

EGU21-263

<https://doi.org/10.5194/egusphere-egu21-263>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



## Continuous Improvement in the Performance and Operations of the Global Seismographic Network (GSN)

**Katrin Hafner**<sup>1</sup>, Dave Wilson<sup>2</sup>, Rob Mellors<sup>3</sup>, and Pete Davis<sup>4</sup>

<sup>1</sup>IRIS, GSN, Washington, DC, United States of America (katrin.hafner@iris.edu)

<sup>2</sup>ASL, USGS, Albuquerque, New Mexico, United States of America (dwilson@usgs.gov)

<sup>3</sup>UCSD, San Diego, California, United States of America (rmellors@ucsd.edu)

<sup>4</sup>UCSD, San Diego, California, United States of America (pdavis@ucsd.edu)

The decades long recordings of high-quality open data from the Global Seismographic Network have facilitated studies of earth structure and earthquake processes, as well as monitoring of earthquakes and explosions worldwide. These data have also enabled a wide range of transformative, cross-disciplinary research that far exceeded the original expectations and design goals of the network, including studies of slow earthquakes, landslides, the Earth's "hum", glacial earthquakes, sea-state, climate change, and induced seismicity.

The GSN continues to produce high quality waveform data, metadata, and multiple data quality metrics such as timing quality and noise levels. This requires encouraging equipment vendors to develop modern instrumentation, upgrading the stations with new seismic sensors and infrastructure, implementing consistent and well documented calibrations, and monitoring of noise performance. A Design Goals working group is convening to evaluate how well the GSN has met its original 1985 and 2002 goals, as well as how the network should evolve in order to be able to meet the requirements for enabling new research and monitoring capabilities.

In collaboration with GEOFON and GEOSCOPE the GSN is also reviewing the current global distribution and performance of very broadband and broadband stations that comprise these three networks. We are working to exchange our expertise and experience about new technologies and deployment techniques, and to identify regions where we could collaborate to make operations more efficient, where current efforts are overlapping or where we have similar needs for relocating stations.