

# KIC 009091755

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009091755-01	OBS	4052.01	1.106487	132.322665	60.2	3.331	15.0	12.6	0.80	5932	0.73	1750.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009091755-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST

**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.

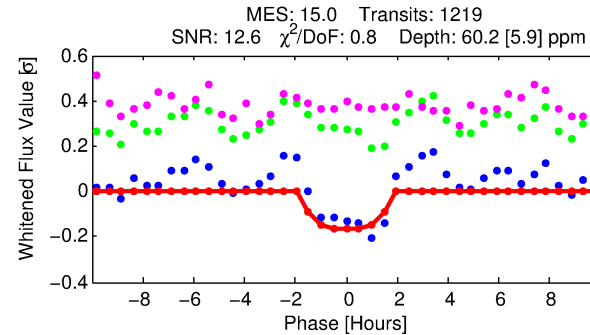
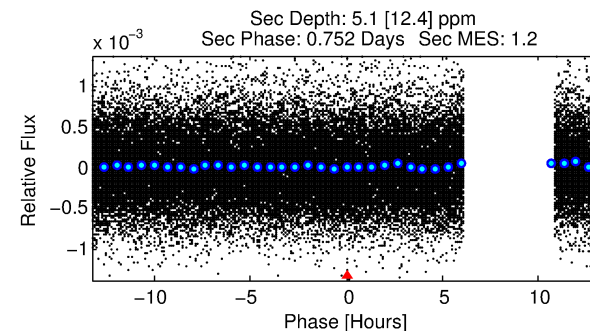
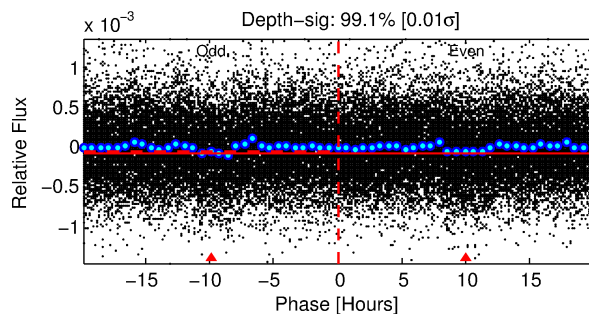
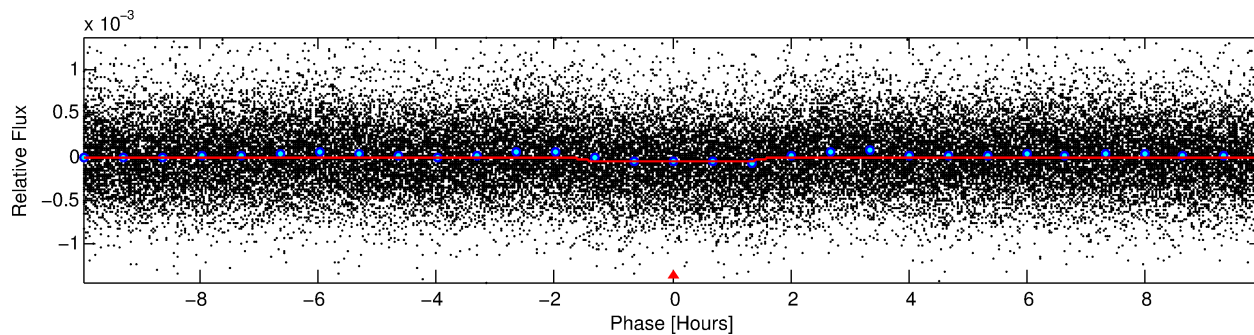
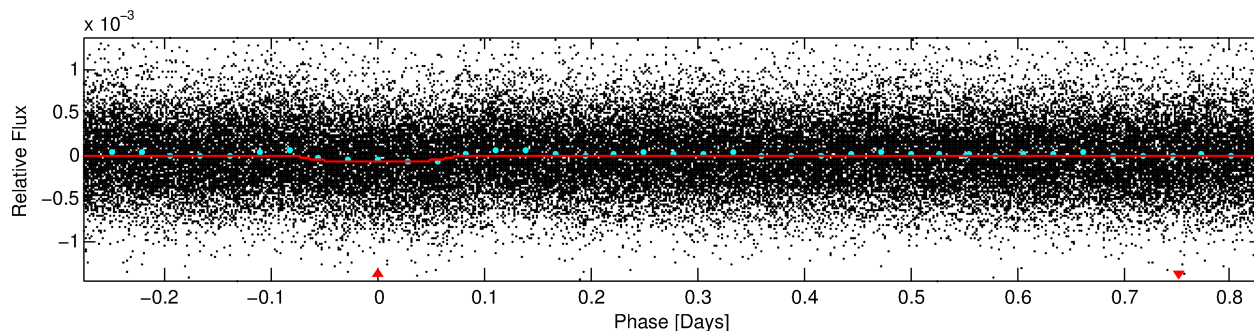
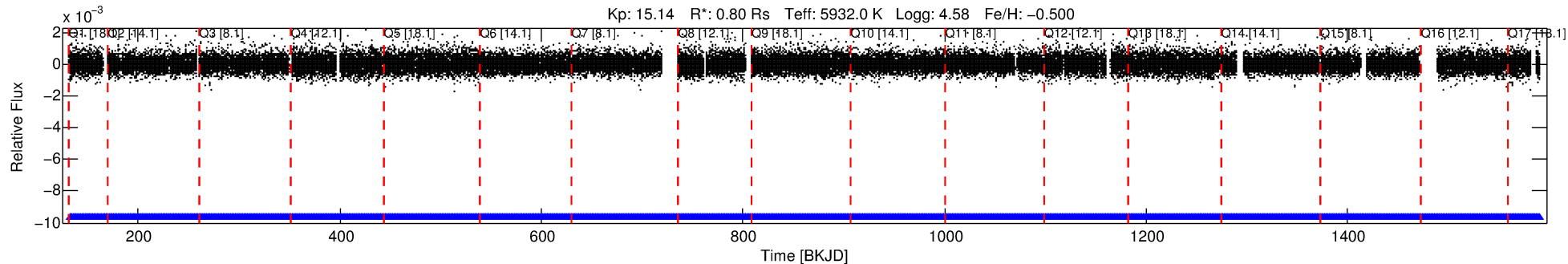
## Ephemeris Match Information For 009091755-01

No Significant Match Found

# DV One-Page Summary

KIC: 9091755 Candidate: 1 of 1 Period: 1.106 d  
KOI: K04052 Corr: No Ephemeris Match

Kp: 15.14 R\*: 0.80 Rs Teff: 5932.0 K Logg: 4.58 Fe/H: -0.500



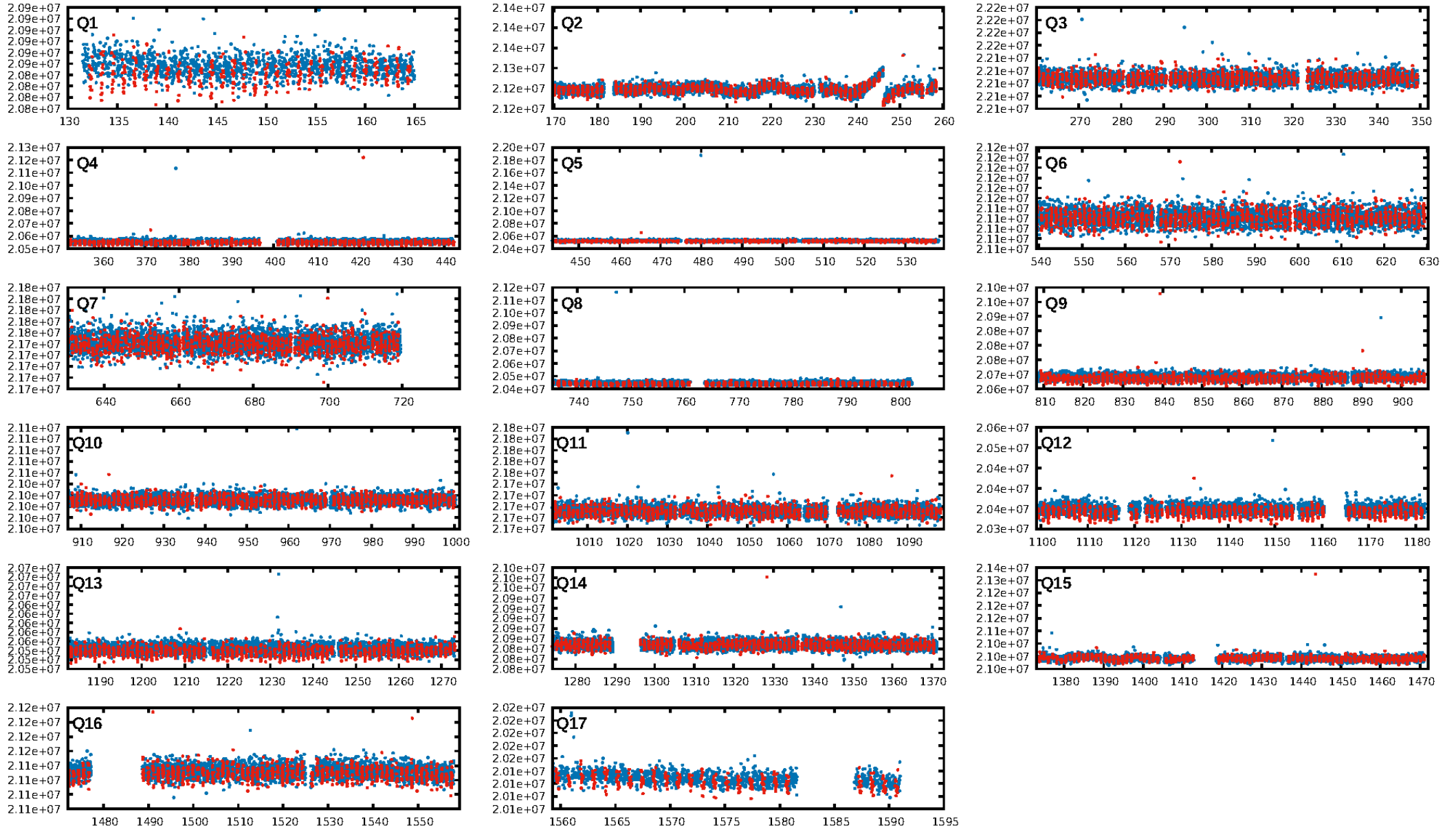
## DV Fit Results:

Period = 1.10649 [0.00001] d  
Epoch = 132.3227 [0.0035] BKJD  
Rp/R\* = 0.0084 [0.0044]  
a/R\* = 1.49 [2.34]  
b = 0.90 [0.62]  
Seff = 1750.27 [547.05]  
Teq = 1649 [129] K  
Rp = 0.73 [0.42] Re  
a = 0.0201 [0.0039] AU  
Ag = 2.13 [5.71] [0.20σ]  
Teffp = 3082 [2054] K [0.70σ]

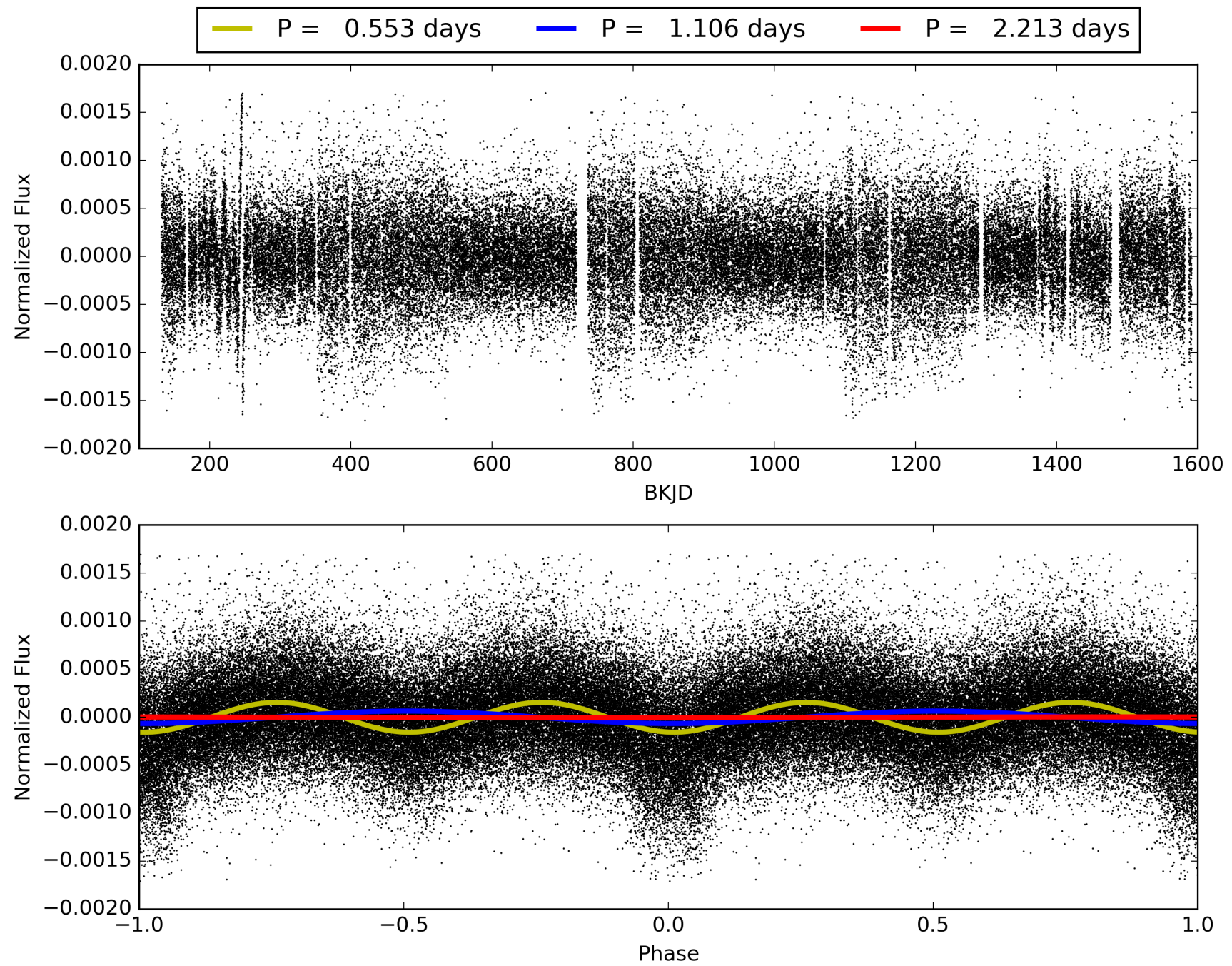
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.20e-49  
RollingBand-fgt: 1.00 [1165/1165]  
GhostDiagnostic-chr: -0.07181  
Centroid-sig: N/A  
Centroid-so: 417.954 arcsec [251.87σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009091755-01, PDC Light Curves

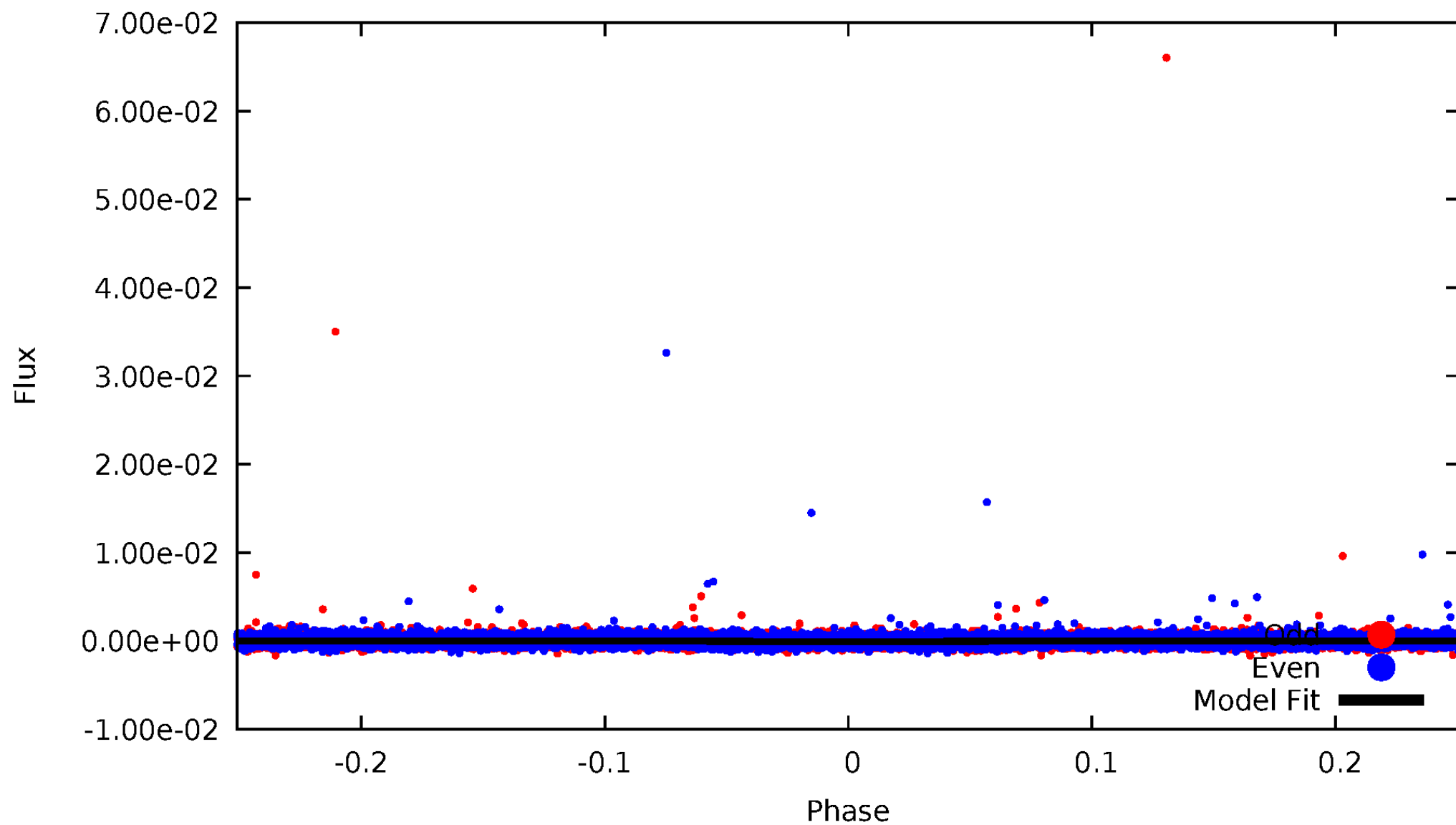


TCE 009091755-01



# DV Odd/Even

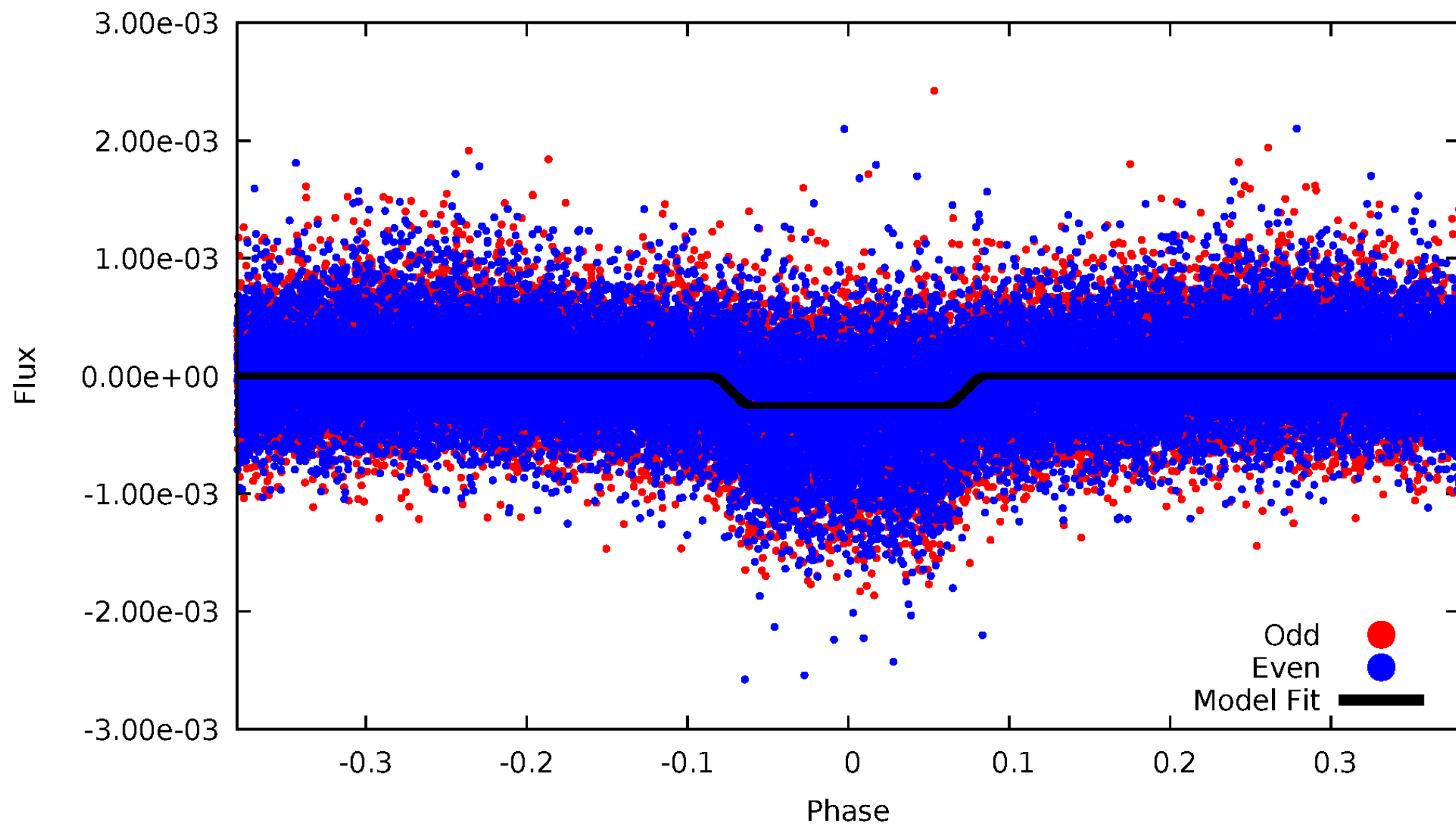
TCE 009091755-01





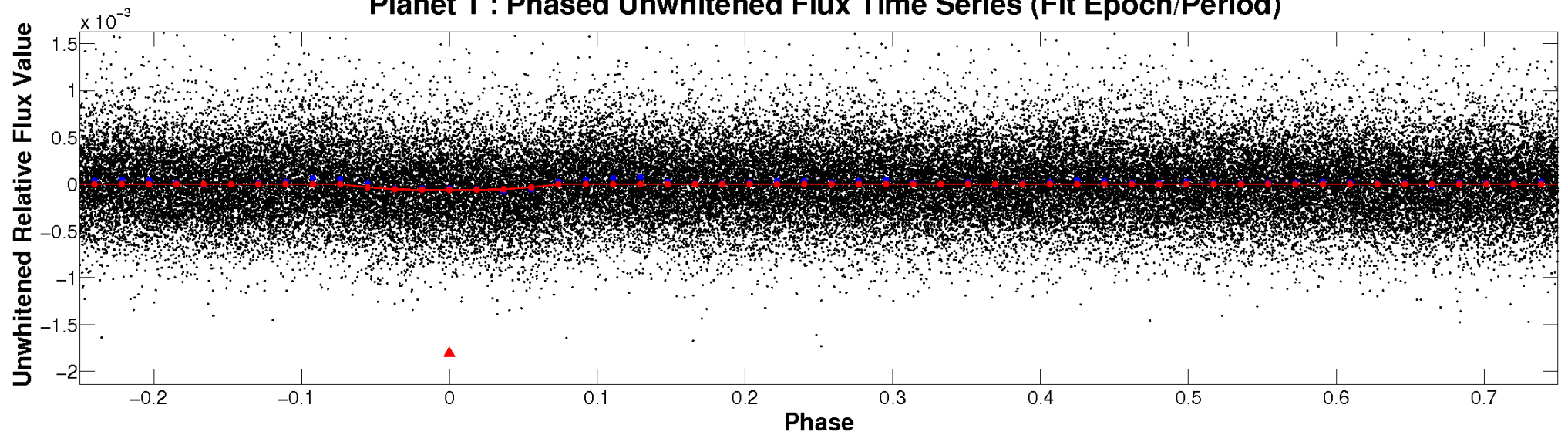
# ALT Odd/Even

TCE 009091755-01

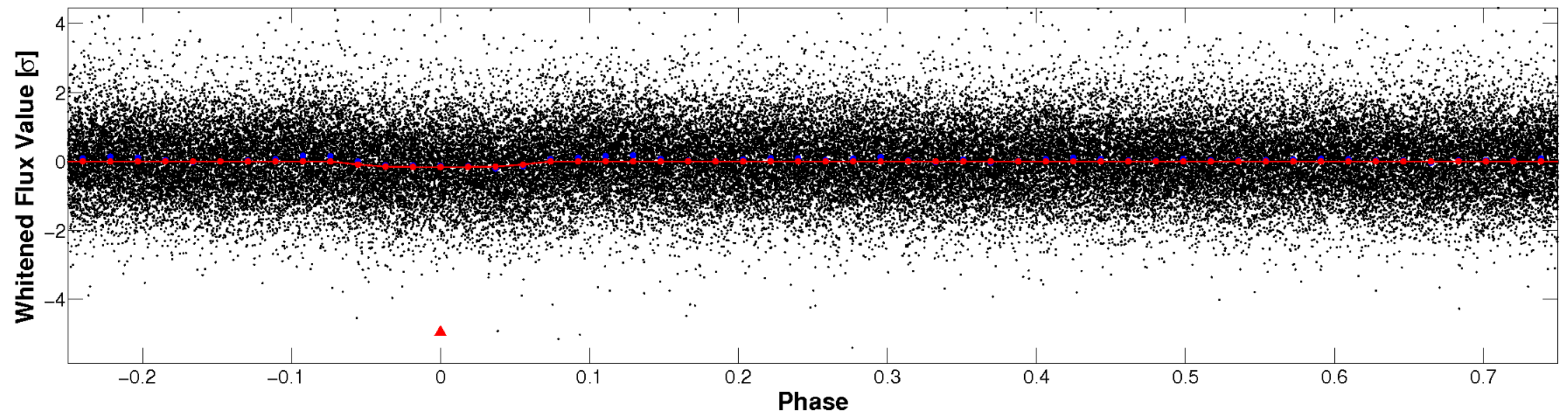


# Non-Whitened Vs. Whitened Light Curve

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

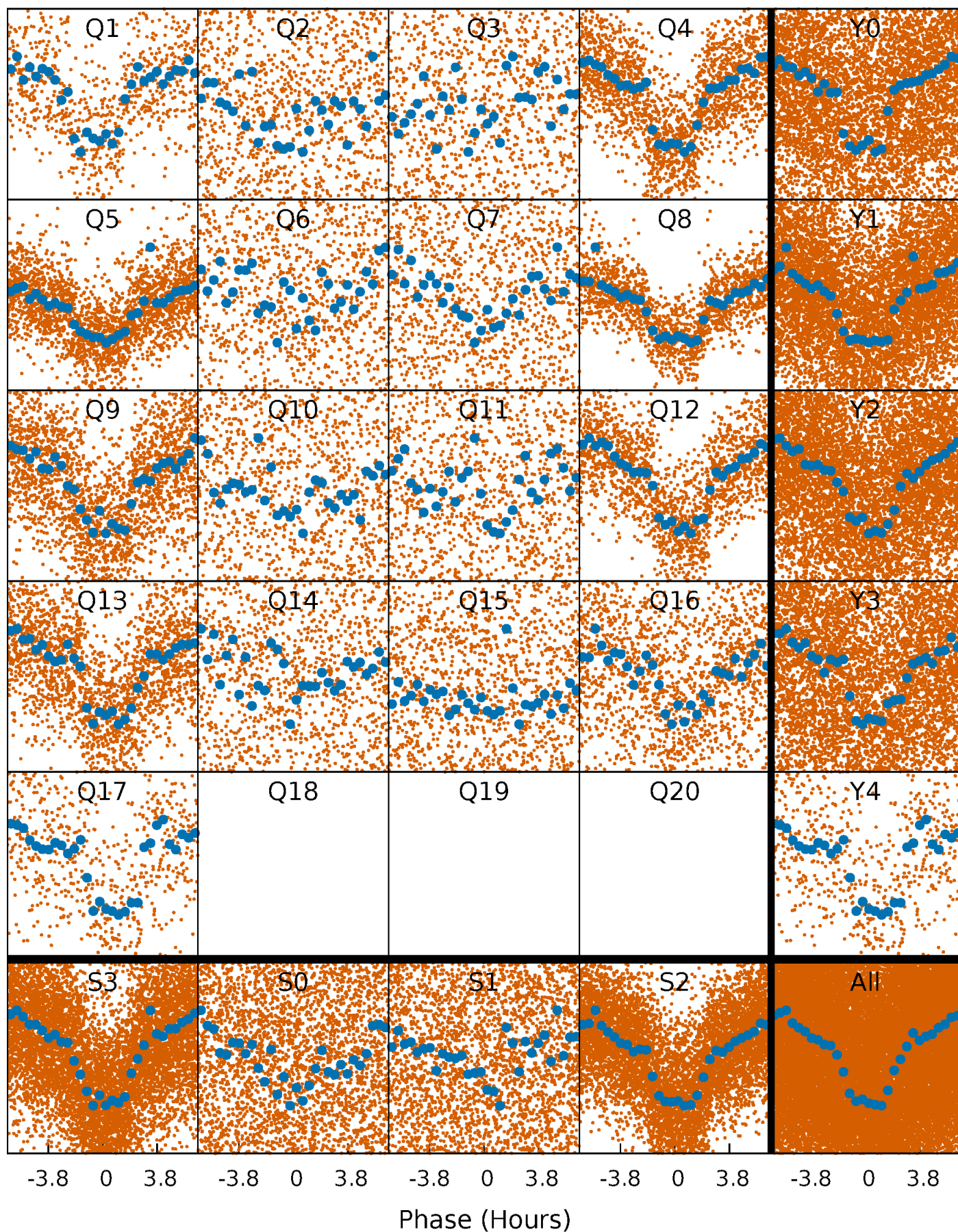


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

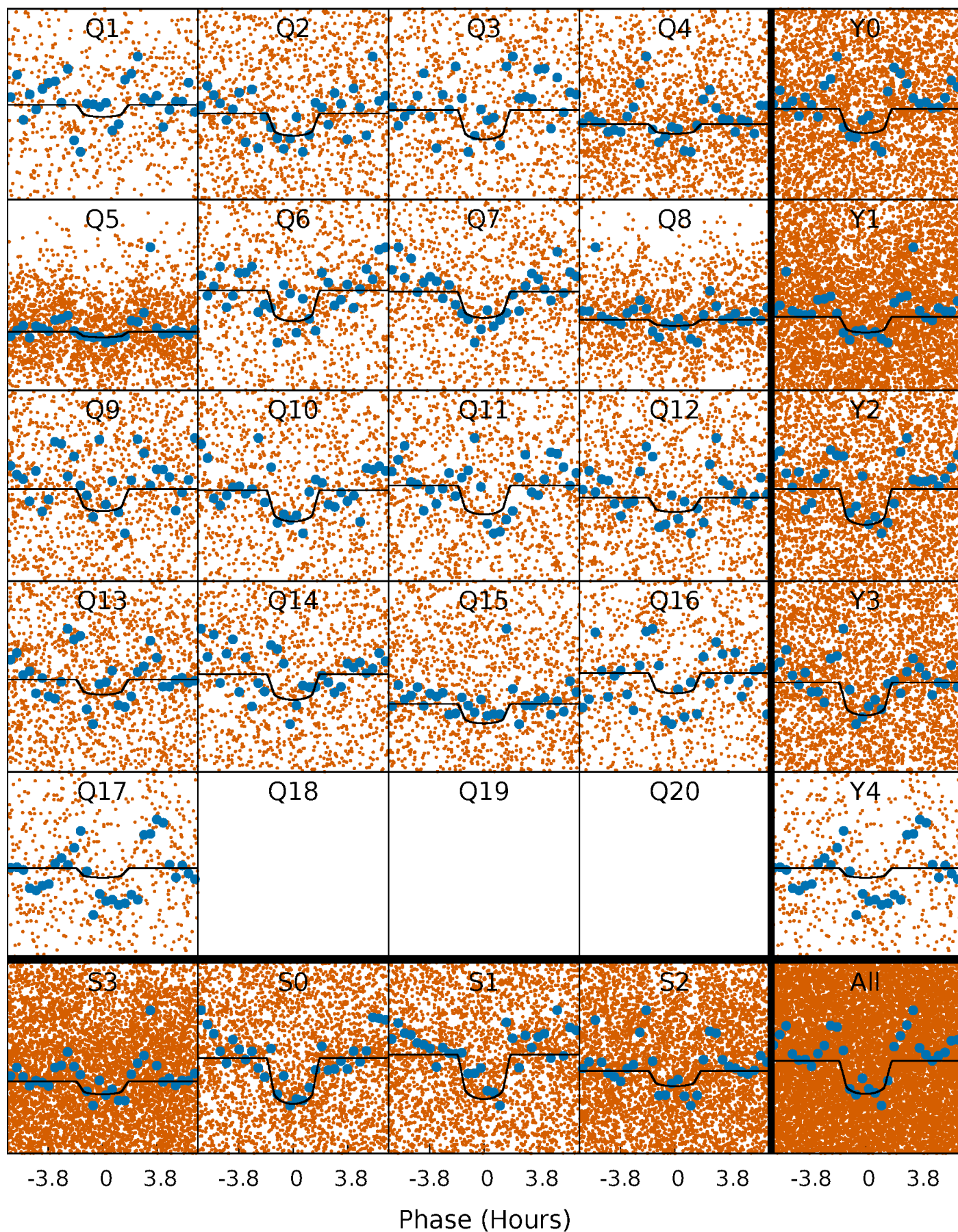
TCE 009091755-01 P= 1.106487 Days  $T_0=132.322665$  (BKJD)





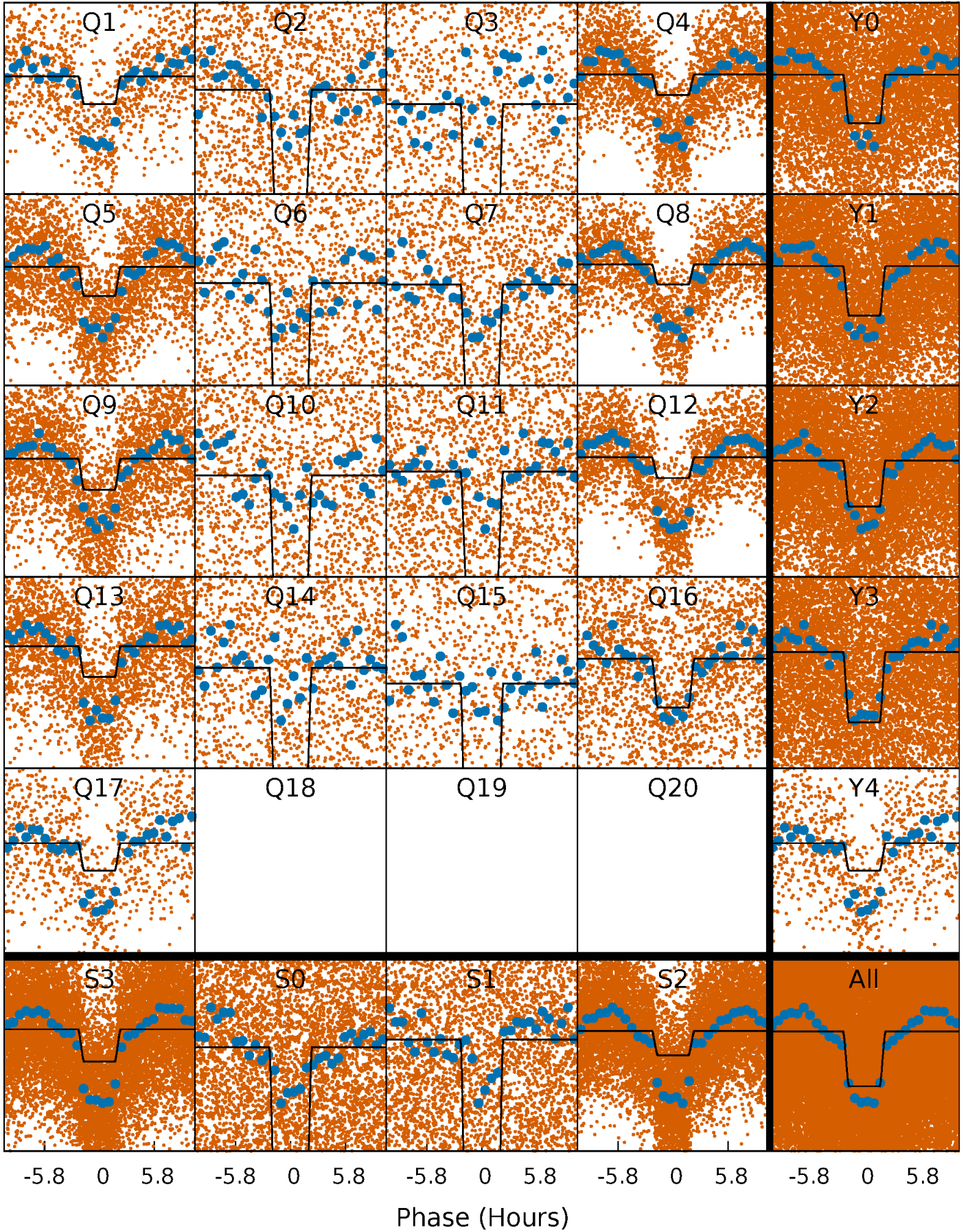
# DV Quarter-Phased Transit Curves

TCE 009091755-01 P= 1.106487 Days  $T_0=132.322665$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009091755-01 P= 1.106526 Days  $T_0=132.306698$  (BKJD)

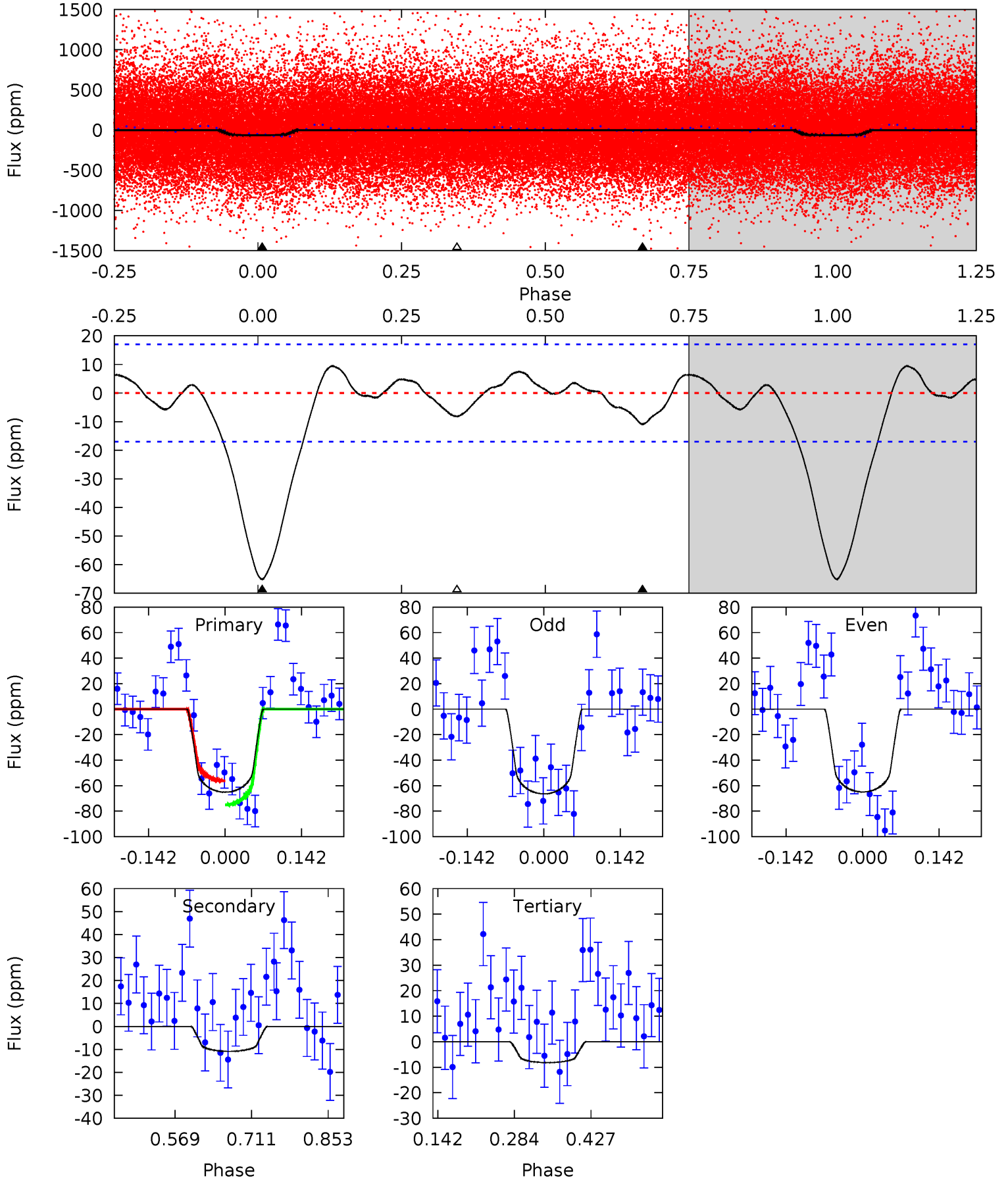




# DV Model-Shift Uniqueness Test

009091755-01, P = 1.106487 Days, E = 131.216178 Days

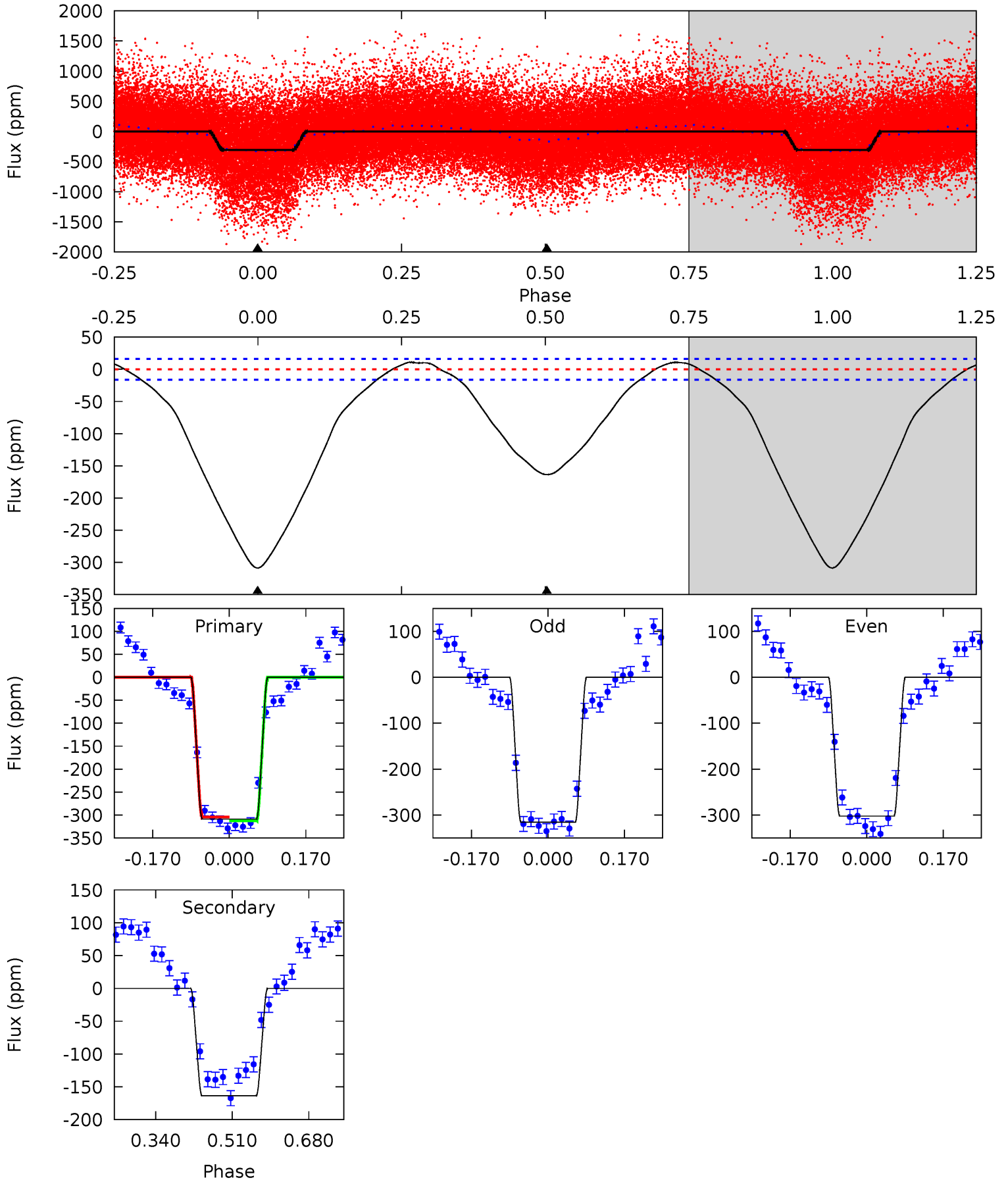
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	2.88	2.16	0	4.49	1.47	1.09	15.0	17.2	0.71	2.88	0.19	0.86	0.13	2.47



# Alt Model-Shift Uniqueness Test

009091755-01, P = 1.106526 Days, E = 131.200172 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
84.8	44.9	0	0	4.45	1.37	4.15	84.8	84.8	44.9	44.9	1.85	1.44	0.03	1.16





### Stellar Parameters For KIC 009091755

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5932^{+141}_{-177}$	$4.580^{+0.040}_{-0.160}$	$-0.500^{+0.250}_{-0.300}$	$0.798^{+0.182}_{-0.061}$	$0.899^{+0.077}_{-0.106}$	$2.487^{+0.380}_{-1.076}$
	+2%/-3%	+1%/-3%	+50%/-60%	+23%/-8%	+9%/-12%	+15%/-43%
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 009091755-01 / KOI 4052.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-11 \pm 4$	$0.77^{+0.43}_{-0.39}$	$2346^{+128}_{-95}$	$3939^{+1340}_{-683}$	$3.938^{+12.376}_{-2.502}$
Alt.	$-164 \pm 4$	$1.44^{+0.43}_{-0.40}$	$2339^{+129}_{-97}$	$5317^{+917}_{-540}$	$17^{+16}_{-7}$

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

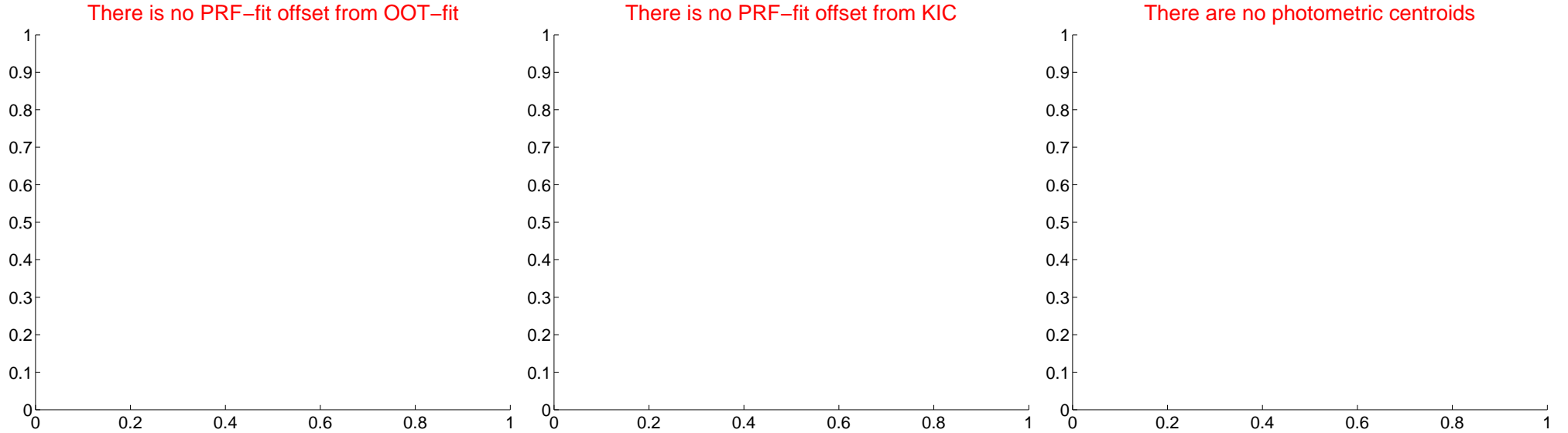
## DV Centroid Data

Supplemental centroid analysis for 009091755-01. Kepler magnitude: 15.14. Transit SNR 12.56

There are 0 quarters with good PRF difference image offsets

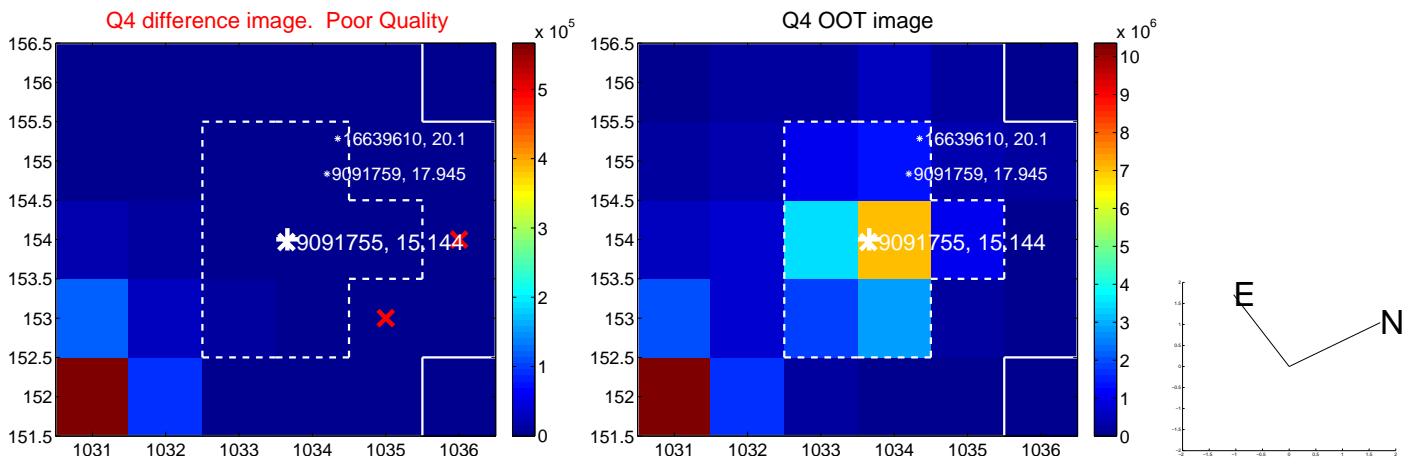
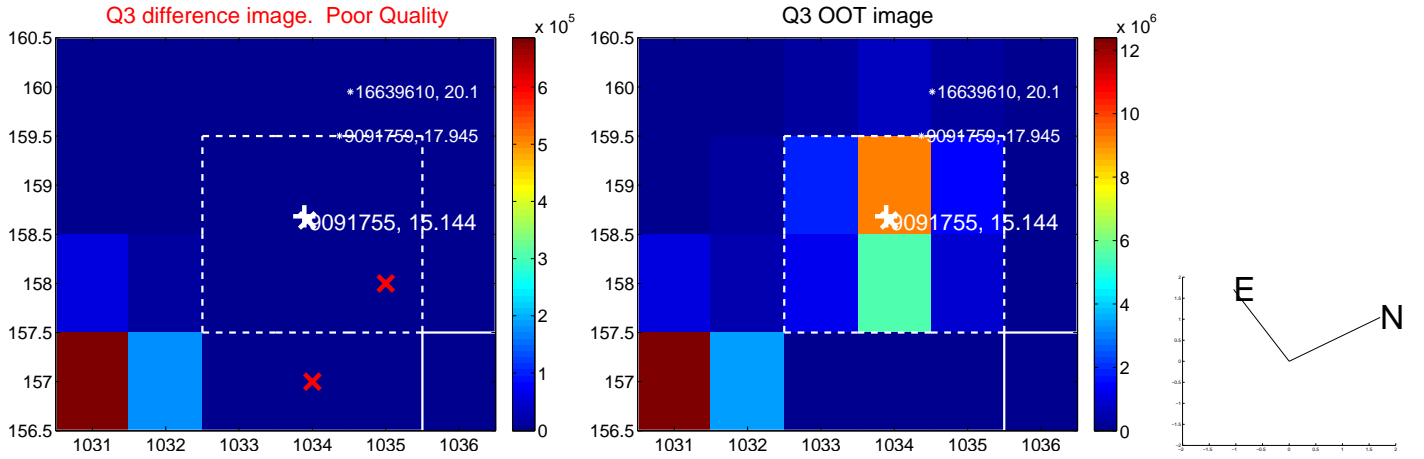
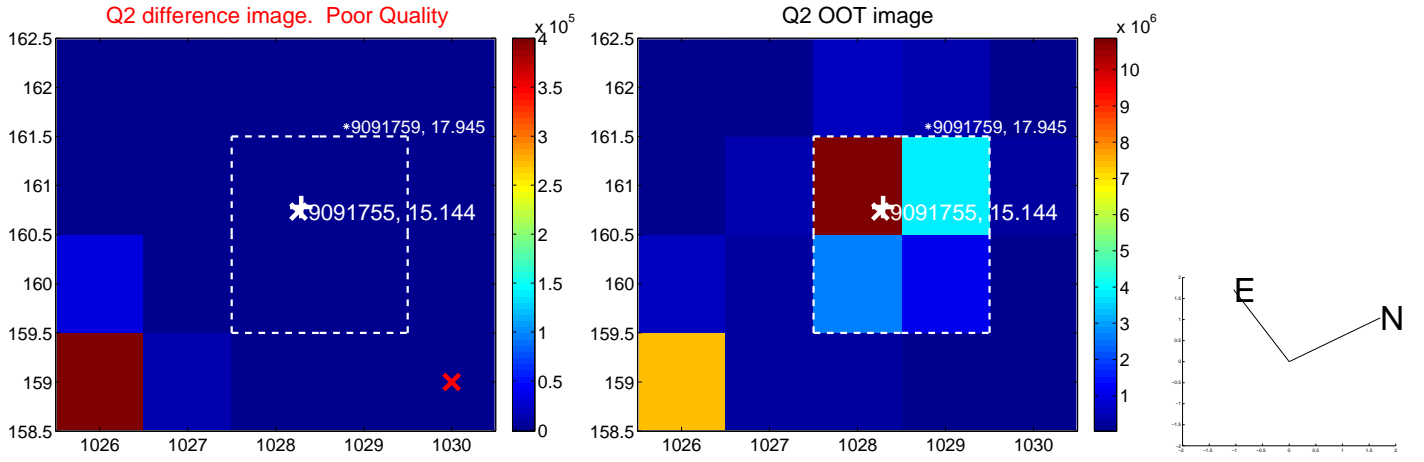
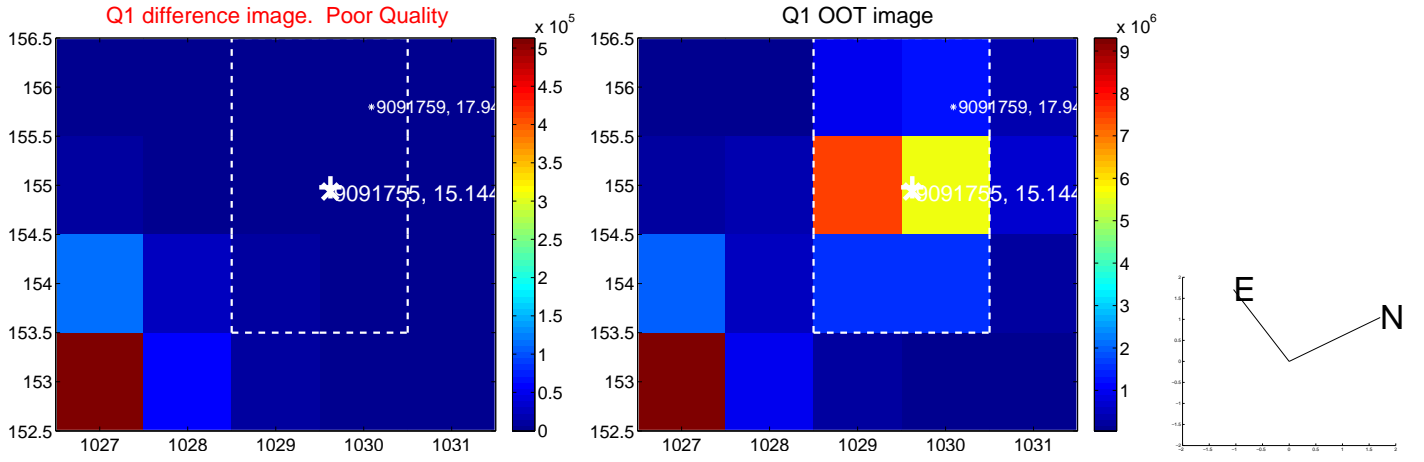
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	—	—	—	—

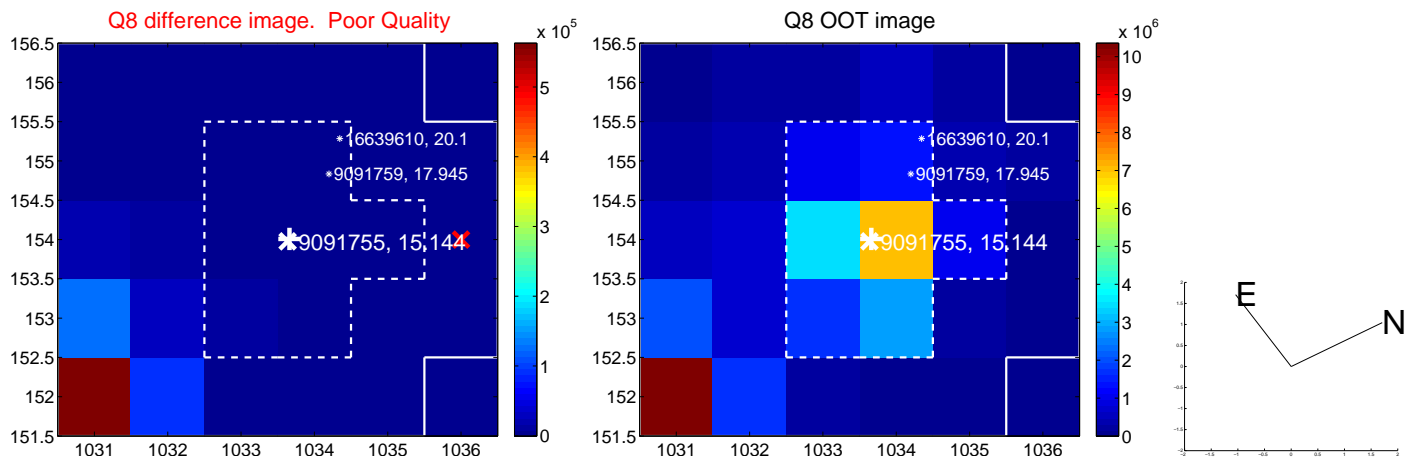
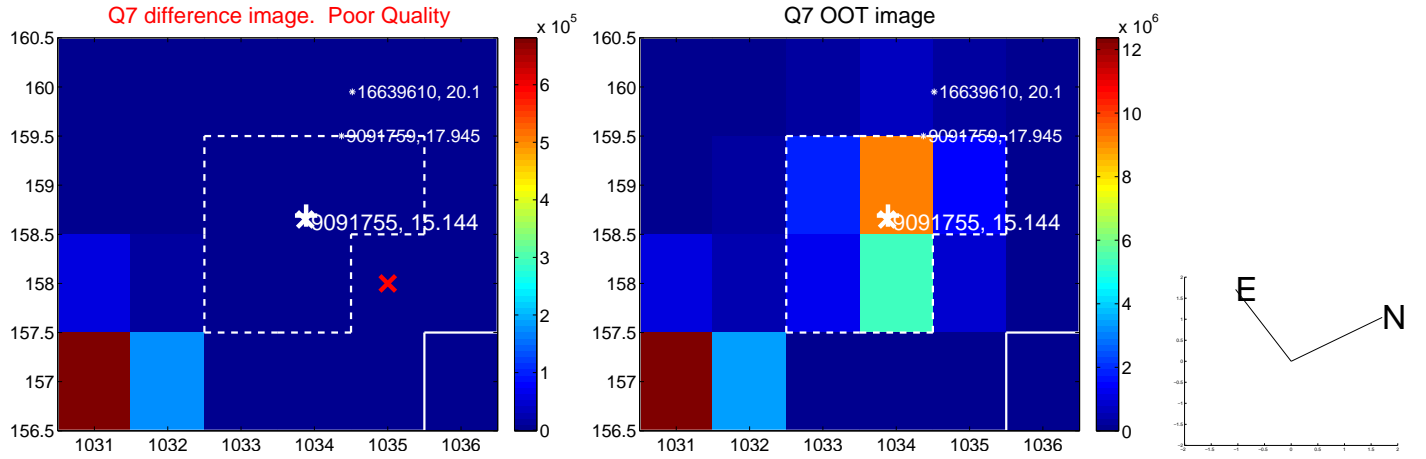
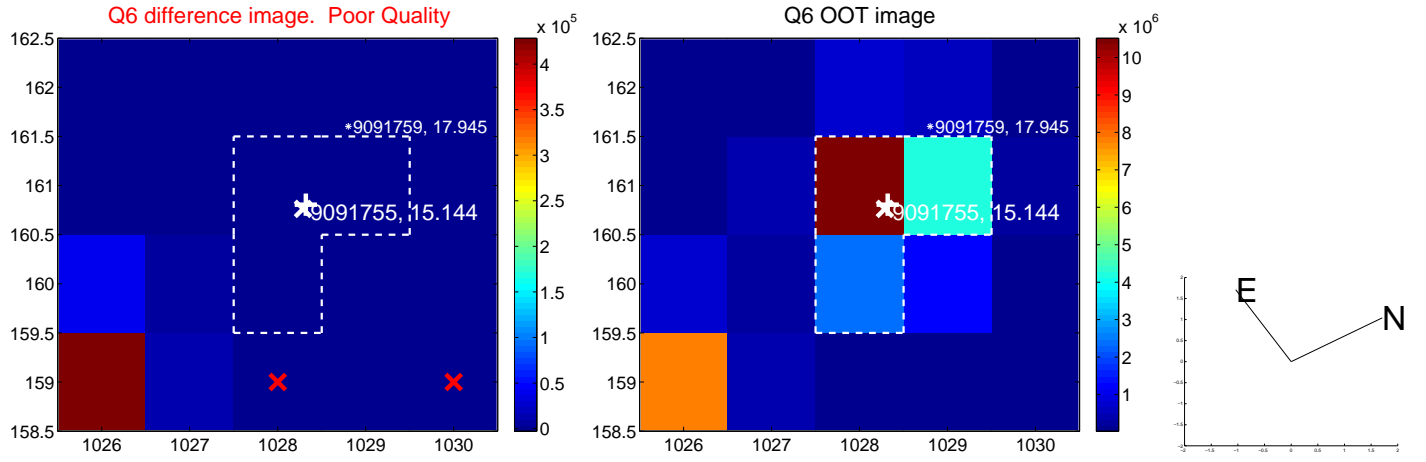
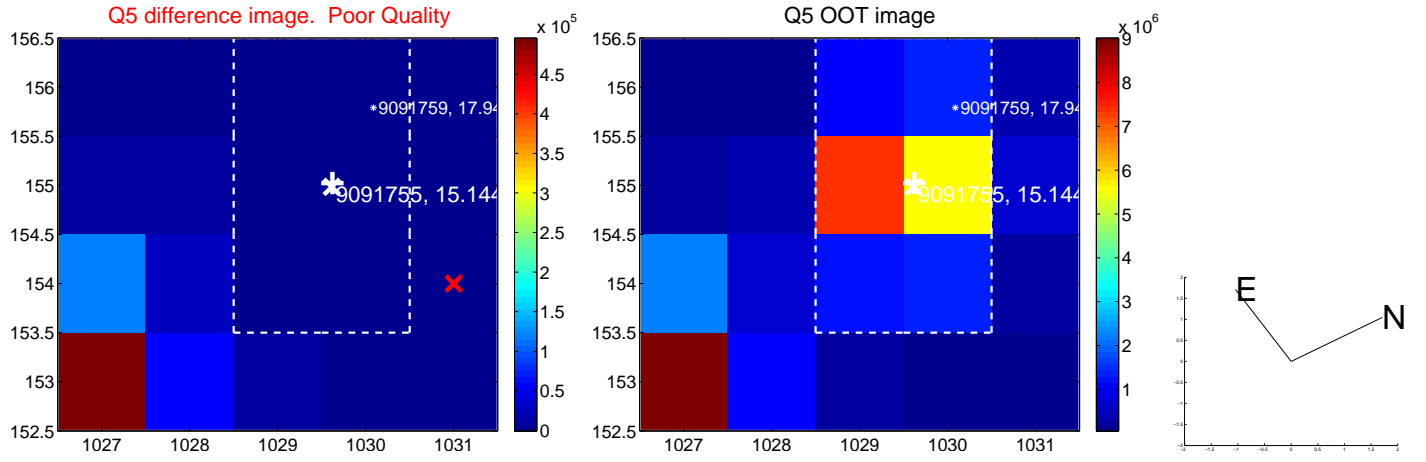


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

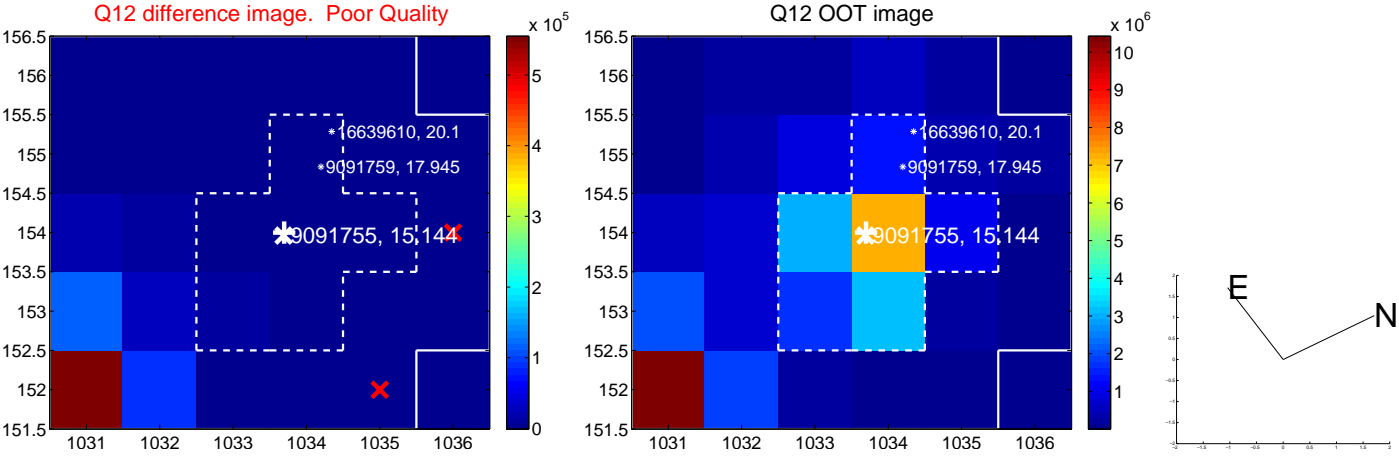
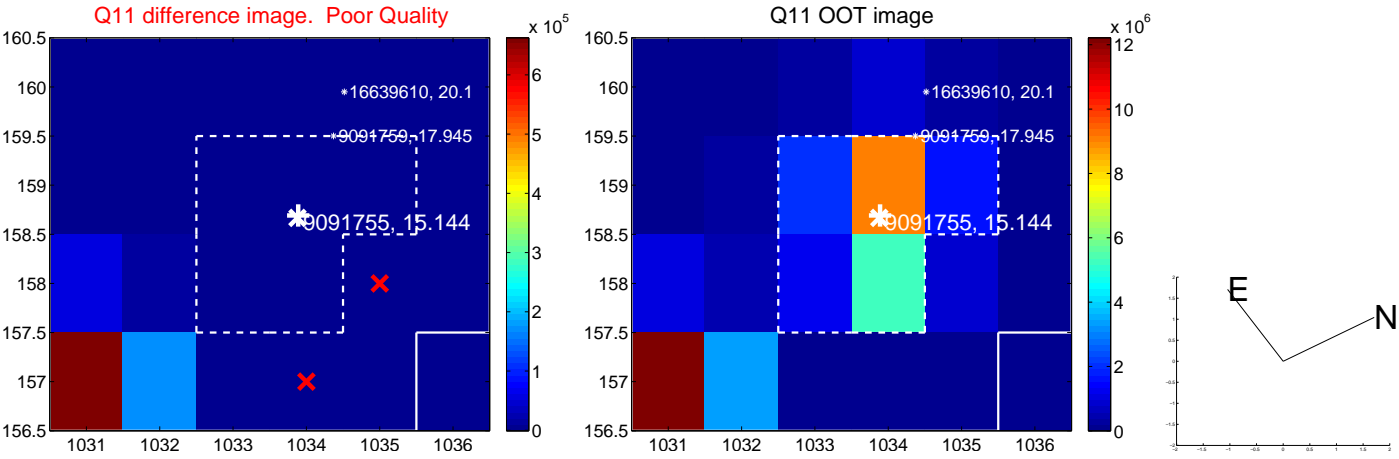
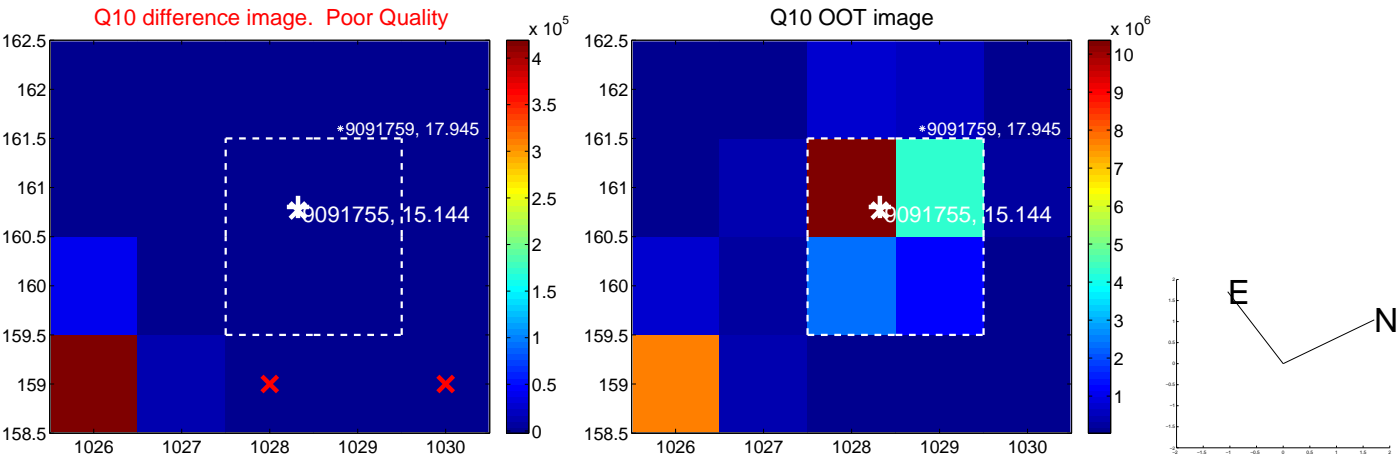
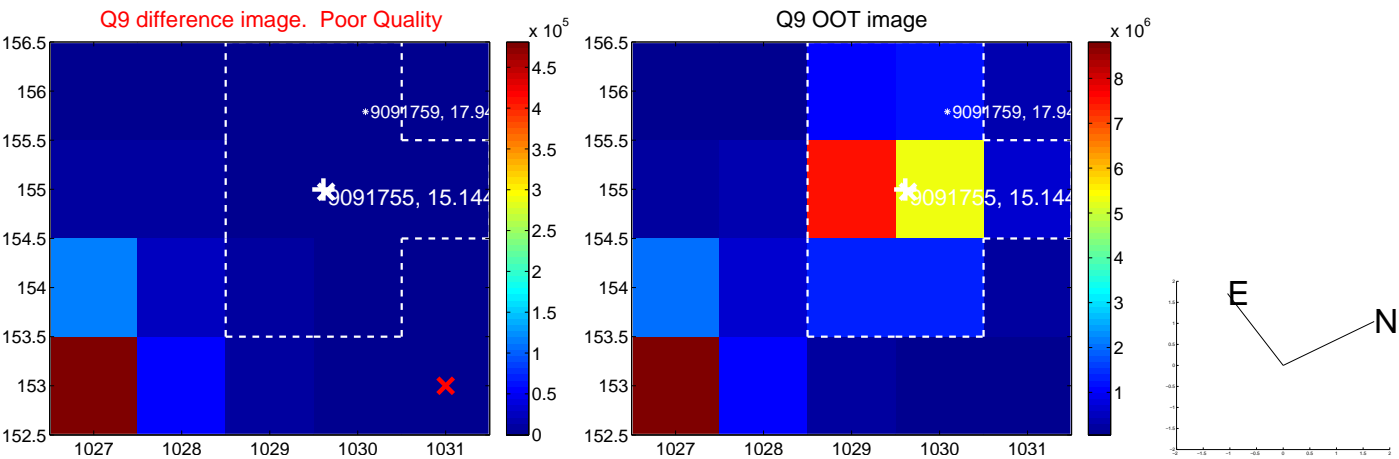


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

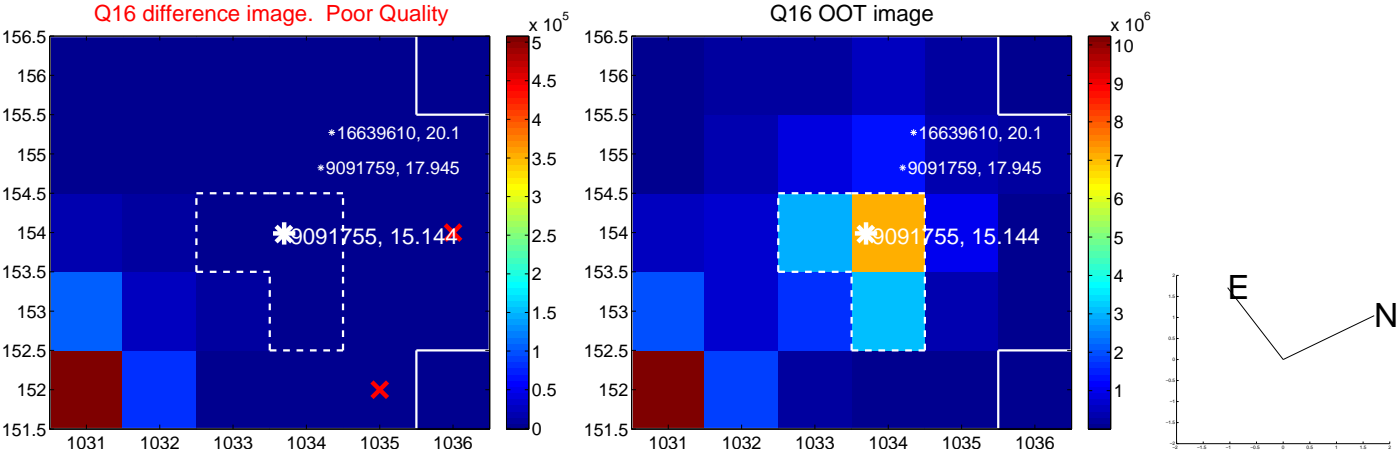
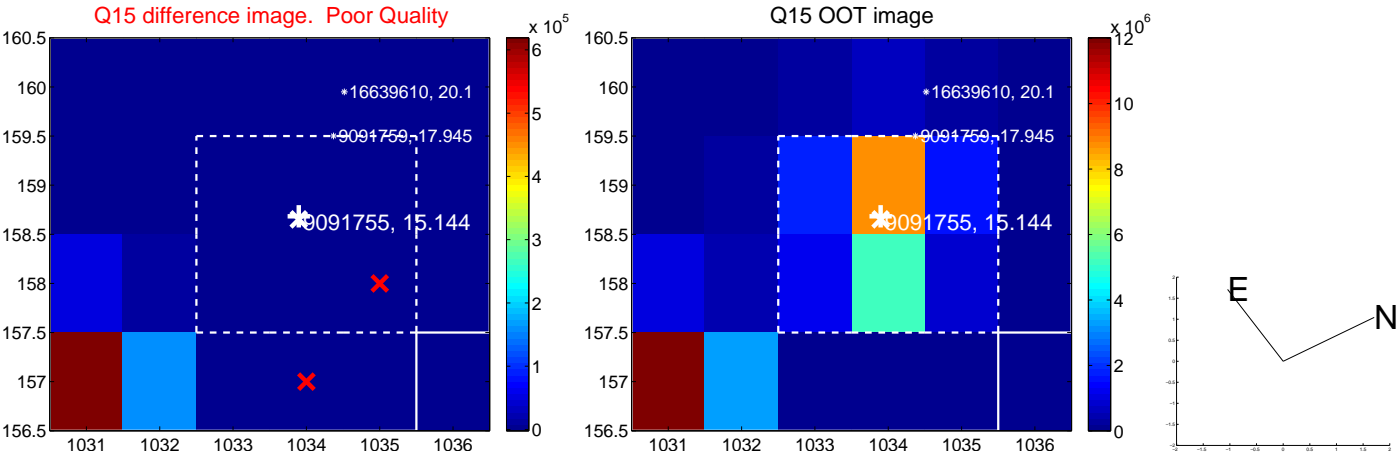
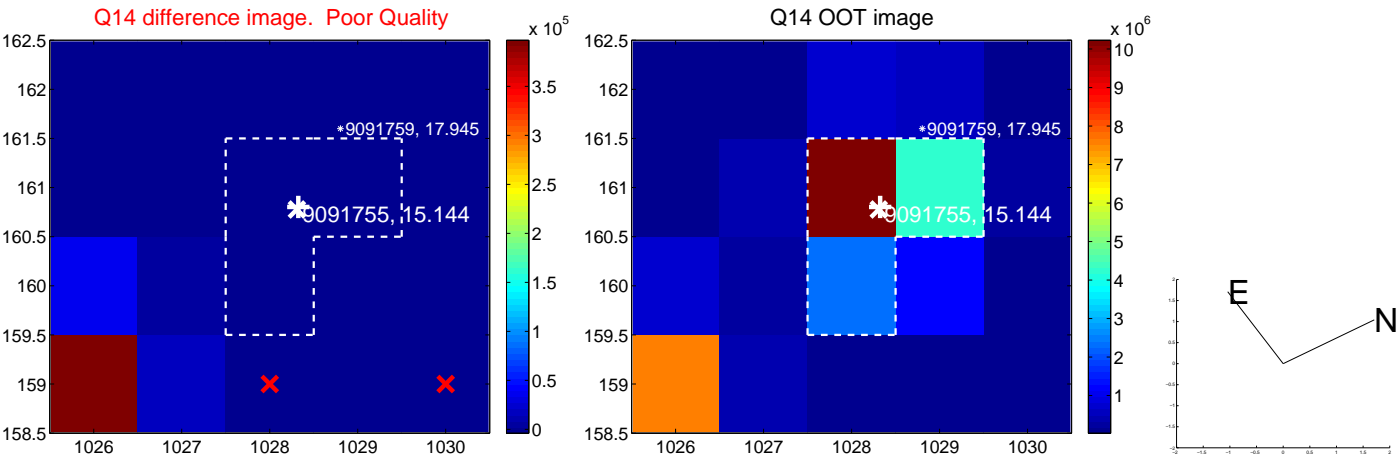
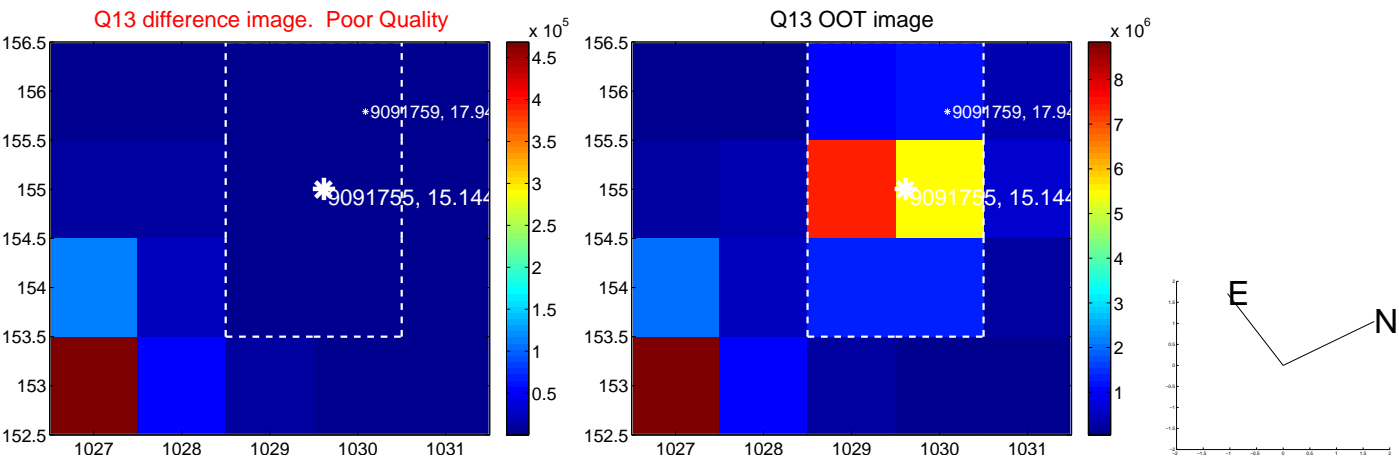




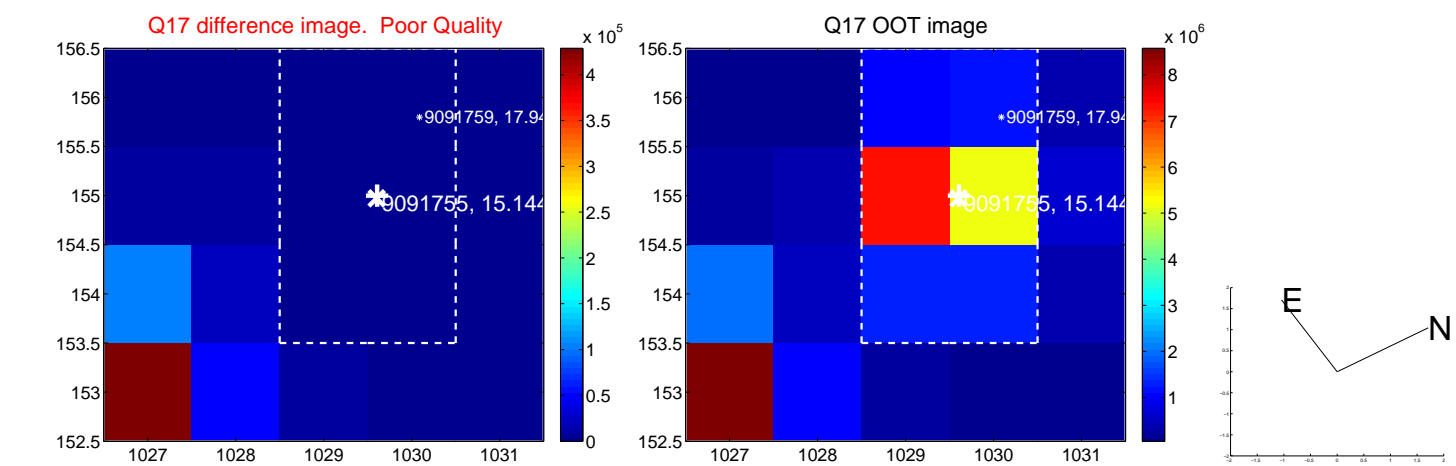
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



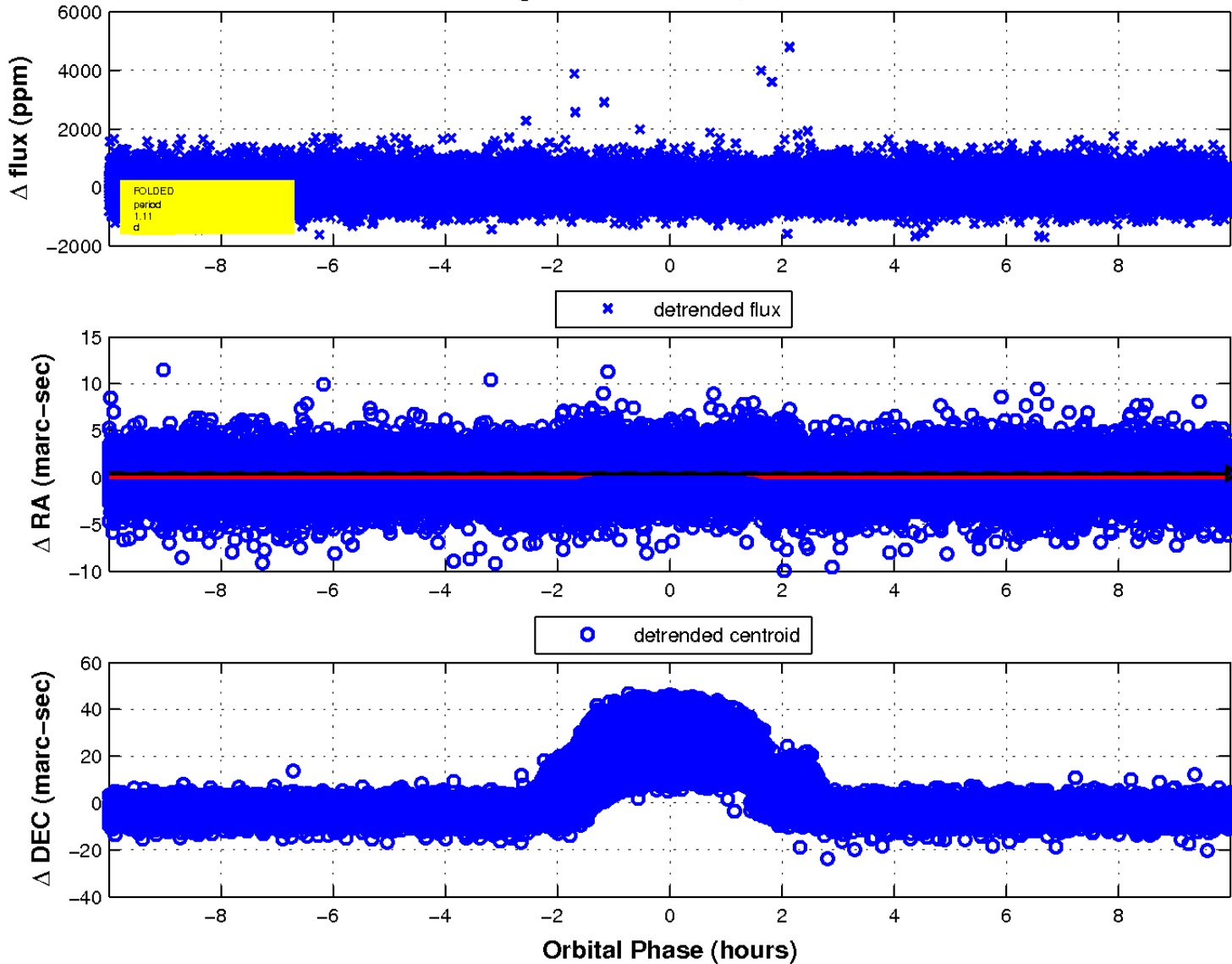
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

