

The 2015 Indian Summer Monsoon Onset - phenomena, forecasting and research flight planning

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Abstract: From May to July 2016, as part of the INCOMPASS project, the Facility for Airborne Atmospheric Measurements (FAAM, jointly funded by the Met Office and NERC) BAe-146 research aircraft travelled to India to record key aspects of the Indian summer monsoon onset and evolution. As part of the planning for the campaign, partners in the UK and India took part in a “dry-run” forecasting exercise during 2015, to assess the reliability of the forecast products and develop a set of flight plans, in advance of the real campaign, and to get a real-time feel for the monsoon onset. 5-day forecasts from the Met Office and the Indian National Centre for Medium Range Weather Forecasting (NCMRWF) showed good skill in terms of predicting the advance of rainfall in regions key for the campaign in north and south India, and captured transitions from active (wet) monsoon conditions to break (dry) periods and back again. Key phenomena seen during the dry-run exercise include (1) a “western disturbance”, which had a major effect on the extreme pre-monsoon heat wave conditions over India, (2) dry intrusions, which are thought to be important in the progression of the monsoon onset against the synoptic flow, and (3) cyclones Ashobaa and Komen