ID: Type: **Oral**

# of acoustic standards in PMCC detector for fine-tuned infrasound detection and categorization

The completion of IDC event bulletins requires that infrasound array detector be tuned to detect wide variety of acoustic signals, often buried in the background noise. Dominant frequencies of signals of interest can span over 3 decades (from 0.01Hz to 10Hz), depending on source energy, frequency-dependent attenuation along different propagation paths and noise conditions which can vary significantly from one station element to another. Consequently, assessing correctly the detection capability of an infrasound station relies on the ability to detect both broadband transient as well as narrow band signals, and to estimate precisely wavefront parameters in separated frequency bands. In this context, the configuration of a broadband detector is tricky, especially in determining the optimal filter banks and associated window lengths. An optimal adjustment is proposed from an extension of fractional octave frequency scales used in acoustic metrology extended to infrasound frequency ranges (Garcès, 2013). A multi-resolution algorithm has been implemented in DTK-PMCC with a standardization of the window lengths and the frequency bands in third octave bands, which adapts automatically to the geometry of each station. Results demonstrate how the quality of the obtained detections are adapted to more efficient categorization and more precise event locations.

Primary author: VERGOZ, Julien (CEA/CENTRE Ile-de-France)

Presenter: VERGOZ, Julien (CEA/CENTRE Ile-de-France)

Track Classification: Data Processing and Station Performance