NOAA
Solar Irradiance Data and Rescue (SIDAR) Program

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• 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

- Engineering Harnesses
- FSS (Fine Sun Sensors)
- SIM Instrument
- SIM GCI (Generic Channel Interface) electronics
- MU (Microprocessor Unit)
- TIM GCI (Generic Channel Interface) electronics
- TIM Instrument
**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
- TIM Generic Channel I/F (GCI) Electronics
- Microprocessor Unit (MU)
- Thermal Pointing System Instrument S/C I/F Electronics (TPS ISIE)
- Main Baseplate
- Launch Towers With Sep Nuts
- FRAM provided by ISS
- Optical Bench
- High Rate Fine Sun Sensor (HFSS)
- Fine Sun Sensor (FSS)
- Two Axis Gimbal
- Third Axis Deployment System (TADS)
- (TADS) Latch
- Main Baseplate to ExPa Flexures

*green denotes completed hardware currently in storage*
** 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
Argos DCS Space Segment

Calendar Year (20xx)

05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Early AM orbit

- NOAA-15 (Argos-2)
- NOAA-18 (Argos-2)

Operating On Side B
Partial AHRPT Coverage

Mid AM orbit

- Metop-A (Argos-3)
- Metop-B (Argos-3*)

Combined Receive Antenna Issue
* Platform Interrogation Off

PM orbit

- Metop-C (Argos-3)
- NOAA-19 (Argos-3*)

Operating On Side B
* Platform Interrogation Off

SARAL Follow-on??
(Argos-4)

“SIDAR”
(Argos-4)

“Future NOAA”
(Argos-4)

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

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