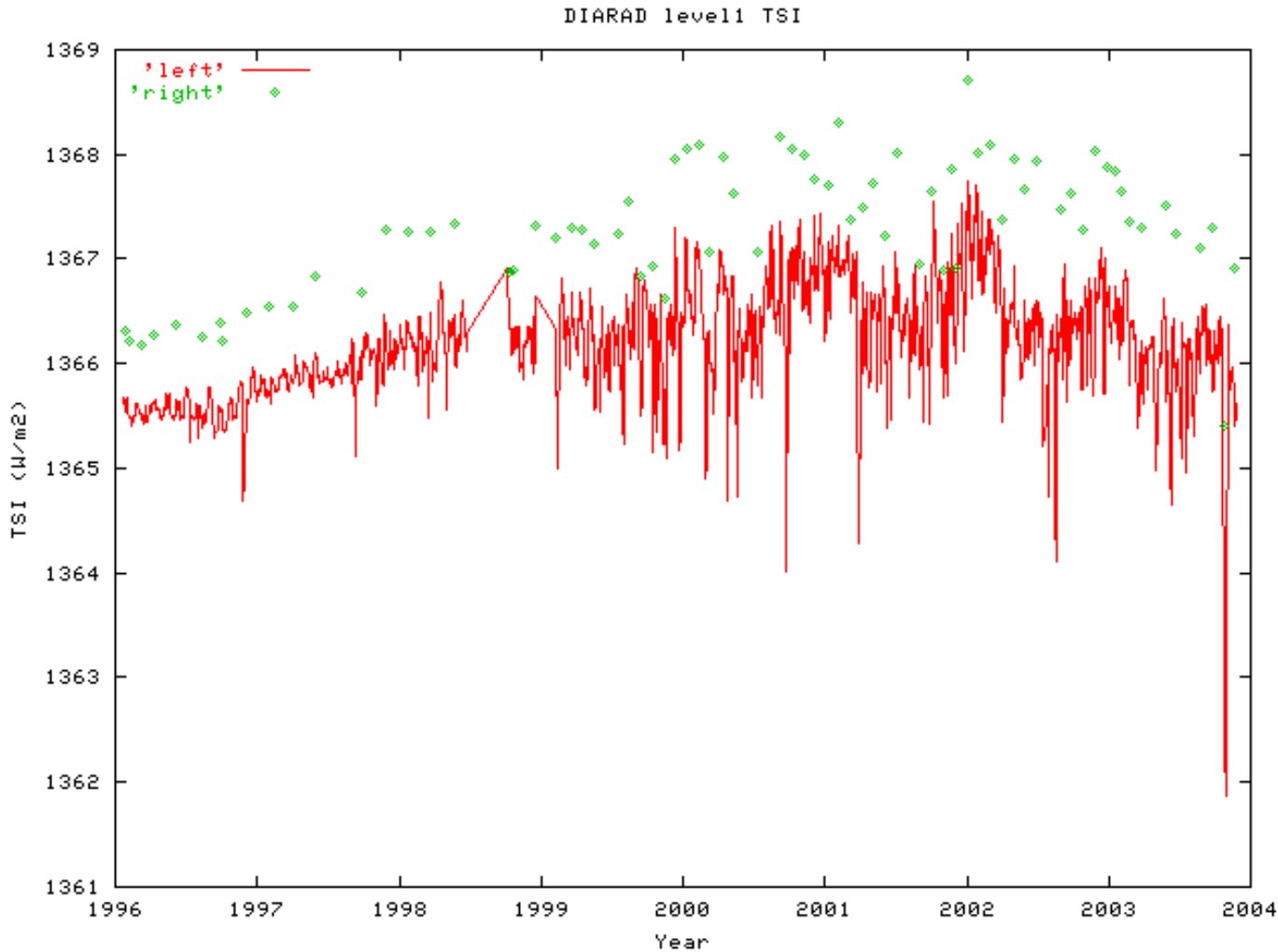

DIARAD/VIRGO Repeatability

S. Dewitte

Royal Meteorological Institute of Belgium

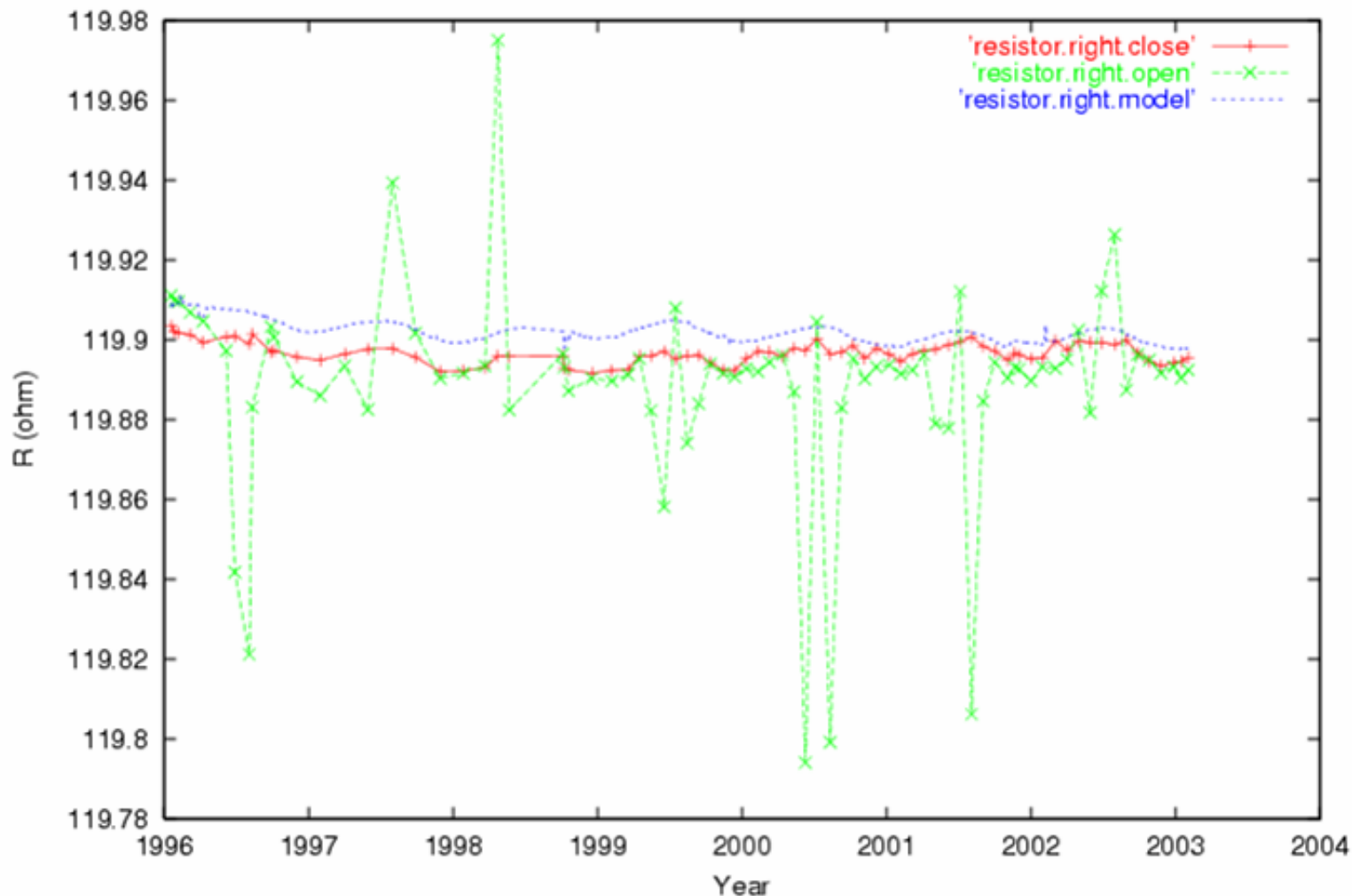
TSI measurements



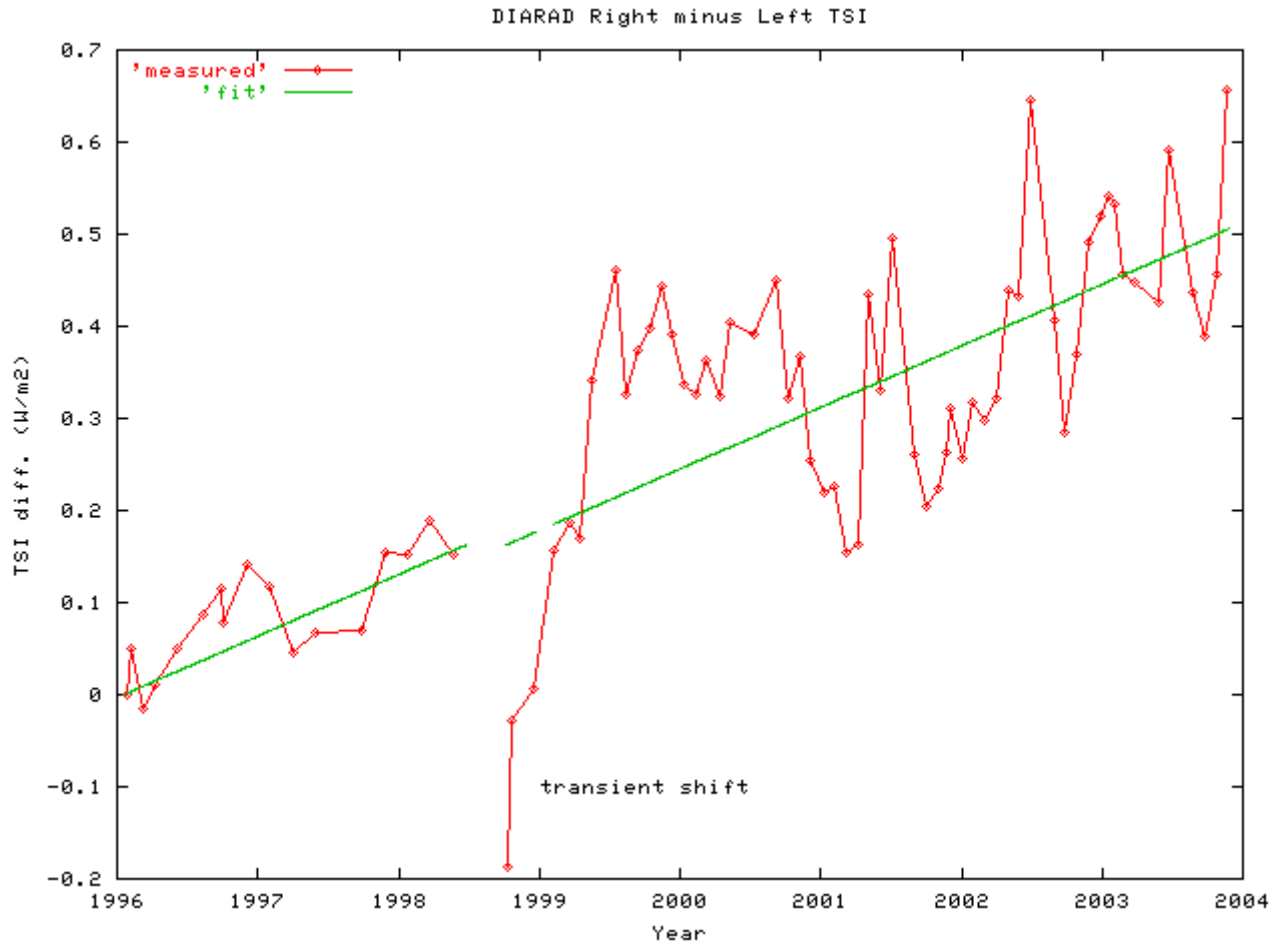
- ◆ left: continuous measuring
- ◆ right: backup channel, shifted down by 5 W/m²

Right electrical quality check

DIARAD right cavity heating resistor at closed and open phase

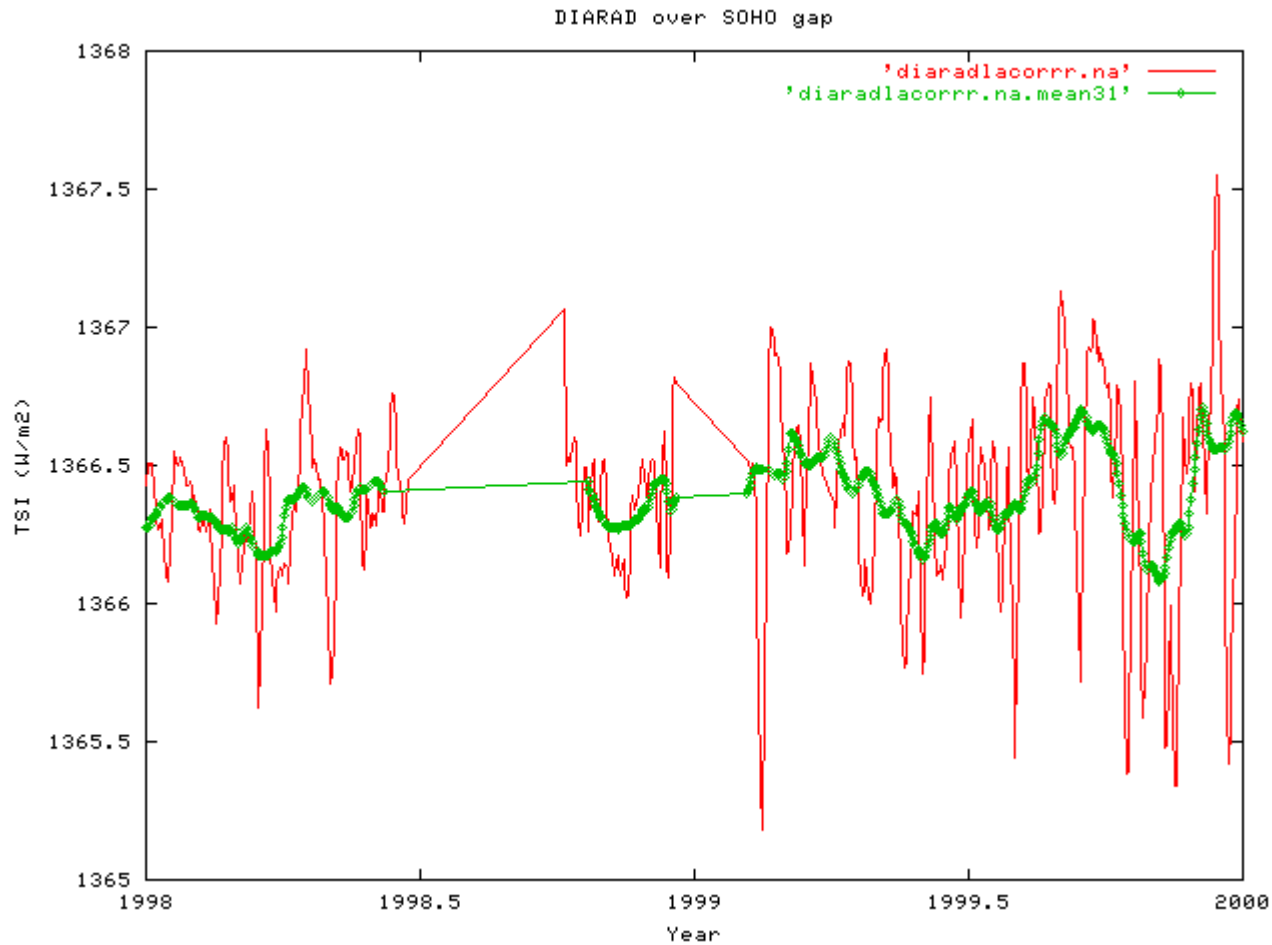


Ageing correction

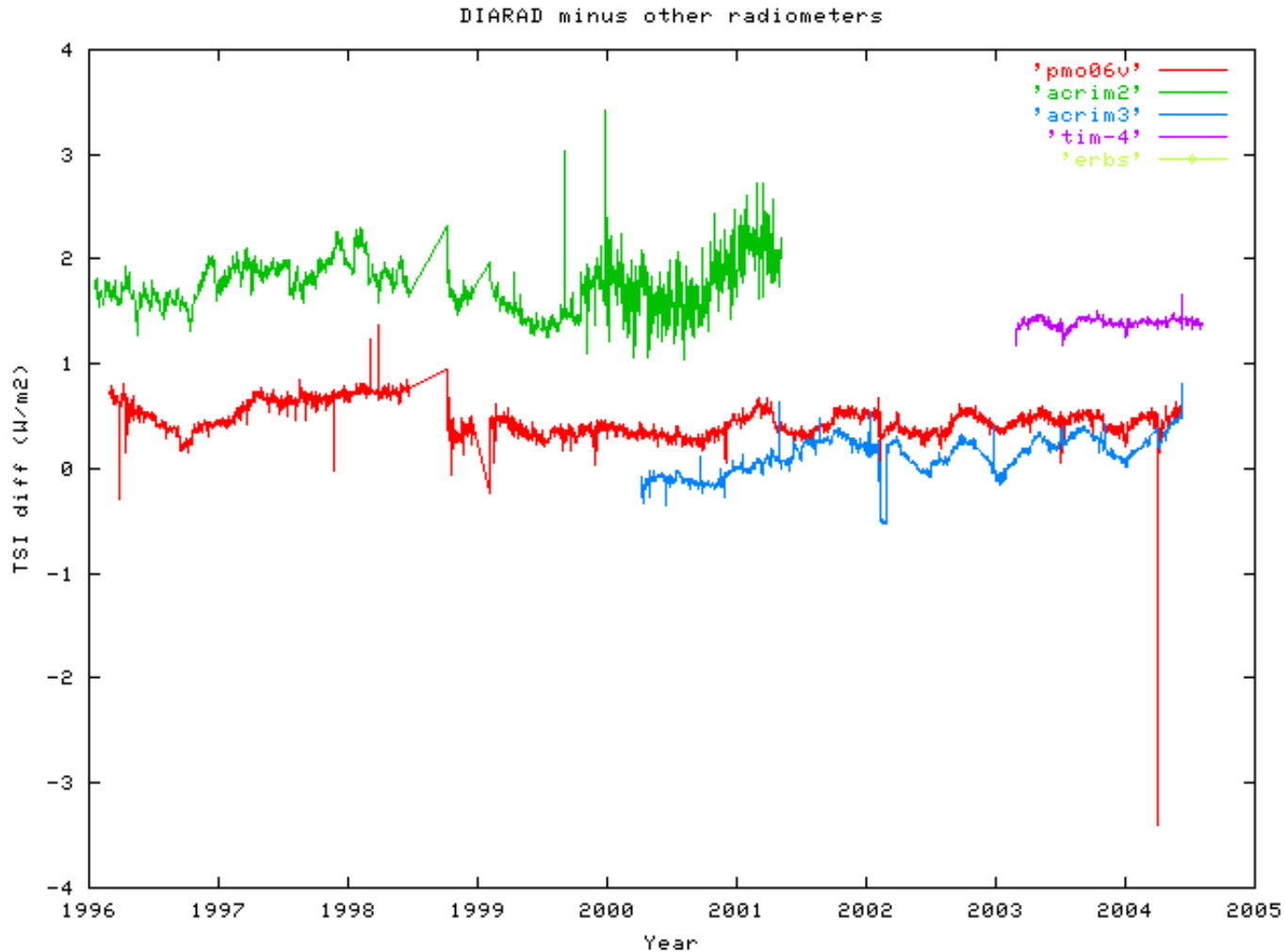


- ◆ linear fit to right-left difference
- ◆ continuous over SOHO gap

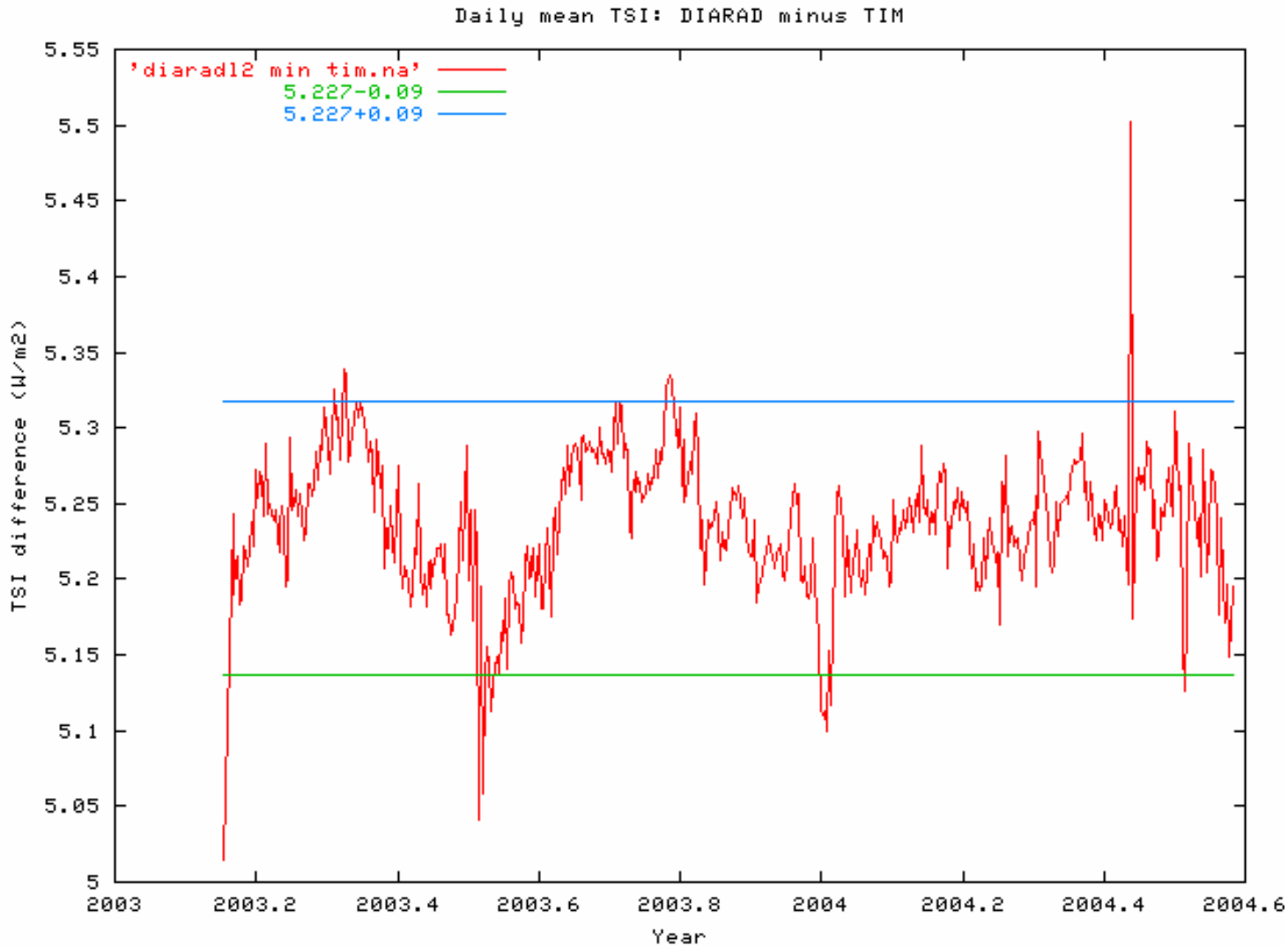
Stability DIARAD over SOHO gap



Comparison with other radiometers



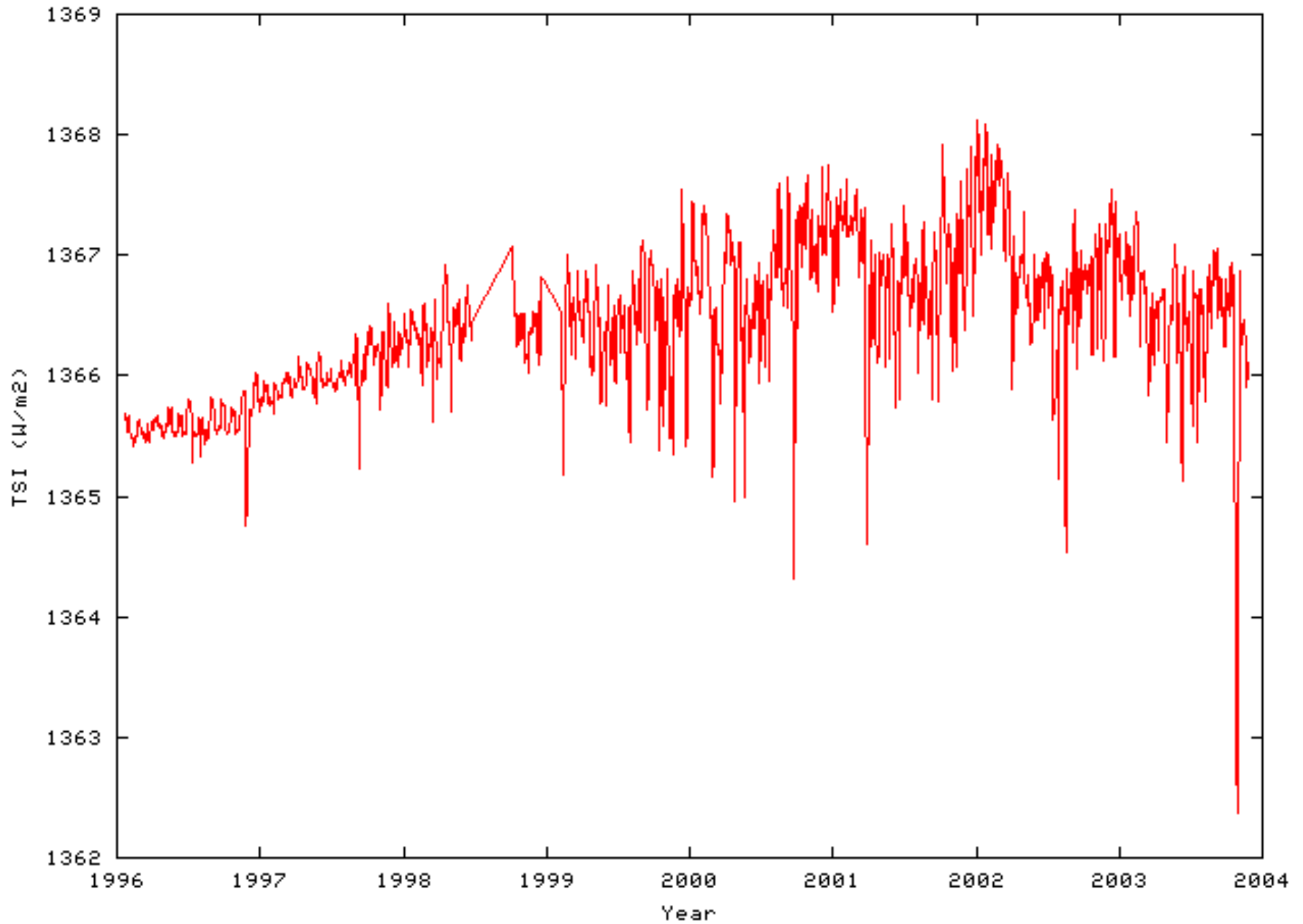
Comparison with TIM



95% difference intervals

- ◆ DIARAD - PMO06V = $0.49 \text{ W/m}^2 \pm 0.26 \text{ W/m}^2$
- ◆ DIARAD - ERBS = $0.77 \text{ W/m}^2 \pm 0.24 \text{ W/m}^2$
- ◆ DIARAD - ACRIM2 = $1.78 \text{ W/m}^2 \pm 0.47 \text{ W/m}^2$
- ◆ DIARAD - ACRIM3 = $0.05 \text{ W/m}^2 \pm 0.25 \text{ W/m}^2$
- ◆ DIARAD - TIM = $5.227 \text{ W/m}^2 \pm 0.09 \text{ W/m}^2$

Level 2 DIARAD daily mean irradiance



Conclusions

- ◆ DIARAD Left is corrected for ageing by linear fit to difference with DIARAD Right
- ◆ Ageing = 0.5 W/m^2 over 8 years
- ◆ 95% uncertainty long term TSI variation
 - < 0.1 W/m^2 up to 1998 from internal consistency
 - < 0.25 W/m^2 1999-2002 by comparison with other radiometers
 - < 0.1 W/m^2 from 2003 onwards from comparison with TIM

Difference between DIARAD and facular TSI increase model

