Supersonic travel, without the sonic boom

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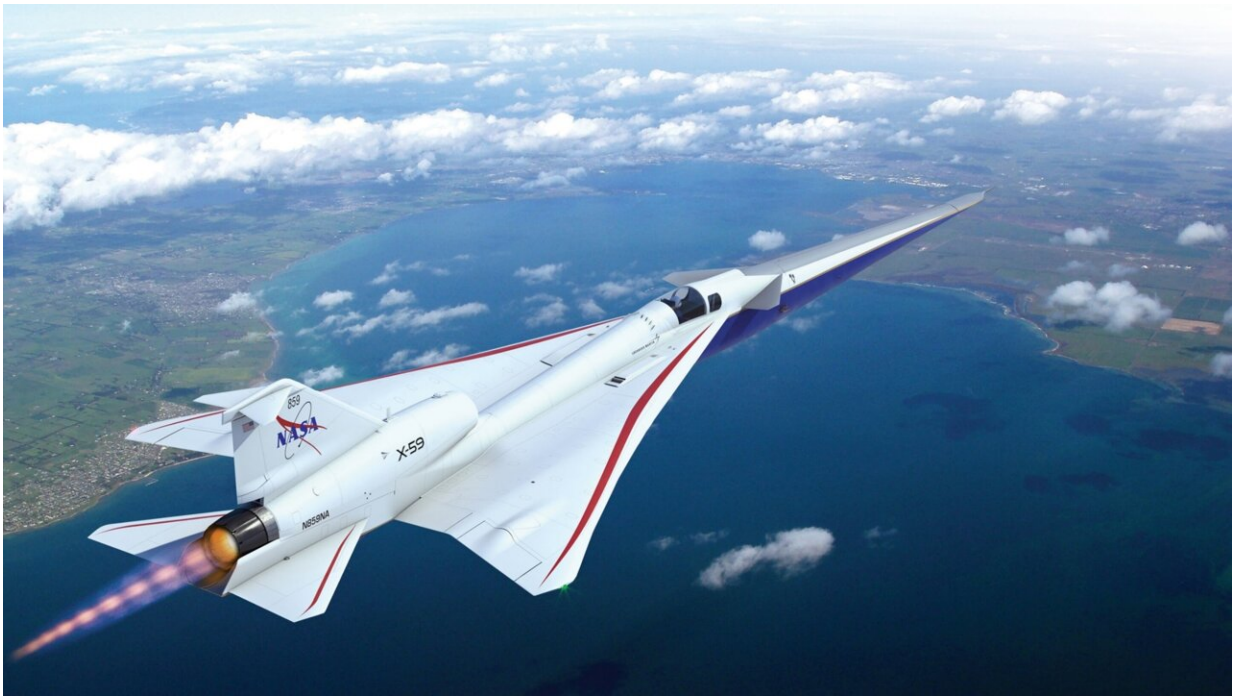

NASA's X-59 aircraft will fly over communities to test supersonic flight without the sonic boom. Credit: NASA

Supersonic aircraft generate a series of shock waves that merge into two distinct booms. The planes drag these incredibly loud sounds along their flight path, creating unacceptable noise levels over land. So far, sonic booms have prevented commercial supersonic flight over land, but fixing the noise could cut flight times in half.

At the 183rd Meeting of the Acoustical Society of America, Gautam Shah of NASA Langley Research Center will present "NASA Quesst Mission—Community Response Testing Plans," in which he will discuss the plans to test a supersonic aircraft with technology to reduce sonic booms. The presentation will take place Dec. 6 at 10:50 a.m. Eastern U.S. in the Summit B room, as part of the meeting running Dec. 5-9 at the Grand Hyatt Nashville Hotel.

"NASA's X-59 aircraft is intended to validate and demonstrate the design tools and technologies that make it possible to design an aircraft with a different shape that alters how supersonic shock waves behave," said Shah. "Instead of coming together to be heard as a loud boom, the shock waves do not merge. They rapidly weaken, resulting in a sound more like a soft thump."

NASA will conduct a series of flights over various communities across the U.S.; Shah and his team will measure the sound of the aircraft and conduct public surveys to understand the public response to different noise levels. By providing this information to regulatory agencies, the group hopes to inform an overland supersonic sound standard.

The first flight will take place in 2023, followed by 18 months of testing to confirm the aircraft's performance and safety. From 2025 through 2026, NASA intends to conduct a series of four to six community tests at locations across the country, eventually delivering the data to regulators in 2027.

More information: Conference: acousticalsociety.org/asa-meetings/

Provided by Acoustical Society of America