

Opportunity Title: Development of Software Analysis Tools Based on Spectroscopic Data Bases such as HITRAN for Atmospheric Trace Gas Detection Lidars from Space Based Platforms

Opportunity Reference Code: 0012-NPP-NOV23-LRC-Interdisc

Organization: National Aeronautics and Space Administration (NASA)

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Application Deadline: 11/1/2023 6:00:59 PM Eastern Time Zone

Description Opportunity Restricted to U.S. Citizens Only

There is a need to develop effective software analysis tools based on HITRAN and other spectroscopic data bases to predict lidar performance for atmospheric trace gas detection from space based platforms. The variation of line parameters with pressure, temperature and lineshape functions have to be accurately known for calculation of mixing ratios of a given trace gas species. The ongoing ASCENDS program at NASA Langley will benefit from these tools for accurate prediction of CO₂ and oxygen mixing ratios. Practical lidar instrumentation models can be developed by incorporating these tools to aid in refining lidar system parameters for achieving less than 0.3% accuracies in CO₂ mixing ratio under various atmospheric conditions.

Location:

Langley Research Center
Hampton, Virginia

Field of Science: Interdisciplinary/Other

Advisors:

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- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Doctoral Degree.



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