Cloud Session

Introduction

Andrew Heidinger
NOAA/NESDIS/STAR
Cloud Team Lead
# Cal/Val Team Members

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Cloud Product Enterprise Status

• All algorithms updated in April 2016.

• ASSIST provided multiple days of global output. Report generated.

• Algorithms and ATBD updates delivered to ASSIST on August, 2016 for January 2017 update.

• Updates included
  – ECM
    • includes a thin cirrus flag as requested
    • 3.75 micron test revised and table updated (tbd)
  
  – ACHA updated with improved
    • microphysical model
    • ocean inversion calculation
    • latitudinal variation in cirrus property first guess

• CSPP Leo / CLAVR-x updated with Enterprise algorithms delivered to ASSIST.
  – International user base is growing steadily
The NOAA Enterprise Cloud Algorithms are distributed through UW/SSEC CSPP LEO.

CSPP LEO runs NESDIS CLAVR-x.

Provided good feedback for VIIRS Enterprise cloud products before operational in NDE this fall.

Roughly 50 downloads

Active communication with a Russian Remote Sensing Company that sells services to the Russian Weather Agency.

Goal is to release updates in step with our deliveries to SAPF. (ahead of operations but in-sync with ASSIST)

CSPP LEO supports VIIRS DNB usage. We hope to transition this to SAPF.

Example CSPP LEO CLAVR-x image provided by Russian CSPP customer
Enterprise Cloud Algorithms Compared to Others

- The Enterprise cloud algorithms generated by the ASSIST were included in a recent algorithm intercomparison conducted by the International Cloud Working Group (ICWG).
- Data was for HIMAWARI/AHI but code was EXACTLY the same as delivered to ASSIST in April 2016.
- The cloud height comparisons are shown here.
- The comparison on the right shows each agency’s data compared to NASA/CALIPSO.
- Data labelled NOAA are the Enterprise results.
- Data are stratified into single-thick, single thin and multilayer.
- Enterprise does relatively well in all 3 stratifications.
- ICWG is developing an analogous leo analysis for VIIRS.
• With support from JPSS-RR, the ECM is fully capable of using and benefiting from the VIIRS DNB coupled with the CIRA lunar model.

• The lunar analog of the daytime cloud optical and microphysical properties (DCOMP) is also ready for transition (when time is right).

• VIIRS cloud product rain rate also being developed for use in solar or lunar illumination. Provides a complement to the ATMS precip

• RR also funded the fusion of VIIRS and CrIS to provide MODIS-like IR channels. Algorithms being modified to make use of these data.

• An enhanced Cloud Cover Layers (eCCL) from VIIRS is also being developed to meet the requirements from NWS. Fusion of VIIRS and CrIS also helps this.

• It is time to extend the PATMOS-x AVHRR record onto VIIRS. Reprocessing over limited domains has shown this to be feasible. PATMOS-x VIIRS would expose the existing PATMOS-x AVHRR/GOES community to VIIRS. (not a RR proposal)
Current Issues

• ECM Performance in SAPF lags behind the same code implemented in CLAVR-x.
  – ASSIST has found some potential causes.
  – We hope tuning will solve this.

• ECM and other cloud products show “blockiness” due to lack of smoothing of ancillary data.
  – SAPF has the ability but the impact of smoothed NWP ancillary data on all algorithms is being assessed by ASSIST.

• ECM is still not tuned on SAPF output.
  – ASSIST has provided the ability to dump-out all ECM input from the Framework so that Cloud Team may train against it. Until now, we have had to use CLAVR-x.
  – Running the SAPF over the amount of data needed is still a challenge.

• The gfortran 4.4.7 restriction from OSPO limits the implementation of some known improvements into the SAPF.

• The M5 and M7 calibration errors do limit our ability to meet spec in several products.
Introduction to Cloud Talks

1110 - 1130  Impact of VIIRS Enterprise Cloud Products for NWP  (Heidinger)
1130 - 1150  The Newly Operational VIIRS Cloud Base and CCL  (Noh)
1150 - 1300  Lunch
1350 - 1410  Enterprise Cloud Mask Status (Kopp)
1410 - 1430  JPSS Hydrological Initiative Activities  (Forsythe)