AIRS RT model comparison

R. Saunders with inputs from
V. Sherlock, A. Von Engeln, N. Bormann, S. Hannon, J-L Moncet, Y. Han, D.S. Turner

Activity

- Compare AIRS RT models
- Compute BTs for all 2378 channels for 52 profiles
- For some models compute jacobians for a selection of ~100 channels
- Document run times
- Complete by Jan 04

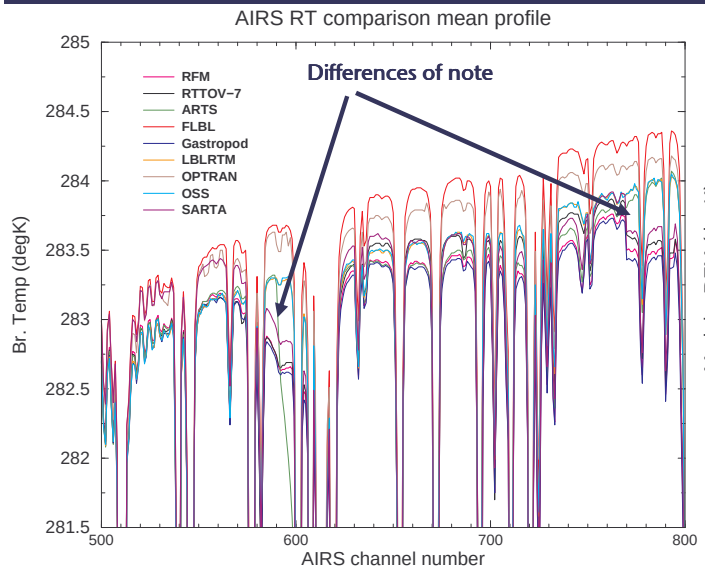
Participants and status

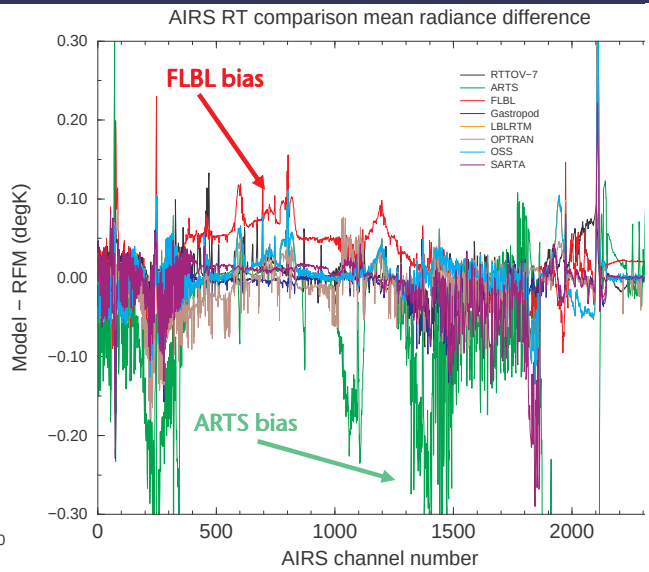
Model	Participant	Direct	Jacobian
RTTOV-7	R. Saunders, METO	Yes	Yes
Outran¶	Y. Han, NESDIS	Yes	Yes
OSS	J-L. Moncet, AER	Yes	No
LBLRTM	J-L. Moncet, AER	Yes	No
RFM	N. Bormann, ECMWF	Yes	Yes
Gastropod	V. Sherlock, NIWA	Yes	Yes
ARTS	A. VEngeln, Bremen	Yes	No
SARTA	S. Hannon, UMBC	Yes	No
NAST-I	W. Smith, NASA		
4A	S. Heilliette, LMD		
FLBL	D.S. Turner, MSC	Yes	
MSCFAST	L. Garand, MSC		
σ-IASI	C. Serio, Uni Bas		
Hartcode	F. Miskolczi, NASA		

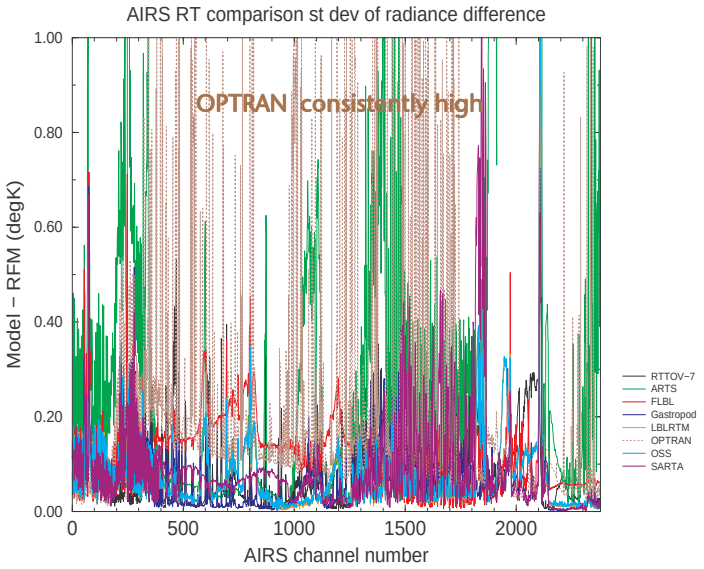
¶This is an experimental version of OPTRAN

Initial results

- To date have only compared direct calcs for 9 models who have submitted results
- Used RFM as reference model (this may favour models based on GENLN2)
- Bias and sdev plots shown of differences for each AIRS channel for 51 diverse profiles

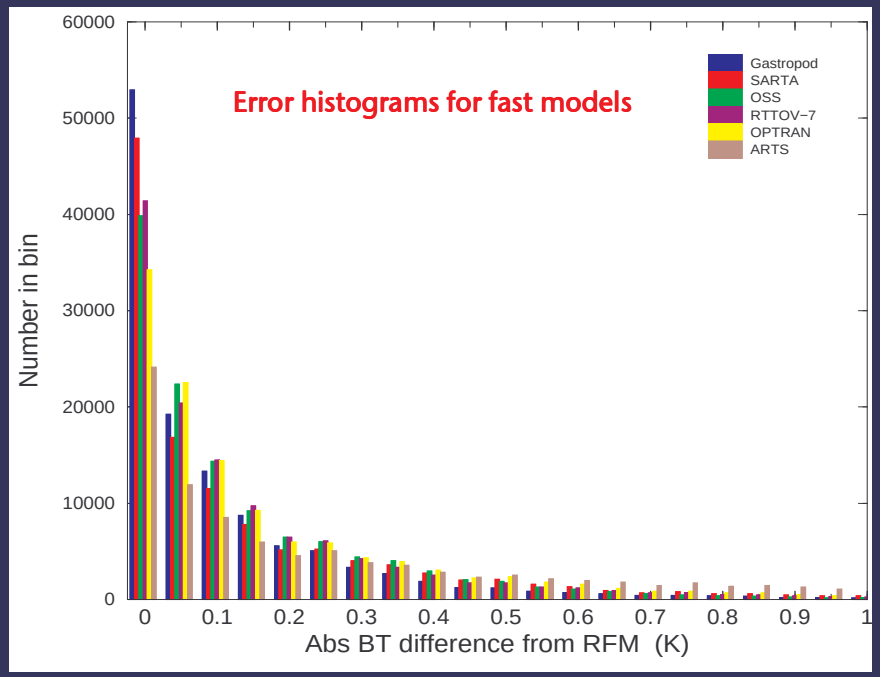


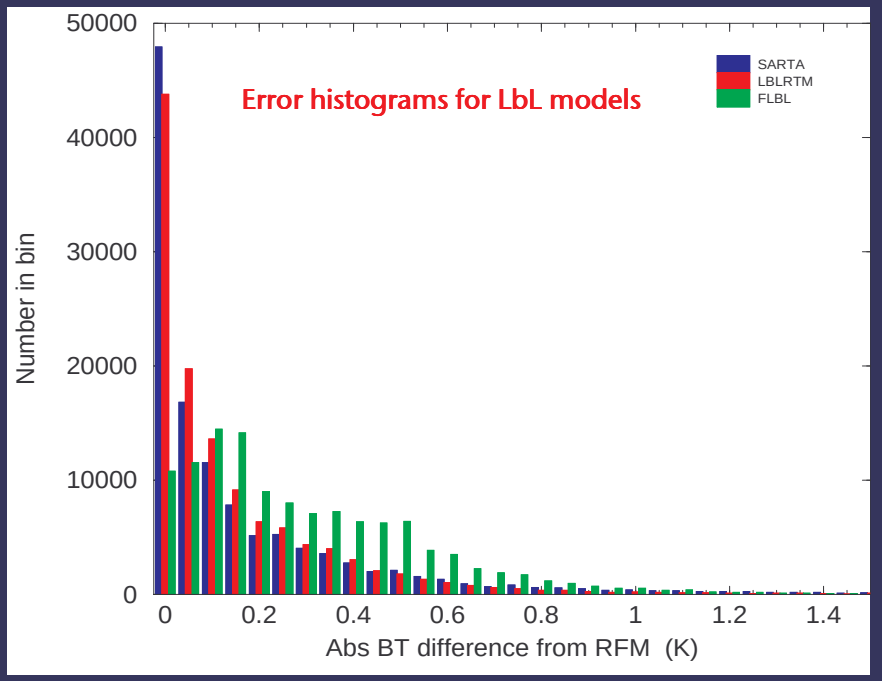


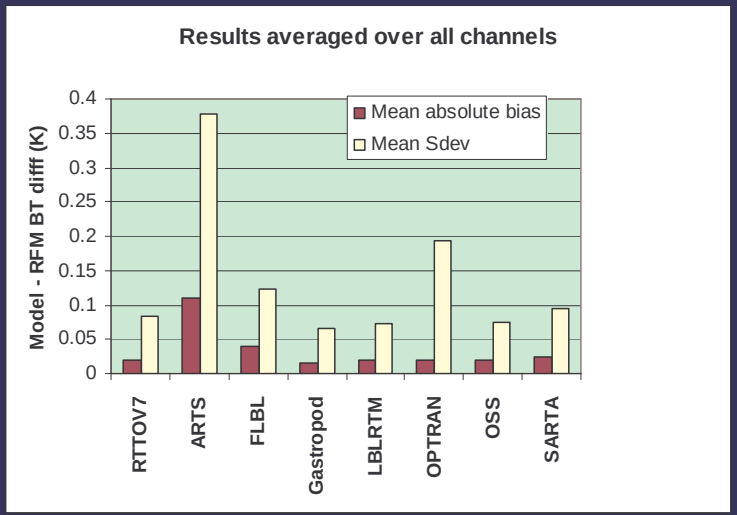


Web site: http://cimss.ssec.wisc.edu/itwg/groups/rtwg/rtairs.html

AIRS RT model comparison (2)







Summary

- Different models have mean differences ~0.1K in some spectral regions
- Some differences match those seen in LIE comparison
- In a few spectral regions differences can be up to 0.3K for some models
- Against RFM all fast models show a reasonable performance but there are differences
- No work done on Jacobian results yet
- More participants encouraged; Plan is to report in Spring 2004

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