Investigating the Robustness of the CORIMP CME Catalog Against Other Automated Catalogs and Manual Case Studies

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ABSTRACT

CMEs are long known to be significant drivers of adverse space weather at Earth, but the physics governing their propagation is not fully understood.

Subject headings: Sun: coronal mass ejections (CMEs) — Methods: miscellaneous — Techniques: image processing

1. Introduction

2. Events

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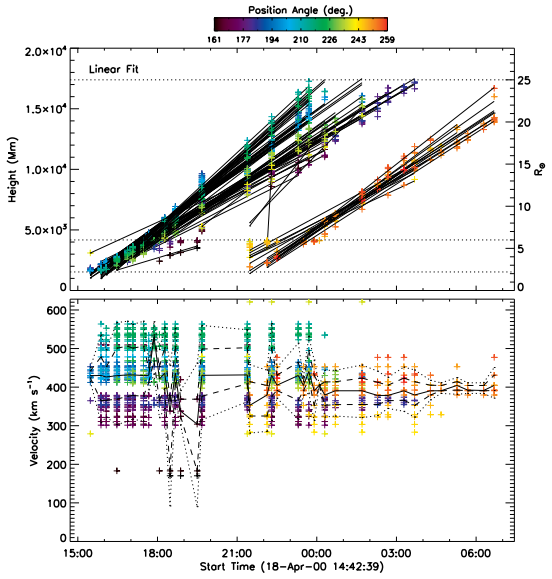

Fig. 3.— CORIMP linear.

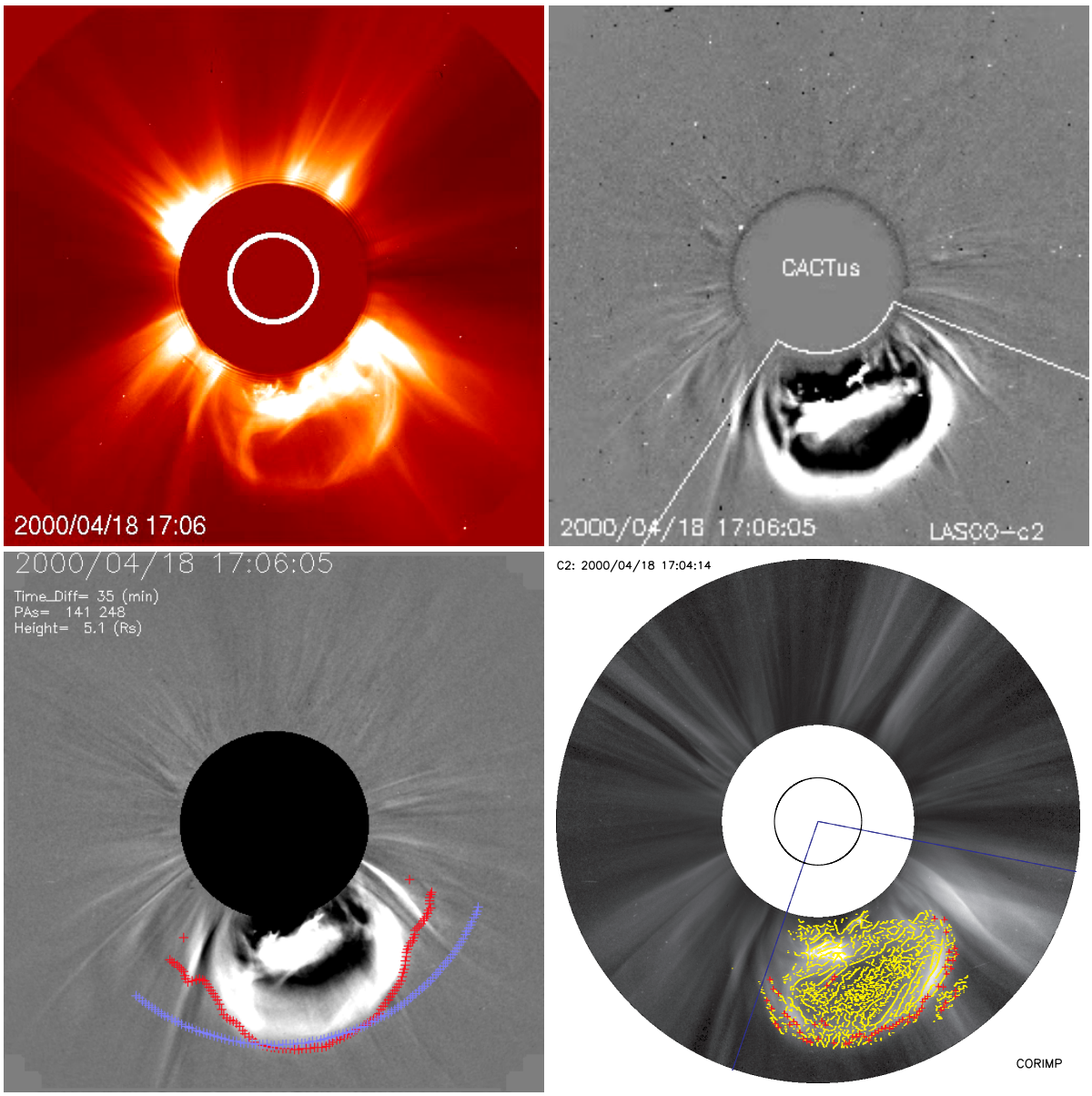

Fig. 1.— .

Comparison for LASCO CME on 2000 Apr. 18 from ∼15:00 UT

Catalog	CPA [deg.]	AW [deg.]	Linear Speed $[km\,s^{-1}]$	Accel. $[m\,s^{-2}]$
CDAW	195	105	668	23.1
CORIMP	210	98	431	19
CACTUS	198	102	463	–
SEEDS	195	108	338	17.7

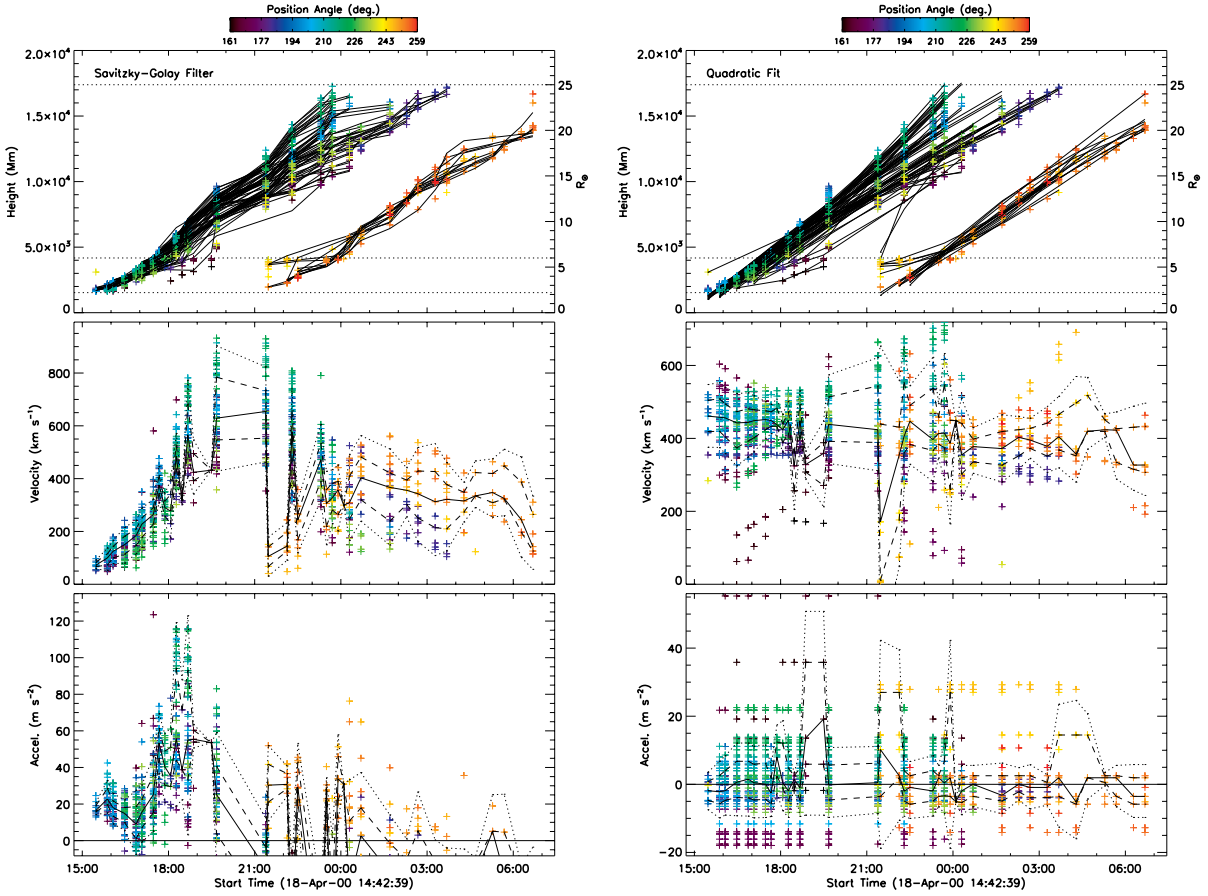
Position Angle (deg.)
161 177 194 210 226 243 259
Savitzky-Golay Filter
Quadratic Fit
Height (Mm)
Velocity (km s⁻¹)
Accel. (m s⁻²)
R⊙
Start Time (18-Apr-00 14:42:39)
15:00
18:00
21:00
00:00
03:00
06:00

Fig. 2.— .

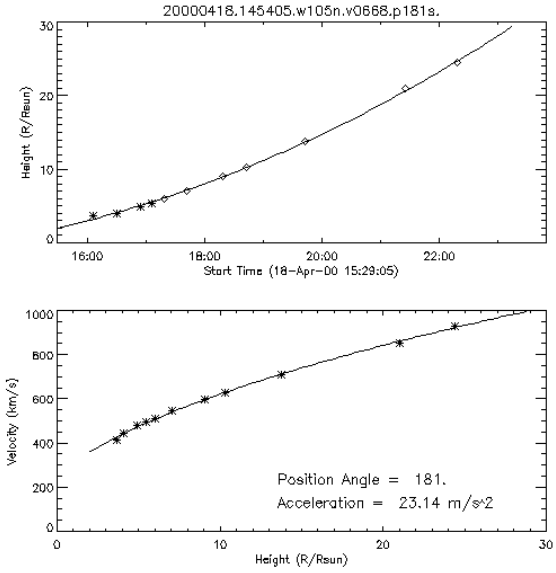

Fig. 4.— CDAW quadratic.

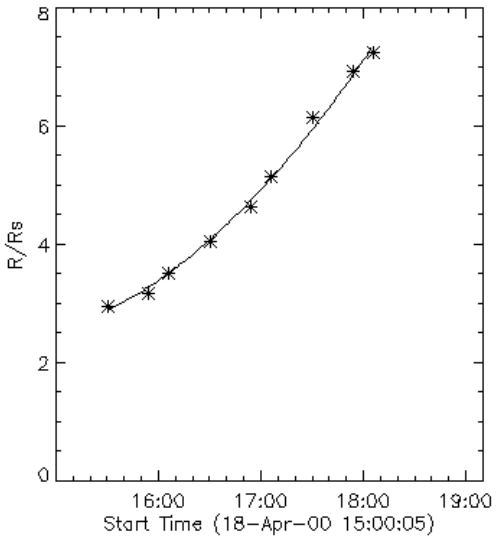

Fig. 5.— SEEDS quadratic.

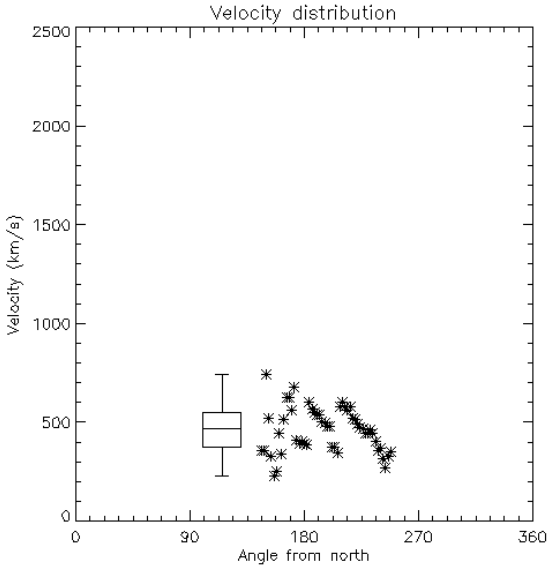

Fig. 6.— CACTus linear.