NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service
Center for Satellite Applications and Research

Friday, January 9
11:30 am – 1:30 pm
WWB Room 707

Dial In: 866.541.9958
Passcode: 2531766

Review of AMS Annual Meeting Abstracts

1-slide briefings by STAR Scientists

Come learn about the excellent work being performed at STAR and presented at the AMS Annual Meeting in Phoenix, Arizona

All seminars/presentations can be found at
http://www.orbit.nesdis.noaa.gov/star/seminars.php

Review of AMS Annual Meeting Abstracts

- Tim Schmit et al.
  - Soundings from Current and Future Geostationary Satellites
  - GOES-R Proving Ground Plans for a Weather Event Simulator
- Bomin Sun et al.
  - The Use of COSMIC Data to Identify Radiosonde Type Characteristics and Understand Radiosonde-Satellite Mismatch Impact on Satellite Sounding Validation
- Michael Pettey et al.
  - The Noaa PROducts Validation System (NPROVS) and Environmental Data Graphical Evaluation (EDGE) Interface. Part I: System
- Mathew M. Gunshor et al.
  - Intercalibration Of The World's Geostationary Imagers With High Spectral Resolution Data
- Feng Xu et al.
  - Towards Continuous Error Characterization of Sea Surface Temperature in the Advanced Clear-sky Processor for Oceans
- XingMing Liang et al.
  - Monitoring of IR Clear-sky Radiances over Oceans for SST (MICROS): Near-Real Time, Web-Based Tool for Monitoring CRTM – AVHRR Biases for Improved Cloud Mask and SST Retrievals

Review of AMS Annual Meeting Abstracts

- Prasanjit Dash et al.
  - Web-based global quality control and monitoring of NESDIS AVHRR SST products for long term stability and cross-platform consistency in near real-time
- Kenneth L. Pryor
  - Microburst Windspeed Potential Assessment: Progress and Developments
- Boris Petrenko et al.
  - Cloud Mask and Quality Control for SST within the Advanced Clear Sky Processor for Oceans (ACSPO)
- Robert J. Kuligowski et al.
  - Status update from the GOES-R Hydrology Algorithm Team
  - Improvements to the Self-Calibrating Multivariate Precipitation Retrieval (SCaMPR) for Estimating High-Impact Rainfall Events
- Likun Wang and Changyong Cao
  - Recalibrating HIRS Visible Channel towards Climate Data Records
- Bomin Sun et al.
  - The Use of COSMIC Data to Identify Radiosonde Type Characteristics and Quantify the Impact of Collocation Mismatch on Satellite Sounding Validation

Review of AMS Annual Meeting Abstracts

- Michael Pettey et al.
  - The Noaa PROducts Validation System (NPROVS) and Environmental Data Graphical Evaluation (EDGE) Interface Part I: System
  - The Noaa PROducts Validation System (NPROVS) and Environmental Data Graphical Evaluation (EDGE) Interface Part 2: Science
- Anthony Reale et al.
  - ATOVS derived soundings using Noaa PROduct Validation System (NPROVS) datasets for computing first guess and sensor bias adjustments independent of NWP
- N.Shabanov et al.
  - Prototyping SST Retrievals from GOES-R ABI with MSG SEVIRI Data
- Mark DeMaria and Robert DeMaria
  - Applications of Lightning Observations to Tropical Cyclone Intensity Forecasting
- Don Hillger et al.
  - GOES-R ABI Product Development (Simulated Green and Simulated True-Color Imagery)
- Ralph Ferraro et al.
  - Satellite Precipitation Validation Activities of the IPWG

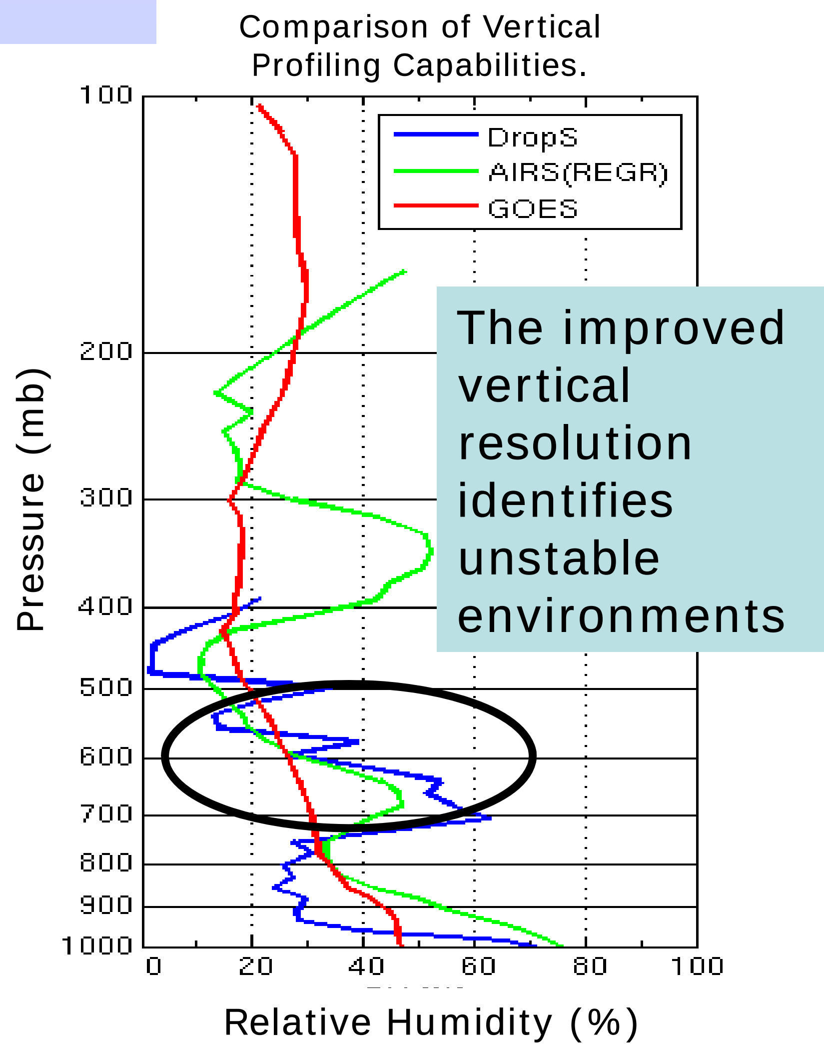
STAR Center for Satellite Applications and Research
formerly ORA — Office of Research and Applications

16th Conference on Satellite Meteorology:

Poster– Soundings from Current and Future Geostationary Satellites

Tim Schmit, Jun Li, James J. Gurka, Jaime Daniels, Mitch Goldberg, W. Paul Menzel

- GOES Sounders have provided hourly IR radiances and derived products for over 14 years.
  - The GOES-10 sounder now also provides hourly coverage over South America.
- Geo hyperspectral IR sounding would better serve user requirements.
  - Studies with aircraft and polar-satellite data have illustrated the usefulness of hyperspectral IR radiances and products.



STAR Center for Satellite Applications and Research
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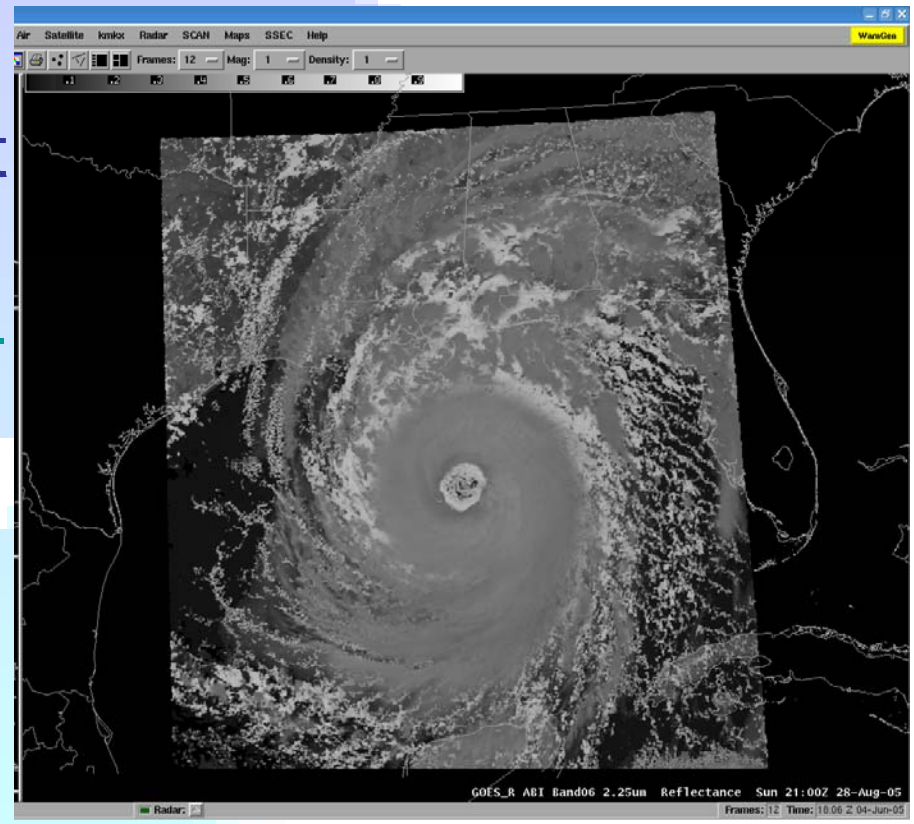
16th Conference on Satellite Meteorology:

Poster– GOES-R Proving Ground Plans for a Weather Event Simulator

Tim Schmit, Justin Sieglaff, Kaba Bah, Jordan Gerth, Jason Otkin, Wayne Feltz, James Gurka

- As part of the Proving Ground, CIMSS will prepare two Weather Event Simulator (WES) cases.
  - Leveraging AWG Proxy data.
- CONUS simulations for a convective outbreak (June 4-5, 2005) and also Hurricane Katrina (August 28, 2005) will be used.
  - Combination of NWP data and advanced radiative transfer models to simulate all ABI bands.



Katrina ABI simulation in AWIPS (ABI band 6 at 2.25 micrometers)

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13th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface

Oral – The Use of COSMIC Data to Identify Radiosonde Type Characteristics and Understand Radiosonde-Satellite Mismatch Impact on Satellite Sounding Validation

Bomin Sun (I.M.Systems Group), Anthony Reale (NOAA/NESDIS/STAR), and Doug Hunt (UCAR COSMIC Office)

- Motivation:
  - To improve the methodology for satellite sounding validation when radiosonde data are used as the "ground-truth"
- Issues:
  - Distance & time mismatch between radiosonde launch and satellite overpass
    ->Optimal window for validation
  - Differences in radiosonde types
    -> Adjust different sonde types into relative agreement
- Results:
  - Radiosonde drift impact
  - Distance & time mismatch impact on validation accuracy
  - Identifying differences among radiosonde types

What is NPROVS ?

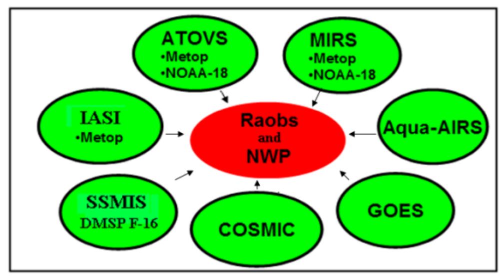
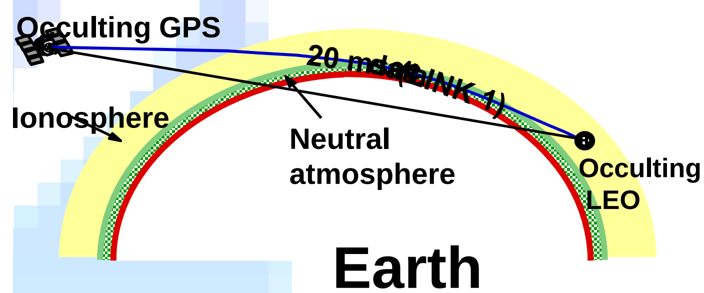
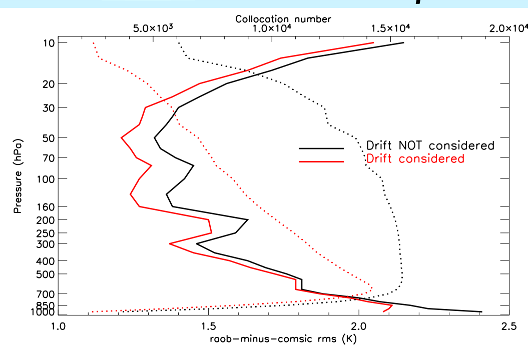


Figure 1: Schematic diagram of satellite (green) and ground truth (red) data platforms currently accessed and collocated within Phase-1 NPROVS

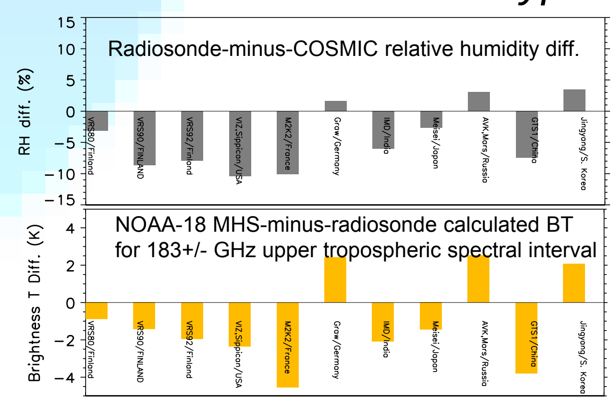
Why is COSMIC data used?



Radiosonde drift impact



Differentiate radiosonde types

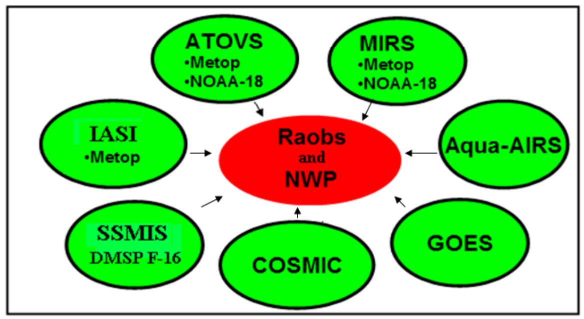


25th Conference on International Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrolog

Oral – The Noaa PROducts Validation System (NPROVS) and Environmental Data Graphical Evaluation (EDGE) Interface. Part I: System

Michael Pettey (I.M.Systems Group), Bomin Sun (I.M.Systems Group), and Anthony Reale (NOAA/NESDIS/STAR)

- Introduction
  - NPROVS
  - EDGE
- Functions of EDGE
  - ProfileDisplay (vertically)
  - EDGEIS (horizontally)



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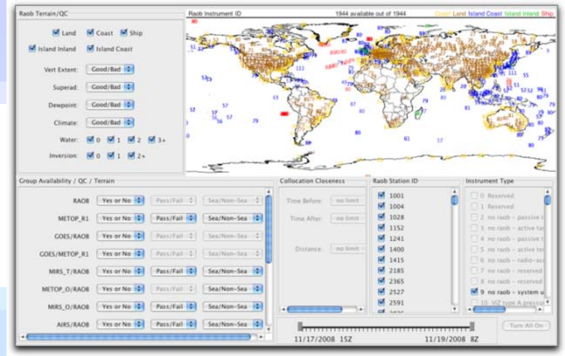

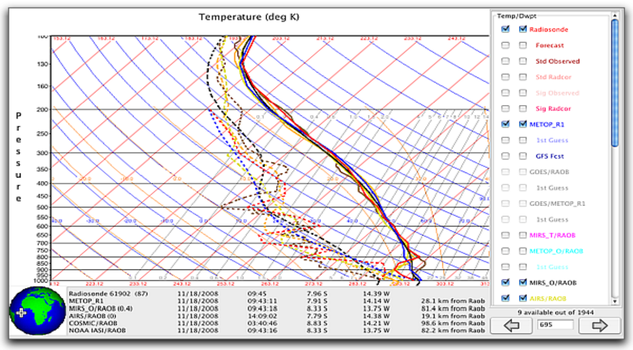

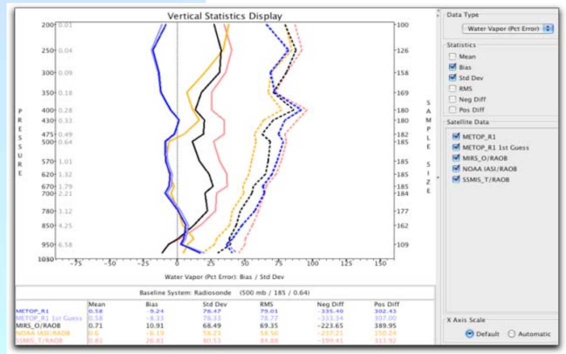

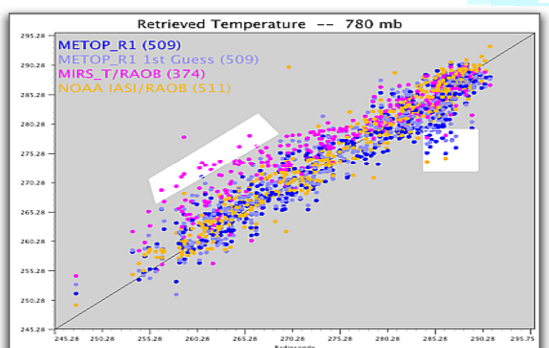

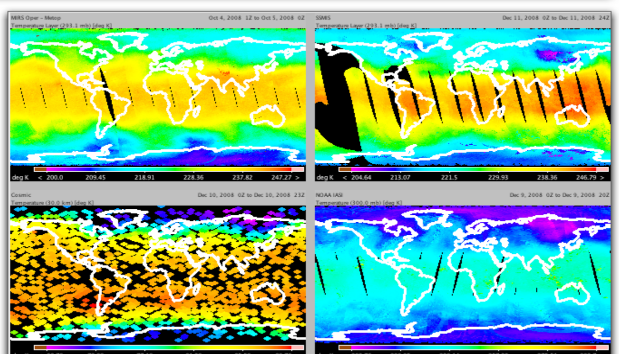

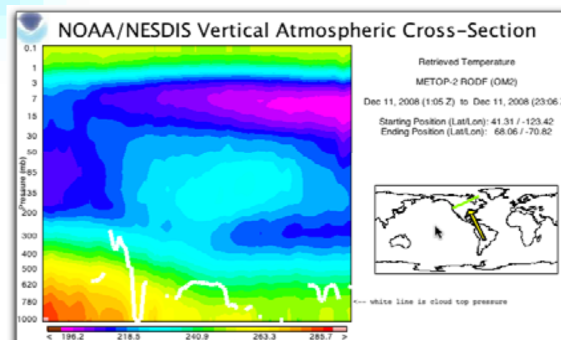

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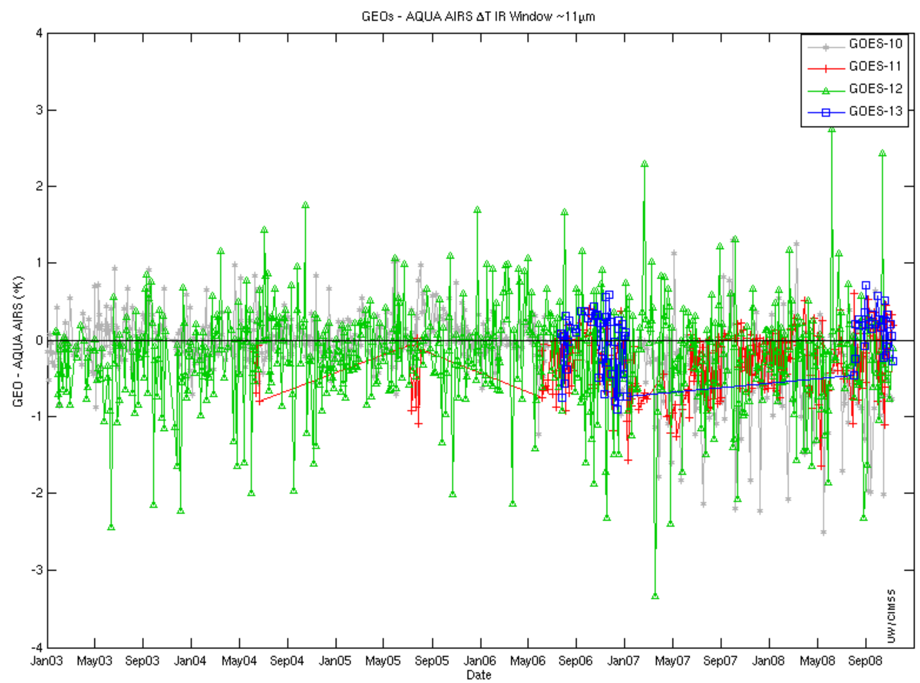
16th Conference on Satellite Meteorology and Oceanography:

Poster– Intercalibration Of The World's Geostationary Imagers With High Spectral Resolution Data

Mathew M. Gunshor, Timothy J. Schmit, David C. Tobin, W. Paul Menzel

- 5+ years of GOES/AIRS Comparisons with a consistent AIRS calibration and consistent algorithm
  - GOES-10, -11, -12, and -13 compared to high-spectral resolution AIRS from 2003-2008
- High-spectral IASI/GOES comparisons begun



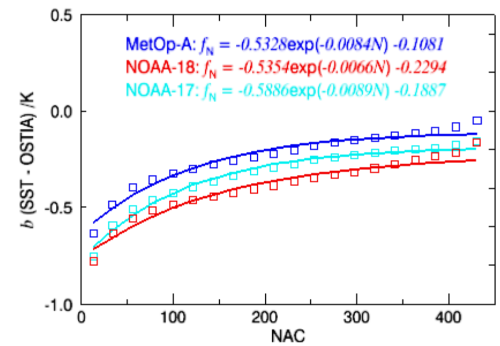
Almost 6-year time series of GOES Imagers compared to AIRS

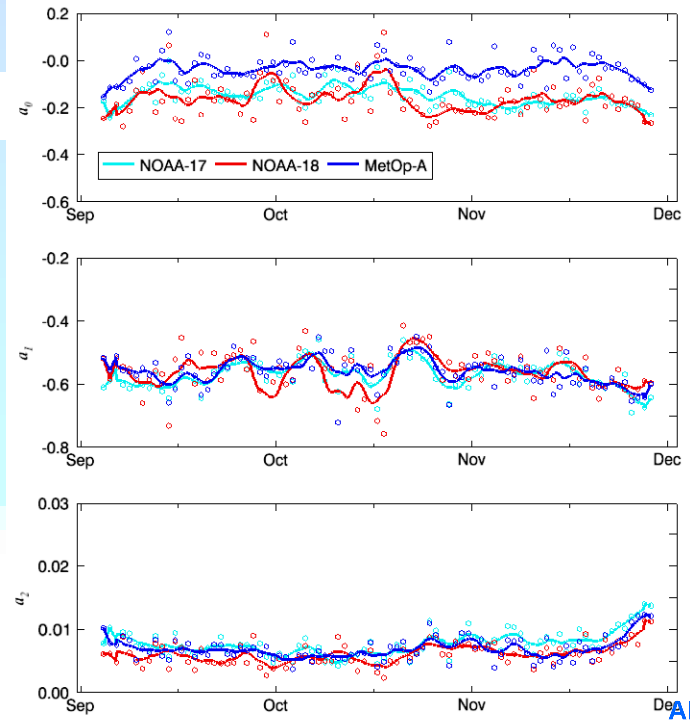
16th Conference on Satellite Meteorology and Oceanography:

Poster –Towards Continuous Error Characterization of Sea Surface Temperature in the Advanced Clear-sky Processor for Oceans

Feng Xu, Alexander Ignatov and Xingming Liang

- Data
  - ACSPO SST
  - Reference: Daily Reynolds and OSTIA
  - Atmospheric Data: NCEP GFS
- Methodology
  - Multidimensional Retrieval Space
  - Binning and Curve fitting
  - Analytical fit function
  - Optimization – iterative reweighting least square
- Analysis
  - Exponential function fit for ‘Bias vs. NAC’ (Number of Ambient Clear-sky Pixel)
  - Time series of fitted parameters
  - Statistical evaluation of bias correction





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16th Conference on Conference on Satellite Meteorology and Oceanography

Monitoring of IR Clear-sky Radiances over Oceans for SST (MICROS): Near-Real Time, Web-Based Tool for Monitoring CRTM – AVHRR Biases for Improved Cloud Mask and SST Retrievals (Poster)

XingMing Liang, Alexander Ignatov, Yury Kihai, Feng Xu

- Introduction

Monitoring of IR Clear-sky Radiances over Oceans for SST (MICROS, www.star.nesdis.noaa.gov/sod/sst/micros/) is a web-based tool used to monitor the Model minus Observation (M-O) biases in clear-sky brightness temperatures (BT) over oceans, produced by the newly developed Advanced Clear-Sky Processor for Oceans (ACSPO). ACSPO generates clear-sky radiances (CSR), sea surface temperature (SST), and aerosol products from NOAA-16,-17, -18 and MetOP-A. The central part of ACSPO is the fast Community Radiative Transfer Model (CRTM), which is used in conjunction with Reynolds SST and Global Forecast System (GFS) upper-air data to simulate clear-sky BTs in AVHRR Ch3B (3.7 µm), 4 (11 µm), and 5 (12 µm).

- Objective
  - Document the MICROS system and discusses effects of three ACSPO versions on the stability of the global M-O bias.
  - Demonstrate the utility of MICROS to monitor satellite radiances over clear-sky global ocean for stability and cross-platform consistency.
- Conclusion
  - The MICROS web-based tool was established to monitor global M-O biases in clear-sky brightness temperatures and SSTs over oceans .
  - From July to December 2008, the nighttime global M-O biases have been fairly stable in all three AVHRR bands on NOAA-17, -18, and MetOp-A.
  - A double-differencing technique is more effective to cross-calibrate different sensors
  - The BTs are consistent to within several hundredths of a degree Kelvin, except for NOAA-18 Ch4.
  - Work is underway to extend MICROS functionality to include monitoring of BTs from MSG/SEVIRI. Data from NPOESS/VIIRS and GOES-R ABI.

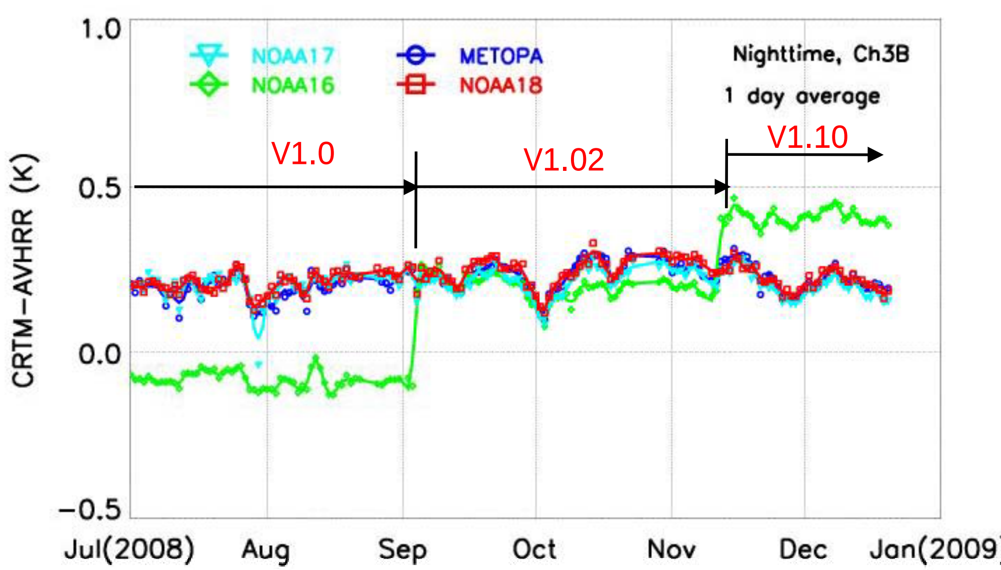

Figure 1. Time series of the global M-O biases in Ch3b for NOAA-16, -17, -18, and MetOp-A from 1 July to 20 December, 2008, showed in MICROS web page.

MICROS is an end-to-end system that processes satellite Level 1B data by ACSPO, performs statistical analyses of BTs and SSTs, and publishes their summaries on the web. MICROS version 2.0 has been implemented in December 2008. It reports global M-O and SST statistics, including histograms, time series, dependencies on main factors, global distributions of these factors, satellite/satellite, and day/night double-differences. Figure 1 shows the ACSPO version upgrades did not significantly affect mean M-O biases, except for NOAA-16 Ch3B. The anomaly of NOAA-16 Ch3B in ACSPO v1.0 has been used in CRTM Team to solve the out-of-band effect of special response function in NOAA-16 Ch3B (Liu et al., 2009).

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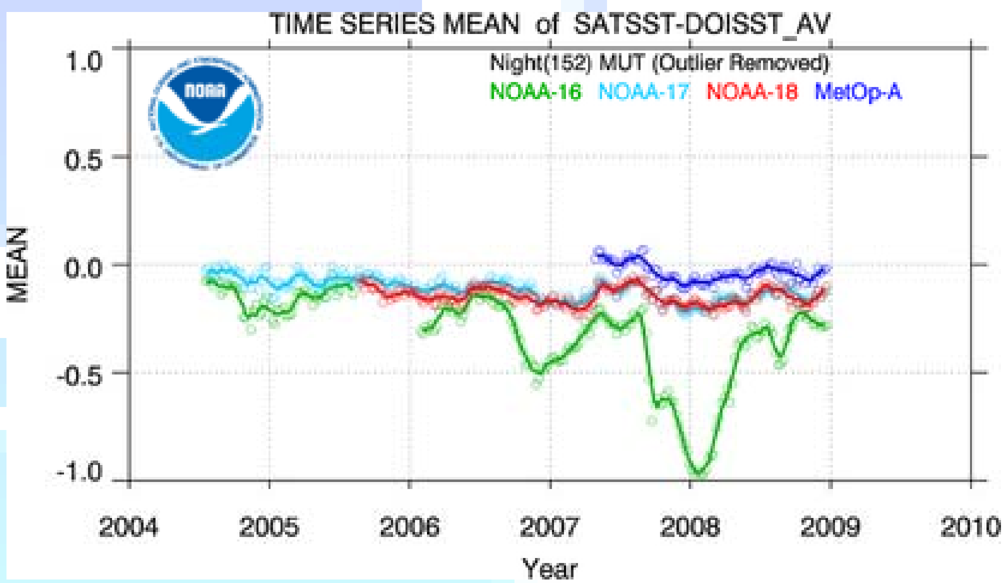
16th Conference on Sat. met. & Ocean: **Operational Products and Transition from Research to Operations**

Poster, TITLE: Web-based global quality control and monitoring of NESDIS AVHRR SST products for long term stability and cross-platform consistency in near real-time (JP81.)

AUTHORS: Prasanjit Dash, Alexander Ignatov, Yury Kihai, John Sapper, XingMing Liang

- Introduction
- SQUAM Concept
- Input dataset
  - Satellite SST
  - Reference SST
- SQUAM Flowchart
- SQUAM diagnostics
  - Time-series analyses
  - Dependency plots
- Conclusions/Future plans



http://www.star.nesdis.noaa.gov/sod/sst/squam/

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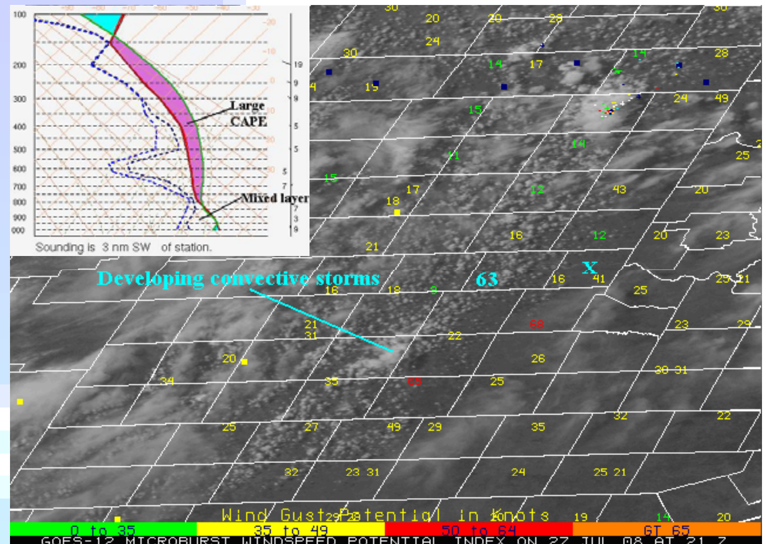
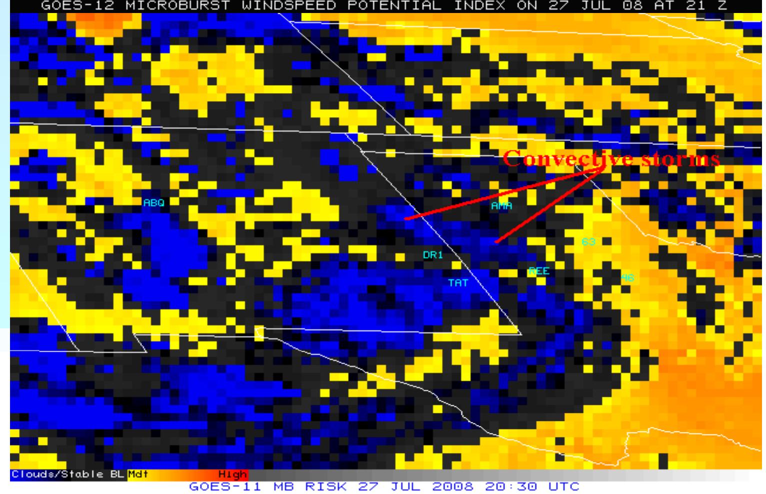
16th Conference on Satellite Meteorology and Oceanography :

Poster – Microburst Windspeed Potential Assessment: Progress and Developments

Kenneth L. Pryor

- GOES-derived diagnostic microburst nowcasting products have been developed and validated:
  - Sounder Microburst Windspeed Potential Index (MWPI)
  - Multispectral GOES imager microburst risk
    - higher spatial (4 km) and temporal (30 minutes) resolution
    - provides microburst risk guidance in high latitude regions where existing sounder coverage is not available.
- Designed to infer attributes of a favorable microburst environment:
  - Convective boundary layer with a steep temperature lapse rate
    - GOES sounding profile
  - low relative humidity in the surface layer
    - GOES-11 split-window channel (12μm) allows for the inference of boundary layer moisture.
- These conditions foster intense convective downdrafts:
  - Evaporational/sublimational cooling as precipitation descends in the sub-cloud layer
  - Resultant generation of negative buoyancy and dowdraft acceleration
    - Microburst is initiated when convective storm downdraft impacts the surface





16th Conference on Satellite Meteorology and Oceanography, 11-15 January 2009, Phoenix, AZ :

STAR Center for Satellite Applications and Research
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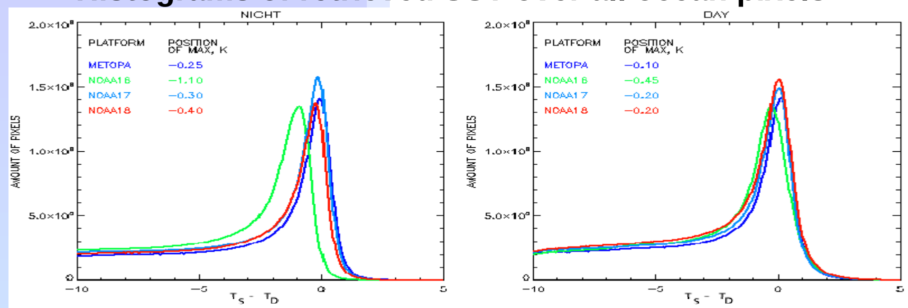
CLOUD MASK AND QUALITY CONTROL FOR SST WITHIN THE ADVANCED CLEAR SKY PROCESSOR FOR OCEANS (ACSPO)

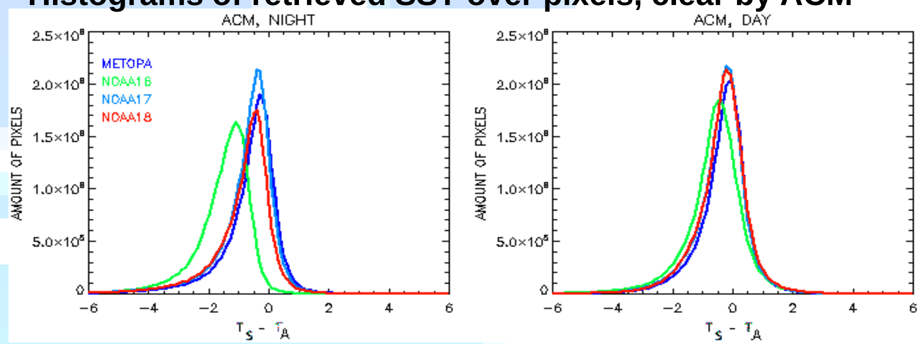
B. Petrenko[1,2], A. Ignatov[1], N.Shabanov[1,2], X. Liang[3], Y. Kihai[1,4], A. Heidinger[5]
[1]NOAA/NESDIS/STAR, [2]IM Systems Group, Inc., [3]CIRA, [4]Perot/QSS Group, Inc.,5NOAA/NESDIS

- Two module structure of ACSPO cloud masking is considered:
  - The ACSPO Cloud Mask module (ACM) produces a robust cloud mask using static thresholds
  - The ACSPO Quality Control module (AQC) does more accurate cloud screening using real-time ancillary information and CRTM simulations
- Cloud tests account for real accuracy of cloud predictors:
  - Global algorithm-induced biases in retrieved SST minus Reynolds Daily SST and in AVHRR BT minus CRTM BT are estimated in real time;
  - The test thresholds are selected from estimated accuracy of reference fields of ocean and atmospheric variables
- Resulting statistics of clear-sky SST anomalies, observed from AVHRR-carrying satellites NOAA-16, NOAA-17, NOAA-18 and MetOp-A are comparable and close to Gaussian, but show different global biases.

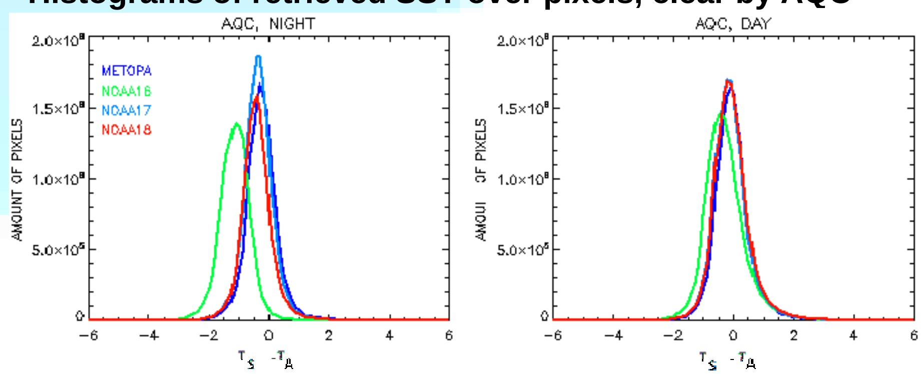
Histograms of retrieved SST over all ocean pixels



Histograms of retrieved SST over pixels, clear by ACM



Histograms of retrieved SST over pixels, clear by AQC

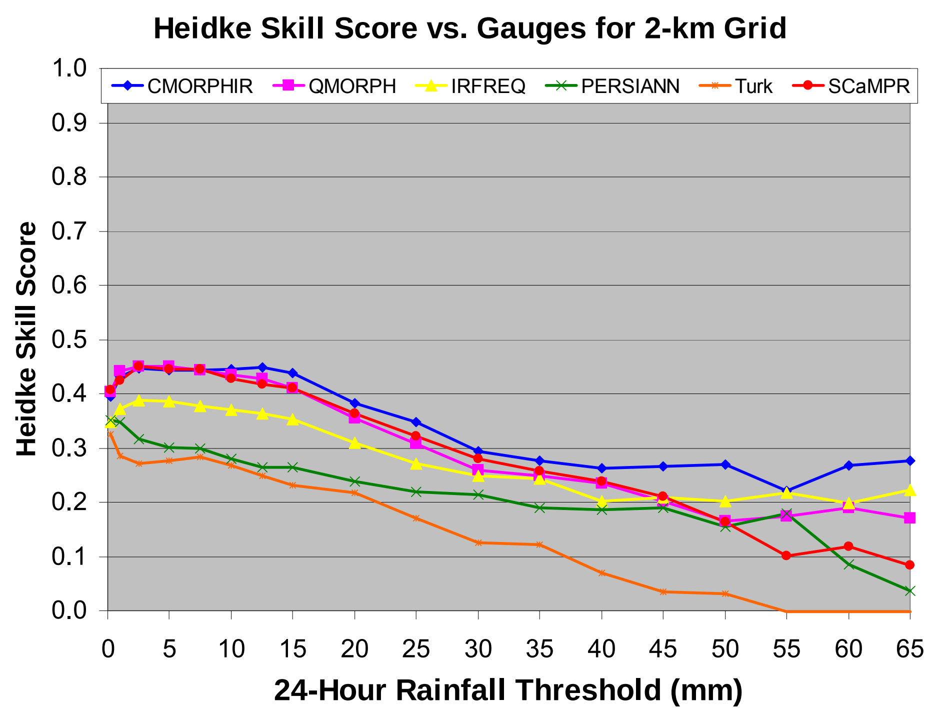


Fifth Annual Symposium on Future National Operational Environmental Satellite Systems NPOESS and GOES-R:

Poster– STATUS UPDATE FROM THE GOES-R HYDROLOGY ALOGRITHM TEAM

Robert J. Kuligowski

- Developing recommended GOES-R algorithms for
  - Probability of Rainfall
  - Rainfall Potential
  - Rainfall Rate
- Evaluated 6 rain rate algorithms and 6 nowcasting for GOES-R selection
  - SEVIRI data used as ABI proxy
  - Test period: January, April, July, October 6-9, 2005
  - SCaMPR selected for rain rate (winner withdrew)
  - K-Means (NSSL) selected for nowcasting



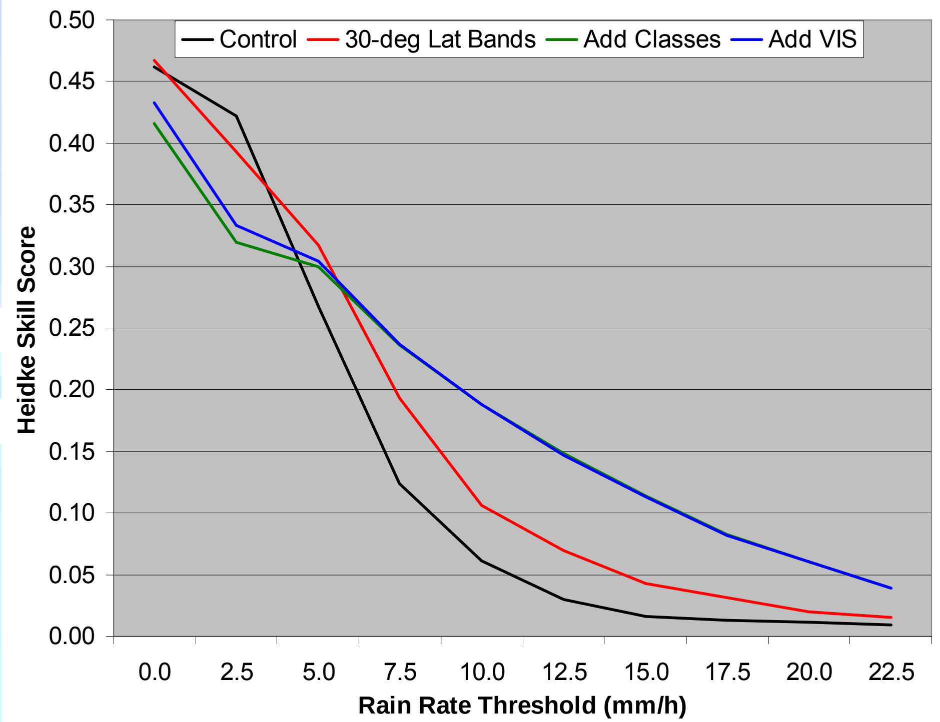
- Source code / documentation currently in preparation

23th Conference on Hydrology:

Oral – IMPROVEMENTS TO THE SELF-CALIBRATING MULTIVARIATE PRECIPITATION RETRIEVAL (SCaMPR) FOR ESTIMATING HIGH-IMPACT RAINFALL EVENTS

Robert J. Kuligowski, Ruiyue Chen, Yaping Li

- SCaMPR: satellite rain rates for real-time flood forecasting
  - IR-based algorithm calibrated against MW rain rates
  - High spatial resolution; rapid refresh; low data latency
  - Run in real time over CONUS since 11/04
- Tested Enhancements
  - Better MW calibration dataset
  - T3-T4 convective classification
  - Adding VIS data
  - Improved calibration regions



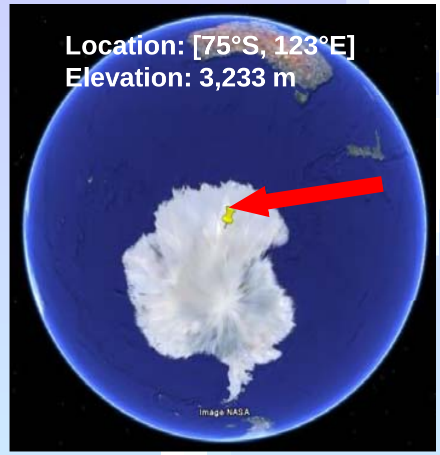
- Real-time implementation in spring

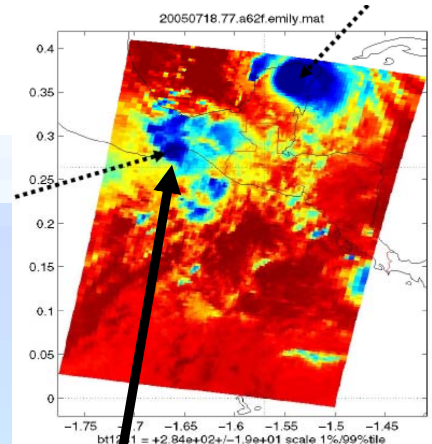
16th Conference on Satellite Meteorology and Oceanography on Climate Studies:

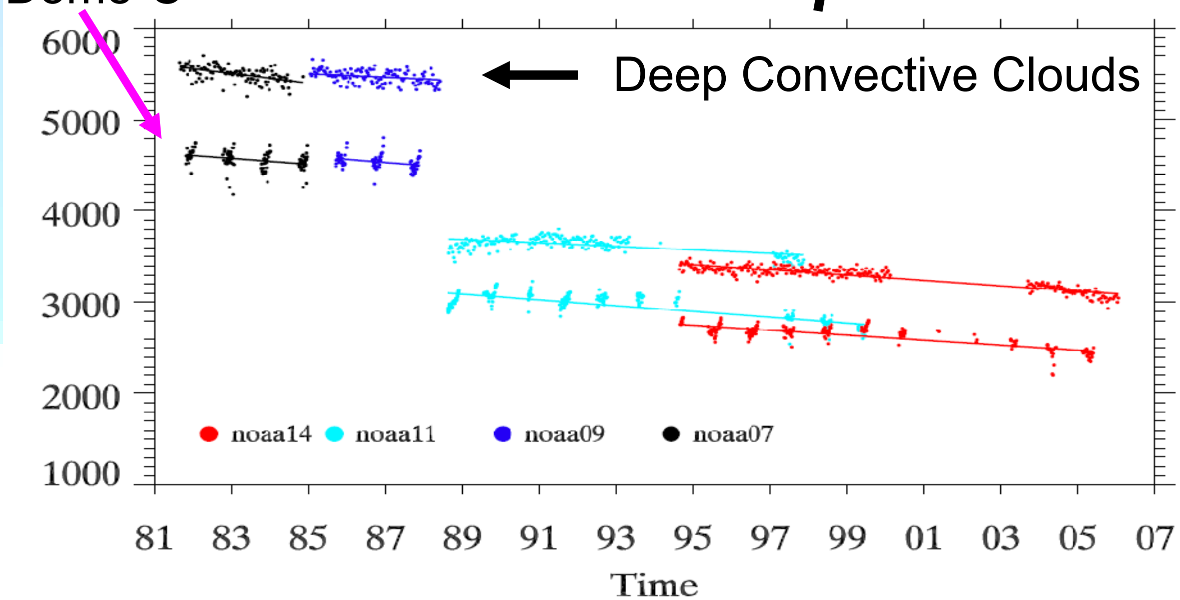
Oral – Recalibrating HIRS Visible Channel towards Climate Data Records

Likun Wang and Changyong Cao

- HIRS
  - 27-year dataset
  - one visible channel
    - 0.69 μm
    - No onboard calibration
- Challenge
  - Instrument degradation
  - Orbit drifting
- Calibration target
  - Deep convective clouds
  - Dome-C







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NOAA

13th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface

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    ->Optimal window for validation
  - Differences in radiosonde types
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- Results:
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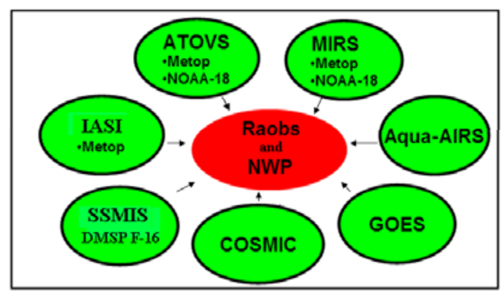

Figure 1: Schematic diagram of satellite (green) and ground truth (red) data platforms currently accessed and collocated within Phase-1 NPROVS

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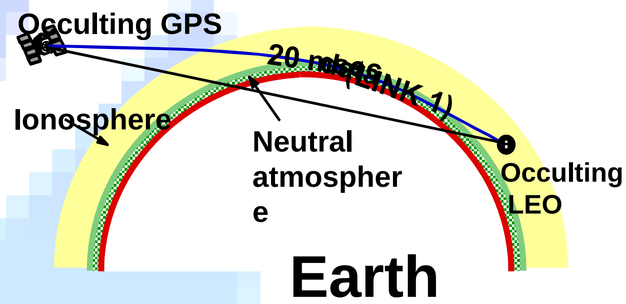
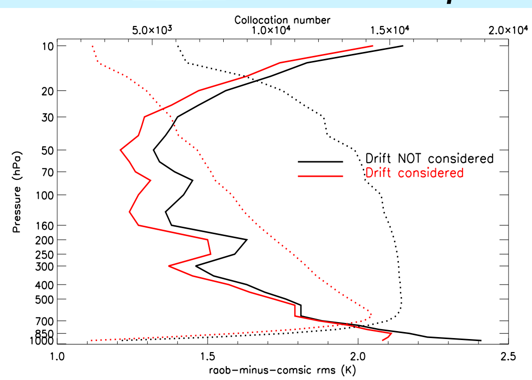
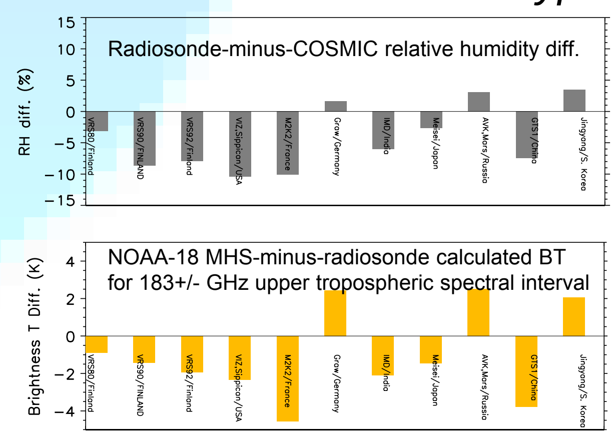


Radiosonde drift impact



Differentiate radiosonde types



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25th Conference on International Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology

Oral – The Noaa PROducts Validation System (NPROVS) and Environmental Data Graphical Evaluation (EDGE) Interface Part I: System

Michael Pettey (I.M.Systems Group), Bomin Sun (I.M.Systems Group), and Anthony Reale (NOAA/NESDIS/STAR)

- Introduction
  - NPROVS
  - EDGE
- Functions of EDGE
  - ProfileDisplay (vertical profile)
  - EDGEIS (orbital field)

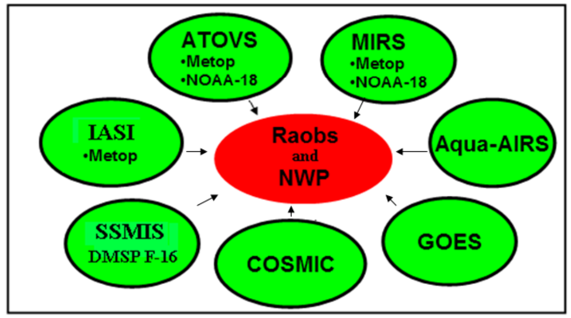
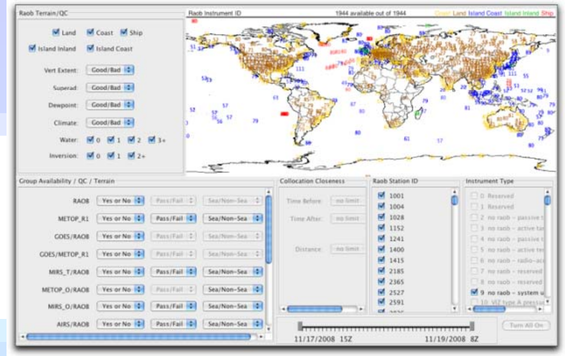
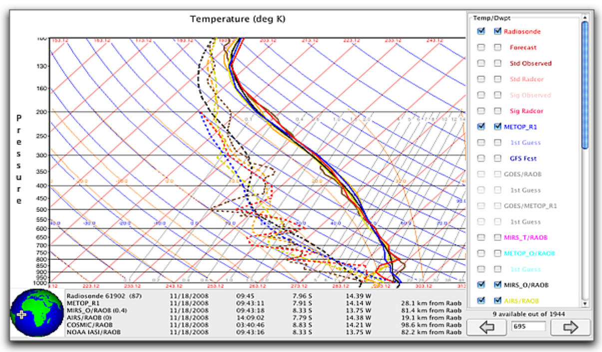
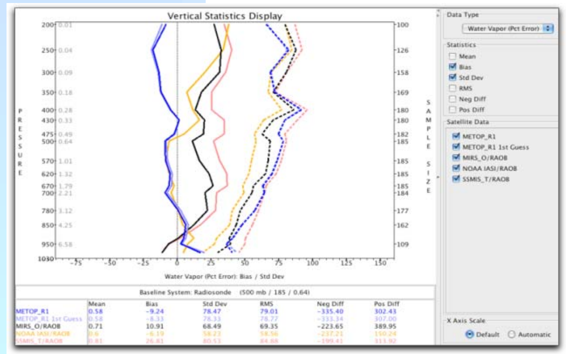
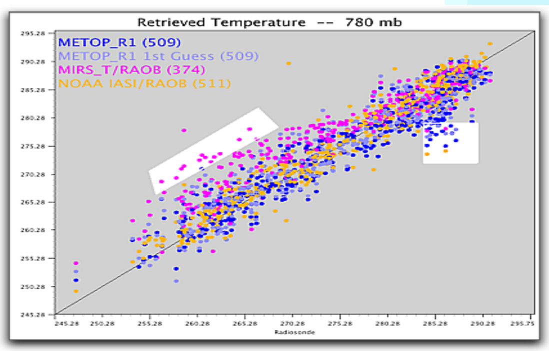


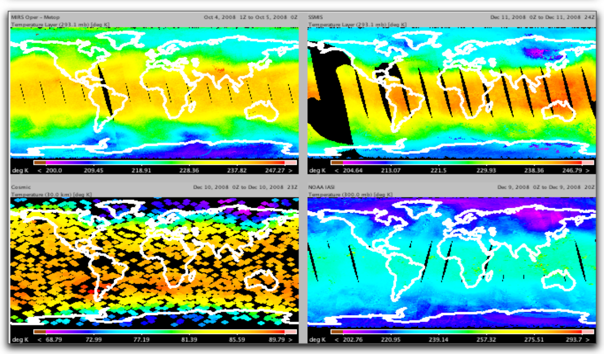
Figure 1: Schematic diagram of satellite (green) and ground truth (red) data platforms currently accessed and collocated within Phase-1 NPROVS

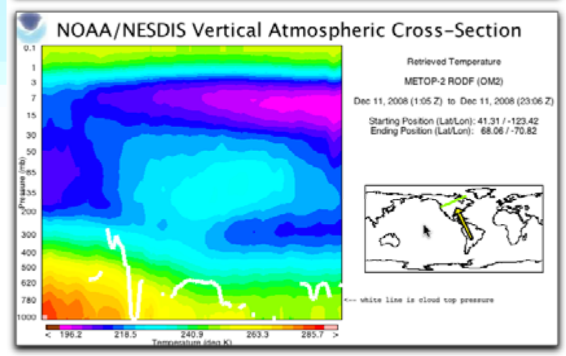












STAR Center for Satellite Applications and Research

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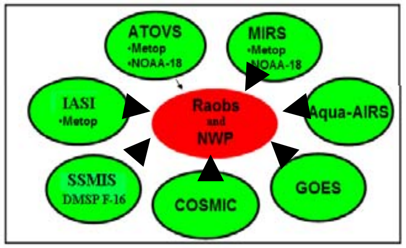
5th Annual Symposium on Future Operational Environmental Satellite Systems-NPOESS and GOES-R,

Poster – The Noaa PROducts Validation System (NPROVS) and Environmental Data Graphical Evaluation (EDGE) Interface Part 2: Science

Michael Pettey (I.M.Systems Group), Bomin Sun (I.M.Systems Group), and Anthony Reale (NOAA/NESDIS/STAR)

Background

The Noaa PROducts (integrated) Validation System (NPROVS) operated by the Office of SaTellite Applications and Research (STAR) provides routine (daily) compilation of collocated radiosonde and derived satellite products (soundings) from a constellation of five (5) environmental satellites and ten (10) independently operated product systems



This work is funded by the NOAA Integrated Program Office (IPO) in support of NPOESS Calibration and Validation of Cris-ATMS Environmental Data Data Records (EDR) (with Chris Barnett, STAR).

Phase-1: develop a centralized consistent capability for compiling a dataset of collocated radiosonde, NWP and current satellite derived weather products from GOES, Polar and GPS satellites

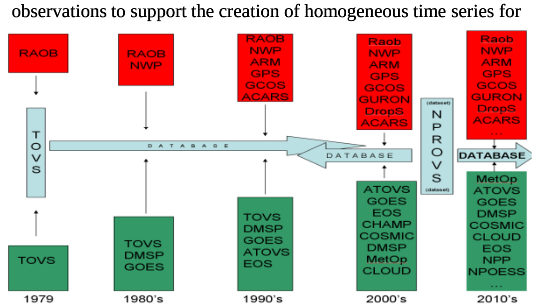
Phase-2: expand to a "relational database" of current radiosondes, ground-truth, NWP, satellite "measurement" and associated EDR's

NOAA STAR also supports the retrospective compilation of an historical "relational database" of collocated radiosonde, ground truth and satellite sensor observations and EDR's beginning with TOVS (1979) with plans to include DMSP, GOES and "other" observations (tbd).

http://www.orbit.nesdis.noaa.gov/smcd/opdb/poes/polarsearch/

The immediate goal is to provide consistent protocols for inter-comparing EDR's from the current suite of satellite and ground truth platforms in preparation for NPOESS

The longer term goal is to link past, present and planned future observations in a continuous historical record of collocated observations to support the creation of homogeneous time series for



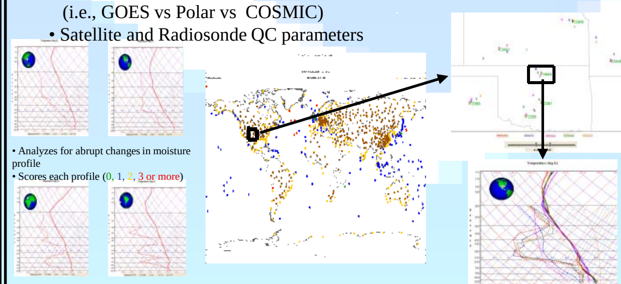
Capability

NPROVS accesses the following Satellites and Sounding Product Systems:

- Advanced TIROS Operational Vertical Sounder **(ATOVS) Operation**
  - •NOAA-18 and MetOp
- Advanced TIROS Operational Vertical Sounder **(ATOVS) R&D**
  - •NOAA-18 and MetOp
- Microwave Integrated Retrieval System **(MIRS) Operation**
  - •NOAA-18, MetOp
  - •Defense Meteorological Satellite Program (DMSP) F-16 (Special Sensor Microwave Imager Sounder (SSMIS))
- Geostationary Operational Environmental Satellite **(GOES) Operation**
- Atmospheric InfraRed Sounder **(AIRS) Experimental/Operation**
  - •NASA-Earth Orbiting Satellite (EOS) Aqua
- Infrared Atmospheric Sounding Interferometer **(IASI) Operation**
  - •MetOp
- Constellation Observing System for Meteorology Ionosphere and Climate **(COSMIC)** (provided by University Corporation for Atmospheric Research (UCAR))

Respective satellite products are collocated with Global Raob (and NWP)

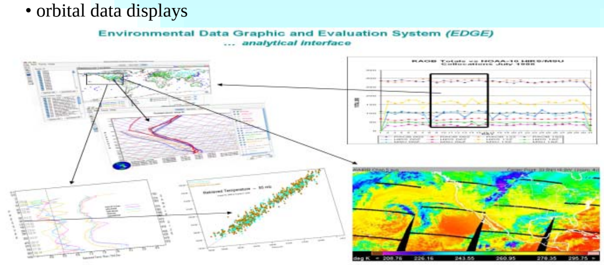
- one collocation per Raob/NWP per satellite
- consistent collocation strategies given spatial and temporal characteristic of satellite (i.e., GOES vs Polar vs COSMIC)
- Satellite and Radiosonde QC parameters



• Analyzes for abrupt changes in moisture profile
• Scores each profile (0, 1, 2, 3 or more)

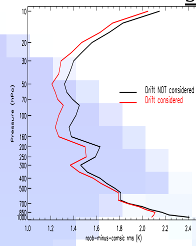
Routine Analysis/Display (Environmental Data and Graphical Evaluation (EDGE))

- geographic display of collocations and raw data
- user interface and sorting options (raob station, type, QC, satellite, time, distance)
- scatter plots and vertical statistics
- orbital data displays

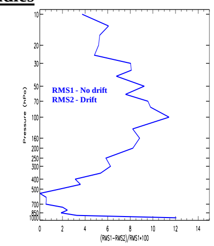


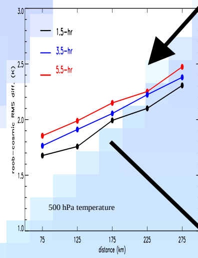
Results using NPROVS Collocation Datasets

Spatial Temporal Sensitivity Studies



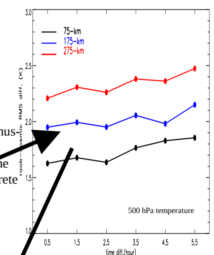
Impacts of compensating for the spatial and temporal drift of radiosondes (up to 100km and 3 hours) and the spatial drift of COSMIC radio-occultation observations (up to 200km) in the validation/comparison of Radiosonde versus COSMIC soundings reduces RMS up to 10%

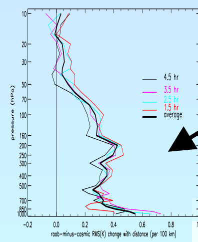




Spatial sensitivity of Raob-minus- COSMIC RMS difference is determined by the slope of the RMS vs. Distance plots for discrete time intervals

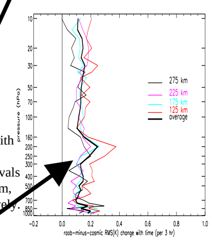
Time sensitivity of Raob-minus-COSMIC RMS difference is determined by the slope of the RMS vs. Time plots for discrete distance intervals





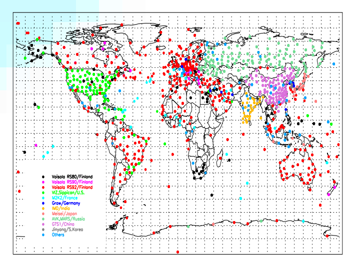
The *"rate"* of RMS change with distance is calculated for discrete Raob-COSMIC time intervals centered about 1.5hr, 2.5hr, 3.5hr and 4.5hr, respectively.

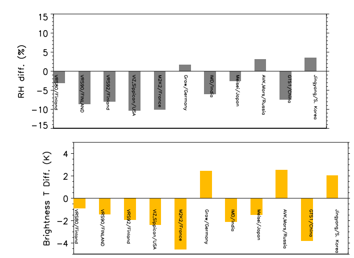
The *"rate"* of RMS change with time is calculated for discrete Raob-COSMIC distance intervals centered about 125 km, 175 km, 225 km and 275 km, respectively.



Based on *"COSMIC/Raob"* comparisons, the RMS difference in tropospheric temperature associated with a 1hr time difference is equivalent to 20km; this number increases with height in the stratosphere; similar studies using satellite observations are planned

Identify Differences in Humidity Measurements Among Radiosonde Types





Biases shown in Raob types (upper right) are basically consistent with published field experiment findings and tend to be consistent with differences between calculated (using RT model) versus observed satellite radiances (bottom right) for Microwave Humidity Sensor (MHS) upper tropospheric channel (3).

Visit us at the NPOESS Booth

STAR Center for Satellite Applications and Research
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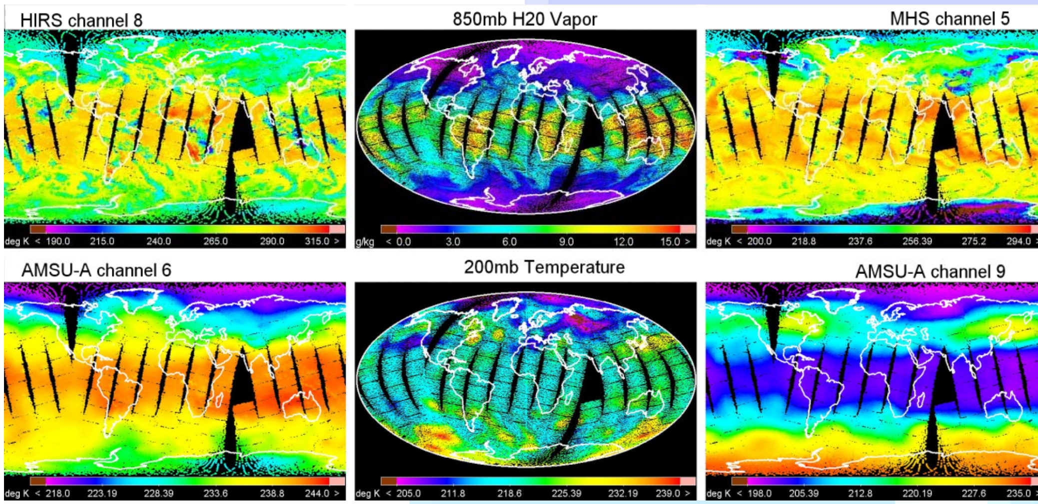
16th Conference on Satellite Meteorology and Oceanography

Oral: ATOVS derived soundings using Noaa PROduct Validation System (NPROVS) datasets for computing first guess and sensor bias adjustments independent of NWP.

Anthony Reale, Sid Boukabara (NOAA/NESDIS/STAR) and Frank Tilley (I.M.Systems Group)



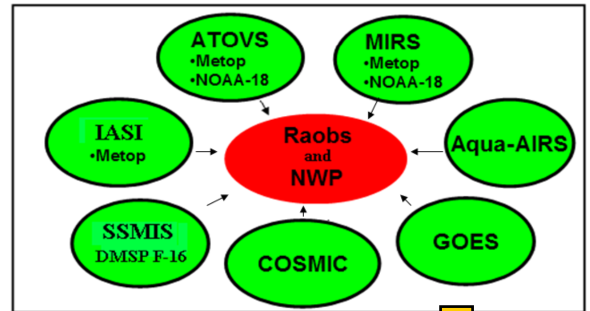
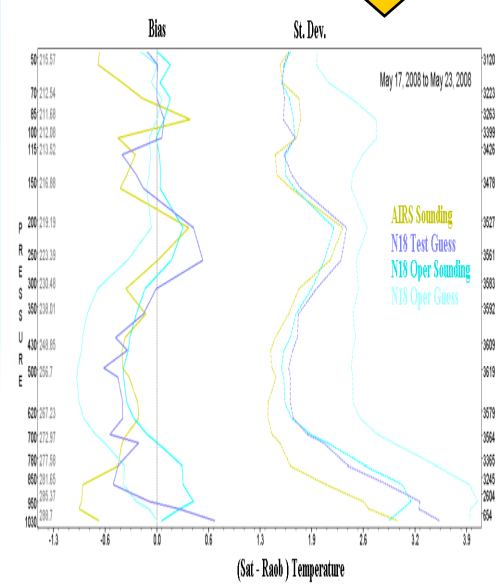
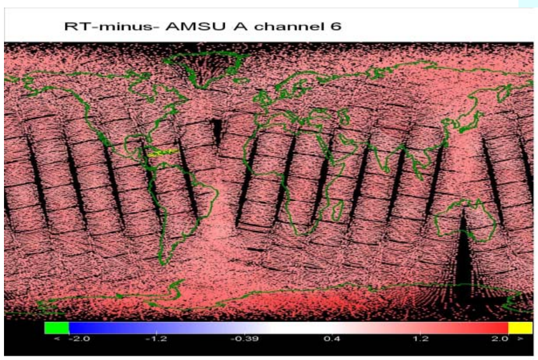


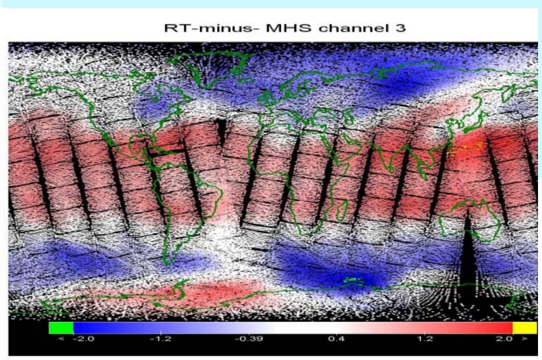
Figure 1: Schematic diagram of satellite (green) and ground truth (red) data platforms currently accessed and collocated within Phase-1 NPROVS



15-channel High-resolution Infrared Radiation Sounder (HIRS)
15-channel Advanced microwave Sounding Unit (AMSU-A)
5-channel Microwave Humidity Sounder (MHS)

Temperature Soundings
H20 vapor Soundings





AMS 2009

STAR Center for Satellite Applications and Research
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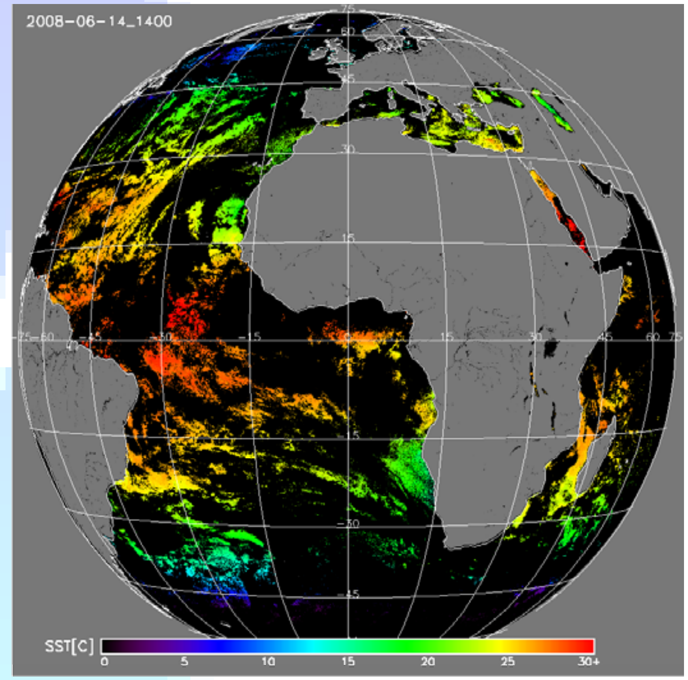
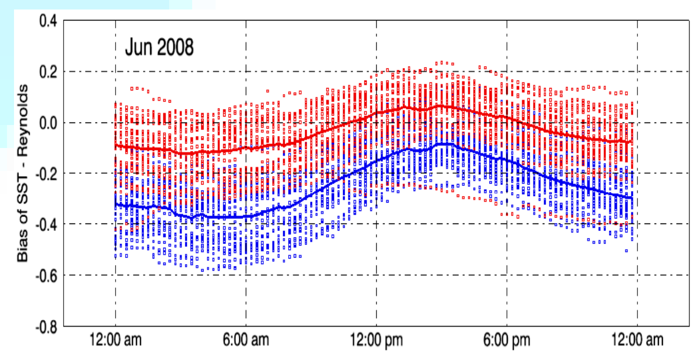
89 AMS Annual Meeting and 5th GOES Users' Conference

Prototyping SST Retrievals from GOES-R ABI with MSG SEVIRI Data

N.Shabanov, A. Ignatov**,** B. Petrenko, Y. Kihai, X. Liang, W. Guo,
F. Xu, P. Dash, M. Goldberg, J. Sapper

- **ACSPO-SEVIRI System is up**
  - Based on Advanced Clear Sky Processor for Ocean system for AVHRR (ACSPO-AVHRR)
  - Generates Suite of Clear Sky products: (1) TOA BT, (2) SST and (3) AOD products
  - Potential to capture and SST diurnal cycle based on geostationary SEVIRI observations
- **End-to-End NRT Processing of SEVIRI SST Product**
  - NRT Downloading from NOAA servers of SEVIRI time series data (15 minute, Full Disk 3712x3712 pix)
  - NRT Processing (7 min/file)
  - Storing Product at the rotational buffer (450 MB/file)
- **Product Analysis with QC Tools**
  - Analysis of the Impact of Environmental Conditions
  - Analysis of consistency of CRTM-simulated and SEVIRI BTs
  - Analysis of retrieved SST with respect to reference fields (OISST, RTG, OSTIA, etc.)



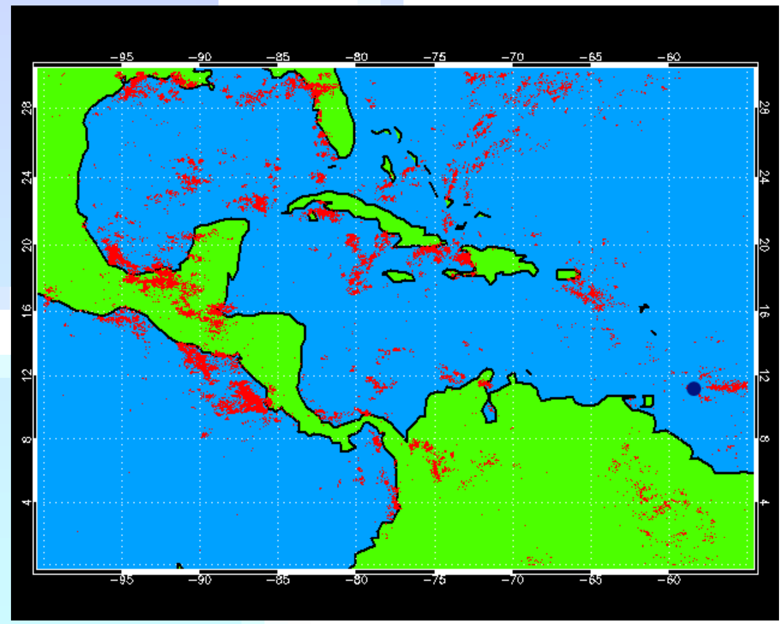


16th Conference on Satellite Meteorology and Oceanography

Oral Presentation – Applications of Lightning Observations to Tropical Cyclone Intensity Forecasting

Mark DeMaria (NESDIS/StAR) and Robert DeMaria (CIRA/CSU)

- Review of previous studies of lightning and TC
  - Relationship to storm structure
    - Inner core vs rainbands
  - Complex relationship with intensity change
- Lightning data sources
  - Current data from LEO and ground based systems
  - GOES-R GLM
- Results from World-Wide Lightning Locator Network
  - Calibration procedure
  - Information content of lightning for intensity prediction in the SHIPS model



Caption: WWLLN Lightning strikes for Hurricane Felix 2007, 12 hr intervals 01-06 Sept

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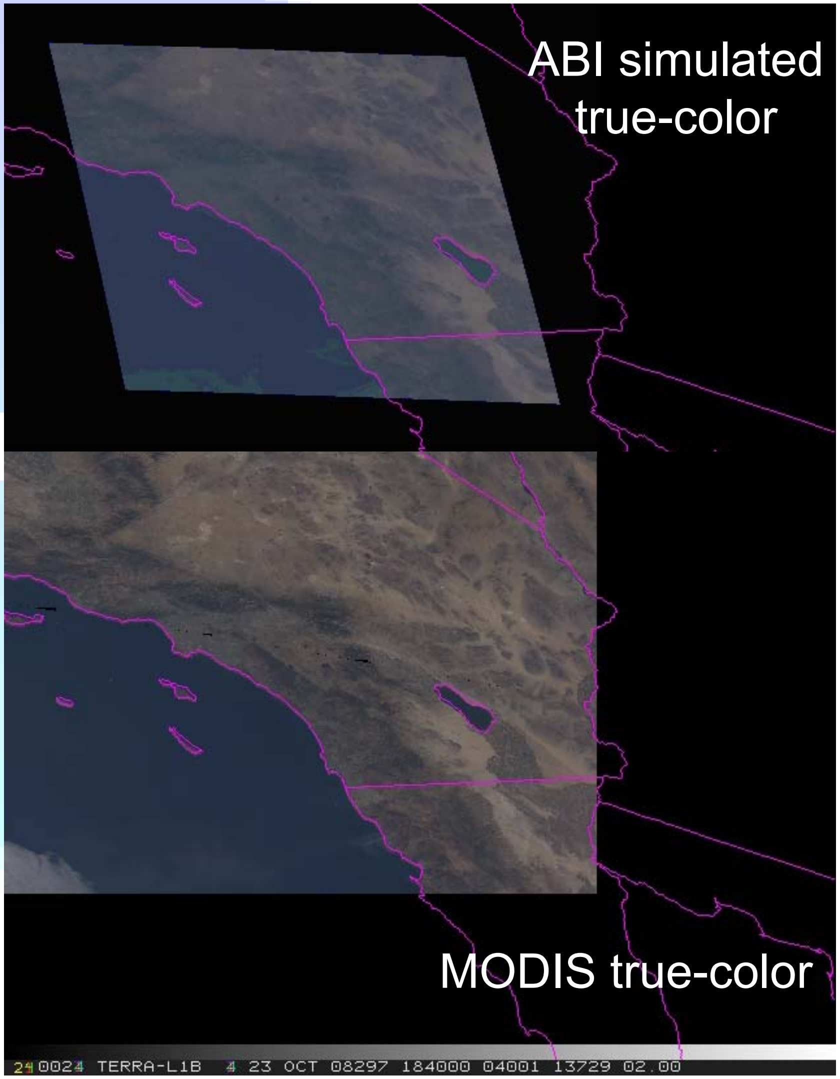
16th Conference on Satellite Meteorology and Oceanography: Joint Poster 2.2 – GOES-R ABI Product Development (Simulated Green and Simulated True-Color Imagery)

Don Hillger, Louie Grasso, Manajit Sengupta, Steve Miller, Renate Brummer, and Mark DeMaria

- Use forward-model-simulated ABI reflected-band imagery to generate true-color images, starting with surface albedos derived from MODIS.
- ABI band-2 (red) + band-3 (near-IR) + band-1 (blue) → band-X (simulated-green), using training based on MODIS.
- ABI band-2 (red) + band-X (simulated-green) + band-1 (blue) → simulated true-color.
- Compare ABI simulated true-color to MODIS true-color and to MODIS simulated true-color.
- Preliminary results indicate the need for refinement of the simulated reflectances to balance the colors.
- Plan to use simulated true-color imagery for detection of smoke, dust, and volcanic ash.



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23rd Conference on Hydrology:

Oral – Satellite Precipitation Validation Activities of the IPWG

R. Ferraro, C. Kidd, **J. Turk**, P. Arkin

- IPWG=International Precipitation Working Group
  - Formed in 2001
  - Bi-annual + specialty meetings
  - Over 20 nations participate
- International Validation Sites
  - Daily, 0.25 rainfall estimates
  - “Standardized” validation template
  - Findings:
    - There is a clear seasonal dependence of satellite product performance (poorer in winter)
    - Satellite products underestimate rain area/extent
    - Significant day-to-day variations
- PEHRPP(12/07 workshop @ Geneva)
  - 3-hr, 0.25 estimates from blended satellite, satellite/gauge, NWP
  - Findings/Recommendations:
    - Several high resolution precipitation products exhibit useful skill, but clear superiority for one is not yet evident
    - IPWG should establish a continuing effort to conduct, facilitate and coordinate validation and evaluation of such products
    - A concerted validation/intercomparison campaign, covering multiple climatic regimes and seasons, should be designed and conducted