

# KIC 006312534

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006312534-01	OBS	1689.01	1.507747	132.949037	2457.7	2.791	184.9	148.6	0.82	5069	5.21	678.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006312534-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—CENT_UNRESOLVED_OFFSET—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 006312534-01

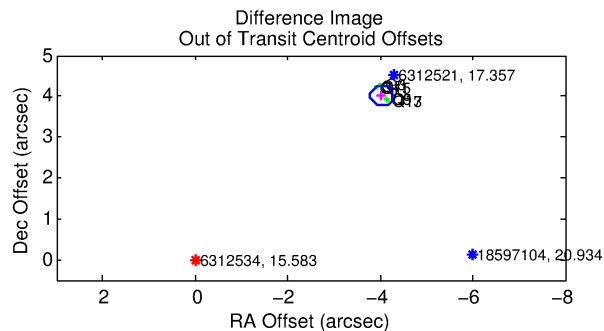
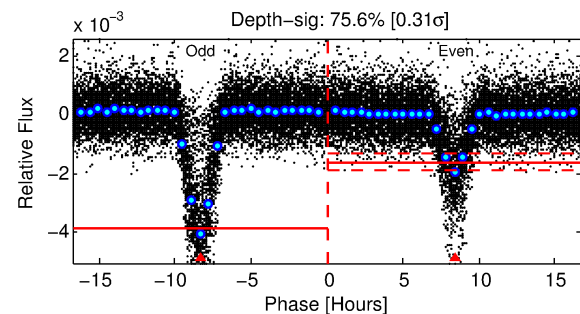
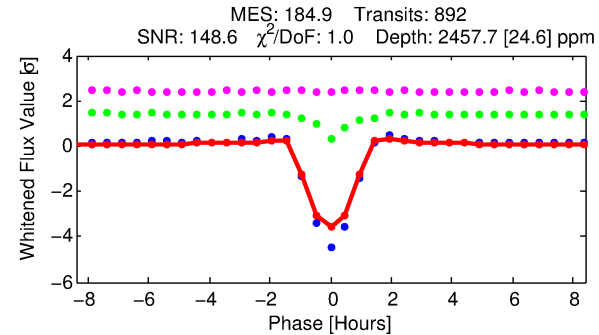
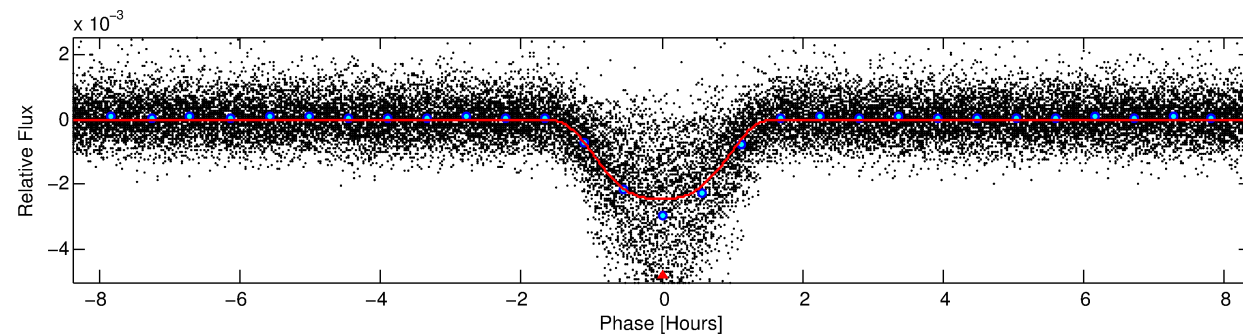
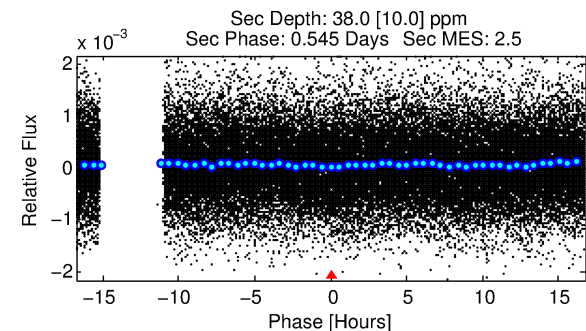
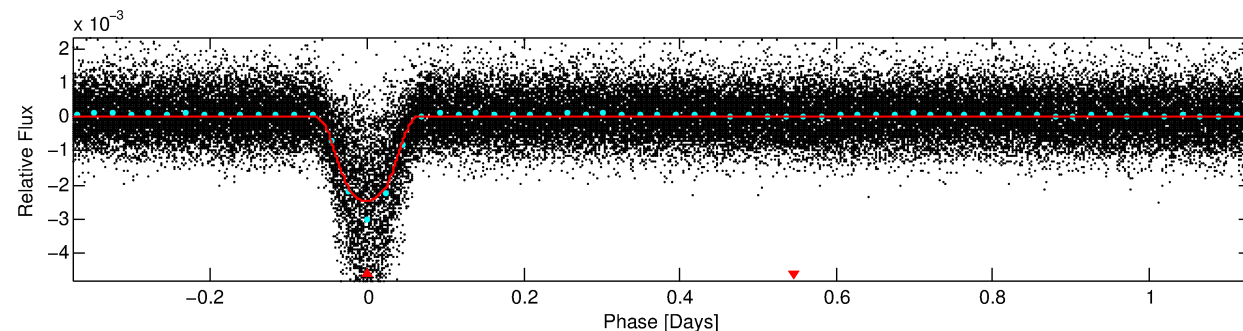
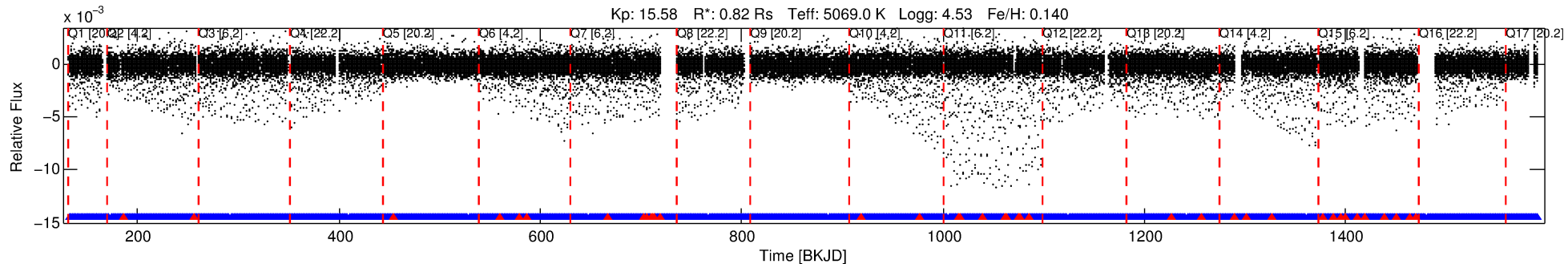
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
006312534-01	6312534	3656.01	6312521	1:2	6.2	1	-1	17.36	15.59	83.12	Direct-PRF	0	1.28	0.33

**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: 6312534 Candidate: 1 of 1 Period: 1.508 d  
KOI: K01689.01 Corr: 0.939

Kp: 15.58 R\*: 0.82 Rs Teff: 5069.0 K Logg: 4.53 Fe/H: 0.140



## DV Fit Results:

Period = 1.50775 [0.00000] d  
Epoch = 132.9490 [0.0002] BKJD  
Rp/R\* = 0.0584 [0.0005]  
a/R\* = 2.29 [0.03]  
b = 0.93 [0.00]  
Seff = 678.13 [119.90]  
Teq = 1301 [58] K  
Rp = 5.21 [0.51] Re  
a = 0.0242 [0.0020] AU  
Ag = 0.45 [0.13] [-4.25σ]  
Teffp = 1647 [121] K [2.58σ]

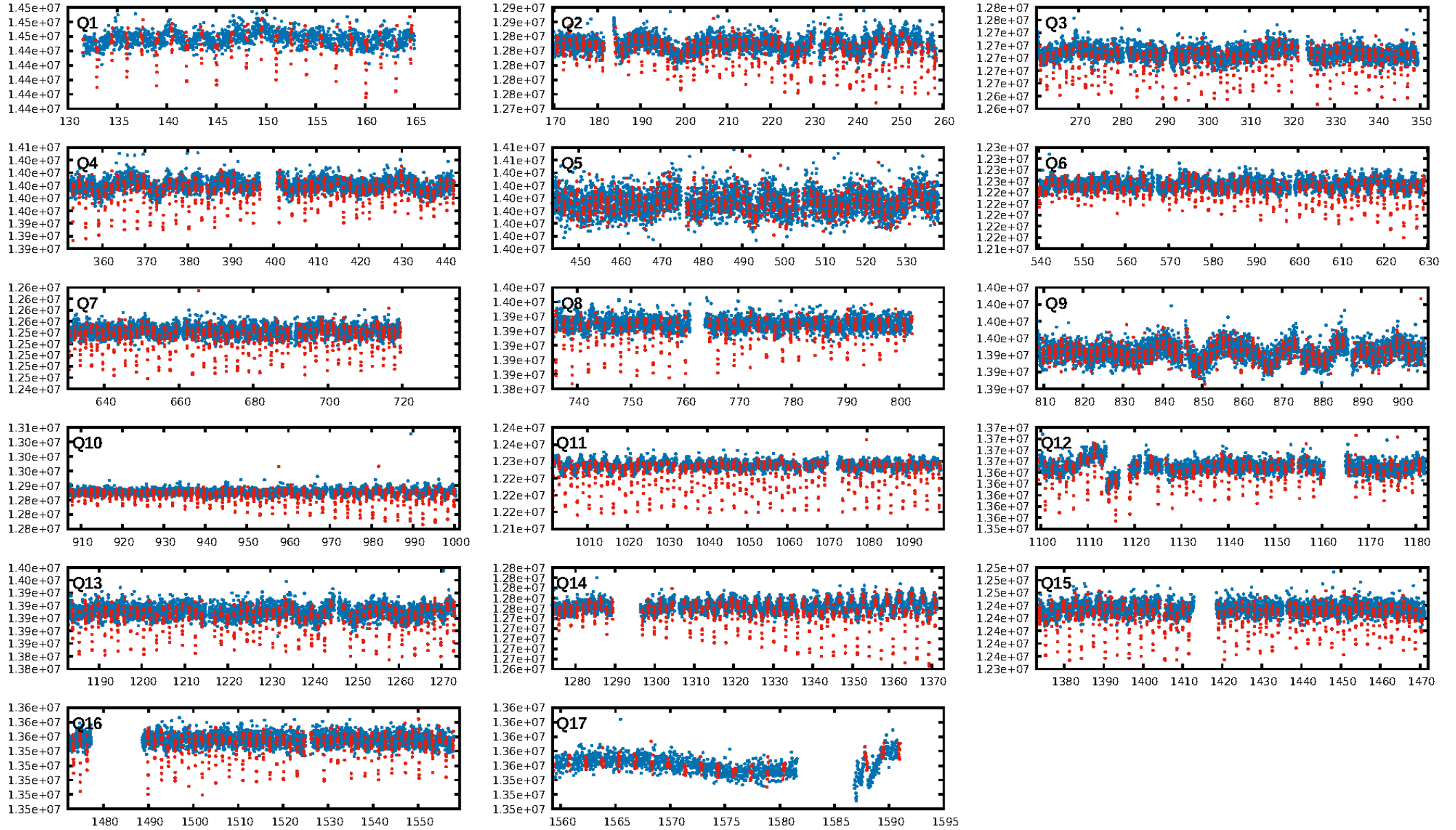
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.96 [814/852]  
GhostDiagnostic-chr: -0.335  
Centroid-sig: 0.0%  
Centroid-so: 21.217 arcsec [291.43σ]  
OotOffset-rm: 5.687 arcsec [68.77σ]  
KicOffset-rm: 6.068 arcsec [82.31σ]  
OotOffset-st: 0/4/0/5 [9]  
KicOffset-st: 0/4/0/5 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [17/17]

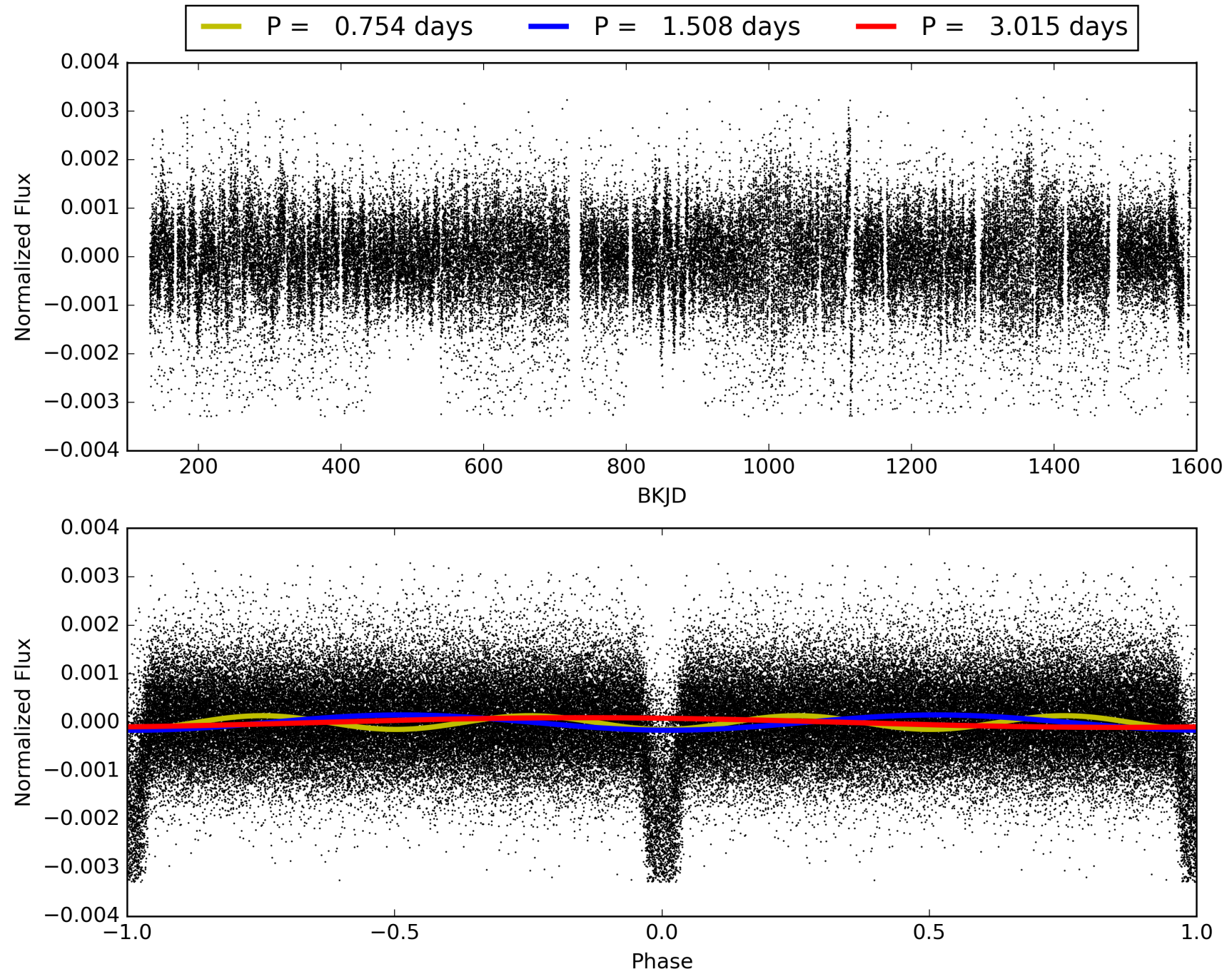
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:18:48 Z

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

# TCE 006312534-01, PDC Light Curves

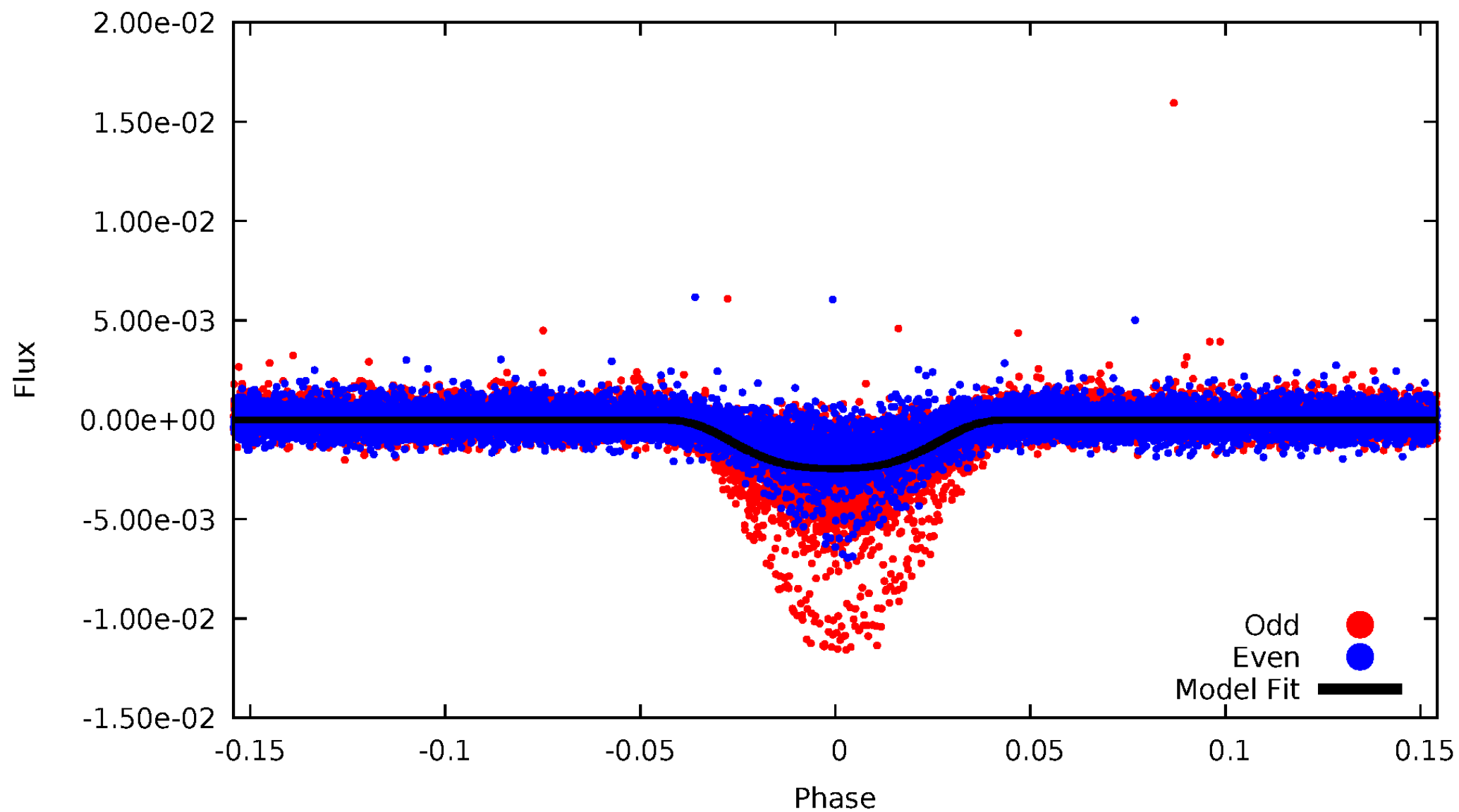


TCE 006312534-01



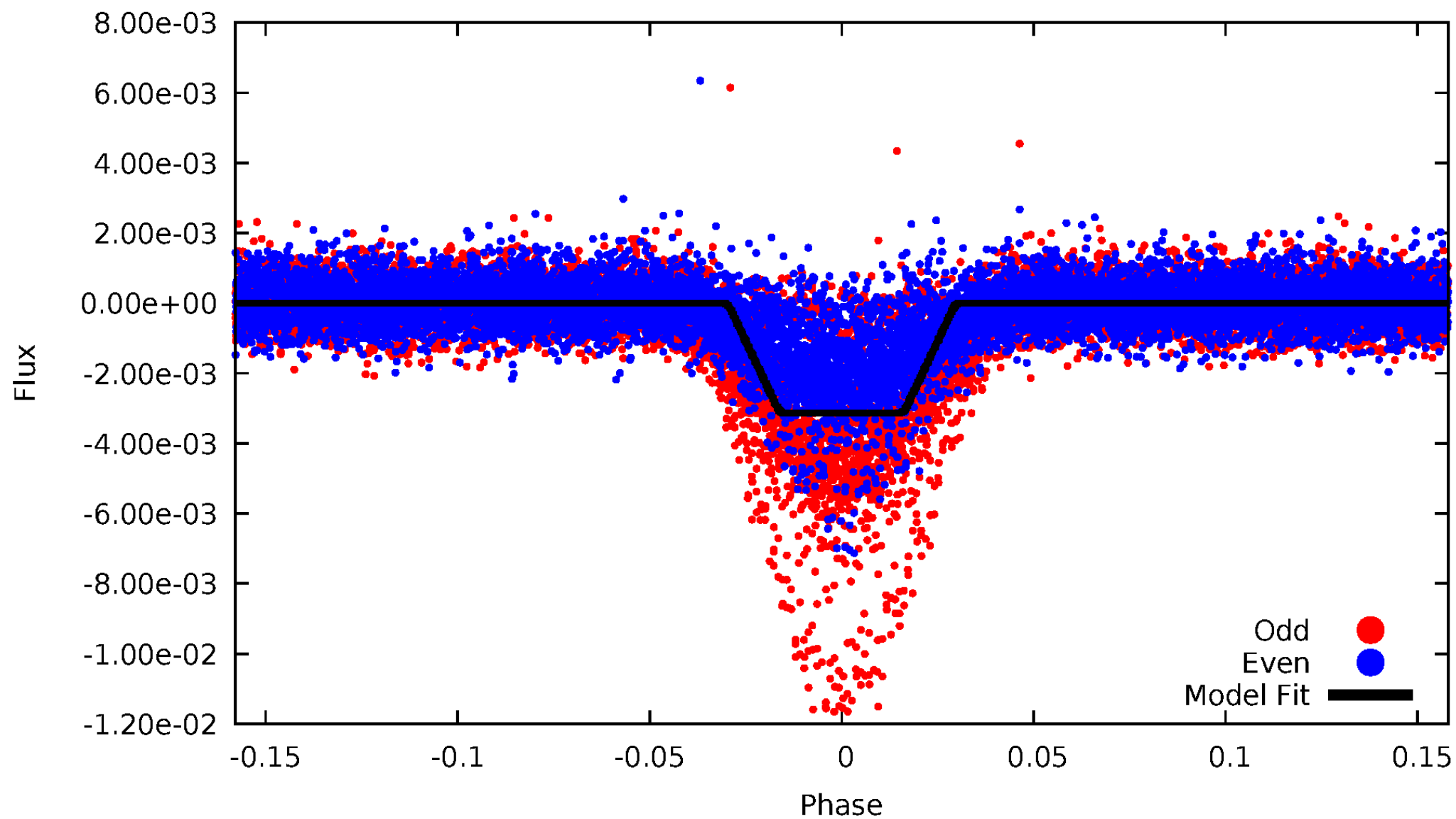
# DV Odd/Even

TCE 006312534-01



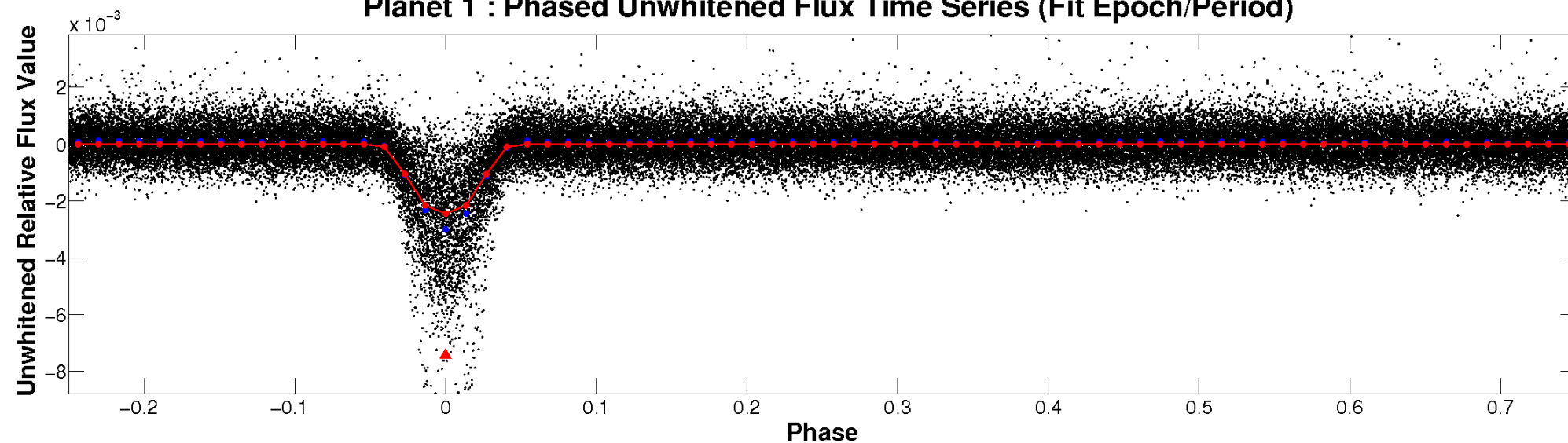
# ALT Odd/Even

TCE 006312534-01

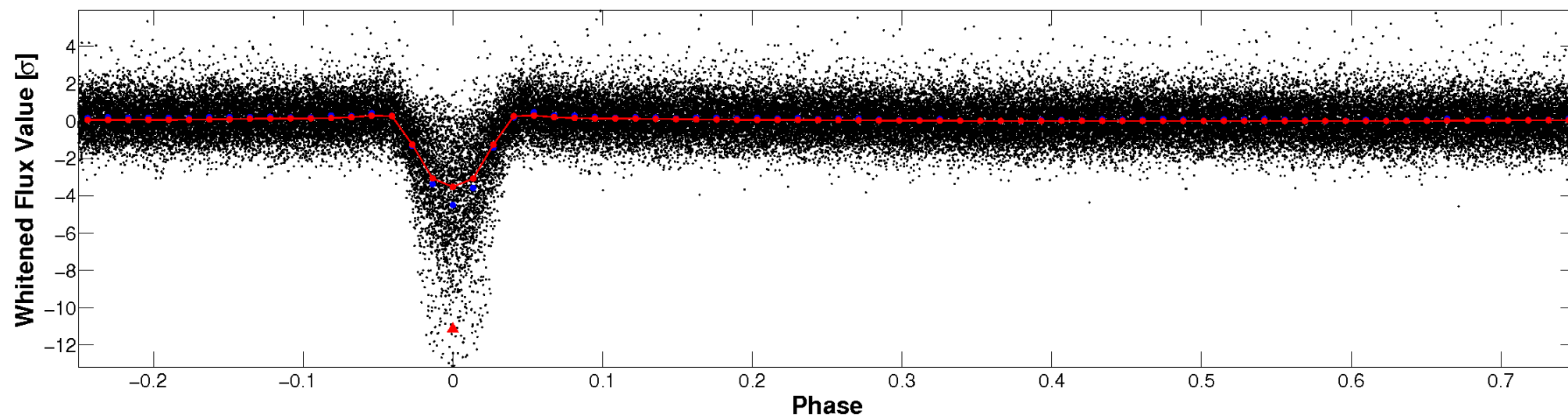


# Non-Whitened Vs. Whitened Light Curve

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

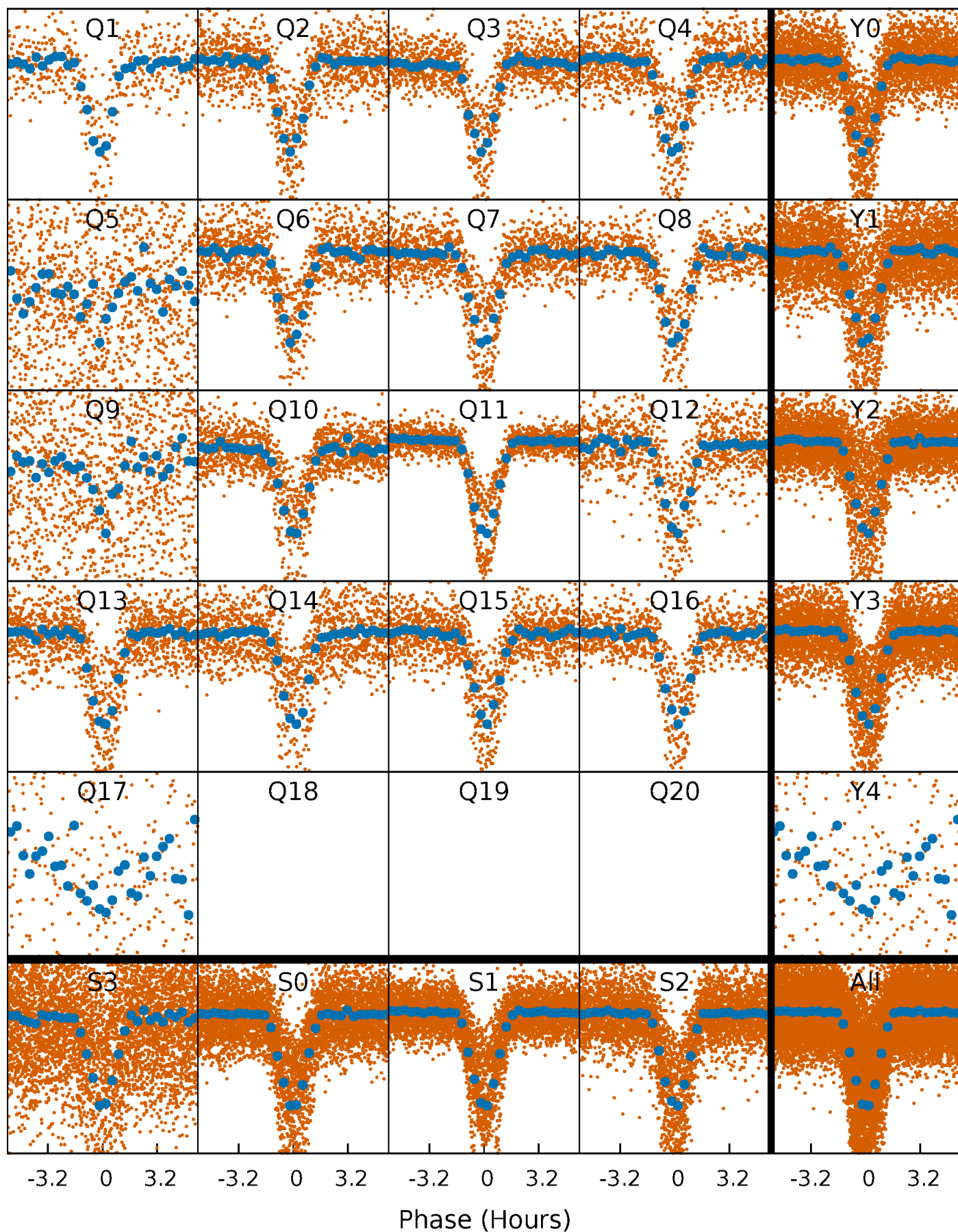


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



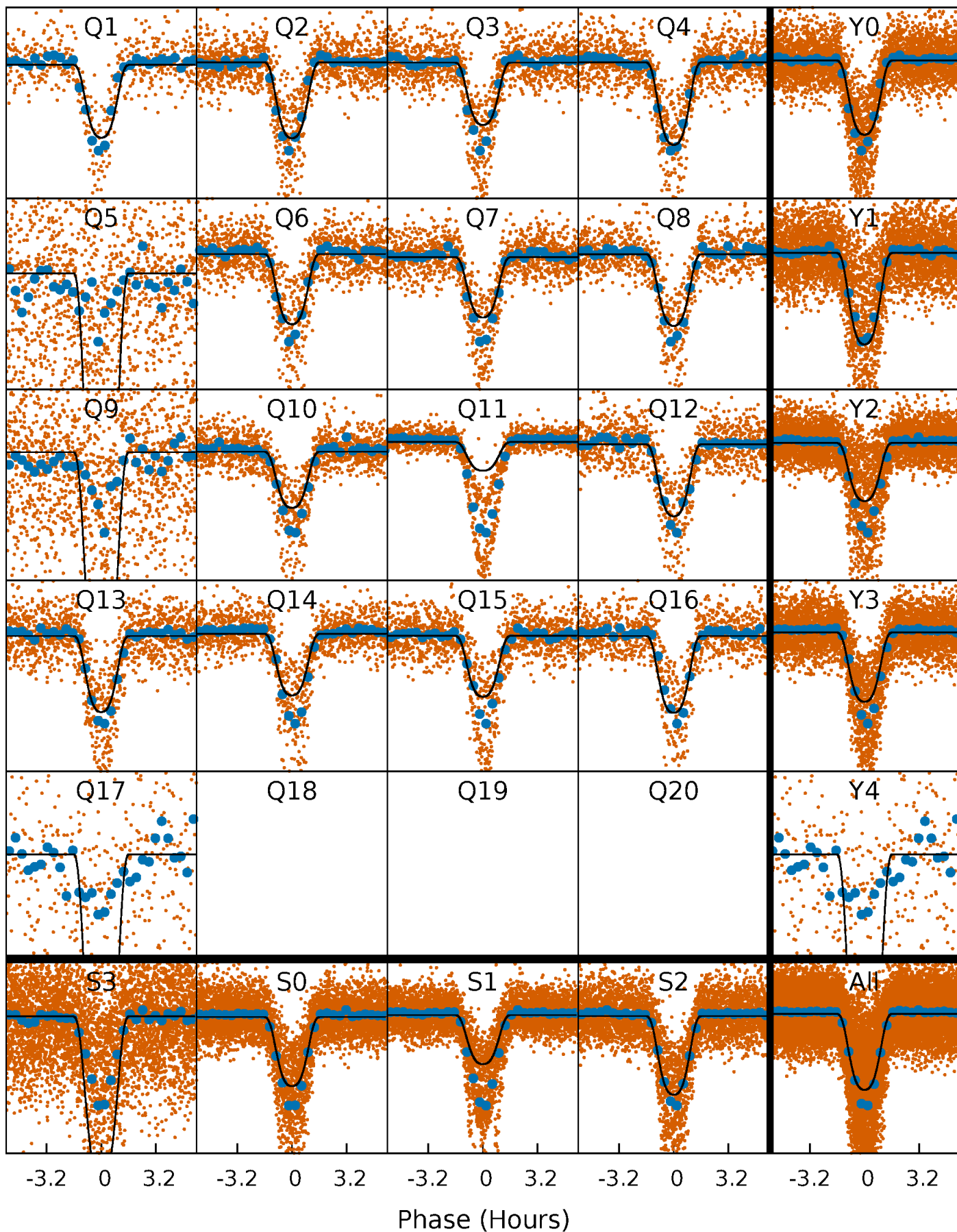
# PDC Quarter-Phased Transit Curves

TCE 006312534-01 P= 1.507747 Days  $T_0=132.949037$  (BKJD)



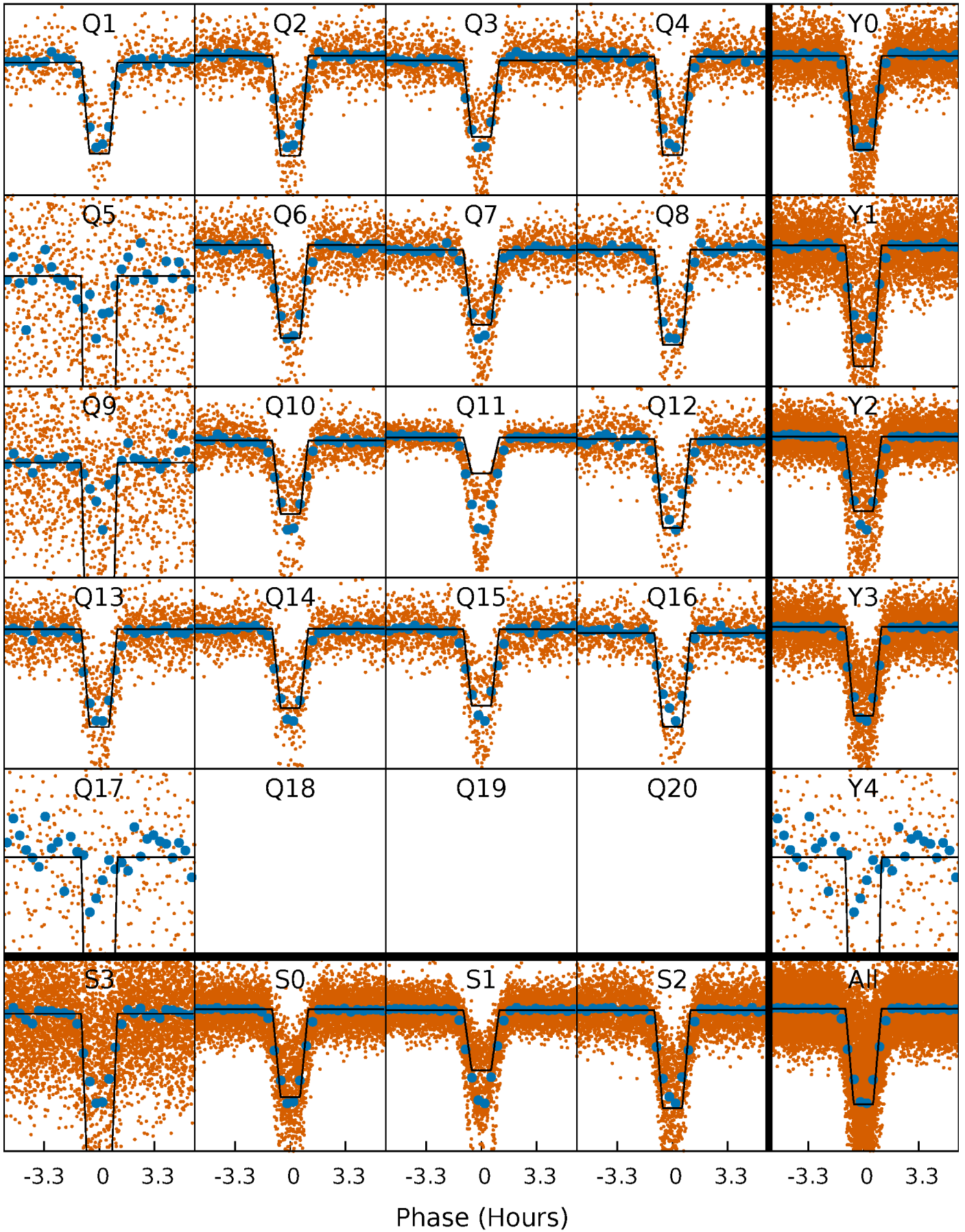
# DV Quarter-Phased Transit Curves

TCE 006312534-01 P= 1.507747 Days  $T_0=132.949037$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

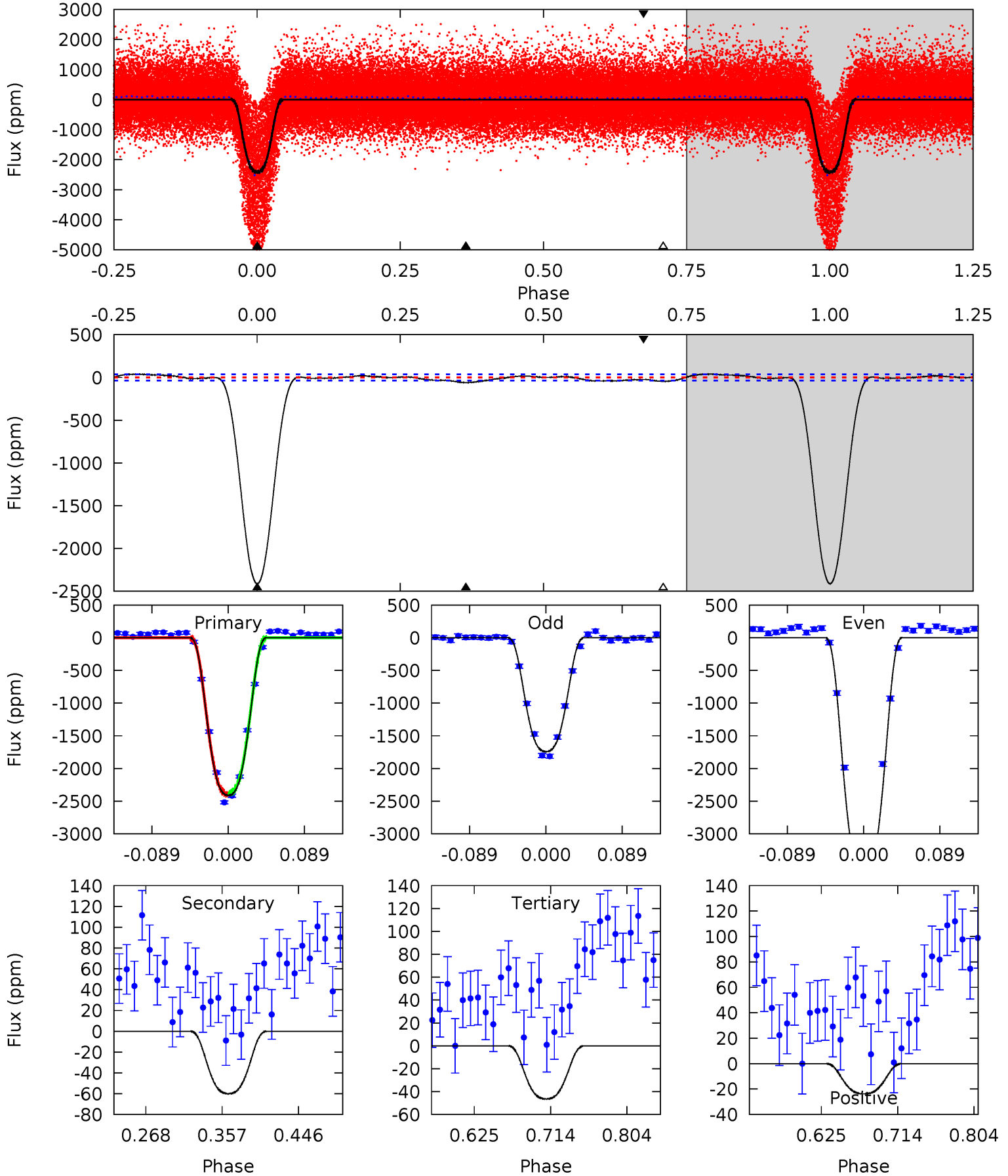
TCE 006312534-01 P= 1.507759 Days  $T_0=132.944057$  (BKJD)



# DV Model-Shift Uniqueness Test

006312534-01, P = 1.507747 Days, E = 131.441290 Days

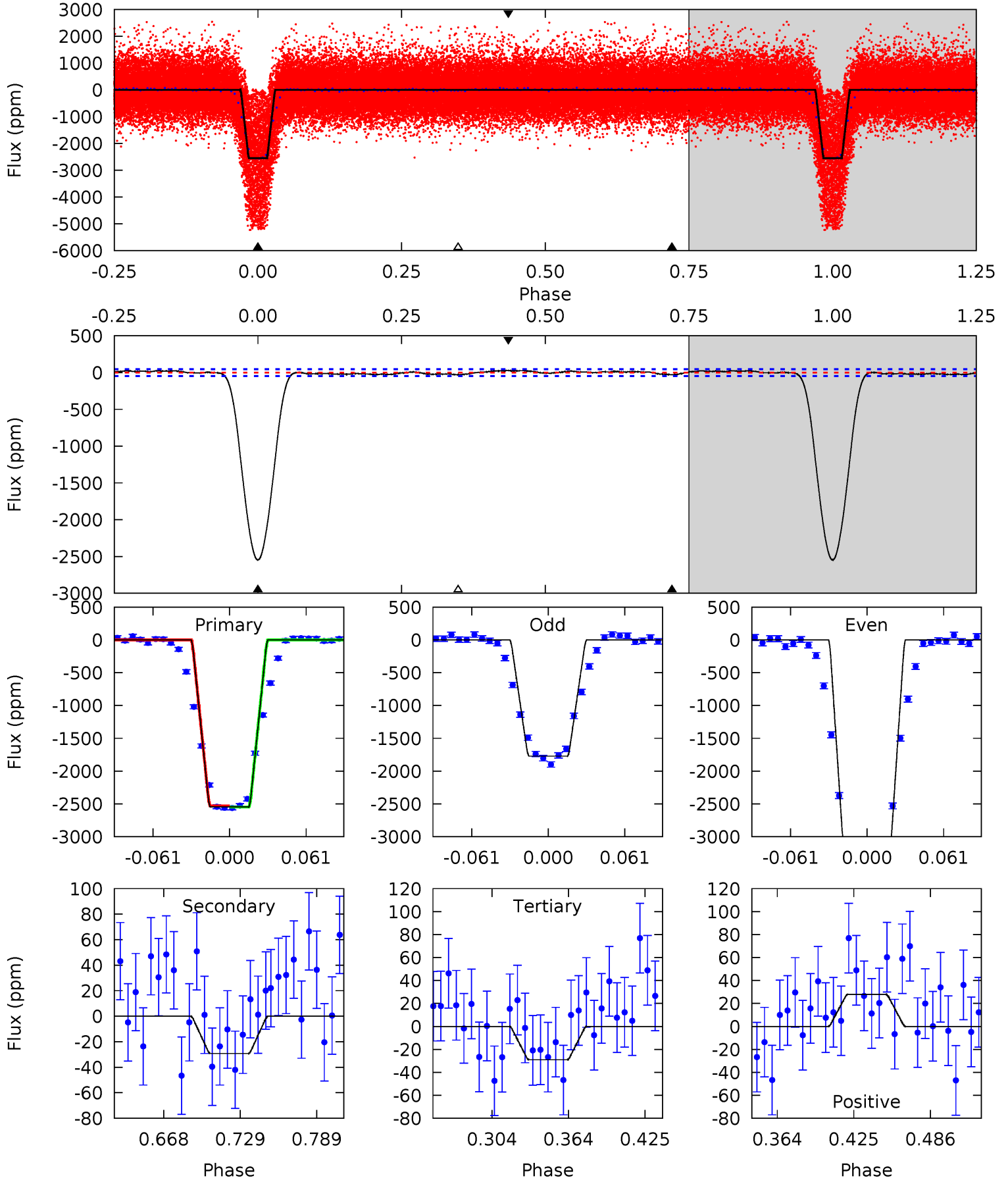
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
301.4	7.50	5.80	-2.97	4.59	1.70	2.86	295.6	304.4	1.70	10.5	118.2	1.17	0.02	1.20



# Alt Model-Shift Uniqueness Test

006312534-01, P = 1.507759 Days, E = 131.436298 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
253.2	2.90	2.89	2.77	4.67	1.88	1.60	250.4	250.5	0.02	0.14	108.3	1.16	0.01	0.91



### Stellar Parameters For KIC 006312534

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5069^{+166}_{-151}$	$4.530^{+0.058}_{-0.065}$	$0.140^{+0.250}_{-0.300}$	$0.818^{+0.079}_{-0.071}$	$0.826^{+0.064}_{-0.071}$	$2.124^{+0.545}_{-0.433}$
	+3%/-3%	+1%/-1%	+179%/-214%	+10%/-9%	+8%/-9%	+26%/-20%
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 006312534-01 / KOI 1689.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-60 \pm 8$	$5.24^{+0.30}_{-0.29}$	$1822^{+76}_{-67}$	$2459^{+82}_{-99}$	$0.709^{+0.126}_{-0.113}$
Alt.	$-29 \pm 10$	$5.01^{+0.30}_{-0.26}$	$1824^{+72}_{-75}$	$2019^{+246}_{-4014}$	$0.369^{+0.127}_{-0.127}$

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

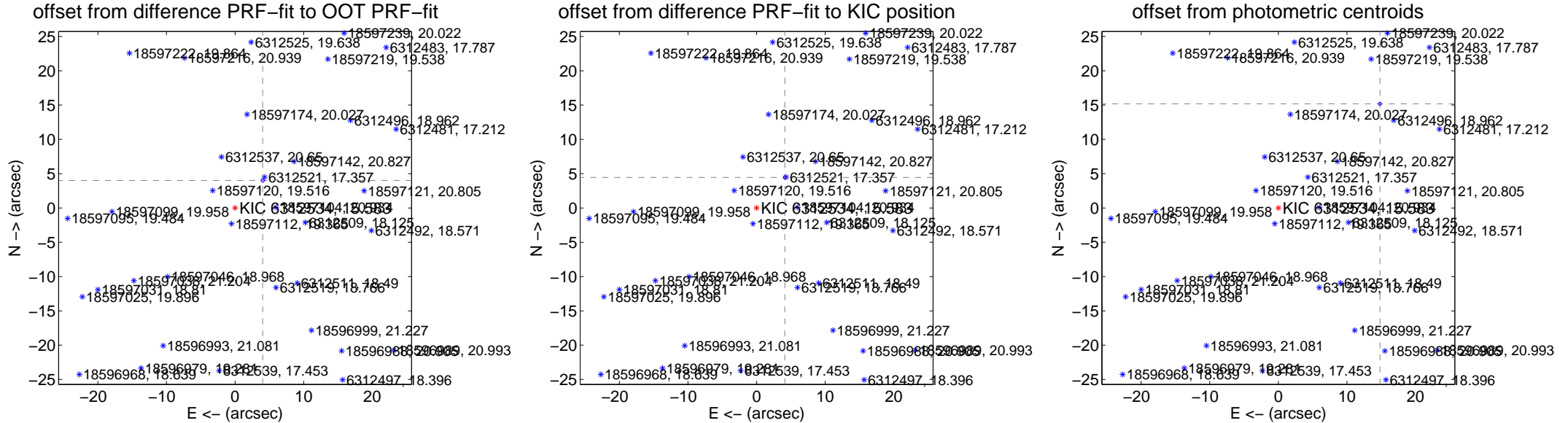
## DV Centroid Data

Supplemental centroid analysis for 006312534-01. Kepler magnitude: 15.58. Transit SNR 148.63

There are 9 quarters with good PRF difference image offsets

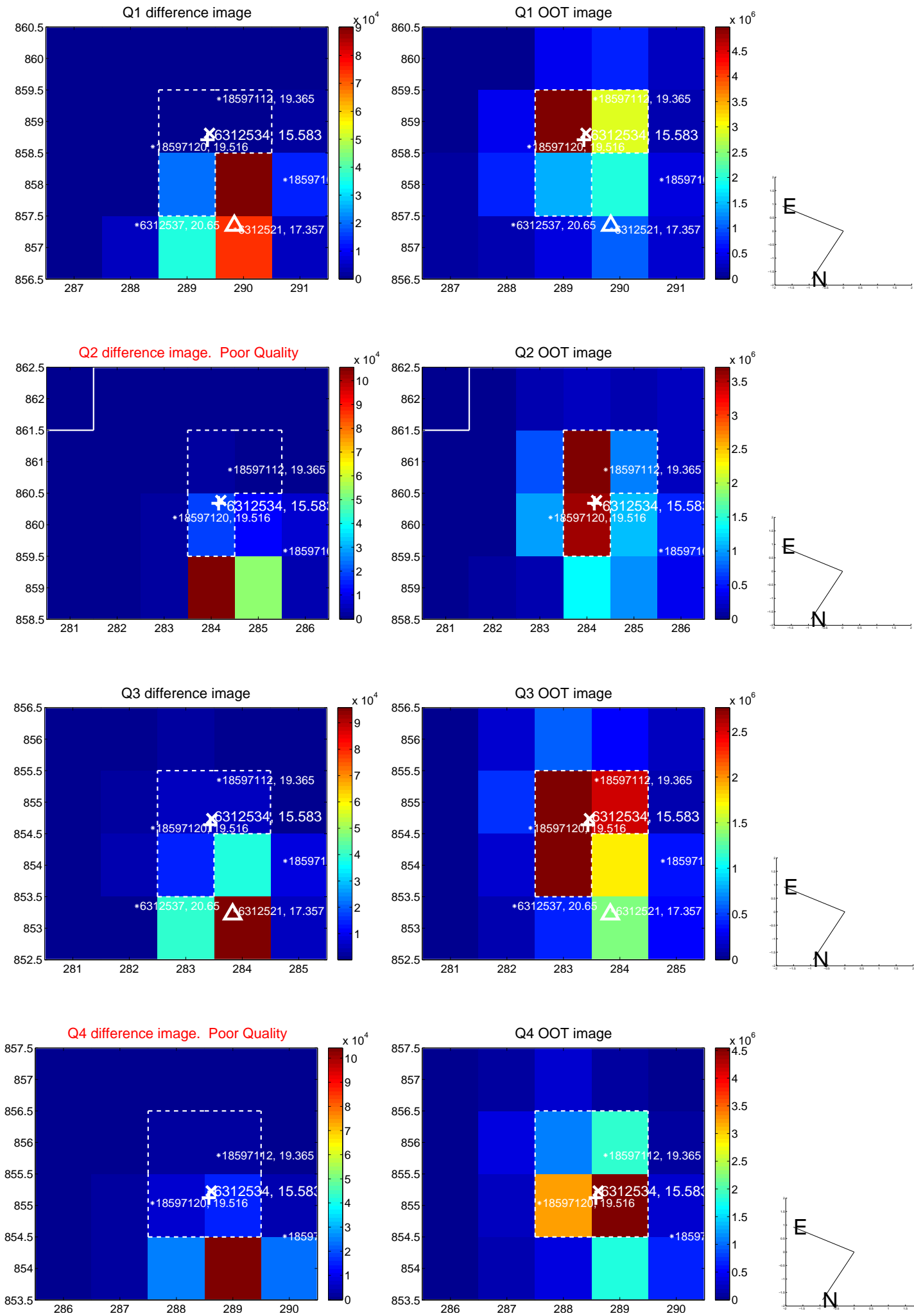
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>5.687 <math>\pm</math> 0.083</b>	<b>68.77</b>	$-4.028 \pm 0.078$	$4.014 \pm 0.087$
PRF-fit source offset from KIC position	<b>6.068 <math>\pm</math> 0.074</b>	<b>82.31</b>	$-4.121 \pm 0.072$	$4.454 \pm 0.075$
photometric centroid source offset	<b>21.22 <math>\pm</math> 0.07</b>	<b>291.44</b>	$-14.82 \pm 0.08$	$15.19 \pm 0.07$

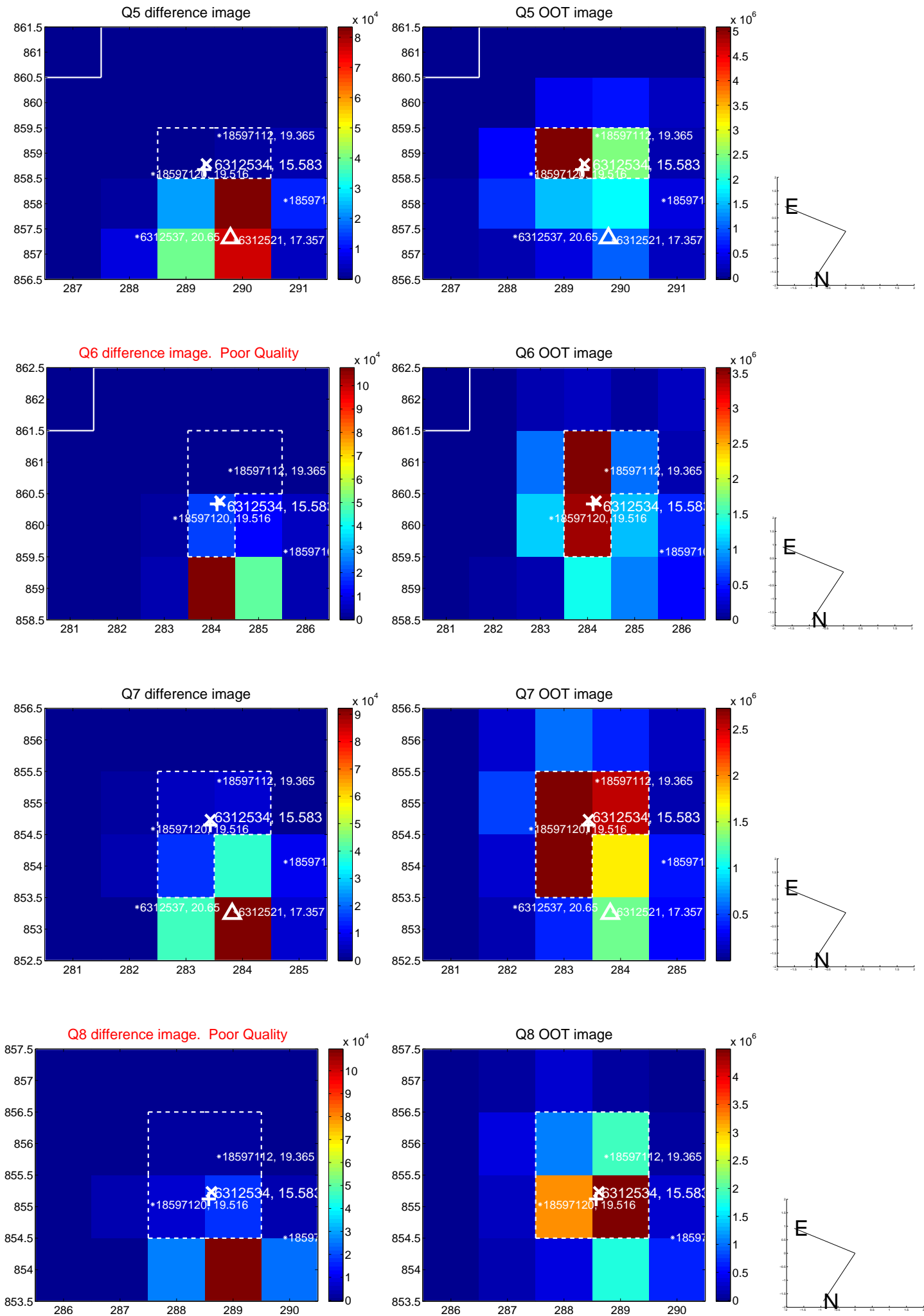


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

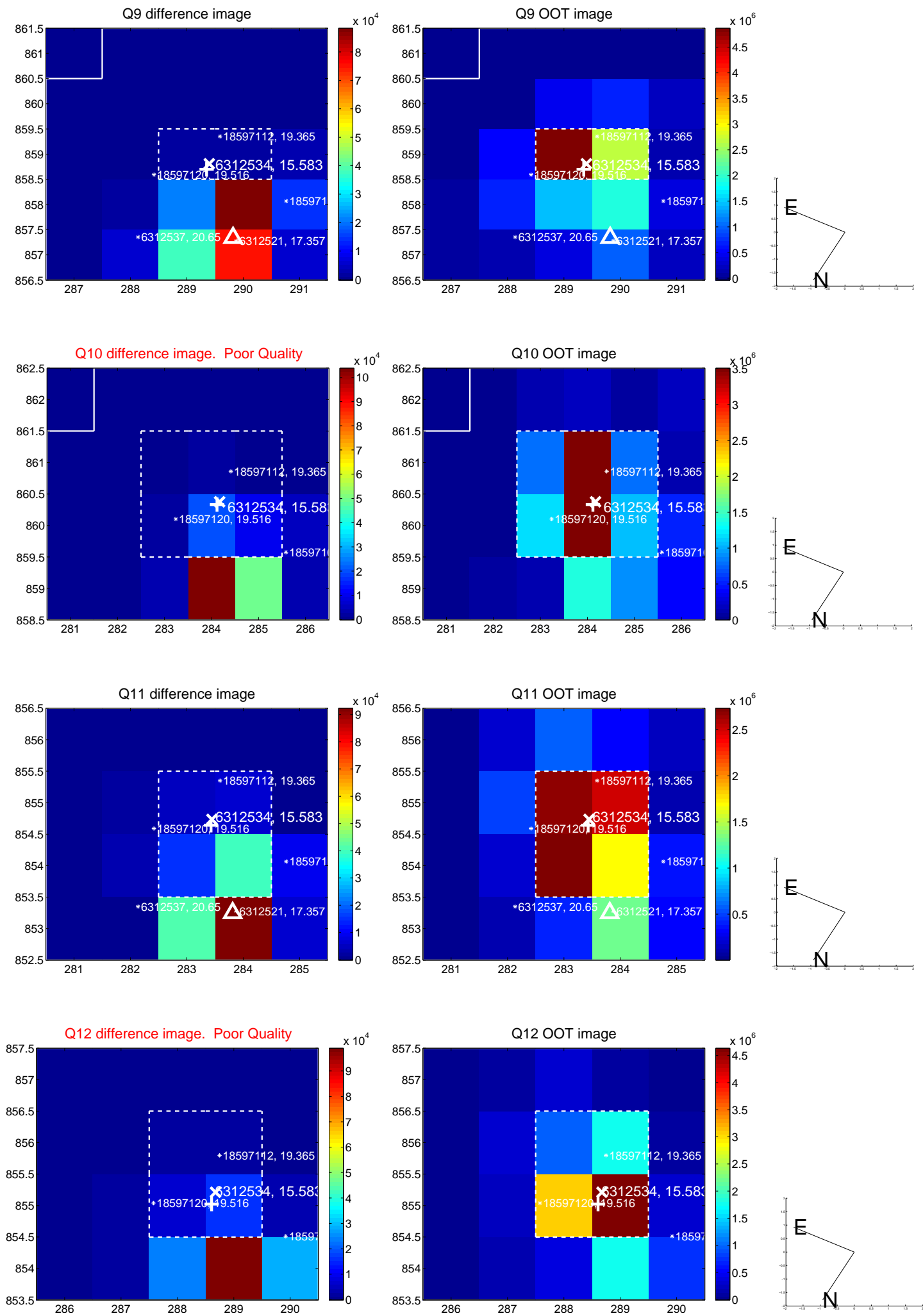
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



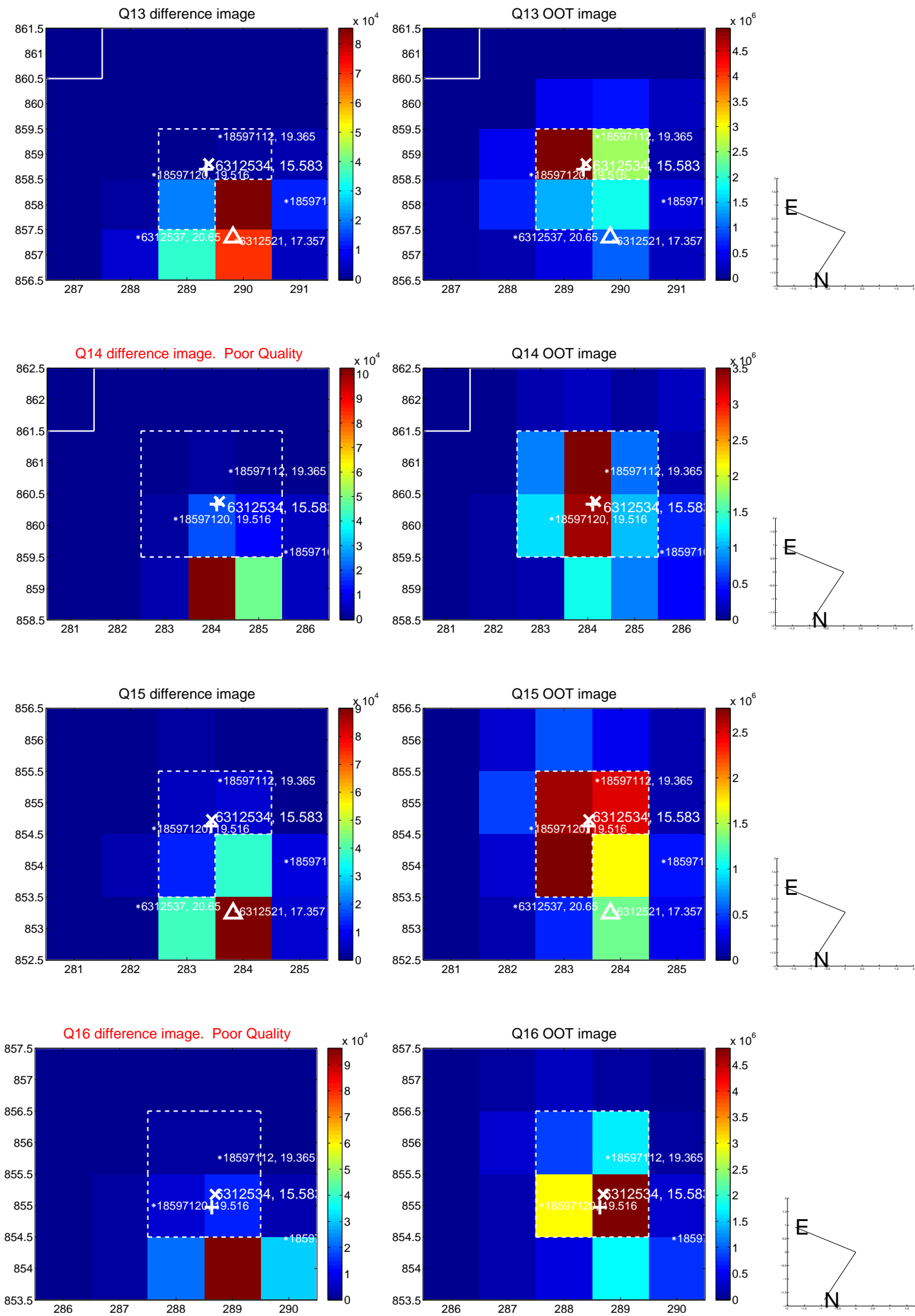
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



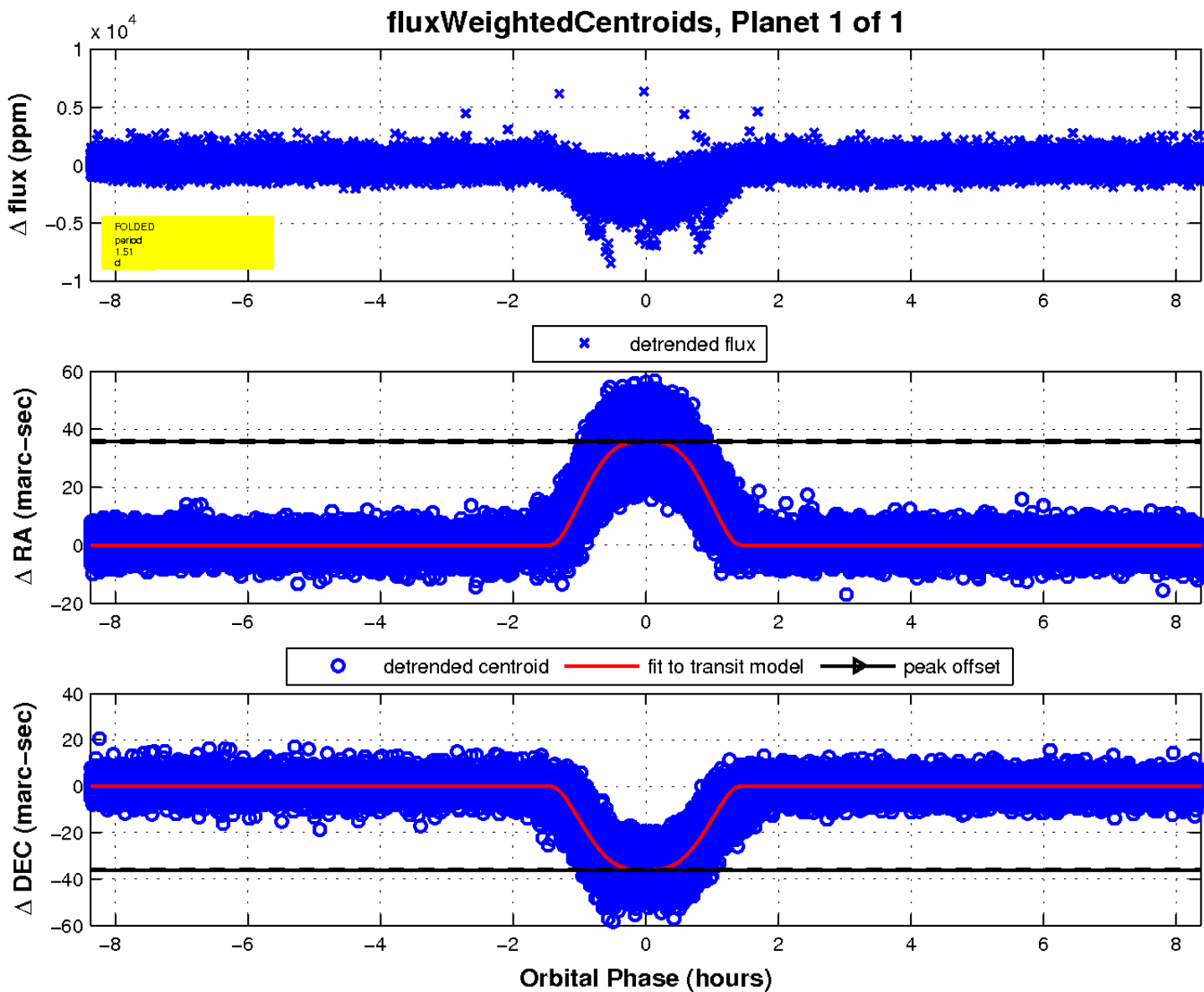
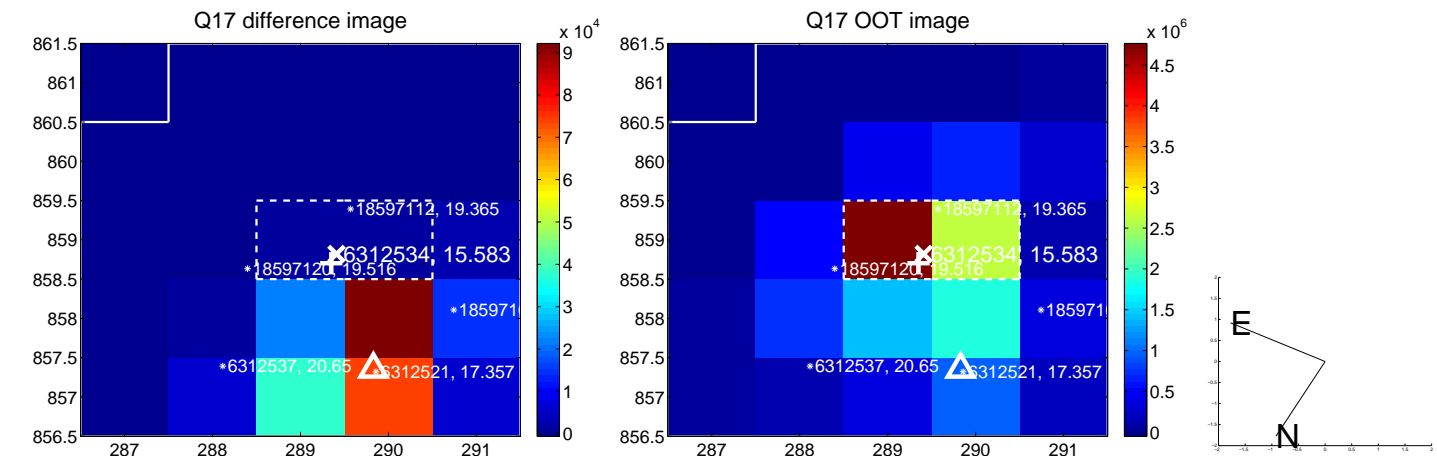
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

