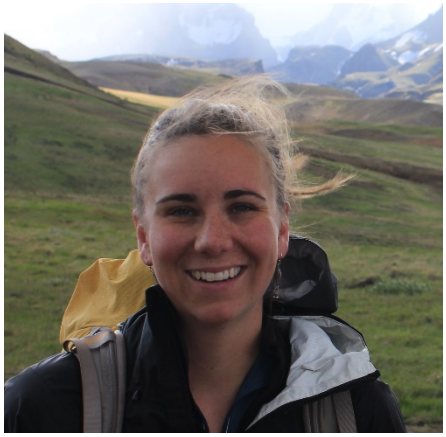
Name: Dr. Kira Olsen



Code: 698

Home institution: Howard University

Name of task: Seismology of Active Worlds

What do you do for CRESST: Postdoctoral Scientist. I conduct research on fracture within ice with the goal of better understanding icy satellites.

What is your background: I grew up in Homer, a small town on the coast in southcentral Alaska. Feeling small earthquakes as a regular occurrence and getting to visit glaciers in my home state definitely paved the way for my interest in ice and physics! I got my bachelor's degree in Geology from Colorado College and then continued on to Columbia University for a Ph.D. studying ice-generated seismicity and iceberg calving in Greenland. Now as a CRESST postdoc working at the Goddard Space Flight Center I study the Antarctic ice sheet as a planetary analog to help us understand the surfaces and interiors of icy-ocean worlds, including Europa and Enceladus. My research focuses on understanding ice dynamics and seismic-wave generation within ice, and what seismic events can tell us about what kinds of structures lie within and beneath large icy bodies.

Favorite part of being a CRESST Scientist: The communities that I get to be a part of and the people I work with, both at Howard University and at Goddard.

Highlight of research as a CRESST Scientist: Finding ways to apply terrestrial datasets to planetary research questions. In recent years there have been great advances in the geophysical data collected in my study region in Antarctica, though these datasets were collected with the primary goal of advancing Earth Science, rather than Planetary Science. My research involves finding ways to optimize the use of these new datasets to advance understanding of distant icy bodies, which is challenging, exciting, and very rewarding.

PEER-REVIEWED PUBLICATIONS:

Olsen K.G. and M. Nettles (2019) Constraints on terminus dynamics at Greenland glaciers from small glacial earthquakes, Journal of Geophysical Research: Earth Surface, 127 (7), 1899-1918

Olsen K.G. and M. Nettles (2017) Patterns in glacial-earthquake activity around Greenland, 2011-13. Journal of Glaciology, 63 (242), 1077-1089

CONFERENCE ABSTRACTS

Olsen K., T.A. Hurford, N.C. Schmerr, K.M. Brunt, (2020) Ice-Rift Seismicity in Antarctica: An Analog for Understanding Tidally Generated Seismic Activity on Enceladus and Europa, LPSC 2020 Meeting (virtual), Abstract 2705

Olsen K. and M. Nettles (2019) Improved Understanding of the Relationship Between Iceberg Mass and Glacial-Earthquake Size Through New Modeling of the Seismic Source, AGU Fall Meeting 2019, Abstract S31A-03, (invited)

Olsen K. and M. Nettles (2018) Analysis of Regional Seismic Data Reveals Dominance of Buoyancy-Driven Calving at Greenland Glaciers, AGU Fall Meeting 2018, Abstract S41B-05

Olsen K. and M. Nettles (2018) Seismic precursors to iceberg-calving events, IRIS Workshop 2018

Olsen K. and M. Nettles (2017) High-Frequency Seismic Signals Associated with Glacial Earthquakes in Greenland, AGU Fall Meeting 2017, Abstract C41D-1258

Olsen K. and M. Nettles (2017) Glacial Earthquakes: Monitoring Greenland's Glaciers Using Broadband Seismic Data, AGU Fall Meeting 2017, Abstract U23B-03, (invited)

Olsen K. and M. Nettles (2017) Recent Glacial Earthquakes in Greenland, Student Seismology Workshop 2017

Olsen K. and M. Nettles (2016) Regional and Local Glacial-Earthquake Patterns in Greenland, AGU Fall Meeting 2016, Abstract C33C-0839

Olsen K. and M. Nettles (2016) Recent Glacial Earthquakes in Greenland, IGS International Symposium on Interactions of Ice Sheets and Glaciers with the Ocean

Olsen K. and M. Nettles (2015) Analysis of Recent Glacial Earthquakes in Greenland, AGU Fall Meeting 2015, Abstract C11C-0780

Olsen K., M.L Anderson, L. Linkimer, H.J. Gilbert, S.L. Beck, and P.M. Alvarado, (2010) Dynamics of Flat Slab Subduction: Focal Mechanisms, Ridge Buoyancy, & Slab Tear in Central Argentina, AGU Fall Meeting 2010, Abstract T11A-2047

Anderson M.L., L. Linkimer, K. Olsen, S.L Beck, P.M. Alvarado, and H.J. Gilbert, (2010) Flat-Slab Dynamics: Deformation in the Central Andean Subducting Slab, AGU Fall Meeting 2010, Abstract DI42A-06sibly a list of publications, presentations, conferences they have spoken at etc.

List of awards won:

2016 – 2019 National Science Foundation Graduate Research Fellowship

2016 Outstanding Student Paper Award at AGU Fall Meeting

To Contact Kira to learn more about her work or collaboration, she can be reached at:
kira.olsen@nasa.gov