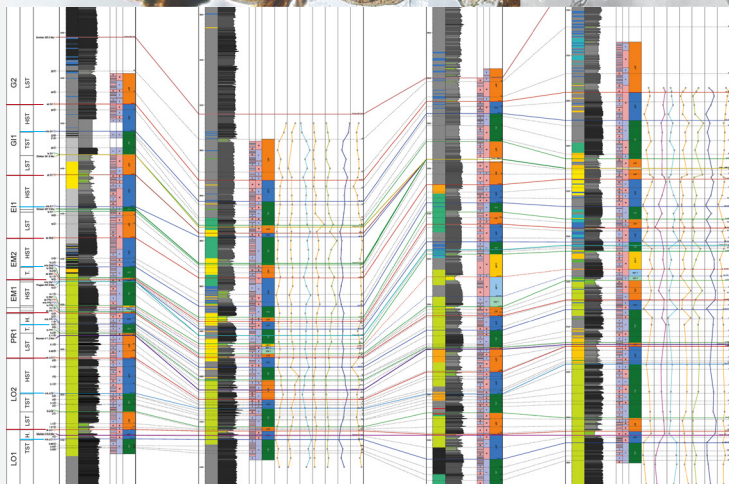
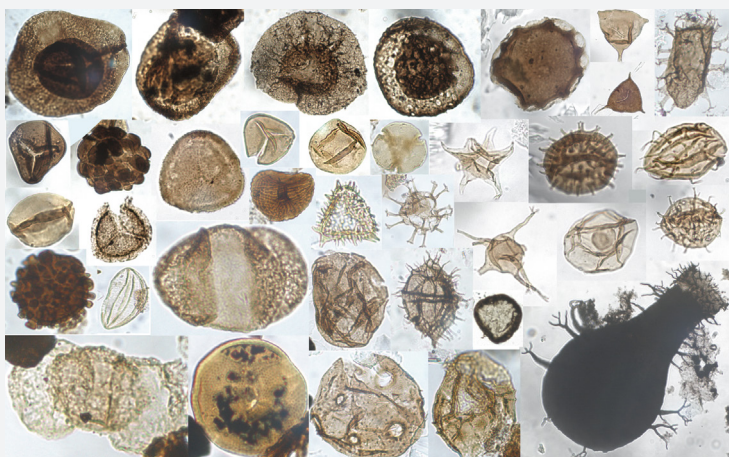


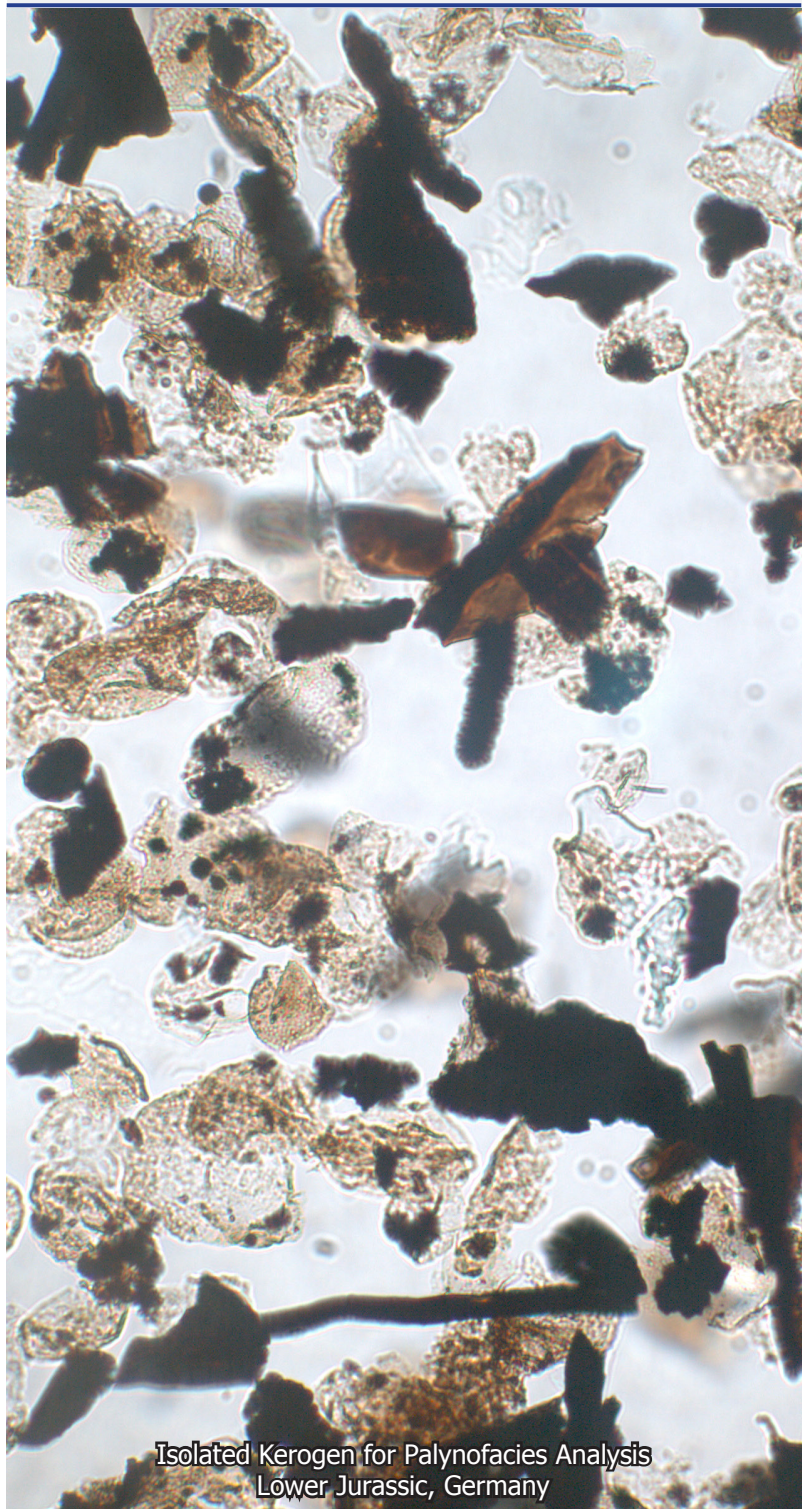
GeoResources

Palynostratigraphy & Integrated Sequence Stratigraphy



Integrated high-resolution correlation
from reservoir to basin scale

Where Science Meets Industry



Isolated Kerogen for Palynofacies Analysis
Lower Jurassic, Germany

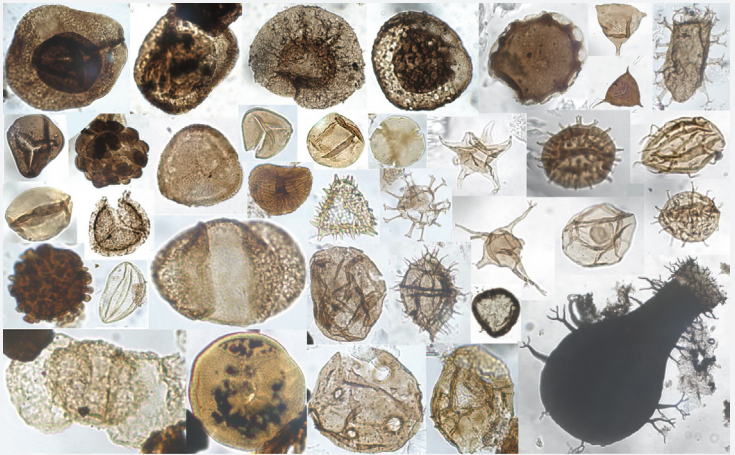
Benefits for HC Exploration

- highly accurate tool for stratigraphic correlation of surface and sub-surface sections - cores and cuttings
- high-resolution stratigraphic schemes from Palaeozoic to Cenozoic - global and regional scale
- access to a wide range of depositional settings - from deep-marine to near-shore & terrestrial systems
- provides data on basin development additional to sedimentological and geochemical data sets
- provides marker horizons based on specific palynofacies proxies as additional stratigraphic tools
- integration of palynofacies into sequence stratigraphic analysis - particularly for sequence boundaries and maximum flooding surfaces
- high-resolution correlation often beyond biostratigraphic resolutions - from basin to reservoir scale
- improves strongly the reliability of sequence stratigraphic analysis - particularly for sequences with rare internal discontinuities

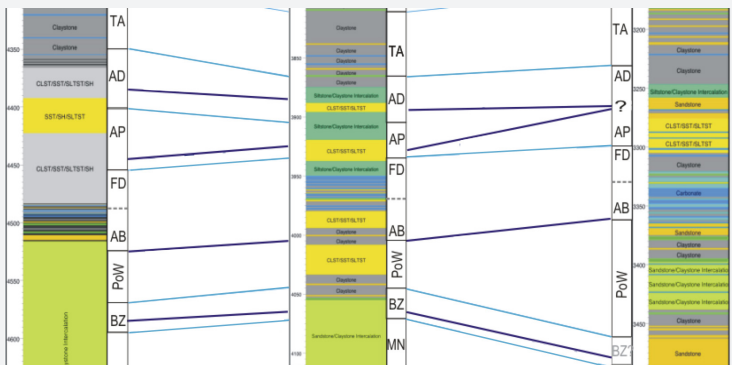
Add Ons - for integrated hydrocarbon system analysis

- Optical Kerogen Analysis - Integrated analysis of kerogen composition and preservation for improved evaluation of hydrocarbon potential
- TOC/CNS analysis - quantification of total organic carbon and information on depositional environment
- Core Logging & Thin Section Analysis - texture & composition of potential source & reservoir rocks
- Spatial data integration & modelling - mapping and distribution of hydrocarbon system relevant parameters in 1D to 3D models

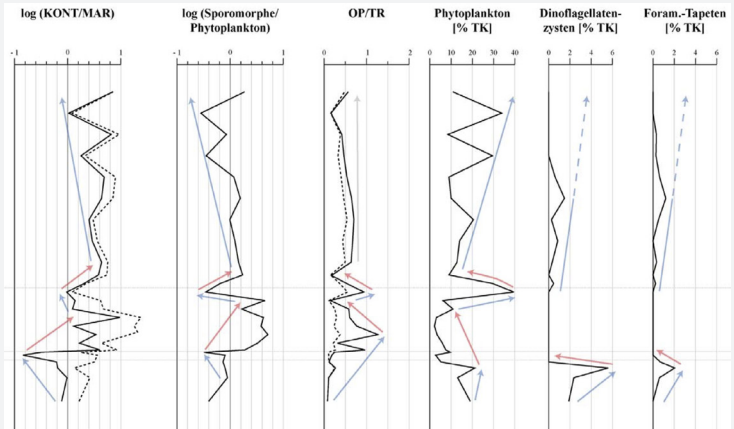
Palynostratigraphic Correlation



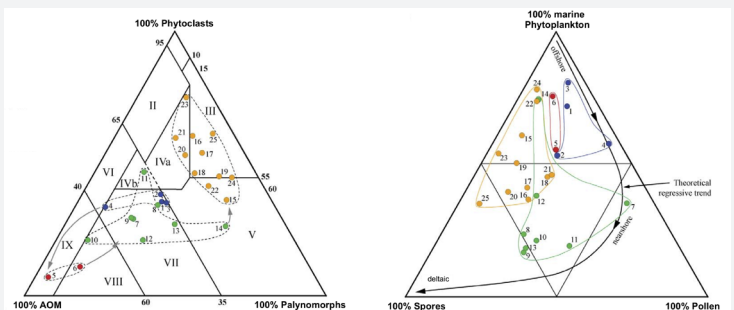
- palynostratigraphy is a powerful, highly accurate tool for stratigraphic correlation of surface and sub-surface samples - cores and cuttings
- provides high-resolution stratigraphic schemes from Palaeozoic to Cenozoic - global and regional
- palynomorphs give access to a wide range of depositional settings - from deep marine to near-shore and terrestrial environments
- palynostratigraphy has become a standard tool for stratigraphic correlation in exploration studies as in research projects
- focus on palynostratigraphic studies in the Palaeozoic worldwide - northern & southern hemisphere



Palynofacies Analysis

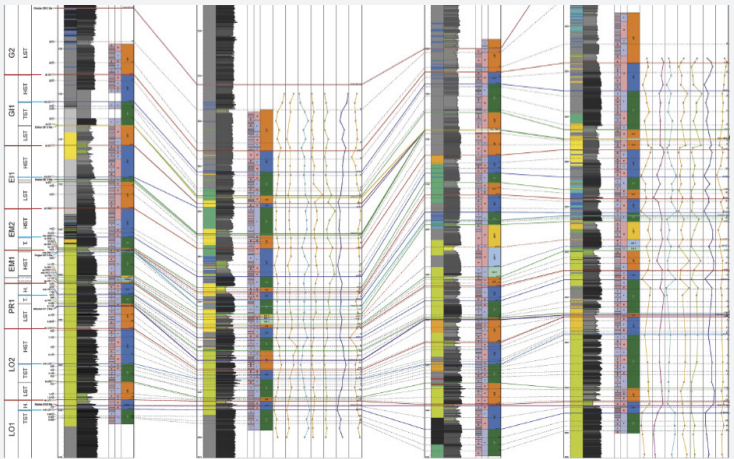


- quantitative analysis of the composition and preservation of all organic matter in the rocks
- provides data on basin development additional to sedimentological and geochemical analyses
- indicates changes in depositional settings - sedimentary input, proximal-distal trends, sea-level changes
- indicates pelaeoenvironmental conditions - oxic/ anoxic, salinity, light and alkalinity
- defines marker horizons based on specific proxies used as additional stratigraphic tools
- data base for integrated sequence stratigraphy
- analysis if organic matter accumulation is controlled by production or preservation
- gives first information on hydrocarbon potential by transferring palynofacies data into kerogen types



Integrated Sequence Stratigraphy

- multidisciplinary cross-calibrated sequence stratigraphic analysis based on specific palynofacies proxies combined with wireline logs, lithologs and seismic data
- enhanced identification of sequence boundary and maximum flooding surface by major changes in palynofacies
- multiple palynological proxies used for comprehensive analysis of palynofacies changes related to sequence boundaries



- high resolution analysis of parasequences based on palynofacies
- provides high-resolution correlation often far beyond biostratigraphic resolutions - from basin down to reservoir scale
- improves significantly the assessment of lateral continuities and vertical connectivities for flow and reservoir units
- improves strongly reliability of sequence stratigraphic analysis - particularly for sequences with rare internal discontinuities - e.g. type 2 sequences

Projects

including Palynostratigraphy or Sequence Stratigraphy:

- Rift-graben development and hydrocarbon generation, Cenozoic, Southern Germany
- Palynofacies and basin development of lower Jurassic hydrocarbon plays, SW-Germany
- Facies, basin development and hydrocarbon potential, Early Silurian, Arabia
- Facies, basin development and hydrocarbon potential, Silurian-Ordovician, N-Poland
- Integrated basin and hydrocarbon system analysis Palaeozoic, Saharian Basins, Algeria
- Source rock and organic maturation analysis, Palaeozoic, Basins, Morocco
- Organic maturation & source rock analysis, Mesozoic to Cenozoic, Upper Rhine Graben, Germany
- Integrated basin and reservoir analysis, Atlantic Basins, SW-Morocco
- Palynofacies analysis of carbonate shelf systems, Carboniferous, central & western Europe
- Palynological reassessment of palynostratigraphical industry codes, Palaeozoic, Northern Africa

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