INTERDEPARTMENTAL COMMITTEE FOR METEOROLOGICAL SERVICES AND SUPPORTING RESEARCH (ICMSSR)

COMMITTEE FOR OPERATIONAL ENVIRONMENTAL SATELLITES (COES)

2019-1 MEETING

March 18, 2019
2:00 P.M. EST

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

First Name	Last Name	Agency	COES Role	Via telecon
Michael	Farrar	USAF	CoChair	
Ajay	Mehta	NOAA	CoChair	
Michael	Bonadonna	NOAA	ExecSec	T
Jamese	Sims	NOAA	ExecSec (Acting)	
Beau	Backus	NOAA	Speaker	T
Kenneth	Barnett	NOAA	SME	
Randall	Bass	FAA	SME	T
Kate	Becker	NOAA	Speaker	
Jeff	Best	NAVY	SME	T
Maureen	Brooks	NAVY	Knauss Fellow	
LySanias	Broyles	USACE	Speaker	T
Patrick	Burke	NOAA	Speaker	
Matthew	Butler	NOAA	Speaker	
Thomas	Cuff	NOAA	Member	
Brian	Gockel	NOAA	SME	
Floyd	Hauth	NOAA	Admin	T
Lt Col Chris	Hollinger	USAF	Member	T
Sim	James	NOAA	SME	
Joseph	Kolesnick	NOAA	Participant	
Tsengdar	Lee	NASA	Speaker	
David	Lubar	NOAA	Speaker	T
David	McCarren	NAVY	Member	T
Norman	Modlin	NRO	Alt Member	
Joseph	Sienkiwicz	NOAA	Speaker	
Karen	St. Germain	NOAA	SME	
Phillip	Vincent	NAVY	SME	T
Dan	Weekley	USAF	SME	T
James	Yoe	NOAA	Member	T

1. OPENING REMARKS:

Dr. Jamese Sims, Acting COES Executive Secretary, initiated the meeting and provided administrative comments. The COES Co-Chairs, Dr. Michael Farrar (USAF-A3W) and Ajay Mehta (NOAA-NESDIS) welcomed the attendees. Roll call was conducted, the Record of Action from the previous meeting was approved and the agenda was reviewed.

2. ACTION ITEM REVIEW:

Dr. Sims reviewed the Action Items:

- AI 2018-4.2, 4.3, and 4.4 are closed.
- AI 2018-2.7: The status of commercial weather data projects from each agency is being presented today and will also be presented at the next ICMSSR meeting.
- AI 2018-3.1: A SNWG update to COES will be scheduled for the summer COES 2019 meeting.
- AI 2018-4.1: A briefing on GOES Lightning Mapper products and applications will be scheduled for summer COES 2019 meeting.
- AI 2018-4.5: The satellite-based oceanographic capabilities and applications will be presented today.

3. COORDINATION GROUP FOR METEOROLOGICAL SATELLITES (CGMS):

Mr. Matthew Butler (NOAA) provided an update on issues going forward to the annual CGMS meeting. He noted that CGMS is an international coordination group for meteorological satellites comprising members who provide operational meteorological satellites (e.g., Japan, China, Korea, India, Europe and the United States).

This year's meeting is scheduled for May 19-24 in Russia. Plenary session topics for this meeting include discussing the Public/Private Sector engagement at CGMS, operational oceanography, and ways to continue to advance CGMS-CEOS collaboration on LEO/GEO. The Group also plans to strengthen the CGMS-CEOS Joint Working Group on Climate as it takes on new work. The Russian thematic session is on the arctic and NOAA is planning a presentation for this session.

Mr. Butler summarized the information being considered in each of the five CGMS-47 Working Groups. These Groups include Satellite Systems and Services Operations, Satellite Data and Products, Operational Continuity and Contingency Planning, Data Access and End User Support, and Space Weather Coordination.

The intersection between CGMS and COES is reflected in the COES Terms of Reference which was updated to specifically reflect pre- and post-CGMS coordination.

CGMS agencies are interested in four main things:

- What missions/instruments are providing data and what is the latency?
- What is believed to be their lifetime?
- What future missions/instruments are DoD developing that other agencies can utilize?
- Where can agencies go to retrieve the data?

NOAA and USAF provide information to CGMS in response to these questions.

NOAA plans to provide COES feedback from the May CGMS meeting.

4. SATELLITE TELEMETRY INTERAGENCY WORKING GROUP (STIWG):

Mr. LySanias Broyles (USACE) provided the annual STIWG update. The STIWG is a user group for the Geostationary Operational Environmental Satellite Data Collection System (GOES DCS) and advises the National Environmental Satellite Data and Information Service (NESDIS) concerning satellite data relay requirements for hydrologic, meteorological, oceanic, and other environmental data. It promotes information exchange/sharing of data, research and development results and undertakes projects that benefit the GOES DCS Community. A list of STIWG agencies was shown.

STIWG is primarily interested in the GOES DCS messages. In recent years they have established working groups for DCS Preservation, OpenDCS Standardization, and Random Channel Coordination.

The DCS Preservation Group is tasked with addressing issues pertaining to matters that impact the viability, availability and integrity of GOES DCS data from the GOES satellites.

The OpenDCS Standardization Group is tasked with establishing an executable plan that will unify existing OpenDCS variants and capabilities into a single platform. The second objective is to establish a way to jointly plan and fund the new platform's development and support by the STIWG agencies.

The Random Channel Coordination Group is new and will be tasked with reviewing existing codified documentation and establish appropriate guidance on the use of random transmission channels.

Mr. Broyles provided updates on the STIWG OpenDCS Support Agreements, the Radio Frequency Interference analysis and mitigation, and 2-Way DCP communication. DCP issues included the Design Analysis H-2221 transmitter, and the Multi-Vendor roll-over outage that is planned for April 2019.

STIWG has selected a new DCS High Rate Information Transfer (HRIT) File Format that reduces DCP message overhead and requires HRIT receiver firmware upgrade to process the new file format.

The STIWG DCS objectives include the future of GOES DCS Spectrum Studies and agency investments.

Mr. Broyles closed by noting the 2019 TWG/STIWG meeting that will be held at the USACE Western Division Risk Management Center, Denver, Colorado, April 23 – 25, 2019.

5. COMMERCIAL SATELLITE WEATHER DATA PROJECTS:

Dr. Tsengdar Lee, Dr. Mike Farrar (USAF), and Kate Becker (NOAA) presented a summary of their Commercial Weather Data Pilot (CWDP) activities.

Dr. Lee described the NASA project. NASA has awarded contracts to three companies to buy existing data products related to Essential Climate Variables (ECVs), derived from private sector-funded small-satellite constellations (3-satellite minimum constellation, full longitude coverage). These will be evaluated by NASA researchers to determine value for advancing NASA research and applications activities and objectives.

This project provides a cost-effective means to augment and complement the suite of Earth Observations, acquires data sets and information products and associated meta-data through industry partners. ESD-funded researchers will assess the quality of geophysical information.

data availability (latency) and determine the sub-distribution rights vs. cost and vendor plans for constellation maintenance/evolution.

Dr. Farrar presented the USAF CWDP activities. Their current effort is to assess the viability of commercial satellite weather data related to Space Based Environmental Monitoring (SBEM) gaps using Radio Occultation (RO) data. Their future strategy is to continue to assess the current and future ability of commercially available space weather data to support the AF Weather mission.

Ms. Kate Becker described the NOAA pilot program. Their CWDP Round 2 seeks to extend the purchase of RO data from commercial vendors, perform a more comprehensive assessment of the value of commercial RO data, and develop NOAA systems readiness for future purchases of operational weather data from commercial sources. The Round 2 data analysis and assessment report is due 31 March 2020.

NESDIS continues to canvas the commercial sector for available data sets that can meet NOAA mission needs. The NOAA Satellite Observing System Architecture Study is informing the NOAA observing system architecture 2030-2050. It will systematically consider commercial capabilities as a potential part of future architectures along with NOAA programs of record and international partner missions. Future pilot programs will be guided by the results of this study and ongoing market research.

Members were reminded of the request to provide information on agency CWDPs at the next ICMSSR meeting. See Action Item 2019-1.

6. SATELLITE SENSOR RFI ISSUES:

Mr. Beau Backus (NOAA) provided a summary of the RFI report recently sent to the COES. The report described NOAA/NESDIS passive band concerns and emphasized that the Spectrum is a critical resource enabling NOAA Missions.

Numerical weather prediction (NWP) models require input from several Earth observing systems using many parts of the spectrum and various orbital altitudes. Microwave sounding (MWS) is one of the more important input parameters. Radiances measured by Microwave-based sensors make the largest contribution to reducing forecast error in NWP. Passive measurements have high sensitivity to Radio Frequency Interference (RFI) which can introduce errors into geophysical parameters retrievals and forecasts.

5G (from "5th Generation") is the latest generation of cellular mobile communications. Proposed 5G or platform use near passive bands and 5G emissions can be expected to be low level interference signals that are impossible to discriminate from the actual geophysical information. Even low levels of interference received by a passive sensor may degrade its data.

The Federal Communications Commission (FCC) identified an industry proposed emission mask of -20 dB(W/200 MHz) as the protection level for Earth Exploration Satellite Service (passive) as the USA position at CPM-19.2. This proposal does not protect NOAA/NESDIS systems and will cause harmful interference to the NOAA/NESDIS 23.8 GHz EESS (passive) frequency band. This level will potentially harm a significant portion of data used in forecast models (polar-orbiting satellites) and lead to a significant degradation of numerical weather prediction model results.

In summary, Spectrum is the life blood of operational meteorology. Users must be aware of proposals or plans for sharing that could seriously impact data.

7. SATELLITE OCEANOGRAPHY:

Joe Sienkiewicz (NWS Ocean Prediction Center (OPC)) and Patrick Burke (National Ocean Service (NOS)) provided an overview of the uses of environmental satellites for oceanography.

OPC originates and issues marine warnings and forecasts, continually monitors and analyzes maritime data, and provides guidance of marine atmospheric variables for purposes of protection of life and property, safety at sea, and enhancement of economic opportunity. Globally, US$13 trillion in goods and 2 billion passengers per year travel at sea.

Satellite oceanography enables the transformation of satellite data into high-quality, state-of-the-art products and information on the oceans. Examples include using ocean color to locate and identify harmful algal blooms ('red tides'); observing the roughness of the sea-surface for locating sea ice and its extent; measuring ocean surface winds in support of weather forecasts; and analyzing sea surface temperature and sea surface height for hurricane predictions.

Ocean products include Sea Surface Temperature (SST), Sea Surface Height (SSH), Sea Surface Salinity (SSS), Ocean Color, Ocean Surface Wind Vector (OSWV), and Sea Surface Emissivity. Ocean products have a variety of applications, from navigation to monitoring ENSO events, to detecting algae blooms or coral bleaching.

Mr. Sienkiewicz presented numerous examples of ocean observations and products derived from satellite sensors. These included extreme waves, wave/current interactions, ocean heat content, sea ice extent, ocean color data, and marine pollution from oil spills.

8. OPEN DISCUSSION:

There was no additional discussion because of meeting time limitations.

9. ACTION ITEM REVIEW / NEXT MEETING:

The Executive Secretary will document action items taken during this meeting and summarize them in the meeting summary. The next meeting is tentatively scheduled for June 2019.

10. ADJOURN:

The Co-Chairs thanked members for participating in the meeting. The meeting was adjourned at 4:00 p.m.

2019-1 Meeting Action Items

COES Action Item 2019-1.1: OFCM will prepare and coordinate the briefing/presentation on federal agency view on commercial satellite weather data pilot projects for the next ICMSSR.

Responsible Office: OFCM

Due Date: April 30, 2019