

Report of IMS LECTURE by Dr. Upendra N Singh



“Active Optical Remote Sensing Sensors and Instrumentation for NASA’s Future Earth and Space Science Measurements/Missions”

By

DR. UPENDRA N. SINGH

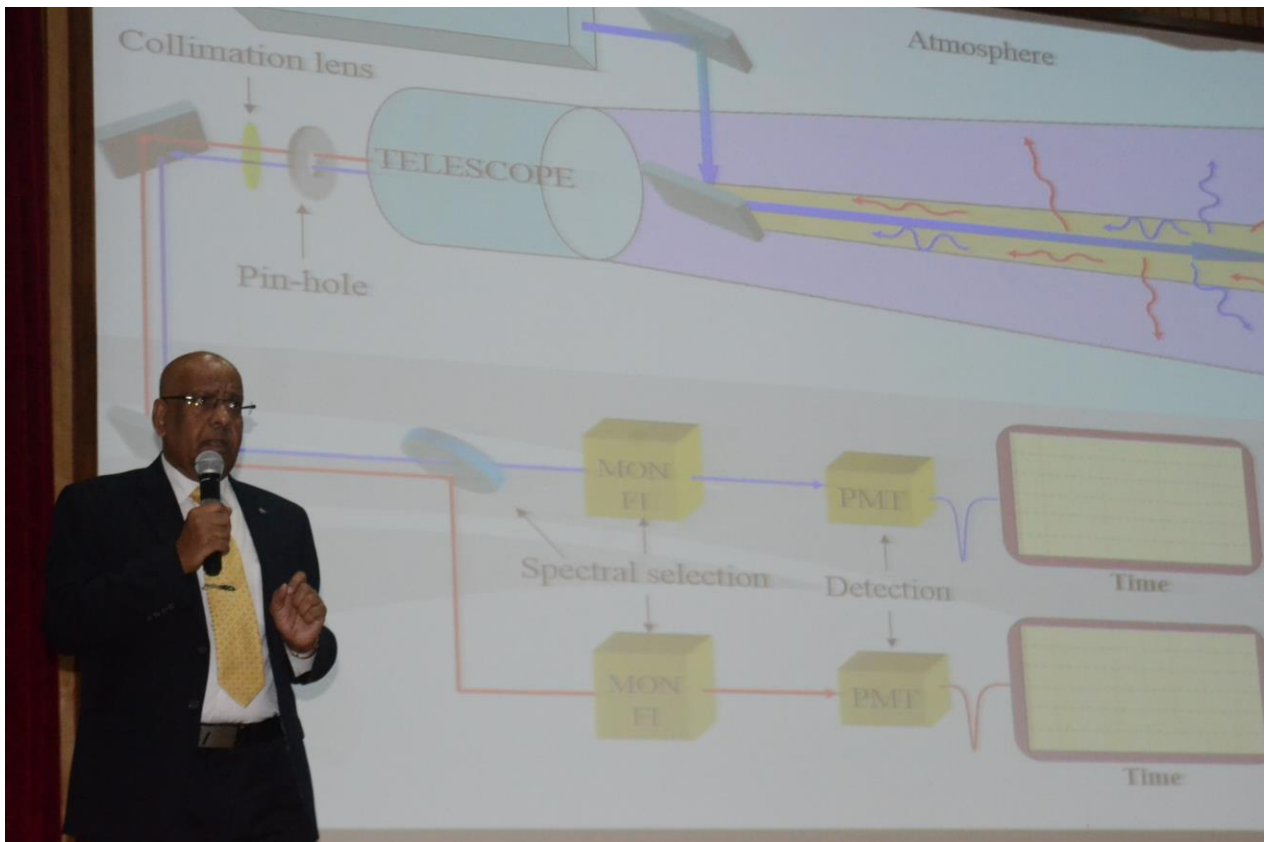


NASA Technical Fellow for Sensors and Instrumentation
on 08 February, 2019: at 11:15AM
at Mahika Hall
Ministry of Earth Sciences
Prithvi Bhavan, Lodhi Road, New Delhi 110003

A short felicitation function was also arranged by IMS for awarding
IMS
Honorary Fellowship to the Speaker on the occasion.

Summary

Abstract—Active optical (Laser/Lidar) measurement techniques are critical for the future National Aeronautics and Space Administration (NASA) Earth, Planetary Science, Exploration, and Aeronautics measurements. The latest science decadal surveys recommend a number of missions requiring active optical systems to meet the science measurement objectives and the aeronautics community continues to use Laser/Lidar technologies to meet the aeronautics measurement objectives. This presentation will provide an overview of NASA efforts in developing and maturing state-of-the-art advanced solid-state flight laser/lidar systems for airborne and space-borne remote sensing measurements. The presentation will also provide details of a strategic approach for active optical technologies and techniques to meet the NASA's future Earth and Space Science measurements/missions needs and requirements for space-based applications.



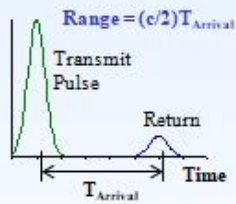
Dr. Upendra N Singh, NASA Technical Fellow delivering Lecture



Lidar Techniques

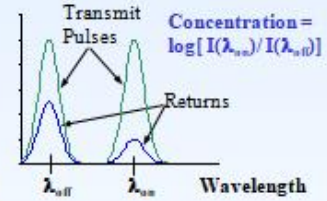
Altimetry Lidar

- Ice Sheet Mass Balance
- Vegetation Canopy
- Land Topography



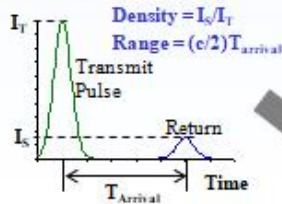
Differential Absorption Lidar (DIAL)

- Ozone
- Carbon Dioxide



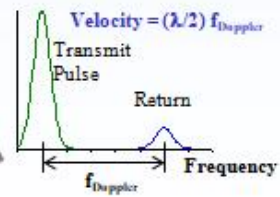
Backscatter Lidar

- Cloud
- Aerosol



Doppler Lidar

- Wind Fields



A slide on Lidar Techniques shown by Dr Singh



A view of esteemed audience listening to Dr. Upendra's Lecture



Dr. Upendra Narayan Singh, NASA Technical Fellow, was awarded IMS Honorary Fellowship – 2018 by Prof.S.K. Dash, IMS President. Dr. M Rajeevan, Secretary, MoES, who has graced the occasion was observing the award-giving ceremony.



Dr. Upendra N Singh was honoured by a Shawl by Dr. M Rajeevan, Secretary, MoES and Prof. S.K. Dash, President at the occasion. Dr. D R Pattanaik (extreme left), Secretary, IMS, was also present on the stage.



Dr. Upendra N Singh was felicitated by an IMS Memento jointly by Dr. M Rajeevan, Secretary, MoES and Prof. S.K. Dash, President, IMS