

Making Centroid offsets from a DM map  
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This procedure is to make a centroid offset map from a DM map. This procedure should be used among other things to convert the DM maps generated from phase retrieval to centroid offsets.

1. Load the desired DM map to use
  - a. If needed copy the map (here called XXX) to /proj/aocp/tables/dm\_calib\_pos/XXX
  - b. Load the map: "load wfp=ho, dm\_calib\_pos=aocp:/tables/dm\_calib\_pos/XXX)
2. load co\_zero: "load wfp=ho,cent\_offsets=aocp:/default/cent\_offsets/co\_zero"
3. use pixel\_gains all: "load wfp=ho, pixel\_gains=aocp:/default/pixel\_gains/pixel\_gains\_all"
4. white\_z should be at the position used to create the DM map, nominally 25749 ("move white\_z 25749")
5. acquire white light as normal on the WFS (Take a sky, register DM)
6. close TT only
7. Create centroid offset file

Here we want to average 10 seconds of centroid data to create the centroid file.

  - a. Change directories to where centroids are stored "cd /proj/aocp/tables/cent\_offsets"
  - b. Start IDL and type "ao\_db\_find,start='start',stop='start+10',/ho\_avg\_centroids,/nobin", where the start time is something like 1175755371. You can get this from the log file or print\_conf
  - c. copy the create file to the desired name: "cp ho\_avg\_centroids co\_XXX"
  - d. Create the centroid offset file divided by 2 and divided by 4 as normal. Or use the procedure below. In IDL
    - i. Data = ao\_read\_co("co\_XXX)
    - ii. ao\_write\_co, data/2, "co\_XXX\_2"
    - iii. ao\_write\_co, data/4, "co\_XXX\_4"
8. Check that things worked as expected
  - a. load above centroids offsets (load wfp=ho,cent\_offsets=aocp:/tables/cent\_offsets/co\_XXX"
  - b. Close the DM loop
  - c. Check the image on PHARO