Monitoring Tool for GOES-R L2 Products

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The GOES-R Algorithm Working Group (AWG) Integration Team (AIT) works with the AWG algorithm teams and guides them through the transition process from software development to the required deliveries. To track the quality of the products and performance of the algorithms, a real-time product monitoring tool is being designed and developed by the AIT. The real-time monitoring tool will be able to detect the products availability, detect abnormal events and alert the operator for more investigation.

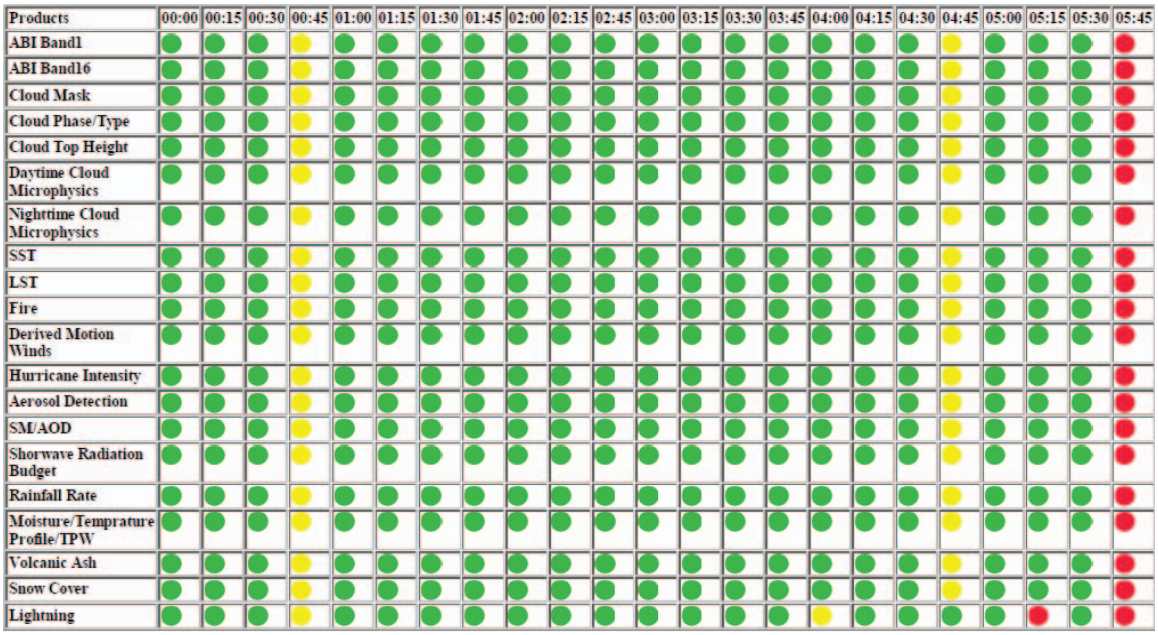
The algorithm teams each have their own tools to validate their products. These tools often use "truth" data to compare their product results. Most truth data that is used by the algorithm teams is not available in near real-time to be used to aid in the monitoring of the product system. Therefore, the monitoring tool will be mostly comprised of statistical representations of the product to provide real-time performance monitoring.

The AWG products that will be monitored often have product precedence where another AWG product is required as input to the algorithm. To create the AWG algorithms, the AIT has implemented the AIT Framework where all the AWG algorithms are run in a single system. The Framework provides a platform to produce all the AWG products and algorithms with full precedence. The AIT Integrated Real-Time Monitoring Tool is an integrated monitoring system which is developed based upon the outputs from the AIT Integration Framework. This tool will overcome the shortcoming of the standalone monitoring tool since it will enable the operator to view all the products at once that are used to create each product. For example, to monitor the Land Surface Temperature (LST) product, we need to monitor the cloud mask at the same time due to the high

dependency of LST on the accuracy of cloud mask. The standalone LST monitoring can not achieve this goal, while the integrated monitoring system can solve this issue.

The AIT Monitoring Tool will be a tool where the operator can easily and quickly identify problems of the products and report them; the product monitoring tool will have a visually simple interface (red, yellow, green colors). The figure below shows preliminary design of the real-time monitoring interface. The green button represents the product is running well; the yellow button gives warning to the operator; and the red button shows some fatal problems exist in the product.

Figure 1. GOES-R Baseline Products Monitoring



AIT coordinates all baseline products teams and will integrate their monitoring methods – Winds, SST, Land, Aerosol, Shortwave Radiation Budget, Rainfall Rate, Cloud, Volcanic Ash, Snow Cover and Lightning. The products' monitoring algorithms and most of their verification parameters (such as thresholds, etc) can be configured either at design time or at run time via the Monitoring GUI. A real time complex event processing system and alerting system will be developed and integrated into the monitoring tool.

The monitoring methods for all baseline products are going to be documented in the requirements. All these requirements will be reviewed in June 2010 (PDR-Preliminary Design Review). In 2011, the system design will be reviewed in the CDR (Critical Design Review).

In this presentation, basic requirements for the monitoring system are described as well as the sample requirements for SST. We will show how to track SST through trending, which variables/statistics in the output file can be tracked and how to decide thresholds for SST products. The statistics and/or data needed in metadata for SST monitoring will also be presented.

References

Walter Wolf, S. Sampson, Z. Cheng, P. Keehn, Q. Guo, S. Qiu, and M. Goldberg, 2009: GOES-R AWG Product Processing System Framework, *GOES Users Conference*