

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2022-191

Anonymous Referee #2

Referee comment on "Monitoring greenhouse gases (GHGs) in China: status and perspective" by Youwen Sun et al., Atmos. Meas. Tech. Discuss.,
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This paper by Sun et al. presented an extensive summary of status and perspective of GHGs monitoring in China. In addition, authors emphasized the necessity of establishing a credible GHGs stereoscopic monitoring and assessment system at an operational level. This review gives the technical and methodological references for supporting low-carbon policy in China. In general, the topic is interesting and well done. The paper is well organized and written, but I recommend acceptance to of Atmospheric Measurement Techniques after addressing the comments below.

Minor comments:

1. Line 21 in page 5: Why are only the XCO₂ precisions of GOSAT and OCO-2 given? What about other satellites?
2. Line 16 in page 8: This sentence is inaccurate. Remote sensing technology should also include active forms. In addition, commonly used active and passive remote sensing techniques can be separately described in detail here.
3. Line 4 in page 9: It is better to add a graphic to summarize the stereoscopic monitoring system of GHGs system. This can provide reference for relevant project designers.
4. Line 28 in page 11: Please clarify which satellites are capable of these functions.
5. Line 4 in page 12: Please elaborate on the complexity of China's carbon emission

scenarios and the corresponding reasons.

6. Line 14-17 in page 12: I don't understand this argument of the challenges here. Is it the challenge that the complex ecological environment brings uncertainty to the establishment of GHGs stereoscopic monitoring network? Or does the complex ecological environment bring challenges to the formulation of GHGs emission reduction policies? Or something else. Please clarify.

7. Line 18 in page 12: The authors put forward these main technical problems and challenges, and whether some preliminary or mature solutions can be proposed.

8. Line 7-16 in page 13: These sentences are too long. Please re-structure to make them easier for reading.

9. Line 1-3 in page 14: I can't understand the logical relationship between these two sentences. I assume you mean, not all GHGs are needed, major GHGs are enough to improve China's GHGs monitoring capacity?

10. Please do careful proofreading and grammar check, as well as the order of references. Besides, some sentences in the manuscript are repetitive and verbose. Please simplify them.

Grammar related comments:

- Line 22 in page 2: "has" should be "have", and "its" should be "their".
- Line 23 in page 2: "counties" should be "countries"
- Line 27 in page 2: "China is committed to achieve" should be "China is committed to achieving".
- Line 20 in page 5: Please unify the marking of CO₂ concentration throughout the manuscript.
- Line 34 in page 5: "provide" should be "provided".
- Line 9 in page 6: "station" should be "stations".
- Line 25 in page 8: "sun" should be "sunlight". In addition to sunlight, other natural light sources should also be listed.
- Line 24 in page 9: "the volume mixing ration" should be "the volume mixing ratio".
- Line 31 in Page 9: "different spatiotemporal scale" should be "different spatiotemporal scales".

- Line 1 in page 14: Please add a definite article for "targets".