Using CLEA's Astrometry Toolkit Software

1: Load all three images from the first Observation Site.
2: Go to Images, then Blink.
3: Select One reference star on the first image, press ok, and then choose a second reference star on the other side of the image. Press ok again.
4: The program will then ask you to locate the first reference star on the next image. Press Ok once you've found it, and then locate the second reference star and press ok. Do this again for the third image.
5: After you have found the reference stars on each image 'Blink' the images until you've located the asteroid. Then press Stop.
6: Click "Identify Target", the program will ask you to select the target on each image. After you've identified the object, click continue to locate it on the next image.
7: At the home screen go to Images then Measure, and select which image you want to use to make your first measurement of the asteroid's position with.
8: In the first screen that pops up assign some designation, (it doesn't matter what that designation is.) Now click ok to continue.
9: In the next screen enter the Right Ascension, Declination, field size and Magnitude limit parameters given to you for the selected observatory.
Press ok, (you may have to wait a few minutes for the program to download the star catalogue after this step)
10: On the star catalogue, select a reference star on the map. A box will pop up with that star's information. Click ok on this box to use the star as a reference point.
11: Select at least 20 reference stars (if possible),(however you will have to click ok on each star's information box after you click on it.)
12: Once you have enough reference stars, select ok on the "Select reference stars box".
The program will ask you to locate the first reference star on the telescope image.
Select the star and press ok.
13: After you have located the first three reference stars, the program will estimate the location of your other reference stars on the image. If the reference stars are not well aligned you can position them one at a time before pressing accept, for the solution
14: The program will ask if the sky border around the object is clear (are there any stars inside the box around your unknown object)?
15: A text file will appear called the Astrometric Solution: This will give you the location of the object as well as the error in the solution and uncertainties in the position parameters.

*If the residuals of both the Right Ascension and Declination are **LESS** than 0.1, we can change the solution from a linear model to a quadratic model by clicking the improve button, and then ok to accept the solution.

*If the residuals of the RA and Dec are **GREATER** than 0.1 we will want to improve our solution. This can be done by clicking the improve button and removing the highest residual. Continue to remove the highest residual until both the RA and Dec residuals are less than 0.1 Then change the solution model (using the improve button) from linear to quadratic.

This will give you your final solution.

You can write the measurement to the report file, or print directly from this text file.
Use the same method to measure the position of the asteroid in the other two images and then load the next set of images and repeat this procedure.