

Review of revision of Wu et al. 2017 (ACP)

In general the reviewer addressed my concerns in the revised manuscript, expect for one item:

Past review question:

4. Figure 13, you argue the gap between 2009.10 and 2010.2 is due to temperature perturbation. Are you suggesting H₂SO₄-H₂O aerosol gets evaporated? I don't think so, the reason is at such low temp, the vapor pressure is super low. Graves may leads to some evaporation, but I assume a few months gap is not expected. Any other reasons? What is the green in early 2009 and late 2010? Any more analysis/evidence suggests they are actually from Sarychev volcanic aerosols for the period of 2009.7-2010.5?

Actually, the gap is due to an aerosol detection method artefact.

The aerosol detection is based on an aerosol-cloud-index (ACI) method described in Griessbach et al. (2016). An analysis of the entire ACI time series shows that there is a very regular gap pattern: every 6 months in about January and July there is a gap. The periodic (semi-annual) changes in the ACI are caused by the radiances in the 960 cm⁻¹ window of the AI. At 960 cm⁻¹ an impact of CO₂ hot bands (at around 50 km) is the most likely explanation for the detection artefact. We added a brief explanation in the revised manuscript.

Seems you didn't fully answer/discuss my question. What is the green in early 2009 and late 2010 on your plot? Are they real aerosol (volcanic? or others) or the artifacts you mentioned in the reply?

I am a little surprised that MIPAS can tell aerosol/cloud effectively in TTL (down to 15 km), Are the data really meaningful?

For now, I am still not convinced on the tap-recorder behavior. Please provide more analysis or you can drop this section.