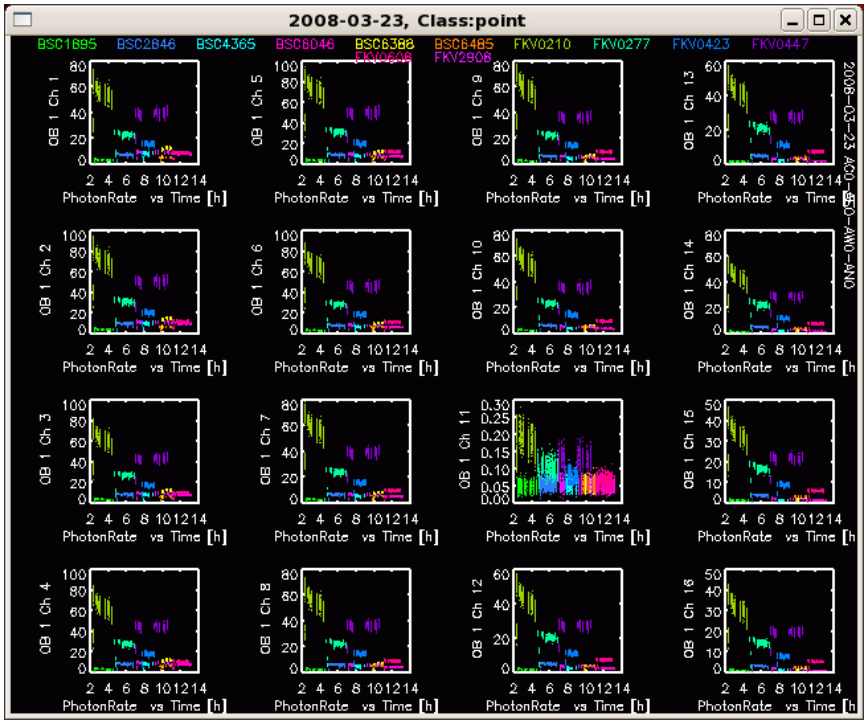
1. Bias correct triple data
    i. If you want to bias correct the triple amplitude data just follow the steps for V2Bias correction. However, you correct on the triples instead of the OutputBeams.
    ii. You can automatically tell that there is no triple data if there is no 'Triple' button on the IndexSelection, y widget.
2. Calibrator
    i. If you are not sure what star your target is calibrated to, you can get the observing list off the NPOI internal website (http://sextans.lowell.edu/internalIndex.html)
    ii. Observing-Lists-ObsLists-Observing List Archive
    iii. Find your target star, the star above it with a 'c' next to it is probably the calibrator

3. Channel 11
    i. This is an example of leakage in channel 11:



See how the y-axis ranges from 0.0 to 0 .30 on channel 11, while the next smallest range is from 0 to 50. Also channel 11 appears quite different from all the other channels.

    ii. I suggest getting rid of this by :
        a. Channels: Selected (type 11 and hit enter)

   b. Util → Edit (draw a little box where there is no data and choose to delete data outside the box!)
   c. You may also need to edit out channel eleven on output beam 2-see observing log

4. Channel 4
   i. It was noticed sometime in early 2011 that channel four is messed up on some data. If your data is prior to 2011 you are probably fine. There are two was to check whether or not to delete all the data on output beam 2 channel four. First, go to Utilities → list→Summary. If it says OutputBeam No. 2, SpectrometerID:3, channel four is probably bad. You can see this visually during the bg rate stage. Just look at the y axis on outputbeam 2. If it is like all the other channels with the majority of the data under 1 it is fine. If the channel 4's data is around 15 (and usually looks sinusoidal) delete the data in vissq (ch 4, outputbeam 2).

5. Camera
   i. If you have too much data on the left hand side of the plot, so that you cannot properly see the graph, you can hit the camera button on the VisibilityPlot widget.
   ii. This makes it so the only thing displayed is the actual graph.

6. Downloaded your data
   i. You can get your data from the NPOI internal website (http://sextans.lowell.edu/internalIndex.html) under: observing-data reductions-oyster/-constrictor/. If you do not have access to this website I cannot help you.
   ii. Download your constrictor files- don't forget you need to unzip them before use!
7. Fit a model
   i. If when you plot the vissq c data to the screen with the model, and the model fits extremely poorly, then check if the data is calibrated.
   ii. Sometimes when you select 'fit→ interferometry' it automatically uncalibrates the data. A quick fix is to save the .cha file after calibration, close it, then re-load it. This should insure that the program tries to fit the model to calibrated data.
8. FitControl widget
   i. The Lambda, Tolerance, and Convergence selections are guesses, in a way, of how accurate the model file is to your particular data.
   ii. If you select a larger number the computer assumes the model is more accurate. If you select a smaller number the computer assumes the file is less accurate and will do more to correct the model.
   iii. For reference I usually select:
      a. Lambda: 1.0
      b. Tolerance: 1e-9

c. Convergence: 0.001

9. Fitnights.psn
    i. This file is automatically re-written each time you hit the 'Fit' button on the FitInterferometry widget.
    ii. For the above reason I suggest creating another file to copy and paste your data into.
    iii. Into the terminal type 'edit fitnights.psn' to access your data
    iv. If you want to keep oyster open while accessing this file you can get it from another terminal. (but you have to make sure you are in the same directory)
    v. Chisq is a measure of accuracy-the smaller the better

10. Hand flag obvious bad data
    i. Delay Plot widget: Util → Edit
    ii. Directions for use in terminal
    iii. Pl/E → screen

11. Identifying Points
    i. VisibilityPlot widget: Util→Identify
    ii. Directions in terminal
    iii. This gives you useful information like the baseline and channel a point is on.

12. Idl /directory oyster is in/oyster.pro
    i. This is how you start oyster. For example, I would type in idl /home/wds/oyster/oyster/oyster.pro to start the program.
    ii. Also note that any of the .con files you want to read in must be in the same directory as Oyster. However, when fitting a model file you may browse for it in a different directory.

13. Individually
    i. Individually means *individually* .If you plot stars together (even the target with its calibrator) your power law will be less accurate. This is because a single power law is generally not a good bias estimator for several stars.

14. List_scans
    i. This tells you the scans on a particular night.
    ii. In order-scan number, star name, time of scan, what stations used, whether or not it is interferometric data (0 is not interferometric, 1 is interferometric)

15. Model file
    i. This process is done outside of OYSTER

ii. The best I can tell you is to find an already existing model file where you can replace the star name, orbital elements, and estimated diameters.

16. Observing log
    i. Utiliities→List→Obslog
    ii. Note that you can check whether or not to kill both output beams on channel eleven in the obslog. If the program is H-alpha, channel eleven probably leaked on both output beams)

17. Pick number
    i. Pick the correct number that consists of ones and zeros. This varies so I cannot tell you which one/s to pick.
    ii. You can type into the terminal 'list_scans' to find which one you need.
    iii. Don't worry if you pick the wrong one it won't mess up your data.

18. Plot to screen
    i. Plotting to the screen automatically applies the bias correction.
    ii. For a visual reference you may click on 'OutputBeam:' on the IndexSelection, y widget. The terminal will display your corrections. (It worked if there are other numbers besides zeros.)

19. Reference beams
    i. Reference beams look like all the data is on the x-axis.
    ii. Don't worry if you try to edit one, the terminal will just say "No data flagged" and you would have done no harm to the system.

20. Reload the flagtable
    i. Type:
        a. oyster
        b. get_data,'YYYY-MM-DD.con'
        c. oyster
    ii. Reduce→Point Data→Flagtable→Load
    iii. Reduce→Point Data→Falgtable→Apply
    iv. Note-if you save the flagtable before steps 2 and 3 you will overwrite the flagtable, and lose all your previous work.

21. Save the chameleon file
    i. Access→ Write→HDS
    ii. This overwrites the existing chameleon file
    iii. To open the chameleon file later, simply start OYSTER and type-get_data,'YYYY-MM-DD.cha'- into the terminal.

22. Save the flagtable

i. You can save at any point (you are editing the constrictor file) by doing: Reduce → Point Data → Flagtable → Save
ii. This re-writes the flagtable- I suggest saving often in case something goes wrong with the program.
iii. Good places to save are: after FDLDelay (res.), and after VisSq

23. Select baselines
    i. ONLY DO THIS WITH EXTREMLY BAD OUTLIERS. HAND EDITING ON DELAY JITTER SHOULD BE DONE RARELY.
    ii. Since you can only hand edit one graph at a time, you will need to select a baseline. On the IndexSelection widget change " Baselines:" from "All" to "Selected". Type in the baseline you want and hit enter. Now you can plot that single baseline to the screen and hand-edit.

24. Select channels
    i. Refer to select baselines (but under channels)

25. Select your target and calibrator stars
    i. If you do not know what your calibrator is, refer to 'Calibrator' in this glossary.
    ii. On the VisibilityPlot widget select your target and calibrator at the same time. (You can do this by hitting the 'ctrl' button). YOU MUST SELECT BOTH. YOU CANNOT CALIBRATE THE TARGET STAR WITHOUT A CALIBRATOR.
    iii. If you have multiple targets on the same date, calibrate your stars individually. (In other words, you should always have two stars selected- the target and its calibrator-no more, no less)
    iv. Since it does not matter in what order you calibrate the triple phase, triple amplitude, and visibility squared data-if you have multiple targets you *can* calibrate all the targets for triple phase, then all the targets for triple amplitude etc…However I suggest you calibrate all three elements for a target before you move onto the next target. This is much less confusing.

26. TrplePhase c
    i. The c stands for 'calibrated'. When you first choose this, since the data is not calibrated the graph will look the same as just "Trplphase".
    ii. It is useful to select the calibrated form initially so that you can see the changes when you re-plot to screen. Of course you can select 'TrplPhase', calibrate, and then select 'TrplePhase c'. But why do the extra step?
    iii. Remember you may always select 'Trplphase' if you need to see the un-calibrated data.

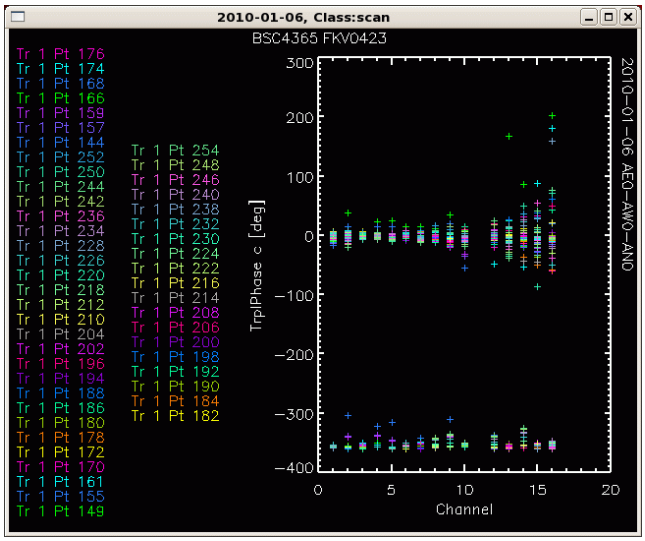
iv. All the above steps apply to anything else with a calibrated and uncalibrated selection. (Most important to you is probably visibility squared and triple amplitude.)

27. Unwrap the data

i. You know data needs to be unwrapped by two things:

a. First if you click on 'Triple:' the terminal will display the lines. If you have mixed lines (you have *both* 1s *and* 2s-not *just* 1s or 2s).

b. Your graph appears to have two parts like this:



ii. Calibrate→Visibility→ Triple→RewrapTriple

iii. Type 180 into the terminal (it will enter over the 'please' –don't worry about that)

iv. If this does not work you must manual unwrap- Calibrate→Visibility→Triple→ManualUnwrap

v. Directions in terminal

vi. Note- if you boxed the upper half use '-1', but if you boxed the lower half use '1'

vii. The only place you should need to unwrap data is under TrplPhase. Do not try to unwrap TrplAmp or VisSq because it won't work.

28. UV-Radius

i. Note that this step is completely optional and will not affect the data.

ii. Plot→Interferometry→UV Data

iii. Y-axis:VisSq c

iv. X-axis: UV-Radius

v. Stars: Sel (then select your target)

vi. All in 1

vii. All OBs
viii. Channels: All
ix. Baselines: All
x. PI/E → Screen
xi. Evidence of sinusoidal curves points to binary systems