# Aqua and Terra Direct Broadcast Processing at CIMSS/SSEC Using a New Merged Pass System

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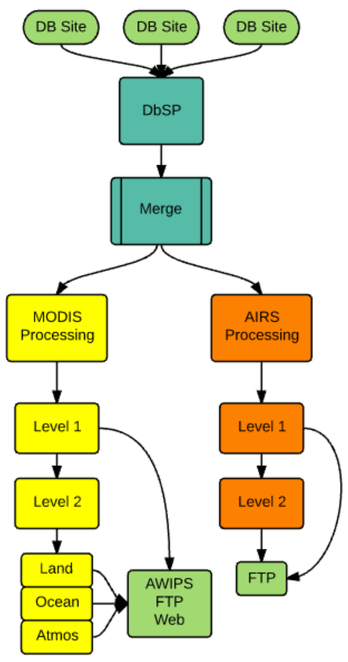
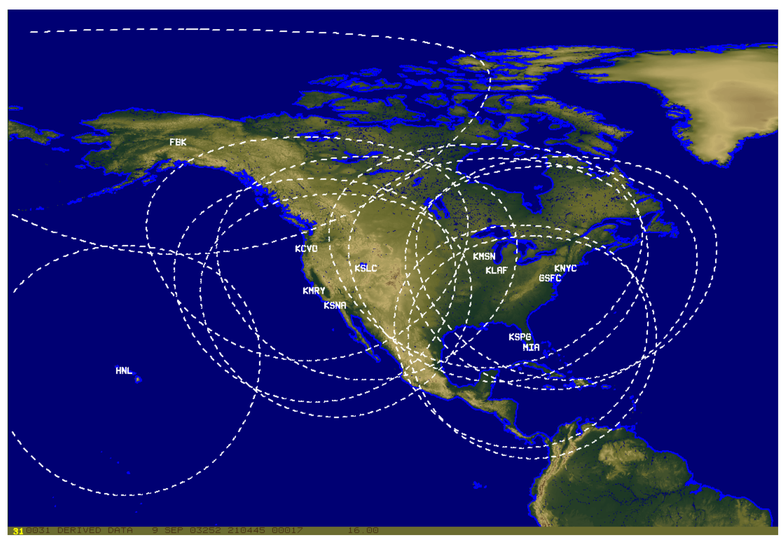
## ABSTRACT

The Direct Broadcast (DB) group at CIMSS/SSEC has been processing MODIS, AIRS, and AMSU data from Aqua and Terra direct broadcast data for over 10 years. A new merged ingest system has recently been implemented, which uses an overpass prediction method to merge collocated Level 0 PDS files ingested from multiple DB sites across the United States. The resulting PDS files have more extensive coverage and higher quality of data, as the majority of dropouts and bad packets are removed. The merged passes are processed into Level 1 and Level 2 products and distributed for use by many operational sites including the National Weather Service (NWS) and NOAA CoastWatch. The True Color Imagery produced is often seen across social media outlets including Facebook, Twitter, and weather-related blogs.

## MERGE PROCESS

The PDS files are ingested from various Direct Broadcast sites and merged together using the ccsdsmerge[1] tool from Dundee University. Level 1 and Level 2 products are created and distributed using the Grid Engine batch-queuing system. The processing creates Level 1 and Level 2 products for MODIS, AIRS, and AMSU using the merged Level 0 PDS files. Level 1 products are created using SeaDAS (MODIS) and IMAPP (AIRS). Level 2 products for MODIS include IMAPP MODIS Level 2 Clouds, Aerosols, Snow/Ice, and Atmospheric Profile Products; SeaDAS Ocean Color and SST Products; Projected Imagery for AWIPS and Google Earth; Direct Readout Fire Detection, NDVI/EVI, LST, and Corrected Reflectance.



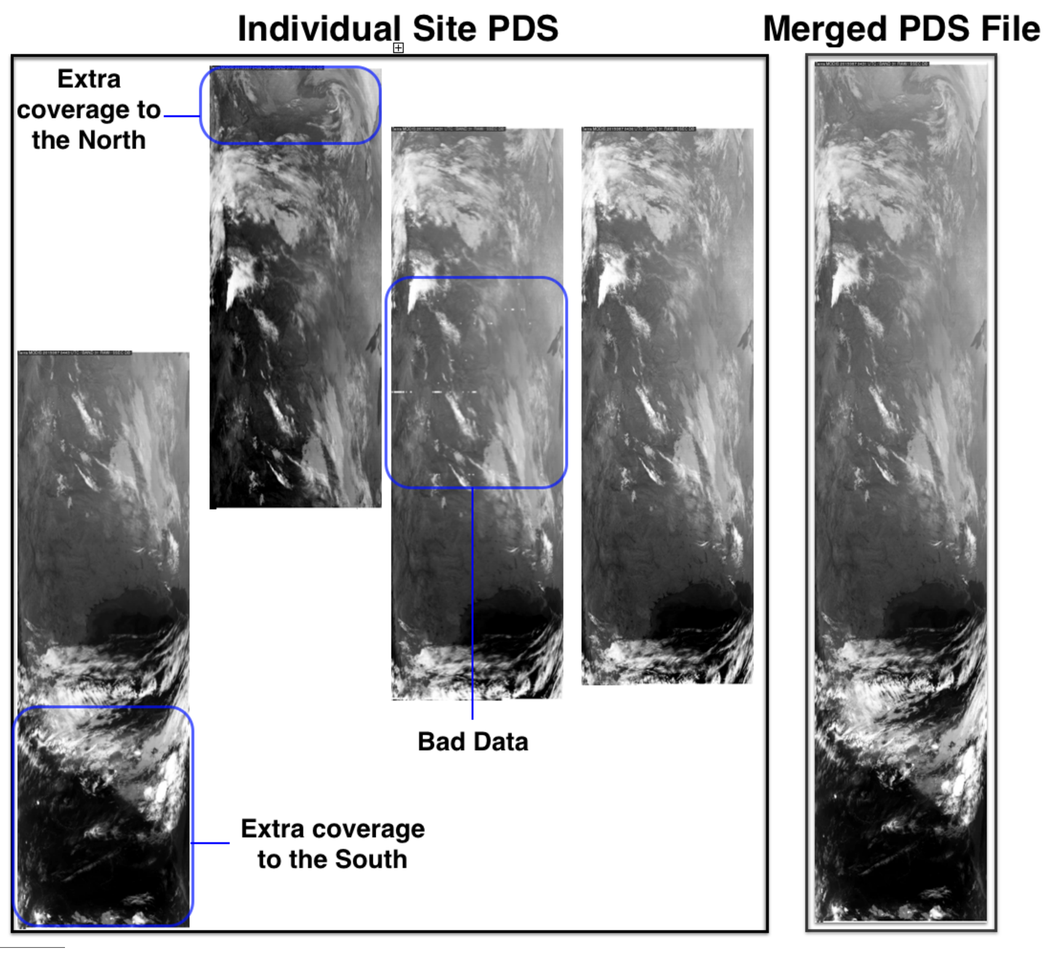

| DB Site | Location |
|---|---|
| Oregon State University | Corvallis, OR |
| Chapman University | Orange, CA |
| City College of New York - CREST | New York, NY |
| GINA* | Fairbanks, AK |
| Atlantic Oceanographic & Meteorology Lab | Miami, FL |
| Naval Research Laboratory | Monterey, CA |
| University of South Florida | Tampa, FL |

| DB Site | Location |
|---|---|
| Space Science and Engineering Center (2) | Madison, WI |
| NASA - Goddard | Greenbelt, MD |
| Purdue University | West Lafayette, IN |
| NWS - Honolulu | Honolulu, HI |
| USDA Forest Service Remote Sensing Applications Center | Salt Lake City, UT |
| University of South Florida | Tampa, FL |

***Future Ingest Site**

## QUALITY CONTROL

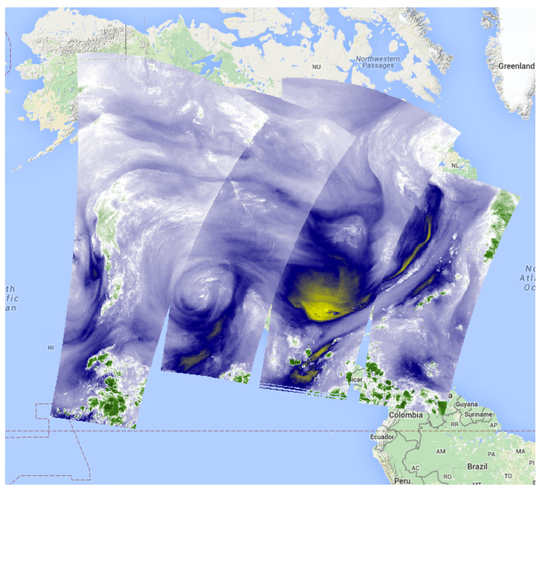
The merging process compares each packet of data across all input files. Bad packets are skipped in favor of good quality data from other input files.

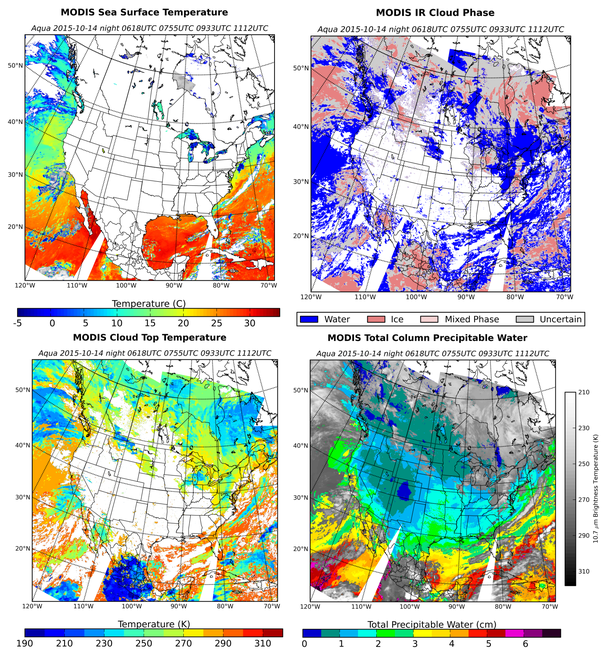



[1] http://www.sat.dundee.ac.uk/~arb/ccsdsmerge/

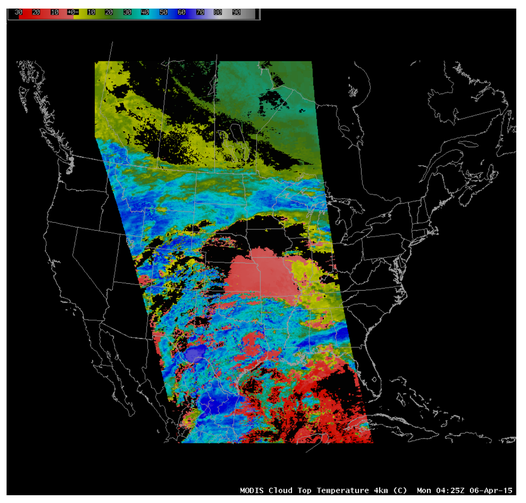
## MODIS OPERATIONAL PRODUCTS

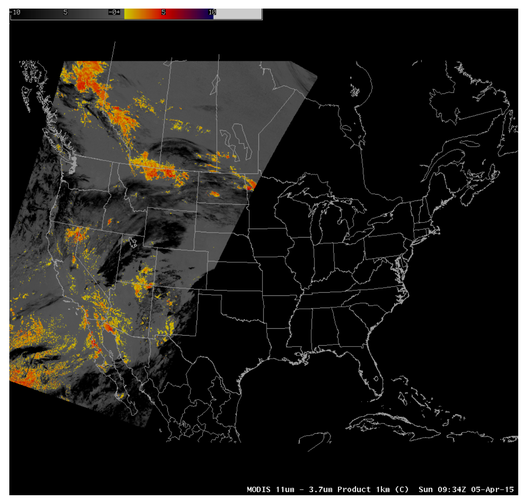
Aqua WV composite displayed within the IMAPP Web Map Server (WMS) and IMAPP quicklook images.



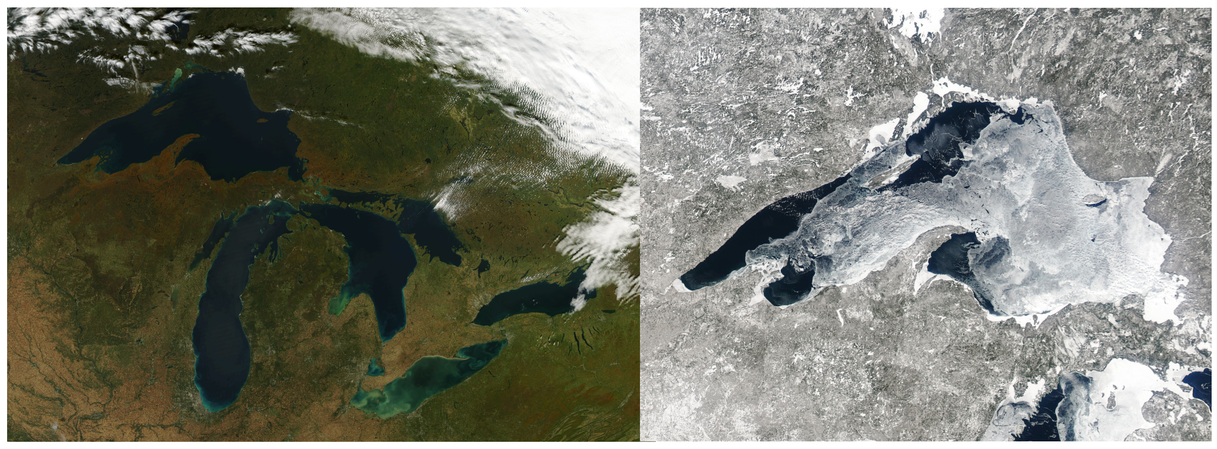




Operational products for the NWS are distributed to AWIPS via the Local Data Manager (LDM) (shown below).




GeoTIFF files used by NOAA CoastWatch are distributed to the SSEC FTP site for pick up along with other data file and imagery for use by the general public.



## SOCIAL MEDIA

MODIS data produced by SSEC is seen across Facebook and Twitter from NWS Forecast offices, scientists, weather bloggers, and the general public.