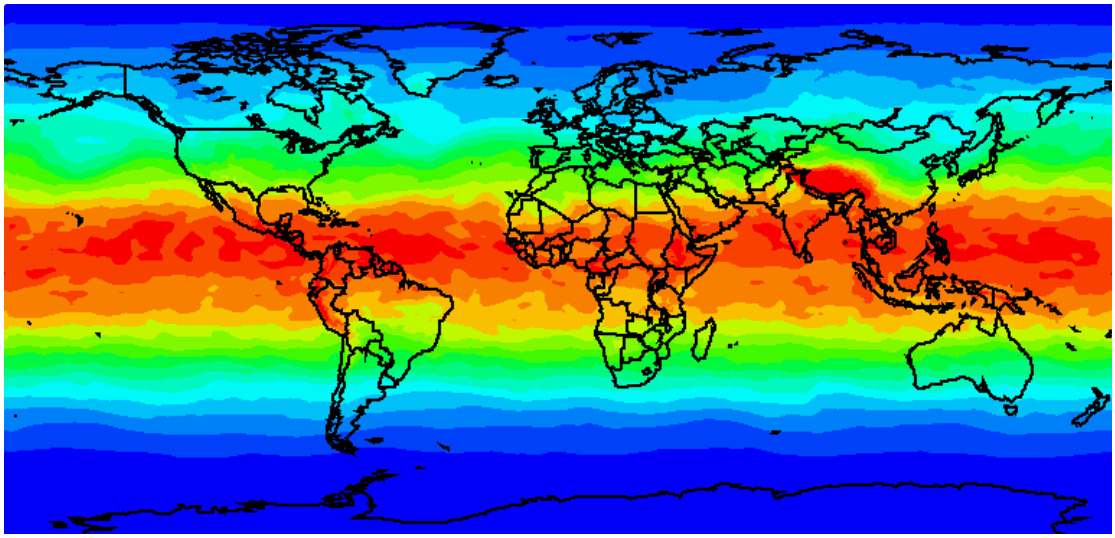
O3M SAF VALIDATION REPORT

Validated products:

Identifier	Name	Acronym
O3M-91	Near-Real-Time UV index, clear-sky	MBG-N-UV_CLEAR
O3M-92	Near-Real-Time UV index, cloud corrected	MBG-N-UV_CLOUD



Author:

Name	Institute
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Reporting period: May 2013

Input data versions: Assimilated Total Ozone (ATO) version 4.2, since May 2013

Data processor versions: NRTUVI version 3.3, since May 2013

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References documents:

O3M SAF Algorithm Theoretical Basis Document for NUV, SAF/O3M/DMI/ATBD/001, Issue 1.7, 27.05.2013

O3MSAF Product User Manual for NUV, SAF/O3M/DMI/ATBD/001, Issue 1.7, 27.05.2013

NUV Validation Report , SAF/O3M/DMI/VR/NUV/001, Issue 5, 25.04.2012

1. COMPARISON BETWEEN NUV-A AND NUV-B

Assimilated Total Ozone (ATO) fields from GOME-2 onboard the Metop-B satellite became available from KNMI on May 3, 2013.

The NUV processing chain was updated in order to process both the operational ATO (Metop-A) and the new ATO (Metop-B).

Both set of total ozone input was processed using the same algorithm as described in the ATBD and using the same auxiliary data and thus two sets NUV/CLEAR maps (0.25x0.25 degrees) has been produced daily. Correction for cloud cover at each grid point is also the same for the two sets so the NUV/CLEAR comparison below is also valid for the NUV/CLOUD product..

In Fig. 1-4 below the relative difference in % between NUV-B and the NUV-A is shown.

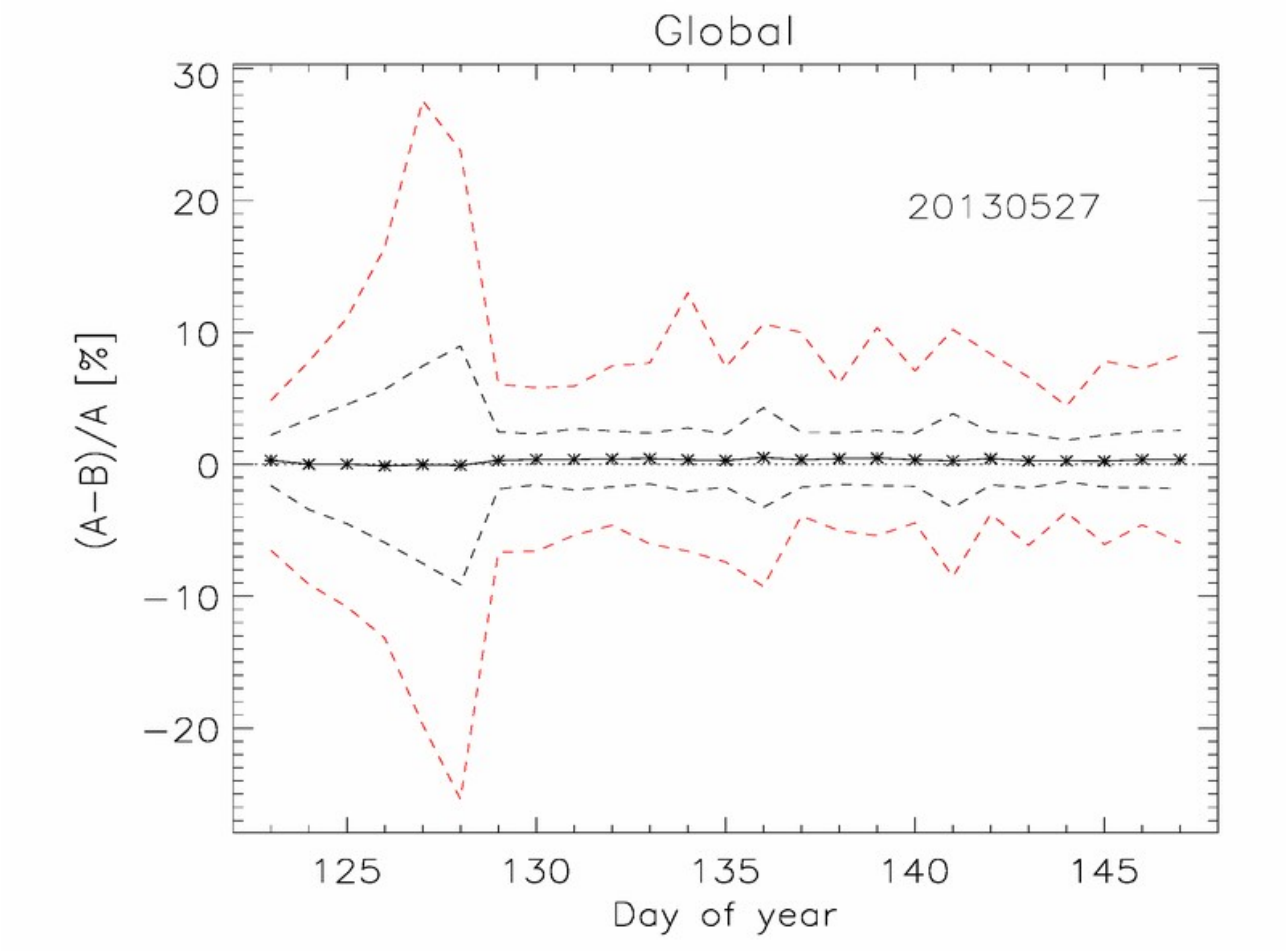

Figure 1. The global mean relative difference between NUV-B and NUV-A since May 3 2013.. Black line is the mean, dashed black lines are the +- 2 standard deviation and red dashed lines are the minimum and maximum values.

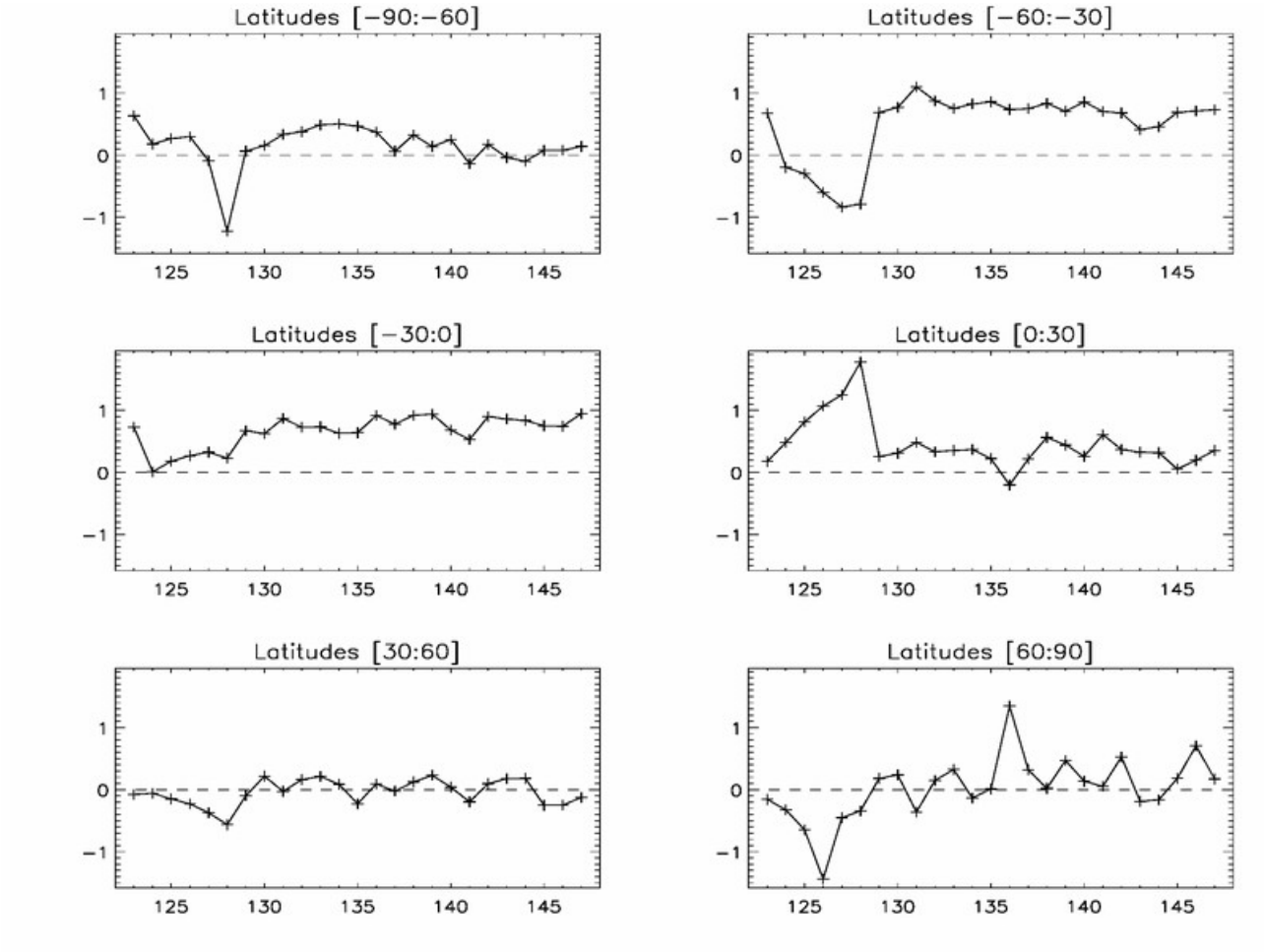

Figure 2. Mean relative difference in % between NUV-B and NUV-A since May 3 2013 in six latitude zones.

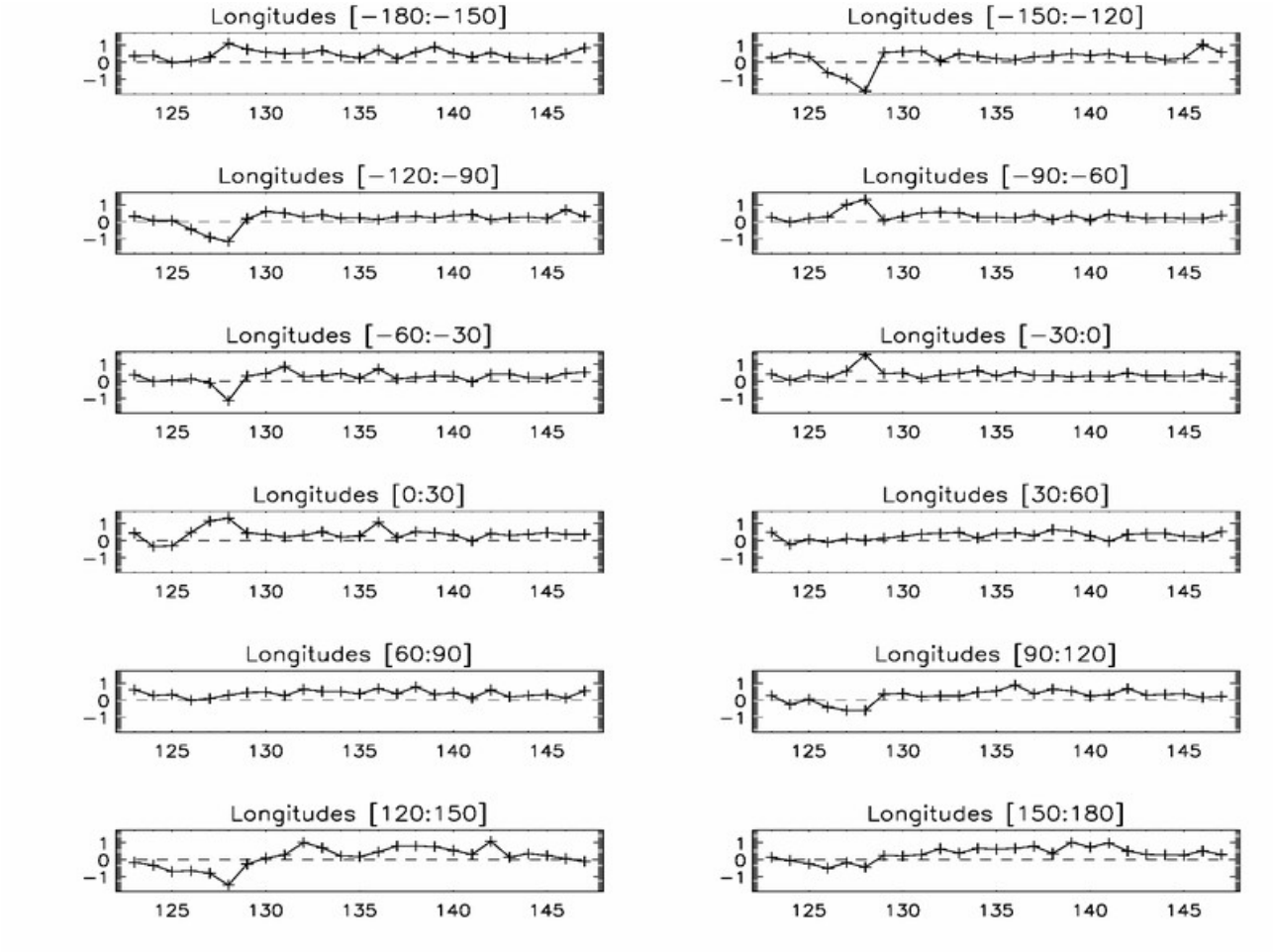

Figure 3. Mean relative difference in % between NUV-B and NUV-A since May 3 2013 in 12 longitude zones.

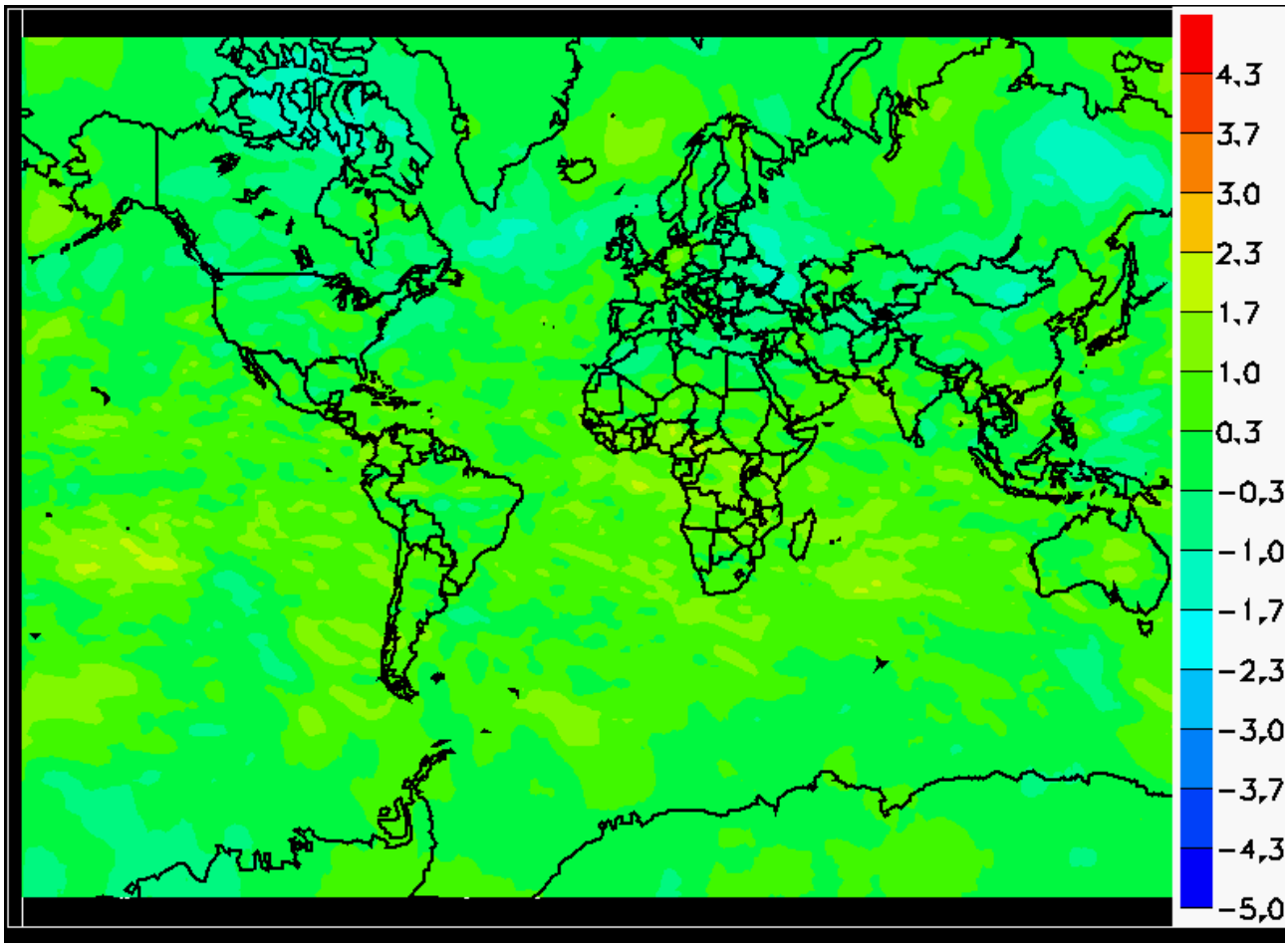

Figure 4. The mean relative difference in % between NUV-B and NUV-A at each NUV grid point for the period 3-27 May 2013.

It is clear from Fig. 1-3 that after the first week of ATO-B assimilation the results stabilized at a level close to the ATO-A. The global average deviation between the two NUV fields is 0.4% with a standard deviation of 1.1 %. In Fig.2 some variation with latitude is found, the -60:-30 and -30:0 latitude zones show on average a 0.8% difference while the northern hemisphere bins show a smaller difference. This structure can also be found in Fig. 4 where the average diffenence over the period for each grid point is shown. No structure with longitude can be found in Fig.3 and Fig. 4.

The conclusion is that the NUV UV-index produced from the Metop-B ATO (NUV-B) on the average is 0.4% higher that the same (NUV-A) produced from Metop-A ATO. In NUV validation report (issue 5/2012) the NUV/CLEAR and NUV/CLOUD products was found to deviate 7.8% and

22.6% respectively from ground based measurements, close to the target accuracies in the Product Requirement Document of 10% and 20% respectively. Thus with a 0.4% difference between NUV-A and NUV-B the latter will also be fulfilling the requirements.