

# KIC 004568117

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004568117-01	OBS	4248.01	0.562558	131.733077	25.4	1.903	12.0	12.8	1.15	6577	0.68	11254.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568117-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—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.

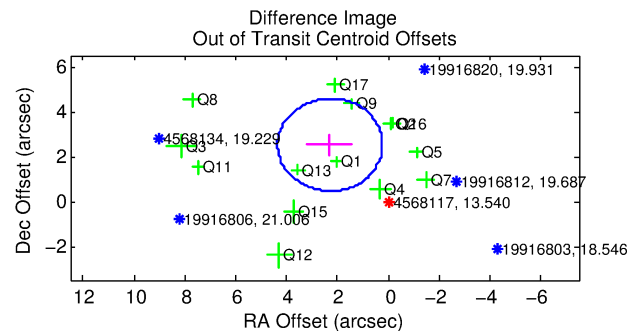
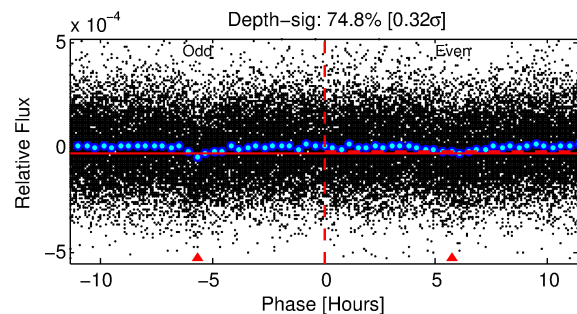
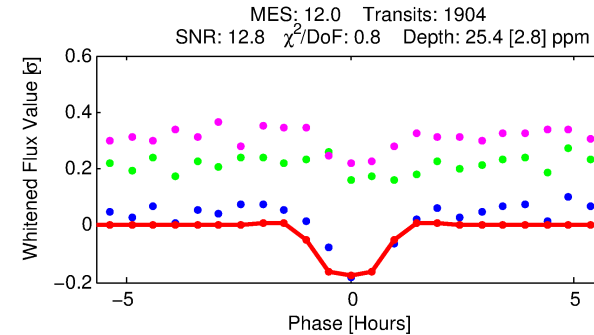
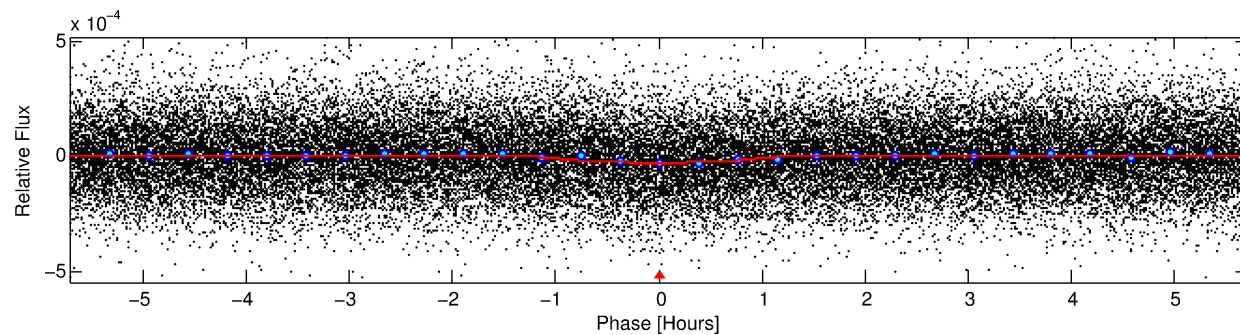
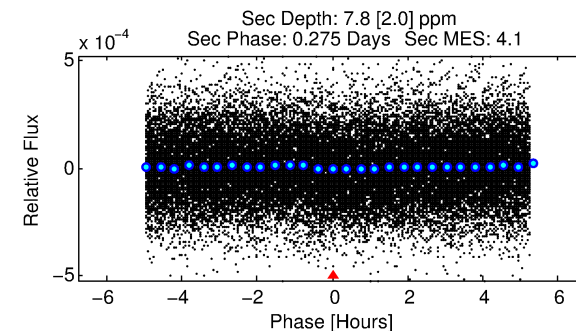
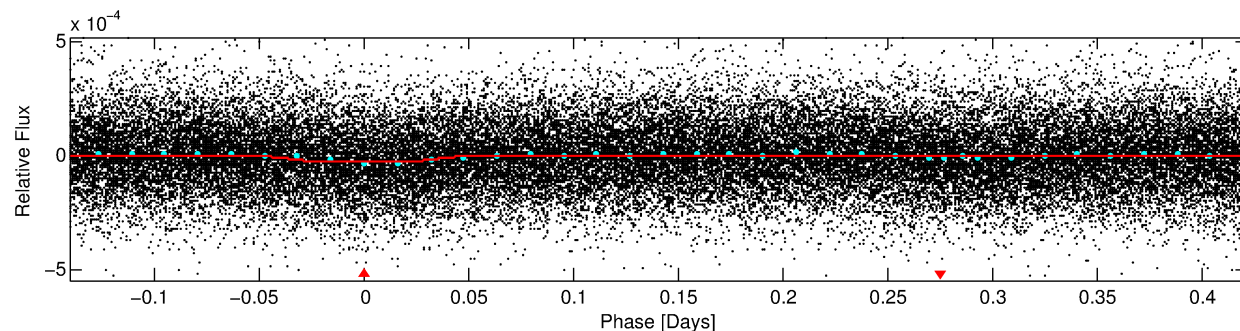
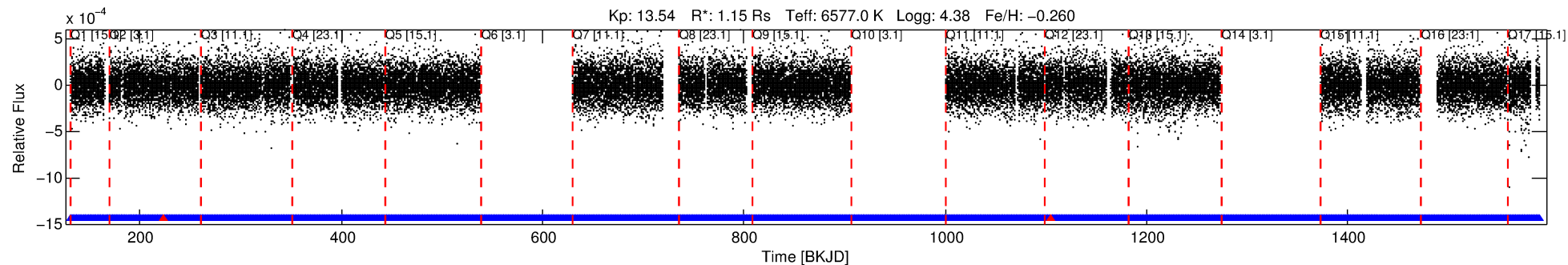
## Ephemeris Match Information For 004568117-01

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	$\sigma_P$	$\sigma_T$
004568117-01	4568117	V1130-Cyg-pri	4660997	1:1	88.9	2	-22	12.32	13.54	24076.00	Direct-PRF	0	0.52	0.52

**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: 4568117 Candidate: 1 of 1 Period: 0.563 d  
KOI: K04248.01 Corr: 0.855



## DV Fit Results:

Period = 0.56256 [0.00001] d  
Epoch = 131.7331 [0.0021] BKJD  
Rp/R\* = 0.0054 [0.0020]  
a/R\* = 1.37 [1.41]  
b = 0.90 [0.46]  
Seff = 11254.34 [4589.07]  
Teff = 2626 [268] K  
Rp = 0.68 [0.33] Re  
a = 0.0140 [0.0037] AU  
Ag = 1.83 [1.61] [0.52σ]  
Teffp = 4723 [944] K [2.14σ]

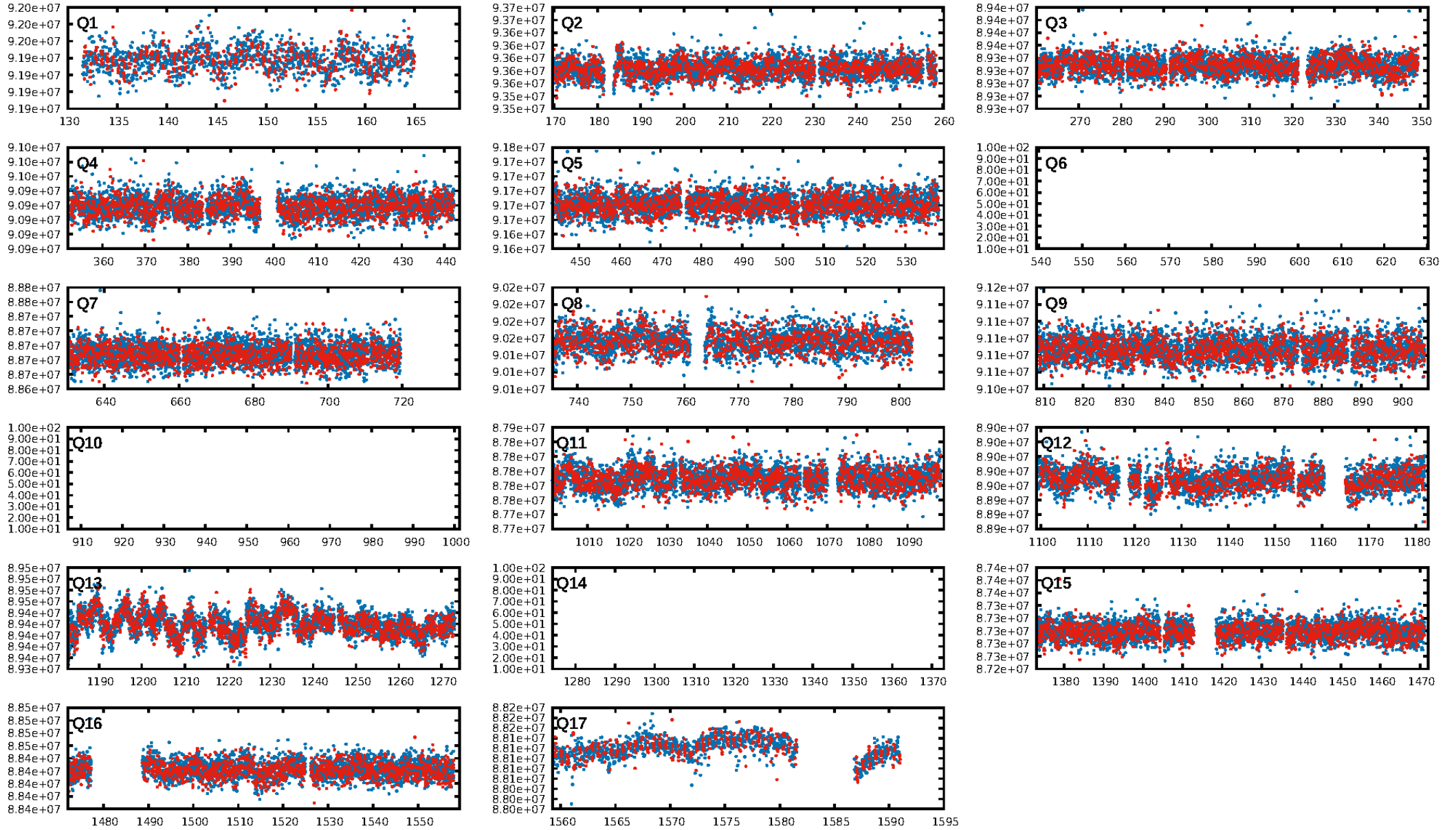
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.90e-29  
RollingBand-fgt: 1.00 [1794/1796]  
GhostDiagnostic-chr: -0.06212  
Centroid-sig: 0.0%  
Centroid-so: 3.199 arcsec [3.02σ]  
OotOffset-rm: 3.398 arcsec [4.95σ]  
KicOffset-rm: 3.392 arcsec [4.88σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.07 [1/14]  
DiffImageOverlap-fno: 1.00 [14/14]

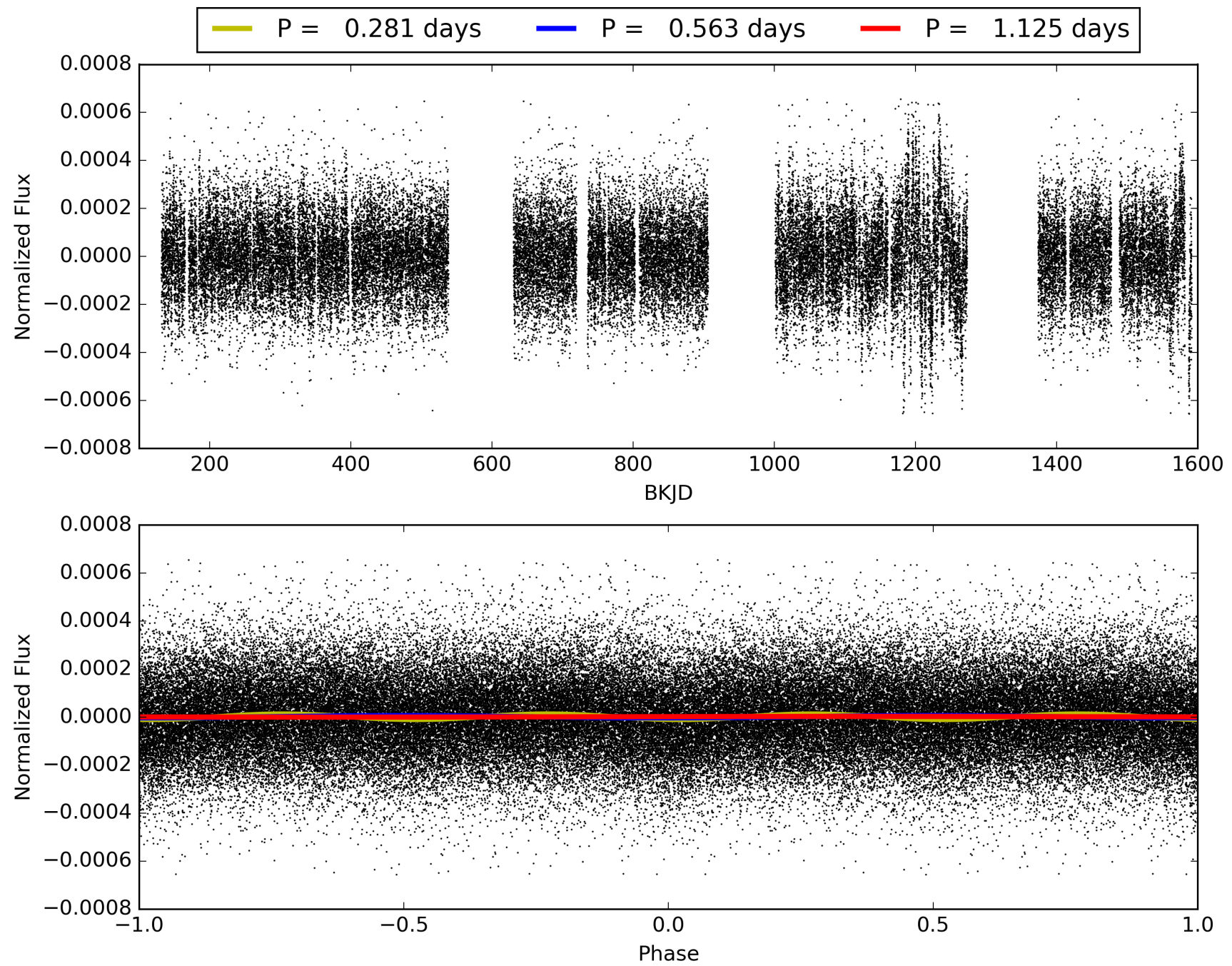
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:37:07 Z

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

# TCE 004568117-01, PDC Light Curves



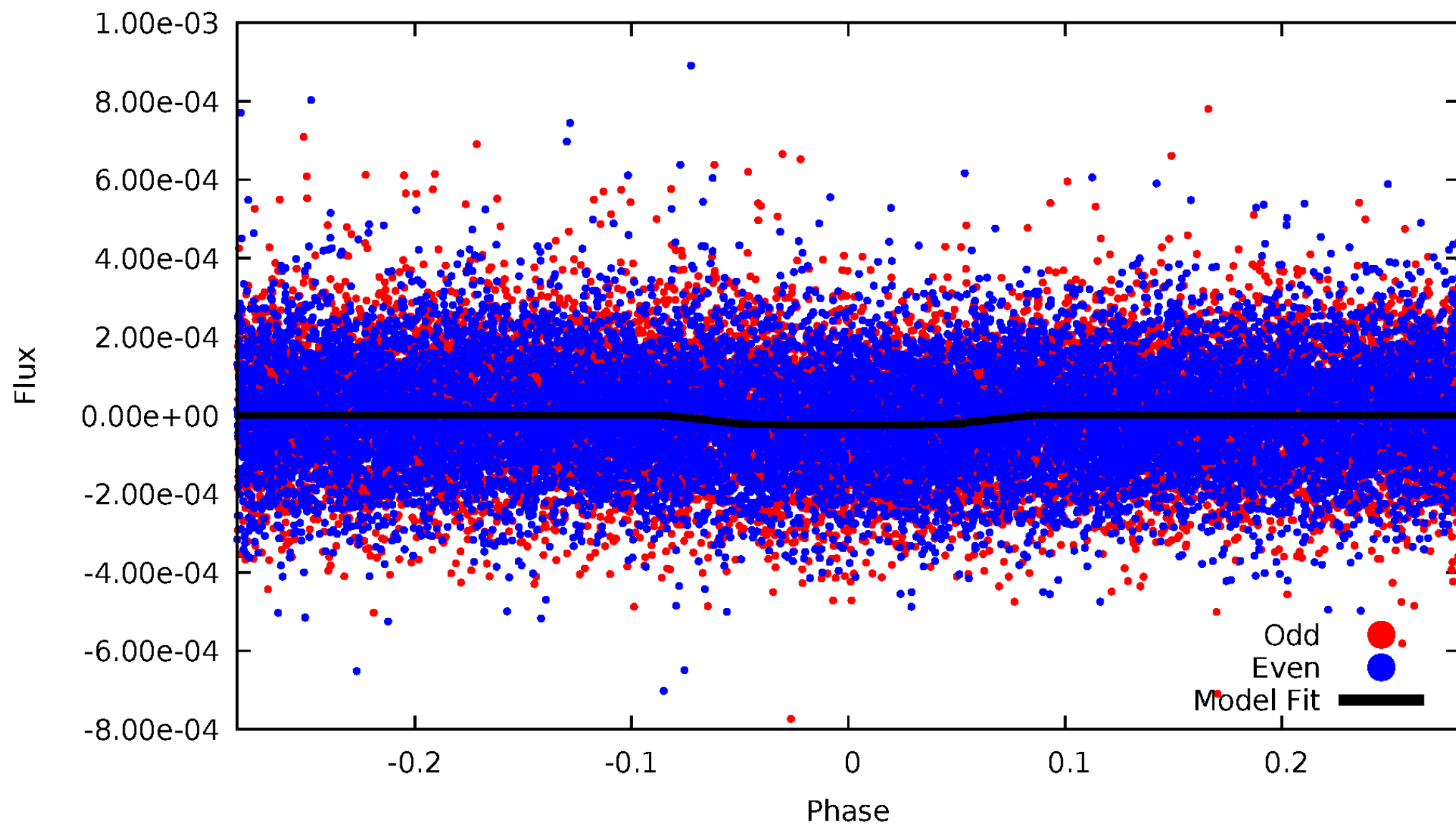
TCE 004568117-01





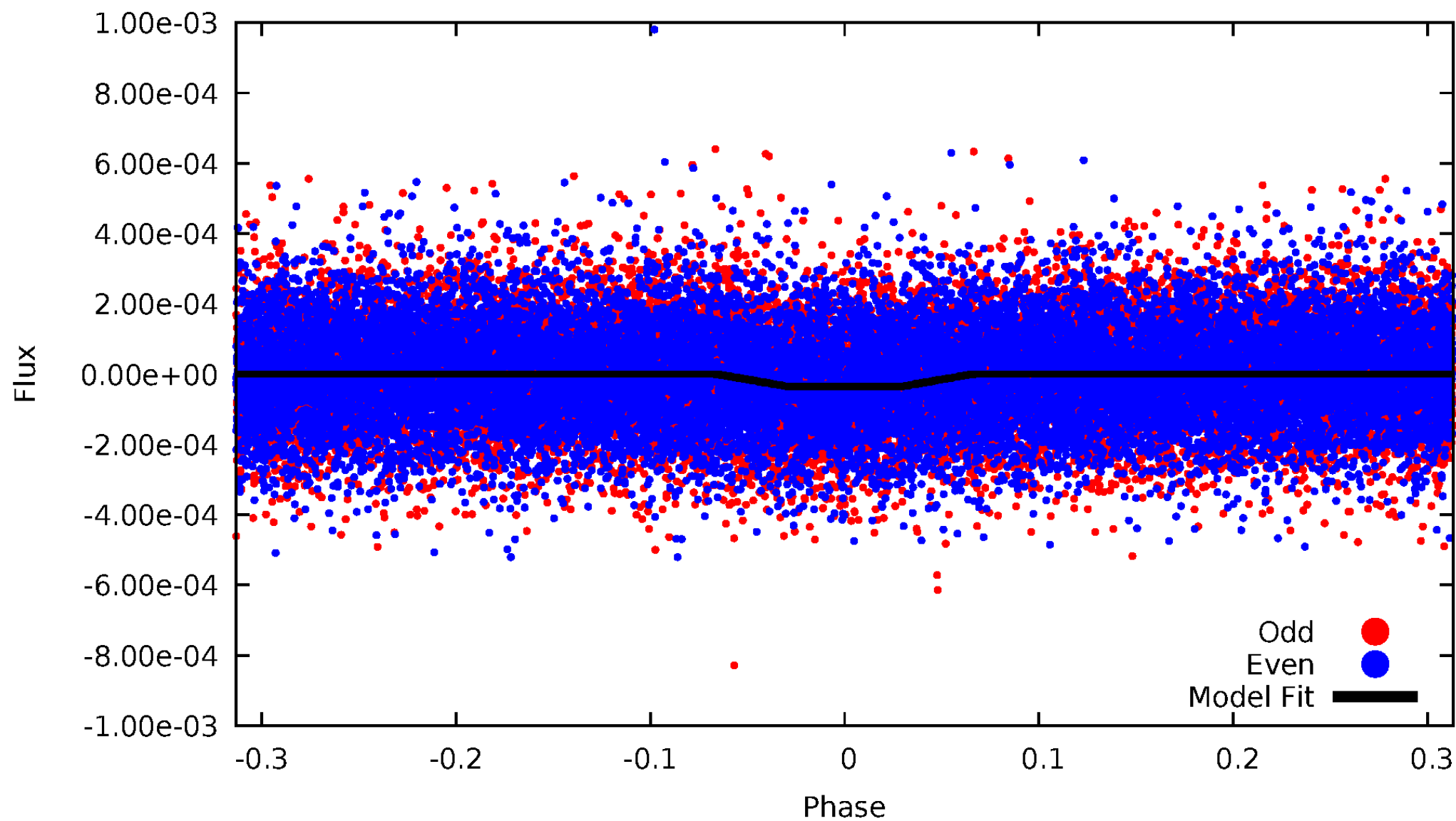
# DV Odd/Even

TCE 004568117-01



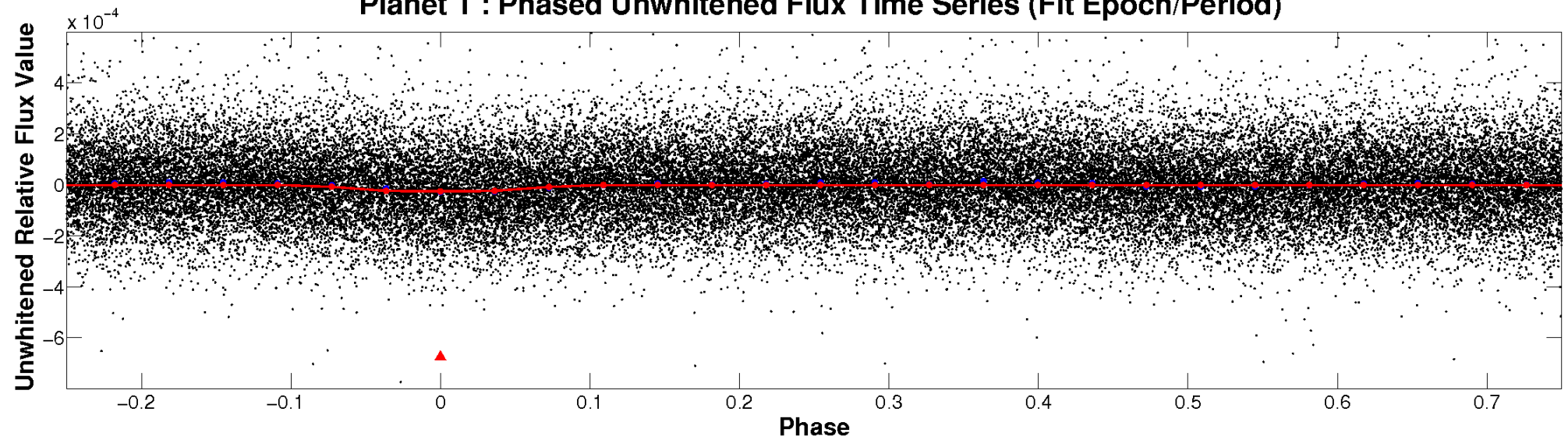
# ALT Odd/Even

TCE 004568117-01

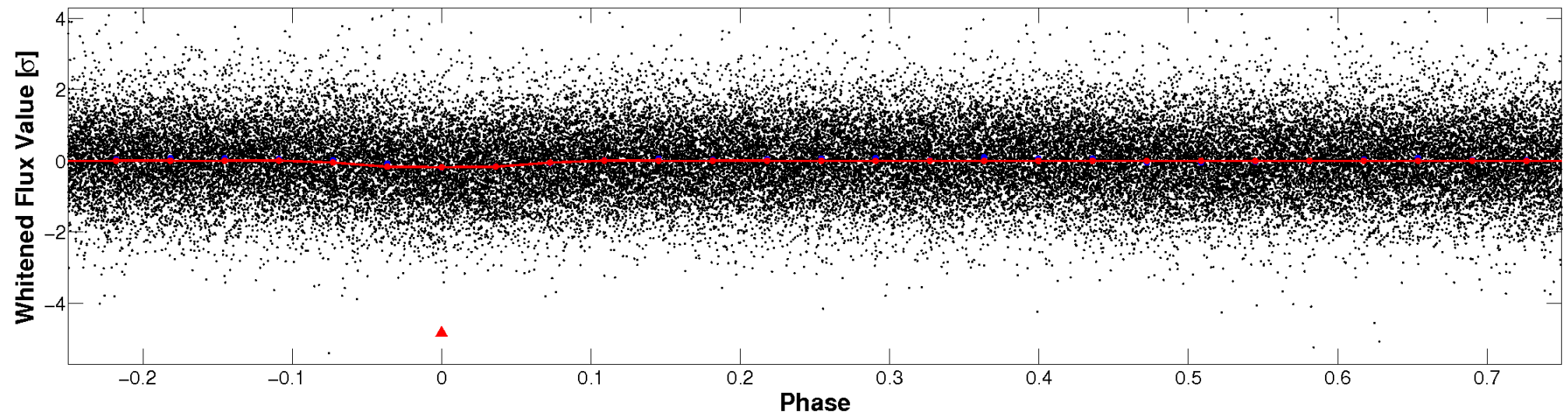


# Non-Whitened Vs. Whitened Light Curve

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

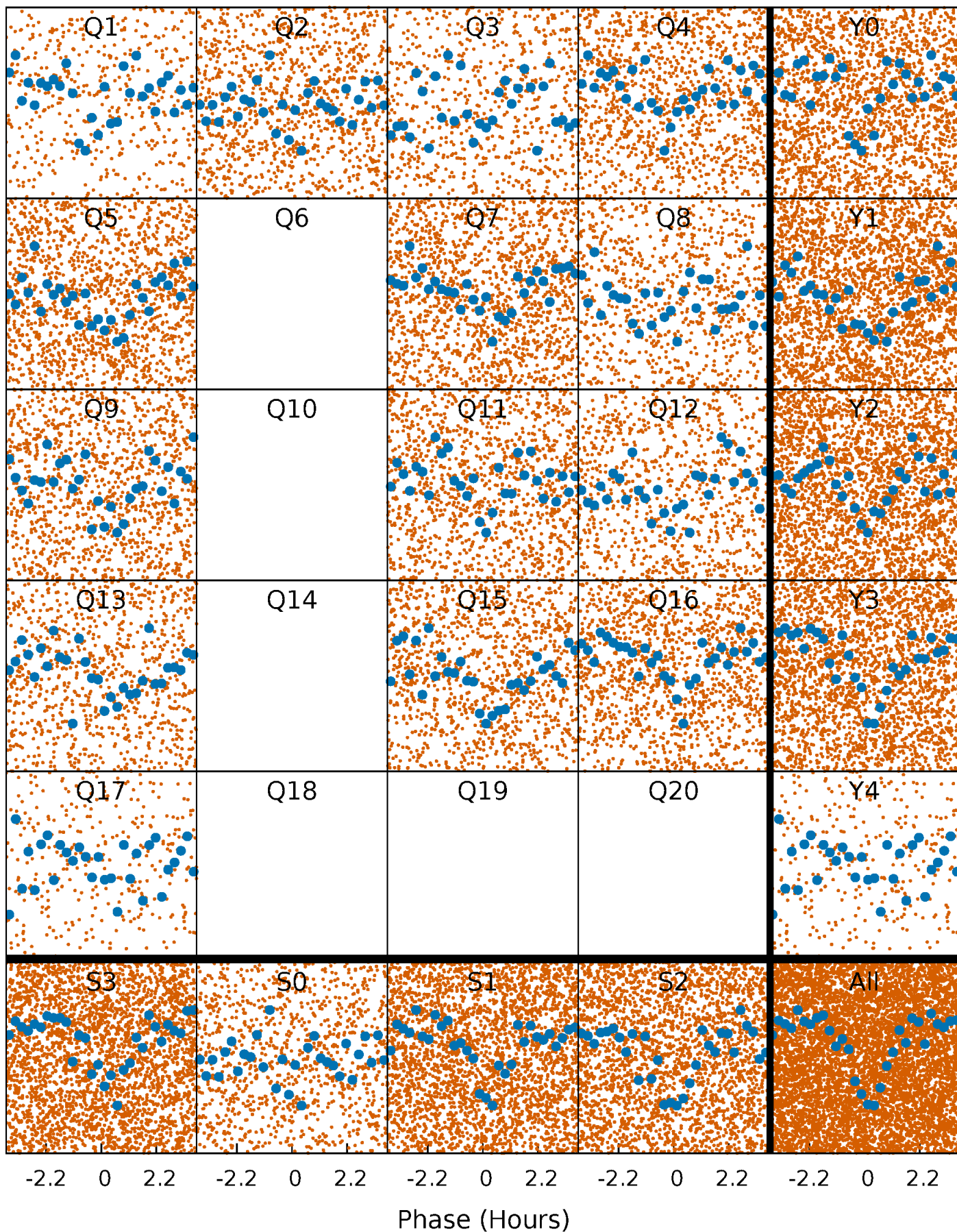


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

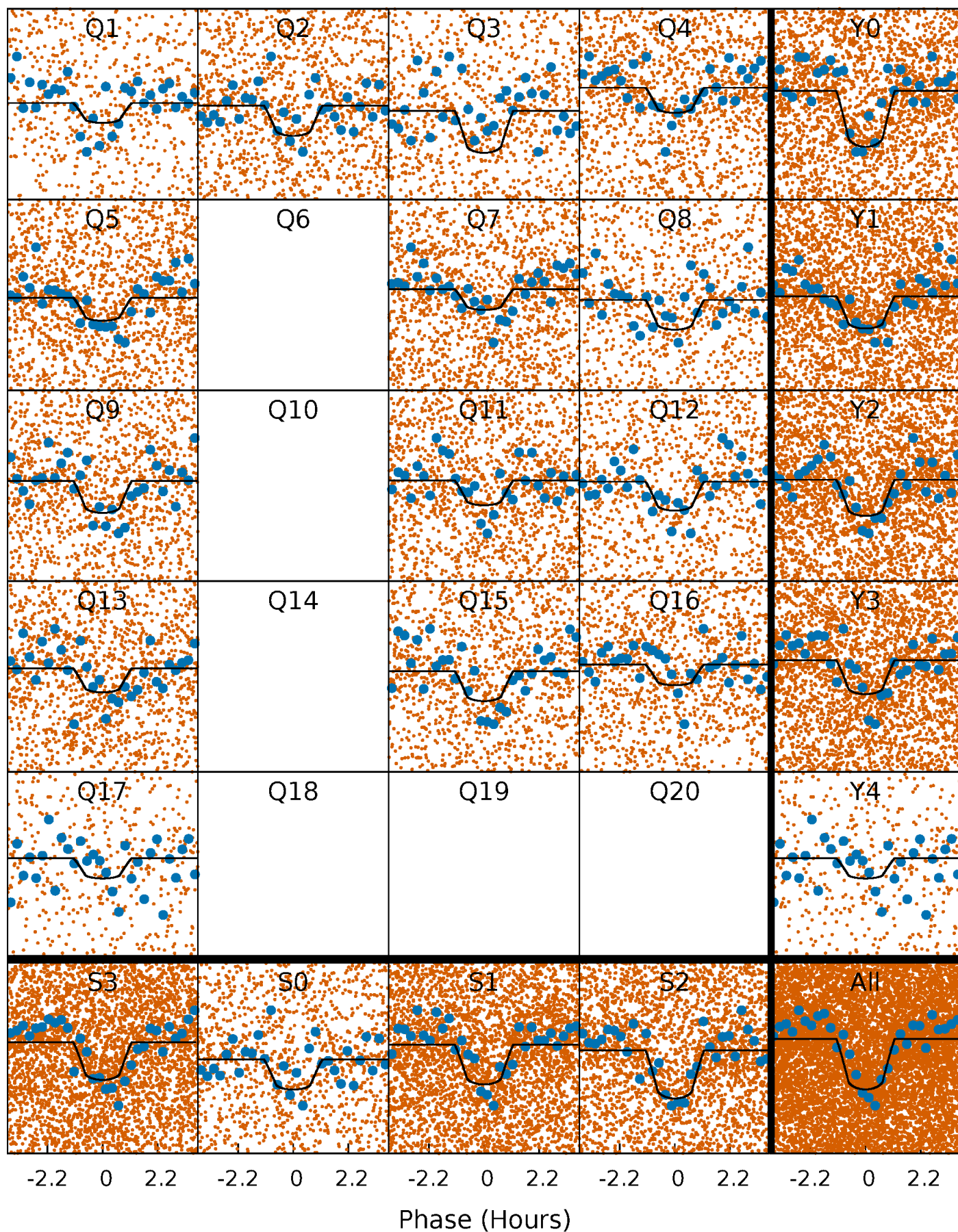
TCE 004568117-01 P= 0.562558 Days  $T_0=131.733077$  (BKJD)





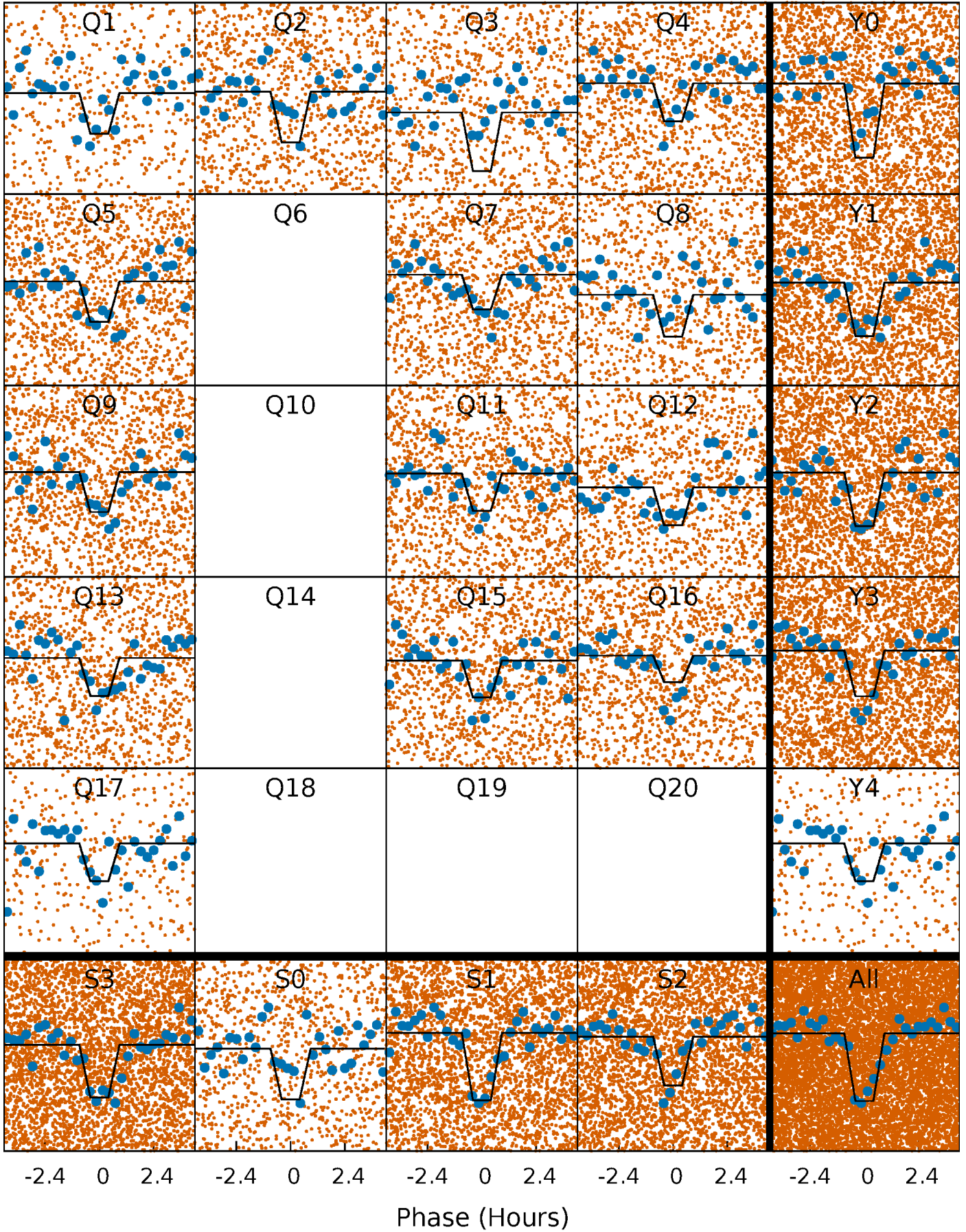
# DV Quarter-Phased Transit Curves

TCE 004568117-01 P= 0.562558 Days  $T_0=131.733077$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004568117-01 P= 0.562566 Days  $T_0=131.730154$  (BKJD)

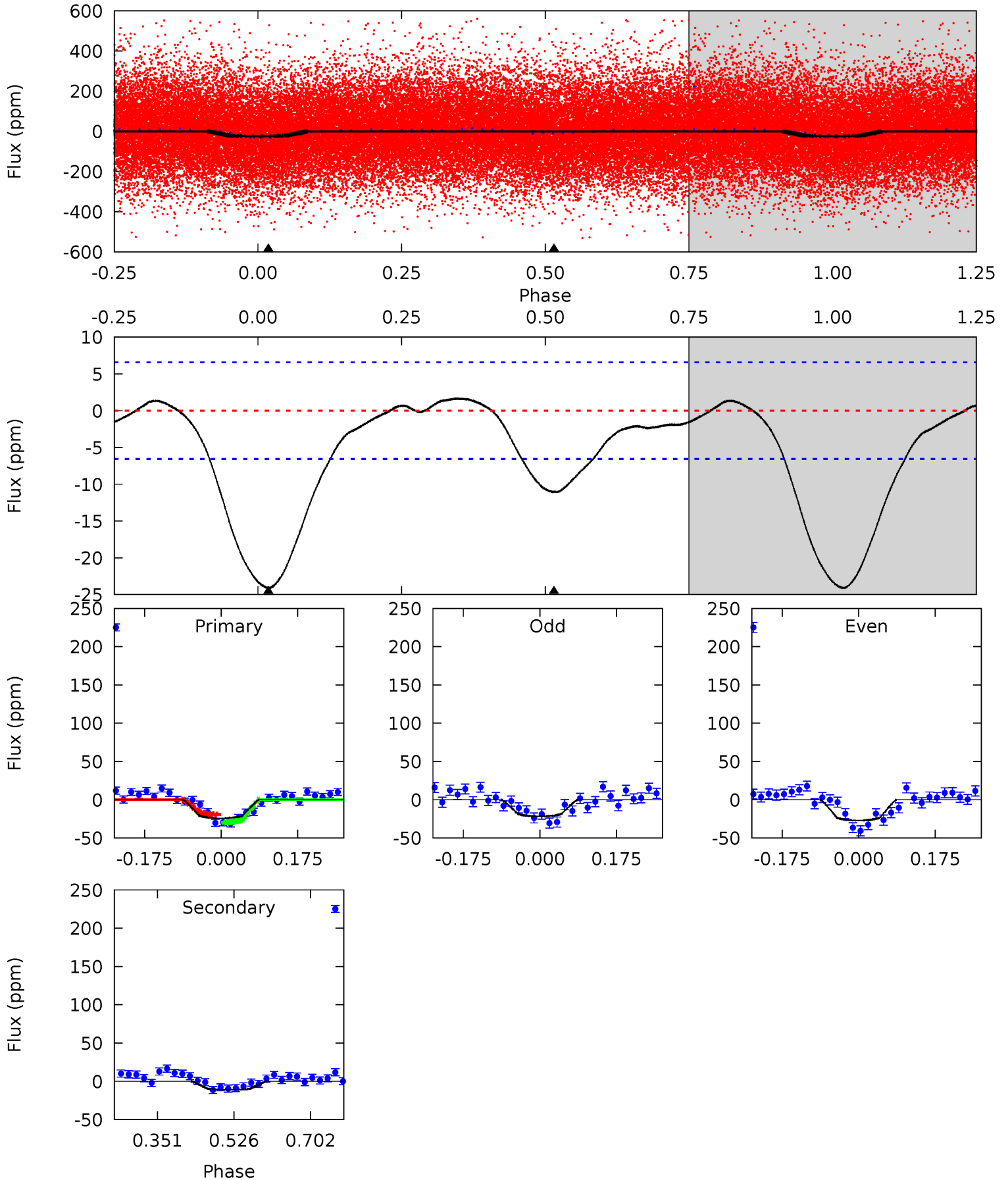




# DV Model-Shift Uniqueness Test

004568117-01, P = 0.562558 Days, E = 131.170519 Days

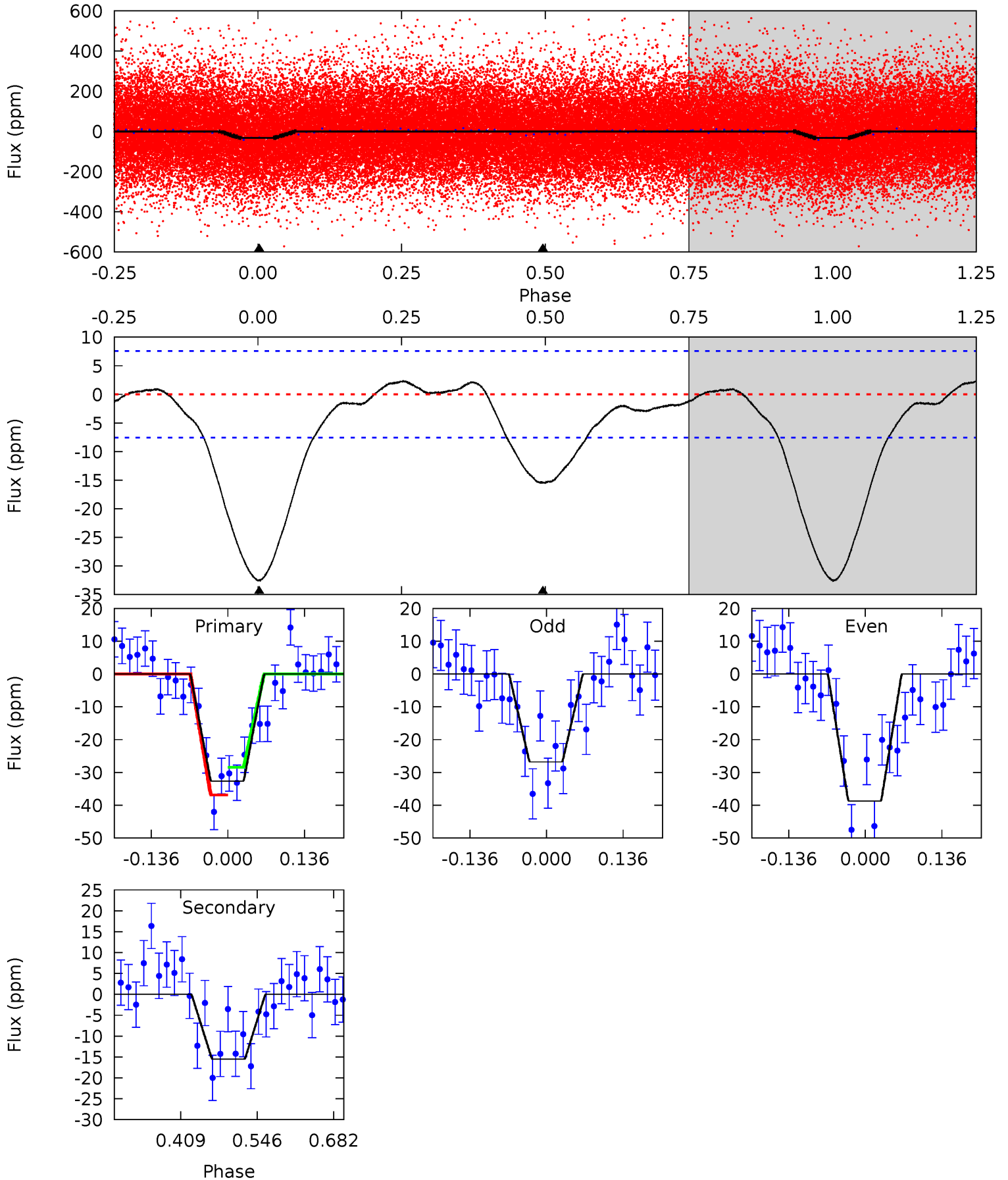
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	7.49	0	0	4.45	1.35	0.79	16.3	16.3	7.49	7.49	1.86	0.99	0.06	3.54



# Alt Model-Shift Uniqueness Test

004568117-01, P = 0.562566 Days, E = 131.167588 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
19.4	9.22	0	0	4.50	1.49	0.89	19.4	19.4	9.22	9.22	3.54	0.99	0.07	2.50





### Stellar Parameters For KIC 004568117

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6577^{+148}_{-214}$	$4.381^{+0.070}_{-0.210}$	$-0.260^{+0.250}_{-0.300}$	$1.145^{+0.366}_{-0.131}$	$1.154^{+0.180}_{-0.150}$	$1.082^{+0.382}_{-0.573}$
	+2%/-3%	+2%/-5%	+96%/-115%	+32%/-11%	+16%/-13%	+35%/-53%
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 004568117-01 / KOI 4248.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-11 \pm 1$	$0.69^{+0.31}_{-0.27}$	$3728^{+285}_{-202}$	$5059^{+1544}_{-788}$	$2.436^{+4.227}_{-1.270}$
Alt.	$-16 \pm 2$	$0.76^{+0.29}_{-0.28}$	$3712^{+257}_{-176}$	$5271^{+1283}_{-754}$	$2.882^{+3.882}_{-1.404}$

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

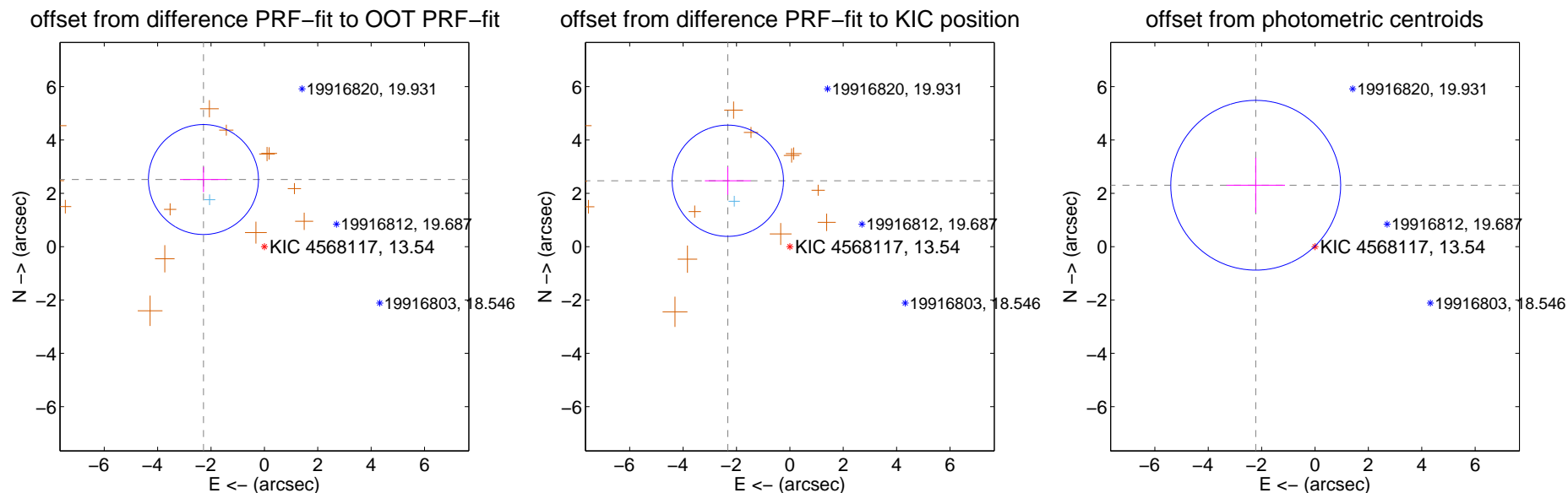
## DV Centroid Data

Supplemental centroid analysis for 004568117-01. Kepler magnitude: 13.54. Transit SNR 12.83

There are 1 quarters with good PRF difference image offsets

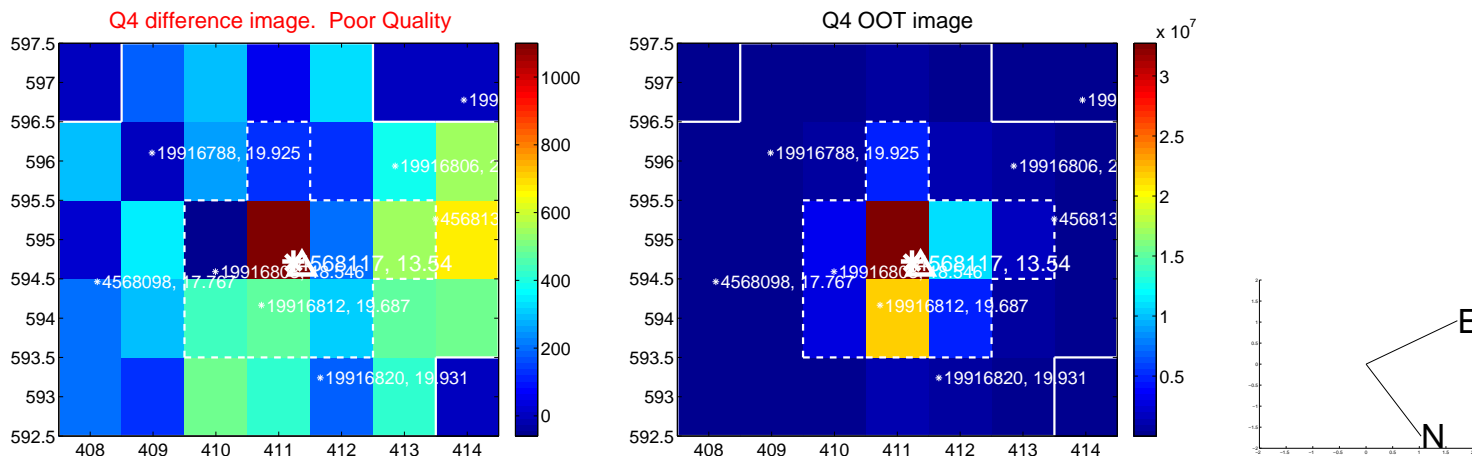
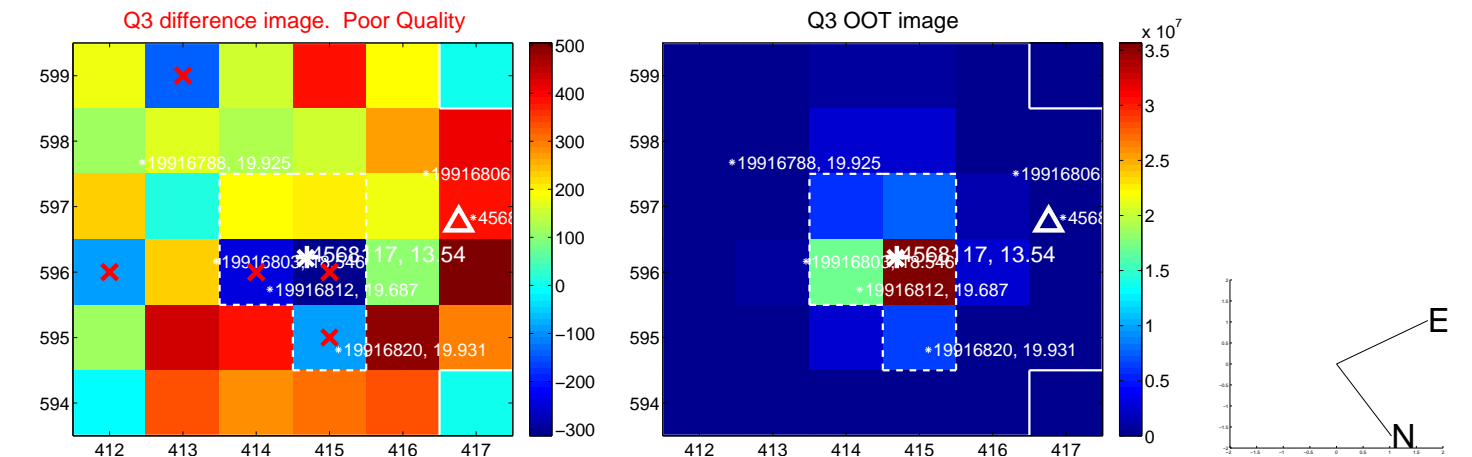
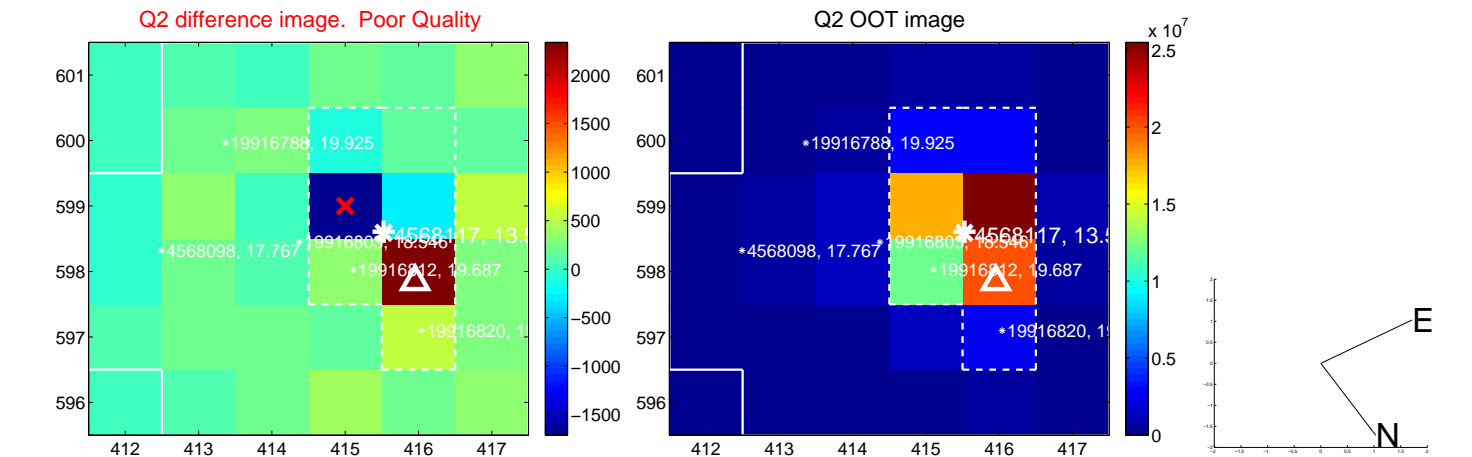
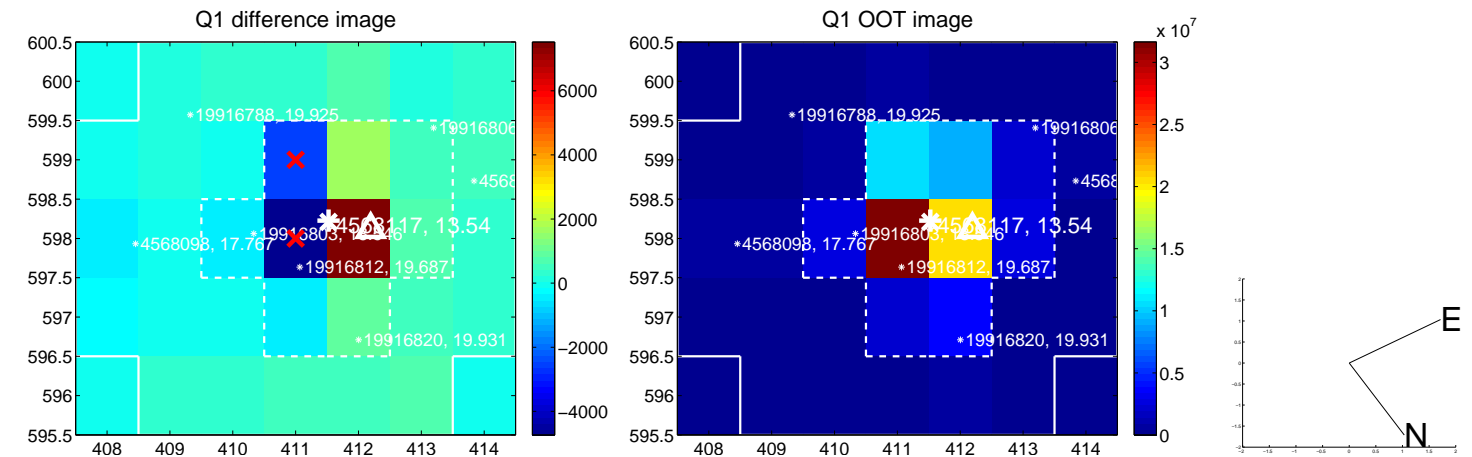
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.398 \pm 0.687$	4.95	$2.283 \pm 0.879$	$2.517 \pm 0.474$
PRF-fit source offset from KIC position	$3.392 \pm 0.695$	4.88	$2.325 \pm 0.861$	$2.471 \pm 0.522$
photometric centroid source offset	$3.20 \pm 1.06$	3.02	$2.22 \pm 1.09$	$2.30 \pm 1.03$

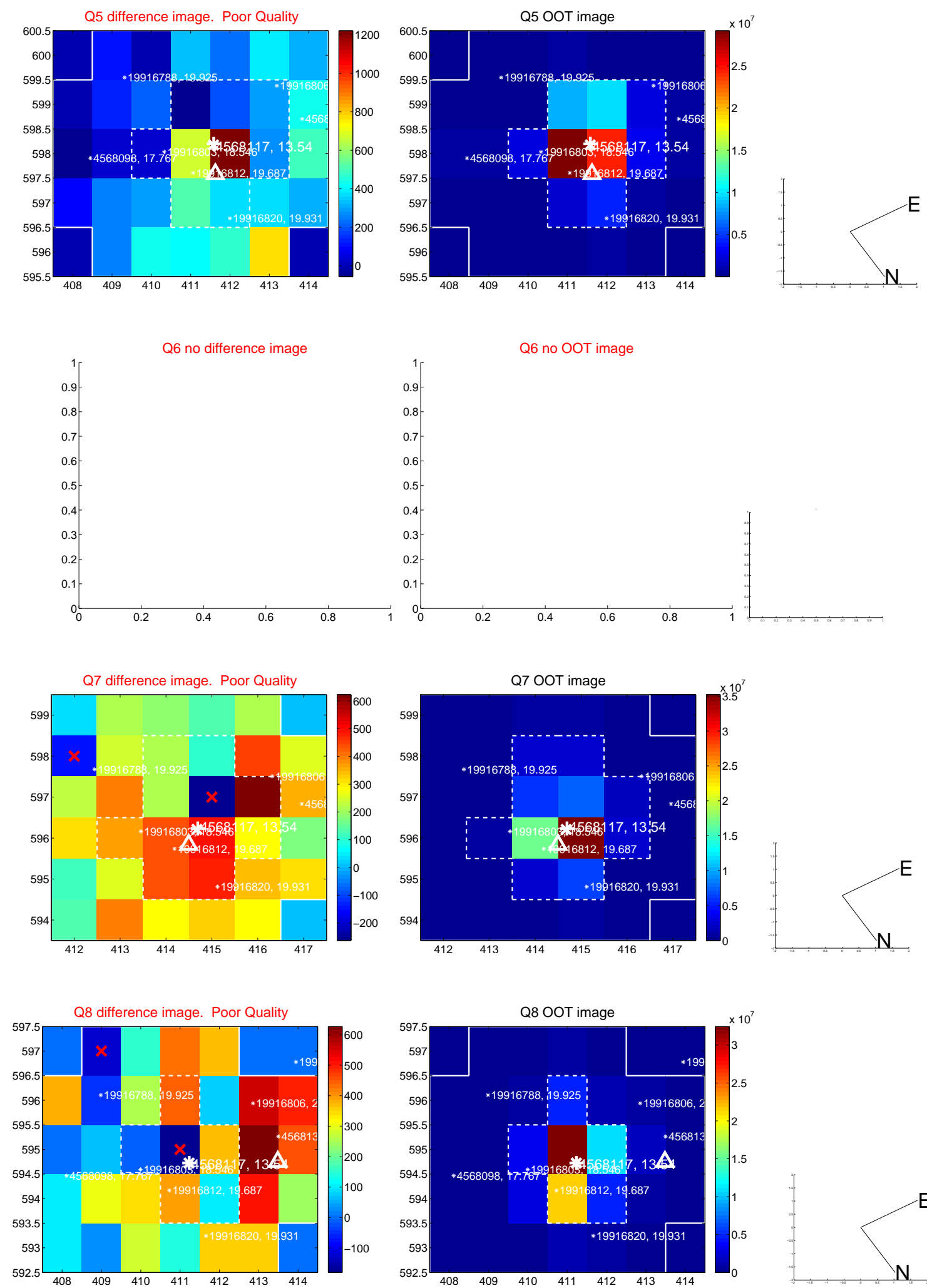


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

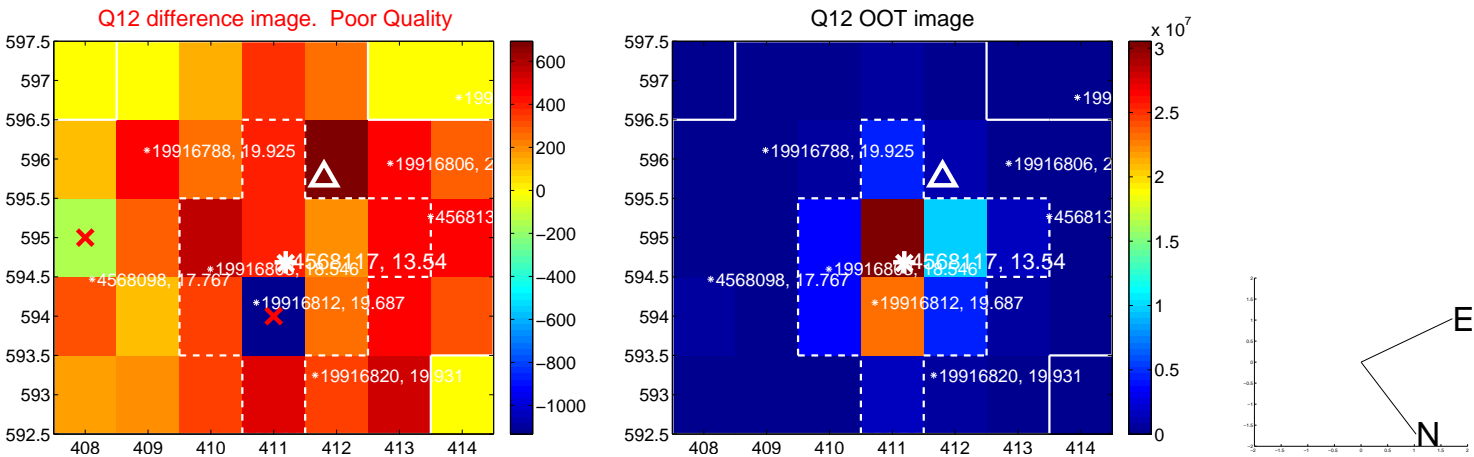
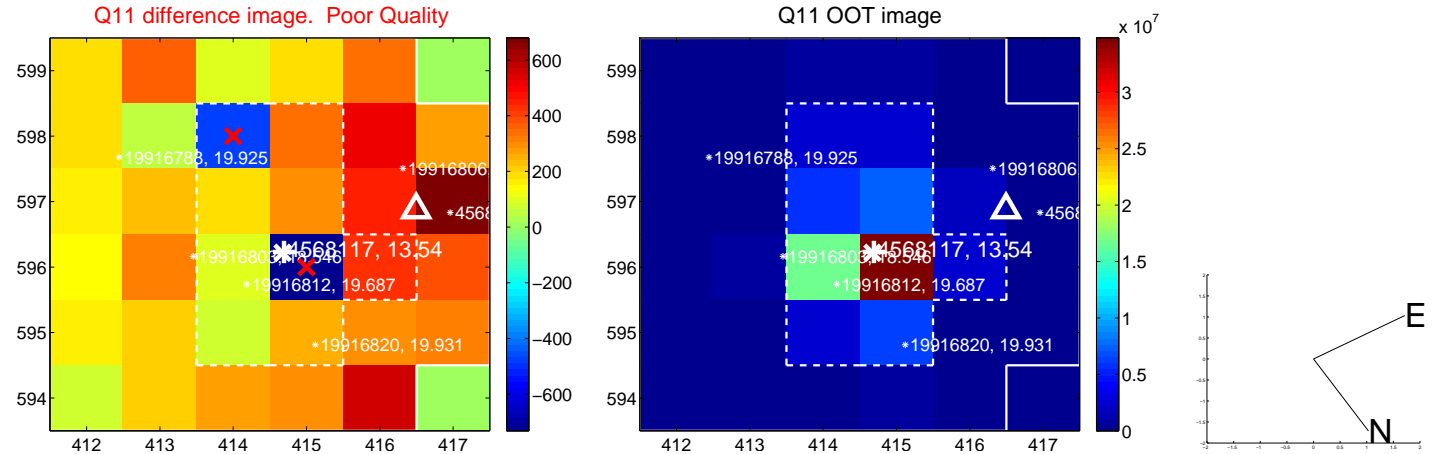
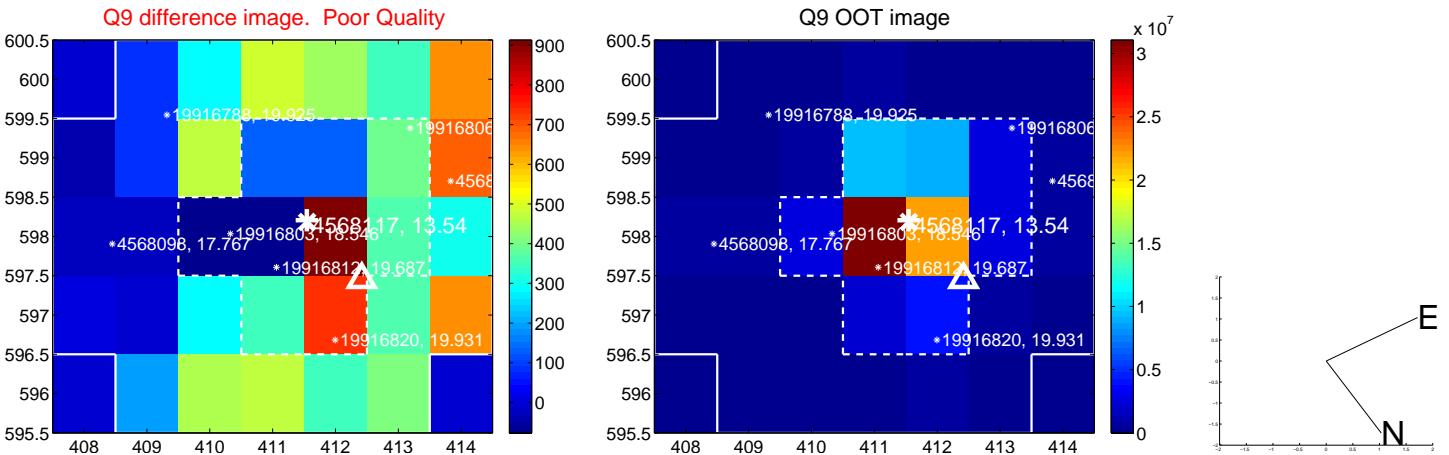


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

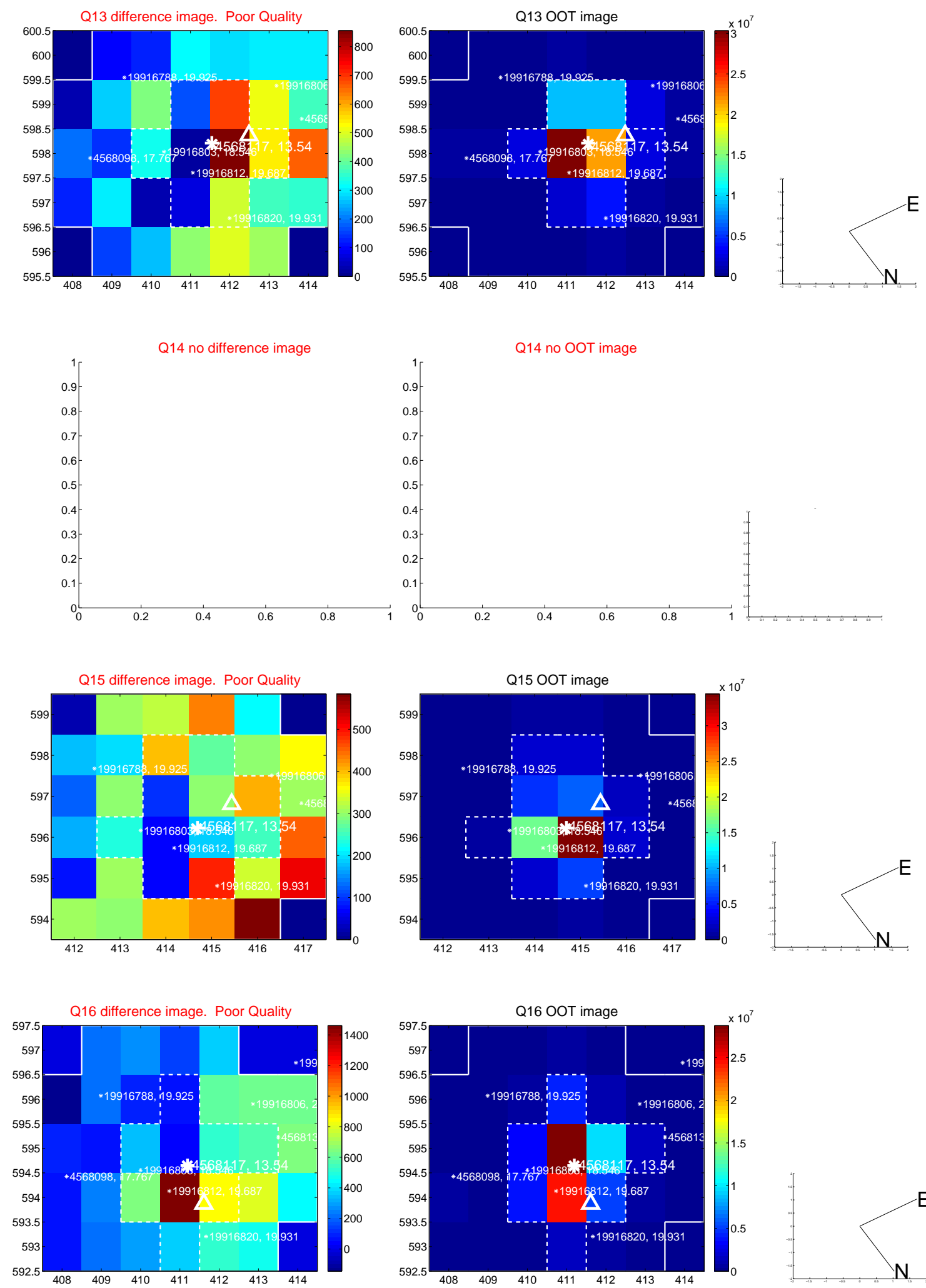




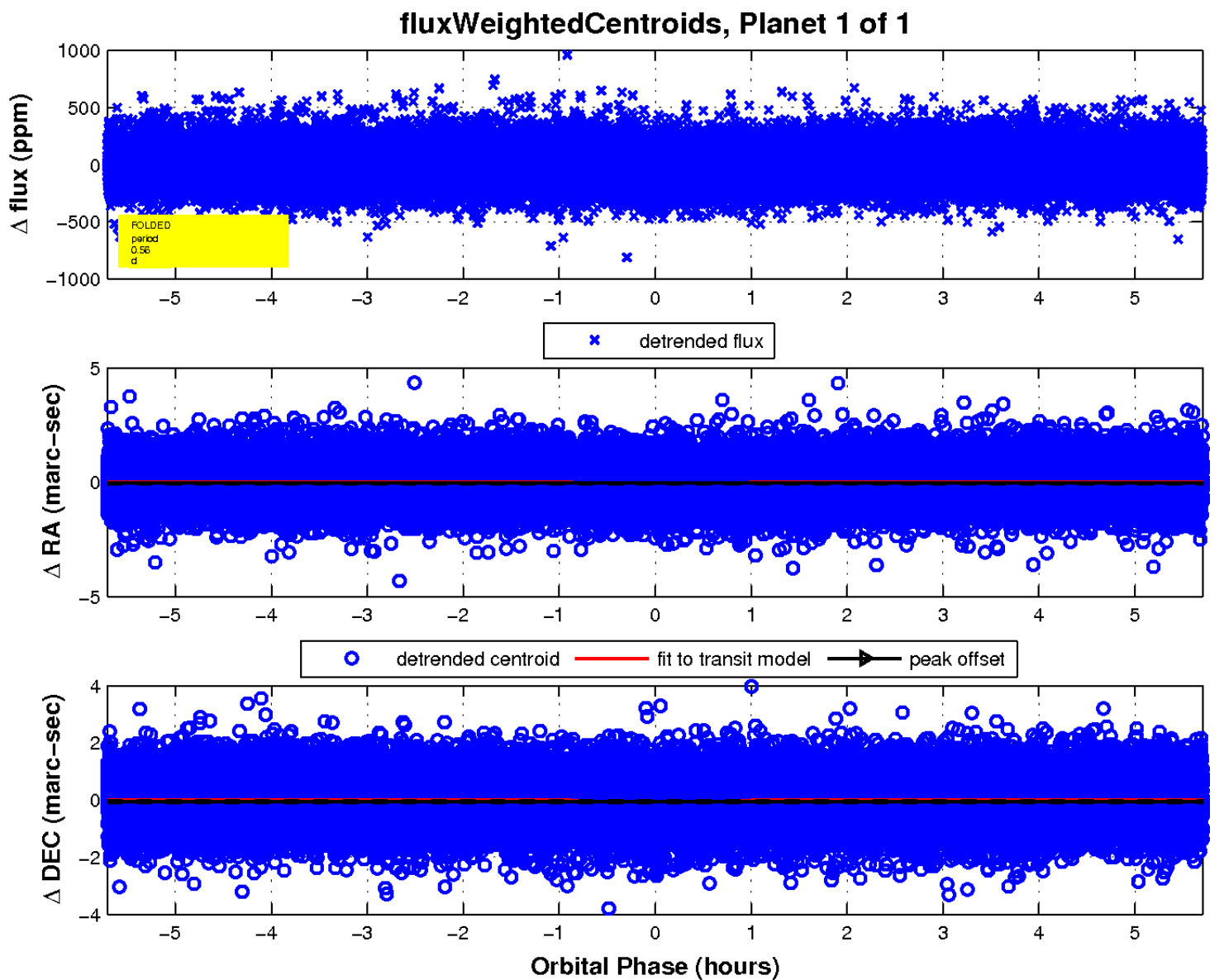
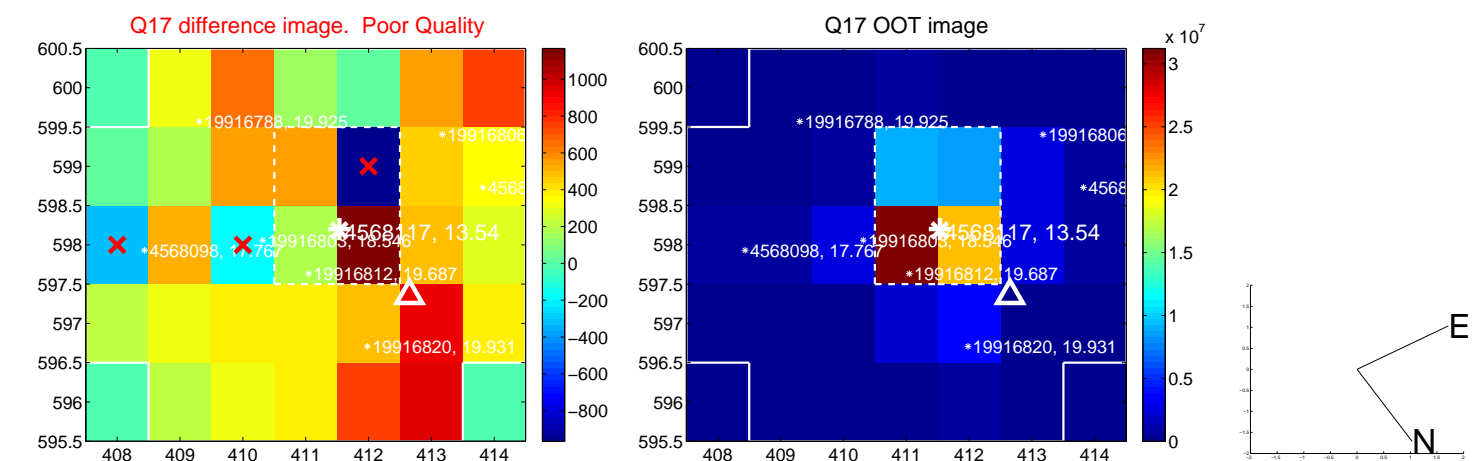
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination

