NOAA

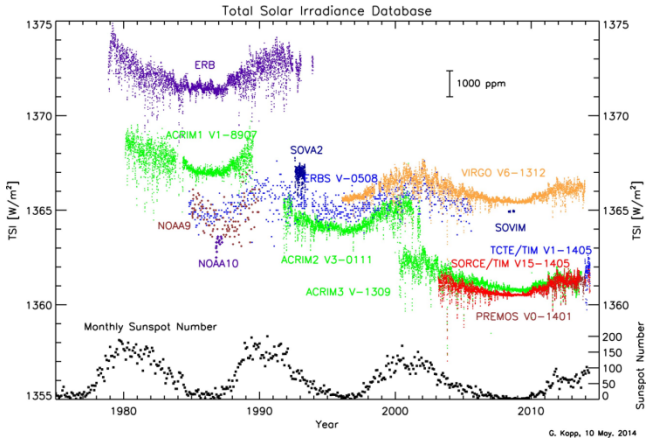
Solar Irradiance Data and Rescue (SIDAR) Program

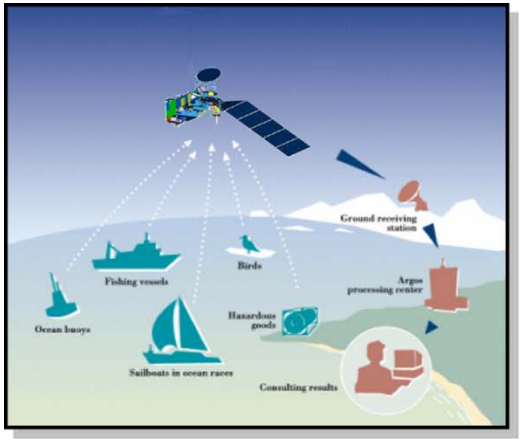
Dan Mamula
NOAA SIDAR Program Manager

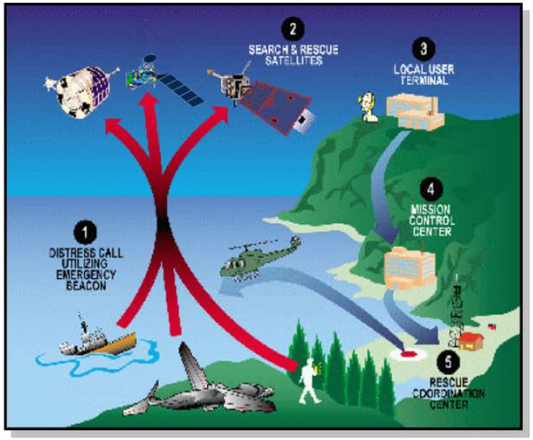
April 30, 2015

SIDAR Mission

- **SIDAR Program is 3 different projects**
  - Continue measurement of the Sun's Direct and Indirect Effects on Climate
  - Continue the operation of the Argos Data Collection System obtaining a wide variety of data from platforms used for both environmental study and non-environmental uses
  - Continue the operation of the SAR instruments as part of the international COSPAS-SARSAT system designed to detect and locate Emergency Locator Transmitters (ELTs), Emergency Position-Indicating Radio Beacons (EPIRBs) and Personal Locator Beacons (PLBs)







SIDAR Instruments

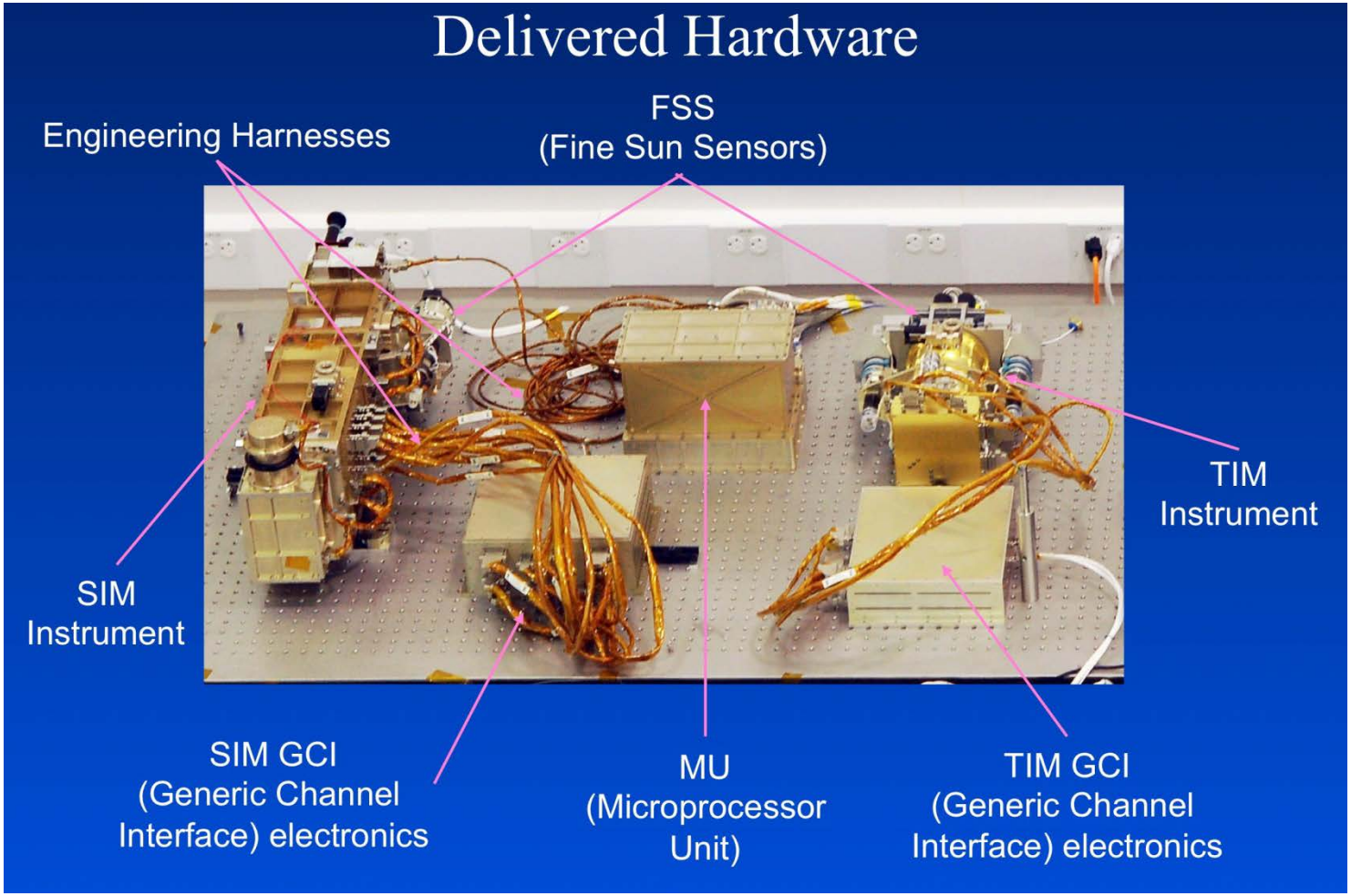
- **Total & Spectral Solar Irradiance Sensor (TSIS)**
  - NASA / Laboratory for Atmospheric and Space Studies (LASP) at the University of Colorado
- **Advanced Data Collection System (A-DCS)**
  - Centre National d'Etudes Spatiales (CNES) {France} / Thales
- **Search and Rescue Processor (SARP)**
  - Centre National d'Etudes Spatiales (CNES) {France} / Thales
- **Search and Rescue Repeater (SARR)**
  - Department of National Defence (DND) {Canada} / Com Dev

Program Status

- **SIDAR became a program with the FY 2015 appropriation**
  - Included “$7.3M to support activities associated with accommodating TSIS-1 instrument on ISS and to maintain international partnerships related to SARSAT and A-DCS”

- **President’s FY 2016 budget**
  - “Transfers TSIS-1 to NASA consistent with the Administration's decision to move solar irradiance measurements to NASA”
  - “NOAA to plan the accommodation for A-DCS and SARSAT for launch”

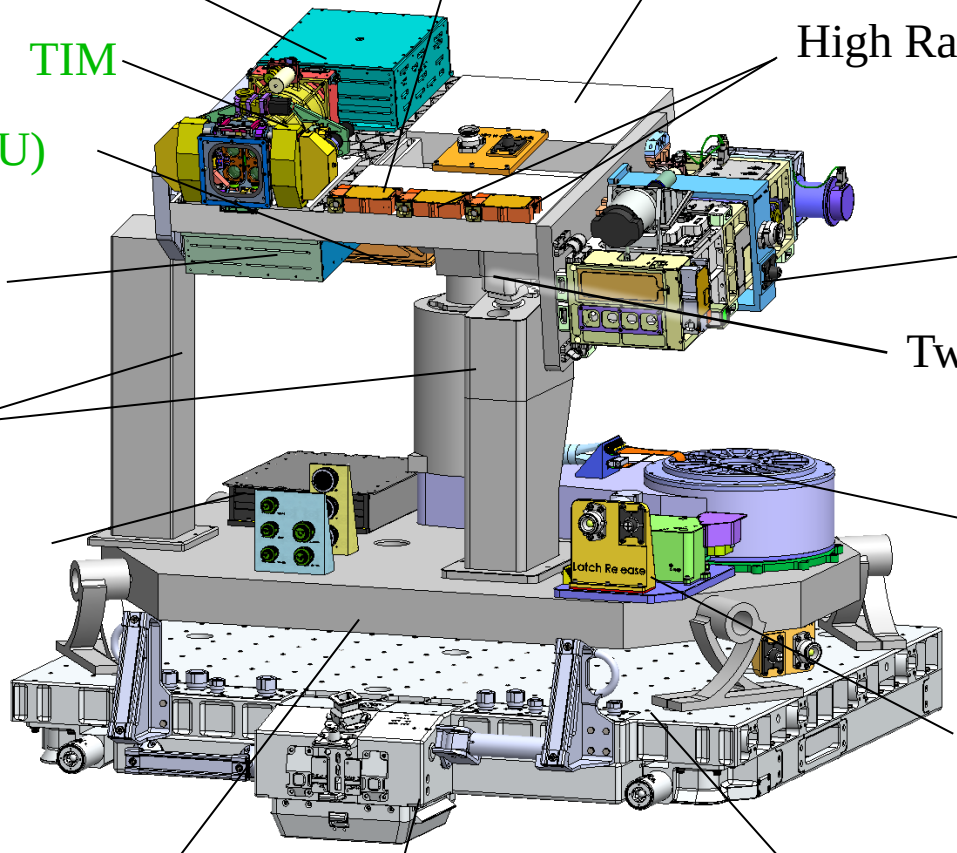
Delivered Hardware



TSIS Status

- **TIM and SSI sensors are in storage at Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado.**
  - TIM and SIM sensors successfully completed pre-ship review in December 2013
- **Total solar irradiance (TSI) calibration transfer experiment (TCTE) operating on Air Force space test program satellite (STP-Sat3), collecting TSI data weekly.**
  - TCTE measurements will be used to calibrate TSIS/ISS with SORCE (operating since 2003) TSI measurements
- **Program accepted for integration on International Space Station (ISS)**
  - LASP is developing a thermal pointing system
  - Manifest candidate on SpaceX 15
  - Sep 2017 Launch Readiness Date (LRD)

TSIS Elements on ISS



SIM Generic Channel I/F (GCI) Electronics

Fine Sun Sensor (FSS)

Optical Bench

TIM

High Rate Fine Sun Sensor (HFSS)

Microprocessor Unit (MU)

TIM Generic Channel I/F (GCI) Electronics

SIM

Two Axis Gimbal

Launch Towers With Sep Nuts

Third Axis Deployment System (TADS)

Thermal Pointing System Instrument S/C I/F Electronics (TPS ISIE)

(TADS) Latch

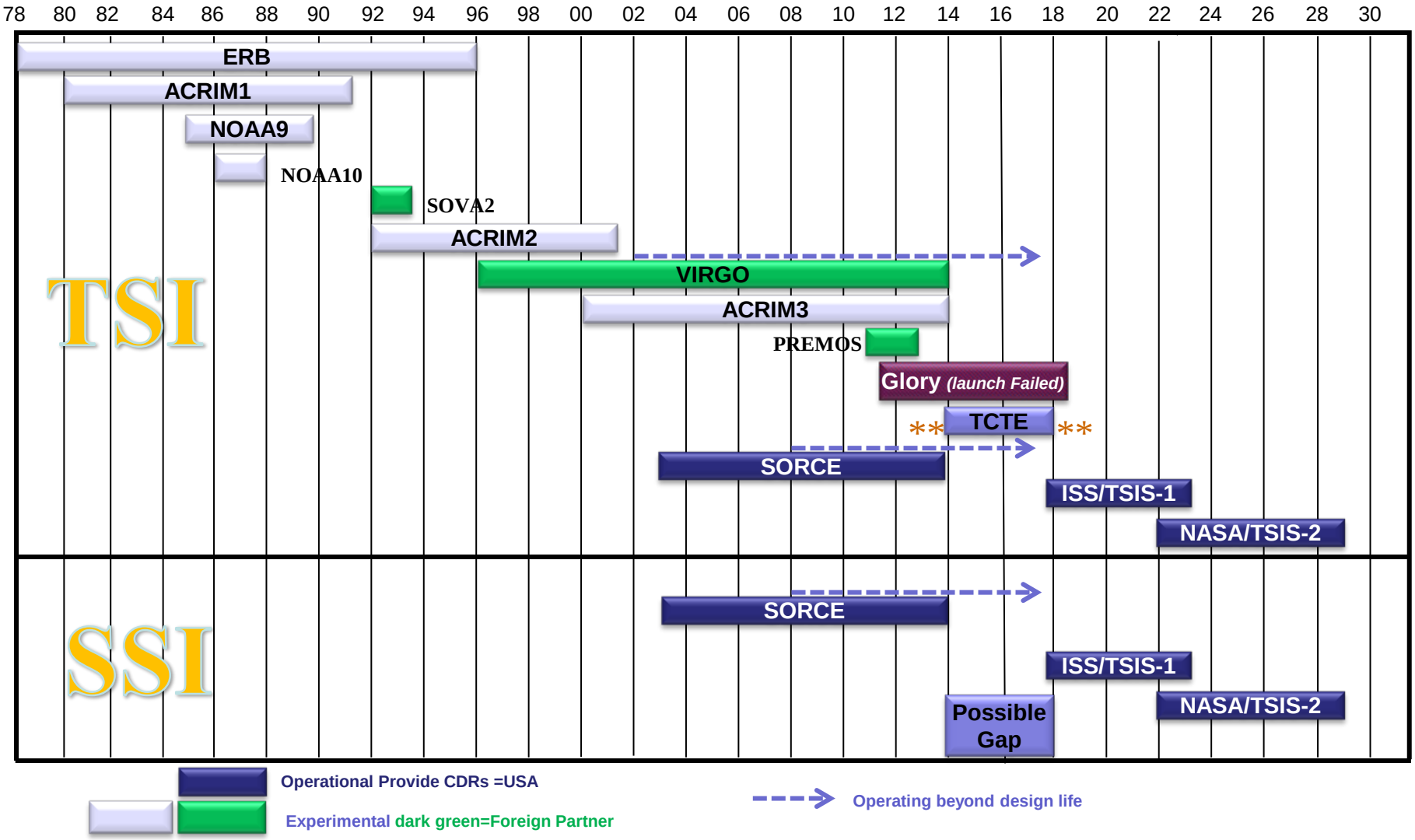
Main Baseplate

Main Baseplate to ExPa Flexures

FRAM provided by ISS

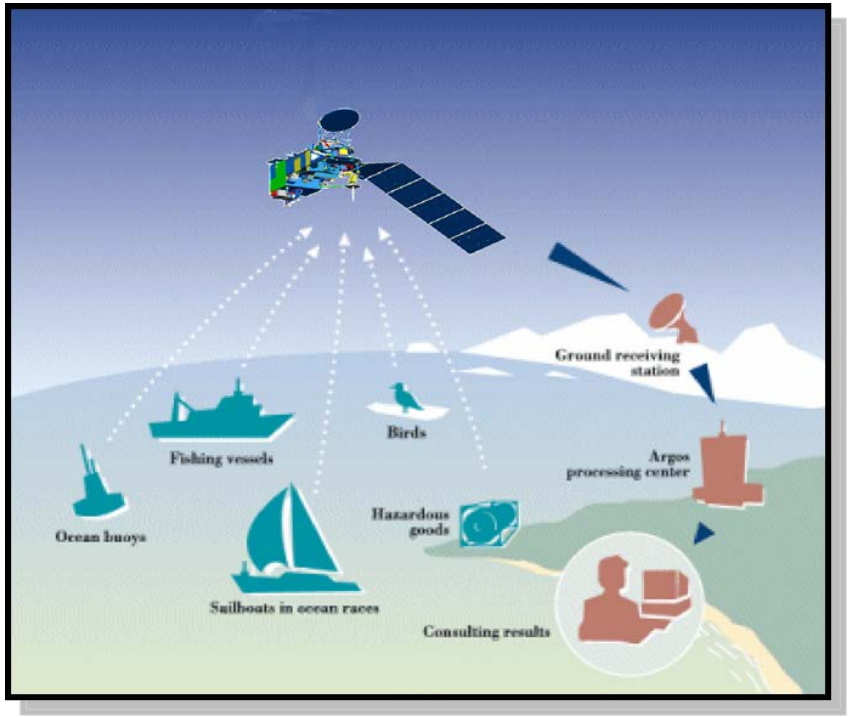
**green denotes completed hardware currently in storage*

Total and Spectral Solar Irradiance

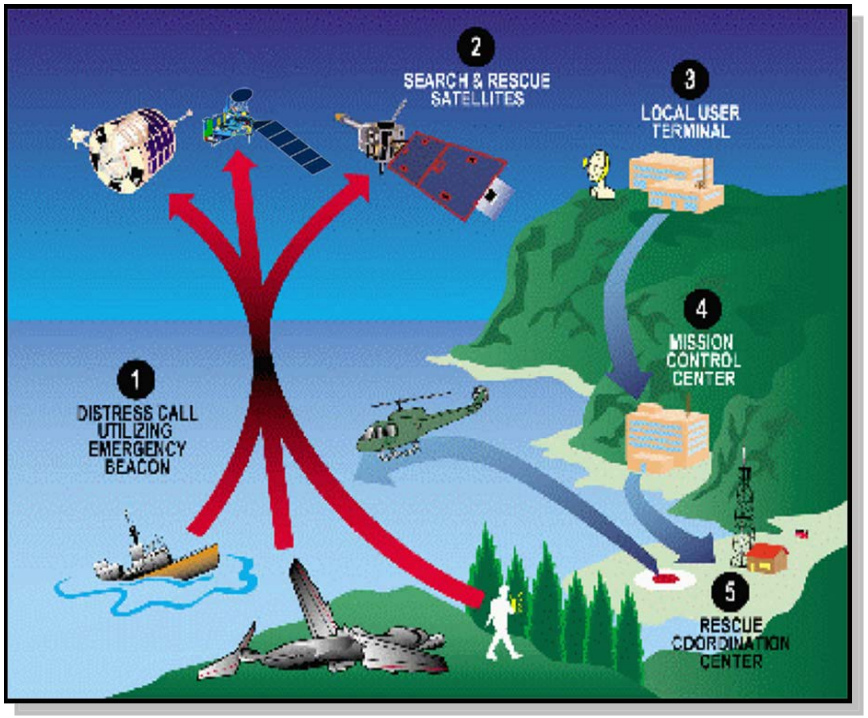


** TCTE ** must be flown at the same time (calibrated) with TSIS in order to continue the Climate Data Record.

Argos A-DCS and SARSAT



- A-DCS supports global tracking and environmental data collection applications
- A-DCS heritage sensors fly on NOAA (POES), and EUMETSAT (MetOp) satellites.
-)



- SARSAT collects distress beacon signals at the satellite
- SARSAT heritage sensors fly on NOAA (POES), and EUMETSAT (MetOp) satellites.

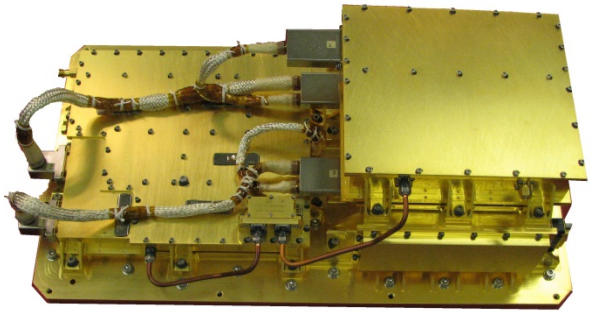
Argos A-DCS and SARSAT Instrument Status

- **Advanced Data Collection System (A-DCS) @ CNES France**
  - Instrument complete and in storage in France
- **Search and Rescue Processor (SARP-3) @ CNES France**
  - Instrument complete and in storage in France
- **Search and Rescue Repeater (SARR) @ Canada DND**
  - SARR CDR completed January 2015

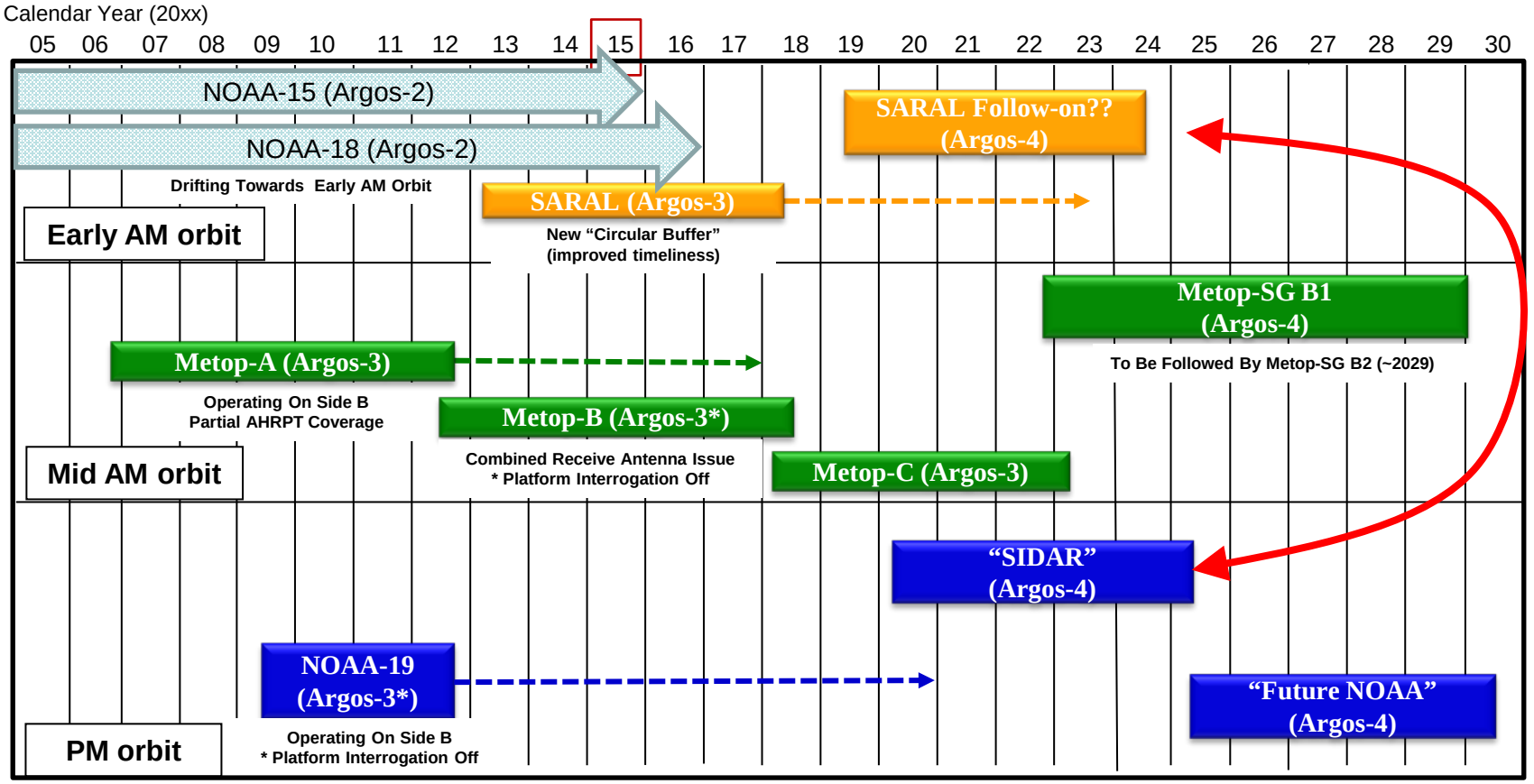
A-DCS

SARP

SARR



Argos DCS Space Segment



Early AM = ~05:30/17:30 Local
Mid AM = ~09:30/21:30 Local
PM = ~13:30/01:30 Local

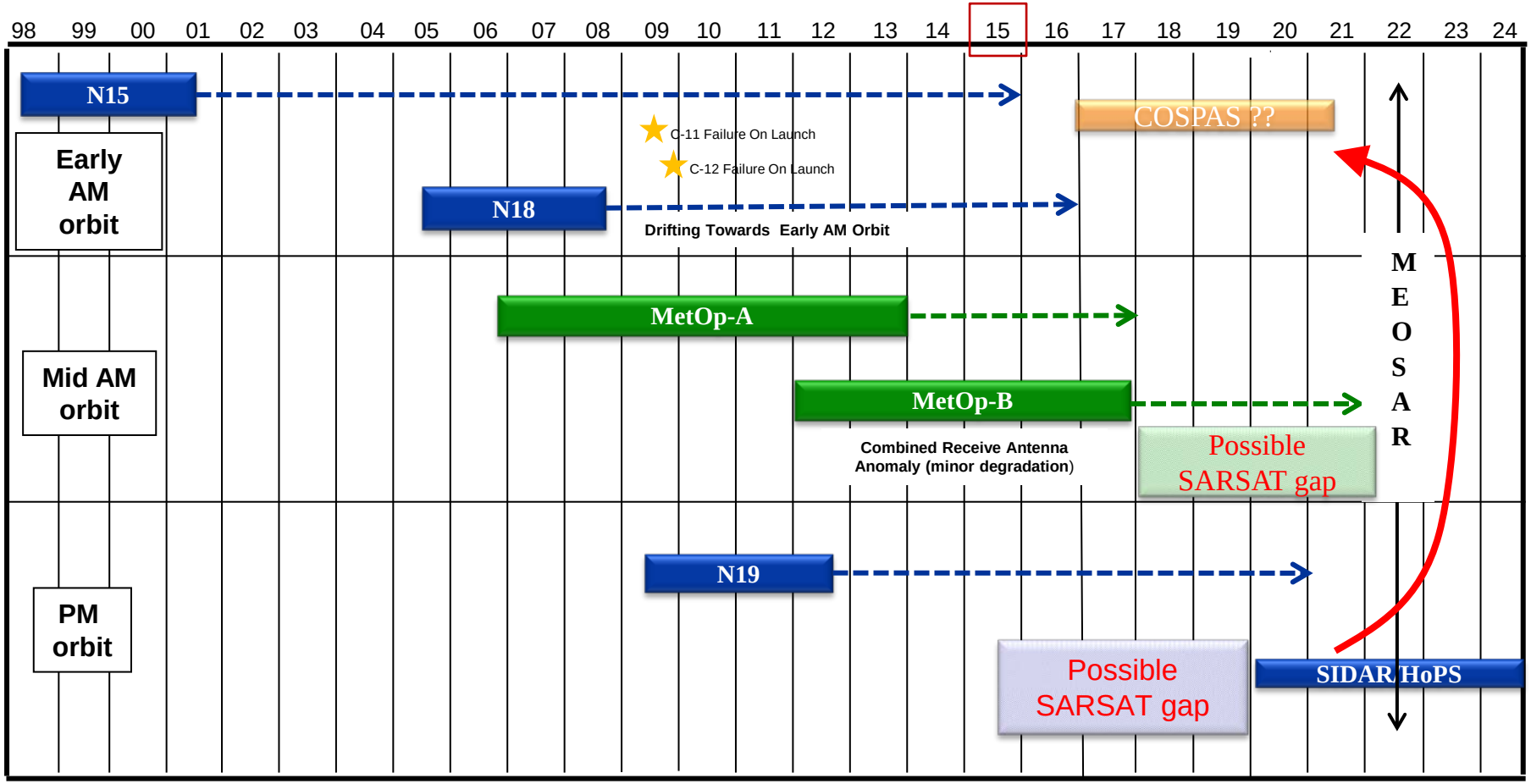
Operational Design Life (Blue=USA; Green=EUMETSAT; Orange=Other)

Predicted Extended Mission Life

Secondary (Operating Beyond Mission Life)

Note
There are no current plans to decommission NOAA-15,18,19

SARSAT LEO Space Segment



Early AM = ~05:30/17:30 Local
Mid AM = ~09:30/21:30 Local
PM = ~13:30/01:30 Local

Operational (purple=USA; green=EUMETSAT; gold=Russia)

Operational beyond design life

Accommodation Planning for A-DCS, SARP and SARR

- **NOAA is planning to use the USAF Hosted Payload Solutions (HoPS) contract**
  - Released an RFI in August 2014 to HoPS contractors and received RFI responses that meet user requirements
  - SIDAR presented at the September 2014 HoPS kickoff meeting for contractors for potential accommodation of A-DCS, SARR & SARP and held half-hour one-on-one meetings with host companies
  - Project presented at the March 2015 HoPS vendor workshop and held half-hour one-on-one meetings with host companies
  - SIDAR is working with the USAF to establish an interagency agreement
  - Planning for a FY 2017 Delivery Order

USAF SMC HoPS Contract Overview

Contract Summary

- FAR 12 Commercial Procurement (supply contract)
- Multiple Award IDIQ w/ Firm Fixed Price DO
  - Access to 8 prime LEO/MEO contractors and 12 GEO contractors providing HP opportunities
- 5-Year Ordering Period; 10-Year Max DO PoP
- IDIQ Contract Ceiling value: $495M
- IDIQ deliverables
  - Hosting opportunities list
  - Host spacecraft compatibility requirements
- CLIN Structure
  - Hosted Payload Flight System
  - Hosted Payload Ground System
  - Operations Support

IDIQ Awarded
July 2014

LEO IDIQ Contract Awardees

- Astrium Services Government, Inc.
- The Boeing Co.
- Exoterra Resources, LLC.
- Harris Corp. - Government Communications Systems Business Unit
- Millennium Engineering & Integration Company
- Orbital Sciences Corp.
- Space Systems/Loral, LLC.
- Surrey Satellite Technology

Summary

- **SIDAR became a program with the FY 2015 appropriation**

- **The FY 2016 President's Budget transfers TSIS to NASA**

- **NOAA is working with the USAF to establish an Interagency Agreement to use the HoPS contract vehicle for hosting the Argos A-DCS and SARSAT instruments**
  - Delivery order planned for FY 2017