

ROMAN J. MOTYKA

PROFESSIONAL PREPARATION

St. Mary's University, Winona, Minnesota	Physics	B.A. 1964
Michigan State University, East Lansing, Michigan	Physics	M.S. 1966
University of Alaska Fairbanks, Fairbanks, Alaska	Geology and Geophysics	Ph.D. 1983

APPOINTMENTS

2013-Pres.	Research Professor Emeritus, Geophysical Institute, University of Alaska Fairbanks
2011-2013	Research Professor, Geophysical Institute, University of Alaska Fairbanks
1998-2010	Research Associate Professor, Geophysical Institute, University of Alaska Fairbanks
1996-1998	Affiliate Faculty, Geophysical Institute, University of Alaska Fairbanks
1995-Pres.	Affiliate Faculty, Environmental Sciences Program, University of Alaska Southeast
1981-1995	Senior Geologist/Geophysicist, Alaska Division of Geological & Geophysical Surveys, Juneau and Fairbanks
1979-1981	Geologist/Geophysicist, Alaska Division of Geological & Geophysical Surveys Fairbanks

TEN RECENT PUBLICATIONS

- Motyka, R.J.**, W. P. Dryer, J. M. Amundson, M. Truffer, and M. Fahnestock, **2013**, Rapid Submarine Melting Driven by Subglacial Discharge, LeConte Glacier, Alaska. *Geophys. Res. Lett.*, 40, 1–6, doi:10.1002/grl.51011
- Trüssel, B. L. , **R. J. Motyka**, M. Truffer, C. F. Larsen, **2013**. Rapid thinning of lake calving Yakutat Glacier and the collapse of the Yakutat Icefield, Southeast Alaska. *Journal of Glaciology*, 59(213), 149-161.
- Straneo, F., P. Heimbach, O. Sergienko, G. Hamilton, G. Catania, S. Griffies, R. Hallberg, A. Jenkins, I. Joughin, **R. Motyka**, W. T. Pfeffer, S. F. Price, E. Rignot, T. Scambos, M. Truffer, A. Vieliand, **2013**, Challenges to understand the dynamic response of Greenland's marine terminating glaciers to oceanic and atmospheric forcing, *Bull. Am. Meteorol. Soc.*, 94, 1131–1144, doi:10.1175/BAMS-D-12-00100.
- Mortensen, J., J. Bendtsen, **R. J. Motyka**, K. Lennert, M. Truffer, M. Fahnestock, and S. Rysgaard, **2013**. On the seasonal freshwater stratification in the proximity of fast-flowing tidewater outlet glaciers in a sub-Arctic sill fjord. *J. of Geophys. Res.: Oceans*, 118, 1–14, doi:10.1002/jgrc.20134.
- Amundson, J.M., J.F. Clinton, M. Fahnestock, M. Truffer, M.P. Lüthi, and **R.J. Motyka**, **2012**. Observing calving-generated ocean waves with coastal broadband seismometers, Jakobshavn Isbræ, Greenland. *Ann. Glaciol.*, 53(60), 79-85, doi: 10.3189/2012/AoG60A200.
- Motyka, R. J.**, M. Fahnestock, M. Truffer, J. Mortensen, and S. Rysgaard, **2011**, Submarine melting of the 1985 Jakobshavn Isbrae floating tongue and the triggering of the current retreat, *J. Geophys. Res. - Earth Surface*, **116**, doi:10.1029/2009JF001632.
- Post, A., S. O'Neel, **R. J. Motyka** and G. Streveler. **2011**. A complex relationship between calving glaciers and climate, *EOS*, 92(37):305. doi: 10.1029/2011EO370001.
- Motyka, R. J.**, M. Fahnestock, and M. Truffer, **2010**, Volume Change of Jakobshavn Isbrae, West Greenland: 1985 – 1997 – 2007. *Journal of Glaciology*, 56(198), 635-646.
- Truffer, M., **R. J. Motyka**, M. Hekkers, I. Howat, and M. King, **2009**, Terminus dynamics at an advancing glacier: Taku Glacier, Alaska. *Journal of Glaciology*, 55(194), 1052-1060, (09J006).
- 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.

SYNERGISTIC ACTIVITIES

- Geological and geophysical field work, 40 years throughout Alaska.
- Geodetic survey experience, theodolite and GPS, 40 years throughout Alaska.
- Mountaineering and skiing - extensively in Alaska, U.S., and Canada, 43 years experience.
- Emergency trauma technician.
- Coast Guard captain's license, 15 years.
- Small boat operator and kayak travel throughout coastal Alaska, 40 years experience.

COLLABORATORS AND OTHER AFFILIATIONS

Scientific Collaborators:

Jason Amundson (UAS), Anthony Arendt (GI-UAF), Carl Benson (GI-UAF), Ellie Boyce (UNAVCO), Keith Echelmeyer (GI-UAF), Mark Fahenstock (UNH), Jeff Freymueller (GI-UAF), Will Harrison (GI-UAF), Michael Hekkers (UAS), Ian Howatt (BPRC-OSU), Kurt Kjaer (U Copen.), Chris Larsen (GI-UAF), Craig Lingle (GI-UAF), Martin Luthi (ETH), Shad O'Neel (USGS), John Mortensen (GINR-GCRC), Soren Rysgard (GINR-GCRC), Martin Truffer (GI-UAF).

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:

Graduated Students: Barbara Truessel (Ph.D.) (2013); David Podarsky (Ph.D) (2013); JoAnna Young (M.Sc) (2013); Robert McNabb (Ph.D) (2013); Jason Amundsen (Ph.D.) (2010); Laura LeBlanc (M.S.) (2009); Brent Ritchie (M.Sc.) (2008); Ellie Boyce (M.Sc.) (2007); Elsbeth Kuriger (M.Sc.) (2007); Chris Larsen (Ph.D) (2003); Anthony Arendt (Ph.D) (2003); Shad O'Neel (M.Sc) (2001)

Biographical Sketch

Motyka joined the Geophysical Institute, University of Alaska Fairbanks (GI-UAF) in 1997 after 16 years as senior geologist with the Alaska Division of Geological & Geophysical Survey (ADGGS). At ADGGS, he headed their geothermal program, which included studies on volcanos. He helped pioneer sampling of fumaroles and hot springs, and assessments of specific geothermal sites, several of which have or are now being developed. Motyka then returned to his roots, love of glaciers, and headed ADGGS' glacier hazards program. During his tenure at GI-UAF, Motyka was involved in several pioneering programs. Among the first was the Black Rapids Glacier drilling program, which characterized subglacial till, erosion, and sediment deposition. A multidisciplinary study of post-Little Ice Age glacial isostatic adjustment came next and focused on SE Alaska. This program found that the highest rates of glacial rebound currently in the world occur in Glacier Bay Alaska and near the village of Yakutat. Velocity vectors derived from the high precision GPS measurements also lead to major papers on the regional tectonics of SE Alaska. Much of Motyka's recent work has focused on calving glaciers, both tidewater and lake-calving. He was lead scientist on NSF funded studies of tidewater glaciers that include LeConte, Taku, and Hubbard Glaciers, all located in southeast Alaska. He collaborated on studies of the calving collapse and retreat of Jakobshavn Isbrae, and of ocean-glacier interactions near Nuuk, Greenland. Motyka helped pioneer the study of ocean-glacier interactions via publications and studies conducted at all of these glaciers. He has also helped pioneer studies of lake-calving glaciers in Alaska including the collapse of Yakutat Glacier's floating tongue. Motyka is based in Juneau. There he helps coordinate field work and also serves as a liaison with University of Alaska Southeast faculty and students, helping to integrate them into GI-UAF glacier research. He is regularly contacted by the Mendenhall Glacier Visitors Center (USFS) in Juneau, the Glacier Bay Visitors Center (USNPS) in Bartlett Cove, and the Wrangell St. Elias Visitors Center (USNPS) in Yakutat for scientific advice and for training of interpretive staff. He has authored or coauthored over 35 scientific publications during his 16 year tenure at GI-UAF. Motyka "retired" in January 2013 but remains active as emeritus faculty, and resides in Juneau, Alaska where he is Affiliate Faculty with the University of Alaska Southeast.