2021 FDSN WG1 Report

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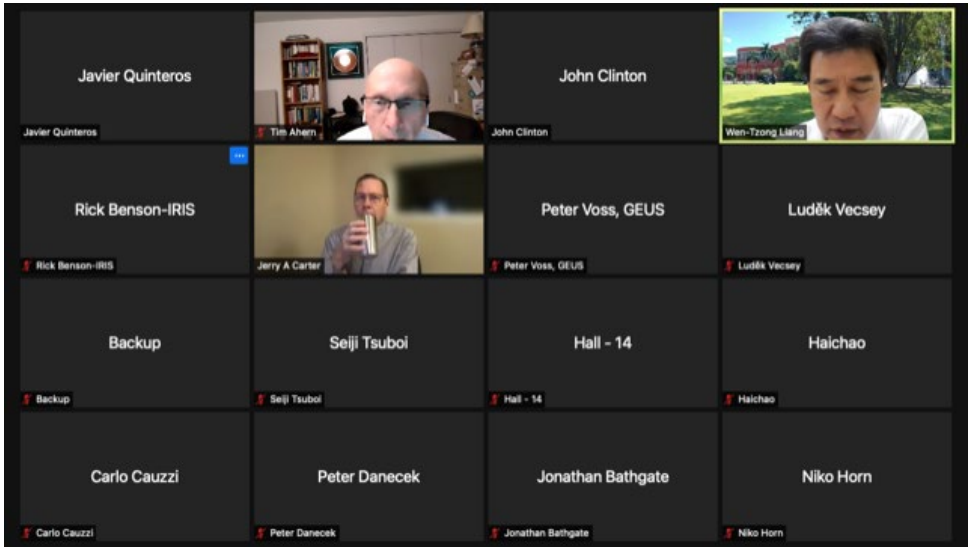
2021-08-26

Attendees

- The number of names are more than this:



Action Item 1: Validate WG1 webpage

- We modify the Areas of interest in the page at http://www.fdsn.org/wg/wgl/

Areas of interest to the working group include:

1. To densify the FDSN backbone stations based on the guidance for FDSN station selection.
2. Identification of stations that form the Federation network (a subset of stations chosen on the basis of hardware standards, noise characteristics, geographical location and operational status) for which waveform data are open on federated data centers.
3. Issues related to station siting and instrumentation.

And both two links related to station inventory below this statement will be removed. Add the _FDSN link there.

Action Item 2: Guidance of Station Selection

- **Revision of the definition of FDSN backbone stations**：

*A subset of stations with broad geographical distribution, composed of the highest quality broadband stations **available** in as many geographic parts of the world and available at federated data centers as possible.*

- **Broadband** permanent station with data stored continuously or transmitted in real time (preferred)
- **Global coverage**
  - Enhanced coverage in **seismogenic zones**
  - **300-500 backbone stations**
- **High-quality data and metadata**
  - low ambient noise level (**in longer periods**)
  - **high data availability** stored in one of federated datacenters
  - precise metadata in FDSN standard formats

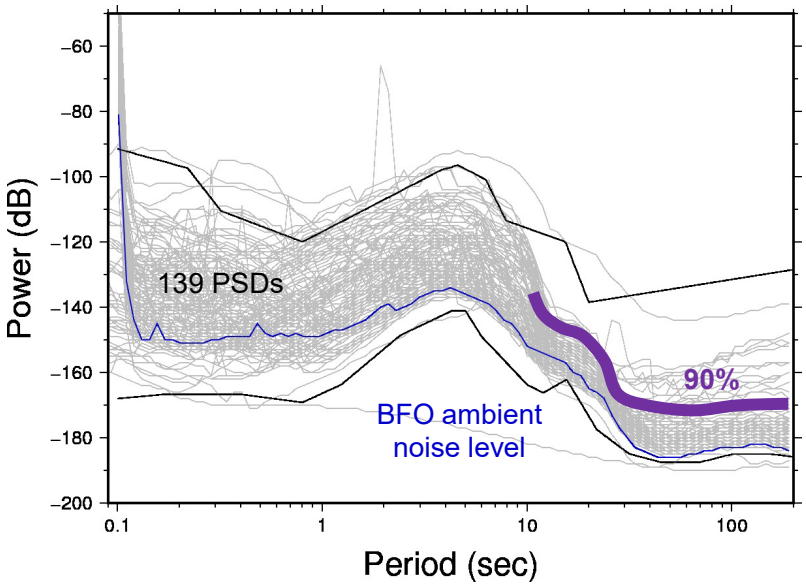
Action Item 3: Find candidates to extend _FDSN

- Constructing a working platform at https://tecdc.earth.sinica.edu.tw/FDSN/
  (not available until 2021-09-05 due to computer room renovation)
- We focus on adding **broadband** stations from ***permanent*** global and other FDSN member seismic networks.
- These stations must provide ***broadband***, ***high-quality*** and ***high-availability*** data to the community.
- We take advantage of the IRIS **MUSTANG** service and the FDSNWS of **Availability** for the majority of candidate stations.

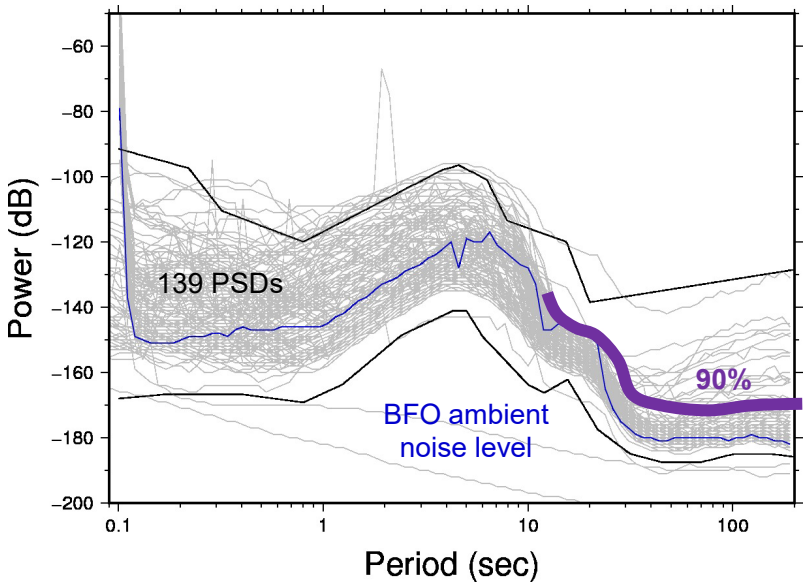
FDSN Ambient Noise Levels

IRIS mustang/noise-psd web service

June, 2018

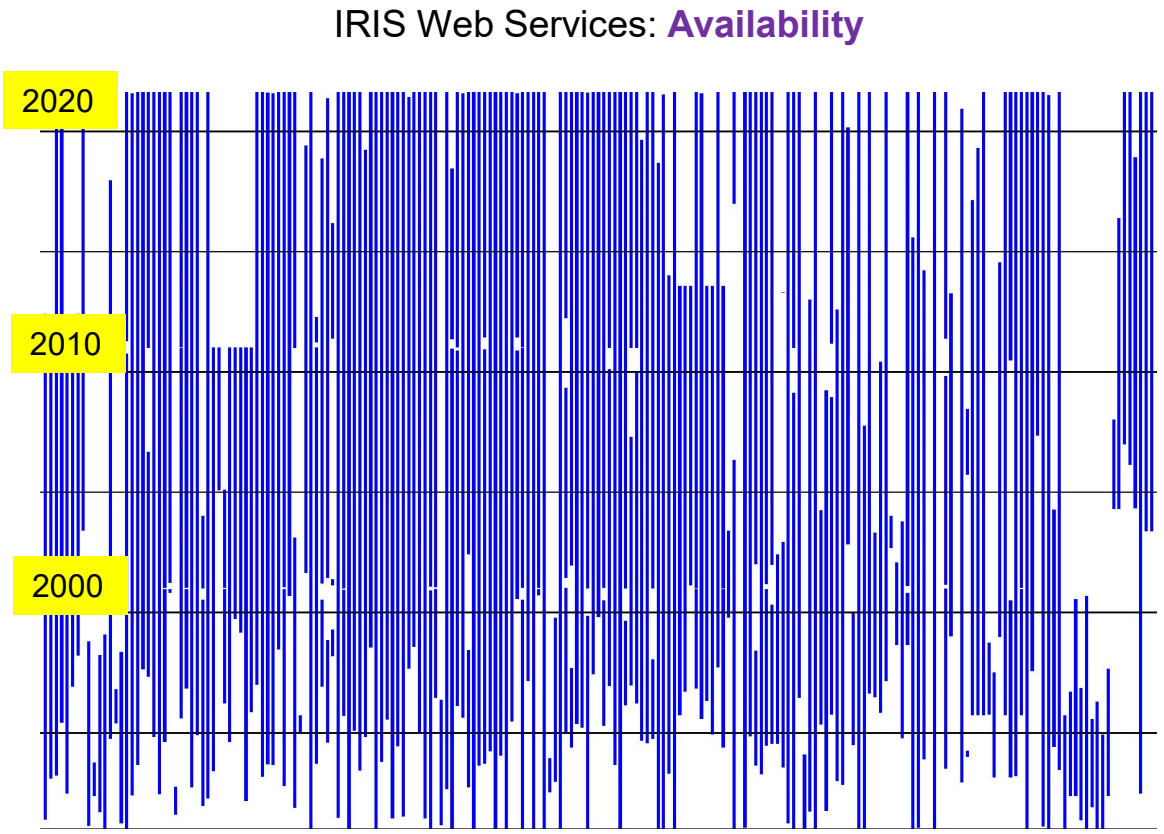


December, 2018



Current FDSN station availability

- 205 FDSN Stations
- >70 of them are not running in real-time



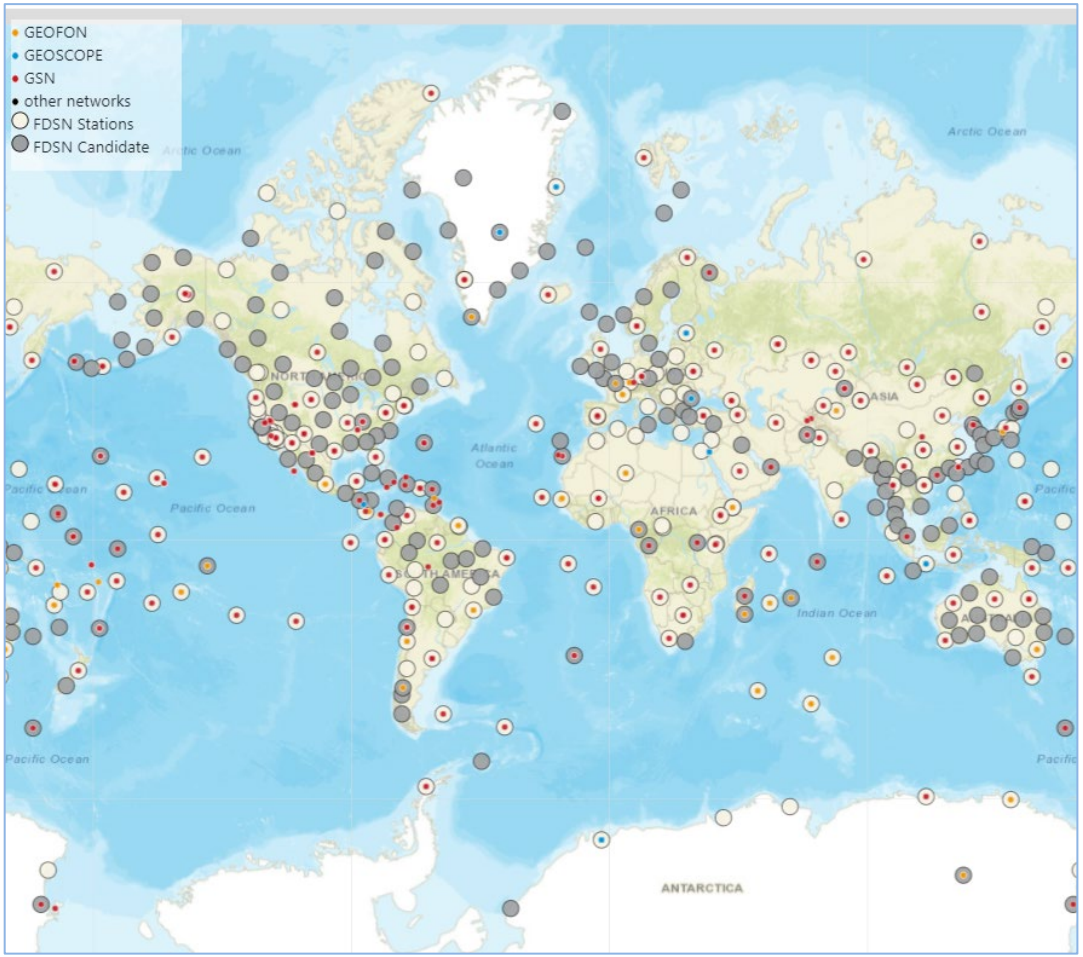
Candidate FDSN backbone stations

- Denser distribution in **seismogenic zones**

- **172** candidate stations
- 205 current stations
- 377 in total

- Indonesia (IA) via GEOFON (restricted?)

- Africa
- India
- Siberia/Central Asia



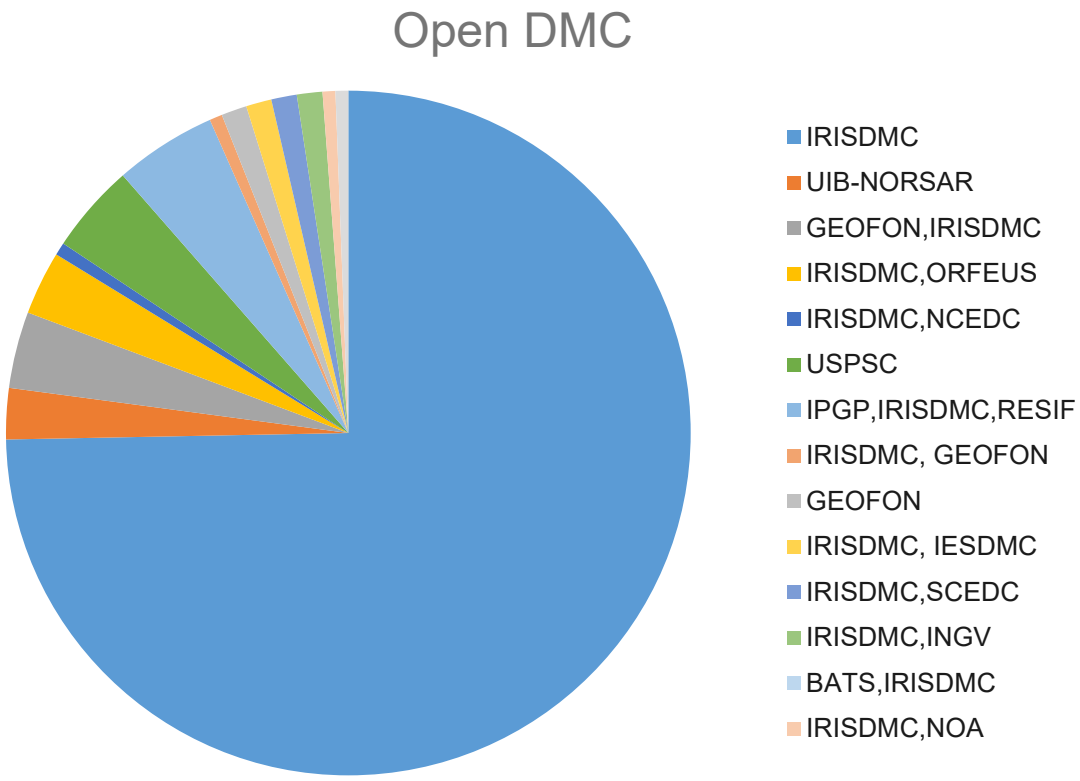
Summary - I

- Strengthening the working platform at https://tecdc.earth.sinica.edu.tw/FDSN
- These candidate stations are necessary to provide real-time data but the archived data should be accessible at federated data centers.
- No historic FDSN stations will be removed. Instead, the virtual _FDSN should be considered evolutionary.
- Keep seeking for collaboration between FDSN and regional network operators to densify the _FDSN network. [India NCS, GFZ, …]

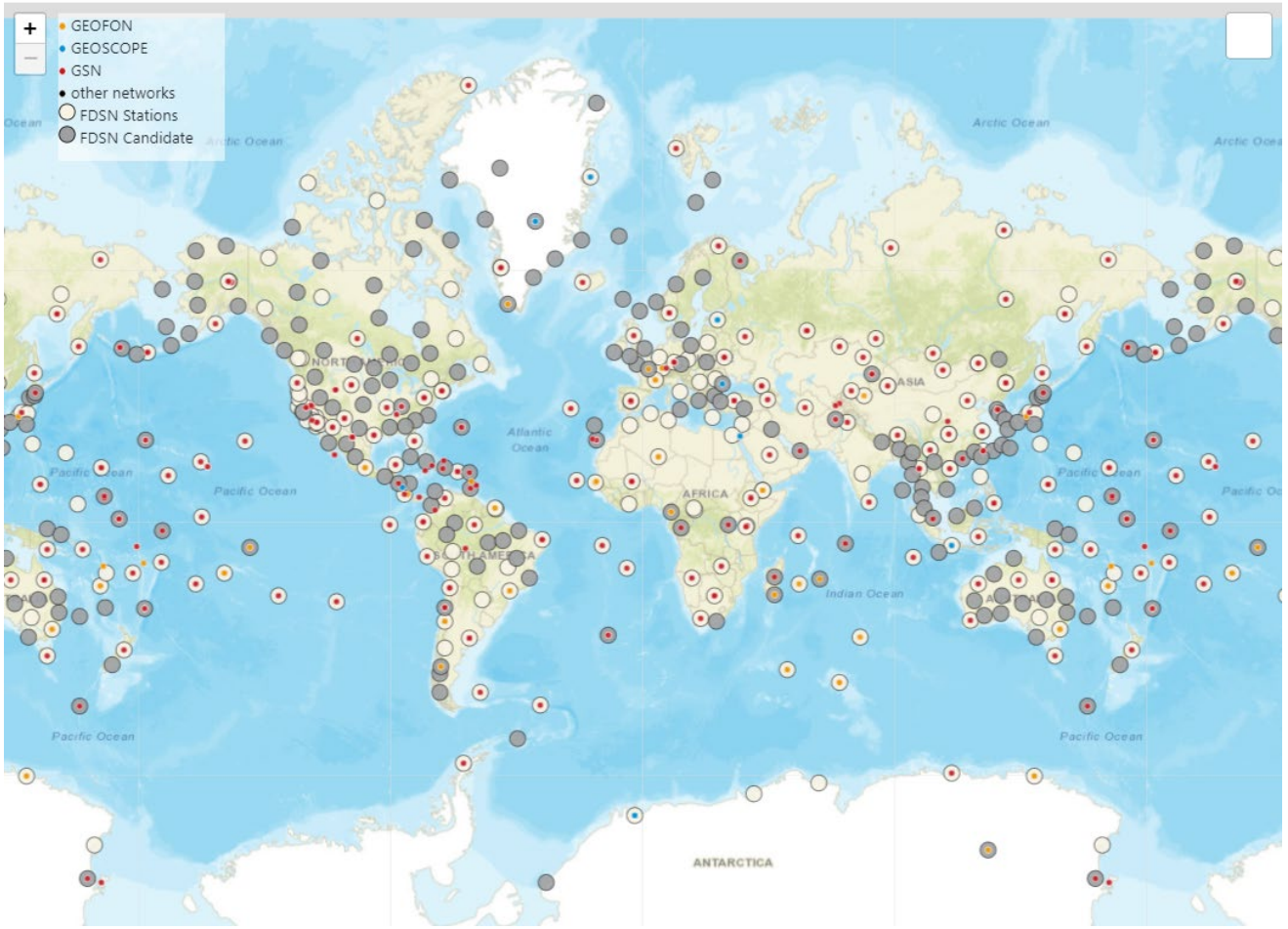
Summary - II

- To evaluate the station performance, we take both the data availability rate and noise pdf in a specific year into account.
- We mainly obtain the PDF information from the IRIS Mustang service for the majority of these candidate stations. For those stations not included in the Mustang or any other web services, we are going to compute the pdf ourselves.

Data Centers that archive candidate station data



International Federation of Digital Seismograph Networks



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