



## CSIR-4PI

# Annual Report 2015-2016

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*Foreword*

*Highlights*

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**Front cover page:** (clockwise from top left) Carbon Nanotube reinforced Polymer Nanocomposite, Precipitable Water Vapor (PWV) derived from GPS and MODIS data at Hanle, high altitude site (~4500m ) in Trans-Himalaya with observed rainfall, Seasonal monsoon forecast for 2016 (green bars) along with National Monsoon Mission Model NCEP CFSv2 normal (red) and IMD normal (yellow). CFSv2 Predicted above normal monsoon for 2016, the simulated 3-day accumulated (29<sup>th</sup> Nov 00 hr to 2<sup>nd</sup> Dec 00 hr) rain (mm) over Chennai, TRMM rain is shown for comparison in the right panel. Interannual variation of Oxygen ( $\text{mMol/m}^3$ ) with respect to depth during 1996 to 1999 and 2006 to 2008,

**Inside Back cover:** (clockwise from top) Horizontal grid with a zoom over Asia. Locations of GHG stations are also shown, Continuous GNSS station with MET Sensor at Gulmarg, Kashmir, Radial and transverse receiver functions with increasing ray back-azimuths for Anantnag station, Kashmir

**Back cover:** (clockwise from top) Cyber Security Research and Observation Test-bed at CSIR-4PI

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