ID: Type: **Poster**

1.1-P21. Using probabilistic infrasound reflectivity modelling for single station event characterization

This study uses acoustic reflectivity modelling to describe the propagation and ducting behaviour of infrasonic waves with the aim of identifying and characterizing events at a single station. Atmospheric background conditions are modified by probabilistic variations of gravity wave profiles to simulate atmospheric dynamics and thus identify infrasonic propagation paths through various atmospheric ducts. Using reflectivity as a method adapted from seismic wave propagation, synthetic barograms are calculated by solving the wave equation instead of using a high-frequency approximation as e.g. ray-tracing. A probabilistic approach is performed for the atmospheric background modelling with a high number of different gravity wave perturbations included. The aim is to identify a higher number and variety of infrasonic phases resulting from different and more complex wave propagation (including e.g. elevated, mesospheric and changing ducts) to improve the characterization of events detected at a single infrasound array. Repetitive infrasound sources as e.g. industrial and military activity will be used to standardize the identification and discrimination of events at a single infrasound station.

Primary author: PILGER, Christoph (Federal Institute for Geosciences and Natural Resources (BGR))

Presenter: PILGER, Christoph (Federal Institute for Geosciences and Natural Resources (BGR))

Track Classification: 1. The Earth as a complex system