The Ka-band AltiKa altimeter payload, together with an ARGOS3 instrument, will be embarked in the SARAL satellite for a launch planned for the beginning of 2010. This is a joint project between CNES and ISRO, respectively French and Indian space agencies. This poster describes the AltiKa instrument, the mission objectives and the expected performances.

**Mission objectives**

**Central objective**

- Mesoscale ocean circulation
- Data assimilation into regional and global OGCMs

**Secondary objectives**

- Coastal ocean altimetry
- Continental waters
- Ice sheet monitoring
- Sea level change
- Mean sea level

**Altimeter payload**

- The Ka-band altimeter 35.75 GHz

  - Ionospheric effects are negligible
  - 480 MHz bandwidth instead of 320 MHz in the classical Ku-band
  - Higher vertical resolution (30 cm vs 48 cm in Ku-band)
  - 4 KHz PRF that may be adjusted along the orbit
  - Shorter decorrelation time of sea echoes

- A Dual-frequency radiometer 24 and 37 GHz

  - Required for tropospheric correction

- A Laser Retro-reflector Array

  - Minimum for orbitography and system calibration

- A Precise Orbitography system DORIS

  - To achieve adequate orbitography performances in low Earth orbits
  - To have similar performances than reference missions like T/P, JASON, ENVISAT
  - Required for mean sea level analysis and coastal/inland applications (real-time coupling with altimeter)

**SPECIFICATIONS ON AltiKa/SARAL ERROR BUDGET**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>ODR 2 Hours</th>
<th>ODR 1 Day</th>
<th>ODR 40 Days</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altimeter range (after corrections)</td>
<td>6.5 cm</td>
<td>15 cm</td>
<td>15 cm</td>
<td>2 cm</td>
</tr>
<tr>
<td>Skin (Radial component)</td>
<td>30 cm (a)</td>
<td>6 cm</td>
<td>6 cm</td>
<td>2 cm</td>
</tr>
<tr>
<td>Total RMS sea surface height</td>
<td>18.5 cm</td>
<td>5.5 cm</td>
<td>4.6 cm</td>
<td>2.6 cm</td>
</tr>
<tr>
<td>Significant wave height (m)</td>
<td>10% of H1/3 (m)</td>
<td>10% of H1/3 (m)</td>
<td>10% of H1/3 (m)</td>
<td>10% of H1/3 (m)</td>
</tr>
<tr>
<td>Signa wave height (m)</td>
<td>0.3 dB</td>
<td>0.3 dB</td>
<td>0.3 dB</td>
<td>0.3 dB</td>
</tr>
<tr>
<td>Wind speed (m/s)</td>
<td>2 m/s</td>
<td>1.5 m/s</td>
<td>1.5 m/s</td>
<td>1 m/s</td>
</tr>
</tbody>
</table>

(a) Real time DORIS/Argos experiments.
(b) Windwave is given.
(c) Validity limits: 2 km, 3 km.
(d) Validity limits: 2 km (T/C) + 1 km.