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Xiaoyan Zhang 4-5 The Impact of SEVIRI Radiance Data Assimilation on Regional Forecast for Africa Andrew Collard , Jacob Carly and Geoff DiMego

This study places the NCEP regional operational forecast model NMM-B and the data assimilation system NDAS over Europe and Africa. The purpose of this study is to evaluate the performance of NCEP regional model forecast for Europe and Africa region; and the clear-sky SEVIRI (Spinning Enhanced Visible and Infrared Imager) radiance data impact on regional forecast for this region. SEVIRI has high temporal scan frequency and high foot-print, which has the potential to improve the high impact severe storm weather. Hence, this research is the preparation step for further assimilating all-sky SEVIRI radiance data and improving the storm forecast over Lake Victoria. Therefore, two experiments are conducted over the 12km resolution model domain: the first experiment assimilated conventional data and satellite radiance data but without SEVIRI radiance observations; the second assimilated the extra clear-sky SEVIRI radiance based on the first experiment. The data assimilation system is NCEP GSI 3D-Var version, which assimilated satellite radiance data include: AMSUA, AMSUB, HIRS4, AIRS, MHS, IASI and SEVIRI. Only two water vapor channels (WV6.2 μ m & 7.4 μ m) of SEVIRI are assimilated. Conventional data and SEVIRI as well as other satellite radiance data are assimilated with hourly-updated cycle, which could enhance the performance of the high temporal resolution features of SEVIRI. The detailed comparison and forecast skill from two experiments will be presented, and the impact of clear-sky SEVIRI radiance data will be discussed.