

# KIC 010132668

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010132668-01	OBS	No	542.009379	214.667920	181.6	29.944	8.2	8.6	0.92	6351	1.29	0.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010132668-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

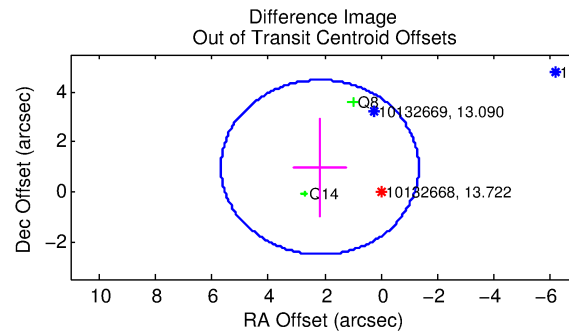
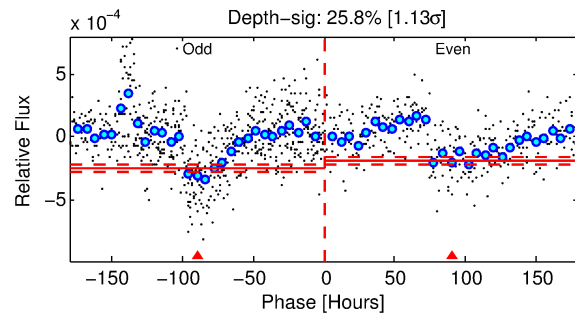
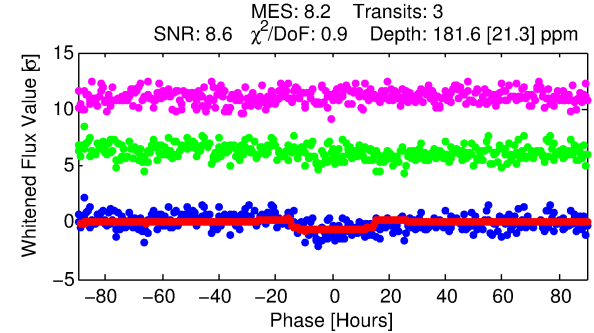
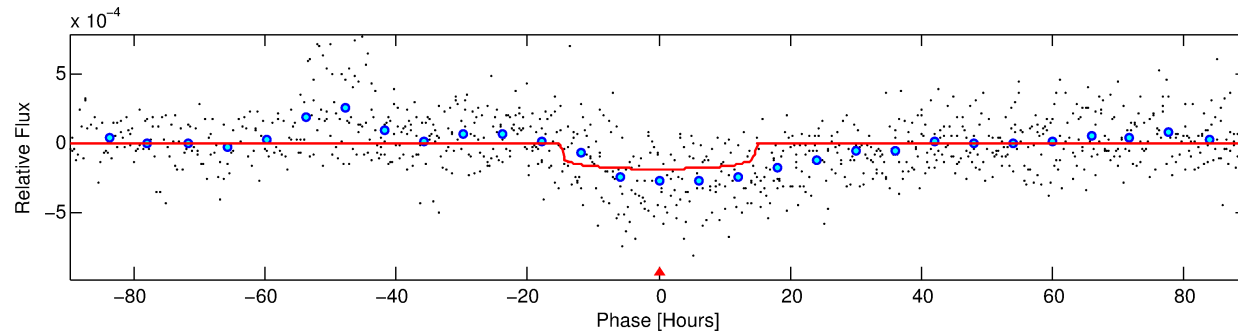
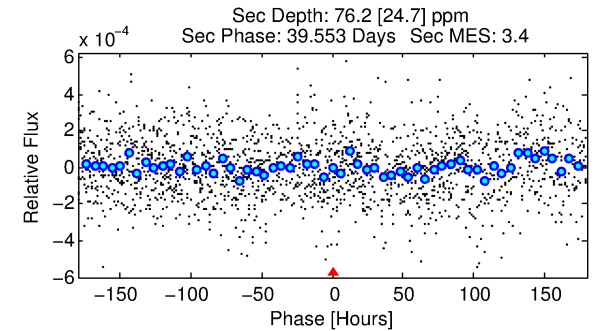
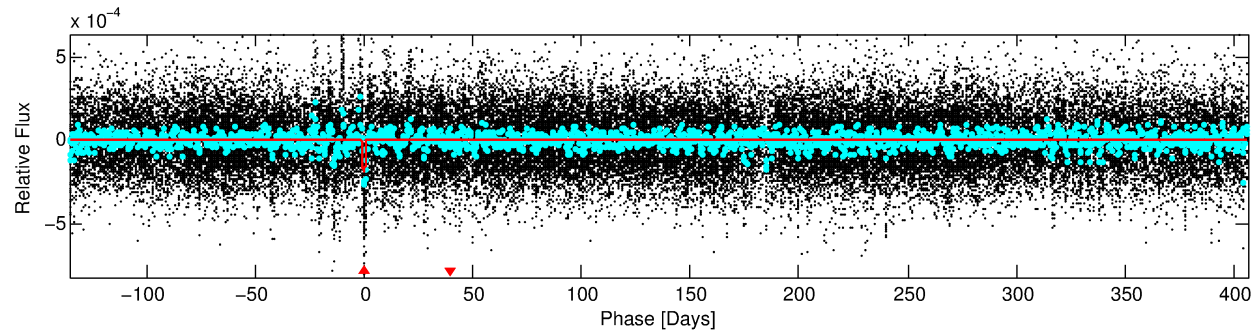
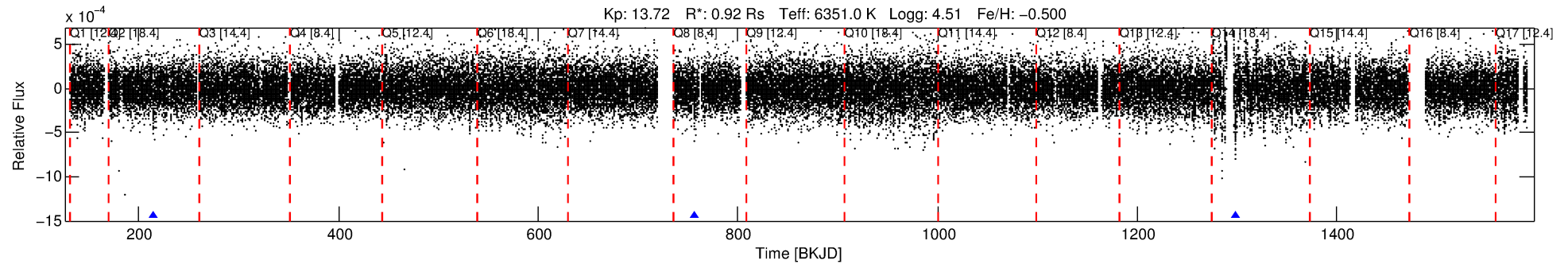
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010132668-01

No Significant Match Found

# DV One-Page Summary

KIC: 10132668 Candidate: 1 of 1 Period: 542.009 d



## DV Fit Results:

Period = 542.00938 [0.02209] d  
Epoch = 214.6679 [0.0262] BKJD  
Rp/R\* = 0.0128 [0.0041]  
a/R\* = 118.68 [201.86]  
b = 0.54 [2.25]  
Seff = 0.73 [0.28]  
Teq = 235 [23] K  
Rp = 1.29 [0.56] Re  
a = 1.3048 [0.3272] AU  
Ag = 43055.34 [34771.52] [1.24 $\sigma$ ]  
Teffp = 5243 [960] K [5.22 $\sigma$ ]

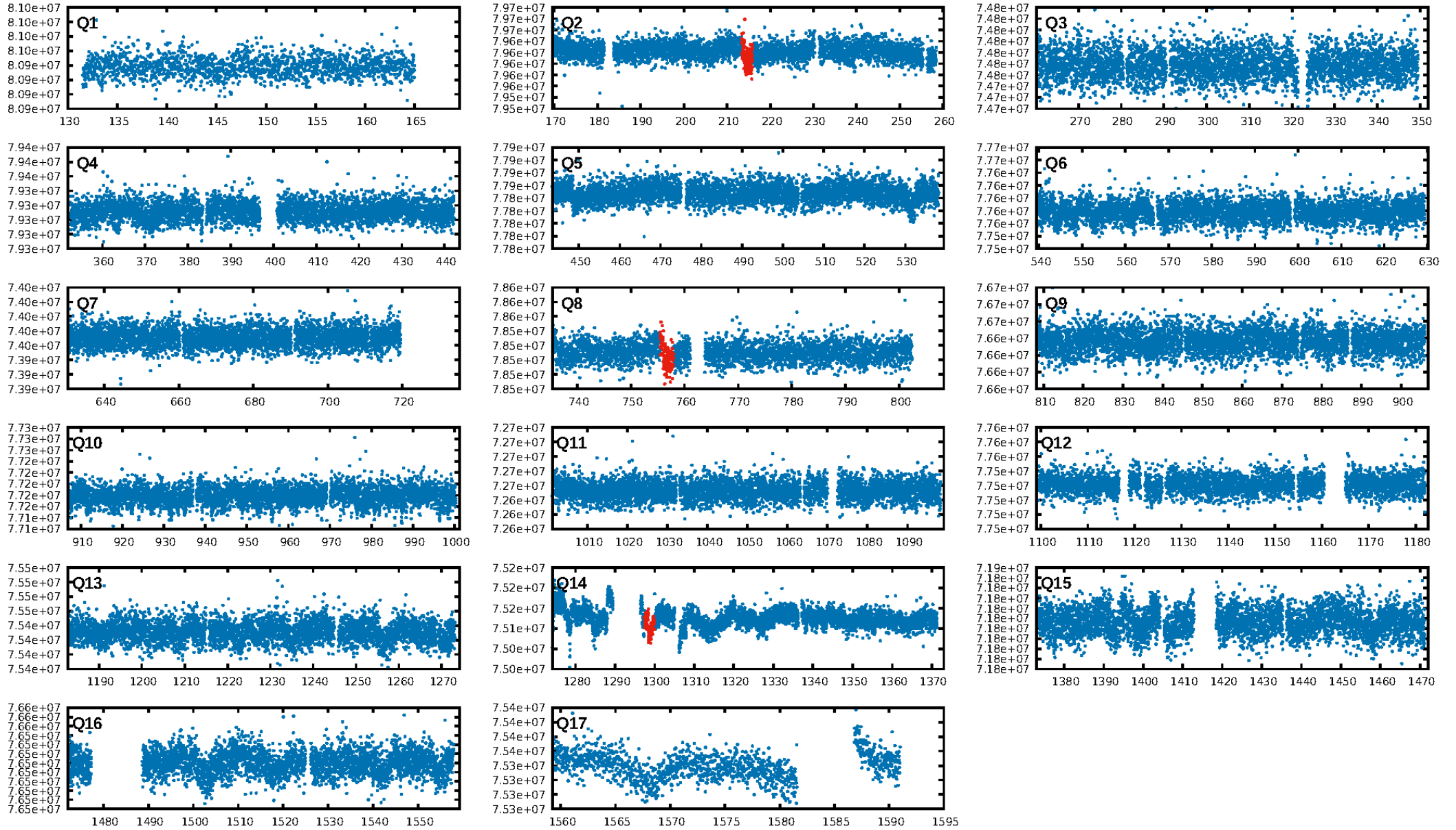
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 32.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.72e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.408  
Centroid-sig: 97.2%  
Centroid-so: 0.306 arcsec [0.26 $\sigma$ ]  
OotOffset-rm: 2.378 arcsec [2.04 $\sigma$ ]  
KicOffset-rm: 2.473 arcsec [2.06 $\sigma$ ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

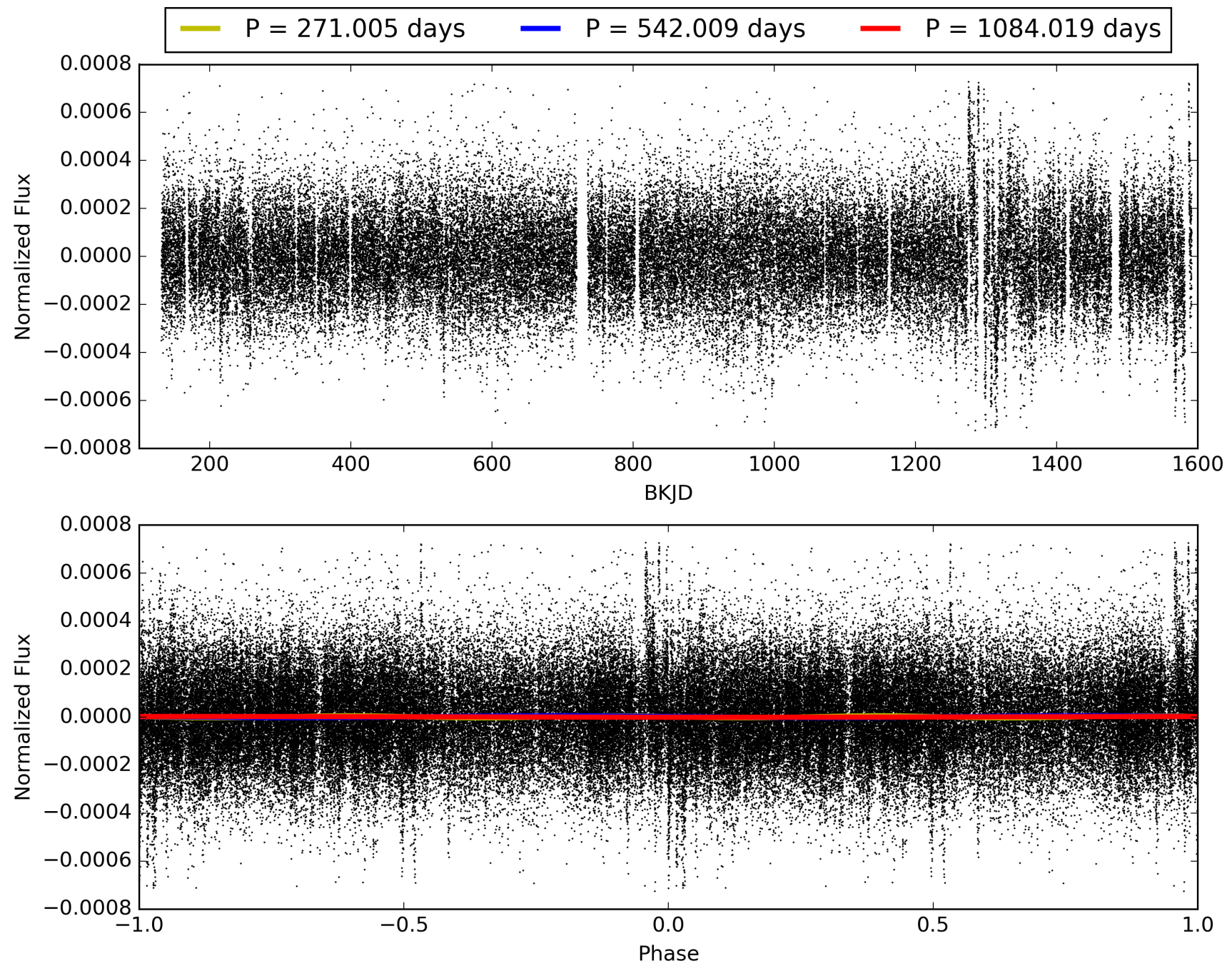
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:31:04 Z

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

# TCE 010132668-01, PDC Light Curves

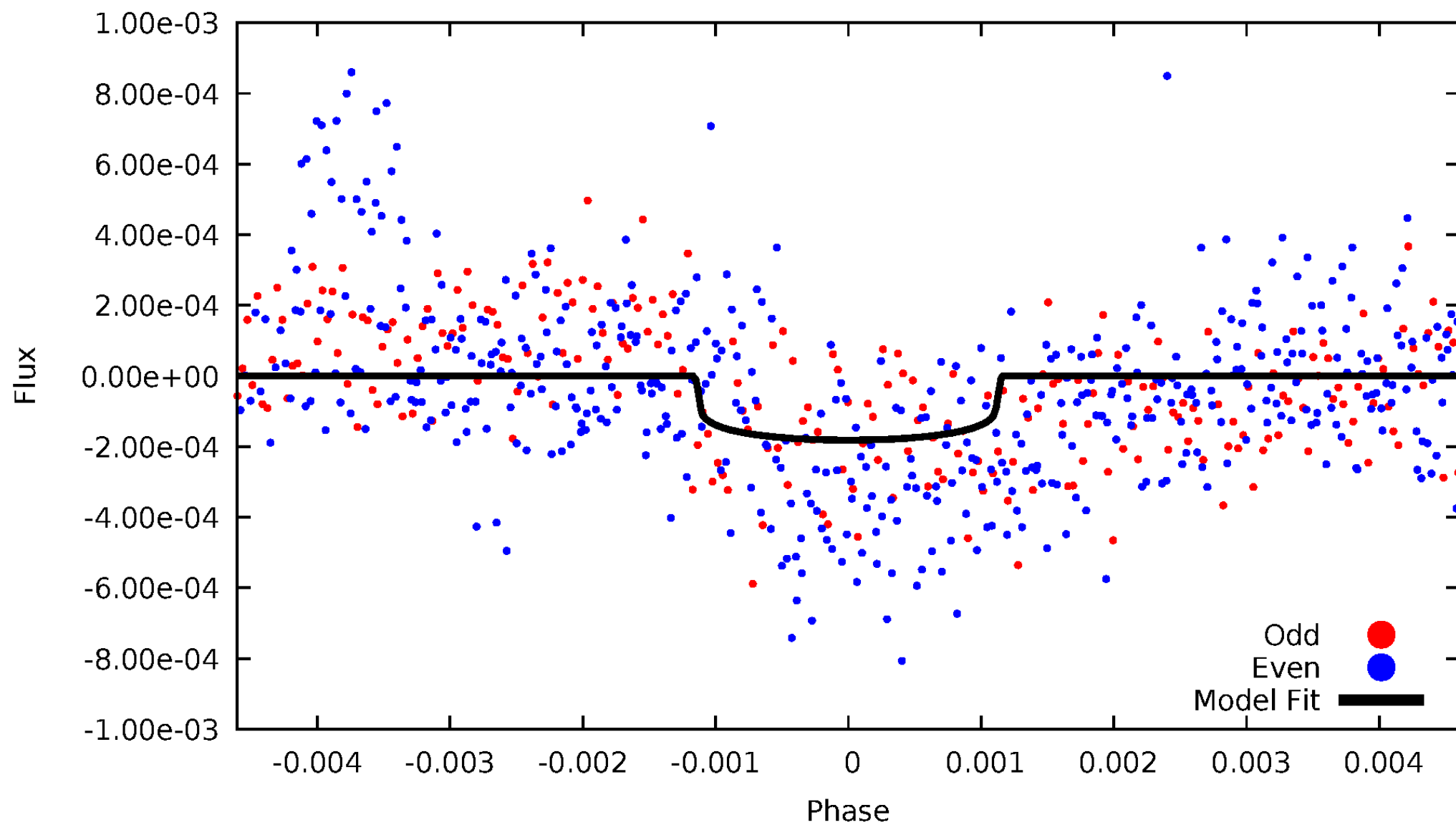


# TCE 010132668-01



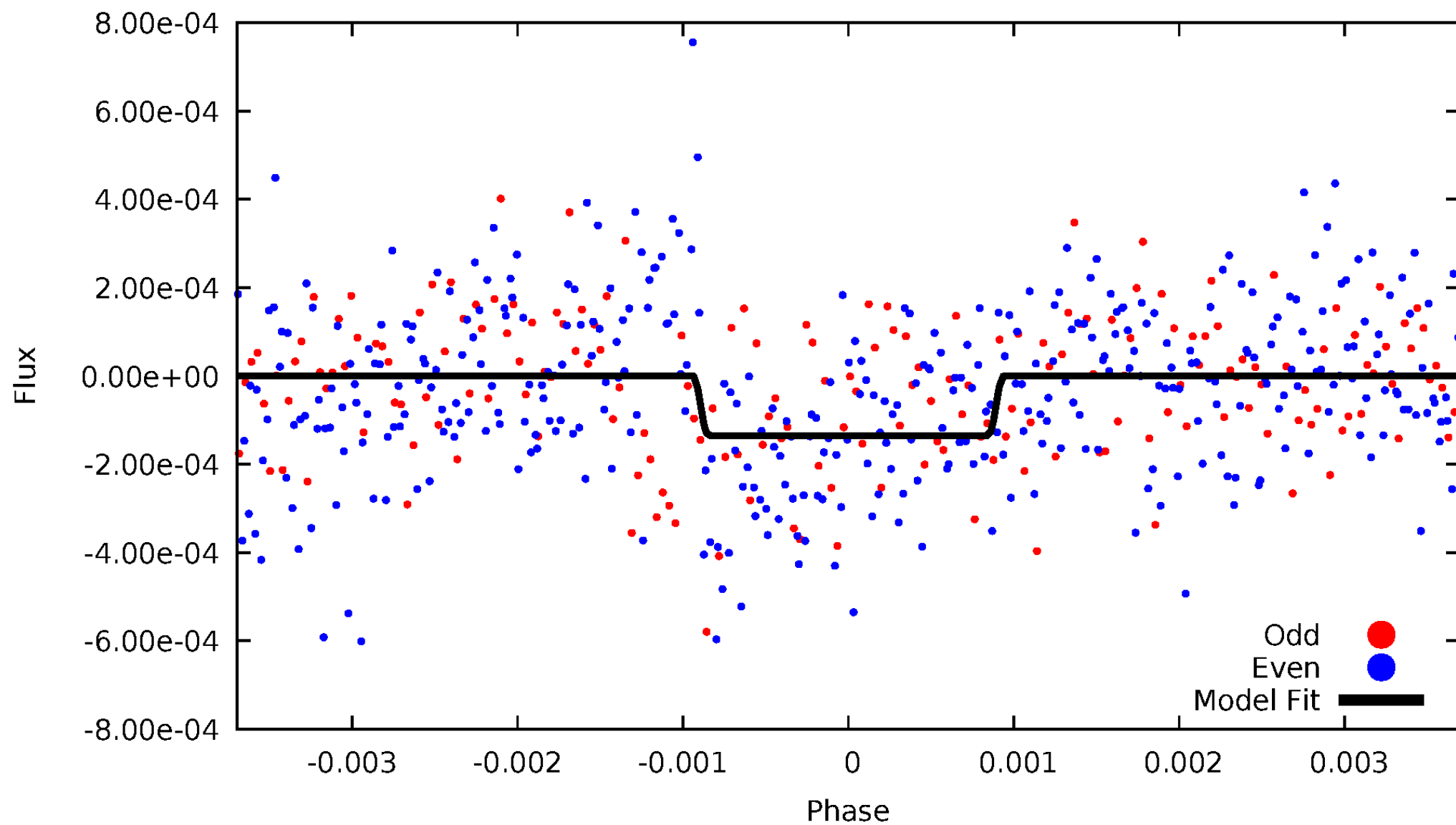
# DV Odd/Even

TCE 010132668-01



# ALT Odd/Even

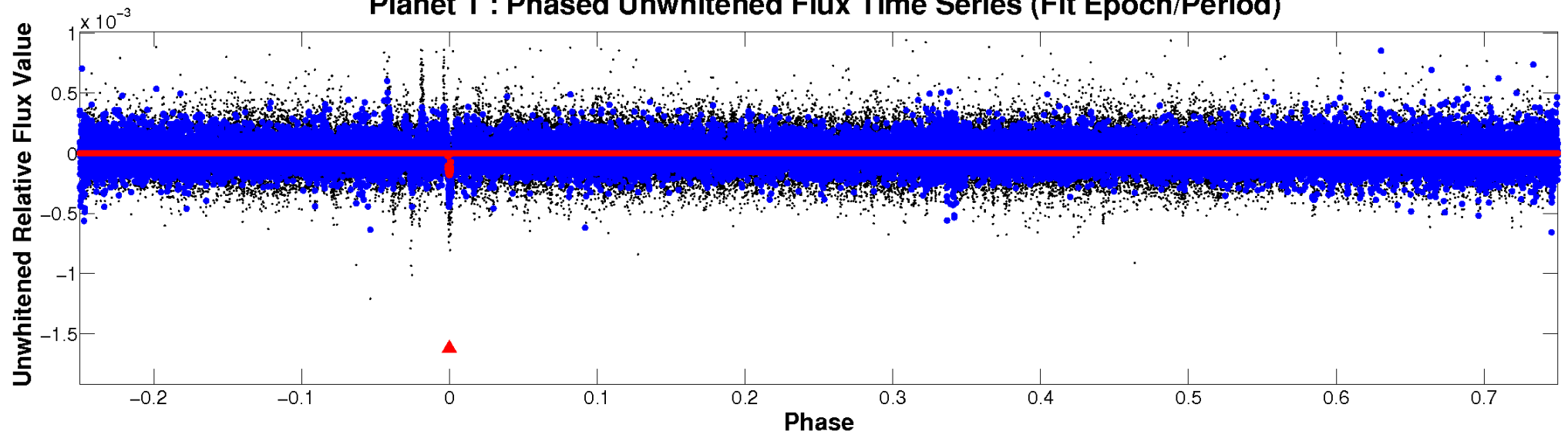
TCE 010132668-01



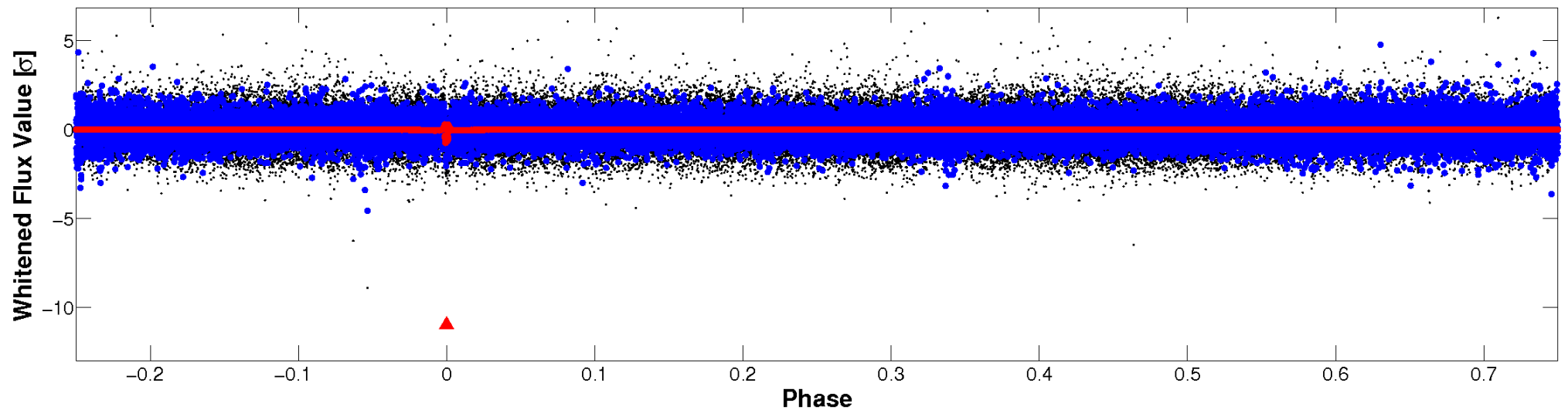


# Non-Whitened Vs. Whitened Light Curve

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

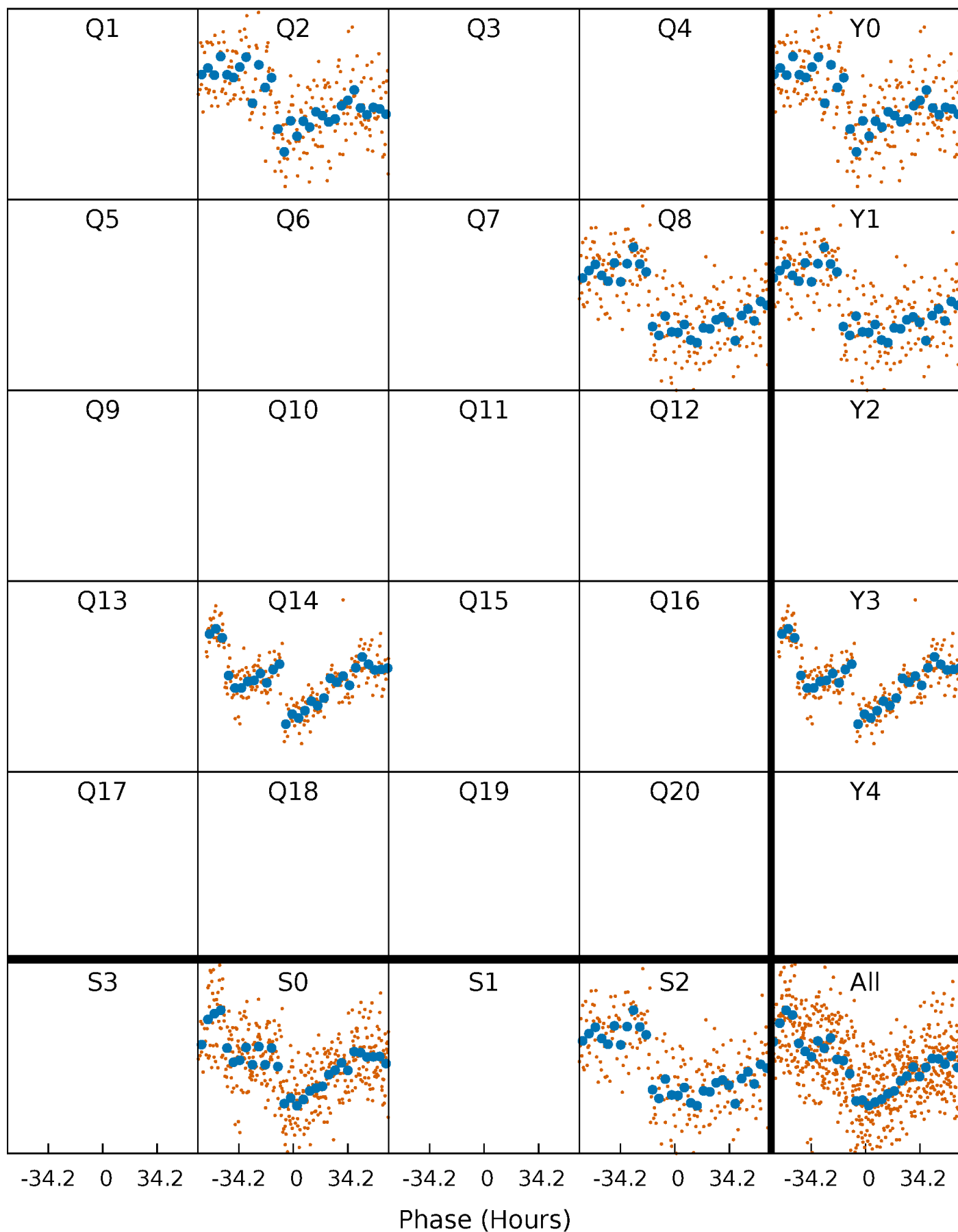


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 010132668-01 P=542.009379 Days  $T_0=214.667920$  (BKJD)





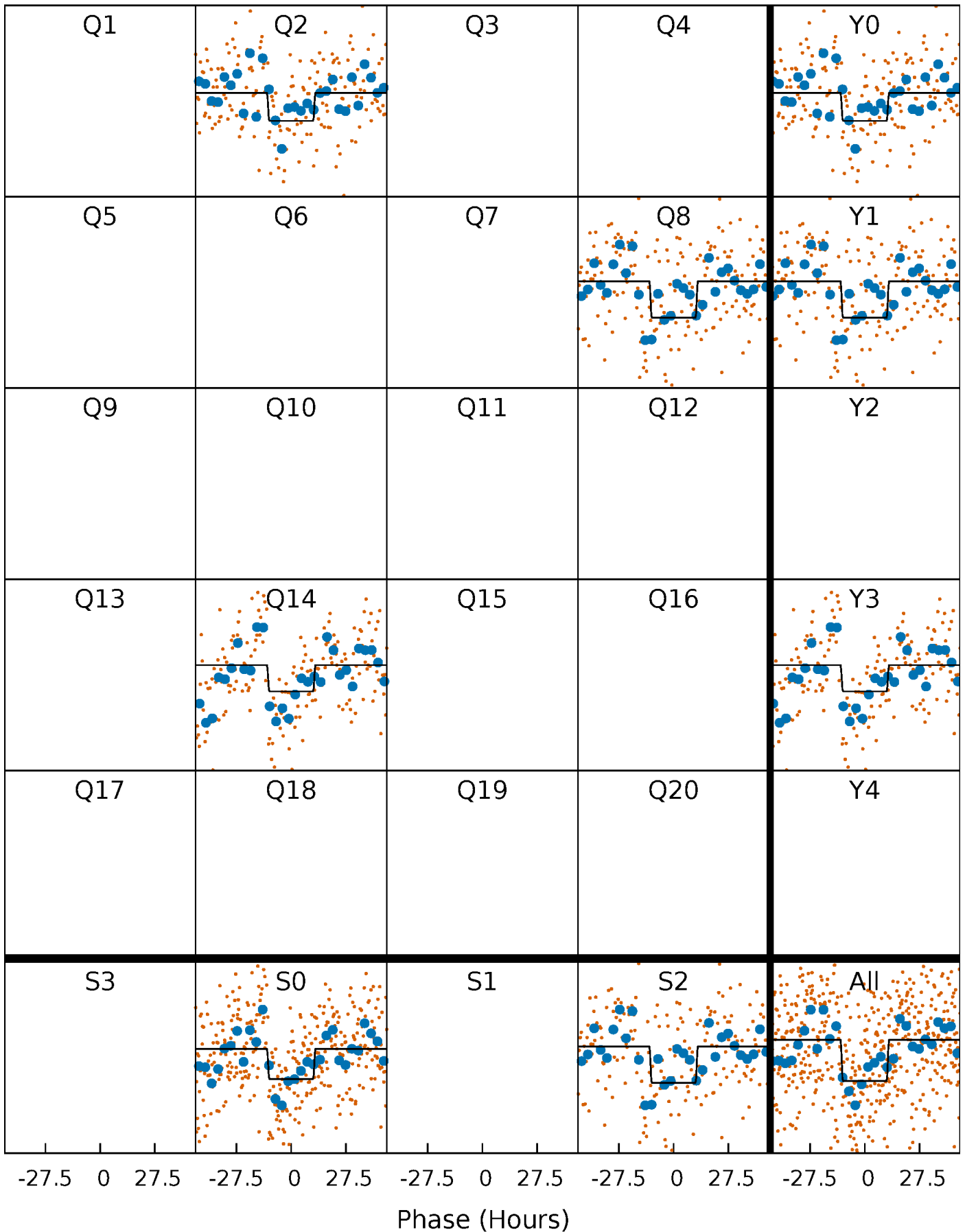
# DV Quarter-Phased Transit Curves

TCE 010132668-01 P=542.009379 Days  $T_0=214.667920$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

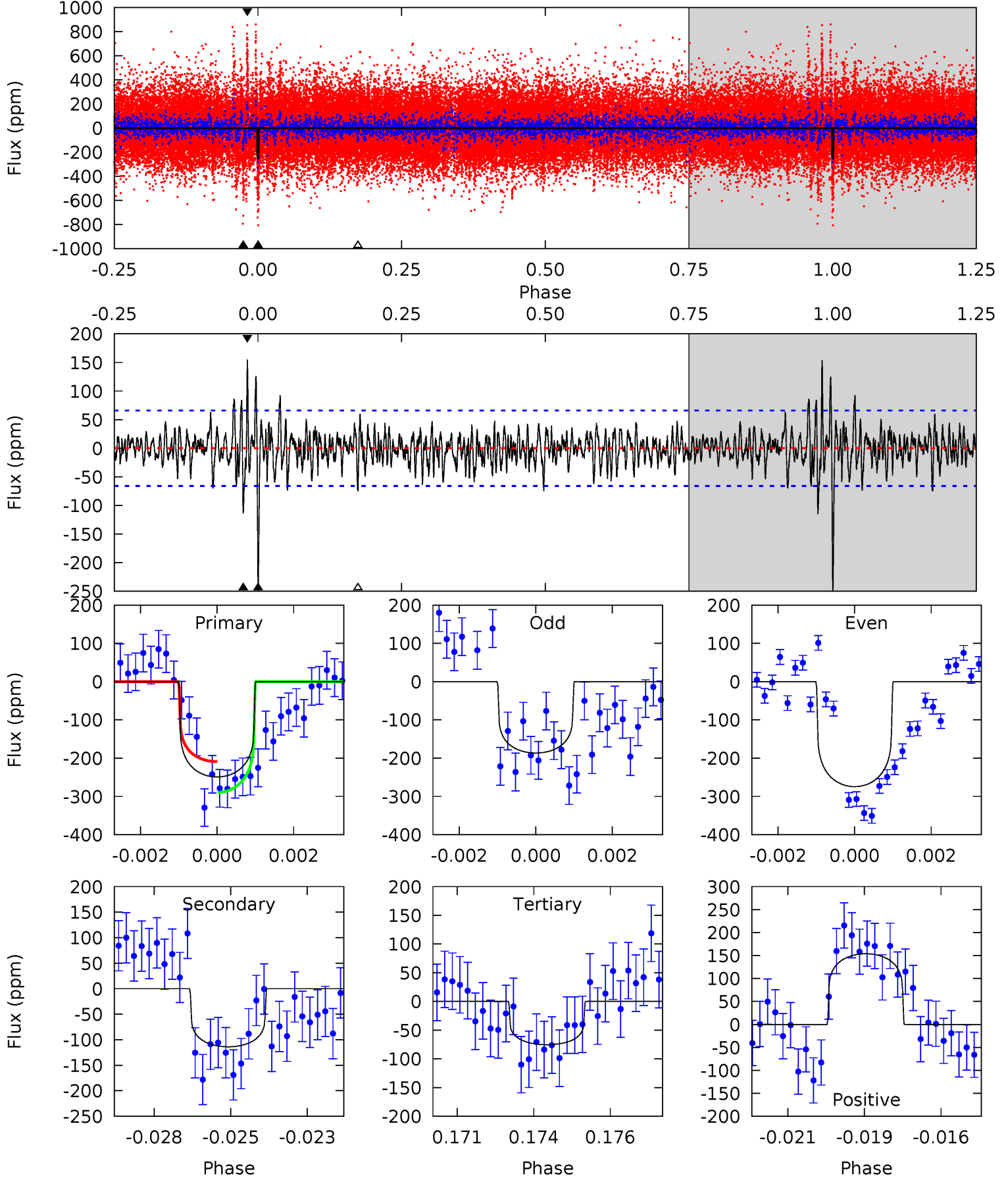
TCE 010132668-01 P=542.136403 Days  $T_0=214.615639$  (BKJD)



# DV Model-Shift Uniqueness Test

010132668-01, P = 542.009379 Days, E = 214.667920 Days

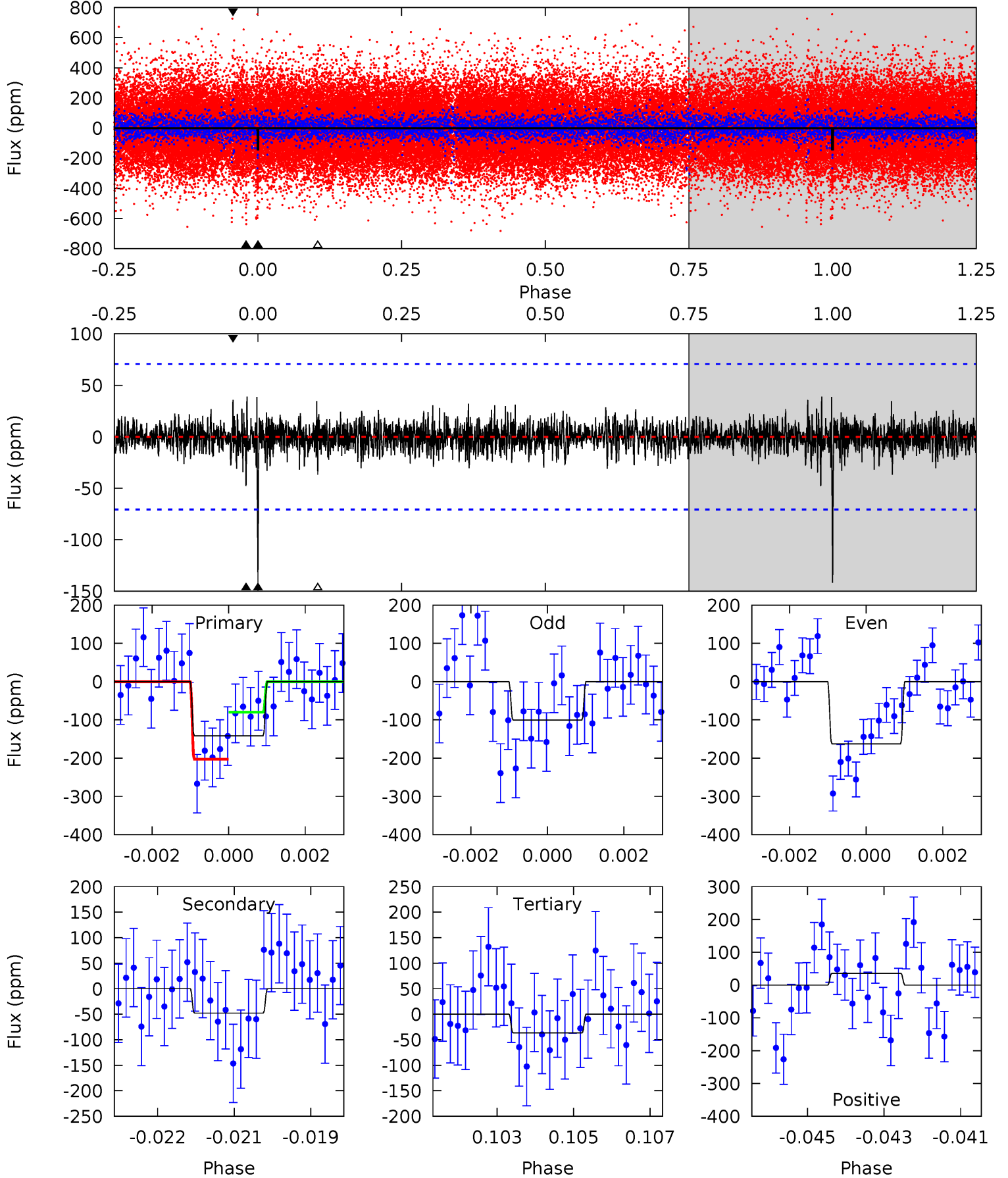
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	9.15	6.05	12.4	5.30	3.05	2.00	14.0	7.66	3.10	-3.22	3.32	1.23	0.38	3.24



# Alt Model-Shift Uniqueness Test

010132668-01, P = 542.136403 Days, E = 214.615639 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
10.7	3.61	2.78	2.70	5.34	3.11	0.70	7.93	8.01	0.83	0.91	2.19	1.16	0.22	4.64



### Stellar Parameters For KIC 010132668

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6351^{+171}_{-209}$	$4.513^{+0.037}_{-0.200}$	$-0.500^{+0.300}_{-0.300}$	$0.921^{+0.274}_{-0.073}$	$1.008^{+0.122}_{-0.122}$	$1.819^{+0.361}_{-0.930}$
	+3%/-3%	+1%/-4%	+60%/-60%	+30%/-8%	+12%/-12%	+20%/-51%
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 010132668-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-114 \pm 12$	$1.37^{+0.45}_{-0.45}$	$336^{+23}_{-15}$	$5774^{+1307}_{-674}$	$55671^{+71641}_{-24289}$
Alt.	$-48 \pm 13$	$1.23^{+0.48}_{-0.41}$	$338^{+22}_{-16}$	$4928^{+1163}_{-646}$	$28816^{+37338}_{-15134}$

$T_{\text{max}}$  = 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

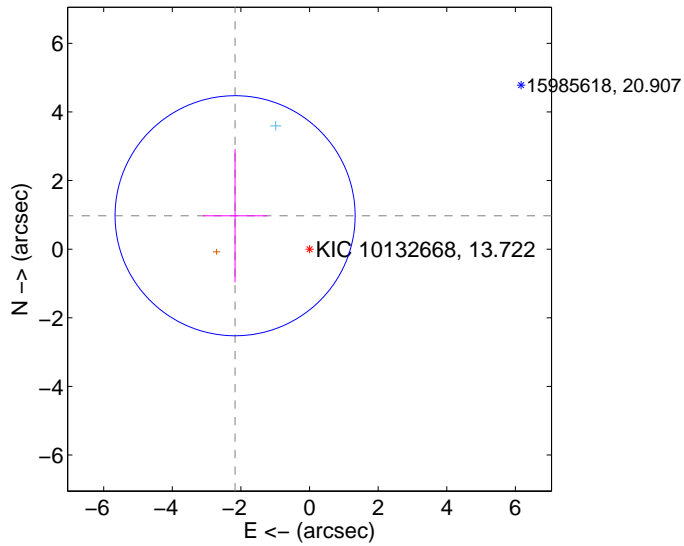
Supplemental centroid analysis for 010132668-01. Kepler magnitude: 13.72. Transit SNR 8.64

There are 1 quarters with good PRF difference image offsets

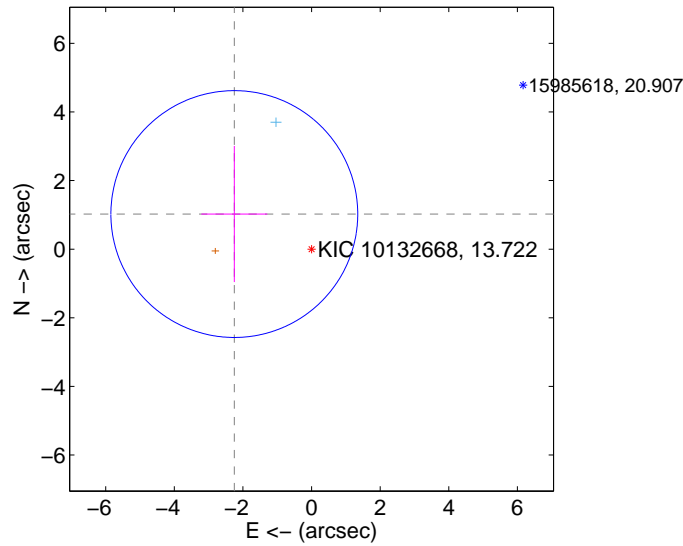
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.378 \pm 1.166$	2.04	$2.169 \pm 0.935$	$0.974 \pm 1.941$
PRF-fit source offset from KIC position	$2.473 \pm 1.199$	2.06	$2.251 \pm 0.960$	$1.023 \pm 1.984$
photometric centroid source offset	$0.31 \pm 1.19$	0.26	$0.24 \pm 1.21$	$0.19 \pm 1.14$

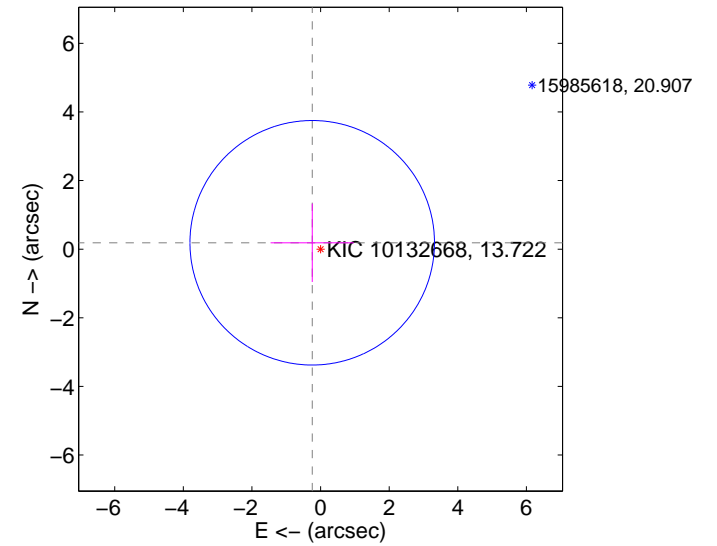
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



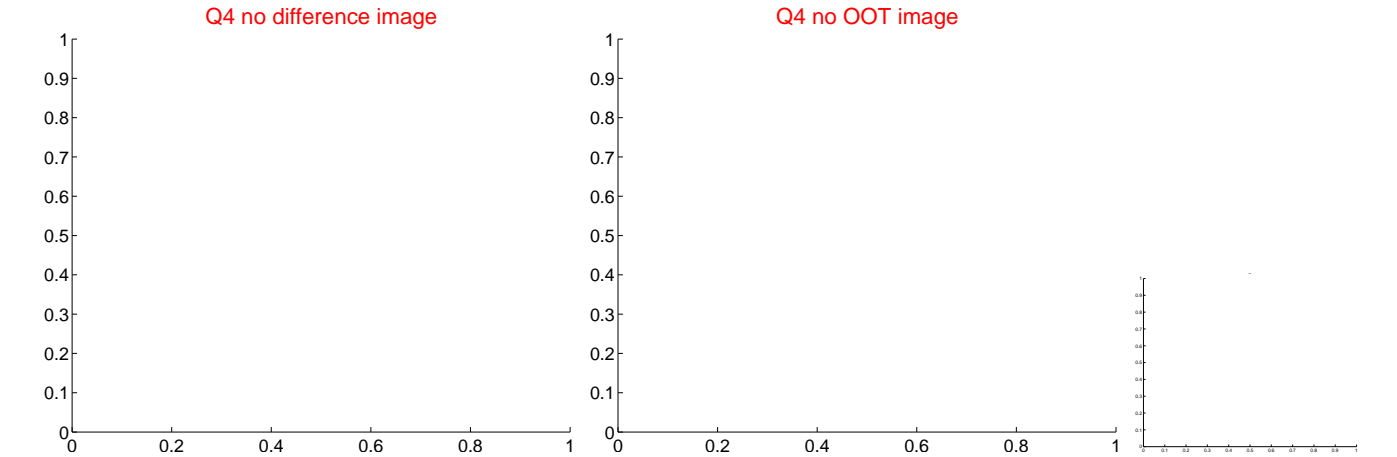
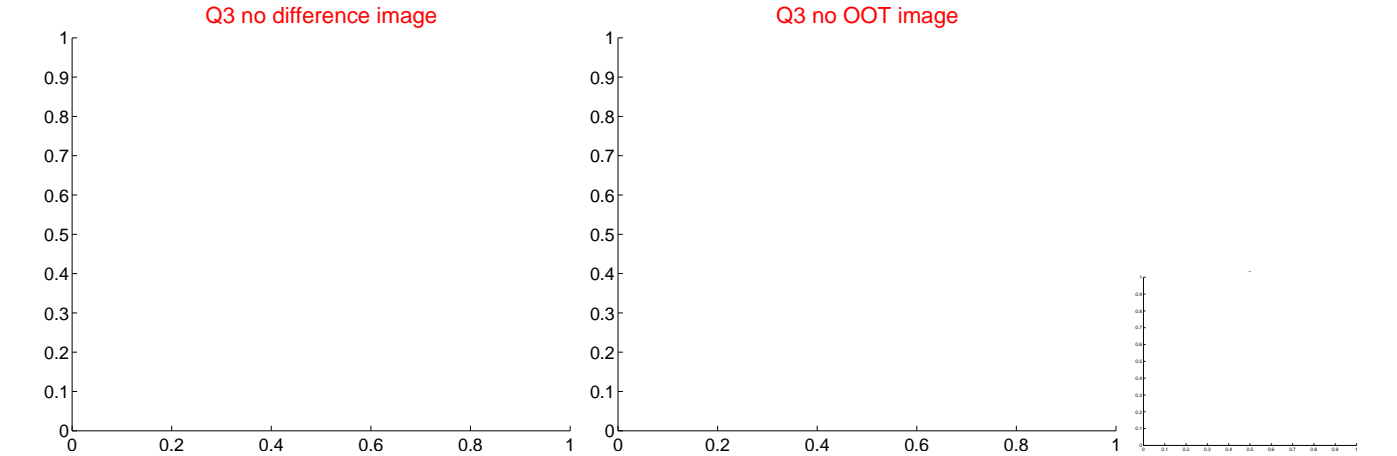
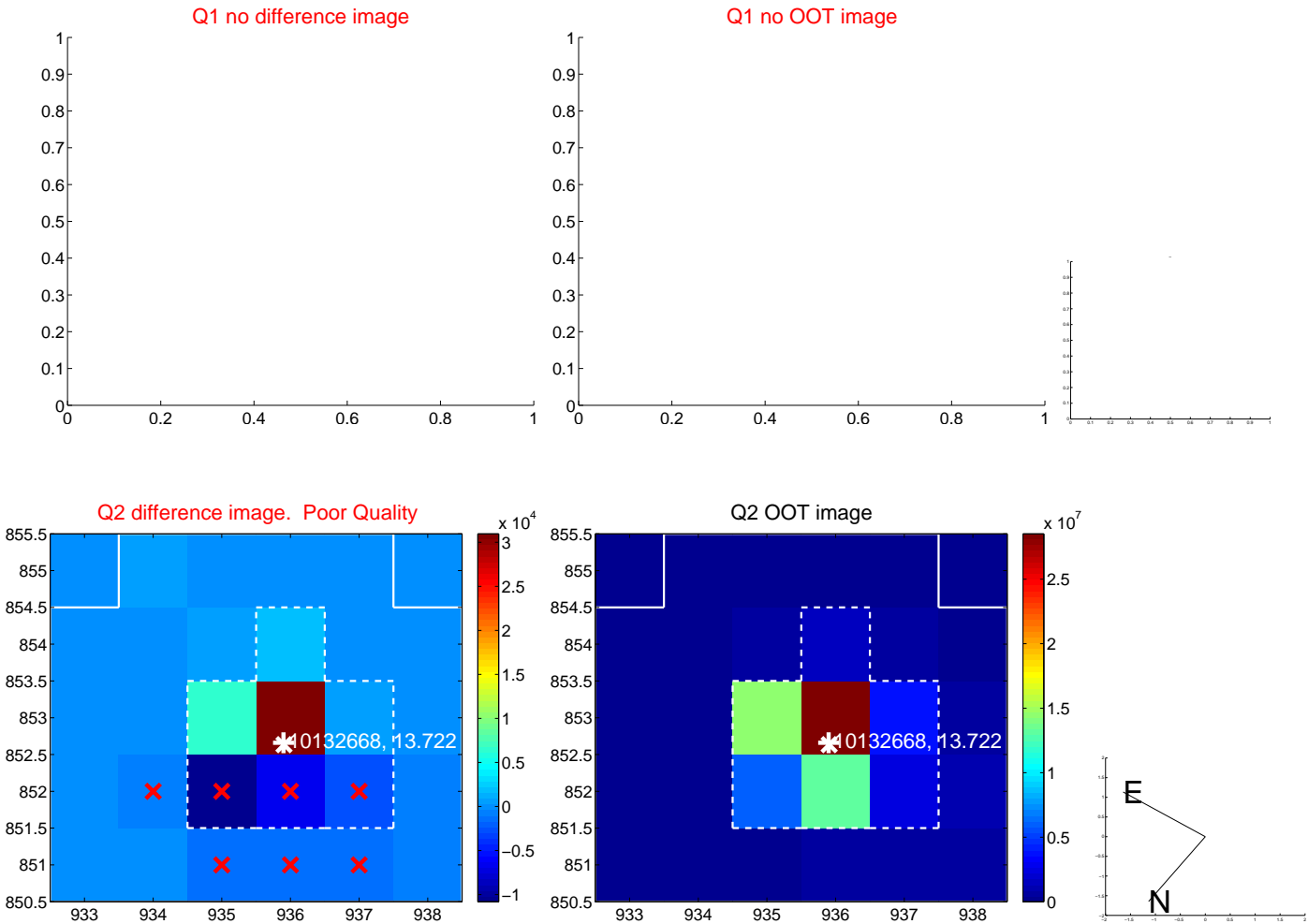
offset from photometric centroids



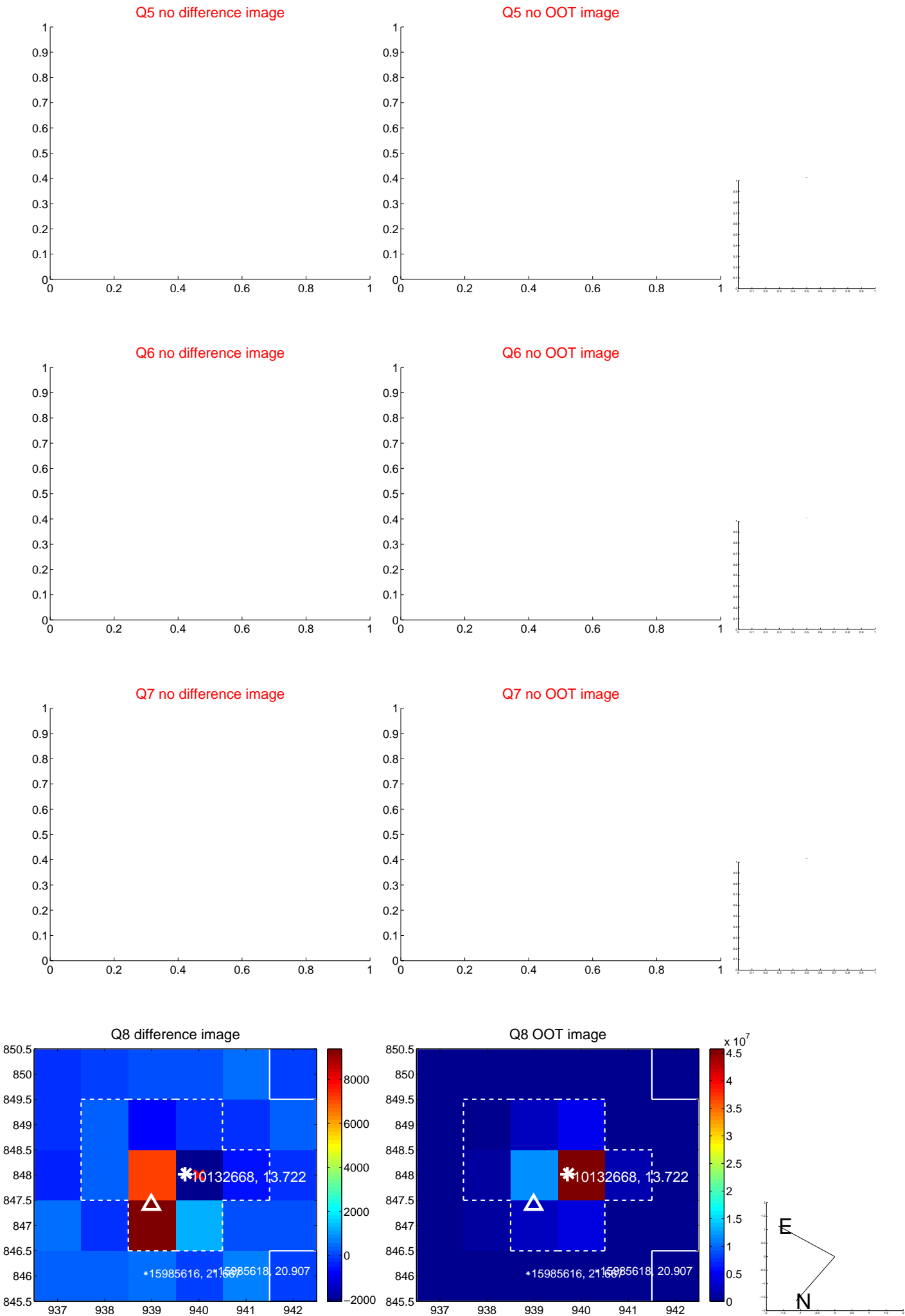
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



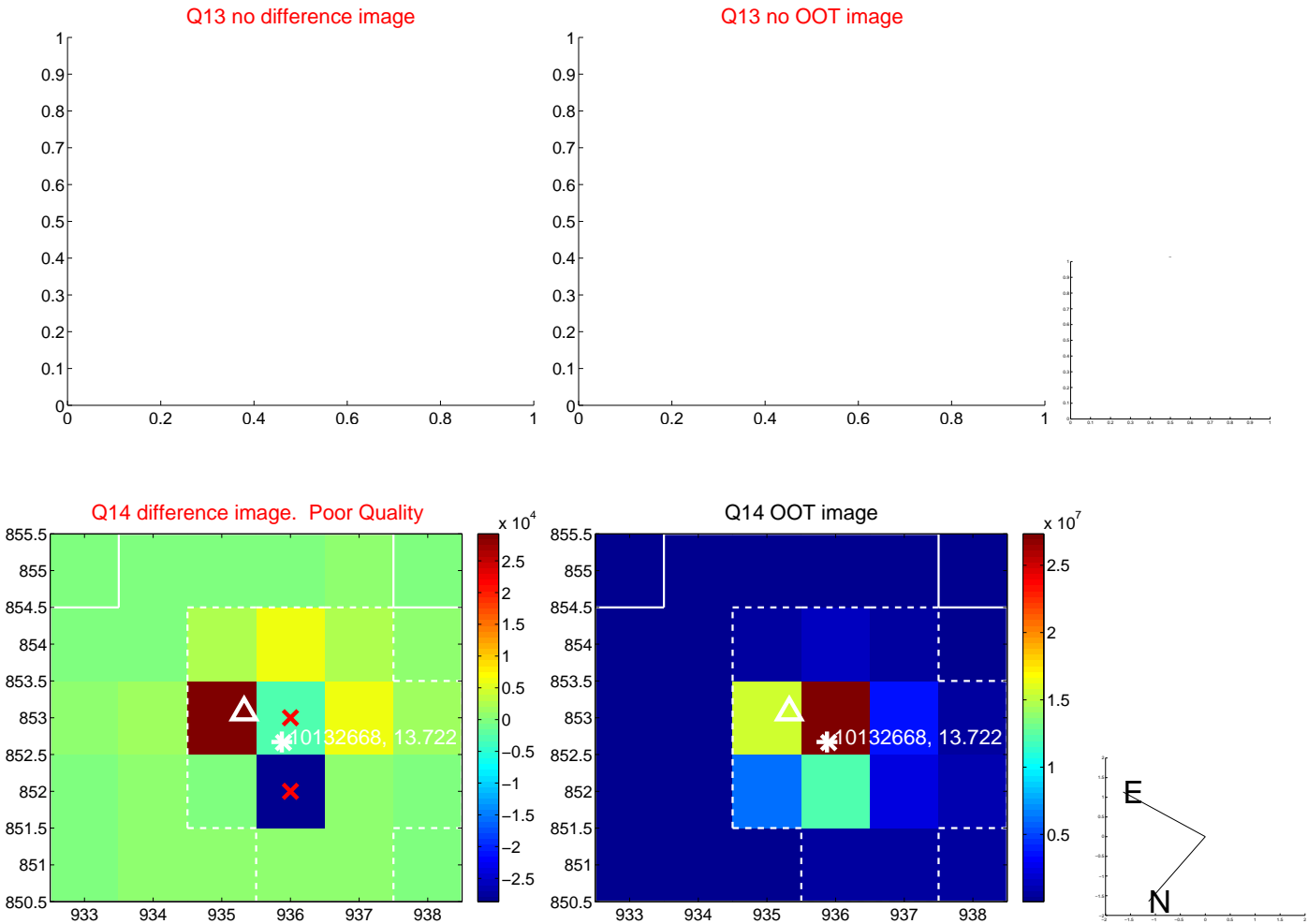
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



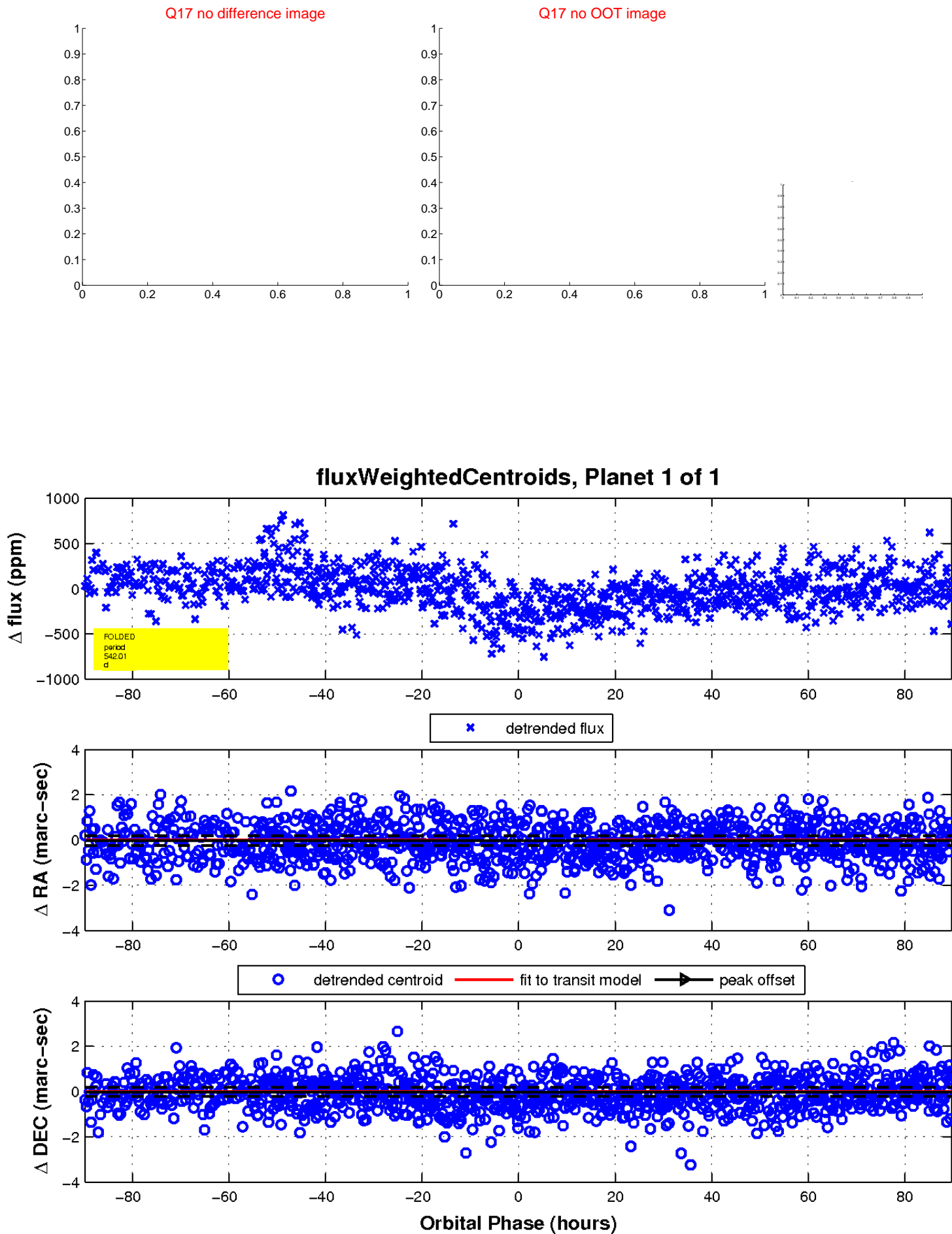
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

