

pst-solarsystem

Position of the visible planets, projected on the plane of the ecliptic; v.0.13

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Contents

| | | |
|---|--|---|
| 1 | List of all optional arguments for pst-solarsystem | 4 |
|---|--|---|

| | | |
|--|------------|---|
| | References | 4 |
|--|------------|---|

For the method of calculation, I was guided by:

- that given by *Jean Meeus* astronomical calculations in the book for use by published by the Amateur Astronomical Society of France.
- and that of Guy Serane in *Astronomy & PC published* by Wiley & Sons.

As we can not represent all the planets in the real proportions, only Mercury, Venus, Earth and Mars are the proportions of the orbits and their relative sizes observed. Saturn and Jupiter are in the right direction, but obviously not at the right distance.

The orbits are shown in solid lines for the portion above the ecliptic and dashed for the portion located below. We can compare the view obtained with the following representation:

<http://users.skynet.be/fa274406/rubriques/live/orbites/orbites.htm>

The use of the command is very simple, just specify the date of observation with the following parameters, for example:

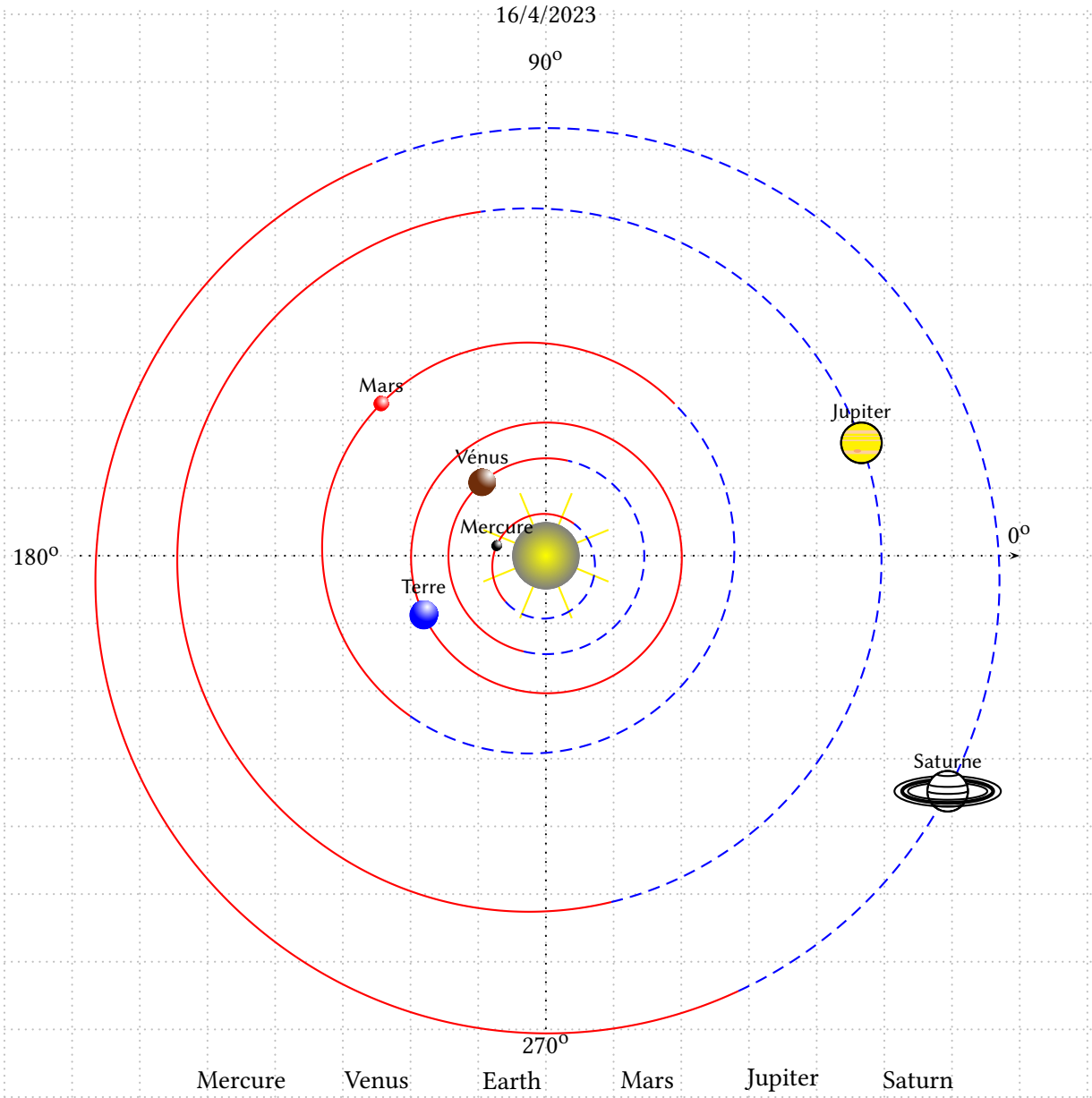
```
\SolarSystem[Day=31,Month=06,Year=2001,Hour=23,Minute=59,Second=59]
```

By default, if no parameter is specified, \SolarSystem gives the configuration day 0 hours to compile.

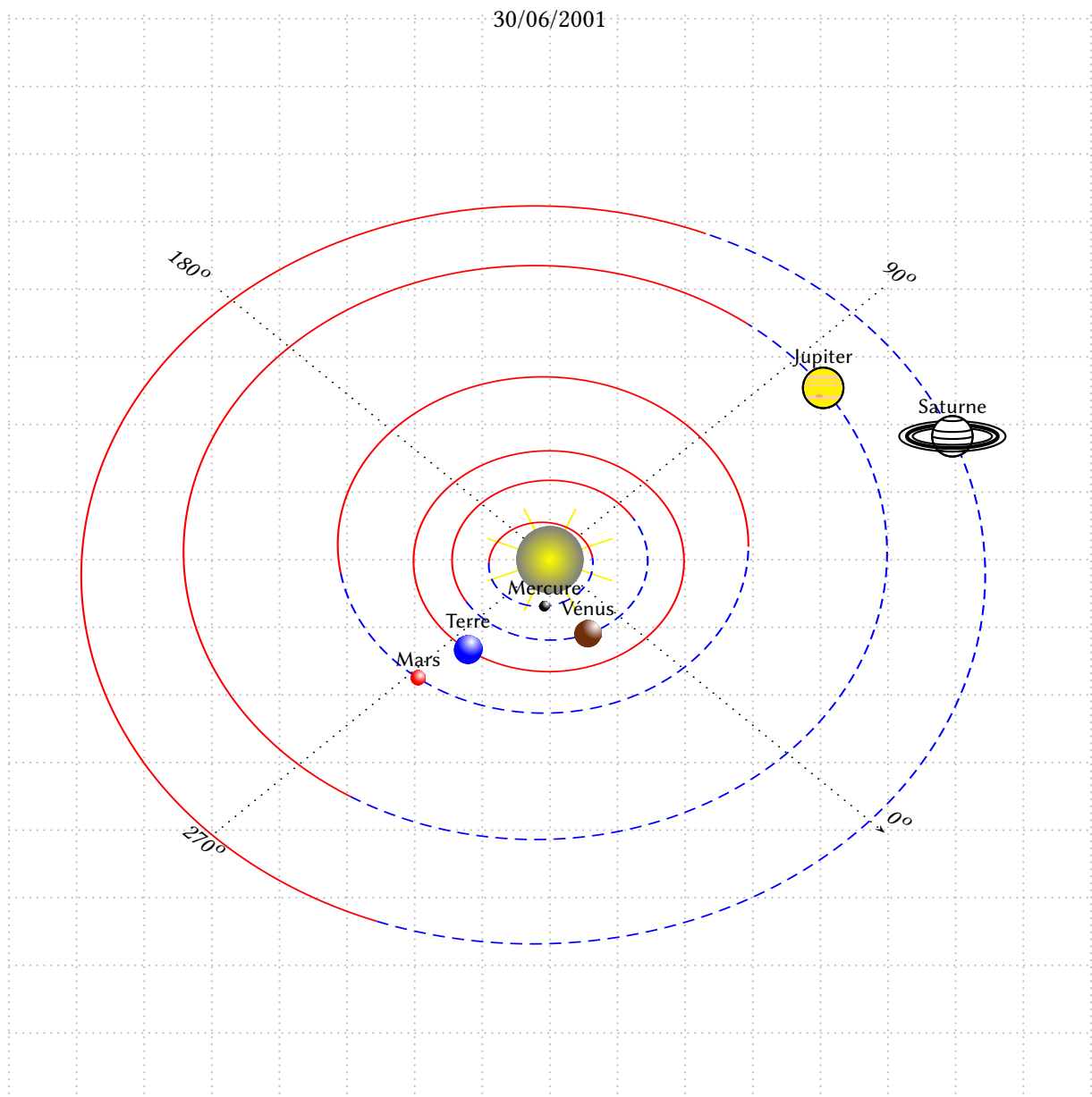
The solarValues is enabled by default. It displays the values of longitude, latitude, and the distance in astronomical units.

The accuracy of the calculations is about 0.1 to 0.3 degrees (comparing to ephemeris the Bureau des Longitudes), which is more than enough for a performance graph.

http://www.imcce.fr/fr/ephemerides/formulaire/form_ephepos.php



| | Mercure | Venus | Earth | Mars | Jupiter | Saturn |
|------------------|----------|---------|---------|---------|----------|----------|
| longitude at ° | 168.704 | 131.172 | 205.919 | 137.333 | 19.6891 | 329.614 |
| latitude at ° | 6.0685 | 2.75742 | 0 | 1.84796 | -1.28601 | -1.45401 |
| distance at U.A. | 0.371909 | 0.71844 | 1.00338 | 1.65658 | 4.95097 | 9.82943 |



```
\SolarSystem[Day=30,Month=06,Year=2001,  
Hour=23,Minute=59,Second=59,  
viewpoint=1 -1 2,solarValues=false]
```

1 List of all optional arguments for pst-solarsystem

| Key | Type | Default |
|-------------|----------|-----------------------------|
| Day | ordinary | <code>\number \day</code> |
| Month | ordinary | <code>\number \month</code> |
| Year | ordinary | <code>\number \year</code> |
| Hour | ordinary | 12 |
| Minute | ordinary | 0 |
| Second | ordinary | 0 |
| solarValues | boolean | true |

References

- [1] Denis Girou. “Présentation de PSTricks”. in *Cahier GUTenberg*: 16 (**april** 1994), **pages** 21–70.
- [2] Michel Goossens **and others**. *The L^AT_EX Graphics Companion*. 2 **edition**. Reading, Mass.: Addison-Wesley Publishing Company, 2007.
- [3] Herbert Voß. *PSTricks – Grafik für T_EX und L^AT_EX*. 7 **edition**. Heidelberg **and** Berlin: DANTE – Lehmanns, 2017.
- [4] Herbert Voß. *PSTricks – Graphics for T_EX and L^AT_EX*. Cambridge: UIT, 2011.
- [5] Herbert Voß. *Typesetting mathematics with L^AT_EX*. Cambridge: UIT, 2010.
- [6] Timothy van Zandt. *PSTricks - PostScript macros for generic T_EX*. 1993. URL: <http://www.tug.org/application/PSTricks>.
- [7] Timothy van Zandt **and** Denis Girou. “Inside PSTricks”. in *TUGboat*: 15 (**september** 1994), **pages** 239–246.

Index

Day, [1](#)

Hour, [1](#)

Keyword

Day, [1](#)

Hour, [1](#)

Minute, [1](#)

Month, [1](#)

Second, [1](#)

solarValues, [1](#)

Year, [1](#)

Macro

\SolarSystem, [1](#)

Minute, [1](#)

Month, [1](#)

Second, [1](#)

\SolarSystem, [1](#)

solarValues, [1](#)

Year, [1](#)