

CERES Data Management Team Minutes for 12/15/2004

• Schedule:

12/17/2004 Proposal due for combined data products from CERES, Calipso, CloudSat
12/29/2004 DMT meeting is cancelled
01/10-15/2005 Data management Stand-down: SCF Upgrades to IRIX 6.5.25m and MIPSpro 7.4 and storage review
01/25/2005 ASDC Upgrades to IRIX 6.5.25m and MIPSpro 7.4
05/03-05/2005 CERES Science Team Meeting, Princeton, NJ

Ongoing Activities:

- Preparations for IRIX upgrade
- Preparations for thunder/lightning/LaNina file system cleanup
- NPOESS FM-5 analysis
- Proposal for combining CERES, CloudSat, Calipso data

Priority Items:

- Processing
 - Critical:
 - 3 years Terra Edition2B SSF (complete)
 - 3 years Terra Edition2C SFC/SRBAVG (waiting on verification of ValR6)
 - 1 year Terra Edition2B CRS (crosstrack only)
 - 1 year Terra Edition2B FSW after the OS upgrade
 - 1 year Aqua Edition1B SSF/SFC (waiting on ValR2 to run)
 - BDS/ERBELike Edition1/Edition2 Terra/Aqua as inputs available
 - Important:
 - 5 month Terra Beta SYN/AVG/ZAVG
 - 1 additional year of Aqua Edition1B SSF
 - 2 Additional years of Terra Edition2B CRS/FSW (crosstrack only)
- SCF
 - Storage capacity upgrades
 - IRIX Upgrade on SGI 3800
 - Re-architecture of network for security requirements
 - Equipment reconciliation onbase and at SAIC

Standing Committee Reports

(These notes supplement the reports posted by the various Committee's on the CERES DMT status page.)

| Agenda | Committee | Responsibility | Updated | Status/Issues |
|-------------|---|--|----------|---|
| 1.00 | ASDC/ECS Interfaces | Hopson/Harris/ Link | 12/15/04 | PR 100-04 and 99-04 have been completed. PR 71-04 will wait for next delivery. |
| 2.00 | SCF | Flippo | 12/15/04 | Adequate spare disk drives remain for the immediate future to replace failing disk drives on thunder/lightning. Compilers on the ctb-g computer should be upgraded with the latest version to resolve the 4211 error in GGEO. The QC disk drive continues to fill up before the data can be reviewed. A replacement drive with larger capacity will be acquired and installed by mid-January. |
| 3.00 | Toolkit | Flippo | 12/15/04 | No additional information was reported. |
| 4.00 | System Issues | | | |
| 4.01 | Processing Strategy | Geier | 12/15/04 | With the upgrade of MODIS from Collection 4 to Collection 5, CERES will use Collection 4 to process data through 06/05 and use Collection 5 for the final re-processing. Attached is an e-mail summarizing the Collection 5 changes. PRs 113-04, 112-04, 111-04 to 121-04 have been cancelled PRs 100-04, 99-04 have been completed. The hold on PR 109-04 has been lifted. |
| 4.02 | Systems Engineering Committee | Nolan/Sorlie/ Hopson/ Ayers/Cooper | 12/15/04 | No meeting has occurred since the last DMT meeting. No actions are outstanding. |
| 4.03 | Configuration Management & SCCR/DCCR Review | Ayers / Saunders | 12/15/04 | The Subsystem Delivery schedule of 11/04 has been modified to reflect deliveries of the Instrument and ERBE-like subsystems in 02/05 vice 12/04. SCCR 572 creates the PGE CER4.5-6.6P3 to produce daily versions of the hourly data product of Inversion. No |

| | | | | |
|------|--|---|----------|--|
| | | | | parameter changes are made. |
| | Working Group Status | | | (See posted Subsystem Status Reports) |
| 5.01 | External Interfaces- Instrument | Spence | 12/15/04 | No additional information was provided. |
| 5.02 | External Interfaces- Data Sources | Link | 12/15/04 | As a result of the replacement of the Collection 4 with Collection 5 of MODIS, clouds will redeliver. A problem has emerged with the Aqua ephemeris data for 12/12/04; while this is unusual in the recent past, a brief wait will be held before re-ordering. A requirement for ongoing delivery of MATCH aerosols from NCAR has been identified. This data product is unavailable on a production-basis. MATCH aerosols have been received in the correct format through 02/28/03; subsequent dates will be provided when processing is accomplished at NCAR. |
| 5.03 | External Interfaces- Customers | Kizer | 12/15/04 | No additional information was reported. |
| 5.04 | Simulator | Chapman | 12/15/04 | The simulator has been set up in B1273 and will be moved to B1250 when the current round of command loads have been tested. It is expected to be installed in B1250 before 12/31/04. |
| 5.05 | Visualization/ Validation Tools | Lee | 01/15/03 | No additional information was reported. |
| 5.06 | Instrument (SS 1) | Cooper/ Hess/Spence/ Szewczyk/Filer | 12/15/04 | The errors in the space clamp effect data only during special operations. |
| 5.07 | ERBE-like (SS 2, SS3) | Walikainen/ Robbins | 12/15/04 | No additional information was provided. |
| 5.08 | Clouds (SS 4.1, 4.2, 4.3) | Sun-Mack | 12/15/04 | New requirements for processing clouds are being formulated to support the A-train data products. |
| 5.09 | Clouds (SS 4.4) | Miller | 12/15/04 | No additional information was provided. |
| 5.10 | Inversion (SS 4.5, 4.6) | Nolan | 12/15/04 | ValR3 of the SSF has been completed. |

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|------|---|---------|----------|--|
| 5.11 | SARB (SS 5.0, 7.2, 12.0) | Coleman | 12/15/04 | A plan is being formulated for running the SARB data product on the IBM cluster at the ASDC. Further meetings will be held to discuss the software and the state of the IBM cluster. |
| 5.12 | TISA -(SS 6.0, 9.0) Gridding | Raju | 12/15/04 | No additional information was provided. |
| 5.13 | TISA -(SS 11.0) GGEO | Stassi | 12/15/04 | No additional information was provided. |
| 5.14 | TISA -(SS10.0, 8.0) Averaging | Nguyen | 12/15/04 | L.Nguyen has raised the issue of storing the raw version of the MCIDAS data which the ASDC is acquiring for the geostationary satellite inputs. D.Young has approved this request and is formulating a plan to provide additional storage for this data outside of the ASDC, probably on angler. |
| 5.15 | CERESlib | Stassi | 12/15/04 | No additional information was provided. |

Summary of MODIS Collection 5 Changes from Collection 4

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Subject: MODIS collection 5 information

Hello,

I've probably sent you most of this information, but with the move and recent confusion, it's probably a good idea to pull together everything I know about MODIS Collection 5 in one mailing. Below you will find expected changes to geolocation, radiance, aerosol, and daily aerosol files, as well as schedules. (Please forward as needed.)

ASDC is expecting notification from GSFC regarding upcoming collection 5 files next week. I've asked ASDC to initially plan on getting both Collection 4 and Collection 5 data. That will allow CERES to process in current mode through 6/05 data, if we so desire, and use only Collection 5 for the final reprocessing. Please let me know if I should change my directions to ASDC.

Erika

>From Robert Wolfe, <robert.e.wolfe.1@gsfc.nasa.gov>, I have the following information about geolocation and radiance:

>Below are the MODIS Collection 5 (C5) changes we expect to make PGE02

>(L1B), PGE03 (Cloud Mask) and PGE01 (Geolocation). More details will be

>available as we complete the science testing of the changes.

>

>The current MODIS/Terra processing plan is as follows:

>

>1. Begin C5 reprocessing in mid-December 2004 starting with the beginning

>of the mission. We expect to reprocess at about 4X total (for both Terra and Aqua). So the reprocessing is expected to be completed in December 2006 (~2 years).

>

>2. Continue C4 forward processing until the end of June 2005.

>

>3. Start C5 forward processing in January 2005. This will overlap the C4 forward processing by about 6 months and enable users to assess the new C5

>products and to perform a graceful switch-over to the new products.

>

>Once the reprocessing/forward processing begins, there will be a time period of about a month before the products are publicly released to allow time for evaluation by the science team.

>

>The MODIS/Aqua schedule is similar but the start dates will be delayed a few months.

>

>There will be a separate Atmosphere C5 reprocessing activity starting in February 2005 that will reprocess the entire atmosphere record by the end of July 2005. This will be done in the MODIS SIPS (MODAPS) at about 17X. It may be possible to provide CERES a subscription to the MODIS L1B

>(subset) and atmosphere data sets you use during this reprocessing. If

>this is something you think you could use, we can discuss the details to
>see if it would be feasible.
>
>I hope this helps,
>
> -Robert Wolfe
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>
>MODIS PGE02 L1B Collection 5 Changes
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>Source: MODIS Calibration Support Team (August 2, 2004)
>
>1. Code Changes:
>
>a. The Terra and Aqua SWIR band out-of-band correction will be
>upgraded. The selection of detectors influencing the SWIR band detectors
>will be made more flexible. This will assure that bad detectors are not
>used as the sending detectors when influence coefficients are applied.
>
>b. The Terra and Aqua B21 calibration will be enhanced to include the
>mirror side dependence.
>
>2. Look-Up Table (LUT) Changes:
>
>a. Add a new LUT to implement the SWIR band out-of-band correction
>described above (1a).
>
>b. Change the Band_21_b1 LUT format to enable the mirror side
>dependence
>described above (1b).
>
>c. Update the Response Versus Scan for Terra reflective solar bands.
>
>d. Update the Response Versus Scan for Terra thermal emissive bands.
>
>e. Regular Terra m1 and Aqua m1 calibration updates will be

>performed. Smooth m1 and, in the case of forward processing, predicted
m1
>values will be used.
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>
>MODIS PGE01 Geolocation Changes for Collection 5
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>Source: MODIS Geolocation Team (July 6, 2004)
>
>1. Code Changes:
>
>a. Add a dynamic input file listing maneuver times, updated about
1/month,
>and use to flag output products with possible degraded geolocation
>accuracy accordingly.
>
>b. Apply a small bias to the instrument/spacecraft orientation matrix,
>dependent in a piece-wise linear fashion on the solar elevation angle.
>
>c. For a few of the most important cases that are easily fixed, treat fill
>values more appropriately.
>
>d. Clean up some metadata fields.
>
>2. Look-Up Table (LUT) Changes:
>
>a. The long-term trend will be updated to reflect changes in pointing
>since launch.
>
>b. A fit of the within-orbit variation modeled with respect to the solar
>elevation angle (see 1b) will be provided.
>
>3. Ancillary Data Changes:
>
>a. Incorporate new Land/water mask derived from MODIS data by Boston
>University.
>

>b. Incorporate new SRTM Digital Elevation Model into EOS DEM used by
>geolocation.
>
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>MODIS PGE03 Cloud Mask Changes for Collection 5
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>Source: MODIS Atmosphere Support Team (May 26, 2004)
>
.... let me (Erika) know if you need this, I commented it out to shorten the e-mail message

>From Rich Hucek, <rhucek@ltpmail.gsfc.nasa.gov>, I have the following atmosphere reprocessing timeframe information:

>The planned date to begin Terra Collection 5 atmosphere reprocessing >2/2000 through 6/2005. While this happening, we will continue >to generate near real-time products in Collection 4 until the end >of June 2005.
>
>Aqua reprocessing is planned to begin 5/12/05 starting in 7/2002.
>Again, Aqua near real-time processing will continue to be Collection 4 >through the period 5/12/05 to the end of June 2005.

Lorraine Remer, <Lorraine.A.Remer@nasa.gov> stated that, when implemented,
http://modis-atmos.gsfc.nasa.gov/MOD04_L2/history.html will contain final list of MOD04/MYD04 changes.
In the meantime, Shana Mattoo, <mattoo@climate.gsfc.nasa.gov> sent the following list of changes to the MOD04/MYD04 aerosol files:

>
> CHANGES THAT WILL GO INTO COLLECTION 5
>

> For Collection 5

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>

> Land algorithm changes.....

> - Snow/Ice mask was introduced to mask out snow and ice pixels

> based on ratio of 0.86 um and 1.24 um and 11.0 um temperature.

> If [(refl_0.86 - refl_1.24)/(refl_0.86 + refl_1.24) > 0.01 AND

> (temp_11 < 285)]THEN SNOW

>

> - Part of algorithm and some subroutines commented in old versions

> and not used were removed.

>

> - Logic for Cirrus mask was improved and variability threshold

> at 1.38 um changed.

> If var(1.38)* refl_1.38 >= 0.025 then CLOUD

> If refl_1.38 > or = 0.025 then CLOUD

> If refl_1.38 < 0.025 then NOT CLOUD

> If 0.01 < refl_1.38 < 0.025 then NOT CLOUD but Quality is set to 0

>

> - Negative reflectance value at 1.38um are permitted for variability

> cloud mask test.

>

> - Quality control was set to 0 for cirrus mask. (only if 0.01 <

> refl_1.38 < 0.025)

>

> - Following SDS were removed

> Reflected_Flux_Land_And_Ocean

> Estimated_Uncertainty_Land

> Reflected_Flux_Land

> Transmitted_Flux_Land

>

> - New SDS added

> Aerosol_Cldmask_Byproducts_Land containing 7 pieces of information:

> X1,X2,X3,X4,X5,X6,X7. Currently left to fill values.

>

- > -The geographical distribution of the land aerosol models was adjusted to conform with description in Remer et al. (2004)
- > .
- > -Cloud Fraction land definition was changed. The fraction is defined as the fraction of cloudy pixels as determined from visible channel spatial variability aerosol cloud mask for retrieved pixels. It does not include pixels identified only by the cirrus mask.
- >
- > -A number of bug fixes were patched.
- >
- > Ocean algorithm changes.....
- > - Negative reflectance value at 1.38um are permitted for variability cloud mask test.
- >
- > - Correction to SDS CCN was made to reflect right units (#/cm2)
- >
- > - Following SDS were removed
- > Reflected_Flux_Best_Ocean
- > Reflected_Flux_Average_Ocean
- > Transmitted_Flux_Best_Ocean
- > Transmitted_Flux_Average_Ocean
- >
- > - New SDS added
- > Aerosol_Cldmask_Byproducts_Ocean containing 7 pieces of information:
- > X1,X2,X3,X4,X5,X6,X7. Currently left to fill values.
- >
- > -Cloud Fraction Ocean definition was changed. The fraction is defined as the fraction of cloudy pixels as determined from all cloud tests including spatial variability, refl_047 thresholds and the remaining Wisconsin cloud mask tests, but does not include pixels identified as cloud ONLY by the thin cirrus test.
- >
- >

>From Bryan Baum, I have the following list of major MOD08/MYD08 improvements:

"a. We are implementing an IR destriping algorithm to improve some striping issues that have been bedeviling many of the IR bands. But, this destriping algorithm is not being implemented for the Level 1B data for a variety of reasons. We are doing this upon input to the cloud retrieval processing.

b. the treatment of VIS/NIR surface albedo has been vastly improved, and this will lead to a very large improvement in water/ice cloud optical thickness and particle size. I don't know if these surface maps are going to be used by the aerosol group.

c. Another improvement is in the forward models used in our CO2 slicing code.

d. The cloud clearing tests have seen major improvement, especially for nighttime oceans and daytime/nighttime polar regions."

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