

# KIC 007376982

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007376982-01	OBS	6871.01	2.316081	132.344104	29.8	3.221	10.1	10.5	1.19	6025	0.77	1397.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007376982-01	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 007376982-01

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	$\sigma_P$	$\sigma_T$
007376982-01	7376982	6848.01	7212722	1:1	1367.4	344	1	13.97	13.61	8464.30	Col-Anomaly	0	2.65	1.75

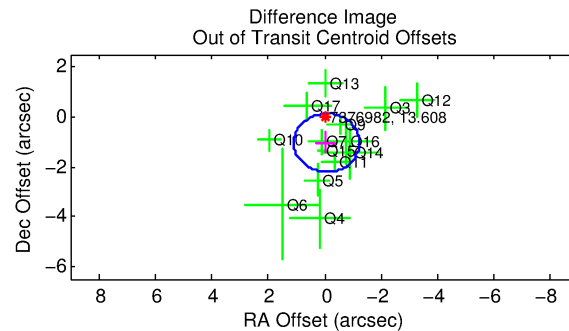
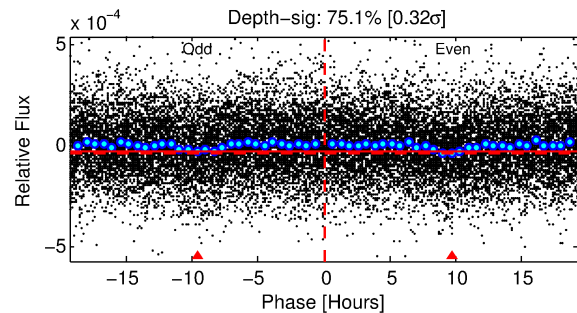
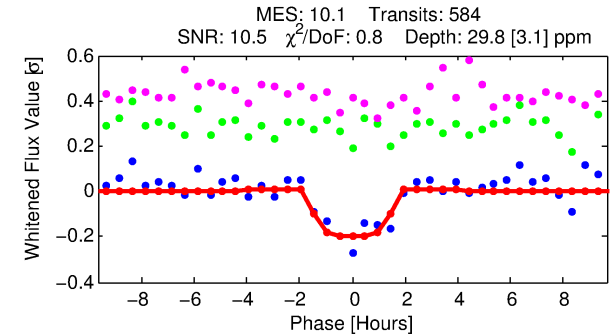
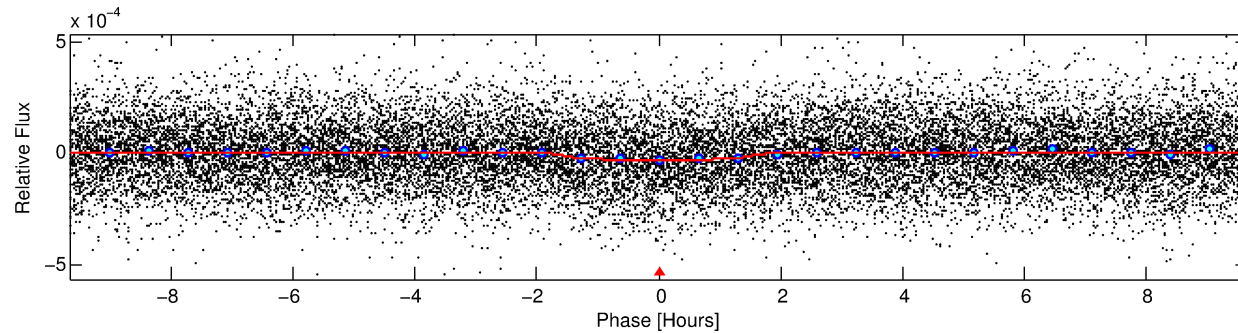
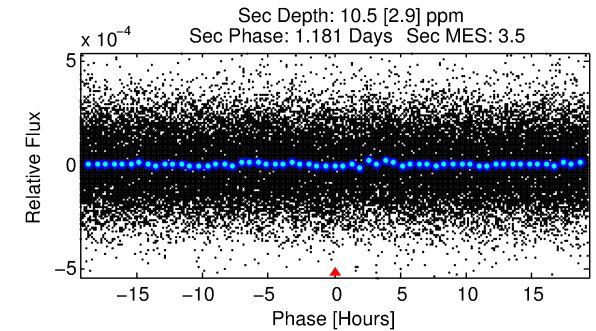
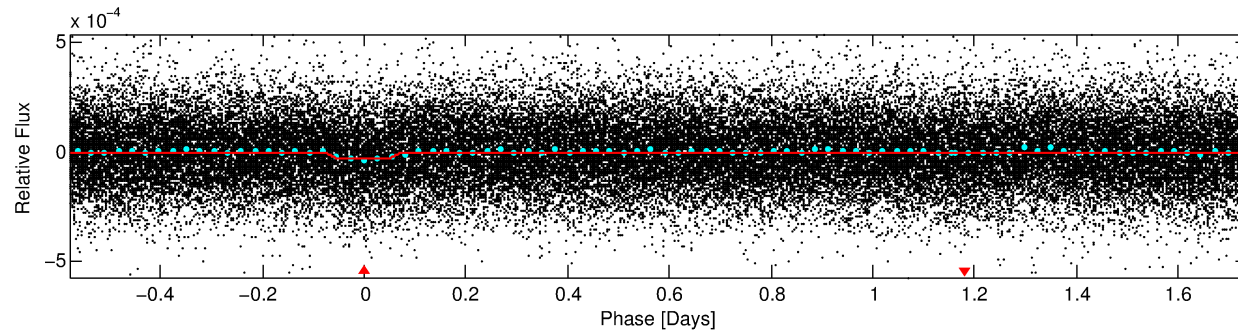
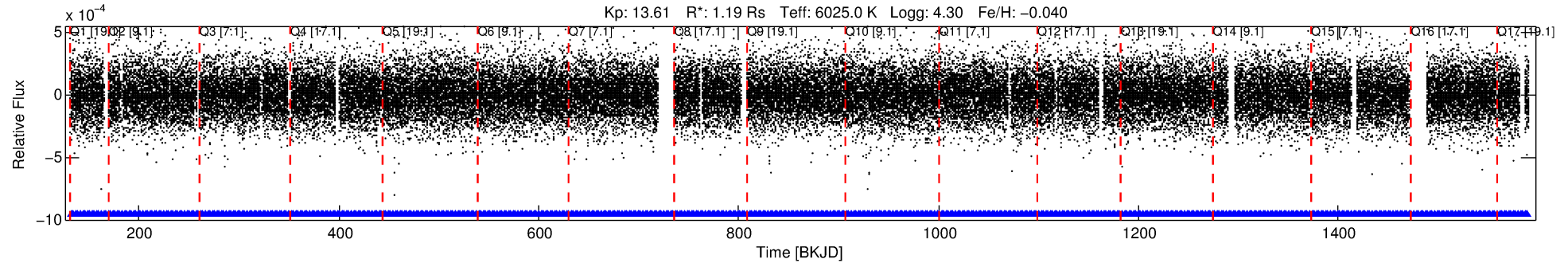
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  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: 7376982 Candidate: 1 of 1 Period: 2.316 d

KOI: K06871.01 Corr: 0.888

Kp: 13.61 R\*: 1.19 Rs Teff: 6025.0 K Logg: 4.30 Fe/H: -0.040



## DV Fit Results:

Period = 2.31608 [0.00002] d  
Epoch = 132.3441 [0.0043] BKJD  
Rp/R\* = 0.0059 [0.0028]  
a/R\* = 2.66 [5.55]  
b = 0.90 [0.53]  
Seff = 1397.91 [518.00]  
Teq = 1559 [144] K  
Rp = 0.77 [0.43] Re  
a = 0.0347 [0.0086] AU  
Ag = 11.81 [12.22] [0.88σ]  
Teffp = 4468 [1097] K [2.63σ]

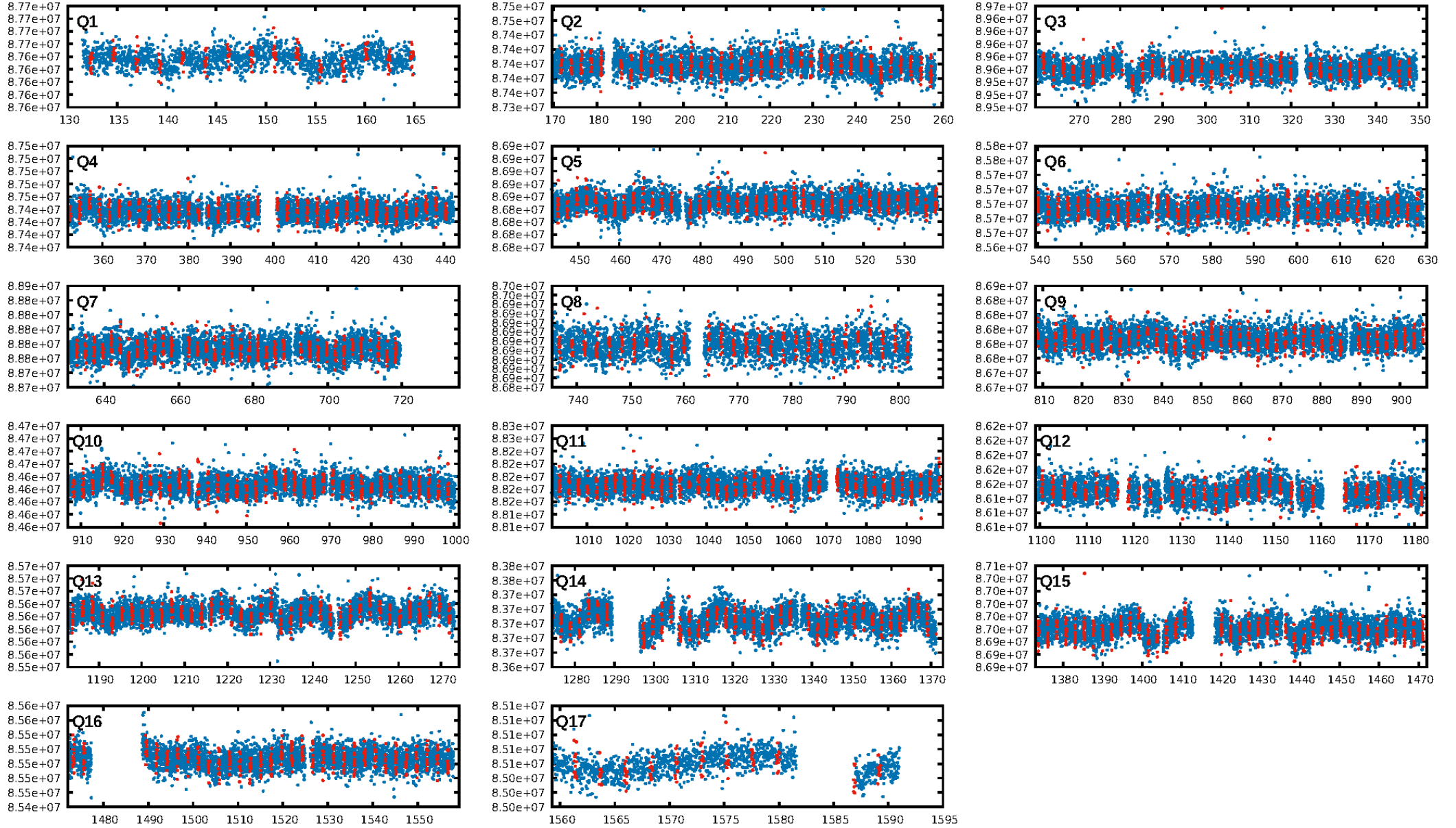
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 9.43e-24  
RollingBand-fgt: 1.00 [558/558]  
GhostDiagnostic-chr: -3.052  
Centroid-sig: 6.0%  
Centroid-so: 0.871 arcsec [0.70σ]  
OotOffset-rm: 1.047 arcsec [2.70σ]  
KicOffset-rm: 0.893 arcsec [2.31σ]  
OotOffset-st: 3/4/3/4 [14]  
KicOffset-st: 3/4/3/4 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 1.00 [17/17]

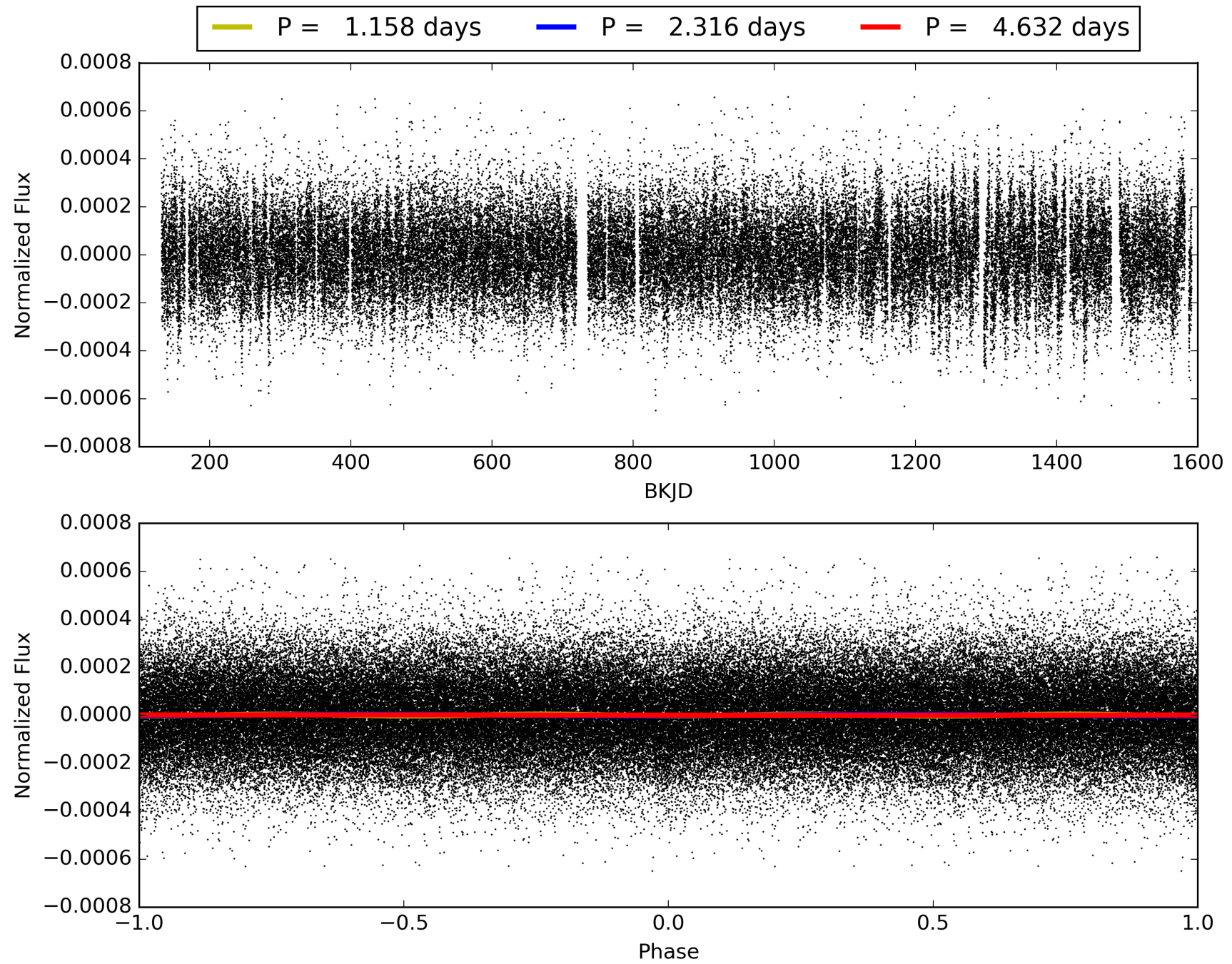
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:35:09 Z

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

# TCE 007376982-01, PDC Light Curves



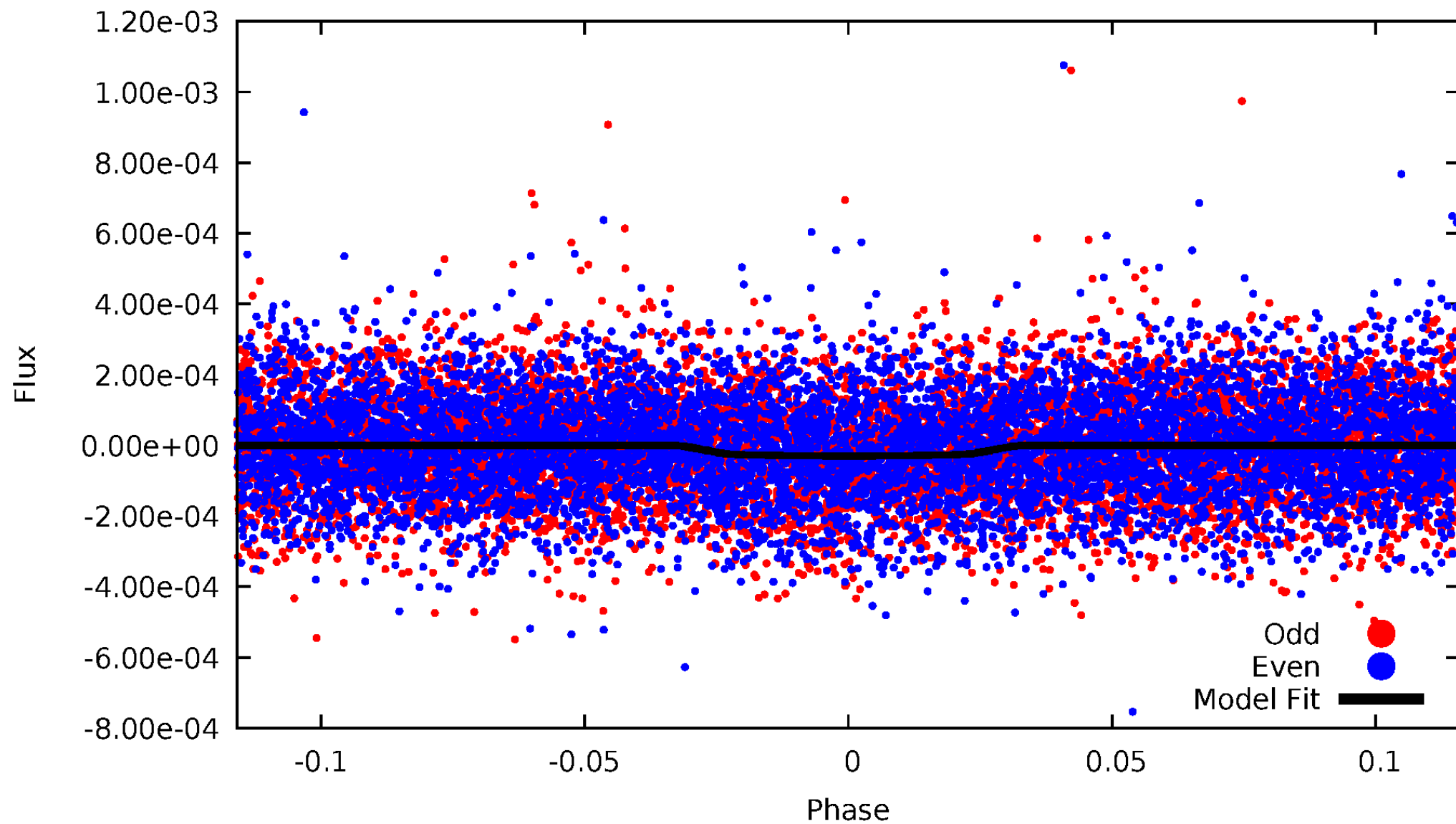
TCE 007376982-01





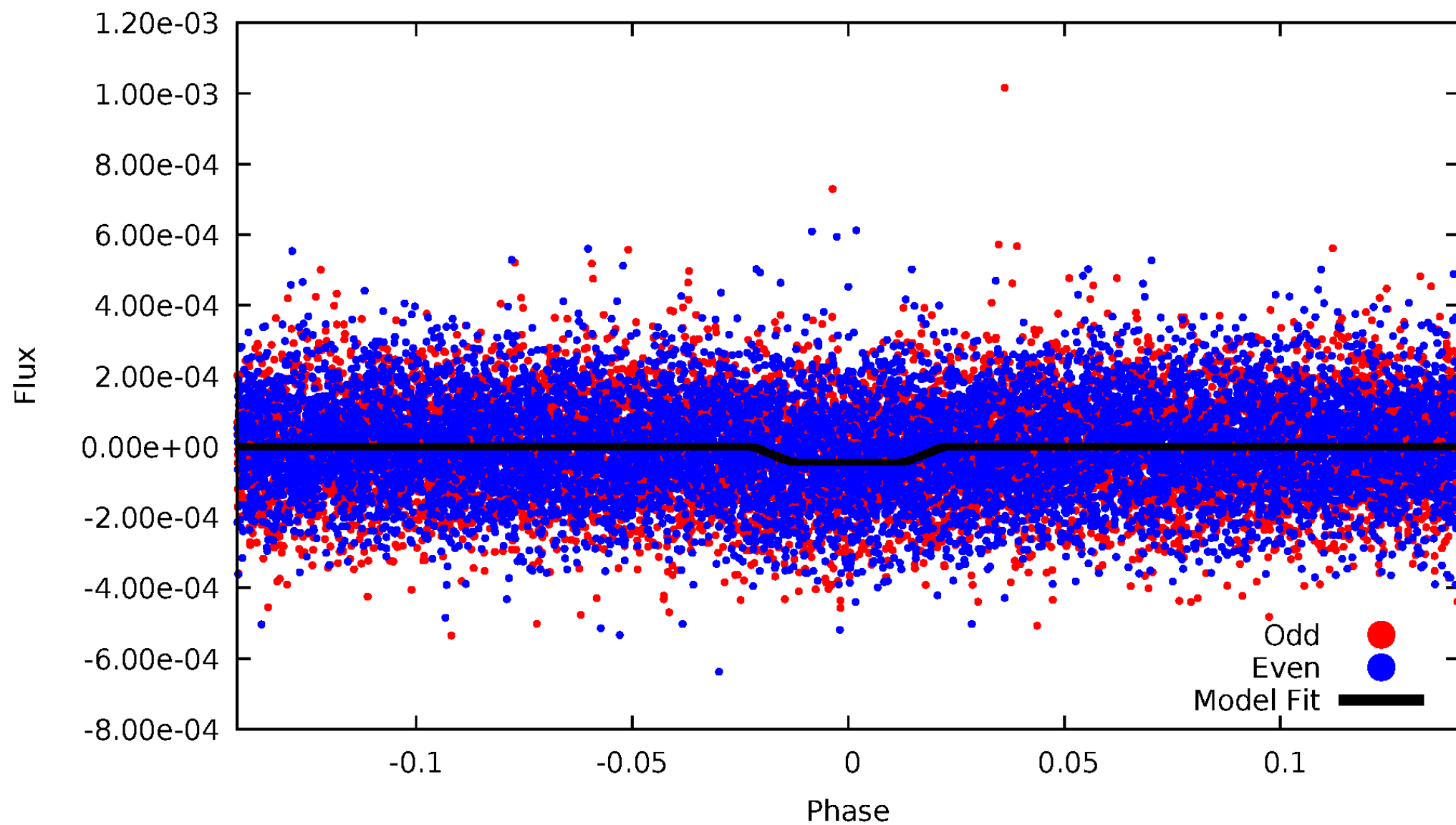
# DV Odd/Even

TCE 007376982-01



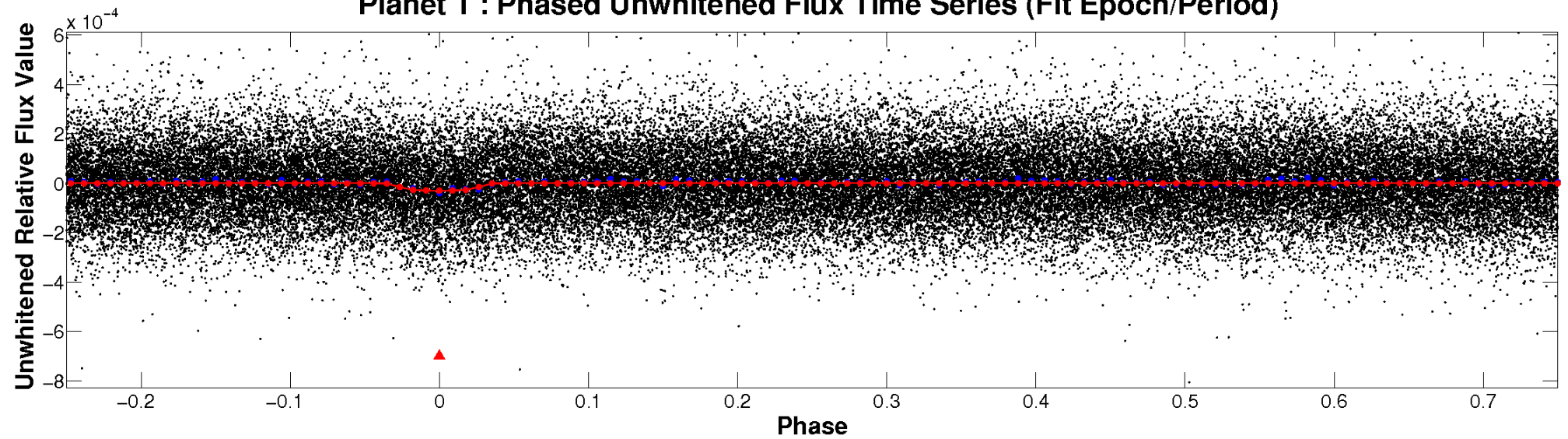
# ALT Odd/Even

TCE 007376982-01

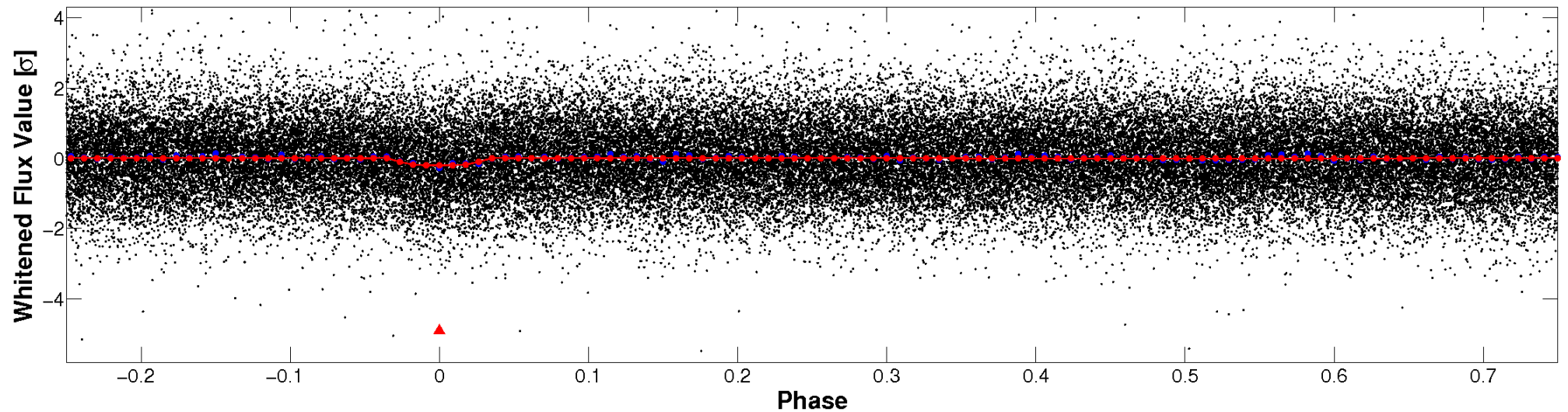


# Non-Whitened Vs. Whitened Light Curve

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

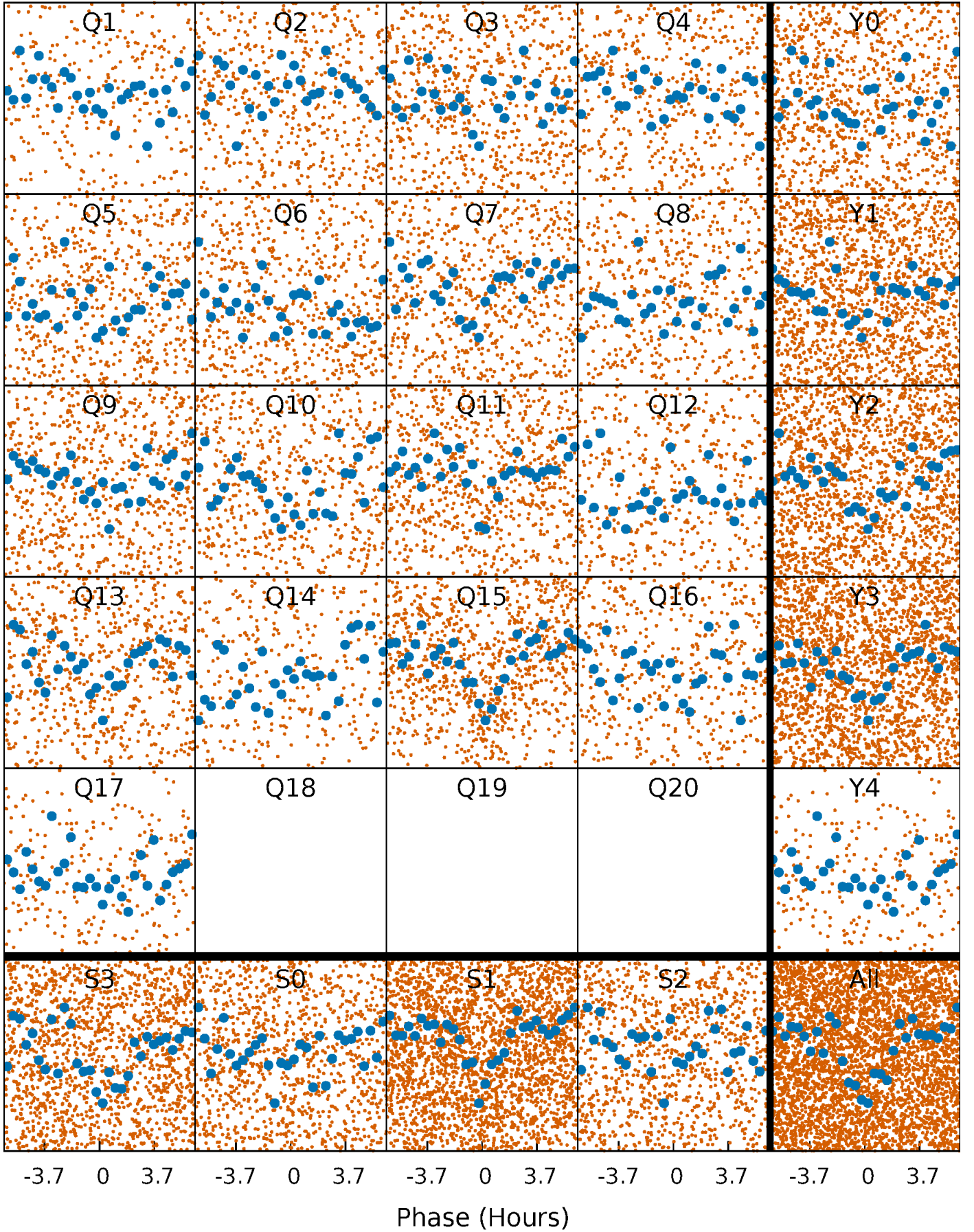


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

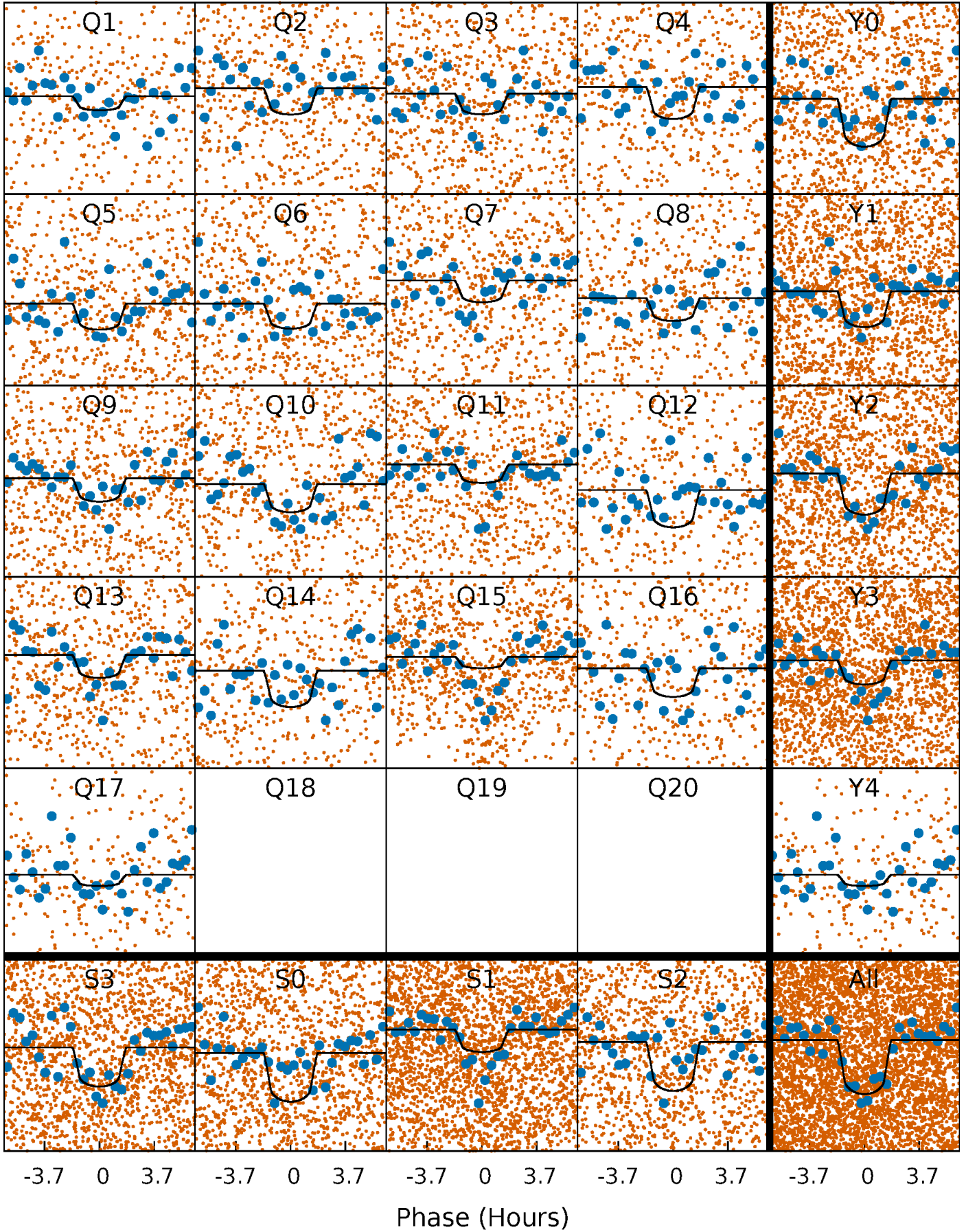
TCE 007376982-01 P= 2.316081 Days  $T_0=132.344104$  (BKJD)





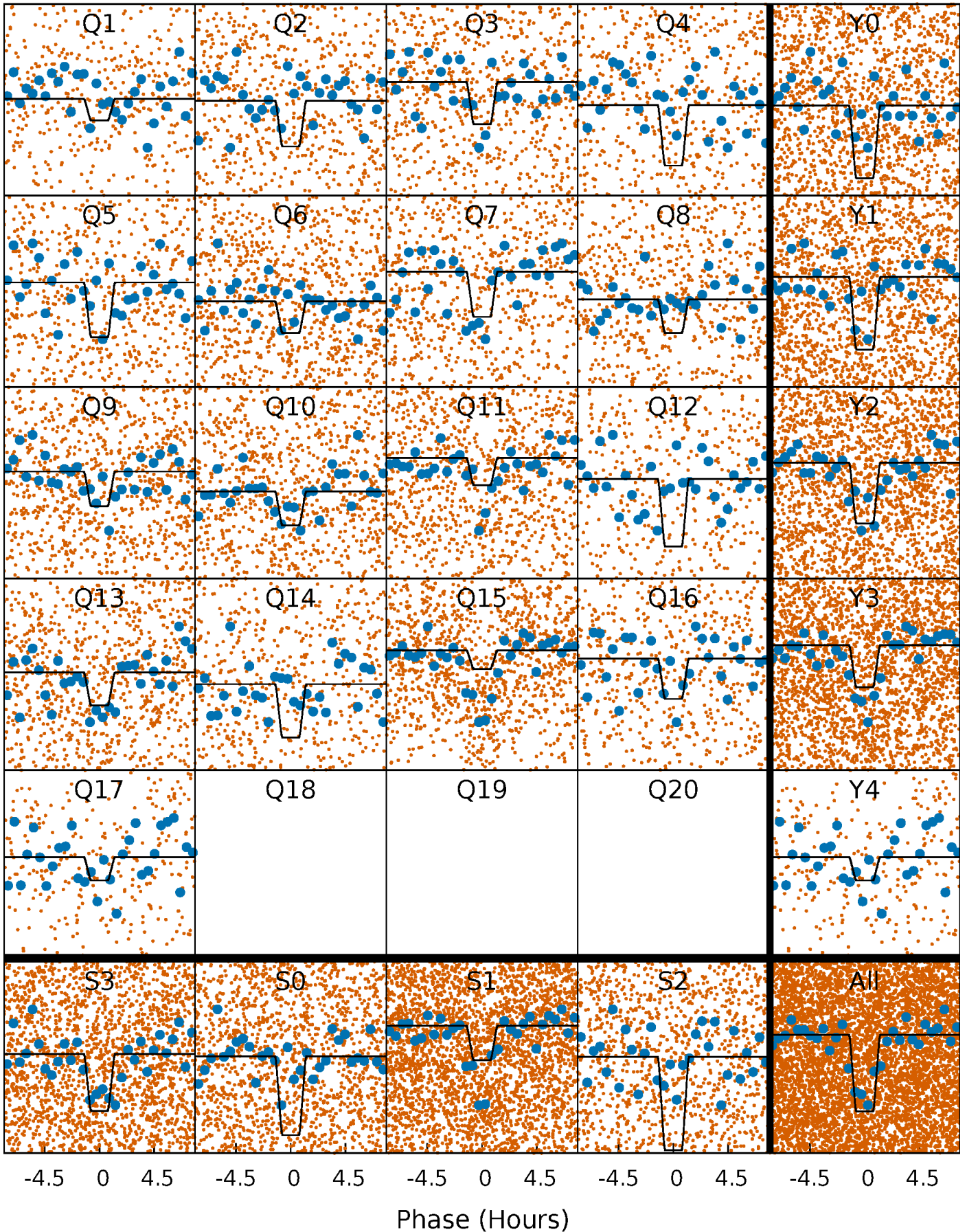
# DV Quarter-Phased Transit Curves

TCE 007376982-01 P= 2.316081 Days  $T_0=132.344104$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

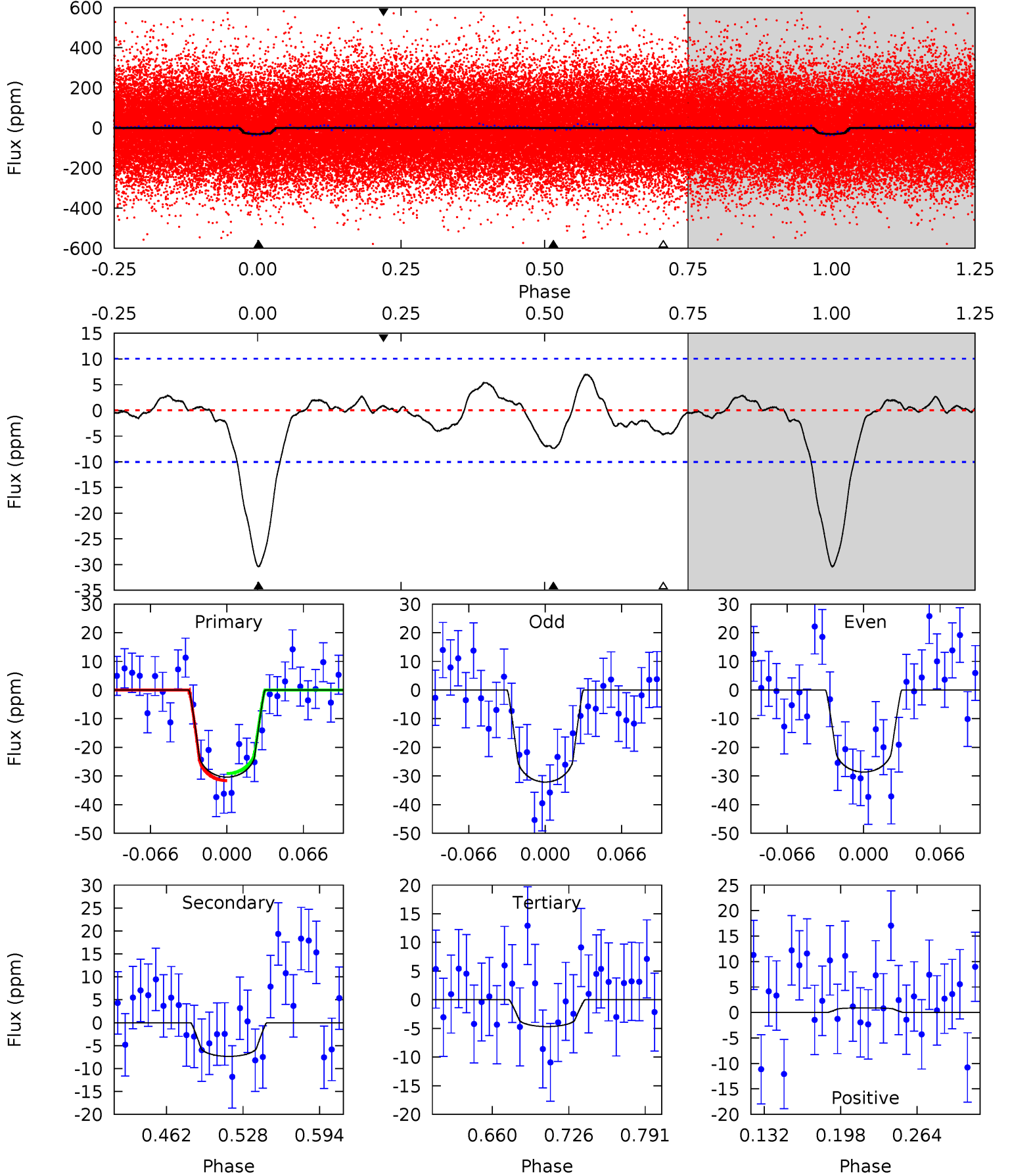
TCE 007376982-01 P= 2.316150 Days  $T_0=132.320849$  (BKJD)



# DV Model-Shift Uniqueness Test

007376982-01, P = 2.316081 Days, E = 130.028023 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
14.1	3.41	2.17	0.43	4.65	1.84	1.08	11.9	13.7	1.24	2.98	0.81	1.05	0.19	0.57

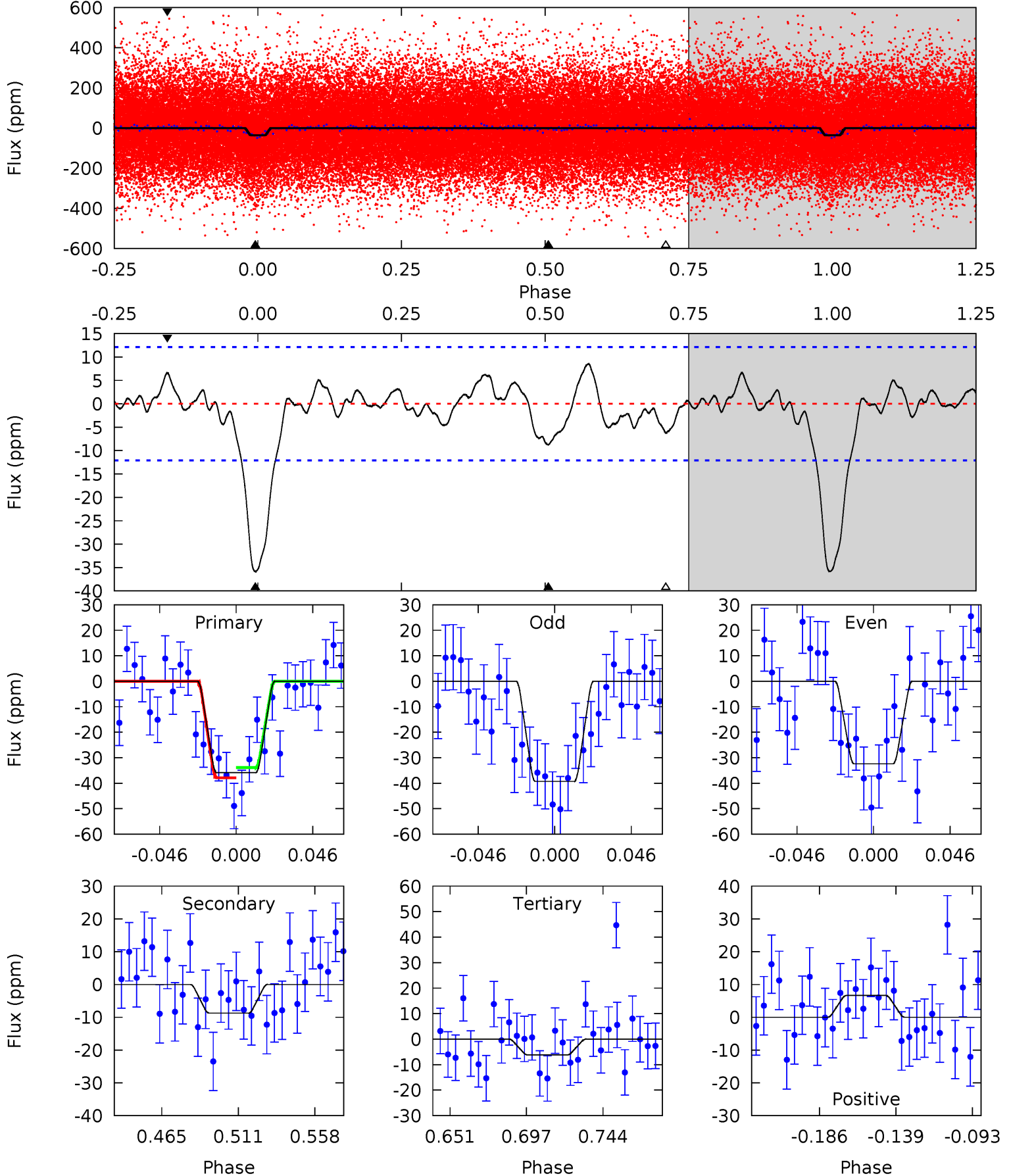




# Alt Model-Shift Uniqueness Test

007376982-01, P = 2.316150 Days, E = 130.004699 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
14.0	3.41	2.43	2.59	4.72	1.99	1.17	11.6	11.4	0.98	0.82	1.35	1.07	0.19	0.78





### Stellar Parameters For KIC 007376982

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6025^{+181}_{-181}$	$4.300^{+0.153}_{-0.187}$	$-0.040^{+0.250}_{-0.300}$	$1.193^{+0.360}_{-0.210}$	$1.036^{+0.159}_{-0.130}$	$0.859^{+0.648}_{-0.428}$
	+3%/-3%	+4%/-4%	+625%/-750%	+30%/-18%	+15%/-13%	+75%/-50%
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 007376982-01 / KOI 6871.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7 \pm 2$	$0.77^{+0.42}_{-0.32}$	$2191^{+160}_{-140}$	$4271^{+1134}_{-652}$	$8.060^{+16.986}_{-4.948}$
Alt.	$-9 \pm 3$	$0.87^{+0.39}_{-0.33}$	$2189^{+159}_{-136}$	$4232^{+991}_{-588}$	$7.515^{+12.908}_{-4.375}$

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

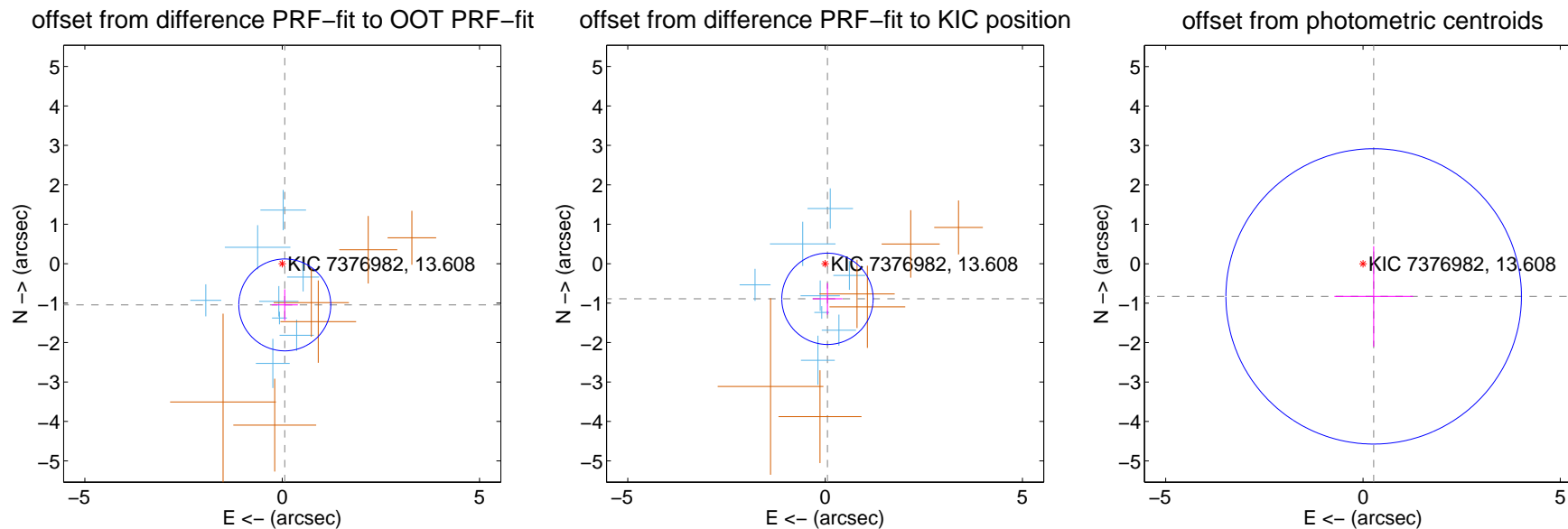
## DV Centroid Data

Supplemental centroid analysis for 007376982-01. Kepler magnitude: 13.61. Transit SNR 10.50

There are 8 quarters with good PRF difference image offsets

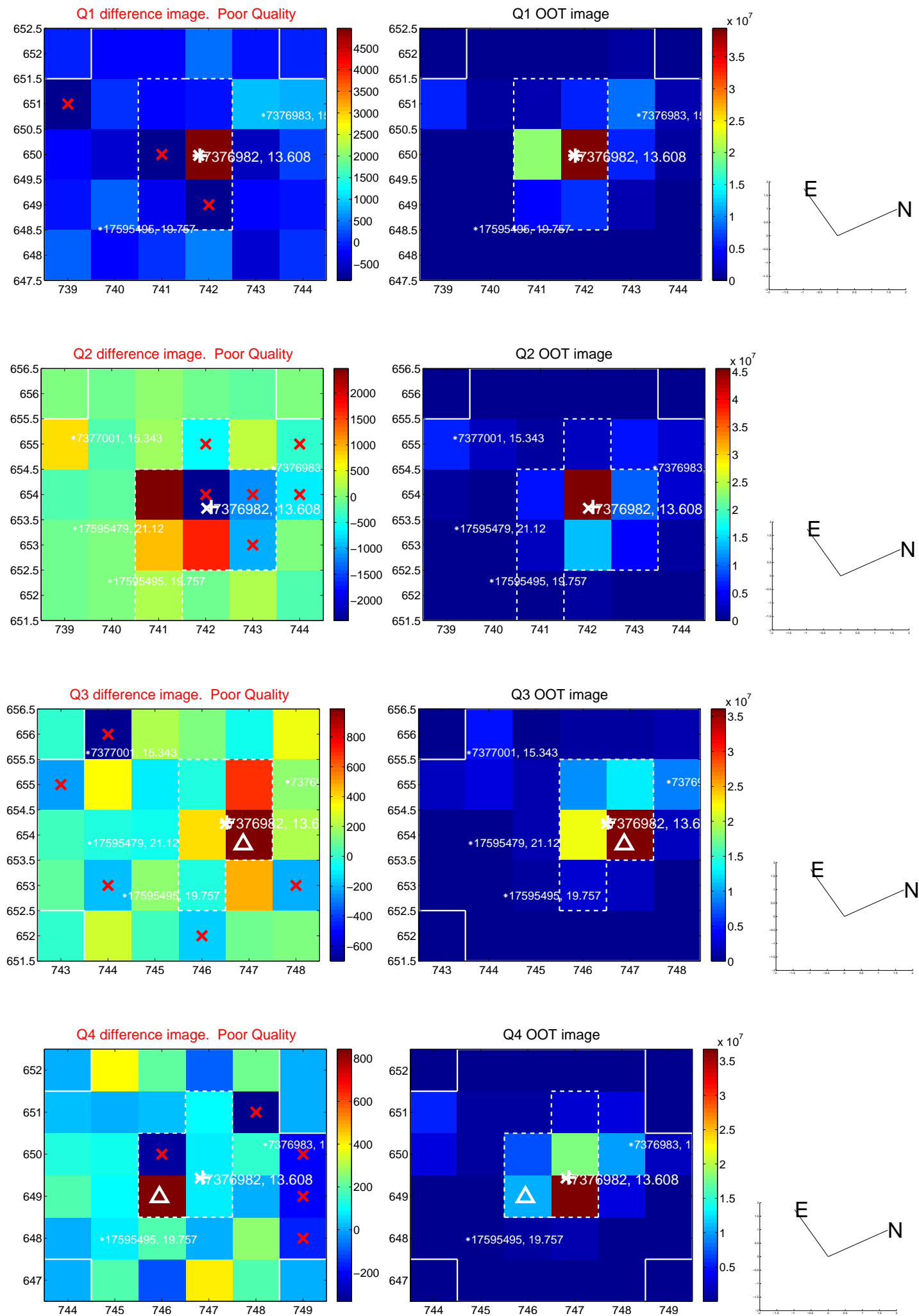
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.047 \pm 0.388$	2.70	$-0.065 \pm 0.331$	$-1.045 \pm 0.397$
PRF-fit source offset from KIC position	$0.893 \pm 0.386$	2.31	$-0.060 \pm 0.379$	$-0.891 \pm 0.400$
photometric centroid source offset	$0.87 \pm 1.25$	0.70	$-0.27 \pm 1.00$	$-0.83 \pm 1.27$

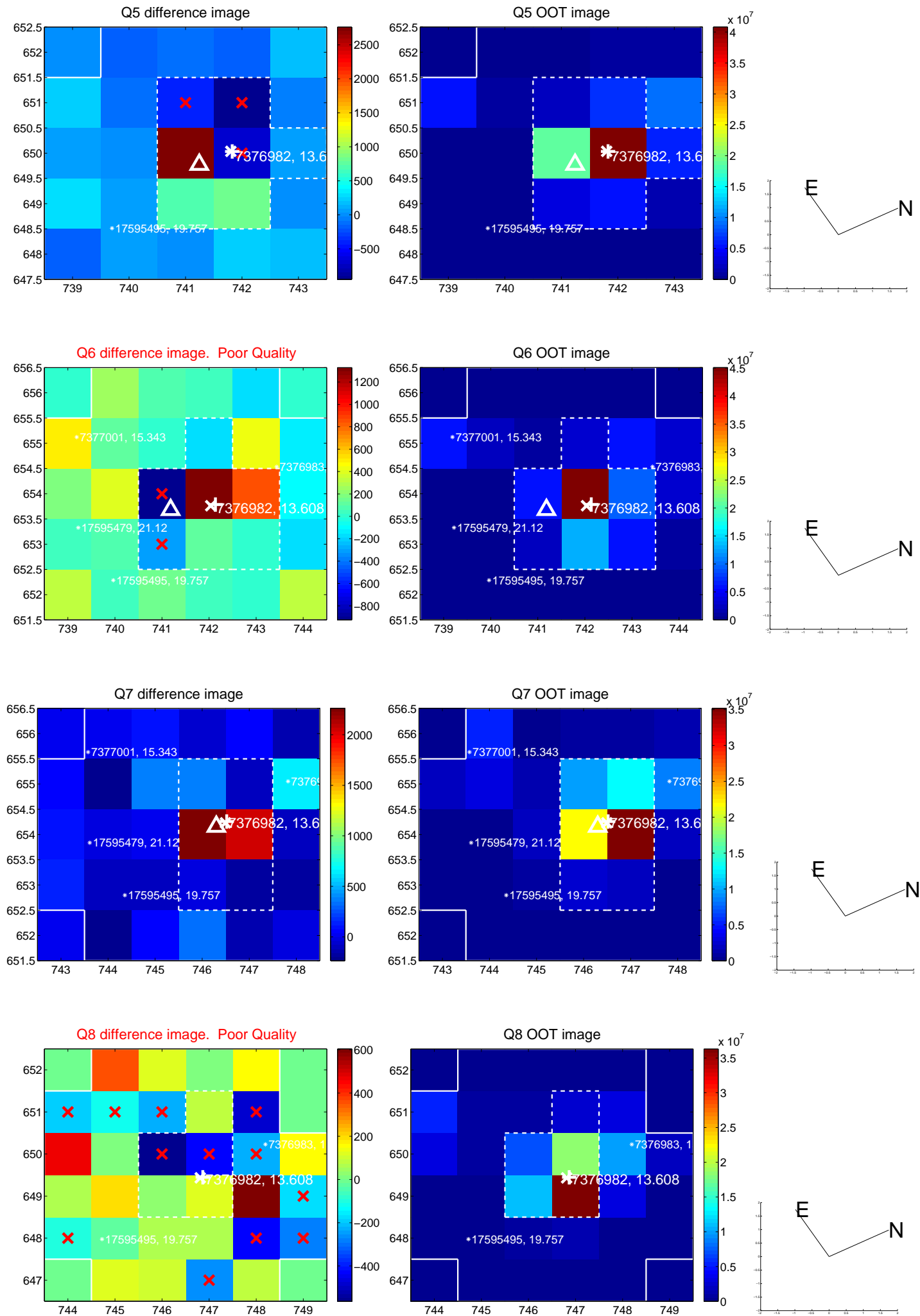


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

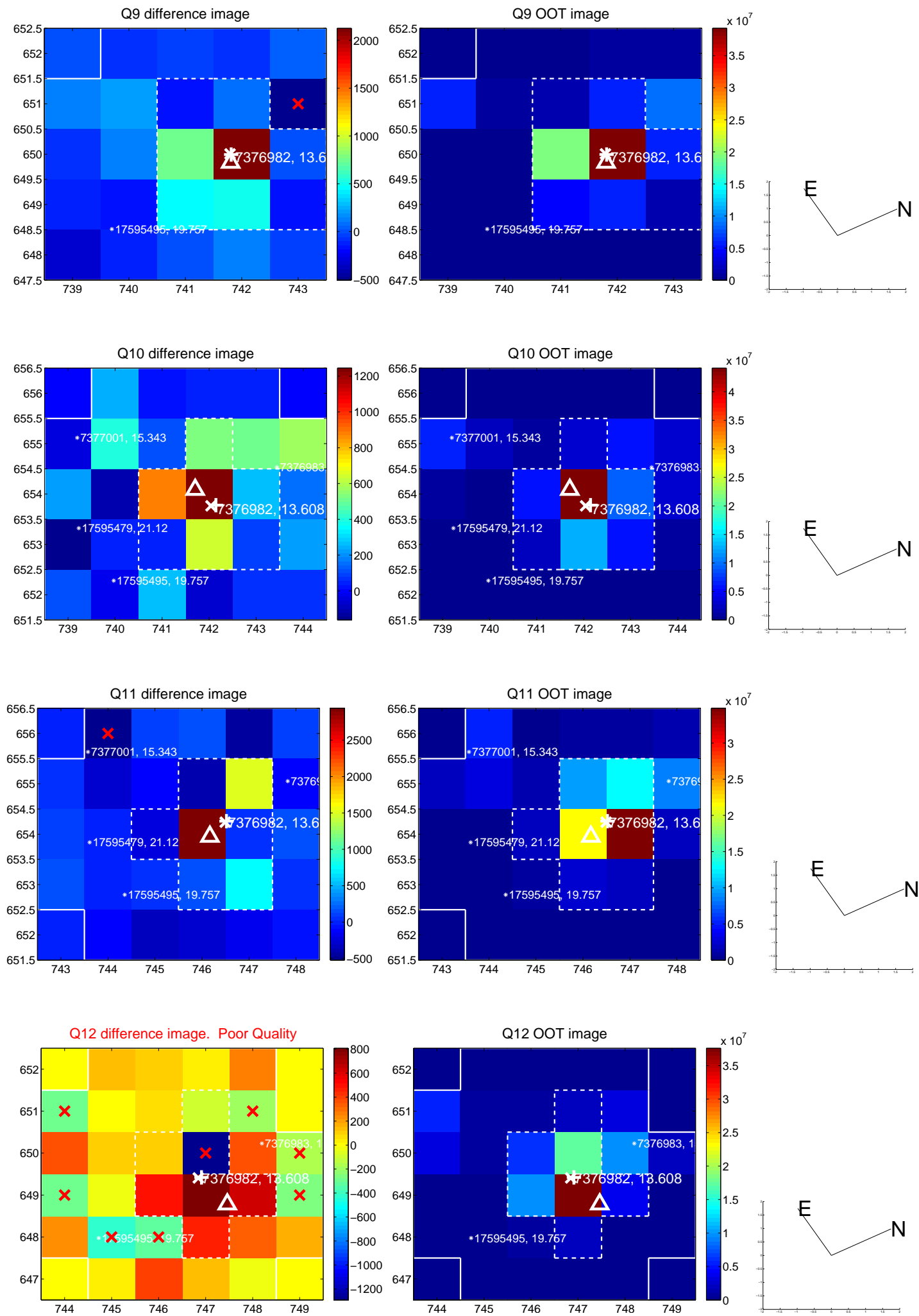


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

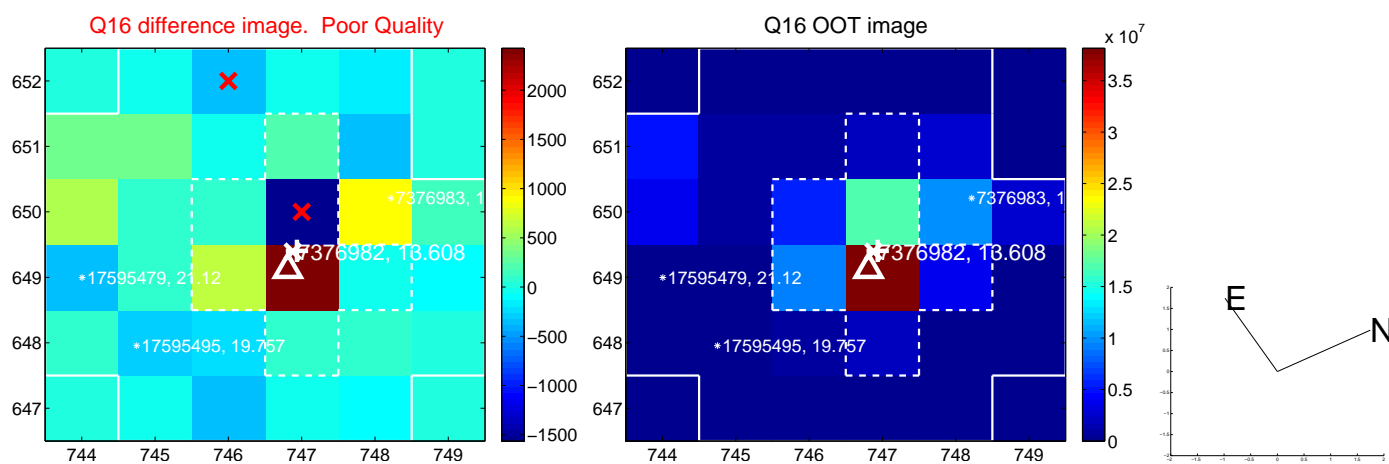
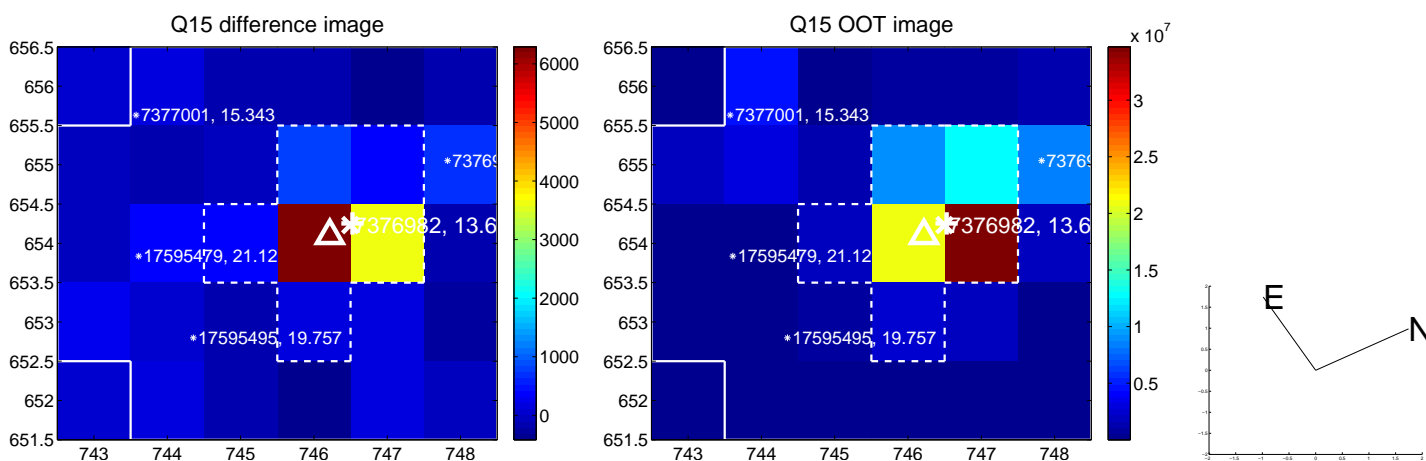
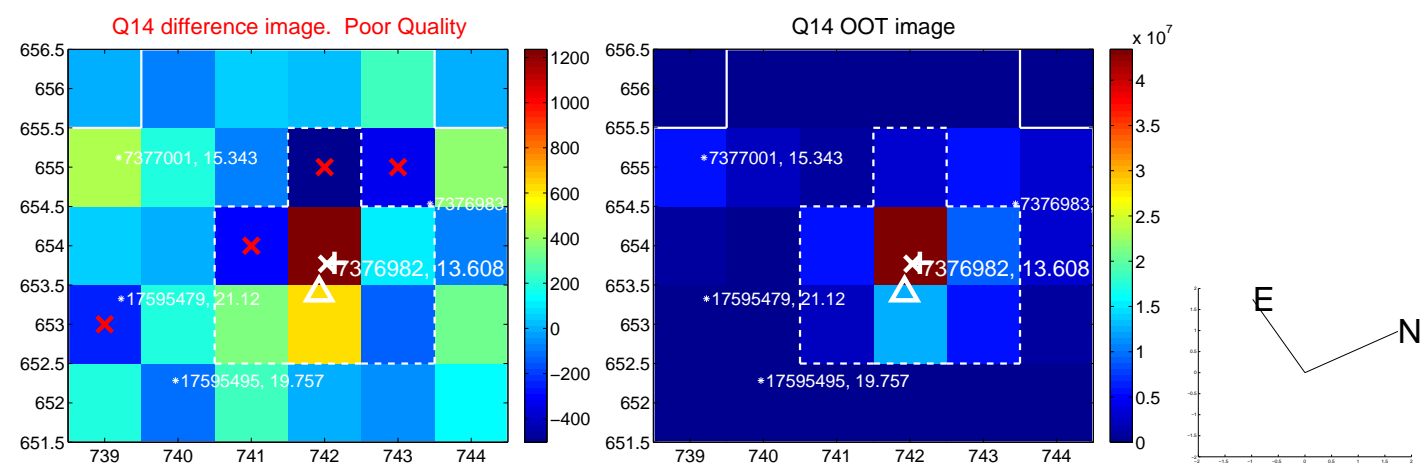
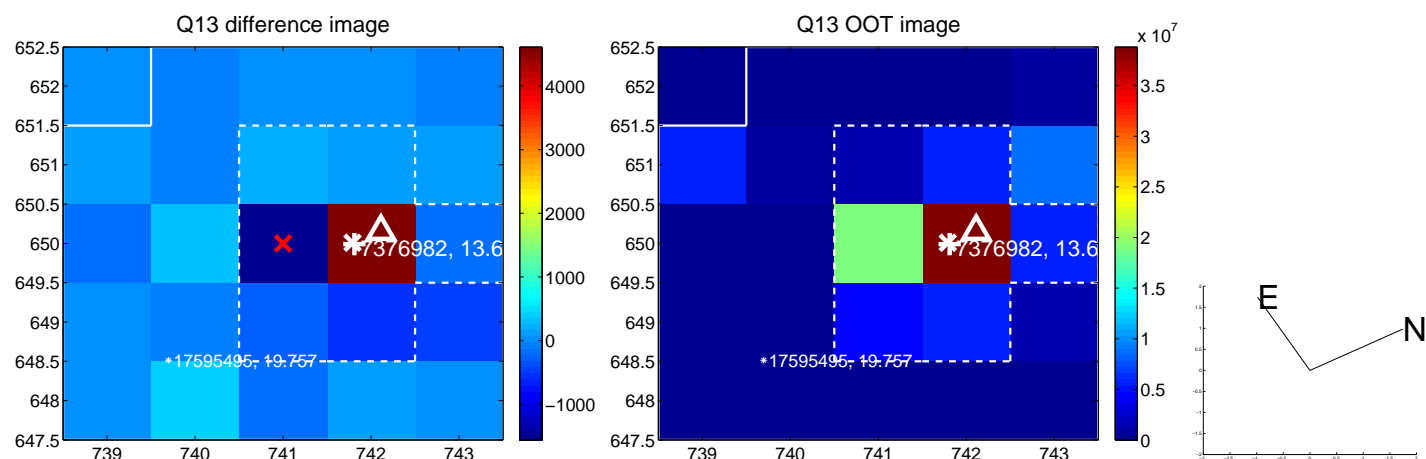




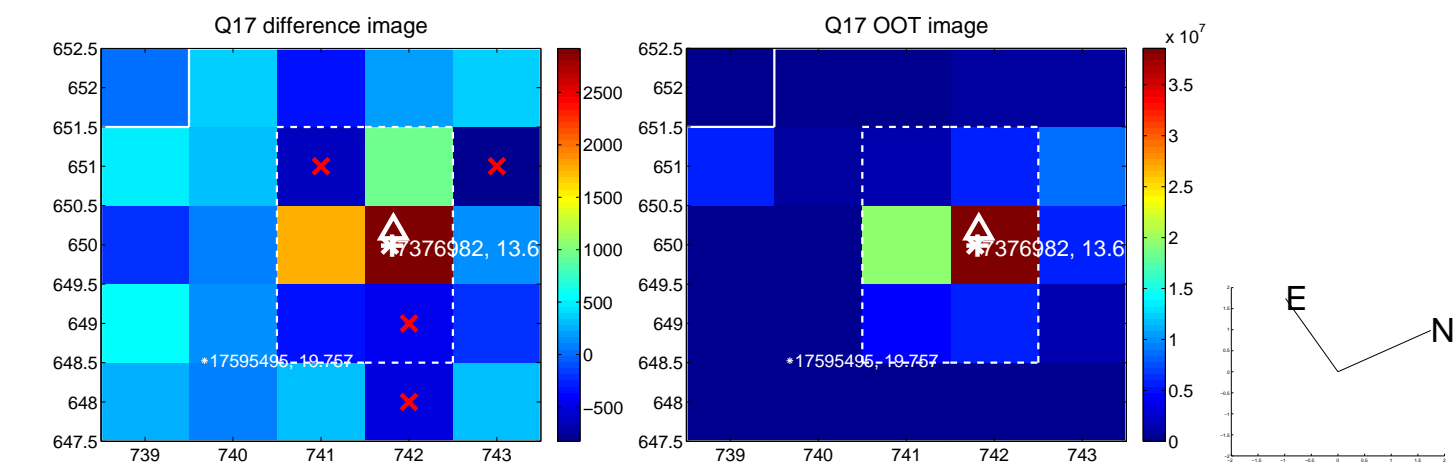
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



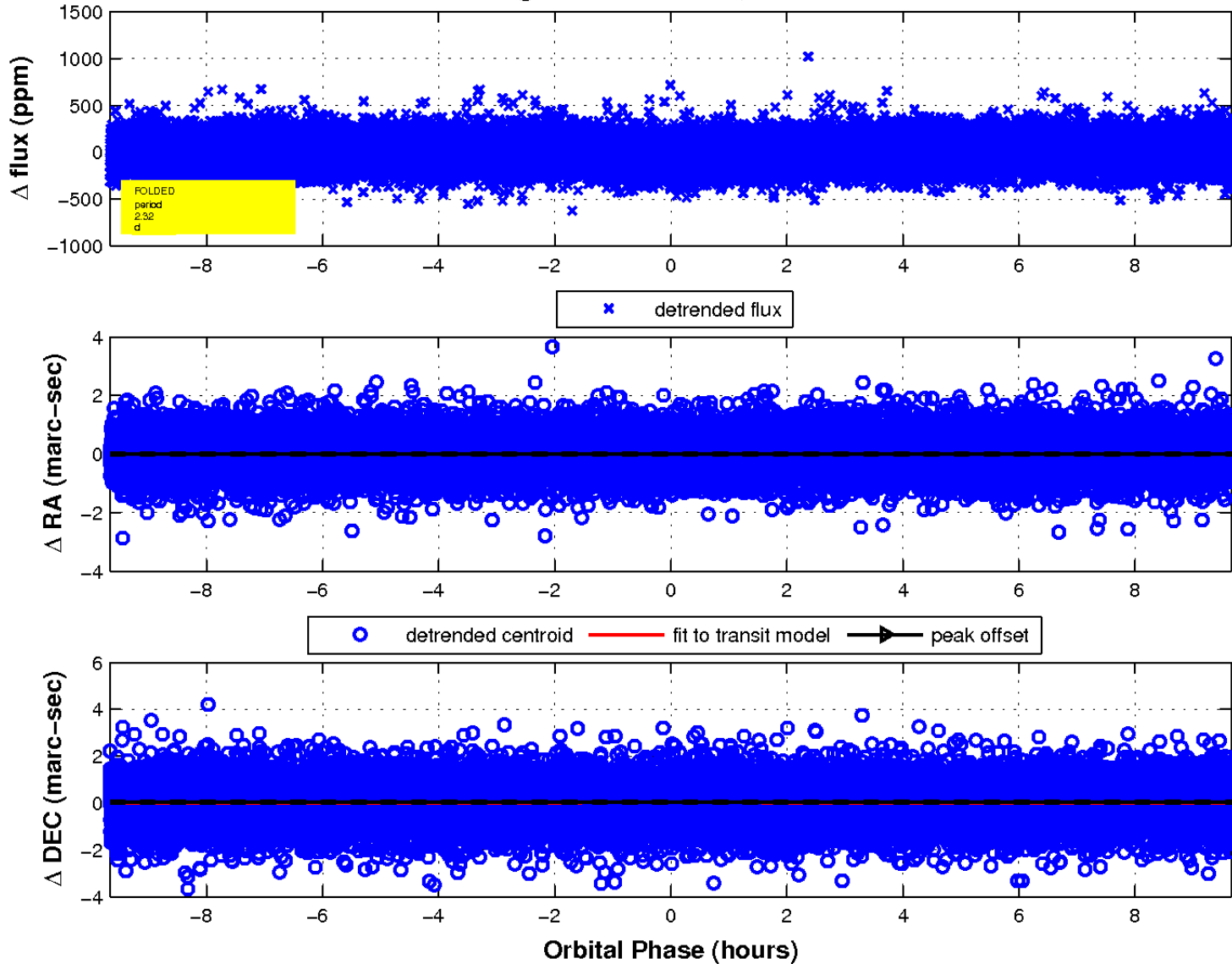
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

