



ID: P3.5-584

Type: e-Poster

## of a Generalized-F Detector at the IDC and US NDC

*Thursday 1 July 2021 11:45 (15 minutes)*

Selby, (2008, 2011) developed a Generalized-F method, (Gen-F), to enable application of an F-statistic detector to small-aperture arrays where correlated background noise would otherwise degrade performance; and in 2013, he introduced an innovative time-frequency approach that further enabled application of Gen-F to arrays independent of aperture. Tests of the method on the IMS arrays have shown that the Gen-F detector outperforms the current detector in use at the IDC for many of the arrays, both increasing valid detections, while decreasing their overall number. The UK NDC contributed software based on Selby's 2013 method, and the US NDC integrated it into the DFX detection framework in use at the IDC and US NDC. The Gen-F detector is implemented as a module fully compatible with the input and output of the existing DFX framework and is compatible with the subsequent down-stream station and network processing, (StaPro, GA, NetVISA). The US NDC is tuning the Gen-F parameters that frame an isotropic noise model to suppress correlated noise at regional, small-aperture arrays. Using a multi-day, analyst-reviewed set of detections as ground-truth, and the observed interstation correlation, the US NDC will demonstrate the impact of tuning these Gen-F parameters at one (1) regional array.

### Promotional text

The abstract denotes a potential improvement in seismic signal detection processing applied within the constructs of the DFX detection framework.

**Primary authors:** Mr VANDEMARK, Thomas (Air Force Technical Applications Center (AFTAC), FL, USA); Mr GIVEN, Jeffrey (Leidos, Reston, VA, USA)

**Presenters:** Mr VANDEMARK, Thomas (Air Force Technical Applications Center (AFTAC), FL, USA); Mr GIVEN, Jeffrey (Leidos, Reston, VA, USA)

**Session Classification:** T3.5 e-poster session

**Track Classification:** Theme 3. Verification Technologies and Technique Application: T3.5 - Data Analysis Algorithms