

Interactive comment on “Water vapour and the equatorial mesospheric semi-annual oscillation (MSAO)” by R. L. Gattinger et al.

Anonymous Referee #2

Received and published: 21 February 2013

1. This paper addresses the equatorial MSAO using a 1-D photochemical/dynamical model and satellite composition observations. It contains a fairly representative literature survey. 2. It is unclear what the motivation for this study may be. This interesting middle atmospheric phenomenon certainly deserves using state-of-the-art modeling techniques. One-dimensional modeling of this type, that uses eddy diffusion to replace horizontal advective processes, dates back to the 1960s. Another major shortcoming of this study is the lack of direct comparison of many of the individual species modeled with relevant measurements. 3. Minor comments: (a) the following terms: eddy mixing and eddy mixing rate (Abstract), eddy turbulence (pg 734, line 1), eddy turbulence (pg 735, line 22), turbulence (pg 735, line 24), eddy mixing (pg 735, line 26), eddy mixing rate (pg 735, line 28), eddy mixing (pg 736, line 18), eddy mixing (pg 737, line 10), eddy mixing coefficients (pg 738, line 3), eddy mixing rates (pg 740, line 17), eddy
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mixing (pg 741, section 6, line 16, line 18, and line 25), eddy coefficient (pg 741, line 20), eddy mixing coefficient (pg 742, line 18), eddy mixing rate (pg 742, line 22), eddy mixing (pg 742, line 25), and eddy mixing (pg 743, line 4) should be replaced by eddy diffusion or eddy diffusion coefficient, as appropriate. (b) On page 736, line 24, CO and CO₂ are given also as carbon monoxide and carbon dioxide, however none of the other species in the list is identified in the same way here.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 729, 2013.