

Interactive comment on “Instantaneous longwave radiative impact of ozone: an application on IASI/MetOp observations” by S. Doniki et al.

Anonymous Referee #2

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General Comments

In this new study Doniki et al. discuss the calculation of instantaneous radiative kernels (IRKs) for hyperspectral infrared nadir sounders. In particular, IRKs for tropospheric and total column ozone measurements by IASI/MetOp-A are discussed. The paper presents a new method for calculating the IRKs, which is shown to be more accurate (removing biases up to +/-25%), but also more computationally expensive than the anisotropy approximation. First results with the new method for 12 days in the year 2011 are presented.

I found that the scientific analysis of this study is sound and that the presentation of the paper is clear. Minor comments and suggested technical corrections are listed

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below. The paper fits in the scope of ACP. The results are likely of interest for a broad community, including radiative transfer and retrieval experts, but also climate modellers seeking to validate radiative forcing calculations with their models. Therefore I would recommend the paper to be published.

Specific Comments

p21183, l12-13: How many profiles are remaining after cloud filtering and a posteriori quality checks? Is the remaining part still globally representative?

p21185, l9: It might be good to properly define the range of spectral integration here and in other places/equations to avoid confusion between integration over the 9.6 micron ozone band and the full spectral range?

Technical Corrections

p21181, l23: onboard _the_ MetOp-A

p21188, l11: nadir -> with respect to nadir / the nadir direction (?)

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 21177, 2015.