

MTG-LI Commissioning Activities

LI Mission Advisory Group

13th LIMAG Meeting

Online

LIMAG-13 Agenda

Session 4 – Science and User Preparation		
14:30	MAG Board for the LI Commissioning	Eric Defer (UT3)
14:45	Open discussion on the role of the MAG Board	Chaired by Bartolomeo Viticchiè (EUMETSAT)

Methodology

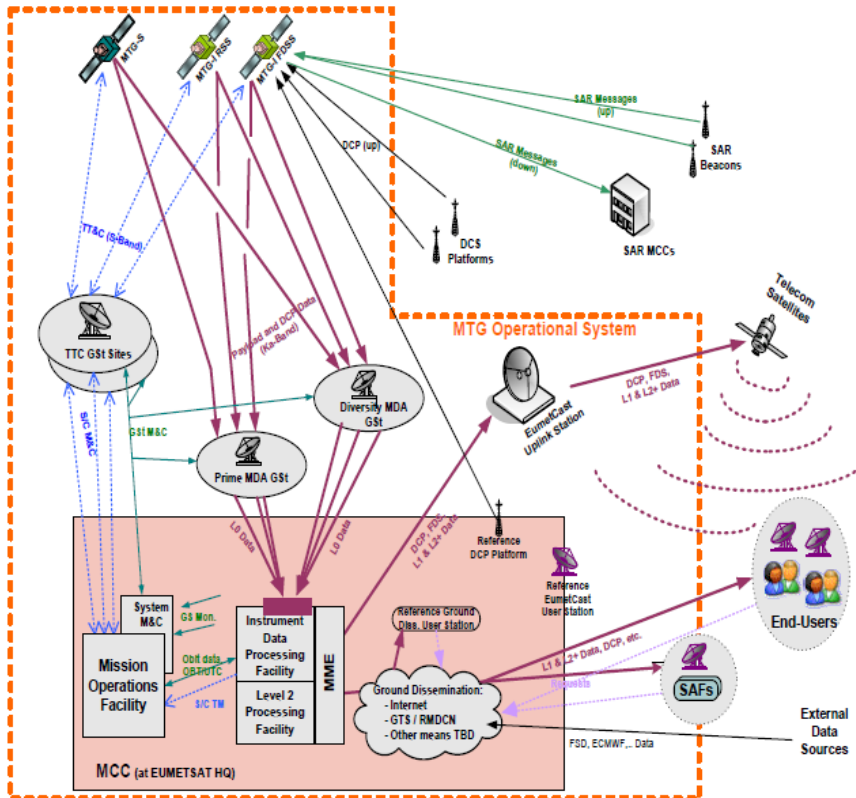
- Interact with Eric Bruning and Doug Mach on activities conducted for GLM16 & GLM17 and on lessons learned
- A first (late) synthesis has been distributed to LIMAG
- Discussions within LIMAG through online meeting and emails

Meetings

Date	Who	What
23 Feb 2022	Jochen Grandell, Bartolomeo Viticchiè; Eric Defer	Definition of Work
02 March	Eric Bruning, Eric Defer	Strategy; discussion on commissioning and R&D activities
09 March	Eric Bruning, Eric Defer, Doug Mach	Discussion on commissioning activities
18 March	Eric Defer, Rafal Iwanski ,Philippe Lopez, Graeme Marlton, Joan Montanya, Dieter Poelman, Wolfgang Schulz	Discussion on commissioning activities
04 April	LIMAG	1st version of the presentation distributed
05-06 April	LIMAG, EUMETSAT, ESA	13th LIMAG meeting

Commissioning

Introduction



The objective of the commissioning is to ensure that the capabilities of the system are demonstrated in operational configuration under operating conditions.

The main goal of the commissioning is to establish sufficient and objective confidence about the readiness of the System allowing the hand-over of the MTG spacecraft operational responsibility, corresponding ground segment and services to the Operations Department (OPS).

Learning from GLM Team (1/2)

Item	Analysis
Who?	<ul style="list-style-type: none">• US Lightning experts• Testbeds with forecasters tolerant/willing to use non-definitive GLM datasets• Users need to show how the GEO lightning data will be used• HR : Marshall ~4 full time (TBC) + different research teams• Funded• Activities supervised by W. Koshak
What ?	<ul style="list-style-type: none">• Post Launch Tests :<ul style="list-style-type: none">• Designed before the launch• Testing/analysis of the instrument before going in the data analysis• The testing/analysis of the data• Access to the data as soon as possible• Formal cal/val plan template (B. Koshak) → any team involved wrote a report• GLM Science Meetings• Dedicated portal• Formal final data validation meeting with specific evaluation panel
For how long?	<ul style="list-style-type: none">• 2 years of commissioning for GLM16• Less for GLM17 and even less for GLM18

Learning from GLM Team (2/2)

Item	Analysis
How?	<ul style="list-style-type: none">• Large cal/val activities• Definition of 3 levels of dataset :<ul style="list-style-type: none">• Beta : 1st comparisons with ground-based lightning data (LMA, GLD360, WWLNN according to regions covered and of interest) → 1 or 2 days of data. Is it working at all? Low quality thresholds.• Provisional : 1st estimates of DE, FAR and LA → days of data, in multiple areas within the field of view, + storm scale analysis• Final : GLM data meeting the mission specifications → more days as possible• All GLM data levels (even, group, flash) simultaneously analyzed• Bulk statistics (1st team)• Deep dives in storm cases (2nd team), can be conduct at any time, aims at helping understand/verify the bulk statistics• Recommendation : interactions needed with industry with prompt responses/actions and iterative discussions ← energy/time consuming & frustration!• Because of operational application, no re-evaluation of past data after specific algorithm changes → reprocess to conduct later for research & climate use• Need to keep track of any change made• No use/intercomparison of laboratory test outcomes• Cautious on any absolute calibration : dependence of the weather situation• Interest for GLM-LI cross validation• Brightness not used apparently in operational products (TBC)• Data downloaded and analyzed on local computers/servers

MAG Board for the LI Commissioning

Activities

- Monitoring and guiding the LI data commissioning activities
- Design of LI data commissioning activities
 - Test definition (objective; description including methodologies and “parameters” (e.g. storm type, range of the lightning activity strength, geographical and temporal/seasonal domains); success metrics/criteria)
 - Test procedure (description ; data requirements)
- Review and evaluation of test results (bulk tests, deep dives), including EUM baseline methodology results, and recommendations
- Providing lightning data & expertise
- Building dedicated validation field campaigns (e.g. Africa) or participation to field campaigns (e.g. SyNoPsIIS during Paris 2024 Olympic Games)
- Participation to *Beta* and higher-quality data testing (bulk analysis, deep dive)
- Sharing methodologies, tools, information and preliminary results
- Exploring side activities to support/confirm LI data commissioning (preliminary) results (e.g. radiative transfer calculation, cloud modeling, data science)

Questions : Calendar? Deliverables/Meetings schedule? Duration of the LI data commissioning? Funding? Publications?