

# Regional Compositional Kinetics Data Package SW Africa

## CRETACEOUS SHALES WITH GREAT SOURCE ROCK POTENTIAL

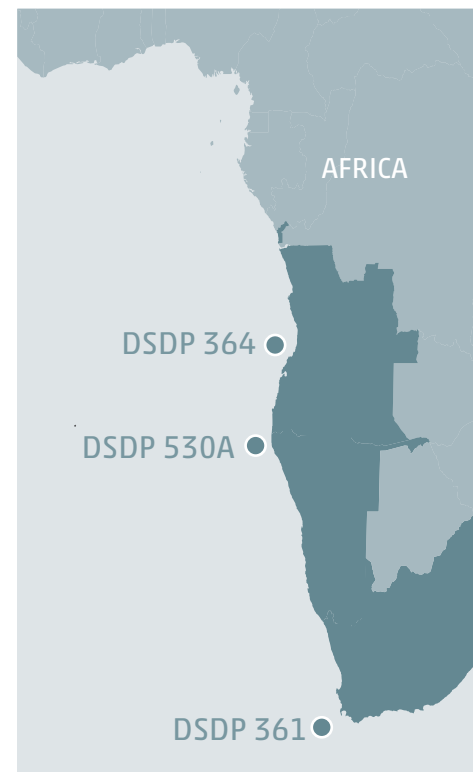
The main sources for hydrocarbon accumulations offshore SW Africa are lower Cretaceous lacustrine and lower to upper Cretaceous marine black shales, with often good to excellent source rock potential.

Due to organic matter heterogeneity, Cretaceous source rocks off SW Africa may show large variations in hydrocarbon generation rates which cannot be predicted accurately by basic analytical schemes.

Use GEOS4's compositional kinetic data set for a refinement of prospectivity studies on the SW African shelf. The data serve as input for petroleum system modeling studies to elucidate changes in the physical properties of petroleum fluids under varying pressure and temperature conditions.

### The GEOS4 SW Africa kinetics data package provides

- representatives of eight key immature source rocks,
- kinetic parameters for timing predictions using slow heating rates,
- 2- and 4-component gas/oil ratio 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® (SLB).



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DSDP 364

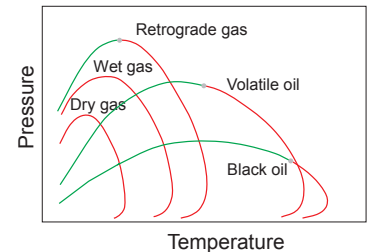
DSDP 530A

## UNIQUE SOURCE ROCK SAMPLE SUITE

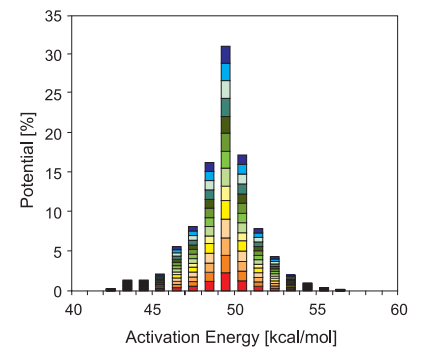
The samples were taken from Aptian to Albian and Turonian to Coniacian aged, thermally immature, organic rich intervals of cores recovered from DSDP sites 361 and 364 of LEG 40, and DSDP site 530A of LEG 75.

DSDP 361

GEOS4's compositional data set supplements, and draws from, the first compositional kinetic description of Cretaceous organic rich black shales from offshore SW Africa\*. The authors demonstrated the excellent source rock potential, especially of the Aptian-aged source rock, that has been recognized in a number of the South Atlantic offshore basins.



Location	Age	Depth (m)	TOC (%)	HI
DSDP site 530A, Angola Basin	Lower Turonian	1014.4	13.4	721
DSDP site 361, Cape Basin	Lower Albian	1007.3	7.8	510
DSDP site 361, Cape Basin	Aptian	1070.5	8.1	554
DSDP site 361, Cape Basin	Aptian	1148.8	5.2	97
DSDP site 364, Kwanza Basin	Low. Coniac.-Up. Turon.	648.3	12.0	769
DSDP site 364, Kwanza Basin	Albian/Aptian	1045.6	31.1	377



GEOS4's SW Africa compositional kinetics data package allows the combination of source specific compositional predictions of petroleum 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.

\*Hartwig, A. et al., 2012, Source rock characteristics and compositional kinetic models of Cretaceous organic rich black shales offshore southwestern Africa: Org. Geochem., Vol. 51.

