

Preface

One of the most challenging problems in atmospheric science is to develop an adequate understanding of the variability of the Indian monsoon on various time-scales: subseasonal, interannual and decadal, that could be translated into a predictive capability. The monsoon is strongly coupled to the warm oceans surrounding the subcontinent. Most of the monsoon rainfall occurs in association with synoptic systems, such as lows and depressions, generated over the warm oceans and their subsequent propagation over the Indian landmass. The Bay of Bengal is exceptionally fertile generating these systems and plays an important role in monsoon variability.

Studies of satellite data over the past two decades have revealed the nature of convection/precipitation over the oceans and their relationship with monsoon variability. These in turn, have led to various hypotheses to explain the propagation of these systems in the atmosphere, their impact on the ocean and the recovery of the atmosphere and ocean to the pre-disturbance state. These hypotheses need to be tested and refined by detailed observations of the air-sea coupling during the monsoon.

The BOBMEX field experiment, an acronym for the 'Bay of Bengal and the Monsoon Experiment' is aimed at accomplishing this objective by generating critical data on the subseasonal variation of important variables of the atmosphere, the ocean and their interface processes. This is the first major national effort at designing experiments to gain critical insights into the structure of monsoon variability. The earlier international observational programmes in 1977 and

1979 provided some insights into the heat and moisture budgets of the Bay. Under the first national observational programme of the monsoon trough (MONTBLEX), some observations of the variation of winds, surface fluxes and other parameters were made in the head Bay. The BOBMEX envisaged the use of state-of-the-art instrumentation to obtain time series data at two critical locations over the Bay during the months of July – August 1999. Prior to this, a pilot experiment was undertaken over the Bay in October – November of 1998 to test the instruments and obtain a first order picture of the nature of the variability. Results of this pilot experiment are presented in this volume.

BOBMEX is an important component of the Indian Climate Research Programme (ICRP), made possible by the development of adequate expertise in the country for the use of state-of-the-art instrumentation, and availability of scientific infrastructure notably research vessels and buoys. The main observational programme, successfully carried out in July – August 1999, has already yielded exciting results and has set the stage for making a concerted effort to profitably involve scientists from different institutions in addressing other observational experiments planned under the ICRP.

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