

# GPlotPanel

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There is another higher level widget [GPlotPanel](#) allowing to plot data stored in a file with the "**Madona**" or [SQLite](#) formats given format as described [here](#).

Using this widget is very simple as you have just to instantiate and then display it. To instantiate it, you must give at least (for the "**Madona**" files):

- the prefix of the files you want to read
- the suffix of the files you want to read
- a comment giving a description of this kind of files
- the maximum number of detached plot windows. If greater than 0 a "+" button will be displayed in order to allow to display other plots in detached panels

Nevertheless, you have the possibility to specify which kind of files you will have to consider, adding an additional parameter:

- either [GPlotDataMadonaReader](#)
- or [GPlotDataSqliteReader](#)

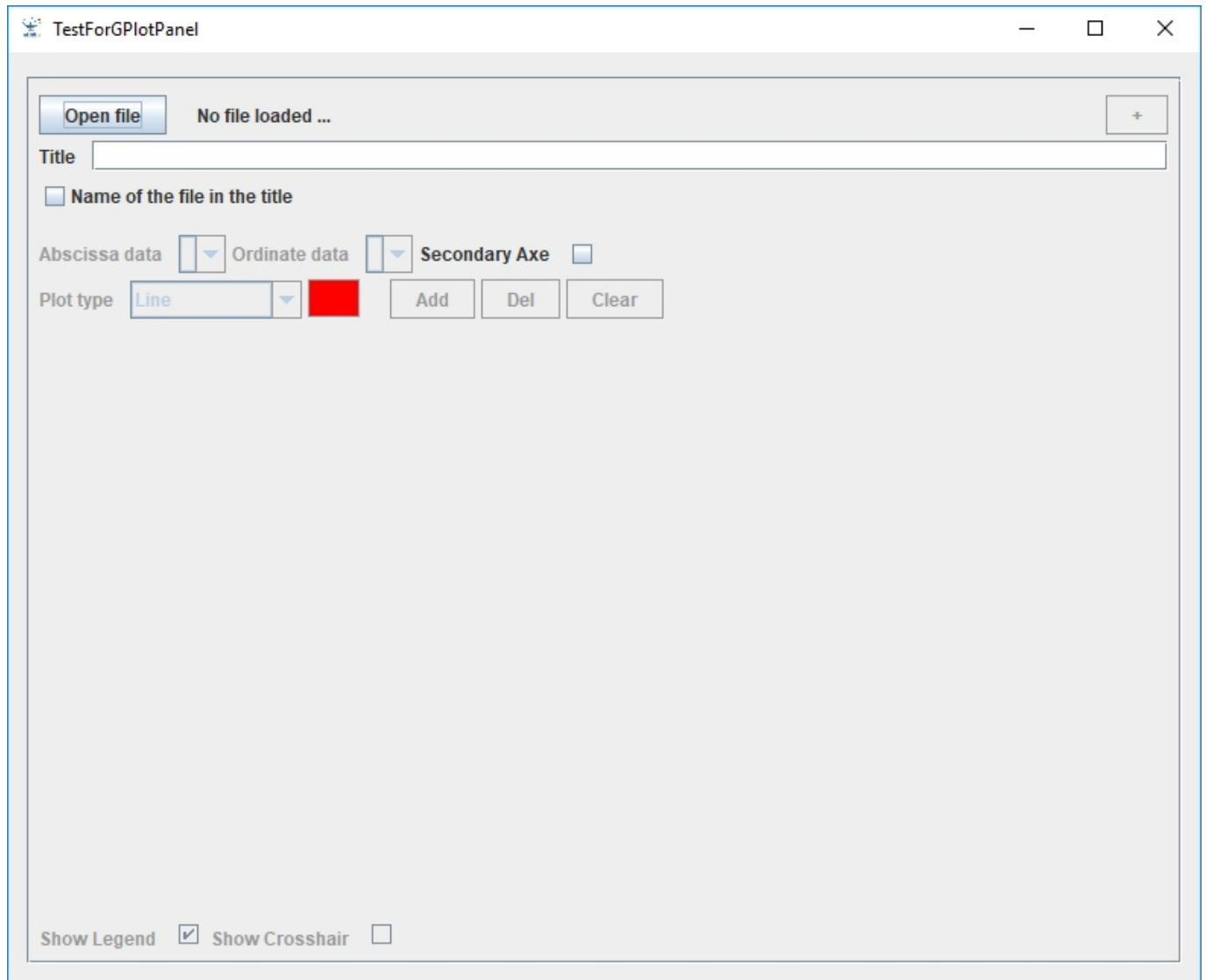
In the following example, we will check for EPH\_\* files (no specific suffix).

```
GPlotPanel plots = new GPlotPanel("EPH", "", "Ephemeris file", 0, true);

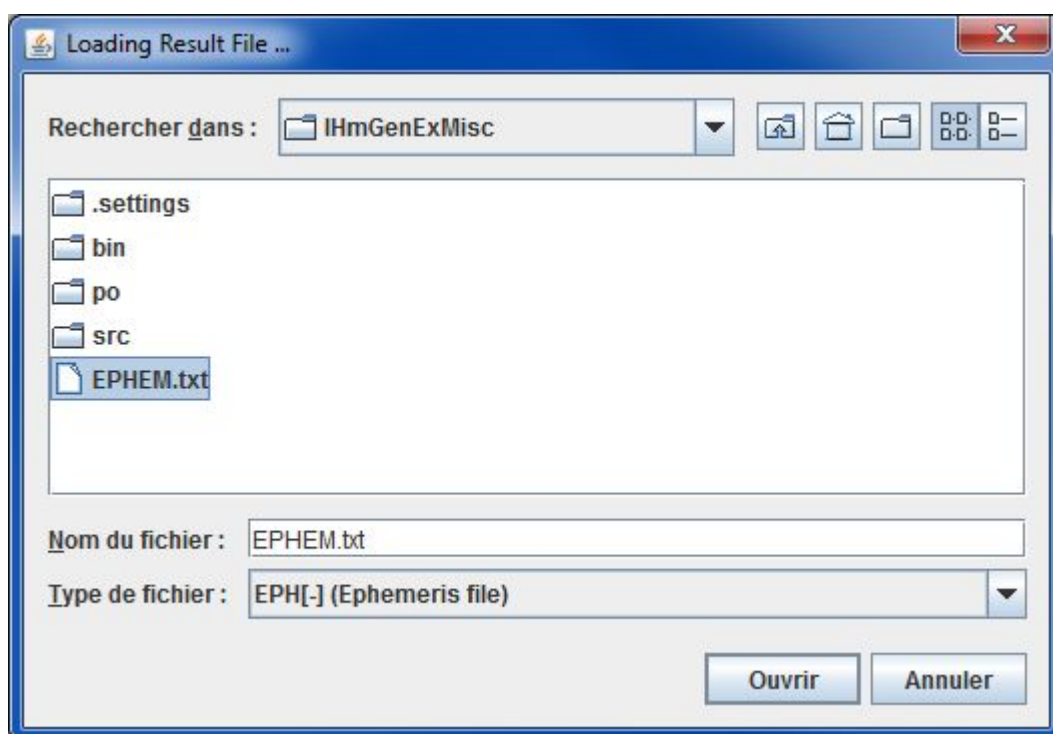
...

public void display() throws GException {
    put(plots);
}
}
```

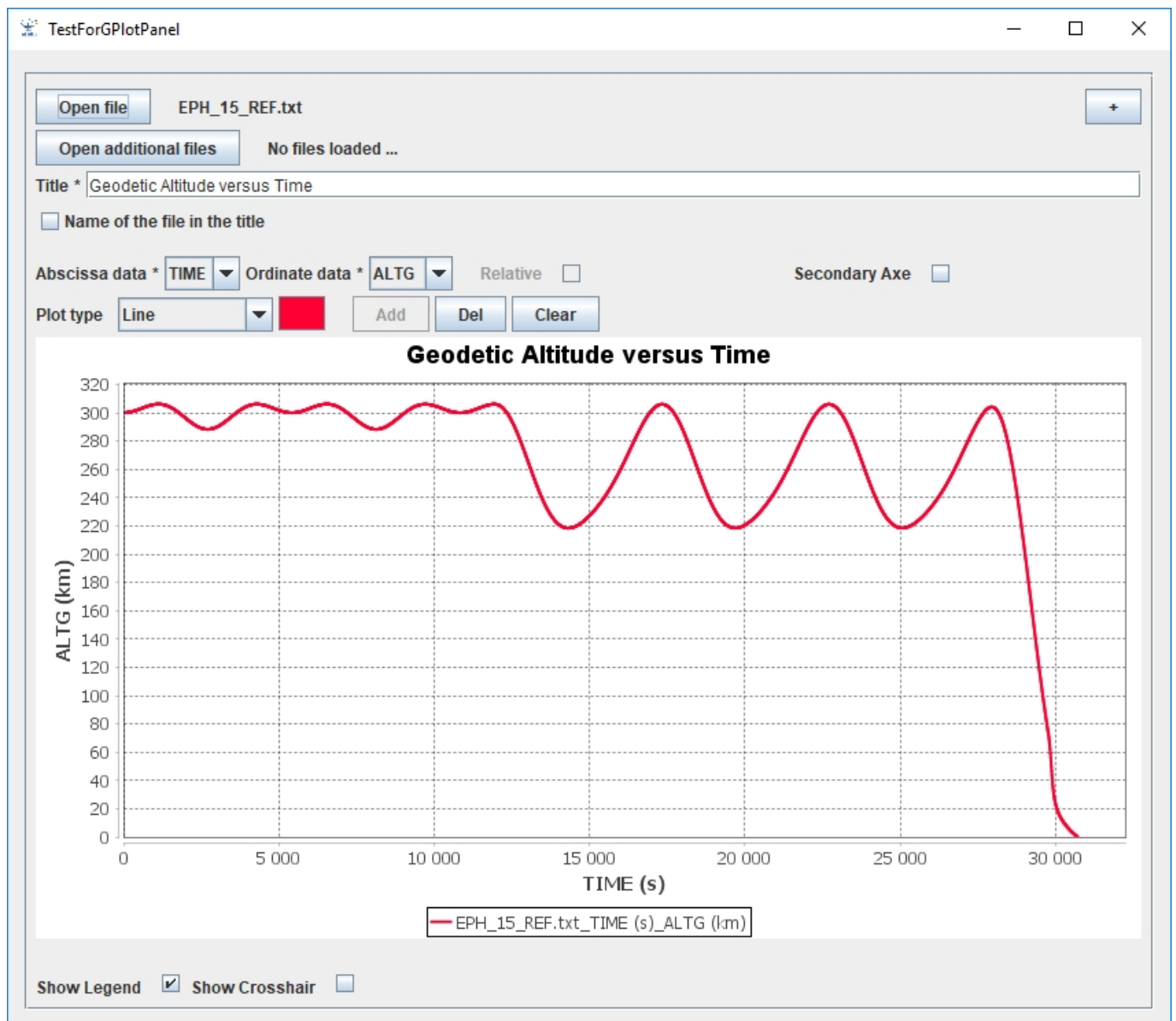
This panel will then appear ...



After selecting a file ...



We may have something like that ...

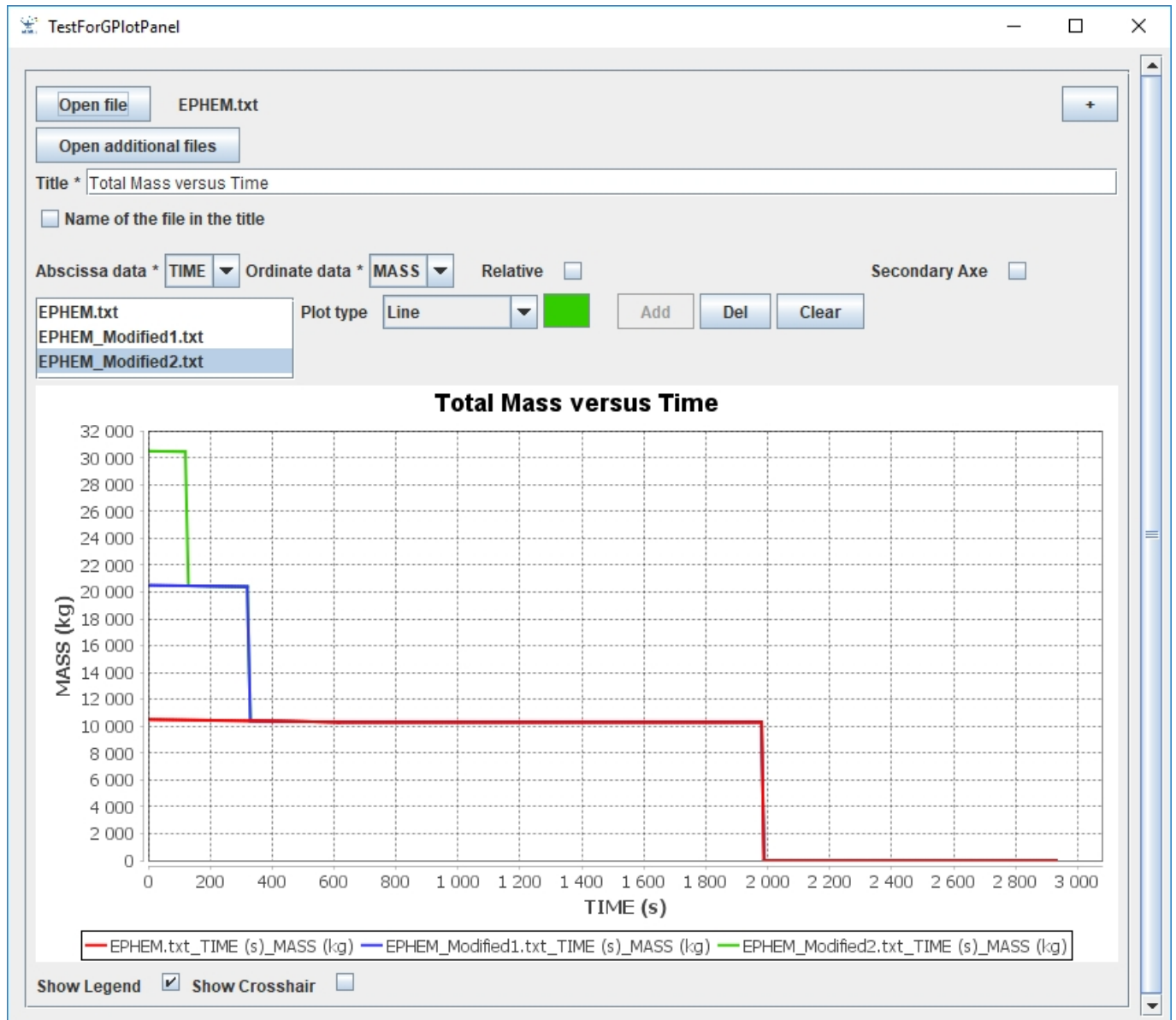


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## Additional files

Note that, since the V1.9 version, it is now possible to plot additional files to make comparison between them. It is also possible to get relative values but this functionality is now relatively limited as it is necessary to have exactly the same amount of lines between each file and no interpolation are made if abscissae are different.



## EVENT files

Since V1.10, it is now possible to plot "**EVENT**" files coming, for example, from the [PSIMU](#) software. These files look exactly the same as [Madona files](#) except the first column which includes characters describing the kind of event. Here is an example of such a file:

```
#<AM-acces:COL-V2.0>
<INIT:
Logiciel="JPSIMU"
VERSION="V11.4.1"
<COL:
1 : EVENT ~ (Event code)
2 : DATE ~cal (date)
3 : TIME ~s (duration since initial conditions)
4 : A ~km (semi-major axis)
5 : E ~ (eccentricity)
6 : I ~deg (inclination)
7 : ALTG ~km (geodetic altitude)
8 : LATG ~deg (geodetic latitude)
```

```


9 : LON ~deg (longitude)
>
>
Constant thrust maneuver Maneuver1 start: Relative date (0j00h10m00s)
2000-01-01T00:10:00.000      6.000000000000000e+02
7.00000006665629e+03      9.52233579255254e-09      5.15999981057783e+01
6.26650567709823e+02      2.83267318798703e+01      -7.73441356109702e+01
Constant thrust maneuver Maneuver1 end: Date (2000-01-01T00:12:12.000)
2000-01-01T00:11:40.000      7.000000000000000e+02
7.07569671802727e+03      1.06930031433105e-02      5.15999981057783e+01
6.28194776514761e+02      3.26360096408306e+01      -7.25917790877161e+01

```

## Calculator

Since V1.11.2 version, there is the possibility to create new variables using initial ones from a **MADONA** column file via specific equations. This functionality is not yet available for [SQLite](#) files.

Once the user have loaded a file, a specific button appears :



If we push on that button a new window will appear where it will be possible to define specific equation(s) to get additional variables. In the example below, we have define the "**VZ**" variable for the vertical velocity, defined by  $V_z = V_{rel} * \sin(\gamma_{rel})$  with  $V_{rel} = VREL$  and  $\gamma_{rel} = FPAR$ .

GPlot calculator

ALTG

LATG

LON

VREL

FPAR

AZIR

pi

sin

log

sqrt

abs

toRad

cos

log10

pow (^)

(

toDeg

tan

exp

mod (%)

)

/

\*

-

+

+/- (signum)

Load ...

Save ...

Clear

Amount of items

1

Item number

<

1

>

Items +/-

Item 1

Name of the new var:

VZ

Unit of the new var:

m/s

Description of the new var:

Vertical velocity

Gap of the new var:

0.0

Formula:

= VREL\*sin(FPAR)

Reset data

Reset formula

Validate formula

Validate all

Create file ...

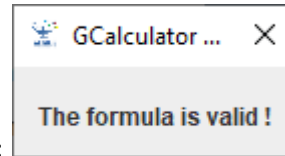
Cancel & Quit

Add & Quit

We can see that we have access to :

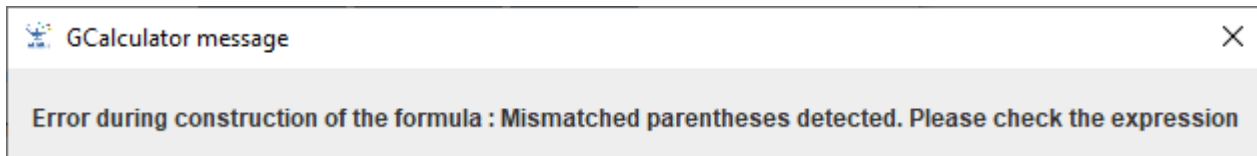
- The list of initial variables
- Some specific functions
- The possibility to load, save or clear an equation or a list of equations
- For each equation, we will have to define :
  - the name of the new variable
  - its unit
  - a description of this variable
  - the gap for plot discontinuities

For each formula, we may reset the data or the formula and also validate it :



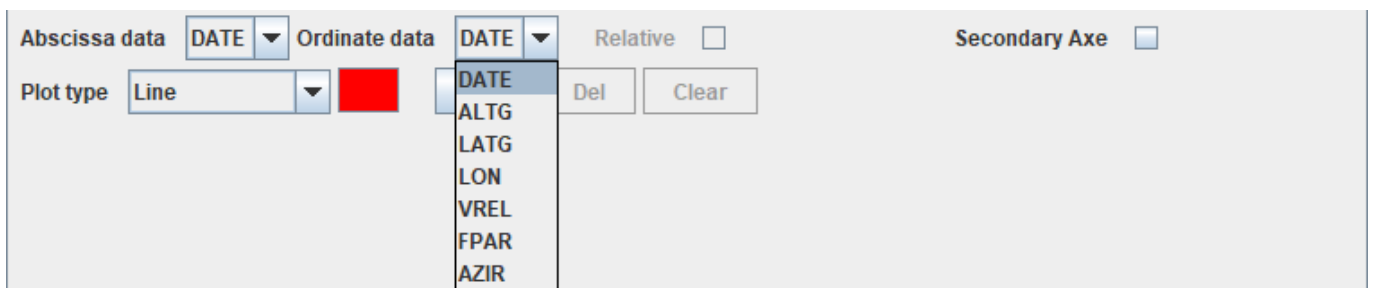
If the formula is valid this pop-up window will appear :

On the contrary (for example  $VREL * \sin(FPAR)$ ), this pop-up window will be displayed:

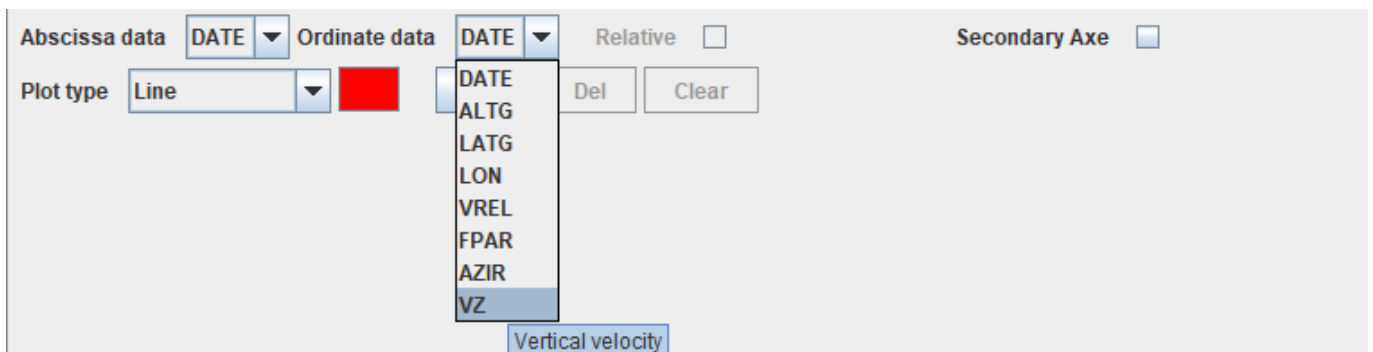


At the end, we may :

- Validate all the formulae
- Create a file to store these formulae
- Quit the calculator panel without or with using these formulae. In this last case, the new variable(s) will be added to the initial ones.



=>

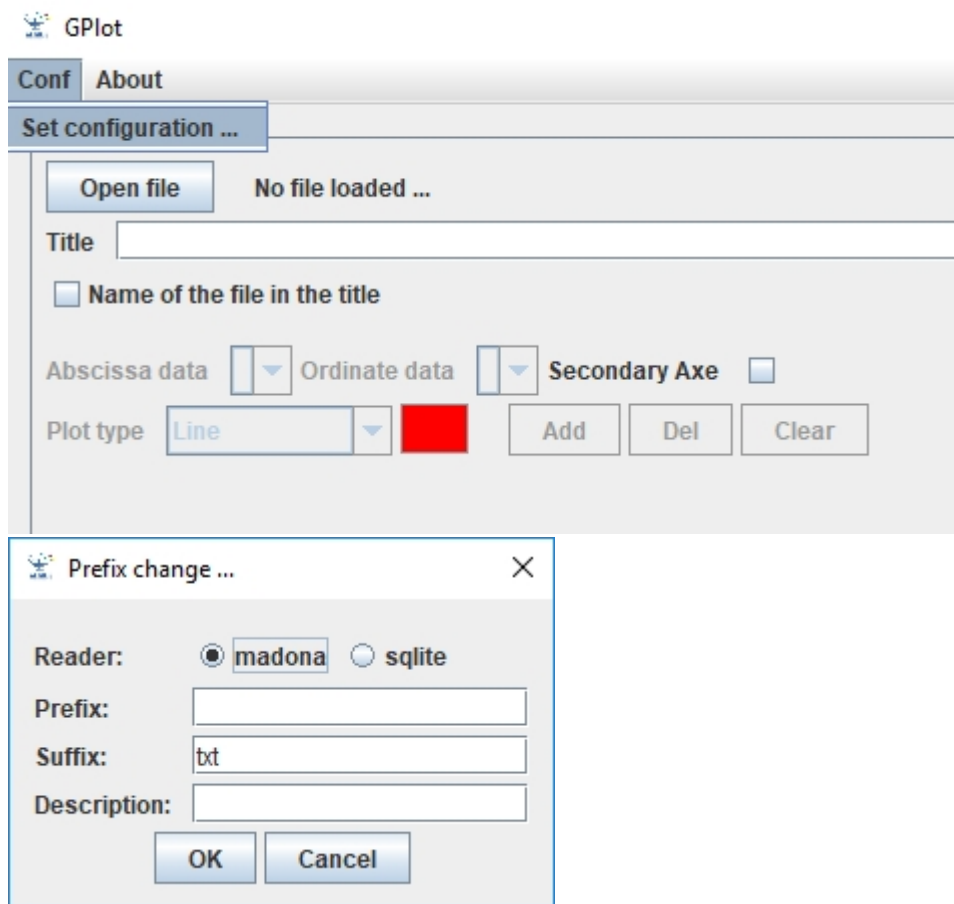


## GPLOT utility

If users want to use [GPlotPanel](#) functions without coding, since V1.9 version, it is possible to use directly a compiled tool with its own **GUI**. It is provided with the full zip package and to use it, you have just to double clicked on the jar file or type the following command:

```
>> java -jar gplot-x.x.jar
```

The default mode (no command line arguments) is to use the Madona reader interface. You have the possibility change it after running it:



... or to use arguments as is:

- **-h** or **--help** for printing help on arguments
- **-r** or **--reader** then reader name (**MADONA** or **SQLITE**)
- **-p** or **--prefix** then prefix of the files to read
- **-d** or **--desc** then description of the files to read

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