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Interactive comment on “Towards IASI-New Generation (IASI-NG): impact of improved spectral resolution and radiometric noise on the retrieval of thermodynamic, chemistry and climate variables” by C. Crevoisier et al.

Anonymous Referee #2

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The manuscript addresses relevant scientific questions such as the impact of increased spectral resolution on the retrievals of atmospheric variables. I would suggest to accept the manuscript pending minor revisions. Please read below.

Figure 2a is not completely clear. The 1K temperature perturbation in surface temperature appears superimposed by another larger signal also plotted in pink, perhaps as a dashed curve. The authors should check about a possible plotting error. In addition to figures a and b it would be advisable to add a figure c showing either the ratio

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or the difference of the curves plotted in figures a and b. No need to plot the noise curve differences in figure c. This additional plot could provide a better quantification of the signal improvement and eventually serve in support to the conclusive remark of paragraph between line 3 and 18 on page 11226, where the authors indicate that "it is possible to find IASI-NG channels for which temperature is decorrelated from H₂O and O₃".

A definition of the a posteriori error would be generally helpful in describing figure 5.

Do the retrieval experiments for temperature and water vapor make use of the full channel bands or are they performed based on a channel selection?

What retrieval method was used for figures 5 and 7, OE or neural network? For clarity, the authors should specify it.

About section 5.1, it would be useful to also reference a recent study (Gambacorta et al., 2014) that compared CrIS to IASI CO products upon switching to higher resolution.

Few additional notes: 1) In the introduction, line 14: quasi near real time is redundant. It should just be near real time. 2) section 2, line 6, 0.50 cm⁻¹ for IASI 3) Section 5.3.1 line 4 "for the each scenario" should be "for each scenario"

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 11215, 2013.

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