

CV - ROMAN J. MOTYKA

PROFESSIONAL PREPARATION:

B.A. Physics, 1964, St. Mary's University, Winona, Minnesota.

Honors thesis title: Construction of a mass spectrometer.

M.S. Physics, 1966, Michigan State University, East Lansing, Michigan.

Ph.D. Geology and Geophysics, 1983, Geophysical Institute, University of Alaska, Fairbanks.

Dissertation: Increases and fluctuations in thermal activity at Mount Wrangell, Alaska, determined from glacier melt and mass balance.

APPOINTMENTS:

Research Assoc. Professor, Geophysical Institute, University of Alaska Fairbanks, 1998-present

Affiliate Professor, Geophysical Institute University of Alaska Fairbanks, 1996-1998

Affiliate Professor, Environmental Sciences Program, University of Alaska Southeast, Juneau, November 1995-present.

Senior Geologist/Geophysicist, Alaska Division of Geological & Geophysical Surveys, Juneau and Fairbanks, December 1981-August 1995.

Geologist/Geophysicist, Alaska Division of Geological & Geophysical Surveys Fairbanks, August 1979-December 1981.

Physicist, Michelson-Morley Laboratory, U.S. Department of Navy, China Lake, California, July 1966-December 1970.

RECENT PUBLICATIONS:

Motyka, RJ, D Lawson, D Finnegan, G Kalli, B Molnia, and A Arendt, **2008**. Hubbard Glacier update: another closure of Russell Fiord in the making? *Journal of Glaciology*, **54**(186), 562-564.

Ritchie, JB, CS Lingle, **RJ Motyka**, M Truffer, **2008**. Seasonal fluctuations in the advance of a tidewater glacier and potential causes: Hubbard Glacier, Alaska, USA. *Journal of Glaciology*, **54**(186), 401-411.

Harrison, WD, **RJ Motyka**, and six others, **2008**. Another surge of Variegated Glacier, Alaska, USA, 2003/04. *Journal of Glaciology*, **54**(184), 192-194.

Motyka, RJ, and M Truffer, **2007**. Hubbard Glacier, Alaska: 2002 Closure of Russell Fjord and implications for future dams. *J. Geoph. Res., Earth Surface*. 112, F02004, doi:10.1029/2006JF000475.

Motyka, R.J., C.F. Larsen, J.T. Freymueller and K.A. Echelmeyer. **2007**. Post Little Ice Age Glacial Rebound in Glacier Bay National Park and Surrounding Areas. *Alaska Park Science*, 6(1), 36-41.

Benson, C., **R. Motyka**, S. McNutt, M. Lüthi, M. Truffer. **2007**. Glacier-volcano interactions in the North Crater of Mt Wrangell, Alaska. *Annals of Glaciology*, 45, 48-57.

Larsen, CF, **RJ Motyka**, AA Arendt, KA Echelmeyer, and PE Geissler, **2007**. Glacier changes in southeast Alaska and northern British Columbia and contribution to sea level rise. *J. Geophys.Res., Earth Surface*. 112, F01007, doi:10.1029/2006JF000586.

Boyce, ES, **RJ Motyka**, and M Truffer, **2007**. Flotation and Retreat of a Lake-Calving Terminus, Mendenhall Glacier, Southeast Alaska. *Journal of Glaciology*, **53** (181), 211-222.

Wieczorek, G.F., E. L. Geist, **R. J. Motyka**, M. Jakob, **2007**. Hazard assessment of the Tidal Inlet landslide and potential subsequent tsunami, Glacier Bay National Park, Alaska. *Landslides*, DOI 10.1007/s10346-007-0084-1, 11 p.

Motyka R. J., M. Truffer, E. M. Kuriger, A. K. Bucki, **2006**., Rapid erosion of soft sediments by tidewater glacier advance: Taku Glacier, Alaska, USA, *Geophys. Res. Lett.*, 33, L24504, doi:10.1029/2006GL028467.

Kuriger, EM, M Truffer, **RJ Motyka**, and AK Bucki. **2006**. Episodic reactivation of large scale push moraines in front of the advancing Taku Glacier, Alaska. *J. Geoph. Res.*, **111**(F1), doi:10.1029/2005JF000385.

- Larsen, CF, **Motyka, RJ**, Freymueller, JT, Echelmeyer, KA, Ivins, ER, **2005**. Rapid viscoelastic uplift in southeast Alaska caused by post-Little Ice Age glacial retreat. *Earth and Planetary Science Letters* 237, 548– 560.
- Larsen, CF, **RJ Motyka**, JT Freymueller, KA Echelmeyer, and ER Ivins, **2004**. Rapid uplift of southern Alaska caused by recent ice loss. *Geoph. Journ. Internat.*, 158, 1118-1133.
- Motyka, RJ**, L Hunter, K Echelmeyer, and C Connor, **2003**. Submarine melting at the terminus of a temperate tidewater glacier, LeConte Glacier, Alaska. *Annals of Glaciology*, 36, 57-65.
- Motyka, RJ**, **2003**. Post little ice age uplift at Juneau, Alaska reconstructed from dendrochronology and geomorphology. *Quatern. Res.*, 59, 300-309.
- O’Neel, S, K Echelmeyer, and **RJ Motyka**, **2003**. Short-term variations in calving at a retreating tidewater glacier: LeConte Glacier, Alaska. *Journal of Glaciology*, (12), 587-598.
- Larsen, C. F., Freymueller, J. T., Echelmeyer, K. A., and **Motyka, R. J.**, **2003**. Tide gauge records of uplift along the Northern Pacific-North American Plate Boundary, 1937 to 2001. *Journal of Geophysical Research*, 108(B4), 2216-2231.
- Motyka, RJ**, S O’Neel, C Connor, and KA Echelmeyer, **2002**. 20th Century thinning of Mendenhall Glacier, Alaska, and its relationship to climate, lake calving, and glacier run-off. *Global and Planetary Change*, 35(1-2) 93-112.
- O’Neel, S, K Echelmeyer, and **RJ Motyka**, **2001**. Short-term flow dynamics of a retreating tidewater glacier: LeConte Glacier, Alaska, U.S.A. *Journal of Glaciology*, 47(159), 567-578.

COLLABORATORS AND OTHER AFFILIATIONS:

Scientific Collaborators:

Carl Benson (GI-UAF), Keith Echelmeyer (GI-UAF), Jim Beget (GI-UAF), Will Harrison (GI-UAF), Austin Post (USGS ret.), Dennis Trabant (USGS), Lewis Hunter (CRREL), Dan Lawson (CRREL), Jeff Freymueller (GI-UAF), Glenn Juday (UAF), Cathy Connor (UAS), Martin Truffer (GI-UAF), Matt Nolan (UAF), Craig Lingle (GI-UAF), Eric Rignot (JPL), Felix Kaiser (Swiss Institute), Gerry Wiczorek (USGS), Eran Hood (UAS), Matt Heavner (UAS), Mark Fahenstock (UNH)

Ph.D. Graduate advisors: Carl Benson (Chair) (GI-UAF); Will Harrison (GI-UAF); Lewis Shapiro (GI-UAF); Jurgen Kienle (GI-UAF); Robert Forbes (GI-UAF)

Graduate Committees:

Jason Amundsen (Ph.D.) (GI-UAF); Laura LeBlanc (Ph.D.) (GI-UAF)

Graduated Students:

Ellie Boyce (M.Sc.) (2006); Shad O’Neel (M.Sc) (2001); Chris Larsen (Ph.D) (2003); Elsbeth Kuriger (M.Sc.) (GI-UAF); Brent Ritchie (M.Sc.) (GI-UAF)

SYNERGISTIC ACTIVITIES:

- Geological and geophysical field work, 30 years throughout Alaska.
- Geodetic survey experience, theodolite and GPS, 30 years throughout Alaska.
- Mountaineering and skiing - extensively in Alaska, U.S., and Canada, 33 years experience.
- Emergency trauma technician.
- Coast Guard captain’s license, 15 years.
- Small boat operator and kayak travel throughout coastal Alaska, 30 years experience.

Biographical Sketch

Dr. Motyka’s recent work has focused on understanding tidewater glacier dynamics through extensive field work and digital photogrammetry. In the past he was lead scientist on NSF funded studies of tidewater glaciers including LeConte, Taku, and Hubbard Glaciers, all located in southeast Alaska. LeConte Glacier has been in rapid calving retreat since 1995. In contrast

Taku Glacier is advancing, deforming proglacial sediments, and scouring overridden soft sediments at rates of 1 to 3 m/yr. The advance of Hubbard Glacier periodically blocks Russell Fjord, creating huge glacier dam lakes. He is currently collaborating on a NASA funded study of another tidewater glacier: the calving collapse of Jakobshavn Isbrae in Greenland. He and colleagues at University of Alaska Southeast are also studying the thinning of Mendenhall Glacier and disintegration of its calving terminus in Mendenhall Lake. Motyka has been the lead scientist in a NSF-funded multi-disciplinary study of uplift, isostatic rebound, and plate tectonics in southeast Alaska. This program uses precision GPS, tide gage measurements, dendrochronology, measurements of glacier changes, and modeling to help understand the dynamics between glacier change, isostatic rebound, and regional tectonics. Motyka is also involved in two additional studies funded by NASA, one related to the contribution of Alaska glaciers to global sea level raise, the second related to developing ice-load models for Glacier Bay and for the Yakutat Icefield.