



**Opportunities for enhancing knowledge on application of RS&GIS for natural hazards assessment offered through CSSTEAP/IIRS**

About Organisation ...

### Six Regional Centres for Space Science and Technology Education in the World



- CSSTEAP is the 1<sup>st</sup> Regional Centre of UN-OOSA established in 1995
- CSSTEAP has 17 GB members and two observers for guiding the activities of the Centre.

**CSSTEAP completed 24 years.**  
**Total 2300 participants from 35 AP Countries others are benefited**

### Centre: Structure and Campuses



About Programs ...

### Educational Programs

- PG: Remote Sensing & GIS (RS & GIS) Every Year**
  - Completion of 9 month PG course curriculum
  - Award of PG Diploma by CSSTEAP
- PG: Satellite Communication (SATCOM) & Global Navigation Satellite Systems (GNSS) Alternate Odd Year (OY)**
  - 1 year follow-up project in home country for academic requirement of M. Tech. deg. project
  - Submission and evaluation of M. Tech. thesis by internal & external experts.
  - Award of M. Tech. by Andhra University, India
- PG: Satellite Meteorology & Global Climate (SATMET) Alternate Even Year (EY)**
  - CSSTEAP offers 1 Yr. Fellowship in India to meritorious students for M.Tech. Research
  - 147 from 16 countries awarded; 5 in 2016-17
- PG: Space and Atmospheric Sciences (SAS) Alternate Even Year (EY)**
  - Short Courses on RS&GIS, Small Satellite Missions (every year) and user demand based courses

About Programs ...

### Educational Programs

- 58 Post Graduate Courses (23 RS&GIS, 11 each in SATCOM, SATMET & SAS and 2 GNSS).
- Currently 24 RS&GIS course at IIRS, Dehradun, 12 SATCOM course and 3 GNSS course at SAC, Ahmedabad are in progress.
- The center also conducted various short courses in specific themes.
- 2300+ participants from Asia Pacific Region and 20 countries from outside Asia-Pacific region are benefited.

### Courses (completed in 2019)

PG Courses	Short Courses
<ul style="list-style-type: none"> <li><b>RS&amp;GIS:</b> 23rd PG course in RS &amp; GIS at IIRS, Dehradun during July 1, 2018- March 31, 2019 (24 participants from 11 countries)</li> <li><b>SATMET:</b> 11<sup>th</sup> Meteorology and Global Climate at SAC, Ahmedabad during August 1, 2018 – April 30, 2019 (13 participants from 08 countries)</li> <li><b>SAS:</b> 11<sup>th</sup> Space and Atmospheric Science at PRL, Ahmedabad during August 1, 2018 – April 30, 2019 (13 participants from 05 countries).</li> </ul>	<ul style="list-style-type: none"> <li><b>DRR Course:</b> Application of Geospatial Technologies for Disaster Risk Reduction with special emphasis on floods and forest fires during May 20 to 31, 2019 (23 participants from 05 countries)</li> <li><b>NWP Course:</b> Short course on weather Forecasting using Weather Prediction Models during July 01 to 12, 2019(26 participants from 09 countries)</li> <li><b>Space Weather:</b> Short course on Space Weather during November 14 to 27, 2019 (27 participants from 12 countries)</li> </ul>

**11 Meritorious Participants from PG courses completed their M.Tech. degree.**

## PG Courses (Ongoing)

- **RS&GIS:** 24<sup>th</sup> RS & GIS at IIRS, Dehradun during July 1, 2019 - March 31, 2020 (22 participants from 10 countries)
- **SATCOM:** 12<sup>th</sup> PG course in Satellite Communications at SAC, Ahmedabad during August 1, 2019 – April 30, 2020 (16 participants from 08 countries)
- **GNSS:** 03<sup>rd</sup> PG course in Global Navigation Satellite Systems at SAC, Ahmedabad during August 1, 2019 – April 30, 2020 (14 participants from 07 countries)



### Facilities Provided to Participants



- Monthly Fellowship (Live-in expenses)
- International travel support
- Single Occupancy Hostel Accommodation with kitchenette facilities, Gym, Sports
- 24x7 digital Library
- Medical facility
- Tuition fee, course fee waived off
- English Coaching
- Live lectures & video recording
- Technical Visits
- Symposium/Seminars participation
- Field visits / Institutional visits
- International Experts / Lectures/ Tutorials
- Satellite data (India / International)
- Books/ Project Allowance / Field work allowance
- Other administrative expenses (Visa, baggage allowance etc.)



## Short Courses (Ongoing)

- **SSM:** 8<sup>th</sup> International Training on Small Satellite Mission during November 25- December 06, 2019 (26 participants from 07 countries)



### Education in and out-side the campuses



### Cultural Activities



### Exposure of Advanced Research to Course participants in Symposia and workshops



### CSSTEAP Alumni Meets

Yangon, Myanmar on 31<sup>st</sup> March 2017  
26 participants

- Recommendations**
- Short course on
    - DRR Course
    - Water Resources and Ground Water
    - UAV applications
    - Mapping of heritage sites
    - Refresher course for alumni



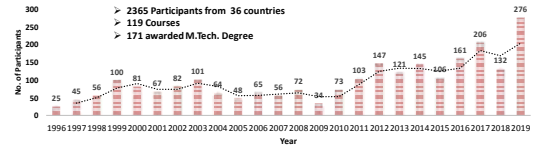
Kathmandu, Nepal on 2<sup>nd</sup> August 2017  
20 participants

- Recommendations**
- Advance RS&GIS/Navigation
  - Disaster course
  - Image processing – forecasting of flood
  - Latest trends in satellite applications
  - SATCOM in disaster management

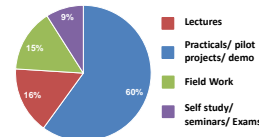


22<sup>nd</sup> meeting of CSSTEAP Governing Board

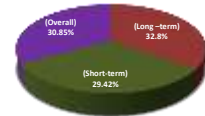
### Achievements, Alumni, Hands-on



#### Overall Course Organization



#### Women Participation



Total Hours: 1200+60 (Exams)  
75% - Hands-on training

### Courses organized by IIRS in DRR (2013 onwards)

Sl no	Course name	Duration	No of Participants
1.	TRAINING ON "DEVELOPMENT OF GEO-REFERENCED INFORMATION SYSTEM FOR DISASTER RISK MANAGEMENT	August 26-29, 2013	16
2.	SAARC REGIONAL TRAINING PROGRAMME ON GIS & RS TECHNOLOGY IN DISASTER RISK & EMERGENCY MANAGEMENT IN SOUTH ASIA	July 14 -25, 2014	21
3.	EXPERT GROUP MEETING & SPECIALIZED TRAINING ON DISASTER RAPID IMPACT ASSESSMENT USING SPACE-BASED INFORMATION	December 01- 05, 2014	16
4.	DISASTER RESPONSE & RECOVERY PREPAREDNESS Special -Jointly organized by UNDP and UNOOSA	April 13-17, 2015	19
5.	GEOSPATIAL TECHNOLOGIES FOR COASTAL & MARINE DISASTER MANAGEMENT & CLIMATE CHANGE	May 04 –31, 2015	19
6.	DISASTER DAMAGE AND LOSS ASSESSMENT IN NATURAL HERITAGE AND CULTURAL SITES USING GEOSPATIAL TECHNIQUES	September 11– October 02, 2016	24
7.	POST DISASTER (EARTHQUAKE) RAPID DAMAGE ASSESSMENT Special (organized off campus at Myanmar)	March 28 –April 01, 2017	44
8.	DISASTER RISK REDUCTION (DRR) WITH SPECIAL EMPHASIS ON FLOODS AND EARTHQUAKE	May 28 to June 22, 2018	18
9.	APPLICATION OF GEOSPATIAL TECHNOLOGIES FOR DISASTER RISK REDUCTION WITH SPECIAL EMPHASIS TO FLOODS AND FOREST FIRES	May 20 to 31, 2019	23

Webinar Series on DRR during Sept. 17 – 20, 2019

### Support for UN-SPIDER Institutional Strengthening Mission to Myanmar

"Utilization of Space based & Geospatial information for achieving the targets of the Sendai Framework for DRR" 11 to 15 March 2019 organized at Emergency Operation Centre (EOC), Naypi Daw, Myanmar

**Objective:** Use of space technology in disaster risk management, the International Charter "Space and Major Disasters" and coordination during an emergency situation.

**Participants:50** (Two training programme, one for 25 officials of the Department of Disaster Management (DDM) of Ministry of Social Welfare, Relief and Resettlement (MSWRR) and one for 25 officials from key line ministries)

**Outcome**  
Training strengthened the skills of EOC and DDM staff in analyzing maps and making use of emergency response maps produced as part of International Charter activations.



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## SAARC Regional Workshop (co-organized with UN-SPIDER)

“Use of Space Technology In Post Disaster Rapid Damage Assessment” 04 – 08<sup>th</sup> Dec, 2018 organized at SAARC DM Centre (IU), Gandhinagar, Gujarat, India

**Objective:** Bring together disaster management officials and experts to chalk out a sustained plan for utilization of space technologies for achieving targets of the Sendai Framework

**Participants:25**  
(Representative from Following Departments/ Agencies; Disaster Management Agency/ Authority, Agency dealing with applications of Remote Sensing and Geospatial Technologies ;Agency offering technical support to the Disaster Management agency in tasks related to hazard monitoring)

**Countries:08**  
(Afghanistan; Bangladesh; Bhutan; India, Pakistan; Nepal; Maldives; Sri Lanka & SAARC Secretariat)



## Training for Myanmar Officials

Post Disaster (Earthquake) Rapid Damage Assessment at **Yangon Technological University, Yangon, Myanmar (28 March - 1 April 2017)** – jointly UNOOSA/UN-Habitat, MM, CSSTEAP

**Objective:** To impart skills to use integrated earth observation technology for earthquake damage and loss assessment by introducing the basic concepts and methodologies

44 Participants from 16 Related departments



## International Training on Integration of Multisource Earth Observation Data for Disaster Damage Assessment 25 to 31 October, Beihang University, Beijing China

**Training Objective:** To make participants conversant with use of Multi-source Earth Observation (including satellite and UAV, optical and microwave data, remote sensing and Geographical Information System, 3D modeling and other geospatial technology) in flood and earthquake damage assessment in particular.

**Participants:** 24 participants from 15 countries (Bangladesh, China, Fiji, Ghana, Indonesia, Iran, Kenya, Mongolia, Mozambique, Nigeria, Pakistan, Peru, Sudan, Thailand and Turkey) disaster management agencies and stakeholder departments. 15 students of Beihang University also attended the training programme through a live casting of the training programme.

**CSSTEAP/ IIRS, ISRO Support to UNOOSA Training:**  
2 Faculty members from CSSTEAP/IIRS were deputed to support training program.

7 lectures including 4 hands-on sessions on Disaster Risk Reduction, Earthquake Damage Assessment and Flood Mapping and monitoring using multi-source EO data were taken.



## Short Courses on DRR

**2017**

➤ **LIDAR Course:** Lidar Remote Sensing and its Applications in May 15-26, 2017 (21 participants from 09 countries)

➤ **UAV Course:** UAV Remote Sensing and its Application in June 12-23, 2017 (21 participants from 09 countries)

➤ **NWP Course:** Weather Forecasting using Numerical Weather Prediction Models at ISRO, Ahmedabad in July 3-14 2017 (25 from 11 countries)

➤ **Disaster Management Course** in Myanmar Yangon, during March 28 - April 2, 2017 on 'Post Disaster (Earthquake) Rapid Damage Assessment' (44 Participants from MM)

**2018**

➤ **Climate Change & Forestry:** Geospatial Modelling in Forestry and Ecology for climate change response studies, April-May 2018 (18 participants from 8 countries)

➤ **Disaster Management Course** in Disaster risk reduction (DRR) with special emphasis on Floods & Earthquakes: May28-June22, 2018 (18 participants from 07 countries)

**2019**

➤ **Disaster Management Course** in Disaster risk reduction (DRR) with special emphasis on Floods & Forest Fire Hazards: May20-31, 2019 (18 participants from 07 countries)

## Educational Dashboard – “SWAMI”

System for **W**eather and **A**padaa **M**anagement **I**nformation

Aimed to Trainee based dashboard development approach for country specific geo-web services and portal applications;

As a pilot study, Geoportal for Sri Lanka is developed which provides country specific data and information services on:

- Base Layers
- Socio Economic Data
- Hydrology and
- Flood

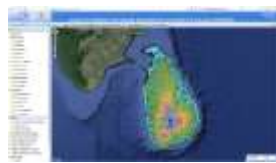
Information on:

- Rainfall;
- Cloud Fraction;
- Surface Temperature;
- Relative Humidity;
- Surface wind speed.

This list is not limited. It will be further expanded by CSSTEAP students during their projects

**Advantages**

- This framework can be extended for other Asia Pacific countries;
- The CSSTEAP participants from respective countries will work on their own data and services;
- The outcomes of student projects will automatically update the data repositories



To be Released at end of GB Meeting (Director, UNOOSA)



Thank you