



❖ CSSTEAP Newsletter ❖

Quarterly Newsletter of Centre for Space Science and Technology Education in Asia and the Pacific (Affiliated to UN)

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ADVISORY AND GOVERNING BOARD MEETINGS OF CSSTEAP

The ninth meeting of Advisory Committee (AC) and Tweleth meeting of Governing Board (GB) of CSSTEAP were held on April 25 and 27, 2007 respectively at Kovalam, Kerala. Dr. Viktor Kotelnikov of United Nations-OOSA, Vienna chaired the AC meeting. Dr. Paolo Antonelli (University of Wisconsin- Madison, USA), Mr. Sjaak Beerens (ITC, The Netherlands), Prof. Ray Harris (UCL, London), Prof KI Oyama, Japan), Dr. Ong Jin Teong , Singapore), Prof. P.C. Aggarwal (TIFR, Mumbai), Dr. R C Bhatia (IMD, Delhi), Prof. Vijaya Prakash (Registrar, Andhra University), Mr. V Sundararamaiah (Scientific

Secretary, ISRO), Dr. R.R Navalgund (Director, SAC, Ahmedabad), Dr. K. Radhakrishnan (Director, NRSA, Hyderabad), Dr. George Joseph, Director, CSSTEAP, Dr.V.K Dadhwal, Dean, IIRS, Mr. Jacob Ninan (Programme Director, Intl. Cooperation, ISRO, Bangalore), Course Directors, Program coordinators, CSSTEAP and course coordinators attended the meeting. The committee took a review of the Centre's technical and academic activities since last one year. Various issues like implementation of Board of Studies (BOS) recommendations, research activities in the form of awarding of M.Tech fellowship of the program at the centre, continuation of feedback evaluation of the past students of CSSTEAP of different courses, continuous interaction between the alumni and the centre through website, putting more information related to courses and educational materials on website, continuing the exploration of affiliation with different universities for award of M.Tech degree and research program, designing theme specific short term courses on space technology for disaster management, space technology, training for managers towards disaster management, satellite navigation, etc were discussed. AC recommended CSSTEAP to examine the possibility of jointly



Advisory Committee members alongwith special invitees during Advisory Committee meeting



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Governing Board members alongwith dignitaries during meeting at Kovalam, Kerala

carrying out pilot projects with relevant institutions in different countries, provided there is sufficient support from those countries. The members also felt the need for review of the course curricula which was renewed last time in 2001. The committee also recommended in supporting academically qualified M.Tech graduates from CSSTEAP interested in pursuing PhD degree level research, provided they will return to their organisations to serve their countries. The AC appreciated the efforts of the Centre for excellent progress made and expressed satisfaction at the achievements and also for the support from the host country. The committee also noted the committed effort of the Centre, in particular its Director and the host institutions namely IIRS (NRSA), SAC, PRL that have made the centre reach such high levels. The AC endorsed the courses, future programmes and technical activities of the Centre.

The GB meeting on April 27, 2007 was chaired by Mr. G. Madhavan Nair, Chairman, Governing Board CSSTEAP and Secretary, Department of Space, Govt. of India. Several members of Governing Board of CSSTEAP viz., Mr. Toto Marnanto Kadri (Lapan, Indonesia), Mr. Kairat Umarov (Ambassador, Kazakhstan), Mr. Tynmbek Ormonbekov (National Academy of Sciences, Kyrgyz Republic), Dr. Batbold Enkhtuvshin (Department of Science and Technology,

Mongolia), Mr. Kartar Singh Bhalla (Hony. Consul General of Nauru), Mr. Tara Prasad Pokharel (Embassy of Nepal), Dr. S Namasivayam (Director, ACCIMT, Sri Lanka), Dr. Viktor Kotelnikov (UN-OOSA), Dr. Surachai Ratanasermping (Geo-Informatics and Space Technology Development Agency, Thailand), Dr. Igor Ibragimov (Space Research Centre Uzbekistan Academy of Science, Unbekistan), Mr. Nurgali Argstomov (Embassy of Kazakhstan) attended the meeting. Others who were present include Dr. George Joseph (Director, CSSTEAP), Mr. V Sundararamaiah (Scientific Secretary, ISRO), Dr. V Jayaraman (Director, EOS, ISRO), Dr. R.R Navalgund (Director, SAC, Ahmedabad), Dr. K. Radhakrishnan (Director, NRSA, Hyderabad), Prof. J.N Goswami (Director, PRL, Ahmedabad), Mr. Jacob Ninan (Programme Director, Intl. Cooperation, ISRO), Mr. Chandy Andrews (CCA, ISRO), Course Directors of all courses and higher officials of various centres of Department of Space, Govt. of India. Several important issue like expansion of CSSTEAP in the Asia-Pacific region, review of the action items from the last GB meeting, the Centre's strategy for the research programme, budget allocation for the centre, etc were discussed. The GB members welcomed Dr. George Joseph as new Director, CSSTEAP. Dr. Viktor Kotelnikov briefed about the outcome in the form of recommendations of the ninth AC meeting to the members. Dr. George Joseph, Director, CSSTEAP gave a brief report on the activities of the Centre during the past one year and the planned activities for 2007. He presented vision 2010 for the Centre wherein he highlighted the need to increase the outreach so that fruits of the space technology could benefit at national level. For this purpose, he suggested that Centre should embark on satellite based tele-education and web-based education so that larger number of scientists of the members countries can get benefited. He also suggested dedicated short courses exclusively for teaching staff so as to have a 'multiplier' effect in

FIFTH POST GRADUATE COURSE ON SATELLITE METEOROLOGY & GLOBAL CLIMATE

The fifth Post Graduate Course on Satellite Meteorology & Global Climate, under the aegis of CSSTEAP (affiliated to UN) was conducted during August 1, 2006 to April 30, 2007 at Bopal Campus of Space Applications Centre, Ahmedabad. Eighteen participants from 11 countries in A-P region attended the course.

The last three months module dealing with the Pilot Project phase was conducted during February 1 to April 30, 2007. The course participants learnt a great deal during this period, particularly about the formulation of a problem relevant to their country, identifying the satellite and conventional data sets and acquiring them through web sites MOSDAC (Meteorological & Oceanographic Satellite Data Archival Centre, operational at SAC for details please see the Newsletter issue 4, Volume 9, December 2006). The time was well devoted to the processing of large data sets, analysis and preparation of the project reports under the guidance of the leading scientists. Future scope of the study (for developing into a 1-year project in the home country) as well as the course of actions (data sets requirement, S/W identification and the necessary literature) were well brought out by them. The participants gave three seminars during this period highlighting the analysis and the significant results obtained. The broad themes of the Pilot Projects carried out by the SATMET-5 participants are:

- Tropical Cyclone and storm surge studies using TRMM and Model
- Ozone / CO studies using satellite data sets and their validation using ground measurements
- Meso-scale studies using MM5 & WRF Models (Heavy precipitation case studies)
- Temperature / Moisture profiles using AIRS data
- Crop and pest disease monitoring using RS data

It was seen that there is a growing interest among the course participants in numerical model based projects (particularly MM5 & WRF model). This was evidenced by as many as six participants choosing model based themes for their pilot projects. The experiments were designed to assess the impact of satellite data (MODIS, Scatterometer etc.) in simulating heavy rainfall features, movement of tropical cyclone and western disturbance. These projects are expected to provide good exposure to participants about the usefulness of these global model forecasts and satellite data products in operational use.

Fourteen participants undertook the Pilot Project under the guidance of scientists of Meteorology & Oceanography Group, while 2 participants each were guided by the scientists of Agricultural Resources Group of SAC and Physical Research Laboratory respectively. All the pilot projects were evaluated both at Space Applications Centre by a committee of experts and at Andhra University by the faculty members of the Department of Meteorology & Oceanography.

The course participants undertook a study tour in the last week of April to South India and visited Chennai (Cyclone Warning Radar, IMD) and Visakhapatnam (Andhra University).

The joint valedictory function of the CSSTEAP Courses viz. SATMET-5 (SAC) and Space & Atmospheric Science-5 (PRL) was held on May 1, 2007. Dr. V S Ramamurthy, Homi Bhabha Chair Professor, Inter-University Accelerator Centre, New Delhi was the Chief Guest. The Diploma certificates to all successful course participants and the merit certificates to the rank holders were given by the Chief Guest. Dr. George Joseph,



SATMET-V and Space Atmospheric Science course participants with dignitaries on dias



Dr. George Joseph releasing lecture CD on the occasion of Valedictory function of SATMET-5

Director, CSSTEAP, Dr. R R Naval Gund, Director, SAC, Prof. J N Goswami, Director, PRL, faculty members, senior scientists of SAC & PRL attended the function. Dr. B M Rao, Course Director, SATMET-5

made a detailed presentation on the various activities carried out during the nine months course.

Out of the eighteen participants, four passed with Distinction and fourteen in First class. Dr. Ramamurthy called upon the successful participants to exploit the advanced technologies and apply the knowledge gained during the course and contribute to the national economy and progress of their countries. He emphasized the commercial value of good quality real time weather forecasts and urged the students to strive hard to meet the growing challenge. He congratulated the faculty members for conducting the courses and thus contributing to the augmentation of the national capabilities in the Asia-Pacific region. On behalf of the course participants, two of their representatives presented their impressions about the

FIFTH POST GRADUATE COURSE ON SPACE AND ATMOSPHERIC SCIENCE

The 5th PG Diploma Course in Space and Atmospheric Sciences of nine month duration, conducted by Physical Research Laboratory Ahmedabad, concluded on April 30, 2007. The months of March and April had seen hectic activity. Lectures came to an end by March 2007 and the semester end examinations followed it. The pilot project reports had a deadline of April 20, 2007, which all the participants followed.

Prof K I Oyama, a renowned Space scientist from ISAS Japan, who is also a member of advisory committee of CSSTEAP, Space Science,, kindly agreed to visit PRL on April 23, 2007 and delivered lecture on issues in space explorations. Participants were spell bound during his lecture. Viva voce examinations and Seminar presentations were held in the last week of April and, that brought down curtain on academic activities of the course .

The grand finale of the course had been the Valedictory function which was organized jointly for Space and Atmospheric Sciences as well as Satellite Meteorology and Global Climate. The function was held on May 1, 2007 at Bopal Campus

auditorium, and Dr. V.S. Ramamurthy, Homi Bhabha Chair Professor, Inter-University Accelerator Centre, New Delhi , was invited to be the chief guest. The participants were awarded diploma and Ms Violetta Goryaeva from Uzbekistan , presented view points of the participants about the space and atmospheric science course on their behalf . Mr. Arup Borgohain from India, stood first in this batch and was given a certificate of merit.

Everyone started his journey back home on a happy



Dr. V.S. Ramamurthy distributing CSSTEAP Diploma certificates to the participants

ELEVENTH POST GRADUATE COURSE ON REMOTE SENSING & GIS

The eleventh Post-Graduate Course on "Remote Sensing and Geographic Information System (RS&GIS)" of CSSTEAP, was commenced on October 1, 2006 at Indian Institute of Remote Sensing (NRSA), Dehradun, one of the host institutions of CSSTEAP and is ending on June 30, 2007. Total 22 participants from 14 countries of Asia-Pacific Region viz. Azerbaijan - 1; Bangladesh - 1; China - 1; Indonesia - 1; Kazakhstan - 1; Kyrgyz Republic - 1; Mongolia - 2; Myanmar - 4; Nepal - 2; Sri Lanka - 2; Thailand - 2; Uzbekistan - 1; Vietnam - 2 and India - 1, are attending this course.

The entire course is divided into three modules. The third and the final module with duration of three months started from April 01, 2007 and is ending on



Course participants at NRSA, Hyderabad, during their technical visit

June 29, 2007 with valedictory function. This module is basically designed for carry out pilot project work by the course participants. The objective of this module is to make the course participants capable of carrying out research on their own towards natural resources inventory, monitoring and management using RS & GIS techniques. The broad topics of the pilot projects under taken by the course participants during Module III are- Regional Crop productivity and drought; Soil resource assessment for land use planning; Forest growing stock and bio-mass estimation; Forest cover Dynamics and predictive modeling; Forest cover and density stratification using optical and microwave data; Habitat suitability evaluation for Rhinoceros; RS & GIS in hydro-geological investigation; Geo- neotectonic study using multi-resolution satellite data; Urban physical facilities inventory using high resolution satellite data; Urban spatial pattern analysis using high resolution data; Thermal inertia mapping of urban area; RS GIS for urban green space analysis; Urban environmental change monitoring; Performance evaluation of irrigation command; Effect of LU/LC change on Hydrological processes; Geo-statistical analysis for avalanches related disaster; Sub-pixel classification of Hyperion data; GIS customization for tourist information system; RS & GIS for Dengue disease affected area inventory; Cartosat DEM generation and its validation; Atmospheric correction of Hyperion data; and Terrain deformation

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



CSSTEAP Hqrs. at Dehradun

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 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 Sciences. A set of standard curricula developed by the United Nations is adapted for the educational programmes.

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Ongoing Courses

- Eleventh 9 month Post Graduate course in RS & GIS at IIRS, Dehradun from October 1, 2007.

Forthcoming Courses

- Sixth 9 month Post Graduate course in Satellite Communication at SAC, Ahmedabad from August 1, 2007.
- Twelfth 9 month Post Graduate course in RS & GIS at IIRS, Dehradun from October 1, 2007.
- Short course on Application of Space Technology for Disaster Management support with emphasis to flood risk management at IIRS,

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CSSTEAP welcomes the 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