ALASKA GEOLOGY
Luncheon Abstract
Alaska Geological Society

Geothermal Exploration at Mt. Spurr, AK – Summer 2010

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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 May luncheon talk of the Alaska Geological Society,
to be held Thursday, May 20th, at the BP Energy Center.

The active, Aleutian-arc stratovolcano Mt. Spurr and its' flank volcano, Crater Peak are the target of current geothermal exploration in the western Cook Inlet. Lying just 80 km west of Anchorage, AK, the Mt. Spurr complex serves as both a source of hazard and of potential energy. Recent eruptive episodes ('53 and '92) make development here risky – but the young nature of the volcanic system (all less than ~255ka), extensive, active faulting, advanced surface alteration suites and fluid chemistries consistent with a geothermal reservoir, also make Mt. Spurr very prospective. While fraught with technical and logistical challenges, the State of Alaska's enthusiastic support of this project (including State politicians and scientists, utilities, university scientists and local environmental and community groups) has made Mt. Spurr feasible – if and when a geothermal reservoir is defined.

Field reconnaissance in the summer of 2009 (including mapping and surface geochemical sampling) is setting the stage for a full-scale exploration program in the summer of 2010. The hazardous nature of Mt. Spurr has insured the existence of long-time monitoring and characterization of this volcanic complex (including basic geologic mapping, seismic monitoring and periodic geochemical sampling). In addition, limited geothermal exploration was completed here in the mid-1980's (Turner and Wescott, 1986 (including SP,

AGS Luncheon

Date & Time: **Thursday, May 20th, 11:30 am – 1:00 pm**

Program: **Geothermal Prospects of Mt. Spurr**

Speaker: **Brigitte Martini**

Place: **BP Energy Center**

Reservations: **Please make your reservation before noon Tuesday, May 18th, 2010.**

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

CSAMT, He & Hg sampling, ice depth surveys and liquid/gas geothermometry). However we still lack a basic understanding of the structural complexity in this region and the intense snow/ice and vegetation coverage in this area has made comprehensive geologic mapping extremely difficult. To remedy this, high resolution, stereo-photography, hyperspectral imaging and LiDAR kick off the exploration program – aiming to provide base maps (especially structure) of this poorly known edifice. This will be followed by airborne gravity and magnetics followed by an aggressive ground-based MT survey. Structures and potential zones of upflow will then be targeted for late-summer field mapping and ground-truthing which also includes additional liquid/gas geothermometry and potentially CO2 flux-meter measurements. The results and synthesis of these surveys into a working exploration/drilling model will be used to site approximately ten temperature gradient holes of which four will potentially be drilled in September of 2010.

About the Author

Brigette A. Martini, PhD, Senior Staff Geologist, Ormat Nevada Inc.

Dr. Martini is a geologist and remote sensing scientist with more than a decade of experience in applied geology and spectral processing and analysis with commercial and government, air and space-based remote sensing systems. She received her Bachelor of Science in Geosciences, Summa Cum Laude from the University of Arizona, Tucson and her PhD in Earth Science from the University of California, Santa Cruz where her thesis focused on the use of advanced exploration techniques (primarily hyperspectral imaging) for the assessment of a world-class geothermal system at Mammoth, CA. Her principle expertise is two-fold; a background in geology with special emphasis on natural resource exploration and development (specifically geothermal and ore deposits) and a background in analysis and assessment of both passive and active, air and space-based remote sensing data for geological, biological and strategic targets (spectral, radar/SAR, Lidar). She spent several years as a staff scientist and consultant in the commercial imaging industry, aiding geothermal, mining, petroleum, agriculture, ecosystem conservation and military/intel companies and groups in measurement and resource potential assessments using remote sensing and traditional geological/geophysical exploration suites. Following contract-work with the US Air Force in primary research, development and instruction in hyperspectral imaging and Radar/SAR, Dr. Martini took her current position with Ormat as Senior Staff Geologist in June of 2008. In this capacity, she is involved in active exploration and development projects domestically and abroad with major projects in Alaska, Maui, Nevada, Oregon, Washington and Central America. She has placed a major focus on bringing new technologies into Ormat, merging these with traditional geothermal exploration techniques and leveraging these atypical approaches for identification and characterization of more complex and challenging geothermal reservoirs.