

LAND MARK

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DATE: August 8, 1991

TO: Parker Gay

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FROM: Peice Nelson

713/579-4794

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*Note -
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Fred Aminzadeh
Manager
Seismic Acquisition & Imaging Research

July 26, 1991

To: Integration Research Workshop Speakers
From: Fred Aminzadeh *FA*

SEG/AAPG RESEARCH WORKSHOP

Attached is a tentative summary of the workshop I am organizing. Please send me a copy of the abstract. Also, Please feel free to suggest changes on the content of summary, titles of talks, or perhaps new candidates for the workshop.

I need to send the final draft to the SEG by August 1. Thank you for your contribution.
FA:glw

cc: Don Winterstein, Chevron
Sally Shank, SEG

*P.S. 1. The Judge says Colorado county has no money for data collection. Still working on it.
P.S. 2. I apologize for the stupidity of Landmark's recent communication to you.*

*Parker,
attached is the schedule and abstract for our paper at the SEG workshop. I will present it unless you or Hardy are available.
Rice.*

JOINT SEG/AAPG RESEARCH WORKSHOP

INTEGRATION OF DIFFERENT DISCIPLINES IN EXPLORATION AND DEVELOPMENT

Organizer: Fred Aminzadeh, Unocal

Summary:

As exploration becomes more integrated, many new opportunities emerge and naturally some technical and practical difficulties arise. This workshop will be a forum to discuss the opportunities and problems associated with integration.

A wide spectrum of input from different perspectives ranging from theoretical issues such as multi-objective, multi-sensor inversion to an experimentation on the dollar value of integrated exploration are going to be presented in this workshop.

Some specific suggestions on how integration can be facilitated will be given. This will range from using appropriate software tools and techniques (e.g., evidential reasoning and optimization of vector functionals) and practical considerations of integration (e.g., how researchers from different disciplines can communicate more effectively with each other without becoming an expert in the other field).

Tentative List of TalksSpeakers

- | | |
|---|---|
| 1. The Economic Value of Synergistic Exploration | Robert M. Snyder
RMS Exploration Inc. |
| 2. An Integrated Reservoir Description | Jack Caldwell
Schlumberger |
| 3. Integration of Rock Physics and Synthetic Seismogram to Interpret Cross-Well Data | Pierre Samek
Petrovision |
| 4. Application of Evidential Reasoning in Integrating Data from Different Disciplines | Fred Aminzadeh
Unocal |
| 5. Joint Inversion Revisited | Sven Treitel
Amoco |
| 6. Integration of Multiple Data Sets | Victor Preyra
Weidlinger Associates |
| 7. Integrated Exploration | <i>Parker Goy</i> Royce Nelson
Landmark Graphics |

The workshop will conclude with a panel discussion and question and answer session.

FA:glw

INTEGRATING AIR-MAG AND SEISMIC INTERPRETATION

S. Parker Gay
(Applied Geophysics, Inc.)
and
H. Roice Nelson, Jr.
(Landmark Graphics Corporation)

ABSTRACT

A air-magnetic geophysical survey was collected and processed to create a residual map (NewMag®). This map was loaded on an interactive workstation. A regional seismic line that runs through the same area was loaded into the workstation.

The residual magnetic maps delineate basement faulting. Displaying the magnetic data on a workstation allows enhancement of the map to highlight fault trends, as well as the interactive creation of arbitrary cross-sections showing magnetic anomalies. On a workstation the air-mag map can be converted to a seismic horizon file, scaled and bulk shifted. The seismic data shows the effect of basement faulting on shallower sediments. Displaying the seismic and overlaying an air-mag residual cross-section at the base of the section is true integration of different types of geophysical data. The air-mag data guides the interpretation of faults on the seismic section. Once faults have been identified on a cross-section they can be taken back to perspective displays and then displayed with the air-mag map. This new display is a type of fault plane map, highlighting the three-dimensional strike of fault planes.

We believe that this project demonstrates that interactive workstations presently integrate different disciplines in exploration and development.