

KIC 004160669

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})
004160669-01	OBS	6391.01	2.183510	132.695298	923.3	4.347	778.4	326.1	162.72	3198	827.15	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004160669-01	OBS	FP	0.00	0	1	1	0	PLANET_IN_STAR—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—CENT_SATURATED—HALO_GHOST

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.

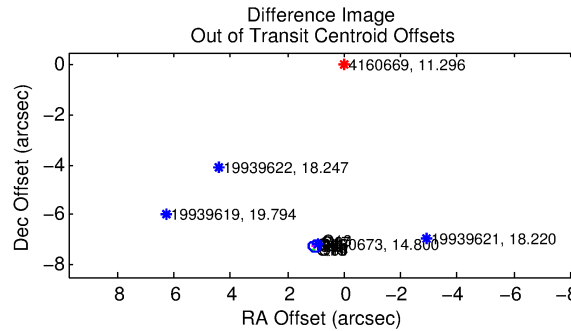
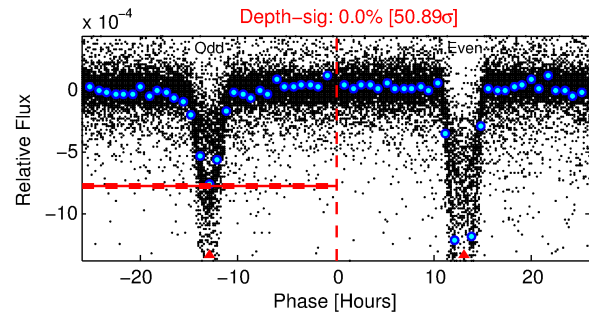
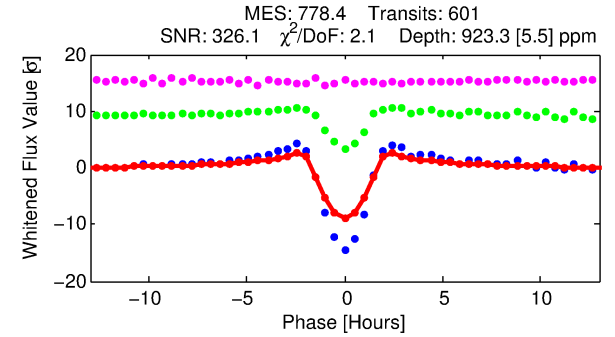
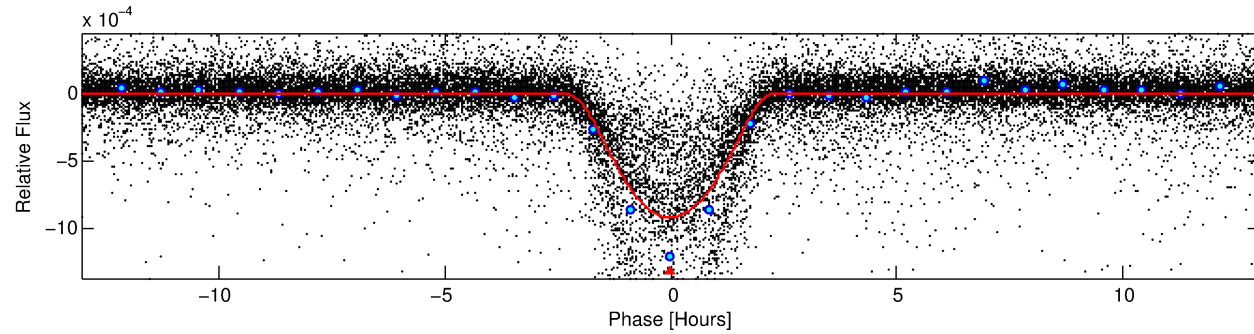
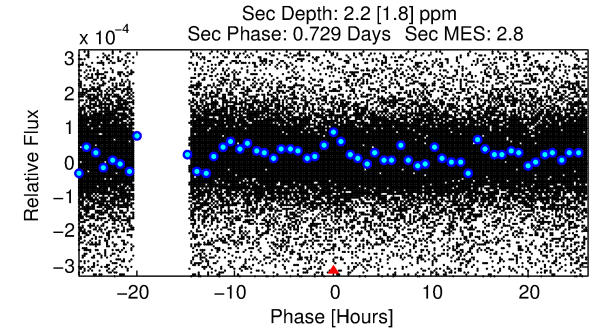
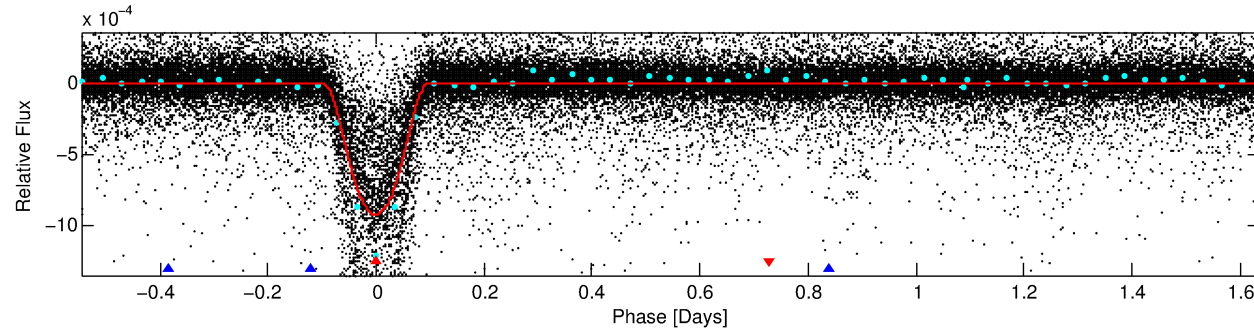
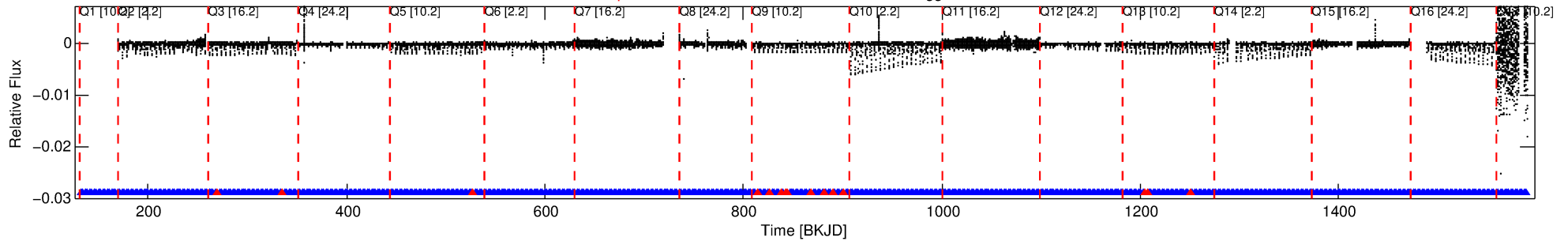
Ephemeris Match Information For 004160669-01

No Significant Match Found

DV One-Page Summary

KIC: 4160669 Candidate: 1 of 2 Period: 2.184 d
KOI: K06391.01 Corr: 0.987

Kp: 11.30 R*: 162.72 Rs Teff: 3198.0 K Logg: 0.05 Fe/H: 0.000



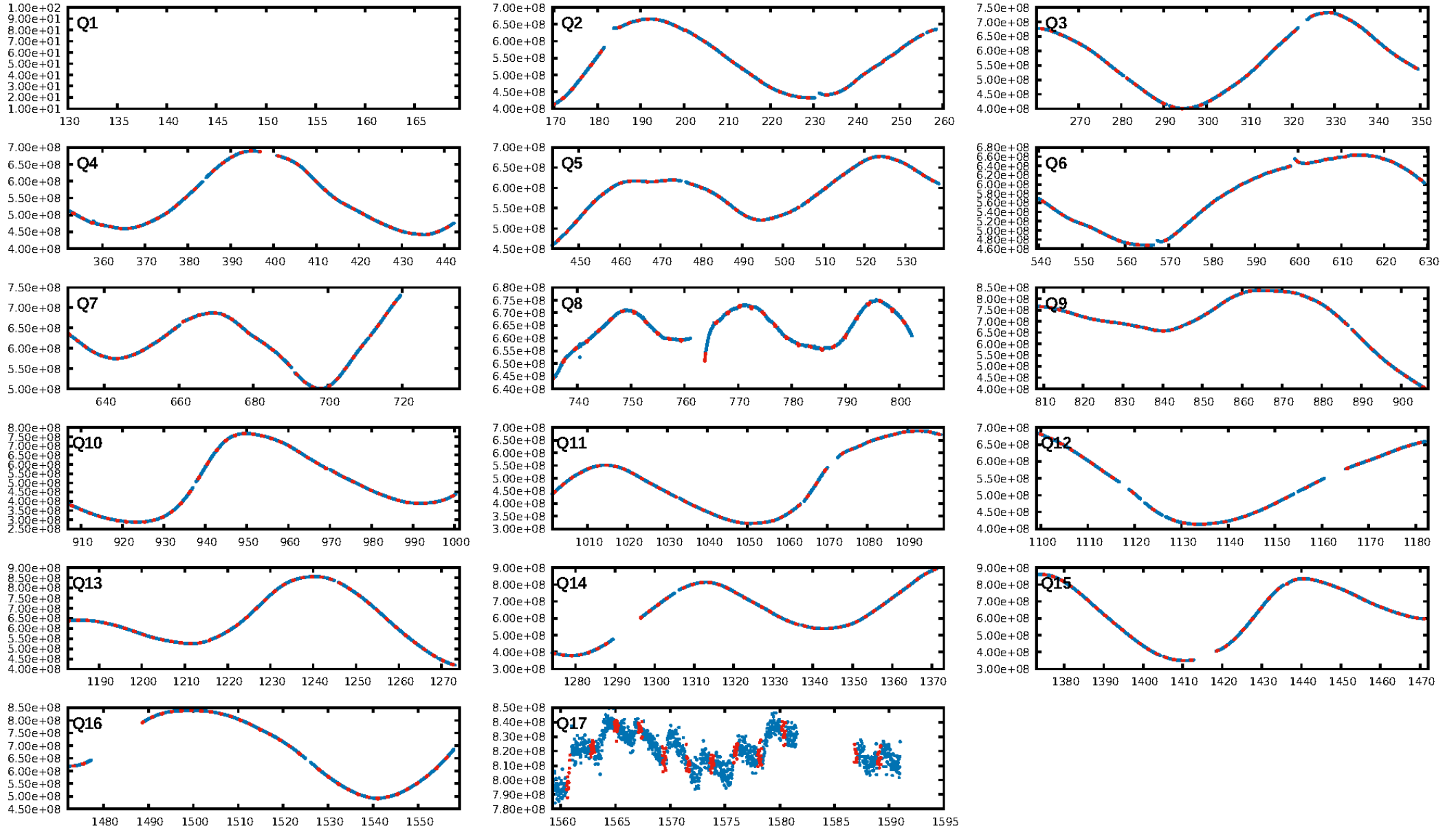
DV Fit Results:

Period = 2.18351 [0.00000] d
Epoch = 132.6953 [0.0002] BKJD
Rp/R* = 0.0466 [0.0017]
a/R* = 1.78 [0.02]
b = 0.97 [0.00]
Seff = N/A
Teq = N/A
Rp = 827.15 [112.56] Re
a = N/A
Ag = N/A
Teffp = N/A

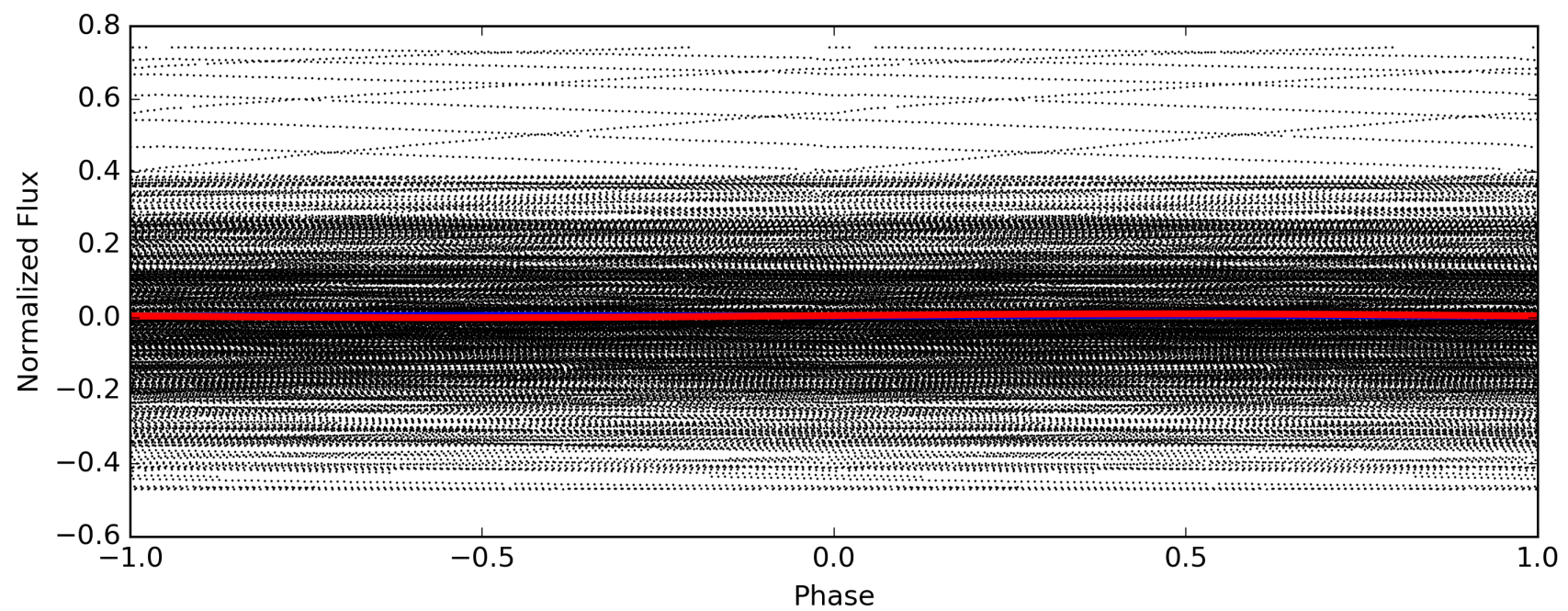
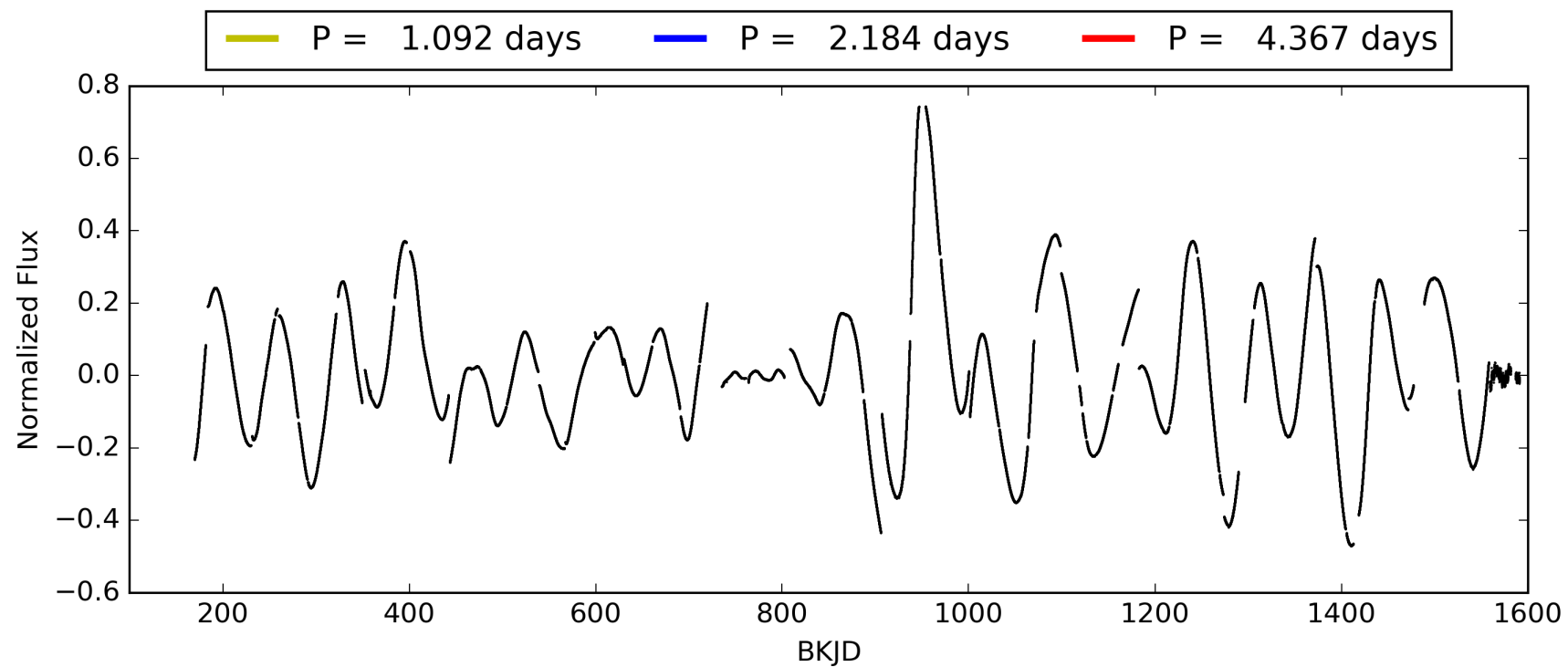
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [703.43σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [574/589]
GhostDiagnostic-chr: -0.04783
Centroid-sig: 0.0%
Centroid-so: 20.692 arcsec [370.41σ]
OotOffset-rm: 7.360 arcsec [98.35σ]
KicOffset-rm: 7.677 arcsec [107.82σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 004160669-01, PDC Light Curves

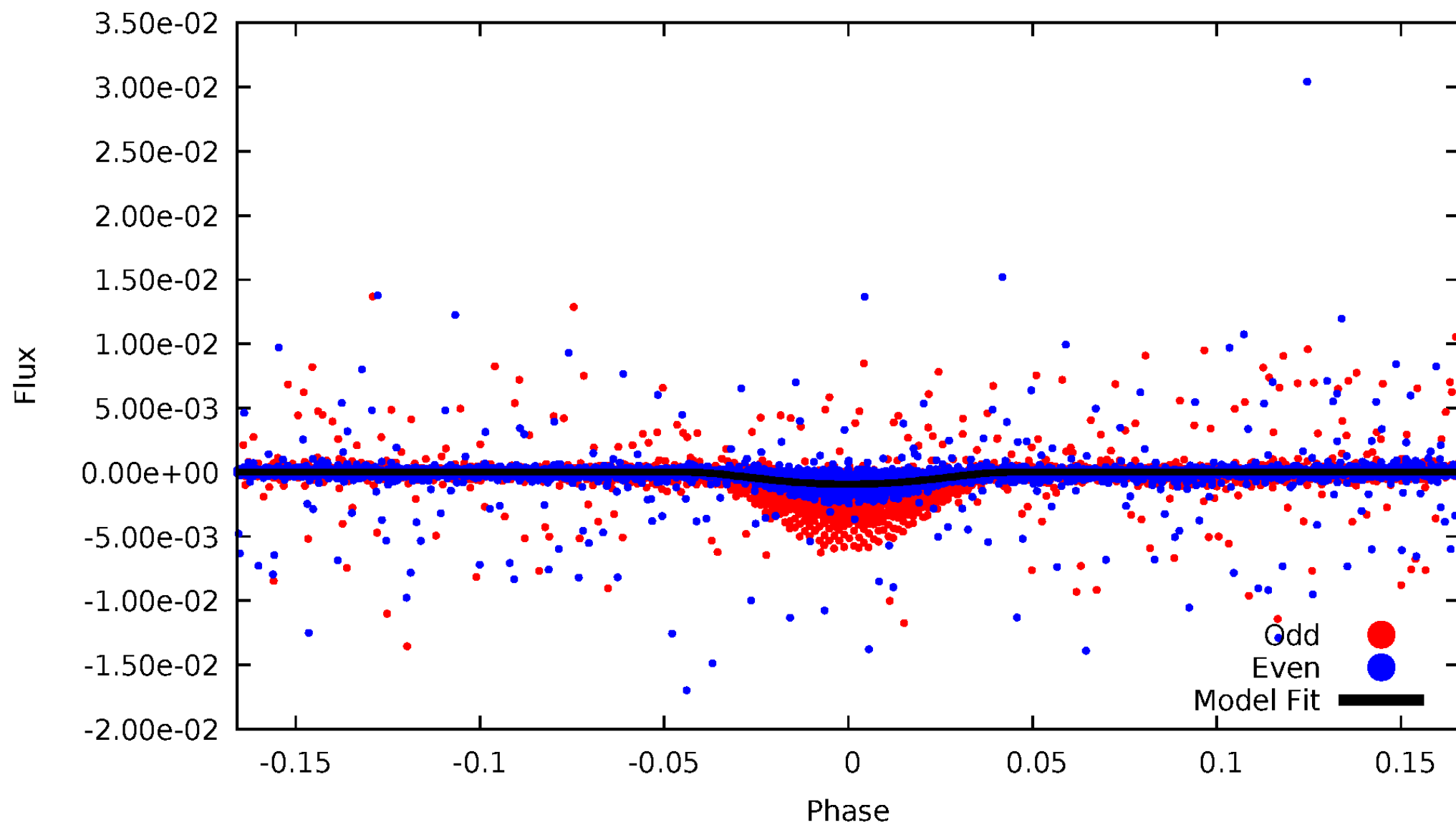


TCE 004160669-01



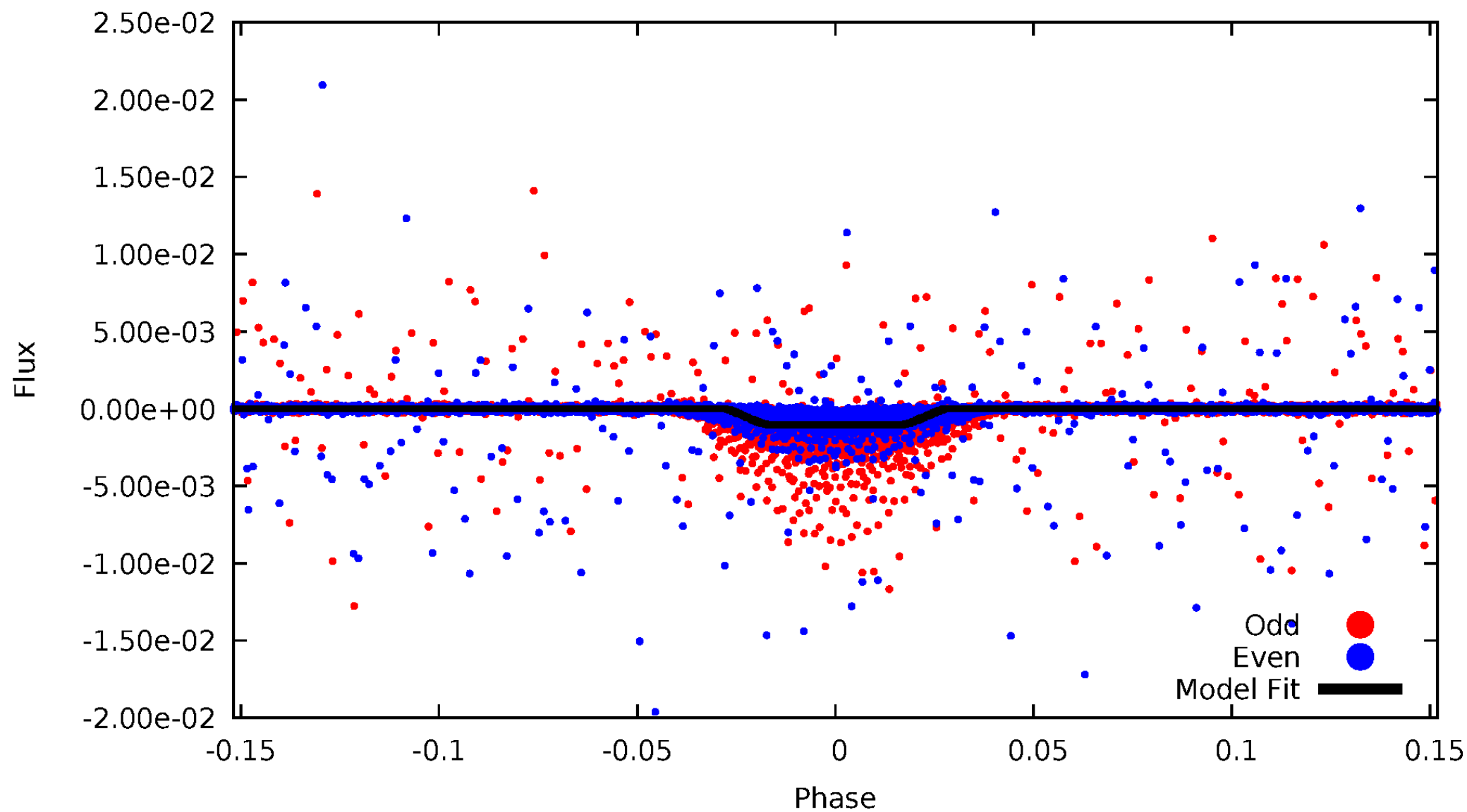
DV Odd/Even

TCE 004160669-01



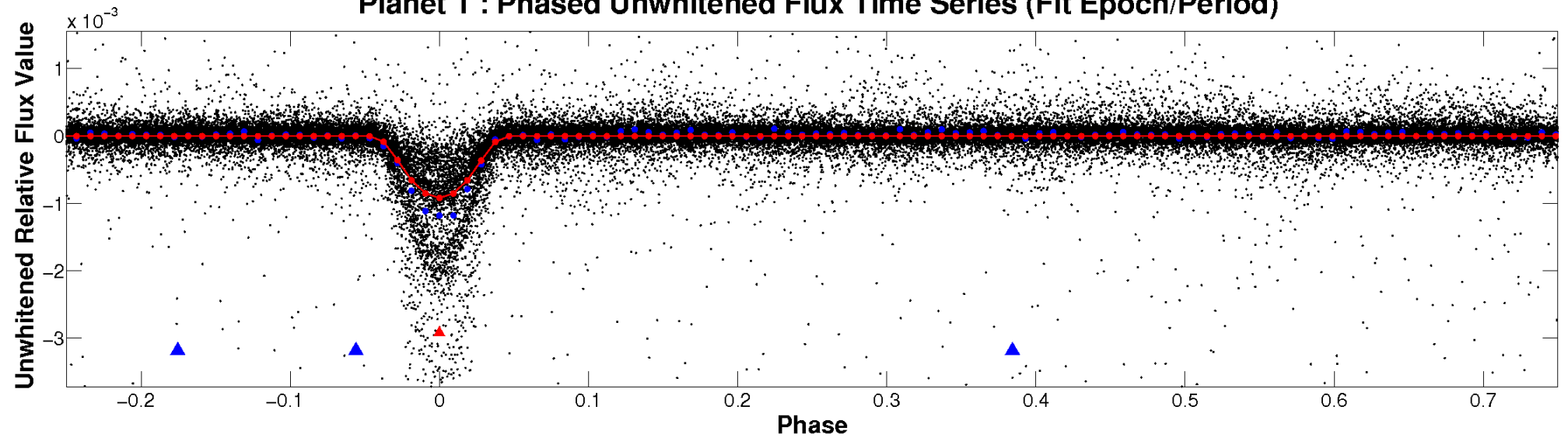
ALT Odd/Even

TCE 004160669-01

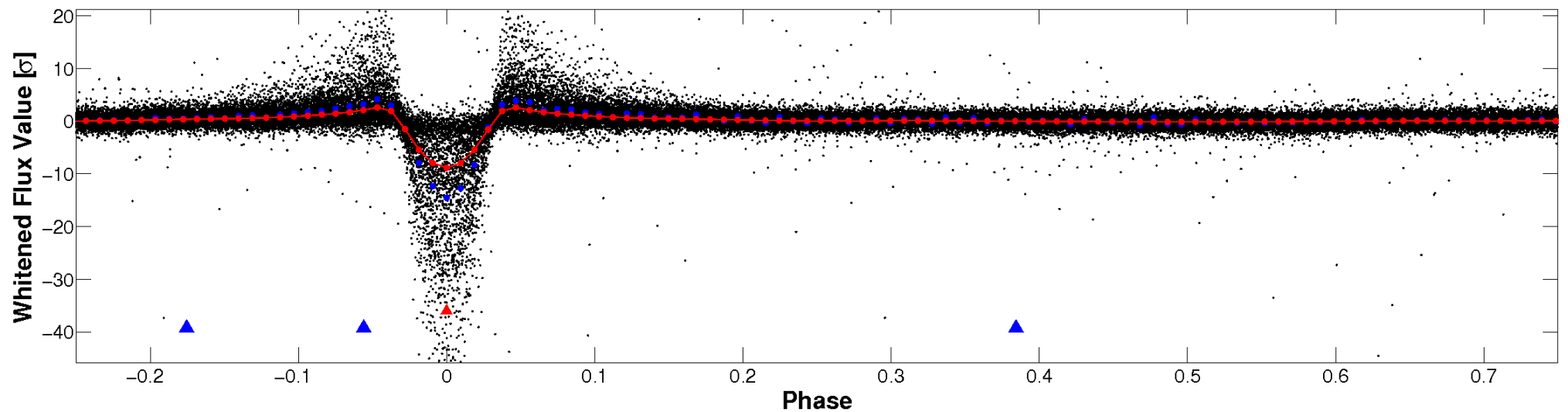


Non-Whitened Vs. Whitened Light Curve

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

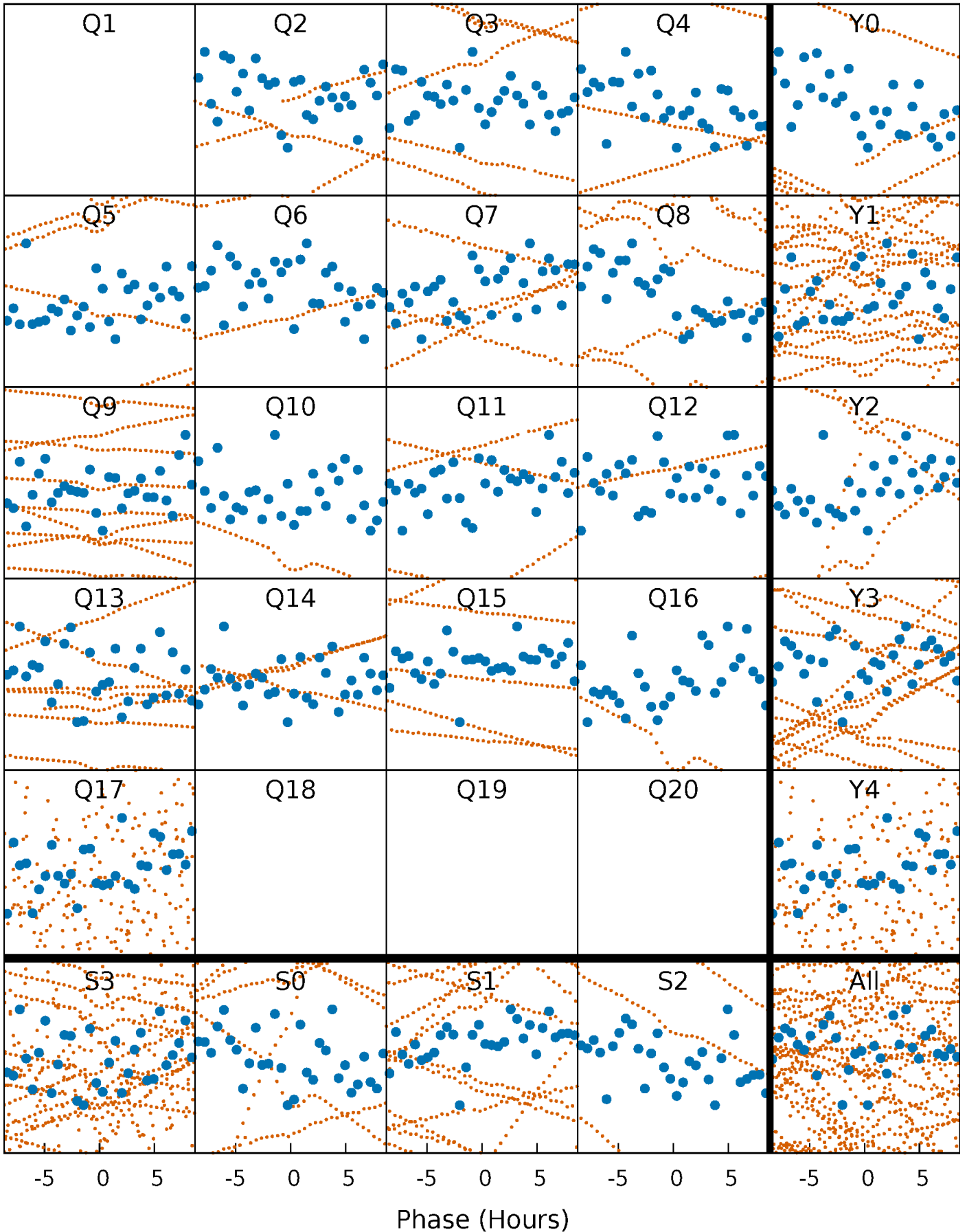


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



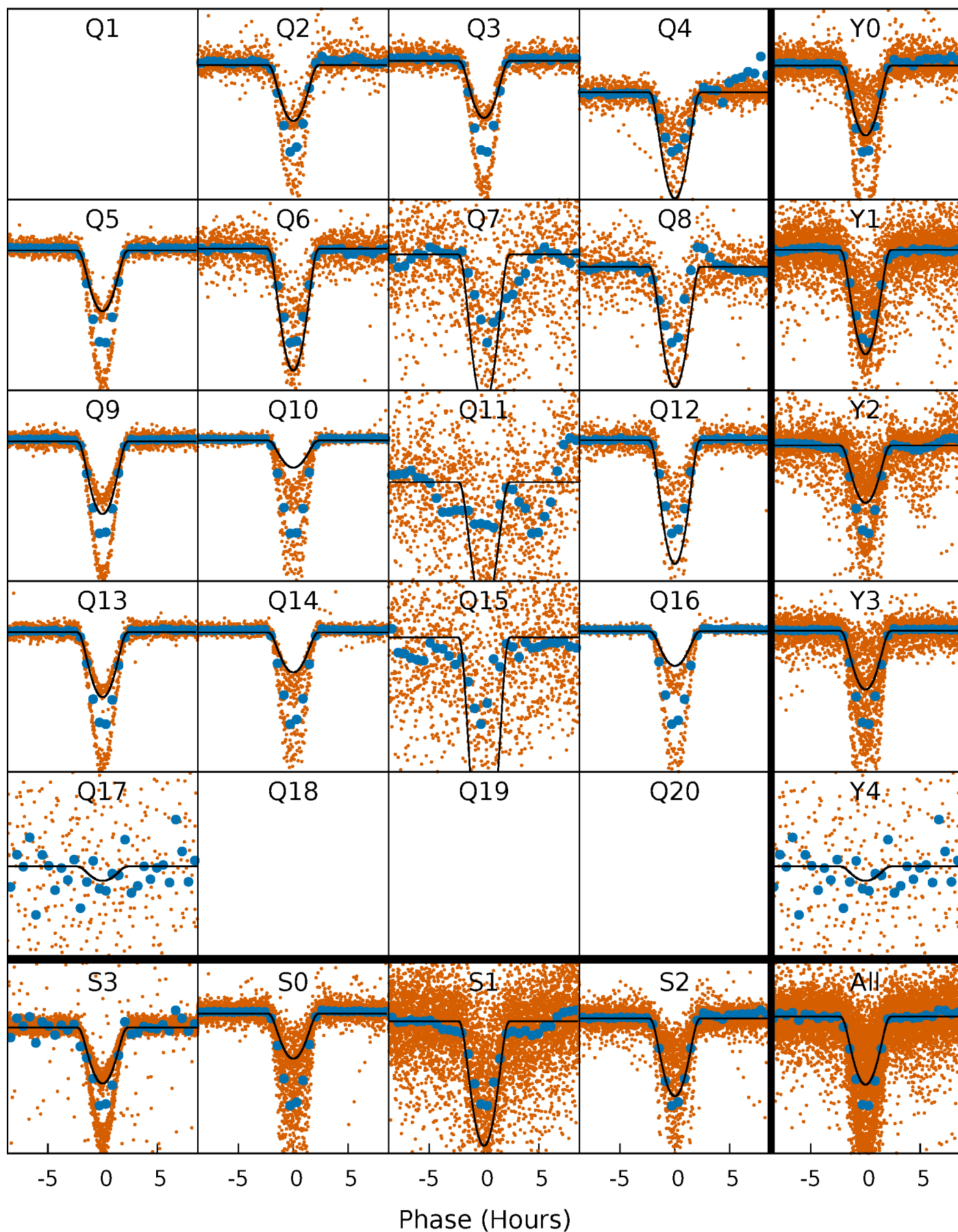
PDC Quarter-Phased Transit Curves

TCE 004160669-01 P= 2.183510 Days $T_0=132.695298$ (BKJD)



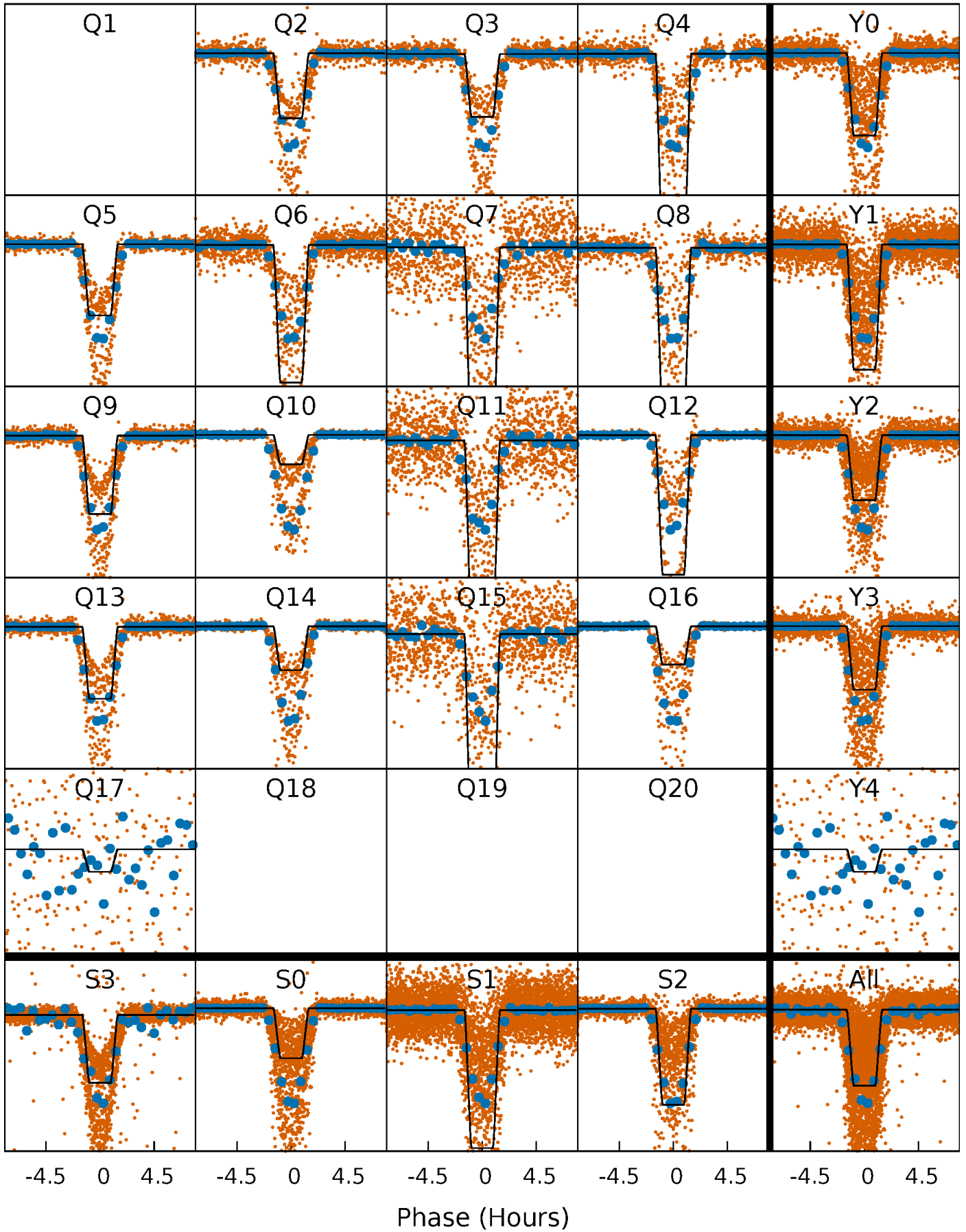
DV Quarter-Phased Transit Curves

TCE 004160669-01 P= 2.183510 Days $T_0=132.695298$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

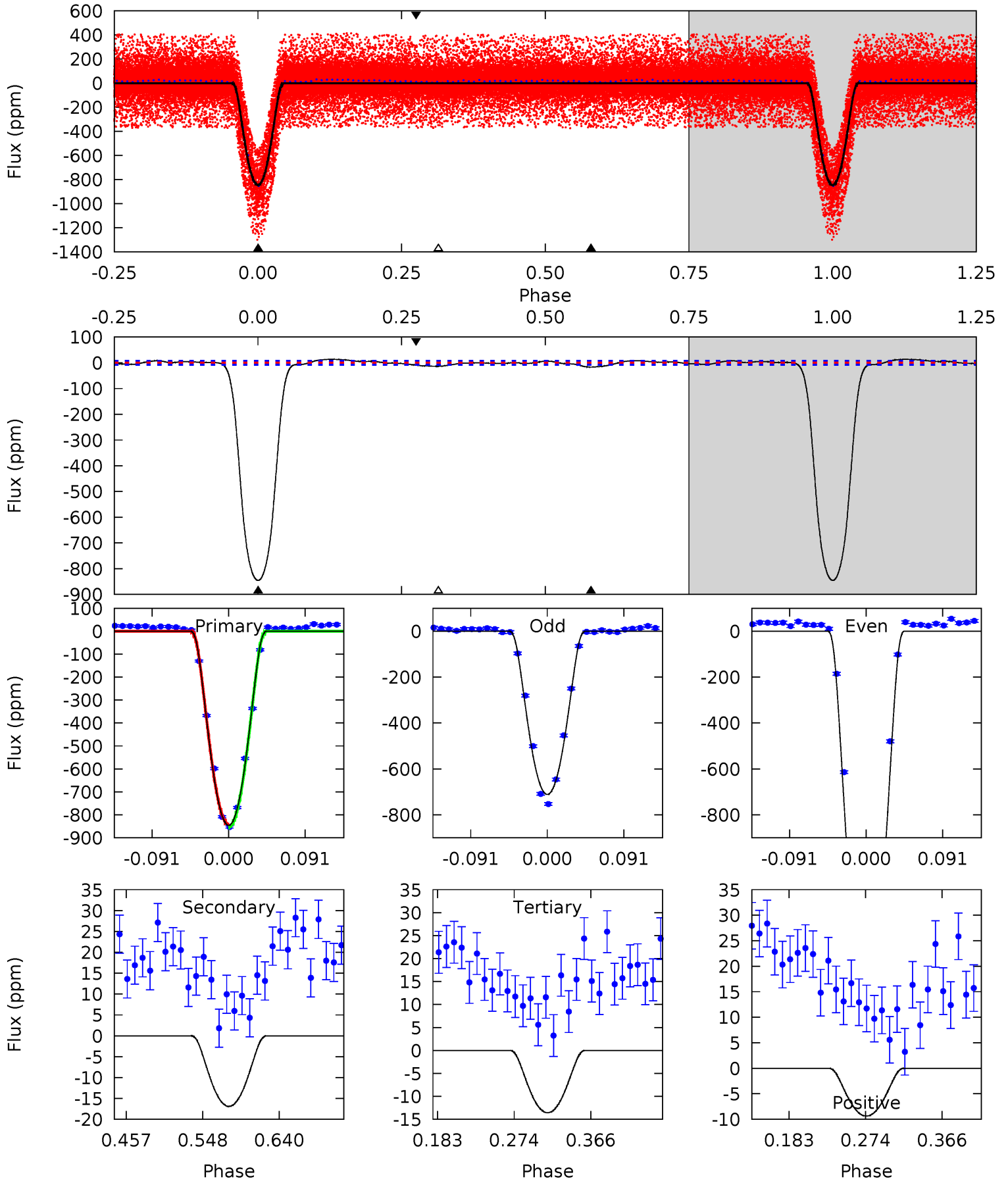
TCE 004160669-01 P= 2.183521 Days $T_0=132.691749$ (BKJD)



DV Model-Shift Uniqueness Test

004160669-01, P = 2.183510 Days, E = 132.695298 Days

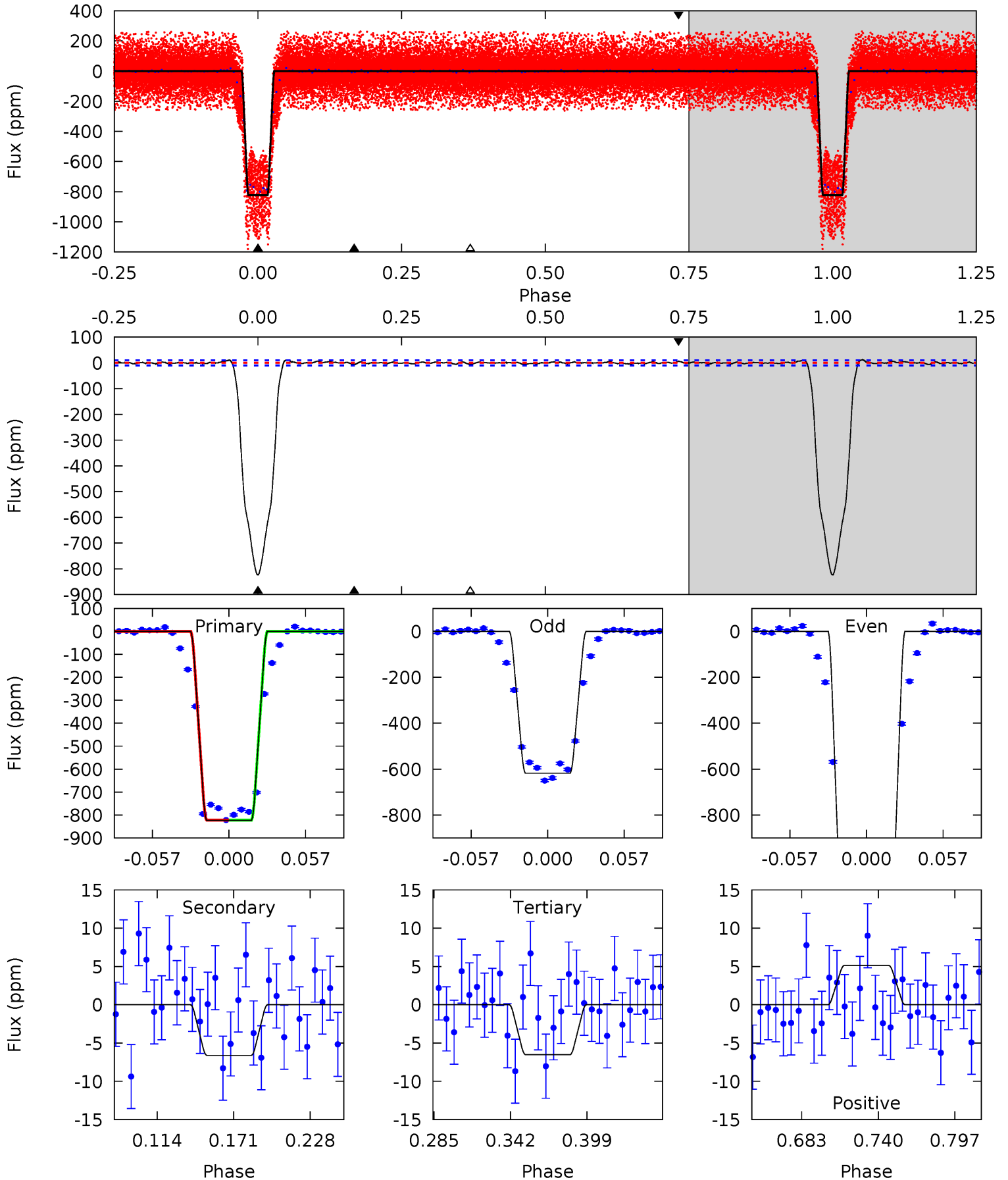
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
482.2	9.64	7.73	-5.33	4.58	1.69	3.54	474.5	487.6	1.90	15.0	273.9	1.32	0.02	3.40



Alt Model-Shift Uniqueness Test

004160669-01, P = 2.183521 Days, E = 132.691749 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
387.8	3.11	3.07	2.42	4.68	1.90	1.08	384.8	385.4	0.04	0.69	192.4	1.48	0.01	0



Stellar Parameters For KIC 004160669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3198^{+89}_{-56}	$0.047^{+0.160}_{-0.040}$	$0.000^{+0.250}_{-0.100}$	$162.725^{+7.105}_{-21.315}$	$1.075^{+0.225}_{-0.096}$	$0.000^{+0.000}_{-0.000}$
	+3%/-2%	+340%/-85%	+inf%/-inf%	+4%/-13%	+21%/-9%	+60%/-15%
Source	SPE14	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004160669-01 / KOI 6391.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 2	$814.93^{+54.23}_{-79.53}$	13484^{+471}_{-567}	-9641^{+617}_{-737}	$0.000^{+0.000}_{-0.000}$
Alt.	-7 ± 2	$559.88^{+46.96}_{-50.95}$	13494^{+438}_{-558}	-9644^{+634}_{-687}	$0.000^{+0.000}_{-0.000}$

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

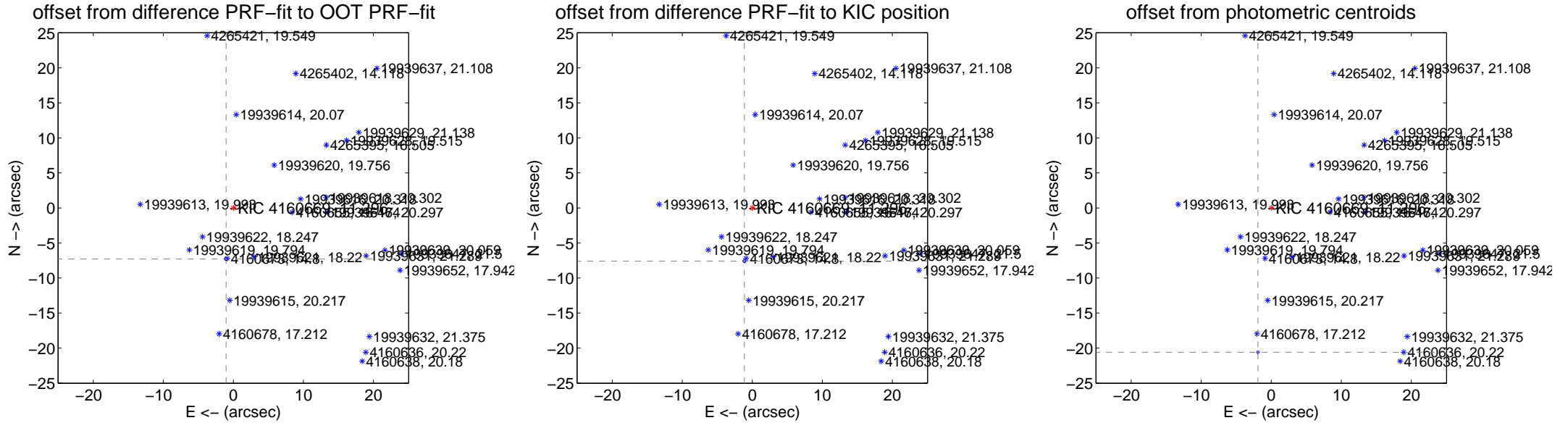
DV Centroid Data

Supplemental centroid analysis for 004160669-01. **Kepler magnitude: 11.30.** Transit SNR 326.15

There are 16 quarters with good PRF difference image offsets

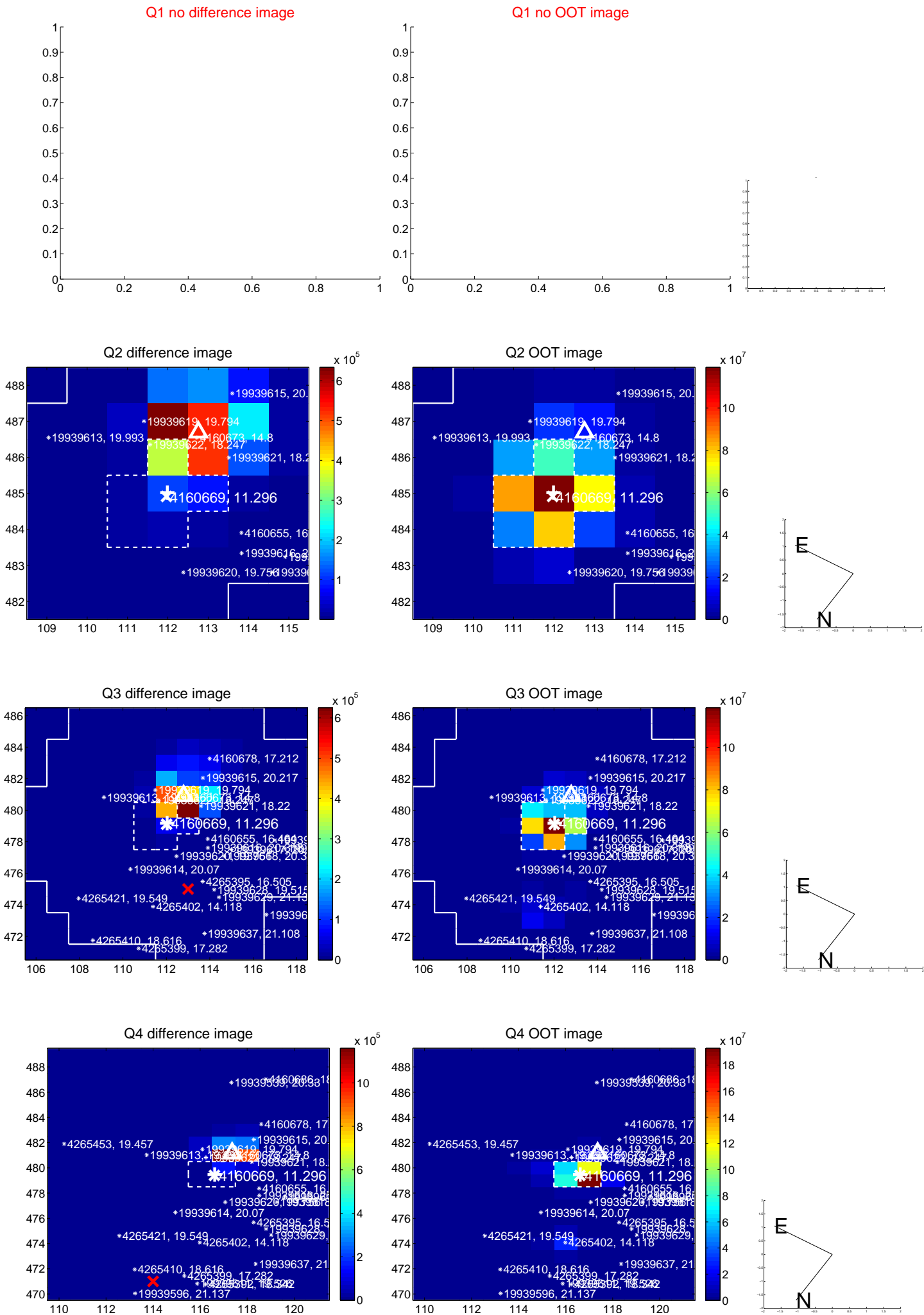
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.360 \pm 0.075	98.35	1.037 \pm 0.069	-7.286 \pm 0.074
PRF-fit source offset from KIC position	7.677 \pm 0.071	107.82	1.135 \pm 0.068	-7.593 \pm 0.071
photometric centroid source offset	20.69 \pm 0.06	370.41	1.91 \pm 0.02	-20.60 \pm 0.06

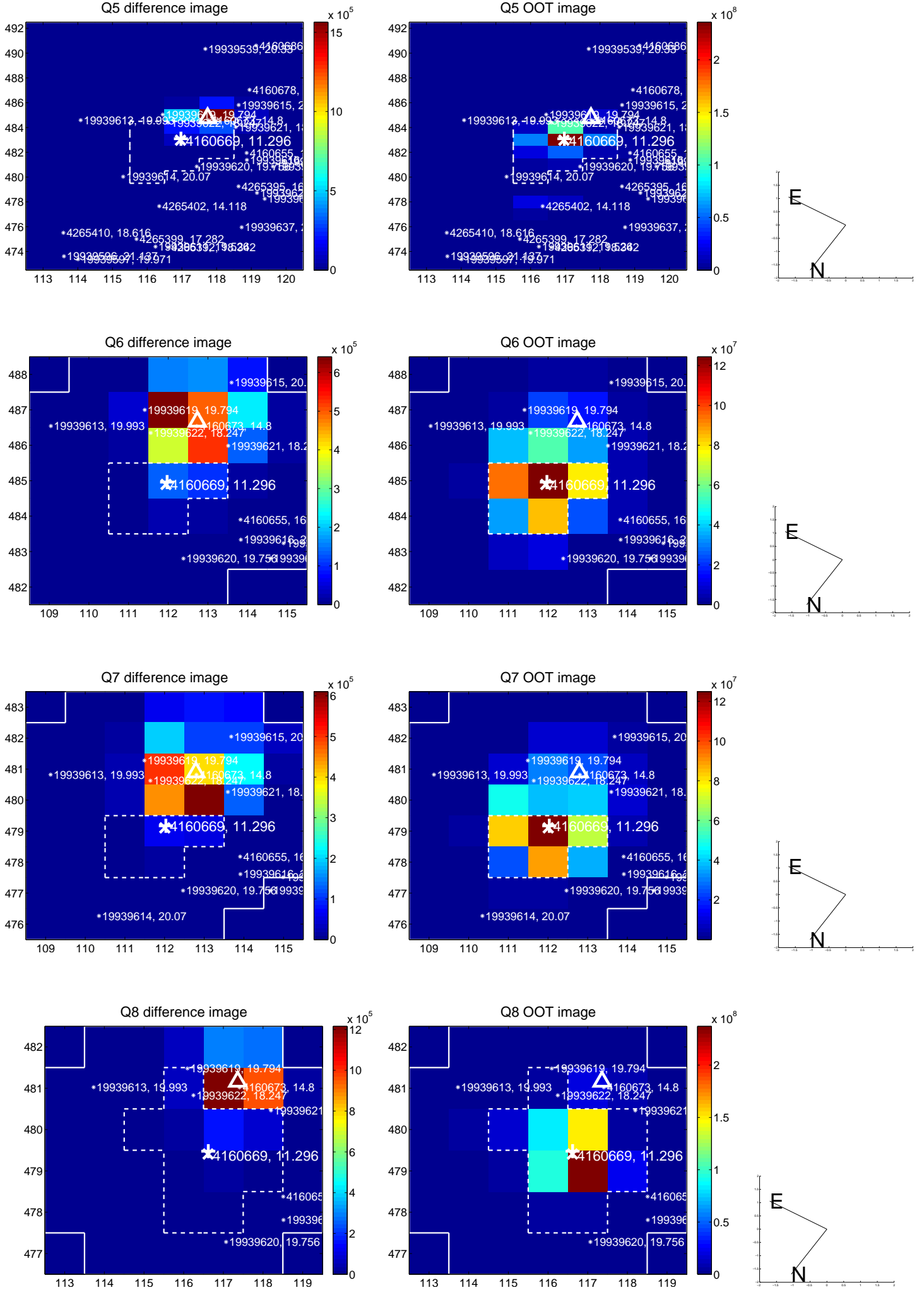


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

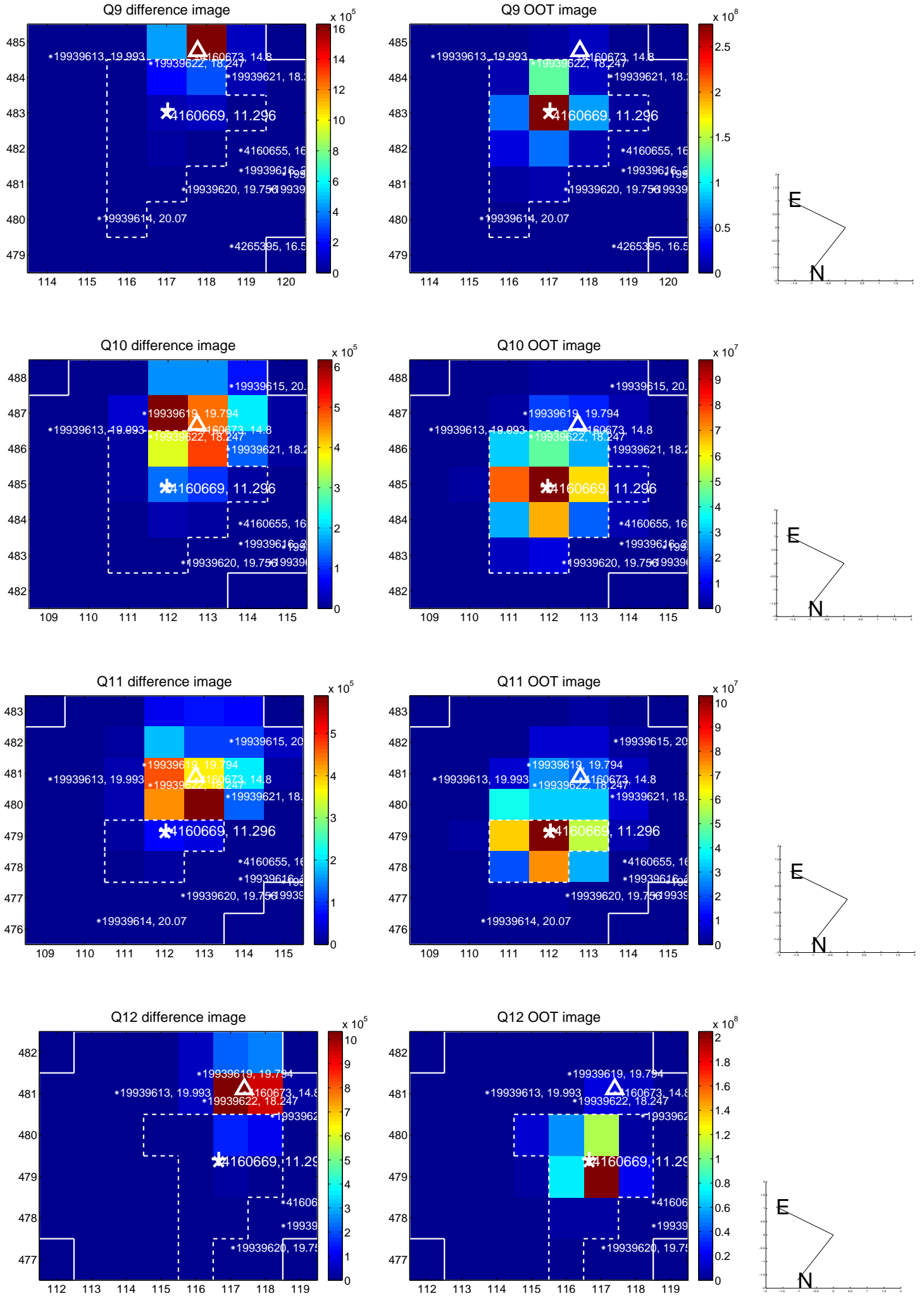
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



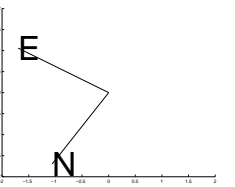
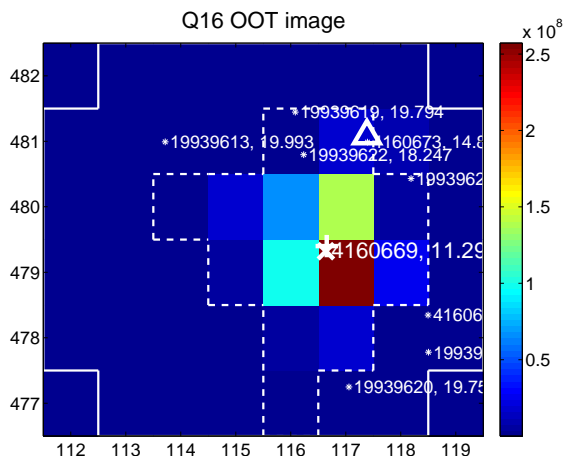
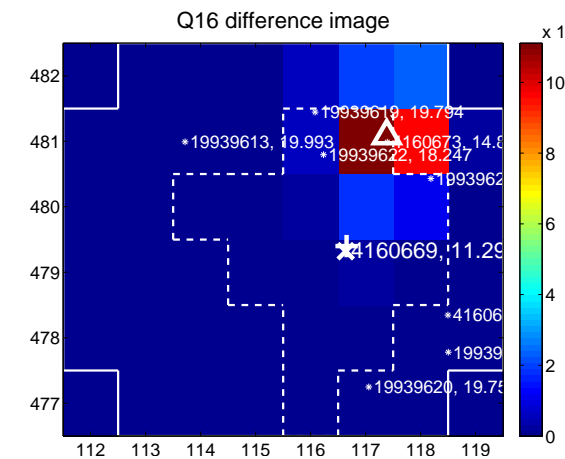
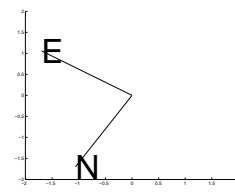
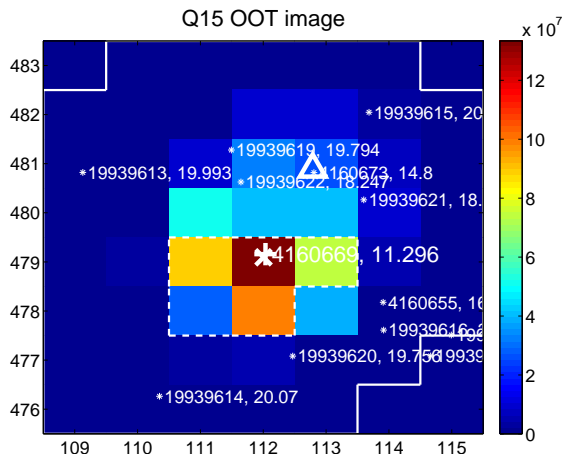
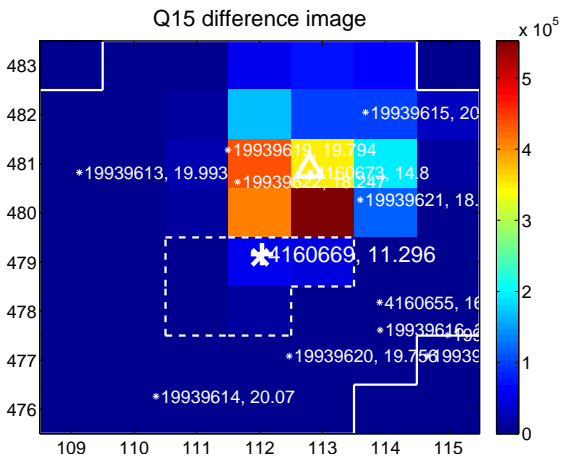
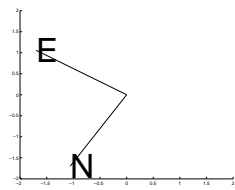
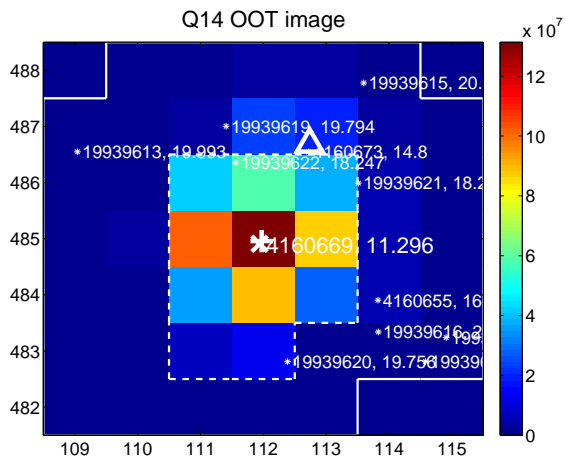
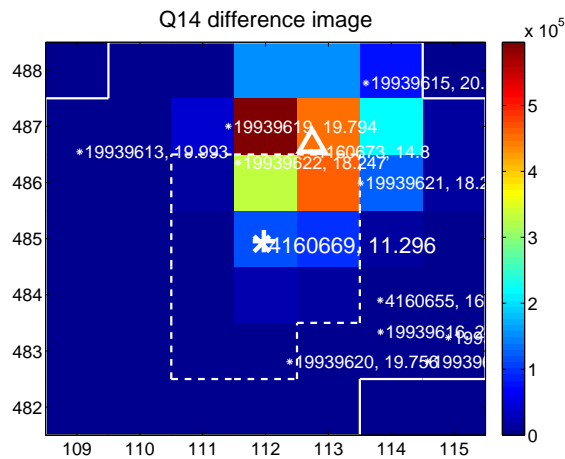
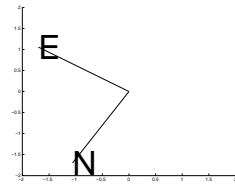
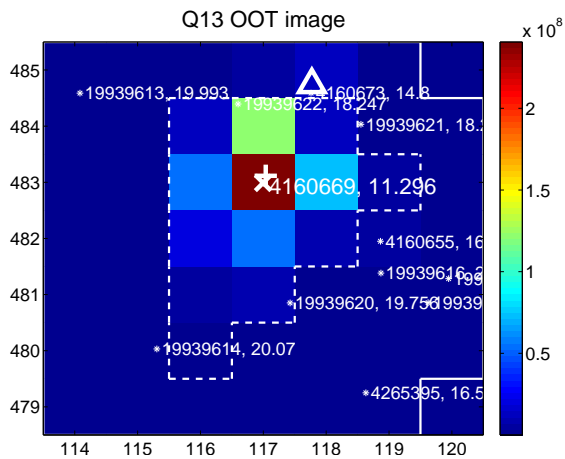
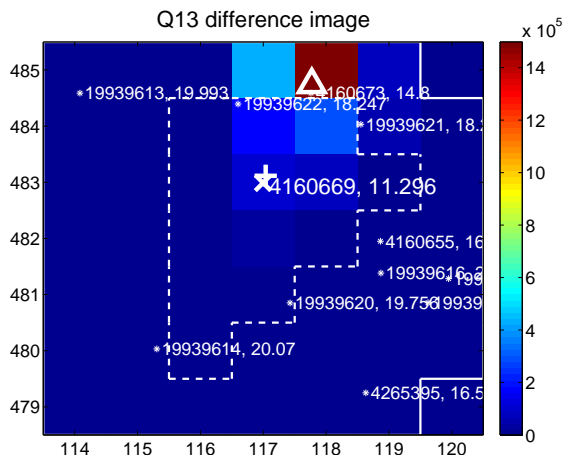
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



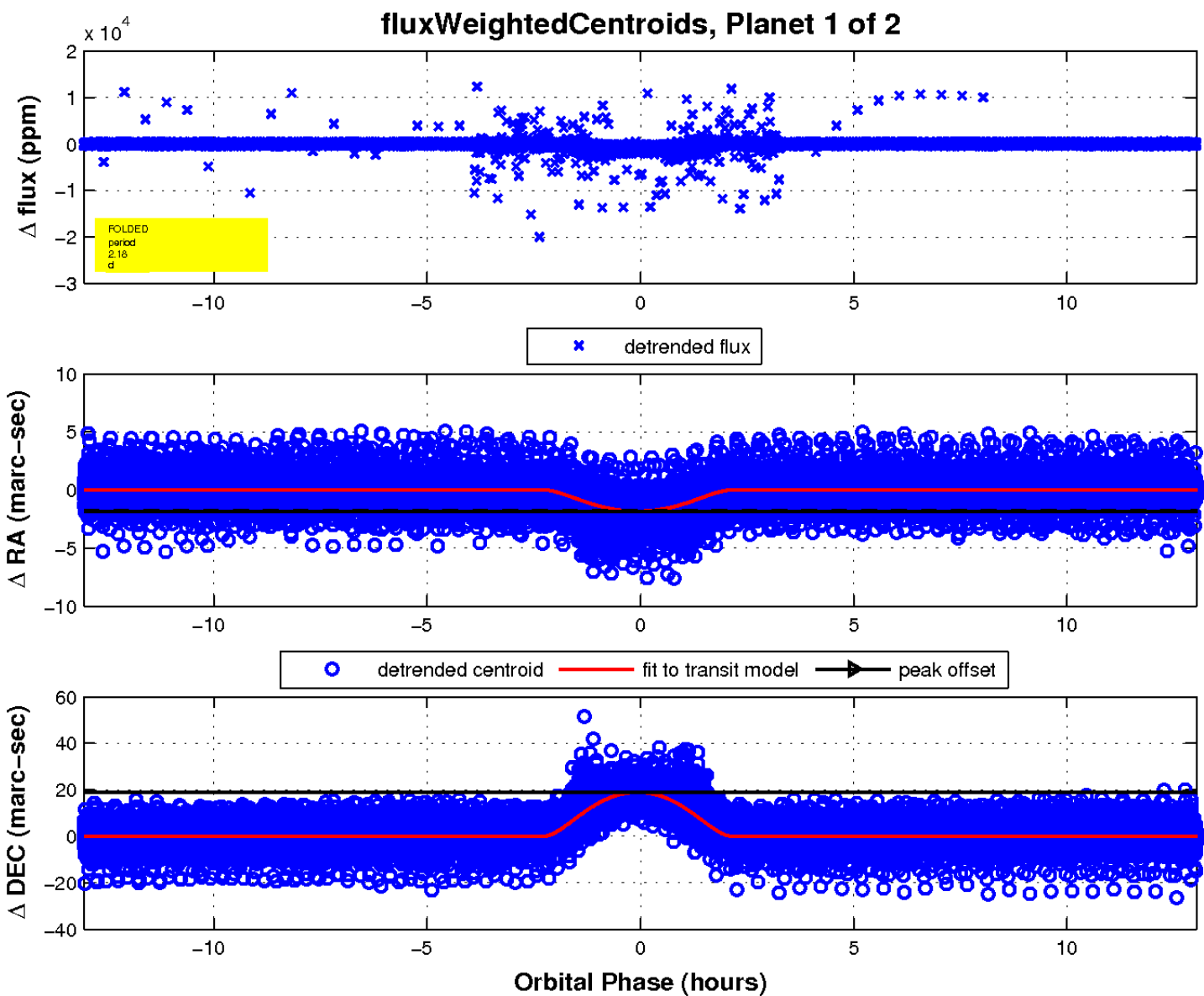
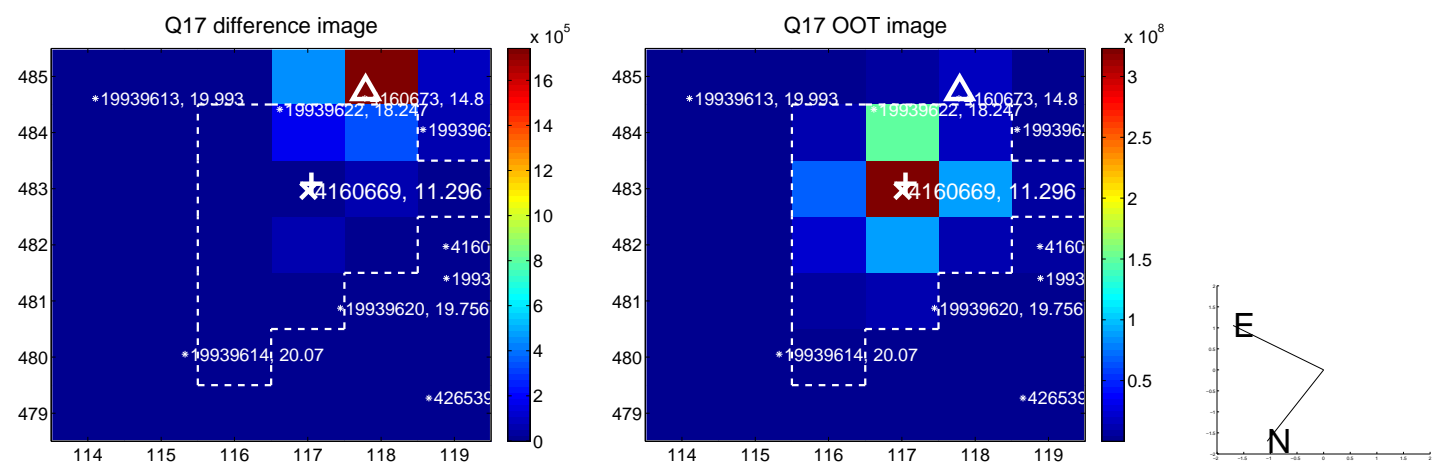
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

