

desertification, biodiversity and the Sustainable Development Goals (SDGs)

- Continuity and future satellite observational requirements.

### Theme 2: Climate Indicators for Addressing Climate Challenges

- Remote Sensing of Essential Climate Variables and their applications
- Atmospheric composition, aerosol, global warming and climate change
- Lightning strikes and climate change
- Impact of Climate Change on Oceans
- Sea level rise and coastal perspective
- Cryosphere processes, feedbacks and Climate change
- Impacts of Climate Change on Terrestrial ecosystems and processes
- Impact of Climate Change on coastal areas and fragile environments
- Weather Extremes: Modeling and Forecasting in the backdrop of Climate change
- Climate change scenarios, impact, mitigation, and resilience – evidences using space-based observations
- Linkage of space-based ECVs for climate model scenarios and projections
- Climate modeling, gap areas – International and Indian initiatives
- Climate Impacts on Marine Biodiversity
- The Blue Economy: Short and Long term Climate Change Impacts
- Coral and Ocean heat waves
- Ocean warming and associated deep ocean process studies
- Decoupling anthropogenic and natural forcings through space-based observations
- Achieving specific SDG goals with targets and indicators
- Anthropogenic Climate Change: Social Science Perspectives.

### Workshop Steering Committee:

- ❖ Dr. Prakash Chauhan, Director, NRSC (Chairman)
- ❖ Dr. Kalachand Sain, Director, WIHG
- ❖ Dr. M. Mohapatra, DG, IMD
- ❖ Dr. R. Krishnan, Director, IITM
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- ❖ Dr. K. Rajeev, Director, SPL-VSSC
- ❖ Dr. Shantanu Bhatawdekar, Director, EDPO, ISRO
- ❖ Dr. M.V.R. Sessa Sai, AD, NRSC
- ❖ Dr. Rajashree Bothale, DD, ECSA, NRSC (Coord/Convenor)

### Online Registration:

- Interested participants may [register](http://www.nrsc.gov.in) online at [www.nrsc.gov.in](http://www.nrsc.gov.in) on or before **June 30, 2022**.
- Original, unpublished research papers, covering one or more sub-themes are invited for presentation.
- Abstracts submitted should not exceed 350 words and clearly indicate author's names, affiliations and contact details. Submission by email to [nices@nrsc.gov.in](mailto:nices@nrsc.gov.in).

*Limited funds are available to support students/research scholars for accommodation and travel support (3rd A/C train fare only) who are first authors.*

**Abstract Submission by: June 30, 2022.**

### Contact

Dr. M. V. Ramana,  
Earth and Climate Sciences Area (ECSA)  
National Remote Sensing Centre (NRSC)

☎ +91-854-222 5430, 5521

✉ [nices@nrsc.gov.in](mailto:nices@nrsc.gov.in)

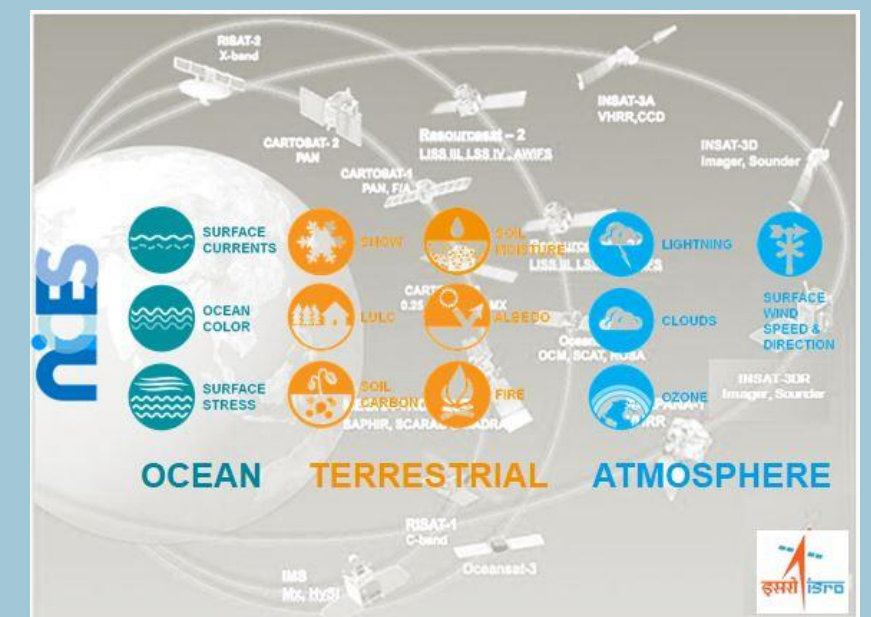
## National Workshop & Brainstorming Meeting on

# "Space based Information Support for Climate and Environment Studies: Road to the Future"

**July 18 - 19, 2022**

### Venue

**ISRO, Anthariksh Bhavan,  
Plot-7, Planning Area Centre, Besides IOCL Office,  
Sadiq Nagar, New Delhi – 110 049.**



Organised by

**nrsc**

**National Information system for Climate and  
Environment Studies (NICES)**

**NRSC, ISRO**

**Hyderabad – 500 037**

## Background

Earth observation satellites for climate information are recognized as vital for detecting a critical changing climate baseline, one of the most pressing issues facing humanity today. The last decades have witnessed an increasing demand for reliable climate information from key sectors and this demand is expected to grow further against the backdrop of a changing climate. Climate information includes the production and dissemination of science-based reliable quality-controlled *Essential Climate Variables* (ECVs) to monitor climate so that the causes of climate variability and changes can be traced and the predictability of future changes improve for adaptation and mitigation strategies. To do so effectively, climate information should be primarily end-user driven, designed in collaboration with users and stakeholders, based on free and open access to essential data, and including the user feedback mechanisms.

To respond to the observational needs of climate services, ISRO initiated a program, called **National Information system for Climate and Environment Studies (NICES)** in Sept 2012 at NRSC as a multi-institutional endeavour, under the overall guidance with members drawn from **inter- and intra-Ministries and Departmental institutions**. The vision of NICES in the context of climate change is to promote the generation, dissemination and subsequent use of climate data gathered through satellites to contribute to the understanding and modelling of climate change as a means to identify adaptation and mitigation measures, and as a means to track their impact in the long-term. The basic intent of the NICES is to provide users with a centralised resource to access long-term consistent climate datasets generated from both Indian and

international satellites for each of the designated atmospheric, oceanic and terrestrial ECVs, along with relevant metadata and reference documents. NICES program also envisages to have a strong linkage with ground based networks from MoES, DST, MoEF-CC, ISRO etc., for creation of a centralized in-situ database for climate studies, which will also play a pivotal role in evaluating the quality and consistency of satellite based geophysical products.

Since its inception in 2012, considerable progress has been made in achieving the NICES objectives by creating a dedicated NICES web portal with database of more than 60 geophysical variables pertaining to Terrestrial, Ocean and Atmosphere, mainly derived from Indian (INSAT series, Oceansat, SCATSAT, Resourcesat etc.) and other EO satellites. Indeed, some of these satellite based geophysical products are now spanning more than 25 years and this type of long-term information for climate monitoring purposes is now invaluable. Simultaneously, relevant in-situ measurements are collected for validation exercises. However, more focused efforts are envisaged with multi-institutional partnership to improve the quality and consistency of some of these geophysical products in meeting climate-quality standards. It also has further plans to deliver more and improved data records to address additional ECV requirement from the user community from the atmosphere, ocean and terrestrial domains.

### About the Workshop and Major Themes:

This workshop is being conducted for users and other stakeholders of space-based climate parameters to review and discuss the existing NICES climate database and to deliberate on further improving this database following the community standards. These discussions will play a pivotal role in preparing the roadmap for the implementation of next phase of

NICES program. In this regard, NRSC is hosting 2-day workshop and brainstorming meeting. It will bring together all the stakeholders of climate science community, including remote sensing experts, academia, R&D, and climate policy-makers; to identify and prioritise measurement needs and challenges for climate studies in India. In addition, lead talks and plenary lectures by eminent experts from the MoES, MoEF-CC, DST, CSIR, ICAR, IISc, IITs, TERI and DoS, etc. are planned. The conference is expected to result in a list of priorities and actions, some of which may be included in the NICES next phase implementation plan.

This 2-day workshop will have focused deliberations on the following sub-themes.

### *Theme 1: Space-based ECVs and Climate Services*

- How well do current climate observations and services support the understanding of climate change and variability?
- Space-based monitoring of Climate and Environmental Variables and assembling the information on ECVs,
- Key achievements in producing climate quality database in the areas of atmosphere, ocean and terrestrial, & community assessment of the products,
- What improvements are needed to better meet user needs? Recognition of needs & expectations of the user community in terms of Climate data requirements?
- Identification/prioritization of ECVs and Climate Services,
- Networks and systems - Identifying opportunities for validation studies to improve the consistency of climate data
- Identify future needs related to adaptation and mitigation requirements in other areas, such as