

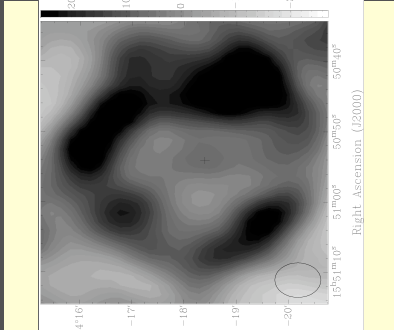
The January 2009 outburst of magnetar 1E1547.0-5408
at X-rays/soft γ -rays

Multi-mission cross calibration

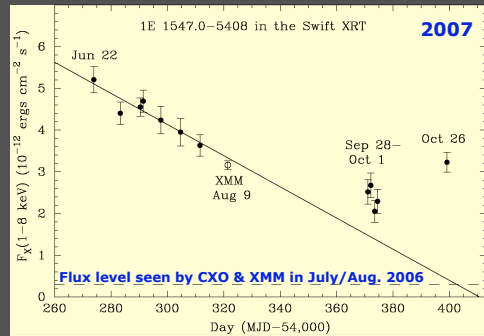
L.Kuiper, P.R. den Hartog, W. Hermsen

AXP	Discovery	P[s]	B[10^{14} G]
<i>Persistent</i>			
1E2259+586 (SNR)	1981	6.98	0.6
1E1048.1-594	1985	6.45	5.0
4U 0142+61	1993	8.69	1.3
1RXS J1708-4009	1997	11.00	4.6
1E1841-045 (SNR)	1997	11.77	7.1
CXOU J0110-721 (SMC)	2002	8.02	3.9
CXOU J164710.2-455216 (Westerlund 1)	2005	10.61	< 3.0
1E1547.0-5408 (SNR)	2007	2.07	2.2
<i>Transient</i>			
AX J1845-026 (?)	1998	6.97	?
XTE J1810-197	2003	5.54	2.6

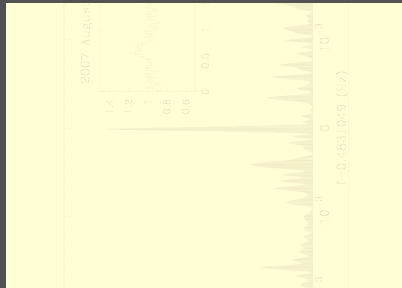
1E1547.0-5408



- Gelfand & Gaensler (2007) proposed association of candidate magnetar (X-ray spectrum; variability) and candidate SNR (4' diameter shell)
- Detection of radio-emitting magnetar, $P \sim 2$ s by Camilo et al. (2007): $B_s \sim 2.2 \times 10^{14}$ G; $\tau \sim 1.4$ kyr
- SWIFT monitoring and XMM-Newton ToO in June-Oct 2007 \Rightarrow decay from outburst?; Pulsed X-rays; 7% Pf (Halpern et al. 2008)

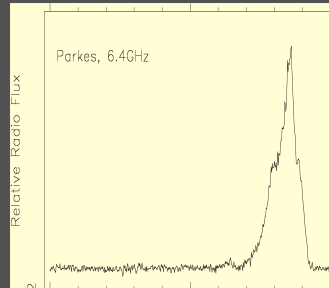


SRON



Z^2_1 -test on X-ray data (XMM) near radio freq.

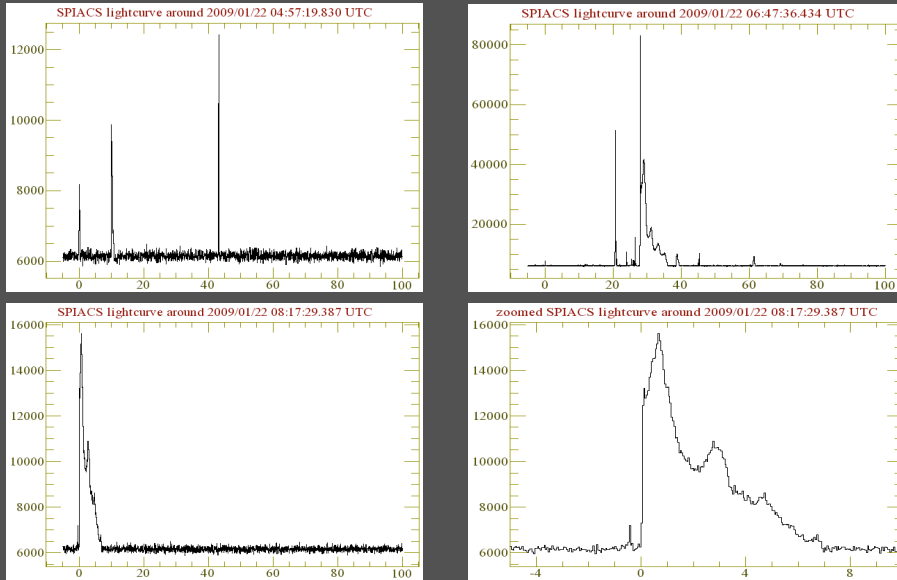
- About 1 year silence from Oct. 2007- Oct. 2008
- On Oct. 3, 2008 several short bursts detected by SWIFT BAT (GCN Circ. 8311); enhanced X-ray flux Factor ~ 100 increase in flux (2-10 keV) showing decay; activity till mid Oct. (FERMI GBM)



Radio/X-ray alignment

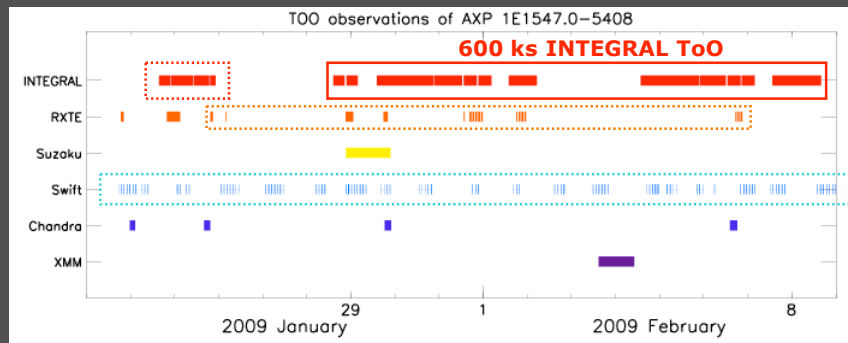
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SGR-like activity started on 22-1-2009 with strong short burst detected by SWIFT-BAT (GCN Circ. 8833): Many strong bursts detected by several instruments aboard different spacecrafts, SWIFT BAT, INTEGRAL SPI-ACS, FERMI GBM, Konus WIND, Suzaku WAM



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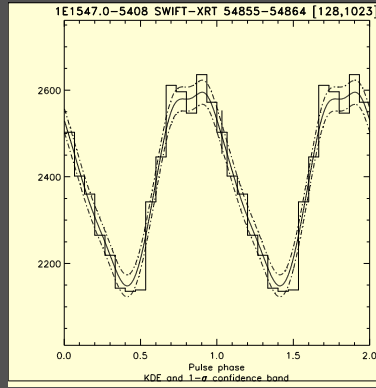
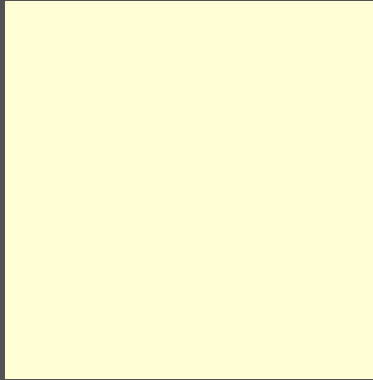


Public data: SWIFT [XRT], RXTE [PCA], INTEGRAL [ISGRI; 100 ks]

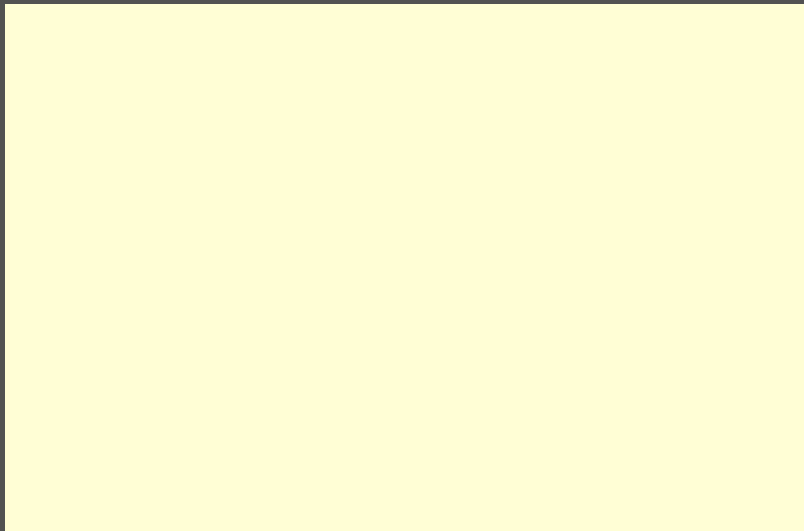
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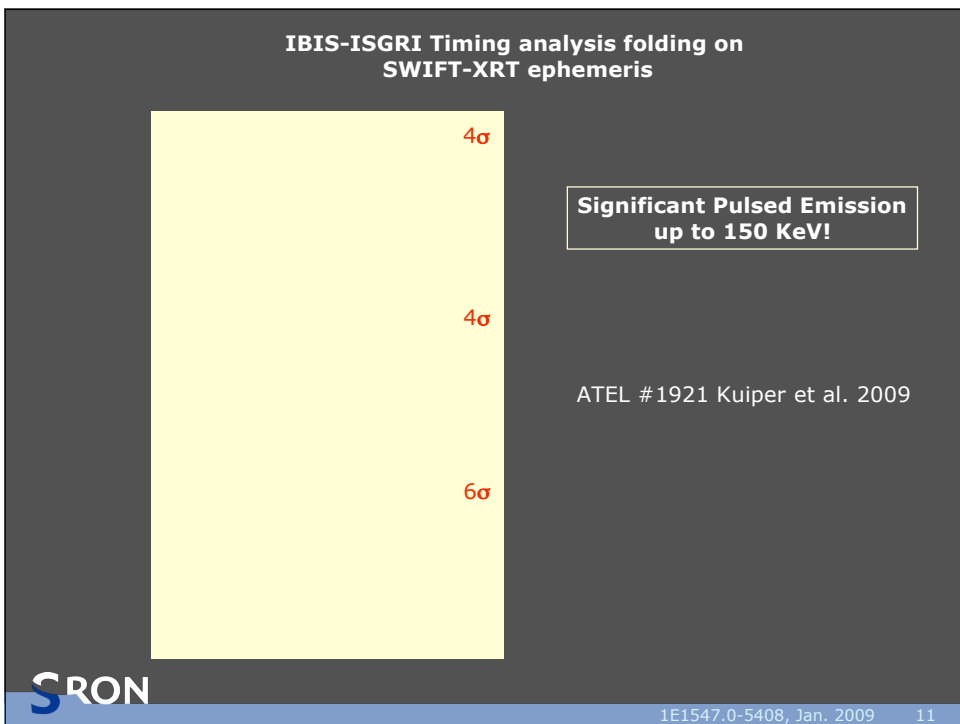
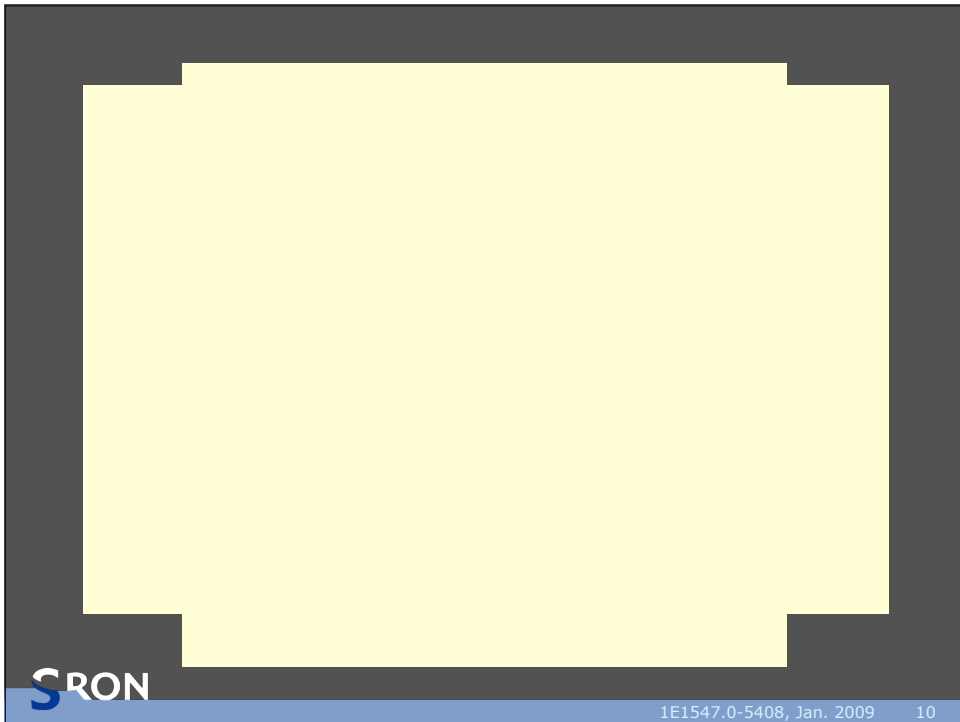
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SWIFT-XRT timing analysis

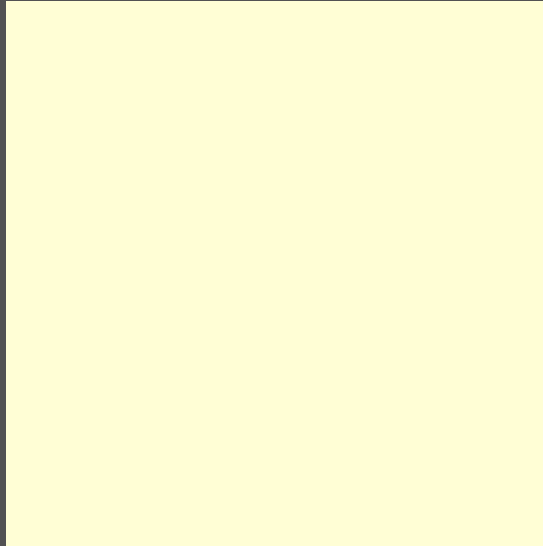


INTEGRAL IBIS-ISGRI





1E1547.0-5408: HE-spectrum Total (ISGRI/JEMX) / Pulsed (PCA/ISGRI)
2-300 keV



- The source is currently still (very) active: bursts and in high state
- Variability of the emission will make the cross calibration between different missions somewhat problematic
- Detailed analyses ongoing