

# KIC 005865654

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005865654-01	OBS	3071.01	23.955338	146.664043	217.7	3.265	10.6	12.0	1.78	5011	2.96	71.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005865654-01	OBS	PC	0.93	0	0	0	0	NO_COMMENT

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

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

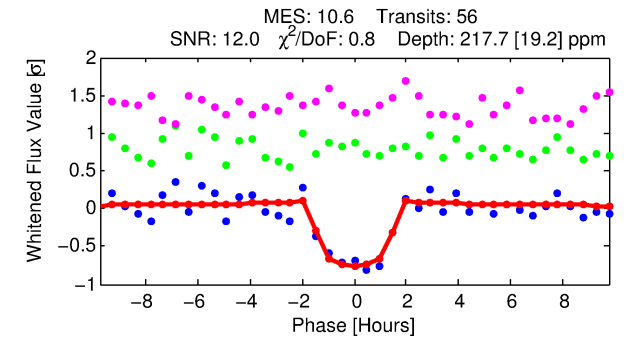
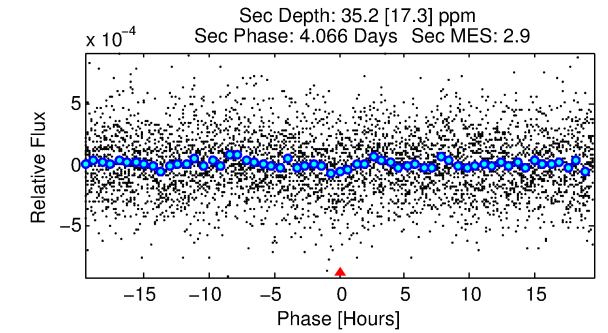
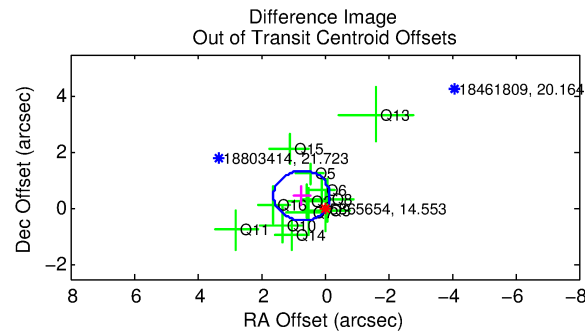
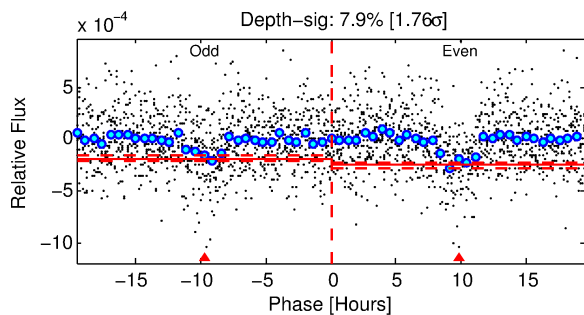
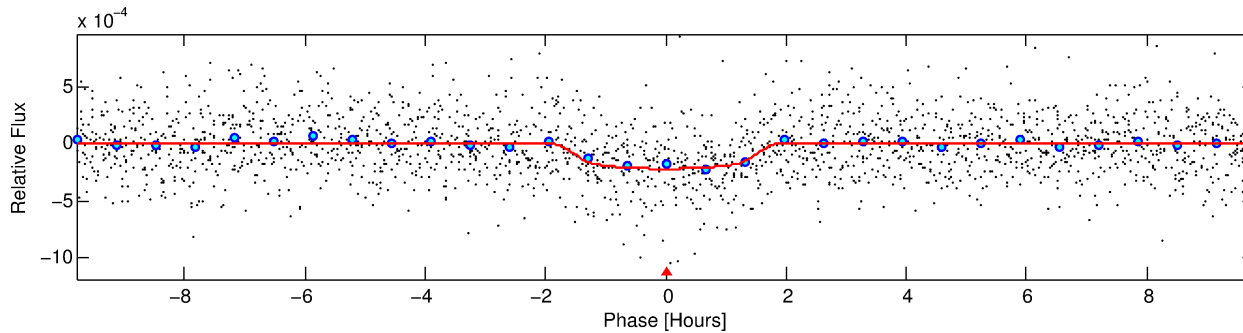
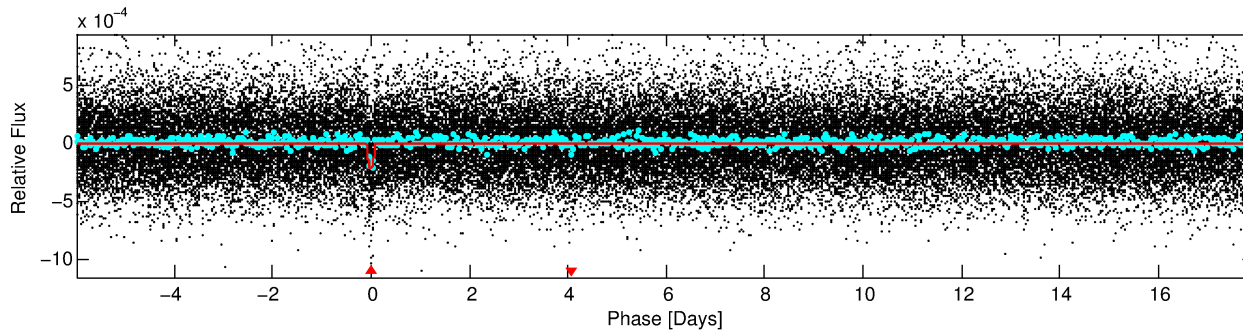
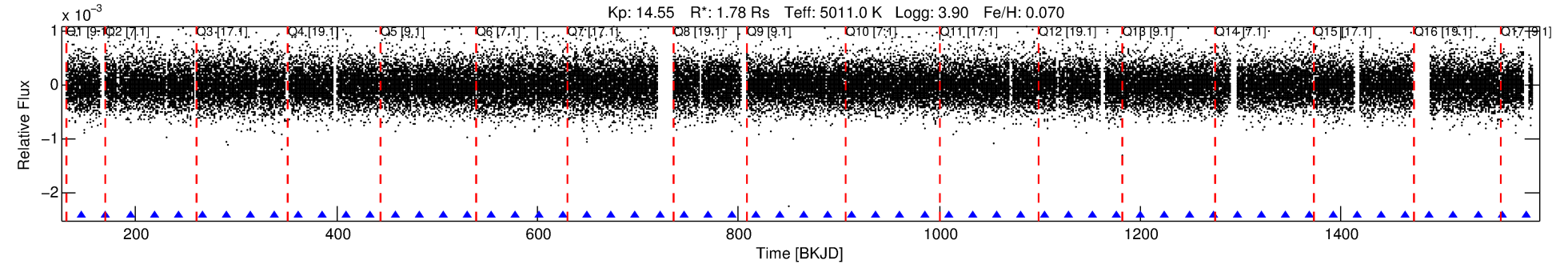
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005865654-01

No Significant Match Found

# DV One-Page Summary

KIC: 5865654 Candidate: 1 of 1 Period: 23.955 d  
KOI: K03071.01 Corr: 0.988



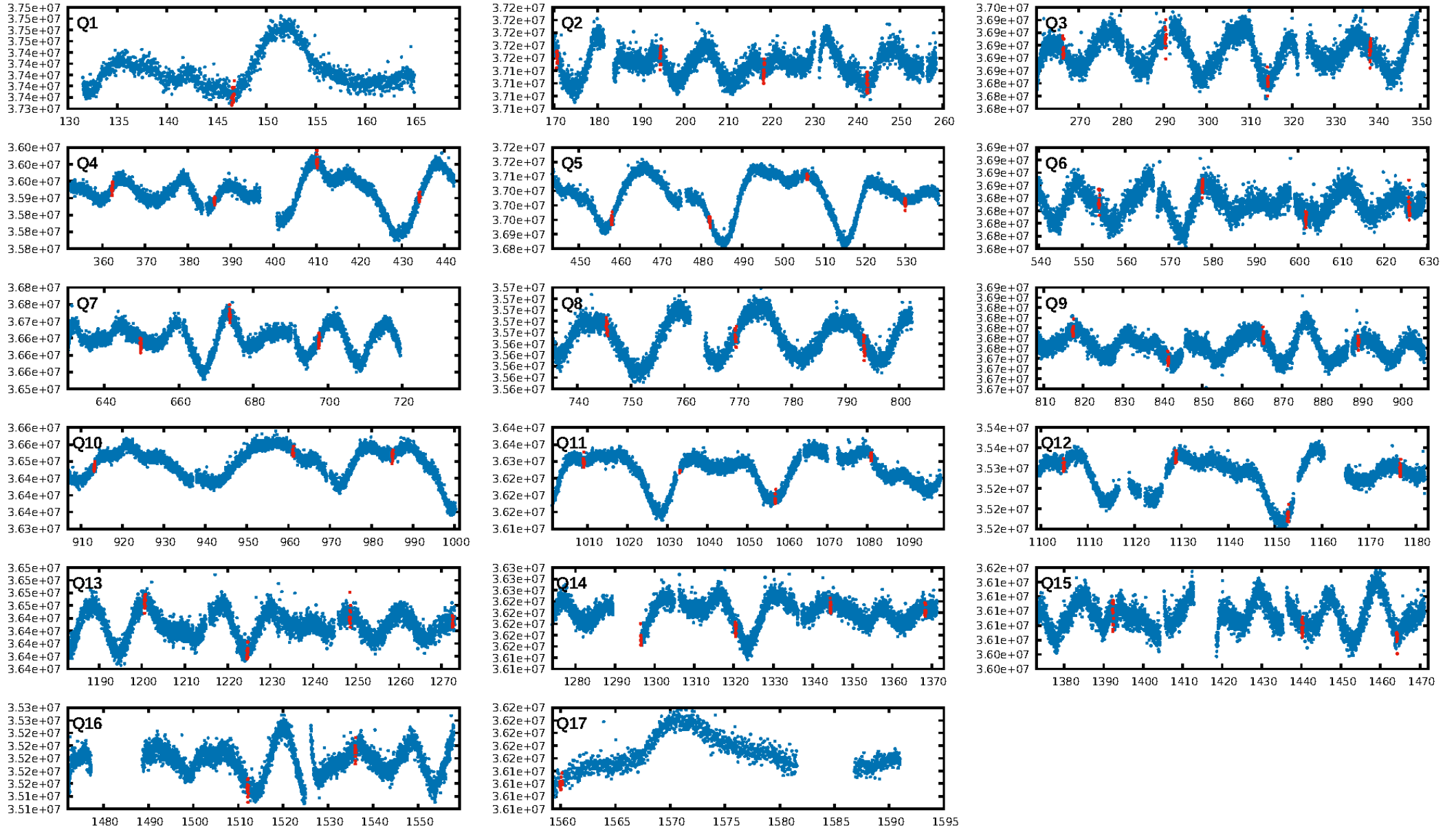
## DV Fit Results:

Period = 23.95534 [0.00017] d  
Epoch = 146.6640 [0.0059] BKJD  
Rp/R\* = 0.0152 [0.0116]  
a/R\* = 34.41 [95.89]  
b = 0.81 [1.22]  
Seff = 71.31 [76.85]  
Teq = 741 [200] K  
Rp = 2.96 [2.90] Re  
a = 0.1585 [0.1020] AU  
Ag = 55.49 [106.77] [0.51 $\sigma$ ]  
Teffp = 3127 [1253] K [1.88 $\sigma$ ]

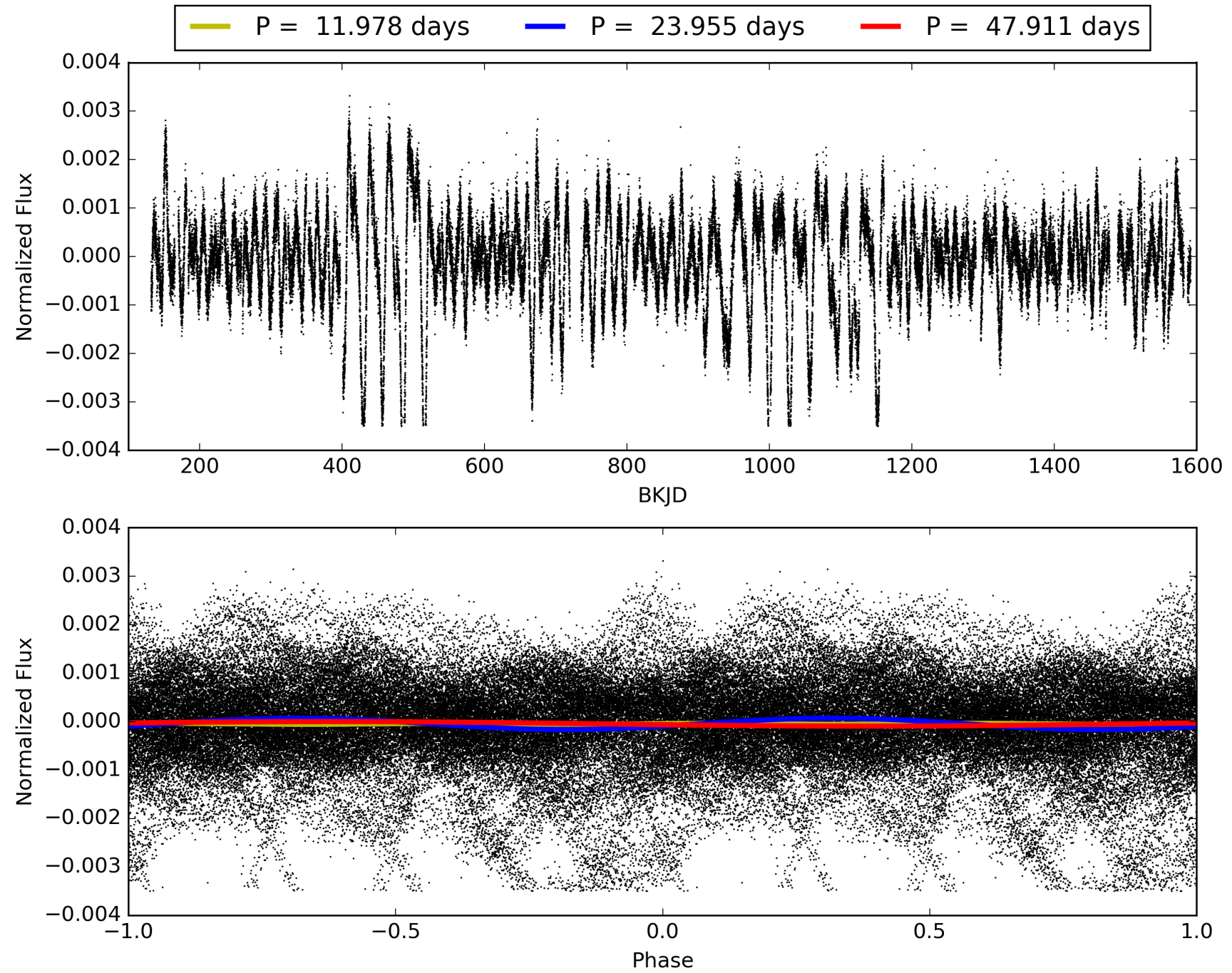
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 57.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.28e-25  
RollingBand-fgt: 1.00 [54/54]  
GhostDiagnostic-chr: 2.71  
Centroid-sig: 0.4%  
Centroid-so: 2.284 arcsec [2.07 $\sigma$ ]  
OotOffset-rm: 0.854 arcsec [2.88 $\sigma$ ]  
KicOffset-rm: 0.853 arcsec [2.89 $\sigma$ ]  
OotOffset-st: 4/4/2/2 [12]  
KicOffset-st: 4/4/2/2 [12]  
DiffImageQuality-fgm: 0.92 [11/12]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 005865654-01, PDC Light Curves

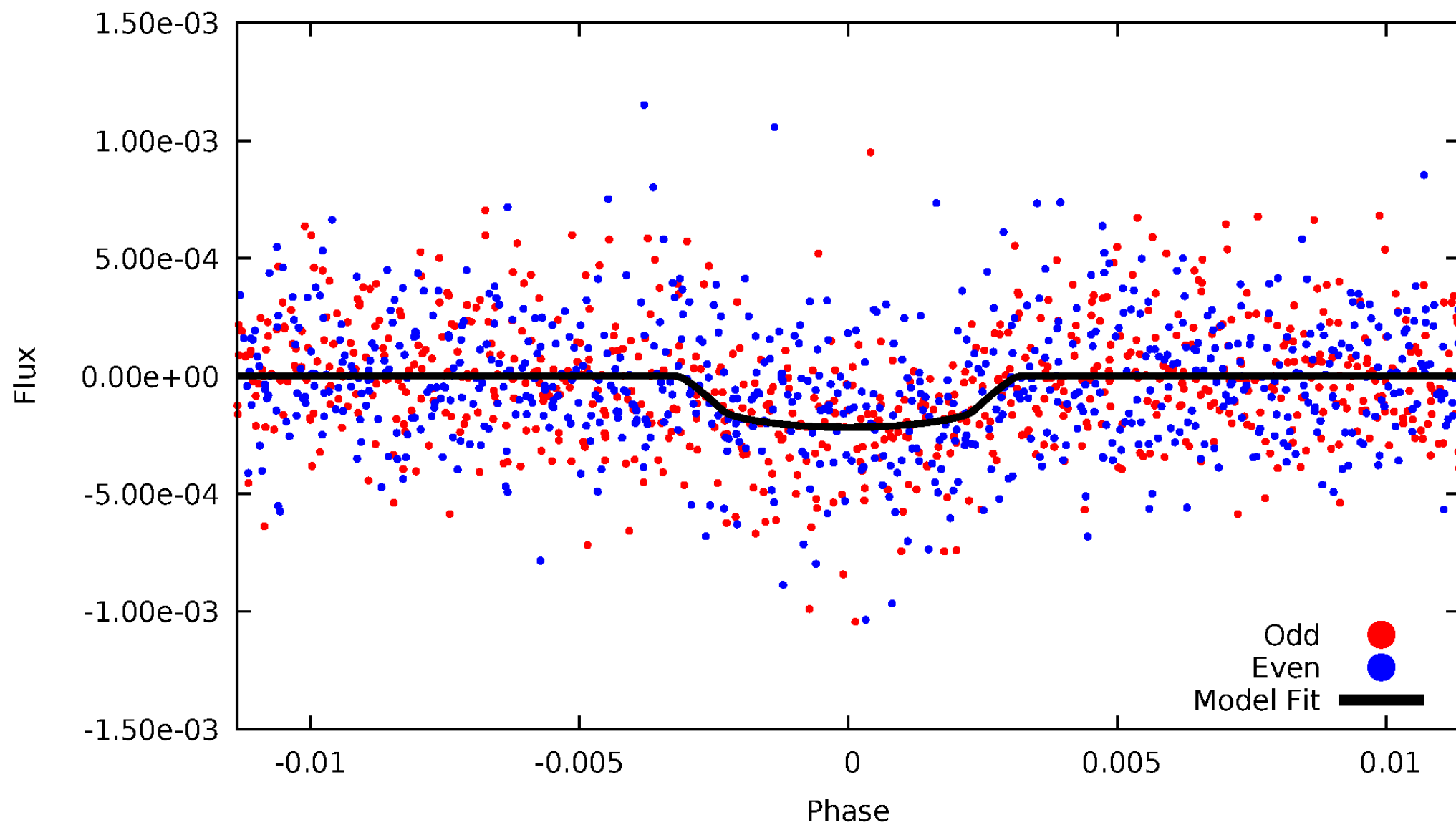


TCE 005865654-01



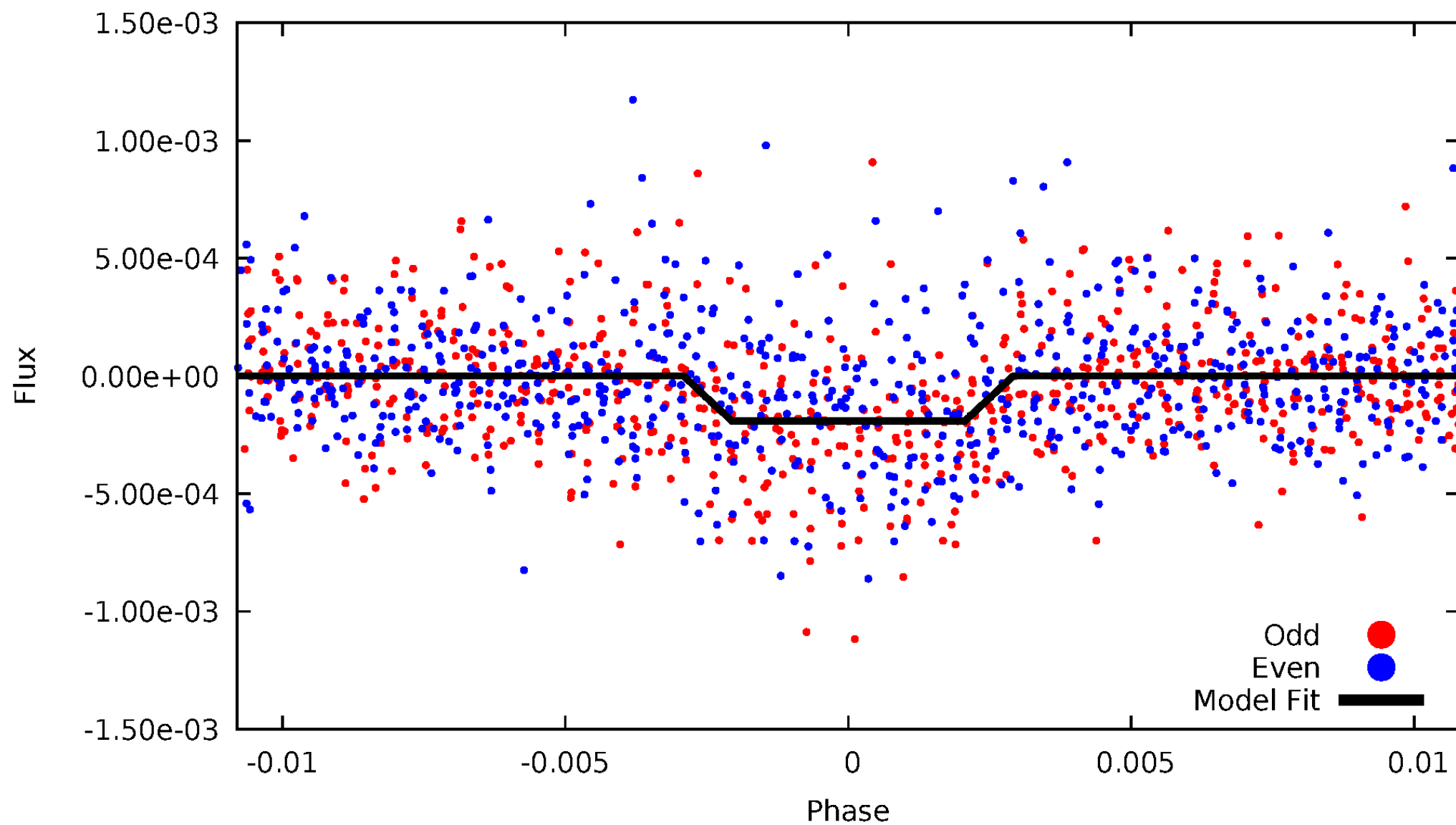
# DV Odd/Even

TCE 005865654-01



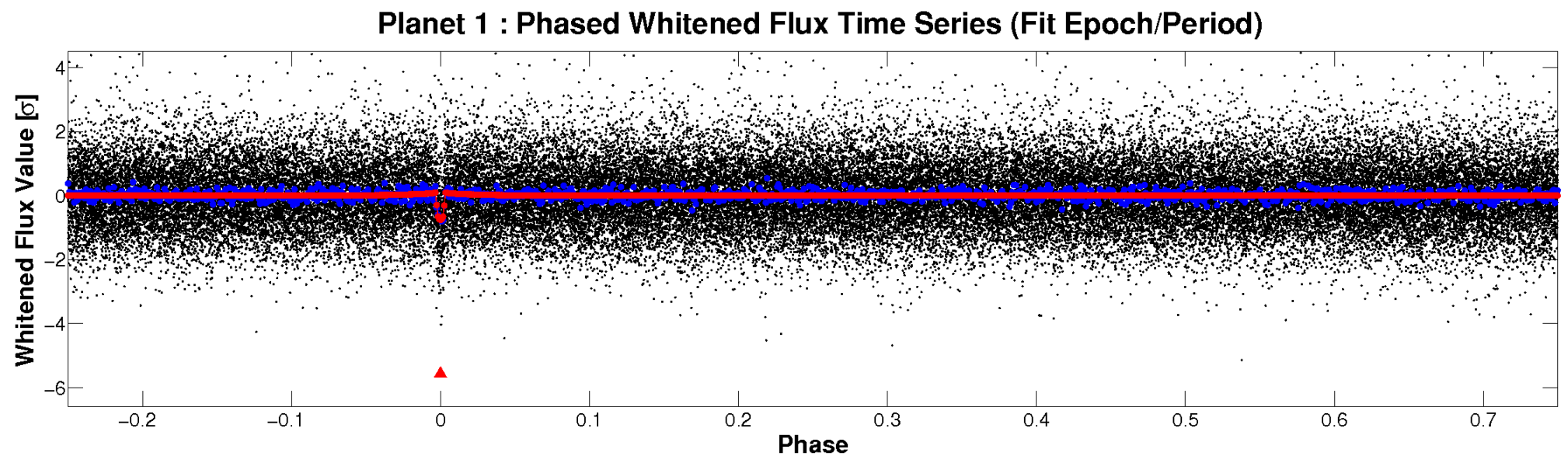
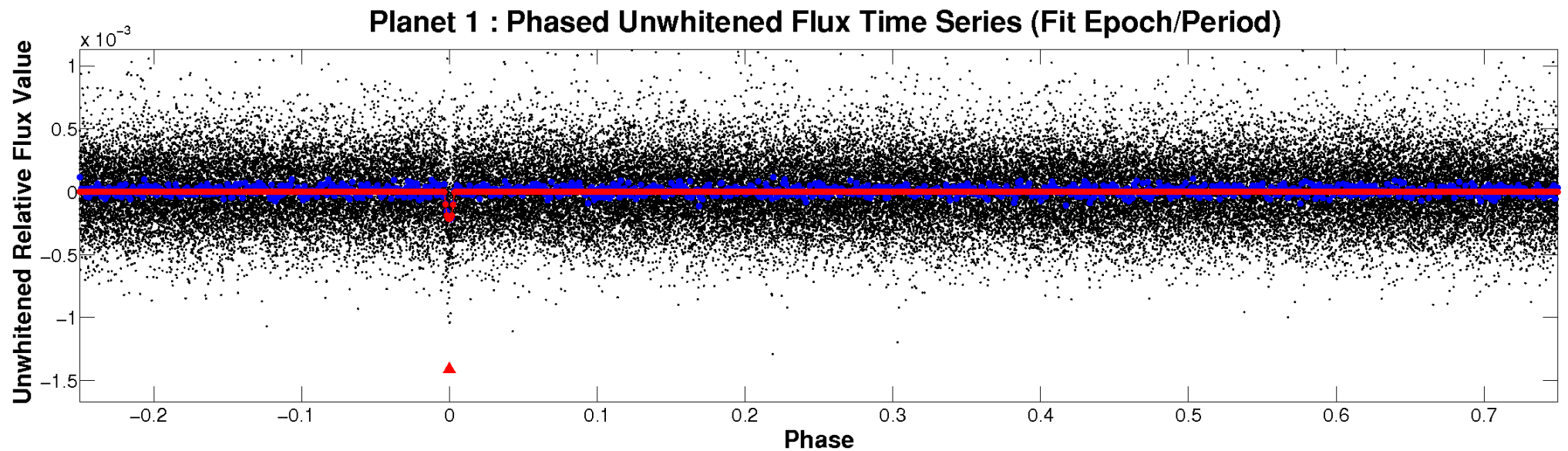
# ALT Odd/Even

TCE 005865654-01



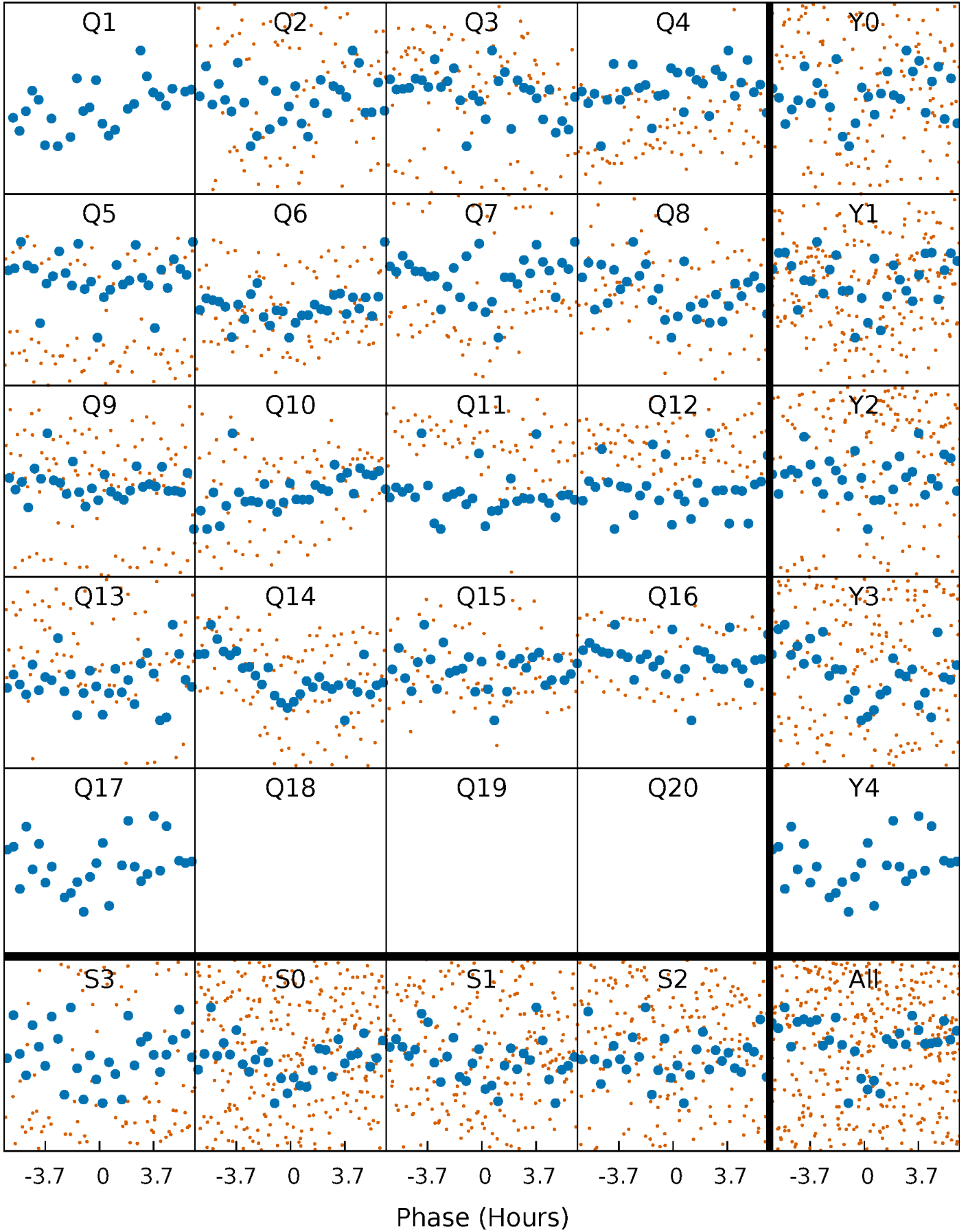


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

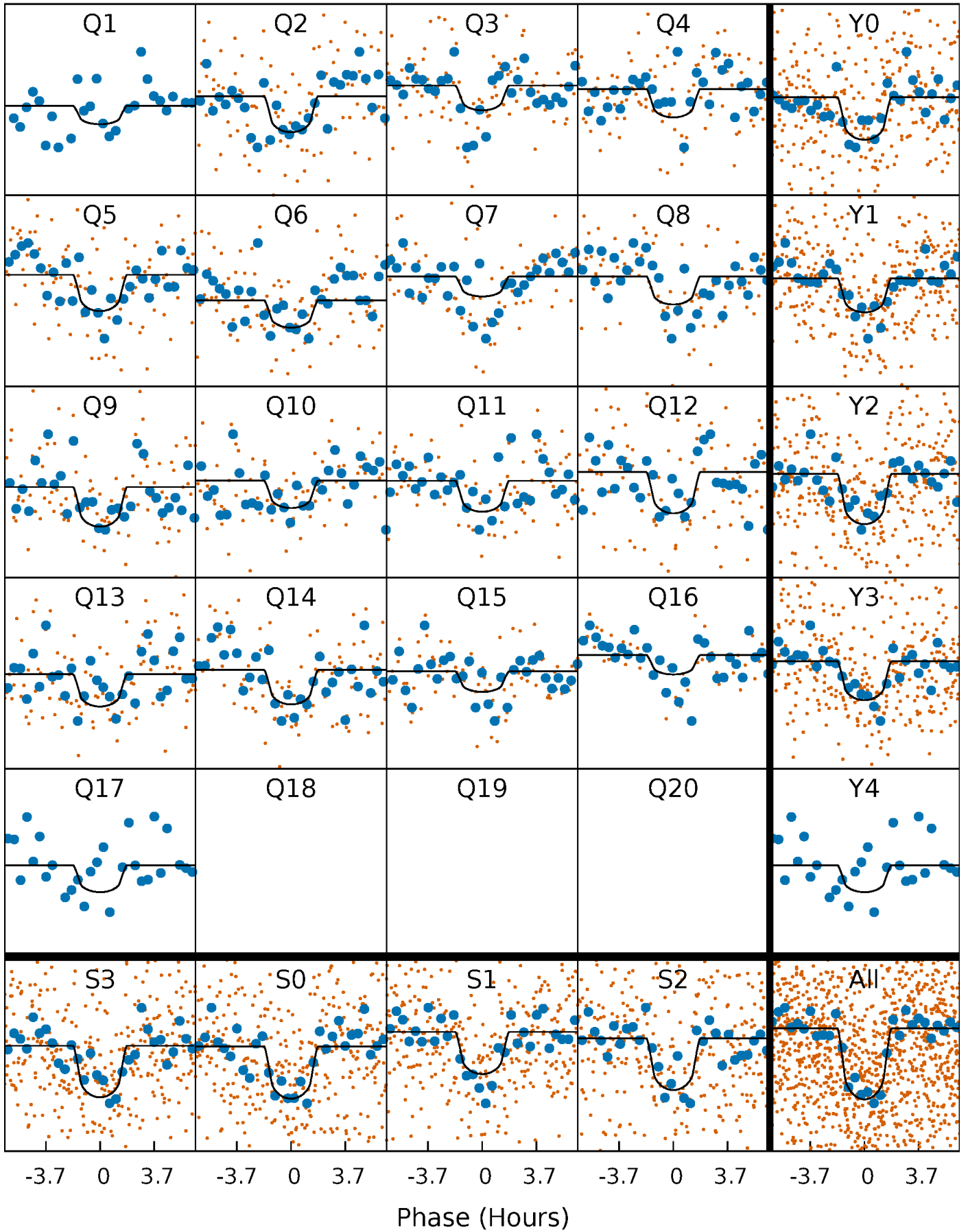
TCE 005865654-01 P= 23.955338 Days  $T_0=146.664043$  (BKJD)





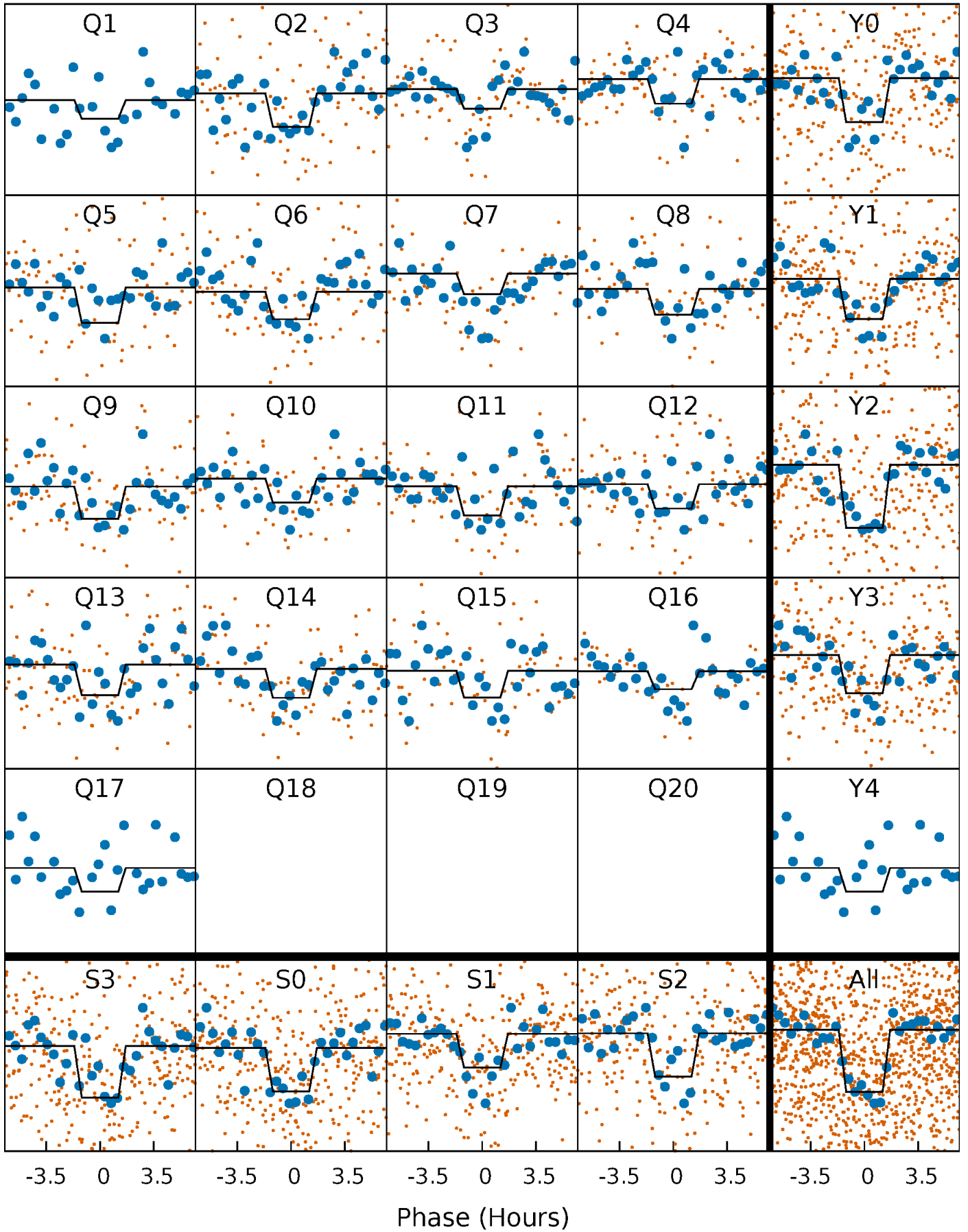
# DV Quarter-Phased Transit Curves

TCE 005865654-01 P= 23.955338 Days  $T_0=146.664043$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

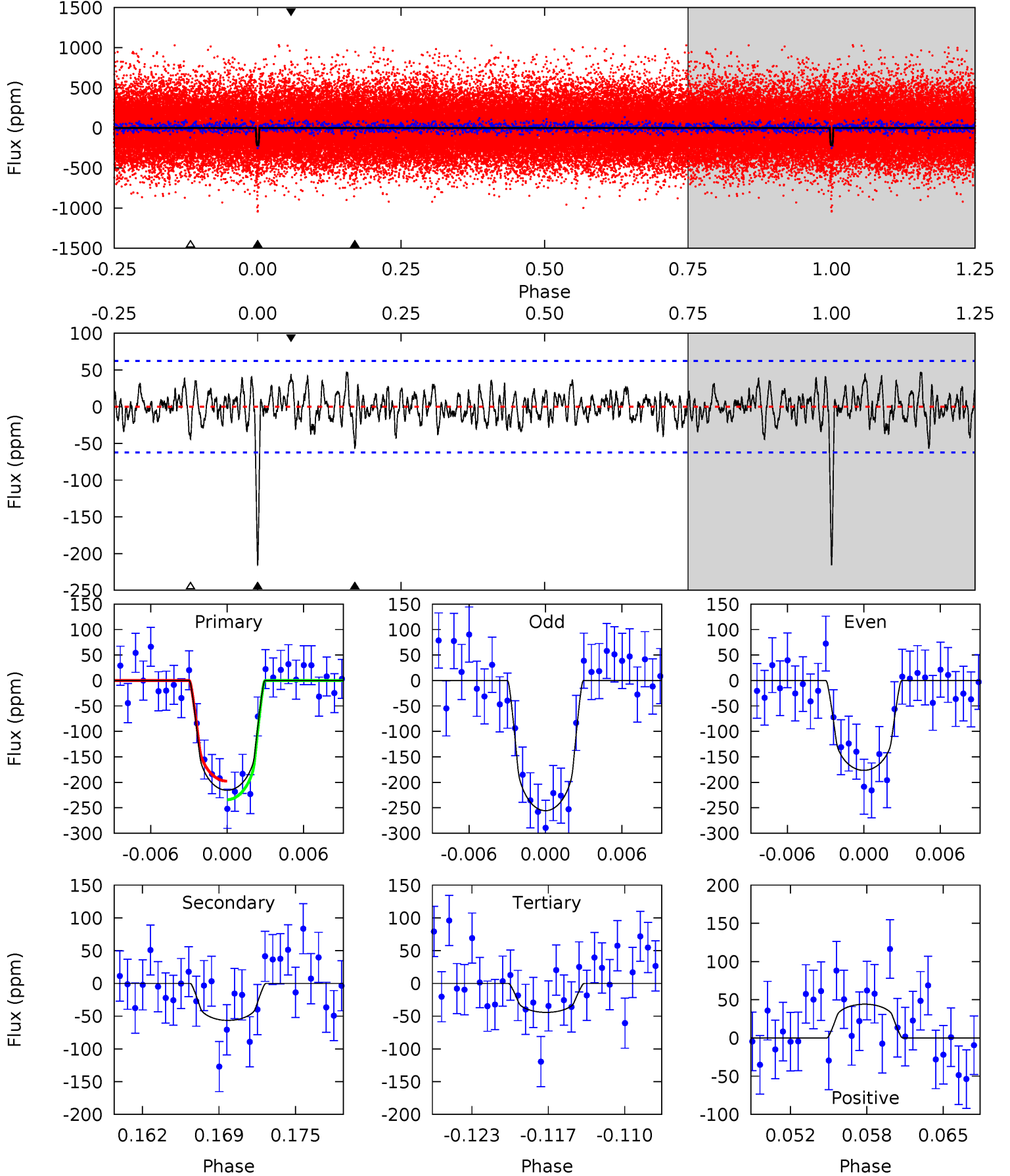
TCE 005865654-01 P= 23.955405 Days  $T_0=146.662981$  (BKJD)



# DV Model-Shift Uniqueness Test

005865654-01, P = 23.955338 Days, E = 122.708705 Days

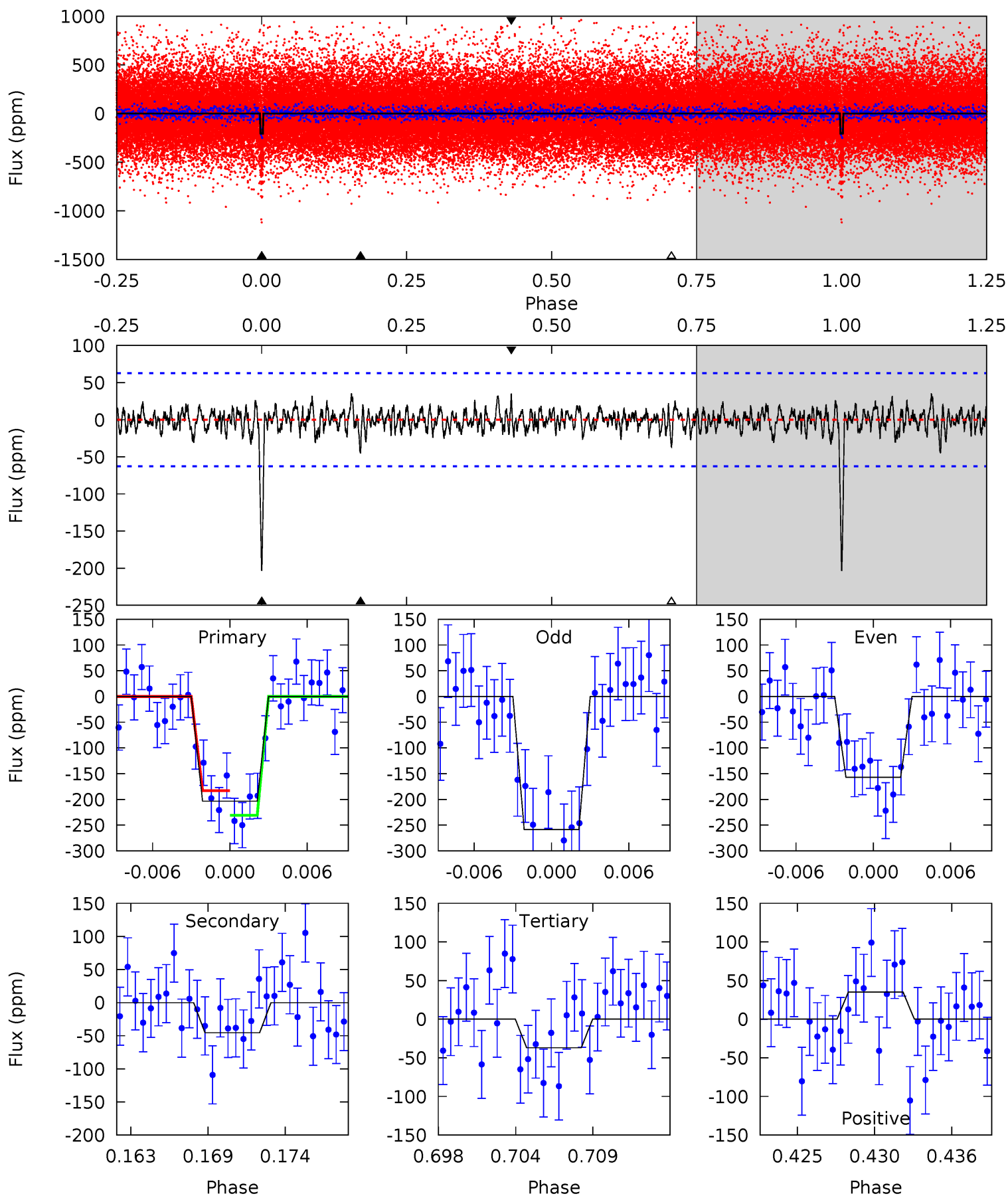
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	4.63	3.63	3.62	5.11	2.72	1.30	14.0	14.0	1.00	1.01	3.25	0.99	0.18	1.49



# Alt Model-Shift Uniqueness Test

005865654-01,  $P = 23.955405$  Days,  $E = 122.707576$  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
16.6	3.72	3.02	2.88	5.13	2.76	0.91	13.6	13.8	0.70	0.84	4.15	0.99	0.15	1.95



### Stellar Parameters For KIC 005865654

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5011^{+134}_{-149}$	$3.903^{+0.644}_{-0.297}$	$0.070^{+0.250}_{-0.300}$	$1.781^{+1.001}_{-1.101}$	$0.926^{+0.193}_{-0.158}$	$0.231^{+2.642}_{-0.153}$
	+3%/-3%	+17%/-8%	+357%/-429%	+56%/-62%	+21%/-17%	+1145%/-66%
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 005865654-01 / KOI 3071.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-57 \pm 12$	$2.97^{+2.45}_{-1.80}$	$1022^{+134}_{-164}$	$3706^{+1539}_{-553}$	$90^{+468}_{-63}$
Alt.	$-45 \pm 12$	$2.63^{+2.47}_{-1.62}$	$1019^{+134}_{-164}$	$3655^{+1523}_{-551}$	$83^{+530}_{-61}$

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

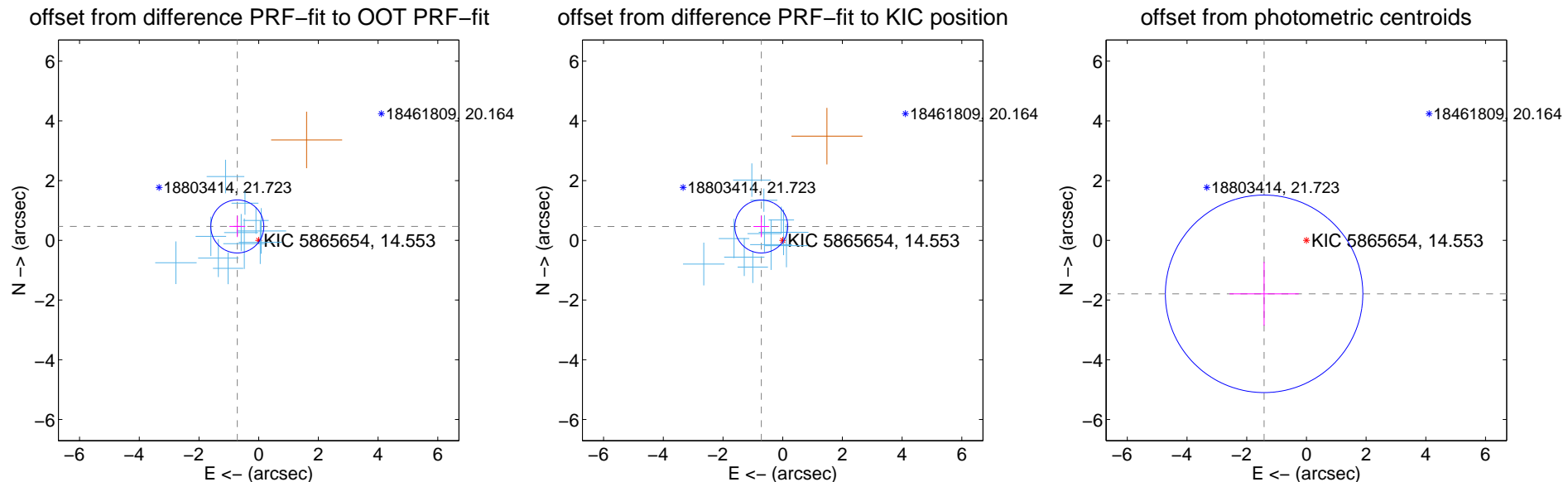
## DV Centroid Data

Supplemental centroid analysis for 005865654-01. Kepler magnitude: 14.55. Transit SNR 12.00

There are 11 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

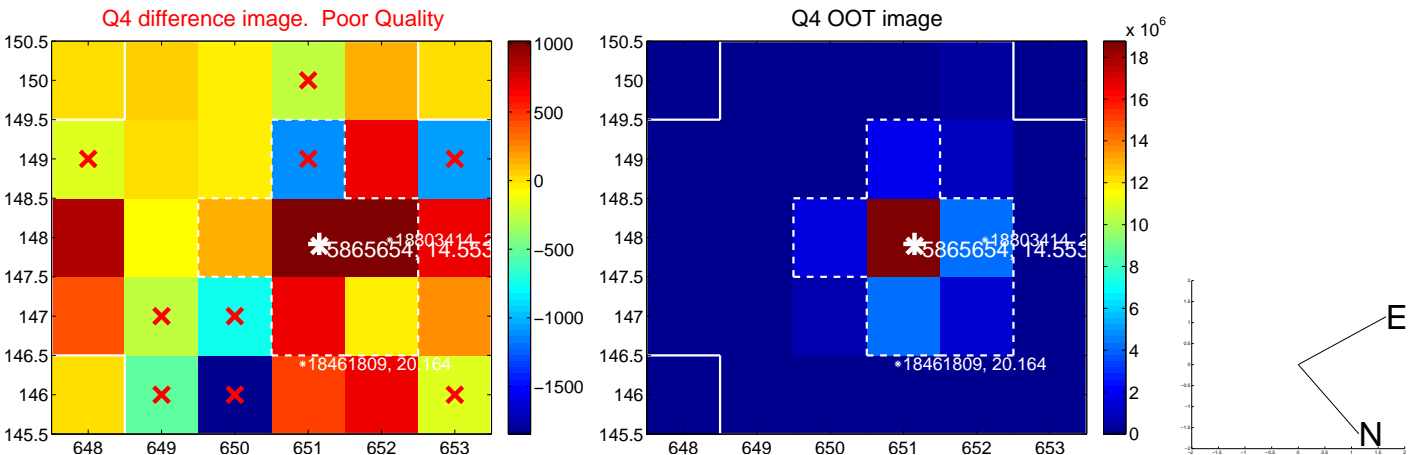
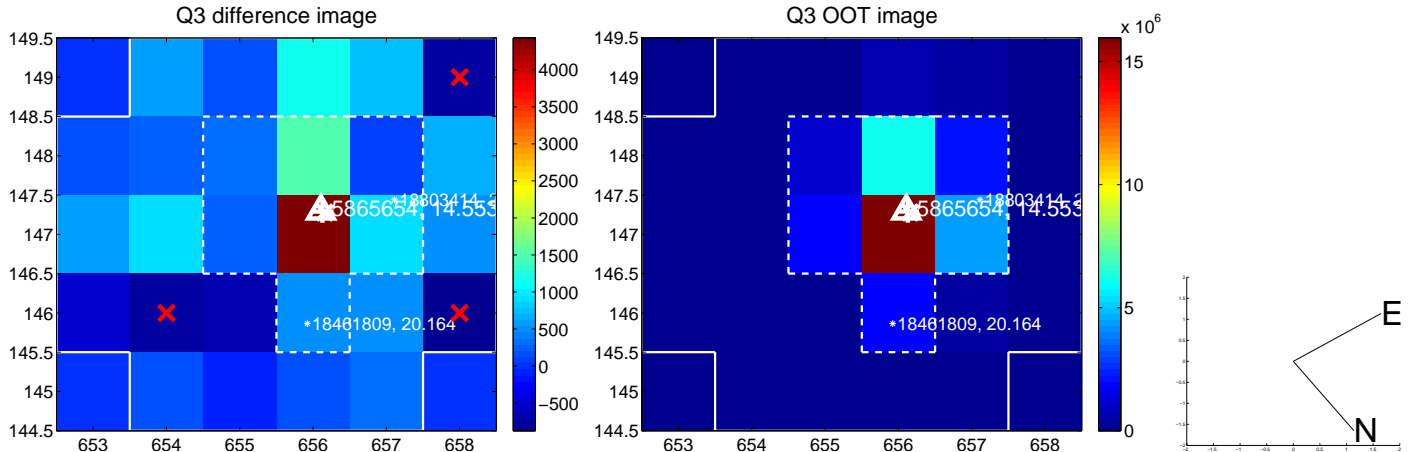
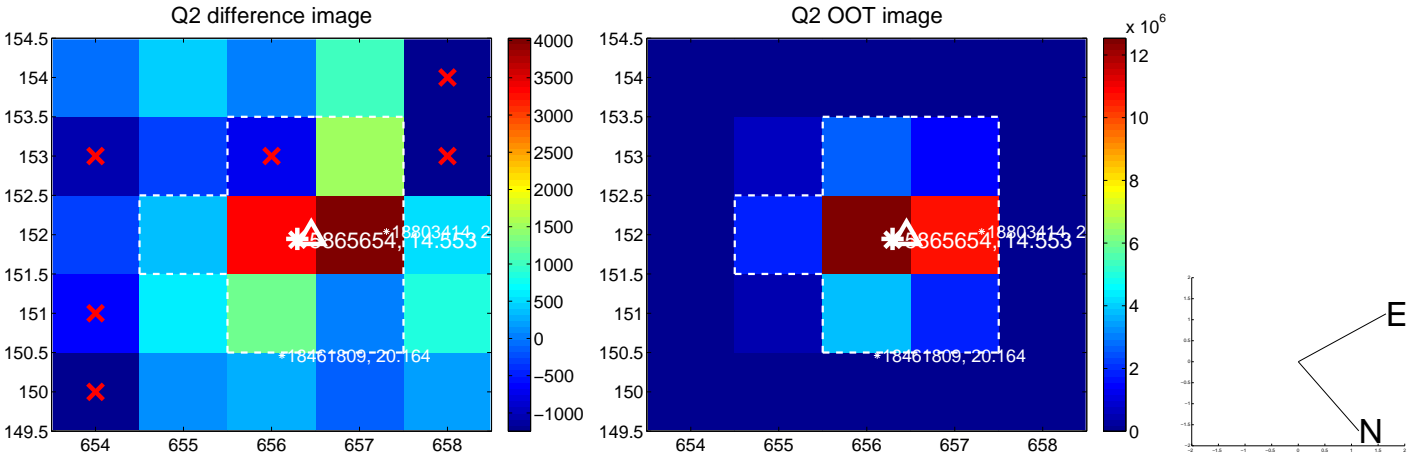
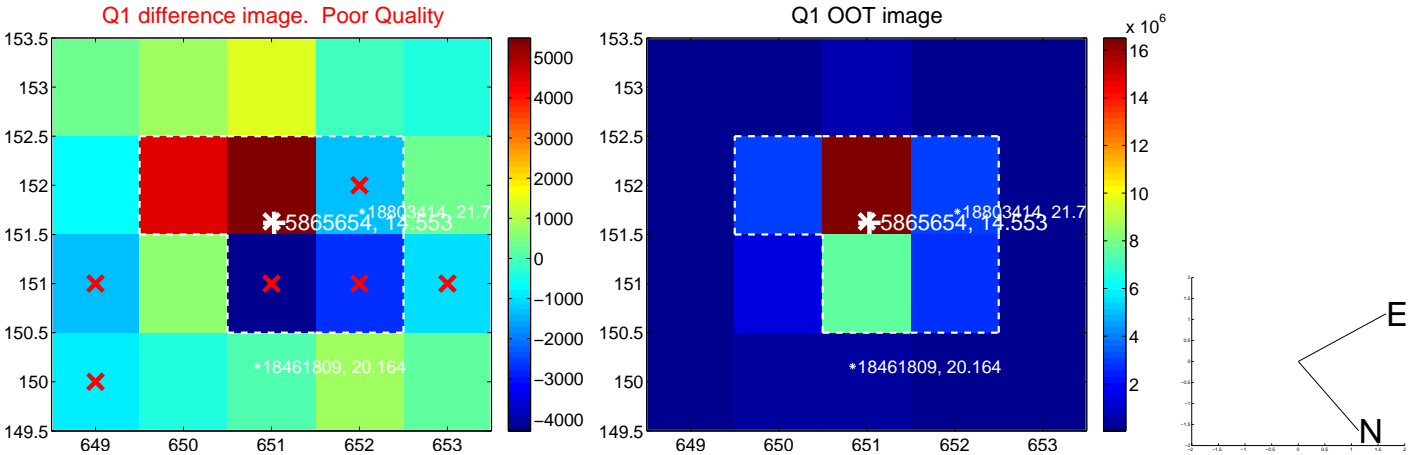
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.854 \pm 0.296$	2.88	$0.716 \pm 0.267$	$0.464 \pm 0.355$
PRF-fit source offset from KIC position	$0.853 \pm 0.295$	2.89	$0.717 \pm 0.264$	$0.463 \pm 0.360$
photometric centroid source offset	$2.28 \pm 1.10$	2.07	$1.42 \pm 1.16$	$-1.79 \pm 1.07$



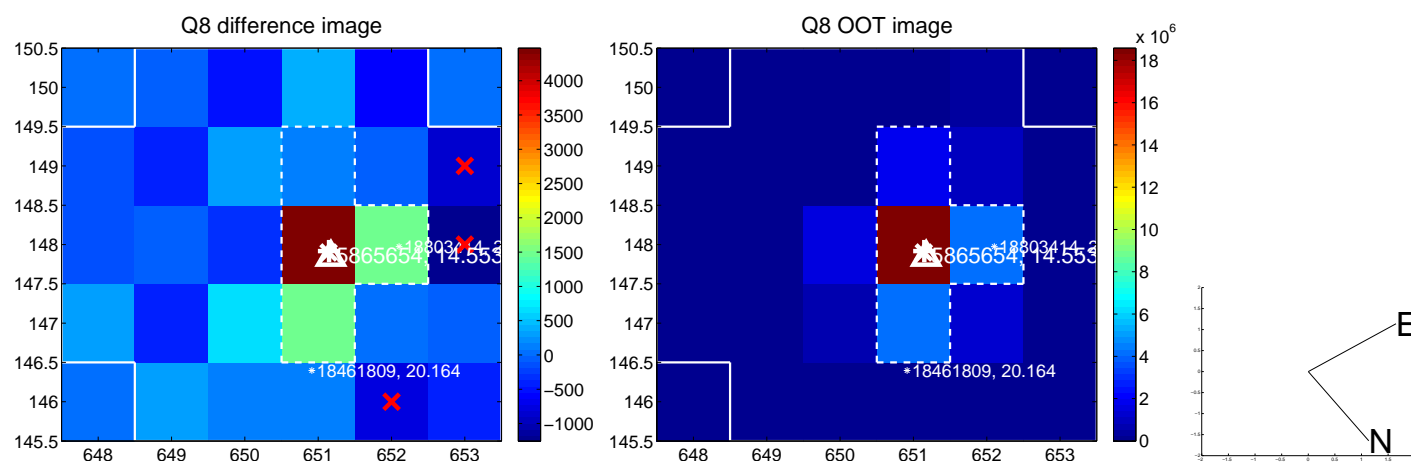
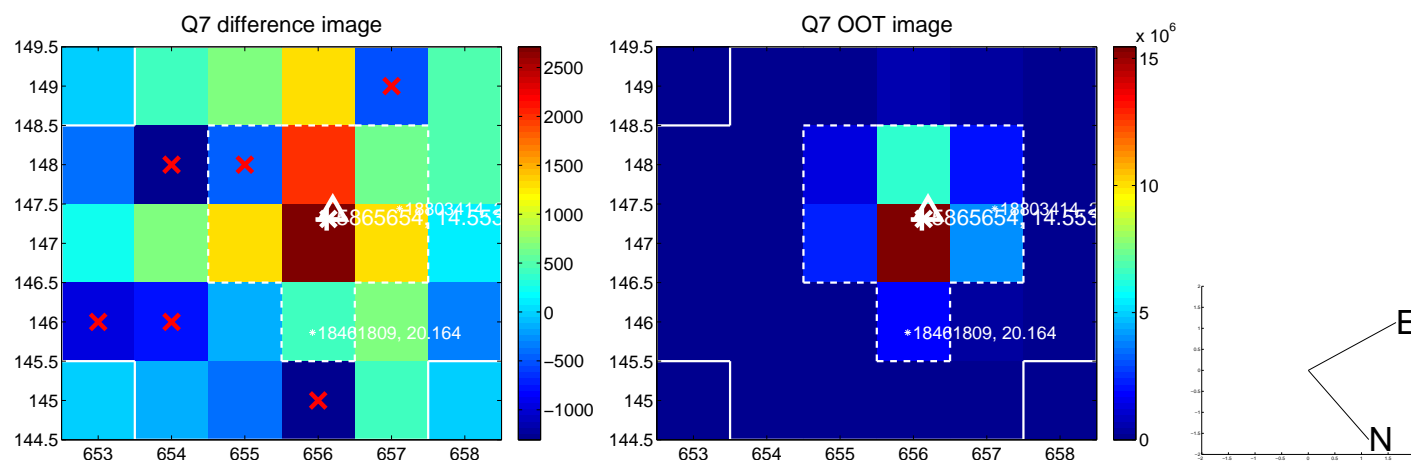
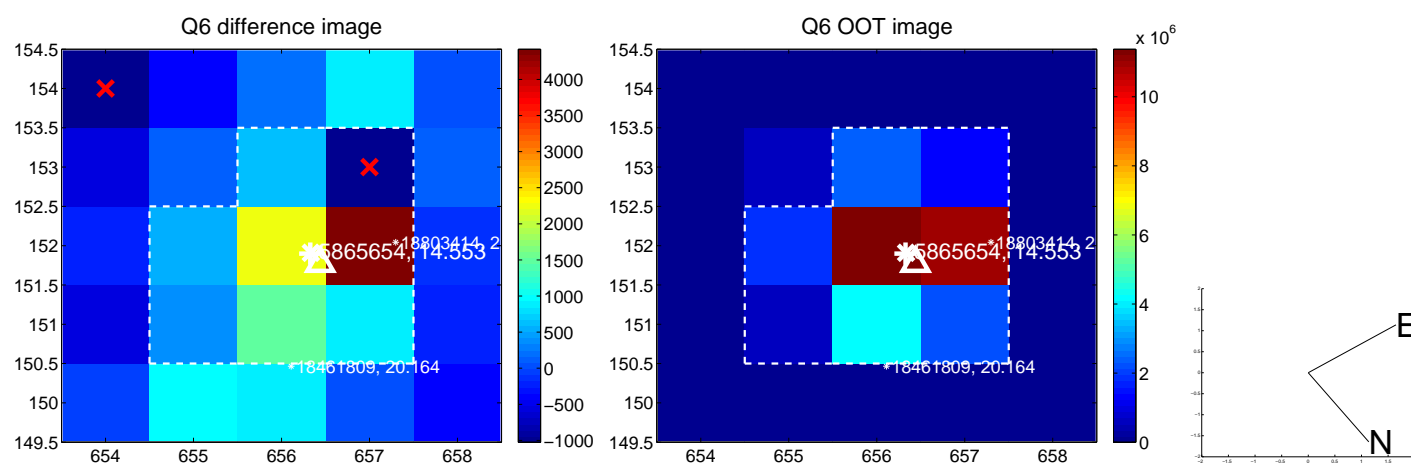
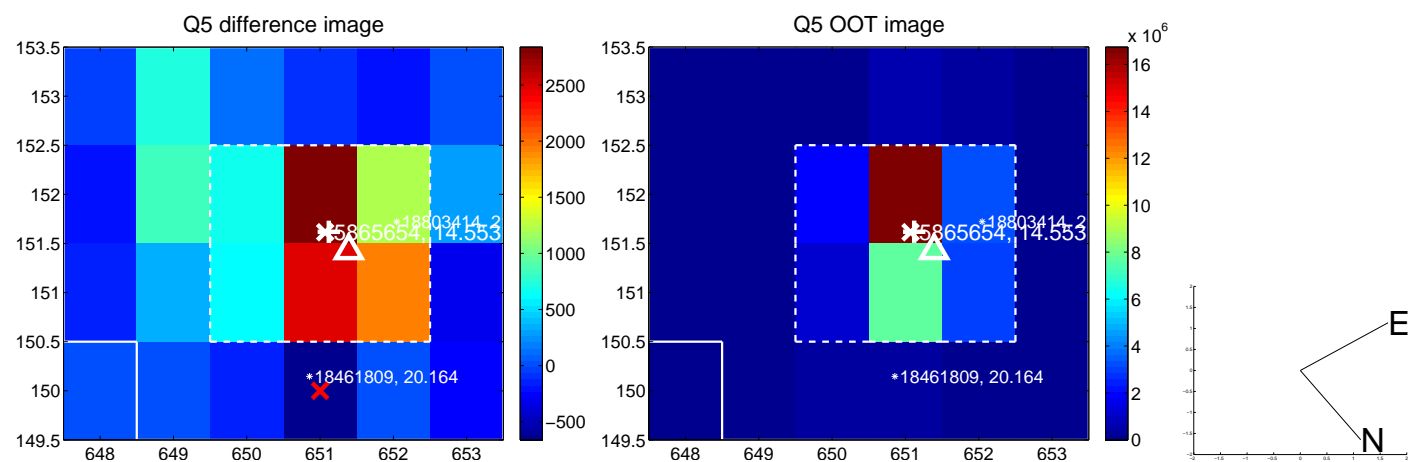
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



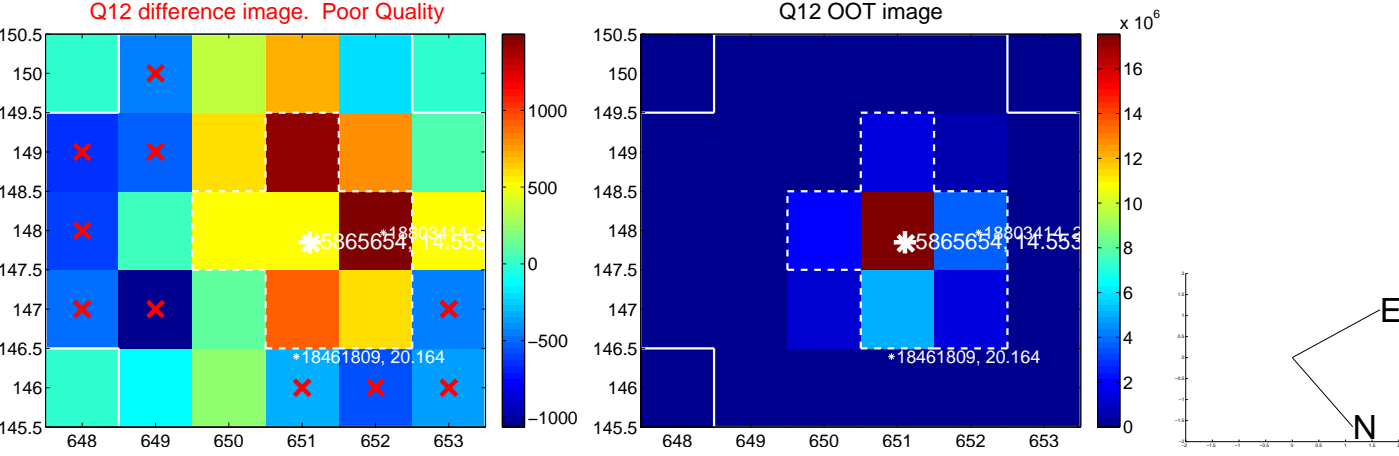
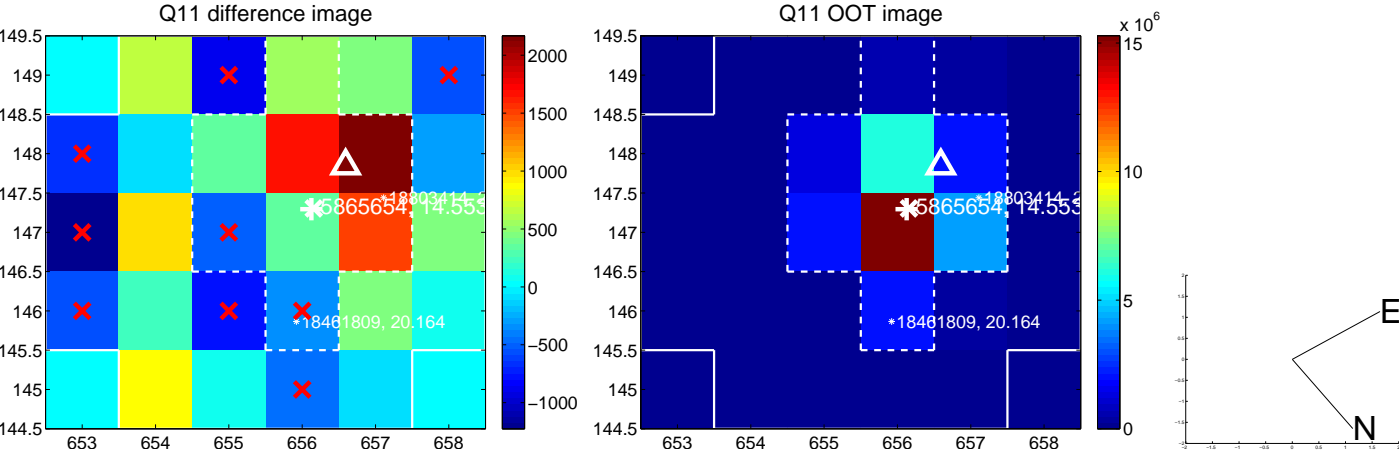
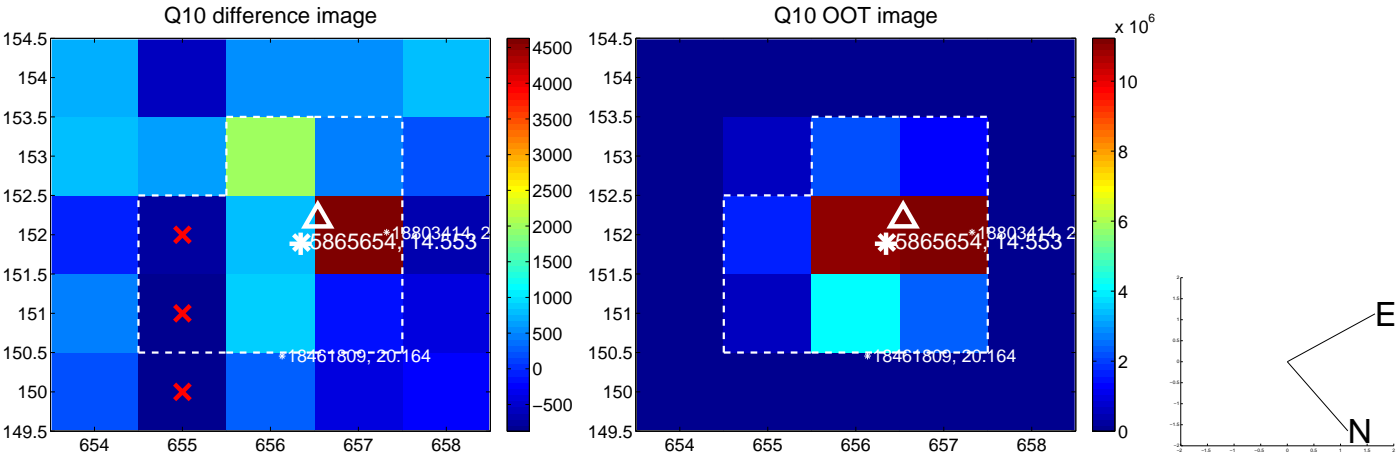
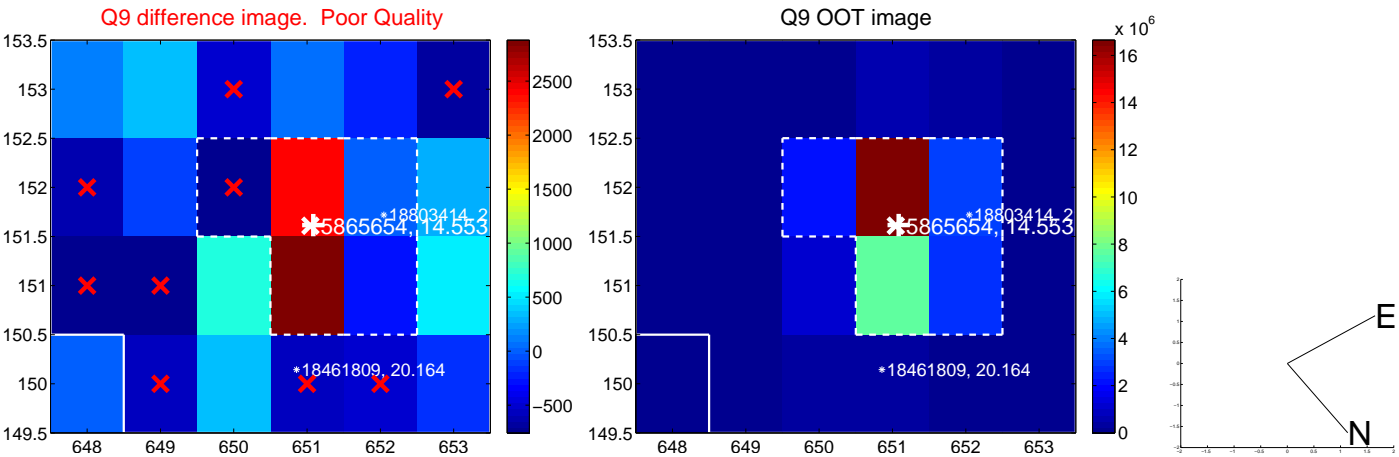
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



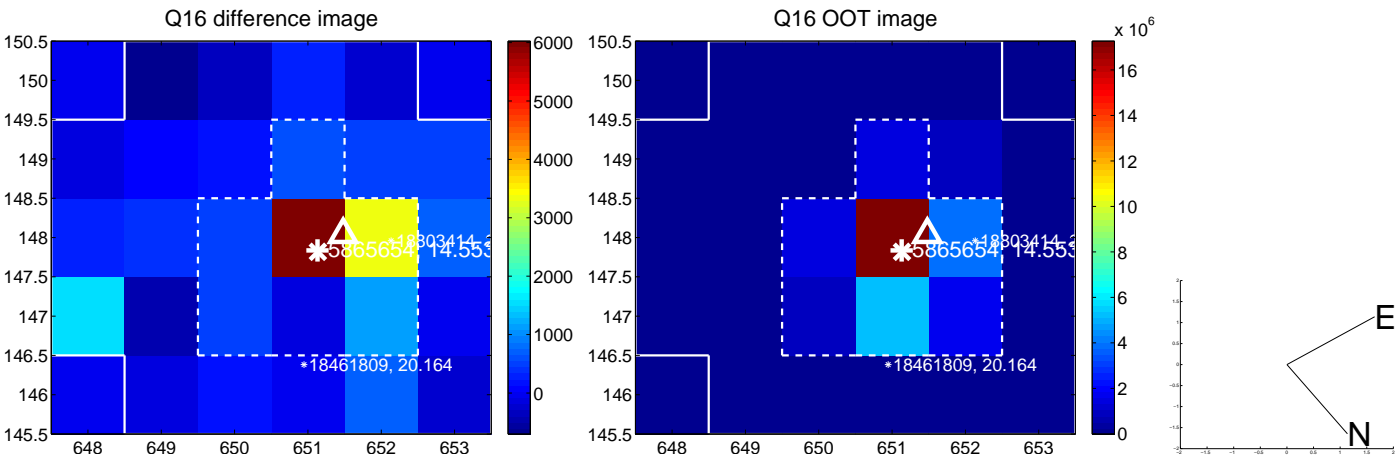
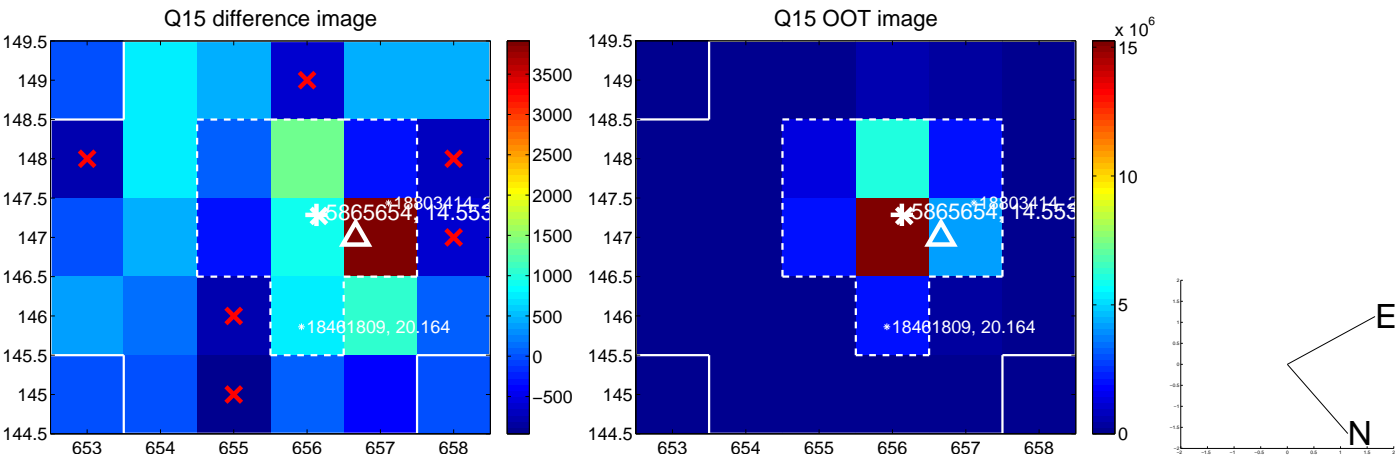
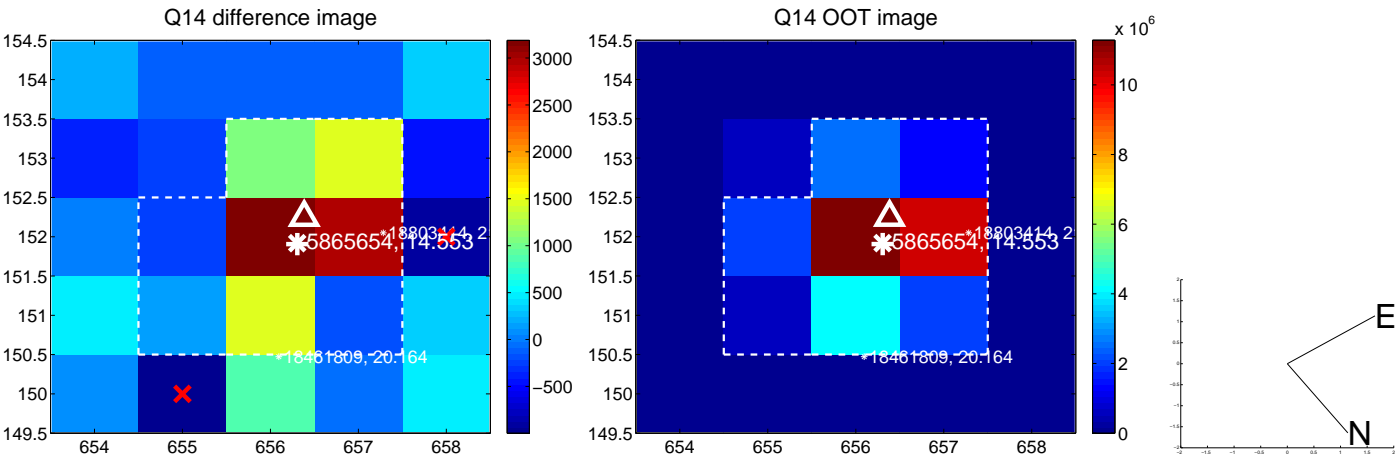
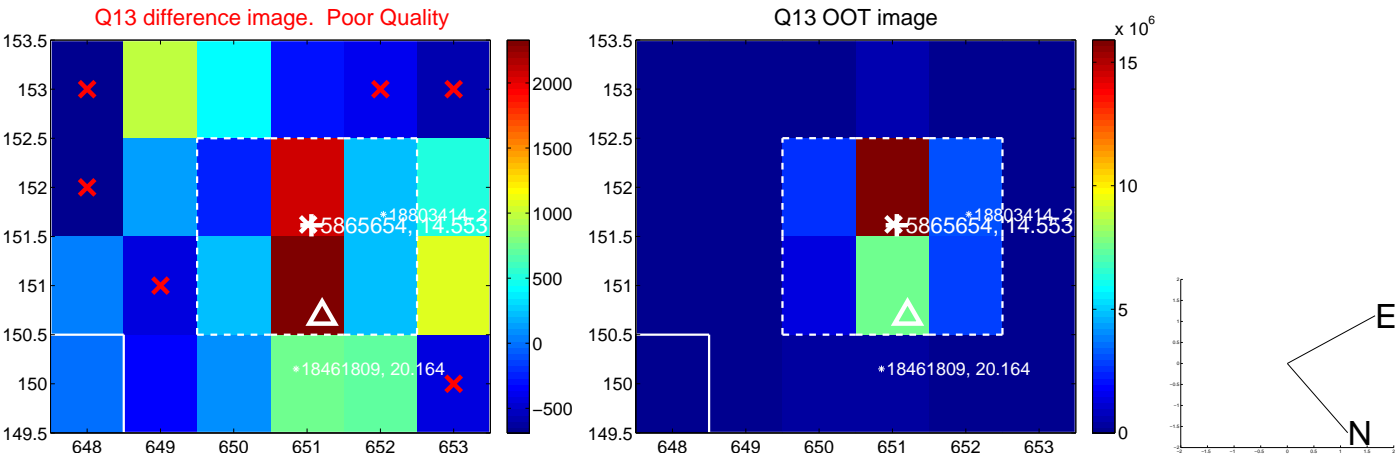
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



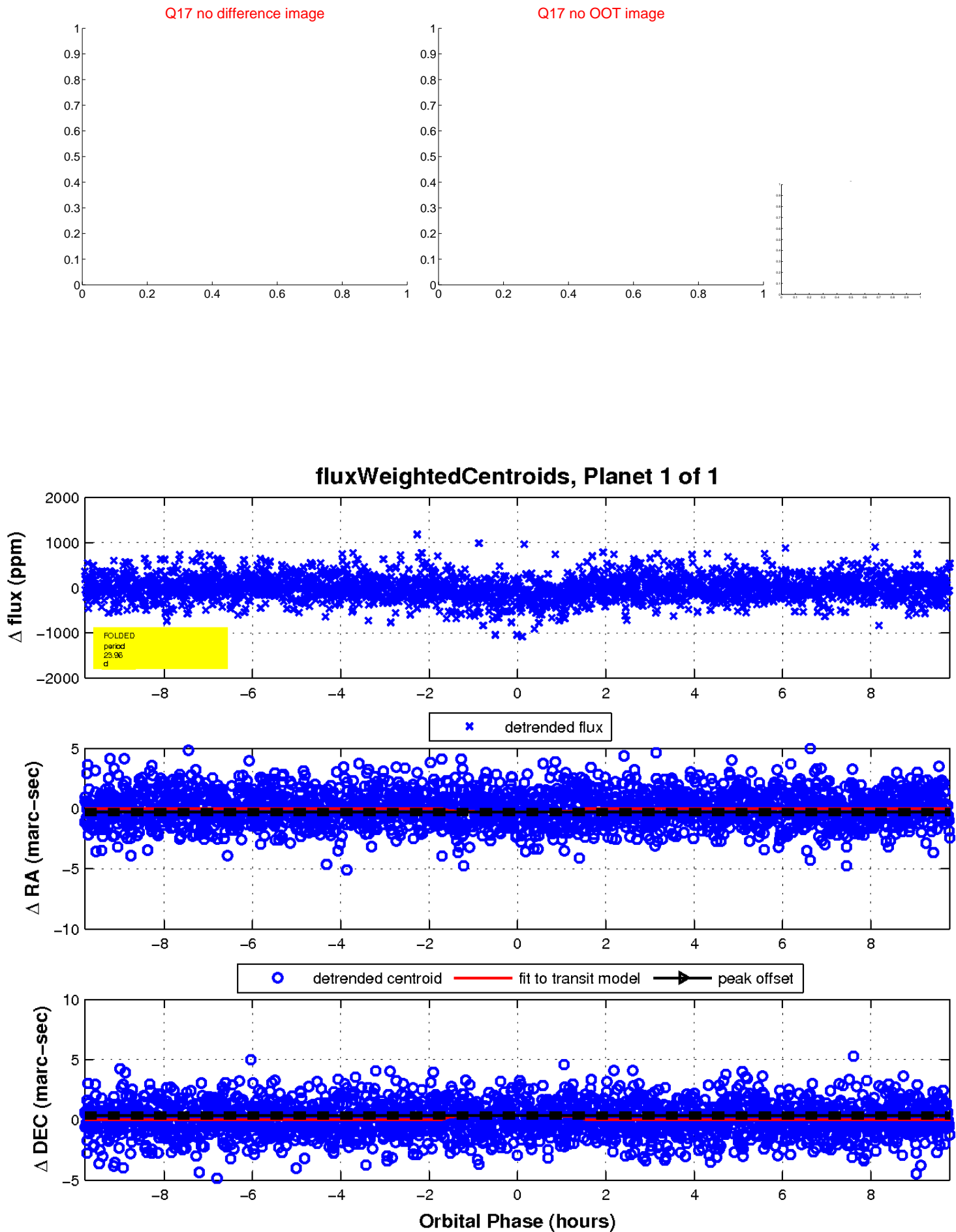
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

