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Climate of the Past Discussions

Interactive comment on "What controls the spatio-temporal distribution of D-excess and ^{17}O-excess in precipitation? A general circulation model study" *by* C. Risi et al.

Anonymous Referee #2

Received and published: 16 April 2013

General:

The paper attempts to examine the question of controls on 17O-excess and D-excess using the LMDZ atmospheric model. The results are of interest to the CPD community and the paper generally well structured. The main finding appears to be that the LMDZ model is not ideally suited to answering the question, which unfortunately leads to ambiguous results. Despite this negative result, the paper is of interest and merits publication in CP after some revisions.

Specific comments:

The title, as is, is somewhat misleading. It would be more accurate to title the paper

"Can we determine what controls the spatio-temporal distribution of d-excess and 17O-excess in precipitation using the LMDZ general circulation model?"

Sub-sectioning and writing is quite poor in places, and requires improvement. Some instances are picked out below. However it would be worthwhile authors re-examining all sections.

Integer values under ten are usually written using works rather than numbers e.g. "two terms" rather than "2 terms".

P5494,L26 GCM abbreviation before definition

P5495,L 14-15 Make clear the different between real processes and GCM representations of processes

L17 reference for 17O-excess definition

P5496,L1-2 Rephrase 'less conventional'

L15 'irreplaceable'-> 'invaluable'?

P5501,L4 Is Vostok data corrected for flow?

P5504,L20-25 Can this be condensed?

P5505,L22-25 Seems rather weak, rewrite?

P5508,L1-2 Difficult to understand this sentence.

L5 Spell out lambda as supersaturation.

L12 Spell out the parameter.

L18-20 Make the meaning of this sentence clearer.

L21 "Observed" 4 permil?

L22 "can" -> "may"?

P5509 I like this decomposition.

P5511,L6 “not affected as much”

L18-26 A bit confusing – fractionation coefficient effect?

Generally ordering in these sections would probably be clearer if it was consistently d18O, then d-excess, then 17O-excess.

P5512,L11-12 Why is this the case – reference or hypothesis?

L19 “Distillation (red)” confusingly marked otherwise on fig.

P5514,L17 “This decrease is”?

L18 “trajectories”

P5515,L1-3 Would be clearer if effects described, rather than line colours.

L23 “Risi et al (2010) chose lambda to optimise...”

P5516,L5-16 Why is this in the supersaturation section. Should be a separate section/subsection.

L19 Rephrase “very well”

L24 “Exhibits caveats”??

L27 “factors”

P5517,L17,18 Rephrase “push towards”

P5518,L5 Rephrase “fractionating evaporation”

L8-10 Rewrite last sentence.

Fig7-9 Confusing that legend/lines/decomposition varies between figures.

Interactive comment on Clim. Past Discuss., 8, 5493, 2012.