

Atmospheric CO₂ and other greenhouse gases monitoring in India

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India has one of the largest and fastest growing economies in South Asia and is emerging as a major contributor to CO₂ emissions among developing nations. However, there has been relatively little monitoring of atmospheric CO₂ over India to date. The Carbon Dioxide Information Analysis Center (CDIAC), USA, estimates the total fossil-fuel CO₂ emissions from India as 189 TgC in 1990, 324 TgC in 2000, 385 TgC in 2005 and 508 TgC in 2009, and the annual rate of increase as ~7% per year during 2005-2009. Some of these emissions may be compensated by vegetation uptake. According to a report published in May 2010 by the Ministry of Environment and Forest (MoEF), Govt of India, the total greenhouse gases emissions in India have grown from 1252 million tons in 1994 to 1905 million tons in 2007 at a compounded annual growth rate of 3.3%. Between 1994 and 2007, some of the sectors indicate significant growth in Greenhouse gases (GHGs) emissions such as cement production (6.0%), electricity generation (5.6%), and transport (4.5%). In order to improve our understanding in this field, we have already set up :i) an ambient CO₂ and other GHGs monitoring site at the surface since year 2009 ii) air sample analysis lab which uses WMO/GAW calibration standards iii) cruise and airborne campaigns and iv) CO₂ transport model as well as lagrangian particle dispersion model etc. The present study is an attempt to analyze available CO₂ and other GHGs observation and model simulations over India which may help to improve the flux estimates and GHGs budget over this region.