

# CME assignment one **ANSWERS**

For the CMEs listed below, follow the CME analysis procedure described in the lesson and also submit answers to the following questions for each CME:

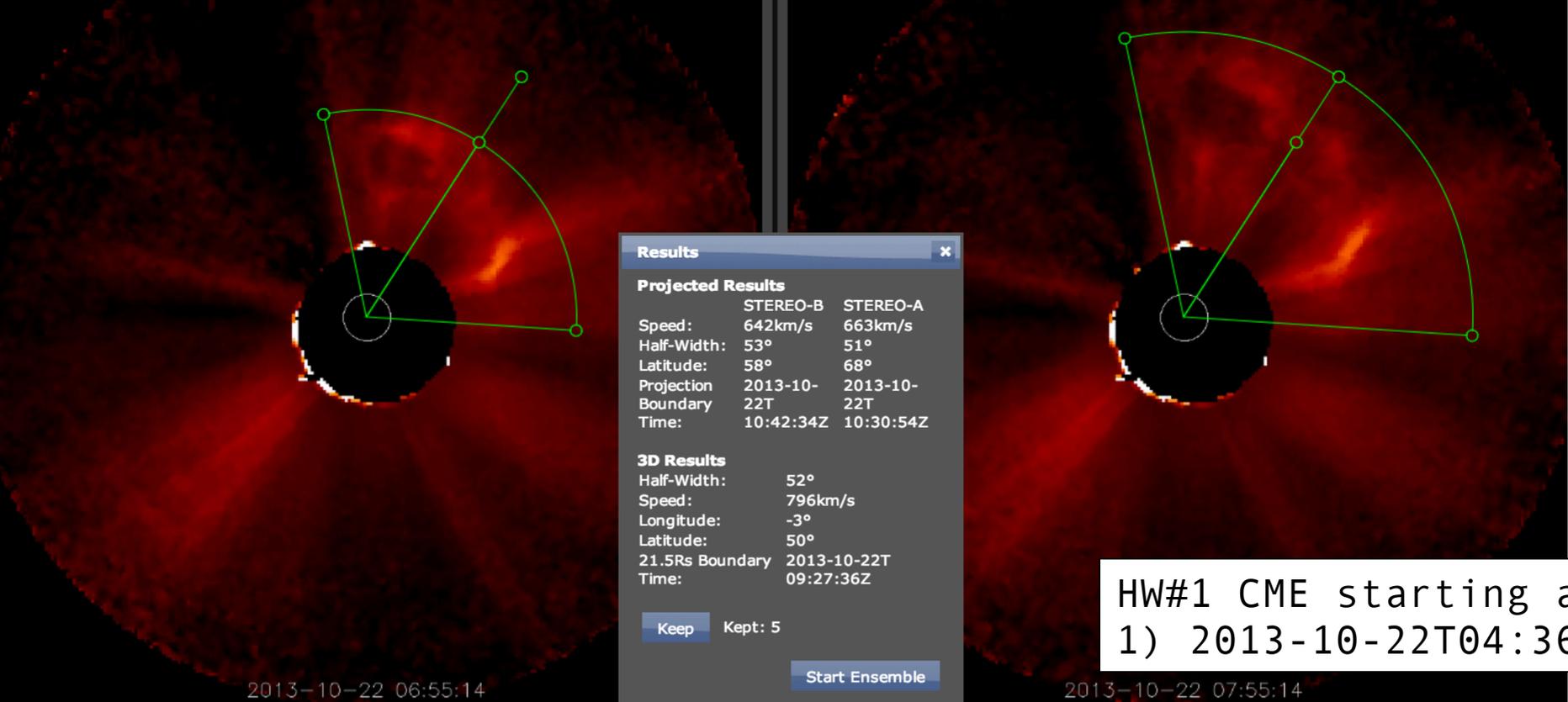
HW#1 CMEs starting at

- 1) 2013-10-22T04:36Z
- 2) 2013-11-07T00:00Z
- 3) 2013-11-07T10:39Z
- 4) 2012-07-17T14:25Z
- 5) 2013-01-13T07:24Z

*Resources & iSWA layouts*

- \* StereoCAT: <http://ccmc.gsfc.nasa.gov/analysis/stereo/>
- \* 40 Frame coronagraph and EUV movies <http://go.nasa.gov/16bTvzK>
- \* Where is STEREO? [http://stereo-ssc.nascom.nasa.gov/cgi-bin/make\\_where.gif](http://stereo-ssc.nascom.nasa.gov/cgi-bin/make_where.gif)
- \* <http://cdaw.gsfc.nasa.gov/movie/>
- \* Solar Images with grid overlays <http://www.solarmonitor.org/>

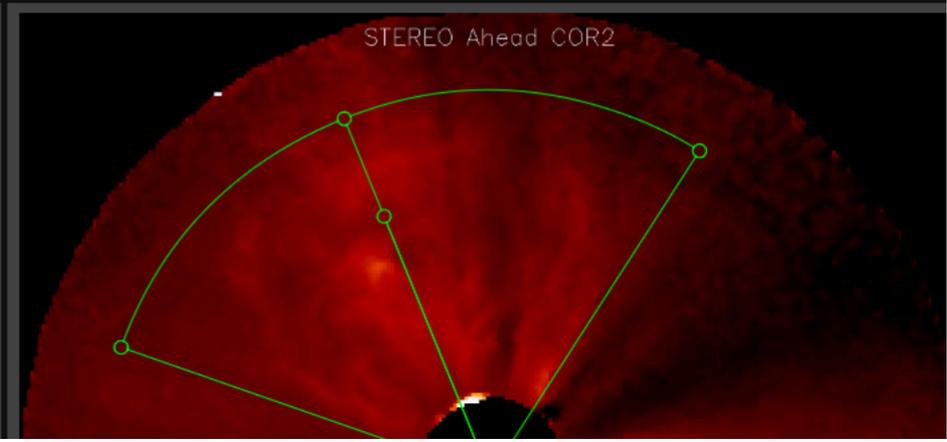
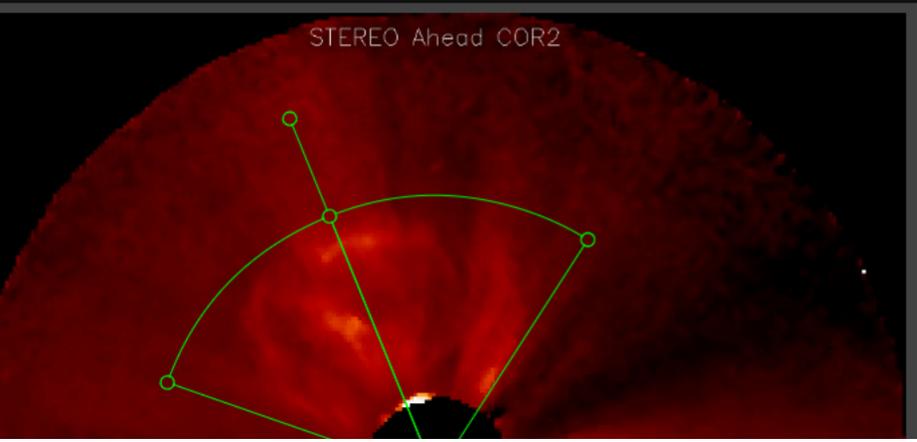
- a) What is the source location for this CME? (list the location e.g. N15E20, instrument/wavelength, and time of the observation).
- b) Describe the EUV lower coronal signature for this CME (e.g. flare, post eruption arcade/loops, rising loops, dimming, filament eruption).
- c) Is the CME a halo in any of the coronagraphs? If so, is it moving away from or towards the observer?
- d) Which coronagraph instrument first observed the CME at the start time?
- e) What are your final **CME parameters** (radial speed, half width, longitude, latitude, and time at 21.5 Rs (solar radii)).
- f) Submit your “Save URL” of your measurements.



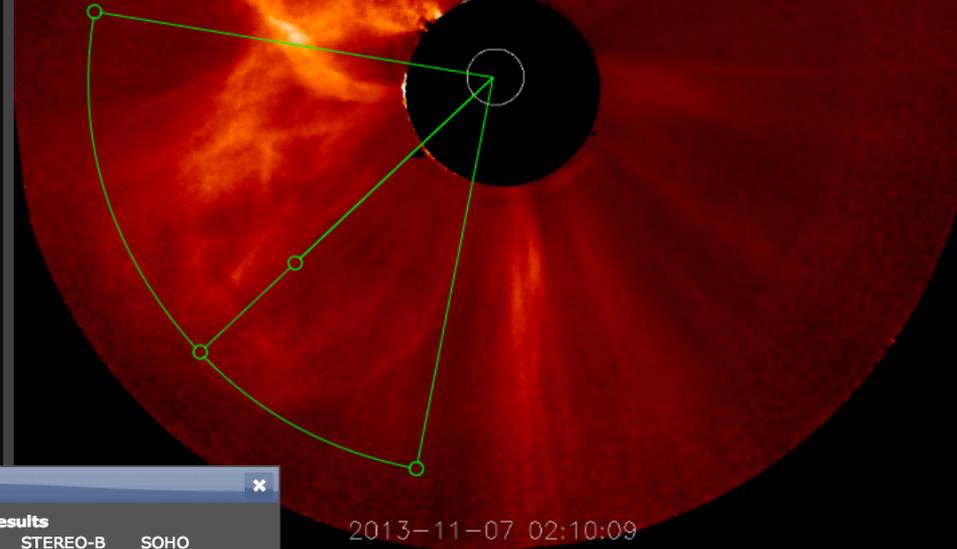
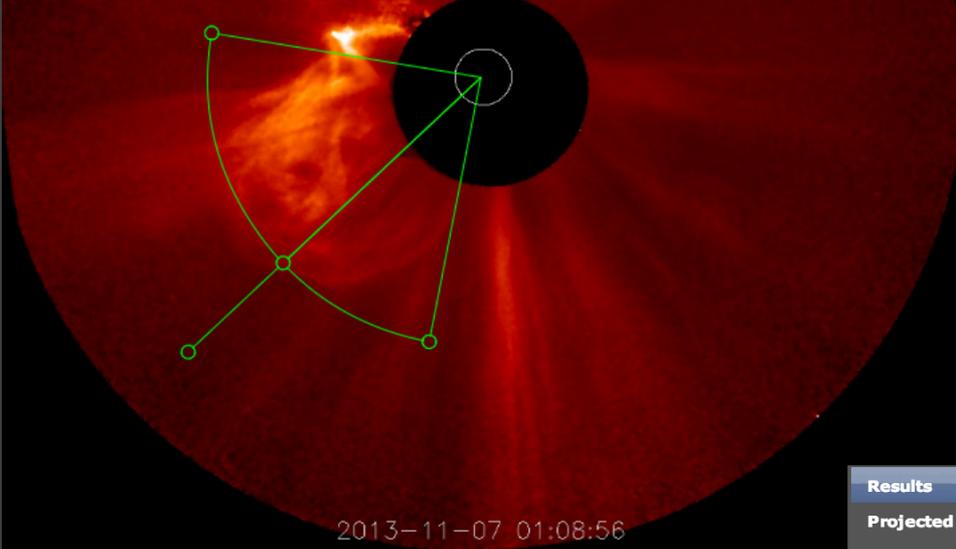
HW#1 CME starting at  
1) 2013-10-22T04:36Z

STEREO-B COR2 Beacon 2013-10-22T06:54:24Z Lat: -1°, Lon: -142°, 229.24Rs From Sun.

STEREO-B COR2 Beacon 2013-10-22T07:54:24Z



EUV Signatures: AIA: Slow rising filament eruption just north of disk center. EUVI: opening of corona off of NE limb in A, NW limb in B.



STEREO-B COR2 Science Data 2013-11-07T01:08:00Z Lat: 0°, Lon: -144°, 231.02Rs From Sun.

**Results**

**Projected Results**

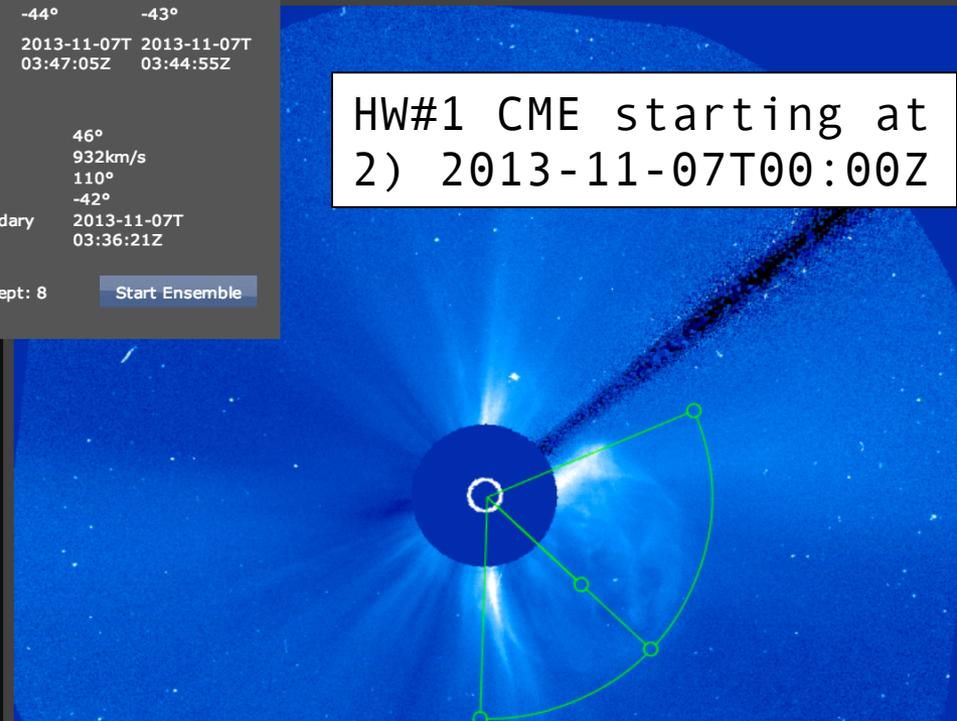
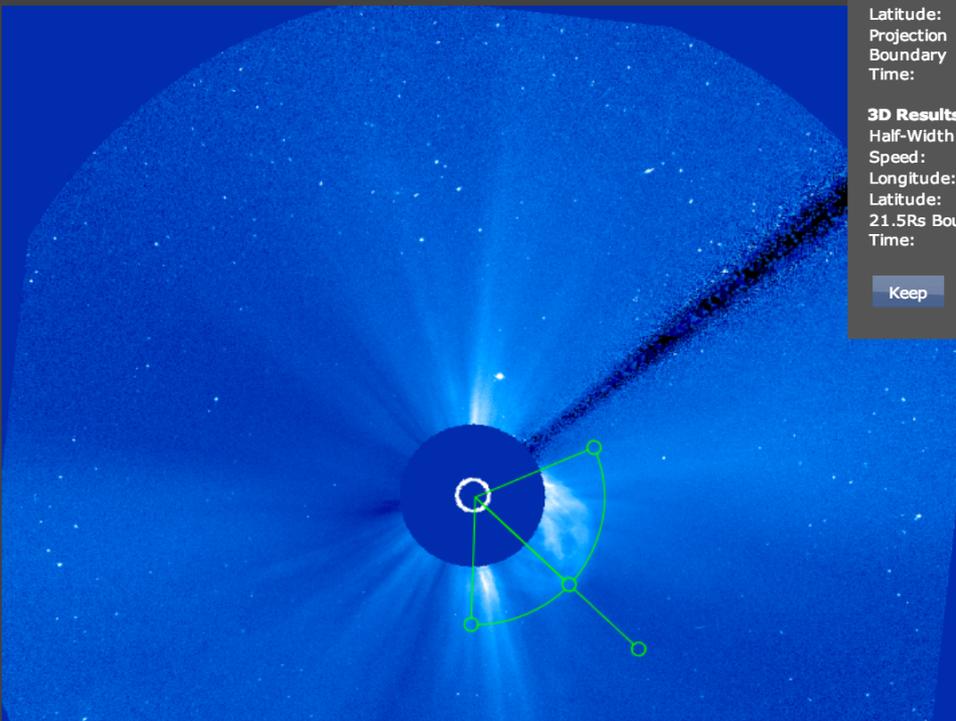
	STEREO-B	SOHO
Speed:	869km/s	929km/s
Half-Width:	44°	57°
Latitude:	-44°	-43°
Projection Boundary Time:	2013-11-07T 03:47:05Z	2013-11-07T 03:44:55Z

**3D Results**

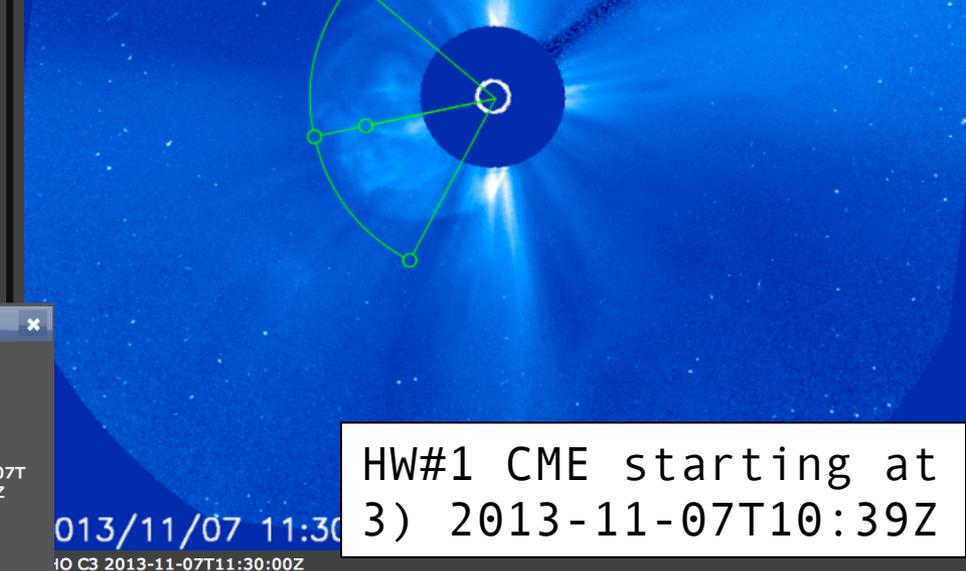
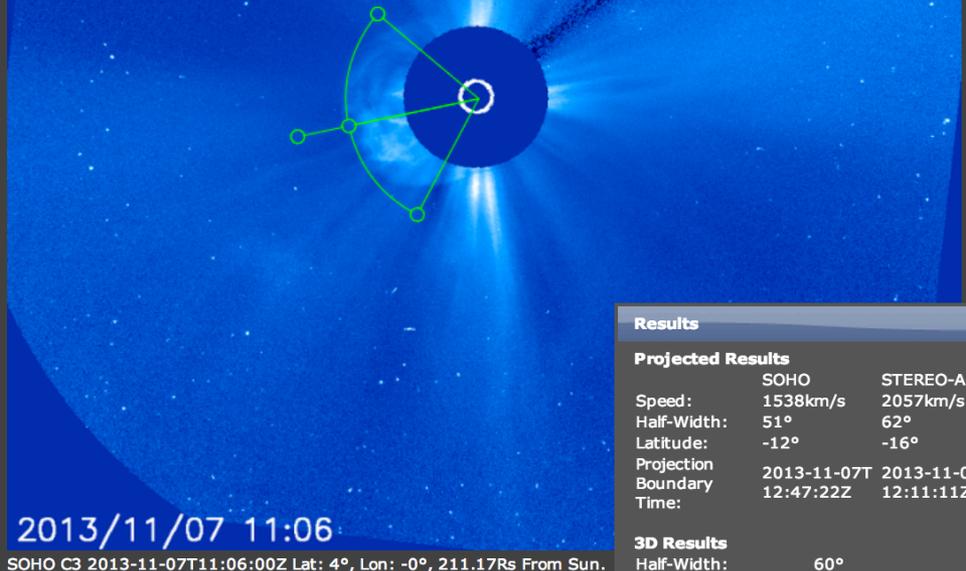
Half-Width:	46°
Speed:	932km/s
Longitude:	110°
Latitude:	-42°
21.5Rs Boundary Time:	2013-11-07T 03:36:21Z

Keep Kept: 8 Start Ensemble

HW#1 CME starting at  
2) 2013-11-07T00:00Z



EUV Signatures: AIA: Filament eruption from west limb. EUVI: flare, eruption, post-eruption loops, dimming near AR east of disk center in A.



HW#1 CME starting at  
3) 2013-11-07T10:39Z

**Results**

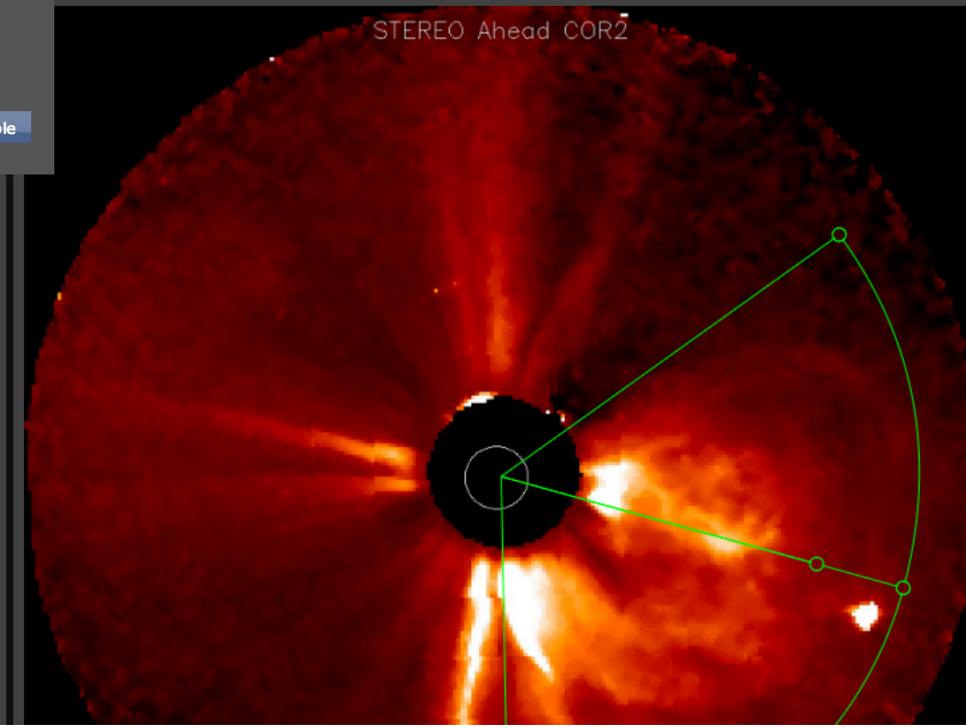
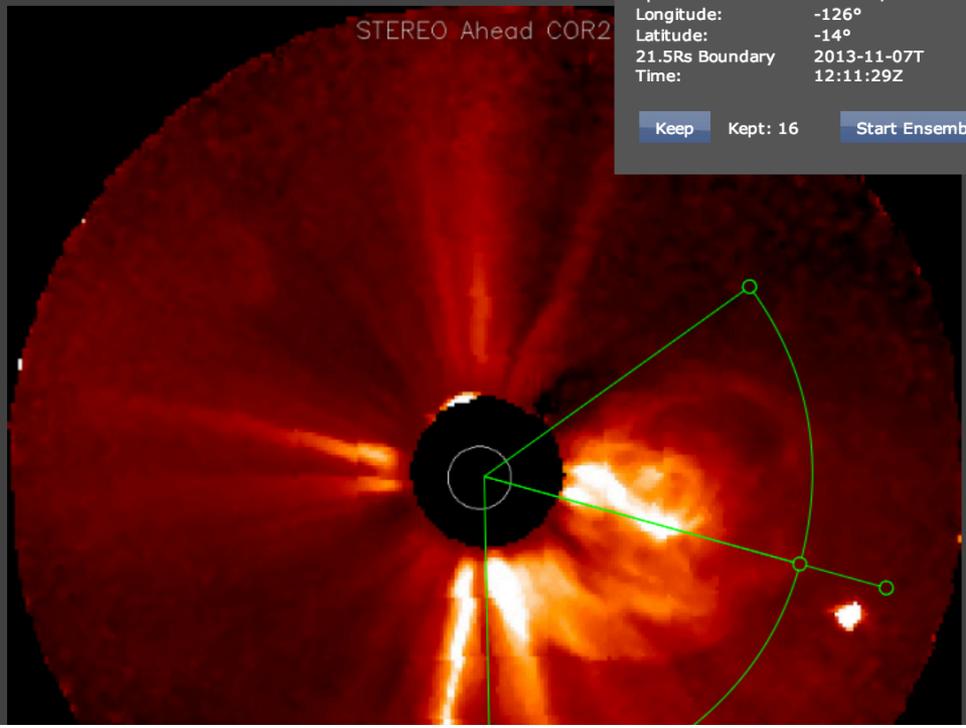
**Projected Results**

	SOHO	STEREO-A
Speed:	1538km/s	2057km/s
Half-Width:	51°	62°
Latitude:	-12°	-16°
Projection Boundary	2013-11-07T 12:47:22Z	2013-11-07T 12:11:11Z

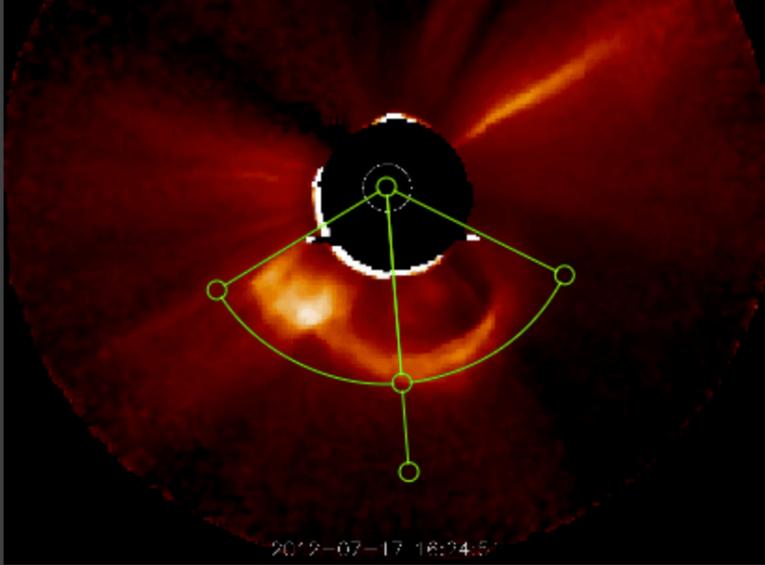
**3D Results**

Half-Width:	60°
Speed:	2066km/s
Longitude:	-126°
Latitude:	-14°
21.5Rs Boundary	2013-11-07T 12:11:29Z

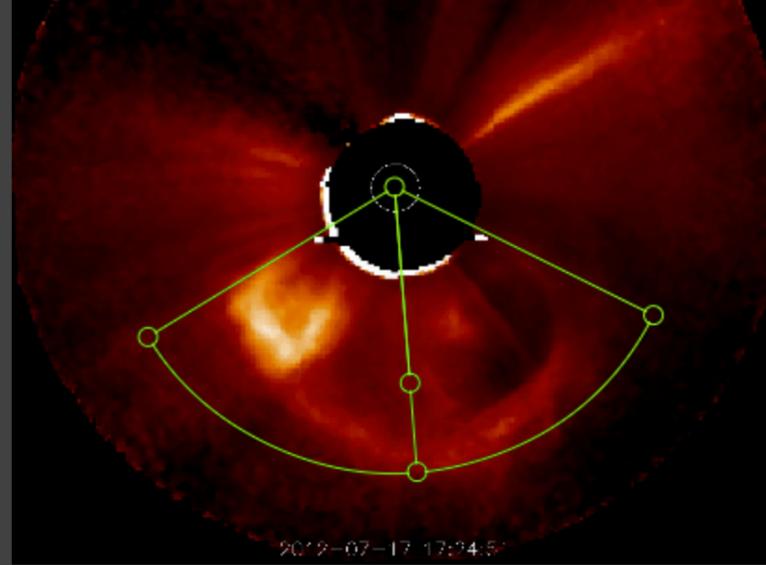
Keep Kept: 16 Start Ensemble



EUV Signatures: EUVI: flare brightening, eruption, dimming north of disk center in B, NW of disk in A.

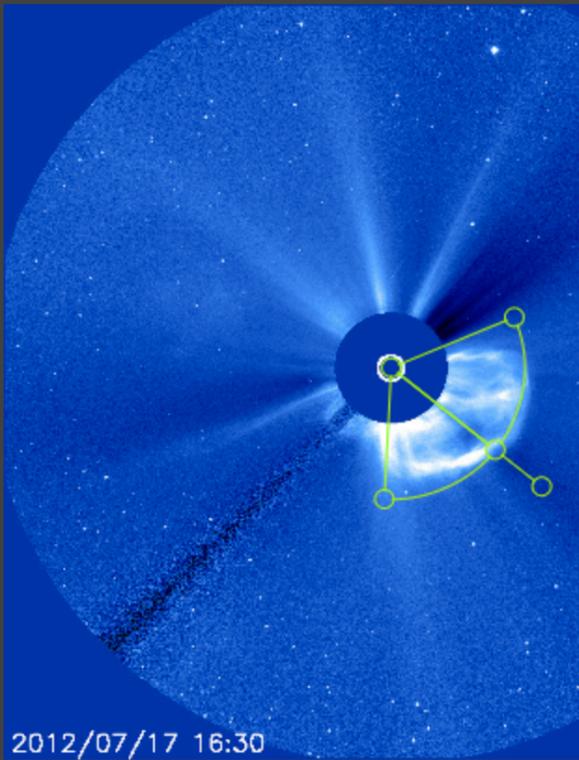


STEREOB COR 2 Tue, 17 Jul 2012 16:24:24 GMT



STEREOB COR 2 Tue, 17 Jul 2012 17:24:24 GMT

EUV Signatures:  
 AIA: Eruption,  
 rising loops in  
 front of SW limb.  
 EUVI: eruption,  
 rising loops off SE  
 limb in A.



SOHO LASCO C3 Tue, 17 Jul 2012 16:30:00 GMT

**Results** ✕

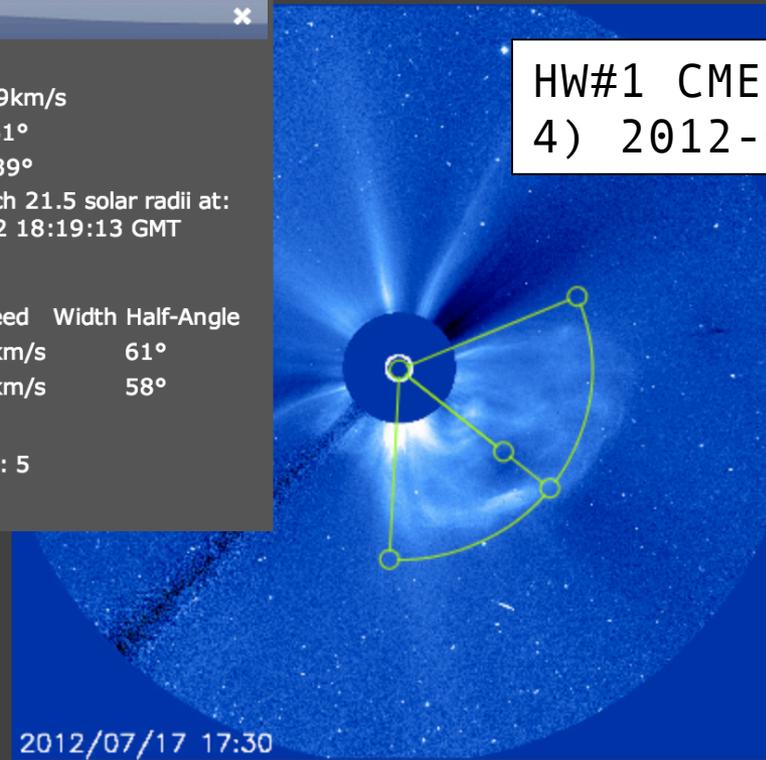
**Stereoscopic**  
 Speed: 1019km/s  
 Longitude: 61°  
 Latitude: -39°  
 Expected to reach 21.5 solar radii at:  
 Tue, 17 Jul 2012 18:19:13 GMT

**Plane-Of-Sky**

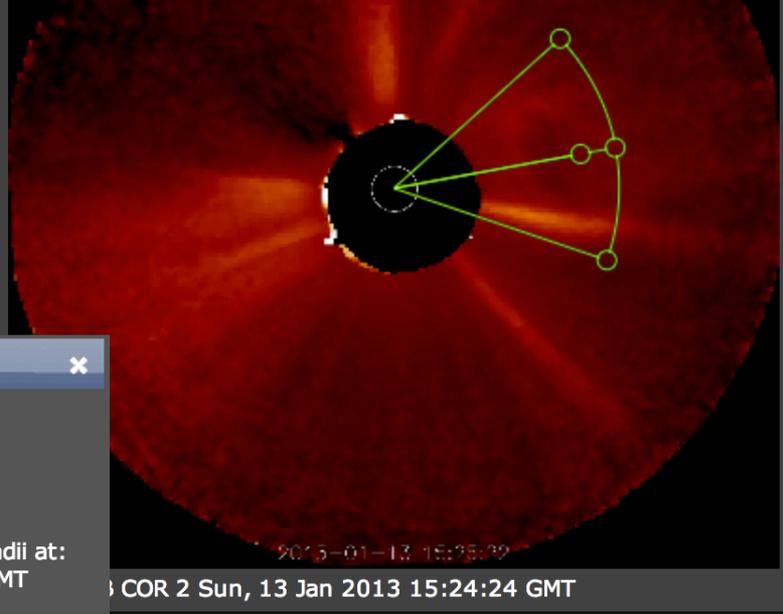
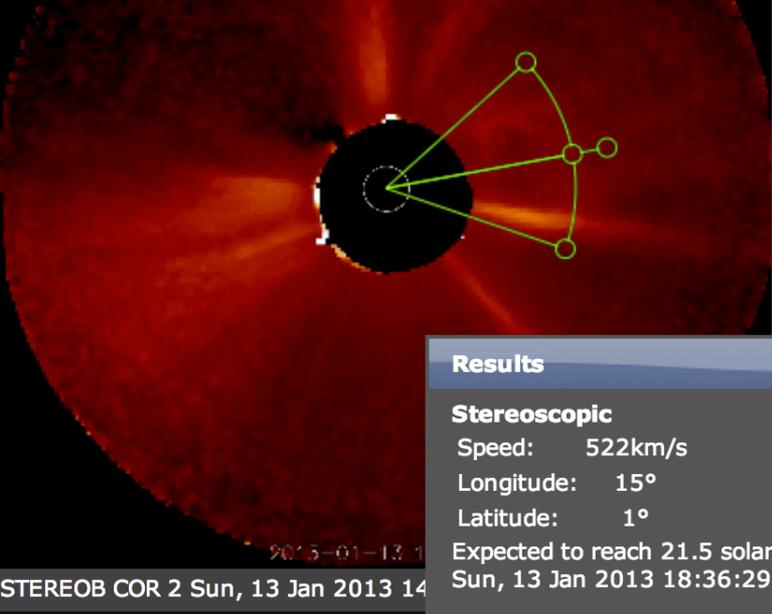
	Speed	Width	Half-Angle
STEREOB:	719km/s	61°	
SOHO:	888km/s	58°	

Kept: 5

HW#1 CME starting at  
 4) 2012-07-17T14:25Z



SOHO LASCO C3 Tue, 17 Jul 2012 17:30:00 GMT



**Results** ✕

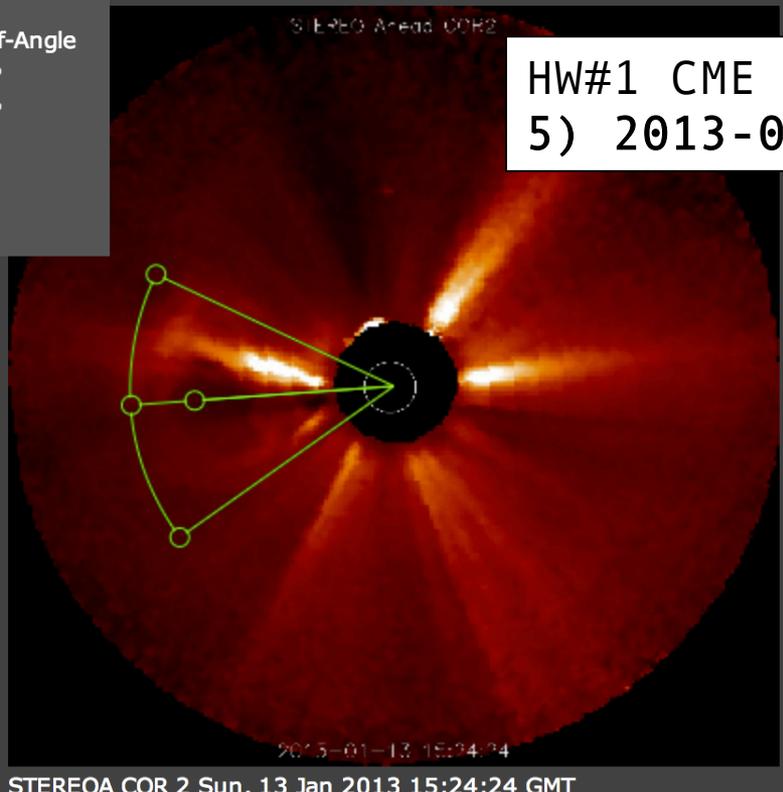
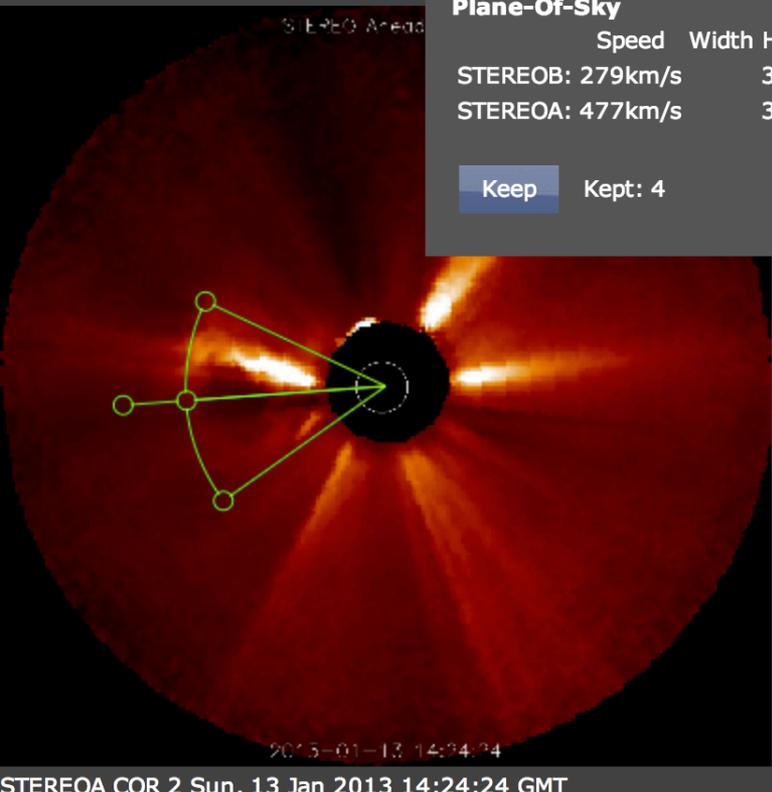
**Stereoscopic**  
 Speed: 522km/s  
 Longitude: 15°  
 Latitude: 1°  
 Expected to reach 21.5 solar radii at:  
 Sun, 13 Jan 2013 18:36:29 GMT

**Plane-Of-Sky**

	Speed	Width	Half-Angle
STEREOB:	279km/s		31°
STEREOA:	477km/s		31°

Kept: 4

EUV Signatures:  
 AIA: flare from AR just north of disk center. EUVI: quick rising loops from behind NE limb in A.



HW#1 CME starting at  
 5) 2013-01-13T07:24Z