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**Evaluation the performance of very short-term forecast by dual-polarimetric radar observations :
 a case study of Squall Lines during 2008 SoWMEX-IOP8**.

**Abstract**

To evaluate the performance of numerical weather prediction and identify the model errors at storm scale, dual-polarimetric observations have been used in this study. First, the WRF-LETKF system is used to assimilate radar reflectivity and Doppler wind to obtain the optimal analysis on Jun 14th during the SoWMEX IOP8 in 2008. In addition, three different microphysics parameterization schemes are used in the study. By using Polarimetric Radar Data Simulator (PRDS) which developed by Jung et al (2008), model outputs have been converted and compared to the NCAR S-Pol dual-Pol parameters.

The traditional forecast skill scores prove that the very short-term forecast is much better after radar data assimilation. By examining Contour Frequency Altitude Diagrams (CFADs) of ZH, ZDR and KDP, the results show that the improvements can be up to 3 hour forecast lead time. When differentiating the precipitation between convective and stratiform regions, results of reflectivity (ZH) show both straitform and convective regions are improved. However, the improvement of $Z\_{DR}$ and $K\_{DP}$ could be limited without assimilating dual-polarimetric data.

**Keywords**

Contour Frequency by Altitude Diagram (CFAD)

Polarimetric Radar Data Simulator (PRDS)