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An update on the LFRic project

Tuesday, 21 September 2021 08:40 (20 minutes)

This talk will focus on the latest developments within the NGMS LFRic project, a replacement for the Met Office weather and climate model based on a separation of concerns approach splitting the natural science code from the computational optimisations. The talk provides details on on-going improvements to the performance and implementation of the full global atmosphere model implemented using the LFRic framework.

The Met Office, in collaboration with STFC Daresbury have been developing LFRic to meet the challenges of an uncertain future regarding computing architectures on the road to exascale computing. The new model follows a separation of concerns approach regarding science code and the optimised performance code. Code optimisations are generated at compile time using a Python based code generator (PSyclone) which parses the science code and applies appropriate optimisations provided as a 'recipe' based on the knowledge of the computational scientists. The generated code produced by PSyclone calls back to the LFRic infrastructure library which provides the appropriate functionality for parallelisation and optimisations. By doing this the burden of knowledge on individual developers is reduced and performance porting and parameterisations can be performed more easily.

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