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The 2017 High Impact Weather Events over South Africa

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The mandate of the South African Weather Service (SAWS) is to provide weather, climate and air quality related information, products, services and solutions that contribute to the safety of life and property in the air, land and sea. To deliver on its mandate, SAWS operates a comprehensive weather observation network and also runs models in operational mode. The observation network includes 14 operational some S-band and C-band radars which cover most of the country. SAWS also operates a lightning detection network which has been in operation since 2006. Further SAWS also access satellite information in near real time and this information is especially helpful for areas where there is no radar network. The United Kingdom Met Office (UKMO) Unified Model (UM) is used for short range forecasting and is operated with a grid spacing of 4.4km and 1.5 km. For the medium range timescale, SAWS downloads data from the European Centre for Medium-Range Weather Forecasts (ECMWF) and National Centers for Environmental Prediction (NCEP) Global Ensemble Forecasting System (GEFS). In this presentation the performance of SAWS in issuing warnings of high impact weather events that took place in 2017 will be assessed against the model simulations that are produced both at SAWS as well as the ECMWF simulations. Moreover, the assessment of the performance will also be checked against the availability of the radar and satellite data in the nowcasting timescale. The general statistics will be presented for floods and heavy rainfall events, thunderstorms including hail storms and tornadoes, as well as strong winds that were reported in print media. Initial results indicate that SAWS issued warnings for 21/26 veld fires, 28/51 heavy rain or flooding events, 18/32 thunderstorms and 9/18 strong winds 24 hours in advance. The data that is valuable for warnings that are issued 24 hours or longer before the event occurs is produced by models. Closer to the events, the critical infrastructure is that associated with near real-time observations. In the presentation we will also show the effects of the availability of the observations to warnings issued by SAWS. The presentation will also highlight challenges associated with managing both observation and model simulation data.

Presenter Biography

Primary author: Dr BOPAPE, Mary-Jane (South African Weather Service)

Presenter: Dr BOPAPE, Mary-Jane (South African Weather Service)

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