

A trip to earth science with Python as a companion

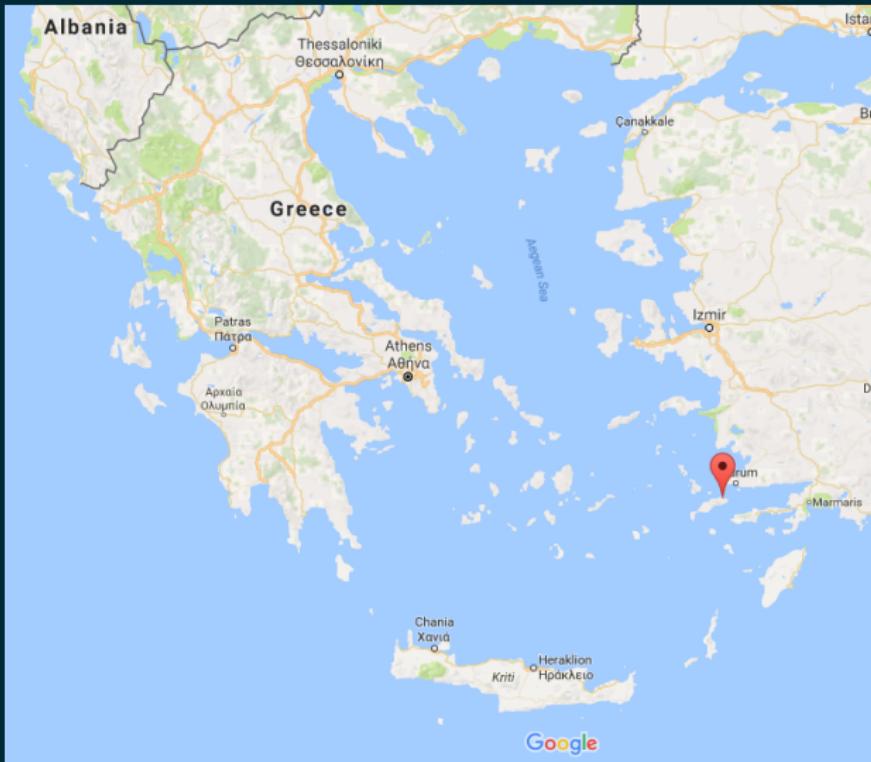
@NikoletaGlyn



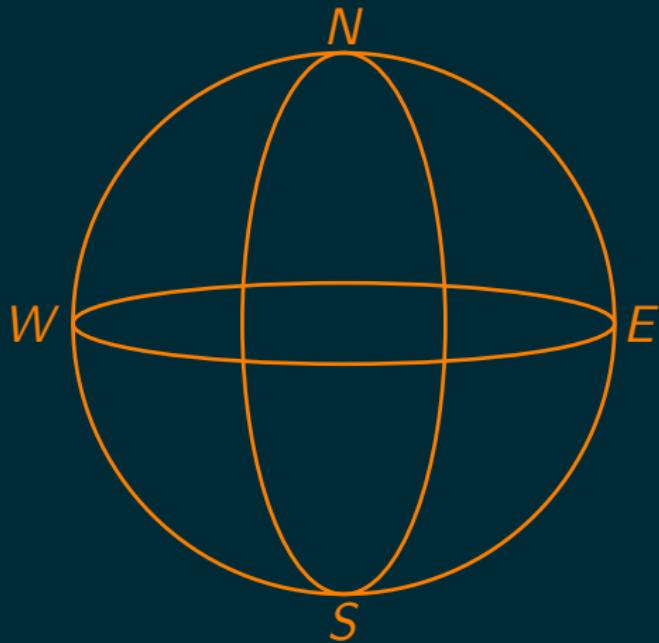
HINTS:

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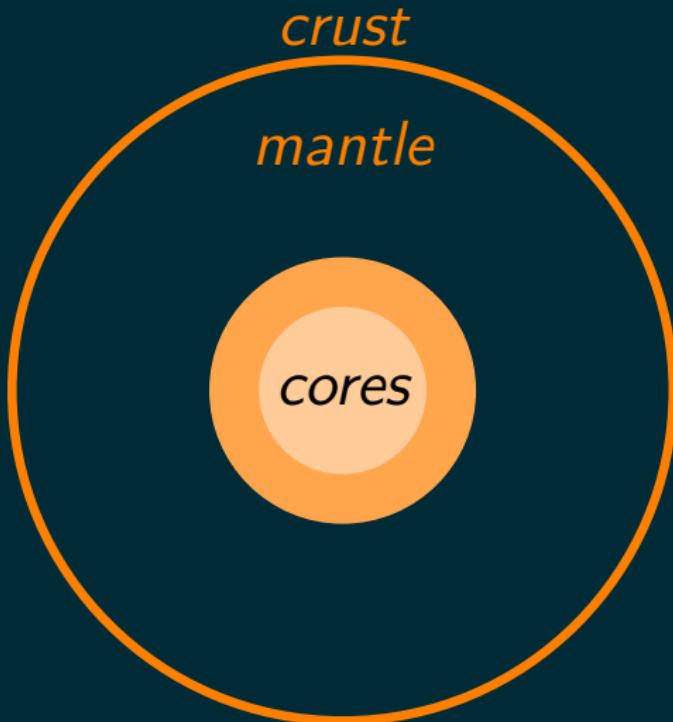
- several things have been invented by our ancestors;
- mathematics make use of our alphabet;











```
>>> import quakefeeds
>>> from quakefeeds import QuakeFeed

>>> feed = QuakeFeed("2.5", "month")
>>> feed.title
'USGS Magnitude 2.5+ Earthquakes, Past Month'
```

MAGNITUDE



```
{'geometry': {'coordinates': [27.3346, 36.9405, 5.01], 'type': 'Point'},
'id': 'us1000apsm',
'properties': {'alert': None,
'cdi': 4.1,
'code': '1000apsm',
'detail': 'https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us1000apsm.geojson',
'dmin': 0.962,
'felt': 59,
'gap': 45,
'ids': ',us1000apsm,',
'mag': 4.4,
'magType': 'mb',
'mmi': None,
'net': 'us',
'nst': None,
'place': '6km NE of Kos, Greece',
'rms': 0.82,
'sig': 322,
'sources': ',us,',
'status': 'reviewed',
'time': 1507665564350,
'title': 'M 4.4 - 6km NE of Kos, Greece',
'tsunami': 0,
'type': 'earthquake',
'types': ',dyfi,geoserve,origin,phase-data,',
'tz': 120,
'updated': 1508097562926,
'url': 'https://earthquake.usgs.gov/earthquakes/eventpage/us1000apsm'},
'type': 'Feature'}
```

```
>>> import earthquakes
>>> from earthquakes import earthquakes

>>> report = earthquakes.get_report()
>>> report['title']
'USGS Significant Earthquakes, Past Hour'
>>> report = earthquakes.get_report('hour', 'all')
```

```
>>> create_map = feed.create_google_map(style="titled")
>>> feed.write_google_map("map.html", style="titled")
```

MATPLOTLIB BASEMAP TOOLKIT

http://introtopython.org/visualization_earthquakes.html

```
from mpl_toolkits.basemap import Basemap  
import matplotlib.pyplot as plt  
import numpy as np  
  
plt.figure()  
my_map = Basemap(projection='ortho',  
                  lat_0=22, lon_0=30.22,  
                  resolution='h',  
                  area_thresh=1000.0)  
my_map.drawcoastlines()  
  
plt.show()
```



```
from mpl_toolkits.basemap import Basemap
import matplotlib.pyplot as plt
import numpy as np

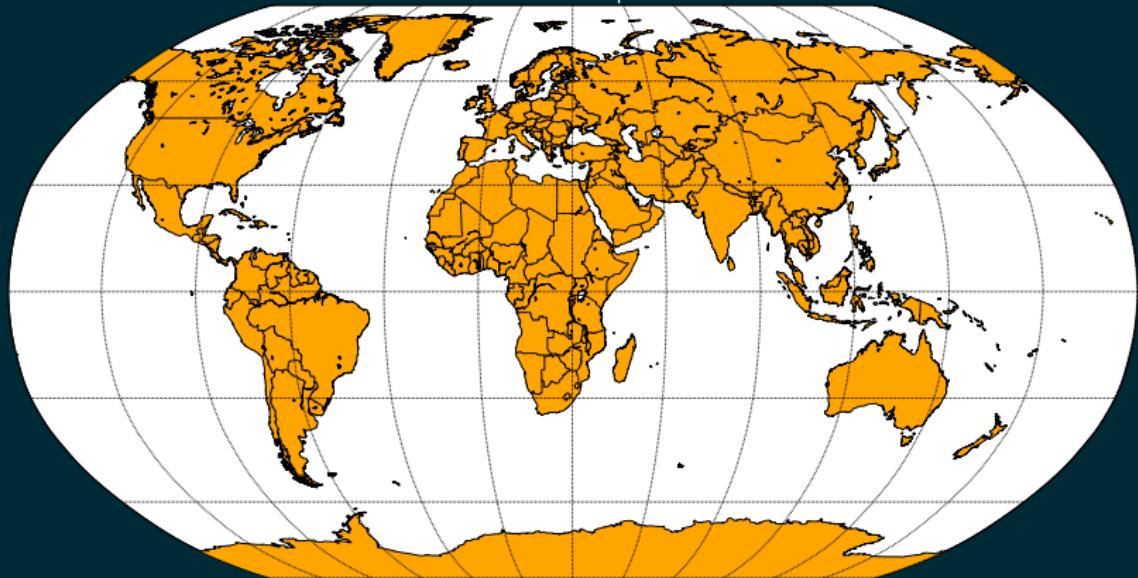
plt.figure()
my_map = Basemap(projection='ortho',
                  lat_0=22, lon_0=30.22,
                  resolution='h',
                  area_thresh=1000.0)
my_map.drawcoastlines()
my_map.drawcountries()
my_map.fillcontinents(color='orange')
my_map.drawmapboundary()

meridians = np.arange(0, 360, 30)
parallels = np.arange(-90, 90, 30)
my_map.drawmeridians(meridians)
my_map.drawparallels(parallels)

plt.show()
```



World Map



```
plt.figure()  
my_map = Basemap(projection='merc',  
                  lat_0=40, lon_0=19,  
                  resolution = 'l',  
                  area_thresh = 1000.0,  
                  llcrnrlon=20.577,  
                  llcrnrlat=33.568  
                  urcrnrlon=28.1905,  
                  urcrnrlat=39.701)  
  
my_map.drawcoastlines()  
my_map.drawcountries()  
my_map.fillcontinents(color='orange')  
  
plt.axis('off')  
plt.show()
```



```
plt.figure()
my_map = Basemap(projection='merc',
                  lat_0=40, lon_0=19,
                  resolution = 'l',
                  area_thresh = 1000.0,
                  llcrnrlon=20.577,
                  llcrnrlat=33.568
                  urcrnrlon=28.1905,
                  urcrnrlat=39.701)

my_map.drawcoastlines()
my_map.drawcountries()
my_map.fillcontinents(color='orange')

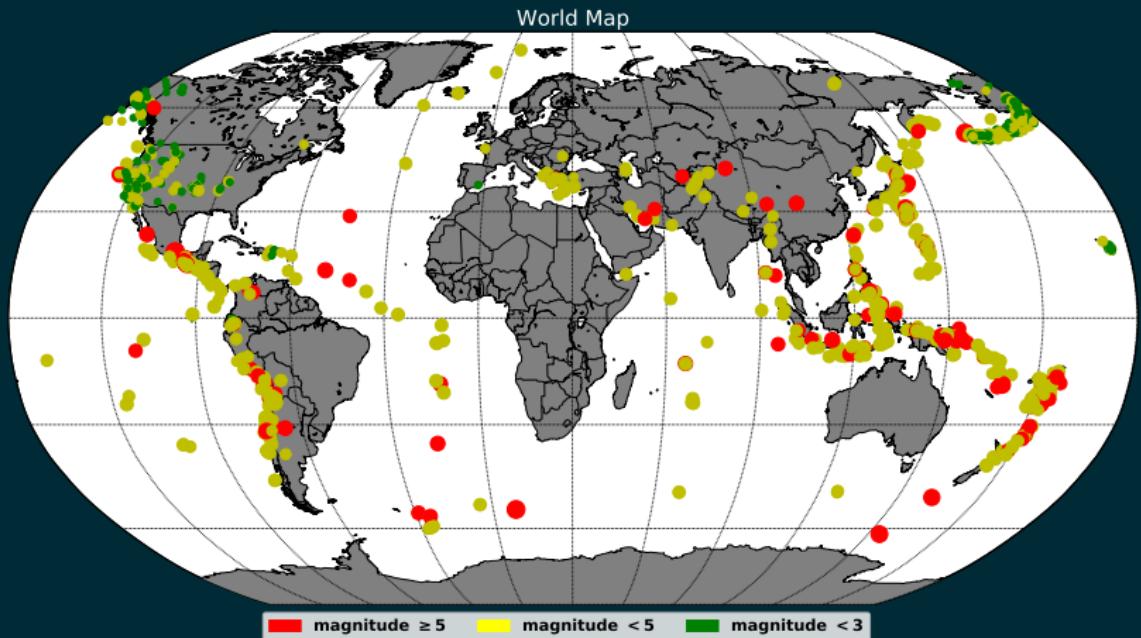
x,y = my_map(lons, lats)
my_map.plot(x, y, 'ro', markersize=10)

plt.axis('off')
plt.show()
```



Mexico Earthquake





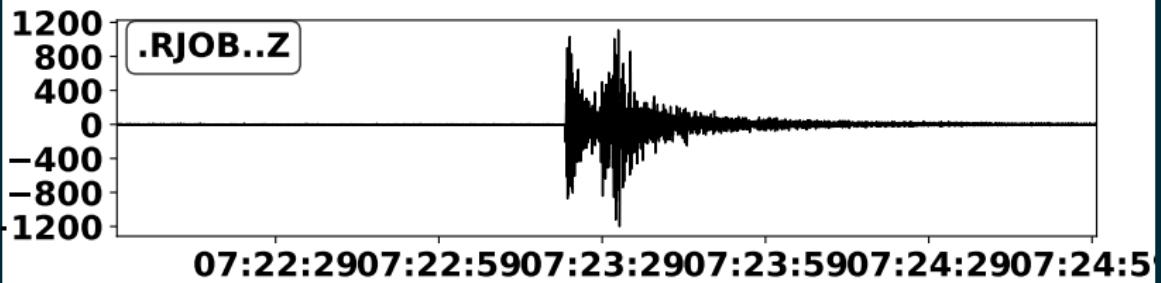


ObsPy

A Python Framework for Seismology

<https://github.com/obspy/obspy/wiki>

2005-10-06T07:21:59.85 - 2005-10-06T07:24:59.845



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<https://github.com/Nikoleta-v3>