CSSTEAP Newsletter

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WAVE MODELING OVER THE SOUTH CHINA SEA

- Mr. Luong Van Viet, Vietnam

Vietnam has more than three thousand kilometers coast line, and has strong winds in this area. Normally, eight to twelve cyclones affects Vietnam every year. In the case of cyclones, wave height can be more than 6m heights. There are many economic areas concerning to sea state, such as fisheries, transportation of industrial and petroleum products, etc. The research and prediction of the sea state for this area will be very much useful.

In the present study, experiments performed with the state of the art numerical wave model, WAM have been discussed. The WAM model solves the complete action density equation including non-linear wave-wave interactions with no presumption of initial shape of the spectra.

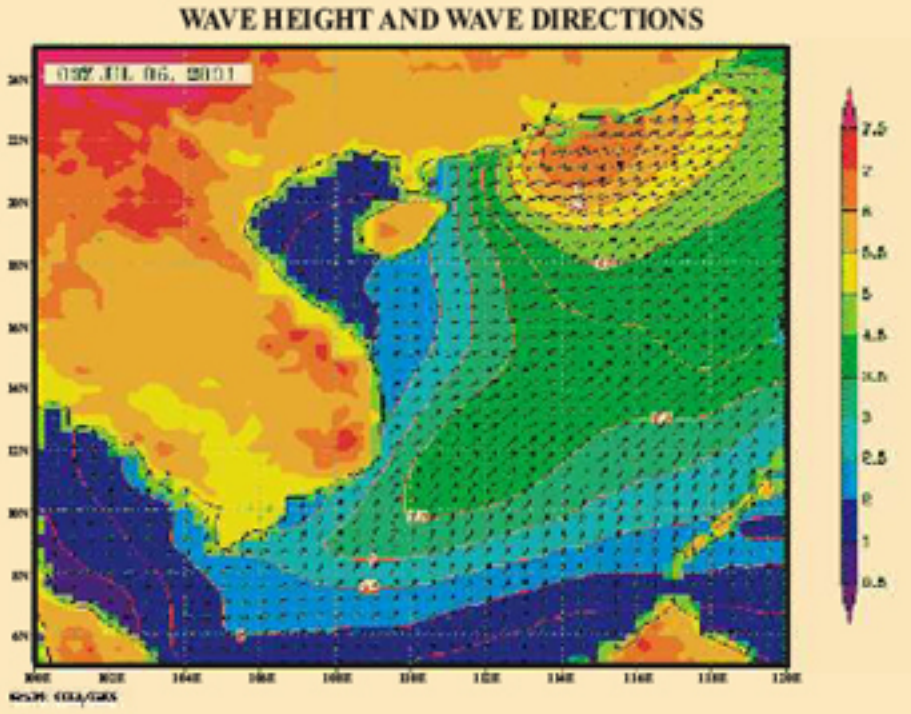

Fig.1 . Significant wave height of WAM model (JUL 26, 2001)

At present, the WAM model is being used operationally in global and regional applications to make forecasts of the sea state, which can be used for many applications such as ship routing and offshore activities, and for the validation and interpretation of satellite observations.

In this project, model runs have been made for the South China Sea region comprising of 100°E-125°E; 0°N-25°N for year 2001. To derive the wave model, satellite wind data of Quikscat scatterometer has been utilised. Figure 1 shows a typical wave height map for a particular day. The comparison of hindcast parameters has been done with Topex radar altimeter derived parameters. For the comparison, in-situ data of the Oilrig in the China Sea has also been utilized. As seen in Figure 2, the project results show quite good agreement between model derived wave height

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Wishing all the readers of the CSSTEAP Newsletter a very happy and prosperous 2005

and altimeter derived wave heights (correlation coefficient of 0.9).

(This is summary of 1 year follow up project of M Tech degree awarded to Mr. Luong Van Viet of Vietnam, SATMET-2002 under supervision of Dr. Rajkumar, MOG/SAC, Ahmedabad).

Fig.2 . Comparison of model wave height with in-situ data

FOURTH P.G. COURSE ON SATELLITE METEOROLOGY AND GLOBAL CLIMATE

The fourth SATMET course of CSSTEAP, commenced on the August 2, 2004 at the New SAC Campus, Bopal, of Space Applications Centre (SAC), Ahmedabad.

The Participants completed the first 3 months module on October 30, 2004. This module covered the basic concepts in Remote Sensing, Meteorology, climatology, mathematical and statistical techniques etc. The afternoon sessions were devoted to meteorological Satellite data processing and analysis. INSAT-VHRR and NOAA-AVHRR data sets were extensively 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 also conducted. The follow up discussion with faculty were very lively and interesting. At the end of the module I, examinations (both theory and practical) were conducted. In addition to SAC scientists, the faculty of the module consisted of senior Scientists of Tropical Meteorology, Pune, National Institute of Oceanography, Goa. Dr. J. Vivekanandan of Colorado state University, USA also delivered two Guest lectures.

Course participants at Step Well, Ahmedabad

After the end of the Module I which concluded on the October 30, 2004, the Participants proceeded towards North India on their first Study tour. The visit to India Meteorological Department (IMD) New Delhi gave the participants an insight to various aspects of operational weather forecasting, involving extensive utilisation of INSAT and other Satellite Data. National Centre for Medium Range Weather Forecasts (NCMRWF) Noida, gave an exposure to operational modeling activities and medium range weather forecast in particular.

The participants during their stay in New Delhi visited the symbol of modern architecture - Lotus Temple; and also places of historical importance like - Jama Masjid, Red Fort (Lal Quila) and Qutub Minar. Delhi was a shopping bonanza as the participants were staying in the middle of the famous Karol Bagh market.

The participants while in Delhi visited nearby places of tourist importance such as, Agra and got a glimpse of the magnificent Taj Mahal, Agra Fort

and Fatehpur Sikri. Participants also visited the CSSTEAP headquarters in the IIRS campus at Dehradun. The participants met Director CSSTEAP in his office and visited the facilities at IIRS. The participants also got the opportunity to meet the course participants of Remote Sensing and GIS. Many of them were happy to meet some of their country men and women on a foreign land. The participants also visited the close by hill station Mussorie, and spent a day there. At Dehradun the participants also visited the famous Forest Research Institute and other places of tourist importance.

English classes were arranged to improve the Communication skills for a period of 3 months which ended in the month of December. The Second module dealing with advanced topics like Radiative Transfer, Geophysical parameter retrievals, Satellite data application with emphasis

Course participants at India Gate, New Delhi

on monsoon studies and tropical cyclones, Green House gases and global warming etc., started from November 2, 2004. The first meeting to brief the participants about the Pilot Project topics, data sets available in SAC etc was held during this period. Participants have been asked to consult their organisation for finalization of the topics.

On the social front, participants participated and enjoyed the Navaratri festival of dancing - Garba by

NINTH P. G. COURSE ON REMOTE SENSING AND GIS

The Ninth Post Graduate Course on Remote Sensing and Geographic Information System (RS & GIS) of CSSTEAP is in progress at Indian Institute of Remote Sensing (NRSA), Dehradun. The course commenced on October 1, 2004.

Course participants with dignitaries of Inaugural function

The course was formally inaugurated by Dr. R. Natarajan, Chairman, All India Council of Technical Education (AICTE), Govt. of India. Dr. R.R. Navalgund, Director, National Remote Sensing Agency (NRSA), Hyderabad graced the occasion as a Guest of Honour. Dr. P.S. Roy, Dy. Director, (RS & GIS Applications), NRSA & CSSTEAP and Dr. V.K. Dadhwal, Dean, IIRS were also present. On this occasion Dr. R. Natarajan, Chairman, AICTE released the revised lecture notes volumes of Module I. The September issue of CSSTEAP Newsletter was released by Dr. R.R. Navalgund, Director, NRSA. Dr. P.S. Roy, Dy. Director, CSSTEAP and Dr. V. K. Dadhwal, Dean, IIRS, addressed the gathering on this occasion. Dr. S.K. Saha, Course Director presented outline of the course and Dr. S.P. Aggarwal, Course Coordinator proposed vote of thanks on this inaugural function.

Total 20 participants from 11 countries of Asia-Pacific Region (Bangladesh-1, India-2, Indonesia-2, Kyrghystan-1, Mongolia-2, Myanmar-2, Nepal-2, Sri Lanka-3, Thailand-2, Uzbekistan-2, Vietnam-2) are attending the course. The Phase-I of this course is of nine months duration and is divided into three Modules each of three months duration. In the first week of the course, an introductory program consisting of lectures on overview of satellite meteorology, satellite communication, space science and technology and RS & GIS Applications in Natural Resources Management and Environmental Assessment followed by an Introduction of social, cultural and historical aspects of India were organized. The Module-I covering theory, practical and tutorials on Principles of Remote Sensing, GIS & GPS was ended on December 31, 2004. An International guest faculty Dr. Micheal Tanon from CNES, GDTA, France also delivered lectures on Mapping from Space and Space Cartography. Several field excursions were also arranged during this module for ground truth collection and demonstration of various ground truth instruments and these information were utilized for interpretation and analysis of satellite data.

Course participants at Birla Auditorium, Jaipur, venue of National Symposium of ISRS, 2004

The course participants also attended a national symposium on Converging Space Technologies for National Development organized by Indian Society of Remote Sensing at Jaipur during November 3 to 5, 2004. An educational visit to Agra and Jaipur cities was also organized during this period.

English language classes beyond office hours in the evening were also conducted during this course Module for improving English communication and writing skill of the course participants.

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.

WORKSHOP ON SPACE TECHNOLOGY AND EDUCATION FOR DISASTER MANAGEMENT

A workshop on Space Technology and Education for Disaster Management was organized by CSSTEAP at Indian Institute of Remote Sensing (NRSA), Dehradun on October 25, 2004. The workshop was divided into two sessions. Session- I on "Earth Observation (EO) Capabilities" was chaired by Dr. Suvit Vibulsresth, Executive Director, GISTDA (Geo-informatics and Space Technology Development Agency), Thailand. Session II on "Space Technology and Capacity Building" was chaired by Prof. Karl Harmsen, Director,

Workshop in progress

CSSTEAP. The various topics covered in the workshop were Remote Sensing Applications

including Disaster Support - Indian Scenario; Earth Observation Programme in Thailand; Satellite Communications for Disaster Management; Landslide Hazard Assessment using Remote Sensing data. Presentations on these topics were made by distinguished subject experts from Dept. of Space, India and GISTDA, Thailand. At the beginning, all the delegates were welcomed by Dr. V.K. Dadhwal, Dean, IIRS and briefed about IIRS Educational and Research activities. Prof. Karl Harmsen, Director, CSSTEAP also briefed all the delegates about the activities of the CSSTEAP. In addition to the above presentations, two presentations on RS & GIS educational program of CSSTEAP and Hazard and risk analysis - educational program of

Workshop participants with dignitaries

IIRS were made by respective Program Coordinators. The workshop was attended by delegates from GISTDA, Thailand, Course participants of 9th RS & GIS Course of CSSTEAP and faculty delegates from IIRS, Dehradun; NRSA, Hyderabad and Delhi Earth Station (SAC), New

FOURTH P. G. COURSE ON SPACE AND ATMOSPHERIC SCIENCE

The first module of the course came to an end during middle of October 2004 and examination for this module - I was conducted soon after. The participants were taken on educational tour after completion of their examinations, by road. They visited Udaipur Solar Observatory (USO) at Udaipur, Infra Red Observatory at Mount Abu and Indian Institute of remote Sensing (IIRS) at Dehradun. They visited city of Jaipur on the way and also the city of Agra to have a glimpses of Taj.

The second module started on Nov 1, 2004 and the subjects of Astronomy and Geomagnetism have been covered. In addition to PRL faculty members, the experts were invited which include Dr G S Lakhina and Dr Girija Rajaram from IIG and Dr Udaya Shankar from RRI Bangalore. The topic of Space Technology would also be covered during this module and experts from ISRO apart from PRL will be invited to cover the same.

It is sad to note that one of the participants from Mongolia, Ms Badmaadorj Radnaasumberel, fell sick and had to discontinue her studies in the middle due to her prolonged illness. We all wish her speedy recovery.

Course participants at Infra Red Observatory, Mount Abu

At Udaipur Solar Observatory, Udaipur

BACKGROUND OF CSSTEAP

CSSTEAP (Affiliated to UN)
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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 capablities of the member states in different areas of space science and technoloy 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.

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

- Fourth 9 month Post Graduate course in Satellite Meteorology and Global Climate at SAC, Ahmedabad from August 2, 2004
- Fourth 9 month Post Graduate course in Space & Atmospheric Science at PRL, Ahmedabad from August 2, 2004.
- Ninth 9 month Post Graduate course in RS & GIS at IIRS Dehradun from

Forthcoming Courses

- Fifth 9 month Post Graduate course in Satellite Communications at SAC, Ahmedabad from August 1, 2005
- International short course in RS & GIS Applications in Sustainable Agriculture at IIRS, Dehradun during Aug -Sept, 2005
- Tenth 9 month Post Graduate course in RS & GIS at IIRS Dehradun from October, 2005

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 welcome. Views expressed in the articles of the newsletter are those of the authors.

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