



UvA-DARE (Digital Academic Repository)

The spin-down rate of Swift J1822.3-1606 finally measured: confirmation as magnetar

Kuiper, L.; Hermsen, W.

Publication date

2011

Document Version

Final published version

Published in

The astronomer's telegram

License

Unspecified

[Link to publication](#)

Citation for published version (APA):

Kuiper, L., & Hermsen, W. (2011). The spin-down rate of Swift J1822.3-1606 finally measured: confirmation as magnetar. *The astronomer's telegram*, 3665.
<https://www.astronomerstelegram.org/?read=3665>

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.

ATel On

Patreon
Mastodon
Twitter

The Astronomer's Telegram

Post | Search | Policies
Credential | Feeds | Email

9 Dec 2022; 10:13 UT

This space for free for your conference.



Thanks to Patrons, The Astronomer's Telegram is free to read, free to publish and always will be. Thank you.

[[Previous](#) | [Next](#) | [ADS](#)]

The spin-down rate of Swift J1822.3-1606 finally measured: confirmation as magnetar

ATel #3665; *L. Kuiper (SRON) and W. Hermsen (SRON, UvA)*
on 27 Sep 2011; 15:00 UT
Credential Certification: *Lucien Kuiper (L.M.Kuiper@sron.nl)*

Subjects: X-ray, Neutron Star, Soft Gamma-ray Repeater, Transient, Pulsar

[Tweet](#)

Data from monitoring observations of magnetar-candidate Swift J1822.3-1606 with RXTE PCA covering a time span of about 10 weeks (MJD 55758-55826) since its discovery on July 14, 2011 (ATEL #3488; GCN #12159) have been used to construct an accurate phase-coherent timing solution. Barycentered pulse arrival times (ToA's; see ATEL #3493 for the adopted source location) have been obtained by a cross-correlation method with a high-statistics pulse-profile template.

Fitting two frequency parameters to the ToA set (24 PCA observations) we obtained, $\nu = 0.1185154236(6)$ Hz and $d\nu/dt = -3.7(5)E-15$ Hz/s for Epoch 55789.0 MJD (TDB timescale; validity time range MJD 55758-55827; quoted errors are 1 sigma) consistent with the upper-limits quoted by Scholz et al. (ATEL # 3553) and Rea et al. (ATEL #3501). Monitoring observations with Swift XRT over the same period yielded consistent ToA residuals in spite of the lack of updated Swift clock correction information. The estimated surface polar magnetic field adopting the canonical magnetic-dipole braking model is $(4.8 \pm 0.3)E13$ Gauss, just above the quantum critical value of $4.413E13$ Gauss. This puts Swift J1822.3-1606 in the magnetar regime. The characteristic time scale (age) is about $5.1E5$ year.

Related	
3944	On the spin-down rate of Swift J1822.3-1606
3665	The spin-down rate of Swift J1822.3-1606 finally measured: confirmation as magnetar
3553	Continued X-ray Monitoring of Magnetar Candidate SWIFT J1822.3-1606
3543	SGR 1822-1606: Constant Spin Period
3518	Swift J1822.3-1606: Optical spectroscopy of the counterpart candidates from the 10.4m GTC
3515	Optical observations of Swift J1822.3-1606 with the 10.4m Gran Telescopio Canarias
3503	SGR 1822-1606 (Swift 1822.3-1606): Spin-down rate and inferred dipole field strength
3502	Search for an IR counterpart to the newly discovered transient Swift J1822.3-1606
3501	Swift J1822.3-1606: refined X-ray timing and spectral parameters
3496	Swift J1822.3-1606: Optical/NIR counterpart candidate
3495	Swift J1822.3-1606: pre-outburst ROSAT limits (plus erratum)
3493	Swift J1822.3-1606: Enhanced Swift-XRT position
3491	RXTE Detection of the Spin Period of Swift J1822.3-1606
3490	SGR 1822-1606 (Swift J1822.3-1606): X-ray spectrum and refined spin period from Swift XRT analysis
3489	Swift J1822.3-1606: Swift-XRT detection of the X-ray counterpart
3488	Swift J1822.3-1606: A Probable New SGR in Ground Analysis of BAT Data

[[Telegram Index](#)]

R. E. Rutledge, Editor-in-Chief
Derek Fox, Editor

rrutledge@astronomerstelegram.org

dfox@astronomerstelegram.org