



*Supplement of*

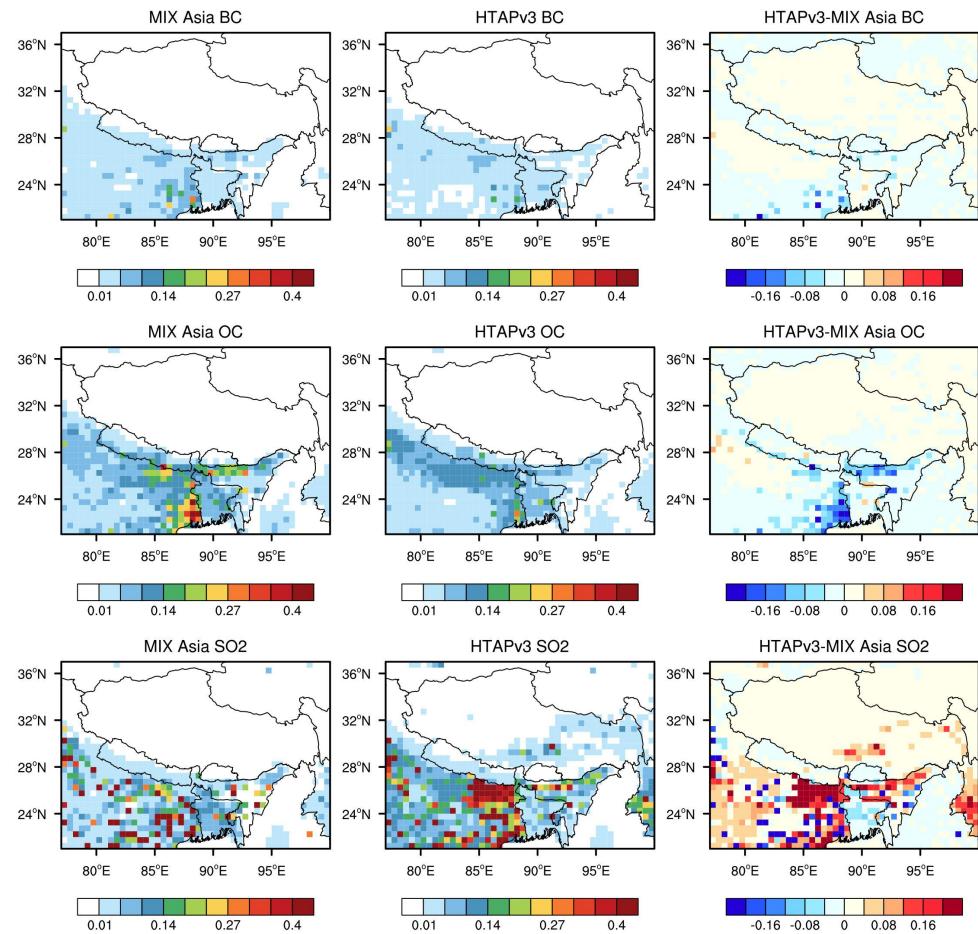
## **Assessing the assimilation of Himawari-8 observations on aerosol forecasts and radiative effects during pollution transport from South Asia to the Tibetan Plateau**

**Min Zhao et al.**

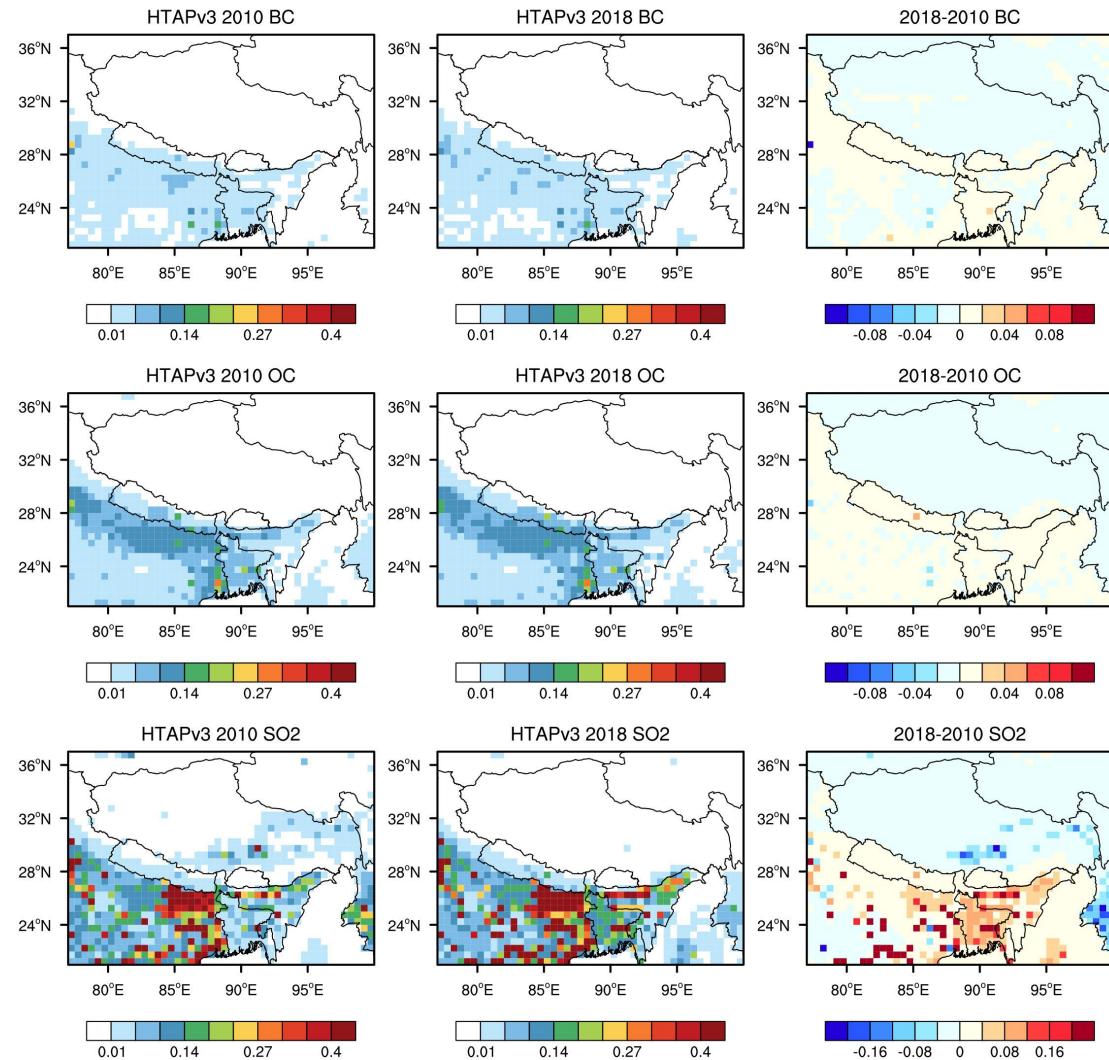
*Correspondence to:* Tie Dai (daitie@mail.iap.ac.cn)

The copyright of individual parts of the supplement might differ from the article licence.

**Figure S1.** Comparison of emissions of BC, OC, and SO<sub>2</sub> (unit: g m<sup>-2</sup> month<sup>-1</sup>) in the MIX Asian and HTAPv3 emission inventories for March 2010. HTAPv3, Hemispheric Transport of Air Pollution version 3.



**Figure S2.** Comparison of emissions of BC, OC, and SO<sub>2</sub> (unit: g m<sup>-2</sup> month<sup>-1</sup>) in the HTAPv3 emission inventories for March 2010 and March 2018.



**Table S1: The summary of the abbreviations and their corresponding full names in this study.**

Abbreviation	Full name	Abbreviation	Full name
SA	South Asia	GOCART	the Goddard Chemical Aerosol Radiation Transport
TP	Tibetan Plateau	NCEP	the National Centers for Environmental Prediction
DA	data assimilation	AHI	Advanced Himawari Imager
AOT	aerosol optical thickness	AE	Ångström exponent
WRF-Chem	Weather Research and Forecasting-Chemistry	JAXA	the Japan Aerospace Exploration Agency
MODIS	Moderate Resolution Imaging Spectroradiometer	DT	the Dark Target
AERONET	AErosol RObotic NETwork	DB	the Deep Blue
BC	black carbon	SYN	synoptic
GOES-8	Goddard Earth Observing System-8	BIAS	mean bias
GOCI	Geostationary Ocean Color Imager	RMSE	root-mean-square error
CERES	Clouds and the Earth's Radiant Energy System	CORR	correlation coefficient
LETKF	local ensemble transform Kalman filter	PDFs	the probability distribution functions
MOSAIC	Model for Simulating Aerosol Interactions and Chemistry	DSR <sub>c</sub>	downward solar radiation under clear-sky
RRTMG	Rapid Radiative Transfer Model	DSR	downward radiation flux at the surface at the all-sky
OC	Organic Carbon	PBLH	planetary boundary layer height
PM <sub>2.5</sub>	Particulate matter with an aerodynamic equivalent diameter of less than or equal to 2.5 micrometers in ambient air	T2	2-m temperature
PM <sub>10</sub>	Particulate matter with an aerodynamic equivalent diameter of less than or equal to 10 micrometers in	RH2	2-m relative humidity

---

ambient air			
NMVOC	non-methane volatile organic compounds	$q$	water vapor mixing ratio
FINN	the Fire INventory from NCAR	$T$	temperature
MEGAN	the Model of Emissions of Gasses and Aerosols from Nature		

---