



NASA SBIR 2012 Phase I Solicitation

S1.08 Airborne Measurement Systems

Lead Center: GSFC

Participating Center(s): ARC, JPL, KSC, LaRC, MSFC, SSC

A focus is on miniaturization and increased sensitivity/performance needed to support for NASA's airborne science missions. Linkage to other subtopics such as S3.05 Unmanned Aircraft and Sounding Rocket Technologies is encouraged. Complete instrument systems are desired, including features such as remote/unattended operation and data acquisition, low power consumption, and minimum size and weight.

Relevance to future space missions such as Active Sensing of CO₂ Emissions over Nights, Days, and Seasons (ASCENDS), Orbiting Carbon Observatory-2 (OCO-2), Global Precipitation Measurement (GPM), Geostationary Coastal and Air Pollution Events (GEO-CAPE), etc., is important, yet early adoption for alternative uses by NASA, other agencies, or industry is recognized as a viable path towards full maturity. Additionally, sensor system innovations with significant near-term commercial potential that may be suitable for NASA's research after full development, are of interest:

- Precipitation (multiphase).
- Surface snow thickness (5 cm resolution is desired), and potentially, snow density.
- Aerosols and cloud particles.
- Volcanic ash and gases.
- Gases: Reactive and tracers of source emissions. Examples include (but are not limited to) carbon dioxide, carbon monoxide, methane, water vapor.
- High quality three-dimensional wind instruments suitable for gas flux measurements, as well as advanced temperature and pressure systems.