



Forensic Analysis of Infrasound Signals from the 2018 Palu Earthquake, Indonesia

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On September 28th, 2018, a M7.5 supershear earthquake occurred on Sulawesi, Indonesia, near the city of Palu, and produced strong ground shaking (up to MMI IX), a local tsunami, and liquefaction. An infrasound signal, possibly correlated with the occurrence of this significant event, was observed on several infrasound arrays of the regional infrasound network including the International Monitoring System (IMS) within the SE Asia region. Our study focuses on: confirming that the infrasound signal was related to the earthquake, defining the signal characteristics at each station, and characterizing local noise levels at each station. The effect of the atmospheric conditions was investigated to determine if the directionality in observations could be explained with propagation, or due to the north-south orientation of the seismic rupture and local topography around the earthquake. For various stations within the region, we present a detailed description of the signal, and show that at the first order, the signal could be explained by atmospheric propagation, calling for a more advanced source mechanism model of the infrasound signal.