



Features of low level winds over Cochin during the deluge of Monsoon-2018 using 205 MHz wind Profiler Radar

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This study focusses on the application of remotely sensed wind data from a VHF wind profiler to understand the features of the monsoon low level jet during the great deluge happened in the monsoon months of 2018. A major flood-induced disaster occurred during the period 07-16 August 2018. The sophisticated radar installed at the Advanced Centre for Atmospheric Radar Research (ACARR), Cochin University of Science and Technology, Kerala, and operating at 205 MHz, provides high spatial (45 m) and temporal (~10 minutes) data of all the three wind components. Deep convective clouds which moved in south-east direction over the State led to the unprecedented flood situation, which was obvious from the wind profiler data. The radar data was screened for data quality and examined for its daily variation during the flood event. It is observed that the monsoon low level jet showed an increasing tendency during the major event, and crossed a threshold value of around 18 ms^{-1} on many days.

Given below is the figure of vertical profiles of horizontal wind centered around 17:30 hrs during 07-15 August 2018 (The Radar was not operational on 16th August due to technical failure). The Radar is capable of acquiring vertical profiles of all the three components of wind from 315 meter to beyond 20 km [1], and the vertical shear also could be studied. On many occasions, the depth of the westerlies was large enough ($> 7 \text{ km}$ depth) to bring in ample moisture on to the land area from the adjoining Arabian Sea. It is observed that the high content of moisture due to enhanced speed and depth of westerlies could create havoc in the State. Detailed results will be presented in the conference.

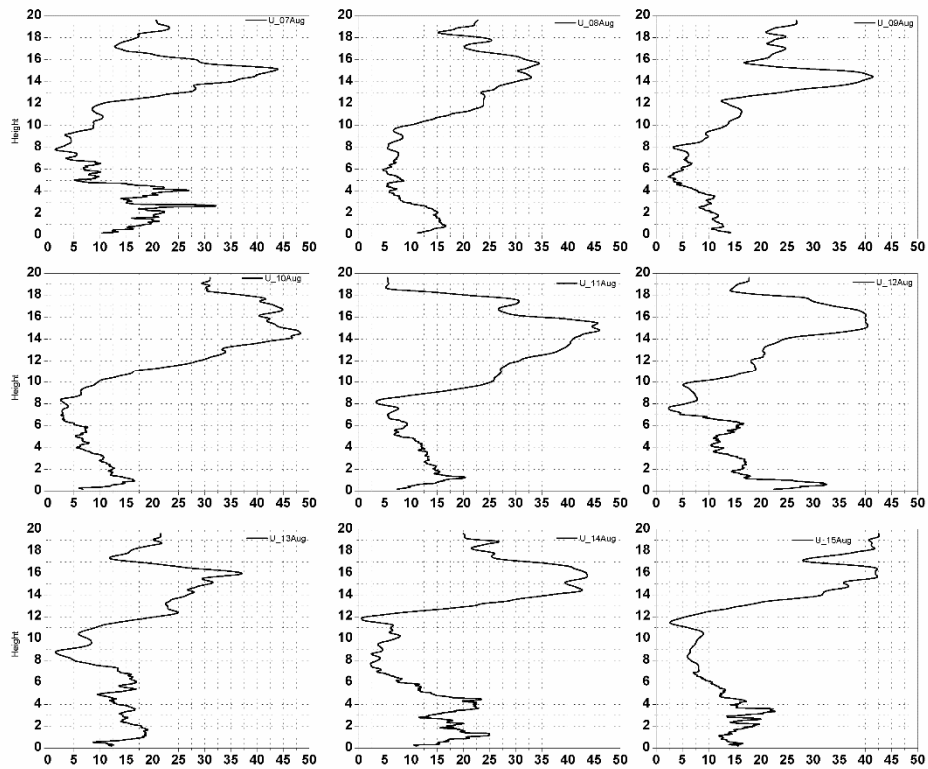


Figure 1. Vertical profiles of horizontal wind (ms^{-1}) at around 17:30 hours from 07-15 August 2018.

1. K. Mohankumar, Ajil K, Anandan V.K., Titu K.S., Linto, T., Satheesan, K., Rejoy R, **Manoj M.G.**, Rakesh V., etc. “Technical Details of a Novel Wind Profiler Radar at 205 MHz”, *Journal of Atmospheric and Oceanic Technology*, **34**, 2017, pp. 2659-2671, doi: 10.1175/jtech-d-17-0051.1