

An Introduction to the Petroleum Geology of Part of the Western Beaufort Sea, Alaska

Tom Homza
Shell Exploration & Production Company

*Note: AGS meetings will be at the BP Energy Center for 2008-2009.
Please check the website (www.alaskageology.org) and issues of the AGS newsletter for updates.
This newsletter promotes the September luncheon talk of the Alaska Geological Society,
to be held Thursday, Sept. 11th at the BP Energy Center.*

A significant component of modern hydrocarbon exploration in north Alaska is focused on finding reservoir. This talk discusses the basic geologic elements and risks of the petroleum system in the western Beaufort Sea with a focus on reservoir-presence. Robust reservoirs are interpreted to be present in the western Beaufort Sea, which has the same general resource stratigraphy as the Alaska North Slope.

The area consists of a north-facing rifted margin with rotated fault blocks on the scale of 10s of kilometers, overlain by a post-rift interval of Cretaceous and younger passive margin sequence. Most of the productive reservoirs on the North Slope are interpreted to be porous and permeable in the area. Ellesmerian pre-rift and Beaufortian rift-related reservoirs are each likely involved in both structural and stratigraphic traps. Proven seal rocks unconformably overlie the fault blocks in most areas, but a main sealing unit was disturbed by sub-sea mass wasting in other areas. Multiple source rocks are present in a complex kitchen to the north of the rift margin and have expelled oils of varying maturity, some of which have been biodegraded.

Alaska Geological Luncheon

Date & Time: Thursday, Sept. 11th, 11:30 am – 1:00 pm

Program: Petroleum Geology of the Western Beaufort Sea

Speaker: Tom Homza

Place: BP Energy Center

Reservations: Please make your reservation before noon Tuesday, Sept. 9th, 2008.

Cost: Seminar only, no meal: Free
Reserve a box lunch: \$13
Nonmember: \$15

Reserve a hot lunch: \$20
Nonmember: \$22

No reservation: add \$5 to the above
(on an "as-available" basis only)

E-mail reservations: vp@alaskageology.org
Or phone (907) 230-1672
(Tom Morahan, AGS VP)

For more information: visit the AGS website:

www.alaskageology.org

Speaker's Biography

Tom Homza received a BS in geology in 1989 from the University of Vermont, his MS and PhD from the University of Alaska Fairbanks in 1992 and 1995, respectively. Tom has studied north Alaskan geology since 1989 in academia and industry. He has worked in the exploration departments at BP and EnCana, and now is employed at Shell Exploration & Production Company. Tom has served as Vice President for the Alaska Geological Society and is current President-elect. He lives in Anchorage with his wife and two sons.

A Passing

George Gryc – USGS Geologist, Leader, and Alaska Expert, 1919 – 2008

By Leslie C. Gordon, USGS

After a long and distinguished career with the U. S. Geological Survey, George Gryc, 88, passed away on April 27 in Sunnyvale, California. Well known from the smallest bush settlement on the Yukon to Capital Hill in Washington, Gryc was the preeminent Alaskan geologist of his day. His work bore directly on the outcome of all the major issues of consequence to Alaska in the 20th century.



George Gryc was born in St. Paul, Minnesota, in 1919. He attended the University of Minnesota from 1937 to 1943, earning both B.A. and M.S. degrees in geology and winning the hand of coed Jean Funk, his beloved wife for 66 years. He is survived by Jean and by five children -James, Stephen, Christina, Paula Jean, and Georgina- as well as nine grandchildren and three great-grandchildren.

Gryc joined the Geological Survey in 1943 in time for a summer field season evaluating the mercury deposits of Southwest Alaska. Mercury, a strategic mineral for the manufacture of munitions, was a high priority of the WW II Strategic Mineral Program. Gryc continued his graduate studies at Johns Hopkins University, and in 1944 Gryc began studies on the petroleum geology and hydrocarbon resources of Alaska's North Slope, then a region largely unmapped and unexplored.

Gryc's pioneering expeditions to the North Slope provided the grist for a lifetime of raconteurism. The dangerous river traverses began with white-knuckle bush plane landings on gravel bars in May followed by headlong dashes down uncharted streams in canvas boats, hoping to reach the Arctic coast before winter began. One tense September saw Gryc's party stranded for three weeks without supplies because the air service fired the only pilot knowing the pick up time and place. In other years he made the first geologic explorations of the Sagvanirktok and Shaviovik Rivers, ending in Prudhoe Bay.

From 1950 to 1960 Mr. Gryc was Chief of the Survey's Navy Oil Unit that was providing the scientific support to the petroleum exploration and drilling being carried out in Naval Petroleum Reserve No 4. Landmark reports resulting from the 'Pet 4' studies were crucial clues in the 1969 discovery of the oil field at Prudhoe Bay, one of the nations largest deposits of oil and gas.

After serving as Staff Geologist to the Chief Geologist at the USGS Headquarters in Washington, Gryc relocated to Menlo Park in 1963 where he served as Chief of the Branch of Alaskan Geology until 1976.

The Alaska Geological Society

LUNCHEON SCHEDULE 2007 - 2008

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

September 2008	Thurs., Sept. 11 th	Tom Homza An Introduction to the Petroleum Geology of Part of the 'Western Beaufort Sea
October 2008	Thursday, Oct. 23 rd	Peter Haeussler, USGS, Submarine Slope Failures Near Seward and Valdez, Alaska, During the 1964 Earthquake, and Implications for Local Tsunami Generation
November 2008	Thursday, Nov. 13 th	Tentative
December 2008	Thursday, Dec. 11 th	David Houseknecht, USGS, Brookian Sequence, Arctic Alaska
January 2009	Thursday, Jan. 15 th	Tentative
February 2009	Thursday, Feb. 19 th	Open
March 2009	Thursday, March 19 th	Open
April 2009	Wednesday, April 22 nd	Open
May 2009	Thursday, May 21 st	Open

Please contact Tom Morahan, Program Chair, if you have suggestions for luncheon talks on the open dates.

In 1964 the second largest earthquake of the century devastated south-central Alaska and sent a tsunami that caused death and destruction as far away as California. George Gryc immediately took the lead in organizing the USGS field response to the effects of the quake on the works of man and the ecosystem. The resulting studies were instrumental in land use decisions and reconstruction designs, formed a model for post-quake investigations, and established the National Earthquake Hazards Reduction Program.

Early in the 1970s Gryc found himself embroiled in the Alaska Pipeline, a highly contested proposal to pump Prudhoe Bay crude to the lower 48 states through an 800-mile-long hot oil pipeline buried in icy permafrost. As Chairman of the Menlo Park Working Group on the Trans-Alaska Pipeline, Gryc and his colleagues measured such geotechnical problems as melting permafrost and giant earthquakes against proposals for mitigations. Time and time again when the numerous high-pressure meetings and hearings threatened to explode, George Gryc's courteous style and open personality would restore calm and order. His contribution to the safe and profitable Trans Alaska Pipeline is widely recognized among earth scientists.

In January 1976, Mr. Gryc was appointed Regional Geologist for the Western Region, representing the Chief Geologist in coordinating geologic studies in Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington, and the Pacific Trust Territories. The assignment was interrupted within the year when USGS Director Vincent McKelvey asked him to plan and carry out a program for the exploration and resource assessment of the new National Petroleum Reserve (NPR) on Alaska's North Slope. The NPR study was massive in scope, involving drilling stratigraphic test wells on the North Slope from winter camps. Some years the NPR budget exceeded that of the entire 10,000-person Geological Survey. In January 1982 Gryc was appointed Assistant Director for the USGS Western Region, a role in which he remained until his retirement in 1995; while in this position, he continued publishing the results of the NPR program.

In 1974 Mr. Gryc began active work with the Circum-Pacific Map Project (CPMP), an international compilation of geologic and resource information of the Pacific realm. In 1986 he was elected General Chairman of the CPMP and thereafter guided the design and production of 60 new synoptic maps of mineral- and petroleum resources, earthquake- and volcano hazards, and geologic structure and tectonics. After formally retiring in 1995, he received a prestigious Pecora fellowship to continue his scientific studies and served as a Scientist Emeritus with the USGS until his death.

Gryc was active in many scientific committees, symposia, and workshops including the Permafrost Committee of the National Academy of Sciences Polar Research Board. His other professional memberships include Fellow of the Geological Society of America, the Paleontological Society, the Arctic Institute of North America,

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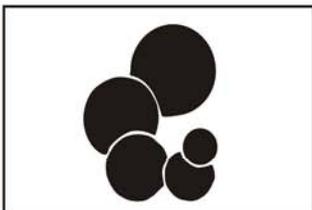
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serving on its Board of Governors from 1965 to 1971; the American Association of Petroleum Geologists; the Alaskan Geological Society; Director and Officer of the Circum Pacific Council; the Geological Society of Washington; the Northern California Geological Society; Fellow of Sigma Xi; and the Cosmos Club of Washington, D.C. He was awarded the Meritorious and the Distinguished Service Awards, the two highest honors of the Department of Interior, as well as several Senior Executive Service Awards.

Mr. Gryc's career exemplifies the motto, "Earth science in the public service." Throughout his professional life, he was dedicated to the nourishing of objective scientific inquiry and to the effective application of the results of this science to help people around the world. His commitment to fostering international cooperation in science was a hallmark of his many accomplishments. On a more personal level, he will be remembered for his knowledge of natural history outside of geology, for mentoring young scientists, and for his profound equanimity and great sense of humor.

The Alaska Geological Society, Inc.
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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 \$15/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.

http://www.alaskageology.org/membership/memb_app.txt

Contact membership coordinator Mark Olson with changes or updates (e-mail: mark.a.olson@conocophillips.com; phone: 907-263-4250)

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

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

ADVERTISING RATES

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 1/2 Page--\$525/9mo, \$100/1mo; size=9.0 x 3.5 or 4.5 x 7.5 inch
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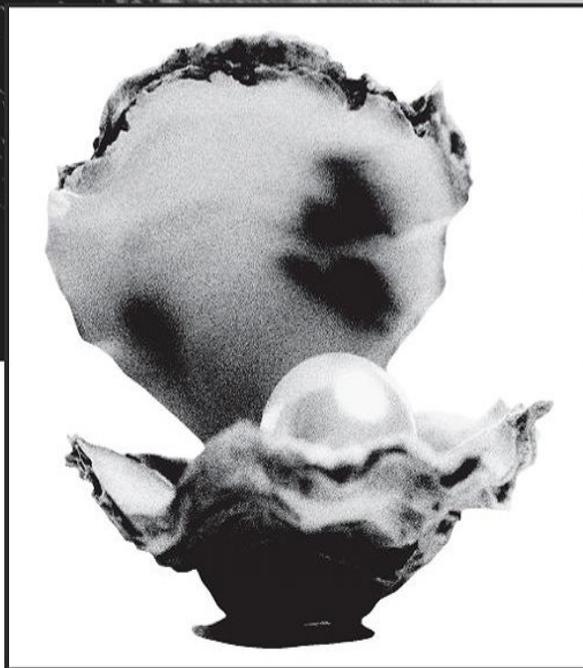
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Meeting Information:

These links were all active as of 03/08/08. Please send updates to the editor: Greg Wilson 263-4748, or e-mail to Gregory.c.wilson at conocophillips.com

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 Art Banet, 334-5316.

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 Nino Muniz, President, at Oasis Environmental, 264-4880.

Chugach Gem & Mineral Society

<http://www.chugachgms.org>

CG&MS holds all meetings at the First United Methodist Church on 9th 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.seq.org/>

Luncheon meetings are held monthly September through May at the ConocoPhillips Tower. For more information, contact Monte Mabry, 265-1653

Society of Petroleum Engineers

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

For more information, contact Jack Hartz at 375-8239.

UAS Environmental Science Program

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

National Association of Geology Teachers (NAGT)

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

From the President's Desk

On behalf of the Alaska Geological Society, I'd like to welcome you all back from your summer activities, be they safe and fruitful summer field work or vacations inside or outside of Alaska. I would also like to thank Past President Art Banet for his efforts this past year and welcome the new and returning AGS Board Members, Tom Homza (President Elect), Tom Morahan (Vice President), Dave Schafer (Treasurer), Ken Helmold (Secretary), Diane Shellenbaum, Ted Bornemann, Pete Barker, Bob Gillis, Laura Silliphant, and Rick Levinson. Through the years, the voluntary efforts of our board members have been crucial to allowing AGS to function as an organization that furthers our understanding of the geology of Alaska through its myriad of activities including luncheons, field trips, and scholarships as well as to recognize those people who have made many contributions to Alaska geology.

Our Vice President, Tom Morahan, has assembled an interesting lineup of talks for the 2008-2009 monthly luncheons, beginning with Tom Homza's talk, *An*

introduction to the petroleum geology of part of the western Beaufort Sea, Alaska, on Thursday, September 11 at the BP Energy Center. Many thanks to BP Exploration Alaska for making this venue available for our monthly meetings! I urge you to sign up early for the luncheons by email or phone to allow planning for the appropriate number of lunches. Please visit our website, <http://www.alaskageology.org>, for luncheon details, current events and contact information for board members. Peter Johnson was instrumental in getting the AGS website in its current new look, Thanks Peter for this and continuing to handle the publications for AGS! Finally, thank you Greg Wilson for continuing to put together an excellent, timely and informative monthly newsletter, Alaska Geology (now available by email in PDF format for members!).

- *Jim*

2006 - 2007 Alaska Geological Society Board

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Annual North Slope field rendezvous including representatives of the DGGS, DOG, USGS, UAF, and Industry.

