# Genoide - 93 Minerva

## Job

Number of tries : 1610133
Last calculated orbit : 10 Feb 2013 à 14:44:23.

## Model definition

Model : Kepler
Comments :

## Orbital parameters

System : Minerva
Nb Satellite : 1

**Target : Minerva**

Physical parameters

| ajust | Param | valeurs | unit | 1-σ | 2-σ | 3-σ | comment |
|---|---|---|---|---|---|---|---|
| | mass | 3.318400e+18 | kg | 2.983277e+17 | 7.674465e+17 | 1.391555e+18 | Primary mass |
| | density | 1.735 | g.cm^3 | 0.19 | 0.40 | 0.75 | Primary density |
| | j2 | 0.000 | none | 0.000 | 0.000 | 0.000 | Zonal coefficient J2 of primary |
| | j4 | 0.000 | none | 0.000 | 0.000 | 0.000 | Zonal coefficient J4 of primary |
| | mean_radius | 77.000 | km | 0.500 | 0.500 | 0.500 | Mean radius of primary |

Dynamical parameters

| ajust | Param | valeurs | unit | 1-σ | 2-σ | 3-σ | comment |
|---|---|---|---|---|---|---|---|
| | t0 | 2455060.00000000 | day | | | | |
| | pn0 | 0.00 | deg | 0.00 | 0.00 | 0.00 | Position Prime Meridian |
| | pn1 | 0.00 | deg/day | 0.00 | 0.00 | 0.00 | Position Prime Meridian Velocity |
| | ap0 | 21.00 | deg | 1.00 | 1.00 | 1.00 | Primary Pole Coordinate C1 EC2000 |
| | ap1 | 0.00 | deg/day | 0.00 | 0.00 | 0.00 | Primary Pole Coordinate C1 Velocity ECJ2000 |
| | dp0 | 21.00 | deg | 0.50 | 0.50 | 0.50 | Primary Pole Coordinate C2 EC2000 |
| | dp1 | 0.00 | deg/day | 0.00 | 0.00 | 0.00 | Primary Pole Coordinate C2 Velocity ECJ2000 |

**Target : Minerva-I**

Physical parameters

| ajust | Param | valeurs | unit | 1-σ | 2-σ | 3-σ | comment |
|---|---|---|---|---|---|---|---|
| | mass | 0.000000e+0 | kg | | | | |
| | mean_radius | 0.000 | km | | | | |

Dynamical parameters

| ajust | Param | valeurs | unit | 1-σ | 2-σ | 3-σ | comment |
|---|---|---|---|---|---|---|---|
| | t0 | 2455060.00000000 | day | | | | Reference time of parameters |
| | alpha | 35.91 | deg | 9.93 | 22.77 | 30.61 | Orbital Pole Coordinate C1 EQJ2000 |
| | delta | 0.96 | deg | 10.88 | 29.21 | 37.40 | Orbital Pole Coordinate C2 EQJ2000 |
| | lambda | 33.93 | deg | 10.19 | 21.76 | 29.48 | Orbital Pole Coordinate C1 ECJ2000 |
| | beta | -12.58 | deg | 10.35 | 29.05 | 36.00 | Orbital Pole Coordinate C2 ECJ2000 |
| **X** | **a** | **623.460** | **km** | **18.453** | **46.393** | **82.278** | **Semi major axis of the orbit** |
| **X** | **period** | **2.405830** | **day** | **0.001506** | **0.003881** | **0.006570** | **Period of the orbit** |
| | n | 149.6365 | deg/day | 0.0937 | 0.2414 | 0.4084 | Mean Motion |
| **X** | **e** | **0.00000** | **none** | **0.00941** | **0.02118** | **0.03982** | **Excentricity of the orbit** |
| **X** | **tpp** | **2455059.44222** | **day** | **0.096** | **0.167** | **0.331** | **Pericenter date** |
| **X** | **i** | **89.04** | **deg** | **10.88** | **29.21** | **37.40** | **Inclination in Equatorial J2000** |
| **X** | **omega** | **125.91** | **deg** | **9.93** | **22.77** | **30.61** | **Longitude of node in Equatorial J2000** |
| **X** | **omegap** | **81.97** | **deg** | **14.39** | **26.38** | **50.27** | **Argument of the pericenter in Equatorial J2000** |

Fichier: genoide.binast.v1.1.xml

## Observations - OmC - Statistiques

Fichiers: genoide.obsdiff.Minerva-Minerva-I.xml

| jd | iso | ref_name | ref_system | xobs | yobs | xcalc | ycalc | xomc | yomc | xobs_err | yobs_err | timescale | cent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2455060.06833333 | 2009-08-16T13:38:23.999 | Minerva | Minerva | -0.4040 | 0.0340 | -0.3967 | 0.0261 | -0.0073 | 0.0079 | 0.0099 | 0.0099 | UTC | Geo |
| 2455060.07293981 | 2009-08-16T13:45:02.000 | Minerva | Minerva | -0.4010 | 0.0200 | -0.3973 | 0.0214 | -0.0037 | -0.0014 | 0.0099 | 0.0099 | UTC | Geo |
| 2455060.08069444 | 2009-08-16T13:56:11.999 | Minerva | Minerva | -0.4070 | 0.0150 | -0.3980 | 0.0133 | -0.0090 | 0.0017 | 0.0099 | 0.0099 | UTC | Geo |
| 2455060.10002315 | 2009-08-16T14:24:01.999 | Minerva | Minerva | -0.4000 | -0.0020 | -0.3992 | -0.0067 | -0.0008 | 0.0047 | 0.0099 | 0.0099 | UTC | Geo |
| 2455060.11173611 | 2009-08-16T14:40:53.999 | Minerva | Minerva | -0.3970 | -0.0170 | -0.3995 | -0.0188 | 0.0025 | 0.0018 | 0.0099 | 0.0099 | UTC | Geo |
| 2455060.14565972 | 2009-08-16T15:29:44.999 | Minerva | Minerva | -0.4070 | -0.0590 | -0.3980 | -0.0538 | -0.0090 | -0.0052 | 0.0099 | 0.0099 | UTC | Geo |
| 2455081.14650463 | 2009-09-06T15:30:57.999 | Minerva | Minerva | 0.0050 | 0.4410 | 0.0211 | 0.4312 | -0.0161 | 0.0098 | 0.0099 | 0.0099 | UTC | Geo |
| 2455087.13248843 | 2009-09-12T15:10:46.999 | Minerva | Minerva | -0.0690 | -0.4350 | -0.0461 | -0.4514 | -0.0229 | 0.0164 | 0.0099 | 0.0099 | UTC | Geo |
| 2455090.13319444 | 2009-09-15T15:11:47.999 | Minerva | Minerva | 0.4280 | -0.0270 | 0.4547 | -0.0542 | -0.0267 | 0.0272 | 0.0099 | 0.0099 | UTC | Geo |
| 2455103.06537037 | 2009-09-28T13:34:07.999 | Minerva | Minerva | -0.3080 | 0.3650 | -0.3019 | 0.3465 | -0.0061 | 0.0185 | 0.0099 | 0.0099 | UTC | Geo |

2455165.0033703 2009-09-28T15:34:07.999 Minerva Minerva -0.3080 0.3050 -0.3019 0.3405 -0.0081 0.0185 0.0099 0.0099 01C Geo

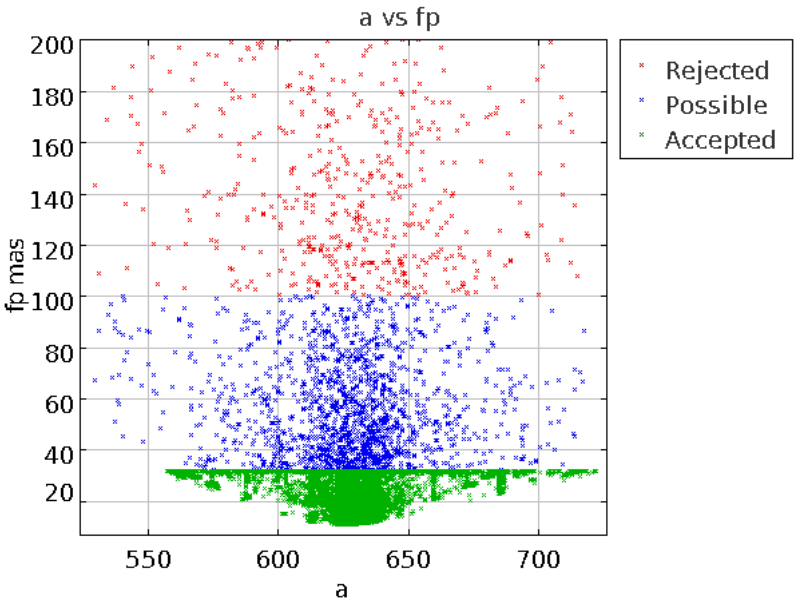
Period of observations = 43.0 days or 21.5 revolutions

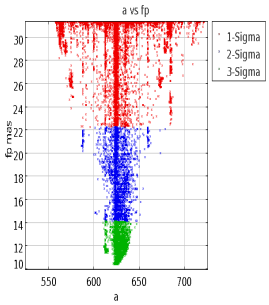
| | Mean | StDev |
|---|---|---|
| Xomc (arcsec) | -0.0099 | 0.0089 |
| Yomc (arcsec) | 0.0081 | 0.0095 |
| R (arcsec) | 0.0104 | 0.0077 |

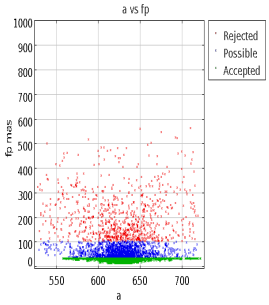
Optimal fp = 10.33 mas

⇒ Graphique XY des O-C

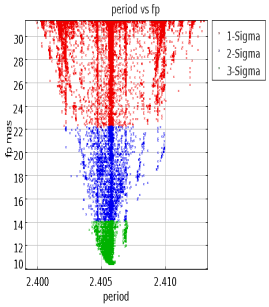
## a vs. Fp

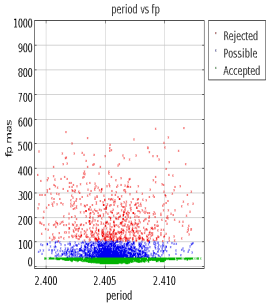


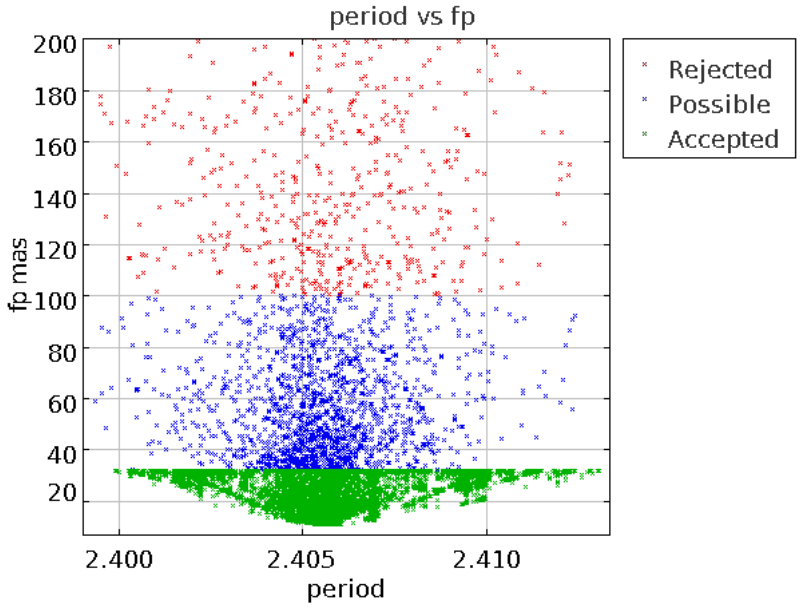



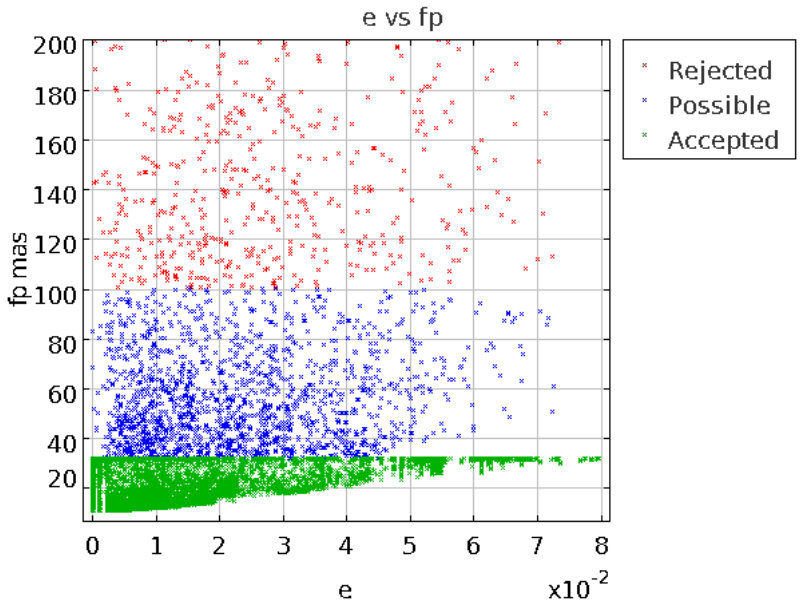

## period vs. Fp

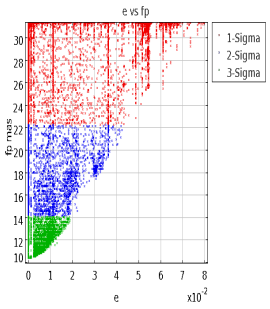


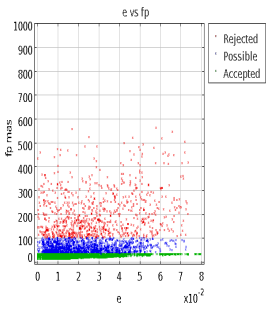





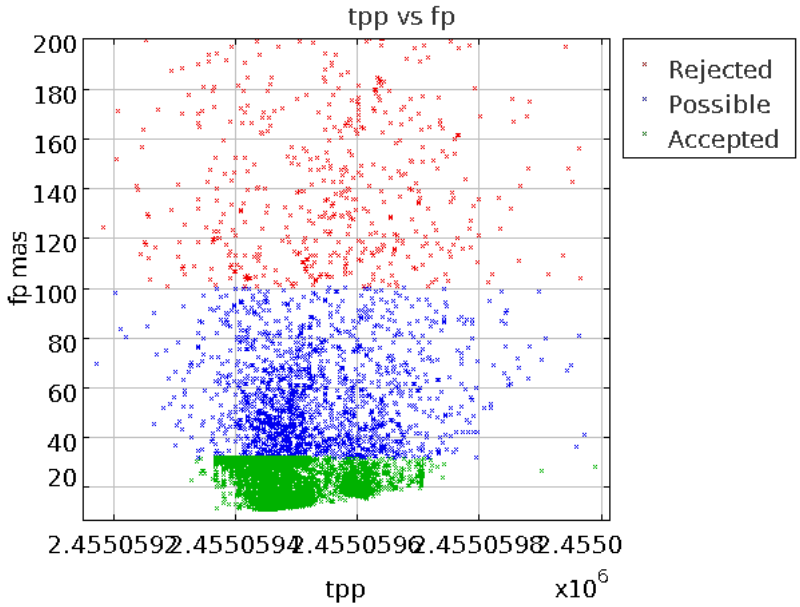

e vs. Fp

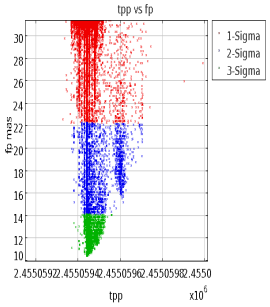


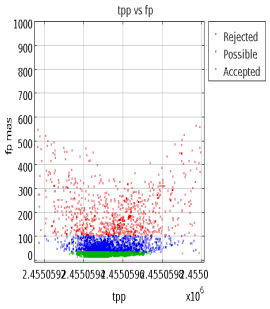



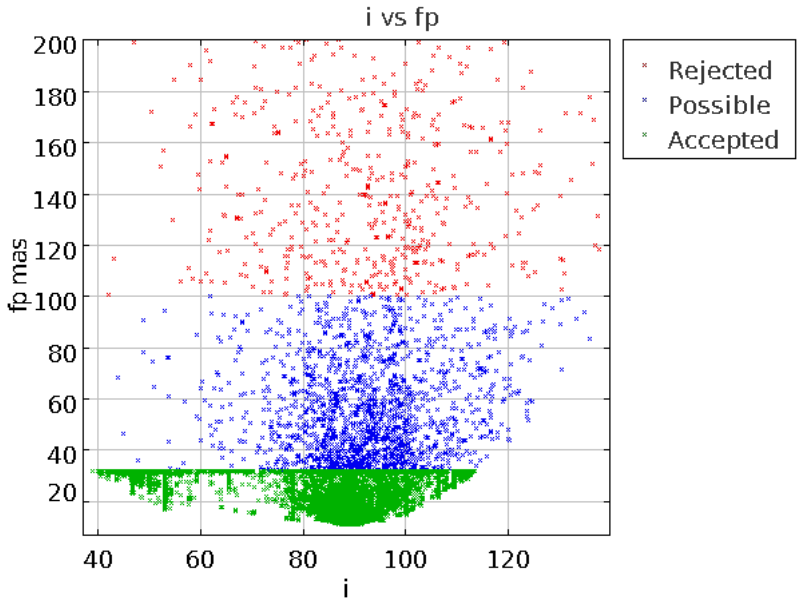

tpp vs. Fp

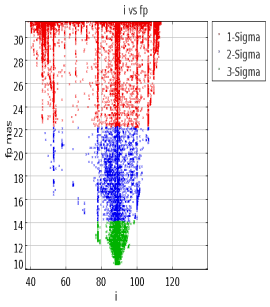


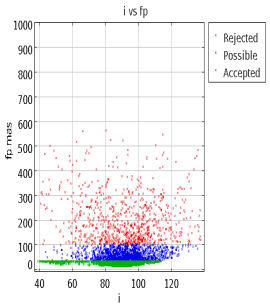



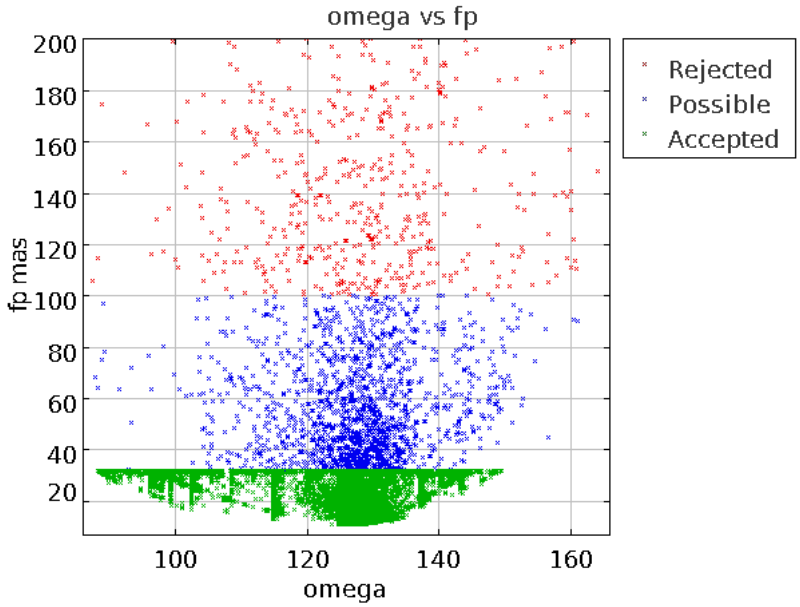

## i vs. Fp

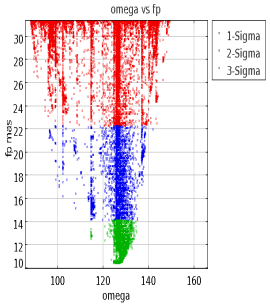


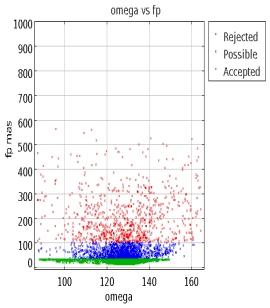



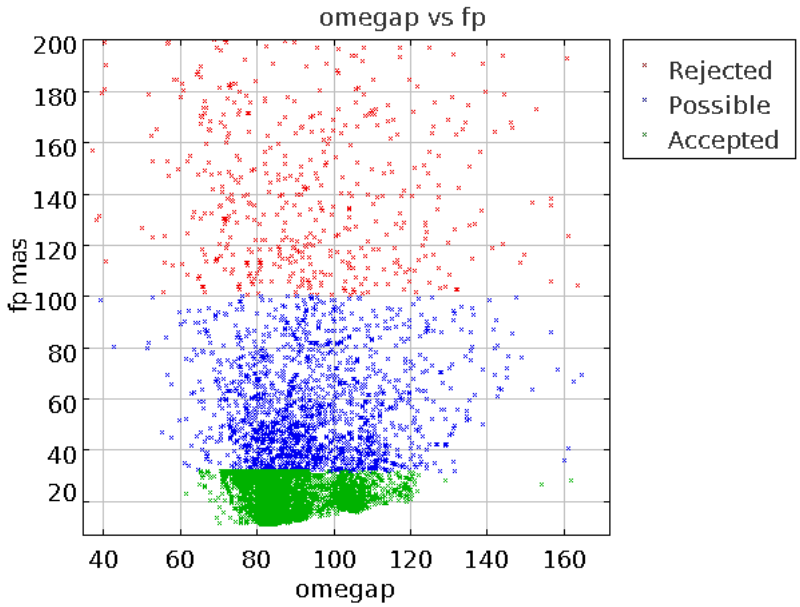

## omega vs. Fp

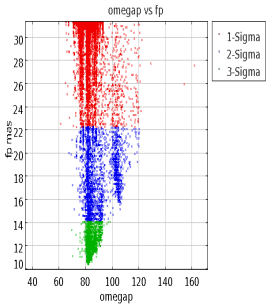


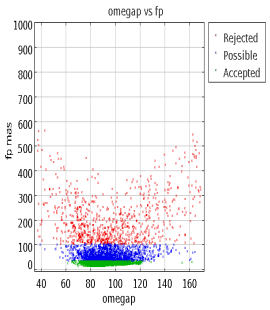




## omegap vs. Fp




## Additional Information

```
** Calcul des FP limit
Limit FP a 1-sigma : 14.071602609511 mas
Limit FP a 2-sigma : 22.181974664128 mas
Limit FP a 3-sigma : 31.338315206788 mas
chi2min            : 1.0203040506071
fpsol              : 10.3348568481740 mas
sigma observation  : 9.9 mas
** Calcul des Barres d'erreur
Difference between Primary Pole (ap0,dp0) and Orbital Pole (lambda,beta) : 35.91 deg
1 2 3 sigma     : 8.46deg 19.58 deg 28.89 deg
Primary Pole (ap0,dp0)      : 21.00deg 21.00 deg
Orbital Pole (lambda,beta) : 33.93deg -12.58 deg
```