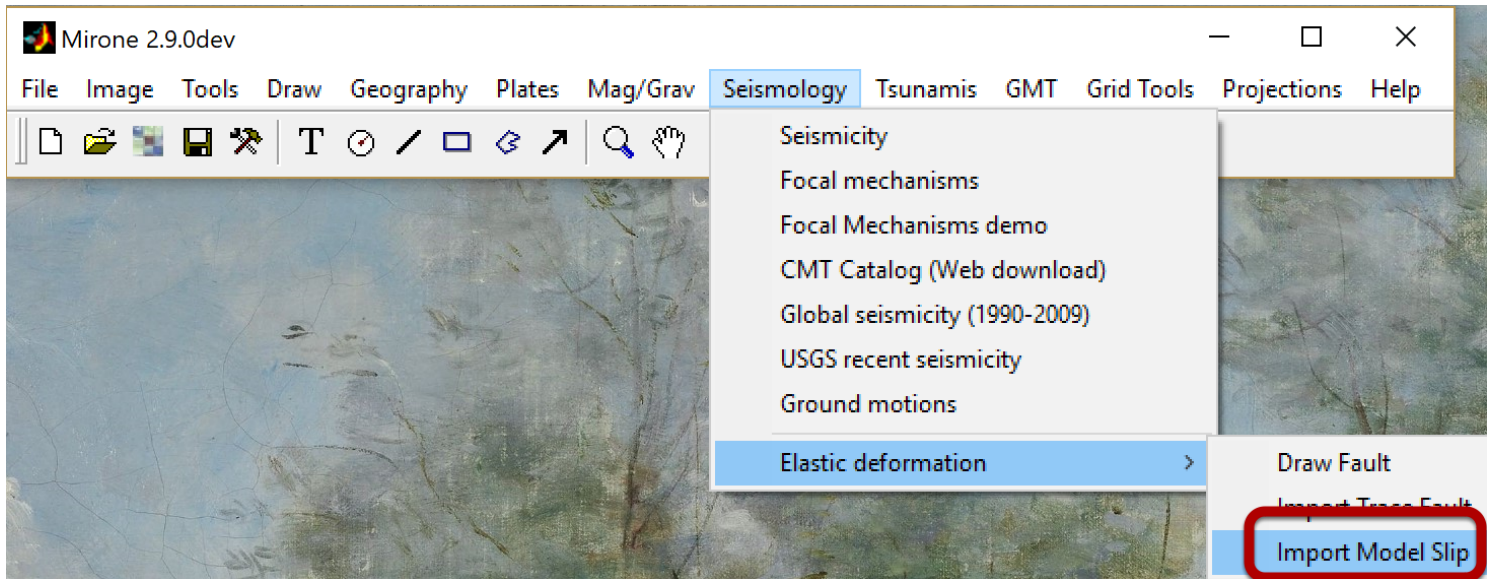


Compute seismic deformation and interferogram of a multi-patch solution

Compute the seismic elastic deformation of the multi-patch solution as those published by USGS. In this example we will use the solution for the Feb 27, 2010 Mw 8.8 Maule, Chile Earthquake. We will also show how to compute a synthetic interferogram for this event. The solution file can be downloaded from:

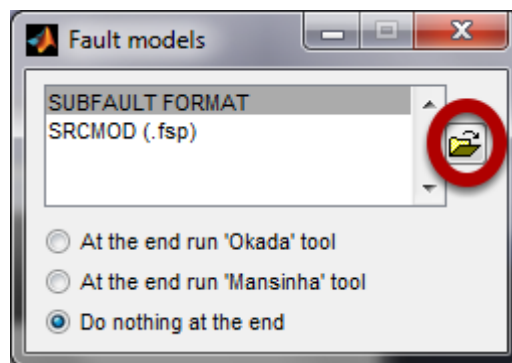
http://w3.ualg.pt/~jluis/mirone_example_data/static_out

Start with a empty Mirone window



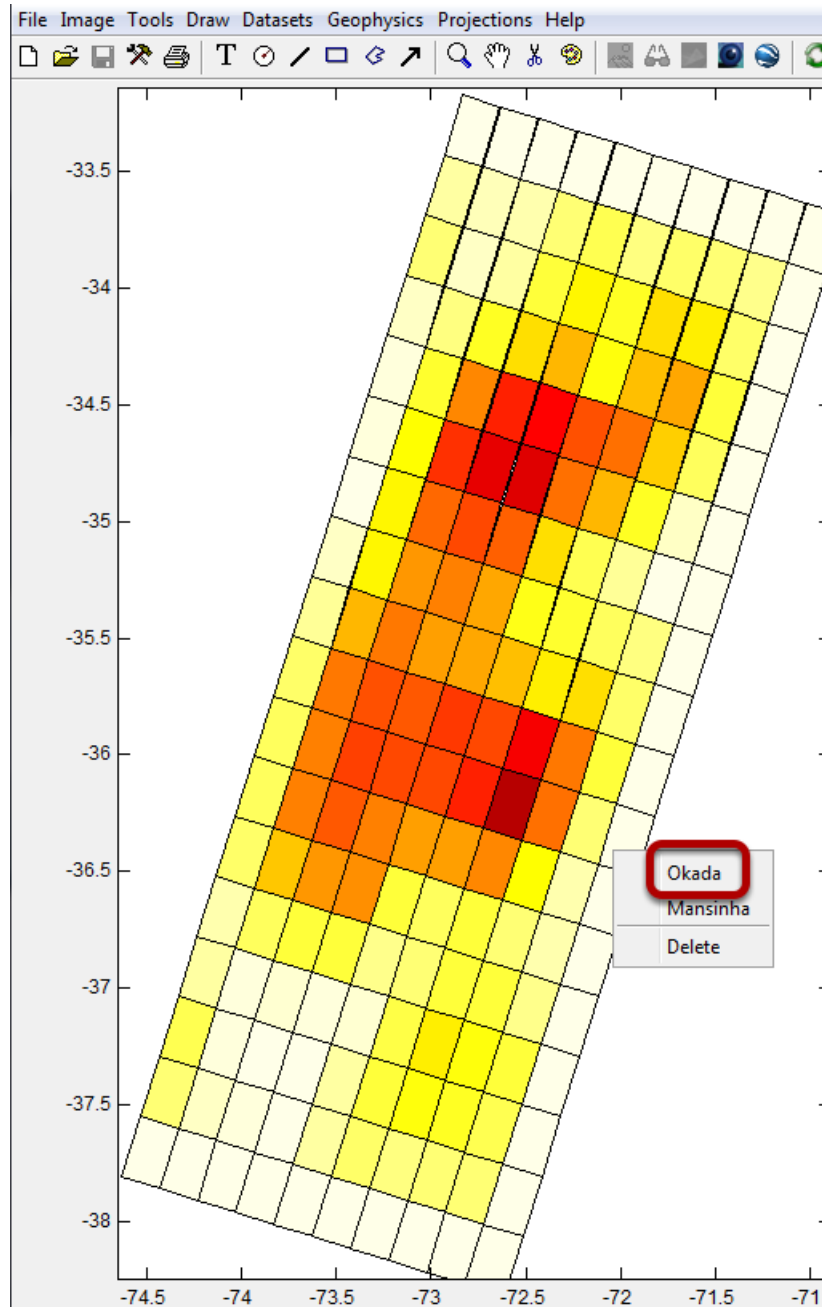
Load the multi-patch file. For that call the import window, which done as shown above

Load the multi-patch file



Hit the browse button and load the file

File is loaded



Colors represent the magnitude of the slip along the fault plane. Now right-click on any of the rectangles and select the **Okada** option

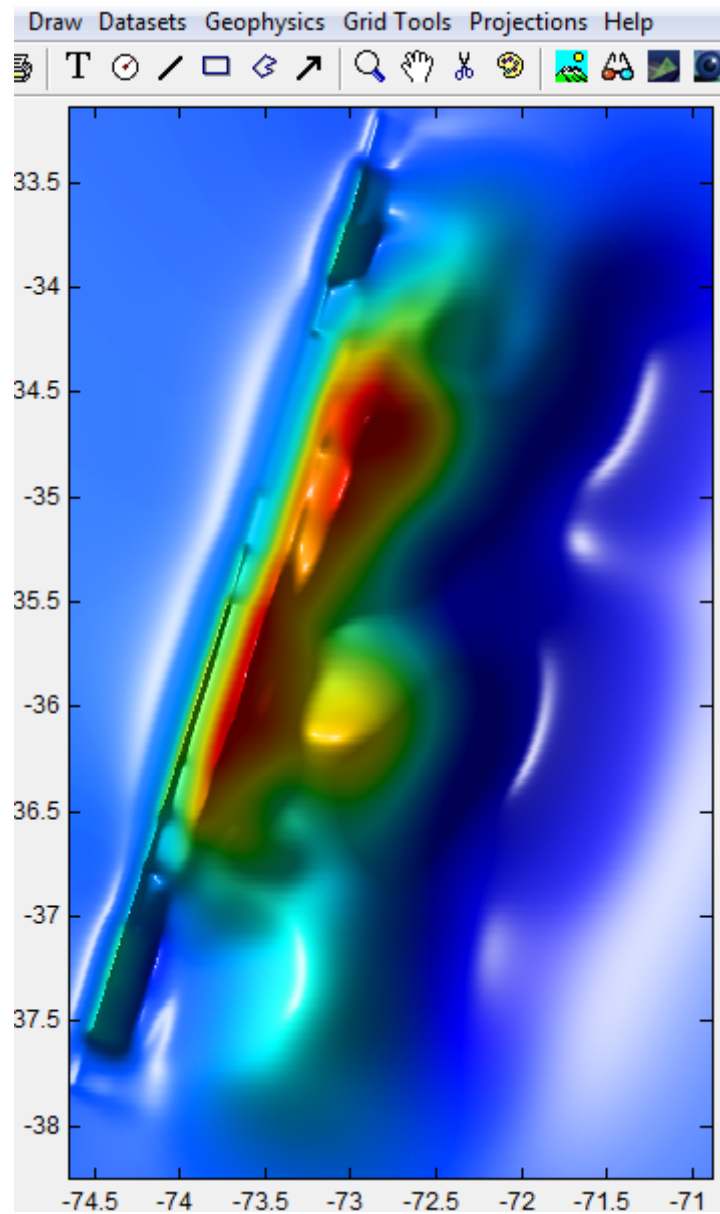
The 3 components control figure

The screenshot shows the 'Okada deformation' software interface with several control panels:

- Fault Geometry:** Length (29.9618), Width (20), Strike (17.5), Dip (18), Depth (9.0425), Depth to Top (2.8622).
- Segment:** Segment 01 (dropdown).
- Faults:** Fault 01 (dropdown).
- Geogs:** CONFIRM (button), Geogs (dropdown).
- Dislocation Geometry:** Strike (17.5), Rake (129.4659), Slip (0.059176), u1 (-0.037613), u2 (0.045684), u3 (0), Sn (0), Se (0), Sz (1).
- Gridding Line Geometry:** X Direction (Min: -74.6518, Max: -70.8894, Spacing: 0.0117575, # of lines: 321), Y Direction (Min: -38.2467, Max: -33.1443, Spacing: 0.0117566820, # of lines: 435).
- Input Ground Positions File:** Headers? (checkbox), N? of (1), Toggle x,y (checkbox).
- Other Parameters:** Mu ($\times 10^{10}$) (3.0), Tot Mw = 8.7, Mw Magnitude = 7.7, Hide fault plane (checkbox), Deformation (radio button), Interferogram (radio button).
- Buttons:** Compute (button), ? (help icon).

Edit the S_n , S_e , S_z boxes to have the values as displayed. By doing this we are selecting to compute only the vertical component of deformation. Later we will let the default values to calculate a synthetic interferogram. Edit also the **# of lines** boxes to reduce the resolution of the final grid (this takes a bit to compute). Hit **Compute**.

Shaded illuminated vertical component of deformation



And there we have our solution. Next we will compute the synthetic interferogram. For that we need to get back to step 3 and NOT change the S_n , S_e , S_z boxes.

Compute the interferogram

Dislocation Geometry

Strike	Rake	Slip
17.5	129.4659	0.059176
u1	u2	u3
-0.037613	0.045684	0
Sn	Se	Sz
0.333	-0.07	0.94

Mu (x10¹⁰) 3.0
Tot Mw = 8.7
Mw Magnitude = 7.7

Hide fault plane

Deformation mm
 Interferogram m

of lines
321
435
?

?

?

Compute

As before, change the **# of lines** boxes and select **Interferogram** and **m** (meters), and ... **Compute**

The Interferogram

