EAS Ocean Modeling | Homework #2   Grids & 2D Mapping

Complete **Section 4** of the ocean modeling tutorials: http://www.oces.us/eas-ocean-modeling/ROMS-Tutorial/tutorials.html.

1. Build a grid for the entire Tropical Pacific with an average resolution of 40 km, extending from 30S to 30N. Name the grid 'tp' and configure it on the rnt_gridinfo.m file so that you can load it as `grd=rnt_gridload('tp');` Place your grid under your `roms-examples` directory in a new folder called `tp-data`. Make a plot of your grid smoothed bathymetry, the r-factor and the spacing in the x direction in km. The MAIN matlab scripts are located in your home directory in `roms-grid`.

2. Build a rotated grid in a coastal area of your choice between the latitudes 60S and 60N. Select a domain so that the number of gridpoints in the x and y direction as < 140 with an average resolution of 15km or less. Configure the grid in the `rnt` toolbox and place your grid under your `roms-examples` directory in a new folder. Make a plot of your grid smoothed bathymetry, the r-factor and the spacing in the x direction in km.

3. In your home directory you will find a folder called `roms-mapping`, go there and step through the 2D mapping tutorial. Understand the difference between the various interpolation/extrapolation functions.

4. Map the sea surface temperature anomalies during NOV 1997 on your tropical Pacific grid and your coastal grid. Make sure that all values are defined. You will need to extrapolate. Make also a plot of the spatial derivative of SSTa, are they smooth?