



NASA Agency Report 2019

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Presentation Overview

- ❖ Agency's GSICS Activities, Action & Achievements Summary
- ❖ Agency's support to GDWG Activities
- ❖ Agency's support to GRWG Activities
- ❖ Agency's Instruments Updates & Planned launches – relevant to GSICS if any
- ❖ Introduce/Confirm the Agency's Personnel supporting GSICS
- ❖ Agency's GSICS activities to be discussed in this joint meeting.



Agency's GSICS Activities, Actions & Achievements Summary (1)

❖ *Activities and Achievements:*

- Improvements of pre-launch and on-orbit calibration (GSFC, LaRC, JPL)
 - Sensors on Terra, Aqua, Aura, S-NPP, N-20, and JPSS-2/3/4, Landsat 8/9, and PACE, ...
 - Sensors on ISS (ECOSTRESS, GEDI, OCO-3, ...)
- Applications of lunar observations: radiometric calibration, spatial characterization, crosstalk and stray light assessments (GSFC)
 - MODIS, OLI, VIIRS, ...
- Developments of new calibration methodologies and techniques, including enhancements of testing equipment and capability (GSFC)
 - GLAMR (based on NIST T-SIRCUS)
 - BRDF characterization facility, ...
- L1B calibration improvements and data reprocessing (GSFC/JPL)
 - Terra and Aqua MODIS C6.1 and beyond, S-NPP and N-20 VIIRS V3
 - AIRS L1B V7 and new L1C, ...



Agency's GSICS Activities, Actions & Achievements Summary (2)

❖ *Activities and Achievements:*

- Support to GSICS user community (GSFC)
 - MODIS and VIIRS calibrated lunar irradiance
 - MODIS and VIIRS L1B reflectance scaling factors
- SBAF tool improvements (LaRC)
 - New spectral band filtering feature of SCIAMACHY data to identify scene types
- Improvements and applications of DCC methodologies (LaRC/GSFC)
 - MODIS and VIIRS RVS, SWIR
- Documentation (GSFC/LaRC/JPL)
 - ATBD and technical memos
 - Conference proceedings and journal papers, ...

No Pending Action Items



Support to GDWG Activities

❖ N.A.



Support to GRWG Activities

❖ *Tasks NASA Supports*

- Calibration and inter-comparisons of reference sensors, focusing on traceability and uncertainty assessments
 - A-MODIS, VIIRS on S-NPP and N-20, AIRS, CrIS, and IASI
- Lunar calibration/application support for GSICS related activities and users
- Improvements and applications of various calibration inter-comparison methodologies
 - DCC, SNO, LEO-GEO-LEO, GEO-LEO-GEO, PICS, LandNet, ...
- Inter-calibration opportunities of CPF with GSICS member sensors

❖ *Resources and Effort (time taken)*

- NASA effort not directly funded for GSICS activities

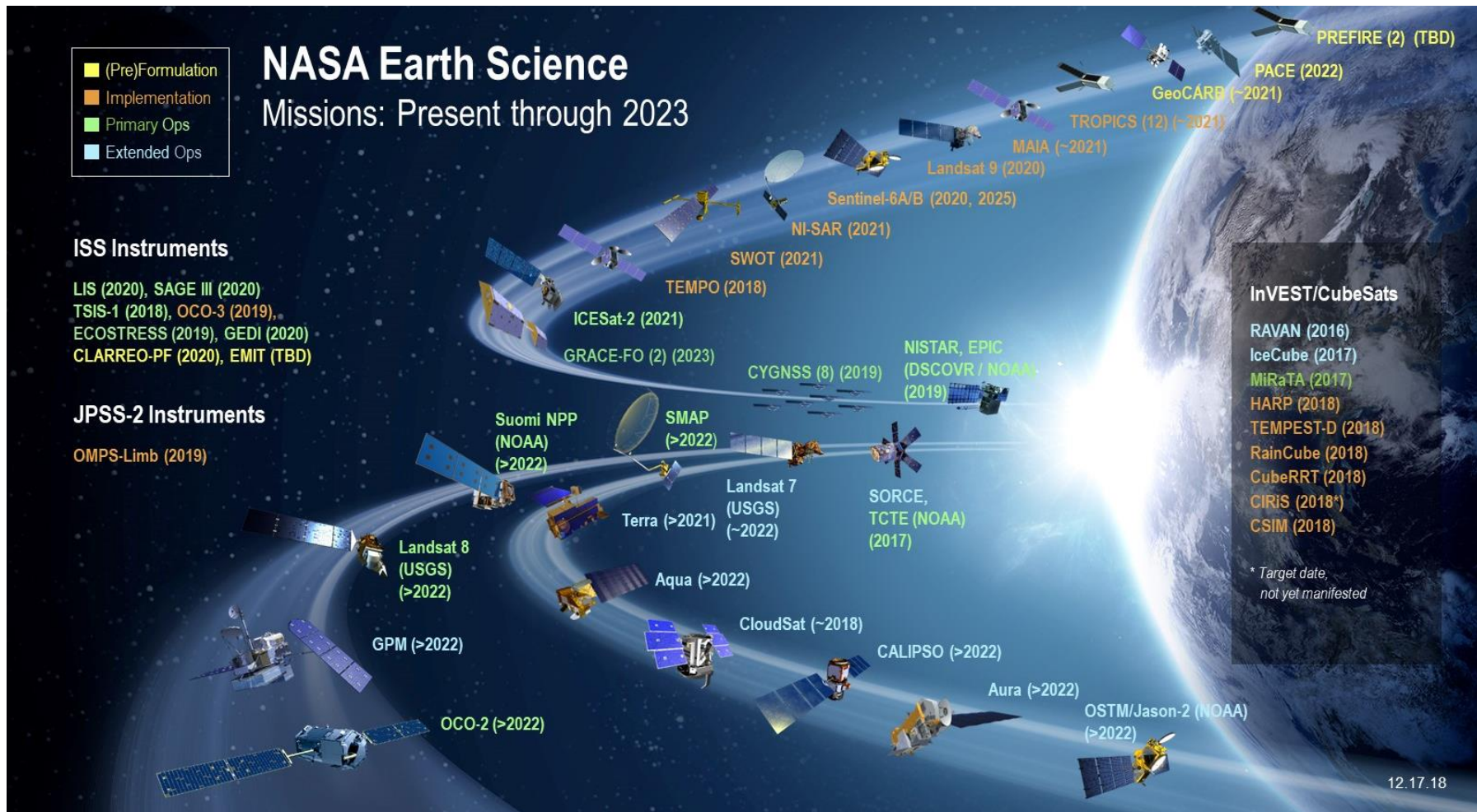
❖ *Issues*

- No dedicated resources



Agency's Instruments Updates & Planned launches

❖ Current *Earth Science* Missions/Instruments

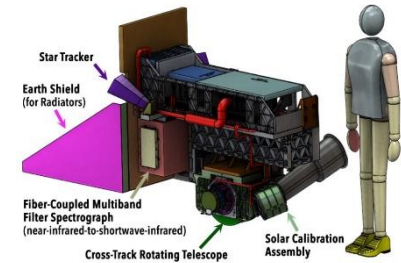




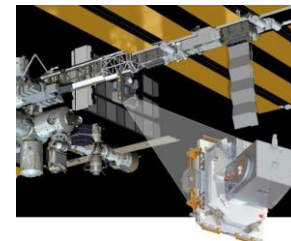
Agency's Instruments Updates & Planned launches

❖ Future Earth Science Satellites and Programs

- TEMPO: 2019 - 2021
- NISAR: 2020
- Landsat 9 (USGS): 2021
- MIAI: 2022
- PACE: 2022
- JPSS-2 (NOAA): 2023
- OCO-3: 2019; TSIS -2: 2020; CPF: 2022



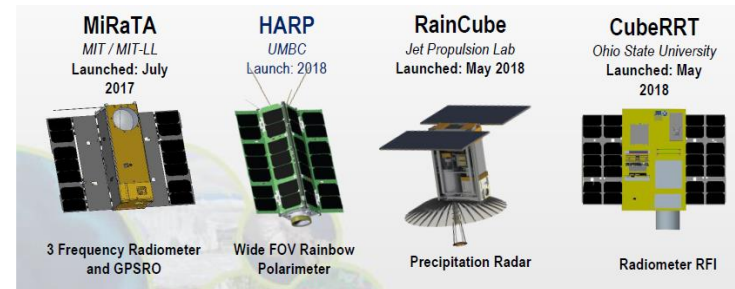
PACE



CPF

❖ CubeSats and Small Satellite Program

- <https://esto.nasa.gov/>



Successful launch of GRACE-FO in May 2018, ICESaT-2 in June 2018, ECOSTRESS in June, 2018, GEDI in Dec 2018, and 3 Cubesats in May, 2018



Introduce/Confirm the Agency's Personnel supporting GSICS

❖ *GRWG Members*

- NASA GRWG members provide support to GSICS when their funded tasks are aligned with GSICS activities
- MCST and VCST at GSFC: Jack Xiong (lead), Amit Angal, Tim Chang, Truman Wilson, and Aisheng Wu (pre-launch and on-orbit calibration, lunar calibration, calibration inter-comparisons)
- CERES Cal Team at LaRC: Dave Doelling (lead), Raj Bhatt, Ben Scarino, Conor Haney, and Arun Gopalan (GEO visible channel calibration, DCC)
- AIRS Team at JPL: Tom Pagano (IR reference sensor and cross-comparison)

❖ *GDWG Members (NA)*

❖ *Other Key Agency Personnel*

- Jim Butler (GSFC): GSICS EP and Kurt Thome (GSFC): CEOS WGCV



Agency's GSICS activities to be discussed in this joint meeting

❖ GSICS Activities of Agency Interests

- Calibration reference sensors (Aqua MODIS/AIRS to S-NPP and N-20 VIIRS/CrIS)
- Calibration inter-comparison, inter-calibration, and calibration reference transfer approaches and uncertainty assessments
- Lunar calibration activities
- New sensors and capabilities from GSICS member agencies

❖ Agency Activities of GSICS Interests

- Calibration improvements and inter-comparison methodologies and applications (Liu, Jaross, Crisp, Xiong)
- Calibration traceability, uncertainty, and consistency (Pagano)
- Lunar calibration measurements and applications (Turpie, Xiong)
- SBAF tool development and enhancement (Bhatt)
- Inter-calibration opportunities of CPF (Doelling)
- Calibration of microwave sensors (Kim)



Thank you for your attention

WMO GSICS Portal

<http://gsics.wmo.int>

GSICS Coordination Centre

<http://www.star.nesdis.noaa.gov/smcd/GCC/index.php>

GSICS Product Catalog

<https://www.star.nesdis.noaa.gov/smcd/GCC/ProductCatalog.php>

GSICS Wiki

<http://gsics.atmos.umd.edu/wiki/Home>