KIC 006442246

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 ($S_\oplus$)
006442246-01	OBS	6709.01	2.212760	132.734547	19.7	3.774	7.9	8.4	1.41	6195	0.70	2494.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006442246-01	OBS	FP	0.00	0	0	0	1	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 006442246-01

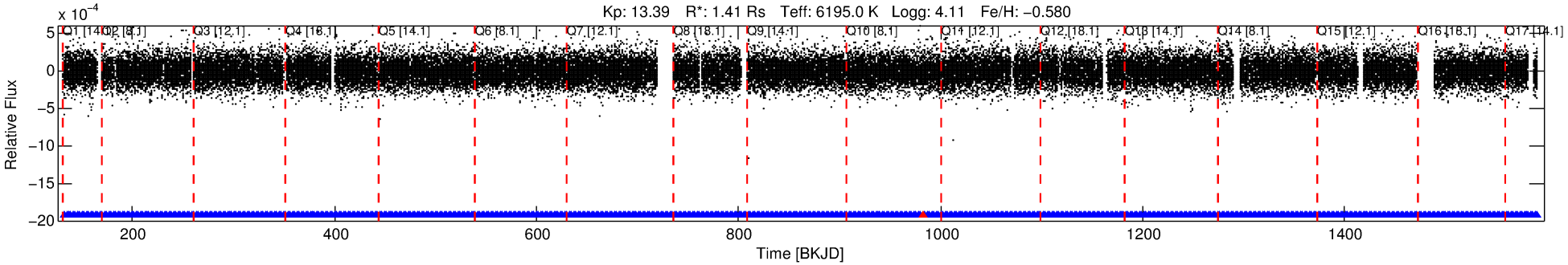
TCE (1)	KIC	Parent (2)	Parent KIC	P_1:P_2	Dist (″)	ΔRow	ΔCol	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006442246-01	6442246	006521542-01	6521542	1:1	363.7	92	0	14.28	13.39	18905.00	Col-Anomaly	0	4.16	3.22

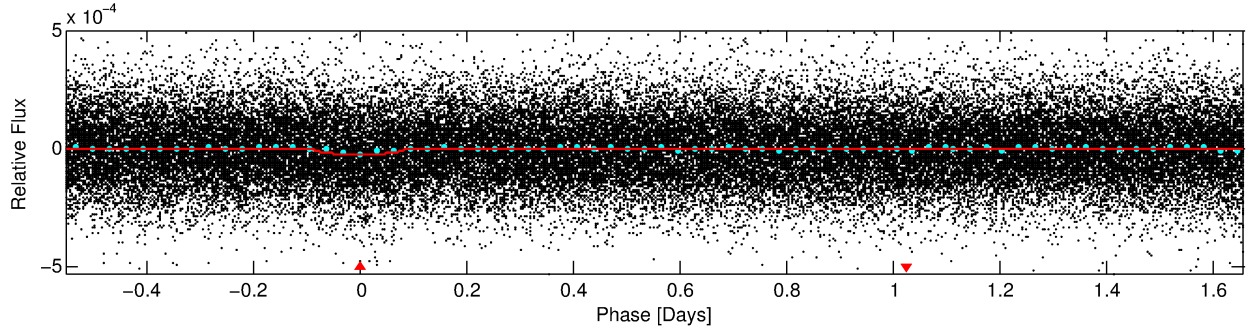
Notes: P_1:P_2 is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth dividied by the child's. σ_P and σ_T are the significance of the match 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 recieve extra scrutiny, especially if the period ratio is very large.

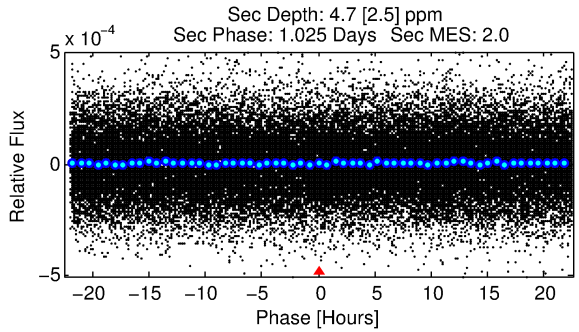
DV One-Page Summary

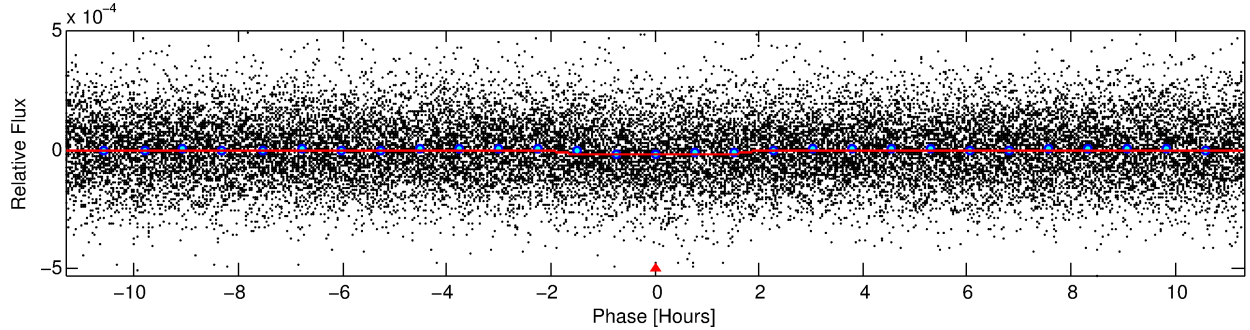
KIC: 6442246 Candidate: 1 of 1 Period: 2.213 d
KOI: K06709.01 Corr: 0.918

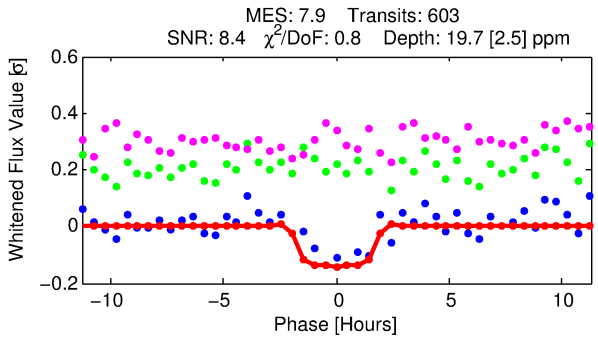
Kp: 13.39 R*: 1.41 Rs Teff: 6195.0 K Logg: 4.11 Fe/H: −0.580

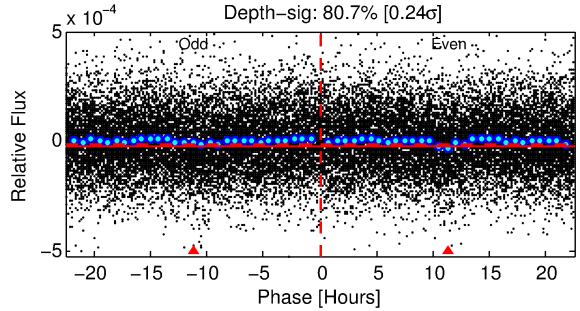


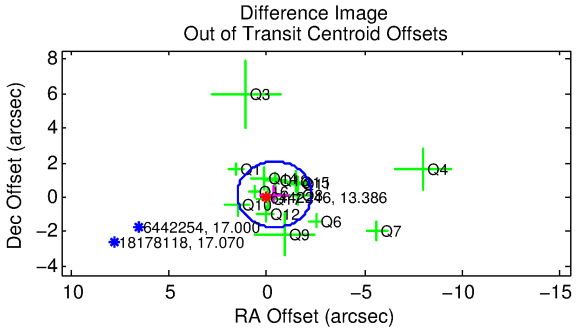












DV Fit Results:

Period = 2.21276 [0.00002] d
Epoch = 132.7345 [0.0060] BKJD
Rp/R* = 0.0046 [0.0016]
a/R* = 2.56 [4.15]
b = 0.85 [0.63]

Seff = 2494.20 [1179.02]
Teq = 1802 [213] K
Rp = 0.70 [0.32] Re
a = 0.0323 [0.0091] AU

Ag = 5.38 [5.36] [0.82σ]
Teffp = 4244 [943] K [2.52σ]

DV Diagnostic Results:

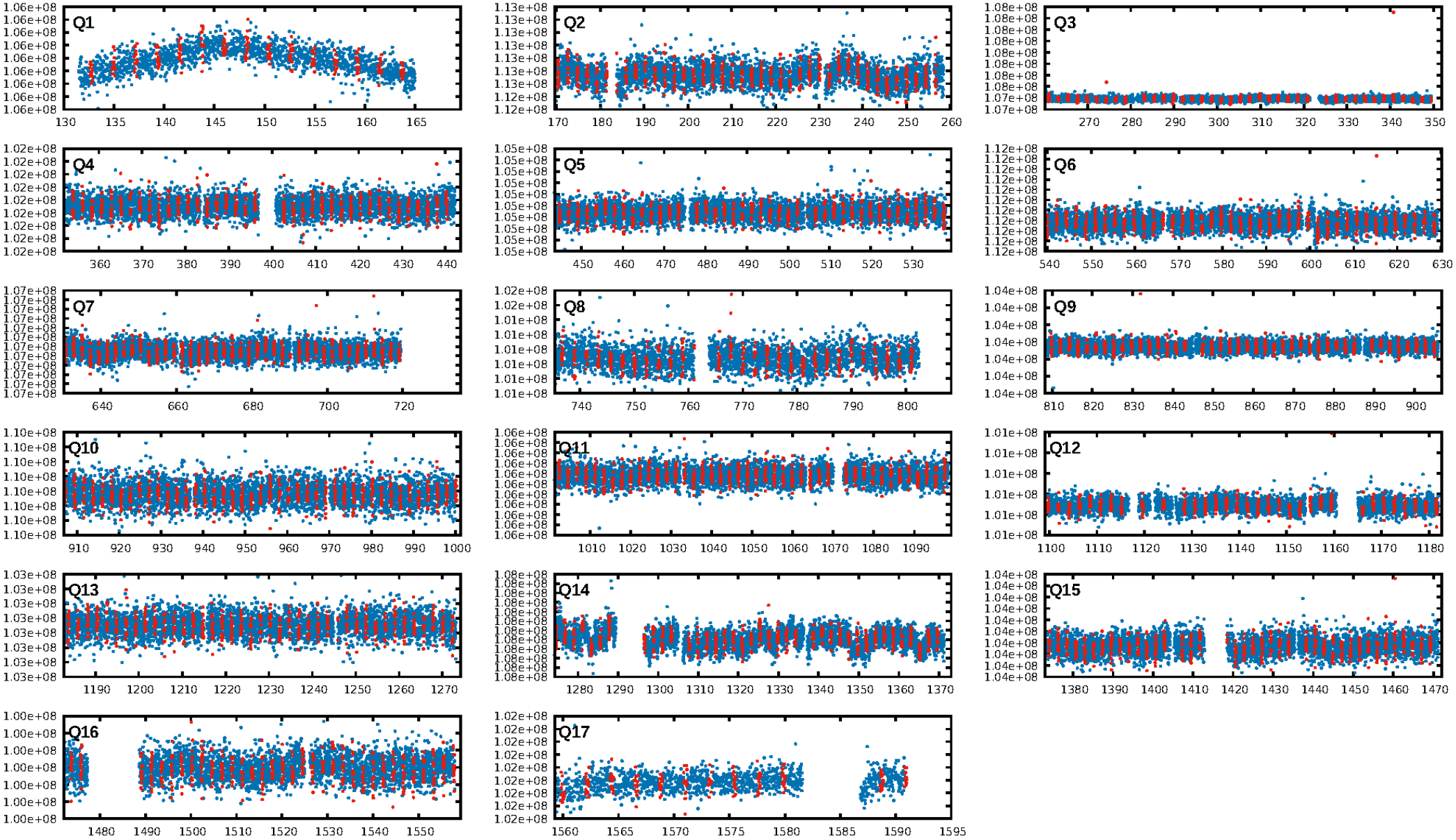
ShortPeriod−sig: N/A
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 2.15e−15
RollingBand−fgt: 1.00 [575/576]
GhostDiagnostic−chr: 2.629

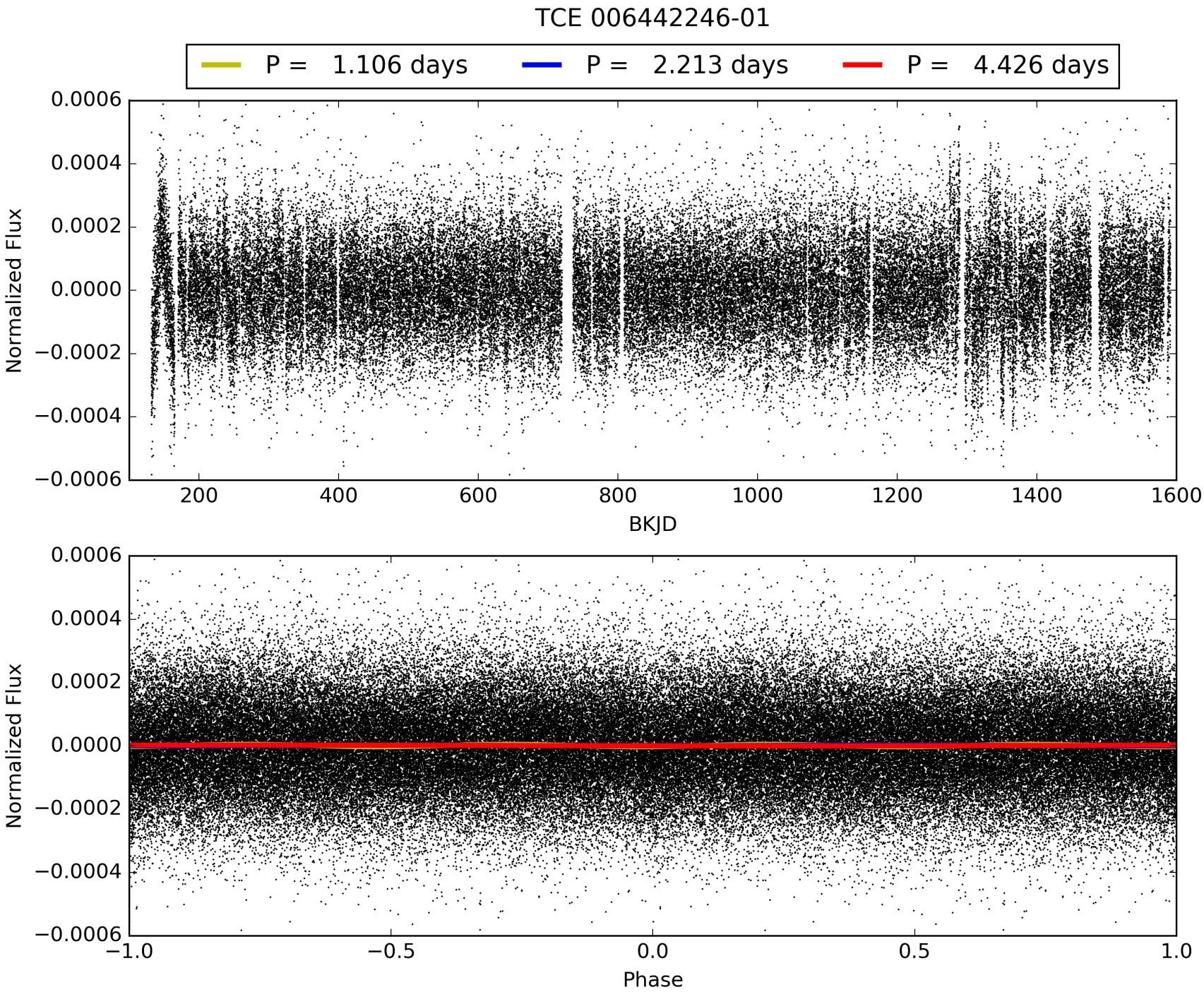
Centroid−sig: 79.5%
Centroid−so: 0.458 arcsec [0.32σ]
OotOffset−rm: 0.422 arcsec [0.67σ]
KicOffset−rm: 0.373 arcsec [0.59σ]
OotOffset−st: 3/4/4/4 [15]
KicOffset−st: 3/4/4/4 [15]
DiffImageQuality−fgm: 0.60 [9/15]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 29−Jan−2016 05:44:18 Z

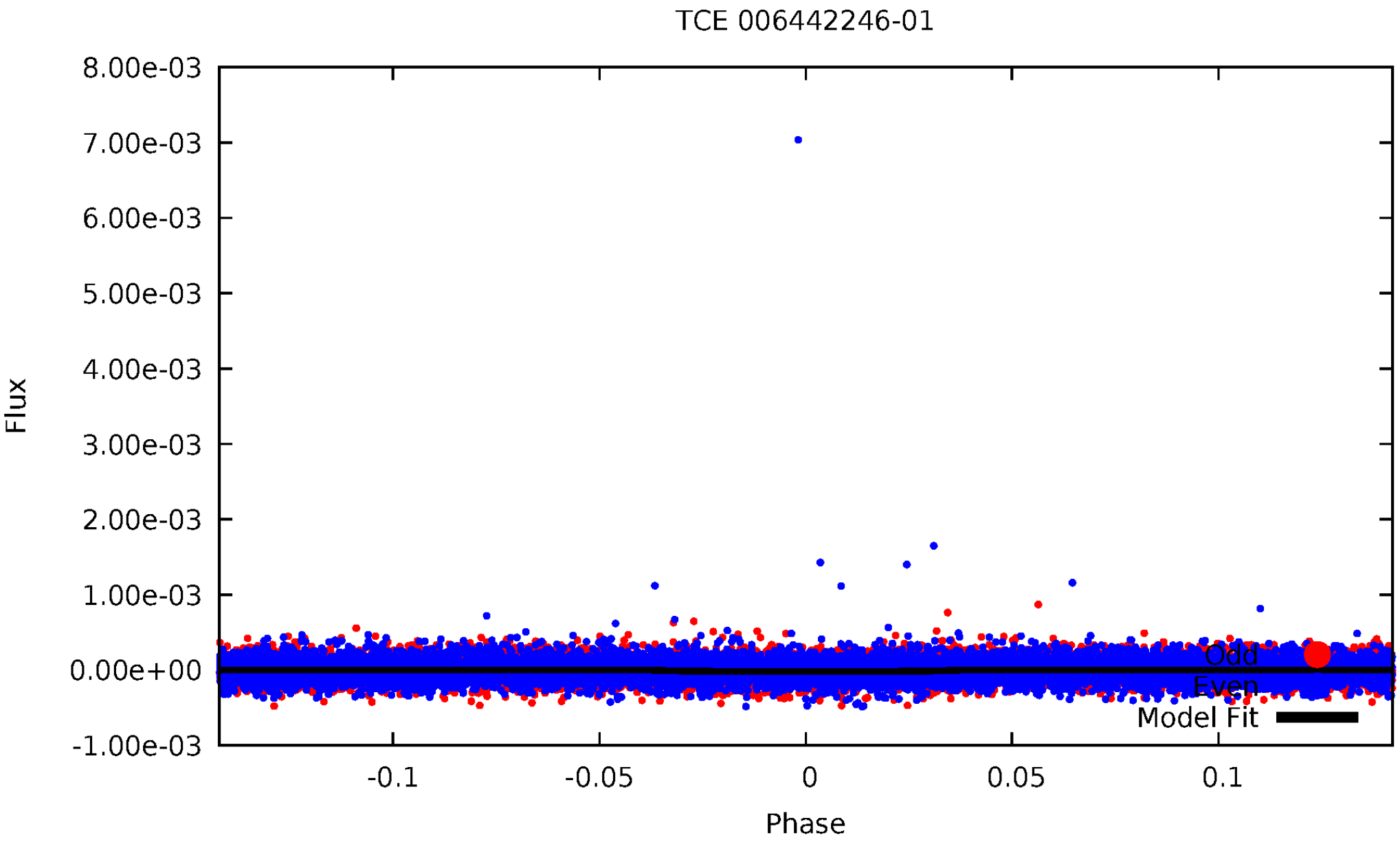
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006442246-01, PDC Light Curves

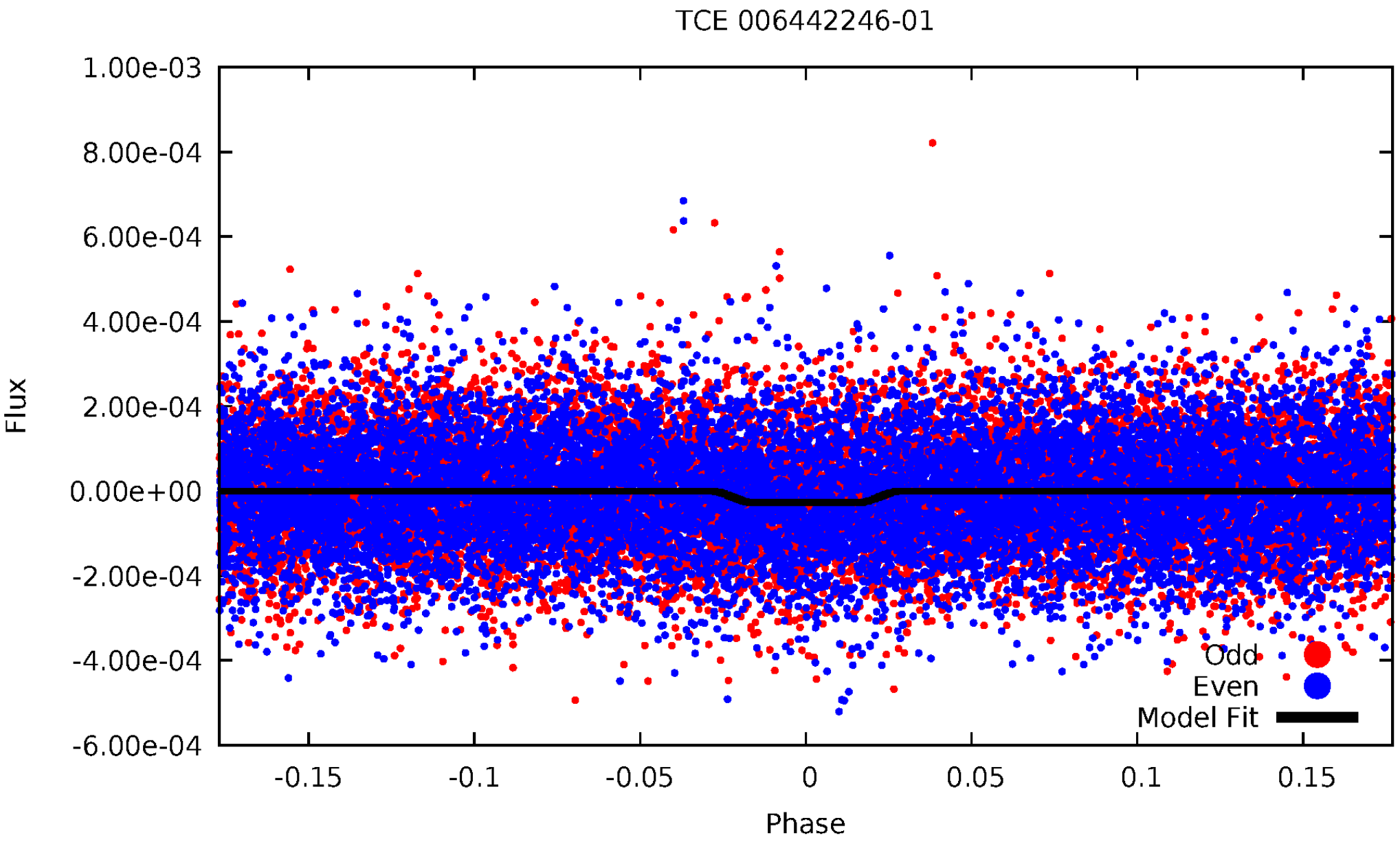



TCE 006442246-01
P = 1.106 days
P = 2.213 days
P = 4.426 days
Normalized Flux
0.0006
0.0004
0.0002
0.0000
−0.0002
−0.0004
−0.0006
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0006
0.0004
0.0002
0.0000
−0.0002
−0.0004
−0.0006
−1.0
−0.5
0.0
0.5
1.0
Phase

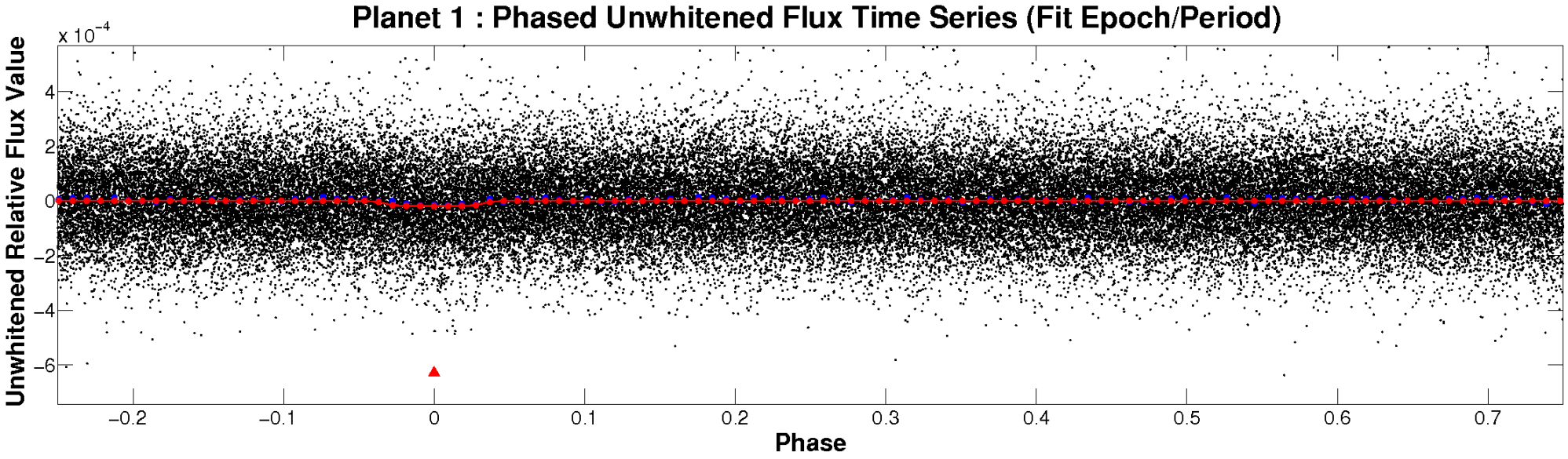
DV Odd/Even

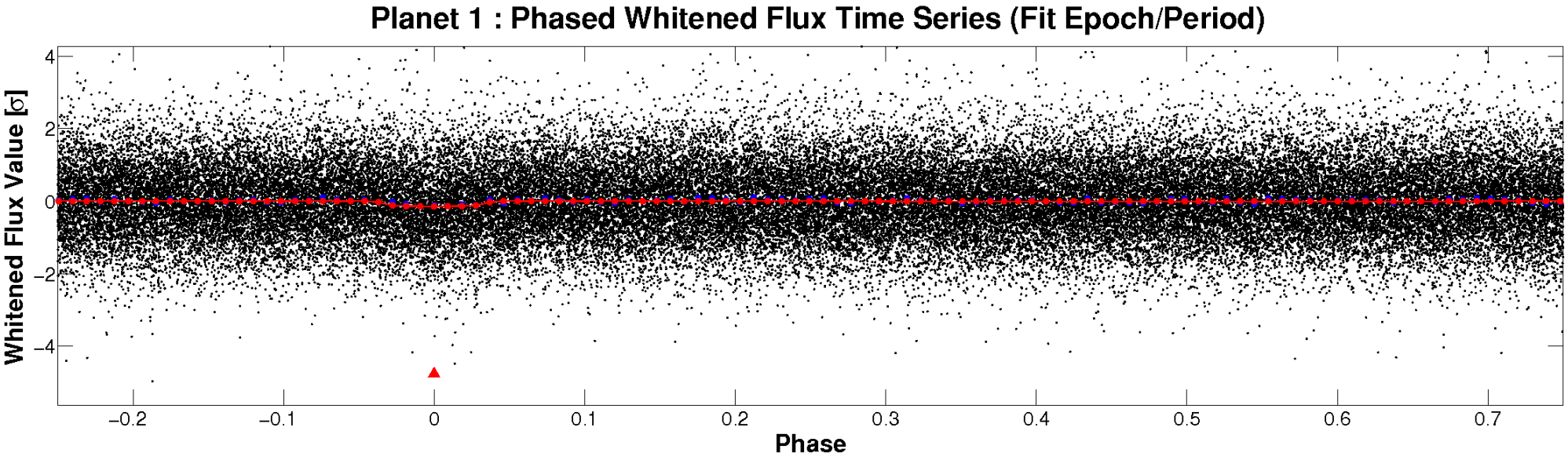

TCE 006442246-01
8.00e-03
7.00e-03
6.00e-03
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006442246-01
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
Flux
-0.15
-0.1
-0.05
0
0.05
0.1
0.15
Phase
Odd
Even
Model Fit

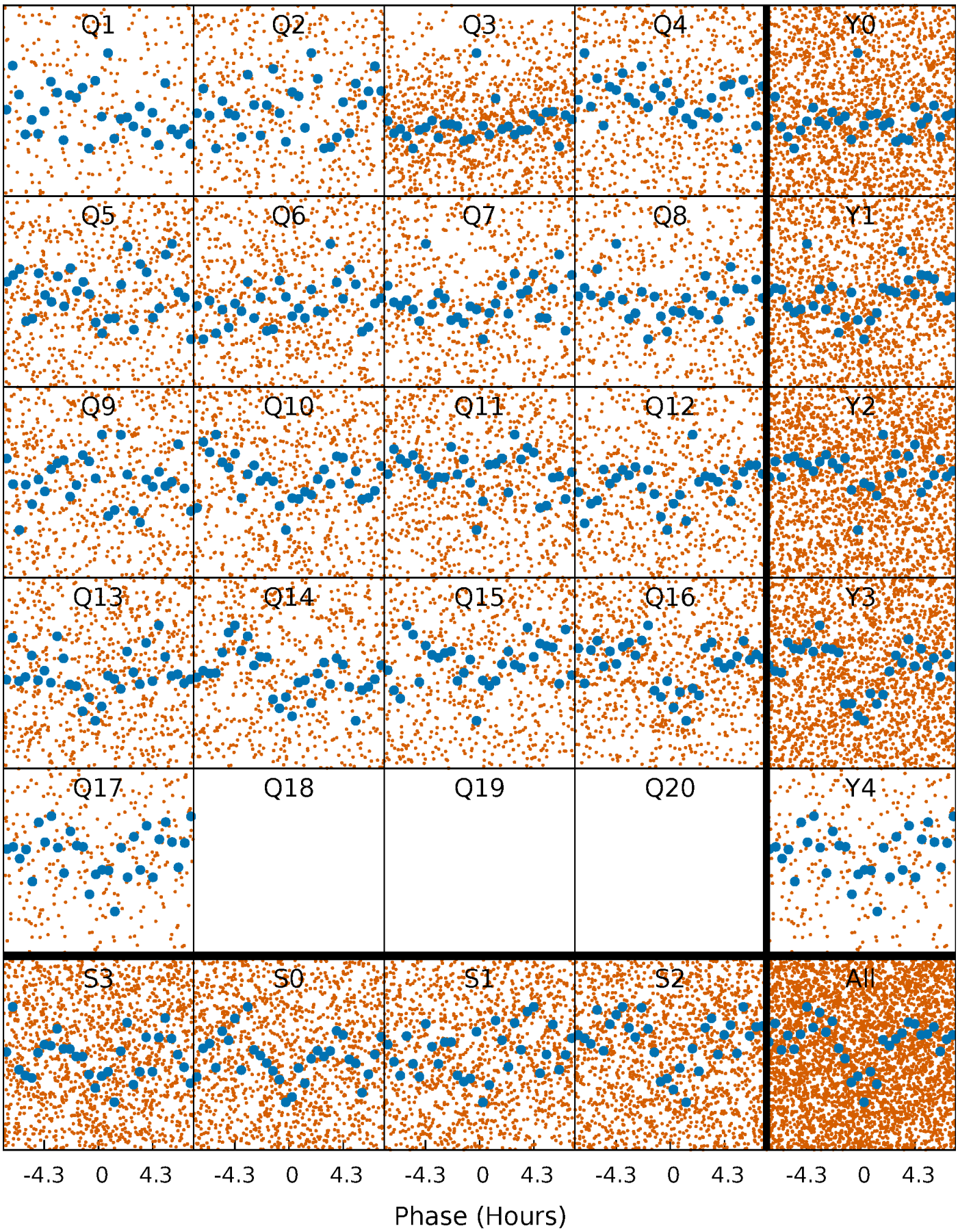
Non-Whitened Vs. Whitened Light Curve





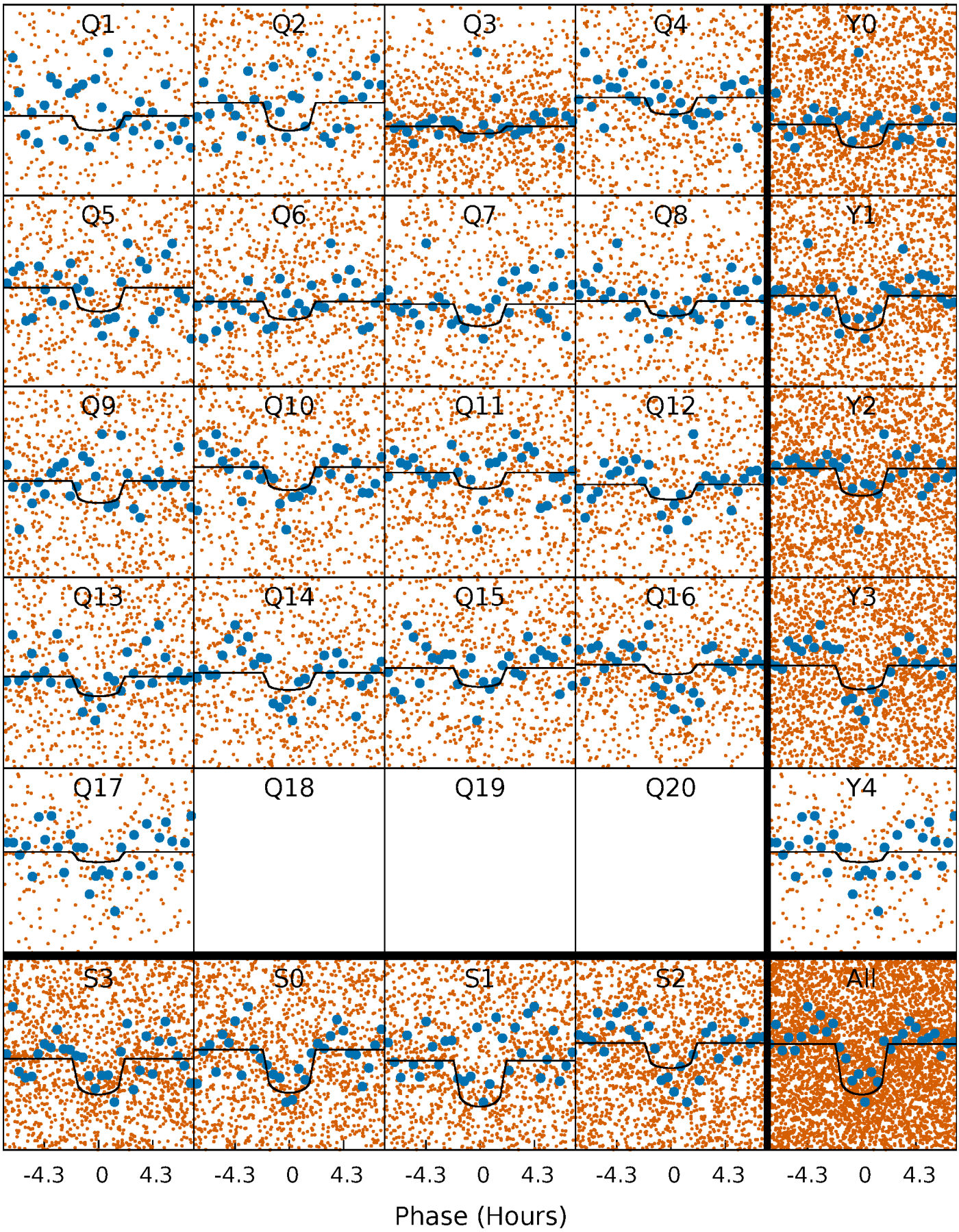
PDC Quarter-Phased Transit Curves

TCE 006442246-01 P= 2.212760 Days T_0=132.734546 (BKJD)



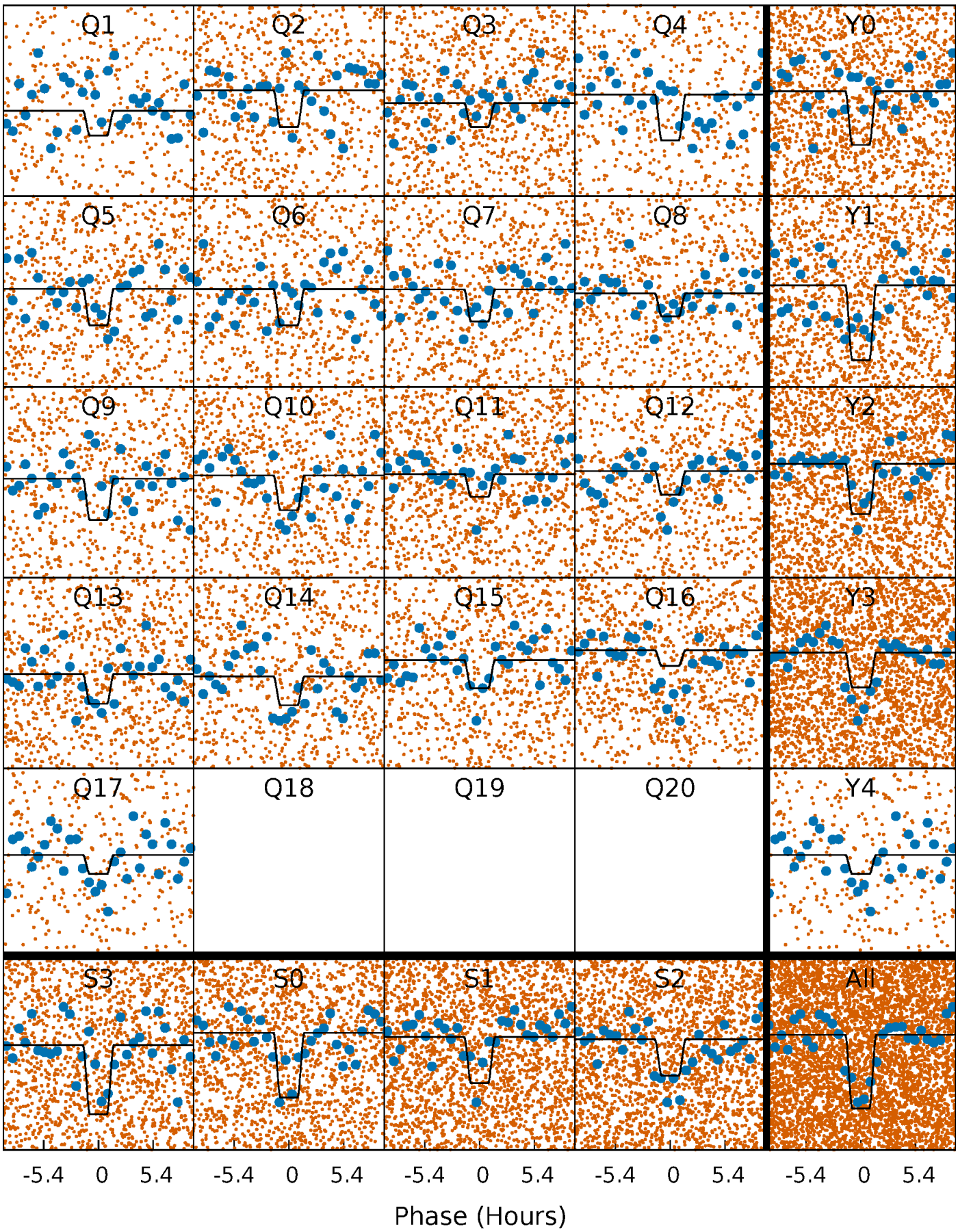
DV Quarter-Phased Transit Curves

TCE 006442246-01 P= 2.212760 Days T_0=132.734546 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

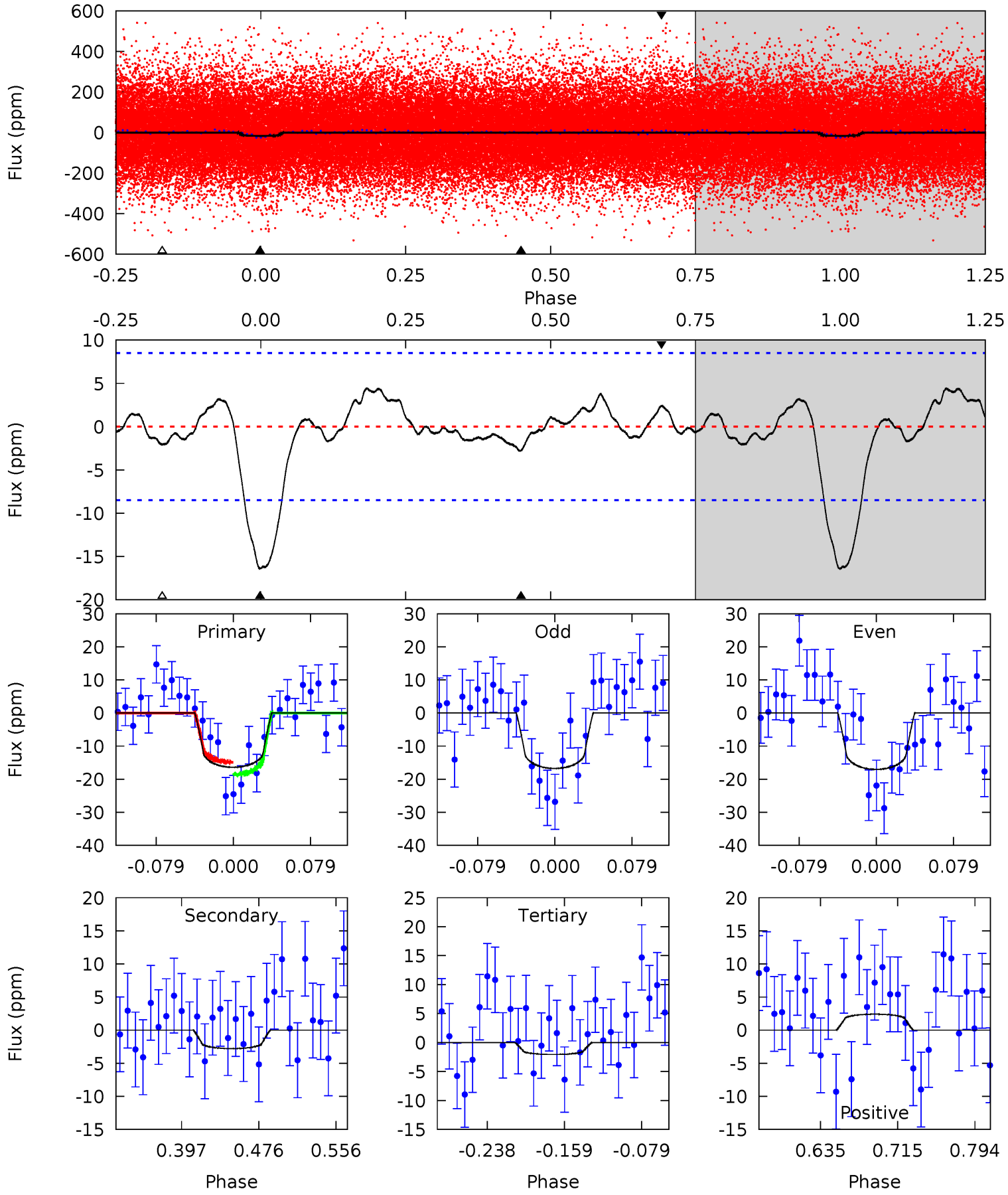
TCE 006442246-01 P= 2.212839 Days T_0=132.703266 (BKJD)



DV Model-Shift Uniqueness Test

006442246-01, P = 2.212760 Days, E = 130.521786 Days

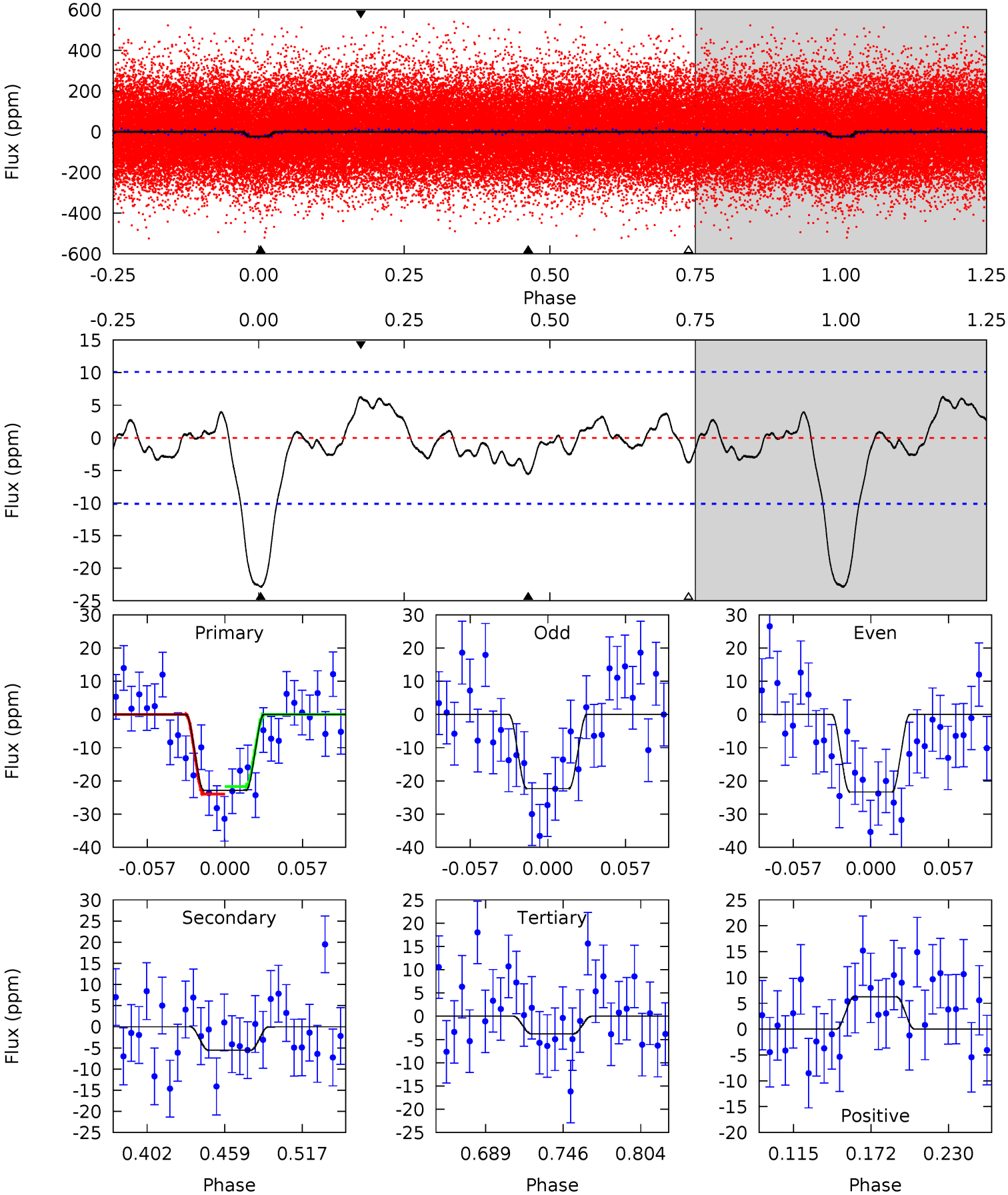
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.91	1.51	1.12	1.31	4.61	1.75	0.90	7.79	7.60	0.39	0.20	0.08	0.87	0.21	1.02



Alt Model-Shift Uniqueness Test

006442246-01, P = 2.212839 Days, E = 130.490427 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	2.56	1.75	2.89	4.68	1.90	1.13	8.82	7.68	0.81	-0.33	0.24	0.89	0.22	0.53



Stellar Parameters For KIC 006442246

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6195^{+167}_{-167}	$4.106^{+0.273}_{-0.117}$	$-0.580^{+0.350}_{-0.250}$	$1.405^{+0.300}_{-0.401}$	$0.920^{+0.131}_{-0.098}$	$0.467^{+0.711}_{-0.185}$
	+3%/-3%	+7%/-3%	+60%/-43%	+21%/-29%	+14%/-11%	+152%/-40%
Source	PHO1	FLK73	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 006442246-01 / KOI 6709.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3±2	$0.69^{+0.29}_{-0.26}$	2491^{+156}_{-185}	3901^{+892}_{-834}	$3.122^{+5.876}_{-2.239}$
Alt.	-6±2	$0.77^{+0.28}_{-0.28}$	2487^{+156}_{-214}	4297^{+834}_{-559}	$5.219^{+8.031}_{-2.839}$

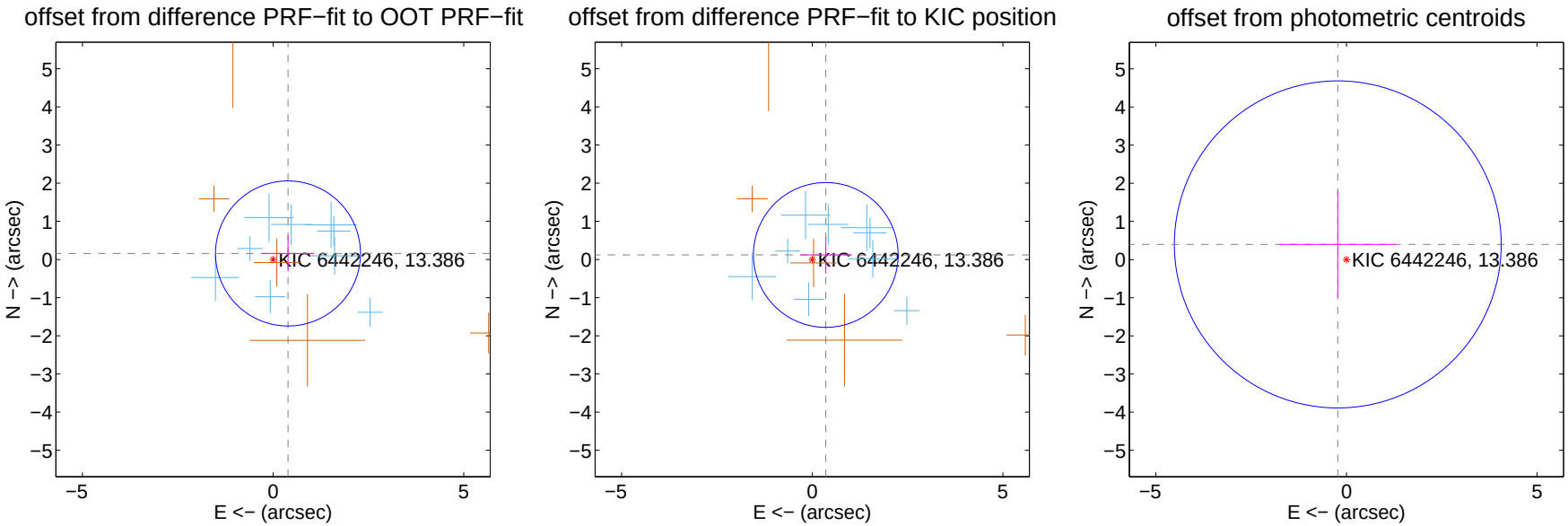
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

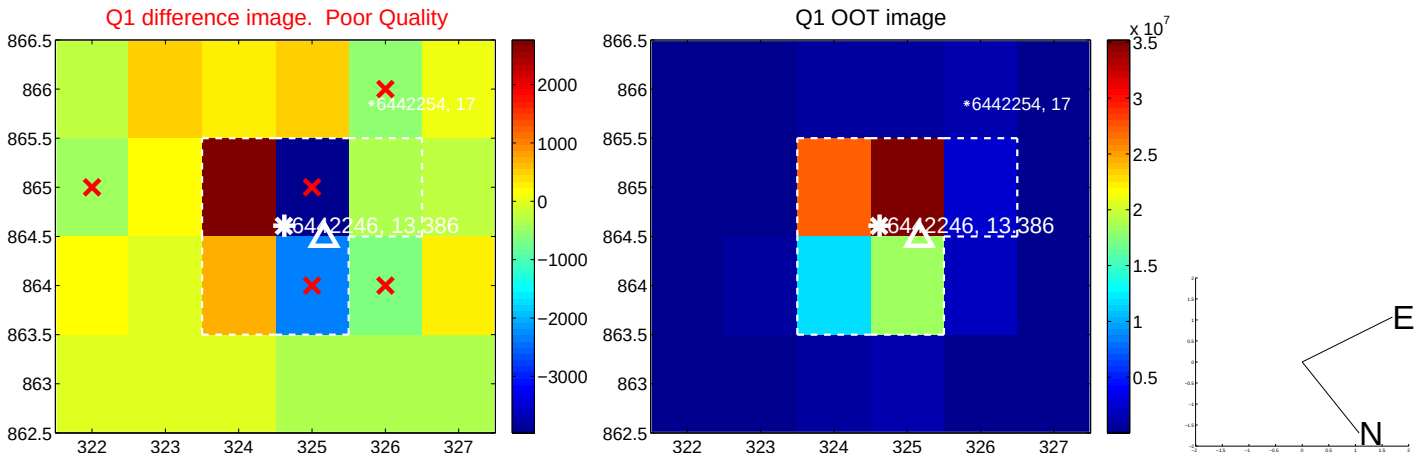
Supplemental centroid analysis for 006442246-01. Kepler magnitude: 13.39. Transit SNR 8.35
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

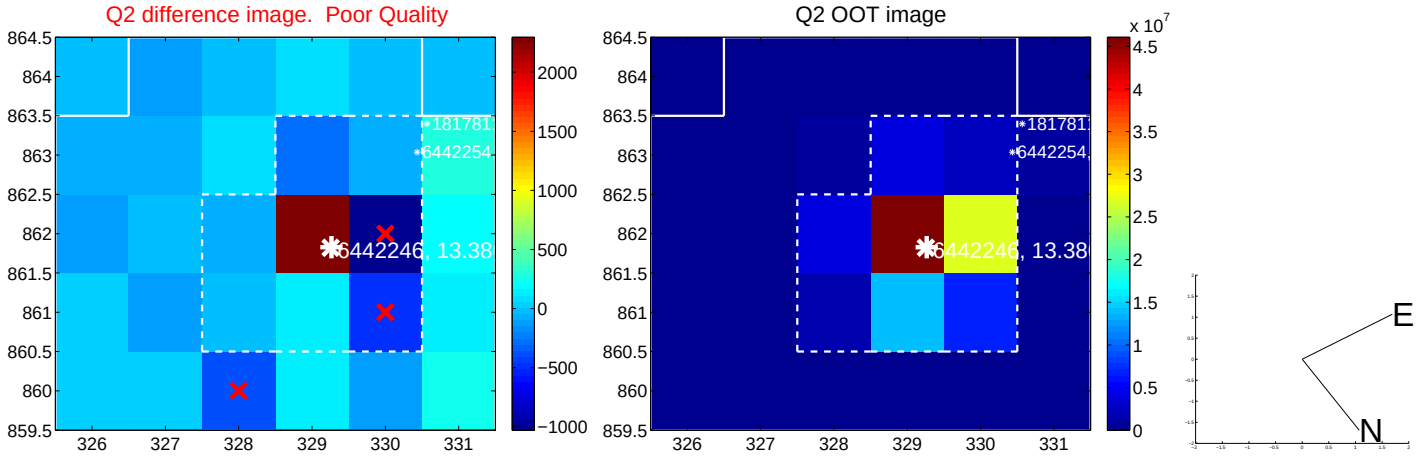
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.422 ± 0.634	0.67	-0.391 ± 0.684	0.158 ± 0.471
PRF-fit source offset from KIC position	0.373 ± 0.633	0.59	-0.354 ± 0.676	0.119 ± 0.486
photometric centroid source offset	0.46 ± 1.43	0.32	0.23 ± 1.52	0.40 ± 1.40

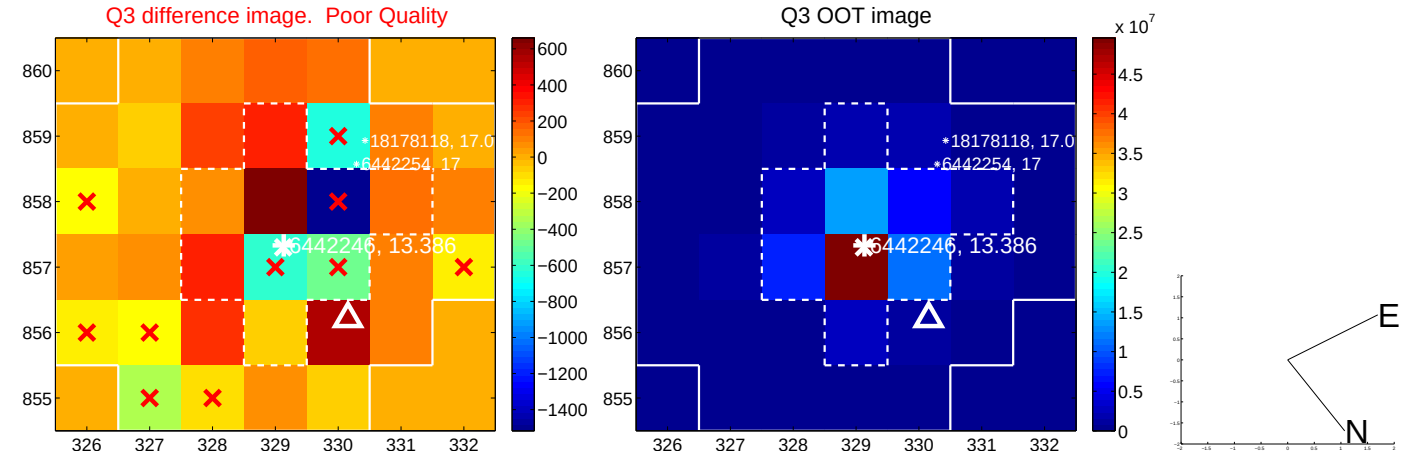


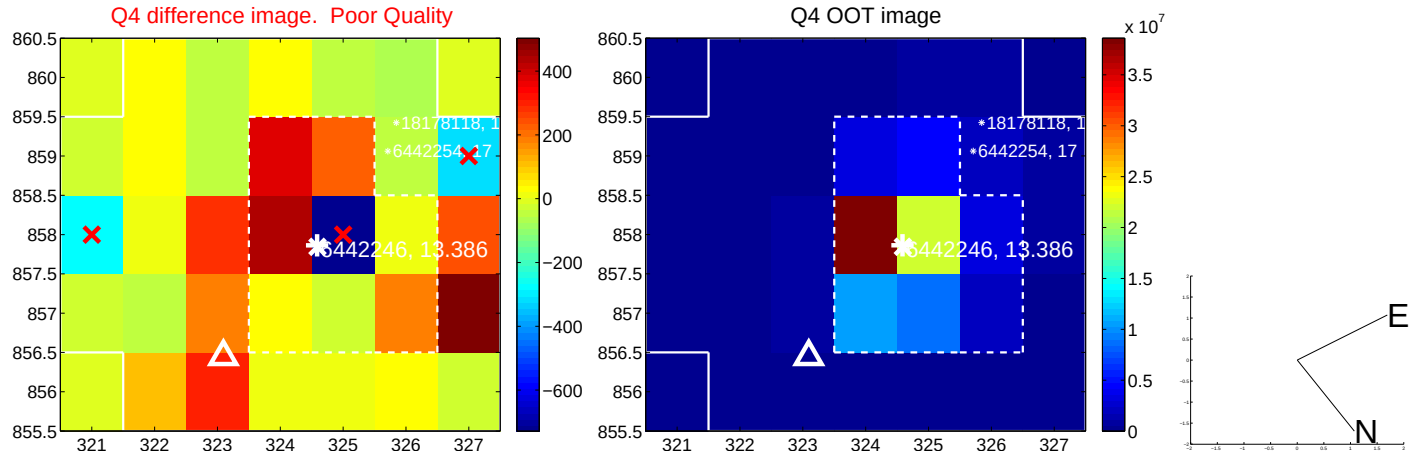
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red *: 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

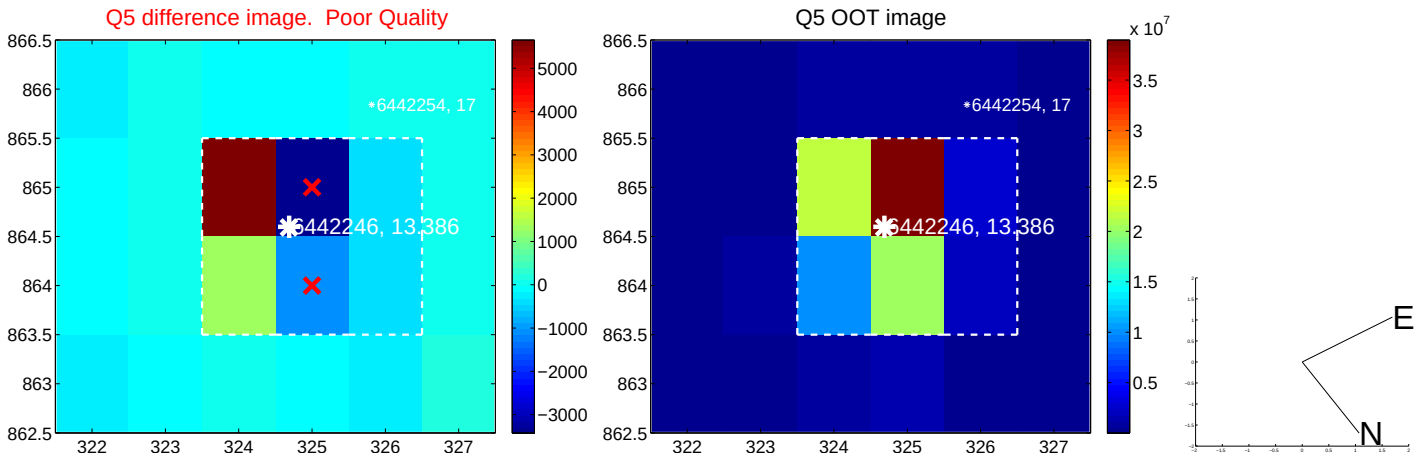


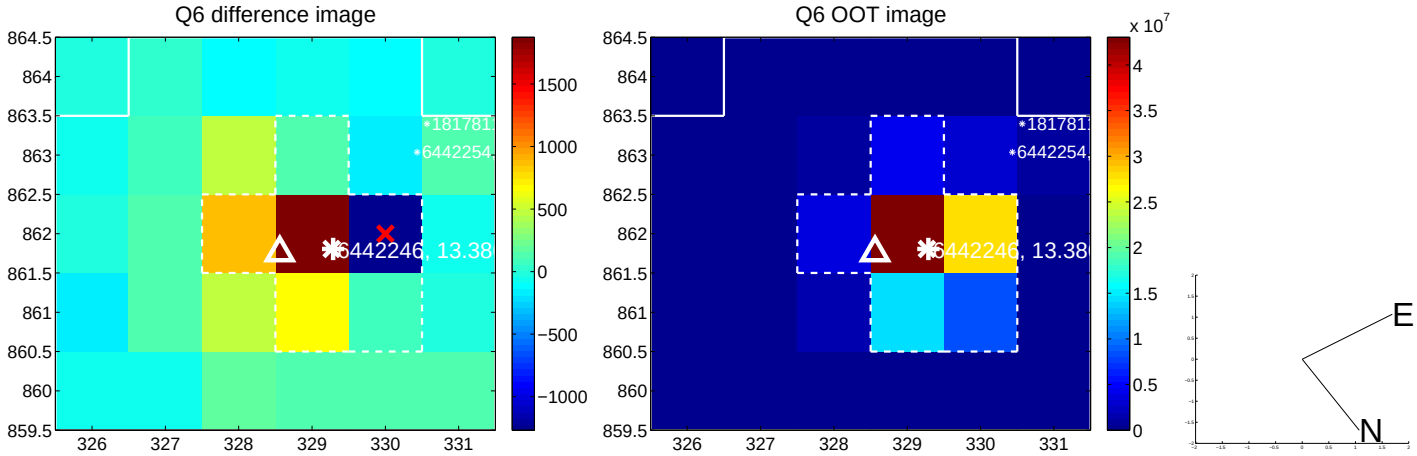


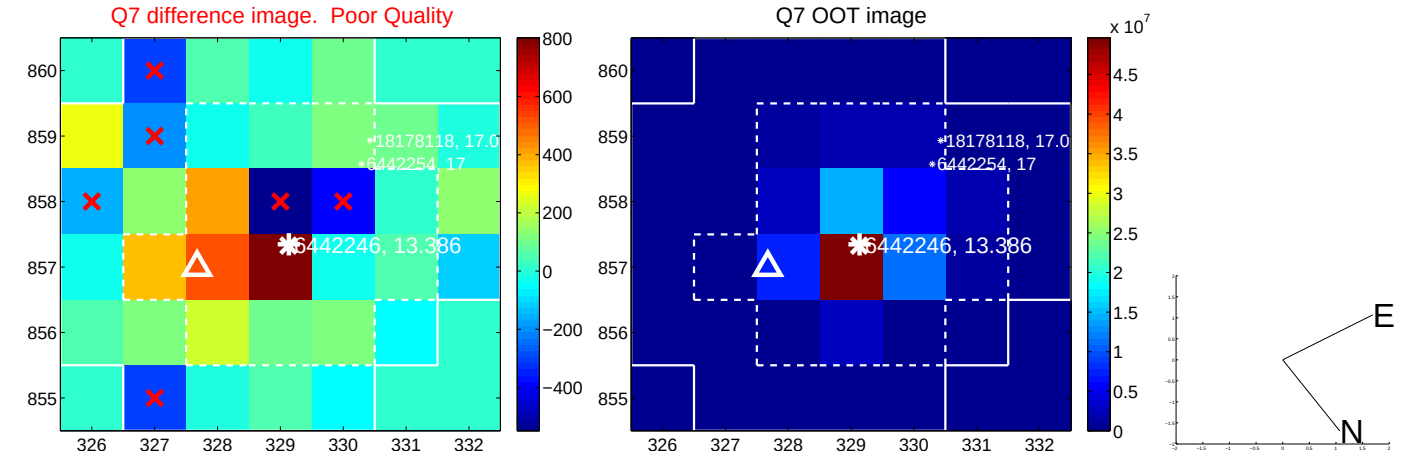


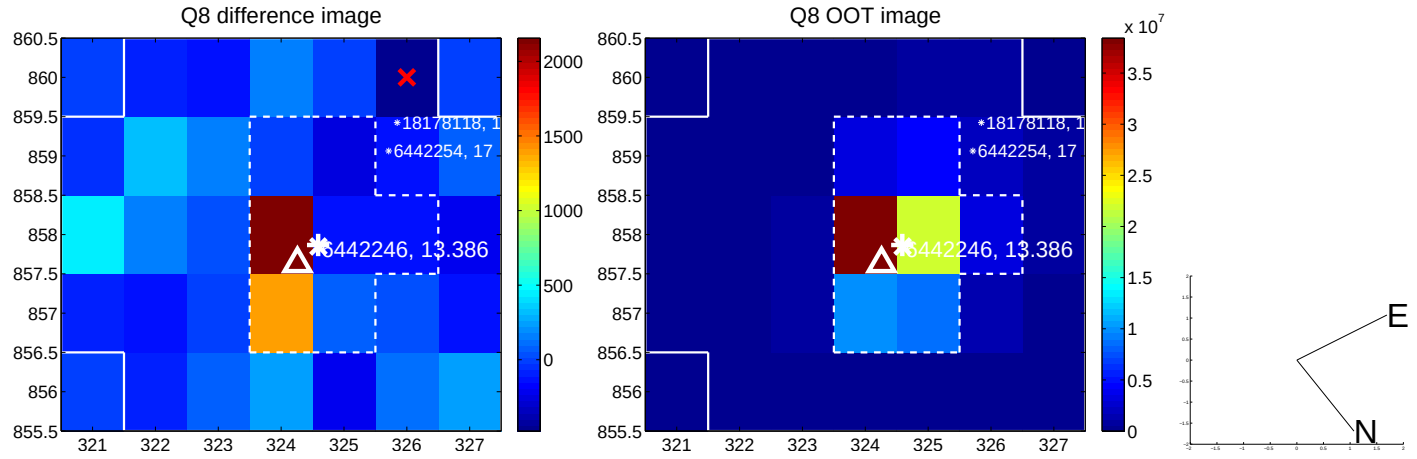


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

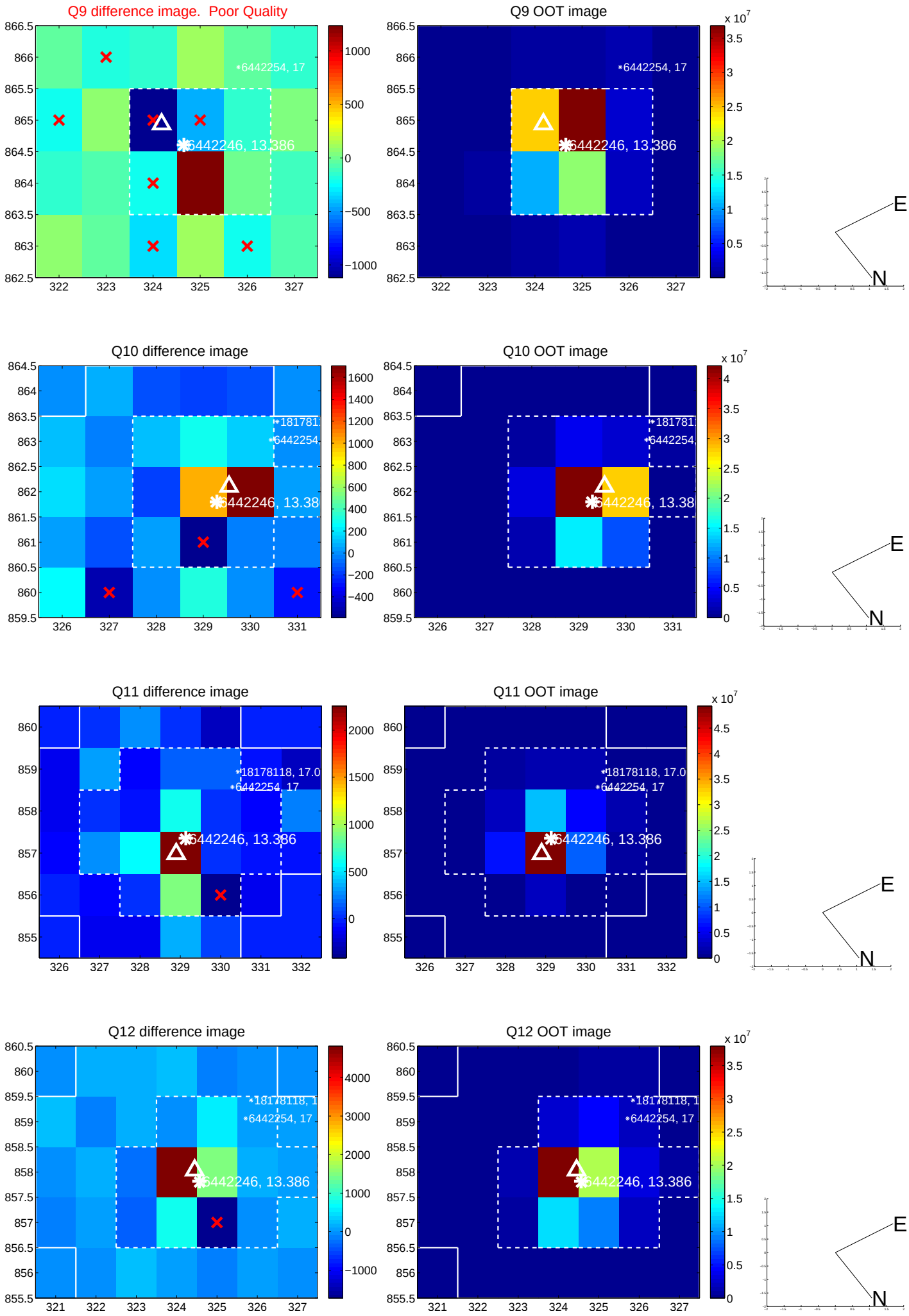




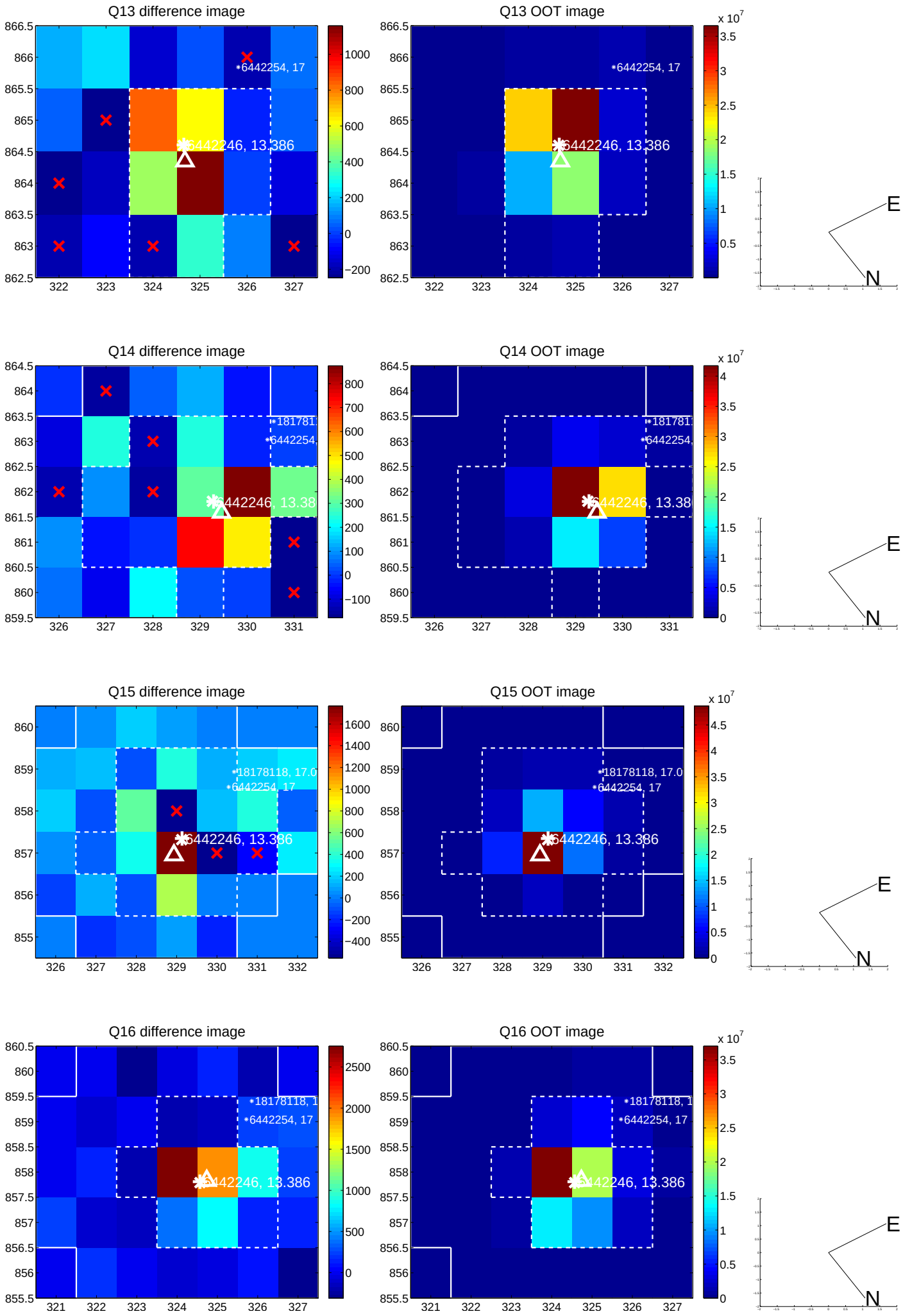




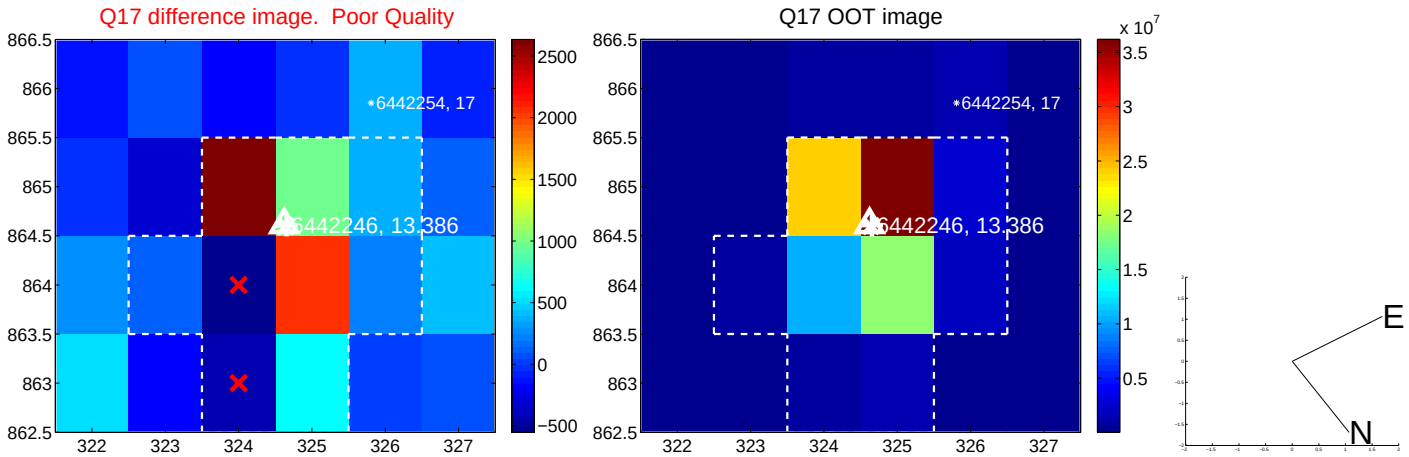
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

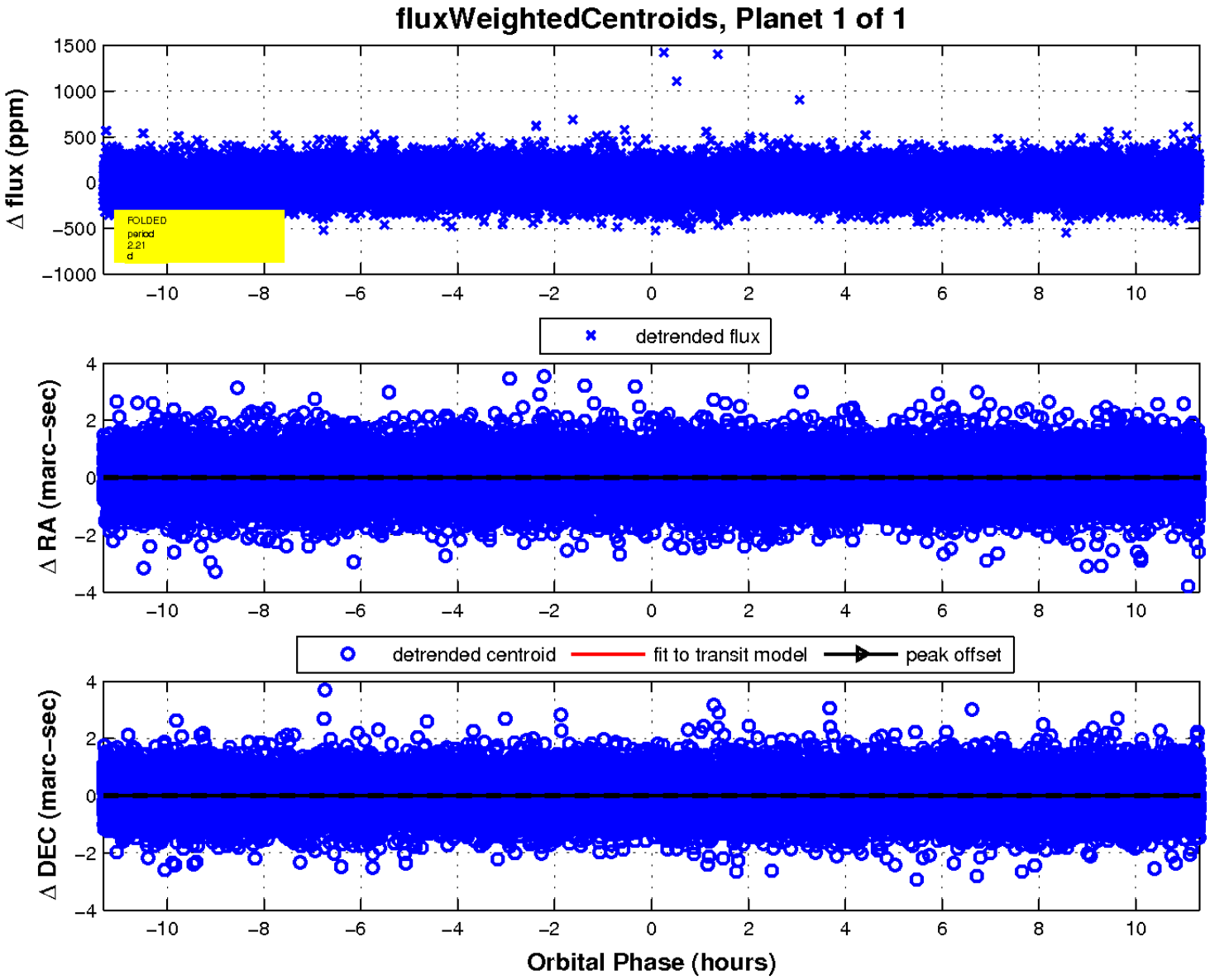
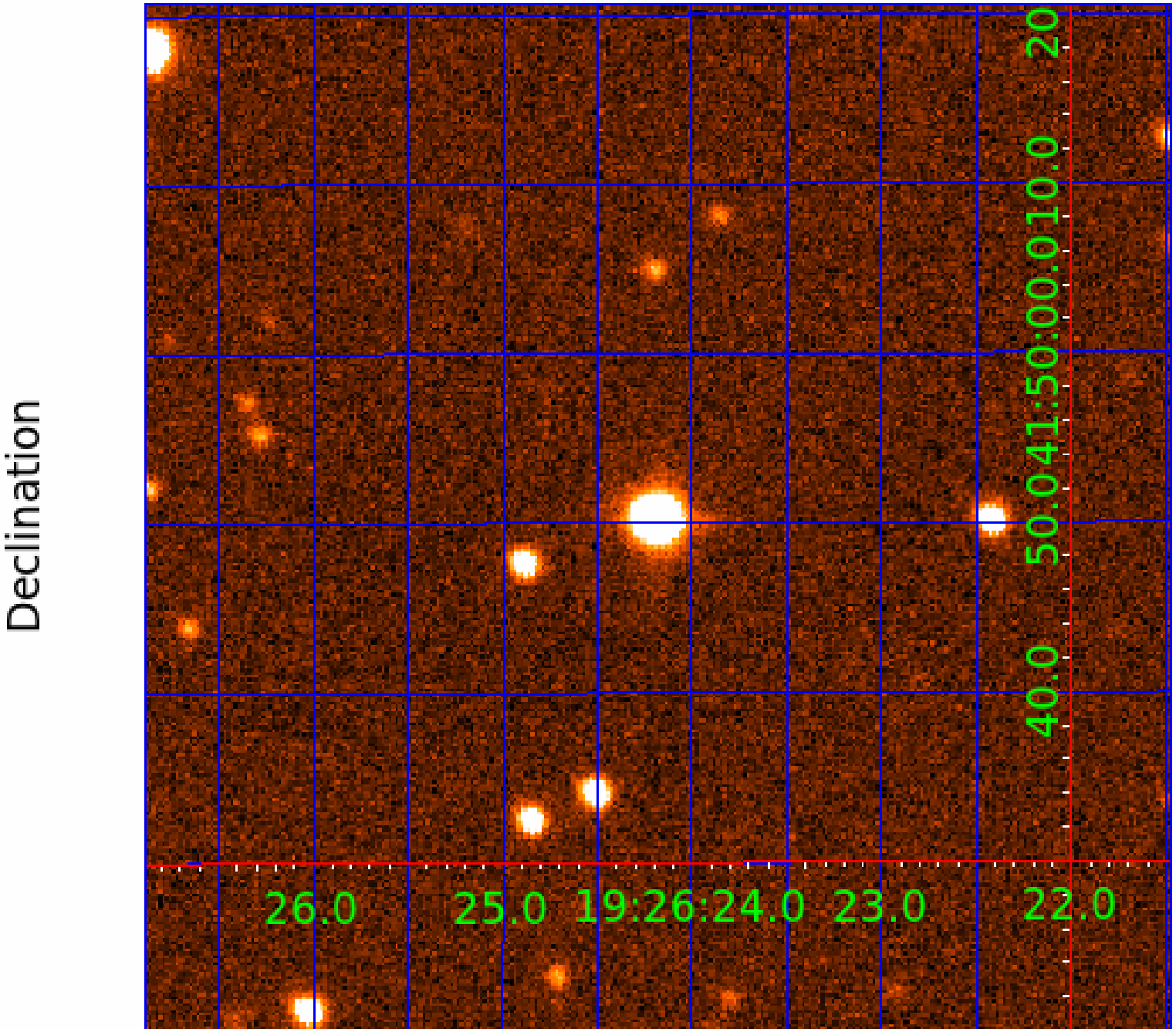


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image