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Cusp-shaped structure of a jet observed by *IRIS* and *SDO*

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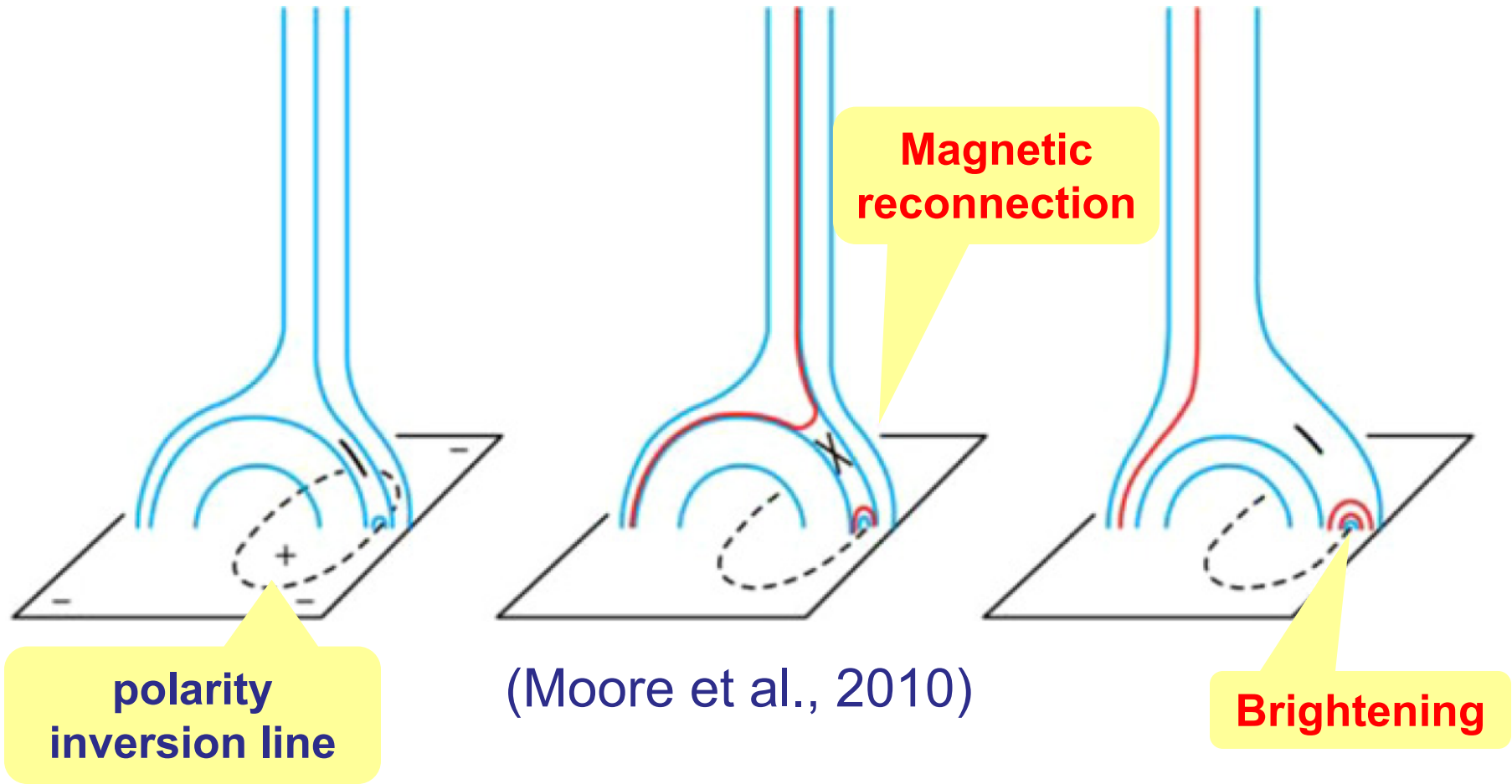
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1. Introduction

- **Coronal jet** is a highly **dynamic** and well **collimated** eruption phenomenon and thought to contribute to heat corona and solar wind.
- A typical configuration of a jet is a cusp-shaped structure including **an elongated spire** and **an arch-base**.
- An robust **evidence** of **magnetic reconnection** existing in the solar atmosphere (Cirtain et al. 2007).
- However, for the limited observational resolution, it is **hard** to distinctly **resolve** the motions of the **plasma blobs** and related variation of magnetic **topological structure** inside a jet.

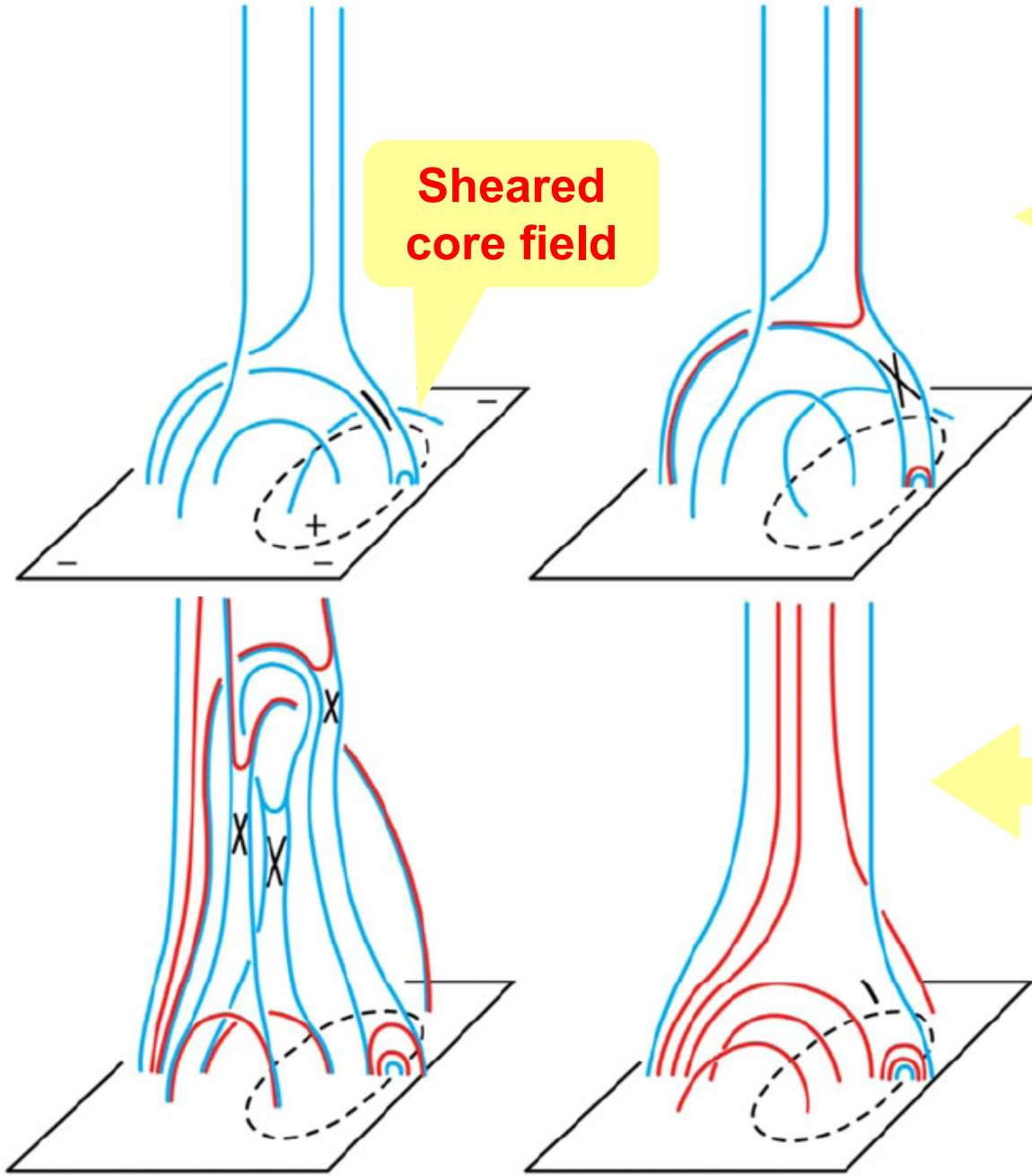
A **Standard** solar jet model (Shibata et al., 1992)



A **reconnection** occurs at a plasma **current sheet** between the **open** field and the **emerging closed field**;

A localized X-ray **brightening** observed at the edge of the jet's **arch base**.

B Blowout model (Moore et al., 2010)

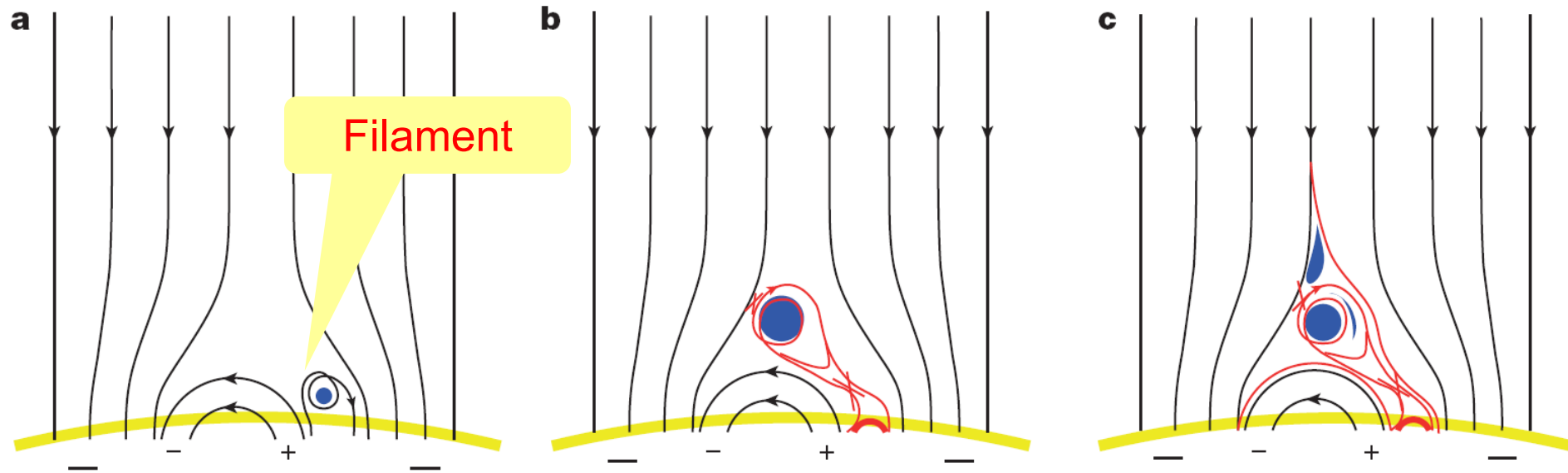


Sheared
core field

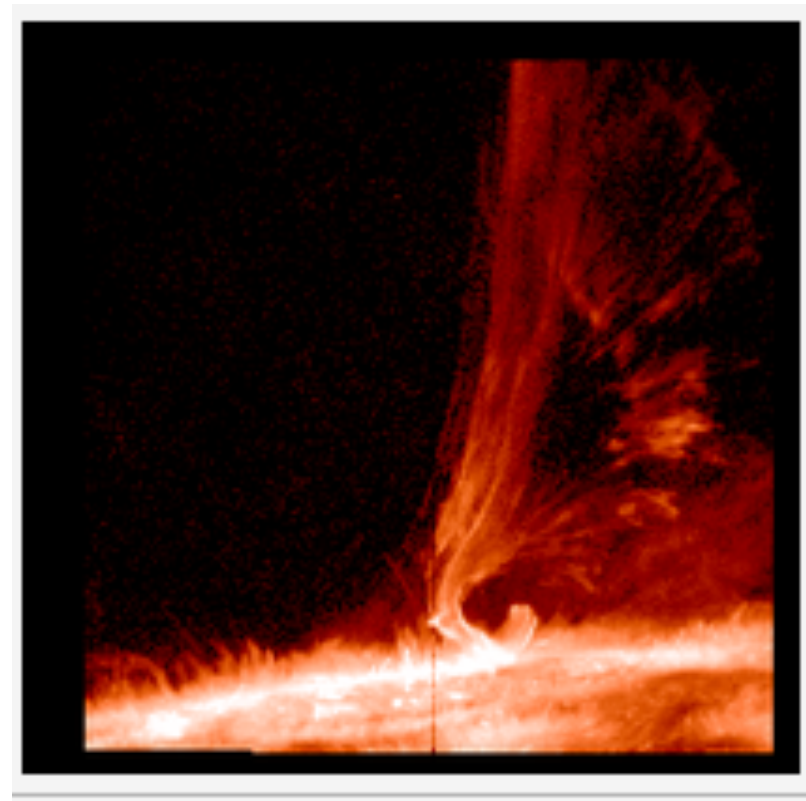
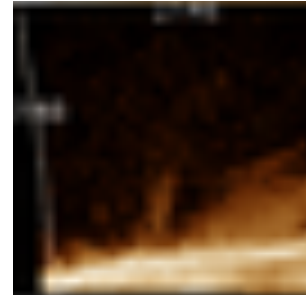
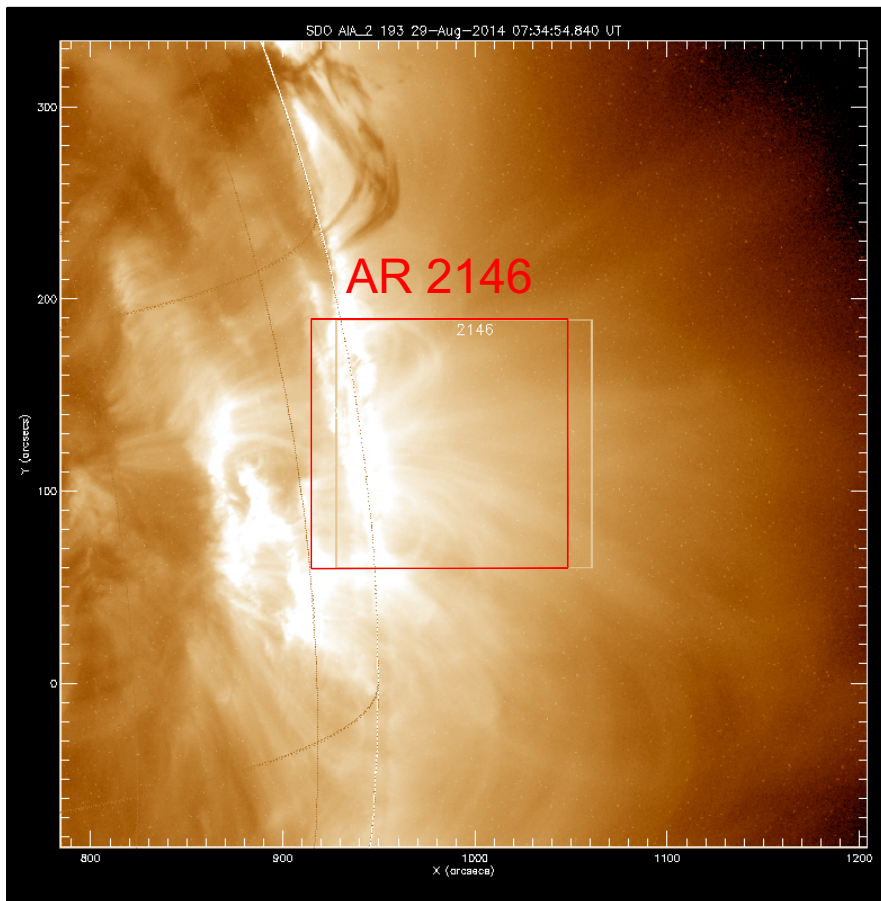
Step I :
similar to
Standard
Model

Step II : The
erupting core
field **strongly
ejects** from the
base region

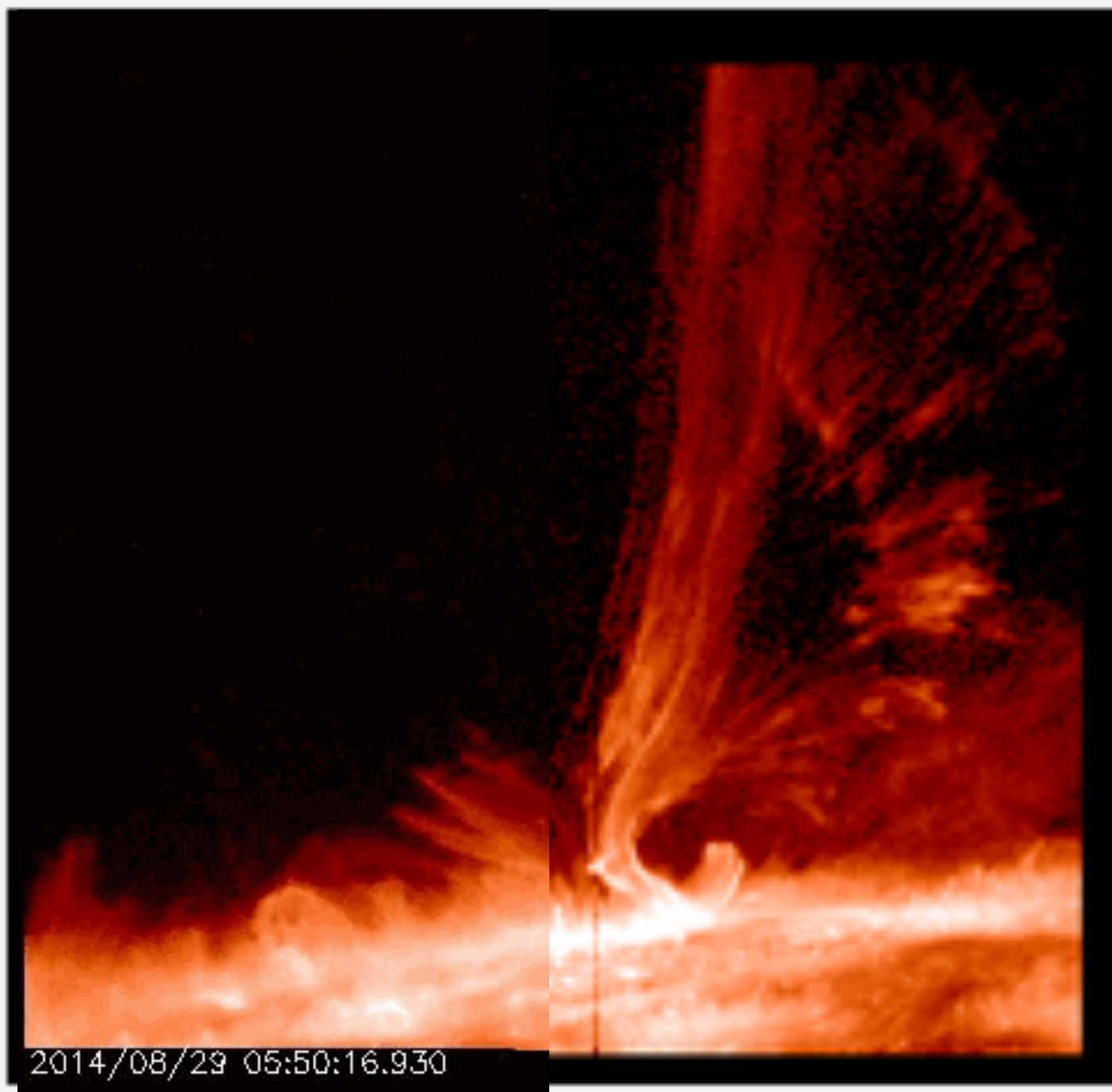
C Revised jet-eruption model (Sterling et al. 2015)

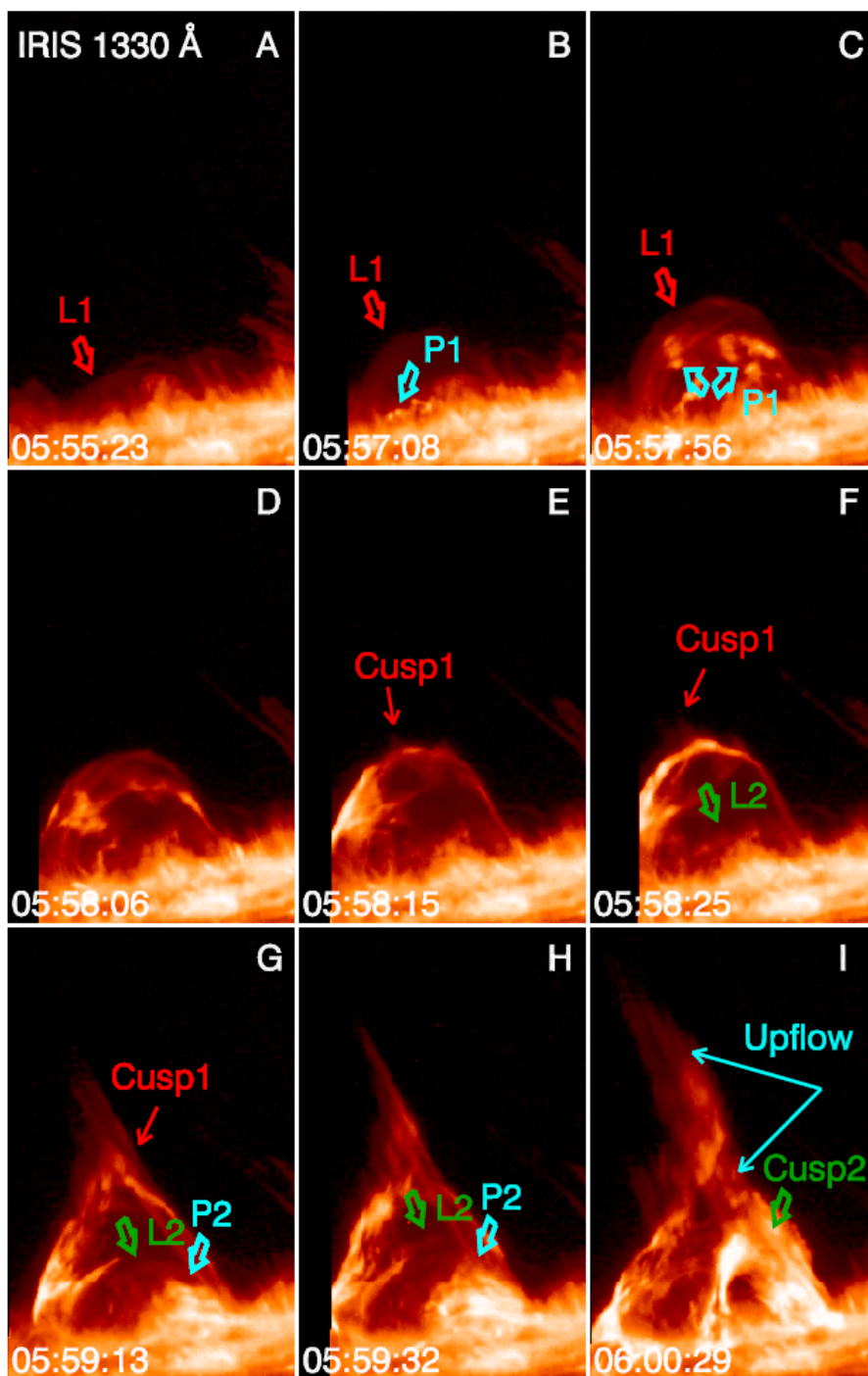


- **Mini-filament** drives the jet.
- Sterling et al. (2015) thought that:
 - 1) a **blowout** jet is accompanied by a **strongly** ejection of a mini-filament,
 - 2) a **standard** jet formed in a very **weak** erupting process of a mini-filament.



- **IRIS SJI 1330**
0.166" per pixel;
9.6s cadence
- **SDO/AIA**



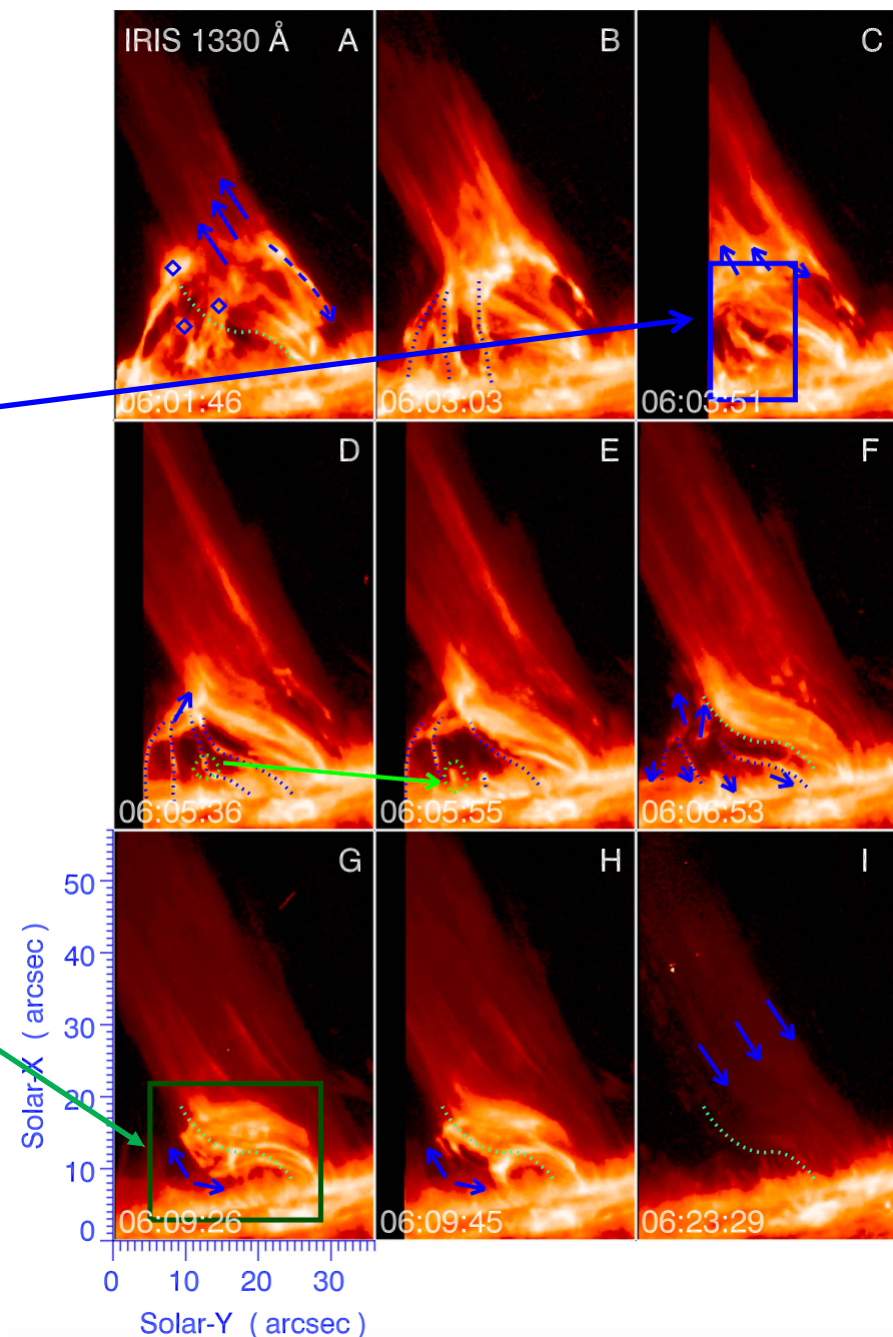
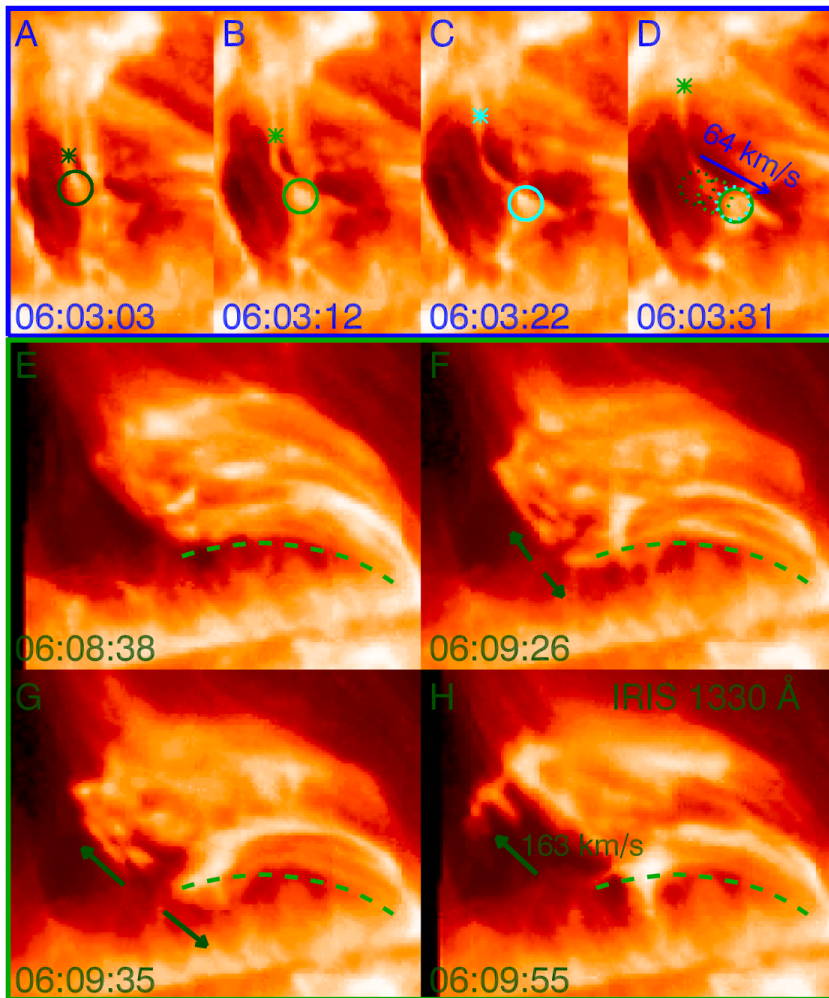


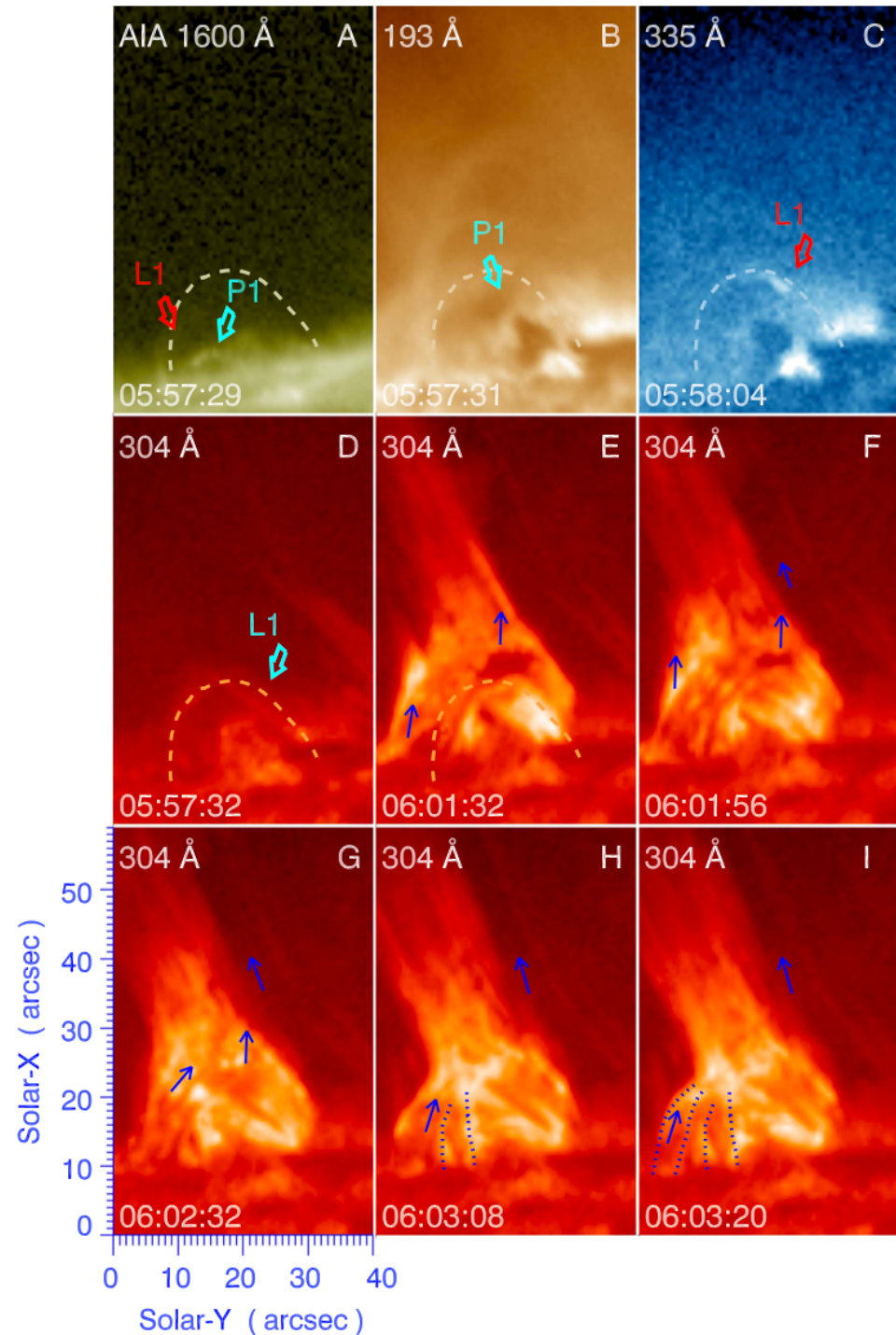
- “L” --- Loop-like system;
“P” --- Mini-prominence.

- A cusp-shaped jet formed by the magnetic reconnection between the loop and the mini-prominence and the background field.

- **Figure 1**

Ceaseless magnetic reconnection during the whole evolution process

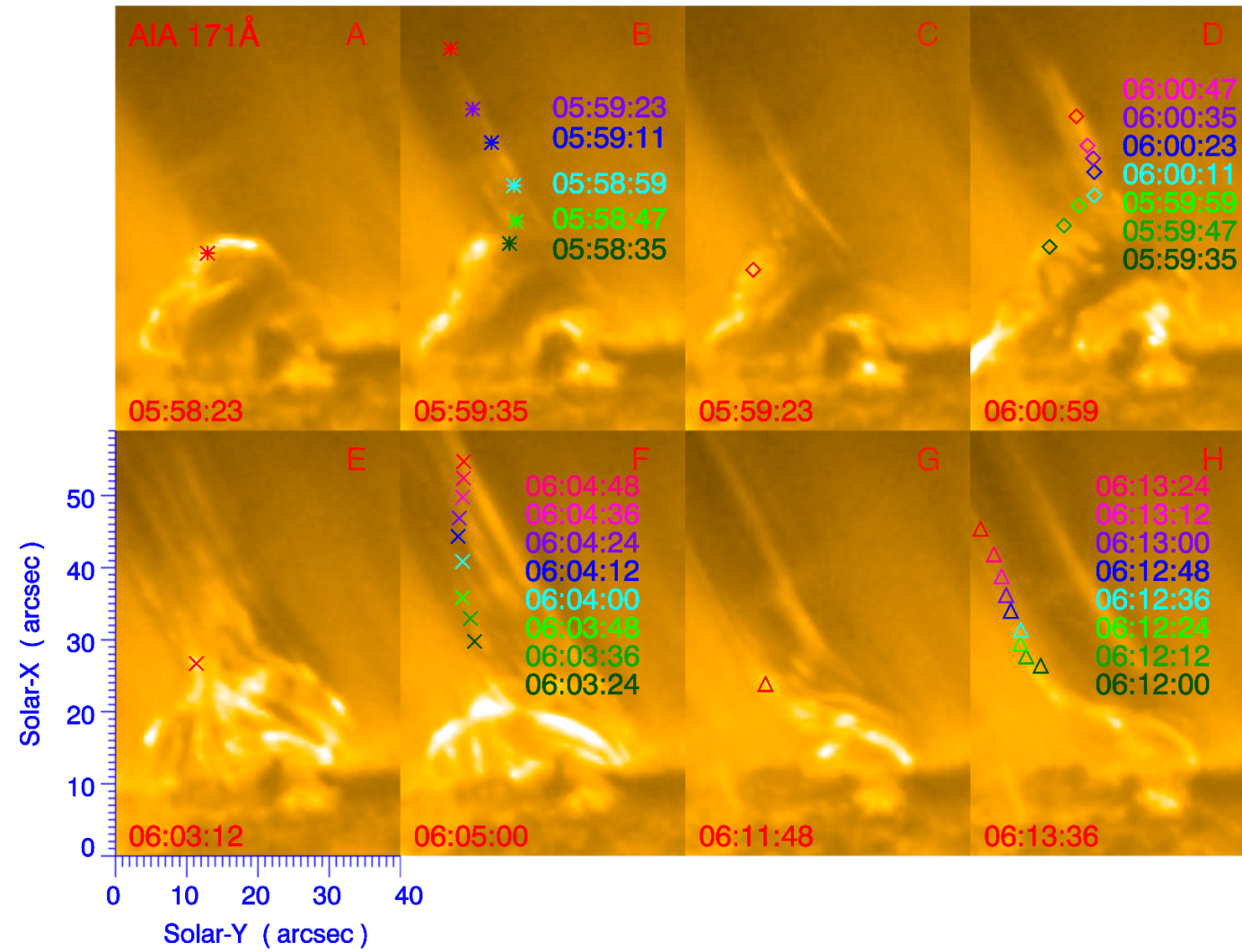




- Loop and mini-prominence could **not** be clearly **simultaneously** observed in UV & EUV by SDO/AIA

- Dark and bright material tracked a fan structure in the arch-base.

Rotation of spire traced by bright structures



Formation

Evolution

Conclusions & Discussions:

- 1、 In this event, the **collision** between the loop-like system and the mini-prominence leads to the blowout and the jet forms with an outstanding **rotation**, a relatively broad spire, and a mini-filament eruption;
- 2、 With the evolution of the jet, the **spin** of the spire was **slowing** down;
- 3、 There are complex and ubiquitous magnetic reconnections of different scales in the entire jet process to heat and transfer the material, as well as alter the magnetic topological structure. Once the **reconnection stopped**, the jet **faded and ended** soon.



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Thanks for your attention!



M & A

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