

Sedimentology and Stratigraphy

Earth Sciences Department
College of Sciences

Instructor:

Dr. Khalid A. Al-Ramadan

Coordinator:

Dr. Khalid A. Al-Ramadan

Tel.: 860-7175

email: ramadank@kfupm.edu.sa

Course Date: May 2011

Sedimentology and Stratigraphy

For Non-Geologists

Description:

The course will cover different types of sediments and their properties, processes of sedimentation, depositional environments, facies and facies analyses, provenance, principles and fundamentals of stratigraphic units, Walther's law, correlation, and overview of sequence stratigraphy.

Duration of the short course :

The course will be conducted over a period of one week.

Number of participants: 25**Objectives:**

- To understand the basics of fluid flow and sediment transport, sedimentary structures and textures, and showing the link between the modern environments and ancient rocks-depositional sedimentary environments.
- To be able to interpret the depositional environment of the sedimentary sequence and infer the importance of sediment supply, subsidence, and/or relative sea level in creating the sedimentary sequence.

Who should attend

Non geologists and Geophysicists who work with sedimentary successions



Petroleum Geology

Earth Sciences Department
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Course Date: May 2011

Petroleum Geology

For Non-Geologists

Description:

This course will cover the principals of plate tectonic, rock types, origin of hydrocarbon. Also, the basic prerequisites for ideal petroleum system including reservoir rocks, source rocks, seal rocks timing and migration of hydrocarbon with some case studies.

Duration of the short course :

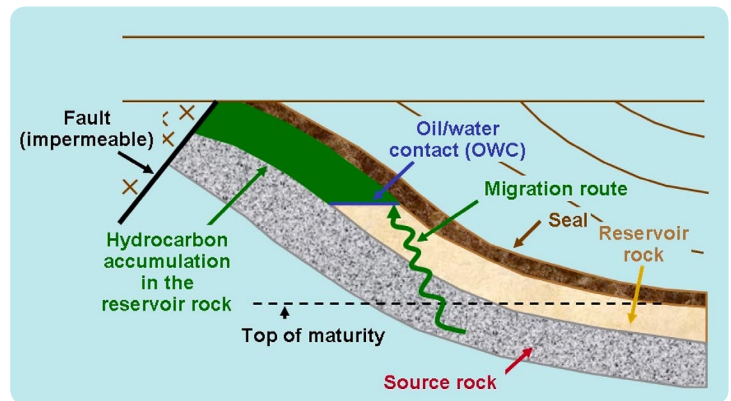
The course will be conducted over a period of five (5) days.

Number of participants: 25**Objectives:**

- To understand the petroleum geology techniques, and methodology
- To discuss the different types of reservoir quality distribution in a reservoir using some real life examples.

Who should attend

All new petroleum engineering graduates who deal with, or are likely to be involved with petroleum geology.



Sequence Stratigraphy

Earth Sciences Department
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Course Date: May 2011

Sequence Stratigraphy

For Geologists

Description:

The course covers the fundamental concepts and principles of sequence stratigraphy of clastic and carbonate. Also, it will illustrate the fundamentals of accommodation and stratal geometries. High resolution sequence stratigraphy will be discussed using example from Upper Jurassic, NW France.

Duration of the short course :

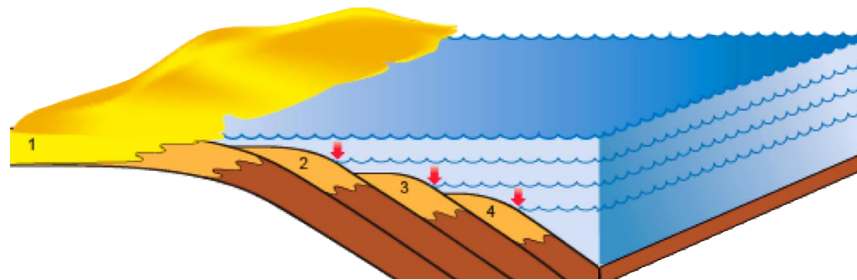
The course will be conducted over a period of five (5) days.

Number of participants: 25**Objectives:**

- To gain the basic principles and practices of both clastic and carbonate sequence stratigraphy.
- To recognize tracts, Parasequences and their stacking patterns.
- To predict distribution of source, seal and reservoir rocks.

Who should attend

Geologists and Geophysicists who work with sedimentary successions



Carbonate Geology

Earth Sciences Department
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Instructor:

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email: ramadank@kfupm.edu.sa

Course Date: May 2011

Carbonate Geology

For Geologists

Description:

The course covers the mineralogy and components of carbonate sediments, carbonate sedimentary environments and sequence stratigraphy. More emphasis will be put to the diagenetic alterations in carbonate rocks and its impact on reservoir quality.

Duration of the short course :

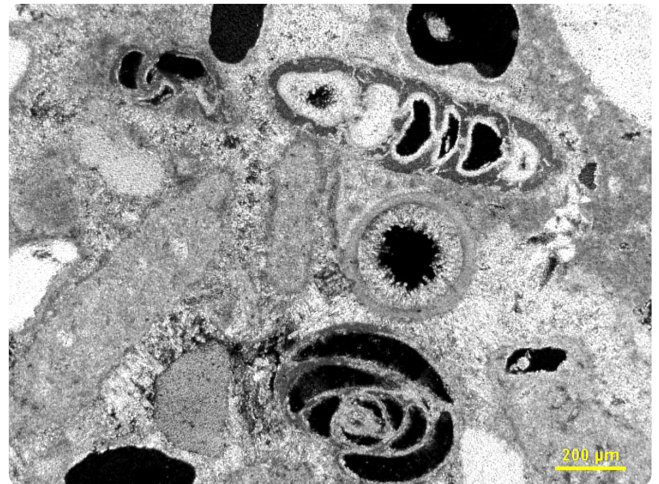
The course will be conducted over a period of five (5) days.

Number of participants: 25**Objectives:**

- To identify and classify different types of carbonate rocks
- To recognize and infer the carbonate depositional environments.
- To identify the factors affecting the reservoir quality enhancement and destruction of carbonate rocks

Who should attend

Geologists and Geophysicists who work with sedimentary successions



Clastic Diagenesis and Reservoir Quality

Earth Sciences Department
College of Sciences

Instructor:

Dr. Khalid A. Al-Ramadan

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email: ramadank@kfupm.edu.sa

Course Date: May 2011

Clastic Diagenesis and Reservoir Quality

For Geologists

Description:

The course deals with the impact of diagenetic processes on reservoir quality of clastic sequences. The course consists of two main parts: (1) lectures and (2) petrographic examination of representative thin sections. Special emphasis will be made on understanding the origin, distribution pattern and evolution of clay minerals in sandstones.

Duration of the short course :

The course will be conducted over a period of five (5) days.

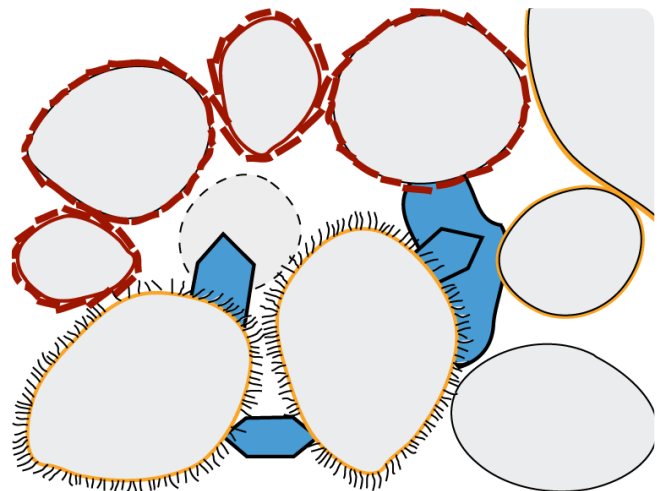
Number of participants: 20

Objectives:

- To identify and explain the diagenetic alterations in sandstones
- To use different diagenetic techniques including stable isotopes
- To construct paragenetic sequence and link it to the evolution of clastic reservoir

Who should attend

Researchers within the field of sedimentary petrology, as well as for reservoir geologists and engineers dealing with the controls and distribution patterns of porosity-permeability, as well as for those involved in planning for recovery and production processes.



Field trips to Qasim, Jawf and Midyan

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Course Date: May 2011

Field trips to Qasim, Jawf and Midyan

For Geologists

Description:

The field trips will provide good opportunity for geologists and geophysicists who are working in local petroleum companies to see the well exposed various sedimentary sequences with excellent sedimentary structures.

The Qasim area (Central Arabia) has most of the Paleozoic sequence (Pre-Khuff) which is dominated by clastic rocks. Various sedimentary facies and environments like braided and meandering systems, glacial deposits, wave to tide dominated shoreline overlying offshore mudstone and shallow marine carbonate are present in conformable and unconformable relationships. Glacial striations and pavements, trace fossils (cruziana and tigillites), trilobite and graptolite fossils, and petrified wood are well preserved.

The Jawf area (Northwest Arabia) has the Devonian system including the Jauf Formation which is an important subsurface gas condensate reservoir. The main sedimentary facies are shallow marine carbonate with abundant stromatolite, tidal estuarine sandstone and mudstone, storm dominated environments with hummcky cross stratification, evaporitce lagoon shales with nodular anhydrite and fluvio-marine channels sandstone cutting through coastal plain mudstones.

The Midyan area (Northwestern Arabia) offers a great opportunity to see various tertiary lithologies and sedimentary environments including deep marine turbidities.

Similar modern examples of coral reef and lagoonal system along the coast of Gulf of Aqaba as well as alluvial environments can be studied and compared to the ancient ones.

Duration of the short course :

Each field trip will last five (5) days.

Number of participants: 20

Objectives:

- To understand the contact relationship of different Saudi sedimentary formations which occur in the subsurface as reservoir, source and seal.
- To interpret sedimentary environments based on facies change and sedimentary structures

Who should attend:

Geologists and geophysicists who are working in national and international petroleum companies.



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Taxonomy & Paleocology of Agglutinated Foraminifera

Earth Sciences Department
College of Sciences

Instructor:

Dr. Michael A. Kaminski

Coordinator:

Dr. Khalid A. Al-Ramadan

Tel.: 860-7175

email: ramadank@kfupm.edu.sa

Course Date: December 2011

Taxonomy & Paleocology of Agglutinated Foraminifera

Description:

The short course on Agglutinated Foraminifera provides an overview of the taxonomy, ecology, palaeoecology, and stratigraphic distribution of the agglutinated foraminifera – which are the most widely distributed group of foraminifera in terms of their modern distribution and stratigraphical record. The first half of the course reviews the current classification scheme, their distribution in the modern ocean, the use of morphotypes as environmental indicators, and their response to oxygen and carbon gradients. The second half reviews the stratigraphic distribution of agglutinated foraminifera since the Cambrian era, with a particular focus on critical intervals in Earth's history. Morning lectures are followed by afternoon microscope sessions. A rich library of pdfs of classic papers is provided with the handouts.



Duration of the short course :

The course will be conducted over a period of five (5) days.

Number of participants: 5

Objectives:

The course is designed to give the graduate student or industry professional an up-to-date overview of the diversity of the agglutinated foraminifera and their utility for stratigraphical and paleoecological applications.

Who should attend

Beginning Ph.D. students and Academics & Industrial Micropalaeontologists who wish to have an up-to-date overview of this fossil group.

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Planktonic Foraminiferal Biochronology



Earth Sciences Department
College of Sciences

Instructor:

Dr. Michael A. Kaminski

Coordinator:

Dr. Khalid A. Al-Ramadan

Tel.: 860-7175

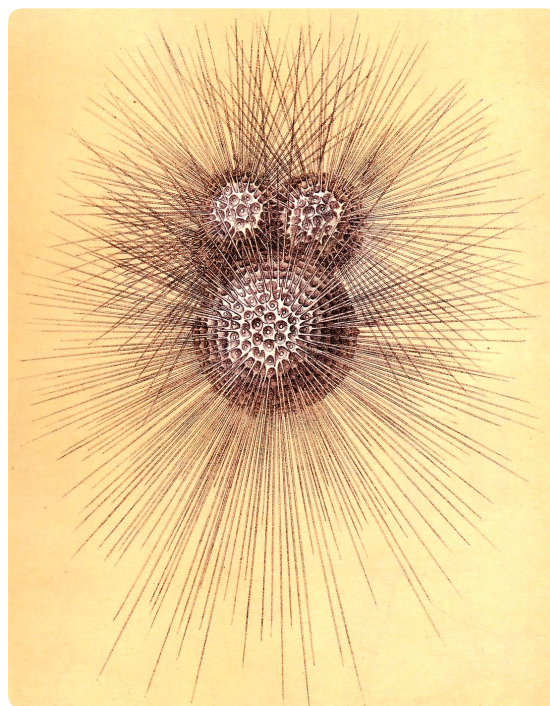
email: ramadank@kfupm.edu.sa

Course Date: March 2012

Planktonic Foraminiferal Biochronology

Description:

The short course on Planktonic Foraminifera provides an overview of the taxonomy, ecology, palaeoecology, and stratigraphic distribution of this stratigraphically important group of foraminifera – which are widely used in both biostratigraphical and paleoceanographic studies. The first half of the course reviews the current classification scheme, their distribution in the modern ocean, their use ecology and life cycle, and preservation in the fossil record. The second half of the course reviews the stratigraphic distribution of planktonic foraminifera since the mid Cretaceous, with extra focus on critical intervals in Earth's History such as the Paleocene stage boundaries. We review the current biostratigraphic zonal schemes, and concentrate on recognizing key index species. Morning lectures are followed by afternoon microscope sessions. A rich library of pdfs of classic papers is provided with the handouts.

**Duration of the short course :**

The course will be conducted over a period of five (5) days.

Number of participants: 5**Objectives:**

The course is designed to give the graduate student or industry professional an up-to-date overview of the diversity of the agglutinated foraminifera and their utility for stratigraphical and paleoecological applications.

Who should attend

Beginning Ph.D. students, academics & Industrial Micropalaeontologists who wish to have an up-to-date overview of this fossil group.

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Environmental Impact Assessment

Earth Sciences Department
College of Sciences

Instructor:

Dr. Bassam Tawabini, Dr. Abdulaziz AlShaibani

Coordinator:

Dr. Bassam Tawabini
Tel.: 860-7643
email: bassam@kfupm.edu.sa

Course Dates: 26-30 November 2011

Environmental Impact Assessment

Description:

The aim of the course is to introduce the components and structure of an Environmental Impact Assessment (EIA). It will provide participants with a working knowledge of the environmental impact assessment process and with the information, including environmental studies, needed to prepare an environmental impact assessment document or statements.

Duration of the short course :

The course will be conducted over a period of five (5) days.

Number of participants: 15-20**Objectives:**

- Enable delegates develop a working knowledge of common EIA techniques,
- Identify the necessary environmental controls that can help mitigate their organization's environmental impact.
- Provides guidance on all current international and national legislation relating to EIA that can assist the organization comply with its legal responsibilities.
- The participants will learn the basic steps and phases of the EIA process including: screening, scoping baseline data collection, environmental impacts predictions, mitigation and monitoring measures.

Who should attend:

The course has been designed for candidates working in the environmental industry who have some exposure to environmental impact assessments.



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Environmental Project Site Assessment

Earth Sciences Department
College of Sciences

Instructor:

Dr. Bassam Tawabini

Coordinator:

Dr. Bassam Tawabini

Tel.: 860-7643

email: bassam@kfupm.edu.sa

Course Dates: 10-14 December 2011

Environmental Project Site Assessment

Description:

The course provides an overview of hydrogeology and environmental principles, site assessment procedures, risk assessment tools, remediation technologies, and management issues relating to contaminated sites.

Duration of the short course :

The course will be conducted over a period of five (5) days.

Number of participants: 15-20

Objectives:

- The course addresses questions such as how to manage, regulate, investigate, and remediate contaminated sites. The course also covers the impacts on the environment by the contaminated sites.

Who should attend:

- Process and manufacturing plant owners/managers
- Environmental consultants
- Owners of real estate, process plants, gas stations, landfill sites and scrap yards
- Environmental engineers and scientists
- Municipality engineers.



Waste Management in the Oil and Gas Exploration Industry

Earth Sciences Department
College of Sciences

Instructor:
Dr. Bassam Tawabini

Coordinator:
Dr. Bassam Tawabini
Tel.: 860-7643
email: bassam@kfupm.edu.sa

Course Dates: 24-28 March 2012

Waste Management in the Oil and Gas Exploration Industry

Description:

This course will provide those new to the management of wastes with an introduction to sustainable waste management within KSA and an understanding of the roles and responsibilities of those involved from waste production to ultimate disposal.

Duration of the short course :

The course will be conducted over a period of five (5) days.

Number of participants: 15-20

Objectives:

- Understand the importance of the management of wastes and the relationship to sustainable development.
- Understand the sources of drilling wastes, their nature and classification in KSA and elsewhere.
- Understand the options available for the minimization, recovery, re-use, treatment and disposal of drilling wastes.
- Appreciate the systems of collection, transport and transfer of drilling wastes.
- Understand the hazards posed by drilling wastes during their collection, storage, transport, treatment and disposal, and how these risks can be minimized.

Who should attend:

- Oil & Gas industry personnel
- Government and Regulatory personnel
- Consultants and Engineers (Waste Disposal personnel Landfill and WWTP)
- Site Owners



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Air Pollution and Control

Earth Sciences Department
College of Sciences

Instructor:

Dr. Bassam Tawabini

Coordinator:

Dr. Bassam Tawabini

Tel.: 860-7643

email: bassam@kfupm.edu.sa

Course Dates: 19-23 May 2012

Air Pollution and Control

Description:

This course covers the topics: elements of air pollution, air pollutants, effects of air pollution, air pollution sampling and monitoring, dispersion of air pollutants, air pollution modeling, and control of air pollution.

Duration of the short course :

The course will be conducted over a period of five (5) days.

Number of participants: 15-20**Objectives:**

- Enable delegates develop a working knowledge of This course will cover the most important issues related to the management of air quality problems, with emphasis on the Saudi regulations and experience.
- It is designed to be a refresher course for those working in air quality fields and who would benefit of a review of the essential elements of air quality engineering.

Who should attend

- Environmental managers
- Environmental consultants
- Environment Agency / SEPA officers
- Control and instrumentation specialists
- Contract testing engineers
- Works chemists or engineers with responsibility for emissions
- Local authority air pollution specialists



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Geophysical Data Processing

Earth Sciences Department
College of Sciences

Instructor:
Dr. Abo Khodair

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Tel.: 860-7175
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Course Date: October 2011

Geophysical Data Processing

Description:

Processing of data is a first step towards their interpretation. Geophysical data processing involves the application of the methods and techniques of statistical and filter theories to produce “better” data or “transformed” data.

This course provides a practical background in these methods and techniques. It covers various important topics in data processing including basic statistics, experimental error analysis, time series analysis, stochastic processes, convolution and LS filtering, and computer aided simulation of simple geophysical systems.

Duration of the short course :

The course will be conducted over a period of two (2) weeks.

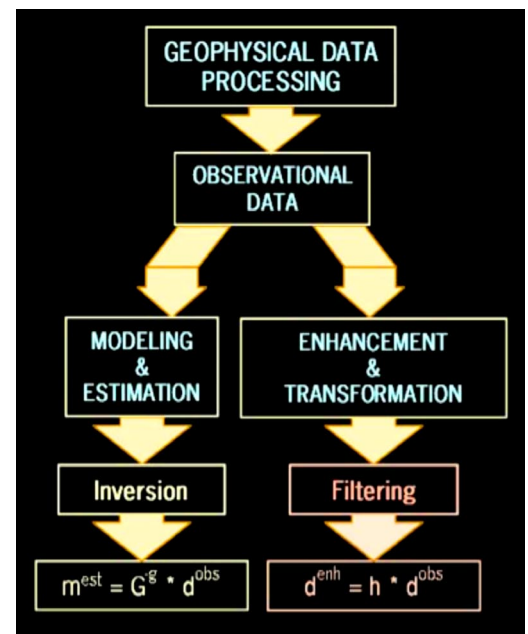
Number of participants: 6-15

Objectives:

This course will help you develop computational familiarity with basic mathematical tools used in the processing of geophysical data. At the end of the course you will be able to use Fourier tools to analyze and synthesize geophysical signals; identify spectral characteristics of signals; carry out statistical analyses of your data sets; use bootstrapping techniques to estimate important statistics of your data and model your experiments numerically; use error propagation principles to estimate errors in computed parameters from your data; enhance the signal/image/data by a wide range of filtering methods; and to image data sets by gradient techniques.

Who should attend:

Geophysicists, IT technologists and geophysical technical staff using or involved in development algorithms for geophysical computation.



Applied Geophysical Inversion

Earth Sciences Department
College of Sciences

Instructor:
Dr. Abo Khodair

Coordinator:
Dr. Khalid A. Al-Ramadan
Tel.: 860-7175
email: ramadank@kfupm.edu.sa

Course Date: May 2011

Applied Geophysical Inversion

Description:

Much explorationist work is centered on making inferences about the subsurface from geophysical observations made at the surface. This is geophysical data inversion! Applied geophysical inversion has indeed become the basic tool of the trade. It is being used by geophysicists in all fields from seismic exploration and reservoir modeling to archaeological prospecting and environmental assessment. This course is intended for all geoscientists who practice data analysis and hence, data inversion.

Duration of the short course:

The course will be conducted over a period of two (2) weeks.

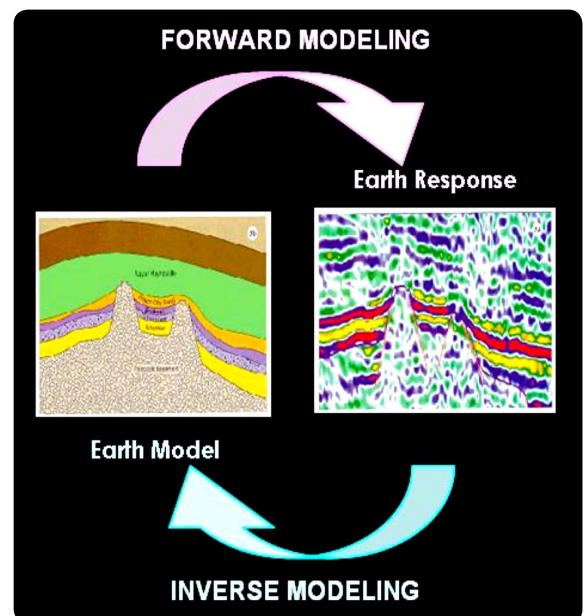
Number of participants: 6-15

Objectives:

This course will help you develop computational familiarity with basic mathematical tools used in the processing of geophysical data. At the end of the course you will be able to use Fourier tools to analyze and synthesize geophysical signals; identify spectral characteristics of signals; carry out statistical analyses of your data sets; use bootstrapping techniques to estimate important statistics of your data and model your experiments numerically; use error propagation principles to estimate errors in computed parameters from your data; enhance the signal/image/data by a wide range of filtering methods; and to image data sets by gradient techniques.

Who should attend:

Geophysicists, IT technologists and geophysical technical staff using or involved in development algorithms for geophysical computation.



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Gravity & Magnetic Modeling and Interpretation Techniques

Earth Sciences Department
College of Sciences

Instructor:
Dr. Abo Khodair

Coordinator:
Dr. Khalid A. Al-Ramadan
Tel.: 860-7175
email: ramadank@kfupm.edu.sa

Course Date: December 2011

Gravity & Magnetic Modeling and Interpretation Techniques

Description:

This course is tailored to the needs of new geophysics graduates who plan to pursue careers in potential field geophysics. The course offers in-depth discussions and practical training on up-to-date methods and techniques used in the analysis and interpretation of potential field survey data. Topics covered include linear transformations (fields continuation, directional derivatives, pseudogravity gravity and pseudomagnetic, etc), filtering, modeling and inversion in the space and frequency domains, depth-to-basement analysis techniques, gradients and source boundary analysis.

Duration of the short course :

The course will be conducted over a period of two (2) weeks.

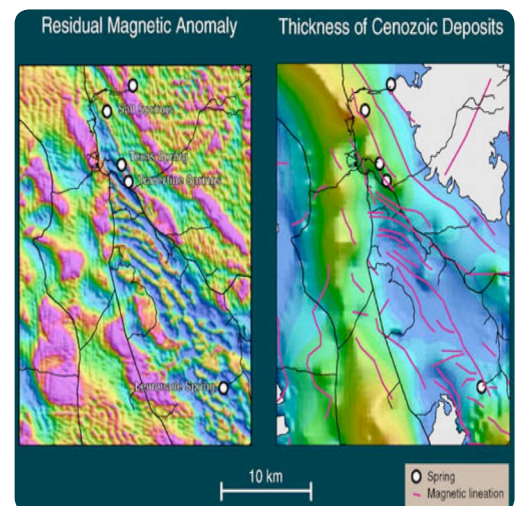
Number of participants: 6-15

Objectives:

This course will help you develop a deeper understanding as well as computational familiarity with basic mathematical approaches to modeling and inversion of potential field data. At the end of the course you will be able to develop a working geological model of the target area, construct mathematical models of the source elements, use direct interpretation methods to make initial estimates of the model parameters, compute the forward and inverse problems, and to improve the initial geological model.

Who should attend:

Potential Field geophysicists, geophysical and geological modelers and interpreters, IT technologists and geophysical technical staff using or involved in development algorithms for geophysical computation. All participants should have a working background in data inversion methods.



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Environmental Magnetism: Application of Mineral Magnetic Techniques In Environmental Studies



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College of Sciences

Instructor:
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Course Date: February 2012

Environmental Magnetism: Application of Mineral Magnetic Techniques In Environmental Studies

Description:

This course is intended to introduce interested earth scientists to the fundamentals of rock magnetism, and provide them with hands-on training in applications of its powerful methods of rock characterization and petrofabric analysis. The course also provides the needed background for an introduction to paleomagnetism.

Duration of the short course :

The course will be conducted over a period of two (2) weeks.

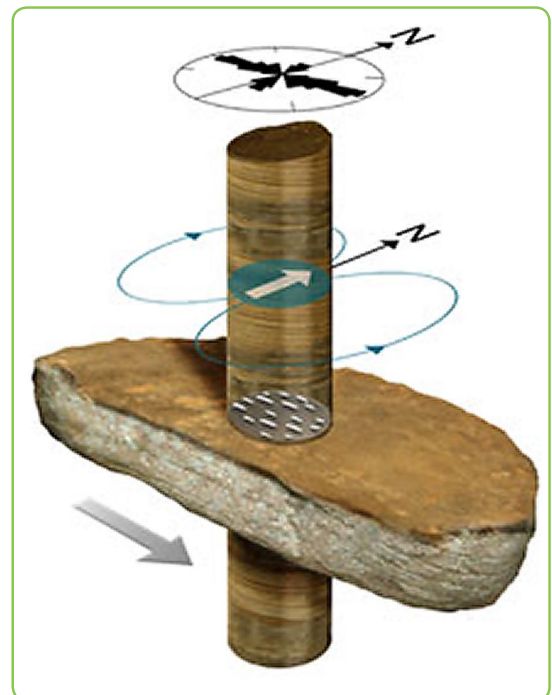
Number of participants: 6-15

Objectives:

This course will help you develop an understanding of the basic principles of mineral and rock magnetism as well as a working familiarity with laboratory techniques used to measure magnetic signals and parameters of rock samples. At the end of the course you will be able to collect oriented samples, make magnetic measurements on a wide array of instruments correlate you measurements with major environmental factors and proceed to interpretation.

Who should attend:

Environmentalists, geologists, environmental geology students, and sedimentary geologists.



Paleomagnetic Applications in Hydrocarbon Exploration and Production



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College of Sciences

Instructor:
Dr. Abo Khodair

Coordinator:
Dr. Khalid A. Al-Ramadan
Tel.: 860-7175
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Course Date: April 2012

Paleomagnetic Applications in Hydrocarbon Exploration and Production

Description:

This course is intended to introduce interested earth scientists to the fundamentals of rock magnetism, and provide them with hands-on training in applications of its powerful methods of rock characterization and petrofabric analysis. The course also provides the needed background for an introduction to paleomagnetism.

Duration of the short course :

The course will be conducted over a period of two (2) weeks.

Number of participants: 6-15

Objectives:

This course will help you develop an understanding of the basic principles and techniques of paleomagnetism as applied to hydrocarbon exploration and producing problems. At the end of the course you will be able to collect oriented samples, make magnetic measurements of the paleomagnetic signal, reduce and interpret your measurements.

Who should attend:

All geoscience students and professionals.



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