NOAA Status for OSTM/Jason-2

Laury Miller & John Lillibridge
NOAA Laboratory for Satellite Altimetry
Seattle OSTST Meeting - June 22, 2009
NOAA Ground Segment for OSTM

• Satellite Command & Control
  – Telecommand uploads; Telemetry downloads
  – Control of NOAA Stations at Wallops & Fairbanks
  – Remote control of European Earth Terminal at Usingen

• Near Real-Time Data Production & Distribution
  – Produce OGDRs from telemetry gathered at NOAA stations
  – Generate OGDR-BUFR for GTS & EUMETCAST distribution
  – Distribute NOAA OGDRs & EUMETSAT OGDRs

• Data Archive & Access
  – Archive Level-2 OGDR/IGDR/GDR datasets
  – Archive telemetry, auxiliary data & orbits at NODC/CLASS
  – Distribute Near Real-Time data via Data Distribution Server
  – Distribute all NRT & Offline data via CLASS
Satellite Operations Control Center (SOCC)

- Station management
  - USG
    - 6-7 Passes per day
  - WAL
    - 3-4 Passes per day
  - FBK
    - 2-3 Passes per day

- Average Mass Memory Read duration: 8.3 min

<table>
<thead>
<tr>
<th>Station</th>
<th>Contacts</th>
<th>Failed Passes</th>
<th>Problem Passes</th>
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<tbody>
<tr>
<td>WAL</td>
<td>459</td>
<td>9</td>
<td>9</td>
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<tr>
<td>FBK</td>
<td>487</td>
<td>15</td>
<td>12</td>
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<tr>
<td>USG</td>
<td>1034</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>1887</td>
<td>56</td>
<td>35</td>
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</table>

Average Dump File Percentages

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Avg %</th>
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<tbody>
<tr>
<td>HMTK-R</td>
<td>99.87</td>
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<tr>
<td>PLTM-1</td>
<td>99.87</td>
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<tr>
<td>PLTM-2</td>
<td>99.90</td>
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</tbody>
</table>
Environmental Satellite Processing Center (ESPC)

- Requirement: 75% of OGDR data within 3 hours; 95% within 5 hours
- Timeliness statistics since Nov-2008 Nice OSTST
- Public distribution of OGDRs began 15-Dec-2008


- Yellow: in less than 5 hours: 98%
- Green: in less than 3 hours: 93%
Comprehensive Large Array-data Stewardship System (CLASS) & Data Distribution Server (DDS)

- National Oceanographic Data Center (NODC) provides data stewardship using CLASS archive infrastructure
- Data access controlled by data type: (Public, OSTST, Project-only)
- ~ 30 Jason-2 Users at CLASS
- Online ordering & Subscriptions
- DDS for real-time OGDR users only
- Jason-2 Annual Data Volume: **872 GB**
  (22-Jun-2008 to 18-Jun-2009)
FY09 Jason-2/OSTM Milestones

10-Oct-08: Shared Processing Program O/IGDRs to NAVO
29-Oct-08: Operational Satellite Command/Control Handover
01-Dec-08: Installation of TM-NRT V2.3 at EUM & NOAA
15-Dec-08: Public distribution of OGDRs
15-Jan-09: Public distribution of IGDRs
14-Feb-09: Jason-1 interleaved orbit (drift began 26-Jan)
31-Mar-09: NOAA/SOCC transition to high security
01-Apr-09: GDR distribution to OSTST (Cycles 999 & 0-28)
11-May-09: DEM Upload & 02-Jun-09: OBSW Upload
28-May-09: I/GDR ftp file corruption issue resolved
04 to 14-Jun-09: DIODE/DEM tracking mode (Cycle-34 only)
Congratulations on 1 Year of Successful Operations!
NOAA Jason-3 Status

• Preliminary letters of intent exchanged among NOAA-EUMETSAT-CNES-NASA

• Target for completion of Memorandum of Understanding: end of calendar year.

• NOAA has proposed $210M budget for Jason-3, to pay for launch, radiometer, GPS, satellite command and control, telemetry, near real-time data processing, data archiving and distribution.

• On June 12th (10 days ago), US House Committee on Appropriations for Commerce, Justice & Science approved $20M for an FY10 start

• Now awaiting action by US Senate.
New President - New Priorities

New NOAA Administrator - Dr. Jane Lubchenco
- Marine Ecologist, Distinguished Professor - Oregon State Univ.

Four energy bills currently being considered by US Congress, each includes some form of NOAA National Climate Service

National Climate Service leadership already selected
- Tom Karl & Chet Koblinsky

Sea Level Rise already identified as major theme of proposed new Service.
RADS: Towards an Altimetric Climate Data Record

Radar Altimeter Database System (RADS)
- Remko Scharroo, Altimetrics LLC

- Developed at TU Delft. Supported by NOAA for past ~10 years.
- Combines observations of eight altimeter missions; 1985-present; updated daily.
- Data at fundamental level (1 Hz); standard & alternative corrections and models are user selectable, hence custom-made GDRs on the fly; netCDF output.
- Cross-calibrated measurements & corrections

Global Sea Level Change From LSQR Fit on 7 Missions
Jason Sea Level Budget

Eric Leuliette - NOAA/LSA

Total Sea Level (Jason) = Argo + GRACE

Steric Sea Level (Argo) = Jason - GRACE

Mass Sea Level (GRACE) = Jason - Argo

Agreement has improved since Leuliette & Miller (2008).
Jason Radiometer Calibration Project

New NOAA project to ensure smooth transition from research to operations, working closely with NASA, CNES, & EUMETSAT

Objectives
- Establish routine monitoring of instrument performance
- Perform inter-satellite calibration (Jason 1&2, AMSU, SSMI, etc.) for accuracy and long-term drift assessment
- Investigate calibration improvements and provide feedback on Jason-3 design
- Overall Objective - Climate Data Record

NESDIS/STAR Team
- Dr. Changyong Cao, calibration scientist
- Dr. Ding (Ellen) Liang, microwave engineer, calibration & algorithms
- Drs. Fuzhong Weng and Song Yang, MW water vapor retrieval
- LSA (Remko Scharroo, Eric Leuliette, John Lillibridge, Laury Miller)
- Dr. David Walker, NIST, noise diode & MW blackbody calibration standards
First Look at Simultaneous Nadir Overpasses (SNOs) Between Jason2/AMR and MetOP/AMSU

Both Jason2/AMR and AMSU have a nadir looking 23.8 GHz channel

Red dots show SNOs occurring within 30 sec. between Jason 2 and MetOP
Sample Jason 2 orbits used as background.