

# KIC 010397315

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010397315-01	OBS	8006.01	2.178133	132.027435	54.5	1.701	8.4	9.2	0.96	6014	0.83	966.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010397315-01	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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

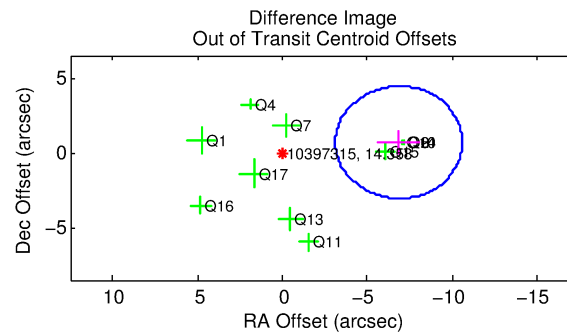
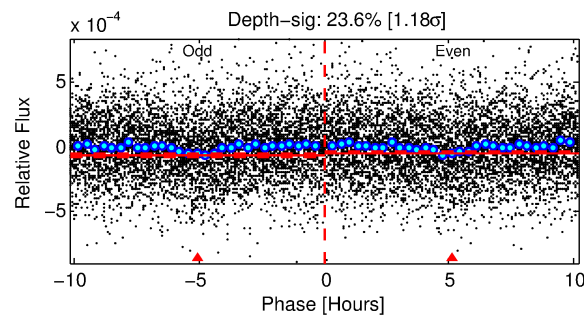
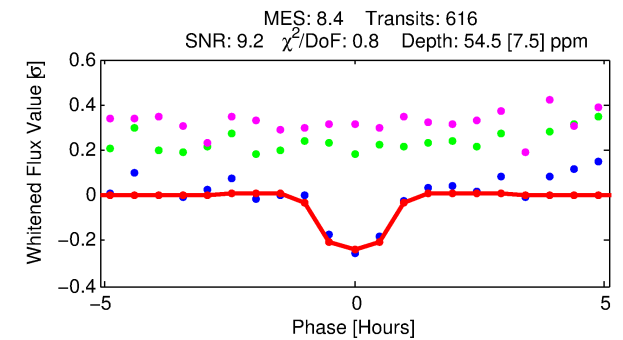
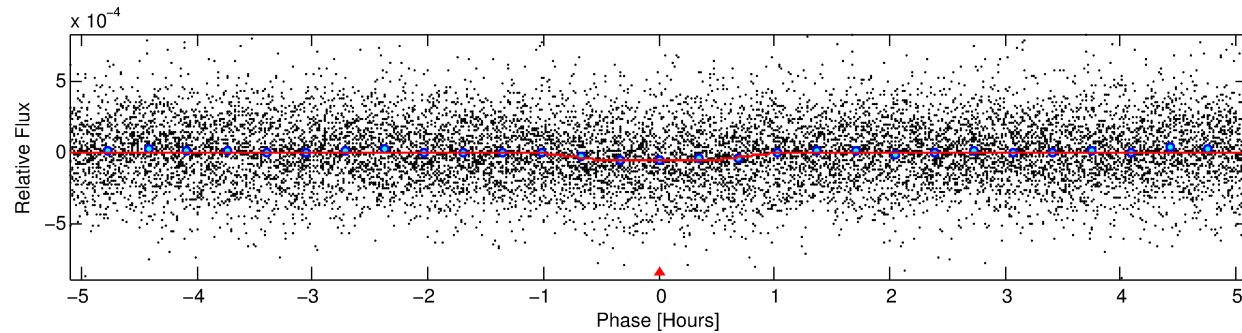
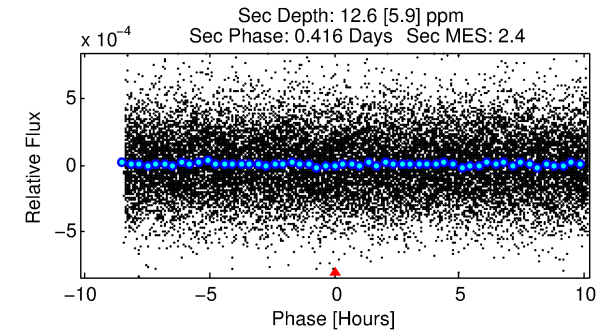
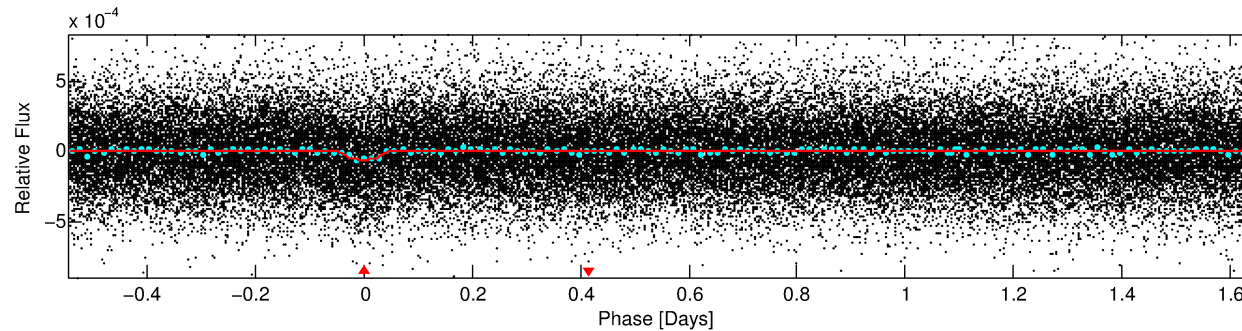
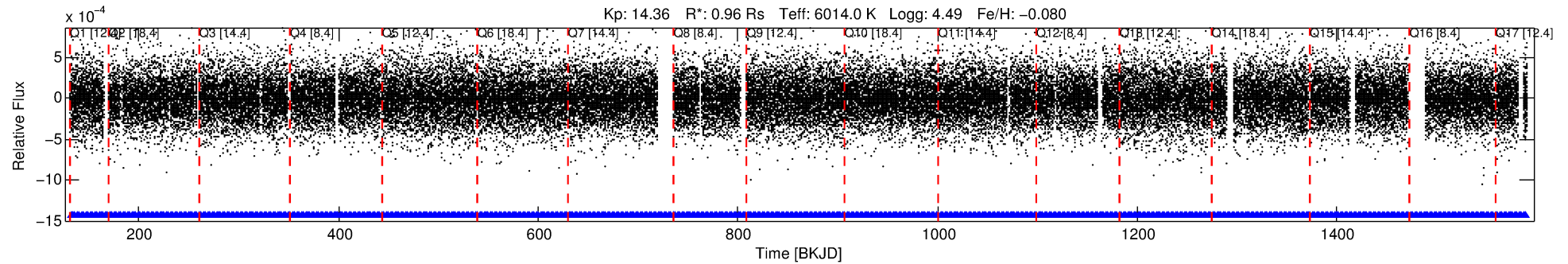
## Ephemeris Match Information For 010397315-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta\text{Row}$	$\Delta\text{Col}$	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010397315-01	10397315	FL-Lyr-pri	9641031	1:1	4676.2	-143	4	9.18	14.36	7910.20	Col-Anomaly	0	0.66	0.28

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta\text{Row}$  and  $\Delta\text{Col}$  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.  $\sigma_P$  and  $\sigma_T$  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  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10397315 Candidate: 1 of 1 Period: 2.178 d



## DV Fit Results:

Period = 2.17813 [0.00001] d  
Epoch = 132.0274 [0.0031] BKJD  
Rp/R\* = 0.0080 [0.0053]  
a/R\* = 4.64 [15.21]  
b = 0.89 [0.78]  
Seff = 966.08 [399.34]  
Teff = 1422 [147] K  
Rp = 0.83 [0.62] Re  
a = 0.0334 [0.0089] AU  
Ag = 11.16 [16.42] [0.62σ]  
Teffp = 4017 [1431] K [1.80σ]

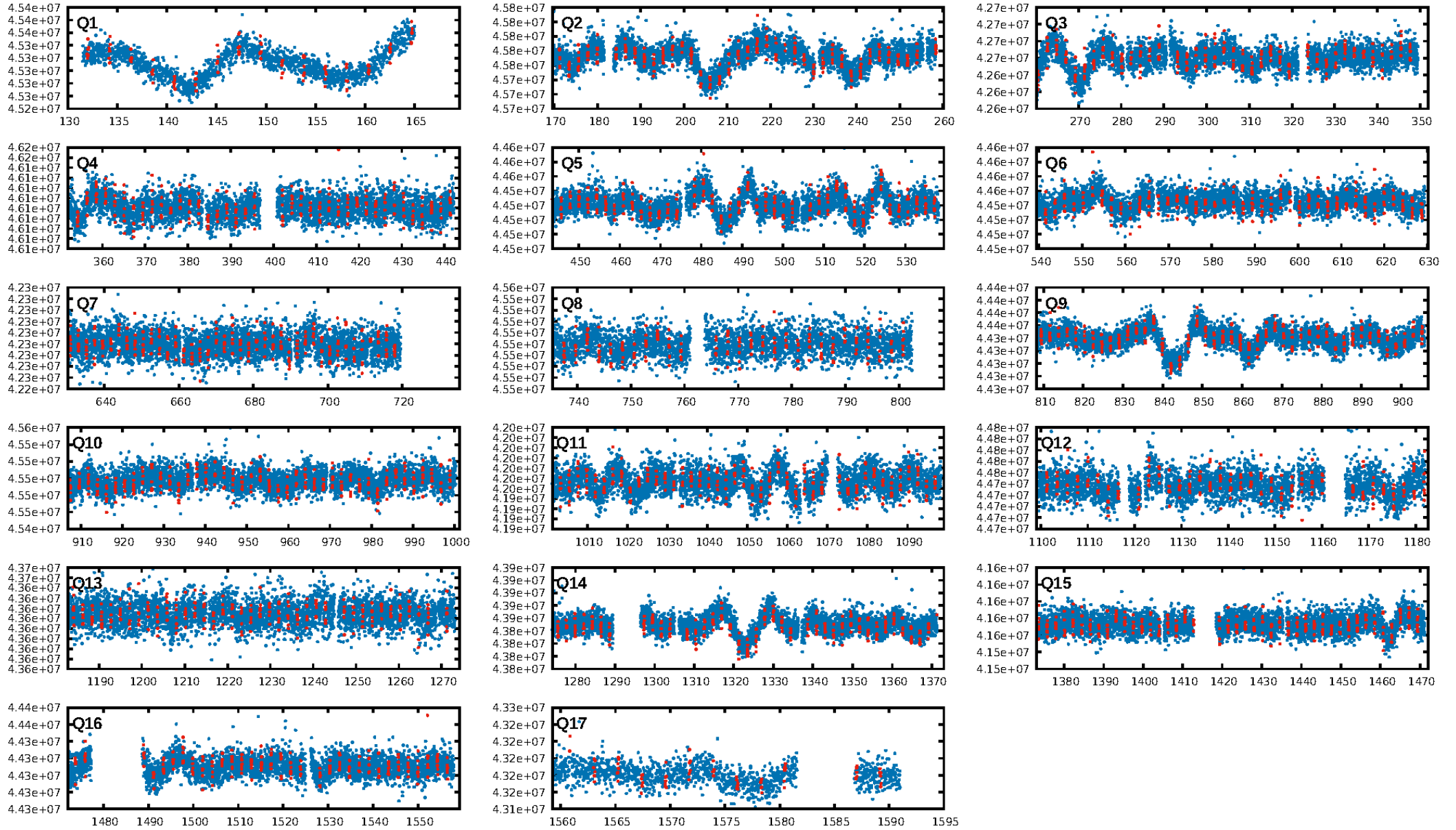
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.84e-17  
RollingBand-fgt: 1.00 [588/588]  
GhostDiagnostic-chr: 1.04  
Centroid-sig: 0.0%  
Centroid-so: 8.945 arcsec [6.23σ]  
OotOffset-rm: 6.910 arcsec [5.54σ]  
KicOffset-rm: 6.813 arcsec [4.55σ]  
OotOffset-st: 4/3/2/3 [12]  
KicOffset-st: 4/3/2/3 [12]  
DiffImageQuality-fgm: 0.33 [4/12]  
DiffImageOverlap-fno: 1.00 [17/17]

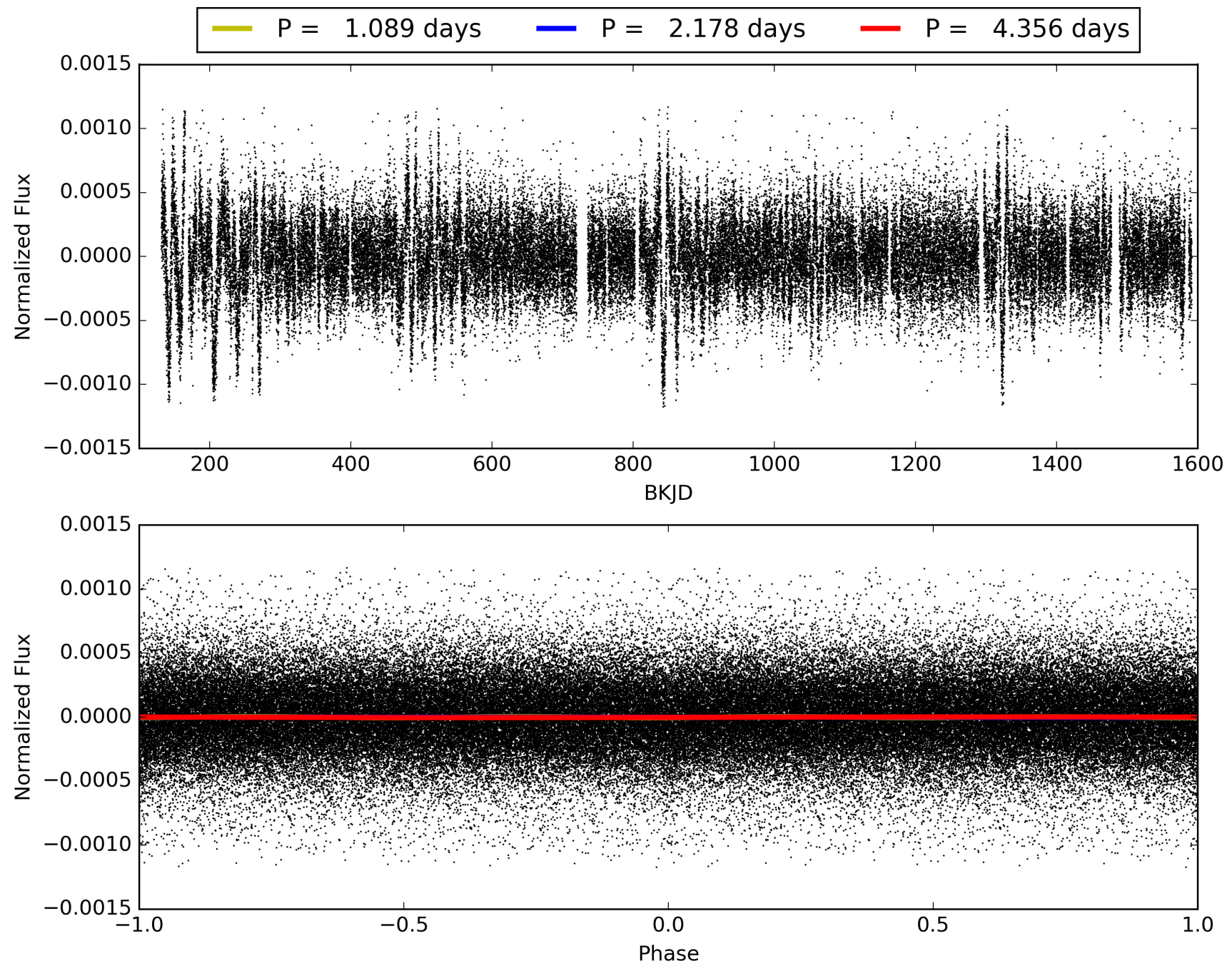
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:52:17 Z

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

# TCE 010397315-01, PDC Light Curves



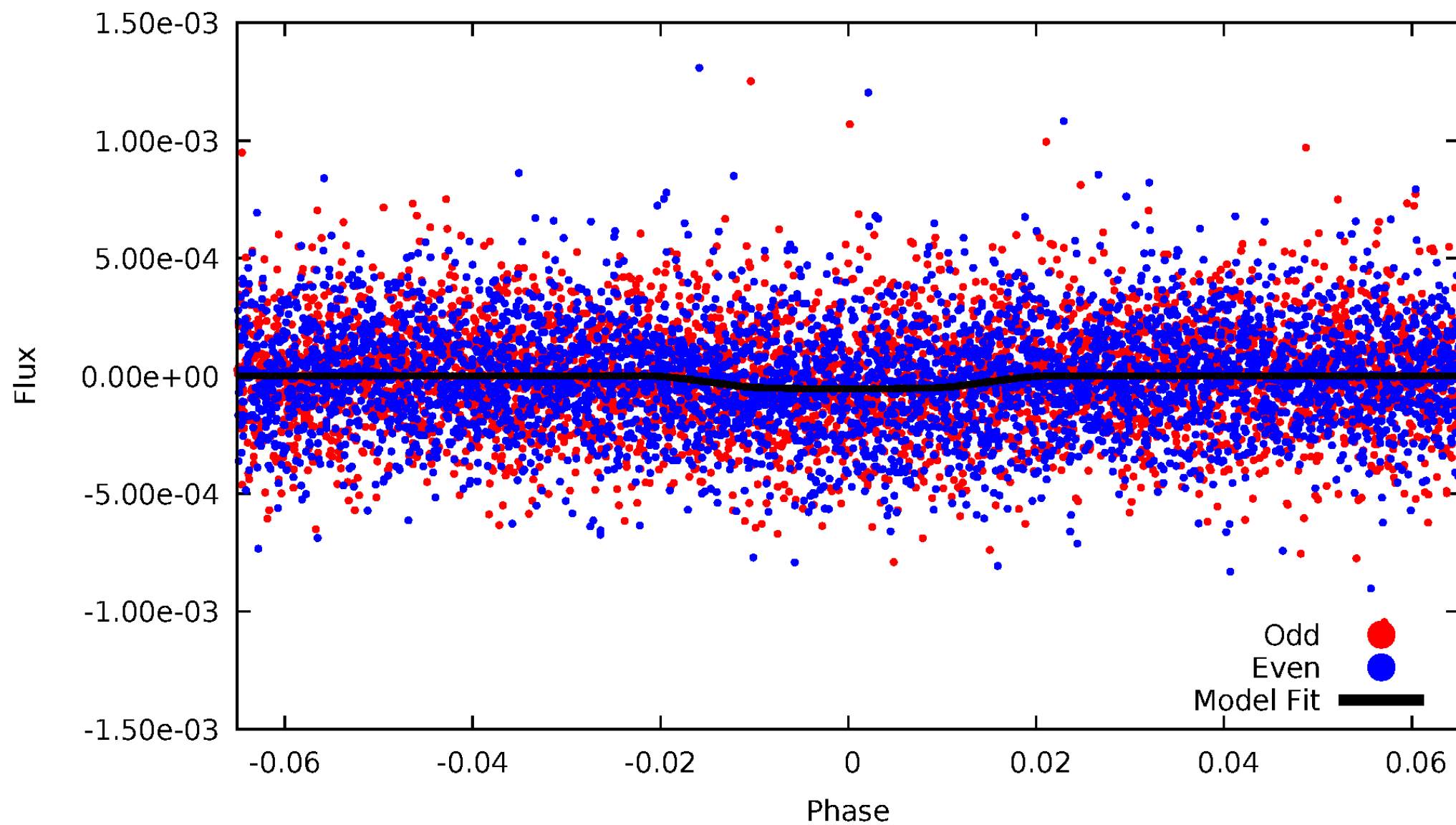
TCE 010397315-01





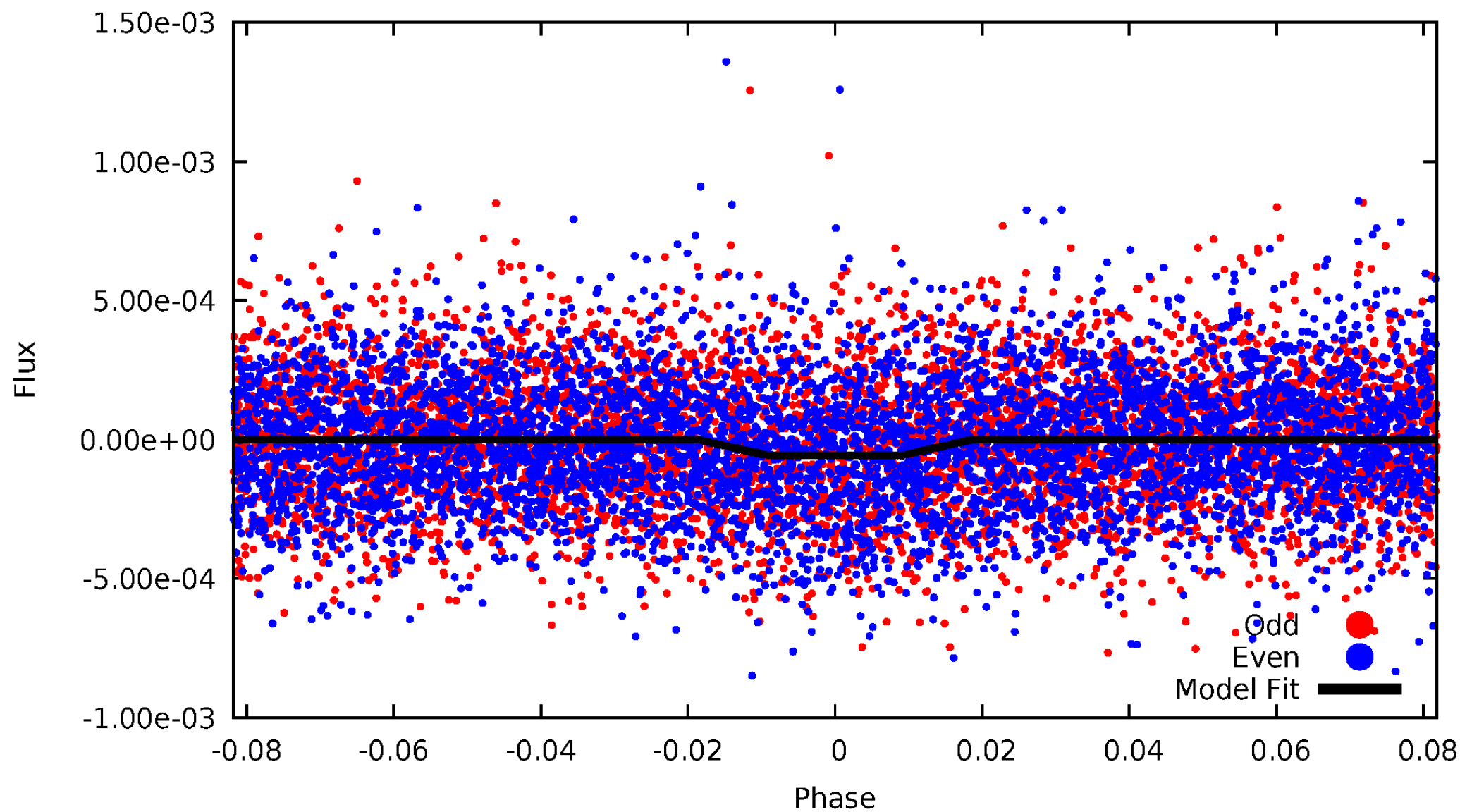
# DV Odd/Even

TCE 010397315-01

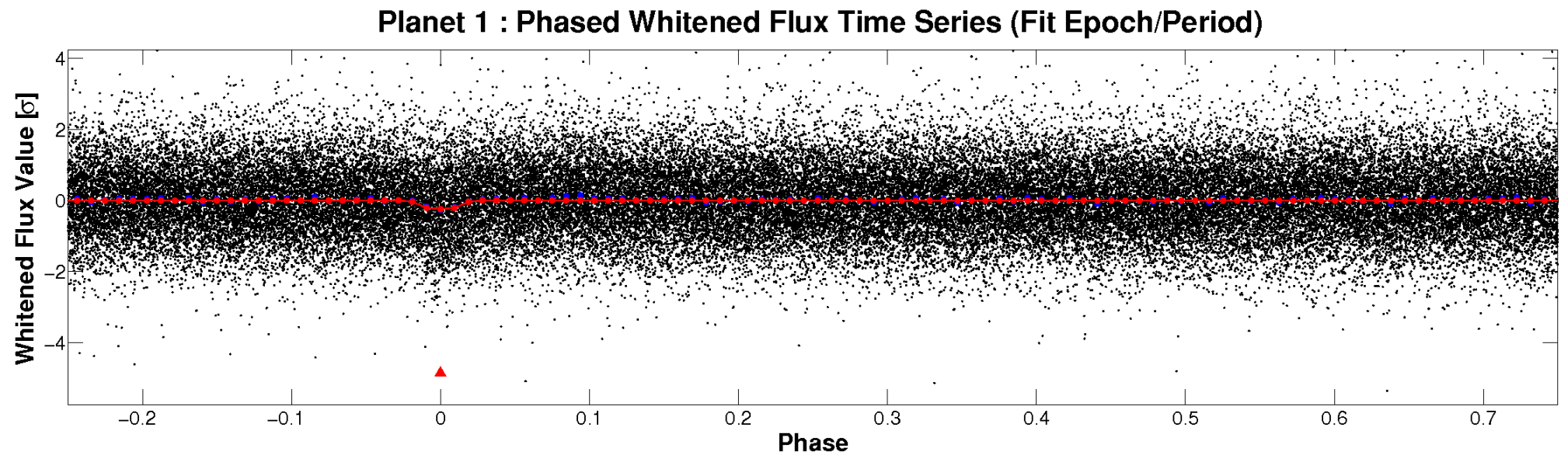
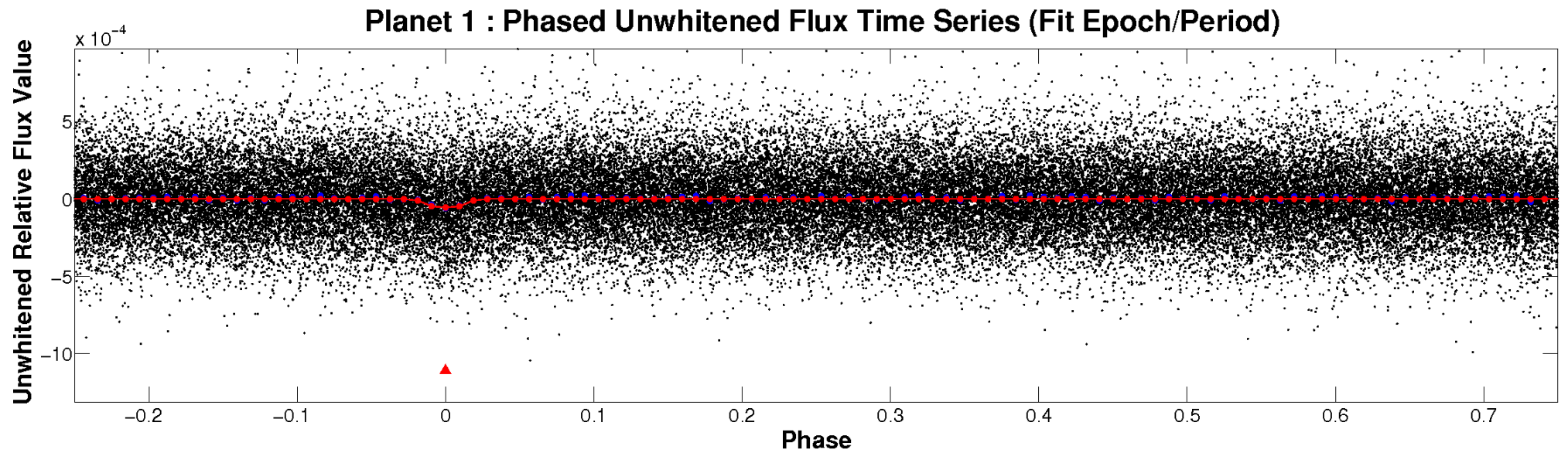


# ALT Odd/Even

TCE 010397315-01

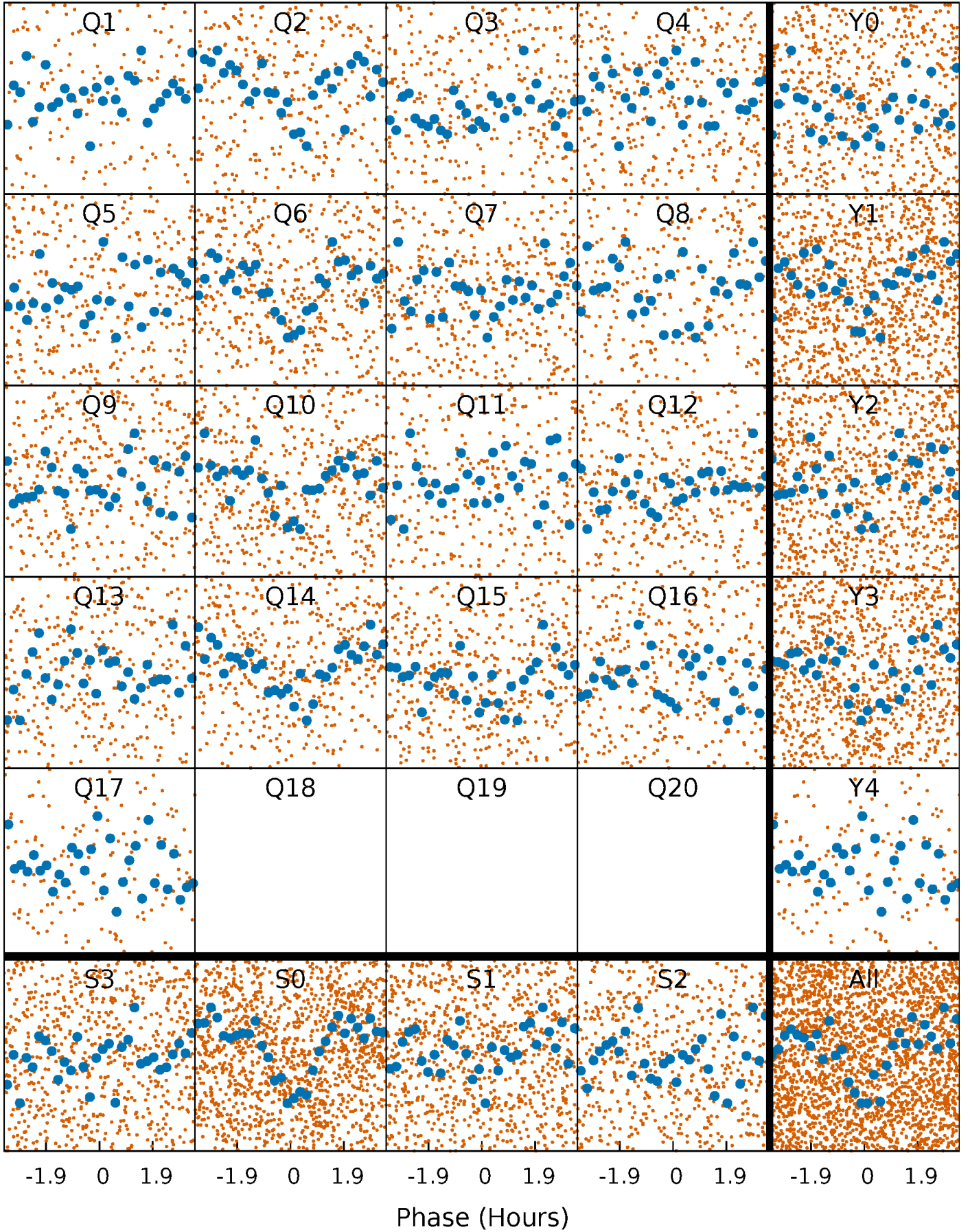


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

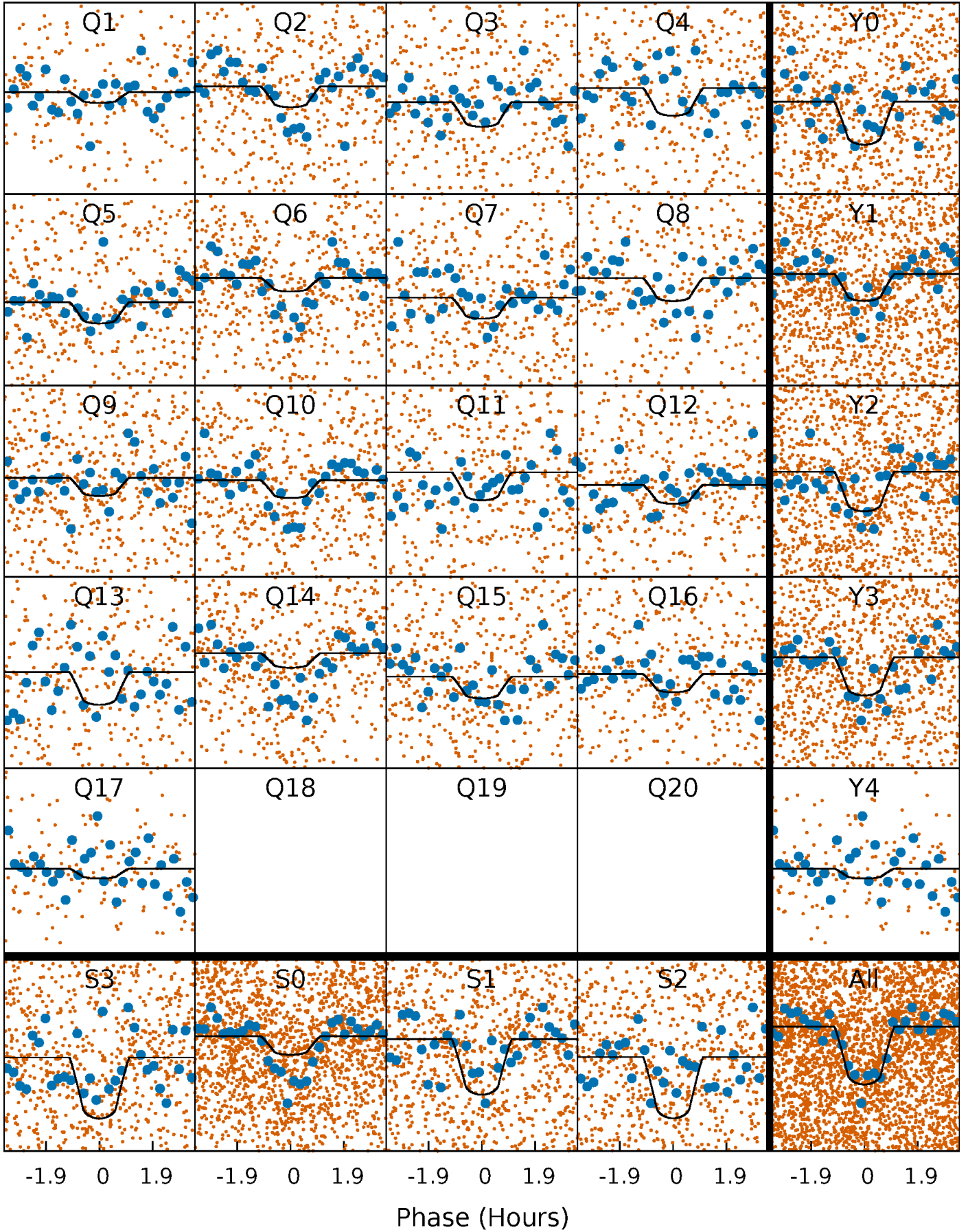
TCE 010397315-01 P= 2.178133 Days  $T_0=132.027435$  (BKJD)





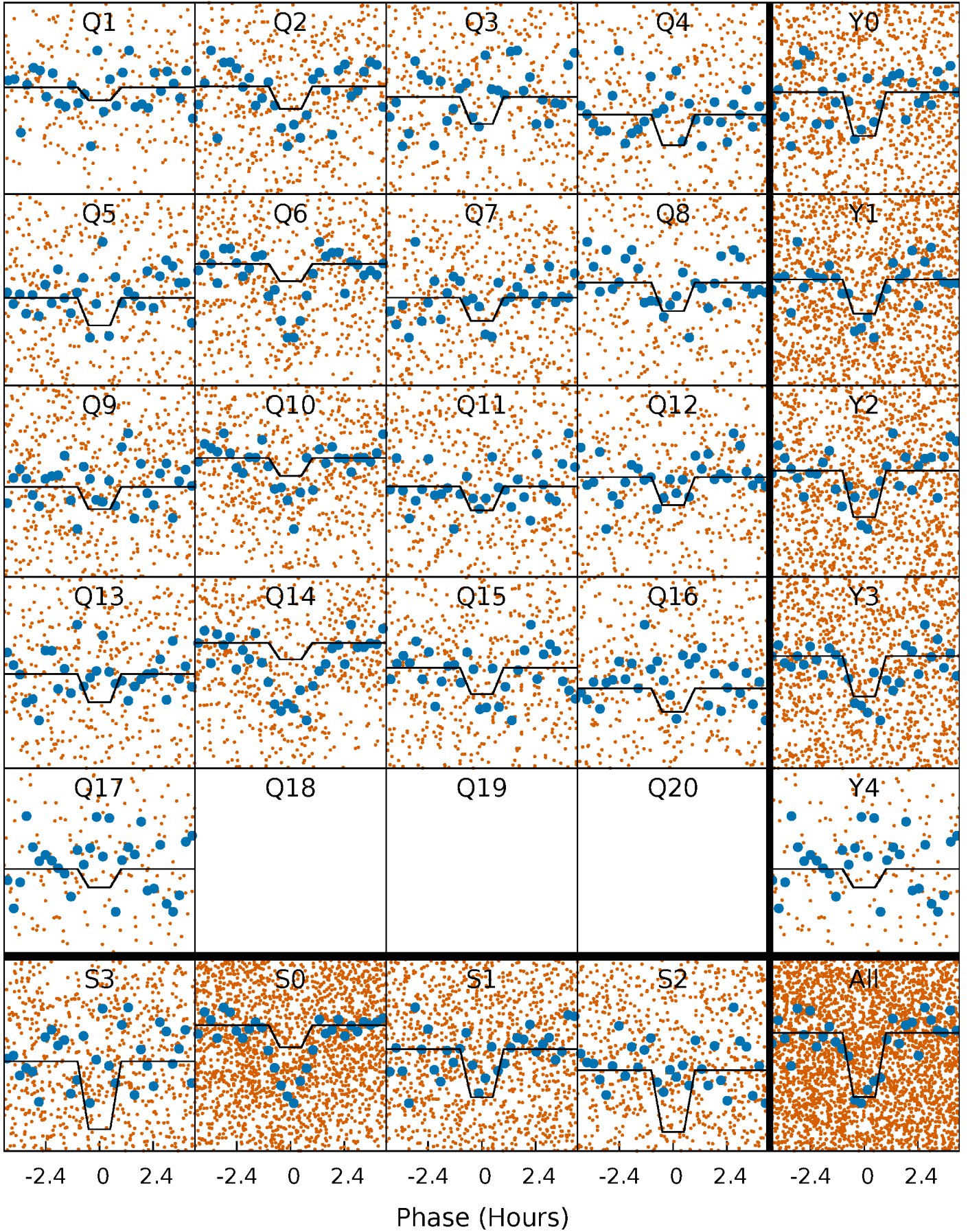
# DV Quarter-Phased Transit Curves

TCE 010397315-01 P= 2.178133 Days  $T_0=132.027435$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

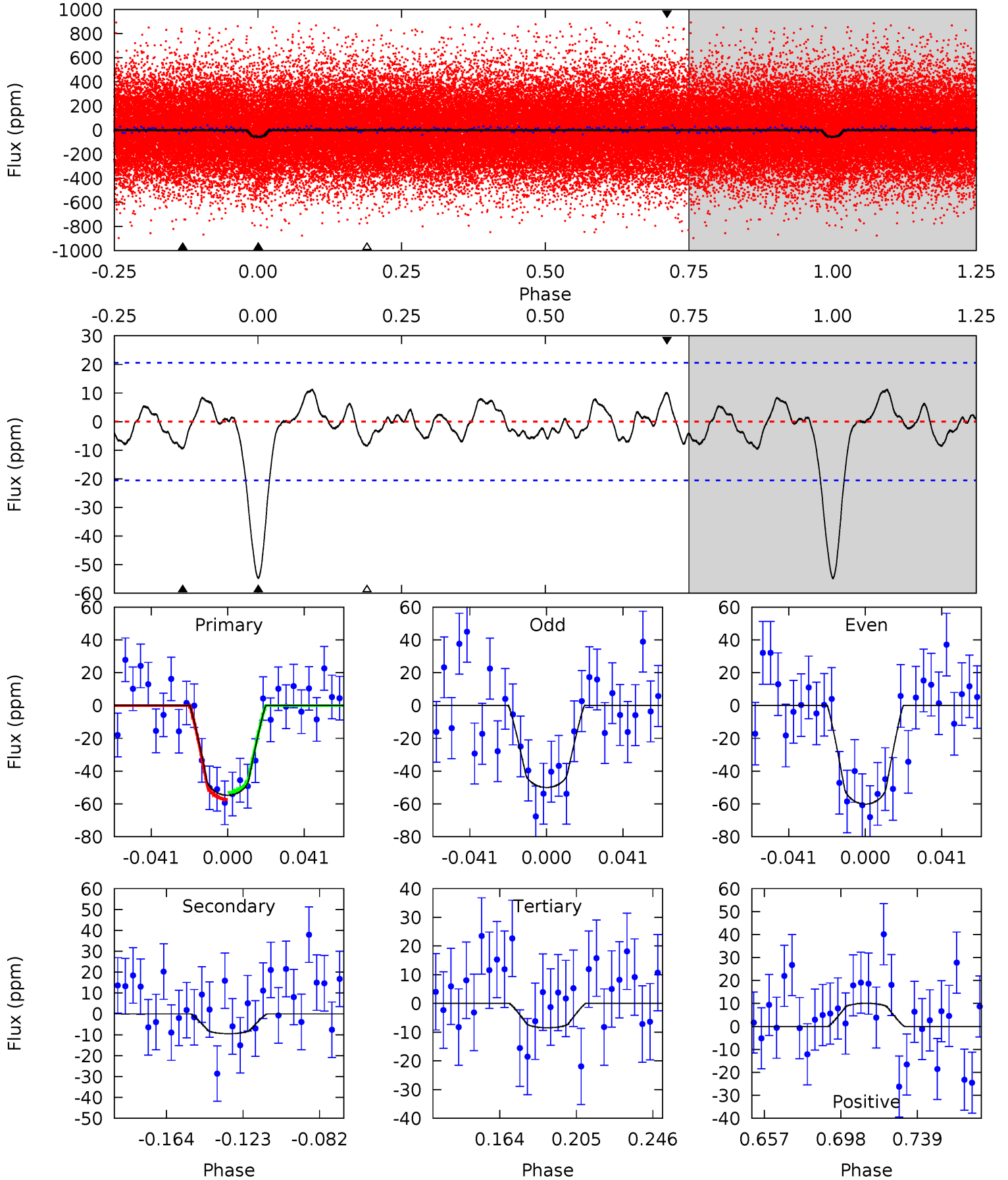
TCE 010397315-01 P= 2.178122 Days  $T_0=132.032071$  (BKJD)



# DV Model-Shift Uniqueness Test

010397315-01, P = 2.178133 Days, E = 129.849302 Days

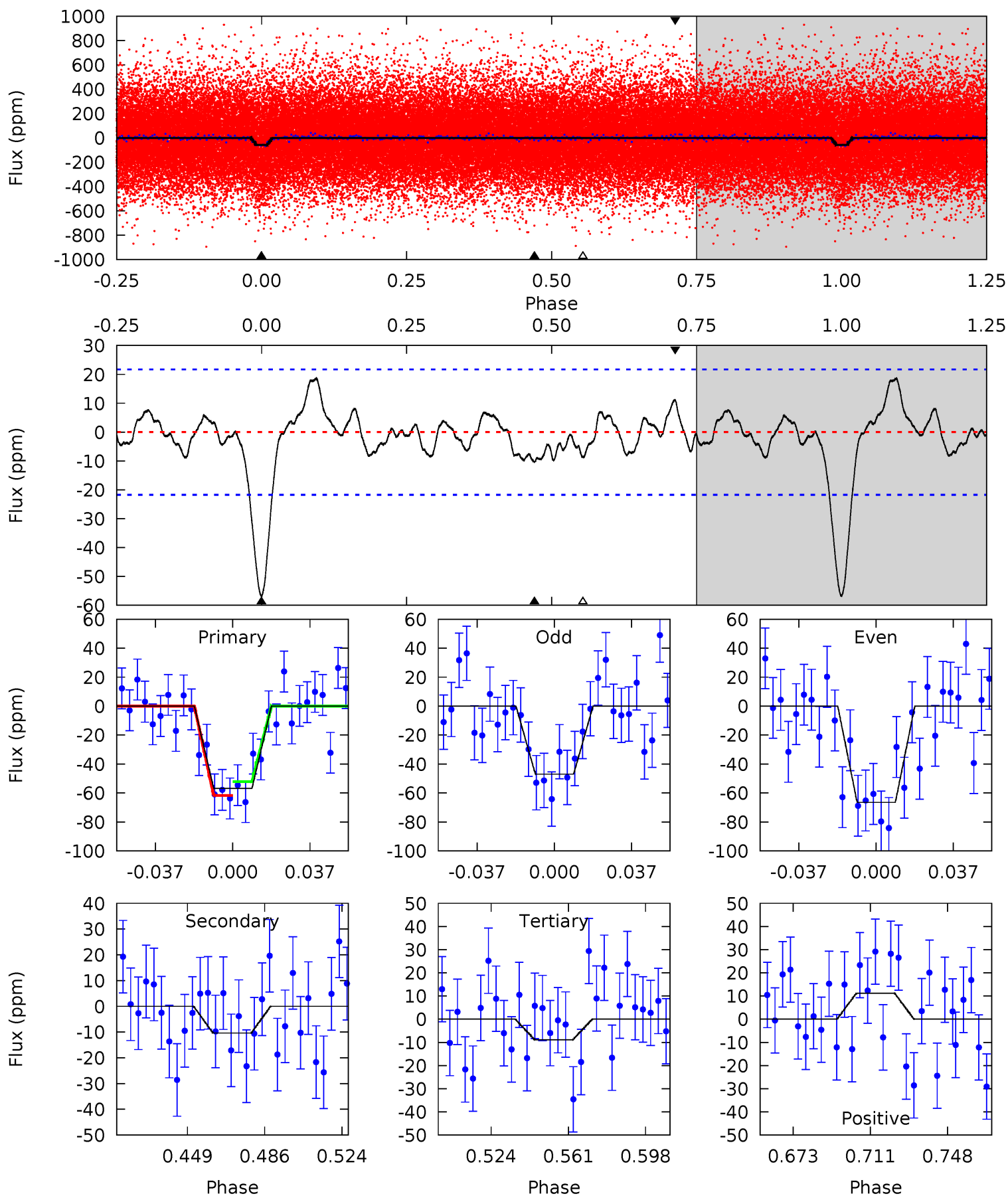
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	2.19	1.96	2.33	4.75	2.04	1.04	10.7	10.3	0.23	-0.14	1.17	1.14	0.17	0.49



# Alt Model-Shift Uniqueness Test

010397315-01, P = 2.178122 Days, E = 129.853949 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	2.28	1.94	2.46	4.77	2.08	1.17	10.5	10.0	0.33	-0.18	2.14	1.09	0.25	1.06





### Stellar Parameters For KIC 010397315

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6014^{+162}_{-198}$	$4.494^{+0.054}_{-0.216}$	$-0.080^{+0.250}_{-0.300}$	$0.958^{+0.300}_{-0.100}$	$1.043^{+0.126}_{-0.139}$	$1.673^{+0.461}_{-0.861}$
	+3%/-3%	+1%/-5%	+312%/-375%	+31%/-10%	+12%/-13%	+28%/-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 010397315-01 / KOI 8006.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-9 \pm 4$	$0.93^{+0.60}_{-0.50}$	$2026^{+149}_{-106}$	$3844^{+1393}_{-701}$	$6.130^{+22.901}_{-4.297}$
Alt.	$-10 \pm 5$	$0.89^{+0.57}_{-0.48}$	$2029^{+154}_{-100}$	$4023^{+1451}_{-754}$	$7.378^{+27.042}_{-5.066}$

$T_{max}$  = 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

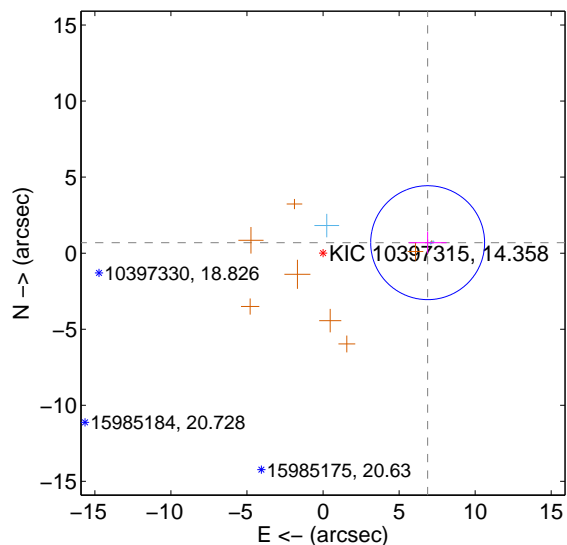
Supplemental centroid analysis for 010397315-01. Kepler magnitude: 14.36. Transit SNR 9.24

There are 4 quarters with good PRF difference image offsets

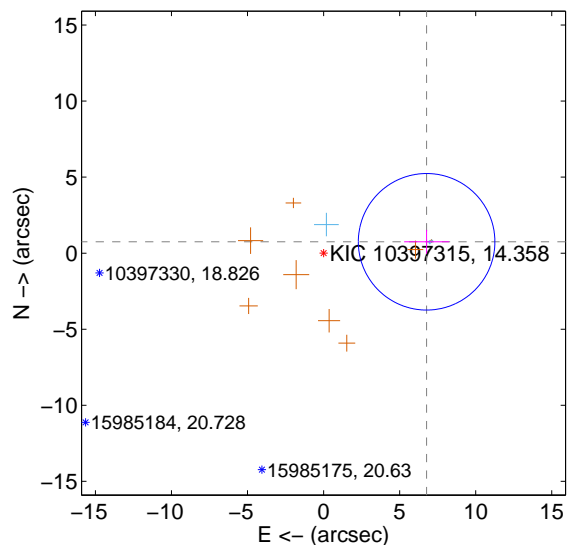
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.910 \pm 1.248$	5.54	$-6.876 \pm 1.242$	$0.690 \pm 0.718$
PRF-fit source offset from KIC position	$6.813 \pm 1.496$	4.55	$-6.772 \pm 1.478$	$0.749 \pm 0.781$
photometric centroid source offset	$8.95 \pm 1.44$	6.23	$-7.76 \pm 1.46$	$-4.44 \pm 1.36$

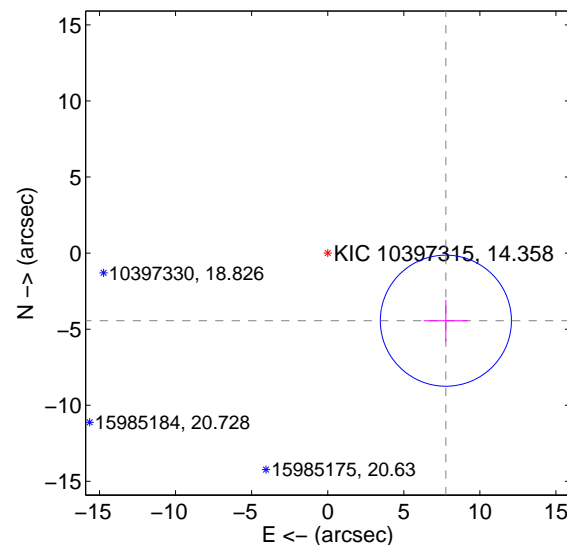
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

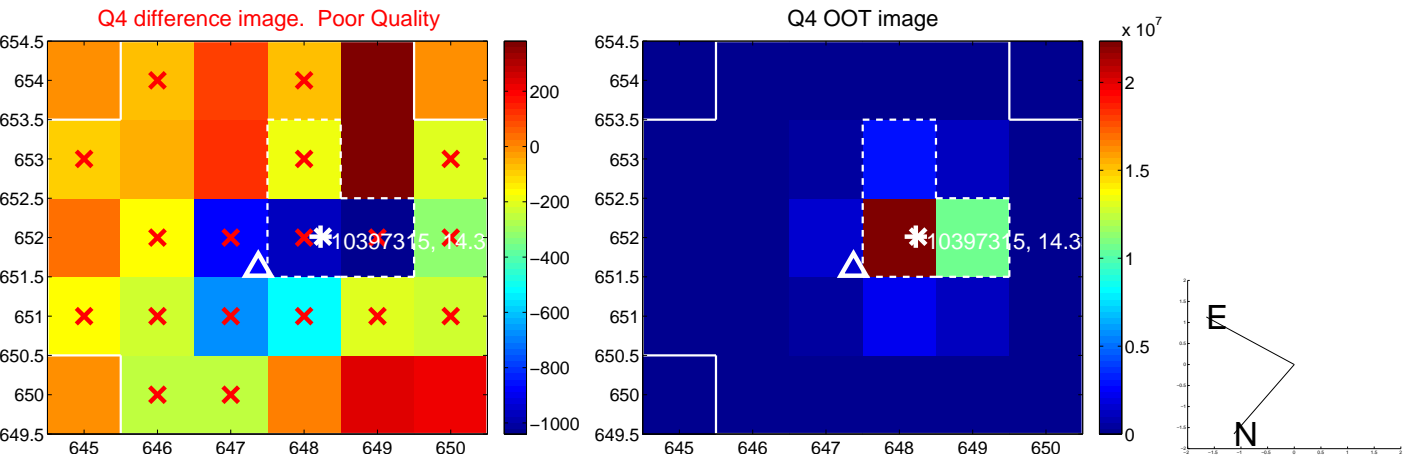
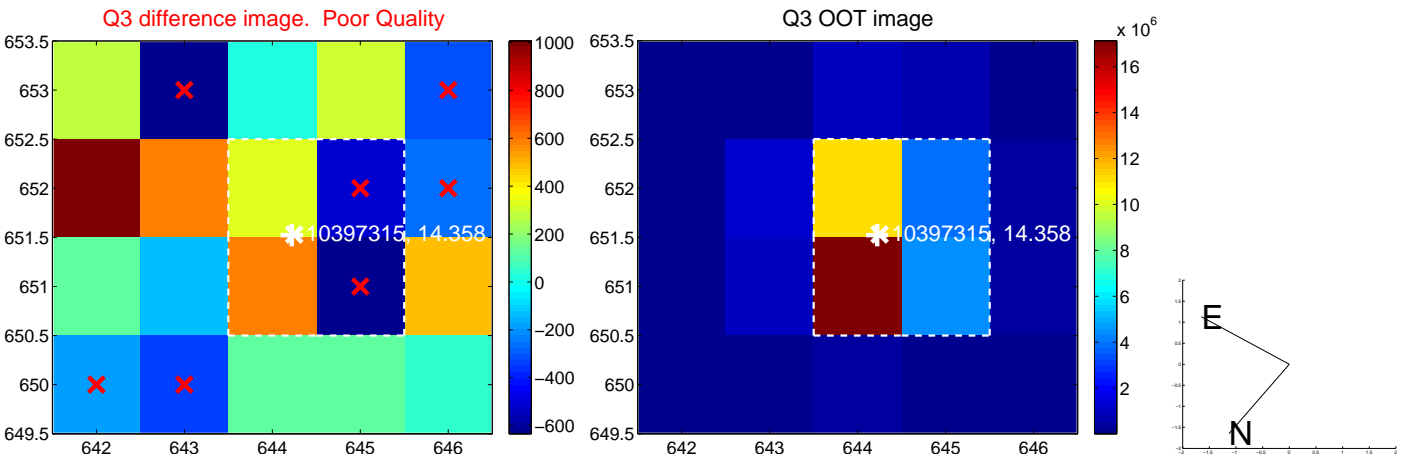
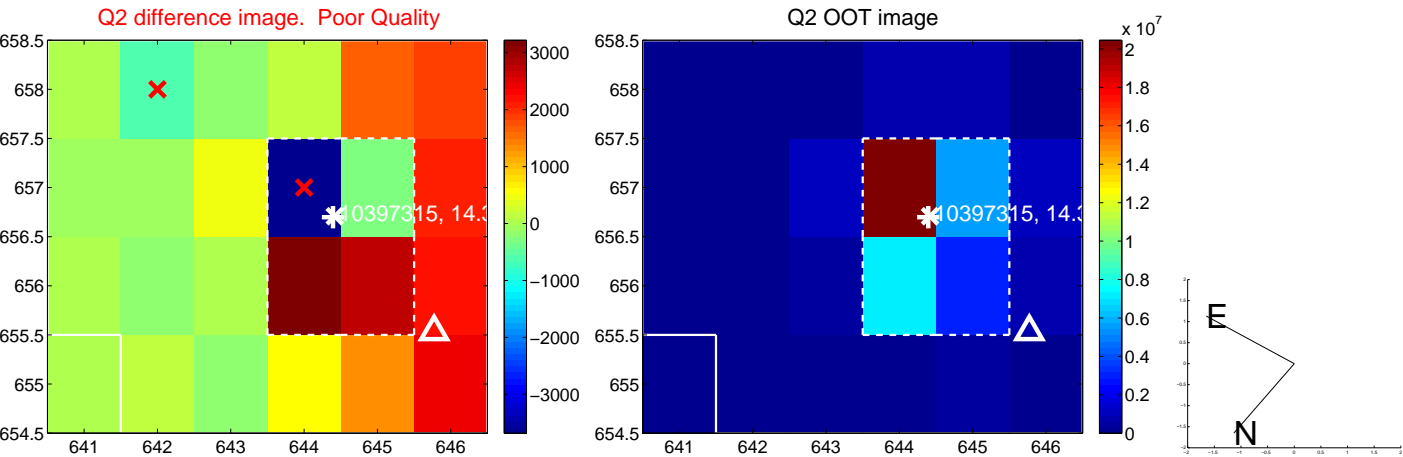
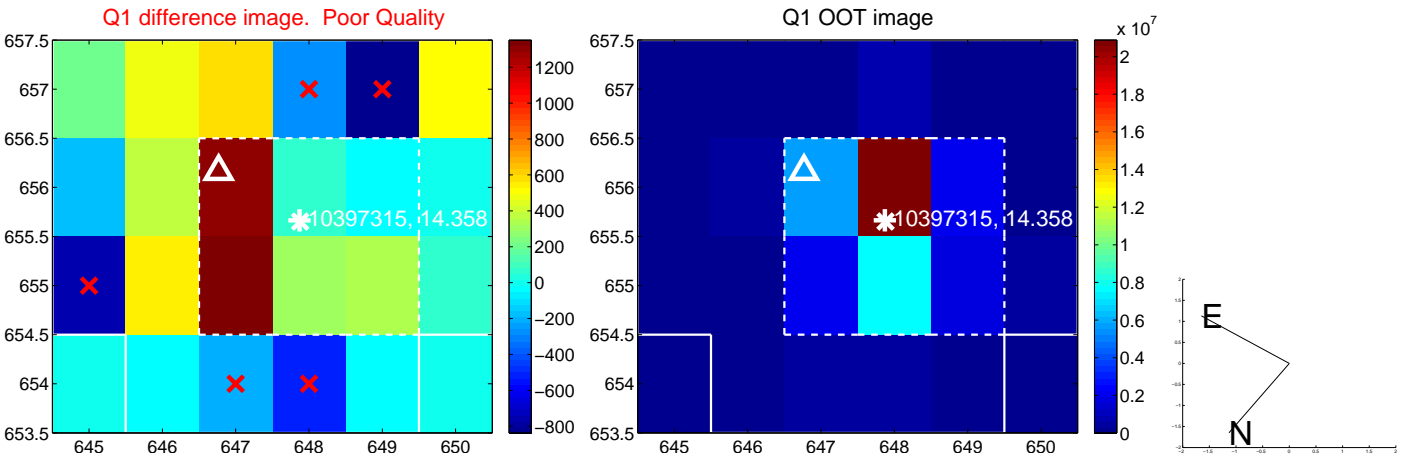


offset from photometric centroids

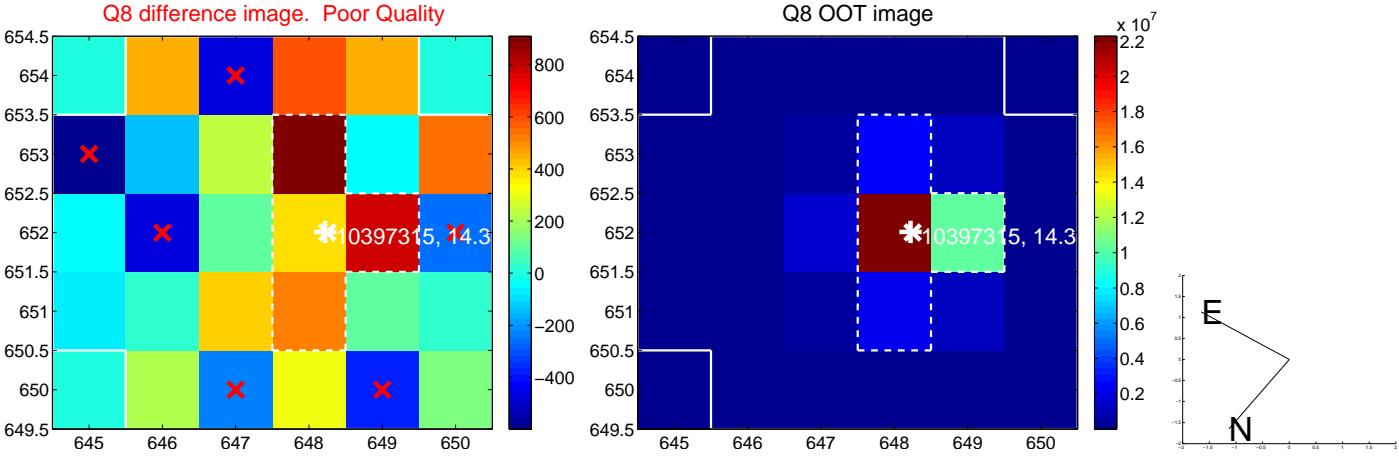
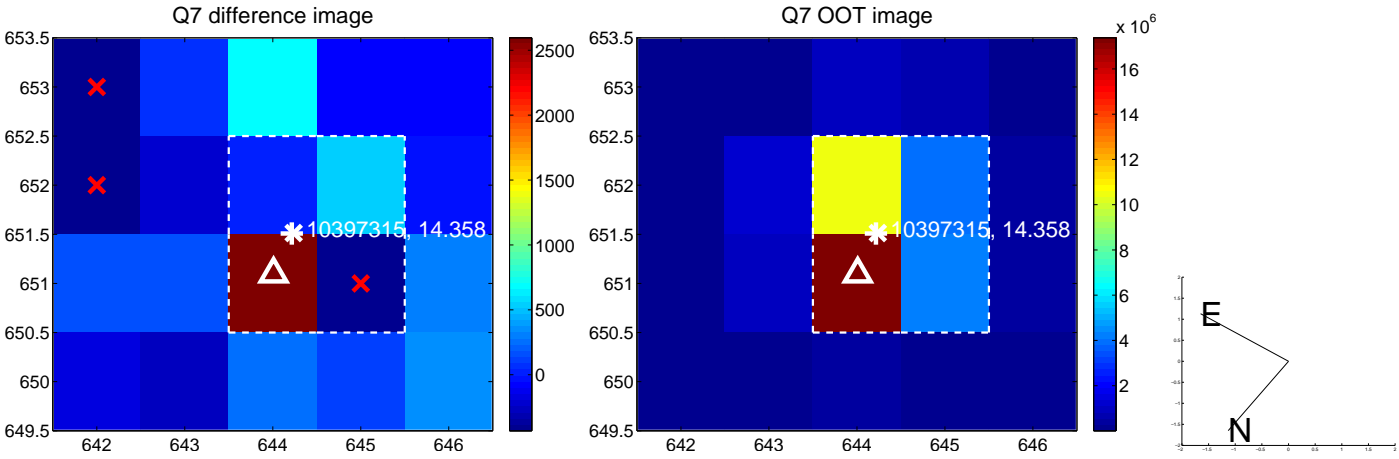
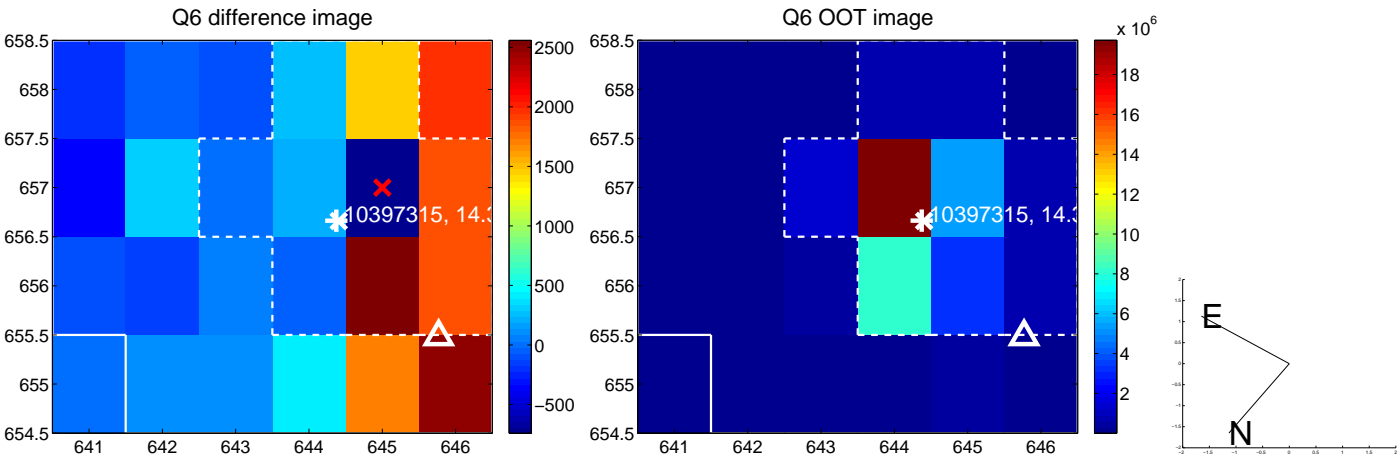
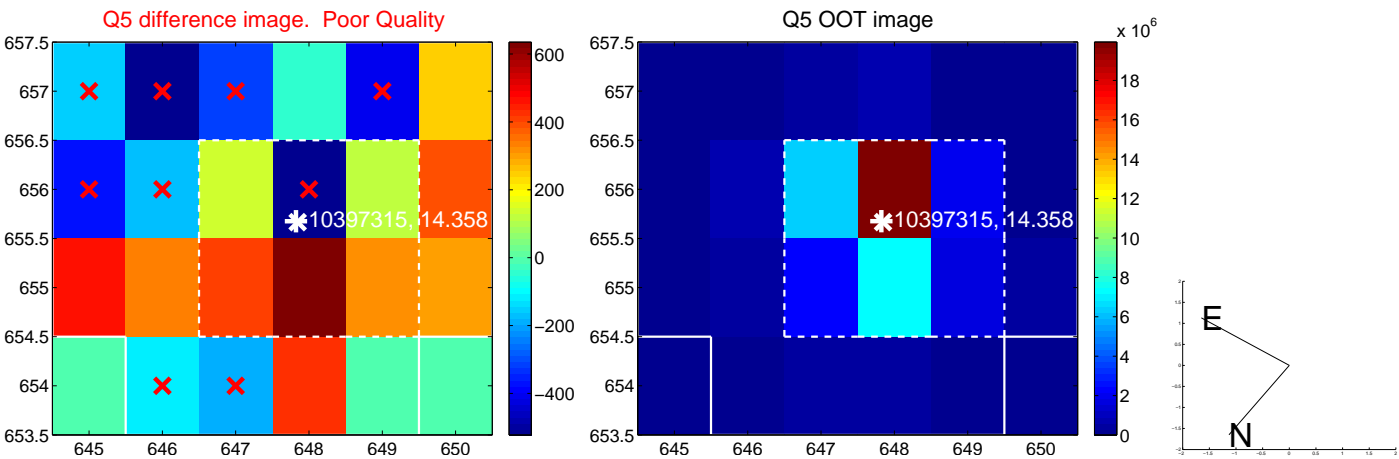


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

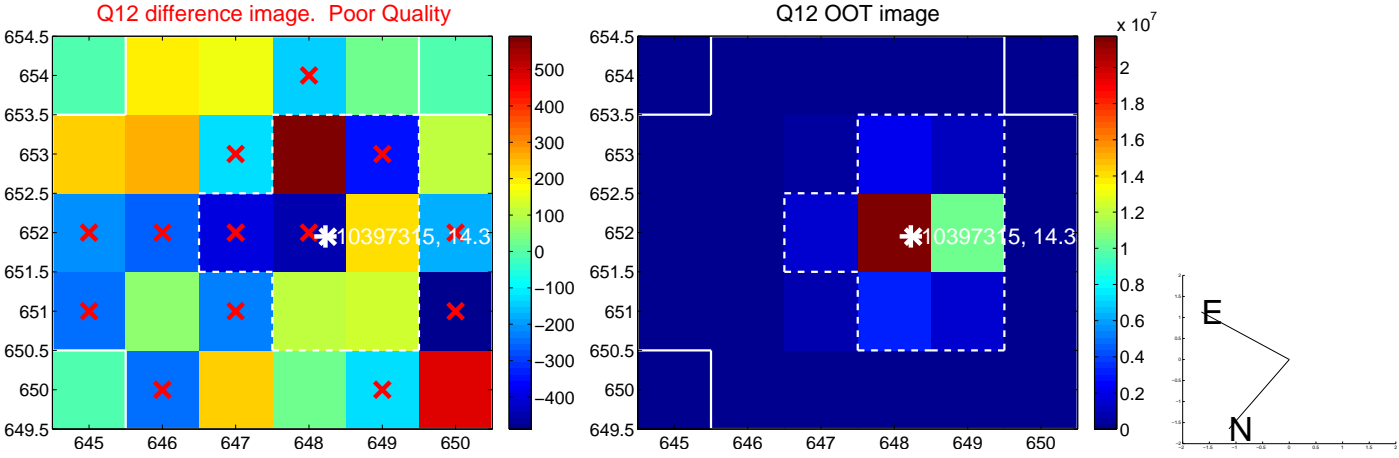
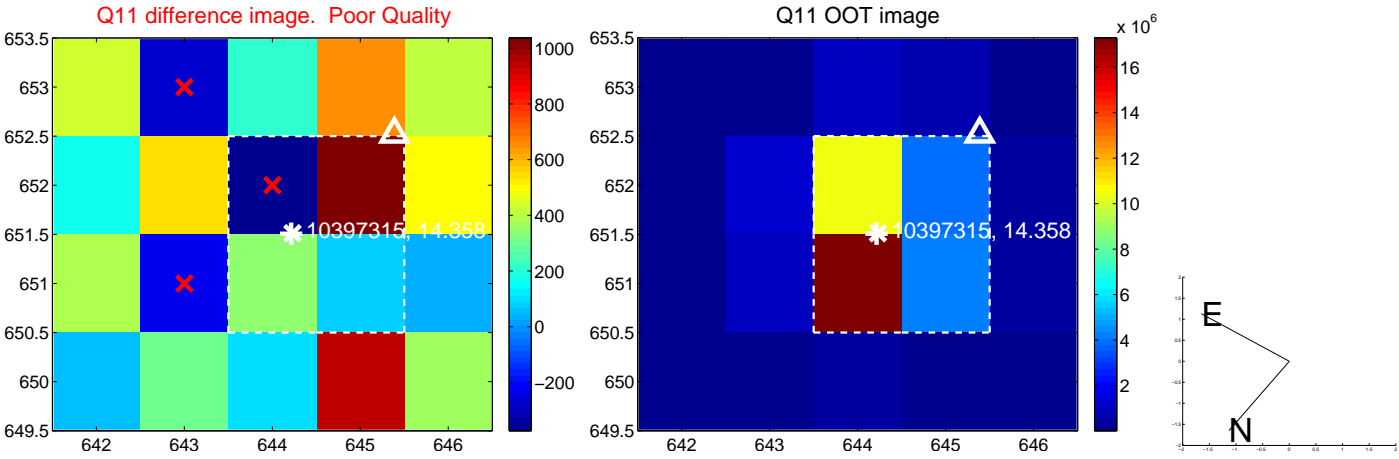
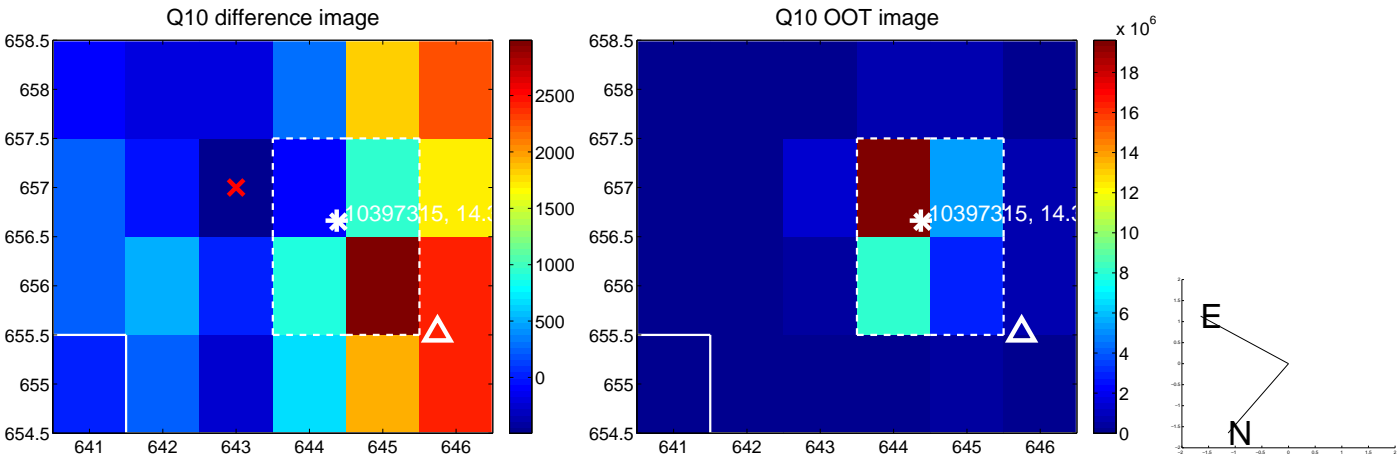
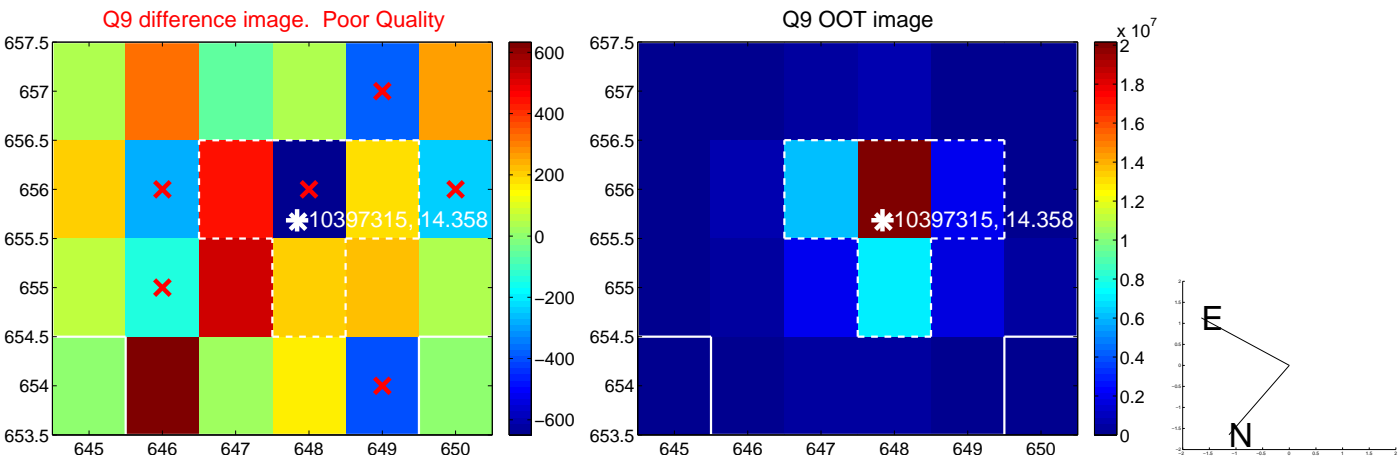


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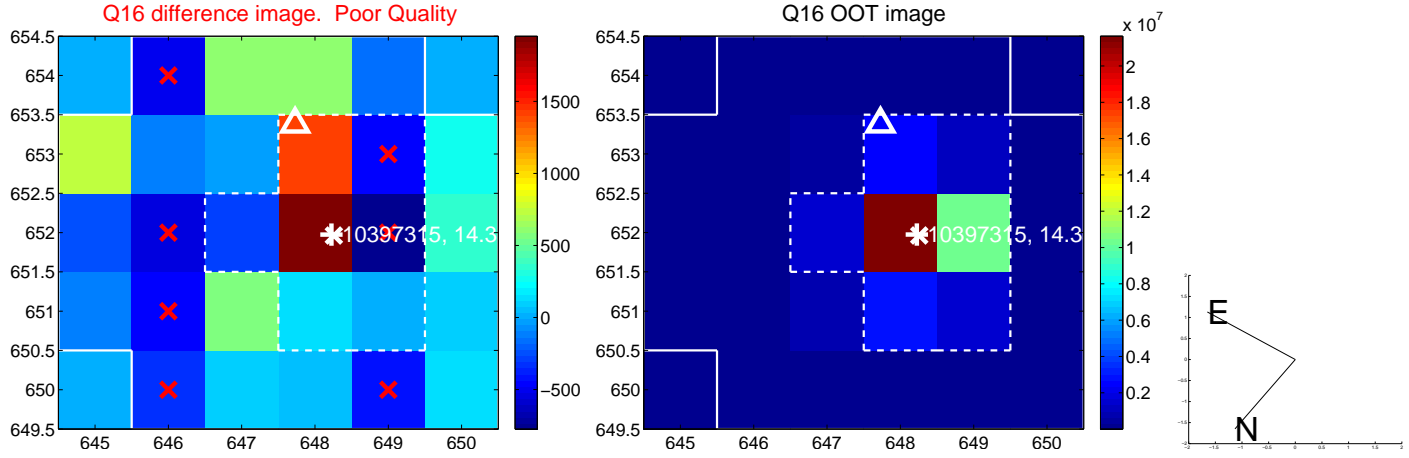
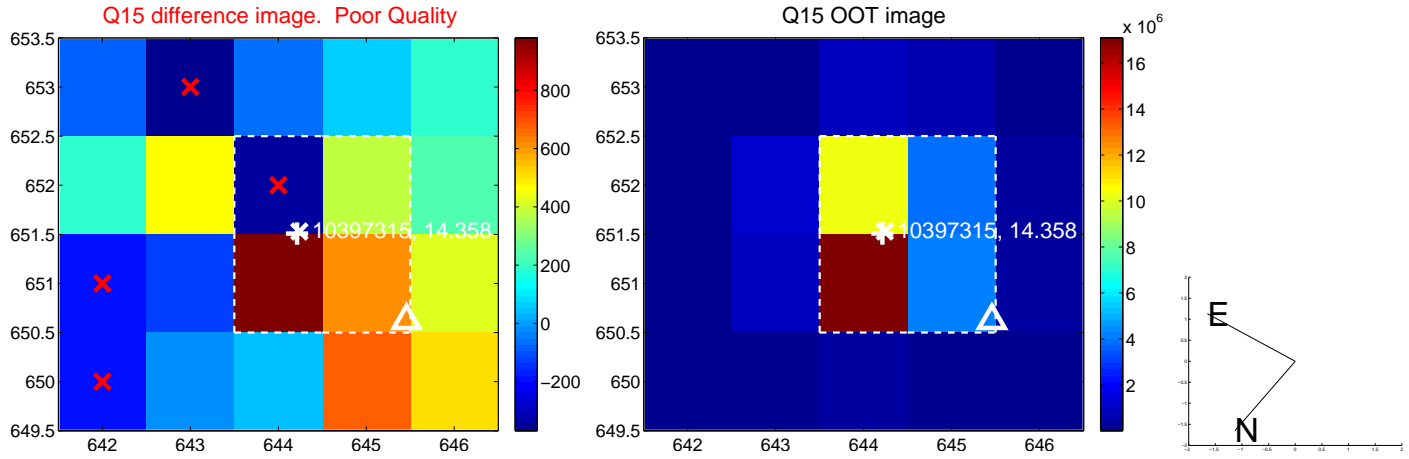
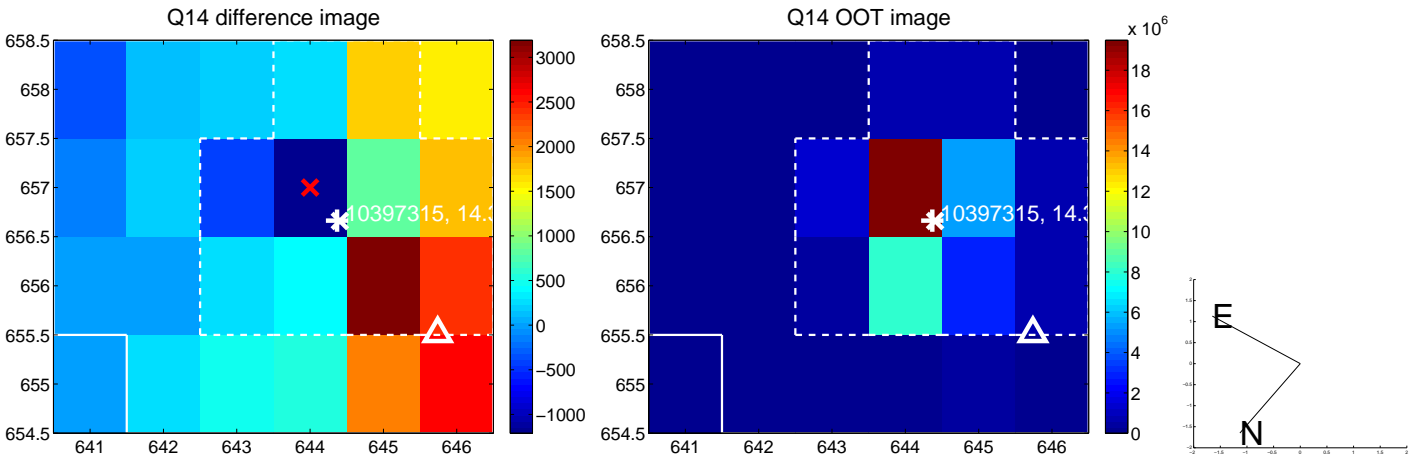
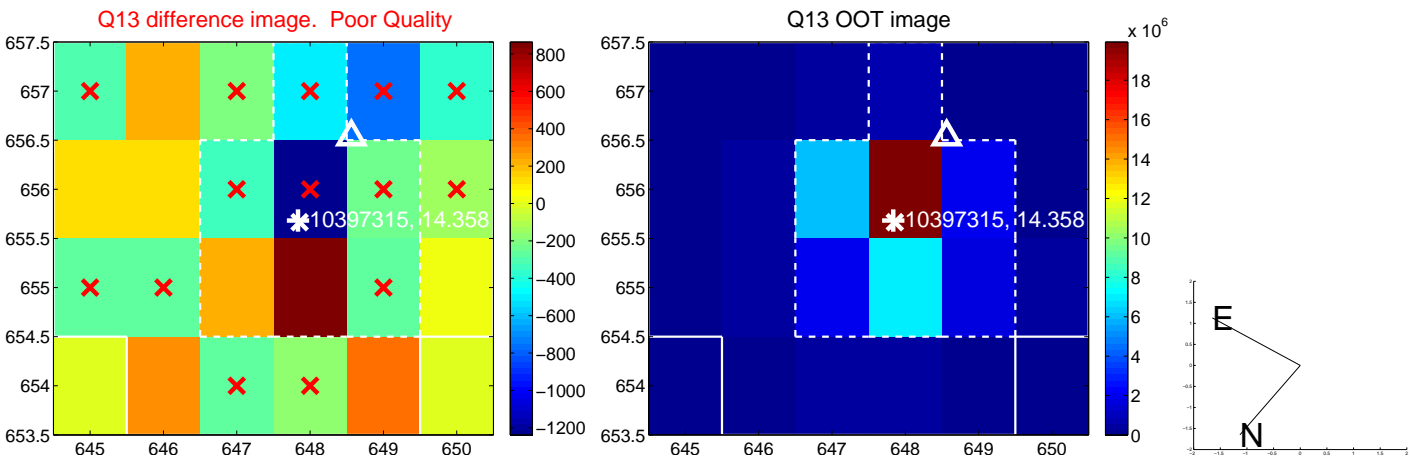




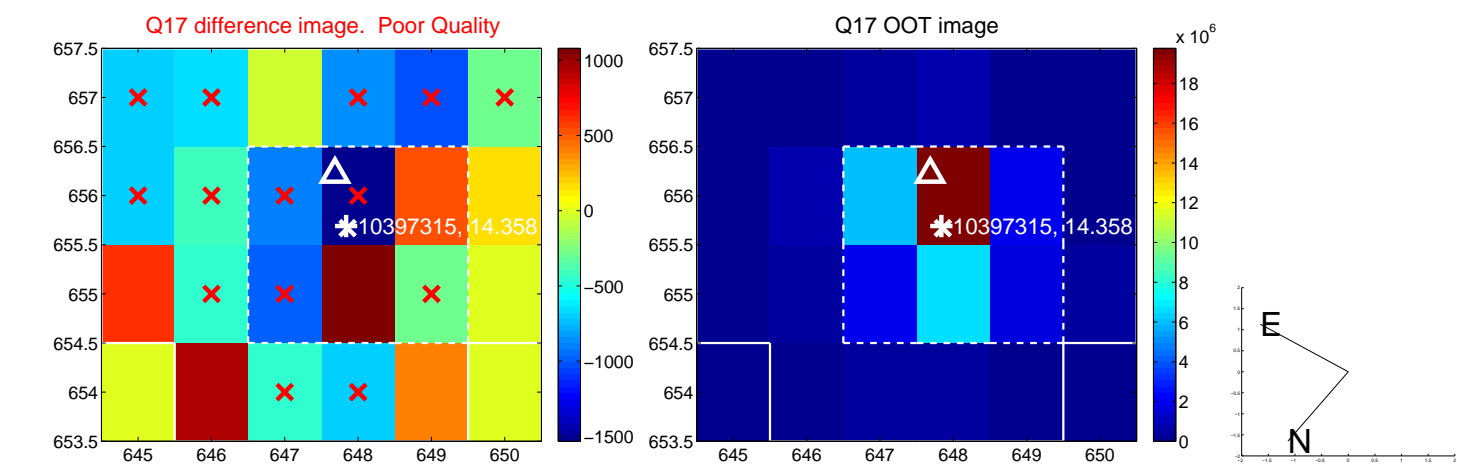
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



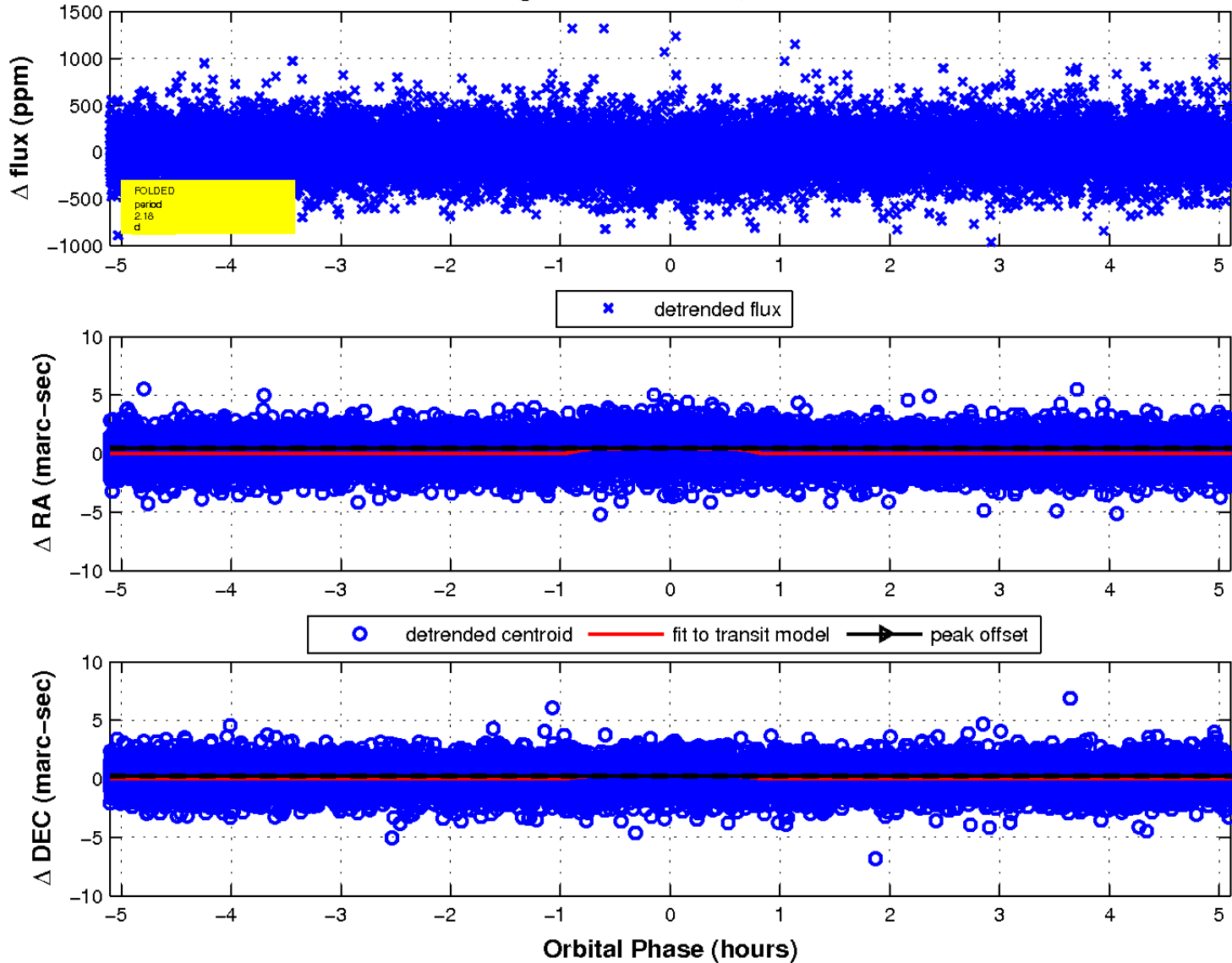
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

