

# Output

De Wiki

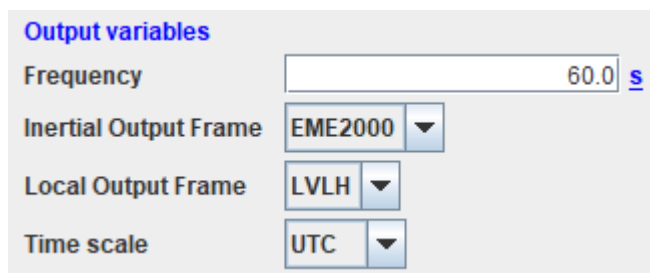
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## Output variables

This tab allows to the user to specify how output data will be stored with the frequency, the inertial frame used for output data (could be different of the propagation frame) as well as local frame.



| Output variables      |           |
|-----------------------|-----------|
| Frequency             | 60.0 s    |
| Inertial Output Frame | EME2000 ▼ |
| Local Output Frame    | LVLH ▼    |
| Time scale            | UTC ▼     |

*Note: time scale information is only available since V11.4.*

## Plots

But, in the same tab, the user will have access to graphical displays (only available after propagation has occurred).

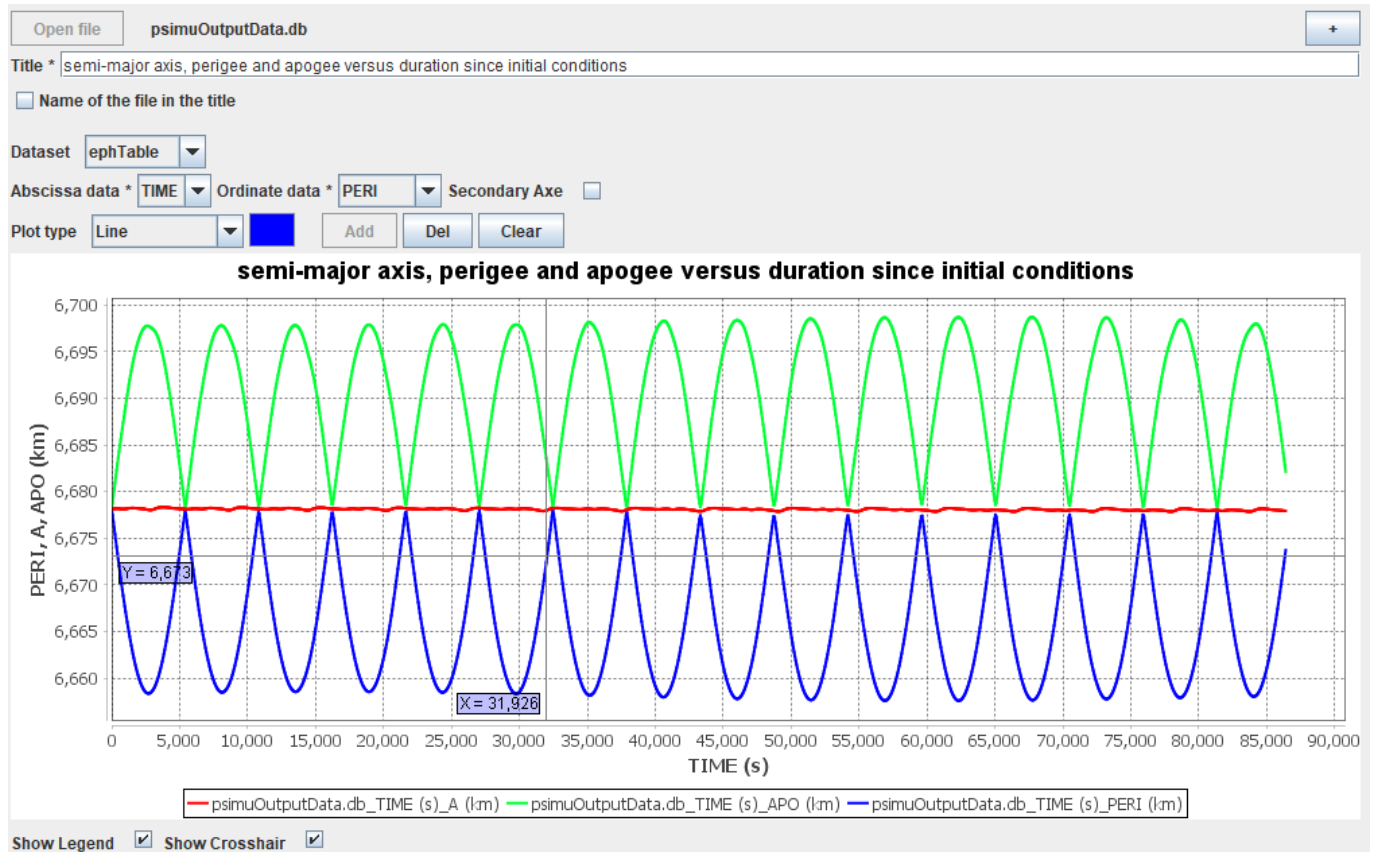
***Note : in V11.0 version, the binary file that includes all output data is not reset when propagation has exited in error mode. So the user will have to be careful not to plot the results of a previous simulation!***

## Custom plots

A first panel allows to plot whichever output variable listed int the table below.

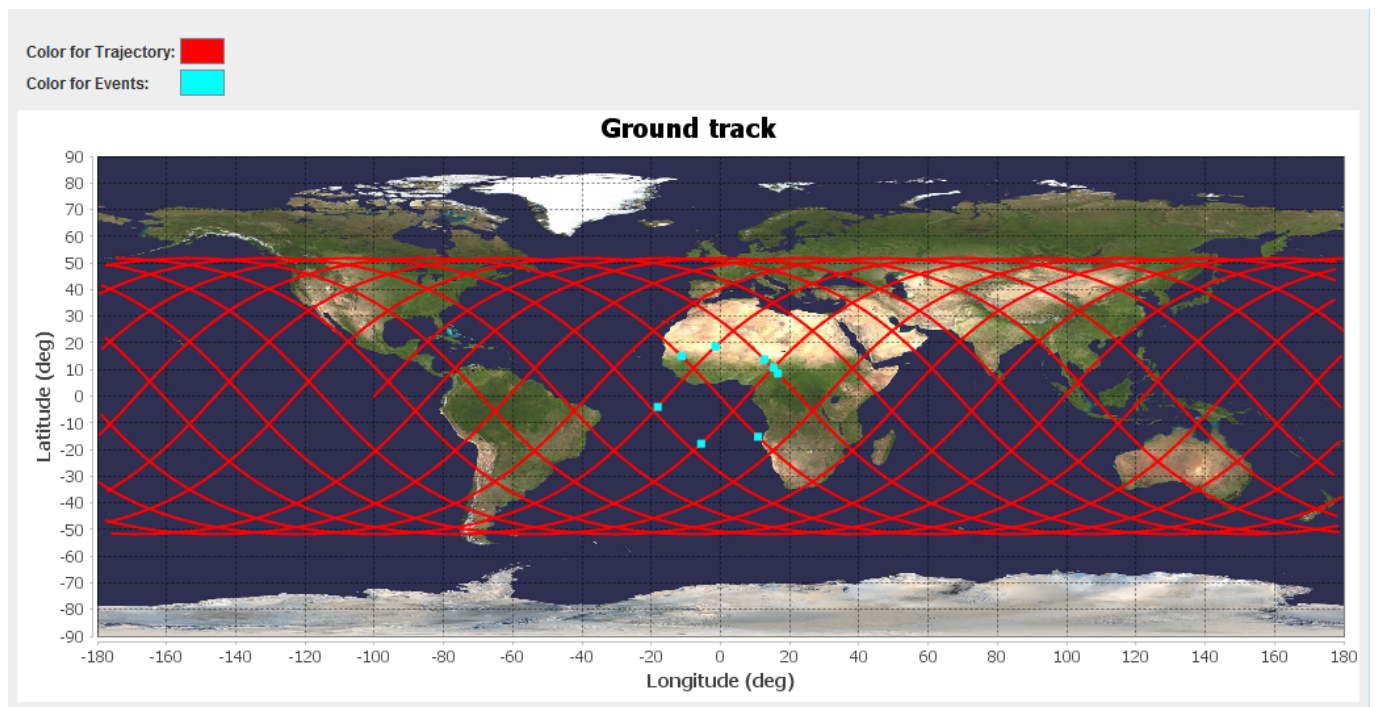
*Note that these displays only correspond to the current propagation. Thus, a reset is automatically done every time a new propagation is executed.*

Anyway, if you want to plot previously saved files, it is possible to use this little utility [here](#) (or getting it with the full [GENIUS package](#), since V1.9 version) allowing plotting either ephemeris files (only files since **V11.3** due to a bug in the **V11.2**; see [here](#)) or [SQLite](#) ones (see "Set configuration" options int he "Conf" menu).



## Ground track

But, since the V11.3 version, it is now possible to plot directly the ground track with computed orbital events:



## List of available variables

The table below lists all the available output variables ...

| Acronym | Description                                            | Unit |
|---------|--------------------------------------------------------|------|
| DATE    | Date (TAI)                                             | -    |
| TIME    | Duration since initial conditions                      | sec  |
| TMASS   | Total mass                                             | kg   |
| PMASS   | Propellant mass                                        | kg   |
| XIN     | Inertial x coordinates                                 | m    |
| YIN     | Inertial y coordinates                                 | m    |
| ZIN     | Inertial z coordinates                                 | m    |
| VXIN    | Velocity in inertial x coordinates                     | m/s  |
| VYIN    | Velocity in inertial y coordinates                     | m/s  |
| VZIN    | Velocity in inertial z coordinates                     | m/s  |
| POSIN   | Position norm in inertial frame                        | m    |
| VIN     | Velocity norm in inertial frame                        | m/s  |
| XREL    | X component of the relative position in rotating frame | m/s  |
| YREL    | Y component of the relative position in rotating frame | m/s  |
| ZREL    | Z component of the relative position in rotating frame | m/s  |
| VXREL   | X component of the relative velocity in rotating frame | m/s  |
| VYREL   | Y component of the relative velocity in rotating frame | m/s  |
| VZREL   | Z component of the relative velocity in rotating frame | m/s  |
| VREL    | Relative velocity in rotating frame                    | m/s  |
| A       | Semi-major axis                                        | km   |
| E       | Eccentricity                                           | -    |
| I       | Inclination                                            | deg  |
| AOP     | Argument of perigee                                    | deg  |
| RAAN    | Right ascension of the ascending node                  | deg  |
| TA      | True anomaly                                           | deg  |
| MA      | Mean anomaly                                           | deg  |
| EA      | Eccentric anomaly                                      | deg  |
| EX      | First component of the eccentricity vector             | -    |
| EY      | Second component of the eccentricity vector            | -    |
| HX      | First component of the inclination vector              | -    |
| HY      | Second component of the inclination vector             | -    |
| TAOL    | True argument of latitude                              | deg  |
| MAOL    | Mean argument of latitude                              | deg  |
| EAOL    | Eccentric argument of latitude                         | deg  |
| PERI    | Periapsis radius                                       | km   |
| APO     | Apoapsis radius                                        | km   |
| PERIALT | Periapsis altitude                                     | km   |
| APOALT  | Apoapsis altitude                                      | km   |
| LATG    | Geodetic latitude                                      | deg  |
| LON     | Longitude                                              | deg  |
| ALTG    | Geodetic altitude                                      | km   |
| LATS    | Geocentric latitude                                    | deg  |
| ALTS    | Geocentric altitude                                    | km   |

|        |                                                                                             |                  |
|--------|---------------------------------------------------------------------------------------------|------------------|
| AZIA   | Absolute velocity azimuth                                                                   | deg              |
| FPA    | Absolute Flight path angle                                                                  | deg              |
| AZIR   | Relative velocity azimuth (vs rotating frame)                                               | deg              |
| FPA    | Relative flight path angle (vs rotating frame)                                              | deg              |
| PSI    | First elementary rotation in inertial frame (Cardan ZYX)                                    | deg              |
| THETA  | Second elementary rotation in inertial frame (Cardan ZYX)                                   | deg              |
| PHI    | third elementary rotation in inertial frame (Cardan ZYX)                                    | deg              |
| PSIL   | First elementary rotation in local frame (Cardan ZYX)                                       | deg              |
| THETAL | Second elementary rotation in local frame (Cardan ZYX)                                      | deg              |
| PHIL   | Third elementary rotation in local frame (Cardan ZYX)                                       | deg              |
| Q0     | Scalar part of the attitude quaternion in inertial frame (always positive)                  | -                |
| Q1     | First component of the vector part of the attitude quaternion in inertial frame             | -                |
| Q2     | Second component of the vector part of the attitude quaternion in inertial frame            | -                |
| Q3     | Third component of the vector part of the attitude quaternion in inertial frame             | -                |
| AOA    | Angle of attack                                                                             | deg              |
| BETA   | Sideslip angle                                                                              | deg              |
| BANK   | Bank angle                                                                                  | deg              |
| YAW    | Yaw in aircraft frame                                                                       | deg              |
| PITCH  | Pitch in aircraft frame                                                                     | deg              |
| ROLL   | Roll in aircraft frame                                                                      | deg              |
| SPIN   | Spin rate                                                                                   | deg/s            |
| XSPIN  | Spin rate about x satellite axis                                                            | deg/s            |
| YSPIN  | Spin rate about y satellite axis                                                            | deg/s            |
| ZSPIN  | Spin rate about z satellite axis                                                            | deg/s            |
| ACCN   | Newtonian acceleration in propagation frame                                                 | m/s <sup>2</sup> |
| ACCNX  | X component of the Newtonian acceleration + in propagation frame                            | m/s <sup>2</sup> |
| ACCNZ  | Y component of the Newtonian acceleration in + propagation frame                            | m/s <sup>2</sup> |
| ACCNZ  | Z component of the Newtonian acceleration in + propagation frame                            | m/s <sup>2</sup> |
| ACCP   | Earth potential acceleration in propagation frame (without central term)                    | m/s <sup>2</sup> |
| ACCPX  | X component of the earth potential acceleration in propagation frame (without central term) | m/s <sup>2</sup> |
| ACCPY  | Y component of the earth potential acceleration in propagation frame (without central term) | m/s <sup>2</sup> |
| ACCPZ  | Z component of the earth potential acceleration in propagation frame (without central term) | m/s <sup>2</sup> |
| ACCM   | Moon acceleration in propagation frame                                                      | m/s <sup>2</sup> |
| ACCMX  | X component of the moon acceleration in propagation frame                                   | m/s <sup>2</sup> |
| ACCMY  | Y component of the moon acceleration in propagation frame                                   | m/s <sup>2</sup> |
| ACCMZ  | Z component of the moon acceleration in propagation frame                                   | m/s <sup>2</sup> |
| ACCS   | Sun acceleration in propagation frame                                                       | m/s <sup>2</sup> |
| ACCSX  | X component of the sun acceleration in propagation frame                                    | m/s <sup>2</sup> |
| ACCSY  | Y component of the sun acceleration in propagation frame                                    | m/s <sup>2</sup> |
| ACCSZ  | Z component of the sun acceleration in propagation frame                                    | m/s <sup>2</sup> |
| ACCA   | Aerodynamic acceleration in propagation frame                                               | m/s <sup>2</sup> |
| ACCAX  | X component of the aerodynamic acceleration in propagation frame                            | m/s <sup>2</sup> |

|         |                                                                               |                   |
|---------|-------------------------------------------------------------------------------|-------------------|
| ACCAY   | Y component of the aerodynamic acceleration in propagation frame              | m/s <sup>2</sup>  |
| ACCAZ   | Z component of the aerodynamic acceleration in propagation frame              | m/s <sup>2</sup>  |
| ACCR    | Solar radiation pressure acceleration in propagation frame                    | m/s <sup>2</sup>  |
| ACCRX   | X component of the solar radiation pressure acceleration in propagation frame | m/s <sup>2</sup>  |
| ACCRY   | Y component of the solar radiation pressure acceleration in propagation frame | m/s <sup>2</sup>  |
| ACCRZ   | Z component of the solar radiation pressure acceleration in propagation frame | m/s <sup>2</sup>  |
| ACCT    | Thrust acceleration in propagation frame                                      | m/s <sup>2</sup>  |
| ACCRX   | X component of the thrust acceleration in propagation frame                   | m/s <sup>2</sup>  |
| ACCRY   | Y component of the thrust acceleration in propagation frame                   | m/s <sup>2</sup>  |
| ACCRZ   | Z component of the thrust acceleration in propagation frame                   | m/s <sup>2</sup>  |
| THRUST  | engine thrust                                                                 | N                 |
| USED_DV | Cumulated velocity increment (since V11.4)                                    | m/s               |
| RHO     | Atmospheric density                                                           | kg/m <sup>3</sup> |
| CX      | Drag coefficient                                                              | -                 |
| CZ      | Lift coefficient                                                              | -                 |
| MACH    | Mach number                                                                   | -                 |
| MLT     | Mean local time in TIRF                                                       | h                 |
| TLT     | True local time in TIRF                                                       | h                 |
| LSSAT   | Percentage of the illuminated surface of the spacecraft                       | %                 |
| LSPAN   | Percentage of the illuminated surface of the solar panels                     | %                 |
| AM      | Mean (secular Lyddane model) semi-major axis                                  | km                |
| EM      | Mean (secular Lyddane model) eccentricity                                     | -                 |
| IM      | Mean (secular Lyddane model) inclination                                      | deg               |
| AOPM    | Mean (secular Lyddane model) argument of perigee                              | deg               |
| RAANM   | Mean (secular Lyddane model) right ascension of the ascending node            | deg               |
| MAM     | Mean (secular Lyddane model) anomaly                                          | deg               |
| F107    | Solar flux (since V11.4)                                                      | -                 |
| AP      | Geomagnetic index (since V11.4)                                               | -                 |

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