

Breakout Jets in Coronal Holes



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What is the science question?

What triggers/drives energetic jets in solar coronal holes?

What are the findings?

Our multiwavelength study of 27 on-disk coronal-hole jets reveal that all jets were associated with the eruption of filaments (large structures of cool, dense plasma) and occur in specific magnetic field configurations, which are consistent with our breakout model for solar eruptions. The magnetic breakout reconnection between the closed field supporting the filament and the open field surrounding a fan-spine magnetic structure drives jets.

What was the impact?

We now understand better the energy storage and release process in coronal-hole jets that contribute mass and energy to the solar corona and wind.

Why does it matter to non-scientists?

Jet study provides understanding of the fundamental mechanisms for energy storage/release in a wide range of solar eruptions from jets and mini-Coronal Mass Ejections (CMEs) to large-scale CMEs. This insight can lead to more accurate and timely predictions of solar eruptions that cause harmful space weather effects.

