



ID: O2.2-767

Type: **Oral**

of Infrasound signals generated by a Bolide on July 28, 2022

Infrasound networks play an important role in detecting atmospheric events such as meteors, bolides and fireballs, significantly contributing to global monitoring and atmospheric studies. On July 28, 2022, at 01:36:08 UTC, a bolide was detected over the Pacific Ocean, near South America, at coordinates 6.0°S and 86.9°W, at an altitude of 37.5 km, velocity of 29.9 km/s and a total energy estimated at 0.68 kilotons (CNEOS, 2024). The event generated infrasound waves detected by IMS network stations, including I09BR (Brazil), I08BO (Bolivia) and I20EC (Ecuador). Although the event had relatively low energy, below the 1 kt of TNT, threshold for which IMS infrasound stations are designed, it was successfully detected and recorded. This highlights the sensitivity of the IMS network stations in detecting bolide signals globally, even in cases of lower magnitude energy. The analysis developed in this work includes determining parameters such as wave propagation speed, dominant frequency content, azimuth and maximum amplitude. The energy values were compared with those reported in global catalogs such as Center for Near Objects Studies (CNEOS) data, reinforcing the reliability of monitoring techniques. This study illustrates the effectiveness of infrasound in detecting and characterizing atmospheric events of different energy scales.

E-mail

180104918@aluno.unb.br

In-person or online preference

Primary author: LETI, Leticia Guedes Assunção (Seismological Observatory of Brasilia)

Co-authors: VIEIRA BARROS, Lucas (Seismological Observatory, University of Brasilia); Mr PORTELA FONTENELE, Darlan (University of Brasilia, Seismological Observatory); RAINNER, Nicolas; MARIO DE CARVALHO, Juraci; DE ARAUJO SOUSA, Ana Clara

Presenter: LETI, Leticia Guedes Assunção (Seismological Observatory of Brasilia)

Session Classification: O2.2 Seismoacoustic Sources in Theory and Practice

Track Classification: Theme 2. Monitoring events and Nuclear Test Sites: T2.2 Seismoacoustic Sources in Theory and Practice