

ABSTRACT

The spatio-temporal distribution of BC from satellite (CAI-2) retrieval is evaluated and validated with near surface BC mass concentrations measured across a network of aerosol observatories (ARFINET) over India and the findings are extended to understand the global BC features.

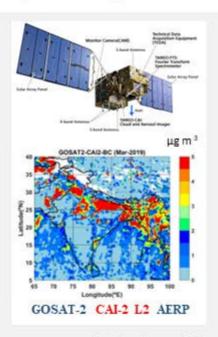
The overall regional distribution of BC is very well represented by the satellite retrieval, with close agreement with the ground-based measurements.

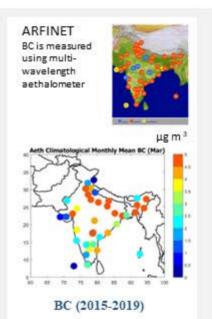
In terms of global spatiotemporal variability, higher BC tends to occur mostly in areas where biomass burning is intense.

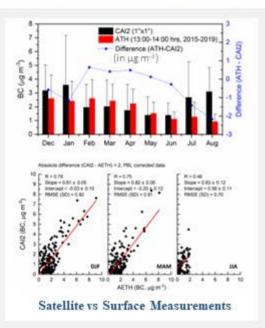
Satellite (GOSAT-2 CAI-2) and surface (ARFINET) observations of Aerosol Black Carbon over India: Regional and Global Inferences

Mukunda M. Gogoi^{1*}, S. Suresh Babu¹, Ryoichi Imasu², Makiko Hashimoto³

¹Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram, India ²Atmospheric and Ocean Research Institute, The University of Tokyo, Japan ³Space Technology Directorate I, Earth observation research center, Japanese Aerospace Exploration Agency, Japan







RMSE < 2.0 & absolute difference < 2 μg m⁻³ during winter (R = 0.79) and pre-monsoon (R = 0.74) Over the hotspot regions of India, the satellite retrievals show soot volume fraction of ~ 5%, columnar single scattering albedo of ~ 0.8 and BC column optical depth of ~ 0.1