

Stanford



Karissa Pepin

- Ph.D. Student in Geophysics
- Student Employee, School of Earth, Energy and Environmental Sciences

Bio

BIO

Before coming to Stanford Geophysics, Karissa has lived in Minnesota, South Dakota, Pennsylvania, and Texas. Her work is inspired by the human connection to the planet: how humans affect the subsurface environment and how the response, in turn, affects humans and ecosystems. When not working on her research, Karissa is actively involved in SE3 Wellness Initiatives, DEI efforts, and mentoring/teaching opportunities. She loves water sports (both open and ice), animals, and creating music.

HONORS AND AWARDS

- Stanford Earth Special Service Award for DEI, Stanford School of Earth, Energy, and Environmental Sciences (June 2021)
- Stanford-USGS Fellowship, Stanford School of Earth, Energy, and Environmental Sciences & USGS (April 2021)
- Centennial Teaching Assistant Award - Geophysics, Stanford School of Earth, Energy, and Environmental Sciences (June 2020)
- Community Impact Award, Stanford Alumni Association (June 2020)
- Virgil Kauffman Interdisciplinary Fellowship, Stanford Geophysics (February 2020)

STANFORD ADVISORS

- Howard Zebker, Doctoral Dissertation Advisor (AC)
- William Ellsworth, Doctoral Dissertation Reader (AC)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Karissa explores the use of interferometric synthetic aperture radar (InSAR), a remote sensing tool that measures mm-scale surface deformation at a resolution of 5-20 m, to study the subsurface response to fluid extraction and injection at wells, including induced seismicity, aquifer compaction, and changes in fluid flow. She also studies the InSAR signal with the goal of generating accurate time series.

Publications

PUBLICATIONS

- **HIGH-PASS FILTERS TO REDUCE THE EFFECTS OF BROAD ATMOSPHERIC CONTRIBUTIONS IN SBAS INVERSIONS: A CASE STUDY IN THE DELAWARE BASIN**
Pepin, K., Zebker, H. A., Ellsworth, W., IEEE
IEEE.2020: 1030-1033