Makkovik, Labrador

3D modeling and Data integration
Geology and Geomatics project 1999

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D. Hynes
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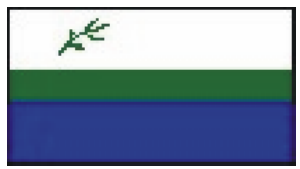
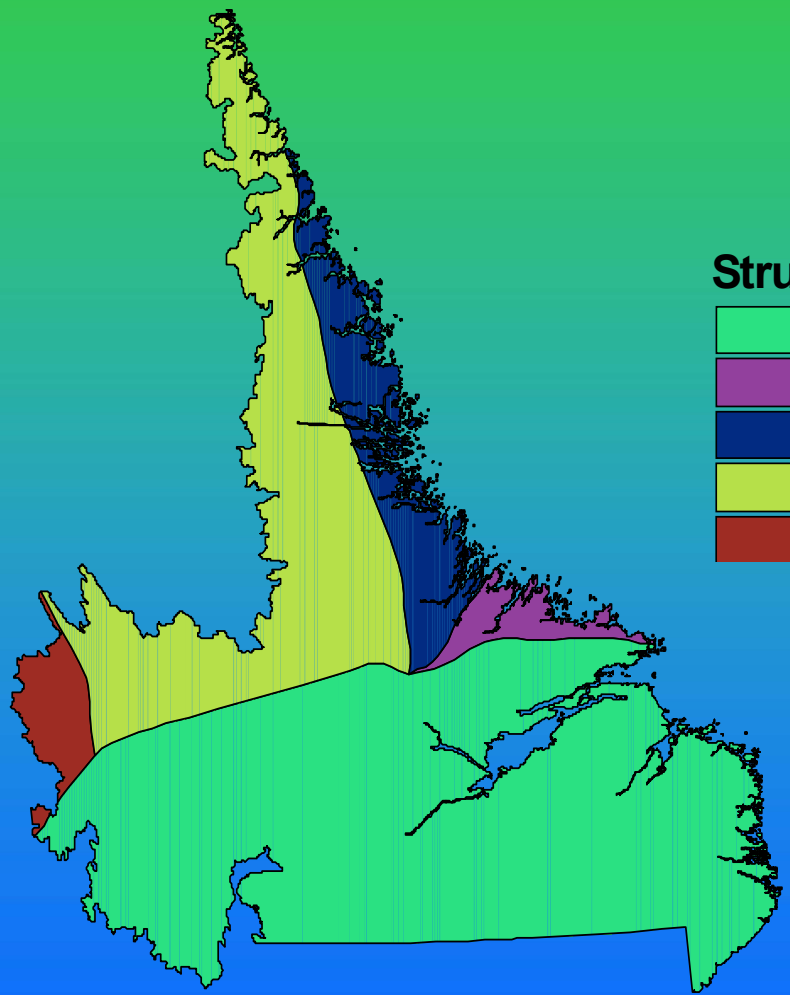
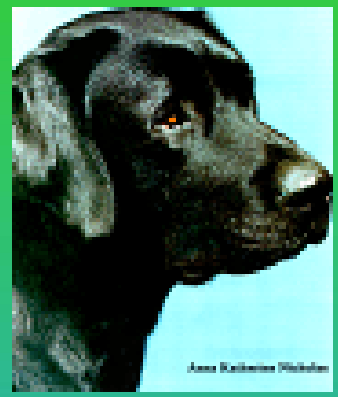


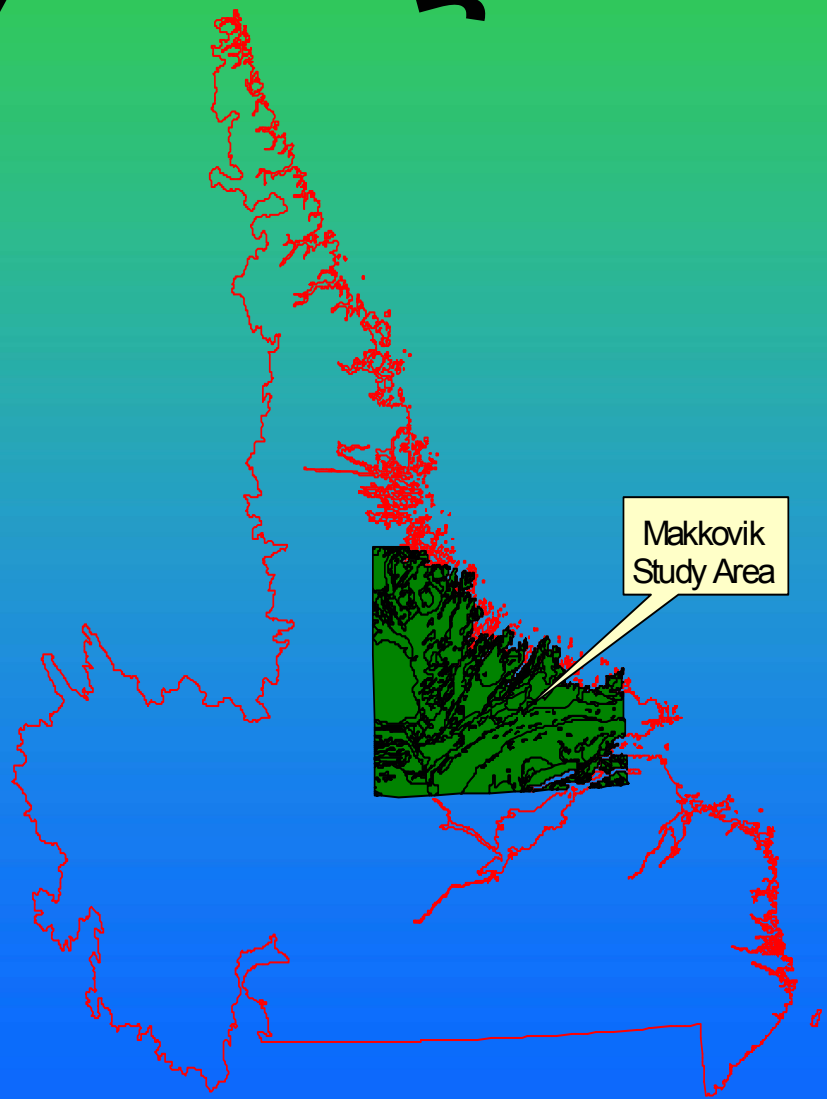
Labrador

Five Geological Provinces



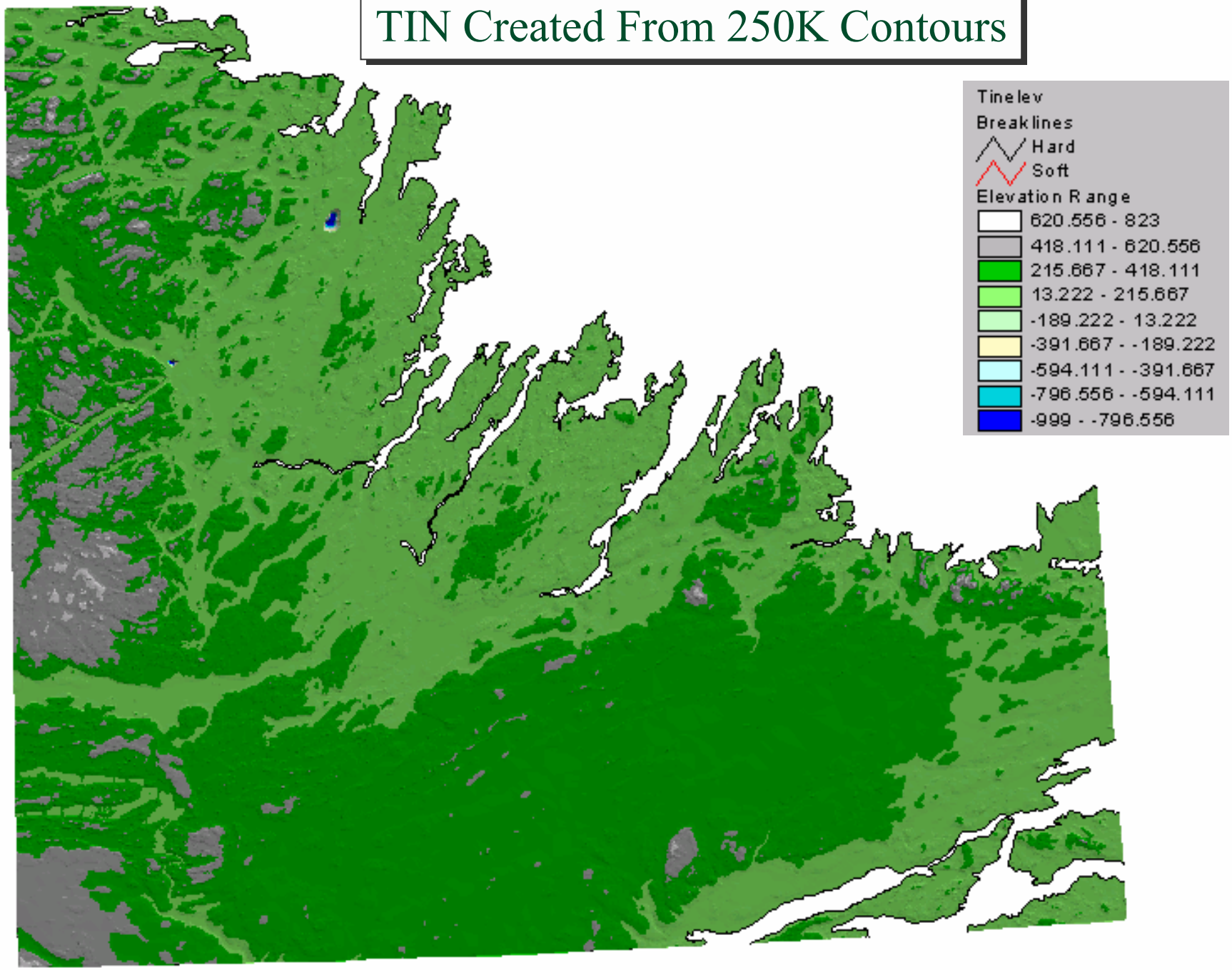
Labrador





StudyArea
Labrador_Outline

TIN Created From 250K Contours



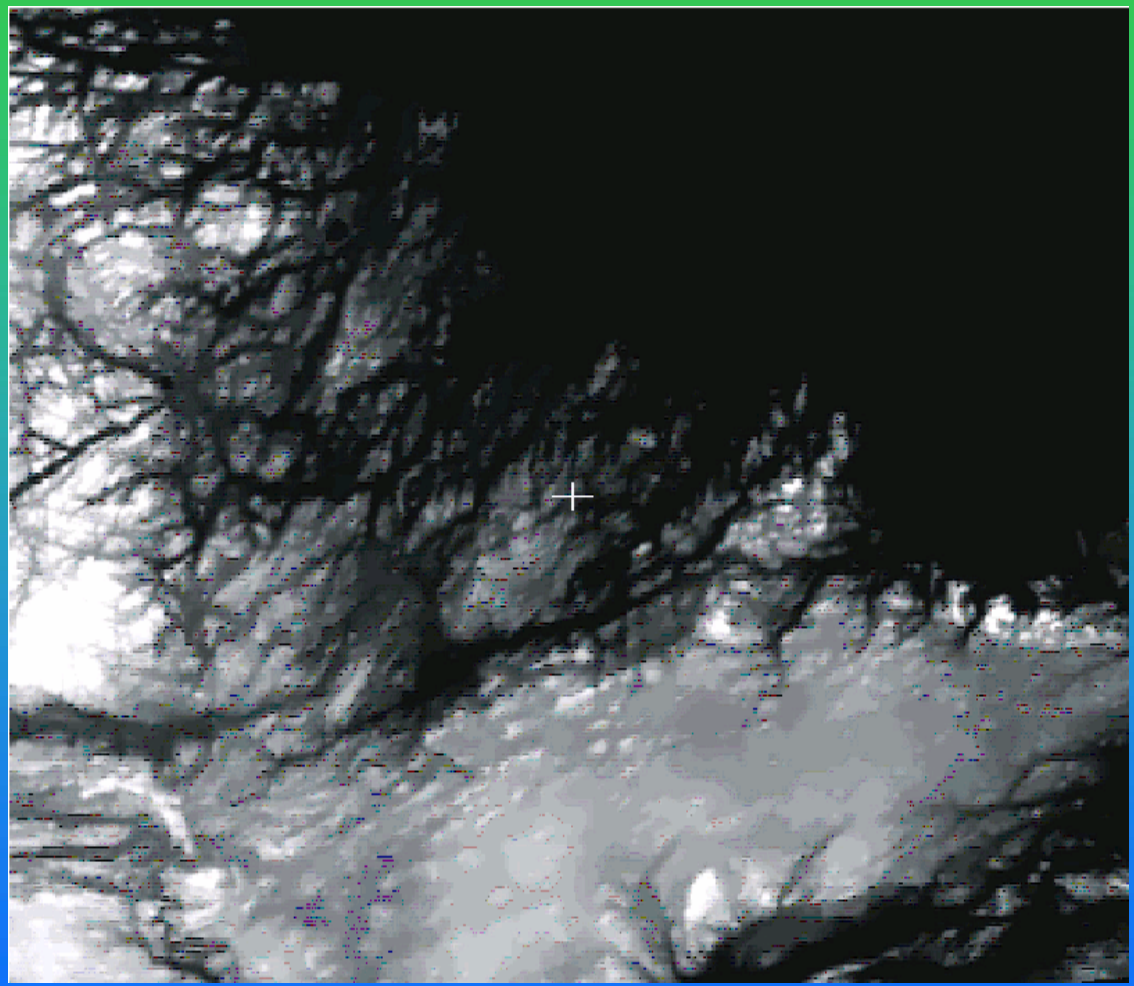
Objectives

- To produce value added products that could aid in geological study of the area
- Integrate Shaded relief with the geophysics
- (magnetic and gravity) overlain upon it.
- Chromadepth
- Anaglyph
- 3D perspective views

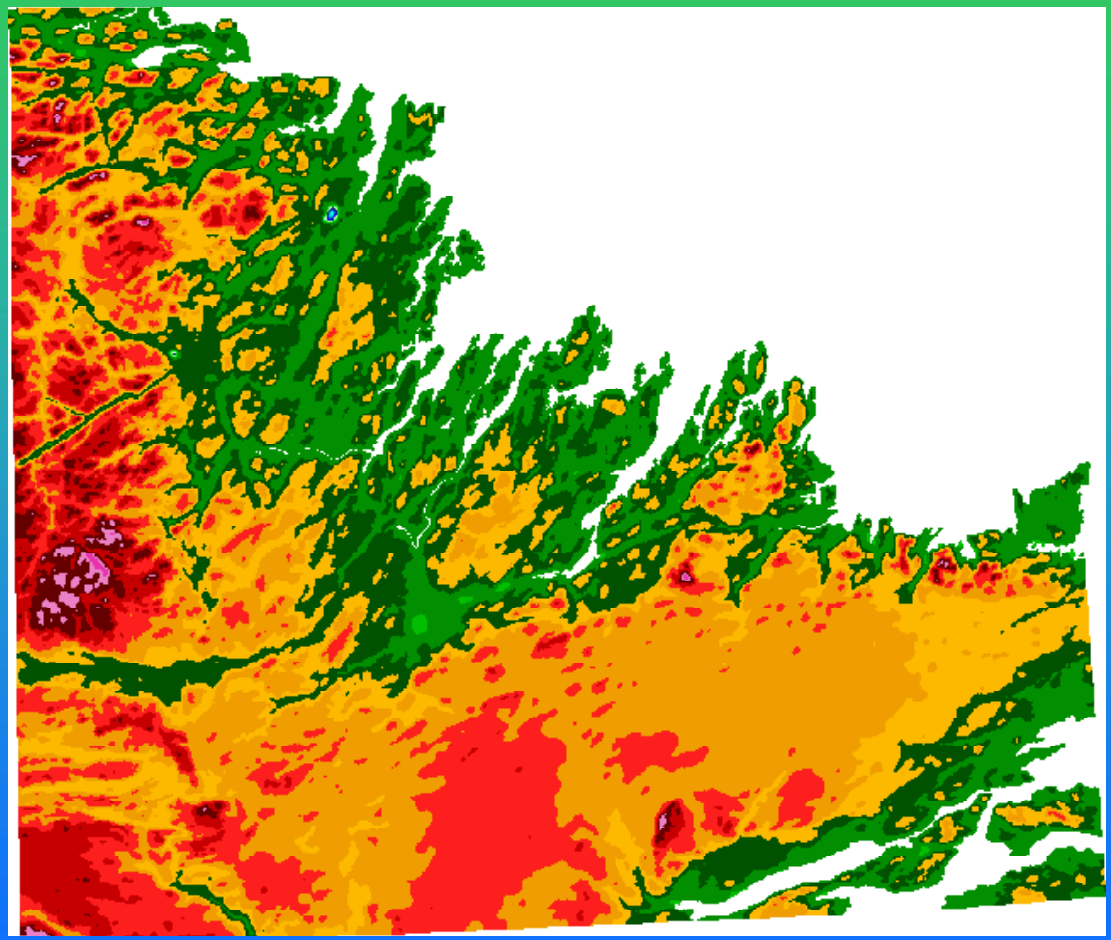
Makkovik

- Makkovik Province
- The Makkovik Province is a smaller geological province within the Eastern Canadian shield. It bounds with the Nain Province to the North and the Grenville Province to the South. The regional geology that compromises the Makkovik geological province ranges in age from 2800Ma to 1800Ma. This vast range of time plays host to the reasons why the Makkovik province has such a diverse lithological and structural composition.

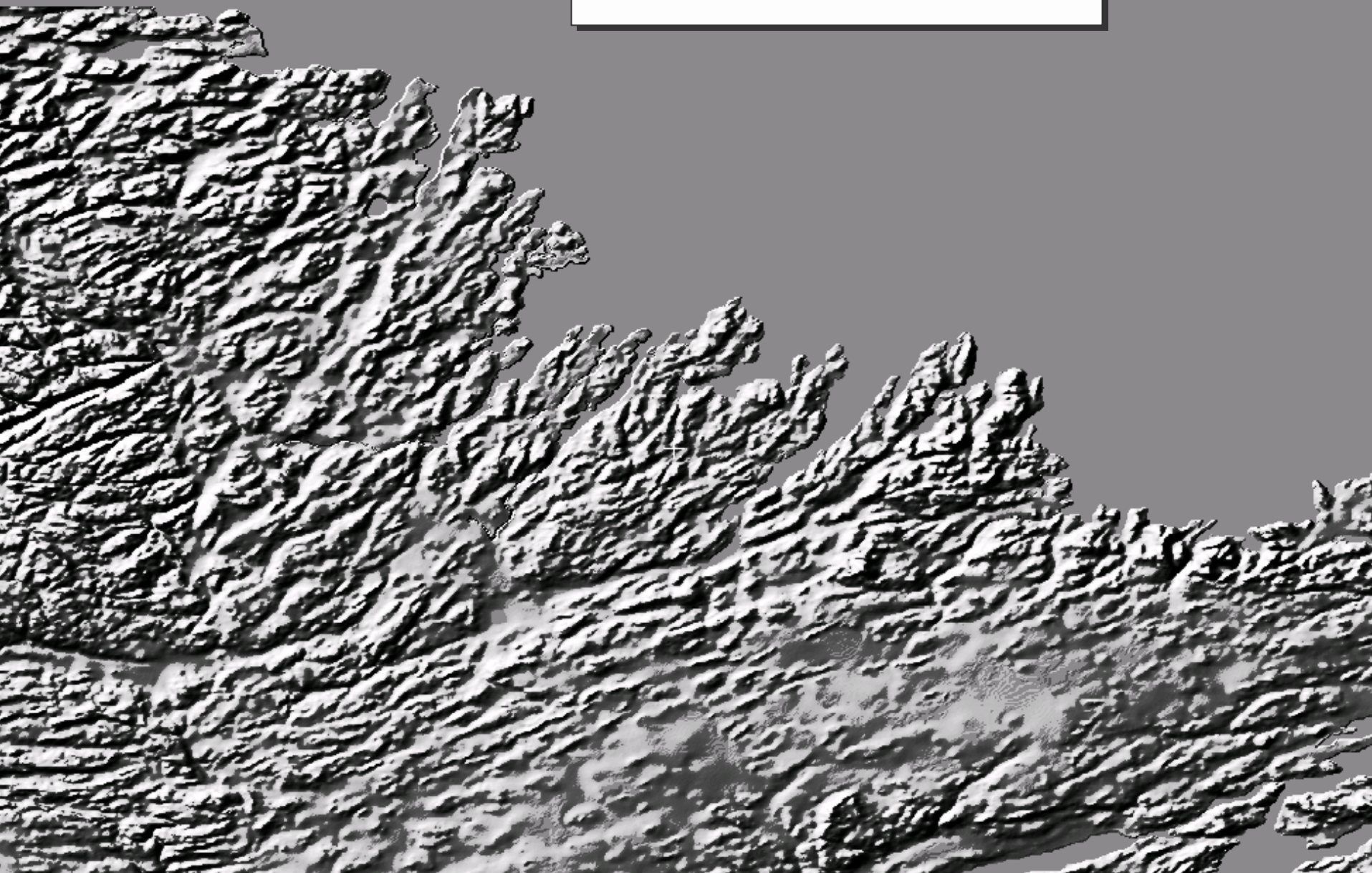
Digital Elevation Model



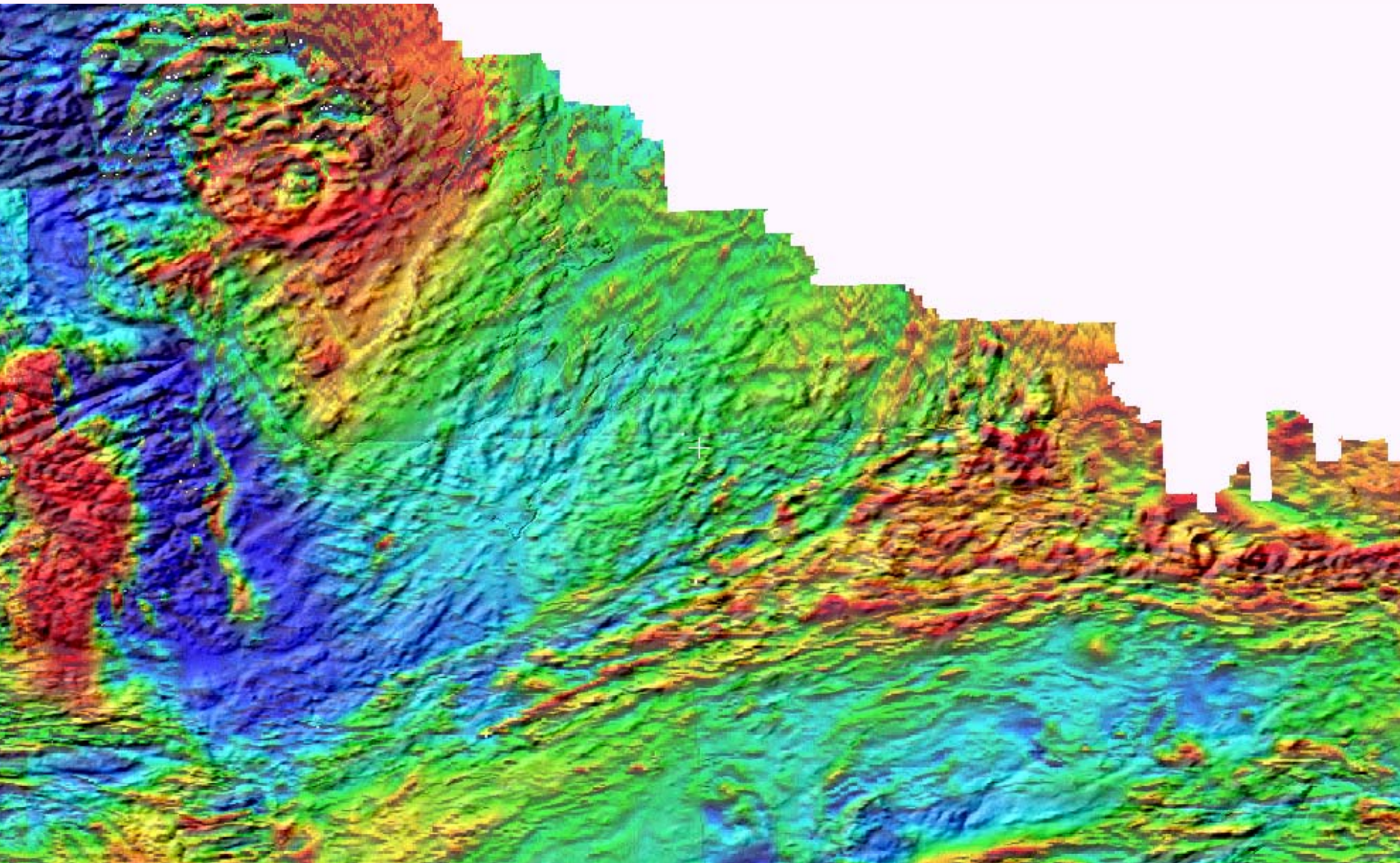
Grid Elevation Model



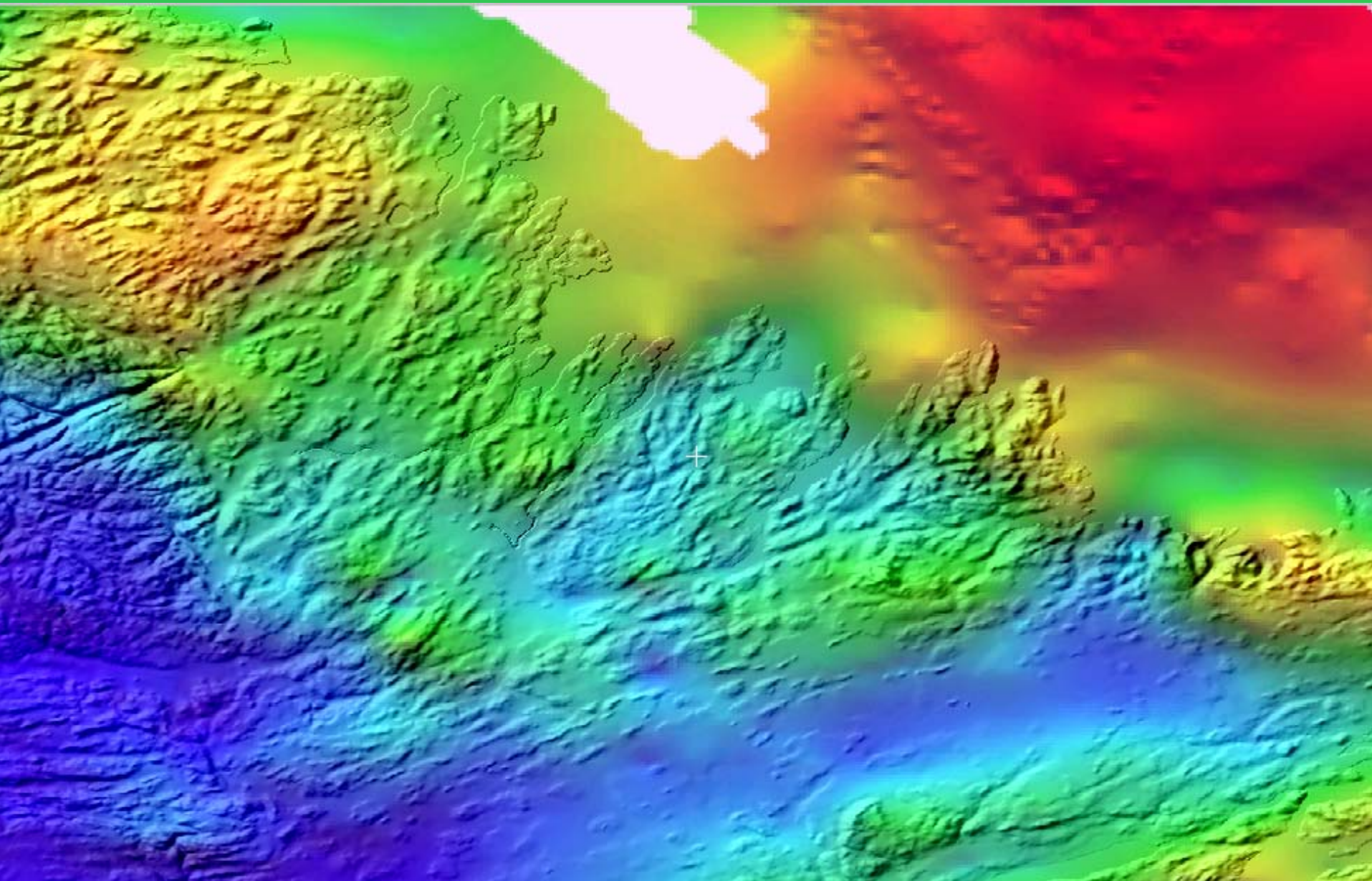
Shaded Relief



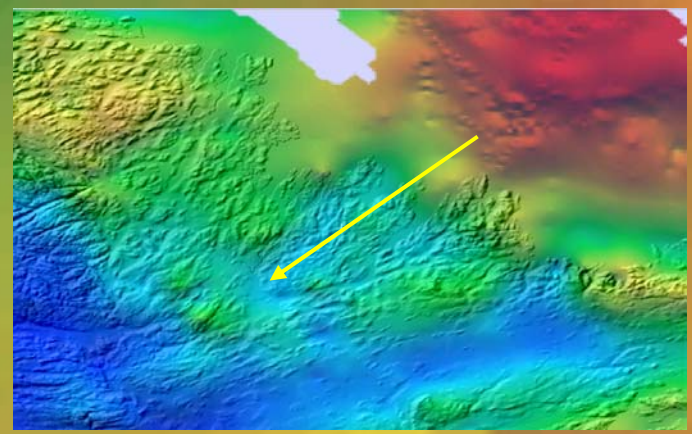
Shaded Total Field Magnetic Merged With Shaded Relief



Bouguer Gravity Merged With Shaded Relief



3D perspective view of Color Shaded Relief



Time Scale

Phanerozoic 545+ Ma

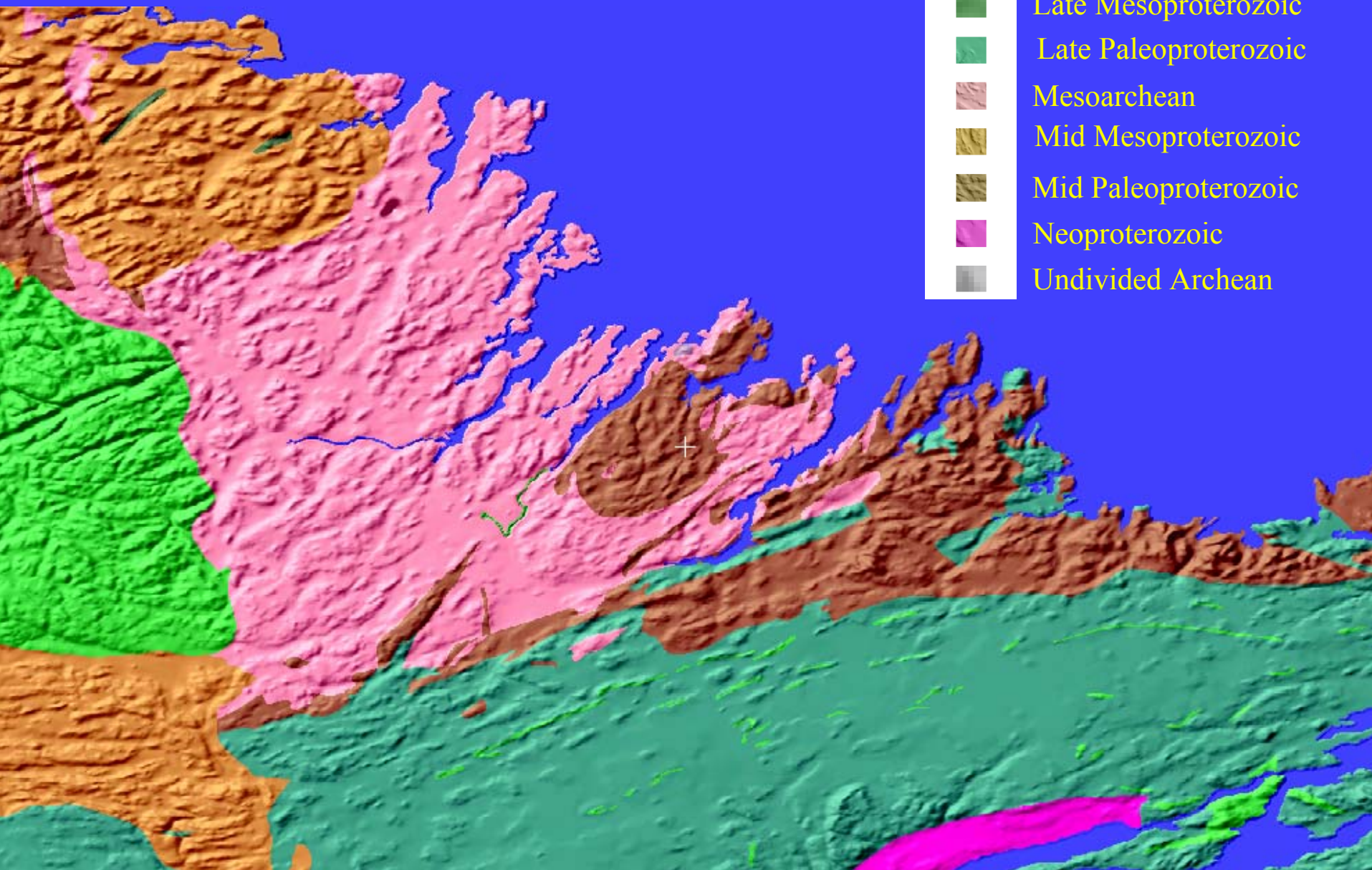
Proterozoic 2500 - 545 Ma

- Neoproterozoic 900 - 545
- Mesoproterozoic 1600 - 900
- Paleoproterozoic 2500 - 1800

Archean 4000 - 2500 Ma

- Undivided Archean
- Neoarchean 2800 - 2500
- Mesoarchean 3200 - 2800
- EO - Paleoarchean 4000 - 2800

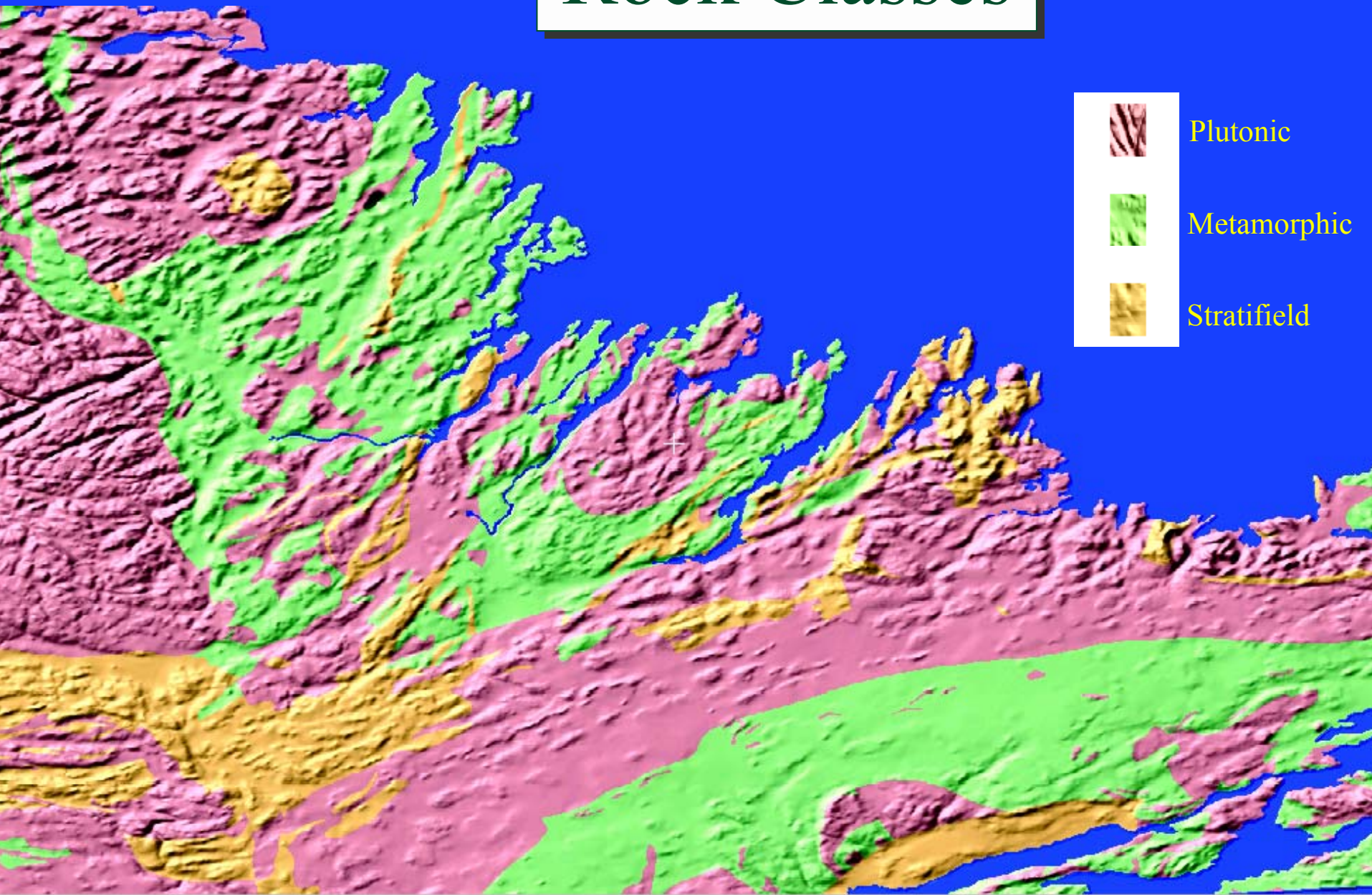
Geology Age Division



Rock Classes

- The following composite image is grouped according to 3 classes: STRATIFIED, IGNEOUS OR METAMORPHIC.

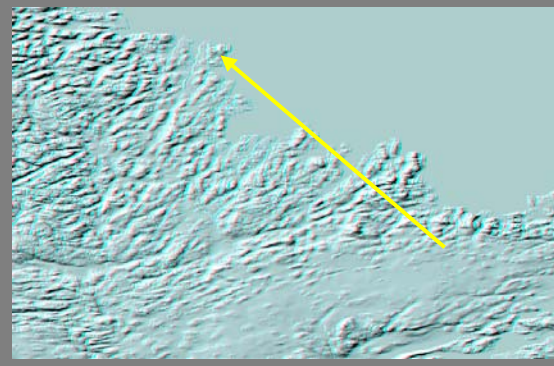
Rock Classes

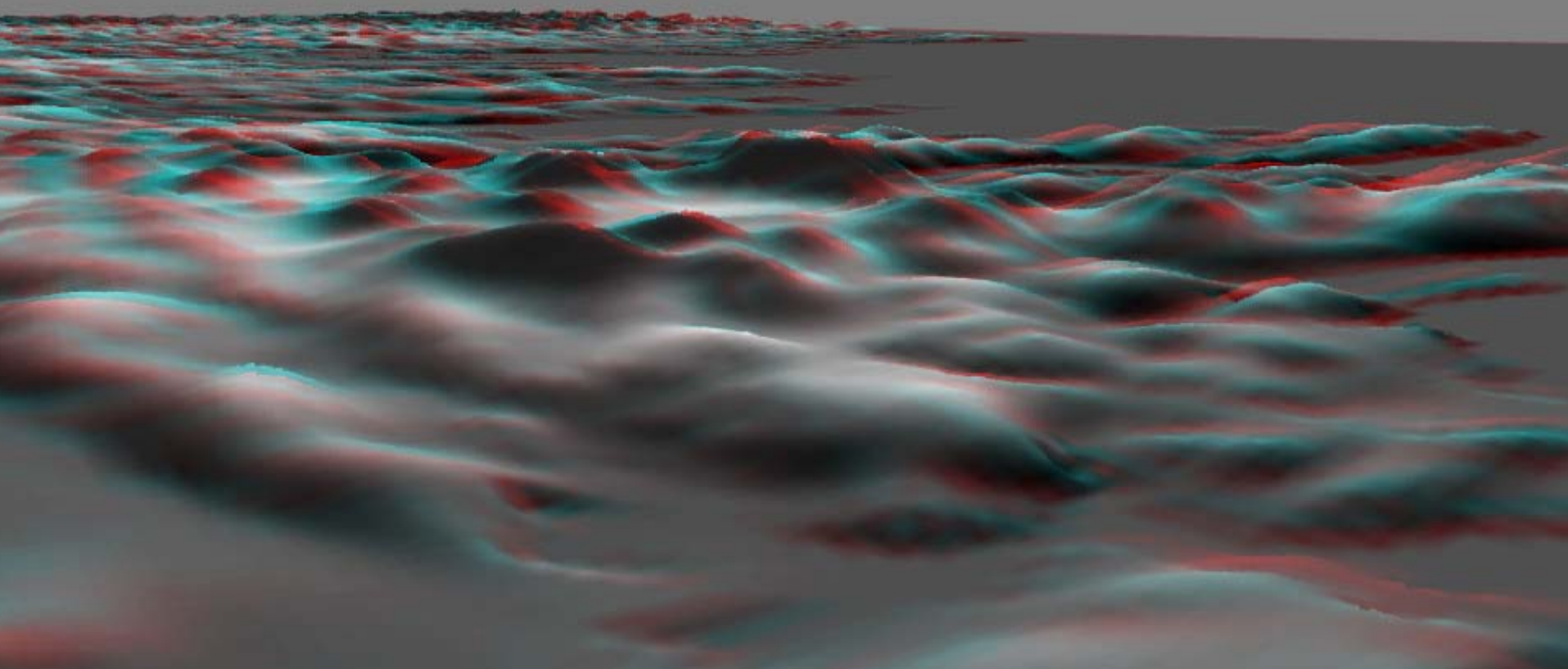


Anaglyph Stereo Image

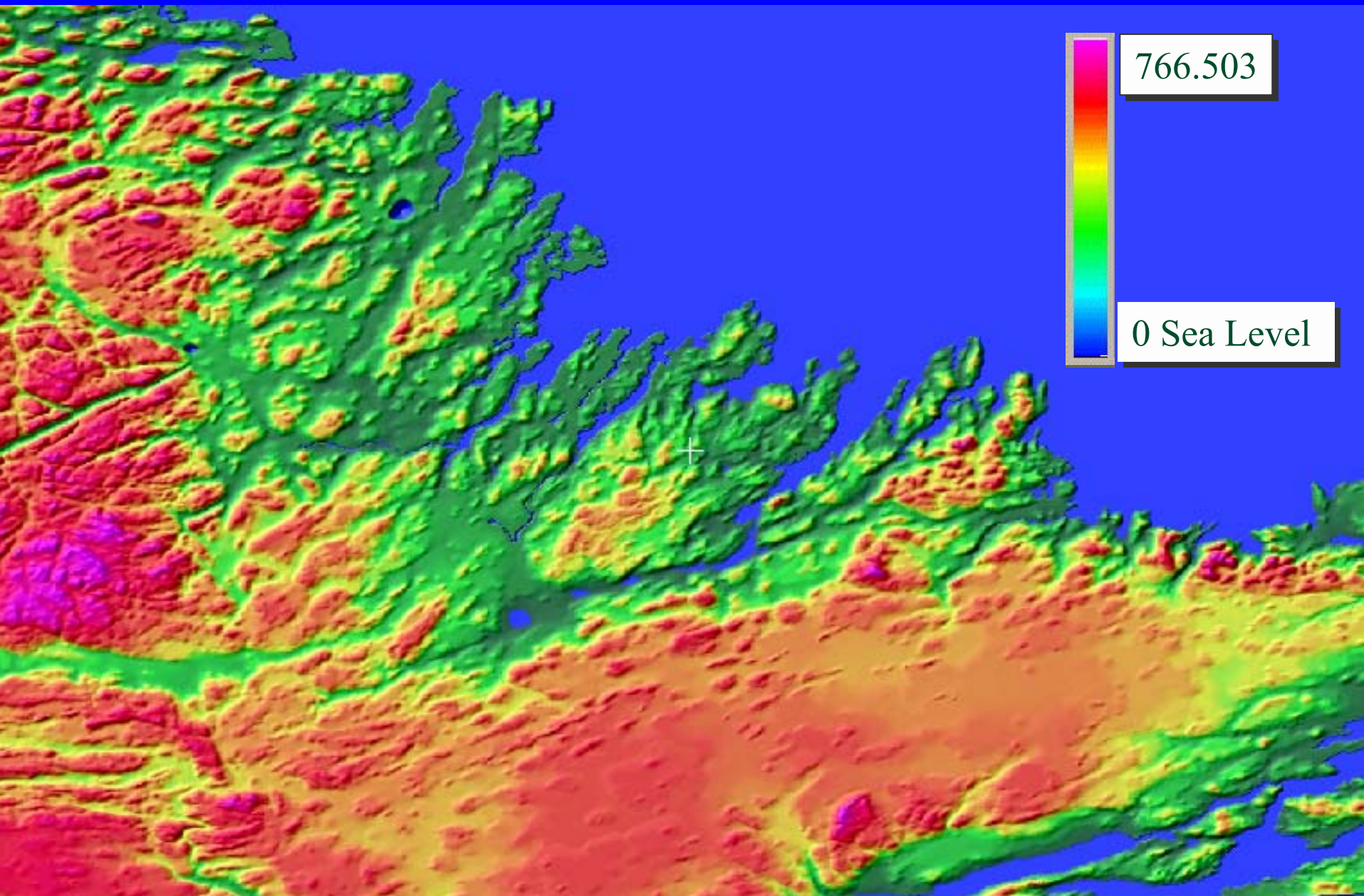
Left Eye : Blue
Right Eye: Red

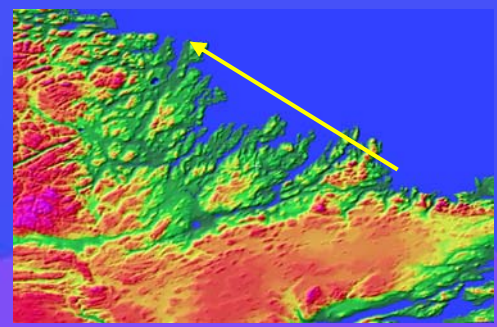
Anaglyph 3D Perspective View



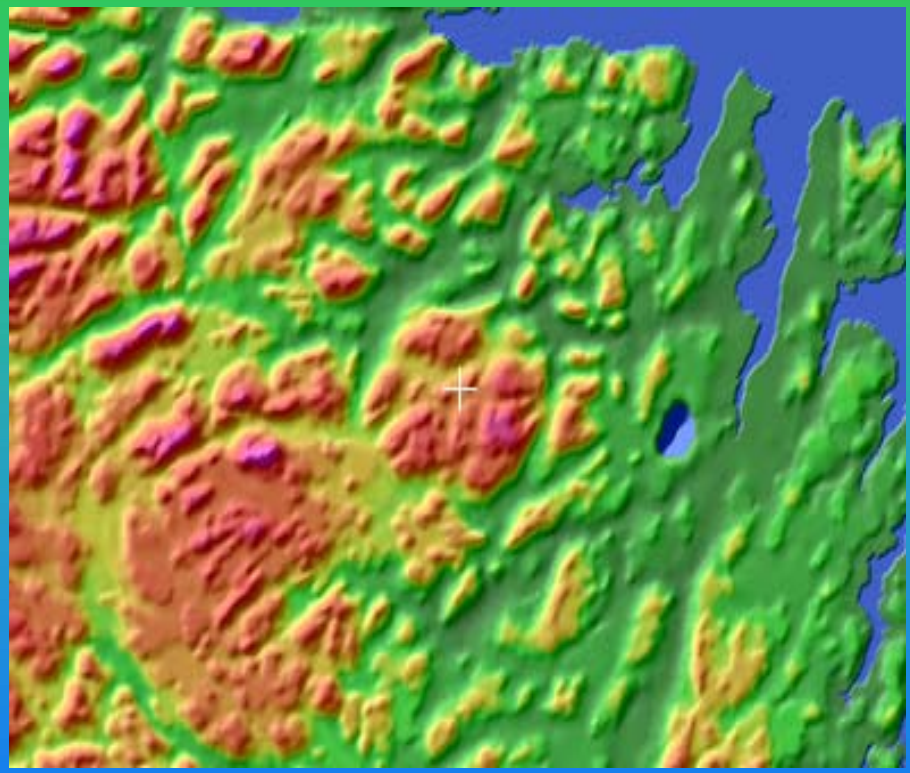


Chromadepth Colour Shaded Relief



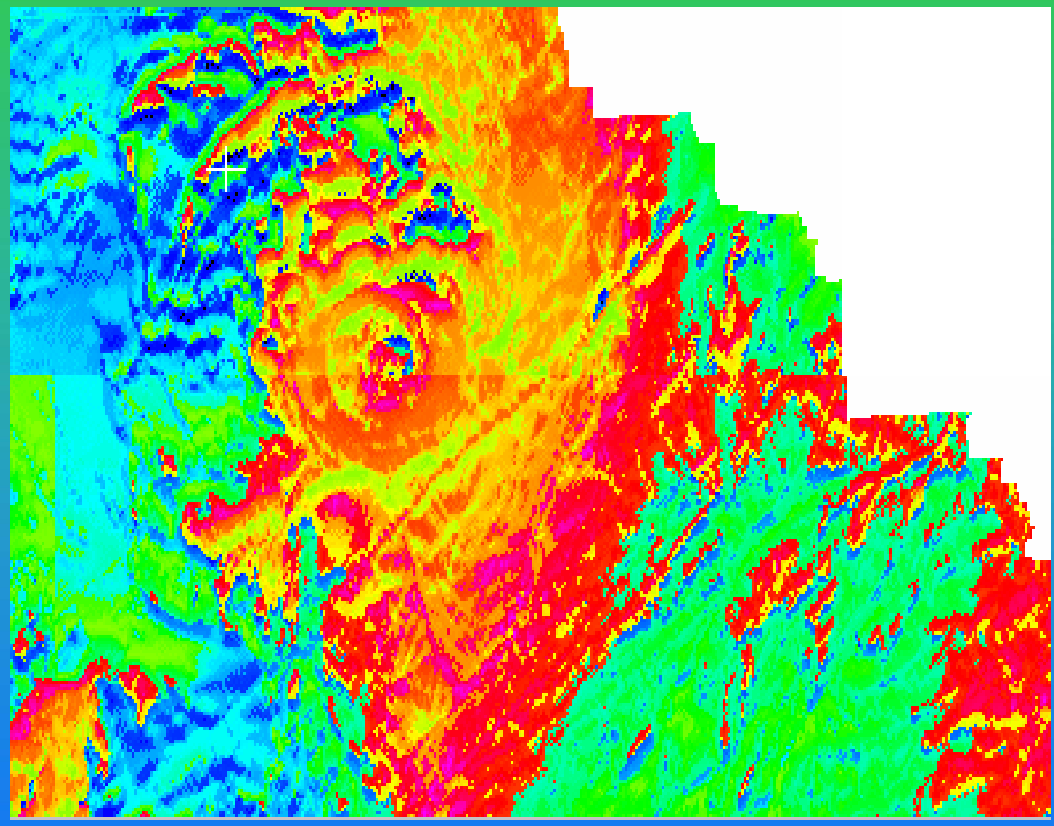


Circular Anomaly in the Study Area



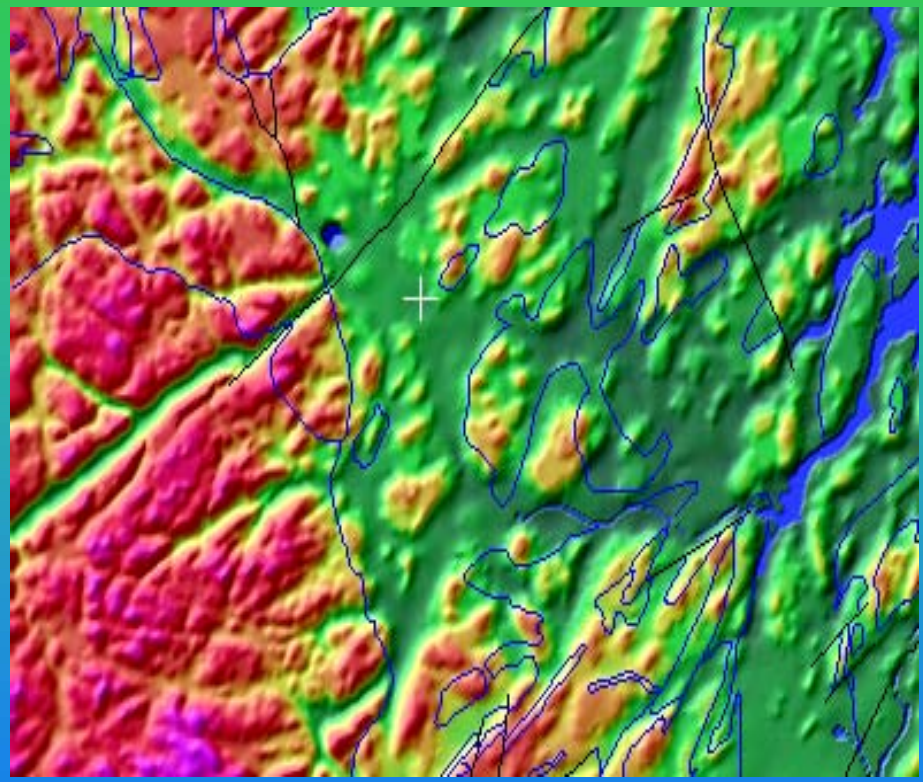
- Notice the batholith or circular intrusion at the centre of the colour shaded relief image.(cross hair is on the feature)

Total Field Magnetics of Circular Feature



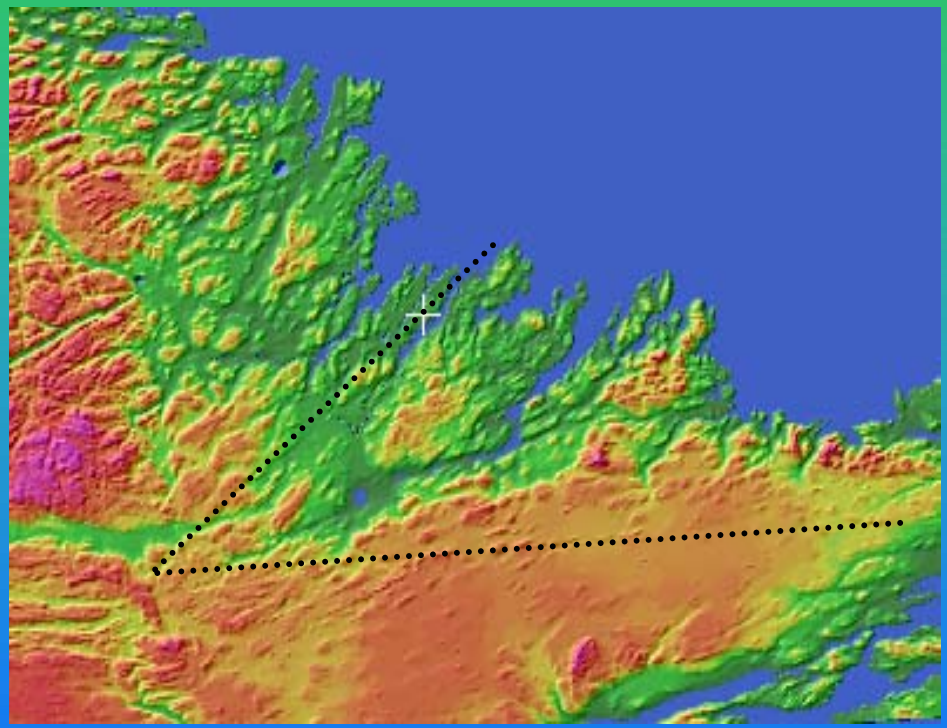
- This Total Field Magnetics Image has the same intrusion in the centre of this image, as demonstrated by the circular region of high returns. (two separate 400m magnetics panels are displayed in this image)

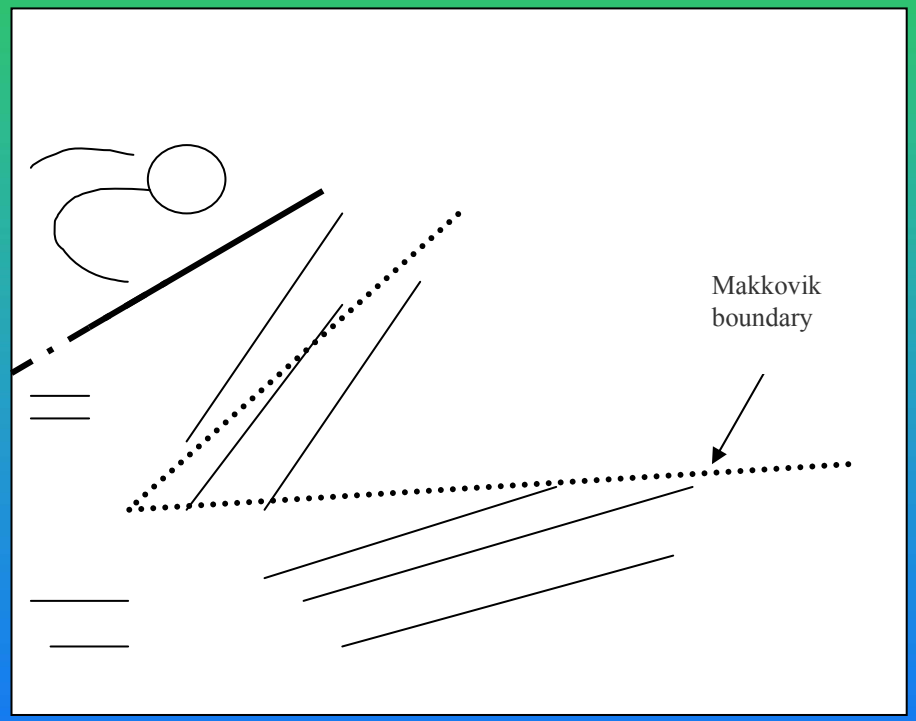
Contacts and Fault Vector Layers



- This image contains the linearly enhanced chromadepth colour-shaded relief with the known contacts (blue) and faults (black) overlaid on top as vectors. The large fault in the top left of the image stops abruptly but may extend along the deep valley off of the edge of this image.

Chromadepth View Including Makkovik Geological Zone

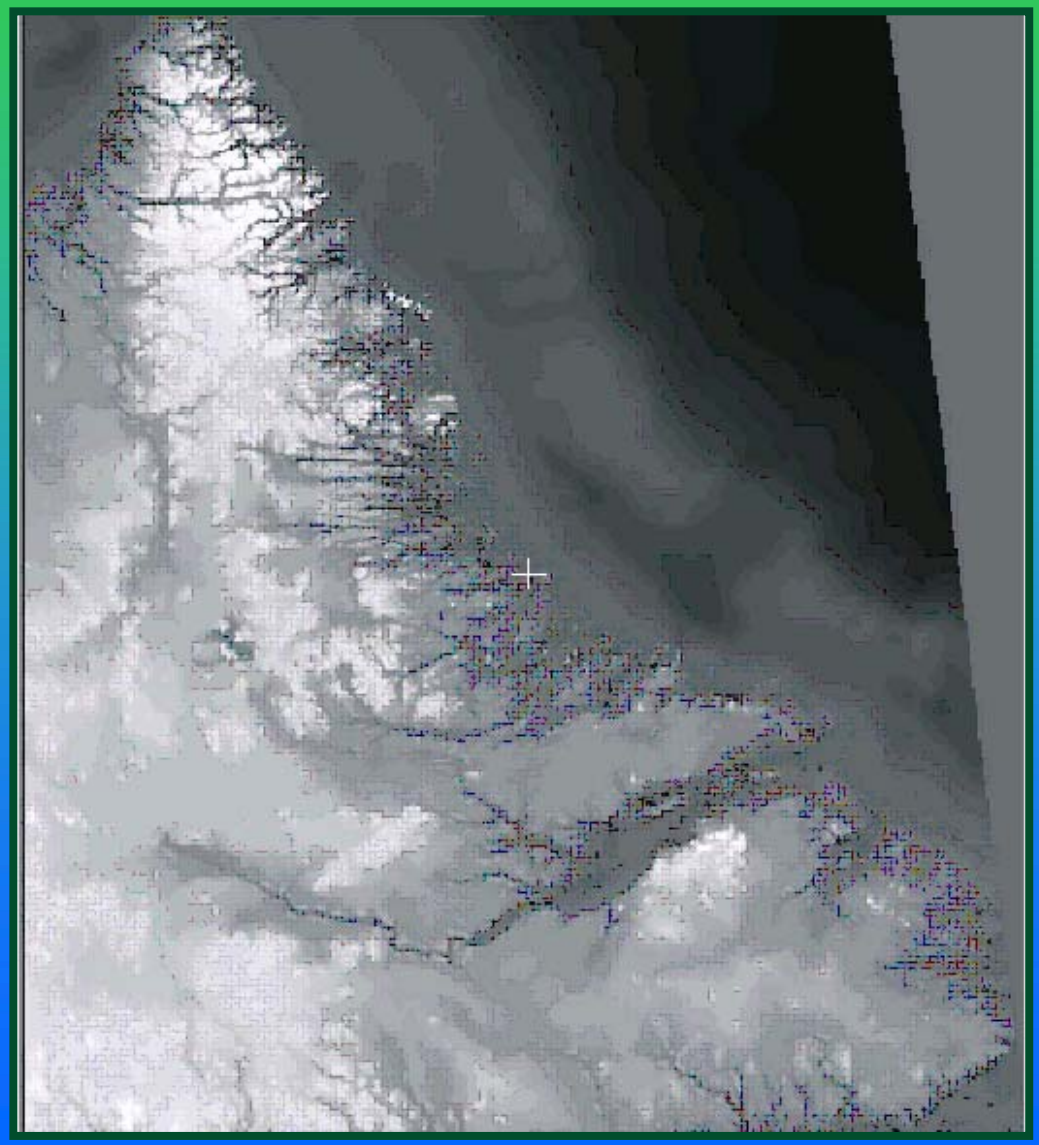




- A diagram of the lineament trends from the above left image. These trends indicate the topographic structures and their general orientations as indicated in the above figure. The dark line represents a major fault that cross cuts several units, and that we believe may extend into the deep valley to the South West (dotted line).

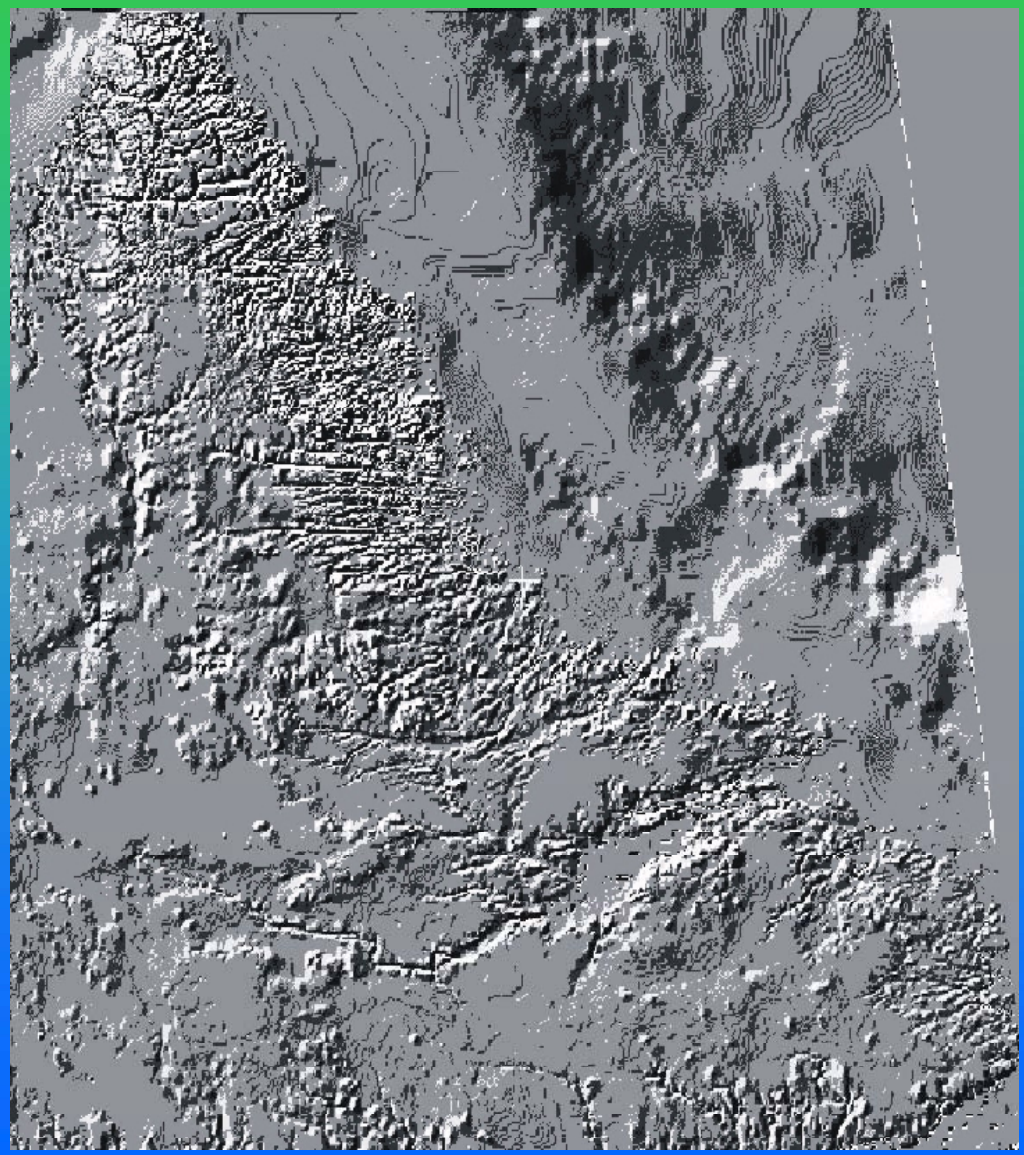
Labrador GTOPO30

Digital Elevation Model



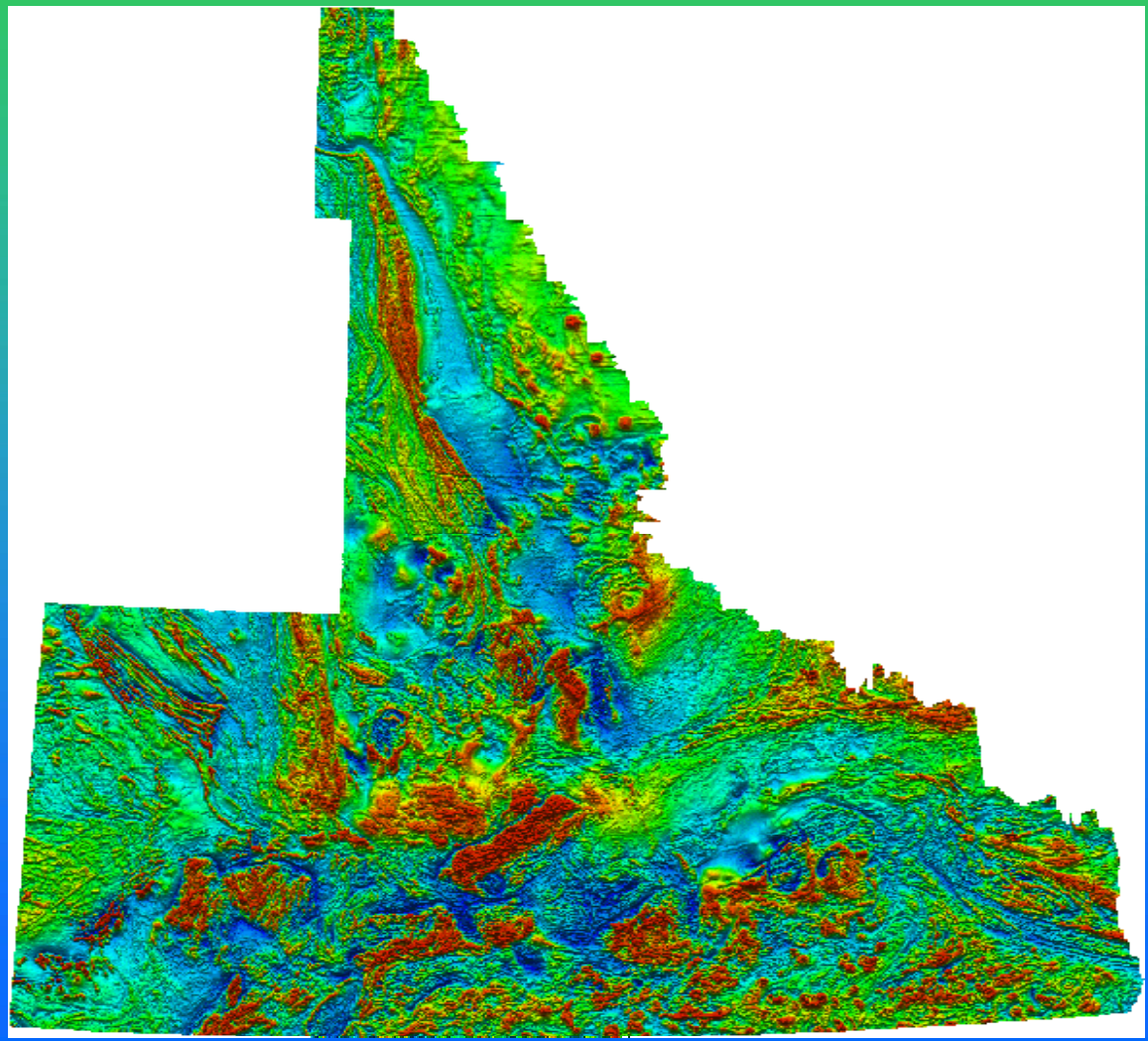
Labrador GTOPO30

Shaded Relief



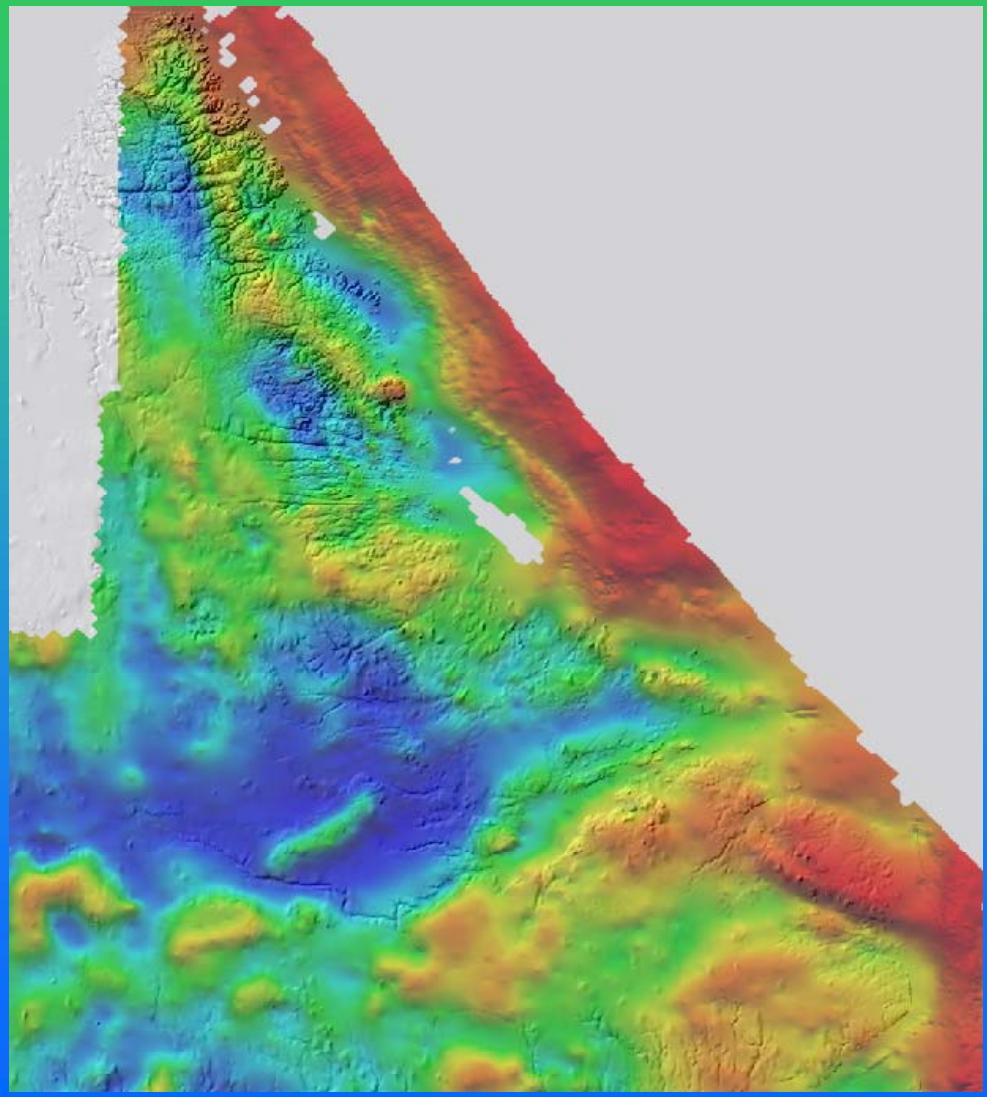
Labrador

Shaded Total Field Magnetic
Merged With Shaded Relief



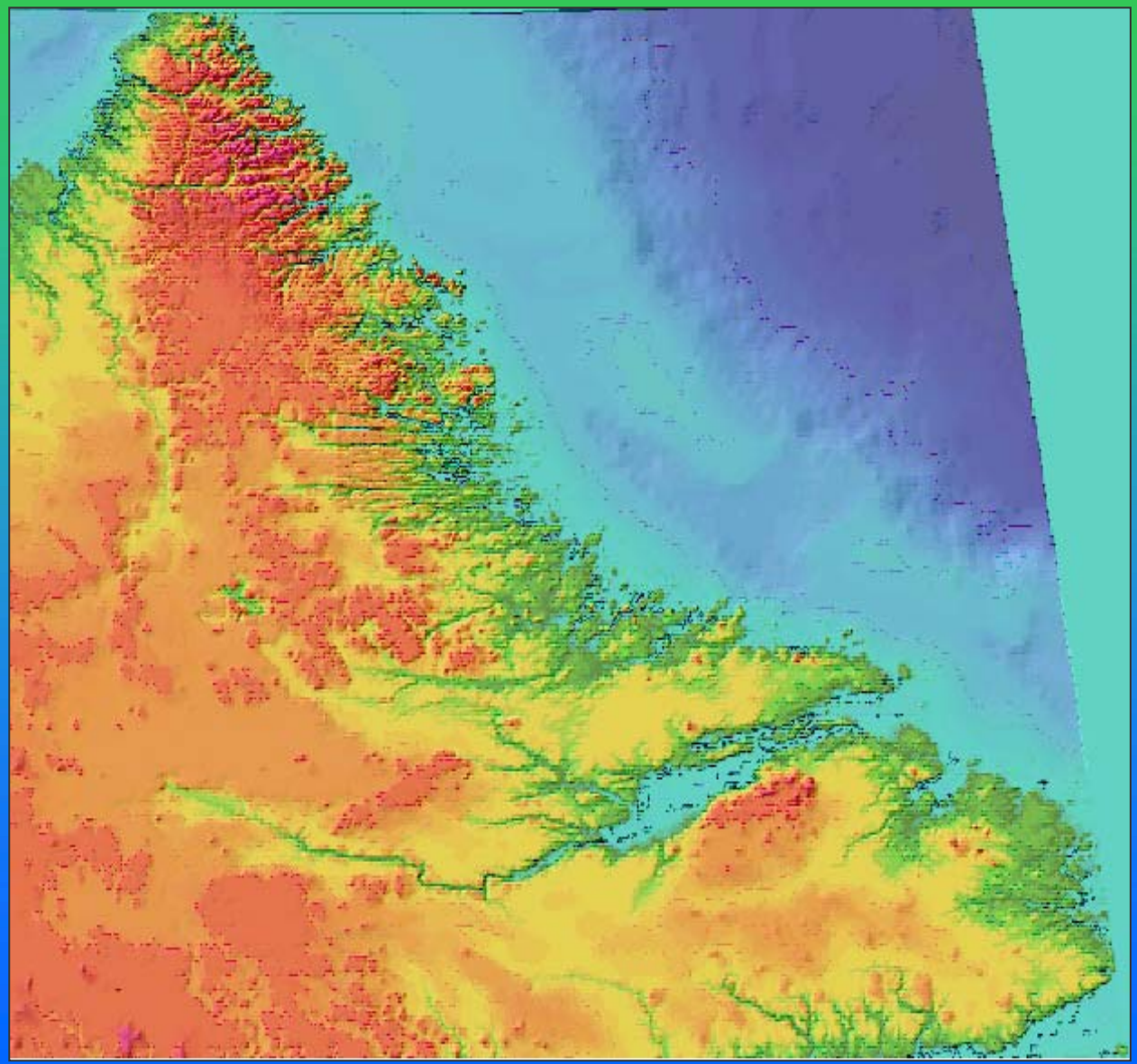
Labrador

Bouguer Gravity Merged With Shaded Relief



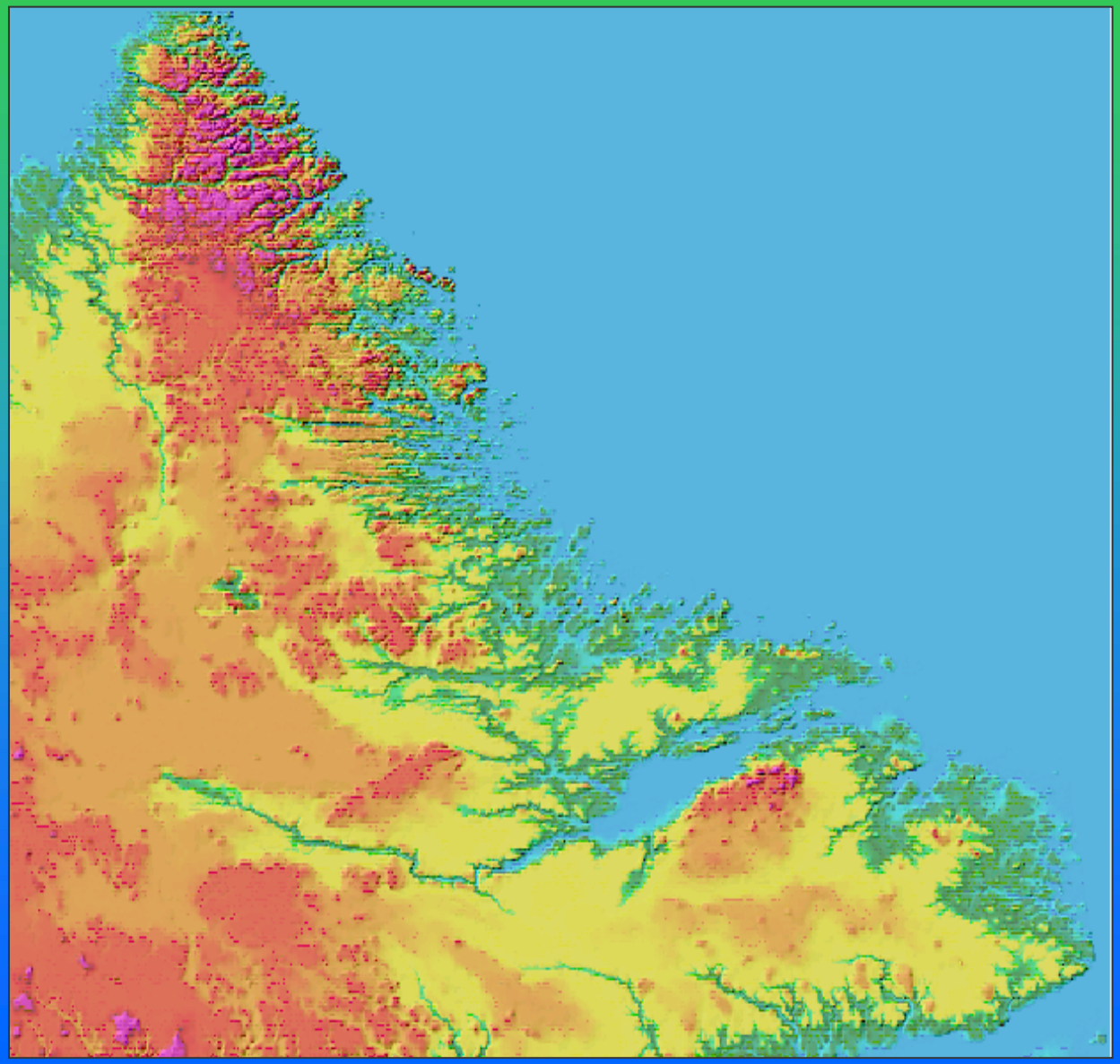
Labrador GTOPO30

Chromadepth With Deep Sea Elevation



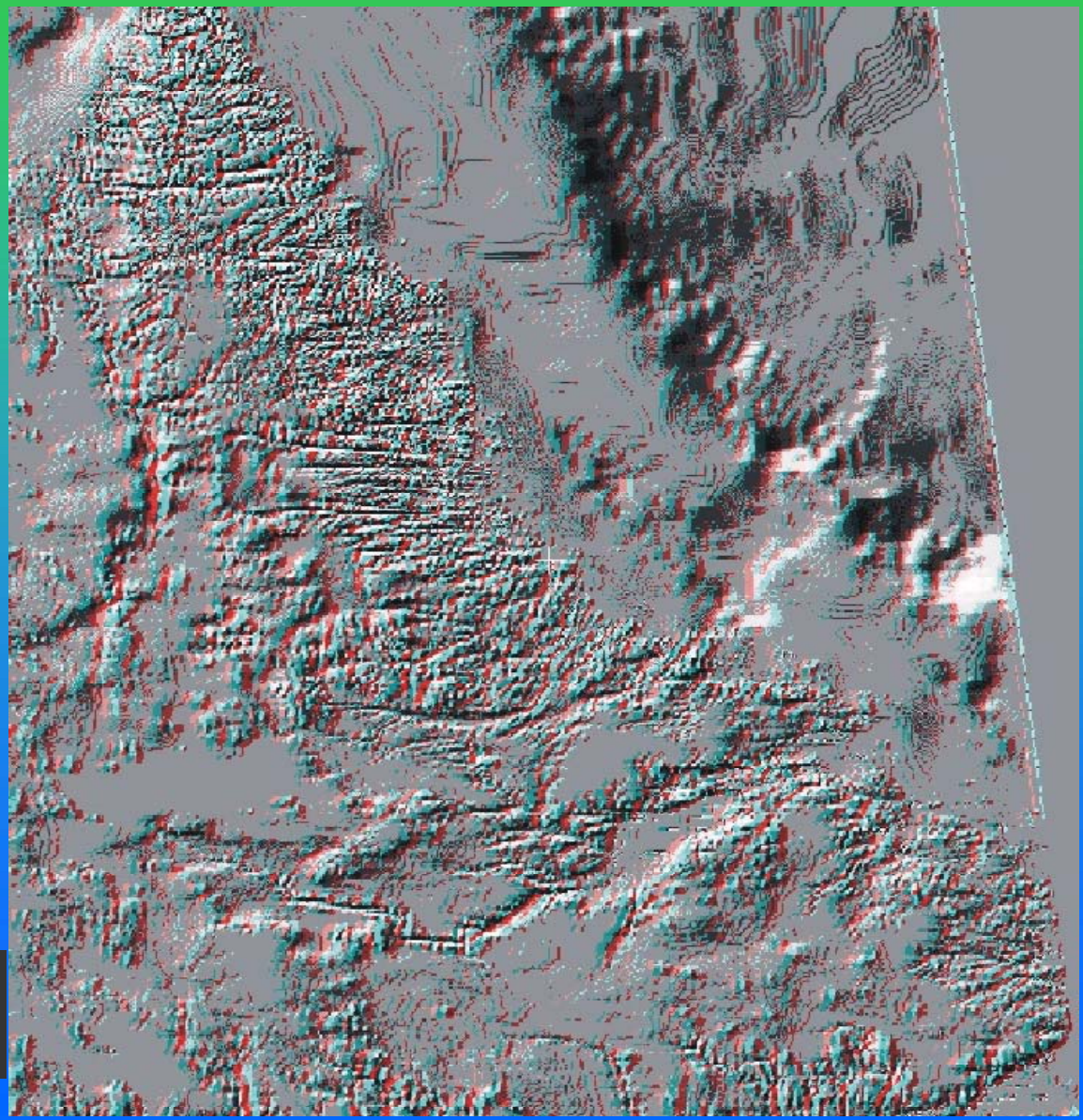
Labrador GTOPO30

Chromadepth Without Deep Sea Elevation



Labrador GTOPO30

Anaglyph Stereo Image



Left Eye : Blue
Right Eye: Red

Acknowledgements

- Tim Webster
- Newfoundland Dept. of Mines and Energy
- Center Of Geographical Sciences
- (Earth Sciences) Dalhousie University