

# KIC 004739565

## 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> )
004739565-01	OBS	6443.01	0.898919	131.810539	27.7	3.074	11.7	11.0	1.87	5712	1.18	9091.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004739565-01	OBS	FP	0.00	0	1	0	1	MOD_SEC_DV—MOD_SEC_ALT—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.

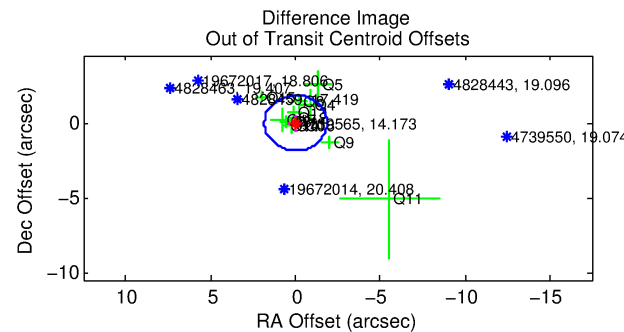
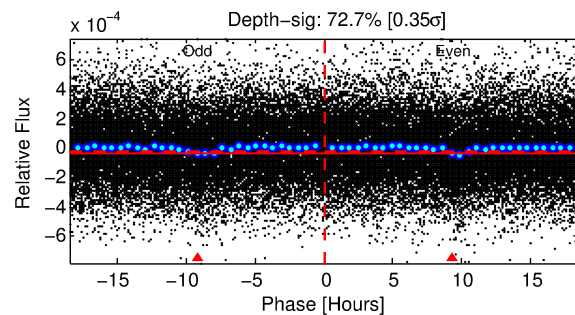
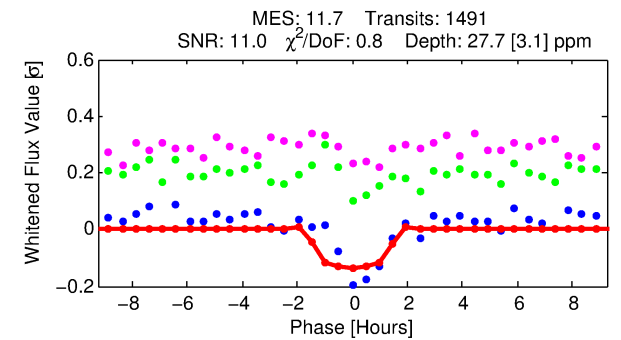
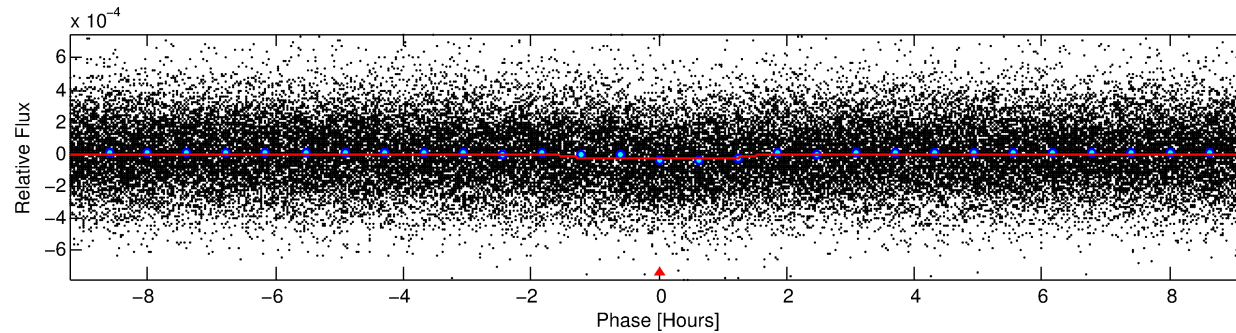
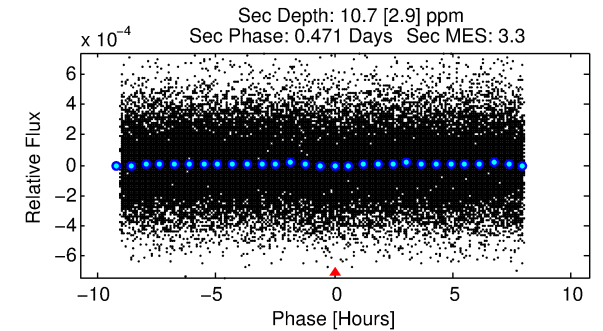
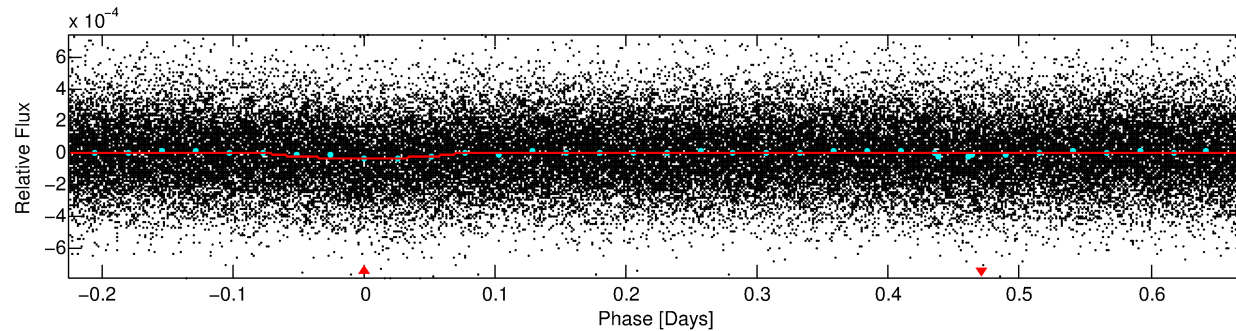
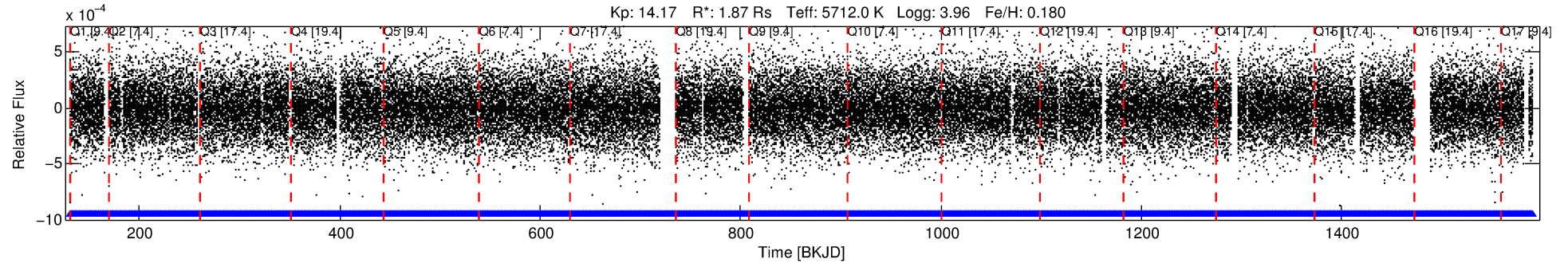
## Ephemeris Match Information For 004739565-01

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>
004739565-01	4739565	004739791-pri	4739791	1:1	353.3	89	0	14.70	14.17	5764.30	Col-Anomaly	0	0.24	1.65

**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: 4739565 Candidate: 1 of 1 Period: 0.899 d  
KOI: K06443.01 Corr: 0.859



## DV Fit Results:

Period = 0.89892 [0.00001] d  
Epoch = 131.8105 [0.0035] BKJD  
Rp/R\* = 0.0058 [0.0033]  
a/R\* = 1.37 [1.75]  
b = 0.90 [0.58]  
Seff = 9091.25 [3393.08]  
Teff = 2490 [232] K  
Rp = 1.18 [0.75] Re  
a = 0.0192 [0.0046] AU  
Ag = 1.57 [1.93] [0.29σ]  
Teffp = 4306 [1270] K [1.41σ]

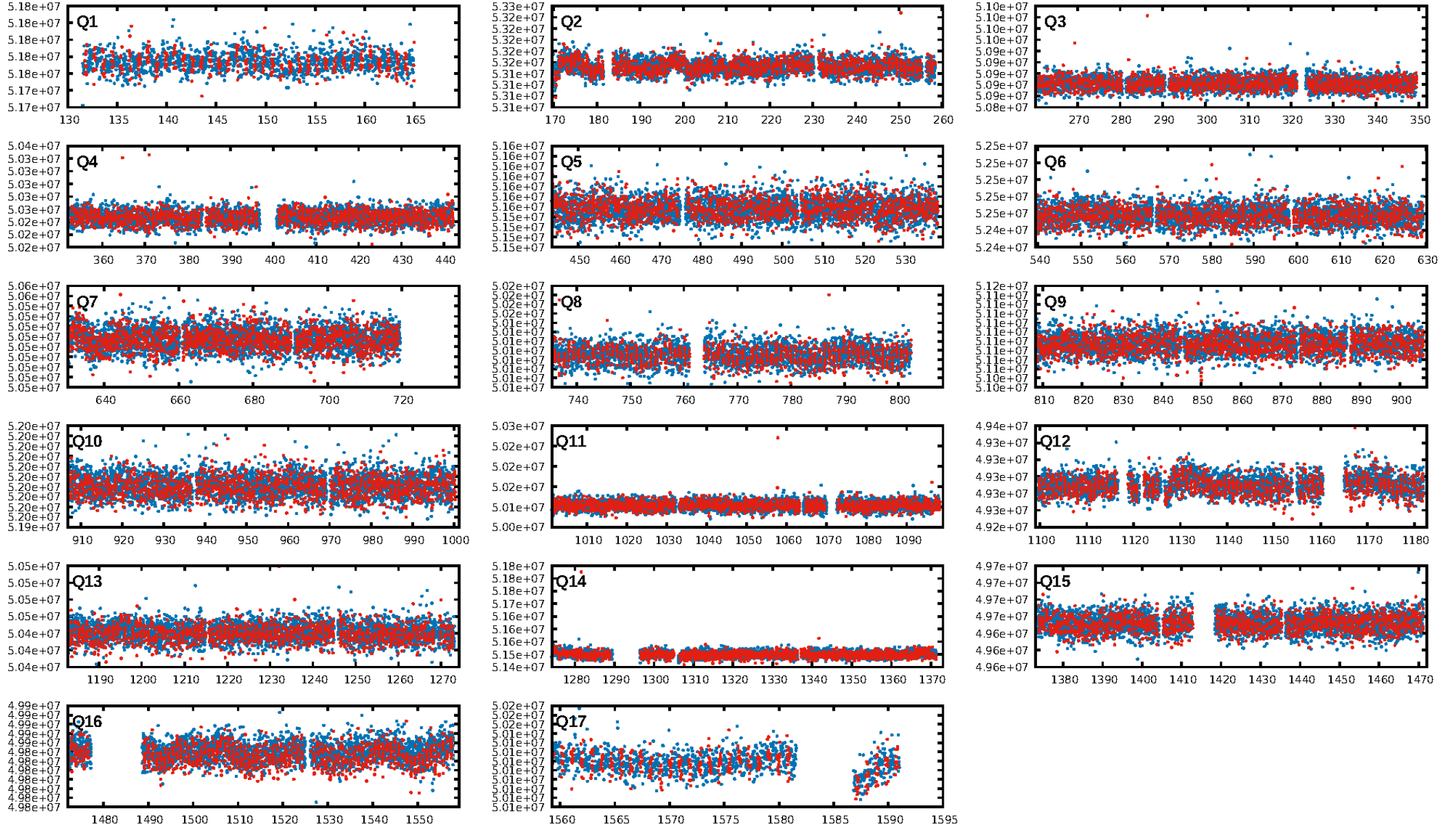
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.18e-27  
RollingBand-fgt: 1.00 [1424/1424]  
GhostDiagnostic-chr: 3.567  
Centroid-sig: 1.1%  
Centroid-so: 1.899 arcsec [1.64σ]  
OotOffset-rm: 0.035 arcsec [0.06σ]  
KicOffset-rm: 0.180 arcsec [0.32σ]  
OotOffset-st: 3/2/4/4 [13]  
KicOffset-st: 3/2/4/4 [13]  
DiffImageQuality-fgm: 0.85 [11/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:08:43 Z

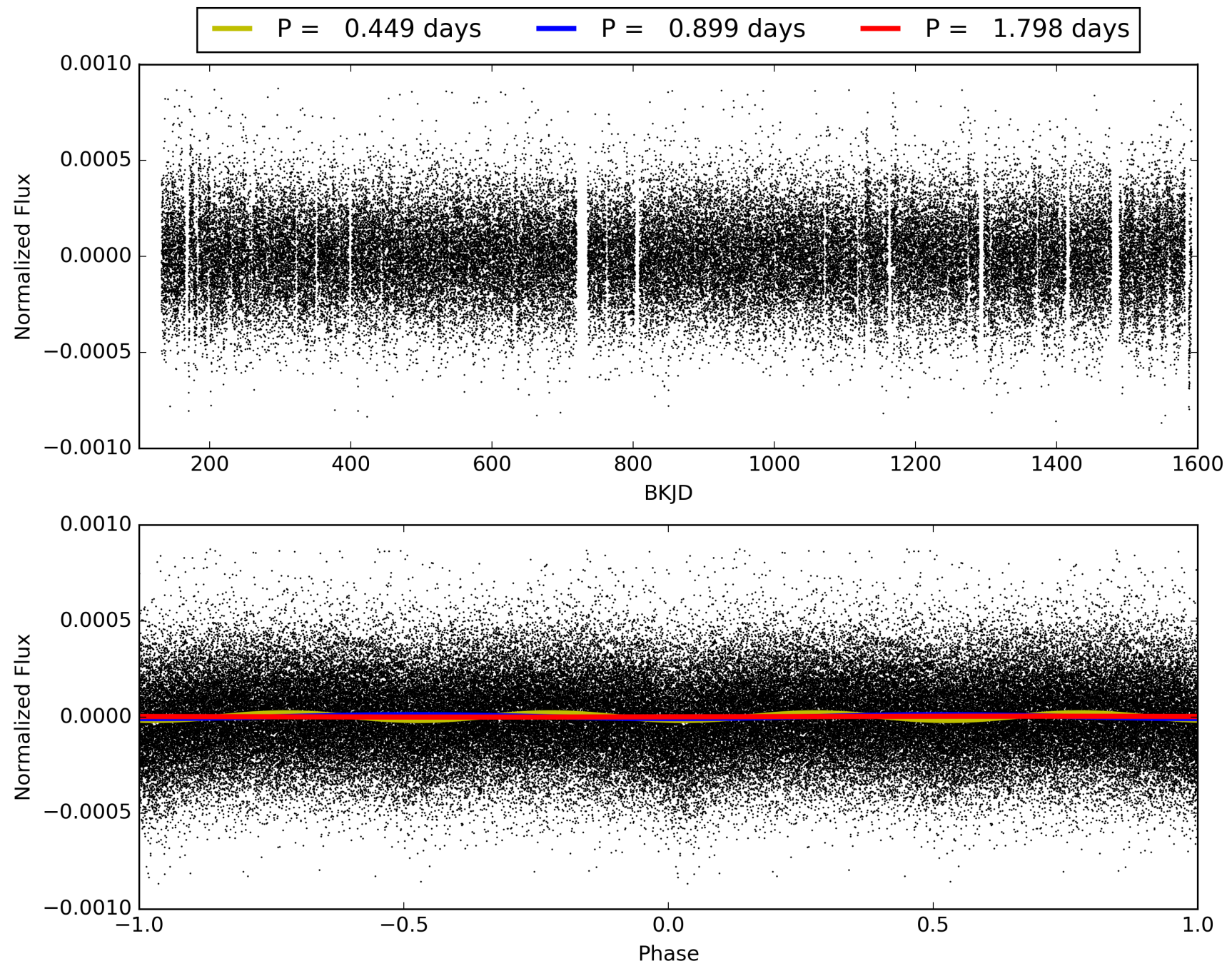
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004739565-01, PDC Light Curves



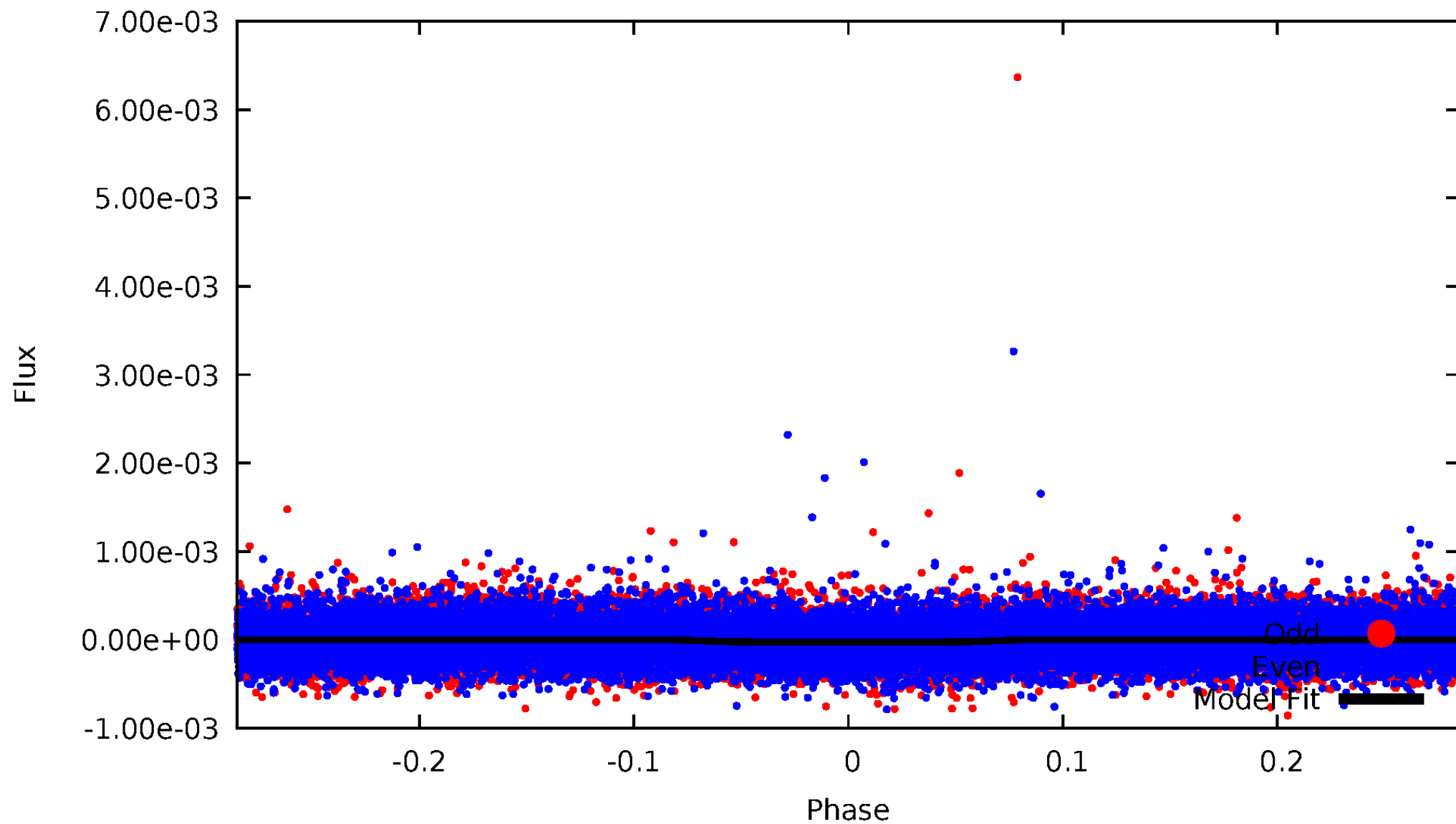


TCE 004739565-01



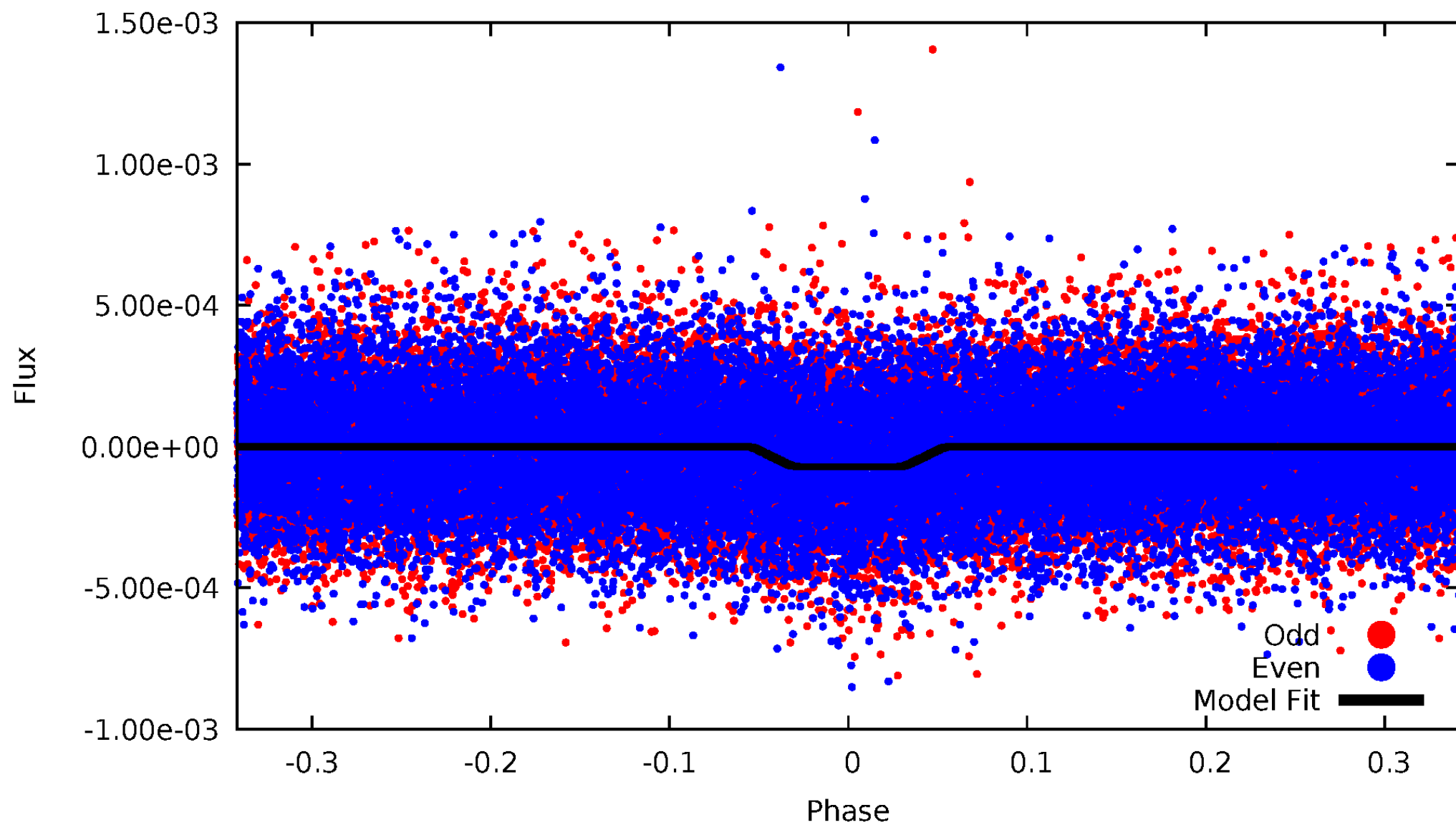
# DV Odd/Even

TCE 004739565-01

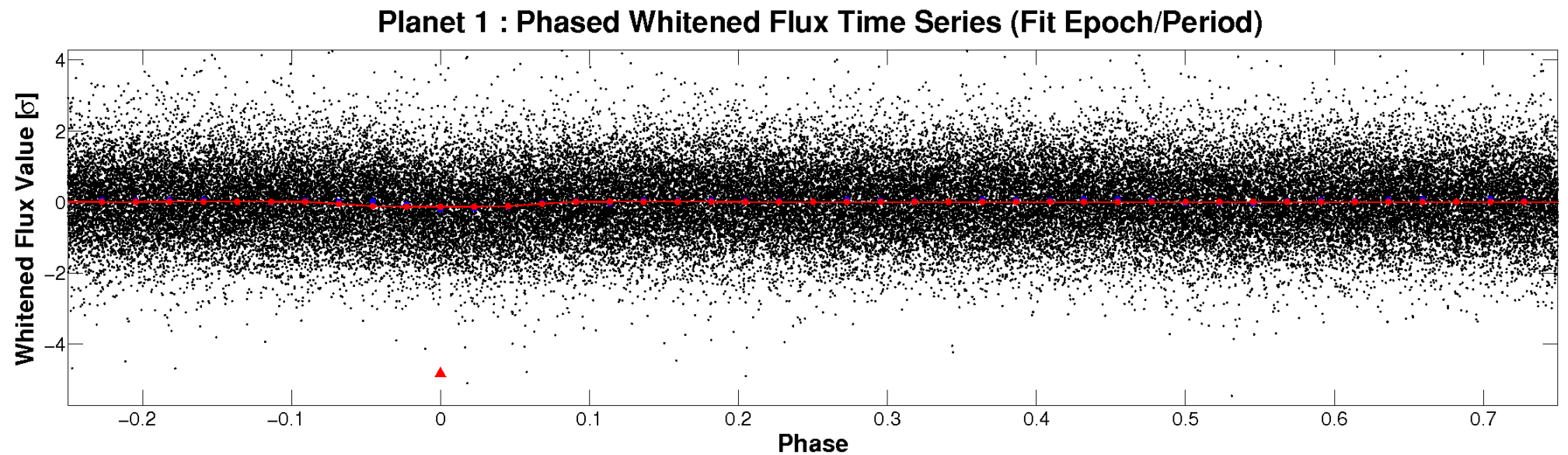
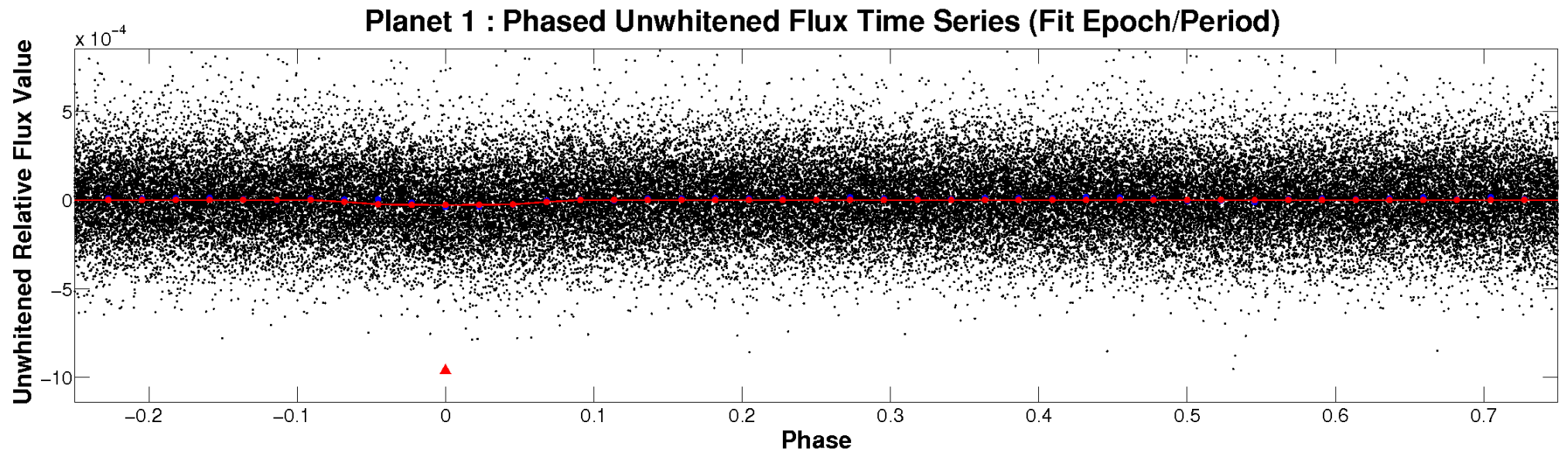


# ALT Odd/Even

TCE 004739565-01



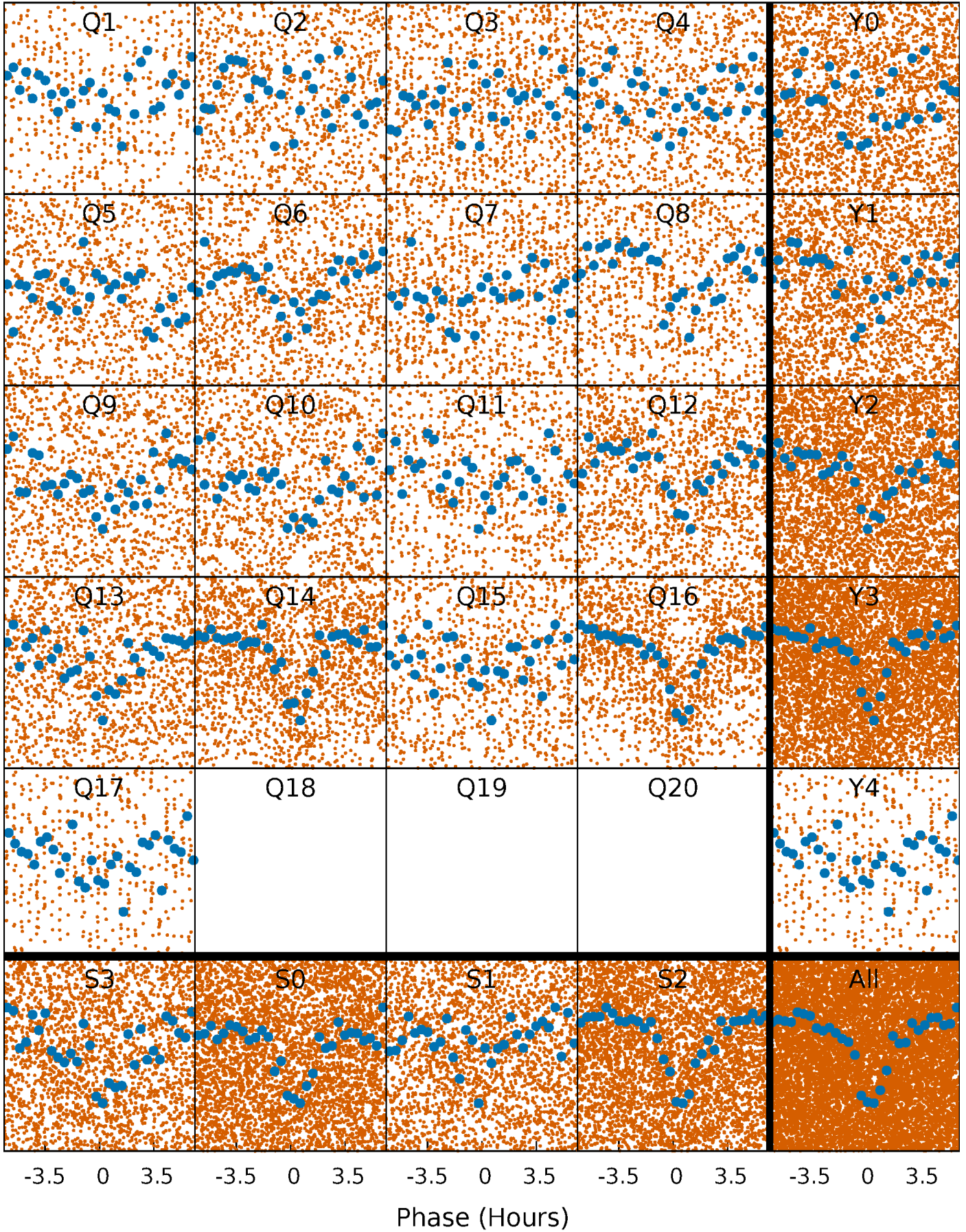
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

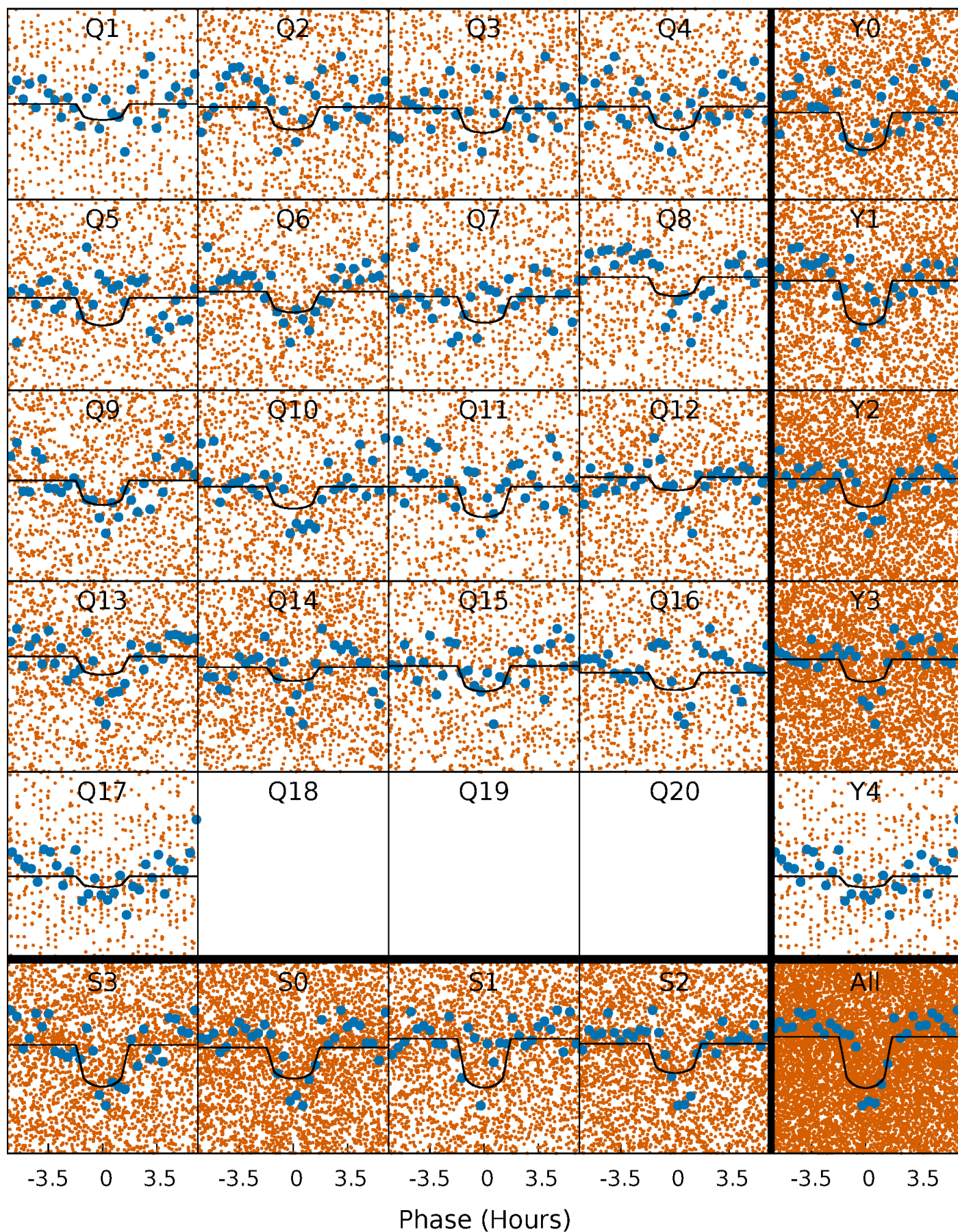
TCE 004739565-01 P= 0.898919 Days  $T_0=131.810539$  (BKJD)





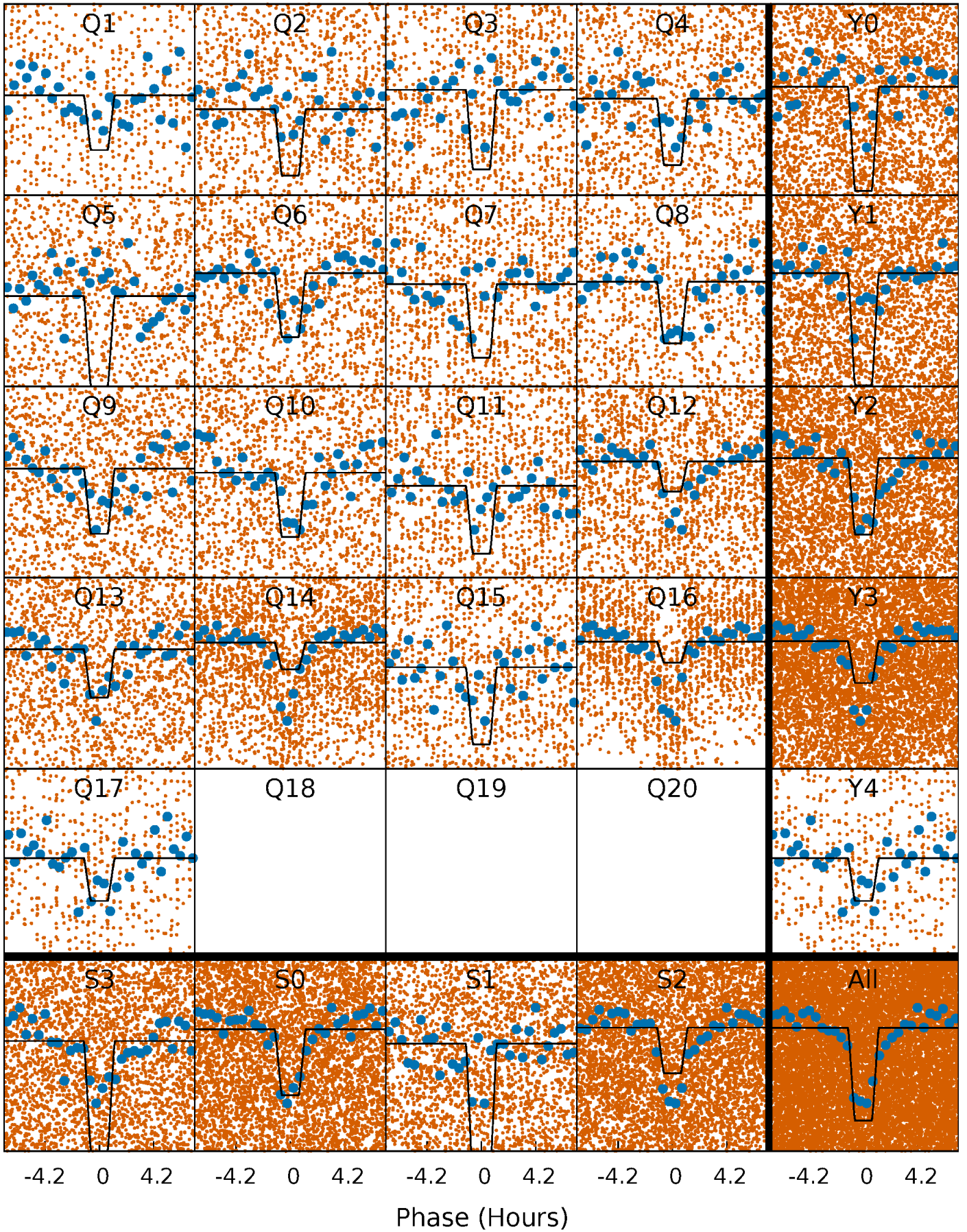
# DV Quarter-Phased Transit Curves

TCE 004739565-01 P= 0.898919 Days  $T_0=131.810539$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004739565-01 P= 0.898947 Days  $T_0=131.797493$  (BKJD)

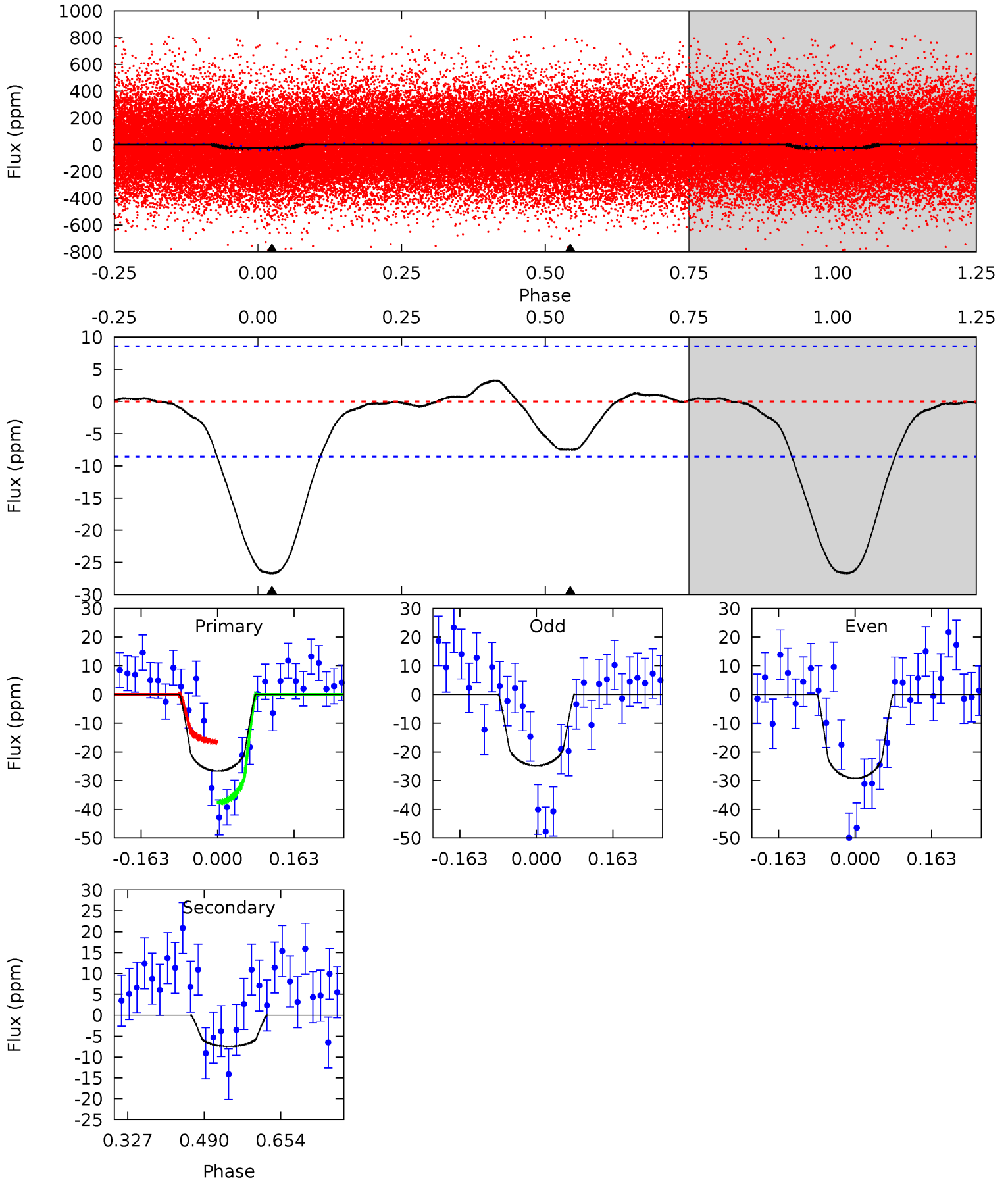




# DV Model-Shift Uniqueness Test

004739565-01, P = 0.898919 Days, E = 130.911620 Days

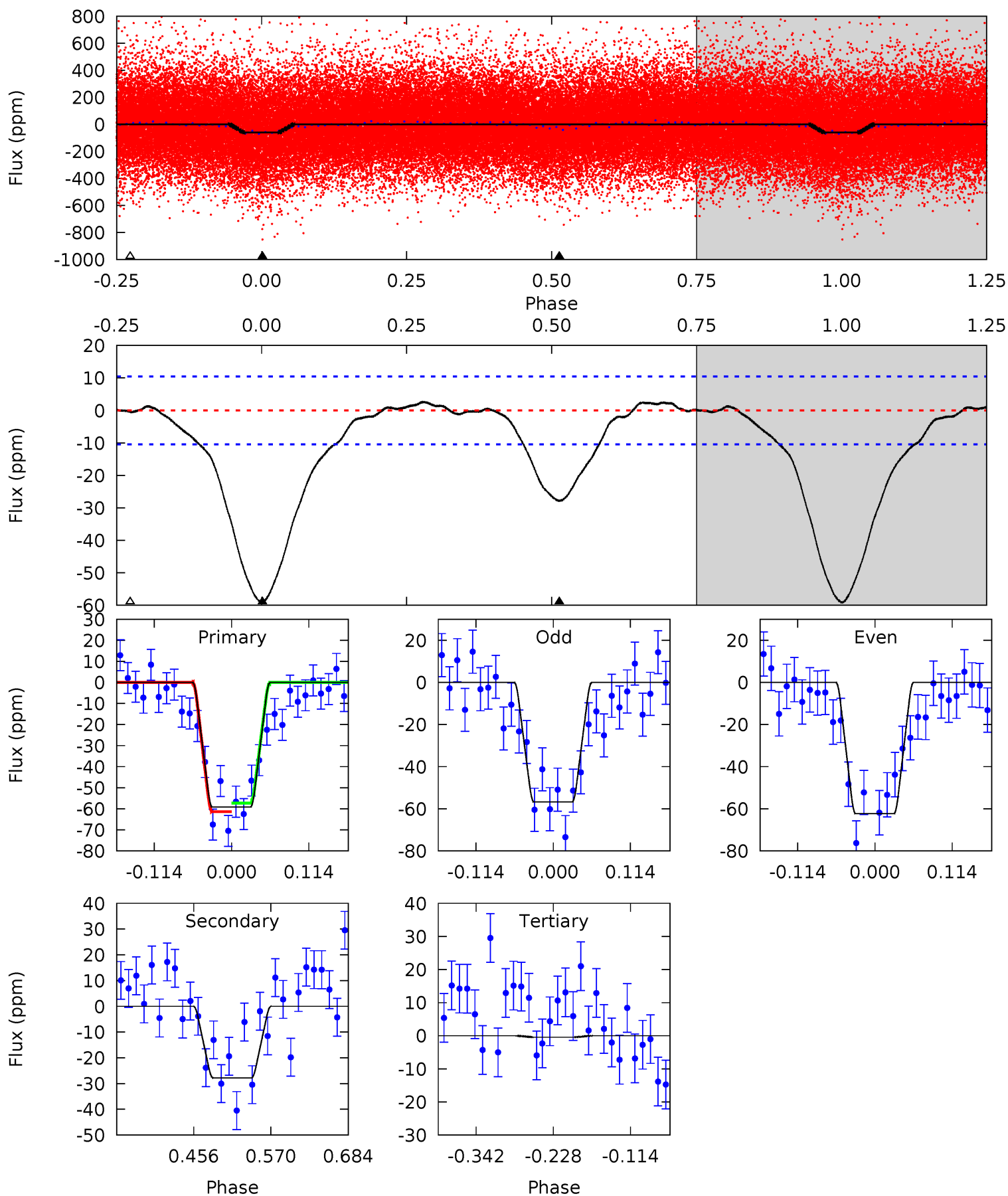
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	3.88	0	0	4.46	1.39	0.27	13.8	13.8	3.88	3.88	1.13	0.91	0.11	5.49



# Alt Model-Shift Uniqueness Test

004739565-01, P = 0.898947 Days, E = 130.898546 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
25.7	12.1	0.19	0	4.54	1.58	1.39	25.5	25.7	11.9	12.1	1.21	1.05	0.04	0.89





### Stellar Parameters For KIC 004739565

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5712^{+77}_{-77}$	$3.959^{+0.210}_{-0.090}$	$0.180^{+0.150}_{-0.150}$	$1.872^{+0.253}_{-0.506}$	$1.162^{+0.125}_{-0.153}$	$0.250^{+0.299}_{-0.072}$
	+1%/-1%	+5%/-2%	+83%/-83%	+14%/-27%	+11%/-13%	+120%/-29%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004739565-01 / KOI 6443.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-7 \pm 2$	$1.18^{+0.66}_{-0.58}$	$3456^{+148}_{-215}$	$3891^{+1422}_{-953}$	$1.082^{+3.170}_{-0.653}$
Alt.	$-28 \pm 2$	$1.66^{+0.72}_{-0.71}$	$3447^{+141}_{-235}$	$4529^{+1227}_{-685}$	$2.035^{+4.105}_{-1.056}$

$T_{max}$  = 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

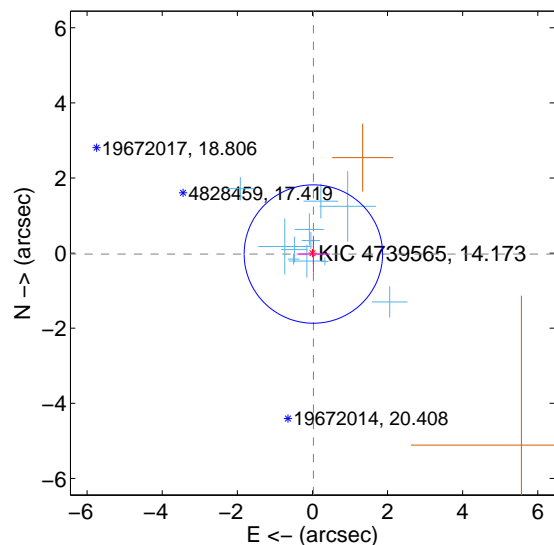
Supplemental centroid analysis for 004739565-01. Kepler magnitude: 14.17. Transit SNR 10.95

There are 11 quarters with good PRF difference image offsets

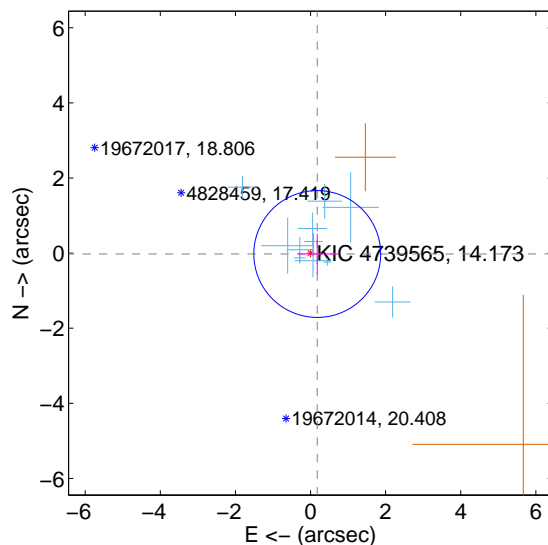
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.035 \pm 0.614$	0.06	$-0.025 \pm 0.442$	$-0.025 \pm 0.488$
PRF-fit source offset from KIC position	$0.180 \pm 0.563$	0.32	$-0.179 \pm 0.512$	$-0.024 \pm 0.539$
photometric centroid source offset	$1.90 \pm 1.16$	1.64	$0.54 \pm 1.16$	$-1.82 \pm 1.16$

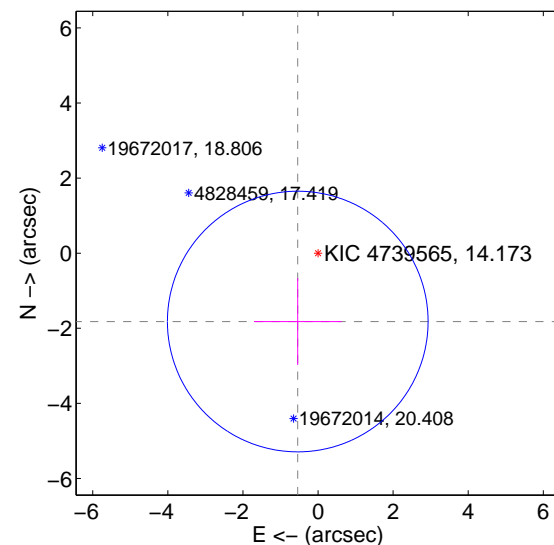
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

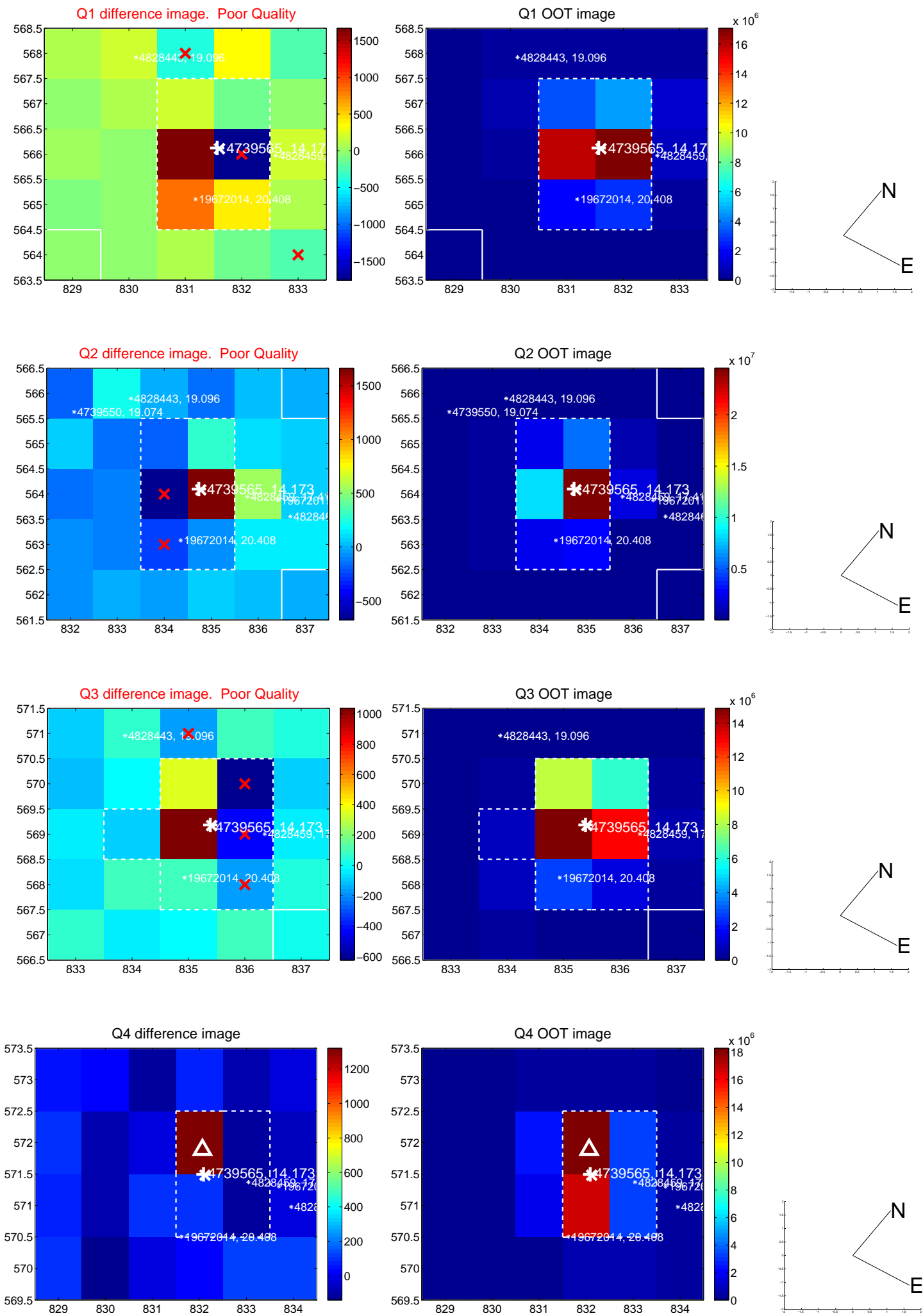


offset from photometric centroids

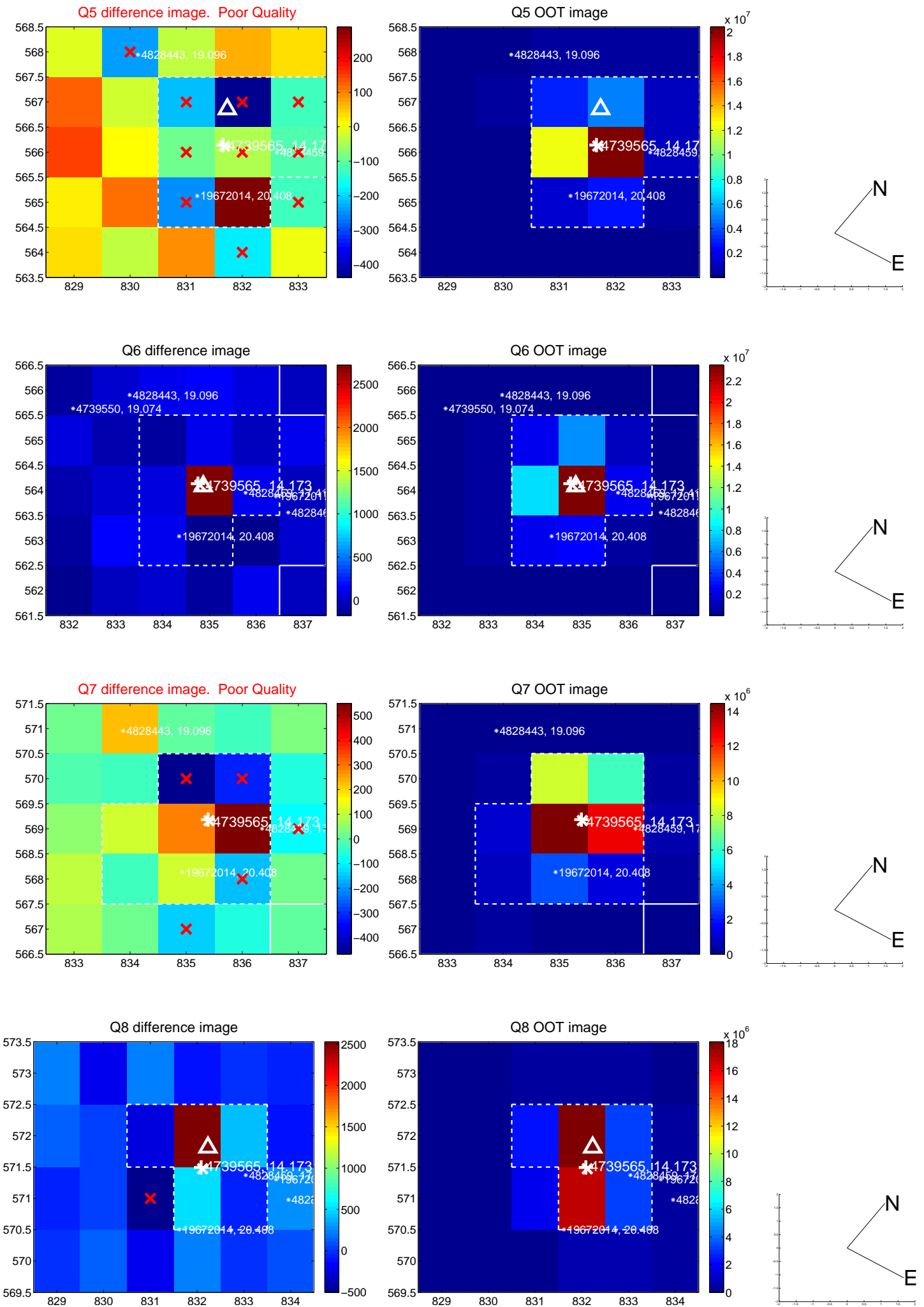


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

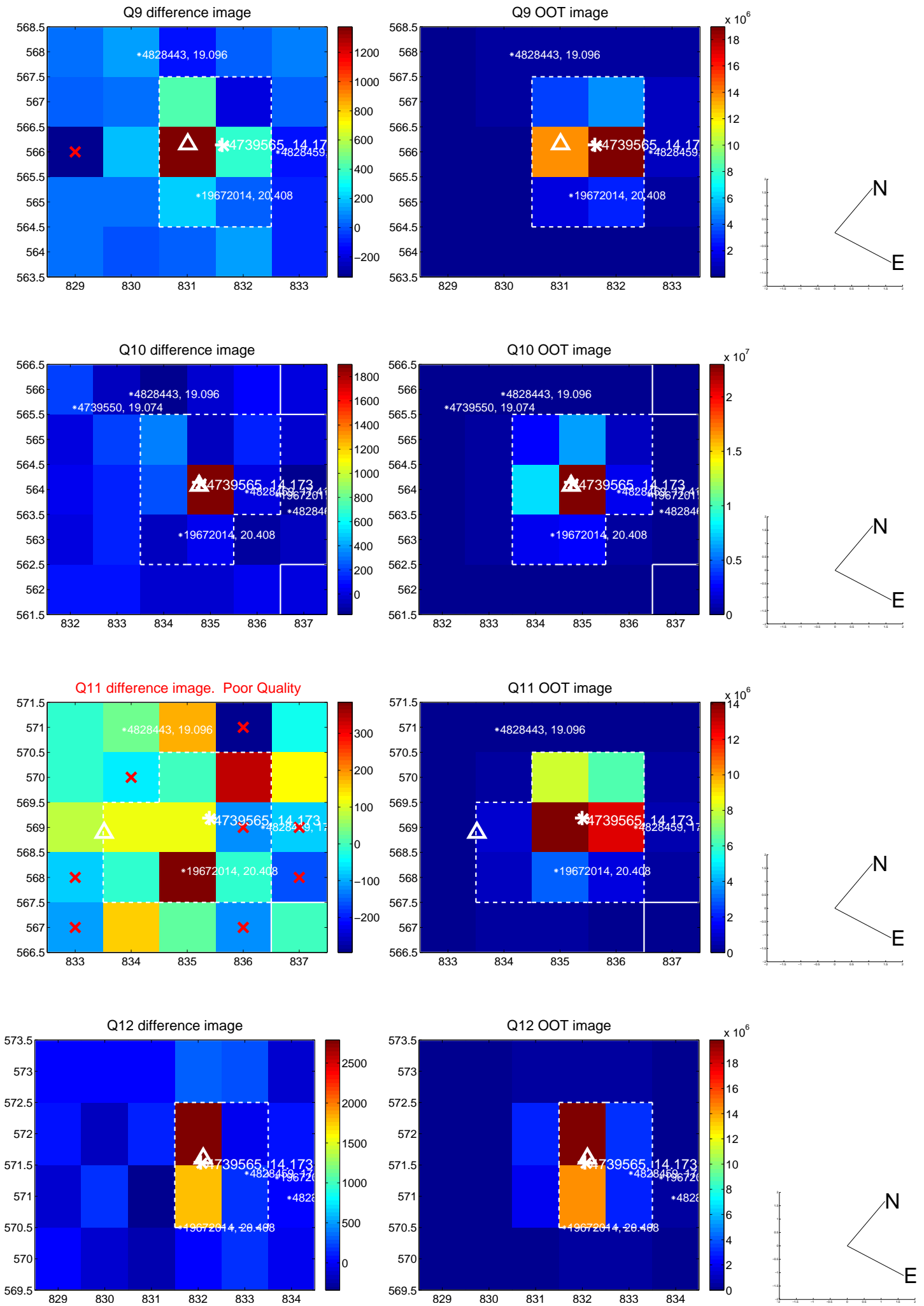


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

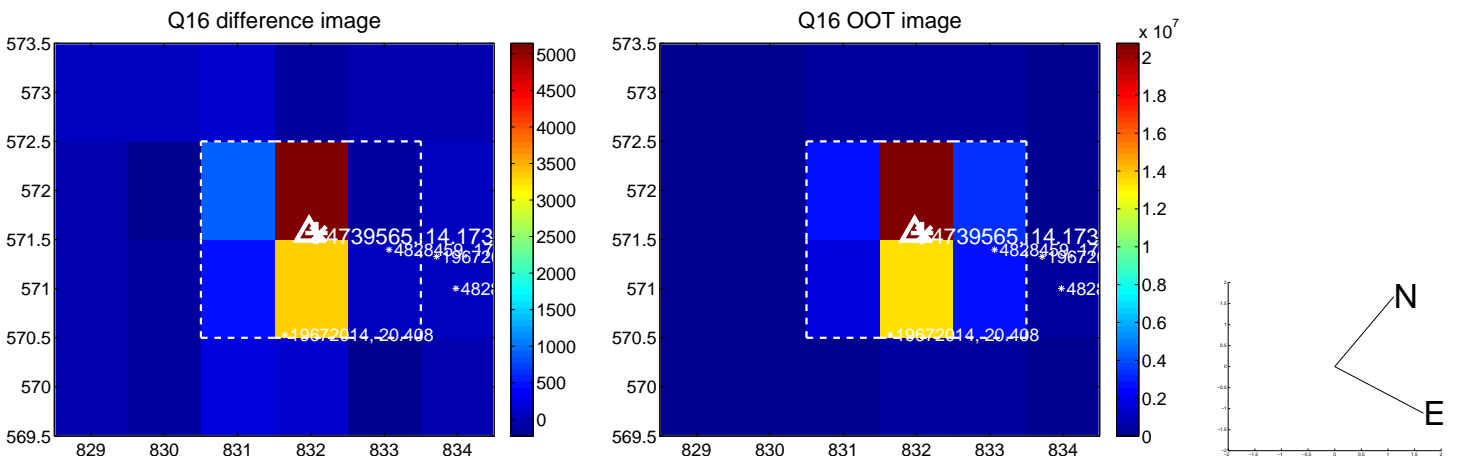
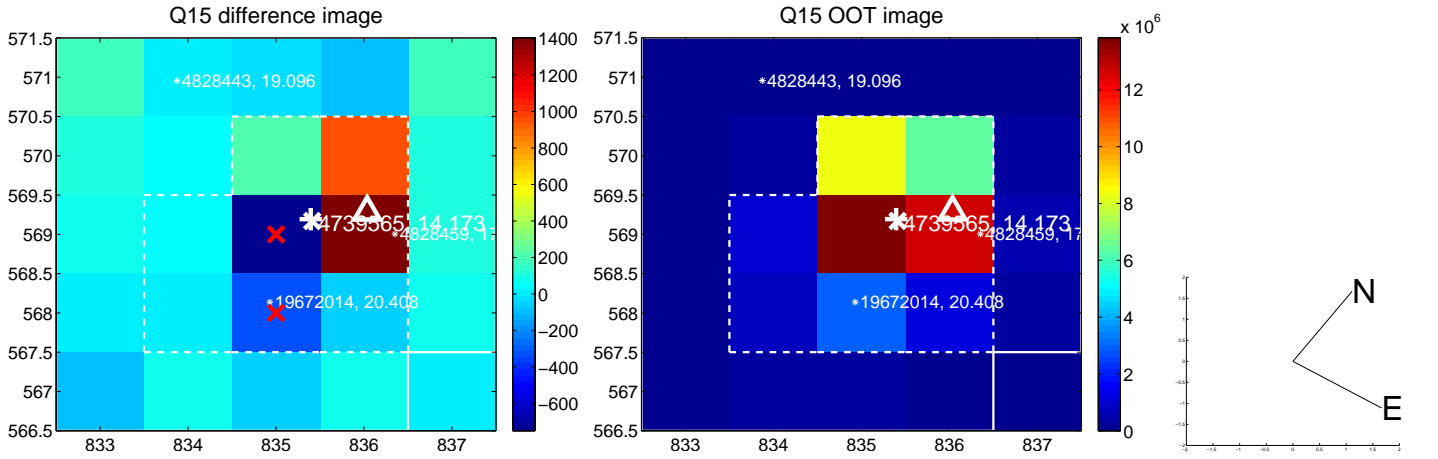
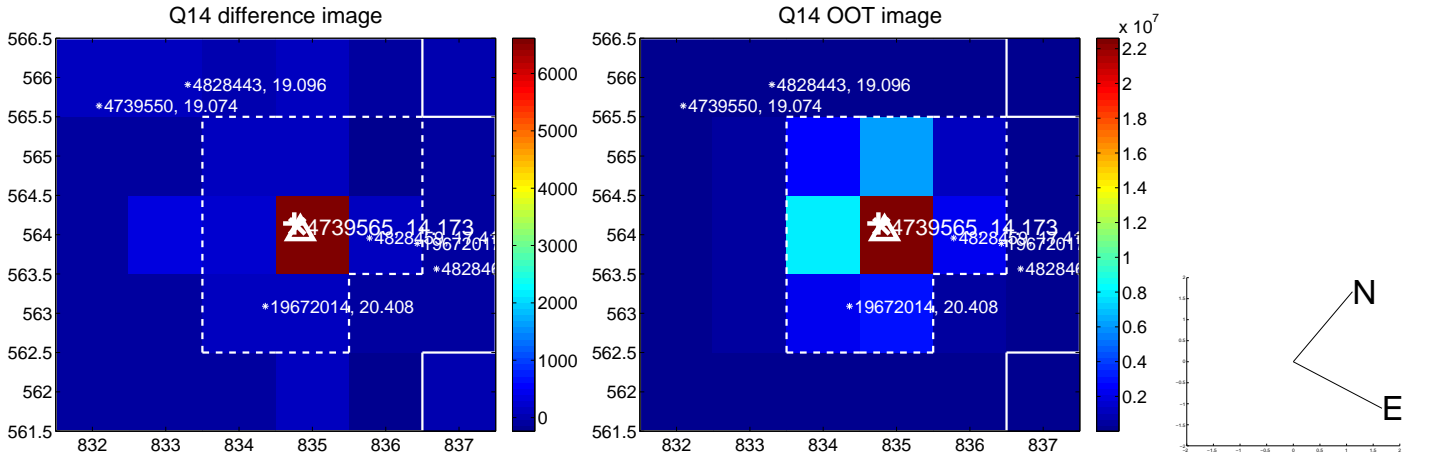
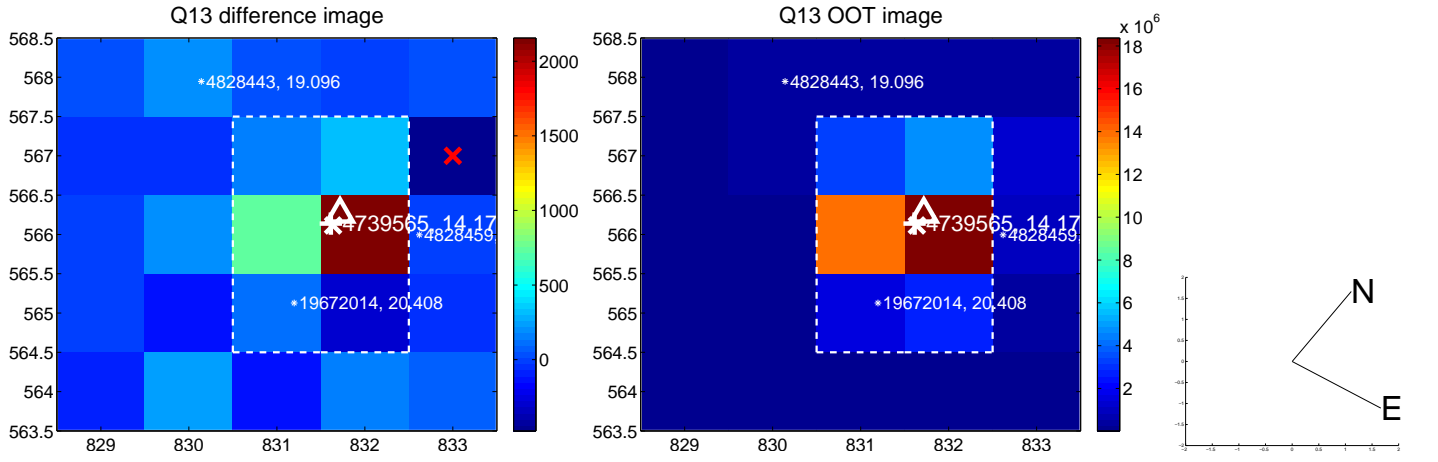




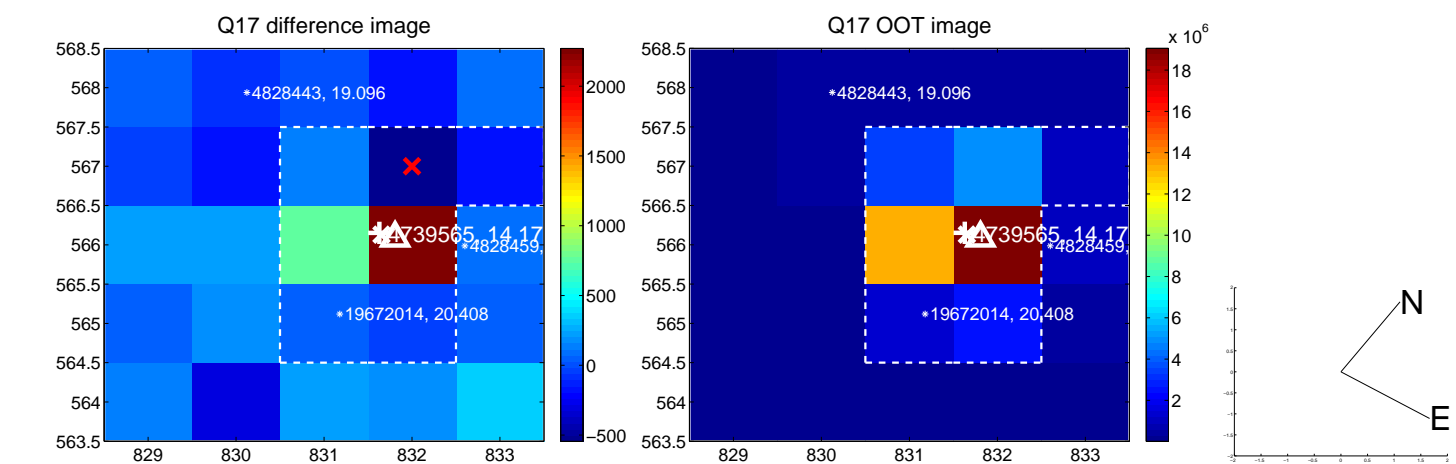
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



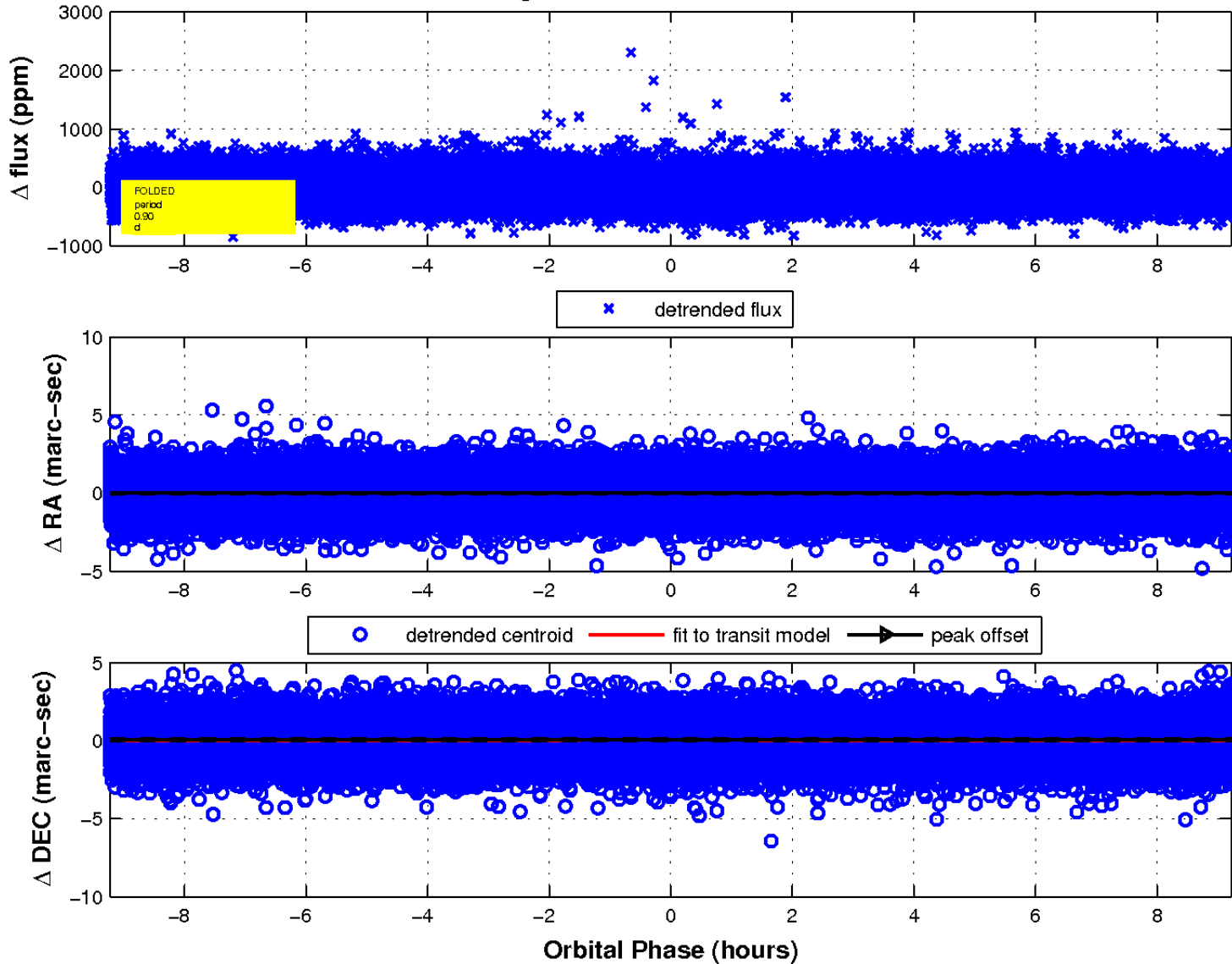
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

