



GSICS Research Working Group

Chair's Report

X. Wu, Feb. 19, 2008

- ❖ Achievements
- ❖ Challenges & Opportunities
- ❖ Action Review
- ❖ Plan Ahead



Publicity

- ❖ IGARSS, Jul 07, Barcelona, Spain
- ❖ SPIE, Aug 07, San Diego, California
- ❖ Calibration Conference, Sep 07, Logan, Utah
- ❖ EUMETSAT/AMS Conference, Sep 07, Amsterdam, The Netherlands
- ❖ AMS/GOES-R Conference, Jan 08, New Orleans, Louisiana
- ❖ Many other meetings – CGMS, CEOS, ...



Algorithm

- ❖ Version 1.0, delivered and implemented at **NESDIS**
Oct 07
 - Version 1.1, Dec 07
 - Version 1.2, Jan 08
- ❖ Adapted and implemented at **JMA** Nov 07
 - Improved modularization
 - Basis for Version 2
- ❖ Parallel development and implementation at **EUMETSAT**
- ❖ Draft Algorithm Theoretical Basis Document (**ATBD**) Feb 08



Impact – EUMETSAT

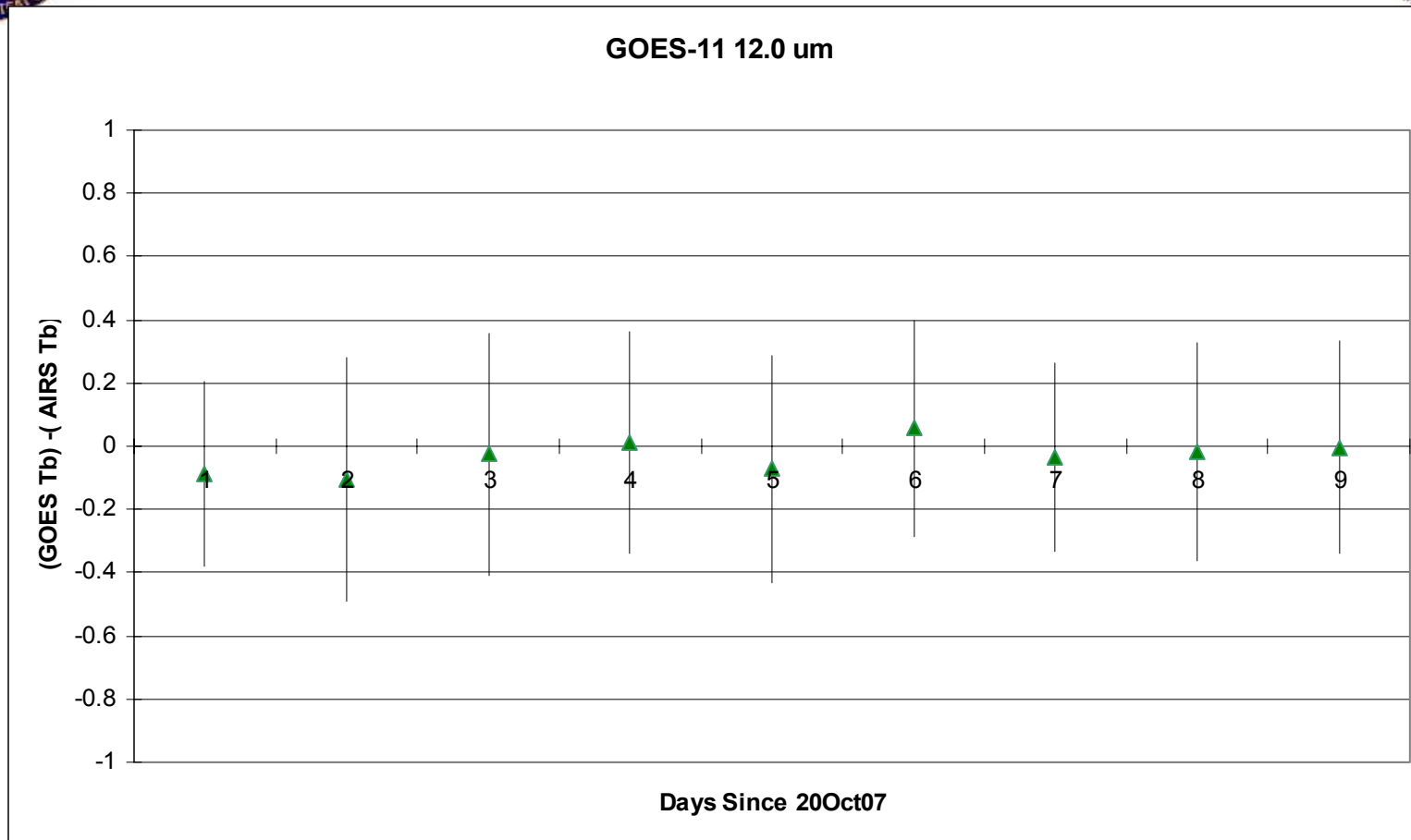
Ch (μm)	Clear-sky Ref Scene T_{bref} (K)	Mean Bias MSG2-IASI at T_{bref} (K)	Standard Deviation (K)
3.9 [¶]	290	0.17 [¶] ~0	0.10
6.2	240	0.61	0.05
7.3	260	0.25	0.04
8.7	290	0.02	0.04
9.7	270	0.00	0.07
10.8	290	0.03	0.06
12.0	290	0.05	0.06
13.4	270	-1.63	0.26

M. König &
T. Hewison

Truly impressive accuracy and precision



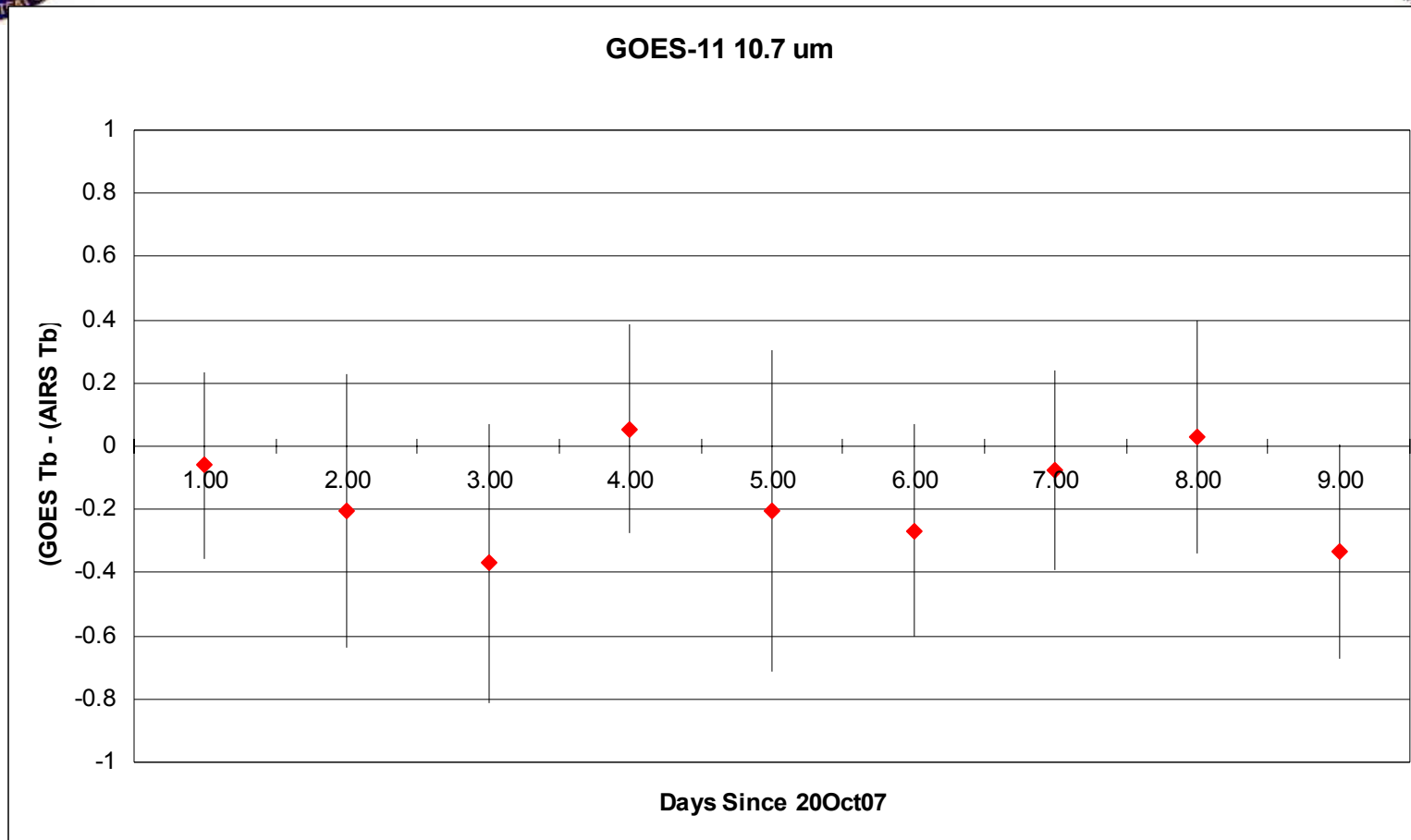
Impact – NESDIS



Bias -0.03°K



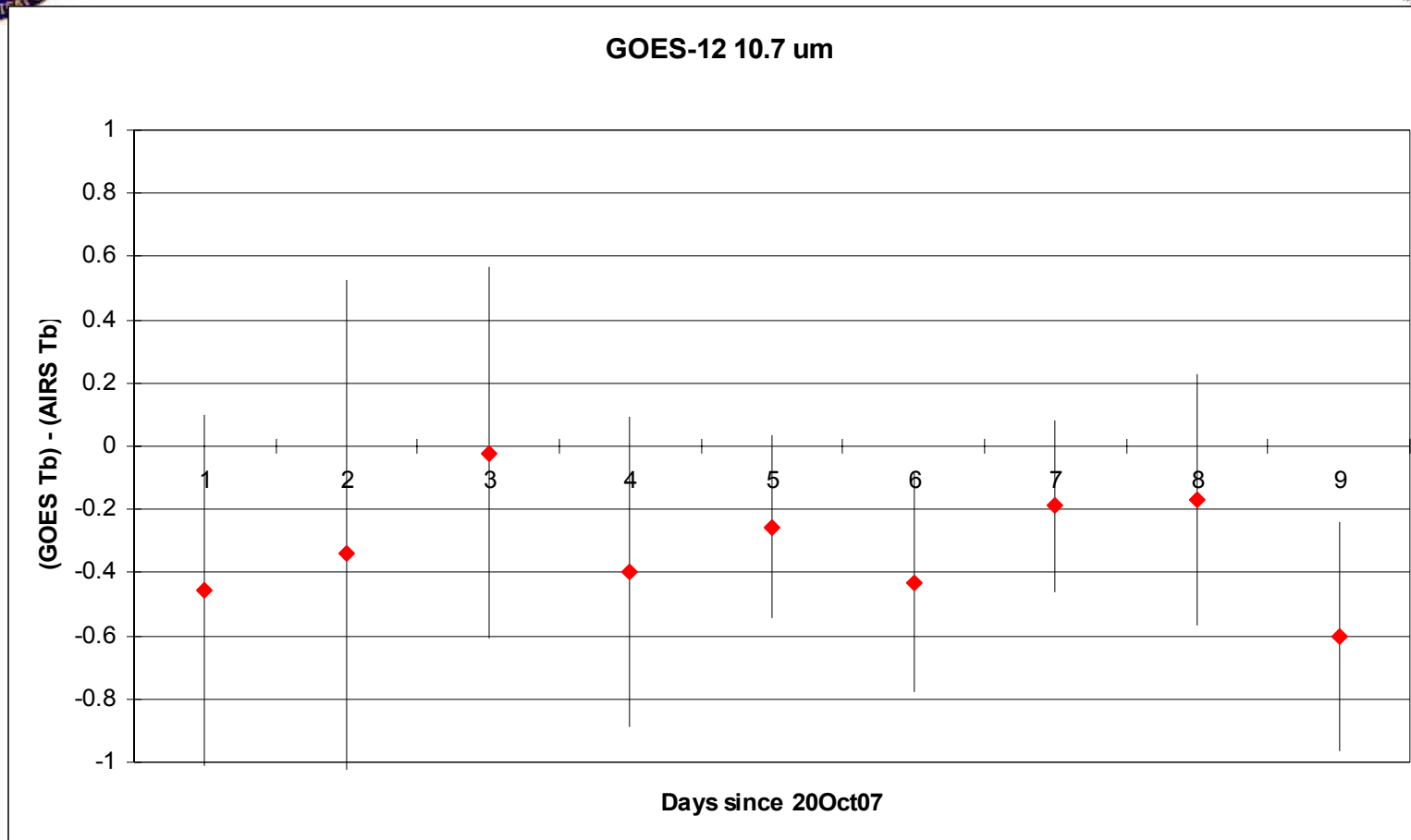
Impact – NESDIS



Bias -0.16°K



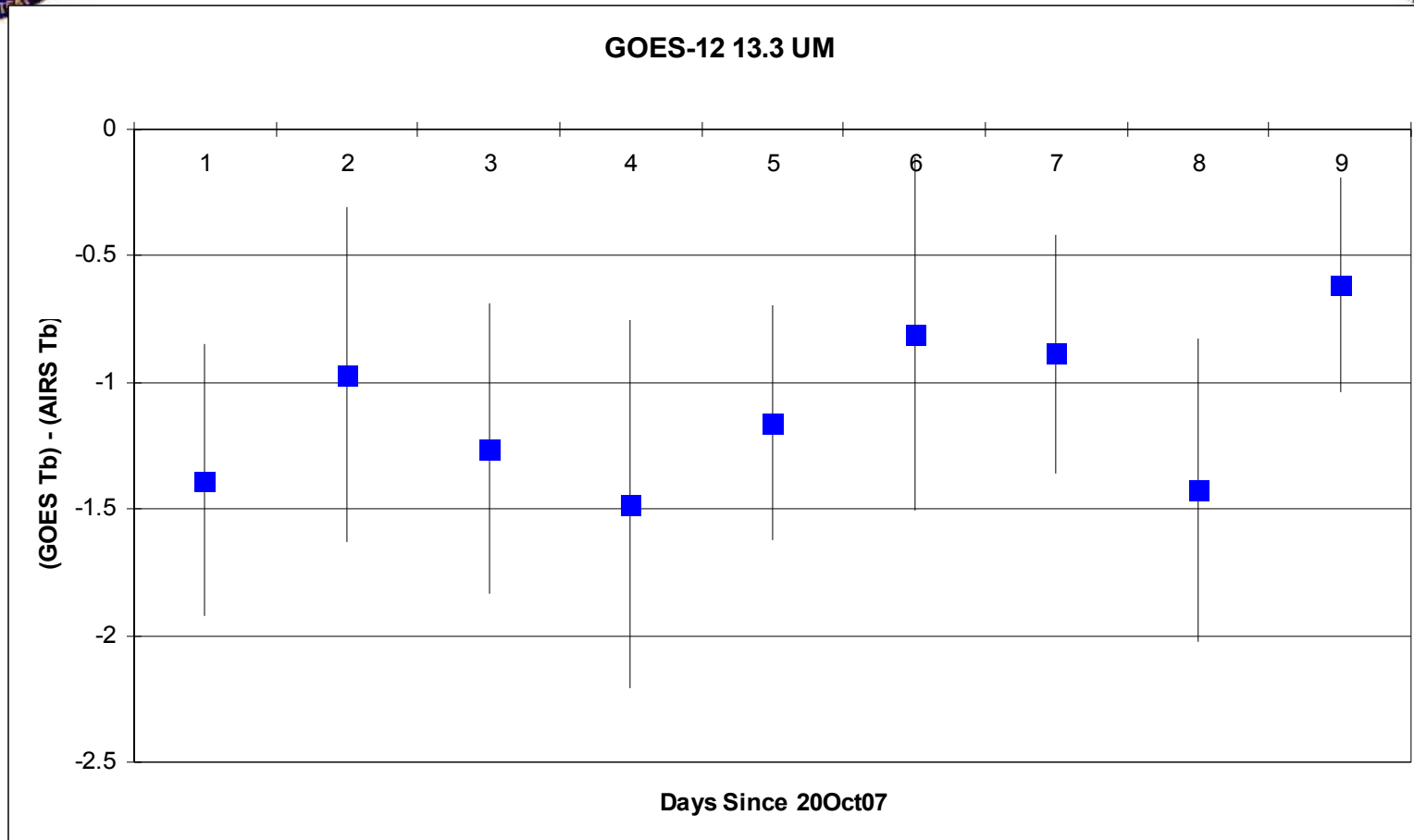
Impact – NESDIS



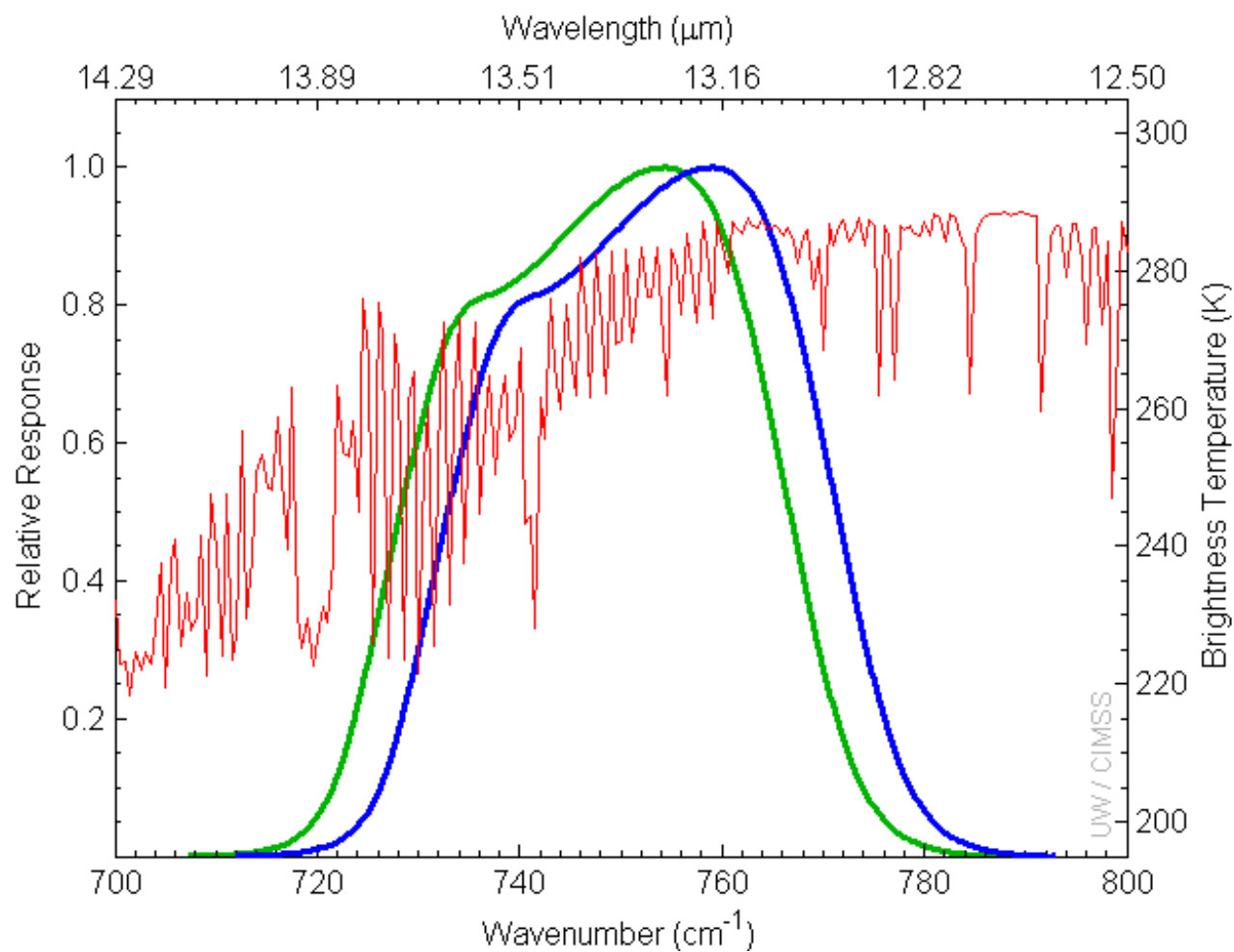
Bias -0.32°K



Impact – NESDIS



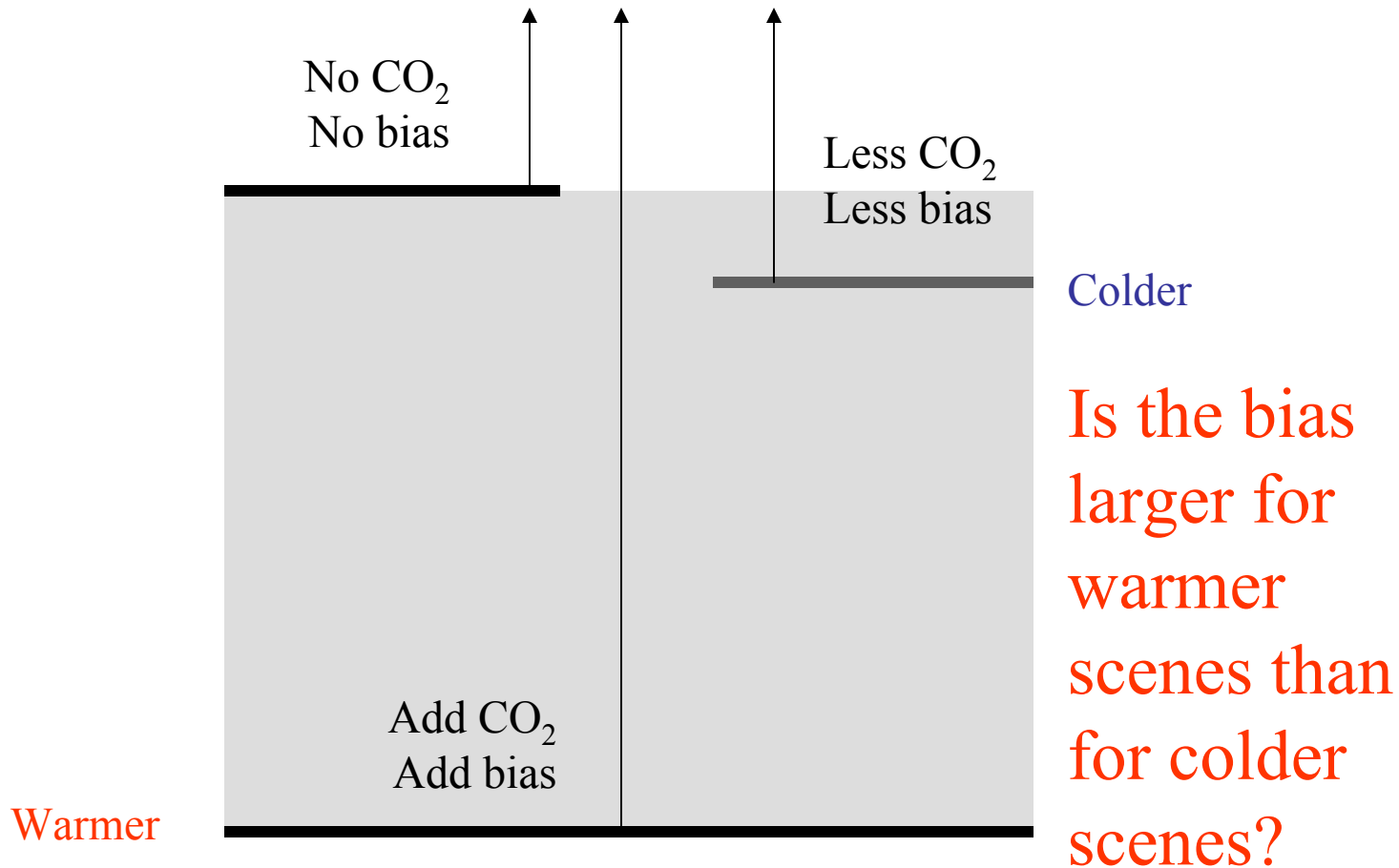
Bias -1.11K



Schmit and Gunshor: Spectral shift is effective. Is it justified?

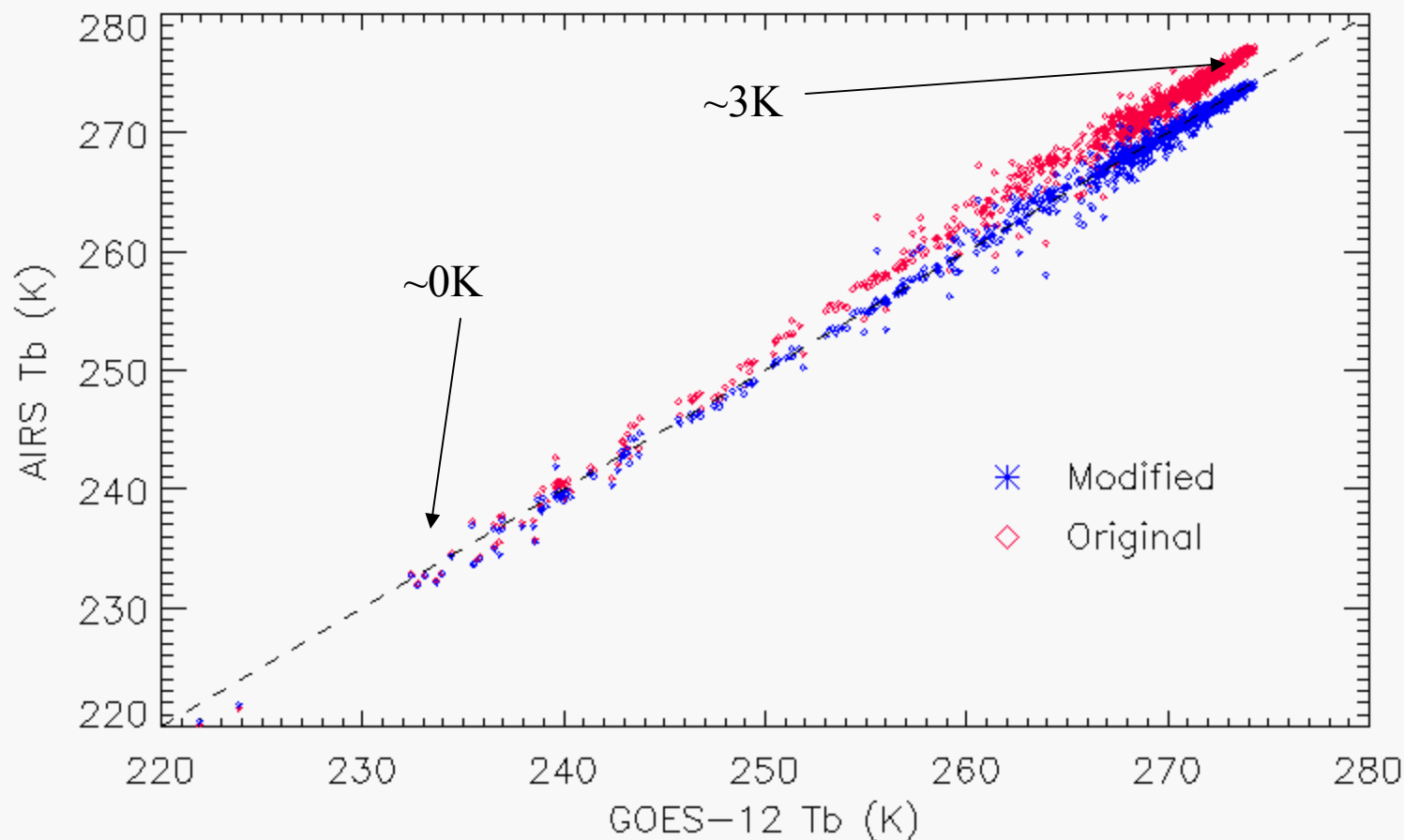


Satellite Instrument with **incorrect SRF**

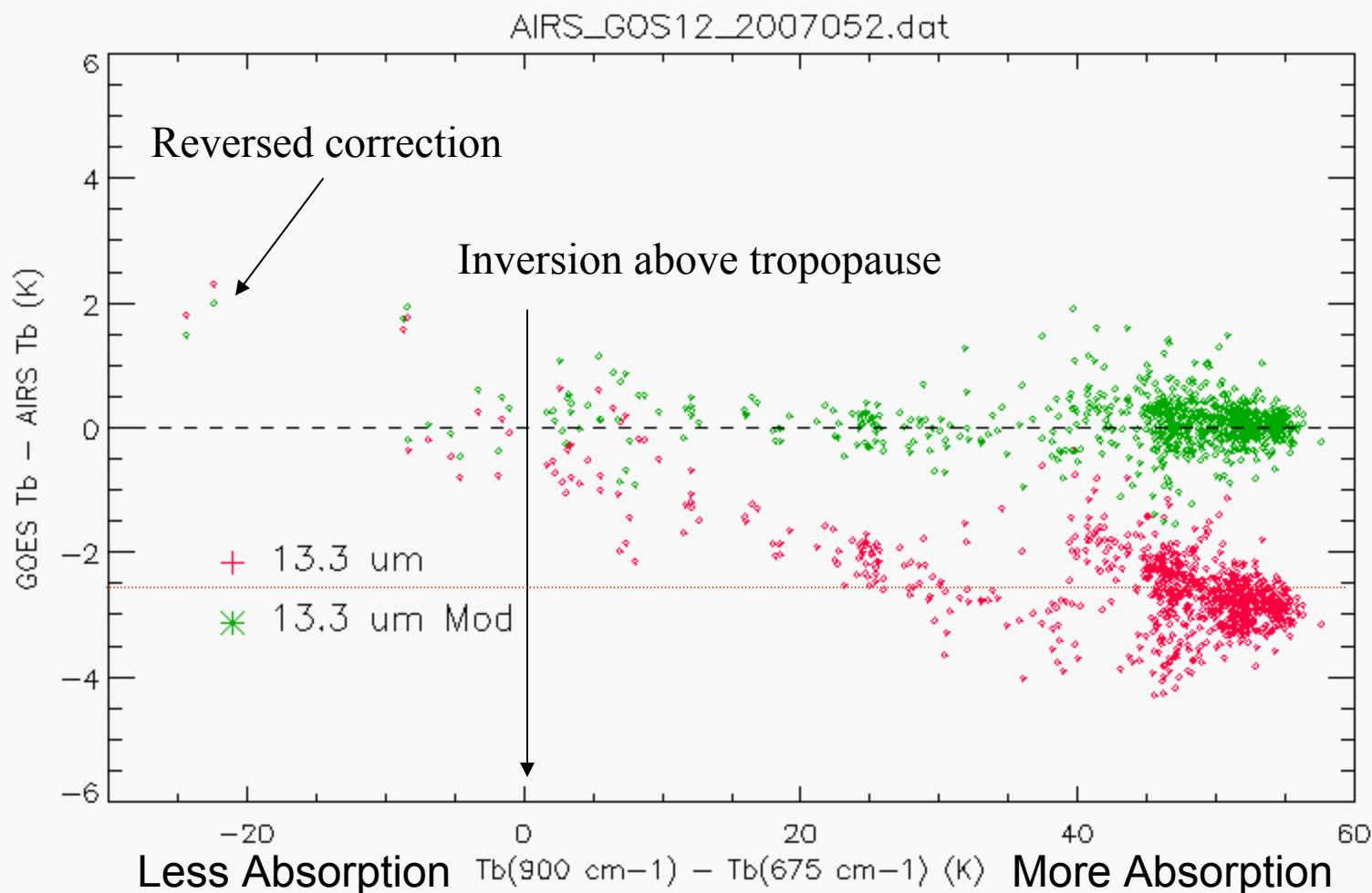




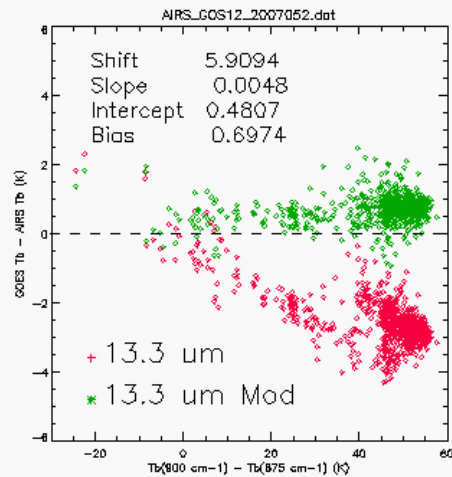
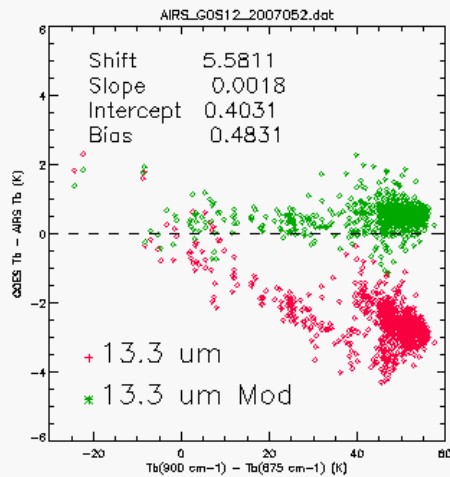
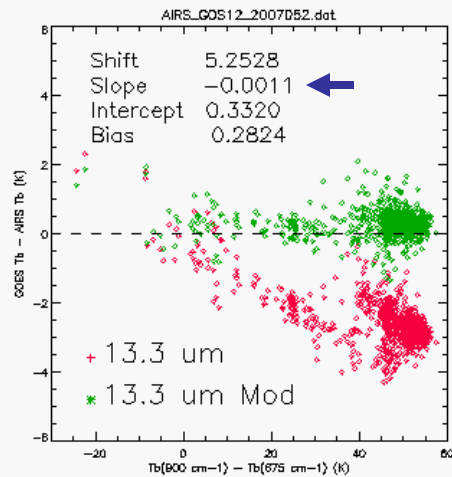
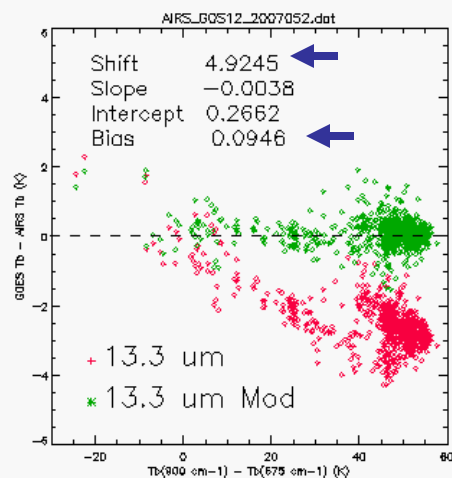
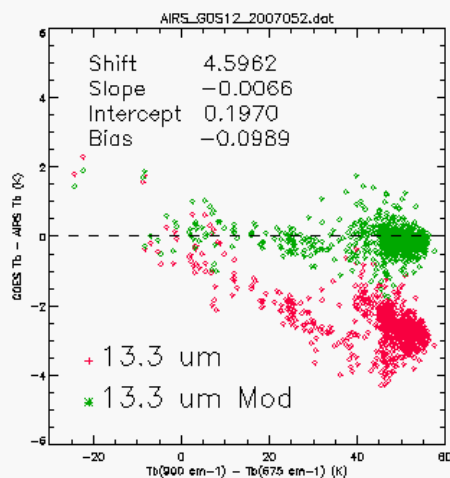
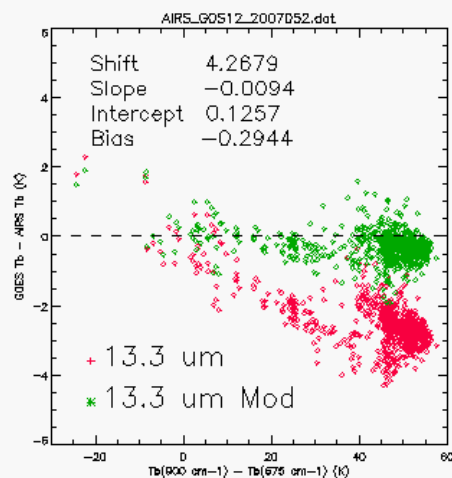
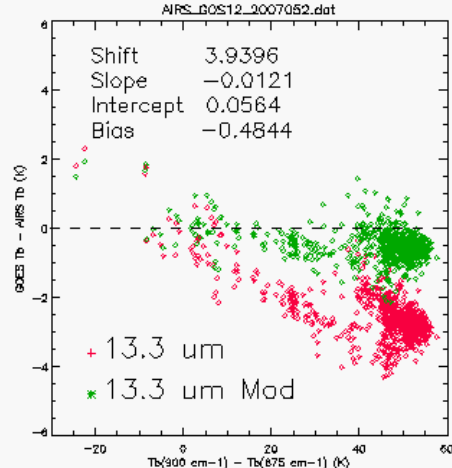
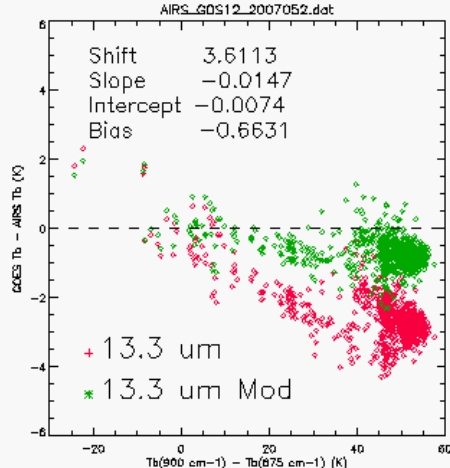
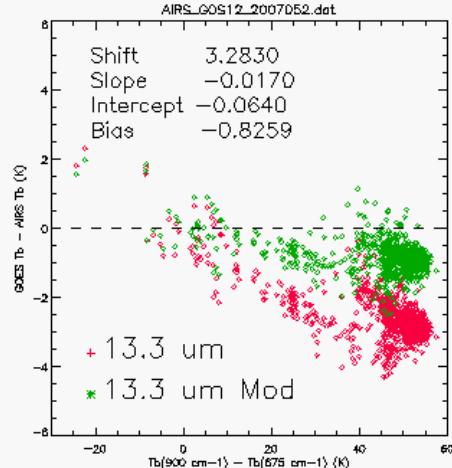
GSICS GOES-AIRS 21 FEB 07



Benefit of careful algorithm design



Adding a constant under-corrects warm scenes and over-corrects cold scenes



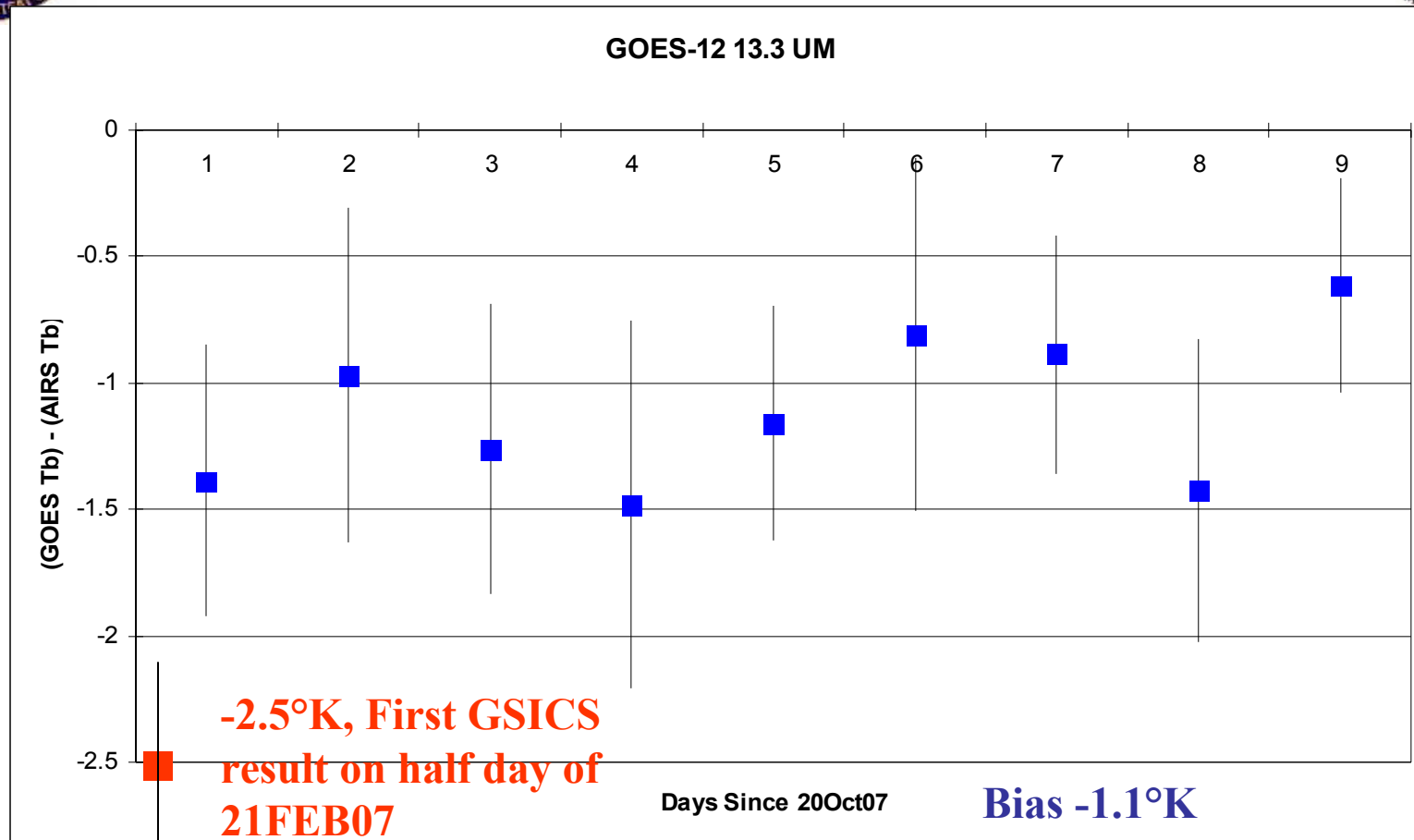


Community

- ❖ We start to work together
- ❖ One example is JMA's adaptation of the GSICS GEO-AIRS algorithm
 - Modular software design
 - De-McIDAS
 - Help KMA and CMA
- ❖ Another example is 13.3 μm channel cold bias investigation



Community

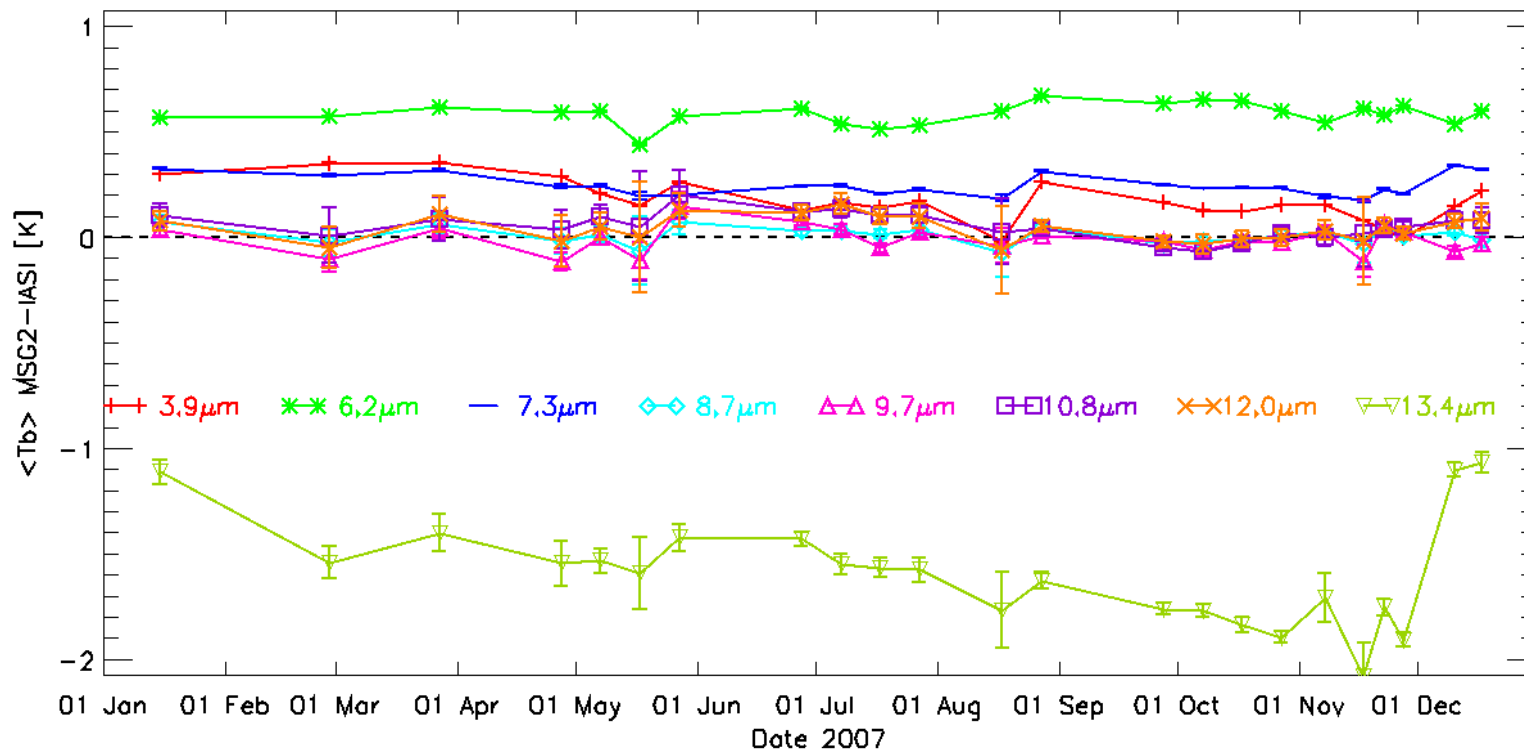


UW/CIMSS: -1.4°K (several satellites)

EUMETSAT -1.6°K



Community



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T. Hewison

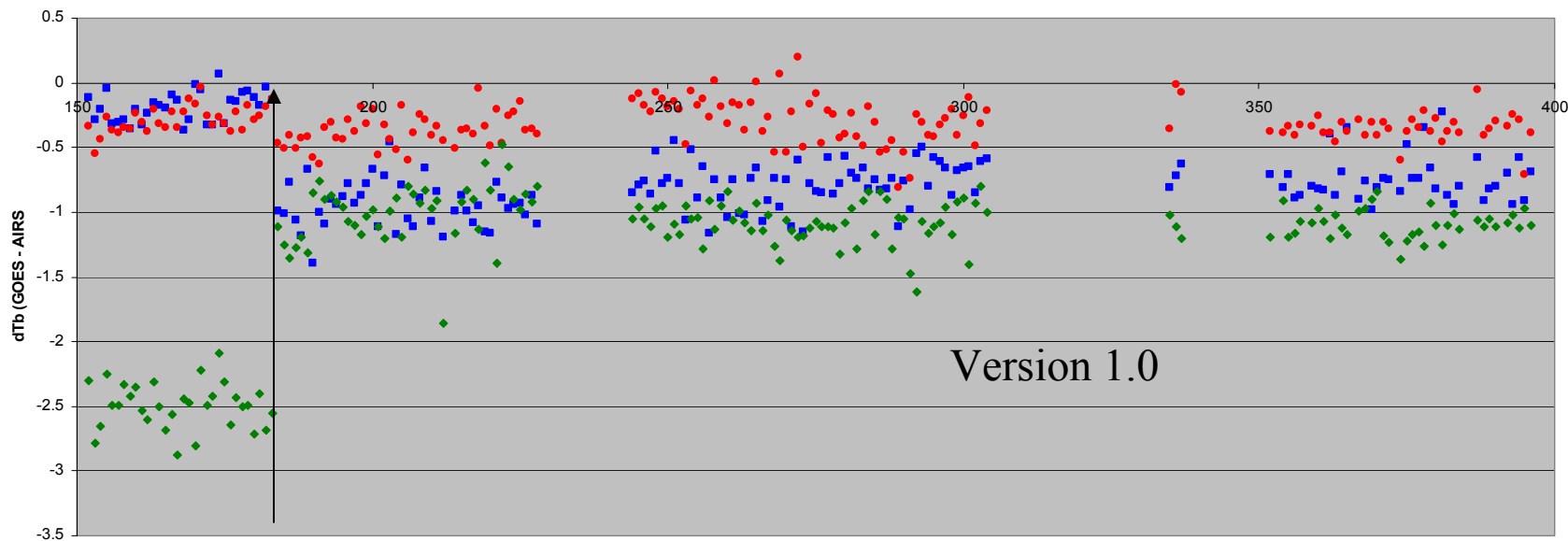
Decontamination



Community



Difference Between GOES-12 and AIRS



Decontamination,
02JUL07

Days since 2007/01/01

■ dTb(6.5) ● dTb(107) ◆ dTb(133)

GOES-12 out
of service



Challenges & Opportunities



❖ Operation

- Implementation at CMA & KMA
- Algorithm improvement and version control
- Archive
 - Content, Format, Nomenclature, Metadata
- Protocol for reporting and dissemination

❖ Research

- Encourage innovation and ensure compatibility
- More analysis – trend, seasonal or diurnal characteristics, angular or geographic dependence, difference among GEOs, etc.
- Algorithm accuracy or capability



Challenges & Opportunities



❖ Working Together

- Spontaneous – great when happened
- Planned – through communication and delegation

❖ New Algorithm

- IASI and AIRS
 - Cross calibration
 - Better diurnal sampling
- Visible Channel

❖ Publicity

- Peer-reviewed papers in scientific journals



GRWG-II Actions

ACTION No.	ACTION	ACTIONEE	STATUS
GRWG-II 01	Provide test data, Version 1 of GSICS algorithm for GEO-AIRS co-location and spectral convolution (pseudo-code and one working code), and test results for all GEO's.	X. Wu July 2007	Oct 2007
GRWG-II 02	Implement inter-calibration of FY-2C/D with AIRS.	P. Zhang June 2008	On track
GRWG-II 03	Implement inter-calibration of MTSAT with AIRS.	Y. Tahara June 2008	On track
GRWG-II 04	Implement inter-calibration of METEOSAT-9/8/7 with AIRS.	M. König June 2008	On track
GRWG-II 05	Implement inter-calibration of MTSAT with AIRS.	S. Chung Dec 2008	On track
GRWG-II 06	Implement inter-calibration of all operational GEO's with AIRS at GCC	X. Wu June 2008	On track
GRWG-II 07	Provide subset of AIRS measurements to members for inter-calibration	X. Wu Sep 2007	Oct 2007
GRWG-II 08	Provide subset of IASI measurements to members for inter-calibration	M. König June 2008	On track
GRWG-II 09	Define the initial content of the output data to GDWG	X. Wu & Members Dec 2007	Mar 2008
GRWG-II 10	Provide HDF5 template based on the content	V. Gärtner Dec 2007	Mar 2008
GRWG-II 11	Provide and maintain the English website (with proper disclaimer) that contains instrument characteristics	X. Wu & Member Dec 2007	Delayed



Plan Ahead

- ❖ Turn current “challenges” to future “achievements”
- ❖ Prioritize these (and other) challenges and opportunities
- ❖ Collaborate – delegate the tasks
- ❖ That’s our job for the next few days!



Summary

❖ Achievements

- Publicity, Algorithm, Impact, Collaboration

❖ Challenges & Opportunities

- Operation. Innovation and compatibility. Collaboration. Expansion. Publication.

❖ Action Review

❖ Plan Ahead

- Prioritize the challenges
- Work together to turn them into achievements