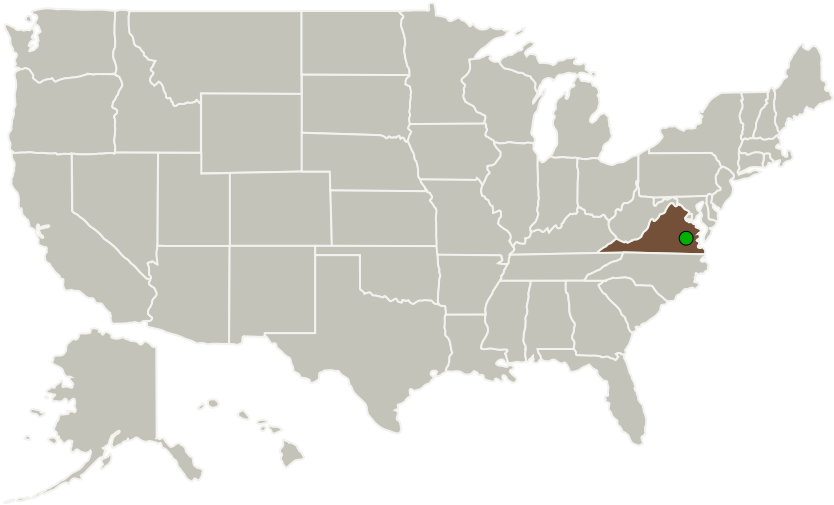
Solid State Transmitters for Water Vapor and Ozone DIAL Systems, Phase II

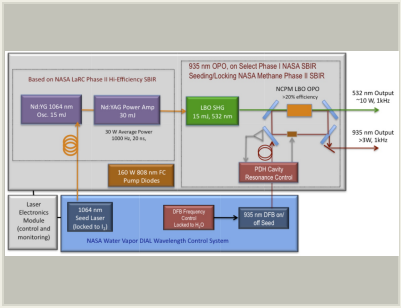
Completed Technology Project (2014 - 2018)

Project Introduction

The focus of this Select Phase II program is to build and deliver laser components both for airborne water vapor and ozone DIAL systems. Specifically, Fibertek proposes to deliver to NASA the following prototype systems: 1) A complete water vapor DIAL transmitter with single-line output tunable over the 936 nm water vapor line, 2) A wavelength converter for ozone DIAL compatible with the GOLD (Global Ozone Lidar Demonstrator) pump laser, with an output on two lines between 300 and 320 nm. Fibertek has developed a common architecture for wavelength converters for both water vapor and ozone DIAL applications. Use of common technology allows us to economically manufacture components for both applications that are compatible with provide improved performance from instruments planned or previously developed by NASA Langley Research Center (LaRC). The laser systems delivered will provide NASA with the critical components needed for a new generation of airborne lidar sensors for measurement of stratospheric and upper tropospheric species central to improved weather forecasting and understanding of global climatology. The laser systems developed also provide a stepping-stone to space-based sensors – utilizing components and architectures that are scalable and traceable to space based operations.

Primary U.S. Work Locations and Key Partners





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Completed Technology Project (2014 - 2018)

Organizations Performing Work	Role	Type	Location
Fibertek, Inc.	Lead Organization	Industry	Herndon, Virginia
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations
Virginia

Project Transitions

May 2014: Project Start

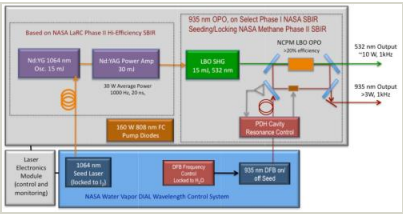
October 2018: Closed out

Closeout Summary: Solid State Transmitters for Water Vapor and Ozone DIAL Systems, Phase II Project Image

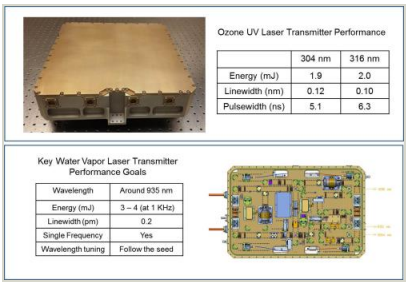
Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/137753)*

Images



Briefing Chart Image
Solid State Transmitters for Water Vapor and Ozone DIAL Systems, Phase II *(https://techport.nasa.gov/image/132945)*



Final Summary Chart Image
Solid State Transmitters for Water Vapor and Ozone DIAL Systems, Phase II Project Image *(https://techport.nasa.gov/image/133812)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Fibertek, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

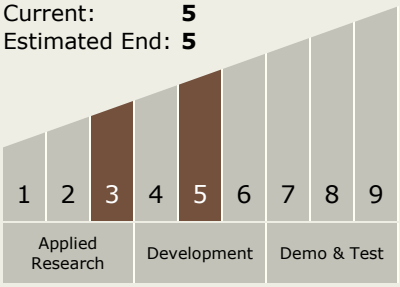
Fran Fitzpatrick

Co-Investigator:

Ti Chuang

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

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

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System