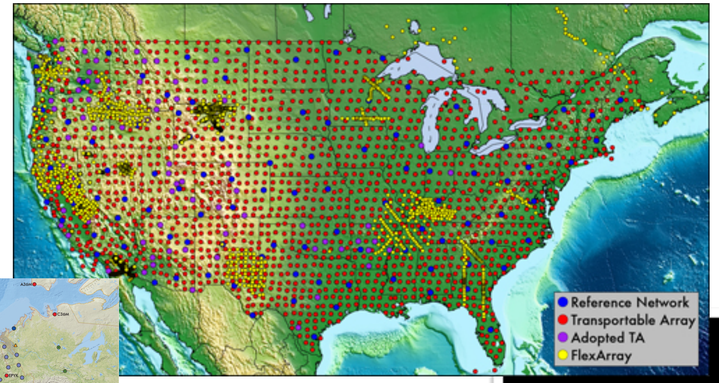
DYLAN MIKESELL

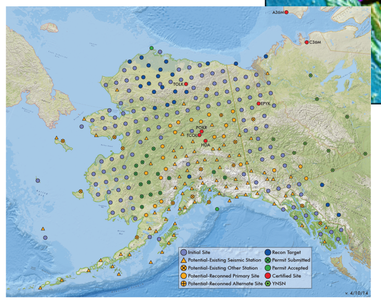
Environmental Seismology Lab

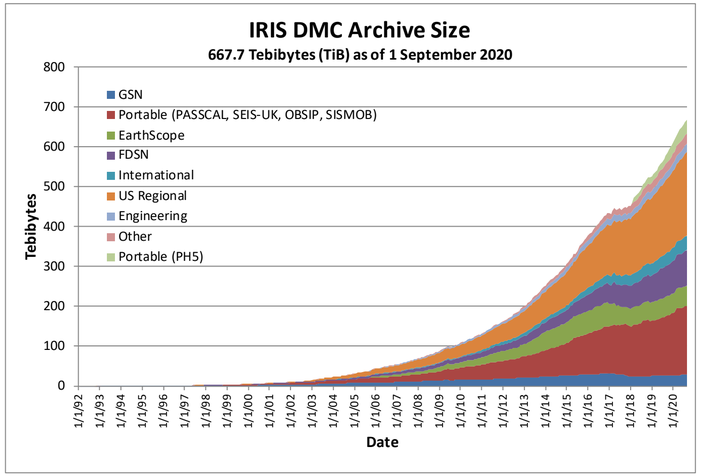
Geophysics, Department of Geosciences

- Seismology - imaging and monitoring
- Inverse methods and ML
- Waveform modeling
- Earthquake hazard characterization
- Remote sensing of the cryosphere

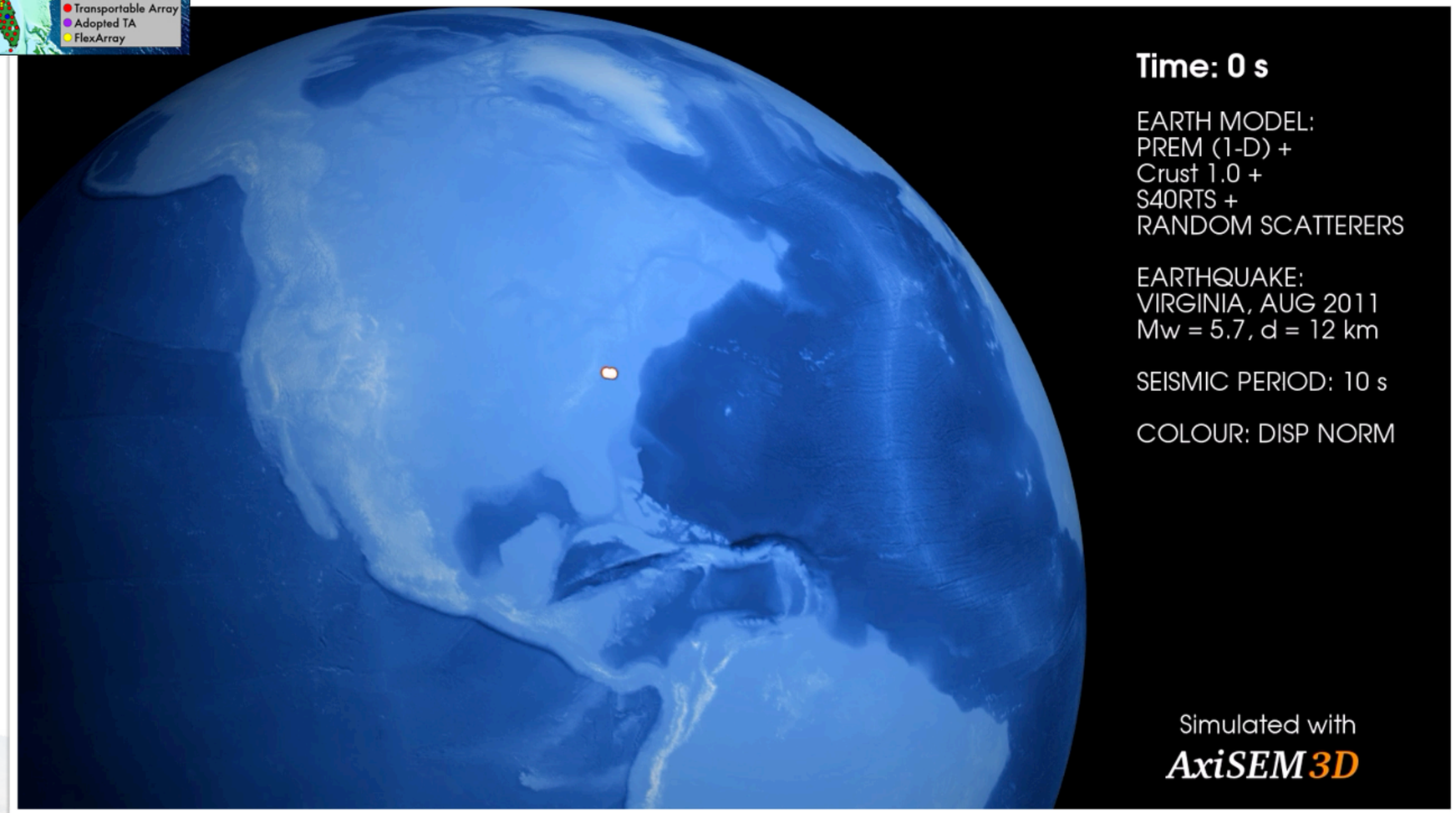
Observational data and modeling



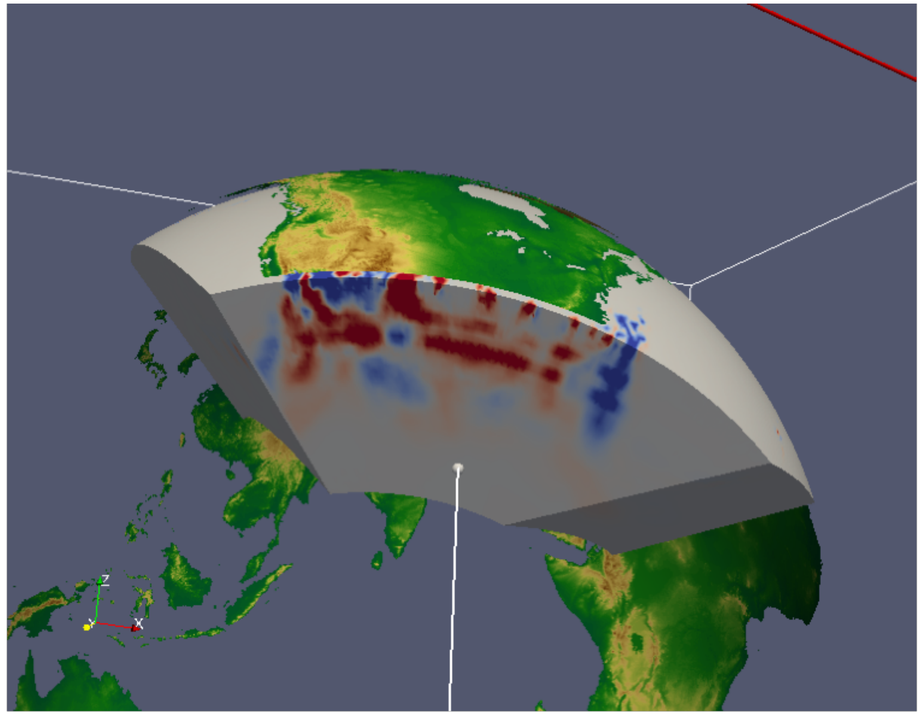


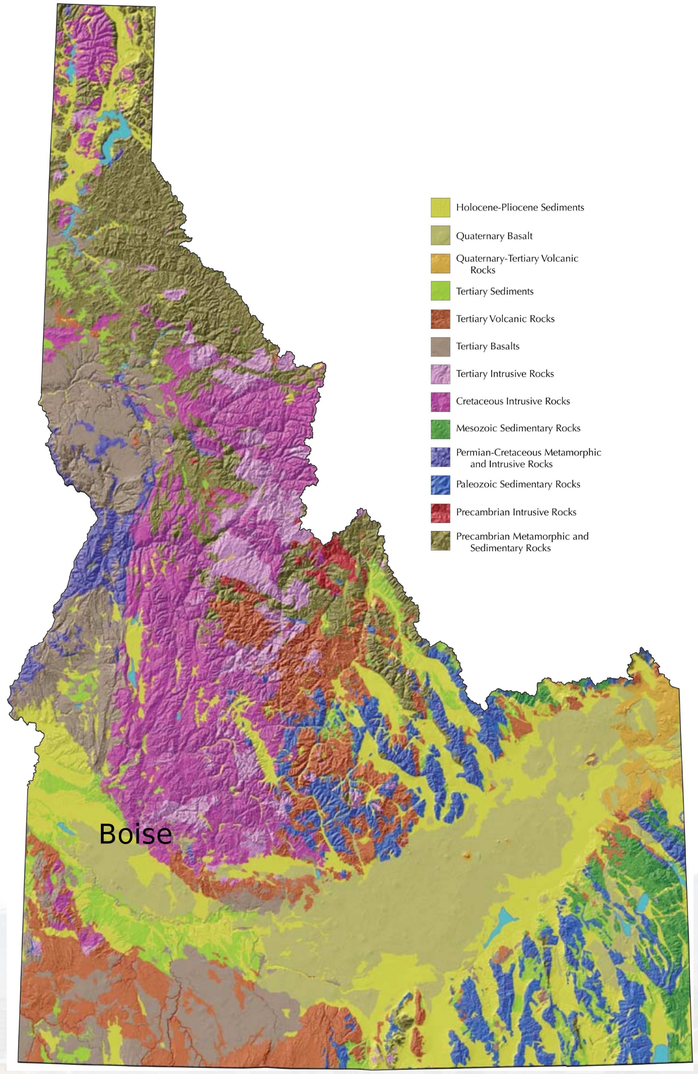


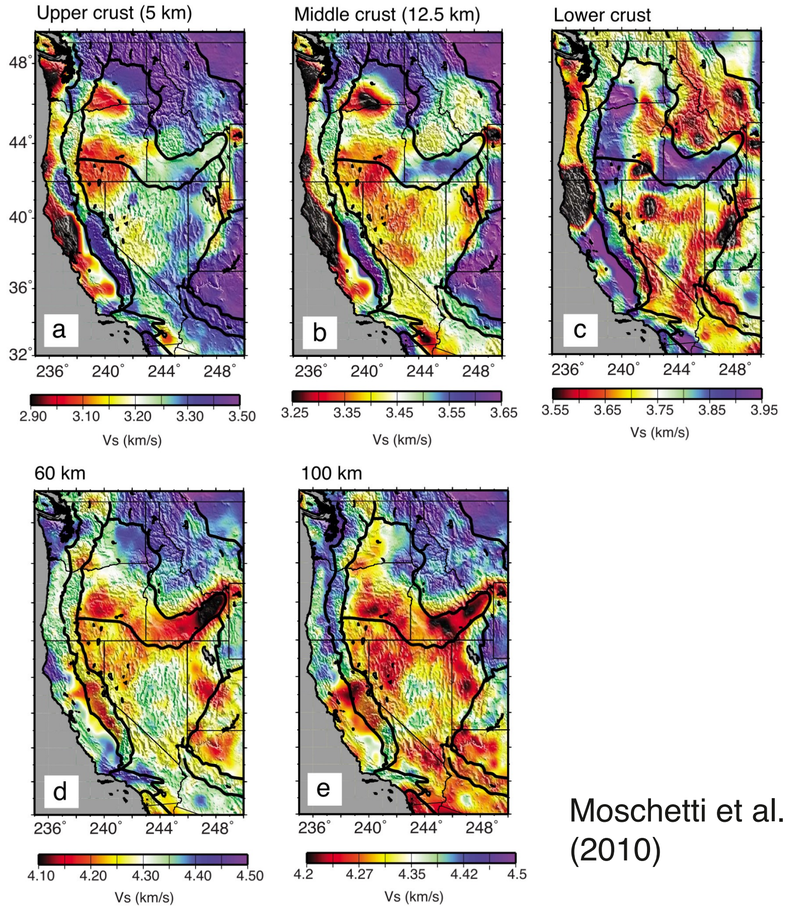
We are drowning in data, just like all applied sciences



Seismic Imaging







Moschetti et al. (2010)

Currently looking for someone interested in ionospheric seismology - IonoSeis package

README.md

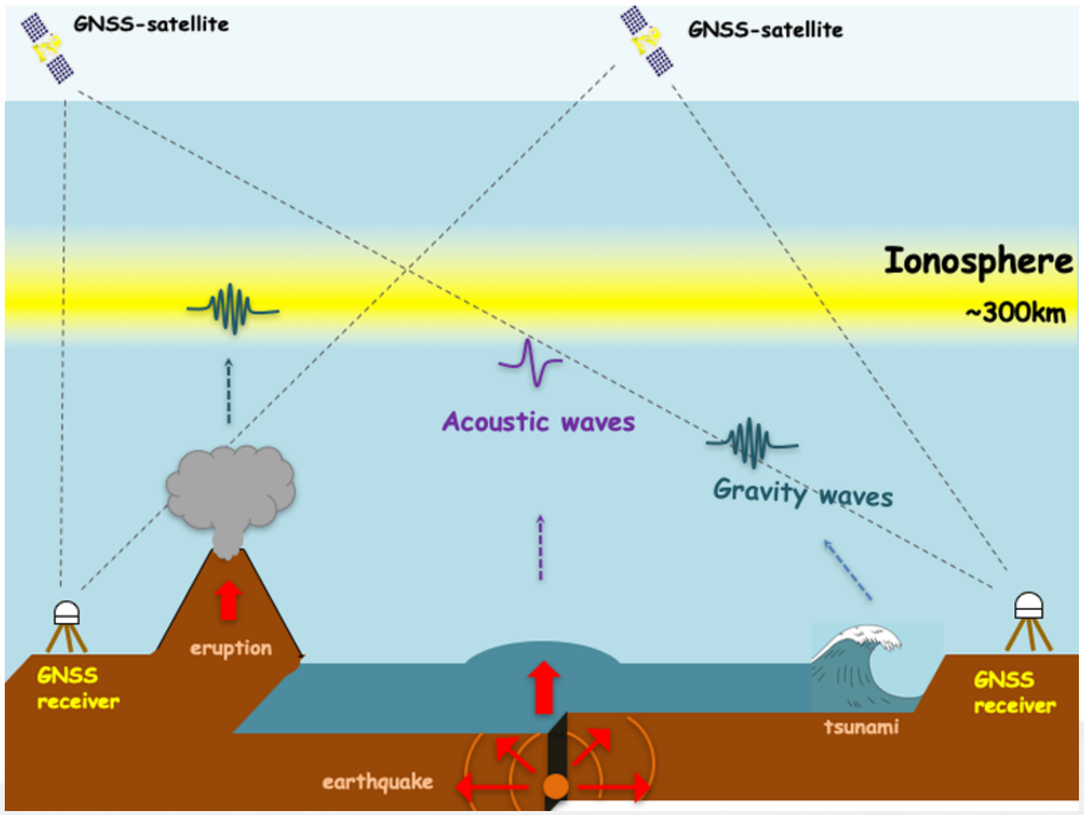
infraGA/GeoAc

InfraGA/GeoAc is a tool for modeling propagation of infrasound in the limit of geometric acoustics. It includes methods for 2D and 3D Cartesian as well as spherical coordinate systems. Eigenray methods are included to identify propagation paths between specific source-receiver geometries in any of the available coordiante systems. Options are included to allow for range dependence in the atmosphere, realistic terrain, and accelerate methods via parallelization.

Authorship

InfraGA/GeoAc is authored by Dr. Philip Blom

1. Investigate if an adaptive RK4/5 (Runge-Kutta-Fehlberg) solver improves performance.
2. Develop a more robust interpolation using a multi-variate scheme with continuous 2nd order derivatives that is numerically efficient.
3. Set up an adaptive frequency resolution that will provide more stability in the weakly non-linear waveform calculations.



Astafyeva (2020)