

# ***Interactive comment on “Characteristics of soil profile CO<sub>2</sub> concentrations in karst areas and its significance for global carbon cycles and climate change” by Qiao Chen***

## **Anonymous Referee #1**

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Manuscript No: esd-2018-82 Journal: Earth System Dynamics

Title: “Characteristics of soil profile CO<sub>2</sub> concentrations in karst areas and its significance for global carbon cycles and climate change” by Quio Chen

The author of this manuscript presented analysis on the observed soil profiles of CO<sub>2</sub> concentrations over Zhaotong City, Yunnan Province. The manuscript provides with the necessary information on understanding the relationship between soil CO<sub>2</sub> concentrations with soil depth. This analysis further discussed on the correlations between soil organic carbon and CO<sub>2</sub> soil concentrations, which is negatively correlated. Overall manuscript could makes a significant contribution to the scientific research by provid-

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ing vital information on soil CO<sub>2</sub> concentrations in carbonate and non-carbonate areas. However, I believe that the original manuscript needs some analysis and changes to improve its quality. Hence, I will go with decision as “Accept with MINOR revision” and corrections should be strictly implemented before it is accepted for publication.

General Comments Page No.1, Line No.39-41: What is the importance of this Karst areas for measuring soil CO<sub>2</sub> concentrations, explain it with the proper references Page No.1, Line No.41-43: Re-write the sentence "Therefore, some workers have looked for the “missing sink” within the absorbed and released carbon in karst systems, and the estimated values reach a dominating part (almost 1/3) of the missing sink (Jiang and Yuan, 1999)". What does the mean of " some workers" in the following sentence, which needs to be correct. Page No.2, Line No. 52-54: The science questions which posed by the author needs be to addressed properly. Page No. 2, Line No. 87-89: Re-write the sentence, It's not clear Page No.6, Line No. 176-181: Discussions are not properly addressed. Re-write the sentence Specific Comments: 1. I suggest author of this manuscript to look into and revise the abstract in accordance with the results of this manuscript, which is missed in the current version. 2. I suggest to author to improve the quality of the figures like increase the font sizes on both axis, label sizes which needs to redraw for a the better representation and visualization 3. Page 14, section 3.7: I suggest the author to look into it and can be revised the sub-section as " The major controlling factors of decreased CO<sub>2</sub> concentrations"

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