

CGMS-XXX USA-WP-17
Prepared by USA
Agenda Item: H.2
To be discussed in Plenary

UPDATES TO THE CEOS/WMO CONSOLIDATED DATABASE

This working paper provides an up-to-date-record of the US satellite missions, instruments and frequencies. The information presented in the document is accurate for the period ending September 18, 2002.

UPDATES TO THE CEOS/WMO CONSOLIDATED DATABASE

1 INTRODUCTION

The US continues to provide updated information for the CEOS Database. The WMO requested revisions to the database manual tables, describing the geophysical parameters, in order to include them with the next version of the database in October 2001.

2. Update to the CEOS/WMO Database

Agency and Its Missions

| | | |
|---------|-------------------------------|-----------------------|
| GOES 10 | Launch date: 4/25/1997 | |
| GOES-11 | Status: currently being flown | Launch date: 5/3/2000 |
| GOES-M | Launch Date: 7/12/2001 | |
| GOES-N | Launch date: Late 2002 | |
| GOES-O | Launch date: Early 2005 | |
| GOES-P | Launch date: Early 2007 | |
| GOES-Q | Launch date: Late 2008 | |

| | | |
|------------------------|-------------------------------|------------------------|
| NOAA-L is now NOAA-16. | Status: currently being flown | Launch date: 9/21/2000 |
| NOAA-M is now NOAA-17. | Status: currently being flown | Launch date: 6/24/2002 |
| NOAA-N | Launch date: June 2004 | |
| NOAA-N' | Launch date: March 2008 | |

DMSP S20 (will be F16 after launch) Launch date: **May 2003**

National Polar-orbiting Operational Environmental Satellite System (NPOESS)

| | | |
|----------|-----------------------------|---|
| NPOESS-1 | Launch date: 04/2009 | 0930 Equatorial Crossing Time (Ascending) |
| NPOESS-2 | Launch date: 06/2011 | 1330 Equatorial Crossing Time (Ascending) |
| NPOESS-3 | Launch date: 04/2013 | 0530 Equatorial Crossing Time (Descending) |
| NPOESS-4 | Launch date: 11/2015 | 0930 Equatorial Crossing Time (Ascending) |
| NPOESS-5 | Launch date: 01/2018 | 1330 Equatorial Crossing Time (Ascending) |
| NPOESS-6 | Launch date: ~2019 | 0530 Equatorial Crossing Time (Descending) |

Mission and Associated Instruments

Add NPOESS-5 and NPOESS-6, with launch dates and Equatorial Crossing Times as listed above.

(NPOESS-1 through -4)

Delete the following instruments: AMSU-A, AVHRR/3, HIRS/3, MHS, SBUV/3, SEM

(POES)

Change ARGOS instrument to A-DCS

Add the following sets of instruments for the NPOESS spacecraft in the specific orbits:

NPOESS-1 and NPOESS-4 in the 0930 orbit: VIIRS, CrIS, ATMS, CMIS, APS, SARSAT

NPOESS-2 and NPOESS-5 in the 1330 orbit: VIIRS, CrIS, ATMS, CMIS, OMPS, GPSOS, SESS, ERBS, A-DCS, SARSAT

NPOESS-3 and NPOESS-6 in the 0530 orbit: VIIRS, CMIS, TSIS, ALT, A-DCS, SARSAT

NPOESS Instrument acronym list:

VIIRS - Visible/Infrared Imager Radiometer Suite

CrIS – Cross-track Infrared Sounder

ATMS – Advanced Technology Microwave Sounder

CMIS – Conical-scanning Microwave Imager/Sounder

OMPS – Ozone Mapping and Profiler Suite

GPSOS - Global Positioning System Occultation Sensor

SESS - Space Environment Sensor Suite

APS – Aerosol Polarimetry Sensor

ERBS – Earth Radiation Budget Sensor

TSIS - Total Solar Irradiance Sensor

ALT – Radar Altimeter

A-DCS – Data Collection System

SARSAT – Search and Rescue Satellite Aided Tracking

NPOESS Instrument Data

VIIRS

Environmental parameters allocated to VIIRS:

Visible and infrared imagery

Sea surface temperature

Soil moisture

Aerosol optical thickness

Aerosol **particle** size

Albedo (surface)

Cloud base height

Cloud cover/layers

Cloud effective particle size

Cloud optical depth/transmittance

Cloud top height
 Cloud top pressure
 Cloud top temperature
 Ocean currents
 Fresh water ice
 Ice surface temperature
 Land surface temperature
 Littoral sediment transport
 Turbidity/mass loading
 Net heat flux
 Ocean color/chlorophyll
 Sea ice edge and ice edge motion
 Snow cover/depth
 Surface type
 Fires
 Suspended matter (ocean)
 Vegetation index

Delete the following parameters: ozone profile and specific humidity profiles

Add the following parameters: soil moisture, cloud optical thickness, cloud base height, sea-ice surface temperature, sea-ice type, ocean chlorophyll, ocean currents

CrIS/ATMS

Environmental parameters allocated to CrIS/ATMS:

Atmospheric vertical temperature profile
 Atmospheric vertical moisture profile
 Atmospheric vertical pressure profile/surface

Delete the following parameters: cloud top height and ozone profile

Add the following parameters: air pressure over land surface and air pressure over sea surface

CMIS

Environmental parameters allocated to CMIS:

| | |
|--|------------------------------------|
| Atmospheric vertical temperature profile | higher stratosphere and mesosphere |
| Atmospheric vertical temperature profile | higher troposphere (HT) |
| Atmospheric vertical temperature profile | lower stratosphere (LS) |
| Atmospheric vertical temperature profile | lower troposphere (LT) |
| Atmospheric vertical moisture profile | higher troposphere (HT) |
| Atmospheric vertical moisture profile | lower troposphere (LT) |
| Atmospheric vertical moisture profile | total column |

All weather (microwave) imagery
 Sea surface temperature
 Sea surface winds (speed and direction – horizontal)
 Soil moisture

| | |
|---|--------------|
| Cloud base height | |
| Cloud water profile (<100 μm) | total column |
| Cloud ice profile | total column |
| Cloud imagery | |
| Precipitation rate at the ground (liquid) | |
| Fresh water ice | |
| Sea-ice surface temperature | |
| Land surface temperature | |
| Sea ice edge and ice edge motion | |
| Snow cover/depth | |
| Surface type | |
| Sea surface wind stress | |

OMPS

Environmental parameters allocated to OMPS:

| | |
|---------------|------------------------------------|
| Ozone profile | higher stratosphere and mesosphere |
| Ozone profile | lower stratosphere (LS) |
| Ozone profile | total column |

GPSOS

Environmental parameters allocated to GPSOS:

Electron density profile
 Ionospheric scintillation
 Atmospheric temperature profile
 Atmospheric moisture profile

SESS

In addition, the SESS instrument suite produces parameters that are not listed within the CEOS database. These are as follows:

Environmental parameters allocated to SESS:

Auroral boundary
 Auroral imagery
 Electric fields
 Electron density profiles
 Energetic ions
 Geomagnetic field
 In-situ plasma fluctuations
 In-situ plasma temperature
 Ionospheric scintillation
 Medium energy charged particles
 Neutral density profile
 Neutral winds

Supra-thermal-auroral particles
Total auroral energy deposition

APS

Environmental parameters allocated to APS:

aerosol optical thickness
aerosol particle size
cloud particle size distribution
aerosol refractive index
single scattering albedo and shape

ERBS

Environmental parameters allocated to ERBS:

Downward longwave radiance
Insolation
Net heat flux
Net short wave radiation
Total longwave radiance

TSIS

Environmental parameters allocated to TSIS:

Solar irradiance

ALT

Environmental parameters allocated to ALT:

Sea surface height/topography
Ocean wave characteristics (wave height)
Sea surface wind stress (magnitude)
Ocean currents