Laboratory Exercise - 7 : Working with Altimeter data
CE670a: Environmental Geodesy — Date: Feb 28,2020
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**Objective:**

In this exercise you have to download altimeter data, different geoid models, mean sea level data and then perform different tasks with those datasets.

**Tasks**

1. Go to https://openadb.dgfi.tum.de/en/register/ and register yourself.
2. After that go to the data access section and download Sea surface Height(SSH) data for the Bay of Bengal region for two different time spans. You have to use TOPEX/Poseidon satellite mission data.
3. Before downloading the data, you have to specify for which cycle and passes you want the dataset. What do you understand by cycle and passes and how many passes are there over bay of bengal region.
4. Download any three consecutive passes over bay of bengal for two cycles.
5. Compute sea level anomalies by removing the mean of SSH from the SSH dataset. SLA= SSH- mean(SSH)
6. Download Geoid height model for the required area from ICGEM website (http://icgem.gfz-potsdam.de). You have to download two models: EGM2008 model and GRACE geoid model[1].
7. Calculate Dynamic ocean topography (DOT) using geoid undulation and SSH. SSH=N+DOT
8. Plot profile of anomaly of two cycles into the same plot and visualize difference. Then plot the average value of the anomaly of two cycles and plot it.
9. You have SSH data at some points. using kriging method, interpolate SSH into whole area of bay of bengal. You can use sklearn library for kriging. https://stackoverflow.com/questions/30489610/python-kriging-gaussian-process-in-scikit-learn

**Notes**

1. No marks will be given for late submission.

2. Last date of submission for the exercise is Mar 6,2020.

**References-**


1. http://icgem.gfz-potsdam.de/calcgrid?modeltype=longtime&modelid=acffd529e1949c6055ab5a503bda803906ed8e85ae6750dc71dd881b37a34757
2. https://stackoverflow.com/questions/30489610/python-kriging-gaussian-process-in-scikit-learn
3. https://www.youtube.com/watch?v=_cJLVhdj0j4