Geoscientific
Model Development
Discussions

Interactive comment on "Using a Virtual Machine environment for developing, testing, and training for the UM-UKCA Composition-Climate Model, using Unified Model version 10.9 and above" *by* Nathan Luke Abraham et al.

Anonymous Referee #1

Received and published: 14 June 2018

General Comments:

This manuscript describes a virtual machine (VM) for low-resolution testing and code development of the Met Office Unified Model, focusing on the chemistry and aerosol sub-module. The use of VM's and containers remains relatively new in the geophysical model development community, and the exploration presented here is a worthwhile contribution. The contribution is generally well-written and complete, subject to some clarifications requested below.

Specific Comments:

While the manuscript is generally well written, I found Section 4.2 somewhat confusing and possibly unnecessary. The comparison between two HPC platforms and a 1x2 decomposition in the VM did not lead to any conclusions that I could discern. I can't see how the statement that the "compile time is comparable on the VM" is supported by the evidence presented. I am also unable to find a description of where the VM is deployed in these tests.

The relevant issue here is the overhead of the VM, which we can expect will be large compared to e.g. a container. A 1x2 HPC test, then a 1x2 test with the VM deployed on the same HPC, would directly address that question.

A second comment is that while the results are likely reproducible with a few limitation of hardware (maybe), the general lack of access to the code due to restricted access does diminish the value of this contribution.

Technical corrections:

P1L22: Break up the sentence beginning with "The UM..."

P2L15: Please clarify the discussion of Rose and Cylc. As written they both appear to be workflow management systems of some kind.

P4L1: How does the time step affect memory? I can't follow that sentence.

P10L8: I suggest a new paragraph at "The VM"

P11L22: "mule-cumf" needs explanation