

The Rock Record 2004

Saskatchewan Geological Society

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Newsletter

The SGS Newsletter is produced by the SGS executive. Letters, announcements, notices, comments, photos, news and information about SGS members, etc. are always welcome. Call an executive member or write to us at:

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All advertising inquiries should be directed to **Andre Costa**

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Wednesday, March 24, 2004

Detailed 3D Seismic imaging of Phanerozoic Karst/Collapse Disturbances (& other interesting features) in Saskatchewan

A. Prugger, B. Nemeth, and T. Danyluk
Potash Corporation of Saskatchewan

Lancaster Room, Royal Canadian Legion

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Andre Costa 787-9104

By NOON, Friday March 19, 2004

Wednesday, April 7, 2004

A Forty Year Retrospective on the Development and Application of Remote Sensing.

Jack Mollard

Mollard and Associates, Regina

Lancaster Room, Royal Canadian Legion

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Andre Costa 787-9104

By NOON, Friday April 2, 2004

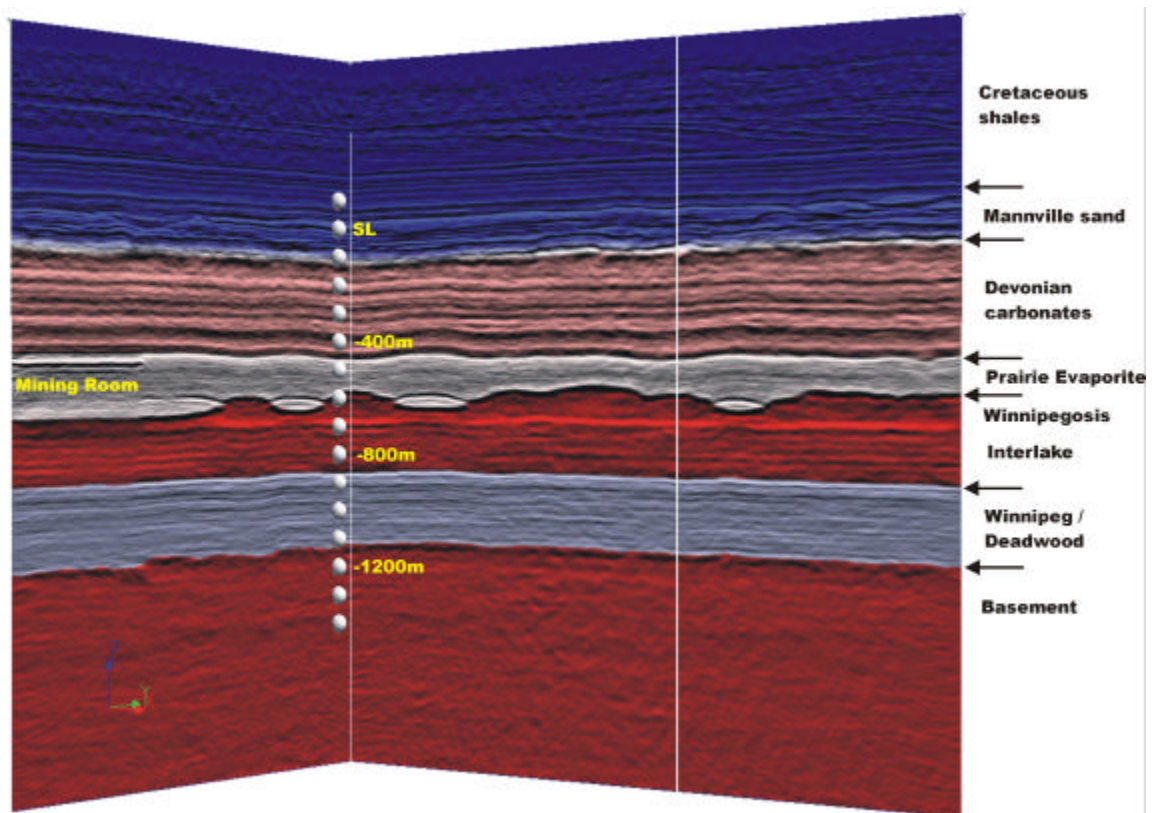
University of Regina Lecture Series:

March 24 Erik Nickel – Geological characterization of the sealing units of the Weyburn reservoir: Implications for the storage of CO₂.

All Talks are at 3:45 pm, in Room 237.3 College West, University of Regina

Detailed 3D Seismic Imaging of Phanerozoic Karst / Collapse Disturbances (& other interesting features) in Saskatchewan – A. Prugger, B. Nemeth, T. Danyluk, POTASHCORP

Saskatchewan potash mining companies use 3D seismic surveys extensively to identify and map zones of geological disturbance in advance of mining. Just over 100 square miles of 3D seismic data have been acquired at four POTASHCORP minesites since the first survey was conducted at Lanigan in 1988. Salts of the Middle Devonian Prairie Evaporite Formation extend over much of the Williston Basin region of west-central North America. "Normal" stratigraphy for most geological units in this region means sub-horizontal layers of uniform thickness, as shown in the Figure. The notable exception are carbonate reefs of the Middle Devonian Winnipegosis Formation, which vary in both thickness and height. The most striking disruption to normal Phanerozoic stratigraphy in the Williston Basin is the collapse structure, localized regions of considerable, sometimes complete, destruction of original geological layering. Historically these features were thought to result from dissolution of Prairie Evaporite salts at depth, with associated brecciation and collapse of overlying (mostly carbonate, then shale) strata into the resulting washout caverns. Earth Scientists working in the Saskatchewan potash industry have a strong interest in mapping collapses because of the hazard these disruptions pose to mining operations. The recent practice of depth migration of 3D seismic data has resulted in a more detailed view of the shape of these features than ever seen before: disturbed zones become much smaller and more focused than previously thought. While some collapses are consistent with the existing washout/brecciation model, others are not. Some of these disturbances are underlain by washouts in the Prairie Evaporite, but some are not. The absence of any disruption within Prairie Evaporite salts below a disturbed zone in overlying carbonates is inconsistent with the historic washout/breccia model for how these carbonate "collapses" are formed. This observation is consistent with existence of porous Karst zones in these carbonates, not traditional washout collapses. Any relationship between these postulated zones of Karstification and disruption of underlying Prairie Evaporite salts is currently unclear. We have attempted to relate Karst and collapse disturbances to other geological features. Comparisons to spatial trends in everything from Cretaceous faults and lineaments to Winnipegosis mound patterns to basement lineaments have been attempted (and will be shown). We feel that we are now able to see much finer detail to much greater depth in our 3D seismic data sets than ever before. This is detail that matters when attempting to predict potash ore zone disruptions and hazards in advance of mining.



2004 S.G.S. Honour Roll Inductees

At the 2004 S.G.S. Annual General Meeting, three distinguished Saskatchewan Geologists were inducted into the S.G.S. honour roll. These were Dr. John Lewry, Dr. James Christopher, and Dr. Donald Kent. Following, is a brief biography of Dr. Kent. (Based on the introductory speech given by Dr. Christopher at the AGM)

A biography of Dr Christopher will be printed in an upcoming Rock Record issue.

If you have any suggestions for other inductees to the Honour Roll, please make them known to the S.G.S. executive for consideration.

Dr. Donald M. Kent

The person to whom this award will be given, has become an active member of the Geological Society for so many years, that he has become an institution, one whom we find ourselves often taking for granted. Yet we know, those of us who have been around him for a long time, that without him, the Geological Society would have been only a promise of what it is today – a thoroughly vibrant, energetic and progressive organization.

So who is he? I have already removed half of the suspense! Let's see. He was Born in Medicine Hat, above the famed natural gas field by that name. In 1959 he had completed his M.Sc at the U of S on the Lloydminster Oilfield – All of it! There are now 200 oil pools in that oilfield, so that had to be a long time ago.

In that year, he published his first report for the Saskatchewan Department of Mineral Resources on the Ordovician. After that, he worked his way up the stratigraphic section into the Duperow Formation, with an authoritative big box study published as DMR report no. 99, in 1968. That was also



Dr Kent and Dr Christopher accepting the Honour Roll plaque, AGM, 2004

the dissertation for his doctorate from the U of A. Then, it was up into the Mississippian with DMR Report 141, in 1974, and he is now our unquestioned authority on these rocks in the Williston Basin.

The times were also coincident with his change of venue to the Department of Geological Sciences of the University of Regina, in 1975. He has served there as chairman and professor of Geology over the years 1982-1988 and 1991 to 1996. There are many former students out there in the rocky world of professional employment who look up to him as their father confessor!

Over the years he has established his presence in the professional world by his accomplishments! He has seen the Saskatchewan Geological Society through thick and thin; from the lean days of the early 1960's, when the offices of the petroleum companies were moved to Calgary, and the membership and treasury had to be rebuilt. He has served on the executive committee more times than anyone I know! In fact, he was president in 1965, 1969, 1979, and 2001. He has served on the symposium committees and led more than 25 field trips, far more than anyone else; and with all of that has

maintained a high quality scientific output in papers, posters and talks, nationally and internationally.

In the area of professional services, Don was awarded the Distinguished Service award by the Association of Professional Engineers and geoscientists of Saskatchewan in 2000.

One cannot speak of Don without mentioning football. As a measure of his contributions to amateur and professional football, Don was presented with the national Tom Cheney Award in 1996.

Ladies and Gentlemen: it is my privilege, on behalf of the Society, to make this presentation of the Saskatchewan Geological Society Geoscience Honour Roll Award to Dr. Don Kent.

Renew Your Membership!

The time of year to renew your S.G.S. membership is here. Please send a cheque to our address on the front of the newsletter, and indicate your name and any address changes so that our records can be kept up to date. Thanks.

Coming Events

March 25 - SGS Annual Student Talk Night., 7:00pm, Royal Canadian Legion. Come and see graduate and undergraduate students from the U of R present research results; and enjoy some beer and pizza while doing it!

March 16 – Field Trip Coordination Meeting. 7:00pm, Bushwackers Pub. Discussion of not only the next SGS August field trip, but planning of other trips as well. All member's attendance and participation is greatly encouraged.

March 12 – U of R Geology Students Club Funspiel, 9:00pm, Tartan Curling Club. A fun evening of “curling” and good times. Contact Russ Walz to enter your team or for more information.
School: 585-4377
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