

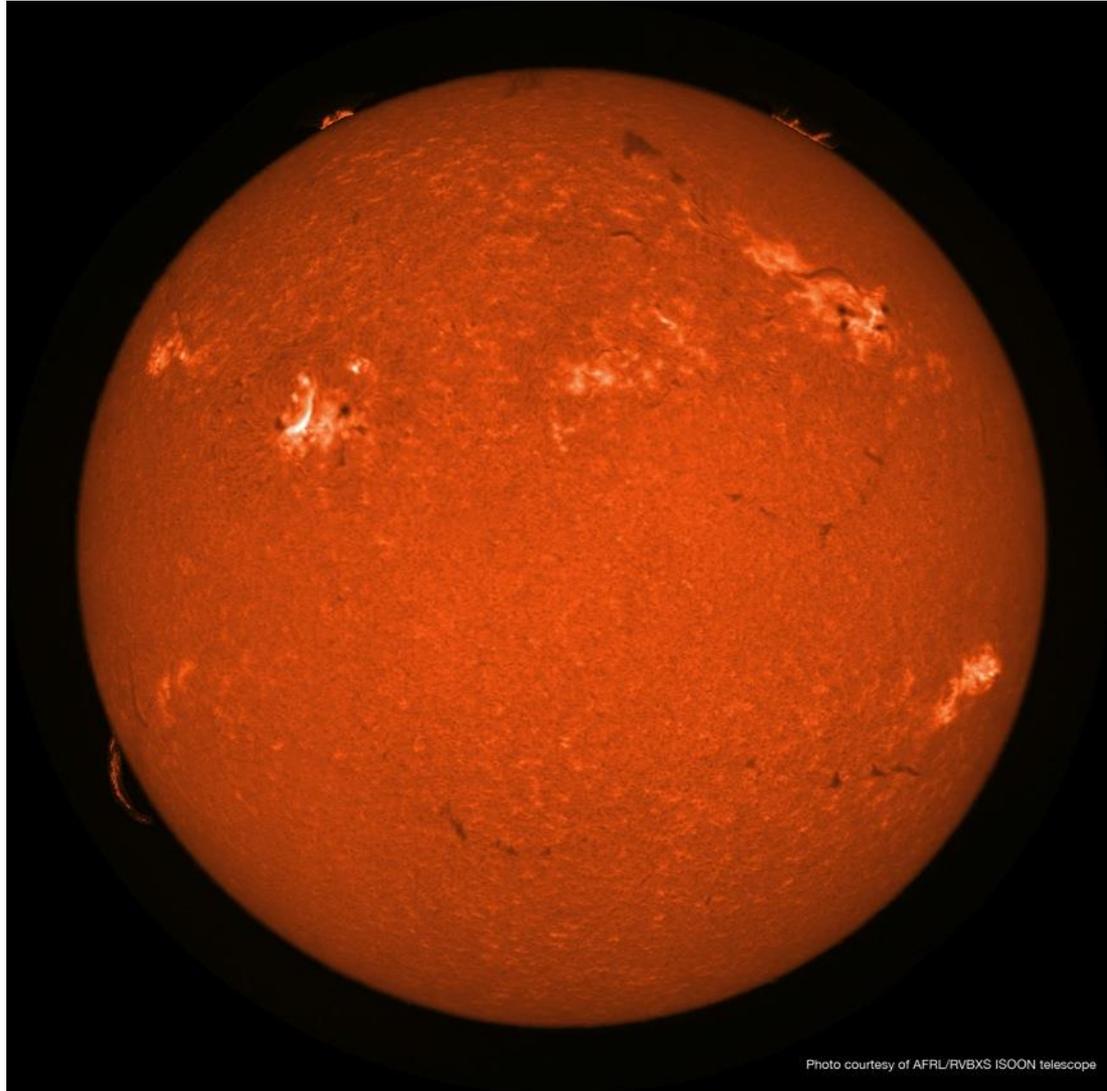


THE SUN

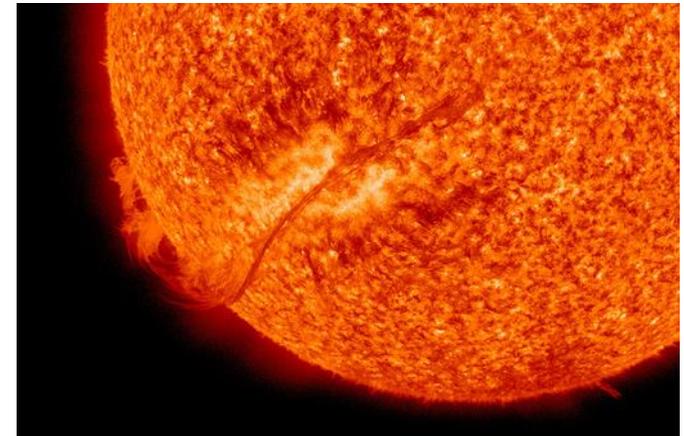


The Sun Today

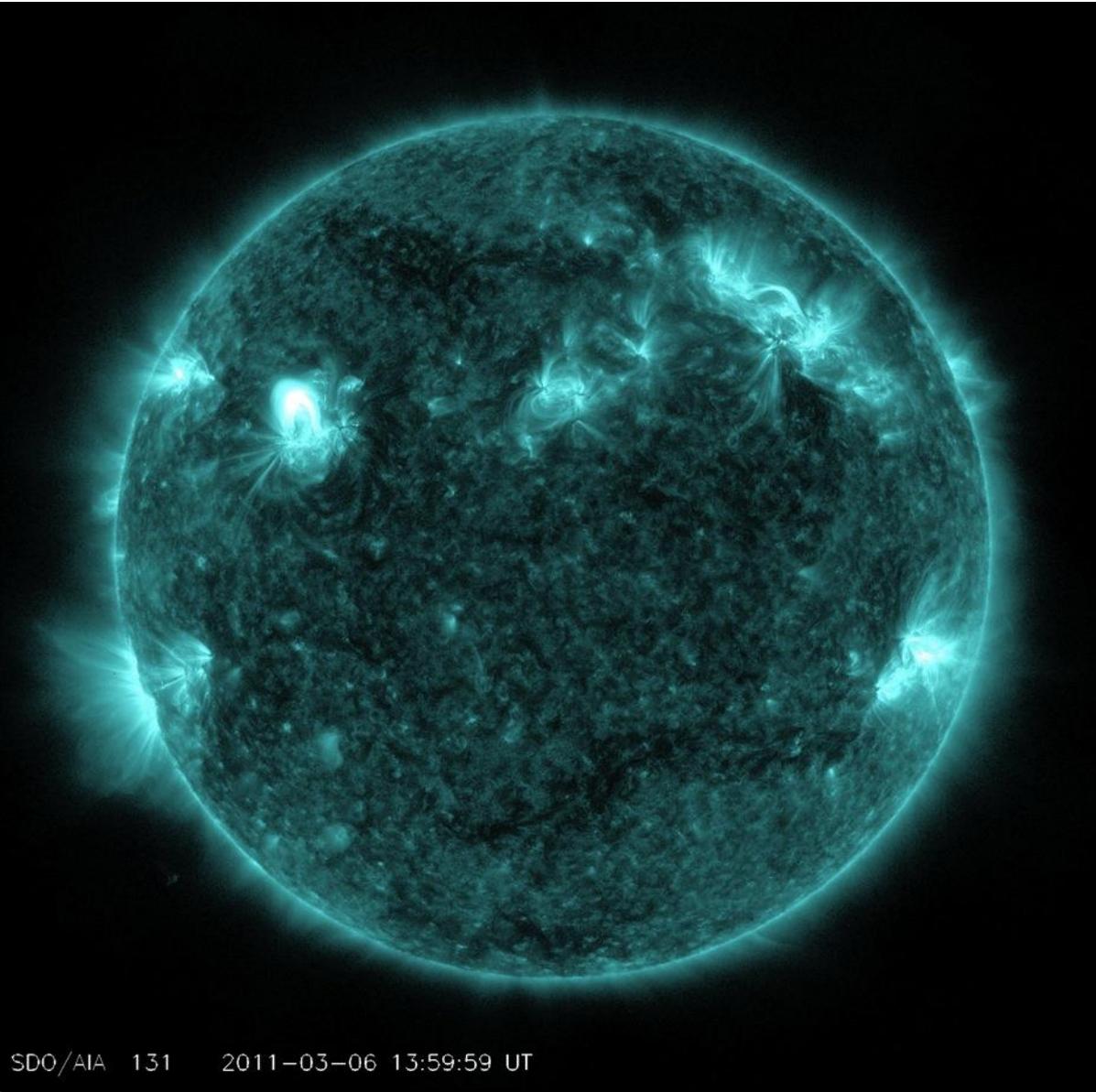
The Sun in H-alpha



In this specific color of red light we can see more details of the Sun's magnetic activity.



The Ultraviolet Sun

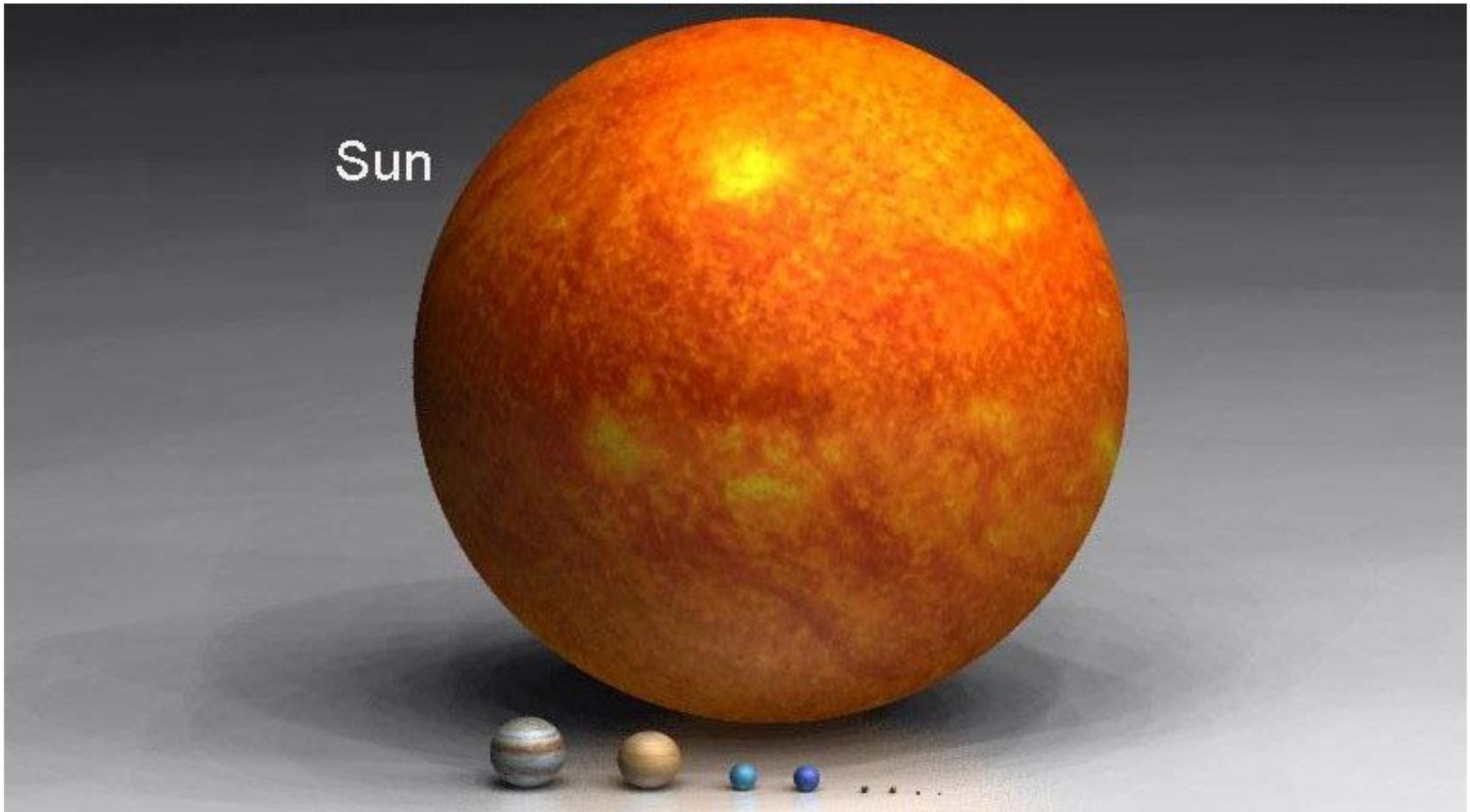


From space, we can observe the Sun in ultraviolet (UV) light and see hot gas trapped in magnetic fields on the Sun.

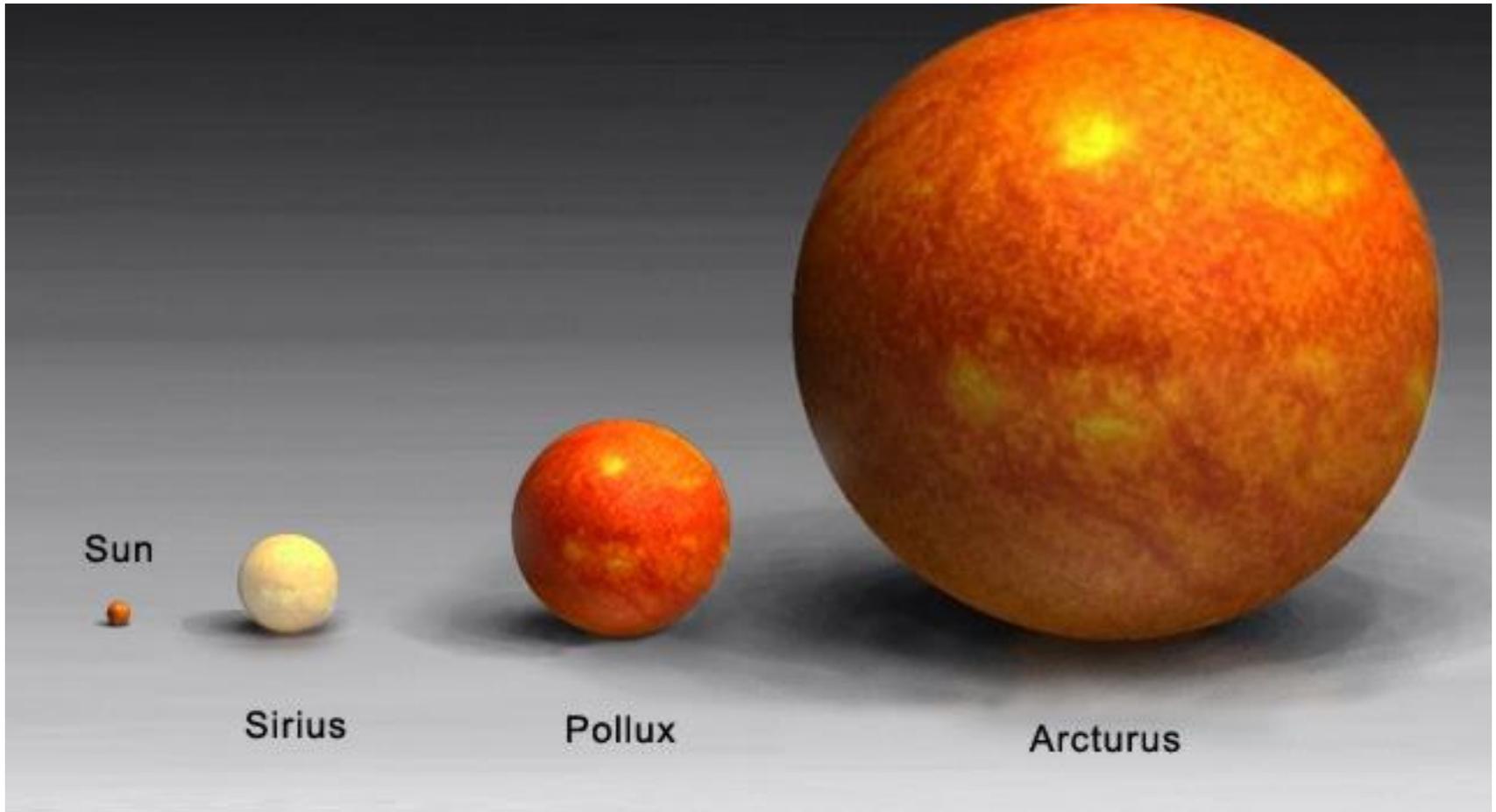


HOW BIG
IS THE
SUN?

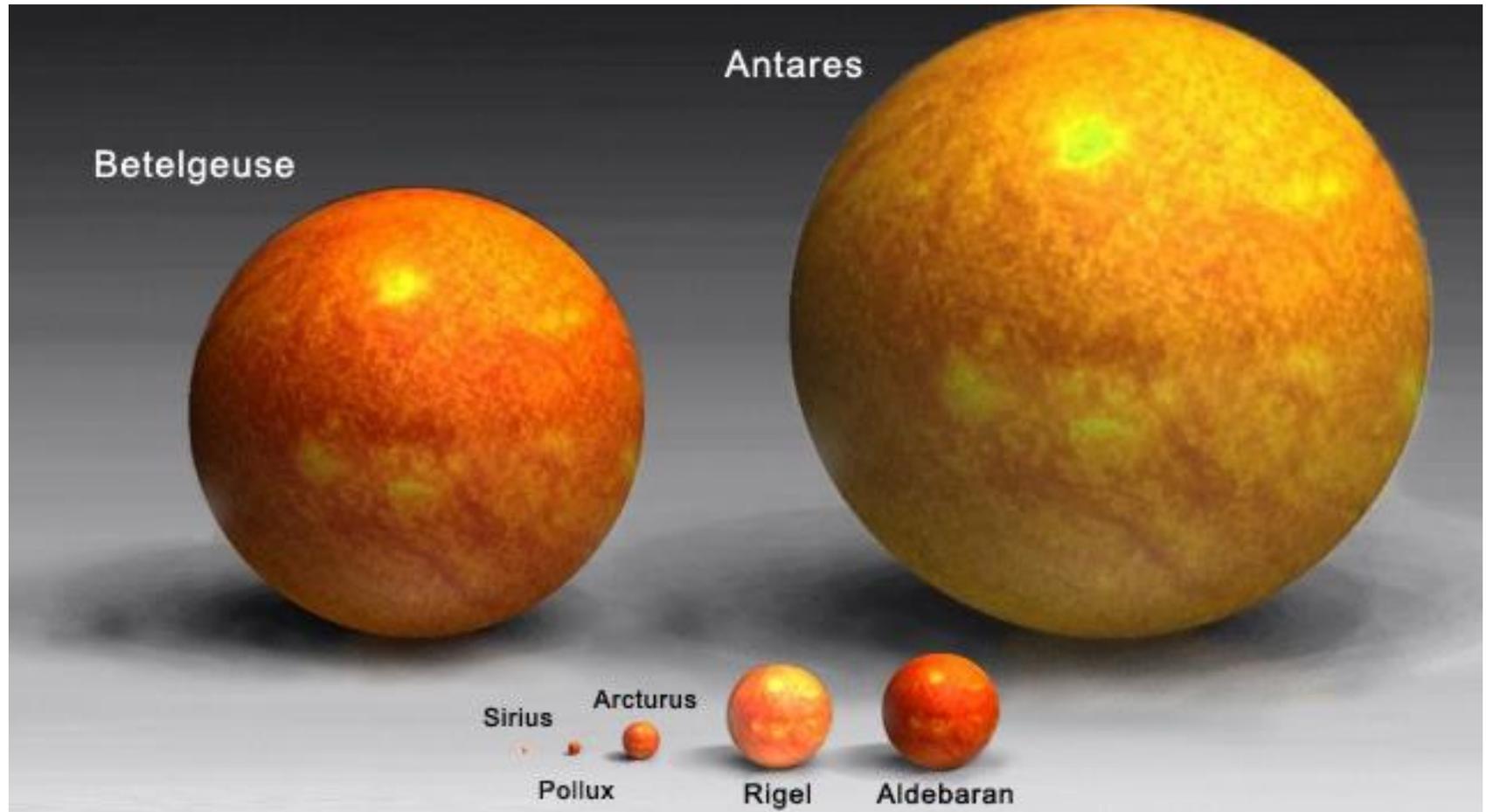
The Size of the Sun



The Size of the Sun



The Size of the Sun

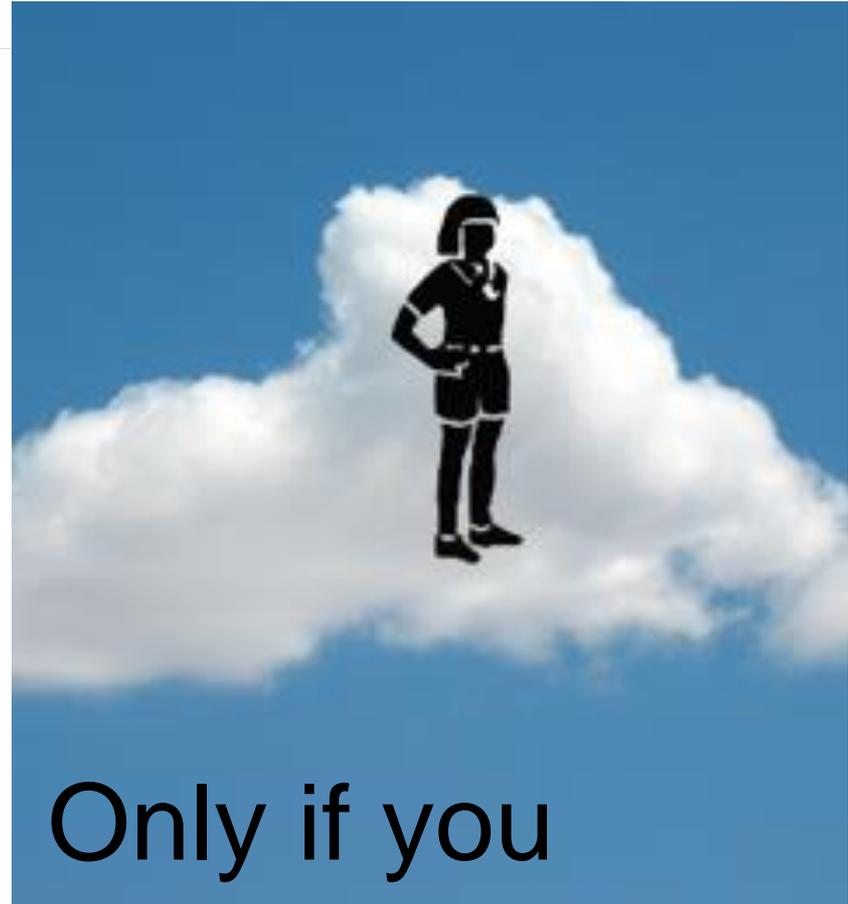




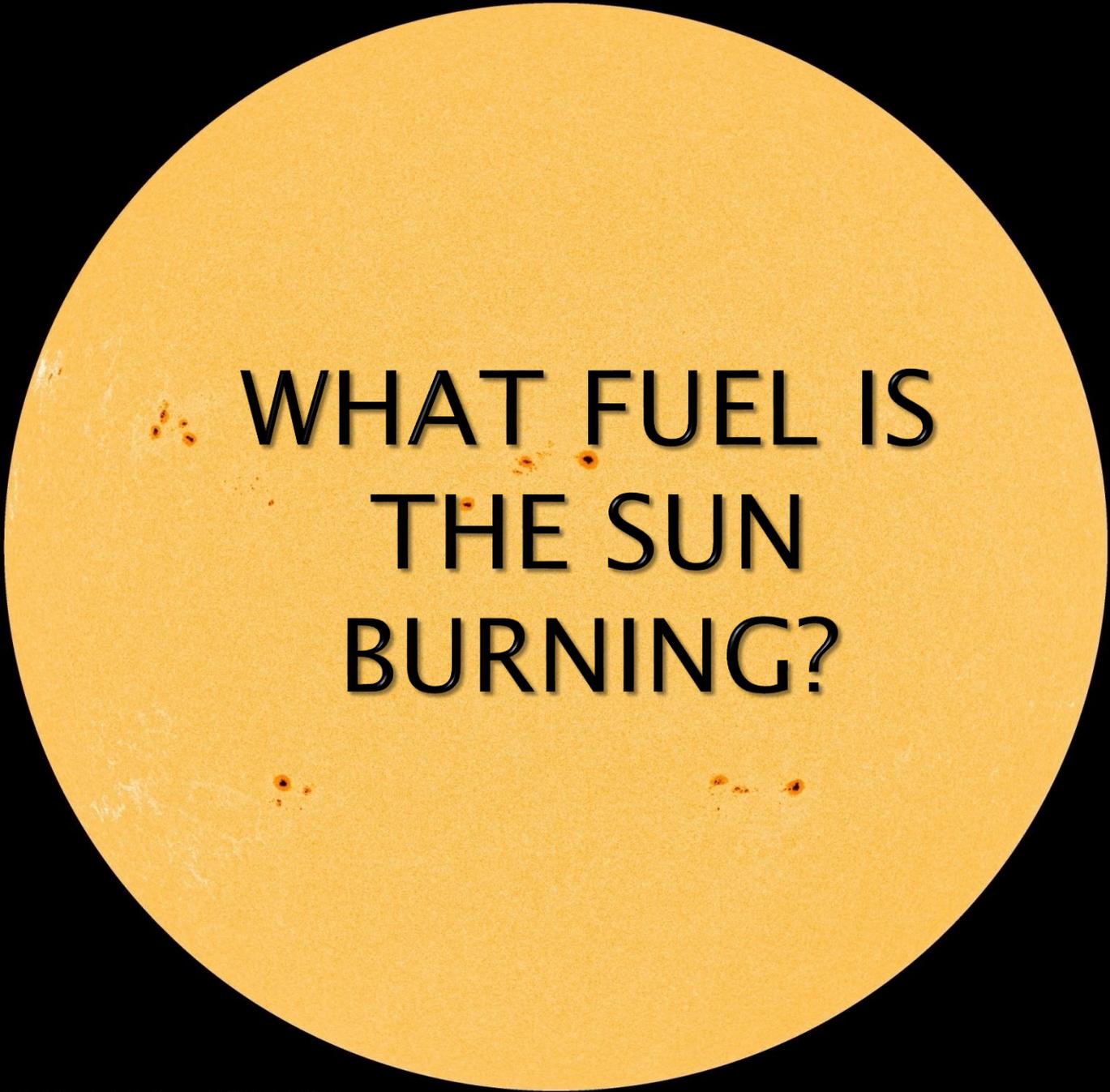
If you could stand
the heat, could you
stand on the sun?



Could you
stand on the
Sun?



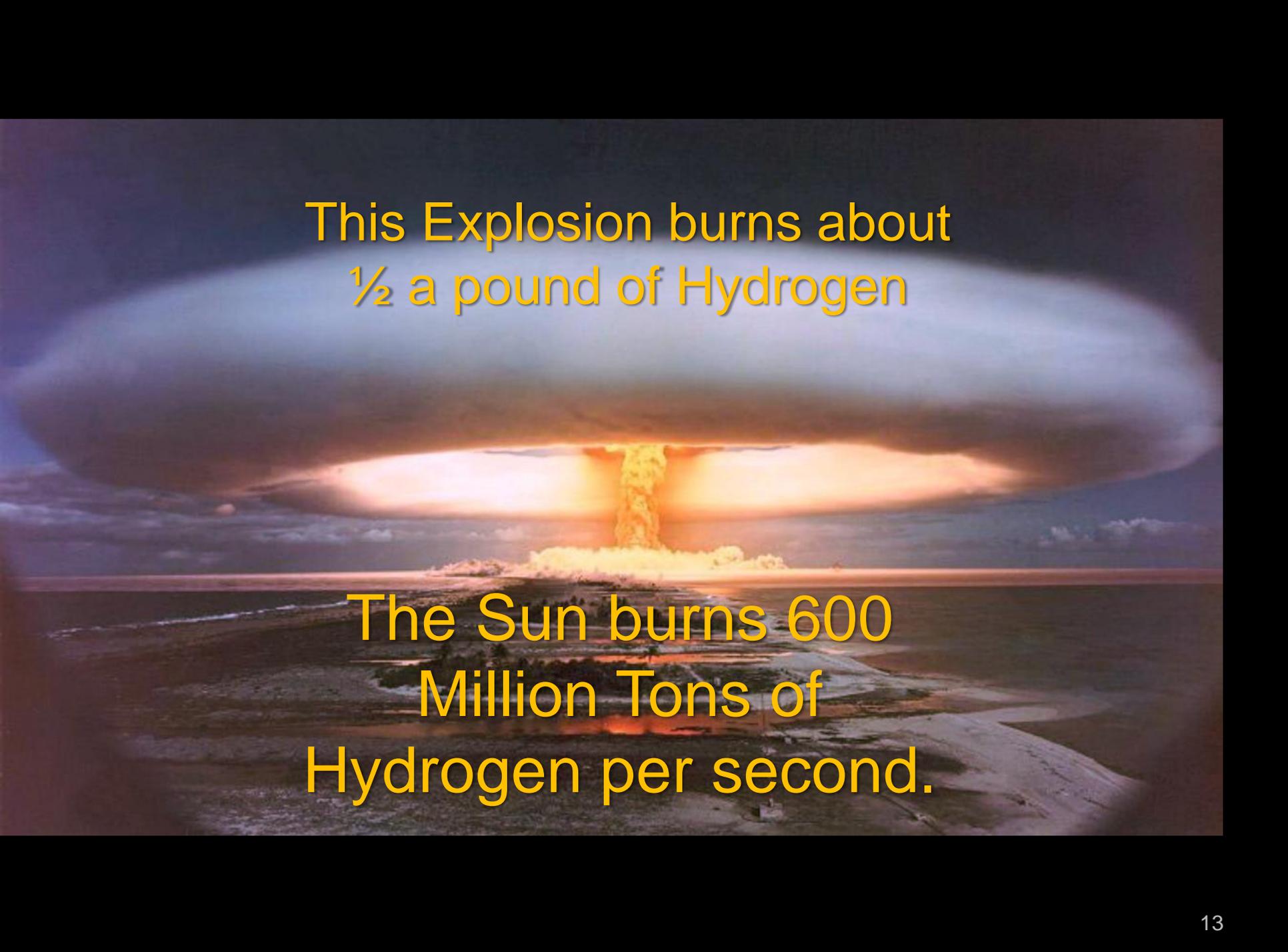
Only if you
could stand on
a cloud.



**WHAT FUEL IS
THE SUN
BURNING?**

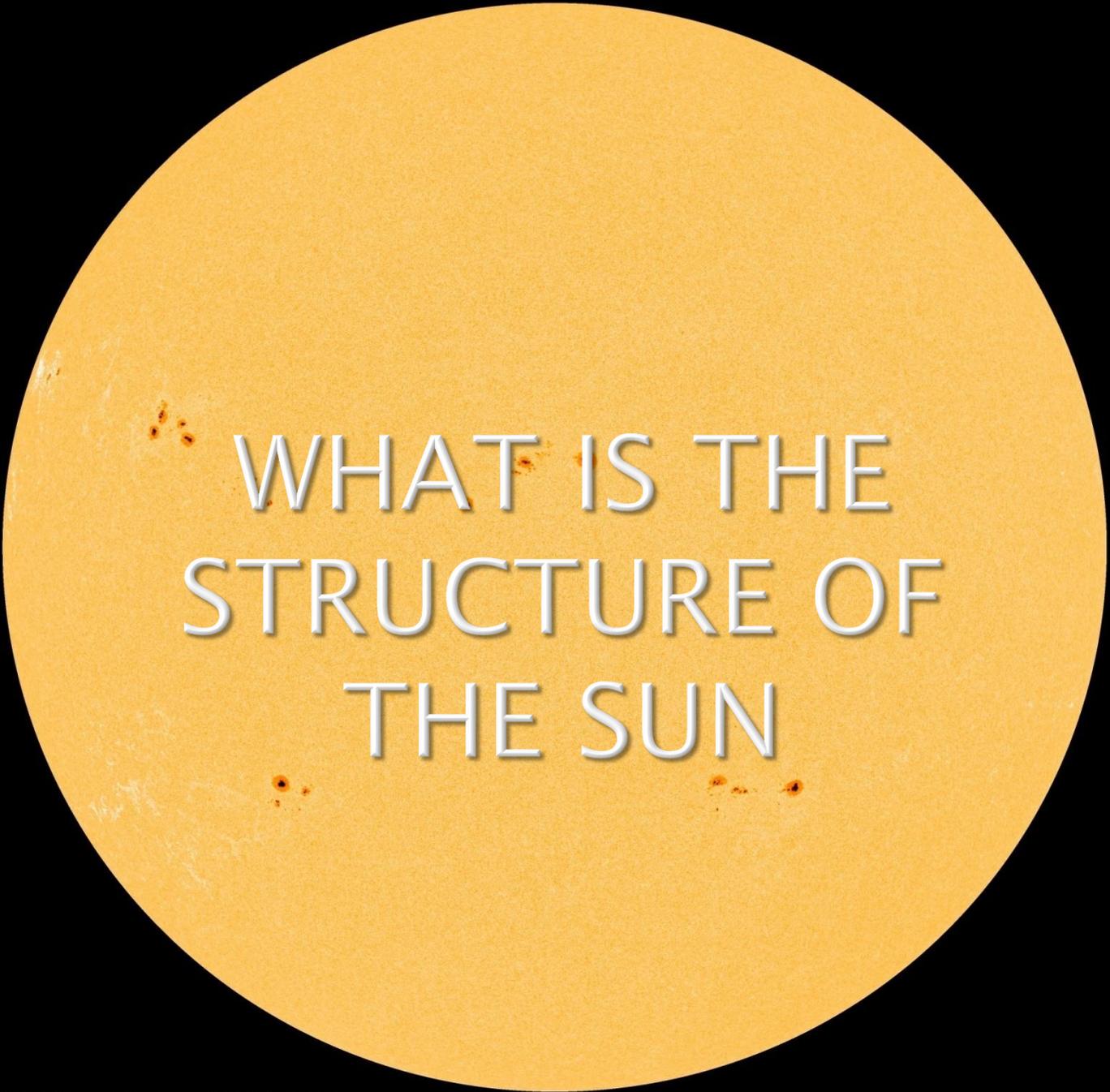
WHERE DOES OUR SUN
(AND ALL OTHER
STARS) GET ENERGY?

NUCLEAR FUSION

A large, mushroom-shaped nuclear explosion cloud is shown against a dark sky. The cloud has a bright, glowing core in the center, with a thick, dark column of smoke and debris rising from the ground. The surrounding area is dark, suggesting a night or dusk setting. The text is overlaid on the image in a yellow, sans-serif font.

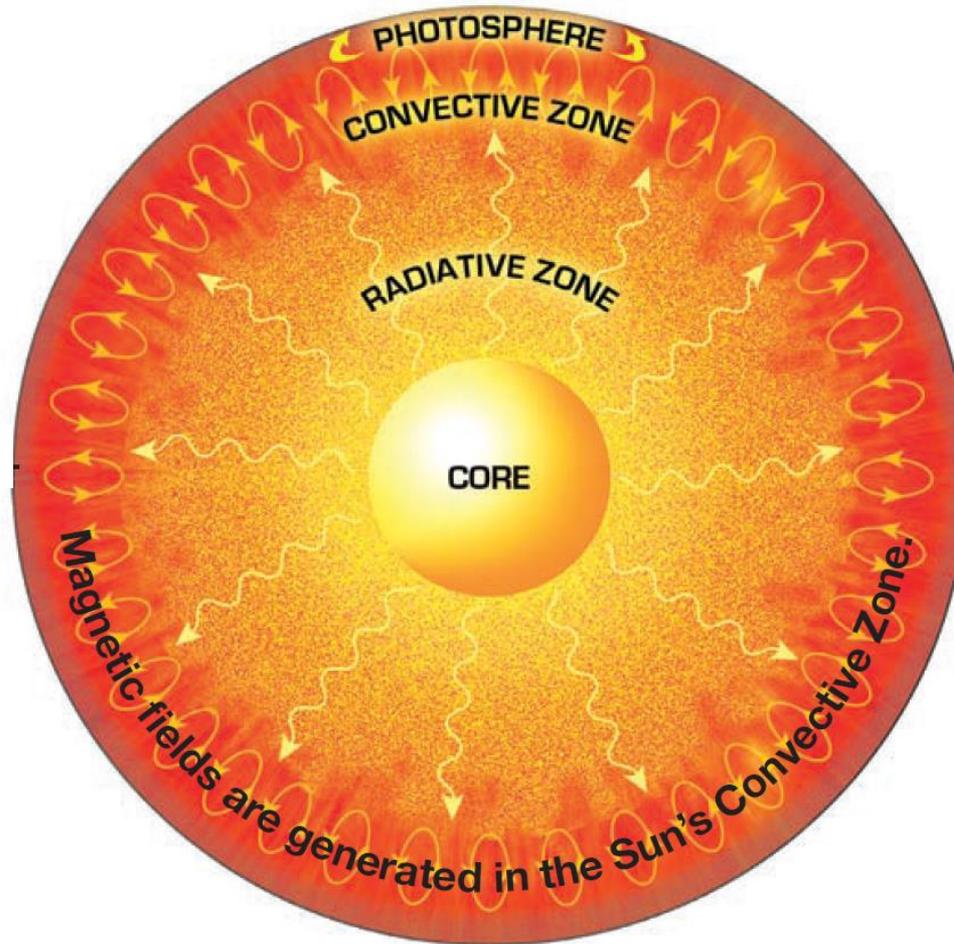
This Explosion burns about
 $\frac{1}{2}$ a pound of Hydrogen

The Sun burns 600
Million Tons of
Hydrogen per second.



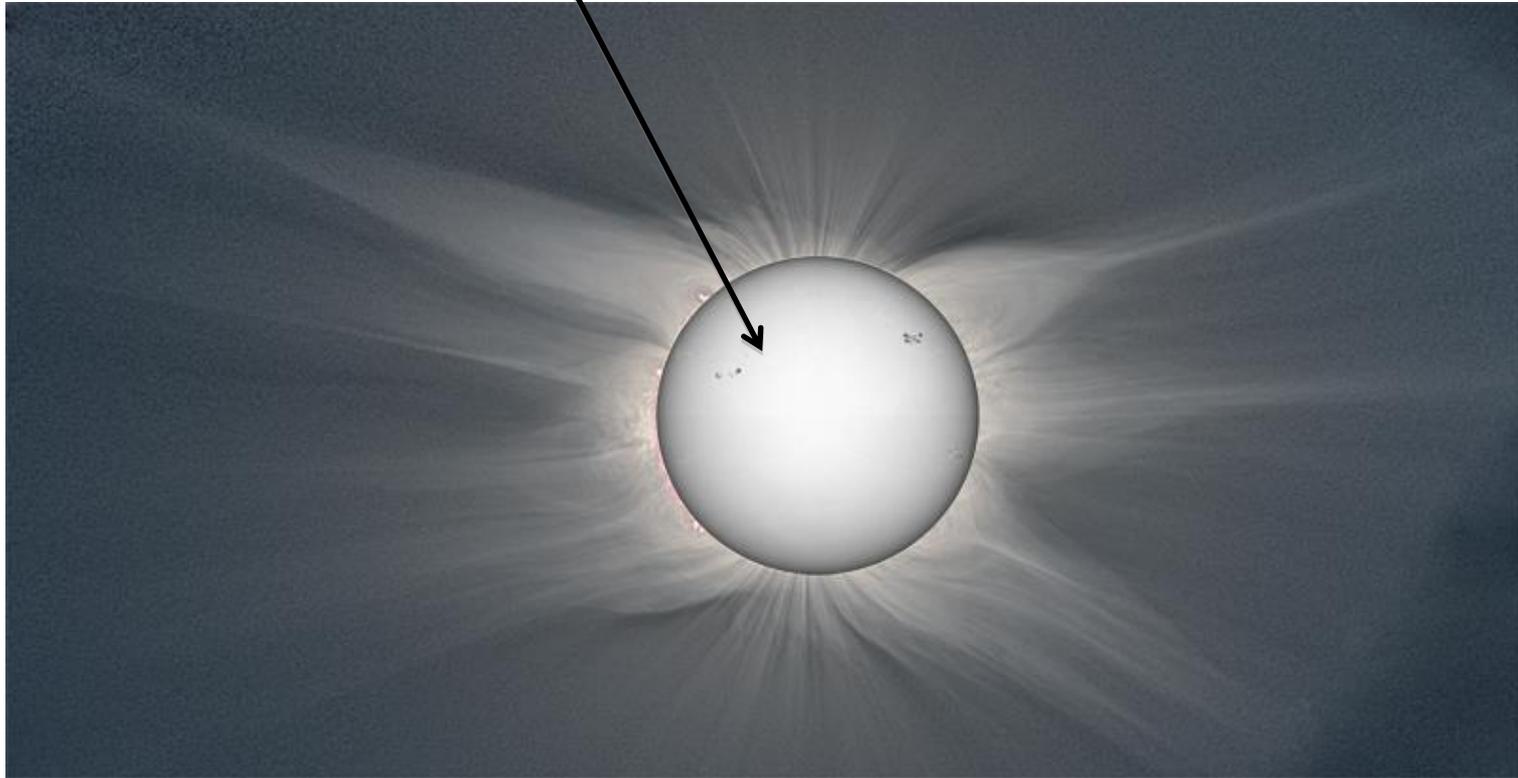
WHAT IS THE STRUCTURE OF THE SUN

The Interior of the Sun



The Different Parts of the Sun

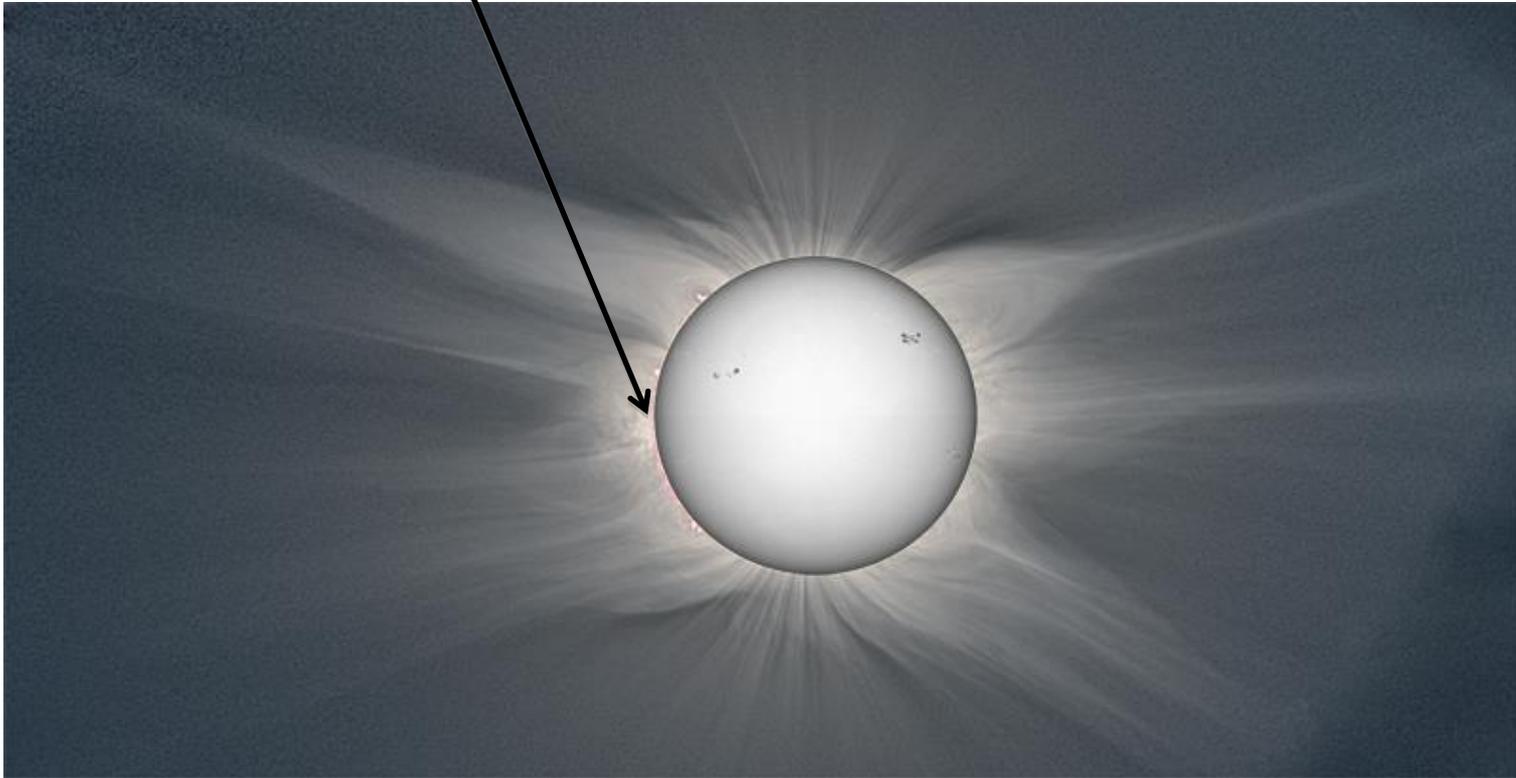
Photosphere: Sun's visible "surface"



The Different Parts of the Sun

Photosphere: Sun's visible "surface"

Chromosphere: Just above the Photosphere

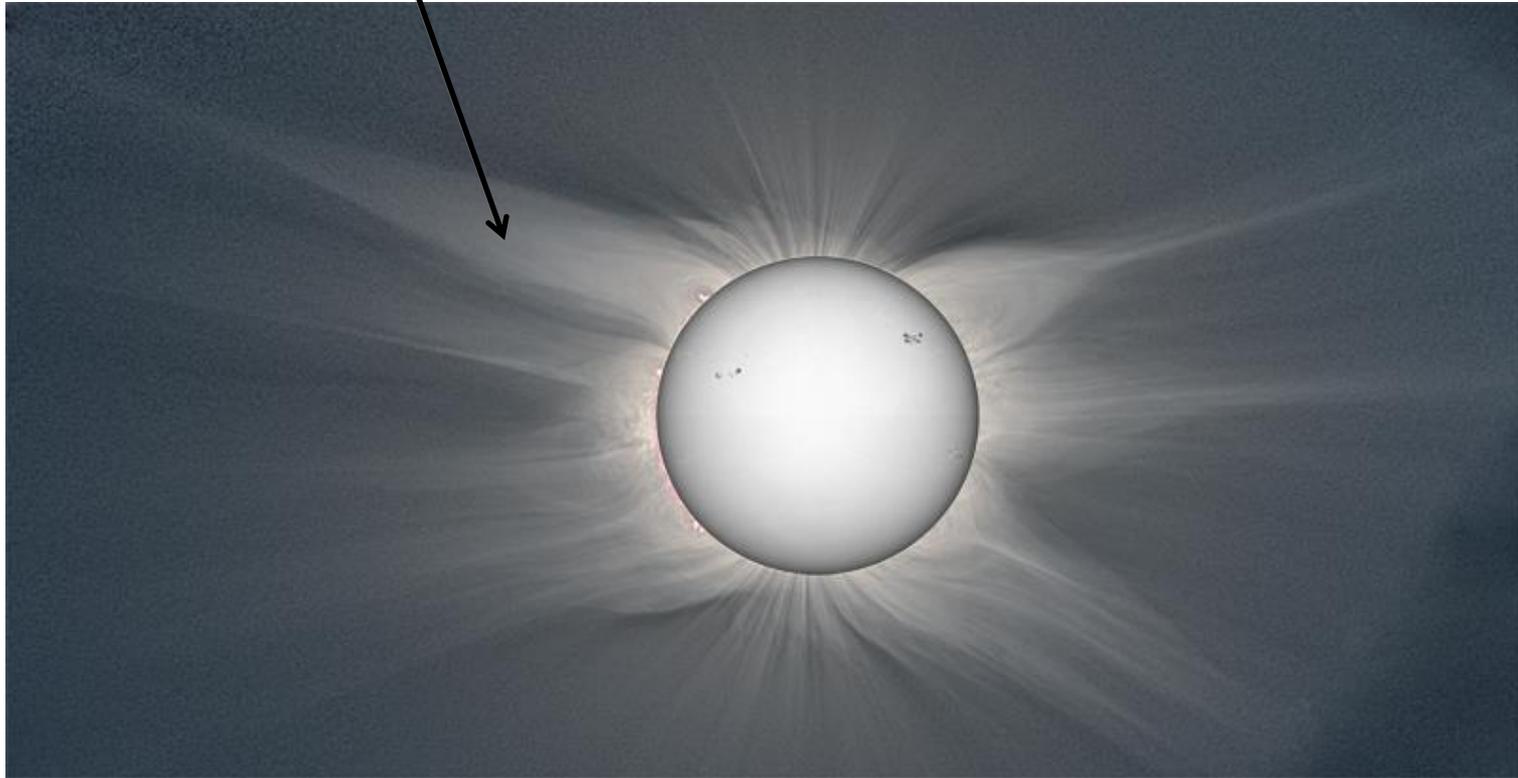


The Different Parts of the Sun

Photosphere: Sun's visible "surface"

Chromosphere: Just above the Photosphere

Corona: The Sun's outer atmosphere



A circular image of the sun's surface, showing a bright yellow-orange color with several dark sunspots scattered across it. The sunspots are small, dark, irregular shapes. The text "WHAT ARE SUNSPOTS" is centered over the image in a bold, black, sans-serif font.

WHAT ARE SUNSPOTS

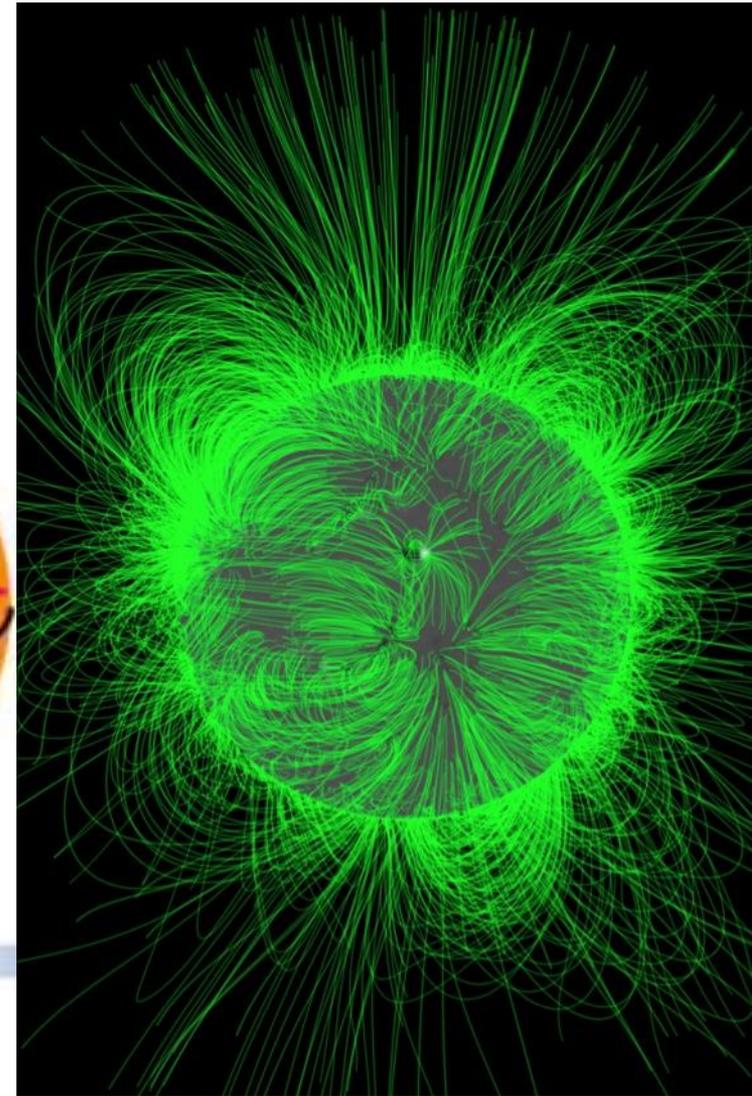
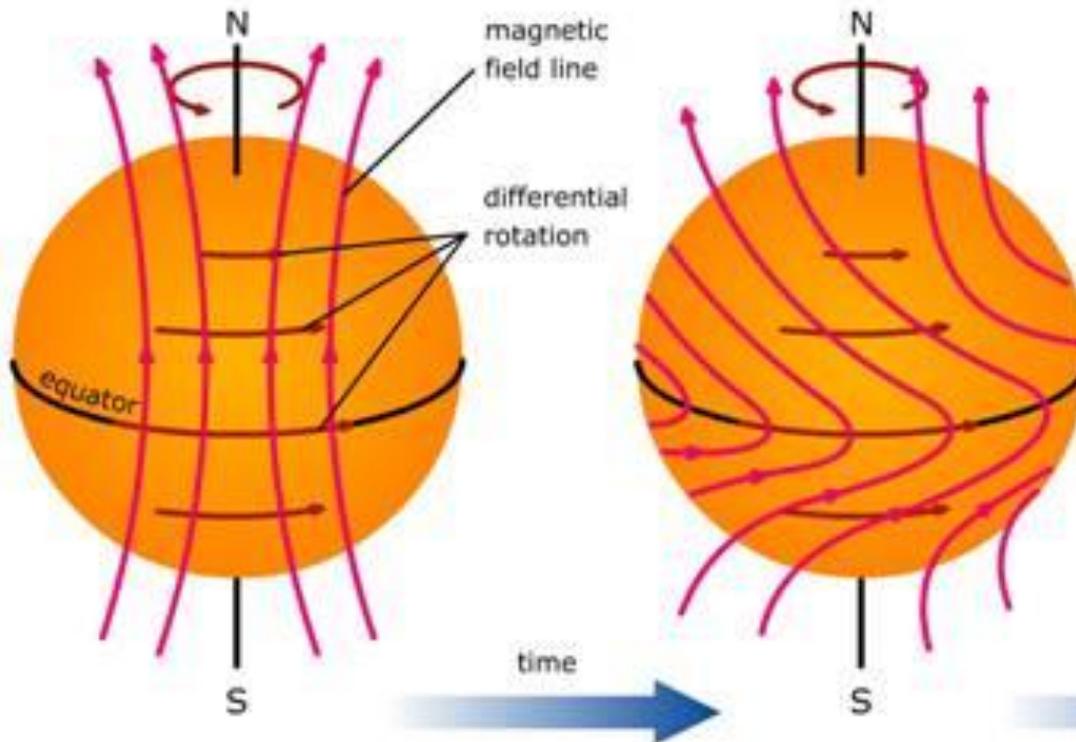
Looking at the Sun in Visible light

- You can see dark spots on the surface.
- These are called sunspots.
- They have been observed from ancient times by Chinese astronomers.

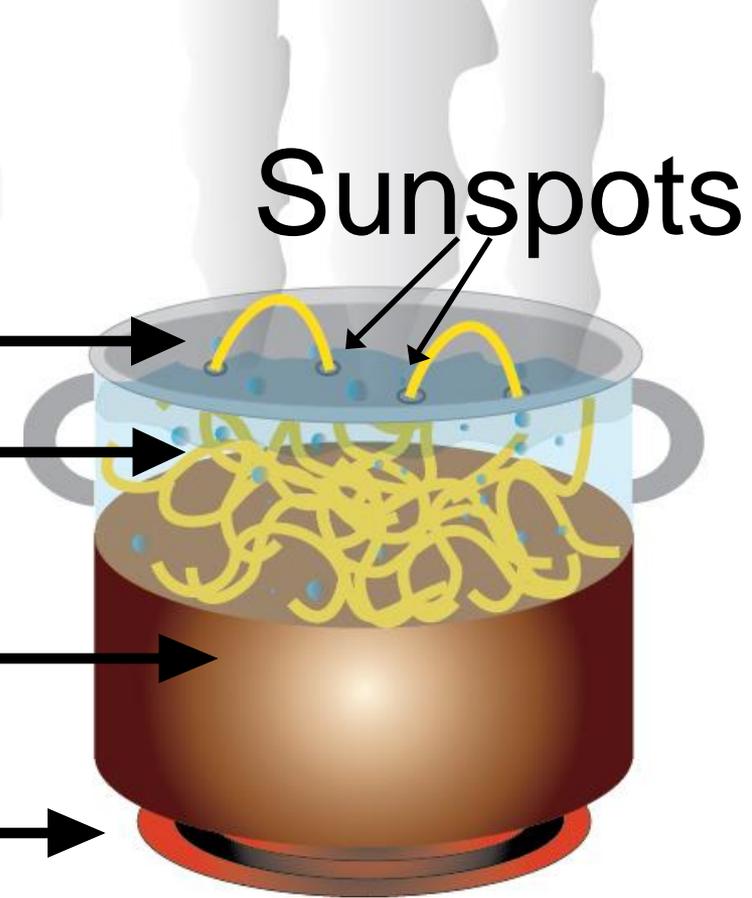
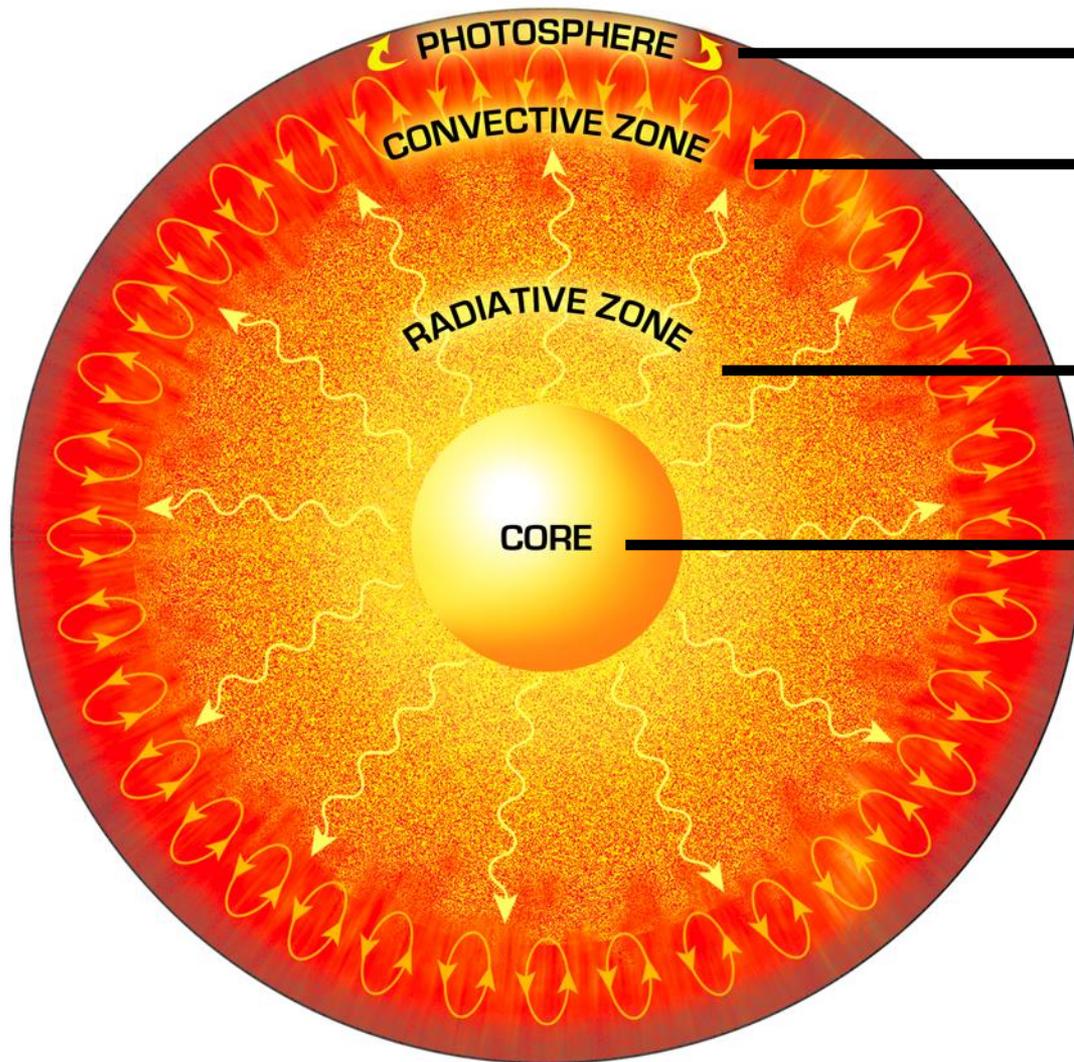
The Sun's Rotation

- At the equator it rotates once every 24.5 days.
- At the Poles it rotates about every 38 days
- The difference causes magnetic lines to twist and causes magnetic storms.
- These magnetic storms make sunspots.

The Sun's Magnetic Field

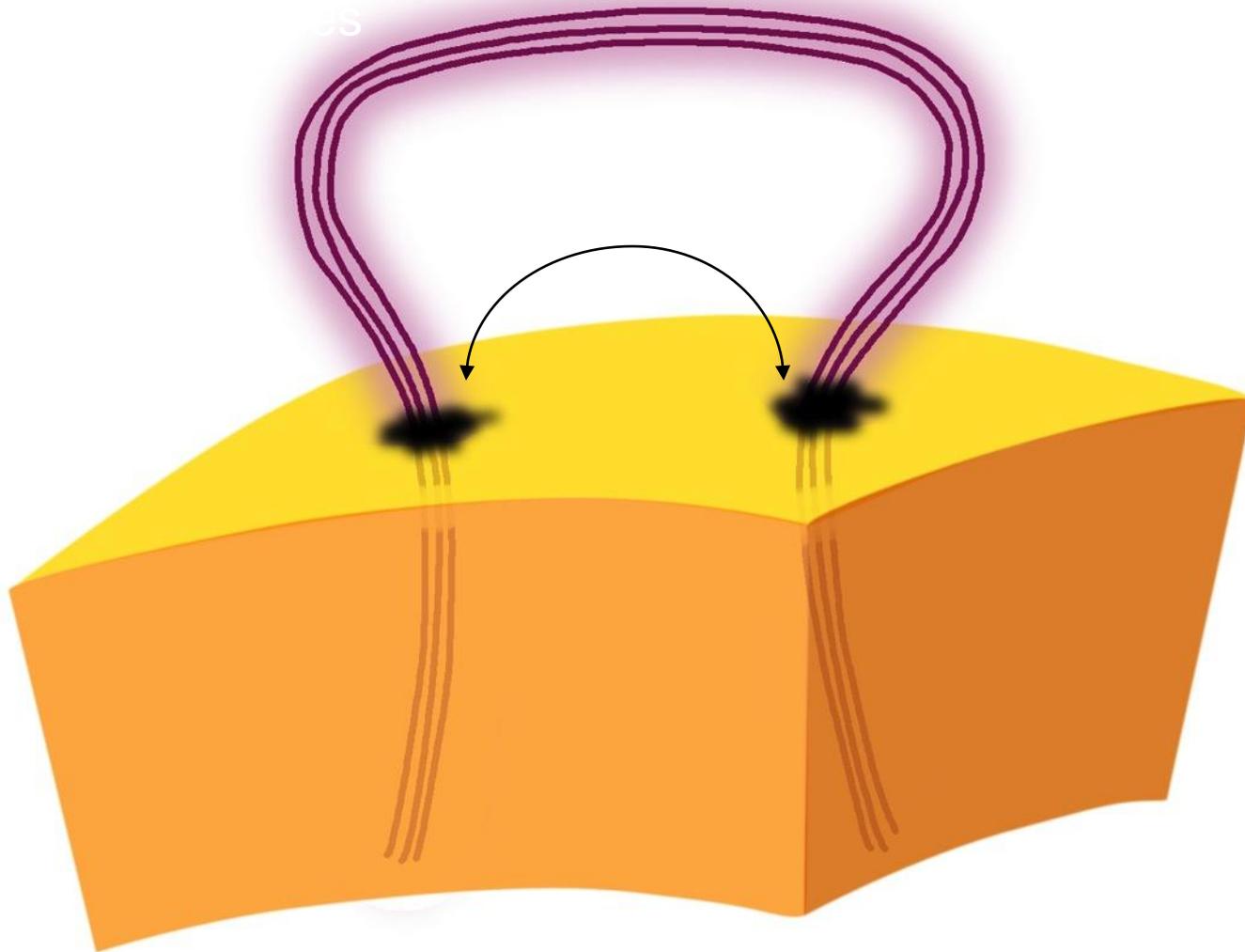


Inside the Sun

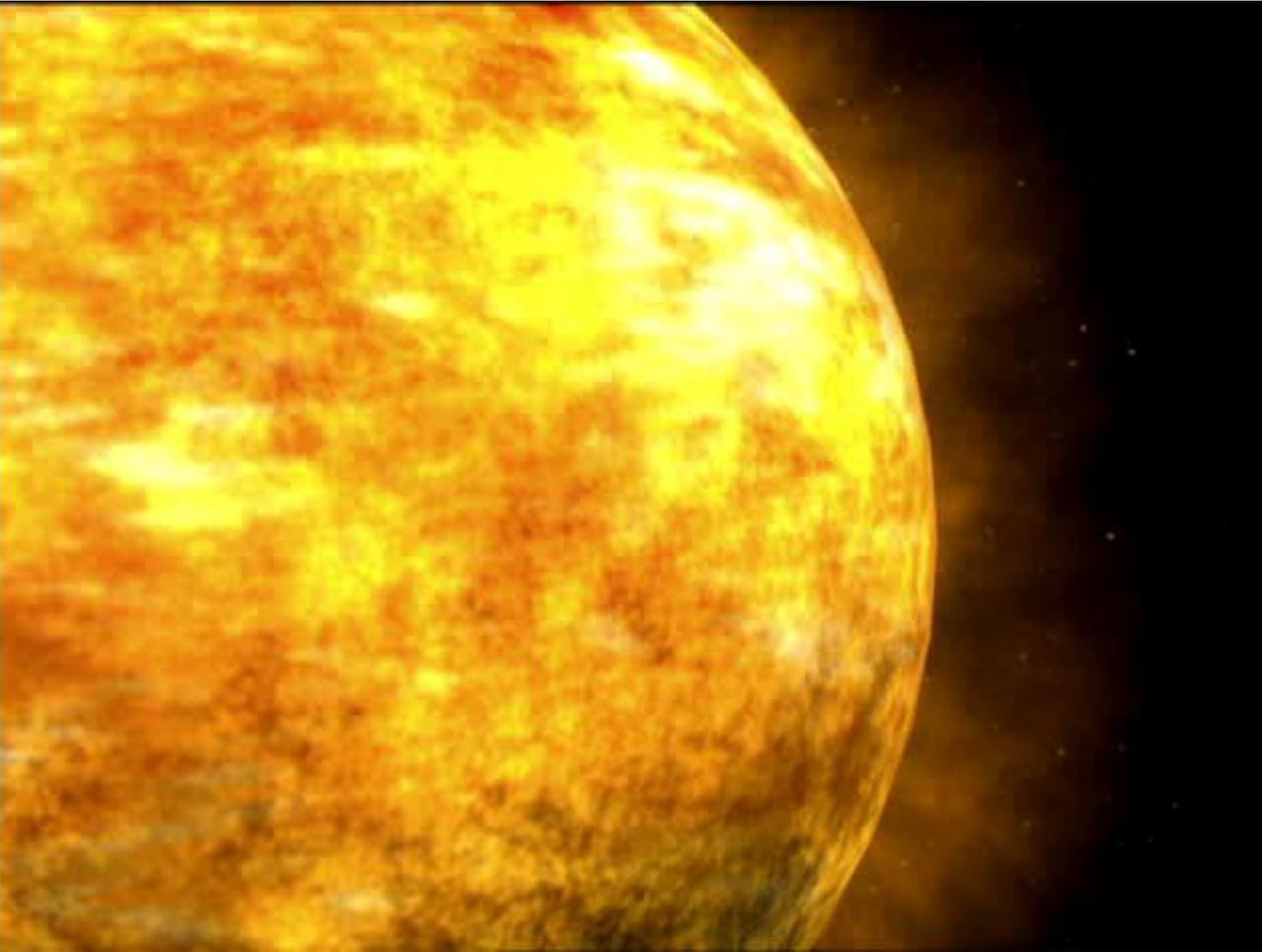


Sunspots

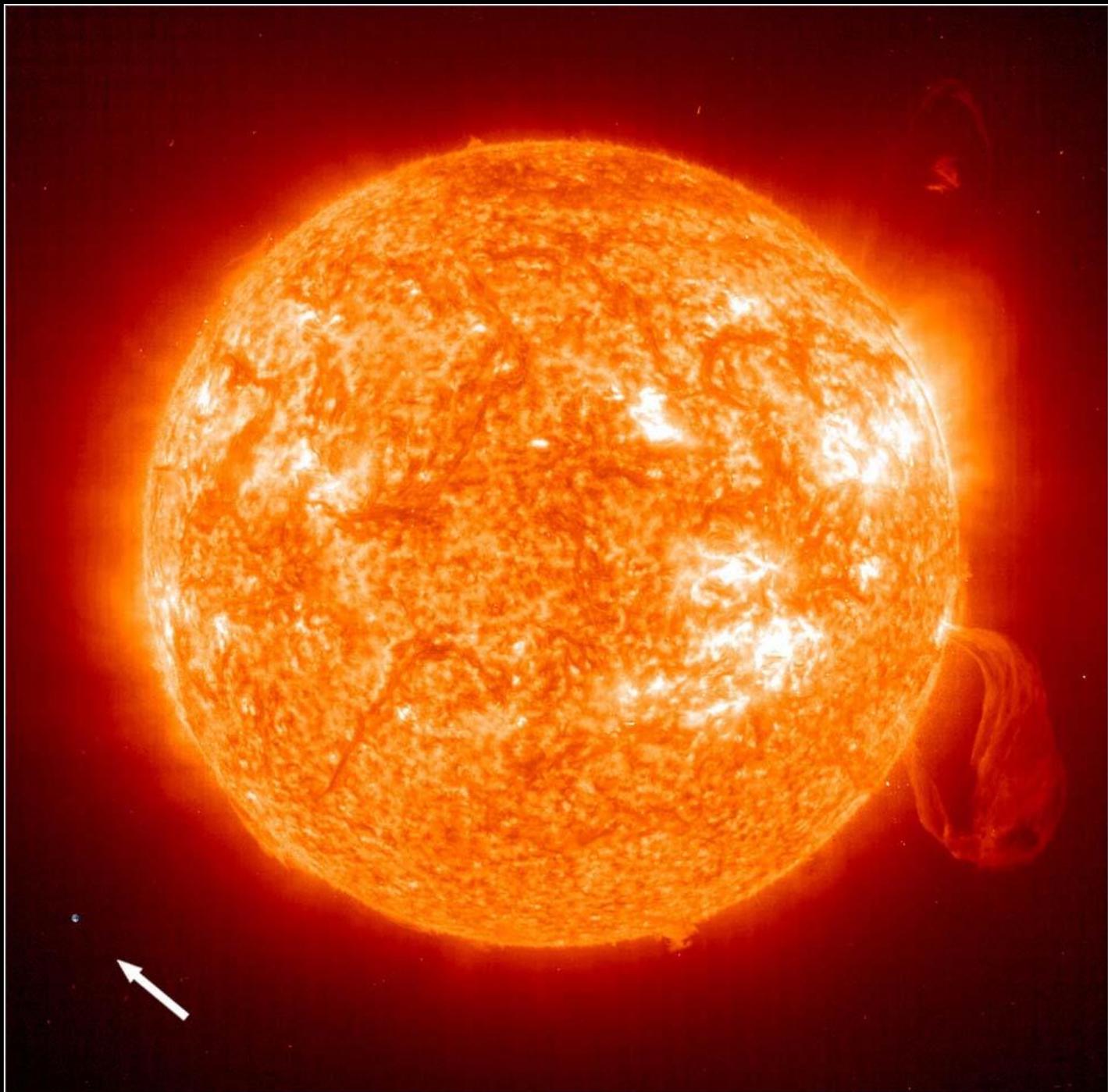
What Makes Sunspots?

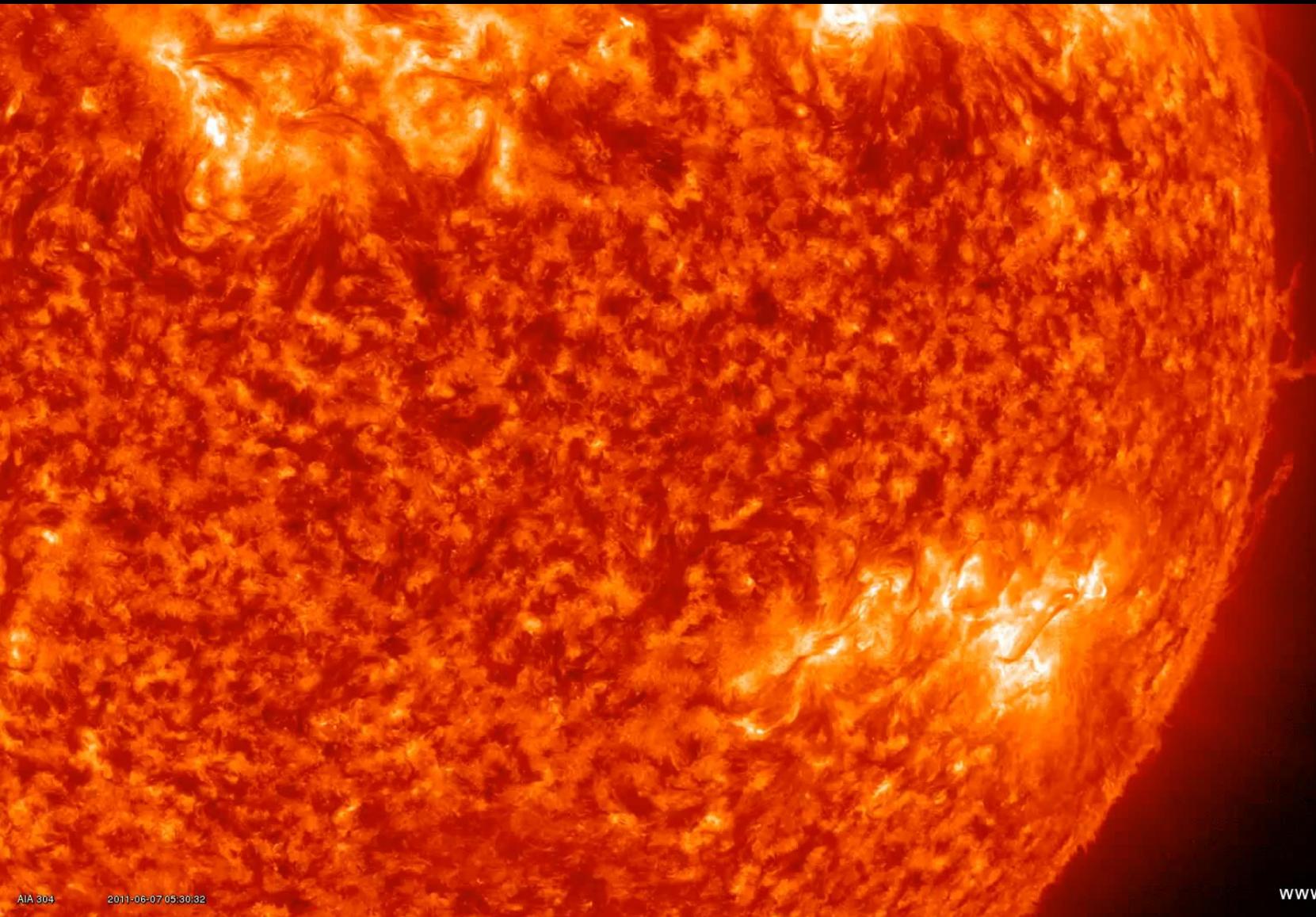


Solar Storms

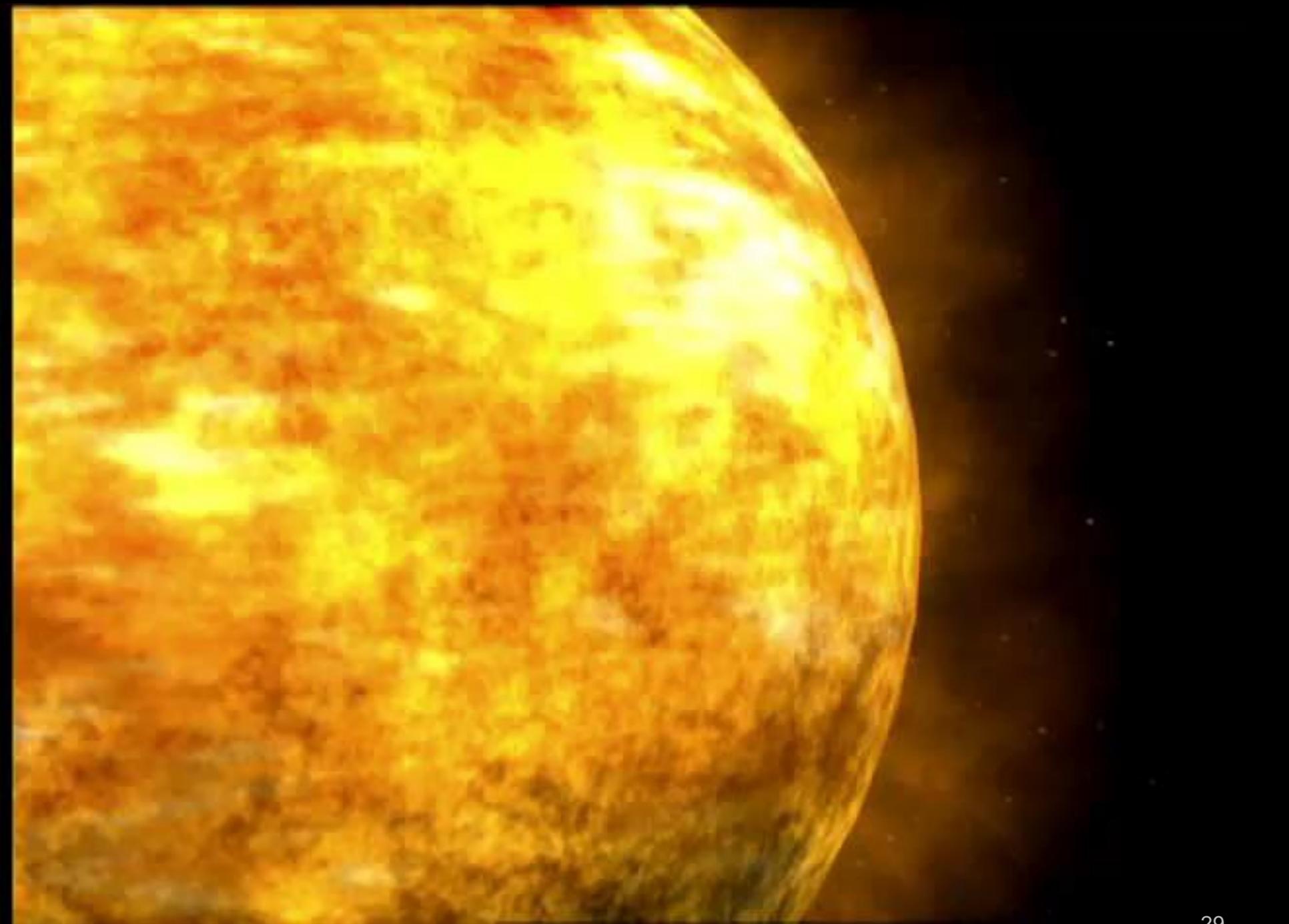


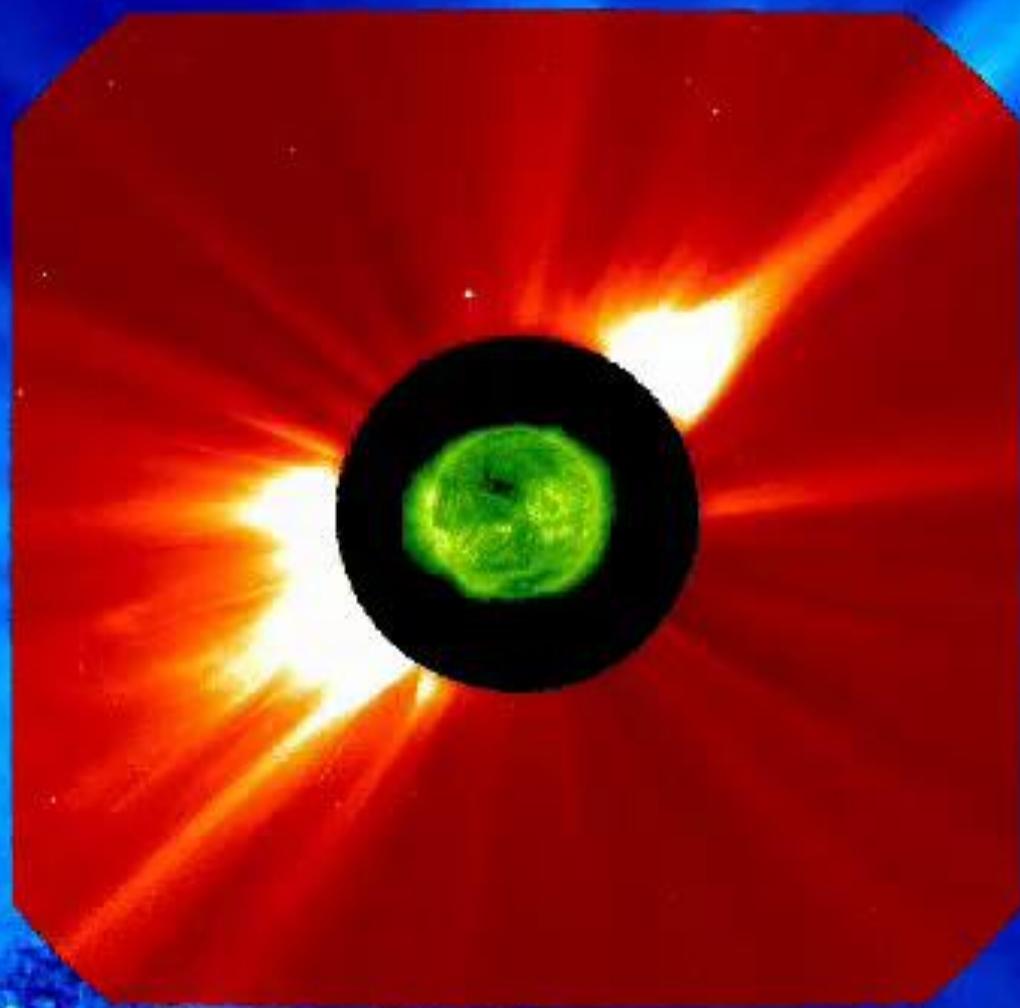
A Solar Storm is caused by magnetic spots colliding and can eject a large mass of solar particles, a Coronal Mass Ejection (CME).



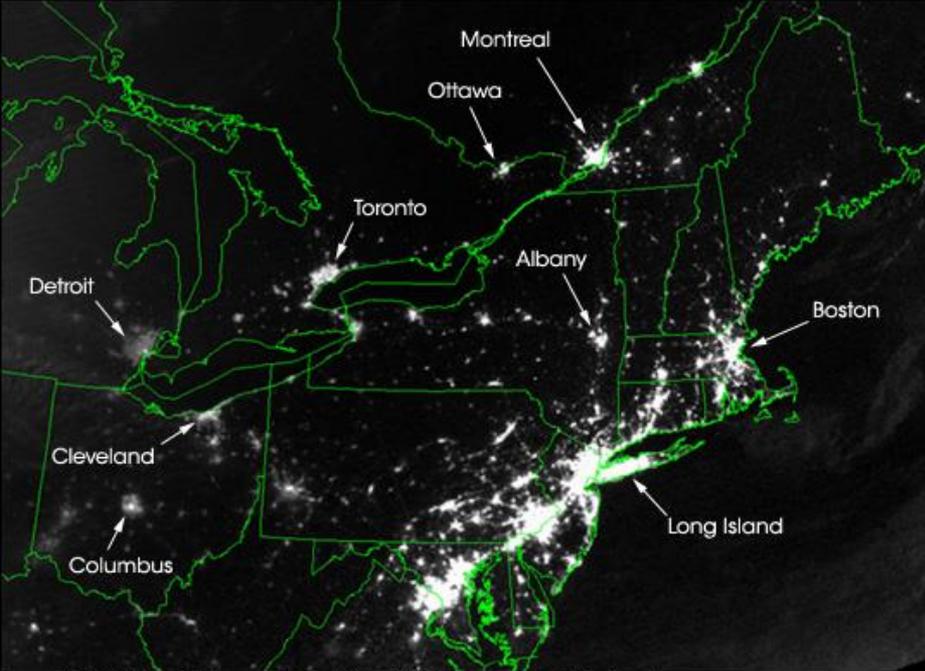


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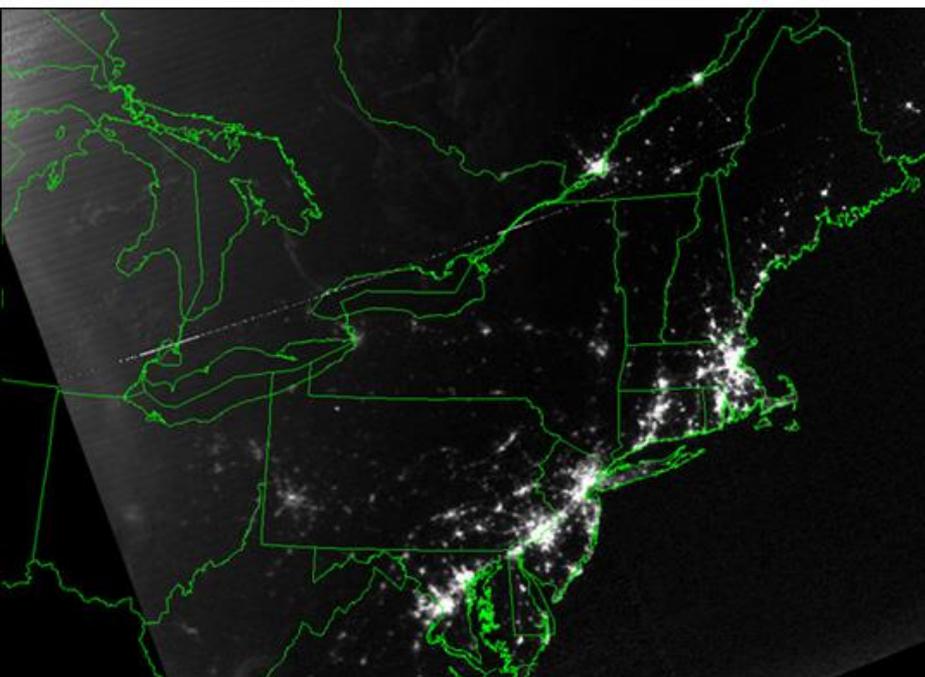




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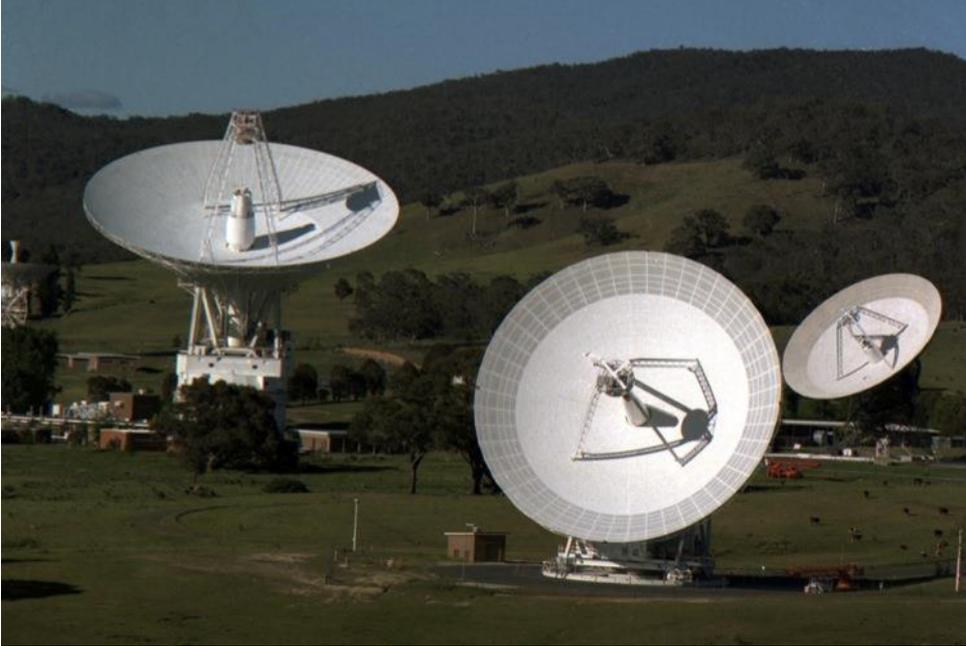


August 14, 2003 • 9:29 p.m. EDT • About 20 hours before blackout



August 15, 2003 • 9:14 p.m. EDT • About 7 hours after blackout

Solar Storms
can cause
massive
power outages



Solar Storms can disrupt communications between the ground, satellites, and transportation



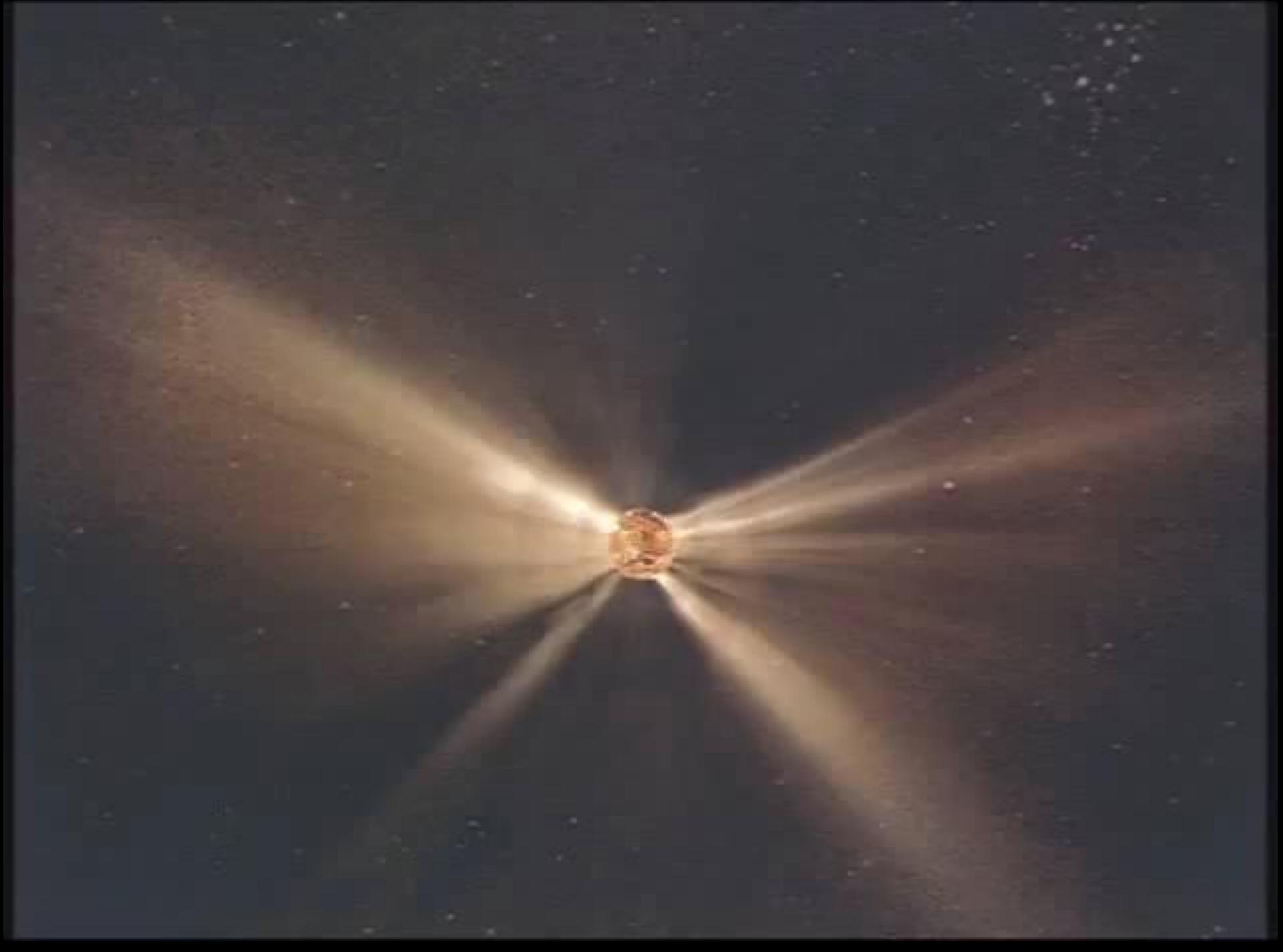


Solar Storms
can cause
beautiful
displays of
the aurora





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QUESTIONS