

# 7

## Collaborative Programmes and Projects

*Multi-institutional, national and international collaborative research programmes have been the core of C-MMACS overall research. C-MMACS to-day has active collaboration with a number of national and international institutions.*

### **Highlights:**

*The year 2005-06 had been an active one in terms of multi-institutional collaborative programmes. The long-awaited MoU between CSIR and CNRS, France was finally signed on 28-09-2004 between Dr Mashelkar, DG, CSIR and Bernard Larroutou, DG, CNRS, France.*

*A new collaborative research programme under the Global Opportunity Fund, UK was launched in the area of Carbon Cycle Modelling. At national level, C-MMACS is now a major participant in a national programme on Multi-Institutional Extended Range Monsoon Prediction.*

### **Inside**

- • *Sponsored and Collaborative Projects*
- • *Joint Project with Laboratories*
- • *In-house Project*
- • *CSIR Network Project*

## 7.1 Sponsored and Collaborative Projects

*Scale Interactions in Air, Land, Sea Coupled Environment & North-east Monsoon*, USIF ONR - P Goswami, S Himesh.

*Evaluation and Validation of Systems of Assimilation*, IFCPAR - P Goswami, G K Patra.

*Modelling of Atmosphere-Hydrosphere-Biosphere Interaction*, ISRO - P Goswami, S Himesh.

*Impact of GCM-generated Dynamical Boundary Fields on Meso-scale Simulations*, SAC/DOS - P Goswami, S Himesh, A Mandal.

*Development of a Commercializable Fog Forecast Platform*, CSIR - P Goswami.

*High-Resolution Regional Atmospheric Analysis (HiRRAA) through Meso-scale Observation Network for Urban System (MONUS)*, CSIR - P Goswami, G K Patra, K V Ramesh.

*Active Tectonics in the Shillong Plateau using Global Positioning System (GPS) based Geodesy*, Department of Science and Technology (India) - Malay Mukul, Sridevi Jade.

*Active Tectonics of the Darjeeling-Sikkim Himalayas using Global Positioning System (GPS) based Geodesy*, Department of Science and Technology (India) - A P Krishna, K Kumar, A Matin, Malay Mukul, Sridevi Jade.

*Active Tectonics in the Kutch, Cambay and Narmada Rift Systems using Global Positioning System (GPS) Geodesy*, Department of Science and Technology (India) - K. C. Tiwari, A. Joshi, Malay Mukul, Sridevi Jade.

*Dynamics of Continental Collision and Rheology of Lower Crust based on GPS studies in Indian Sub-Continent*, Department of Science and Technology (India) - Sridevi Jade, V K Gaur, Malay Mukul.

*Geometry, Kinematics and Deformation Mechanisms in the Gish Transverse Zone in the Darjiling-Sikkim Himalaya*, India, Department of Science and Technology (India) - Malay Mukul, Sridevi Jade, V K Gaur, A. P. Krishna, A. Matin.

*Assimilation of In-situ and Satellite Altimeter Data into an OGCM*, Department of Ocean Development - P S Swathi, Kalyani Devasena.

*Modelling Biogeochemical Cycles in Bay of Bengal*, Department of Ocean Development - M K Sharada, P S Swathi, Kalyani Devasena, K S Yajnik.

*Development of Indian Ocean Community Model*, Department of Ocean Development - P S Swathi, C Kalyani Devasena.

*Carbon Source and Sinks in Asia and the Indian Ocean*, GOF, British High Commission- P S Swathi, M K Sharada, N K Indira, K S Yajnik, R P Thangavelu.

*Empirical Modelling and relationship of the primary productivity with other ocean parameters in the Indian Ocean*, N K Indira, P S Swathi, M K Sharada.

*Microzonation Investigations and Study of Building Parameters in the Anjar (Kutch) area using Microtremor Recordings*, Department of Science and Technology (India) - Imtiaz A Parvez.

*Site effects in Ahmedabad based on Array Observations of Microtremors*, Department of Science and Technology (India) - Imtiaz A Parvez, Sridevi Jade.

*Thermal Structure and Mixed Layer Variations of the Indian Ocean in an OGCM and Intercomparison with Institution and Satellite Observations*, Department of Science and Technology (India), C Kalyani Devasena, P S Swathi.

*A Kinematic Study of Suspected Major Active Shear/fault Zones in the West Southern Peninsular Shield of India: Implication on Seismogenesis*, Department of Science and Technology (India) - M R Radhakrishna, Sridevi Jade.

*GPS re-measurements to quantify deformation in Uttaranchal and Ladakh Himalayas*, Sridevi Jade, M S M Vijayan

*Realistic site specific hazard assessment for mega-cities utilizing modeling technique*, Imtiaz A Parvez.

*Establishment of Continuous recording GPS systems at four sites in North Eastern India*. Department of Science and Technology (India) - Sridevi Jade, Malay Mukul, V K Gaur.

*Measurement of Accurate Coordinates for ACMI, Gwalior*, Airforce (ACMI), Gwalior, Air HQ - Sridevi Jade, M B Ananda.

*Procurement of GPS Receiver Systems for DST National Network*, Department of Science and Technology - Sridevi Jade.

*GPS Measurements in the Andaman and Nicobar Islands*, Department of Science and Technology - Sridevi Jade, M B Ananda, P Dileep Kumar.

*Practical Equivalent Continuum Modeling of Jointed rocks and Analysis of Large Scale excavations in rock mass*, CSIR, EMR Division- T G Sitharam, Sridevi Jade.

*Inertial Effects on Forced particles in Unsteady Flow at Low Reynolds Numbers*, Department of Science and Technology - T R Ramamohan.

*Analysis and Detection of a new class of Denial-of-Service attacks on the Internet*, Ministry of Information Technology, Govt. of India - V Anil Kumar, G K Patra, R P Thangvelu

## 8.2 Joint Projects with Laboratories

*Director and Concentration Profiles in 2-component Liquid Crystals*, RRI, Bangalore - N V Madhusudana, Anand Kumar.

*Carbon Fluxes in India and Central Asia*, IAP, Bangalore- N K Indira, P S Swathi, V K Gaur.

*Variations in Deformation and Kinematics along and across the Himalayan Arc through Time: Insights from the Darjeeling-Sikkim-Tibet Transect*, University of Rhodes, USA-Gautam Mitra, Malay Mukul.

## 8.3 In house Project

*Complex Fluid Flow Modelling and Simulation* - Anand Kumar.

*Mesoscale Modelling for Monsoon Related Predictions* - P Goswami

*Coupled Atmospheric - Hydrological Model to forecast Spatio-temporal variability of Water Resource* - P Goswami, S Himesh.

*Long-range High Resolution Forecast of Monsoon Rainfall*, P Goswami, G K Patra, K C Gauda.

*Site Specific Ground Motion Modelling and Mocozonation Studies in Indian Megacities-* Imtiaz A Parvez, Sridevi Jade.

*GPS Measurements to Determine Time Evolving Surface Strain Field in the Bhuj Region* - Sridevi Jade, Malay Mukul.

*Maintaining and Monitoring of Continuously Operating CMMACS GPS station located in the IISC campus* - Sridevi Jade, R P Thengavelu, M S M Vijayan.

*The Dynamics and Rheology of Periodically Forced Particles in Simple Shear Flow at Low to Moderate Reynolds Numbers* - T R Ramamohan.

*Network security in an inter-networked environment* - R P Thangavelu, V Anil Kumar, G K Patra.

## 8.4 CSIR Network Project

*Sub -Task 1: Computational Mechanics for Modelling, Analysis and Design of High-performance Structures, Materials and Process Applications*, Participating Labs: C-MMACS, SERC-Chennai, RRL-Bhopal, RRL-Trivandrum, NML-Jamshedpur-Nagesh Iyer.

*Sub -Task 1: Multi-scale Modelling Platform for Environmental Forecasting and Management*, Participating Labs : C-MMACS, NEERI-Nagpur, NIO-Goa, RRL-Bhubaneshpur, CRRRI-Roorkee, CBRI-New Delhi-P Goswami.