Geosci. Model Dev. Discuss.,
doi:10.5194/gmd-2016-130-RC1, 2016

Geoscientific Model Development Discussions
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EGU

Interactive comment on "The Brazilian developments on the Regional Atmospheric Modeling System (BRAMS 5.2): an integrated environmental model tuned for tropical areas" *by* Saulo R. Freitas et al.

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Received and published: 7 June 2016

The paper provides an in-depth summary of the BRAMS modeling system. It is well-written and an important documentation of the wide range of capabilities and applications of this world-class research and operational modeling tool.

It was straightforward to review as the text follows how earlier model descriptions have been completed for RAMS and for other models.

I only have a few comments:

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Discussion paper

1. There is a need to improve the English. For example, in line 17 in section 4, it is written

"Lastly, to maintain and advance its competitive in the select team of limited area regional environmental models...."

It should be something like

"Lastly, to maintain and advance its CAPABILITY IN limited area regional environmental models...."

All of the text should be read and edited as needed for the best English.

2. The authors neglected to cite other relevant RAMS applications and model descriptions. These include

Pielke, R.A., W.R. Cotton, R.L. Walko, C.J. Tremback, W.A. Lyons, L.D. Grasso, M.E. Nicholls, M.D. Moran, D.A. Wesley, T.J. Lee, and J.H. Copeland, 1992: A comprehensive meteorological modeling system – RAMS. Meteor. Atmos. Phys., 49, 69-91. http://pielkeclimatesci.wordpress.com/files/2009/09/r-155.pdf

There are also uses of RAMS coupled to a biogeochemistry model that the authors may not know about and that provide a history of such RAMS applications; e.g.

Eastman, J.L., M.B. Coughenour, and R.A. Pielke, 2001: The effects of CO2 and landscape change using a coupled plant and meteorological model. Global Change Biology, 7, 797-815. http://pielkeclimatesci.wordpress.com/files/2009/10/r-229.pdf

Eastman, J.L., M.B. Coughenour, and R.A. Pielke, 2001: Does grazing affect regional climate? J. Hydrometeorology, 2, 243-253. http://pielkeclimatesci.wordpress.com/files/2009/10/r-233.pdf

Lu, L., R.A. Pielke, G.E. Liston, W.J. Parton, D. Ojima, and M. Hartman, 2001: Implementation of a two-way interactive atmospheric and ecological model and its application to the central United States. J. Climate, 14, 900-919.

http://pielkeclimatesci.wordpress.com/files/2009/10/r-232.pdf

There is also an earlier applications of RAMS to South America

Beltran-Przekurat, A., R.A. Pielke Sr., J.L. Eastman, and M.B. Coughenour, 2011: Modeling the effects of land-use/land-cover changes on the near-surface atmosphere in southern South America. Int. J. Climatol., DOI: 10.1002/joc.2346. http://pielkeclimatesci.files.wordpress.com/2011/05/r-343.pdf

In terms of RAMS coupled to air quality models, there are a number of papers using both Eulerian and Lagrangian dispersion models. Two examples are

Lyons, W.A., R.A. Pielke, C.J. Tremback, R.L. Walko, D.A. Moon, and C.S. Keen, 1995: Modeling the impacts of mesoscale vertical motions upon coastal zone air pollution dispersion. Atmos. Environ., 29, 283-301. https://pielkeclimatesci.files.wordpress.com/2009/09/r-99.pdf

Pielke, R.A. and M. Uliasz, 1998: Use of meteorological models as input to regional and mesoscale air quality models - Limitations and strengths. Atmos. Environ., 32, 1455-1466. https://pielkeclimatesci.files.wordpress.com/2009/10/r-184.pdf

There are quite a few others, as listed as http://cires.colorado.edu/research/research-groups/roger-pielke-sr-group.

Finally, a suite of different models are summarized in Table B in

Pielke Sr, R.A., 2013: Mesoscale meteorological modeling. 3rd Edition, Academic Press, 760 pp..

This includes BRAMS as of August 2012 (pages 597-600). The authors could refer to that information to show how much BRAMS has developed since then.

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