Comparison of the Earth radiation environment observation from RESIK and SphinX instruments

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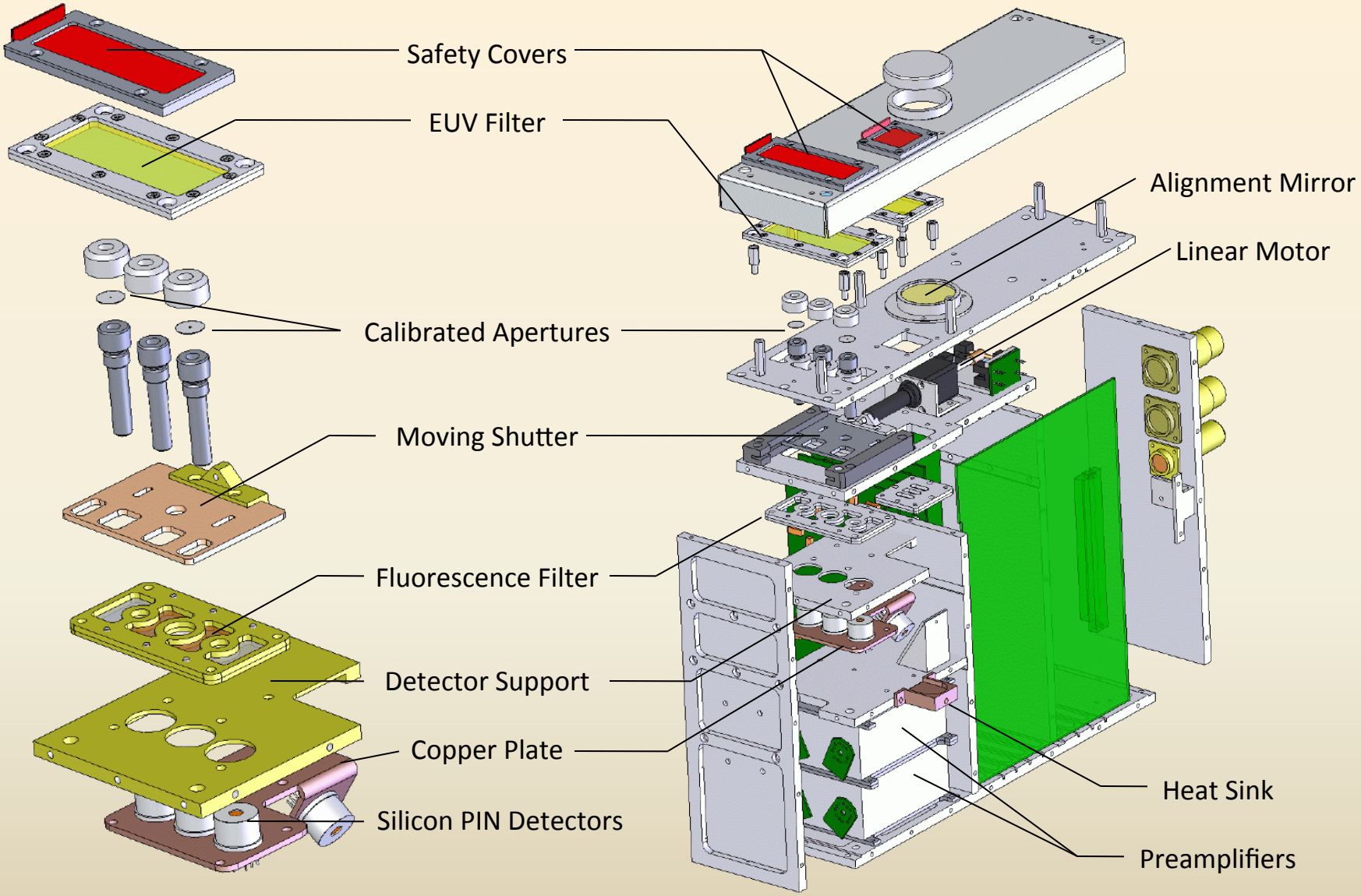
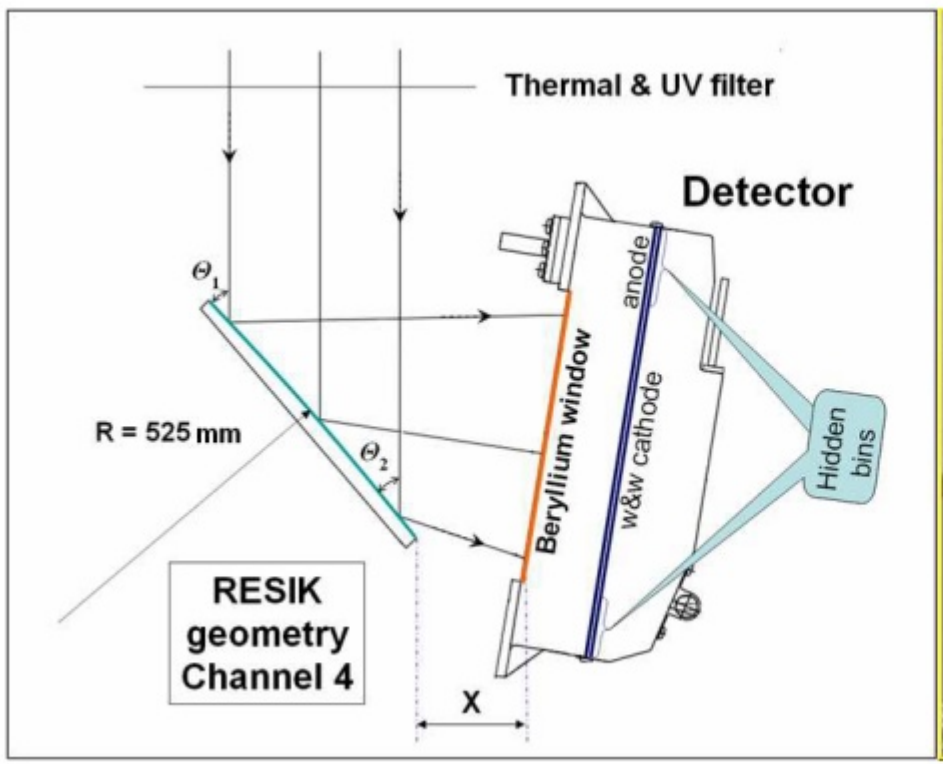
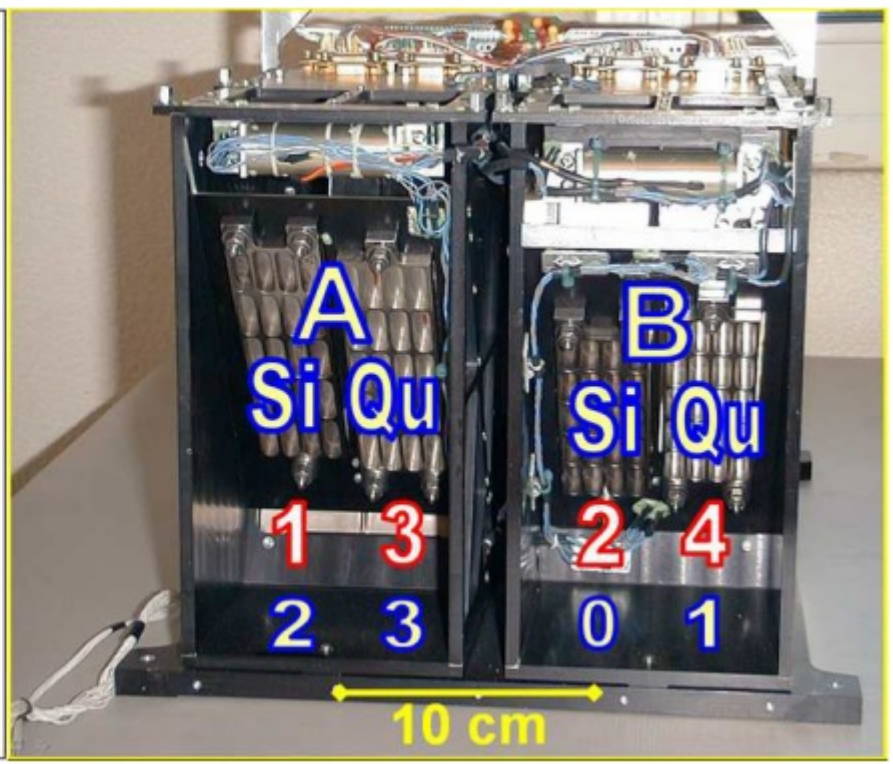
SphinX mechanical construction outline

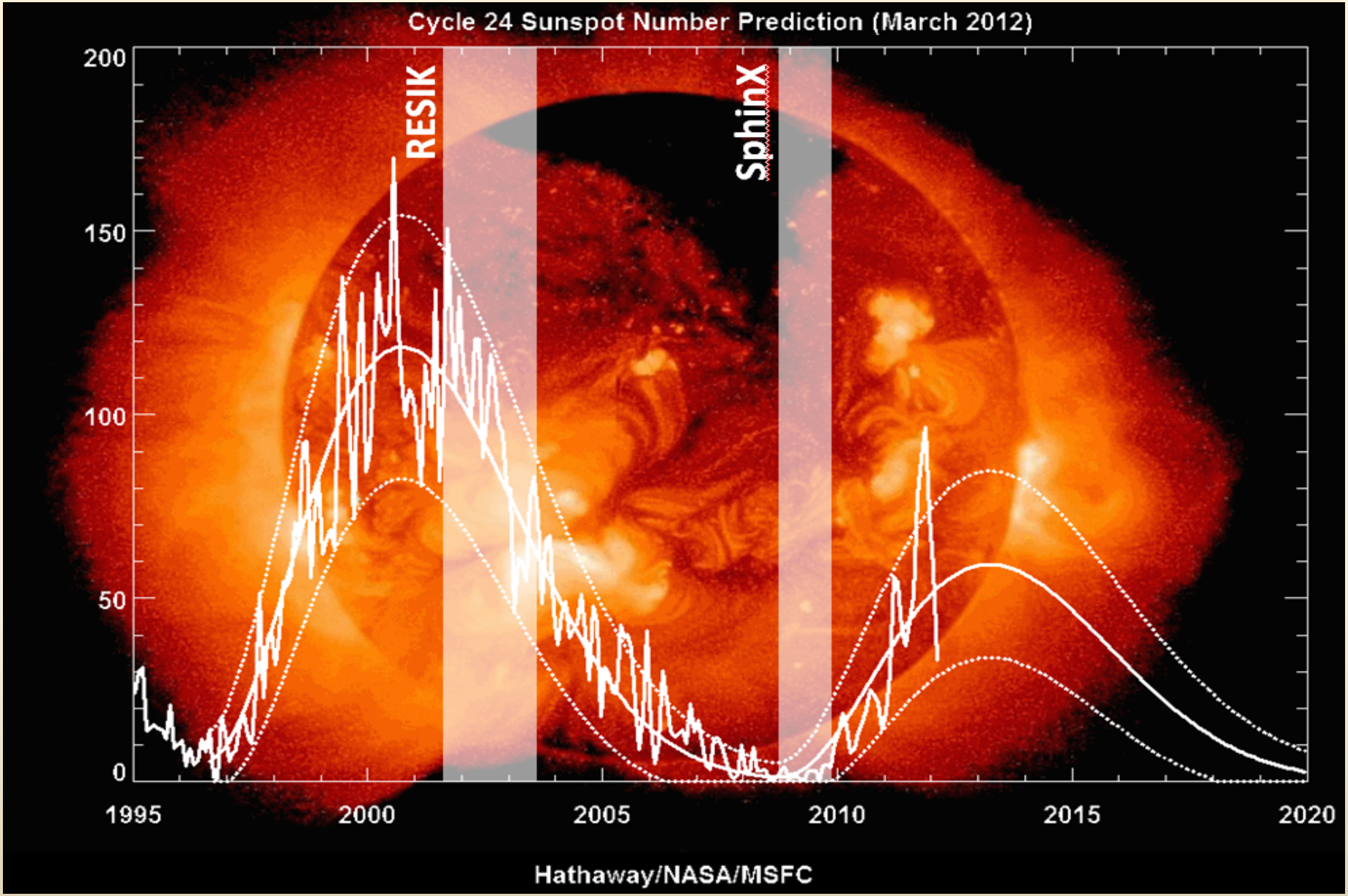


RESIK mechanical construction





RESIK and SphinX operational period



Basic characteristics of RESIK and SphinX

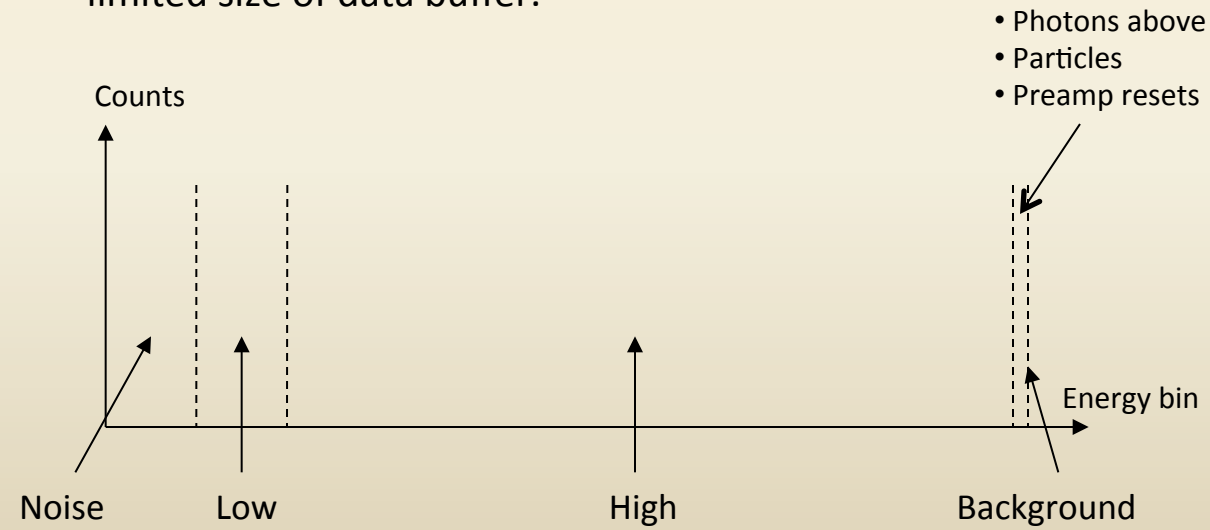
	RESIK	SphinX
satellite	CORONAS-F	CORONAS-PHOTON
Operational period	August 24, 2001 - May 22, 2003	February 20, 2009 - November 29, 2009
orbit	near-circular, LEO Altitude: from ~549km to ~501km Inclination: 82.5° Period: 94.9 min	near-circular, LEO Altitude: from ~541km to ~561km Inclination: 82.5° Period: 95.6 min
detectors	Gas filled proportional counters The same as for BCS on Yohkoh, Four PIN diodes behind the thick Al shield as particle detectors	Four Amptek XR-100CR silicon PIN detetectors

SphinX operation modes

Basic mode:
- provides only lightcurves in 4 energy bands,
- active all time while SphinX operated.

Spectral mode:
- provides spectra (256 channels),
- active only for selected time periods.

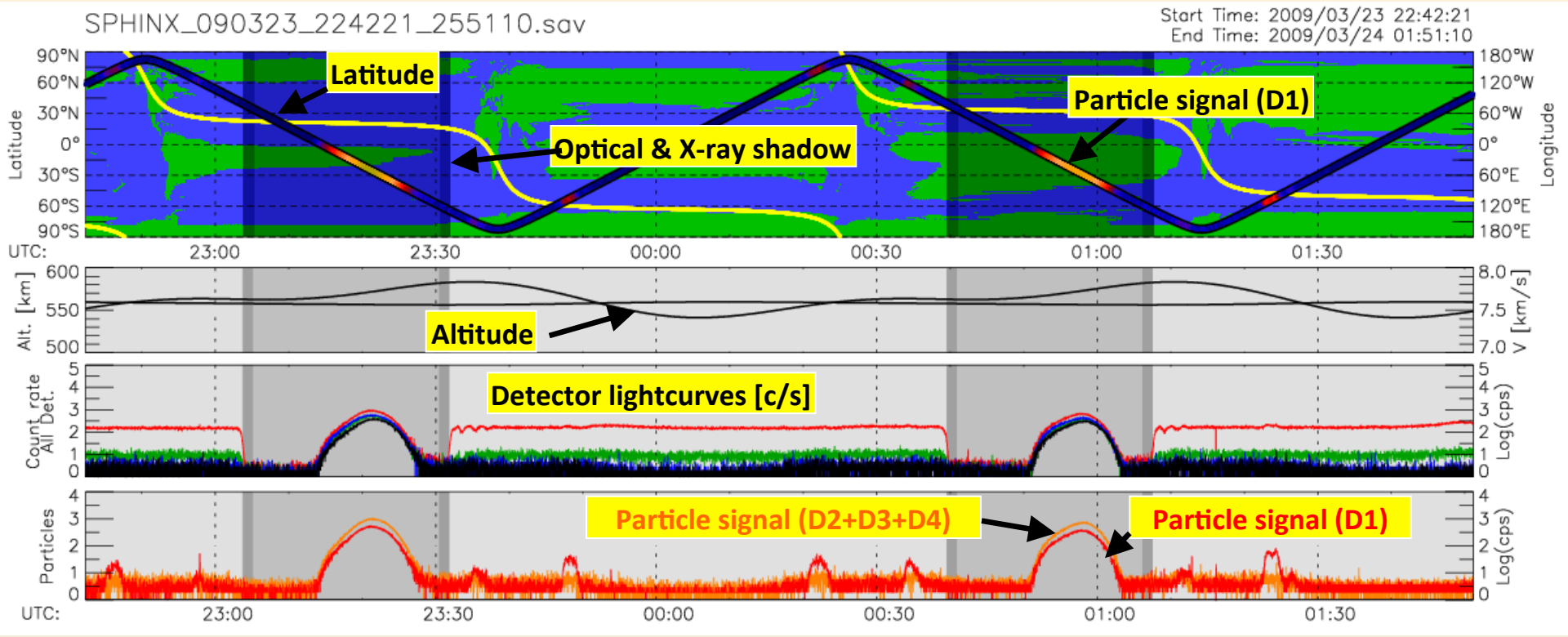
Sequence mode:
- provides full data – sequence of detector events recorded with their amplitudes and arrival times,
- active **most of the time,**
- allows for data reduction,
- limited size of data buffer.



energy bins

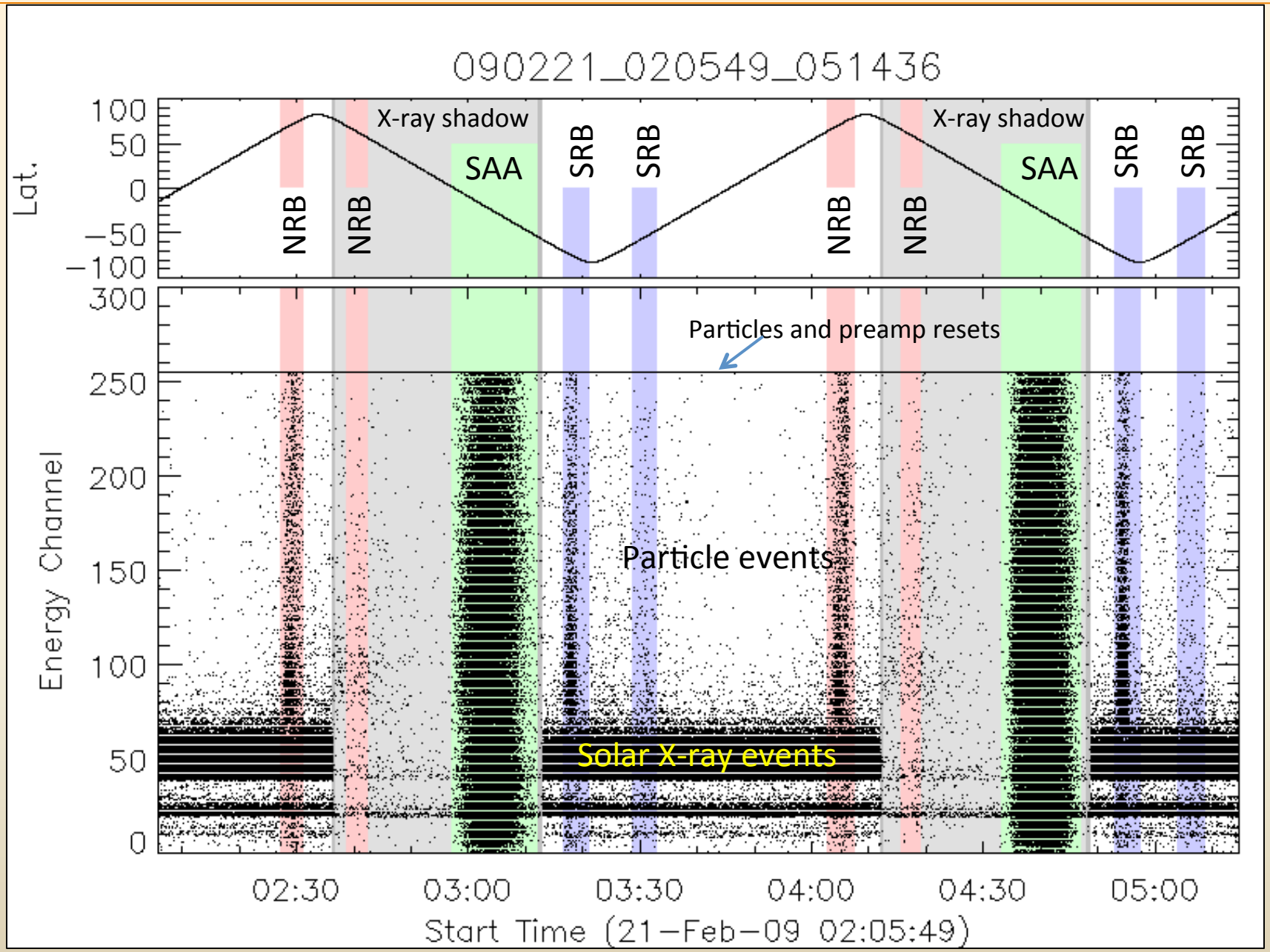
Band	D1	D2, D3
Noise	0 - 24	0 - 16
Low	25 - 50	17 - 50
High	51 - 253	51 - 253
Background	254 - 255	254 - 255

Example of SphinX particle signal (Level 0, basic mode)

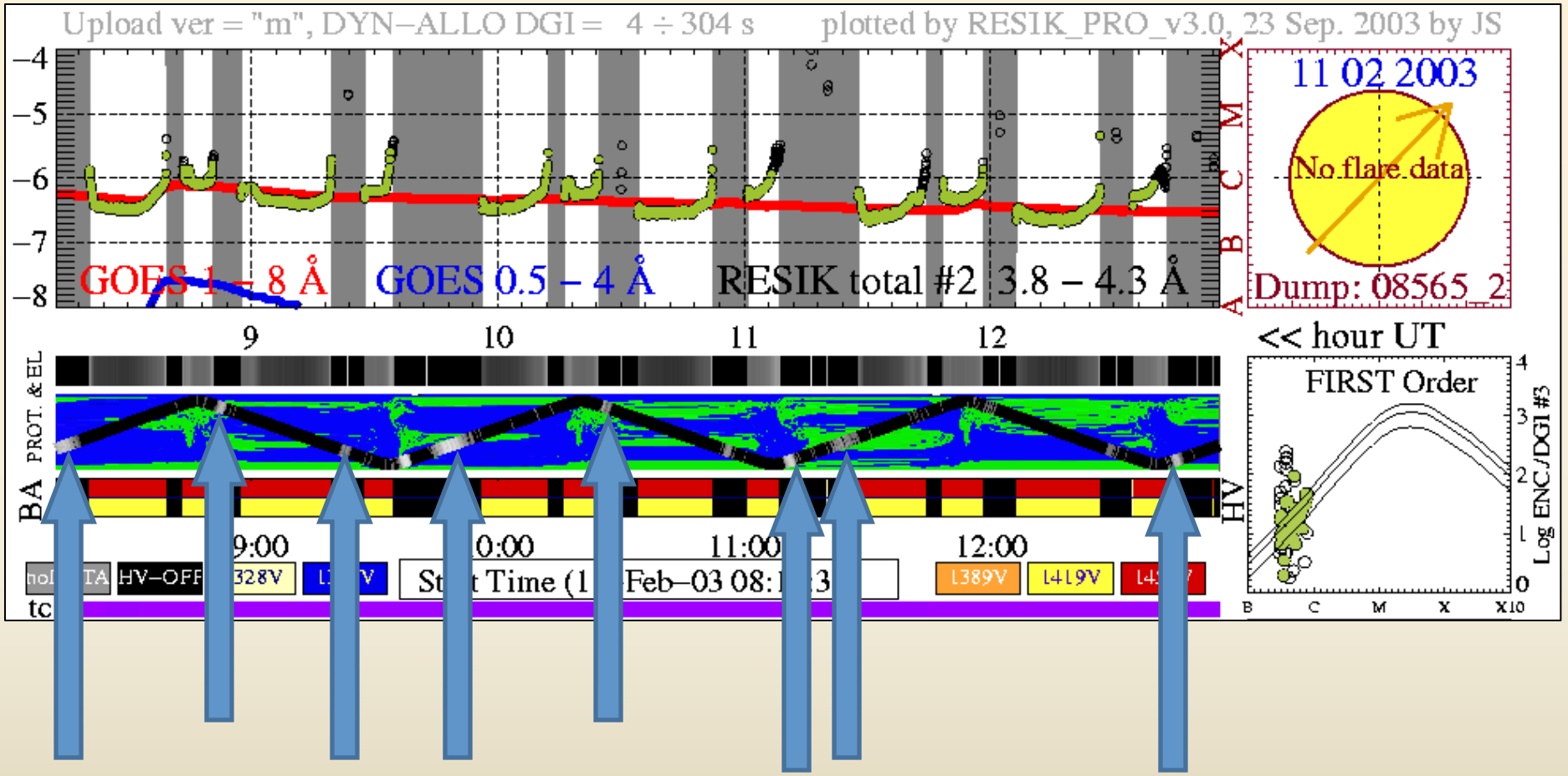


Detector D1 is sensitive to particles within SAA nad RB while D2 is sensitive mainly to particles within SAA.

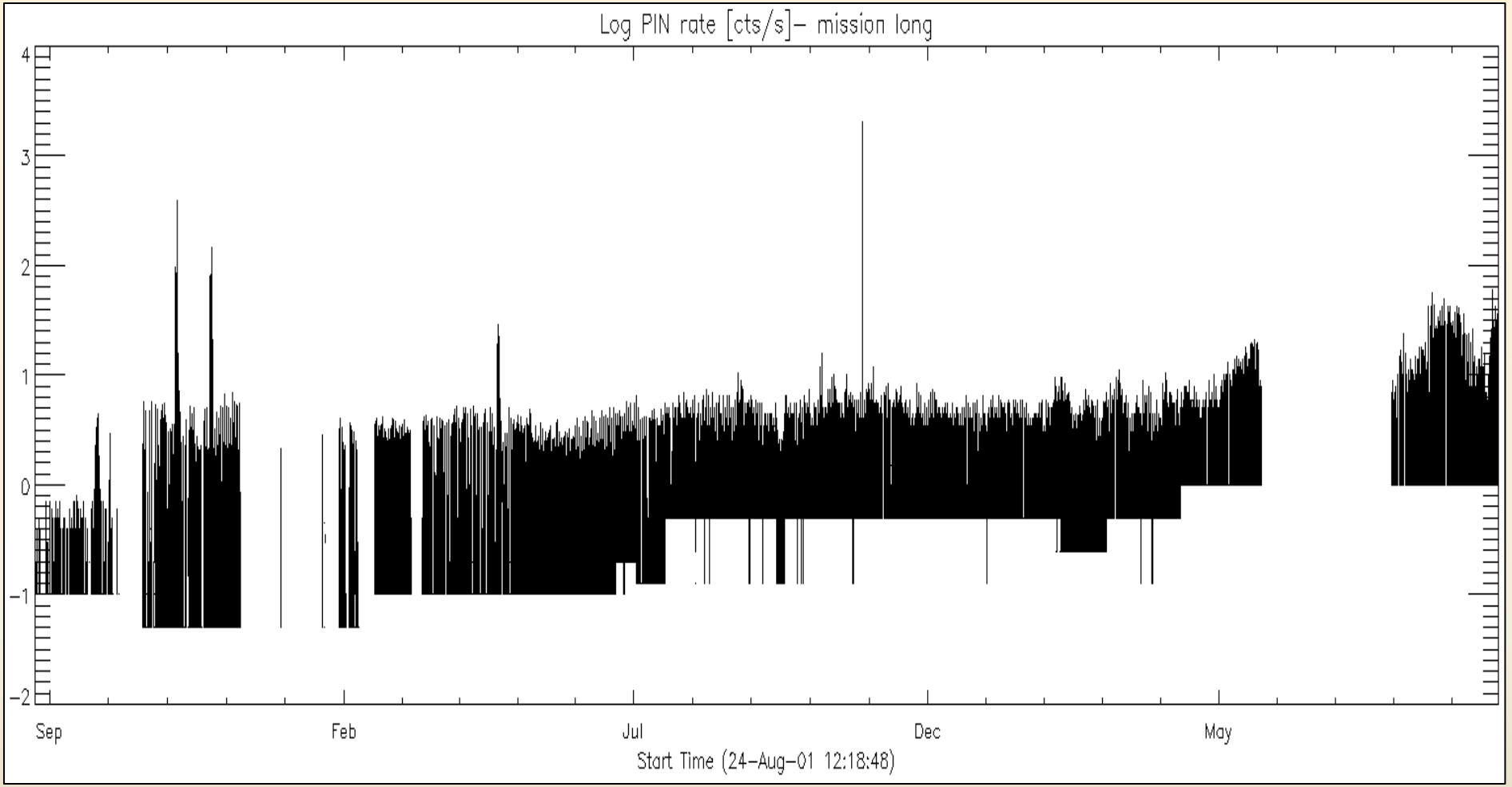
Example of SphinX D1 particle signal (Level 0, sequence mode)



Example of RESIK PIN particle signal

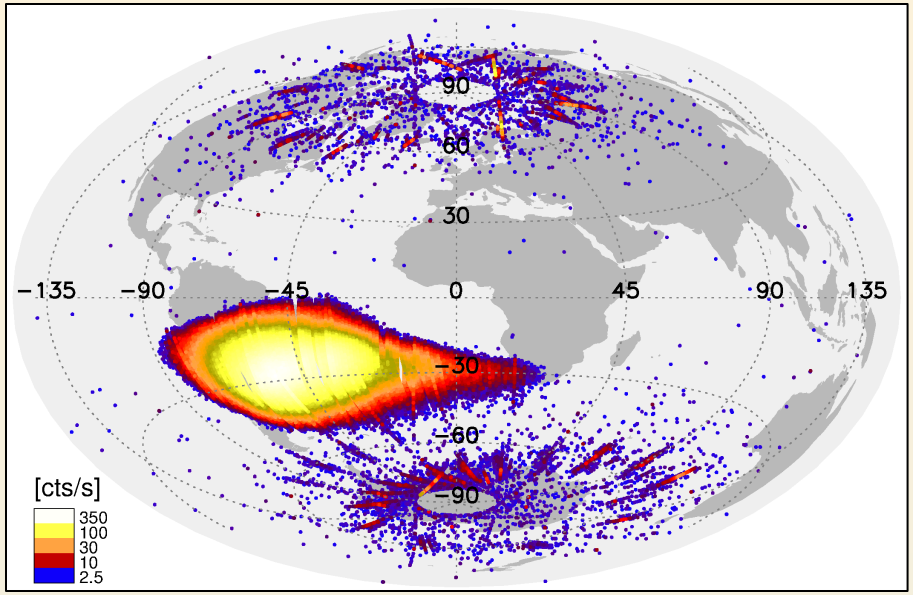


Particle signal from RESIK PIN diode



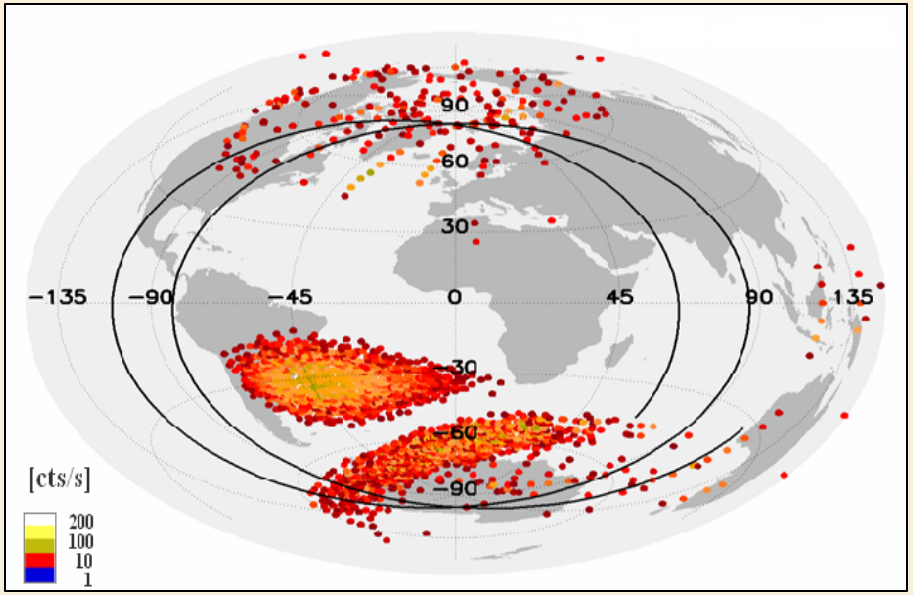
Comparison of particle map as seen by RESIK and SphinX

May 1, 2009 – June 1, 2009



SphinX D1 particle rate

May 1, 2009 – June 1, 2002



RESIK PIN particle rate