Contribution ID: **193** Type: **Invited talk (plenary/keynote)**

High Performance Computing at the South African Weather Service

Monday, 4 December 2017 13:30 (30 minutes)

The South African Weather Service (SAWS) is the national weather forecast and climate prediction agency and only atmospheric alerting authority in South Africa. The SAWS runs numerical models to simulate weather and climate over a variety of time scales, ranging from very short-range (0-12 hours) to multi-decadal timescales in what is termed a "seamless forecasting system" for the successful execution of its mandate. In 2013, the SAWS mandate was amended to also include air quality monitoring and modelling. The SAWS also runs marine and ocean models, as well as application models to help in decision making in sectors such as agriculture, water resource management, health, aviation, as well as energy. A critical enabling technology utilised by SAWS to perform the simulations described is a High Performance Computing (HPC) system and SAWS currently has a CRAY XC30 system. The current SAWS system is not enough for SAWS to conduct both its operational activities and research activities. Furthermore, the SAWS does not have a failover system to ensure business continuity in the event that the CRAY system fails to run. In order to address these issues, the SAWS and the Centre for High Performance have signed Memorundum of Agreement which will allow the SAWS to use the CHPC cluster as a fail-over system as well as for research purposes. Six research programmes that will address different research areas and timescales that the SAWS is working on have been agreed on, namely, 1) Very Short-Range Forecasting, 2) Short and Medium Range Forecasting, 3) Long-Range Forecasting, 4) Climate Change and Variability, 5) Air Quality Studies as well as 6) Applications Research. The talk will provide an overview on planned work, work in progress and work already done on the CHPC cluster in the different research programmes of the SAWS.

HPC content

Contained in abstract

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Session Classification: Earth Science

Track Classification: Earth Systems Modelling