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Observations of the 13 kt South Atlantic Bolide of 06-Feb-2016.

This year, NASA's Near Earth Object Program reported a 13kt bolide at 13:55 on 06- February-2016 and at 31km above the South Atlantic (30.4◦S, 25.5◦W). Only two IMS stations, both in Antarctica (IS27 and IS55), automatically detected arrivals from this event. These stations are ~4600 and ~8000km from NASA's location, respectively. The arrivals were not automatically associated and are in the IDC's LEB only (the REB requires ≥3 arrivals). The inherent non-uniqueness of the location solution for two stations gives a location >2000km from NASA's and an origin time >2 hours later. Six IMS stations closer to the source than IS27 did not record signals. We re-analyse data for the surrounding IMS stations and use G2S atmospheric profiles for propagation modelling to understand the distribution of observations. Preliminary results suggest the existence of a strong velocity minimum at the tropopause, which generates an elevated waveguide within which the infrasonic energy is trapped. As the stations in Antarctica are approached, the ground temperature lowers, allowing a ground-to-stratospause waveguide to form. This study highlights the difficulties for event association and location with a sparse sensor network and indicates that source altitude may be an important factor to consider when assessing network capability.

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