General comments

The paper "Operational surface UV radiation product from GOME-2 and AVHRR/3 data" by J. Kujanpää and N. Kalakoski is generally well written. It is mainly a clear and complete - though still rather concise - description of the operational UV product from GOME-2/AVHRR/3.

This paper is most relevant for both scientists and other (potential, future) users of the UV product. Much less this AMT paper is innovative in its scientific concepts and/or new ideas. Therefore I consider the section 'Product description' as a highly relevant part of this paper. Section 2.4 details exactly the applied weighting functions of the various derived products and also e.g. explains the important difference between the hemispherical irradiance incident on a horizontal surface and the (spherical) actinic flux. This description section is important for e.g. scientists that would like to compare this operational product with their own spectral surface UV observations or calculations.

The selection of operational products (maximum dose rates and UV index, daily integrated doses, and photolysis rates) seems well chosen given the observational constraints from polar orbiting platforms. However, I do not agree with the way the usefulness of combination with (e.g. cloud information from) geostationary satellites is somewhat downplayed for the UV product (P.4541, L5-7). Surface UV products are not only relevant in relation to ozone layer *depletion*, but as well in relation to ozone layer *variability* and, moreover, absolute UV variations are largest at low- to midlatitudes relevant for e.g. vitamin-D health studies and/or the impact of surface UV variability on atmospheric chemistry and biological processes. It is important that the authors acknowledge the limitation of the constellation of morning/afternoon polar orbiting satellites for some of the products which optimally would need information at high temporal resolution. Also, the authors acknowledge that accurate cloud information at solar zenith angles above 70 degrees is still a limiting factor for current polar orbiters, undermining the argument that the UV product would be most important at high latitudes.

I suggest the authors explain and leave room for potential future improvements of (some of the) operational UV products, e.g. by combination with operational observations from geostationary platforms. The importance of time resolution for the daily integrated dose has been shown by e.g. the pioneering work by Jean Verdebout (as referenced).

Further, the exact impact of missing cloud optical depth information for solar zenith angles larger than 70 degrees each of the products should be clarified. E.g. is the product not provided, is the product of lower quality, or is the product then available, though e.g. 'cloud-free'? What is the impact of missing cloud information for sza > 70 degrees on the integrated daily UV doses as a function of latitude and season? Maybe a figure could help to show the impact on some of the daily doses.

Another general comment is the very limited results presented on validation/verification: partly this points is covered with figure 8 described in section 4.2.2 and further in section 4.2.3 Quality control), partly reference is made to future work on validation. Figure 8 provides an example which is outside the time period for which version 1.20 is available to users: 9/7/13 – 28/2/14 (Metop-A) and 1/3/2014 – present day (Metop-B) according to the O3MSAF UV product website : http://o3msaf.fmi.fi/products/ouv.html . It would be useful to add one or two exemplary figures of the some of UV products at mid or low latitudes, preferably with some validation to at least verify that the processing provides believable results for each of the products. To compensate for extra figures I suggest to move Figures 3 and 7 to supplementary material.

Finally, I miss a short perspective into the near(?) future for which AVHRR/3 will not be available anymore (at least no new NOAA version will be launched anymore).

Mostly further the paper is appropriate for AMT and I recommend it for publication after the general comments would have been addressed. I do have some minor specific comments and text suggestions to further improve the paper. These are listed below.

Specific comments

- Please add the website http://o3msaf.fmi.fi/products/ouv.html and the time period of availability of the offline product version 1.20 to the manuscript, e.g. at the end of section 4.1
- Add Sun-Earth distance to the 'main factors' (P.4539, L 15-16). I assume that the variation in the Sun-Earth distance is taken into account in the product, please specify in the paper.
- Repetition of the word 'the' (P 4539, L22)
- 'plays important role' (P4540, L5 and L8) => plays an important role
- P4540, L12: cloud field => cloud fields (plural)
- P4540, L18: 'To capture the high UV dose rate region' => to capture the maximum UV dose rate
- P4541, L29: "utilising measured satellite data" => utilising Level-2 total ozone columns
- P4542, L16: 'To capture the high UV dose rate region around the solar noon' => to capture the maximum UV dose rate around solar noon (without 'the')
- Section 2.3.1: please specify that in this way synoptic variations in surface pressure (High and low pressure systems) are neglected in the processing
- P4547, L12-13: please shortly explain HOW the results of Koelemeijer et al.(2003) are applied. Is it based on monthly mean spectral data?
- P4548, L1: please specify for which time period the monthly AOD climatology is representative
- P4548, L19: add time-dependence on Sun-Earth distance. Please state that time variations in the solar spectrum are neglected (as implicitly acknowledged in section 3.1)
- P4551, L17: please add here also a time stamp for the introduction in product version 1.20
- P4552, L8: "is 1 up to 15 km" => is 1 km up to 15 km
- P4552, L10: Add after …and ozone: (absorption by other minor trace gases such as SO_2 is neglected)"
- P4554, L11: Please explain the impact of missing cloud optical depth for sza larger than 70 degrees each of the products (either here and/or in Section 4)
- P4554, L19: I assume both the solar spectrum and the modelled spectrum are at wavelengths in air (and not in vacuum)?
- P4555, L3: Please clarify for the photolysis rate of ozone (up to 320 nm) if this is calculated also on coarse (5 nm) resolution as for the photolysis rate of NO_2, or at finer spectral resolution? (It should be calculated at a higher spectral resolution than 5 nm)
- P4555, L9: "the input the near" unclear language
- P4555, L18: add reference to availability (time period) of version 1.20 as well as link to the http://o3msaf.fmi.fi/products/ouv.htm website with latest information
- P4555, L23-26: It is unclear what is done for 0.5x0.5 degrees pixel areas without total ozone data on a day (mainly at low latitudes, see figure 1), is this flagged as missing data?
- P4557, L9: Here is it explained that discretization of the diurnal cycle extends to 88 degrees for solar zenith angle. How does this relate to missing cloud optical depth for solar zenith angles larger than70 degrees?
- P4558, L3: improve the notation of dates in English: e.g. 1st of June or June 1

- P558, L8-9: I do not understand the sentence: "..demonstrating the use of multiple overpasses during the day", do you maybe mean usefulness instead of 'use'?
- P4560, L1-2: Are you sure that the AAI would be candidate product to replace the climatology? Maybe in combination with the AOD climatology or other AOD product? Please explain what is needed at minimum for the aerosol product in relation to the surface UV product
- P4572, last line: what do you mean with "accepted"? This again relates to the unclear choices made for the different products when cloud optical thickness is missing for sza > 70 degrees.
- P4573, first sentence remove: "at the DLR"
- P4579, please clearly explain the OUV presented in this figure because either it is not version 1.20 or version 1.20 is identical to this product, or some reprocessing of version 1.20 has been done, true?