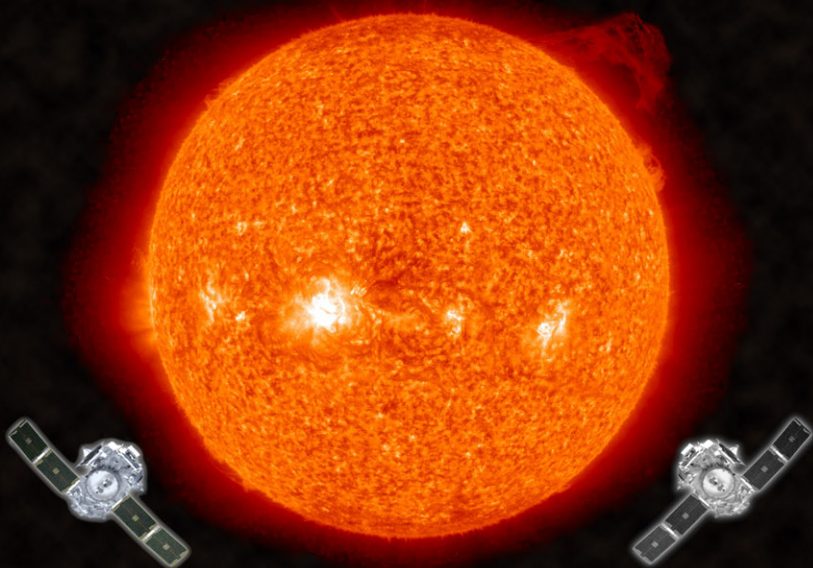
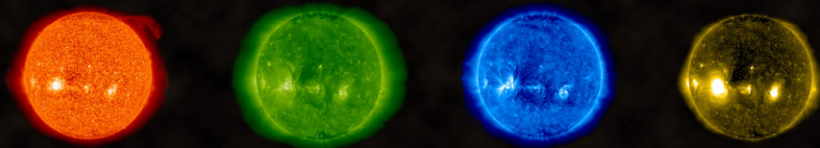


STEREO

Observing the Sun from two perspectives in space



The **STEREO** (Solar Terrestrial Relations Observatory) is a NASA mission with two nearly identical space-based observatories - one ahead of Earth, the other trailing behind - providing the *first-ever* stereoscopic measurements to study the Sun and solar storms that it blasts out into space.

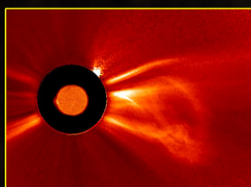
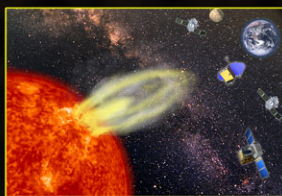


One instrument observes the Sun in four wavelengths of extreme ultraviolet light. Each "sees" solar features at different temperatures and at various distances above the Sun. The lighter areas are active regions, areas of intense magnetic activity that can produce solar storms.



Launched together in late 2006, the two STEREO spacecraft (about golf cart sized) are slowly separating as they move around the Sun with Earth. Eventually, we will be able to see both sides of the Sun at the same time. An imaging instrument suite on each spacecraft can view the entire area between the Sun and Earth so that for the first time we can measure the speed and structure of solar storms as they expand into space.

The illustration (right) shows a coronal mass ejection (CME) heading into space. These large clouds of charged particles, which occur frequently, usually take 2 to 3 days to reach Earth.



Another instrument from STEREO, called a coronagraph (left), blocks out the Sun to reveal a CME cloud heading into space (Sun superimposed to show scale).

Why do we care about solar storms?

- Radiation from solar storms can sicken astronauts; on Earth, we are protected by our planet's magnetic shield.
- Power equipment failures due to energy surges
- Communication disruptions
- Pipeline corrosion
- Satellite malfunction or even failure

