

# KIC 003632418

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003632418-01	OBS	0975.01	2.785818	132.690355	67.4	3.572	47.6	52.6	1.73	6202	1.66	2396.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003632418-01	OBS	PC	1.00	0	0	0	0	CENT_SATURATED

**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.

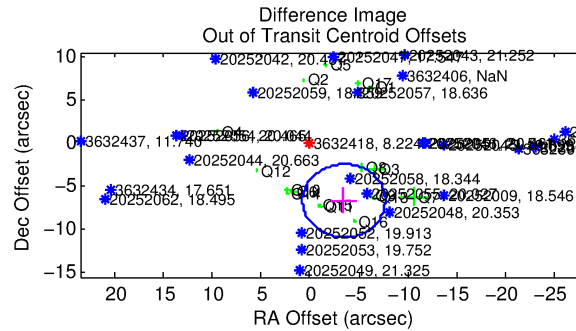
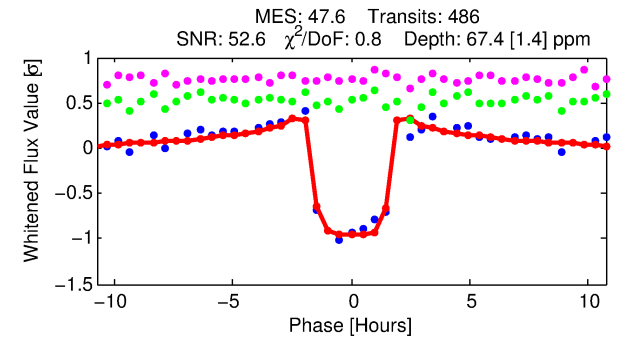
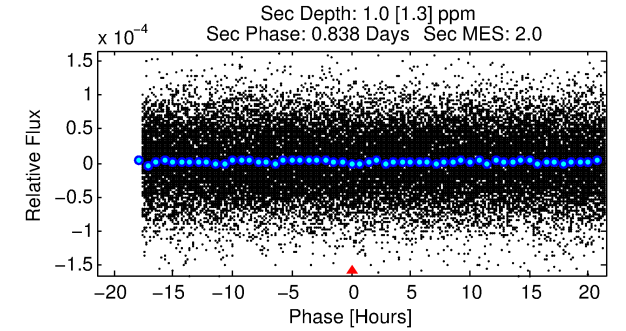
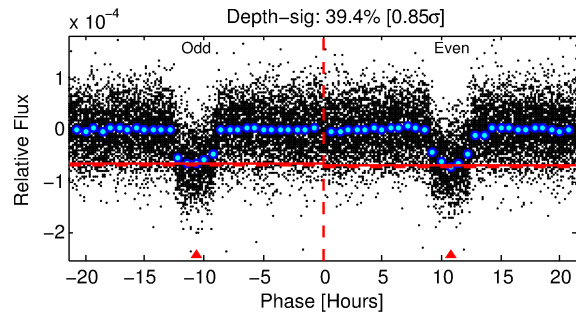
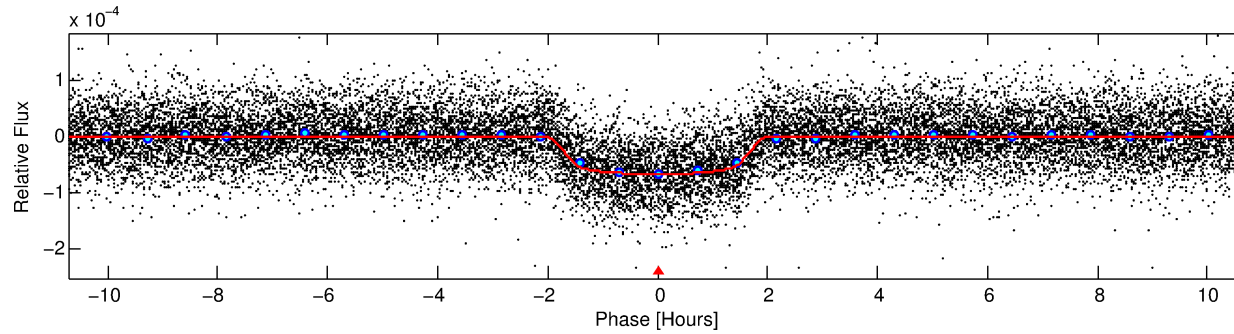
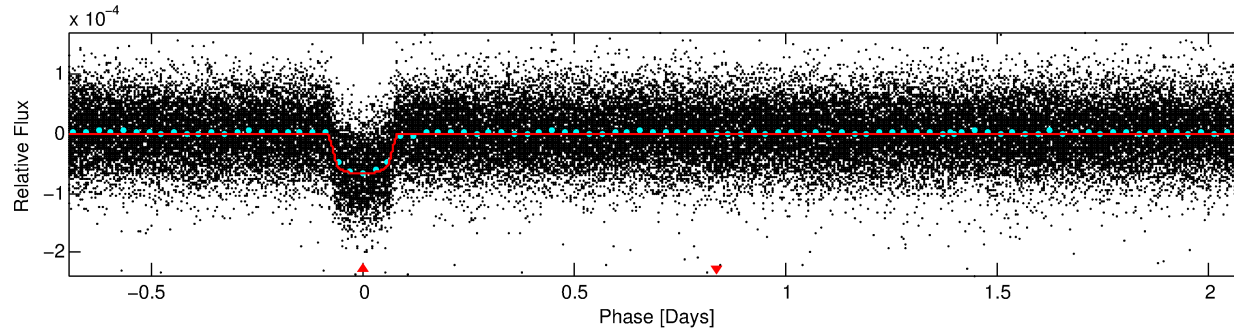
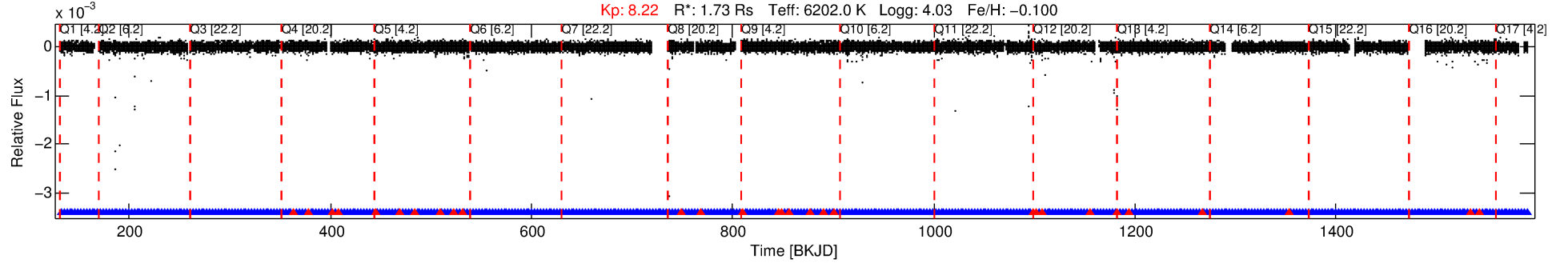
## Ephemeris Match Information For 003632418-01

No Significant Match Found

# DV One-Page Summary

KIC: 3632418 Candidate: 1 of 1 Period: 2.786 d  
KOI: K00975.01 Name: Kepler-21b Corr: 0.987

Kp: 8.22 R\*: 1.73 Rs Teff: 6202.0 K Logg: 4.03 Fe/H: -0.100



## DV Fit Results:

Period = 2.78582 [0.00000] d  
Epoch = 132.6904 [0.0006] BKJD  
Rp/R\* = 0.0087 [0.0006]  
a/R\* = 3.00 [1.01]  
b = 0.89 [0.09]  
Seff = 2396.72 [207.45]  
Teff = 1784 [39] K  
Rp = 1.65 [0.16] Re  
a = 0.0408 [0.0021] AU  
Ag = 0.33 [0.45] [-1.49σ]  
Teffp = 2086 [719] K [0.42σ]

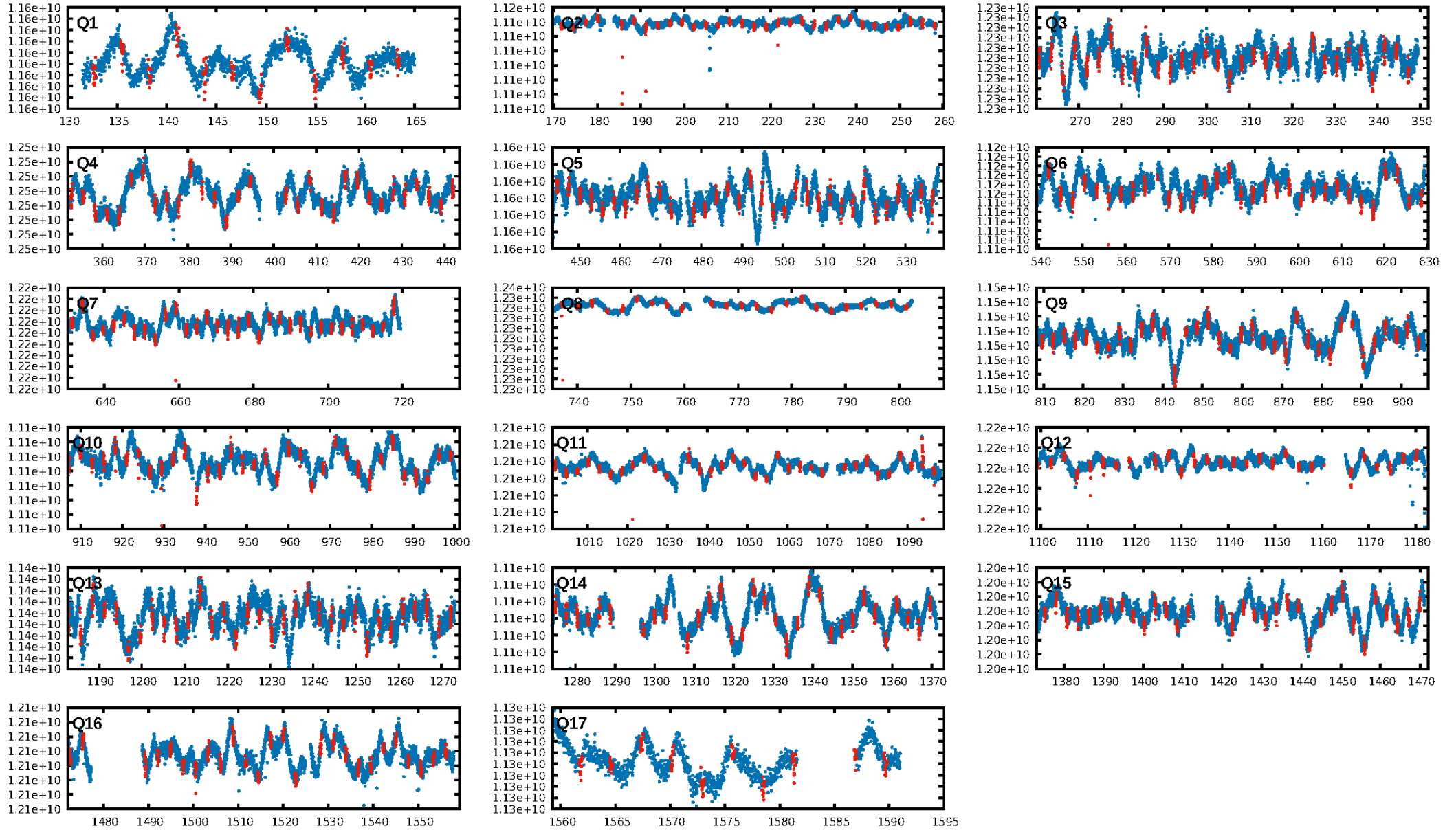
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.94 [435/464]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 5.719 arcsec [12.62σ]  
OotOffset-rm: 7.516 arcsec [5.33σ]  
KicOffset-rm: 5.115 arcsec [3.67σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 1.00 [17/17]

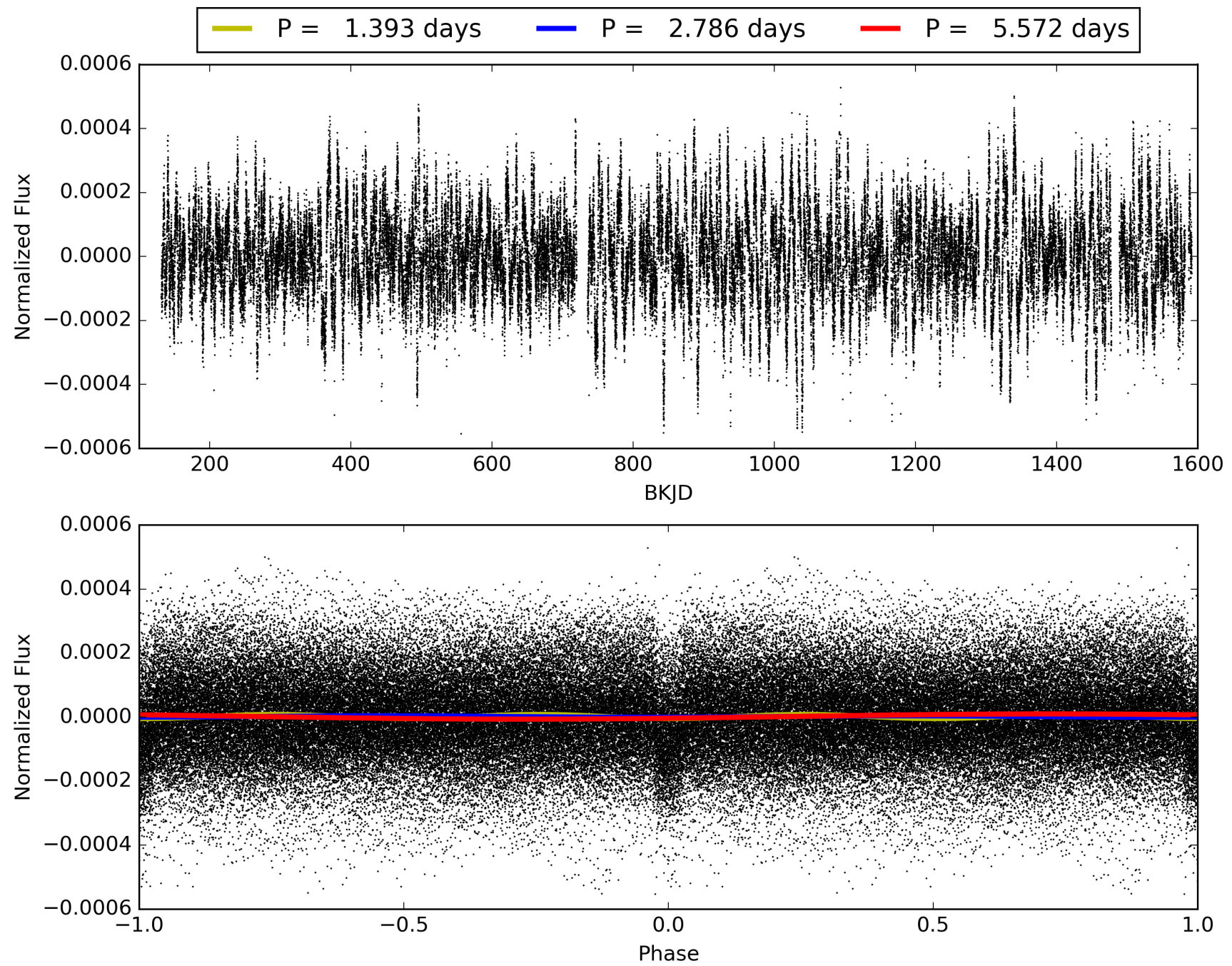
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:52:03 Z

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

# TCE 003632418-01, PDC Light Curves

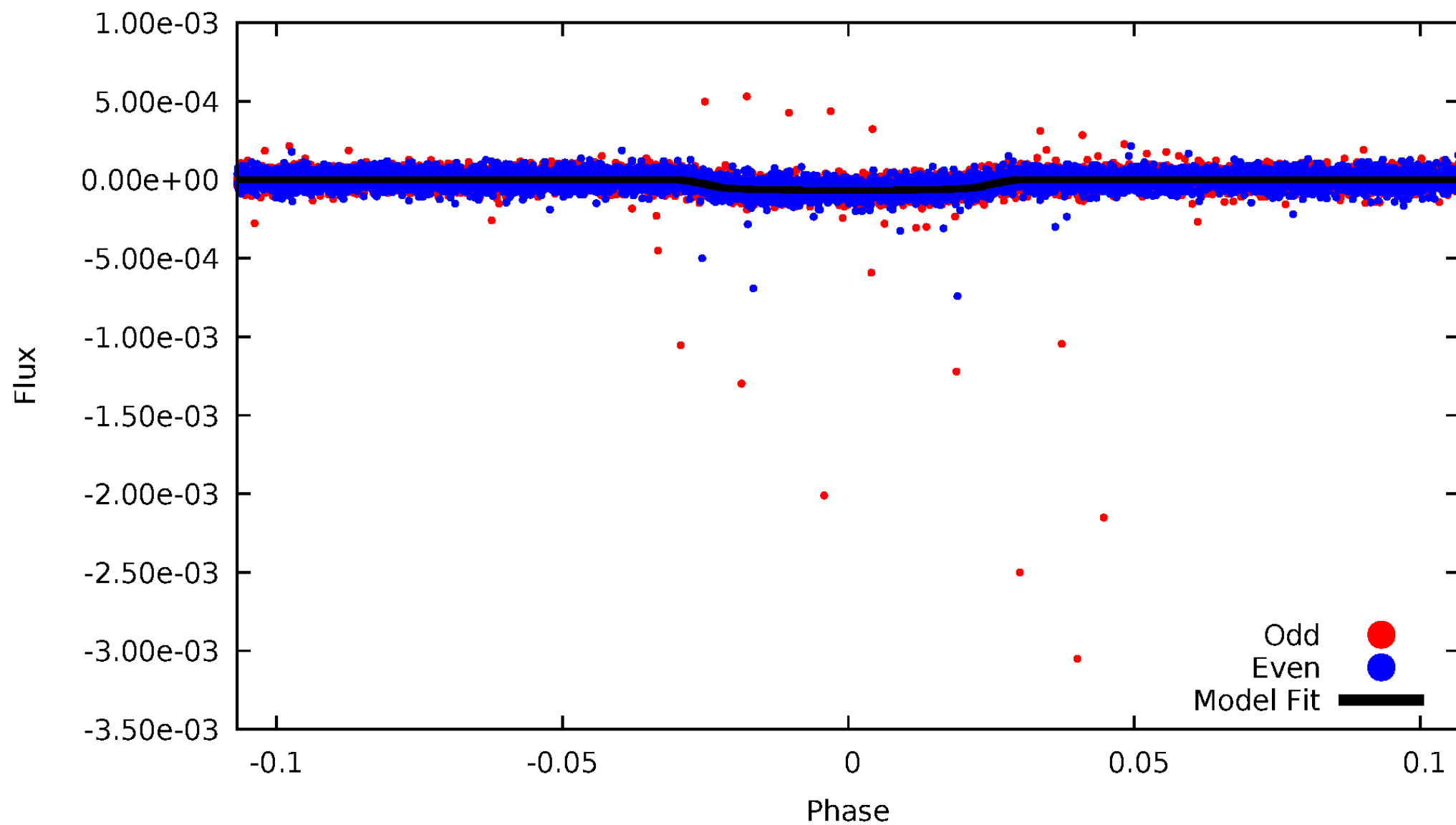


TCE 003632418-01



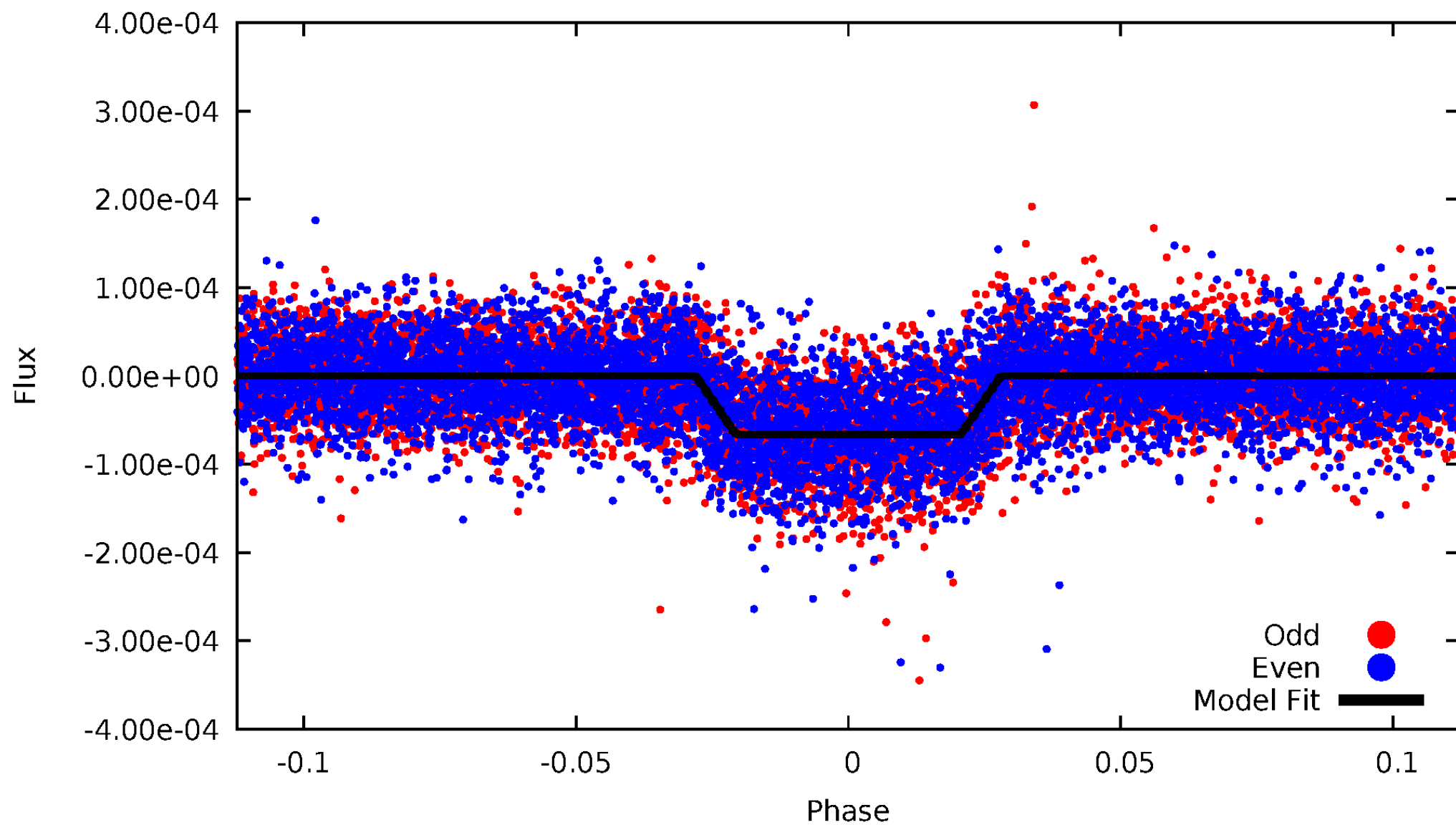
# DV Odd/Even

TCE 003632418-01



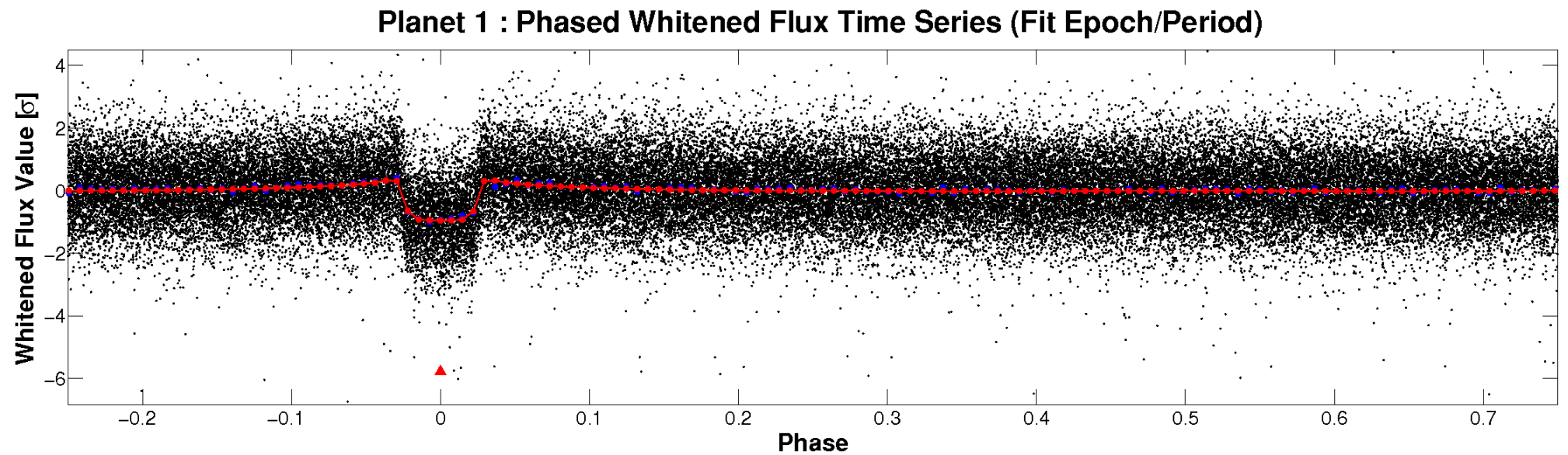
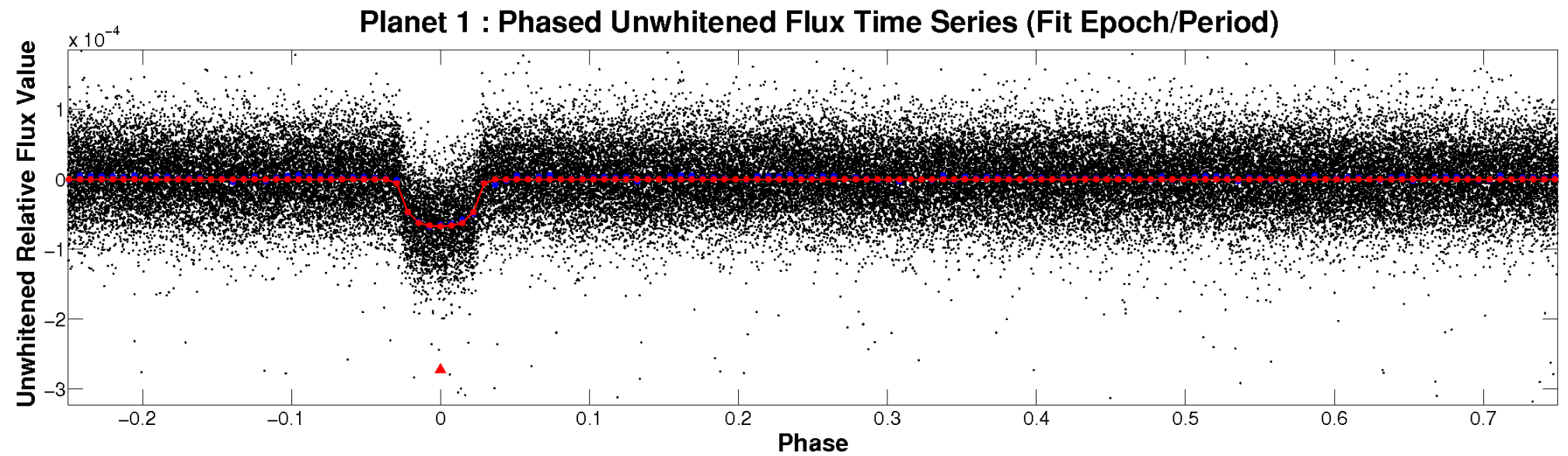
# ALT Odd/Even

TCE 003632418-01



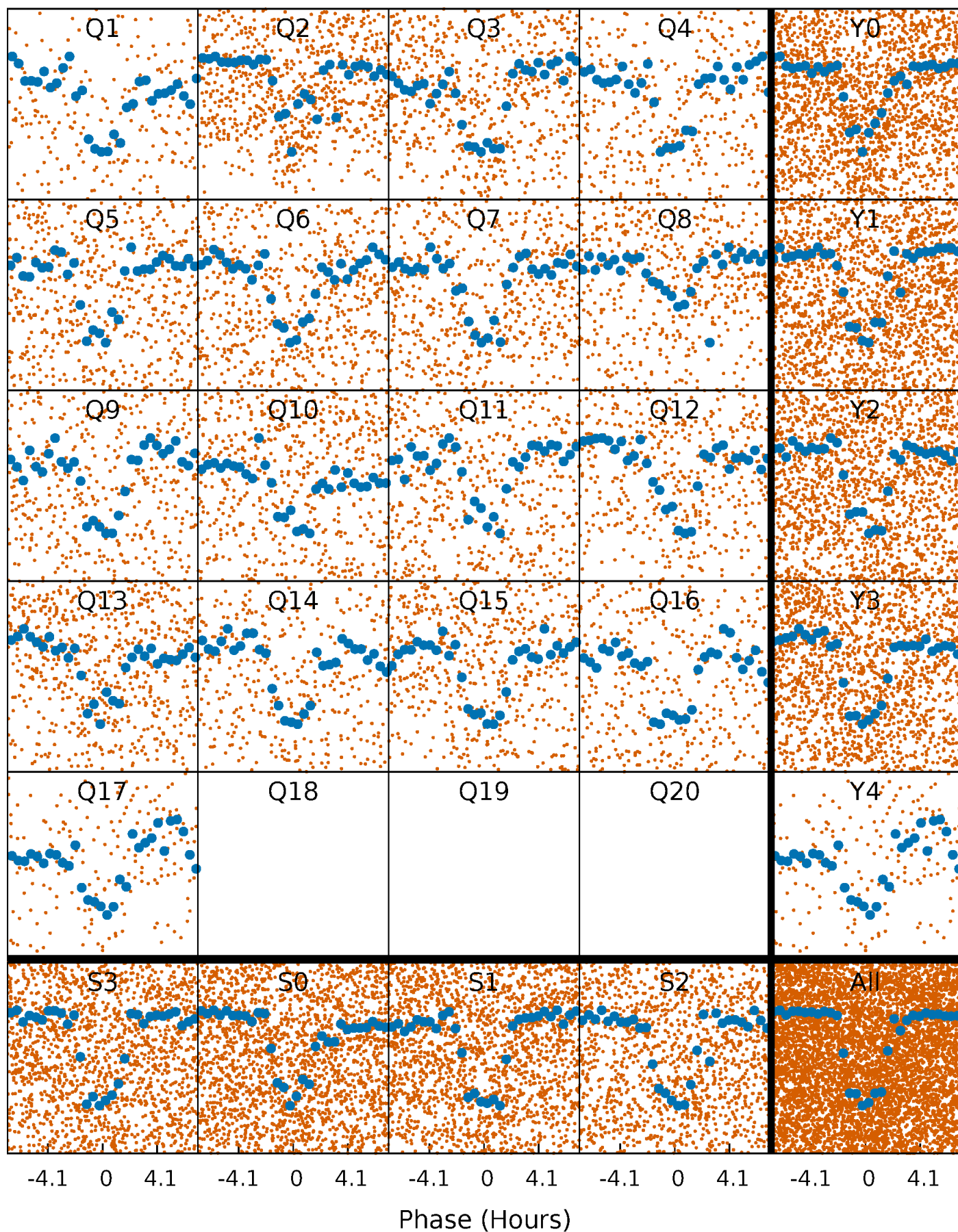


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

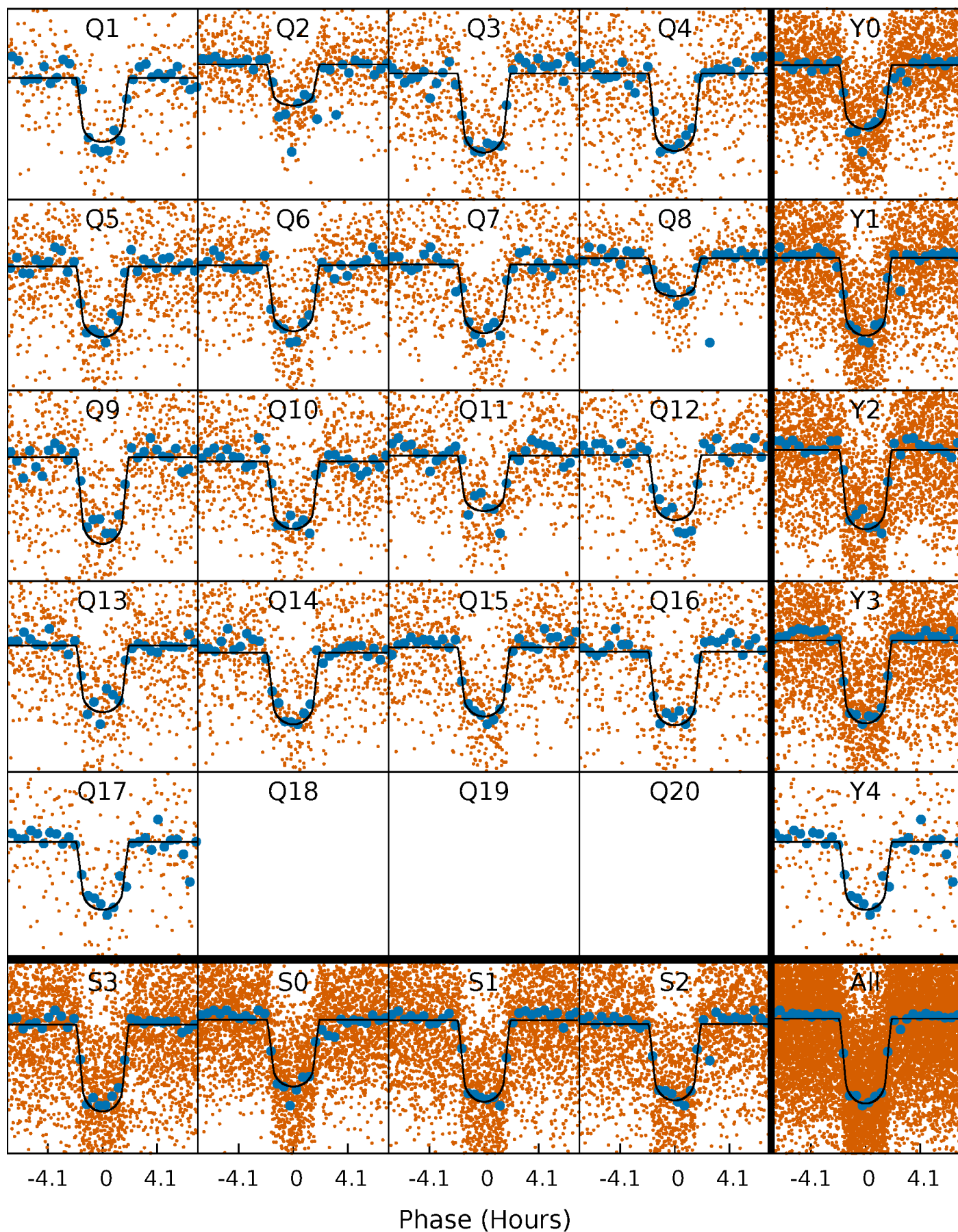
TCE 003632418-01 P= 2.785818 Days  $T_0=132.690355$  (BKJD)





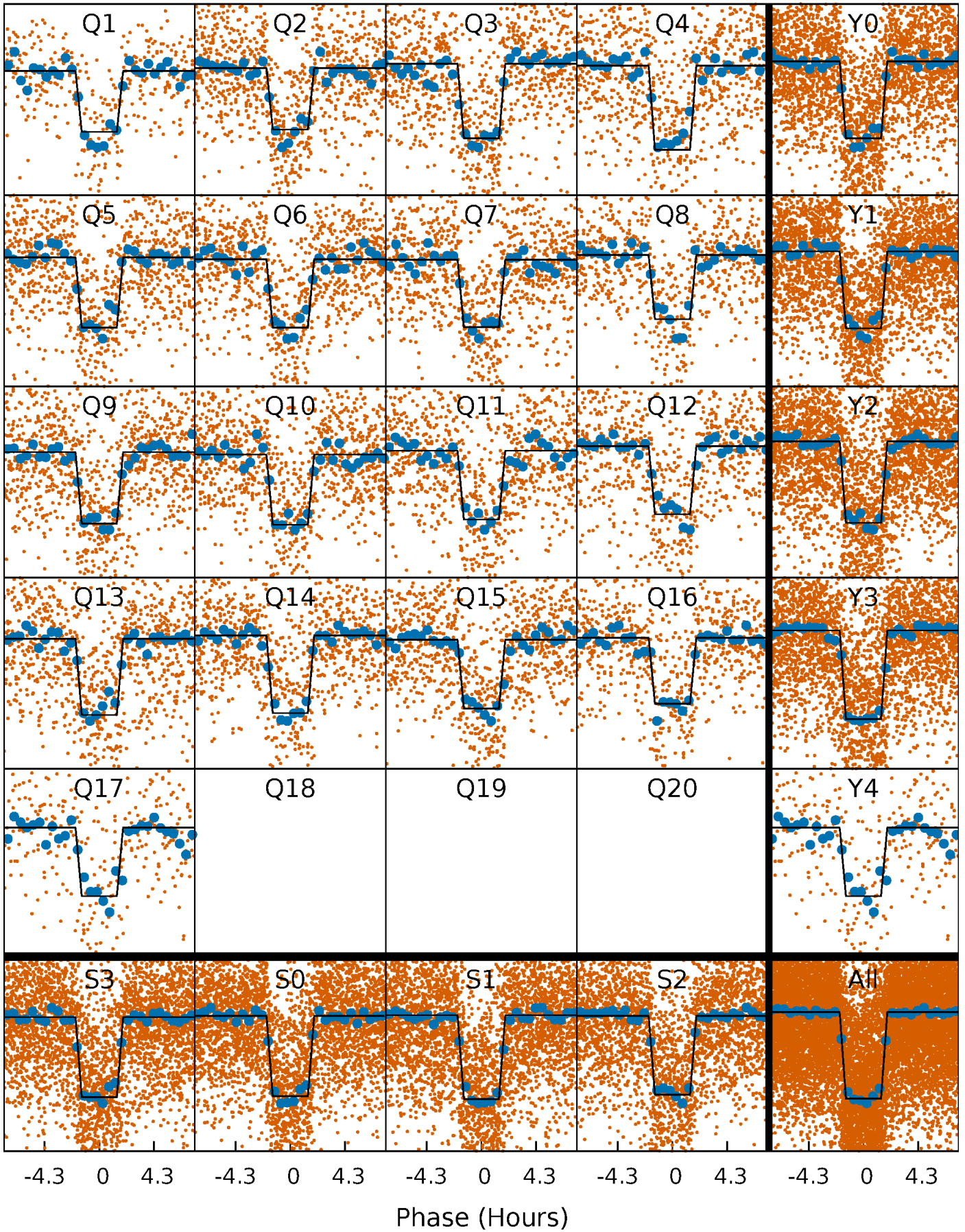
# DV Quarter-Phased Transit Curves

TCE 003632418-01 P= 2.785818 Days  $T_0=132.690355$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

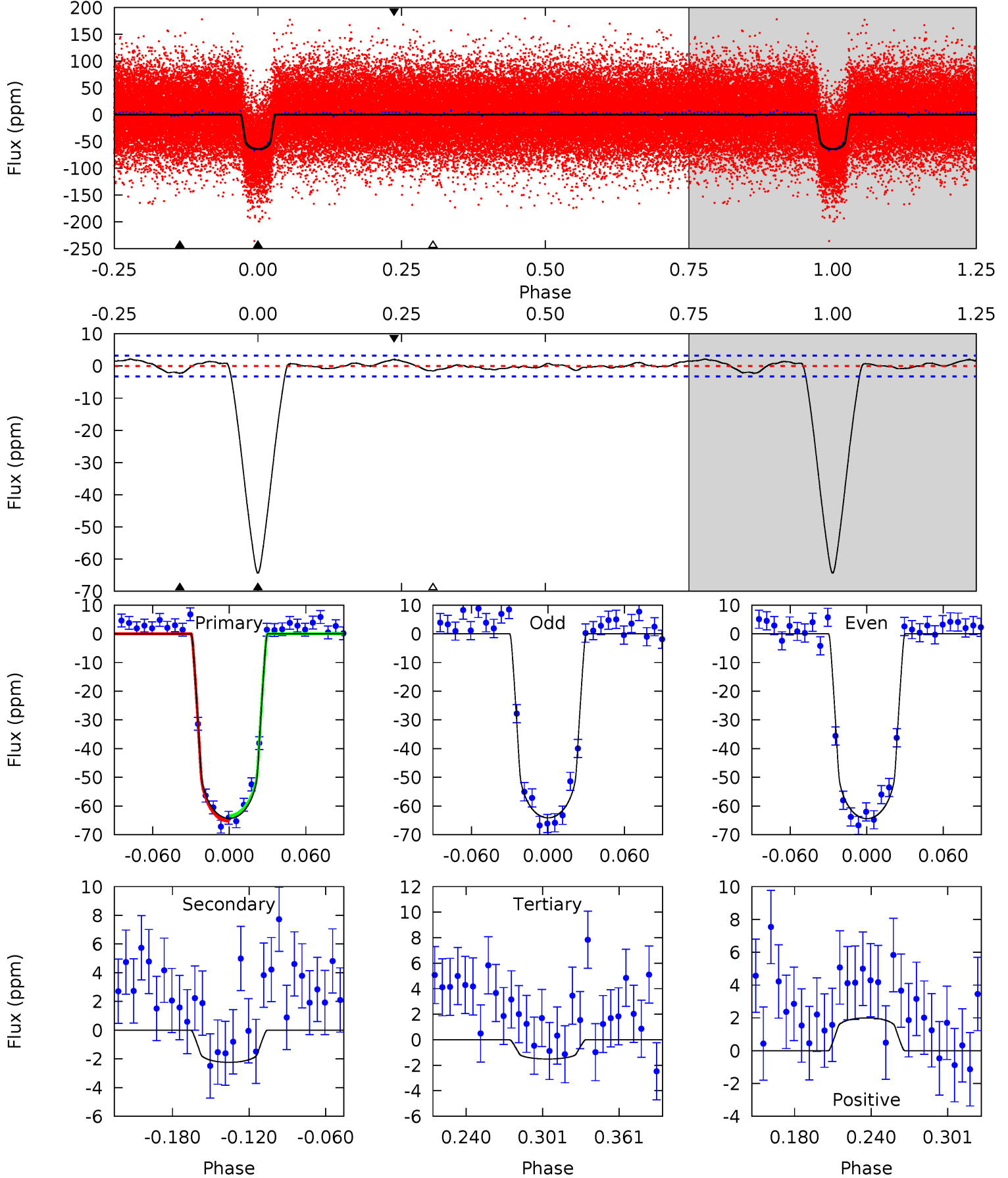
TCE 003632418-01 P= 2.785805 Days  $T_0=132.693370$  (BKJD)



# DV Model-Shift Uniqueness Test

003632418-01, P = 2.785818 Days, E = 129.904537 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
93.2	3.25	2.19	2.90	4.67	1.88	1.23	91.1	90.3	1.06	0.35	0.20	1.04	0.03	1.34

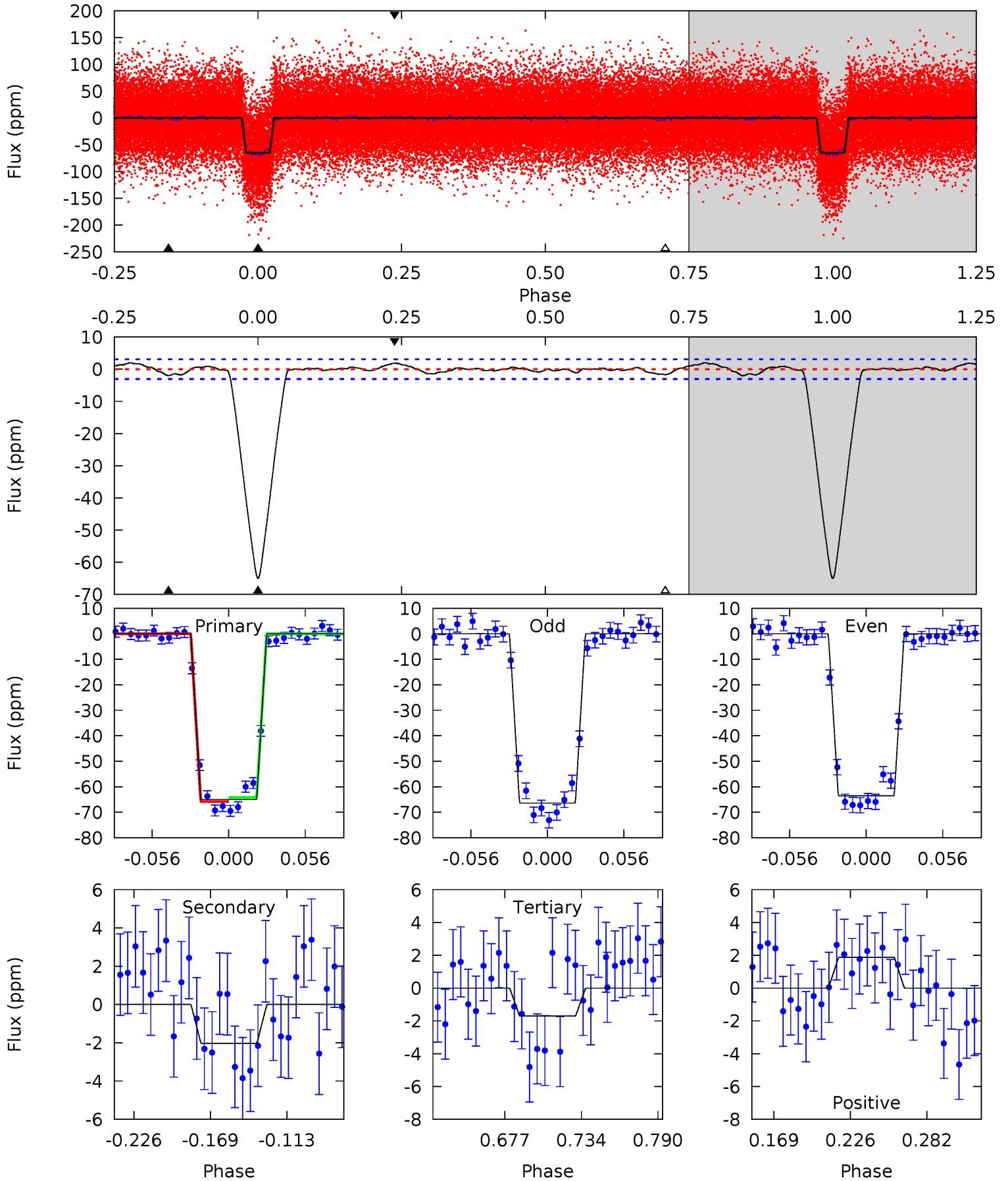




# Alt Model-Shift Uniqueness Test

003632418-01, P = 2.785805 Days, E = 129.907565 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
98.8	3.08	2.59	2.84	4.68	1.91	1.13	96.2	95.9	0.49	0.24	2.18	1.02	0.03	1.23



### Stellar Parameters For KIC 003632418

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$6202^{+74}_{-83}$	$4.026^{+0.033}_{-0.027}$	$-0.100^{+0.150}_{-0.150}$	$1.733^{+0.118}_{-0.095}$	$1.162^{+0.147}_{-0.079}$	$0.315^{+0.039}_{-0.034}$
	+1%/-1%	+1%/-1%	+150%/-150%	+7%/-5%	+13%/-7%	+12%/-11%
Source	SPE72	AST69	SPE72	DSEP		

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

### Secondary Eclipse Parameters for KIC 003632418-01 / KOI 0975.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2 \pm 1$	$1.66^{+0.13}_{-0.13}$	$2489^{+46}_{-42}$	$2942^{+209}_{-279}$	$0.739^{+0.273}_{-0.227}$
Alt.	$-2 \pm 1$	$1.53^{+0.13}_{-0.13}$	$2486^{+46}_{-44}$	$2980^{+208}_{-333}$	$0.792^{+0.276}_{-0.285}$

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



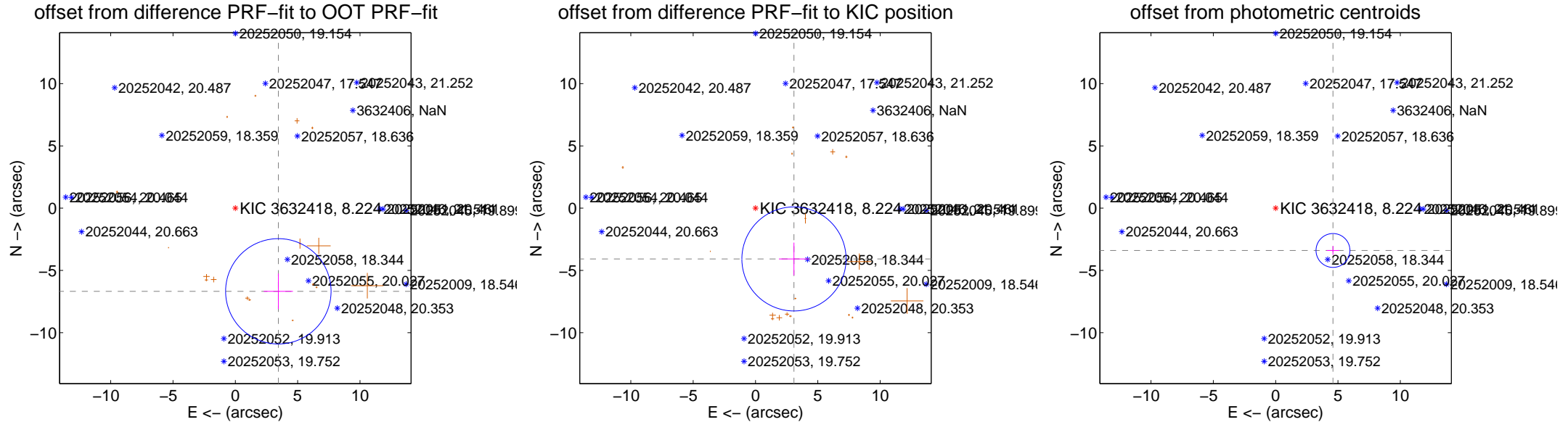
## DV Centroid Data

Supplemental centroid analysis for 003632418-01. **Kepler magnitude: 8.22.** Transit SNR 52.60

There are 0 quarters with good PRF difference image offsets

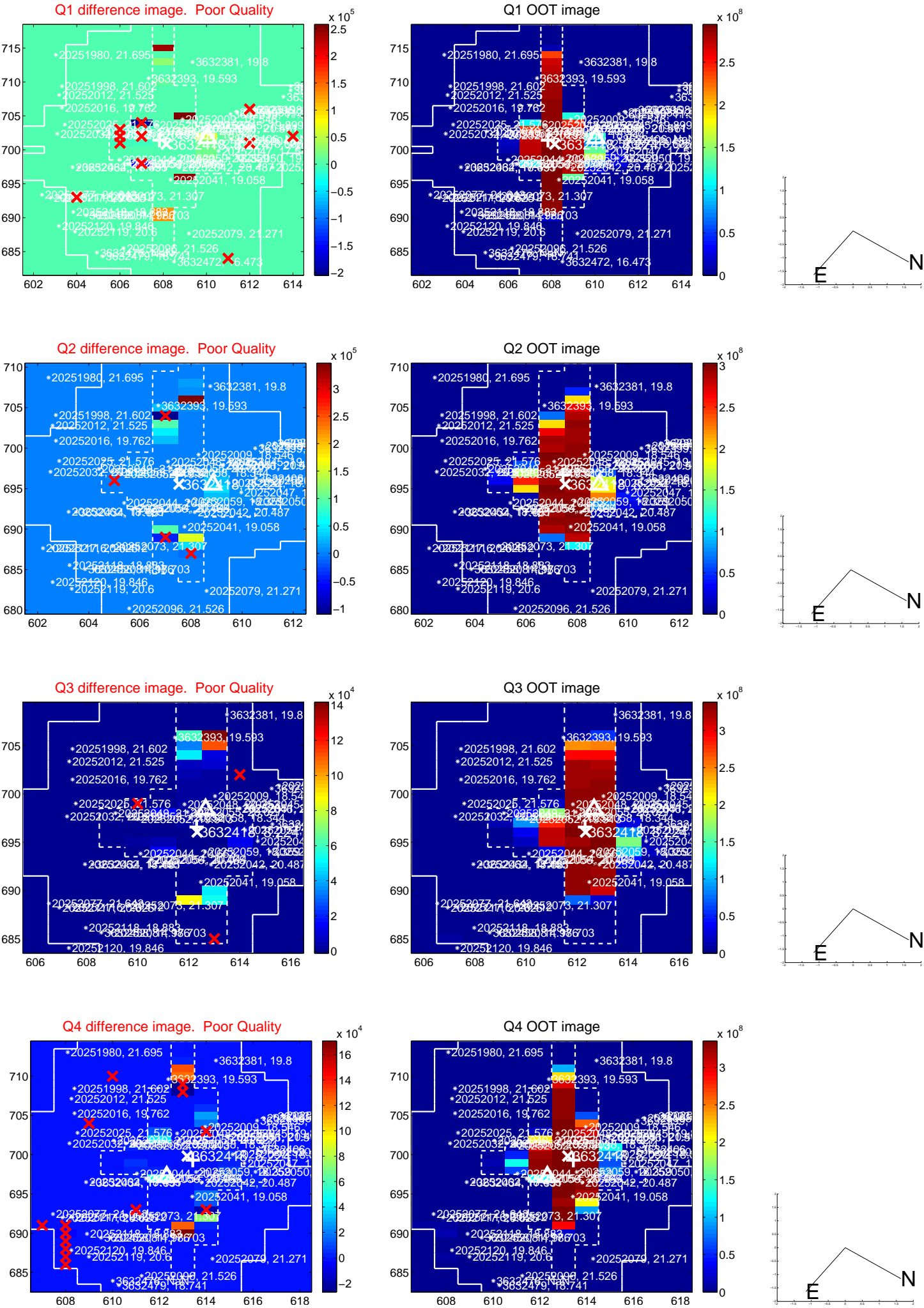
The OOT PRF centroid is offset from the target star catalog position by about 2.78 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.516 \pm 1.410$	5.33	$-3.450 \pm 1.169$	$-6.677 \pm 1.423$
PRF-fit source offset from KIC position	$5.115 \pm 1.393$	3.67	$-3.087 \pm 1.207$	$-4.078 \pm 1.314$
photometric centroid source offset	$5.72 \pm 0.45$	12.62	$-4.60 \pm 0.50$	$-3.40 \pm 0.36$

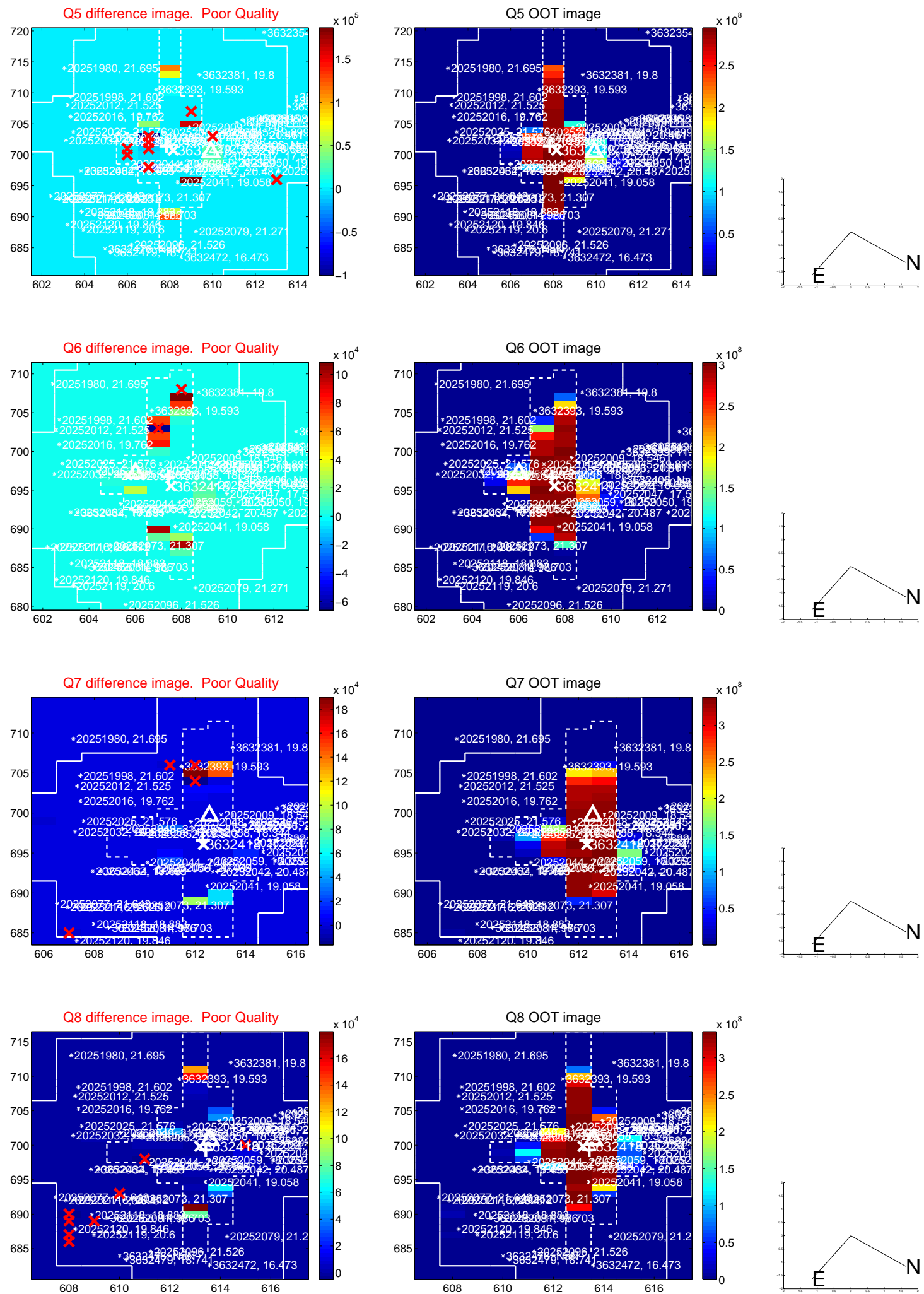


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



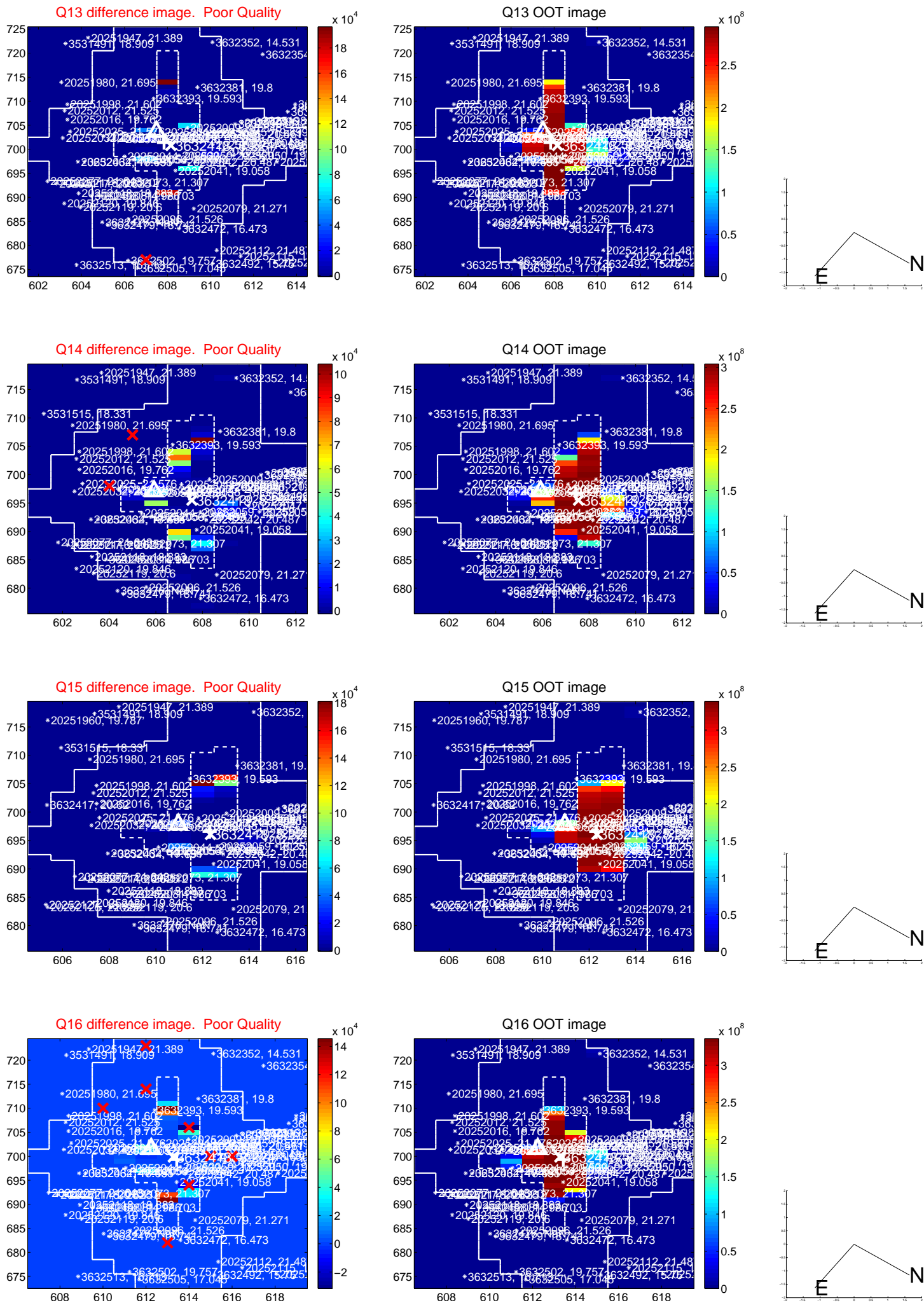
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





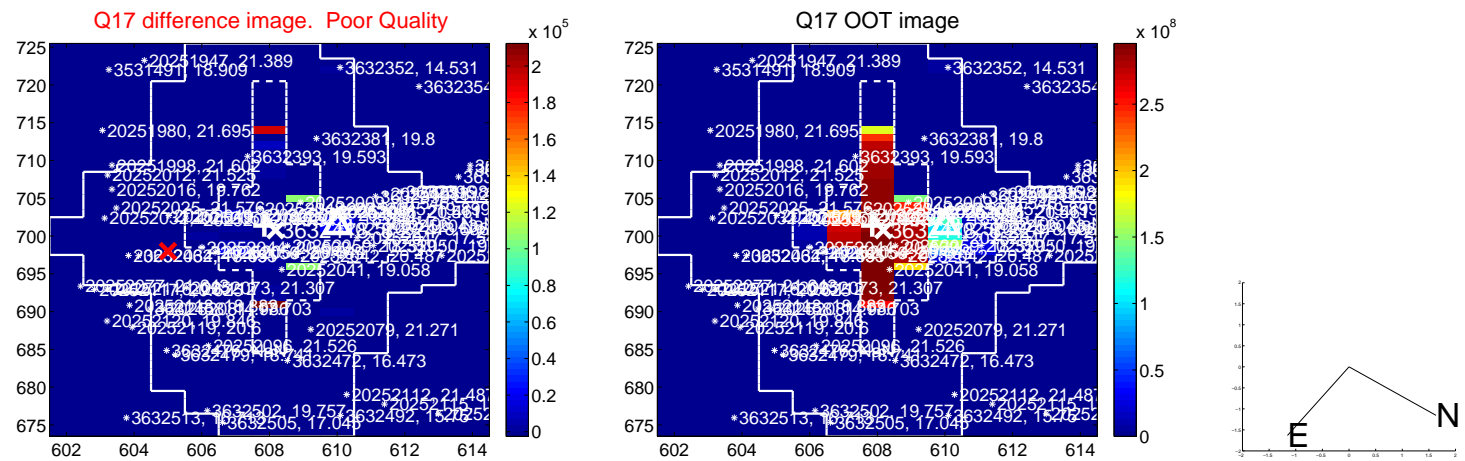


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

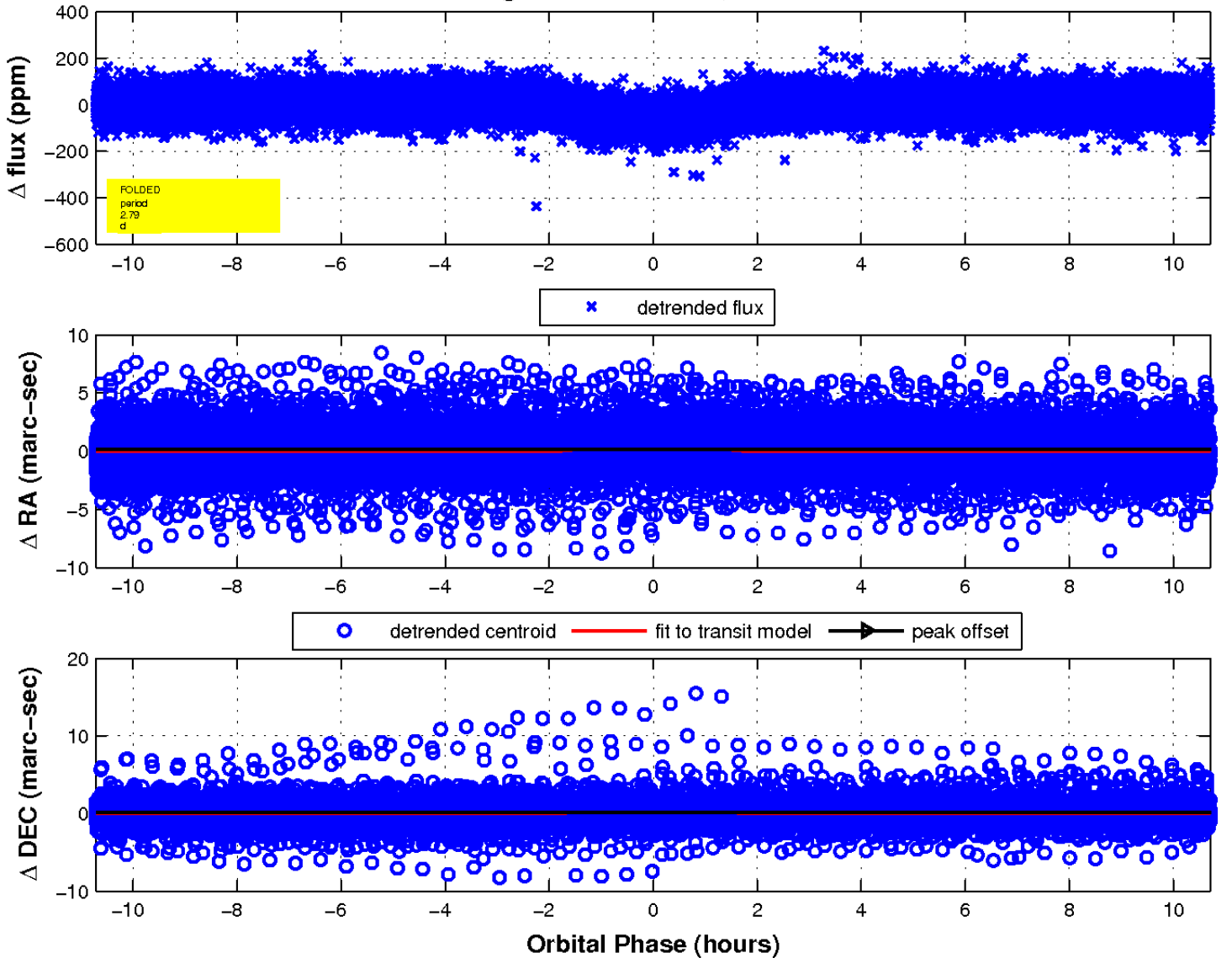




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

