



Regional PhaseFinder Packages



Identifying and extending oil and gas plays is the name of the game.

Nowhere is this more pivotal than along the North Atlantic Margin.

GeoS4's exclusive **PhaseFinder Technology** accurately predicts charge timing, fluid volume and composition rapidly and inexpensively, based on calibrations from major petroleum provinces worldwide using the PhaseKinetics approach.

In a special initiative, GeoS4 is releasing *Regional PhaseFinder packages* for Norway and Greenland:

- Barents Sea** - Palaeozoic and Mesozoic sources
- Mid-Norway** – Permian, Jurassic and Cretaceous sources
- Viking Graben** - Upper Jurassic source facies
- Central Graben** - Upper Jurassic source facies
- Greenland** - Palaeozoic and Mesozoic sources

Each Regional PhaseFinder package comprises:

- Suite of 8 key source rock samples
- PhaseKinetics parameters for predicting petroleum composition
- GOR, Formation Volume Factor, Saturation Pressure, API Gravity predictions
- PhaseKineticsPlus, including stable carbon isotopes on C1-C4 components, available upon request
- Approximate 40% saving on regular prices for PhaseKinetics

Regional PhaseFinder Packages: Barents Sea I

The Barents Sea is well known for its unusual basin evolution which has resulted in the discovery of abundant gas and little oil. New play models combined with a better understanding of basin evolution has led to a renewed interest in the area.



critical elements

of basin evolution include the timing of Cenozoic inversion, and the occurrence, distribution and characteristics of individual source rock intervals. Recent results indicate that a very recent timing of inversion is most likely, essentially linking the main phase of erosion to Pleistocene glaciation (Cavanagh et al., 2006).

petroleum plays

The Norwegian Petroleum Directorate has defined a total of 7 plays covering Carboniferous to Tertiary intervals. Key source rocks are the Upper Devonian Domanik Fm. Equivalents, Carboniferous shales and coals, Triassic Botneheia equivalents, Upper Triassic black shales, Lower Jurassic shales, Upper Jurassic Hekkingen Fm. as well as Cretaceous shales of Aptian-Albian and Barremian age.

Image ©2007 Nasa

di Primio, R. and B. Horsfield, 2006, From petroleum type organofacies to hydrocarbon phase prediction: AAPG Bulletin, v. 90.

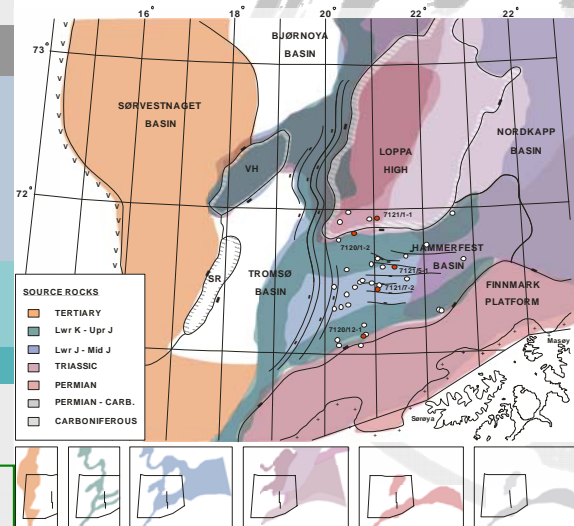
GeoS4's Barents Sea **PhaseFinder** package allows the combination of source specific compositional predictions of petroleum, following the *PhaseKinetic approach* (di Primio and Horsfield, 2006), with petroleum system modelling.

The correct reproduction of petroleum phase behaviour represents a major step forward in modelling fluid generation, migration and accumulation in this complex setting.

All eight source rock samples are immature and represent a regionally significant petroleum source rock type:

Formation	Age	Depth (m)	OM Type	TOC (%)	
Fruholmen	Rhaetian/Norian	1319	Type III	55	Barents Sea
Nordmela	Pliensbachian/Sinemurian	2253	Type II/III	56	
Hekkingen	Kimmeridgian/Oxfordian	1367	Type II	15	
Kolmule	Albian/Aptian	1771	Type II	10	
Kolje	Barremian	980	Type II	6	
Obrutschew Bjerg	Famenian	outcrop	Type I/II	11	Greenland
Trail ø	Westphalian	outcrop	Type II/III	3	Svalbard
Botneheia Fm	Anisian-Ladinian	outcrop	Type II	5	

Simplified Source rock distribution of the southwestern Barents Sea



The GeoS4 Barents Sea package I provides:

- Representatives of eight key immature source rocks;
- Kinetic parameters for timing predictions using slow heating rates;
- Petroleum Type Organofacies for predicting bulk petroleum types;
- 2- and 4-component GOR prediction in time and space;
- 14-component physical property/PVT prediction in time and space;
- Kinetic data provided as tables as well as digital files for direct import into PetroMod (IES)

Ask about PhaseKinetics Plus for carbon isotopic compositions of gases