Jason Byrne <jbyrne6@gmail.com>

Constant Acceleration in Stereo?!

2 messages

Jason Byrne <jbyrne6@gmail.com> **11 July 2008 10:50**
To: Peter Gallagher <peter.gallagher@tcd.ie>, "R. T. James McAteer" <james.mcateer@tcd.ie>

Morning,

Here's some interesting results attached.
This is the new analysis for the COR1/2 event on 20071008. The cadence for Cor1 was quite low and I managed to pull out the fronts lower than previously. Thus we obtain 20071008_kins.pdf.
I also attached the fit to the velocity which might be better: 20071008_kins_fit_vel.pdf
The acceleration is ~4km/s/s.

However, looking at the large errors in the Cor1 regime intrigued me. They look very much like the errors on Shane's HI plots - almost outlining a block confidence interval. So I randomly down-sampled the data (like the Dave Wave cadence issue) in the 20071008_kins_sampled.pdf and this gives the smaller error bars I'm used to seeing in the Lasco plots.
It's as if we reduce the scatter, and in propagating the errors the division of the interval changes it quite significantly.

But eitherway we see a very apparent constant acceleration of the CME!

Jason.

3 attachments

20071008_kins.pdf
35K

20071008_kins_fit_vel.pdf
36K

20071008_kins_sampled.pdf
29K

Jason Byrne <jbyrne6@gmail.com> **11 July 2008 11:23**
To: Peter Gallagher <peter.gallagher@tcd.ie>, "R. T. James McAteer" <james.mcateer@tcd.ie>

Also here's the CDAW kinematics (where the velocity and acceleration are obtained with deriv).

We see the divergence that Shane's simulations showed in the heights (projection effects).

We see the structure ('wave-pattern') that we've been noticing in the velocity.

We can interpret constant acceleration from the CDAW analysis, lying mostly within our own error bars.

Notice the problems at transitioning from C2 to C3 giving large scatters. I believe this is due to the intense brightening over the occulter at low C3 and is also somewhat apparent in the Cor1/2 overlap.

2008/7/11 Jason Byrne <jbyrne6@gmail.com>:

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20071008_kins_incl_cdaw.pdf
37K