Supplement of

"Hydrometeorological drivers of the 2017 flood in the Brahmaputra basin in Bangladesh"

Hossain et al.

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Figure S1: (a) Water level staff gauge at Bahadurabad gauging station; (b) Discharge measurement using the ADCP Bahadurabad gauging station, Brahmaputra river in Bangladesh (Photo credit: Hydrology division, BWDB)
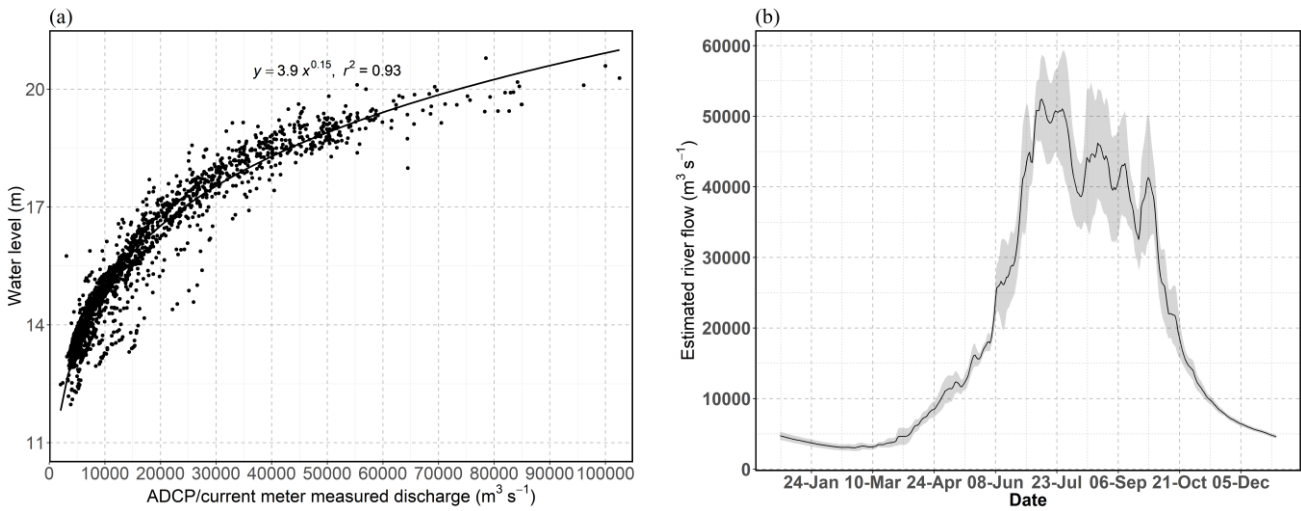
Figure S2: (a) Relationship between water level (m) and measured discharge (m³/s) by ADCP/current meter Bahadurabad gauging station, Brahmaputra river in Bangladesh over the period 1987-2017 (b) Rating river discharge (m³/s) (black line) with associated uncertainty (grey shading shows the variability within one standard deviation)
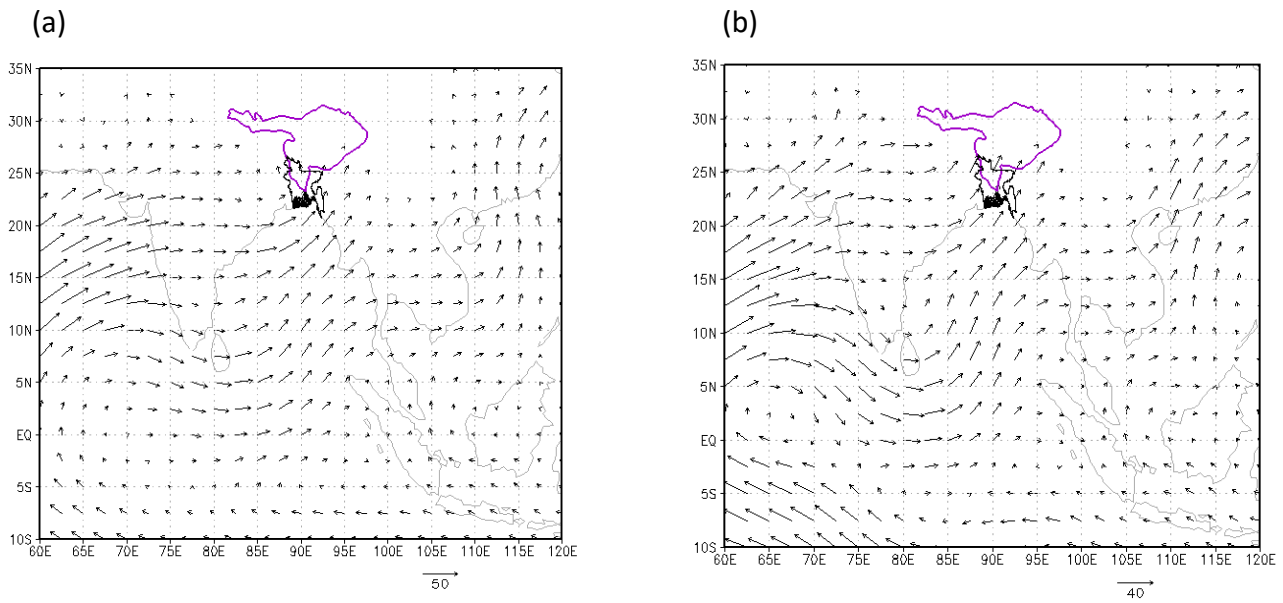
Figure S3: Mean vertically integrated moisture flux (kgm^{-1}s^{-1}) at 850 hPa (a) during 1-7 July (b) during 8-13 August 2017 based on the NCEP/NCAR reanalysis data.
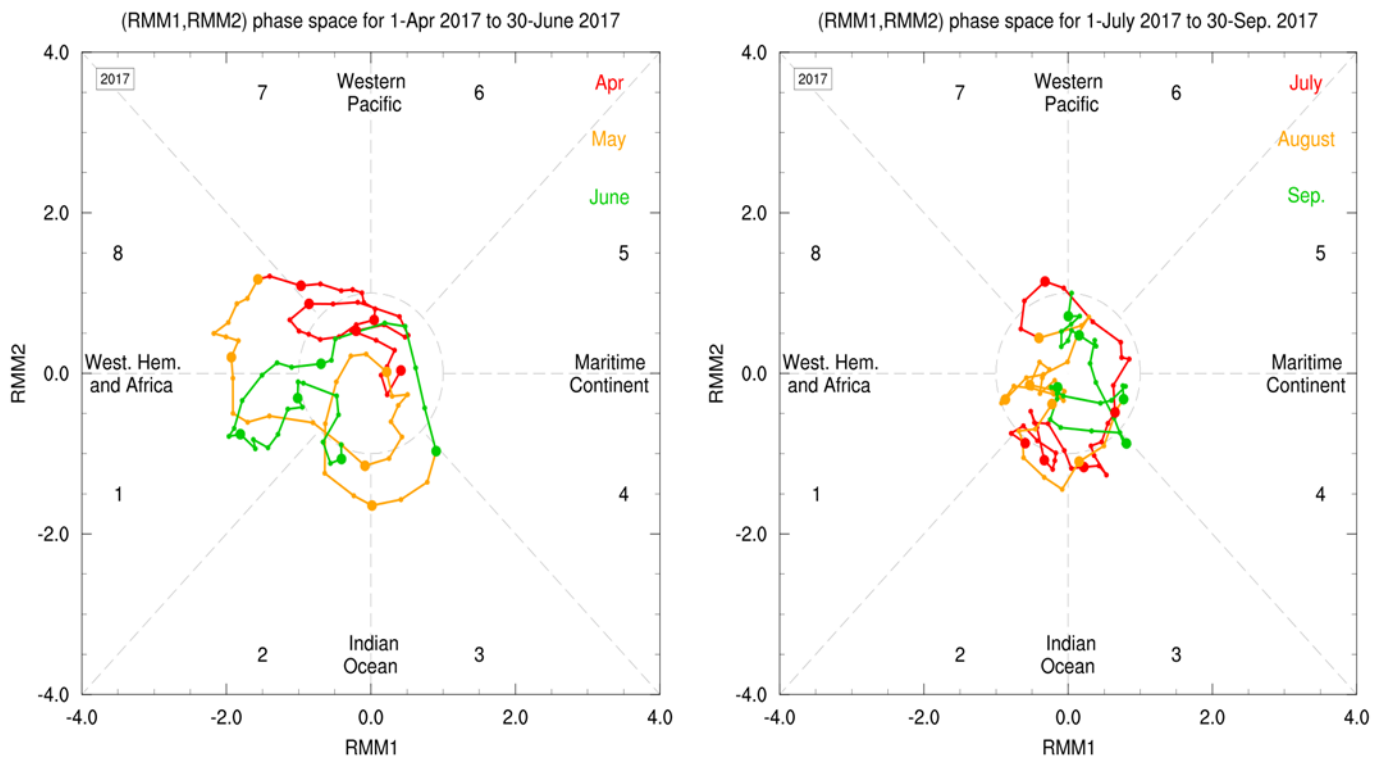
Figure S4: MJO phase diagram July to September 2017 (Source: BOM, 2017)

Table S1: Activity of the monsoon during 8 August to 13 August 2017
(retrieved during monsoon period and presently not available) (Source: IMD,2017b)

Region	8 Aug.	9Aug.	10 Aug	11 Aug.	12 Aug.	13 Aug.
Sub-Himalaya-West Bengal and Sikkim	Active	Active	Active	Active	Vigorous	Normal
Assam and Meghalaya	Normal	Normal	Active	Active	Active	Active
Arunachal Pradesh	Active	Vigorous	Vigorous	Vigorous	Active	Active

Table S2: Peak water level (m) with date (Data from BWDB internal database)

Year	Brahmaputra (Bahadurabad)		Dharla (Kurigram)		Dudkumar (Pateswari)		Teesta (Dalia)	
	Water level (m)	Peak date	Water level (m)	Peak date	Water level (m)	Peak date	Water level (m)	Peak date
1987	19.68	15 Aug.	27.45	12 Aug.	27.45	12 Aug	52.51	14 Aug.
1988	20.62	31 Aug.	27.35	03 Aug	27.35	30 Aug	52.60	24 Aug.
1989	19.56	06 July	26.23	20 Sep	26.23	20 Sep	52.66	16 June
1990	19.38	25 July	25.87	14 Aug	25.87	27 Aug	52.48	13 Aug.
1991	20.08	14 July	26.74	13 July	26.74	04 Aug	52.28	14 June
1992	19.18	01 July	25.93	20 July	25.93	17 July	51.91	26 Aug.
1993	19.89	23 July	27.31	22 July	27.31	22 July	51.83	20 July
1994	18.74	01 July	25.31	16 Aug	25.31	15 Aug	51.83	26 July
1995	20.36	10 July	27.41	10 July	27.41	17 June	52.05	15 June
1996	19.99	16 July	27.66	15 July	27.66	15 July	52.04	18 July
1997	19.93	14 July	26.70	13 July	26.70	18 June	51.98	30 June
1998	20.37	08 Sep.	27.22	05 Sep	27.22	25 July	52.00	24 July
1999	19.82	24 Aug.	27.49	26 Aug.	27.49	26 Aug.	52.06	15 Aug.
2000	20.16	07 Aug.	27.32	06 Aug	27.32	06 Aug	52.28	16 Aug.
2001	19.32	04 Aug.	26.41	07 Oct	26.41	07 Sep	52.20	06 Oct
2002	20.09	28 July	27.22	26 July	27.22	26 July	52.22	28 July
2003	19.89	14 July	27.45	10 July	27.45	10 July	52.60	09 July
2004	20.18	15 July	27.41	14 July	27.41	13 July	52.30	08 July
2005	19.48	31 Aug.	27.01	20 July	27.01	20 July	52.41	21 July
2006	18.85	18 June	26.31	08 July	26.31	08 July	52.33	24 Sep.
2007	20.37	30 July	27.40	09 Sep	27.40	30 July	52.95	08 Sep.
2008	19.75	08 Sep.	26.89	01 Sep	26.89	31 Aug.	52.62	22 June
2009	19.37	22 Aug	26.68	21 Aug	26.68	30 June	52.48	08 Oct.
2010	19.78	14 Sep.	26.79	23 July	26.79	22 July	52.65	18 June
2011	19.64	23 July	25.98	01 Aug	25.98	20 July	52.50	19 Sep
2012	20.54	01 July	26.70	30 June	26.70	28 June	52.70	17 July
2013	19.91	11 Sep	26.68	11 July	26.68	11 July	52.66	10 July
2014	20.20	29 Aug	26.94	28 Aug	26.94	27 Aug.	52.66	26 Aug.
2015	20.17	06 Sep.	26.98	03 Sep	26.98	03 Sep	52.71	01 Sep.
2016	20.71	28 July	27.56	28 July	27.56	27 July	52.59	23 June
2017	20.84	16 Aug.	27.84	13 Aug	27.84	13 Aug	53.05	13 Aug.

Table S3: Measured river flow (m³/s) at Bahadurabad gauging station in different high water levels (Data from BWDB internal database)

Water Level (m)	Peak river discharge (m³/s)	Date of measurement
20.28	102535	9 September 1998
20.07	84520	17 August 1998
20.10	96105	12 September 2004
20.79	78525	17 August 2017
20.18	84200	11 July 1995
19.80	79270	25 July 1997
19.92	83485	16 July 1996
19.72	75660	10 September 2013
19.14	70500	10 July 1989