SUPPLEMENTARY DATA

Table S1: The states of India and the codes given in the figure (top panel).

State Name	Code
Andhra Pradesh	AP
Arunachal Pradesh	AR
Assam	AS
Bihar	BR
Chhattisgarh	CT
Delhi	DL
Goa	GA
Gujarat	GJ
Haryana	HR
Himachal Pradesh	HP
Jammu and Kashmir	JK
Jharkhand	JH
Karnataka	KA
Kerala	KL
Madhya Pradesh	MP
Maharashtra	MH
Manipur	MN
Meghalaya	MG
Mizoram	MZ
Nagaland	NL
Odisha	OR
Punjab	PB
Rajasthan	RJ
Sikkim	SK
Tamil Nadu	TN
Telangana	TS
Tripura	TR
Uttar Pradesh	UP
Uttarakhand	UT
West Bengal	WB

Table S2: Results of one-way ANOVA between considered air pollution and weather parameters such as black carbon (BC), temperature (T), precipitation (P), aerosol optical depth (AOD) and incoming solar radiation (here with ultraviolet radiation; UV) during lockdown period over India.

BC - T	**Degree of Freedom**	**Sum of Square**	**Mean Square**	**F-Value**	**P-Value**
T	1	179.82	179.83	4222	< 0.05
Residual	1462	62.67	0.04		
AOD - T					
T	1	0.004	0.0044	1.989	0.16
Residual	1462	3.201	0.0023		
AOD - P					
P	1	0.006	0.0063	2.868	0.09
Residual	1462	3.199	0.0023		
AOD - UV					
UV	1	0.0827	0.083	38.72	< 0.05
Residual	1462	3.12	0.002		
P - T					
T	1	0.061	0.062	14.51	< 0.05
Residual	1462	6.175	0.004		

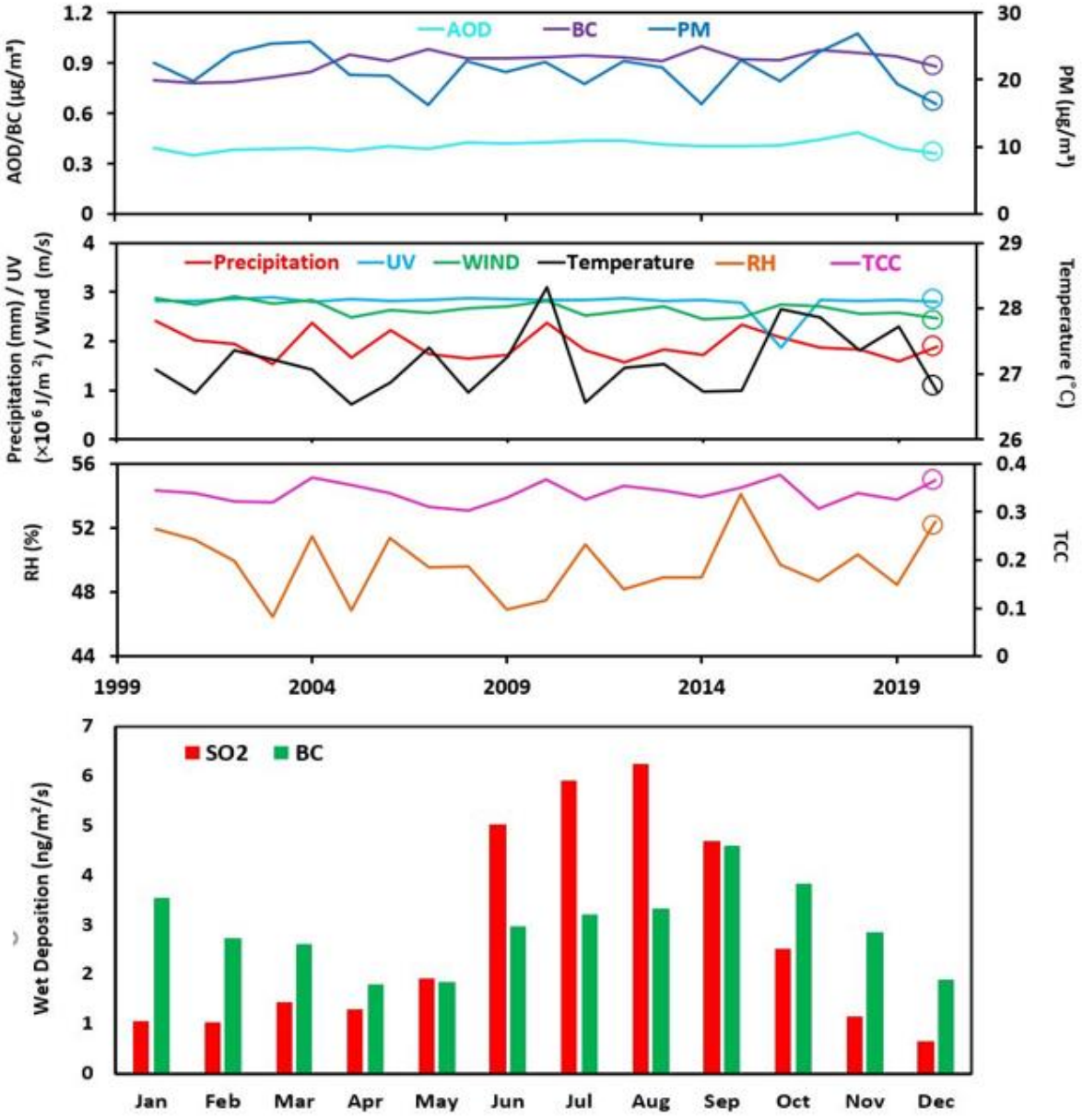

Figure S1: Temporal evolution of AOD, BC, Dust ($PM_{2.5}$), precipitation, UV, winds, temperature, RH and TCC during the COVID-19 lockdown (LD) over India from 2000 to 2020. Circle marks the COVID-19 lockdown period. Bottom panel represents the wet deposition of SO_2 and BC.

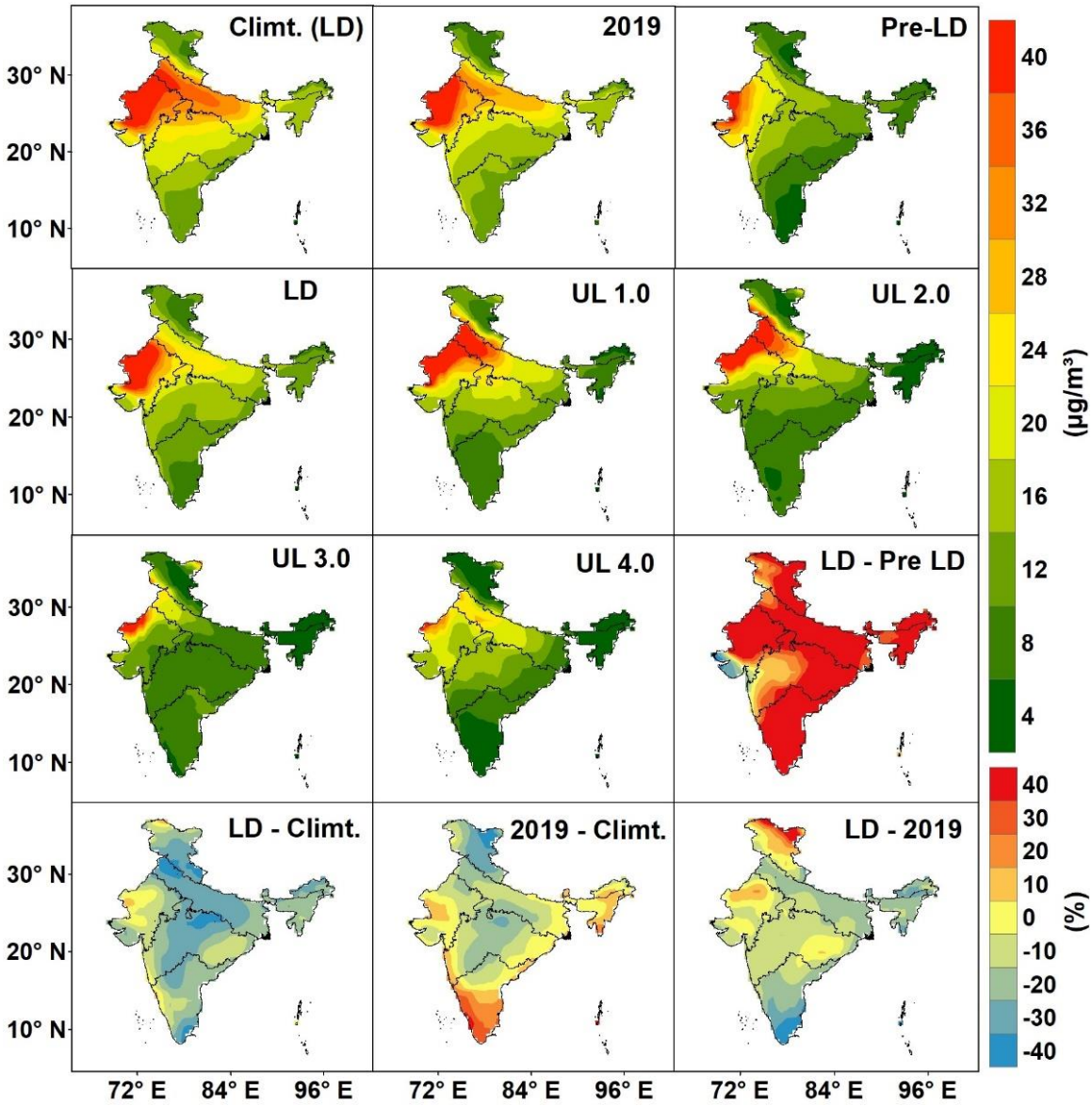

Figure S2: The average dust distribution over India during different periods: climatology of past 20 years corresponding to the lockdown period of 2020 (2000–2020, Climt. LD), 2019, pre-lockdown (pre-LD), lockdown (LD), and Unlock (UL 1.0, 2.0, 3.0 and 4.0) periods. The difference between dust concentration during lockdown and pre-lockdown (LD – Pre LD), climatology (LD – Climt.) and 2019 (LD – 2019), and the difference in dust concentration between 2019 and climatology of the past 20 years (2019 – Climt).

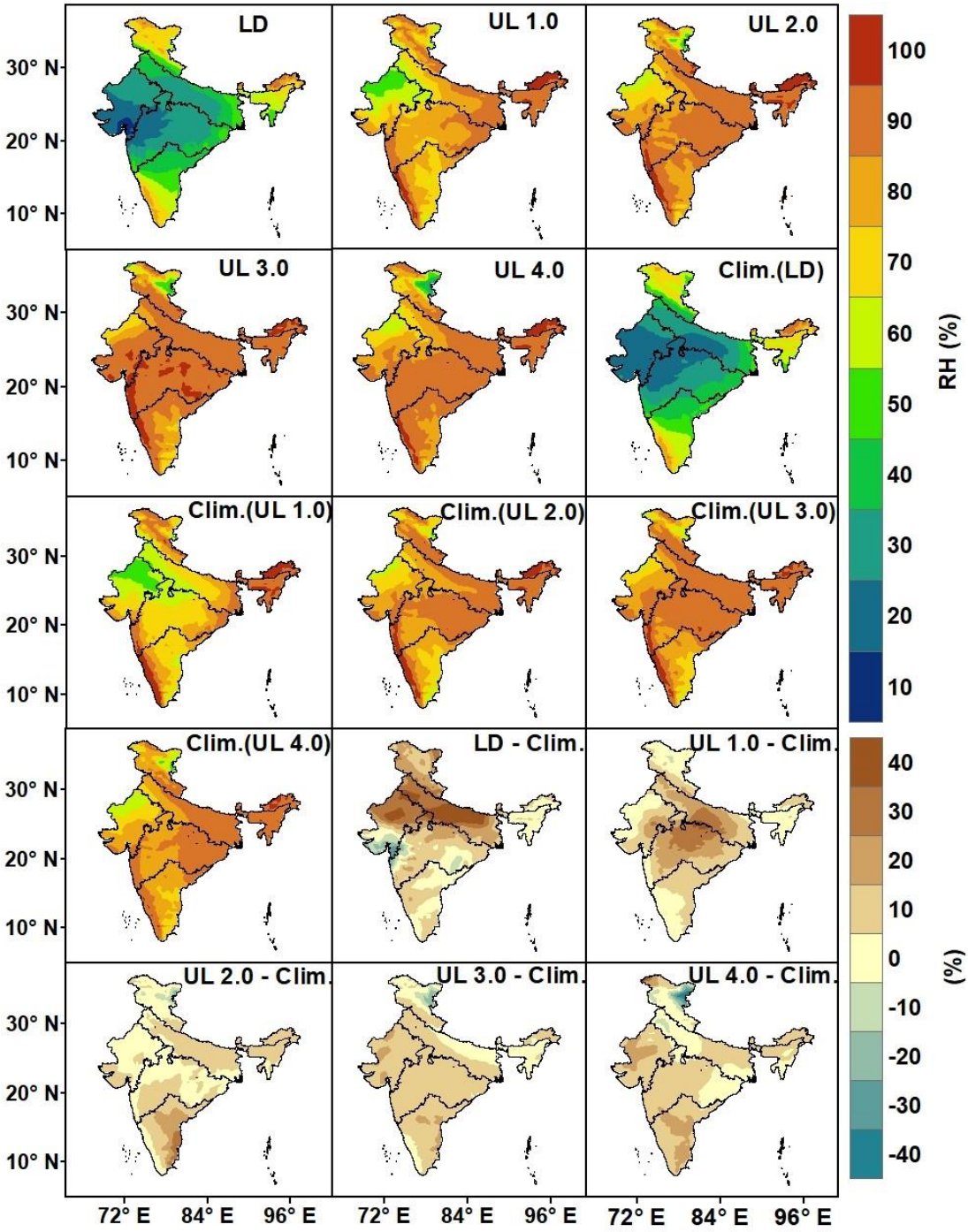

Figure S3: The average relative humidity (RH) distribution in India during different periods: lockdown (LD), and Unlock (UL 1.0, 2.0, 3.0 and 4.0), and climatology of past 30 years corresponding to the Unlock periods of 2020 [1990–2020, i.e. Clim. (UL 1.0)] periods. The difference in RH between lockdown and climatology (LD – Clim.) and Unlock periods (e.g. UL 1.0 – Clim.).

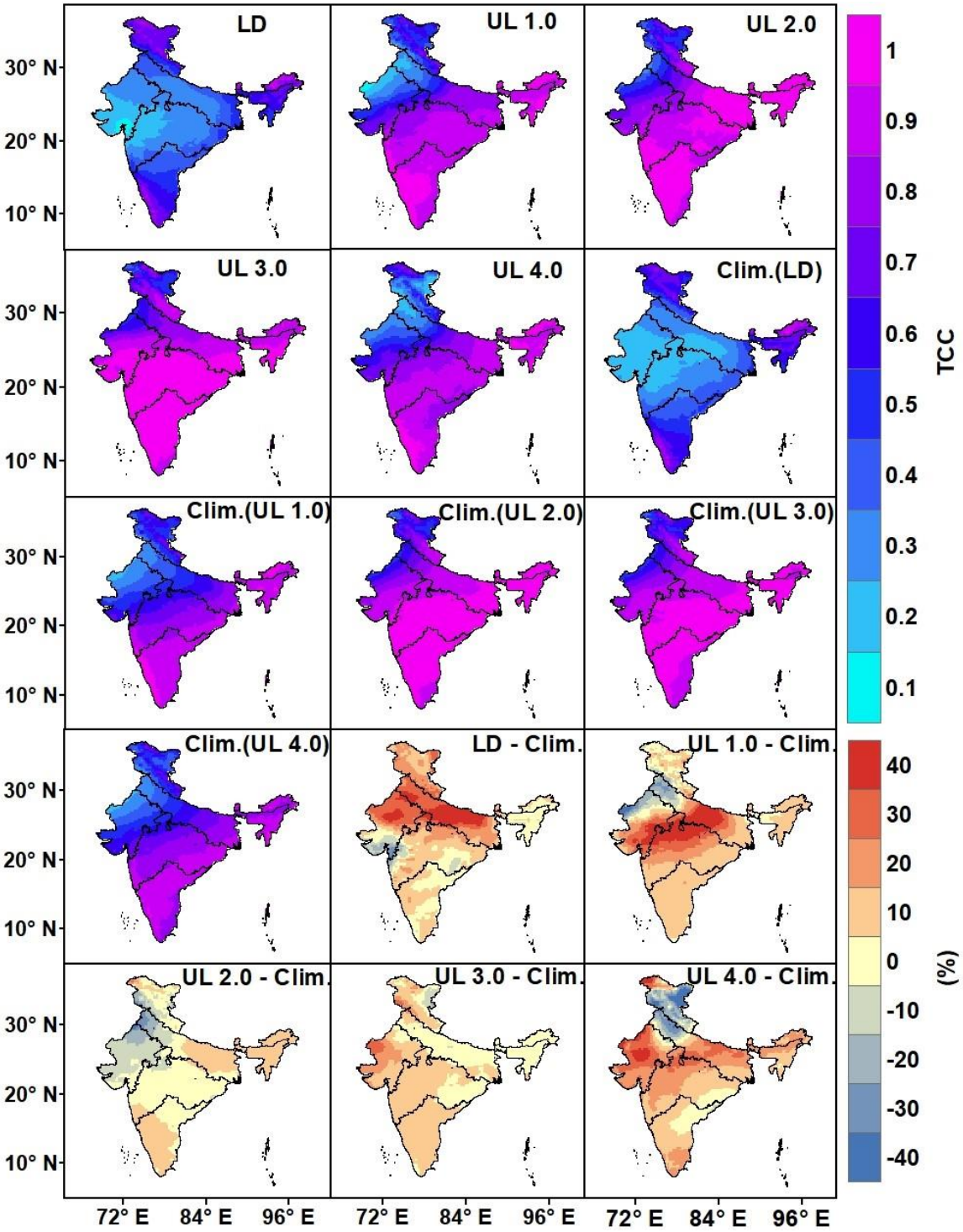

Figure S4: The average cloud (TCC) distribution over India during different periods: lockdown (LD), and Unlock (UL 1.0, 2.0, 3.0 and 4.0), and climatology of past 30 years corresponding to the Unlock periods of 2020 [1990–2020, i.e. Clim. (UL 1.0)] periods. The difference in clouds (TCC) between lockdown and climatology (LD – Clim.) and Unlock periods (e.g. UL 1.0 – Clim.).

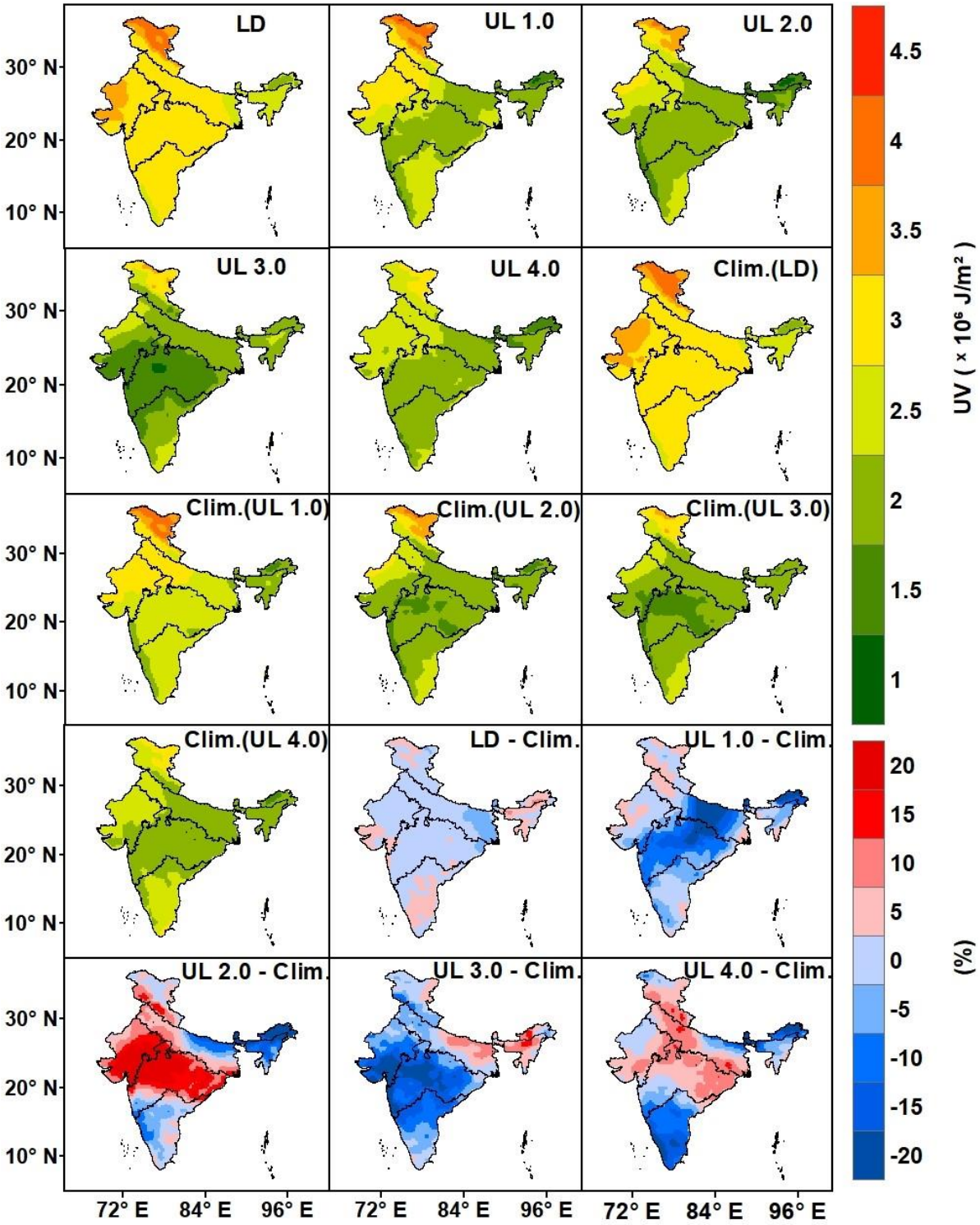

Figure S5: The average Ultra-Violet (UV) distribution in India during different periods: lockdown (LD), and Unlock (UL 1.0, 2.0, 3.0 and 4.0), and climatology of past 30 years corresponding to the Unlock periods of 2020 [1990–2020, i.e. Clim. (UL 1.0)] periods. The difference in UV between lockdown and climatology (LD – Clim.) and Unlock periods (e.g. UL 1.0 – Clim.).

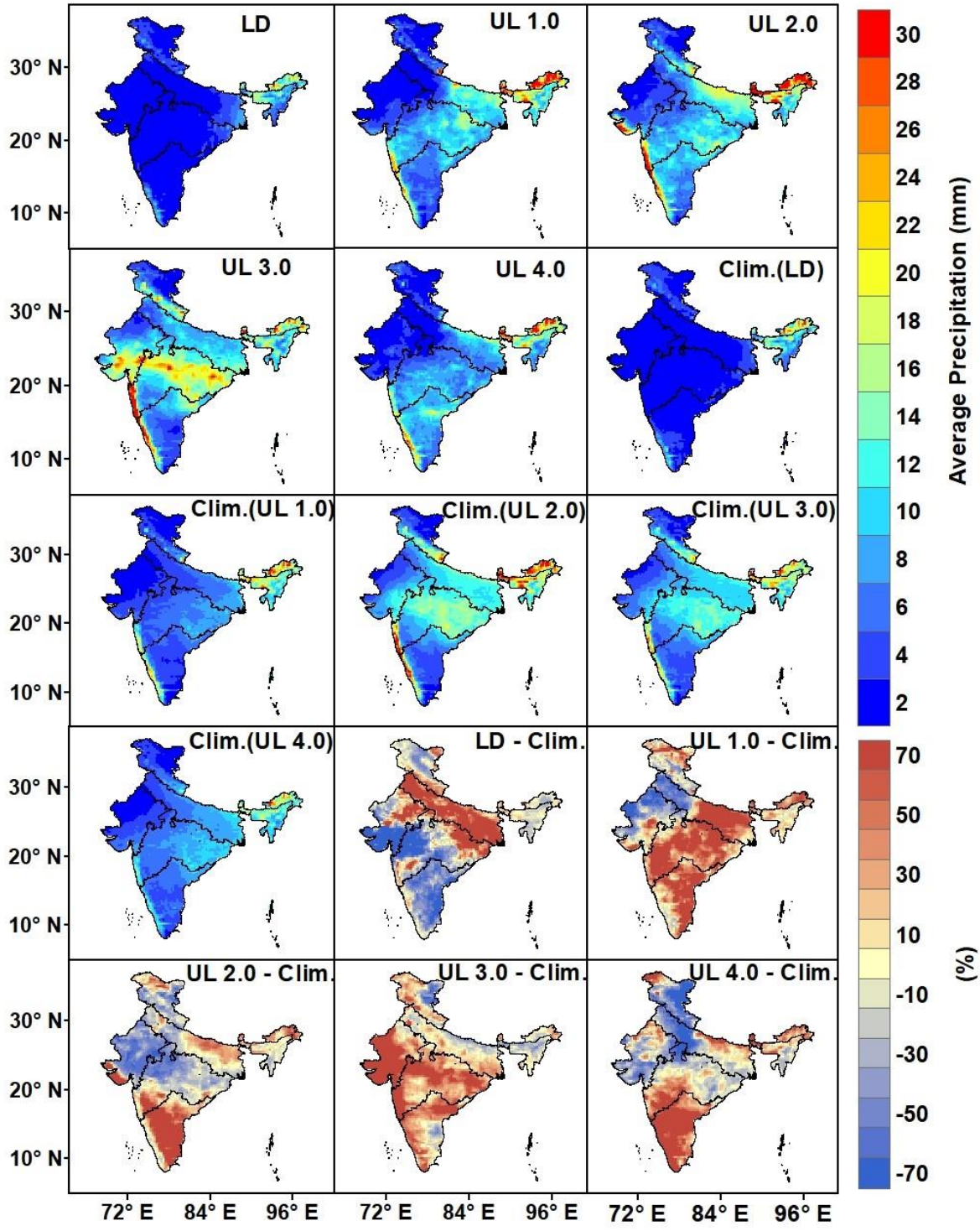

Figure S6: The average precipitation distribution in India during different periods: lockdown (LD), and Unlock (UL 1.0, 2.0, 3.0 and 4.0), and climatology of past 30 years corresponding to the Unlock periods of 2020 [1990–2020, i.e. Clim. (UL 1.0)] periods. The difference in precipitation between lockdown and climatology (LD – Clim.) and Unlock periods (e.g. UL 1.0 – Clim.).

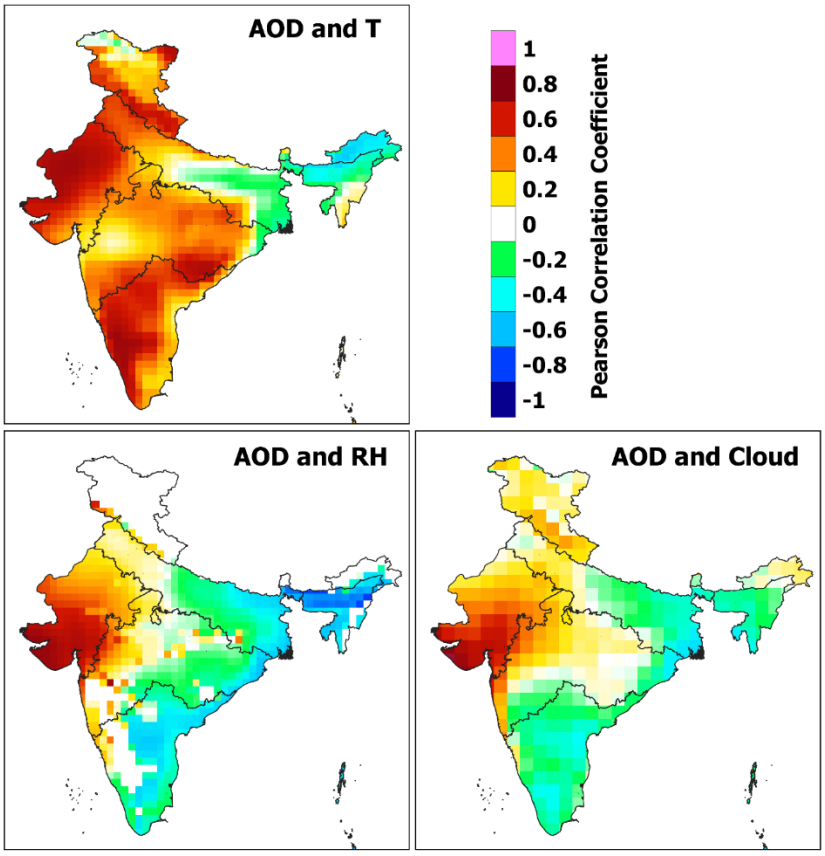

Figure S7: Pearson correlation analysis between aerosol optical depth (AOD) and relative humidity (RH), temperature (T) and cloud over India.