SILICON AUDIO SEISMIC

ENGINEERED FOR EXTREMES

Greenland: Extreme Unknowns

GREENLAND ICE SHEET: TESTING EUROPA LANDER TECHNOLOGY

Silicon Audio deployed seismometers on Greenland's ice sheet as part of NASA's SIIOS program, testing rapid deployment technology for a future Europa lander mission

Testing a critical question for icy ocean worlds.

Question: Can a single seismometer match the performance of an array in extreme polar conditions?

The team deployed sensors 1 km apart in cardinal directions, burying instruments deep beneath windshields to simulate Europa's environment, testing active and passive seismic sources through thick ice analogous to Europa's shell.

Answer: Yes it can.

Extreme conditions validated the technology.

Despite being buried by summer snow that killed power systems after two weeks, our sensors withstood polar extremes: temperature cycling, ice movement, complete burial, and extended autonomous operation.

This analog testing directly informs instrument design for future planetary exploration missions targeting subsurface oceans.

Deployment: Multi-institution team via Thule (Pituffik) airbase

Configuration: Single lander vs. 4-station baseline array testing

Environment: Deep burial under wind shield to replicate Europa conditions

Collaboration: NASA Goddard / U. Maryland / U. Arizona SIIOS program

CONTACT: sales@siaudioseismic.com +1.512.389.2224 siaudioseismic.com

SILICON AUDIO SEISMIC

ENGINEERED FOR EXTREMES

We Engineer Instruments That Redefine What's Possible

For decades, seismic sensing has required compromise. Low-noise, high dynamic range seismometers deliver exceptional data but are fragile, expensive, and/or difficult to deploy. Industrial geophones are rugged and affordable, but lack the low power consumption, sensitivity and bandwidth necessary for breakthrough science. And nothing survives true extremes, not polar ice sheets, not geothermal boreholes, not spaceflight.

The question we asked: *What if a single sensor could do it all?*

Our Answer: Optical Interferometry Meets Field-Proven Engineering.

Silicon Audio took the reliable mechanics of the traditional geophone and reimagined it with optical sensing technology. The result is a paradigm shift: one compact, ruggedized sensor that delivers scientific-grade performance across bandwidth, sensitivity, and dynamic range previously impossible in a deployable package.

Sample Current Customers

- NASA Artemis III Lunar Mission (currently scheduled for 2027 launch)
- DOE Enhanced Geothermal Systems (expanding)
- Los Alamos National Laboratory / Nevada Test Site Long-term Monitoring
- Texas Seismological Network
- Subsea Data Systems SMART Cable Sensor Systems

From Energy Transition to Planetary Exploration

Our technology is proven where it matters most:

Earth's Interior: Four years of continuous geothermal monitoring at DOE/Lawrence Berkeley sites with zero maintenance, now scaling to Enhanced Geothermal Systems and next-generation energy infrastructure.

Earth's Extremes: Supporting Subsea Data Systems and Ocean Networks Canada, a SMART Cable sensor system deployed in the Cascadia Subduction Zone off the coast of British Columbia.

Beyond Earth: Selected as the supplier of multiple seismometers for NASA Artemis III, returning seismic science to the Moon after 50 years and laying groundwork for Mars exploration.

We don't just build better sensors. We remove the constraints that have limited seismic science for decades.

Terrestrial Tech Specs at a Glance

Bandwidth: 0.025 Hz to 1.5 kHz (single sensor)

Noise Floor: <1 ng/√Hz, detecting femtometer-scale motion

Tilt Tolerance: +/-15° (lowest noise floor); Up to +/-180° omni-directional

Shock Rating: 1500G

Form factors: Full range include vault, posthole, and shallow borehole packages

CONTACT: sales@siaudioseismic.com +1.512.389.2224 siaudioseismic.com