

# CSSTEAP Newsletter

Volume 14, Issue 1

January, 2011

**Centre for Space Science & Technology  
Education in Asia and the Pacific (CSSTEAP)  
(Affiliated to the United Nations)**

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*..... on a mission of capacity building, under the initiative of the United Nations, for Asia and the Pacific Region in Space Science and Technology, through Excellence in Education, Training, and Research.*

## GOVERNING BOARD MEETING OF CSSTEAP

Fifteenth meeting of Governing Board (GB) of CSSTEAP was held on October 26, 2010 at New Delhi. The GB meeting was chaired by Dr. K Radhakrishnan, Chairman Governing Board CSSTEAP and Secretary, Department of Space, Govt. of India. Several members of Governing Board of CSSTEAP viz., Dr. Mazlan Othman of United Nations – OOSA, Vienna; Dr. Hong Yong IL (Councilor, Embassy of DPR Korea); Mr. Safrigita Novianto (Third Secretary, Embassy of The Republic of Indonesia); Dr. Tynmbek Ormonbekov (President, International University for Innovation Technologies, Kyrgyzstan); Mr. Che Azemi Haron (Deputy High Commissioner, Malaysia); Dr. Batbold Enkhtuvshin (President of Mongolian Academy of Sciences, Mongolia); Mr. Kartar Singh Bhalla (Hony. Consul General of Nauru); Mr. Yagya B. Hamal (Minister-Counsellor, Embassy of Nepal); Mr. Robert Ferrer (Embassy of Philippines); Mr. Ok-Kyu Lee (Principal Engineer Policy & Planning Division, Korea Aerospace Research Institute, Republic of Korea); Dr. S. Panawennage (Director & CEO ACCIMT, Sri Lanka); Dr. Surachai Ratanasermpong (Dy. Director, GISTDA, Thailand) attended the meeting. Others who participated include Dr. P. S. Roy (Director, CSSTEAP); Dr. R.R. Navalgund (Director, SAC); Dr. V. Jayaraman (Director, NRSC); Dr. J. N. Goswami (Director, PRL); Dr. V.S. Hegde (Scientific Secretary, ISRO); Mr. G.R.K.

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*Wishing all the readers a Very Happy & Prosperous 2011*





Murthy (CCA, DOS); Dr. D. Gowrisankar (Deputy Director, International Cooperation, ISRO); Course Directors of all courses and high officials of various centres of Department of Space, Govt. of India.

Chairman, GB expressed satisfaction and placed on record the excellent support and guidance being provided by esteemed Governing Board members in shaping the activities of the centre. He praised the excellent work and the guidance provided by Dr. G. Madhavan Nair as Chairman, GB, all past Directors of CSSTEAP, Centre Directors of host institution in nurturing the Centre. The Board congratulated and welcomed Dr. P.S. Roy who took as additional charge of Director, CSSTEAP from July 30, 2010. Dr. Roy has also earlier contributed to the Centre in the capacity of Deputy Director, CSSTEAP. Dr. Othman mentioned that the Centre has achieved greater heights in terms of excellence and serves as a role model and inspire to the level of success to other regional CSSTE's. She thanked Government of India and particularly ISRO for the support. She mentioned that UN-OOSA has provided support to the Centre in terms of joint activities like UN-SPIDER programme. Dr. Othman mentioned that UN-OOSA with support from ISRO would initiate the Basic Space Technology Initiative (BSTI).

Director, CSSTEAP presented brief report on the achievements of the centre in the past one year. Director mentioned that centre is continuing the process of issuing registration numbers to all the students and M.Tech registration for those who are eligible & interested to pursue their M.Tech research. He also informed that the 'CSSTEAP performance assessment and outlook for the future' document written by Dr. George Joseph has been widely circulated to UN-OOSA, GB members and is being circulated in other forums as well. This document presents a critical analysis on the Centre's achievements since its inception, describes in nutshell how the courses are conducted and evaluates the Centre's performance and achievements, ways to improve the Centre's performance to meet the goals intended by UN. The document analyzes the feedback from CSSTEAP alumni and strategy to make the Centre broad based with involvement of as

many as countries in Asia Pacific region.

Dr. Roy apprised about the academic programmes of the Centre. The Centre has conducted 33 PG courses and 22 short courses during the last 14 years in four disciplines which has benefited more than 900 participants from 31 countries of the Asia-Pacific region, including 27 participants from 17 countries outside Asia-Pacific region. Also till date more than 550 and 370 participants in the 4 disciplines had been benefited from the PG and short courses respectively. A total of 105 scholars have been awarded M.Tech degree and 83 scholars are continuing their M.Tech research work. He mentioned that during the last one year 9 students viz., three in RS & GIS, three in SATCOM, two in SATMET and one in Space Science have been awarded M.Tech degree. Dr. P.S. Roy mentioned that not all countries in Asia-Pacific region have taken full benefit of the CSSTEAP academic programmes and hence the outreach is limited. Dr. Roy called upon the GB members to kindly help to circulate the information in various institutions in their country. He also suggested the GB members to send the list of institutions/ organization/academic institutions in their respective countries involved in space technology and application with their contact details which would help in sending the information to them directly. He mentioned that major financial support is from the host country. In addition to this, UN-OOSA provides support. He also added that host country is providing all necessary infrastructural support for functioning of the Centre to take care of the educational and administrative activities of the centre, to establish new facilities, buildings, hostels, laboratories and facilities for supporting CSSTEAP at Dehradun and Ahmedabad. He also mentioned that CSSTEAP brings out many publications, lecture notes both printed as well as in digital form that are disseminated to students and institutions. The lecture notes, practical exercises, etc. have been shared with other Centres as well. He apprised that expert committee was setup for each discipline to review the CSSTEAP course syllabus. They have submitted the reports and the same have been sent to UN-OOSA for approval. Dr. P.S. Roy also apprised that he had opportunity to hold an alumni meet in Kathmandu, Nepal on October 6, 2010 to develop network and establish meaningful linkages





*15<sup>th</sup> Governing Board meeting in progress*

between CSSTEAP and alumni. The Board felt to hold more frequently alumni meets in different countries.

The members also discussed on developing and introducing course curriculum on GNSS, Basic Space Technology and Disaster Risk Reduction with UN-SPIDER. The Governing Board expressed their suggestions towards the future plans and directions in order to become a Centre of Excellence. It was felt to prepare a proposal by a core team consisting of Board members which would interact with members and receive their suggestions and come out with a draft document.

The Governing Board members of CSSTEAP unanimously adopted the resolution to extend the term of Dr. K. Radhakrishnan, Chairman ISRO, the Representative of Government of India on the Governing Board, as the Chairman of Governing Board, CSSTEAP for a period of four years, starting from May 11, 2011.

Several important issues like expansion of CSSTEAP in



*Governing Board members alongwith dignitaries during meeting at New Delhi.*

the Asia-Pacific region, review of the action items from the last GB meeting, the Centre's strategy and themes for the future courses, M.Tech research programme, short courses, alumni feedback, budget allocation for the centre, audit report and nominations for appointment of Deputy and Director, CSSTEAP were discussed.

Dr. K. Radhakrishnan thanked all the GB members for their valuable comments, fruitful discussion, active participation and for their support and cooperation. He expressed his sincere gratitude to all the GB members & UN-OOSA for their continued support and encouragement provided towards the growth of the Centre and to ISRO-DOS staff, Directors of NRSC, SAC, PRL, Course Directors, Course Coordinators of all the four courses for their dedicated support. Dr. Mazlan Othman, UN-OOSA expressed her satisfaction with the academic programmes of the centre. The GB expressed satisfaction of the functioning of the Centre and they assured to extend whole hearted support to the future activities of the Centre.

## **FIFTEENTH POST GRADUATE COURSE IN REMOTE SENSING & GIS**

The Fifteenth Post-Graduate Course in "Remote Sensing and Geographic Information System (RS&GIS)" of CSSTEAP, commenced on July 1, 2010 at Indian Institute of Remote Sensing (IIRS), National Remote Sensing Centre (NRSC), Dehradun, one of the host institutions of CSSTEAP. Total 15 participants from 10 countries of Asia-Pacific Region viz. China-1; India-1; Iran-1; Kyrgyzstan-1; Mongolia-3;

Myanmar-3; Nepal-1; Sri Lanka-1; Tajikistan-1; Vietnam-2 are attending this course.

The entire course is divided into two semesters. Semester-I consists of Module IA of 3 months and Module IB of one month and Semester II consist of Module II of 2 months and Module III of 3 months duration. Semester-I consists of principles of RS, GIS,



GPS, image analysis, recent trends in RS & GIS technology, natural disasters, environmental analysis, monitoring and management. The module IA covering theory, practicals and tutorials on principal of Remote Sensing, GIS & GPS was completed on September 30, 2010. Module-1 B on recent trends in RS & GIS and environmental assessment and monitoring was held for one month and completed on October 31, 2010. The Module-II dealing with optional electives started on December 31, 2010. This year 4 optional electives viz., Advances in RS & GIS, Geosciences, Forestry & Ecology and Human Settlement and Analysis are being offered. The major components of course syllabus are covered by the faculty of IIRS and additional Guest lectures by national and international Guest faculty on specialized topics was also arranged for the academic benefit of the course participants. The Guest Lecturers were from various Indian Organizations/Institutes/Universities such as IMD; TIFR Mumbai, IIT Kharagpur, IIT Roorkee, NTRO, Delhi, RRSC-N, NRSC, Hyderabad, IASRI, New Delhi; MoES, New Delhi; ARIES, Nainital; NARL, Gadanki; SAC, Ahmedabad, Andhra University, Visakhapatnam etc. Specialized Guest Lectures by Former Director, CSSTEAP Dr. George Joseph and Dr. B.L Deekshatulu were also arranged. A number of international Guest Faculty from University of Illinois, USA; National Earth Observation Group, Geoscience, Australia; University of Friedberg, Department of Remote Sensing, Germany; ITC, The Netherlands and ICIMOD, Nepal delivered lectures in Semester-I. The academic program of the course was organized through class room lectures, tutorials, practical, multimedia self learning packages, field excursion, seminar etc. State of art software and hardware for digital image processing, GIS analysis were used for computer based practical exercises. Lecture notes



*Course participants during ISRS National Symposium at Lonavala*



*Dr. Atul Jain from University of Illinois, USA delivering lecture*

in the form of printed books and supplementary reading materials were distributed well in advance to the course participants to help easy assimilation of the subject in the class and also for future reading. Soft-copy of the lecture notes was also distributed. Academic performance of the course participants was evaluated through periodic internal, semester and external examinations in the form of written and practical examinations, class test, tutorials and seminar.

Semester-I exams were held from 16th to 23rd October, 2010. To improve the English communication and writing skill of the course participants, evening English classes were organized beyond office hours. Several field excursions are also arranged during this module for ground truth collection utilized for interpretation and analysis of satellite data. On technical & educational tour the participants visited NRSC Hyderabad, Earth observation satellite data receiving facility of NRSC at Shadnagar near Hyderabad, Andhra University Visakhapatnam during October 23 to November 1, 2010. At Andhra university participants attended lectures on application of RS & GIS on Coastal studies, Oceanographic applications and Digital Image processing. A field visit in and around Visakhapatnam was also organized for the benefit of the participants. In order to provide a wider exposure in the field of Geoinformatics Technology & Applications, all the participants were given opportunity to attend ISRS National Symposium on "GIS and Remote Sensing in Infrastructure Development" at hill station Lonavala, near Mumbai during December 1-3, 2010 where they were



benefitted with the technical knowledge and the interaction with eminent scientists across India and abroad. The participants also visited Metro city Mumbai. During educational tours the course participants explored Indian rich heritage and cultural diversity. On the social front, the participants had glimpses of Indian festivities by their active participation in various festivals such as Dussehra, Diwali, Id-ul-Fitr, Christmas etc.

The third and final module with duration of three months started from January 01, 2011 and will complete on March 31, 2011 with valedictory function. This module is basically designed for carry out pilot project work by the course participants.

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## SEVENTH POST GRADUATE COURSE IN SATELLITE METEOROLOGY & GLOBAL CLIMATE

The Seventh SATMET course of CSSTEAP, commenced on the August 2, 2010 at Space Applications Centre (SAC), Ahmedabad. Fourteen participants are attending the SATMET-7 course and has representation from Bangladesh-1, DPR Korea- 2, India- 1, Kazakhstan- 2, Kyrgyzstan-2, Malaysia- 1, Mongolia- 1, Nepal- 1, Sri Lanka -2 and Tajikistan -1

Inaugural function was organized to welcome and introduce the course participants. Dr. R. R. Navalgund, Director, SAC welcomed all the participants and introduced the activities of SAC. Dr. Namita Priyadarshi, Controller, SAC, Dr. J. S. Parihar, Deputy Director, EPSA/SAC, Dr. P. K. Pal, Group Director, Atmospheric and Oceanic Sciences Group, SAC and the faculty members of the course were also present on the occasion. Dr. B.M. Rao, Course Director presented the details of the course, which included the broad topics to be covered during the two semesters, list of

practical, pilot project details, evaluation process etc. He also briefed about the facilities and the arrangements at the SAC Bopal Campus for the participants. The lecture notes (3 volumes) as the resource material were provided to the course participants.

A one-week orientation course consisting of lectures providing a wide spectrum of various themes in Space Science, Satellite communications and Remote Sensing were delivered by eminent speakers from SAC and the Physical Research Laboratory. During afternoons they were also introduced to basic concepts in Computer Programming, MOG Computer systems etc.

From the second week, the Module 1 dealing with the Basics in Meteorology, Climatology and Physical Oceanography, Basics in Satellite Remote Sensing – Radiative Transfer, Orbits and Instrumentation and Image Interpretation was introduced. The afternoon sessions were devoted to hands-on-exercises on meteorological satellite data processing and analysis. INSAT-VHRR and NOAA-AVHRR data sets were extensively used by the participants. Various advanced software tools (visualization packages) like ERDAS, FERRET, Grads, EDL etc are being used by the participants. Periodic tests were conducted as part of the evaluation process. A number of tutorial sessions involving computations, problem solving etc by the participants were conducted. The follow up discussions with the faculty members were very lively and interesting. The course participants made presentations



*Dr. R.R. Navalgund, Director, SAC addressing the SATMET-7 course participants during the Inaugural session on August 02, 2010.*



highlighting the weather and climate of their countries and the progress in the SATMET activities in their organizations.

The weekly weather discussions (using satellite imagery, surface and upper air charts etc) also provided an unique learning opportunity to them. The active southwest monsoon conditions during August and September 2010, made these discussions interesting and gave a good exposure to the various 'Met websites' providing variety of meteorological information in real time. All the course participants have been provided access to Meteorological and Oceanographic Satellite Data Archival Centre (MOSDAC) of SAC. This facilitated real-time access to various satellite products from Kalpana and INSAT-3A, AWS and model weather forecasts.

At the end of the module I, examinations (both theory and practical) were conducted. The Module I concluded on October 30, 2010. The core faculty consisted of senior scientists of SAC. Besides, well known experts from India Meteorological Department, Indian Institute of Tropical Meteorology, Andhra University and Cochin University were invited to deliver lectures on specialized topics.

A separate CSSTEAP network has been installed with access from classroom, laboratory and hostel. Video recordings of all the lecture proceedings have been archived and made available on the network for later access. This facility is in operation since last two courses and has proved extremely beneficial to the participants.

The Second module dealing with advanced topics like Radiative Transfer, Geophysical parameter retrievals, Satellite data applications with emphasis on monsoon studies and tropical cyclones, Green House gases and global warming etc started from November 2, 2010. The course participants undertook a one week technical & educational tour to Delhi and Dehradun during first week of November. At Delhi they visited India Meteorological Department (Satellite Meteorology Division) and were briefed about the operational setup and the use of various satellite products in operational weather forecasting. They also visited the CSSTEAP HQ at Dehradun and IIRS. The visit to world famous Taj Mahal at Agra and hill station Mussoorie were enjoyed by all the participants.

The course participants attended a one day workshop on "Satellite Meteorology : 50 year journey" on October 29, 2010, jointly organized by India Meteorological Society, Ahmedabad Chapter and Gujarat Science Academy to mark the Golden jubilee of the launch of first weather satellite at Ahmedabad and were benefitted by the technical lectures and discussions.

The final module of pilot project with three months duration will start from February, 2011. This module is basically designed for carry out pilot project work by the course participants. The first meeting to brief the participants about the pilot project topics, satellite data sets available in SAC to carry out the projects was held. Participants have been asked to consult their home organization for finalization of the topics.



*The SATMET-7 course participants at the Gujarat Science Academy attending the Workshop on 'Satellite Meteorology 50 year Journey'*



*SATMET-7 course participants at the 'Garba' Venue*



On the social front, the participants actively participated and enjoyed the Navaratri festival of dancing – Garba by visiting the function organized by the Gujarat Tourism in Ahmedabad. The festival of lights – Diwali was celebrated at the CSSTEAP international hostel. The course organizers and the staff met & greeted the students and distributed the

traditional Indian sweets on the occasion. The course participants also celebrated with full enthusiasm Christmas, New Year, etc

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## CSSTEAP AT CGMS-38

The 38th Meeting of the Coordination Group for Meteorological Satellites (CGMS) was held during November 8-12, 2010 at New Delhi. The meeting was attended by large number of delegates from NOAA, EUMETSAT, NASA, Japan Met. Agency (JMA), Korea Met. Agency (KMA), ROSHYDROMET, World Meteorological Organization (WMO), ESA, India Met. Department and ISRO.

Dr. B. M. Rao, Course Director, SATMET-7 made a presentation on "Capacity building in Satellite Meteorology in the Asia-Pacific region" during the session on 'Training'. This is the first time, CSSTEAP SATMET activities were reported to CGMS. The course structure, details of the various modules, facilities available at the Bopal campus of Space Applications Centre, Ahmedabad (including Ground station to receive INSAT-VHRR data, Data Processing and dissemination) etc. were presented. He mentioned that so far six nine-months Post Graduate course has been conducted since 1998 and the seventh course is currently in progress. CSSTEAP has trained 120 meteorologists from 22 countries in Asia-Pacific



*Course Director, SATMET-7 making a presentation at CGMS-38.*

region who are actively involved in the use of the space technology in their home countries.

Dr. Barbara Ryan, Director, Space Programme, WMO appreciated the efforts of CSSTEAP in conducting high quality long duration training programmes in Satellite Meteorology for Asia-Pacific region and invited other WMO members in region to take advantage of these programs to advance the space activities in their countries.

## SEVENTH POST GRADUATE COURSE IN SPACE & ATMOSPHERIC SCIENCE

The Seventh Post Graduate Diploma course in Space and Atmospheric Sciences is being conducted from August 1, 2010 at Physical Research Laboratory (PRL) Ahmedabad, a premier Institution engaged in front line research in the field of space science. Till date CSSTEAP has organized 6 PG courses in Space Science, benefitting 58 participants from 14 countries of Asia-Pacific region. Also, a total of 11 participants

have been awarded M. Tech degree out of which 9 are from India, one each from Nepal and Sri Lanka. Target participants for this PG course are the scientists, researchers and academicians from Asia Pacific countries who possess Master's /BE qualification in branches related to space science or a PhD. Applicants with some experience in space science or related fields are preferred.





*Prof. Shyam Lal, PRL delivering lecture to course participants*

The course is of nine month duration and twelve participants have joined in this batch. Special mention has to be made of two participants from DPR Korea which has been represented after 12 years. Other participants include three from Mongolia, two from Kyrgyz Republic, one each from Uzbekistan and Vietnam, and the three from India.

The course work consisting of four theory papers, was completed by middle of November, 2010. Apart from this, a new paper, named common module, has been introduced from last batch which is common to all the courses conducted by CSSTEAP. It broadly covers all the aspects of the space science and technology related issues.

While Paper 1 on Atmospheric science was covered by Dr. S. Sampath of CESS, Trivandrum, Paper 2 on Ionospheric Physics and Paper 3 on Measurement and Instrumentation were covered by Prof. Harish Chandra and Prof. H.S.S. Sinha of PRL, Ahmedabad. The fourth paper on Space Technology was taken up by Mr. D.V. Subhedar and Prof. H.S.S. Sinha of PRL along with Mr. C. Bhaskaran of VSSC, Trivandrum.

The first semester of the seventh PG course in Space and Atmospheric science was completed on December 10, 2010. The theory examinations for the first semester were completed on December 6-9, 2010, while the viva voce examination and seminars were organized in November, 2010. Prof. K.N. Iyer of Saurashtra University Rajkot was invited for the viva voce examination as external expert.



*Course Participants at MST Radar facility at NARL Gadanki*

During the course, the course participants undertake state of art experiments in different fields of space science. A selected set of laboratory experiments were organized in different divisions of PRL, and some more are planned for Infra Red Observatory at Mount Abu and Udaipur Solar Observatory (USO) at Udaipur.

On the social front, the participants participated in Folk dance, Garba, organized at grand scale at University Grounds in Ahmedabad, as a part of vibrant Gujarat celebrations. They also actively participated in the Garba organized by PRL at Sri Narayan Guru School. Everyone in the audience and spectators, as well as participants themselves, enjoyed every bit of it. The first semester was completed on December 10, 2010 and the participants started their journey of their hard earned first technical and educational tour from December 12, 2010.

As a part of the training programme, visits to premier institutions engaged in space research in India are arranged for the participants of the course. This year the group visited National Atmospheric Research Laboratory (NARL) at Gadanki near Tirupati, ISRO Satellite Centre (ISAC), Raman Research Institute (RRI) and ISRO Telemetry Tracking and Command Station (ISTRAC) all at Bangalore during December 2010, after completion of semester I.

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# FROM UN-OOSA

## International Space Weather Initiative (ISWI)

The new International Space Weather Initiative (ISWI) is designed to build on this momentum to promote the observation, understanding, and prediction space weather phenomena, and to communicate the results to the public.

Arrays of small instruments, such as magnetometers, radio antennas, GPS receivers, all-sky cameras, particle detectors, etc. that provide global measurements of heliospheric phenomena were deployed with the help of the United Nations Basic Space Science Initiative (UNBSSI). Scientific teams were organized, consisting of a lead scientist who provided the instruments or fabrication plans for instruments in the array, and scientists who provide support to operate the instruments. As a result of this program, scientists from many countries now participate in the instrument operation, data collection, analysis, and publication of scientific results, working at the forefront of science research.

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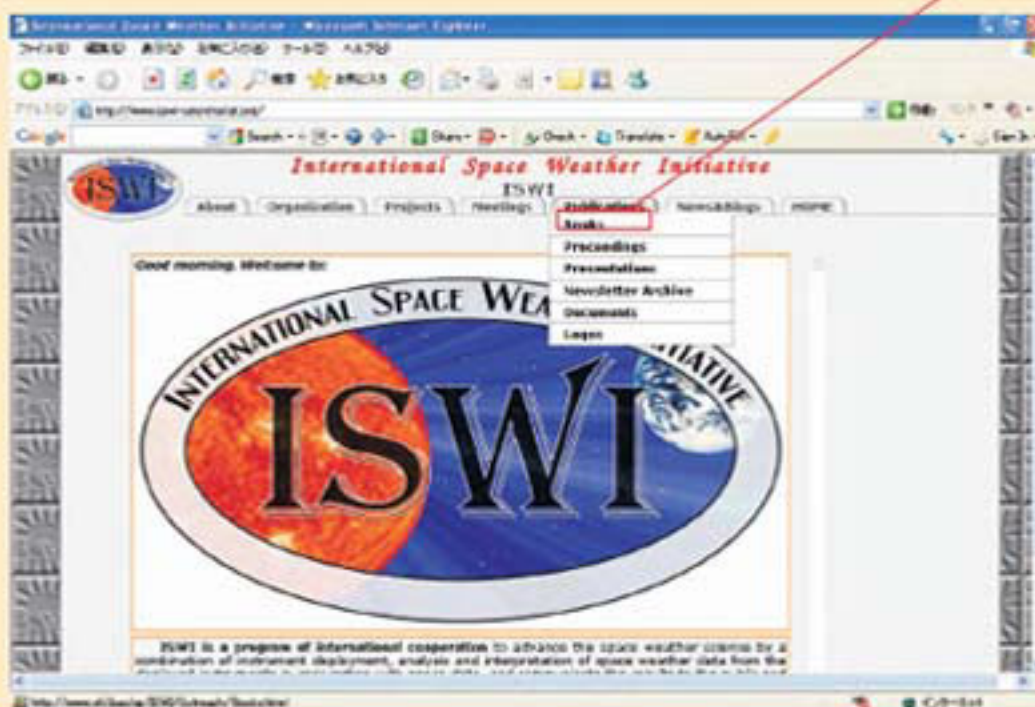
### ISWI Objectives

- Instrumentation and data analysis
  - ❖ Expand existing instrument arrays
  - ❖ Deploy of new arrays
  - ❖ Expand data analysis effort for ISWI data and other relevant data bases
- Coordinate data products to provide input for physical modeling of the Sun-Earth System
  - ❖ Input instrument array data into physical models of heliospheric processes
  - ❖ Provide data products in a form useful for modelling
  - ❖ Enable Space Weather forecasting
- Promote Education, Training and Outreach
  - ❖ Encourage and support space science courses and curricula in Universities that provide instrument support
  - ❖ Develop public outreach materials unique to the ISWI, and coordinate the distribution

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## FORTHCOMING SYMPOSIUM/WORKSHOP IN AREA OF SPACE SCIENCE & TECHNOLOGY

S.No	Theme	Duration	Location	Web address
1.	United Nations/United Arab Emirates/United States of America Workshop on the Applications of Global Navigation Satellite Systems	January 16-20, 2011	Dubai, United Arab Emirates	<a href="http://www.oosa.unvienna.org/oosa/SAP/gnss/index.html">http://www.oosa.unvienna.org/oosa/SAP/gnss/index.html</a>
2.	Geospatial World Forum 2011	January 18-21, 2011	Hyderabad, India	<a href="http://www.geospatialworldforum.org">http://www.geospatialworldforum.org</a>
3.	Esri Federal User Conference	January 19-21, 2011	Washington, DC, U.S.A.	<a href="http://www.esri.com/events/feduc/index.html">www.esri.com/events/feduc/index.html</a>
4.	DGI Europe 2011	January 24-27, 2011	London, U.K.	<a href="http://www.wbresearch.com/dגיעurope/home.aspx">www.wbresearch.com/dגיעurope/home.aspx</a> <a href="http://navigationusa/index.shtml">navigationusa/index.shtml</a>
5.	Climate and Ocean Dynamics of the Cretaceous Greenhouse World	January 26-28, 2011	Utrecht, The Netherlands	<a href="http://ian.arc.nasa.gov/2010-10-issue/symposium-climate-and-ocean-dynamics-of-the-cretaceous-greenhouse-world">http://ian.arc.nasa.gov/2010-10-issue/symposium-climate-and-ocean-dynamics-of-the-cretaceous-greenhouse-world</a>
6.	National conference on Impact of climate change with special emphasis on desertification	February 3-5, 2011	Ajmer, India	<a href="http://www.isgindia.org">ww.isgindia.org</a>
7.	Atmosphere 2011: Mediated Cities	February 3-5, 2011	Manitoba, Canada	<a href="http://www.atmos.ca">http://www.atmos.ca</a>
8.	International conference on preparing agriculture for climate change	February 6-8, 2011	Ludhiana, India	<a href="http://www.pau.edu/int_conf">http://www.pau.edu/int_conf</a>
9.	International Lidar Mapping Forum (ILMF) 2011	February 7-9, 2011	New Orleans LO,	<a href="http://www.lidarmap.org">Uhttp://www.lidarmap.org</a>
10.	6th EARSeL Workshop Remote Sensing of Snow and Glaciers: Cryosphere, Hydrology and Climate Interactions	February 7-9, 2011	University of Bern, Switzerland	<a href="http://www.earsel.org/SIG/Snow-Ice/workshops.php">www.earsel.org/SIG/Snow-Ice/workshops.php</a>
11.	4th International Workshop on the Mars Atmosphere: Modeling and Observations	February 8-11, 2011	Paris, France	<a href="http://www-mars.lmd.jussieu.fr/paris2011/">http://www-mars.lmd.jussieu.fr/paris2011/</a>
12.	The International Space Station: Maximizing the Return from Extended Operations	February 15-17, 2011	Strasbourg, France	<a href="http://www.isunet.edu">http://www.isunet.edu</a>
13.	A National Conference on Urban Policy & Planning: A Case Perspective of Pune	February 17-18, 2011	Pune, India	<a href="http://ise.ac.in/files/brochure.pdf">http://ise.ac.in/files/brochure.pdf</a>
14.	National Conference on landscape restoration Processes – Challenges and Opportunities	February 22-23, 2011	Dehradun, India	<a href="http://www.fri.icfre.gov.in">www.fri.icfre.gov.in</a>
15.	Urban Transport World 2011	February 23-24, 2011	Sydney, Australia	<a href="http://www.terrapinn.com/2011/utw/">http://www.terrapinn.com/2011/utw/</a>
16.	14th Australian International Aerospace Congress	February 28-March 3, 2011	Melbourne, Vic, Australia	<a href="http://www.aiac14.com">http://www.aiac14.com</a>
17.	W2GIS 2011 Web & Wireless Geographical Information Systems	March 3-4, 2011	Kyoto, Japan	<a href="http://www.w2gis.org">www.w2gis.org</a>
18.	42nd Lunar & Planetary Science Conference	March 7-11, 2011	The Woodlands, Texas USA	<a href="http://www.lpi.usra.edu/meetings/lpsc2011/">http://www.lpi.usra.edu/meetings/lpsc2011/</a>
19.	GIS in Mining and Exploration 2011	March 8, 2011	Brisbane, QLD, Australia	<a href="http://www.gisinmining.com.au">http://www.gisinmining.com.au</a>
20.	National conference on Advances in Atmospheric Remote Sensing, weather prediction & climate change (ARWPCC-2011)	March 10-11, 2011	Tirupati, India	<a href="http://www.arwpcc2011.weekbly.com">www.arwpcc2011.weekbly.com</a>
21.	2nd UN/Argentina/Saudi Arabia International Conference on the Use of Space Technology for Water Management	March 14-18, 2011	Buenos Aires, Argentina	<a href="http://www.oosa.unvienna.org/oosa/en/SAP/sched/index.html">http://www.oosa.unvienna.org/oosa/en/SAP/sched/index.html</a>
22.	GEOFORM+ 2011 - Geodesy, Cartography, Navigation	March 15-18, 2011	Moscow, Russia	<a href="http://www.geoexpo.ru">http://www.geoexpo.ru</a>



S.No	Theme	Duration	Location	Web address
23.	International Symposium on Grids and Clouds (ISGC 2011)	March 19-25, 2011	Taipei, taiwan	<a href="http://event.twgrid.org/isgc2011/index.html">http://event.twgrid.org/isgc2011/index.html</a>
24.	Air and Water: Components of the Environment	March 25-26, 2011	Cluj, Romania	<a href="http://aerapa.conference.ubbcluj.ro/index.htm">http://aerapa.conference.ubbcluj.ro/index.htm</a>
25.	Greenhouse 2011	April 4-8, 2011	Cairns, Queensland, Australia	<a href="http://www.greenhouse2011.com">http://www.greenhouse2011.com</a>
26.	GEO-11 A World of Geomatics With GIS Innovations	April 6-7, 2011	London Elstree, U.K.	<a href="mailto:sharon@pvpubs.demon.co.uk">sharon@pvpubs.demon.co.uk</a>
27.	ISPRS WG VI/4 – ISRS International workshop – Multinational Geomatics Capacity building : Achievements and Challenges	April 7-8, 2011	Dehradun, India	<a href="http://www.isrsindia.in/ISPRS6wg4">http://www.isrsindia.in/ISPRS6wg4</a>
28.	34th International Symposium for Remote Sensing of the Environment (ISRSE)	April 10-15, 2011	Sydney, NSW, Australia	<a href="http://isrse34.org/">http://isrse34.org/</a>
29.	JURSE 2011 - Joint Urban Remote Sensing Event	April 11-13, 2011	Munich, Germany	<a href="http://www.pf.bv.tum.de/jurse2011/">http://www.pf.bv.tum.de/jurse2011/</a>
30.	V Anniversary International Conference "Remote Sensing – the Synergy of High Technologies"	April 13-15, 2011	Moscow, Russia	<a href="http://sovzondconference.ru/2011/eng/">http://sovzondconference.ru/2011/eng/</a>
31.	14th AGILE International Conference on Geographic Information Science	April 18-21, 2011	Utrecht, The Netherlands	<a href="http://www.uu.nl/faculty/geosciences/EN/agile2011/agile2011welcome/Pages/default.aspx">www.uu.nl/faculty/geosciences/EN/agile2011/agile2011welcome/Pages/default.aspx</a>
32.	ASPRS 2011 Annual conference	May 1-5, 2011	WI, USA	<a href="http://www.asprs.org">www.asprs.org</a>
33.	Gi4DM 2011 - International Symposium on Geo-information for Disaster Management	May 3-8, 2011	Antalya, Turkey	<a href="http://www.gi4dm2011.org">http://www.gi4dm2011.org</a>
34.	Geomatics Technologies in the City - First International Geomatics Symposium	May 10-13, 2011	Jeddah, Saudi Arabia	<a href="http://www.geomaticsksa.com">http://www.geomaticsksa.com</a>
35.	Conference on Micro-Raman Spectroscopy and Luminescence Studies in the Earth and Planetary Sciences (CORALS II)	May 18-20, 2011	Madrid, Spain	<a href="http://www.lpi.usra.edu/meetings/corals2011/">http://www.lpi.usra.edu/meetings/corals2011/</a>
36.	3rd EARSeL Workshop on Remote Sensing in Education and Training	May 31-June 1, 2011	Prague, Czech Republic	<a href="http://www.earsel.org/SIG/ET/3rd-workshop/index.php">www.earsel.org/SIG/ET/3rd-workshop/index.php</a>
37.	AfricaGeo 2011	May 31-June 2, 2011	Cape Town, South Africa	<a href="http://africageo.org">http://africageo.org</a>
38.	4th EARSeL Workshop on Remote Sensing for Land Use & Land Cover	June 1-3, 2011	Prague, Czech Republic	<a href="http://www.earsel.org/SIG/LULC/index.php">www.earsel.org/SIG/LULC/index.php</a>
39.	5th EARSeL Workshop on Remote Sensing of the Coastal Zone	June 1-3, 2011	Prague, Czech Republic	<a href="http://www.earsel.org/SIG/CZ/5th-workshop/index.php">www.earsel.org/SIG/CZ/5th-workshop/index.php</a>
40.	1st EARSeL SIG Forestry workshop: Operational Remote Sensing in forest management	June 2-3, 2011	Prague, Czech Republic	<a href="http://www.earsel.org/SIG/Forestry/call.php">www.earsel.org/SIG/Forestry/call.php</a>
41.	15th International Conference on Urban Transport and the Environment	June 6-8, 2011	Pisa, Italy	<a href="http://www.wessex.ac.uk/11-conferences/urbantransport-2011.html">http://www.wessex.ac.uk/11-conferences/urbantransport-2011.html</a>
42.	WG IV/2 workshop 'High resolution earth imaging for geospatial information	June 14-17, 2011	Hannover, Germany	<a href="http://www.commission4.isprs.org/wg2">www.commission4.isprs.org/wg2</a>
43.	22nd Pacific Science Congress 2011	June 14-18, 2011	Kuala Lumpur, Malaysia	<a href="http://22ndpsc.net">http://22ndpsc.net</a>
44.	9th IAA Low Cost Planetary Missions conference	June 21-24, 2011	Laurel, MD, USA	<a href="http://lcpm9.jhuapl.edu/index.php">http://lcpm9.jhuapl.edu/index.php</a>
45.	International Conference on Pattern Analysis and Intelligent Robotics ICPAIR	June 28-29, 2011	Putrajaya, Kuala Lumpur, Malaysia	<a href="http://www.ftsm.ukm.my/icpair">http://www.ftsm.ukm.my/icpair</a>
46.	2011 3rd Conference on Data Mining and Optimization (DMO11)	June 28-29, 2011	Kuala Lumpur, Malaysia	<a href="http://dmo.ukm.my/dmo11">http://dmo.ukm.my/dmo11</a>



## CSSTEAP Alumni meet at Kathmandu, Nepal

Dr. P.S Roy while participating in the Symposium "International Symposium on Benefiting from Earth Observation: Bridging the Data Gap for Adaptation to Climate Change in the HKH Region" during October 4-6, 2010, had an opportunity to arrange Alumni meet with the CSSTEAP past students from Nepal on 6th October, 2010. The objective of the meet was to develop a network and establish meaningful linkage between CSSTEAP and the past students. The alumni meet was attended by CSSTEAP alumni (22 nos. mainly from RS & GIS and SATCOM courses), ICIMOD officials (2 nos.), and invitees from universities who have nominated the students in the past (2 nos). The meeting started with formal introduction and briefing about the Centre's current activities and role of host country in providing able guidance and all support in running the Centre's academic programmes. The feedback and the views expressed given by the alumni were:

- The course was useful in career development and improving profession aptitude.
- CSSTEAP should consider refresher courses in emerging application areas, fellowship for M Tech



*Director, CSSTEAP meeting with the CSSTEAP alumni in Kathmandu, Nepal*

and Research programmes;

- CSSTEAP should organize regional programmes of application with participating institutions;
- Alumni group should be formed and efforts should be made to arrange sponsorship for activities through annual meet. The students who participated the meeting authorized Mr. Bhadra Wagle (CSSTEAP SATCOM course participant) to form the CSSTEAP alumni group.

## Visit of Vietnamese Delegation

The Vietnamese delegation consisting of Dr. Nguyen Ngoc Thach, Professor & Faculty of Geography, University of Science- Vietnam National University, Hanoi; Dr. Nguyen Hieu, Vice Dean of Faculty of Geography, University of Science, Vietnam; Dr. Dinh Thi Bao Hoa, Head of Department of Cartography, RS & GIS, Faculty of Geography, University of

Science, Vietnam and Dr. Chu Van Ngoi, Professor, Faculty of Geology, University of Science, Vietnam National University, Hanoi visited CSSTEAP/IIRS on December 8, 2010. The objective of the visit was to see the facilities and ongoing academic and research activities in CSSTEAP and IIRS and to explore the possibilities in joint collaboration between CSSTEAP/IIRS and Hanoi Univeristy, Vietnam.



*Director, CSSTEAP alongwith other officials meeting the delegation from Vietnam*

Dr. P. S. Roy, Director, CSSTEAP and Dean, IIRS welcomed the delegation and introduced the ongoing academic and research activities in CSSTEAP. There was a discussion on the possible future collaboration in terms of research and consultancy related to student exchange, research in water resources, irrigation, management, mapping & management of floods etc. The delegation expressed happiness to invite experts as Guest Lectures from CSSTEAP/IIRS in short courses in Vietnam. Director, CSSTEAP mentioned that there are large number of participants from Vietnam taking benefit from the CSSTEAP academic programmes and requested to take appropriate steps for Vietnam becoming permanent member of CSSTEAP Governing Board.



## Visit of ICIMOD Board and Support Group Members

A team consists of 12 Board Members; 11 Support Group Members and 15 scientific staff of International Centre for Integrated Mountain Development (ICIMOD), Nepal visited CSSTEAP and IIRS, Dehradun on November 25, 2010. A scientific interaction meeting with the team members of ICIMOD and Course Director RS & GIS Course CSSTEAP & Dean, IIRS and Head of the Divisions of CSSTEAP host institute, IIRS was held. Dr. S. K. Saha, Course Director RS & GIS Course CSSTEAP & Officiating Dean, IIRS made a presentation on the activities of CSSTEAP and IIRS. Dr. S. K. Saha also appraised about the technical and financial supports provided by ICIMOD since the inception of CSSTEAP. A live demonstration on Bhuvan & Bhoo Sampada were made. Dr. Andreas Schild, Director General and Mr. Basanta Shrestha, Head MENRIS, ICIMOD and team co-ordinator appraised about the present technical and research activities of ICIMOD. Board and Support Group Members also technically interacted with the team members of CSSTEAP/IIRS. The ICIMOD team members also visited various technical facilities of CSSTEAP and IIRS. Several future areas of collaboration between ICIMOD and CSSTEAP & IIRS have been identified and these are—

- Joint training courses on application of geo-



*Officials from IIRS / CSSTEAP holding meeting with officials from ICIMOD, Nepal*

informatics on disaster management and other related disciplines of mutual interests;

- Development of mountain focused training/education curricula and courses;
- Provision of formal education to the RMC participants for post graduate programme at CSSTEAP;
- Distance education through EDUSAT on GIS/RS targeted to the youth;
- Collaboration on regional LULC mapping of the HKH region;
- Collaboration on joint project development and implementation of mutual interest and;
- Exchange programme of scientists between IIRS/CSSTEAP and ICIMOD

## BACKGROUND OF CSSTEAP

In response to the UN General Assembly Resolution (45/72 of 11th December, 1990) endorsing the recommendations of UNISPACE-82 the United Nations Office for Outer Space Affairs (UN-OOSA) prepared a project document (A/AC.105/534) envisaging the establishment of Centres for Space Science & Technology Education in the developing countries. The Objective of the Centres is to enhance the capabilities of the member states in different areas of space science and technology that can advance their social and economic development. The first of such centres, named as Centre for Space Science & Technology Education in Asia & the Pacific (CSSTEAP) was established in India in November 1995. Department of Space, Government of India has made available appropriate facilities and expertise to the Centre through the Indian Institute of Remote Sensing (IIRS) Dehradun, Space Applications Centre (SAC) & Physical Research Laboratory (PRL) Ahmedabad. The Centre is an education and training institution that is capable of high attainments in the development and



*CSSTEAP Hqrs. at Dehradun*

transfer of knowledge in the fields of space science & technology. The emphasis of the Centre is on in-depth education, training and application programmes, linkage to global programmes / databases; execution of pilot projects, continuing education and awareness and appraisal programmes. The Centre offers Post Graduate



level and short courses in the fields of (a) Remote Sensing and Geographic Information System, (b) Satellite Communications and GPS, (c) Satellite Meteorology and Global Climate, (d) Space and Atmospheric Science. A set of standard curricula developed by the United Nations is adapted for the

educational programmes.

The Centre is affiliated to the United Nations and its education programmes are recognised by Andhra University, Visakhapatnam, India for awarding M.Tech degree (after completion of 1 year project).

### Ongoing Courses

- Fifteenth Post Graduate course in RS & GIS at IIRS Dehradun from July 1, 2010 to March 31, 2011.
- Seventh Post Graduate course in Satellite Meteorology & Global Climate at SAC Ahmedabad from August 1, 2010 to April 30, 2011
- Seventh Post Graduate course in Space & Atmospheric Science at PRL Ahmedabad from August 1, 2010 to April 30, 2011

### Future Courses

- Short training workshop on Open Source Geospatial Tools at IIRS Dehradun during January 12-14, 2011
- Short Course on Microwave Remote Sensing and its Applications at IIRS Dehradun from April 4-29, 2011.
- Sixteenth Post Graduate course in RS & GIS at IIRS Dehradun from July 1, 2011-March 31, 2012
- Eighth Post Graduate Course in Satellite Communications at SAC Ahmedabad from August 1, 2011 - April 30, 2012.

## EDITORIAL COMMITTEE

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CSSTEAP welcomes views and opinions of the readers of Newsletter. Short communications on space science and technology education which may be relevant to Asia Pacific Region are also welcome. Views expressed in the articles of the newsletter are those of the authors.

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