

# KIC 010925113

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010925113-01	OBS	2557.01	11.776100	142.707193	251.5	2.868	11.8	12.6	0.69	5096	1.32	34.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010925113-01	OBS	FP	0.00	0	0	1	1	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.

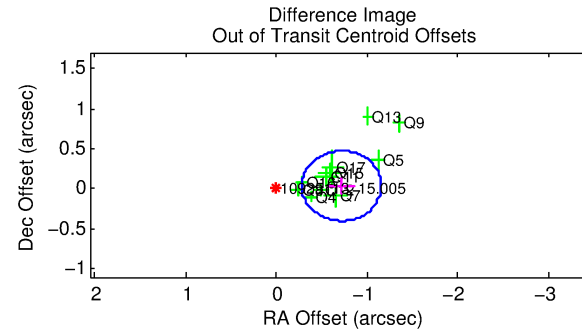
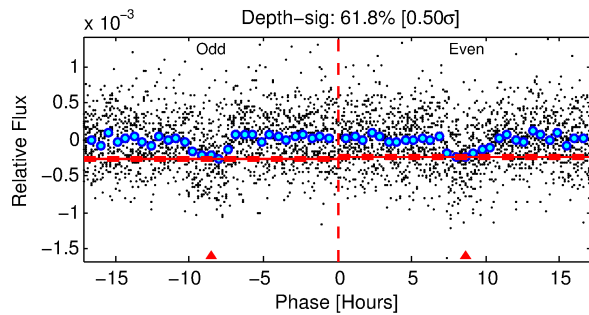
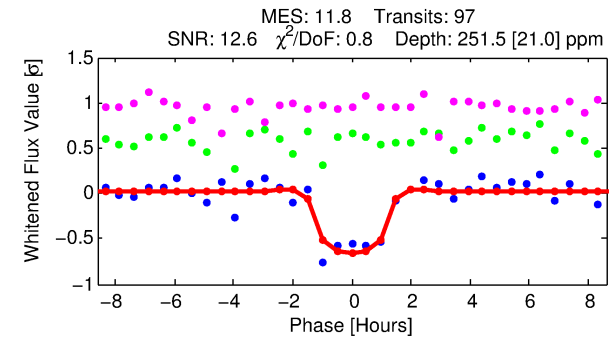
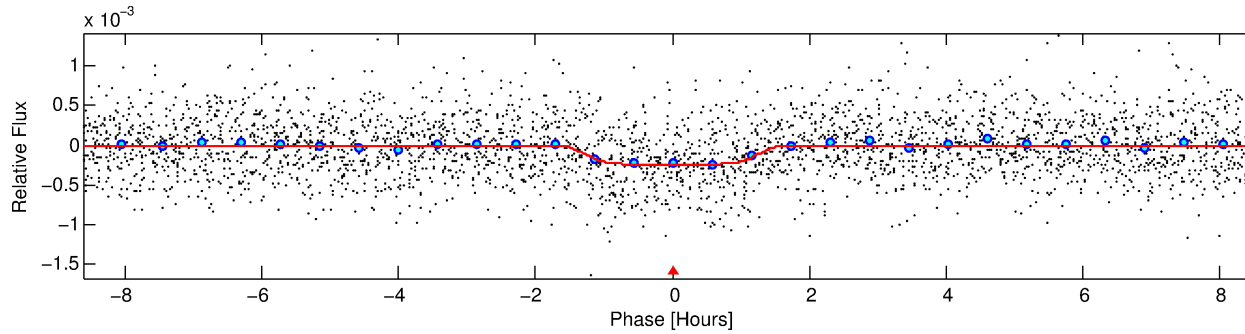
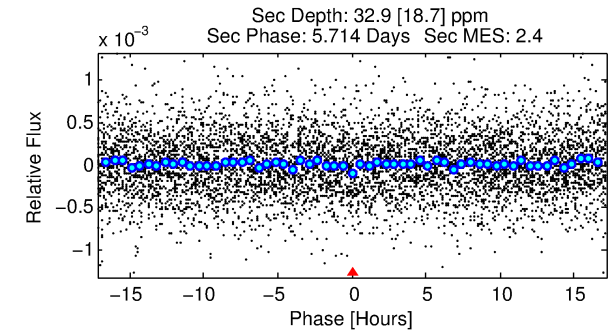
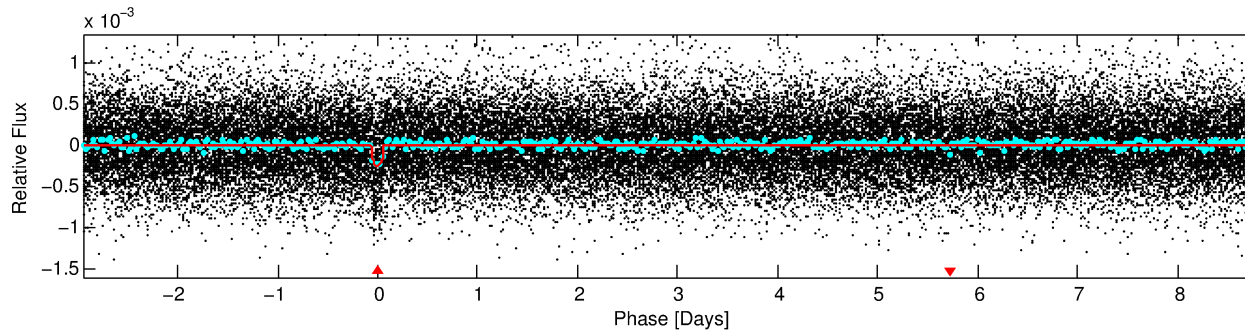
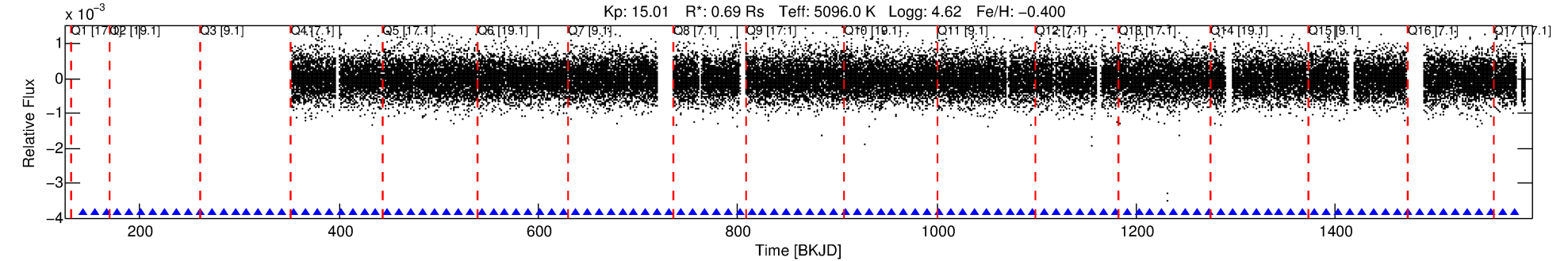
## Ephemeris Match Information For 010925113-01

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	$\sigma_P$	$\sigma_T$
010925113-01	10925113	010925104-01	10925104	1:1	6.2	-1	-1	13.74	15.01	5.69	Direct-PRF	0	0.09	0.03

**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: 10925113 Candidate: 1 of 1 Period: 11.776 d  
KOI: K02557.01 Corr: 0.980



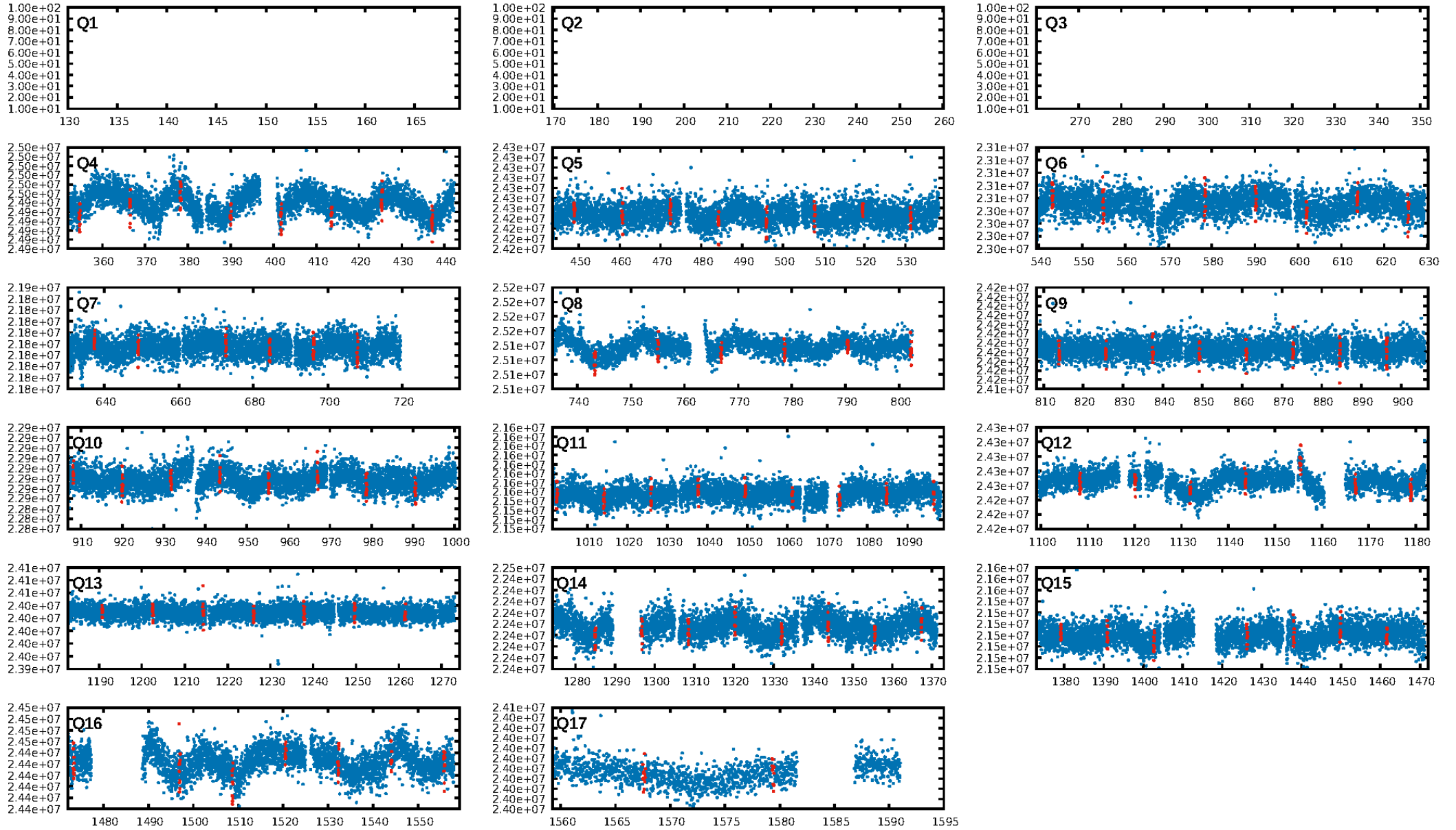
## DV Fit Results:

Period = 11.77610 [0.00009] d  
Epoch = 142.7072 [0.0064] BKJD  
Rp/R\* = 0.0176 [0.0082]  
a/R\* = 14.96 [28.80]  
b = 0.90 [0.42]  
Seff = 34.83 [6.47]  
Teq = 619 [29] K  
Rp = 1.32 [0.63] Re  
a = 0.0907 [0.0086] AU  
Ag = 85.55 [93.81] [0.90σ]  
Teffp = 2913 [800] K [2.87σ]

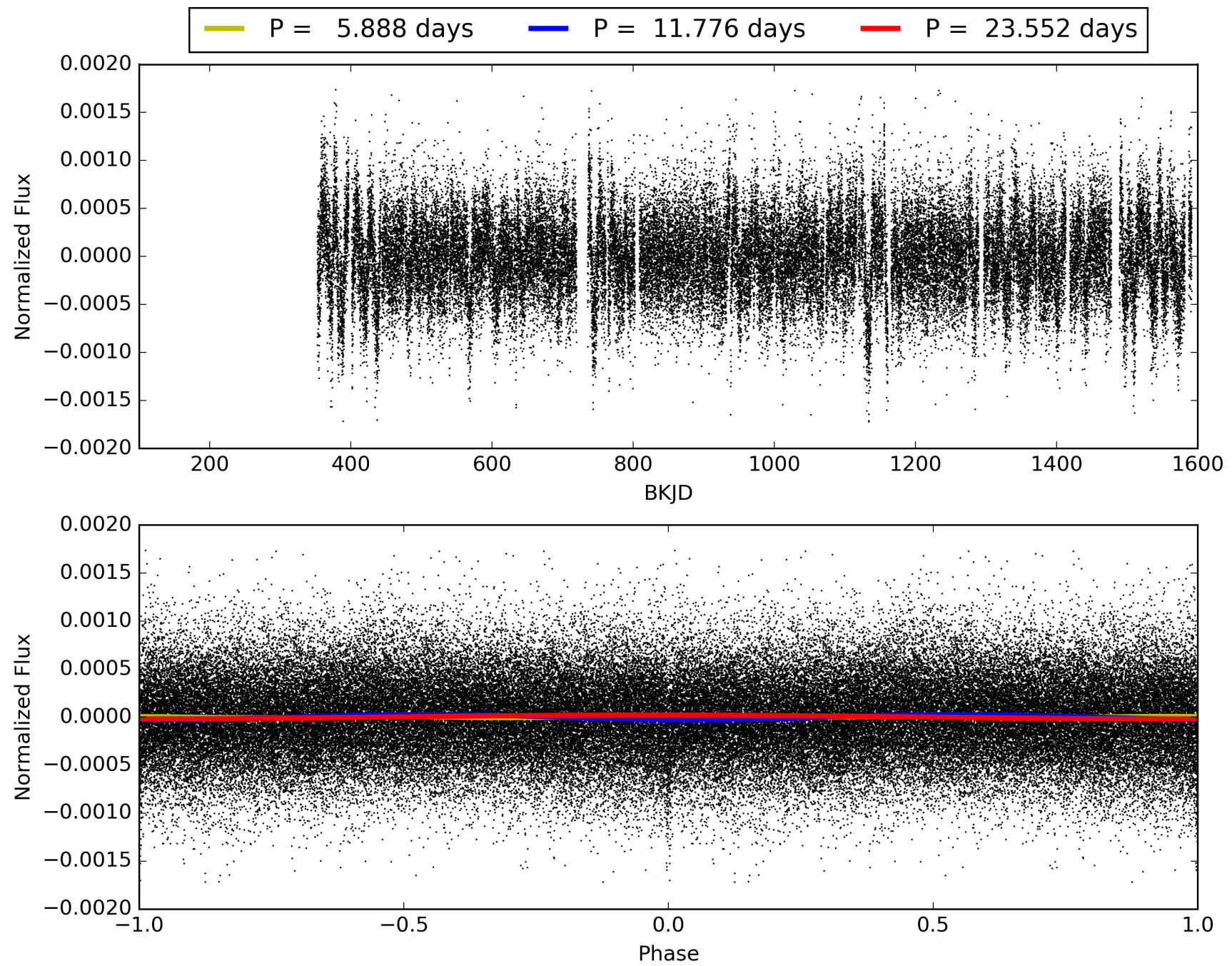
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.32e-31  
RollingBand-fgt: 1.00 [95/95]  
GhostDiagnostic-chr: -0.3963  
Centroid-sig: 0.0%  
Centroid-so: 10.176 arcsec [25.13σ]  
OotOffset-rm: 0.720 arcsec [4.94σ]  
KicOffset-rm: 6.325 arcsec [66.90σ]  
OotOffset-st: 0/3/4/4 [11]  
KicOffset-st: 0/3/4/4 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010925113-01, PDC Light Curves

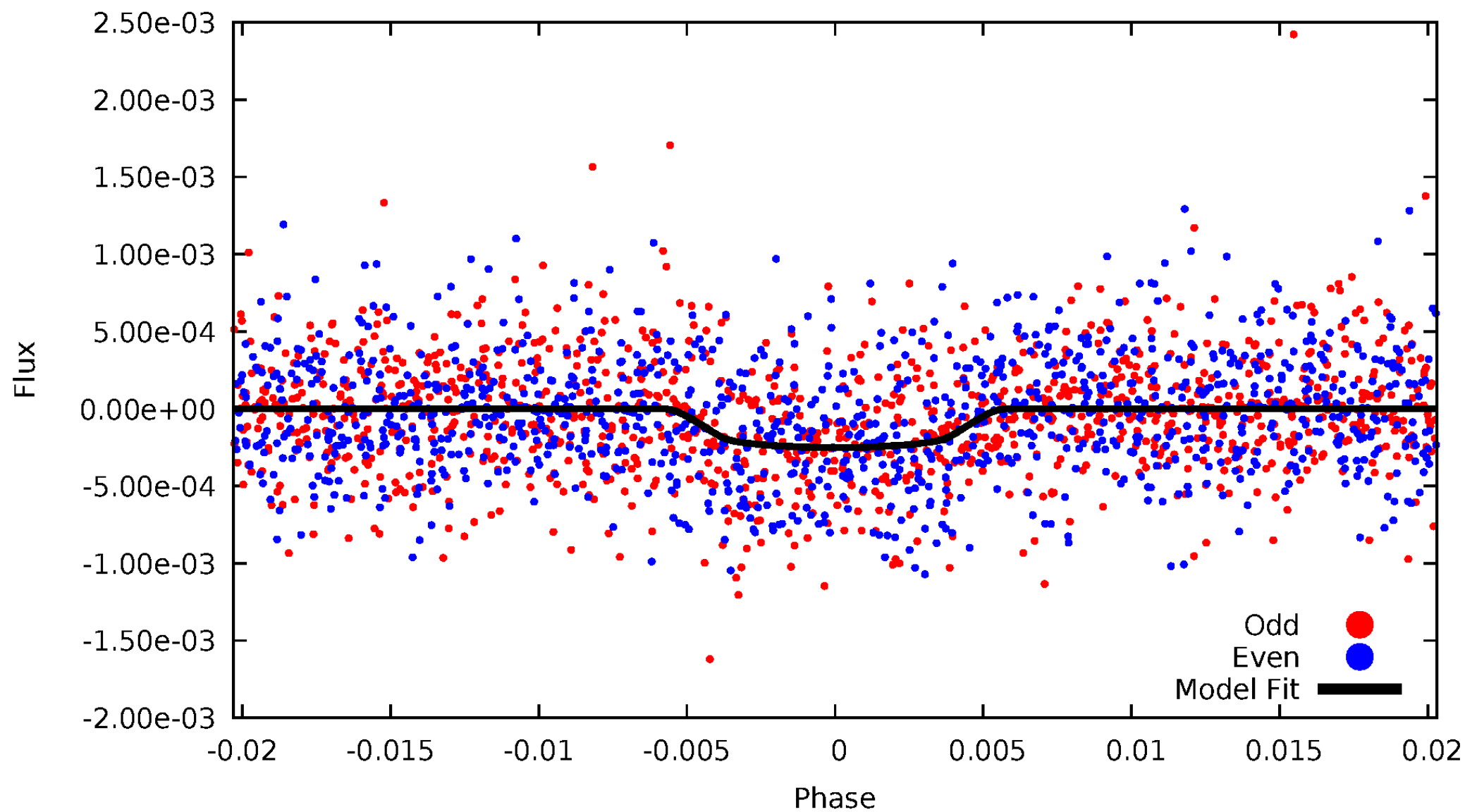


TCE 010925113-01



DV Odd/Even

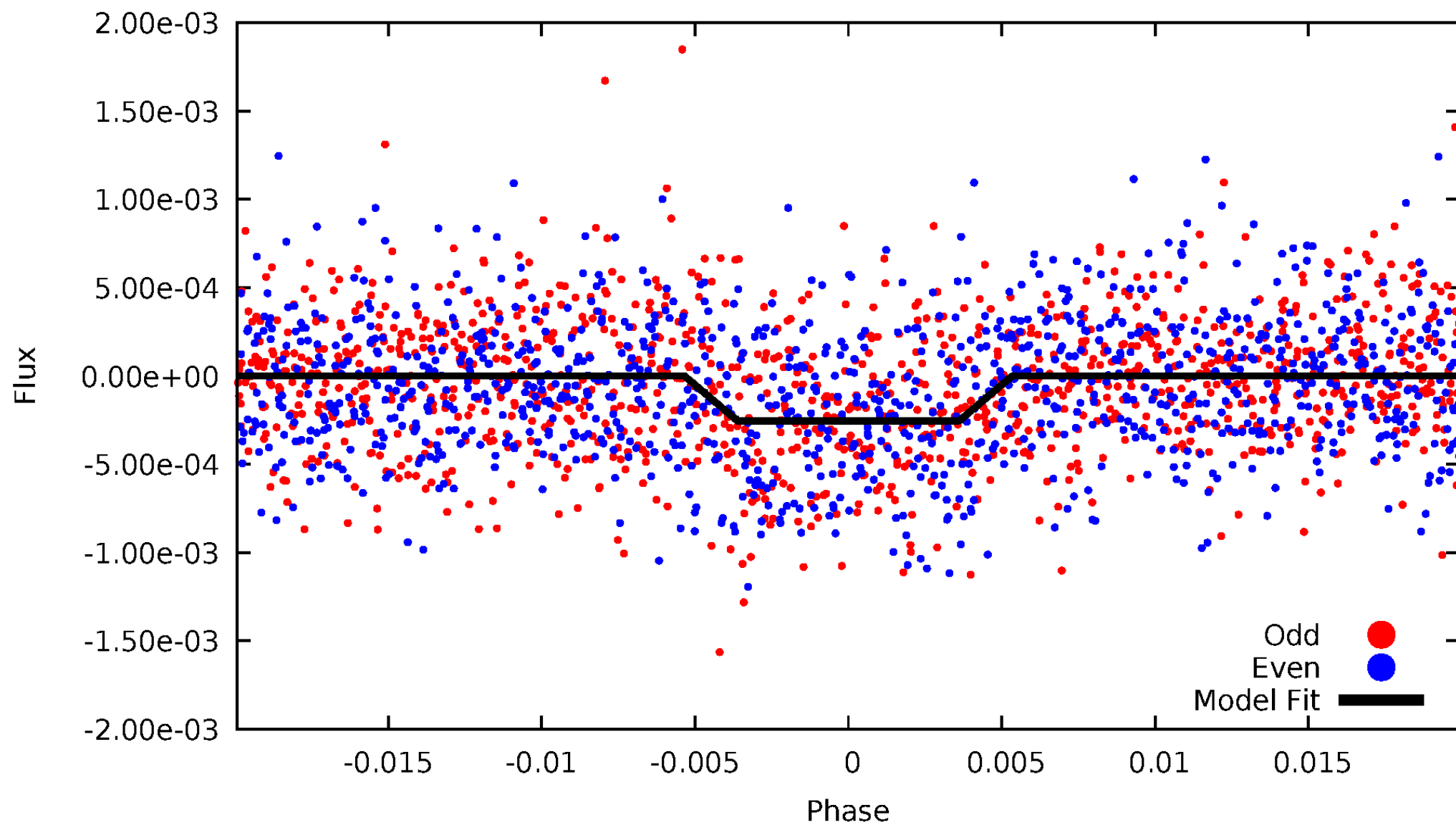
TCE 010925113-01





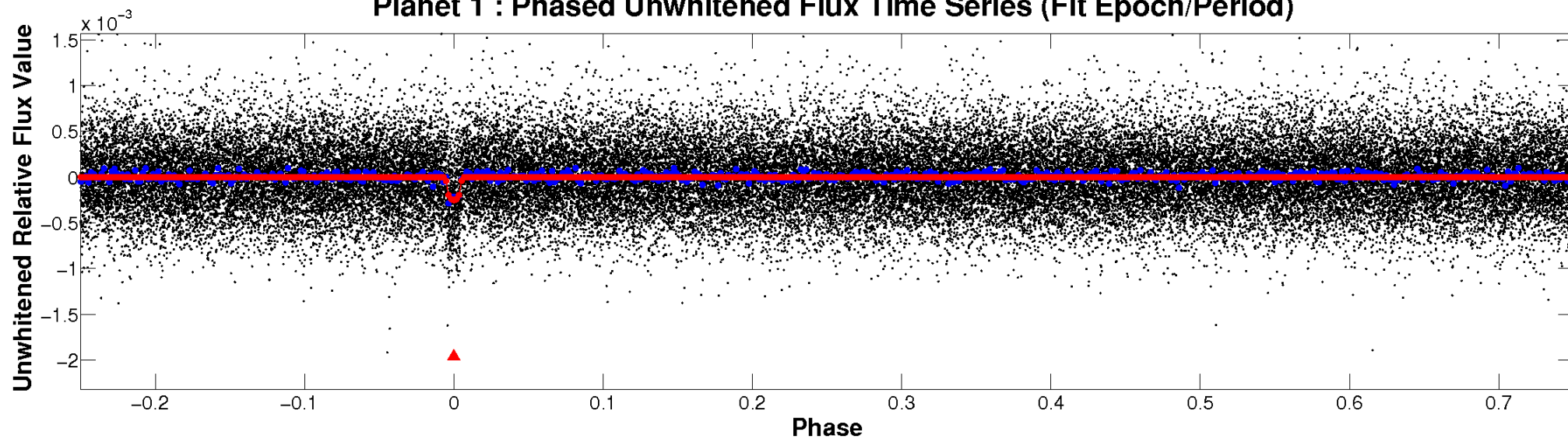
# ALT Odd/Even

TCE 010925113-01

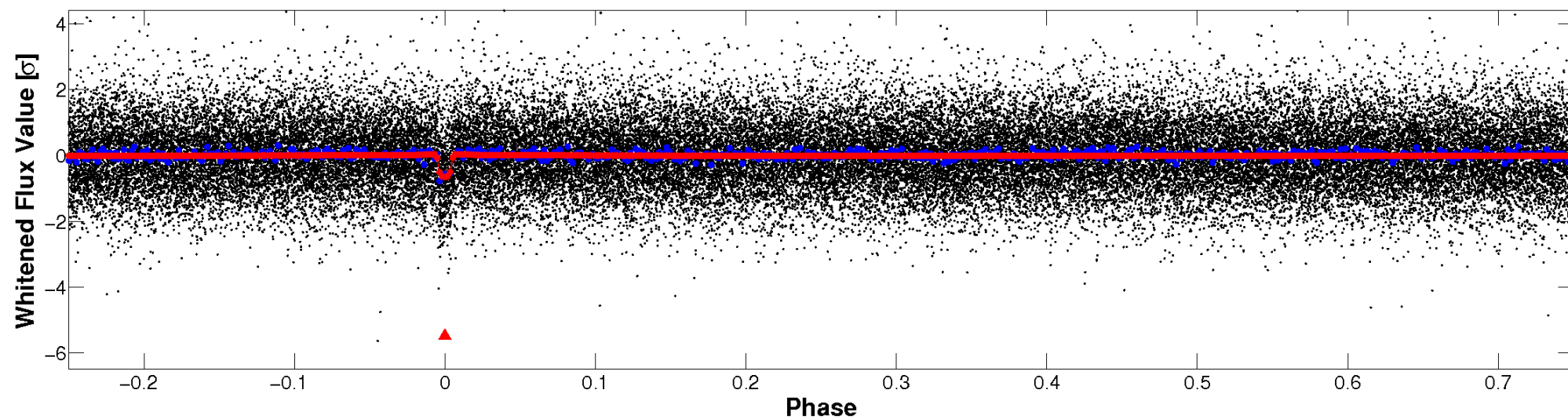


# Non-Whitened Vs. Whitened Light Curve

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

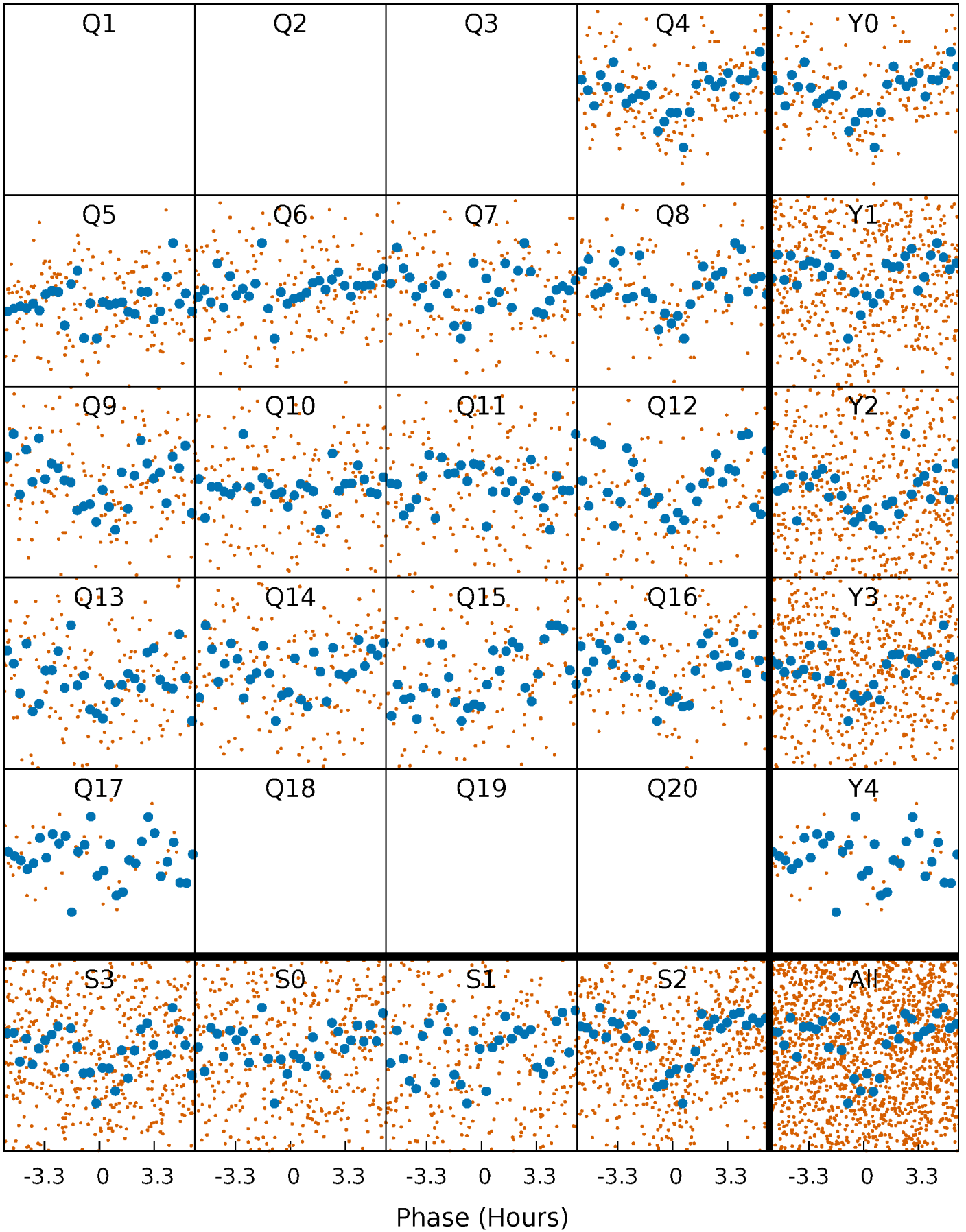


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

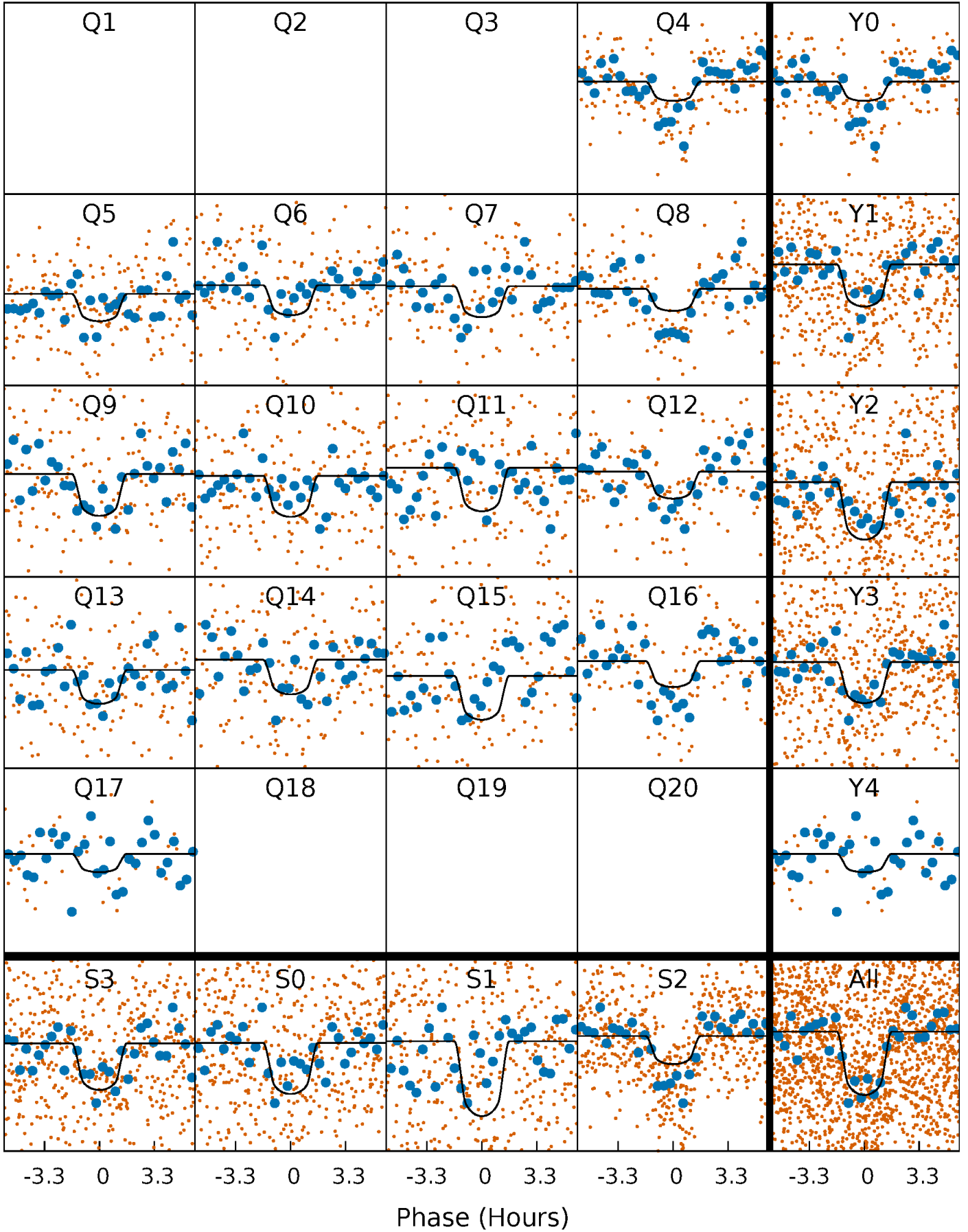
TCE 010925113-01 P= 11.776100 Days  $T_0=142.707193$  (BKJD)





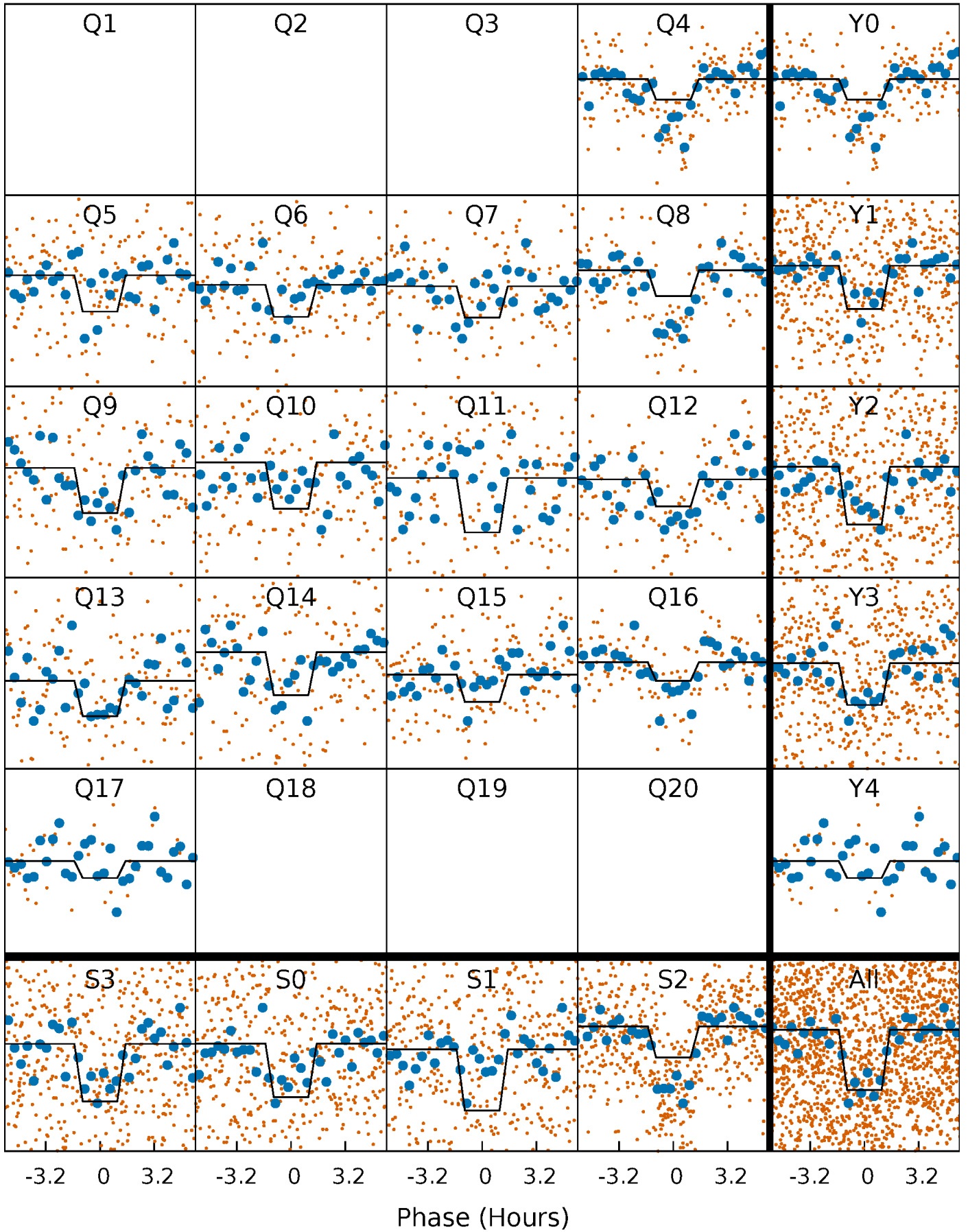
# DV Quarter-Phased Transit Curves

TCE 010925113-01 P= 11.776100 Days  $T_0=142.707193$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

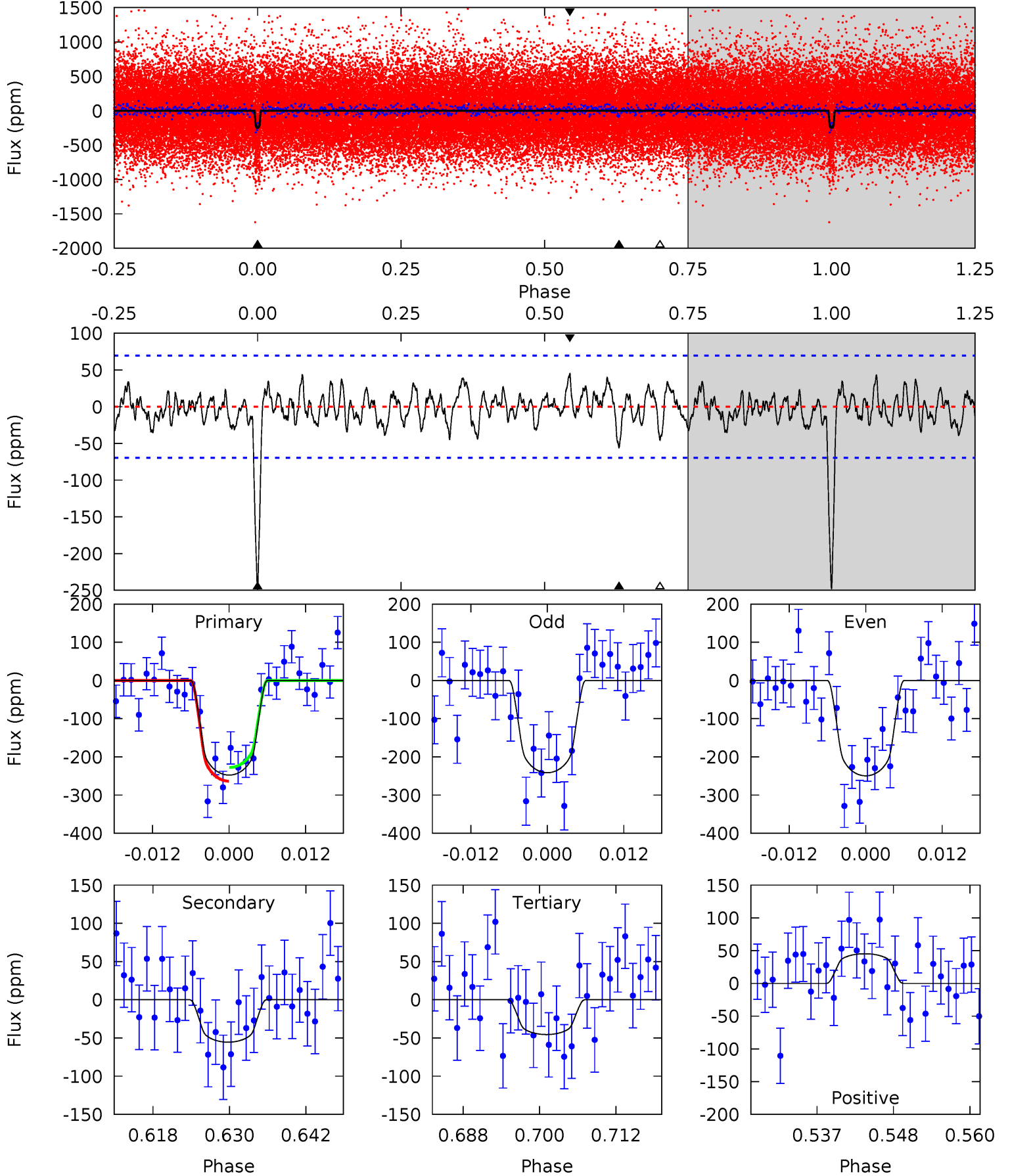
TCE 010925113-01 P= 11.776051 Days  $T_0=142.709886$  (BKJD)



# DV Model-Shift Uniqueness Test

010925113-01, P = 11.776100 Days, E = 142.707193 Days

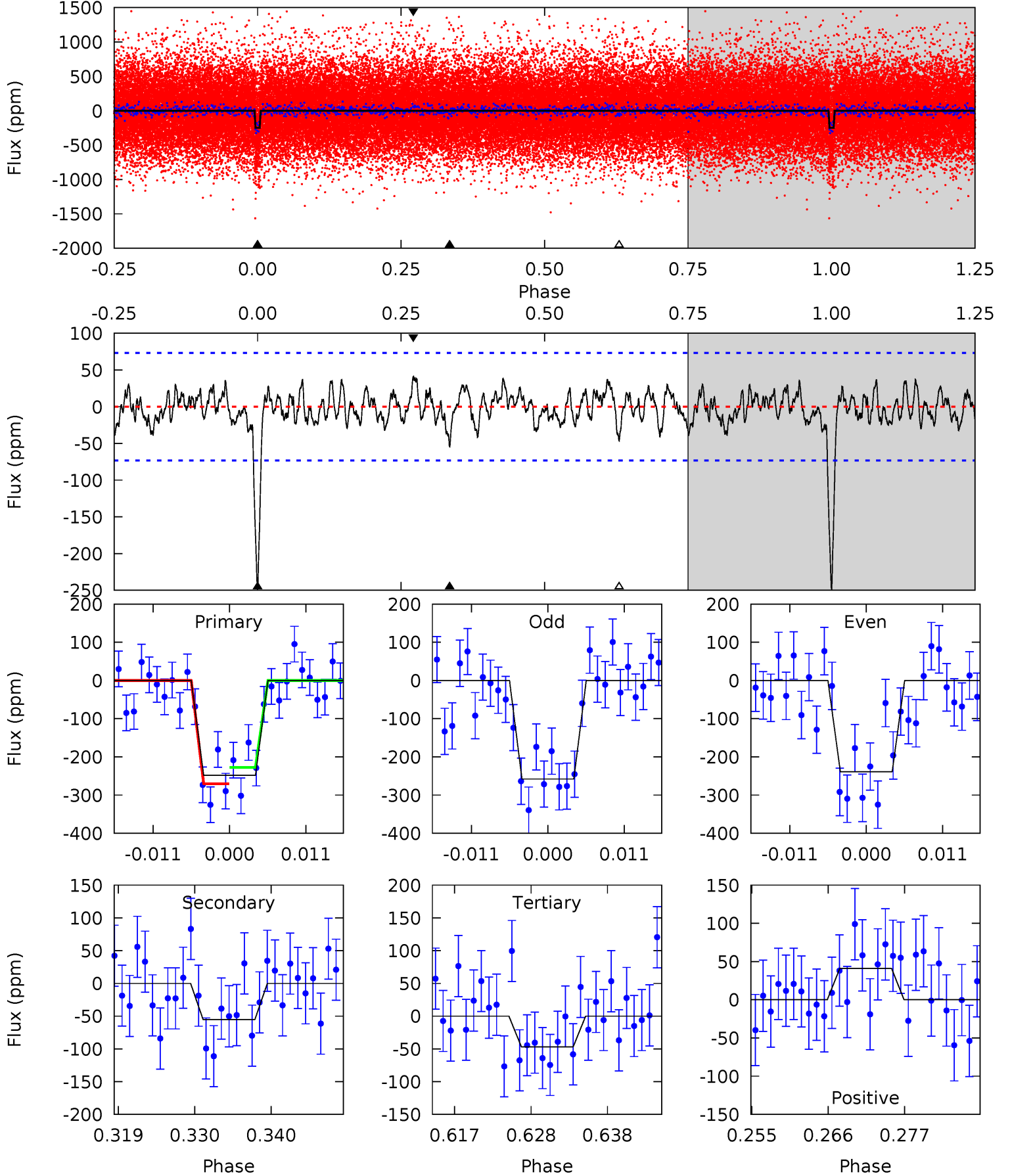
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	3.99	3.27	3.25	5.00	2.52	1.23	14.5	14.5	0.71	0.73	0.30	1.01	0.15	1.28



# Alt Model-Shift Uniqueness Test

010925113-01,  $P = 11.776051$  Days,  $E = 142.709886$  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
17.0	3.78	3.21	2.81	5.01	2.55	1.16	13.8	14.2	0.57	0.97	0.65	1.13	0.14	1.45



### Stellar Parameters For KIC 010925113

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5096^{+176}_{-176}$	$4.618^{+0.045}_{-0.060}$	$-0.400^{+0.300}_{-0.300}$	$0.689^{+0.086}_{-0.058}$	$0.719^{+0.085}_{-0.064}$	$3.096^{+0.673}_{-0.714}$
	+3%/-3%	+1%/-1%	+75%/-75%	+12%/-8%	+12%/-9%	+22%/-23%
Source	KIC0	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 010925113-01 / KOI 2557.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-55 \pm 14$	$1.33^{+0.65}_{-0.57}$	$867^{+35}_{-36}$	$3669^{+840}_{-436}$	$139^{+318}_{-77}$
Alt.	$-55 \pm 15$	$1.26^{+0.64}_{-0.61}$	$868^{+36}_{-36}$	$3778^{+1046}_{-515}$	$164^{+415}_{-99}$

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



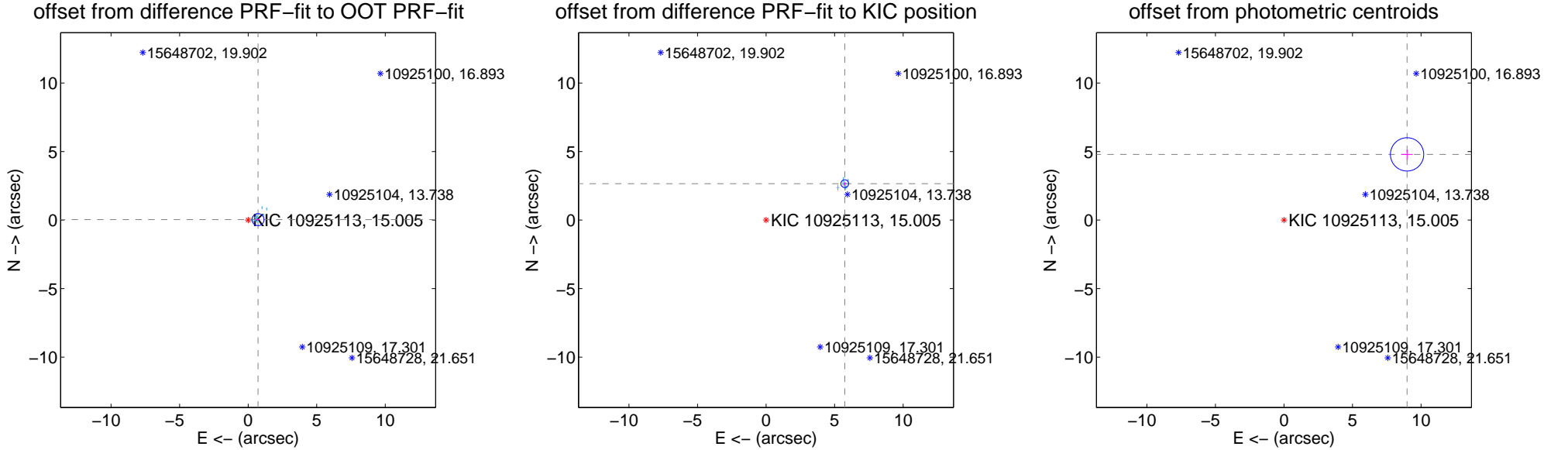
## DV Centroid Data

Supplemental centroid analysis for 010925113-01. Kepler magnitude: 15.01. Transit SNR 12.58

There are 11 quarters with good PRF difference image offsets

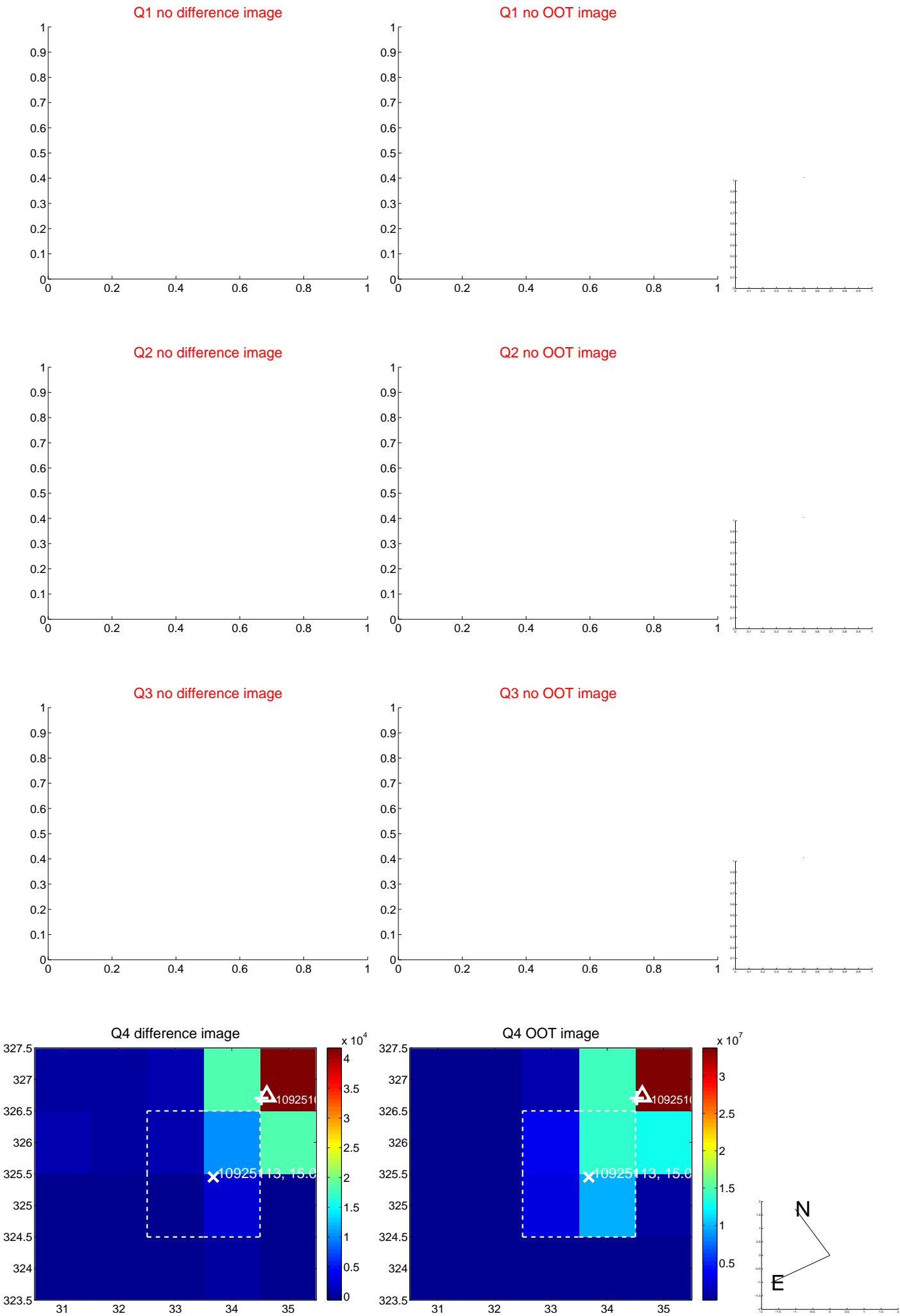
The OOT PRF centroid is offset from the target star catalog position by about 5.07 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.720 \pm 0.146$	4.94	$-0.719 \pm 0.146$	$0.035 \pm 0.090$
PRF-fit source offset from KIC position	$6.325 \pm 0.095$	66.90	$-5.739 \pm 0.090$	$2.659 \pm 0.091$
photometric centroid source offset	$10.18 \pm 0.40$	25.13	$-8.98 \pm 0.42$	$4.79 \pm 0.35$

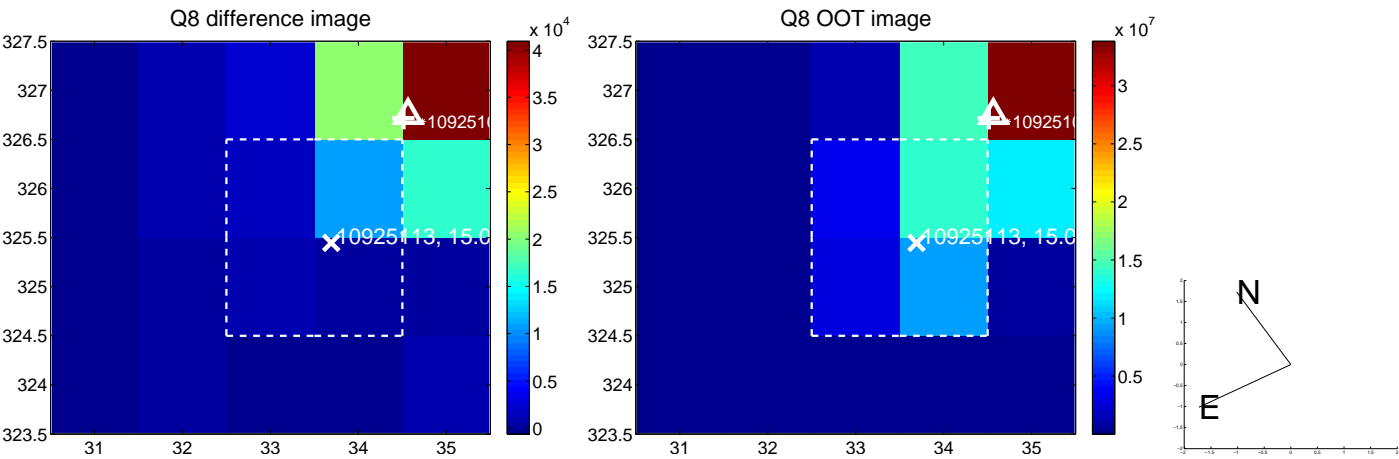
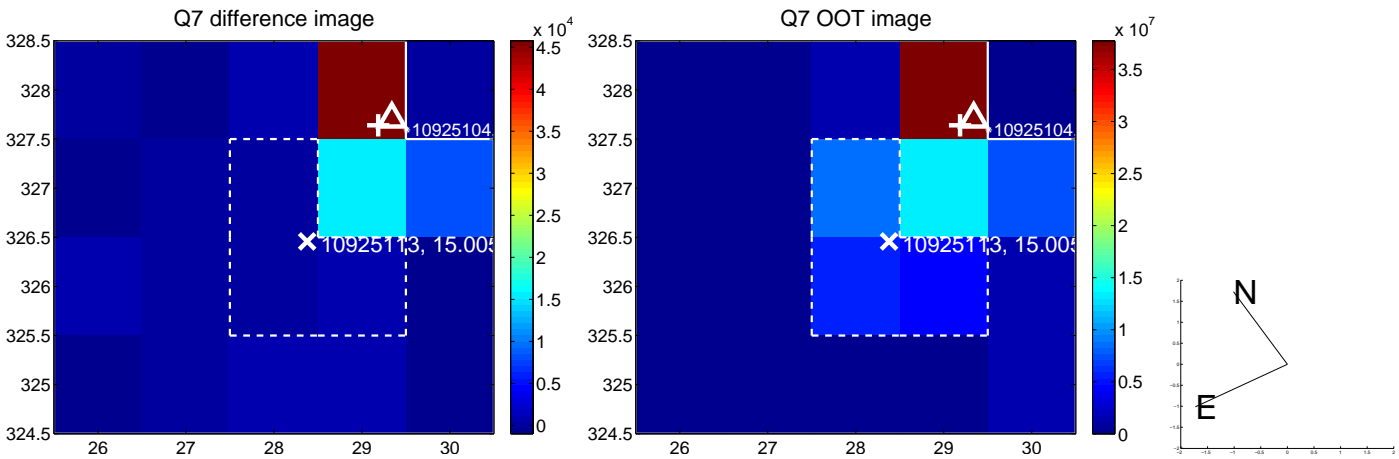
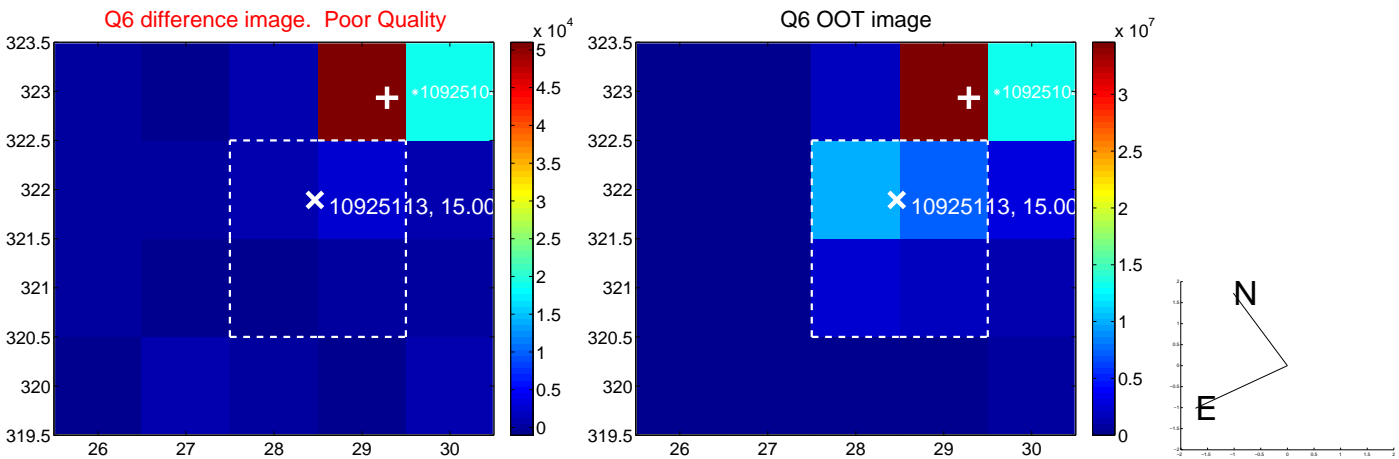
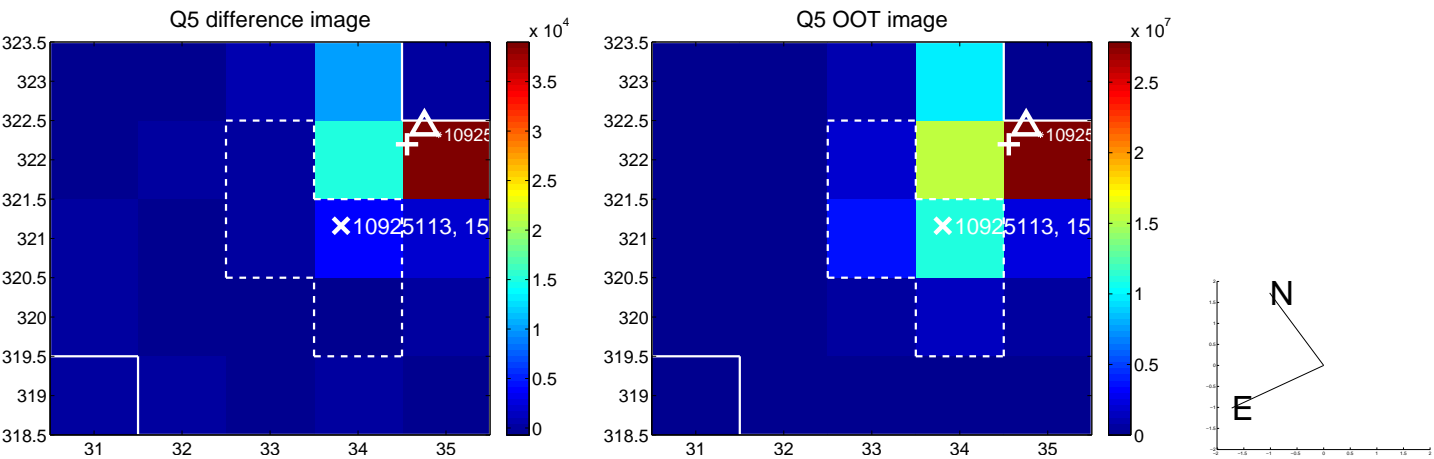


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

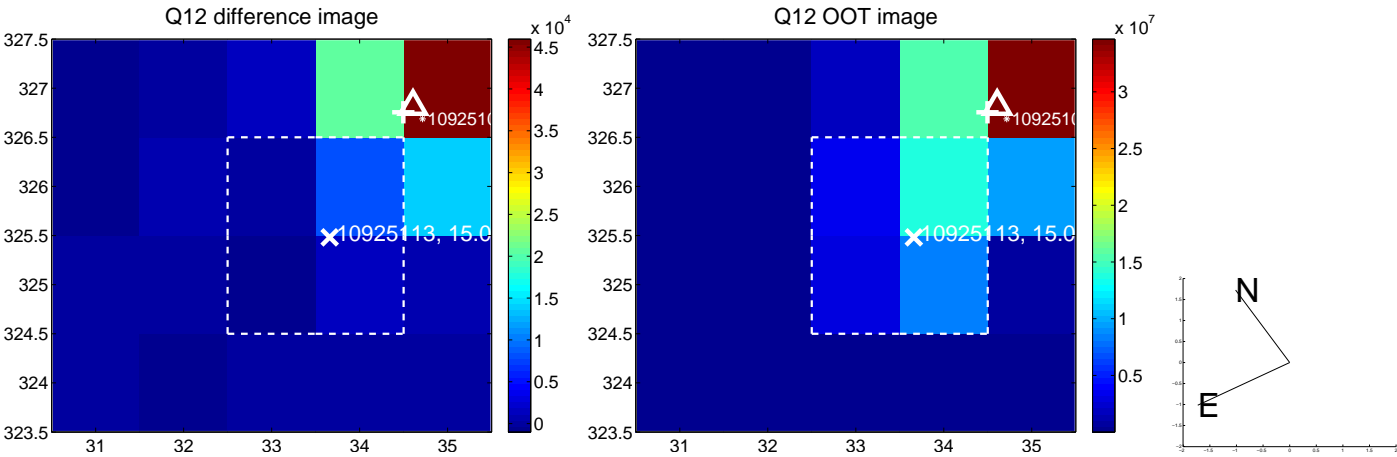
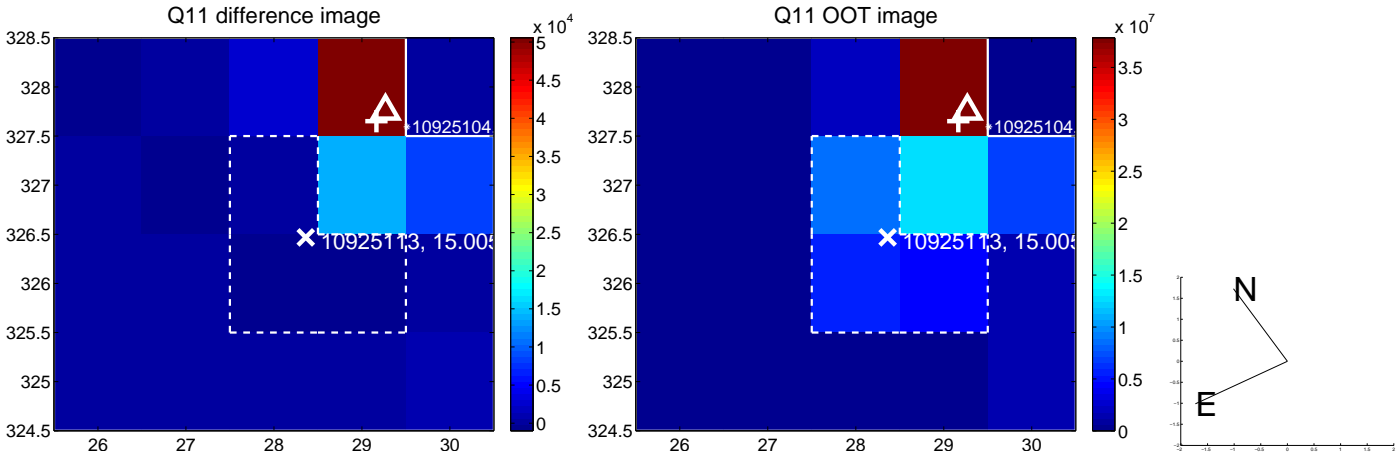
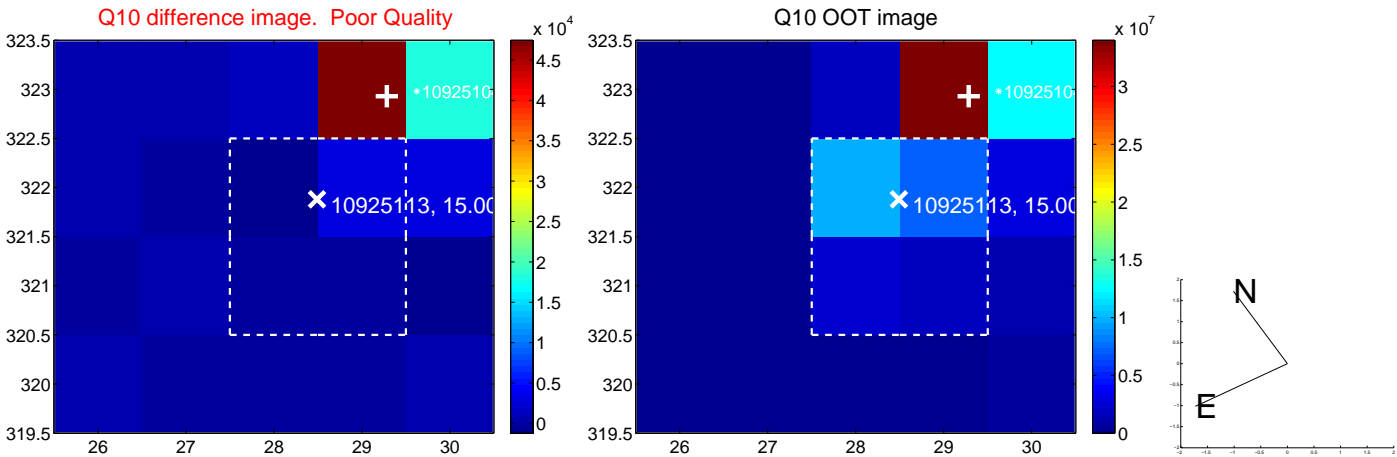
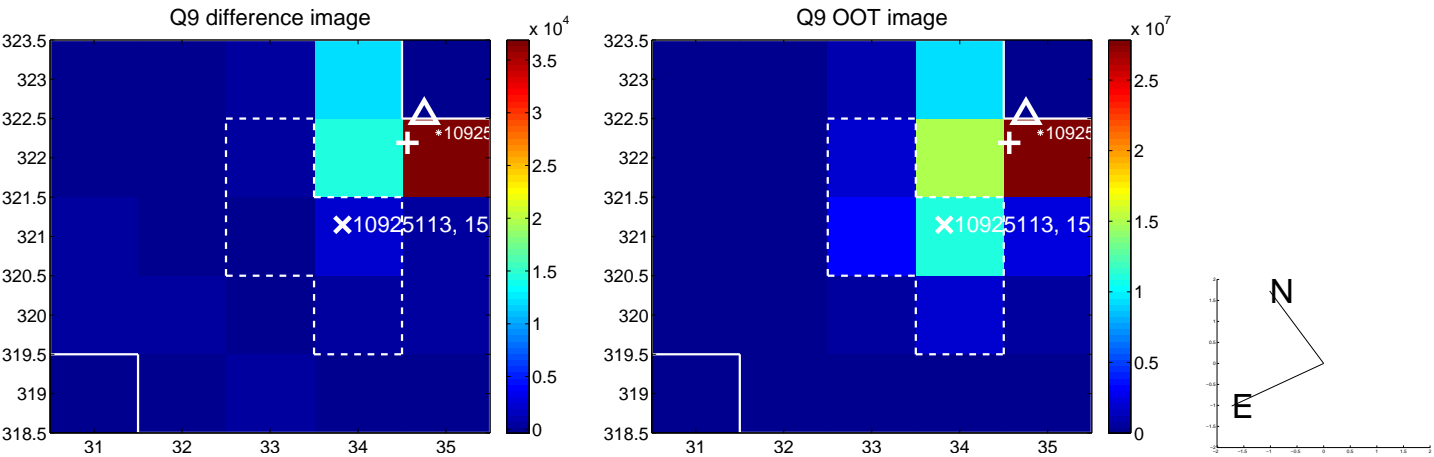
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



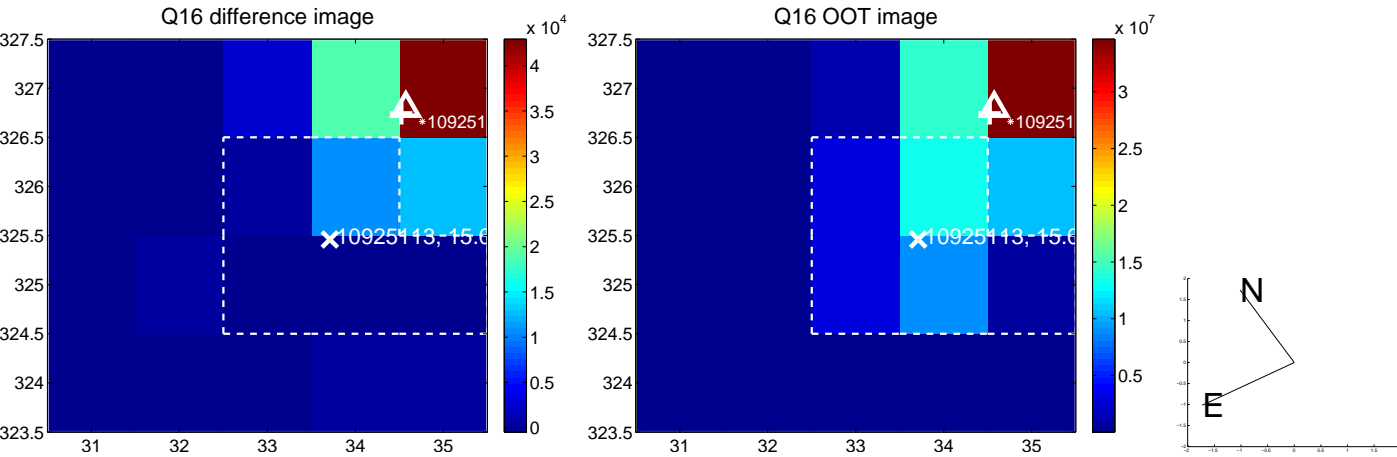
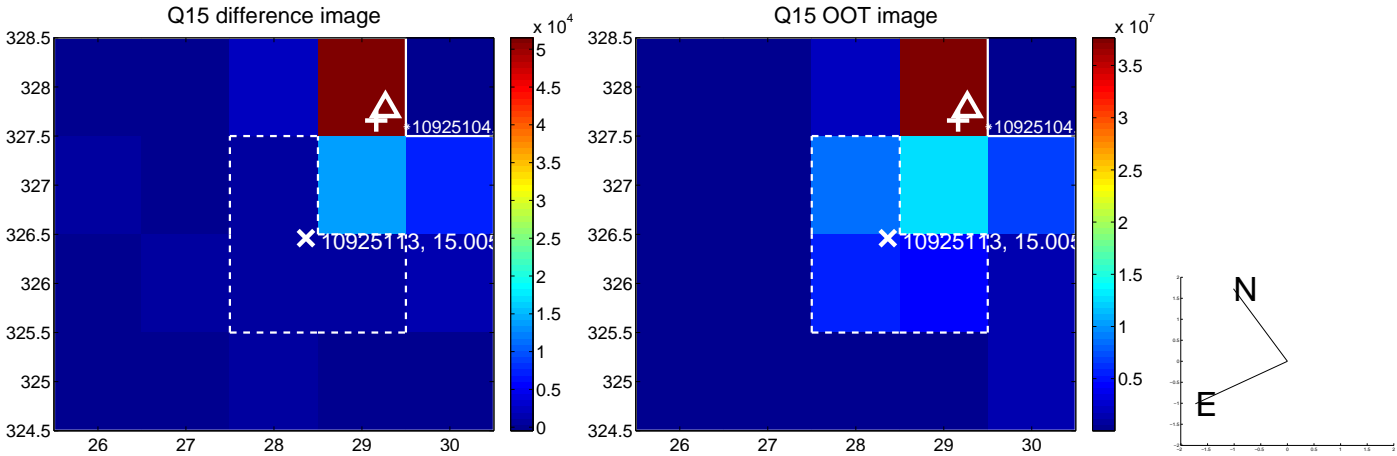
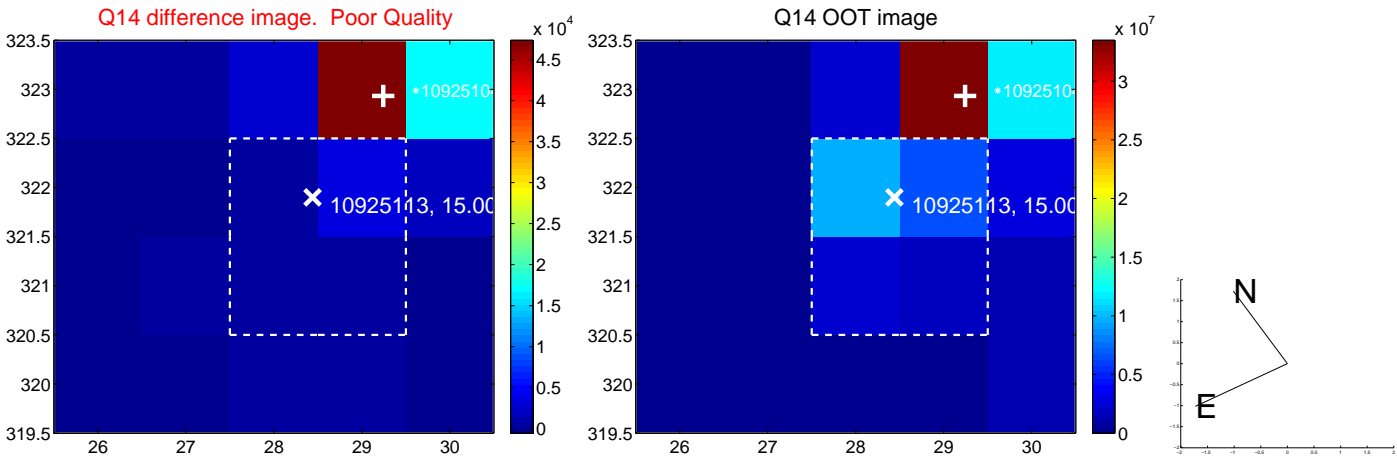
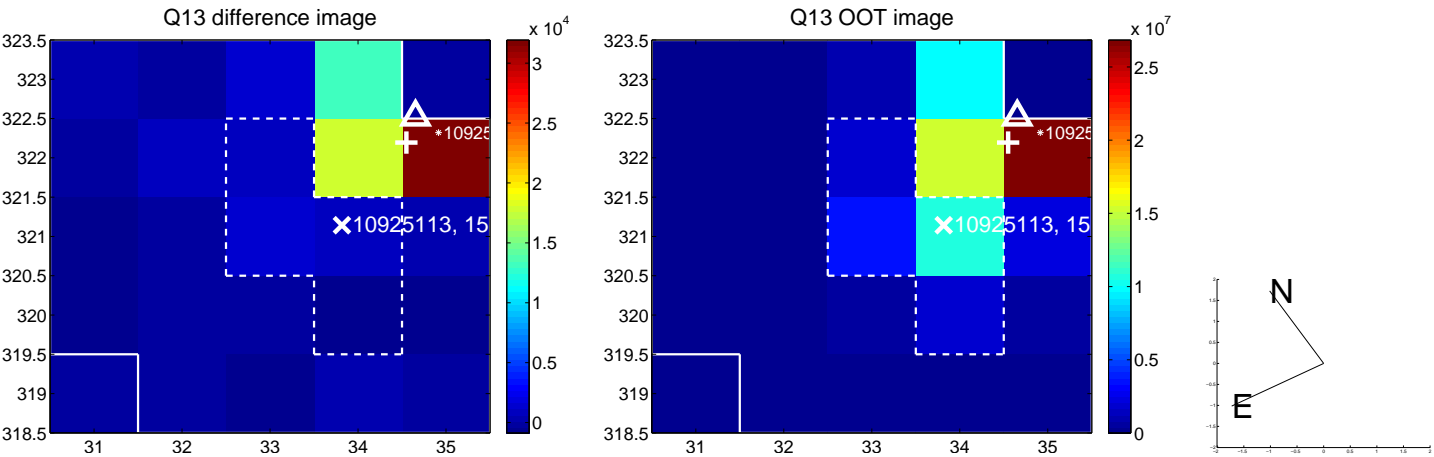
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

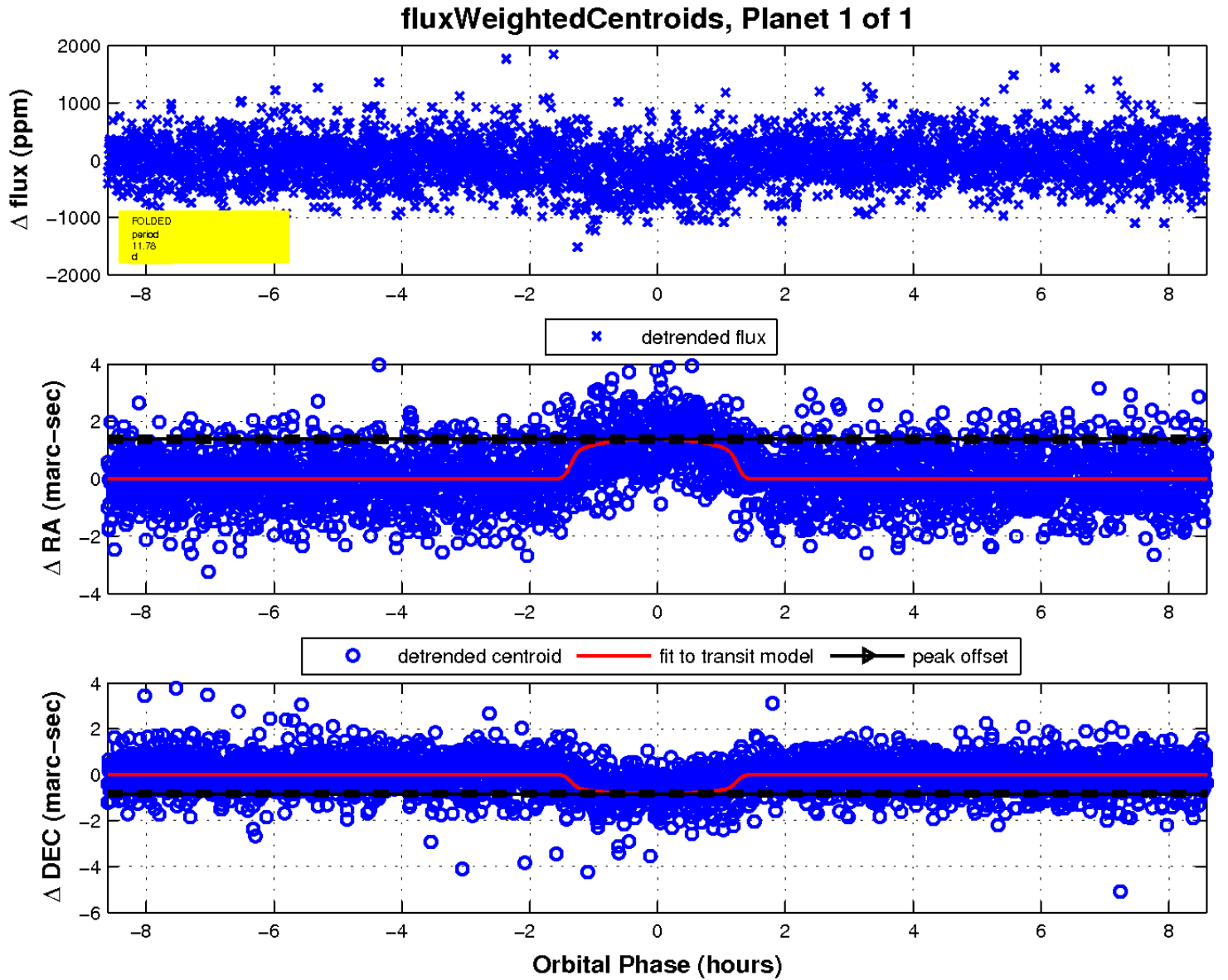
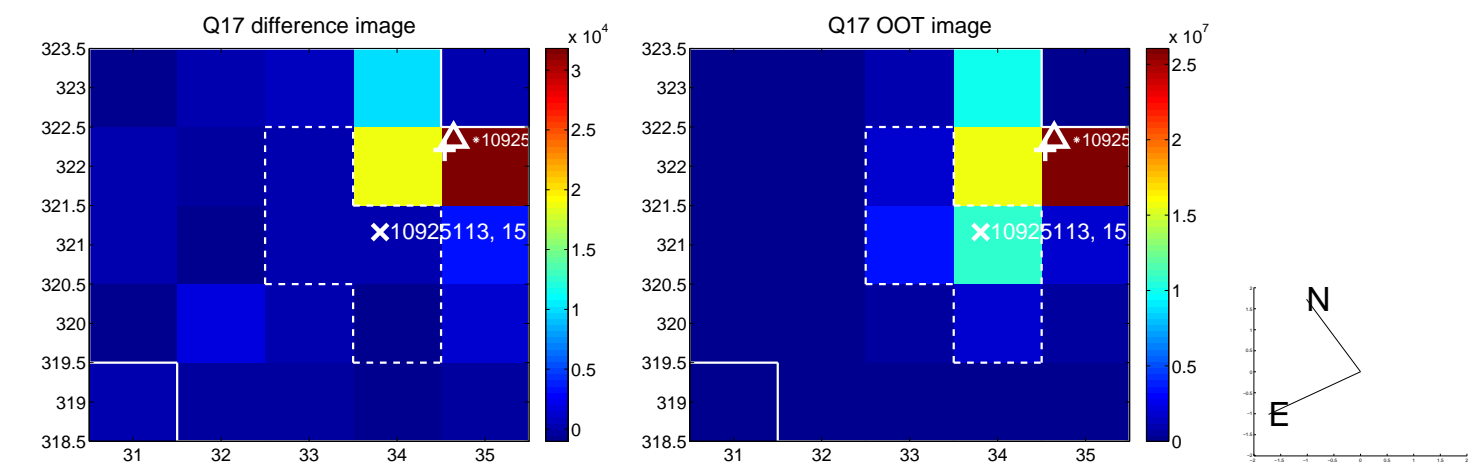


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

