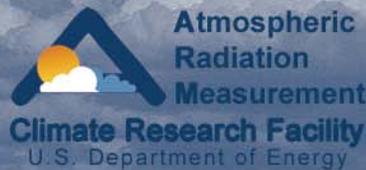


# DOE SBIR Program: An Instrument Incubator

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# What is the SBIR Program?

**Small Business Innovation Research (SBIR) - 2.5%**  
**Small Business Technology TRansfer (STTR) - 0.3%**

- Small businesses compete for research grants/contracts in response to technical topics in annual solicitations from 11 Federal agencies.
- Small businesses retain rights to technology, go on to commercialize products/services.
- SBIR, STTR very similar except in STTR the small business must collaborate with a non-profit Research Institution.
- Over \$2 billion available annually, government wide; over \$100 million at the DOE.

# Three Phases

- **Phase I: Feasibility of Idea**
  - 9 month duration, up to \$100,000
  - Odds of winning: approximately 5-to-1
- **Phase II: Principal R&D Effort**
  - 2 years, up to \$750,000
  - Odds of winning: 2-to-1 to 3-to-1
  - Only DOE Phase I awardees may apply
- **Phase III: Commercialization**
  - Private sector funding
  - Gov't can continue R&D, but no SBIR/STTR funds

# Level-of-Effort Requirements

	<b>Small Business</b>	<b>Research Institution</b>	<b>Other Consultants/ Subcontractors</b>
<b>SBIR</b>	Min. 66% for Phase I Min. 50% for Phase II	Participation optional	Participation optional
<b>STTR</b>	Min. 40% in Phases I and II	Min. 30% for Phases I and II	Participation optional

# Implications for Research Institutions

Maximum dollars available per project:

	<u>Ph I</u>	<u>Ph II</u>	<u>Total</u>
■ SBIR	33K	375K	408K
■ STTR	60K	450K	510K

Plus potential commercialization royalties

# SBIR/STTR – Annual Schedule

<b>Solicitation</b>	<b>September / October</b>
<b>Submission deadline</b>	<b>December / January</b>
<b>Selection</b> (Phase I)	<b>April / May</b>
<b>Grant start date</b>	<b>June / July</b>

# External Peer Review

## ■ Reviewer selection

- Based on proposal itself
- Most from national laboratories, universities

## ■ Evaluation criteria

- Strength of the scientific/technical approach
- Ability to carry out the project
- Impact

# SBIR Website

**[www.science.doe.gov/sbir](http://www.science.doe.gov/sbir)**

- Solicitation
- Technical Topics (“Atmospheric Measurement Technology”)
- Award winners and project summaries of winning proposals
- SBIR/STTR statistics
- Instructions for submitting Phase II proposals
- Success stories / Accomplishments
- National Laboratory Contacts
- Information for Active Grantees

# Previous ARM-Related Projects

- **1996: Microwave Temperature/Vapor Profiler**
  - PI: Frederick Solheim, Radiometrics Corp.
  - Status: Phase III completed; deployed at Barrow, Niamey
- **2001: Absolute Measurement of Infrared Radiation at the Surface (Scanning Radiometer)**
  - Status: No successful proposals received
- **2002: 183 GHz Microwave Radiometer**
  - PI: Andrew Pazmany, ProSensing, Inc.
  - Status: Phase II completed; deployed at Barrow
- **2005: Oxygen A-band Spectrometer**
  - PI: Fedor Dimov, Applied Optics Corp.
  - Status: Phase II not funded

# Current Phase I Projects

## ■ 2006: Eye-Safe UV Backscatter Lidar for Detection of Sub-visual Cirrus

- Aculight Corporation: “Eye-Safe UV Backscatter Lidar for Detection of SubVisual Cirrus.”

[http://www.science.doe.gov/sbir/awards\\_abstracts/sbirsttr/cycle24/phase1/039.htm](http://www.science.doe.gov/sbir/awards_abstracts/sbirsttr/cycle24/phase1/039.htm)

- Physical Sciences, Inc.: “Field-Worthy UV Backscatter Lidar for Cirrus Studies.”

[http://www.science.doe.gov/sbir/awards\\_abstracts/sbirsttr/cycle24/phase1/044.htm](http://www.science.doe.gov/sbir/awards_abstracts/sbirsttr/cycle24/phase1/044.htm)

# Current Phase I Projects

- **Instrumentation for Remotely Sensing Aerosol Optical Properties – Aerosol Phase Function**
  - Aerodyne Research, Inc.: “CAPS-Based Particle Single Scattering Albedo Monitor.”  
[http://www.science.doe.gov/sbir/awards\\_abstracts/sbirsttr/cycle24/phase1/040.htm](http://www.science.doe.gov/sbir/awards_abstracts/sbirsttr/cycle24/phase1/040.htm)
- **UAV-Suitable Cloud Radar (FY 2006)**
  - ProSensing, Inc: “High-Power, Pod-Mounted W-band Cloud Radar for UAVs.”  
[http://www.science.doe.gov/sbir/awards\\_abstracts/sbirsttr/cycle24/phase1/045.htm](http://www.science.doe.gov/sbir/awards_abstracts/sbirsttr/cycle24/phase1/045.htm)

# More Current SBIR Projects

- **Radiometer Radiosonde (NSF)** – The objective is to obtain a radiosonde with an onboard radiometer suitable for accounting for the radiative heating of the temperature sensor in the upper atmosphere. This is potentially interesting to ARM as a means for directly measuring the heating rate profile.
  - Phase I funding awarded to Global Aerospace Corp. (Matt Huen)  
<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0539943>

# 2007 Solicitation

- **In-situ Measurement of Cloud Properties with Large Sample Volumes** (Warren Wiscombe) ...to develop instruments to measure cloud properties in situ, for scales ranging from cubic meters to hundreds of cubic meters, with particular emphasis on fast vertical profiling above and below the in situ platform.
- ... in order of decreasing priority for cloud-climate applications:
  - extinction coefficient at one or more wavelengths in the solar spectrum away from strong water vapor absorption bands;
  - total water content (liquid plus ice);
  - liquid and ice water content separately;
  - effective radius, defined as the ratio of the 3rd to the 2nd moment of the drop size distribution;
  - absorption coefficient or single-scattering albedo at one or more wavelengths in the solar spectrum away from strong water vapor absorption bands;
  - the scattering phase function for ice clouds;
  - the drizzle and precipitation fraction of the total condensed water content;
  - the supersaturation;
  - the dispersion, a measure of the width of the drop size distribution.

# Summary

- Up to \$850,000 available per project.
- Need subtopics and technical POCs by June.
- Goal: increase number of successful proposals on ARM subtopics.
- Goal: increase collaboration with ARM scientists and engineers.