

**INTERDEPARTMENTAL COMMITTEE FOR METEOROLOGICAL SERVICES AND
SUPPORTING RESEARCH (ICMSSR)**

COMMITTEE FOR OPERATIONAL ENVIRONMENTAL SATELLITES (COES)

Record of Actions: 2017-3 Meeting

Sep 18, 2017, 1:00 p.m. EDT
Room 7224, SSMC2

Office of the Federal Coordinator for Meteorology
Suite 7130, SSMC2
1325 East West Highway
Silver Spring, MD 20910

PARTICIPANTS

(T): Participated via telecon

Agency	Organization	Name
DOC Cochair	NOAA-NWS	Joe Pica
DOD Cochair	USN	David McCarren
DOC	NOAA-NESDIS	Ajay Mehta
DOC	NOAA-NESDIS	Kerry Sawyer
DOD	HQ USAF A3W	Lt Col Chris Hollinger
DOD	USAF AFSPC	Lt Col Brian Kabat <i>(T)</i>
DOD	NAVOCEANO	Mark Middlebush
DOD	USAF 557WW	Mark Surmeyer <i>(T)</i>
DOD	USN FNMOC	James Vermeulen <i>(T)</i>
DOD	USAF 557WW	Ted Vroman <i>(T)</i>
DOD	USN NAVO	Lamar Russel <i>(T)</i>
DOD	SAF/AQS	Matt Nowlin
DOD	SAF/AQS	Maj Luke Rederus
NASA	ESD	Ramesh Kakar <i>(T)</i>
NGA	SFG	Capt Erika Sauer
NGA	MCR LLC supporting	Elia Sanjume <i>(T)</i>
NGA		CDR Frank Price <i>(T)</i>
NRO	Aerospace Corp - Chantilly	Norm Modlin <i>(T)</i>
OFCM	COPC ExecSec	Kenneth Barnett
OFCM	Executive Secretary	Michael Bonadonna
OFCM	STC	Floyd Hauth <i>(T)</i>
OFCM	Federal Coordinator	William Schulz

Date of Issue: September 26, 2017

1. OPENING REMARKS:

Mr. Michael Bonadonna, COES Executive Secretary, opened the meeting and provided administrative comments. The COES co-chairs welcomed the attendees and conducted a roll call of participants attending the meeting and on the phone.

The Committee approved the meeting agenda and ROA from the last meeting.

2. INDIAN ENVIRONMENTAL SATELLITE PROGRAMS:

Kerry Sawyer (NESDIS-IIA) described and provided a status update of India's environmental satellite programs particularly their Geosynchronous and ScatSat programs.

Her overview covered the activities of the Indian Space Research Organization (ISRO) and the India Meteorological Department (IMD). An agreement with ISRO will allow NOAA to receive all Indian oceanographic and meteorological satellite data, including INSAT-3D and INSAT-3DR.

India's space program includes 92 Spacecraft Missions, 64 Launch Missions, and 209 Foreign Satellites with 28 countries. In addition, India has cooperative relationships with over 35 countries through international mechanisms and access to foreign satellites is necessary to complement and supplement Indian data.

Kerry summarized the Indian satellites currently in orbit and the Indian E-O missions planned for the near future.

SCATSAT-1 swath coverage is comparable to QuikSCAT and the data were declared operational in April 2017. She described the orbital parameters, mission specifications, types of products and timelines for the products.

NOAA Center for Satellite Applications and Research (STAR) is working with the full suite of Scatterometry Products that are planned for SCATSAT-1. These include:

- Low and high resolution global
 - Scatterometer wind vectors
 - Wind vector ambiguities
- NAWIPS and AWIPS ready wind vector products for NWS operations
- BUFR ready wind vector products for Data Assimilation
- Ultrahigh resolutions Normalized Radar Cross-Section (NRCS) imagery for
- Tropical Cyclone (TC) positioning
 - Oil spill detections
- Ultrahigh resolution TC wind vector product
- Scatterometer derived sea surface pressure fields
- Ice products

The National Hurricane Center (NHC) routinely uses scatterometer data for its marine and tropical cyclone operations and data from new Indian scatterometer(s) would be valuable to NHC operations.

Kerry described the capabilities and products of the INSAT-3DR and noted that improvements included:

- Imaging in Middle IR band to provide nighttime pictures of low clouds and fog.
- Imaging in two Thermal IR bands for estimation of Sea Surface Temperatures (SST) with better accuracy.
- Higher spatial resolution in the Visible and Thermal IR bands.

She also noted that existing INSAT-3D data policy is that essential data will be redistributed to all users worldwide on a free and unrestricted basis.

Potential users of INSAT -3D/-3DR are NWS, Joint Center for Satellite Data Assimilation (JCSDA), current operational users of MTS and MSG data, NOAA STAR scientists, and DoD.

Potential issues for SCATSAT-1 include: NESDIS funding for Level 2 products, availability of the Fairbanks Command and Data Acquisition Station (FCDAS), network connectivity, establishing a robust and reliable way to receive data, and timeliness and quality of the data issues. The requirements for Indian data are being worked by NOAA Technology Planning and Integration Office (TPIO), HQ USAF/A3WX, the Joint Typhoon Warning Center, and the NOAA National Centers for Environmental Predictions (NCEP).

The discussion then centered on the overall quality of the data. Members asked whether STAR and JCSDA could provide information on their progress in evaluating the quality of data. See Action Item 2017-3.1.

3. DOD SPACE-BASED ENVIRONMENTAL MONITORING (SBEM) PROGRAM:

Major Luke Redress (HQ USAF SAF-AQS) provided an update on the efforts within the DoD to provide future space-based environmental monitoring capabilities.

The Space Based Environmental Monitoring (SBEM) Weather Mission is a core responsibility of the Air Force (AF) and has short and long-term strategies to meet all Joint Requirement Oversight Council (JROC) requirements. The AF is carrying out a formal Electro-optical / Infrared (EO/IR) acquisition program in accordance with the FY16 National Defense Authorization Act (NDAA).

The AF SBEM programs address gaps identified in SBEM requirements by priority and include:

- Gaps 1 & 2 Cloud Characterization and Theater Weather Imagery
 - Defense Meteorological Satellite Program (DMSP)
 - Weather System Follow-on EO/IR (WSF-E)
 - WSF-Geostationary (WSF-G) (GEO orbit over the Indian Ocean) [Using an existing NOAA Satellite]
 - Operational Responsive Space (ORS-8)
- Gaps 3 & 8 Ocean Surface Vector Winds & Tropical Cyclone Intensity
- Gaps 5, 6, and 9 are largely met by microwave instruments and ORS-6 with Compact Ocean Wind Vector Radiometer (COWVR)
- Gaps 4, 7, and 12 Space Weather are addressed by Constellation Observing System for Meteorology, Ionosphere, and Climate (COSMIC-2a) mission and other civil and international systems
- Gap 10 Auroral Characterization eliminated by AoA due to lack of operational application
- Gap 11 Energetic Charged Particle (ECP) Sensor

Short-term plans for Gaps 1 and 2 relocate a residual NOAA GOES to cover IO data gap by 2020, augment with foreign data accessed with NOAA coordination, and develop the Operationally Responsive Space Mission 8 (ORS-8) Initial Launch capability (ILC) FY2021.

The long-term plan for Gaps 1 and 2 is to implement a materiel solution, continue to implement non-materiel solutions, and augment with emerging capabilities. DMSP, ORS-8 and WSF-E (EO/IR) will provide continuity for Gaps 1 and 2.

Major Rederus described each of the following SBEM programs/projects/sensors/systems including their current status and issues:

- Defense Meteorological Satellite Program (DMSP)
- Weather System Follow-on Electro-Optical/Infrared (WSF-E)
- Weather System Follow-on Geostationary (WSF-G)
- Weather System Follow-on Microwave (WSF-M)
- WSF Energetic Charged Particle (WSF-ECP) sensor
- Operationally Responsive Space-6 (ORS-6, COWVR)
- Operationally Responsive Space-8 (ORS-8)
- Space Situational Awareness Environmental Monitoring (SSAEM)

In summary, the Air Force is moving aggressively to address the SBEM mission and will meet all JROC requirements. Programs are in development to address JROC Gaps and to fulfill Combatant Commands' SBEM needs.

4. COMMITTEE FOR OPERATIONAL PROCESSING CENTERS (COPC):

In response to a COPC Action Item to improve coordination between COPC and COES, James Vermeulen (FNMOC) provided an update on COPC activities and issues. He emphasized how the COES' decisions can impact the Operational Processing Centers (OPCs') operations and solicited COES agreement to consider the potential impacts to the OPCs when planning for research and operational satellites. COPC goal is to have increasing access to data in a more "operational like" posture.

COPC facilitates the exchange of observational data, modeling products, and backup of services between the member organizations. OPCs recognize the need to be proactively involved in the planning process to potentially obtain data "operationally" within a reduced timeline.

Mr. Vermeulen noted that real time data access can be built into satellite sensor/system designs. He provided the examples of PACE (Pre-Aerosol Clouds and ocean Ecosystem mission), and CYGNSS (Cyclone Global Navigation Satellite System) as systems that could provide data potentially beneficial to several agency missions.

The OPCs have concerns about access to commercial data. These include:

- For the OPCs, access to commercial data must address a larger context for the providers such as a viable CONOPS addressing quality, latency, Information Assurance, and the whole end to end business model.
- How is a commercial provider supposed to deliver without an understanding of all the constraints involved?
- How will the DOD OPCs and NOAA address processes for information technology security, data rights and distribution, and real-time data ingest?

- Agency level decision makers will need to have knowledge of the efforts so they can all tie into the executive and legislative branches strategy addressing on-going future programs and budget issues.
- Each federal partner should have an understanding of the others so that appropriate budgets and understandings can take place well into the future.

5. COES UPDATE TO ICMSSR:

COES has been tasked to provide an update presentation at the autumn meeting of the ICMSSR on 27 September. COES Cochair, Dave McCarren (USN) reviewed the slides prepared for the ICMSSR briefing. These covered the background, Terms of Reference, and Activities / Issues / Interests of the COES.

Members suggested minor updates/changes and were asked to provide any additional changes as soon as possible. See Action Item 2017-3.2.

6. OPEN DISCUSSION:

Members discussed topics to cover in future meetings. Topics included were the NOAA Observing Architecture Study and the impact on operations of refresh rates of METEOSAT data. Concerns were also raised regarding NOAA, USAF, and NASA commercial weather data procurement projects and whether data obtained from these sources can be shared. These concerns were again raised during the Action Item review. Members asked for a more thorough review of commercial weather data procurement projects at the next meeting including how the data are or will be used. See Action Item 2017-3.3.

7. ACTION ITEM REVIEW / NEXT MEETING:

Mr. Bonadonna reviewed the Action Items from past meetings.

Action Item 2017-2.1: Prepare a one-page summary of NOAA, USAF, and NASA commercial weather data procurement projects and plans for ICMSSR information.

Responsible Office: David McCarren

Due Date: July 30, 2017

Status: CLOSED. A summary was included in the COES Meeting 2017-3 slide deck.

The next meeting is tentatively set for December 8, 2017.

The meeting adjourned at 3:05 P.M. EDT.

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2017-3 Meeting Action Items

Action Item 2017-3.1: Request NOAA STAR and the JCSDA provide any reports on progress in evaluating the quality of INSAT and other ISRO data

Responsible Office: ExecSec

Due Date: Sep 30, 2017

Action Item 2017-3.2: Provide any comments on the COES overview briefing reviewed during the meeting to the Executive Secretary.

Responsible Office: COES members

Due Date: Sep 21, 2017

Action Item 2017-3.3: Review commercial data initiatives in NOAA, NASA, and AF then provide a summary to ICMSSR.

Responsible Office: ExecSec

Due Date: Oct 30, 2017