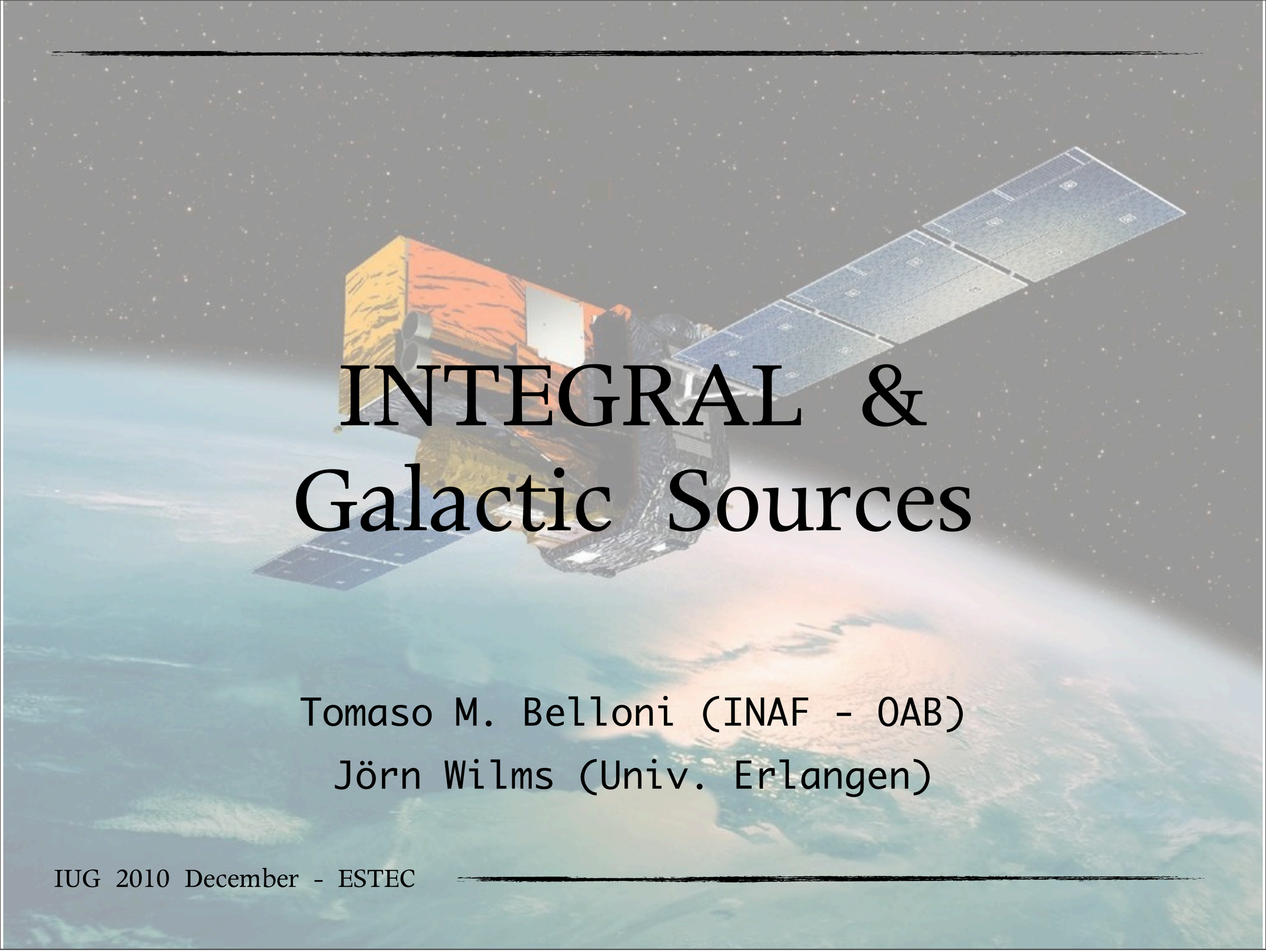

INTEGRAL & Galactic Sources

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Jörn Wilms (Univ. Erlangen)

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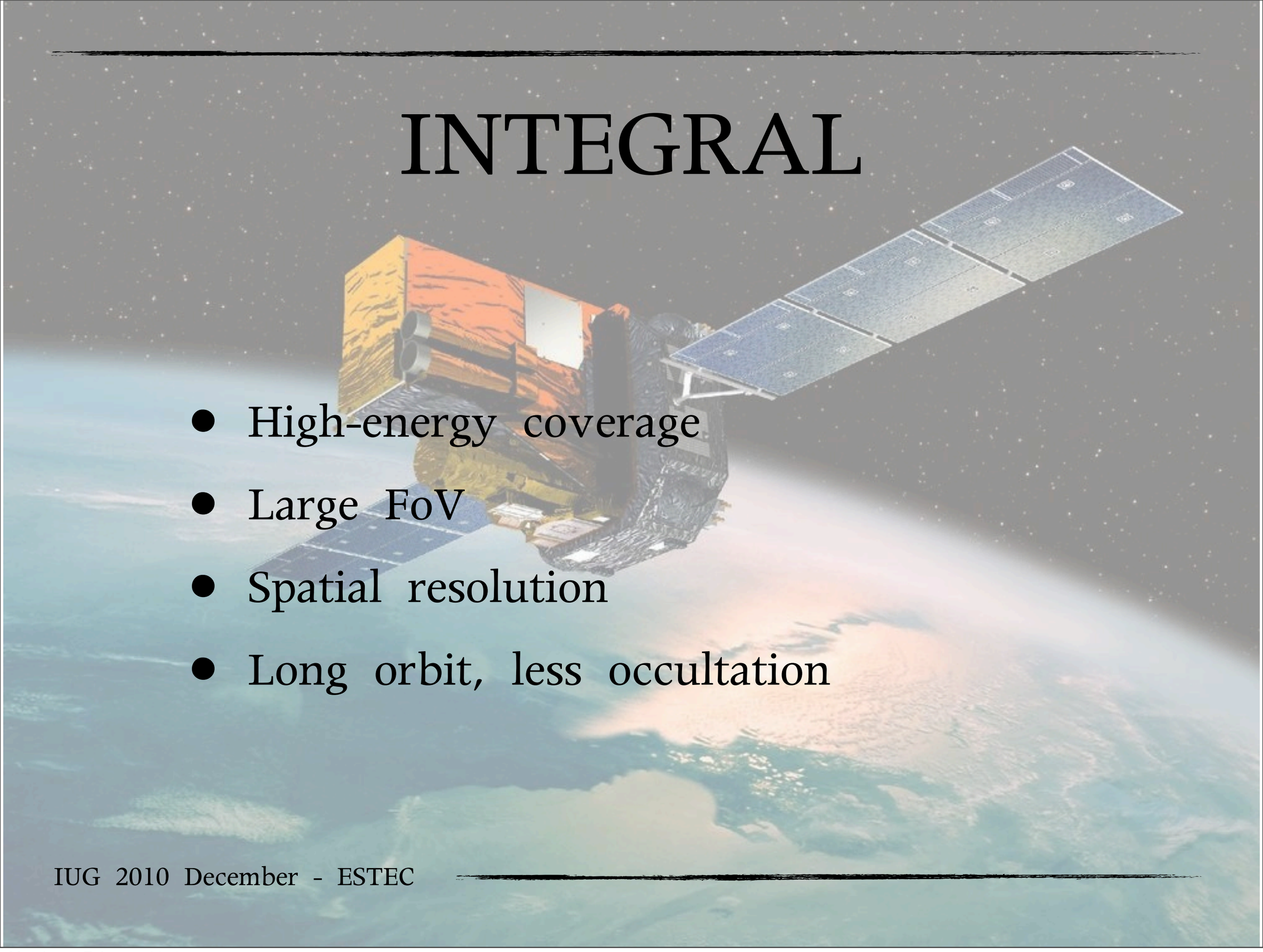
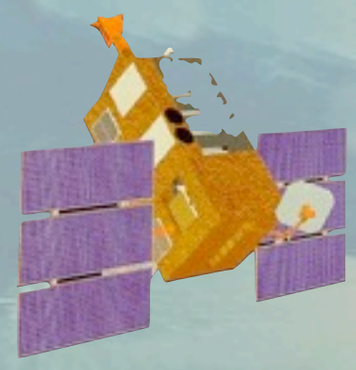
INTEGRAL

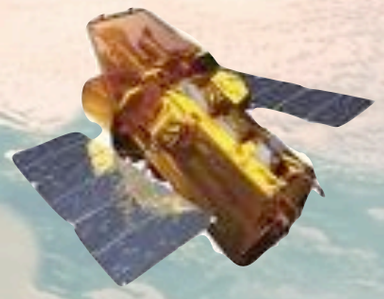


- High-energy coverage
- Large FoV
- Spatial resolution
- Long orbit, less occultation

The present

- Seven years into the mission
- AO strategy changed (KP)
- RXTE and Swift perfect companions

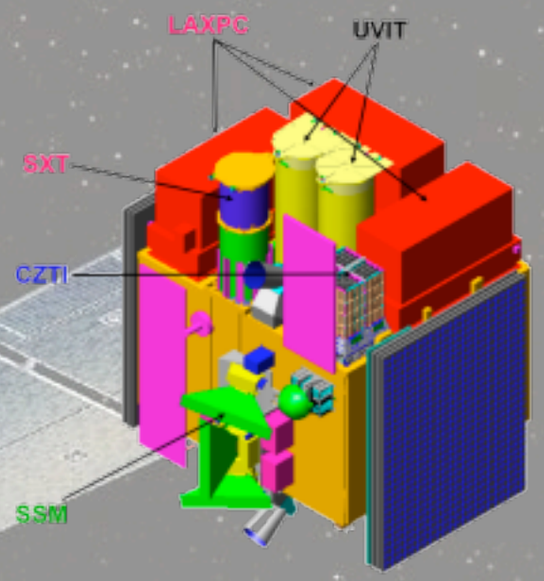




The future

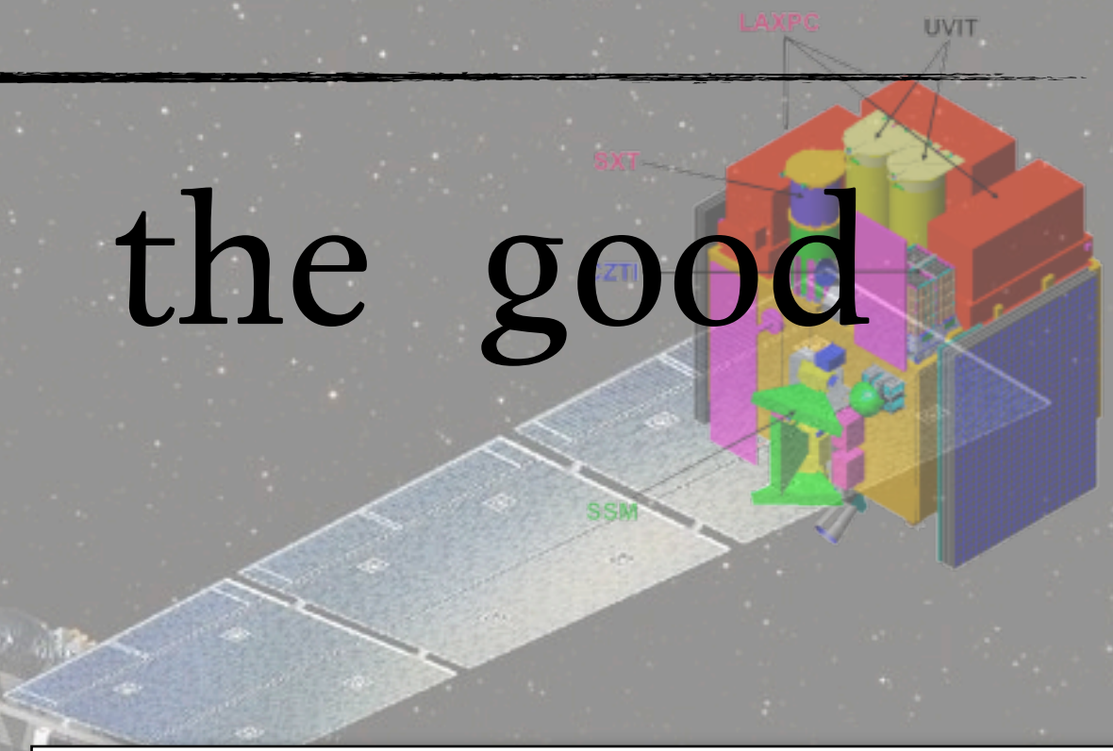
- RXTE will stop operations in 2010
- Need for coordinated campaigns
- Need long pointings from next AO
- ToO strategy essential
- Attract new observers

The future

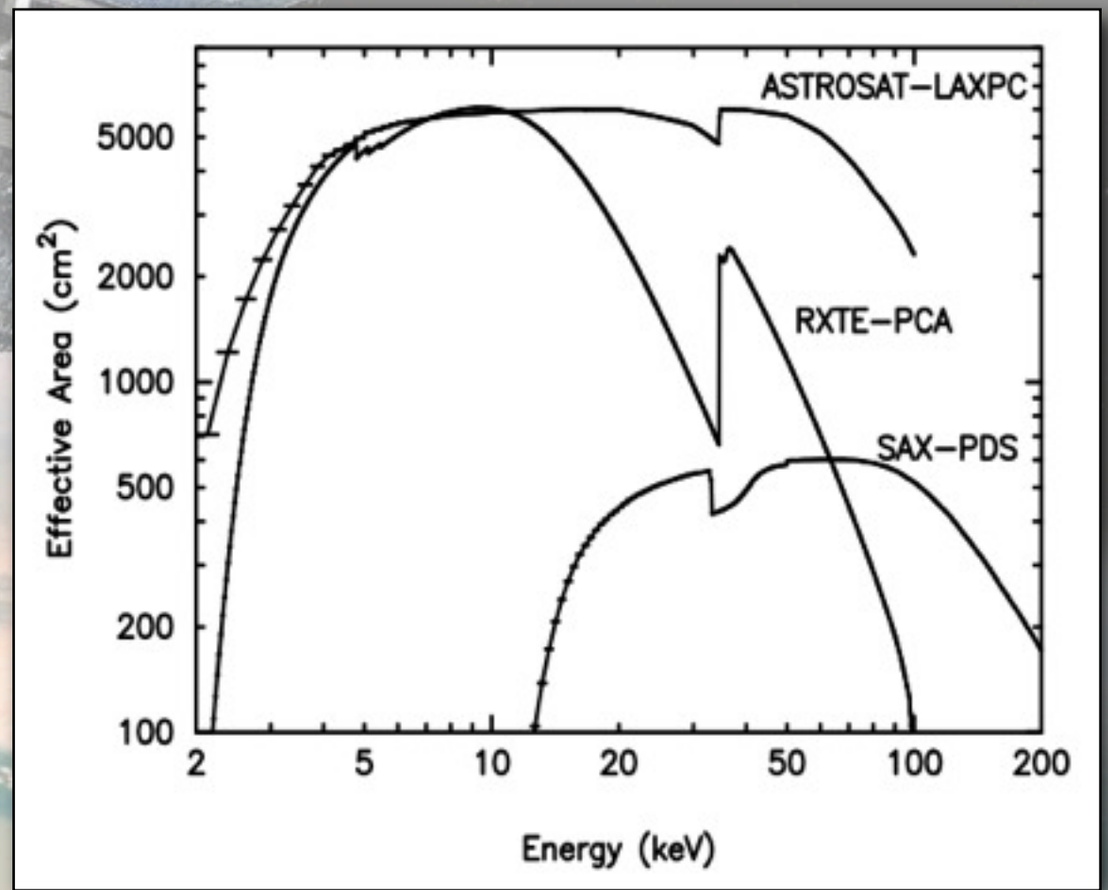


- ASTROSAT - late 2010, early 2011
- Indian mission (+Leicester & CSA)
- Important to co-ordinate

ASTROSAT: the good



	UVIT/OPT	SXT	LAXPC	CZTI	SSM
Detector	UV: photon counting CCD Opt: CCD photometer	X-ray CCD (at the focal plane)	Proportional Counter	CdZnTe detector array	Position-sensitive proportional counter
Imaging property	imaging	imaging	non-imaging	imaging (< 100 keV)	imaging
Optics	Twin Ritchey-Chretien 2 mirror system	Conical foil (~Wolter-I) mirrors	Collimator	2-D coded mask	1-D coded mask
Bandwidth	130-320 nm	0.3-8 keV	3-100 keV	10-150 keV	2-10 keV
Geometric Area (cm^2)	1250	250	10800	1000	180
Effective Area (cm^2)	60 (depends on filter)	125@0.5 keV 200@1-2 keV 25@6 keV	6000@5-30 keV	500 (<100 keV) 1000 (>100 keV)	~40@2 keV 90@5 keV (Xe gas)
Field of View	0.50° dia	0.35° (FWHM)	1° x 1°	6° x 6° (< 100 keV) 17° x 17° (> 100 keV)	
Energy Resolution	<100 nm (depends on filter)	2%@6 keV	9%@22 keV	5%@10 keV	19%@6 keV
Angular Resolution	1.8 arcsec	3-4 arcmin (HPD)	1-5 arcmin in scan mode only	8 arcmin	~10 arcmin
Time resolution	10 ms	2.6s, 0.3s, 1ms	10 microsec	1 ms	1 ms
Typical obs. time per target	30 min	0.5 - 1 day	1 - 2 days	2 days	5 min
Sensitivity (Obs. Time)	21st magnitude (5σ) (1800s)	10 microCrab (5σ) (10000s)	0.1 milliCrab (3σ) (1000s)	0.5 milliCrab (3σ) (1000s)	~30 milliCrab (3σ) (300s)



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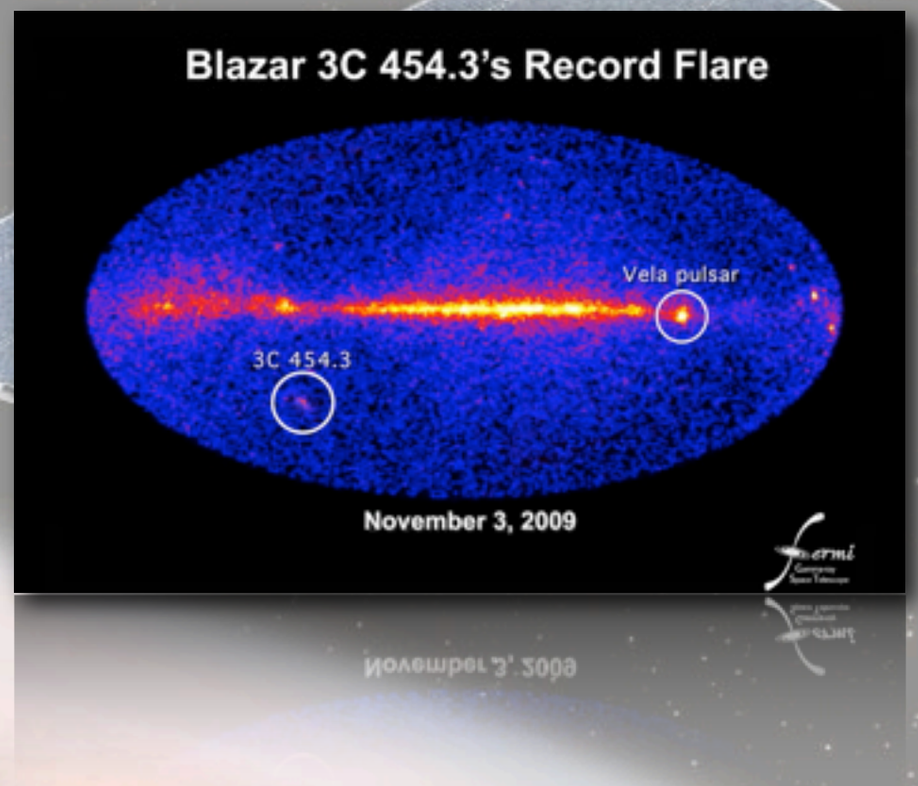
ASTROSAT: the bad

Data access

0-6 months: PV (Performance Verification)		6-12 months: GTO (Guaranteed Time)	
Year 2:	AO (India) 35%		GTO 50%
Year 3:	AO (India) 45%	AO (World) 10%	GTO 30%
Year 4:	AO (India) 65%	AO (World) 20%	

Reserved time: CSA 5%, UoL 3%, TOO 5%, Calibration 2% throughout the mission

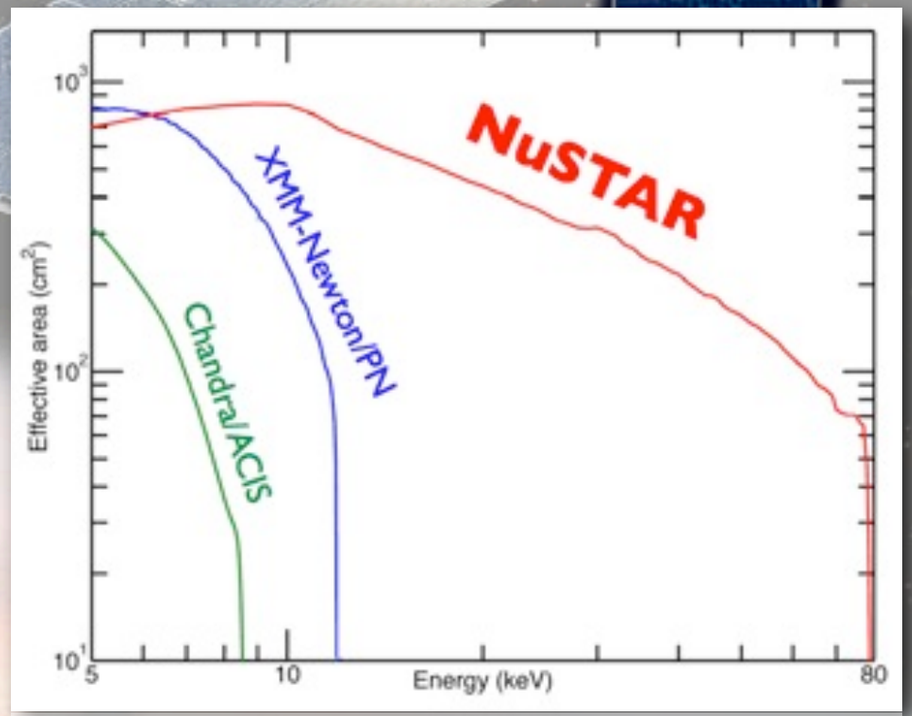
Fermi



- 20 Mev - 300 Gev
- FoV 〉 2 sr
- TOO response 48 hr
- Spectral res. 〈10%
- In orbit

NuSTAR

- Focussing @ 6-80 keV
- Resolution 46”
- FoV 12x12 arcmin
- TOO response 48 hr
- Spectral res. 1.25 keV @ 68 keV
- Launch: August 2011



The future

- Need coordination
- INTEGRAL is a unique companion
- Multi-wavelength (LOFAR)
- Stand-alone: galactic compact sources need (long) ToOs