

## **amt-2015-118. Munro et al. “GOME-2 instrument on the Metop series of satellites: instrument design, calibration, and level 1 data processing – an overview”.**

### **Response to Short Comments SC C3166**

Dear Piet,

Thank you for your kind comments – please find below my responses to your comments and suggestions.

#### **Comment (0)**

It is much appreciated that this paper on the GOME-2 instrument(s) has now appeared, since it is an important reference for the GOME-2 level-1 data users. It would be nice to add a picture of the instrument, and have some numbers on the hardware, like size, mass and power consumption.

#### **Response (0)**

This has been added.

#### **Comment (1)**

Terminology: please avoid the word “earthshine”! The word ‘earthshine’ is used incorrectly in the paper. Earthshine is the reflection by the moon of sunlight reflected by the earth, also called the ashen glow (<http://en.wikipedia.org/wiki/Planetshine#Earthshine>). Webster’s dictionary says: earthshine is sunlight reflected by the earth that illuminates the dark part of the moon. Since GOME-2 is most of the time observing the earth, but also has an option to observe the moon, please be clear in the terminology. Therefore I suggest to use the term ‘earth radiance’ or ‘top-of-atmosphere radiance’ instead of ‘earthshine’.

#### **Response (1)**

Agreed – it will be replaced throughout using Earth radiance as suggested.

#### **Comment (2)**

It is important that this paper on the GOME-2 instrument refers to the technical documents of EUMETSAT for details. But please provide the website path where these documents can be found for all.

#### **Response (1)**

The website path has been provided but upon checking it seems four documents are missing from this location – they will be added.

#### **Comment (3)**

Table 1: - 4 channels > 4 main science channels  
- mention PMDs  
- add spatial resolution of the PMDs

#### **Response (3)**

Updated as proposed.

#### **Comment (4)**

Table 3:

- channels 5/6? please use PMDs as term for these channels.
- footnote 1 is missing
- please make clear for which period which start and end wavelengths of channels 1A and 1B were used.

#### **Response (4)**

The channel numbering provided is that used in the GOME-2 level 0 to 1 processing and in the GOME-2 level 1 products. The corresponding PMD reference is given in the band column. We feel it is useful to include the correspondence between channel number and band name as it is currently given as this reflects common usage and also provides the PMD information as requested..

With regard to the footnotes – there should only be one. This is a type-setting error on the footnote indicator and will be corrected. This will also clarify the point at which the band 1A and 1B settings were changed.

#### **Comment (5)**

A schematic overview of the L0-1 data processing steps (calibration steps) would help the readers a lot.

#### **Response (5)**

In principle I agree however a complete schematic overview of the level 0 to 1a processing steps requires four pages and similarly for the level 0 to 1b processing steps. I feel that these might unnecessarily disrupt the text. These schematic diagrams are readily available in EUMETSAT 2014b. I would suggest that explicit references to the Figures in this document are added. Alternatively they could be provided in an Annex if necessary however I would prefer an explicit reference to a source.

#### **Comment (6)**

Fig. 13, Caption: please add 'effective': FRESCO effective (or radiometric) cloud fraction.

#### **Response (6)**

Done.

#### **Comment (7)**

p. 8669, l. 25: when discussing the assumption of the single scattering direction of polarization, please refer to:

Schutgens, N. A. J., L. G. Tilstra, P. Stammes, and F.-M. Bréon (2004), On the relationship between Stokes parameters Q and U of atmospheric ultraviolet/visible/nearinfrared radiation, *J. Geophys. Res.*, 109, D09205, doi:10.1029/2003JD004081.

#### **Response (7)**

Apologies for that oversight – done.