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16th European Solar Physics Meeting

1. Overview: 2021-Feb-18 Event



1.1 Multi-satellite observation



9/9/2021

1.2 Association with flares



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GOES 1–8 A GOES 0.5–4 A GOES 1–8 A derivative

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GOES A8

1.3 STIX Hard X-ray Spectrum



VTH+F_thick2

- Thermal emission: $T_e = 11.6 \pm 1.0 MK$
- Nonthermal emission:
 Electron spectral index:
 δ=3.5±0.4 (THICK-target)





(Battaglia et al. 2005)



2. Velocity Estimation & 3-D geometry reconstruction2.1 2-D Jet Velocity Estimation



2.2 3-D geometry reconstruction



- Trace the same jet front from Earth and STEREO's view
- Get the precise location in 3-D



9/9/2021

• Same operation for each frame





• 3-D geometry



2.3 3-D velocity estimation



2-D speed: 264±25km/s

Mean 3-D speed: 314km/s

Summary

- 2021-Feb-18 jet event with prominent HXR flare emission
- 3-D geometry Jet is tilted
 ~50° between jet and radial direction
- 3-D speed ~310km/s

Interpretations:

- Electron acceleration and jet formation are closely linked.
- Open field lines provide access to flare accelerated electrons.

Future Work:

- Comparisons with magnetic field models (e.g., interchange reconnection, mini-CME).
- Find new events with:
 - (1) better time cadence of SOLO/EUI during the nominal phase.
 - (2) in-situ observations of flare accelerated particles

from Solar Orbiter or Parker Solar Probe.

