

Highlights

- *Climatologically and interannual simulations of the carbon, nitrogen and oxygen cycles in the ocean especially in relation to the presence of oxygen minimum zones.*
- *Quantification of denitrification in the Arabian Sea.*
- *Simulation of iron fertilisation for oceanic sequestration of carbon.*
- *WMO-standard measurements of greenhouse gases and analysis.*
- *Setting up a primary standard GHG station at Hosakote.*
- *Fine resolution modelling of GHG transport.*
- *MoU signed between CSIR-4PI and IIA, Bangalore for the following three research components of CSIR-4PI.*
- *Development of climate & weather informatics applications: Swastha Bharat, Samarth Bharat, Renewable energy*
- *Development of predictive assessment model for Vector Borne Diseases*
- *Modelling of high impact weather events*
- *Developed a methodology to assess the skill of high resolution rainfall forecast for specific agricultural applications*
- *Fundamental contribution to the understanding of the role vertical shear of wind on daily variability of monsoon rainfall*
- *14th Successful year of long-range forecasting of monsoon*
- *High resolution regional dynamical downscaling of climate for multi-sector applications*
- *Reliable climate projections for estimating projected changes in Vector Borne Diseases*
- *Estimation of economically viable wind-generated electricity potential*
- *The modified Homotopy Analysis Method (HAM) to analyse nonlinear problems.*
- *Higher-order stress gradient theory based on bi-Helmholtz operator for analysing nanostructure using nonlocal continuum models.*
- *Continuation of Ananta Supercomputer as the main lifeline of computational scientists of CSIR*
- *Establishment of a Cyber Security Research and Observation (CySeRO) platform.*
- *Characterization of Internet Background Radiation in terms of TCP port-wise distribution of malicious connection attempts based on data collected through CySeRO program.*
- *Improvement to Tree parity Machine based cryptographic system using Link weights*
- *Prediction of Indian rainfall during the summer monsoon season on the basis of links with equatorial Pacific and Indian Ocean climate indices*
- *NCEP CFSv2 Retrospective Runs and Prediction of 2016 Indian Summer Monsoon*
- *Precipitation-aerosol relationship over the Indian region during drought and excess summer monsoon years*
- *Climate Change Projections with High Confidence using Multi-physics Ensemble Simulations*
- *Ultra-high Resolution Regional Climate Simulation for Lakshadweep Islands, through Dynamical Downscaling*

- *Diagnostic Study of NCEP CFSv2 Retrospective Runs Performed at CSIR-4PI*
- *Aerosol-Cloud Relationship and Aerosol Indirect Effect on Clouds*
- *An Algorithm for TRMM PR Spectral Latent Heating Retrieval*
- *Multi-scale Modelling of Lithosphere-Atmosphere-Ionospheric Coupling: A new initiative*
- *Perturbation in the equatorial Ionosphere and its mode of propagation triggered by 11 April 2012 Indian Ocean earthquake*
- *Spectral analysis of decade long geodetic daily position time series and its noise characteristics*
- *Multi-scale simulation framework for short-term crustal deformation processes modelling: Benchmarking of a strike-slip problem*
- *Indo-Burman Ranges: Myanmar sliver deformation and the locked sinking Indian lithosphere*
- *Blind thrust faulting during 2015 Nepal earthquake: Insights from finer scale Slip distribution models*
- *Source scaling and centroid half duration estimates for Andaman-Nicobar region*
- *First crustal structure model and seismicity beneath Kashmir Himalayas.*
- *First seismic risk model for Gujarat region based on seismic hazard and population density.*
- *Probabilistic Earthquake Hazard in Peninsular India*
- *PhD entitled “A theoretical study of wave propagation in heterogeneous and isotropic/anisotropic media” awarded under AcSIR.*
- *Preliminary estimate of Euler pole of rotation of Indian tectonic plate*
- *GPS-PWV and GPS-TEC studies specific to Indian subcontinent*
- *GNSS observation network in Kashmir Himalaya*
- *PhD entitled “Estimation of Precipitable Water Vapor and Crustal deformation in Northeast India” awarded jointly with Tezpur university.*