Next Generation Portable Broadband Systems

Next generation portable broadband experiments will need higher density stations to push the goals of non aliased waveforms and higher resolution images of structure. Data metrics on experiments archived at the IRIS DMC demonstrates researchers can record high quality low noise waveforms during temporary deployments, in some deployments challenging the noise floor of the instruments. The goal now is to provide logistically simpler systems with purpose built and directly buriable low noise broad bands coupled with very low power requirement digitizers. Mid band systems based on Compact sensors technology can be used to further increase the station density at lower cost. Streamlined programming metadata and data handling would be required for successfully reducing the logistics.

We discuss robust and simpler systems made for reliable autonomous operation that use simple primary battery power systems or hybrid power systems, minimal logistics and user configuration. Power consumption for the complete low noise broadband systems could be as low as .5 watt and as low as .3 watt for the midband system which would be 1/3 the power of lowest current system. Volume of these systems could be as low as .5 cubic feet or less than 1.5 cubic feet with a primary battery system included. Noise performance of the proposed broad band system would be below the NLNM between 10Hz-.01Hz, weight could be as low as 14 kilogram for the seismic system.

*no figure available at this time.