

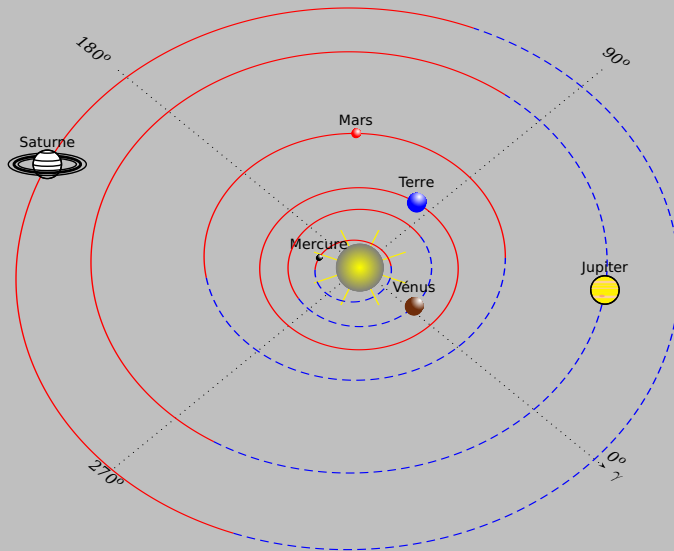
PSTricks

pst-solarsystem

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

1/1/2012

August 22, 2017



	Mercury	Venus	Earth	Mars	Jupiter	Saturn
longitude at °	208.922	3.70074	99.3591	136.34	38.6176	202.965
latitude at °	2.35469	-3.24829	0.0	1.84657	-1.14984	2.48818
distance at U.A.	0.428917	0.726324	0.983342	1.65578	4.97024	9.70677

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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:

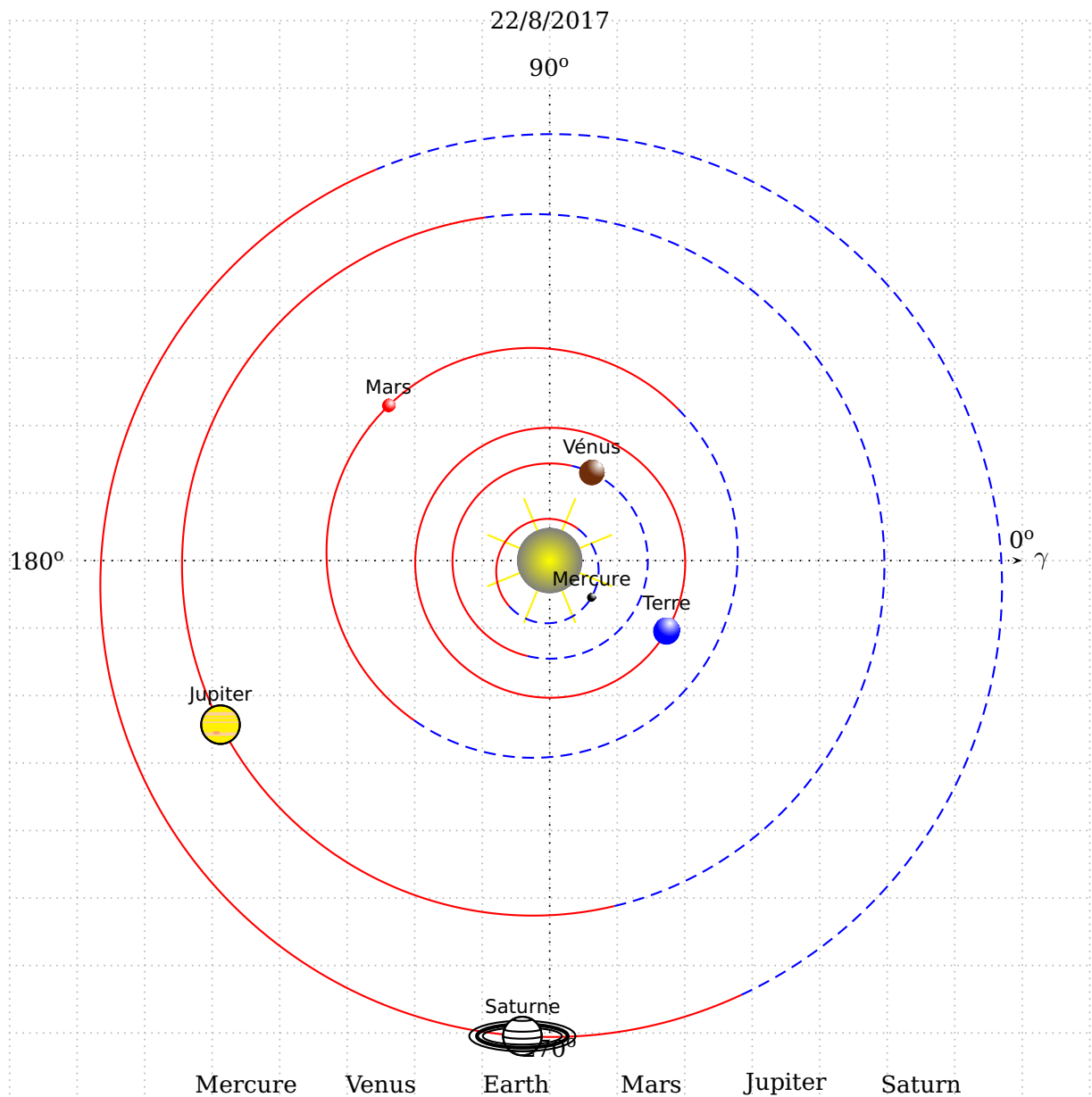
```
\SolarSystem[Day=31,Month=06,Year=2001,Hour=23,Minute=59,Second=59]
```

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

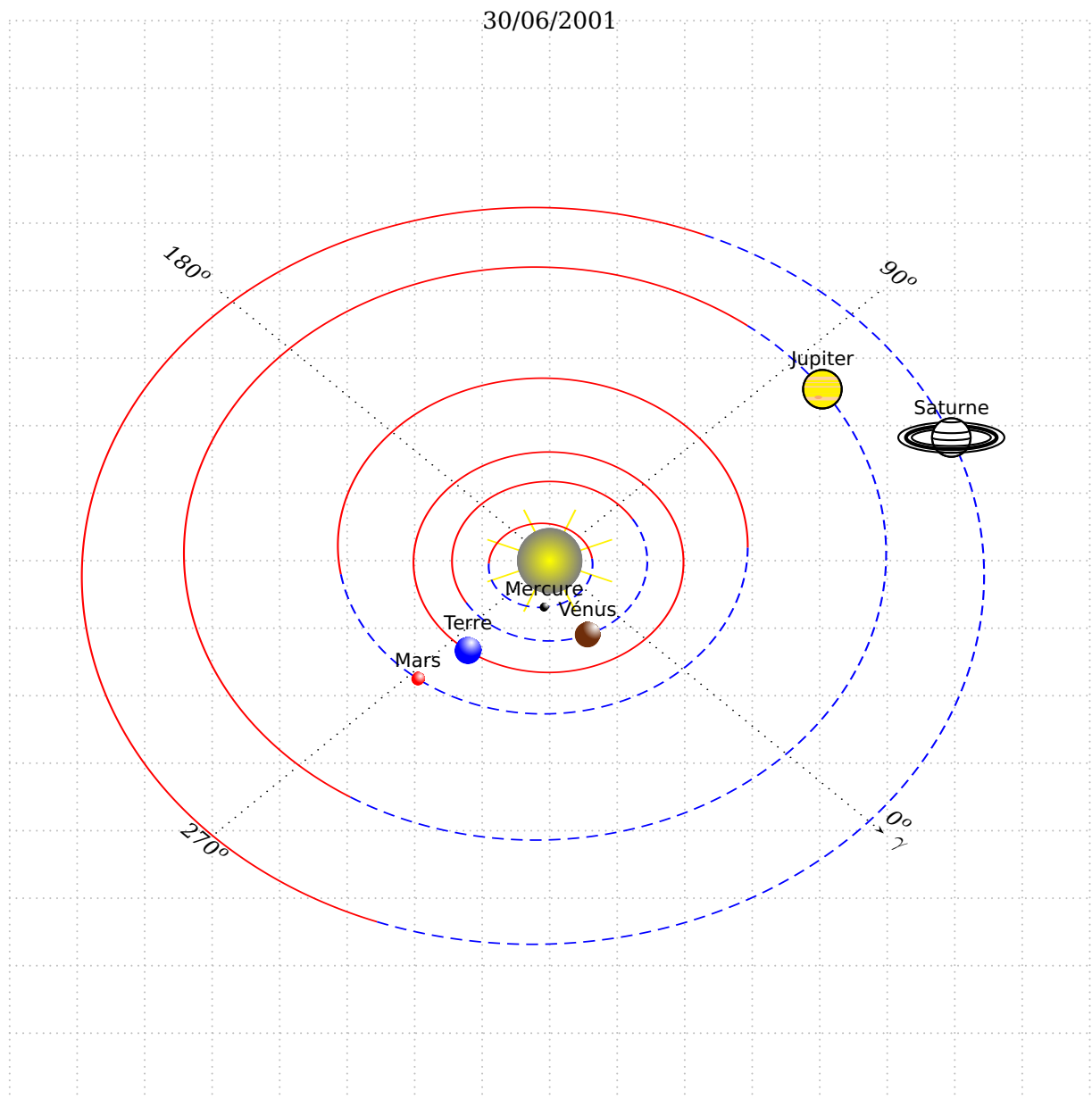
The `solarValues` is enabled by default. It displays the values of longitude, latitude, and the distance in astronomical units.

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 °	318.377	64.4604	328.785	136.119	206.5	266.71
latitude at °	-7.00528	-0.728546	0.0	1.84602	1.25277	1.13447
distance at U.A.	0.412291	0.721418	1.01156	1.65546	5.4491	10.0807



```
\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	\number \day
Month	ordinary	\number \month
Year	ordinary	\number \year
Hour	ordinary	12
Minute	ordinary	0
Second	ordinary	0
solarValues	boolean	true

References

- [1] Denis Girou. “Présentation de PSTricks”. In: *Cahier GUTenberg* 16 (Apr. 1994), pp. 21–70.
- [2] Michel Goossens et al. *The L^AT_EX Graphics Companion*. 2nd ed. Reading, Mass.: Addison-Wesley Publishing Company, 2007.
- [3] Herbert Voß. *PSTricks – Grafik für T_EX und L^AT_EX*. 7th ed. 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 (Sept. 1994), pp. 239–246.

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