

### **Final Author Comments to the Topical Editor Decision**

Comments to the manuscript of Margarita Choulga et al. “Global anthropogenic CO<sub>2</sub> emissions and uncertainties as prior for Earth system modelling and data assimilation”

Dear Editor, thank you for the constructive ideas and useful comments. We have expanded considerable effort to address all comments and to improve the manuscript in all its parts: text, figures, tables. We believe that all comments and concerns raised have now been addressed. Please find below our response to your comment. In the supplement there is the revised final version of our manuscript.

#### ***Topical Editor Decision comments and Authors reply***

##### **Comments to the Author**

*Requires substantial revision, to show usefulness of underlying tools in identifying emissions uncertainties while using ECMWF modeling system as one - but not the only - example. I have corresponded with authors, they will consider these modifications.*

We thank the Editor for all useful ideas and comments, guidance and help during the manuscript rewriting. We tried to reorganise our manuscript in a proposed manner and emphasise that uncertainty calculation tool is generic and can be used by any user for any purpose, in addition we also explained how tool can be customised according to the user needs.