

# Rosetta Stone Eruption Could Help Explain Solar Explosions



In a dramatic, multi-staged eruption, the Sun has revealed new clues that could help scientists solve the long-standing mystery of what causes the Sun's powerful and unpredictable eruptions.

This explosion, observed with NASA's Solar Dynamics Observatory and the European Space Agency and NASA's Solar and Heliospheric Observatory on March 12 and 13, 2016, contained components of three different types of solar eruptions that usually occur separately – making it the first time such an event has been reported.

**Having all three eruption types together in one event provides scientists with something of a solar Rosetta Stone**, allowing them to translate what they know about each type of solar eruption to understand other types and uncover an underlying mechanism that could explain all types of solar eruptions.

By modeling the new Rosetta Stone eruption and others like it, scientists hope to better understand what root mechanism causes solar eruptions and determines their characteristics. **Finding a trigger could ultimately allow scientists to predict when a large eruption could threaten Earth and Mars several hours in advance – providing enough time for astronauts and spacecraft operators to take precautionary measures.**



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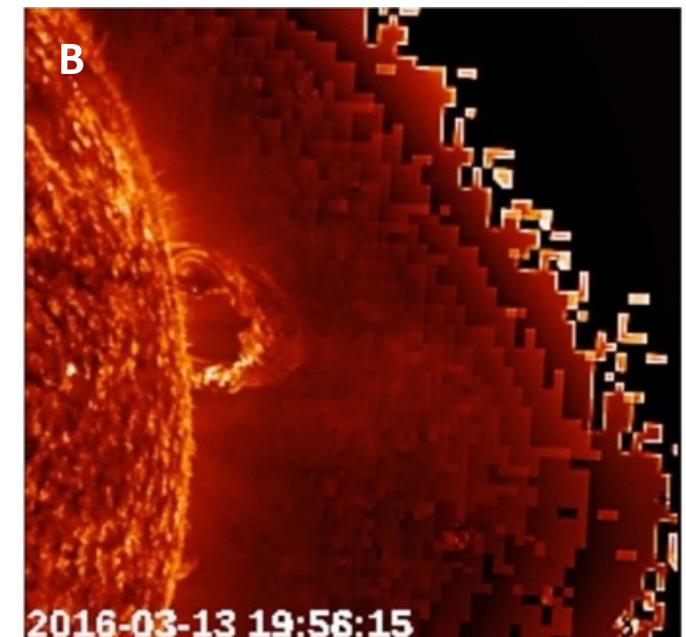
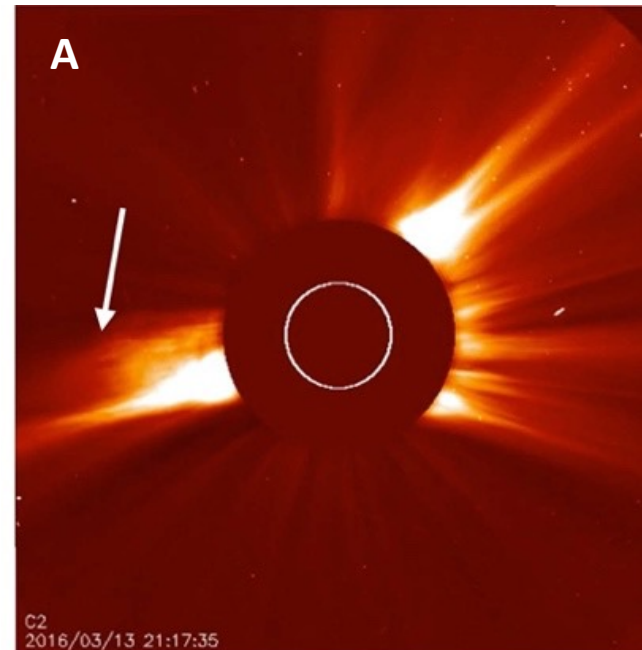


Figure A shows a coronagraph image of the event, where the disk of the sun is covered to allow details of the dimmer solar atmosphere to be seen clearly. The arrow is pointing to the part of the eruption that was too narrow to be a Coronal Mass Ejection (one kind of solar eruption) but too wide to be a jet (another kind). Figure B shows the cool plasma from the Rosetta Stone eruption.