

KIC 008453214

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})
008453214-01	OBS	1776.01	5.776749	131.544645	1545.5	6.523	226.2	65.5	0.65	4401	2.91	47.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008453214-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

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 008453214-01

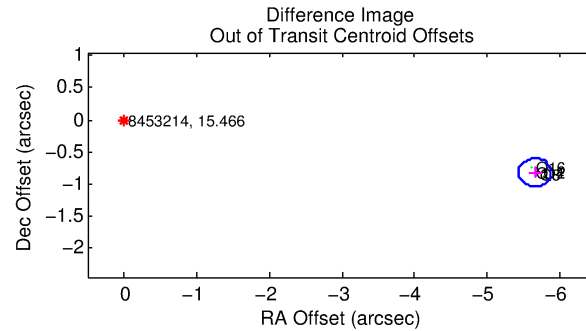
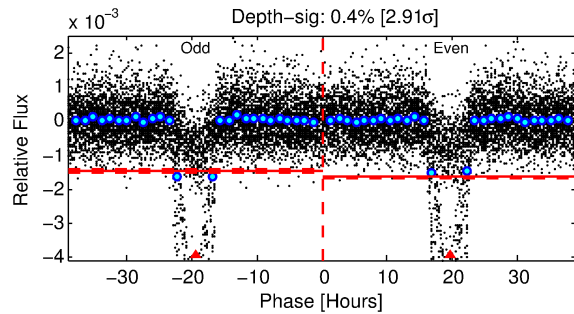
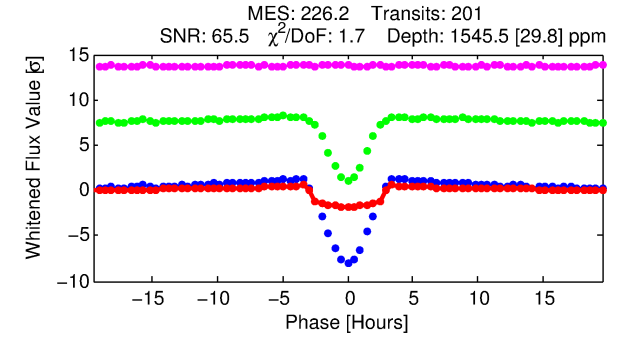
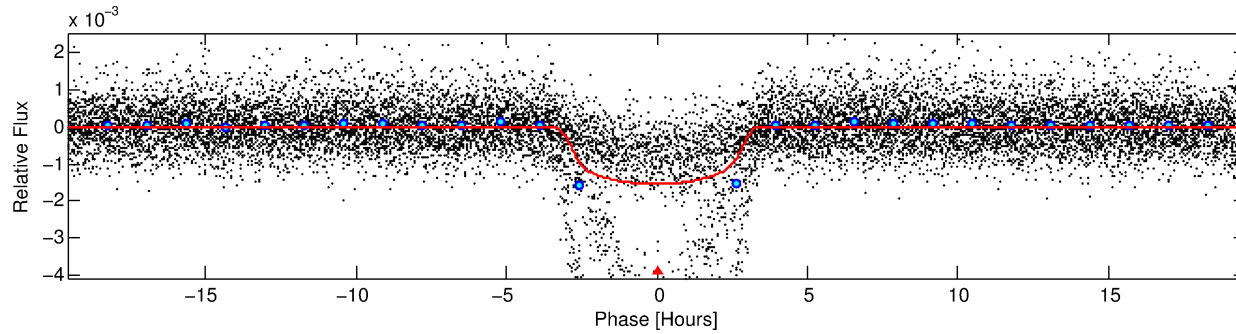
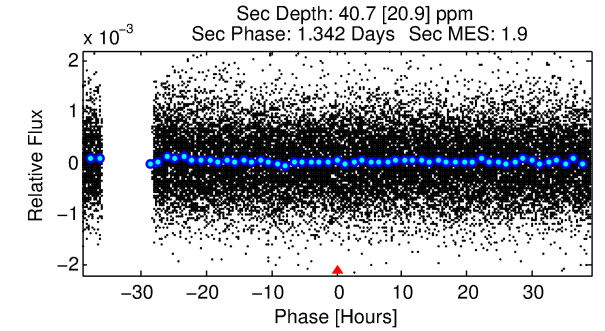
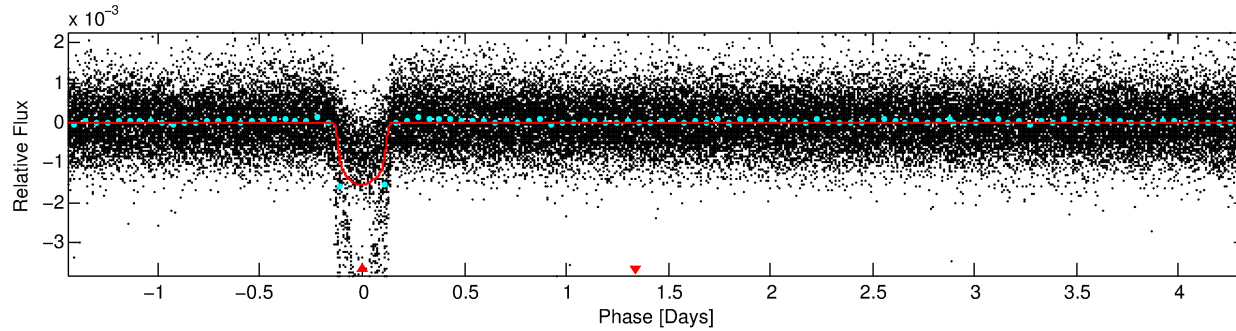
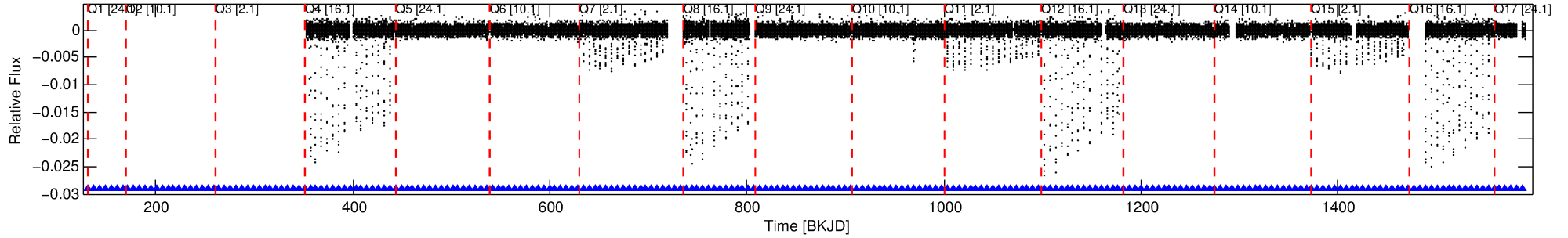
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008453214-01	8453214	7043.01	8453191	1:1	15.8	3	-2	13.36	15.47	94.87	Direct-PRF	0	0.13	0.09

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8453214 Candidate: 1 of 1 Period: 5.777 d
KOI: K01776.01 Corr: 0.978

Kp: 15.47 R*: 0.65 Rs Teff: 4401.0 K Logg: 4.62 Fe/H: -0.180



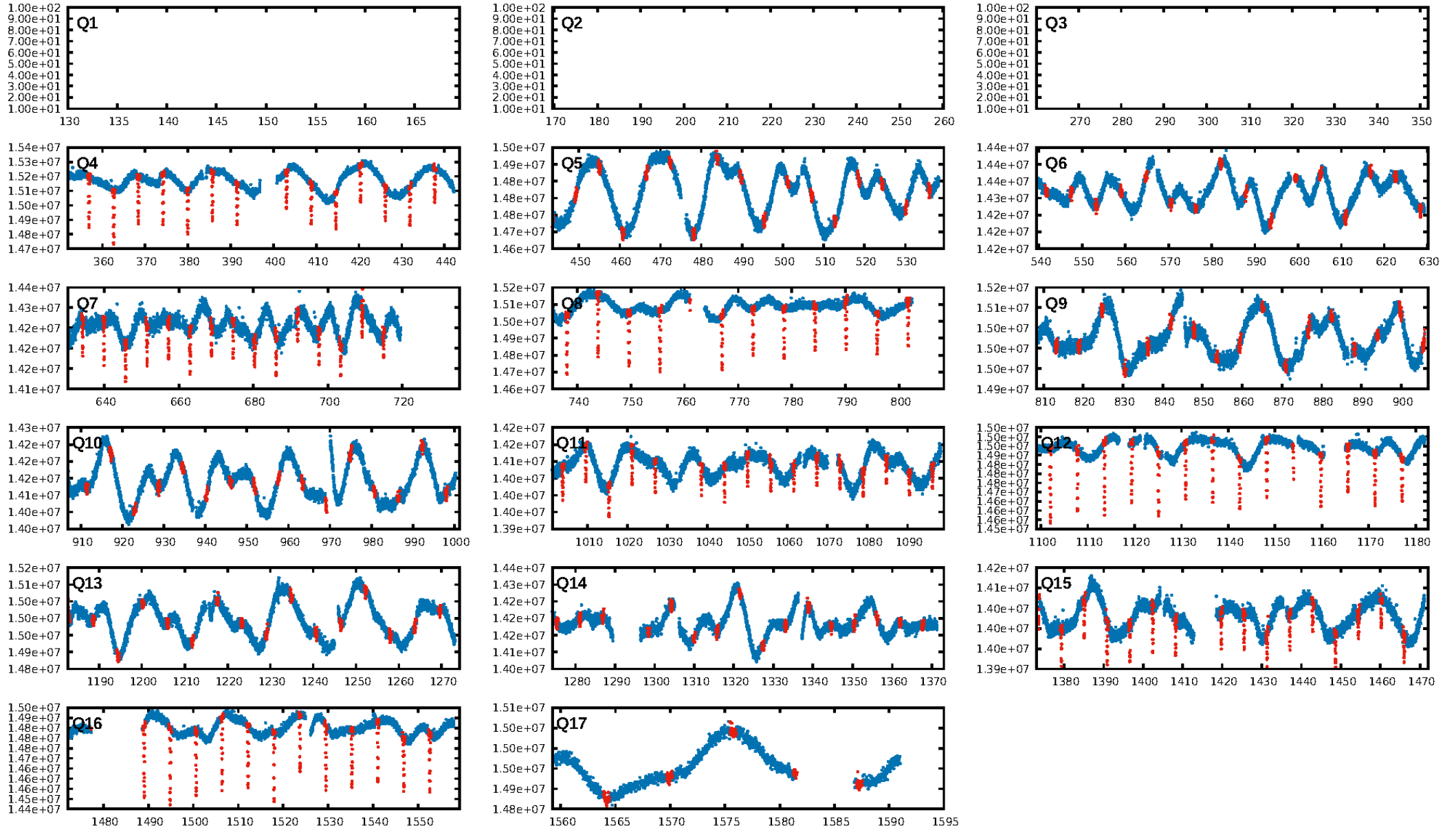
DV Fit Results:

Period = 5.77675 [0.00001] d
Epoch = 131.5446 [0.0022] BKJD
Rp/R* = 0.0413 [0.0015]
a/R* = 4.38 [0.50]
b = 0.83 [0.05]
Seff = 47.70 [8.89]
Teq = 670 [31] K
Rp = 2.91 [0.30] Re
a = 0.0541 [0.0042] AU
Ag = 7.77 [4.11] [1.65σ]
Teffp = 1730 [234] K [4.49σ]

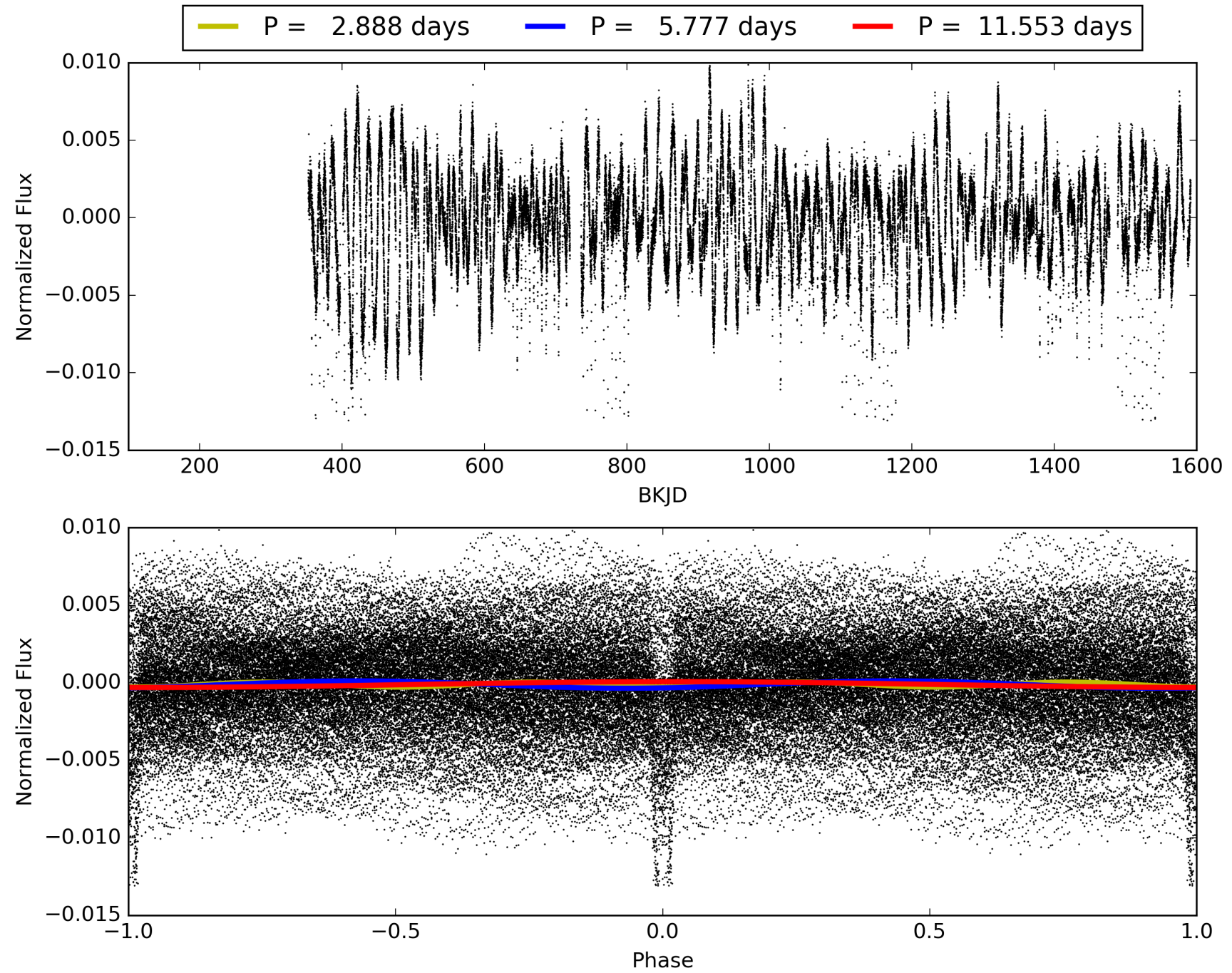
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [196/196]
GhostDiagnostic-chr: -0.2199
Centroid-sig: 0.0%
Centroid-so: 51.106 arcsec [462.39σ]
OotOffset-rm: 5.714 arcsec [77.69σ]
KicOffset-rm: 6.868 arcsec [65.34σ]
OotOffset-st: 0/0/4/0 [4]
KicOffset-st: 0/0/4/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 008453214-01, PDC Light Curves

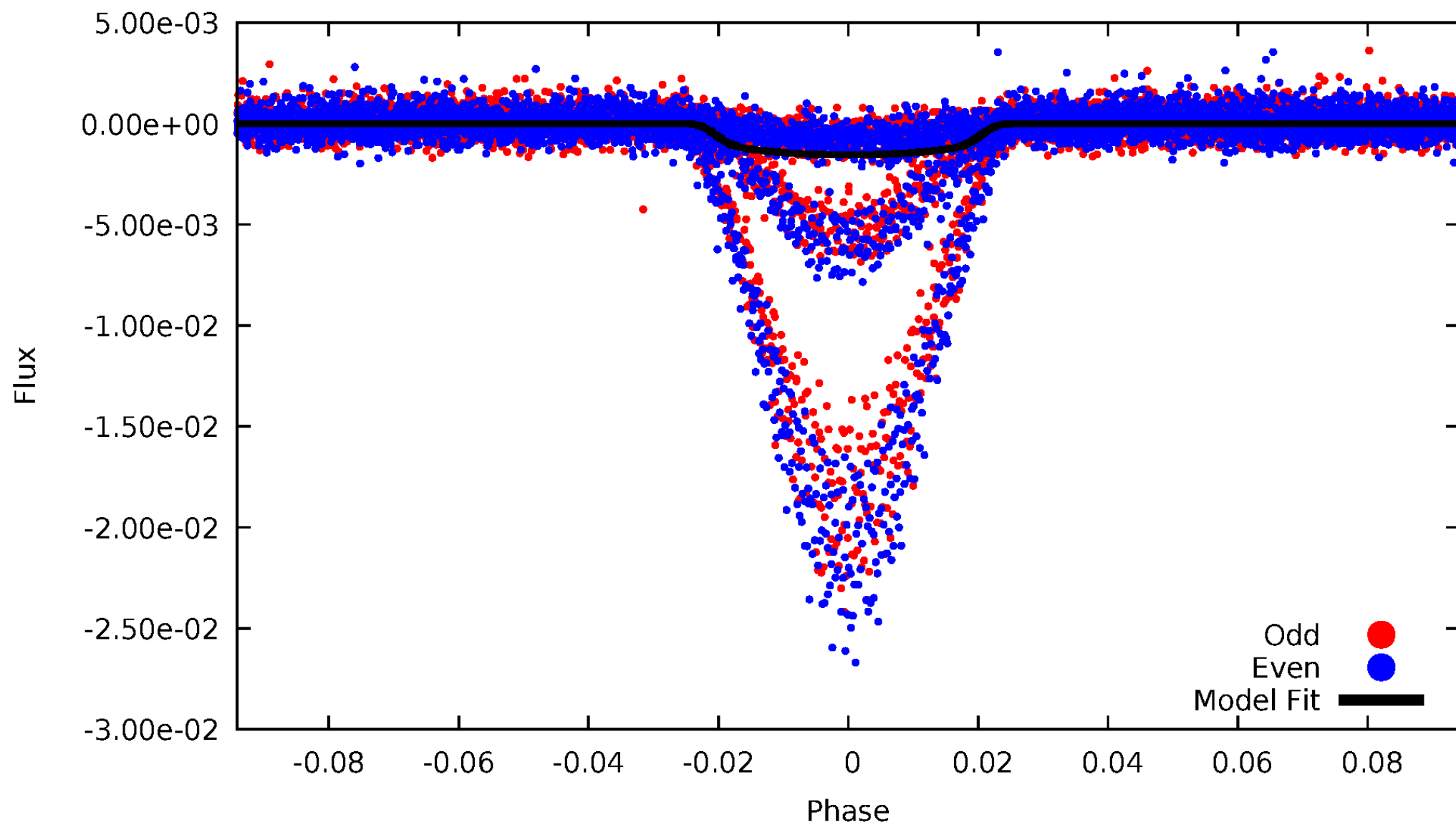


TCE 008453214-01



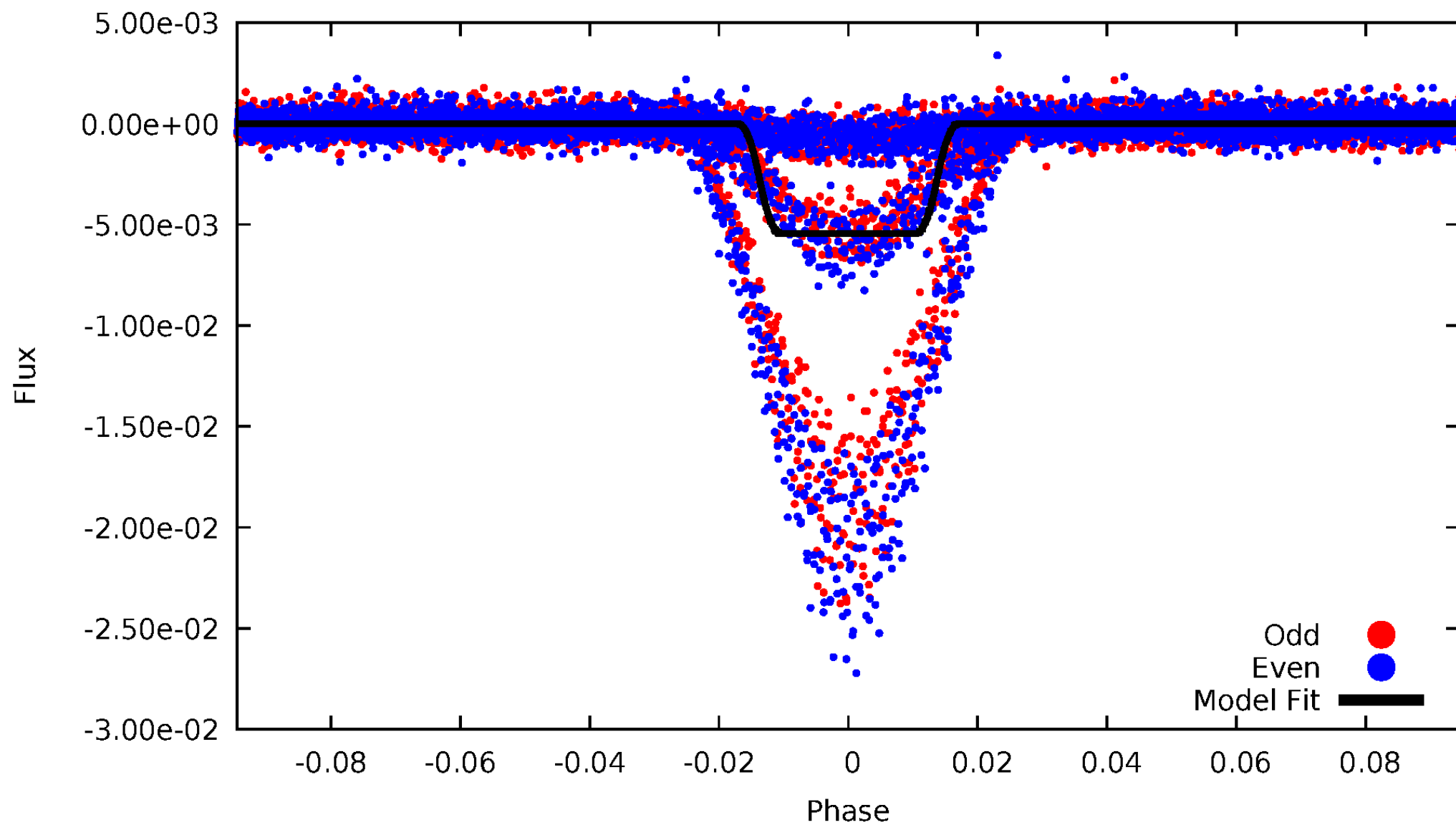
DV Odd/Even

TCE 008453214-01



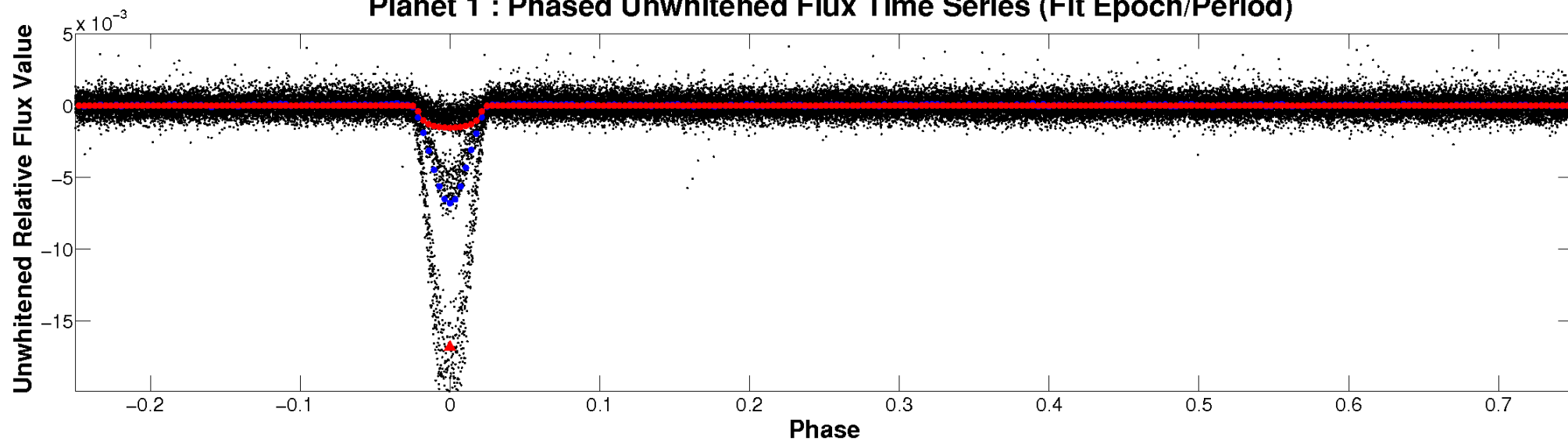
ALT Odd/Even

TCE 008453214-01

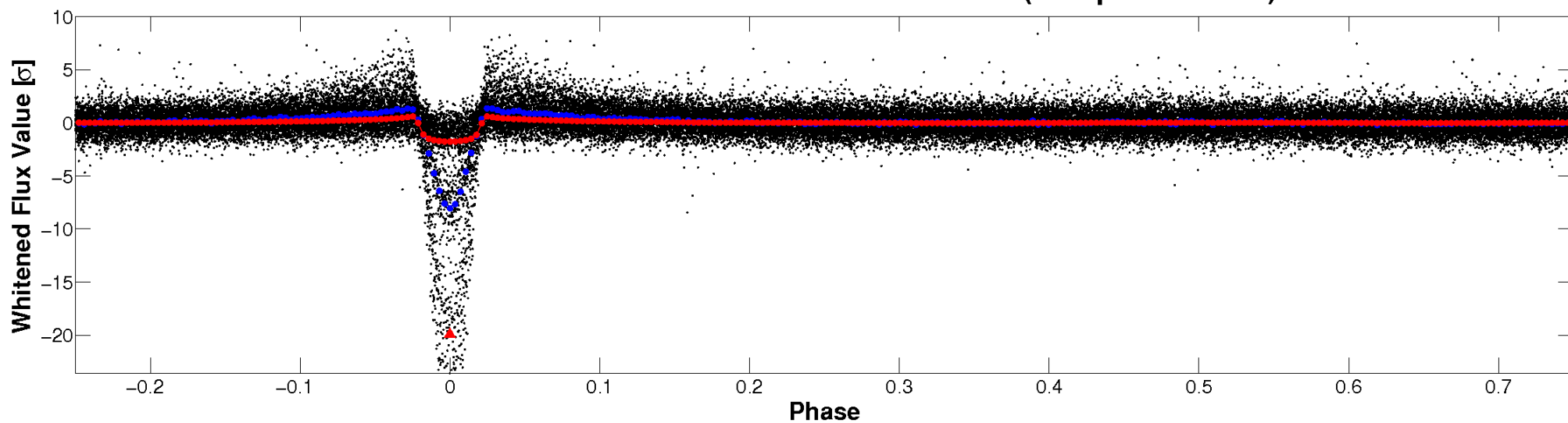


Non-Whitened Vs. Whitened Light Curve

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

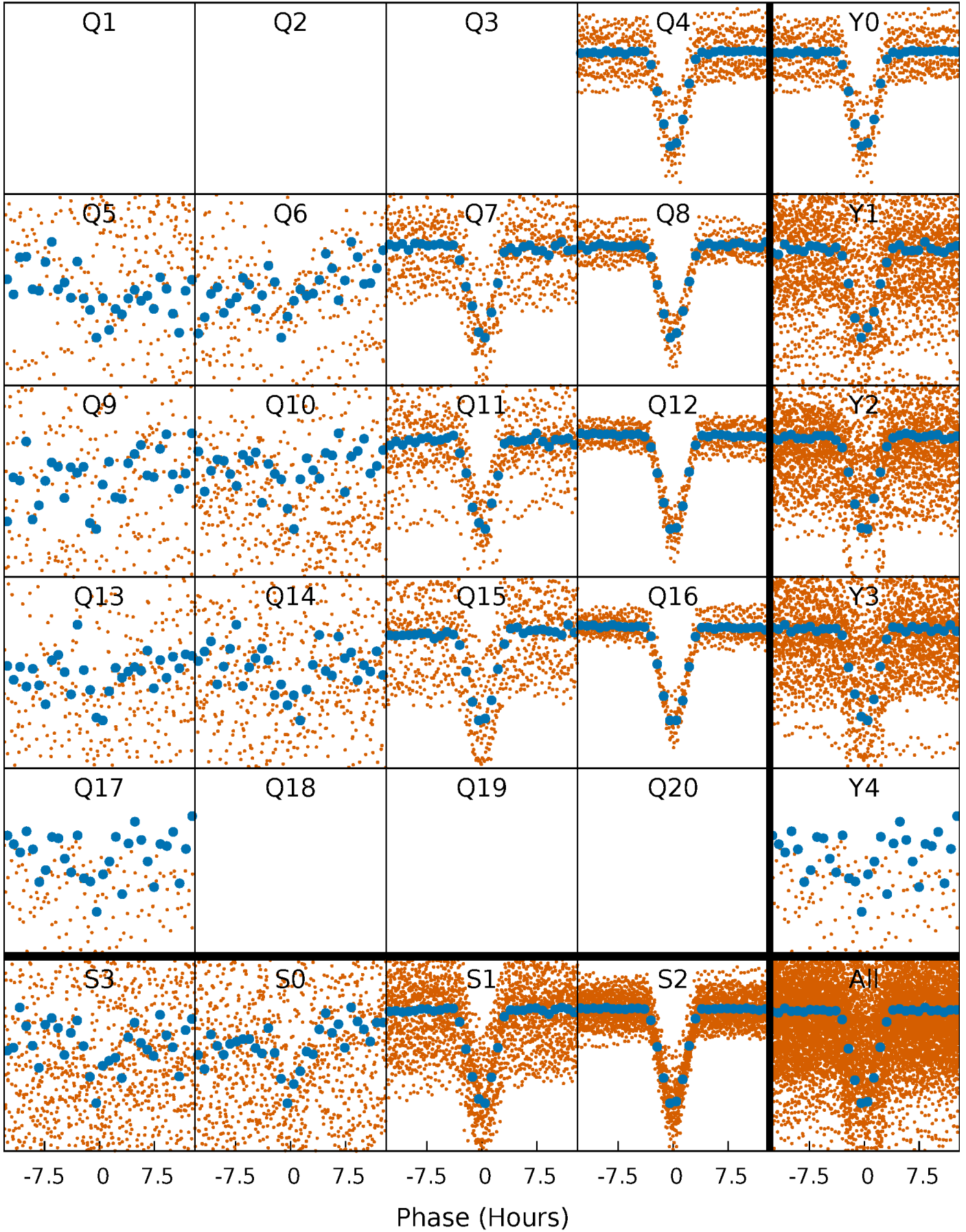


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



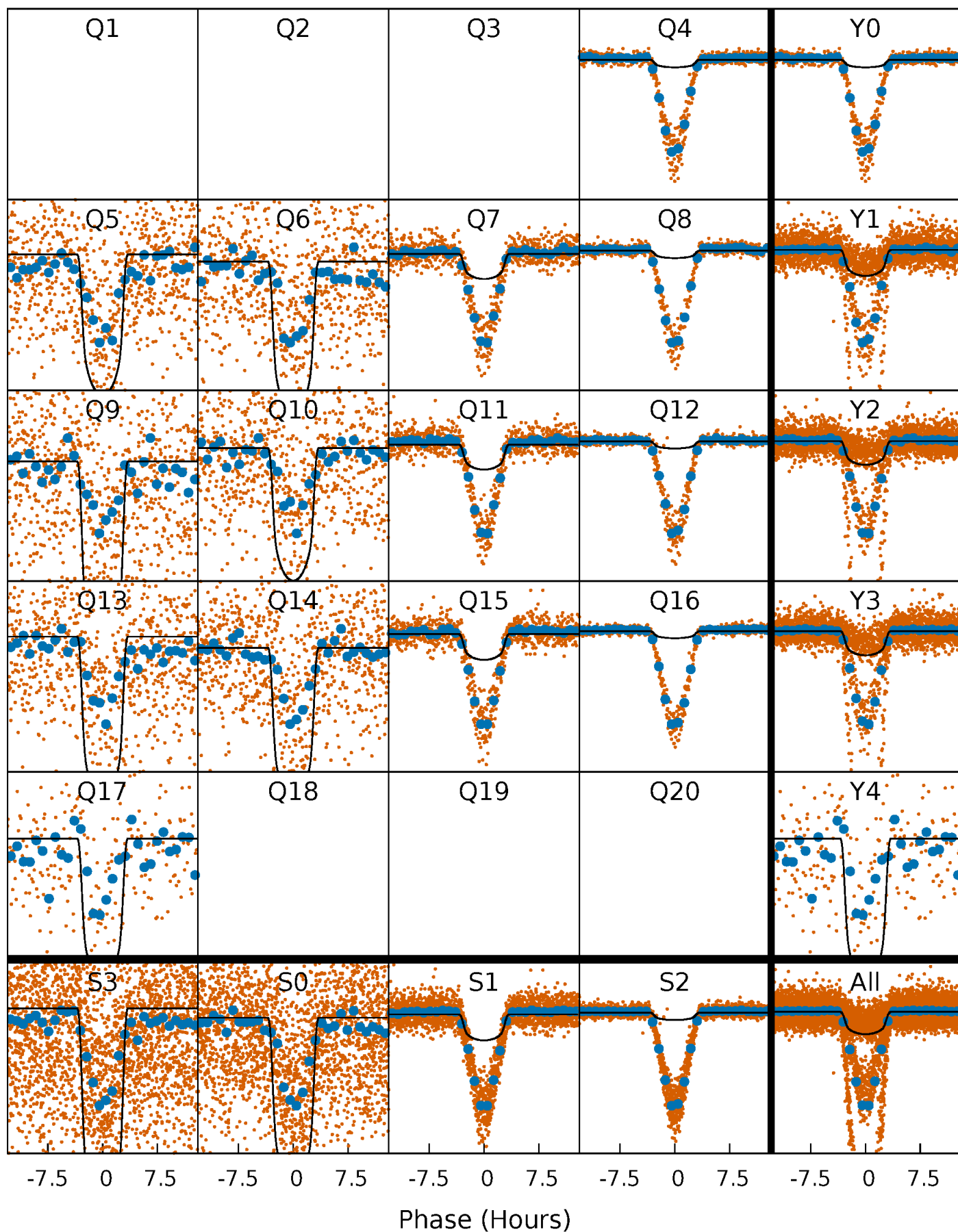
PDC Quarter-Phased Transit Curves

TCE 008453214-01 P= 5.776749 Days $T_0=131.544645$ (BKJD)



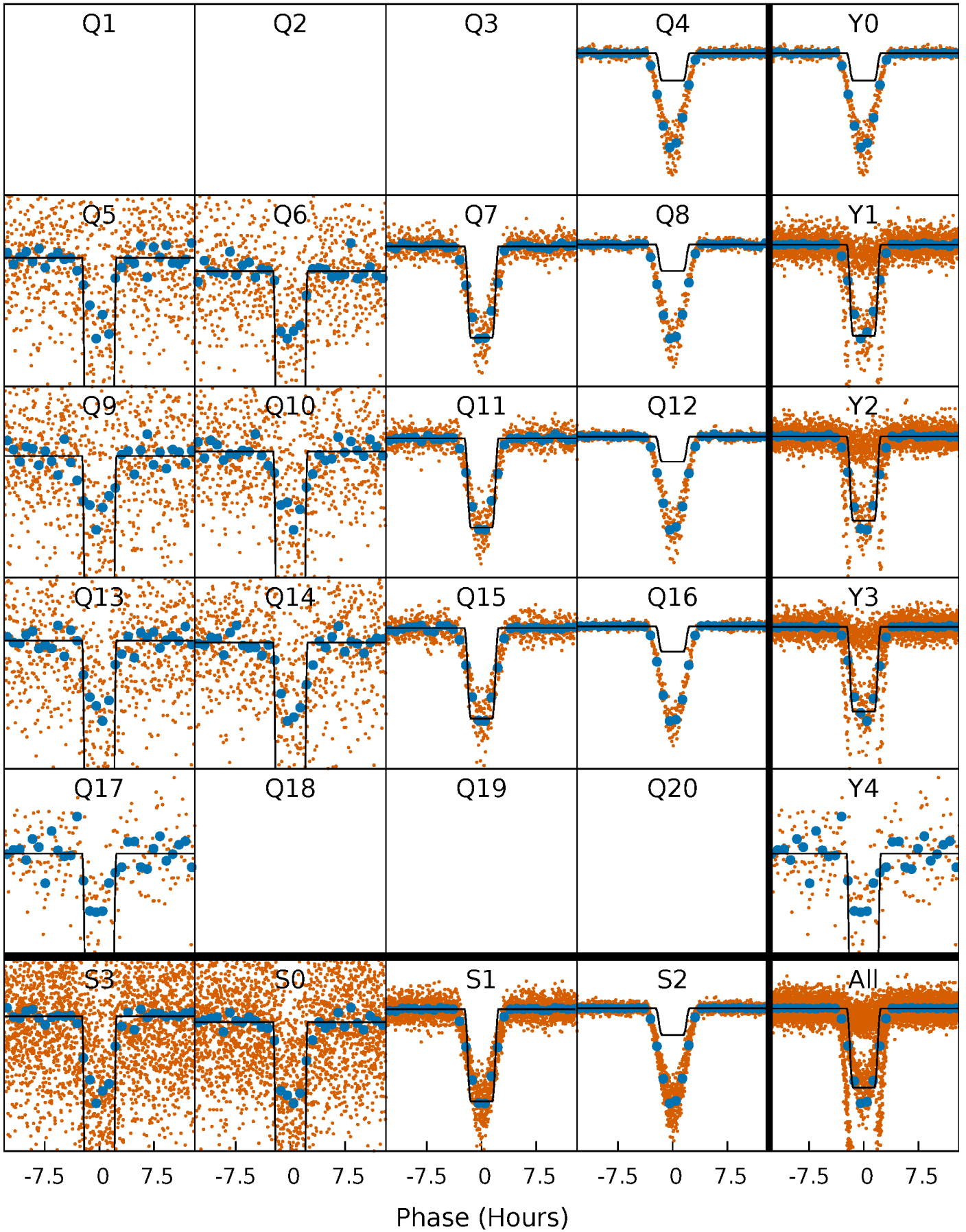
DV Quarter-Phased Transit Curves

TCE 008453214-01 P= 5.776749 Days $T_0=131.544645$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

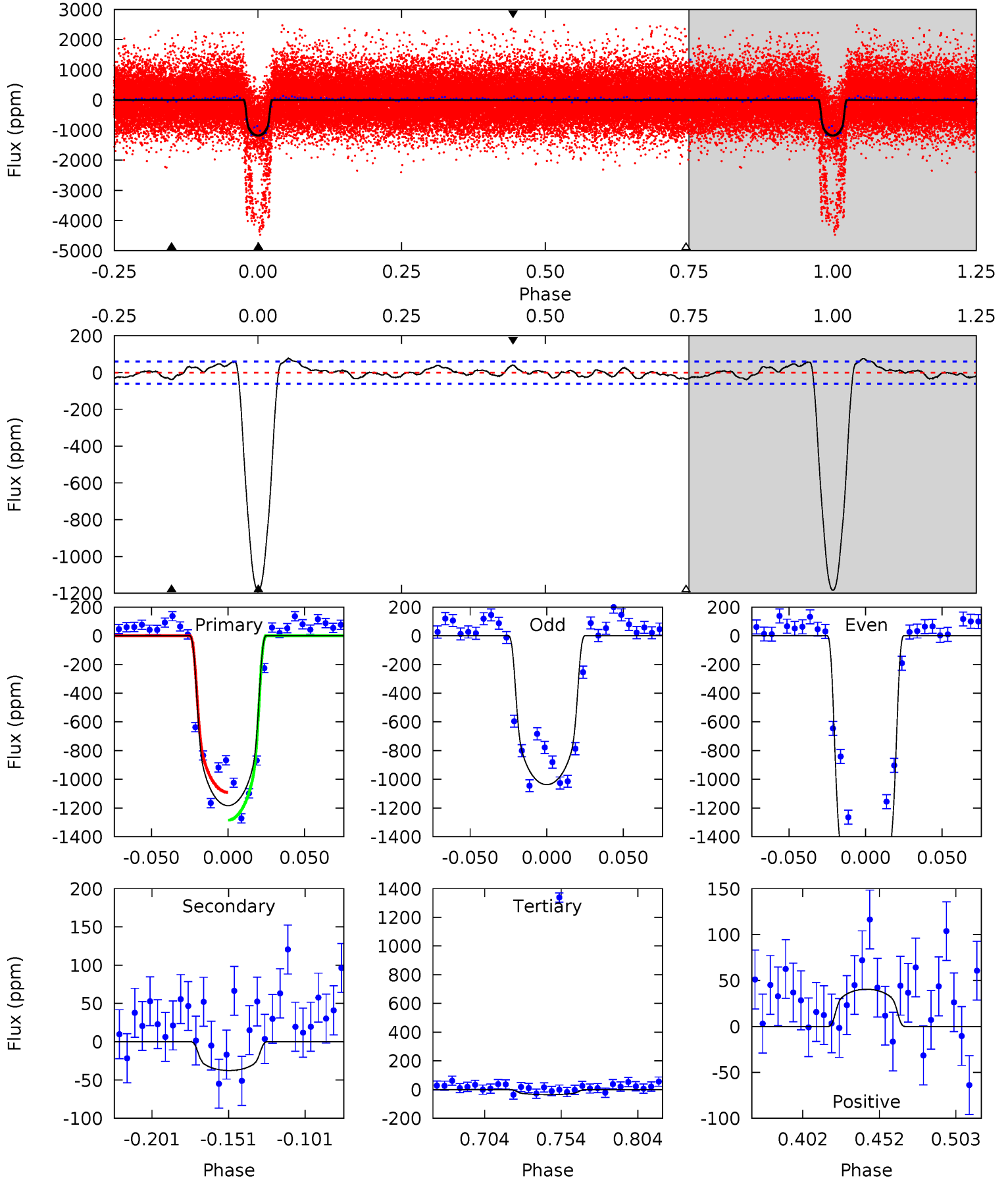
TCE 008453214-01 P= 5.776738 Days $T_0=131.545593$ (BKJD)



DV Model-Shift Uniqueness Test

008453214-01, P = 5.776749 Days, E = 131.544645 Days

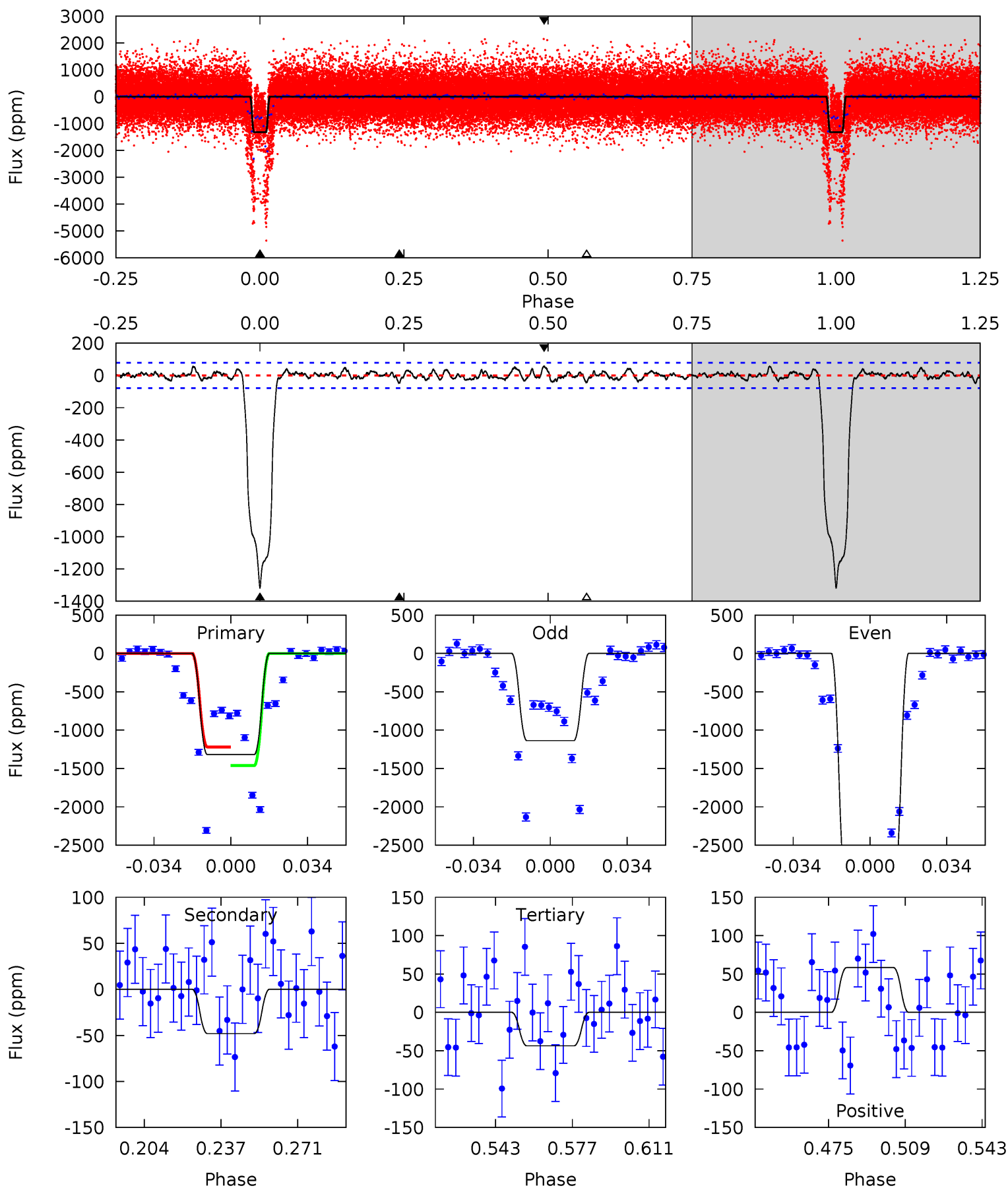
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.0	2.92	2.73	3.14	4.71	1.96	1.67	89.2	88.8	0.19	-0.22	33.5	4.62	0.06	7.55



Alt Model-Shift Uniqueness Test

008453214-01, P = 5.776738 Days, E = 131.545593 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
79.9	2.91	2.65	3.54	4.79	2.12	1.14	77.3	76.4	0.26	-0.62	56.6	4.40	0.04	7.24



Stellar Parameters For KIC 008453214

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4401^{+154}_{-170}	$4.621^{+0.053}_{-0.025}$	$-0.180^{+0.300}_{-0.300}$	$0.645^{+0.046}_{-0.063}$	$0.634^{+0.069}_{-0.057}$	$3.331^{+0.775}_{-0.355}$
	+3%/-4%	+1%/-1%	+167%/-167%	+7%/-10%	+11%/-9%	+23%/-11%
Source	KIC0	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 008453214-01 / KOI 1776.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-38 ± 13	$2.89^{+0.17}_{-0.18}$	929^{+37}_{-41}	2457^{+122}_{-142}	$7.331^{+2.722}_{-2.673}$
Alt.	-48 ± 16	$5.18^{+0.25}_{-0.32}$	929^{+37}_{-37}	2197^{+89}_{-126}	$2.923^{+1.096}_{-1.040}$

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 $A_{\text{obs}} \gg 1.0$

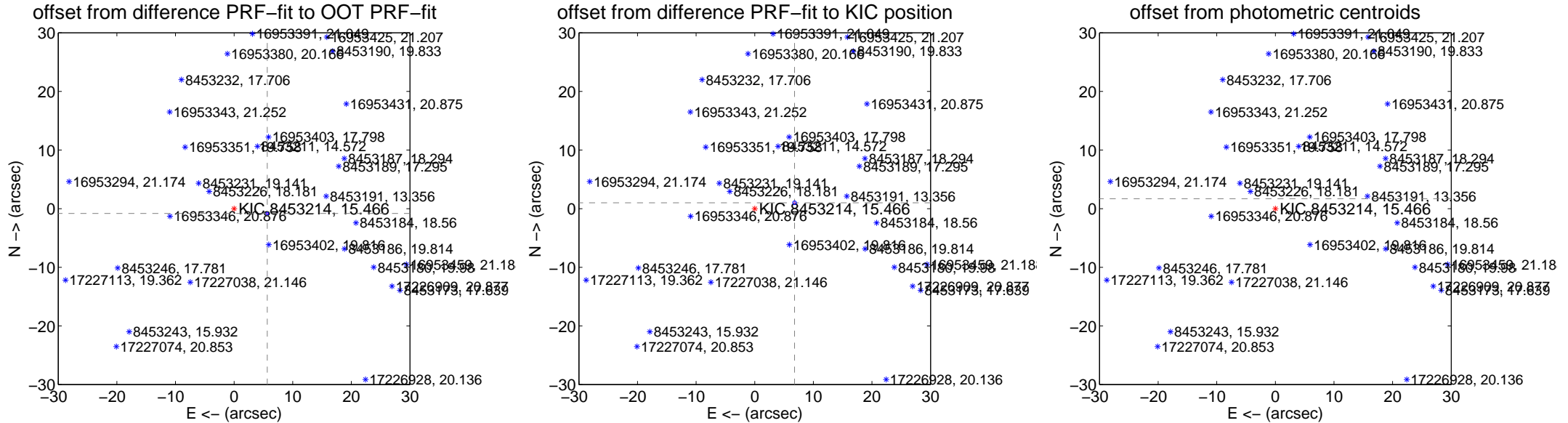
DV Centroid Data

Supplemental centroid analysis for 008453214-01. Kepler magnitude: 15.47. Transit SNR 65.50

There are 4 quarters with good PRF difference image offsets

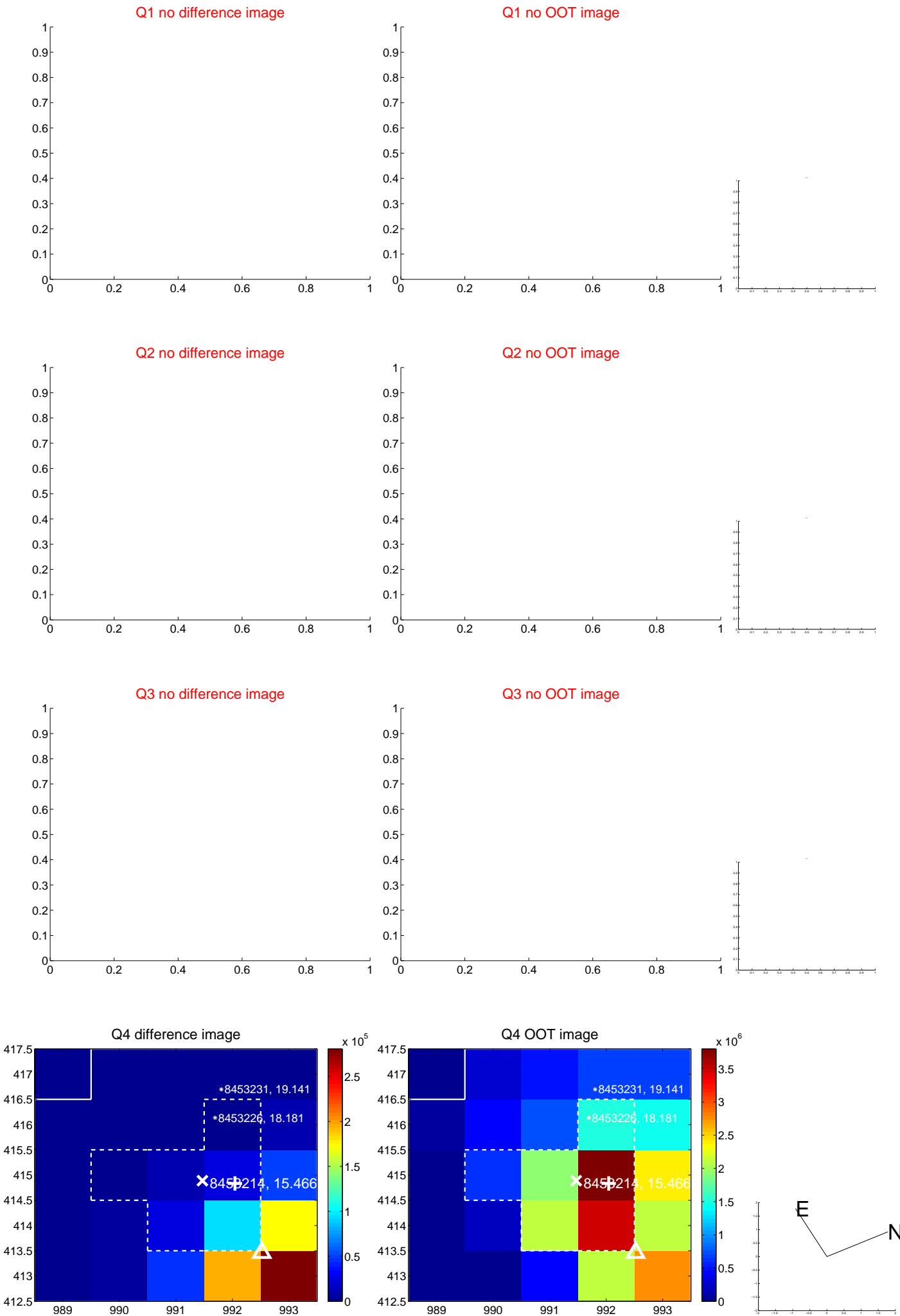
The direct PRF centroid is offset from the target star catalog position by about 1.95 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.714 ± 0.074	77.69	-5.655 ± 0.074	-0.821 ± 0.072
PRF-fit source offset from KIC position	6.868 ± 0.105	65.34	-6.795 ± 0.105	1.003 ± 0.089
photometric centroid source offset	51.11 ± 0.11	462.39	-51.08 ± 0.11	1.70 ± 0.11

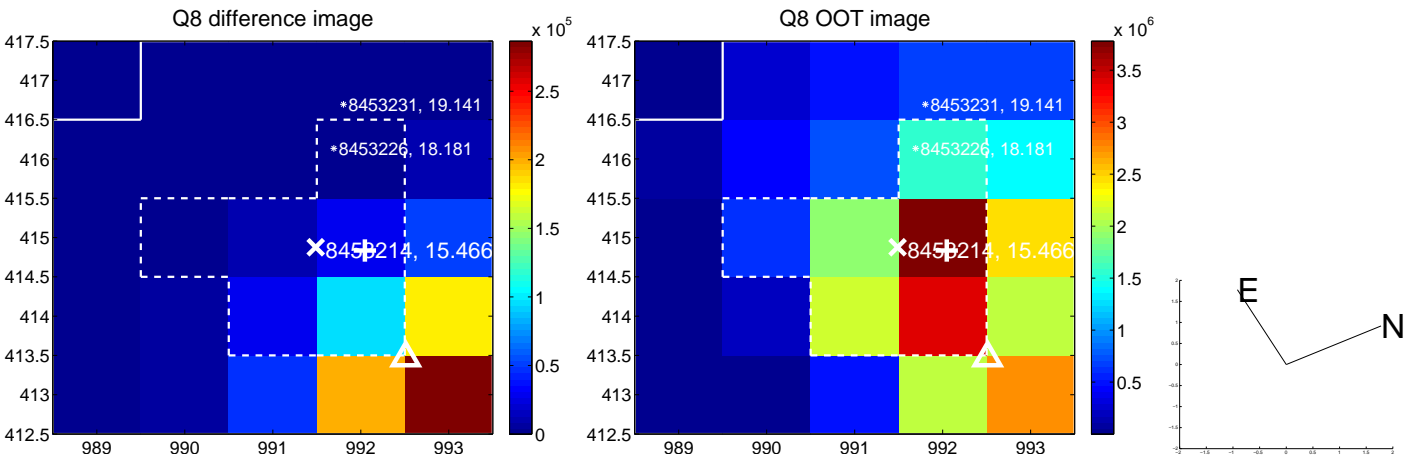
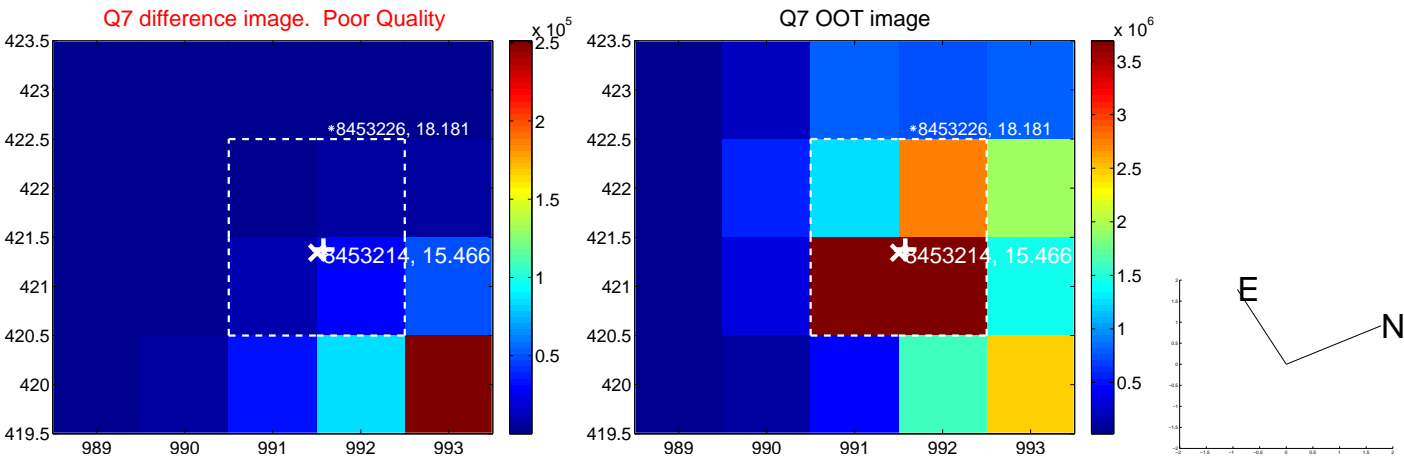
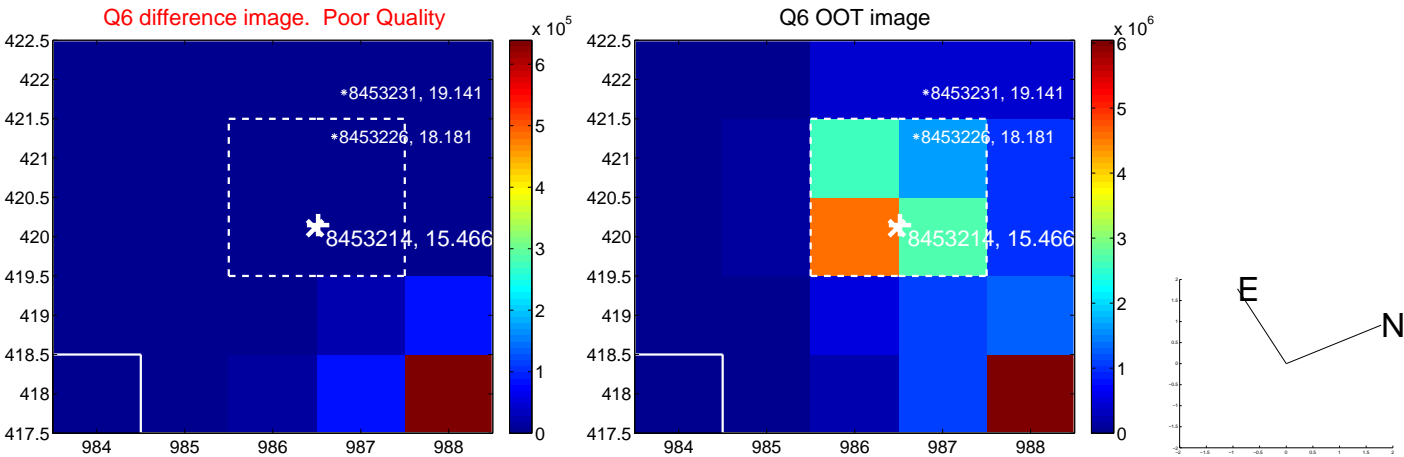
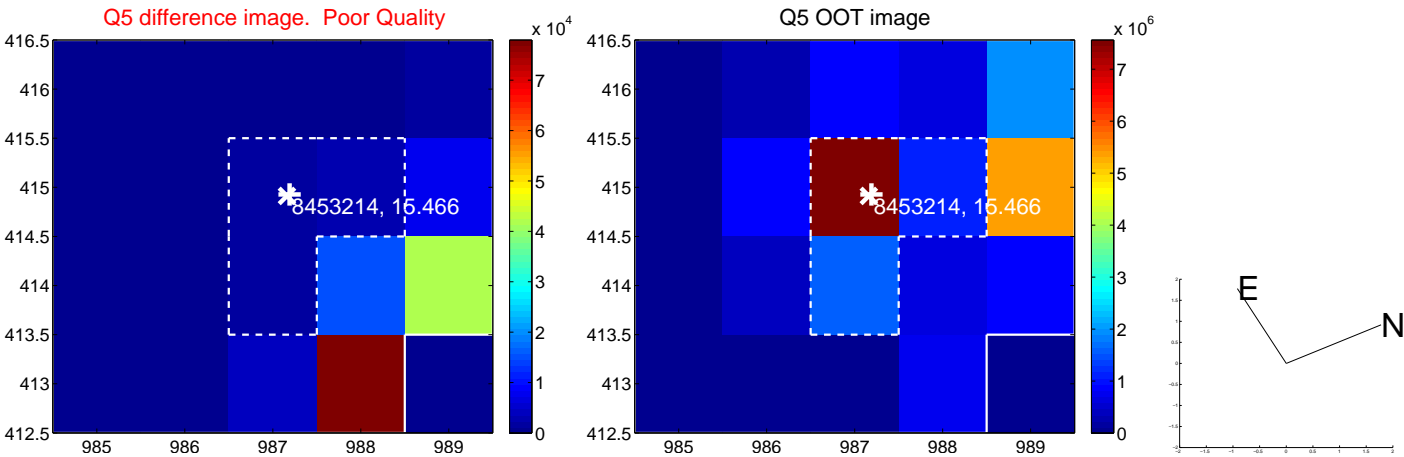


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

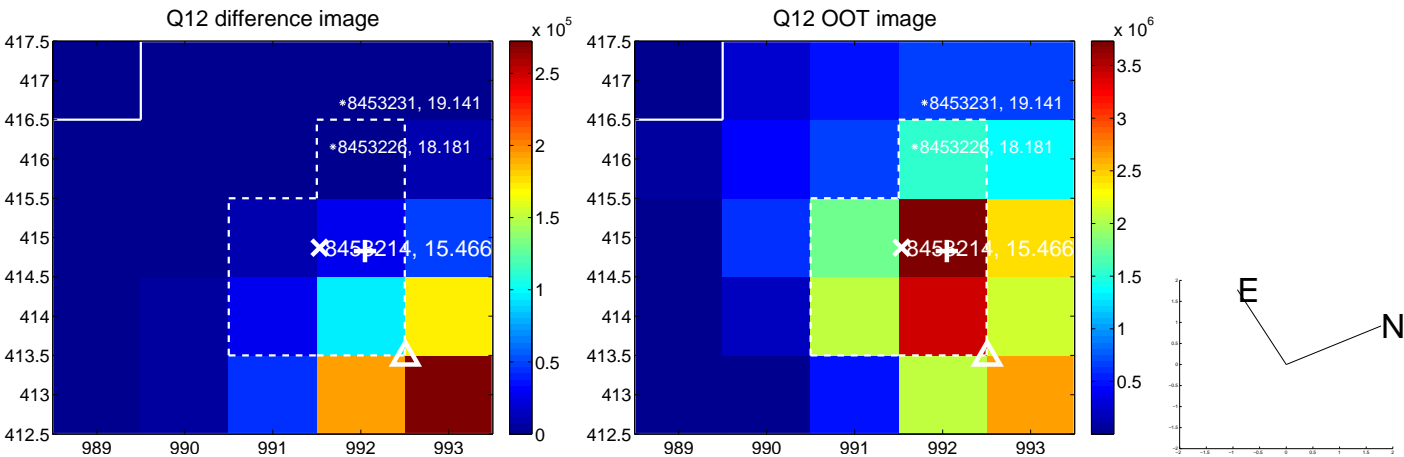
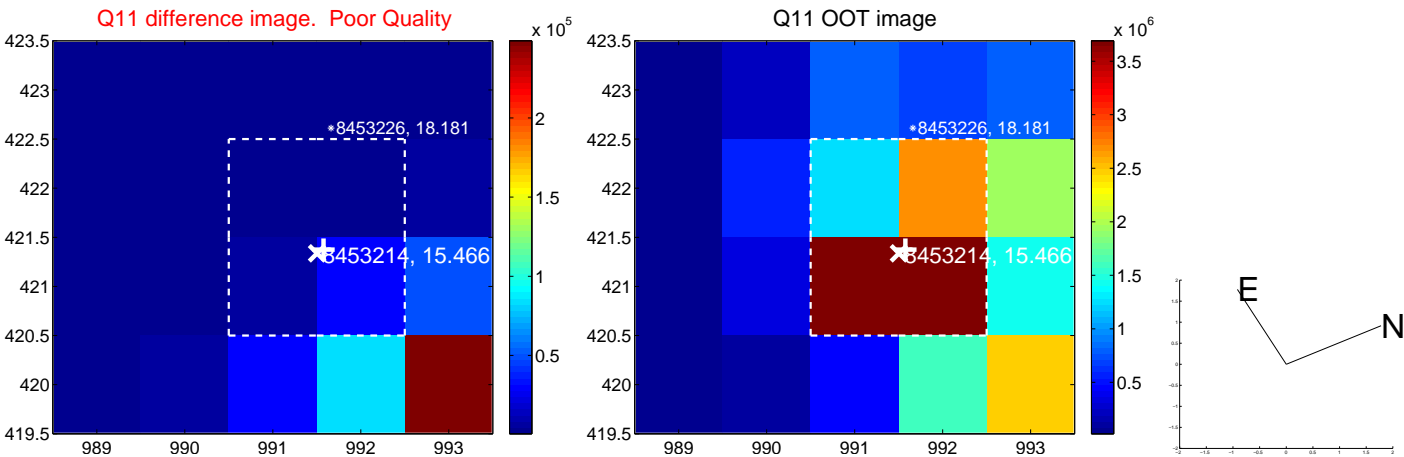
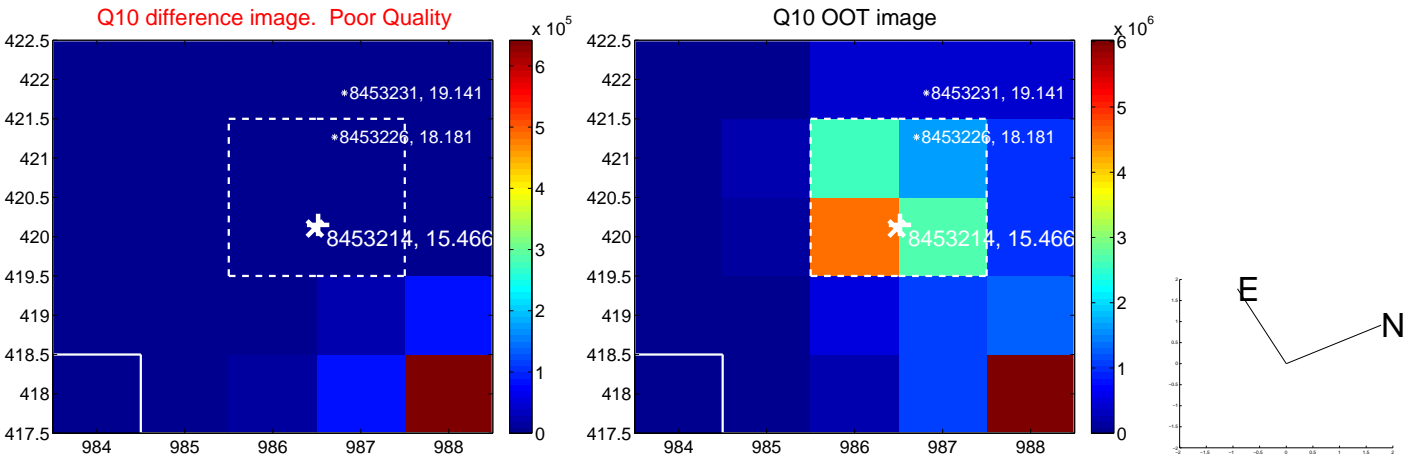
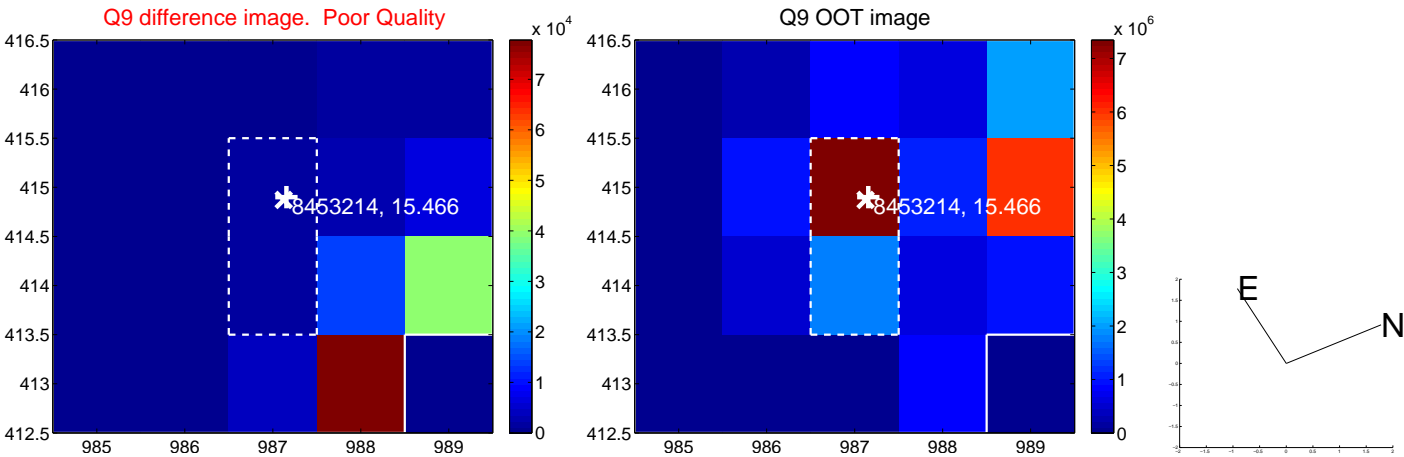
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



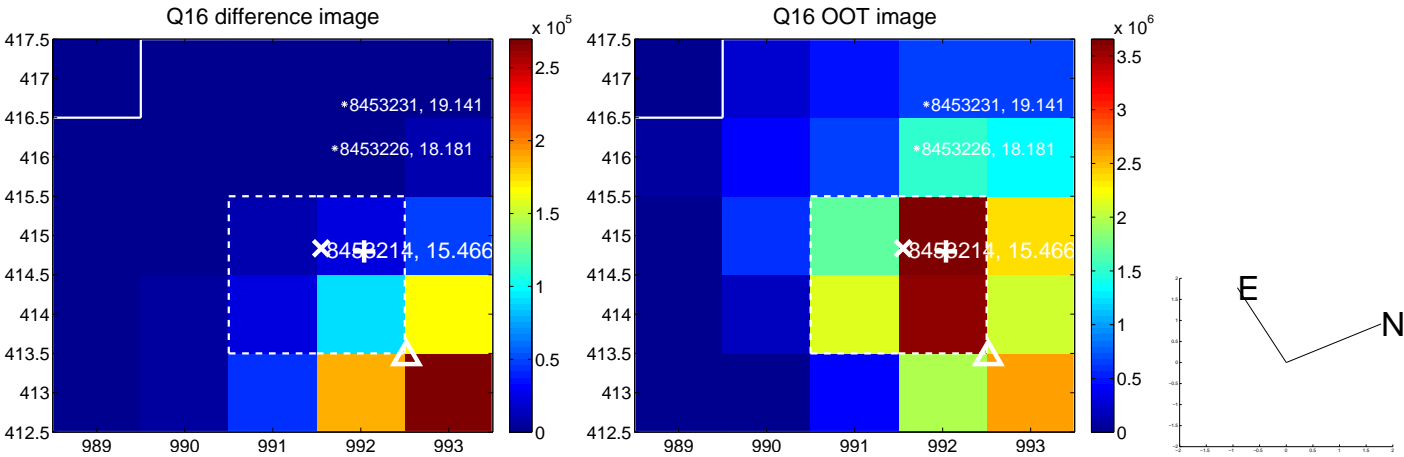
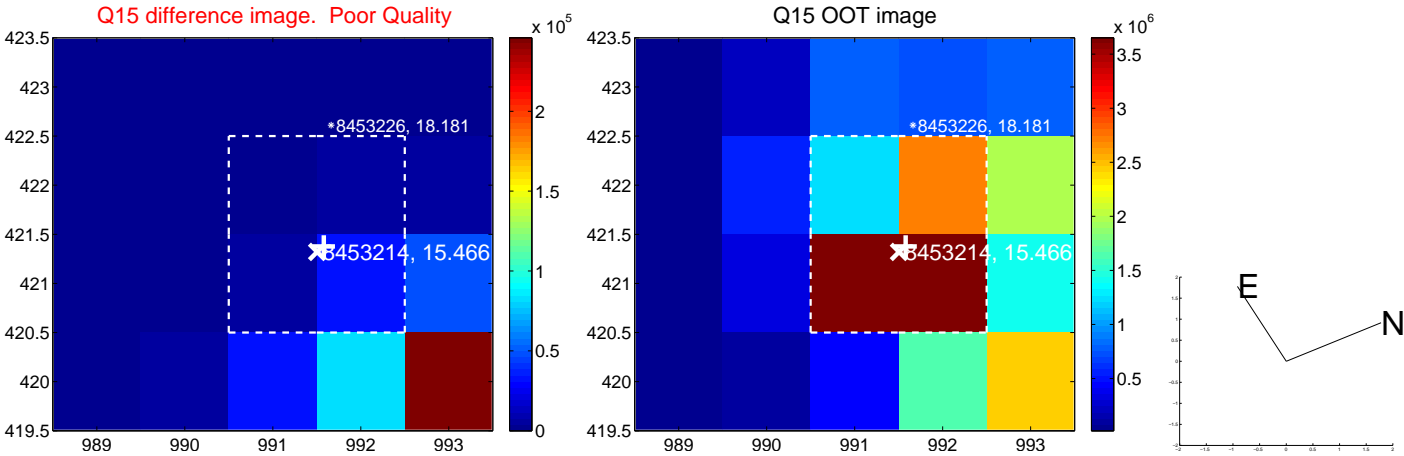
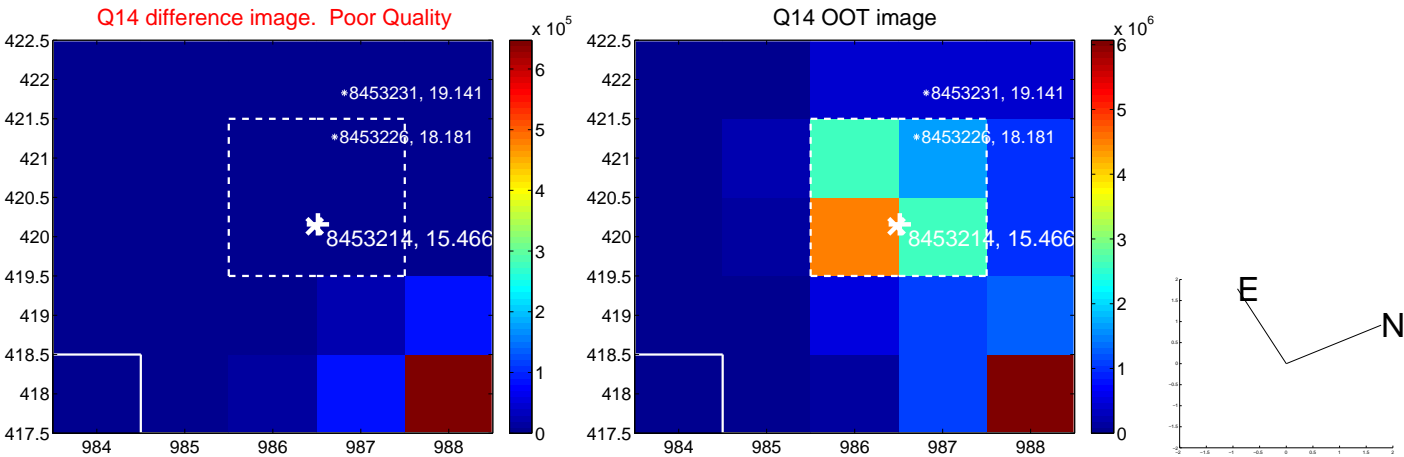
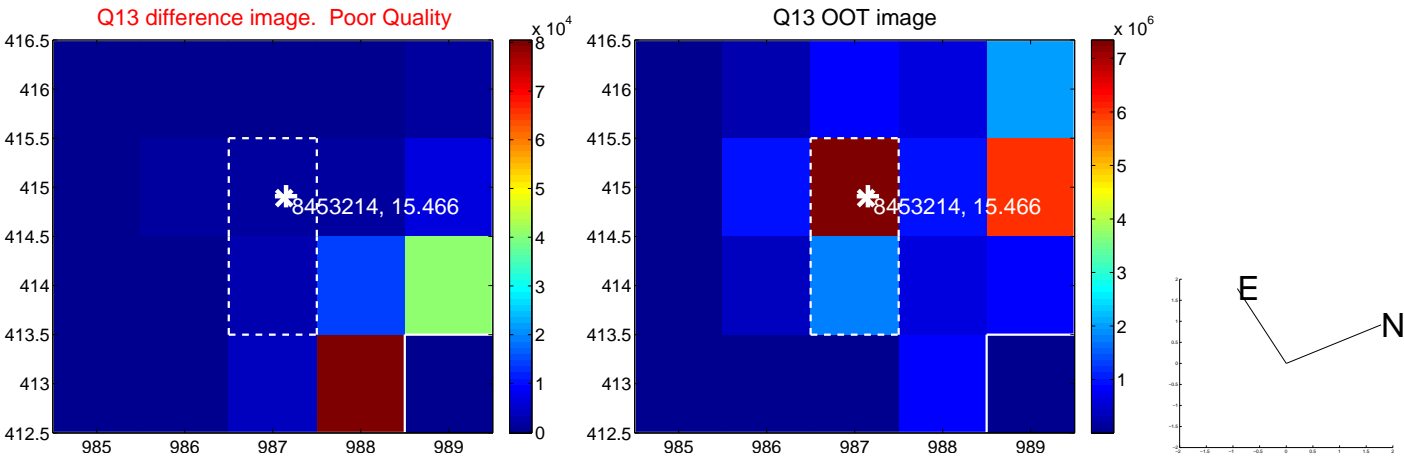
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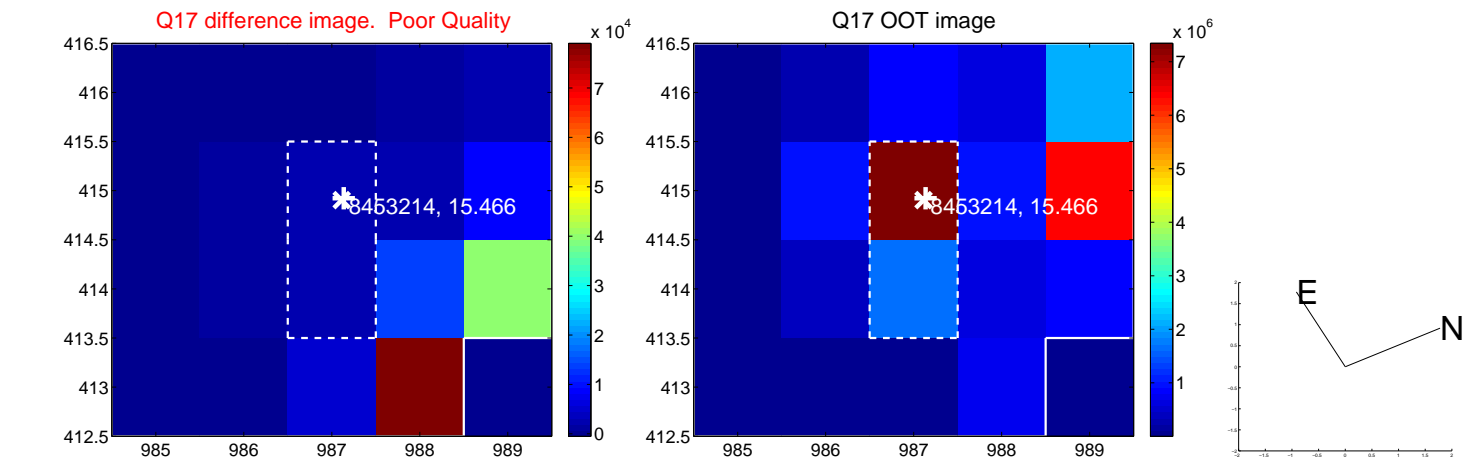
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



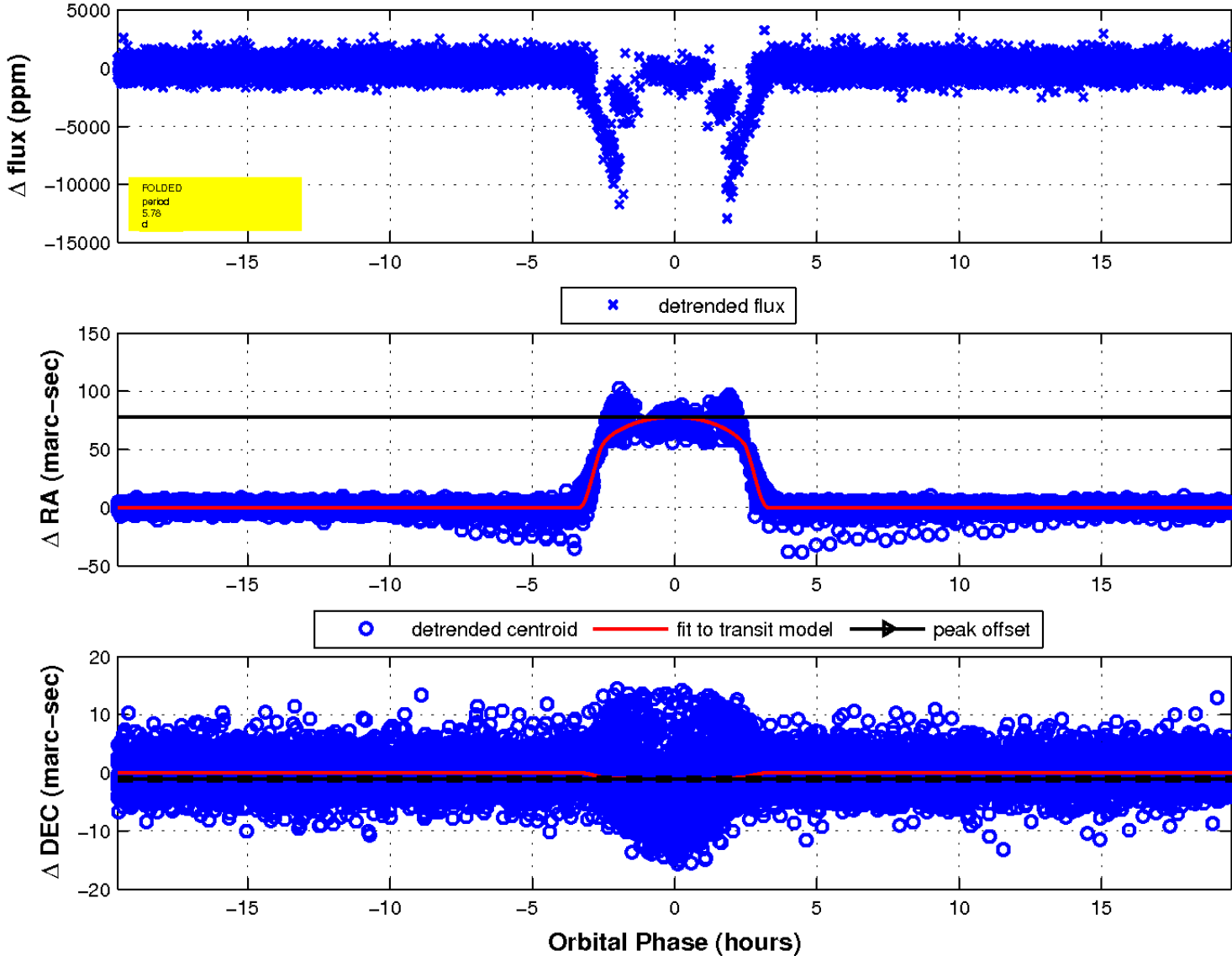
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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

