

# Close Encounter: 3122 Florence (1981 ET3)

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This information is generated on 2017-09-07 16:57 UTC.

## Basic Properties

- Name: 3122 Florence (1981 ET3)
- Discovered 1981-Mar-02 by Bus, S. J. at Siding Spring
- Estimated diameter: 4.02 – 8.99 km
- Classification: Amor (NEO, PHA)
- H: 14.1
- Period: 859.486 days

Table: Orbital elements at epoch 2458000.5 JD

Parameter	Value
Semi-major axis ( $a$ )	1.76913
Eccentricity ( $e$ )	.423300
Inclination ( $i$ )	22.1507
Lon. of ascending node ( $\Omega$ )	336.095
Argument of pericenter ( $\omega$ )	27.8469
Mean Anomaly ( $M$ )	351.438

## Orbit

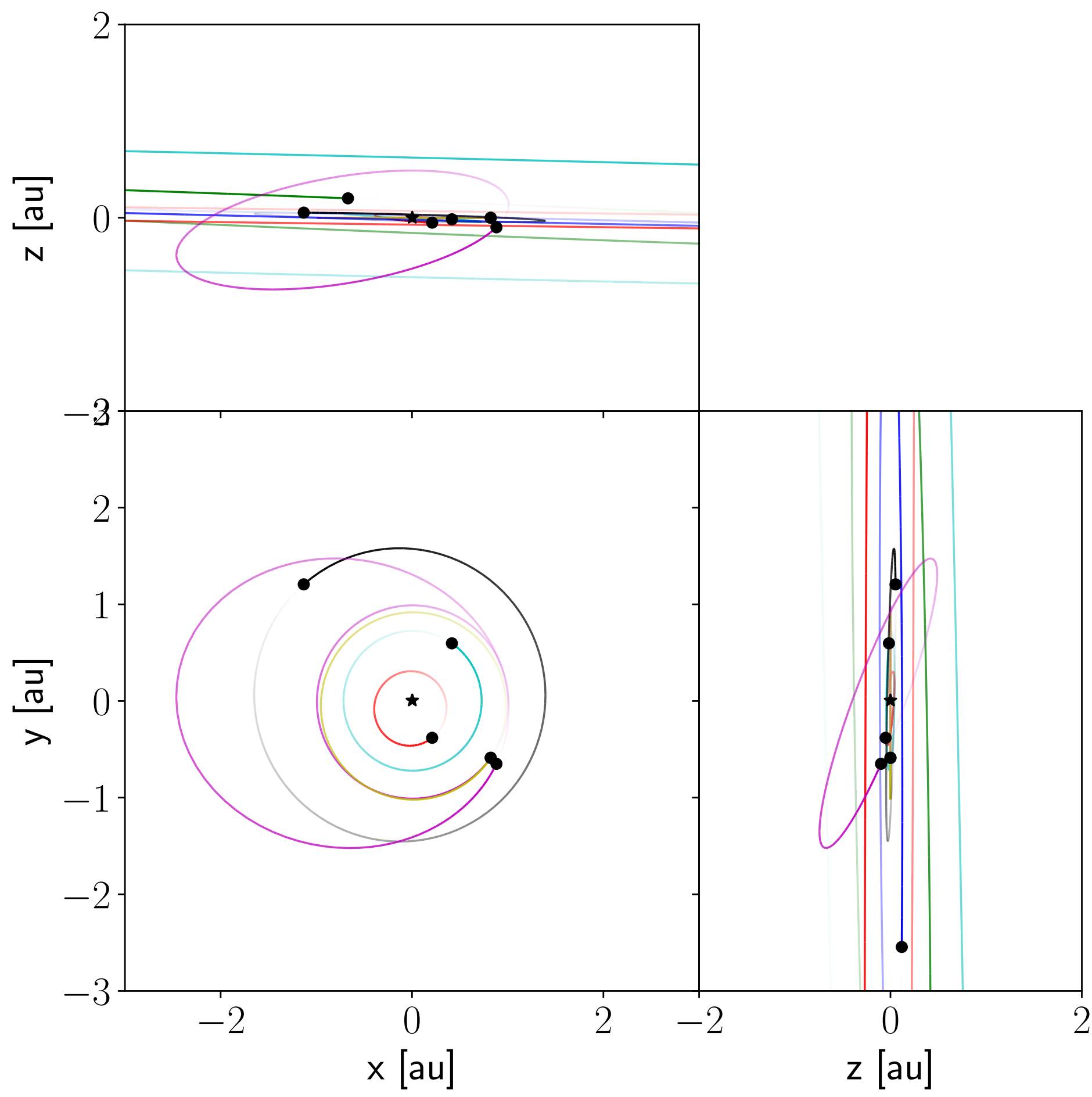


Figure: Orbit of the asteroid and the planets. This plot only shows the inner region of the Solar System.

## Acknowledgements

Our script retrieve basic informations and initial condition from [JPL NASA](#), re-integrate the Solar System using [Rebound](#) package, and write this report using  $\text{\LaTeX}$ .

## Distance to the Earth and Orbital Elements

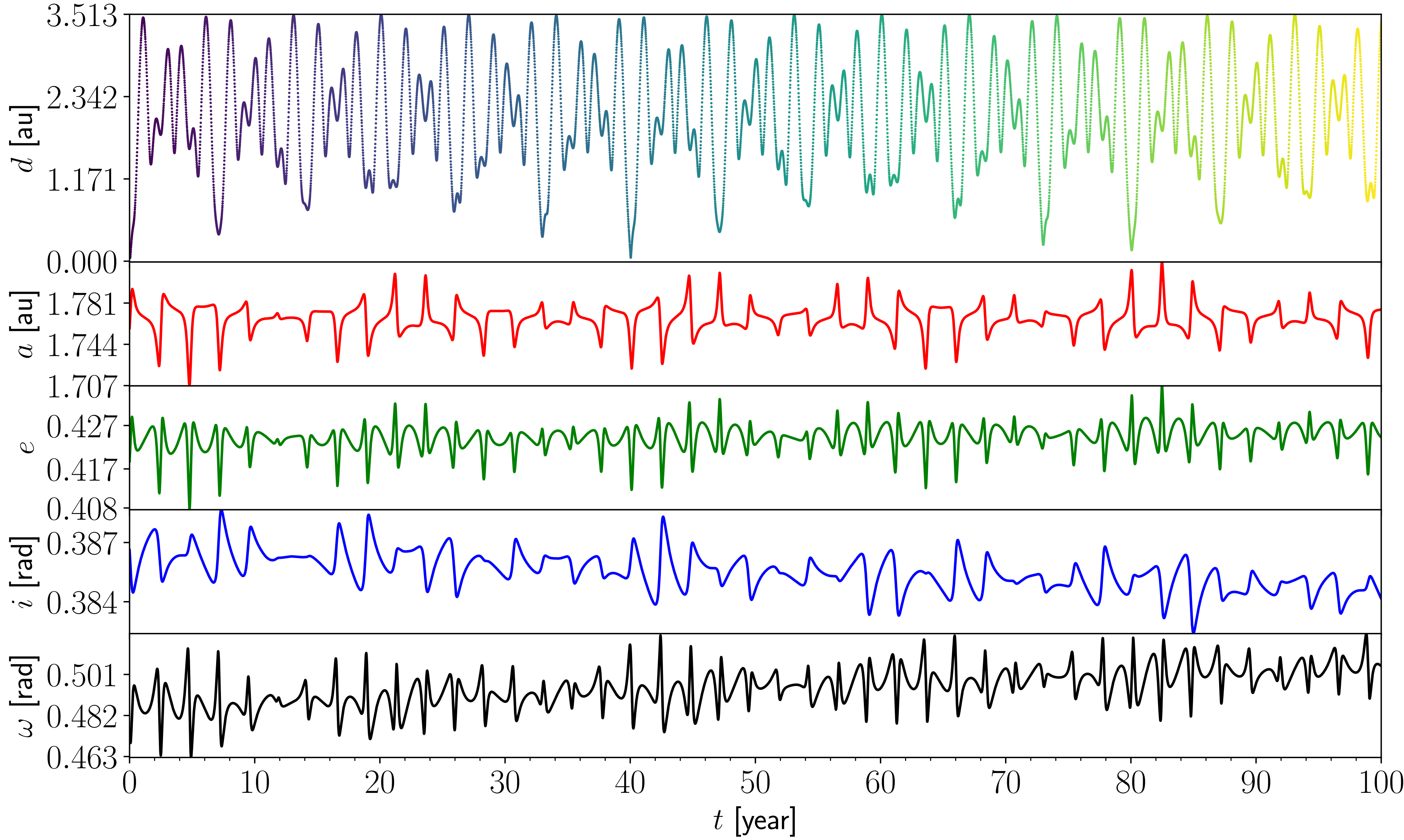


Figure: Distance to the Earth and orbital elements of the asteroid for the next 100 years. Starting time of the integration is 2017-08-17 00:00 UTC.

## Geocentric

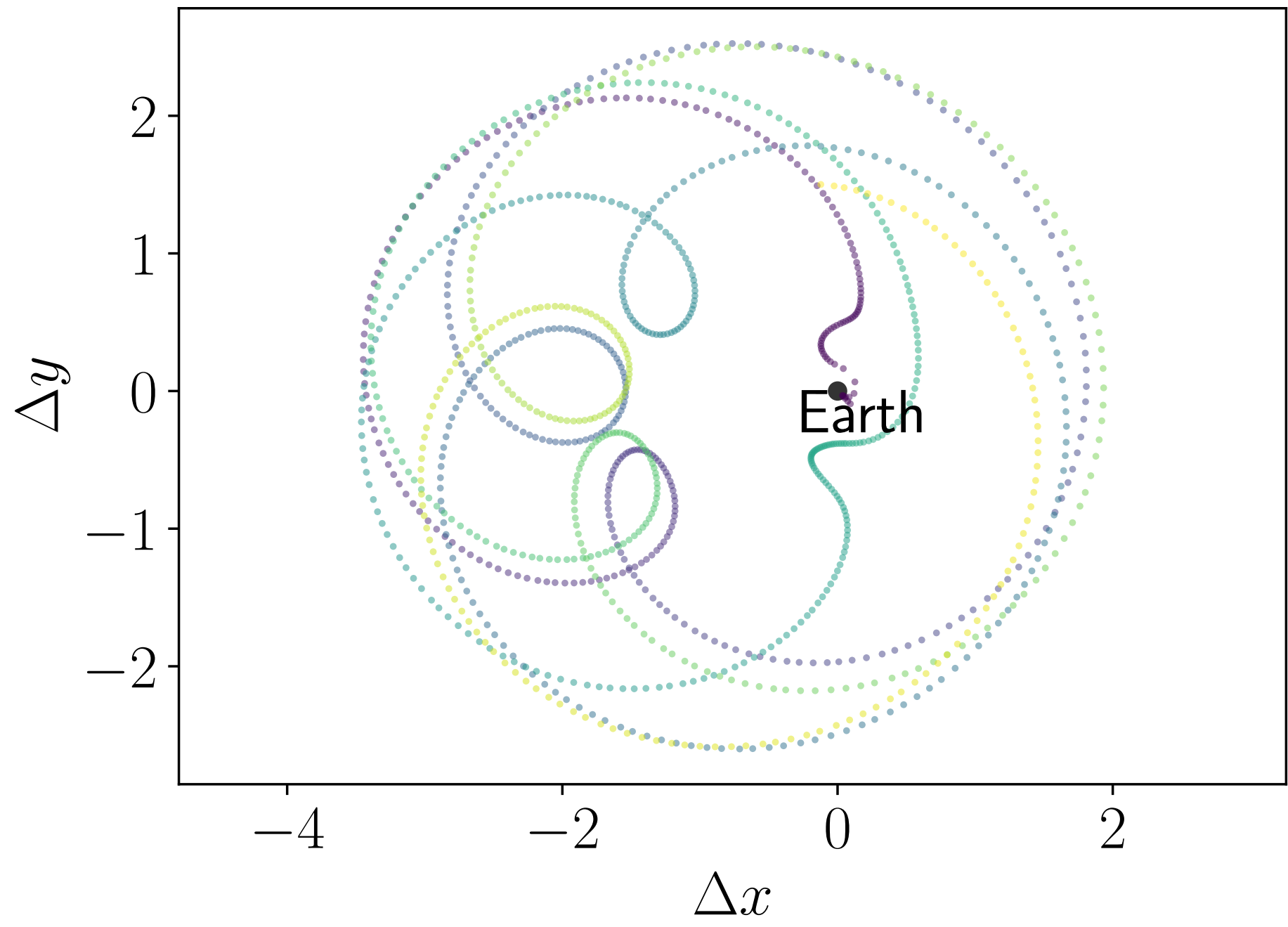


Figure: Movement of the asteroid relative to the Earth ( $xy$ -plane; only the first 12 years of integration).

## Rotating Frame

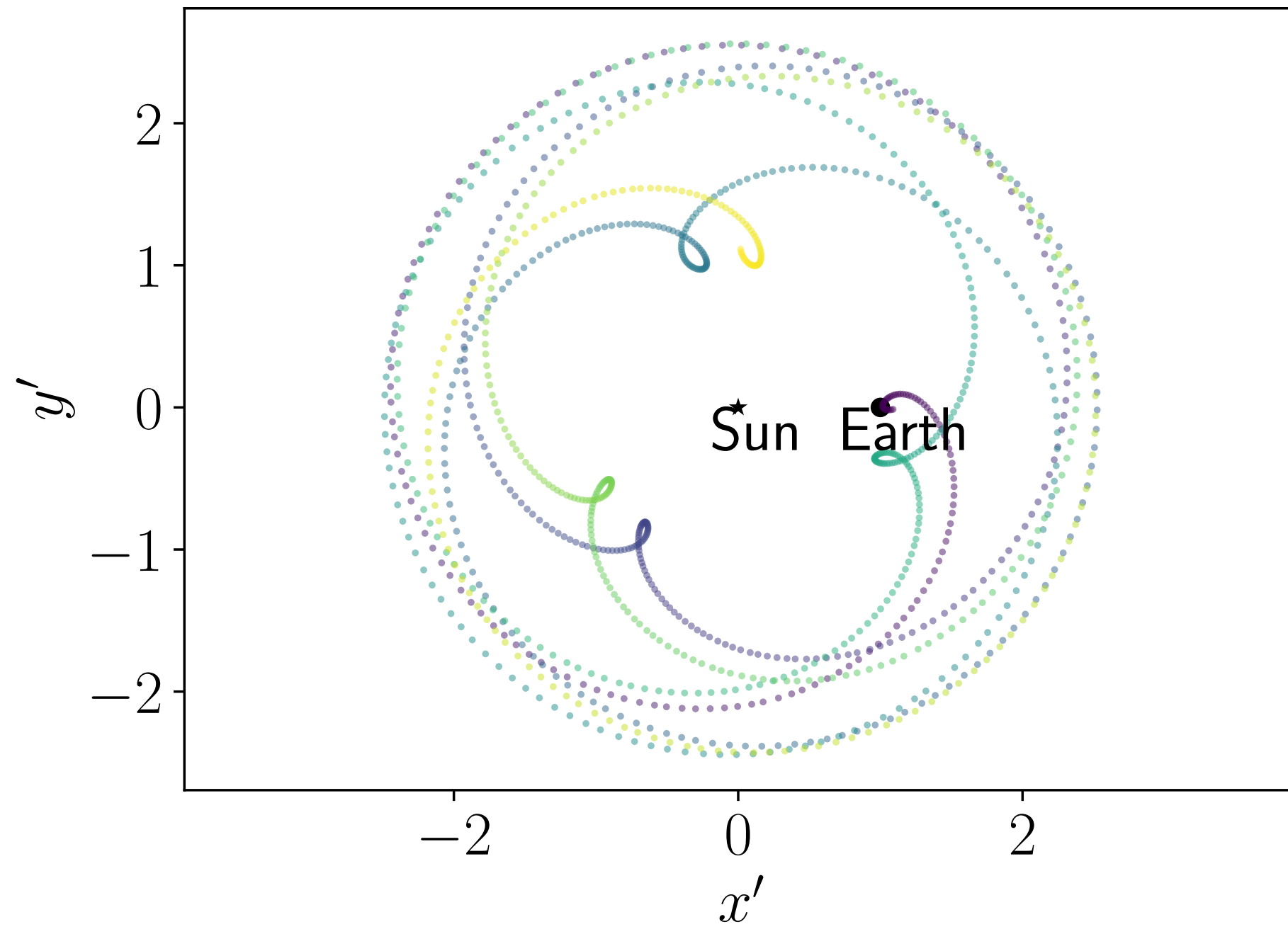


Figure: Movement of the asteroid relative to the Sun-Earth system ( $xy$ -plane; only the first 12 years of integration).

## Nearest close encounter

- Time: 1 September 2017, 12.05 UT
- Distance:  $7.066 \times 10^6$  km (18.38 Lunar Distance)
- Relative velocity:

## List of close encounter

Time	Body	$d$ (au)	$v_{rel}$ (km/s)
2017-09-01	Earth	0.0472	13.53
2024-10-01	Earth	0.3816	15.30
2050-08-11	Earth	0.3481	19.51
2057-09-02	Earth	0.0499	13.47
2064-10-05	Earth	0.4166	15.95
2090-08-17	Earth	0.2340	17.16
2097-09-11	Earth	0.1558	12.99
2123-08-05	Earth	0.4723	22.49
2130-08-27	Earth	0.0869	14.60
2137-09-24	Earth	0.2891	13.81
2163-08-07	Earth	0.4379	21.70
2170-08-28	Earth	0.0781	14.49
2177-09-22	Earth	0.2720	13.59