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Some climatological characteristics of mean sea level pressure in Bangladesh

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सार — 16 स्टेशनों के 30 वर्षों (1951-1980) के जलवायु विज्ञान संबंधी आंकड़ों के आधार पर, बंगलादेश में माध्य समुद्र तल दबाव के जलवायु विज्ञान संबंधी अध्ययन किया गया। माध्य समुद्र तल दबाव के स्थानिक वितरण और वार्षिक परिवर्तन का अध्ययन किया गया। बंगलादेश में माध्य समुद्र तल दबाव के वार्षिक परिवर्तन के कारण को सिनॉप्टिक मौसम विज्ञान द्वारा स्पष्ट करने का प्रयास किया गया। माध्य समुद्र तल दबाव के साथ बंगलादेश के मौसम विज्ञान संबंधी स्टेशनों की "स्थिरता" को मिलाया गया। माध्य समुद्र तल दबाव के संबंध में सहसंबंध गुणांक के स्थानिक परिवर्तन का विश्लेषण किया गया। अन्ततः चुने हुए स्टेशनों के लिए विभिन्न अन्तरालों पर माध्य समुद्र तल दबाव प्रायिकता की कुछ विशेषताओं को प्राप्त किया गया।

ABSTRACT. On the basis of climatological data of 30 years (1951-1980) for 16 stations, a climatological study of mean sea level pressure in Bangladesh has been accomplished. Spatial distribution and annual variation of mean sea level pressure have been studied. Attempt has been made to explain the cause of annual variation of mean sea level pressure in Bangladesh from the point of view of synoptic meteorology. "Stability" of the meteorological stations of Bangladesh with respect to mean sea level pressure has been quired. The spatial variations of correlation coefficients with regard to mean sea level pressure have been analysed. Finally, some characteristics of probabilities of mean sea level pressure at different intervals for selected stations have been obtained.

Key words — Climatology, cartographic analysis, probability distribution, spatial distribution of pressure, correlation coefficient, temporal variation.

1. Introduction

Bangladesh, being situated partly in the tropics and partly in the subtropics, is mainly an agricultural country. It is known that the success of agriculture depends on weather conditions to a considerable extent. So, a thorough and careful study on weather is inevitable in assessing the reliability of agricultural production. In addition to these, information about weather and climate are important ingredient in making decisions in different fields of our national economy. Both weather and climate are characterized by certain physical elements. Among those, mean sea level pressure is an important one. In investigating the general circulation pattern of the atmosphere of a particular place or a region, it is necessary to study the mean sea level pressure distribution. In synoptic analysis, mean sea level pressure is an important element which is to be processed carefully to relate a zone to a cyclone, or to an anticyclone, or to a weak gradient field. Therefore, mean sea level pressure is an indispensable element of weather and climate, which may ultimately define the whole weather system.

In the formation of climate of Bangladesh synoptic processes from the east as well from the west play important role. Careful study of mean sea level pressure distribution in Bangladesh may reveal some characteristics of these synoptic processes. In the present investigation, annual variation and spatial distribution of mean sea level pressure have been studied. To quire about the stability of the meteorological stations, correlation characteristics of mean sea level pressure between some pairs of station have been obtained. Finally, probability distribution of mean sea level pressure in different months for different stations in different intervals of mean sea level pressure have been presented.

2. Materials used and methods of investigation

2.1. In the present research work, climatological data for 16 stations (Fig. 1)* with the length of 30 years (1951-1980) have been used. The data have been obtained from Meteorological Department of Bangladesh (Bangladesh Met. Dep. 1984).

2.2.1. The investigation is carried out with the help of currently used methods of climatology following (Conrad *et al.* 1950). Here different statistical parameters such as mean value, annual amplitude, form of the curve, correlation coefficient, probability etc have been calculated.

2.2.2. To study temporal variation, annual variation curves have been prepared for every station.

2.2.3. Cartographic analysis has been carried out to establish spatial distribution.

*The political boundaries in the base maps used may not be to the scale.

TABLE 1

Mean monthly and annual sea level pressure (mb) in Bangladesh

Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
													Mean (mb)	Amp (mb)
Chittagong	1014.7	1013.0	1010.9	1008.6	1005.2	1002.0	1002.2	1002.3	1005.7	1009.7	1012.7	1014.7	1008.5	12.7
Dhaka	1014.7	1012.5	1009.7	1006.6	1003.4	1000.3	1000.5	1001.4	1004.6	1009.3	1012.7	1014.7	1007.6	14.4
Mymensingh	1015.7	1013.6	1010.7	1007.7	1004.5	1001.2	1001.1	1002.1	1005.5	1010.4	1013.9	1015.6	1008.4	14.6
Barisal	1014.8	1013.0	1010.4	1007.5	1004.1	1000.7	1000.6	1001.5	1004.8	1009.4	1012.9	1014.8	1007.9	14.2
Khulna	1015.5	1013.1	1010.2	1007.3	1003.9	1000.1	1000.2	1001.5	1004.5	1009.6	1013.3	1015.2	1007.8	15.4
Comilla	1014.9	1013.1	1010.7	1007.9	1004.7	1001.5	1001.5	1002.2	1005.4	1009.7	1012.9	1014.7	1008.2	13.5
Rangpur	1015.5	1013.2	1010.5	1007.9	1004.4	1001.1	1000.8	1001.9	1004.9	1009.5	1013.3	1015.4	1008.1	14.7
Rajshahi	1015.4	1013.1	1009.8	1005.7	1002.7	999.5	999.8	1000.8	1004.8	1009.8	1013.3	1015.5	1007.9	16.0
Rangamati	1015.9	1014.2	1011.9	1009.6	1005.9	1003.3	1002.9	1003.8	1006.7	1010.7	1014.0	1015.5	1009.6	13.0
Ishurdi	1015.0	1013.1	1009.6	1006.1	1003.0	999.7	999.8	1001.0	1004.6	1009.5	1012.9	1014.9	1007.3	15.3
Faridpur	1015.2	1012.7	1009.6	1006.7	1003.5	1000.1	1000.0	1000.8	1004.2	1009.2	1012.9	1015.1	1007.7	15.2
Maijdee Court	1015.0	1013.2	1010.5	1007.9	1004.5	1001.3	1001.2	1001.9	1005.1	1009.4	1012.9	1014.6	1008.1	13.8
Bogra	1015.1	1012.5	1009.6	1006.1	1002.9	999.9	1000.0	1001.1	1004.6	1009.5	1013.1	1015.0	1007.5	15.2
Sylhet	1014.4	1012.6	1010.1	1007.6	1004.4	1001.4	1001.2	1002.2	1005.2	1009.5	1012.9	1014.6	1007.9	13.4
Cox's Bazar	1014.2	1012.6	1010.8	1008.6	1005.1	1002.1	1002.3	1002.9	1005.5	1009.3	1012.2	1014.0	1008.3	12.0
Jessore	1015.1	1012.8	1009.8	1006.6	1003.1	999.8	999.9	1000.9	1004.4	1009.5	1013.0	1015.1	1007.4	15.

TABLE 2

Form of the curve of mean monthly sea level pressure in Bangladesh
(By using Koeppen's formula)

Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Chittagong	99.9	86.38	70.18	51.46	24.78	0.0	1.49	6.37	28.64	60.35	84.03	100.0
Dhaka	99.65	84.33	65.05	43.83	21.84	0.0	1.11	7.77	29.6	62.14	85.78	100.0
Mymensingh	100.0	85.36	65.25	44.80	23.46	0.34	0.0	6.43	30.03	63.41	87.28	99.38
Barisal	100.0	87.23	68.97	48.31	24.40	0.49	0.0	5.99	29.4	61.71	86.95	100.0
Khulna	100.0	84.53	65.70	46.93	24.67	0.0	0.84	6.60	28.54	61.62	85.57	97.86
Comilla	100.0	86.06	68.42	47.74	24.17	0.07	0.0	5.49	28.98	60.93	85.32	98.44
Rangpur	100.0	84.18	66.46	48.47	24.91	1.97	0.0	7.67	28.24	59.47	85.06	99.05
Rajshahi	99.37	85.06	64.06	38.87	20.13	0.0	1.62	8.19	33.0	64.37	86.37	100.0
Rangamati	100.0	87.17	69.97	51.54	23.73	3.61	0.0	7.07	29.34	60.29	85.64	97.39
Ishurdi	100.0	87.38	64.81	41.92	21.45	0.0	0.33	8.37	31.65	63.96	86.72	99.35
Faridpur	100.0	83.44	64.97	44.26	22.69	0.66	0.0	4.82	27.77	60.69	85.09	99.34
Maijdee Court	100.0	86.39	67.05	48.30	23.82	0.36	0.0	4.85	28.17	59.23	84.79	97.10
Bogra	100.0	82.85	63.53	40.80	19.97	0.0	1.05	8.08	31.14	63.27	86.99	99.34
Sylhet	98.95	85.80	67.04	47.90	24.36	1.87	0.0	7.47	30.19	62.33	87.52	100.0
Cox's Bazar	100.0	87.19	71.96	53.33	24.79	0.0	1.33	6.07	28.20	59.65	83.78	98.25
Jessore	100.0	84.70	65.14	44.21	21.26	0.0	0.39	6.93	30.15	63.11	86.20	100.0

TABLE 3

Correlation coefficients of mean sea level pressure between Dhaka and other stations of Bangladesh for selected months of the year

Pairs of stations		Jan	Mar	Apl	Jun	Jul	Sep	Oct
Maijdee Court	Dhaka	0.75	0.49	0.65	0.18	0.79	0.84	0.43
Barisal	Dhaka	0.88	0.81	0.81	0.84	0.94	0.98	0.81
Jessore	Dhaka	0.94	0.85	0.80	0.88	0.96	0.95	0.95
Rangpur	Dhaka	0.38	0.37	0.62	0.59	0.86	0.64	0.34
Sylhet	Dhaka	0.63	0.94	0.92	0.91	0.97	0.96	0.98
Chittagong	Dhaka	0.93	0.71	0.83	0.86	0.93	0.91	0.96
Cox's Bazar	Dhaka	0.93	0.60	0.75	0.80	0.94	0.93	0.95
Rangamati	Dhaka	0.80	0.74	0.87	0.59	0.93	0.91	0.90
Bogra	Dhaka	0.97	0.90	0.92	0.66	0.97	0.97	0.98
Rajshahi	Dhaka	0.71	0.85	0.89	0.88	0.97	0.71	0.89
Ishurdi	Dhaka	0.95	0.98	0.86	0.93	0.99	0.92	0.95
Faridpur	Dhaka	0.76	0.71	0.61	0.63	0.80	0.73	0.80
Khulna	Dhaka	0.86	0.82	0.68	0.67	0.91	0.90	0.68
Mymensingh	Dhaka	0.96	0.89	0.75	0.86	0.98	0.96	0.84
Comilla	Dhaka	0.93	0.84	0.86	0.90	0.85	0.94	0.95

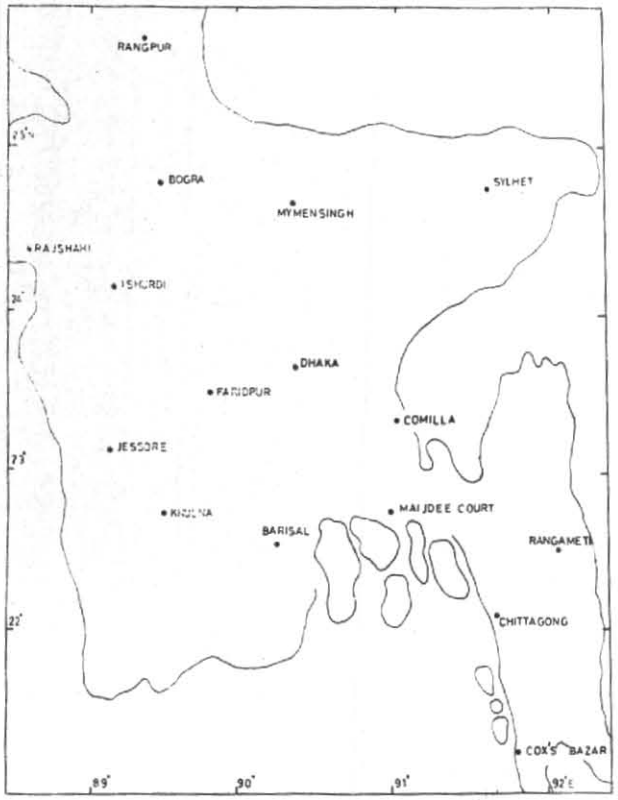

Fig. 1. Locations of meteorological stations of Bangladesh

2.2.4. As the series is not a large one, probability has been calculated following the empirical formula of Aleekseev (Gulinova 1974) :

$$P(\%) = \frac{m - 0.3}{n + 0.4} \times 100 \qquad (1)$$

where,

m is the frequency observed in a particular interval,

n is the total frequency over the whole range.

2.2.5. The form of the annual variation curve of mean sea level pressure has been derived from the Koeppen's formula (Alisov *et al.* 1940) :

$$\phi(\%) = \frac{x_i - x_{min}}{A} \times 100 \qquad (2)$$

where, x_i is the value of mean sea level pressure for the specified month, x_{min} is the minimum mean monthly value of it and A is the annual amplitude.

3. Results and discussion

3.1. *Annual variation*

The mean monthly values of sea level pressure may be obtained in Table 1. Analysis of the annual variation curves (which are unipeaked in nature, Fig. 2) shows that maximum of mean sea level pressure occurs in January in 62.5% stations, in December in 12.5% stations and jointly in December and January in 25.0% stations. The minimum of mean sea level pressure occurs in June in 50.0%, in July in 43.7% and jointly in June and July in 6.3% stations. So maximum of mean sea level pressure occurs in January and December and minimum is observed in June and July.

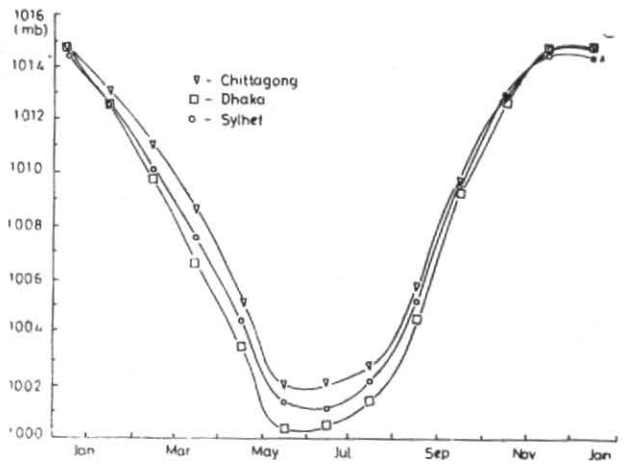

Fig. 2. Annual variation curves of mean sea level pressure at Chittagong, Dhaka and Sylhet of Bangladesh

The rate of fall or rise of mean sea level pressure with respect to the minimum value of it for different stations may be obtained in Table 2. From the analysis of the data, it comes out that a slight fall of mean sea level pressure is marked in February (82.8-87.4%). It decreases very rapidly in April (38.9-53.3%) and May (20.0-24.9%). In this way, the minimum is reached in June (0-3.6%) or July (0-1.6%). An increase of mean sea level pressure is observed from August (4.8-8.4%). The value of mean sea level pressure is found to rise rapidly in September (27.8-33.0%) and October (59.2-64.4%). In November, mean sea level pressure lies near the peak (83.8-87.5%), which attains the maximum value in December (97.1-100.0%) or January (98.9-100.0%).

The annual variation of mean sea level pressure are in good agreement with the annual variation of synoptic processes over Bangladesh and its surrounding areas. The maximum of mean sea level pressure occurs when the periphery of the Asiatic anticyclone is dominant over the region (Romanov *et al.* 1981). The minimum occurs when the monsoonal processes (monsoon depressions, tropical cyclones, ITCZ etc) are most frequent Mobasher 1981).

3.2. *Spatial distribution of monthly mean sea level pressure*

The spatial distribution pattern of mean sea level pressure changes from month to month. In October-February, the zone with maximum value is found to be located in the western and northwestern portion of the country, while minimum values are found to occupy the southeastern part of Bangladesh. Mean sea level pressure decreases from the west to the east. In March-September, minimum and maximum values of mean sea level pressure are found, in the western and southeastern parts of Bangladesh, respectively (Fig. 3). The variation is from the east to the west. Besides these, a high pressure system prevails over the southeastern hilly districts throughout the year.

In October-February, the occurrence of the maximum pressure in the northwestern part of Bangladesh may be due to the influence of the southern periphery of the Asiatic anticyclone (Romanov *et al.* 1981). In March-September, the heat lows over India and

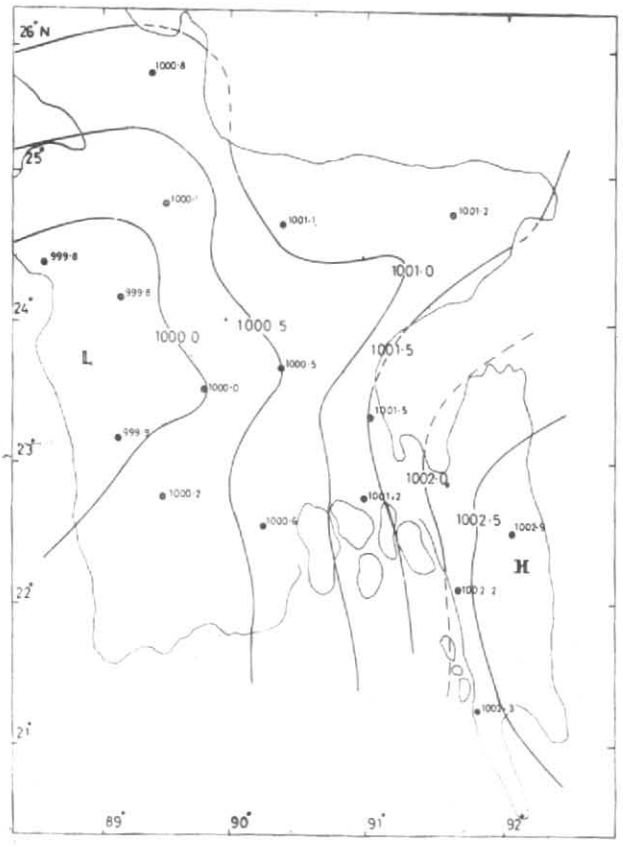

Fig. 3. Mean monthly sea level pressure (mb) distribution in Bangladesh in July

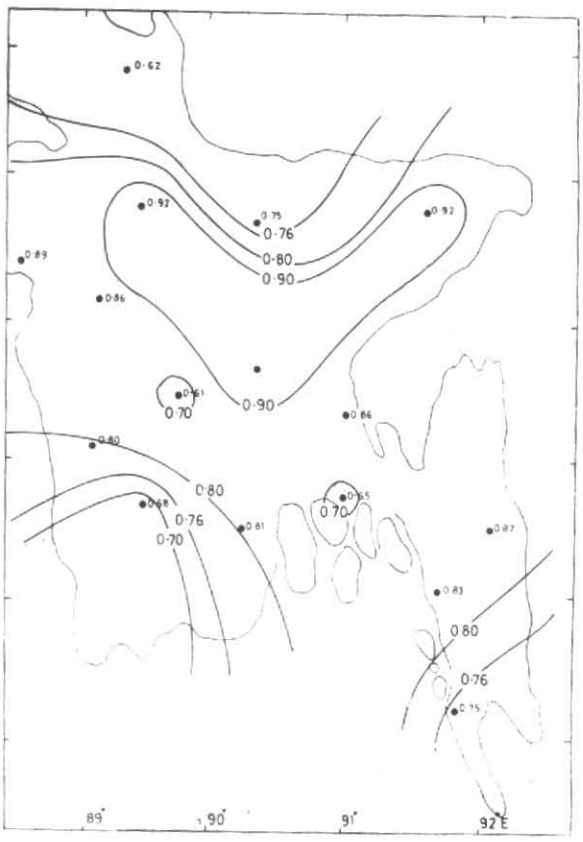

Fig. 4. Spatial distribution of correlation coefficients of mean sea level pressure between Dhaka and rest of the stations in Bangladesh in April

TABLE 4

The values of m and c in the model equation $y = mx + c$ for regression equations of mean sea level pressure between Dhaka and other selected stations of Bangladesh in different months of the year

Pairs of stations	Months	m	c	r
Dhaka-Comilla	Jan	0.92	80.86	0.93
	Apr	0.97	28.85	0.86
	Jul	0.83	169.20	0.85
	Oct	0.92	80.26	0.95
Dhaka-Mymensingh	Jan	0.85	151.21	0.96
	Apr	0.69	311.29	0.75
	Jul	1.07	—70.74	0.98
	Oct	0.76	241.23	0.84
Dhaka-Ishurdi	Jan	0.77	233.09	0.95
	Apr	0.78	221.86	0.86
	Jul	1.03	—29.38	0.99
	Oct	0.92	80.67	0.95
Dhaka-Rajshahi	Jan	0.55	456.30	0.71
	Apr	0.70	302.48	0.89
	Jul	0.87	130.77	0.97
	Oct	0.79	211.73	0.89
Dhaka-Khulna	Jan	0.76	243.01	0.86
	Apr	0.69	311.95	0.68
	Jul	0.83	170.38	0.91
	Oct	0.52	484.06	0.68
Dhaka-Faridpur	Jan	0.57	436.02	0.76
	Apr	0.46	543.51	0.61
	Jul	0.83	170.39	0.80
	Oct	0.82	181.65	0.80
Dhaka-Bogra	Jan	0.84	161.99	0.97
	Apr	0.82	175.45	0.92
	Jul	1.01	—9.65	0.97
	Oct	1.03	—30.63	0.98

Pakistan are intensified and the subtropical jet weakens (Ramage 1971). The western portion of the country is under the influence of the southeastern periphery of these heat lows, which may explain the occurrence of low pressure system in this part of Bangladesh.

3.3. *Spatial distribution of annual mean sea level pressure*

From analysis (Table 1), it is seen that annual mean sea level pressure varies from 1007.3 mb to 1009.6 mb in Bangladesh. Annual mean sea level pressure falls from the east to the west. The cyclonic system is predominant in the mean picture of Bangladesh.

3.4. *Spatial distribution of annual amplitude of mean sea level pressure*

Analysis (Table 1) shows that the zone with the highest amplitude is observed in the western portion of the country (16.0 mb). It falls meridionally towards the east. The zone with the minimum amplitude is found in the southeastern coastal areas (12.0 mb).

3.5. *Correlation characteristics*

Two meteorological stations are said to be representative, when the comparison between the observations recorded at two stations is significant (Conrad *et al.* 1950). In course of quiring about the representativeness of meteorological stations, stability (the correlation coefficients) characteristics between pairs of stations

TABLE 5

Empirical and cumulative probabilities of mean sea level pressure for selected stations of Bangladesh for central months of each calendar season

Months	Interval (mb)	Probability (%)	Cumulative probability (%)	Interval (mb)	Probability (%)	Cumulative probability (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Chittagong			**Dhaka**		
Jan	1012.0-1013.0	2.5	2.5	1012.0-1013.0	2.5	2.5
	1013.1-1014.0	20.1	22.6	1013.1-1014.0	13.0	15.5
	1014.1-1015.0	34.2	56.8	1014.1-1015.0	51.8	67.3
	1015.1-1016.0	30.6	87.4	1015.1-1016.0	23.6	90.9
	1016.1-1017.0	6.0	93.4	1016.1-1017.0	2.5	93.4
Apr	1007.0-1008.0	23.6	23.6	1004.0-1005.0	2.5	2.5
	1008.1-1009.0	44.7	68.3	1005.1-1006.0	27.1	29.6
	1009.1-1010.0	27.1	95.4	1006.1-1007.0	37.7	67.3
				1007.1-1008.0	27.1	94.4
Jul	1000.0-1001.0	12.6	12.6	998.0- 999.0	9.5	9.5
	1001.1-1002.0	36.4	49.0	999.1-1000.0	30.6	40.1
	1002.1-1003.0	19.4	68.4	1000.1-1001.0	27.1	67.2
	1003.1-1004.0	19.4	87.8	1001.1-1002.0	20.1	87.3
	1004.1-1005.0	5.8	93.6	1002.1-1003.0	6.0	93.3
Oct	1007.0-1008.0	15.5	15.5	1006.0-1007.0	5.8	5.8
	1008.1-1009.0	2.3	17.8	1007.1-1008.0	9.2	15.0
	1009.1-1010.0	48.4	66.2	1008.1-1009.0	16.0	31.0
	1010.1-1011.0	18.8	85.0	1009.1-1010.0	46.6	77.6
	1011.1-1012.0	5.6	90.6	1010.1-1011.0	9.2	86.8
	1013.1-1014.0	2.3	92.9	1011.1-1012.0	5.8	92.6
	Cox's Bazar			**Sylhet**		
Jan	1012.0-1013.0	12.2	12.2	1011.0-1012.0	3.3	3.3
	1013.1-1014.0	25.3	37.5	1012.1-1013.0	3.3	6.6
	1014.1-1015.0	41.8	79.3	1013.1-1014.0	17.3	23.9
	1015.1-1016.0	15.5	94.8	1014.1-1015.0	40.6	64.5
				1015.1-1016.0	26.6	91.1
Apr	1007.0-1008.0	29.6	29.6	1006.0-1007.0	25.4	25.4
	1008.1-1009.0	36.4	66.0	1007.1-1008.0	43.3	68.7
	1009.1-1010.0	22.8	88.8	1008.1-1009.0	25.4	94.1
	1010.1-1011.0	5.8	94.6			
Jul	1000.0-1001.0	9.2	9.2	999.0-1000.0	7.3	7.3
	1001.1-1002.0	39.8	49.0	1000.1-1001.0	41.5	48.8
	1002.1-1003.0	16.0	65.0	1001.1-1002.0	24.4	73.2
	1003.1-1004.0	19.4	84.4	1002.1-1003.0	15.8	89.0
	1004.1-1005.0	9.2	93.6	1003.1-1004.0	3.0	92.0
Oct	1007.0-1008.0	16.0	16.0	1006.0-1007.0	3.0	3.0
	1008.1-1009.0	16.0	32.0	1007.1-1008.0	11.5	14.5
	1009.1-1010.0	46.6	78.6	1008.1-1009.0	11.5	26.0
	1010.1-1011.0	5.8	84.4	1009.1-1010.0	32.9	58.9
	1011.1-1012.0	5.8	90.2	1010.1-1011.0	20.1	79.0
	1012.1-1013.0	2.4	92.6	1011.1-1012.0	7.3	86.3
				1012.1-1013.0	3.0	89.3
	Rangpur			**Khulna**		
Jan	1011.0-1012.0	3.8	3.8	1013.0-1014.0	2.9	2.9
	1012.1-1013.0	3.8	7.6	1014.1-1015.0	19.3	22.2
	1013.1-1014.0	3.8	11.4	1015.1-1016.0	48.0	70.2
	1014.1-1015.0	20.1	31.5	1016.1-1017.0	19.3	89.5
	1015.1-1016.0	31.0	62.5	1018.1-1019.0	2.9	92.4
	1016.1-1017.0	20.1	82.6			
	1018.1-1019.0	3.8	86.4			
Apr	1005.0-1006.0	15.5	15.5	1005.0-1006.0	6.7	6.7
	1006.1-1007.0	15.5	31.0	1006.1-1007.0	26.4	33.1
	1007.1-1008.0	15.5	46.5	1007.1-1008.0	42.1	75.2
	1008.1-1009.0	27.0	73.5	1008.1-1009.0	18.5	93.7
	1009.1-1010.0	15.5	89.0			

TABLE 5 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jul	998.0-999.0	4.0	4.0	998.0-999.0	6.7	6.7
	999.1-1000.0	50.0	54.0	999.1-1000.0	43.9	50.6
	1000.1-1001.0	9.8	63.8	1000.1-1001.0	19.3	69.9
	1001.1-1002.0	4.0	67.8	1001.1-1002.0	15.2	85.1
	1002.1-1003.0	4.0	71.8	1002.1-1003.0	6.7	91.8
	1003.1-1004.0	9.8	81.6			
	1006.1-1007.0	4.0	85.6			
Oct	1004.0-1005.0	4.0	4.0	1007.0-1008.0	11.5	11.5
	1006.1-1007.0	9.8	13.8	1008.1-1009.0	15.8	27.8
	1007.1-1008.0	4.0	17.8	1009.1-1010.0	28.6	55.9
	1008.1-1009.0	15.5	33.3	1010.1-1011.0	28.6	84.5
	1009.1-1010.0	9.8	43.1	1011.1-1012.0	3.0	87.5
	1010.1-1011.0	21.3	64.4	1014.1-1015.0	3.0	90.5
	1011.1-1012.0	15.5	79.9			
	1013.1-1014.0	4.0	83.9			

have been calculated for selected months. The results may be obtained in the Table 3. At first scatter diagrams are drawn (Dhaka *vs* any one of the other stations), which show that the relations are linear. From analysis, it comes out that the correlation coefficients between pairs of stations vary from month to month. The spatial distributions of correlation coefficients (between Dhaka and the rest of the stations) show that the central and central-western portions of the country belong to a zone with the significant values ($r \geqslant 0.76$) of correlation coefficient in most of the months (Fig. 4). So, a conclusion may be made that most of the meteorological stations of Bangladesh are representative with respect to Dhaka with regard to mean sea level pressure.

Regression equations — As the relation is linear, the model equation is $y = mx_i + c$; where y stands for Dhaka and x_i stands for other stations in individual cases. A set of regression equations have been obtained which may be found in Table 4.

3.6. *Probability characteristics*

Empirical probability of mean sea level pressure for different stations of Bangladesh in different months, [calculated following formula Eqn. (2)], may be obtained in Table 5. In the same table, cumulative probabilities are also available.

4. Conclusions

(*i*) The maximum of mean sea level pressure is observed either in January or in December and the minimum is found to occur in June or July.

(*ii*) Mean sea level pressure begins to fall in February. The highest rate of fall (with respect to minimum) of it is observed in May. Sharp rise in mean sea level pressure is marked in September.

(*iii*) The maximum of mean sea level pressure is observed, when the periphery of the Asiatic anticyclone is dominant and the minimum occurs when the monsoonal processes (monsoon depressions, tropical cyclones, ITCZ etc) are most frequent.

(*iv*) From October to February, the zone with the highest mean sea level pressure is observed in the northwestern part of the country. Values decrease towards the east. The reverse phenomenon is seen in the rest months of the year.

(*v*) In the spatial distribution of annual mean sea level pressure, it is observed that a cyclonic system is predominant over Bangladesh. Pressure varies from the east to the west.

(*vi*) The zone with the maximum annual amplitudes of mean sea level pressure is situated in the western part of Bangladesh. Values fall meridionally to the east. The minimum is found in the southeastern coastal areas of the country.

(*vii*) From the study of the correlation characteristics of mean sea level pressure between different pairs of stations, it comes out that the most of the meteorological stations of Bangladesh may be termed as "representative". Some regression equations have been obtained showing relationship of mean sea level pressure between Dhaka and some other stations.

(*viii*) Empirical and cumulative probabilities of mean sea level pressure have been obtained for selected stations for central months.

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