

# KIC 006522824

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006522824-01	OBS	4882.01	17.445252	135.759453	343.0	5.125	9.9	11.0	3.04	4927	5.75	306.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006522824-01	OBS	FP	0.00	0	0	1	1	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.

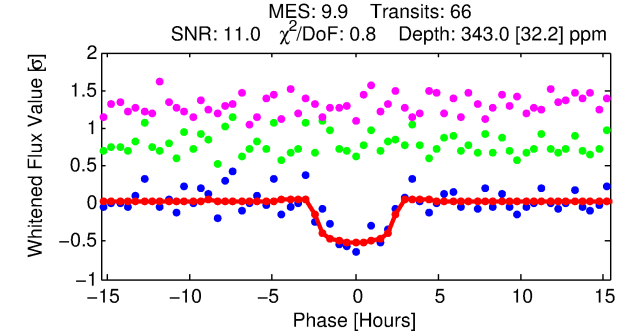
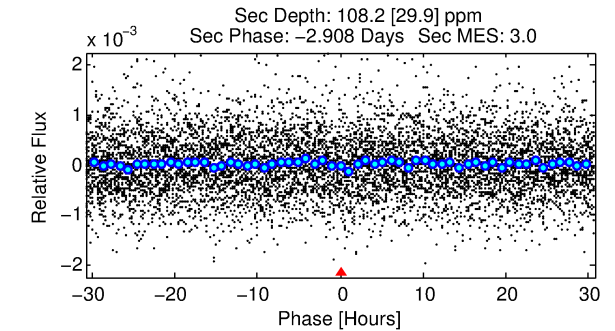
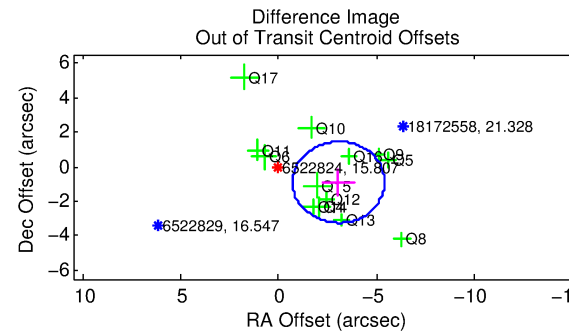
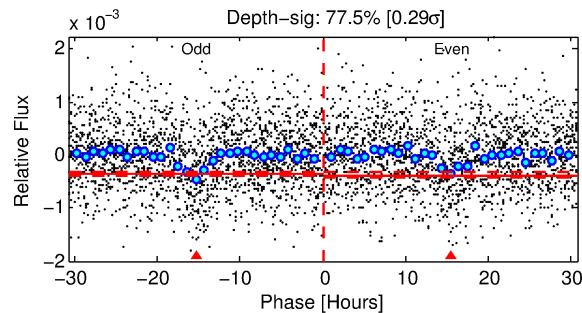
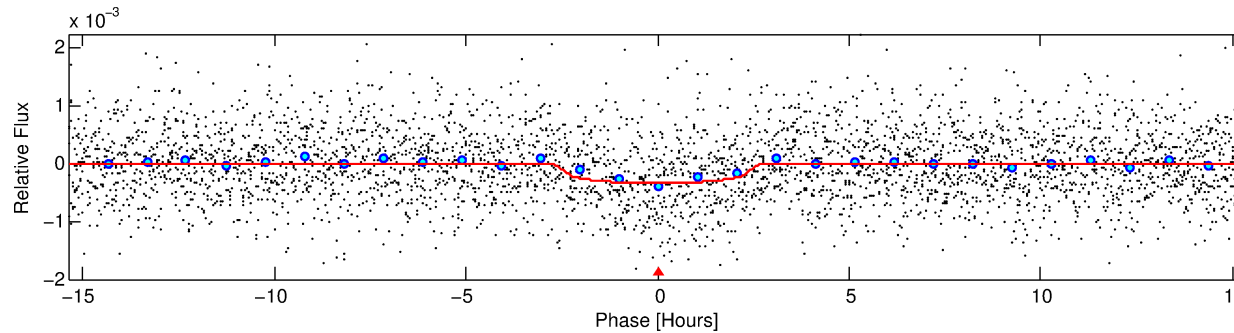
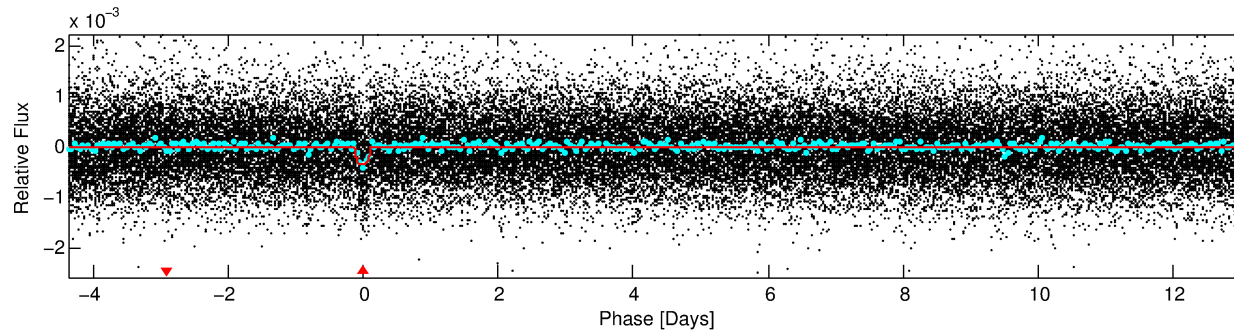
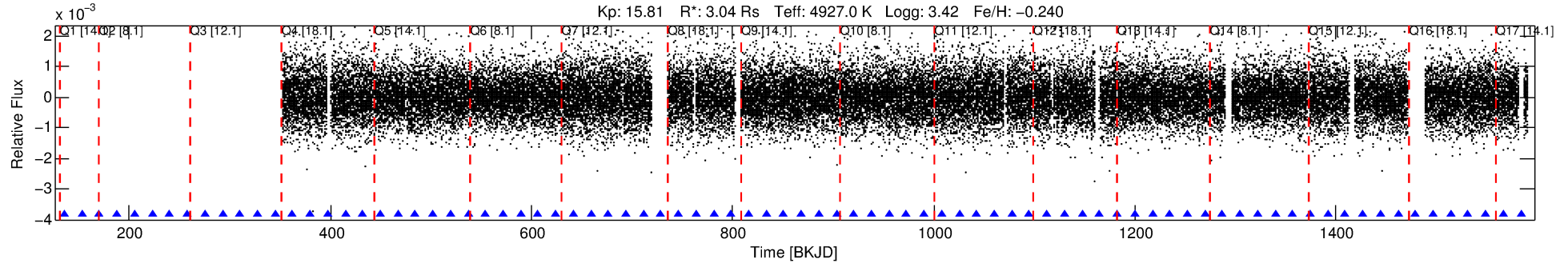
## Ephemeris Match Information For 006522824-01

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	$\sigma_P$	$\sigma_T$
006522824-01	6522824	6724.01	6522750	1:1	64.5	6	15	11.23	15.81	977.55	Direct-PRF	0	0.70	0.34

**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: 6522824 Candidate: 1 of 1 Period: 17.445 d  
KOI: K04882.01 Corr: 0.982



## DV Fit Results:

Period = 17.44525 [0.00023] d  
Epoch = 135.7595 [0.0118] BKJD  
Rp/R\* = 0.0173 [0.0206]  
a/R\* = 22.21 [91.27]  
b = 0.55 [5.25]  
Seff = 306.36 [82.13]  
Teq = 1067 [71] K  
Rp = 5.75 [6.92] Re  
a = 0.1262 [0.0224] AU  
Ag = 28.72 [69.08] [0.40 $\sigma$ ]  
Teffp = 3818 [2282] K [1.20 $\sigma$ ]

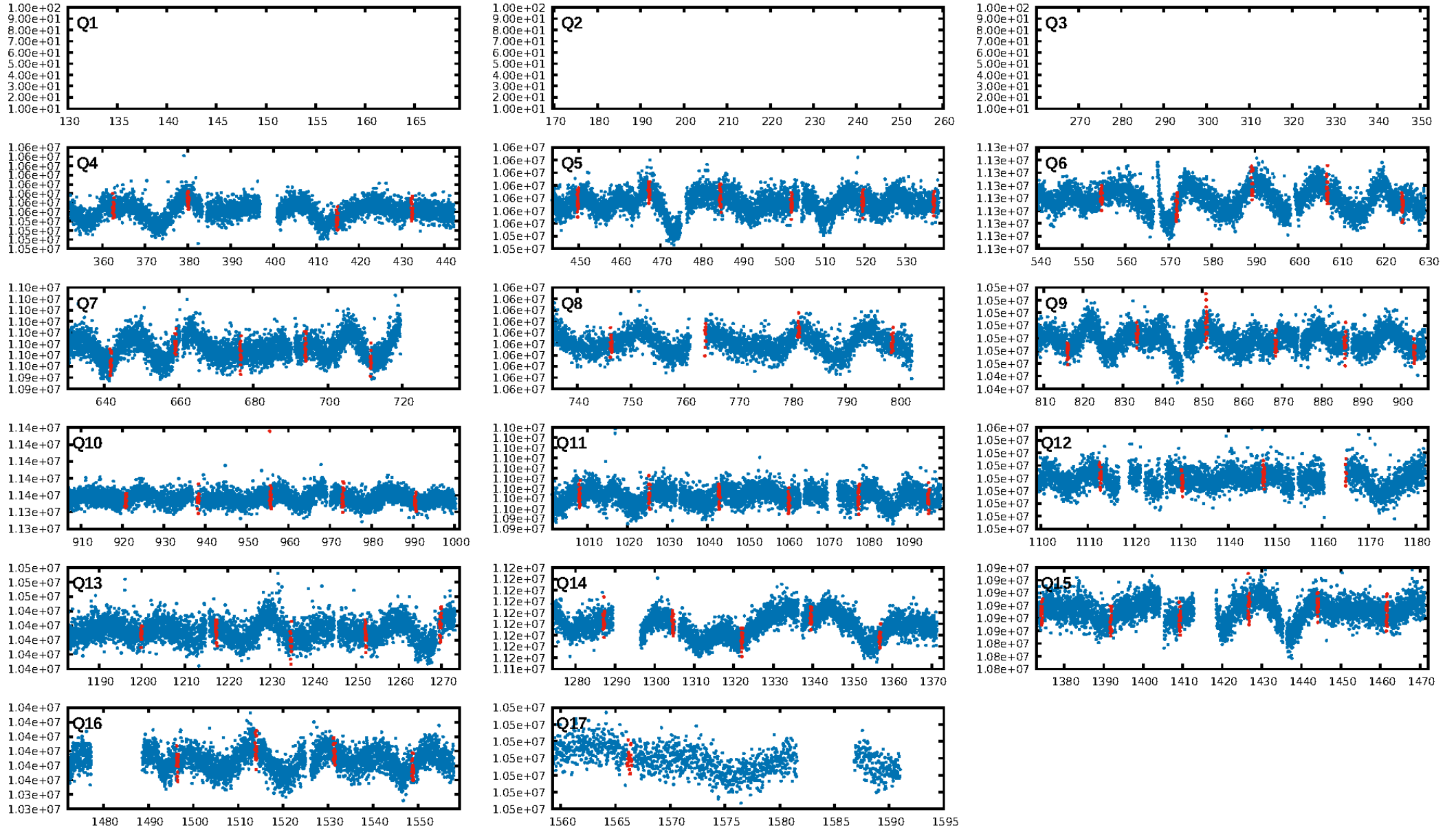
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.58e-23  
RollingBand-fgt: 1.00 [65/65]  
**GhostDiagnostic-chr: -0.1297**  
**Centroid-sig: 0.3%**  
Centroid-so: 1.203 arcsec [1.15 $\sigma$ ]  
**OotOffset-rm: 3.194 arcsec [4.08 $\sigma$ ]**  
**KicOffset-rm: 2.868 arcsec [3.30 $\sigma$ ]**  
OotOffset-st: 3/2/4/4 [13]  
KicOffset-st: 3/2/4/4 [13]  
DiffImageQuality-fgm: 0.00 [0/13]  
DiffImageOverlap-fno: 1.00 [14/14]

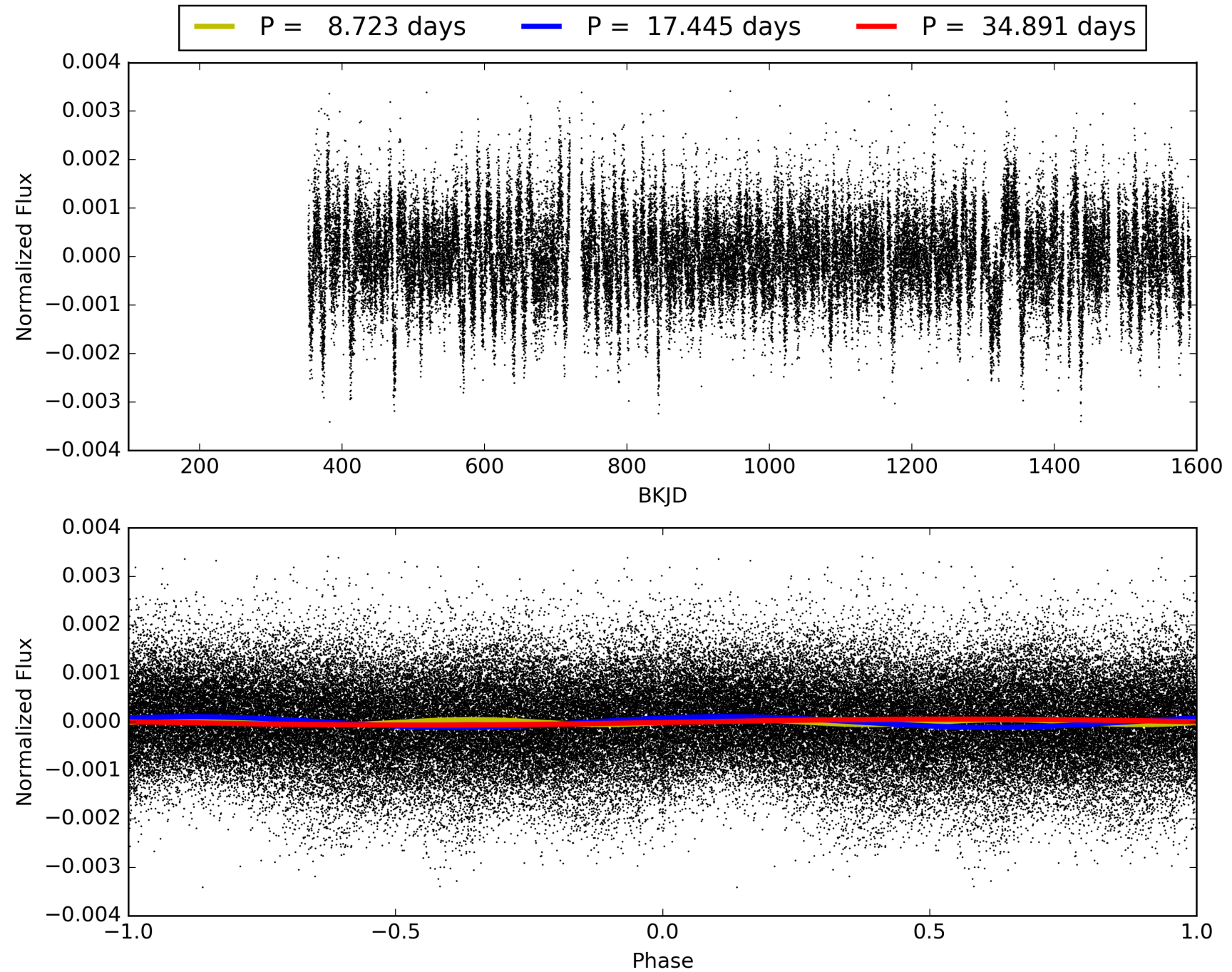
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:52:41 Z

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

# TCE 006522824-01, PDC Light Curves

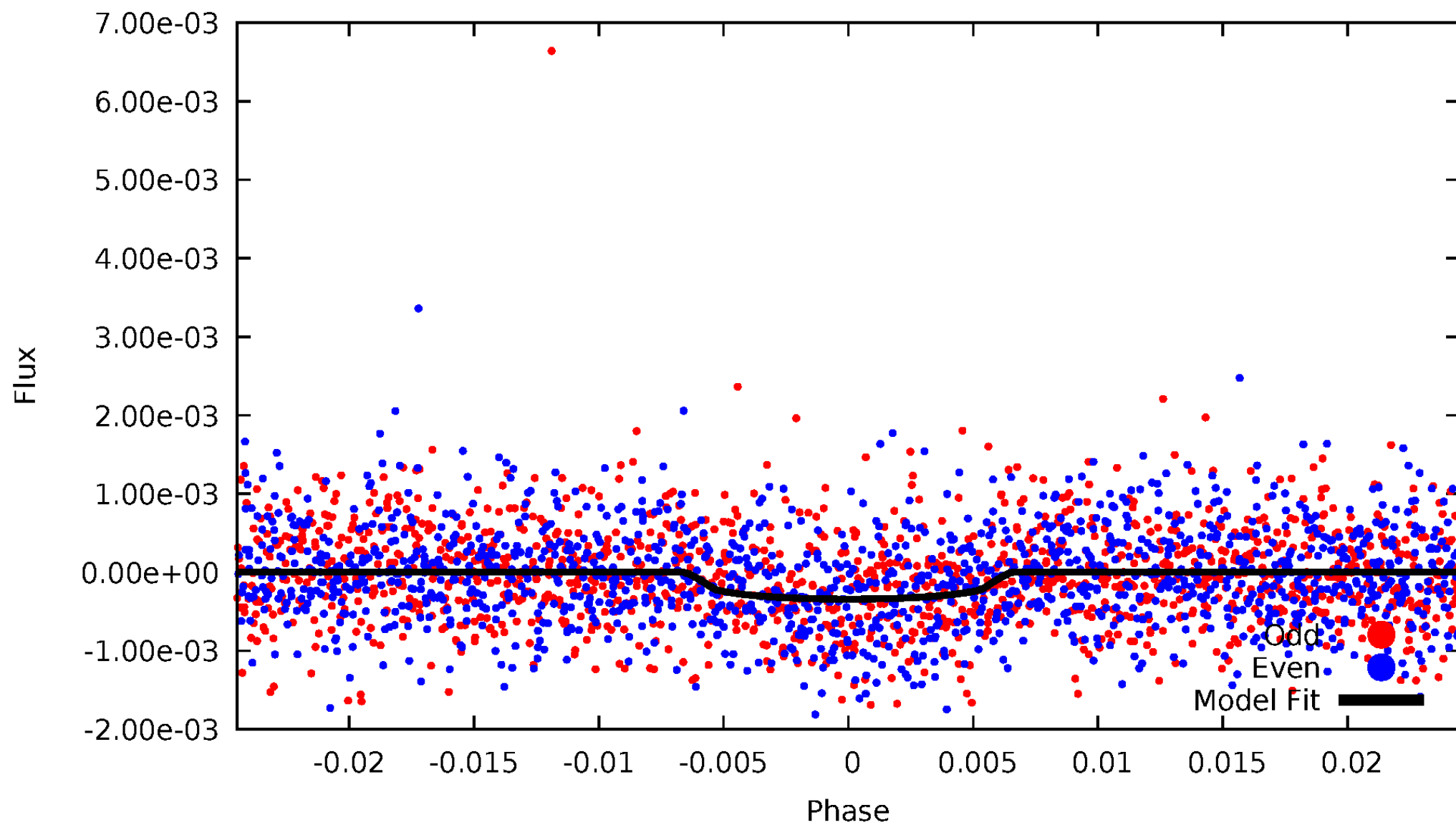


TCE 006522824-01



# DV Odd/Even

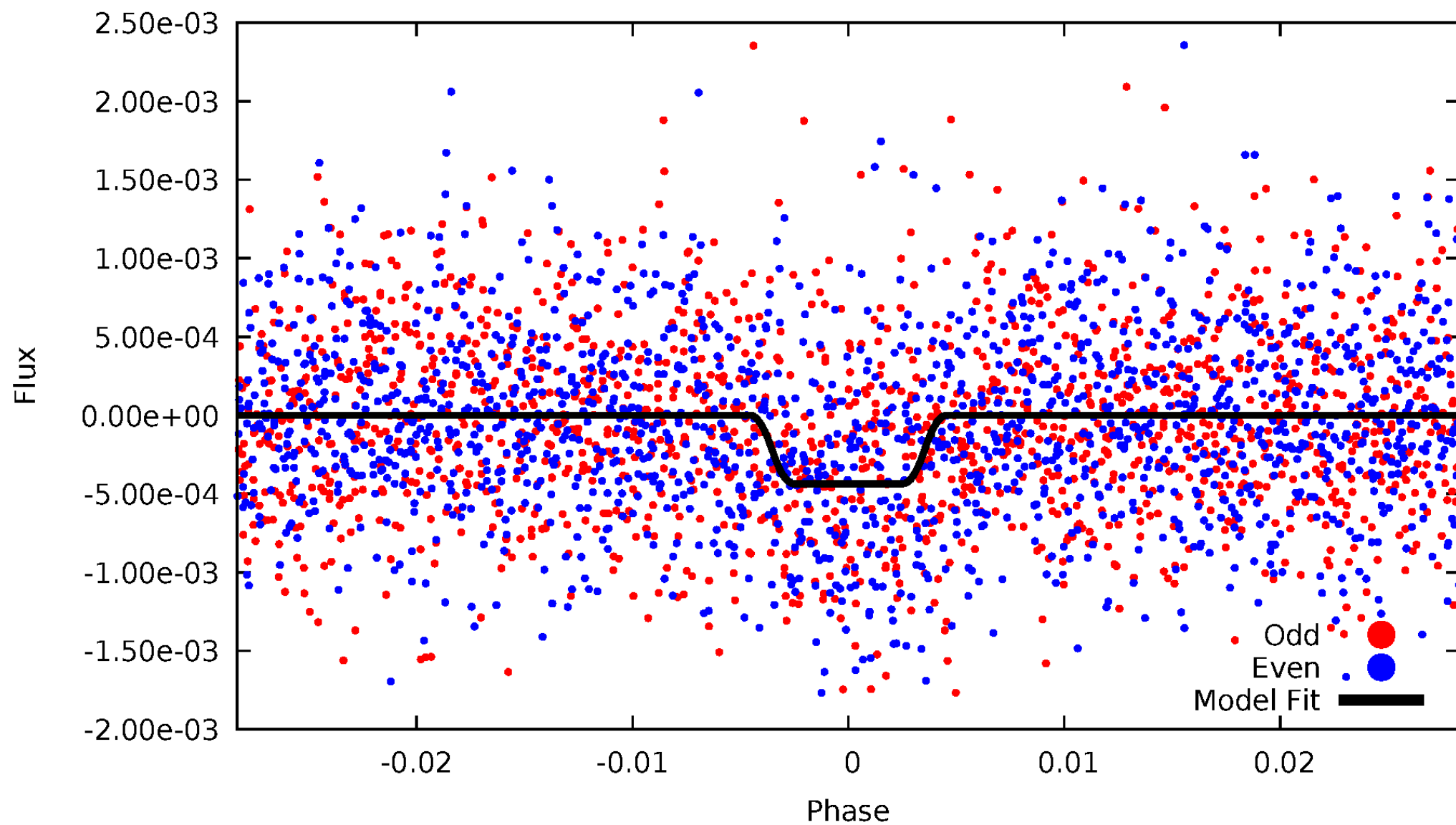
TCE 006522824-01





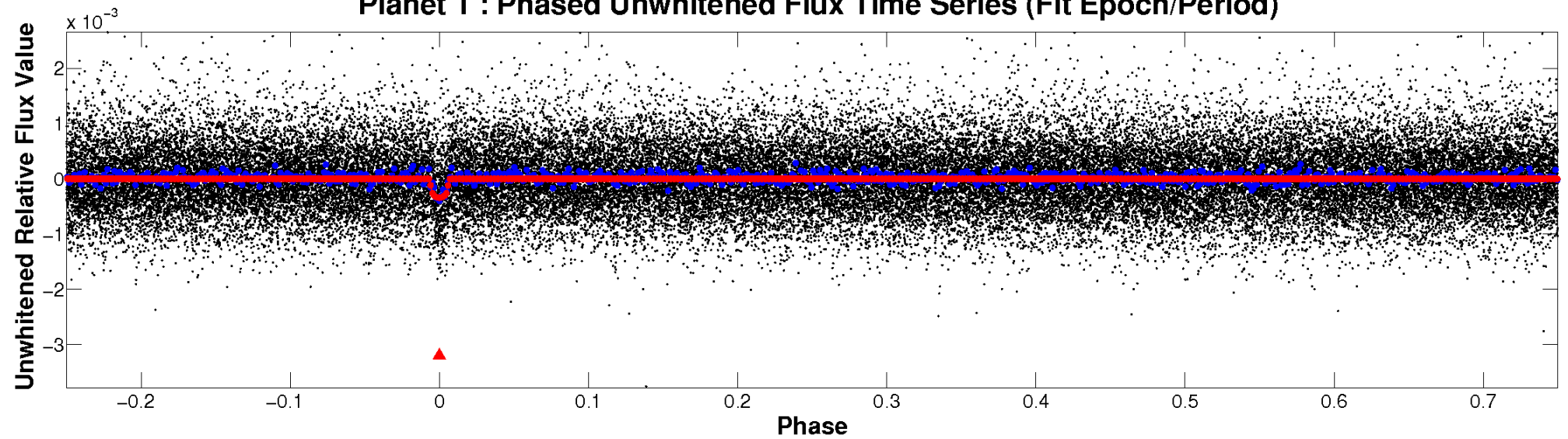
# ALT Odd/Even

TCE 006522824-01

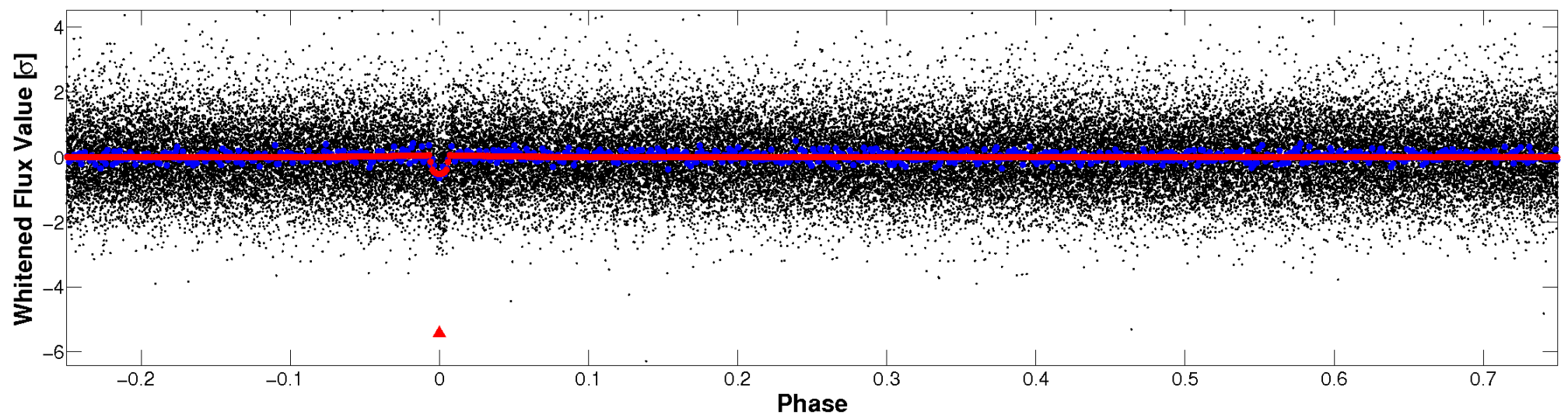


# Non-Whitened Vs. Whitened Light Curve

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

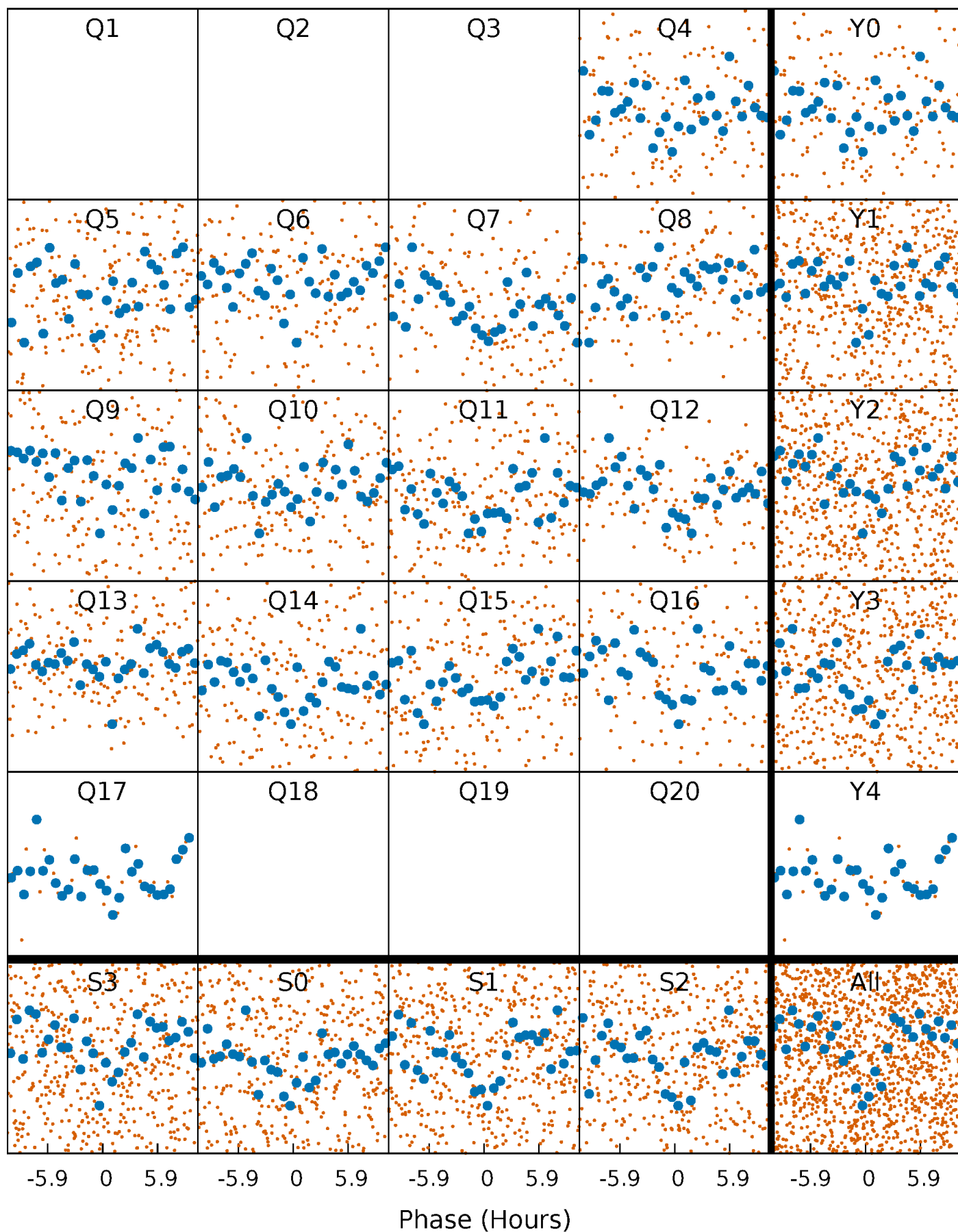


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

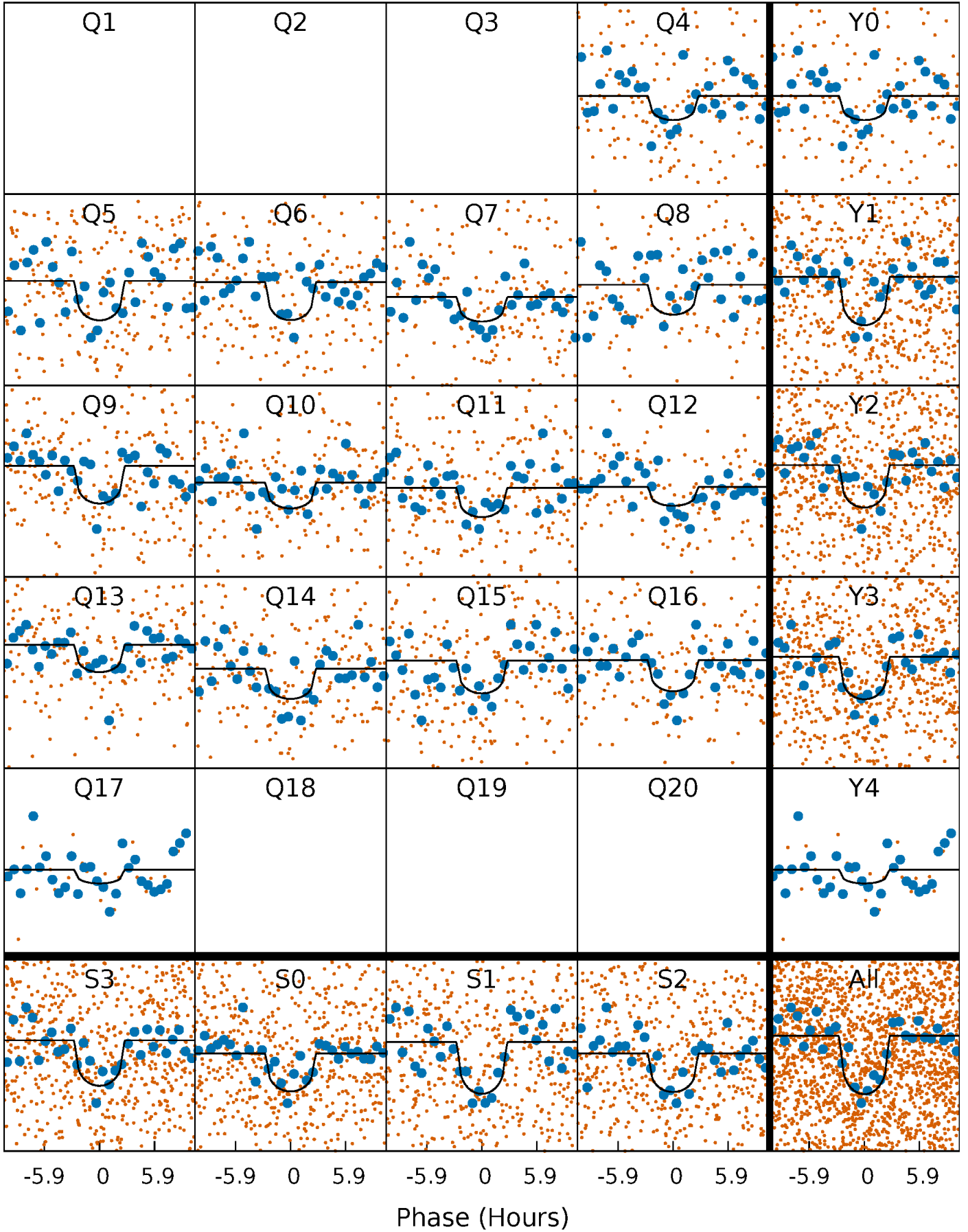
TCE 006522824-01 P= 17.445252 Days  $T_0=135.759453$  (BKJD)





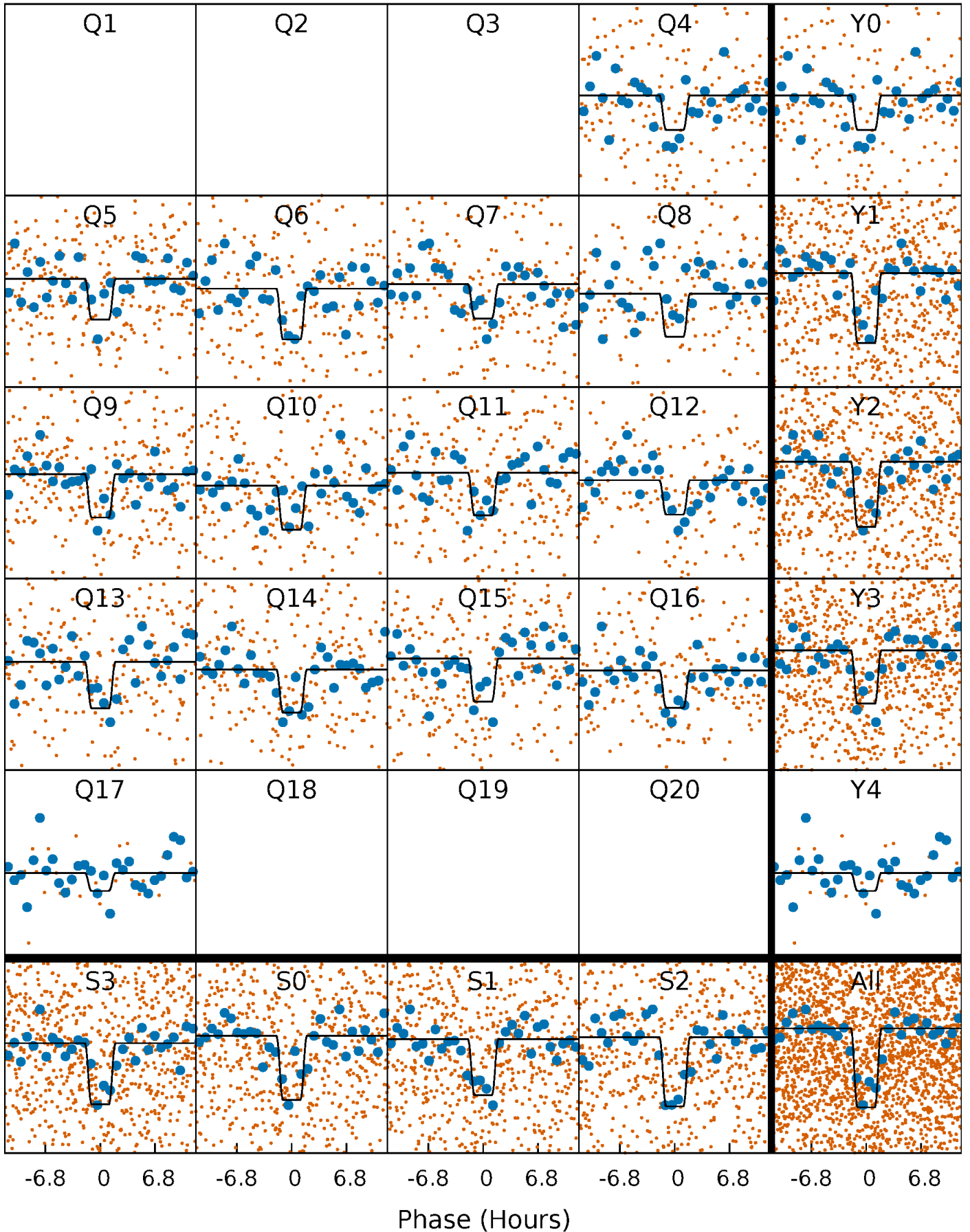
# DV Quarter-Phased Transit Curves

TCE 006522824-01 P= 17.445252 Days  $T_0=135.759453$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

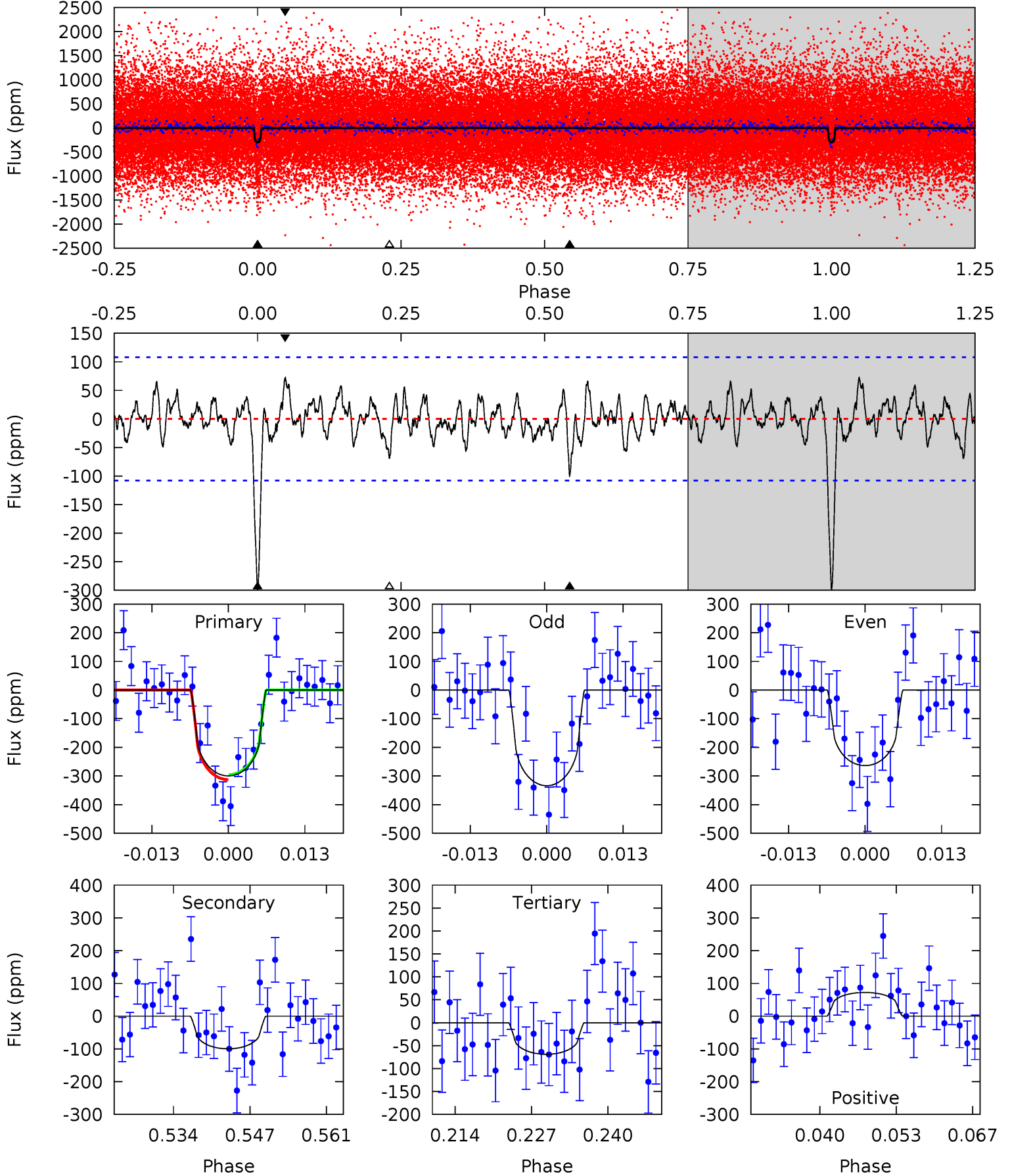
TCE 006522824-01 P= 17.445450 Days  $T_0=135.750786$  (BKJD)



# DV Model-Shift Uniqueness Test

006522824-01, P = 17.445252 Days, E = 135.759453 Days

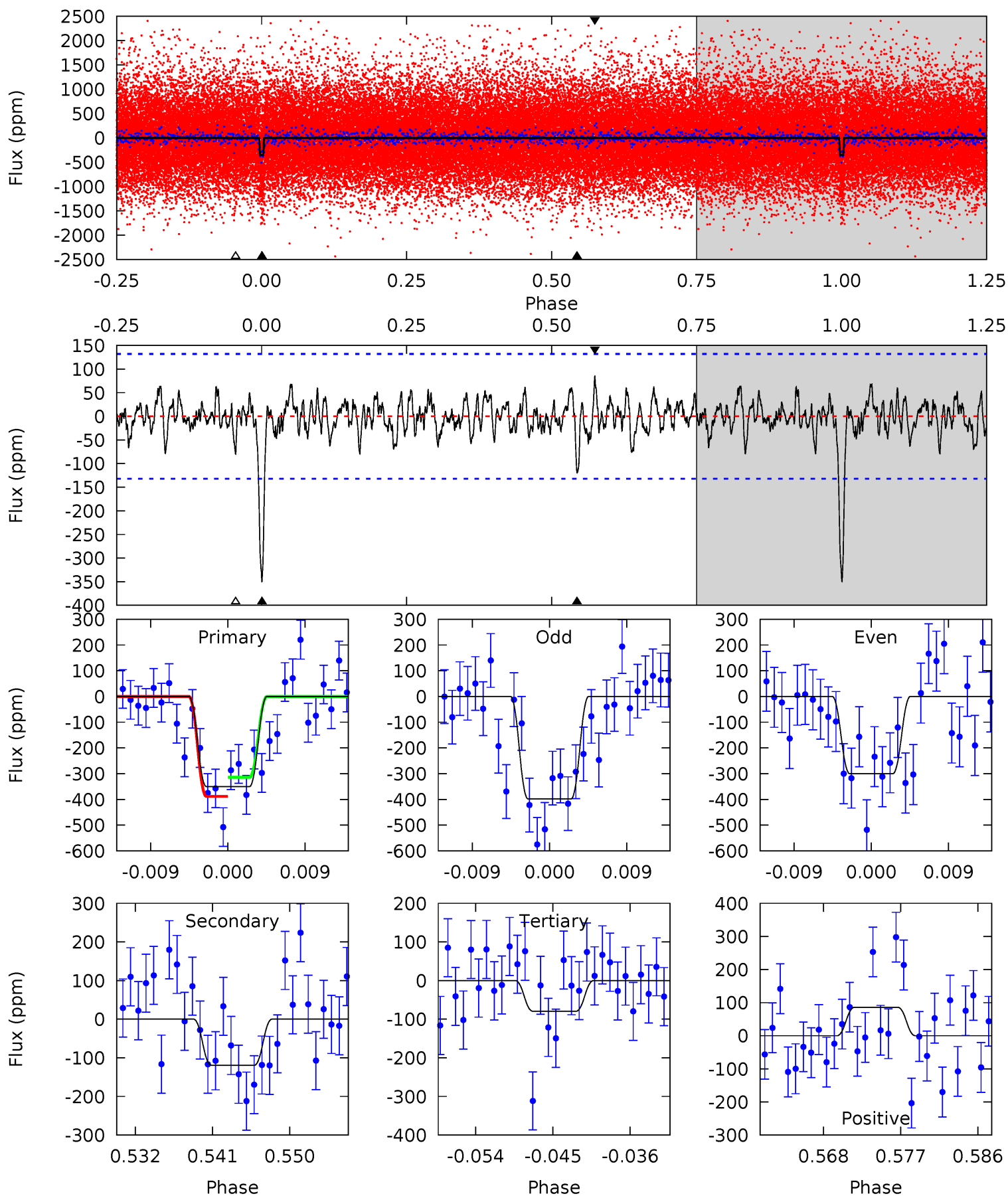
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	4.60	3.17	3.33	4.97	2.47	1.12	10.6	10.5	1.43	1.27	1.62	0.86	0.19	0.40



# Alt Model-Shift Uniqueness Test

006522824-01, P = 17.445450 Days, E = 135.750786 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
13.4	4.56	3.04	3.29	5.05	2.61	1.06	10.3	10.1	1.52	1.27	1.87	1.00	0.20	1.41



### Stellar Parameters For KIC 006522824

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4927^{+49}_{-44}$	$3.417^{+0.121}_{-0.148}$	$-0.240^{+0.100}_{-0.100}$	$3.040^{+0.623}_{-0.383}$	$0.881^{+0.062}_{-0.013}$	$0.044^{+0.020}_{-0.019}$
	+1%/-1%	+4%/-4%	+42%/-42%	+20%/-13%	+7%/-1%	+46%/-44%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 006522824-01 / KOI 4882.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-100 \pm 22$	$7.73^{+6.09}_{-4.69}$	$1491^{+86}_{-56}$	$3609^{+1548}_{-593}$	$15^{+82}_{-10}$
Alt.	$-119 \pm 26$	$8.45^{+6.12}_{-5.01}$	$1490^{+86}_{-61}$	$3589^{+1469}_{-586}$	$14^{+74}_{-9}$

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



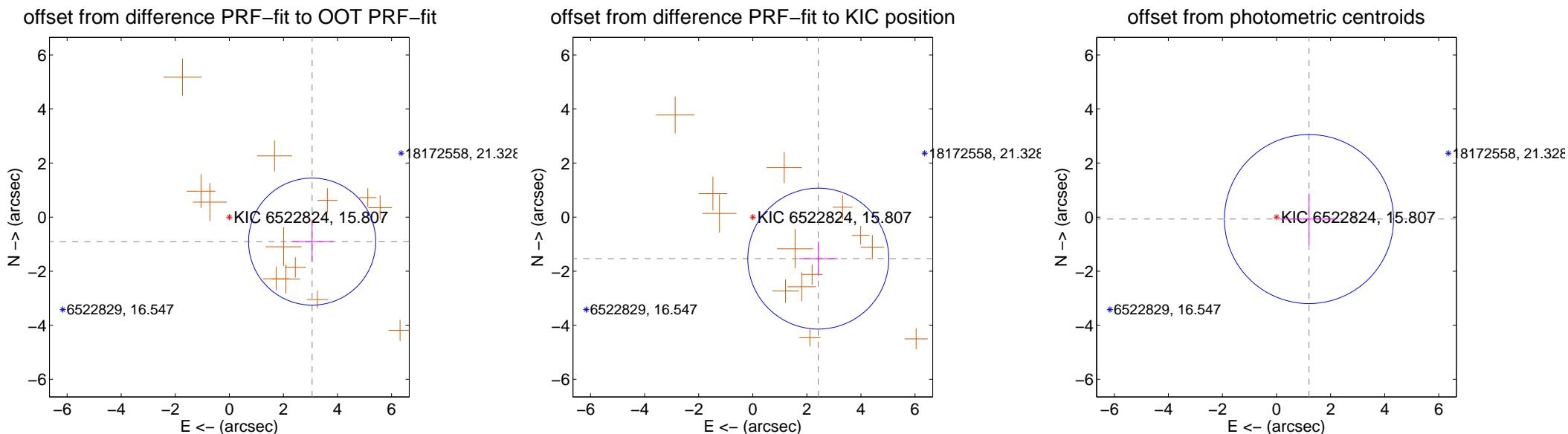
## DV Centroid Data

Supplemental centroid analysis for 006522824-01. Kepler magnitude: 15.81. Transit SNR 11.03

There are 0 quarters with good PRF difference image offsets

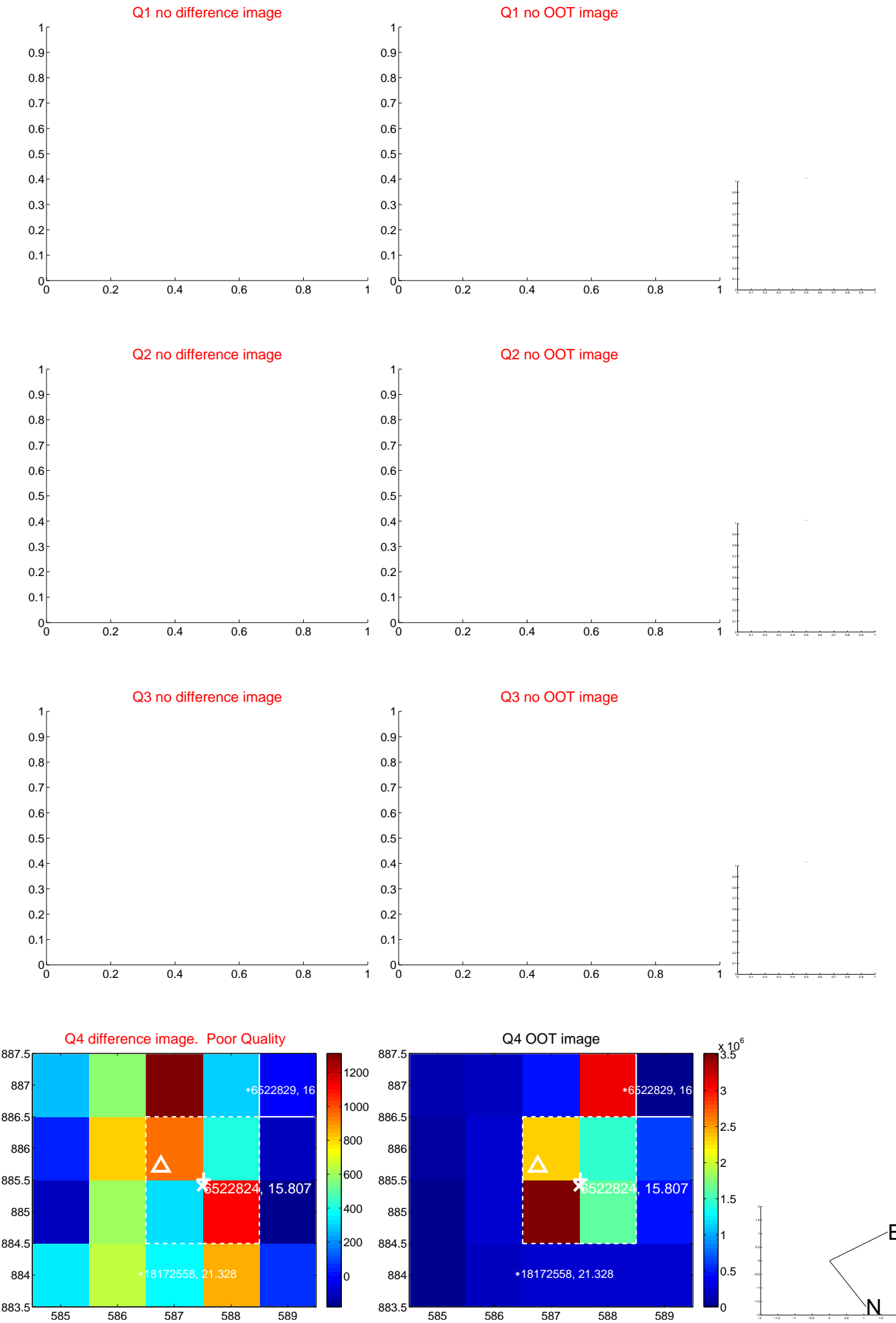
The direct PRF centroid is offset from the target star catalog position by about 1.80 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.194 \pm 0.783$	4.08	$-3.063 \pm 0.788$	$-0.906 \pm 0.727$
PRF-fit source offset from KIC position	$2.868 \pm 0.869$	3.30	$-2.422 \pm 0.716$	$-1.536 \pm 0.635$
photometric centroid source offset	$1.20 \pm 1.04$	1.15	$-1.20 \pm 1.04$	$-0.07 \pm 0.95$

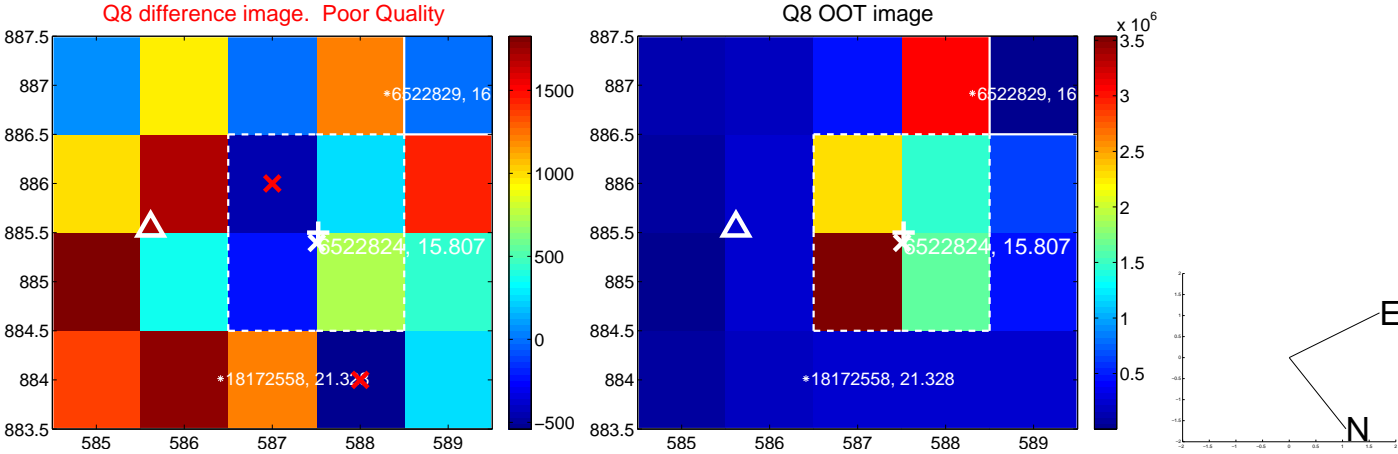
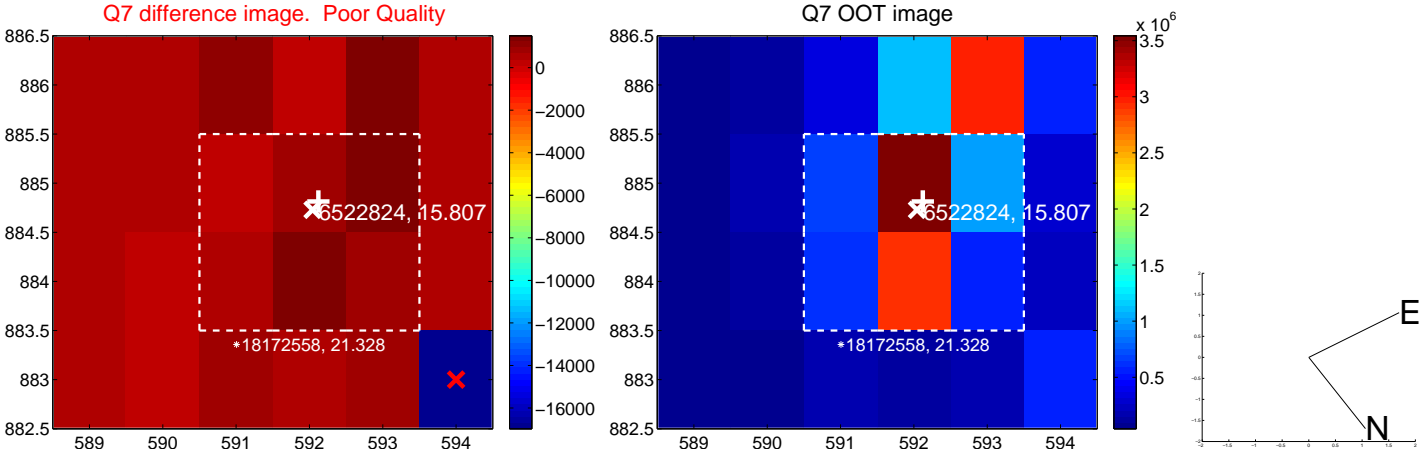
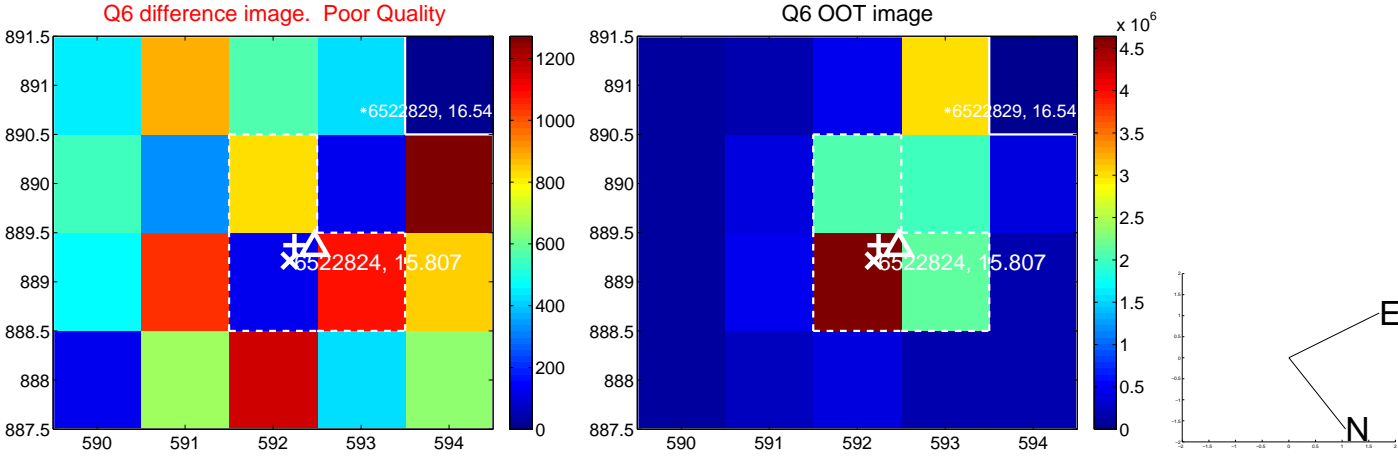
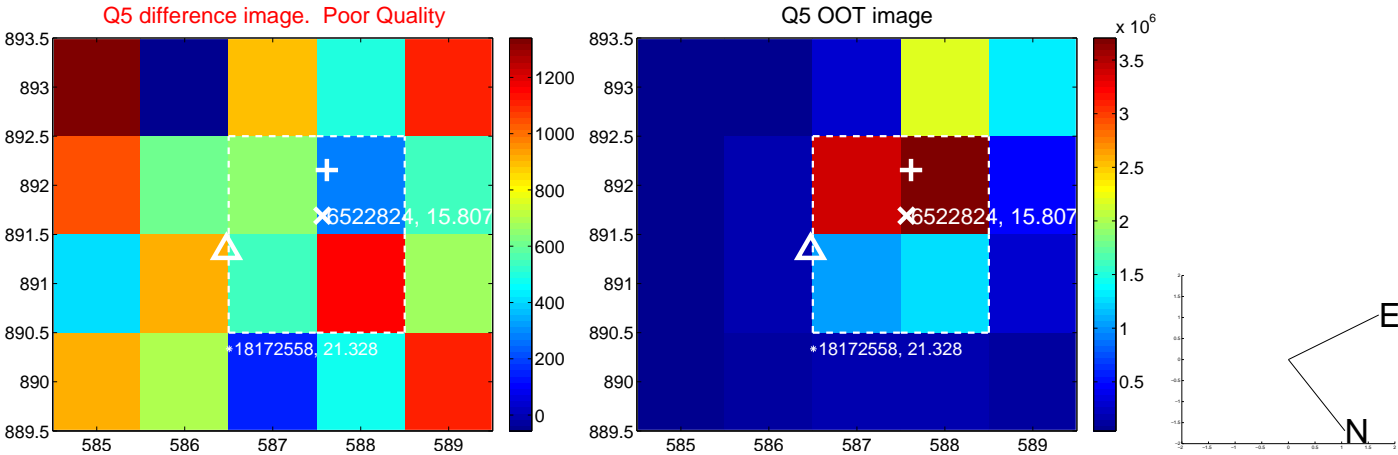


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

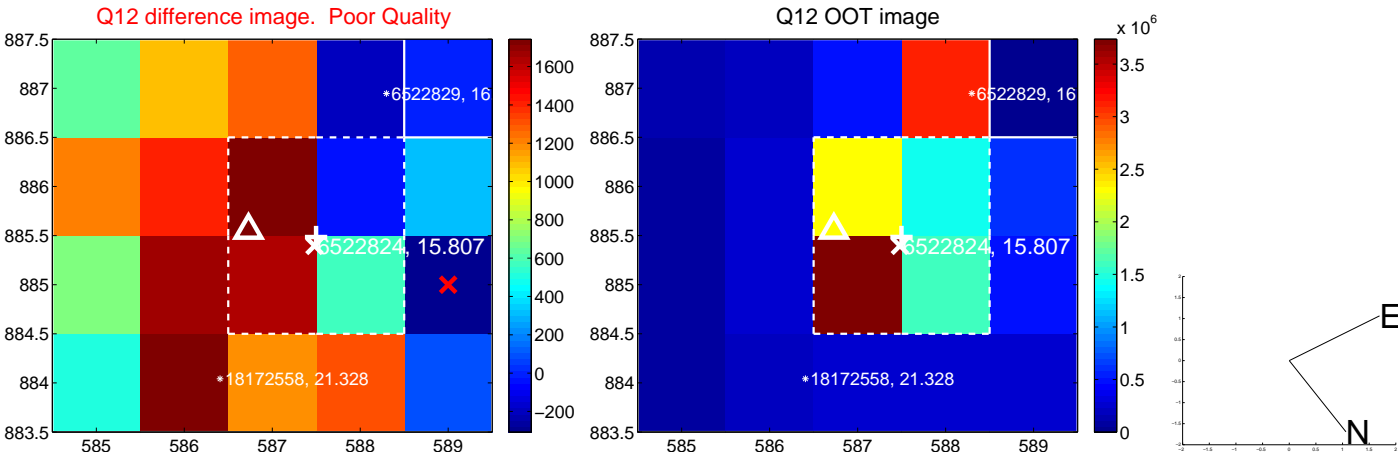
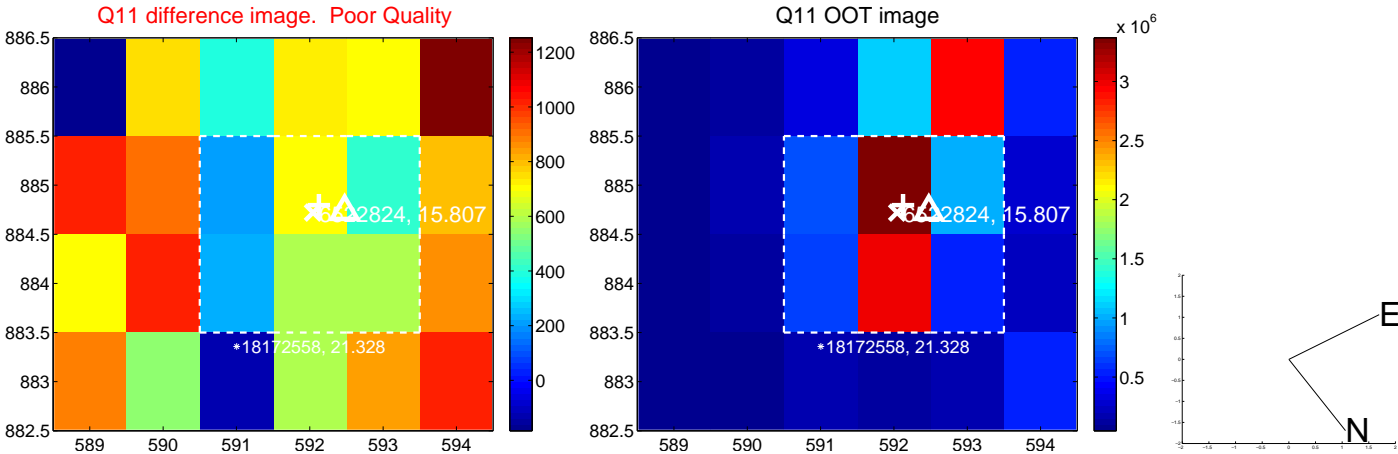
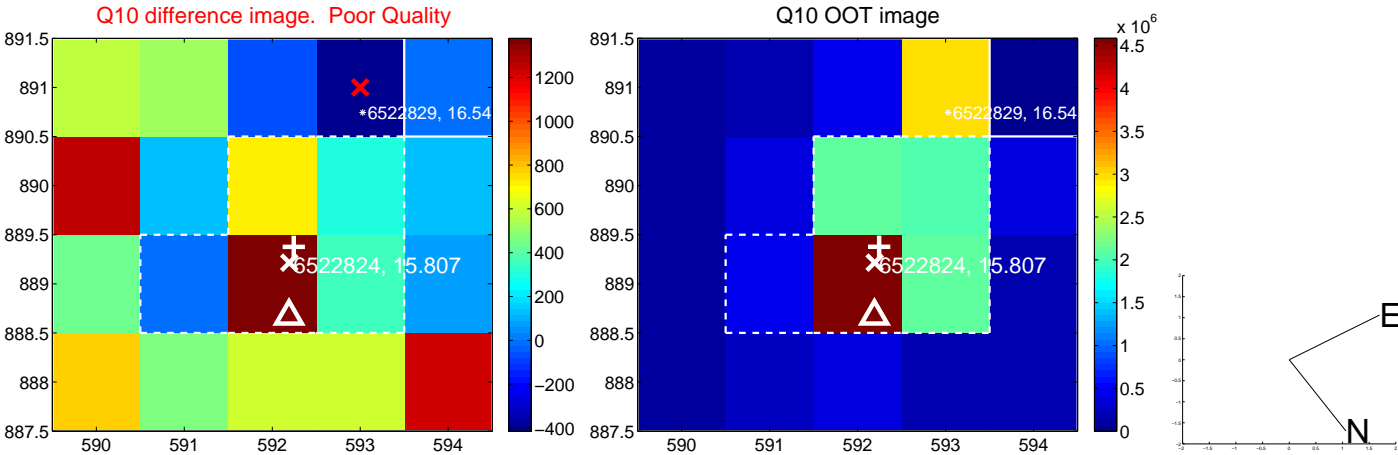
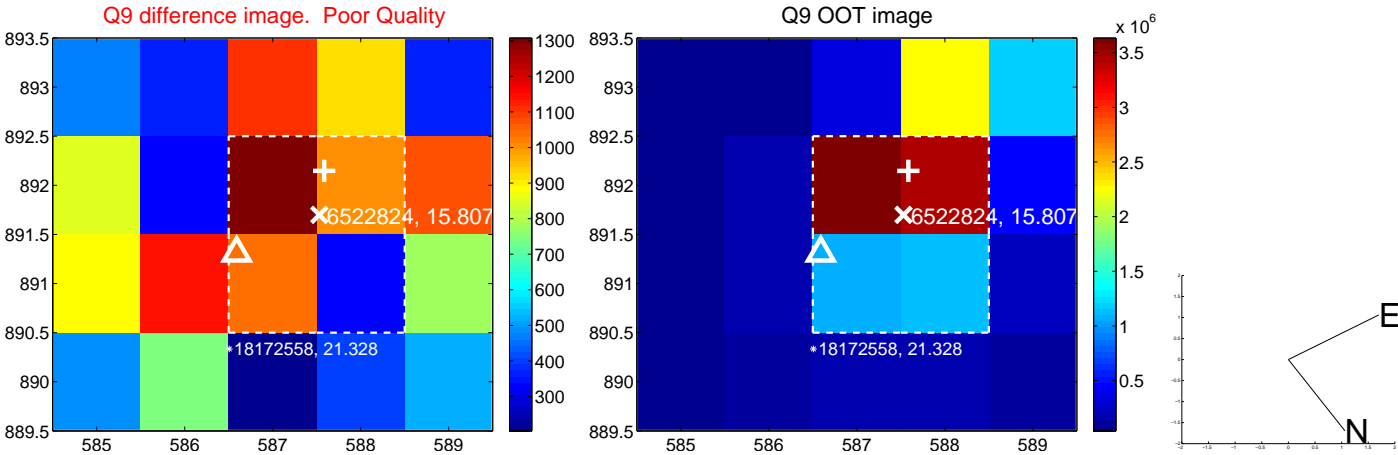
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



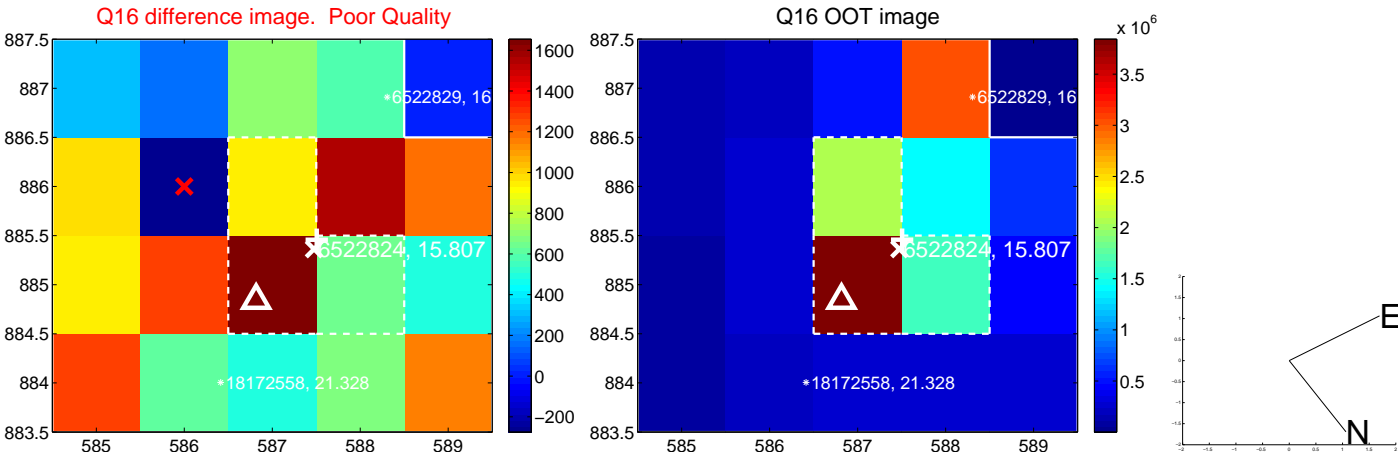
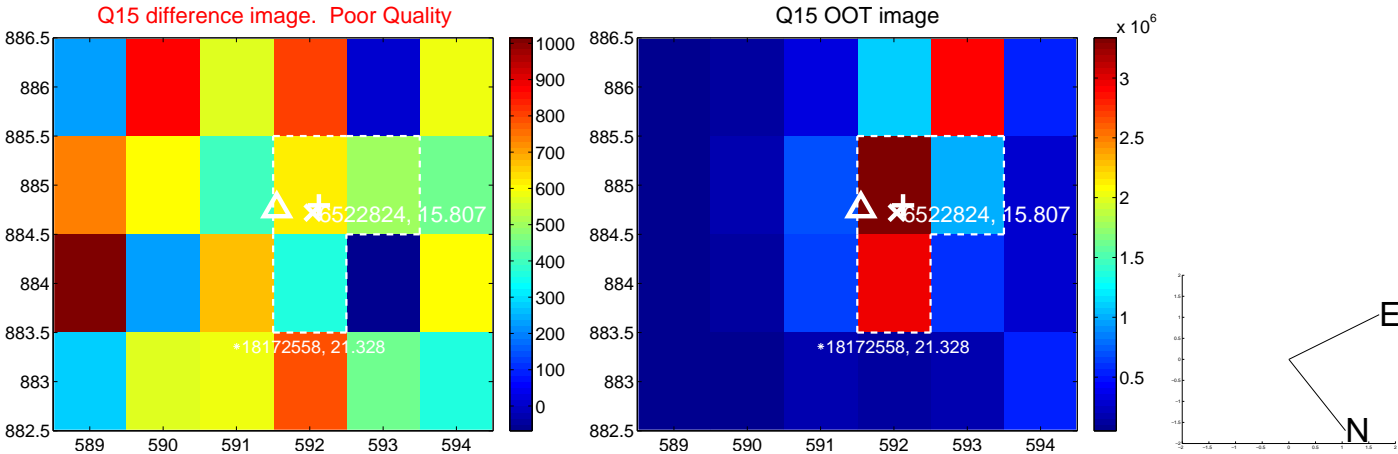
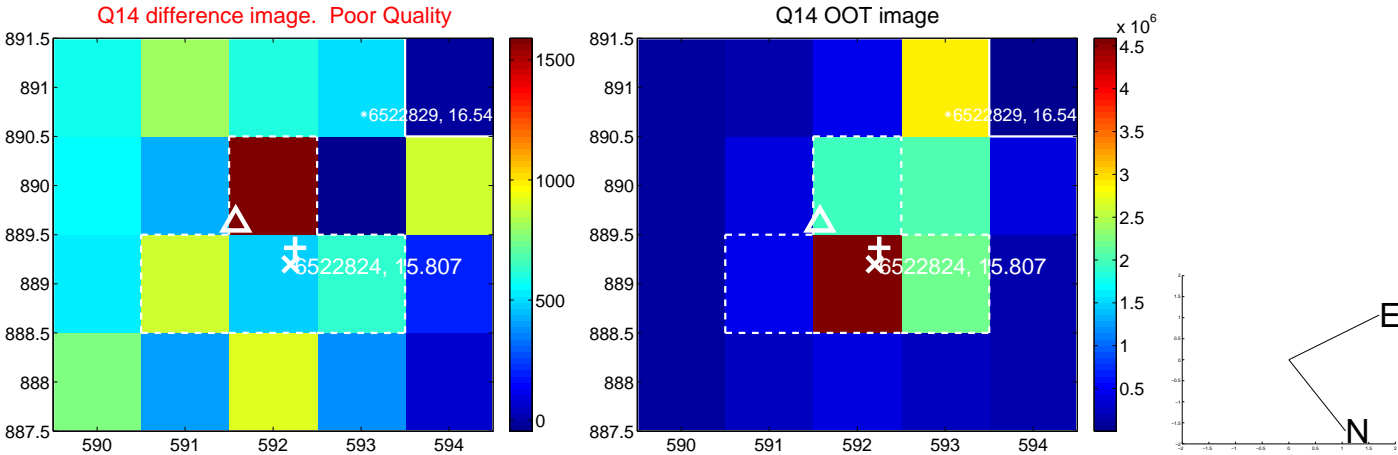
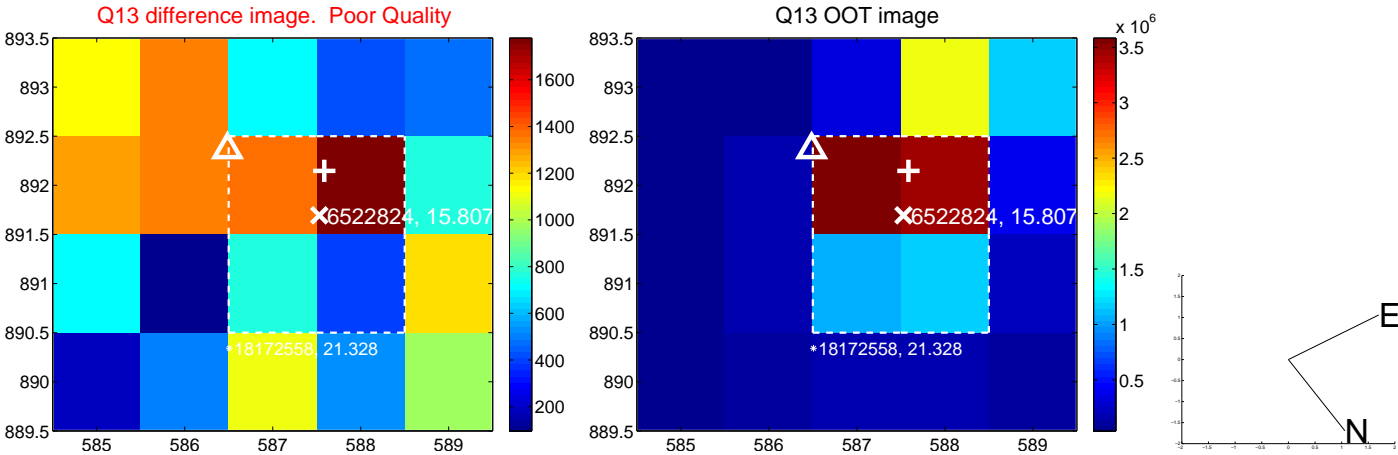
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.







UKIRT Image

Declination

