

# KIC 008958811

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008958811-01	OBS	7116.01	2.525558	133.069116	32.0	2.067	9.0	8.9	1.04	5821	0.63	820.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008958811-01	OBS	PC	0.84	0	0	0	0	CENT_KIC_POS

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

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

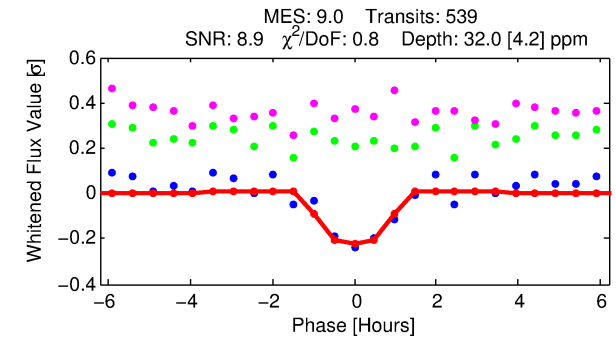
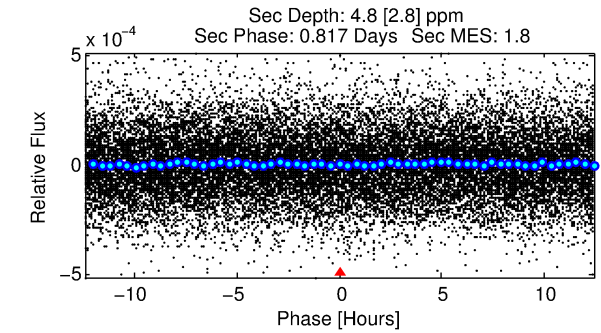
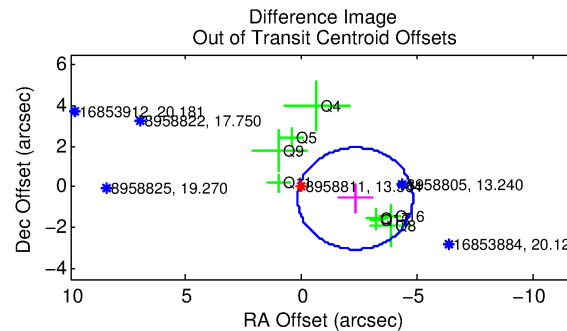
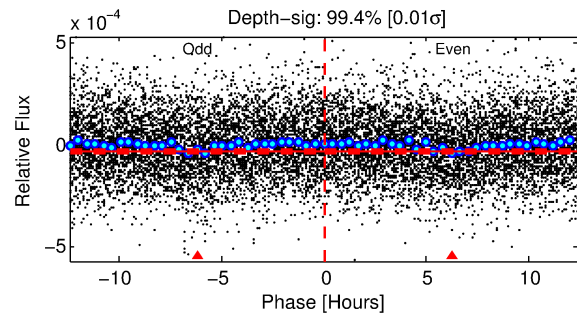
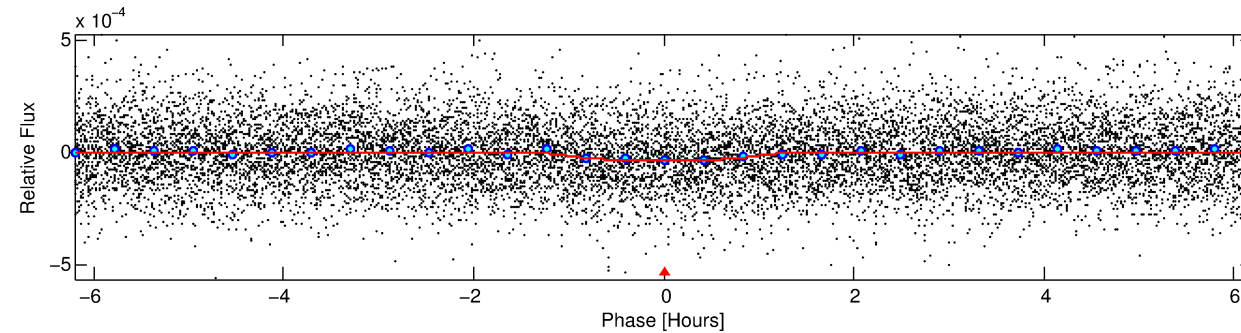
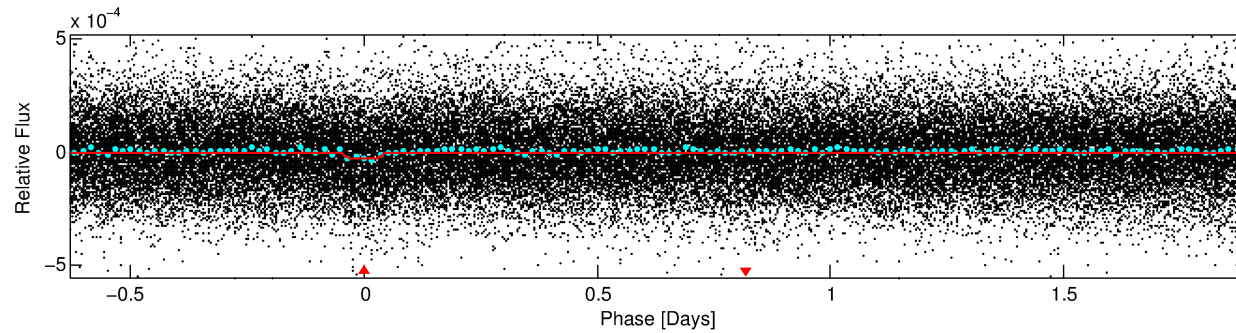
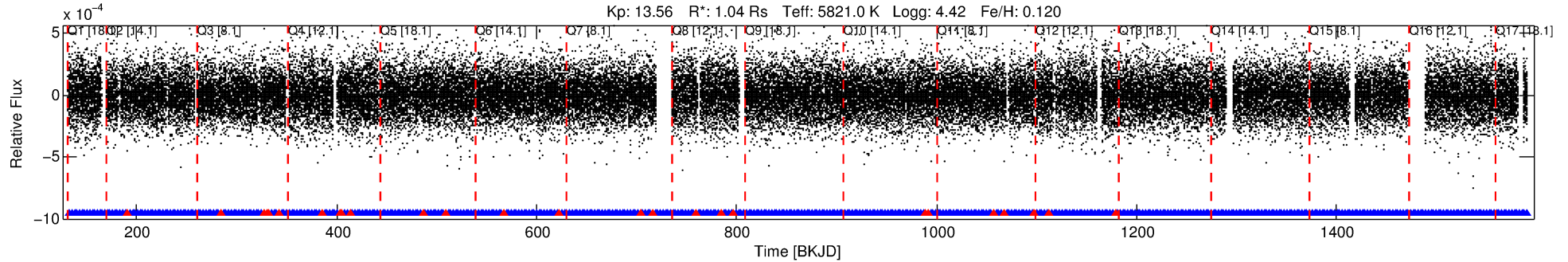
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008958811-01

No Significant Match Found

# DV One-Page Summary

KIC: 8958811 Candidate: 1 of 1 Period: 2.526 d  
KOI: K07116.01 Corr: 0.947



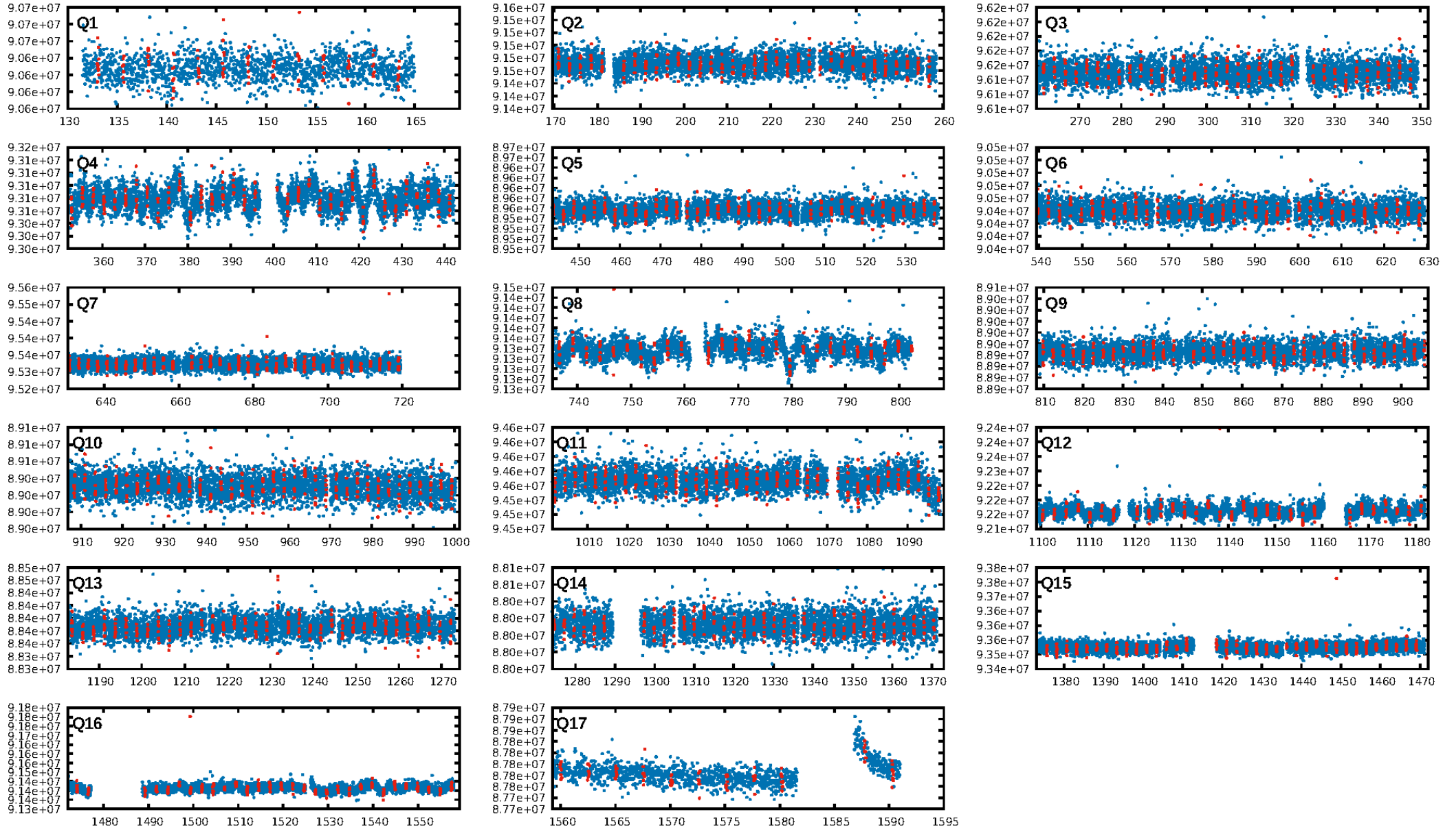
## DV Fit Results:

Period = 2.52556 [0.00002] d  
Epoch = 133.0691 [0.0040] BKJD  
Rp/R\* = 0.0055 [0.0019]  
a/R\* = 6.85 [10.28]  
b = 0.69 [1.17]  
Seff = 820.32 [176.97]  
Teq = 1365 [74] K  
Rp = 0.63 [0.24] Re  
a = 0.0367 [0.0051] AU  
Ag = 9.03 [8.42] [0.95 $\sigma$ ]  
Teffp = 3657 [833] K [2.74 $\sigma$ ]

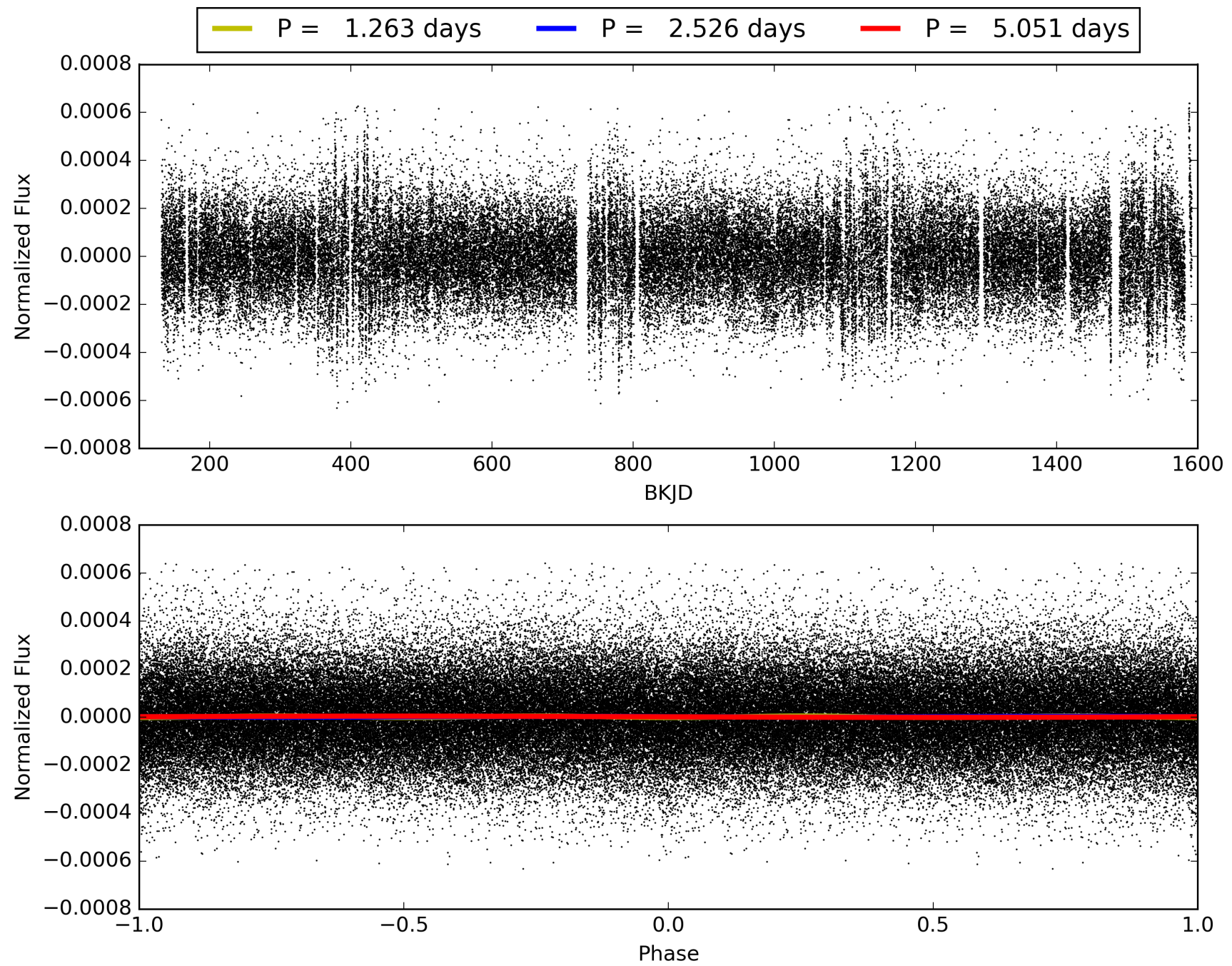
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 2.13e-19  
RollingBand-fgt: 0.95 [489/515]  
**GhostDiagnostic-chr: 0.3737**  
**Centroid-sig: 0.0%**  
Centroid-so: 3.102 arcsec [2.03 $\sigma$ ]  
OotOffset-rm: 2.389 arcsec [2.88 $\sigma$ ]  
**KicOffset-rm: 2.701 arcsec [3.07 $\sigma$ ]**  
OotOffset-st: 0/1/3/4 [8]  
KicOffset-st: 0/1/3/4 [8]  
DiffImageQuality-fgm: 0.62 [5/8]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008958811-01, PDC Light Curves

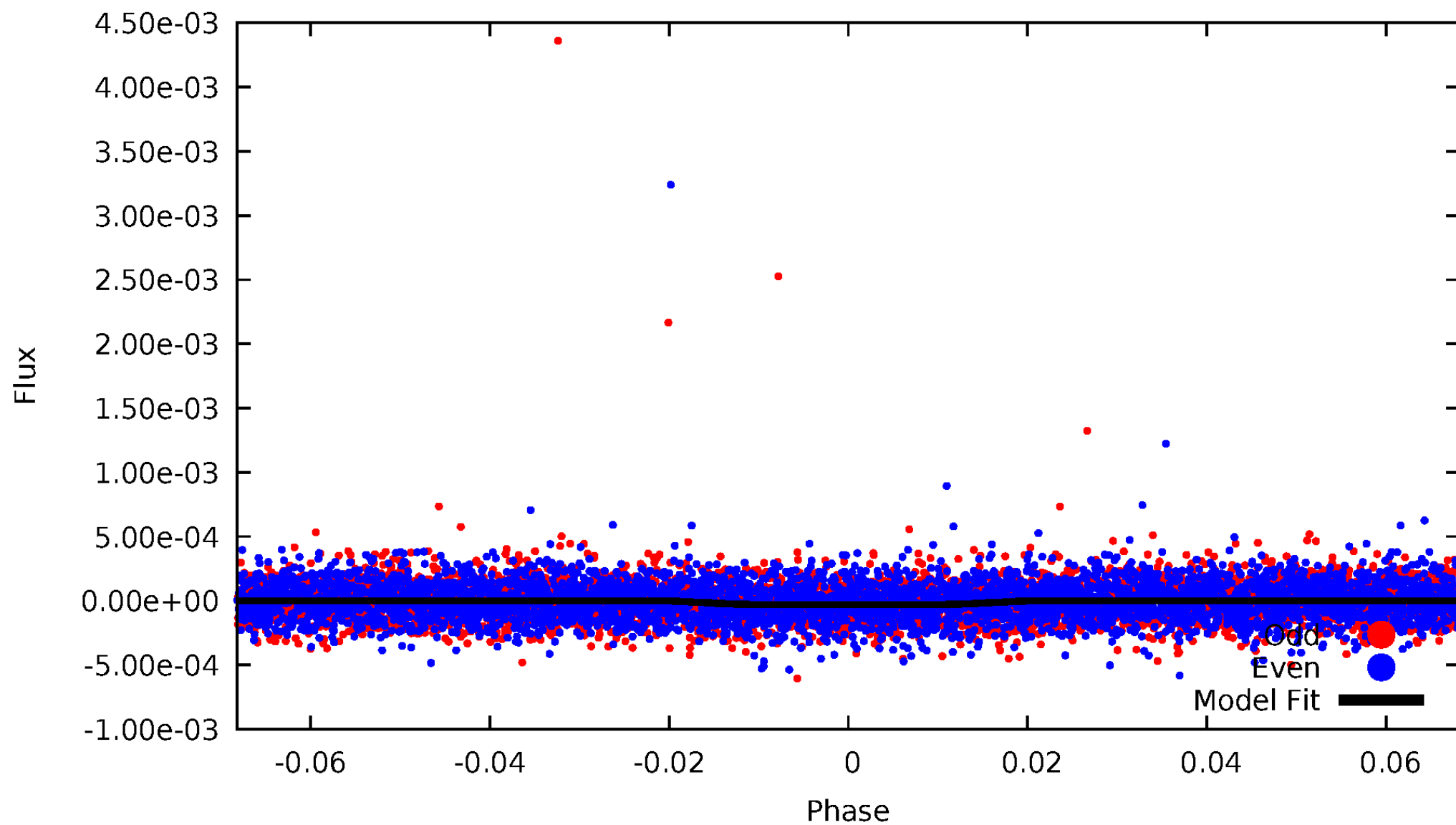


TCE 008958811-01



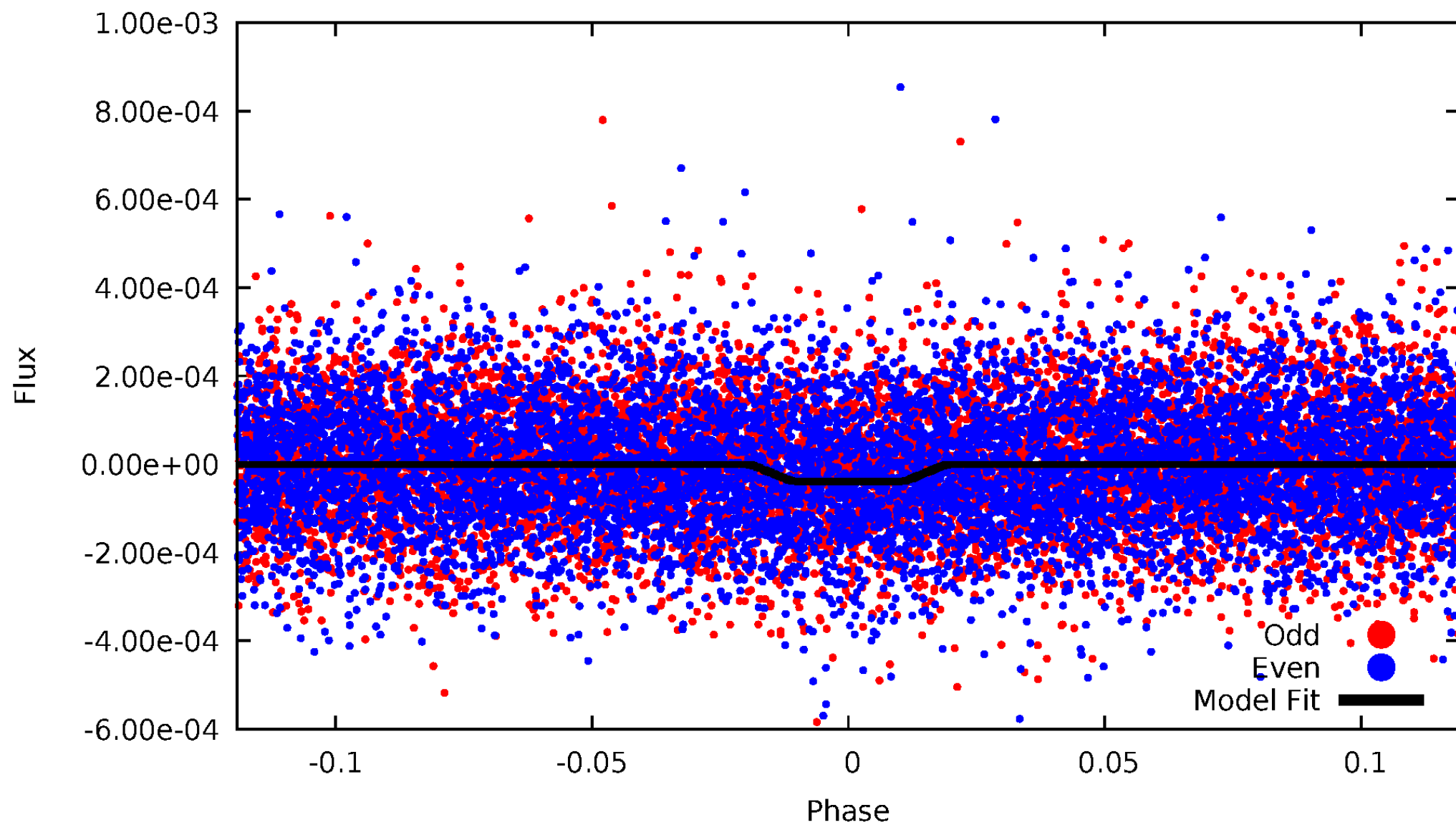
# DV Odd/Even

TCE 008958811-01



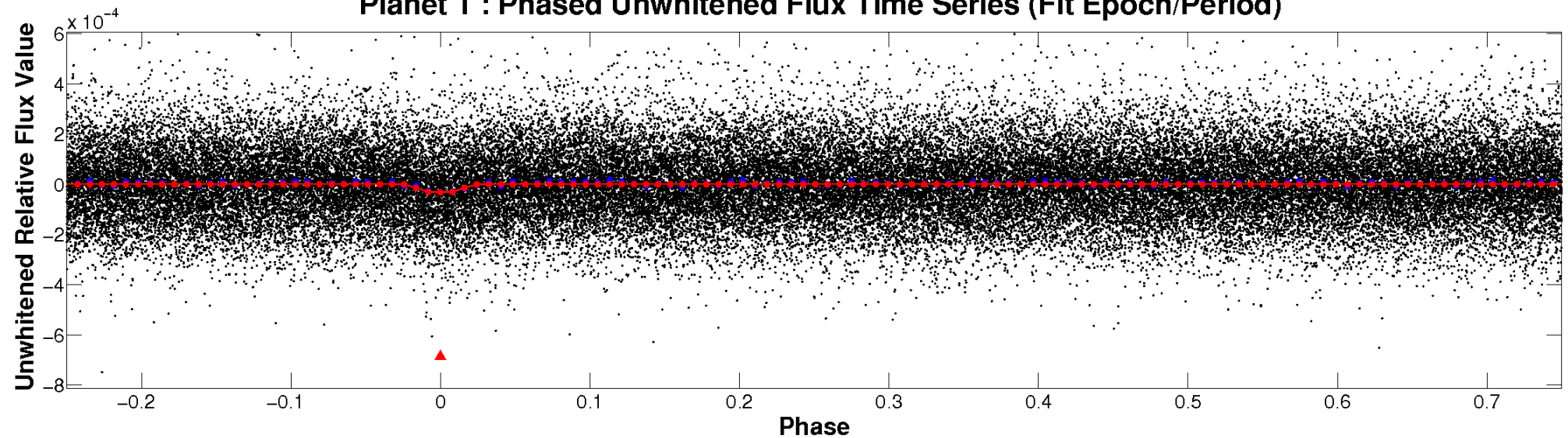
# ALT Odd/Even

TCE 008958811-01

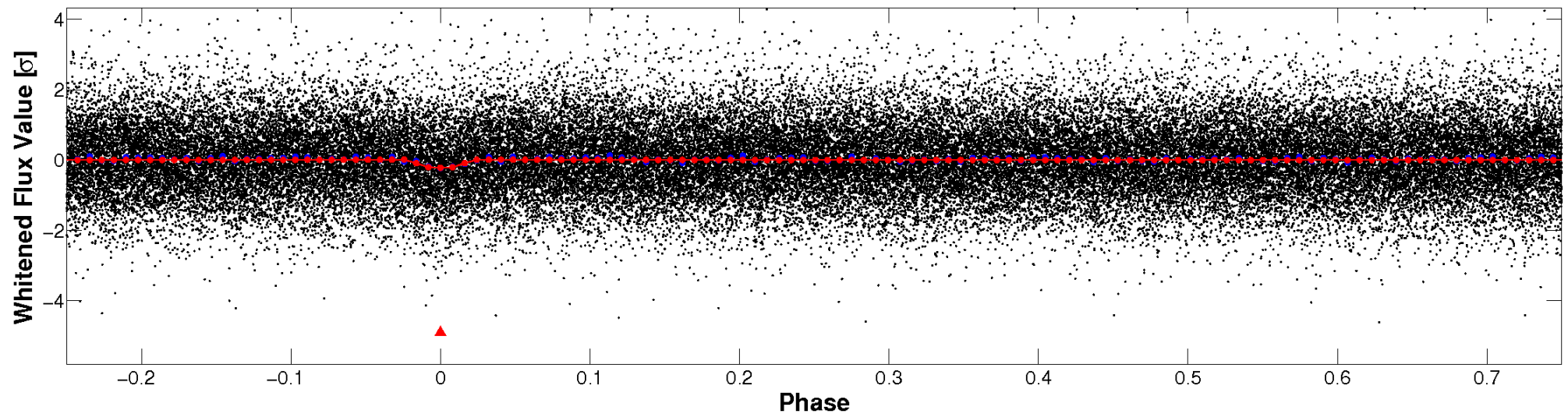


# Non-Whitened Vs. Whitened Light Curve

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

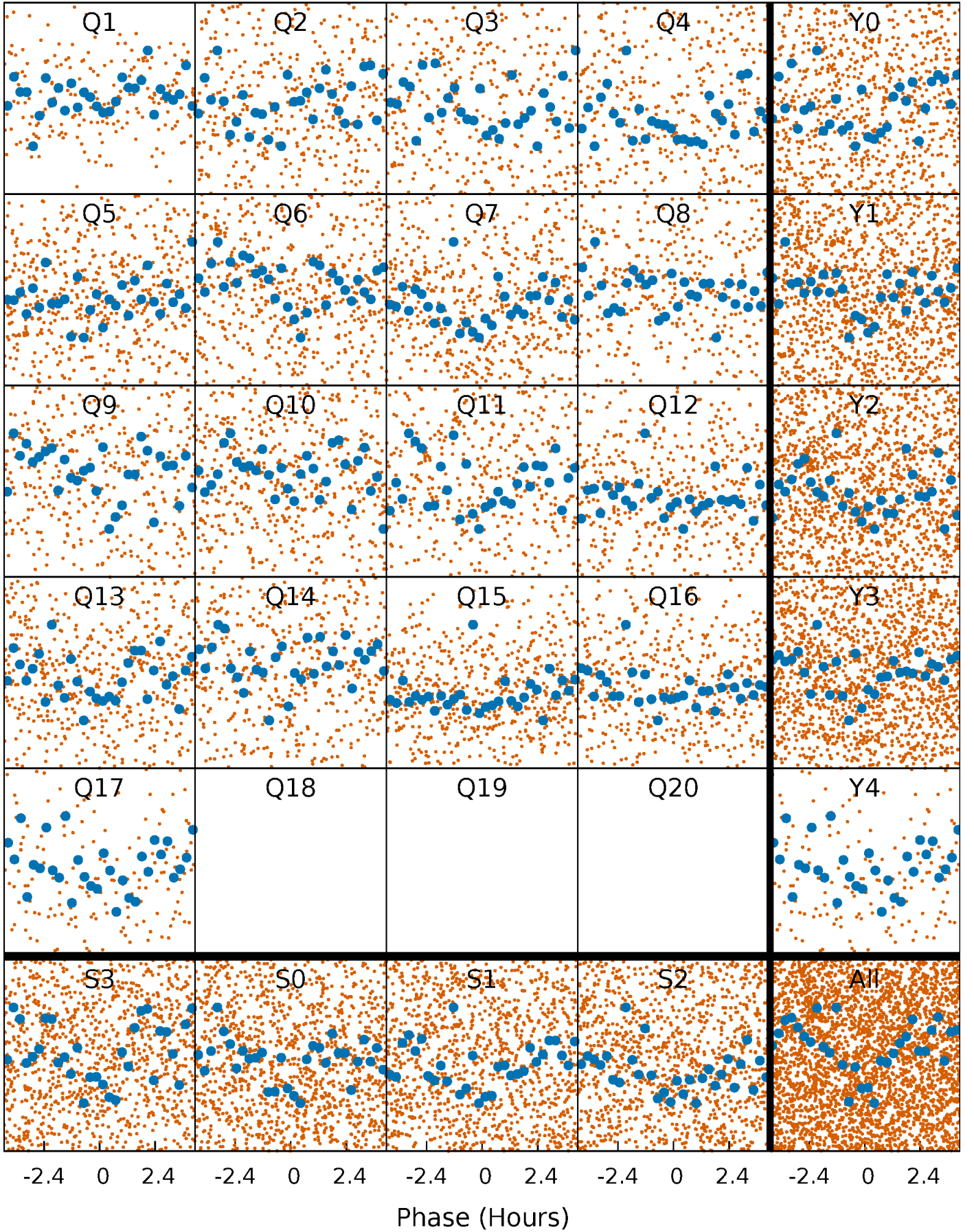


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



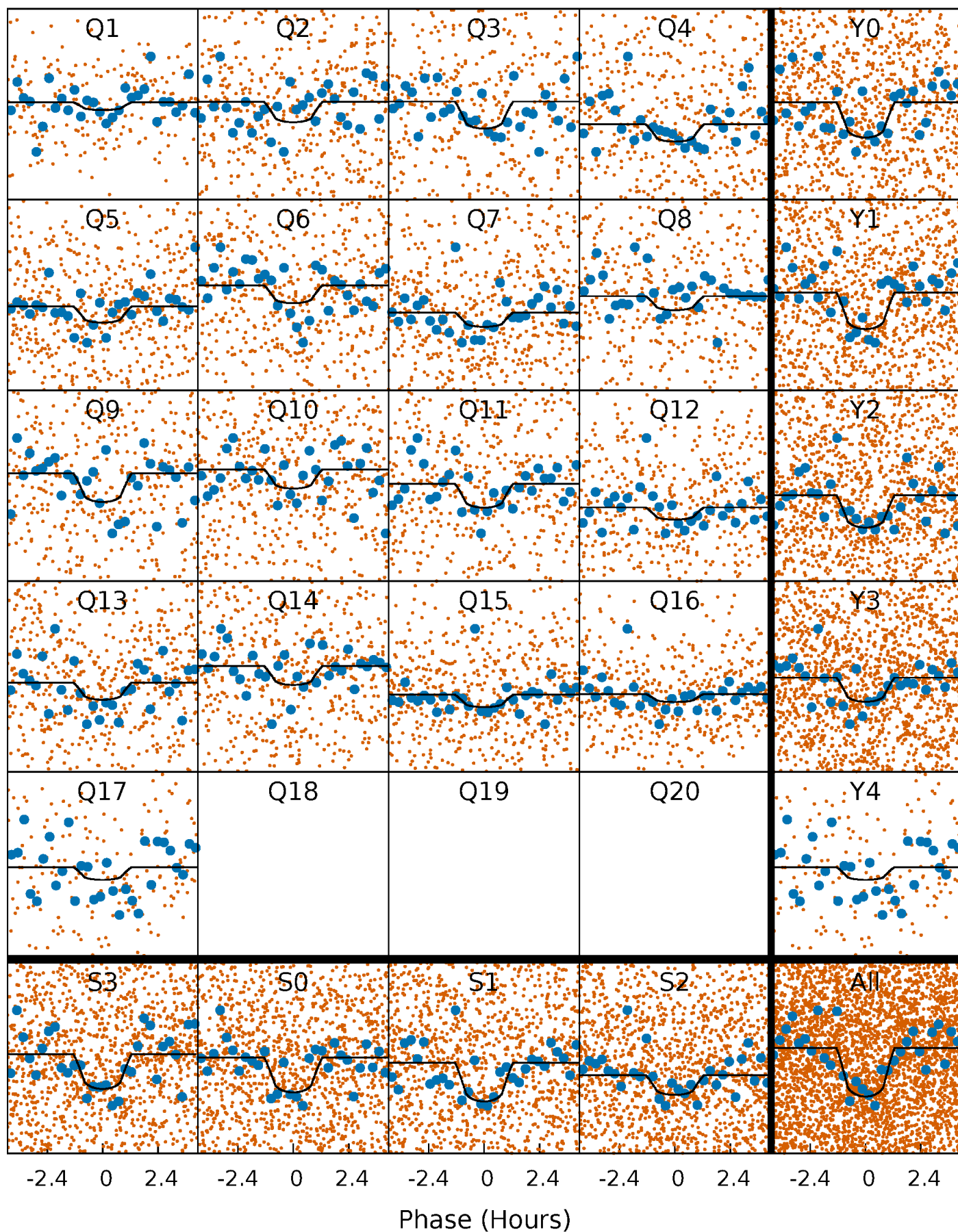
# PDC Quarter-Phased Transit Curves

TCE 008958811-01   P= 2.525558 Days    $T_0=133.069116$  (BKJD)



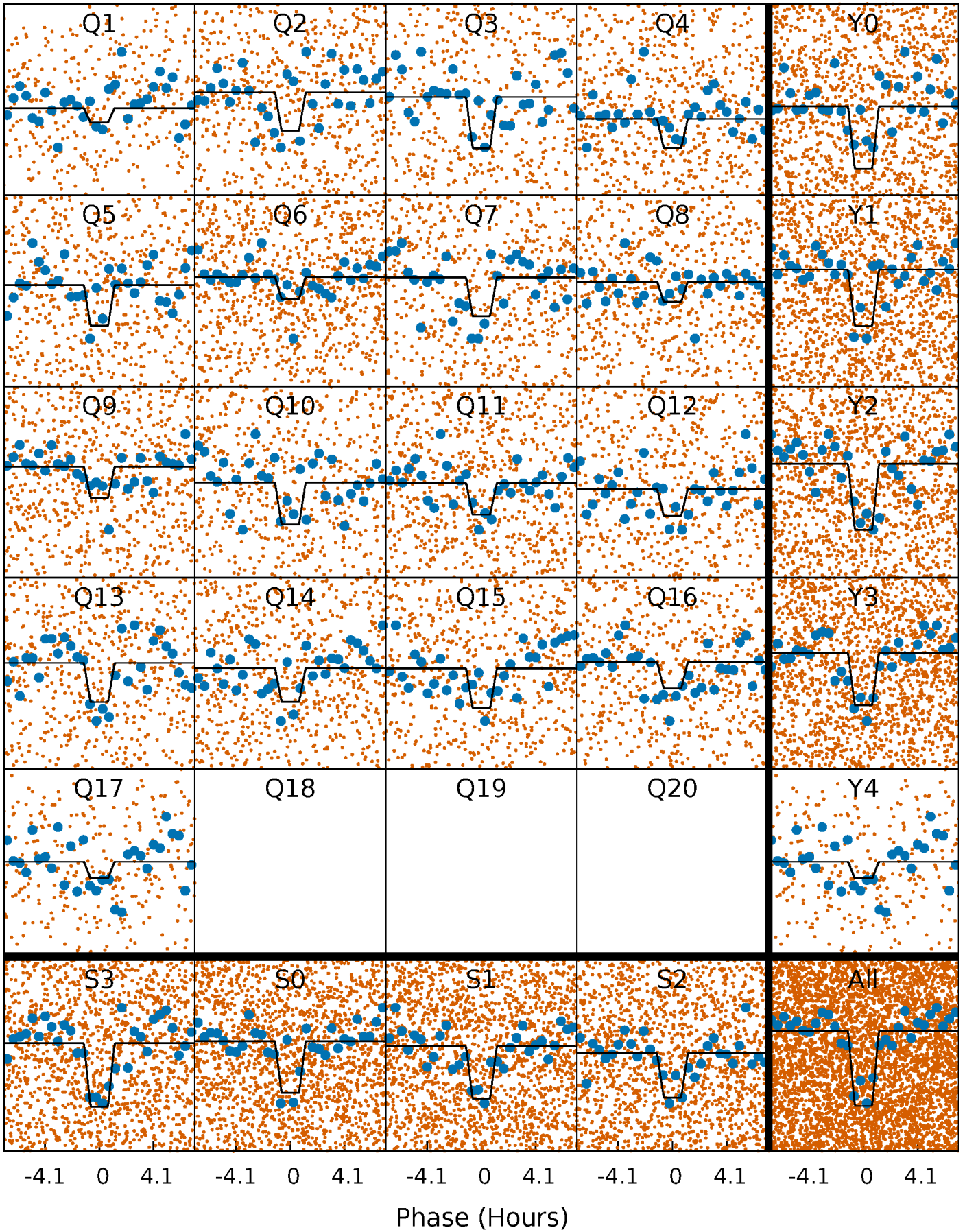
# DV Quarter-Phased Transit Curves

TCE 008958811-01 P= 2.525558 Days  $T_0=133.069116$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

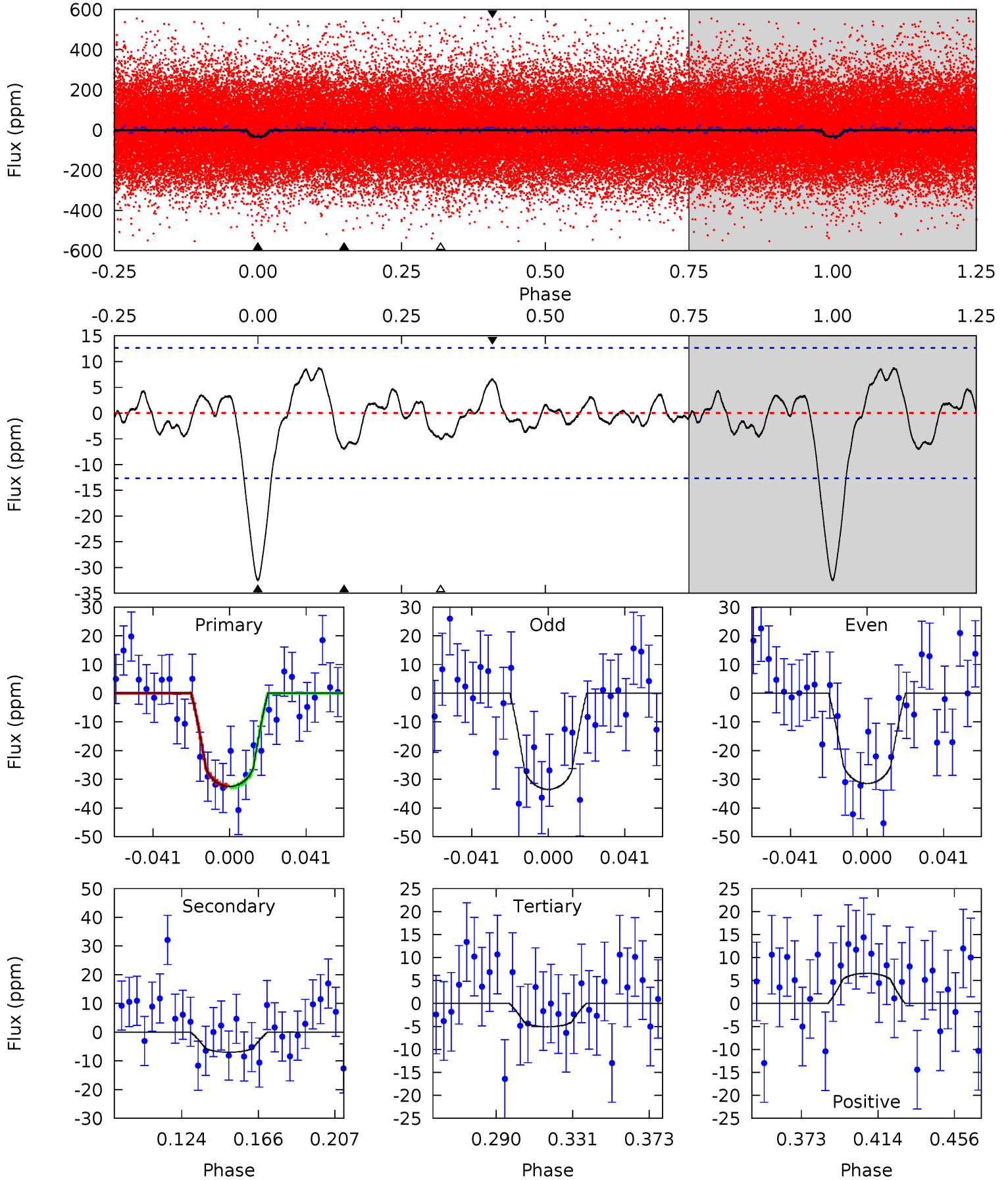
TCE 008958811-01 P= 2.525518 Days  $T_0=133.079870$  (BKJD)



# DV Model-Shift Uniqueness Test

008958811-01, P = 2.525558 Days, E = 130.543558 Days

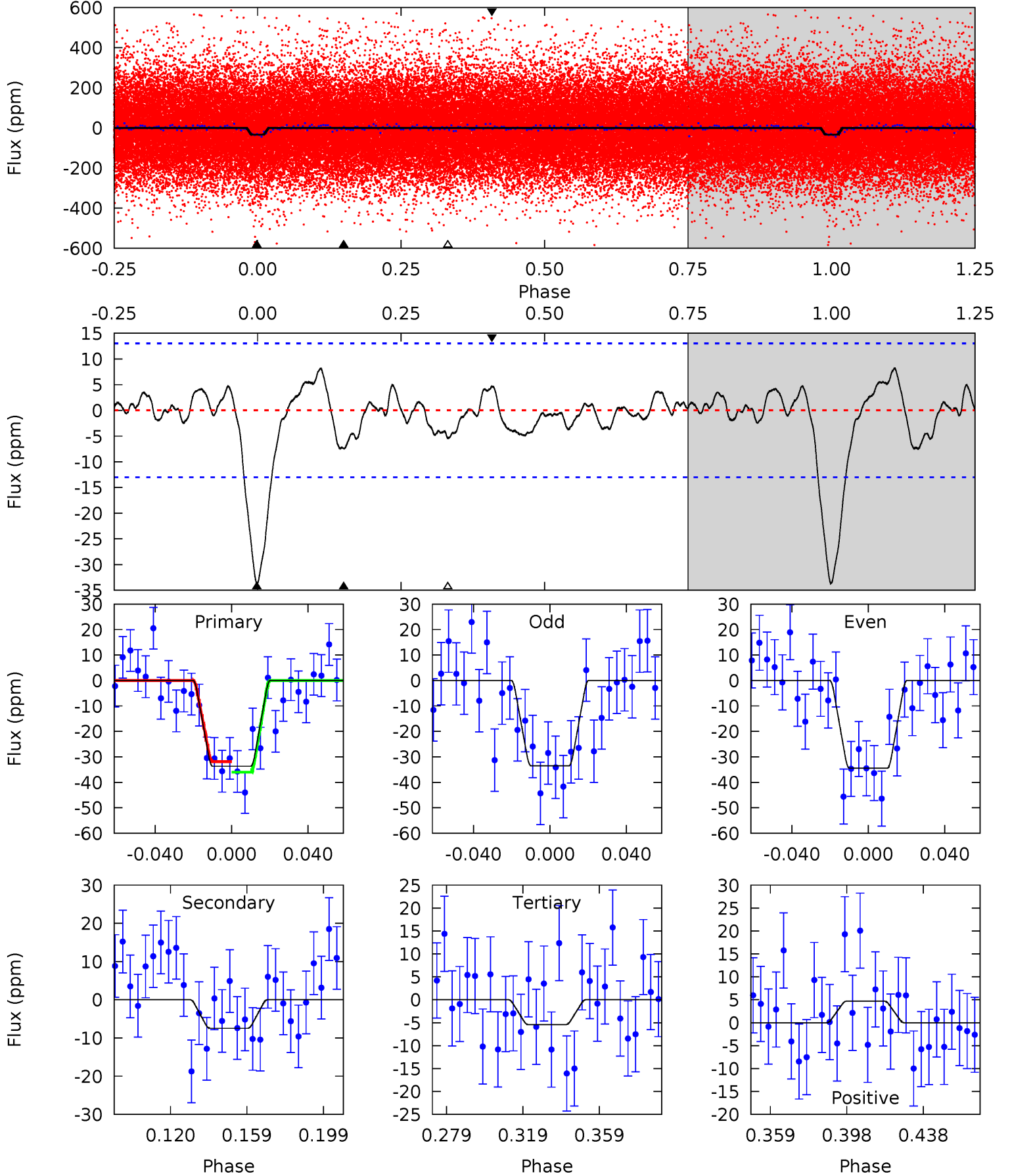
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	2.62	1.90	2.46	4.75	2.04	1.07	10.3	9.72	0.72	0.16	0.38	0.87	0.21	0.06



# Alt Model-Shift Uniqueness Test

008958811-01, P = 2.525518 Days, E = 130.554352 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
12.3	2.72	1.97	1.71	4.75	2.06	0.98	10.3	10.6	0.75	1.01	0.17	0.99	0.20	0.76



### Stellar Parameters For KIC 008958811

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5821^{+78}_{-78}$	$4.421^{+0.054}_{-0.117}$	$0.120^{+0.150}_{-0.150}$	$1.036^{+0.166}_{-0.071}$	$1.031^{+0.069}_{-0.063}$	$1.307^{+0.317}_{-0.461}$
	+1%/-1%	+1%/-3%	+125%/-125%	+16%/-7%	+7%/-6%	+24%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008958811-01 / KOI 7116.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7 \pm 3$	$0.65^{+0.24}_{-0.23}$	$1922^{+78}_{-54}$	$4199^{+885}_{-533}$	$12^{+19}_{-6}$
Alt.	$-7 \pm 3$	$0.72^{+0.23}_{-0.24}$	$1914^{+79}_{-52}$	$4079^{+755}_{-478}$	$10^{+15}_{-5}$

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

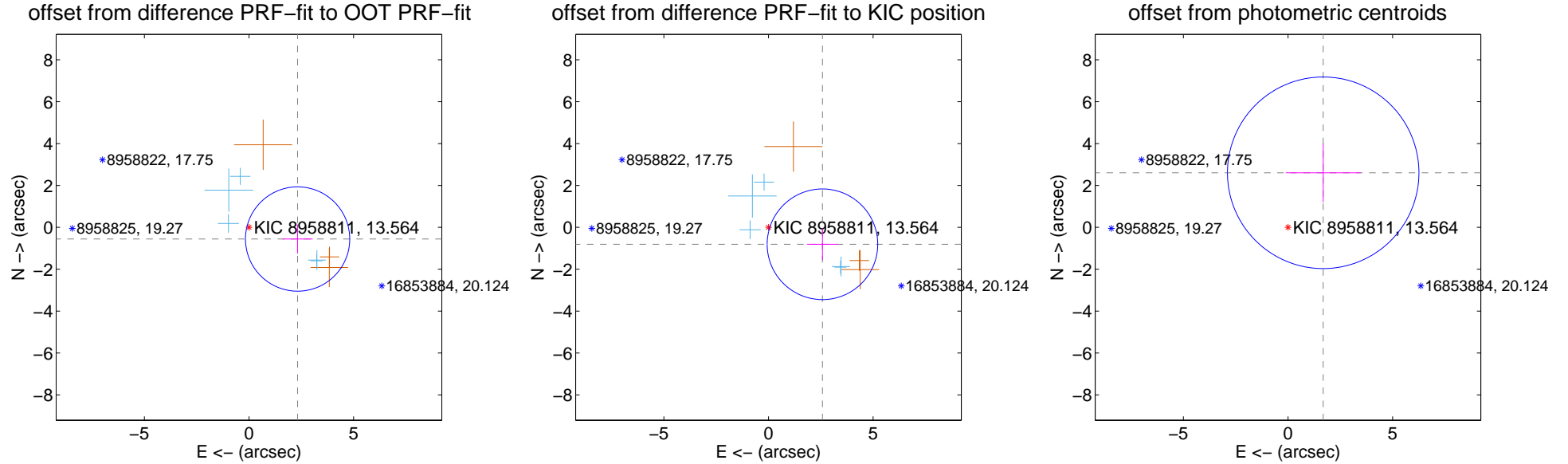
## DV Centroid Data

Supplemental centroid analysis for 008958811-01. Kepler magnitude: 13.56. Transit SNR 8.88

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

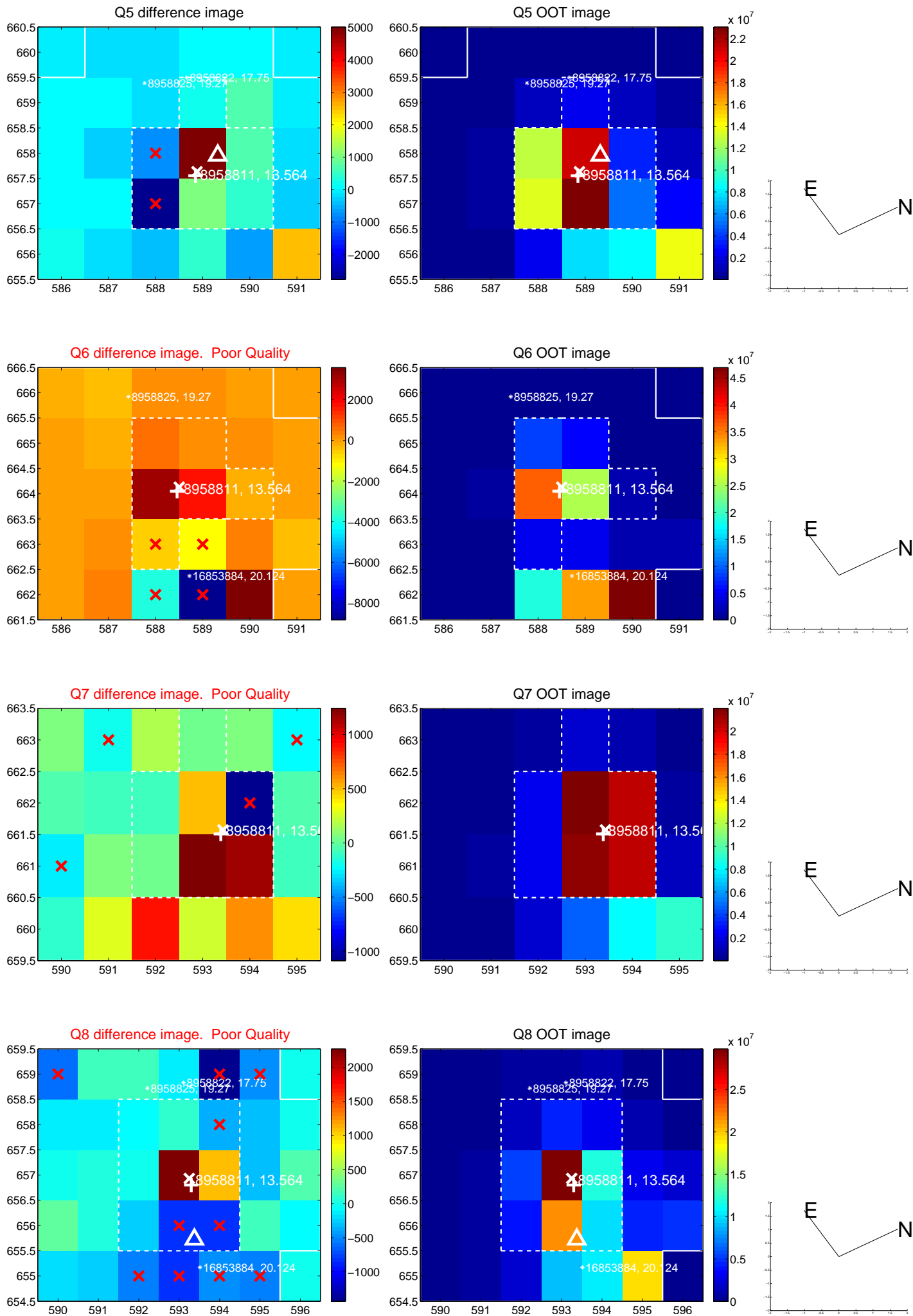
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.389 \pm 0.830$	2.88	$-2.323 \pm 0.720$	$-0.557 \pm 0.691$
PRF-fit source offset from KIC position	<b><math>2.701 \pm 0.881</math></b>	<b>3.07</b>	$-2.578 \pm 0.738$	$-0.808 \pm 0.748$
photometric centroid source offset	$3.10 \pm 1.52$	2.03	$-1.68 \pm 1.79$	$2.61 \pm 1.40$



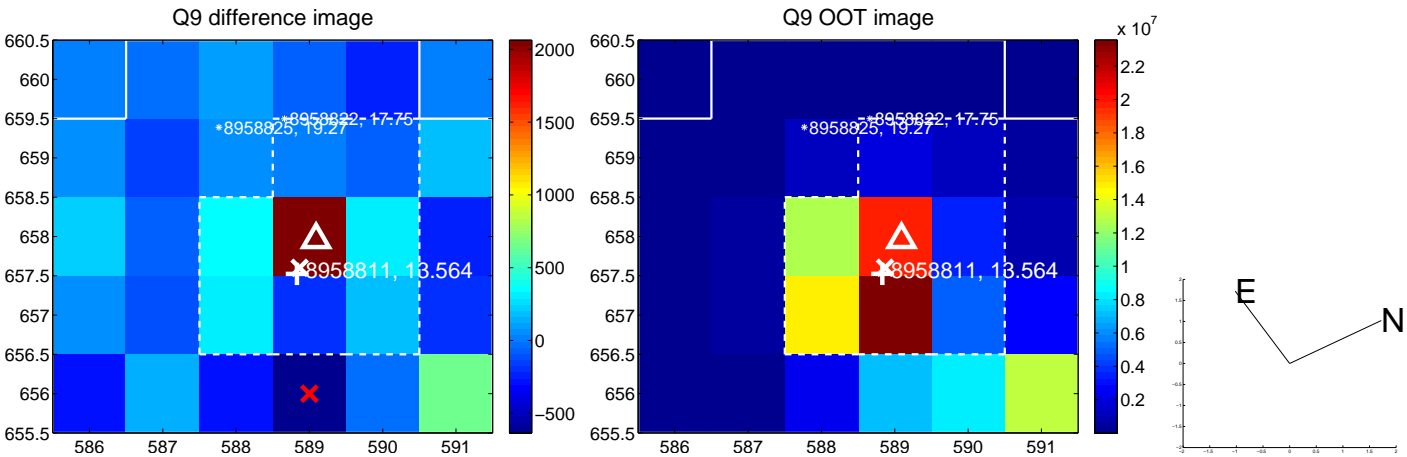
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



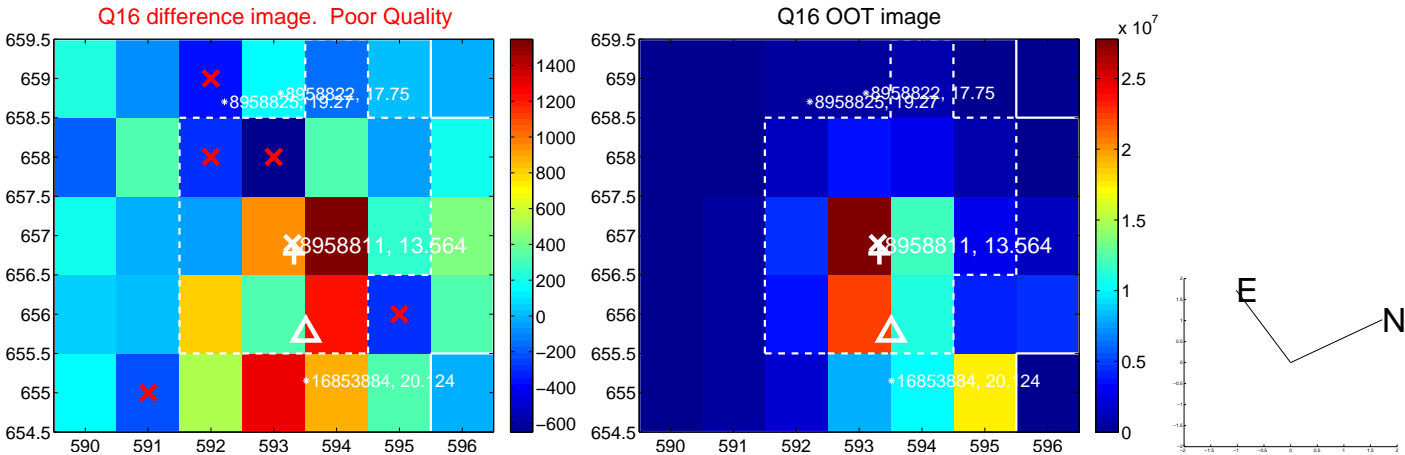
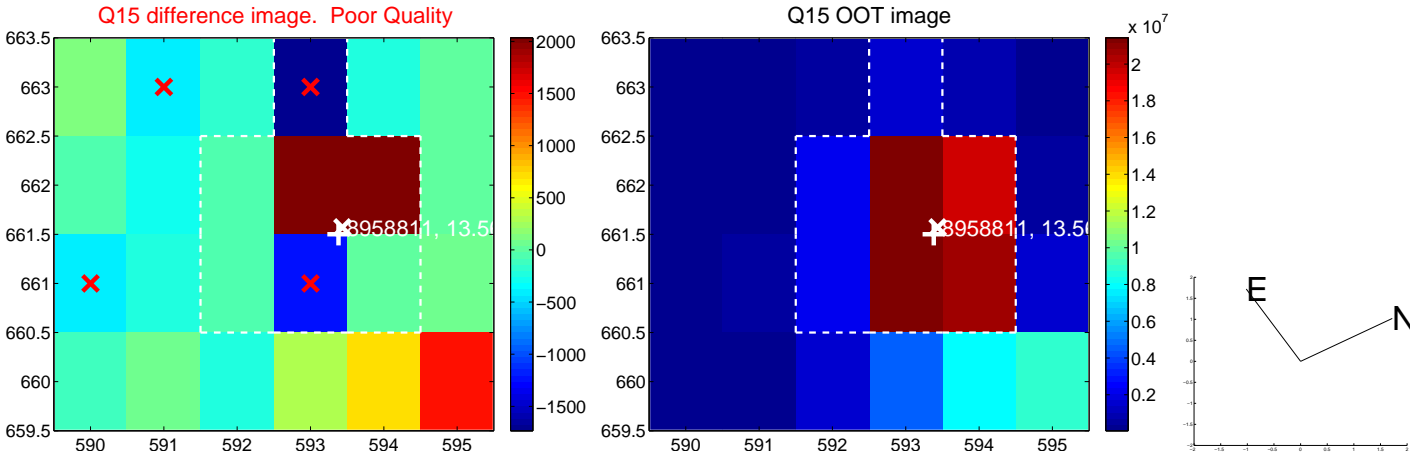
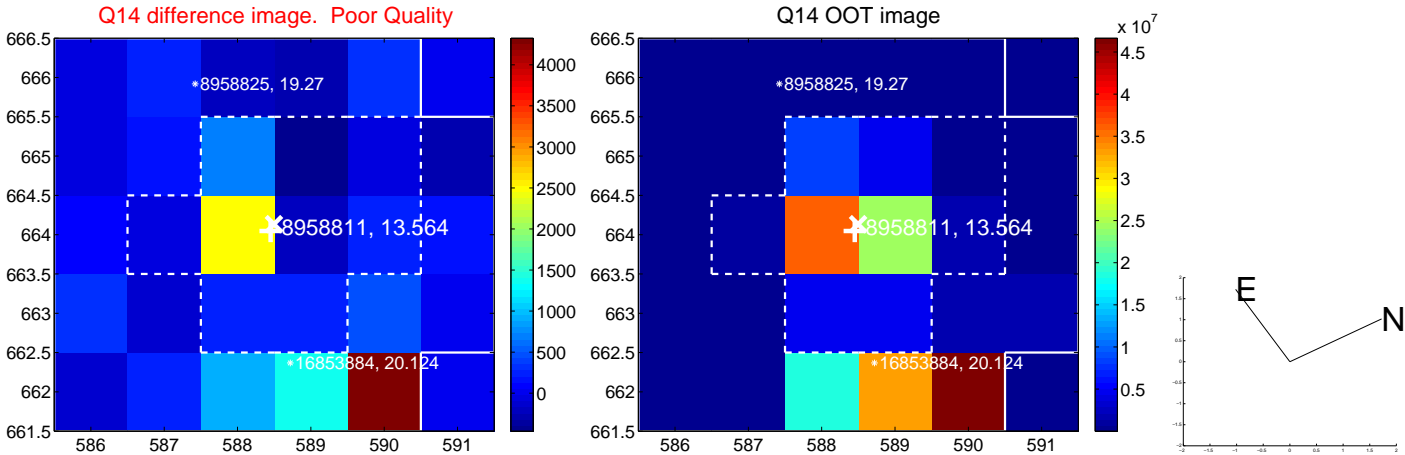
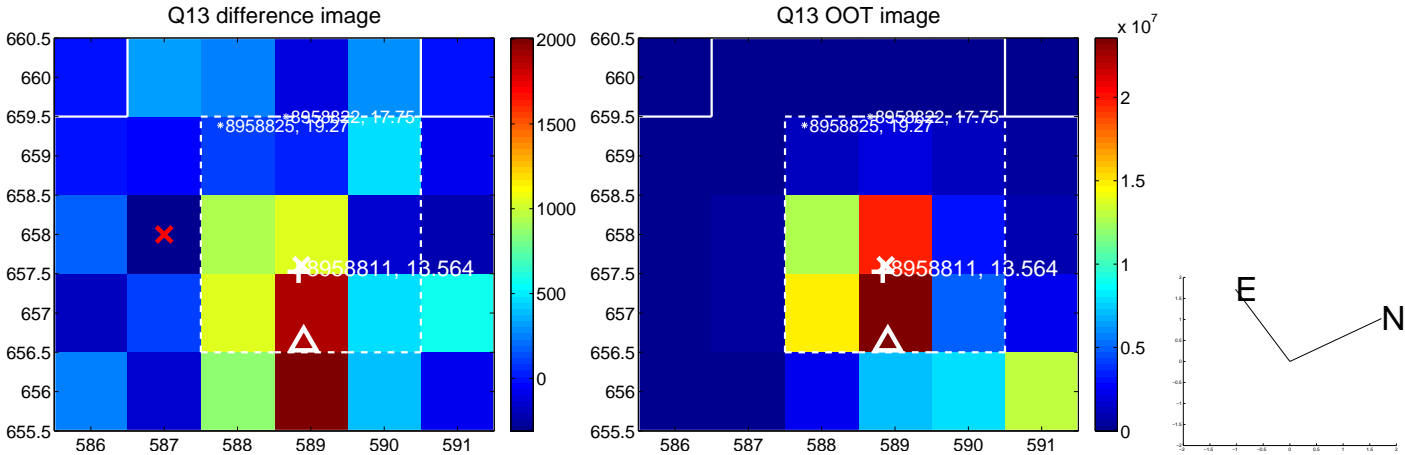
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



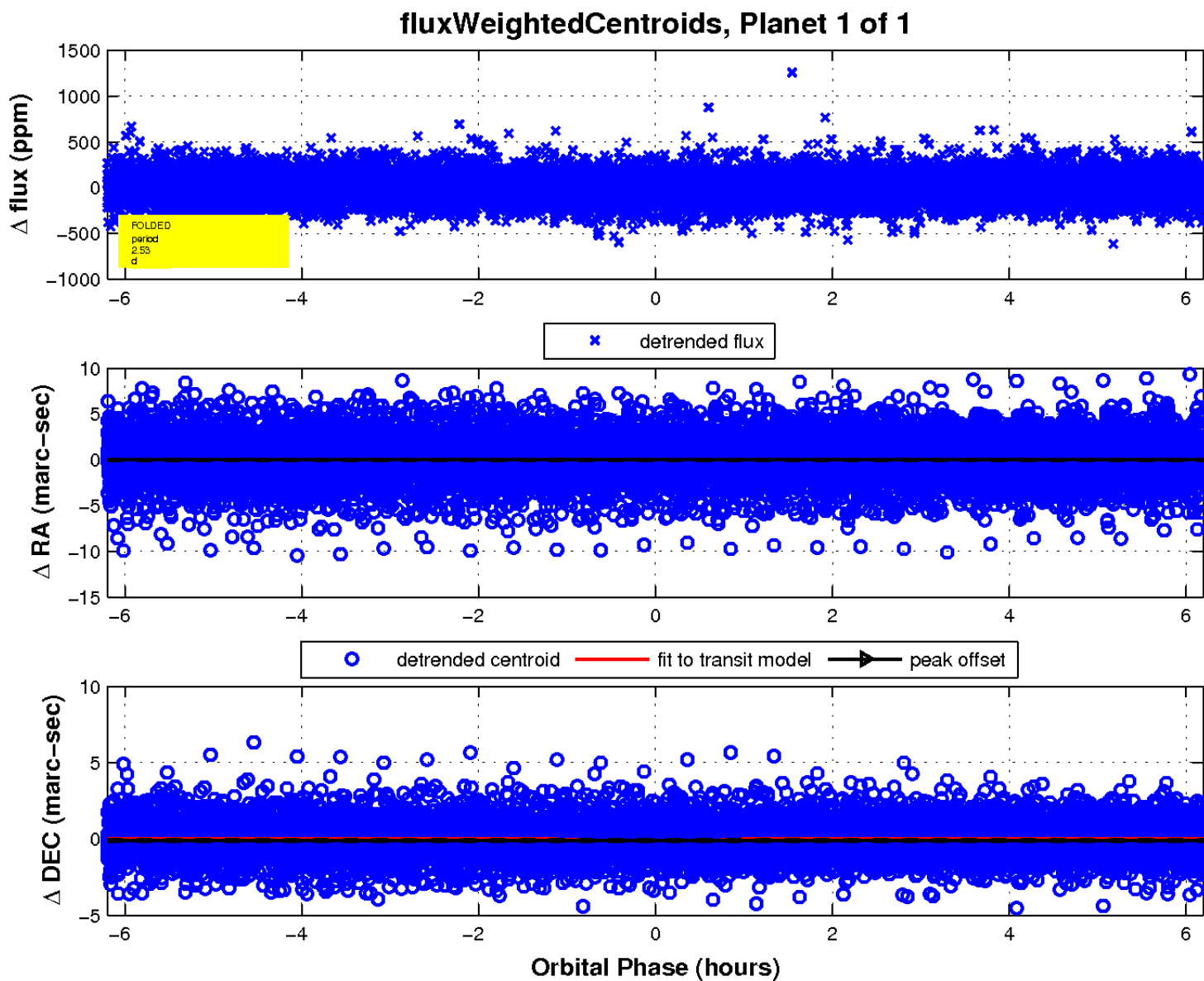
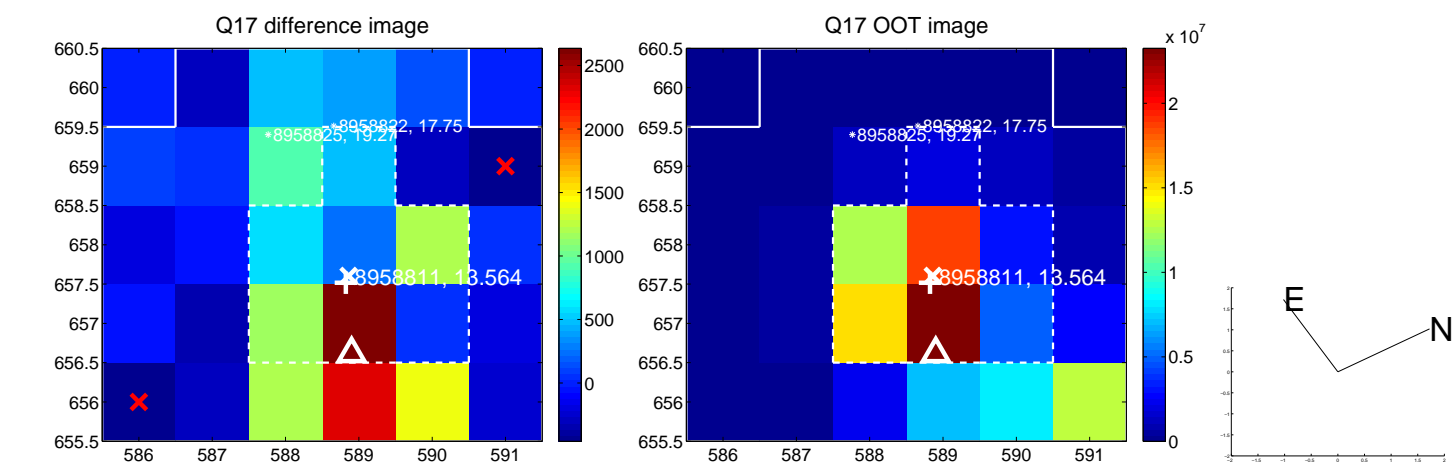
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

