Aqua launch May 4, 2002, 2:55 a.m., Vandenberg Air Force Base, California

Aqua: Current status and future

Lazaros Oreopoulos, NASA, Dep. Proj. Scientist

Claire Parkinson, NASA, Proj. Scientist
What Aqua Observes

- Temperature and humidity profiles
- Carbon dioxide and other trace gases
- Earth radiation budget
- Chlorophyll in the oceans
- Fires over land
- Global ice cover
- Cloud properties
- Land reflectances and land use/change
- Numerous other geophysical variables

— ~ 88 GB data per day
Spacecraft and Instrument Status

- Spacecraft bus: Nominal Operations (Excellent health)
- AIRS: Nominal Operations (<5% of channels degraded) (Excellent health, except Cooler A telemetry)
- AMSU-A: Nominal Operations of 12/15 channels (Good Health)
- HSB: Non-operational since February 2003
- AMSR-E: Operating at 2 rpm (vs original 40 rpm); Calibration purposes only – no science (Poor Health)
- CERES-AFT (FM-3): Nominal Operations (Excellent Health)
- CERES-FORE (FM-4): Nominal Operations (SW channel failed on March 2005) (Good Health)
- MODIS: Nominal Operations (Excellent health)
Aqua spacecraft has sufficient fuel to maintain its current orbit within the Afternoon Constellation through early 2022 and possibly beyond.

Fuel usage continues to follow prediction.

Aqua status file is updated monthly at http://aqua.nasa.gov
Aqua Publications and Citations

Plot from 2013 Aqua Senior Review proposal
Aqua Data Usage

Aqua data volume (in TB) by instrument

Number of Aqua data users by affiliation

Plots from 2013 Aqua Senior Review proposal
Communication and Public Engagement (formerly EPO)

- FY15 Budget: $280 K
- Main funded activities (incl. discontinued)
  - Vodcasts, and Earth-Sky Podcasts
  - Dynamic Planet
  - SatCam
  - Students’ Cloud Observations On Line (S’COOL)/My NASA Data (MND)
  - Earth System Science Education Alliance (ESSEA)
  - REEL Science Communication Contest
  - Science on a Sphere (SOS) Earth Stories
  - Know Your Earth (KYE)
  - AIRS displays and pubs
- Uncertain future because of possible consolidation (i.e., possibly no separate budget line for “Aqua EPO” after FY15)
- Distinction between “Education” (in danger) and “Engagement”
Recent Milestones

• MODIS Collection 6 release (atmosphere and land)
• AIRS Version 6 release
• Near ready for CERES Edition 4 : BDS, SSF, SSF1deg
• ROSES 2013
  — Science of Terra-Aqua: 51 of 56 awarded proposals involve instruments on Aqua
  — Terra-Aqua algorithms: 30 of 32 awarded proposals involve instruments on Aqua
  — In above, more Aqua-only (because of AMSR-E and AIRS/AMSU) than Terra-only proposals
  — Suomi NPP data continuity: 32 of 40 awarded proposals to continue Aqua products
Aqua in Recent News

**NASA image shows north-south disparity of wildfires in California**

[LA Times 8/26/14]

**Alaska Dispatch News**

**NASA projects tracking changes in Alaska’s glaciers and Arctic atmosphere**

Yereth Rosen | September 17, 2014

The U.S. agency that explores outer space is also probing another frontier — the rapidly warming climate in Alaska and other parts of the Far North.

NASA has launched three Alaska-based projects to better understand how warming is changing the size and behavior of glaciers, the release of carbon gases from thawing permafrost and the interplay between sea ice, clouds and weather in and above the Arctic Ocean.

**Over 30 Hikers Die During Ontake Eruption in Japan: What Happened?**

[Wired 9/28/14]
2015 Senior Review

• Required for all operating missions beyond prime phase
• Will be 5th for Aqua
• Kick-off meeting at 2014 Fall AGU
• Based on past experience:
  – Proposal to be submitted early March 2015
    ✽ Proposal consists of Science, Technical and Budget sections
  – Review panels expected to meet April/May with final evaluation to be released around June 2015
• Aqua budget ∼32.5 M, ∼55% for mission operations
## 2013 Senior Review Results

<table>
<thead>
<tr>
<th>Mission</th>
<th>Science Scores</th>
<th>Summary Science Score</th>
<th>Utility Score</th>
<th>Technical Risk</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Merit</td>
<td>Relevance</td>
<td>Product Maturity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACRIMSAT</td>
<td>4.0</td>
<td>4.2</td>
<td>2.8</td>
<td>3.7</td>
<td>Some</td>
</tr>
<tr>
<td>Aqua</td>
<td>5.0</td>
<td>5.0</td>
<td>4.7</td>
<td>4.9</td>
<td>Very High</td>
</tr>
<tr>
<td>Aura</td>
<td>5.0</td>
<td>5.0</td>
<td>4.9</td>
<td>5.0</td>
<td>High</td>
</tr>
<tr>
<td>CALIPSO</td>
<td>5.0</td>
<td>5.0</td>
<td>4.9</td>
<td>5.0</td>
<td>High</td>
</tr>
<tr>
<td>CloudSat</td>
<td>5.0</td>
<td>5.0</td>
<td>4.9</td>
<td>5.0</td>
<td>High</td>
</tr>
<tr>
<td>EO-1</td>
<td>4.0</td>
<td>4.3</td>
<td>3.0</td>
<td>3.8</td>
<td>Some</td>
</tr>
<tr>
<td>GRACE</td>
<td>5.0</td>
<td>5.0</td>
<td>4.0</td>
<td>4.7</td>
<td>High</td>
</tr>
<tr>
<td>Jason-1</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>High</td>
</tr>
<tr>
<td>OSTM</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>High</td>
</tr>
<tr>
<td>QuikSCAT</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>High</td>
</tr>
<tr>
<td>SORCE</td>
<td>4.9</td>
<td>5.0</td>
<td>3.2</td>
<td>4.4</td>
<td>High</td>
</tr>
<tr>
<td>Terra</td>
<td>5.0</td>
<td>5.0</td>
<td>4.8</td>
<td>4.9</td>
<td>Very High</td>
</tr>
<tr>
<td>TRMM</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>Very High</td>
</tr>
</tbody>
</table>

“The Aqua mission has been extremely successful and produces a large number of critical products that are very widely used by scientists, government agencies and operational groups. The impressive list of core science products is very mature and stable. The government agencies all gave Aqua the highest ranking of all missions...”