**Background**

Several ground-motion simulators are designing quiet supersonic business jets for service over the largest cities. These aircraft have the potential to increase the occurrence of mild sonic booms across the country. This leads to concerns among earthquake warning (EQW) developers and the general seismological community in characterizing the effect of sonic booms on seismographic sensors in the field, their potential impact on EQW systems, and interest among earthquake warning (EQW) developers and the general seismological community in means of discriminating their signatures from those of earthquakes. The SonicBOBS project (Sonic Boom Experiment on Earthquake Warning Systems) is a collaborative effort between seismic warning systems, Inc. and NASA Dryden Flight Research Center. The project aims to evaluate the effects of sonic booms on EQW systems.

**Sonic Booms on Big Structures (SonicBOBS)**

Because flight-test data for the X-15 aircraft is available, we conducted a review study. We found that the increase in the ground velocity of sonic booms can be significant at a distance of 20 km. Sonic booms recorded by the X-15 aircraft and the X-47 aircraft were analyzed. The results showed that the ground velocity of sonic booms can be significant at a distance of 20 km.

**Early Results from SonicBOBS**

The flight profile, described in the figure below, is designed to mimic the low-amplitude sonic booms expected from future supersonic business jets. By varying the dive point the amplitude of the sonic boom can be carefully controlled.

**Strategies for Rejecting Sonic Booms**

Several possible avenues exist for discriminating and rejecting sonic booms for EQW. The least robust is to shield the sensors. The attenuation between the accelerometer outside and inside is almost a factor of 10 when sensor temperatures are comparable, but a sufficiently intense boom can still spoof the sensors.

**References**


