



# The Rock Record - December 2016

## 2016 Executive

### President

Ryan Morelli

### Vice-President

Monica Cliveti

### Secretary

Omid Mahmoodi

### Treasurer

Michelle Hanson

### Business Manager

Maria Velez

### Program Chair

Jason Cosford

### Assistant Program Chair

Mike Thomas

### Past President

Ralf Maxeiner

### Committee Chairs:

#### Education and Outreach

Kate MacLachlan

#### Field Trip Committee

John Lake

#### Geological Calendar & Highway Map

Ralf Maxeiner

#### Williston Basin

Dan Kohlruss

#### Annual General Meeting

David MacDougall

#### Honour Roll

Don Kent

#### Geological Open House

Jason Berenyi

Please contribute to the SGS 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:

Saskatchewan Geological Society  
P.O. Box 234  
Regina, SK S4P 2Z6

#### SGS e-mail address:

[Sask.Geol.Soc@hotmail.com](mailto:Sask.Geol.Soc@hotmail.com)

SGS Website: [www.sgshome.ca](http://www.sgshome.ca)

[‘Like’ SGS on Facebook](#)

## In This Issue

- Details of upcoming talks p. 2-3
- President’s Message p. 4
- Other News and Events p. 5-6
- Corporate Members and Sponsors p. 7
- Supplemental Information: volunteering for the Williston Basin Petroleum conference, and “Sun Dogs and Yellowcake” p. 8-9

## Saskatchewan Geological Society Luncheon Talk

**Monday, December 12<sup>th</sup>, 2016**

*“Unconventional Tight Light Oil Play Types, Western  
Canada Sedimentary Basin”*

AAPG Allan P. Bennison Distinguished Lecturer  
Per Kent Pedersen  
Department of Geoscience, University of Calgary

### VENUE:

University of Regina, College West 237.3

**Pizza Lunch: 11:45 a.m.**

**Talk: 12:00-1:00 p.m.**

### For lunch the cost is:

No Lunch (Talk only): Free

Members: \$15.00

Student Members: \$10.00

Non-Members: \$20.00

Please RSVP to Jason Cosford at [cosford@jdmollard.com](mailto:cosford@jdmollard.com)  
by noon on Friday, Dec. 9<sup>th</sup>, if you are going to have lunch.

## DETAILS OF Dec. 12<sup>th</sup> TALK – Per Kent Pedersen

Department of Geoscience, University of Calgary

### ABSTRACT – “Unconventional Tight Light Oil Play Types, Western Canada Sedimentary Basin”

Oil production in North America has the last years surged due to the successful exploitation of unconventional low-permeability (tight) light oil reservoirs in North America by multistage hydraulic fractured horizontal wells. Tight light oil plays exhibit a wide range of reservoir characteristics, that can be subdivided into three main play categories:

“Shale Oil” – light oil plays where the source = the reservoir, matrix permeability is very low, nano Darcy, and organic matter is usually high. These plays are analogous to shale gas plays.

“Tight Oil” – light oil plays where the source  $\neq$  the reservoir, and matrix permeability is low ( $< 0.1$  mD). These plays are analogous to tight gas plays and may be composed of clastics or carbonates or a mixture.

“Halo Oil” – light oil plays where the source  $\neq$  the reservoir, and matrix permeability is relatively high ( $> 0.1$  mD) compared to the other two play type categories. Halo Oil plays represent portions of conventional light oil pools that do not meet traditional petrophysical cutoffs and pay criteria, and may be composed of clastics or carbonates or a mixture.

Examples for the three light oil play categories will be presented from the Western Canada Sedimentary Basin; Shale Oil (Turonian Second White Specks Formation), Tight Oil (Late Devonian to Early Mississippian Bakken Formation), and Halo Oil (Turonian Cardium Formation). The tight light oil reservoirs span a wide range of depositional and tectonic settings and exhibit very different reservoir geometries and lateral extent. For each play the geological, reservoir, and production characteristics will be presented and discussed to deduce the primary controls on production performance in each play category. Note that the same stratigraphic unit might grade into a different play categories in different part of a basin depending on geologic setting, reservoir type, fluids, and pressure. For the mature plays a review will be presented of the success in identifying sweet spots during the initial exploration phase, leading to a discussion of the reservoir parameters that control the production, with the sweet spot often in an area of overlap of several parameters. The unconventional tight light oil play classification scheme facilitates a subdivision of the broad range of unconventional light oil plays and proper use of analogs for early phase light oil plays.

**\*\*Note: Talk is at University of Regina, College West 237.3  
at 11:45 AM**

**Pizza Lunch (normal Society lunch prices apply)**



## Bio -

Per Kent Pedersen is an associate professor with the Department of Geoscience at the University of Calgary, and owner of a consulting company providing technical support for reservoir characterization. He also teaches field seminars for petroleum companies and geological societies.

Pedersen, an AAPG member, holds a doctorate in geology from the Department of Earth Sciences, University of Aarhus, Denmark, and has had a diverse career in academia, government and the oil and gas industry.

His previous academia experience includes Postdoctoral Fellow at Carleton University, Ottawa, Canada, and assistant professor at Brandon University, Brandon, Canada. He also spent several years in the industry as exploration geologist with Apache Canada and senior exploration geologist with Kereco Energy.

Since joining the University of Calgary in 2008 he has established a multidisciplinary research program with a large number of graduate students, which is primarily industry-funded and involves collaboration with a large and diverse group of researchers from universities, government institutions and the oil and gas industry.

The research program builds on his work in industry and government, with current research focused on three areas:

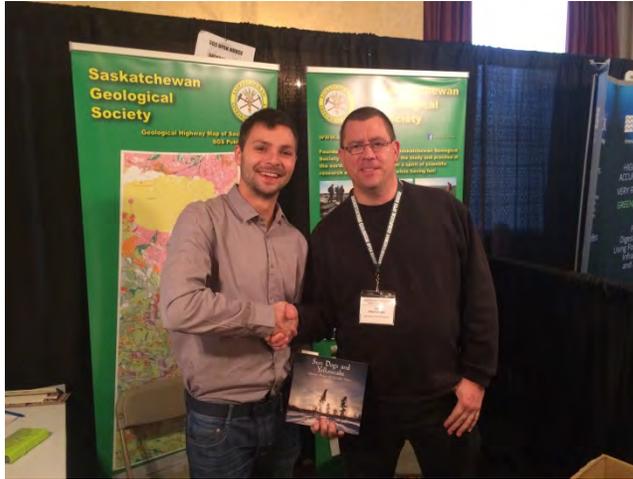
1. Mudstone depositional processes and stratigraphic architecture, and controls on organic accumulation and lateral variability.
2. Geological reservoir characterization of a wide spectrum of tight oil reservoir types from pore size to basin scale, with a focus on the link between depositional process and lateral and vertical heterogeneity from bed to sequence scale and their link to production.
3. The link between sedimentary facies, composition and fabric, and fracture characteristics (i.e. fracture intensity, height, in outcrops and subsurface, and induced seismicity.)

**Note that this will be our last lunch talk before the Christmas break.**



## President's Message

The past month has been another busy one for the Society, highlighted by the recent SK Geological Open House in Saskatoon. This, the 47th annual Open House took place from November 27th-29th and the Society again played a central role in the success of the conference. For those of you that aren't familiar with it, the Open House is Saskatchewan's foremost minerals-related conference and attracts delegates from across the minerals industry, including exploration and mining companies, universities and government. The conference offered a jam-packed schedule again this year and attracted over 700 attendees. Society representatives are directly involved in planning this event year after year and also with the Society-sponsored activities that take place during the conference. The Society had a booth in the exhibitor's room and saw a steady flow of traffic throughout the event. I'm happy to say that Janis Dale set a new unofficial record for calendar sales at the booth!



**Tim Prokopiuk (U of S; right) presents Connor Malek (left) with a copy of the book "Sun Dogs and Yellowcake" that he won as a door prize draw at the Society's Open House booth. The book was kindly donated by author Patricia Sandberg (see more details on the book in the News and Events section below).**

Other Society-sponsored events at the Open House included the student poster competition and the annual Open House public lecture. This year we had 11 graduate and 9 undergraduate poster entries for the student poster competition. I'm pleased to report that Meagan Gilbert (U of S) placed first and Dillon Johnstone (U of R) placed second in the Graduate Category, whereas Jill Johnson (U of S) placed first and Aidan Mowat (U of S) placed second in the Undergraduate Category. Congratulations to all winners and to all participants for a job well done!! A big thanks goes out to Murray Rogers for organizing the event again this year, and to Joyce McBeth, Lynn Kelley, and Murray for judging the posters. Dr. William Hay (professor emeritus at University of Colorado) delivered an entertaining and informative public lecture on "Rethinking Cretaceous Climate" on Tuesday evening to around 100 people. The lecture was co-sponsored by the SK Mining Association and APEGS. Dr. Hay also kindly donated a copy of his new textbook, entitled, "Experimenting On a Small Planet", to the Society. That book is being housed in the library at the downtown office of the SK Geological Survey (11<sup>th</sup> Floor, 1945 Hamilton St.) if anybody is interested in taking a look.

Thanks to all Society members who helped with the Open House this year and for making it another success! Merry Christmas and Happy New Year to all!

- Ryan Morelli



## OTHER NEWS AND EVENTS

### Call for Executive Nominations

The end of the SGS fiscal year is fast approaching and it is time now to start thinking about nominations or volunteers for the 2016 Society executive. Available positions to be filled at the upcoming Annual General Meeting are: President, Vice-President, Business Manager, Program Chairperson, Assistant Program Chairperson, Treasurer and Secretary (Past-President is the only position that is pre-determined). Some of the current executive is willing to stay on in various positions and other members have expressed interest in joining the executive, but at this point it's wide open and there are multiple positions to be filled, so please consider running. Nominations should be made by email to the President of the Society and head of the nominating committee, Ryan Morelli, by 5 pm January 13<sup>th</sup>, 2016.

### Annual General Meeting

The SGS Annual General Meeting will take place at the Travelodge Hotel on the evening of Saturday, Feb. 4<sup>th</sup>. Please keep the date open in your calendar. Tickets will be available for purchase soon.

### 2017 Saskatchewan Geology Wall Calendar

The new Geology Calendar for the province is now available. Early reviews suggest that the calendar is a better product than last year, with more variety and better images. We only printed 1000 of them, so please don't wait to get your own copy. Those of you who bought last year's calendar will know that it is as much decorative as it is educational. It is also hoped that calendar sales can support other SGS outreach activities. The monthly photos are a good representative selection of geoscience images that include landscape shots, detailed outcrop and mineral shots, aerial and satellite images, and a fossil. The images are also geographically balanced, with photos from Uranium City, Reindeer Lake, Chaplin, the Frenchman and many more locations.

As last year, the calendar can be purchased in Regina at the U of R bookstore, the Museum of Natural History, the MacKenzie Art Gallery, Butcher Boy on Park Street, RCMP Heritage Centre, The Artful Dodger, as well as at SGS luncheon talks. This year it is also available in Saskatoon, at the U of S bookstore, the airport gift store, McNally Robinson bookstore and the Western Development museum. You can also obtain it directly from one of the committee members. The cost is \$10 (1-4), \$8 (5-9), and \$6 (>10). Get your calendar today, it will make a great Christmas present and supports as well as promotes your Society.

### Call for Volunteers: SGS Core Workshop, Williston Basin Petroleum Conference

We are looking for volunteers to help with the SGS Core Workshop held in conjunction with the Williston Basin Petroleum Conference. The Core workshop is to be held on Tuesday May 2, 2017 at the Ministry of the Economy's Subsurface Geological Laboratory.

The Core Workshop generates approximately \$20,000 and is currently the Society's major fund raiser. The Core Workshop helps fund high quality speakers for our technical luncheon talks, fund public and school lectures, and subsidize the annual field trip and AGM.

For further details, please see the information on page 8 of this newsletter or contact Dan Kohlruss at [Dan.Kohlruss@gov.sk.ca](mailto:Dan.Kohlruss@gov.sk.ca).



## Upcoming Talks

Per Pedersen (Dec. 12<sup>th</sup>) will be giving the final lunch talk before the Christmas break. The following is a list of upcoming speakers for the New Year, submitted by Jason Cosford and Mike Thomas:

List of some upcoming speakers:

- Charlie Harper (Jan. 18<sup>th</sup>; Artful Dodger)
- Steve Grasby (Feb 15<sup>th</sup>)
- Stephen Bend (tbd)
- Tim Collett, AAPG speaker (April 21<sup>st</sup>)

Suggestions for other potential speakers are always welcome. Please contact either Jason Cosford or Mike Thomas with your ideas.

## New Book: “Sun Dogs and Yellowcake; Gunnar Mines – A Canadian Story”

Sun Dogs and Yellowcake is a new book by Patricia Sandberg about the history of the Gunnar uranium mines area of northwestern Saskatchewan. Patricia (in addition to being a new Society member!) is a former securities lawyer and a former resident of the Gunnar Mines area. This book reveals the unique and little known history of this part of Saskatchewan, as well as the stories of people that lived in the area. It's a wonderful book that is chock-full of stories, information, photos and images.

This book would make a great Christmas gift, especially for people interested in Saskatchewan's mining history or Canadian history in general. *Sun Dogs and Yellowcake* is available at McNally Robinson Books in Saskatoon, as well as in other select bookstores and through Amazon. For additional information, please see the advertisement at the end of this newsletter or visit Patricia's website at [www.PatriciaSandberg.com](http://www.PatriciaSandberg.com) (email: [patriciasandberg@shaw.ca](mailto:patriciasandberg@shaw.ca)).

## Information Item: Rocky Mountain Section AAPG – Call for Papers

The AAPG Rocky Mountain Section Annual Meeting is taking place from June 25<sup>th</sup>-28<sup>th</sup>, 2017. Please visit the meeting website at <http://rmsaapg2017.com/> for more information, including technical sessions and abstract submission information. This abstract submission site will remain open until 12:00 midnight on February 28, 2017.

## News from the D.M. Kent Club

The Kent club would like to wish everyone a happy and healthy holiday season. Thank you for all your support this year, and we look forward to a great 2017.



OUR 2016 CORPORATE MEMBERS:



D M KENT CONSULTING  
GEOLOGIST LTD



## Call for Volunteers: SGS Core Workshop, Williston Basin Petroleum Conference

Dear SGS Membership,

We are looking for volunteers to help with the SGS Core Workshop held in conjunction with the Williston Basin Petroleum Conference. The Core workshop is to be held on Tuesday May 2, 2017 at the Ministry of the Economy's Subsurface Geological Laboratory.

**The Core Workshop generates approximately \$20,000 and is currently the Society's major fund raiser.** The Core Workshop helps fund high quality speakers for our technical luncheon talks, fund public and school lectures, and subsidize the annual field trip and AGM.

**The Core Workshop organizing committee requires 5 volunteers.**

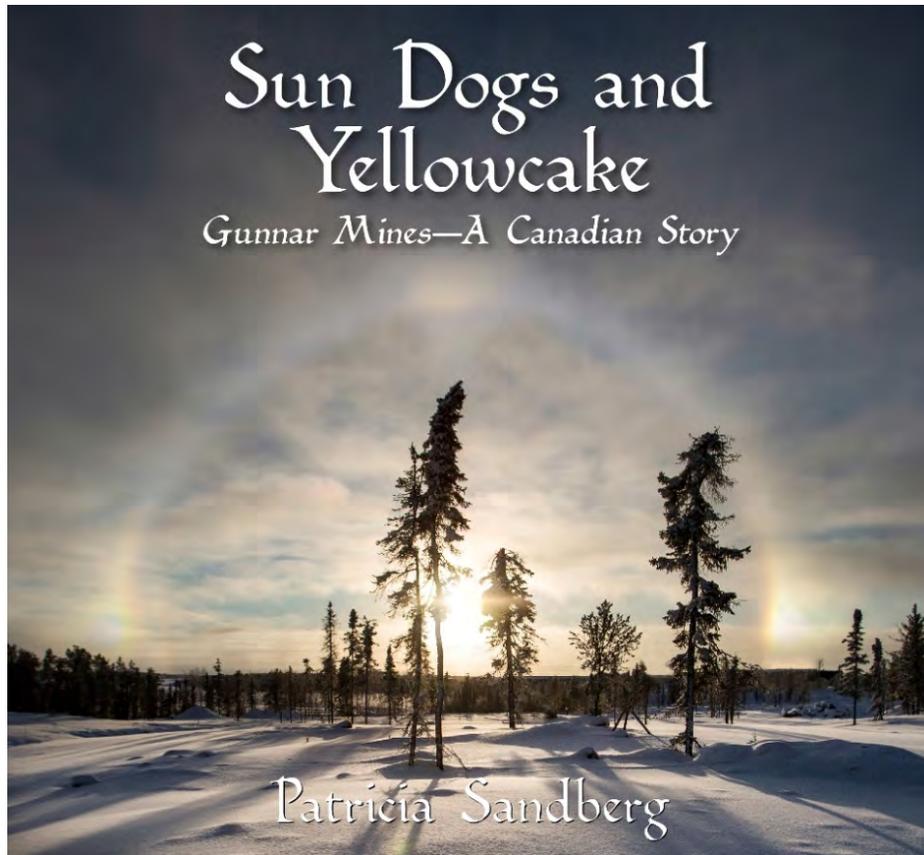
Duties of the Core Workshop volunteers may include: finding six presenters; developing the workshop agenda; editing papers; compiling the papers; sending the volume out for printing; booking of audio-visual equipment and organization of catering for the day of the workshop, and; chair for the event (i.e., introducing presenters, facilitating questions and keeping the program on time).

The Williston Basin Petroleum Conference will provide support by supplying student volunteers and admin staff to hand-out registrations packages and assist on the day of the workshop. The Williston Basin Petroleum Conference will also provide support through consultation for determining timelines, best practices and will print any signage that is required.

In appreciation for volunteering, each Core Workshop organizing committee volunteer will have free access to the Core Workshop as well as the main Williston Basin Petroleum Conference exhibitor floor and technical sessions (\$550 value).

In order for the Society to maintain the high quality of services it provides to promote the study and practice of earth sciences, and to foster a spirit of scientific research among its members, it is of extreme importance that the Core Workshop be successful.





Canada's uranium helped end the second world war and armed the next, the Cold War. An exploration frenzy swept the western world and mining magnate Gilbert LaBine's new discovery at Gunnar Mines attracted attention across North America and beyond. Gunnar's 800 residents—immigrants fleeing post-war Europe, job-seeking southerners, and the area's First Nations and Métis—found adventure, romance, tragedy, and a freedom never again to be equaled. It was an exuberant and innocent time.

*Sun Dogs and Yellowcake* chronicles the early days of uranium mining in Western Canada. Part memoir, part oral history, the book takes us back to a largely-forgotten era in Canadian history.

Available at McNally Robinson Books, other select book stores, and Amazon.

For further information:

[patriciasandberg@shaw.ca](mailto:patriciasandberg@shaw.ca)

[www.PatriciaSandberg.com](http://www.PatriciaSandberg.com)

