

# KIC 006954748

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006954748-01	OBS	No	2.818607	133.695637	206.9	23.440	8.8	13.5	1.00	5780	1.42	655.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006954748-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_KIC_POS—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

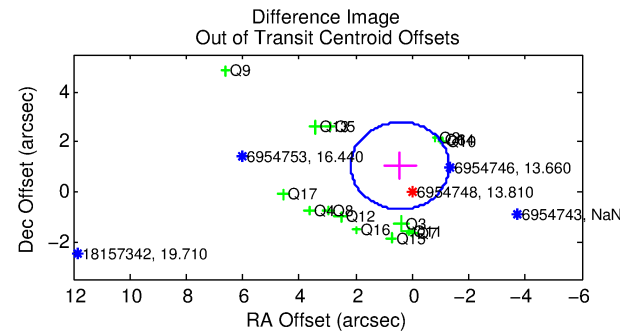
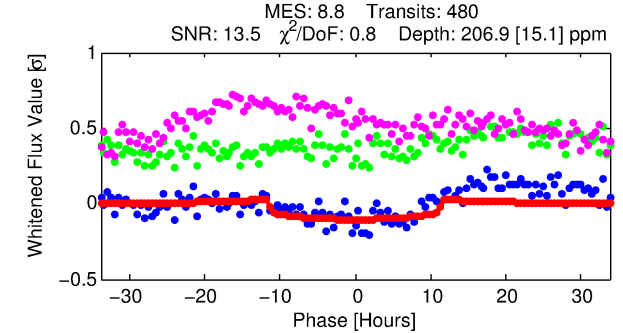
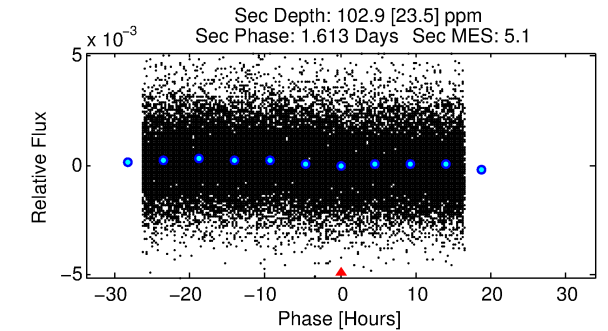
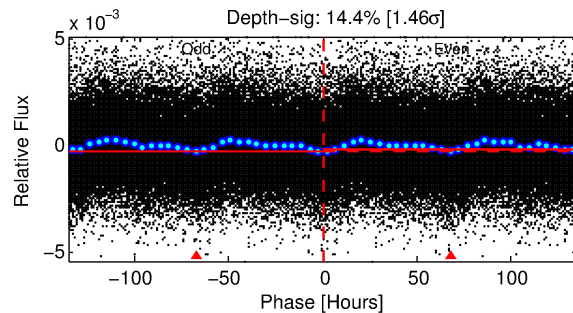
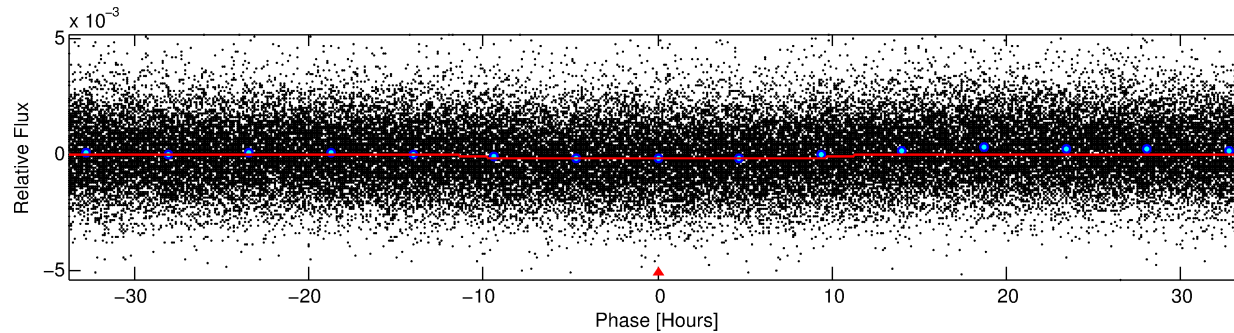
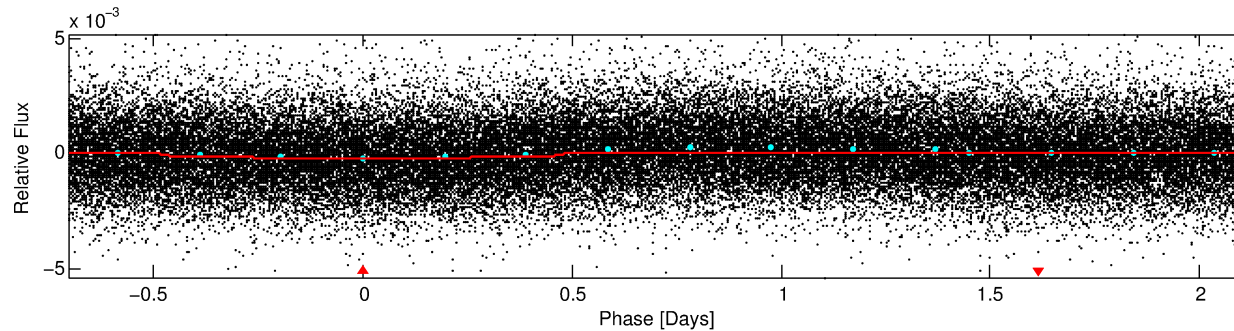
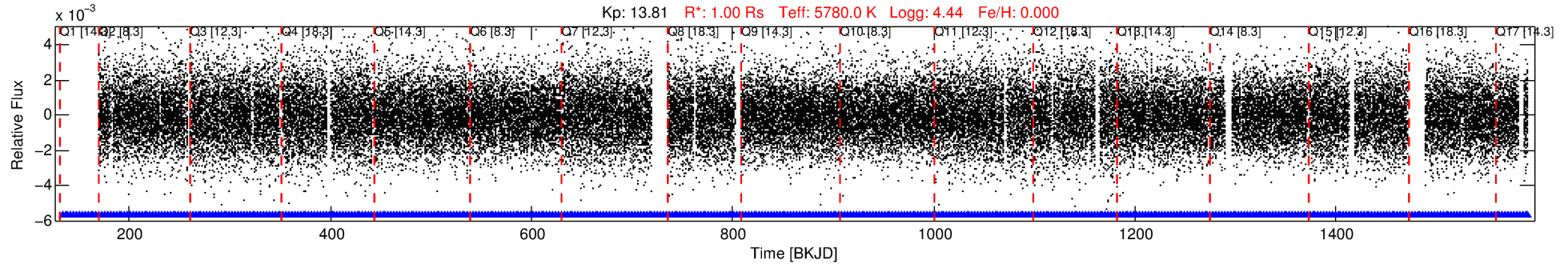
## Ephemeris Match Information For 006954748-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
006954748-01	6954748	006954721-01	6954721	1:1	24.8	0	-6	12.92	13.81	0.46	Direct-PRF	1	2.40	0.33

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ 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: 6954748 Candidate: 1 of 1 Period: 2.819 d



## DV Fit Results:

Period = 2.81861 [0.00005] d  
Epoch = 133.6956 [0.0132] BKJD  
Rp/R\* = 0.0130 [0.0064]  
a/R\* = 1.14 [0.58]  
b = 0.01 [178.66]  
Seff = 655.48 [0.02]  
Teq = 1290 [0] K  
Rp = 1.42 [0.70] Re  
a = 0.0391 [0.0000] AU  
Ag = 42.69 [43.21] [0.96 $\sigma$ ]  
Teffp = 5099 [1290] K [2.95 $\sigma$ ]

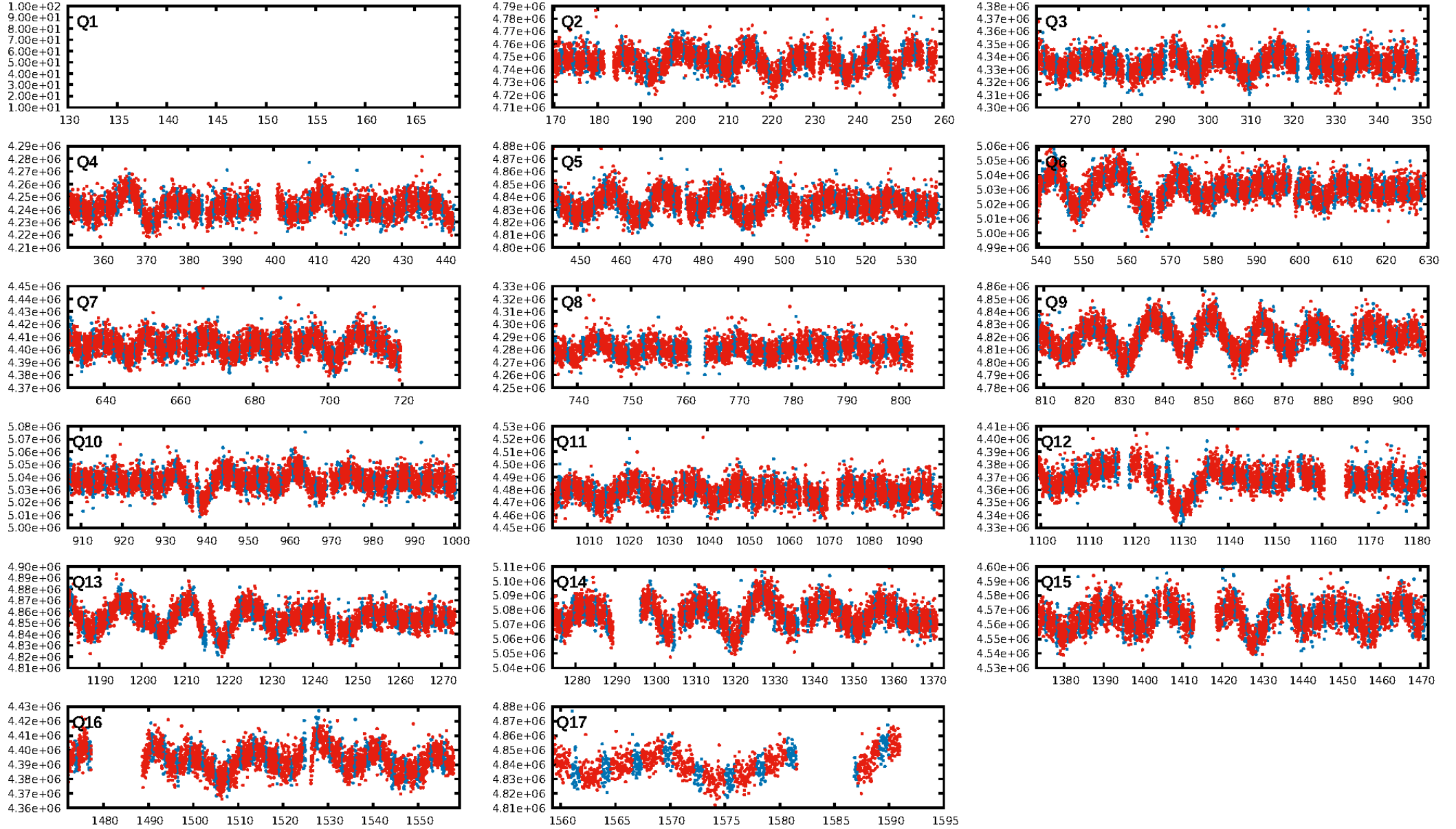
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [470/470]  
GhostDiagnostic-chr: 0.11  
Centroid-sig: 0.0%  
Centroid-so: 1.241 arcsec [4.25 $\sigma$ ]  
OotOffset-rm: 1.124 arcsec [1.93 $\sigma$ ]  
KicOffset-rm: 0.970 arcsec [1.56 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 1.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:09:10 Z

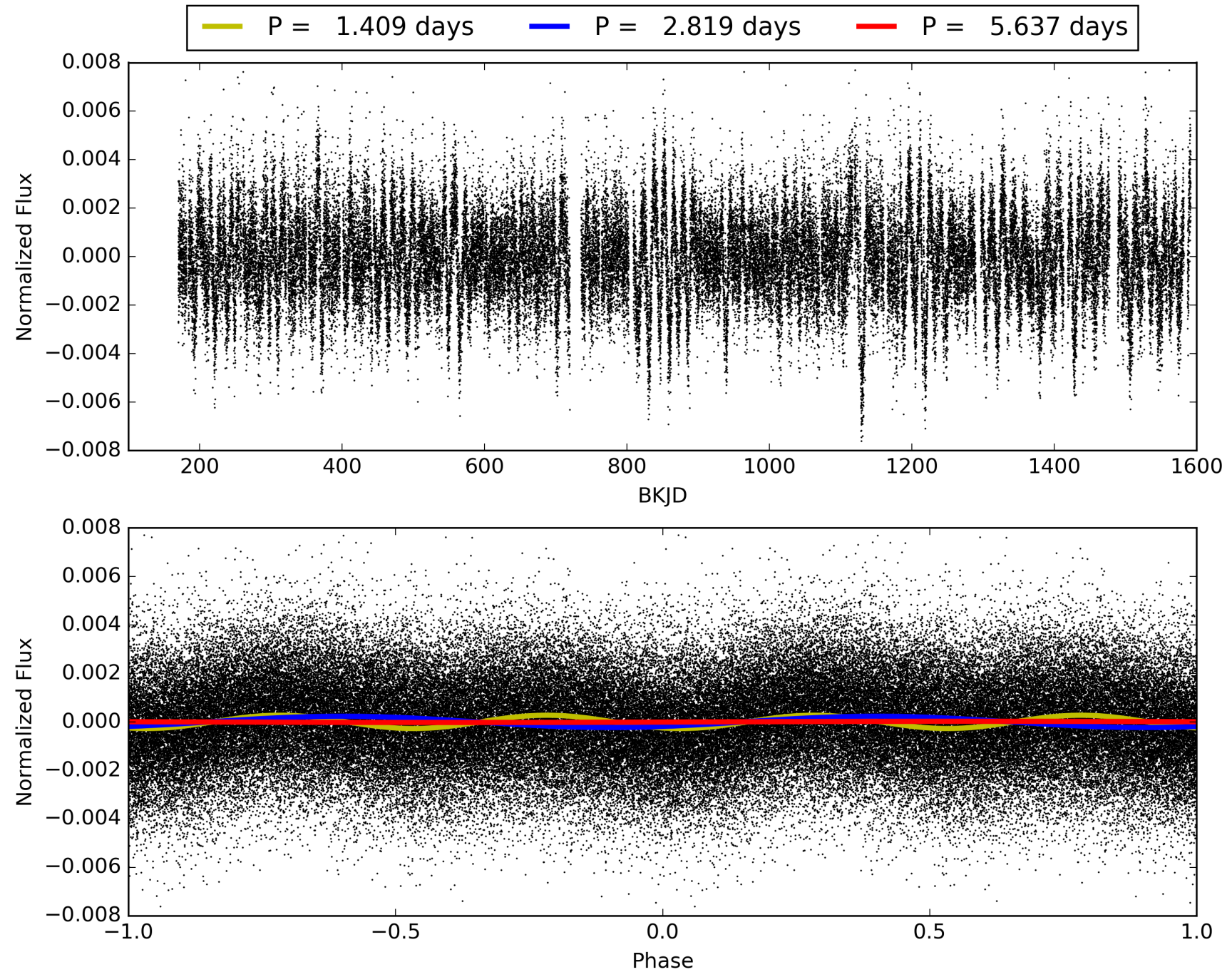
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006954748-01, PDC Light Curves



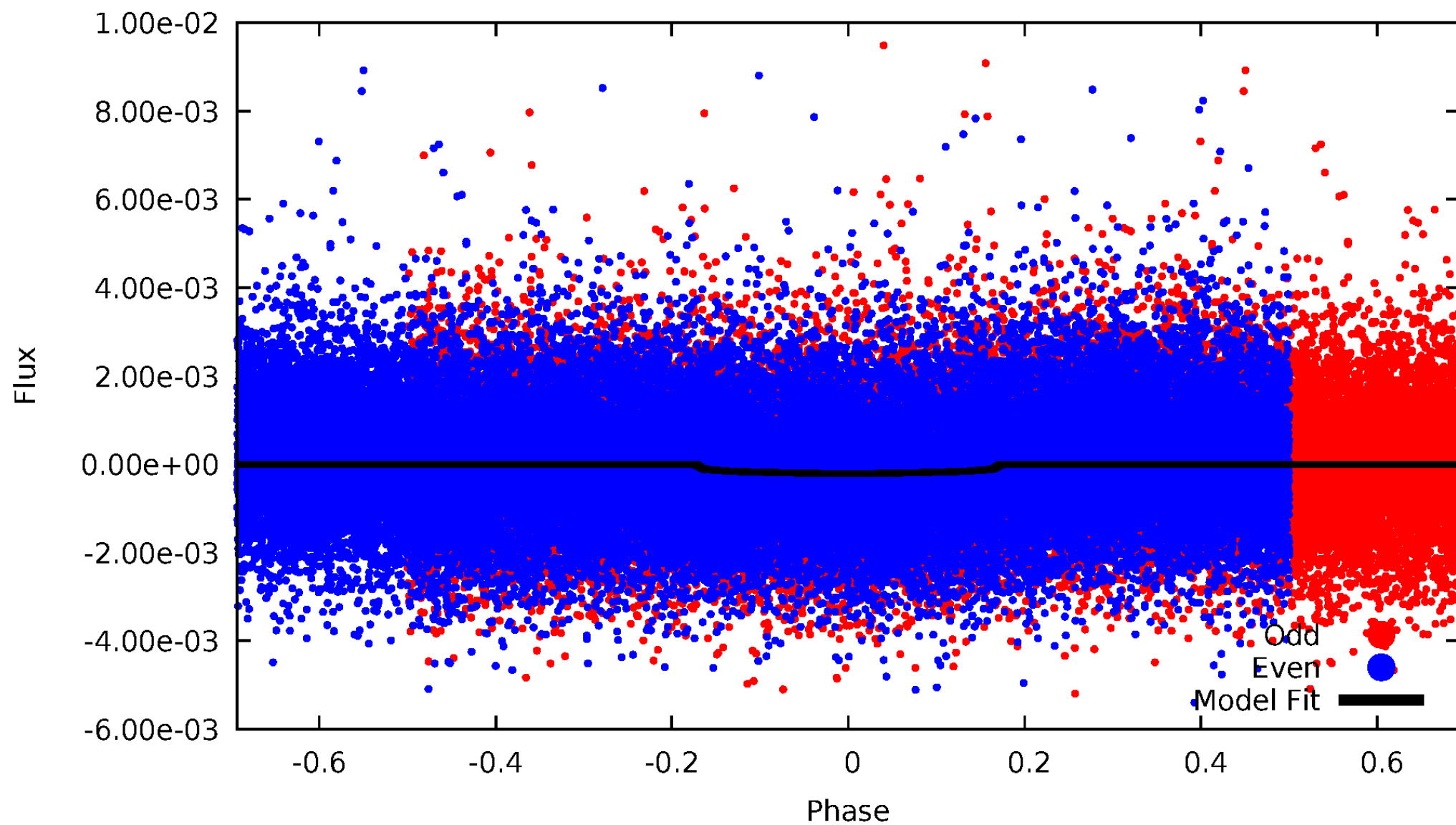


TCE 006954748-01



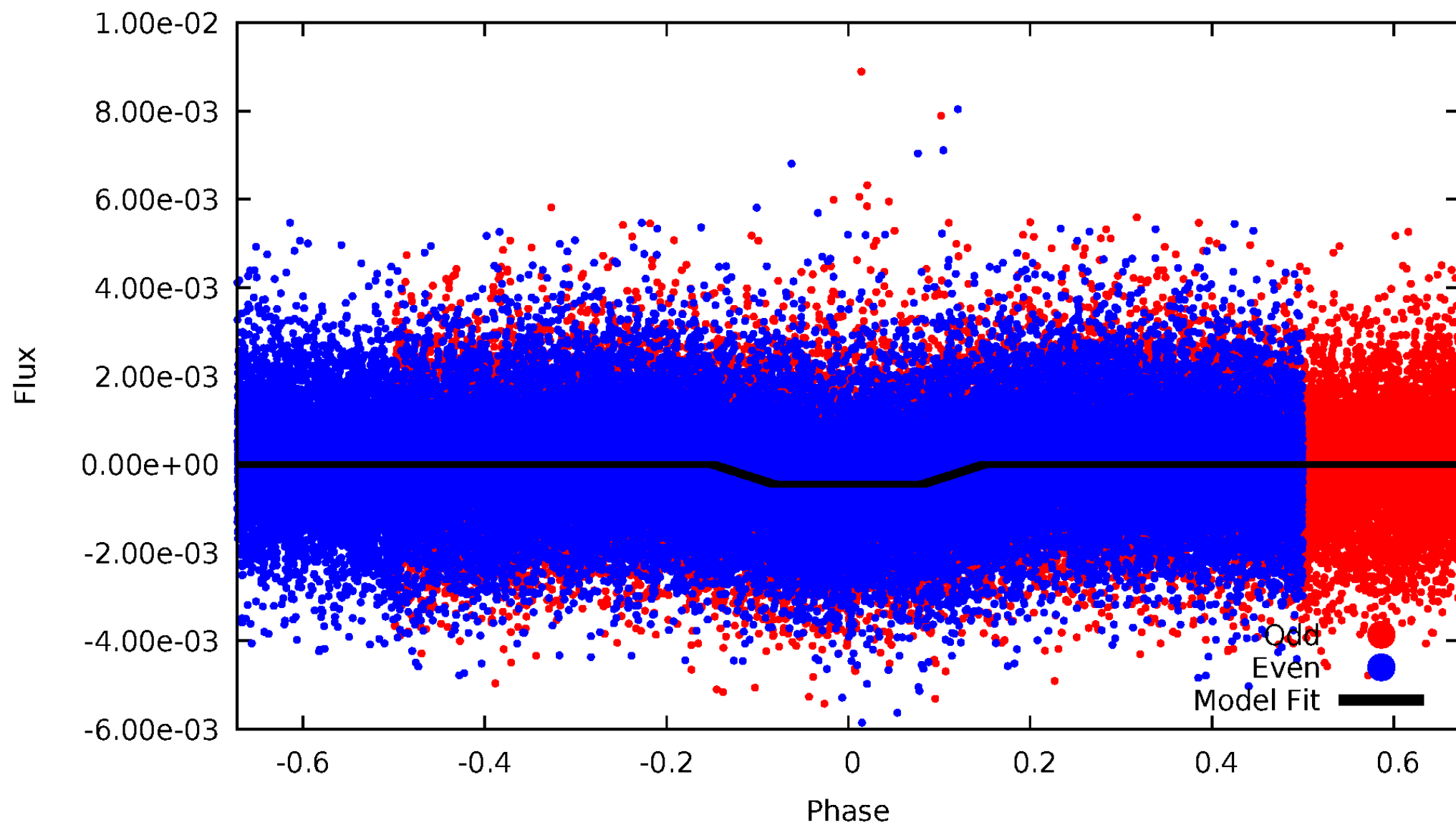
# DV Odd/Even

TCE 006954748-01



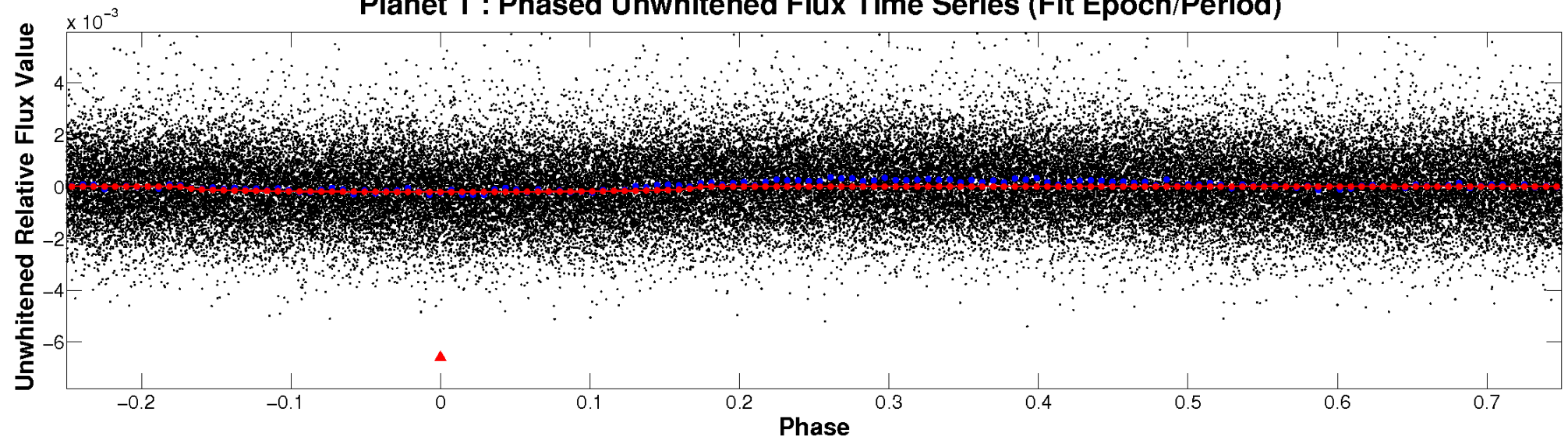
# ALT Odd/Even

TCE 006954748-01

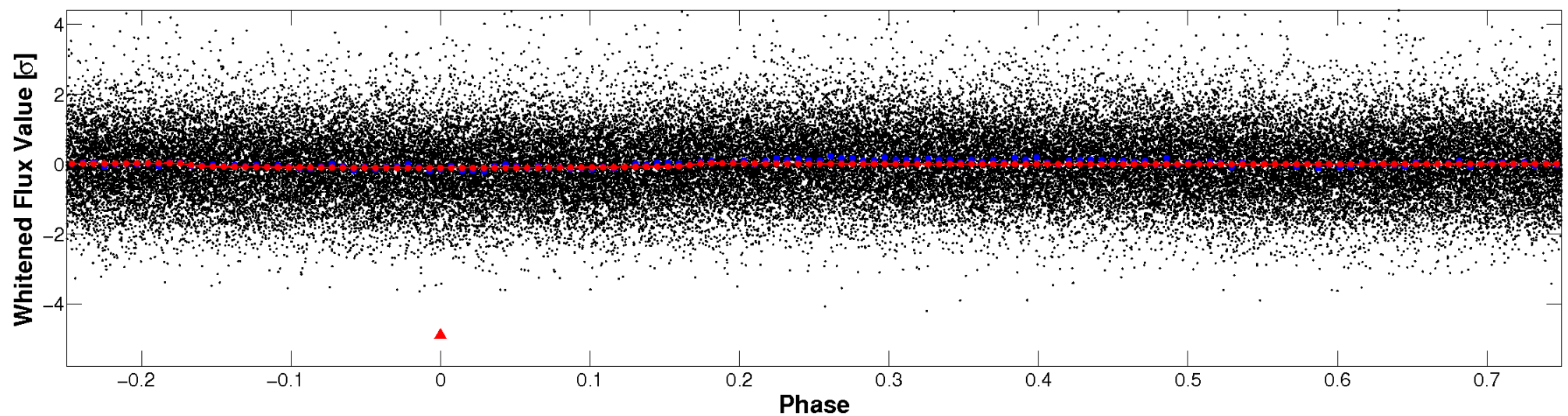


# Non-Whitened Vs. Whitened Light Curve

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



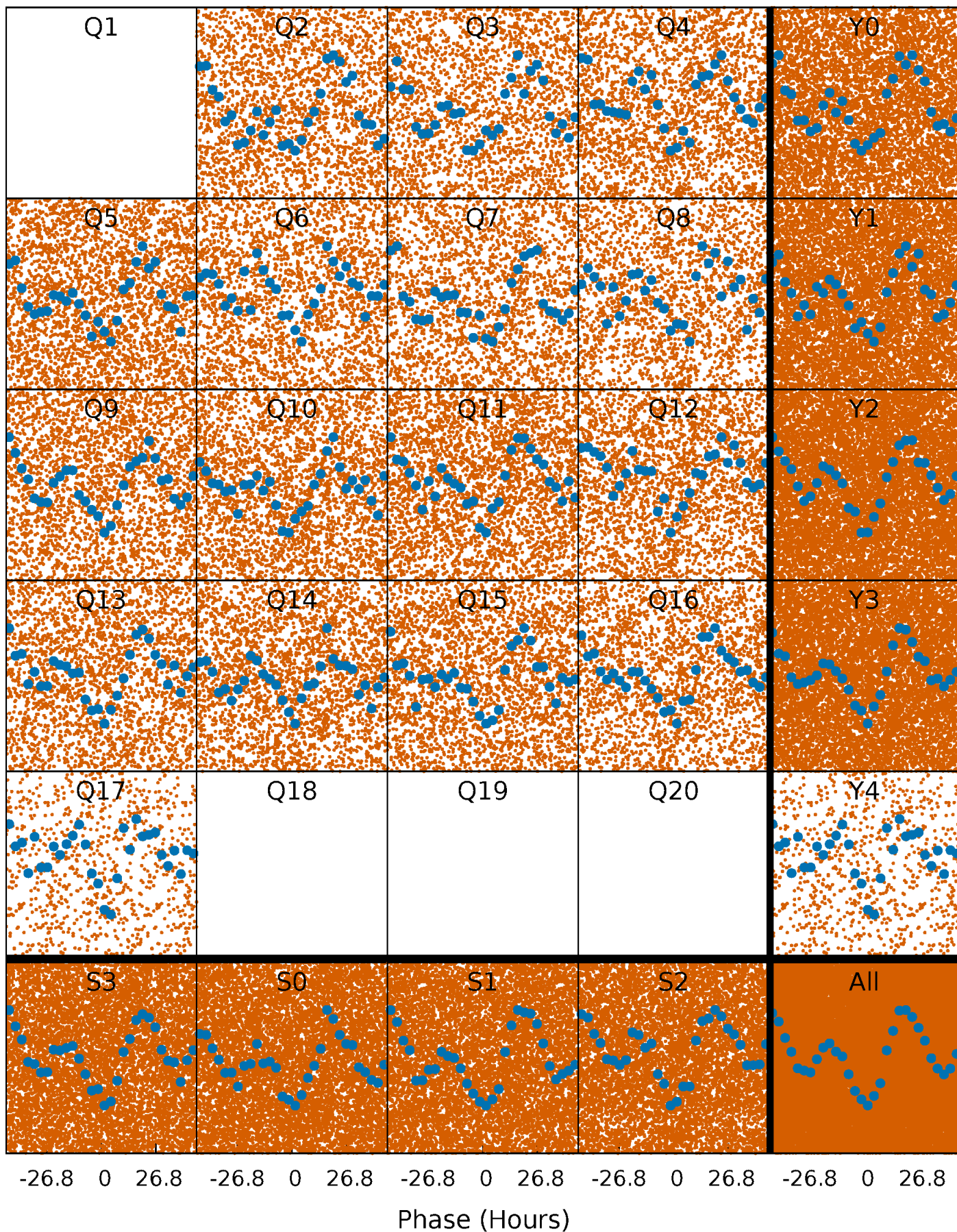
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

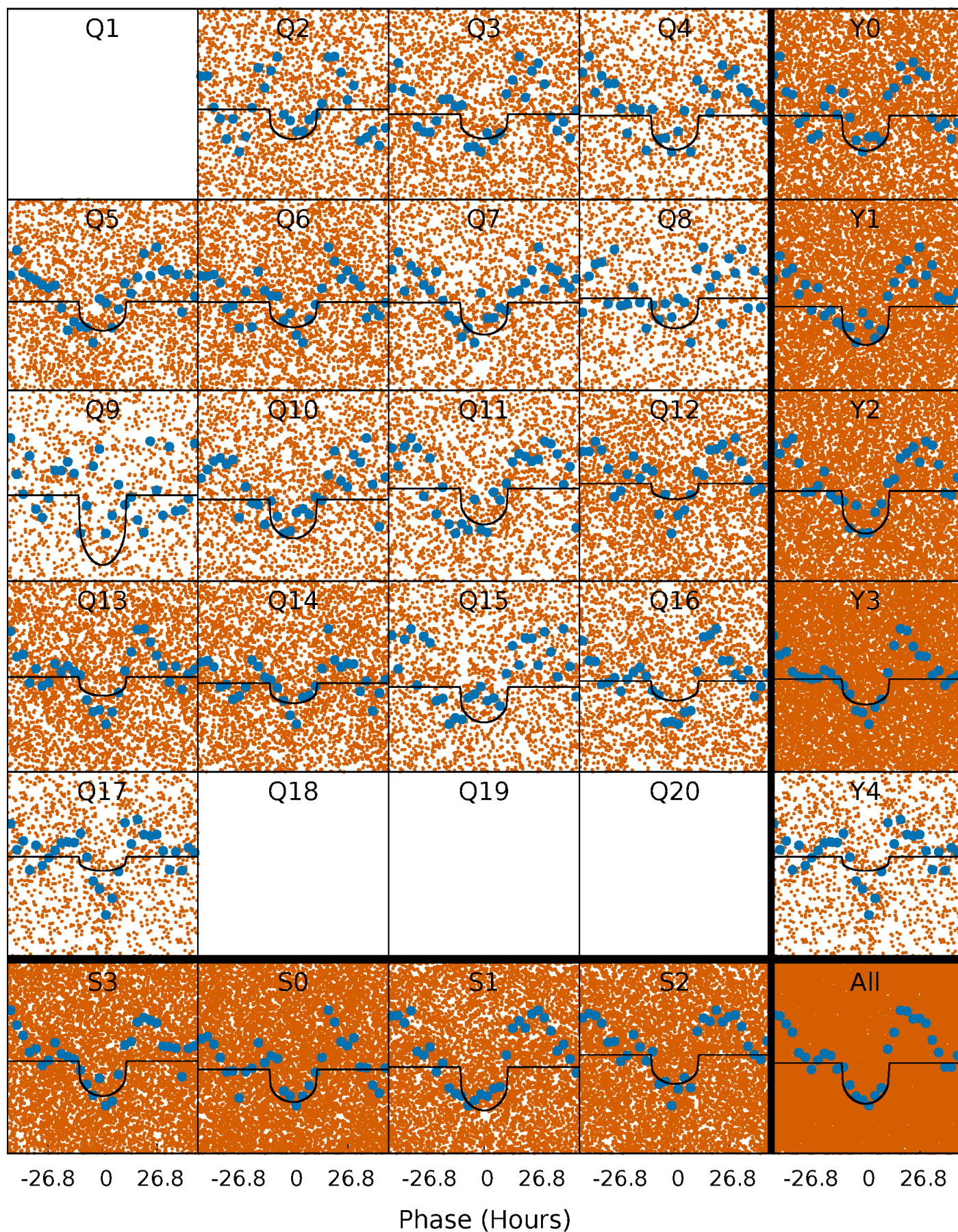
TCE 006954748-01 P= 2.818607 Days  $T_0=133.695637$  (BKJD)





# DV Quarter-Phased Transit Curves

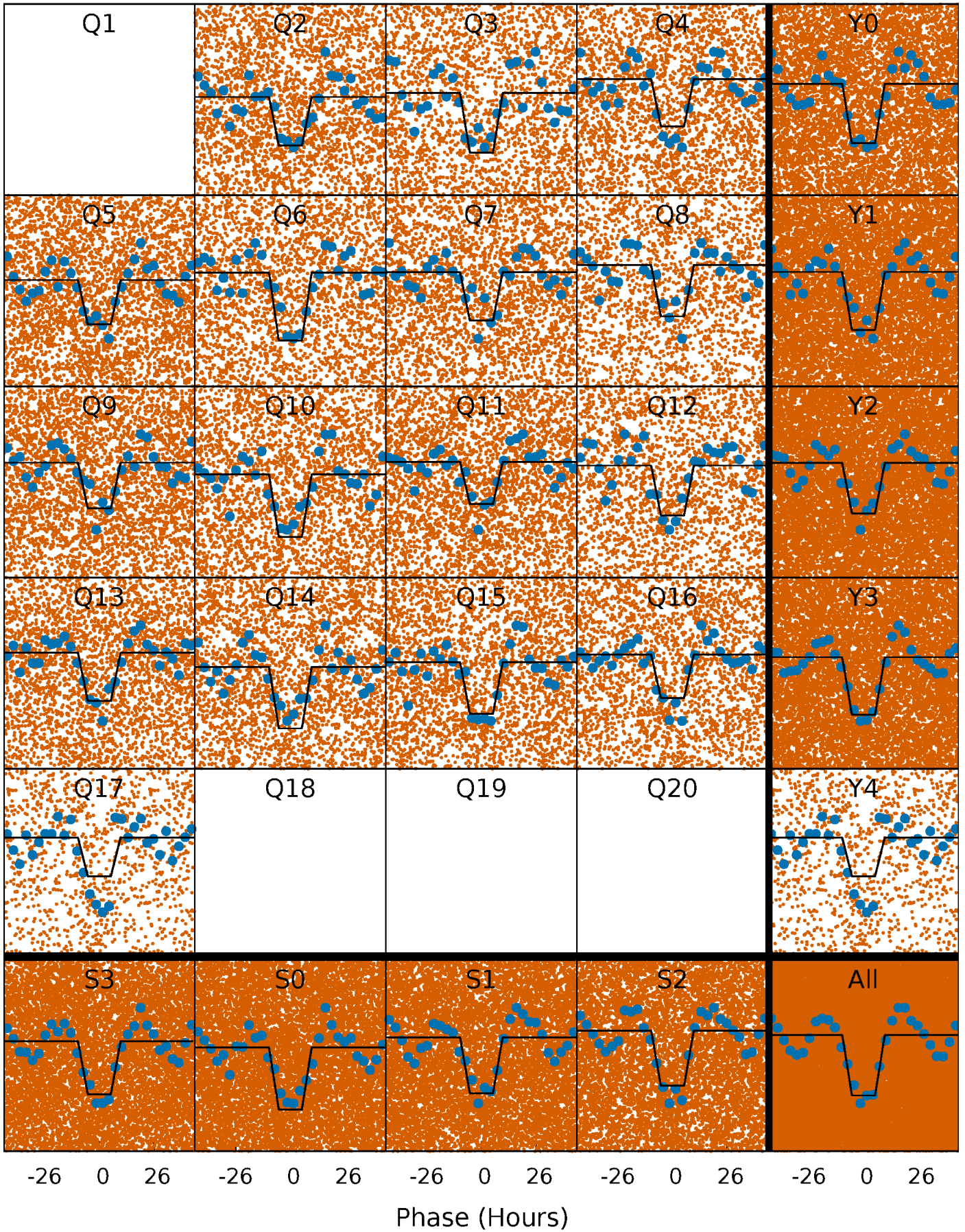
TCE 006954748-01 P= 2.818607 Days  $T_0=133.695637$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

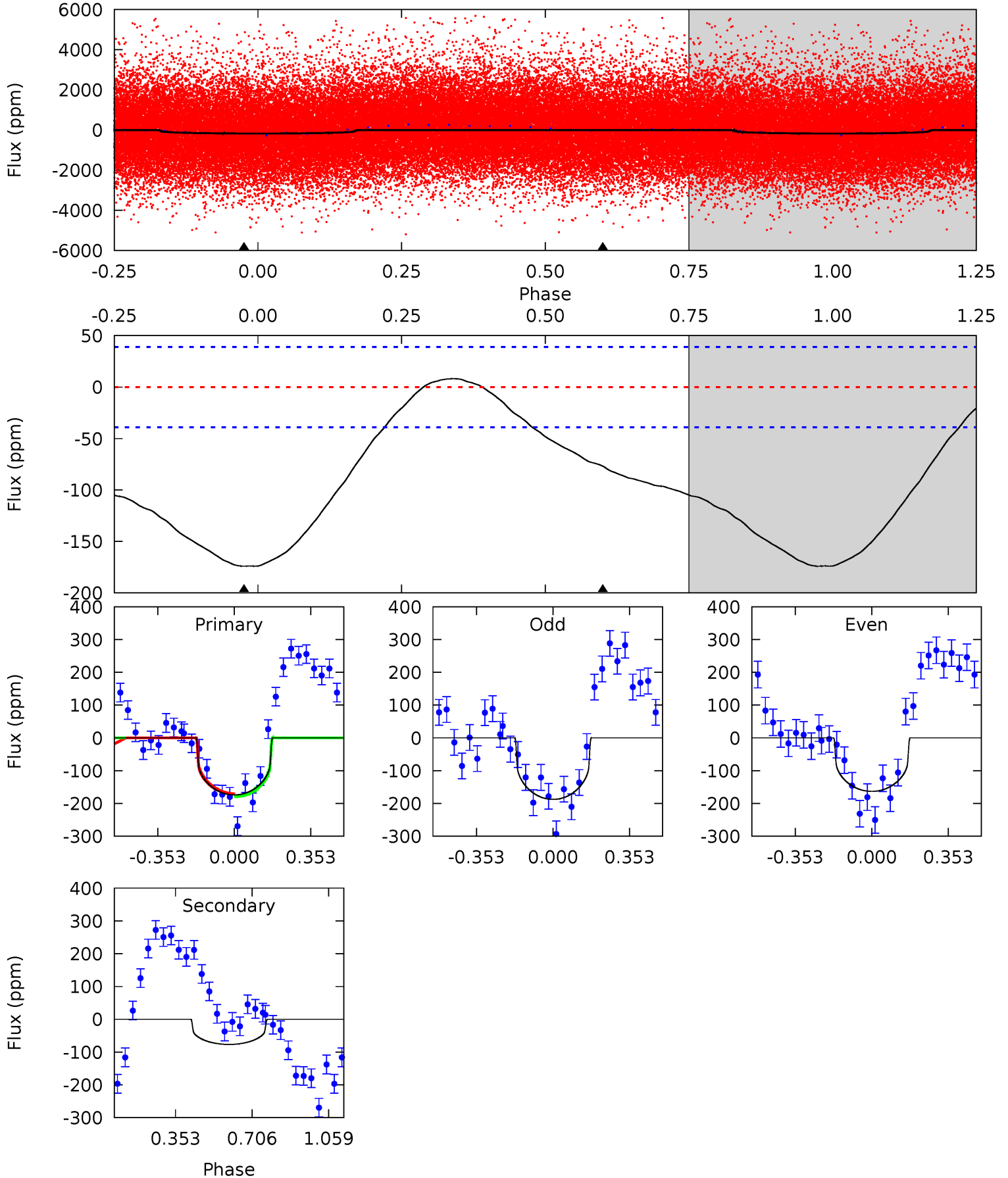
TCE 006954748-01 P= 2.818679 Days  $T_0=133.754672$  (BKJD)



# DV Model-Shift Uniqueness Test

006954748-01, P = 2.818607 Days, E = 133.695637 Days

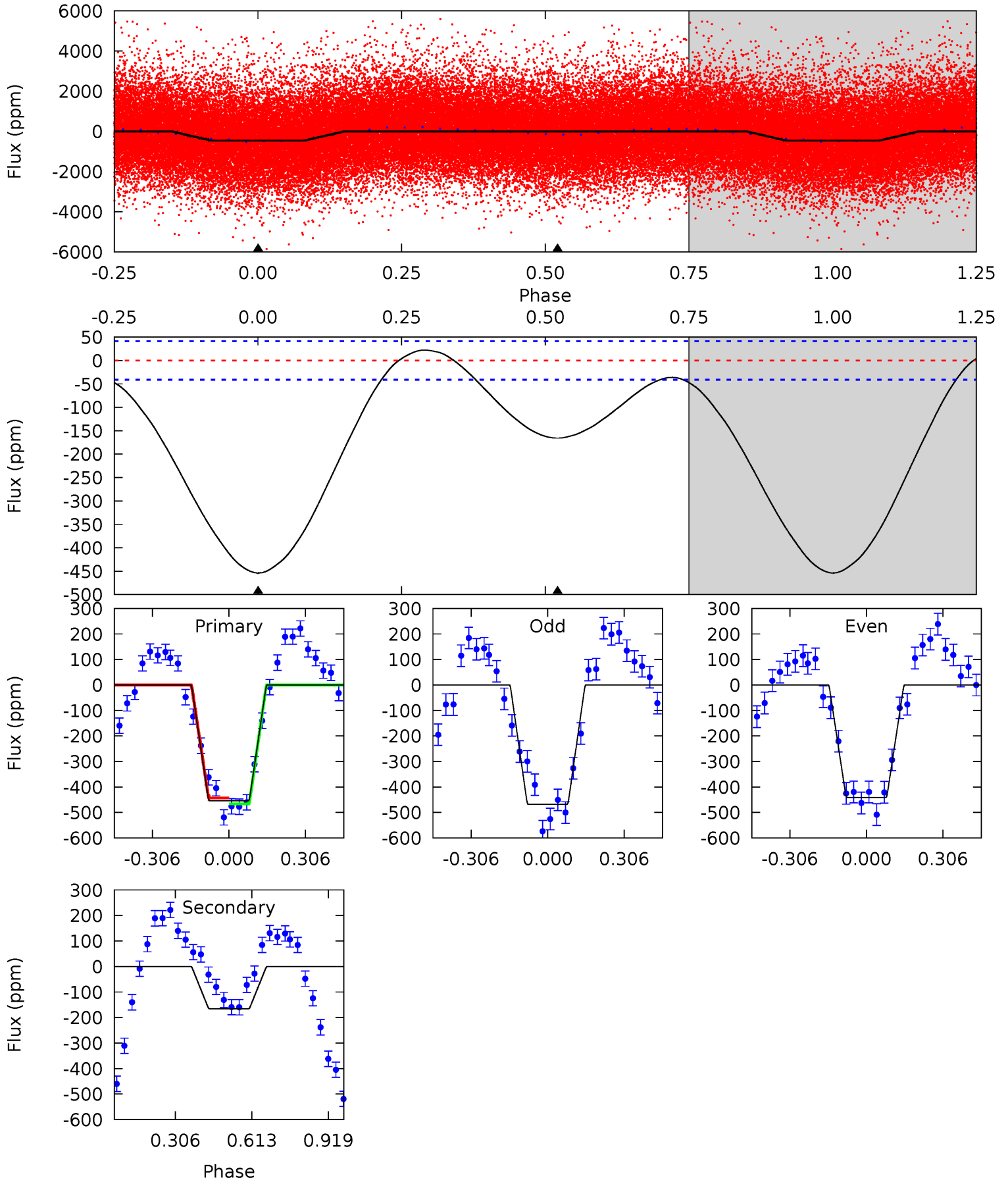
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	8.46	0	0	4.29	0.93	1.23	19.2	19.2	8.46	8.46	1.35	0.93	0.04	0.50



# Alt Model-Shift Uniqueness Test

006954748-01, P = 2.818679 Days, E = 133.754672 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
47.6	17.4	0	0	4.32	1.02	3.40	47.6	47.6	17.4	17.4	1.42	1.03	0.05	1.21





### Stellar Parameters For KIC 006954748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

### Secondary Eclipse Parameters for KIC 006954748-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-77 \pm 9$	$1.40^{+0.67}_{-0.60}$	$1801^{+83}_{-85}$	$4844^{+1455}_{-707}$	$34^{+63}_{-19}$
Alt.	$-166 \pm 10$	$2.34^{+0.75}_{-0.73}$	$1797^{+87}_{-80}$	$4606^{+787}_{-466}$	$25^{+28}_{-11}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

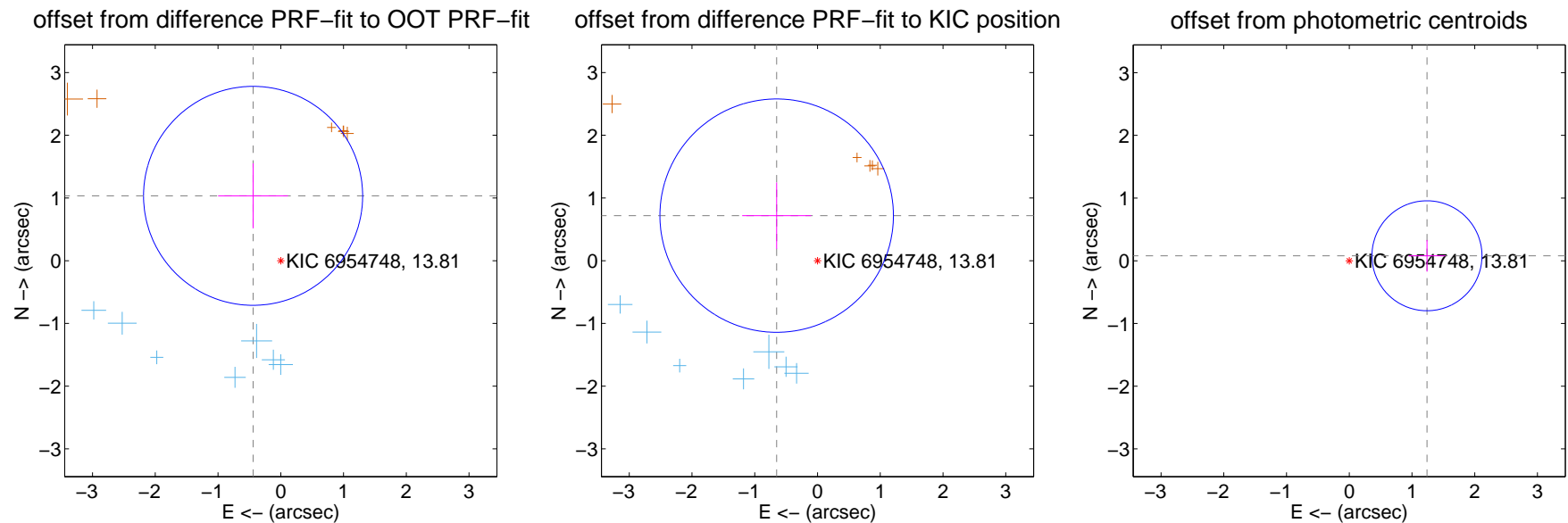
## DV Centroid Data

Supplemental centroid analysis for 006954748-01. Kepler magnitude: 13.81. Transit SNR 13.50

There are 8 quarters with good PRF difference image offsets

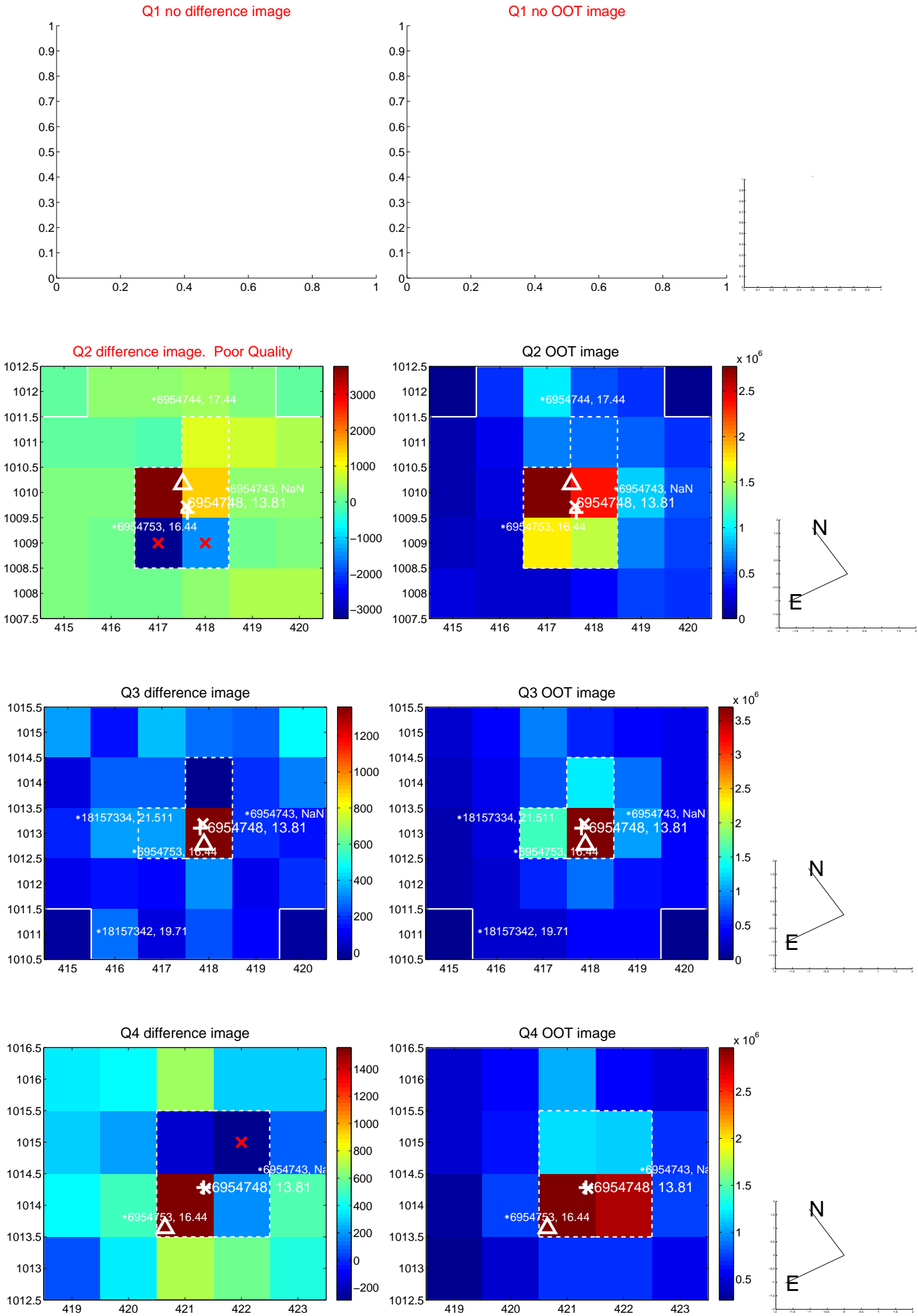
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.124 \pm 0.582$	1.93	$0.441 \pm 0.556$	$1.034 \pm 0.518$
PRF-fit source offset from KIC position	$0.970 \pm 0.620$	1.56	$0.651 \pm 0.549$	$0.719 \pm 0.530$
photometric centroid source offset	$1.24 \pm 0.29$	4.25	$-1.24 \pm 0.29$	$0.08 \pm 0.25$

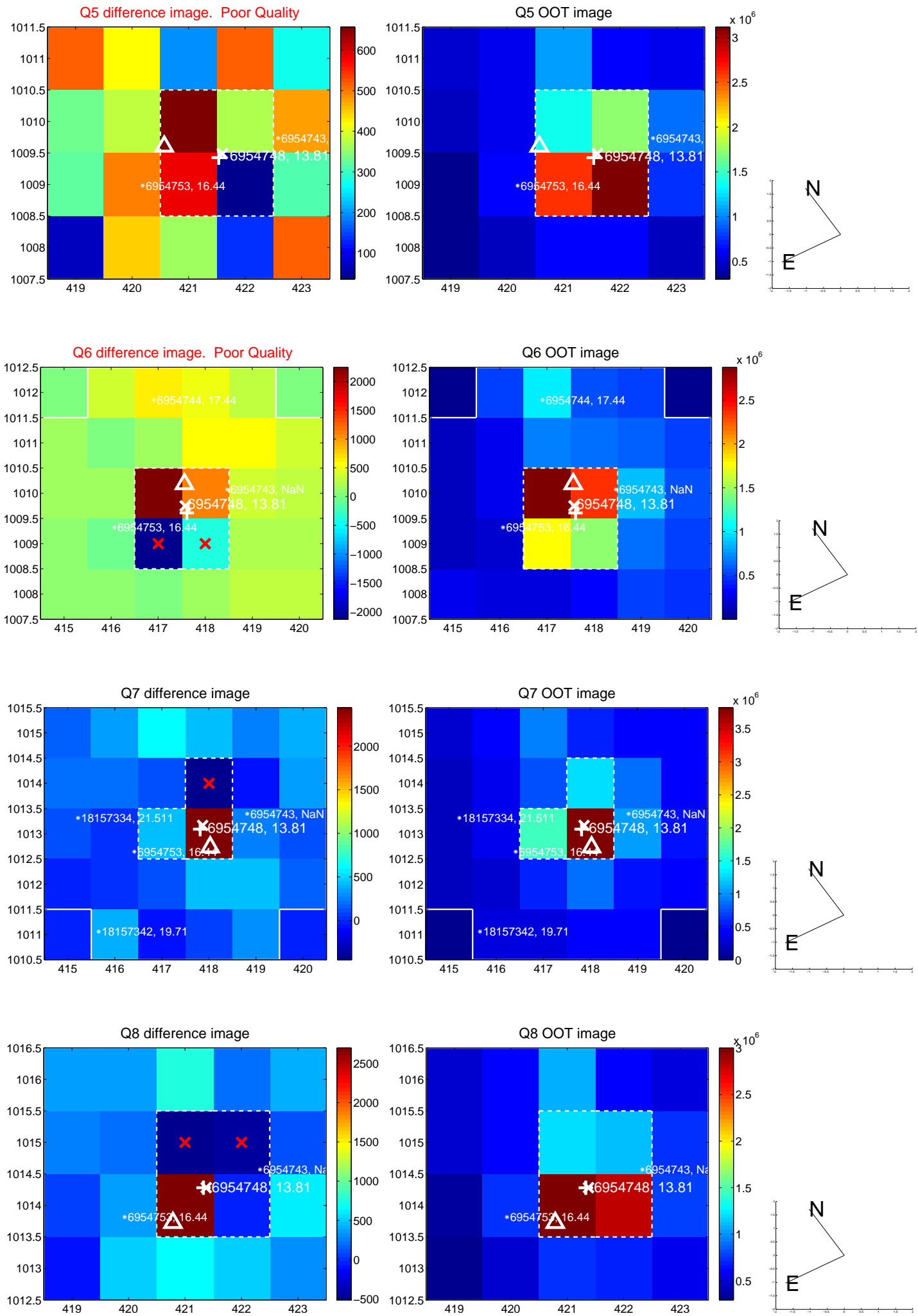


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

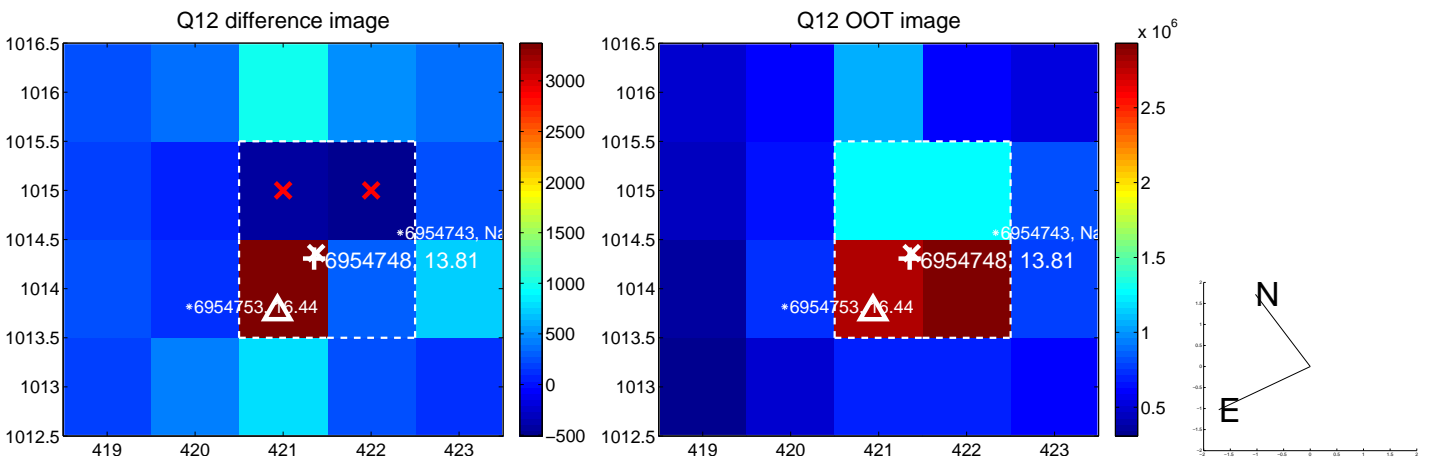
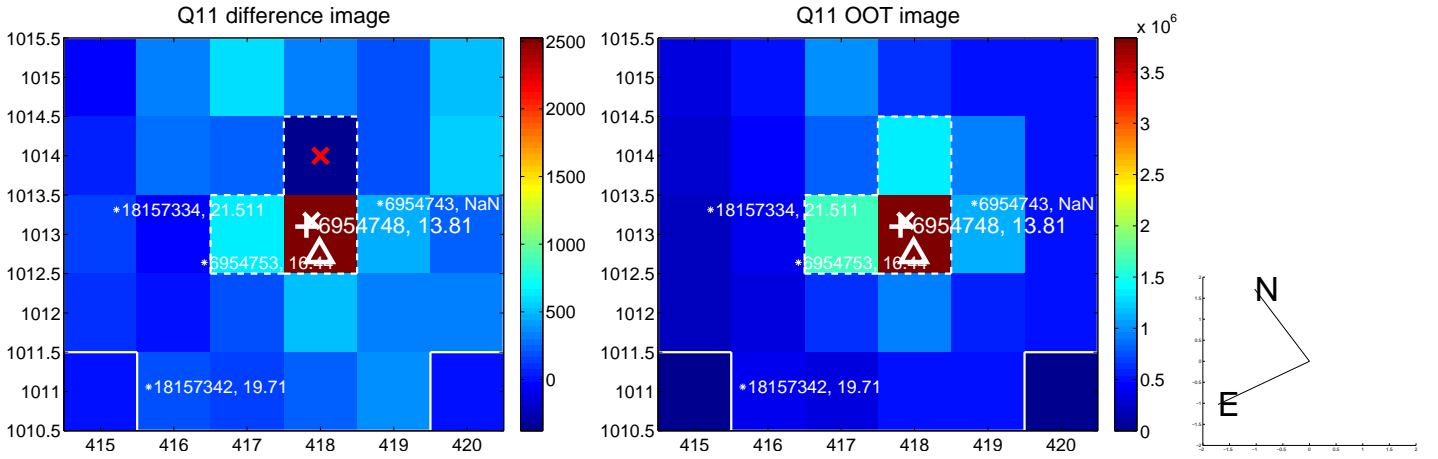
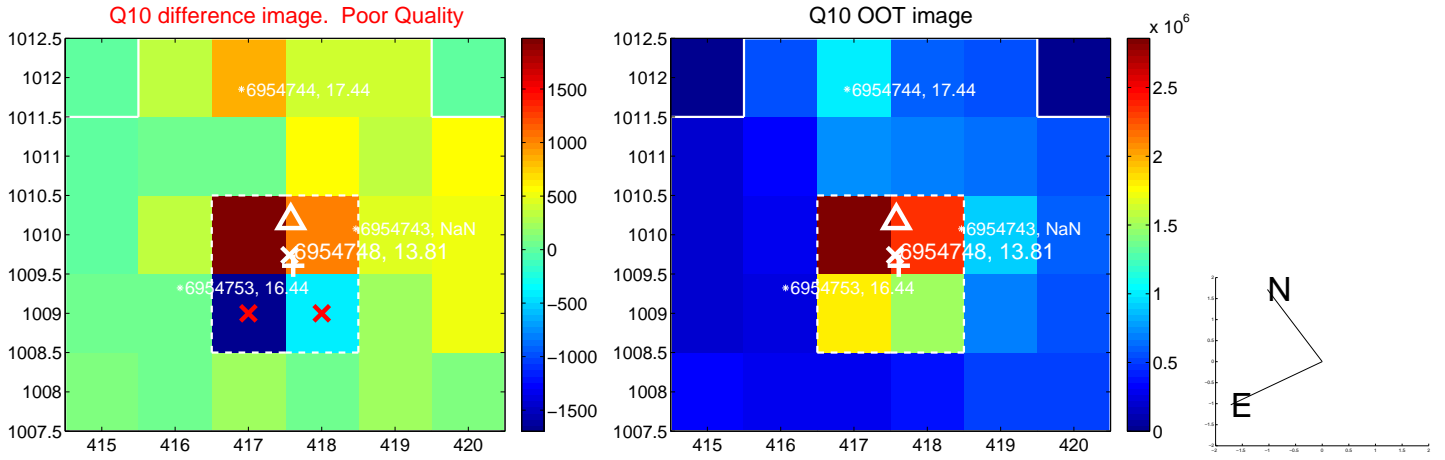
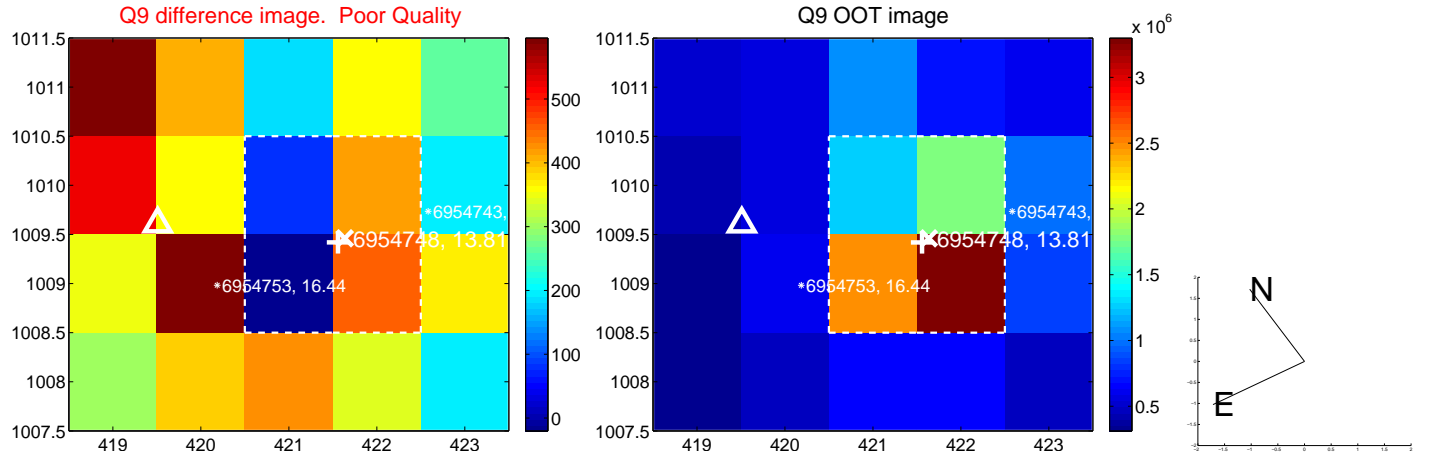


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

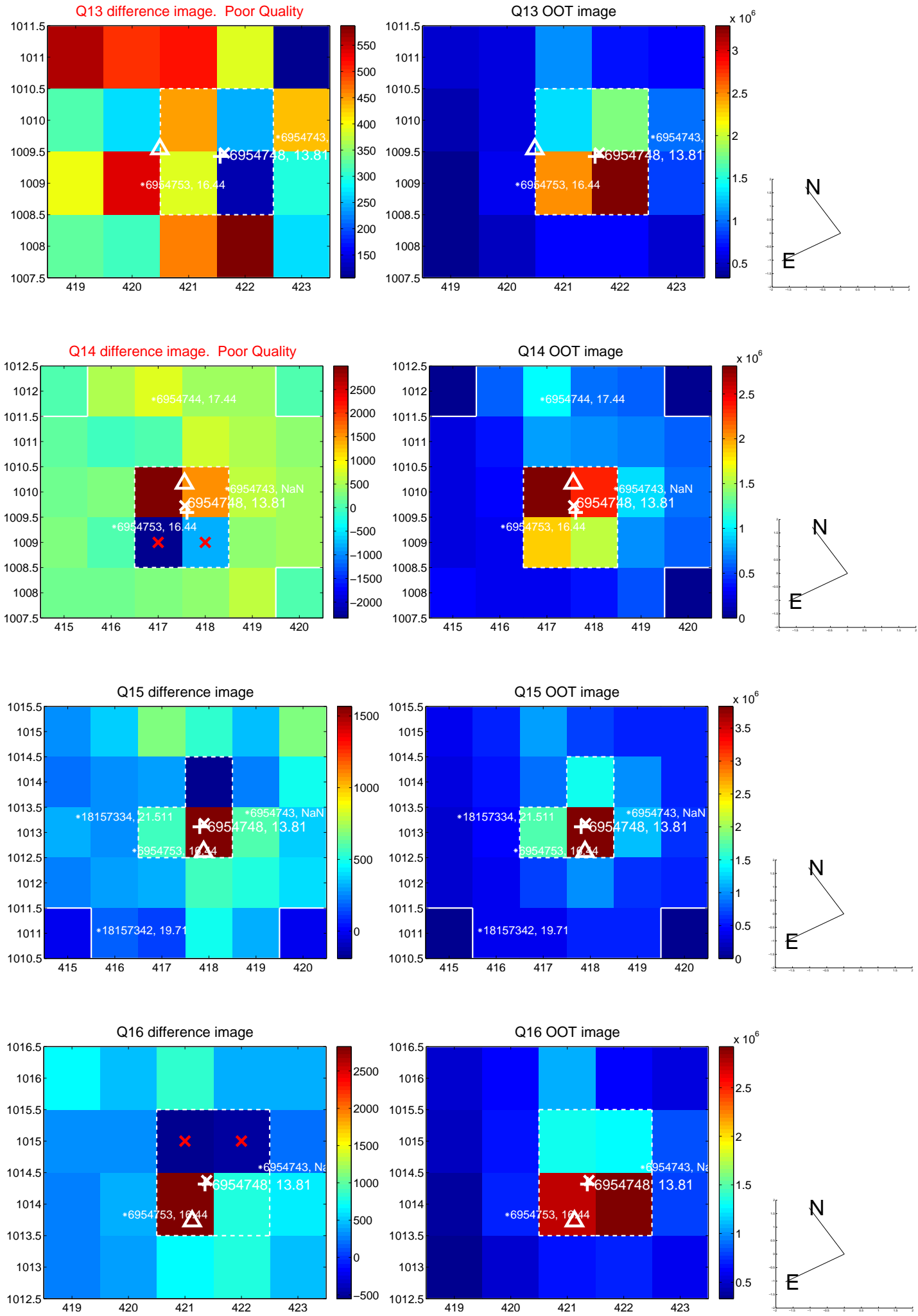




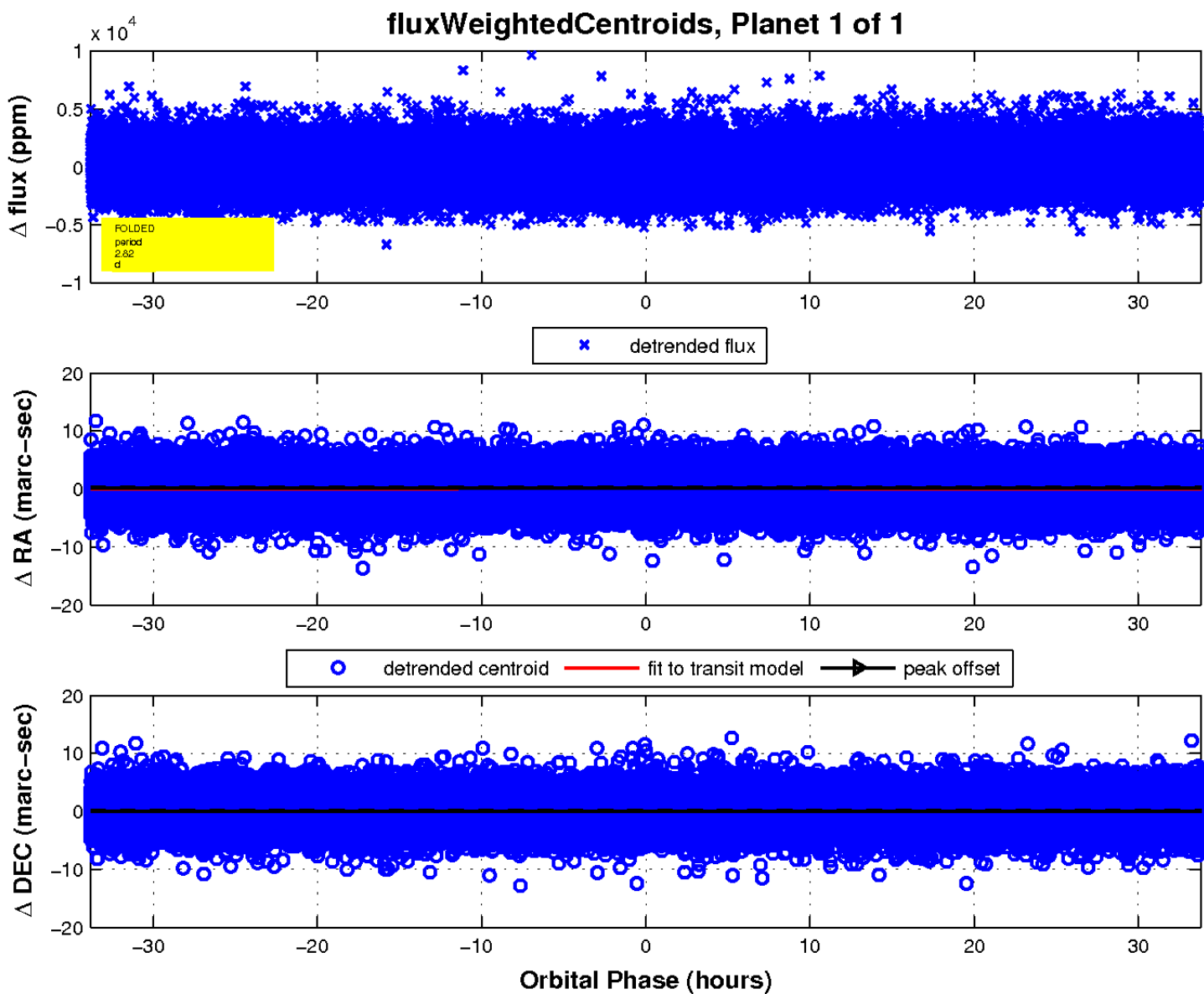
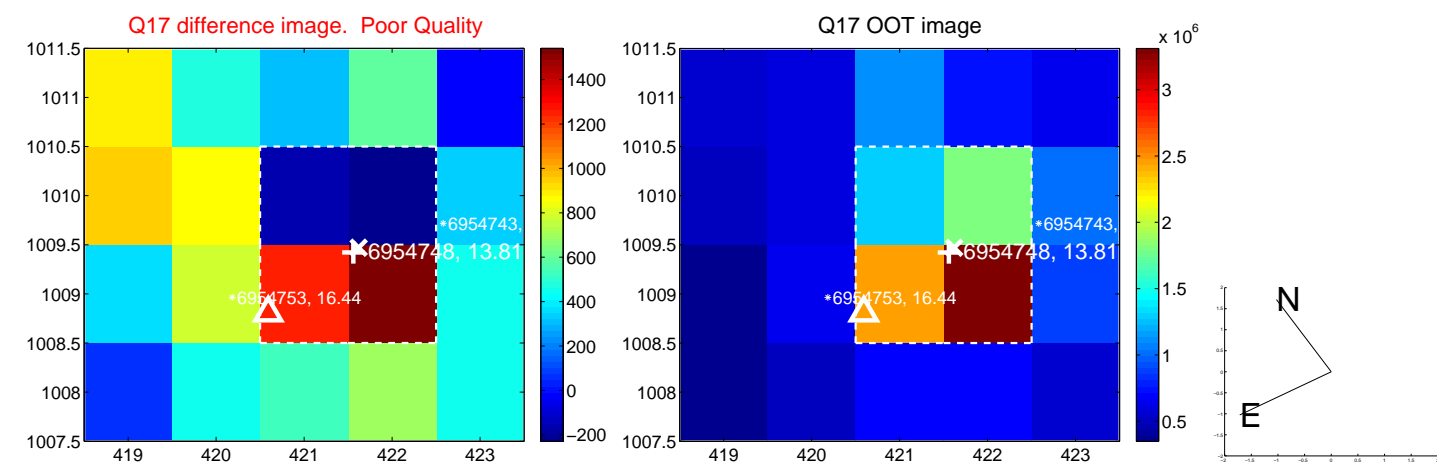
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

