Center Independent Research & Development: GSFC IRAD

Global Climate Measurement

Completed Technology Project (2012 - 2014)

Project Introduction

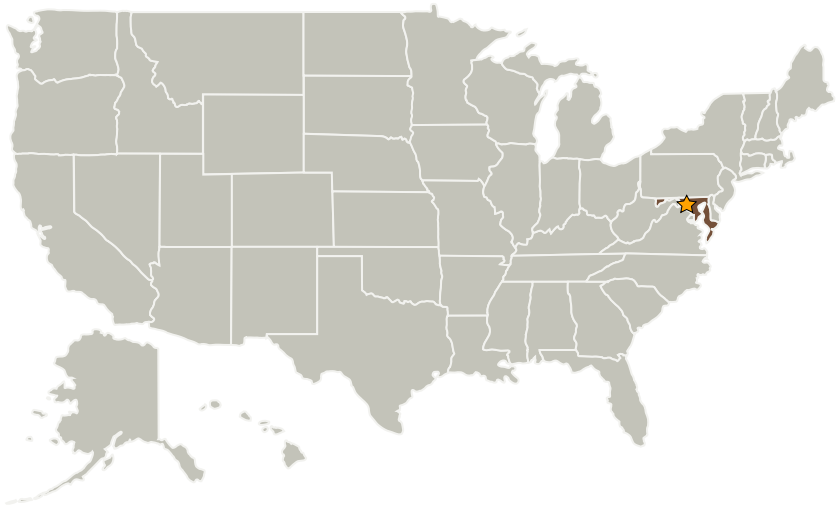
Using Laser Imaging Dection and Ranging (LIDaR) for optical remote sensing techniques where optical dispersion techniques are used to examine atmoshperic trace gas densities. The outcome of this project will determine the feasiability of using this particular technique compared to current absorption measurement approaches.

When investigating the processes in the atmosphere, measurement of trace gas concentrations is essential. However, measuring trace gas concentrations is very challenging because exteme sensitivity to detection. LIDaR (Laser Imaging Detection and Ranging) is an optical remote sensing technology that can measure the distance to, or other properties of, targets by illuminating the target using laser light and analyzing the backscattered light. LIDAR technology has many applications including atmospheric physics. The proposed technology uses LIDaR to determine atmospheric trace gas concentrations.

Anticipated Benefits

Continued test success of exploring various physical effect demonstrates the feasiability of using space LIDar for measurement techniques for trace gases.

Primary U.S. Work Locations and Key Partners



Global Climate Measurement

Table of Contents

Global Climate Measurement

Completed Technology Project (2012 - 2014)

Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, MD

Primary U.S. Work Locations
Maryland

Stories

Goddard Technologists Win $11.2 Million to Continue Earth-Observing Instrument Concepts
(https://techport.nasa.gov/file/3096)

Solving the Carbon Conundrum
(https://techport.nasa.gov/file/3095)

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

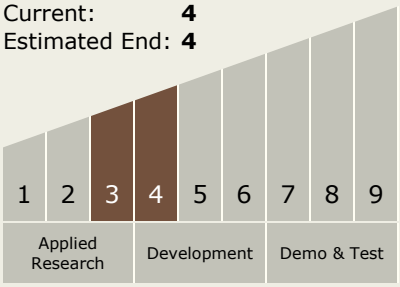
Matt Mcgill

Principal Investigator:

James B Abshire

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers