

# CEOS OSVW Virtual Constellation Status and Next Steps

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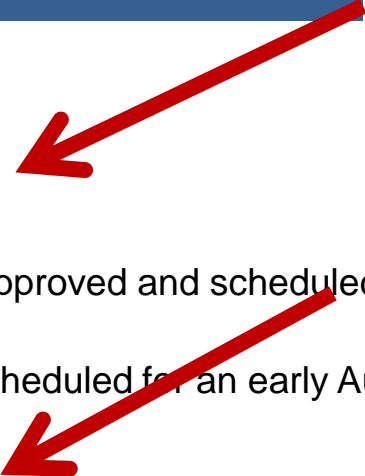
IOVWST Meeting  
Brest, France  
June 2-4 , 2014

## OUTLINE

- Summarize OSVW-VC activity updates to CEOS/SIT and CGMS
- IOVWST engagement

## CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC) Status of activities

### Sustained operations assessment

- ASCAT on METOP-A and METOP-B operating nominally
  - HSCAT on HY2-A operating nominally, no NRT data access
  - OSCAT on OceanSat-2 discontinued operations
    - ISRO already has a gap filler OSVW mission (ScatSat) approved and scheduled for a late 2015 launch
  - NASA RapidScat mission on the International Space Station scheduled for an early August 2014 launch
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### Optimization of the OSVW constellation

- Analysis of the overall local time coverage from the constellation for different applications

### Bridging with the International Ocean Vector Winds Science Team

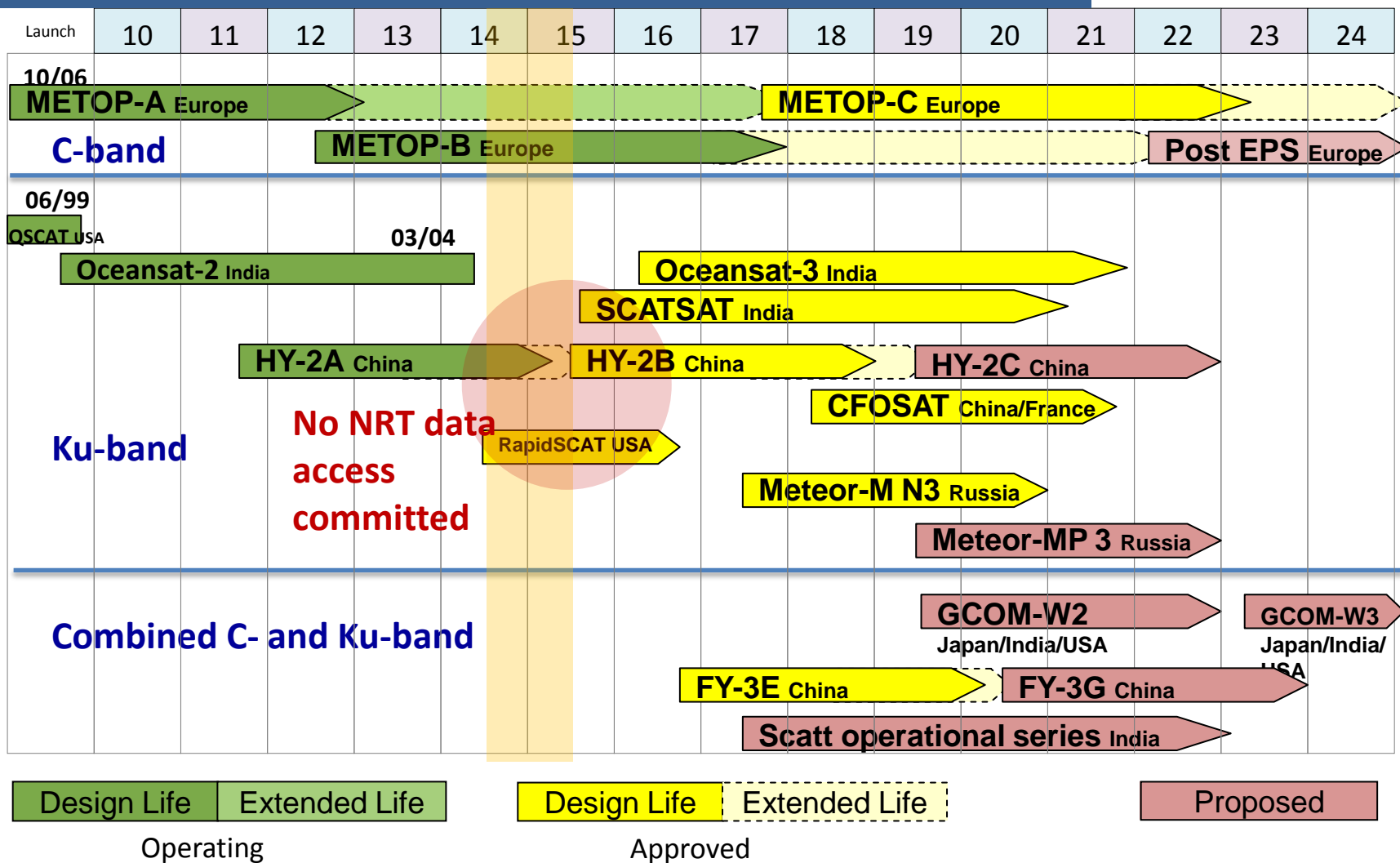
- IOVWST 2014 annual meeting in June 2014, planning an OSVW-VC side meeting
- Specific working groups will be kicked-off on Climate wind CDRs, Data Standards and Coastal Applications

### Outreach and training

- Satellite winds and waves marine forecaster training workshop conducted in December 2013 with the South African Weather Service as part of the outreach and training effort

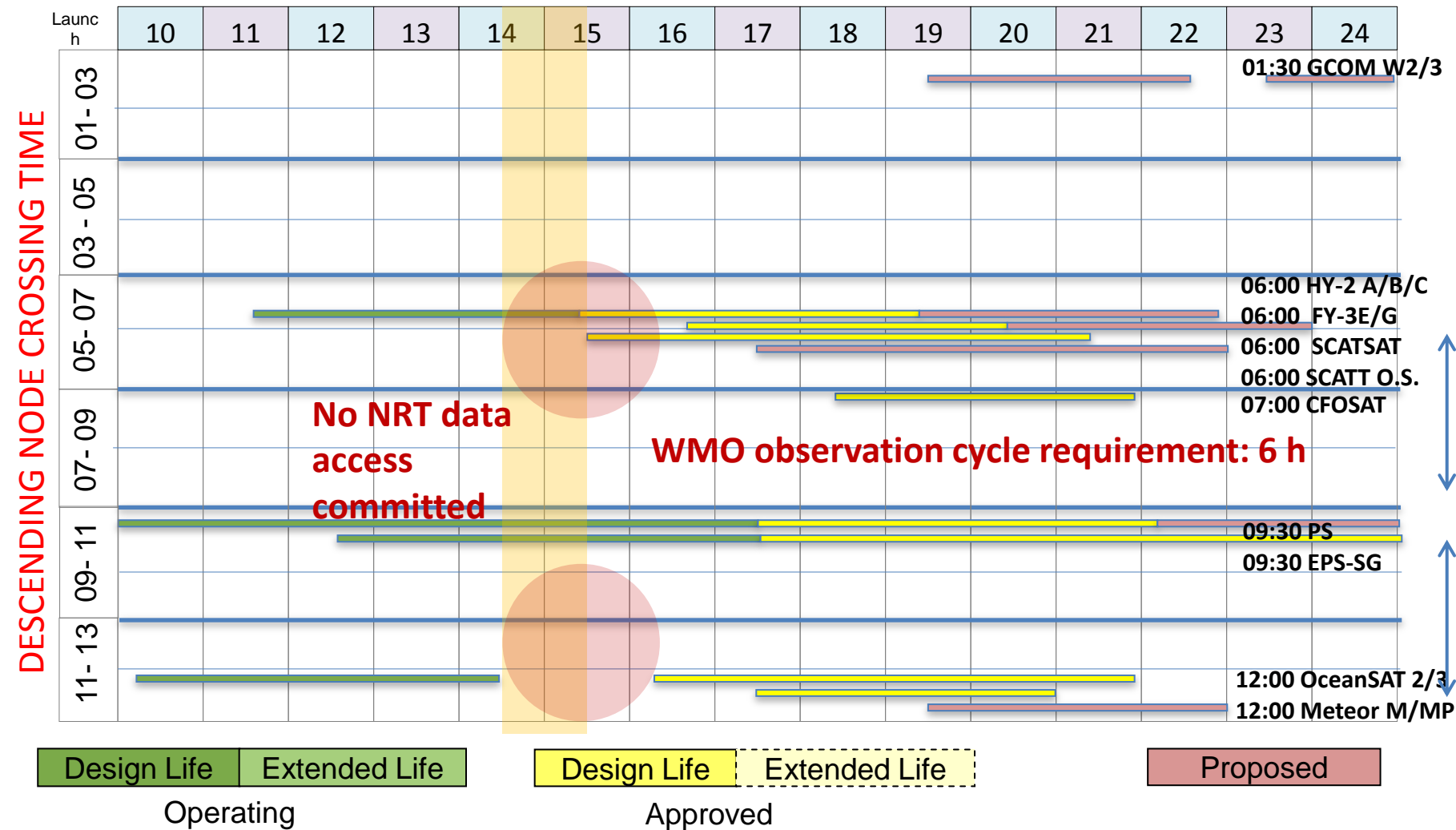
# CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC)

## Current status and outlook – NRT data access

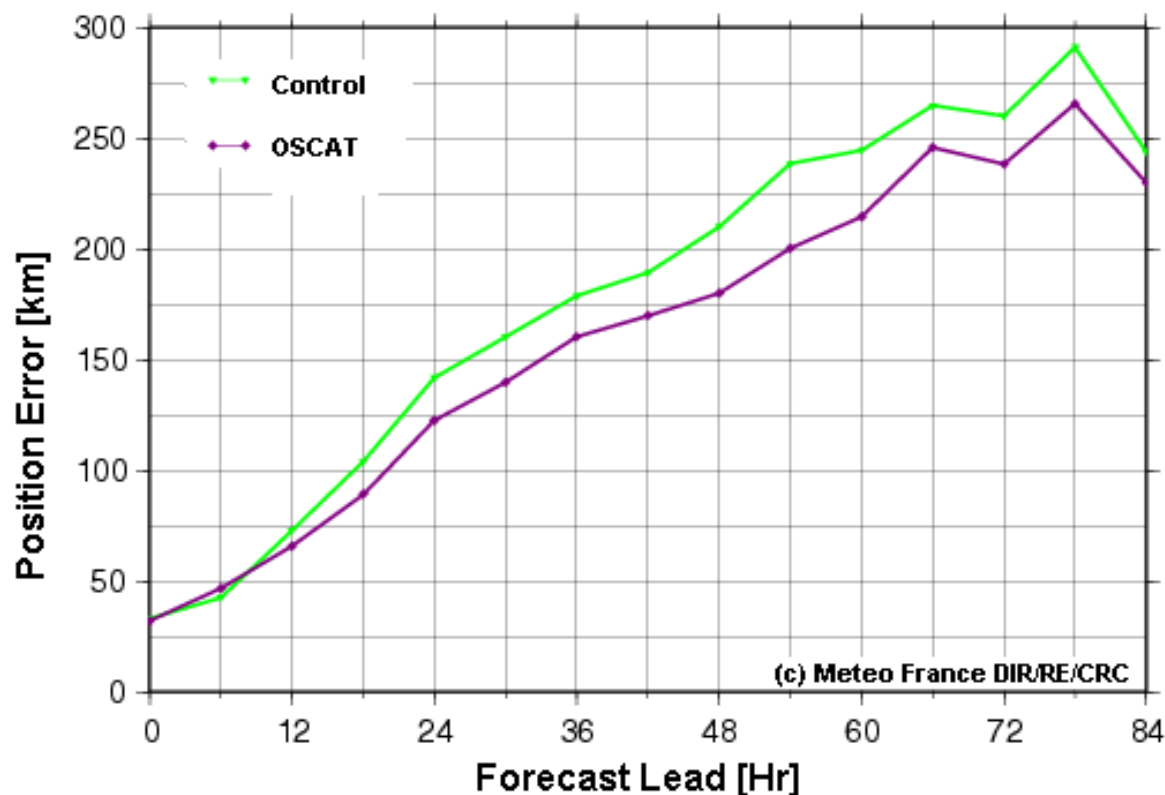


# CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC)

## Local time coverage assessment (ground track) - NRT data access



## CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC) The impact of OSCAT in NWP



- Mean position errors (of MSLP minimum) of the 2011/2012 Tropical Cyclones in the south-west Indian Ocean as forecast with the regional Aladin Réunion NWP model (Dominique Mékiès, 2013).
- ASCAT-A is used in both.

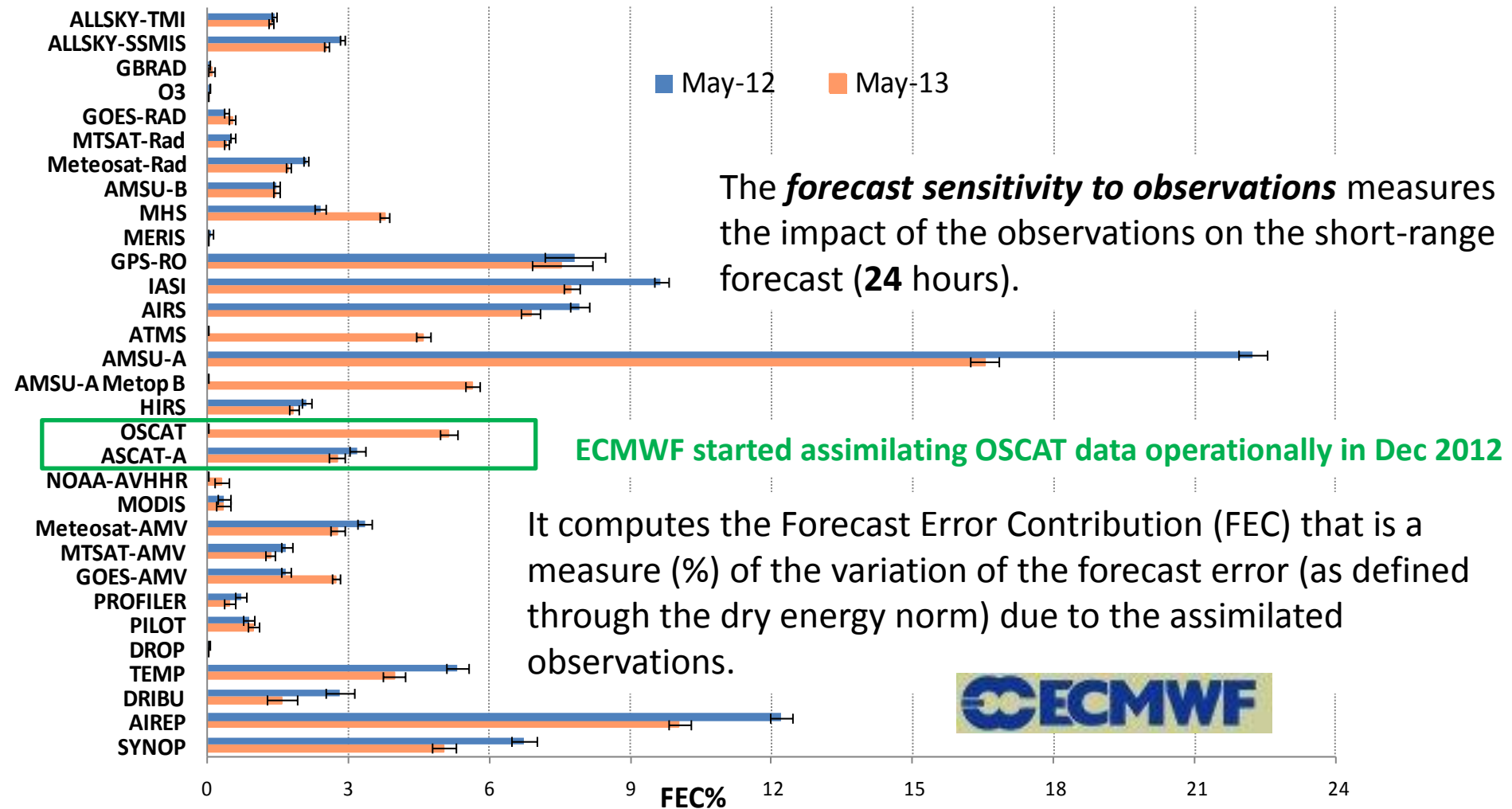


*Research and Development in Europe on Global Application of the OceanSat-2 Scatterometer Winds*

Final Report of the OceanSat-2 European Cal/Val AO project, May 2013

# CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC)

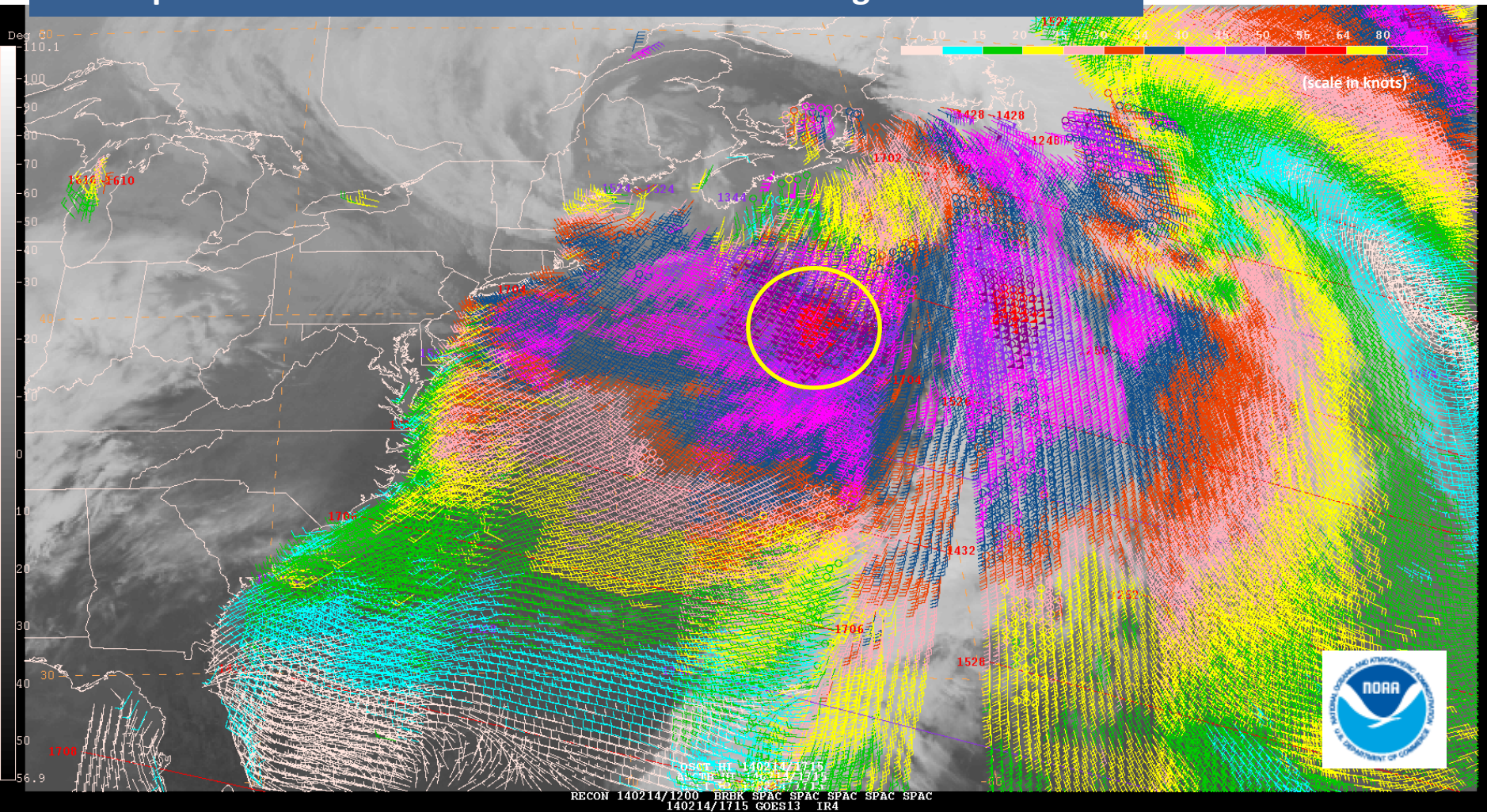
## The impact of OSCAT in NWP





# CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC)

## The impact of OSCAT in marine forecast and warnings





## CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC)

### A word on OSCAT from the CEOS OSVW Virtual Constellation

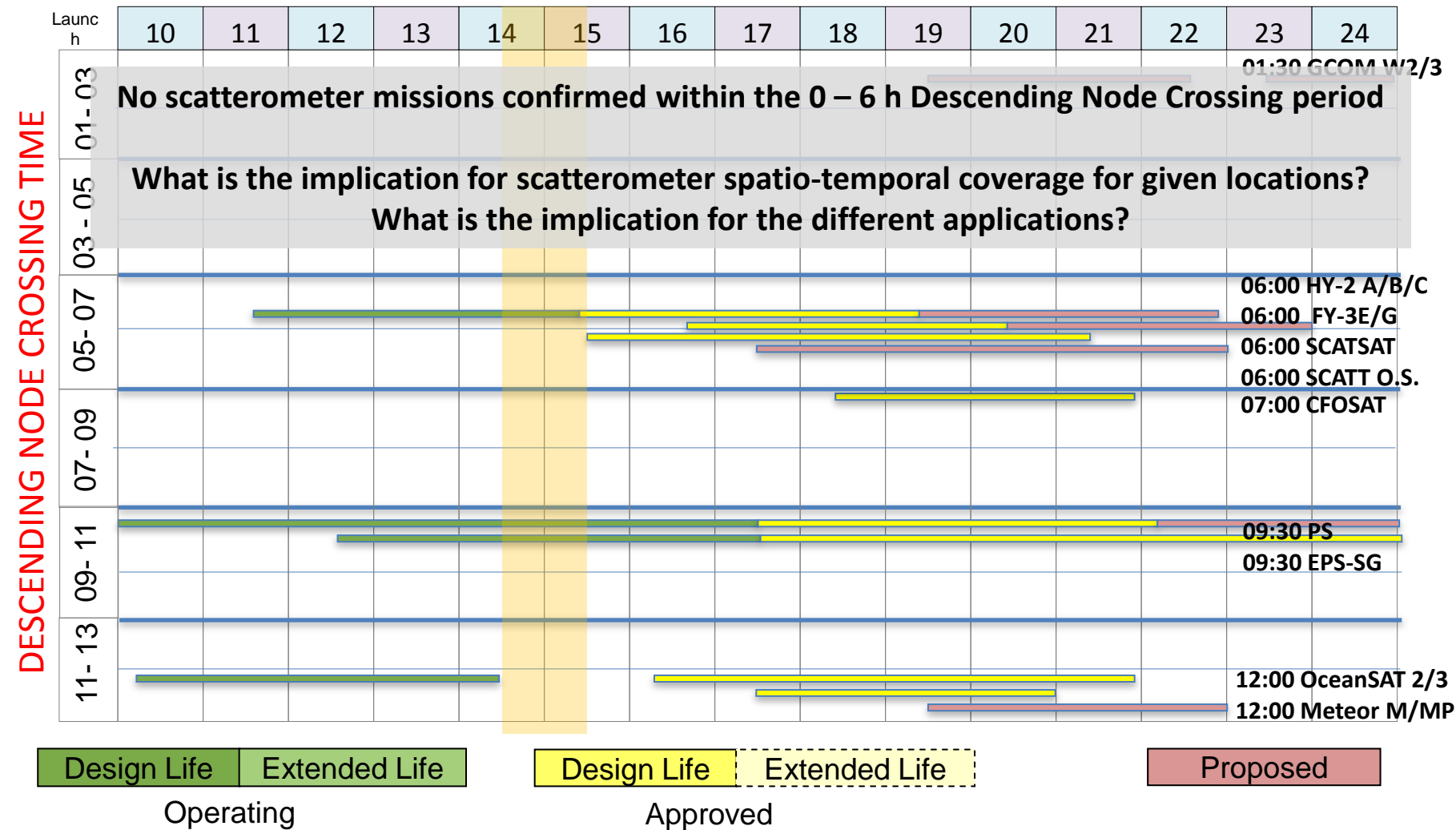
ISRO announced the discontinuation of services of the Oceansat2 scatterometer in February 2014, albeit after near completion of its intended mission life of five years.

The Scatterometer on Oceansat2 was ISRO's first active Microwave payload and provided regular and timely surface wind data services to the international community. This payload has won many laurels for ISRO from various quarters both at home and abroad and leaves an important gap in data coverage for near real time applications such as weather forecasting.

The OSVW-VC thanks ISRO, particularly NRSC, SAC and ISTRAC teams, for the successful establishment of the automated ground segment chain, using Svalbard as the data download station to meet the demanding near-real-time data requirements from the international operational meteorological user agencies.

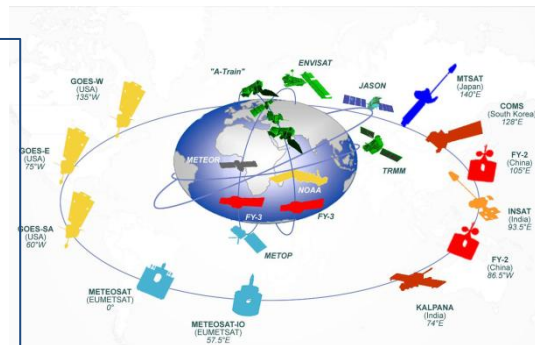
# CEOS Ocean Vector Surface Winds Virtual Constellation (OSVW-VC)

## Overall assessment of the local time coverage planned (ground track)



## Summary and conclusions

- The discontinuation of OSCAT operations and the current unavailability of HY-2A winds in NRT has a significant impact on short term weather forecasting applications. **It is essential to secure as soon as possible open NRT data access from the HY-2A scatterometer , SCATSAT and RapidSCAT to the global forecasting community**
- The mission chart suggests numerous missions over the next decade but only a few of these are part of sustained programs. There is a need for **long-term international commitment to a sustained global vector winds constellation**, to support on one hand short term extreme weather forecasting and warning, and on the other hand long-term earth system forecasting monitoring
- As more and more scatterometer missions are planned and approved, a closer look is necessary at the **optimum combination of orbit local times**, in order to make sure that the overall daily coverage is able to represent faithfully and in an unaliased way the mesoscale convective systems, hurricanes and the diurnal variations and trends of the surface wind field.



- Draft of OSVW-VC Terms of Reference
  - IOVWST review and feedback sought...particularly items dependent upon the IOVWST
    - Draft TOR sent to the broader OSVW-VC group in the end of 2013 for comment/review

# TERMS OF REFERENCE FOR THE CEOS OCEAN SURFACE VECTOR WINDS VIRTUAL CONSTELLATION

- **MISSION STATEMENT & OBJECTIVES**

The OSVW-VC exists to foster the best quality Ocean Surface Vector Wind data for applications in short, medium, and decadal time scales in the most efficient manner through international collaboration, scientific innovation, and rigor. Strategic objectives to address this aim are:

- Improve coordination, consolidation and development of the collective OSVW capability;
- Foster better engagement by Nations operating or preparing satellite Ocean Surface Vector Winds sensors with the international wind vector community;
- Maintain a strong and mutually supportive relationship with the International Ocean Vector Winds Science Team (IOVWST);
- Provide an interface to CEOS for the IOVWST;
- Develop recommendations on the driving requirements to create, validate and sustain the development of an international ensemble of ECV measurements;
- Provide advice and advocate to the international community the importance of OSVW measurements;
- Development and consolidation of training and outreach.

## Ongoing Activities

The OSVW-VC activities address the requirements of meteorology and oceanography for the operational and research and development communities for both short-term and longer-term (climate) observational time scales.

The common grounds of these requirements are **wind data of high quality, that are openly accessible, and in a timely manner**. The OSVW research and development related goals are predominately being accomplished within the context of the IOVWST, with the OSVW-VC serving as the interface to CEOS in the context of providing visibility and a voice for the scientific community (e.g., IOVWST) in the CEOS context. Consequently, some of the listed deliverables are in fact those of the IOVWST community and as such will evolve through ongoing discussions and developments within that expert community.

### Focus Areas of Activity

- Sustained operations:
  - By continuing the operations and open timely access to at least two (note that three or more is preferred) distinct scatterometer missions on different orbits at any given time and by increasing the interest of other agencies/countries to continue/add to OSVW constellation;
- 2. Outreach and training:
  - By broadening the user base to increase advocacy (i.e., forecasters and researchers in developing countries)
- 3. Support relevant demonstration applications (targeting the end-users):
  - Defining larger global issues that the satellite OSVW is a necessary part of understanding, will help put these data in a context easily appreciated by the lay person;
- 4. OSVW-VC as a bridge between research community (IOVWST) and space agencies:
  - By providing external science/engineering expertise and guidance where needed and wanted, to OSVW mission owners/operators and by communicating and advocating best practices for cross calibration of missions for data record continuity;
- 5. Optimization of the OSVW constellation
  - By assessing the constellation requirements (spatial/temporal coverage, accuracy and stability) for oceanographic (mesoscale) and climate applications



# Outcomes and Deliverables

- Continuous operation of the OSVW constellation, including addition of new missions.
- White Paper describing and justifying the oceanography and climate requirements for an OSVW constellation
- Open data policy for, and timely access to, all scatterometer mission data.
- Standards and metrics for OSVW services and products, including standard cal/val methods.
- Consistently reprocessed datasets from the VC's core missions.
- User training workshops to support marine forecasters in the use of satellite winds and waves

# Some Challenges for Consideration

- Encourage open and timely data access from mission owners/operators
  - Balance agency/national “pride” with open community collaboration
    - Ultimately results in greater success for all
- Achieving a sustained OSVW Constellation
  - Research versus operational missions
    - Operational implies sustained but implementing changes (improvements) becomes difficult
    - Research implies more freedom to try advanced techniques but no guarantee for sustained capability
  - What are the convincing selling points?
  - Why hasn't OSVW been able to achieve the same visibility and broad recognition as SSH and SST?
- Orbit phasing and coordination efforts
  - Is the optimum orbit phasing well documented?
  - What's needed to help coordination efforts to optimize coverage?