

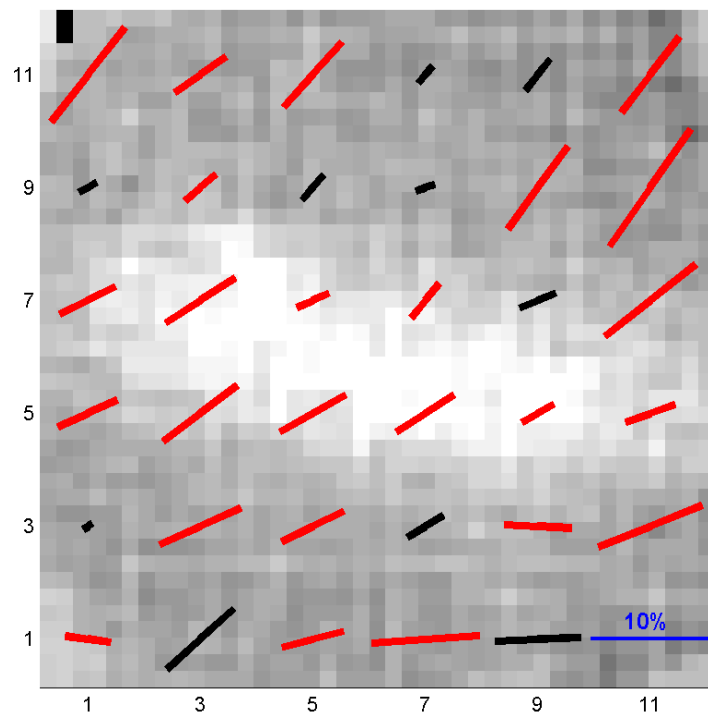
p =	0.0293	0.0200	0.0132	0.0143	0.0164	0.0213
	0.0325	0.0222	0.0084	0.0148	0.0147	0.0189
	0.0250	0.0199	0.0100	0.0100	0.0175	0.0182
	0.0254	0.0165	0.0107	0.0114	0.0140	0.0192
	0.0281	0.0227	0.0107	0.0210	0.0225	0
	0	0.0225	0.0194	0.0166	0.0171	0

perr =	0.0048	0.0022	0.0013	0.0046	0.0041	0.0035
	0.0042	0.0027	0.0050	0.0017	0.0072	0.0065
	0.0048	0.0019	0.0021	0.0024	0.0039	0.0064
	0.0020	0.0014	0.0023	0.0030	0.0088	0.0050
	0.0034	0.0049	0.0055	0.0033	0.0060	0
	0	0.0040	0.0096	0.0083	0.0040	0

phi =	6.6542	12.1073	16.4399	12.0233	23.0543	22.6038
	11.5347	5.7780	0	13.7534	10.3323	20.3439
	2.6874	-0.6588	6.7440	16.2477	10.5389	24.5777
	1.9988	11.9760	24.3786	12.2423	0	13.5515
	10.9623	22.4051	0	5.9630	7.4674	0
	0	22.4057	-4.9153	27.4980	26.8708	0

pherr =	4.6630	3.1294	2.9193	9.2062	7.0990	4.6940
	3.7013	3.5183	0	3.2339	13.9600	9.9186
	5.4766	2.8065	6.0877	6.7675	6.4644	10.0237
	2.2700	2.3876	6.1414	7.4736	0	7.3982
	3.4359	6.1379	0	4.5185	7.5978	0
	0	5.0589	14.1495	14.3210	6.7828	0

M82



p=	0.1005	0.0526	0.0731	0.0186	0.0332	0.0802
	0.0169	0.0339	0.0275	0.0168	0.0857	0.1192
	0.0521	0.0696	0.0294	0.0370	0.0328	0.0969
	0.0547	0.0778	0.0634	0.0573	0.0307	0.0446
	0.0087	0.0749	0.0578	0.0351	0.0571	0.0943
	0.0384	0.0755	0.0534	0.0912	0.0727	0

perr=	0.0389	0.0219	0.0238	0.0165	0.0222	0.0328
	0.0137	0.0143	0.0156	0.0124	0.0310	0.0393
	0.0173	0.0150	0.0090	0.0161	0.0180	0.0291
	0.0201	0.0205	0.0197	0.0214	0.0128	0.0169
	0.0131	0.0324	0.0169	0.0209	0.0164	0.0238
	0.0151	0.0566	0.0189	0.0326	0.0383	0

phi=	-38.3495	123.6638	-42.7106	0	0	-37.5247
	0	129.8451	0	0	-36.1472	-34.9942
	115.3668	122.4665	113.0220	-39.9119	0	128.1461
	113.3952	126.9378	118.9737	122.1787	119.1856	109.8825
	0	113.7884	115.5695	0	86.5883	111.4904
	81.4553	0	103.8859	94.2033	0	0

pherr=	11.0903	11.9306	9.3497	0	0	11.7101
	0	12.1073	0	0	10.3597	9.4334
	9.5095	6.1766	8.8096	12.4429	0	8.6120
	10.5047	7.5466	8.8886	10.7161	11.9405	10.8865
	0	12.4161	8.3732	0	8.2335	7.2242
	11.2962	0	10.1449	10.2391	0	0

Note:

1. Get q, u (raw) for each pixel in each cycle as in <http://lennon.astro.northwestern.edu/CSOpol/collaborators/analysis/orion.pdf>
Note that IP should be subtracted in the Instrument Coordinate.
Get q_sky and u_sky.
2. Combine h and v (widow pixel X 2 for M82, inspired by Martin) for each HWP position. Take the mean of the four combinations in a cycle as I. Fit a Gaussian to the “upper 30%” of I. Define the peak of the fit as the “origin” of the cycle.
3. Rotate q_sky, u_sky, and I maps of each cycle by (EL+Par). Combine maps from different cycles with the origins overlapped.
4. The maps shown have the same size as the 12 X 12 h (v) array. Each vector is from the mean of the q's and u's in the same grid of the size of 2 X 2 pix² (outlier further than 3 σ are excluded.)
5. Red vectors are for 3 σ detections in Orion , and 2 σ in M82.
6. The 3 cycles from 1/11 are used for the Orion map.
7. The 6 cycles for the M82 map are chosen for their low noise.

They are :

28280~3 (1st cycle of 1/10)

28345~8 (17th of 1/10)

28357~60(20th of 1/10)

29535~8 (6th of 1/14)

29567~70(13th of 1/14)

29601~4 (21st of 1/14)