Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2019-9-RC1, 2019

Atmospheric Measurement Techniques Discussions

Interactive comment on "All-sky assimilation of infrared radiances sensitive to mid- and upper-tropospheric moisture and cloud" *by* Alan J. Geer et al.

Anonymous Referee #3

Received and published: 17 May 2019

General Comments:

The study is very successful to address how the findings relate to previous research in all-sky satellite radiance data assimilation. The authors write the introduction part very well with the clearly summarization of all relevant work in both research and operational area. The authors also make corresponding explanations and evaluations for the previous work, and tell readers how all-sky radiance data assimilation developed step by step in theory and technique. The language is clear and makes easy to follow. The technical details are sufficient to ensure that readers understand exactly what the researchers studied. Not only the results are clear and have enough experiments to

Printer-friendly version

Discussion paper

support the conclusion, but also the data selection and quality control have more than enough experiments to explain why the choice made. These details are very valuable for the future researcher to borrow. The very encouraging result of this paper is that it addresses the assimilation of IASI 7 WV channels all-sky radiance achieved a small improvement over clear-sky assimilation in the tropics. All these progress comes from the improved cloud ice optical properties and the ability of increase supercomputing resource to use the full multiple independent column cloud overlap. This is a small but important step towards to assimilate all-sky IR radiance in NWP operational. This manuscript does an excellent job demonstrating significant improvement about assimilation of all-sky IR radiance research in ECMWF. I strongly recommend this paper to be published.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-9, 2019.

Printer-friendly version

Discussion paper