

CREWES NEWS

The Consortium for Research in Elastic Wave Exploration Seismology

SEG Awards for CREWES Students and Staff

CREWES is delighted to congratulate former CREWES students, Alana Schoepp (top right) and Jitendra Gulati (bottom right) on receiving awards for work presented at at the 1998 SEG Meeting at New Orleans. Alana's paper, "Improving seismic resolution with nonstationary deconvolution", received an Honorable Mention for Best Student Paper. Jitendra's poster presentation, "Land vertical cable acquisition and analysis: results from the Blackfoot high-resolution 3-C seismic survey", received the Best Student Poster Paper award. Both students graduated in December.



Congratulations are also due to CREWES Associate Director Larry Lines (left) and his co-authors, J. Xhu (first author) and S.H. Gray, whose paper, "Smiles and frowns in migration velocity analysis" garnered an Honorable Mention for the Best Paper in *Geophysics*.



It has been a vintage year for University of Calgary Geophysics graduate students: Jitendra shared the Best Poster award with Graziella Kirtland-Grech, a Ph.D. candidate working with the Foothills Research Project, whose co-author is CREWES Assistant Director, Don Lawton. Graziella and Don were also co-authors of the paper which won the CSEG Best Student Paper award at the May 1999 conference.

CREWES Welcomes New Staff

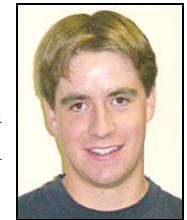
CREWES is pleased to welcome two new members of staff who are assisting staff and students in various ways.



Pat Daley joins CREWES as a Senior Research Scientist. Pat received his B.Sc. (1975) in Mathematics, an M.Sc.(1977) in Geophysics and his Ph.D. (1979) in Physics from the University of Alberta, Edmonton, Canada. Since 1975, he has worked as an independent contractor, almost exclusively in the area of hydrocarbon exploration.

His interests include analytic and numerical modelling of geologically complex structures, wave propagation in anisotropic media and problems related to the inversion of seismic data.

Paul MacDonald is a CREWES summer student, working with Technical Manager, Henry Bland, developing data acquisition software for the physical modelling system. Paul graduated from the International Baccalaureate program at Western Canada High School. Currently, he is studying Electrical Engineering at the University of Calgary and will be entering his second year of studies in the Fall.



CREWES Appreciates Great Response to NSERC Request

CREWES would like to thank all the Sponsors who offered pledges of support for the renewal of our NSERC grant. The response exceeded our expectations, and we are pleased to be able to demonstrate that CREWES continues to be a very actively-supported consortium. With Sponsors' backing and leverage from NSERC, we look forward to implementing the projects we have planned and building on our reputation as a leading research group in Exploration Geophysics.

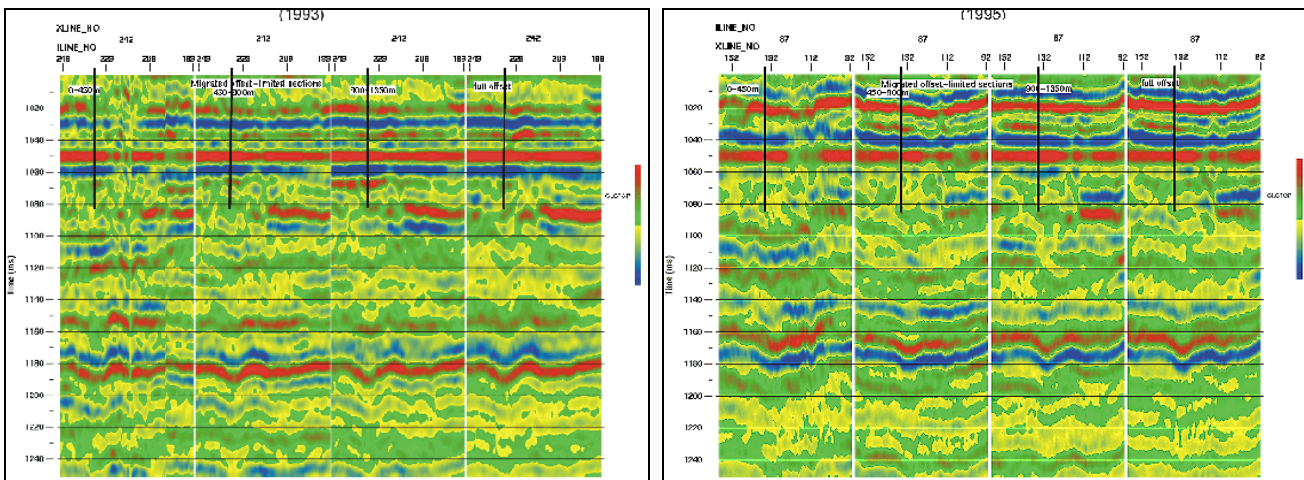
Filtering Noise in the Radial Trace Domain: Modules Available

Following Dave Henley's article in the March CREWES NEWS, "Filtering coherent noise in the radial trace domain", Dave has developed two functioning ProMAX modules. The first transforms data gathers to the radial trace domain for diagnostic display, and the second actually filters gathers in the radial trace domain and returns them to the original X-T domain. Both modules are subject to continued testing and development, but early releases are now available to Sponsors wishing to use them as alternatives to f-k diagnostics/filtering.

For further information contact henley@geo.ualgary.ca.

The Blackfoot AVO Effect

Processing research continues on the Blackfoot data. Below are migrated offset-limited stacked sections from the Blackfoot 3D 1993 and 1995 surveys. The migrated offset-limited sections are shown after flattening on the lower Mannville for the vertical component of the 1993 (left) and 1995 (right) Blackfoot 3D data. The 0-450m offset section is on the left of each image; 450-900m in the middle; and 900-1350m on the right. The top of the Glauconitic is near 1070ms. The dark vertical lines indicate the location of the production well. In the sections, a clear AVO effect in the Glauconitic channel can be seen, the amplitude increasing from near-offset stacked section to far-offset section. A similar AVO effect can be seen in Blackfoot 3C-3D 1995 (shown right) and Blackfoot 3C-2D data.



Congratulations

Congratulations to CREWES staffer, Xinxiang Li, who graduated from his M.Sc. programme in June. Xinxiang joined CREWES staff in March 1998 and has worked closely with staff and students on many projects since then.

Xinxiang's thesis work focussed on how equivalent offset migration (EOM) helps in forming static reference data for residual statics analysis. The advantages of this method include: no NMO; no hyperbolic moveout assumption; minimum of velocity information with total velocity independence; the ability to create a single reference for each input trace; minimal structure or offset difference between input trace and its corresponding reference trace. Partial prestack time migration with EOM concepts makes this an efficient method compared to depth-migration.

Xinxiang's current work project relates to the non-stationary theory in Fourier domain migration. A new $V(z)$ f-k algorithm has been developed for migrating the common-offset sections for both PP and PS data. This will lead to a multi-offset output of migration image, which is an advantage for analysing the AVO effects over the normal CMP gathers.

Xinxiang can be contacted at li@geo.ualgary.ca.

CREWES Student Profile - Cindy Gosse

While Cindy is currently completing her M.Sc. under the supervision of Larry Lines, she spends most of her time working with Hampson-Russell Software in Calgary as a Special Projects Geophysicist.

Cindy graduated with a B.Sc. Hons in Geophysics in 1995 from Memorial University of Newfoundland (MUN), where she was an active member in the MUSIC Consortium. The focus of her Honours dissertation was seismic inversion of Offshore Newfoundland data.

Cindy joined CREWES in January 1998 as an MSc student after gaining work experience at PanCanadian Petroleum and Amoco Canada. Under the supervision of Dr. Larry Lines, her MSc focusses on a Geostatistical Analysis of Alberta's Little Bow Oil Field combining research in reservoir prediction using conventional geostatistics, linear multi-attribute regression analysis, and neural network analysis.

At Hampson-Russell, Cindy's work encompasses Geophysical Inversion, AVO analysis, Multi-Attribute Analysis, and Geostatistics. Cindy is active in various Geophysics organisations, being a member of the SEG and CSEG, and a past President of the MUN chapter of the SEG. Cindy received the Atlantic Accord Career Development Award for 1996-97 and 1997-98.



CREWES Presentation at SEG Forum

Larry Bentley is attending the SEG Development & Production Forum, July 11-16, 1999, in Kananaskis, Alberta Canada, to present a paper entitled "Time-lapse seismic monitoring: Blackfoot Reservoir feasibility study." The paper outlines a procedure to estimate changes in seismic responses caused by changes in reservoir conditions, using published fluid property relationships, rock physics and well log data. The procedure will be tested by determining the expected change in seismic response for the Blackfoot Reservoir. The results of this study will be used to help evaluate the benefit of an additional seismic survey at the Blackfoot Reservoir.

For further information contact Larry Bentley (bentley@geo.ucalgary.ca).

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