

# CME assignment zero

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#0 CMEs starting at

1) 2014-05-12T12:18Z

2) 2016-01-06T14:24Z

3) 2012-07-12T16:54Z

4) 2013-02-26T14:06Z

- What is the source location for this CME? (list the location e.g. N15E20, instrument/wavelength, and time of the observation).
- Describe the EUV lower coronal signature for this CME (e.g. flare, post eruption arcade/loops, rising loops, dimming, filament eruption).
- Is the CME a halo in any of the coronagraphs? If yes, list the instrument. Is it moving away from or towards the observing instrument?
- Which coronagraph instrument first observed the CME at the start time? (COR2A, COR2B, C2, or C3)
- What are your final **CME parameters** (radial speed, half width, longitude, latitude, and time at 21.5 Rs (solar radii)).
- Compare your EUV source location obtained in (a) with the parameters obtained in (e). Are they different, or similar?
- Submit your “Save URL” of your measurements.

# CME assignment one

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

Fill out the forms

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

# CME assignment two

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. (Fill out the forms)

HW#2 CMEs starting at

1) 2013-03-15T06:54Z

2) 2013-04-11T07:36Z

3) 2012-09-28T00:12Z

4) 2012-09-28T10:54Z

5) 2013-01-21T08:00Z

(two CMEs)

- Part 1:**
- What is the source location for this CME? (list the location e.g. N15E20, instrument/wavelength, and time of the observation).
  - Describe the EUV lower coronal signature for this CME (e.g. flare, post eruption arcade/loops, rising loops, dimming, filament eruption).
  - Is the CME a halo in any of the coronagraphs? If so, is it moving away from or towards the observer?
  - Which coronagraph instrument first observed the CME at the start time?
  - What are your final [CME parameters](#) (radial speed, half width, longitude, latitude, and time at 21.5 Rs (solar radii)).
  - Compare your EUV source location obtained in (a) with the parameters obtained in (e).
  - Submit your "Save URL" of your measurements.

**Part 2: Reanalyze the CMEs above using single spacecraft mode and the CME Projection Graph:**

- Single Spacecraft mode: for both spacecraft chosen in Part 1 use your longitude of the source location (a) to determine the "angle from plane of the sky" for each measurement. Use this in single spacecraft mode to get the 3D speed.
- Now use the CME projection graph with your width and the angle from the plane of sky (from your source location longitude) found in (h) to derive two estimates of the 3D speed for each spacecraft viewpoint.
- You have now determined the 3D speed with two different methods. How much do they match? Why are there differences?

## CME assignment three

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

HW#3 CMEs starting at

- 1) 2014-06-24T06:12Z
- 2) 2014-07-01T12:39Z
- 3) 2013-04-11T07:36Z
- 4) 2015-03-15T02:00Z

Fill out the form

- 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) Compare your EUV source location obtained in (a) with the parameters obtained in (e). Are they different, or similar?
- g) Take a screenshot of your SWPC\_CAT measurements

*For forecaster interns only*

## Ensemble CME assignment 4

Fill out the form:

Create ensemble CME measurements for the CMEs below and provide the Save URL from StereoCAT in the assignment form.

1) 2012-07-12T16:54Z

Use StereoCAT to measure the create the ensemble

2) 2015-03-15T02:00Z

Use SWPC\_CAT to measure, and StereoCAT to create the ensemble

*See ensemble instructions & tips on the decision dashboard.*

## Summary of CME Assignments

HW#0 CMEs starting at

- 1) 2014-05-12T12:18Z
- 2) 2016-01-06T14:24Z
- 3) 2012-07-12T16:54Z
- 4) 2013-02-26T14:06Z

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

HW#2 CMEs starting at

- 1) 2013-03-15T06:54Z
- 2) 2013-04-11T07:36Z
- 3) 2012-09-28T00:12Z
- 4) 2012-09-28T10:54Z
- 5) 2013-01-21T08:00Z

(two CMEs)

*HW#2 is optional, except forecaster interns*

HW#3 CMEs starting at

- 1) 2014-06-24T06:12Z
- 2) 2014-07-01T12:39Z
- 3) 2013-04-11T07:36Z
- 4) 2015-03-15T02:00Z

*HW#3 is optional, except for forecaster interns*

HW#4 CMEs starting at

- 1) 2012-07-12T16:54Z
- 2) 2015-03-15T02:00Z

*ensemble*

*HW#4 is optional, except for forecaster interns*