

## **Sensitivity of different BVOC emission schemes in WRF-Chem (v3.6) to vegetation distributions and its impacts over East China**

### **Abstract (Line – comment)**

41 - ... the version of WRF-Chem updated... → You should use the acronym since it is the first time you mentioned WRF-Chem.

### **1. Introduction (Line – comment)**

115 - ... and therefore is mainly used in previous studies (e.g., (Guenther et al., 1996.... → I think the double parenthesis is a typo...

132 - production over East China (e.g., (Han et al., 2005; Wei et al., 2007; → as line 115

### **General comment on abstract and introduction**

The abstract and introduction have a well-defined and clear structure, but for few mistakes along the way, they look fine.

### **2. Methodology (Line – comment)**

171-182 – I think you could use a table to summarize the configuration of WRF-Chem.

191 – Since you introduced the update made in MEGAN v2.1 by Zhao et al. 2016, I think you can move the lines 224-230 (from Zhao et al to Zhao et al...) here.

259-260 – the sentence “(referred to as VEG-USGS hereafter)” is a repetition, you could delete it

262 – The acronym of MODIS is missing

285-295 – A map of the simulation domain could be clarifying the visualization of it to the readers.

296-313 – As the WRF-Chem configuration you can use a table summarizing the chemical mechanism and emissions used, maybe you could use one table for the whole WRF-Chem setup.

313 – Typo in the citation Zhao et al.

### **General comment on the methodology**

The methodology paragraph is well-structured as the introduction, but I think you should go through the paragraphs and represent more efficiently the simulation domain and (physic and chemistry) parametrization by a table and/or map.

### **3. Results (Line – comment)**

357 – I think the reference should be to Fig. 3 instead of Fig. 4

386 - The word “unban” is a typo.

Fig. 5 – If you write on the caption the number of PFT for needle-leaf evergreen tree, broadleaf evergreen tree and broadleaf deciduous tree, it could be clearer to the readers.

Fig. 6 – It could be better to explain the ration in the caption, as you did in the Fig. 7 (i.e., “...between simulations in July and that in April...”)

Fig. 8 – The plot misses of the axis values.

463-472 – I think you should introduce here the Guenther et al., 2006 citation.

#### **4. Summary and conclusion** (Line – comment)

No comments

#### **General Comment on results and conclusion**

- 1) I very appreciated as you presented the results and I believe it is a very useful study since you clarified some of the main changes between the different version of MEGAN models.
- 2) The study lacks an exhaustive comparison with the observed data of BVOC, I appreciate your commitment in reporting data from the literature to get a general idea of the comparison, but I think that this aspect should be deepened, perhaps with the next study.