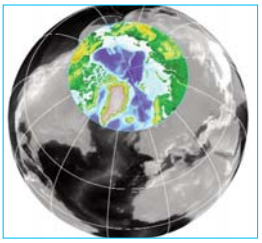
STUDIES



LANDSCAPE ANALYSIS

landscape analysis of greenland

GETECH

Radar measurements of the thickness of the Greenland ice-cap reveal a sub-ice landscape which plays a fundamental role in determining the prospectivity of the surrounding basins.

This innovative new study will reveal a new paradigm for the local sediment source to sink relationships. Can you afford to explore the Greenland margins without the benefit of these new insights?

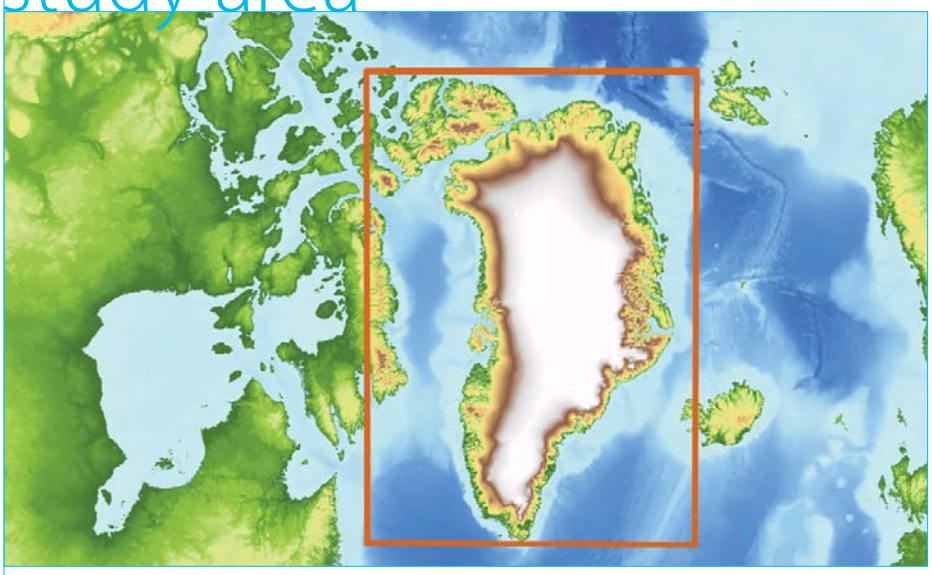
project rationale *and objectives*

If you are considering acreage in eastern Greenland in 2012 or 2013, or currently operating in western Greenland, or exploring in Baffin Bay, then the Greenland ice-cap is literally a barrier to your understanding of how the hinterland evolution has influenced sediment source to sink relationships. GETECH has a solution.

This innovative new study is based on the isostatic correction of the sub-ice topography of Greenland utilising flexural isostasy. Analysis of the resultant drainage networks reveals new insights which will alter ideas on prospectivity of Greenland's margins.

The study also includes analysis of the Paleogene uplift history of Greenland and the effect of the Iceland Plume on palaeodrainage.

study area



Key Issues:

- Which of the ancient river outfalls are the mouths of major drainage systems and which are short-headed rivers?
- Does incorporation of flexural rigidity concepts change the analysis compared to simple Airy isostatic correction?
- How might drainage patterns have changed over time? What is the evidence for changes?
- Is the path of the Iceland hotspots evident in the landscape and has it affected drainage patterns?
- Do drainage patterns provide evidence of recent pre-ice tectonic events and how might these events have affected hydrocarbon prospectivity offshore?
- What is the influence of the Eurekan Orogeny on drainage development?

part of GETECH's global landscape analysis programme

PROGRAMMES

deliverables

This is delivered as:

A3 Report (hardcopy and PDF)

GIS Project

the report

Executive Summary and Introduction

Flexural Isostatic Analysis

Neogene Drainage and Landscape Analysis

- Methods
- For each drainage basin:
  - Basin overview
  - General basin overview
    - geography
    - hydrological features
    - substrate geology and structure
  - Stream morphometry
    - morphometric parameters, stream parameters
    - hypsometry
    - horton plots
  - Geomorphology
    - long profile
    - high pass filter
    - topographic cross-sections
  - Drainage evolution - hypotheses
    - stream pattern analysis and interpretation
  - Conclusion
    - interaction with adjacent basins
    - landscape evolution

Paleogene Landscape Evolution of Greenland

the GIS project

Modern day topography, ice thickness, derived sub-ice topography and cultural data

Separate .mxd files showing topography corrected for Airy and flexural isostactic reponse

Each containing:

- Newly defined drainage basins
- Newly generated drainage networks
- High pass filter (discriminating short wavelength geomorphological features for a specified spatial wavelength)
- Low pass filter (discriminating long wavelength landforms greater than a specified spatial wavelength)

Comparison of differences between modelled isostatic responses

Paleogene drainage evolution

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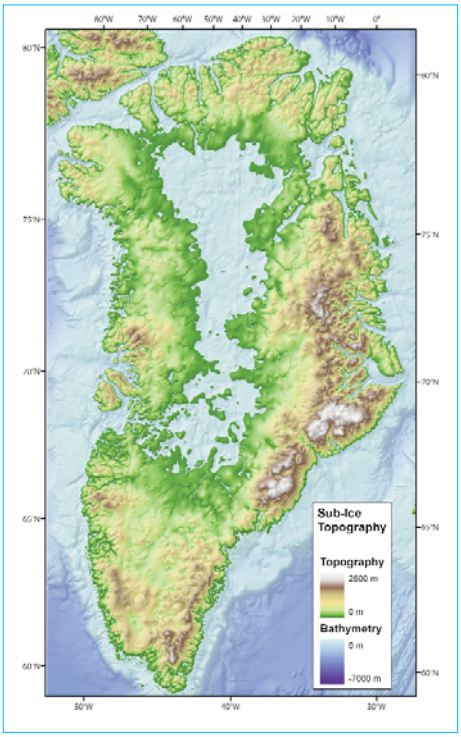

STUDIES

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other products

geodynamics and petroleum geology of the greenland, norwegian and barents seas

This new study is a sub set of our geodynamics and petroleum geology of the circum-Arctic study.

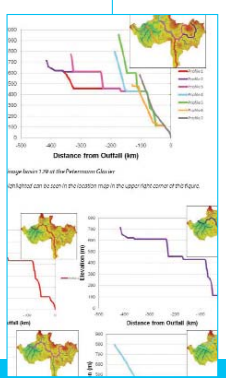
geodynamics and petroleum geology of the circum-Arctic

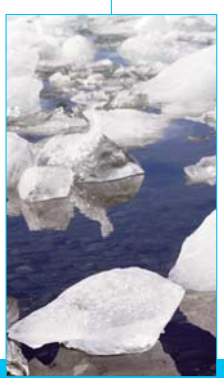
This major study examines the influence of tectonic activity on the landscape evolution of the circum-Arctic region, the subsequent expression on tectonostratigraphy, and the effect on hydrocarbon prospectivity. The study covers all basins north of the 65°N parallel.

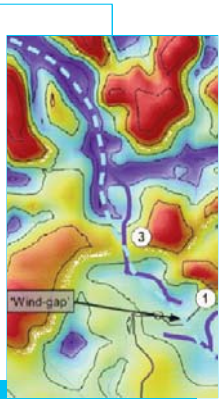
SERVICES — Multi-disciplinary teams of technical experts

DATA — Including the world's largest gravity and magnetic library

STUDIES — A global portfolio of focussed exploration reports







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