      |                     |             | direct           | -4449 Mar 29 j 18:17 | 13° <b>II</b> 18'44 |             |
| conjunction      | -4456 Jun 29 j 19:49 | 1° <b>II</b> 53'35  | 10°24'09    | evening set      | -4449 Jul 07 j 02:15 | 15° <b>II</b> 26'50 |             |
| minimum elong    | -4456 Jun 29 j 19:28 | 1° <b>II</b> 53'33  | 10°24'19    | max. Earth dist. | -4449 Jul 11 j 07:58 | 15° <b>II</b> 35'51 | 33.68562 AU |
| morning rise     | -4456 Jul 11 j 07:56 | 2° <b>II</b> 16'19  |             |                  |                      |                     |             |
| retrograde       | -4456 Oct 09 j 15:02 | 4° <b>II</b> 03'45  |             | conjunction      | -4449 Jul 14 j 16:09 | 15° <b>II</b> 42'58 | 13°13'22    |
| opposition       | -4456 Dec 26 j 07:16 | 2° <b>II</b> 48'52  | 11°14'44    | minimum elong    | -4449 Jul 14 j 15:44 | 15° <b>II</b> 42'56 | 13°13'35    |
| min. Earth dist. | -4456 Dec 29 j 10:56 | 2° <b>II</b> 44'06  | 33.23148 AU | morning rise     | -4449 Jul 22 j 04:25 | 15° <b>II</b> 58'57 |             |
| direct           | -4455 Mar 17 j 17:43 | 1° <b>II</b> 30'44  |             | retrograde       | -4449 Oct 24 j 23:26 | 18° <b>II</b> 03'00 |             |
| evening set      | -4455 Jun 20 j 20:07 | 3° <b>II</b> 23'32  |             | opposition       | -4448 Jan 10 j 00:07 | 16° <b>II</b> 45'21 | 14°14'32    |
| max. Earth dist. | -4455 Jun 28 j 12:11 | 3° <b>II</b> 38'48  | 35.07319 AU | min. Earth dist. | -4448 Jan 13 j 00:48 | 16° <b>II</b> 40'35 | 31.63396 AU |
|                  |                      |                     |             | direct           | -4448 Mar 31 j 01:38 | 15° <b>II</b> 24'10 |             |
| conjunction      | -4455 Jul 01 j 23:50 | 3° <b>II</b> 45'47  | 10°49'37    | evening set      | -4448 Jul 09 j 06:36 | 17° <b>II</b> 35'18 |             |
| minimum elong    | -4455 Jul 01 j 23:27 | 3° <b>II</b> 45'45  | 10°49'49    | max. Earth dist. | -4448 Jul 12 j 18:55 | 17° <b>II</b> 42'50 | 33.46659 AU |
| morning rise     | -4455 Jul 13 j 00:52 | 4° <b>II</b> 07'51  |             |                  |                      |                     |             |
| retrograde       | -4455 Oct 11 j 19:06 | 5° <b>II</b> 57'19  |             | conjunction      | -4448 Jul 16 j 01:43 | 17° <b>II</b> 49'54 | 13°35'17    |
| opposition       | -4455 Dec 28 j 10:27 | 4° <b>II</b> 42'02  | 11°41'50    | minimum elong    | -4448 Jul 16 j 01:19 | 17° <b>II</b> 49'52 | 13°35'29    |
| min. Earth dist. | -4455 Dec 31 j 14:33 | 4° <b>II</b> 37'12  | 32.99186 AU | morning rise     | -4448 Jul 22 j 19:16 | 18° <b>II</b> 04'22 |             |
| direct           | -4454 Mar 19 j 17:28 | 3° <b>II</b> 23'26  |             | retrograde       | -4448 Oct 26 j 08:48 | 20° <b>II</b> 11'22 |             |
| evening set      | -4454 Jun 23 j 12:45 | 5° <b>II</b> 18'30  |             | opposition       | -4447 Jan 11 j 09:44 | 18° <b>II</b> 53'17 | 14°37'46    |
| max. Earth dist. | -4454 Jun 30 j 17:55 | 5° <b>II</b> 33'01  | 34.83272 AU | min. Earth dist. | -4447 Jan 14 j 10:30 | 18° <b>II</b> 48'28 | 31.42012 AU |
|                  |                      |                     |             | direct           | -4447 Apr 02 j 09:06 | 17° <b>II</b> 31'38 |             |
| conjunction      | -4454 Jul 04 j 04:30 | 5° <b>II</b> 39'59  | 11°14'45    | evening set      | -4447 Jul 12 j 14:04 | 19° <b>II</b> 46'00 |             |
| minimum elong    | -4454 Jul 04 j 04:08 | 5° <b>II</b> 39'57  | 11°14'56    | max. Earth dist. | -4447 Jul 15 j 06:05 | 19° <b>II</b> 51'47 | 33.25184 AU |
| morning rise     | -4454 Jul 14 j 17:51 | 6° <b>II</b> 01'18  |             |                  |                      |                     |             |
| retrograde       | -4454 Oct 14 j 01:35 | 7° <b>II</b> 52'54  |             | conjunction      | -4447 Jul 18 j 12:00 | 19° <b>II</b> 58'51 | 13°56'27    |
| opposition       | -4454 Dec 30 j 14:24 | 6° <b>II</b> 37'13  | 12°08'33    | minimum elong    | -4447 Jul 18 j 11:35 | 19° <b>II</b> 58'48 | 13°56'39    |
| min. Earth dist. | -4453 Jan 02 j 16:57 | 6° <b>II</b> 32'28  | 32.75640 AU | morning rise     | -4447 Jul 24 j 08:37 | 20° <b>II</b> 11'34 |             |
| direct           | -4453 Mar 21 j 19:51 | 5° <b>II</b> 18'12  |             | retrograde       | -4447 Oct 28 j 19:42 | 22° <b>II</b> 21'42 |             |
| evening set      | -4453 Jun 26 j 06:51 | 7° <b>II</b> 15'38  |             | opposition       | -4446 Jan 13 j 19:55 | 21° <b>II</b> 03'11 | 15°00'10    |
| max. Earth dist. | -4453 Jul 02 j 23:15 | 7° <b>II</b> 29'13  | 34.59616 AU | min. Earth dist. | -4446 Jan 16 j 18:58 | 20° <b>II</b> 58'28 | 31.21083 AU |
|                  |                      |                     |             | direct           | -4446 Apr 04 j 18:36 | 19° <b>II</b> 41'05 |             |
| conjunction      | -4453 Jul 06 j 09:59 | 7° <b>II</b> 36'16  | 11°39'29    | evening set      | -4446 Jul 16 j 01:26 | 21° <b>II</b> 59'00 |             |
| minimum elong    | -4453 Jul 06 j 09:35 | 7° <b>II</b> 36'14  | 11°39'41    | max. Earth dist. | -4446 Jul 17 j 18:05 | 22° <b>II</b> 02'43 | 33.04186 AU |
| morning rise     | -4453 Jul 16 j 10:50 | 7° <b>II</b> 56'45  |             |                  |                      |                     |             |
| retrograde       | -4453 Oct 16 j 09:29 | 9° <b>II</b> 50'37  |             | conjunction      | -4446 Jul 20 j 23:08 | 22° <b>II</b> 09'45 | 14°16'45    |
| opposition       | -4452 Jan 01 j 19:18 | 8° <b>II</b> 34'33  | 12°34'50    | minimum elong    | -4446 Jul 20 j 22:45 | 22° <b>II</b> 09'43 | 14°16'58    |
| min. Earth dist. | -4452 Jan 04 j 22:25 | 8° <b>II</b> 29'44  | 32.52493 AU | morning rise     | -4446 Jul 25 j 19:40 | 22° <b>II</b> 20'24 |             |
| direct           | -4452 Mar 22 j 23:00 | 7° <b>II</b> 15'06  |             | retrograde       | -4446 Oct 31 j 07:09 | 24° <b>II</b> 33'59 |             |
| evening set      | -4452 Jun 28 j 02:50 | 9° <b>II</b> 15'01  |             | opposition       | -4445 Jan 16 j 07:15 | 23° <b>II</b> 15'02 | 15°21'37    |
| max. Earth dist. | -4452 Jul 04 j 07:22 | 9° <b>II</b> 27'44  | 34.36345 AU | min. Earth dist. | -4445 Jan 19 j 06:17 | 23° <b>II</b> 10'18 | 31.00669 AU |
|                  |                      |                     |             | direct           | -4445 Apr 07 j 02:56 | 21° <b>II</b> 52'29 |             |
| conjunction      | -4452 Jul 07 j 16:20 | 9° <b>II</b> 34'43  | 12°03'46    | evening set      | -4445 Jul 19 j 19:11 | 24° <b>II</b> 14'30 |             |
| minimum elong    | -4452 Jul 07 j 15:57 | 9° <b>II</b> 34'41  | 12°03'57    | max. Earth dist. | -4445 Jul 20 j 07:54 | 24° <b>II</b> 15'41 | 32.83764 AU |
| morning rise     | -4452 Jul 17 j 03:36 | 9° <b>II</b> 54'15  |             |                  |                      |                     |             |
| retrograde       | -4452 Oct 17 j 18:25 | 11° <b>II</b> 50'29 |             | conjunction      | -4445 Jul 23 j 10:51 | 24° <b>II</b> 22'36 | 14°36'08    |
| opposition       | -4451 Jan 03 j 01:11 | 10° <b>II</b> 34'02 | 13°00'38    | minimum elong    | -4445 Jul 23 j 10:27 | 24° <b>II</b> 22'34 | 14°36'21    |
| min. Earth dist. | -4451 Jan 06 j 03:10 | 10° <b>II</b> 29'16 | 32.29711 AU | morning rise     | -4445 Jul 27 j 01:32 | 24° <b>II</b> 30'36 |             |
| direct           | -4451 Mar 25 j 05:42 | 9° <b>II</b> 14'10  |             | retrograde       | -4445 Nov 02 j 20:12 | 26° <b>II</b> 48'12 |             |
| evening set      | -4451 Jul 01 j 00:24 | 11° <b>II</b> 16'41 |             | opposition       | -4444 Jan 18 j 19:23 | 25° <b>II</b> 28'49 | 15°42'02    |
| max. Earth dist. | -4451 Jul 06 j 13:47 | 11° <b>II</b> 28'14 | 34.13421 AU | min. Earth dist. | -4444 Jan 21 j 16:05 | 25° <b>II</b> 24'12 | 30.80860 AU |
|                  |                      |                     |             | direct           | -4444 Apr 08 j 14:28 | 24° <b>II</b> 05'49 |             |
| conjunction      | -4451 Jul 09 j 23:18 | 11° <b>II</b> 35'19 | 12°27'32    | max. Earth dist. | -4444 Jul 21 j 21:17 | 26° <b>II</b> 30'28 | 32.63998 AU |
| minimum elong    | -4451 Jul 09 j 22:53 | 11° <b>II</b> 35'17 | 12°27'45    | evening set      | -4444 Jul 23 j 05:23 | 26° <b>II</b> 33'27 |             |
| morning rise     | -4451 Jul 18 j 20:14 | 11° <b>II</b> 53'49 |             |                  |                      |                     |             |
| retrograde       | -4451 Oct 20 j 03:45 | 13° <b>II</b> 52'32 |             | conjunction      | -4444 Jul 24 j 23:19 | 26° <b>II</b> 37'22 | 14°54'28    |
| opposition       | -4450 Jan 05 j 07:54 | 12° <b>II</b> 35'41 | 13°25'53    | minimum elong    | -4444 Jul 24 j 22:57 | 26° <b>II</b> 37'20 | 14°54'41    |
| min. Earth dist. | -4450 Jan 08 j 09:56 | 12° <b>II</b> 30'53 | 32.07277 AU | morning rise     | -4444 Jul 26 j 16:29 | 26° <b>II</b> 41'12 |             |
| direct           | -4450 Mar 27 j 10:34 | 11° <b>II</b> 15'23 |             | retrograde       | -4444 Nov 04 j 10:42 | 29° <b>II</b> 04'20 |             |
| evening set      | -4450 Jul 04 j 00:14 | 13° <b>II</b> 20'38 |             | opposition       | -4443 Jan 20 j 08:31 | 27° <b>II</b> 44'32 | 16°01'19    |
| max. Earth dist. | -4450 Jul 08 j 23:25 | 13° <b>II</b> 31'04 | 33.90822 AU | min. Earth dist. | -4443 Jan 23 j 04:25 | 27° <b>II</b> 39'57 | 30.61760 AU |
|                  |                      |                     |             | direct           | -4443 Apr 11 j 01:29 | 26° <b>II</b> 21'08 |             |
| conjunction      | -4450 Jul 12 j 07:23 | 13° <b>II</b> 38'05 | 12°50'46    | max. Earth dist. | -4443 Jul 24 j 13:29 | 28° <b>II</b> 47'24 | 32.44991 AU |
| minimum elong    | -4450 Jul 12 j 06:59 | 13° <b>II</b> 38'03 | 12°50'57    |                  |                      |                     |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 34

Attention, astronomical year style is used: The year -4443 in astronomical counting style is the year 4444 BCE in historical counting style.

|                  |                      |                    |             |                  |                      |                       |             |
|------------------|----------------------|--------------------|-------------|------------------|----------------------|-----------------------|-------------|
| conjunction      | -4443 Jul 27 j 12:27 | 28° $\Pi$ 54'04    | 15°11'41    | conjunction      | -4435 Aug 15 j 22:41 | 18° $\Theta$ 17'33    | 16°39'44    |
| minimum elong    | -4443 Jul 27 j 12:05 | 28° $\Pi$ 54'02    | 15°11'54    | minimum elong    | -4435 Aug 15 j 22:32 | 18° $\Theta$ 17'32    | 16°39'57    |
|                  | -4443 Aug 26 j 17:32 | 0° $\Theta$        |             | retrograde       | -4435 Nov 27 j 01:40 | 20° $\Theta$ 55'13    |             |
| retrograde       | -4443 Nov 07 j 01:40 | 1° $\Theta$ 22'23  |             | opposition       | -4434 Feb 11 j 20:38 | 19° $\Theta$ 32'48    | 17°49'21    |
| opposition       | -4442 Jan 22 j 22:28 | 0° $\Theta$ 02'13  | 16°19'22    | min. Earth dist. | -4434 Feb 13 j 22:53 | 19° $\Theta$ 29'17    | 29.25425 AU |
|                  | -4442 Jan 24 j 07:09 | 30° $\kappa$ $\Pi$ |             | direct           | -4434 May 03 j 00:52 | 18° $\Theta$ 07'01    |             |
| min. Earth dist. | -4442 Jan 25 j 16:06 | 29° $\Pi$ 57'46    | 30.43419 AU | max. Earth dist. | -4434 Aug 16 j 15:16 | 20° $\Theta$ 45'12    | 31.10675 AU |
| direct           | -4442 Apr 13 j 15:53 | 28° $\Pi$ 38'27    |             |                  |                      |                       |             |
|                  | -4442 Jun 26 j 17:04 | 0° $\Theta$        |             | conjunction      | -4434 Aug 18 j 17:29 | 20° $\Theta$ 50'14    | 16°43'34    |
| max. Earth dist. | -4442 Jul 27 j 04:21 | 1° $\Theta$ 06'09  | 32.26790 AU | minimum elong    | -4434 Aug 18 j 17:23 | 20° $\Theta$ 50'13    | 16°43'45    |
|                  |                      |                    |             | retrograde       | -4434 Nov 29 j 21:23 | 23° $\Theta$ 28'44    |             |
| conjunction      | -4442 Jul 30 j 02:20 | 1° $\Theta$ 12'46  | 15°27'41    | opposition       | -4433 Feb 14 j 17:33 | 22° $\Theta$ 06'04    | 17°52'45    |
| minimum elong    | -4442 Jul 30 j 02:00 | 1° $\Theta$ 12'44  | 15°27'53    | min. Earth dist. | -4433 Feb 16 j 16:29 | 22° $\Theta$ 02'46    | 29.14321 AU |
| retrograde       | -4442 Nov 09 j 18:07 | 3° $\Theta$ 42'25  |             | direct           | -4433 May 05 j 21:26 | 20° $\Theta$ 40'05    |             |
| opposition       | -4441 Jan 25 j 13:10 | 2° $\Theta$ 21'55  | 16°36'04    | max. Earth dist. | -4433 Aug 19 j 12:27 | 23° $\Theta$ 19'08    | 31.00006 AU |
| min. Earth dist. | -4441 Jan 28 j 05:11 | 2° $\Theta$ 17'33  | 30.25897 AU |                  |                      |                       |             |
| direct           | -4441 Apr 16 j 04:31 | 0° $\Theta$ 57'48  |             | conjunction      | -4433 Aug 21 j 12:33 | 23° $\Theta$ 23'58    | 16°45'34    |
| max. Earth dist. | -4441 Jul 29 j 22:19 | 3° $\Theta$ 27'07  | 32.09425 AU | minimum elong    | -4433 Aug 21 j 12:29 | 23° $\Theta$ 23'58    | 16°45'47    |
|                  |                      |                    |             | retrograde       | -4433 Dec 02 j 18:10 | 26° $\Theta$ 03'13    |             |
| conjunction      | -4441 Aug 01 j 17:07 | 3° $\Theta$ 33'30  | 15°42'23    | opposition       | -4432 Feb 17 j 15:09 | 24° $\Theta$ 40'18    | 17°54'10    |
| minimum elong    | -4441 Aug 01 j 16:47 | 3° $\Theta$ 33'28  | 15°42'36    | min. Earth dist. | -4432 Feb 19 j 11:54 | 24° $\Theta$ 37'10    | 29.04185 AU |
| retrograde       | -4441 Nov 12 j 10:19 | 6° $\Theta$ 04'28  |             | direct           | -4432 May 07 j 16:34 | 23° $\Theta$ 14'08    |             |
| opposition       | -4440 Jan 28 j 05:00 | 4° $\Theta$ 43'39  | 16°51'21    | max. Earth dist. | -4432 Aug 21 j 12:05 | 25° $\Theta$ 54'10    | 30.90374 AU |
| min. Earth dist. | -4440 Jan 30 j 19:14 | 4° $\Theta$ 39'23  | 30.09184 AU |                  |                      |                       |             |
| direct           | -4440 Apr 17 j 19:44 | 3° $\Theta$ 19'15  |             | conjunction      | -4432 Aug 23 j 07:50 | 25° $\Theta$ 58'35    | 16°45'43    |
| max. Earth dist. | -4440 Jul 31 j 14:51 | 5° $\Theta$ 49'57  | 31.92898 AU | minimum elong    | -4432 Aug 23 j 07:48 | 25° $\Theta$ 58'35    | 16°45'54    |
|                  |                      |                    |             | retrograde       | -4432 Dec 04 j 14:24 | 28° $\Theta$ 38'28    |             |
| conjunction      | -4440 Aug 03 j 08:16 | 5° $\Theta$ 56'15  | 15°55'44    | opposition       | -4431 Feb 19 j 13:10 | 27° $\Theta$ 15'20    | 17°53'33    |
| minimum elong    | -4440 Aug 03 j 07:59 | 5° $\Theta$ 56'14  | 15°55'56    | min. Earth dist. | -4431 Feb 21 j 06:31 | 27° $\Theta$ 12'25    | 28.95077 AU |
| retrograde       | -4440 Nov 14 j 05:26 | 8° $\Theta$ 28'30  |             | direct           | -4431 May 10 j 15:33 | 25° $\Theta$ 49'02    |             |
| opposition       | -4439 Jan 29 j 21:33 | 7° $\Theta$ 07'24  | 17°05'09    | max. Earth dist. | -4431 Aug 24 j 09:53 | 28° $\Theta$ 29'44    | 30.81850 AU |
| min. Earth dist. | -4439 Feb 01 j 09:24 | 7° $\Theta$ 03'17  | 29.93285 AU |                  |                      |                       |             |
| direct           | -4439 Apr 20 j 10:56 | 5° $\Theta$ 42'44  |             | conjunction      | -4431 Aug 26 j 03:19 | 28° $\Theta$ 33'56    | 16°43'57    |
| max. Earth dist. | -4439 Aug 03 j 09:56 | 8° $\Theta$ 14'56  | 31.77174 AU | minimum elong    | -4431 Aug 26 j 03:20 | 28° $\Theta$ 33'56    | 16°44'09    |
|                  |                      |                    |             |                  | -4431 Oct 02 j 09:03 | 0° $\Omega$           |             |
| conjunction      | -4439 Aug 06 j 00:26 | 8° $\Theta$ 21'00  | 16°07'38    | retrograde       | -4431 Dec 07 j 12:12 | 1° $\Omega$ 14'22     |             |
| minimum elong    | -4439 Aug 06 j 00:09 | 8° $\Theta$ 20'59  | 16°07'52    |                  | -4430 Feb 17 j 03:39 | 30° $\kappa$ $\Theta$ |             |
| retrograde       | -4439 Nov 16 j 22:03 | 10° $\Theta$ 54'29 |             | opposition       | -4430 Feb 22 j 11:22 | 29° $\Theta$ 51'02    | 17°50'49    |
| opposition       | -4438 Feb 01 j 14:58 | 9° $\Theta$ 33'06  | 17°17'23    | min. Earth dist. | -4430 Feb 24 j 01:27 | 29° $\Theta$ 48'22    | 28.87093 AU |
| min. Earth dist. | -4438 Feb 04 j 01:45 | 9° $\Theta$ 29'03  | 29.78158 AU | direct           | -4430 May 13 j 12:38 | 28° $\Theta$ 24'39    |             |
| direct           | -4438 Apr 23 j 02:25 | 8° $\Theta$ 08'12  |             |                  | -4430 Jul 30 j 08:35 | 0° $\Omega$           |             |
| max. Earth dist. | -4438 Aug 06 j 04:27 | 10° $\Theta$ 41'43 | 31.62255 AU | max. Earth dist. | -4430 Aug 27 j 10:21 | 1° $\Omega$ 06'10     | 30.74505 AU |
|                  |                      |                    |             |                  |                      |                       |             |
| conjunction      | -4438 Aug 08 j 17:07 | 10° $\Theta$ 47'39 | 16°18'04    | conjunction      | -4430 Aug 28 j 23:11 | 1° $\Omega$ 09'55     | 16°40'13    |
| minimum elong    | -4438 Aug 08 j 16:53 | 10° $\Theta$ 47'38 | 16°18'16    | minimum elong    | -4430 Aug 28 j 23:14 | 1° $\Omega$ 09'55     | 16°40'24    |
| retrograde       | -4438 Nov 19 j 16:55 | 13° $\Theta$ 22'17 |             | retrograde       | -4430 Dec 10 j 08:38 | 3° $\Omega$ 50'48     |             |
| opposition       | -4437 Feb 04 j 09:12 | 12° $\Theta$ 00'39 | 17°27'59    | opposition       | -4429 Feb 25 j 10:10 | 2° $\Omega$ 27'20     | 17°45'58    |
| min. Earth dist. | -4437 Feb 06 j 17:08 | 11° $\Theta$ 56'47 | 29.63799 AU | min. Earth dist. | -4429 Feb 26 j 21:06 | 2° $\Omega$ 24'53     | 28.80259 AU |
| direct           | -4437 Apr 25 j 19:35 | 10° $\Theta$ 35'31 |             | direct           | -4429 May 16 j 10:44 | 1° $\Omega$ 00'55     |             |
| max. Earth dist. | -4437 Aug 09 j 00:14 | 13° $\Theta$ 10'20 | 31.48111 AU | max. Earth dist. | -4429 Aug 30 j 08:46 | 3° $\Omega$ 42'56     | 30.68373 AU |
|                  |                      |                    |             |                  |                      |                       |             |
| conjunction      | -4437 Aug 11 j 10:29 | 13° $\Theta$ 16'04 | 16°26'56    | conjunction      | -4429 Aug 31 j 18:55 | 3° $\Omega$ 46'25     | 16°34'30    |
| minimum elong    | -4437 Aug 11 j 10:16 | 13° $\Theta$ 16'03 | 16°27'09    | minimum elong    | -4429 Aug 31 j 19:01 | 3° $\Omega$ 46'25     | 16°34'42    |
| retrograde       | -4437 Nov 22 j 11:31 | 15° $\Theta$ 51'48 |             | retrograde       | -4429 Dec 13 j 08:00 | 6° $\Omega$ 27'41     |             |
| opposition       | -4436 Feb 07 j 04:26 | 14° $\Theta$ 29'54 | 17°36'54    | opposition       | -4428 Feb 28 j 09:10 | 5° $\Omega$ 04'07     | 17°38'59    |
| min. Earth dist. | -4436 Feb 09 j 11:20 | 14° $\Theta$ 26'05 | 29.50205 AU | min. Earth dist. | -4428 Feb 29 j 16:05 | 5° $\Omega$ 01'57     | 28.74614 AU |
| direct           | -4436 Apr 27 j 11:32 | 13° $\Theta$ 04'33 |             | direct           | -4428 May 18 j 09:44 | 3° $\Omega$ 37'43     |             |
| max. Earth dist. | -4436 Aug 10 j 20:40 | 15° $\Theta$ 40'34 | 31.34785 AU | max. Earth dist. | -4428 Sep 01 j 09:26 | 6° $\Omega$ 20'20     | 30.63447 AU |
|                  |                      |                    |             |                  |                      |                       |             |
| conjunction      | -4436 Aug 13 j 04:22 | 15° $\Theta$ 46'05 | 16°34'10    | conjunction      | -4428 Sep 02 j 14:59 | 6° $\Omega$ 23'21     | 16°26'49    |
| minimum elong    | -4436 Aug 13 j 04:11 | 15° $\Theta$ 46'04 | 16°34'22    | minimum elong    | -4428 Sep 02 j 15:07 | 6° $\Omega$ 23'22     | 16°27'00    |
| retrograde       | -4436 Nov 24 j 06:49 | 18° $\Theta$ 22'50 |             | retrograde       | -4428 Dec 15 j 04:26 | 9° $\Omega$ 04'54     |             |
| opposition       | -4435 Feb 09 j 00:09 | 17° $\Theta$ 00'41 | 17°44'03    | opposition       | -4427 Mar 02 j 08:26 | 7° $\Omega$ 41'17     | 17°29'51    |
| min. Earth dist. | -4435 Feb 11 j 03:45 | 16° $\Theta$ 57'05 | 29.37402 AU | min. Earth dist. | -4427 Mar 03 j 12:44 | 7° $\Omega$ 39'17     | 28.70127 AU |
| direct           | -4435 Apr 30 j 06:25 | 15° $\Theta$ 35'06 |             | direct           | -4427 May 21 j 08:14 | 6° $\Omega$ 14'56     |             |
| max. Earth dist. | -4435 Aug 13 j 17:01 | 18° $\Theta$ 12'11 | 31.22286 AU | max. Earth dist. | -4427 Sep 04 j 08:17 | 8° $\Omega$ 57'53     | 30.59708 AU |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 35

Attention, astronomical year style is used: The year -4427 in astronomical counting style is the year 4428 BCE in historical counting style.

|                  |                      |           |             |                  |                      |           |             |
|------------------|----------------------|-----------|-------------|------------------|----------------------|-----------|-------------|
| conjunction      | -4427 Sep 05 j 10:54 | 9°Ω00'36  | 16°17'10    | min. Earth dist. | -4419 Mar 24 j 02:38 | 28°Ω31'57 | 28.72680 AU |
| minimum elong    | -4427 Sep 05 j 11:05 | 9°Ω00'37  | 16°17'22    | direct           | -4419 Jun 11 j 20:34 | 27°Ω06'54 |             |
| retrograde       | -4427 Dec 18 j 03:12 | 11°Ω42'20 |             | evening set      | -4419 Sep 20 j 02:27 | 29°Ω34'37 |             |
| opposition       | -4426 Mar 05 j 07:45 | 10°Ω18'42 | 17°18'37    |                  |                      |           |             |
| min. Earth dist. | -4426 Mar 06 j 07:45 | 10°Ω17'00 | 28.66770 AU | conjunction      | -4419 Sep 25 j 20:57 | 29°Ω48'34 | 13°54'27    |
| direct           | -4426 May 24 j 07:15 | 8°Ω52'26  |             | minimum elong    | -4419 Sep 25 j 21:22 | 29°Ω48'36 | 13°54'34    |
| max. Earth dist. | -4426 Sep 07 j 08:21 | 11°Ω35'43 | 30.57094 AU | max. Earth dist. | -4419 Sep 25 j 23:11 | 29°Ω48'47 | 30.68853 AU |
|                  |                      |           |             |                  | -4419 Sep 30 j 14:20 | 0°൬       |             |
| conjunction      | -4426 Sep 08 j 06:57 | 11°Ω38'01 | 16°05'36    | morning rise     | -4419 Oct 01 j 16:00 | 0°൬02'35  |             |
| minimum elong    | -4426 Sep 08 j 07:10 | 11°Ω38'03 | 16°05'46    | retrograde       | -4418 Jan 07 j 17:50 | 2°൬27'57  |             |
| retrograde       | -4426 Dec 21 j 00:14 | 14°Ω19'50 |             | opposition       | -4418 Mar 26 j 23:56 | 1°൬04'42  | 14°38'45    |
| opposition       | -4425 Mar 08 j 07:22 | 12°Ω56'11 | 17°05'19    | min. Earth dist. | -4418 Mar 26 j 21:12 | 1°൬04'54  | 28.77822 AU |
| min. Earth dist. | -4425 Mar 09 j 05:01 | 12°Ω54'40 | 28.64494 AU |                  | -4418 May 10 j 06:25 | 30°℞Ω     |             |
| direct           | -4425 May 27 j 05:40 | 11°Ω30'03 |             | direct           | -4418 Jun 14 j 18:33 | 29°Ω39'52 |             |
| max. Earth dist. | -4425 Sep 10 j 07:31 | 14°Ω13'26 | 30.55591 AU |                  | -4418 Jul 19 j 06:57 | 0°൬       |             |
|                  |                      |           |             | evening set      | -4418 Sep 21 j 20:36 | 2°൬04'22  |             |
| conjunction      | -4425 Sep 11 j 02:54 | 14°Ω15'25 | 15°52'08    | conjunction      | -4418 Sep 28 j 14:13 | 2°൬20'34  | 13°29'15    |
| minimum elong    | -4425 Sep 11 j 03:09 | 14°Ω15'27 | 15°52'18    | minimum elong    | -4418 Sep 28 j 14:36 | 2°൬20'37  | 13°29'21    |
|                  | -4425 Sep 29 j 12:16 | 15°Ω      |             | max. Earth dist. | -4418 Sep 28 j 19:10 | 2°൬21'04  | 30.74962 AU |
| retrograde       | -4425 Dec 23 j 22:21 | 16°Ω57'12 |             | morning rise     | -4418 Oct 05 j 08:26 | 2°൬36'51  |             |
| opposition       | -4424 Mar 10 j 06:55 | 15°Ω33'35 | 16°49'59    | retrograde       | -4417 Jan 10 j 13:18 | 4°൬59'16  |             |
| min. Earth dist. | -4424 Mar 11 j 00:11 | 15°Ω32'22 | 28.63276 AU | opposition       | -4417 Mar 29 j 21:25 | 3°൬36'09  | 14°10'57    |
|                  | -4424 Mar 30 j 18:35 | 15°℞Ω     |             | min. Earth dist. | -4417 Mar 29 j 14:15 | 3°൬36'39  | 28.84153 AU |
| direct           | -4424 May 29 j 05:20 | 14°Ω07'35 |             | direct           | -4417 Jun 17 j 15:59 | 2°൬11'36  |             |
|                  | -4424 Jul 24 j 06:30 | 15°Ω      |             | evening set      | -4417 Sep 23 j 16:56 | 4°൬33'08  |             |
| conjunction      | -4424 Sep 12 j 22:40 | 16°Ω52'37 | 15°36'49    | conjunction      | -4417 Oct 01 j 07:11 | 4°൬51'18  | 13°02'39    |
| minimum elong    | -4424 Sep 12 j 22:56 | 16°Ω52'39 | 15°36'57    | minimum elong    | -4417 Oct 01 j 07:37 | 4°൬51'21  | 13°02'44    |
| max. Earth dist. | -4424 Sep 12 j 06:41 | 16°Ω50'59 | 30.55148 AU | max. Earth dist. | -4417 Oct 01 j 17:01 | 4°൬52'17  | 30.82271 AU |
| retrograde       | -4424 Dec 25 j 18:01 | 19°Ω34'15 |             | morning rise     | -4417 Oct 08 j 21:54 | 5°൬09'32  |             |
| opposition       | -4423 Mar 13 j 06:30 | 18°Ω10'40 | 16°32'41    | retrograde       | -4416 Jan 13 j 06:13 | 7°൬29'14  |             |
| min. Earth dist. | -4423 Mar 13 j 21:26 | 18°Ω09'37 | 28.63090 AU | opposition       | -4416 Mar 31 j 18:28 | 6°൬06'18  | 13°41'42    |
| direct           | -4423 Jun 01 j 03:15 | 16°Ω44'50 |             | min. Earth dist. | -4416 Mar 31 j 08:20 | 6°൬07'00  | 28.91667 AU |
| conjunction      | -4423 Sep 15 j 18:20 | 19°Ω29'25 | 15°19'42    | direct           | -4416 Jun 19 j 13:20 | 4°൬42'05  |             |
| minimum elong    | -4423 Sep 15 j 18:39 | 19°Ω29'27 | 15°19'51    | evening set      | -4416 Sep 24 j 14:35 | 7°൬00'48  |             |
| max. Earth dist. | -4423 Sep 15 j 06:00 | 19°Ω28'09 | 30.55763 AU | conjunction      | -4416 Oct 02 j 23:22 | 7°൬20'43  | 12°34'44    |
| retrograde       | -4423 Dec 28 j 14:27 | 22°Ω10'47 |             | minimum elong    | -4416 Oct 02 j 23:47 | 7°൬20'45  | 12°34'49    |
| opposition       | -4422 Mar 16 j 05:39 | 20°Ω47'15 | 16°13'28    | max. Earth dist. | -4416 Oct 03 j 11:56 | 7°൬21'58  | 30.90767 AU |
| min. Earth dist. | -4422 Mar 16 j 16:33 | 20°Ω46'29 | 28.63914 AU | morning rise     | -4416 Oct 11 j 08:44 | 7°൬40'41  |             |
| direct           | -4422 Jun 04 j 02:45 | 19°Ω21'34 |             | retrograde       | -4415 Jan 15 j 00:32 | 9°൬57'50  |             |
| conjunction      | -4422 Sep 18 j 13:41 | 22°Ω05'35 | 15°00'51    | opposition       | -4415 Apr 03 j 14:47 | 8°൬35'07  | 13°11'05    |
| minimum elong    | -4422 Sep 18 j 14:00 | 22°Ω05'37 | 15°00'59    | min. Earth dist. | -4415 Apr 02 j 23:58 | 8°൬36'08  | 29.00341 AU |
| max. Earth dist. | -4422 Sep 18 j 04:13 | 22°Ω04'38 | 30.57408 AU | direct           | -4415 Jun 22 j 09:07 | 7°൬11'15  |             |
| retrograde       | -4422 Dec 31 j 10:25 | 24°Ω46'37 |             | evening set      | -4415 Sep 26 j 13:15 | 9°൬27'17  |             |
| opposition       | -4421 Mar 19 j 04:50 | 23°Ω23'07 | 15°52'24    | conjunction      | -4415 Oct 05 j 15:10 | 9°൬48'46  | 12°05'37    |
| min. Earth dist. | -4421 Mar 19 j 12:57 | 23°Ω22'33 | 28.65771 AU | minimum elong    | -4415 Oct 05 j 15:37 | 9°൬48'48  | 12°05'42    |
| direct           | -4421 Jun 06 j 23:45 | 21°Ω57'37 |             | max. Earth dist. | -4415 Oct 06 j 08:02 | 9°൬50'26  | 31.00384 AU |
| evening set      | -4421 Sep 18 j 03:51 | 24°Ω33'10 |             | morning rise     | -4415 Oct 14 j 17:34 | 10°൬10'18 |             |
| conjunction      | -4421 Sep 21 j 08:33 | 24°Ω40'57 | 14°40'19    | retrograde       | -4414 Jan 17 j 16:57 | 12°൬25'00 |             |
| minimum elong    | -4421 Sep 21 j 08:56 | 24°Ω41'00 | 14°40'27    | opposition       | -4414 Apr 06 j 10:35 | 11°൬02'32 | 12°39'14    |
| max. Earth dist. | -4421 Sep 21 j 03:24 | 24°Ω40'26 | 30.60120 AU | min. Earth dist. | -4414 Apr 05 j 17:21 | 11°൬03'43 | 29.10106 AU |
| morning rise     | -4421 Sep 24 j 13:56 | 24°Ω48'49 |             | direct           | -4414 Jun 25 j 05:44 | 9°൬39'03  |             |
| retrograde       | -4420 Jan 03 j 04:48 | 27°Ω21'31 |             | evening set      | -4414 Sep 28 j 12:50 | 11°൬52'31 |             |
| opposition       | -4420 Mar 21 j 03:40 | 25°Ω58'06 | 15°29'33    | conjunction      | -4414 Oct 08 j 06:19 | 12°൬15'24 | 11°35'25    |
| min. Earth dist. | -4420 Mar 21 j 07:55 | 25°Ω57'48 | 28.68669 AU | minimum elong    | -4414 Oct 08 j 06:44 | 12°൬15'27 | 11°35'30    |
| direct           | -4420 Jun 08 j 23:55 | 24°Ω32'47 |             | max. Earth dist. | -4414 Oct 09 j 01:58 | 12°൬17'20 | 31.11071 AU |
| evening set      | -4420 Sep 18 j 11:33 | 27°Ω04'03 |             | morning rise     | -4414 Oct 18 j 00:20 | 12°൬38'20 |             |
| conjunction      | -4420 Sep 23 j 02:57 | 27°Ω15'20 | 14°18'10    | retrograde       | -4413 Jan 20 j 10:36 | 14°൬50'43 |             |
| minimum elong    | -4420 Sep 23 j 03:19 | 27°Ω15'22 | 14°18'17    | min. Earth dist. | -4413 Apr 08 j 08:13 | 13°൬29'59 | 29.20900 AU |
| max. Earth dist. | -4420 Sep 23 j 00:27 | 27°Ω15'05 | 30.63916 AU | opposition       | -4413 Apr 09 j 05:48 | 13°൬28'31 | 12°06'17    |
| morning rise     | -4420 Sep 27 j 18:59 | 27°Ω26'40 |             | direct           | -4413 Jun 28 j 02:14 | 12°൬05'26 |             |
| retrograde       | -4419 Jan 05 j 00:22 | 29°Ω55'21 |             | evening set      | -4413 Sep 30 j 12:48 | 14°൬16'25 |             |
| opposition       | -4419 Mar 24 j 01:58 | 28°Ω31'59 | 15°04'58    |                  |                      |           |             |

## Planetary Phenomena of Pluto from -4900 through -4398 (UT), Astrodienst AG 18-Feb-2025 14:23, page 36

Attention, astronomical year style is used: The year -4413 in astronomical counting style is the year 4414 BCE in historical counting style.

|                  |                      |                           |             |                  |                      |                           |             |
|------------------|----------------------|---------------------------|-------------|------------------|----------------------|---------------------------|-------------|
| conjunction      | -4413 Oct 10 j 20:48 | 14° $\overline{10}$ 40'33 | 11°04'15    | min. Earth dist. | -4406 Apr 24 j 07:17 | 29° $\overline{10}$ 45'10 | 30.20175 AU |
| minimum elong    | -4413 Oct 10 j 21:13 | 14° $\overline{10}$ 40'36 | 11°04'18    | opposition       | -4406 Apr 26 j 00:42 | 29° $\overline{10}$ 42'28 | 7°54'17     |
| max. Earth dist. | -4413 Oct 11 j 19:58 | 14° $\overline{10}$ 42'49 | 31.22733 AU | direct           | -4406 Jul 14 j 21:26 | 28° $\overline{10}$ 22'04 |             |
| morning rise     | -4413 Oct 21 j 05:22 | 15° $\overline{10}$ 04'45 |             |                  | -4406 Oct 04 j 13:29 | 0° $\underline{0}$        |             |
| retrograde       | -4412 Jan 23 j 00:46 | 17° $\overline{10}$ 14'55 |             | evening set      | -4406 Oct 12 j 22:16 | 0° $\underline{0}$ 17'57  |             |
| min. Earth dist. | -4412 Apr 10 j 00:47 | 15° $\overline{10}$ 54'34 | 29.32653 AU |                  |                      |                           |             |
| opposition       | -4412 Apr 11 j 00:34 | 15° $\overline{10}$ 52'58 | 11°32'20    | conjunction      | -4406 Oct 26 j 07:54 | 0° $\underline{0}$ 47'35  | 7°07'18     |
| direct           | -4412 Jun 29 j 20:06 | 14° $\overline{10}$ 30'17 |             | minimum elong    | -4406 Oct 26 j 08:11 | 0° $\underline{0}$ 47'37  | 7°07'19     |
| evening set      | -4412 Oct 01 j 13:31 | 16° $\overline{10}$ 38'53 |             | max. Earth dist. | -4406 Oct 28 j 02:38 | 0° $\underline{0}$ 51'33  | 32.27159 AU |
|                  |                      |                           |             | morning rise     | -4406 Nov 08 j 18:20 | 1° $\underline{0}$ 17'18  |             |
| conjunction      | -4412 Oct 12 j 10:50 | 17° $\overline{10}$ 04'09 | 10°32'12    | retrograde       | -4405 Feb 07 j 10:37 | 3° $\underline{0}$ 14'00  |             |
| minimum elong    | -4412 Oct 12 j 11:14 | 17° $\overline{10}$ 04'11 | 10°32'15    | min. Earth dist. | -4405 Apr 26 j 18:48 | 1° $\underline{0}$ 56'44  | 30.37514 AU |
| max. Earth dist. | -4412 Oct 13 j 13:04 | 17° $\overline{10}$ 06'41 | 31.35314 AU | opposition       | -4405 Apr 28 j 14:05 | 1° $\underline{0}$ 53'55  | 7°16'28     |
| morning rise     | -4412 Oct 23 j 08:39 | 17° $\overline{10}$ 29'27 |             | direct           | -4405 Jul 17 j 11:29 | 0° $\underline{0}$ 33'55  |             |
| retrograde       | -4411 Jan 24 j 14:56 | 19° $\overline{10}$ 37'28 |             | evening set      | -4405 Oct 14 j 23:58 | 2° $\underline{0}$ 27'59  |             |
| opposition       | -4411 Apr 13 j 18:18 | 18° $\overline{10}$ 15'48 | 10°57'32    |                  |                      |                           |             |
| min. Earth dist. | -4411 Apr 12 j 14:55 | 18° $\overline{10}$ 17'38 | 29.45280 AU | conjunction      | -4405 Oct 28 j 16:41 | 2° $\underline{0}$ 58'02  | 6°31'53     |
| direct           | -4411 Jul 02 j 15:30 | 16° $\overline{10}$ 53'31 |             | minimum elong    | -4405 Oct 28 j 16:58 | 2° $\underline{0}$ 58'03  | 6°31'52     |
| evening set      | -4411 Oct 03 j 14:35 | 18° $\overline{10}$ 59'49 |             | max. Earth dist. | -4405 Oct 30 j 13:23 | 3° $\underline{0}$ 02'08  | 32.45181 AU |
|                  |                      |                           |             | morning rise     | -4405 Nov 11 j 10:25 | 3° $\underline{0}$ 28'10  |             |
| conjunction      | -4411 Oct 15 j 00:10 | 19° $\overline{10}$ 26'04 | 9°59'23     | retrograde       | -4404 Feb 09 j 21:09 | 5° $\underline{0}$ 23'15  |             |
| minimum elong    | -4411 Oct 15 j 00:33 | 19° $\overline{10}$ 26'06 | 9°59'26     | min. Earth dist. | -4404 Apr 28 j 03:23 | 4° $\underline{0}$ 06'31  | 30.55678 AU |
| max. Earth dist. | -4411 Oct 16 j 04:47 | 19° $\overline{10}$ 28'49 | 31.48720 AU | opposition       | -4404 Apr 30 j 02:30 | 4° $\underline{0}$ 03'29  | 6°38'27     |
| morning rise     | -4411 Oct 26 j 10:27 | 19° $\overline{10}$ 52'22 |             | direct           | -4404 Jul 19 j 00:11 | 2° $\underline{0}$ 43'54  |             |
| retrograde       | -4410 Jan 27 j 04:59 | 21° $\overline{10}$ 58'19 |             | evening set      | -4404 Oct 16 j 01:44 | 4° $\underline{0}$ 36'15  |             |
| min. Earth dist. | -4410 Apr 15 j 05:44 | 20° $\overline{10}$ 38'55 | 29.58732 AU |                  |                      |                           |             |
| opposition       | -4410 Apr 16 j 11:36 | 20° $\overline{10}$ 36'55 | 10°21'58    | conjunction      | -4404 Oct 30 j 00:53 | 5° $\underline{0}$ 06'37  | 5°56'18     |
| direct           | -4410 Jul 05 j 07:51 | 19° $\overline{10}$ 15'02 |             | minimum elong    | -4404 Oct 30 j 01:08 | 5° $\underline{0}$ 06'39  | 5°56'18     |
| evening set      | -4410 Oct 05 j 15:50 | 21° $\overline{10}$ 19'05 |             | max. Earth dist. | -4404 Nov 01 j 00:39 | 5° $\underline{0}$ 10'59  | 32.63987 AU |
|                  |                      |                           |             | morning rise     | -4404 Nov 13 j 01:10 | 5° $\underline{0}$ 37'06  |             |
| conjunction      | -4410 Oct 17 j 12:50 | 21° $\overline{10}$ 46'13 | 9°25'55     | retrograde       | -4403 Feb 11 j 05:05 | 7° $\underline{0}$ 30'40  |             |
| minimum elong    | -4410 Oct 17 j 13:12 | 21° $\overline{10}$ 46'15 | 9°25'58     | min. Earth dist. | -4403 Apr 30 j 13:19 | 6° $\underline{0}$ 14'21  | 30.74645 AU |
| max. Earth dist. | -4410 Oct 18 j 20:46 | 21° $\overline{10}$ 49'16 | 31.62914 AU | opposition       | -4403 May 02 j 14:05 | 6° $\underline{0}$ 11'13  | 6°00'21     |
| morning rise     | -4410 Oct 29 j 10:19 | 22° $\overline{10}$ 13'24 |             | direct           | -4403 Jul 21 j 11:47 | 4° $\underline{0}$ 52'05  |             |
| retrograde       | -4409 Jan 29 j 16:01 | 24° $\overline{10}$ 17'21 |             | evening set      | -4403 Oct 18 j 03:28 | 6° $\underline{0}$ 42'48  |             |
| min. Earth dist. | -4409 Apr 17 j 19:26 | 22° $\overline{10}$ 58'24 | 29.72943 AU |                  |                      |                           |             |
| opposition       | -4409 Apr 19 j 04:08 | 22° $\overline{10}$ 56'13 | 9°45'46     | conjunction      | -4403 Nov 01 j 08:25 | 7° $\underline{0}$ 13'27  | 5°20'38     |
| direct           | -4409 Jul 08 j 01:58 | 21° $\overline{10}$ 34'43 |             | minimum elong    | -4403 Nov 01 j 08:38 | 7° $\underline{0}$ 13'28  | 5°20'38     |
| evening set      | -4409 Oct 07 j 17:27 | 23° $\overline{10}$ 36'36 |             | max. Earth dist. | -4403 Nov 03 j 10:34 | 7° $\underline{0}$ 17'59  | 32.83556 AU |
|                  |                      |                           |             | morning rise     | -4403 Nov 15 j 14:25 | 7° $\underline{0}$ 44'11  |             |
| conjunction      | -4409 Oct 20 j 00:43 | 24° $\overline{10}$ 04'30 | 8°51'54     | retrograde       | -4402 Feb 13 j 12:54 | 9° $\underline{0}$ 36'19  |             |
| minimum elong    | -4409 Oct 20 j 01:05 | 24° $\overline{10}$ 04'32 | 8°51'56     | min. Earth dist. | -4402 May 02 j 20:59 | 8° $\underline{0}$ 20'33  | 30.94346 AU |
| max. Earth dist. | -4409 Oct 21 j 10:23 | 24° $\overline{10}$ 07'42 | 31.77848 AU | opposition       | -4402 May 05 j 00:56 | 8° $\underline{0}$ 17'14  | 5°22'15     |
| morning rise     | -4409 Nov 01 j 08:51 | 24° $\overline{10}$ 32'28 |             | direct           | -4402 Jul 24 j 00:44 | 6° $\underline{0}$ 58'33  |             |
| retrograde       | -4408 Feb 01 j 04:01 | 26° $\overline{10}$ 34'29 |             | evening set      | -4402 Oct 20 j 05:10 | 8° $\underline{0}$ 47'44  |             |
| min. Earth dist. | -4408 Apr 19 j 08:09 | 25° $\overline{10}$ 15'59 | 29.87924 AU |                  |                      |                           |             |
| opposition       | -4408 Apr 20 j 19:52 | 25° $\overline{10}$ 13'37 | 9°09'01     | conjunction      | -4402 Nov 03 j 15:02 | 9° $\underline{0}$ 18'34  | 4°44'59     |
| direct           | -4408 Jul 09 j 16:27 | 23° $\overline{10}$ 52'29 |             | minimum elong    | -4402 Nov 03 j 15:14 | 9° $\underline{0}$ 18'35  | 4°44'59     |
| evening set      | -4408 Oct 08 j 18:54 | 25° $\overline{10}$ 52'16 |             | max. Earth dist. | -4402 Nov 05 j 19:18 | 9° $\underline{0}$ 23'15  | 33.03798 AU |
|                  |                      |                           |             | morning rise     | -4402 Nov 18 j 02:18 | 9° $\underline{0}$ 49'30  |             |
| conjunction      | -4408 Oct 21 j 11:56 | 26° $\overline{10}$ 20'51 | 8°17'24     | retrograde       | -4401 Feb 15 j 20:35 | 11° $\underline{0}$ 40'18 |             |
| minimum elong    | -4408 Oct 21 j 12:16 | 26° $\overline{10}$ 20'53 | 8°17'26     | min. Earth dist. | -4401 May 05 j 05:12 | 10° $\underline{0}$ 25'00 | 31.14729 AU |
| max. Earth dist. | -4408 Oct 23 j 01:17 | 26° $\overline{10}$ 24'22 | 31.93526 AU | opposition       | -4401 May 07 j 11:13 | 10° $\underline{0}$ 21'34 | 4°44'12     |
| morning rise     | -4408 Nov 03 j 05:34 | 26° $\overline{10}$ 49'29 |             | direct           | -4401 Jul 26 j 10:37 | 9° $\underline{0}$ 03'21  |             |
| retrograde       | -4407 Feb 02 j 13:46 | 28° $\overline{10}$ 49'39 |             | evening set      | -4401 Oct 22 j 06:52 | 10° $\underline{0}$ 51'04 |             |
| min. Earth dist. | -4407 Apr 21 j 21:03 | 27° $\overline{10}$ 31'31 | 30.03653 AU |                  |                      |                           |             |
| opposition       | -4407 Apr 23 j 10:47 | 27° $\overline{10}$ 29'02 | 8°31'50     | conjunction      | -4401 Nov 05 j 21:16 | 11° $\underline{0}$ 22'02 | 4°09'25     |
| direct           | -4407 Jul 12 j 07:46 | 26° $\overline{10}$ 08'16 |             | minimum elong    | -4401 Nov 05 j 21:27 | 11° $\underline{0}$ 22'03 | 4°09'23     |
| evening set      | -4407 Oct 10 j 20:39 | 28° $\overline{10}$ 06'04 |             | max. Earth dist. | -4401 Nov 08 j 04:19 | 11° $\underline{0}$ 26'56 | 33.24657 AU |
|                  |                      |                           |             | morning rise     | -4401 Nov 20 j 12:51 | 11° $\underline{0}$ 53'07 |             |
| conjunction      | -4407 Oct 23 j 22:14 | 28° $\overline{10}$ 35'12 | 7°42'30     | retrograde       | -4400 Feb 18 j 01:02 | 13° $\underline{0}$ 42'37 |             |
| minimum elong    | -4407 Oct 23 j 22:33 | 28° $\overline{10}$ 35'14 | 7°42'31     | min. Earth dist. | -4400 May 06 j 12:36 | 12° $\underline{0}$ 27'48 | 31.35691 AU |
| max. Earth dist. | -4407 Oct 25 j 13:15 | 28° $\overline{10}$ 38'51 | 32.09951 AU | opposition       | -4400 May 08 j 20:34 | 12° $\underline{0}$ 24'16 | 4°06'18     |
| morning rise     | -4407 Nov 06 j 00:46 | 29° $\overline{10}$ 04'26 |             | direct           | -4400 Jul 27 j 21:19 | 11° $\underline{0}$ 06'30 |             |
|                  | -4407 Dec 03 j 04:39 | 0° $\underline{0}$        |             | evening set      | -4400 Oct 23 j 08:42 | 12° $\underline{0}$ 52'50 |             |
| retrograde       | -4406 Feb 05 j 01:10 | 1° $\underline{0}$ 02'49  |             |                  |                      |                           |             |
|                  | -4406 Apr 14 j 18:07 | 30° $\overline{08}$       |             | conjunction      | -4400 Nov 07 j 02:42 | 13° $\underline{0}$ 23'51 | 3°33'58     |

Attention, astronomical year style is used: The year -4400 in astronomical counting style is the year 4401 BCE in historical counting style.

|                  |                      |                    |             |
|------------------|----------------------|--------------------|-------------|
| minimum elong    | -4400 Nov 07 j 02:51 | 13° <u>0</u> 23'52 | 3°33'56     |
| max. Earth dist. | -4400 Nov 09 j 10:43 | 13° <u>0</u> 28'49 | 33.46030 AU |
| morning rise     | -4400 Nov 21 j 22:19 | 13° <u>0</u> 55'02 |             |
| retrograde       | -4399 Feb 19 j 06:45 | 15° <u>0</u> 43'19 |             |
| min. Earth dist. | -4399 May 08 j 18:59 | 14° <u>0</u> 28'59 | 31.57164 AU |
| opposition       | -4399 May 11 j 05:15 | 14° <u>0</u> 25'19 | 3°28'36     |
| direct           | -4399 Jul 30 j 04:48 | 13° <u>0</u> 08'01 |             |
| evening set      | -4399 Oct 25 j 10:24 | 14° <u>0</u> 53'01 |             |
|                  |                      |                    |             |
| conjunction      | -4399 Nov 09 j 07:40 | 15° <u>0</u> 24'04 | 2°58'44     |
| minimum elong    | -4399 Nov 09 j 07:47 | 15° <u>0</u> 24'05 | 2°58'41     |
| max. Earth dist. | -4399 Nov 11 j 18:27 | 15° <u>0</u> 29'13 | 33.67836 AU |
| morning rise     | -4399 Nov 24 j 06:19 | 15° <u>0</u> 55'15 |             |