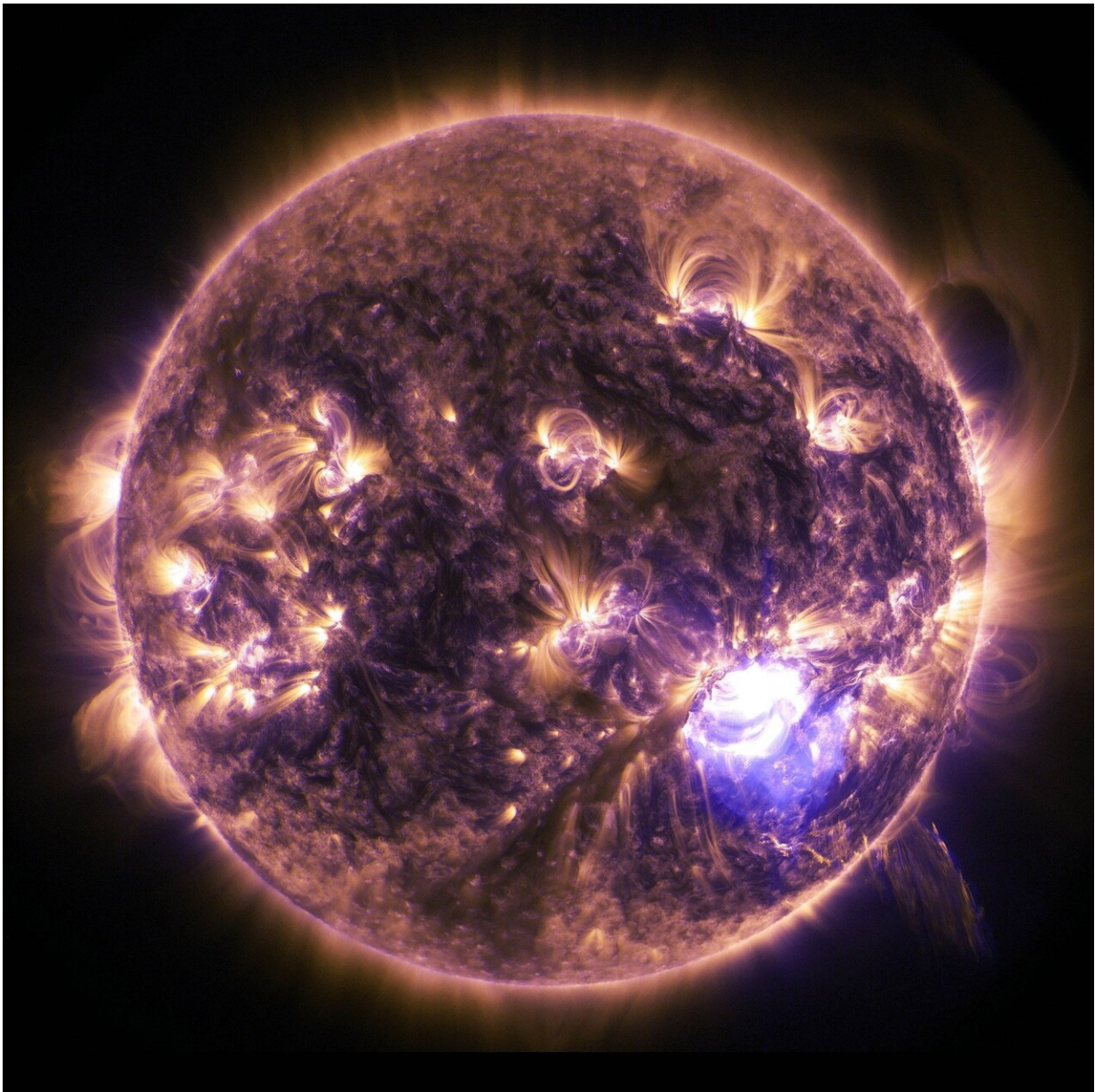


Video: A 10-year time lapse of the sun from NASA's Solar Dynamics Observatory

June 25 2020, by Mara Johnson-Groh



Credit: Pixabay/CC0 Public Domain

As of June 2020, NASA's Solar Dynamics Observatory—SDO—has now been watching the sun nonstop for over a full decade. From its orbit in space around Earth, SDO has gathered 425 million high-resolution images of the sun, amassing 20 million gigabytes of data over the past 10 years. This information has enabled countless new discoveries about the workings of our closest star and how it influences the solar system.

With a triad of instruments, SDO captures an image of the sun every 0.75 seconds. The Atmospheric Imaging Assembly (AIA) instrument alone captures images every 12 seconds at 10 different wavelengths of light. This 10-year time lapse showcases photos taken at a wavelength of 17.1 nanometers, which is an extreme ultraviolet wavelength that shows the sun's outermost atmospheric layer—the corona. Compiling one photo every hour, the movie condenses a decade of the sun into 61 minutes. The video shows the rise and fall in activity that occurs as part of the sun's 11-year [solar cycle](#) and notable events, like transiting planets and eruptions. The custom music, titled "Solar Observer," was composed by musician Lars Leonhard.

While SDO has kept an unblinking eye pointed toward the sun, there have been a few moments it missed. The dark frames in the video are caused by Earth or the Moon eclipsing SDO as they pass between the spacecraft and the sun. A longer blackout in 2016 was caused by a temporary issue with the AIA instrument that was successfully resolved after a week. The images where the sun is off-center were observed when SDO was calibrating its instruments.

SDO and other NASA missions will continue to watch our sun in the years to come, providing further insights about our place in space and

information to keep our astronauts and assets safe.

Provided by NASA's Goddard Space Flight Center

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