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2013 Russian Fireball Largest Ever Detected by CTBTO Infrasound Sensors

On 15 February 2013 at 03h20 UT, a large Earth-impacting fireball disintegrated over the Ural Mountains. The burning mass produced shock waves that blew out windows, injured hundreds of people and damaged buildings in many surrounding cities. Infrasonic waves generated by the explosion propagated over very long distances. The event was globally detected by 20 IMS infrasonic stations. For the first time since the establishment of the IMS infrasound network, propagation path round the globe was observed (~45000 km). In order to better characterize the wave parameters of the recorded signals, the filter settings of the PMCC cross-correlation based method (Cansi, 1995) were extended down to 0.01 Hz. Continuous recordings of all operating IMS stations were reprocessed using a log-scale configuration (Matoza et al., 2013). This fireball event provides a prominent milestone for studying in detail infrasound propagation traveling all around the globe for almost two days. Moreover, in the context of the future verification of the CTBT, its analysis offers a unique opportunity to calibrate detection and location methods and evaluate the global performance of the IMS network.

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