

# KIC 010031526

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010031526-01	OBS	7277.01	8.589359	132.043611	192.0	8.756	9.0	8.7	0.82	5602	1.88	93.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010031526-01	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 010031526-01

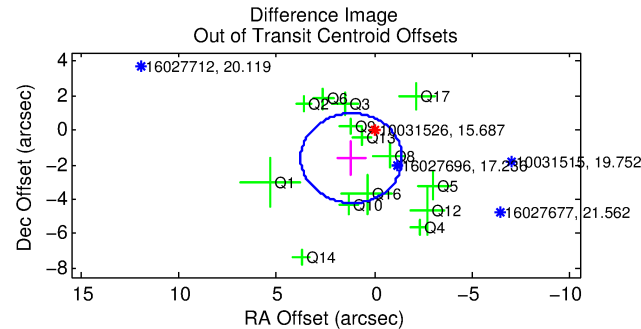
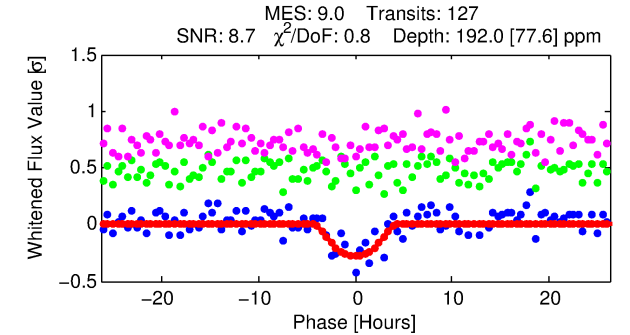
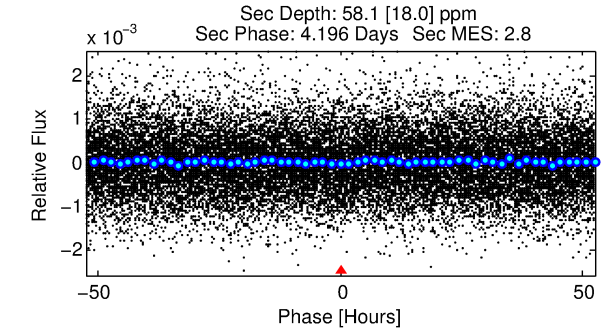
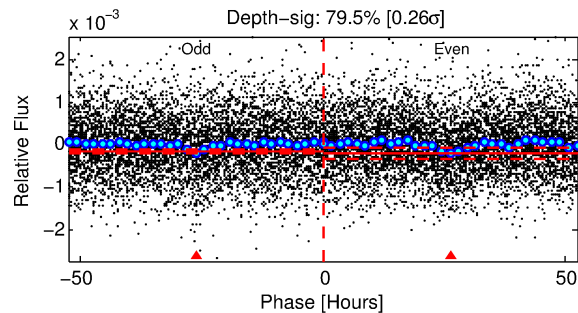
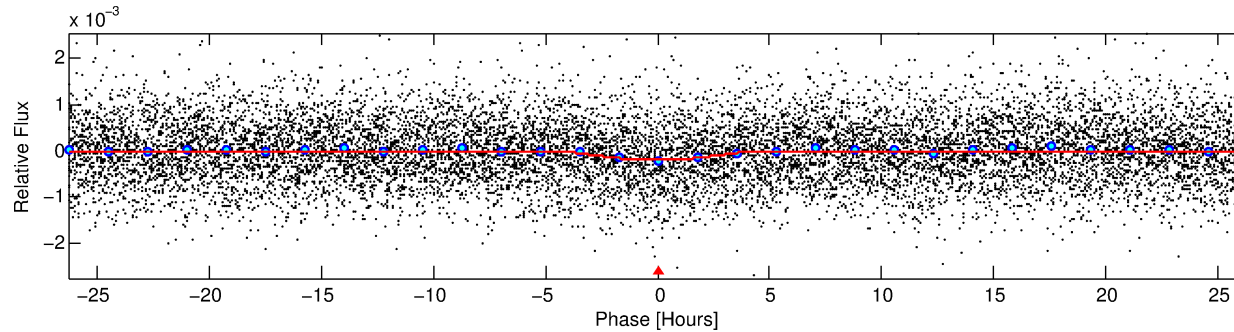
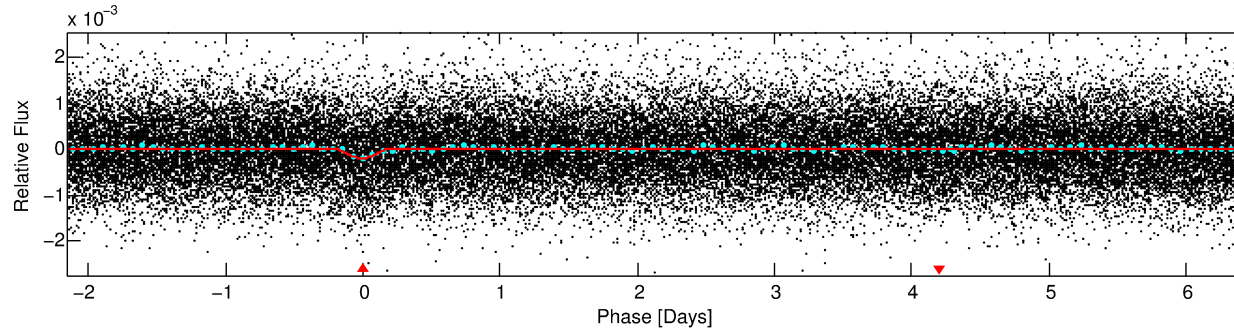
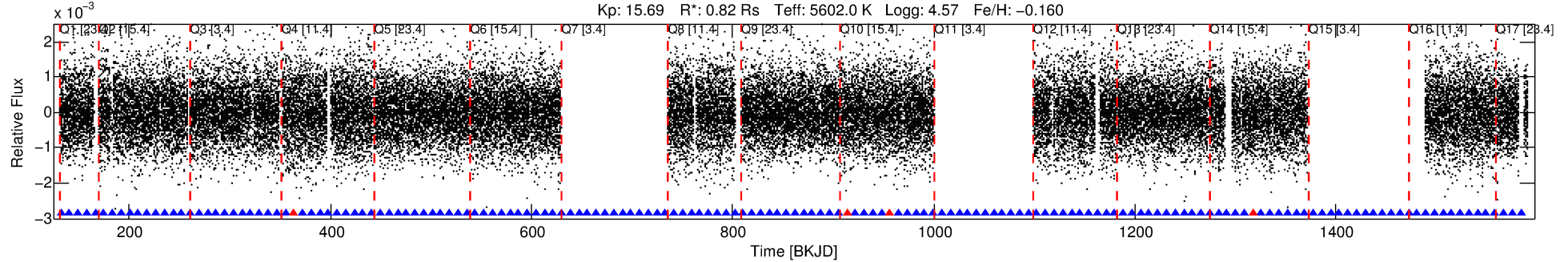
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010031526-01	10031526	010031808-01	10031808	1:1	188.8	41	25	9.56	15.69	1407.00	Direct-PRF	0	0.95	1.30

**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: 10031526 Candidate: 1 of 1 Period: 8.589 d  
KOI: K07277.01 Corr: 0.858

Kp: 15.69 R\*: 0.82 Rs Teff: 5602.0 K Logg: 4.57 Fe/H: -0.160



## DV Fit Results:

Period = 8.58936 [0.00025] d  
Epoch = 132.0436 [0.0228] BKJD  
Rp/R\* = 0.0211 [0.0349]  
a/R\* = 2.09 [1.04]  
b = 0.99 [0.07]  
Seff = 93.28 [27.23]  
Teq = 792 [58] K  
Rp = 1.88 [3.14] Re  
a = 0.0795 [0.0147] AU  
Ag = 57.10 [190.68] [0.29σ]  
Teffp = 3368 [2805] K [0.92σ]

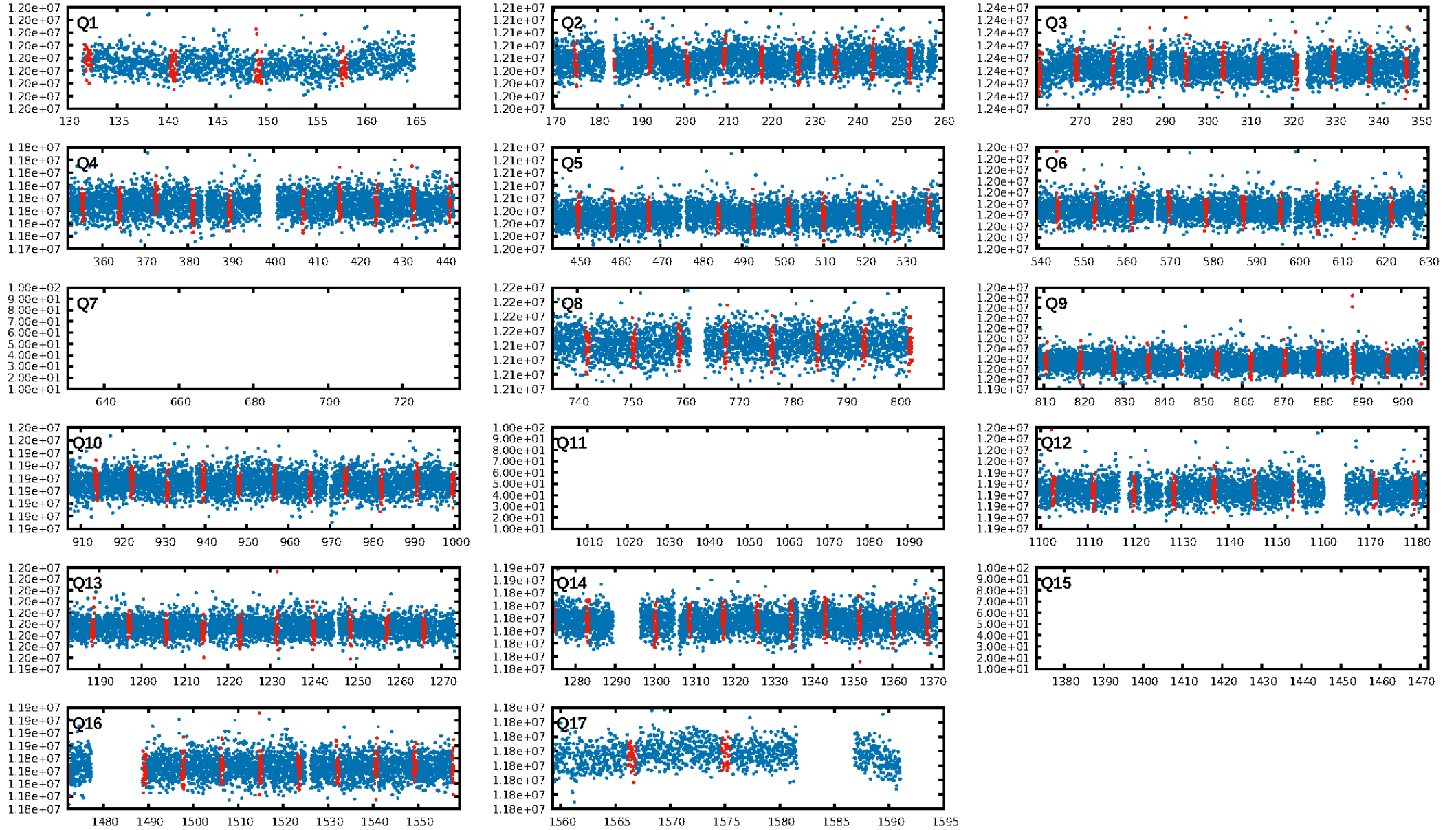
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.14e-19  
RollingBand-fgt: 0.97 [117/121]  
GhostDiagnostic-chr: 0.0398  
Centroid-sig: 0.0%  
Centroid-so: 6.635 arcsec [3.30σ]  
OotOffset-rm: 2.004 arcsec [2.32σ]  
KicOffset-rm: 2.148 arcsec [2.45σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 1.00 [14/14]

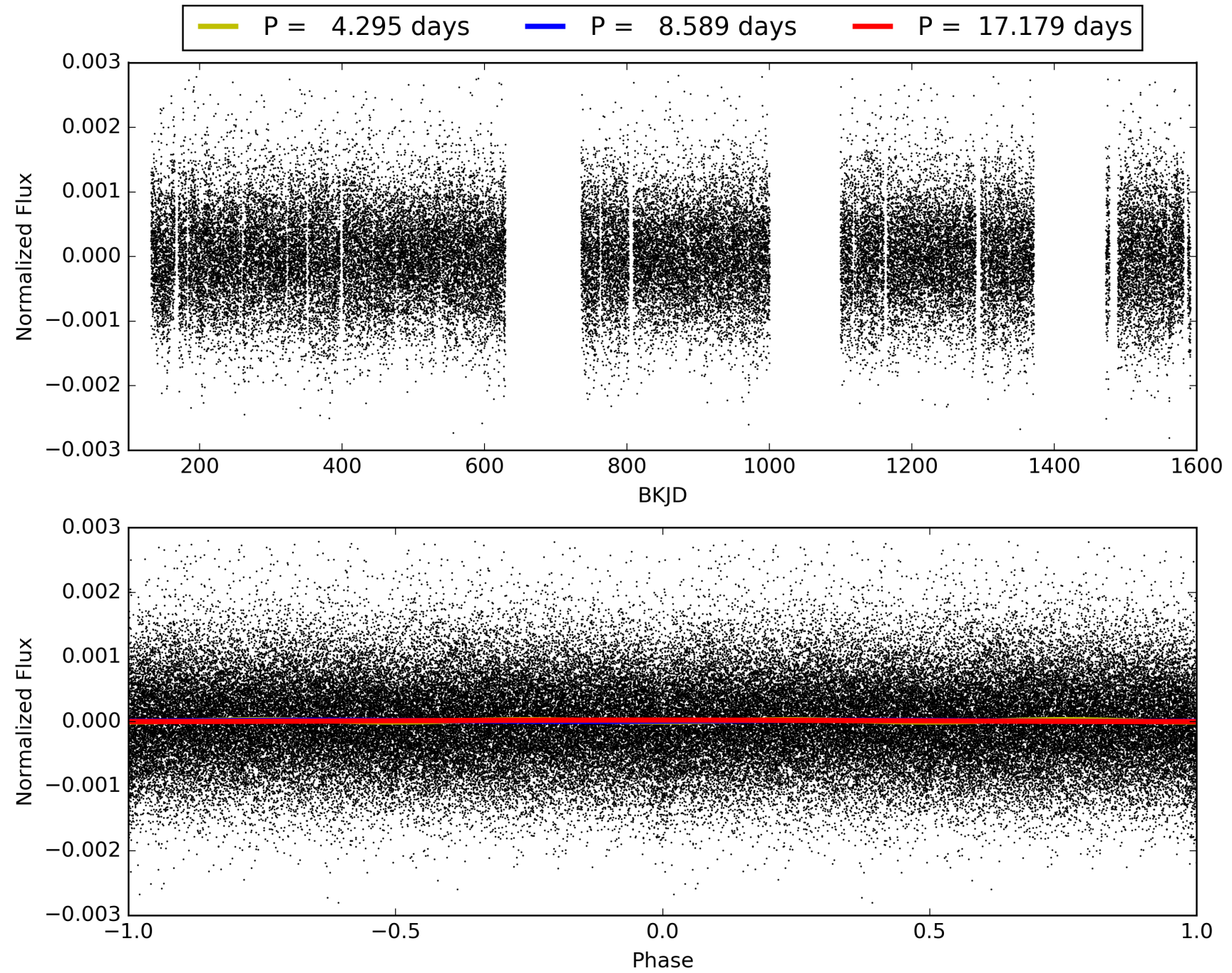
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:26:04 Z

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

# TCE 010031526-01, PDC Light Curves



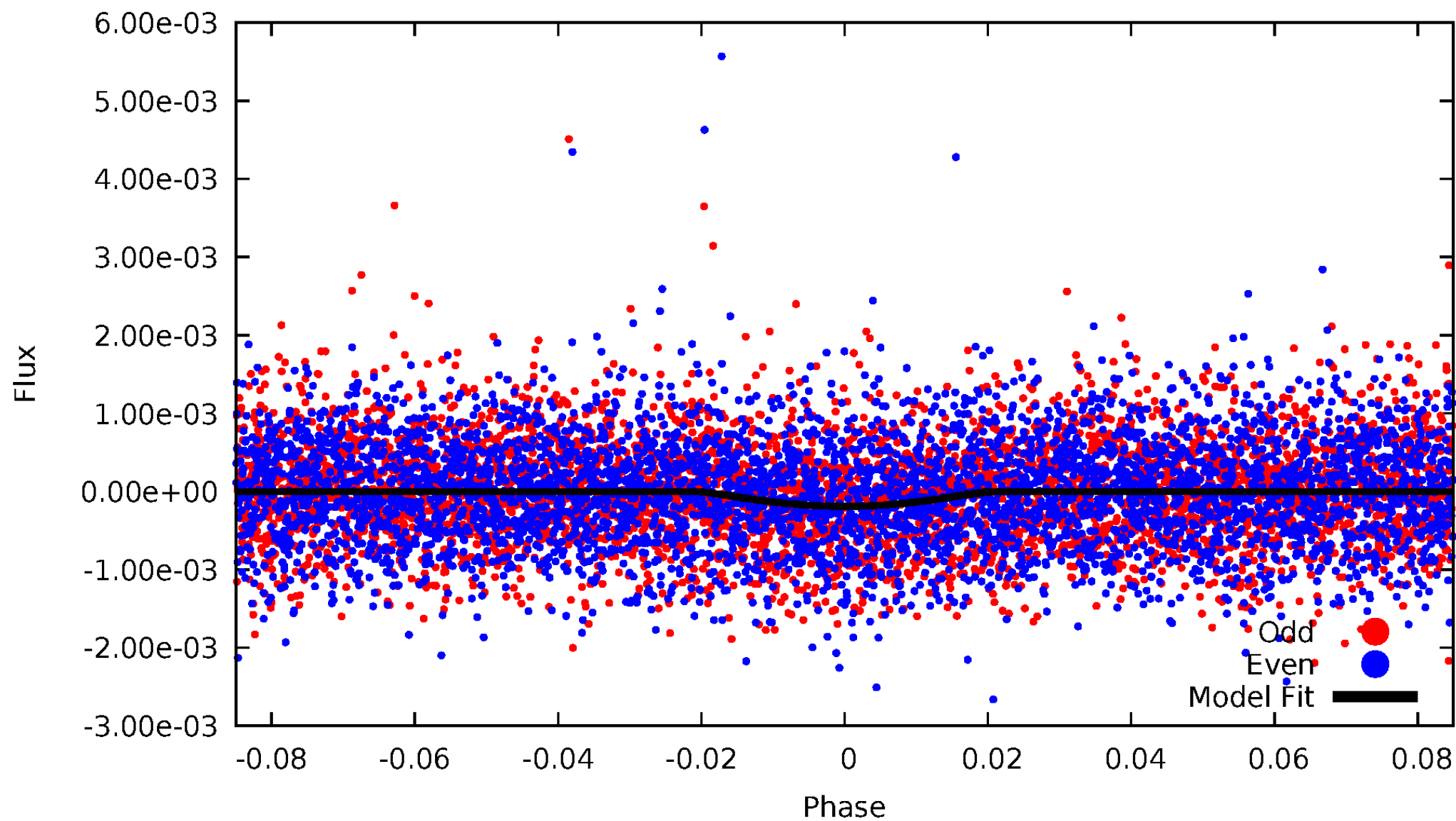
TCE 010031526-01





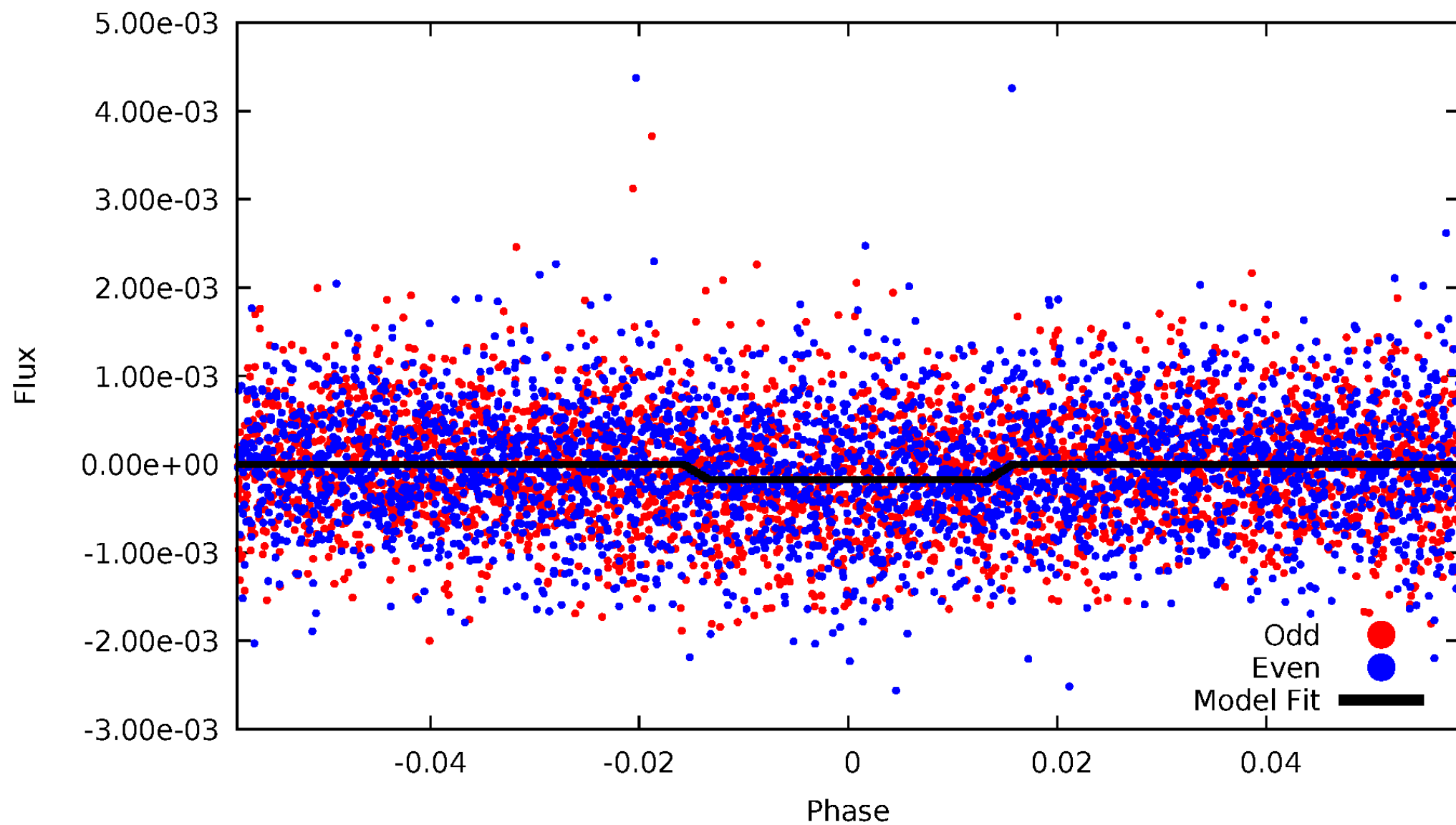
# DV Odd/Even

TCE 010031526-01

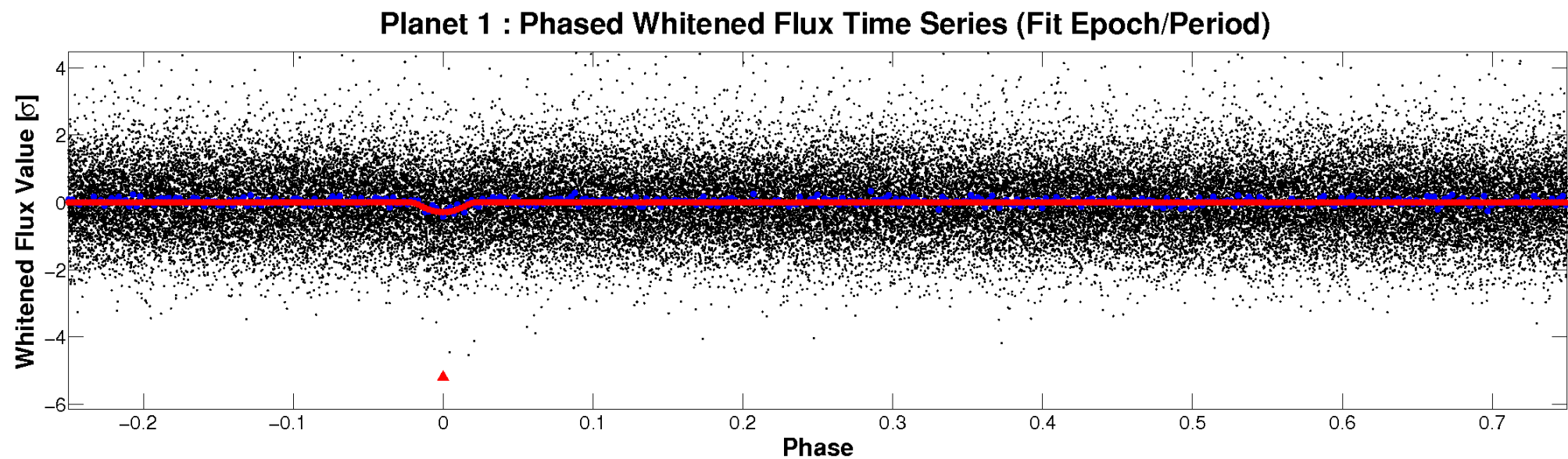
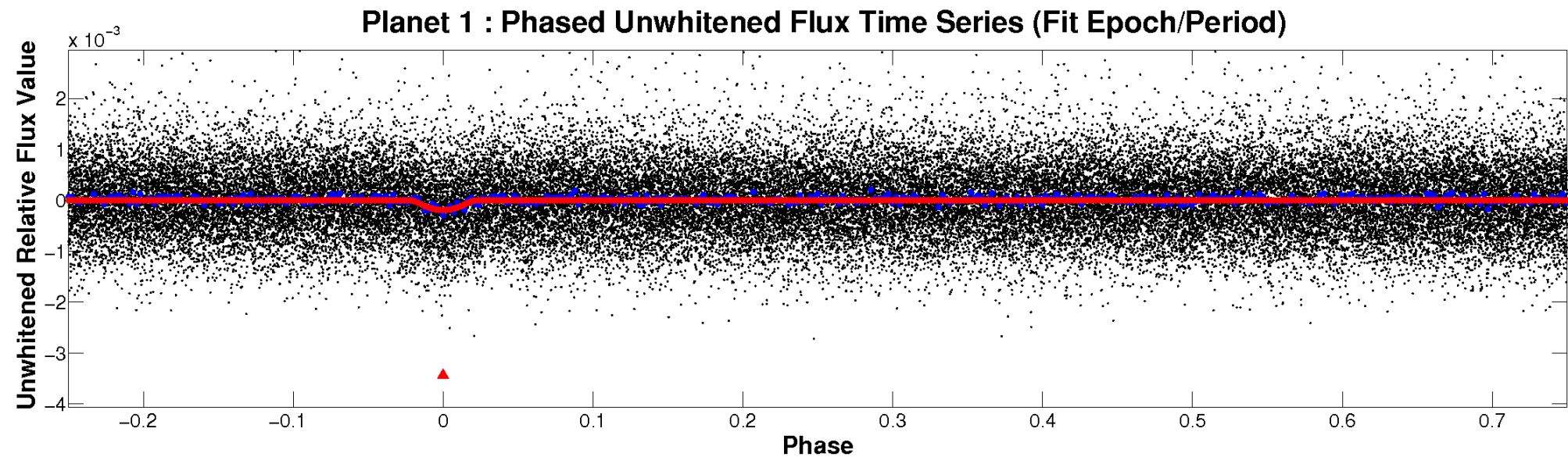


# ALT Odd/Even

TCE 010031526-01

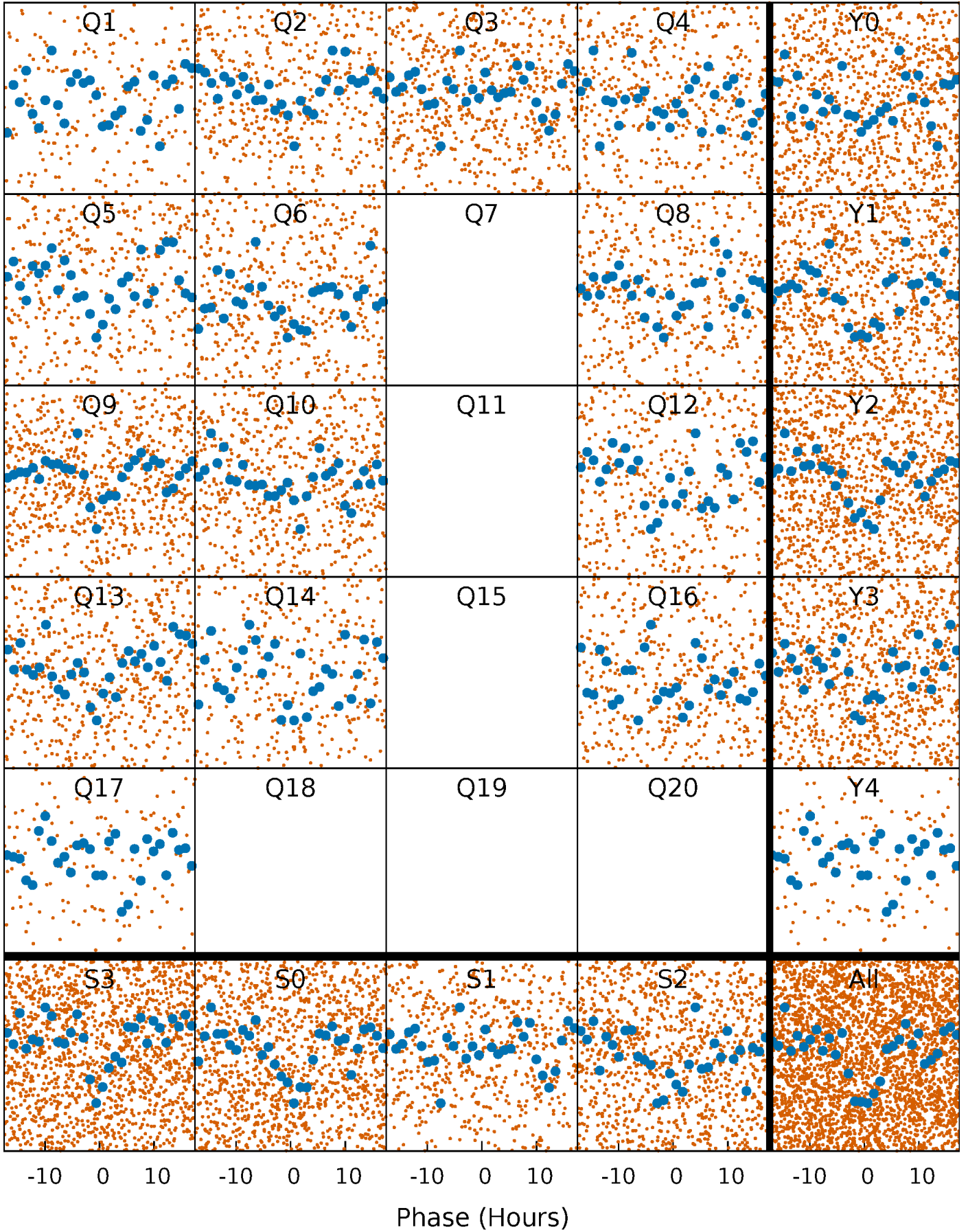


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

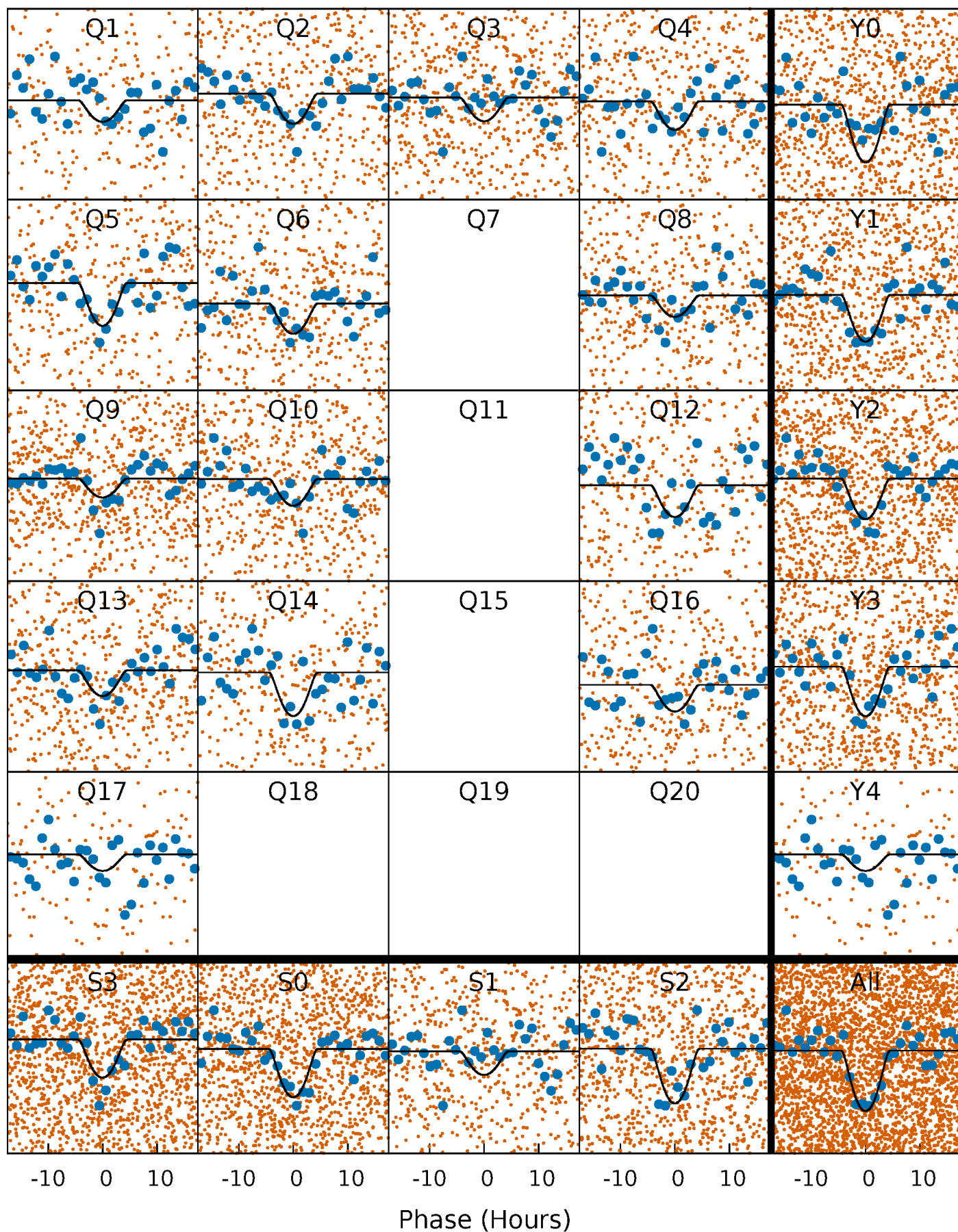
TCE 010031526-01 P= 8.589359 Days  $T_0=132.043611$  (BKJD)





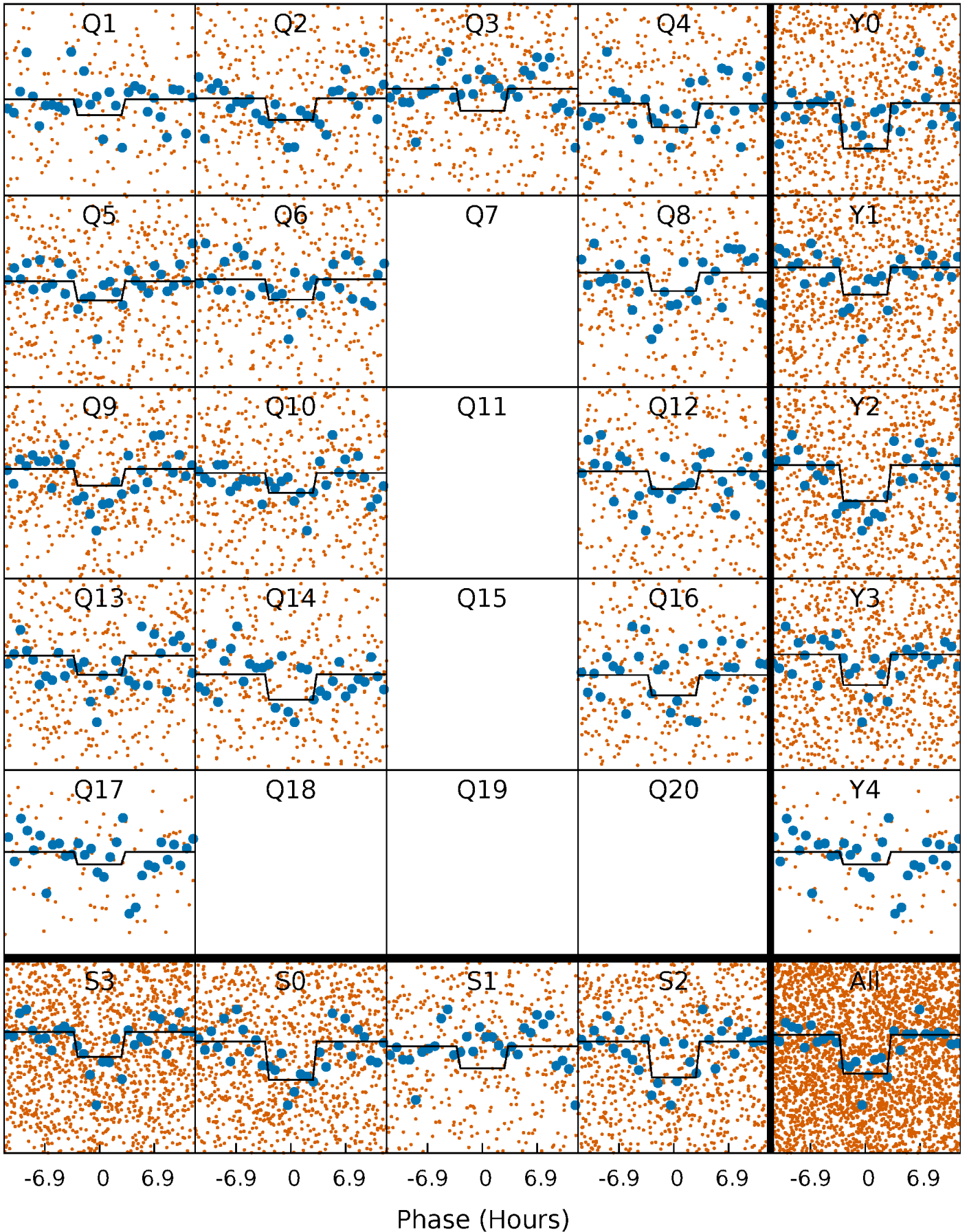
# DV Quarter-Phased Transit Curves

TCE 010031526-01 P= 8.589359 Days  $T_0=132.043611$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

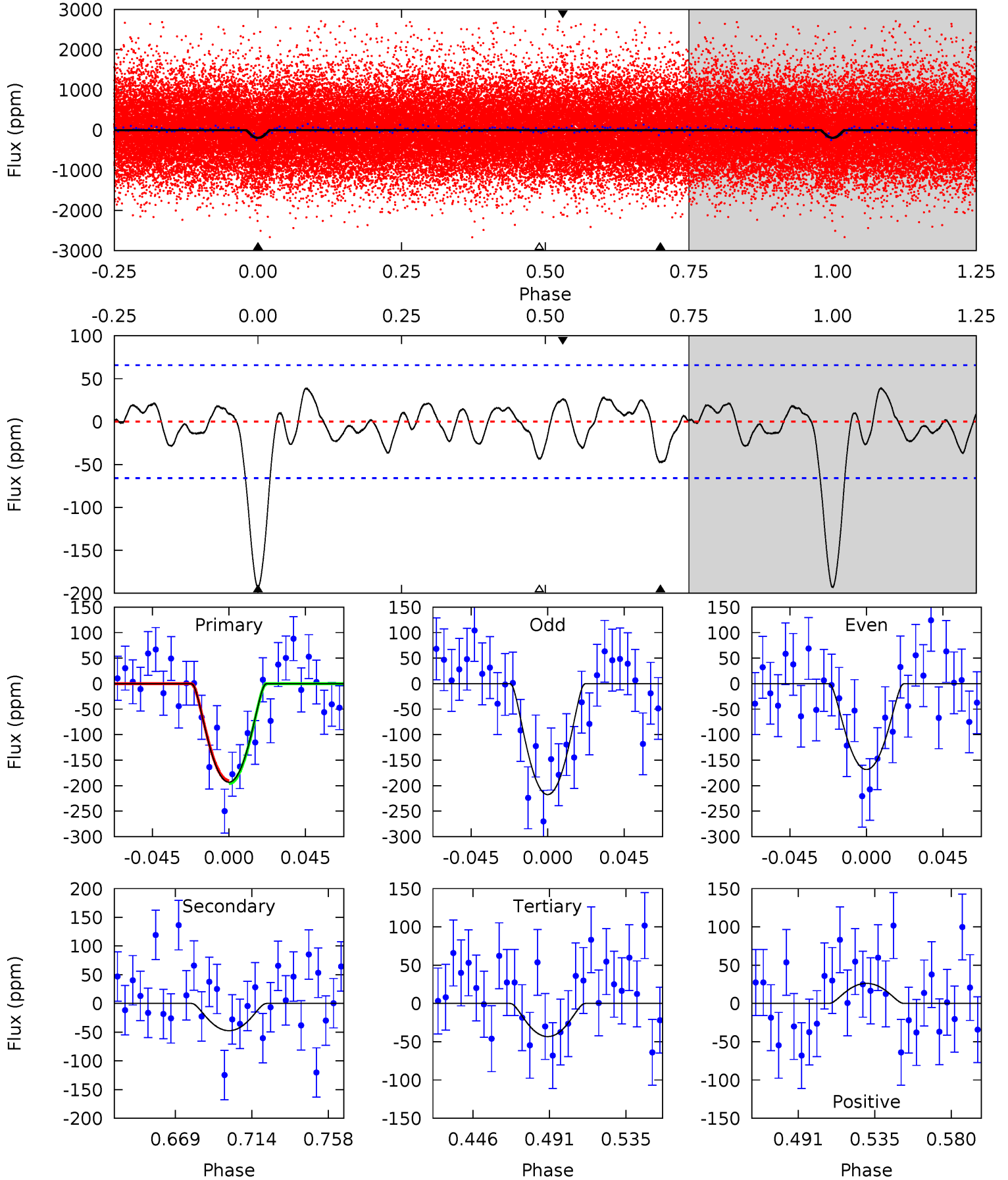
TCE 010031526-01 P= 8.589172 Days  $T_0=132.066667$  (BKJD)



# DV Model-Shift Uniqueness Test

010031526-01, P = 8.589359 Days, E = 123.454252 Days

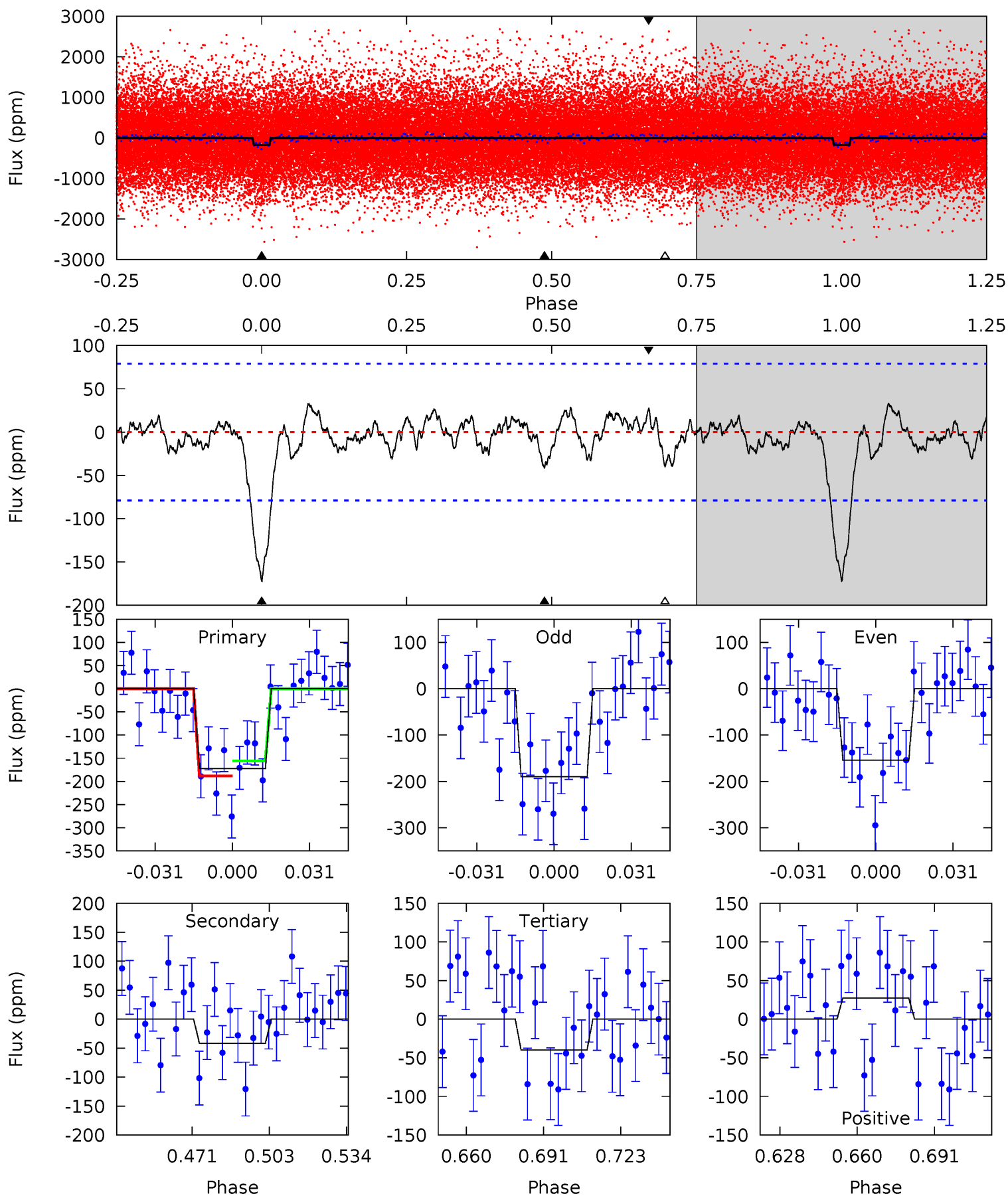
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	3.41	3.11	1.89	4.73	2.01	1.23	10.8	12.0	0.30	1.52	1.76	0.93	0.17	0.18



# Alt Model-Shift Uniqueness Test

010031526-01, P = 8.589172 Days, E = 123.477495 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
10.5	2.53	2.43	1.66	4.80	2.15	0.87	8.04	8.81	0.10	0.87	1.09	1.03	0.16	0.99





### Stellar Parameters For KIC 010031526

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5602^{+152}_{-169}$	$4.571^{+0.036}_{-0.144}$	$-0.160^{+0.300}_{-0.300}$	$0.817^{+0.181}_{-0.065}$	$0.913^{+0.085}_{-0.104}$	$2.362^{+0.448}_{-1.009}$
	+3%/-3%	+1%/-3%	+188%/-188%	+22%/-8%	+9%/-11%	+19%/-43%
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 010031526-01 / KOI 7277.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-47 \pm 14$	$3.22^{+2.70}_{-2.22}$	$1126^{+56}_{-45}$	$3092^{+1550}_{-499}$	$16^{+155}_{-11}$
Alt.	$-42 \pm 16$	$2.46^{+2.67}_{-1.65}$	$1123^{+59}_{-45}$	$3241^{+1663}_{-620}$	$21^{+187}_{-16}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

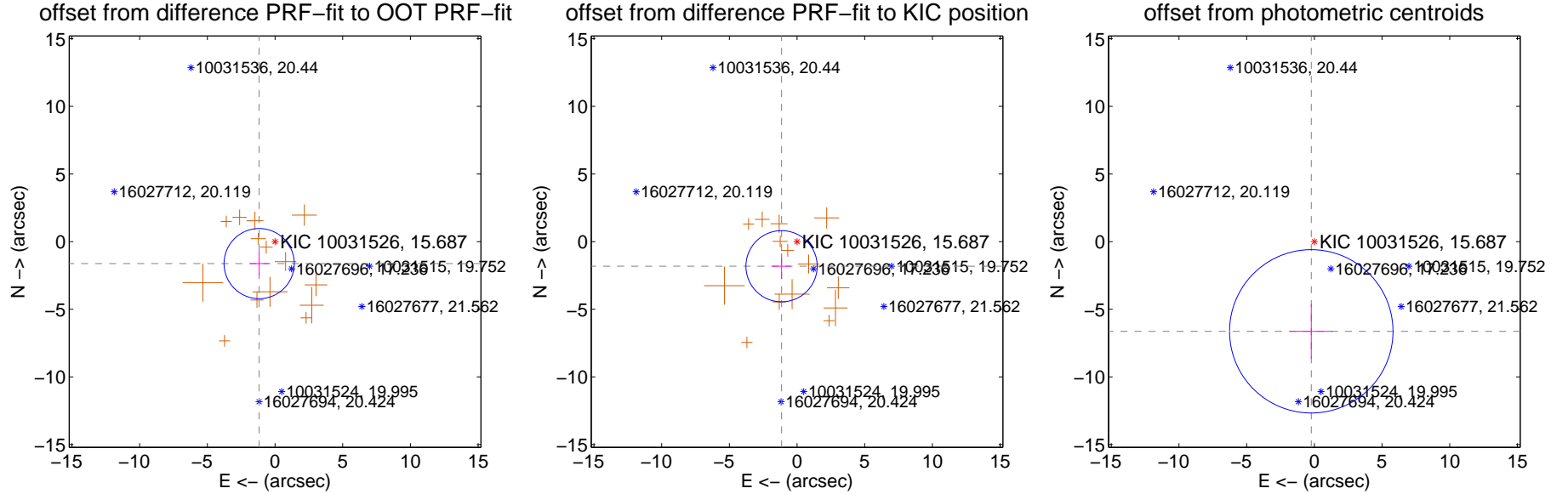
## DV Centroid Data

Supplemental centroid analysis for 010031526-01. Kepler magnitude: 15.69. Transit SNR 8.70

There are 0 quarters with good PRF difference image offsets

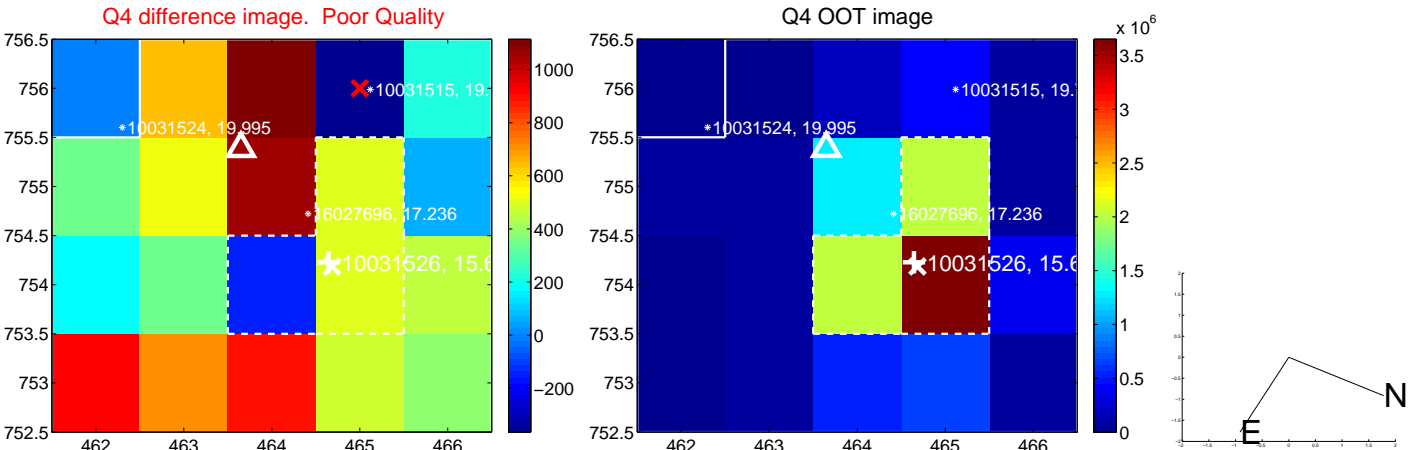
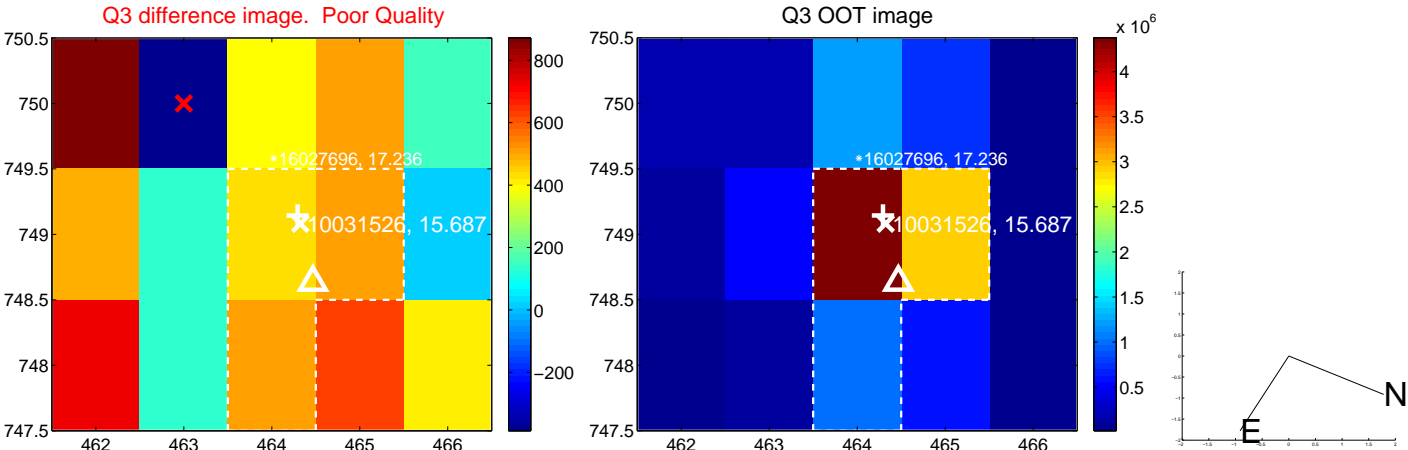
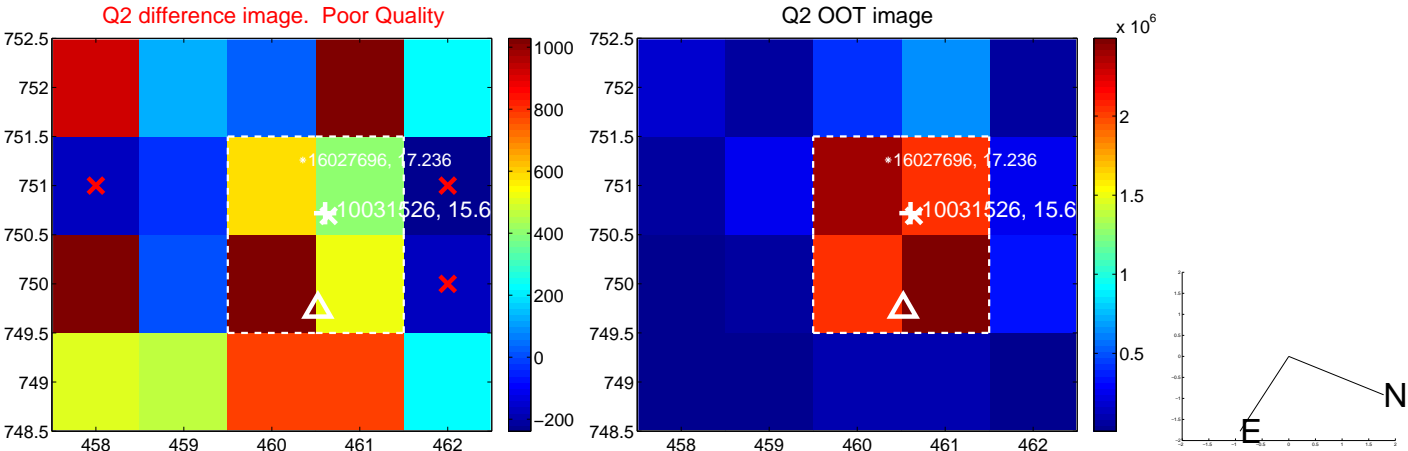
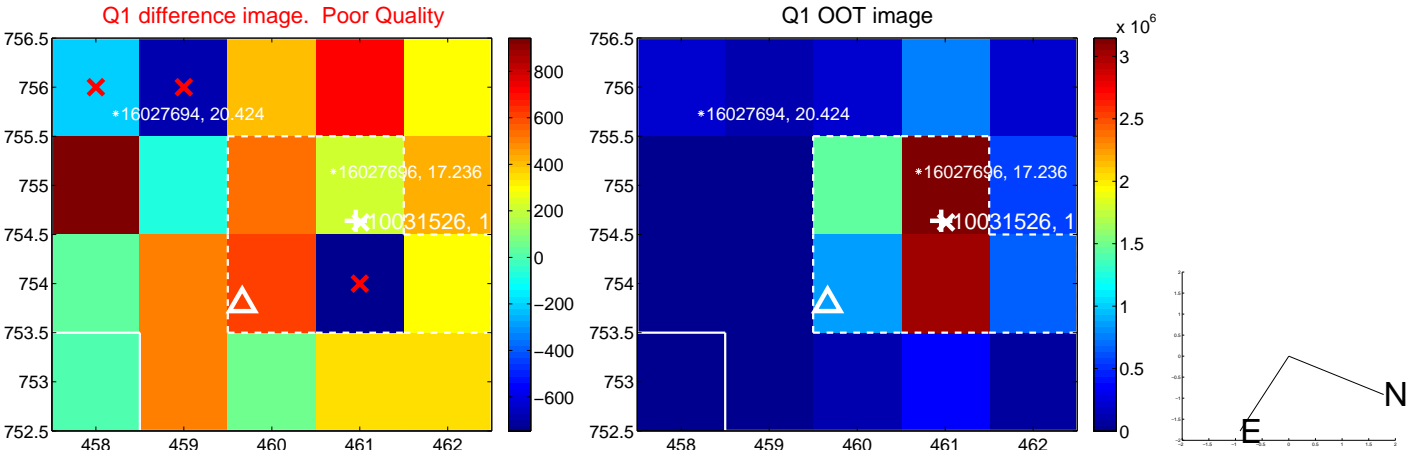
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.004 \pm 0.864$	2.32	$1.174 \pm 0.696$	$-1.624 \pm 0.940$
PRF-fit source offset from KIC position	$2.148 \pm 0.877$	2.45	$1.143 \pm 0.699$	$-1.819 \pm 0.938$
photometric centroid source offset	$6.63 \pm 2.01$	3.30	$0.23 \pm 1.58$	$-6.63 \pm 2.01$

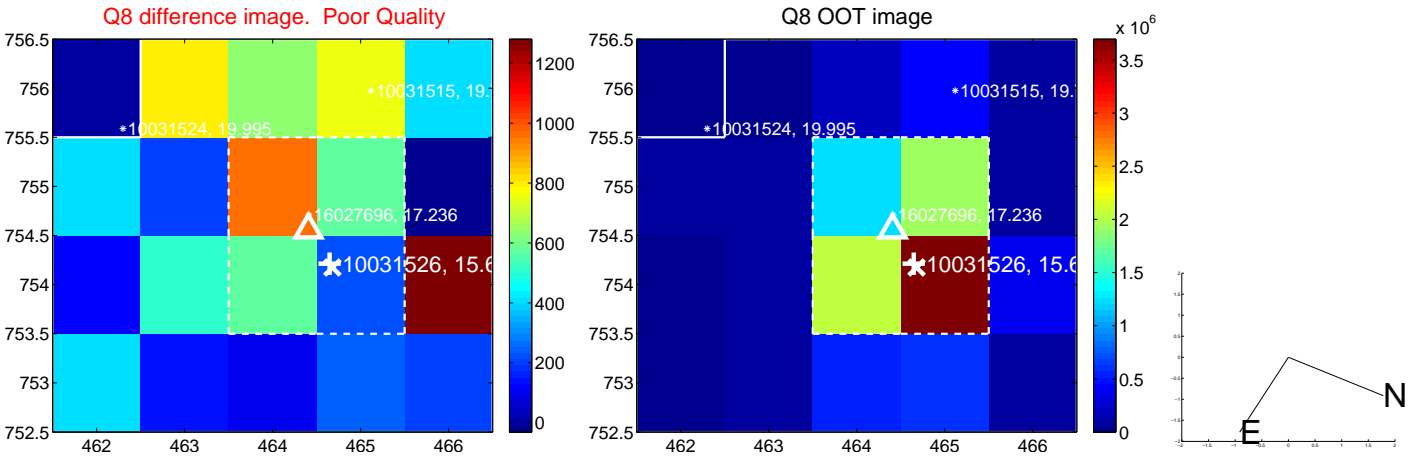
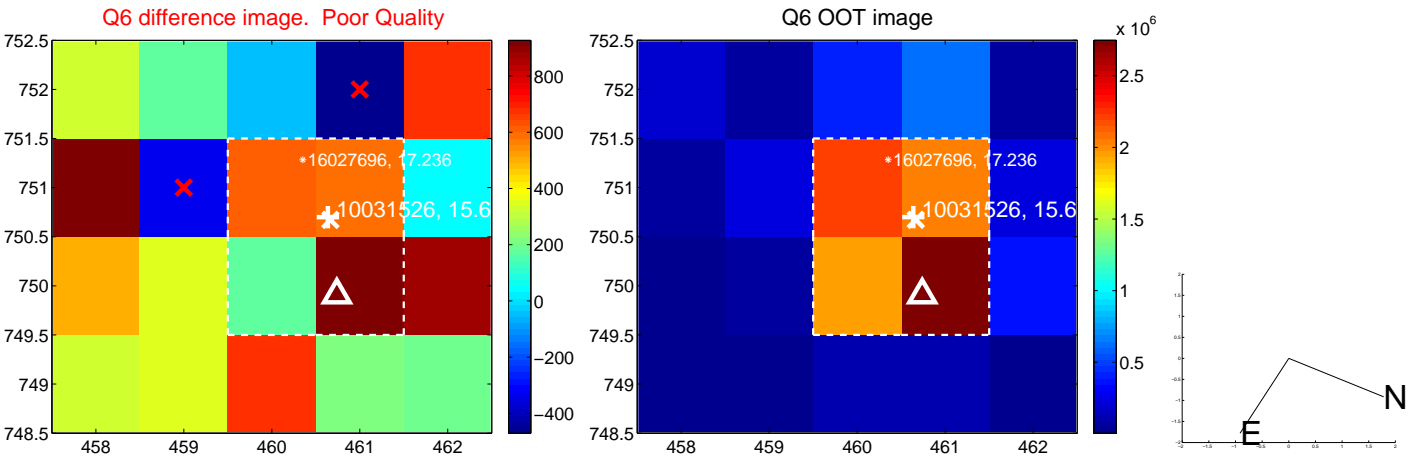
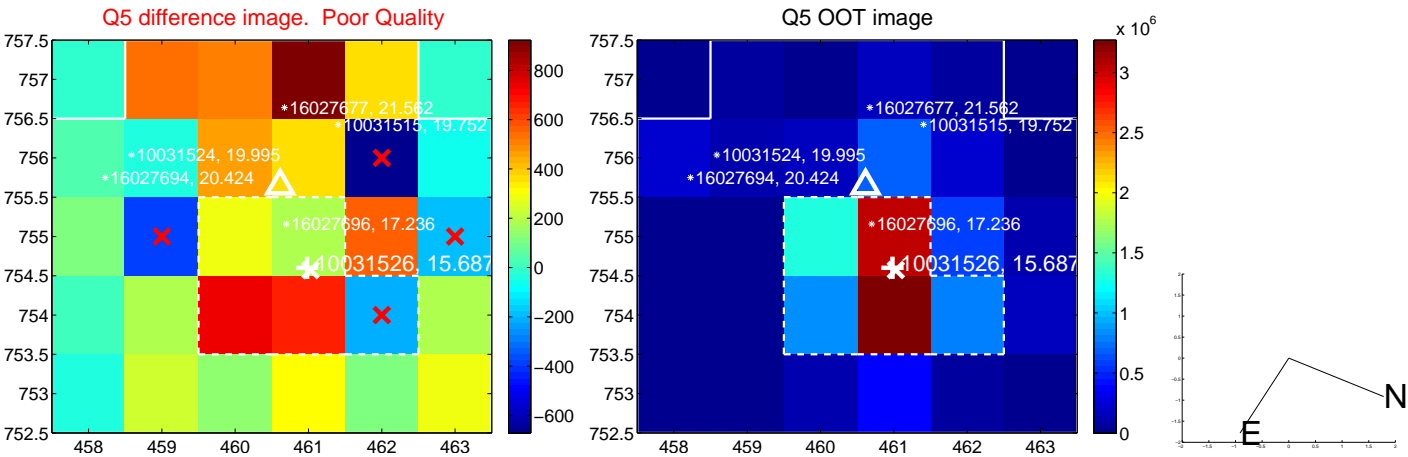


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

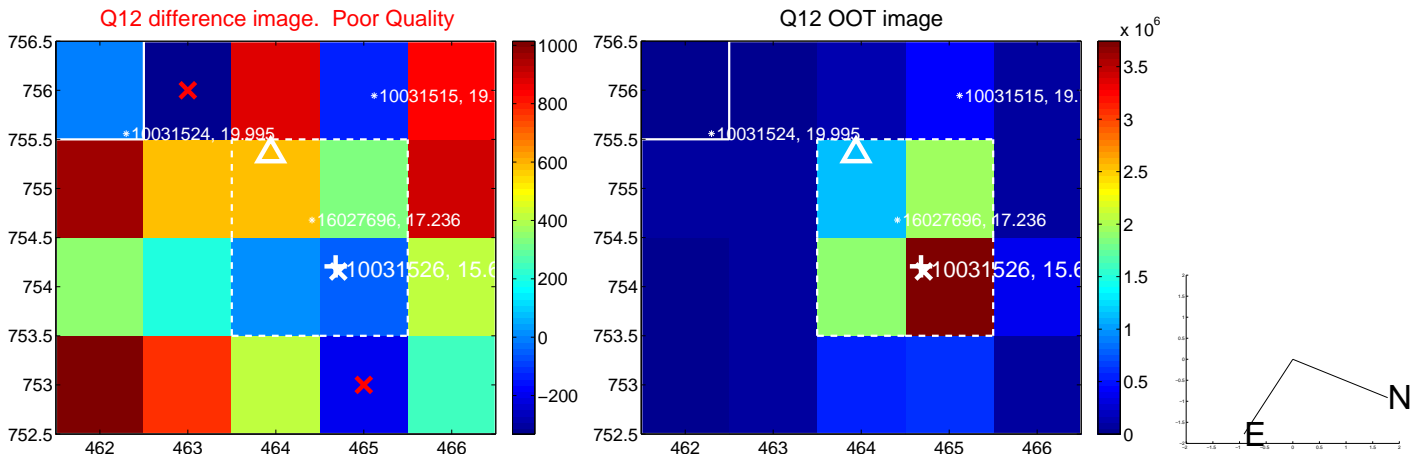
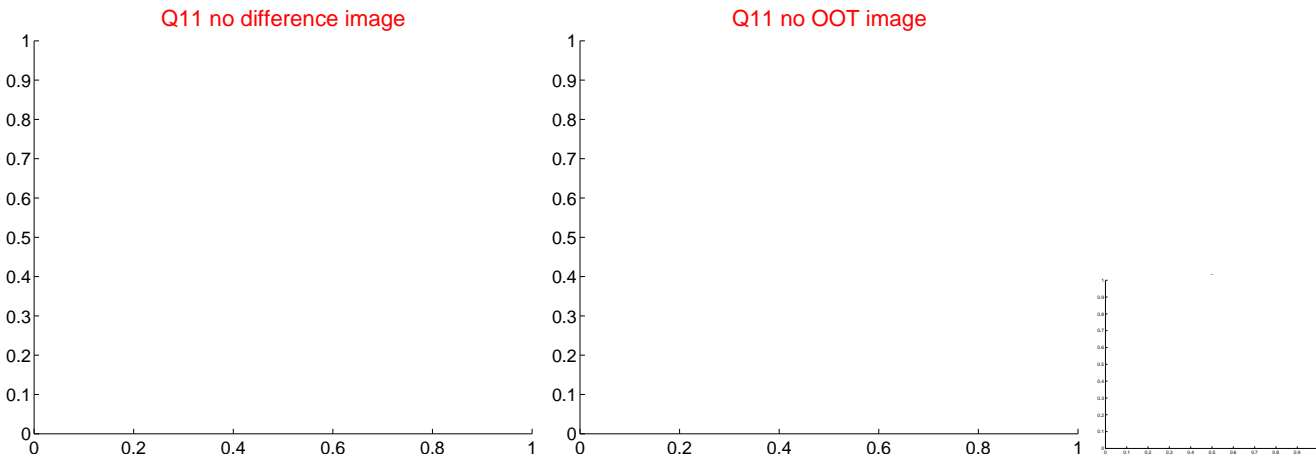
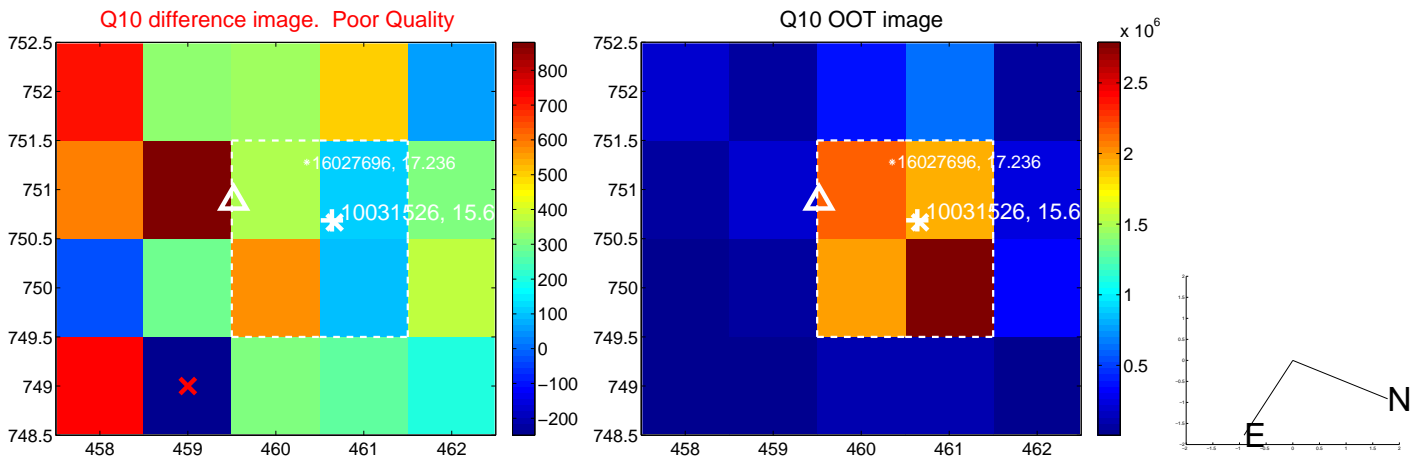
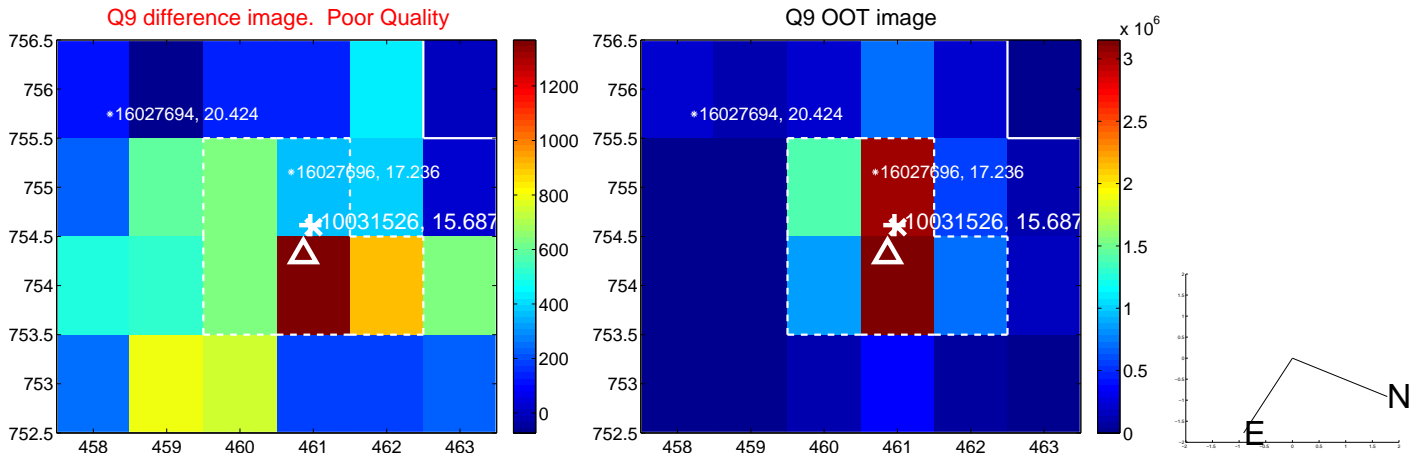


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

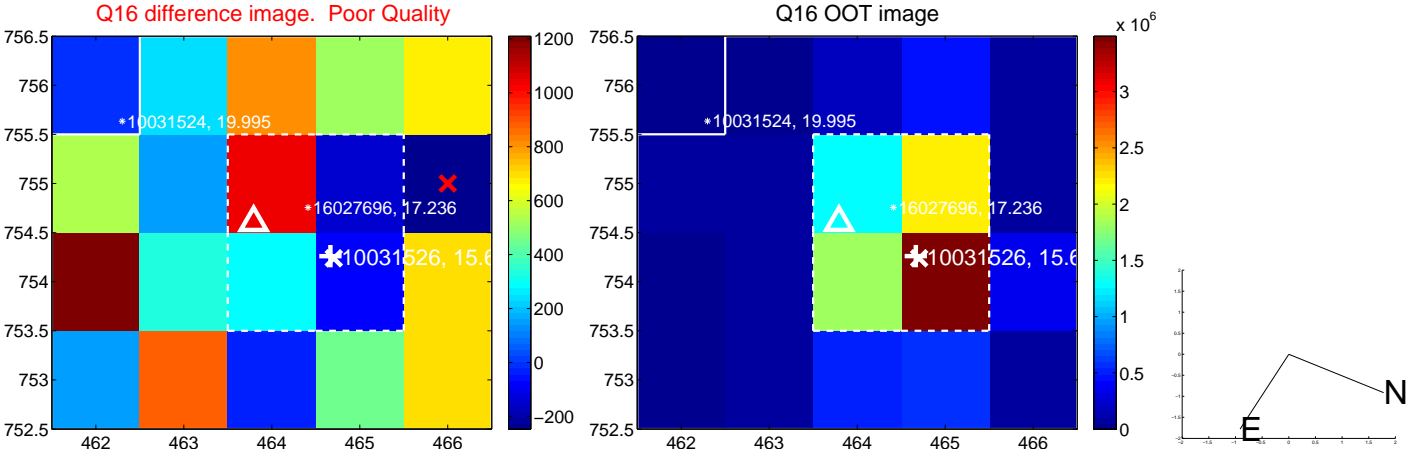
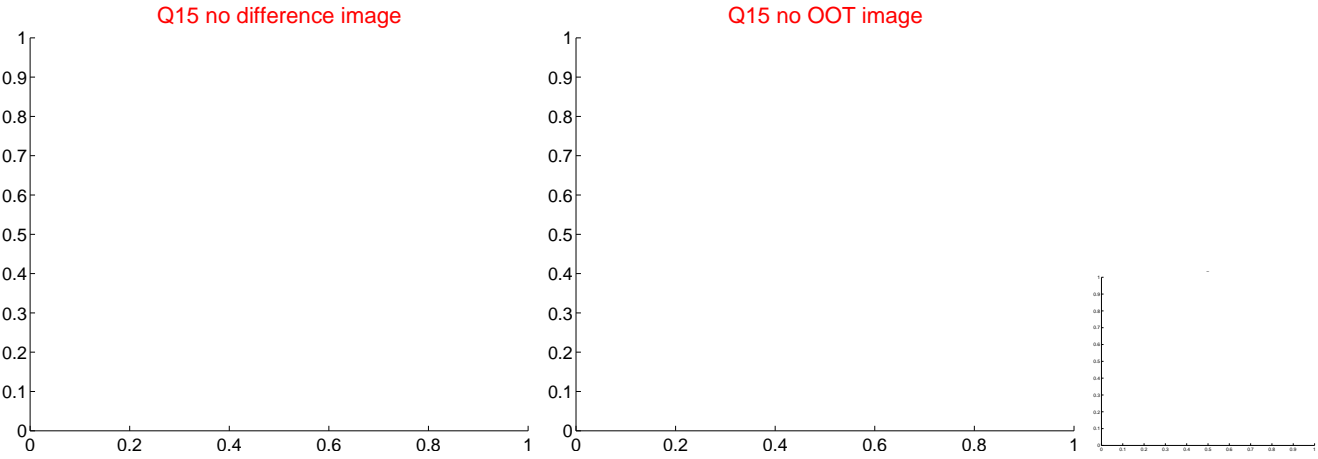
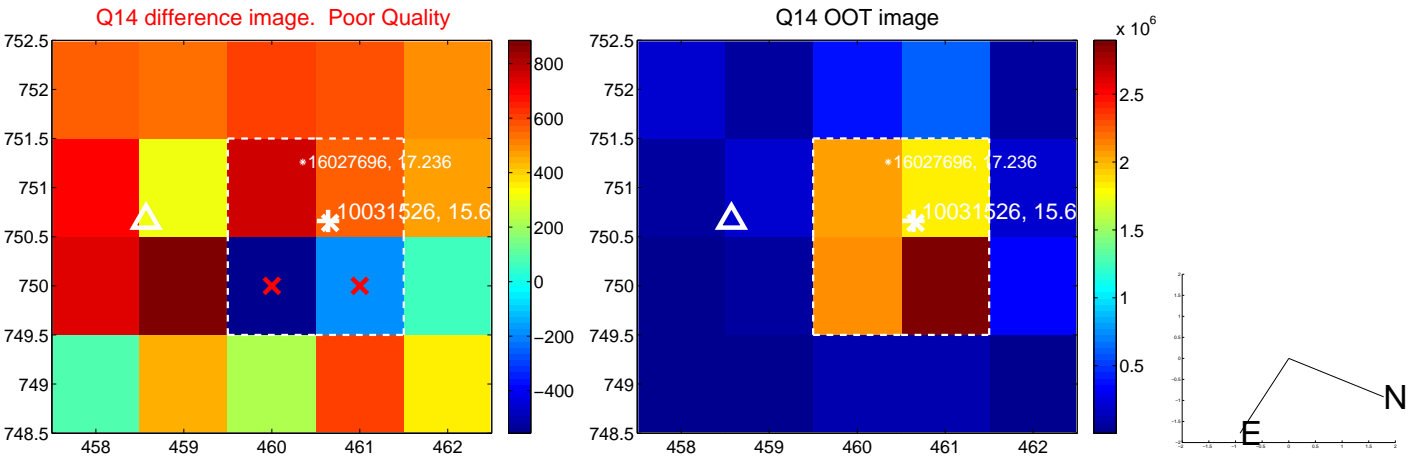
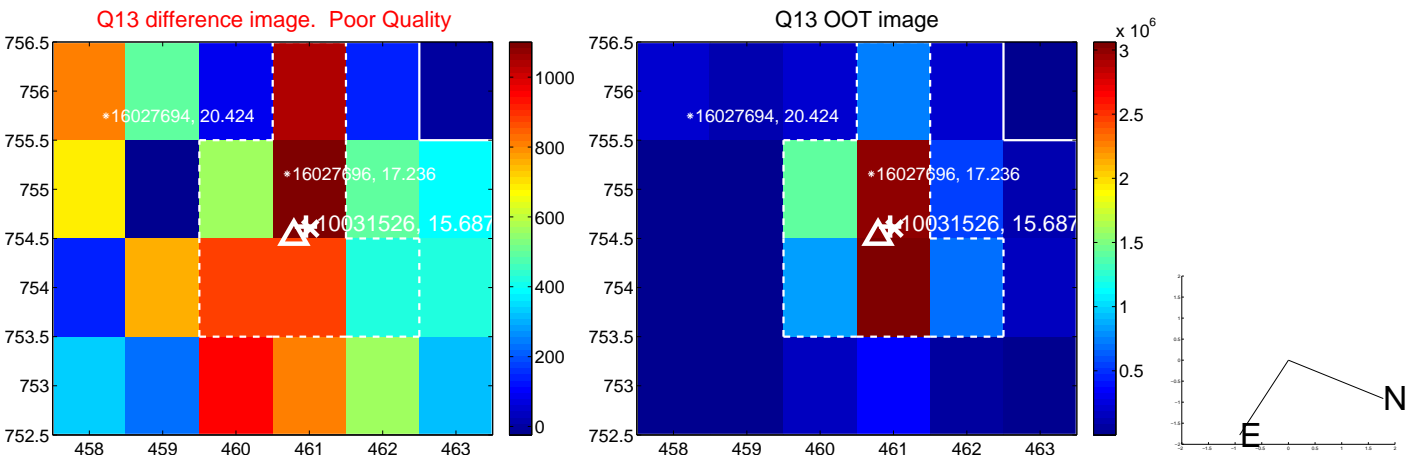




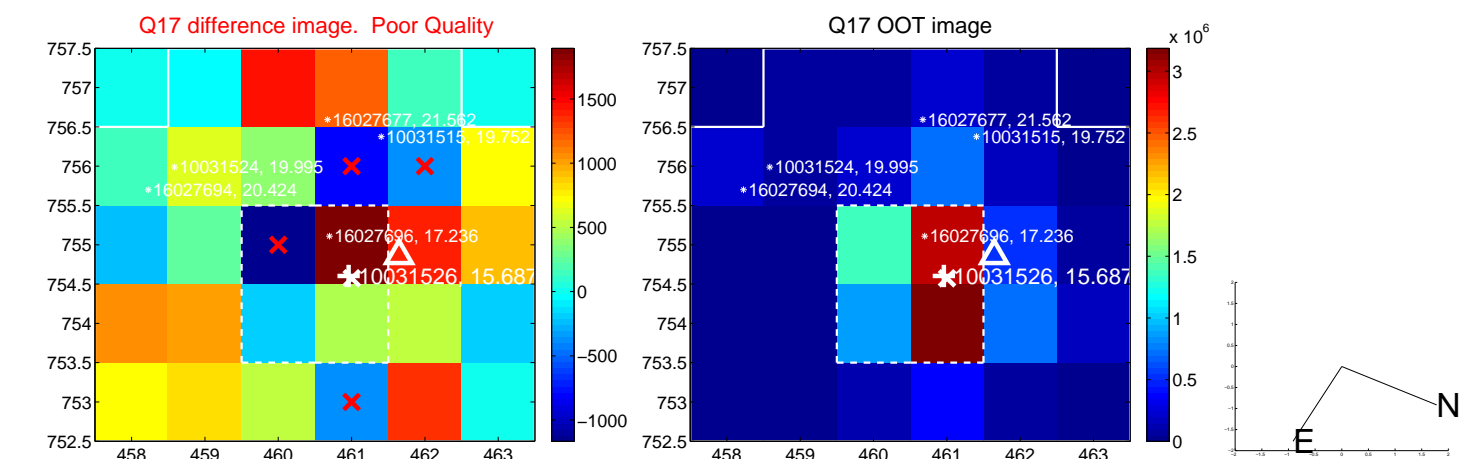
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



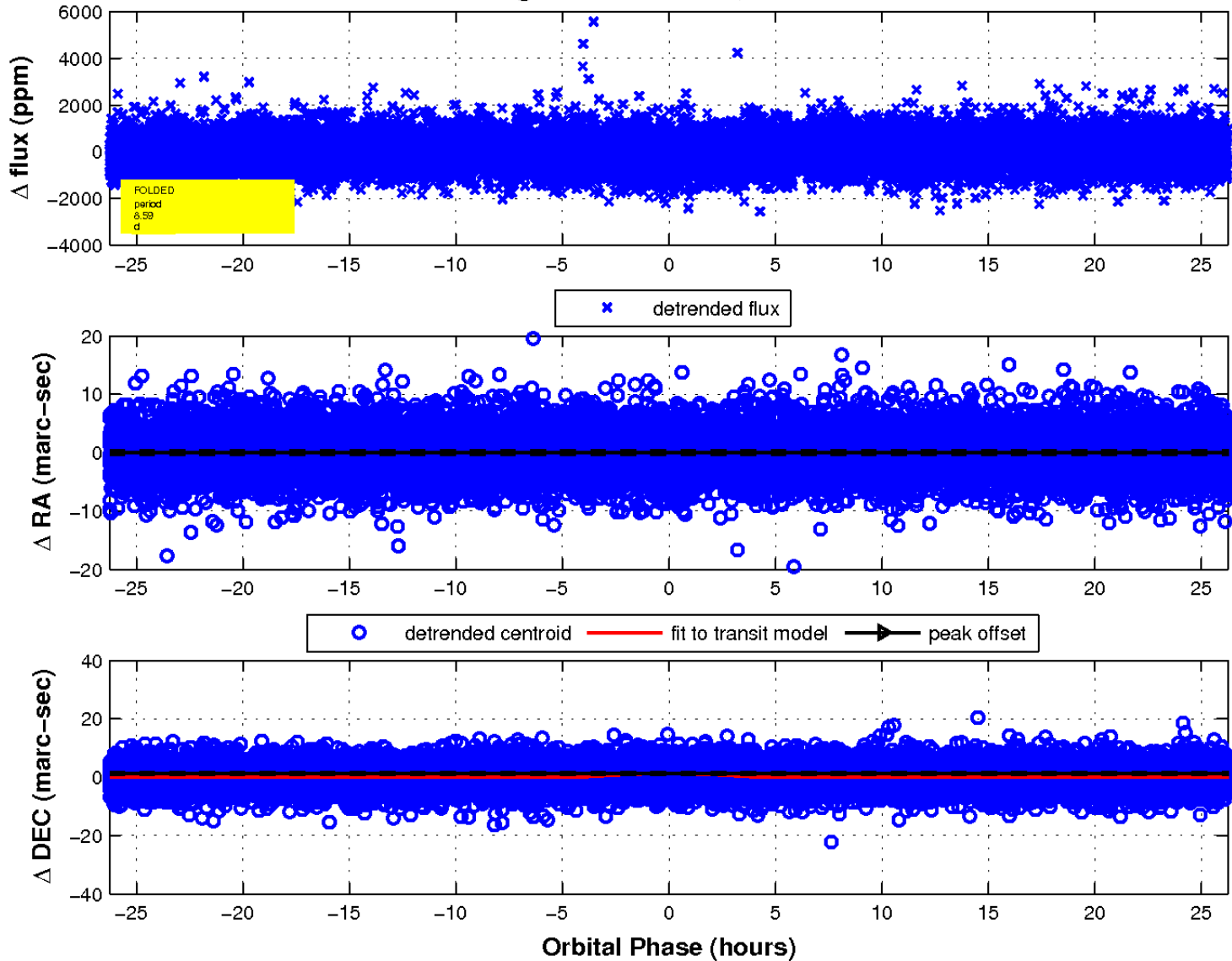
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

