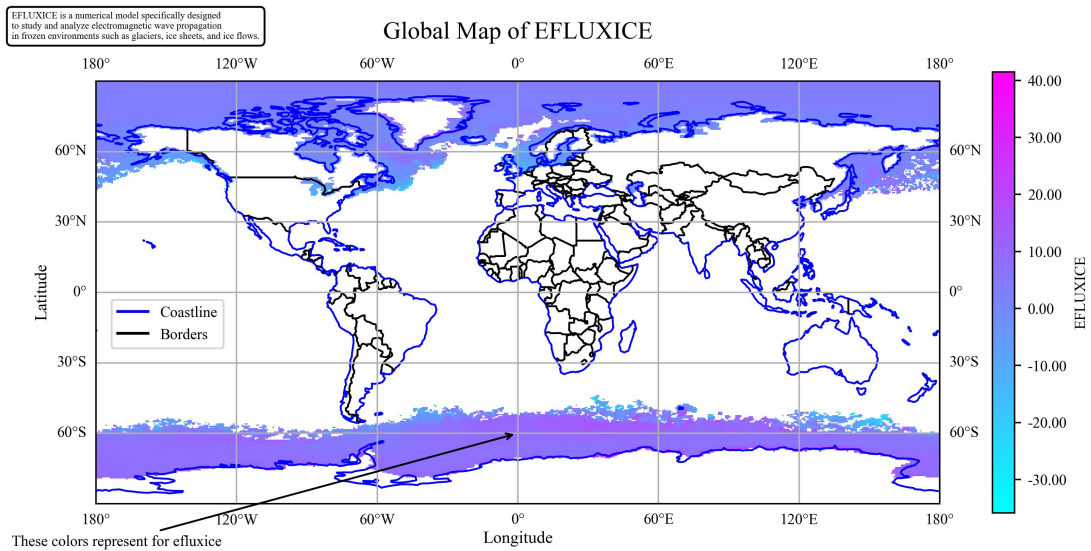# PS4.ipynb

1. Global Earthquakes

According to the reference picture given by the title, it is necessary to choose Robinson's projection form, and the center of the projection is 180 degrees longitude. After adding a low-resolution background, the difference between magnitudes is expanded by a power of 6 algorithm, and reflected in the scatter plot by the size of the scatter. The rest of the work is to set the general title and colorbar information.
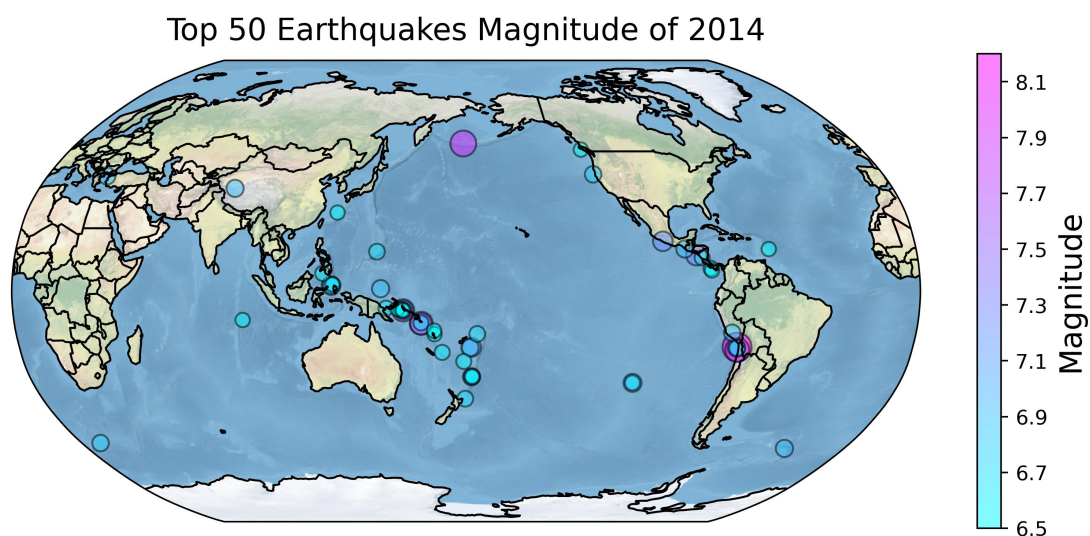
2. Explore a netCDF dataset

#2.1

I chose the same data set as assignment3 and selected the EFLUXICE variable to analyze. I used the *pcolormesh* function when drawing. (I learned this from matplotlib, and it's especially good for plotting latitude and longitude.) Select the *PlateCarree* projection method. Adding map features, gridlines and scales is a regular operation. When setting the axis title, because *cartopy* does not have its own axis title, it should be added through the *text* function. Sets the font size and font style of colorbar's scale label. (According to the error: UserWarning: FixedFormatter should only be used together with FixedLocator) Adding comments and text boxes is simple. When adding legends for map features, because cartopy doesn't come with legends, I create legends by using matplotlib to create two non-display color lines.

Global Map of EFLUXICE

EFLUXICE is a numerical model specifically designed to study and analyze electromagnetic wave propagation in frozen environments such as glaciers, ice sheets, and ice flows.

These colors represent for efluxice

#2.2

After selecting and determining the research area, I chose *Robinson* projection method (different from the projection method of *PlateCarree* in question 2.1). Other differences from 2.1 are: when drawing x and y axis titles, and adding legends, annotate, and text boxes, the coordinate system must be reset, otherwise it may not be displayed or run off the position.

Regional Map of EFLUXICE

This map shows the EFLUXICE variable over a selected region.

These colors represent for efluxice