ALASKA GEOLOGY

Newsletter of the Alaska Geological Society, Inc.

High-Relief Slope Clinoform Development: An Outcrop Analog for the Cretaceous Brookian Foreland Succession From Patagonia, Chile

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Note: AGS meetings will be at the BP Energy Center for 2009-2010.
Please check the website (www.alaskageology.org) and issues of the AGS newsletter for updates.
This newsletter promotes the November luncheon talk of the Alaska Geological Society,
to be held Thursday, November 19th, at the BP Energy Center.

The Cretaceous–Paleogene Tres Pasos and Dorotea formations of the Magallanes Basin, Chile record the filling of a deep-water foreland setting. Slope clinoforms with at least 700–900 m relief accreted southward along the foredeep axis, which was oriented parallel to the adjacent Patagonian Andes. Fluvial- and wave-influenced deltaic deposits of the Dorotea Formation represent the upper, flat portions of the sigmoidal slope profiles (topset strata). Mudstone, siltstone, and a notable paucity of sandstone characterize upper slope strata. Further down-slope, conduits are evidenced by sedimentary bodies associated with mudstone rip-up clasts and/or cross-stratified or normally graded sandy conglomerate, indication that considerable sediment bypassed the slope. Turbiditic sandstones and mass-transport deposits of the Tres Pasos Formation characterize the lower to base of slope setting (toeset strata).

Numerous examples of slope clinoforms have been recognized in the rock record, with the majority characterized by 200–500 m of estimated paleo-relief. Higher relief examples include those mapped in outcrop from the Magallanes Basin, Chile documented here, and comparable clinoforms from the subsurface, Cretaceous Brookian succession of the North Slope, Alaska. The development of high-relief slope clinoforms is facilitated when the rate of sediment input onto the slope is higher than the rate of topographic development, generated from mass wasting or substrata remobilization. In the Magallanes Basin, numerous factors contributed to the development of high-relief clinoforms, including generation of substantial basin margin relief, the

Alaska Geological Society Luncheon

Date & Time: **Thursday, Nov. 19th, 11:30 am – 1:00 pm**

Program: **High Relief Clinoform Development**

Speaker: ***Stephen M. Hubbard***

Place: **BP Energy Center**

Reservations: **Please make your reservation before noon Tuesday, Nov. 17th, 2009.**

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) 269-8673
(Ken Helmold, AGS VP)

For more information: visit the AGS website:

www.alaskageology.org

absence of mobile substrata, high sediment supply, and the elongate basin shape. The slope that built and maintained the relatively smooth clinoform profile was narrow, and thus the high volume of sediment that passed over the shelf was focused as it passed into deeper water and topographic rugosity that developed on the slope was healed.

About the Author:

Education

2006 – Ph.D, Stanford University

Thesis on deep-water foreland basin axial channel belts, supervised by Steve Graham

1999 – M.Sc., University of Alberta

Thesis on shallow marine sedimentology and ichnology, supervised by George Pemberton

1997 – B.Sc., University of Alberta

Professional Experience

2006-2009 – Assistant Professor, University of Calgary

1999-2001– Development Geologist, Shell Canada Ltd.

Current Positions Held

• Associate Editor, Journal of Sedimentary Research

• Canadian Society of Petroleum Geologists Executive, Communications Director

Research Interests

General: Marine clastic sedimentology and stratigraphy; petroleum geology

Current Research Themes:

• Stratigraphic architecture and sedimentology of deep-water depositional systems, including high-relief shelf-margin clinoform systems

• Early paleogeographic evolution of foreland settings, with a particular focus on Jurassic strata of the Western Canada Sedimentary Basin

• Sedimentology and stratigraphic architecture of fluvial and estuarine point bars, focused on the McMurray Formation of Alberta (reservoir of the Athabasca Oil Sands) as well as the analysis of modern analogs

The Alaska Geological Society

LUNCHEON SCHEDULE 2009 - 2010

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

September 2009	Thurs., Sept. 17th, Paul O'Sullivan, Apatite to Zircon, Inc., Timing of Brooks Range Uplift and Denudation: A Summary of Fission Track Results Over the Last 25 Years.
October 2009	Thursday, Oct. 15th, Steve Wright, Chevron, Cook Inlet Gas Shortage: Fact of Fiction?
November 2009	Thursday, Nov. 19th, Stephen Hubbard, University of Calgary, High Relief Clinoform Development
December 2009	Thursday, Dec. 10th , John Howell, University of Bergen, Laser Scanning and Geological Modeling.
January 2010	Thursday, Jan. 21st, William Morris, ConococPhillips Alaska, Inc., Karoo Basin Sedimentology
February 2010	Thursday, Feb. 18th, OPEN
March 2010	Thursday, March 18th, OPEN
April 2010	Wednesday, April 15TH, OPEN
May 2010	Thursday, May 20th, OPEN

Please forward suggestions for topics and speakers to:
Ken Helmold, VP of AGS

NEW PUBLICATION BY THE USGS
Prepared in cooperation with the Alaska DNR, DOG

Preliminary Geologic Map of the Cook Inlet Region, Alaska -

Including parts of the Talkeetna, Talkeetna Mountains, Tyonek, Anchorage, Lake Clark, Kenai, Seward, Iliamna, Seldovia, Mount Katmai, and Afognak 1:250,000-scale quadrangles

Compiled by Frederic H. Wilson, Chad P. Hults, Henry R. Schmoll, Peter J. Haeussler, Jeanine M. Schmidt, Lynn A. Yehle, and Keith A Labay

Open-File Report 2009-1108

From the President's Desk ….

Greetings! As we seem to be wrapping up the first true autumn we've had in Anchorage for some time, we may be able to get those skis out on the trails and slopes pretty soon.

Thank you for the overwhelming participation and cooperation during the October Luncheon. I think those who attended now have an acute awareness of the gas crisis that looms for the region. Stephen Wright's AGS presentation was also nicely covered in the press. This month we look forward to a talk by Stephen Hubbard from the University of Calgary on high relief clinoforms, which should interest a great many of our members. Thanks to Ken Helmold for putting together a terrific schedule of luncheon speakers.

A few notes of business…If you have not renewed your membership, please do so as soon as you can so that we can continue to deliver high quality luncheons and activities. Also, we are still looking for a few volunteers to help us reinvigorate our scholarship fundraising activity as we ramp up to online giving options and wider scholarship appeal. You really can make a huge difference in your community by volunteering, so if you have a notion, give me a shout.

In closing, I'd like to thank Al Hunter and Laura Silliphant for their hard work at AGS. They've been working behind the scenes in many ways to improve your organization – thanks!

~ Tom

The Alaska Geological Society is proud to offer several scholarships annually to undergraduate and graduate students conducting geoscience research projects in Alaska. These scholarships include AGS scholarships and the Don Richter Memorial Scholarship. The goal of the AGS scholarship program is to foster and support interest in Alaskan geology, and to increase geologic knowledge of our state. Detailed information about the scholarships, and applications for the scholarships, can be obtained from our website.

As of July 2009, the Alaska Geological Society has official 501c3 nonprofit status with the IRS. It is now possible to make tax-deductible contributions to AGS to help us sponsor field trips, workshops, technical conferences, and scholarships. The AGS Board of Directors would like to establish self-sustaining scholarship fund accounts. To celebrate our new tax-deductible status, please consider making a contribution to one of our scholarship funds, or to our general fund, this year. If you work for an employer who matches charitable or educational contributions, your contribution can significantly help us to increase our scholarship fund accounts as well as the size of the grants that AGS can afford to award to students. It is easy to make secure donations on our website, and we also happily accept checks by mail.

AGS SCHOLARSHIPS

The Alaska Geological Society offers scholarship awards
to graduate and undergraduate students
who are conducting geoscience research projects in Alaska

including

Alaska Geological Society Scholarships
The Don Richter Memorial Scholarship

Scholarship information and applications are available online at
www.alaskageology.org

The Alaska Geological Society, Inc.
P.O. Box 101288
Anchorage, Alaska 99510

The Alaska Geological Society is a 501c3 nonprofit organization
Donations to these scholarship funds are tax deductible

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.

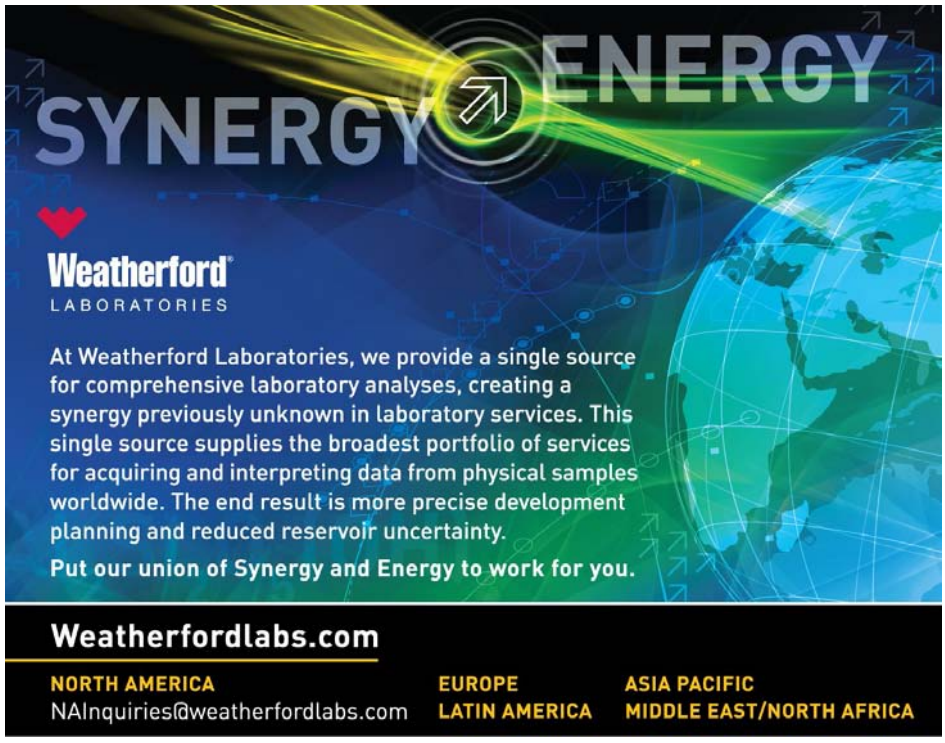
Chugach Gem & Mineral Society
http://www.chugachgms.org
CG&MS holds all meetings at the First United Methodist Church on 9th Avenue. Contact their hotline at 566-3403 for information on regular monthly business meetings, monthly potlucks, and guidebook sales, including the new Alaska Rockhound Guidebook.

Geophysical Society of Alaska
http://gsa.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/
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



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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.

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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.

Contact membership coordinator Mark Olson with changes or updates (e-mail: gregory.c.wilson at 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

ADVERTISING RATES

Advertisements may be purchased at the following rates:
1/10 Page--$150/9mo, $60/1mo; size=1.8 x 3.5 inch
1/4 Page--$300/9mo, $75/1mo; size=4.5 x 3.5 or 2.2 x 7.5 inch
1/3 Page- $375/9mo, $85/1mo; size=7.0 x 3.5 or 3.0 x 7.5 inch
1/2 Page--$525/9mo, $100/1mo; size=9.0 x 3.5 or 4.5 x 7.5 inch
Full Page--$800/9mo, $130/1mo; size=7.5 x 9.0 inch
1mo rate=(9mo rate/9)+$40 (rounded up).

Contact Tim Ryherd (907) 269-8771 for advertising information.

Newsletter Delivery Options

Your newsletter should be arriving via both an emailed PDF and regular mail. If you have an email account but have not received the PDF, please let the editor know. Also contact the editor if you wish to opt out of the paper copy.

Annual membership expires on Nov. 1st. Please renew if you have not already done so, or risk an interruption in your AGS emails and Newsletters.

On the Beaten Path

Trail, Road and Boat Accessible ~~Alaska~~ Geology

Greg Wilson & Tom Plawman, Editors; guest authors welcome

If you have ideas for an "On the Beaten Path" article, please forward them to us and we'll share with the membership.

Channeled Scablands, Eastern Washington

No, Alaska has not annexed Washington geology (recently). But as those of you fortunate enough to attend the October GSA Annual Meeting in Portland, Oregon know, there was a field trip planned to the Channeled Scablands of the Columbia River area. The field trip was canceled in the end, but that shouldn't stop any of us from taking our own tour as we pass through the Pacific Northwest on our way to other destinations. Below are a few notes, thoughts, photos, and a book recommendation to get you started.

Dry Falls, Washington, as it appears today (photo below) and an artists rendition as it appeared in the Pleistocene (right, a photo of a state park interpretive sign), when the falls raged as mighty as Niagara during one of the great floods from Glacial Lake Missoula. A field of erratics transported by the floods is displayed lower right.

Photos by Greg Wilson

Geoquote:

"Catastrophism had virtually vanished from geologic thinking when Hutton's concept of 'The present is key to the past' was accepted and Uniformitarianism was born. Was not this debacle that had been deduced from the Channeled Scabland simply a return, a retreat to Catastrophism, to the dark ages of geology? It could not, it must not be tolerated."

…. J HARLAN BRETZ, 1978

J Harlan Bretz was speaking of the violent opposition in the geologic community to his series of papers (beginning in 1923) on the Channeled Scablands of eastern Washington. Most of the leading geologists of the day (who had never visited the outcrops) were unwilling to accept the notion that this unique landscape was caused by gigantic floods. Only after Joseph Thomas Pardee published his work on glacial Lake Missoula in 1942 did opinion begin to swing in Bretz's favor. Final vindication didn't come until 1979 when Bretz (at age 96) received the Penrose Medal from the GSA. Bretz is said to have told his son "All my enemies are dead, so I have no one to gloat over".

Effects of the Bretz Floods can be seen over a wide area of Washington, Oregon, Idaho, and Montana. If you happen to be traveling in that part of the world and want to see some of the evidence for yourself, one good book is *Cataclysms on the Columbia*, by John Elliot Allen and Marjorie Burns, first published in 1986 by Timber Press.

2009 - 2010 Alaska Geological Society Board

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

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