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Nonlinear Processes in Geophysics
Discussions
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Interactive comment on "Temperature distribution and Hadley circulation in an axisymmetric model" *by* N. Tartaglione

Anonymous Referee #2

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This study is based on previous works published in the last decades that try to study the structure and intensity of Hadley cell based only on general circulation parameters, such us the rotation of earth, the solar constant and obviously on physical constraints. To my viewpoint this paper is an interesting contribution in the topic and can be published taking into account some minor questions.

1 – In section 2 it is not necessary to explain all the equations, altough some more explanations will be wellcomed. But I have some concerns on the assumptions. Specifically the step between equation 6 and 7 is not clear for me. Figure 1, helps to visualize the physical meaning of n and k. The question is that the election of the experiments between 0.5 and 3 is not well motivated. Why not other interval or other step? This election determines all the subsequent results and therefore must be well motivated

under physical assumptions.

2 – The location of maximum zonal wind is somewhat problematic. First of all is always located under 30°, but there is a transition when n=3. To my viewpoint a discussion based on physical constraints would be grateful. What does it means a planet with n=3? Is this a realistic scenario? Perhaps we can see in the next future a situation like that because of climate change.

In any case, to my viewpoint if the author can give more explanations on the election of the parameters and the relationship with the real situation in Earth the paper can be published in Nonlinear Processes in Geophysics because this kind of works are completely on the scope of this publication.

Interactive comment on Nonlin. Processes Geophys. Discuss., 1, 1621, 2014.