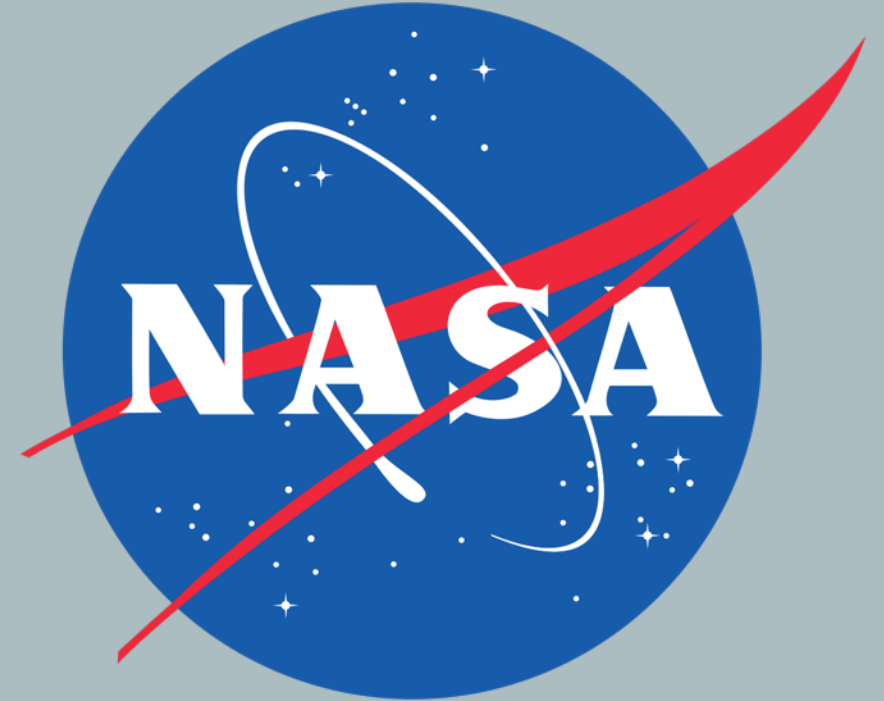


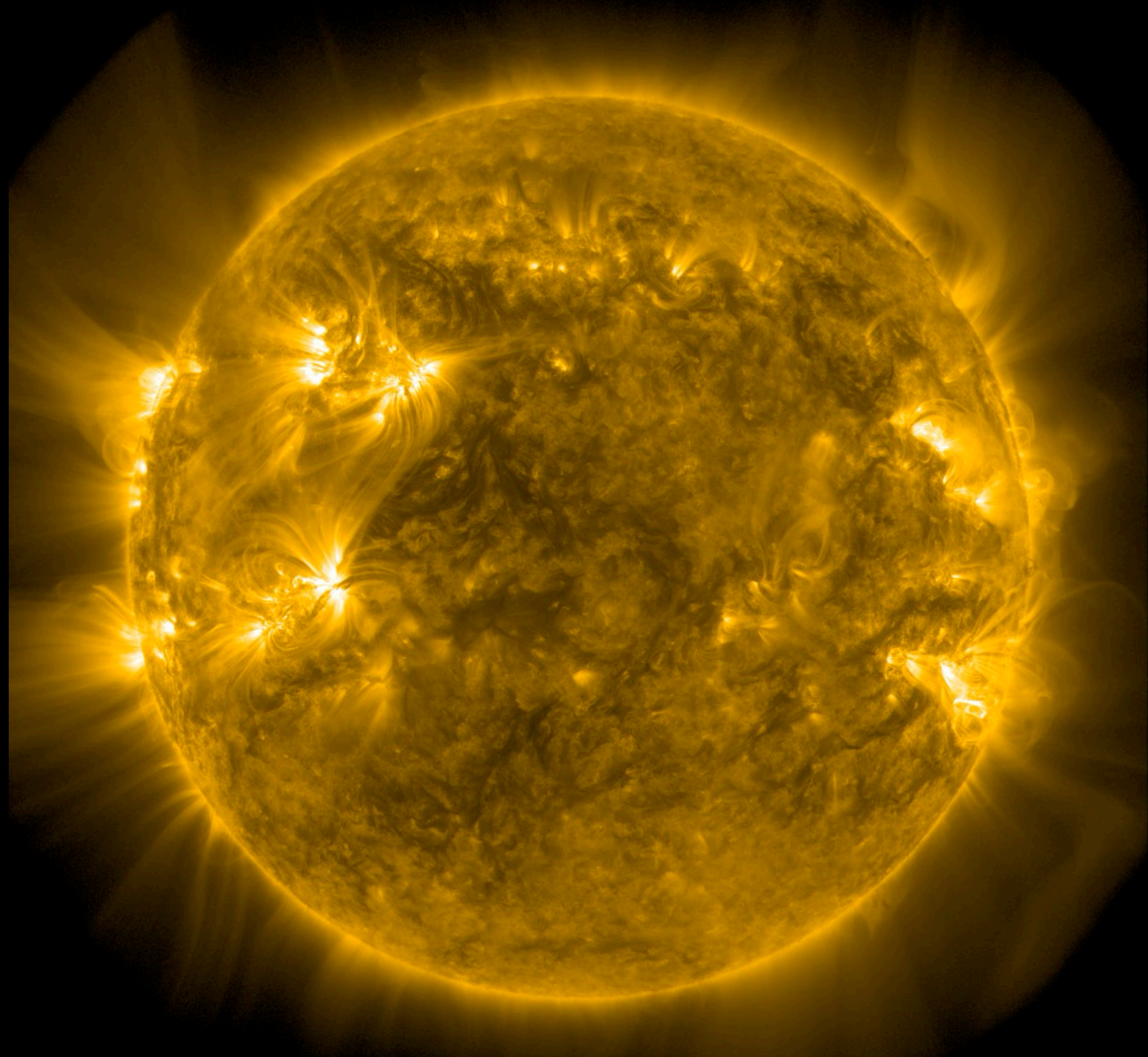
LIVING WITH

A
STAR

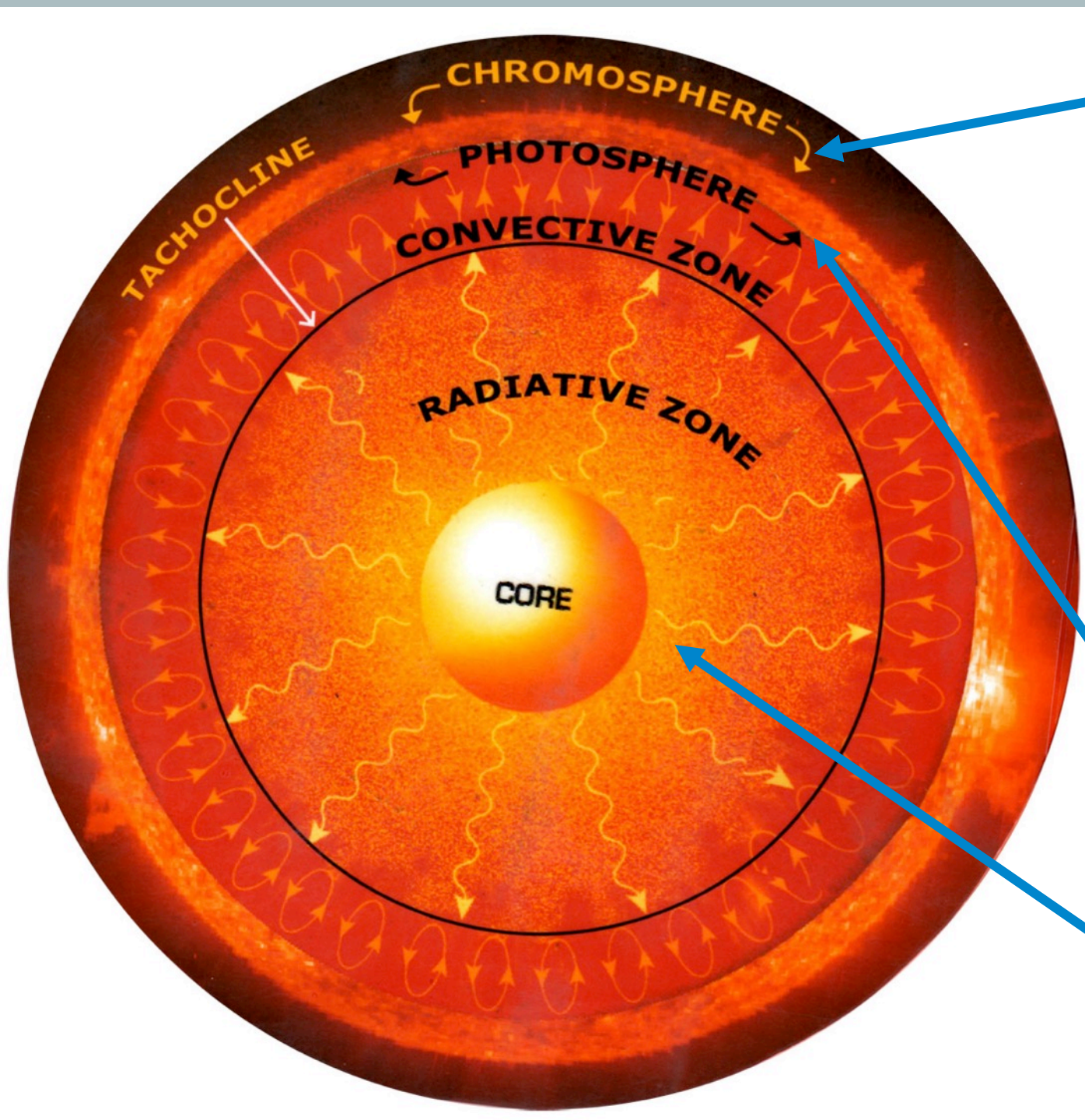




**OUR STAR
THE SUN**



SDO/AIA 171 2024-03-21 00:06:46 UT



Atmosphere
where
electrons are
free to move

“Surface” where
light escapes

Nuclear Fusion

A total solar eclipse is shown against a dark blue sky. The sun is completely obscured by the dark, circular silhouette of the moon. The sun's corona, consisting of bright, wispy plasma, is visible as a glowing white and yellow ring around the moon. The corona has a radial pattern of fine lines and larger, more diffuse structures. The background sky is a deep, dark blue with a few small, faint stars visible.

CORONA

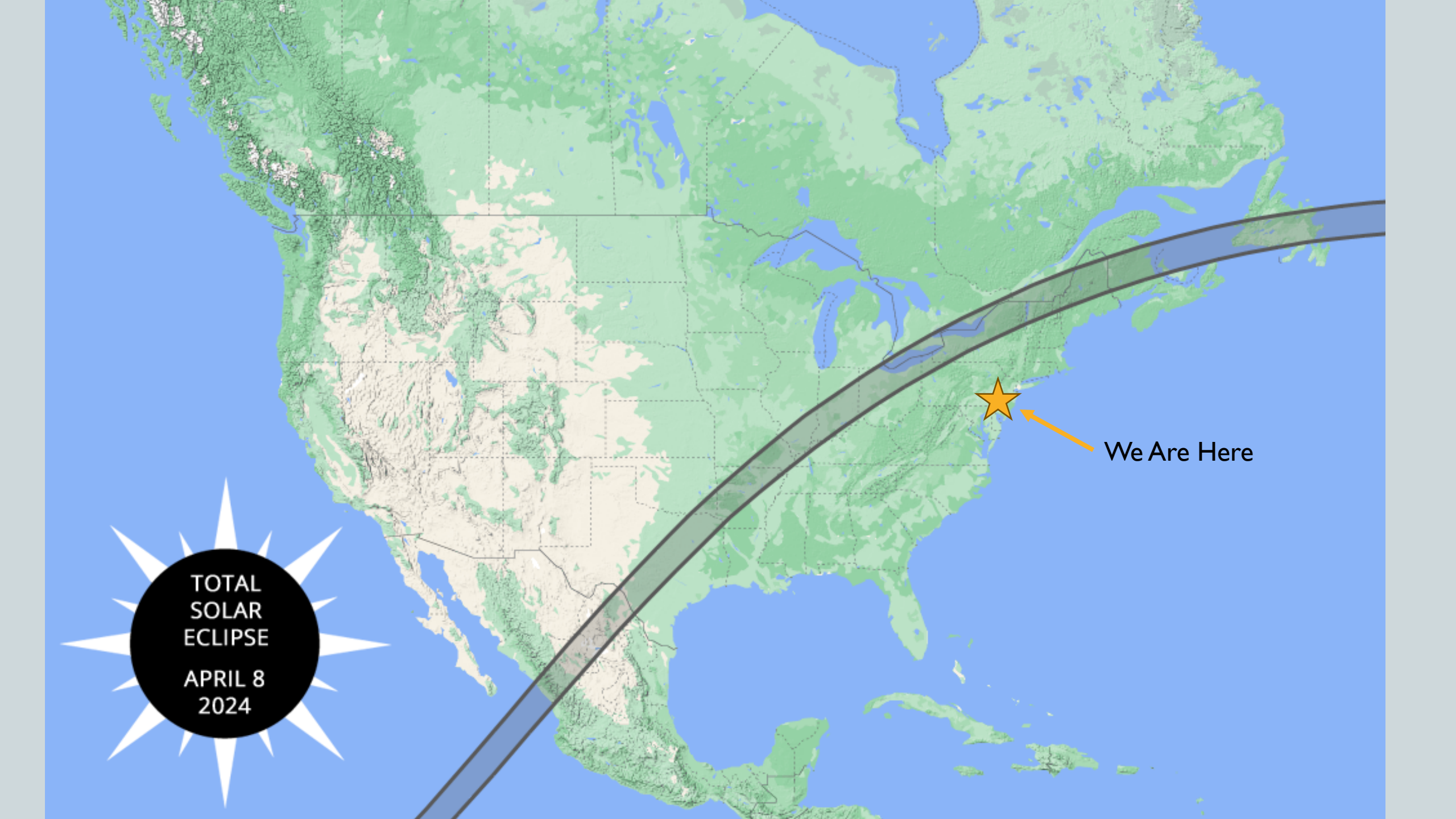
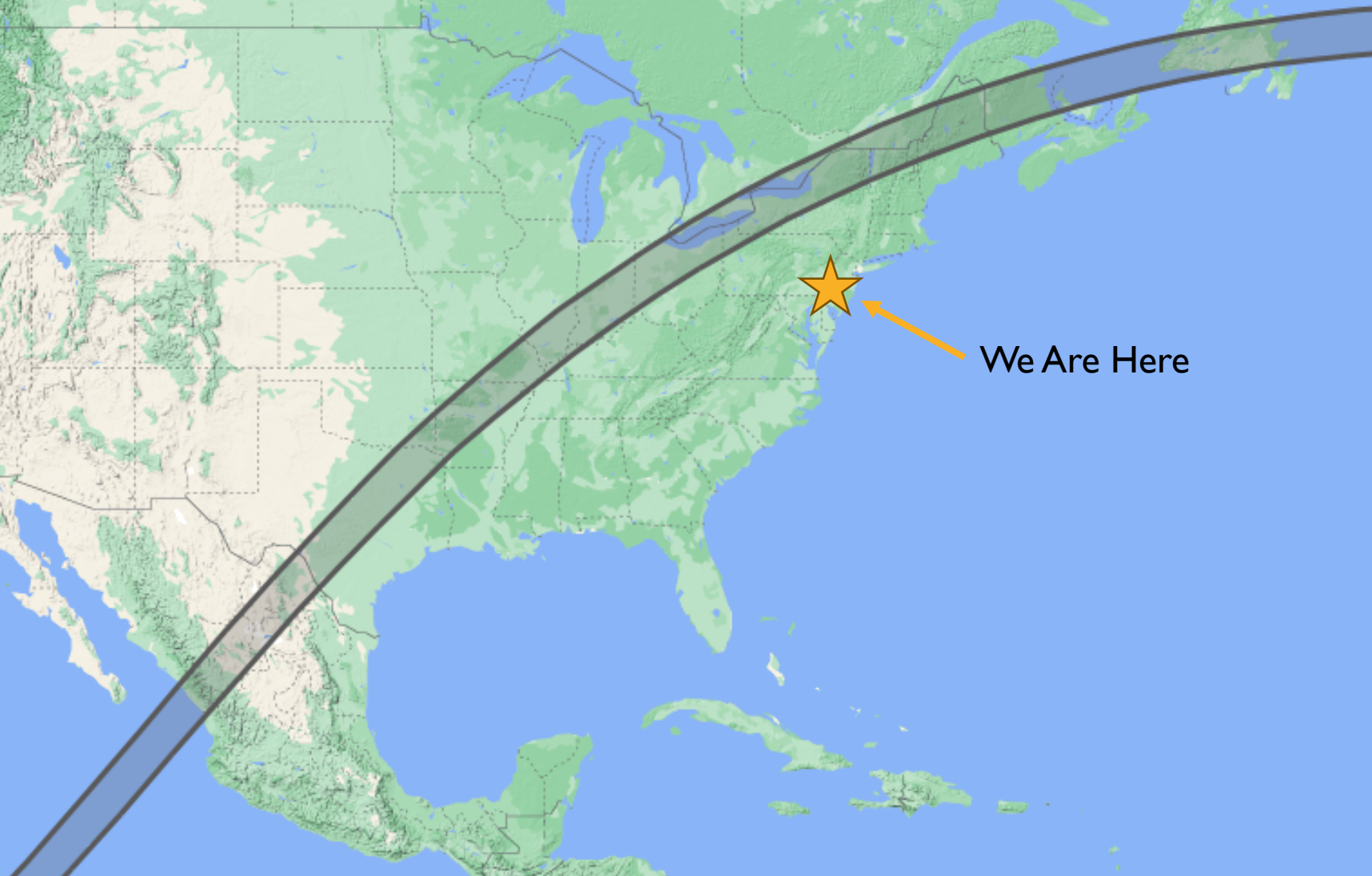
**Only
visible
during
eclipses**

**SPEAKING
OF
ECLIPSES**

Monday 8 April, 2024



We Are Here

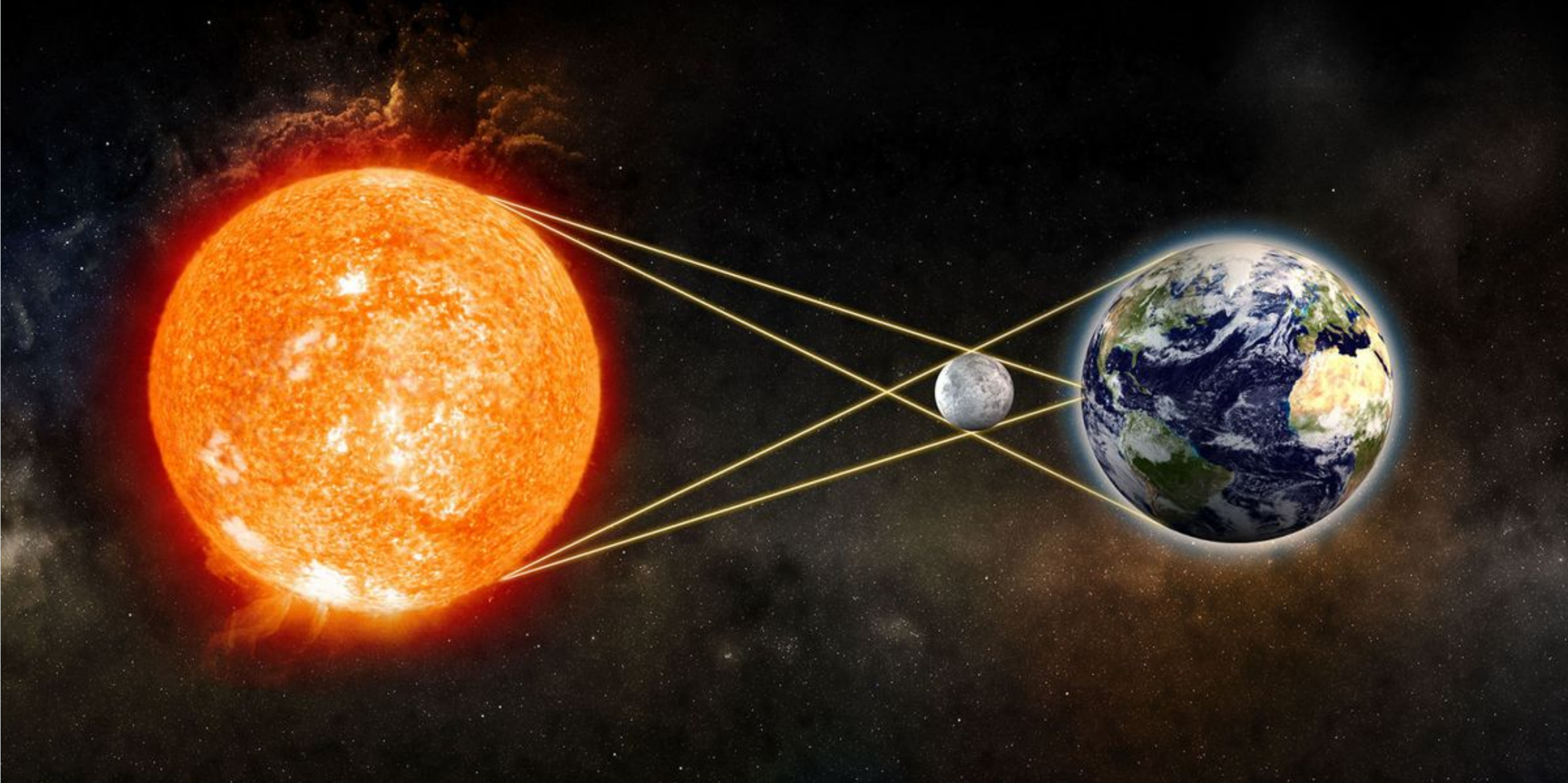


Total Eclipse

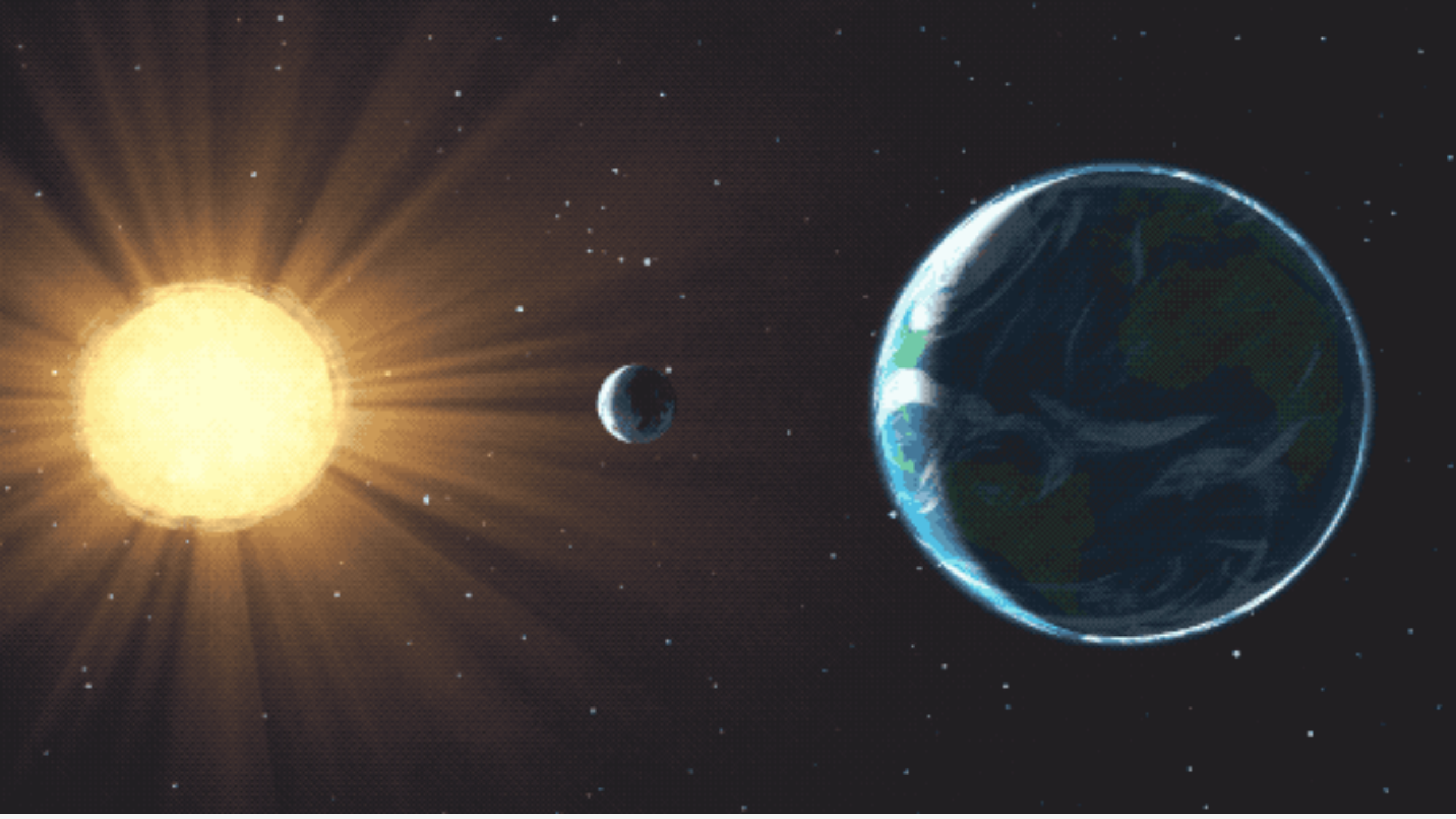
Moon is
closer to
Earth

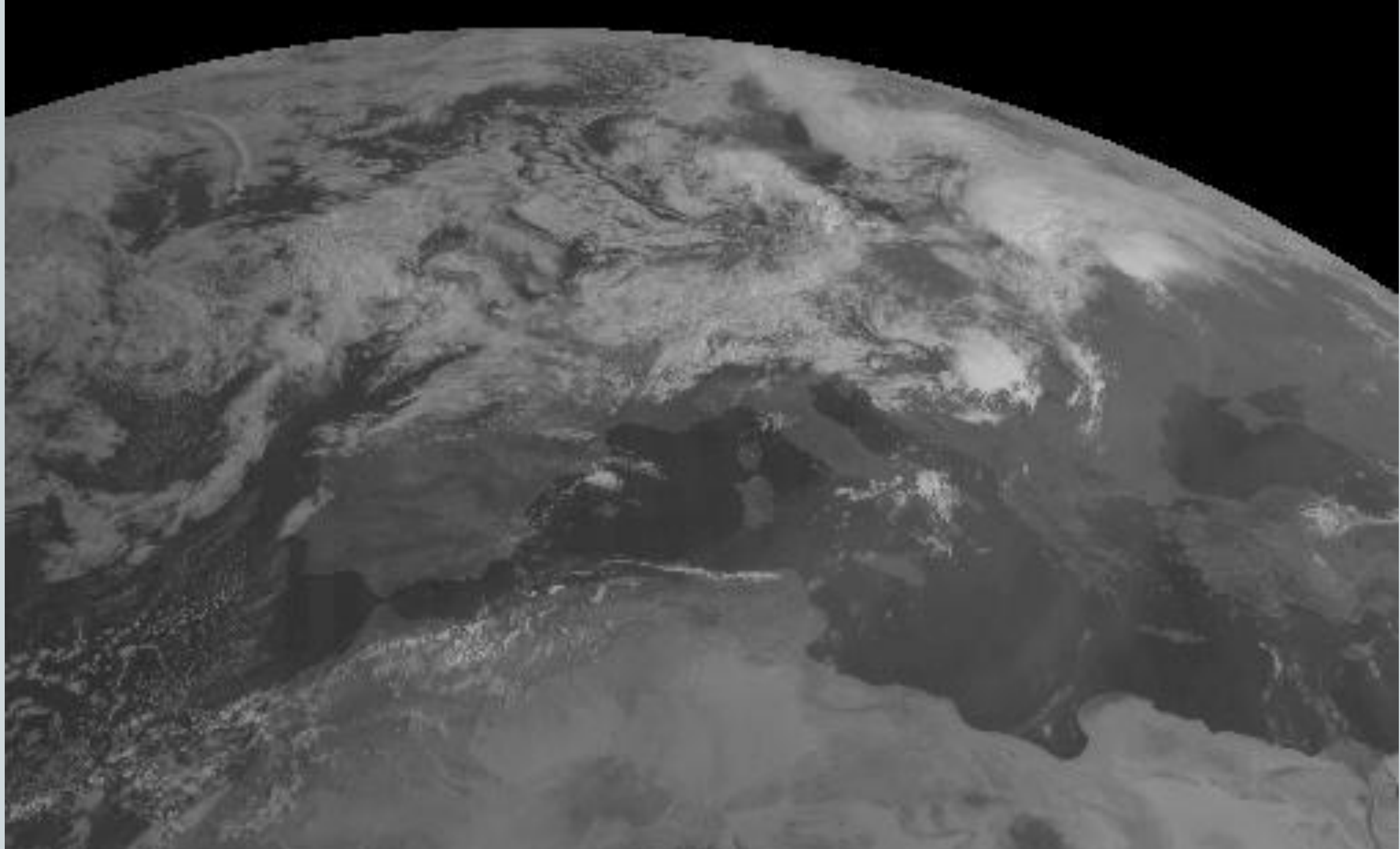
Mon Apr 8





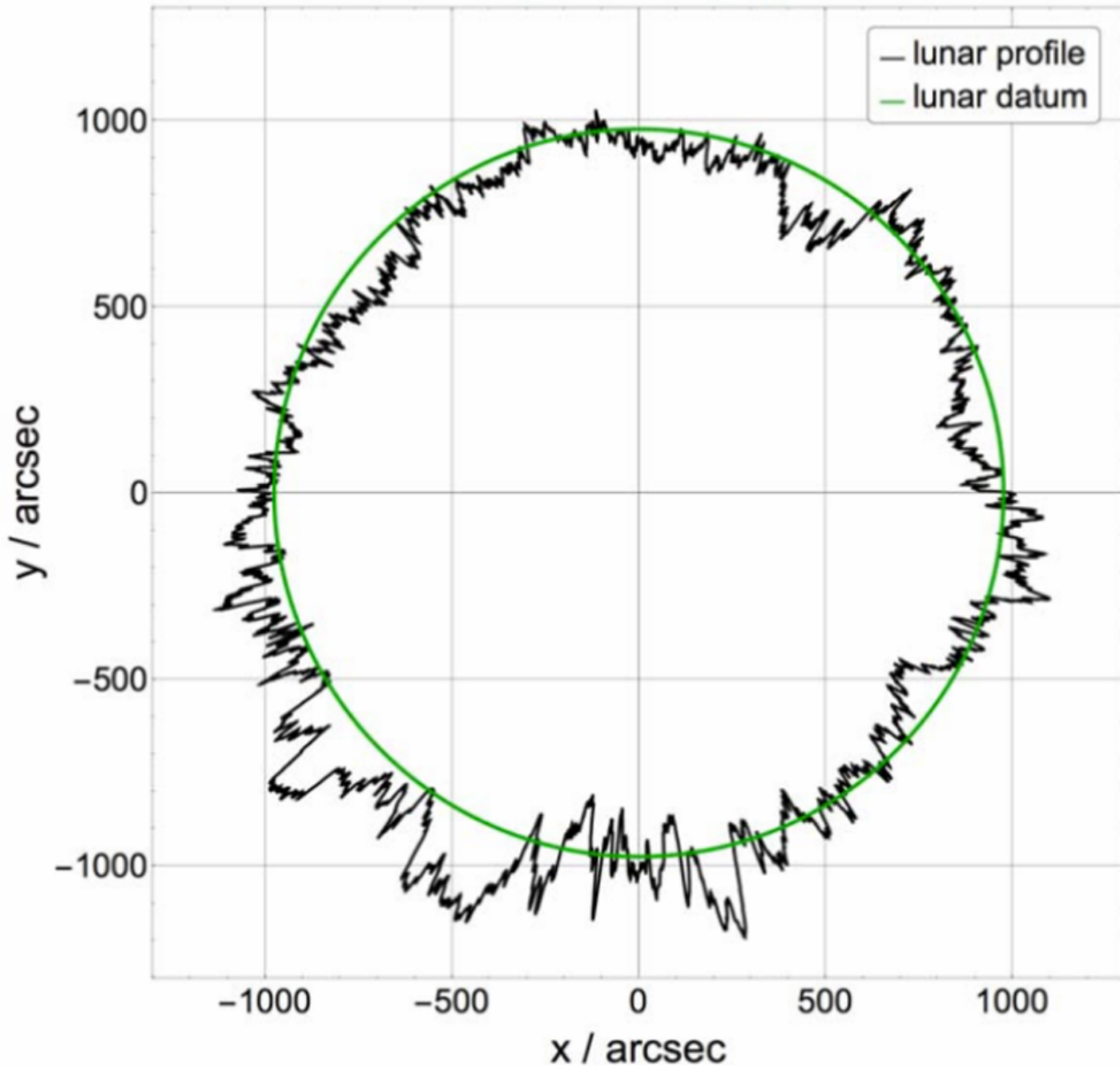
Eclipse Sun-Moon-Earth alignment







Lunar Limb Profile



The surface
of the moon
has
Mountains
and Valleys



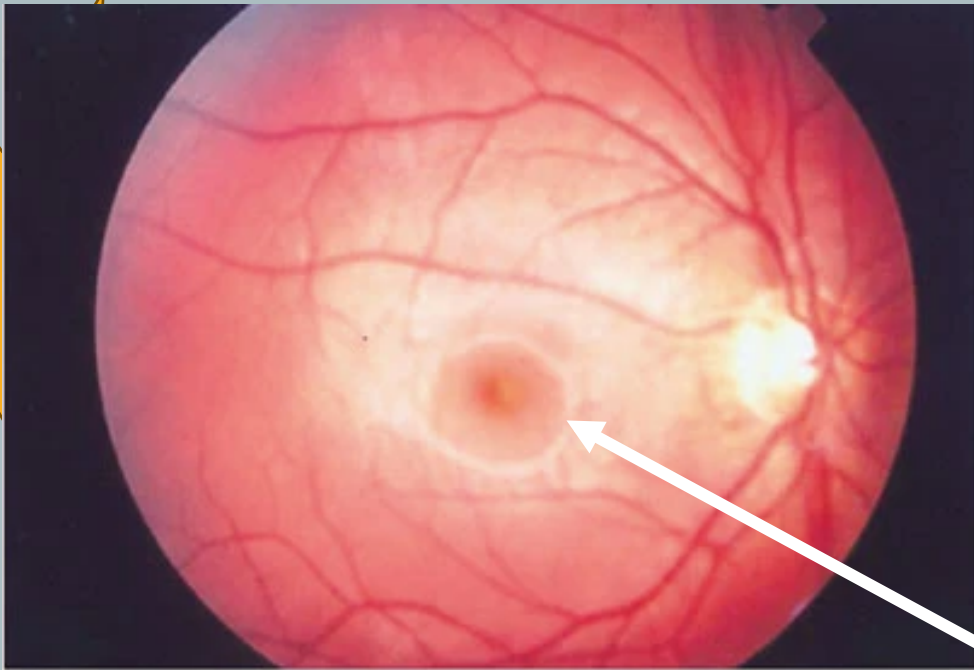
**Surface of
the Moon**



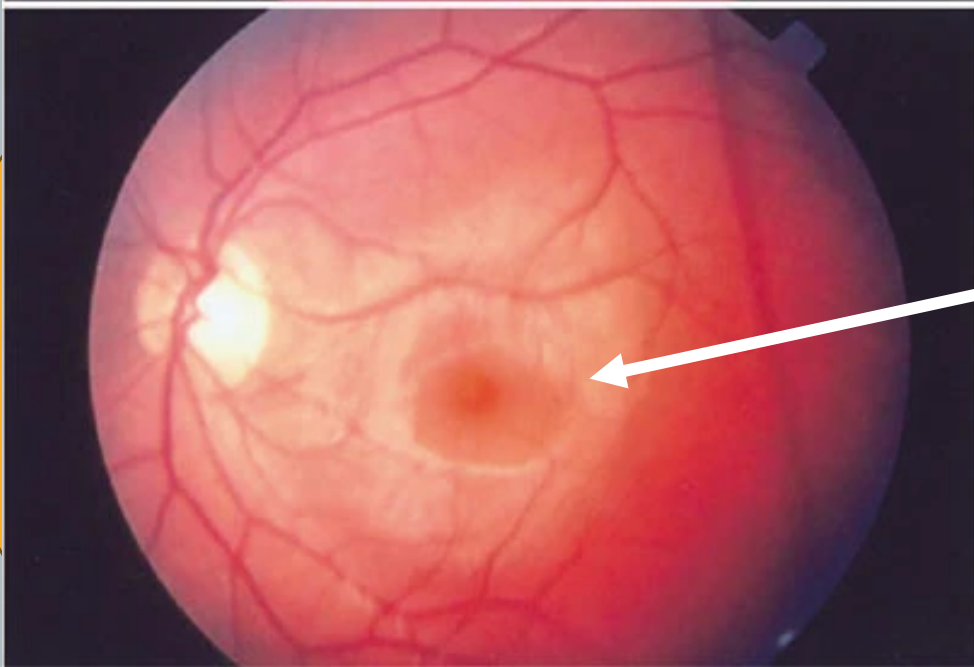
SAFELY VIEWING THE ECLIPSES

SPECIAL SOLAR
GLASSES

Filtered telescopes
only



**Solar
(Photic)
Retinopathy**



**Permanent
Eye Damage
(Blindness)**



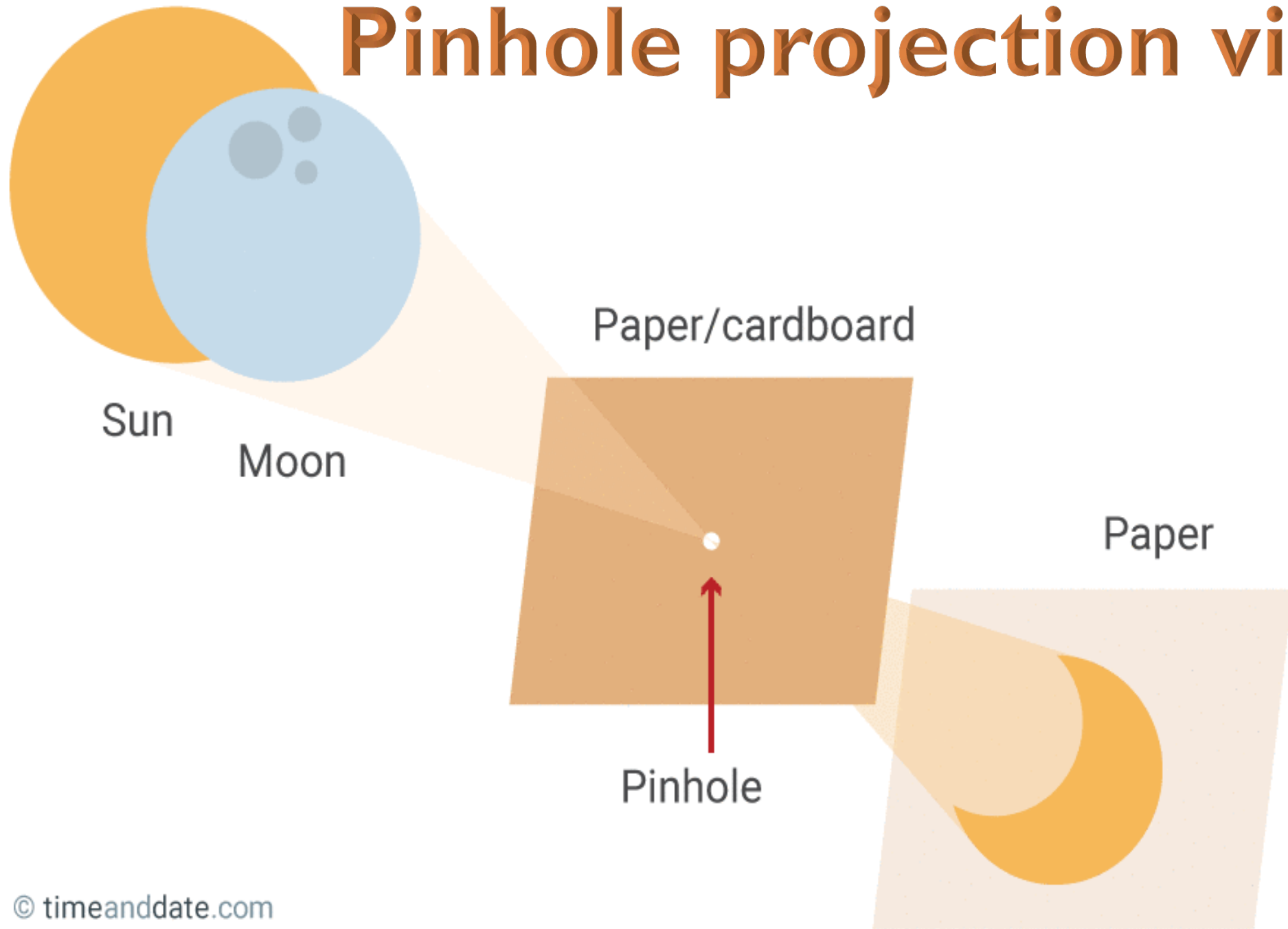


Solar Telescope



BLING your solar glasses

Pinhole projection viewer







Apr 8, 2024 at 3:23 pm



Max View in Philadelphia,
Pennsylvania

**Global
Event:**

Total Solar Eclipse

Local Type:

Partial Solar Eclipse in Philadelphia,
Pennsylvania

Begins:

Mon, Apr 8, 2024 at 1:59 pm EDT

Maximum:

Mon, Apr 8, 2024 at 3:23 pm 0.900 Magnitude

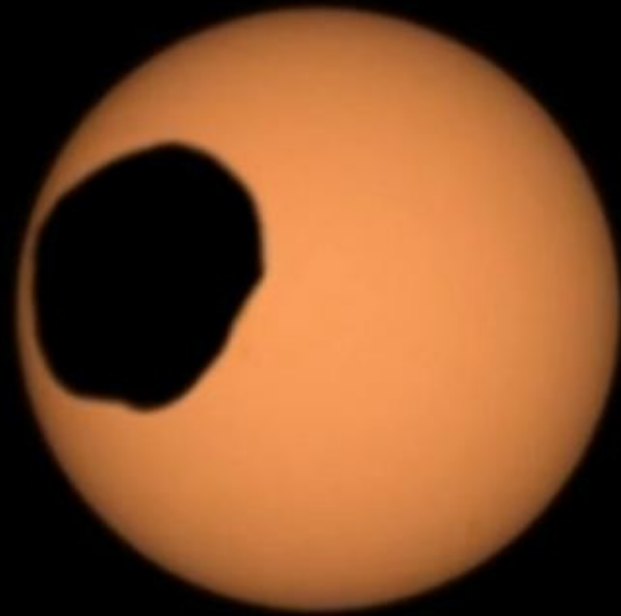
Ends:

Mon, Apr 8, 2024 at 4:35 pm

Duration:

2 hours, 27 minutes

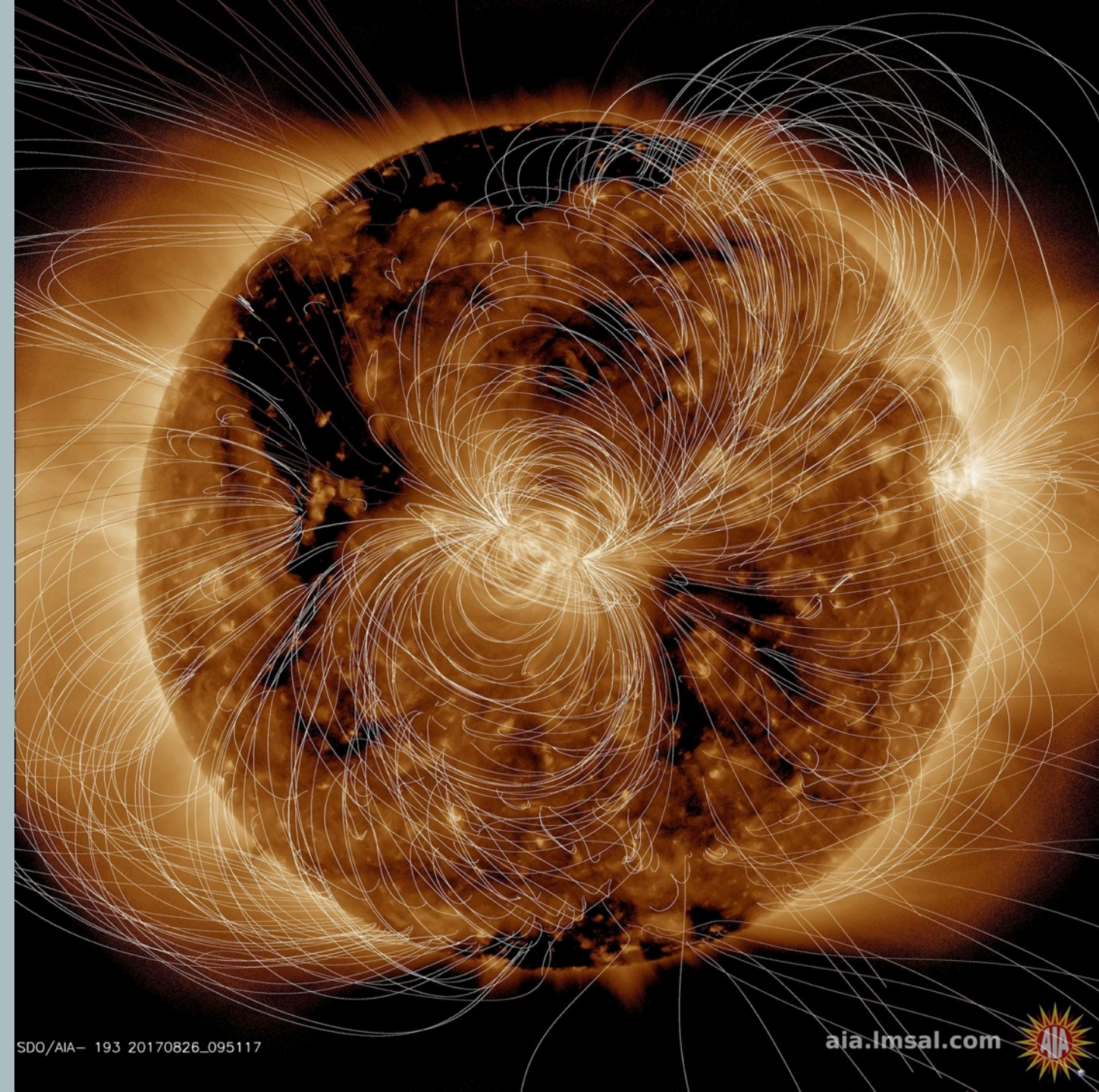
2024 eclipse from
Philadelphia area

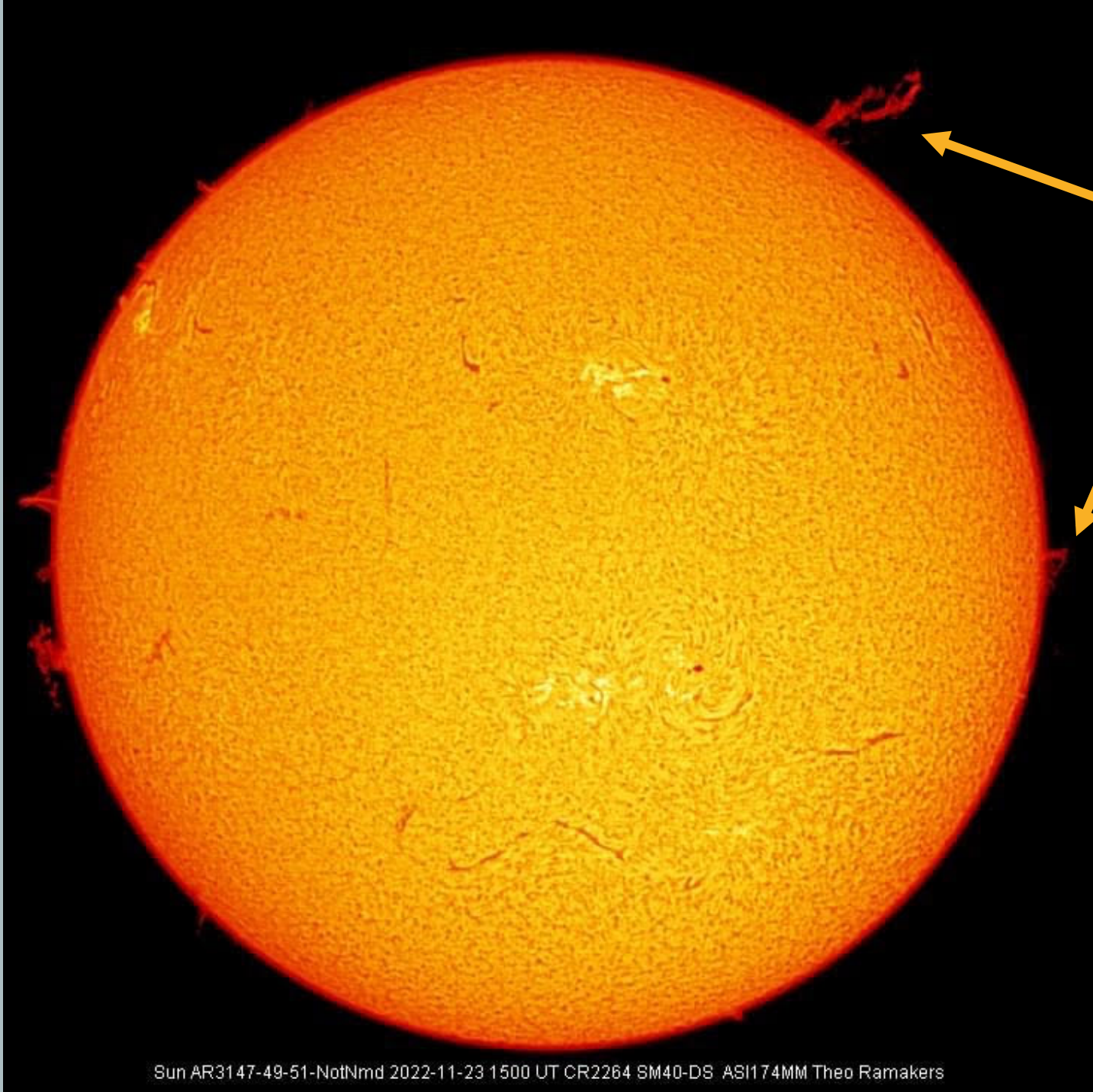


Eclipse on Mars

SOLAR
SCIENCE
(HELIOPHYSICS)

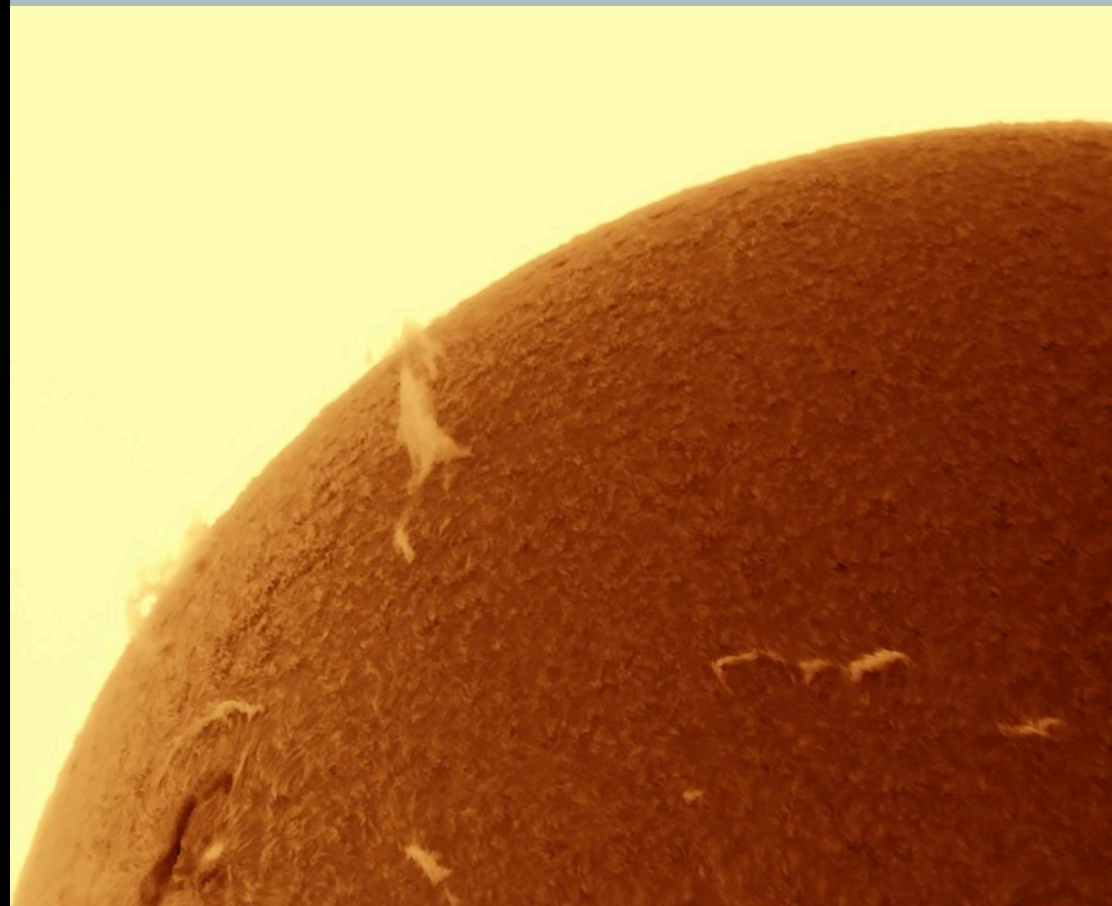
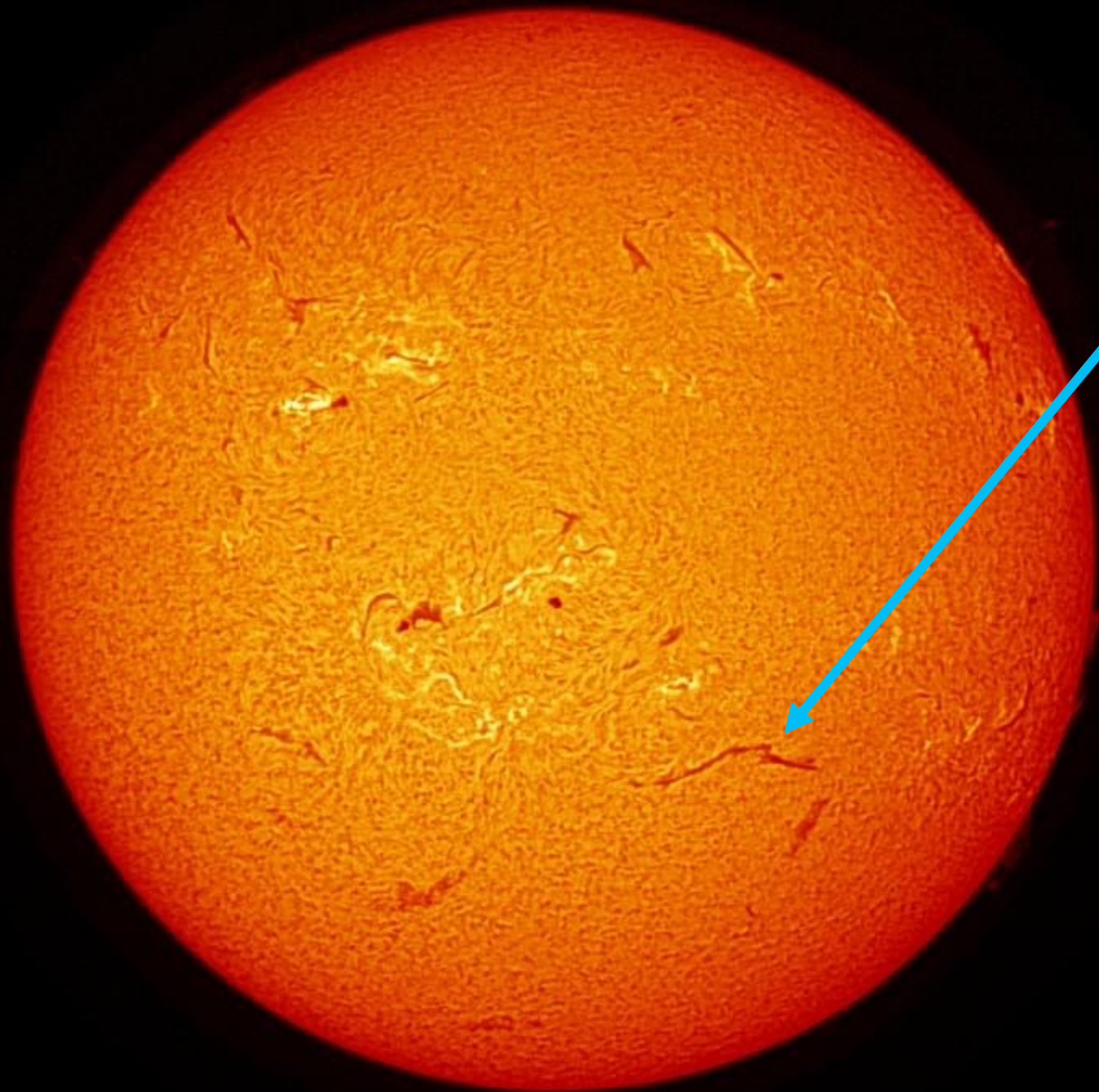
Magnetic Field Lines

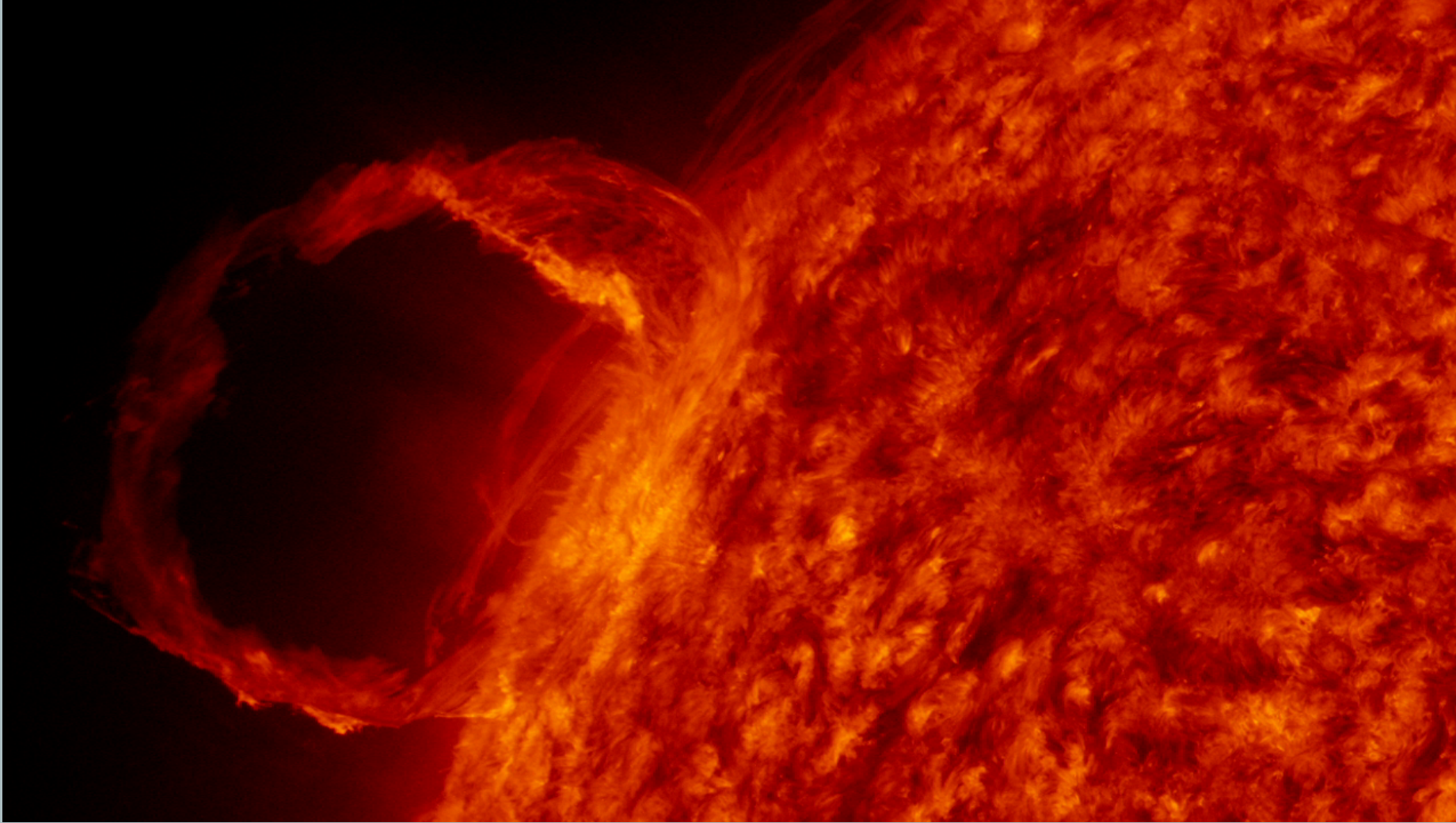




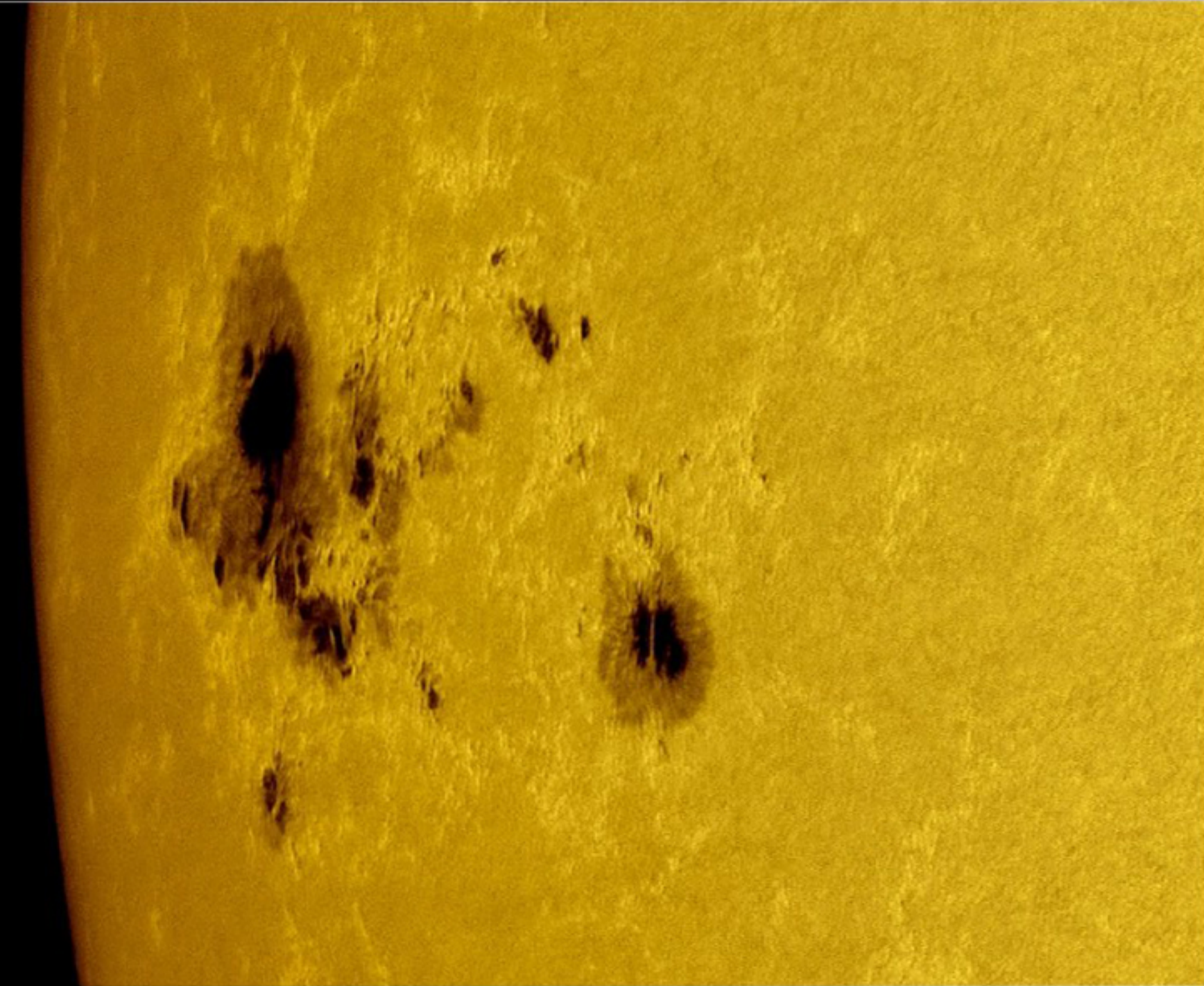
**Prominences
imaged with a
Hydrogen-alpha
Earth based
telescope**

Solar Filament





**Solar Prominences and Filaments
can occur anytime**



Sunspots

**Solar
magnetic
storms**

Giant Sunspot AR3590

2024. 2. 24. 04:15 UT

SDO/HMI

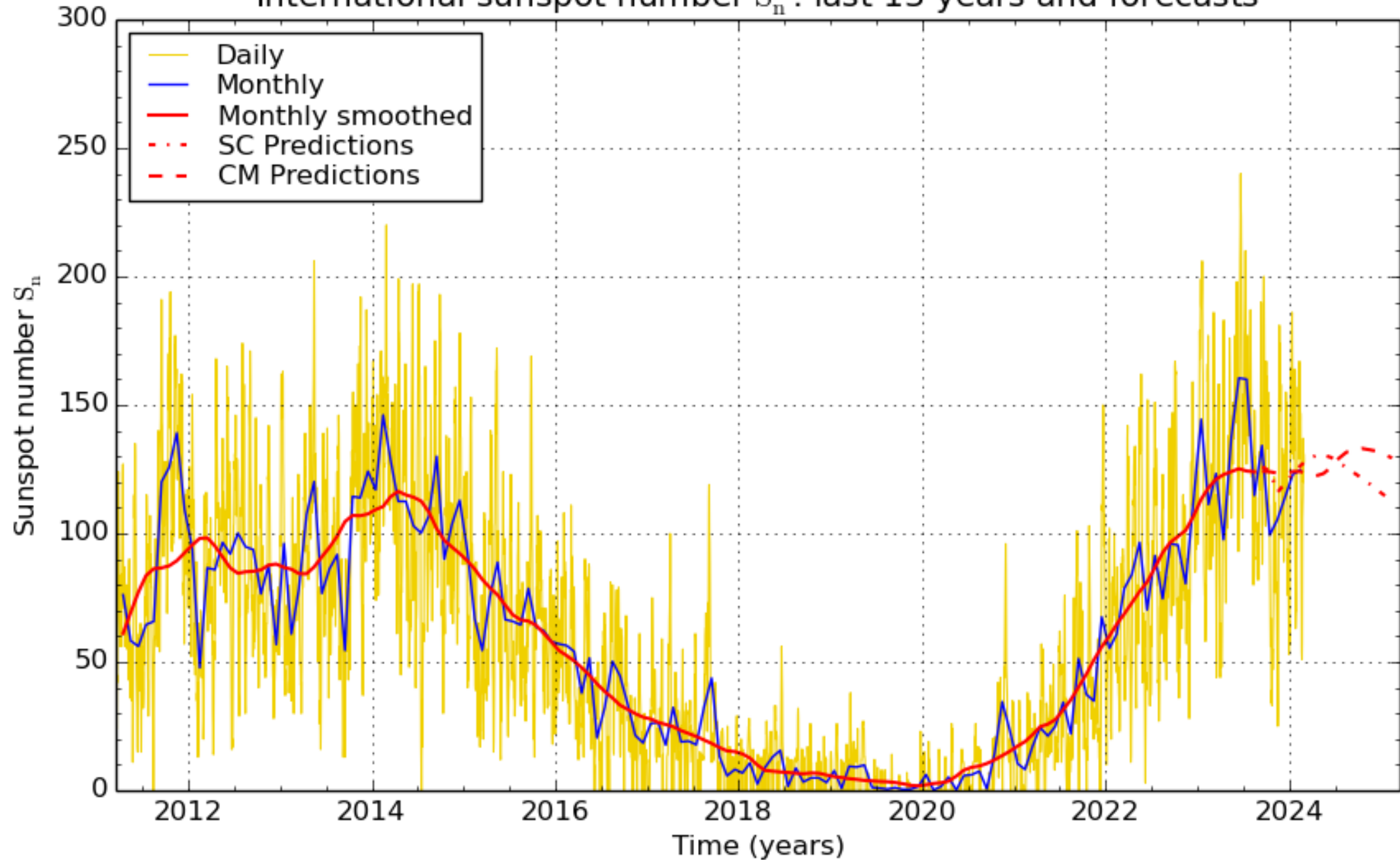


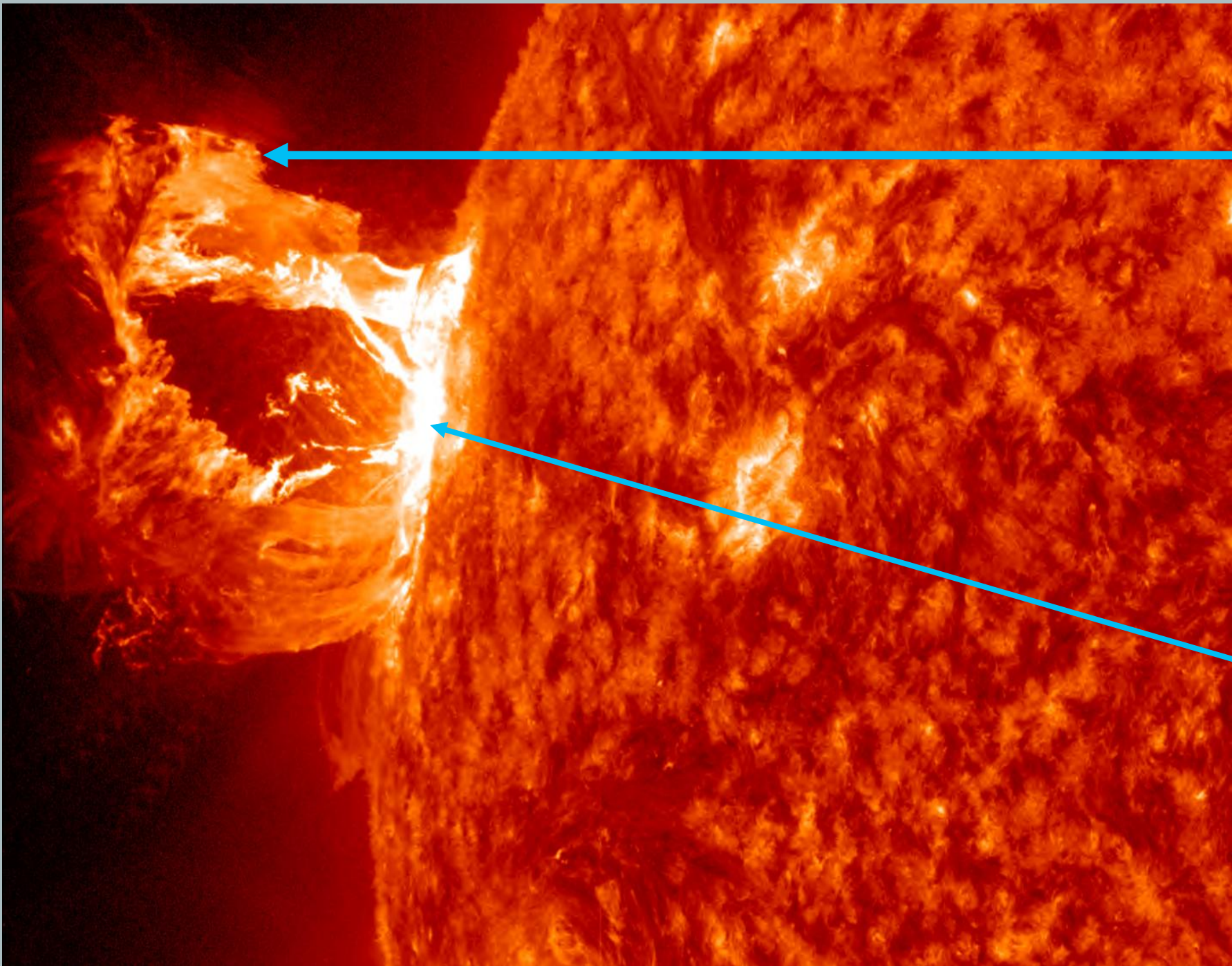
Earth Scale



Sunspot

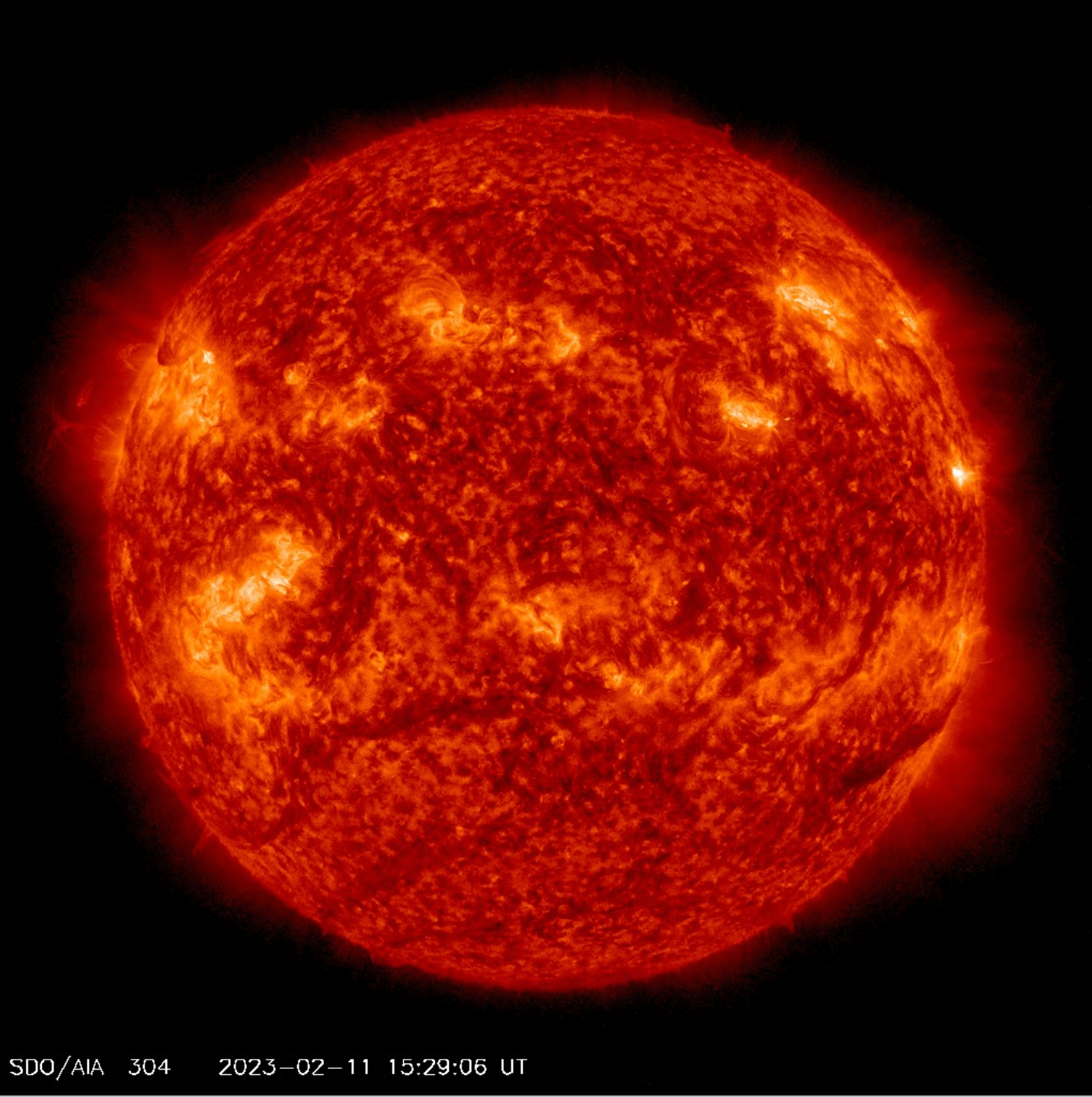
International sunspot number S_n : last 13 years and forecasts



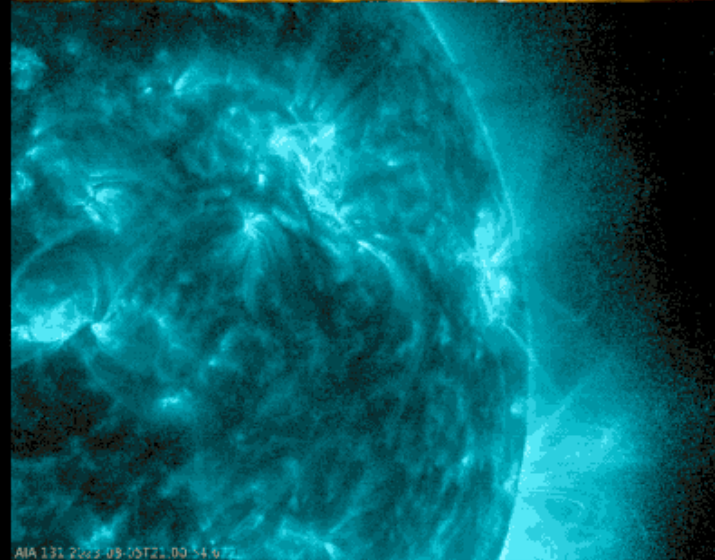
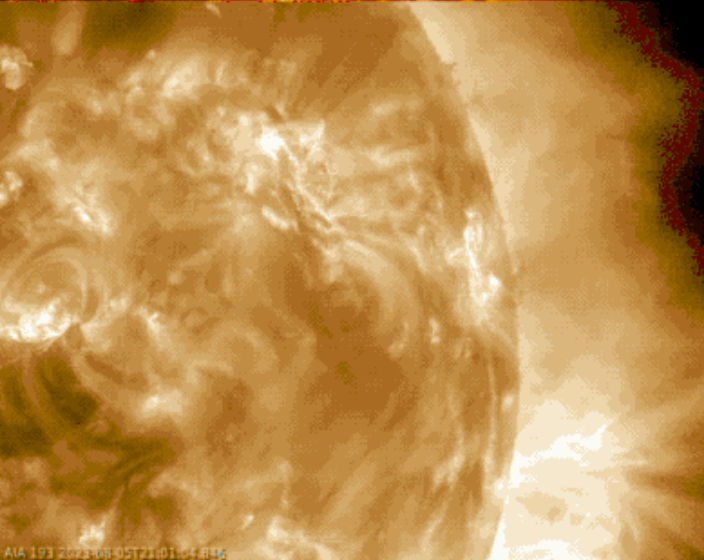
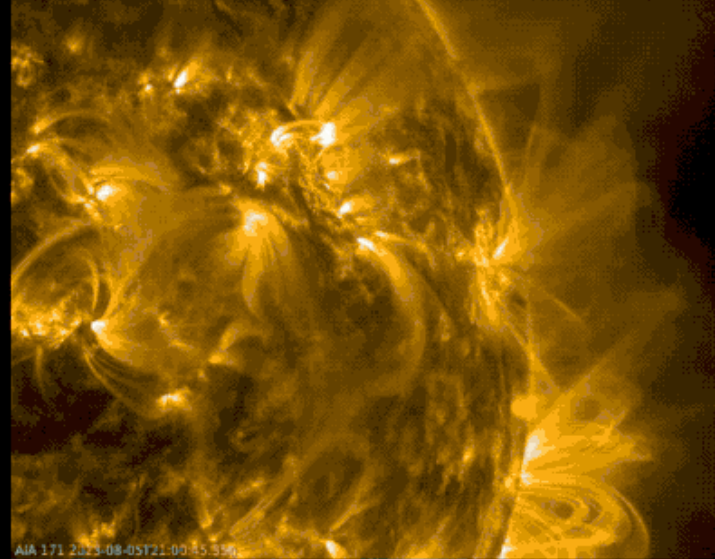
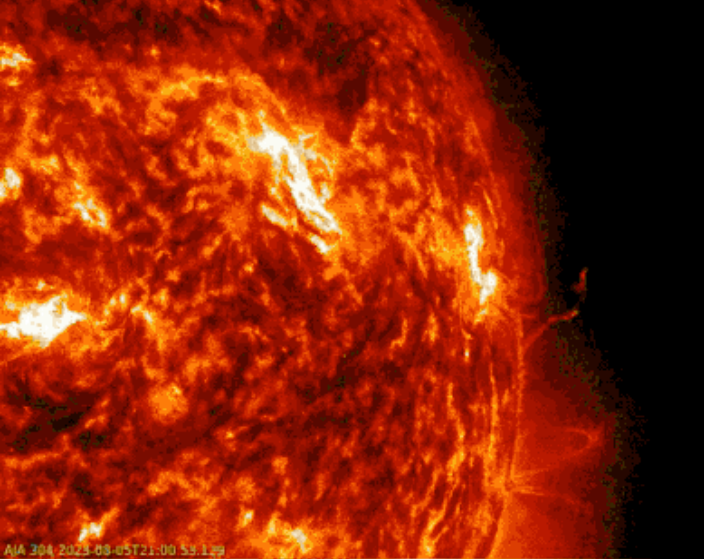


**Plasma
eruption**

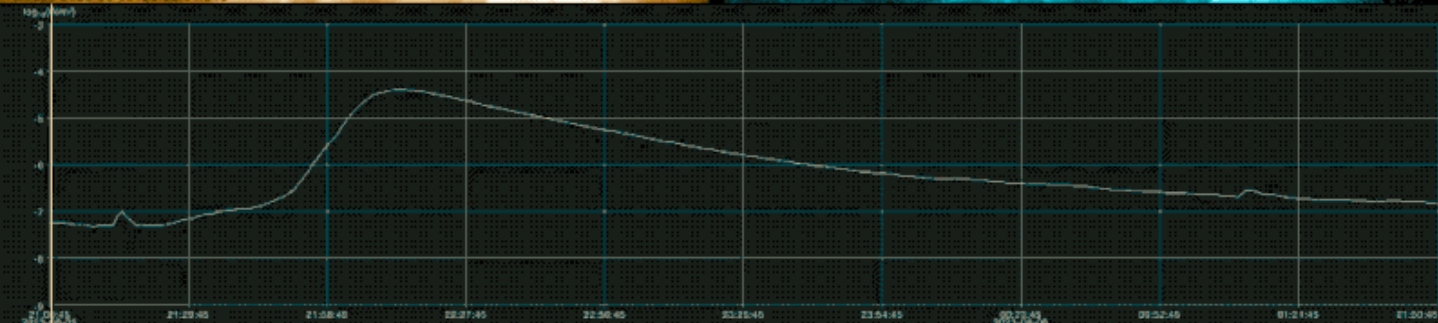
**Solar
Flare**



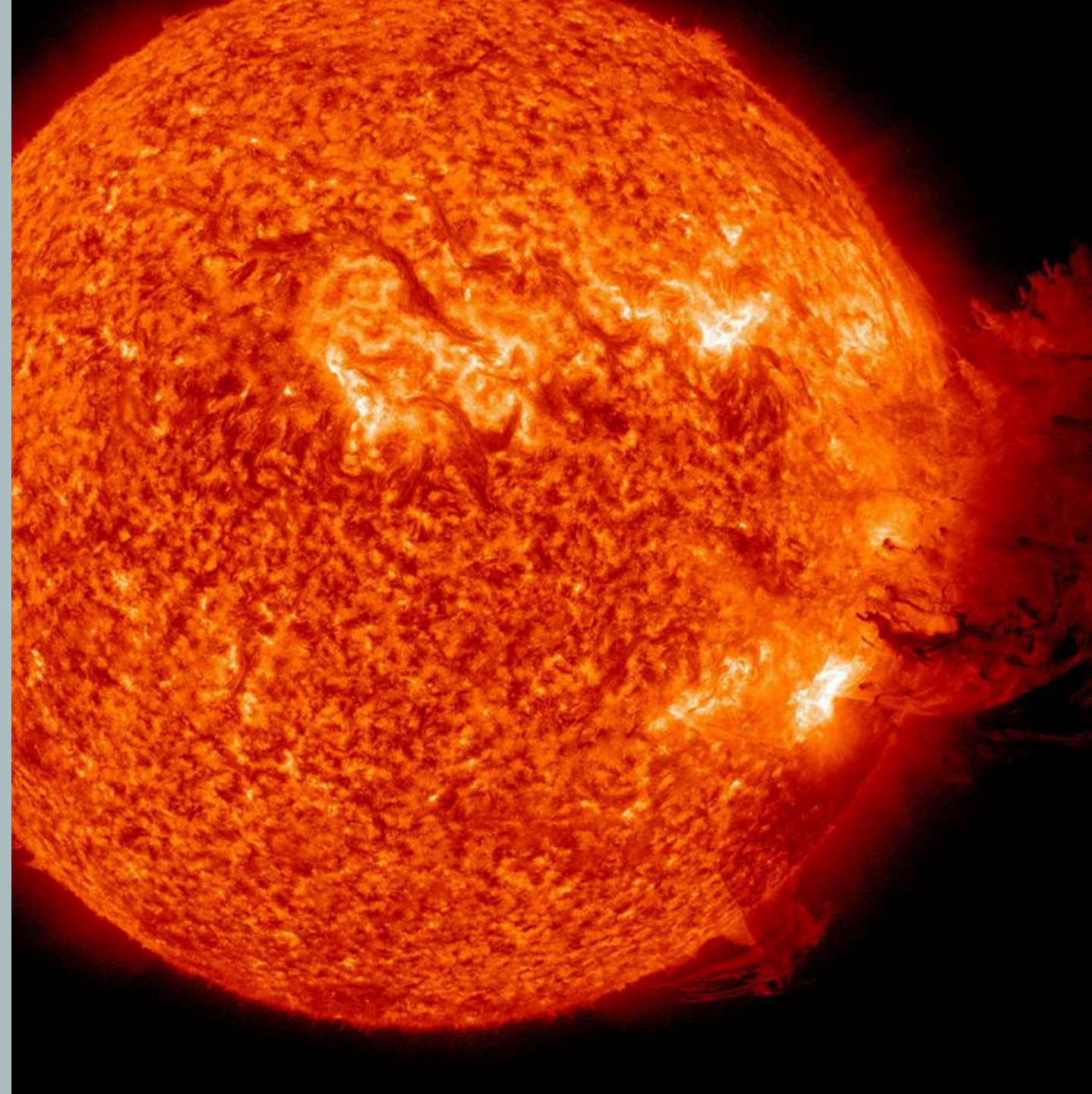
X class
solar
flares are
the most
energetic
type



X Class Flare 5-6 Aug 2023 4 different wavelengths



SDO, GOES
304,171,193,131nm UV Filters



Coronal Mass Ejection



A
U
R
O
R
A