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## Reply on CC2

Hong-He Xu et al.

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Author comment on "A multi-dimensional dataset of Ordovician to Silurian graptolite specimens for virtual examination, global correlation, and shale gas exploration" by Hong-He Xu et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-280-AC2>, 2021

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Thank you for your comments.

Graptolites were originated in the Cambrian and extinct in the Devonian. As a kind of extinct organism, graptolites are significant for the role of dating sediments and macro-evolution research. In the study and the dataset we released, we only chose 113 species of graptolites from the mid Ordovician to early Silurian of China. these species of graptolite, though being a small amount of the whole group, are important to shale gas exploration and biozone recognizing. The specimens images of these species have their potential significances to shale gas exploration.

The uploaded dataset includes high-quality images, and every image shows clear and specific morphology of fossil organism and has its scientific name. We believe they can, to some extent, meet the demands of shale gas bed determination. We added scale bar to some specimens, but not illustrated them in the manuscript. That is why you see rules in the figure 3. We are also training the artificial intelligence (AI) model of automated classifying and identifying, the demonstration version is online (<http://aifossil.fossil-ontology.com/#/>). To the AI model, there is no need to show the scale bar.

The fossil specimen image dataset visualization (FSIDVIS) system is for everyone who needs detailed and scientific information of fossil specimens. But now the limitation is that we only uploaded and prepared data of 1550 graptolite specimens. Of course this is just a start. More specimens and the related e-book or searching system for mobile devices will follow.