



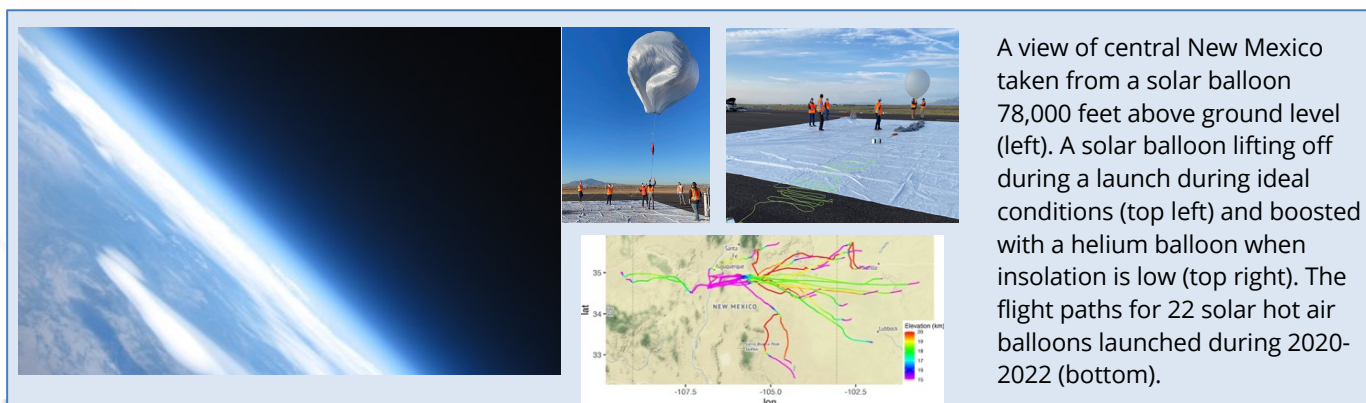
Exceptional service in the national interest

Scientific Ballooning at Sandia National Laboratories

Sandia National Laboratories uses tethered and free-floating balloons to loft instrumentation from the planetary boundary layer to the lower stratosphere. This fact sheet provides background on these ballooning systems. A more comprehensive description of instruments and findings is available upon request.

Heliotrope Solar Hot-Air Balloons (Stratospheric)

Sandia National Laboratories has developed an extremely low-cost stratospheric ballooning platform capable of reaching the lower stratosphere without lift gas. It can deliver gram to kilogram scale instrumentation from 18-24 km altitude for up to 10 hours during mid-latitude summer or days in high latitude summer. The heliotrope has enabled groundbreaking studies in stratospheric acoustics and aerosol content.



Tethered Balloon Systems (Tropospheric)

Sandia National Laboratories' Tethered Balloon Systems (TBS) have been operated at many places including Oliktok Point, Alaska, on barges in Louisiana, in high-altitude mountain towns, and urban and agricultural places. The TBS can lift payloads of about 50 kilograms on repeated basis through the atmospheric boundary layer to about 1,500 meters depending on meteorological conditions and regulatory restrictions. Common measurements taken on the TBS include aerosol concentration, atmospheric moisture, pressure, temperature, winds, and ground station conditions.

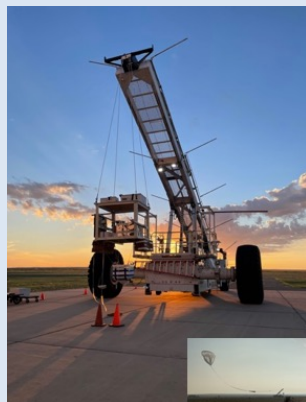


Three tethered balloons were deployed both upwind and downwind of Sandia National Laboratories' National Solar Thermal Test Facility during a falling-particle receiver test. The team found that the concentration of tiny particles, finer than talcum powder, that escape from the receiver were much lower than Environmental Protection Agency limits. **(Photo by Randy Montoya)**

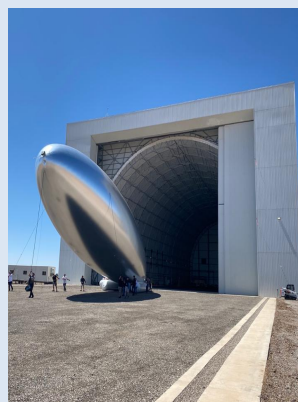


Collaborative Ballooning

Sandia National Laboratories' balloonist groups work with local scientific ballooning operations and ballooning companies to further test instrumentation at new atmospheric heights, observe the Earth system from different approaches, and work to build a network of balloonists including University groups who can build their own platforms.



NASA gondola and 'Big Bill' during a instrumentation hang test in Ft. Sumner, NM and (inset) zero pressure balloon launch for measuring stratospheric atmospheric conditions. SNL collaborates for 'piggy-back' instrumentation.



Sceye built the world's most advanced, high-altitude platforms. Robust, versatile and solar-powered, they operate in the stratosphere at 65,000 feet. SNL collaborates for 'piggy-back' instrumentation.

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