An 18-year record of atmospheric sulphur dioxide (SO2) derived from IASI measurements

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Response to Referee #2

The paper is well written. authors have demonstrated a new algorithm to retieve atmospheric SO2 plume altitudes from Global measurements. Further compared with available observations datasets for different case studies. Although challenges from cloud and ash remains in the study, which is understandable and remain for future study. Authors provided a good dataset for further research. With the present knowledge data set is significant, high quality and useful.

We thank Referee #2 for the positive assessment of the manuscript and for recognizing the value of the new SO_2 retrieval algorithm and the resulting dataset. Interference from clouds and ash remains indeed a challenge, and as noted in our response to comments from Referee #1, we have expanded the discussion of retrieval uncertainties (including clouds, ash, sulfate aerosols, and water vapour) and identified explicit avenues for future work to address these limitations.

In addition, we have extended the IASI SO_2 time series (columns and altitudes) to the end of July 2026. Figures 18-20 and Table 2 have been updated accordingly. The extended time series reveals no major SO_2 enhancements associated with volcanic eruptions in 2026, except for moderate SO_2 masses emitted by Kilauea in early 2026. As the dataset now spans 19 years (July 2007 – July 2026) rather than 18 years, we have updated the title accordingly, as well as the corresponding mentions of the dataset's temporal coverage throughout the manuscript. The IASI SO_2 dataset publicly available on the Aeris portal (https://iasi.aeris-data.fr) has been updated to include the SO_2 data for 2026.