

Summary of the 33rd Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) Science Team Meeting

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The 33rd ASTER Science Team Meeting was held at TEPIA AOYAMA in Tokyo, Japan on June 9-12, 2008. ASTER Science Team members and other relevant participants attended the meeting. At the Opening Plenary, related projects were reported and issues to be addressed were reviewed. Splinter sessions of each working group followed, with reports from groups presented at the Closing Plenary. An ASTER Workshop was held on June 13, in conjunction with the ASTER Science Team Meeting. Approximately 100 participants from the ASTER science project team, private corporations, universities and research institutes, and other organizations participated. The workshop attendees heard 11 reports on research activities that showcased some of the practical applications of ASTER data.

Opening Plenary

H. Tsu [ERSDAC—Japan ASTER Science Team Leader] and **M. Abrams** [Jet Propulsion Laboratory (JPL)—U.S. ASTER Science Team Leader] made opening remarks. **M. Kato** [ERSDAC] explained the meeting schedule.

M. Abrams reported on behalf of **W. Turner** [NASA Headquarters] about the current status of NASA. His report covered NASA's organization, future projects, and budget. Abrams also included a detailed presentation of the Global Land Survey—which eagerly anticipates input from the ASTER team.

M. Abrams gave an update on the U.S. ASTER status. He introduced the follow-on missions, such as the Landsat Data Continuity Mission (LDCM) and Hyperspectral Infrared Imager (HypIRI), and also reported on the recent urgent observation.

T. Sato [Japan Resources Observation System and Space Utilization Organization (JAROS)—Instrument Team] reported on the instrument status. He spoke about lifetime management of the instrument and explained the past operations and future plans for the Short Wave Infrared (SWIR) detector temperature rise.

M. Hato [ERSDAC—Ground Data System (GDS)] reported on GDS status. He gave an update of the production and distribution at GDS. Hato also reported the status of the ASTER Global Digital Elevation Model (GDEM) production and the issues related to temperature increase in the SWIR detector.

B. Bailey [U.S. Geological Survey Land Processes Distributed Active Archive Center (USGS LPDAAC)]

reported on the distribution status at LPDAAC. He provided an update on the Direct Down Link (DDL) and the Expedited Data System (EDS).

M. Fujita [ERSDAC—Science Scheduling Support Group (SSSG)] presented the SSSG/Operations and Mission Planning (OMP) report. Fujita talked on the status of Global Mapping (GM) and GDEM Science Team Acquisition Requests (STARs) and the management of pointing device lifetime.

M. Abrams spoke on *Planet Action*, an initiative launched by Spot Image to provide geographic information for climate change related issues. The call for proposals is now open.

To close the plenary, **Y. Yamaguchi** [Nagoya University] raised two points for further discussion in the working groups:

- the impact that the Instrument team's proposed SWIR plan will have on each group; and
- the status of GM, night Thermal Infrared (TIR) GM, and other STARs.

Working Group Sessions

Level-1/Geometric/Digital Elevation Model (DEM) Working Group

In the first half of the session, the working group heard presentations about improvements to and validation results of ASTER Level-1 algorithm/software. Since the saturated SWIR channels prevents inter-telescope registration between Visible and Near Infrared (VNIR) and TIR, this situation should be corrected. The second half of the session was devoted to the ASTER GDEM project. **M. Hato** and **H. Fujisada** [Sensor Information Laboratory Corporation (SILC)] reported that GDEM processing operation is going well and the final products will be delivered at the end of October. **T. Tachikawa** [ERSDAC] and **B. Bailey** presented a future plan for validation of the GDEM.

Radiometric Calibration Working Group

The instrument team began the session with reports on results of onboard calibration efforts. Regarding VNIR and TIR, the team concluded that the radiometric database should be updated as soon as possible. **T. Tachikawa** reported three points on the problems and

countermeasures related to the SWIR issue. **A. Iwasaki** [University of Tokyo] presented the method for crosstalk correction using MODIS data. **H. Tonooka** [Ibaraki University] summarized his TIR recalibration method and **H. Yamamoto** [National Institute of Advanced Industrial Science and Technology (AIST)] reported on the recalibration implementation on the Global Earth Observation (GEO) Grid. Finally, **K. Arai** [Saga University], **A. Kamei** [AIST], **K. Thome** [University of Arizona], **H. Tonooka**, and **T. Matsunaga** [National Institute for Environmental Studies (NIES)] gave reports on the results of the 2007 field campaign and gave plans for the next field campaigns.

Atmospheric Correction Working Group

B. Eng [JPL] gave a status report of the current Level-2 software, *Version 3.1*. The next version, *Version 3.2*, will be delivered in June 2008. **H. Yamamoto** reported on validation and the updated Look-Up Table (LUT) related to water vapor. **M. Arioka** [AIST] reported on the ongoing estimation of cloud-free ASTER data availability. The data will be used to develop new cloud cover assessments on the GEO Grid.

Temperature-Emissivity Separation (TES) Working Group

In the first half of the session, the group heard reports on the status of the nighttime TIR STAR. This working group agreed to request Operation and Mission Planning (OMP) to continue the current operation. The second half of the session consisted of many presentations on the applications of TES products. **H. Tonooka** and **S. Hook** [JPL] presented the efforts to develop an emissivity database. There was discussion about the impact the missing SWIR is having on the TES working group. The increase of error in the TIR emissivity correction and inter-telescope registration will cause effects.

SSSG/OMP Working Group

M. Fujita reported on the third round of GM, the nighttime TIR GM, the Gap filler STAR, and the

GDEM STAR. **M. Abrams** classified the observation resources at present into four categories. The group reviewed the appropriateness of resource allocation for each category and decided to continue with the current practice until the end of August. The subsequent allocation will be determined later, considering the data acquisition status after September. **T. Sato** outlined the SWIR recycle status and plan. JAROS will prepare and try the SWIR cooler *on/off* procedure. The science team will develop a validation plan just after the process.

STAR Committee

There was a report on the STAR Tool problem. Details will be investigated.

Ecosystem/Oceanography Working Group

After a review of the STAR status, the group heard eight research reports. The team also discussed the impact the missing SWIR will have on science. Three specific impacts were raised:

1. SWIR Band 4 is necessary for soil water content and biomass evaluation;
2. SWIR bands are used in Apparent Thermal Inertia (ATI) calculations; and
3. cloud assessment and cloud/snow discrimination will be significantly impacted.

Geology/Spectral Working Group

There were presentations on eight research activities in the fields of geology, glaciology, and volcanology. Following the presentations, the group focused on two issues:

1. Publishing a white paper for VNIR/SWIR/TIR; and
2. Monitoring of a day/night TIR pair for glacier analysis.

Finally, the group raised a **new action item**: rearrangement of the volcano STAR/Data Acquisition Request (DAR). ■