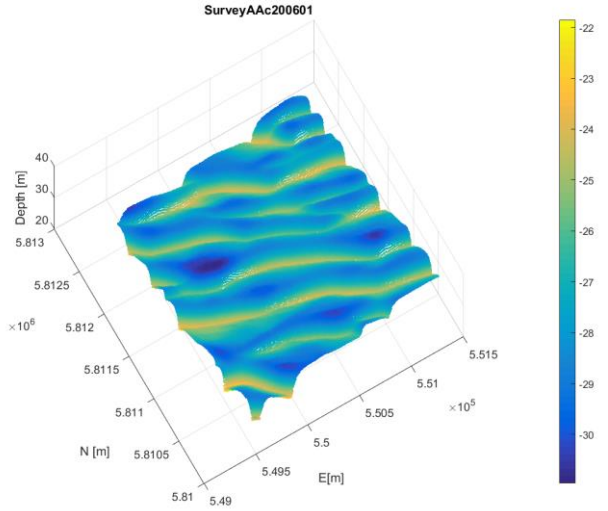
Master of Science Project

Geoscience and Remote Sensing

Theme: Statistical Testing

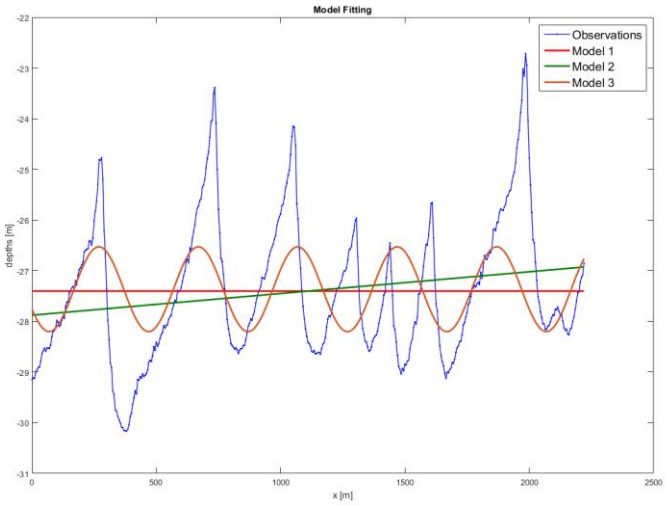
Estimating kinematic parameters of the seafloor using bathymetric data

The seafloor of the Dutch part of the North Sea is mapped by two authorities, the Netherlands Hydrographic Service of the Netherlands Navy and Rijkswaterstaat. The time series of observations (bathymetric datasets) will be used to examine deformation parameters of the seafloor. The estimated parameters from the data can be used to better understand the morphodynamics of the seafloor for hydrographic survey planning and management.



The estimated kinematic parameters of the seafloor would include the choice of different mathematical models that best represent the seafloor characteristics in a probabilistic way, which is based on statistical hypothesis testing.

Starting with a null hypothesis (initial, static sea floor representation) the student would test multiple alternative models by calculating the test statistic. The test statistic will be compared to a threshold value to decide whether the intial representation will be rejected.



Objective: To design an appropriate testing procedure to investigate which alternative mathematical model best represents the seafloor by testing which alternative fits best.

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