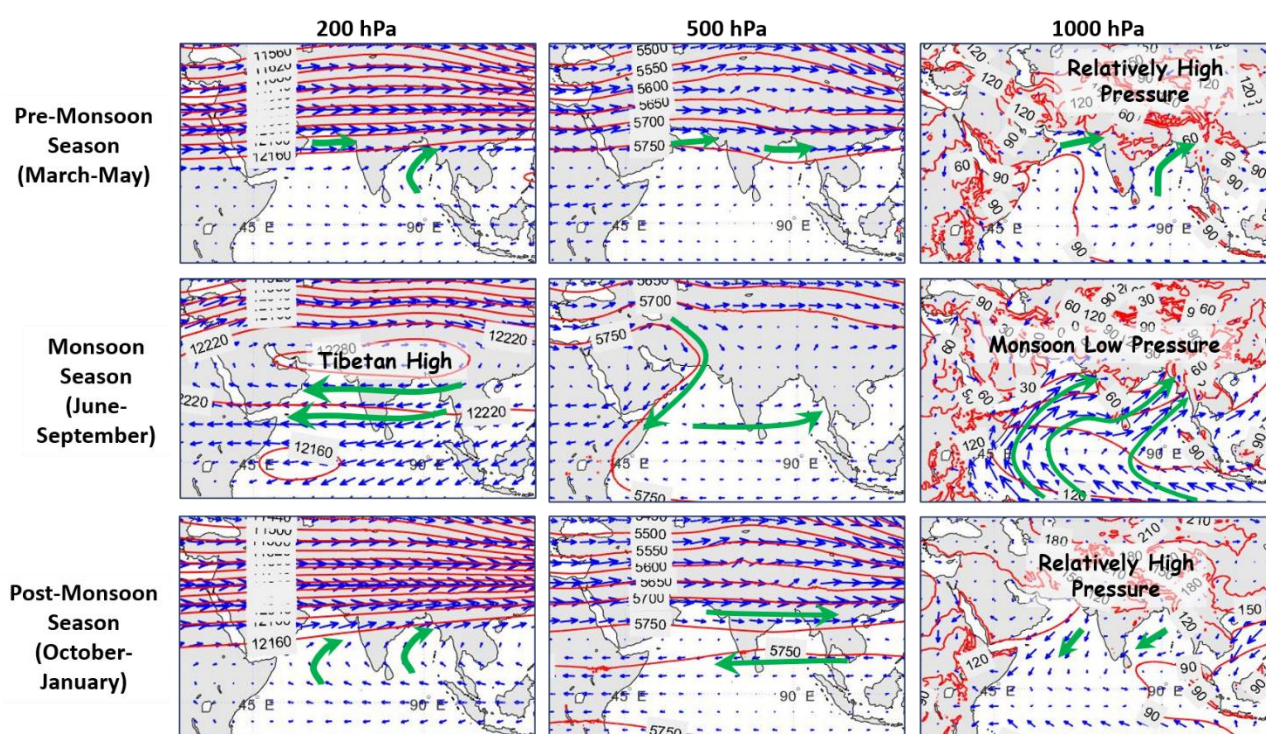


## Supplementary Materials:

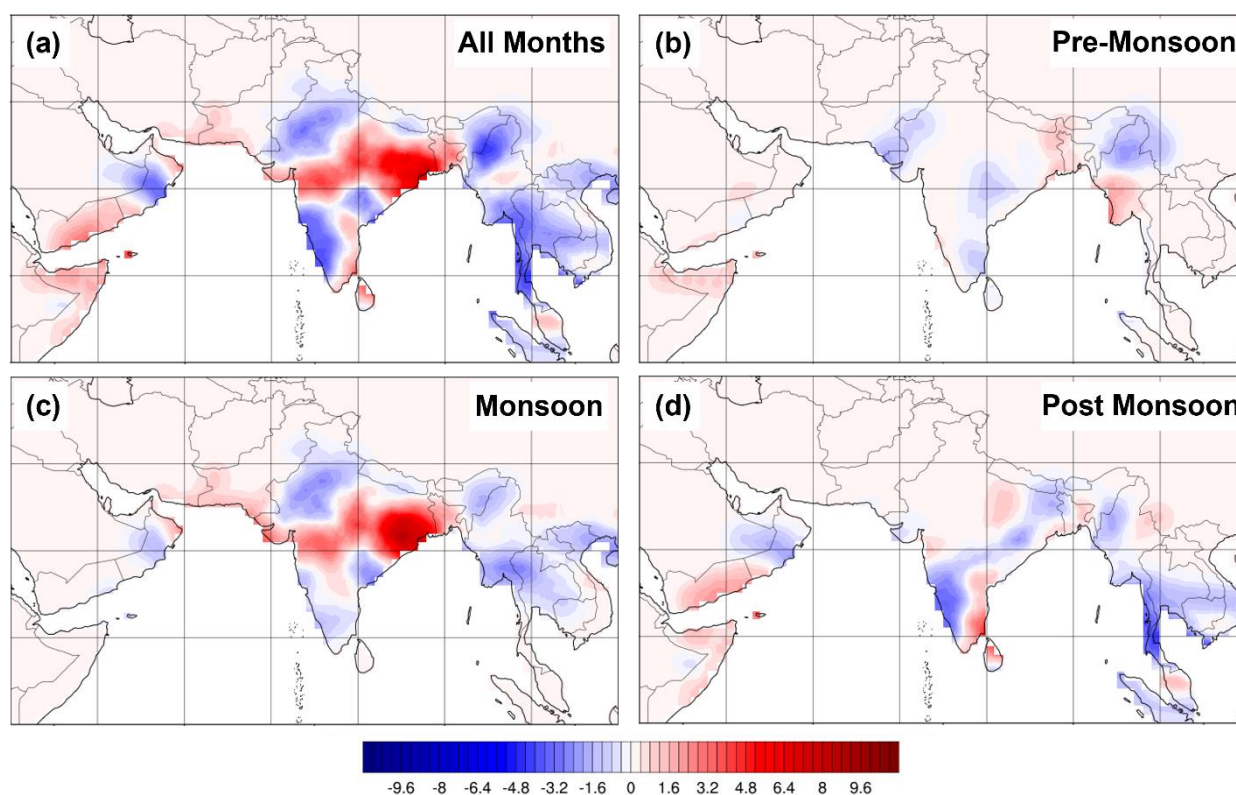
Rubaiya Kabir <sup>1,\*</sup>, Elizabeth A. Ritchie <sup>1,2,3</sup> and Clair Stark <sup>1</sup>

**Table S1.** Linear Regression Equation and T-test Analysis result for the Bay of Bengal and Arabian Sea to obtain the Combined Intensity Dataset.

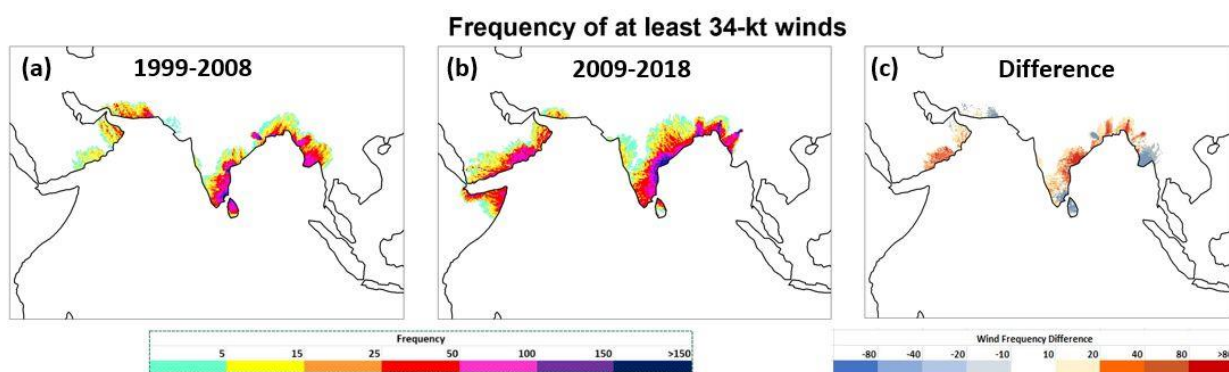
North Indian Ocean (NIO)				
	Bay of Bengal		Arabian Sea	
Number of Common JTWC Wind and IMD Wind data records	63		15	
Regression Statistics				
Multiple R	0.871		0.952	
R Square	0.758		0.906	
Adjusted R Square	0.754		0.899	
Standard Error	12.739		7.893	
T –Test Information				
	IMD Data	JTWC Data	IMD Data	JTWC Data
Mean	51.62	47.14	53.91	46.64
Standard Deviation	25.69	28.35	24.87	26.66
Observations	63	63	15	15
Pearson Correlation	0.87		0.95	
Hypothesized Mean Difference	0		0	
df	63		15	
t Stat	2.54		3.44	
P(T<=t) one-tail	0.007		0.002	
t Critical one-tail	1.67		1.76	
Result	Significant at p < 0.05			



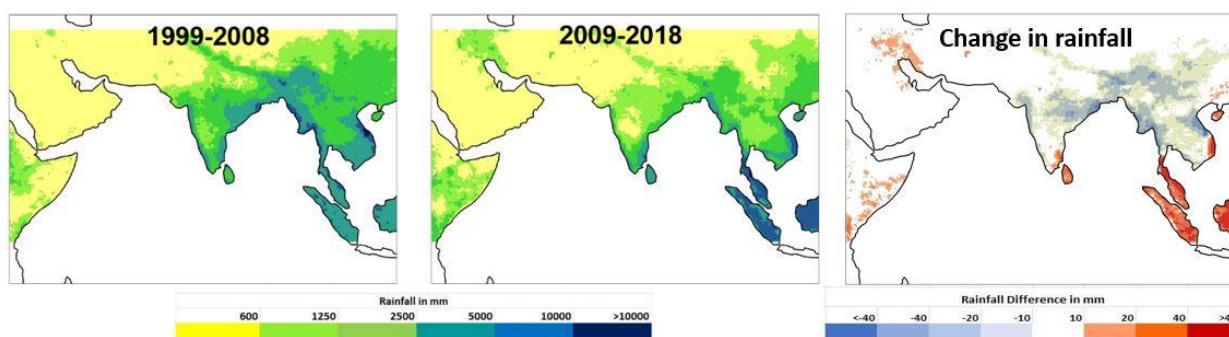
**Figure S1.** Geopotential height and wind circulation for the Pre-monsoon (Top row), Monsoon (Middle row) and Post-monsoon (bottom row) seasons at 200 hPa (left column); 500 hPa (middle column) and 1000 hPa (right column).



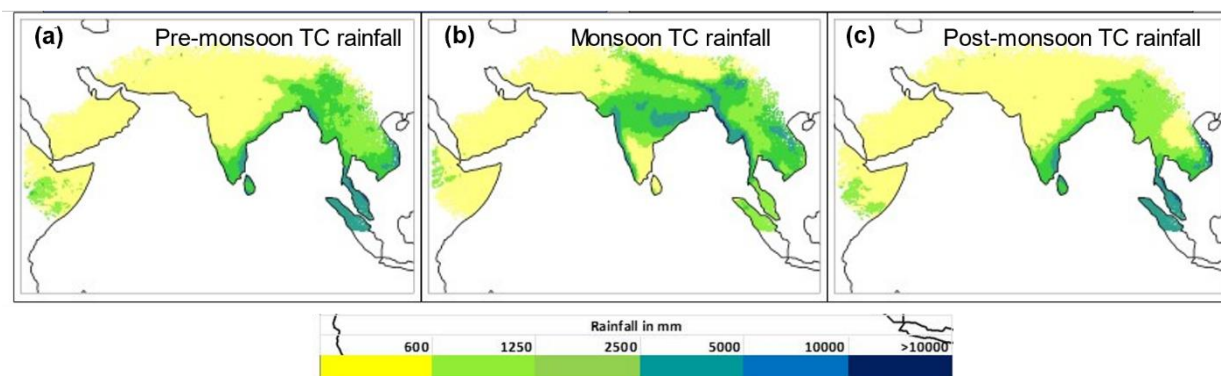
**Figure S2.** Difference between the EARLY (1989–2003) and LATE (2004–2018) periods for: (a) All Months; (b) Pre-Monsoon period (March–May); (c) Monsoon period (June–September); and (d) Post Monsoon period (October–January). Density Maps are calculated at 0.1° resolution.



**Figure S3.** (a) EARLY (1999–2008); (b) LATE (2009–2018), and (c) Difference between the EARLY and LATE periods for the frequency of at least 34-kt winds after TC landfall. Density Maps are calculated at  $0.1^\circ$  resolution.



**Figure S4.** Extent of over land rainfall (mm) for the two 10-year periods: (a) 1999 to 2008; (b) 2009 to 2018; and (c) their difference.



**Figure S5.** Extent of over land TC rainfall (mm) by monsoon period for the 20 years from 1999 to 2018 for: (a) the pre-monsoon; (b) main monsoon period; and (c) post monsoon.