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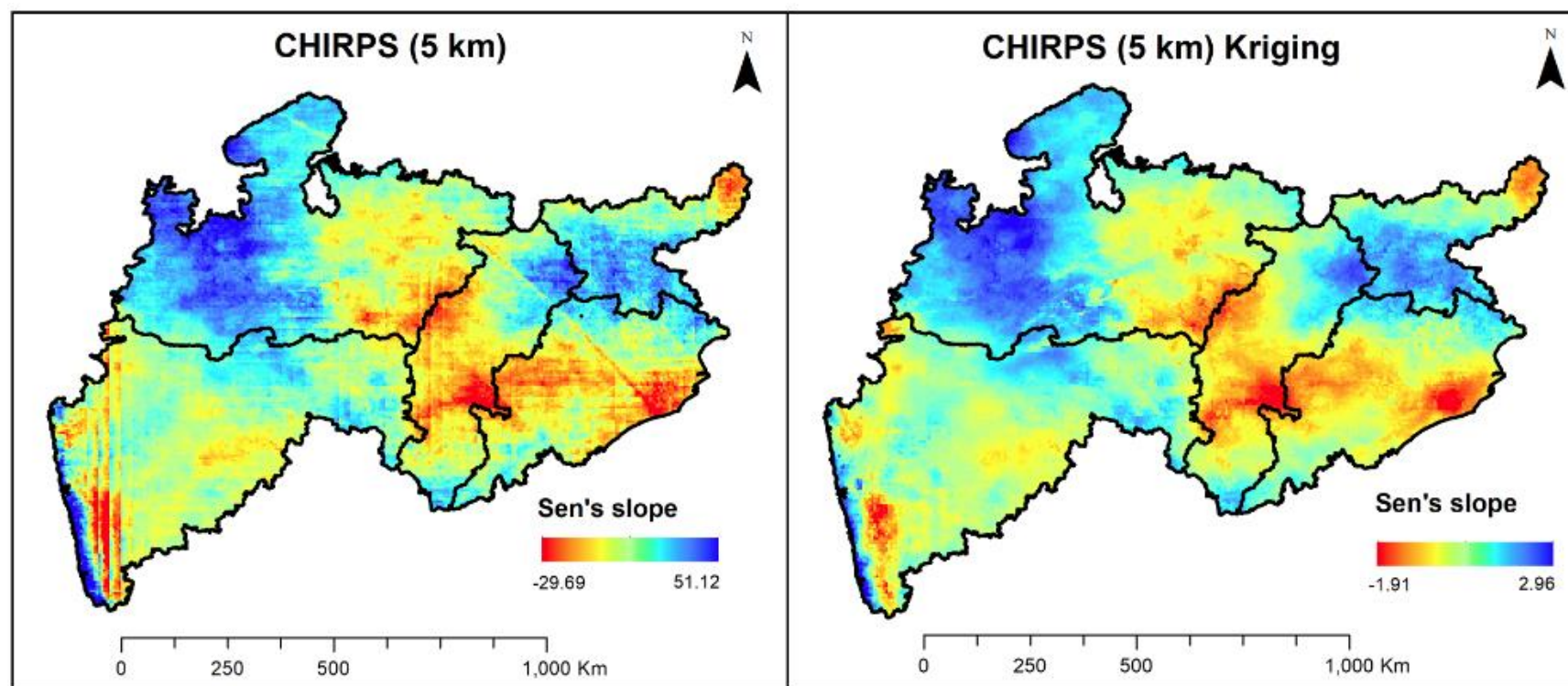


Figure S1. Spatio-temporal variability derived Sen's slope from different datasets: (a) original CHIRPS and (b) Kriging.

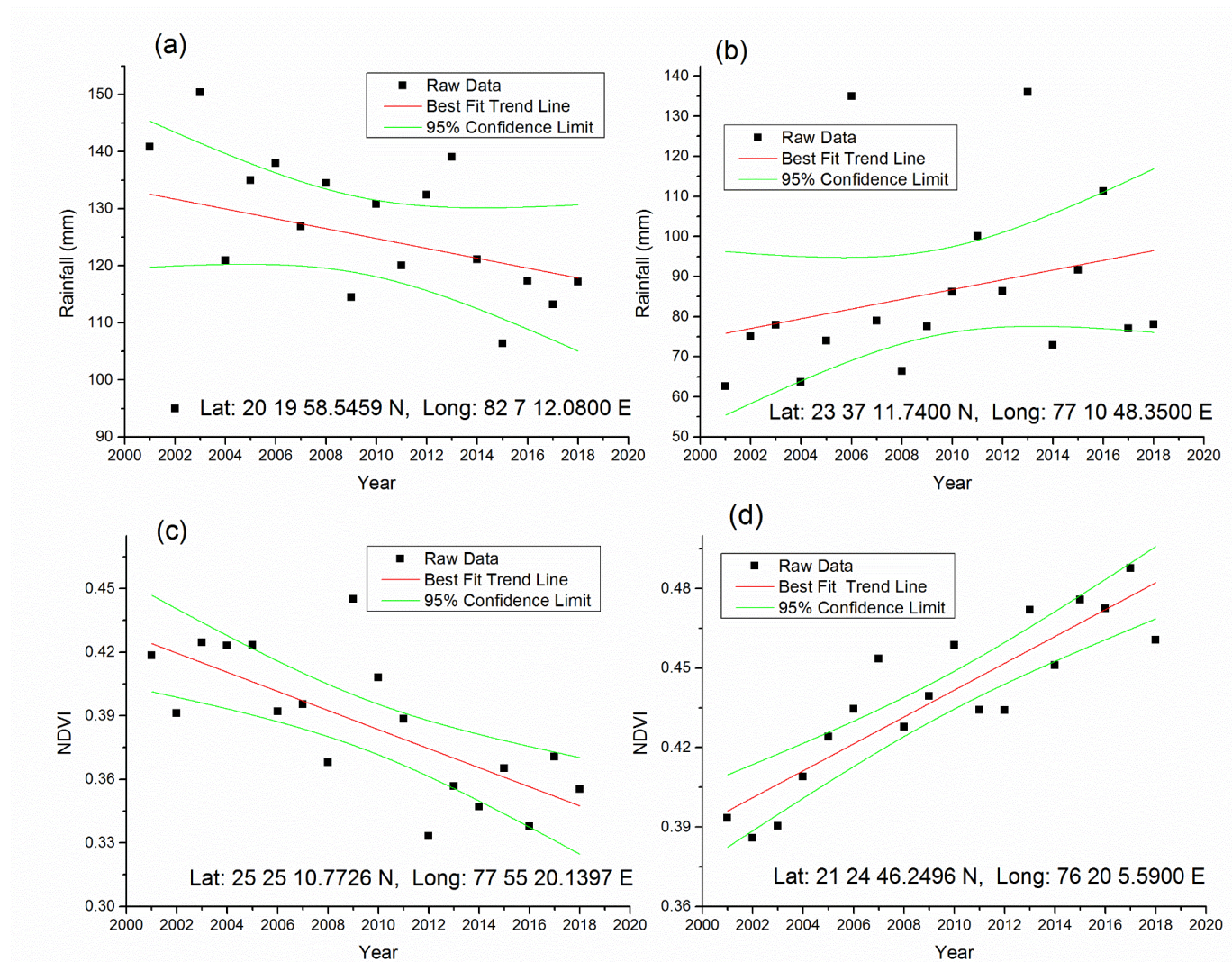


Figure S2. Validation of significant (a and c) decreasing trends and (b and d) increasing trends.

Table S1. Standardised Rainfall Anomaly (SRA) from 2001 to 2018.

Class / Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<-2	0.00	13.99	0.00	0.00	0.03	0.00	0.00	0.00	1.57	3.95	0.84	0.00	0.00	0.00	0.20	0.00	0.00	0.00
-2 - -1	14.94	50.30	4.54	24.43	12.07	3.55	4.55	1.14	31.14	22.60	11.21	5.05	0.01	5.64	42.40	3.50	9.60	9.60
-1 - -0.5	9.62	21.05	8.80	36.00	9.52	11.97	13.24	19.30	30.99	8.31	6.02	9.02	0.61	44.53	33.33	9.84	36.95	36.95
-0.5 - 0	21.24	12.90	17.15	32.37	14.44	15.71	10.24	26.66	25.84	12.70	11.58	17.28	4.59	39.94	19.88	16.80	20.18	20.18
-0 - -0.5	28.33	1.25	23.38	6.14	20.62	16.49	30.74	17.38	9.39	9.25	24.89	25.90	15.35	8.58	4.01	23.98	14.99	14.99
0.5 - 1	17.14	0.52	23.23	1.06	17.45	20.47	21.92	18.87	1.06	10.22	31.33	25.77	18.29	1.31	0.18	14.76	9.60	9.60
1 - 2	8.74	0.00	22.15	0.00	24.49	26.70	18.91	16.57	0.01	25.50	14.08	16.99	35.93	0.00	0.00	25.13	7.88	7.88
>2	0.00	0.00	0.76	0.00	1.37	5.11	0.39	0.07	0.00	7.46	0.05	0.00	25.23	0.00	0.00	5.99	0.79	0.79
Positive SRA	54.20	1.76	69.52	7.19	63.93	68.77	71.97	52.90	10.45	52.43	70.35	68.65	94.79	9.89	4.20	69.86	33.26	33.26
Negative SRA	45.80	98.24	30.48	92.81	36.07	31.23	28.03	47.10	89.55	47.57	29.65	31.35	5.21	90.11	95.80	30.14	66.74	66.74

Table S2. Standardised NDVI Anomaly (SNA) during dry, normal and wet years.

NDVI	2002	2011	2013
<-3	0.15	0.02	0.02
-3- -2	5.25	0.19	0.07
-2 - -1	42.55	5.69	0.28
-1 - 0	44.96	32.60	11.06
0 - 1	6.86	53.10	38.86
1 - 2	0.20	8.35	43.03
2 - 3	0.03	0.05	6.68
> 3	0.00	0.00	0.00

Table S3. Area statistics (in %) of Sen's slope derived from different approaches using the Annual Mean NDVI.

		Sen's Slope			Significant Area		
Sl.no	Classified Range	250m_O	5km_AM	5km_M	250m_O	5km_AM	5km_M
Negative Trend	< -0.0172	0.03	0.02	0.03	0.03	0.01	0.02
	-0.0172 - -0.0055	0.28	0.05	0.34	0.26	0.01	0.16
	-0.0055 - -0.0008	5.13	0.78	4.67	0.82	0.05	0.43
	-0.0008 - 0	5.91	6.13	5.93	0.00	0.17	0.66
Positive Trend	0 - 0.0008	11.47	6.63	9.48	0.00	0.14	1.04
	0.0008 - 0.0023	35.13	39.30	30.23	3.00	13.33	7.12
	0.0023 - 0.0035	23.58	29.26	23.87	13.00	26.25	11.68
	0.0035 - 0.0050	13.07	14.23	15.99	11.83	14.16	11.64
	0.0050 - 0.0070	4.34	3.34	7.41	4.29	3.34	6.46
	> 0.0070	1.06	0.25	2.05	1.06	0.25	1.91
		100.00	100.00	100.00	34.30	57.71	41.12

Note: 250m MODIS Original data = O, 5km Aggregated Mean = AM and 5km MAJORITY = M

Table S4. Area statistics (in %) of Sen's slope derived from different approaches using Mean NDVI from the peak-growth period.

		Sen's Slope			Significant Area		
Sl.no	Classified Range	250m_O	5km_AM	5km_M	250m_O	5km_AM	5km_M
Negative Trend	<-0.0172	0.06	0.03	0.07	0.06	0.02	0.05
	-0.0172 - - 0.0055	0.50	0.11	0.61	0.37	0.10	0.07
	-0.0055 - - 0.0008	8.47	3.51	8.18	0.35	0.19	0.11
	-0.0008 - 0	9.00	7.45	8.30	0.15	0.14	0.31
Positive Trend	0 - 0.0008	10.59	7.36	8.75	0.00	0.00	0.48
	0.0008 - 0.0023	26.58	30.34	21.93	0.61	6.76	1.93
	0.0023 - 0.0035	19.41	26.06	18.11	4.10	19.97	2.96
	0.0035 - 0.0050	14.80	17.74	17.18	8.12	16.62	4.72
	0.0050 - 0.0070	7.64	6.30	10.81	6.20	6.08	4.99
	> 0.0070	2.95	1.11	6.06	2.80	1.10	4.01
		100.00	100.00	100.00	22.75	50.97	19.64

Note: 250m MODIS Original data = O, 5km Aggregated Mean = AM and 5km MAJORITY = M