

ACOUSTICS2008/1435 Infrasound propagation in the zone of silence

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Two controlled source experiments were conducted in Nevada in 2006 and 2007 to study infrasound signal propagation at distances less than 300 km from the source. In 2006 three temporary infrasound arrays were deployed at distances of 76, 108 and 157 km from the source. In 2007 the site at 157 km was reoccupied, and data was also recorded at 288 km from the source.

Interesting results were derived from the travel time analysis. In 2006 the site at 76 km recorded both tropospheric and stratospheric arrivals, while at 108 and 157 km only stratospheric arrivals were recorded. In 2007 the site at 157 km recorded both tropospheric and stratospheric arrivals, while at 288 km both stratospheric and thermospheric arrivals were recorded. Atmospheric modeling with the InfraMAP software failed to predict returning rays or pressure levels similar to the observed data.

Because of the large amplitude variations we attempt to estimate the yields of the explosions using the predominant frequency content of the signals. The physical basis for such a method is found in an increased acoustic transit time of the explosion blast radius with increased yield. Preliminary results suggest this is possible.