

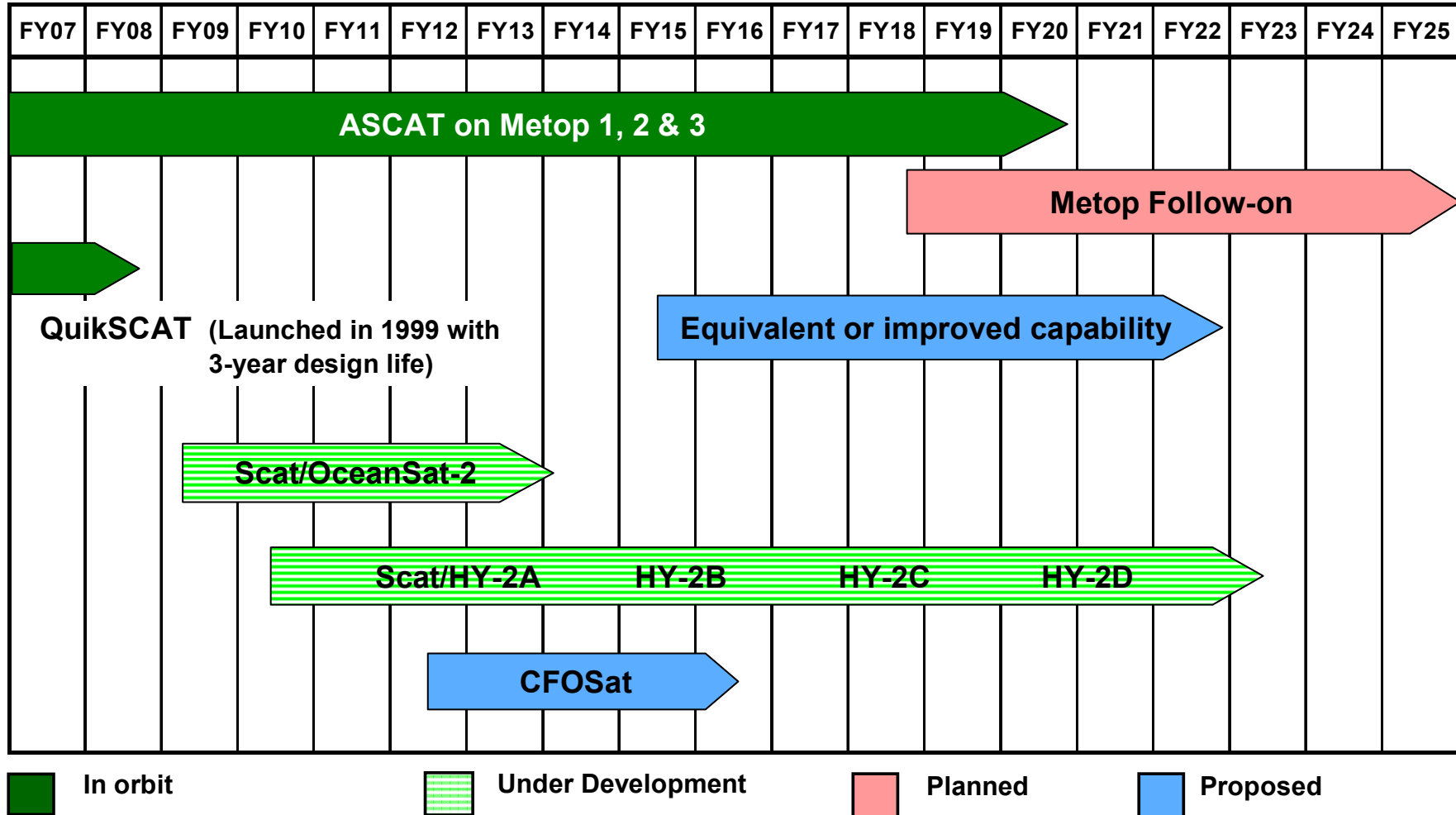
Ocean Surface Vector Wind Virtual Constellation*

***Stan Wilson, NOAA
Hans Bonekamp, EUMETSAT
B.S. Gohil, ISRO***

**** Approved at CEOS Plenary last week in South Africa***

OSVW Satellite Missions

Present and Proposed



Ocean Surface Vector Wind Constellation

- ***Goal***

- ***Improve operational marine warnings and forecasts through the use of ocean surface vector winds (OSVW) from satellite scatterometry – together with significant wave height (SWH) from the OST Constellation***
- ***Characterize the OSVW (and sigma o) field for use in climate-quality data records***
- ***Provide a service to the research community (eg, studying wind forcing and circulation of the oceans)***

- ***Benefits***

- ***Common products and formats***
- ***One-stop shopping***
- ***Available in time for operational use***
- ***Share experience in using those products***
- ***Optimize global coverage in space and time***

Statements of Interest

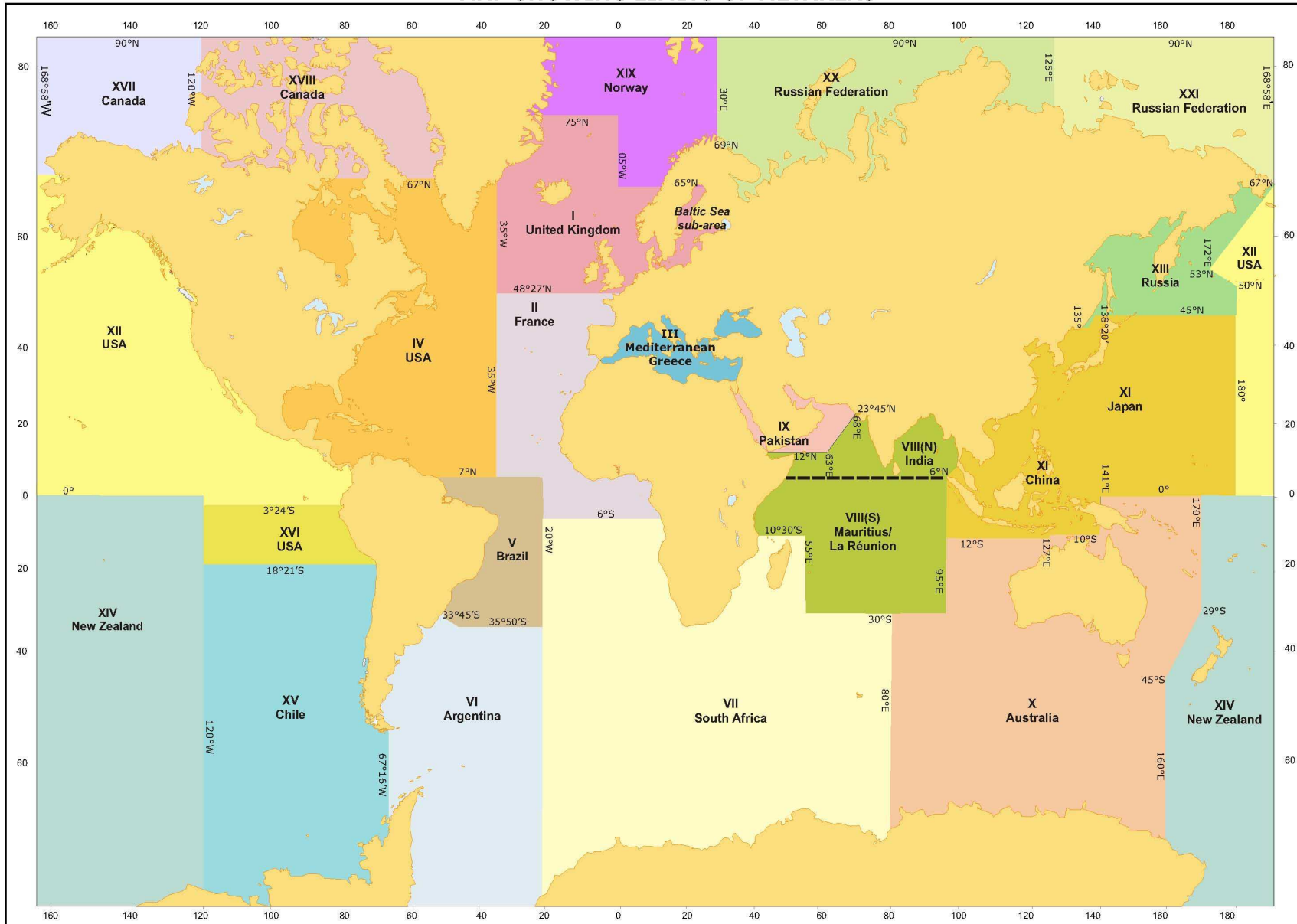
- **WMO Executive Council (June 2008)**
 - *...recognized that severe coastal inundation...from extreme sea state conditions occurred in many parts of the world...where coastal and ocean surface met...observations were still limited or absent...*
 - *...requested that...ocean surface met...obs...be routinely collected and disseminated via the GTS...*
 - *...requested... participation of space agencies in that scheme*
- **Peter Dexter, Australian BoM, Co-President, JCOMM**
 - *...scatterometer and altimeter products should be available on the GTS*

Operational User Engagement

***Researchers have mechanisms to engage,
but it can be more challenging for operational users***

- 1. Focus initially on operational forecasting for Southern Hemisphere via provision of OSVW & SWH*
- 2. Assess whether GMDSS high-seas forecast centers have timely access to, and capability to use, products*
- 3. Existing GMDSS links will deliver forecasts to end users*
- 4. Resolve issues encountered in point 2 before proceeding further*
- 5. Extend to Northern Hemisphere & resolve issues*
- 6. Extend to WMO tropical cyclone forecast centers & ...*
- 7. Consider additional products...*
- 8. Consider other applications...*

MAP SHOWING LIMITS OF METAREAS



Global Maritime Distress and Safety System

Ocean Surface Vector Wind Science Team Meeting

November 20, 2008, Seattle, WA

| Southern Hemisphere Major GMDSS Metareas | National Meteorological Service Responsible for Operational High-Seas Forecasting in the Metarea | Designated Contact for Metarea (contact not yet responded) | Are the following products are being used operationally; if so, how are they being received? | | | | | | | |
|--|--|---|--|-------------|------------|------------|-------------------------|------------|------------|------------|
| | | | Surface Vector Winds | | | | Significant Wave Height | | | |
| | | | QuikSCAT | | ASCAT | | Jason | | ENIVSAT | |
| | | | GTS | FTP | GTS | FTP | GTS | FTP | GTS | FTP |
| <i>V</i> | <i>Brazilian Navy, Marine Meteorological Service</i> | <i>CDR Antonio Claudio</i> | <i>N/A</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>N/A</i> | <i>---</i> |
| <i>VI</i> | <i>Servicio Meteorológico Nacional, Argentina</i> | <i>Paula Etala, Navy</i> | <i>N/A</i> | <i>some</i> | <i>no</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>N/A</i> | <i>no</i> |
| <i>VII</i> | <i>South African Weather Service</i> | <i>Mnikeli Ndabambi</i> | <i>N/A</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>N/A</i> | <i>---</i> |
| <i>VIII South</i> | <i>Mauritius Meteorological Services</i> | <i>Mohamudally Beebeejaun</i> | <i>N/A</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>N/A</i> | <i>---</i> |
| <i>X</i> | <i>Australian Bureau of Meteorology</i> | <i>Graham Warren</i> | <i>N/A</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>yes</i> | <i>no</i> | <i>N/A</i> | <i>yes</i> |
| <i>XIV North</i> | <i>Fiji Met Service</i> | <i>Alipate Waqaicelua</i> | <i>N/A</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>N/A</i> | <i>---</i> |
| <i>XIV South</i> | <i>Met Service of New Zealand</i> | <i>Steve Ready</i> | <i>N/A</i> | <i>yes</i> | <i>no</i> | <i>yes</i> | <i>no</i> | <i>no</i> | <i>N/A</i> | <i>no</i> |
| <i>XV</i> | <i>Chilean Navy, Hydrographic & Oceanographic Service</i> | <i>LCDR Andrés Enríquez</i> | <i>N/A</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>---</i> | <i>N/A</i> | <i>---</i> |

Current Status

- ***Timely data access***
 - *ISRO/EUM/NOAA in discussions re: Oceansat-2 SVW*
 - *NOAA has not yet engaged SOA re: HY-2 SVW and SWH*
 - *CNES/CNSA in discussions re: CFOSat SVW*
- ***One-stop shopping***
 - *NOAA is considering putting QuikSCAT SVW onto GTS*
 - *ESA has decided to put ENVISAT SWH onto GTS*
- ***Operational utilization***
 - *ISRO/NOAA/EUM considering operational workshop re: Oceansat-2*
- ***Improved on-orbit capabilities***
 - *NOAA and EUM considering follow-ons to QuikSCAT and ASCAT*

Looking to the Future

- *Timely data access and exchange*
 - *Develop an appreciation within political circles – via GEO?*
- *Integration of data from multiple missions and generation of consistent science-quality products*
 - *Sea surface topography – SSALTO/DUACS*
 - *Sea surface temperature – GHRSST*
- *Harmonization of orbits*

Science Issues – Physics

- SST \Leftrightarrow Vector winds
- Current Interactions
- Wave Interactions
- High winds
- Continuous improvement of validation and calibration
 - Cross comparisons of sensors
 - sigma0's as FCDR, Winds as ECV

Science Issues – Products

- Coastal Processing
 - Making use of the full resolution
- Assembled Products
 - Blended products for ocean forcing
- Impact
 - NWP
 - Ocean modelling

Altimetry : SSALTO/DUACS

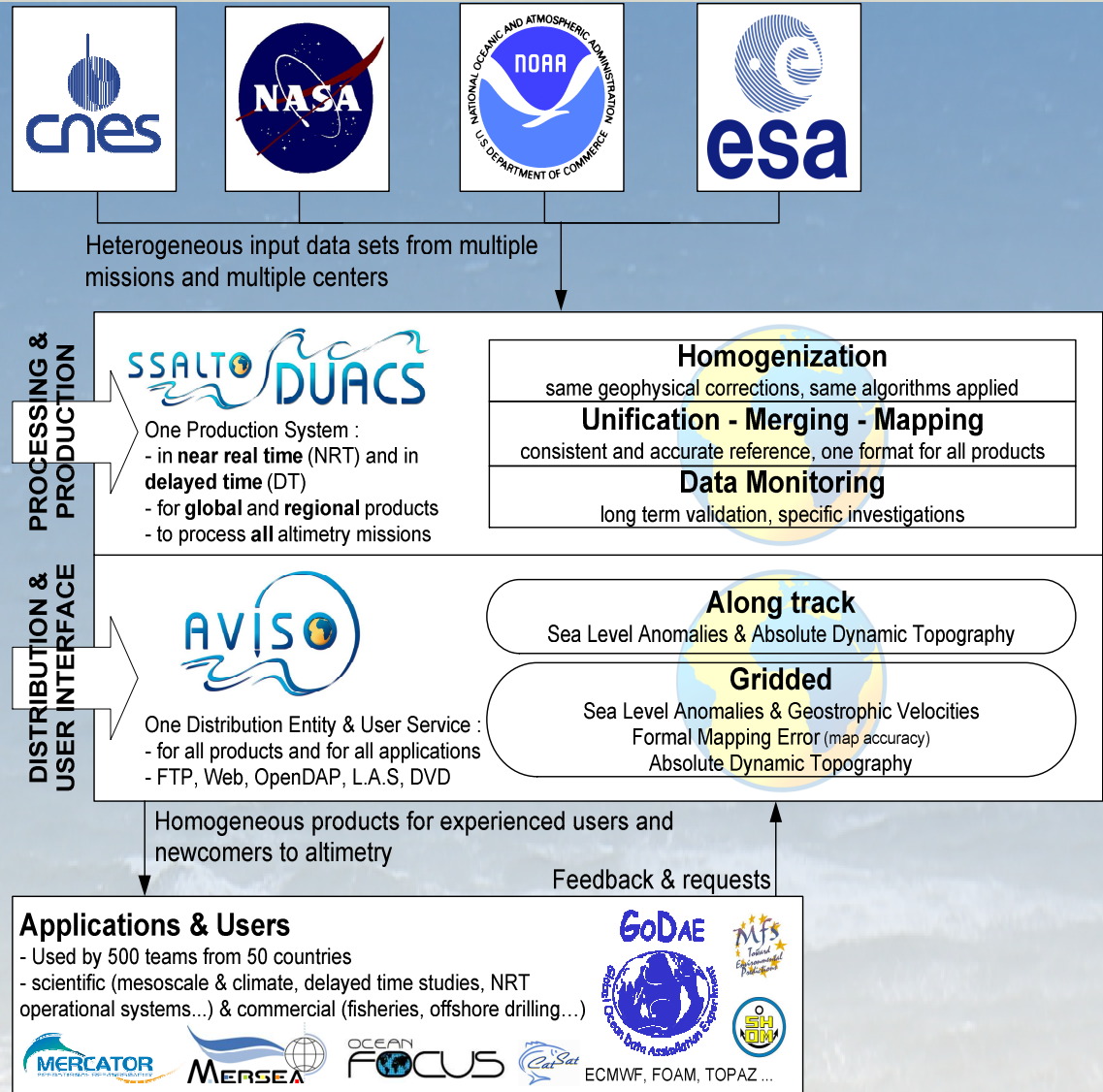


Homogeneous, inter-calibrated and directly usable high quality altimeter data from all missions

Along-track & gridded products in near real time and delayed mode.

New and improved products (e.g. MSLAs, MDTs).

Timeliness improved (e.g. use of OSDR).



GODAE SST need = Global high resolution in time (<1 day) and space (<10 km) = A GODAE pilot project (see Donlon et al)

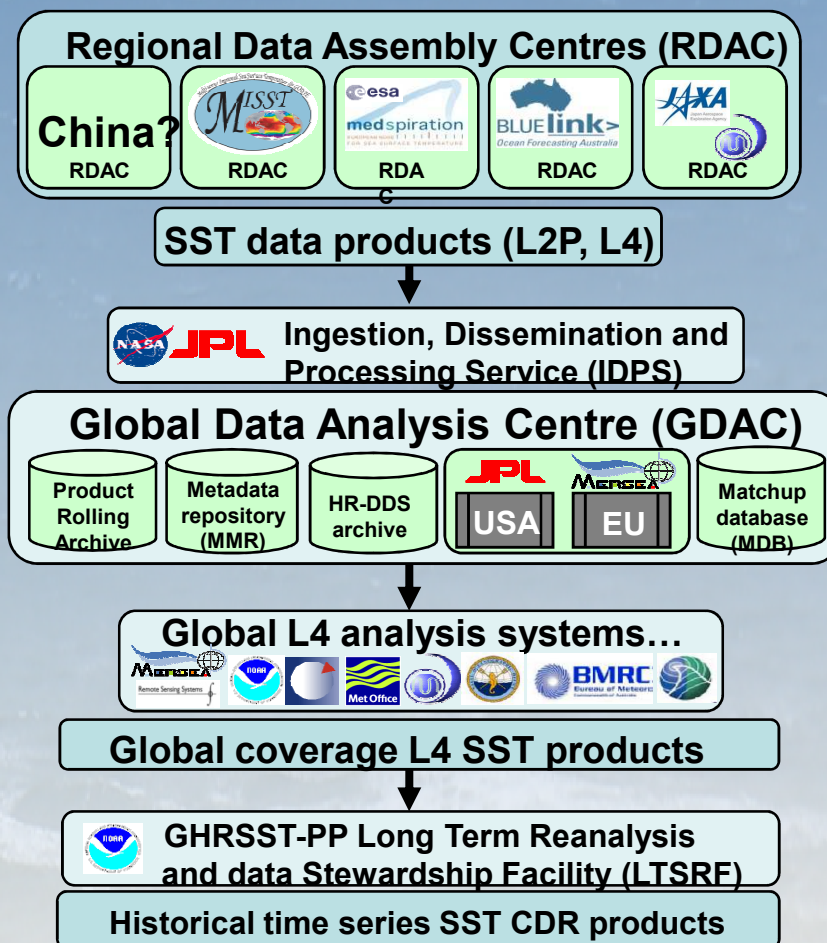


Global High Resolution SST pilot project (GHR SST)

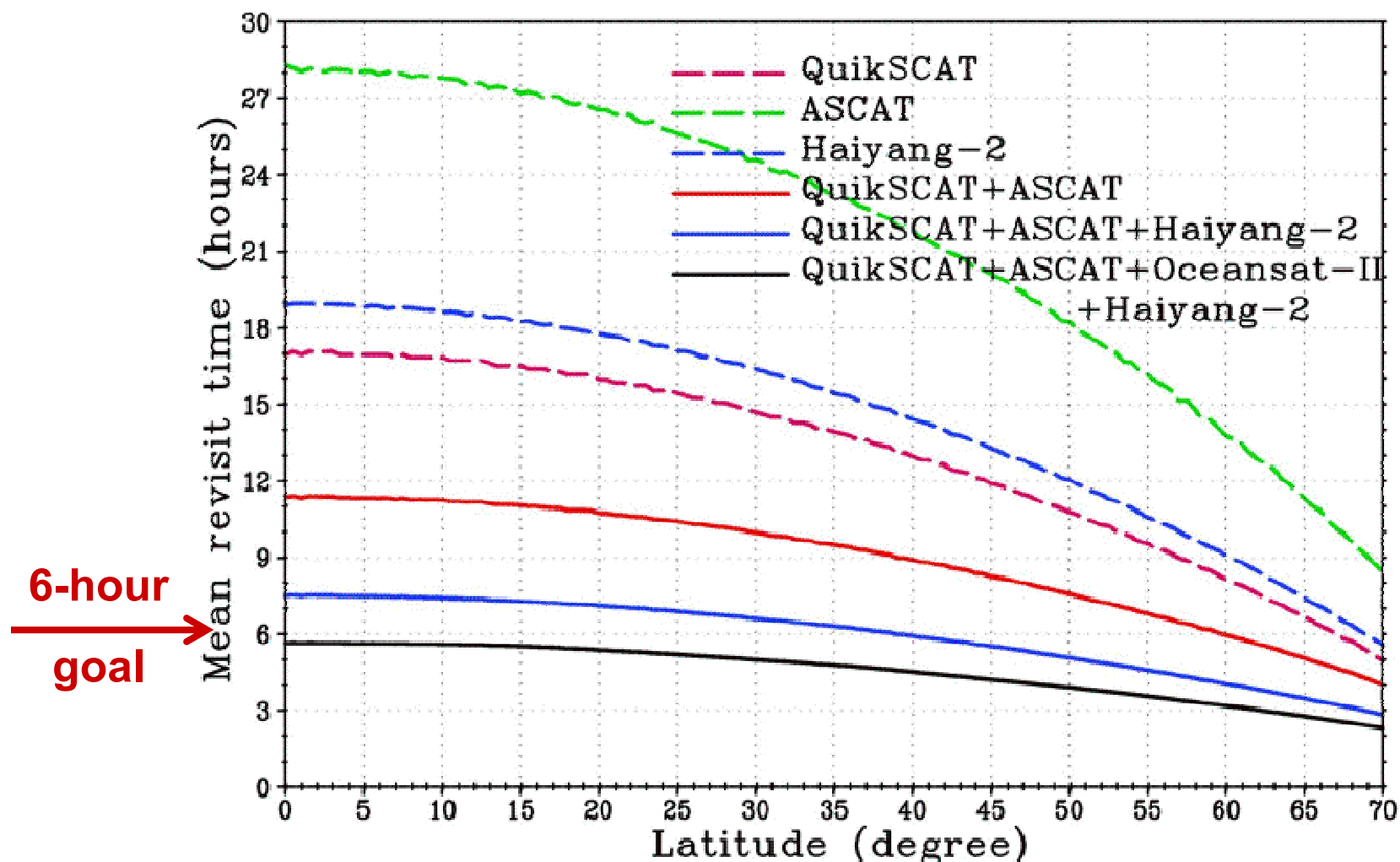
- combination of data from various sources
- modern data serving
- entrain scientific expertise for quality products

Outstanding progress : efficient activation through regional data assembly centres (R-DAC); international cooperation, new high resolution global and regional products (L2P, L4)

<http://www.ghrsst-pp.org/>

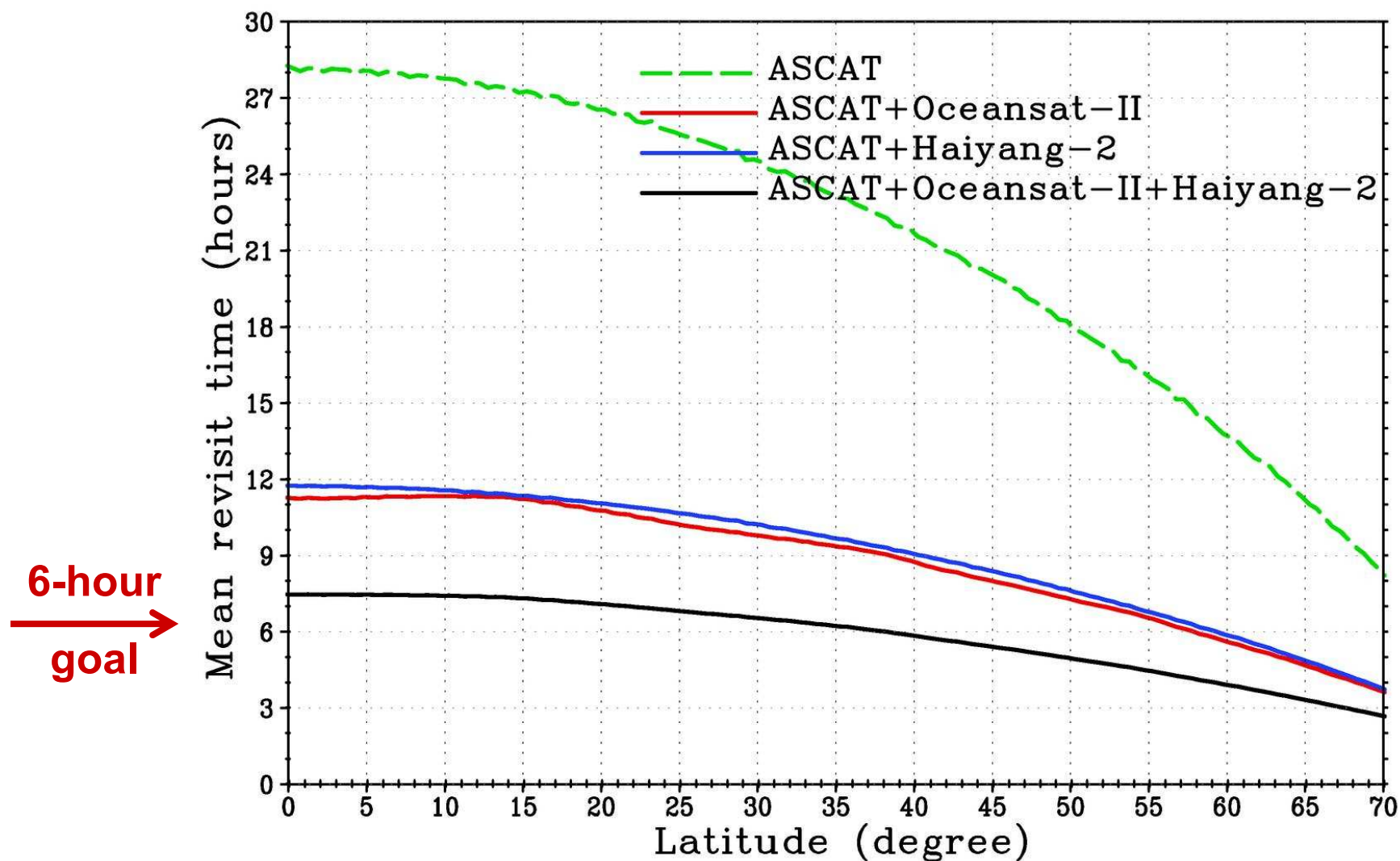


Timely sharing of data enables a significant reduction in revisit time



Liu et al., 2007, *Int. J. of Remote Sensing*

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