Energetic particle environment as seen by RESIK Szymon Gburek SRC-PAS

Royal Observatory of Belgium 04-05-2012







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RESIK

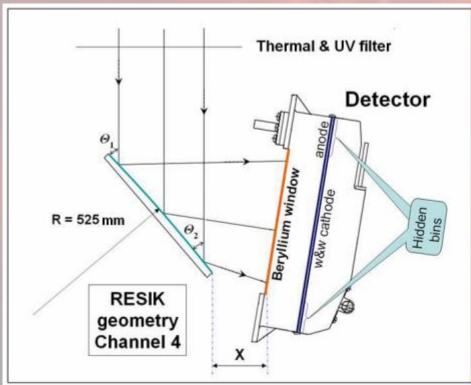
REntgenovsky Spektrometr
s
Izognutymi Kristalami

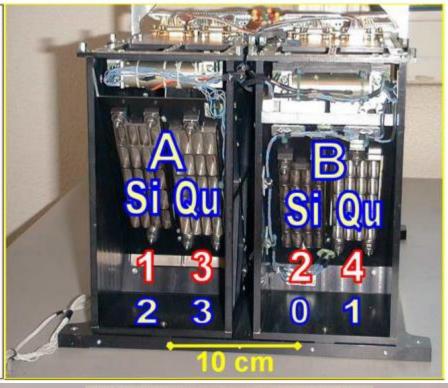
X-ray Spectrometer with bent cristals

Primary scientific objectives of RESIK

- the chemical composition of X-ray flare and active region plasmas using emission line and continuum intensities
- the temperature & differential emission measure studies.

RESIK Detectors and operation principle





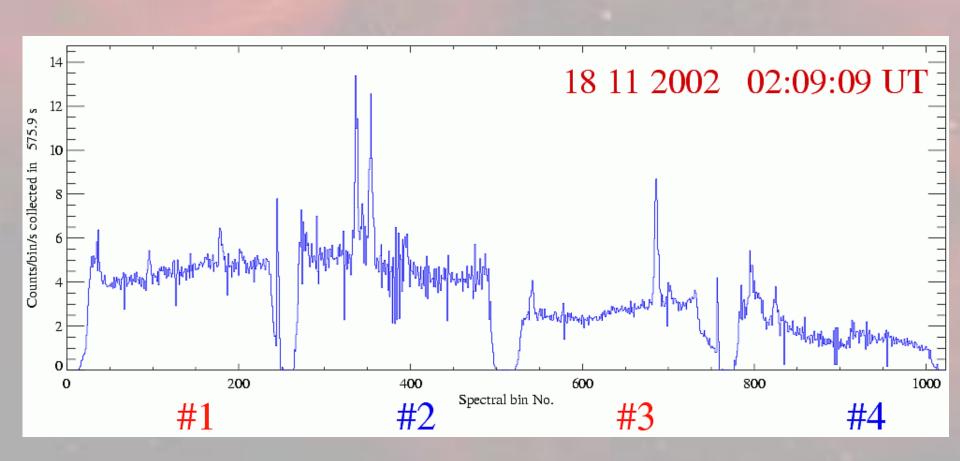
Gas filled proportional counters
The same as for BCS on Yohkoh

Fe55 Calibration source

+ Four PIN diods behind the thick Al shield
Particle detectors



X-ray data obtained from RESIK spectra, lightcurves 2.0 keV - 3.8 keV (3.3 Å - 6.1 Å) resolving power ($\lambda/\Delta\lambda$) of ~1000 (10 m Å) Aug 24, 2001 - May 22, 2003



RESIK WWW data visualization catalogue

http://www.cbk.pan.wroc.pl/experiments/resik/resik_catalogue.htm

RESIK CATALOGUE



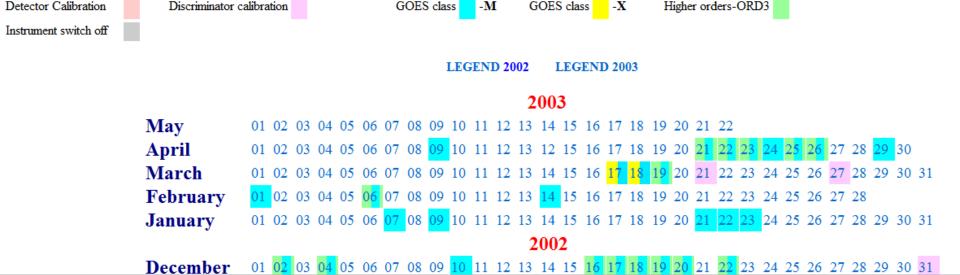




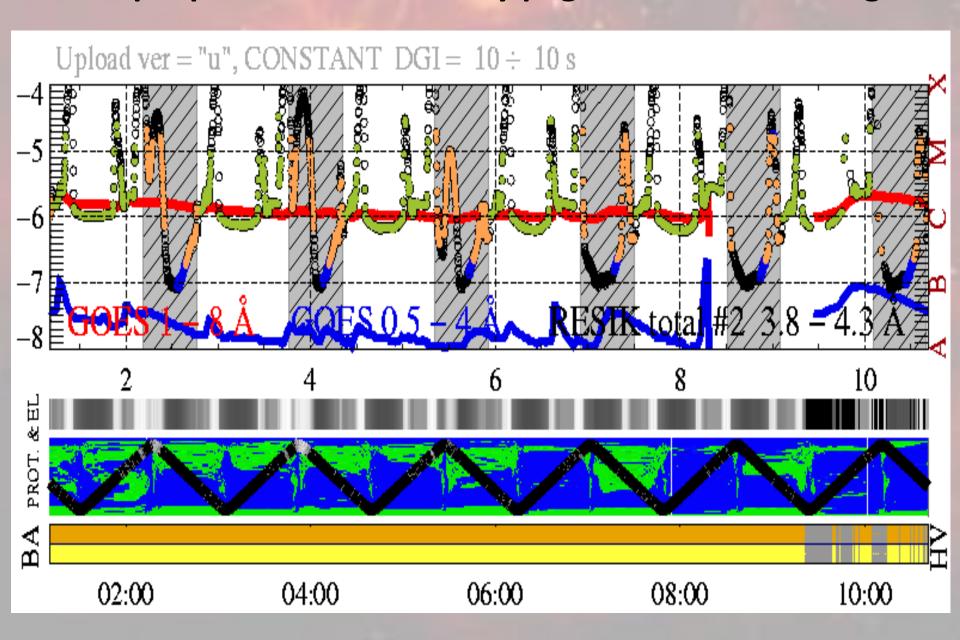




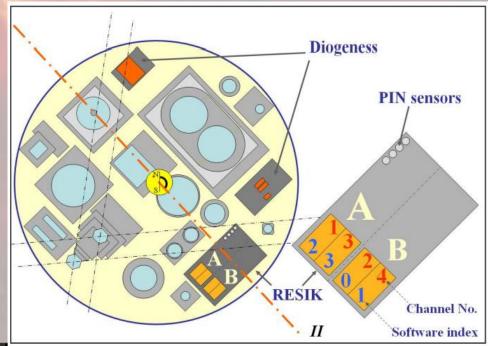
RESIK is the Bragg bent crystal spectrometer aboard Russian CORONAS-F Solar Observatory

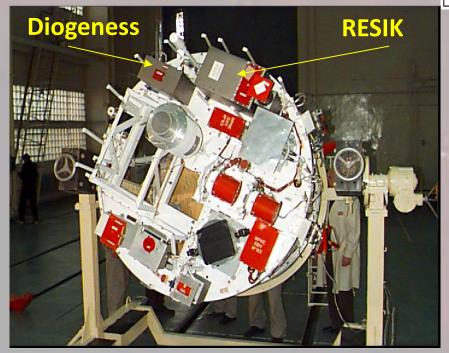


A sample plot from RESIK daily pages of WWW catalogue

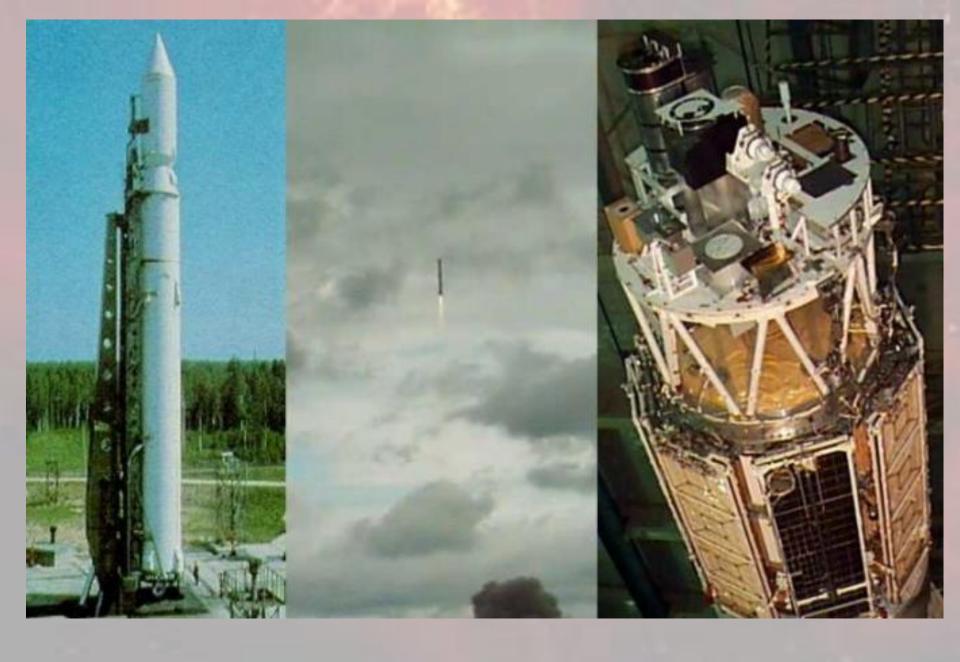


Location of RESIK & DIOGENESS instruments on the satellite platform





Drawing of the CORONAS-F payload

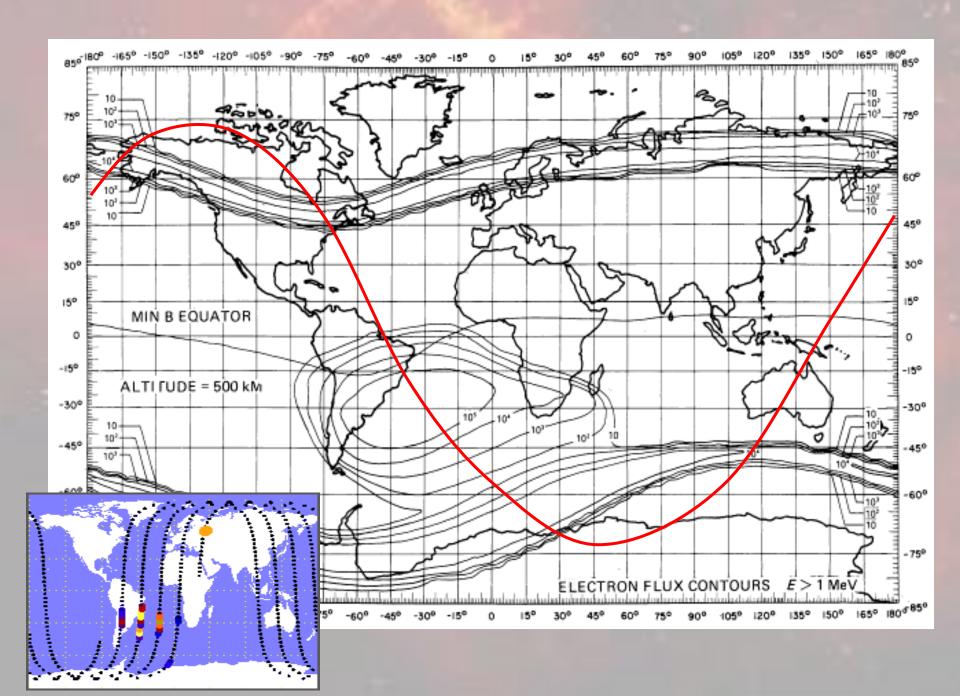


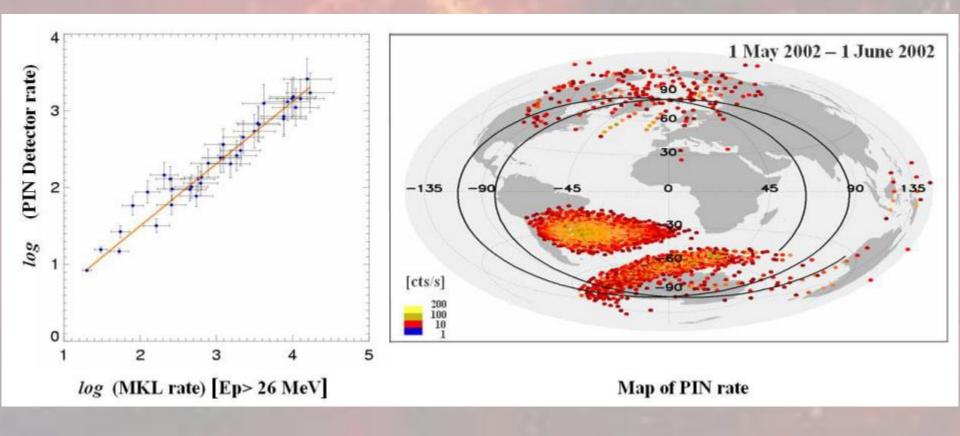
CORONAS-F launch, 2001 July 31

ORBIT

- Near-circular orbit around the
- Altitude from ~501 km to ~ 549 km
- Inclined at 82.5°
- Period is 94.9 min

- SAA + Rad Belt
- Nights up to ~35 min,
- Long days ~2 3 weeks

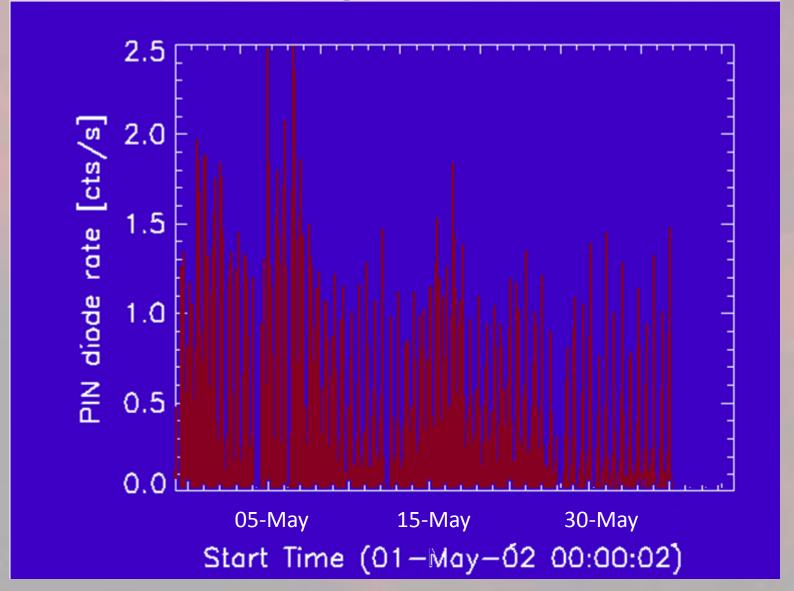


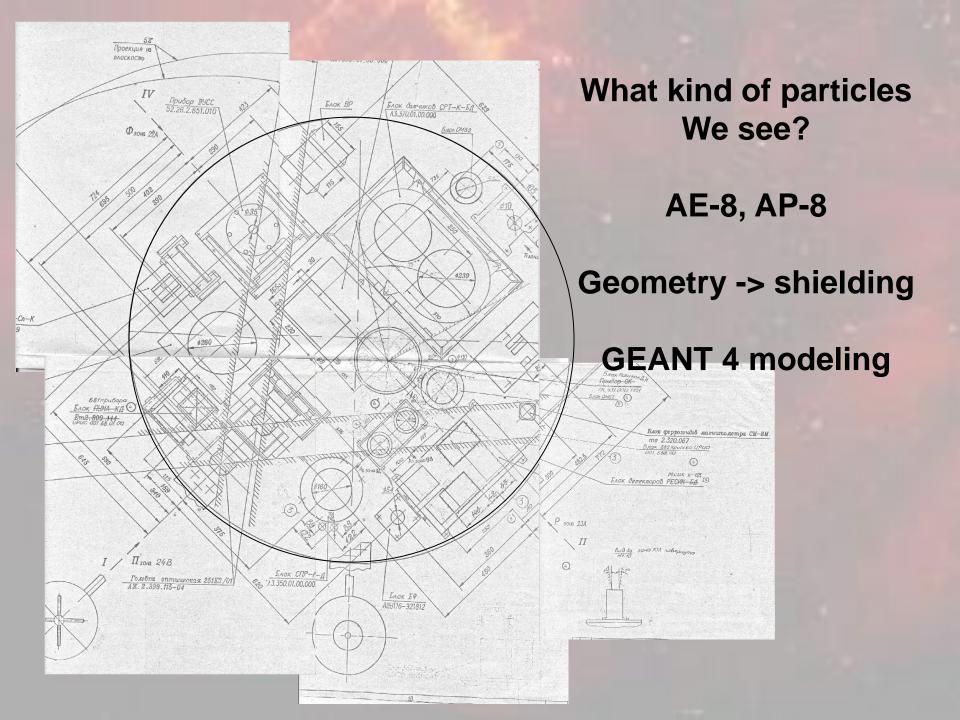


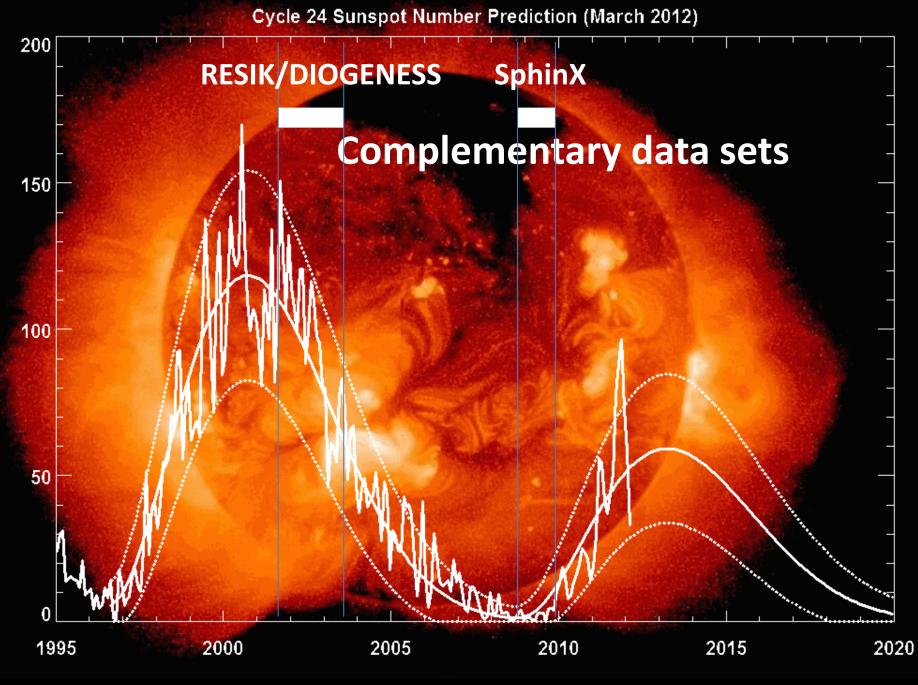
Correlation
diagram
between PIN and
MKL rates.

Distri-bution of rates as seen by RESIK PIN detectors in May 2002.

Changes in time







Hathaway/NASA/MSFC