

## GEOCODER in HYPACK® 2008

by Mike Kalmbach

GEOCODER is a program developed by Dr. Luciano Fonseca of the Center for Coastal and Ocean Mapping (CCOM) at the University of New Hampshire. The purpose of GEOCODER is Backscatter Mosaics and AVO Seafloor Characterization. GEOCODER has been licensed by HYPACK® for inclusion in the HYPACK® 2008 release.

GEOCODER is not intended to replace our current Mosaic and Targeting program. It does however, provide a far more sophisticated analysis of backscatter data for those who wish to take advantage of it.

With HYPACK® GEOCODER, you will be able to:

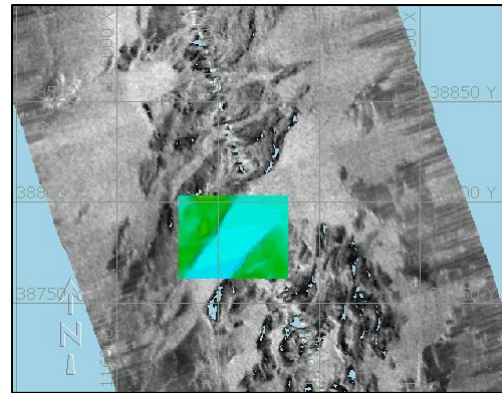
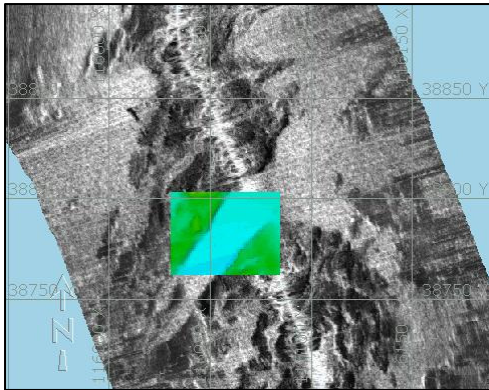
- Mosaic HYPACK® HSX files containing sidescan data. The data may come from traditional sidescan (EdgeTech, Klein, etc.) or multibeam sidescan (Atlas, Reson, etc.).
- Mosaic XTF files generated by HYPACK® and by other vendors.
- Create average backscatter mosaics from GSF (Generic Sensor Format) files generated by HYPACK® and by other vendors.
- Create snippet mosaics from GSF files generated by HYPACK® and others. This capability is not available in the initial HYPACK® 2008 release but should be soon. GEOCODER will be the only means available through HYPACK® for snippet processing.
- Characterize the seafloor in terms of mean grain size using AVO (Amplitude Variation with Offset). This capability is not available at this time, and probably won't be for a while.

Let's take a look at some preliminary results. Keep in mind that I have only scratched the surface of GEOCODER and final results will be better.

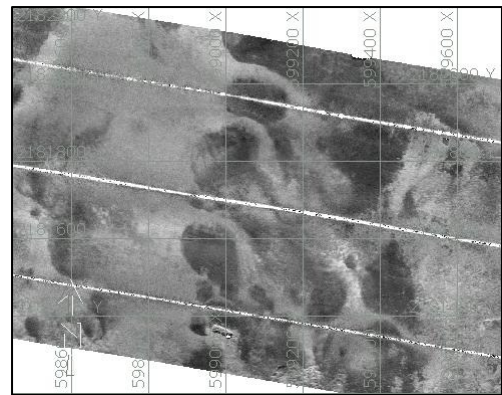
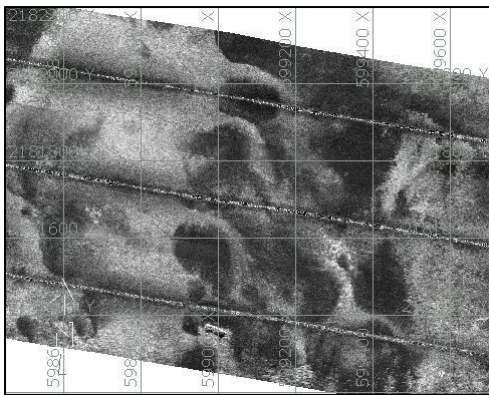
First, a sidescan mosaic from EdgeTech 4200 sonar in HYPACK® (left) and GEOCODER (right). Shows the structure supporting lattice beacons at the entrance to New Bedford Harbor.



Second is Reson Seabat sidescan showing rock outcrops above a sandy seafloor. A small patch of bathymetry is included to show proper georeferencing. HYPACK® left and GEOCODER right.



Third example is a mosaic of multiple lines. GEOCODER has a nice feathering routine to blend data from overlapping areas. HYPACK® mosaic left.



The last sample shows GeoSwath average backscatter processed in HYPACK® TIN Model (left) and GEOCODER (right). GEOCODER is a huge improvement over the HYPACK® method in terms of ease of use and image quality.

(Note: Average Backscatter refers to a single backscatter intensity value per beam. Very sparse data compared to sidescan, as you can see in the mosaic. This capability is supported by almost all multibeam systems).

