

2015 NOAA/NESDIS STAR JPSS Annual Science Team Meeting Report

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The second STAR JPSS Annual Science Team Meeting was held August 24-28, 2015 at the NOAA Center for Weather and Climate Prediction in College Park, MD. The participants consisted of members from many disciplines across JPSS programs and the user community. More than 300 scientists participated in this meeting, which featured nearly 200 presentations and 60 posters.

The primary goals of the meeting were to provide a briefing on the Program level and NESDIS level priorities, and 1) review science teams readiness for the JPSS-1 launch with SDR/EDR algorithm development and improvements, 2) review science teams support for the Suomi NPP Mission and mechanisms planned to adapt for JPSS-1 meeting NOAA's operational missions and priorities; 3) facilitate face-to-face meetings among the science teams, external members working at universities, cooperative institutes, other government agencies and industry to improve upon the current JPSS-1 products and generate useful innovative products for a variety of end users and advanced applications; and 4) provide a forum to coordinate science quality data processing and archival needs from science teams, user agencies and stake holders for satellite research and applications using the best science and most matured algorithms.

The meeting began with a plenary session featuring leaders from NOAA and the JPSS program giving information about the overall state of the program and the direction it was headed. The discussions also called for international cooperation and coordination in producing optimal and reliable data products from both the U.S. (NOAA) and worldwide (non-NOAA) satellite platforms to maintain unified product maturity definitions for end-user understanding.

Following the plenary session on Monday afternoon and Tuesday morning, the JPSS SDR and EDR overview sessions highlighted major improvements to the J1 product algorithms following J1 instrument changes, pre-launch verification using test data sets and post-launch timelines in meeting Beta, Provisional, and Validated maturity. The discussions included a summary of the lessons learned from the Suomi NPP cal/val experience in preparing a roadmap for J1 post-launch cal/val readiness. As expected, the teams anticipate shorter timelines for J1 SDR validated maturity. Importantly, many of the EDR teams detailed the transition from older algorithms to more effective enterprise algorithms. The ICVS team also presented its progress and plans, and a new EDR counterpart, the EDR Long-Term Monitoring website was announced.

The operational user engagement session that followed the EDR overviews had a set of presentations discussing the importance of satellite measurements in a variety of settings including air quality monitoring, severe weather forecasting, coral reef management, climate prediction, and fire hazard mapping. The users offered a unique perspective and stressed the need for merging GEO/LEO satellite product fields by using multi-sensor information and interactive tool development.

The Advanced Applications session had nine presentations showcasing the cutting edge uses of JPSS data beyond the EDR products. The session started with a presentation that stressed the need for non-NOAA data support for NOAA missions for advanced applications and innovative research. This support requires a compendium of data products from both NOAA and non-NOAA missions. Some of these

products are already complimentary to each other, while others are augmented and/or only available from non-NOAA missions. Overall, an amazing array of new research is being produced using JPSS data.

On Wednesday and Thursday, the SDR and EDR teams had breakout sessions to do deep dives into the details of their products. Both EDR and SDR focused heavily on the state of JPSS-1 readiness related to algorithm refinements to accommodate instrument waiver mitigations, required algorithm improvements for J1 sensor upgrades, pre-launch characterization of SDR and EDR products and post-launch verification and validation plans.

The meeting ended with two plenary sessions on Data Access and Science Quality Data Processing which were largely in response to discussions held at the first annual meeting. The Data Access session discussed in detail JPSS SMD processing at ESPC, JPSS direct readout software and products for worldwide utility, and product availability and protocols related to the JPSS suite of products from CLASS and GRAVITE. The session ended with a presentation on accessing non-NOAA data from Sentinel and Himawari.

The science quality data processing session contained five presentations and discussed the need for science quality reprocessing and archival of land, atmosphere, and ocean products maintaining high quality and consistency for satellite research and applications. The session identified the need for coordination with NCEI and other stakeholders on the R2O transition utilizing best science and most matured algorithms for essential climate variables (ECVs) and critical climate data records (CDRs). The session ended with a discussion on the cost effective enterprise solutions, consistent approaches for algorithm changes, integration, and testing as current and future recourse for JPSS products in support for Science Mission Life Cycle sustainment. The rest of the document discusses in detail all of the session presentations and recommendations.

In conclusion, the second JPSS STAR Annual science meeting was an unmitigated success with enough breadth to cover the large STAR JPSS program and in-depth presentations proving that the program is well prepared for the launch of J1. Importantly, the meeting provided a time for rare face to face side meetings and informal discussions with external teams that have helped to resolve many issues and ambiguities.

Presentations made by distinguished NOAA leaders and JPSS program office offered many recommendations for the future direction of the program. Overall, the science team panel has called for cost effective enterprise solutions to generate optimal and reliable data products across multiple satellites. The panel also envisioned the globalization and unification of cal/val processes and product maturity definition derived from a variety of satellite platforms. The panel also sought cooperation and coordination for a fusion of data products from GOES/POES satellite constellation from U.S. and worldwide agencies. All of the science teams realized the need for science quality data reprocessing and archival of land, atmosphere, and ocean products maintaining high quality and consistency for satellite research and applications. Feedback from participants, team members, users and JPSS management was positive and indicated that the objectives envisioned for the meeting were satisfactorily fulfilled.

Details and all the meeting presentations are available on the STAR JPSS webpage. http://www.star.nesdis.noaa.gov/star/meeting_2015JPSSAnnual_agenda.php