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Ocean News



Volume 4

Issue1

October 2011 - March 2012

ISSN 0973-9971

Message from Director

It is a pleasure to reconnect to you all through our News Letter 'Ocean News'. After a brief break, we restarted the newsletter so as to bring the recent developments in the institute to all of you. In our deepest concern to 'Go Green' and to remain environment friendly, we have decided to do away with the print version and bring only the electronic version. We hope that this will also ensure the timely reach of news letter to all our well-wishers and collaborators.

INCOIS, from the modest beginnings in the year 1999, has transformed itself as a lead oceanographic institute in the Indian Ocean region. Our scientists and staff are committed to serve the society at their best through ocean information services.

We have embarked on year 2012 with new challenges which we seek to convert into newer opportunities. In the first quarter of the year, we made significant achievements like launching a few new services, publishing quality research papers, organising workshops etc. At the same time, it gives me immense satisfaction to see that the efforts of INCOIS are being recognized at many platforms. Recently our scientists received the National Geoscience award -2010. Nevertheless, for us the biggest achievement remains in making our services accessible and available to a wide spectrum of people.

The institute is committed in fulfilling its mission of providing the ocean data, information and advisory services for the benefit of one and all.

Wishing you all the best.



Dr. S.S.C. Shenoi

ITEWC recognized as the RTSP for the Indian Ocean region by UNESCO

Indian Tsunami Early Warning Centre (ITEWC) is formally designated as Regional Tsunami Service Provider (RTSP) for the Indian Ocean Region on 12 October, 2011 by Madam Irina Bokova, the Director-General of UNESCO in the presence of Dr. Wendy Watson-Wright, Additional Director General, UNESCO and Executive Secretary, Intergovernmental Oceanographic Commission (IOC) and Shri Vinay Sheel Oberoi, Indian Ambassador to UNESCO. The ITEWC now issues tsunami warnings for the entire Indian Ocean region in addition to issuing warnings for India.

Exercise IOWave11

Mock Tsunami Drill IOWave11 was successfully organized by INCOIS under the auspices of UNESCO's Intergovernmental Oceanographic Commission on 12 October, 2011. India along with the 23 Indian Ocean Nations participated in the major ocean-wide mock drill that enacted the tsunami event of 26 December, 2004.

The drill was carried for 12 hours from 6:30 a.m. to 6:30 pm (IST) simulating a 9.2 magnitude earthquake off Northern Sumatra. ITEWC generated and disseminated 15 tsunami bulletins to its national and regional contacts through Fax, SMS, email, Web & GTS. The major objective of the exercise was to test the communication channels and to help the disaster management authorities to test their procedures and responses during such an event. The drill aimed at training the concerned authorities to build resilience against natural catastrophes by adopting a proactive, preventive approach to reduce the vulnerability and enhance preparedness levels.

The outcome of the mock drill was quite positive with the enthused participation from NDMA, MHA, Disaster Management offices of all coastal states/UTs, National Disaster Response Force (NDRT), Indian Coast Guard, Indian Navy and critical coastal installations (ports, power plants, etc.).

The drill was first-of-its kind at the national level. Dr. M. Sashidhar Reddy, Hon. Vice Chairman, NDMA visited INCOIS to witness the tsunami drill. He applauded ITEWC for spearheading the drill and congratulated all the participating agencies.



Indian Tsunami Early Warning Centre



Mock drill conducted in Andaman & Nicobar Islands/ Army troops Relief material being embarked at Port Blair

Major Research Highlights

During the past six months, INCOIS scientists published several research articles in national and international journals of repute. Few major research highlights are mentioned below:

The influences of ENSO on tropical cyclone activity in the Bay of Bengal during October-December

Author: Girishkumar, M. S.; Ravichandran, M. (2012)

Source: *Journal of Geophysical Research*, 117, C02033, 13P.
<http://dx.doi.org/10.1029/2011JC007417>

Abstract:

In this study the effect of El Niño/Southern Oscillation (ENSO) on tropical cyclone (TC) activity in the Bay of Bengal (BoB) during primary TC peak season (October-December) is investigated for the period of 1993-2010. The study showed that under La Niña regime number of extreme TC cases (wind speed > 64 kt) increases significantly in the BoB during the primary TC peak season and the genesis location of TC shifts to the east (west) of 87°E in the BoB during La Niña (El Niño) regime. The existence of low-level cyclonic (anticyclonic) vorticity, enhanced (suppressed) convection, and high (low) tropical cyclonic heat potential in the BoB provides favorable (unfavorable) conditions for the TC activity under La Niña (El Niño) regimes together with weak vertical wind shear and high sea surface temperature.

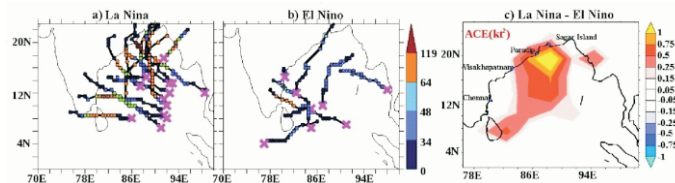


Figure: TC activity in the BoB under (a) La Nina and (b) El Nino regime during primary TC peak season for the year 1993-2010 (color bar indicates the wind speed in knots) (c) Difference of accumulated cyclone energy (ACE) per year in El Niño and La Niña years

An anomalous cooling event observed in the Bay of Bengal during June 2009

Author: Chacko, N.; Ravichandran, M.; Rao, R.R.; Shenoi, S.S.C.

Source: *Ocean Dynamics*, 62(5), pp.671-681.

<http://dx.doi.org/10.1007/s10236-012-0525-9>

Abstract:

The anomalous cooling event observed in June 2009 in the Bay of Bengal is analysed in this paper. It is found that the cooling was primarily induced by the heat losses at the surface resulting from the strong wind anomalies while advection and vertical entrainment played only a secondary role.

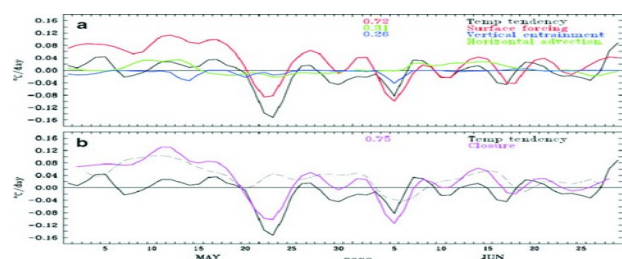


Figure: Mixed layer heat budget terms at 15 deg. N, 90 deg. E derived from RAMA buoy observation. The time evolution of the mixed layer temperature tendency (black) and contributions from surface heat forcing (red), horizontal advection (green), and vertical advection (blue). b. Time evolution of mixed layer temperature tendency (black line), closure budget (surface heat + advection) (magenta line), and residuals (black dashed-dotted line)

Performance of the tsunami forecast system for the Indian Ocean

Author: Kumar T.S.; Nayak, S.; Patanjali Kumar; Yadav, R.B.S.; Kumar, A.; Sunanda, M.V.; Devi, E.U.; Sheno, S.S.C.

Source: Current Science, 102(1), pp.110-114.

Abstract:

A Comparison of the earthquake parameters estimated by the ITEWC with other international seismological agencies like United States Geological Survey (USGS) is presented in this paper. The results of the analysis suggest that the ITEWC is performing well and has achieved the target set by Intergovernmental Oceanographic Commission (IOC), which in turn proved the capability of ITEWC and recognised as one of the Regional Tsunami advisory Service Provider (RTSP) for entire Indian Ocean.

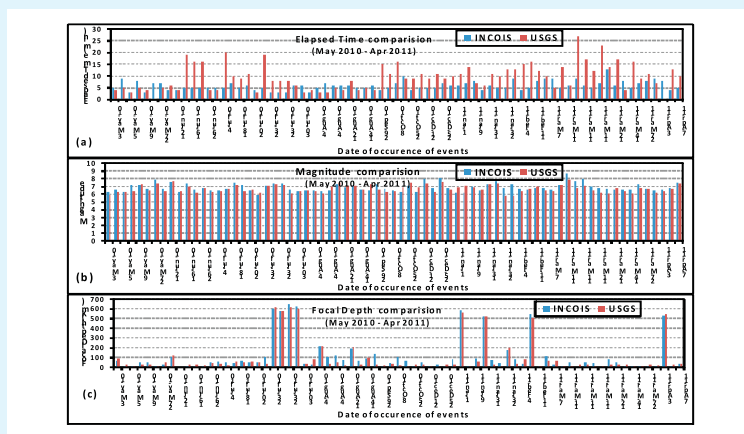


Figure: Comparison of earthquake parameters (a) elapsed time, (b) magnitude, and (c) focal depth of earthquakes of magnitude $M \geq 6.5$ recorded and computed by INCOIS during the period May 2010 to April 2011 with USGS.

INCOIS celebrates 13th foundation day

The 13th foundation day of INCOIS was celebrated on 3 February, 2012. Professor Ramakrishna Ramaswamy, Vice Chancellor of the Central University of Hyderabad delivered the foundation day lecture "Importance of Nonlinearity in the Physical World".

To commemorate the foundation day, school children and public were invited to visit INCOIS to raise their awareness about the institute and Earth Sciences. The students interacted with the scientists who demonstrated the projects and explained the diverse services undertaken at INCOIS.

To mark the anniversary of the institute, several sports/games/events were also organised for INCOIS staff members.



Professor Ramakrishna Ramaswamy being felicitated by Director, INCOIS



School Children at INCOIS auditorium

New Faces at INCOIS Family

INCOIS extended its manpower resources with the induction of nine new permanent scientists at C and B levels to execute the various mission projects.



Dr. Girish Kumar M. S.



Dr. Kunal Chakraborty



Dr. N. Srinivasa Rao



Dr. R. Hari Kumar



Dr. Arya Paul



S Siva Reddy



P L N Murty



Arun Nherakkol



SP Vighneshwar

Workshops / Seminars / Lectures / Events / Trainings and Meetings

Book Exhibition

The institute organized its annual book exhibition on 15 and 16 December, 2011. Many major publishers participated in this exhibition. Several books and reference documents recommended by the INCOIS scientists and staff were added to the library. This year also it proved to be a fruitful endeavour that helped in enhancing the library resources and collections.



INCOIS staff at book exhibition

Lectures

Dr. Balaguru Karthik, Atmospheric Sciences & Global Change Division, Fundamental & Computational Sciences Directorate, Pacific Northwest National Laboratory gave a special lecture on “Barrier Layers : Formation mechanism, impact on climate and hurricanes” on 14 February, 2012. The speaker dwelt on new ideas and approaches in the research on barrier layers.

Dr. Stephanie King and Dr. Jim Gower from Institute of Ocean Sciences, Canada visited INCOIS and delivered a well illustrated scientific lecture on the topic “Plankton Blooms and Sargassum” on 21 February, 2012.

Visits

Prof. U.R.Rao visits INCOIS

Prof UR Rao, Former Chairman, ISRO & Space Commission visited INCOIS on 22 December, 2011. He addressed the INCOIS staff and narrated the interesting encounters that he had as a scientist during his research and launch of various projects. Prof Rao opined that with quality research institutes, India would progress rapidly. He also congratulated INCOIS for its efforts in becoming an institute of relevance in ocean sciences.



Prof UR Rao addressing INCOIS staff

International Training Programme Organised by INCOIS

A training programme on “The Application of Ocean Colour Remote Sensing in Primary Productivity and Ecosystem Modelling” was conducted at INCOIS from 6 February to 25 February, 2012. The programme was organized in association with National Institute of Oceanography (Regional Centre, Visakhapatnam) and Centre for Studies on Bay of Bengal (CSBoB) of the Andhra University, Visakhapatnam.

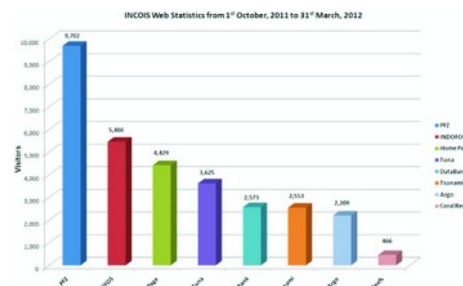
The programme was funded by Nippon Foundation (NF) – Partnership for Observation of the Global Oceans (POGO) Centre of Excellence in Observational Oceanography at Bermuda Institute of Ocean Sciences (BIOS). Eighteen participants from India and five from other Indian Ocean rim countries attended the program. The training included lecture sessions, laboratory practical, one day field trip, hands-on activities and mini project. The second half of the training comprised of field trip and analysis which was conducted at Visakhapatnam. Lectures were given by eminent scientists/academicians like Prof. Trevor Platt (PML), Dr. Shubha Satyendranath (PML), Dr. P.S. Swathi (C-MMACS), Dr. Mini Raman (SAC), Dr. V. V. S. S. Sarma (NIO).



A group photograph of participants of the training programme at INCOIS

Web Statistics

The INCOIS website is an active vehicle for disseminating the various advisories / information for its diverse services. The last six month saw a marked increase in the number of visitors / users who accessed the INCOIS website.



INCOIS website visitors for various services

Awards

- National Geoscience awards-2010 for “Disaster Management” was conferred on five scientists of INCOIS by Ministry of Mines, Government of India.

The recipients of prestigious award are Dr. Tummala Srinivasa Kumar, Shri B. V. Satyanarayana, Shri Ch. Patanjali Kumar, Ms. M. V. Sunanda and Shri B. Ajay Kumar.



Smt. Meira Kumar conferring National Geoscience awards - 2010 to INCOIS scientists

- Dr. Satya Prakash won the first prize at the Annual Scientific Hindi Seminar organized by Ministry of Earth Sciences at New Delhi.

News at a glance

- A Memorandum of Understanding (MoU) was signed with the Defence Research and Development Organisation (DRDO)- Defense Electronics Applications Laboratory(DEAL) for the development of Indian Automatic Identification System(IAIS) under project ‘Integrated Coastal Surveillance System(ICSS)’.
- Fourteen ARGO floats were deployed in the Indian Ocean from October 2011 to March 2012. Till march 2012, 254 Argo floats have been deployed by INCOIS.
- A wave rider buoy integrated with INSAT communication system to transmit data directly to INCOIS was deployed at Vizag on 11 November, 2011.

INCOIS Research Publications (October, 2011 to March, 2012)

- 1- Chopra,S.; Kumar, D.; Rastogi, B.K.; Choudhury, P.; Yadav, R.B.S.; (2012) Deterministic seismic scenario for Gujrat region, India, Natural Hazards 60(2), pp. 517-540. <http://dx.doi.org/10.1007/s11069-011-0027-y>.
- 2- Devi, E.U.; Kumar, P.; Kumar, M.R.; (2011), Imaging the Indian lithosphere beneath the Eastern Himalayan region , Geophysical Journal International, 187 (2), pp. 631-641. <http://dx.doi.org/10.1111/j.1365-246X.2011.05185>.
- 3- Gandhi, N.; Singh, A.; Prakash, S.; Ramesh, R.; Raman, M.; Sheshshayee, M.S.; Shetye, S. (2011), First direct measurements of N2 fixation during a Trichodesmium bloom in the eastern Arabian Sea, Global Biogeochemical Cycles, 25, GB4014, pp.1-10, <http://dx.doi.org/10.1029/2010GB003970>.
- 4- George, G.; Meenakumari,B.; Raman, M.; Kumar T.S.; Vethamony,P; Babu, M.T.; Verlecar, X. (2012), Remotely Sensed Chlorophyll: A Putative Trophic Link for Explaining Variability in Indian Oil Sardine Stocks, Journal of Coastal Research, pp.105-113. <http://dx.doi.org/10.2112/JCOASTRES-D-10-00070.1>.
- 5- Hamza V.; Harikumar, R.; Vishnu, R.; Sasi Kumar, V.; Sampath, S.; Das, S. M.; Mohan Kumar, G. (2011), Observational study of cloud base height and its frequency over a tropical station, Thiruvananthapuram using Ceilometer, International Journal of Remote Sensing, 32(23), pp. 8505-8518. <http://dx.doi.org/10.1080/01431161.2010.542199>.
- 6- Harikumar, R.; Sampath, S.; Sasi Kumar, V.(2012) Altitudinal and temporal evolution of raindrop size distribution observed over a tropical station using a K-band radar, International Journal of Remote Sensing 33(10), pp. 3286-3300. <http://dx.doi.org/10.1080/01431161.2010.549853>.
- 7- Kumar, T.S.; Mahendra, R.S.; Nayak, S.; Radhakrishnan, K.; Sahu, K.C. (2012), Identification of hot spots and well managed areas of Pichavaram mangrove using Landsat TM and Resourcesat—1 LISS IV: an example of coastal resource conservation along Tamil Nadu Coast, India, Journal of Coastal Conservation, 16(1), pp. 1-12. <http://dx.doi.org/10.1007/s11852-011-0162-3>.

- 8- Nagamani, P.V.; Ali, M.M.; Goni, Gustavo J.; Pedro, DiNezio N.; Pezzullo, John C.; Udaya Bhaskar, TVS; Gopalakrishna, V.V; Kurian, N. (2012) Validation of satellite-derived tropical cyclone heat potential with in situ observations in the North Indian Ocean, Remote Sensing Letters, 3(7), pp. 615-620. <http://dx.doi.org/10.1080/01431161.2011.640959>.
- 9- Neetu, S., Suresh, I.; Shankar, R., Nagarajan, B., Sharma, R., Shenoi, S.S.C., Unnikrishnan, A.S., Sundar, D. (2011), Trapped waves of the 27 November 1945 Makran tsunami: observations and numerical modeling, Natural Hazards, 59(3), pp. 1609-1618. <http://dx.doi.org/10.1007/s11069-011-9854-0>.
- 10- Singh, A.P.; Murty, T.S.; Rastogi, B.K.; Yadav, R.B.S. (2012) Earthquake Generated Tsunami in the Indian Ocean and Probable Vulnerability Assessment for the East Coast of India, Marine Geodesy, 35(1), pp. 49-65. <http://dx.doi.org/10.1080/01490419.2011.637849>.
- 11- Udaya Bhaskar, T.V.S.; Swain, D.; Ravichandran, M. (2012) Determination of Sonic Layer Depth from XBT Profiles and Climatological Salinities in the Arabian Sea, International Journal of Earth Sciences and Engineering, 5(1), pp. 36-44.

PORSEC -2012: 'Ocean for Well Being of All'

INCOIS will be organizing the eleventh biennial conference of PORSEC in Kochi, Kerala, India during 05-09 Nov 2012. The theme for the International conference is 'Ocean Remote Sensing for Well-Being of All'

More than 500 attendees are expected to participate in PORSEC 2012 from various segments like researchers, students, and representatives of industry dealing with the instrumentation and technology in remote sensing. An exhibition is also planned during the conference to provide a forum to show case the emerging technologies in the field of earth system remote sensing.

For latest updates on the event, please visit www.porsec2012.incois.gov.in



Members

- | | | | |
|------------------------|-------------------------|---------------------|------------------------|
| 1. Dr. Francis P.A. | 2. Mr. Sidhartha Sahoo | 3. Ms. K.G. Sandhya | 4. Mr. K. Annapurnaiah |
| 5. Dr. N. Srinivas Rao | 6. Dr. M.S. Girishkumar | 7. Dr. RBS Yadav | |

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