# Join us

**PhD position**

Start Fall 2027

**Apply by December 15, 2026**

### THE LAB

Olugboji Planetary Imaging and Earth Hazards Lab

Earth and Environmental Sciences

University of Rochester, New York

### KEYWORDS

seismology
machine learning
probabilistic imaging
ocean-bottom data
plate tectonics

### CONTACT

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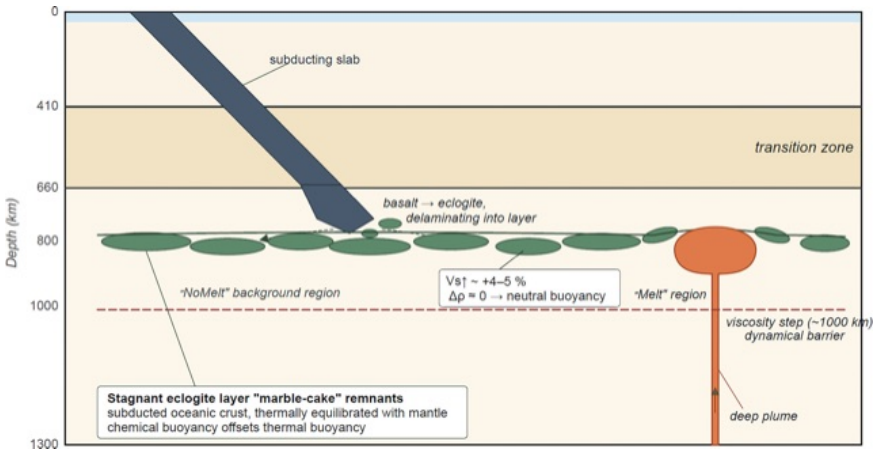
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All lab projects
How to apply

NSF CAREER 2339370 · 2024–2029

# AI and seismic imaging of the oceanic plate




Sketch of a subducting slab and a stagnant eclogite layer near 800 km depth (Figure 13 of Carr et al. 2026, a CAREER paper)

## The project

This NSF CAREER project uses seismology and machine learning to study how the oceanic plate forms and evolves. Questions remain about the boundary between the stiff lithosphere and the weak asthenosphere, and about whether large oceanic plateaus and ocean islands rise through deep volcanism or shallow thermal cracking. The project images the Pacific, the largest ocean basin, with existing seismic data.

## What you will do

- Cleaner signals: train AI to detect and denoise long-period SS and PP waves and short-period Ps and Sp receiver functions.
- Better images: model the waves jointly through an adjustable 3-D mesh of the Pacific upper mantle.
- Images with error bars: run probabilistic inversions and use generative AI to speed up and compress the model ensembles.

The project includes two project-based courses, Seismic Signals & Noise and Earth Imaging and Machine Learning.

## Who should apply

A degree in physics, mathematics, engineering, computer science or the geosciences, and some programming (Python or MATLAB). Prior seismology is not required.

## How to apply

1. Email Dr. Olugboji first with a CV, an unofficial transcript and a few lines on your background and interests.
2. Apply online at apply.grad.rochester.edu: Earth and Environmental Sciences, Fall 2027 term, by December 15, 2026.
3. PhD students in Earth and Environmental Sciences are normally supported for five years with a full tuition scholarship and a research or teaching assistantship. Strong applicants may also receive a University fellowship.

**Also hiring:** a postdoctoral researcher on either NSF project.