ID: Type: **Oral**

T1.5-O7. The deep ocean temperature derived from CTBT hydroacoustic recordings of deterministic transient signals and ambient acoustic noise

IMS arrays of hydrophones have been placed in the Sound Fixing And Range (SOFAR) channel to detect explosions. Only few stations are necessary, since the SOFAR channel hardly attenuates acoustic energy, i.e., sound waves. As an example, small explosions of tens of kilos of explosive material can be detected over ranges of thousands to ten thousand kilometer. The propagation of sound is dependent on the temperature. In this presentation, it is assessed how IMS hydroacoustic recordings can be used to probe the deep oceans and derive the temperature, i.e., at depths were hardly any in-situ observations are possible. This is relevant since it is being debated that the oceans have taken up a large amount of heat under global warming over the last decade. We will show how techniques with deterministic transient signals from earthquakes and ambient acoustic noise can be used to explore the temperature in the deep oceans, which are otherwise difficult to monitor with e.g. in-situ means. Temperature changes as a function of time (over ten years for the IMS) will be presented.

Primary author: EVERS, Läslo (KNMI - Royal Netherlands Meteorological Institute)

Presenter: EVERS, Läslo (KNMI - Royal Netherlands Meteorological Institute)

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