Land and Atmosphere Near real-time Capability for EOS (LANCE)

Interim User Working Group (UWG) Meeting

February 12, 2014

Telecom /WebEx

Report Date: February 18, 2014

1. LANCE UWG Members and Attendees

There are fifteen members of the User Working Group (UWG); twelve members were on the telecom.

Name	**Affiliation**
Chris Justice	University of Maryland
Liam Gumley *	University of Wisconsin/Madison
Jeff Hawkins	Naval Research Lab
Gary Jedlovec	NASA/MSFC/SPoRT
Nickolay Krotkov	NASA/GSFC
Arlindo da Silva	NASA/GSFC
Mike Fromm	Naval Research Lab
Brad Quayle	Forest Service
Justin Sherin *	HIFLD
George Blaisdell	NSF
Mark Trice	Maryland/DNR
James Verdin	USGS
Rama Nemani	NASA/ARC
Robert Brakenridge	Dartmouth Flood Observatory
Jose Harris *	DOD

*unable to attend

There were a number of additional attendees representing other members of the user community, representatives of the individual LANCE elements, NASA Headquarters (HQ), and NASA Earth Science Data and Information System (ESDIS). These are listed below:

Name	**Affiliation**
Dawn Lowe	GSFC / ESDIS
Diane Davies	ESDIS
Ed Masuoka	GSFC /LANCE MODIS
Feng Ding	GSFC / GES DISC
Frank Lindsay	NASA HQ

Gang Ye	GSFC /LANCE MODIS
Jeff Schmaltz	GSFC / ESDIS
Karen Horrocks	GSFC /LANCE MODIS
Karen Michael	GSFC
Kathryn Regner	UAH / LANCE AMSR-E
Kelvin Brentzel	GSFC /DRL
Kevin Murphy	GSFC / ESDIS
Lalit Wanchoo	GSFC
Lawrence Friedl	NASA HQ
Martha Maiden	NASA HQ
Minnie Wong	GSFC / ESDIS
Pamela Rinsland	ASDC
Phil Durban	GSFC / LANCE OMI
Sherry Harrison	UAH
Terri Wood	GSFC

2. Minutes

2.1. Welcome and program perspective

Chris Justice (UWG Chair) welcomed everyone to the meeting. He reminded everyone that the UWG was set up to provide guidance to LANCE. He said there is a strong sense from the working group that they would like to see Near Real Time (NRT) capabilities extend to other instruments and that there is an opportunity to do that for VIIRS with the latest NASA Roses call[1] for applications, including a NRT applications.

Chris said LANCE has a good reputation. He receives very positive feedback about LANCE when conversing with colleagues while on international travel. The NRT capability is established and other agencies recognize this and are trying to match LANCE-like capabilities for science and applied sciences. He said LANCE should continue and we should look for ways to build on the success of LANCE.

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1 http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId=%7B1261845A-B208-8E8B-38F9-34040759A07A%7D&path=open

2.2. Status, Actions and Accomplishments – Diane Davies

2.2.1. Key Metrics

- During FY 2013 the weekly LANCE- wide latency trend met and exceeded the three hour latency with the exception of 2 outliers from OMI which were due to technical issues.
- The way in which latency is calculated has changed: it is now calculated from the mid-point of granule duration (half of the time difference between start to end observation time) to the insert time to archive. With this approach MODIS has, on an average, increased latency by 2.5 minutes while as OMI has increased latency by approximately 40 minutes. A second change is that the minimum latency is now taken between NRT and NRT2 for same granule. This approach has been applied retrospectively to enable comparison across the years.
- The metrics indicate the number of registered users is steadily increasing. In addition to registered users, there are a growing number of non-registered users accessing imagery and data through Worldview and GIBS.

2.2.2. American Customer Satisfaction Index

The American Customer Satisfaction Index (ACSI) was conducted for LANCE by the CFI group. The survey was initiated by EOSDIS to assess trends in satisfaction, looking specifically at usage, delivery, customer support and search and download capability for data and imagery. The ACSI baseline score for LANCE was 78, a score which is 10 points above the Federal Government average (68). Dawn Lowe commented that the calculation of final ACSI score is not based on average of all components (which all exceeded 78), but of only a select few questions. Chris Justice asked how this compared with other EOSDIS data centers surveys. Dawn said it is 2 points higher.

2.2.3. NRT data in Reverb

LANCE data is now available in ECHO REVERB. Visual indicators have been added to flag the NRT datasets: NRT or Near Real time is included in the long or short name, and an NRT 'lightning' icon has been added which takes the user to information on the difference between NRT and science quality data.

2.2.4. Worldview – download capability

A number of improvements have been made to Worldview including the functionality to download NRT data as individual granules or in bulk.

2.2.5. Outreach

- Kevin Murphy and Michael Goodman co-chaired a NRT session at AGU comprising 13 oral and 19 poster presentations;
- LANCE presented at the AGU NASA booth;

- LANCE flyers were updated; and
- LANCE contributed 2 book chapters to a "Time Sensitive Remote Sensing" to be published by Springer.

Gary Jedlovic presented the way in which SPoRT (Short-term Prediction Research and Transition Center) uses LANCE data to support various users including the National Weather Forecast Offices (WFOs), NOAA National Centers, the Federal Emergency Management Agency (FEMA), the US Geological Survey (USGS) and others. SpoRT uses a wide range of LANCE products and makes these available to places that have no direct broadcast stations such as Hawaii and Costa Rica as well as through their own WMS.

2.3. Update on AMSR2

Helen Conover informed the group that the AMSR SIPS has recently been approved to process AMSR2 data for LANCE.

- Martha Maiden (NASA HQ) said that this approval is in the spirit of the ROSES solicitation that Chris mentioned earlier in the meeting. NASA is supporting data continuity in the EOS series; AMSR2 is the continuation of AMSR-E and similarly VIIRS is the continuation of MODIS, and OMPS and OMPS Limb the continuation for OMI.
- Helen said AMSR2 has a broader swath width and a higher resolution than AMSR-E. The calibration is different for AMSR2 and algorithms need to be modified. The AMSR SIPS is working closely with the AMSR2 US science teams to get the algorithms ready for LANCE.
- AMSR2 data have been released by JAXA; brightness temperatures were released in January 2013 and the higher level products in May 2013.
- Chris asked about latency of AMSR2 in LANCE. Helen said whatever comes down from the satellite in one downlink JAXA will process to L1A (raw observation counts) and L1B (brightness temperatures. For L1R (spatially resampled brightness temperatures) JAXA wait until there is a full half orbit of data so that would not meet, or barely meet, the LANCE latency. So they will need to see how best to create a NRT version of L1R – either from JAXA or creating something from the L1B.
- For AMSR-E the SIPS used standard algorithms and pulled them in to LANCE processing. For AMSR2 the plan is to try and get the preliminary algorithms before they are integrated in to the SIPS for standard (science) processing.
- Helen estimated it would be at least a year before AMSR2 will be available in LANCE.

2.4. Update on MISR

Diane reminded the group that the action from the UWG in May 2013 was for LANCE to work with the JPL MISR team to look at process, cost and latency and determine whether the latency of the standard products could meet the 5-hour requirement

from the winds community. Pamela Rinsland (ASDC) said good progress had been made and the JPL team were optimistic that the product could be processed with a 3 hour latency if they are able to receive the L0 session-based data from EDOS within 2 hours. Work is ongoing and JPL hope to have a beta product in April/May 2014.

Arlindo da Silva asked whether Level 1B radiance would be included in the NRT MISR products. Pamela was not sure.

Action: Diane to follow up on the request for L1B radiance products

2.5. Updates from LANCE Elements

2.5.1. MODIS – Ed Masouka

Product Enhancements:

- Rolling NDVI. This is now in production on NRT2. Once the product has been tested with those who requested the enhancement, it will move to NRT1.
- Rolling BRDF/Surface Albedo. Crystal Schaaf and her team (at University of Massachusetts Boston) are working to finalize a NRT C6 algorithm. When ready, this will go on to production on NRT2.

NRT processing of Collection 6 (C6)

- C6 processing is underway. Atmosphere products are in process and Land products are going through final testing and reprocessing is expected to start next month.
- Reprocessing is taking place at the rate of about one month per day.
- C6 NRT Land products should start forward processing in June 2014
- Karen Michael asked how long the two would run in parallel for. Ed replied 1 year, until 2015 unless everyone catches on and there is a quick uptake of C6.
- LANCE-MODIS currently processes C5 on nrt1 and nrt2 systems. These two systems cannot run both C5 and C6 and maintain the required latency. To accommodate C6 a separate processing string is planned. Nrt3, will be built with new servers, storage and network switches. Nrt3 components are on order. It is expected they will be configured for C6 PGEs for NRT processing by June 2014.
- The other new string, nrt4, will use a MODAPS processing instance that will be available after the C6 reprocessing ends in December 2014. Nrt4 is expected to be operational in January 2015.

2.5.2. AIRS and MLS – Feng Ding

- The AIRS instrument status is stable with no obvious degrading of microwave channel over the past year.
- AIRS Level2 products are using version 6.
- L1B products are still made using version 5.

- The AIRS team has worked with application users, particularly the Hurricane and Severe Storm Sentinel (HS3) to add improved temperature and relative humidity WMS services. Feng added that they would like to get more feedback about their products from users.

2.5.3. OMI – Phil Durbin

- Instrument status is essentially unchanged over the past year.
- New versions of the retrieval algorithms for Aerosols (OMAERUV) and Clouds (OMCLDRR) have been incorporated in to LANCE.

2.6. Digital Object Identifiers for NRT data

The UWG was asked to consider whether DOIs should be adopted for NRT data. Kevin Murphy (ESDIS) explained that EOSDIS were in the process of assigning DOIs to most products and that input from the UWG would be helpful in deciding whether DOIs should be adopted for NRT datasets. Martha said there was a need to cite NRT data but DOIs might add fuel to those who think nothing should be destroyed. Kevin said they would not be making a permanent archive of the NRT data but added that DOIs maybe useful for the Applied Sciences community and Hazards and Disasters communities.

Action: A short brief should be sent around to the UWG to provide some background information and the pros and cons for adopting DOIs so that this can be discussed at the next UWG Meeting.

2.7. Ongoing Activities

Diane outlined ongoing activities planned for completion in 2014. These include:

- LANCE Chapters in Time Sensitive Remote Sensing Book to be published by Springer
- Add NRT Rolling NDVI: final checks, create metadata
- Analysis of downloaded granules by location with a view to determining if Direct Broadcast could be used to further reduce latencies
- Revisit mapping of LANCE capabilities to GEOSS Societal Benefit Areas
- Plan NRT workshop with other groups
- Continue to work with MISR team to explore NRT options
- Determine level of effort to transition from FTP to HTTPS

There was a suggestion from Chris to have a broader conference, which piggy backs on AGU/EGU (or similar) to bring outsiders on the conversation about NRT data. Martha said that a major objective for such a conference would be to have an inter-data system meeting within NASA to address best practices, lessons learned as there are other NASA NRT capabilities including Ocean Color, Sea Surface Temperature

(SST) and Precipitation.

Jeff Hawkins asked about the ROSES call. Chris said that NRT opportunities are being announced through NASA Roses calls and he hopes there will be proposals with NRT elements.

2.8. Time Frame for Next Meeting

Chris suggested we schedule the next UWG meeting in 5 -6 months.

Action: Send round a poll to check availability