



## UvA-DARE (Digital Academic Repository)

### Quiescent X-ray observations of Swift J1858.6-0814

Parikh, A.S.; Wijnands, R.; Altamirano, D.

**Publication date**

2020

**Document Version**

Final published version

**Published in**

The astronomer's telegram

**License**

Unspecified

[Link to publication](#)

**Citation for published version (APA):**

Parikh, A. S., Wijnands, R., & Altamirano, D. (2020). Quiescent X-ray observations of Swift J1858.6-0814. *The astronomer's telegram*, 13725.  
<http://www.astronomerstelegam.org/?read=13725>

**General rights**

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

**Disclaimer/Complaints regulations**

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

## Outside

GCN  
IAUCs

## Other

ATel on [Twitter](#) and [Facebook](#)  
ATELstream  
ATel Community Site[ [Previous](#) | [Next](#) | [ADS](#) ]

## Quiescent X-ray observations of Swift J1858.6-0814

ATel #13725; *A. S. Parikh, R. Wijnands, D. Altamirano*  
on 10 May 2020; 19:12 UTCredential Certification: *Aastha Parikh (A.S.Parikh@uva.nl)*

Subjects: X-ray, Neutron Star, Transient

The low-mass X-ray binary Swift J1858.6-0814 has been in outburst since October 2018 (ATel #12151). Observations of type-I X-ray bursts from the source showed that this low-mass X-ray binary hosts a neutron star (ATel #13563).

We have been monitoring this source using the X-ray telescope (XRT) on board the Neil Gehrels Swift Observatory since late March 2020. Recent observations demonstrate that the source has been transiting to quiescence. This has also been seen using optical observations obtained by the Las Cumbres Observatory (ATel #13719).

Our XRT coverage of Swift J1858.6-0814 shows that the source exhibited a count rate of  $\sim 0.06$  c/s around 8 April 2020, which is a strong decrease as compared to its outburst count rate of  $\sim 0.9$  c/s on 27 March 2020. Since then the source has continued exhibiting a low flux level.

Our four most recent XRT observations of Swift J1858.6-0814 (obtained over a time span of  $\sim 2$  weeks, with the last one obtained on 6 May 2020) exhibited a similar count of  $\sim 0.01$  c/s. We have extracted a combined spectrum from these observations (obsID: 00010970056-00010970059). Fitting this spectrum with an absorbed power-law model, we find a photon index of  $\Gamma \sim 2.8 \pm 0.7$  (and the equivalent hydrogen column density was found to be  $N_{\text{H}} \sim 0.7E22 \text{ cm}^{-2}$ ). Alternatively, the source spectrum can be fitted with an absorbed black-body or neutron star atmosphere model with temperatures of  $\sim 520$  eV and  $\sim 152$  eV, respectively (and corresponding  $N_{\text{H}}$  of  $\sim 0.1E22 \text{ cm}^{-2}$  and  $\sim 1.0E22 \text{ cm}^{-2}$ ). These spectral fits show that the source currently has an X-ray luminosity of  $\sim (2-5)E34 \text{ erg/s}$  (0.5-10 keV, unabsorbed, assuming  $d = 15 \text{ kpc}$ ; ATel #13563).

We have additional XRT coverage approved to monitor the further evolution of the source. In addition, Swift J1858.6-0814 is a promising candidate to probe dense matter physics in neutron star crusts by potentially observing and monitoring the cooling evolution and an accretion-heated neutron star crust. Thus, we have triggered our approved crust cooling proposal (PI Wijnands) and we will obtain our first Chandra observation in the week of 18 May 2020.

## Related

- 14419 [Optical monitoring of GX 339-4 suggests the source is approaching state transition](#)
- 14415 [Optical fading of black hole LMXB XTE J1859+226 during its current mini-outburst](#)
- 14332 [Fast high-amplitude optical variations in Cen X-4 during the brief flare episode seen with REM and LCO](#)
- 14302 [XB-NEWS detects a probable new outburst from Cen X-4 after 41 years](#)
- 14254 [Long term fading and recent brightening in Cen X-4 in quiescence: precursor to an outburst?](#)
- 14132 [Independent classification of transient AT2020iko as a CV with a superoutburst and re-brightenings](#)
- 14016 [Mini-outburst from the black hole candidate MAXI J1348-630 detected at optical frequencies by XB-NEWS](#)
- 13994 [MAXI/GSC detection of successive mini-outbursts from the black hole candidate MAXI J1348-630](#)
- 13779 [Fading of MAXI J0637-430 towards quiescence](#)
- 13727 [Optical variability in gamma-ray blazar VER J0521+211](#)
- 13725 [Quiescent X-ray observations of Swift J1858.6-0814](#)
- 13719 [Fading of low-mass X-ray binary Swift J1858.6-0814 to quiescence level](#)
- 13710 [XB-NEWS detects a new outburst from MAXI J1348-630](#)
- 13563 [NICER and NuSTAR detections of Type I bursts and periodic dips in Swift J1858.6-0814](#)
- 13536 [NICER detection of flux increase and spectral state change in Swift 1858.6-0814](#)

13467	MeerKAT and Swift/XRT detection of MAXI J1348-630
13465	Re-brightening and decaying of MAXI J1348-630 as observed with NICER
13459	MAXI J1348-630: MAXI/GSC detection
13455	MAXI/GSC detection of a probable new soft X-ray transient MAXI J1857-086 or renewed activity of Swift J1858.6-0814
13454	XB-NEWS detects a new optical rise during the current outburst of MAXI J0637-430
13451	XB-NEWS detection of a new outburst of MAXI J1348-630
13255	Transient Activity in recent GPS observations
13223	Swift J1845.7-0037: Lulin optical observation
13222	Revised SED of the Probable Infrared Counterpart to Swift J1845.7-0037
13220	Near-Infrared archival data on 2MASS J18455462-0039341 / Swift J1845.7-0037
13219	Swift J1845.7-0037: Comparison of X-ray and optical positions
13218	2MASS J18455462-0039341 / Swift J1845.7-0037 is a double star
13214	Erratum to ATEL#13208
13211	Evidence of a B Star Counterpart to Swift J1845.7-0037
13208	A descriptive title
13195	Swift J1845.7-0037: 199s period detection, possible BeXRB?
13191	MAXI J1847-004: Swift observation and identification with Swift J1845.7-0037
13189	MAXI/GSC discovery of a new hard X-ray transient MAXI J1847-004
13188	Rebrightening of MAXI J1348-630
13037	Insight-HXMT monitoring of the Type-C QPO in the black hole candidate EXO 1846-031
13036	Insight-HXMT detection of the hard-to-soft state transition in the black hole candidate EXO 1846-031
13012	Disk Reflection and Winds in a NuSTAR Observation of the Black Hole Candidate EXO 1846-031
12992	MeerKAT detection of EXO 1846-031 at 1.3 GHz
12991	ZTF limits on optical emission from EXO 1846-031
12977	VLA radio detection of the black hole candidate X-ray binary EXO 1846-031
12976	NICER detection of QPOs from EXO 1846-031
12969	Localization of EXO 1846-031 by Swift/XRT
12968	MAXI/GSC detection of renewed activity of the black hole candidate EXO 1846-031 after 34 years
12881	Detection of optical P-Cygni profiles in Swift J1858.6-0814
12838	MAXI/GSC detection of X-ray rebrightening of MAXI J1348-630
12829	Optical re-brightening of MAXI J1348-630
12704	INTEGRAL's detection of two Galactic X-ray transient sources: SWIFT J1858.6-0814 and 4U 1901+014 Possible discovery of a

12684	cyclotron line in 4U 1901+03 with NuSTAR
12512	NuSTAR shows continued X-ray activity of Swift J1858.6-0814 in an unusual spectral state
12499	ULTRASPEC observations of SWIFT J1858.6-0814
12498	MAXI/GSC detection of the outburst from binary X-ray pulsar 4U 1901+03
12425	MAXI/GSC discovery of a new X-ray transient MAXI J1348-630
12220	Significant Intrinsic Absorption in Swift J1858.6-0814
12197	Blue Oscillations and Rapid Red Flares in Swift J1858.6-0814 Observed with ULTRACAM/NTT
12186	More optical follow-up of Swift J1858.6-0814
12184	AMI-LA radio observations of the galactic X-ray transient Swift J1858.6-0814
12180	Optical observations of the rapidly varying newly discovered transient Swift J1858.6-0814
12167	INTEGRAL detection of the X-ray transient Swift J1858.6-0814
12164	Swift J1858.6-0814: Localization and variability of the optical counterpart
12163	MAXI/GSC observations of the X-ray transient Swift J1858.6-0814
12160	Swift J1858.6-0814: Swift XRT and UVOT localization
12158	Initial NICER observation of the new X-ray transient Swift J1858.6-0814
12151	Swift reports the detection of a new galactic transient source Swift J1858.6-0814

---

[ [Telegram Index](#) ]

R. E. Rutledge, Editor-in-Chief

Derek Fox, Editor

[rrutledge@astronomerstelegam.org](mailto:rrutledge@astronomerstelegam.org)

[dfox@astronomerstelegam.org](mailto:dfox@astronomerstelegam.org)