

THEMATIC SESSION B2: CYCLONE AND SEVERE LOCAL STORM

Concept Note

The extreme weather events like cyclone and severe local storm are most devastating and deadly weather events all over the world. The tropical cyclone can be defined as a low-pressure area with strong winds rotating anti-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. The nomenclature of the cyclone is region specific. It is referred to as tropical cyclone, hurricane and typhoon over tropic, Atlantic and Pacific region respectively. Conceived over warm tropical oceans and nurtured by the converging moisture, the mature tropical cyclones are associated with violent wind, torrential rainfall and the worst of all, the cumulative effect of storm surges and the astronomical tides are the three major elements of tropical cyclone disaster. The severity of cyclonic hazard can be gauged from some of the major calamitous cyclones that include the cyclones of 1876 and 1970 in Bangladesh which together killed more than 5 lakh people, Orissa Super Cyclone of 1999, the very severe cyclonic storm Nargis of 2008 etc.

The North Indian seas (Bay of Bengal and Arabian Sea) have the least number of cyclones in a year than any other part of the world. But, their impact has been much more devastating in this region due to a combination of factors such as coastal topography, storm surge, coastal population density, science and technological advancement, infrastructural development, social and economic conditions etc. Though early warning systems for cyclones have been in operation for centuries now, recent developments suggest that the cyclone hazard can be better dealt with the concept of cyclone risk management which in addition to an effective early warning integrates various other mitigation and preparedness measures.

At the same time, severe local storm like thunderstorm / tornado is a mesoscale system of space scale of a few kilometers and time scale of some minutes to few hours. Most of the part of tropics observed thunderstorms and occasionally tornadoes, but the severe thunderstorms formed over eastern and north-eastern part of India in the pre-

monsoon seasons which are locally known as “Kal-baishakhi” or “Nor’westers”. Strong heating of landmass during mid-day initiates convection, which moves from northwest and gets intensified by mixing with warm moist air mass from Head Bay of Bengal. It produces heavy rain, lightning, thunder, hail-storms, dust-storms, strong surface wind with squalls and down-bursts. By the same season, the northwest India also gets convective dust-storms locally called as “Andhi. These severe thunderstorms have significant socio-economic impact which leads to loss of life, property and standing crops in the eastern and northeastern parts of the country. An accurate location specific and timely prediction is required to disseminate adequate warning to various sectors.

The thematic session on “Cyclone and Severe Local Storm” in this respect will provide a platform for exchange of ideas, findings of scientific research and disaster management experience of those working on these extreme weather events. The session is expected to describe all the essential components such as research and development on various aspects of cyclone and severe local storm, involvement of disaster managers in managing risk management and policy makers.

Session Focus: The thematic session will focus on following aspects of cyclone and local storm risk management

- Genesis and evolution of cyclonic system
- Cyclone track and intensity prediction
- Storm surge prediction
- Severe local storm prediction
- Cyclone warning system
- Cyclone risk mitigation and preparedness

Session Objectives: The thematic session will have following broad objectives:

- To discuss and review major findings of studies related to cyclones, local severe storms and associated extreme events
- To exchange ideas and findings among various disciplines and sub-disciplines related to cyclone studies
- To bridge knowledge gaps among academic and scientific communities, disaster management practitioners and policy makers

Session Plan: The thematic session entitled “cyclone and severe local storms” is chaired by Dr. U. C. Mohanty, Professor, Centre for Atmospheric Science, Indian Institute of Technology, Delhi with the facilitators Mr. Biswanath Dash (NIDM) and Ms. Sujata Pattanayak (CAS, IIT Delhi). This thematic session will be organized through five sub-sessions. There will be a total of twenty-five paper presentations including lead talks to be delivered in various sub-sessions by Prof. U C Mohanty, Prof. S. K. Dube, and Centre for Atmospheric Science, Indian Institute of Technology, Delhi, Dr. H. R. Hatwar, India Meteorological Department, Pune, Dr. Kamal Lochan Mishra, Orissa State Disaster Mitigation Authority and others.

Second India Disaster Management Congress

4-6 November 2009, New Delhi

Chairperson: Prof. U. C. Mohanty

Facilitators: Mr. Biswanath Dash

Ms. Sujata Pattanayak

Scientific Programme

Thematic Cluster – B2: Hydro Meteorological Disasters
Thematic Session : Cyclone & Severe Local Storm

Date: Wednesday the 4th November, 2009

Venue: Hall-2, 1st Floor, Vigyan Bhavan, New Delhi

Time Slot	Session Details
1200 - 0130	<u>Session – I</u> Chair: AVM (Dr.) Ajit Tyagi, DGM, IMD Rapporteurs: Mr. Kiran Prasad, Mr. Murali N. Rao LT-1 : Prof. U. C. Mohanty CS-1 : Dr. P. C. Joshi CS-2 : Dr. P Goswami CS-3 : Dr. M. M. Ali CS-4 : Dr. S. S. V. S. Ramakrishna CS-5 : Ms. Sujata Pattanayak
0130 - 0215	LUNCH
0215 - 0345	<u>Session – II</u> Chair: Dr. (Mrs.) Swati Basu, Advisor, MoES Rapporteurs: Ms. Sujata Pattanayak, Mr. Nachiketa Acharya LT-1 : Dr. H. R. Hatwar CS-1 : Dr. M. Mohapatra CS-2 : Prof. Sutapa Chaudhuri CS-3 : Dr. Manabottam Mandal CS-4 : Mr. O. Krishna Kishore CS-5 : Mr. Sourav Taraphdar
0345 – 0400	Tea Break

<p>0400 - 0530</p>	<p><u>Session – III</u> Chair: Mr. D. R. Sikka, Retd. Director, IITM Rapporteurs: Mr. Krishna K. Osuri, Mr. Kishore T. Kumar</p> <p>LT-1 : Prof. S. K. Dube CS-1 : Prof A. D. Rao CS-2 : Dr. A. N. V. Satyanarayana CS-3 : Ms. Litta A. J. CS-4 : Mr. Ashish Routray</p>
<p>0530 - 0545</p>	<p>Tea Break</p>
<p>0545 - 0700</p>	<p><u>Session – IV</u> Chair: Mr. A. R. Subbiah, Director, RIMES, ADPC Co-chair: Mr. N. Ramraj, RIMES, ADPC Rapporteurs: Mr. Ashish Routray, Mr. Biswanath Dash</p> <p>LT-1 : Dr. Kamal Lochan Mishra CS-1 : Dr. Debasis Lohar CS-2 : Ms. Saudamini Das CS-3 : Dr. Mohammad Sahid Ullah CS-4 : Mr. Anil Kumar</p>