Contribution ID: **134** Type: **Talk**

Computations on the CHPC: Evaluation of the COSMO model

Monday, 4 December 2017 14:30 (15 minutes)

The South African Weather Service (SAWS) is the mandated national meteorological service tasked with providing timely and accurate scientific data in the field of meteorology to the broader South African community, through a combination of both public and commercial services. It is, therefore, of great importance that the SAWS issues weather forecasts of high quality and value. SAWS accomplishes this task, partially, through the use of weather forecast models, with Unified model (UM) from the UK Metoffice serving as the main operational model.
Weather forecast models perform differently across different parts of the globe. In order to ensure continuous delivery of high quality weather forecasts to SAWS stakeholders, model inter-comparisons are necessary. The main purpose of model inter-comparison is to examine, compare and analyse the outcome of different models in order to identify the most suitable model for SAWS. Previous studies have also shown that forecasts from multi-model systems are more skilful than those from one model. In addition to running the UM for operations, the SAWS is interested in studying the performance of other models over the country. Two models used in a number of countries have been chosen for this purpose and they are the Weather Research and Forecasting (WRF) and Consortium for Small-scale Modelling (COSMO) models.
This study will focus on the COSMO model, which is a limited area model driven from Icosahedral Nonhydrostatic (ICON) global model. The ICON model runs with a grid spacing of 13km globally, and therefore COSMO cab be set up to run with a grid spacing that is smaller than 5km and therefore provide higher resolution simulations. The COSMO model is being run with a grid spacing of 2.8km and 50 vertical levels in Germany, which allows for accurate numerical prediction of near-surface weather conditions (e.g. clouds, fog, frontal precipitation) and simulation of severe weather events triggered by deep moist convection (supercell thunderstorms, intense mesoscale convective complexes, prefrontal squallline storms and heavy snowfall from wintertime mesocyclones). In this study, the COSMO model will be used to simulate selected case studies, and verified against the SAWS observations.

HPC content

Model computation and running

Primary author: Mrs MULOVHEDZI, patience tlangelani (scientist)

Presenter: Mrs MULOVHEDZI, patience tlangelani (scientist)

Session Classification: Earth Science

Track Classification: Earth Systems Modelling