A large, semi-transparent image of the Earth from space serves as the background for the slide. The globe is centered, showing the Americas and parts of Europe and Africa. The text is overlaid on this image.

# ***Use of Scatterometer Wind & Altimeter Wave Observations in Operational Marine Analyses & Forecasts for the Southern Hemisphere***

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***CEOS Constellation Co-Chairs***

***NASA OSVW Science Team Meeting***

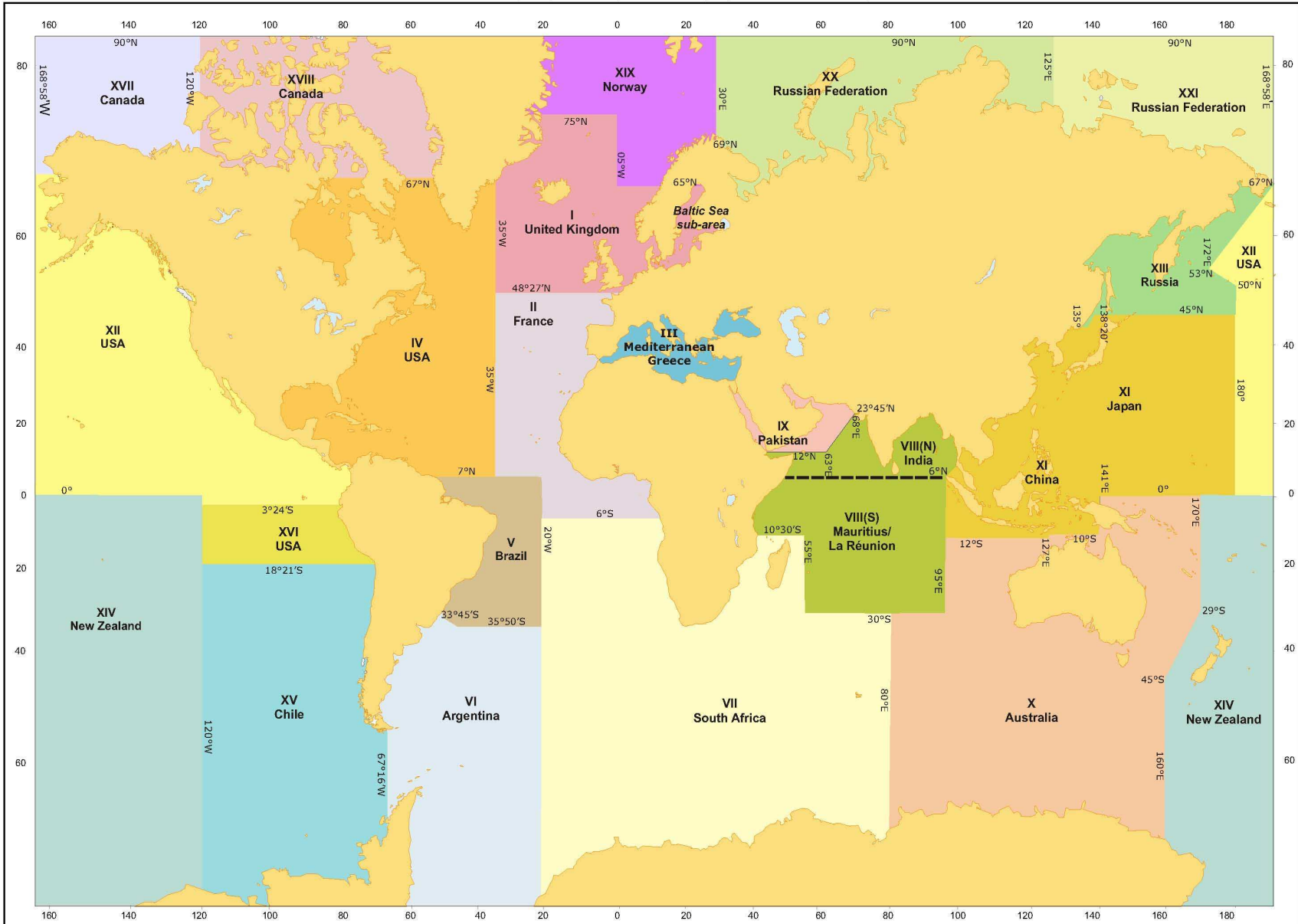
***Boulder, 20 May 2009***



# ***Engaging Operational Users for the OSVW & OST Constellations***

- 1. Pick specific operational users where satellite observations have the potential to make a significant impact – maritime shipping and fishing on the high seas***
- 2. Focus initially on operational marine analyses & forecasts for Southern Hemisphere via provision of two easily interpretable products – OSVW & SWH***
- 3. Given the WMO/IMO GMDSS, assess the extent to which its high-seas forecast centers have timely access to, and a capability to use, these products***
- 4. Depending on what is learned, proceed accordingly...***

### MAP SHOWING LIMITS OF METAREAS



# Global Maritime Distress and Safety System

<b>Met Area</b>	<b>High-Seas Operational Forecast Responsibility</b>	<b>Data routinely used in operational forecasts? If so, how are they accessed?</b>			
		<b>Surface Vector Winds</b>		<b>Significant Wave Height</b>	
		<b>QuikSCAT (to go on GTS)</b>	<b>ASCAT</b>	<b>Jason &amp; Jason-2</b>	<b>ENIVSAT (to go on GTS)</b>
<b>V</b>	<i>Marine Meteorological Service, Brazilian Navy</i>	<b>Yes FTP</b>	<b>No</b>	<b>No</b>	<b>No</b>
<input type="checkbox"/>	<i>National Institute for Space Research, Brazil</i>	<b>Yes FTP</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>VI</b>	<i>Servicio Meteorológico Nacional, Argentina</i>	<b>Some FTP</b>	<b>No</b>	<b>Some FTP</b>	<b>No</b>
<b>VII</b>	<i>South African Weather Service</i>	<b>Some FTP</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>VII-S</b>	<i>Mauritius Meteorological Service</i>	<b>?</b>	<b>?</b>	<b>?</b>	<b>?</b>
<b>X</b>	<i>Australian Bureau of Meteorology</i>	<b>Yes FTP</b>	<b>Yes FTP</b>	<b>Yes GTS</b>	<b>Yes FTP</b>
<b>XIV-N</b>	<i>Fiji Met Service</i>	<b>?</b>	<b>?</b>	<b>?</b>	<b>?</b>
<b>XIV-S</b>	<i>Met Service of New Zealand</i>	<b>Yes FTP</b>	<b>Yes FTP</b>	<b>No</b>	<b>No</b>
<b>XV</b>	<i>Servicio Meteorológico de la Armada, Chile</i>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

## ***Why such low operational use?***

- ***Unaware of the capabilities 5 different satellites***
- ***Unable to access the GTS***
- ***Unable to decode BUFR files on GTS, and each satellite requires separate decoder***
- ***Computing power and/or bandwidth limits ability to sort through files on the GTS that have little correspondence to areas of interest***
- ***Must write a proposal to get ftp access***
- ***Must go to 5 different ftp sites, each with a different format***
- ***Don't necessarily know when products become available on each ftp site***
- ***Difficult to integrate OSVW & SWH products into analyses***
- ***Forecasters don't know how to use the products***

# ***Agenda for the Constellation Meeting***

- ***This talk is an introduction to the meeting this afternoon***
- ***What can we do to rectify this situation?***
  - ***Satellite Provider Issues***
  - ***User Issues***

# Satellite Provider Issues

- ***Data policy to enable timely operational access***
- ***Provide access via each specific source:***
  - ***GTS – separate BUFR decoder for each***
  - ***FTP – document procedures for each***
  - ***GeoNetCast – similar to above***
  - ***Each new source requires a new linkage to all users***
- ***Provide single point of access – ‘one-stop shopping’***
  - ***Only one set of procedures is needed for the user***
  - ***Simple common operational product ?***
  - ***Single self-describing, hardware-independent format ?***
  - ***Package products specific to each area of interest***
  - ***Packaged, simple products offer a very low data rate***
  - ***Each new source can be easily incorporated into service***

# *User Issues – 1*

- ***Provide training and capacity building to enable developing country forecasters to focus on the interpretation and use of these new (to them) products***
  - ***More than a single workshop is needed***
    - ▶ ***Requires an ongoing collaboration***
  - ***Researchers in Chile, Argentina & South Africa are accessing and using these products in delayed mode***
    - ▶ ***Include in-country researchers with forecaster in training***
- ***Workshop trainers and suitable computer lab are required***



## *User Issues – 2*

- ***Workshop options***
  - ***IOC/IODE, Oostend, Belgium has offered to host a week-long workshop***
    - ▶ ***Willing to support travel for a dozen developing-country participants***
  - ***University of Buenos Aires, Meteorology Dept has offered to host such a workshop***
    - ▶ ***\$20K needed to fund travel for participants***
    - ▶ ***Offers potential to maximize the number of participants***
  - ***Workshop held conjunctively with Science Team meetings***
- ***Other ideas?***

# *Alternatives*

- ***Use existing high-seas forecasts***
  - ***Chile – uses FNMOC model output***
  - ***Argentina – uses NCEP & ECMWF***
  - ***South Africa – uses UK Met Ofc***
- ***Buy forecasts from the private sector***
  - ***Oceanweather, Inc.***

# **WMO Executive Council**

**June 2008**

- ***Requested that efforts be made...to ensure that... ocean surface meteorological observations be routinely collected and disseminated via the GTS...***
- ***Requested...participation of space agencies in that scheme.***
- ***Recognized that severe coastal inundation events from extreme sea state conditions occurred in many parts of the world...where coastal and ocean surface meteorological observations were...limited or absent.***
- ***Requested JCOMM...to address this issue as a matter of priority.***

# **WMO Executive Council**

***Proposed for June 2009***

- ***The International Maritime Organization (IMO)...has set out the organization, standards and methods...[to be]...used for the promulgation...of maritime safety information... including...meteorological warnings...[and]... forecasts...broadcast to ships as documented in the International Convention of Safety of Life at Sea (SOLAS).***
- ***The WMO...requested the Secretary-General to establish, in collaboration with the IMO, the IMO/WMO World Wide Met-ocean Information and Warning Service...to complement the existing IMO/International Hydrographic Organization (IHO) World-Wide Navigational Warning Services.***