

IRS MAG – Executive summary

Date(s) Meeting held : 04/06/2020

Location : Webex

<p>1. Purpose of Meeting</p> <p>Due to the circumstances, the meeting is held as a tele-conference and reduced in length with respect to what was originally planned</p> <p>Main subjects foreseen:</p> <ul style="list-style-type: none"> • Instrument performances • IRS test data 	<p>ACTION</p>
<p>2. Review of on-going actions</p> <p>Most actions could be closed. Remaining open actions are:</p> <ul style="list-style-type: none"> • M8A3: EUM to make the performances of the INR (not the algorithm itself) available to the group: postponed to the next meeting • M8.A4bis: MAG members to provide an assessment of the impact of the instrument non-conformities in their applications: Postponed to the next the meeting in fall 2020 • EUM to make the IRS L1 format specification available to the MAG members along with the test dwell awaiting distribution <p>It can be noted that the completion of M8.A5 (EUM to circulate a mathematical description of the uniformization (as e.g. an extract of the L1 PS) to the MAG members) was very well received and led the MAG members to recommend its inclusion in the science plan and ATBD</p>	<p>EUM to include the mathematical description of the uniformization that was circulated to the MAG in the science plan</p>
<p>3. Summary of instrument compliance</p> <p>Presentation by ESA of the instrument NCs. Discussion on the spatial resolution of the instrument: is the resolution really 4km? If not, does it make sense to distribute all pixels? In summary it was agreed that having all pixels is important even if they are slightly correlated.</p>	<p>MAG members to provide an assessment of the impact of the instrument non-conformities in their applications</p>
<p>4. In-field straylight</p> <p>One of the most stringent NC is the magnitude of the in-field straylight (or ghost images) caused by multiple reflections in the optics of the back-telescope. Study is on-going to assess its impact but requires the instrument PSFs that are not yet available.</p>	

<p>5. Impact of the instrument optical performances on the L1 product</p> <p>Presentation by EUM of a tool to assess the impact of the shape of the PSFs on the L1 product. This tool will be used to test the consequences of the NC on the in-field straylight. One of the slide address the spatial resolution (discussed in point 1) and shows that the resolution expressed as a Rayleigh criterion is only slightly above 4km. A discussion emerged on the way forward once the internal assessment will be completed. It was agreed that not only engineering consideration need to be taken into account but most of all the scientific impact on L1 and L2 products. Results of the assessment will be distributed as soon as they are available.</p>	<p>EUM to report on the assessment of the impact of in-field stray light issue on the L1 product and the way forward</p>
<p>6. IRS test dataset available at EUM</p> <p>Presentation of a L1 test dataset that was generated at EUM. Discussion on the content of this test data.</p>	<p>EUM to distribute to the MAG a description of the EUM test dataset originally generated by the L2 processing team and resampled by Pierre on the new spectral grid.</p>
<p>7. IRS proxy data generation</p> <p>The NWC-SAF has set up an ensemble of tools to generate and manipulate IRS L1 data. NWC-SAF will need support from EUM to generate test data following the format and naming convention in order to test the data flow.</p>	
<p>8. Test data generation discussion</p> <p>There was an action on Christina Koepken-Watts, Nadia Fourrie and Tony McNally to define a test dataset and the main idea was to define a fully consistent dataset going from L1 to PCs to be able to test in particular the reconstruction step so that this dataset could be used also for L2 retrievals. The discussion focused on the need to avoid duplication as there seems to be a proliferation of IRS test data. It is suggested that a first step would be to use the data set available at EUM presented during this meeting and then iterate on it.</p>	<p>MAG members to define a small set of dwells (from 1 to 4) possessing adequate characteristics (land/sea, covering one or several regional model domains) to be used as a test dataset (mentioned during the meeting were dwells 49, 50, 60 of LAC4)</p> <p>EUM to distribute the dwell(s) defined in action M9.A4 to the MAG. This</p>

	<p>dataset will be based on the EUMETSAT dataset described in the note distributed as action M9.A3 properly reformatted according to the official L1 format specification.</p> <p>MAG members to provide feedback on the distributed test dataset (content, format etc...)</p>
<p>9. Update on the study at ECMWF</p> <p>This is an update on the study currently carried out at ECMWF on assimilating the IRS L2 product and minimizing the data volume along with conveying the maximum scientific information. This is achieved by compressing the profiles into PCs. This study focuses on the impact of eigenvector retrieval. Result will be available by next meeting.</p>	
<p>10. Preliminary results on NH3 from GIIRS</p> <p>This is a first look at GIIRS data applied to atmospheric composition. Very first view of the diurnal cycle of an atmospheric pollutant as seen from space and as such very stimulating prospect</p>	
<p>11. Science plan</p> <p>Short discussion on the status of the science plan. It would be good that all contributions are available by the next meeting in autumn, at least the first draft so that the group can assess if there are missing points or on the contrary overlaps between the various sections.</p>	<p>MAG members to circulate a first version of each section of the science plan</p>