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Interactive comment on "Isca, v1.0: A Framework for the Global Modelling of the Atmospheres of Earth and Other Planets at Varying Levels of Complexity" *by* Geoffrey K. Vallis et al.

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This is a very valuable contribution to the literature, and in my view, certainly fits well in this journal. The authors should be commended on the effort that has gone into this, as well as the openness of the code. I have a few comments, mainly as points of clarification that do not change any of the messages of the paper.

General comments:

1. It might be a lot of effort, but I think this paper would benefit from having an appendix of terms at the end. The issues in this paper deal heavily with radiative processes, and

dynamical process. Normally, the reader will be an expert in only one of these areas, and so may get lost in the other. For my part, terms like 'correlated-k radiation scheme' are a little abstract. Alternatively, a brief short explanation for these terms in the main text may help.

2. Python can be a nightmare for version control, with syntax changing rather dramatically between versions. Will the Python wrappers be frozen at a certain version, or continuously updated? I think this is different to the point 4 on page 15, which deals with a slightly different issue, but I might be mistaken.

Minor clarifications/changes:

1. The affiliation order is wrong for Ed and Martin (2 comes before 3!).

2. The name 'Isca' is a little confusing, it is not an acronym, but neither is it a real word (as far as I know). A couple or words explaining why it is called this would help.

3. P2 (left column). Is not another very valuable part of this framework just to explore interesting GFD problems, some of which we really are struggling to answer (for instance the strat-trop couple mechanism). So studying the GFD of other planets can help with Earth.

4. P5 (line 44): 'The shortwave band treats all solar radiation', I don't really follow this sentence, how is all radiation treated when it only covers the shortwave?

5. P6 (lines 38-39): What is meant be a 'reasonable' stratospheric and polar vortex? I'd argue that some CMIP5 models don't have a reasonable representation of these.

6. Section 4.4: Is it worth highlighting how important IR can be for planetary atmospheres. For instance, the O_3 in Earth's stratosphere, or organic hazes in Titan's atmosphere. Without the IR, you get a completely different response. It might be worth making this point explicitly.

7. Section 6.2: This might be a naïve question, but is water ice treated differently from

other ice's such as CO2 ice? Is there a reason to believe they might be different, in for example, their surface roughness?

8. P12 (lines 5-6): 'Here we make more modest changes...' this sentence is not clear to me. Is the 'more' attached to 'modest' or 'changes', i.e. are you making modest changes to the rotation rate and surface pressure?

9. P13 (lines 5-6): 'We have configured the thermal...' is this something that can be done through the Python interface? It sounds like it is a more fundamental code change.