GOES-18/19 Beta Certification Form

Satellite: ☑ GOES-18 ☐ GOES-19 Date: 07/11/2022

Algorithm:

☐ ABI L1b/CMI	☐ GLM	☑ MAG
☐ SUVI	☐ EXIS XRS	☐ EXIS EUVS
☐ SEISS SGPS	☐ SEISS EHIS	☐ SEISS MPS-HI
☐ SEISS MPS-LO	☐ Other:	

Comments:

A decision was made to replace the Meda Magnetometer (Mag), which is flying on GOES-16 and GOES-17, with a new Mag manufactured by NASA Goddard known as the Goddard Magnetometer (GMAG). GMAG is flying aboard GOES-18. The primary reason for this switch was to improve the data accuracy and stability. Following several months of Post Launch Testing, the GMAG has reached the requirements for Beta validation, which is defined as "The product has been minimally validated and may still contain significant errors and is not optimized for operational use."

One way to estimate accuracy is to subtract the data from the inboard and outboard Mags to see how close that difference is to zero. Tracking the time series of these differences also allows us to determine whether other spacecraft or instrument activities affect the stability of the Mag measurements. Currently the OB-IB differences in the -x, -y, and -z directions all have daily variations less than about 0.2 nT. The magnitudes of these differences is around 6 nT for the -z direction, 0.5 nT for the -x direction, and -4 nT for the -y direction. A calibration maneuver was performed on 29 June by rotating the spacecraft about each rotation axis. Initial results of this test allows a removal of these biases, reducing the OB-IB differences for all 3 axes to values less than 0.5 nT. The MRD spec for accuracy is 1.0 nT, so as of now it appears this spec will easily be met. A couple of additional calibration maneuvers are planned in the coming weeks; these data will be used to finalize the bias adjustments, and those adjustments will be implemented in the operational data stream via a Look-Up Table upload in early August. Early indications are that the GMAG will outperform the GOES-16 and GOES-17 Mags.

☑ Approved

Program Scientist	Signature	Date
Dan Lindsey	LINDSEY.DANIEL.THOMAS.1365850255 Digitally signed by LINDSEY.DANIEL.THOMAS.1365850255 Date: 2022.07.11 14:21:01 -06'00'	07/11/2022

☐ Not Approved *If not approved, a list of actions necessary to attain approval must be included in the 'Comments' box above.*

Program Scientist	Signature	Date