SSALTO/DUACS: High precision quartet in 2004

Abstract

An overview of the SSALTO/DUACS Near Real products based on heterogeneous altimeter data sets. The main applications and users are described, as well as the evolutions that one may expect in 2004.

Input Data

To produce SLA and MSLA in Near Real Time, the SSALTO/DUACS system uses the latest high-quality altimeter data based on CNES, ESA, NASA, and NOAA products.

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Mission/Model</th>
<th>Data Type</th>
<th>Delay</th>
<th>Robustness</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVISAT</td>
<td>T/P &amp; ERS-2</td>
<td>Operational</td>
<td>24/48h</td>
<td>Operational</td>
</tr>
<tr>
<td>T/P</td>
<td>Jason-1 &amp; ERS-2 &amp; GFO</td>
<td>Best Effort</td>
<td>&gt;72h</td>
<td>Best Effort</td>
</tr>
<tr>
<td>T/P</td>
<td>Jason-1 &amp; ERS-2 &amp; GFO</td>
<td>Operational</td>
<td>&gt;72h</td>
<td>Operational</td>
</tr>
<tr>
<td>T/P</td>
<td>Jason-1 &amp; ERS-2 &amp; GFO</td>
<td>Best Effort</td>
<td>&gt;72h</td>
<td>Best Effort</td>
</tr>
</tbody>
</table>

Processing

The main processing steps of SSALTO/DUACS are:
- Acquisition of altimeter data and auxiliary data
- Product homogenization: update with the state of the art corrections, models...
- Complex Data Editing (threshold, splines, slope detection...)
- Orbit error reduction through global crossover minimum
- Local inverse method to reduce long wavelength errors
- Production of along-track Sea Level Anomaly (SLA)
- Mono and Multi-satellite Mapping (MSLA product)
- Detailed Quality Assessment (daily & weekly reports)
- Off-line validation (comparison with delayed mode data)
- Wind and Sea Wave Height data available in real time (Fig. 1)

Applications and Users

The main objective of SSALTO/DUACS is to provide operational and scientific NRT applications with directly usable high quality NRT altimeter data. Current applications include GODAE (MERCATOR, FOAM, TOPAZ) and MFS models, seasonal and climate forecasting centers, offshore and fisheries...

About 30 systems from 30 countries are currently using SSALTO/DUACS products. This number has been increasing steadily since its opening (January 2003). More than 1000 maps per month are currently distributed through the AVISO Live Access Server. The DUACS website receives about 2000 hits and 200 visitors per month.

Enhancements and Upgrades

Upgrades in 2003/2004

- Second production per week
- New mean profile for T/P
- System frequency banding
- Detection of anomalies, drifts and discontinuities
- Production of along-track Sea Level Anomaly (SLA)
- High resolution Maps of SLA (MSLA) and their formal errors. These products are distributed by the AVISO user service on FTP, Web, and through a Live Access Server (a poster on this feature is available).
- SSALTO/DUACS products are available for scientific applications, and data older than 30 days are available for all applications.

Mean Dynamic Topography

As part of the EC ENACT and MERCATOR projects, a 7-year mean dynamic topography (MDT) has been computed. The SSALTO/DUACS system will use this MDT in early 2004 to produce absolute dynamic topography measurements based on its current (MSL)SLA products.

Bibliography