

**ONLINE CSSTEAP SHORT COURSE ON  
"PLANETARY SCIENCE"**

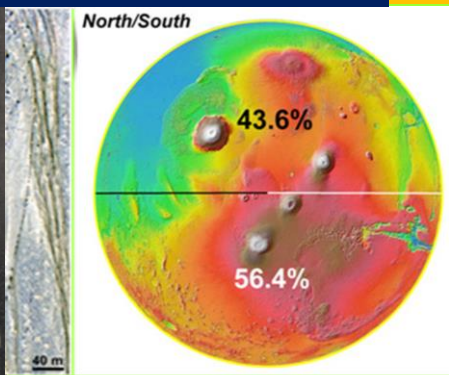
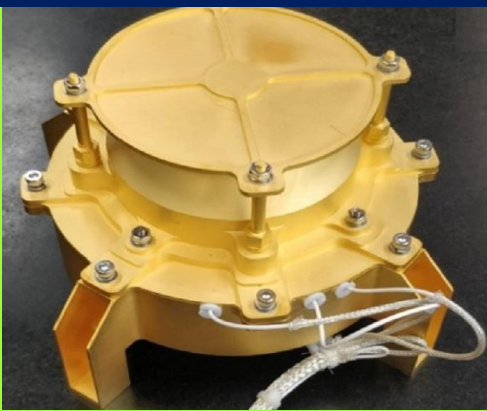
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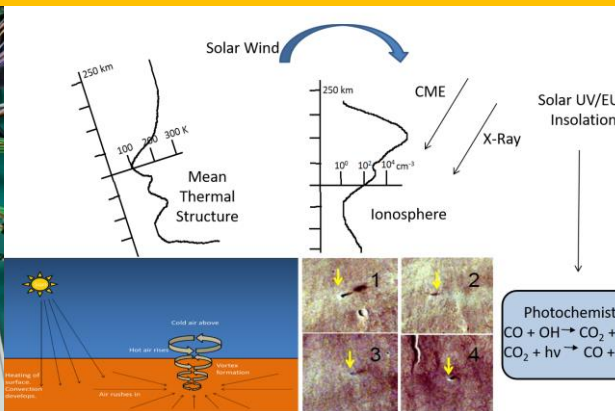
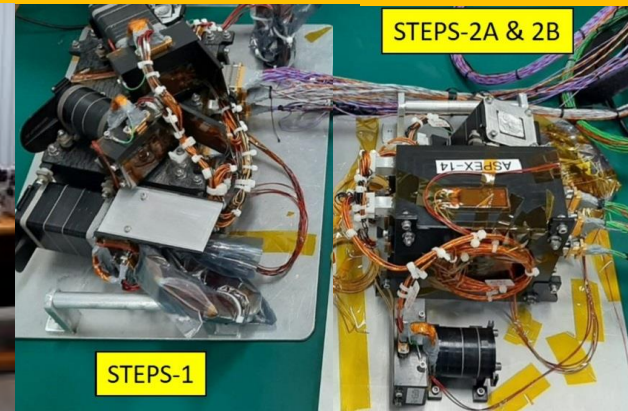
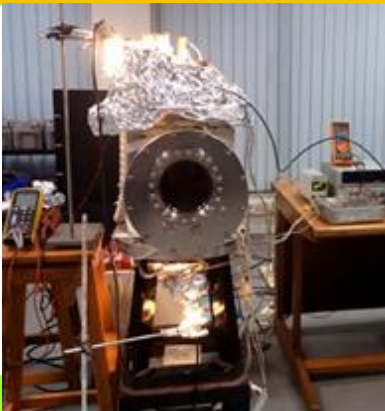
**Centre for Space Science and Technology Education in Asia  
and the Pacific (CSSTEAP)**  
(Affiliated to the United Nations)  
IIRS Campus, 4, Kalidas Road, Dehradun, India  
[www.cssteap.org](http://www.cssteap.org)

**Physical Research Laboratory (PRL)**  
(A Unit of Dept. of Space, Govt. of India)  
Navrangpura, Ahmedabad, India  
[www.prl.res.in](http://www.prl.res.in)

**May 15 – 19, 2023**



**Boulder Fall Ejecta (BFE)**



## INTRODUCTION

The study of the interiors, surfaces, and atmospheres of solar system objects and the processes that govern them constitutes Planetary Science research at PRL. This is accomplished through theoretical models (computer simulations), laboratory analysis of extraterrestrial material, planetary remote sensing, and observations from scientific instruments flown on space missions. Research in Planetary Science includes study of processes from subsurface of planetary bodies to the inter-planetary medium.

Physical and chemical processes in planetary atmospheres are studied using observations, theoretical simulations and modelling. Test chambers are also developed and used to simulate Lunar, Martian and Venusian environments. Analysis of isotopes (primordial and cosmogenic) and elemental abundances in meteorites is used to characterize past and contemporary processes in early solar system objects and in terrestrial reservoirs. Geological process in planetary bodies are studied by petrological, morphological, chemical composition and isotopic studies of planetary samples and their terrestrial analogues by state-of-the-art experimental facilities established at PRL. Data from remote sensing of planetary bodies are investigated with the objective to study surface geology and morphology.

Initiated with Chandrayaan-1 and the associated landmark discovery of OH/H<sub>2</sub>O on the Moon, design and development of payloads for planetary missions has now become one of the prime activities at Planetary Sciences. Recently, PRL has developed and delivered payloads for Chandrayaan-2 & 3 and the Aditya L1 missions. In addition, several other important instruments are being developed for upcoming planetary missions of ISRO.

## ABOUT CSSTEAP AND PRL

The CSSTEAP was established in India in November 1995 with its headquarters in Dehradun and is considered as the Centre of Excellence by UNOOSA. The 1<sup>st</sup> campus of the Centre was established in Dehradun, India and is hosted by Indian Institute of Remote Sensing (IIRS), a constituent unit of Indian Space Research Organisation (ISRO). The CSSTEAP has been imparting various training and educational programs, helping participants in developing research skills through its Master Degree, Post Graduate and Certificate programmes.

Known as the cradle of Space Sciences in India, the Physical Research Laboratory (PRL) was founded in 1947 by Dr. Vikram Sarabhai. As a unit of Department of Space, Government of India, PRL carries out fundamental research in selected areas of Physics, Space & Atmospheric Sciences, Astronomy, Astrophysics & Solar Physics, and Planetary & Geosciences.

## OBJECTIVE OF THE COURSE

The objective of the course is to create an understanding of the basics and current research trends in the field of planetary sciences with a major focus on:

Processes in the atmospheres of planets and comets, environment of Moon, distribution of interplanetary dust, through modelling and development of space-based instruments

Processes on planetary surfaces and interiors, such as planetary differentiation, impacts processes, planetary evolution, studied through laboratory analysis of samples and remote sensing.

## COURSE CONTENTS

The following themes will be covered during the course:

((1) Planetary Atmospheres, (2) Planetary surfaces and interiors, (3) Planetary Material and Analogues, (4) Space Instrumentation, (5) Interplanetary Processes (6) Current trends and future explorations in Planetary Sciences.

## ELIGIBILITY AND HOW TO APPLY

Applicants should have a Master's degree in Physics/Geology/Atmospheric Science or other equivalent qualification relevant to Planetary Science, OR Bachelor's degree in Engineering, (B.E./ B. Tech.) in Electronics and allied fields / Environmental Science/Engineering. Applicants having teaching or research experience would be preferred. Since the whole course will be conducted in English, the applicant should have proficiency in English language.

Applicants are requested to register online by opening the admissions portal at [www.cssteap.org](http://www.cssteap.org) or <https://admissions.cssteap.org/login>. They are advised to read each and every instruction given in the online application form carefully before applying online. The application should be duly forwarded by the Head of the applicant's institute for consideration. There is no course fee for applicants applying through proper channel.

**Last date for receipt of application : April 30, 2023**

Link for lectures will be shared with selected applicants in due course. Applicants are advised to check the website/portal [www.cssteap.org](http://www.cssteap.org) regularly for further updates/information.

## CONTACT DETAIL

**For any course related query, the applicants may contact**

**Dr. Jay Banerji**

**Course Director**

**Physical Research Laboratory**

**Navrangpura, Ahmedabad 380 009, India**

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