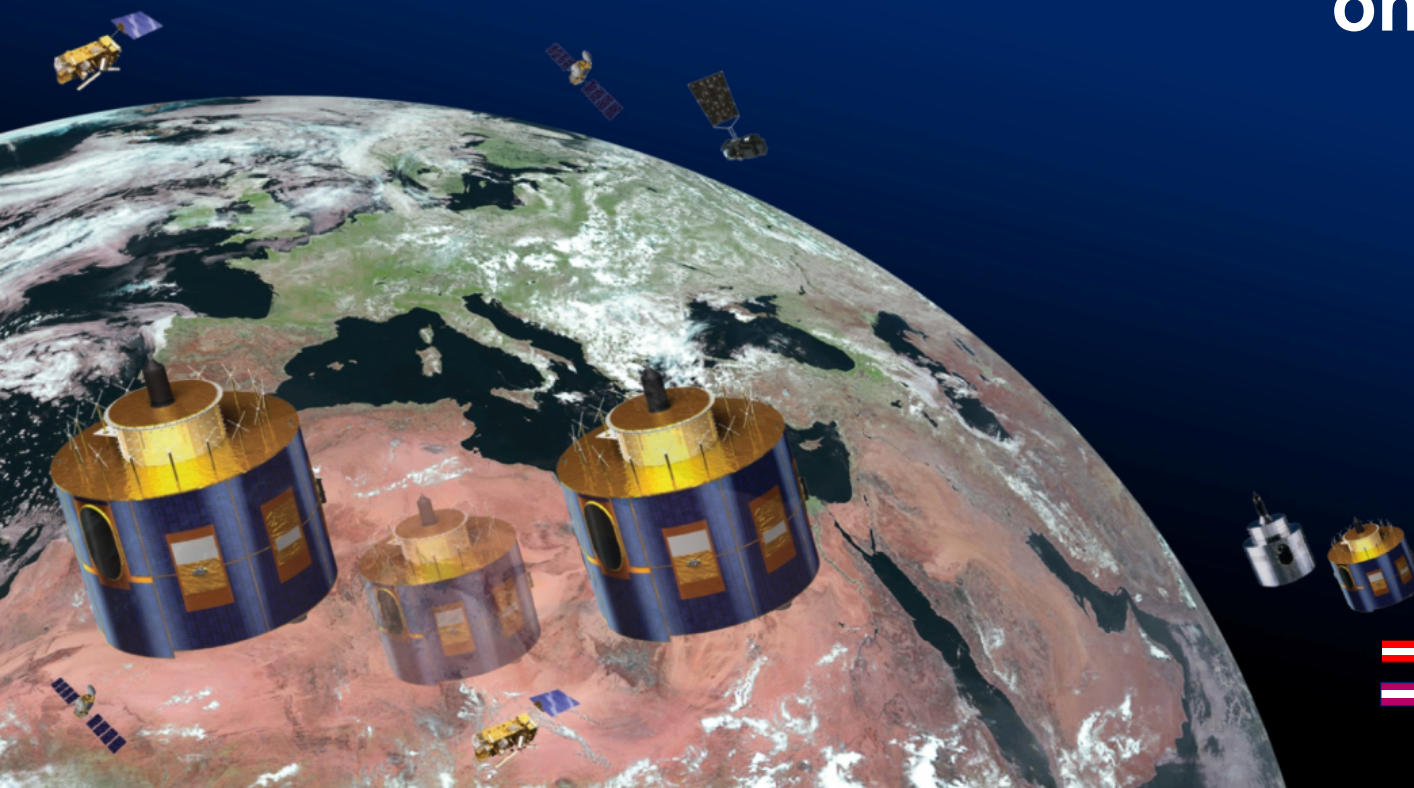
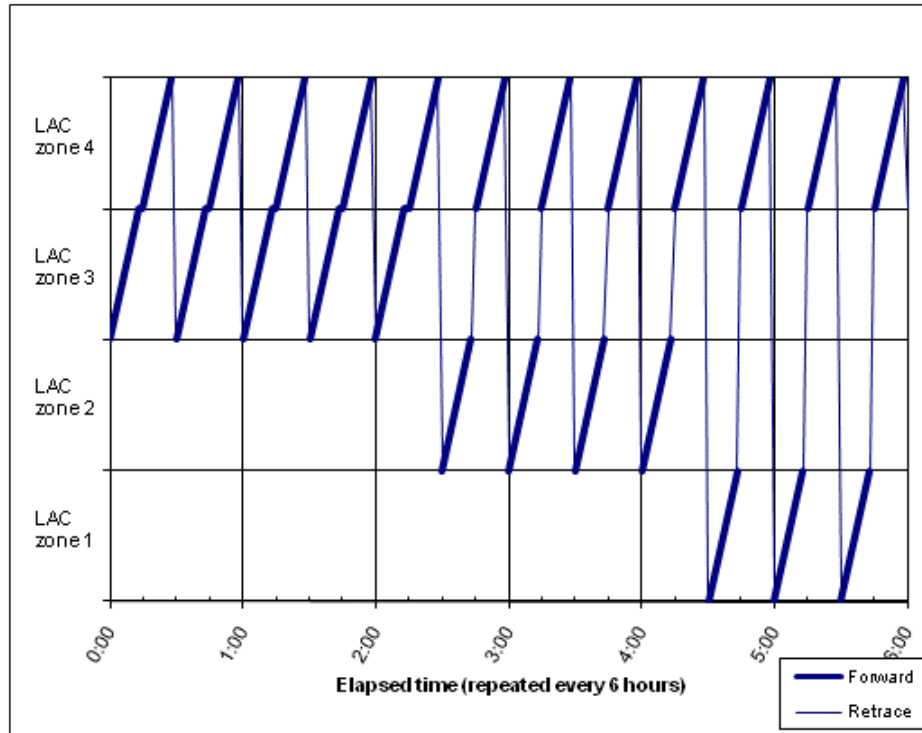


# IRS measurement sequences - Impact on the applications

Gary Fowler



# 1. IRS Measurement Sequence - Requirements



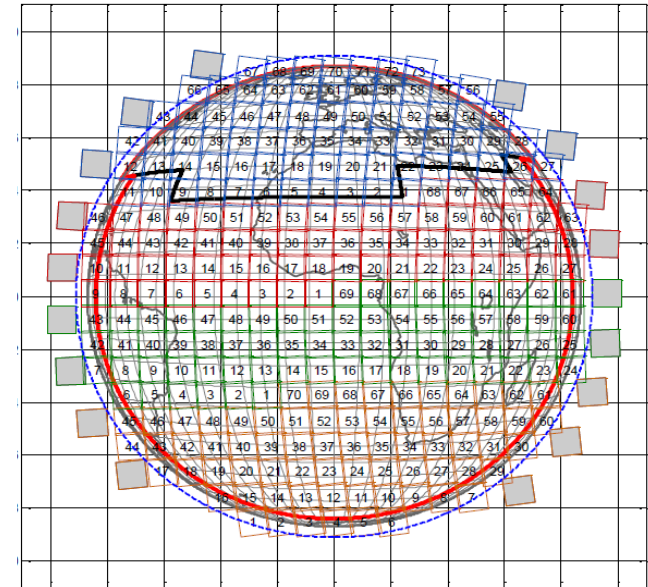
The IRS Reference scenario was proposed as a result of discussions initiated by RID *PCR-SRD-MET-JE-018* documented in EUM/MTG/DOC/08/0038. It has subsequently been adopted following discussion in the 9th Winds Workshop. The characteristics of the scan pattern include:

- 50% in time over European sector
- European sector covered every 30 mins
- sector 2 covered 5 times in 2.30 hours, then gap of 3:30 hours
- sector 3 covered 4 times in 2h, then gap of 4:30 hours
- sector 4 covered 3 times in 1.5 hours then gap of 5 hours
- consecutive images at 30 min interval
- image triplets (minimum) in all sectors
- integer repeat in 24 hours

- IRS Instrument requirements:
  - LAC every 15 mins
  - Repeat sequence of length up to 96 LACs (24h)
  - Repeat Sequence is programmable
- Reference Repeat Sequence 24 LACs (6h) will be used for instrument verification.

## 2. IRS Measurement Sequence – Instrument Design

	LAC1	LAC2	LAC3	LAC4
Earth Acquisition (EA)	70	69	68	73
Blackbody (BB)	4	5	6	3
Deep Space 1 (DS1)	5	6	6	3
Deep Space 2 (DS2)	5	4	4	5
Total	84	84	84	84



- The coverage area of LAC 1-2 has been reduced to allow an increased number of calibrations within the 15 min LAC repeat cycle.
- The reference repeat sequence allows the calibration of the IRS to be maintained within specification. This would not be the case if for example more LAC4s were introduced into the repeat sequence.
- By changing the balance/order of the LACs within the repeat sequence the following is to be considered:
  - Marginal change in the dissemination data rate as only Earth Acquisition dwells are disseminated
  - The time taken to retrace between the different LACs may mean a change distribution of calibration dwells

# 3. IRS Measurement Sequence – Impact on Applications

- In STG-SWG 40 the choice of the Reference Repeat Sequence was questioned stating that for wind and applications a more appropriate sequence would be as follows:

Reference Repeat Sequence: (4, 3) x 5, (4, 2) x 4, (4, 1) x 3

Proposed Repeat Sequence: (4, 3) x 3, (4, 2) x 3, (4, 1) x 3

**Action 40.5: The STG-SWG to provide feedback on operational benefits (e.g. radiance assimilation and AMV) that could be achieved by the LAC sequence [3-4 3-4 3-4; 2-4 2-4 2-4; 3-4 3-4 3-4; 1-4 1-4 1-4] as a potential alternative to the current baseline, proposed by the special IRS level 1 topical MAG meeting and to test and evaluate both during commissioning by next SWG.**

Initially, Action 40.5 was to remain open as limited feedback has been received. The issue was also to be discussed in item 7.4, and thus Action 40.5 can be closed as superseded by Action 41.5

=> UK feedback: “We’re happy that this is likely to be an improvement on the current baseline for AMV derivation (and possibly elsewhere). We would therefore support the evaluation of this sequencing as part of the testing to be carried out during commissioning.”

**Action 41.5: The EUMETSAT Secretariat will investigate and clarify with the initiator of the Convection Working Group requirement, by the end of September, and report back at the next STG-SWG meeting.**

Action 41.5 is closed following the feedback from Slovakia.

=> Slovakia feedback was not related to this issue

- For the purposes of system and space segment development the Reference Repeat Sequence will be maintained; however the eventual Repeat Sequence adopted for routine operations is the subject of Delegate Body decision.
- If a different preferred Repeat Sequence can be confirmed the EUMETSAT can analyse the impacts and include its execution as part of the IRS Commissioning.