Proposal: Seismic Instrumentation for USF Idaho Field Station

The USF School of Geosciences Idaho Field Station near Mackay, Idaho, provides a unique opportunity for hands-on teaching and research. We propose two complementary investments in seismic infrastructure: (1) a permanent broadband seismic station, and (2) a set of portable nodal seismometers. Permanent Broadband Station: A broadband seismometer will provide high-quality, continuous data for teaching and research. For optimal performance, the instrument should be sited ~100 m from buildings to minimize wind and anthropogenic noise. A buried conduit will connect the main building to a secure, weatherproof underground enclosure housing the digitizer, with power and ethernet supplied. A 10 m secondary conduit will lead to the broadband sensor, either directly buried at 2 m depth or installed in a shallow concrete vault. Nodal Seismometer Array: To complement the broadband station, we propose acquiring a set of portable nodal seismometers (e.g., SmartSolo). In summer, these can be deployed in array configurations around the broadband station for local studies. During the academic year, they will serve as an invaluable teaching tool in Tampa. Additionally, nodal instruments will enable aftershock deployments, groundwater monitoring, volcano unrest response, and rocket launch experiments. Together, these investments will provide long-term teaching and research benefits, foster collaboration, and position USF students and faculty at the forefront of modern seismology.

Schematic Diagram: