



EUMETSAT/NOAA

Programs Status



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Jason-3: Overall Status

System Synthesis Design Review (SSDR) conducted in Q1 2011 by NOAA, NASA, EUM, CNES. Review dealt with 2 main issues:

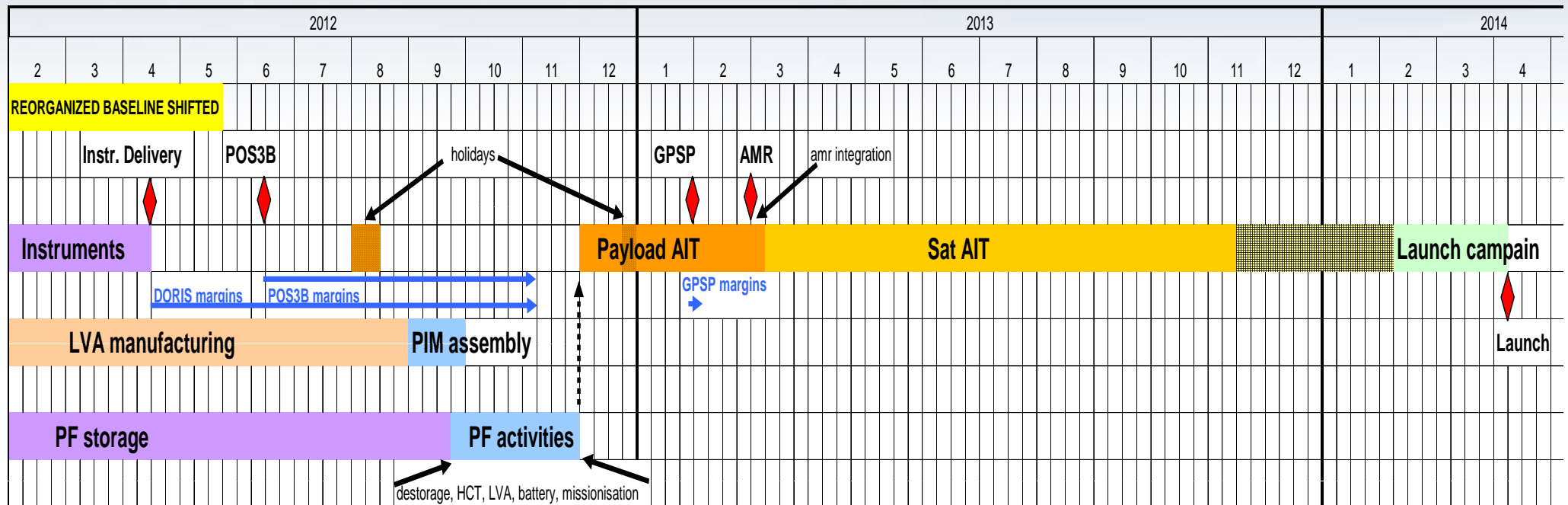
- Uncertainties on the launcher selection,
- Satellite schedule to incorporate the impact of arrival dates of some instruments and to rebuild margins at system level

Schedule was redefined to a November 2013 launch date

Joint Steering Group (JSG) telecon in June 2011 endorsed a new schedule prompted by FY2011 budget cuts and Taurus XL launcher failure. This schedule leads to a new launch date in April 2014.

New Jason-3 Schedule Agreed at JSG Level

Satellite contract was redefined (at cost) to accommodate new dates



Baseline Launch date : **Apr 8, 2014**



Jason-3: Overall Risk Assessment

- **Technical and operational:**
 - ***Launcher risk***
 - The launcher baseline is the most critical issue for the satellite and its selection is urgent
 - ***Operational risk:***
 - Launch delay to April 2014 increases risk to data continuity
 - Jason-2 will need to operate 6.5 years to achieve 6 month overlap
- **Financial risk:**
 - Timely delivery of instruments and decision on launcher
 - Tight financial margins; Significant part of these margins are now consumed by the re-structuring
 - Operations funding remains an issue

A more detailed Jason-3 mission overview is given later in the session



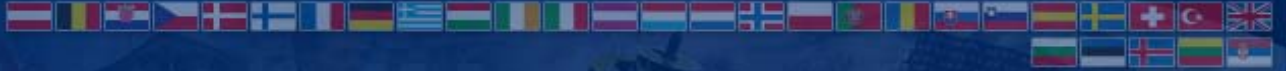
Jason-CS: What is Key for Operational Agencies

- 2nd component of the hybrid solution (Jason-3 + Jason-CS) agreed in 2009
- Priorities
 - **Continuity** (CS = Continuity of Service) of operational reference altimetry mission, with same or better level of performances than as the earlier Jason series
 - **Maintain European/US partnership**
 - **Improve the work share across Europe**
 - **Affordability** and long term **sustainability** with secured resources
- Plan
 - First launch by end of **2017** to ensure adequate overlap with Jason-3
 - At least two satellites with a 7 years lifetime each to give time before new technologies such as swath interferometry (SWOT) can be considered as operational



Jason-CS: Constraints and Opportunities

- **What will remain the same**
 - At least the same level of performance for Jason-CS as the Reference Mission of the OST Constellation
- **What should remain the same**
 - Continuation of existing partnership between the U.S. and Europe, but the detailed sharing of responsibilities has not yet been defined
 - The orbit, as recommended by OSTST
- **What will change**
 - Capability required to mitigate orbital debris
 - New satellite bus based on Cryosat
 - New altimeter based on Cryosat & Sentinel and taking advantage of recent developments
 - New modes compared to Jason-3 (SAR mode, interleaved mode tbc)



Jason-CS Phase B Overall status

- Excellent ongoing cooperation between NOAA, NASA, EUM, ESA, CNES and Industry. Main work is dedicated to the analysis of all modifications from Cryosat 2 to Jason-CS
 - Change of orbit
 - Accommodation of new instruments
 - De-orbiting requirement
- Very promising science and operational return through possible SAR/LRM interleaved altimeter mode (LRM : Low Resolution Mode)
- Possible Radio Occultation secondary mission under analysis
- Next milestones
 - Detailed concept review end of 2011
 - Extension of phase B activities into 2012
- Mission Requirement Document available (but not yet fully reviewed)

A more detailed presentation will be given in the session Friday morning

GMES High Precision Altimetry: possible legal framework in Europe and with the US

- **ESA:** participation through the adoption of an optional ESA Jason-CS programme at ESA Ministerial Conference by end of 2012 (part of GMES Space Component follow on)
- **EUMETSAT:**
 - Jason-3 approved, EC decision on funding of operations pending
 - J-CS: new EUMETSAT optional programme to be approved by Participating States in 2012/13.
- **EC participation**
 - expected to be part of GMES operational programme
 - Funding from EU Multiannual Financial Framework (MFF) 2014-2020, under discussion
- **Cooperation agreement with the US (see after)**



Cooperation between Europe and United States

- EUMETSAT and NOAA promote continued cooperation with the US, in continuity with J-2/J-3: this cooperation is assumed by the GMES Long Term Scenario
- Potential areas for US contributions (NOAA Letter October 2010):
 - Launch and ground support services, recognizing satellite operations will likely be provided by EUMETSAT
 - Sharing of NRT product processing, dissemination, archive
 - Microwave Radiometer
 - Global Positioning System and Laser Retroreflector Array
- US contributions to be confirmed by Q1 CY2012 : boundary condition for ESA/EUMETSAT and EC programme proposals



Other programs and topics

- **SARAL/Altika**
 - Waiting for the launch !
- **Sentinel 3**
 - Nominal progress of EUMETSAT ground segment development
Detailed presentation by ESA later on in the session
- **Recommendations from Lisbon OSTST**
 - The recommendations on Radiometer Drift requirements for both Jason-3 and CS and on the orbit selection for Jason-CS are taken into account

See also detailed presentation later on this week



OSTST and The Future of Satellite Altimetry: Some Inputs for Dedicated Session on Friday

The Future is Now

- HY-2A is up and running, Sentinel 3 and AltiKa/SARAL will launch in the next two years, and Jason-3/CS, ICESat-2, and SWOT are on the horizon.
- 22 CryoSat presentations will be given over the next few days, marking a dramatic “sea change” – new technology, new science opportunities

We need to begin considering how the OSTST might adapt

- To what extent should the OSTST try to serve as a common forum? (It is not a Science Advisory Group for several CEOS constellation missions and therefore has a limited influence on them.)
- What topics should receive the most emphasis?
- How might the convening agencies change their approach?
- What does the scientific community want?

Stan Wilson Retires From NOAA

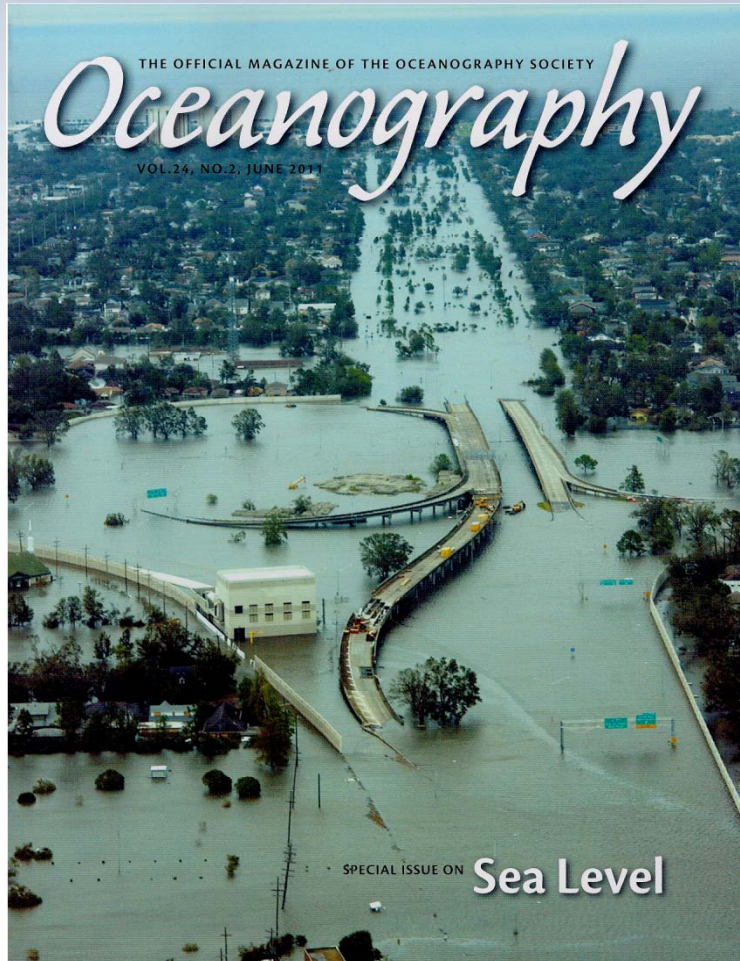


35 Years of Service to Oceanography Community

- NOAA/NESDIS Senior Scientist
- NOAA Deputy Chief Scientist
- NOAA Asst. Admin for NOS
- NASA Program Manager
- ONR Program Manager

Tireless Advocate for TOPEX/Poseidon, Jason, OSTST and ARGO

Sea Level Special Issue of *Oceanography Society Magazine* -- June 2011



A Stan Wilson "Production"

- 11 Articles Covering Sea Level From Paleo to the Modern Era.
- Supported by NOAA, NASA, NSF
- Co-edited by Josh Willis (JPL), Greg Mountain (Rutgers), Laury Miller (NOAA/LSA)



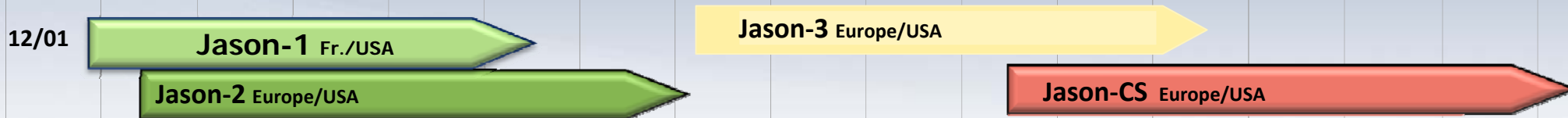
Back up slides



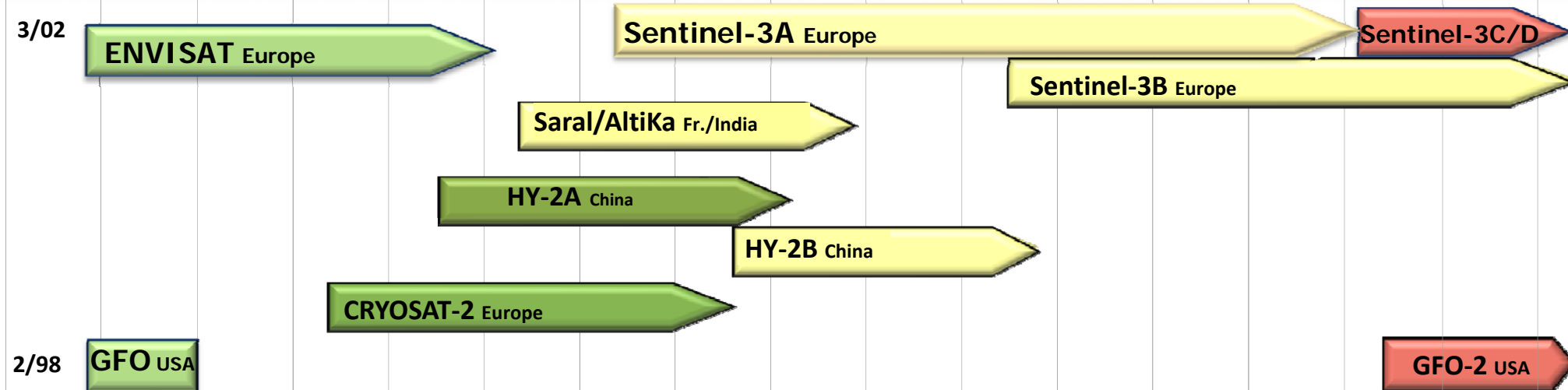
GLOBAL ALTIMETER MISSIONS

Launch Date	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
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Reference Missions - Higher Accuracy/Medium Inclination



Complementary Missions - Medium Accuracy/Higher Inclination



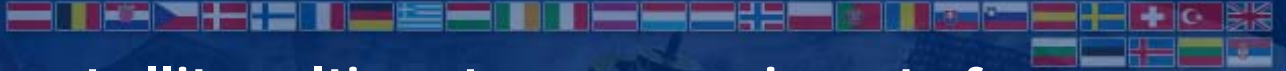
Broad-Coverage Mission



Operating



EUMETSAT



OSTST and the future of satellite altimetry, some inputs for discussions (dedicated session on Friday)

- How does the OSTST act?
 1. Jason Mission Advisory Group as spelled out in J1/2/3 MOU and Project Plan, linking the science to the technical and the project.
 2. Multi-mission user/science forum for ocean altimetry, linked with other missions.
 3. Science forum for Ocean Dynamics, observed and discovered by altimetry (NASA objectives as stated in the AO), links with ARGO.
- Additional notes
 - OSTST is not the only science forum for Ocean Dynamics (EGU, AGU etc...).
 - OSTST is not a SAG for several missions contributing to the multi-mission constellation and has limited influence regarding these missions.
 - OSTST has now a stronger operational emphasis and is not exclusive as satellite altimeter user forum.
- Do the convening agencies (and the others) want the OSTST to continue to pursue all above actions and roles ?
 - If no, minimum role is 1 (Mission Advisory Group)
 - If yes, then overall organisation (mandate, priorities, structure, leadership, openness, meeting set up, funding) shall be refined....