IRS MAG – Executive summary

Date Meeting **:** 12/11/2020

Location **:** Webex

	ACTION
1. Purpose of Meeting Due to the circumstances, the meeting is held as a tele-conference and reduced in length. Main subjects foreseen: • In-field stray light • IRS test data • Science plan	
2. Review of on-going actions Most actions could be closed. Remaining open actions are: • M9.A2: EUM to include the mathematical description of the uniformization that was circulated to the MAG as answer to M8.A5 in the science plan • M8.A4: MAG members to provide an assessment of the impact of the instrument non-conformities (NCs) in their applications. This action was probably raised a bit early as the NCs are still being consolidated. So the way forward is to have a presentation on the status at the next meeting and then to re-open an action to assess the impact on the products. A question about the relative timing and geolocation of the IRS and FCI pixels in order to assess the possible synergies between the instruments was asked and will be answered at the next meeting. • M9.A4 consisted in defining 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. This has been discussed during the meeting and a new action has been raised (M10.A5) on the basis of the presentation on the test data needs.	EUM to consolidate the list of instrument NCs and the estimated impact on the products and present it at the next MAG EUM to present the respective timing and geolocation of IRS and FCI pixels so that users can assess the possibility of the synergetic use of the products from both instruments
3. Summary of the instrument in-field stray-light and impact on the spectral calibration The level of in-field stray light is now considered as acceptable. There is still a slight NC on the requirement at 50 km below 700 cm-1 and above 2000 cm-1 and the level of stray light is twice the requirement at 100 km but this is still within the noise level. OHB has concluded that the impact on the spectral calibration is negligible although it creates a bias. Such a bias should be corrected in the L1 processing. Of course this result is based on simulations and this raised the question of when and how the actual PSFs will be measured. Such measurements will however not take place before the end of 2021.	

4. In-field straylight assessment at EUMETSAT EUMETSAT has performed its own assessment of the impact of the in-field stray light and the conclusions are similar to those presented by ESA. A difference with the simulations performed by OHB is that EUMETSAT has assessed the impact of non-uniform scenes. The induced error still stays within reasonable limits. It was however pointed out that the stray-light is strongly chromatic and that the results obtained by both OHB and EUMETSAT imply a perfect knowledge of the instrument chromatism. This raised again the question of the characterization that will take place not before one year from now.	
5. Performances of the INR and geometric requirements Clarifications on the geometric performances for IRS: most of them are to be met at satellite level. The INR tackles the geometric requirement linked to the low frequencies perturbations of the LoS (<0.002 Hz).The assessment of the INR performances involves a model of the platform attitude, scan angles and micro-vibrations. It is then possible to derive the Absolute Sample Position Error (ASPKE), the Inter-Dwell Navigation Error (IDNE) and the Relative Sample Position Knowledge Error (RSPKE). All of them are compliant with the requirement i.e. of the order of 1 km. Partial compliances and non-compliances pertain to the LoS stability at spacecraft and instrument level and relate to the coverage (few points missing on the limb), spatial sampling distance (due to the possible deselection of some pixels) and the channel co-registration.	
6. IRS test dataset needs and responses Presentation of the test data needs, requirement and status depending on the application: engineering, NWP, NWC, AC/AQ and user preparation. A certain number of these dataset are already existing or "nearly actionable". Qhe question is whether further datasets are needed in particular with a finer spatio-temporal resolution for which input data from high-resolution models could be used (DWD, KNMI, etc…). The list is too long to be summarized here and it was requested to circulate the slides in order to have a closer look at them. It is mentioned that for AC/AQ, there is no need for such a simulated dataset as using GIIRS as a proxy for IRS is enough. Information about the spectral grid on which the IRS L1c products will be distributed is requested. It is included in this document.	EUM to distribute the slides presented during the meeting to the group All to review the list of dataset and comment whether they are useful or not for their respective application Miguel Martinez and Thomas August to define their needs for high resolution fields from ECMWF Tony McNally to assess whether providing access accessing the high resolution dataset

		defined by MM and TA is possible
7. Science plan Some chapters are still missing. It is indicated that they are all started but in various stages of completeness. The status of the chapter Johannes Orphal was in charge of is unknown and a new book-captain will need to be sought due to his resignation from the MAG.		MAG members to circulate the missing chapters (3 and 5) EUM to get in touch with Johannes Orphal to get the status of chapter 2 and report to the chairman

Updated spectral grid of the IRS L1C products:

- OPDmax:
  - 8.290380239487 mm in LWIR
  - 8.282446861267 mm in MWIR
- So the spectral sampling is
  - 0.603108645872 cm-1 in LWIR
  - 0.603686336146 cm-1 in MWIR
- So that the spectra are given on:
  - 881 points in LWIR, from 679.703443897744 to 1210.439052265104 cm-1
  - 1079 points in MWIR, from 1599.768790786900 to 2250.542661152288 cm-1

Action list

Action #	Action item description	Due date	Actionee
M10.A1	Circulate the status of the actions a week before the MAG meeting	Next MAG	MAG secretariat
M10.A2	EUM to consolidate the list of instrument NCs and the estimated impact on the products	Next MAG	EUM
M10.A3	EUM to present the respective timing and geolocation of IRS and FCI pixels so that users can assess the possibility of the synergetic use of the products from both instruments	Next MAG	EUM

M10.A4	EUM to distribute the slides on the test data needs to the group	Week 47 2020	EUM
M10.A5	All to review the list of test datasets presented during the meeting (see attached slides) and comment whether they are useful or not for their respective applications	End of Nov 20	MAG members
M10.A6	Miguel Martinez and Thomas August to define their needs for high resolution fields from ECMWF	Dec 2020	MM & TA
M10.A7	Tony McNally to assess whether providing access accessing the high resolution dataset defined by MM and TA is possible	Jan 2021	TMN
M10.A8	Bookcaptains to circulate the missing chapters 3 and 5 of the science plan	End of Nov 20	MAG members
M10.A9	EUM to get in touch with Johannes Orphal to know about the chapter 2 of the science plan and to report to the chairman	End of Nov	EUM
Previous actions still open			
M9.A2	EUM to include the mathematical description of the uniformization that was circulated to the MAG as answer to M8.A5 in the science plan	Next MAG	EUM