

Various time-scale variation of meteorological elements in Bangladesh

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Bangladesh has been suffered from various meteorological disasters for long years. During the monsoon summer season, severe flood occurred almost every year and water covered over most of the country. For example, more than sixty percent of land was covered with water in 1998 flood and more than half was flooded even in the capital of Dhaka city. Before and after the rainy season of summer monsoon, violent cyclones attacked Bangladesh and strong wind and high storm surge damaged in the southern coast in the Bay of Bengal. One of the severest cyclones landed on the southeastern coast in the end of April of 1991 and more than one hundred thousand persons were killed. In addition, severe local storm called 'Nor'wester' occurred in the pre-monsoon season and strong wind and heavy rainfall damaged intensely in narrow area.

The Japanese research team has made collaborative works with Bangladesh Meteorological Department (BMD) and Bangladesh University of Engineering and Technology (BUET) for fifteen years from 1987 for the prevention and the reduction of various natural disasters in Bangladesh, above mentioned floods, cyclones and severe storms. The Japan International Corporation Agency (JICA) has supported this work. Through these research processes, we have collected the meteorological data and made nearly complete database of several meteorological elements for the period from 1950 to 2000. The object of this study is to clarify the relations of the meteorological disaster to the various time-scale meteorological/climatological phenomena; 1) diurnal: daily variability of meteorological elements; 2) intra-seasonal: variations of active (abundant rainfall) and break (scanty rainfall) monsoon phases; 3) seasonal: onset and with draw of summer monsoon; and 4) inter-annual and decadal: climatic change of elements.

The preliminary results of the statistical analysis of rainfall amount are as follows;

- 1) The clear diurnal variation of the rainfall and its significant difference of locality.
- 2) The dynamic year-to-year variation of rainfall.
- 3) The seasonality and intra-seasonality and their synoptic situation.

Tuesday II (Talk)