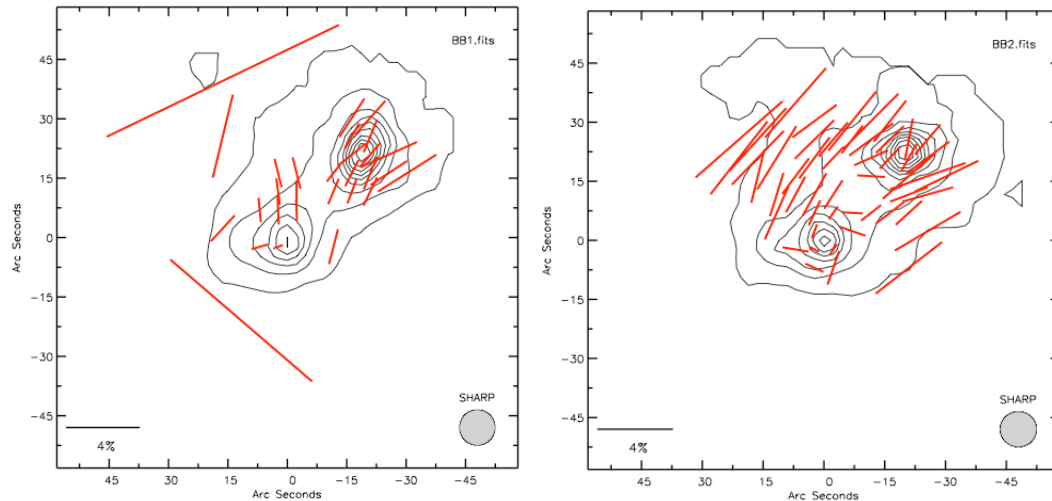STEP 1: ATTEMPT TO SHOW CONSISTENCY WITH TWO MAPS

The total data set (~110 files) was broken up into two large bins of approximately equal statistical weight. The results are then processed through the usual pipeline and polarimetry maps are generated via polsharp5. These plots are illustrated below, note that no inflation of the errors was applied to the data.

Although the vectors in the vicinity of 4A roughly agree from one image to the next, discrepancies are apparent around 4B and in the region north of each of these sources. Note that all vectors are 3 sigma.

STEP 2: BREAK DATA INTO MULTIPLE WEIGHTED BINS

Data broken up into 10 bins {n1,....n10} of ~ equal statistical weight. Results stored as {n1.fits,..., n10.fits}. Points 1 & 2 are cropped regions around 4B and 4A respectively. Resulting chi2.c analysis yields the updated sharp_combine_v5 file wn1333.fits and the following results:

For point 1:
Reduced Chi Squared mean and standard dev. for the I map: 13.215808, 13.219760
Reduced Chi Squared mean and standard dev. for the Q map: 3.544487, 2.167874
Reduced Chi Squared mean and standard dev. for the U map: 1.776477, 1.037551
For point 2:
Reduced Chi Squared mean and standard dev. for the I map: 15.953778, 15.040841
Reduced Chi Squared mean and standard dev. for the Q map: 4.985275, 3.196311
Reduced Chi Squared mean and standard dev. for the U map: 4.357337, 2.953378
Summary of results for whole map:
Reduced Chi Squared mean and standard dev. for the I map: 9.282056, 15.827926
Reduced Chi Squared mean and standard dev. for the Q map: 2.236819, 1.981420
Reduced Chi Squared mean and standard dev. for the U map: 1.906735, 1.602375

Now will break data up into 4 bins labeled {nn1, ... nn4} with resulting fits files stored in {nn1.fits, ..., nn4.fits}. Resulting chi2 analysis is:

For point 1:
Reduced Chi Squared mean and standard dev. for the I map: 14.557976, 17.008973
Reduced Chi Squared mean and standard dev. for the Q map: 2.608687, 2.008353
Reduced Chi Squared mean and standard dev. for the U map: 3.384802, 3.206386
For point 2:
Reduced Chi Squared mean and standard dev. for the I map: 22.455927, 26.516935
Reduced Chi Squared mean and standard dev. for the Q map: 3.292004, 3.291914
Reduced Chi Squared mean and standard dev. for the U map: 5.057502, 5.726807
Summary of results for whole map:
Reduced Chi Squared mean and standard dev. for the I map: 9.848138, 18.588028
Reduced Chi Squared mean and standard dev. for the Q map: 1.857444, 1.817669
Reduced Chi Squared mean and standard dev. for the U map: 2.483592, 2.710190

It is evident here that the difference between breaking the data up into 10 or 4 bins produces roughly the same reduced chi squared values and as such it is reasonable to conclude that the # of bins will have little impact on our chi^2 values. Illustrated below is a polarimetry map generated from data used in the 10 bin case. All vectors are 3 sigma (error were inflated using the "update" feature in chi2.c). Following the plot is a table with all relevant numerical quantities.
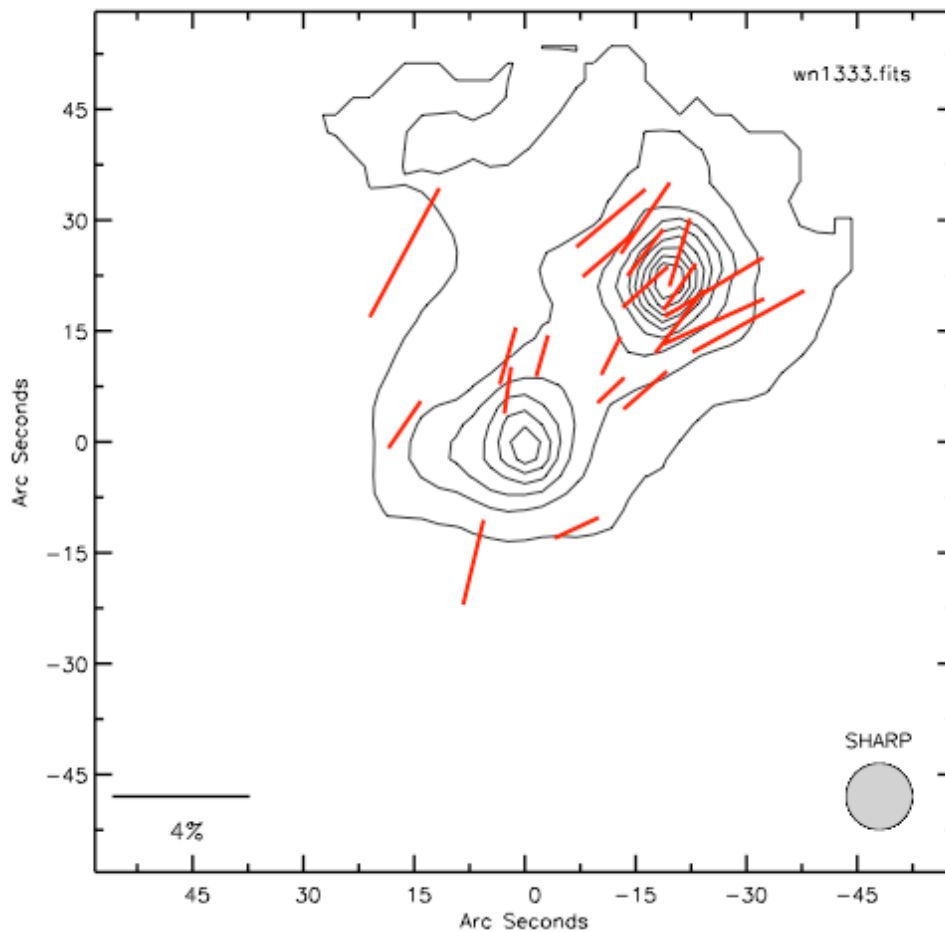
x	y	P	dP	Phi	dPhi	P/dP
18.9	27.4	1.7	0.5	-34.7	6.1	3.49
20.0	39.7	4.3	1.1	-28.4	8.7	3.76
22.6	20.5	2.5	0.7	-13.5	8.1	3.68
24.2	29.4	1.4	0.4	-8.1	7.7	3.27
24.5	31.7	1.7	0.4	-15.9	8.0	3.99
26.3	31.2	1.3	0.3	-16.1	6.9	4.30
29.3	20.6	1.4	0.5	-65.1	8.7	3.06
30.8	28.7	1.1	0.3	-46.7	15.0	3.73
30.6	31.1	1.2	0.3	-26.9	9.1	3.74
31.6	37.4	2.2	0.7	-49.5	9.8	3.07
32.0	39.7	2.6	0.9	-50.1	4.8	3.04
33.3	29.1	1.7	0.5	-48.8	10.6	3.16
33.3	35.2	1.8	0.3	-48.0	3.5	6.11
33.0	37.4	1.7	0.4	-37.4	8.5	4.66
33.4	40.1	2.5	0.6	-34.6	5.7	3.89
35.4	33.8	2.3	0.6	-37.6	6.0	3.81
34.9	35.4	1.7	0.4	-34.9	7.4	4.60
34.6	38.0	2.1	0.5	-16.9	6.3	3.83
38.9	33.3	3.2	0.8	-65.8	7.0	4.04
38.9	35.7	3.3	1.0	-59.2	8.3	3.23
41.3	33.8	3.7	0.8	-61.2	5.8	4.72