

KIC 004356621

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
004356621-01	OBS	6405.01	1.731744	132.915879	49.3	2.956	9.1	8.4	1.51	5691	1.26	2625.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004356621-01	OBS	FP	0.00	0	0	0	1	CENT_KIC_POS—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.

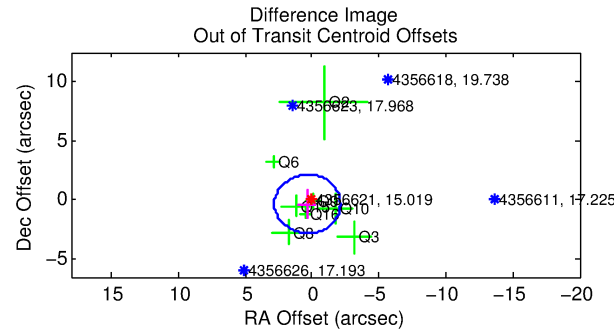
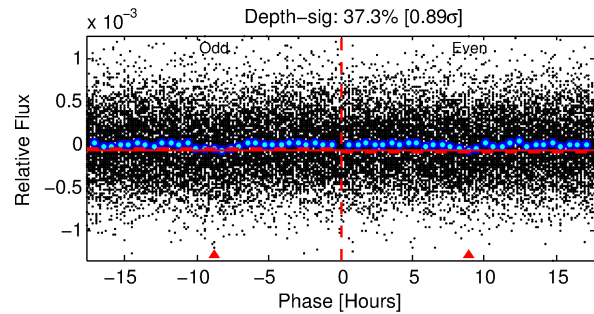
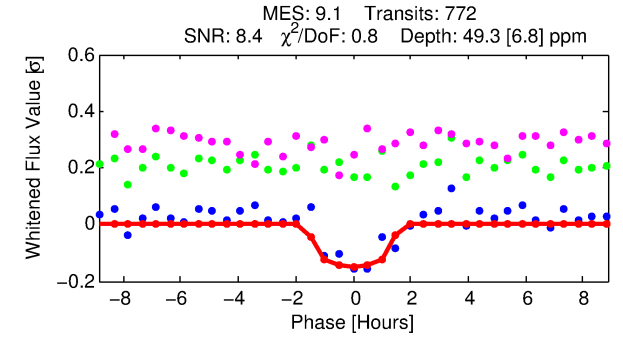
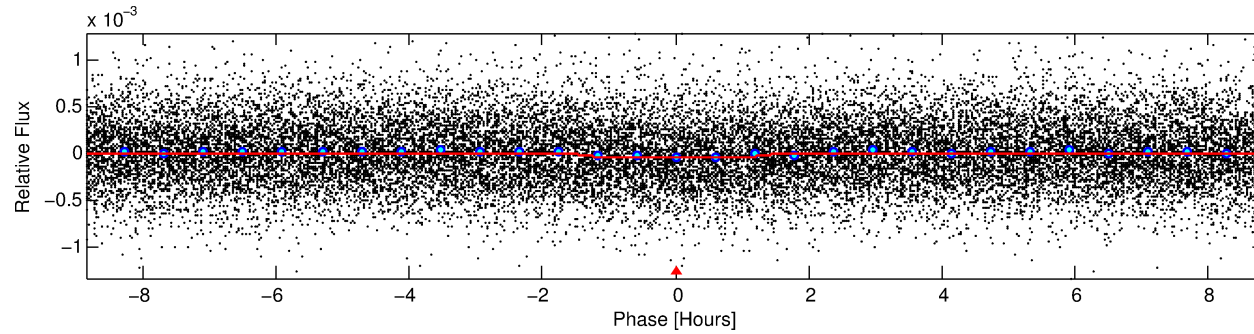
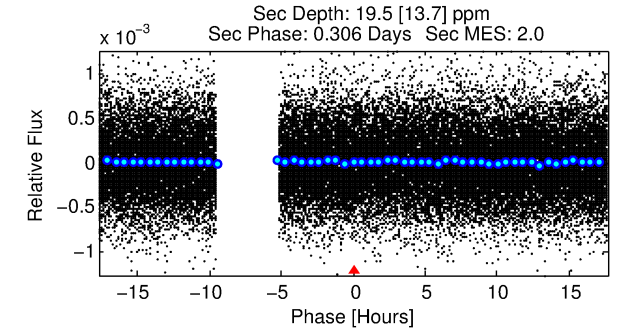
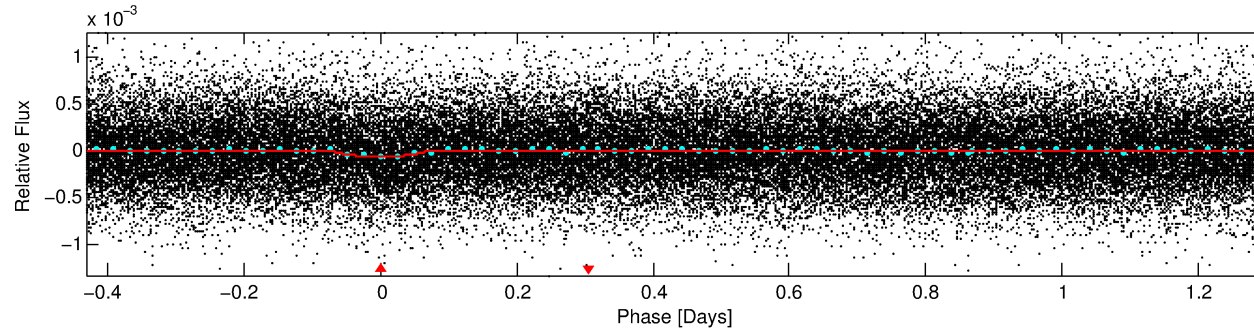
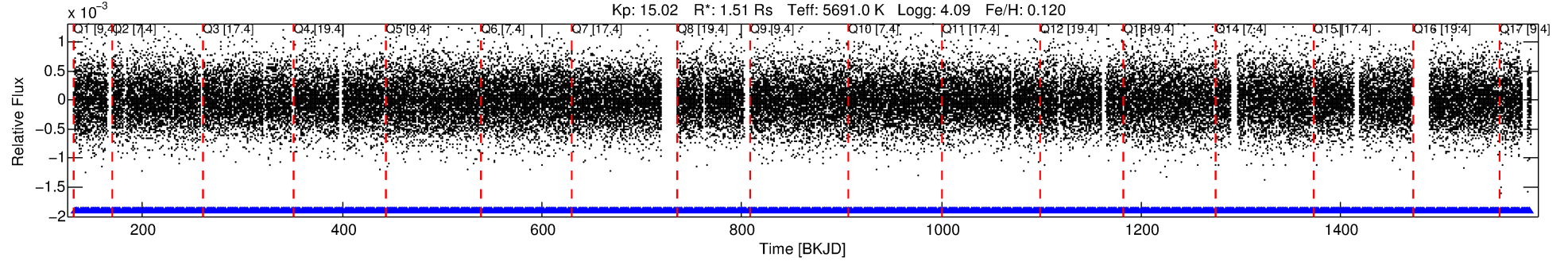
Ephemeris Match Information For 004356621-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
004356621-01	4356621	004356766-01	4356766	1:1	251.7	63	1	15.45	15.02	1119.20	Col-Anomaly	0	2.12	1.32

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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 σ_P < 5.0 and σ_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: 4356621 Candidate: 1 of 1 Period: 1.732 d
KOI: K06405.01 Corr: 0.891



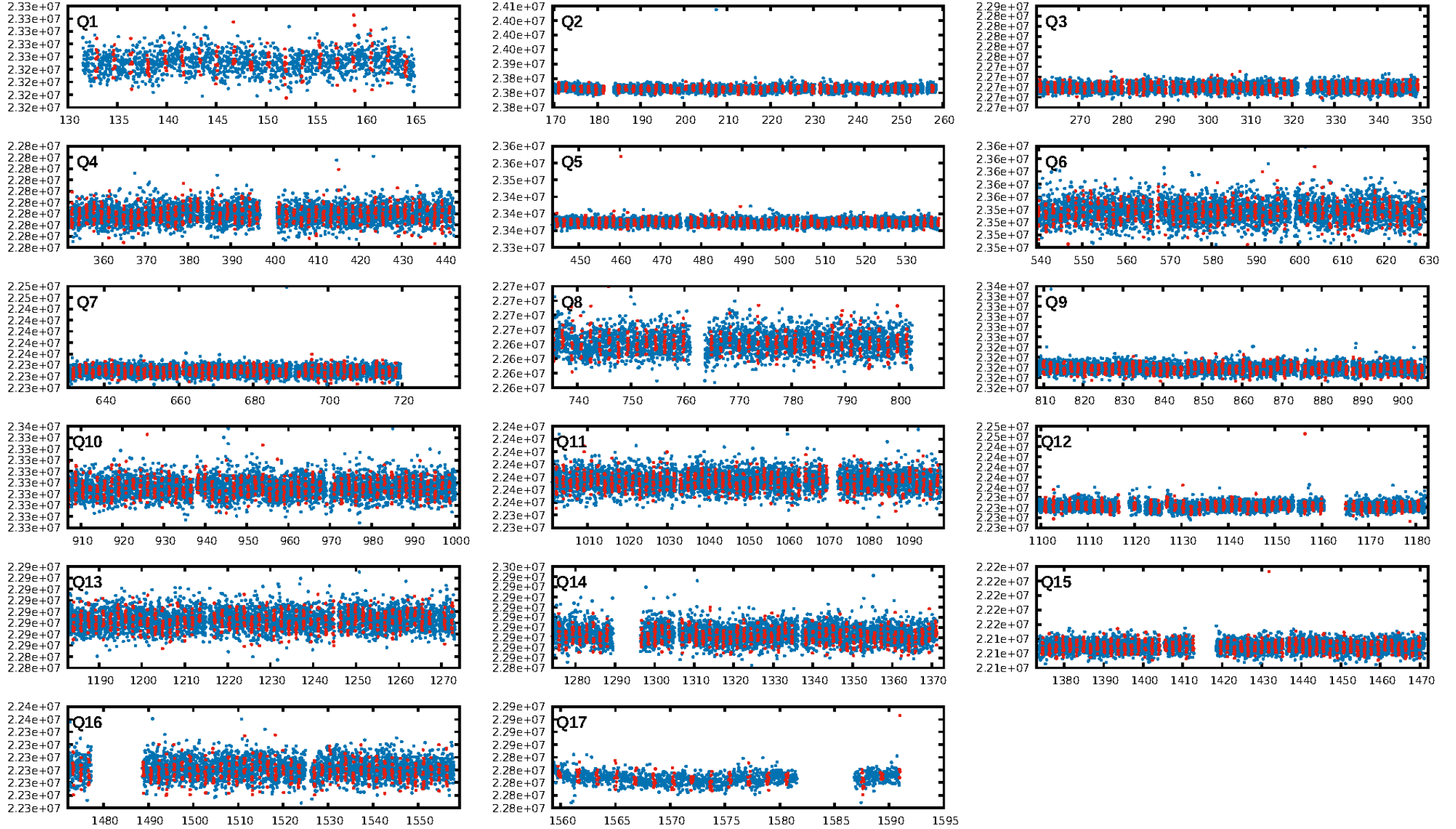
DV Fit Results:

Period = 1.73174 [0.00002] d
Epoch = 132.9159 [0.0052] BKJD
Rp/R* = 0.0077 [0.0062]
a/R* = 2.22 [6.77]
b = 0.90 [0.81]
Seff = 2625.86 [914.13]
Teff = 1825 [159] K
Rp = 1.26 [1.06] Re
a = 0.0285 [0.0060] AU
Ag = 5.47 [9.80] [0.46σ]
Teffp = 4316 [1899] K [1.31σ]

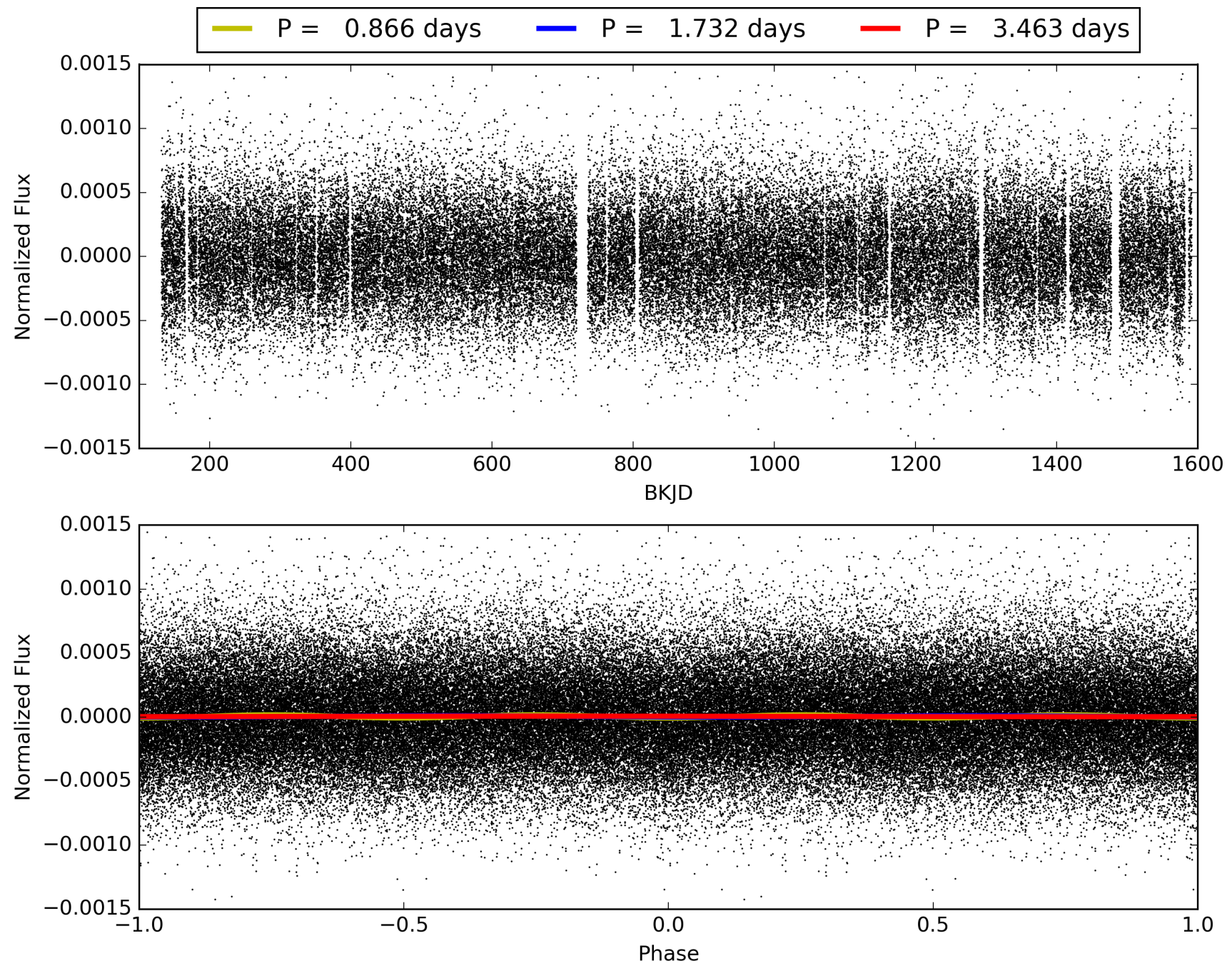
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.30e-19
RollingBand-fgt: 1.00 [737/737]
GhostDiagnostic-chr: 2.435
Centroid-sig: 88.9%
Centroid-so: 0.725 arcsec [0.48σ]
OotOffset-rm: 0.477 arcsec [0.58σ]
KicOffset-rm: 0.758 arcsec [0.64σ]
OotOffset-st: 3/2/2/1 [8]
KicOffset-st: 3/2/2/1 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004356621-01, PDC Light Curves

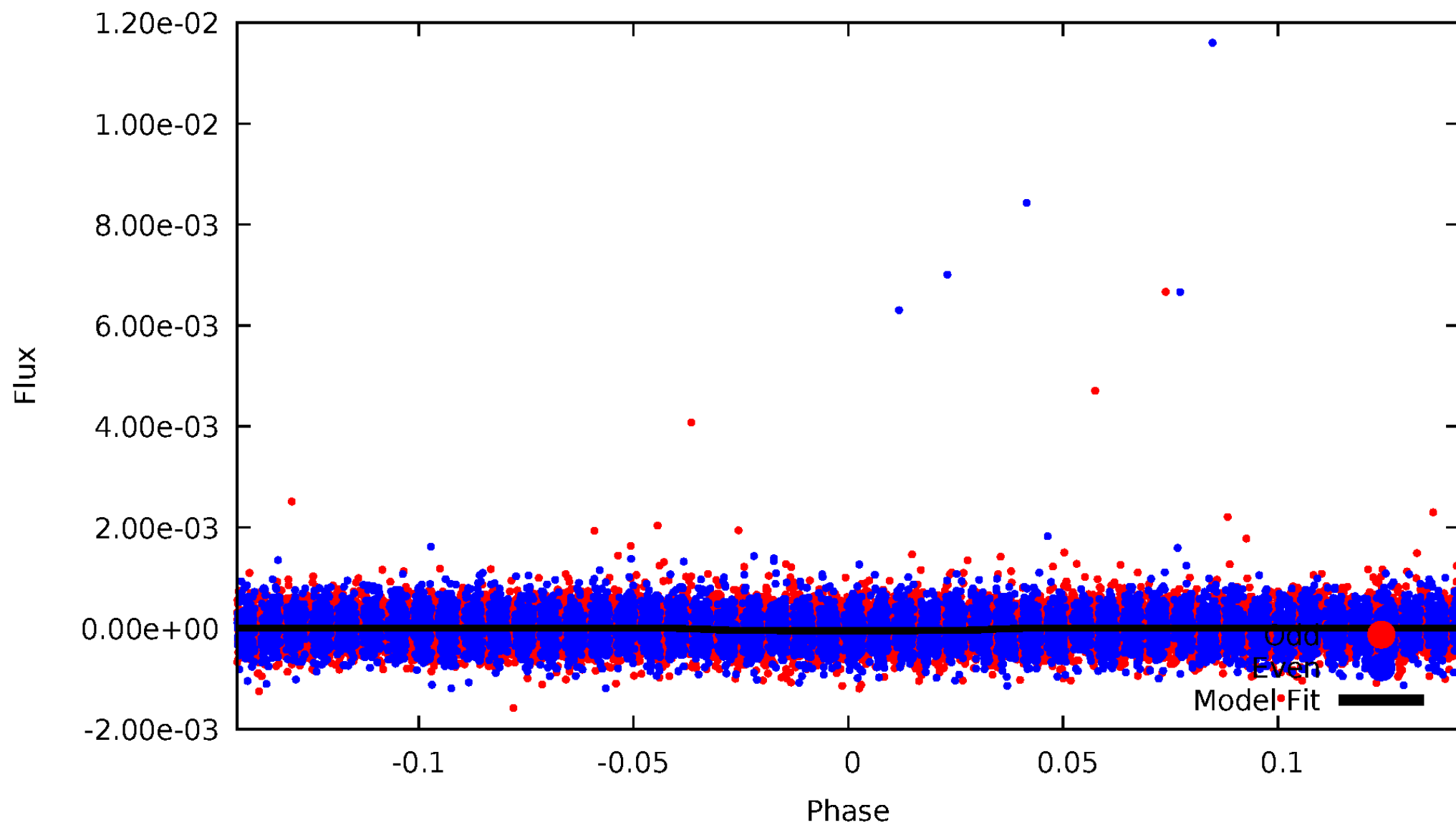


TCE 004356621-01



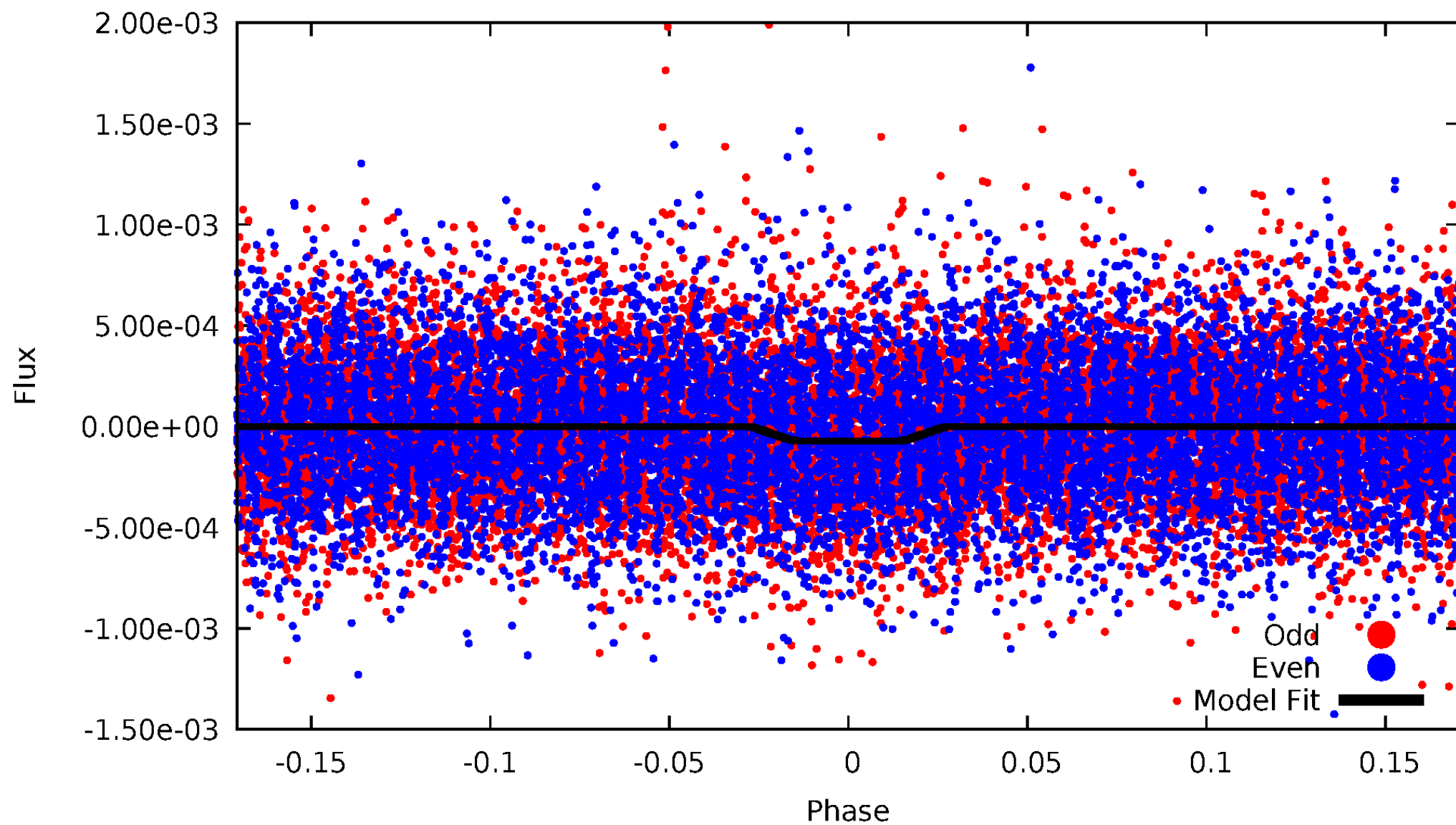
DV Odd/Even

TCE 004356621-01

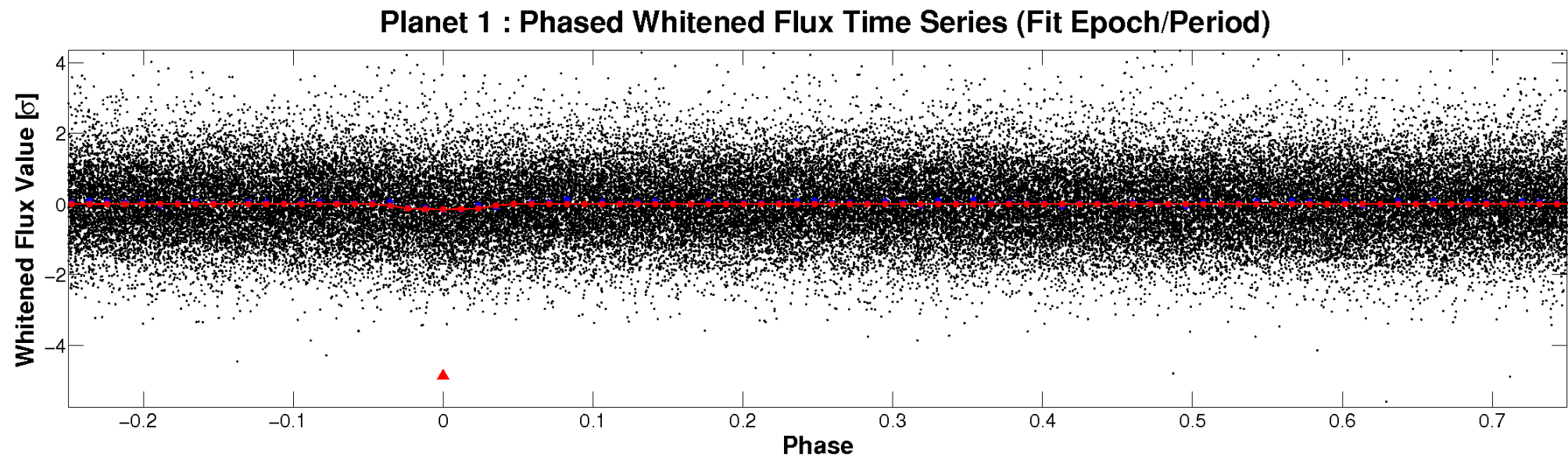
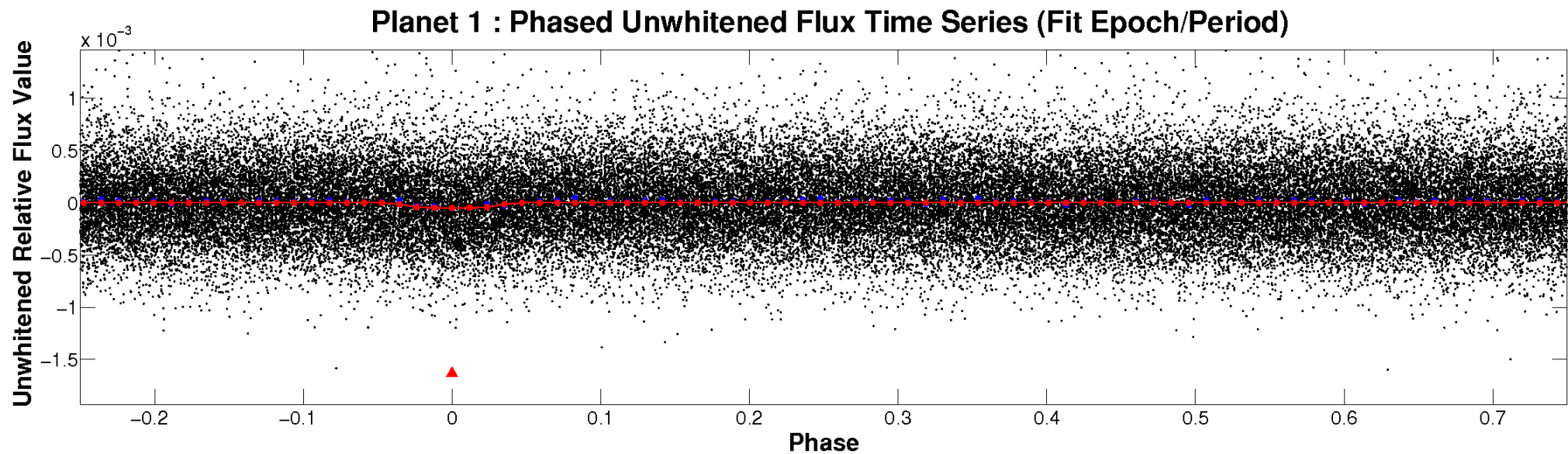


ALT Odd/Even

TCE 004356621-01

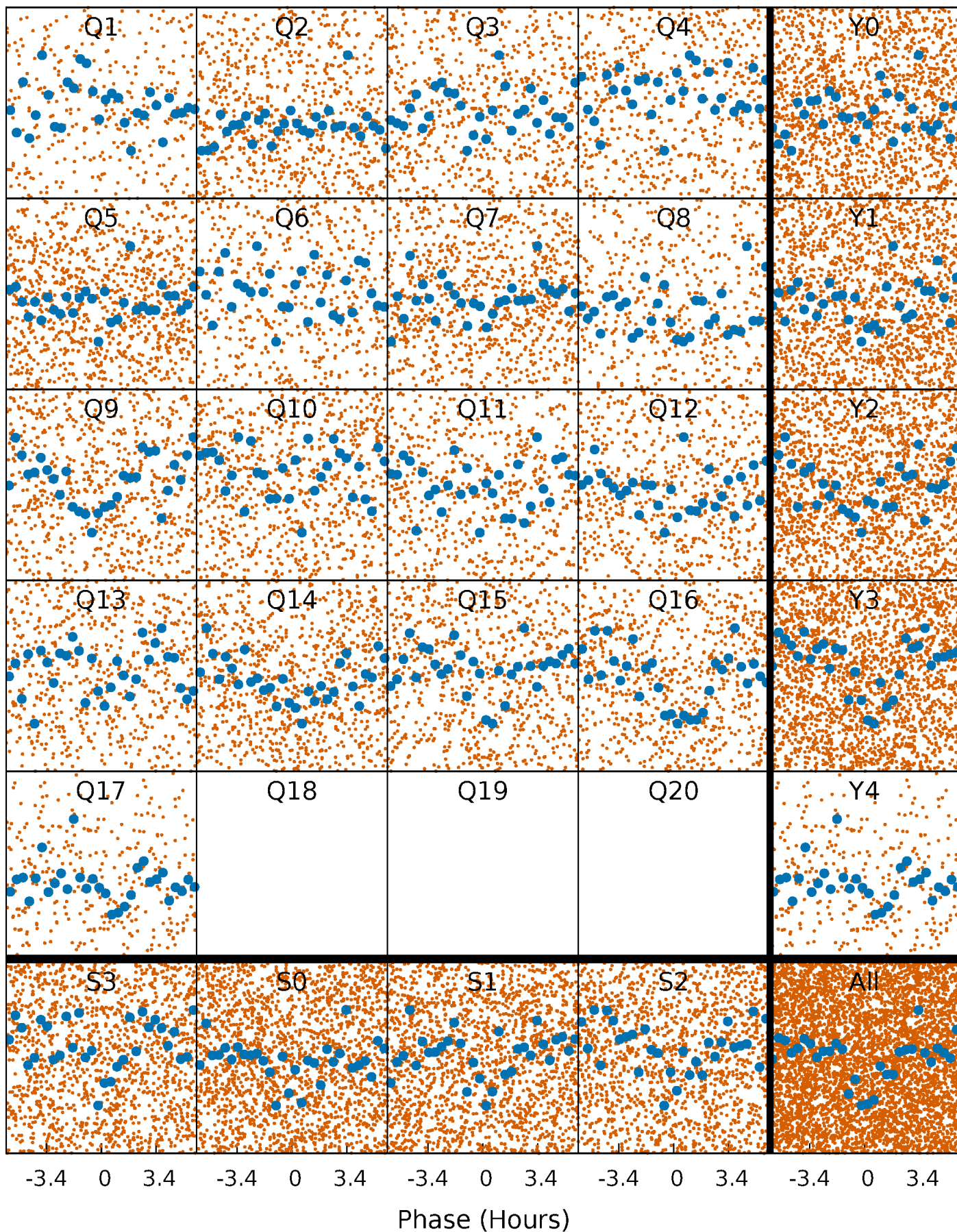


Non-Whitened Vs. Whitened Light Curve



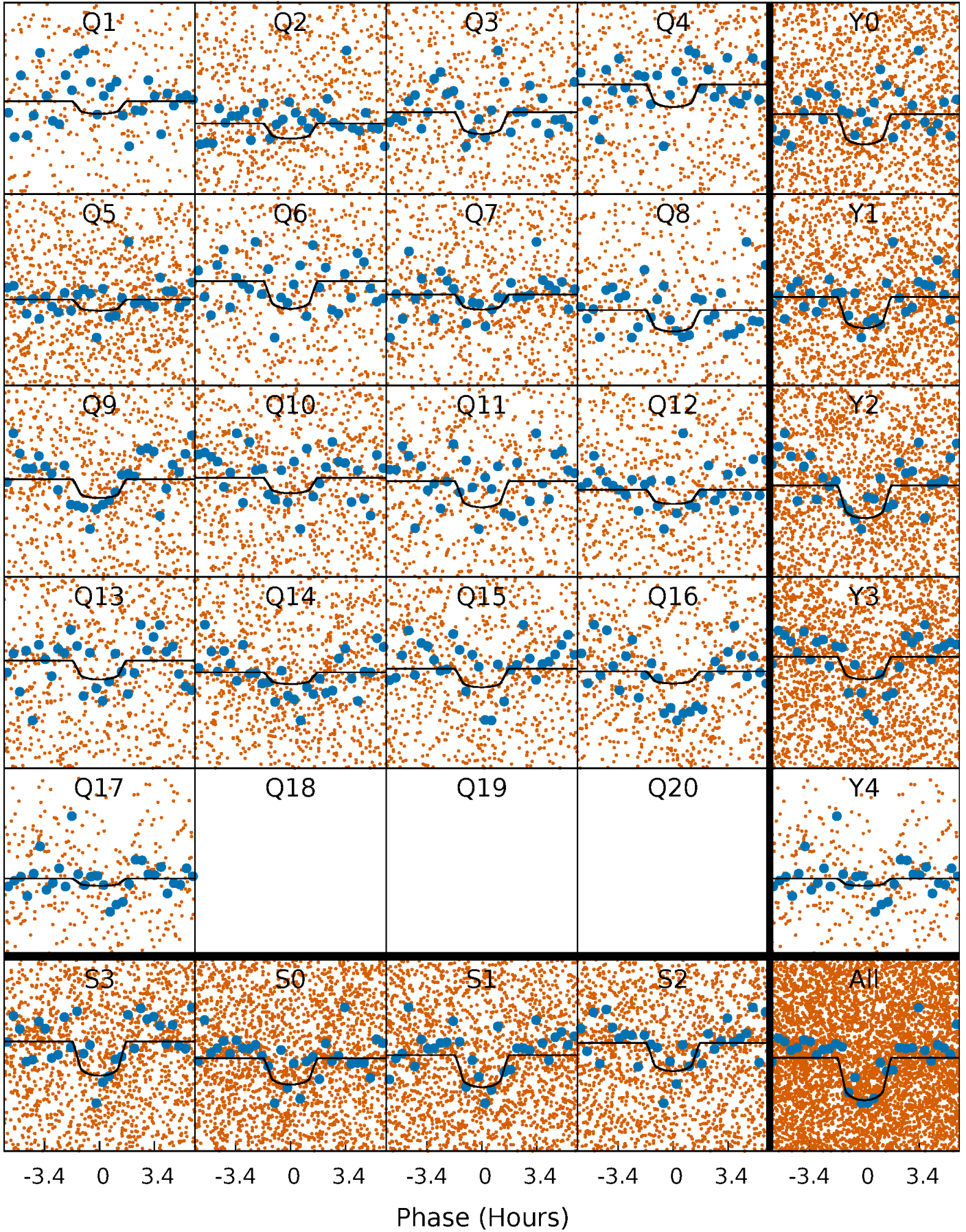
PDC Quarter-Phased Transit Curves

TCE 004356621-01 P= 1.731744 Days $T_0=132.915879$ (BKJD)



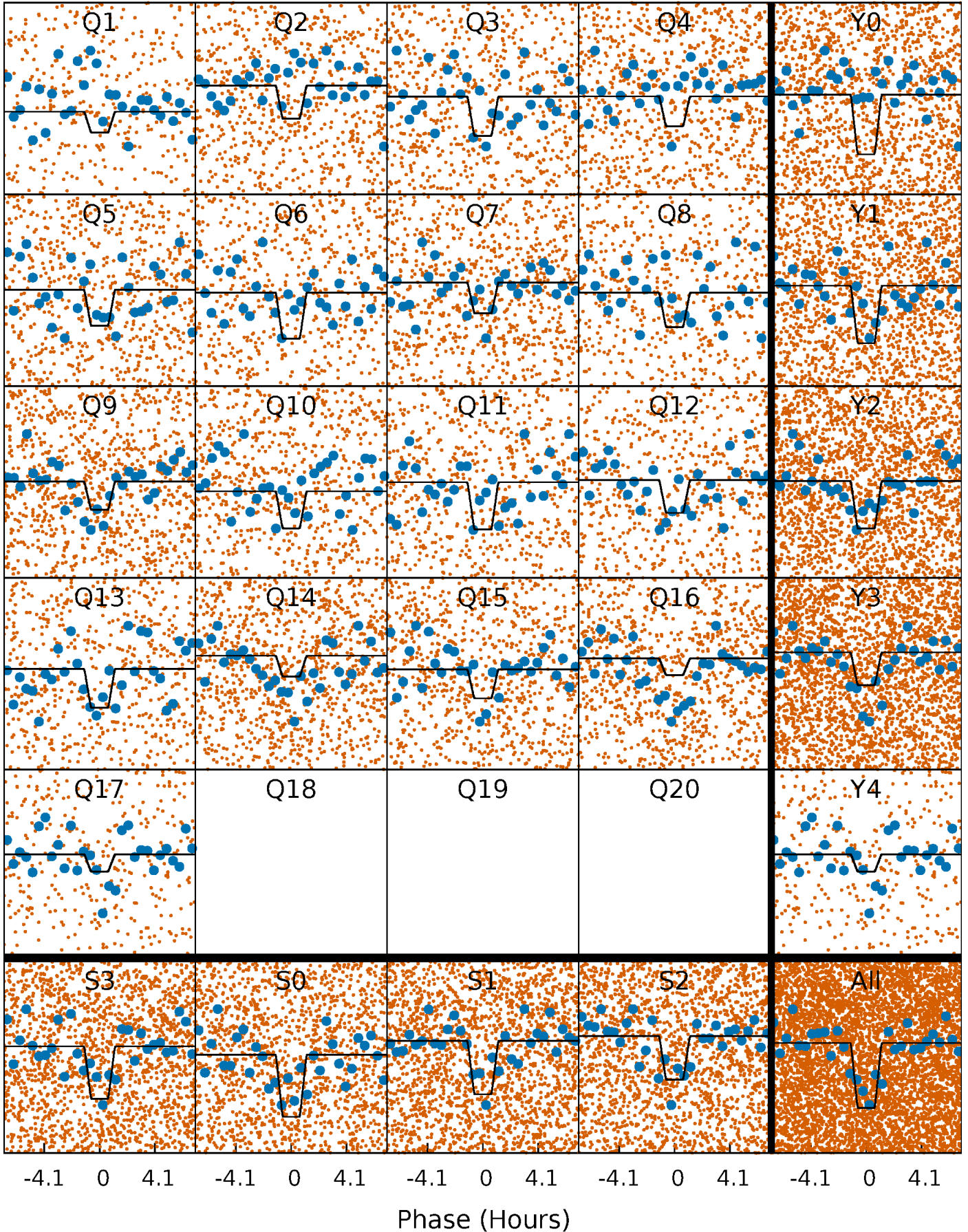
DV Quarter-Phased Transit Curves

TCE 004356621-01 P= 1.731744 Days $T_0=132.915879$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

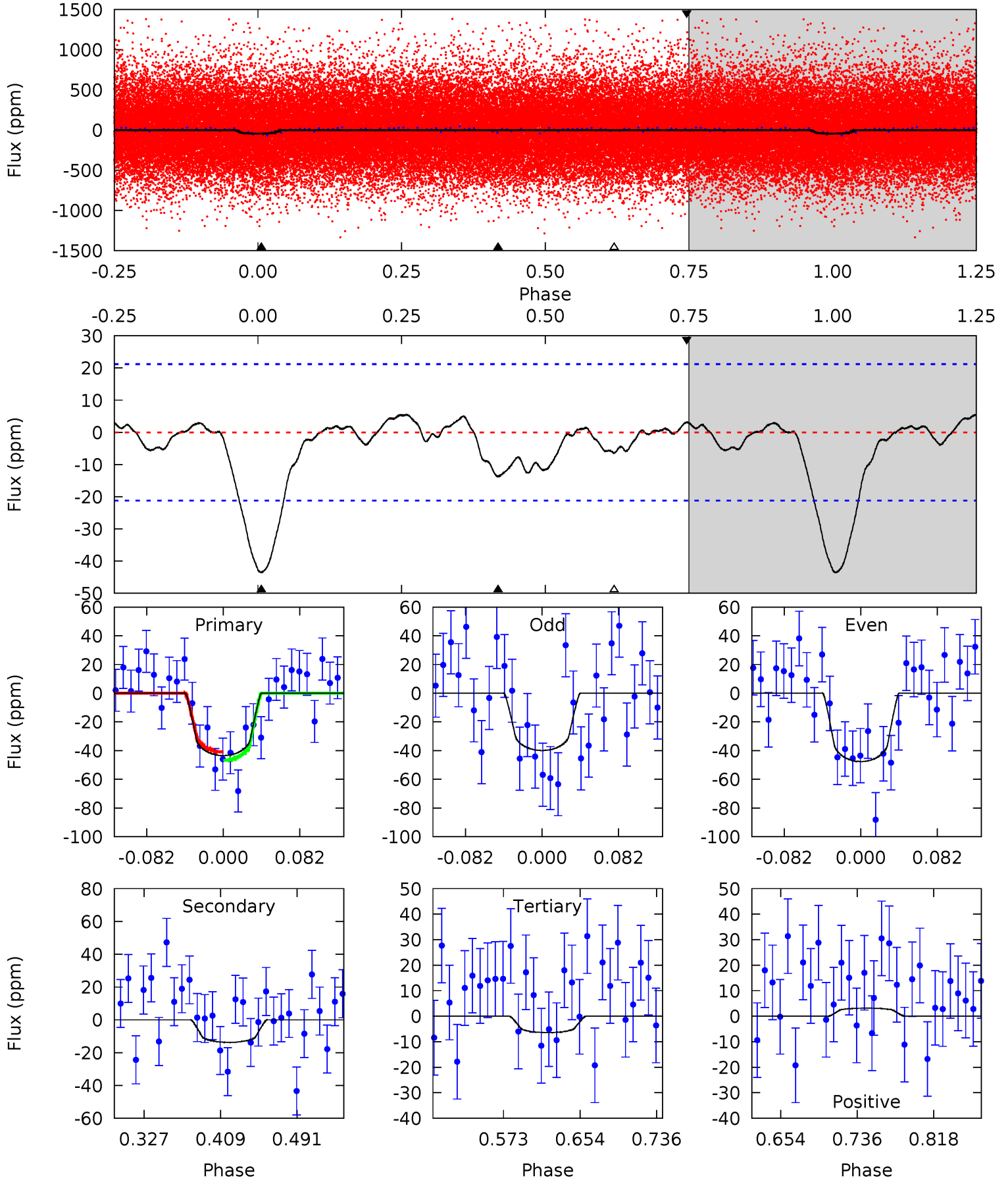
TCE 004356621-01 P= 1.731789 Days $T_0=132.900798$ (BKJD)



DV Model-Shift Uniqueness Test

004356621-01, P = 1.731744 Days, E = 131.184135 Days

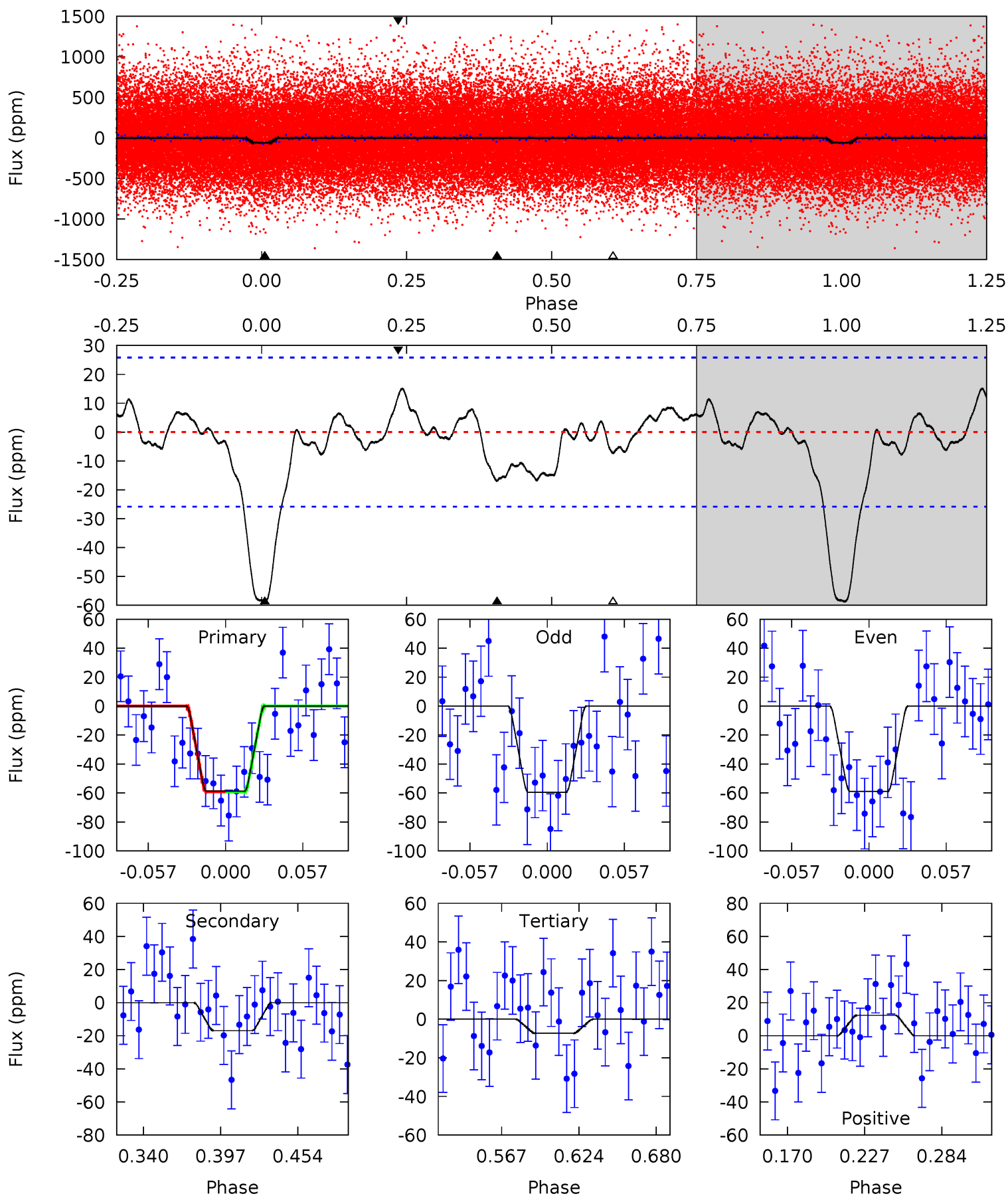
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.46	2.98	1.40	0.69	4.61	1.74	0.70	8.06	8.77	1.59	2.30	0.84	0.82	0.11	0.63



Alt Model-Shift Uniqueness Test

004356621-01, P = 1.731789 Days, E = 131.169009 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	3.07	1.32	2.23	4.68	1.91	1.12	9.31	8.40	1.74	0.84	0.05	0.92	0.20	0.01



Stellar Parameters For KIC 004356621

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5691^{+85}_{-77}	$4.095^{+0.203}_{-0.087}$	$0.120^{+0.150}_{-0.150}$	$1.508^{+0.236}_{-0.324}$	$1.032^{+0.093}_{-0.084}$	$0.424^{+0.426}_{-0.133}$
	+1%/-1%	+5%/-2%	+125%/-125%	+16%/-21%	+9%/-8%	+100%/-31%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 004356621-01 / KOI 6405.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-14 ± 5	$1.35^{+0.98}_{-0.79}$	2522^{+110}_{-140}	3970^{+1964}_{-791}	$3.259^{+18.305}_{-2.204}$
Alt.	-17 ± 6	$1.48^{+1.00}_{-0.88}$	2521^{+108}_{-143}	3993^{+1876}_{-745}	$3.411^{+17.702}_{-2.254}$

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 $A_{obs} \gg 1.0$

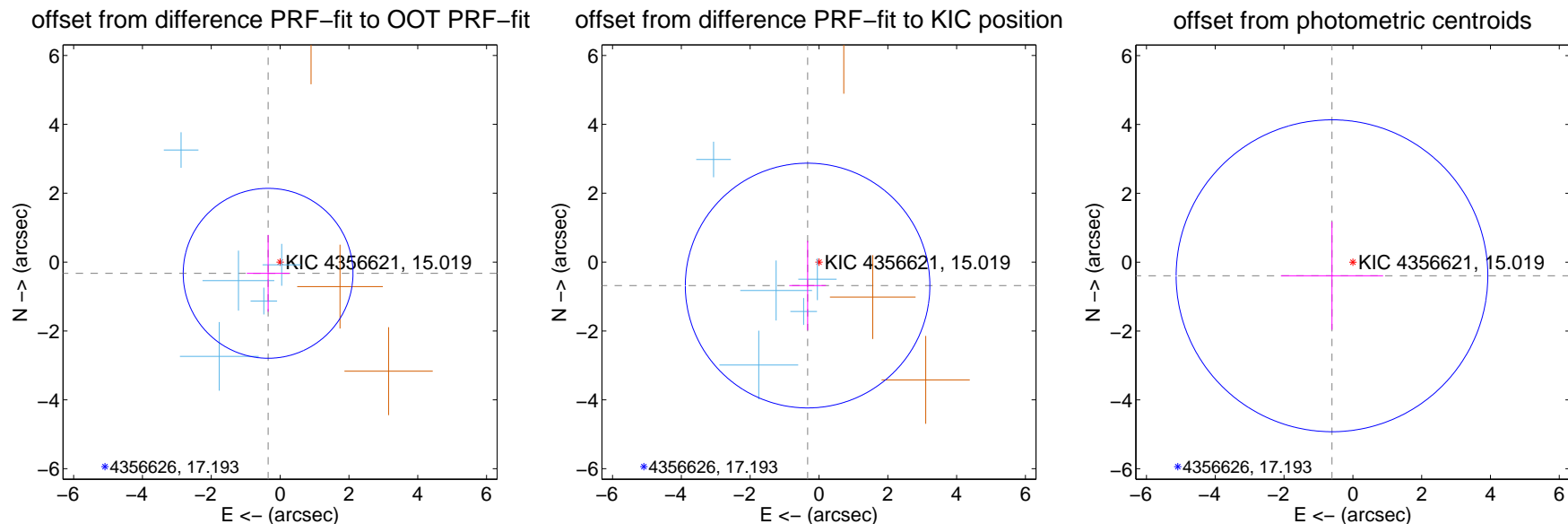
DV Centroid Data

Supplemental centroid analysis for 004356621-01. Kepler magnitude: 15.02. Transit SNR 8.43

There are 5 quarters with good PRF difference image offsets

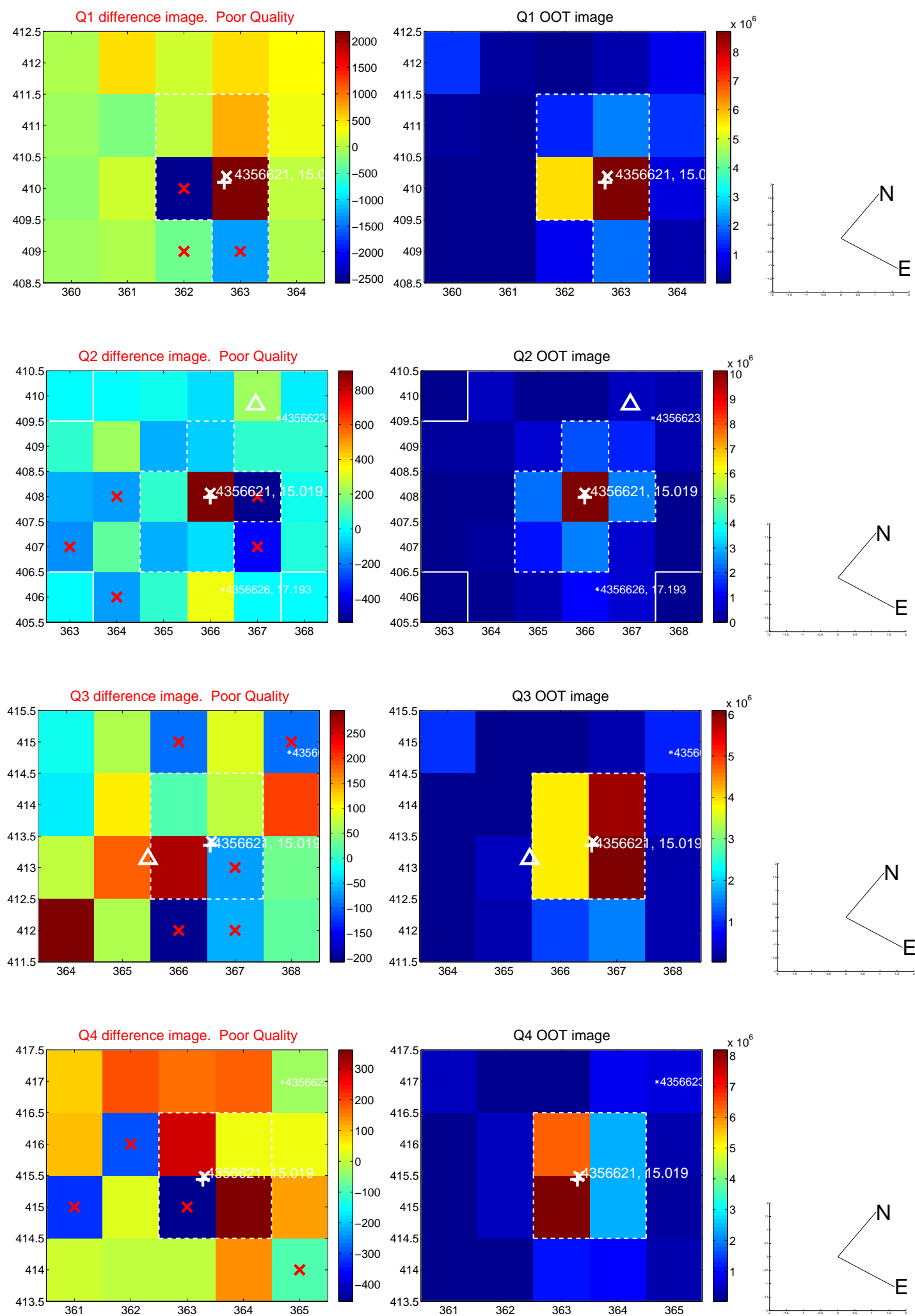
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.477 ± 0.822	0.58	0.349 ± 0.620	-0.326 ± 1.115
PRF-fit source offset from KIC position	0.758 ± 1.184	0.64	0.331 ± 0.534	-0.682 ± 1.298
photometric centroid source offset	0.72 ± 1.51	0.48	0.61 ± 1.49	-0.40 ± 1.57

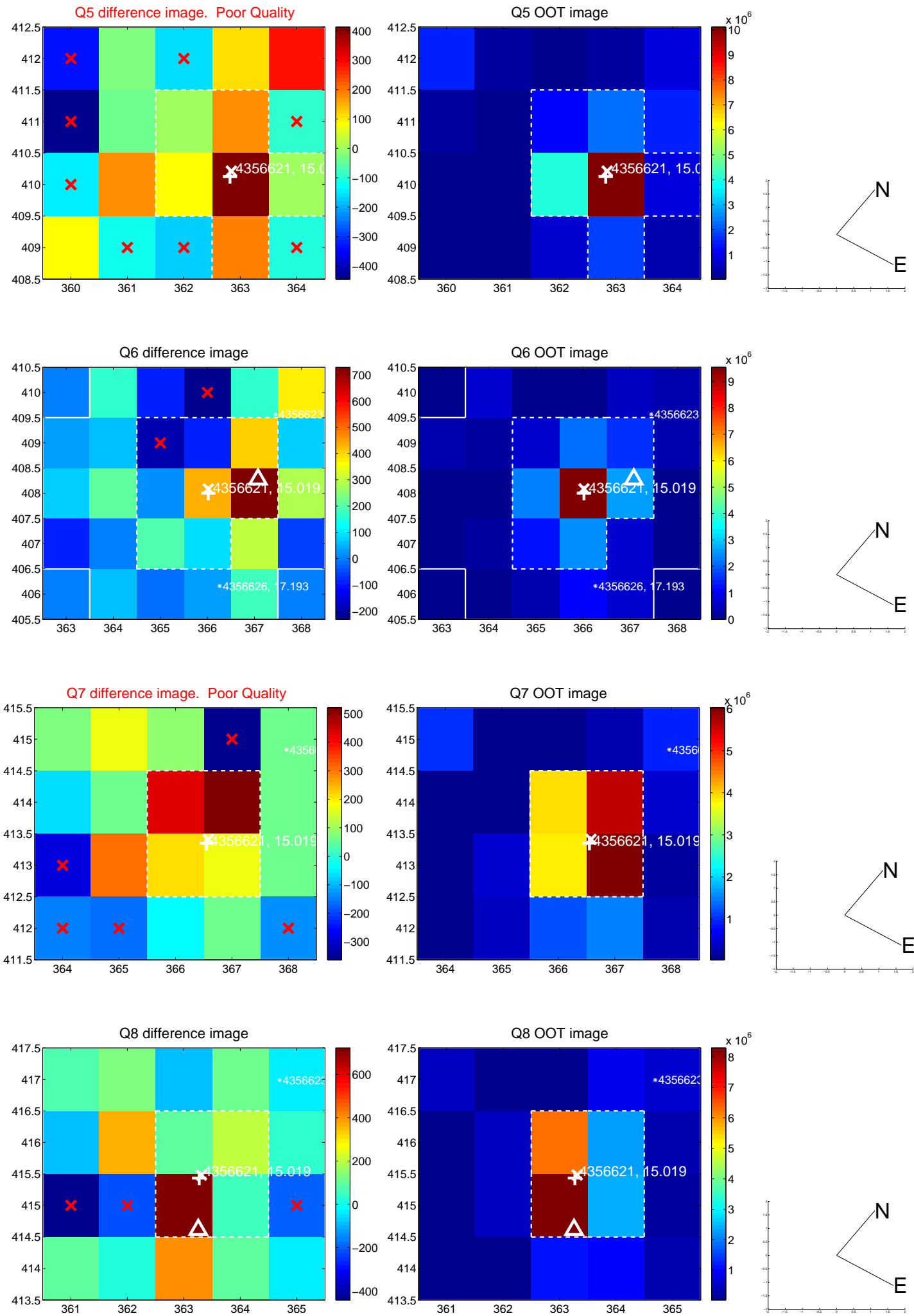


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

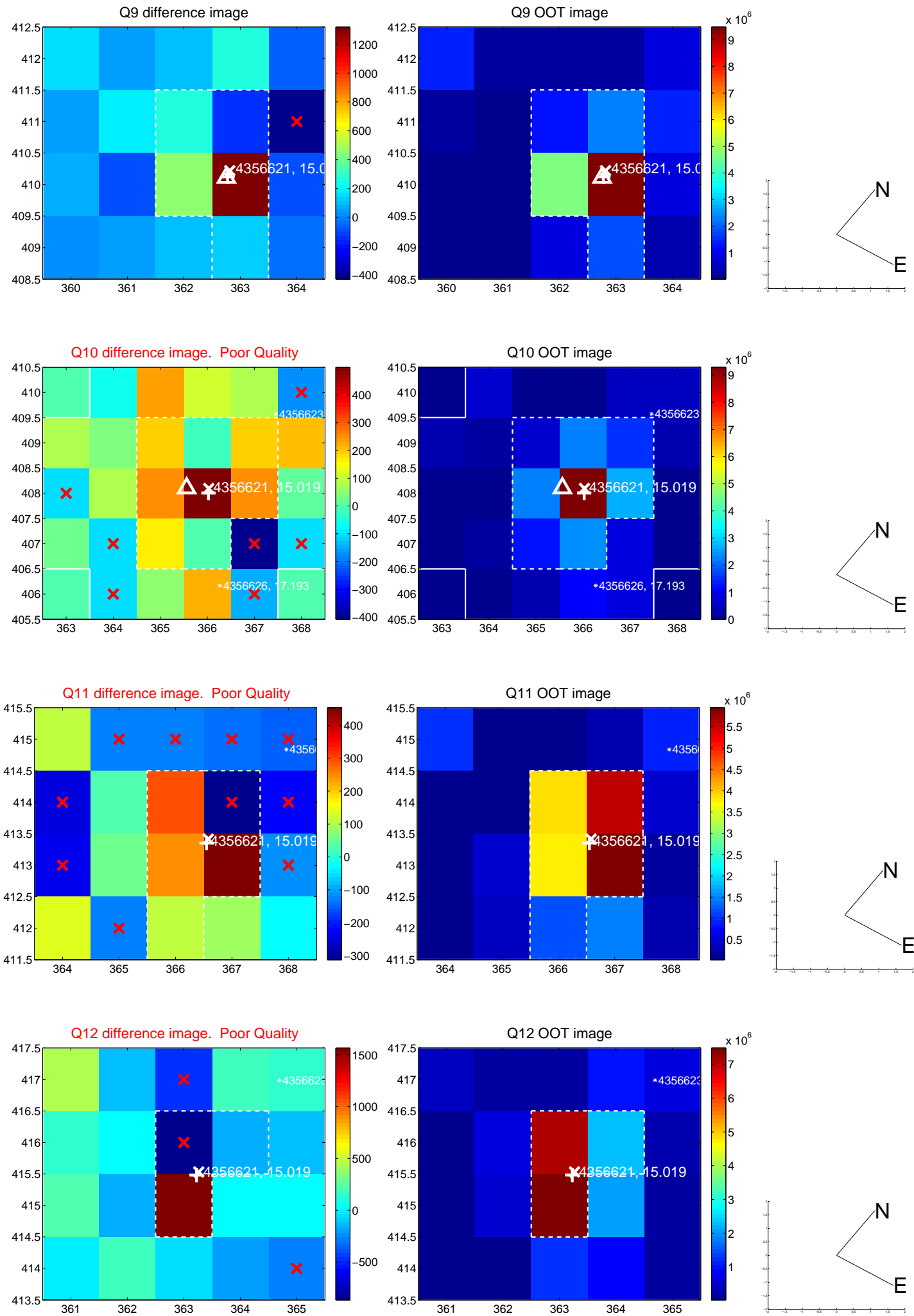
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



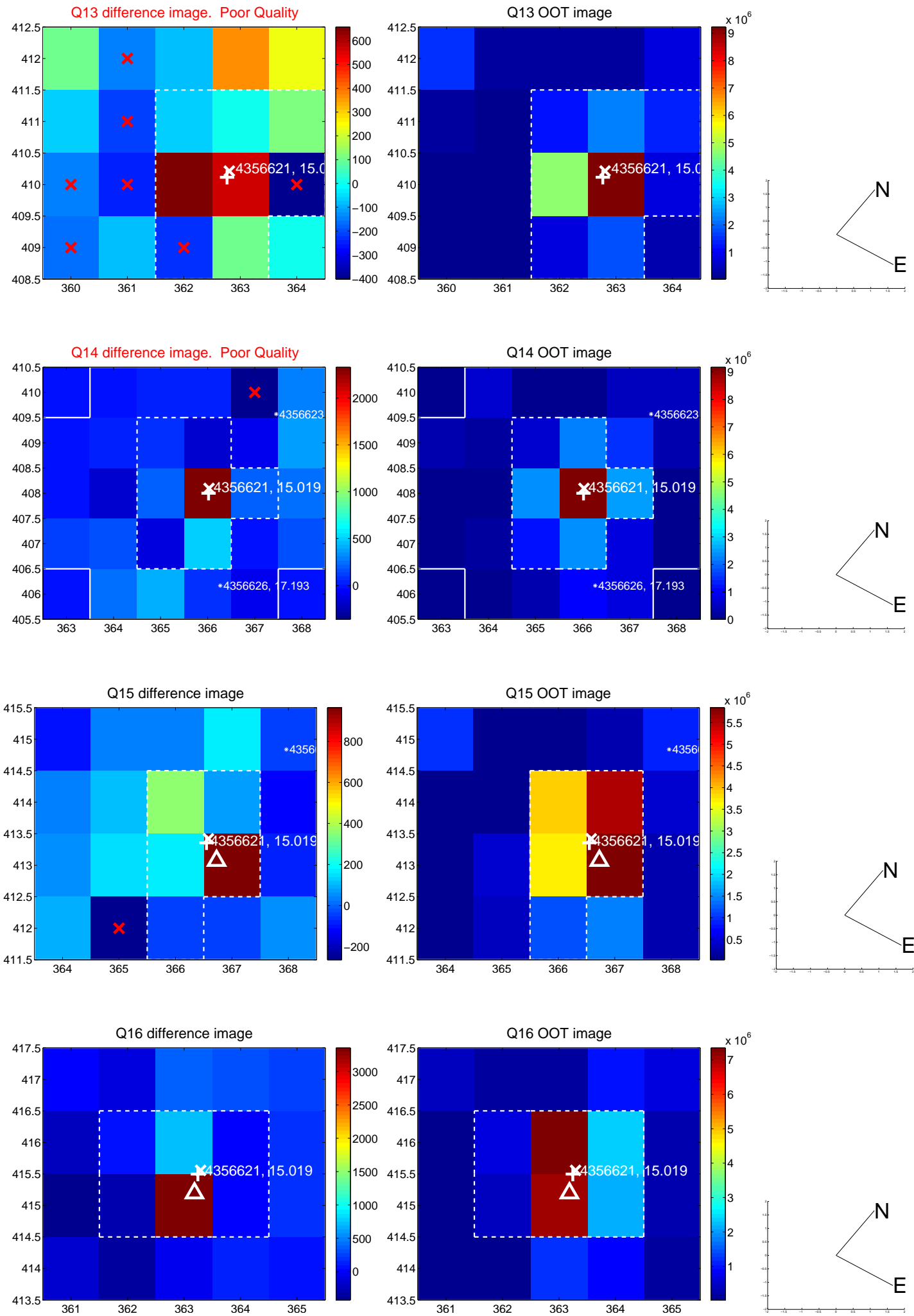
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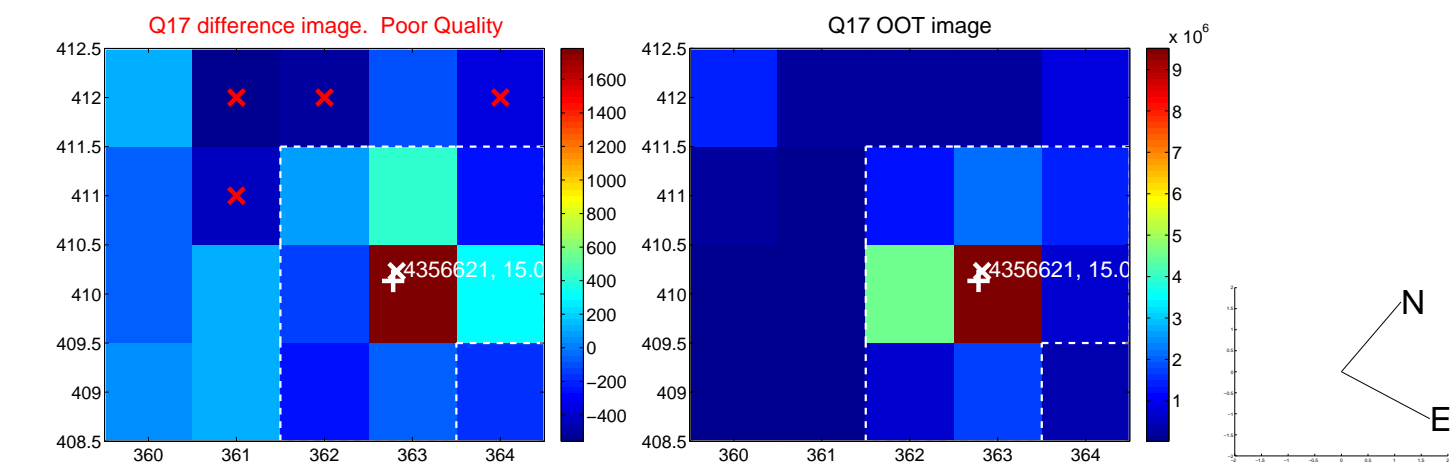
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



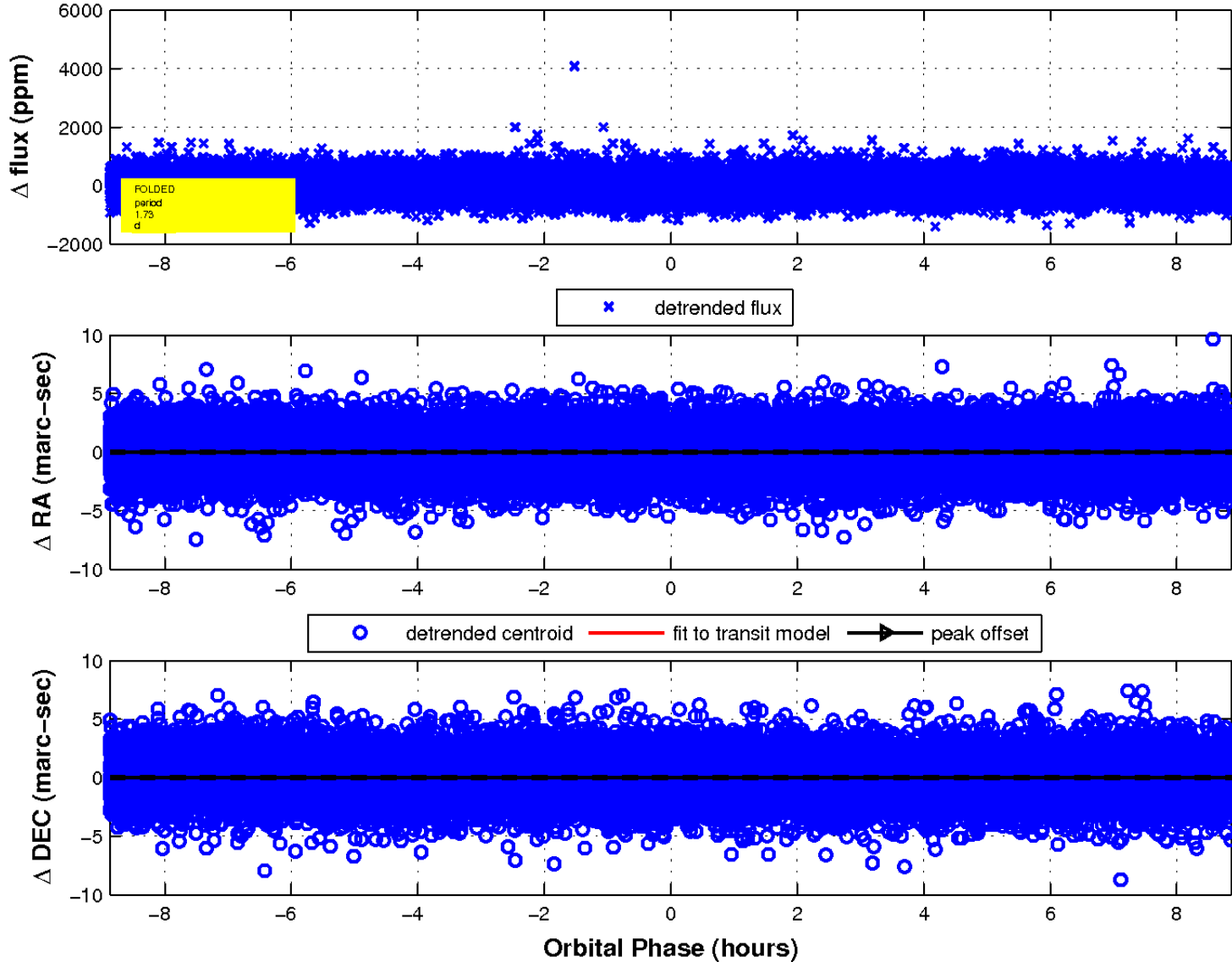
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

