

KIC 010024051

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
010024051-01	OBS	2409.01	0.577366	131.850033	249.0	0.939	22.3	38.2	0.72	5255	1.38	2255.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010024051-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

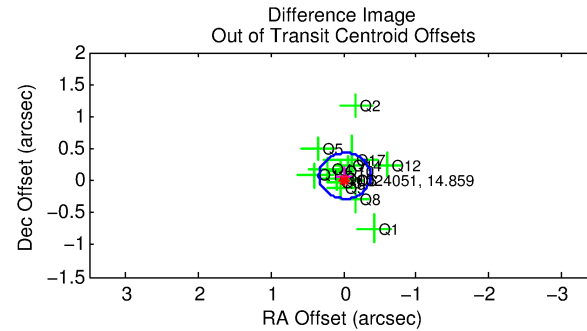
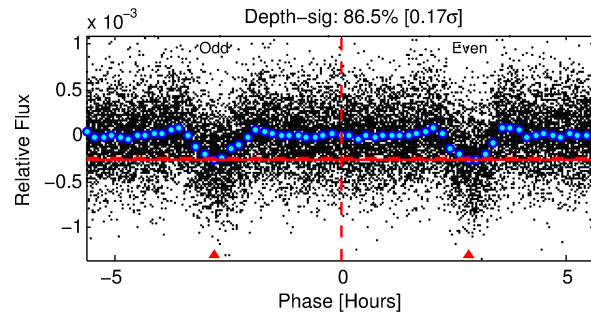
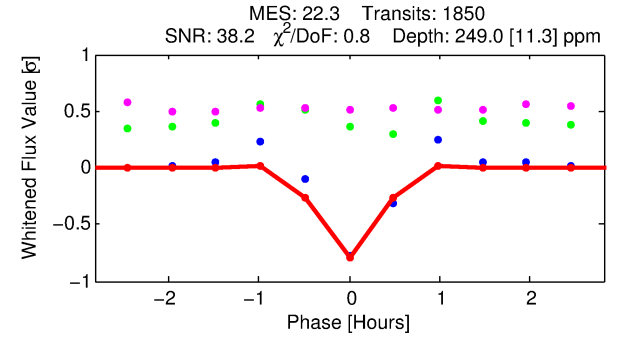
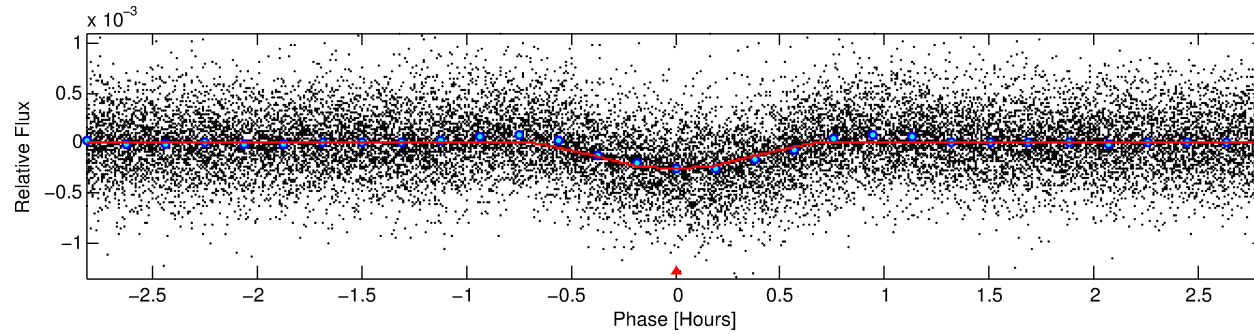
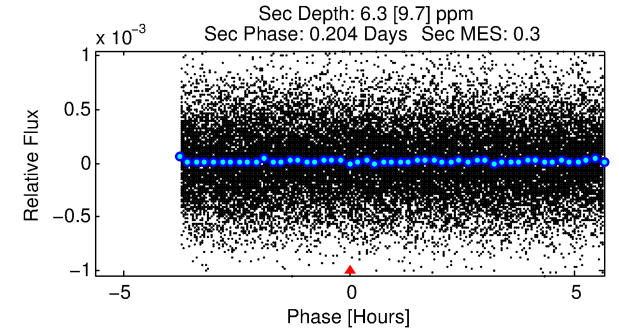
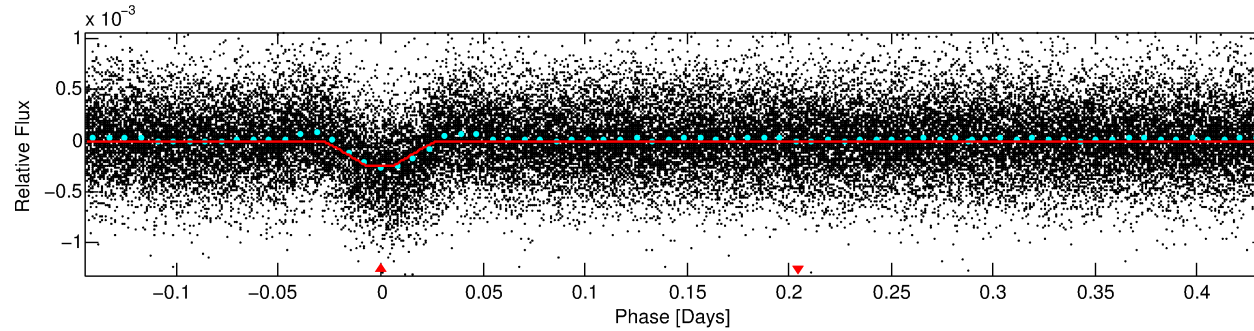
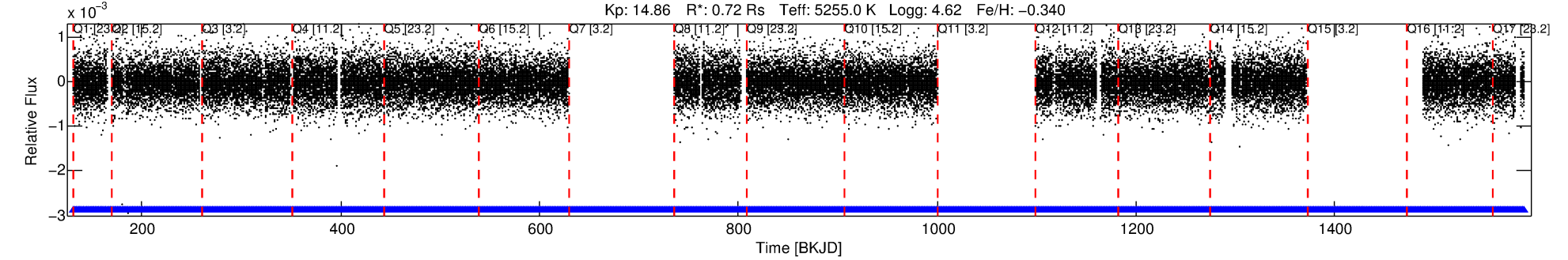
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010024051-01

No Significant Match Found

DV One-Page Summary

KIC: 10024051 Candidate: 1 of 1 Period: 0.577 d
KOI: K02409.01 Corr: 0.896



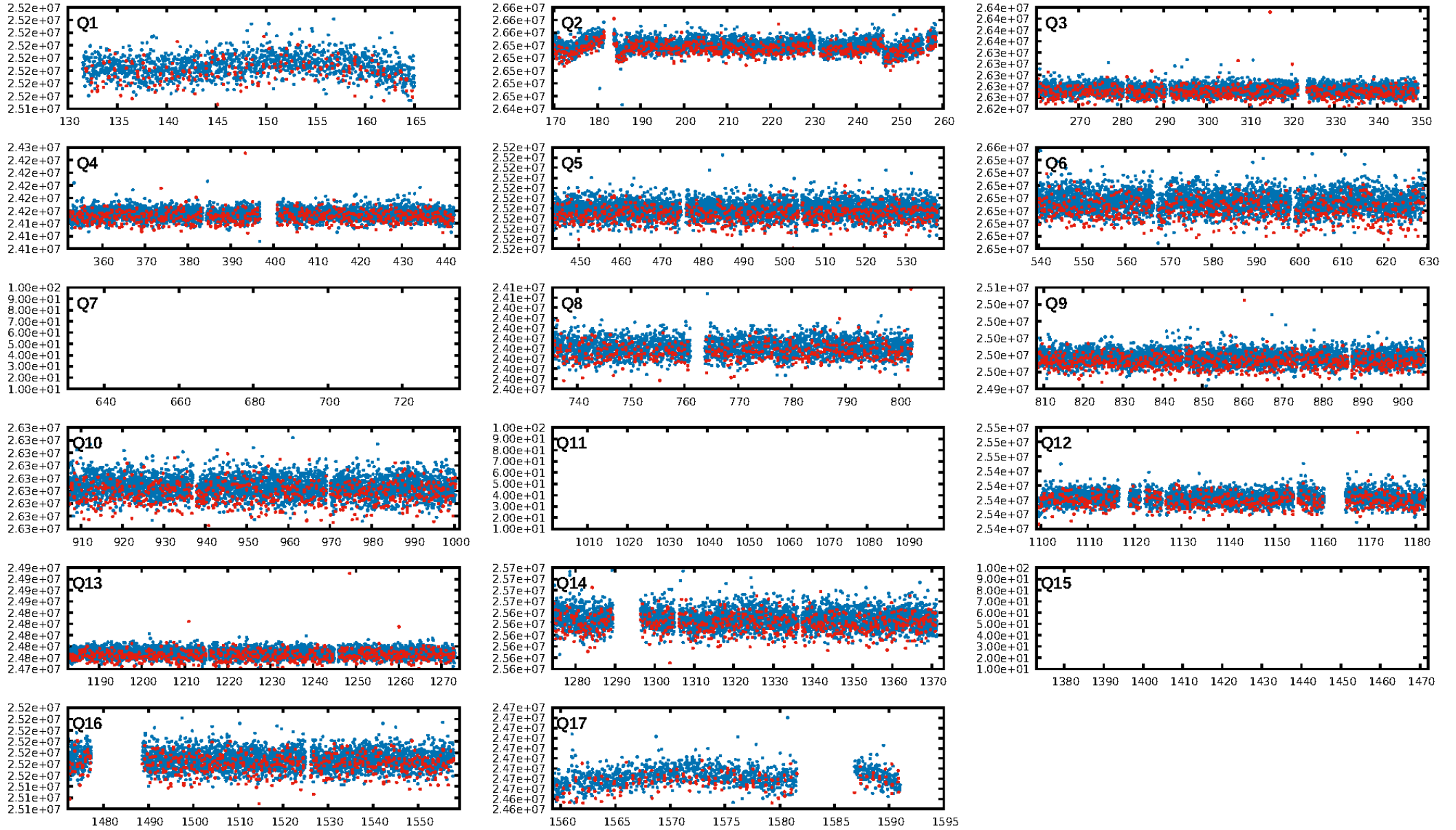
DV Fit Results:

Period = 0.57737 [0.00000] d
Epoch = 131.8500 [0.0004] BKJD
Rp/R* = 0.0176 [0.0043]
a/R* = 2.42 [2.07]
b = 0.90 [0.22]
Seff = 2255.24 [452.67]
Teff = 1757 [88] K
Rp = 1.38 [0.39] Re
a = 0.0125 [0.0014] AU
Ag = 0.28 [0.46] [-1.55σ]
Teffp = 1985 [800] K [0.28σ]

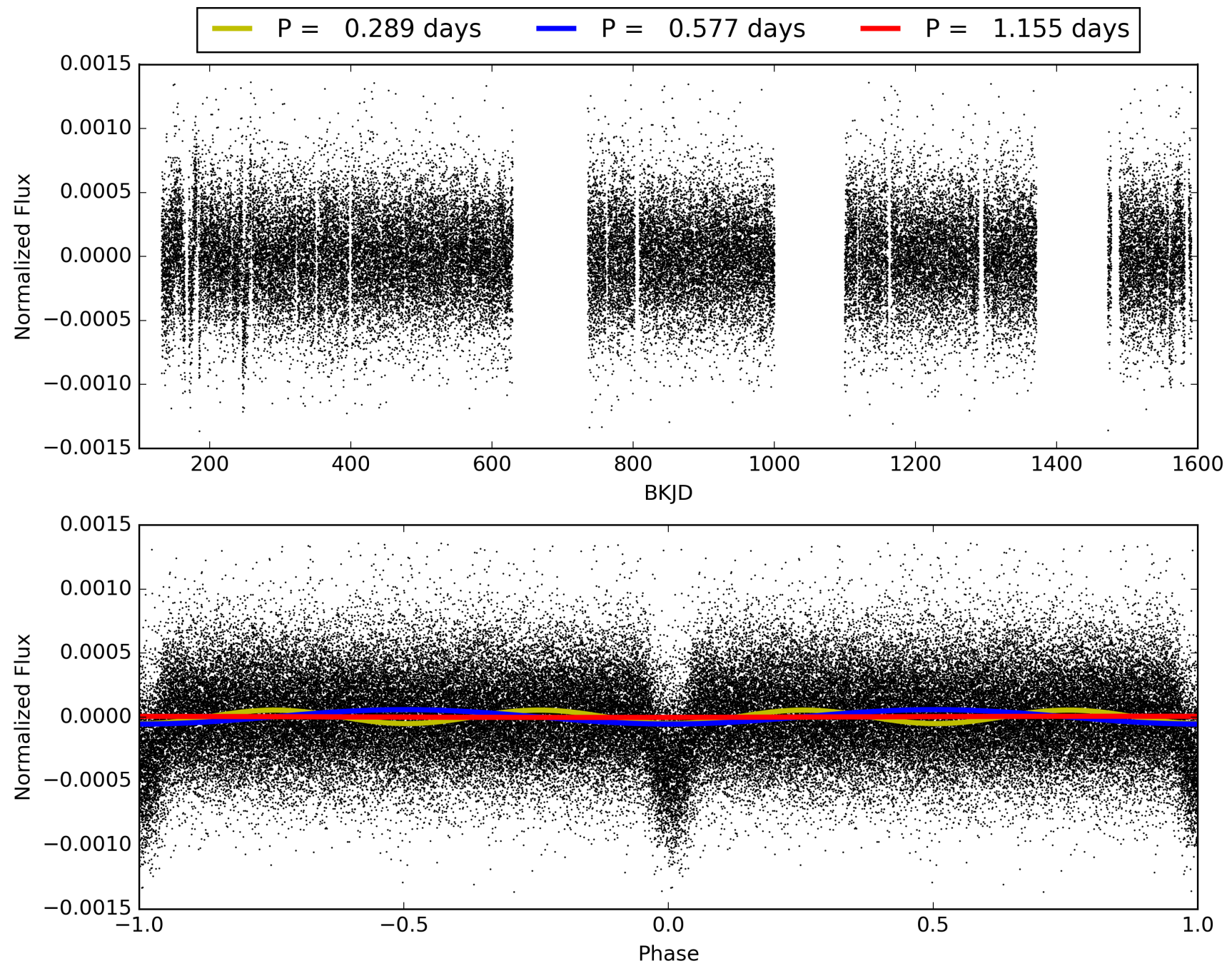
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.37e-102
RollingBand-fgt: 1.00 [1745/1745]
GhostDiagnostic-chr: 16.27
Centroid-sig: 2.2%
Centroid-so: 0.814 arcsec [2.34σ]
OotOffset-rm: 0.077 arcsec [0.65σ]
KicOffset-rm: 0.608 arcsec [5.54σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010024051-01, PDC Light Curves

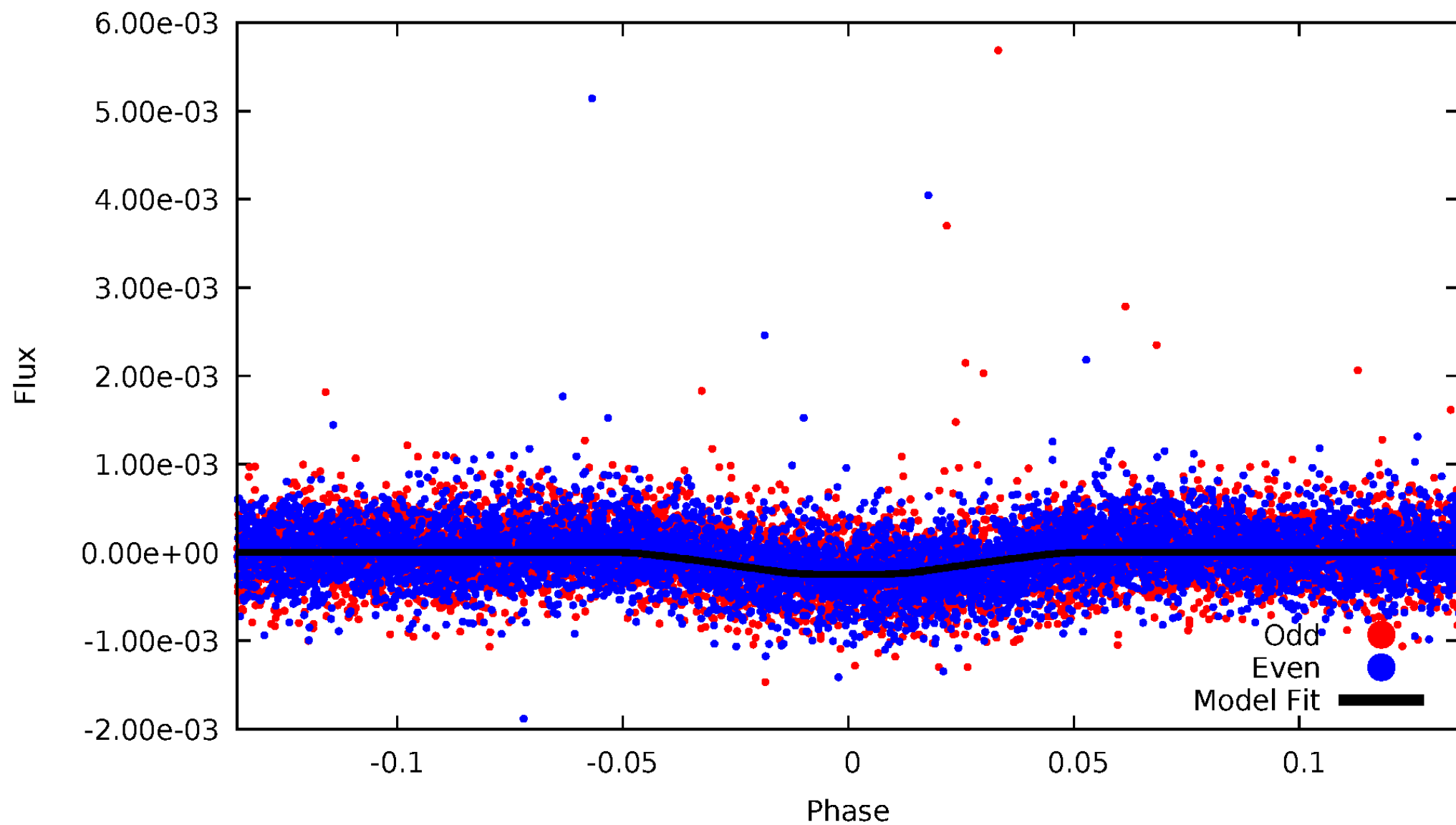


TCE 010024051-01



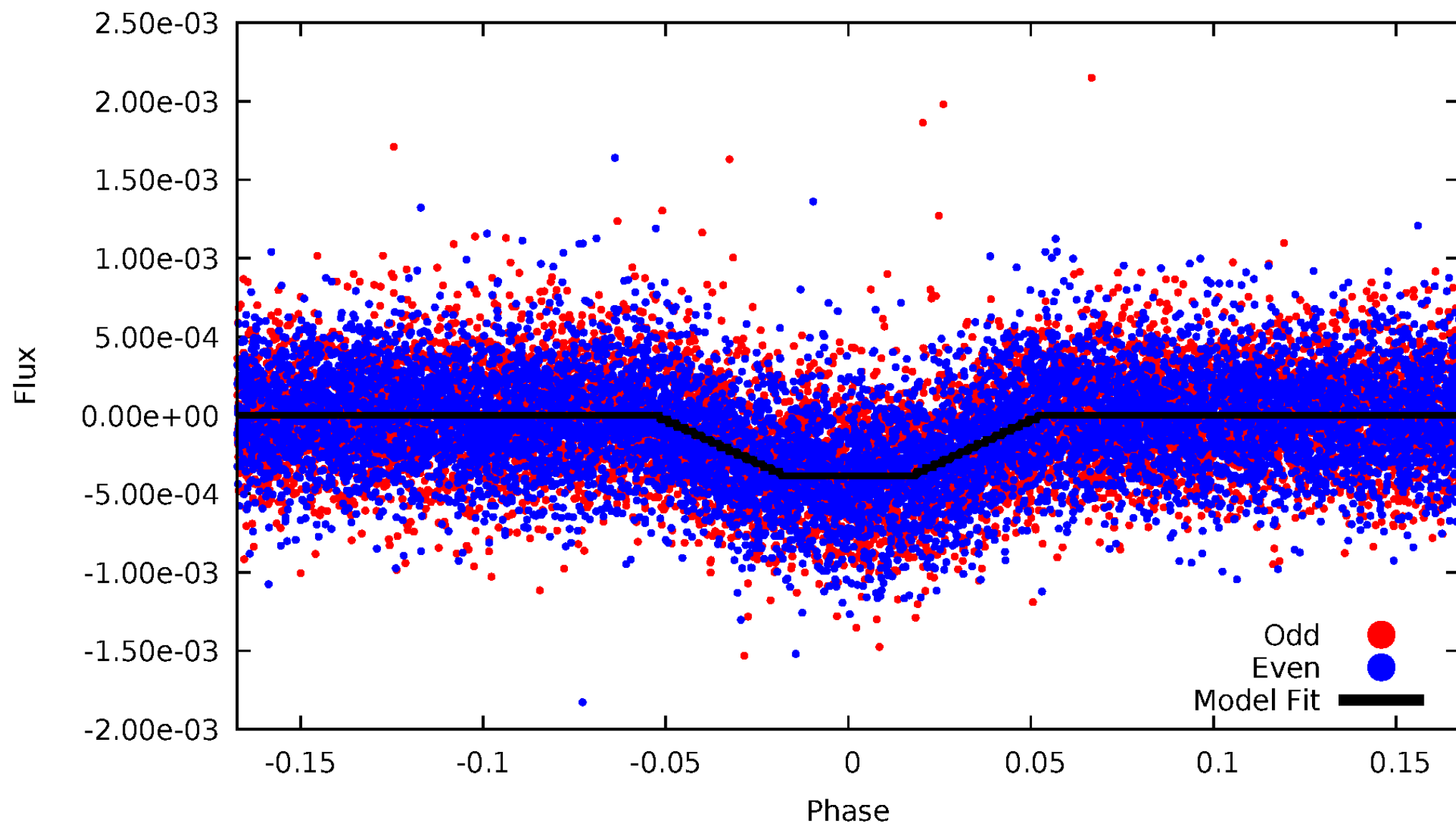
DV Odd/Even

TCE 010024051-01



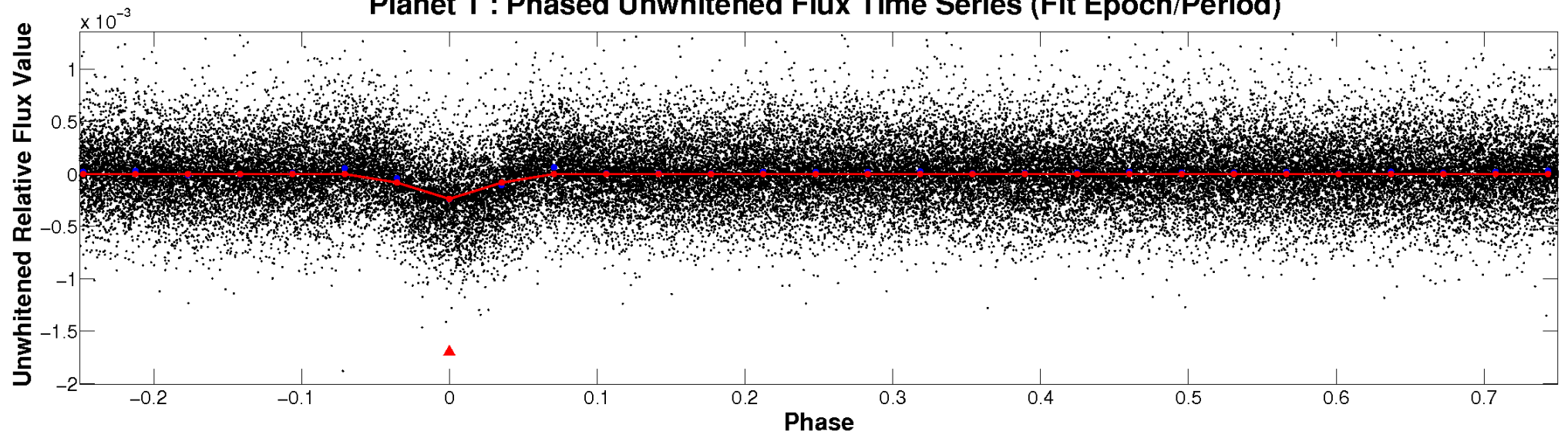
ALT Odd/Even

TCE 010024051-01

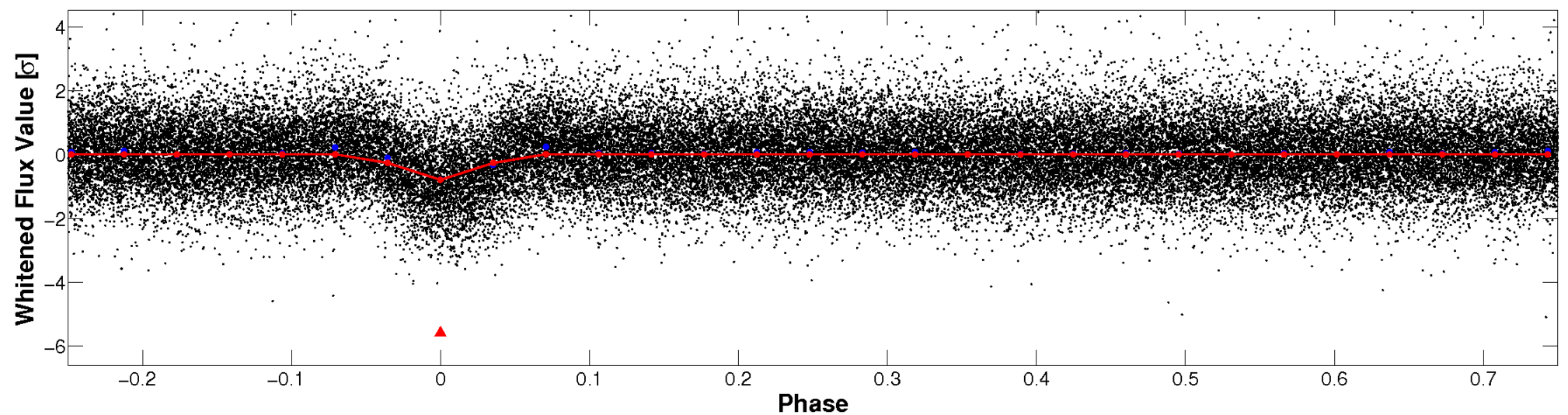


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

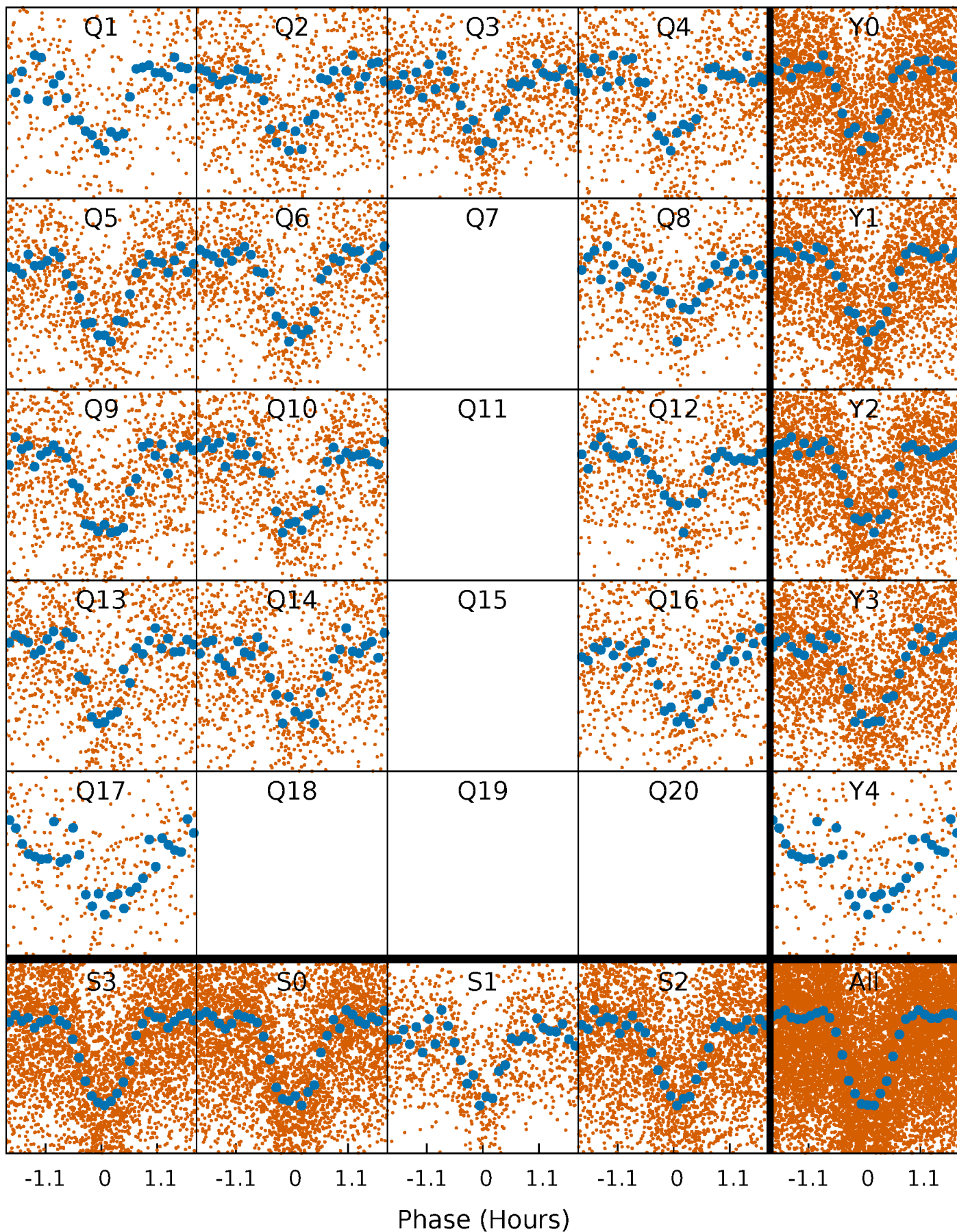


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



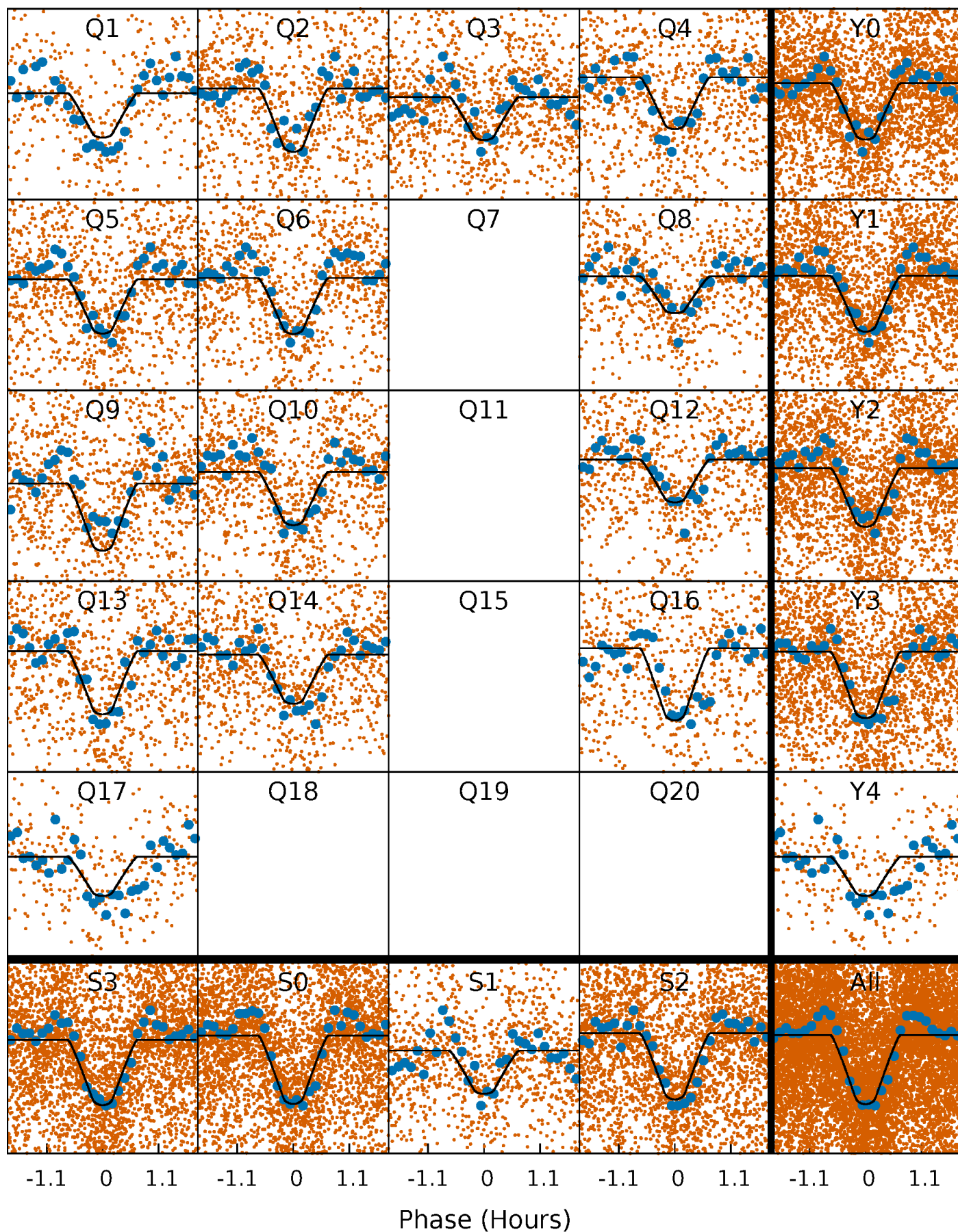
PDC Quarter-Phased Transit Curves

TCE 010024051-01 P= 0.577366 Days $T_0=131.850033$ (BKJD)



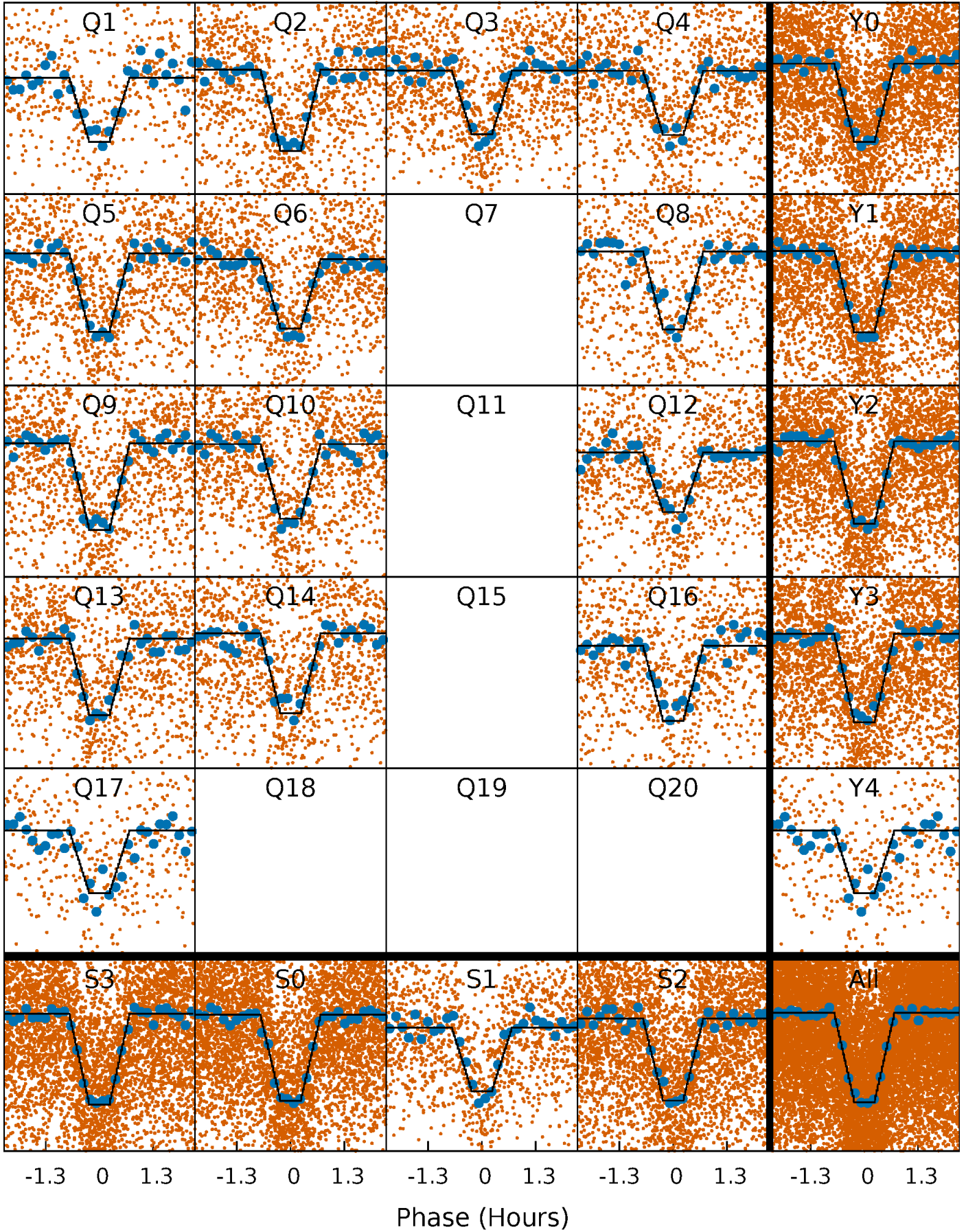
DV Quarter-Phased Transit Curves

TCE 010024051-01 P= 0.577366 Days $T_0=131.850033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

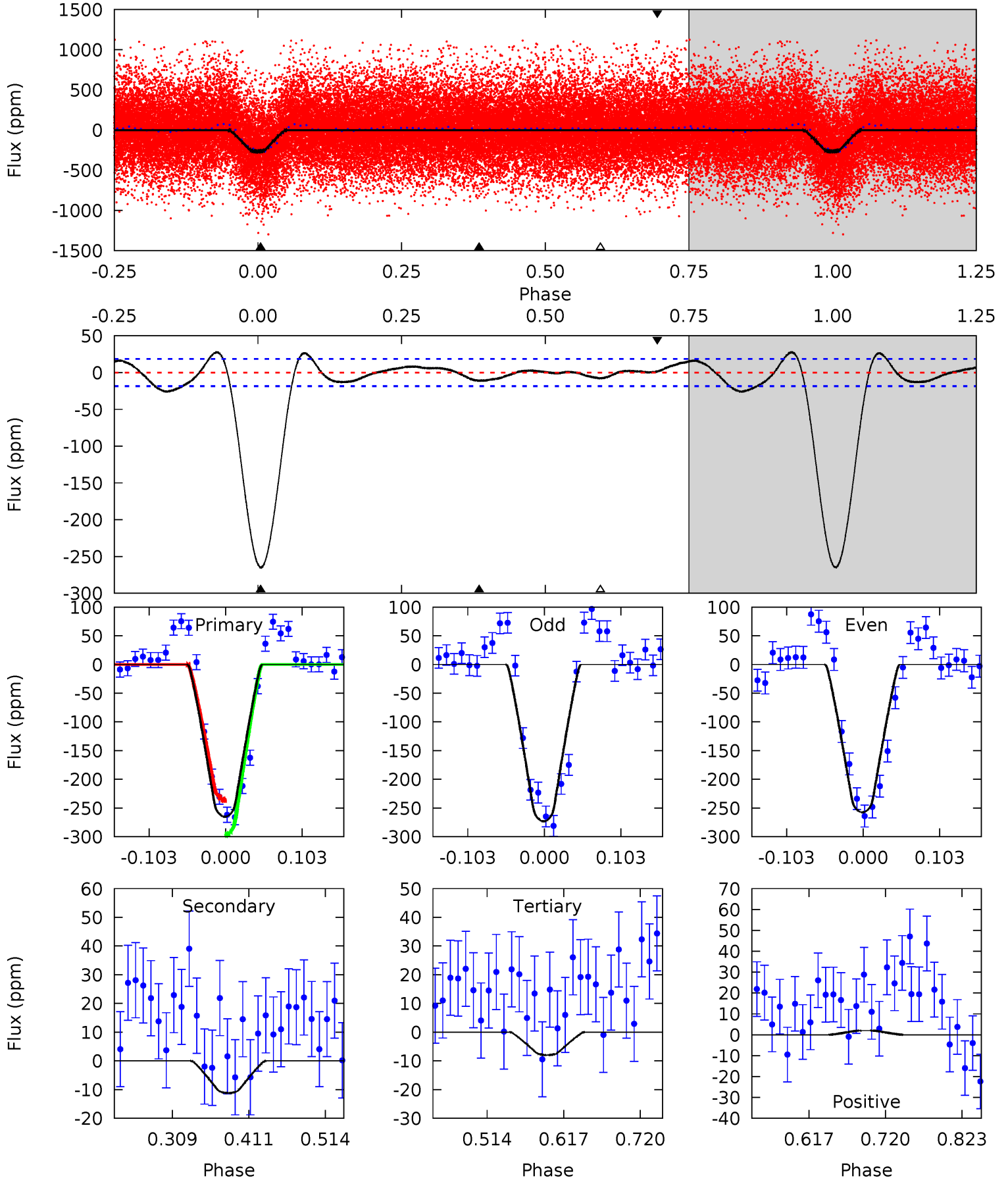
TCE 010024051-01 P= 0.577369 Days $T_0=131.848959$ (BKJD)



DV Model-Shift Uniqueness Test

010024051-01, P = 0.577366 Days, E = 131.272667 Days

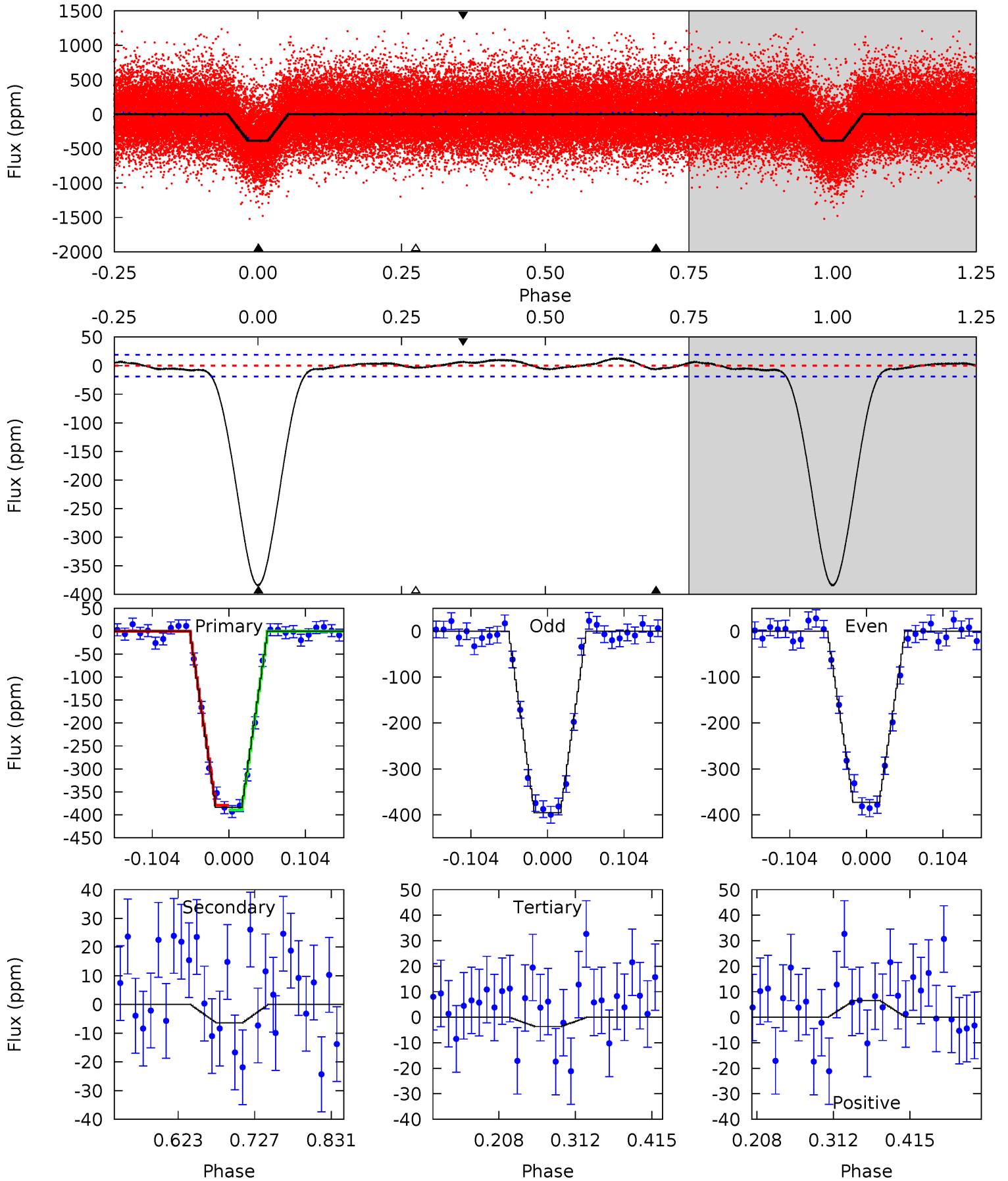
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.1	2.74	1.96	0.50	4.56	1.63	2.38	63.1	64.6	0.79	2.25	1.92	0.97	0.10	7.57



Alt Model-Shift Uniqueness Test

010024051-01, P = 0.577369 Days, E = 131.271590 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.1	1.54	0.87	1.58	4.56	1.63	1.16	91.2	90.5	0.67	-0.04	2.76	1.00	0.03	1.20



Stellar Parameters For KIC 010024051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+158}_{-142}	$4.617^{+0.039}_{-0.084}$	$-0.340^{+0.300}_{-0.300}$	$0.716^{+0.103}_{-0.060}$	$0.776^{+0.086}_{-0.078}$	$2.979^{+0.490}_{-0.838}$
	+3%/-3%	+1%/-2%	+88%/-88%	+14%/-8%	+11%/-10%	+16%/-28%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 010024051-01 / KOI 2409.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 4	$1.42^{+0.35}_{-0.38}$	2477^{+100}_{-91}	2541^{+494}_{-4820}	$0.460^{+0.429}_{-0.226}$
Alt.	-6 ± 4	$1.57^{+0.35}_{-0.35}$	2475^{+103}_{-85}	-2380^{+4843}_{-308}	$0.211^{+0.216}_{-0.140}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

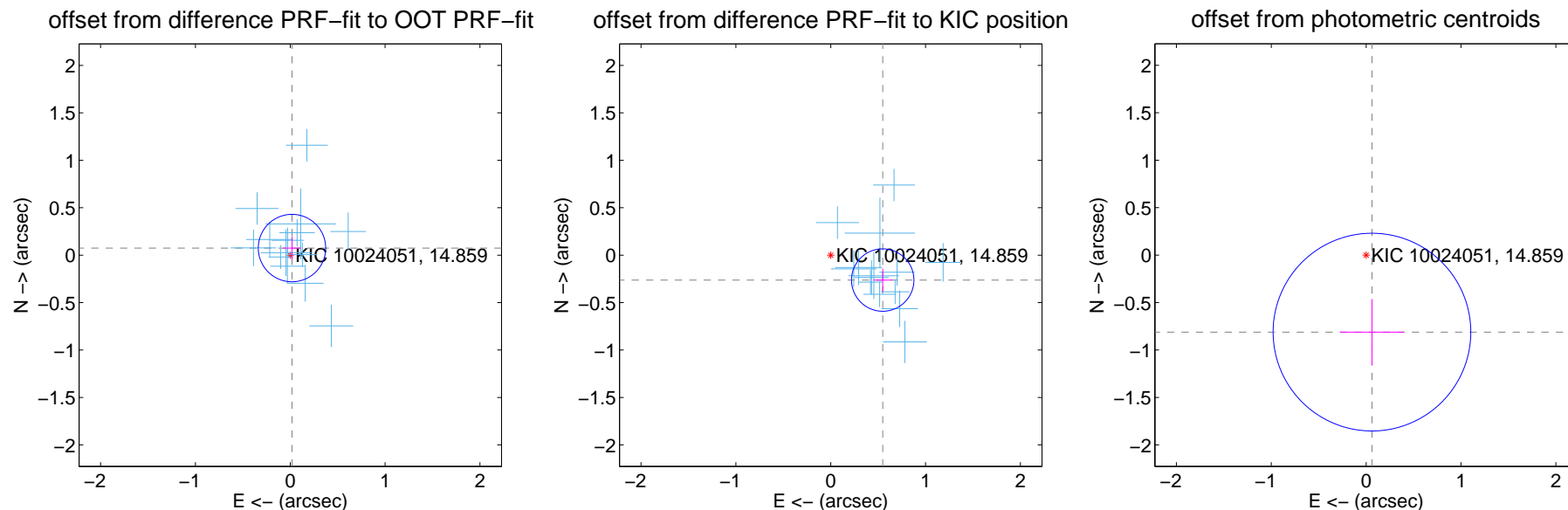
DV Centroid Data

Supplemental centroid analysis for 010024051-01. Kepler magnitude: 14.86. Transit SNR 38.20

There are 14 quarters with good PRF difference image offsets

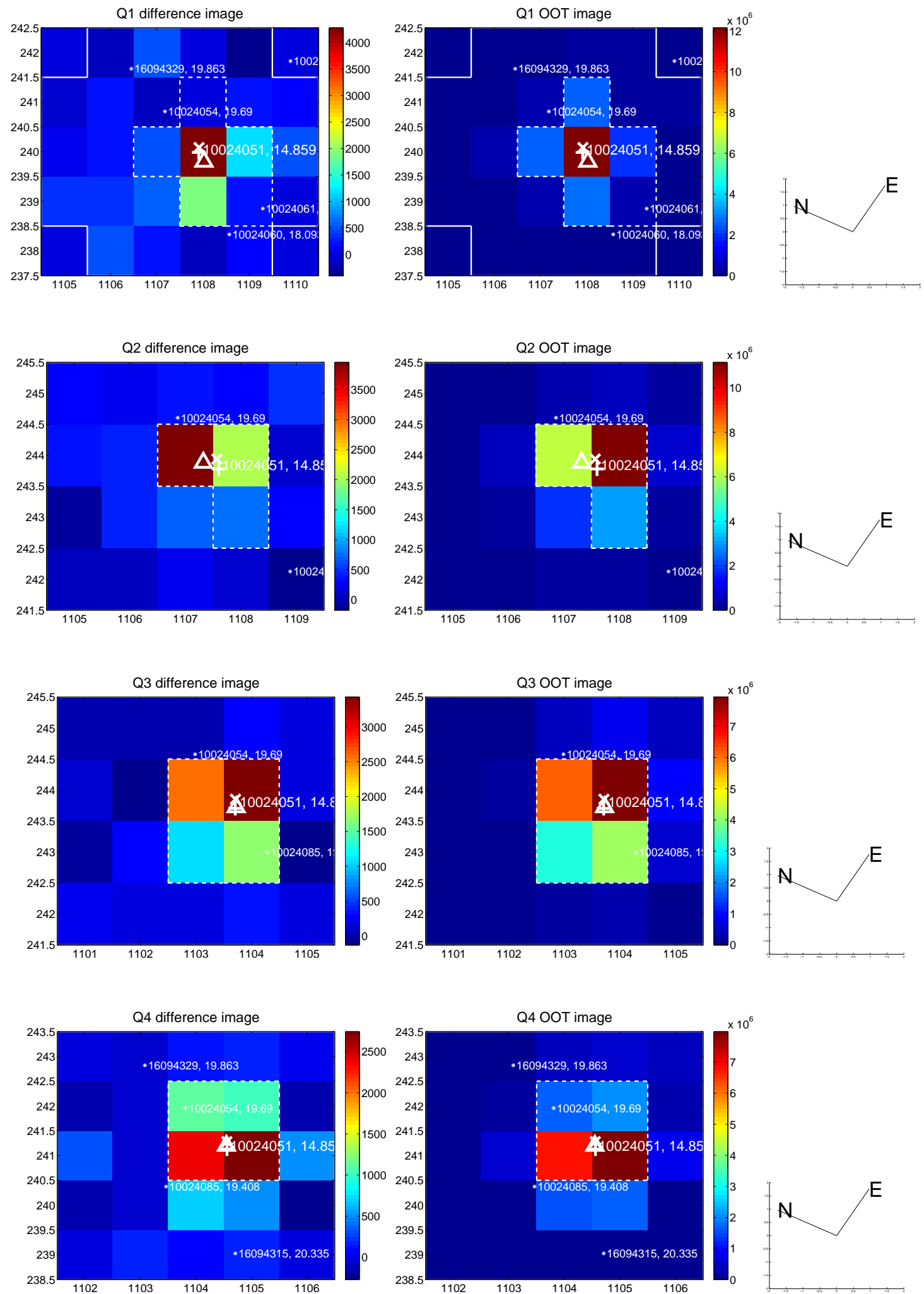
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.077 ± 0.118	0.65	-0.018 ± 0.097	0.075 ± 0.123
PRF-fit source offset from KIC position	0.608 ± 0.110	5.54	-0.548 ± 0.099	-0.262 ± 0.121
photometric centroid source offset	0.81 ± 0.35	2.34	-0.06 ± 0.34	-0.81 ± 0.35

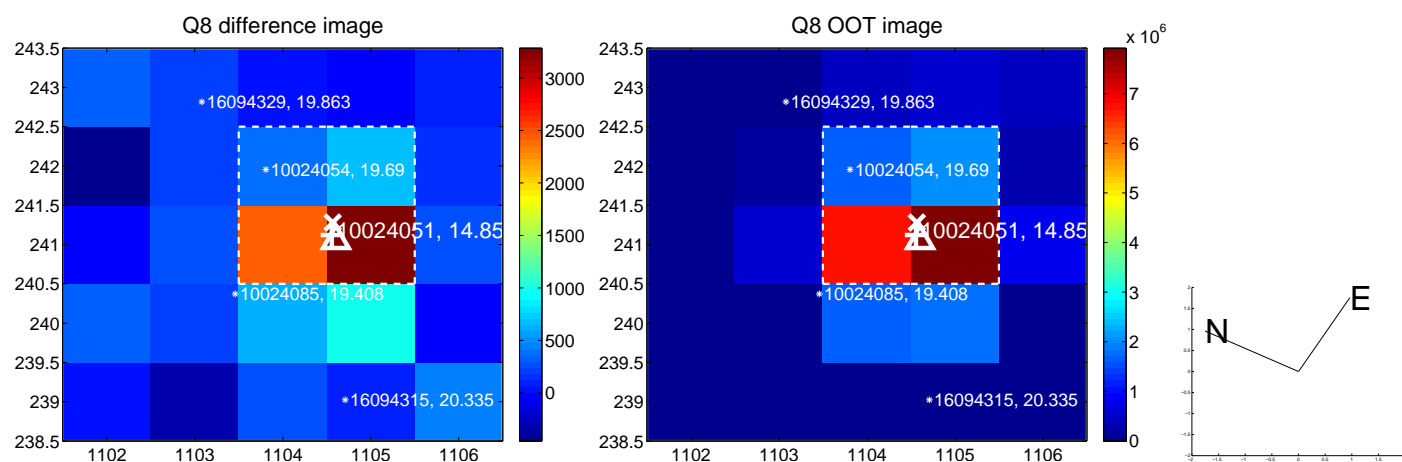
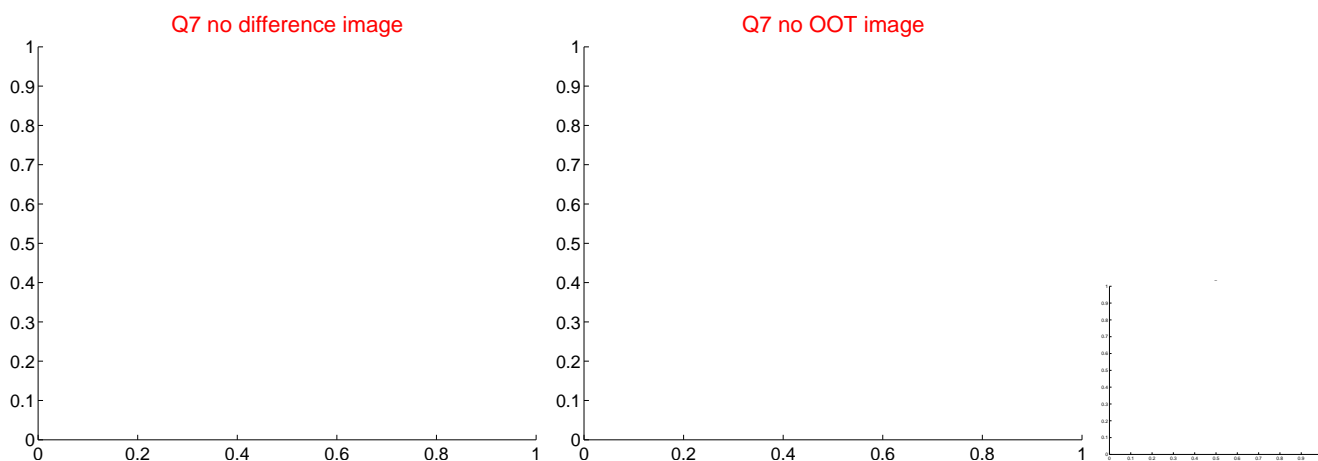
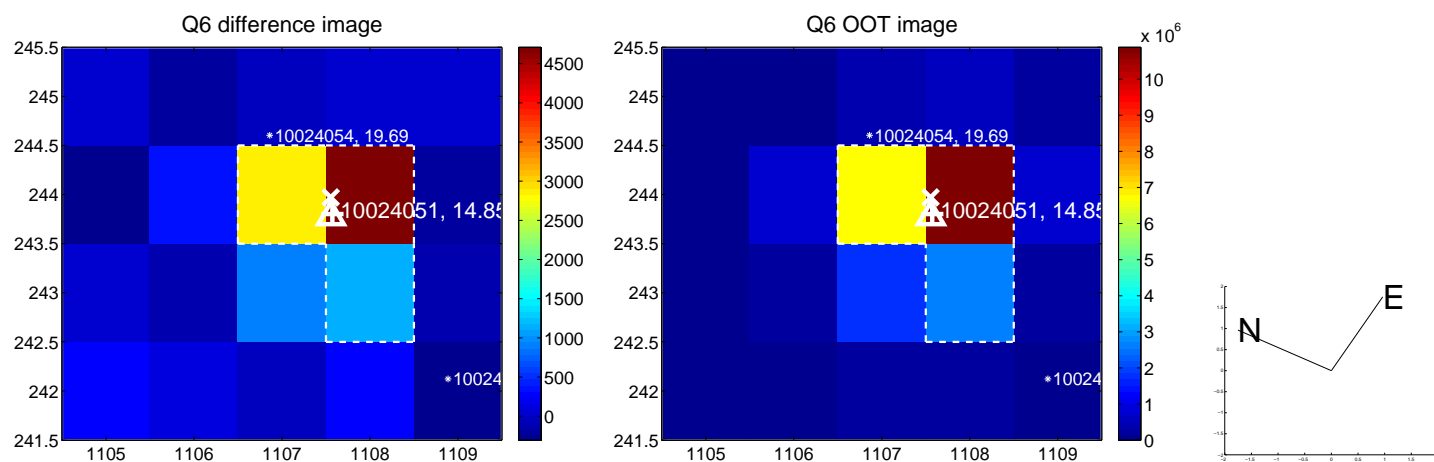
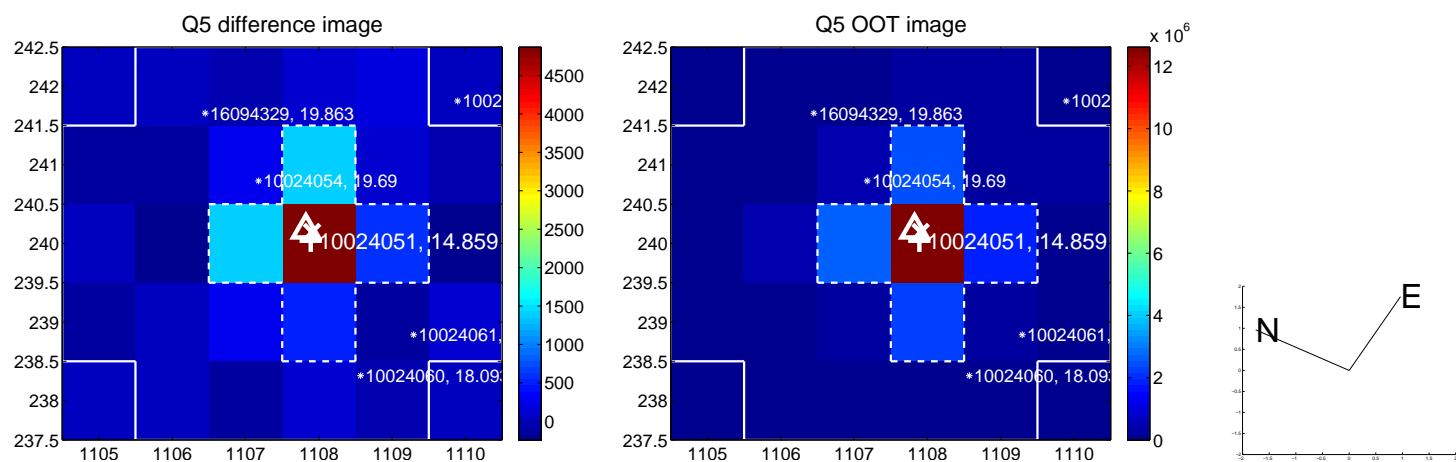


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

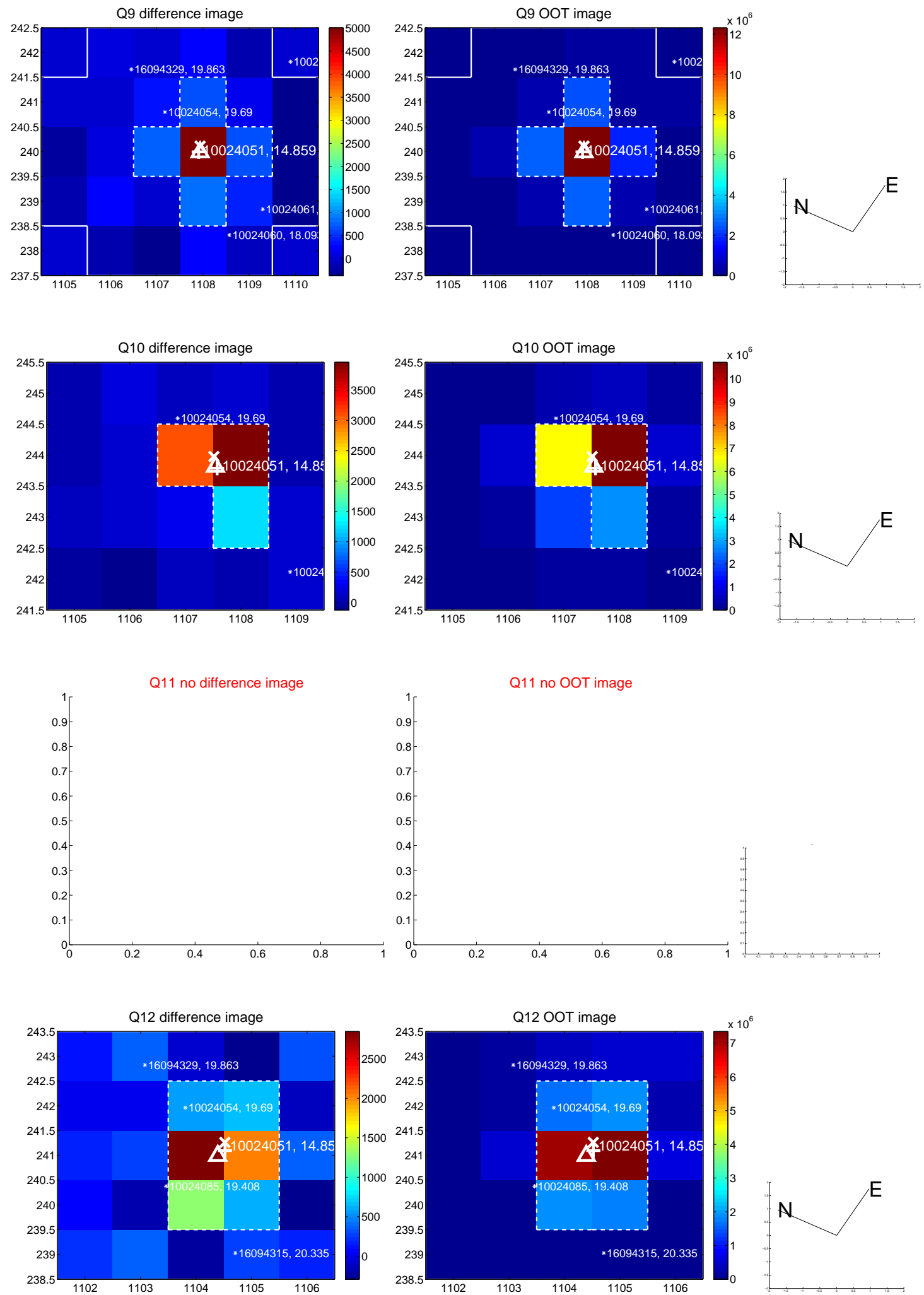
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



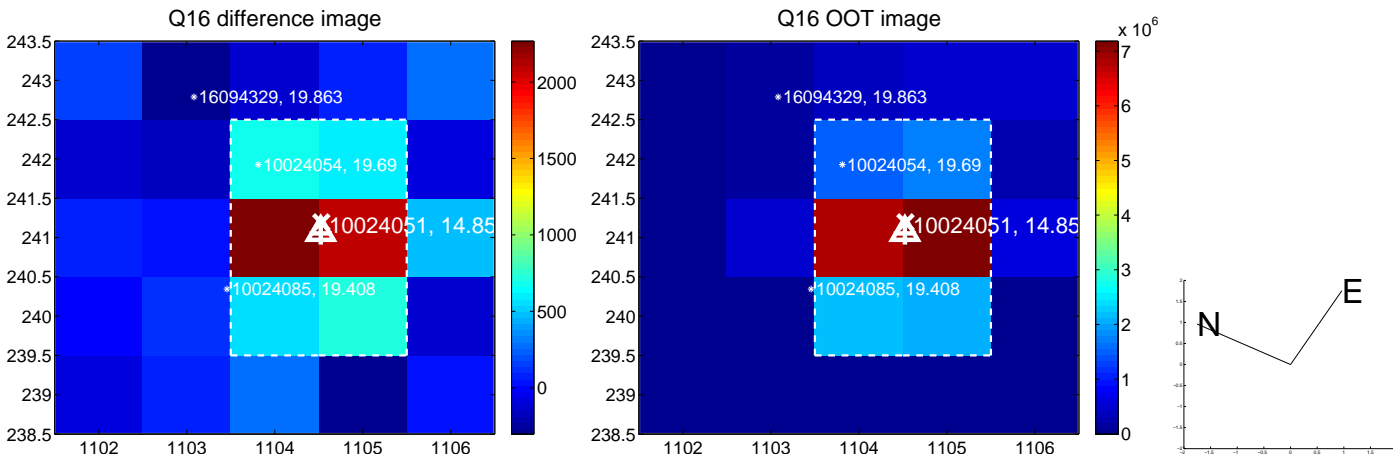
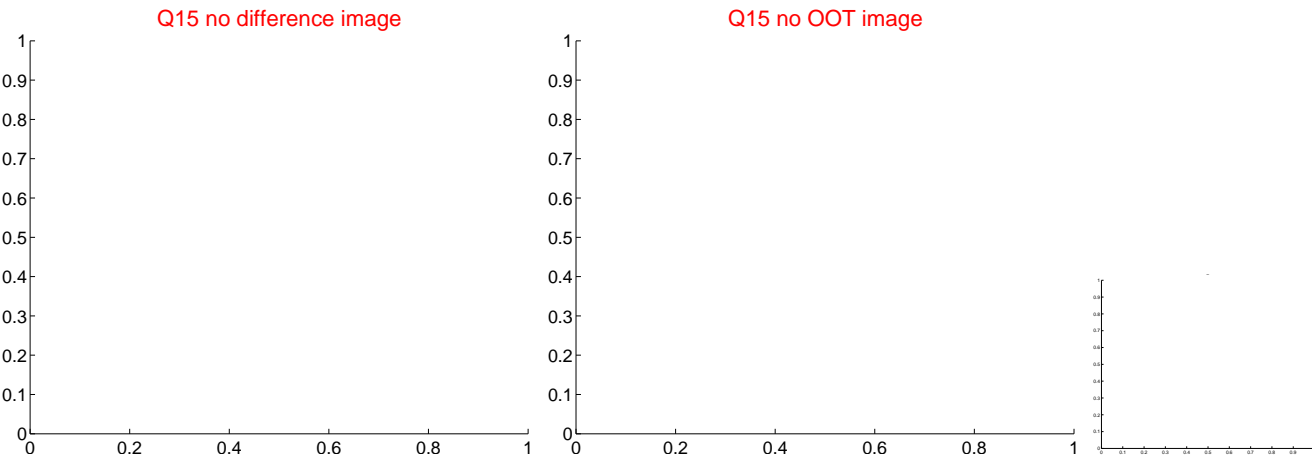
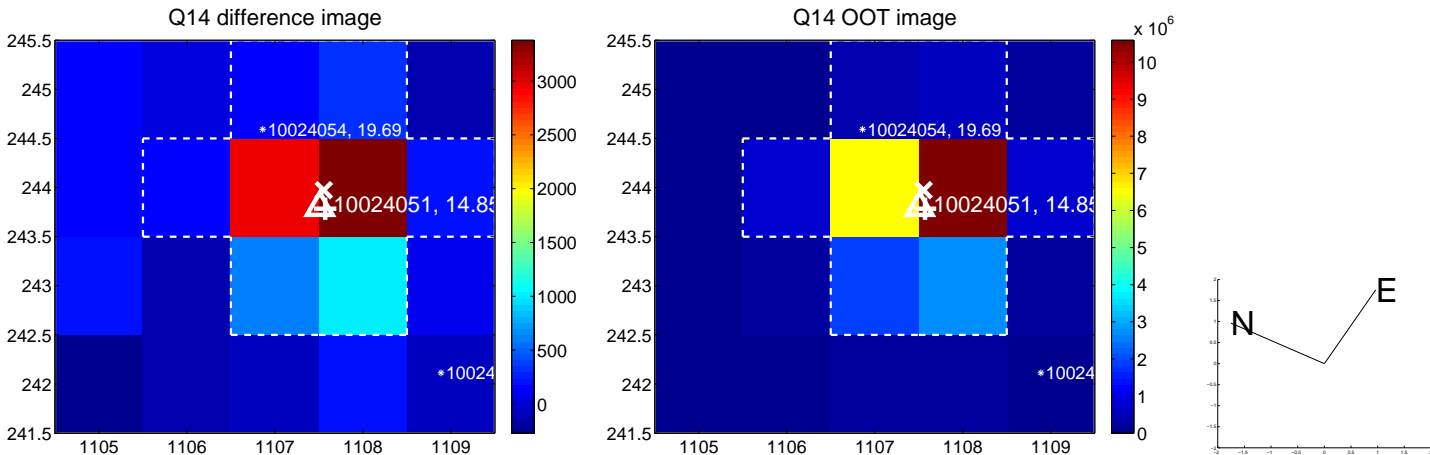
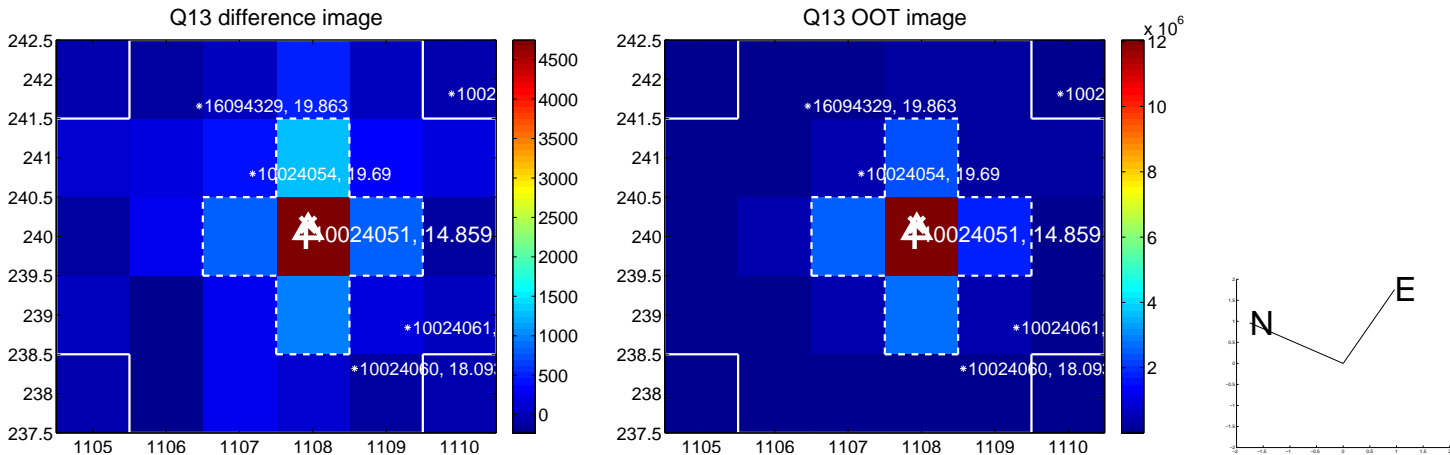
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



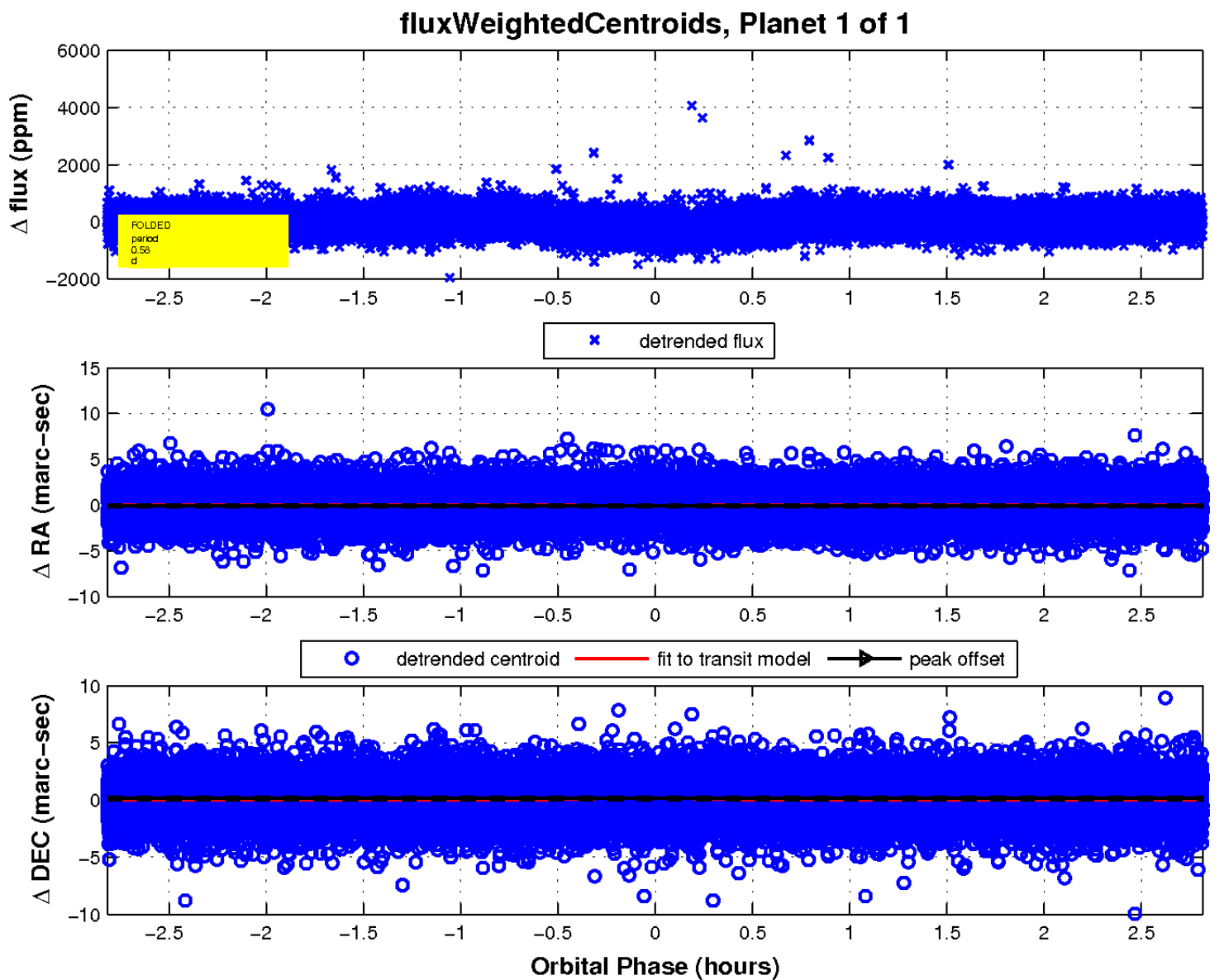
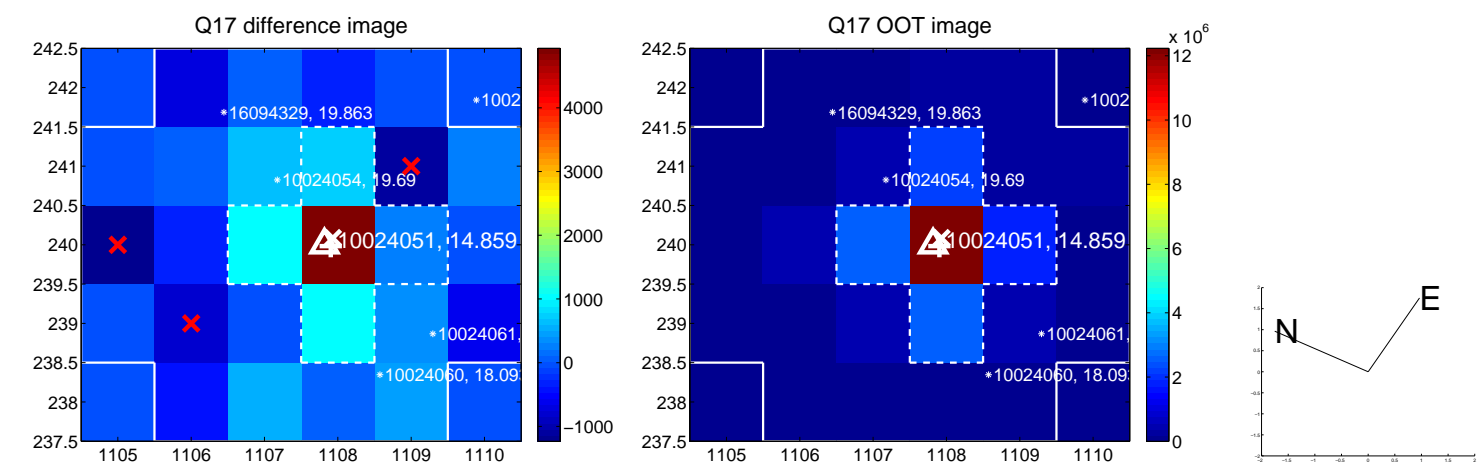
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UKIRT Image

Declination

