A large, semi-transparent satellite image of the Earth is centered in the background. It shows the Western Hemisphere, including North and South America, with cloud cover and ocean colors. The text is overlaid on this image.

NOAA

Programmatic Perspectives

Stan Wilson
NOAA Satellite & Information Service

IOVW Science Team Meeting, Annapolis, 9-11
May 2011



NOAA Plans Beyond QuikSCAT

NOAA has been pursuing two avenues to meet its mission needs for Ocean Vector Winds

- ***Plan A - Implement its own operational follow-on:***
 - ***1st, XOVWM - a dedicated pair of operational missions***
 - ***2nd, DFS piggyback on JAXA's GCOM-W2 & -W3***
- ***Plan B - Access and utilize OVW data from missions of other agencies/nations***
 - ***EUMETSAT***
 - ***India***
 - ***China***



Kicza to Freilich Letter dated 14 Jan 2011

- ***From either the weather or climate perspective... given other NOAA priorities, the DFS has...proven to be unaffordable...***
- ***We do not see this financial outlook improving in the foreseeable future.***
- ***NOAA recognizes the importance of scatterometry to NASA, especially maintaining the climate record.***
- ***NOAA also recognizes that - if a scatterometer meets climate needs, it will also be capable of meeting weather needs - assuming timely data access.***



Kicza to Freilich Letter dated 14 Jan 2011

- While the NRC Decadal Survey recommended that NOAA pursue scatterometry, given our inability to act on this recommendation, we can appreciate the growing frustration within NASA and the scientific community about having a suitable pathway within the U.S. for some follow-on.***
- As a consequence, NOAA is prepared to have NASA assume full responsibility to decide on sensor and mission specifications for whatever might come next in scatterometry, just as it did for QuikSCAT.***



Ocean Vector Wind Virtual Constellation

Stan Wilson, NOAA

Hans Bonekamp, EUMETSAT

B.S. Gohil, ISRO

Group on Earth Observations (GEO)

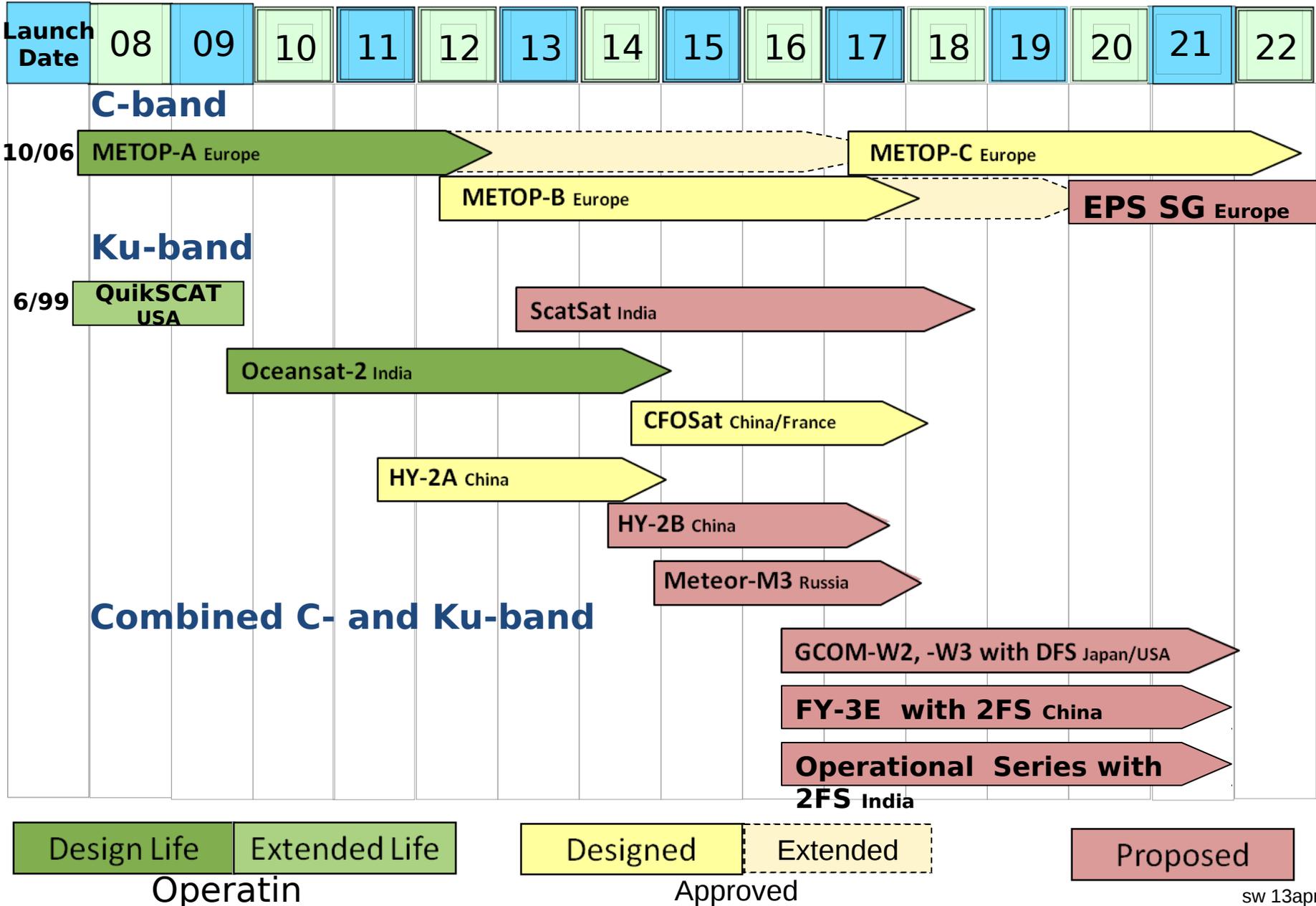
- ***Launched in response to the 2002 World Summit on Sustainable Development and the G8***
- ***Includes participation of 76 countries***
- ***Working to link the world's diverse monitoring networks into one Global Earth Observation System of Systems (GEOSS)***
- ***Promotes full and open sharing of data***



Committee on Earth Observation Satellites (CEOS)

- ***Planning the space arm of GEOSS***
- ***Forum of 29 space agencies***
- ***Introduced the concept of Virtual Constellations - OVW, OST, OCR, SST, Precipitation...***
 - ***Promote standard data products***
 - ***Collaborate in research and demonstrations***
 - ***Provide timely access for operational use***
 - ***Harmonize satellite orbits to optimize coverage***

GLOBAL SCATTEROMETER MISSIONS



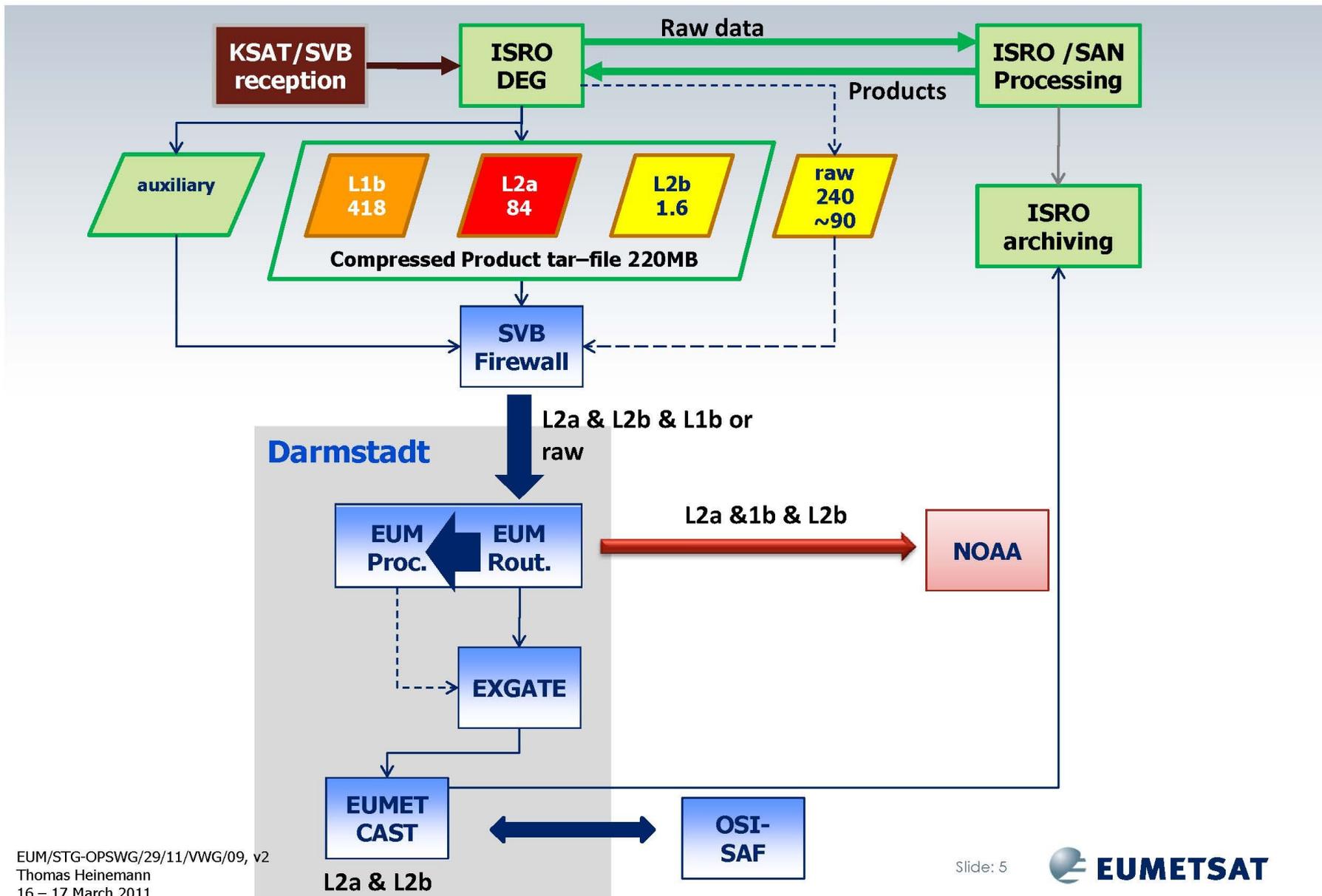
Brief History - ISRO Oceansat-2/OSCAT

- 30 Jun 2005 - U.S.-India JWG - ISRO expressed interest in using QuikSCAT data, but did not yet have a data policy for Oceansat-2.
- 28 Feb 2007 - U.S.-India JWG - Verbal agreement to initiate joint scatterometer project with timely access to global data.
- 23 Sep 2009 - Oceansat-2 launched.
- 18 Nov 2009 - Kicza-Freilich-Navalgund sign Letter of Intent.
- 23 Nov 2009 - QuikSCAT terminated scanning mode.
- Early summer 2011 - ISRO to begin operational phase for OSCAT.
- ***In just 4 years, ISRO has expanded the mission from a “regional” to a “global” operational demonstration, and from a restrictive data policy to timely access to OSCAT for all users!***



Oceansat-2 Global Data Access Update

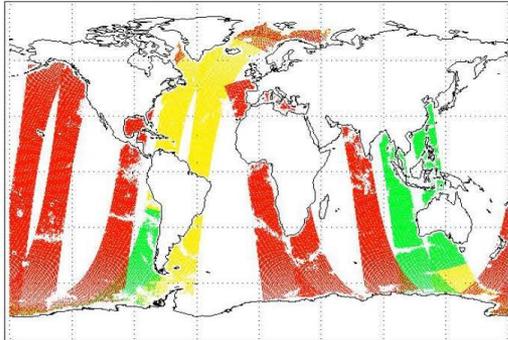






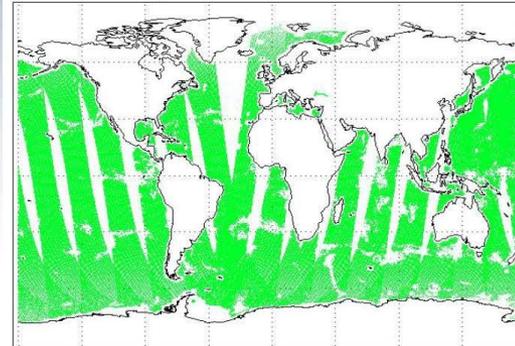
Coverage and Timeliness, early and late February

2011, day 42, orbits after 12:00 UTC



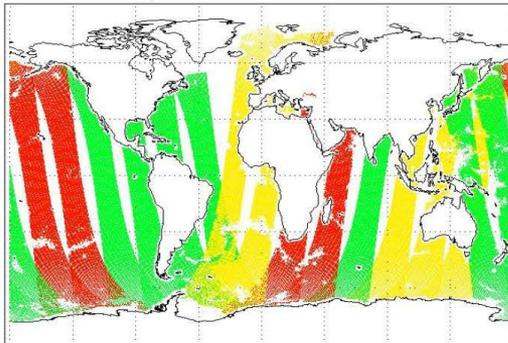
11/2/2011

2011, day 46, orbits before 12:00 UTC

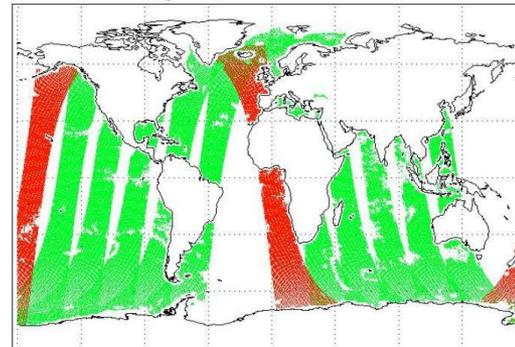


15/2/2011

2011, day 42, orbits before 12:00 UTC



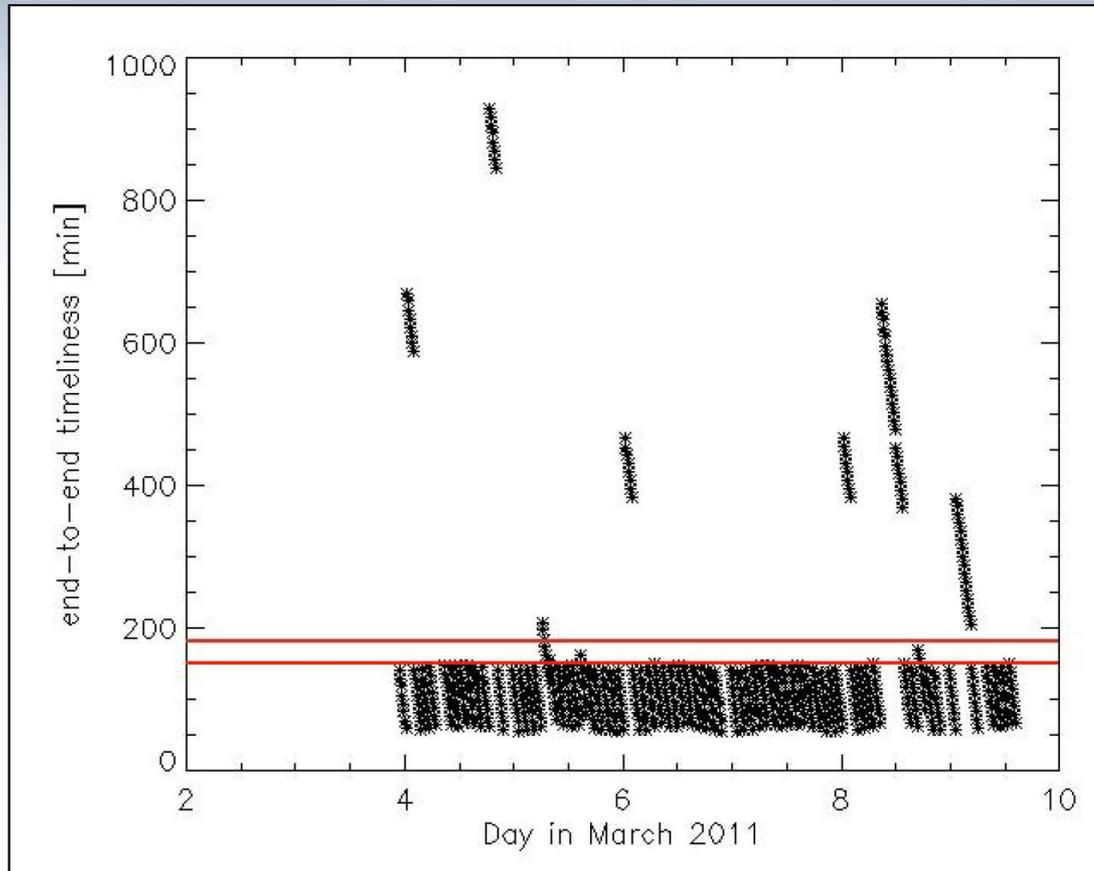
2011, day 46, orbits after 12:00 UTC



-  Timeliness < 180 min
-  Timeliness > 180 min and < 240 min
-  Timeliness > 240 min



End-to-end timeliness of L2a segments, March 2011





Data verification

Data Availability:

12-14 orbits received per day since 15/2/2011

Data timeliness:

For 9-14 orbits per day ~135 minutes, for the playback orbits (received at Shadnagar) considerably worse.

Data contents:

All data sets readable since 10/2/2011, geo-location consistent, data values plausible

Validation of L2a and L2b to be done by OSI-SAF!

Validation of L1b to be done by NOAA!



Next steps

- Resolving open issues with ISRO:
 - ftp application level incompatibility,
 - automated triggering of processing software,
 - processor versioning,
 - user information process ...
- Finalising System Design
- Enable alternative processing system (requires solution of triggering problem)
- Validation report by OSI/NWP-SAF
- Enable advanced data monitoring
- Start trial dissemination
- Agree Joint Operations Rules and Procedures (JORP/OICD) with ISRO
- Transfer to operations / Potential addition of ROSA to the system

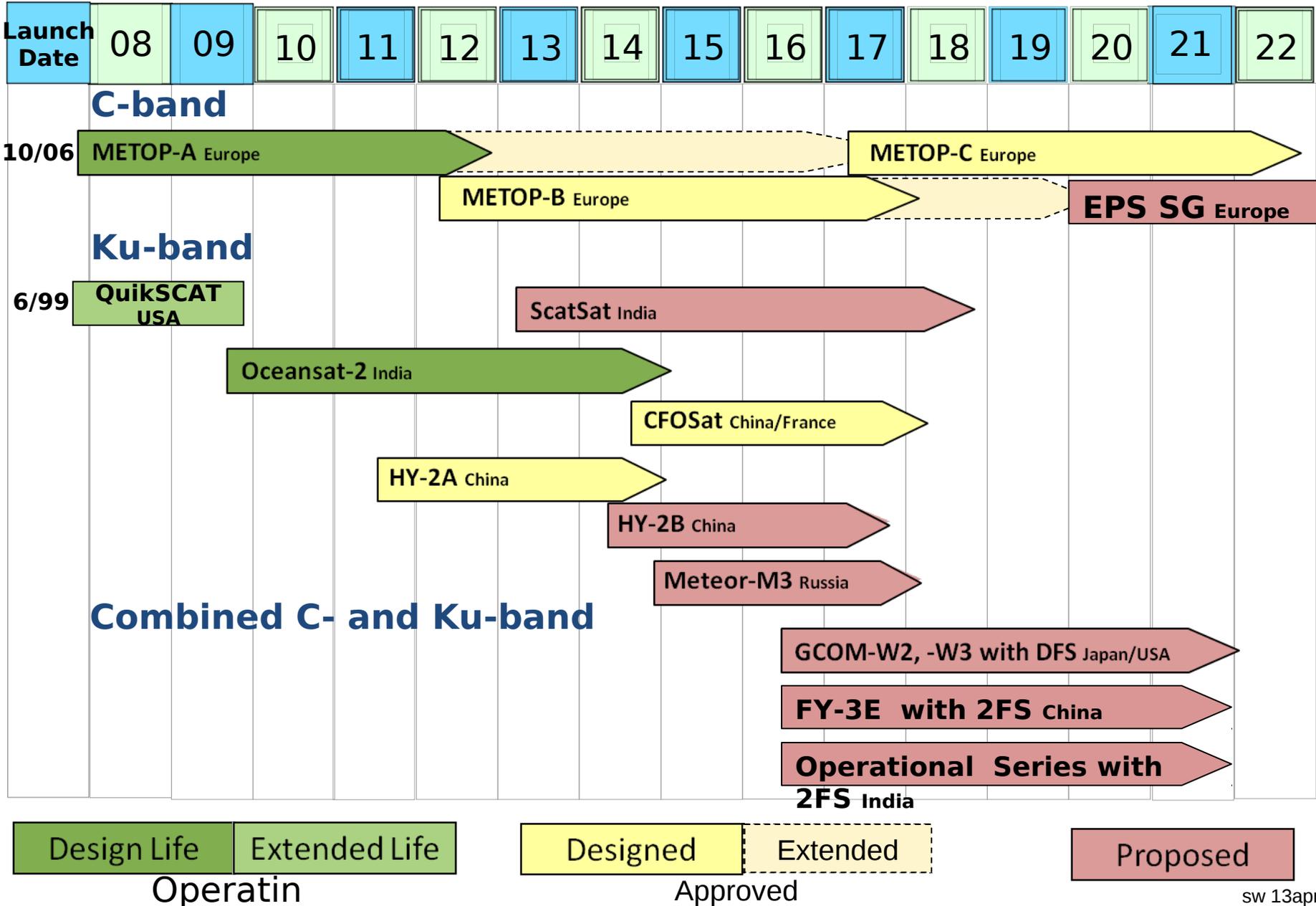
Scatterometry Plans in India

- ISRO is planning a ScatSat to carry an OSCAT-type scatterometer plus a combined microwave imager and atmospheric temperature profiler.
 - Proposal is currently under review, with approval expected by the end of 2011.
 - Timely data access to be provided as with OSCAT.
- ISRO is planning an operational series of satellites carrying a two-frequency scatterometer, with an initial 2016+ launch date.

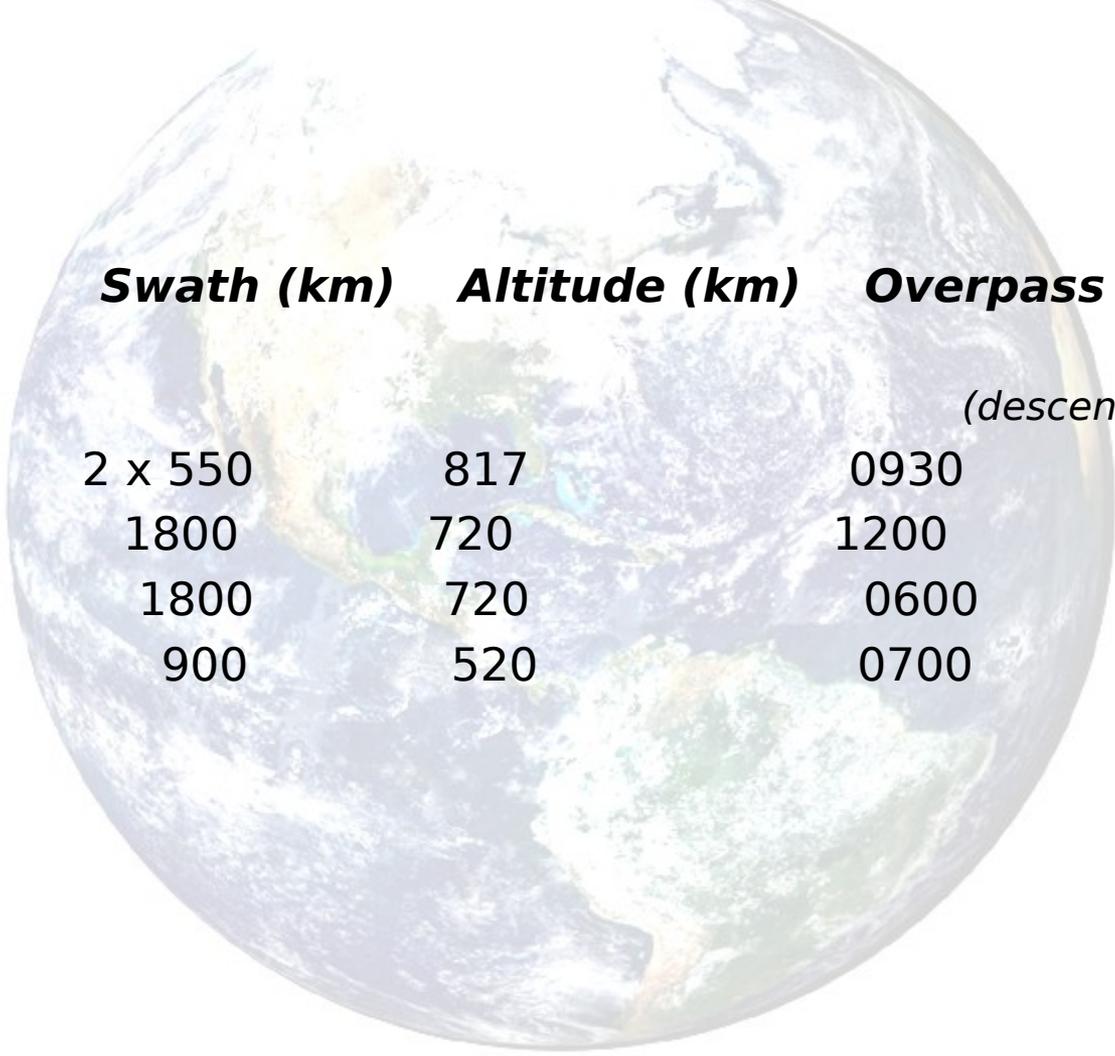
Scatterometry Plans in China

- State Oceanic Administration (SOA) – To launch HY-2A with a Ku-band scatterometer in July – No timely access; possible delayed-mode access, except no Chinese coastal data.
- Chinese National Space Agency (CNSA)/CNES – CFOSat planned for 2014 launch with a Ku-band scatterometer – data to be available “for marine forecasting”.
- Chinese Meteorological Administration/National Satellite Meteorological Center (NSMC):
 - Once SOA has demonstrated scatterometry on HY-2A, NSMC will start work on a two-frequency scatterometer to launch in 2016+ on FY-3E.
 - NSMC says there will be timely access to the data.

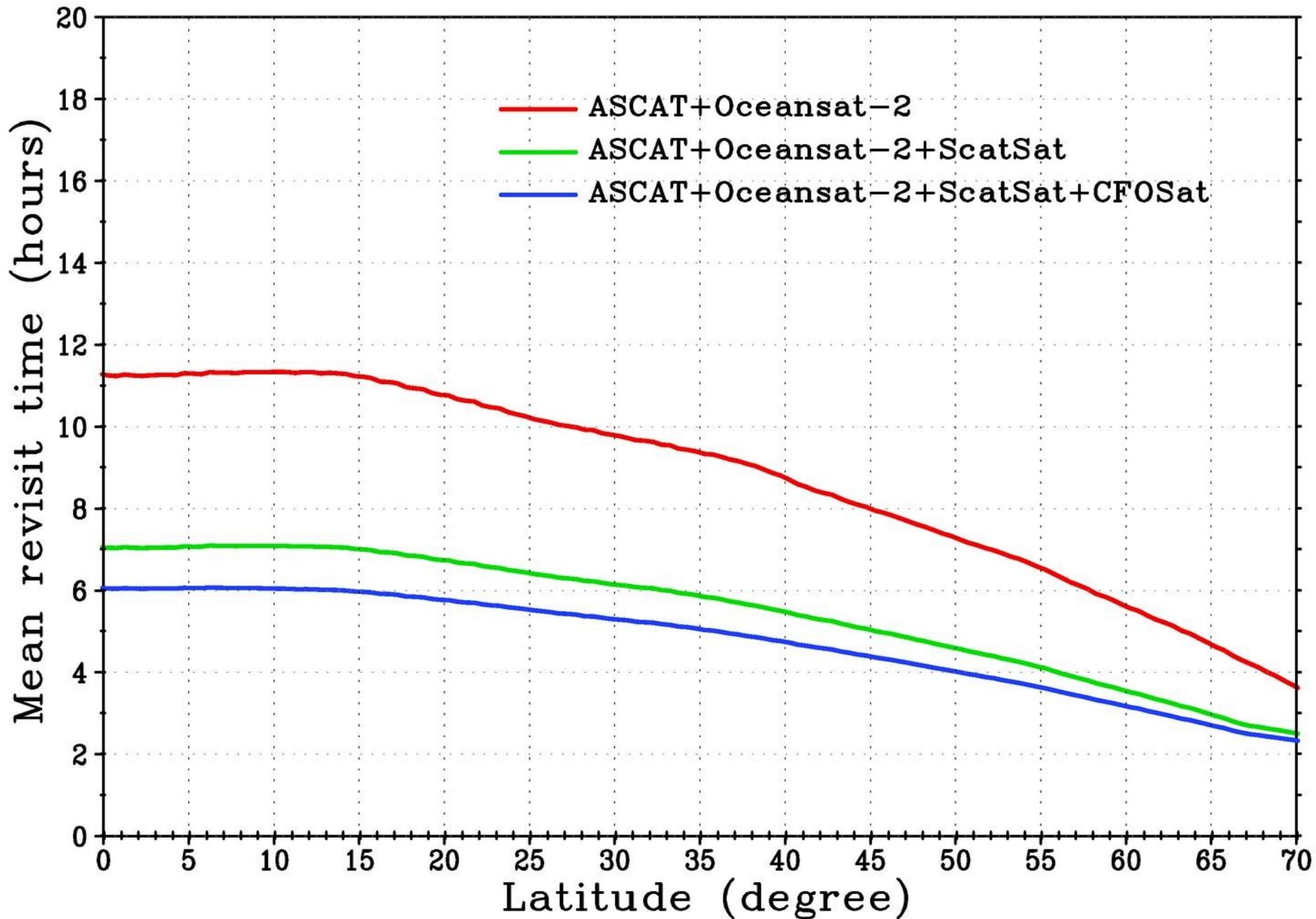
GLOBAL SCATTEROMETER MISSIONS



Orbital Characteristics



Mission	Swath (km)	Altitude (km)	Overpass <i>(descending)</i>
ASCAT	2 x 550	817	0930
Oceansat-2	1800	720	1200
ScatSat	1800	720	0600
CFOSat	900	520	0700



Summary

- Timely data access to ocean vector winds:
 - ISRO is demonstrating that it will become a significant player in scatterometry.
 - The issue in China will likely resolve itself once CMA takes over scatterometry from SOA.
- A thorough study – including EUMETSAT, ISRO, CMA, NASA and NOAA, as well as appropriate operational users – is needed to assess the benefits of harmonizing orbits to optimize coverage among as many as three two-frequency scatterometers in the 2016 time frame.