

1.1-P17. Stratospheric and Thermospheric Infrasonic Signals Recorded at IS37, Norway

The IMS infrasound array IS37, near Bardufoss in northern Norway, started providing data in October 2013. In August and September 2014, IS37 recorded for the first time infrasound signals from each of 15 ammunition destruction explosions at Hukkakero, a military site in northern Finland at a distance of 320 km. The first 12 of the explosions were large blasts with yields of approximately 20 tons and, for each of these events, an extensive wavetrain is observed. Approximately 18 minutes after the explosion, a long duration signal rich in high frequencies, is observed. Between 3 and 4 minutes later, signals of far shorter duration and lower frequency are observed with higher trace velocities, indicating refraction from greater altitudes. Modelling supports the hypothesis that these distinct parts of the wavetrain are stratospheric and mesospheric/thermospheric phases respectively. We observe that the trace velocity for almost all of the stratospheric part of the wavetrain is essentially constant, whereas the thermospheric phases are associated with quite differing trace velocities: indicative of turning points at different altitudes. The final three explosions at Hukkakero in 2014 were of far lower yield and only generated signal detections at IS37 in the stratospheric part of the wavetrain.

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