

Sunquake discovery 27 May 1998

Kosovichev A.G and Zharkova V.V., 1998, *Nature*, 393, 317-318

<https://ui.adsabs.harvard.edu/abs/1998Natur.393..317K/abstract>

full paper [https://solargsm.com/wp-](https://solargsm.com/wp-content/uploads/2026/02/Kosovichev_Zharkova_quake_nature98.pdf)

[content/uploads/2026/02/Kosovichev_Zharkova_quake_nature98.pdf](https://solargsm.com/wp-content/uploads/2026/02/Kosovichev_Zharkova_quake_nature98.pdf)

V. Zharkova reported their joint with A. Kosovichev discovery of a sunquake at the spring AGU meeting at Boston on 28 May 1998 after the paper was published on 27 May 1998 in the *Nature* magazine .

Stanford University site with links

[http://soi.stanford.edu/press/agu05-](http://soi.stanford.edu/press/agu05-98/#:~:text=Scientists%20have%20shown%20for%20the%20first%20time,gigantic%20seismic%20quakes%2C%20in%20the%20Sun's%20interior.)

[98/#:~:text=Scientists%20have%20shown%20for%20the%20first%20time,gigantic%20seismic%20quakes%2C%20in%20the%20Sun's%20interior.](http://soi.stanford.edu/press/agu05-98/#:~:text=Scientists%20have%20shown%20for%20the%20first%20time,gigantic%20seismic%20quakes%2C%20in%20the%20Sun's%20interior.)

SOHO/MDI press-release

<http://soi.stanford.edu/press/agu05-98/press-rel.html>

ESA press-release

<https://sci.esa.int/web/soho/-/37379-sun-quake>

The news received the world-wide coverage on 5 continents .

The paper reported the time-distance diagrams of the acoustic wave detected in this flare which were seen as propagation of ripples on the solar surface, or the photosphere, travelling from the flare location with a speed of 50 km/s that was **called a sunquake**. The sunquake in this flare was accompanied by Coronal Mass Ejection (CME) and Moreton wave detected in H-alpha line in the chromosphere traveling with the velocity 750- 1000 km/s.

Moreton waves can be explored on these references:

1. Moreton, 1964 abstract

<https://ui.adsabs.harvard.edu/abs/1964AJ.....69Q.145M/abstract> and full paper

<https://articles.adsabs.harvard.edu/pdf/1964AJ.....69Q.145M>

2. Warmuth et al, 2001, abstract

<https://ui.adsabs.harvard.edu/abs/2001ApJ...560L.105W/abstract> and the full paper

pdf file <https://iopscience.iop.org/article/10.1086/324055/pdf>

There were the press- releases for this discovery by the SOHO/MDI team at Stanford University, by the AGU press office and by the ESA press-office shown in the links above.

Prof. V. Zharkova published the two monographs explaining occurrences of sunquakes in solar flares:

1. **Zharkova V.V.** Electron and Proton Kinetics and Dynamics in Flaring Atmospheres
<https://onlinelibrary.wiley.com/doi/book/10.1002/9783527639663>

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2. V. Zharkova and S. Zharkov, Particle Kinetics and Dynamics in Flaring Atmospheres Leading to Sunquakes , **October 2025, Cambridge Scholars Publishing,773pp.**

<https://cambridgescholars.com/product/978-1-0364-5856-0/>

The contents of the book is published on the website
<https://solargsm.com/publications.>

What AI tells about sunquake discovery

<https://www.google.com/search?client=safari&rls=en&q=flare+quakes+the+sun+stanford+university&ie=UTF-8&oe=UTF-8>

In 1998, the first-ever observation of a "sunquake" — a massive solar flare causing seismic waves to ripple across the surface of the Sun—received significant media attention within science and technology circles. The phenomenon, observed on **July 9, 1996**, was reported by scientists from Stanford University and the University of Glasgow using data from the Solar and Heliospheric Observatory (SOHO).

Media coverage of this discovery, which largely occurred around **May 1998**, included:

- **BBC News:** Featured the story, highlighting that solar flares could produce quakes deep inside the Sun, similar to, but far more powerful than, earthquakes on Earth.
- **Other Media Outlets:** Headlines included "Solar flares produce quakes deep inside the Sun" (CNN) and "Rumble in the Sun" (ABC News), notes the Stanford report.

- **Key Findings Reported:** Media reported that the flare produced acoustic waves (ripples) traveling at 22,000 miles per hour, extending over 100,000 miles.
- **Scientific Context:** This discovery helped shift the perception of the Sun's surface, showing it to be more dynamic and capable of producing massive, energetic events that mirror planetary geology.

The event was sometimes mistakenly referred to in general queries, but the primary 1998–1999 media coverage focused on the **1996 solar flare event** and its analysis in 1998.

Reports in the Media, May 1998

[Christian Science Monitor](#) - Photos of Solar Flares Alter Perception of Sun

[CNN](#) - Solar flares produce quakes deep inside the Sun.

[ABC News](#) - Rumble in the Sun

[NBC News](#) -- Sunquake observations may help predict solar flares

[ESA Presse](#) - Solar Flare Leaves Sun Quaking

[Florida Today - Space Online](#) - Solar flares produce quakes deep inside the sun.

[New Scientist](#) (*Story coming online shortly*)

KRFC, the Oldies radio station (San Francisco Bay area)

Sound-bite went something like this: "Scientists at Stanford have discovered a gigantic quake on the Sun. Gee, I hope it doesn't touch off the Big One here!"

TV Coverage, US:

- CBS Evening News
- CBS Up To The Minute
- ABC Network News
- ABC Good Morning America
- NBC Nightly News
- NBC Network Programming - Nightside
- MSNBC Cable Programming
- CNN Cable Programming - World View
- CNN Headline News
- ABC Discovery News - Minute
- Fox News Channel Cable Programming - Network News
- Telemundo Network Programming

- KRON-TV (NBC) CH 4 San Francisco
- KPIX-TV CH 5 San Francisco
- WHDH-TV (NBC) CH 7 Boston
- WTTG-TV (Fox) CH 5 Washington
- KCTV-TV (CBS) CH 5 Kansas City
- KTVT-TV (CBS) CH 11 Dallas
- WFSB-TV (CBS) CH 3 Hartford
- WKYC-TV (NBC) CH 3 Cleveland
- KPNX-TV (NBC) CH 12 Phoenix
- KPRC-TV (NBC) CH 2 Houston
- KUSA-TV (NBC) CH 9 Denver
- WFAA-TV (ABC) CH 8 Dallas
- WVIT-TV (NBC) CH 30 Hartford
- KTLA-TV (WB) CH 5 Los Angeles
- KTLA-TV (WB) CH 5 Los Angeles
- WCMH-TV (NBC) CH 4 Columbus
- WBBM-TV (CBS) CH 2 Chicago
- WDAF-TV (Fox) CH 4 Kansas City
- KXAN-TV (NBC) CH 36 Austin
- WRC-TV (NBC) CH 4 Washington
- KENS-TV (CBS) CH 5 San Antonio
- KMGH-TV (ABC) CH 7 Denver
- KQCA-TV (WB) CH 58 Sacramento
- WNBC-TV (NBC) CH 4 New York
- WBAL-TV (NBC) CH 11 Baltimore
- WTVJ-TV (NBC) CH 6 Miami
- WLWT-TV (NBC) CH 5 Cincinnati
- WFLD-TV (Fox) CH 32 Chicago
- WTHR-TV (NBC) CH 13 Indianapolis
- WCMH-TV (NBC) CH 4 Columbus
- KLAS-TV (CBS) CH 8 Las Vegas
- KNXV-TV (ABC) CH 15 Phoenix
- WISH-TV (CBS) CH 8 Indianapolis
- WHMM-TV (PBS) 32
- WCVB-TV (ABC) CH 5 Boston
- KGW-TV (NBC) CH 8 Portland
- KNTV-TV (ABC) CH 11 San Jose
- KABC-TV (ABC) CH 7 Los Angeles
- WDJT-TV (CBS) CH 58 Milwaukee
- KPLR-TV (Ind) CH 11 St. Louis
- WGNO-TV (ABC) CH 26 New Orleans
- KTRK-TV (ABC) CH 13 Houston
- WCCO-TV (CBS) CH 4 Minneapolis/St. Paul
- KCNC-TV (CBS) CH 4 Denver
- KNBC-TV (NBC) CH 4 Los Angeles
- KPNX-TV (NBC) CH 12 Phoenix
- KCAL-TV (Ind) CH 9 Los Angeles

Foreign Coverage (some):

- German TV
- BBC
- Radio Moscow
- Most Russian newspapers published stories
- Australia News
- Austria TV
- Most European TV channels