

KIC 010724551

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})
010724551-01	OBS	No	0.745042	131.890981	34.8	3.558	7.5	5.5	1.05	6033	0.71	4568.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010724551-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—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.

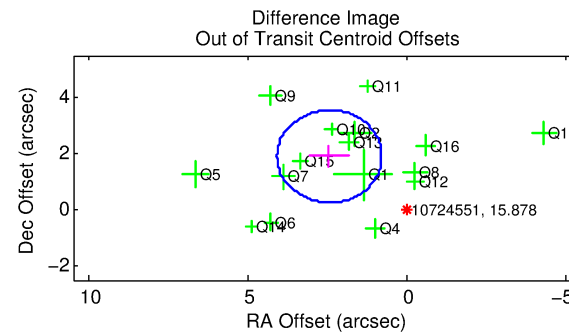
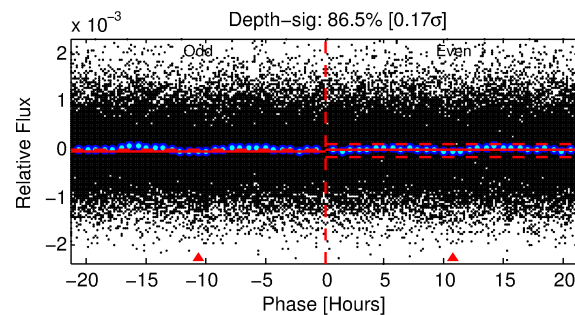
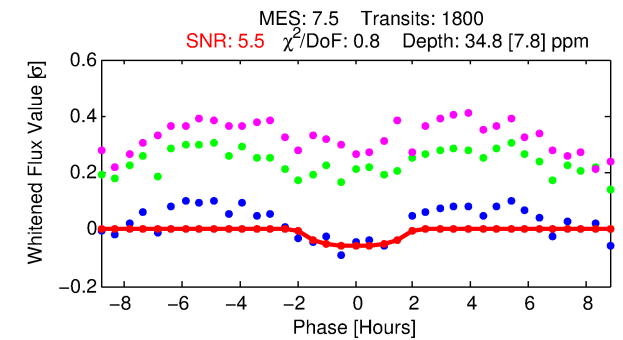
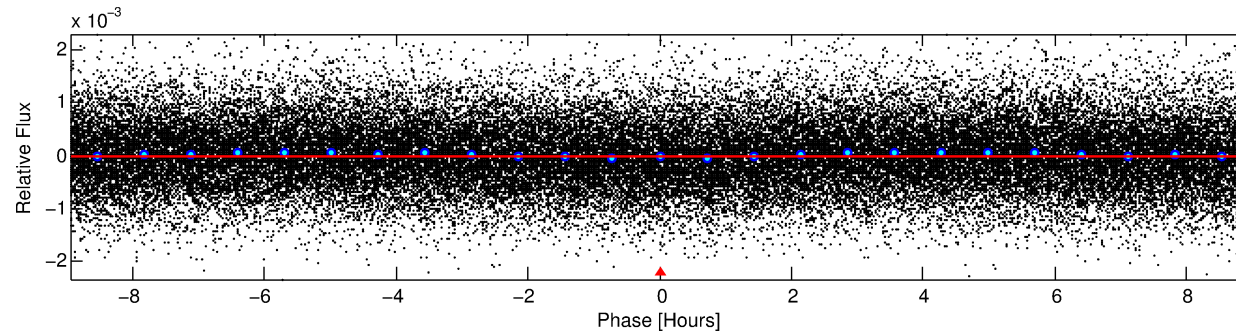
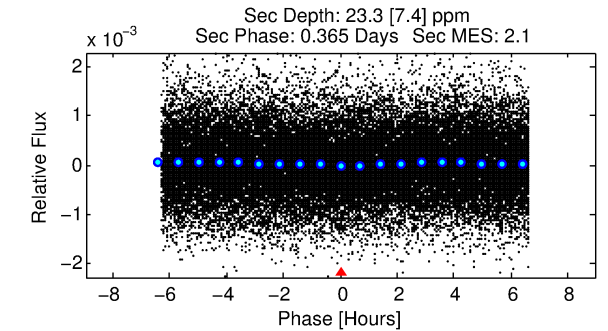
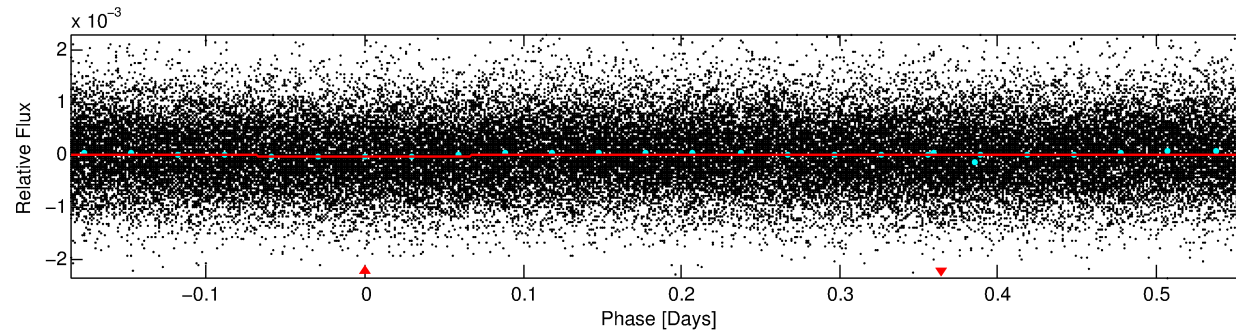
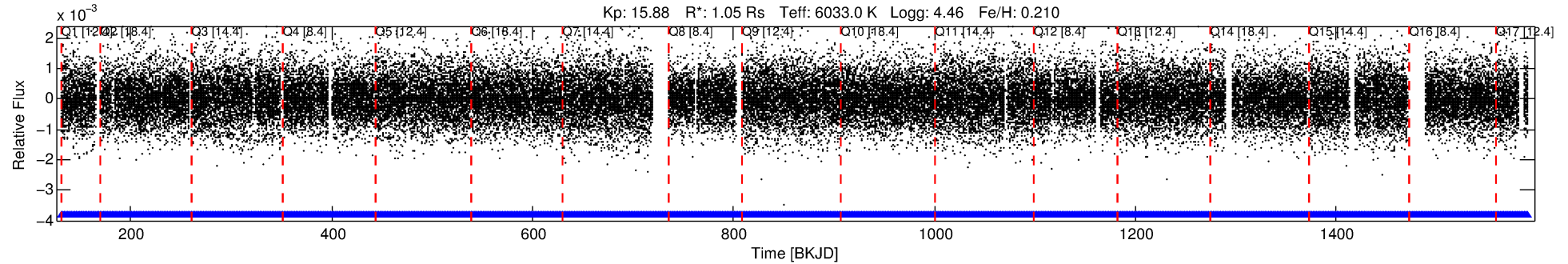
Ephemeris Match Information For 010724551-01

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
010724551-01	10724551	010724450-01	10724450	1:1	109.8	14	-23	13.60	15.88	0.17	Direct-PRF	1	0.56	3.58

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: 10724551 Candidate: 1 of 1 Period: 0.745 d



DV Fit Results:

Period = 0.74504 [0.00002] d
Epoch = 131.8910 [0.0080] BKJD
Rp/R* = 0.0062 [0.0085]
a/R* = 1.24 [2.88]
b = 0.86 [2.05]
Seff = 4568.86 [1898.22]
Teq = 2096 [218] K
Rp = 0.71 [0.99] Re
a = 0.0169 [0.0043] AU
Ag = 7.26 [20.16] [0.31σ]
Teffp = 5320 [3668] K [0.88σ]

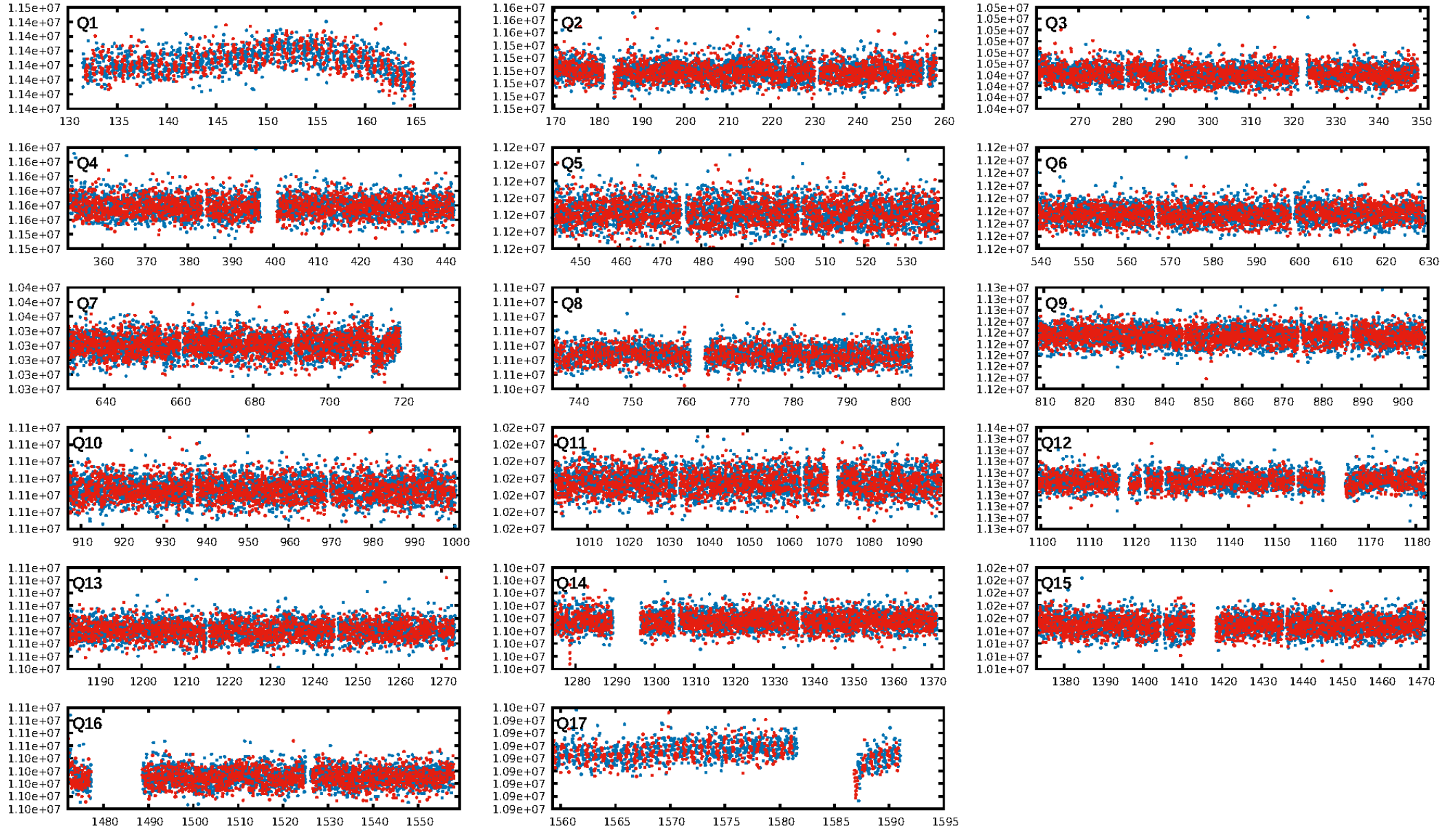
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.39e-13
RollingBand-fgt: 1.00 [1719/1719]
GhostDiagnostic-chr: 0.05444
Centroid-sig: 0.8%
Centroid-so: 4.488 arcsec [1.78σ]
OotOffset-rm: 3.096 arcsec [5.64σ]
KicOffset-rm: 3.261 arcsec [6.17σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.06 [1/16]
DiffImageOverlap-fno: 1.00 [17/17]

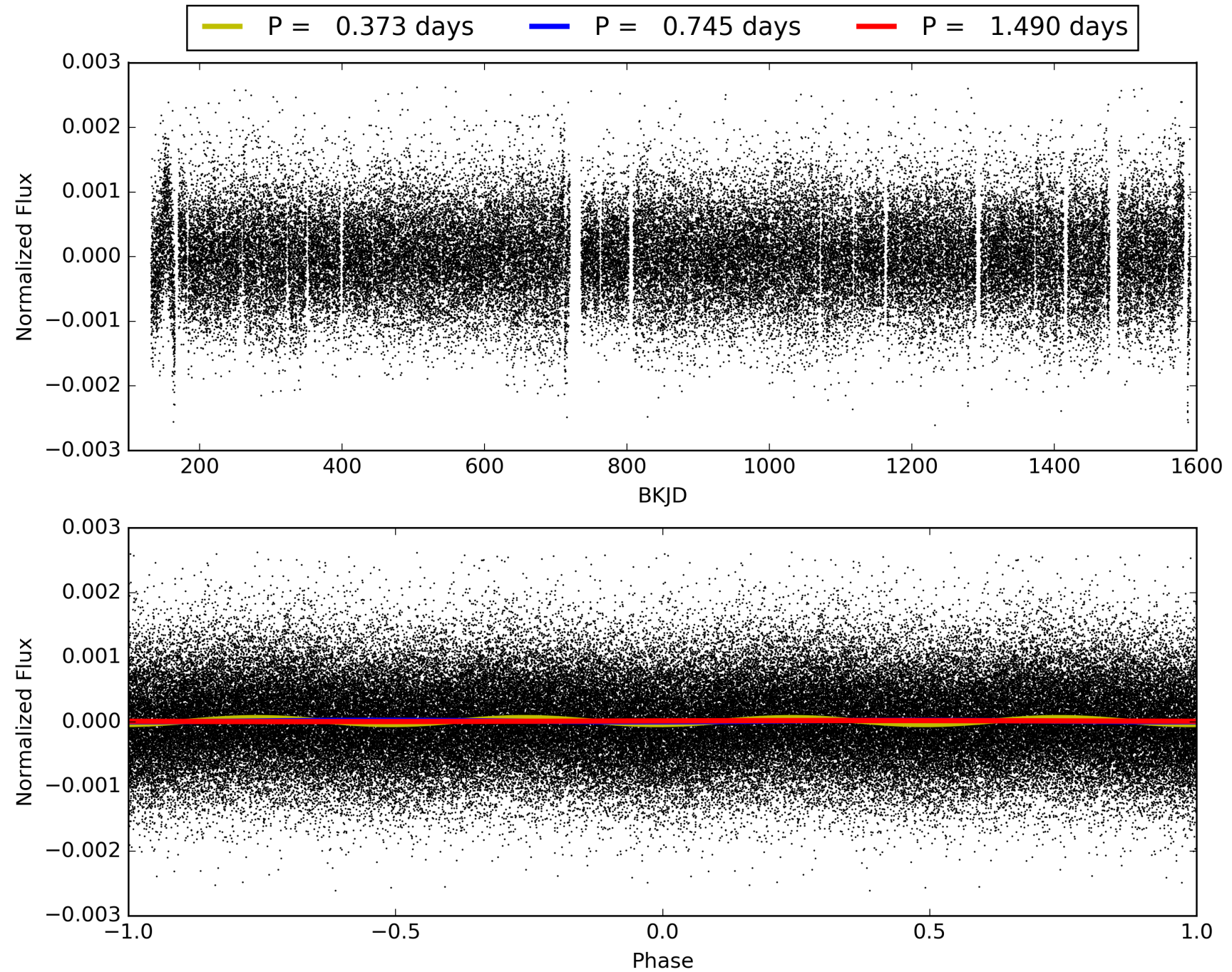
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:22:41 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010724551-01, PDC Light Curves

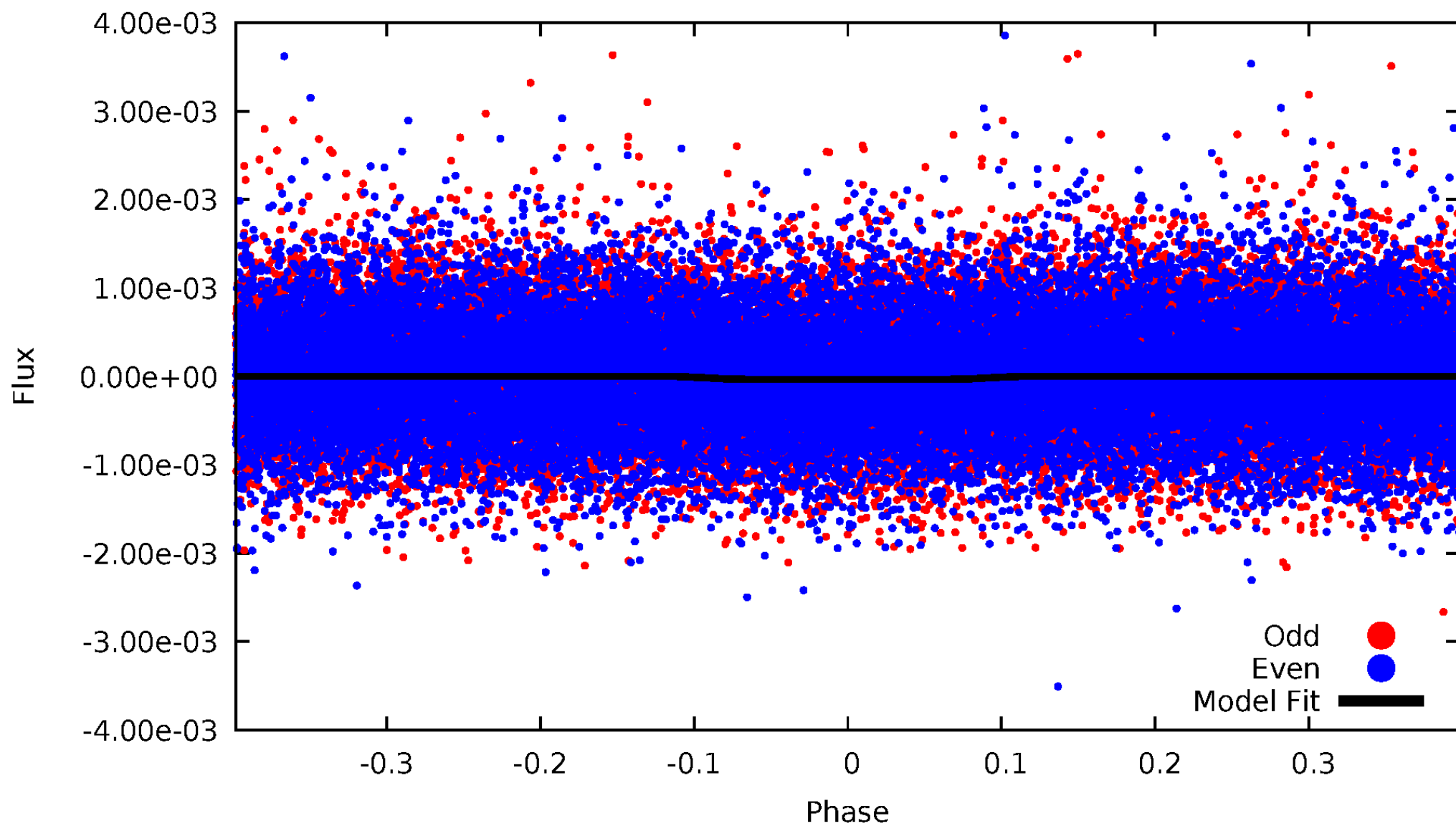


TCE 010724551-01



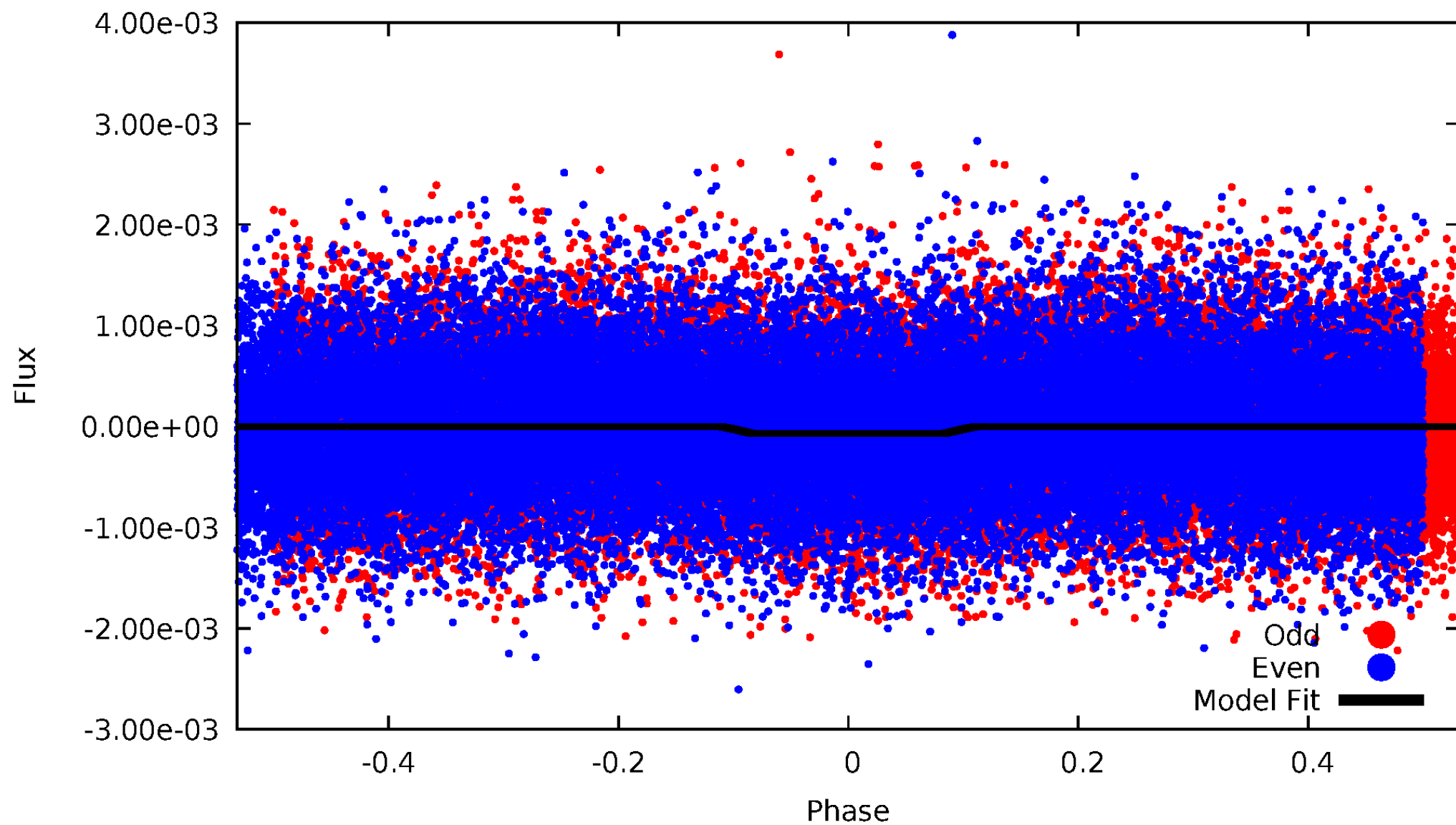
DV Odd/Even

TCE 010724551-01



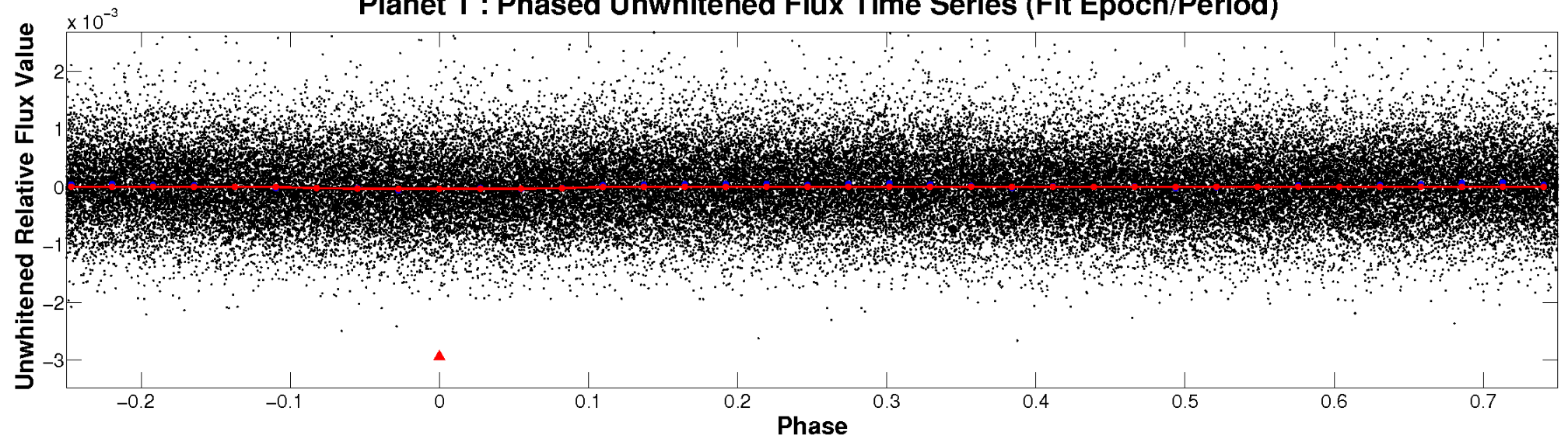
ALT Odd/Even

TCE 010724551-01

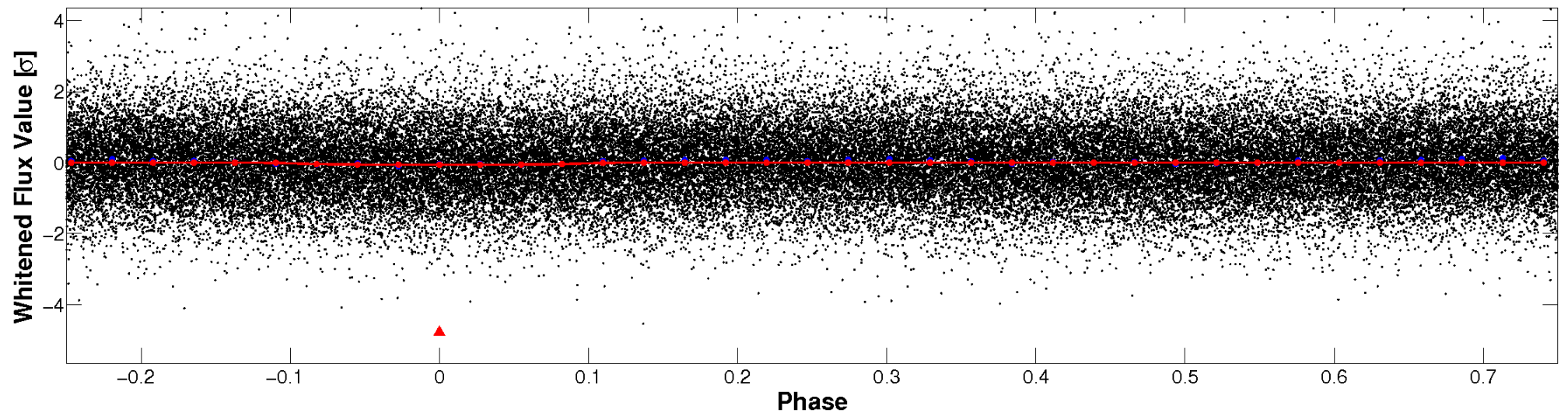


Non-Whitened Vs. Whitened Light Curve

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

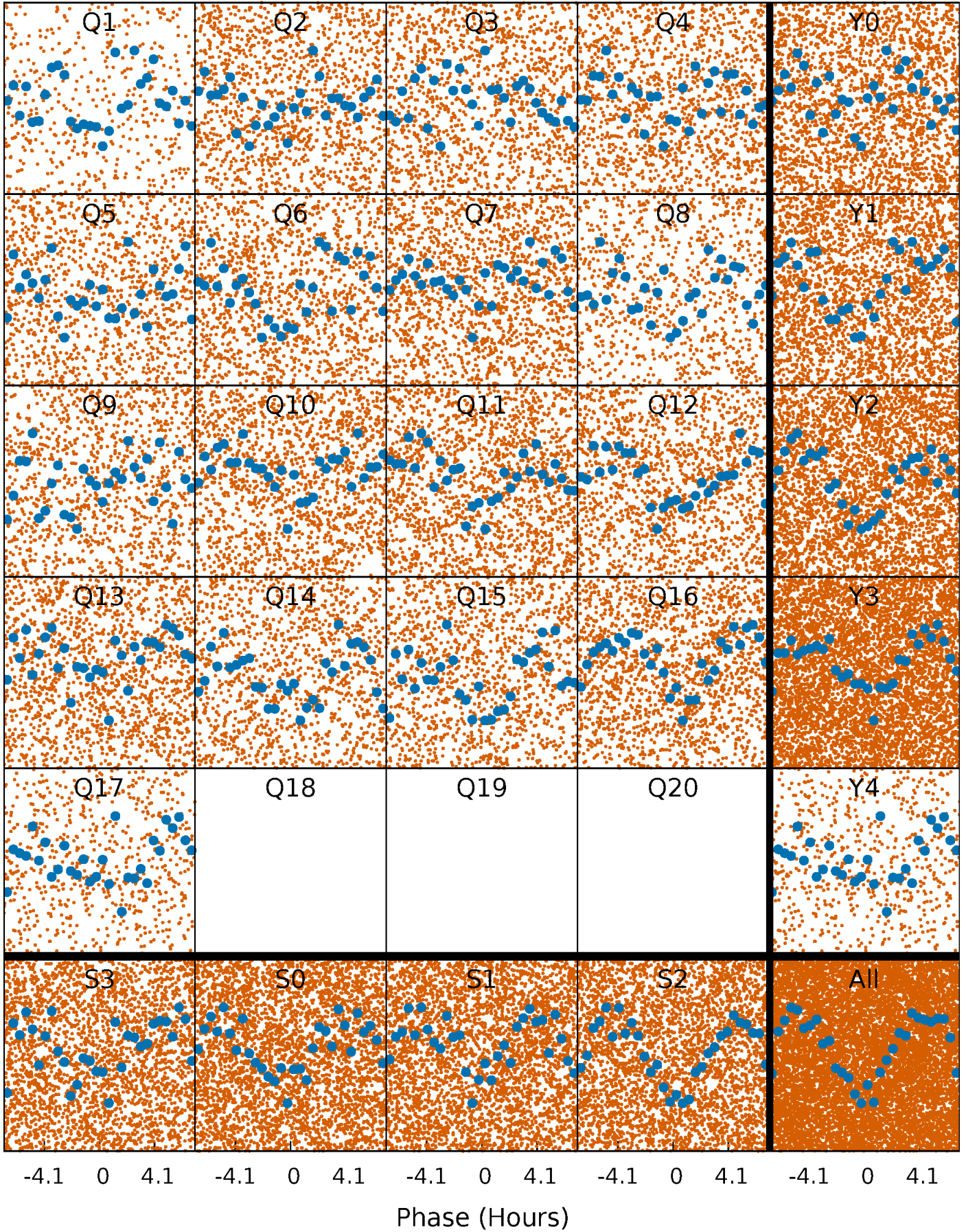


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



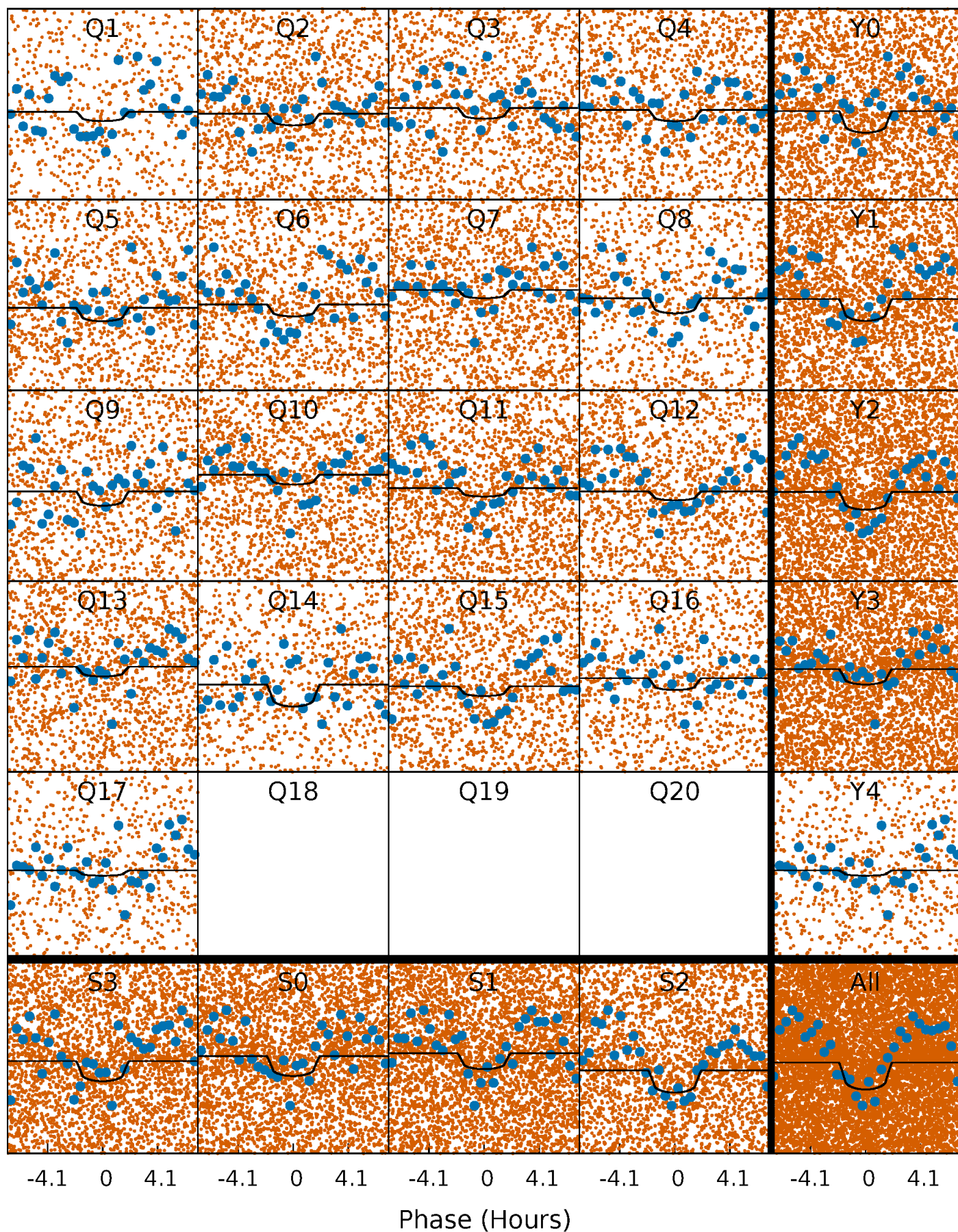
PDC Quarter-Phased Transit Curves

TCE 010724551-01 P= 0.745042 Days $T_0=131.890981$ (BKJD)



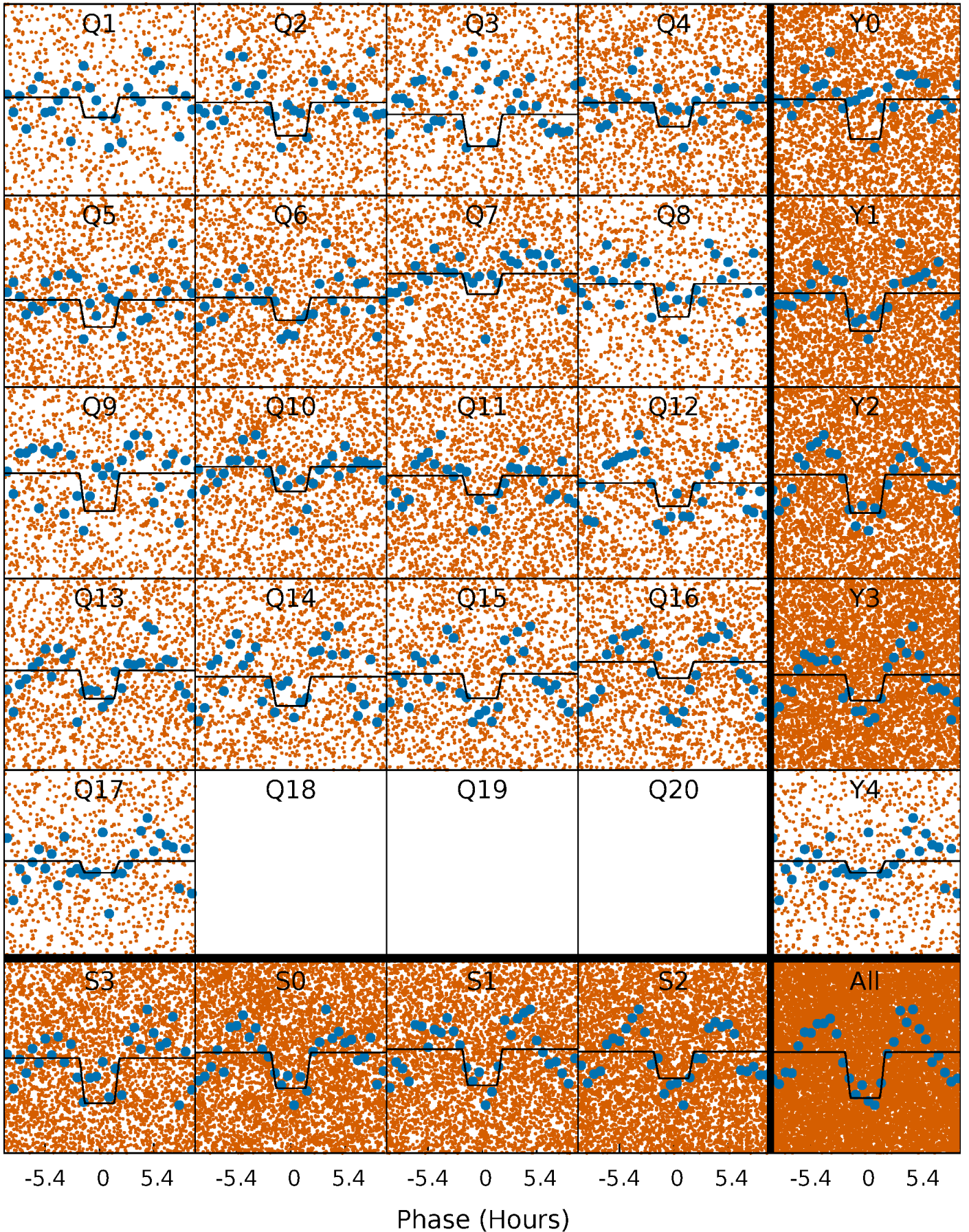
DV Quarter-Phased Transit Curves

TCE 010724551-01 P= 0.745042 Days $T_0=131.890981$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

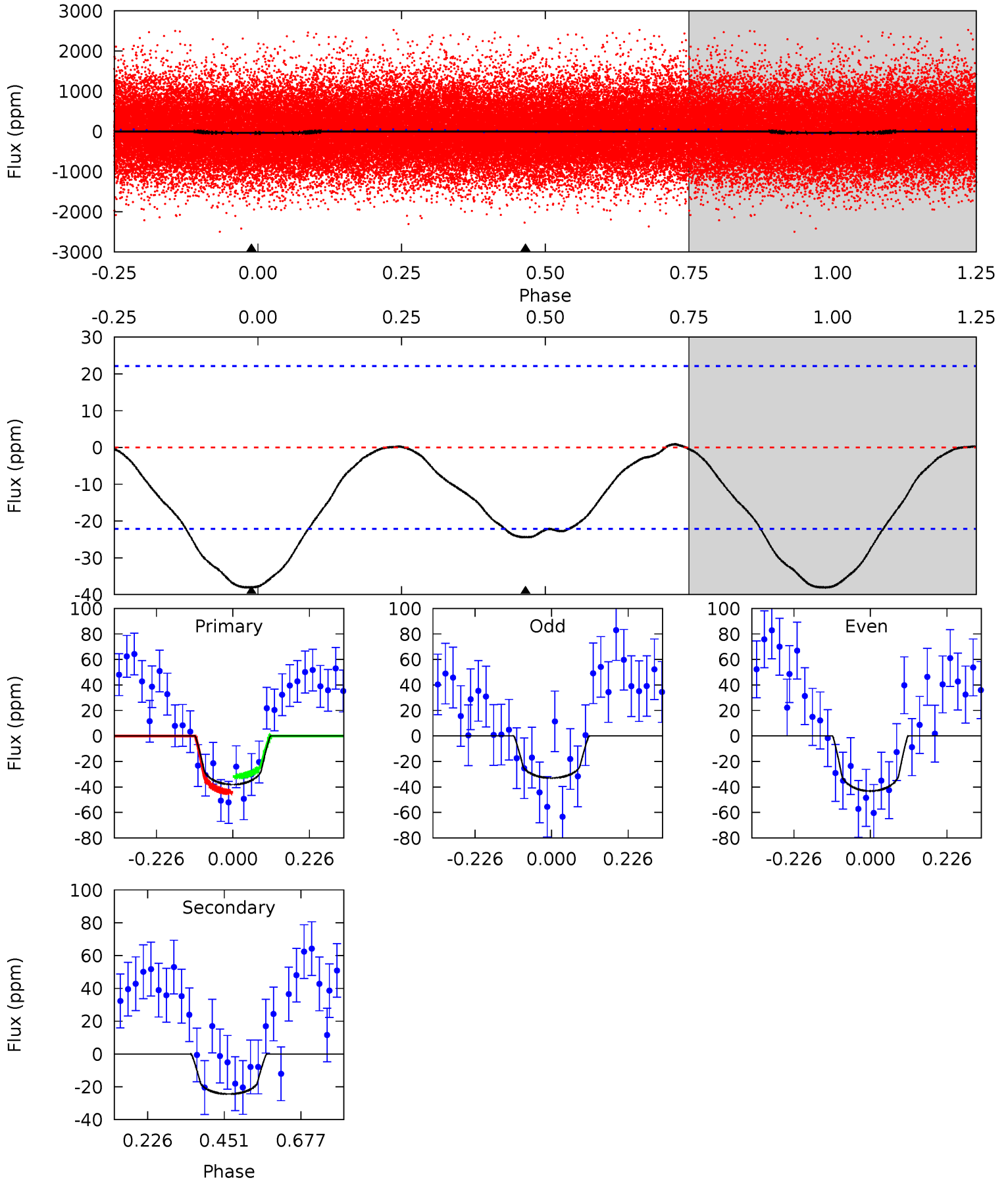
TCE 010724551-01 P= 0.745099 Days $T_0=131.811448$ (BKJD)



DV Model-Shift Uniqueness Test

010724551-01, P = 0.745042 Days, E = 131.145939 Days

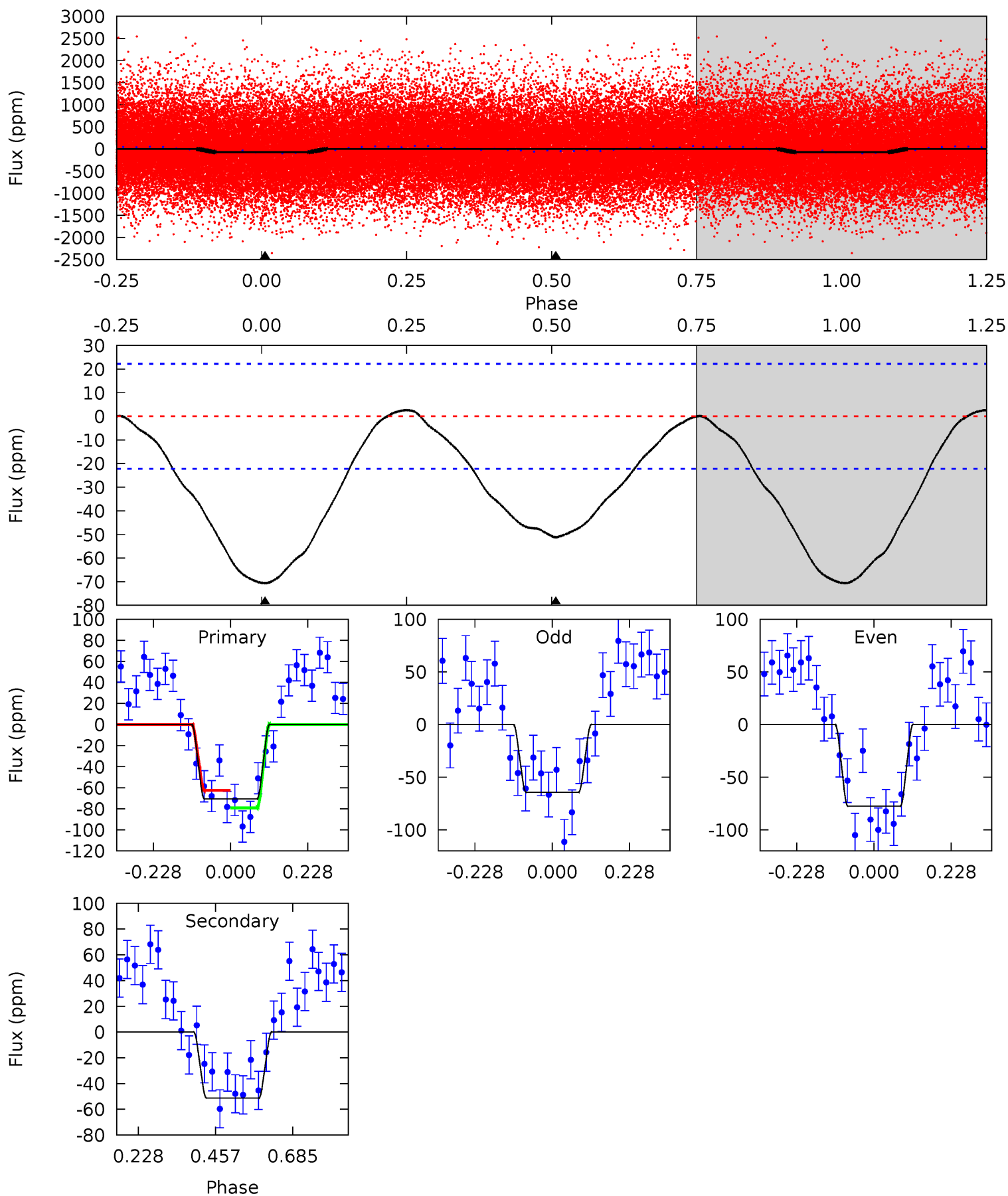
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.55	4.85	0	0	4.39	1.21	0.15	7.55	7.55	4.85	4.85	1.02	0.94	0.02	1.22



Alt Model-Shift Uniqueness Test

010724551-01, P = 0.745099 Days, E = 131.066349 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	10.1	0	0	4.39	1.20	0.35	14.0	14.0	10.1	10.1	1.31	0.96	0.04	1.67



Stellar Parameters For KIC 010724551

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6033^{+217}_{-265}	$4.460^{+0.052}_{-0.208}$	$0.210^{+0.200}_{-0.300}$	$1.046^{+0.313}_{-0.104}$	$1.153^{+0.125}_{-0.166}$	$1.418^{+0.381}_{-0.718}$
	+4%/-4%	+1%/-5%	+95%/-143%	+30%/-10%	+11%/-14%	+27%/-51%
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 010724551-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 5	$1.04^{+0.91}_{-0.70}$	2993^{+239}_{-159}	4579^{+3496}_{-1067}	$3.540^{+30.024}_{-2.552}$
Alt.	-51 ± 5	$1.26^{+1.01}_{-0.75}$	2996^{+230}_{-181}	4931^{+3070}_{-1044}	$4.823^{+25.230}_{-3.308}$

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

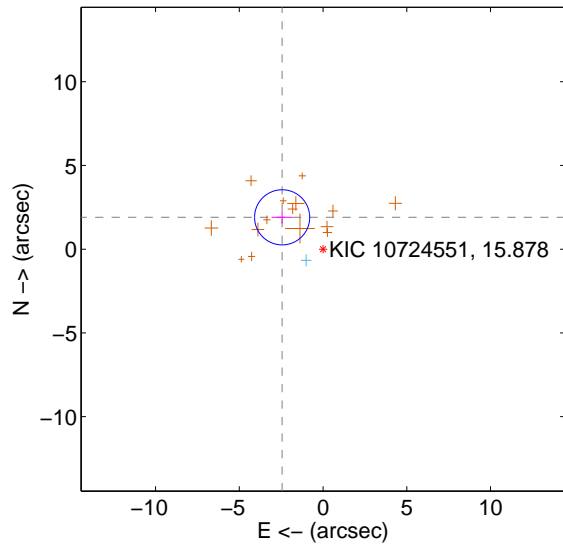
Supplemental centroid analysis for 010724551-01. Kepler magnitude: 15.88. Transit SNR 5.51

There are 1 quarters with good PRF difference image offsets

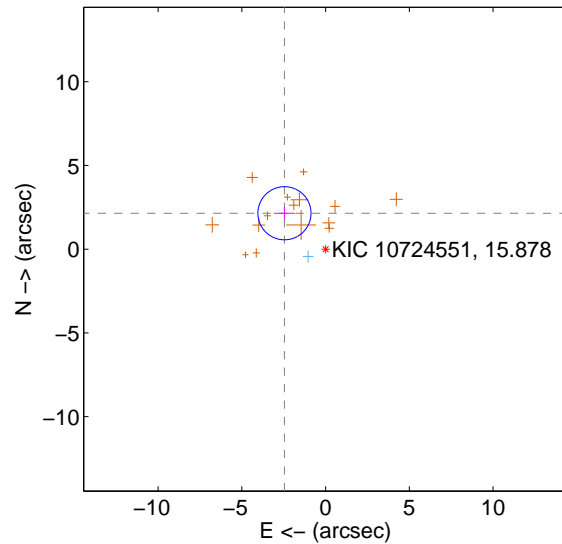
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.096 ± 0.549	5.64	2.443 ± 0.630	1.902 ± 0.378
PRF-fit source offset from KIC position	3.261 ± 0.529	6.17	2.456 ± 0.622	2.146 ± 0.373
photometric centroid source offset	4.49 ± 2.52	1.78	-3.14 ± 2.57	-3.21 ± 2.46

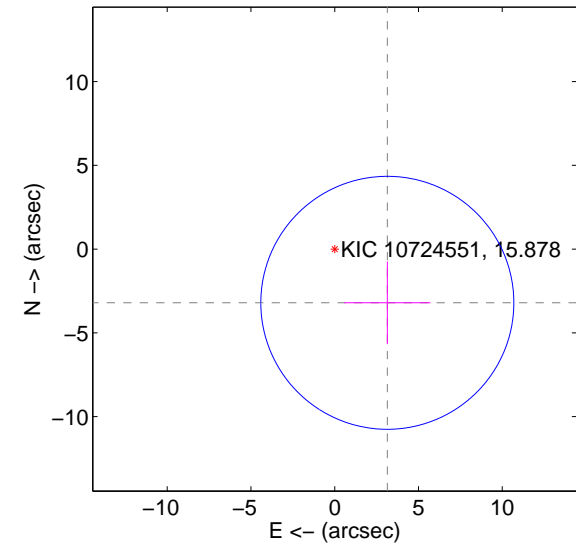
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

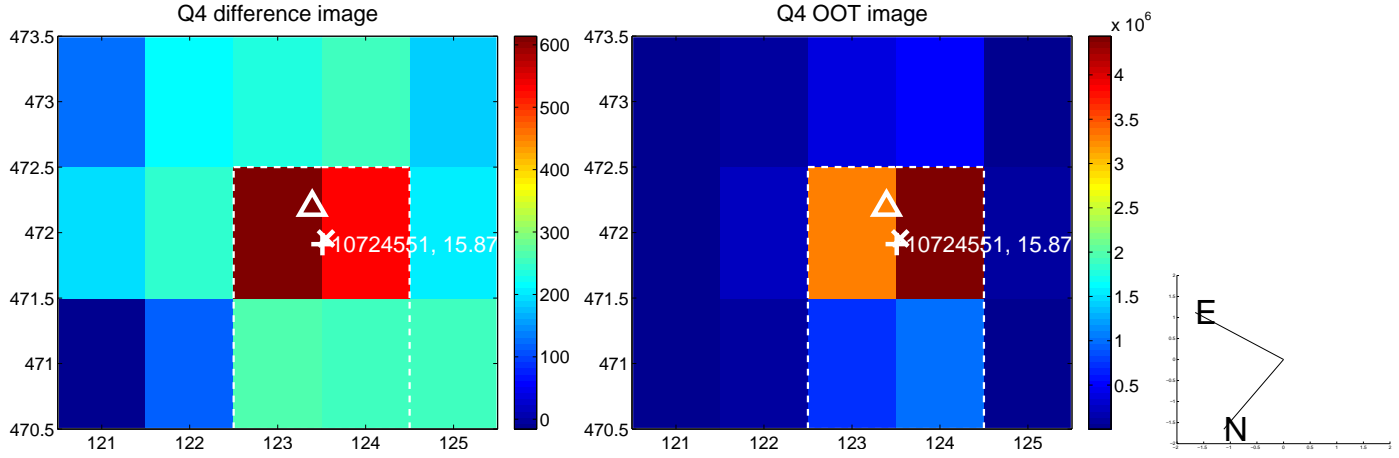
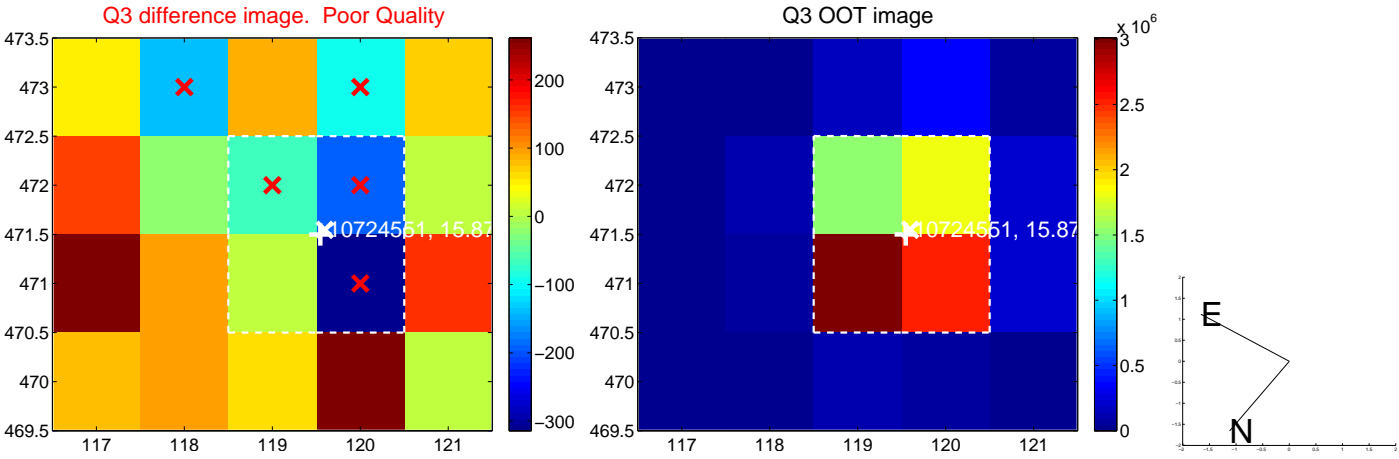
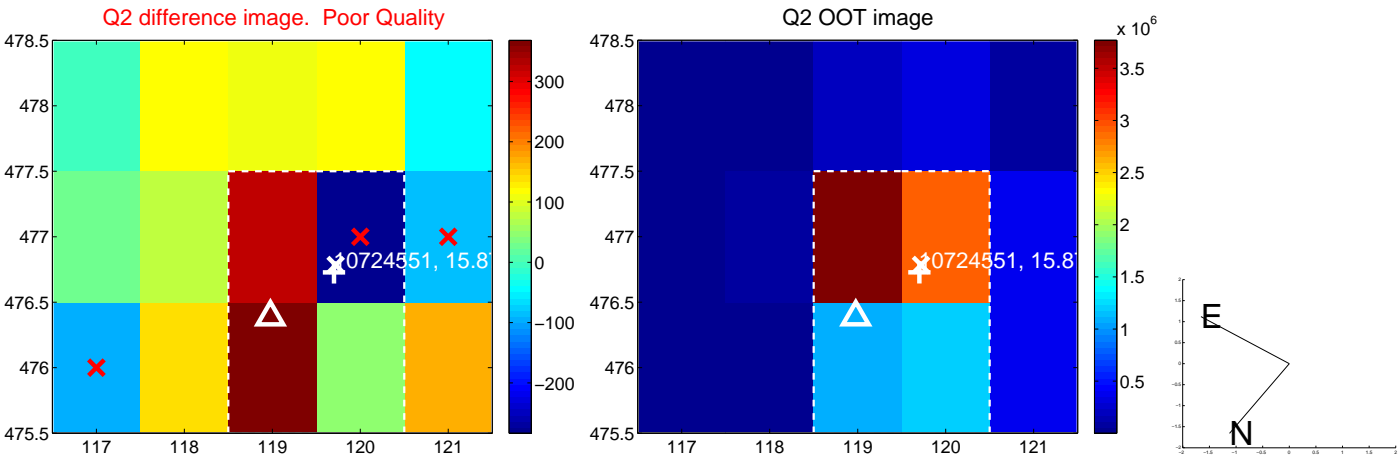
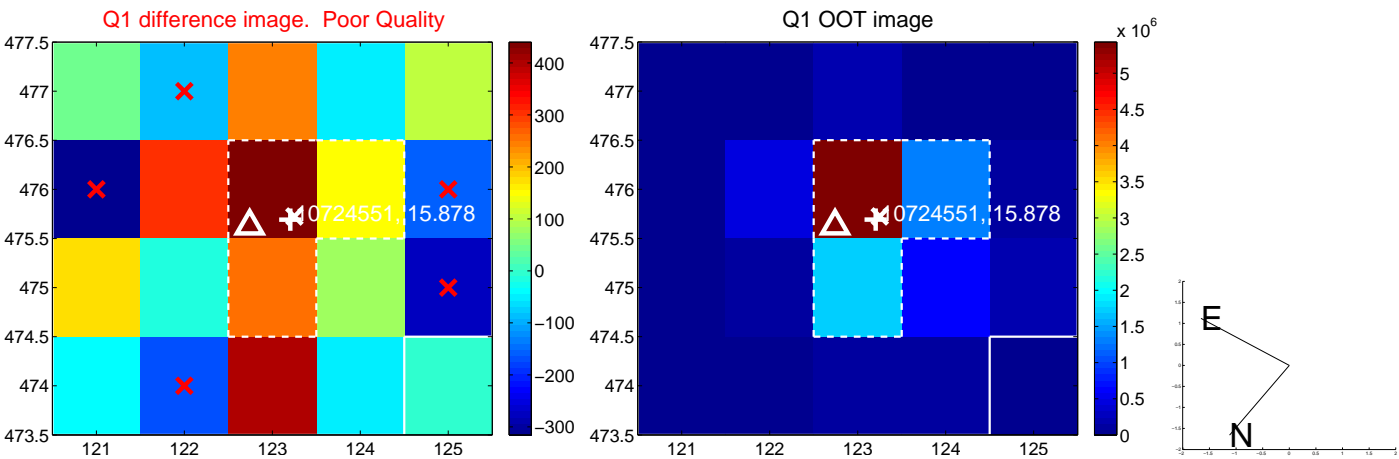


offset from photometric centroids

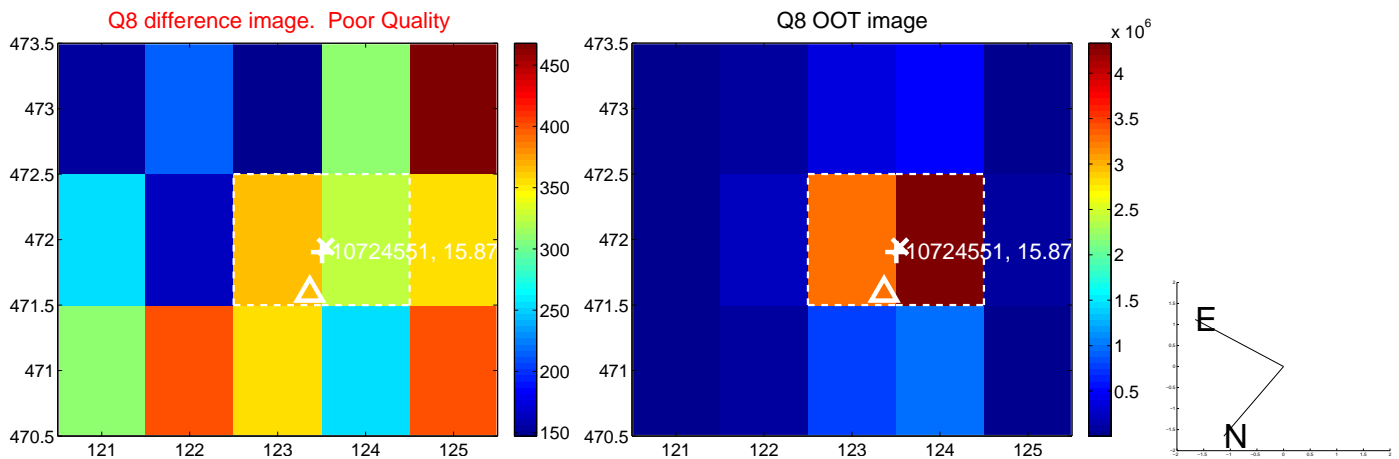
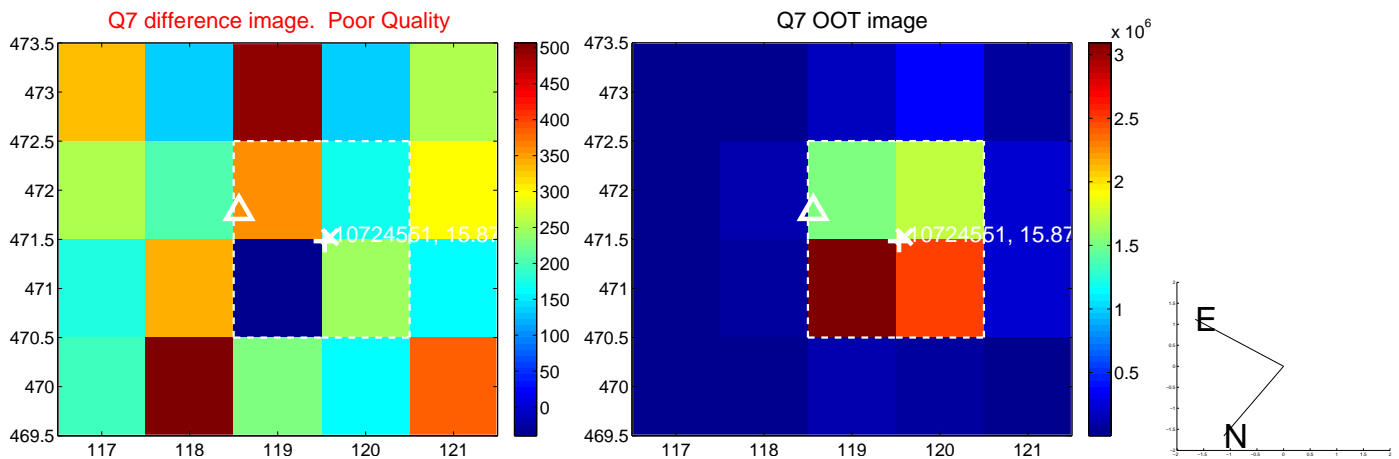
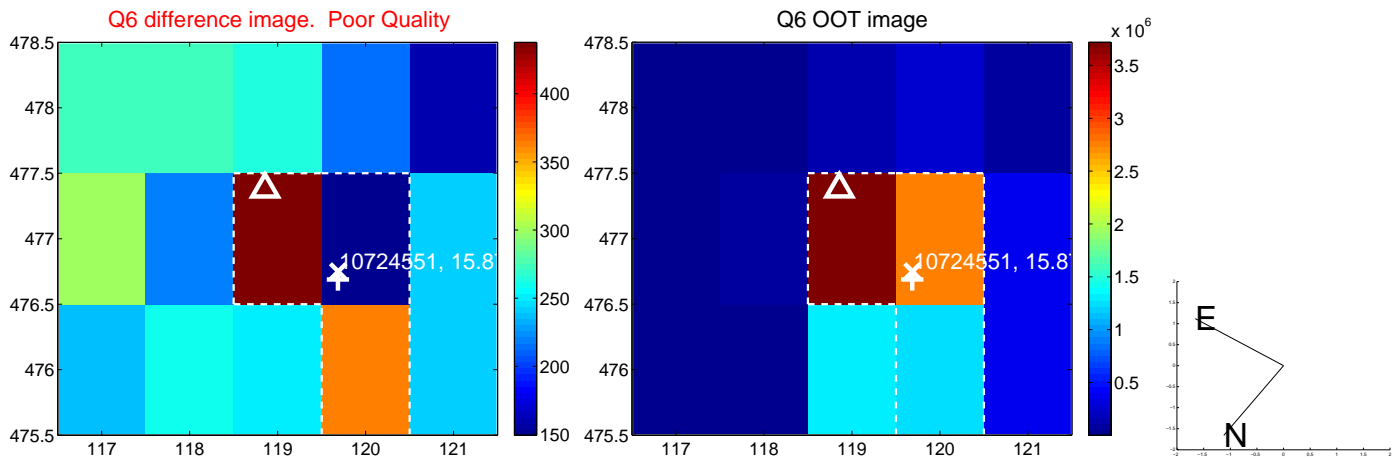
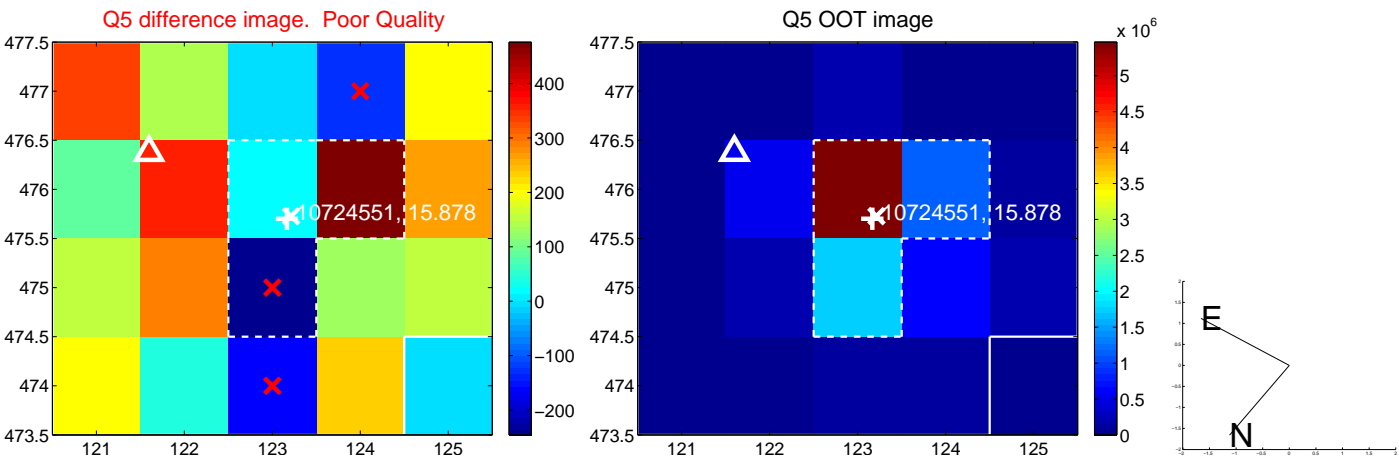


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

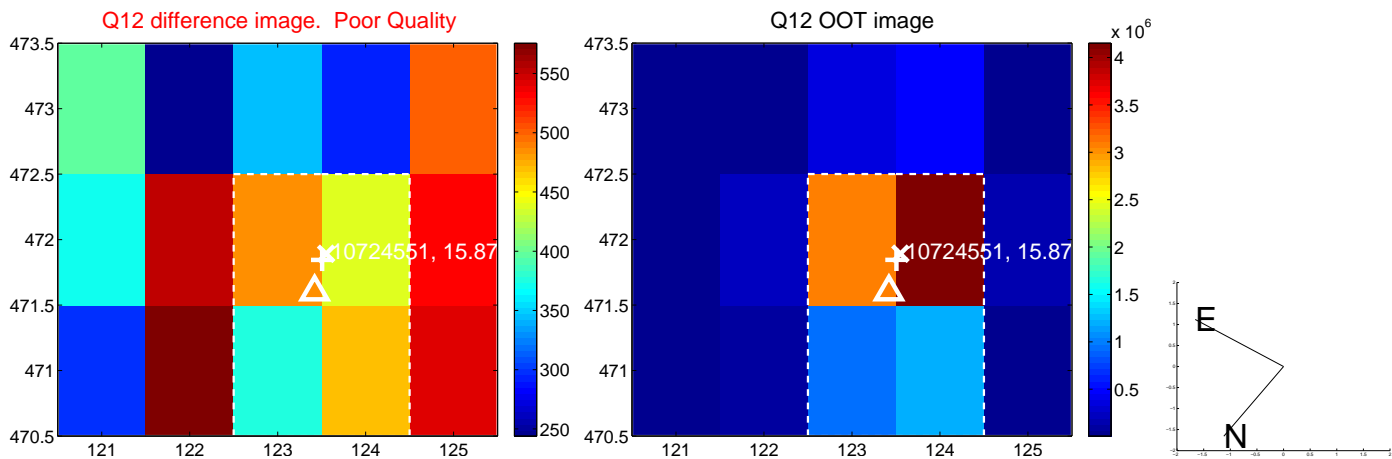
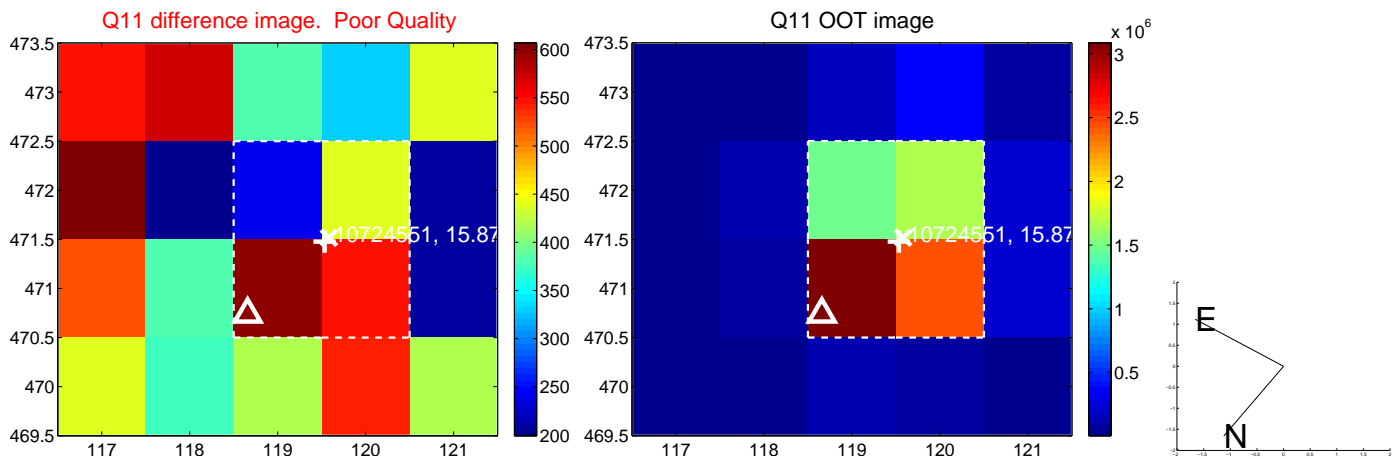
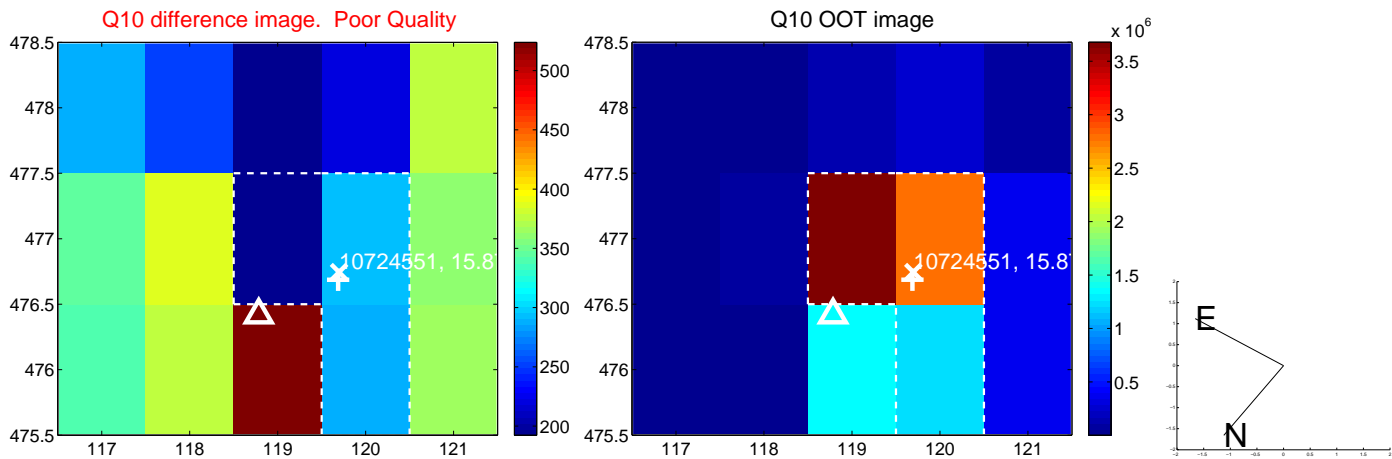
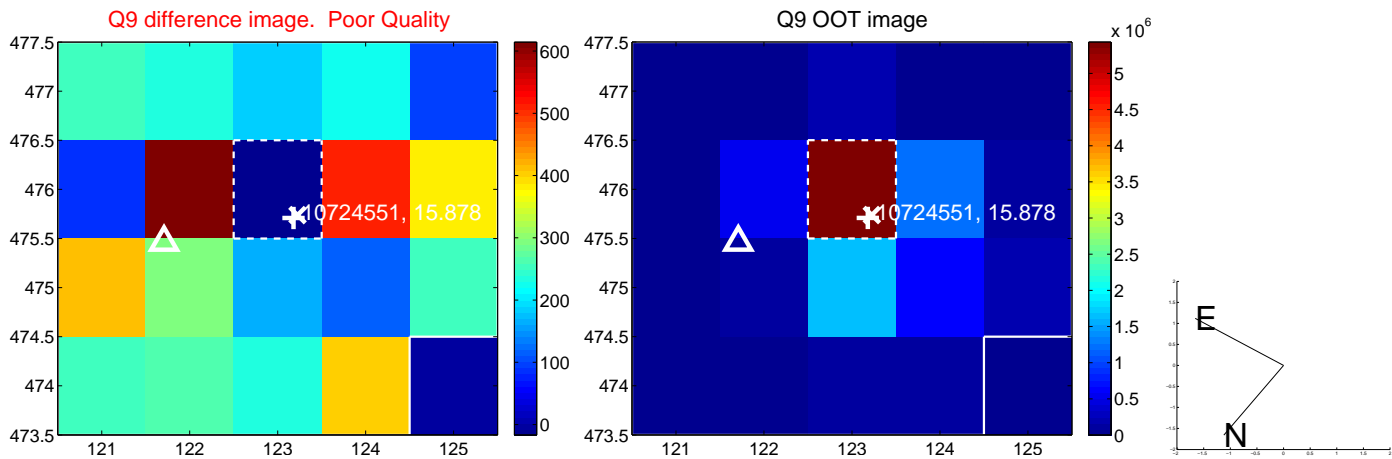
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



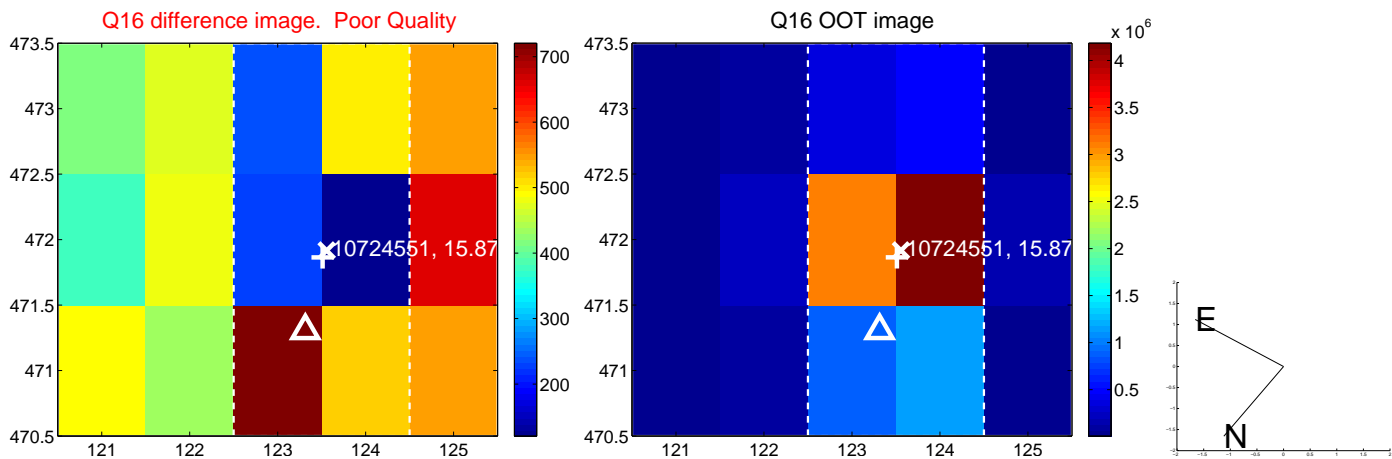
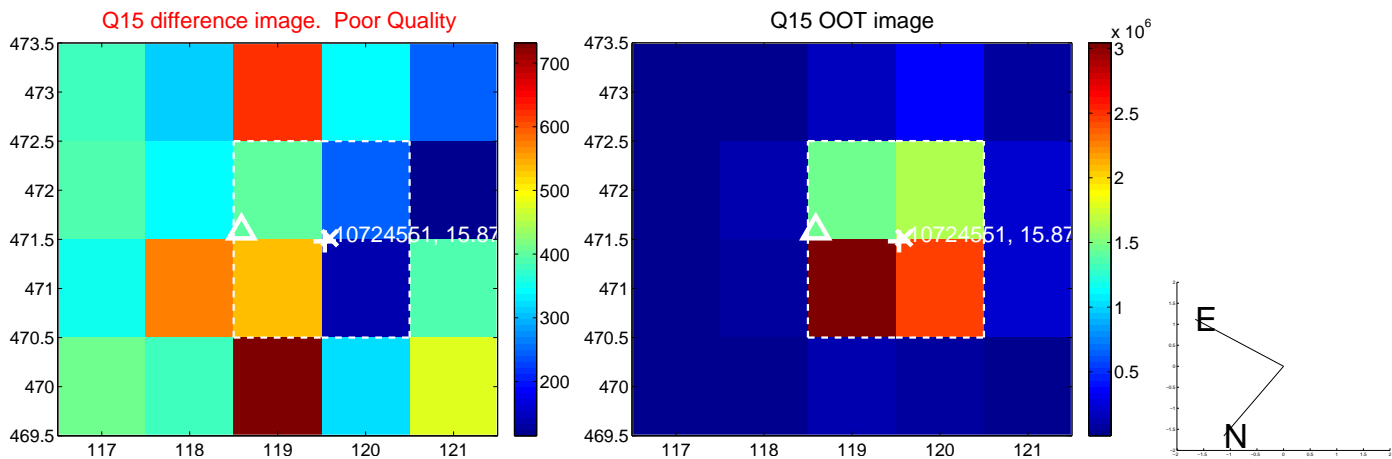
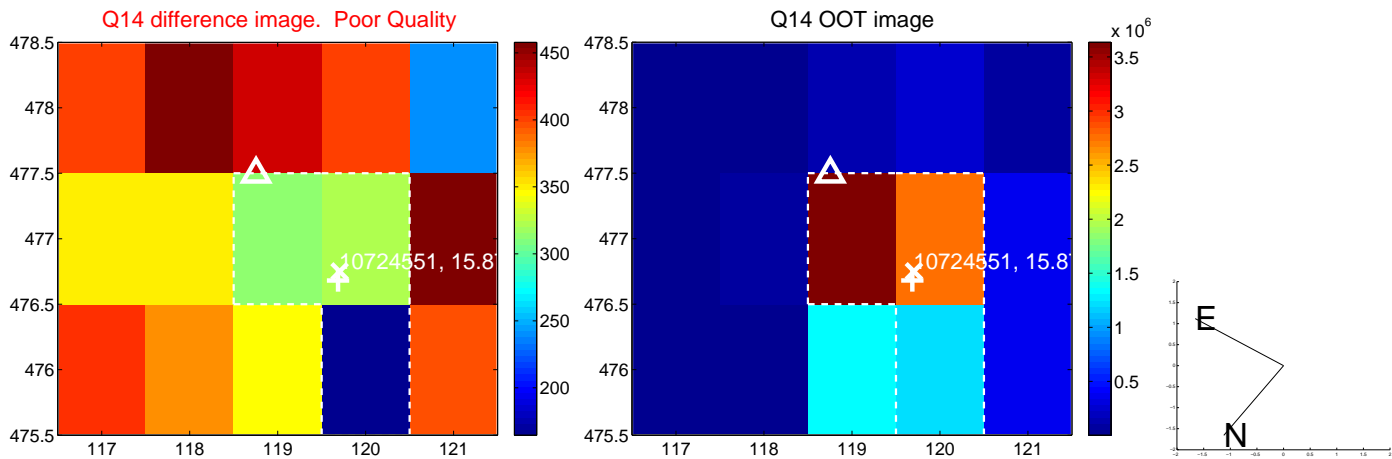
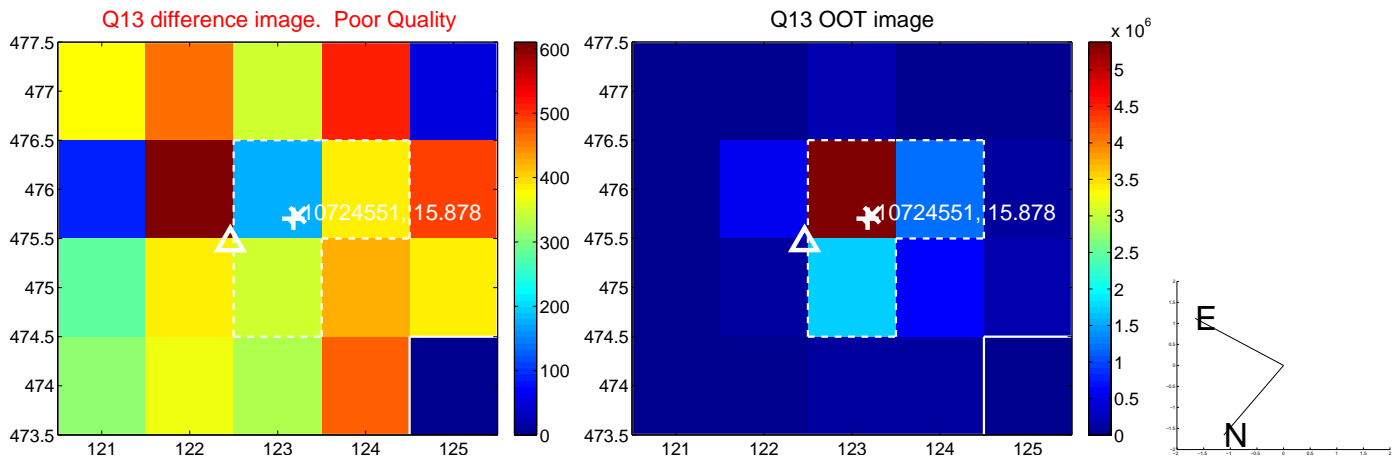
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



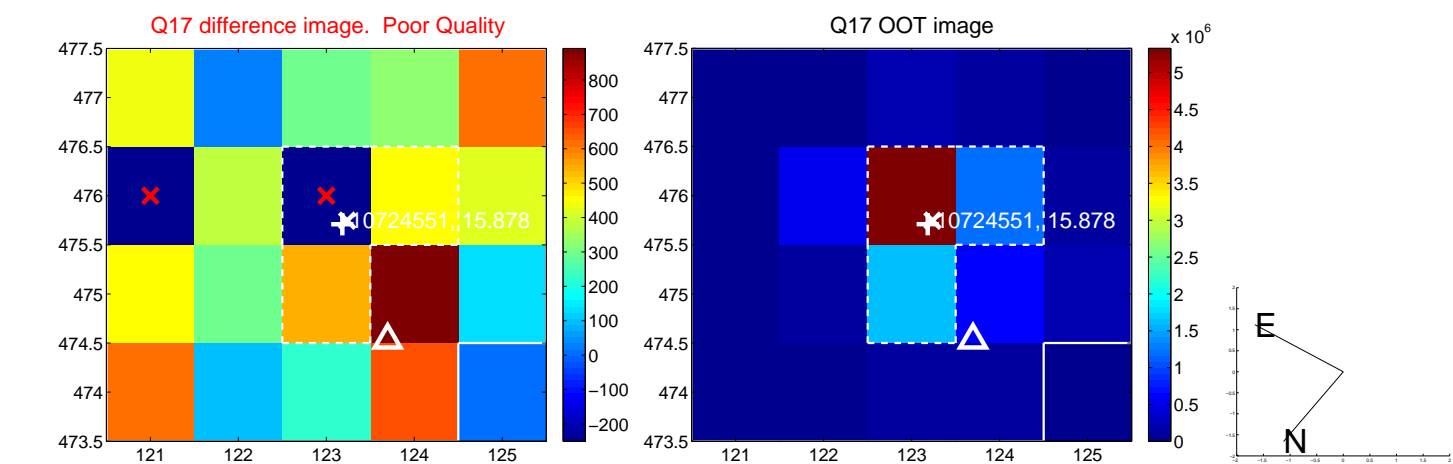
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



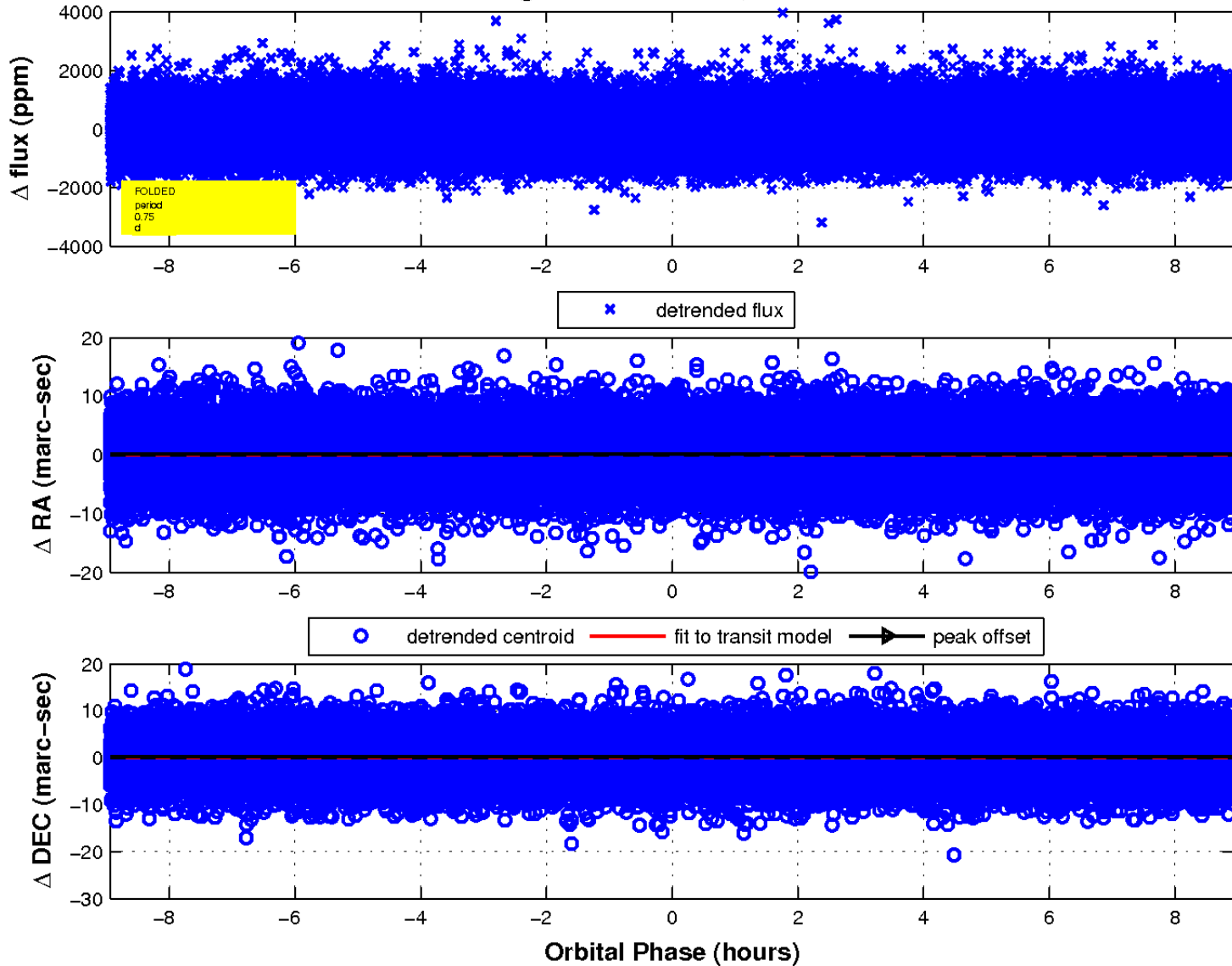
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

