

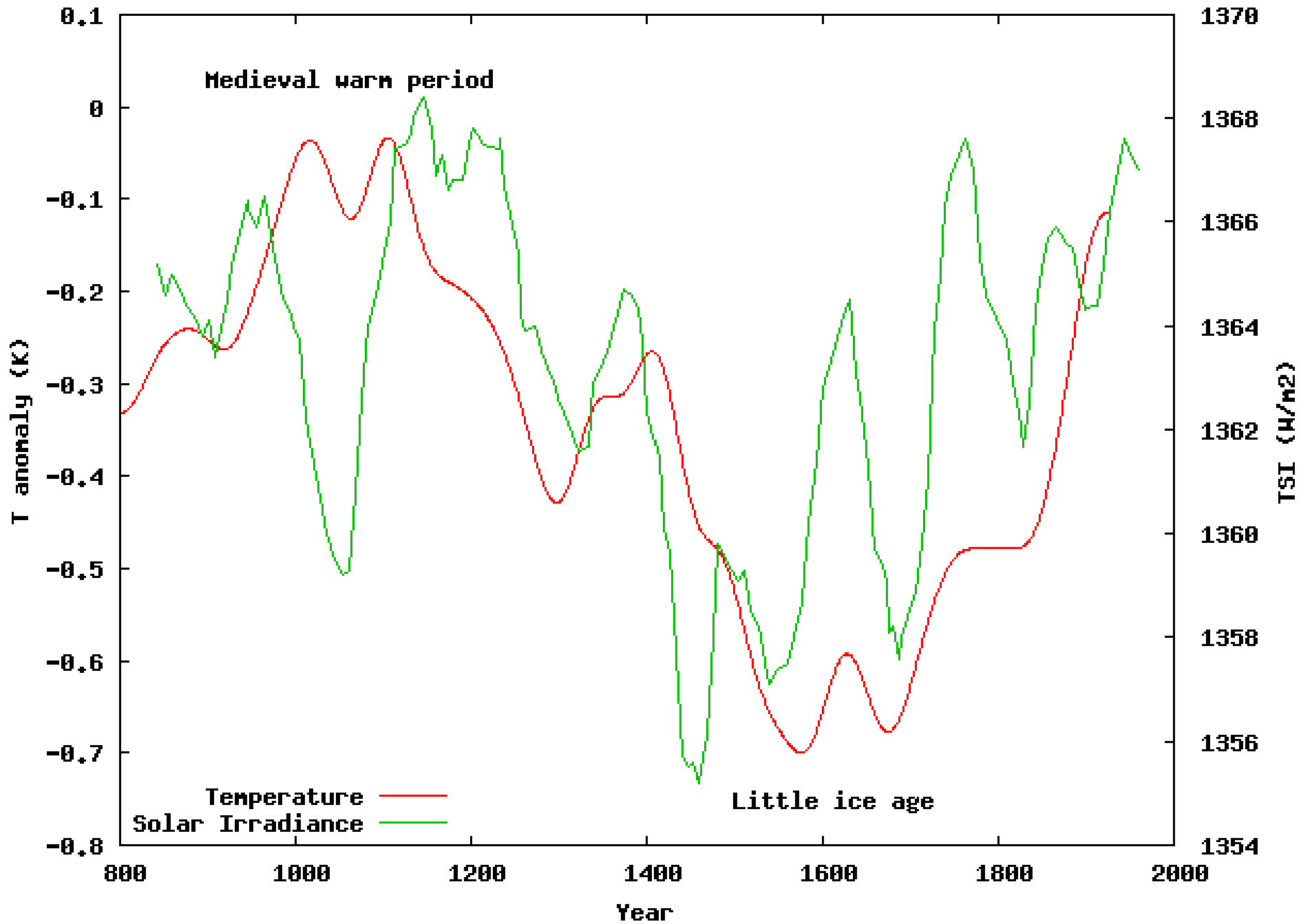
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# Measurement of the Total Solar Irradiance over cycle 23: results from DIARAD/VIRGO

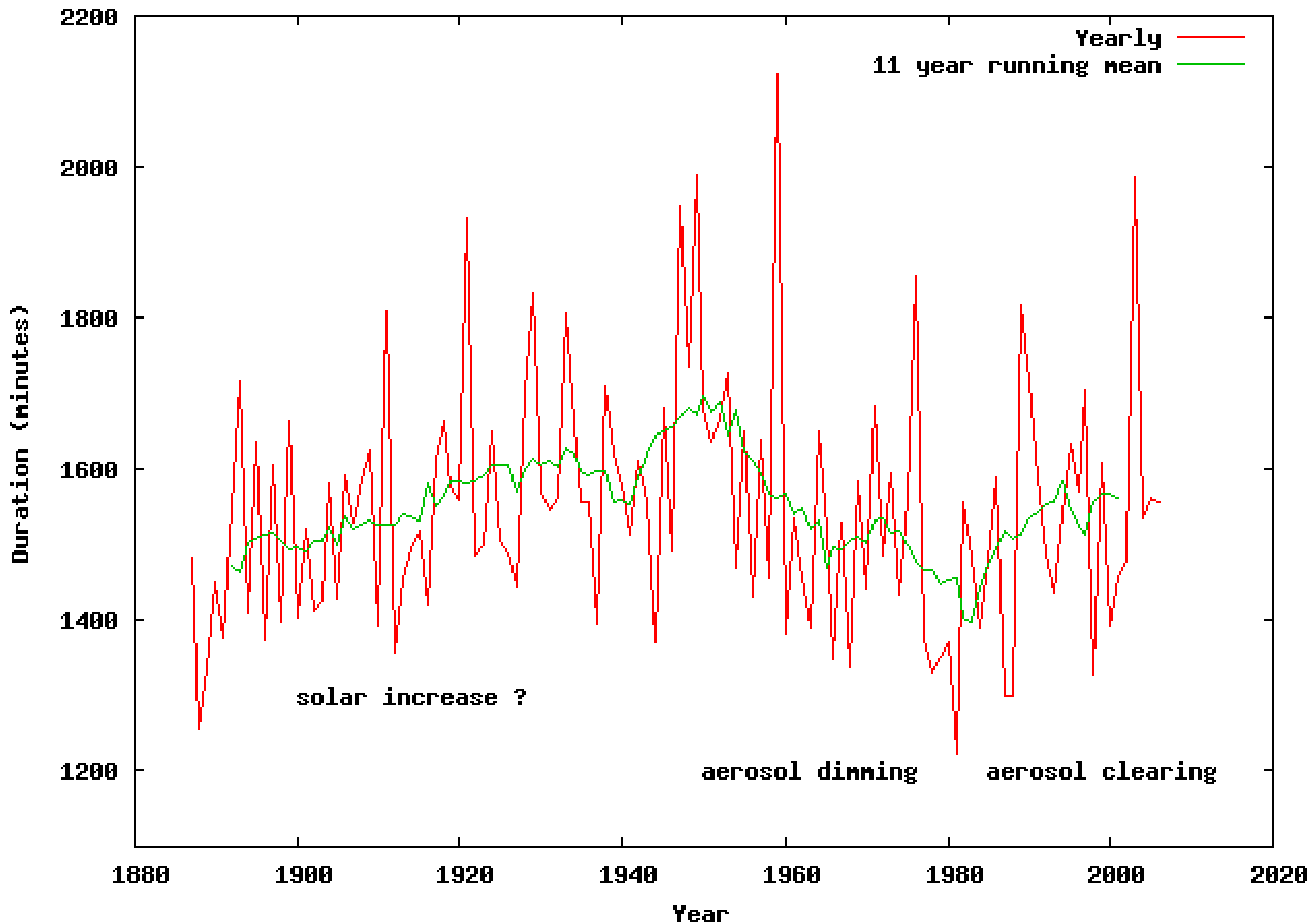
S. Dewitte, S. Mekaoui, D.  
Crommelynck

Royal Meteorological Institute of  
Belgium

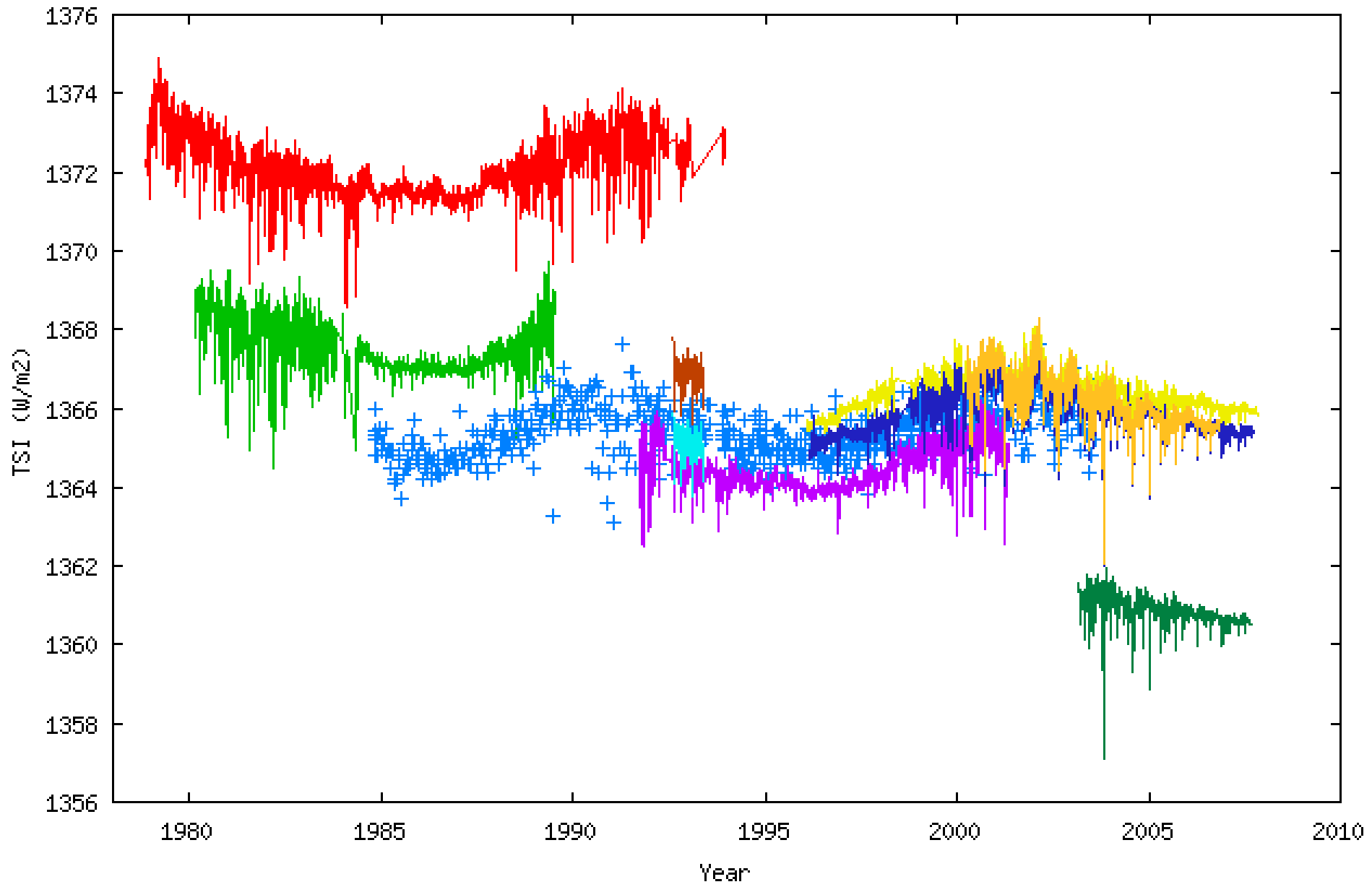
Hoberg temperature and Bard TSI reconstruction



Campbell-Stokes sunshine duration in Ukkel, Belgium



Independent measurements Total Solar Irradiance



ERB/Nimbus7  
ACRIM1

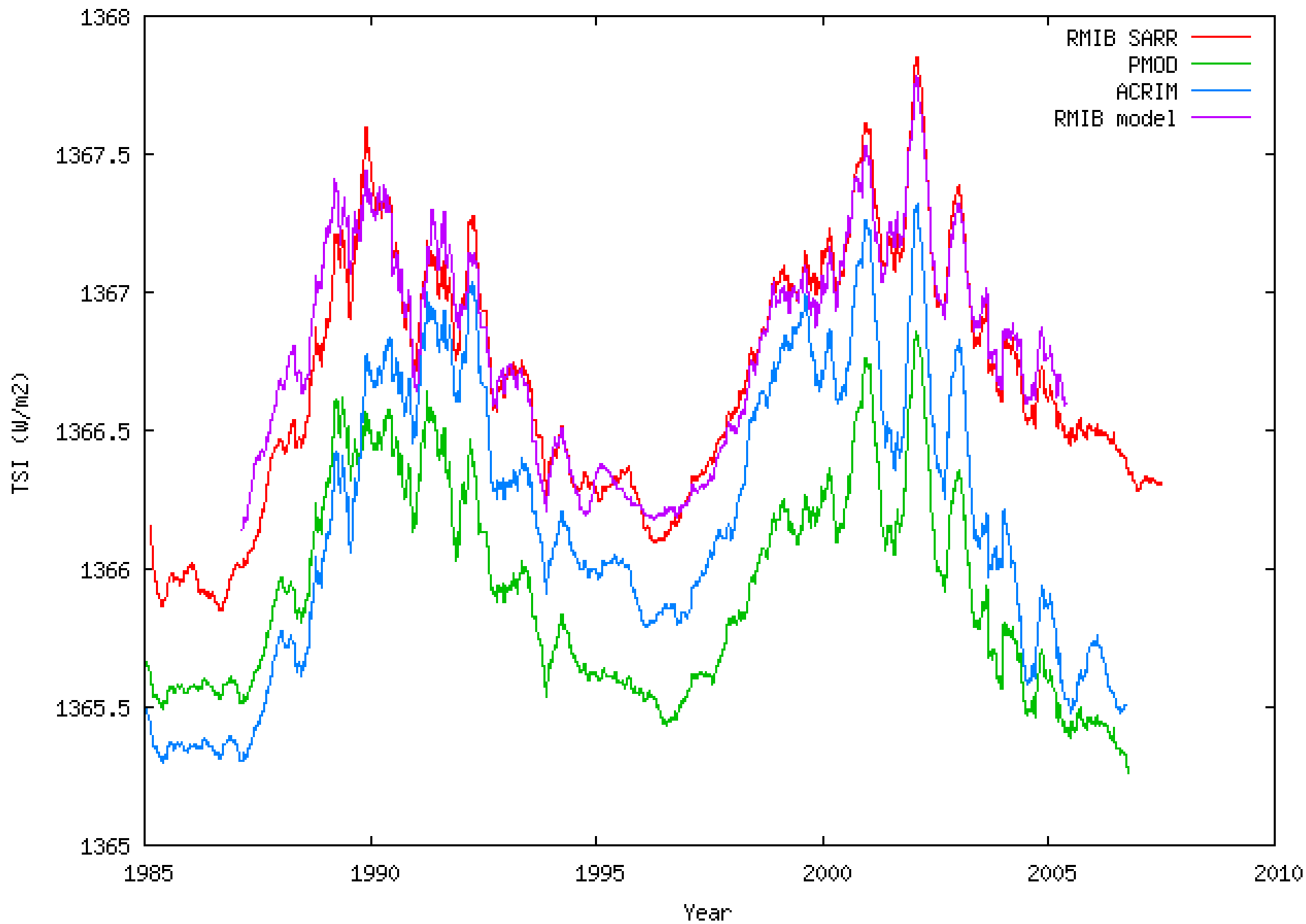
ERBS  
ACRIM2

SOVA1  
SOVA2

DIARAD  
PMO06

ACRIM3  
TIM

121 day running mean of TSI composites

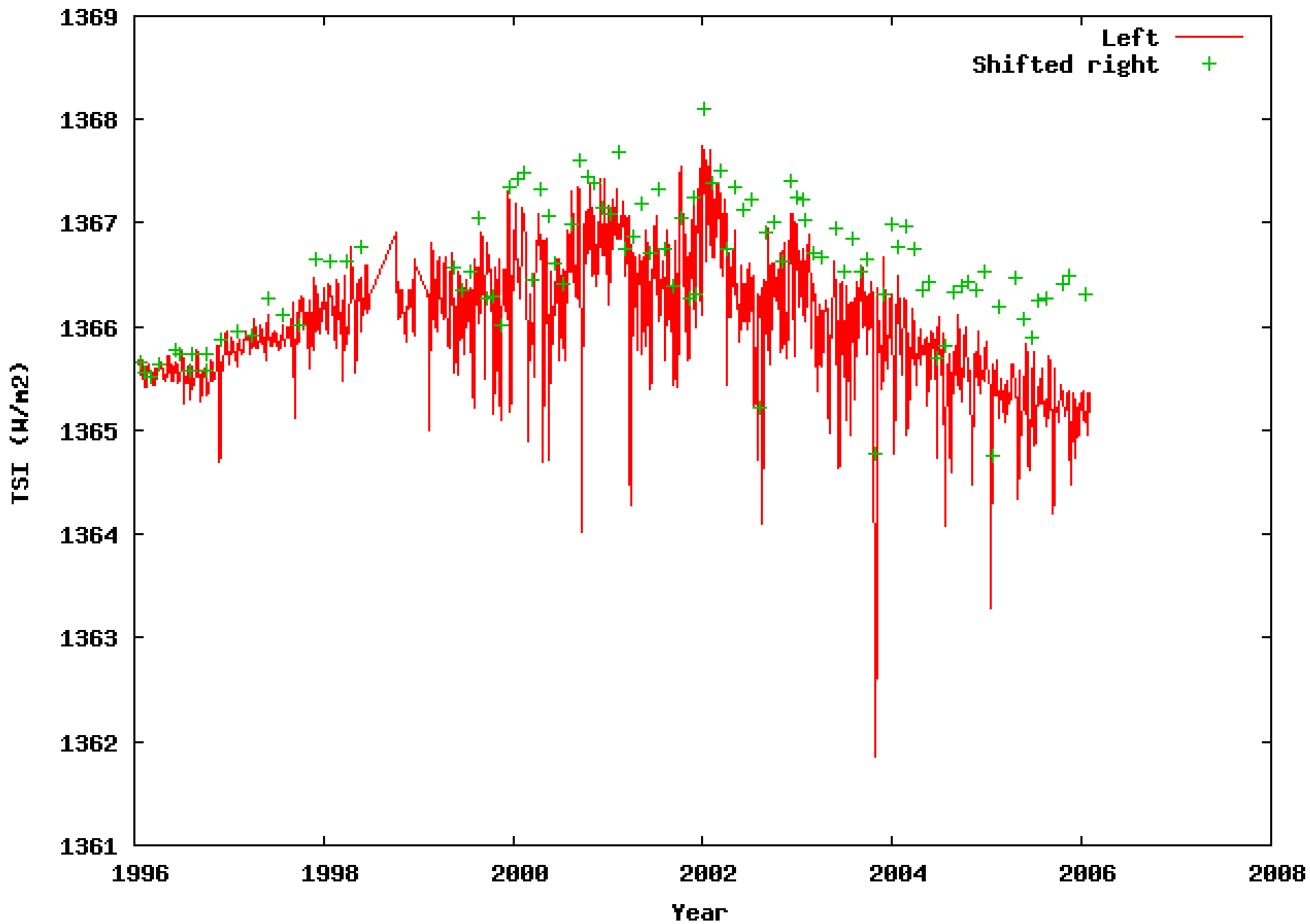


# Current solar cycle 23

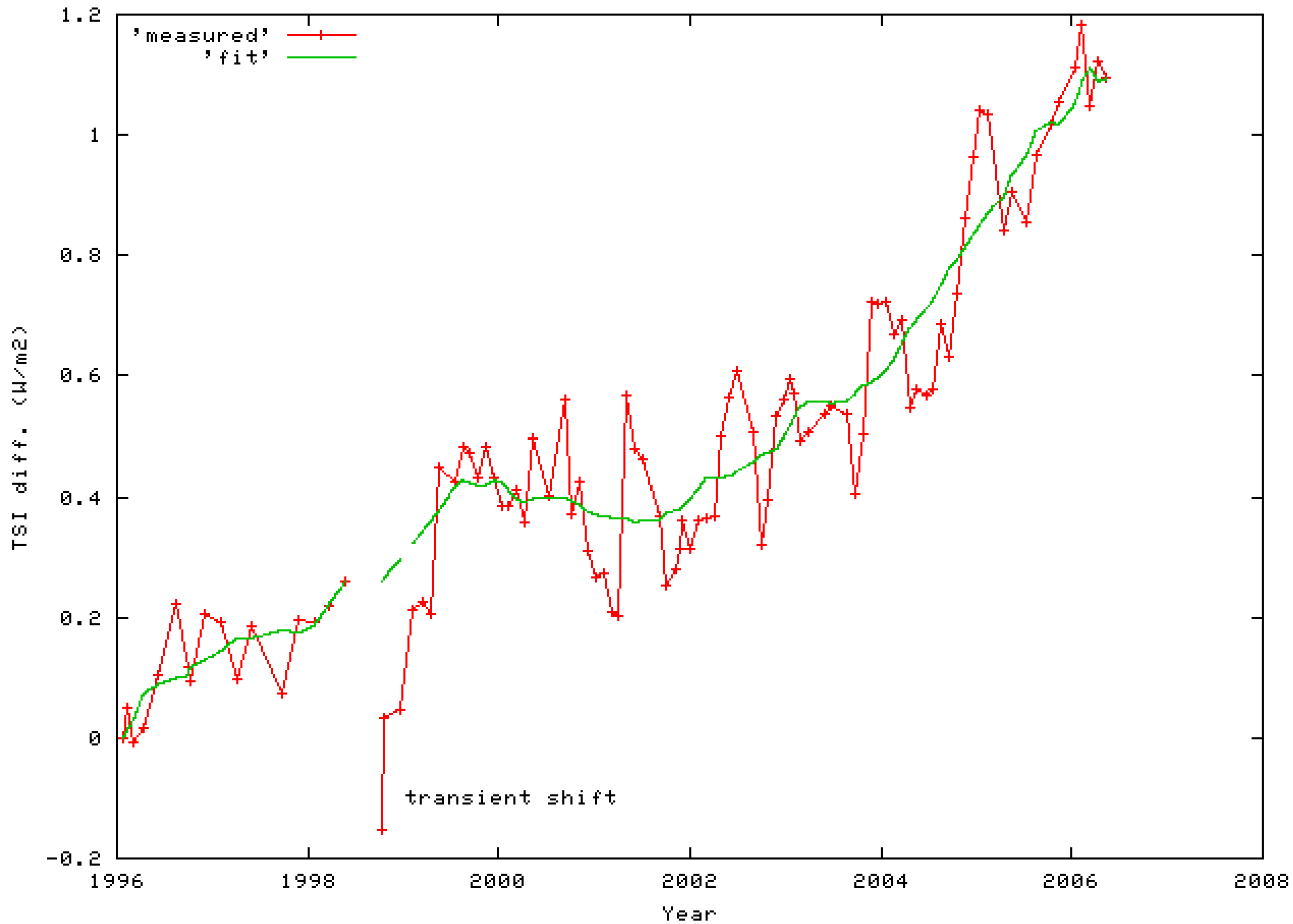
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- ◆ 2 continuously measuring VIRGO radiometers with backup for ageing correction:
  - DIARAD Left + Right(backup)
  - PMO06V A + B(backup)
- ◆ DIARAD: lowest ageing + nominal shutter operation
- ◆ Other independent series: ACRIM 2 + ACRIM3, ERBS + TIM

# DIARAD level 1 TSI

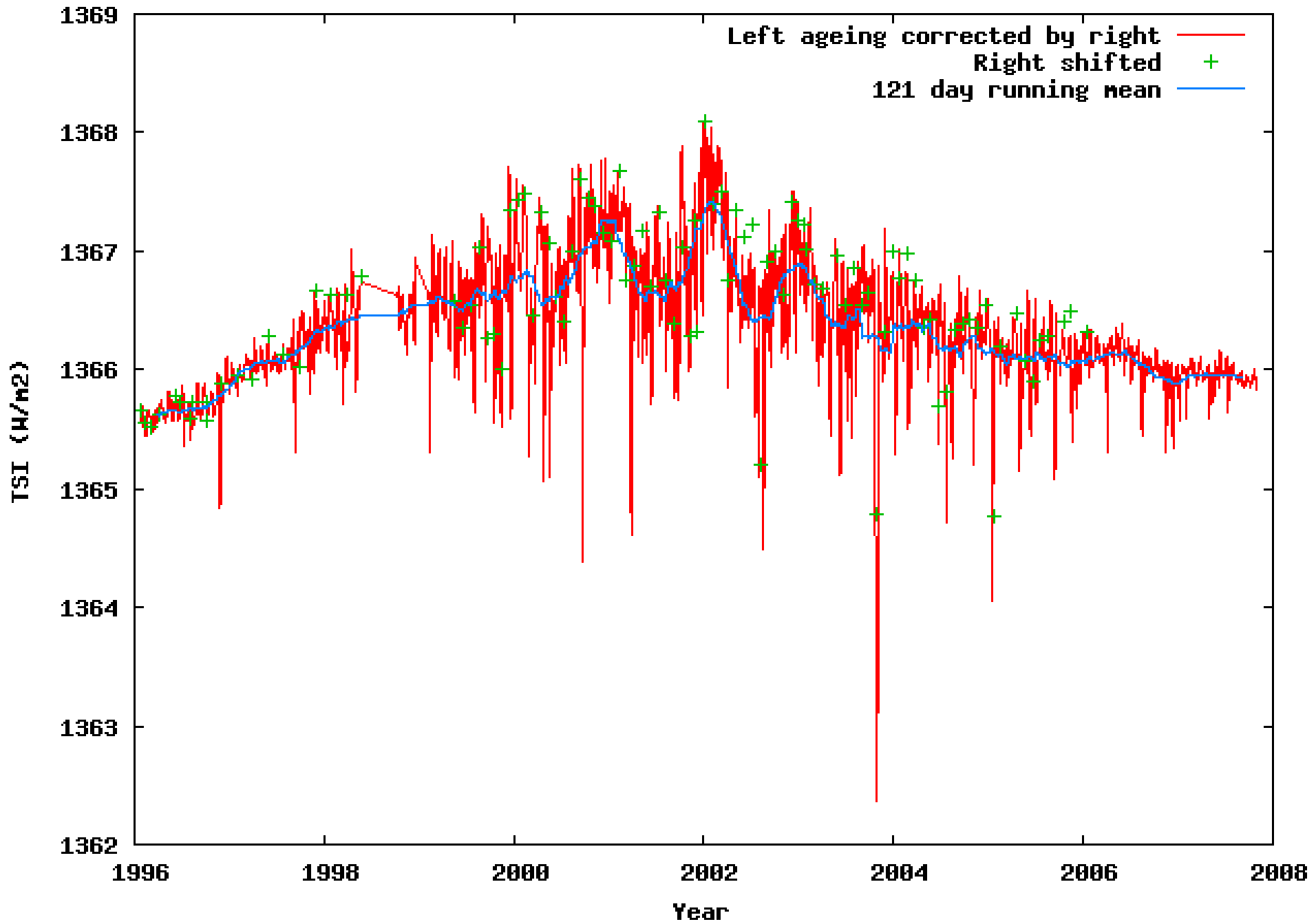


# DIARAD Right minus Left TSI

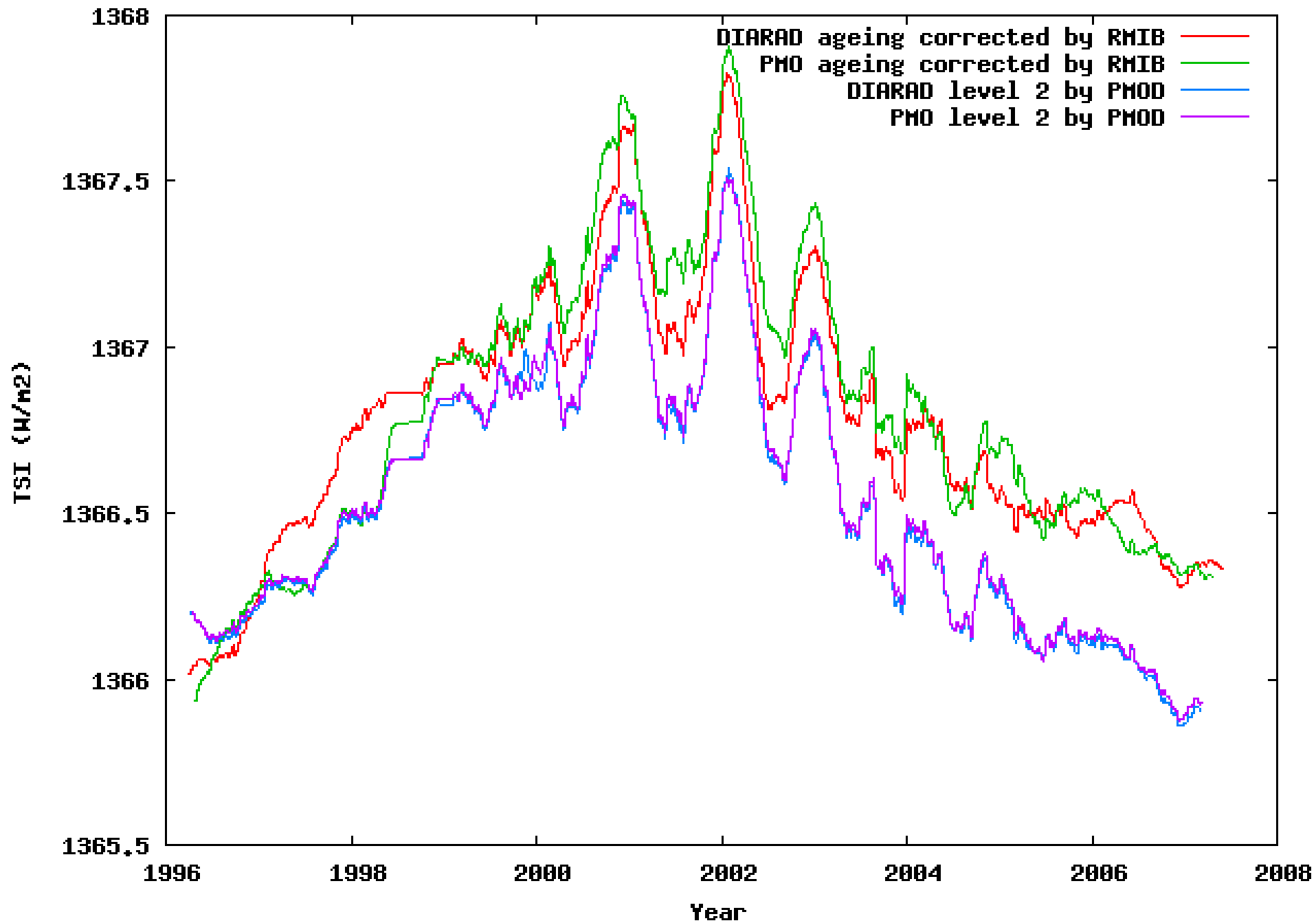




# DIARAD level 2 Total Solar Irradiance

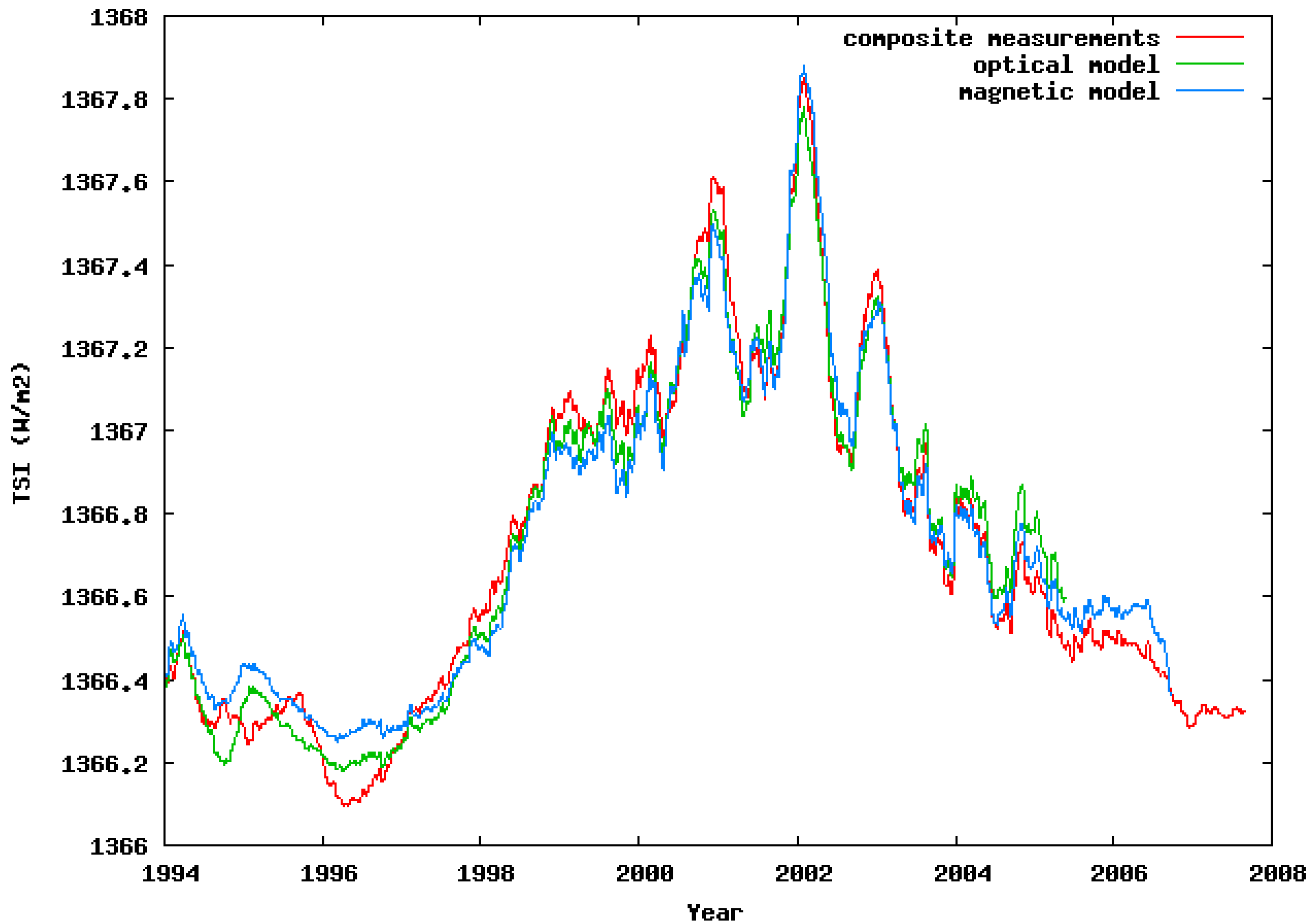


Different versions of VIRGO TSI measurements after adjustment absolute level

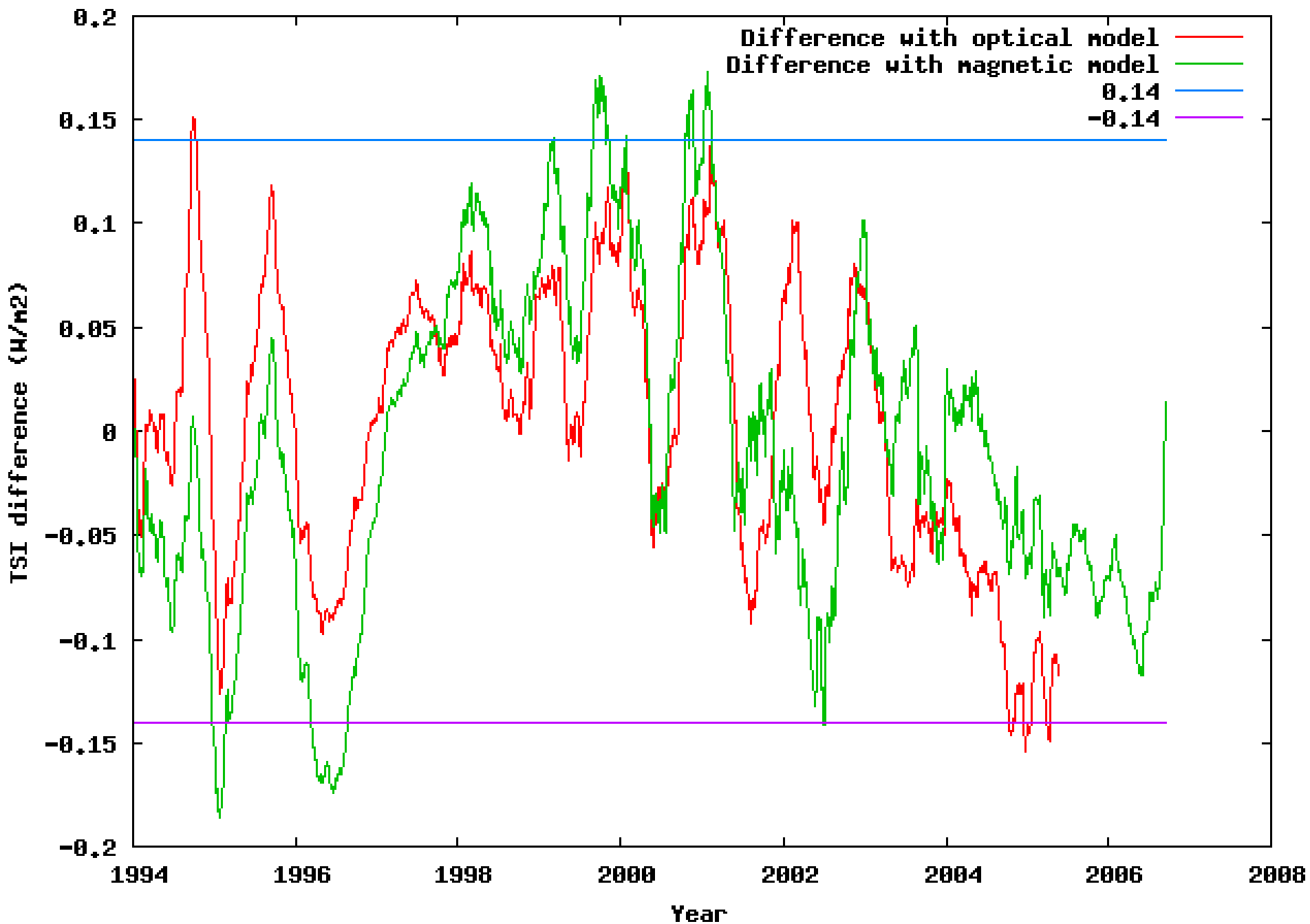




121 day running mean cycle TSI; end cycle 22 + cycle 23



Difference composite TSI measurements with models, 121 day running means



# Conclusions

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- ◆ DIARAD/VIRGO: continuously measuring TSI instrument with lowest ageing during cycle 23.
- ◆ DIARAD and PMO06 agree well using only ageing corrections.
- ◆ Good agreement with other radiometers except ACRIM3.
- ◆ Good agreement with models assuming no solar minimum TSI variation.

# Reference

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- ◆ S. Mekaoui, S. Dewitte, 'Total Solar Irradiance measurement and modelling during cycle 23', Solar Physics, 2007, DOI: 10.1007/s11207-007-9070-y
- ◆ Modelling: see poster S. Mekaoui