

# Ryan K. Cassotto

email: [rcassotto@icloud.com](mailto:rcassotto@icloud.com)

phone (801) 558-7044

## EDUCATION

- 2017 PhD. Earth and Environmental Sciences, University of New Hampshire  
Thesis: “*Unraveling short-term variations in tidewater glacier flow: Insights from terrestrial radar interferometric studies*”  
Advisors: *Mark Fahnestock, Margaret Boettcher*
- 2011 M.S Earth Sciences, University of New Hampshire  
Thesis: “*Implications of changing winter fjord ice mélanges for Greenland outlet glacier dynamics*”  
Advisor: *Mark Fahnestock*
- 1999 B.S. Electronic Engineering Technology, University of Hartford

## ACADEMIC AND RESEARCH POSITIONS

- 2018 - present Post-Doctoral Researcher, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO
- 2014 – 2017 NASA Earth and Space Science Fellow, University of New Hampshire
- 2013 – 2014 New Hampshire Space Grant Fellow, University of New Hampshire
- 2011 – 2013 Research Assistant, University of New Hampshire
- 2009 – 2010 Teaching Assistant, University of New Hampshire  
Courses: *Earth History* and *Global Environmental Change*

## PUBLICATIONS

- 2018 - **Cassotto, R.K.**, M. Fahnestock, J.M. Amundson, M. Truffer, M. Boettcher, S. de la Pena, I. Howat (in review). Nonlinear glacier response to calving events, Jakobshavn Isbrae. *Journal of Glaciology*.
- 2018 Burton, J.C., J. Amundson, **R. Cassotto**, C.C. Kuo, M. Dennin. Quantifying flow and stress in ice mélange, the world’s largest granular material, *Proceedings of the National Academy of Sciences*
- 2017 Werner, C., B. Baker, **R. Cassotto**, C. Magnard, U. Wegmuller, and M. Fahnestock. (in press) Measurement of fault creep using multi-aspect terrestrial radar interferometry at Coyote Dam. *Proceedings from the 2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*.
- 2017 Voytenko, D., T. H. Dixon, D. M. Holland, **R. Cassotto**, I. M. Howat, M. Fahnestock, M. Truffer, and S. de la Peña (2017), Acquisition of a 3 min, two-dimensional glacier velocity field with terrestrial radar interferometry, *Journal of Glaciology*, 63(240), 629–636, doi:10.1017/jog.2017.28.
- 2017 Motyka, R.J., **R. Cassotto**, M. Truffer, K.K. Kjeldsen, D. van As, N.J. Korsgaard, M. Fahnestock, I. Howat, P.L. Langen, J. Mortensen, K. Lennert, and S. Rysgaard. Asynchronous behavior of outlet glaciers feeding Godthabsfjord (Nuup Kangerlua) and the triggering of Narsap Sermia’s retreat in SW Greenland. *Journal of Glaciology*, 63(238), doi:10.1017/jog.2016.138
- 2015 Peters, I.R., J.M. Amundson, **R.K. Cassotto**, M. Fahnestock, K.N. Darnell, M. Truffer, and W.W. Zhang. Dynamic jamming of iceberg-choked fjords, *Geophysical Research Letters*, 42, doi:10.1002/2014GL062715.
- 2015 **Cassotto, R.K.**, M. Fahnestock, J.M. Amundson, M. Truffer, and I. Joughin. Seasonal and interannual variations in ice mélange rigidity and its impact on terminus stability, Jakobshavn Isbræ, Greenland, *Journal of Glaciology*, 61(225), doi: 10.3189/2015JoG13J235
- 2012 Podrasky, D., M. Truffer, M. Fahnestock, J. Amundson, **R. Cassotto**, and I. Joughin. Outlet glacier response to forcing over hourly to interannual timescales, Jakobshavn Isbræ, Greenland. *Journal of Glaciology*, 58(212), 1212 - 1226.

## **MANUSCRIPTS IN PREPARATION**

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**Cassotto, R.K.**, J.M. Amundson, M.A. Fahnestock, J. Burton, C. Kuo, and M. Dennin. Caterpillar motion of granular ice mélange. *In preparation to be submitted to Geophysical Research Letters.*

**Cassotto, R. K.**, M.A. Fahnestock, S.A. O'Neel, L. Sass, and R.W. McNabb. Large response to precipitation and tidal forcing at Columbia Glacier – evidence for late summer changes in basal water system. *In preparation to be submitted to the Journal of Geophysical Research.*

## **AWARDS**

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- Outstanding Student Paper Award (OSPA), 2015 AGU Fall Meeting

## **PROFESSIONAL AFFILIATIONS**

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- American Geophysical Union
- International Glaciological Society

## **TECHNICAL SOFTWARE PACKAGES**

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- MATLAB
- Gamma Remote Sensing SAR and Interferometry
- Quantum GIS (QGIS)
- Geospatial Data Abstraction Library (GDAL)
- Shell scripting
- Python (novice level)

## **PRESENTATIONS**

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2017 - **Cassotto, R.K.**, M.A. Fahnestock, J.M. Amundson, M. Truffer, and M.S. Boettcher. The correlation between calving size and glacier speed – or lack thereof. NASA Program for Arctic Research and Climate Assessment (PARCA), Goddard Space Flight Center, Greenbelt, MD

2016 - **Cassotto, R.K.**, J. M. Amundson, M.A. Fahnestock, M. Truffer, J. Burton, C. Kuo, M. Dennin, and M.S. Boettcher. Evolution of Ice Mélange Motion During Periods of Terminus Quiescence, Abstract C51A-0650, AGU Fall Meeting, San Francisco, CA.

**Cassotto, R.K.**, M.A. Fahnestock, J.M. Amundson, M. Truffer, and S. O'Neel. Variations at the ice–ocean boundary: insights from terrestrial radar interferometric studies of tidewater glaciers, Abstract 74A2110, IGS Symposium, San Diego, CA.

2015 - **Cassotto, R.K.**, M.A. Fahnestock, S. O'Neel, L. Sass, R.W. McNabb, and W.T. Pfeffer. Large response to precipitation and tidal forcing at Columbia Glacier imaged with terrestrial radar interferometry, Abstract C43B-0808, AGU Fall Meeting, San Francisco, CA (Outstanding Student Presenter Award).

Baker, B., **R.K. Cassotto**, M. Fahnestock, C.L. Werner, and M.S. Boettcher. Measurement of Creep on the Calaveras Fault at Coyote Dam using Terrestrial Radar Interferometry, Abstract G13B-08, AGU Fall Meeting, San Francisco, CA.

Bartholomaus, T.C., R.T. Walker, L.A. Stearns, M.A. Fahnestock, **R. Cassotto**, G.A. Catania, D. Felikson, M. Fried, D. Sutherland, J.D. Nash, and E. Shroyer. High-resolution, terrestrial radar velocity observations and model results reveal a strong bed at stable tidewater Rink Isbræ, West Greenland. Abstract C43B-0805. AGU Fall Meeting, San Francisco, CA.

2013 - **Cassotto, R.K.**, M. Fahnestock, J.M. Amundson, and M. Truffer. Glacier–Ocean Interactions on Short Timescales: Can observations of tidal and calving impacts on near-terminus ice flow inform us about controls on terminus stability? International Workshop on Understanding the Response of Greenland's Marine Terminating Glaciers to Oceanic and Atmospheric Forcing. Beverly, MA.

2012 - **Cassotto, R.K.** M.A. Fahnestock, M. Truffer, R.J. Motyka, D. Podrasky, and P. Dryer. Observations of a Greenland Tidewater Outlet Glacier Behavior Using a Ground Based Radar Interferometer. International Symposium on Glaciers and Ice Sheets in a Warming Climate, University of Alaska, Fairbanks, AK.

**Cassotto, R.K.**, M.A. Fahnestock, J.M. Amundson, M. Truffer, and I. Joughin. Implications of changing winter fjord ice mélanges for Greenland outlet glacier dynamics. NASA Program for Arctic Research and Climate Assessment (PARCA), Goddard Space Flight Center, Greenbelt, MD.

- 2011 - **Cassotto, R.K.**, M.A. Fahnestock, and J.M. Amundson. Implications of Greenland Fjord Ice Stability on Terminus Retreat from the MODIS Thermal Record. International Symposium on Interactions of Ice Sheets and Glaciers with the Ocean, Scripps Institute of Oceanography, San Diego, CA.

## **FIELD EXPERIENCE**

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- October 2014 *Columbia Glacier, Valdez, Alaska*  
Conducted terrestrial radar interferometric measurements of Columbia's termini
- August 2012 *Jakobshavn Isbræ, Ilulissat Greenland*  
Performed terrestrial radar interferometric measurements of glacier and ice mélange, time-lapse photogrammetry, tidal measurements
- August 2010/11 *Kangiata Nunaata Sermia, Nuuk Greenland*  
Acquired terrestrial radar interferometric measurements of terminus and ice mélange, time-lapse photogrammetry, theodolite and GPS surveys
- April 2010 *Jakobshavn Isbræ, Ilulissat, Greenland*  
Assisted in GPS survey of 2000-meter contour, time-lapse photogrammetry
- July-Aug 2009 *Juneau Icefield Research Program, Juneau, Alaska*  
Excavated snow pits for surface mass balance estimates, Assist in GPS surveying
- July 2008 *Castner Glacier, Delta, Alaska*  
Field assistant for glacial geomorphology project

## **PREVIOUS WORK EXPERIENCE**

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- 2003 – 2007** **Electromagnetic Compatibility Engineer**, L-3 Communications Systems West, Salt Lake City, UT  
*L-3 CSW designs and manufactures network and satellite communication systems for the Department of Defense and government agencies.*
- Ensured electromagnetic compliance of communication systems with military standards for land, sea, space, and airborne platforms.
  - Supervised and managed EMC test efforts and supported multi-agency/multi-contractor EMC test efforts of an Unmanned Aerial Vehicle (UAV) at a government test facility.
  - Educated engineering and manufacturing personnel on proper EMC design and build techniques through instructional seminars.
  - Diagnosed EMC failures and implemented solutions.
- 2002 – 2003** **Electromagnetic Compatibility Test Engineer**, Curtis-Straus LLC, Littleton, MA
- 2000 - 2001** **Compliance Engineer**, Quantum Bridge Communications, Andover, MA
- 1999 - 2000** **Electromagnetic Compatibility Test Engineer**, Curtis-Straus LLC, Littleton, MA