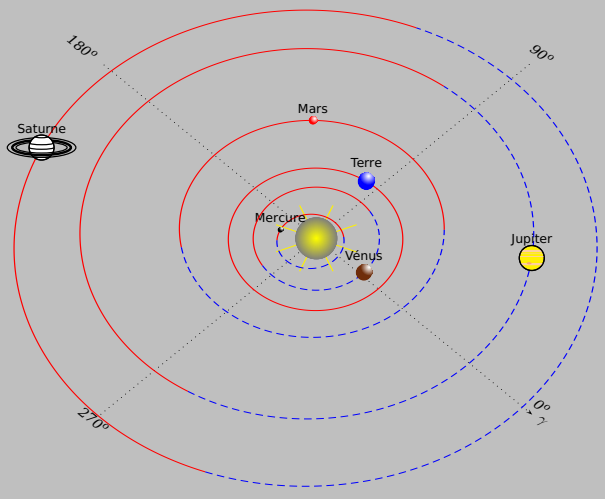
PSTricks

pst-solarsystem

Position of the visible planets, projected on the plane of the ecliptic; v.0.12

1/1/2012

January 1, 2012



	Mercure	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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Contents

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

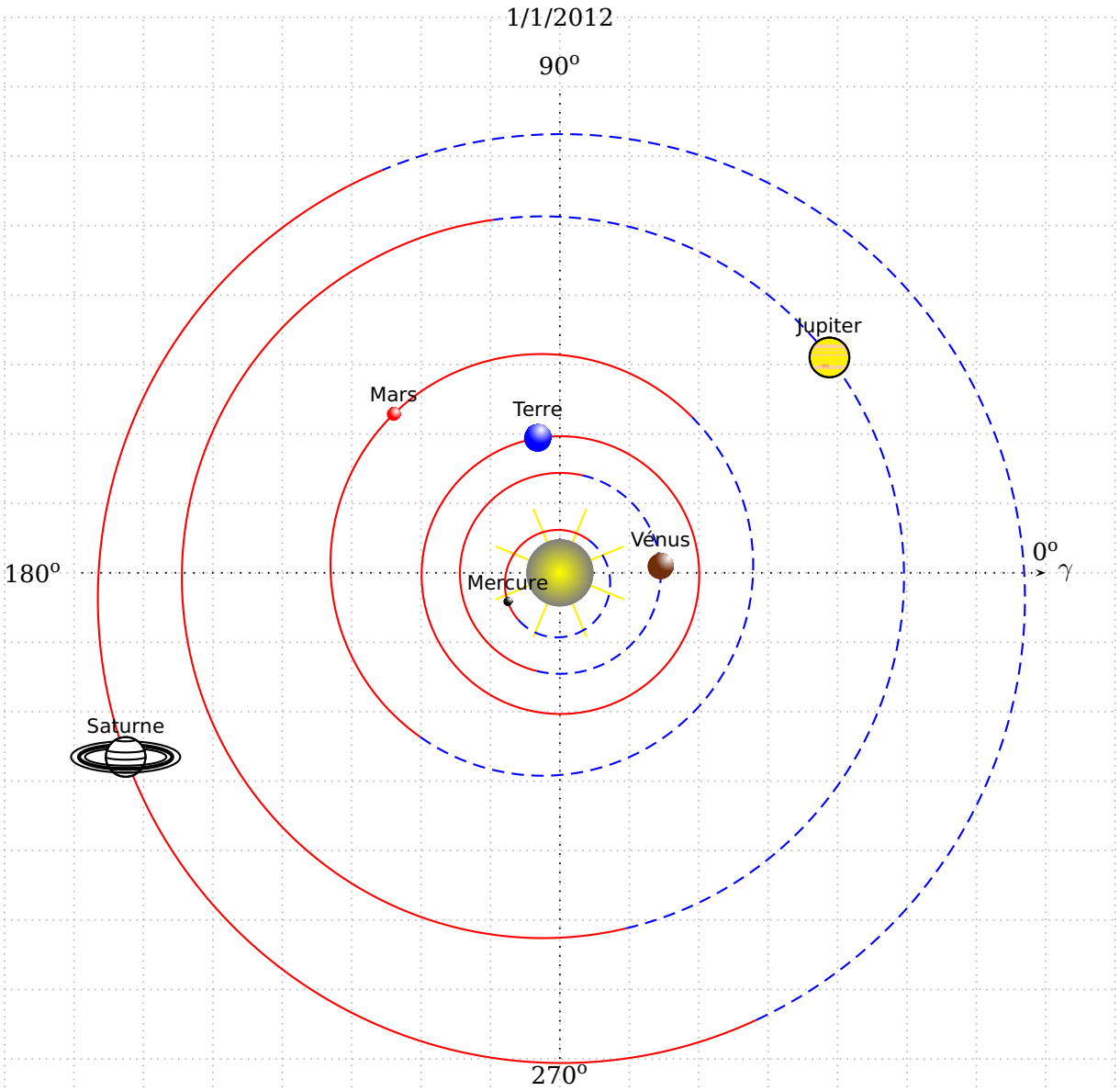
The use of the command is very simple, just specify the date of observation with the following parameters, for example:

```
\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 `values` 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



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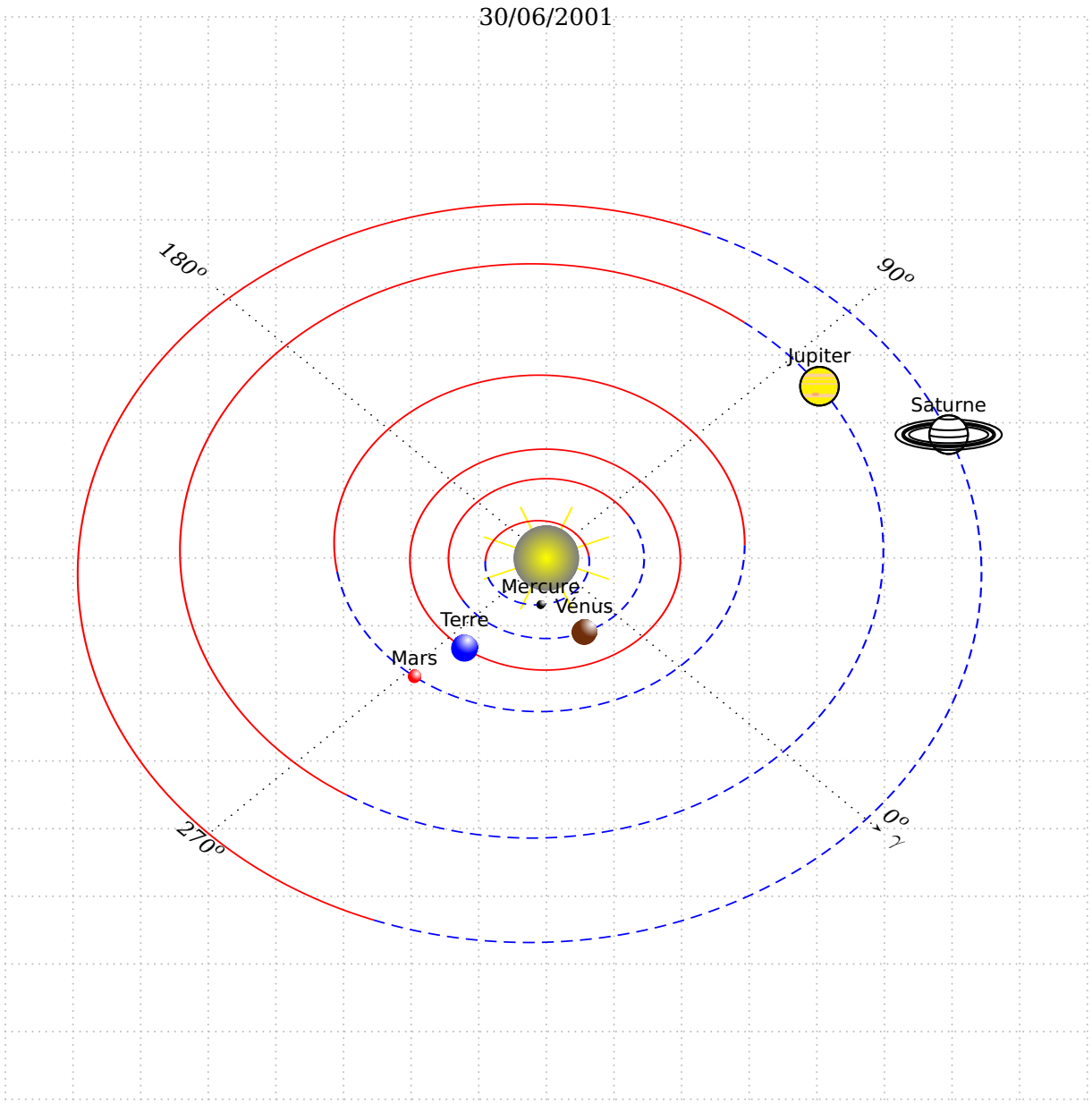


```
\SolarSystem[Day=30,Month=06,Year=2001,
             Hour=23,Minute=59,Second=59,
             viewpoint=1 -1 2,values=false]
```

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
values	boolean	true

References

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[3] Laura E. Jackson and Herbert Voß. Die Plot-Funktionen von pst-plot. *Die TeXnische Komödie*, 2/02:27–34, June 2002.

[4] Nikolai G. Kollock. *PostScript richtig eingesetzt: vom Konzept zum praktischen Einsatz*. IWT, Vaterstetten, 1989.

[5] Herbert Voß. *Chaos und Fraktale selbst programmieren: von Mandelbrotmengen über Farbmanipulationen zur perfekten Darstellung*. Franzis Verlag, Poing, 1994.

[6] Herbert Voß. Die mathematischen Funktionen von PostScript. *Die TeXnische Komödie*, 1/02, March 2002.

[7] Herbert Voß. *PSTricks – Grafik für TeX und LaTeX*. DANTE – Lehmanns, Heidelberg/Berlin, 6. edition, 2010.

[8] Herbert Voß. *Typesetting mathematics with LaTeX*. UIT, Cambridge, 2010.

[9] Herbert Voß. *PSTricks – Graphics for TeX and LaTeX*. UIT, Cambridge, 2011.

[10] Eric Weisstein. *Wolfram MathWorld*. http://mathworld.wolfram.com, 2007.

[11] Timothy van Zandt. *PSTricks - PostScript macros for generic TeX*. http://www.tug.org/application/PSTricks, 1993.

[12] Timothy van Zandt. *multido.tex - a loop macro, that supports fixed-point addition*. CTAN:/graphics/pstricks/generic/multido.tex, 1997.

[13] Timothy van Zandt. *pst-plot: Plotting two dimensional functions and data*. CTAN:graphics/pstricks/generic/pst-plot.tex, 1999.

[14] Timothy van Zandt and Denis Girou. Inside PSTricks. *TUGboat*, 15:239–246, September 1994.

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