

The Global Seismographic Network (GSN) recently received delivery of the next generation Very Broadband (VBB) borehole sensors purchased through funding from the DOE. Deployment of these sensors will be underway during the end of summer and fall of 2017 and they will eventually replace the aging KS54000 sensors at approximately one-third of the GSN network stations. We will present the latest methods of deploying these sensors in the existing deep boreholes. To achieve lower noise performance at some sites, emplacement in shallow boreholes might result in lower noise performance for the existing site conditions. In some cases shallow borehole installations may be adapted to vault stations (which make up two thirds of the network), as a means of reducing tilt-induced signals on the horizontal components.

The GSN is creating a prioritized list of equipment upgrades at selected stations with the ultimate goal of optimizing overall network data availability and noise performance. For an overview of the performance of the current GSN relative to selected set of metrics, we are utilizing data quality metrics and Probability Density Functions (PDFs) generated by the IRIS Data Management Centers' (DMC) MUSTANG (Modular Utility for Statistical Knowledge Gathering) and LASSO (Latest Assessment of Seismic Station Observations) tools. We will present our metric analysis of GSN performance in 2017, and show the improvements at GSN sites resulting from recent instrumentation and infrastructure upgrades.