

Short Course on
Disaster Risk Reduction (DRR)
with Special Emphasis on
Floods and Earthquakes

May 28- June 22, 2018



Conducted by
Indian Institute of Remote Sensing (IIRS)
Indian Space Research Organisation
Dept. of Space, Govt. of India
4, Kalidas Road, Dehradun, India
www.iirs.gov.in



Organized by
**Centre for Space Science and Technology
Education in Asia and the Pacific (CSSTEAP)**
(Affiliated to the United Nations)
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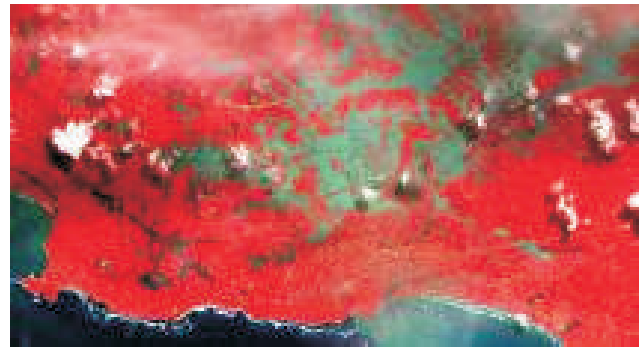
Governing Board Members and Special Invitees during 22nd Governing Board Meeting at Bengaluru on November 15, 2017

INTRODUCTION

Natural disasters are becoming more frequent and intense and disaster risk is outpacing resilience in Asia-Pacific. According to the latest report by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), Asia and the Pacific is the most disaster-prone region in the world. The region faces major disaster problems in the form of earthquakes and tsunamis, tropical cyclones and typhoons, landslides, flash floods, avalanches and glacial lake outburst Floods (GLOFs). The recent floods and landslides in Bangladesh, India and Nepal were triggered due to heavy torrential monsoon rains during June 2017. More than 900 people were killed and about 41 million people got affected. During August 2017, devastating floods affected South Asia and typhoons caused massive damage in East Asia. These recent events are testimony to the vulnerability of Asia and the Pacific region to natural disasters. While discussing Asia Pacific region's vulnerability, the catastrophic April 2015 Nepal earthquake which killed nearly 9,000 people and injured nearly 22,000 people could not be forgotten. The earthquake's impact on cultural heritage sites was extensive throughout the Kathmandu Valley, which affected around 750 cultural monuments.



The Sendai framework for Disaster Risk Reduction (DRR) 2015-2030 outlines seven clear targets and four priorities for action to prevent new disaster risks and reduce the existing ones: (i) Understanding disaster risk; (ii) Strengthening disaster risk governance to manage disaster risk; (iii) Investing in disaster reduction for resilience and; (iv) Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction. The space based inputs can become an important tool in building resilience and addressing the priorities



outlined by Sendai framework for Disaster Risk Reduction 2015-2030. Due to the large spatial extent of disasters affecting several people across the countries, geospatial technology finds today a wider acceptance and serves as an important tool for decision making process. As disaster management work usually involves a large number of different agencies working in different areas, the need for utilizing geo-information technologies to make critical decisions is very important. Space technology can be particularly useful in the risk assessment, monitoring, response, mitigation and preparedness phases of disaster management, including early warning.

Keeping in view the severity and large spatial extent of disasters in Asia Pacific Region, the integrated application of space technology and geographic information systems (GIS) and their effectiveness in disaster prevention and preparedness, can play a vital role in strengthening DRR activities in support of the Sendai framework. However, to increase the application of space technology-based solutions in addressing disasters, there is a need to increase awareness, build national capacity and develop solutions that are customized and appropriate to the needs. The present course is planned to generate awareness among the users/researchers/ professionals/ decision makers/ academicians on the applications of Geospatial Tools in Disaster Risk Reduction (DRR) with special emphasis on Floods and Earthquakes and damage to cultural heritage sites.

ABOUT CSSTEAP

The Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) (www.cssteap.org) was established in India in November 1995 with its headquarters in Dehradun. It is considered as the Centre of Excellence by UN-OOSA. The 1st campus of the Centre was established in Dehradun, India and is hosted by Indian Institute of Remote Sensing (IIRS) which is a Unit of Indian Space Research Organisation (ISRO),



CSSTEAP HQ Dehradun

Government of India. For conducting its Remote Sensing & GIS programmes, the Centre has arrangements with IIRS to serve as the host institution. The Centre has also arrangements with Space Application Centre (SAC), ISRO, Ahmedabad, to serve as host institution for the programmes related to Satellite Communications, Satellite Meteorology and Global Climate, Global Navigation Satellite System; and with Physical Research Laboratory, Ahmedabad for Space and Atmospheric Sciences.

The Centre has been conducting Post Graduate (PG) Diploma courses in the five disciplines and short courses in various themes. Till date the Centre has conducted 55 PG courses Diploma courses, 22 in Remote Sensing & Geographic Information System (RS & GIS), 11 in Satellite Communications (SATCOM), 10 in Satellite Meteorology & Global Climate (SATMET), 10 in Space & Atmospheric Science (SAS) and 02 in Global Navigation Satellite Systems. In addition to PG Diploma course, 53 short courses have also been successfully conducted by the centre. These programmes have benefitted 1958 participants (916 under PG courses and 1042 under Short Courses) from 55 countries (36 countries in the Asia-Pacific region and 19 countries from outside Asia-Pacific region). About 147 participants from 16 countries have been awarded M. Tech. Degree in the 4 disciplines (71 participants in RS & GIS; 39 in SATCOM; 18 in SATMET and 19 participants in Space Science). The Centre also



21st RS&GIS PG Course Valedictory Function at IIRS, Dehradun

fosters continuing education to its alumni.

OBJECTIVE OF THE COURSE

The overall objective of the training course is to generate awareness among the users/ researchers/ professionals/ decision makers/ academicians on the applications of Geospatial Tools in Disaster Risk Reduction (DRR) with special emphasis floods, earthquakes and damages to cultural heritage sites. The participants will be familiarized with disaster risk reduction concepts, institutional mechanisms, application of geospatial information technologies for pre- and post-disaster monitoring and mitigation such as early warning, hazard, vulnerability and risk assessment, damage assessment and disaster risk reduction measures. The participants will also carry out a mini project which will help in implementing DRR in their country.

ELIGIBILITY

Master's Degree in Science or Bachelor's Degree in Science/ Engineering (4 year course) or equivalent qualification in the relevant field of study with at least 5 years of teaching/ research or professional experience in the fields of Remote Sensing Technology, Earth Sciences, Civil Engineering and Urban Regional Studies. For candidates with higher qualifications, the minimum experience may be relaxed. Candidate should have prior knowledge of geospatial technology. High school-level knowledge in mathematics and/or statistics is essential.

COURSE DURATION AND IMPLEMENTATION

The training course is being organized by Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) and will be conducted by the faculty members of Indian Institute of Remote Sensing, ISRO, Dehradun, India during May 28 - June 22, 2018. The course curriculum will be a mixture of theory lectures and practical/ exercises/demonstrations by using state-of-art hardware, software and instrumentation facilities. The faculty for the said course consists of the specialized and experienced faculty members of IIRS (ISRO) and experienced scientists/engineers working at other ISRO Centers and various other

Departments. In India, each participant will be provided a PC loaded with image processing and GIS software to have hands-on experience.

LANGUAGE

The medium of instructions/teaching is English. Proficiency in written and spoken English is essential. Applicants, who have done their higher studies in a medium (language) other than English, are required to submit TOEFL score or a diploma / certificate of English Language issued by an accredited language institution or by the local UNDP for satisfactory establishment of the applicant's competence in spoken and written English language. Nominating agencies are requested to kindly ensure this matter.

COURSE STRUCTURE

The course is modular in structure and provides a balanced treatment of classroom lectures and practical experience as follows:

Module 1 (1st week): Introduction to basic concepts and terminologies used in disaster management; overview of natural disaster scenario in Asia Pacific, ISRO disaster management support programme, basic Remote Sensing and GIS concepts applicable for disaster monitoring and mitigation.

Module 2 (2nd and 3rd week): Application of space based technology in addressing natural disasters with special emphasis on floods, earthquakes and damages to cultural heritage sites, application of crowd sourcing in collecting and analyzing data, online portals (including Bhuvan) providing spatial and non-spatial disaster related information.

Module 3 (4th week): Mini project to be carried out on one of the application of RS and GIS in floods, earthquakes and damage assessment of cultural heritage sites in groups or individually.

EXPECTED BENEFITS AFTER COMPLETION OF THE COURSE

After attending this course, the participants are expected to gain theoretical and practical knowledge on the disaster risk reduction (DRR). The participants should be able to use this knowledge in their country for monitoring and mitigation measures of the impacts due to earthquakes, floods and damages to cultural heritage sites using latest geospatial technologies.

COURSE FEE AND ACCOMMODATION

A course fee of INR 15,000 for participants from India and US\$ 300 for participants from other countries is charged which includes course

materials and field trips. Accommodation for the participants will be arranged in hostel at IIRS, Dehradun. During the stay at Dehradun an amount of INR 50 per day will be charged towards room rent. The cost of consumables such as cooking gas needs to be borne by the occupants themselves. If needed, the participants can also join IIRS Mess for food, which is being operated by the students of IIRS. Director CSSTEAP may waive off the course fee in case of few of the meritorious applicants.

FELLOWSHIP TO PARTICIPANTS

The candidates are required to send their personal details/ bio-data to the Course Director, Short course on "Disaster risk reduction (DRR) with special emphasis on Floods and Earthquakes", CSSTEAP, IIRS Campus, 4-Kalidas Road, Dehradun on the prescribed Application Form, appended to this "Announcement Brochure" (or download from website: www.cssteap.org). Candidates are expected to make their own arrangements for all the expenses. Preference will be given to the candidates who are financially supported by their organizations. A few fellowships covering to-and-fro intentional air travel, domestic air travel in India and living expenses (INR 16,000 for 4 weeks) in India are available from Government of India. However, preference will be given to sponsored candidates (self-sponsored or sponsored by their organizations) including international to and fro travel.

HEALTH AND INSURANCE

Medical, life and disability insurance should be undertaken before leaving their country for India by the participants themselves or on their behalf by their sponsoring organizations covering entire health and disability risk. No medical expenses will be borne by CSSTEAP. However, the participants who receive the Fellowship of the Government of India will be paid medical expenses for minor ailments on actual basis (as out patients only) as and when such expenses are incurred. CSSTEAP will have limited liabilities as far as medical expenses are concerned in such cases. Candidates in sound physical and mental health only need to apply. Please read the important instructions carefully, which are given at the end of the application form.

APPLICATION PROCEDURE

Duly filled-in application form attached at the end of this document (can also be downloaded from www.cssteap.org) need to be sent on the contact details given. The application form along with

educational certificates needs to be forwarded through CSSPEAP Governing Board member in your country (please see details on the website) or through Indian Embassy/ High Commission in your country or your Embassy/ High Commission in India after nomination by your employer. For faster processing, advance copy can be sent directly either through post or email

ABOUT INDIAN INSTITUTE OF REMOTE SENSING

The Indian Institute of Remote Sensing (IIRS), an ISO 9001:2008 institute, is a constituent unit of Indian Space Research Organisation (ISRO), Department of Space, Government of India. Since its establishment in 1966, IIRS is a key player for training and capacity building in remote sensing, geospatial technology and their applications through training, education and research in Southeast Asia. The training, education and capacity building programmes of the Institute are designed to meet the requirements of the professionals at working levels, fresh graduates, researchers, academia, and decision makers. IIRS is also one of the most sought after Institute for conducting specially designed courses for the officers from Central and State Government Ministries and stakeholder departments in India for the effective utilization of Earth Observation (EO) data.

To widen its outreach, IIRS has started live and interactive Distance Learning Programme (DLP) since 2007. IIRS has also launched e-learning course

on Remote Sensing and Geo-information Science since August, 2014.

The Institute has a strong, multi-disciplinary and solution-oriented research agenda that focuses on developing improved methods/ techniques for processing, visualization and dissemination of EO data and Geo-information for various societal applications and for better understanding of Earth's system processes. Currently, microwave, hyperspectral and high-resolution EO data processing and their applications are some of the prime research areas at IIRS. State-of-the-art laboratory and field-based instrumentation and observatory network help meeting the research goals and objectives.

IIRS hosts the Headquarters of Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), affiliated to the United Nations and provides support in conducting the Remote Sensing and GIS training and education programmes. IIRS also plays a key role in the activities of Indian Society of Remote Sensing (ISRS), which is one of the largest non-governmental scientific societies in the country.

IIRS has so far trained more than 11,100 professionals from about 96 countries. The participants from Asia, Africa and Latin America have also benefitted under SHARES Fellowship programme of the Department of Space, ITEC fellowship scheme of the Ministry of External Affairs, Government of India, etc. For further details, please visit <http://www.iirs.gov.in>



Indian Institute of Remote Sensing, Dehradun, India



**CENTRE FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION
IN ASIA AND THE PACIFIC (CSSTEAP)**
(AFFILIATED TO THE UNITED NATIONS)

**APPLICATION FORM
SHORT COURSE ON
DISASTER RISK REDUCTION (DRR) WITH SPECIAL EMPHASIS ON FLOODS AND EARTHQUAKES**

(May 28 - June 22, 2018)
Venue: IIRS, Dehradun, India

Last date for receipt of application: March 30, 2018



DRRF&E
(For office use only)

Application No.:

Date received:

Important:
All the correspondence from CSSTEAP (issue of admission letter, e-tickets for travel, enquiries, etc) with prospective applicants will be on internet and sometimes on phone (Home/ Office), therefore kindly ensure that email-id, phone, fax, etc, are correctly and clearly mentioned.

(Please type or use CAPITAL LETTERS)

1. Name : (As mentioned in the Passport)
(Dr/Mr/Mrs/Miss):

First	Middle	Last
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2. Father's Name:
3. Name of mother/husband/wife:
4. Date of Birth (DD/MM/YYYY):
5. Place of Birth:
6. Gender (Male/Female):
7. Nationality:
8. Contact Information: Present official Address (Valid until what date):

 Contact number: (Please give complete Phone No. with country, city codes which will be useful to contact your family members in the case of emergency)
 Office (Tel): Office (Fax):
 Mobile: E-mail:
9. Permanent home Address (in your country):

 Contact number: (Please give complete Phone No. with country, city codes)
 Home (Tel): Home (Fax):
 E-Mail (alternate, preferably G-mail or Yahoo):.....
10. Nearest International airport (Specify the place/city):.....

Important:

- a) Interested persons may detach last 4 pages from this brochure and use them as **Application Form**.
- b) It is essential that full passport details are mentioned in the Application Form or provided to the last at the earliest.
- c) Application Forms without passport details may not be considered, however this information can be added or sent later on also
- d) Providing alternate email-id would ensure timely communication with applicants.
- e) For faster communication with the applicants CSSTEAP Secretariat will be using your email-id for all purposes (e.g. admission letter, air tickets and logistic arrangements).

13. (a) Activities & Projects in which your present organization is engaged (mandatory) and nature of your duties *

.....

(b) Main Scientific/Technical facilities available in your organization *(Including approximate number and type of computers, type of software available etc.)

.....

* If required attach separate sheet.

14. Have you done any other course (short or PG) from CSSTEAP (if 'yes', please give details including theme & year)

.....

15. How this short course will help you in your work/organization? Please describe below.

.....

16. DETAILS OF PASSPORT : Passport details are essential for selection of candidates and send copy of the passport whenever available.

Passport Number (Personal or Official)	Place of Issue (City and country)	Date of issue	Passport valid up to	Issuing Authority	Whether previously visited India if so place and date of last visit

17. PHYSICAL FITNESS

a) Are you suffering from any recurring/chronic/serious communicable disease which may affect your study program in India?

.....

Yes / No

b) If yes, please specify nature of illness (Candidates are advised to attach medical fitness certificate from a government hospital or government recognised hospital on hospital letter head).

18. How do you propose to meet the international travel and stay expenses in India? (preference will be given to those who will make their own travel or both travel and stay arrangement himself/herself).

.....

19. Stalking/smoking and drinking of alcohol in the office premise is not permitted. The participants are expected to maintain proper decorum in the campus and classroom as well as during field visits and educational tours.

20. The selected candidate need to abide by rules and regulation of the institute and maintain discipline harmony and will not indulge in unlawful activities in campus hostel or during educational and field visits.

19. DECLARATION BY THE CANDIDATE :

I have read the announcement brochure and will abide by the rules and regulations of the Centre. I have made / am making / have not made travel arrangements for attending the course and local expenses for the period of stay in India.

Date :

Place :

Signature of Candidate

20. SPONSORING / NOMINATING AGENCY CERTIFICATE

Dr/Mr./ Ms.working in this organisation is nominated and/or sponsored/ endorsed by (name of ministry department, organisation etc.) to attend the International Short Course on "Disaster Risk Reduction (DRR) with Special Emphasis on Floods and Earthquakes" to be held at Indian Institute of Remote Sensing, Dehradun, India during May 28 - June 22, 2018. We envisage to utilize his/her experience in specific tasks of our organization / agency. Following statements are mandatory for certification by the sponsorer.

- i. He/She will be/will not be provided international travel support.
 - ii. He/She will be / will not be provided financial assistance for the period of stay in India.
 - iii. He/She possesses adequate knowledge of English Language required for the course.
- (Mandatory: please tick appropriate option)

Date : Signature:

Place : Name in Capital Letters :

Designation:

Phone No. :

Fax No. :

E-mail:

(Official seal of the sponsoring or nominating authority including CSSTEAP GB member)

Note: Application without official seal of sponsoring or nominating authority and their details will not be considered.)

21. FORWARDING NOTE BY THE RESPECTIVE INDIAN EMBASSY HIGH COMMISSION IN YOUR COUNTRY OR YOUR EMBASSY /HIGH COMMISSION IN INDIA.

This is to forward the application of Dr/Mr/ Ms..... of (Specify the Country Name here) for the "Disaster Risk Reduction (DRR) with Special Emphasis on Floods and Earthquakes" to be held at Indian Institute of Remote Sensing, Dehradun, India during May 22 - June 28, 2018.

Date : Signature :

Place : Name :

Designation :

Phone No. :

Fax No. :

E-mail :

(Official seal of the Embassy / High Commission of India in your country or of your country in India)

Note: Application without official seal of Embassy or High Commission will not be considered

N.B. Please send an advance copy of the application form duly signed by the sponsoring agency to the Course Director, **(Short Course on Disaster Risk Reduction (DRR) with Special Emphasis on Floods and Earthquakes)** CSSTEAP, IIRS Campus, 4, Kalidas Road, Dehradun-248001, India by fax (+91-135-274-0785) for quick processing. Original copy to be sent through Embassy/High Commission of respective country at New Delhi duly signed by the sponsoring or nominating authority.

IMPORTANT

- The application which is not complete in all respects is likely to be rejected.
- **Candidate must attach copies of certificates of**
 - (a) Medical fitness to attend the course including Chest X-ray (PA), Blood Test (including Random Blood Sugar, HIV, Pregnancy HBs, Ag, Urine complete) (in case any medical information requiring attention is hidden and if found during the course, the centre will be compelled to send the candidate back home at the cost of nominating agency or the candidate.
 - b) Expecting mothers are advised not to apply for the course.
 - c) Stalking/smoking and consuming alcoholic drinks in class room and office campus is prohibited.
 - d) Proof of Proficiency in English needs to be provided or **certificate by the nominating agency is to be provided.**
 - e) Attach copy of Highest degree obtained (Degree certificate and marks sheet/grade card)
 - f) Attach copy of All Degree Certificates, if not in English, may please be translated in English and attested by the Head of the organization or transcript in English can also be submitted and authenticated appropriately.



Buddha Temple, Dehradun

ABOUT DEHRADUN

Dehradun, the capital of Uttarakhand state, is located in one of the outer valleys of Himalaya in Northern India. The valley is surrounded by dense forest and provides pristine environment for academic pursuits. World famous Rajaji National Park, famous for Tigers, Elephants etc. is located adjacent to the city. Dehradun is well connected by air, train and road from Delhi, the national capital. IIRS campus is about 6 km from railway station and about 30 km from airport. Many important national organizations/ institutions are located here. Mussoorie, the famous hill station, is about 30 km from Dehradun. Haridwar and Rishikesh, the two famous pilgrim centers, are about 55 km and 40 km, respectively from Dehradun. Weather of Dehradun during May -June is usually warm.

Important Dates

- Last Date of Submission of Application Form: 30th March 2018
- Notification about Admissions: 30th April 2018

Contact Details

Course Director

Short course on "Disaster Risk Reduction (DRR) with Special Emphasis on Floods and Earthquakes"
 Centre for Space & Science & Technology Education in Asia and the Pacific
 (Affiliated to the United Nations)
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 Email: cssteap@iirs.gov.in , Website: www.cssteap.org

NO PUBLIC DISPLAY
 OF AFFECTION
 NO SMOKING & SPITTING

IIRS Campus

Indian Institute of Remote Sensing,
4, Kalidas Road,
Dehradun 248 001 (INDIA)
Tel. : +91-135-274 4583
Fax: +91-135-274 1987

SAC Campus

Space Applications Centre,
Ambavadi Vistar P.O. Jodhpur Tekra
Ahmedabad 380 015 (INDIA)
Tel. : +91-79-2691 3344
Fax: +91-79-2691 5843

PRL Campus

Physical Research Laboratory
Navrangpura,
Ahmedabad 380 009 (INDIA)
Tel. : +91-79-2630 8550
Fax: +91-79-2630 0374

ISAC Campus

ISRO Satellite Centre
Vimanpura Post
Bengaluru 560 017 (INDIA)
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Fax: +91-80- 2520 5251

Delhi Office

Department of Space
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Website: www.cssteap.org