



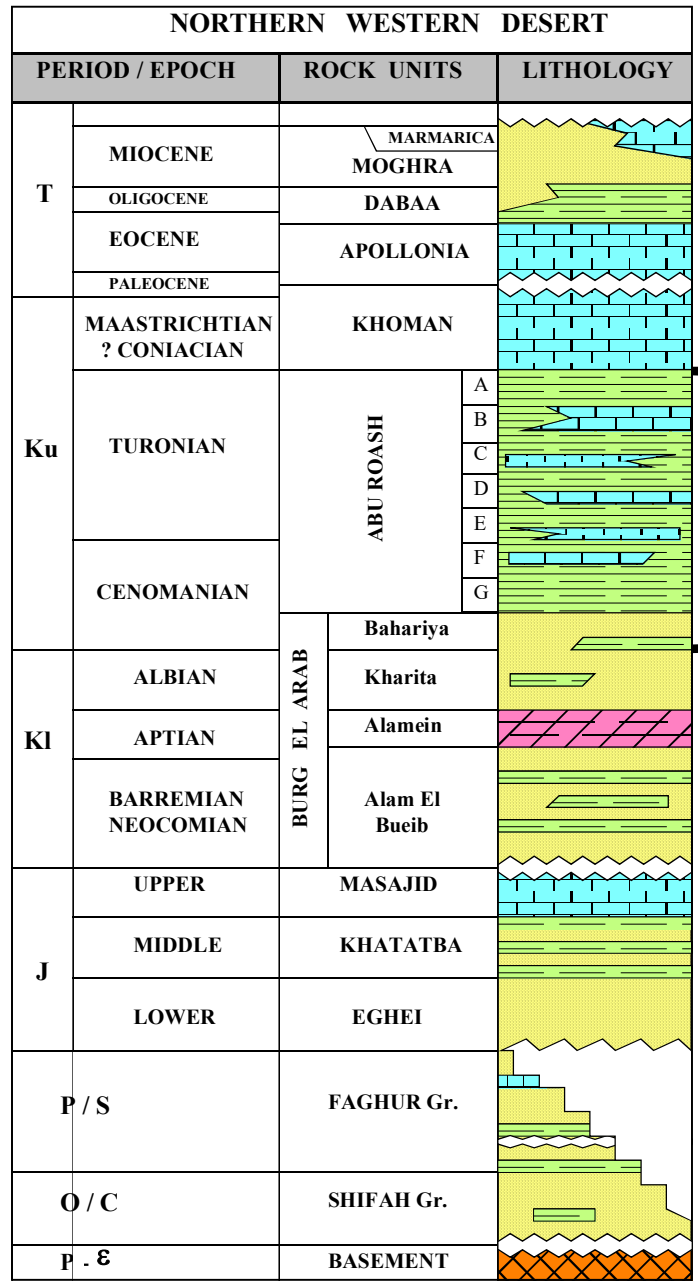
23/D/5, Shoukry Abd El Halim St.
Lasilky, New Maadi, Cairo, Egypt
Tel.: 202-25161075 Fax: 202-25160930
E-mail: info@stratochemlabs.com.eg

A Geochemical Evaluation Study of the CENOMANIAN-TURONIAN SEDIMENTS

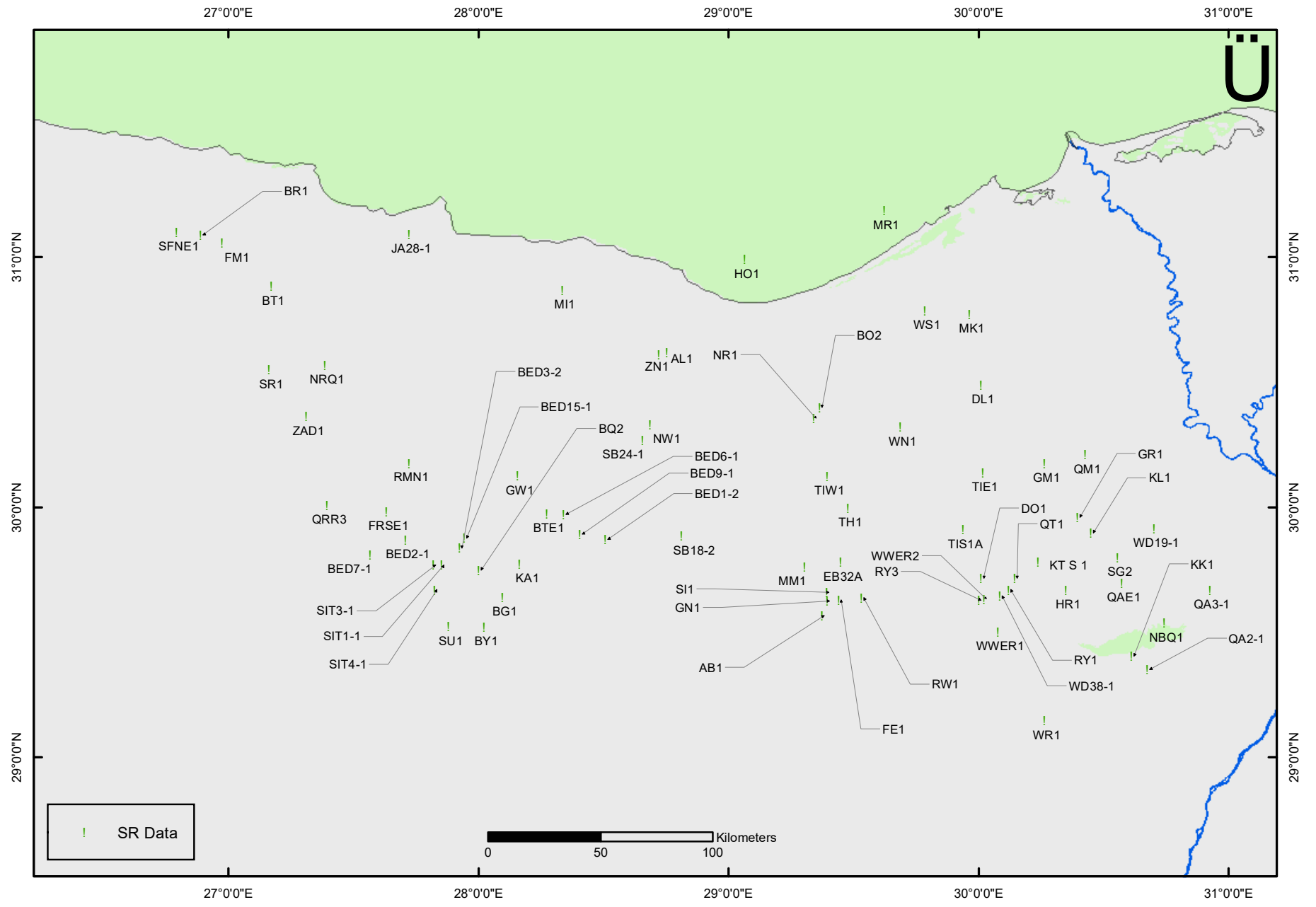
North Western Desert, Egypt

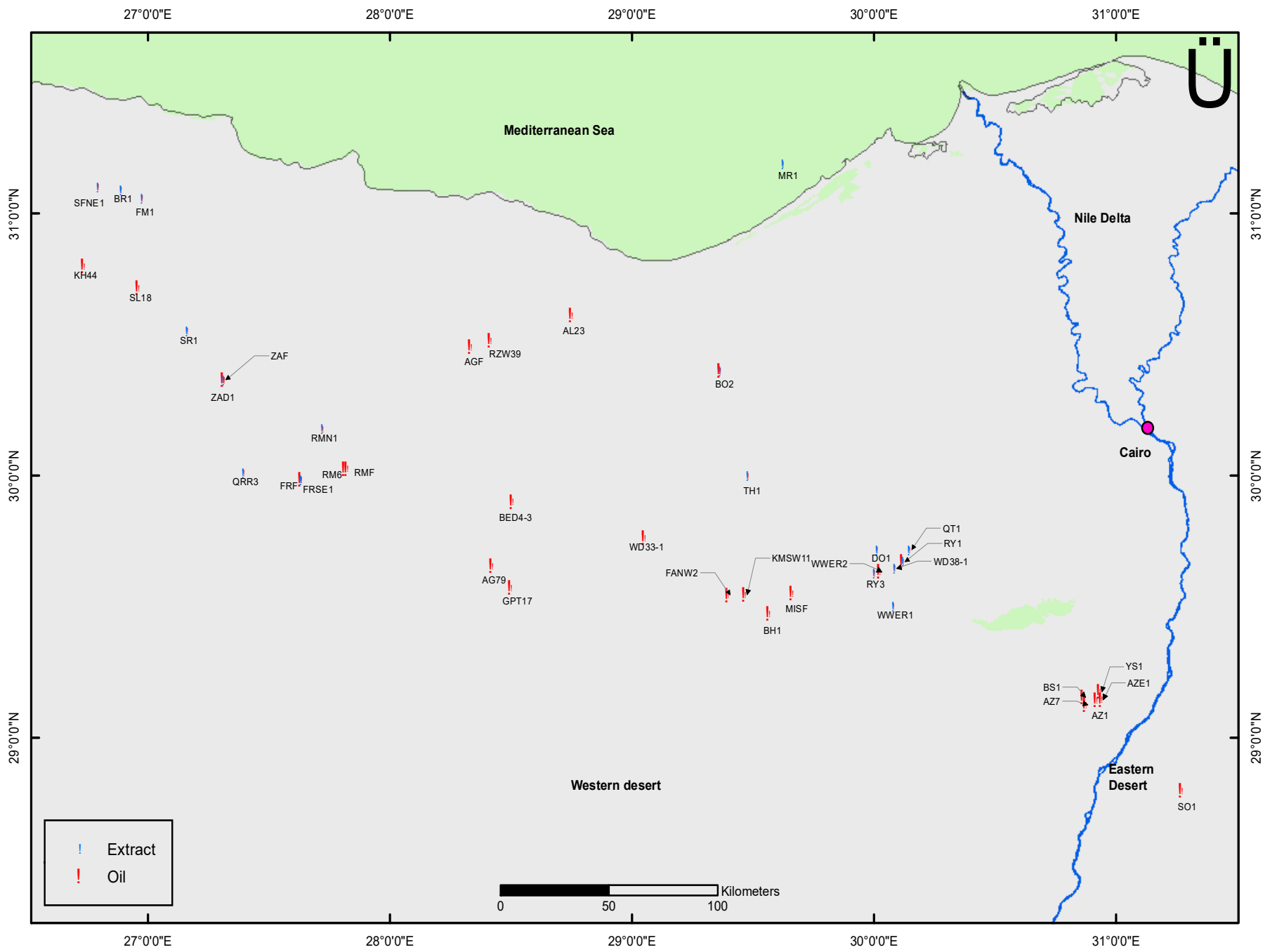
**A Study Carried out by
SCS
STRATOCHEM SERVICES**

25 July 2013



Study Section





- ! Extract
- ! Oil

0 50 100 Kilometers

Ü

OBJECTIVES

Oil-Oil Correlation

Determine if there are multiple source rocks supplying hydrocarbons to the Upper Cretaceous reservoirs in the North Western Desert.

Source Rock Evaluation and Maturity Assessment

- Evaluate the Upper Cretaceous source rocks in terms of Quantity and Quality.
- Determine the maturity of the Upper Cretaceous source rocks (VR, Tmax, and Mean Ea).
- Interpret the organofacies implications of the A/R “F” samples using kinetics and other geochemical data.
- Investigate the effect of maturity on the A/R “F” kinetics within different wells/basins.
- Identify the sequence boundaries (LST, HST and MFS) within the A/R “F” Member using basic source-rock data and kinetics.
- Construct a conceptual model that unifies the basic-source-rock, kinetics, organofacies, and sequence-stratigraphic results.

Oil-Source Correlation

Evaluate the possible candidates for the source rocks for the Upper Cretaceous reservoir oils, with emphasis (1) on the relationship between those oils and the proposed Upper Cretaceous source rocks, and (2) speculation about other possible source rocks for those oils.

This study is the study phase of several planned studies aimed to characterize the Cenomanian-turonian Sediments along the Mediterranean coast line from Tunisia to Lebanon

INVENTORY AND DELIVERABLES

A geochemical evaluation study was carried out on the Cenomanian-Turonian Sediments in the the unstable shelf of the North Western Desert, Egypt. In this study, a geochemical investigation was carried out for:

- 1) Rock samples from 50 wells (new analysis 23 Wells, integrated analysis 27 Wells)**
- 2) 28 oil samples from 26 different wells (new analysis 9 oils, integrated analysis 19 oils)**

INVENTORY AND DELIVERABLES

The raw data include:

1. TOC results for 3200 Sample
2. Rock-Eval Pyrolysis for 1540 Sample
3. Ro Vitrinite measurements for 160 Sample
4. Kinetics analysis for 197 Sample
5. Extract analysis for 69 samples
6. Oil analysis for 28 samples

TOTAL ANALYTICAL COST ~ \$320,000.00
INTERPRETATION ~\$100,000.00

THE COST OF THE STUDY

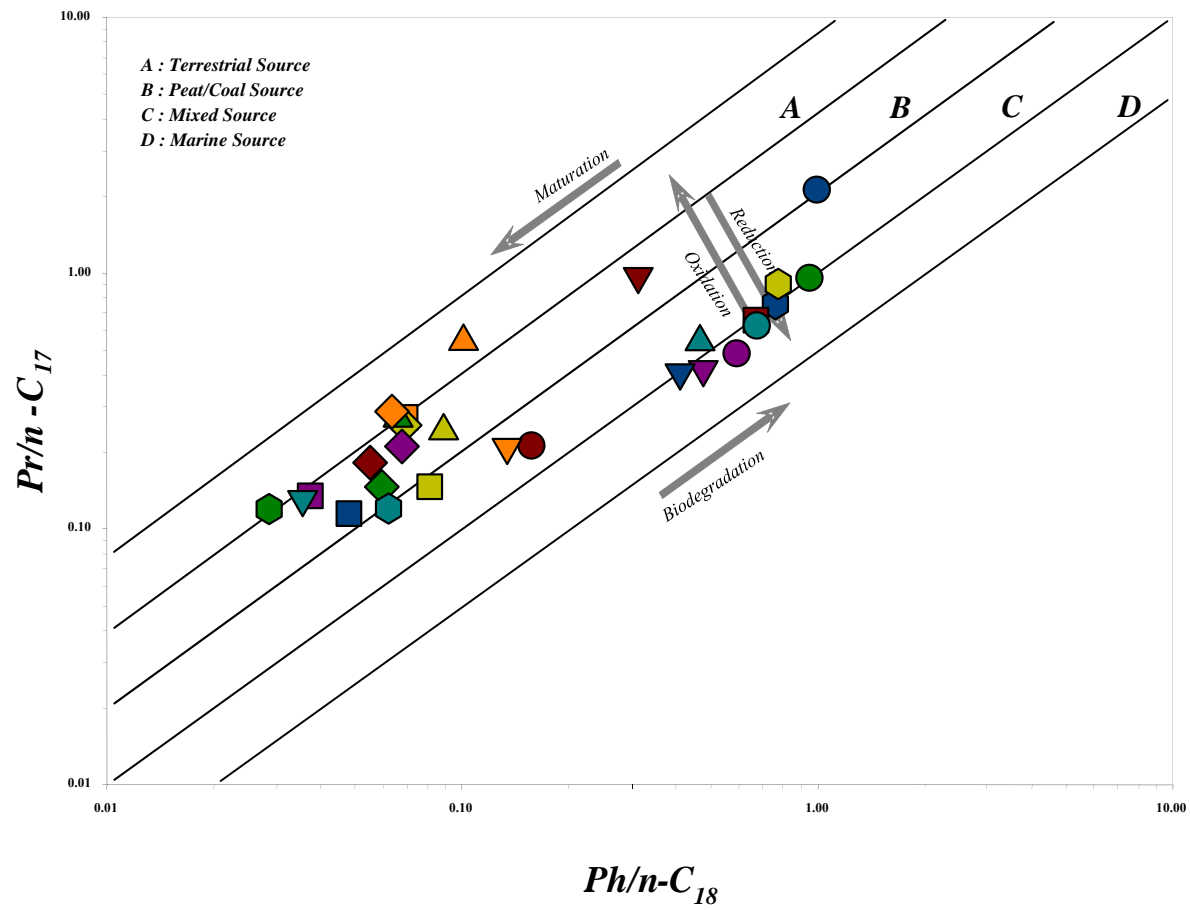
\$60,000.00

INVENTORY AND DELIVERABLES

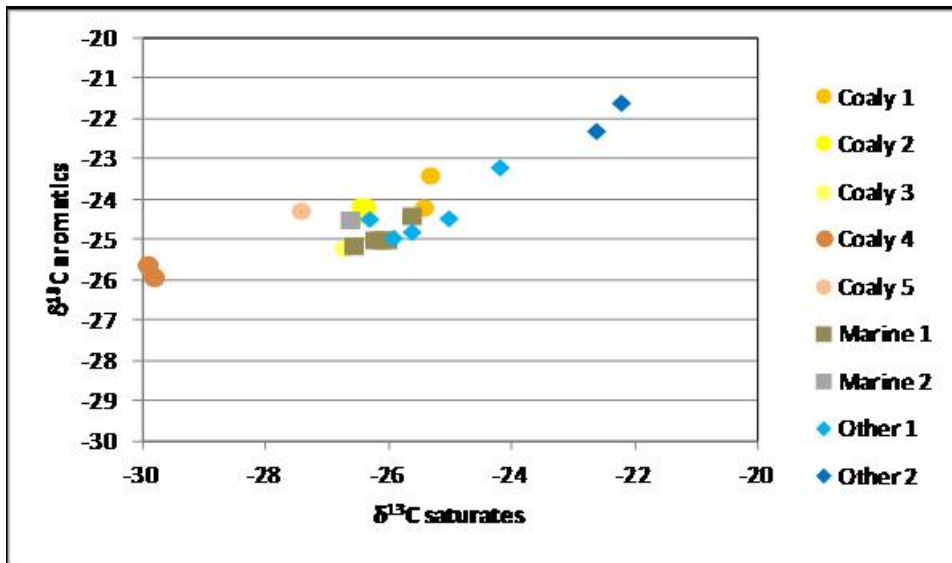
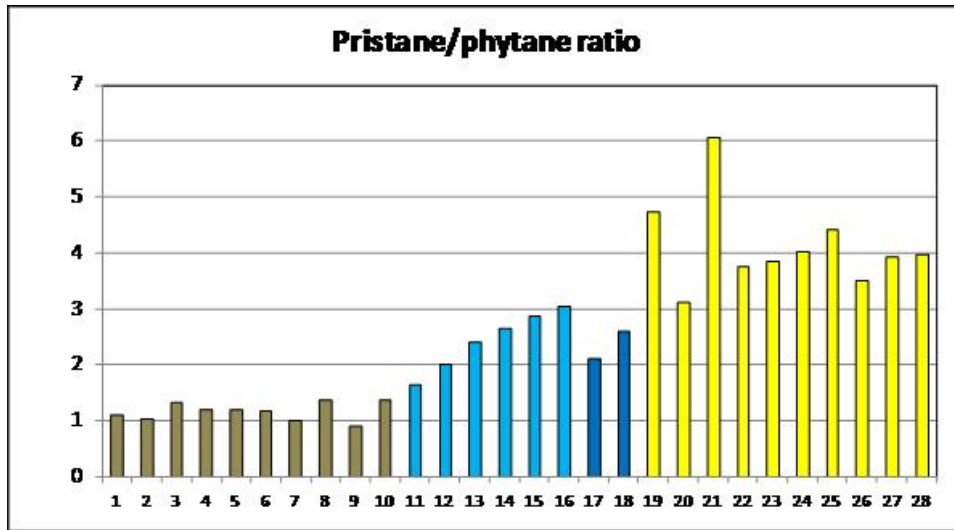
Deliverables is 1 CD includes:

1. Interpretation as Word Document
2. Tables of various ratios
3. Raw data above (Excel, Power Point)
4. The whole report (pdf; Vol 1 and Vol 2 with total 1306 pages) including all above

RESULTS AND INTERPRETATION
OIL-OIL CORRELATION



Plot of Pr/n-C₁₇ vs. Ph/n-C₁₈ for Oils



Oil families identified

1) Coaly

- 1) *Coaly 1*
- 2) *Coaly 2*
- 3) *Coaly 3*
- 4) *Coaly 4*
- 5) *Coaly 5*

2) Marine

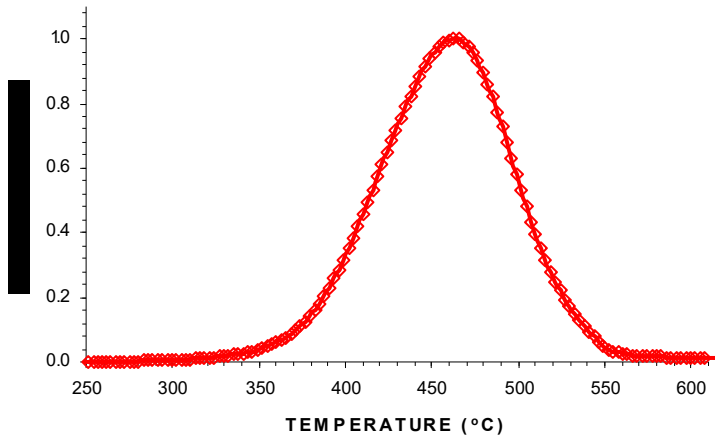
- 1) *Marine 1*
- 2) *Marine 2*

3) Other 1

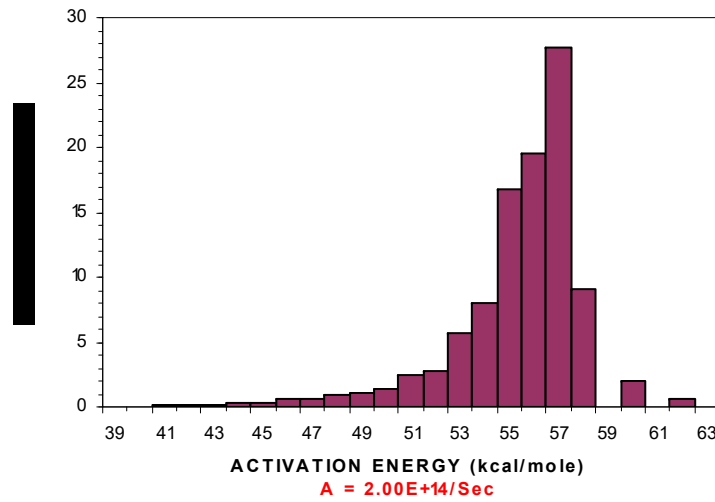
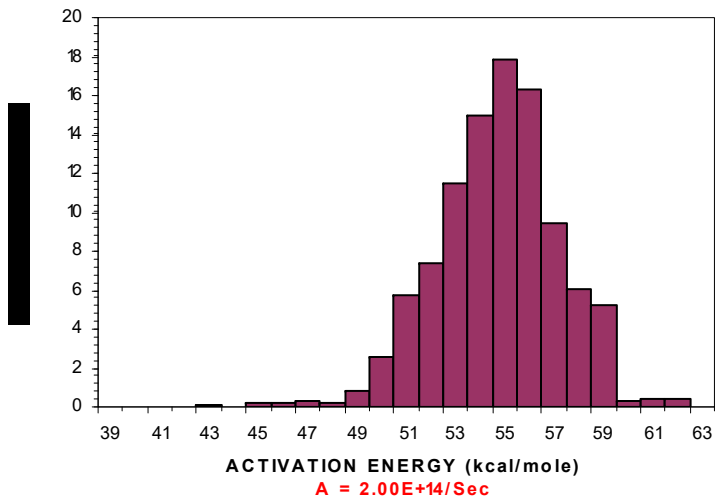
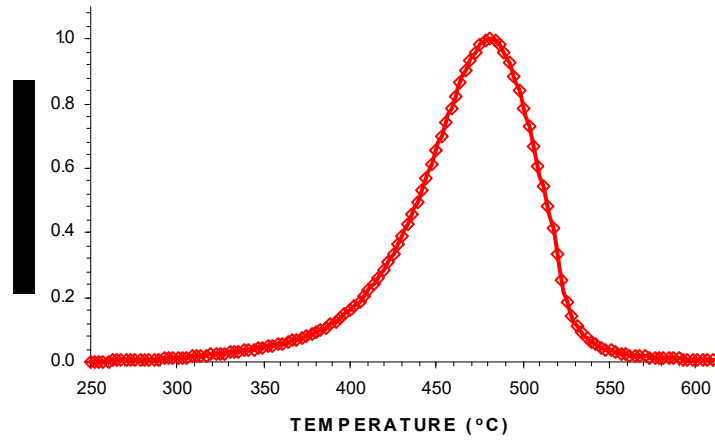
4) Other 2

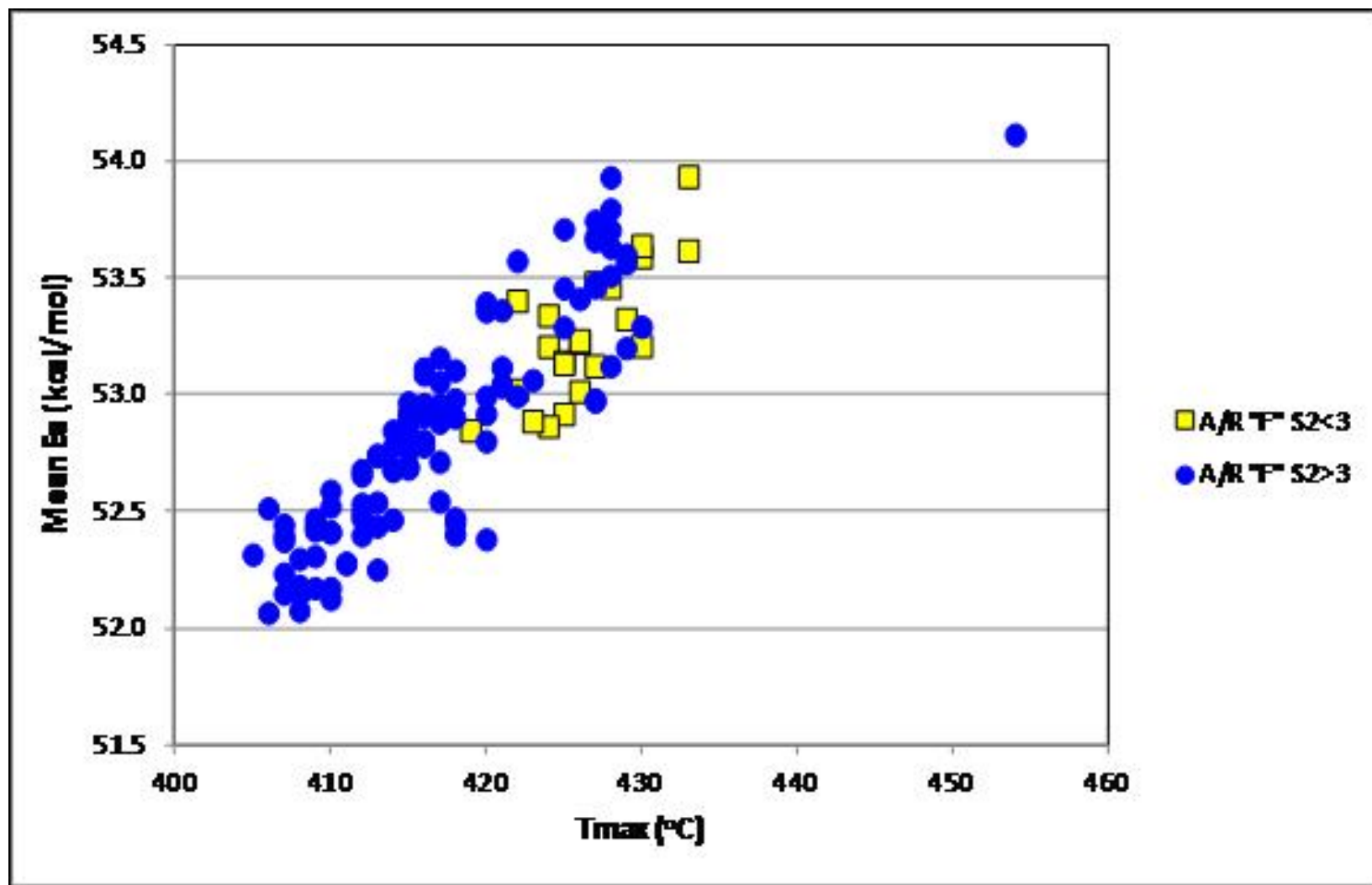
RESULTS AND INTERPRETATION
SOURCE ROCK EVALUATION

AR F

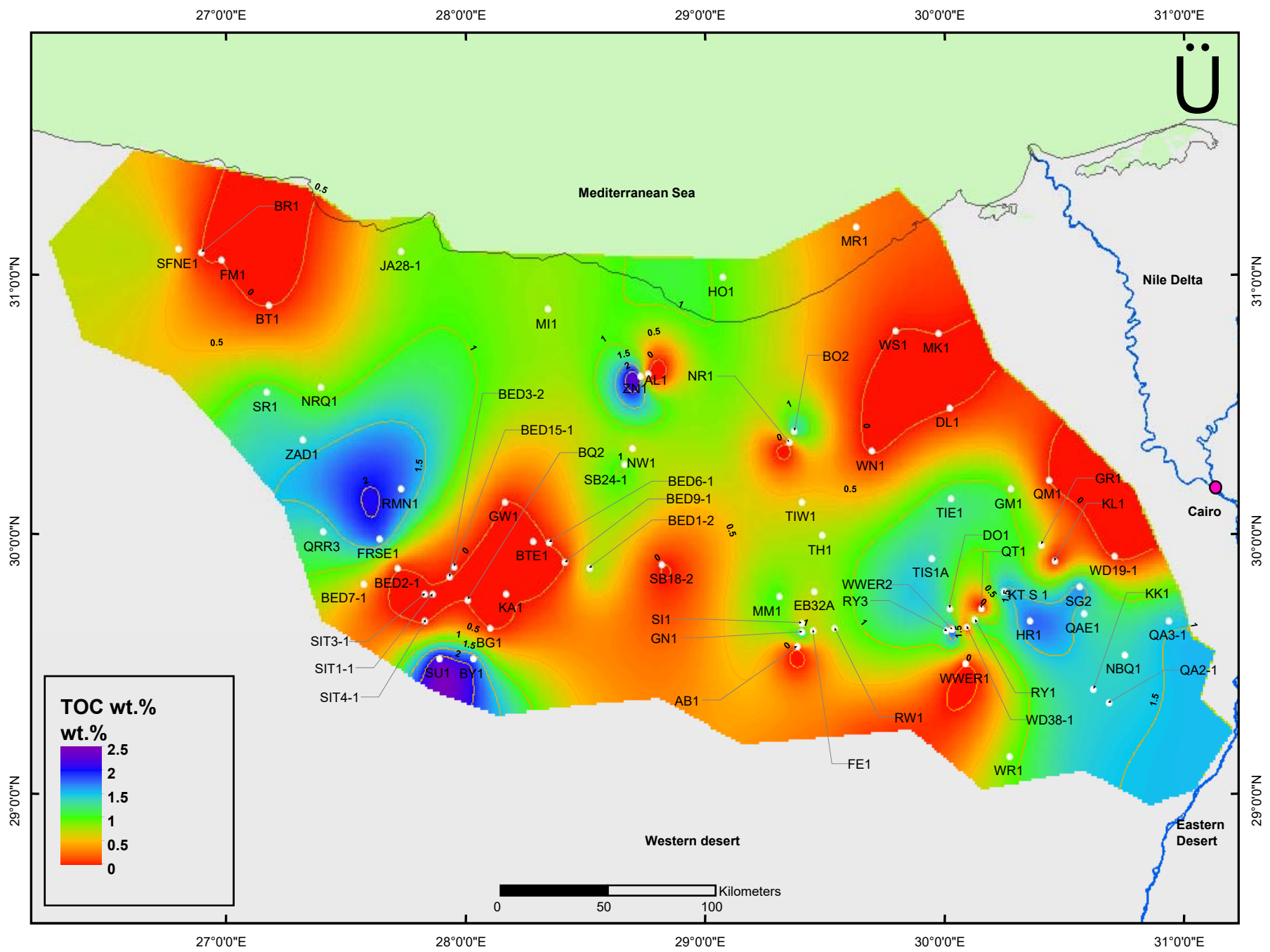


AR G

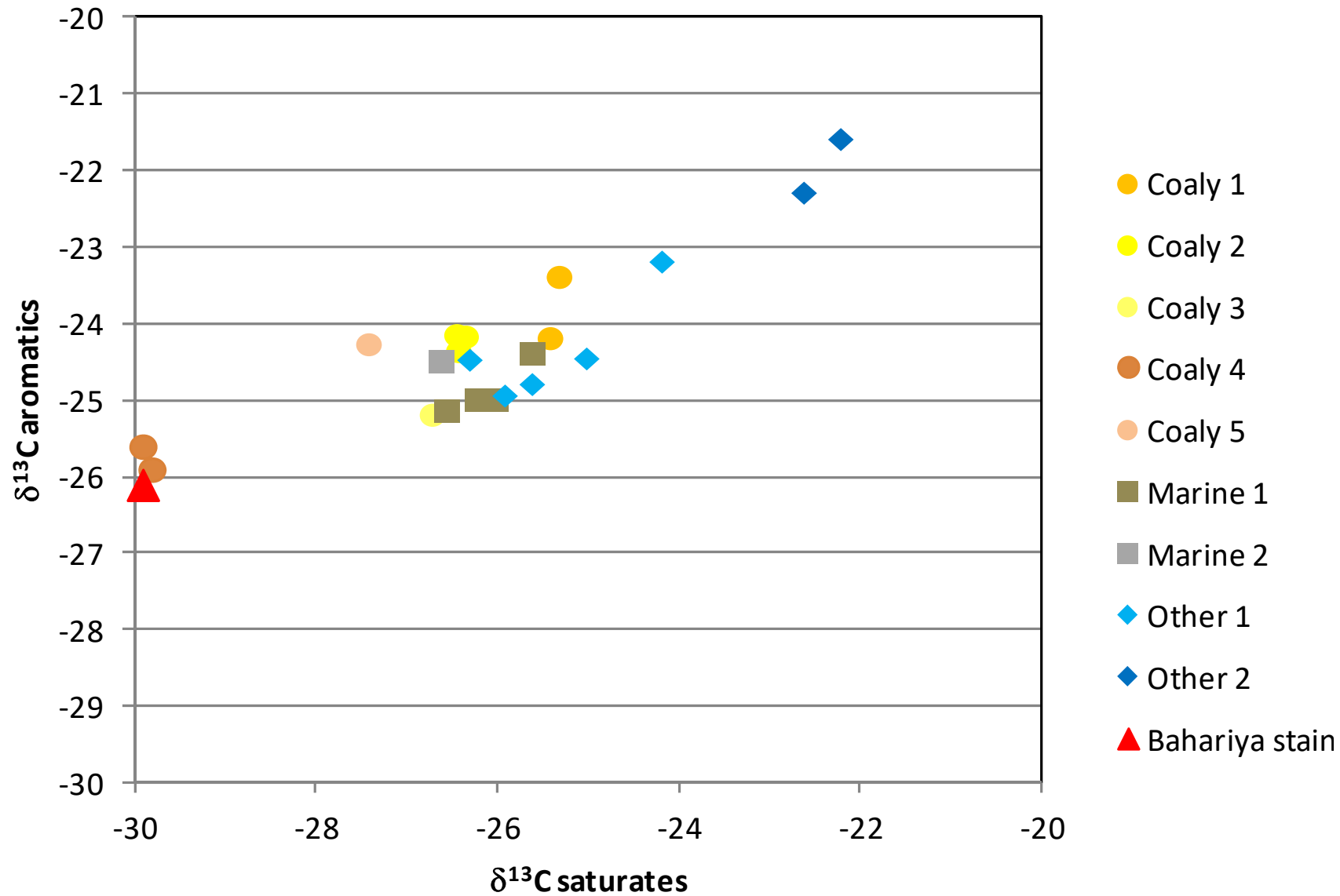


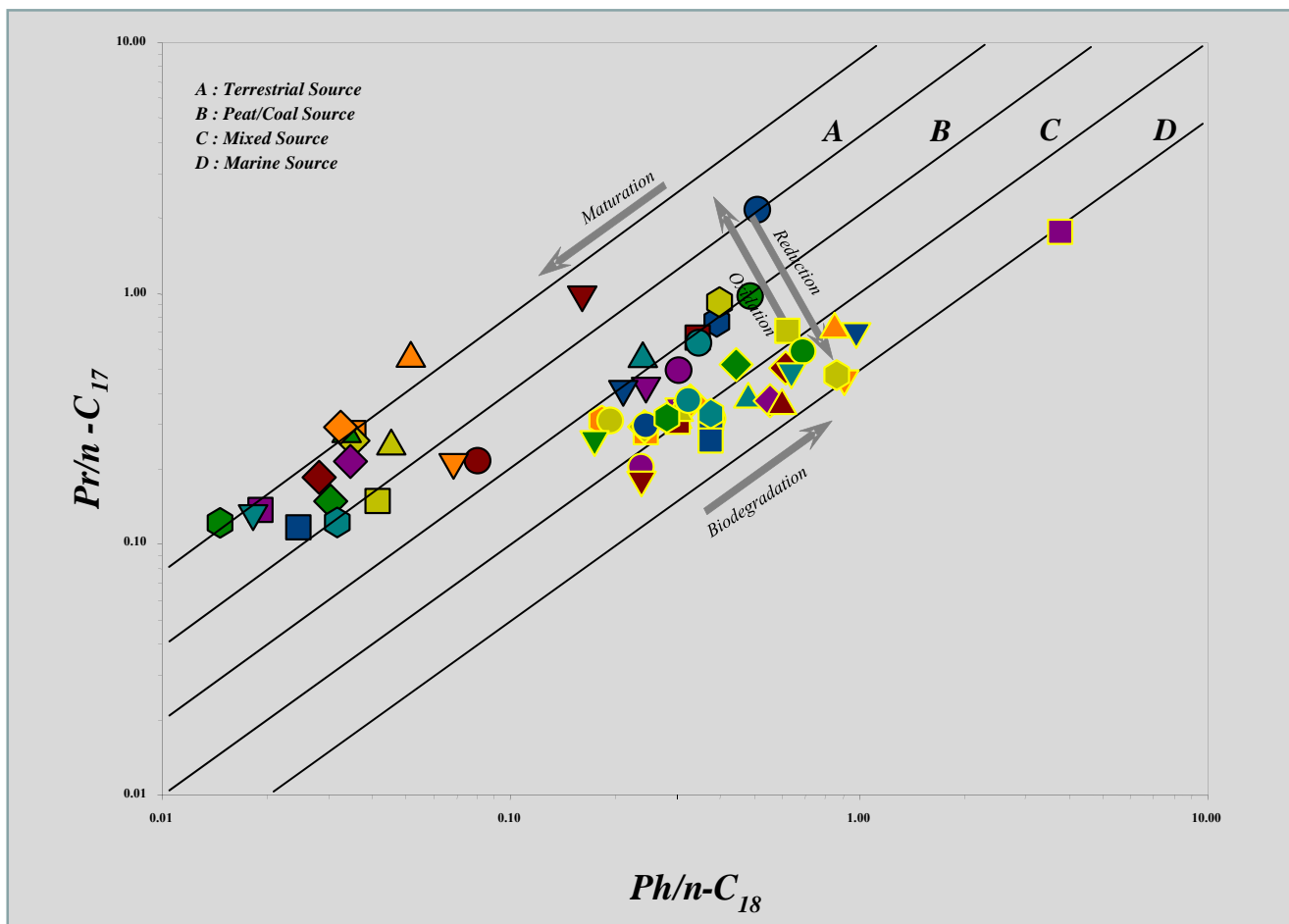


Mean Ea plotted versus Tmax for all A/R “F” samples. Yellow symbols are those with the lowest pyrolysis yields (S2 < 3 mg HC/g rock.



RESULTS AND INTERPRETATION
OIL-SOURCE CORRELATION





U. Cretaceous Oil & AR "F" Extract

Plot of $Pr/n-C_{17}$ vs. $Ph/n-C_{18}$ for Oils

THANK YOU