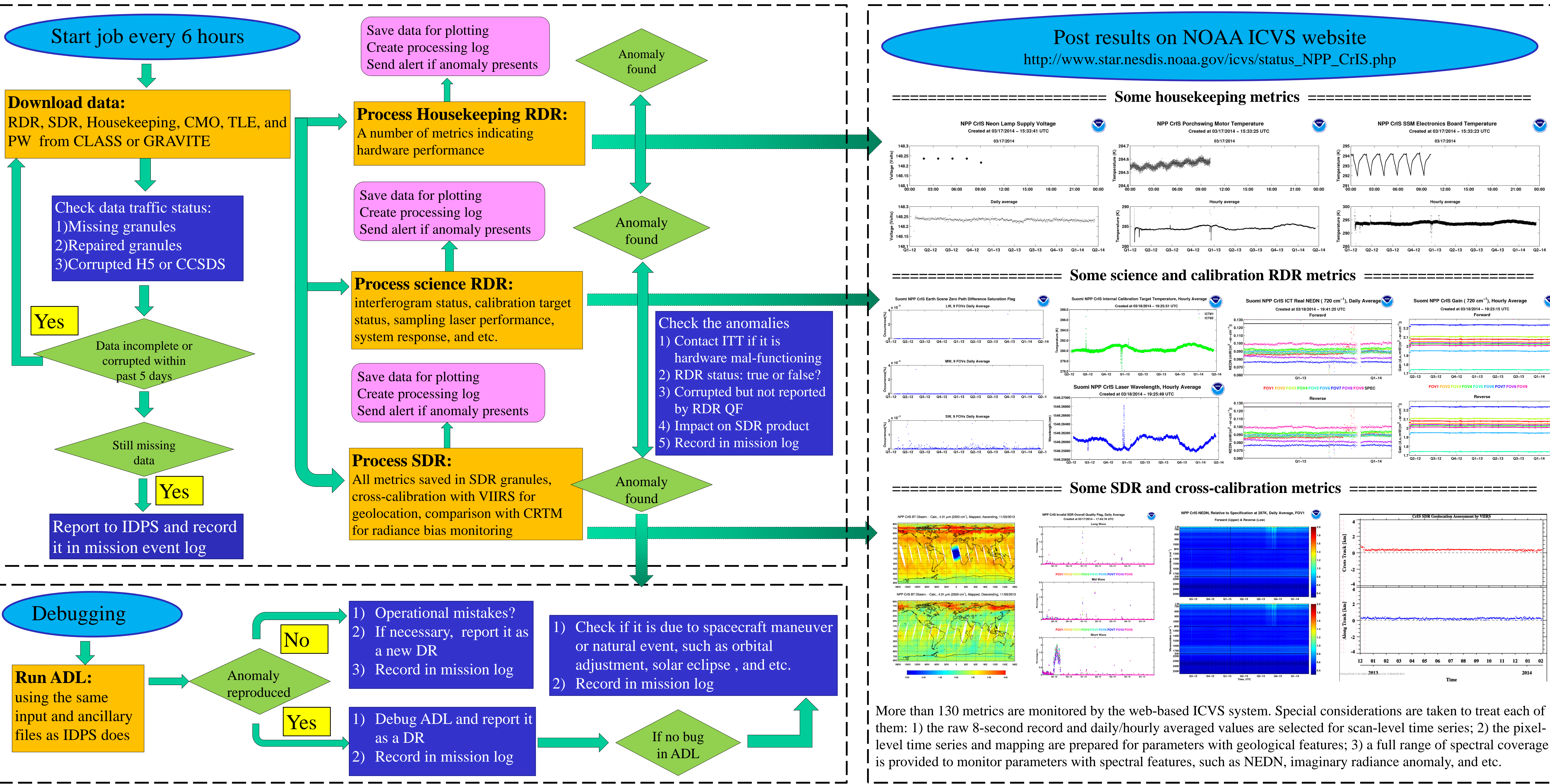


Abstract

A web-based trending/monitoring system is developed at NOAA/STAR to track the SNPP CrIS instrument status and operational radiance product data quality. A comprehensive collection of metrics are covered by this system, including: 1) all CrIS SDR products, 2) all metrics collected from the 8-second calibration telemetry packet, 3) the instrument response, including noise, gain and offset, directly derived from the science telemetry packet, and 4) more than 40 critical housekeeping parameters. Moreover, some cross-calibration methods are presented, including the geolocation evaluation using VIIRS and the radiance bias monitoring using radiative transfer model.

CrIS is a space-borne hyper-spectral instrument and it collects a huge amount of data every day. To keep tracking the instrument status and data quality in time without missing any anomaly event, some special designs are implemented, including a processing log for each RDR and SDR granule, an automatic anomaly warning functionality through e-mail, a collection of ancillary files (CMO, Two-line Element, and Polarwander). Plus, a mission event log is maintained manually, recording any mission-related activities. We have reported and diagnosed a number of software bugs, instrument anomalies, operational mistakes, and natural events through this system. It is now inevitable for operational users.



More than 130 metrics are monitored by the web-based ICVS system. Special considerations are taken to treat each of them: 1) the raw 8-second record and daily/hourly averaged values are selected for scan-level time series; 2) the pixel-level time series and mapping are prepared for parameters with geological features; 3) a full range of spectral coverage is provided to monitor parameters with spectral features, such as NEDN, imaginary radiance anomaly, and etc.

Summary

This system has been running since the beginning of SNPP mission. We have identified and fixed more than 25 bugs in SDR algorithm with it, and some of them are critical. Those hardware anomalies are closely monitored. It has also helped the ground segment to improve their data acquiring algorithm and to optimize the re-tasking procedure. We have planned to move this system to NOAA/OSPO (Office of Satellite and Product Operations) so that we can track the instrument status and radiance products almost real-time.