

Interactive comment on “Dynamically controlled ozone decline in the tropical mid-stratosphere observed by SCIAMACHY” by Evgenia Galytska et al.

D. Siskind

david.siskind@nrl.navy.mil

Received and published: 12 October 2018

I do not have much to add to the reviewers comments, except the following:

Their discussion on lines 7-11 on page 5 reads as if they are contradicting themselves. Thus line 7 says “decrease in N₂O” while lines 8-10 discuss an increase in upwelling leading to “lower N₂O oxidation” which necessarily would produce an increase in N₂O. It is true that the specific model perturbation we introduced (Nedoluha et al., 2015b) had an increase in upwelling; however, the model-to-model comparison we made was to show that upwelling strength varies directly as N₂O and inversely as NO_y. And the objective was to explain the lower ozone, which would result from weaker upwelling. I would therefore like to suggest a wording change to be clearer:

Using a 2D chemical-dynamical model, they showed that changes to the tropical upwelling could lead to changes in the N₂O oxidation via (R8a) and thus affect the NO_y production. Based on this, Nedoluha et al. (2015b) concluded that weaker tropical upwelling could therefore explain the decrease of O₃ in the tropical mid-stratosphere.

David Siskind

We thank David Siskind for his helpful comment. We have improved the text as suggested on **P5 L9-11** as follows: ‘Using a 2D chemical-dynamical model they showed that the changes in the tropical upwelling could lead to the changes in the N₂O oxidation via (R8a) and thus affect NO_y production. Based on this, Nedoluha et al. (2015b) concluded that weaker tropical upwelling could, therefore, explain the decrease of O₃ in the tropical mid-stratosphere’.