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## **Computational challenges of running kilometer-scale Earth System Models in a developing country**

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Extreme weather events' escalating frequency and severity underscore the urgent need for high-resolution climate modelling. Developing countries, often with limited resources, face unique challenges in implementing kilometre-scale Earth System Models (ESMs) to simulate local-scale climate projections accurately. Here, I will explore the computational challenges associated with running such models and the socio-economic implications and opportunities. I will also present a case study of the Conformal Cubic Atmospheric Model (CCAM), a component of the first African ESM, at the Southern African Centre for High-Performance Computing (CHPC). By examining CCAM's performance and identifying computational bottlenecks, we aim to inform strategies for optimizing ESMs in resource-constrained environments.

### **Student or Postdoc?**

PhD or DTech4

### **Email address**

### **Co-Authors**

### **CHPC User**

### **CHPC Research Programme**

### **Workshop Duration**

**Primary author:** Mr MOALUSI, Tumelo (Witwatersrand University)

**Co-authors:** Dr MONGWE, Precious (CSIR); Prof. ENGELBRECHT, Francois (Global Change Institute, University of the Witwatersrand); Dr CHANG, Nicolette (CSIR)

**Presenter:** Mr MOALUSI, Tumelo (Witwatersrand University)

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