ID: Type: **Oral**

the use of acoustic waveforms for localizing bolides: the large 2018/12/18 Bering Sea event

The 18 December 2018, a large bolide exploded over Bering Sea. More than three months after the event, NASA reported its geographic location, its altitude and velocity at peak brightness, so that this event can be considered as a ground truth event. Bolide-generated acoustic signals were detected by 18 IMS infrasound stations up to more than 15000 km at I55US (Antarctica), tens of microbarometers of the Transportable US-Array (TA) located in Alaska, seismic stations of the Aleutian Islands, and possibly on the North triplet of hydrophones of Wake Island, H11N. The dominant frequency of detected infrasound signals is centered on 0.2Hz, which offers the opportunity to study very long range propagation from full-waveform modeling at low computational cost, using for this the FLOWS platform developed at CEA. Various effects, such as the source altitude, the horizontal variability of the atmosphere and the unresolved gravity wave component, will be discussed in terms of their impacts on the station-dependent velocity models and the event location.

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

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

Track Classification: Sources and Scientific applications