Near Real Time Monitoring of Hurricane Warm Core via ICVS
Jingfeng Huang1,2, Banghua Yan2, Ninghai Sun1,2, Ding Liang1,2, Warren Porter1,2 (1. SSCT, GST/SSAI; 2. NOAA/NESDIS/STAR)

Why ICVS Severe Event Watch (iSEW)?
- NOAA JPSS STAR Integrated Calibration and Validation System (ICVS) provides near real-time satellite spacecraft and sensor data records (SDRs) performance monitoring (https://www.star.nesdis.noaa.gov/icvs);
- ICVS provides a unique opportunity to combine different SDR observational capabilities from multi-sensors in closely observing global severe events;
- ICVS Severe Event Watch (iSEW) provides innovative use of multi-sensor SDRs in monitoring severe weather and hazardous events, such as hurricanes, wild fires, dust storms, flooding, oil spills, etc.;
- iSEW not only provides valuable JPSS satellite observations to facilitate decision making, but also gives us creative ideas in advancing new technologies and developing new algorithms;
- As a pilot study using applications for SDR Cal/Val, iSEW features also assist SDR and Environmental Data Record (EDR) product developers and users in better validating product quality.

iSEW Framework Design
iSEW consists of two integral parts:
- Routine global RGB images with different combinations that are capable of highlighting global daily weather and hazardous events during both daytime and nighttime;
- Customized event-driven interface that conducts in-depth close looks into particular severe events for native resolution sensor imageries and animations such as Hurricane Watch and Wild Fire Watch.

Gap Filling of the ATMS observations
For better hurricane warm core observations, iSEW Hurricane Watch uses the data smoothing technique to conduct the data gap filling for the ATMS observations (Yan et. al., 2019). See the example figure below for the ATMS observations with/without gap filling for channel 7.

Case Study: Hurricane Florence
ICVS iSEW system can be utilized for more comprehensive data analysis on hurricane event (Yan et. al., 2019). We took Hurricane Florence as an example for the event analysis and warm core illustration.

Future Work
1. More imaging products are needed for broader event applications, such as oil spill etc.
2. Multi-sensor data synergy can be further explored for application purposes;
3. iSEW system efficiency should be improved to meet operational needs.

Reference

Acknowledgement
Acknowledgement: We appreciate the JPSS Program Office, SDR and EDR Teams for their collaborative support to this pilot study. The poster contents are solely the opinions of the authors and do not constitute a statement of policy, decision, or position on behalf of NOAA or the U.S. government.