

# KIC 005652237

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005652237-01	OBS	0164.01	4.464493	132.327544	190.3	3.825	34.6	33.1	1.99	6093	3.79	1557.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005652237-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—CENT_RESOLVED_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.

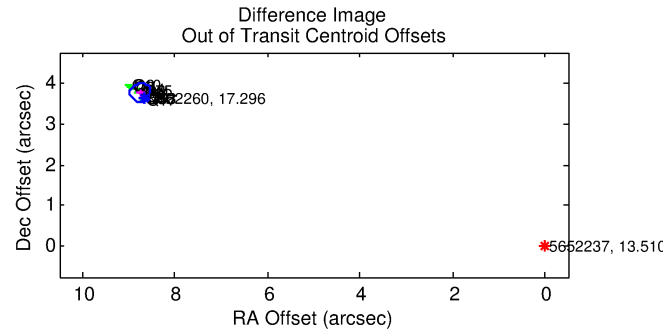
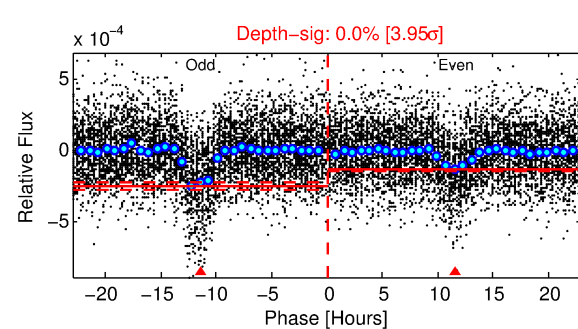
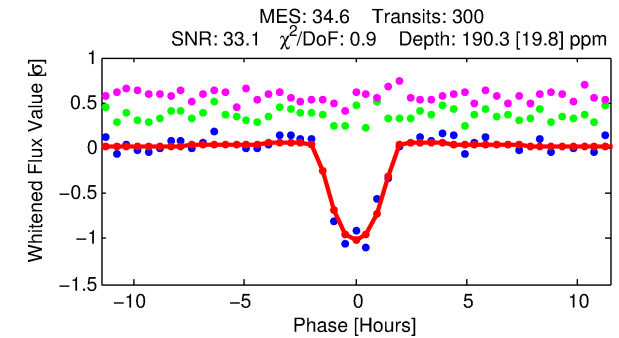
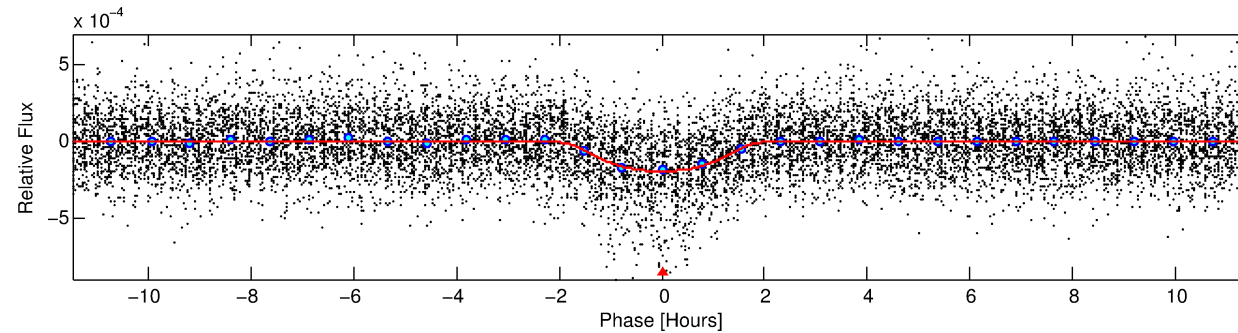
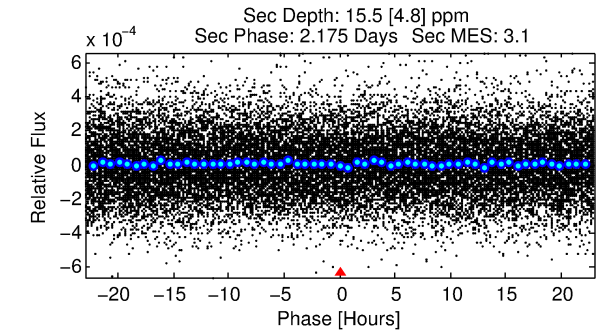
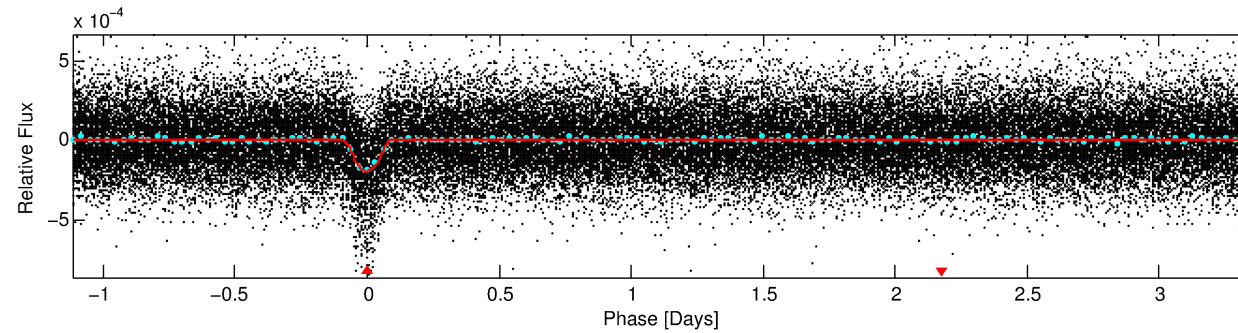
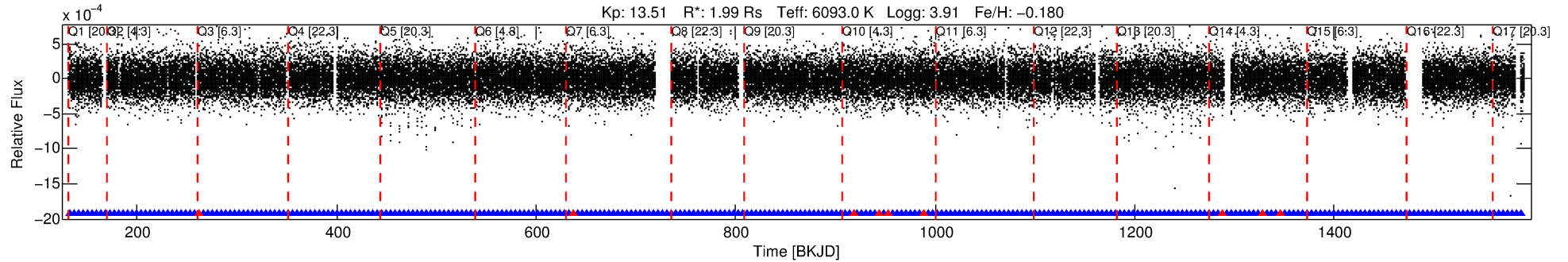
## Ephemeris Match Information For 005652237-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
005652237-01	5652237	3703.01	5652260	1:1	9.4	0	2	17.30	13.51	439.68	Direct-PRF	0	0.94	0.68

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5652237 Candidate: 1 of 1 Period: 4.464 d  
KOI: K00164.01 Corr: 0.876



## DV Fit Results:

Period = 4.46449 [0.00001] d  
Epoch = 132.3275 [0.0025] BKJD  
Rp/R\* = 0.0175 [0.0015]  
a/R\* = 2.52 [0.20]  
b = 0.98 [0.01]  
Seff = 1557.27 [1173.83]  
Teq = 1602 [302] K  
Rp = 3.79 [1.73] Re  
a = 0.0559 [0.0253] AU  
Ag = 1.86 [1.54] [0.56σ]  
Teff = 2893 [275] K [3.16σ]

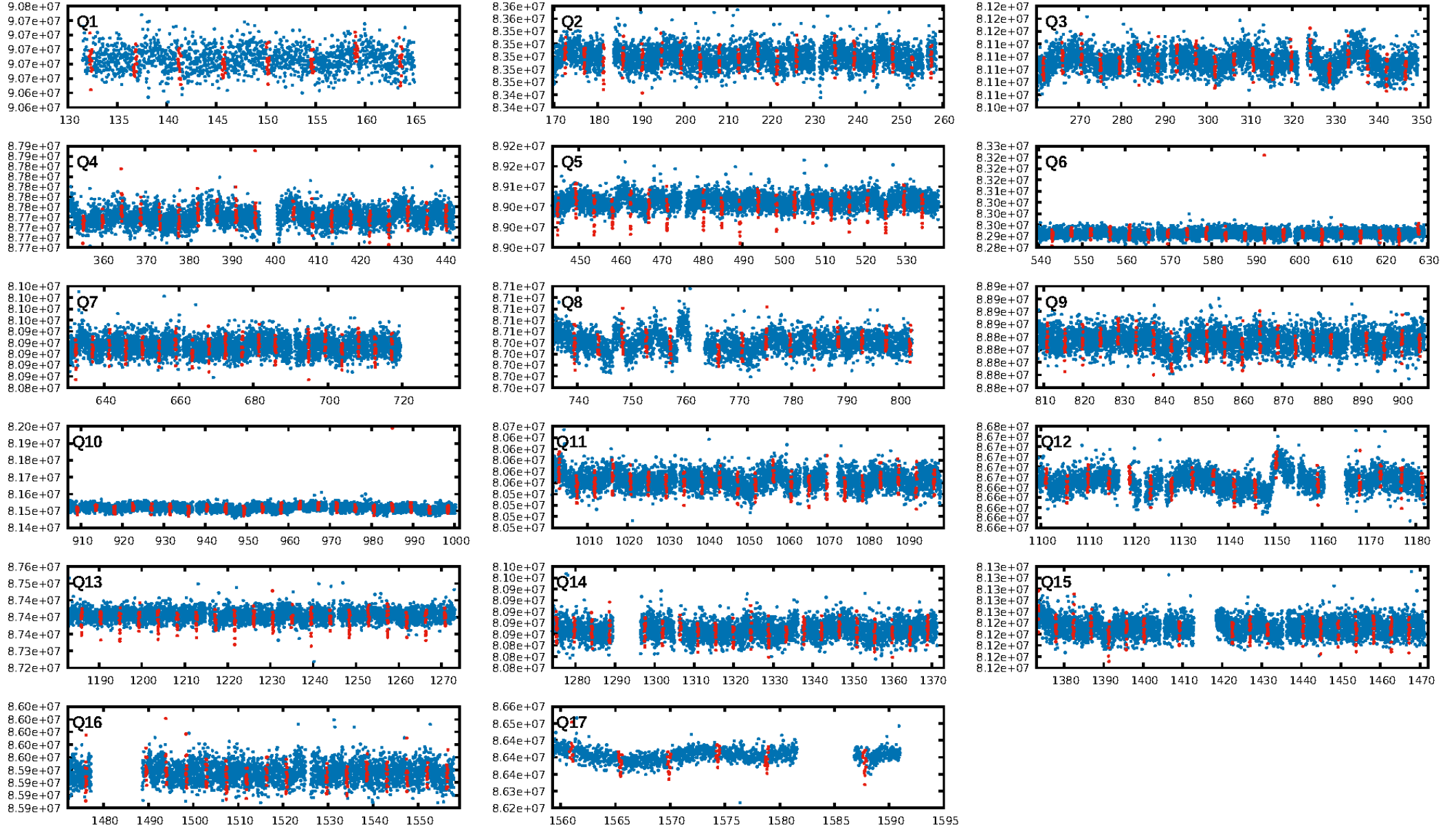
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.67e-247  
RollingBand-fgt: 0.97 [277/286]  
GhostDiagnostic-chr: -0.4586  
Centroid-sig: 0.0%  
Centroid-so: 40.381 arcsec [91.08σ]  
OotOffset-rm: 9.519 arcsec [126.42σ]  
KicOffset-rm: 9.474 arcsec [131.87σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

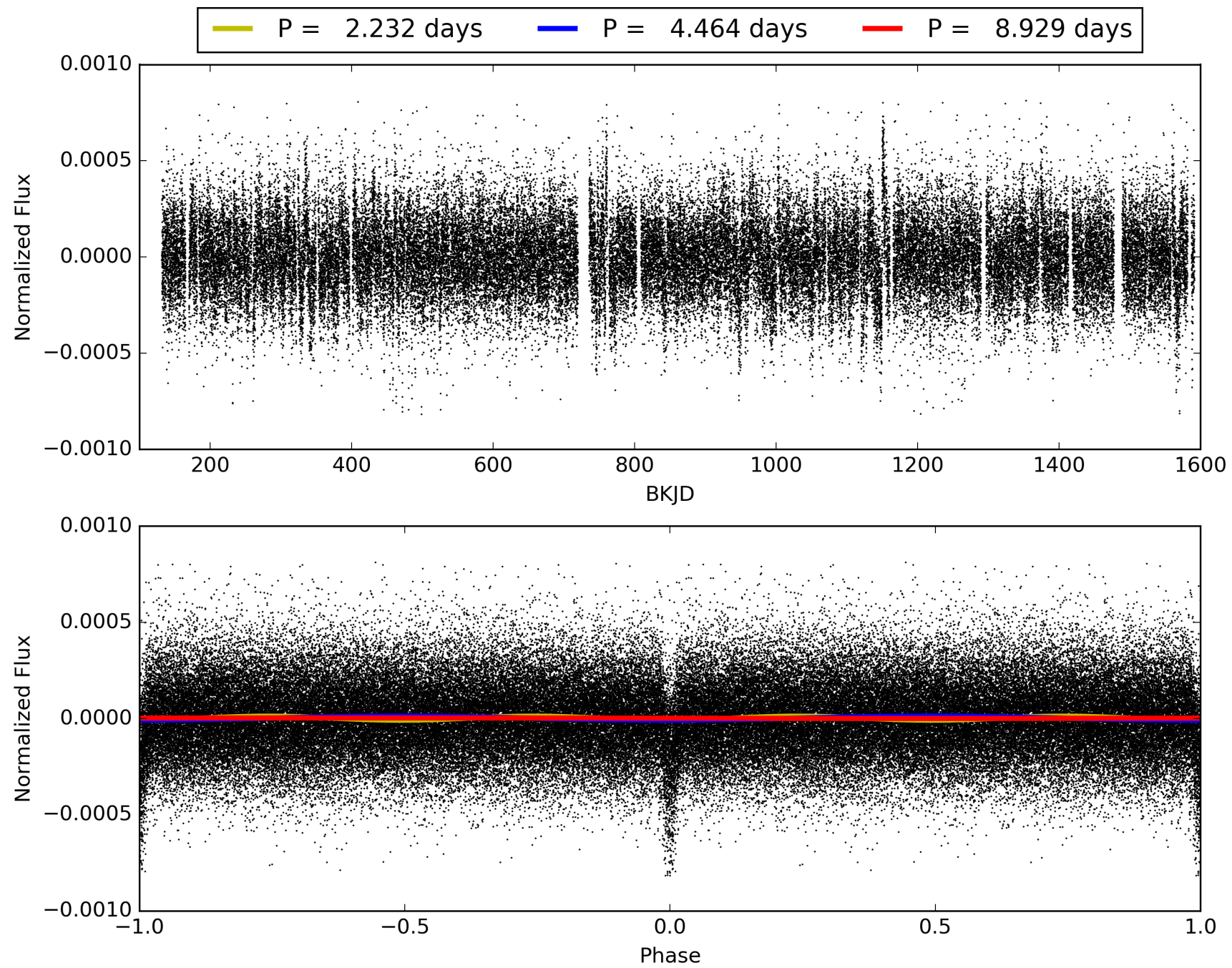
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:54:41 Z

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

# TCE 005652237-01, PDC Light Curves

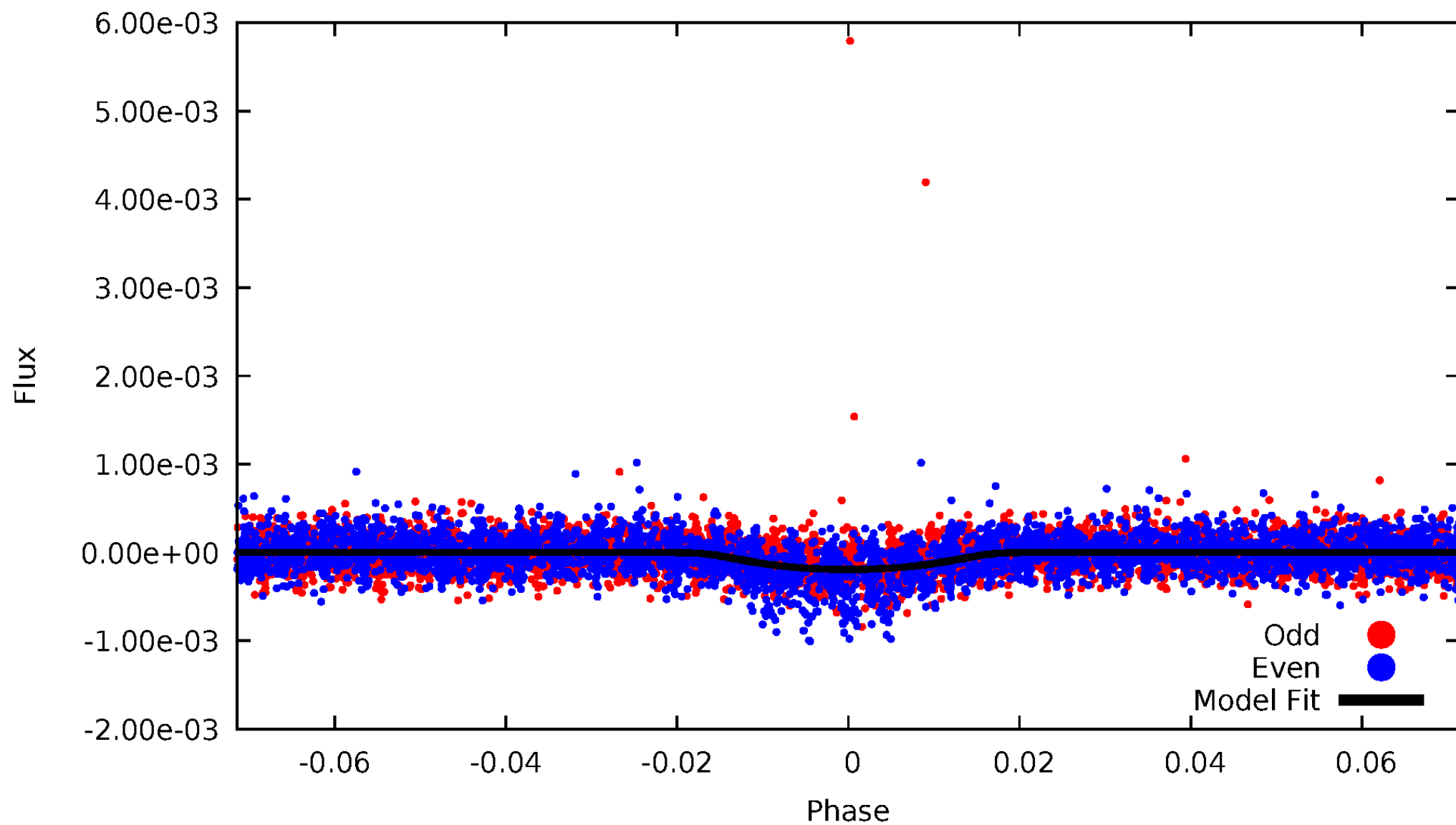


TCE 005652237-01



# DV Odd/Even

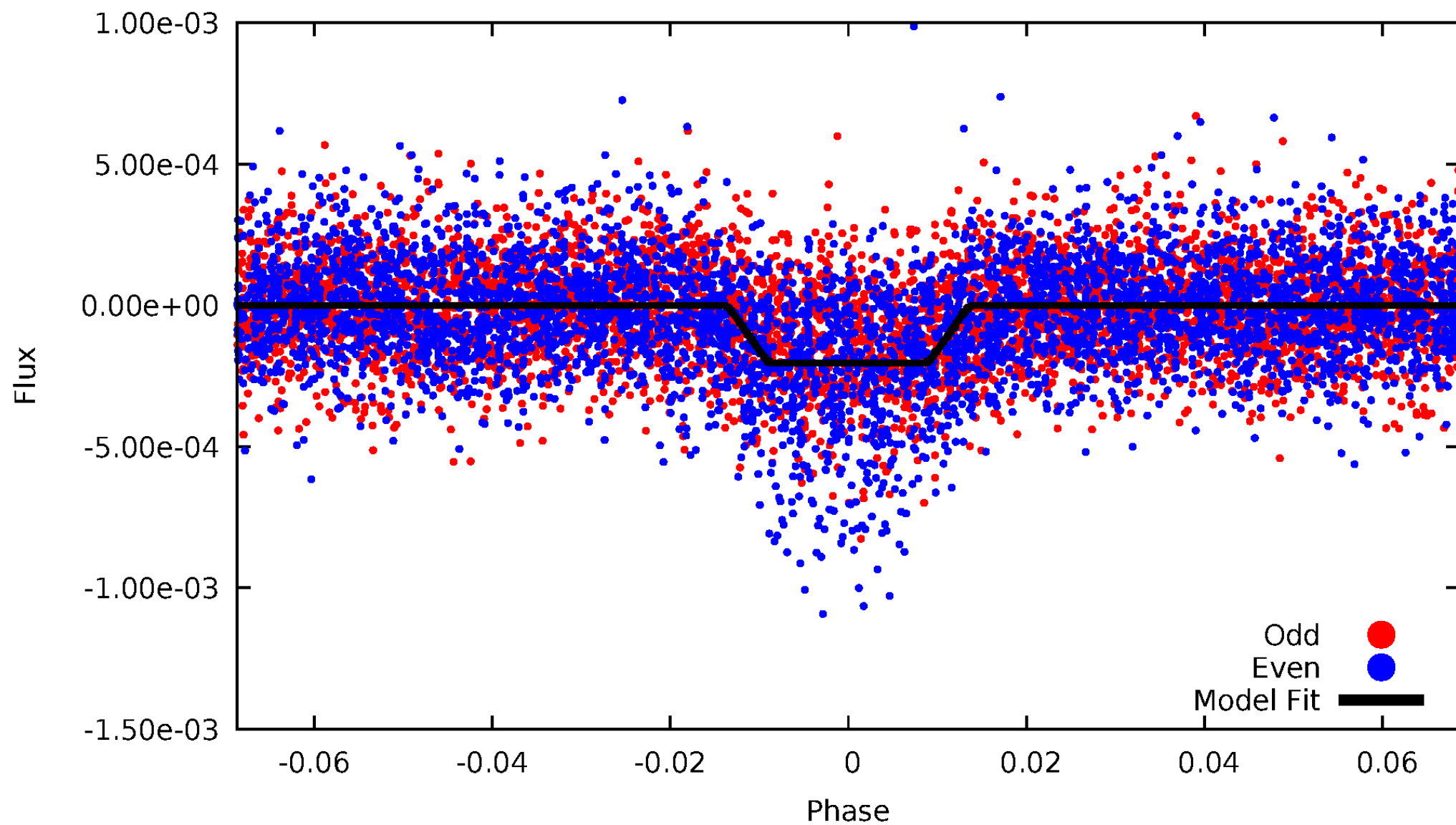
TCE 005652237-01



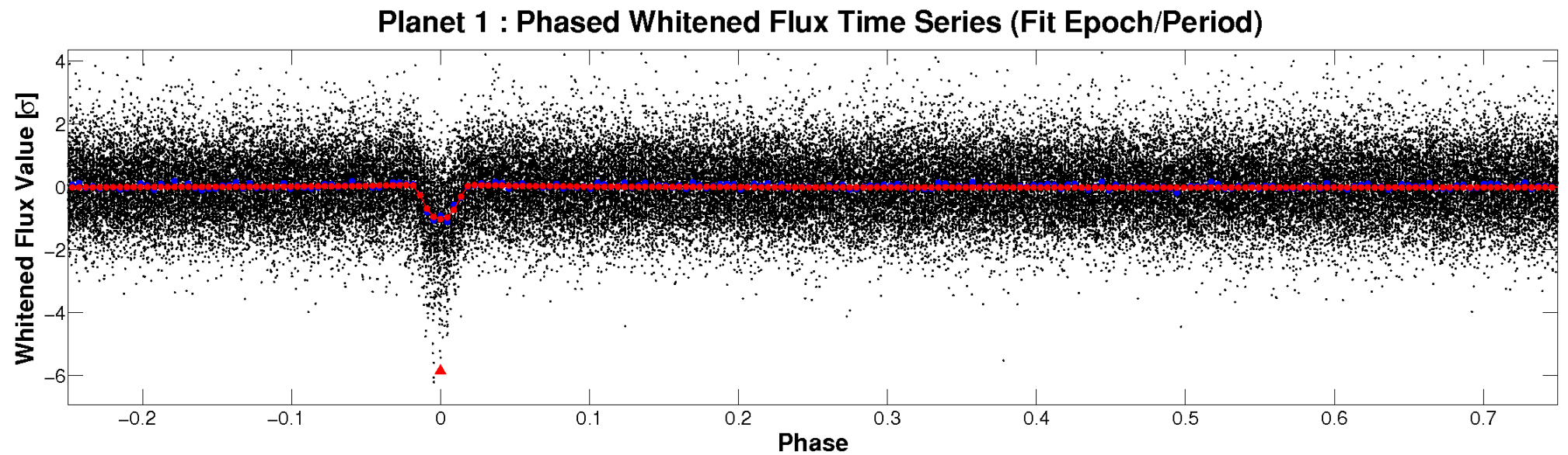
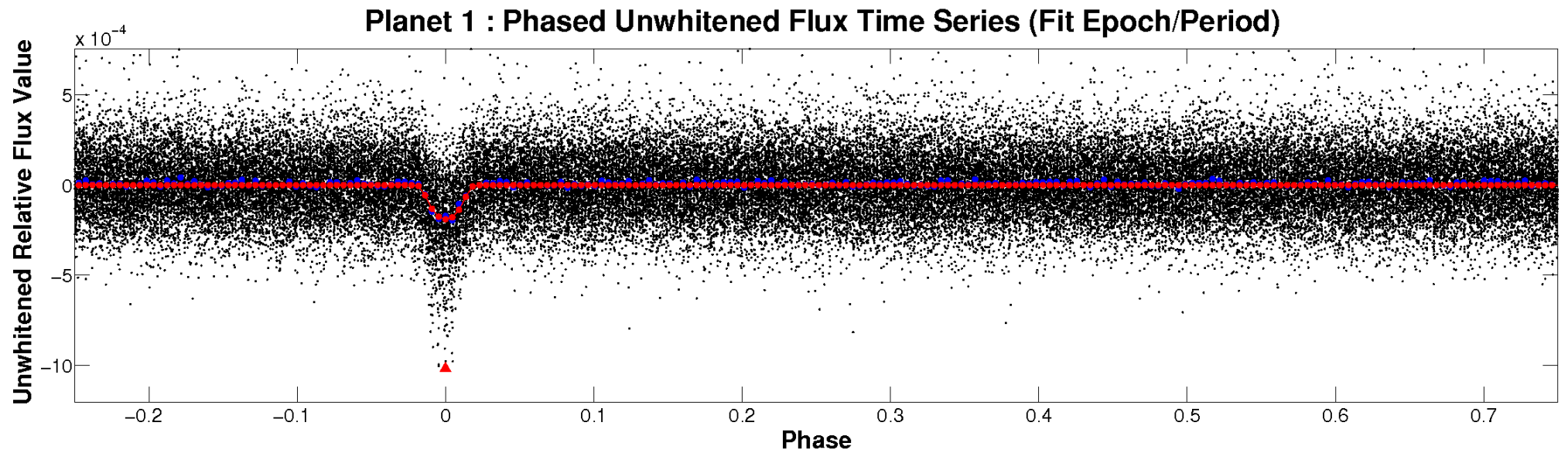


# ALT Odd/Even

TCE 005652237-01

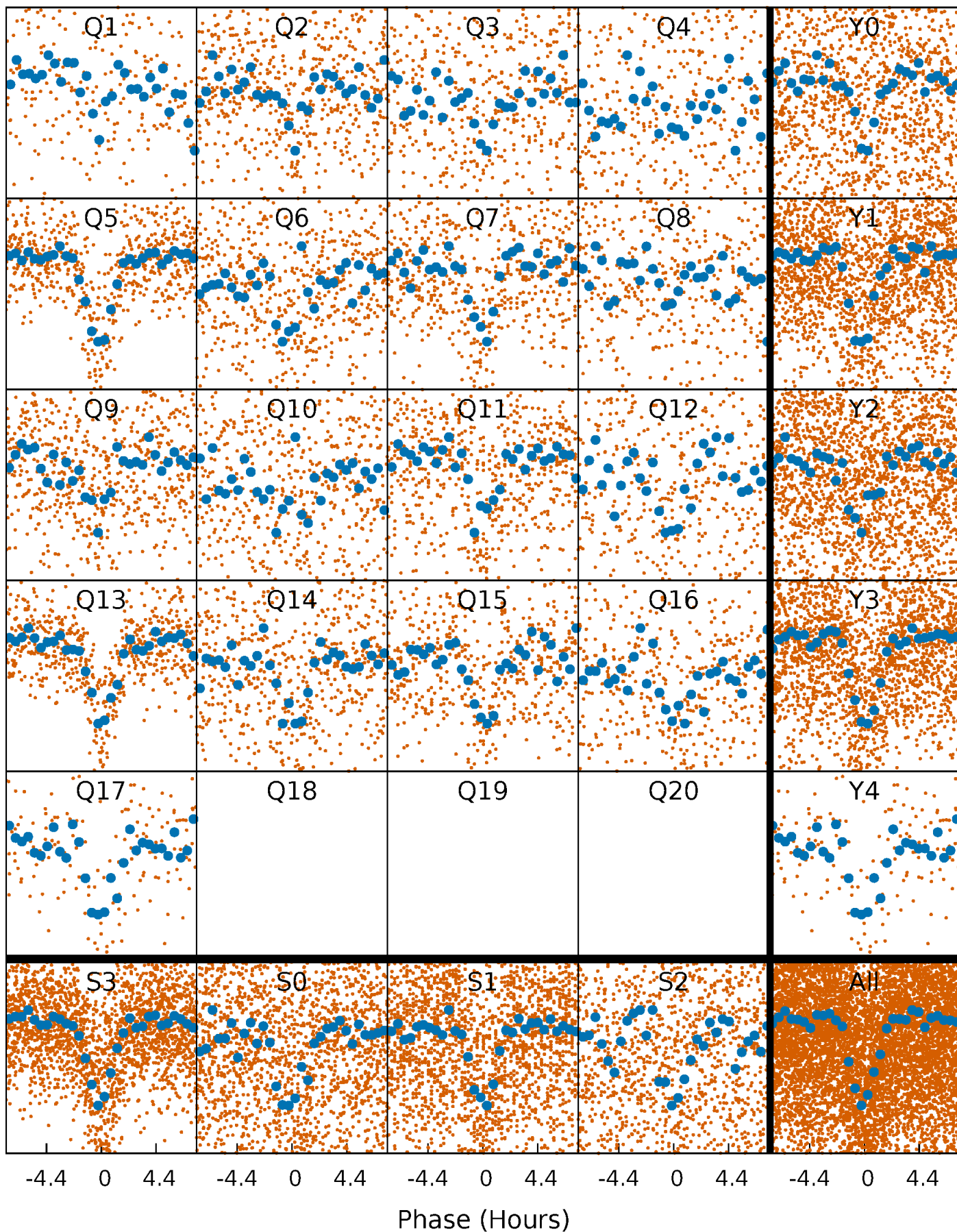


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

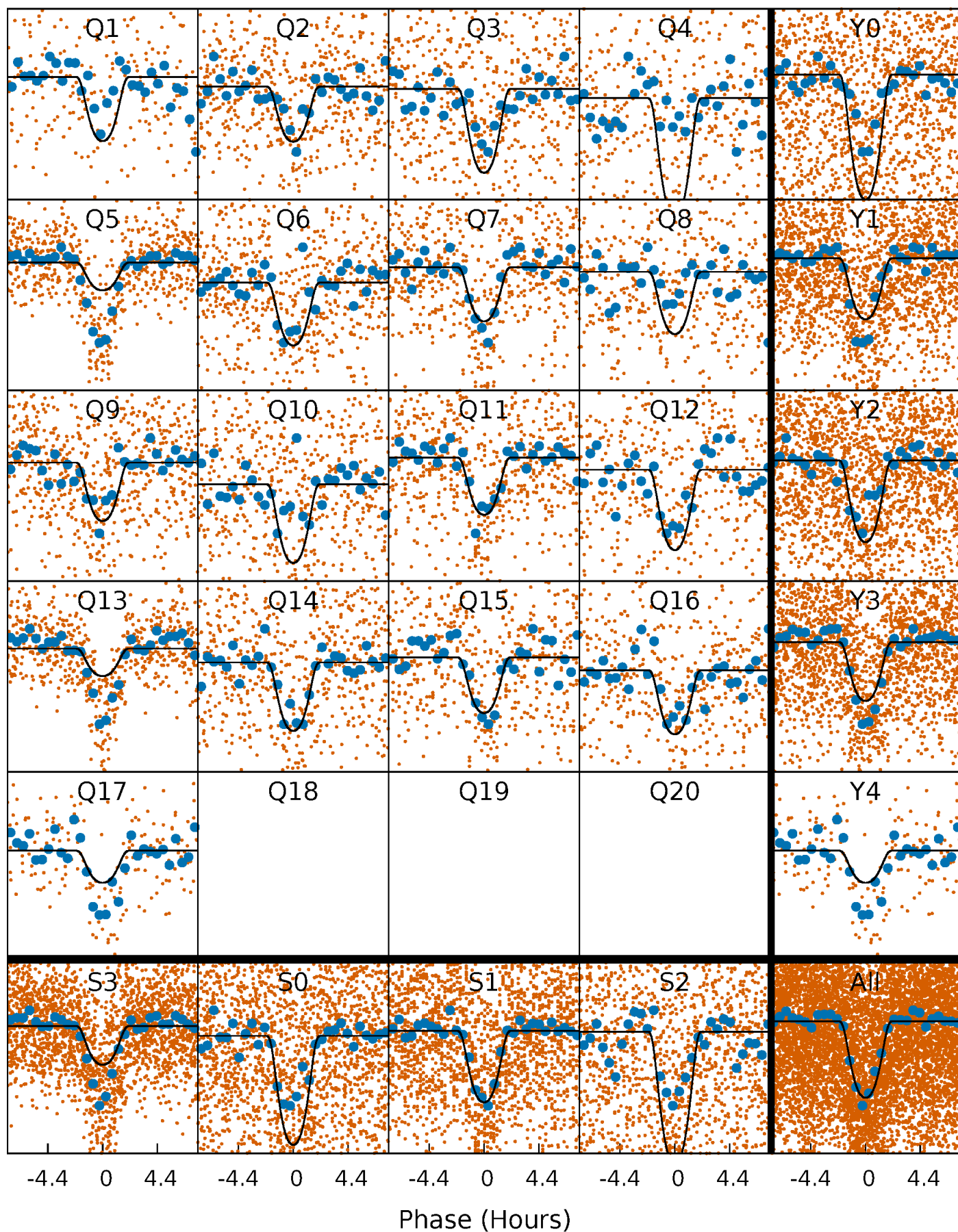
TCE 005652237-01 P= 4.464493 Days  $T_0=132.327543$  (BKJD)





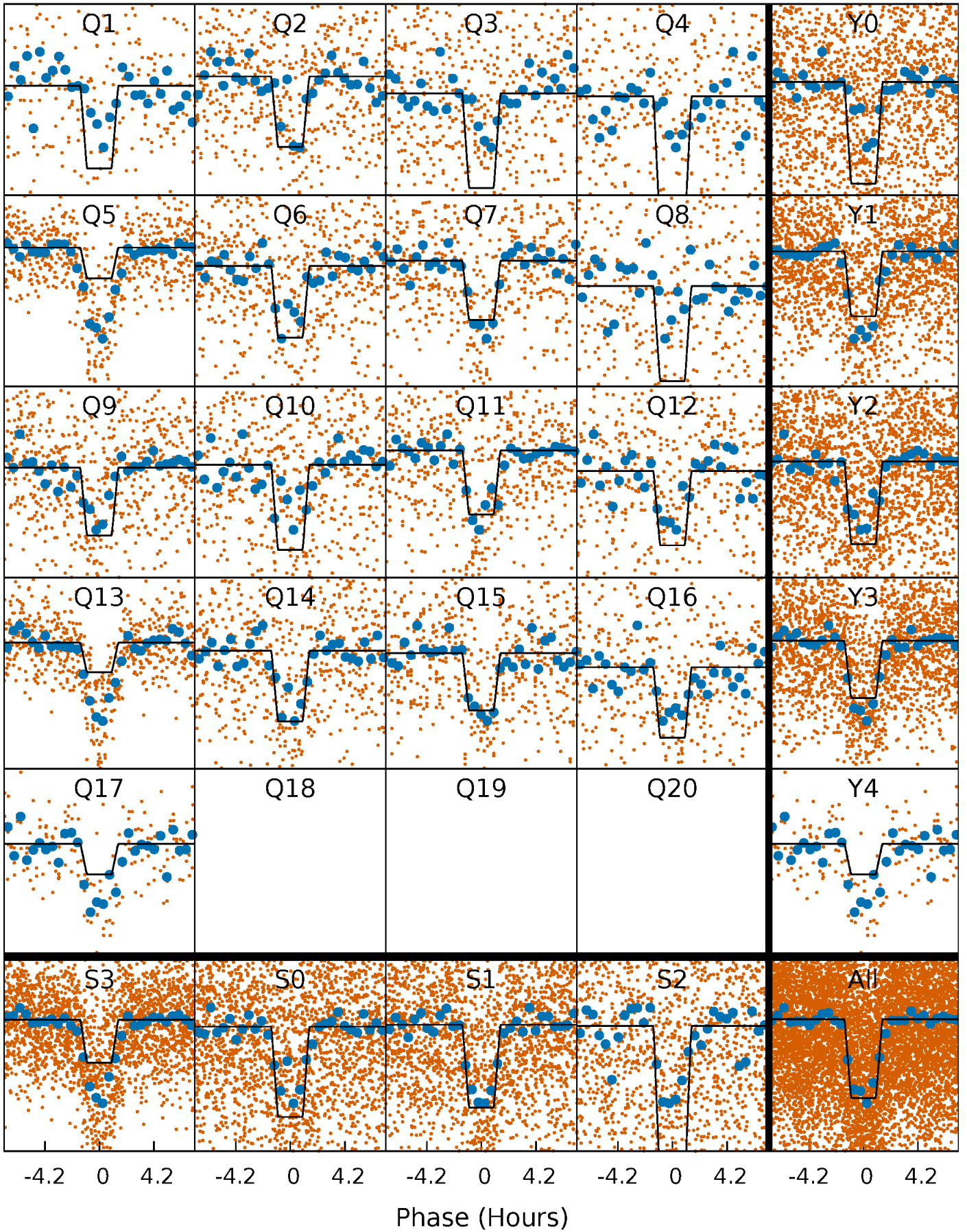
# DV Quarter-Phased Transit Curves

TCE 005652237-01 P= 4.464493 Days  $T_0=132.327543$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

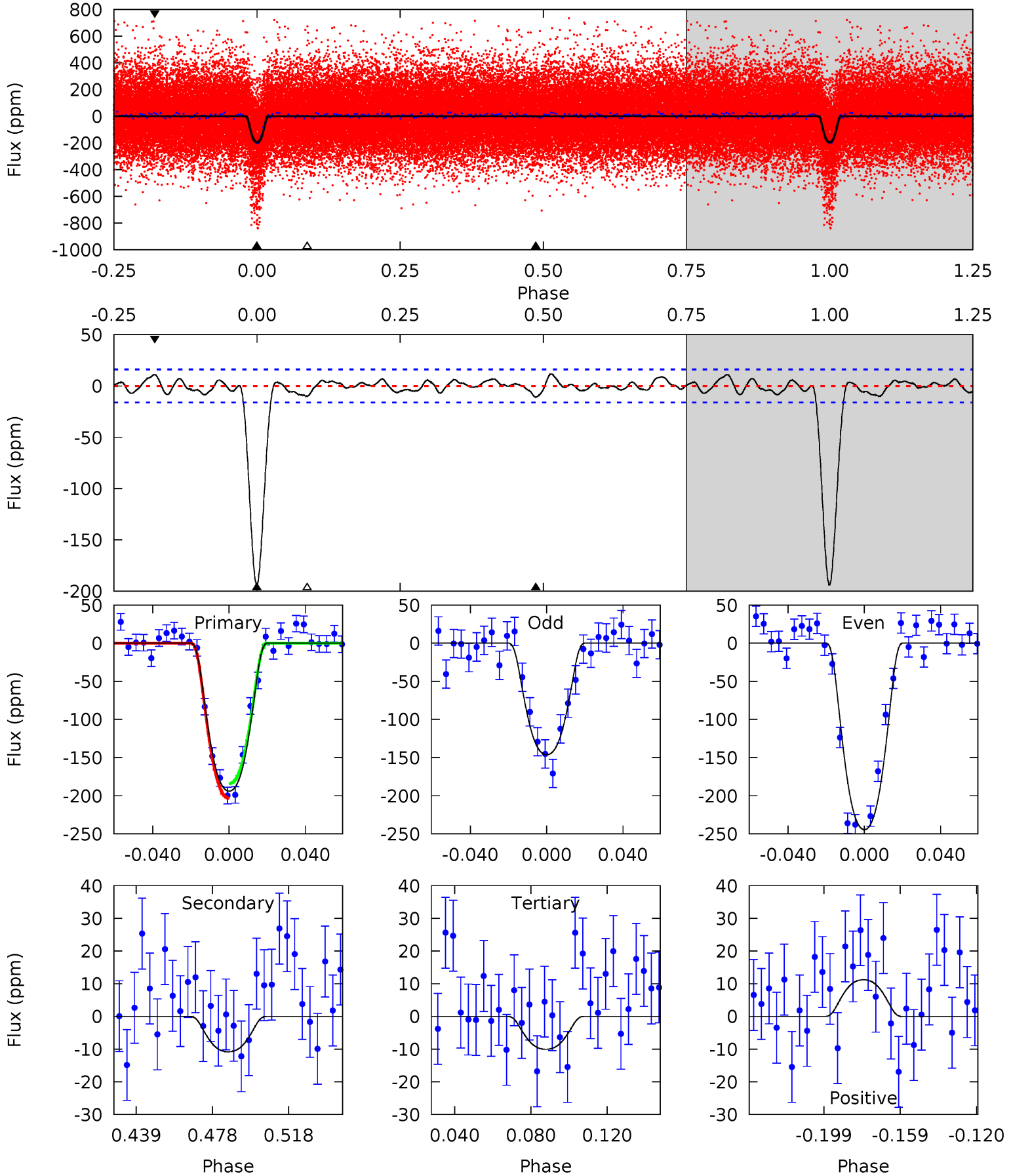
TCE 005652237-01 P= 4.464543 Days  $T_0=132.316361$  (BKJD)



# DV Model-Shift Uniqueness Test

005652237-01, P = 4.464493 Days, E = 127.863050 Days

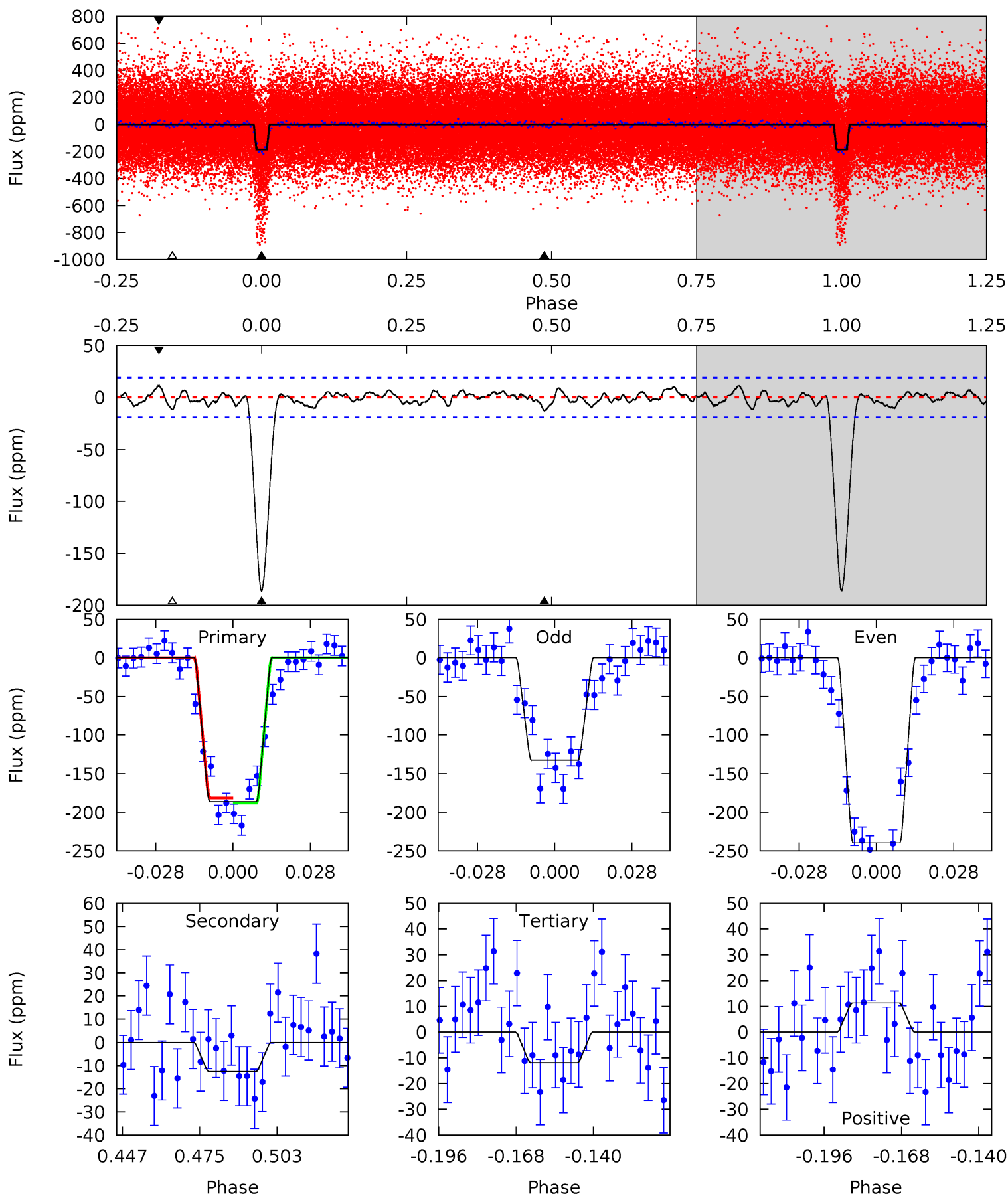
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.2	3.19	2.97	3.30	4.75	2.06	1.28	54.2	53.9	0.22	-0.11	14.5	1.15	0.06	2.81



# Alt Model-Shift Uniqueness Test

005652237-01, P = 4.464543 Days, E = 127.851818 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
46.5	3.16	2.96	2.82	4.83	2.20	1.11	43.5	43.7	0.20	0.34	13.4	1.24	0.06	0.85





### Stellar Parameters For KIC 005652237

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6093^{+195}_{-195}$	$3.910^{+0.443}_{-0.118}$	$-0.180^{+0.300}_{-0.300}$	$1.985^{+0.479}_{-0.890}$	$1.168^{+0.169}_{-0.233}$	$0.210^{+0.843}_{-0.088}$
	+3%/-3%	+11%/-3%	+167%/-167%	+24%/-45%	+14%/-20%	+401%/-42%
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 005652237-01 / KOI 0164.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-11 \pm 3$	$3.59^{+0.66}_{-0.88}$	$2178^{+178}_{-260}$	$3127^{+198}_{-252}$	$1.497^{+1.107}_{-0.594}$
Alt.	$-13 \pm 4$	$2.85^{+0.59}_{-0.70}$	$2163^{+168}_{-254}$	$3444^{+245}_{-261}$	$2.636^{+2.137}_{-1.063}$

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

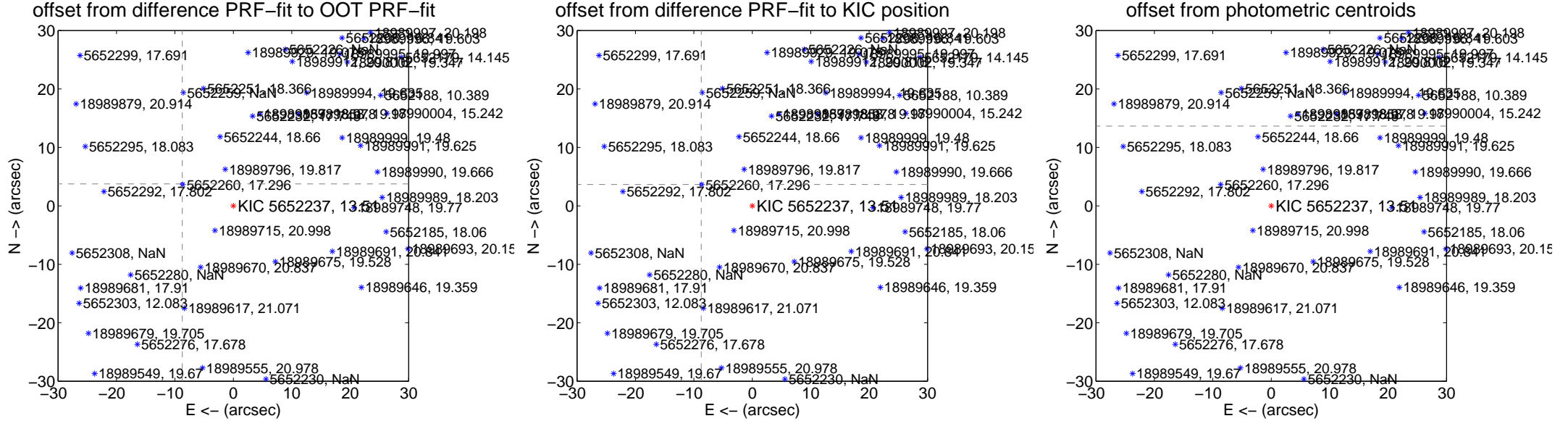
## DV Centroid Data

Supplemental centroid analysis for 005652237-01. Kepler magnitude: 13.51. Transit SNR 33.11

There are 17 quarters with good PRF difference image offsets

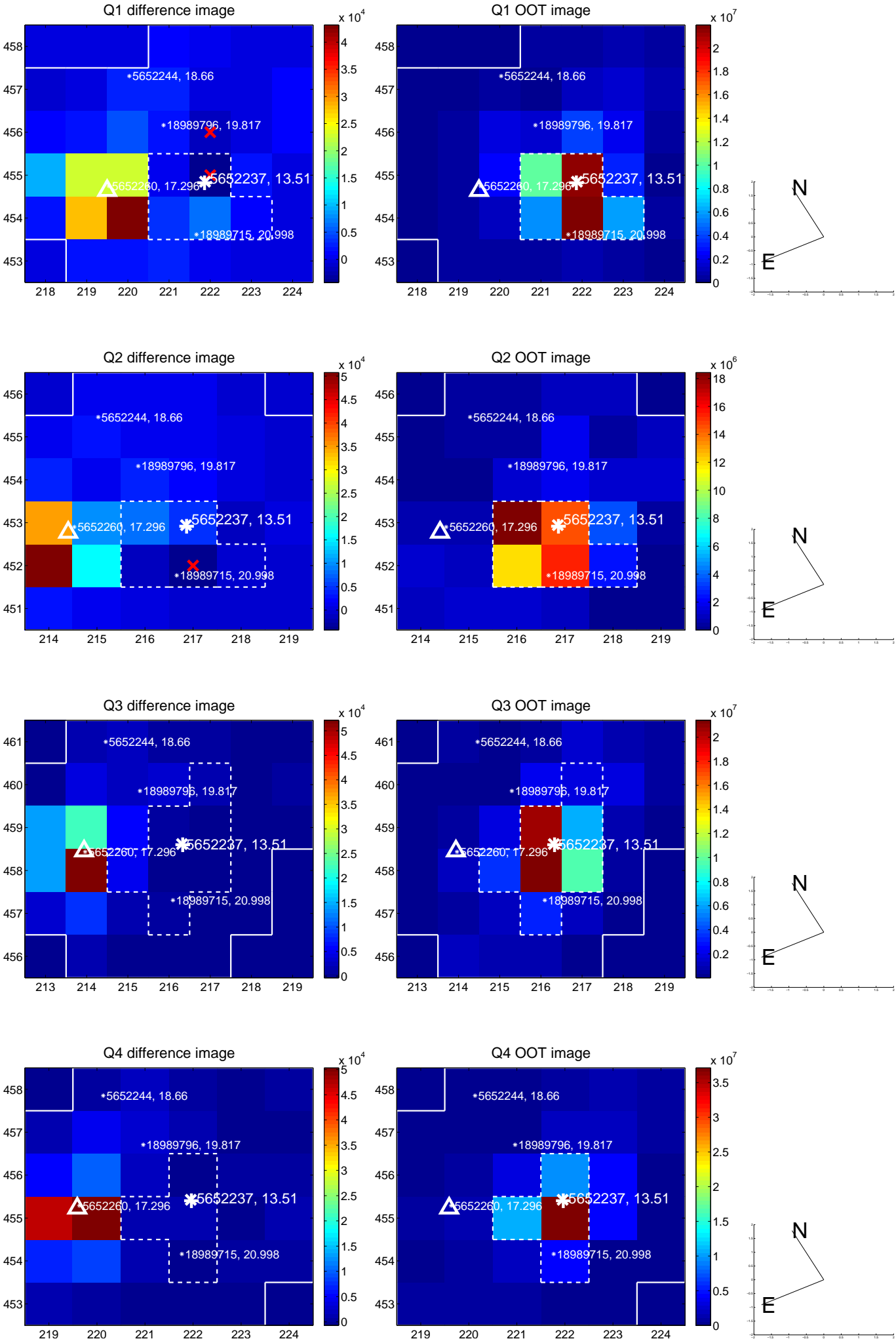
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>9.519 <math>\pm</math> 0.075</b>	<b>126.42</b>	8.745 $\pm$ 0.072	3.759 $\pm$ 0.072
PRF-fit source offset from KIC position	<b>9.474 <math>\pm</math> 0.072</b>	<b>131.87</b>	8.740 $\pm$ 0.070	3.657 $\pm$ 0.071
photometric centroid source offset	<b>40.38 <math>\pm</math> 0.44</b>	<b>91.08</b>	38.00 $\pm$ 0.44	13.65 $\pm$ 0.44

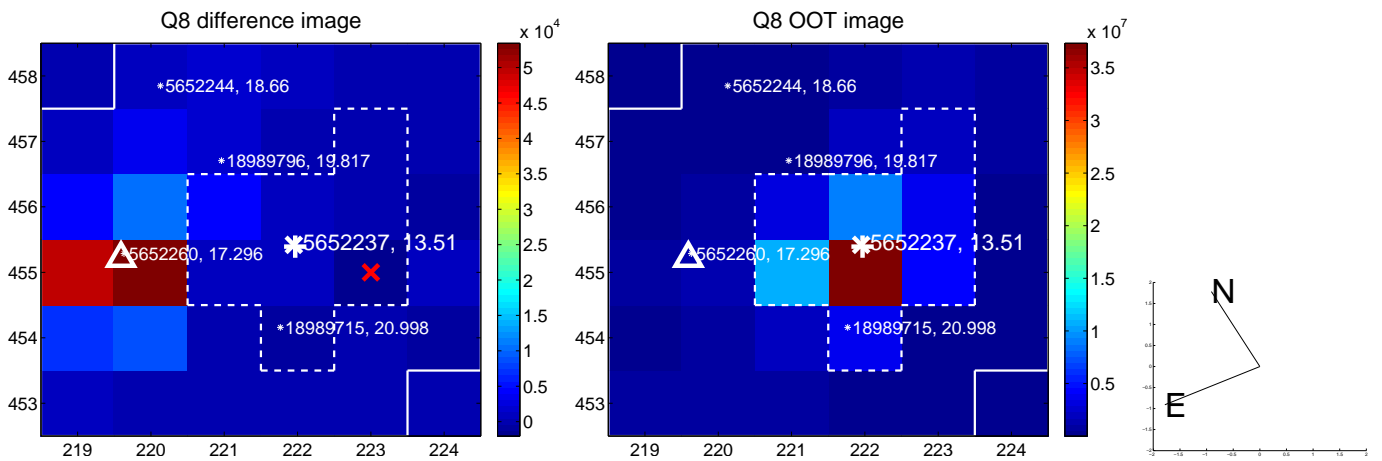
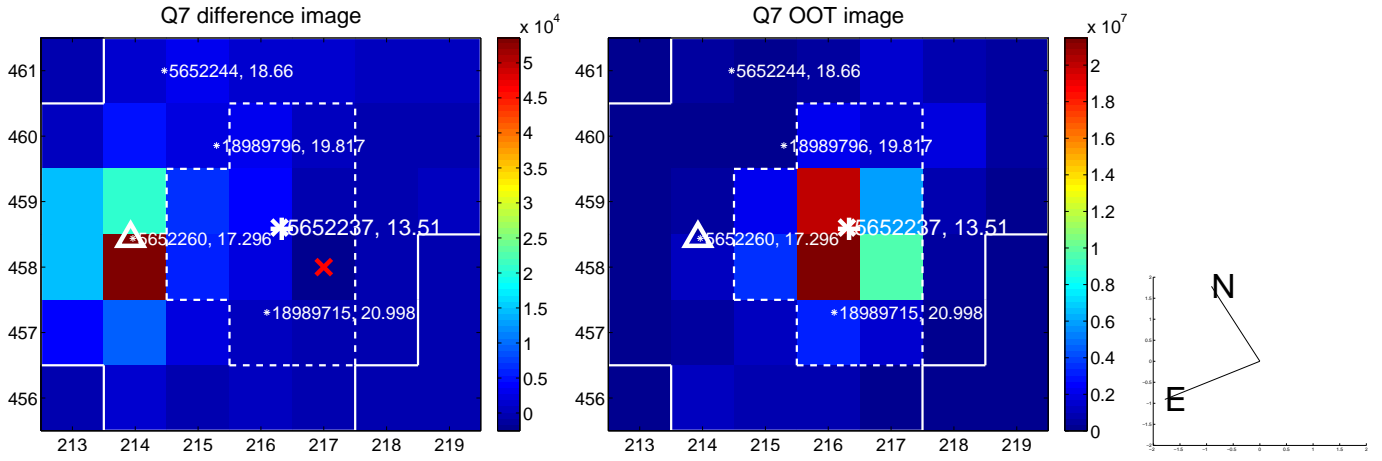
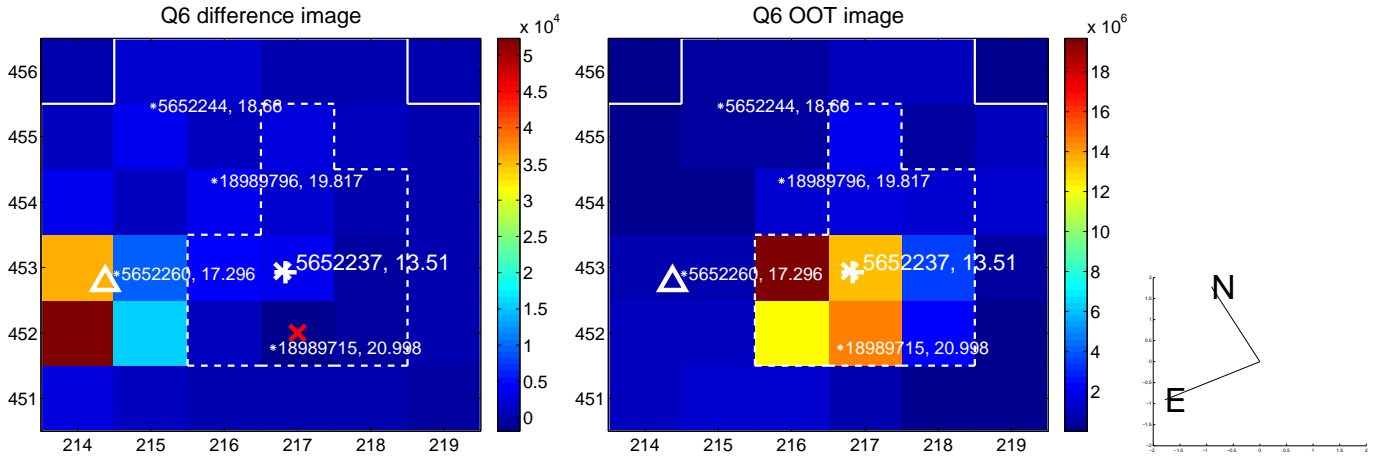
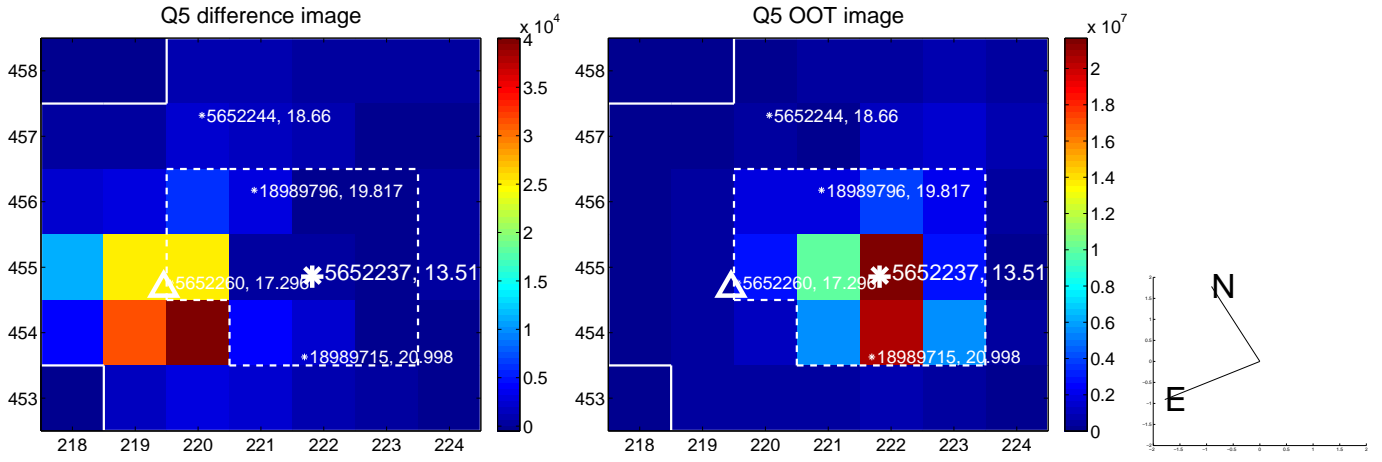


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

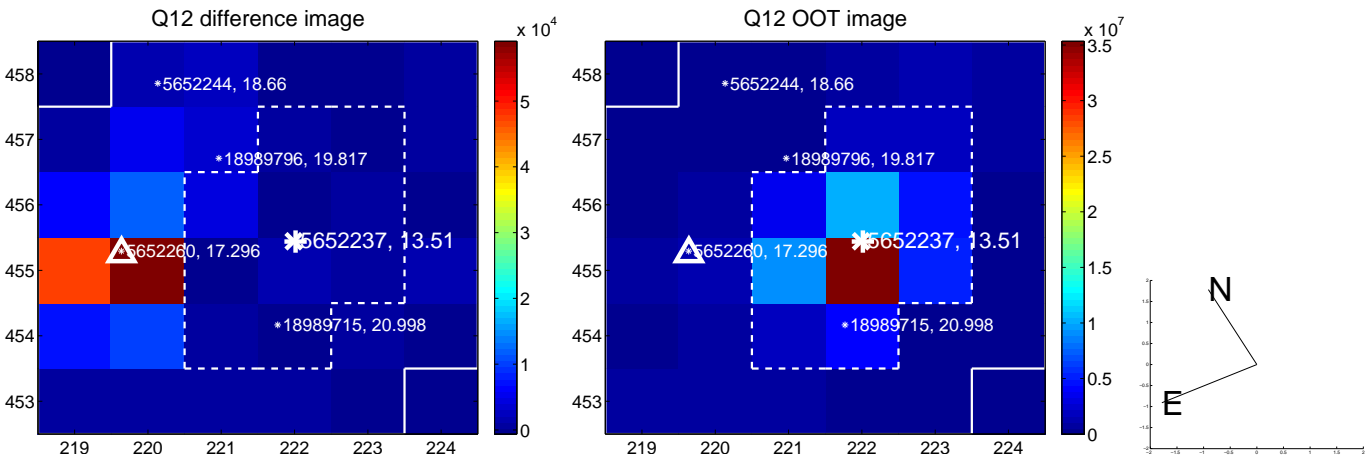
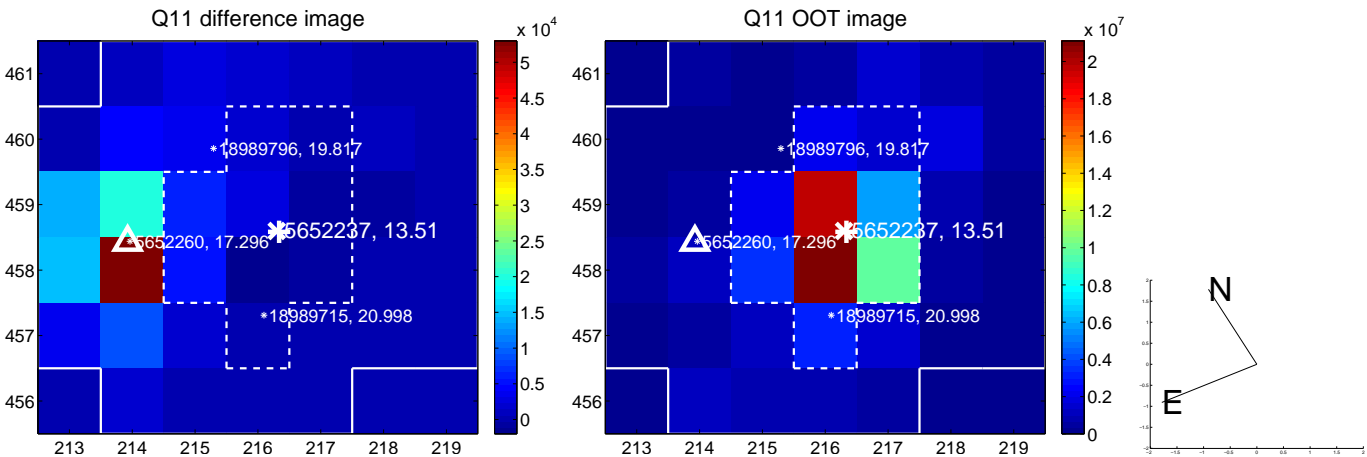
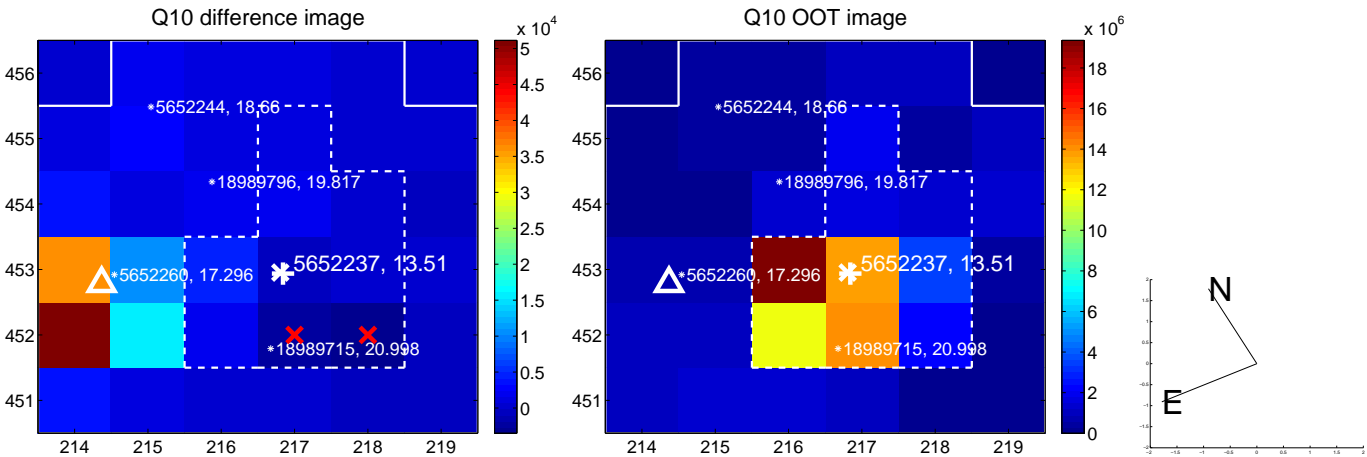
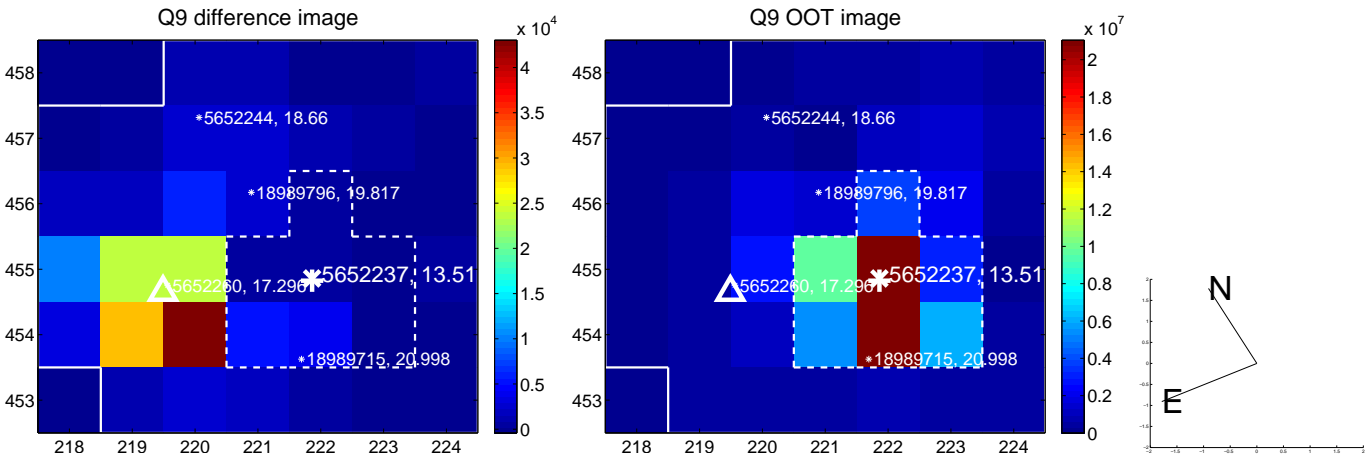


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

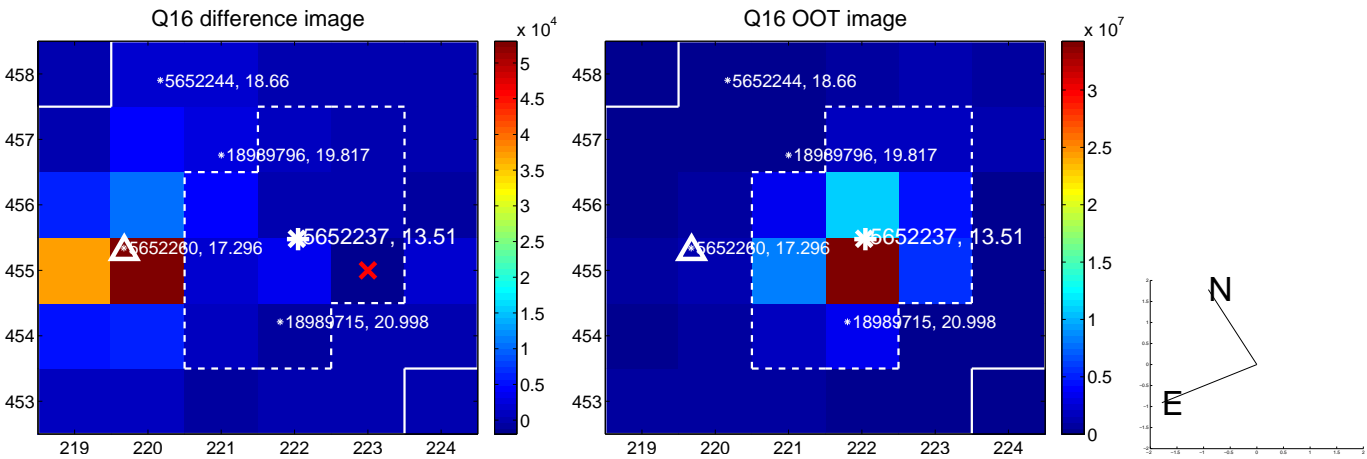
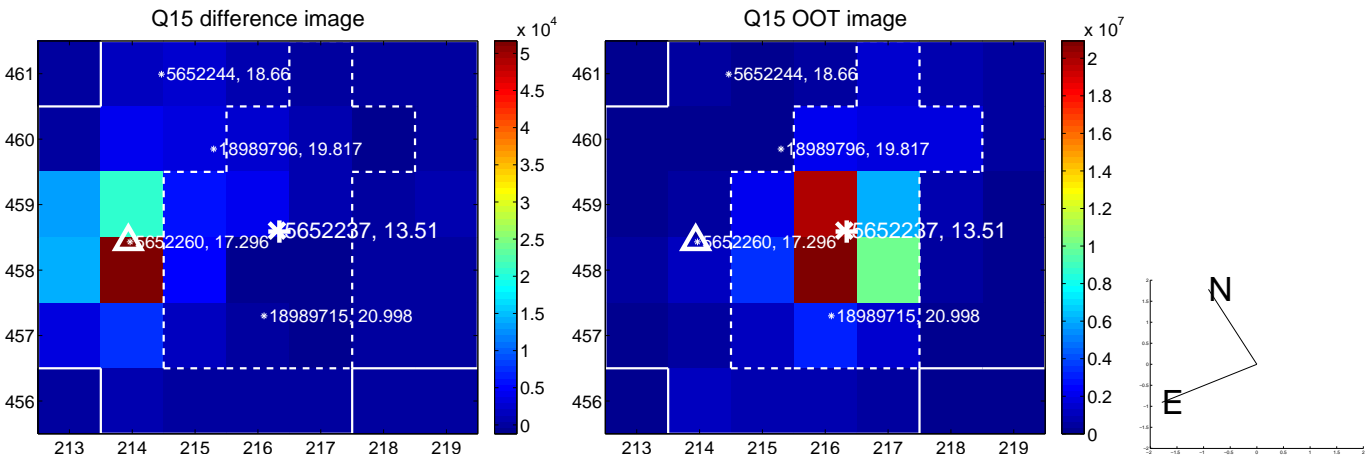
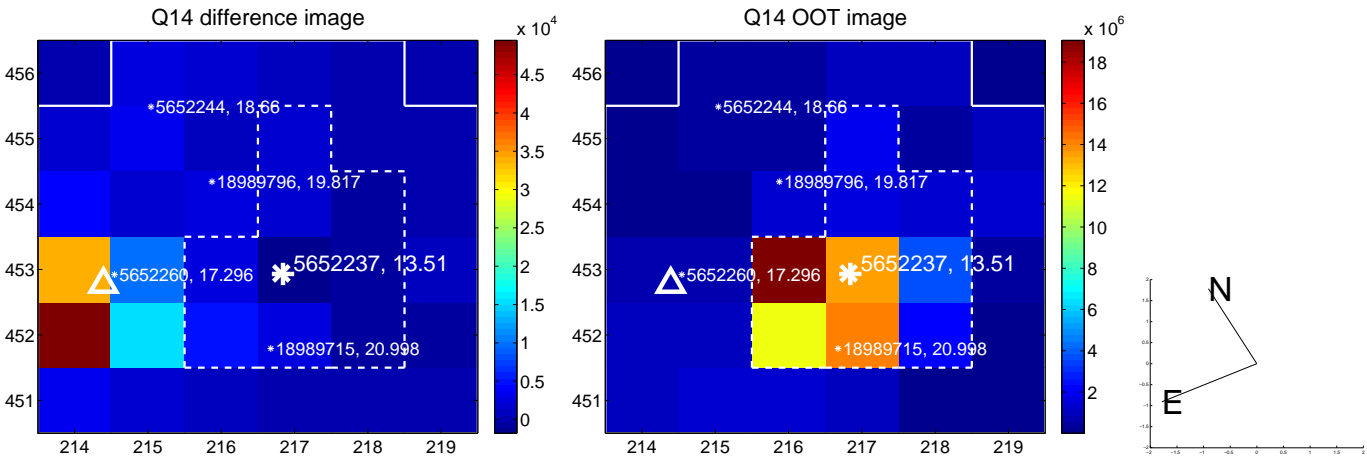
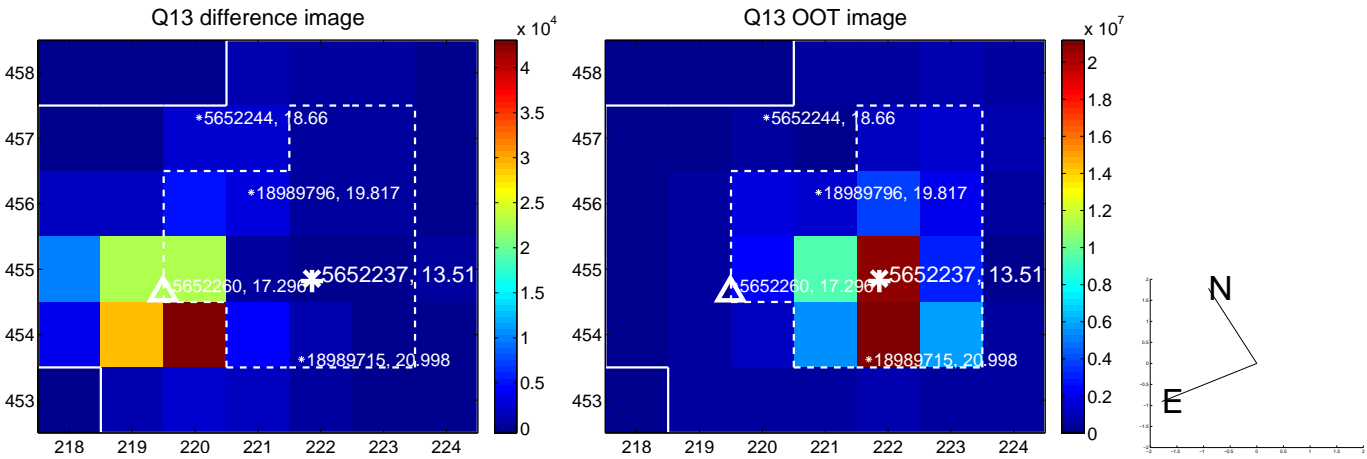




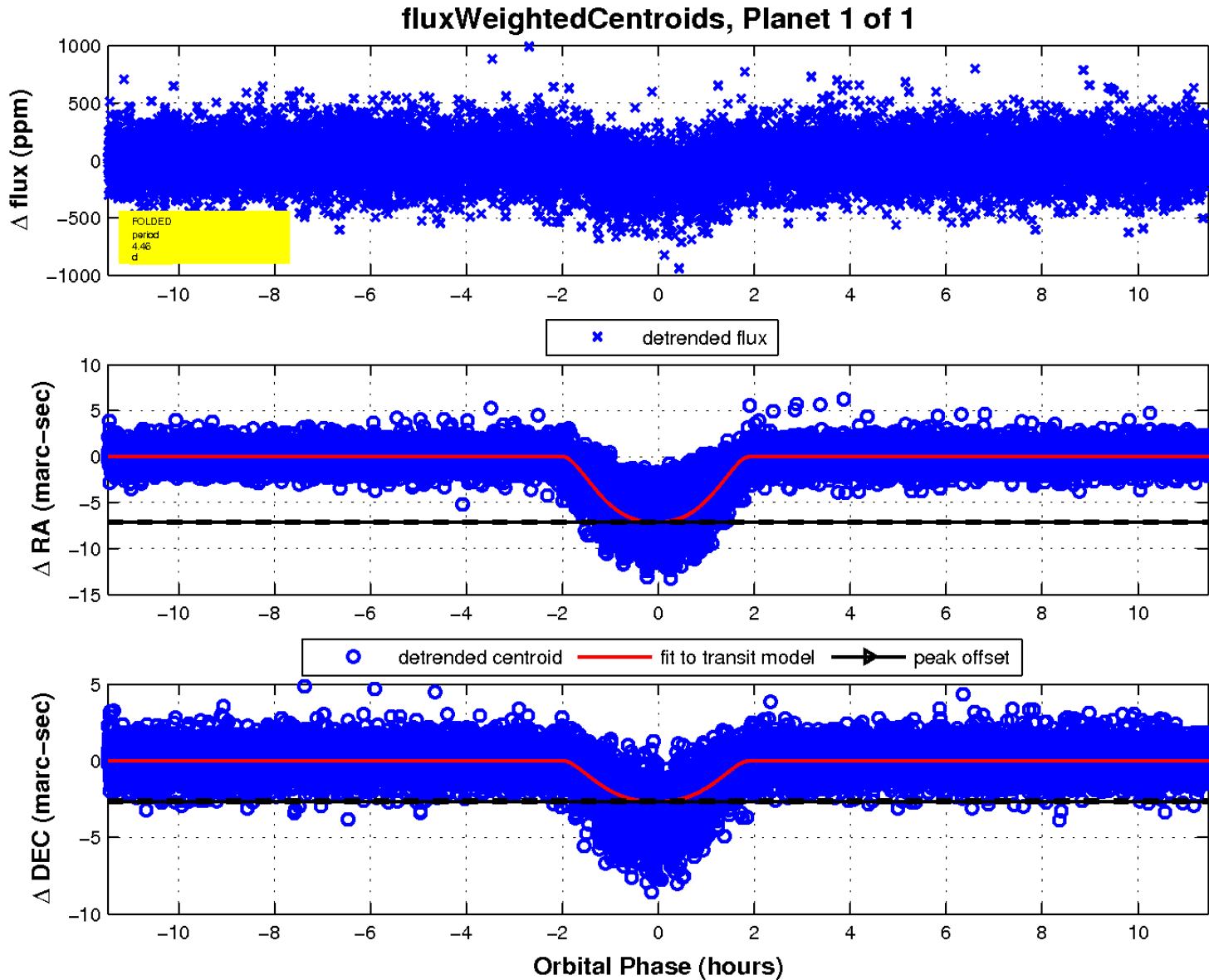
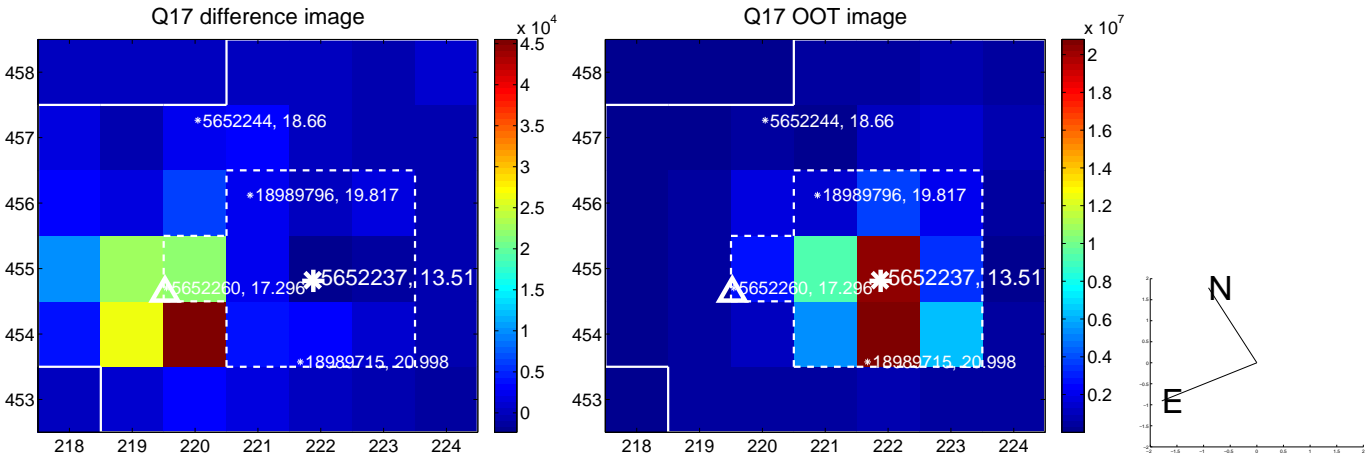
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

