



## Alaska Heavy Oil

**Erik Hulm**  
**BP Exploration Alaska Inc.**  
Anchorage, Alaska

*Note: AGS meetings will be at the BP Energy Center for 2010-2011.  
Please check the website ([www.alaskageology.org](http://www.alaskageology.org)) and issues of the AGS newsletter for updates.  
This Newsletter promotes the April luncheon of the Alaska Geological Society  
to be held Thursday, April 21<sup>st</sup>, at the BP Energy Center.*

Alaska's North Slope is a world-class petroleum basin with some of the largest producing fields in North America. Over 70 billion barrels of oil have been discovered across the central North Slope. Forty billion barrels of this resource are classified as conventional, light oil and to date over 16 billion barrels have been produced. The remaining 30 billion barrels are classified as unconventional or heavy oil. Though heavy oil accounts for over 40% of the original oil in place, only 150 million barrels have been produced. High viscosities and a lower price on the market have been barriers to large scale heavy oil development, but with declining light oil production and limited discovery of new oil reserves, heavy oil has the potential to play a major role in the future of Alaska North Slope production.

Alaska heavy oil is located in shallow sands that overlie the producing light oil fields. The primary reservoirs are the Schrader Bluff, West Sak, and Ugnu sands. Current heavy oil production is restricted to the lower viscosity oils in the Schrader Bluff and West Sak reservoirs where oil is being produced through the application of waterflood. The Ugnu sands account for over half of the heavy oil in place but have received little attention due to higher oil viscosities. To test the production potential of the Ugnu, BP has initiated an appraisal campaign focused on the Milne Point Unit in which a \$100mm pilot is featured.

### AGS Luncheon

**Date & Time:** April 21<sup>st</sup>, 11:30 am – 1:00 pm

**Program:** Alaska Heavy Oil

**Speaker:** Erik Hulm, BP Exp. Alaska Inc.

**Place:** BP Energy Center

**Reservations:** Please make your reservation before noon Tuesday, April 19<sup>th</sup>, 2011.

**Cost:** Seminar only, no meal: Free

Reserve a box lunch: \$15

Reserve a hot lunch: \$20

**Lunch with no reservation:**  
On an "as-available" basis only

**E-mail reservations:** [vp@alaskageology.org](mailto:vp@alaskageology.org)  
Or phone (907) 269-8673  
(Ken Helmold, AGS VP)

**For more information: visit the AGS website:**  
[www.alaskageology.org](http://www.alaskageology.org)

The Ugnu heavy oil accumulation occurs along a regional, normal faulted, monocline that dips at 1° to 2° to the northeast. The accumulation occurs within a series of structural compartments that are bound by multiple fault families of distinct ages and orientations. Fluid quality within the Ugnu resource is linked to the regional structural dip and temperature gradient with decreasing oil viscosity toward the deeper eastern reaches of the accumulation. The Ugnu sands were deposited during the Late Cretaceous and Early Tertiary within a regionally extensive, fluvial-deltaic complex. The M-sand interval contains the primary reservoirs in the Ugnu. The reservoirs are regionally extensive single and multi-storey lower delta plain channels and sandsheet complexes, consisting of high quality, unconsolidated, clean sands separated by thinner, silty mudstone units. Sand bodies tend to be high net-to-gross, but exhibit significant lateral variability in thickness and facies type. Some of the interbedded mudstones are laterally continuous and vertically segregate individual hydrocarbon bearing reservoir units.

Ugnu rock and fluid properties are similar other heavy oil resources currently under development around the world. To better understand the link between resource characteristics and recovery techniques, an extensive review of analog fields was conducted. Application of analog learnings to the Ugnu resource indicates that a variety of recovery processes might be used to develop the Ugnu. Primary recovery methods show potential in the deeper, less viscous oils in the eastern half of the resource whereas heavier oils in the west will require a different approach to reduce viscosity and mobilize the oil such as steam or solvent injection processes. Benchmarking has also highlighted a number of Ugnu attributes that are unique including reservoir depth, degree of faulting, and thick permafrost in the overlying stratigraphy. The potential impact of each of these attributes and the viability of recovery methods can only be understood through pilot testing. BP's first heavy oil pilot is located in the eastern, lower viscosity portion of the resource and will test the viability of primary recovery processes.

### **About the Author:**

Erik Hulm is the Heavy Oil Appraisal Team Leader for BP Alaska. He has a Bachelor's degree in Earth Science from the University of South Dakota and a Masters degree in geology from the University of Alaska Fairbanks. He has twelve years experience in oil and gas exploration, appraisal, and development in both domestic and international locations. Erik has spent the last five years working on heavy oil in Alaska, focusing on resource characterization, development screening, technology progression, and production pilot testing.

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### **From the President's Desk ....**

Our talk this month is on heavy oil. Erik Hulm will bring us up to date on BP's plans to tap the Ugnu sands on the North Slope. It should be a really interesting talk, as Erik's abstract covers structure, stratigraphy, oil characteristics, and recovery techniques associated with this technically and economically challenged resource. Heavy oil is only one of several largely untapped North Slope resources. Others include conventional gas, gas hydrates, and both gas and oil from tight lithologic units. Production is in decline from both the North Slope and Cook Inlet Basins, and technological advances combined with economic viability will be required to bring new types of resources to market.

A great thing about living in Alaska is our small population and relatively easy access to both elected and non-elected state and federal officials. There's a lot in the news these days regarding energy policy, incentives, regulation, conservation, conversion, and taxation. If you have a well thought out opinion or some expertise that you can share on an aspect of resource development, you should provide it at the appropriate level. Citizen input is important, and actions by both the state and federal governments can strongly influence resource development decision making.

Plans are being finalized for the 2011 PSAAPG Annual Meeting, to be held at the Anchorage Sheraton Hotel May 8-11. The committee has been hard at work, and Sandy Phillips and Steve Wright are putting the final touches on the AAPG oral and poster sessions. The program and abstracts volume will be sent to the printer around April 15. Please don't forget that the deadline for obtaining the early registration rates is also April 15. Short courses and field trips that remain undersubscribed after that date are at risk of being cancelled, so we really need for you to register by April 15.

Be sure to include the PSAAPG Awards luncheon on Monday, May 9 in your registration plans. Some of our own will be recognized. I'm pleased to announce that Kris Crossen of UAA will receive the Distinguished Educator Award, Greg Wilson of ConocoPhillips will receive the Distinguished Service Award, and Gil Mull of somewhere warm and dry will receive Honorary Life Membership. I hope that you can be there to congratulate them on their achievements.

**Tom**

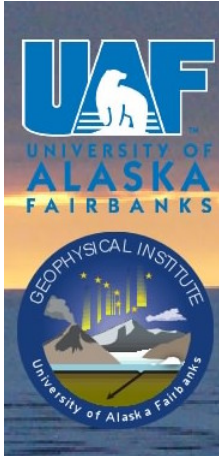


# ICAM VI

The Sixth International Conference on Arctic Margins  
Fairbanks, Alaska, USA; 31 May - 2 June 2011

<http://www.gi.alaska.edu/icam6/>

<http://www.gi.alaska.edu/icam6/>



*Deadlines - April 30th: Abstract  
Deadline*

*Rolling abstract acceptance within  
one week of submission*

*April 30: Last day for early bird  
registration*

*Venue: Davis Concert Hall, University  
of Alaska Fairbanks campus*

*Travel: Symposium is timed with  
direct flights from/to Europe*

## Scientific sessions:

- Hydrocarbon potential and gas hydrates;
- Science issues relating to UNCLOS Article 76;
- Geodynamic significance of arctic magmatism;
- Vertical motions in the Arctic, tectonic and glacial;
- Geology and palaeogeography of the arctic continental margins;
- Evolution of the Arctic Ocean basins, including plate reconstructions, magmatism, and sedimentology;
- Modern arctic environments, including geological, climatic, and oceanographic processes; and
- Recent advances in arctic research technology

Contact the organizers: [ICAM6@gi.alas](mailto:ICAM6@gi.alas)

## The Alaska Geological Society

### LUNCHEON SCHEDULE 2010 - 2011

Updates on the web at:

<http://www.alaskageology.org>

September 2010	Thurs., Sept. 16 <sup>th</sup> , David Scholl, USGS, Earthquake and Tsunami Hazards of the Aleutians
October 2010	Thursday, Oct. 21 <sup>st</sup> , Peter Haeussler, USGS Neo-tectonics of Cook Inlet
November 2010	Thursday, Nov. 18 <sup>th</sup> , Joann Welton, EXXON, Evaluating siliciclastic reservoir quality
December 2010	Thursday, Dec. 9 <sup>th</sup> – Alison Till, USGS, Reconstruction of Arctic Alaska
January 2011	Thursday, Jan. 20 <sup>th</sup> – Chris Waythomas, USGS AVO, Eruption of Kasatochi
February 2011	Thursday, Feb. 17 <sup>th</sup> , James Coleman, USGS, Tight-Gas Sandstone Reservoirs (AAPG Distinguished Lecturer)
March 2011	Thursday, March 17 <sup>th</sup> – Lisa Wirth, UAF Alaska Satellite Facility
April 2011	Thursday, April 21 <sup>st</sup> , Erik Hulm, BP Alaska, Heavy Oil of Alaska
May 2011	Thursday, May 19 <sup>th</sup> – Robert Swenson, DGGs, Energy development in Alaska

If you would like to volunteer a talk or would like to suggest a speaker, please contact Ken Helmold at 269-8673

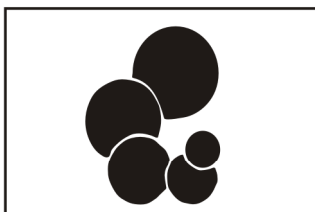
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## **FIELD TRIPS**

Field Trip 1 – Turnagain Arm-Resurrection Bay Field Trip

Field Trip 2 – Tertiary Coal Bearing and Holocene Deposits, Nenana Basin

Field Trip 3 – Wishbone Hill Field Trip

Field Trip 4 – Sedimentology, Reservoir Quality, and Tectonic Setting of Late Miocene-Early Pliocene Gas-Bearing Formations, Upper Cook Inlet

## **AAPG SHORT COURSES AND WORKSHOPS**

AAPG Short Course 1 – Core Workshop: Reservoir Potential of the Western North Slope

AAPG Short Course 2 – Tectonic Evolution of Arctic Alaska and Its Influence on North Slope Basin Evolution and Petroleum Systems

AAPG Short Course 3 – Managing Your Business using PRMS

## **SPE SHORT COURSES**

SPE Short Course 1 – Multiphase Metering

SPE Short Course 2 – Introduction to Well Logging

SPE Short Course 3 – Thermal Recovery

SPE Short Course 4 – Drilling and Completions for the PE Exam

SPE Short Course 5 – Downhole Water Control

SPE Short Course 6 – OCS Regulatory Review - BOEMRE

SPE Short Course 7 – Production and Reservoir Engineering for the PE Exam

## **The Quest for AGS Officers:**

It's election time in the world of the AGS again. Each year we have vacancies for Secretary, Treasurer, Vice President, President-elect and three Board positions. But, it's come to my attention that some people are of the opinion that the AGS is run by a group of good old boys/ladies. Nothing could be further from the truth!! The reality is that the AGS is actually run by a super secret select few individuals—each of whom is able to recite in order and spell correctly all of the stages of the Jurassic; able to draw the chemical formula for 28,30-bisnorhopane and identify it on a fragmentomatogram; able to develop a systems tract analysis based on a single core or hand specimen from an outcrop which may or not be accessible and who able to separate zircons from any terrestrial granitoid using only tweezers held deftly in their left hands.

Perhaps you find the aforementioned qualification somewhat difficult to believe!?? Hmmm. Let's look at the data. Membership roles show that our AGS has well over 200 members. In the old days, the membership guides used to list the members affiliations to their respective educational and professional affiliations. I am reasonably certain that AGS members still show the same sort of diversity now as then. We still work in a number of widely different geologic disciplines. Some of us who have actually seen the old membership books would agree that we're more photogenic now than then. Times certainly change.

But in earlier years, the quest of filling the positions for officers and board members was comparatively competitive. It is not that way now. AGS has always been a volunteer-run organization. However, many recent elections reflect that the volunteer pool for keeping the AGS operational seems to be shrinking in numbers. I am at a loss as to how to reverse this trend, other than by asking everyone to reconsider becoming a little more active in the AGS and to consider running for one of the positions. To blatantly paraphrase that long lanky lawyer from Illinois who once said (and should have trade-marked) AGS is "of the members, by the members and for the members". We're all in this together.

*- A concerned AGS Member*

## Meeting Information

The **American Geological Institute** provides a comprehensive list of national and international geoscience meetings at: <http://calendar.agiweb.org>

### Local Meetings:

#### American Water Resources Association—Alaska Section

<http://www.awra.org/state/alaska/index.html>

#### Alaska Geological Society

<http://www.alaskageology.org>

Lunch meetings are held monthly September through May in Anchorage. For more information, contact Jim Clough, 451-5030.

#### Alaska Miners Association

<http://www.alaskaminers.org/>

The Anchorage branch of the AMA holds weekly meetings at 7 AM every Friday at the Denny's on Northern Lights and Denali. They hold regular luncheon meetings in association with SME. For more information, contact the AMA office at 563-9229.

#### American Institute of Professional Geologists

<http://www.aipg.org>

AIPG holds regular quarterly evening Section meetings in Anchorage and Fairbanks. For more information contact Mark Lockwood, President, at Shannon & Wilson, Inc., in Fairbanks, 907-458-3142.

#### Chugach Gem & Mineral Society

<http://www.chugachgms.org>

CG&MS holds all meetings at the First United Methodist Church on 9<sup>th</sup> Avenue. Contact their hotline at 566-3403 for information on regular monthly business meetings, monthly potlucks, and guidebook sales, including the new Alaska Rockhound Guidebook.

#### Geophysical Society of Alaska

<http://gsa.seg.org/>

Luncheon meetings are held monthly September through May at the ConocoPhillips Tower. For more information, contact Phil Rorison, 265-6321

#### Society of Petroleum Engineers

<http://alaska.spe.org/>

#### UAS Environmental Science Program

<http://www.uas.alaska.edu/envs>

#### National Association of Geology Teachers (NAGT)

<http://www.nagt>

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On the web at: <http://www.alaskageology.org>

The Alaska Geological Society is an organization which seeks to promote interest in and understanding of Geology and the related Earth Sciences, and to provide a common organization for those individuals interested in geology and the related Earth Sciences.

This newsletter is the monthly (September-May) publication of the Alaska Geological Society, Inc. Number of newsletters/month: ~300

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#### MEMBERSHIP INFORMATION

AGS annual memberships expire November 1. The annual membership fee is \$20/year. You may download a membership application from the AGS website and return it at a luncheon meeting, or mail it to the address above.

Contact membership coordinator Greg Wilson with changes or updates (e-mail: [gregory.c.wilson@conocophillips.com](mailto:gregory.c.wilson@conocophillips.com); phone: 907-263-4690)

All AGS publications are now available for on-line purchase on our website. Check to see the complete catalogue.

<http://www.alaskageology.org/publications>

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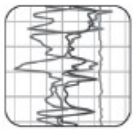
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Note: e-mail addresses now contain "at" instead of "@" Please change to @ when typing.

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