

# KIC 010604521

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010604521-01	OBS	2797.01	0.868107	131.843257	211.9	1.536	16.0	20.7	1.08	6116	1.66	4156.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010604521-01	OBS	PC	1.00	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.

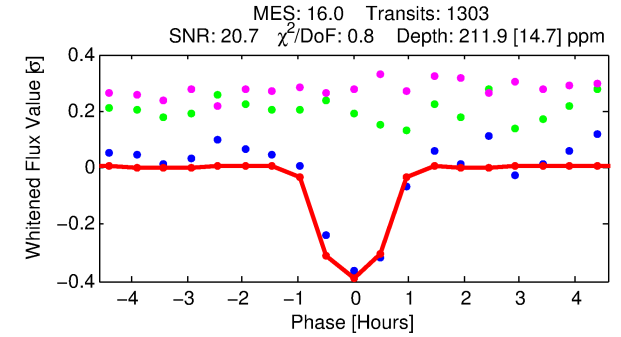
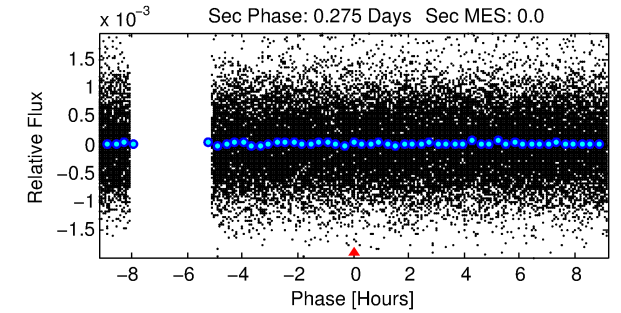
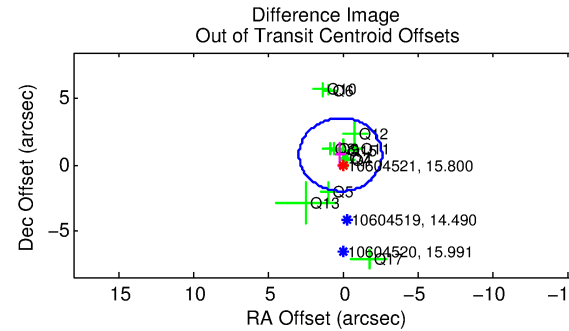
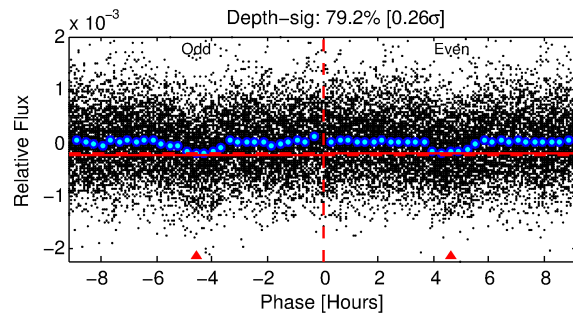
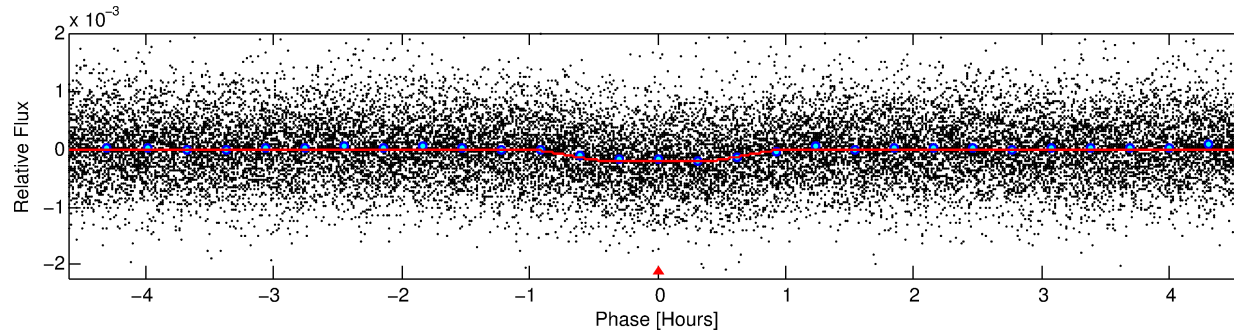
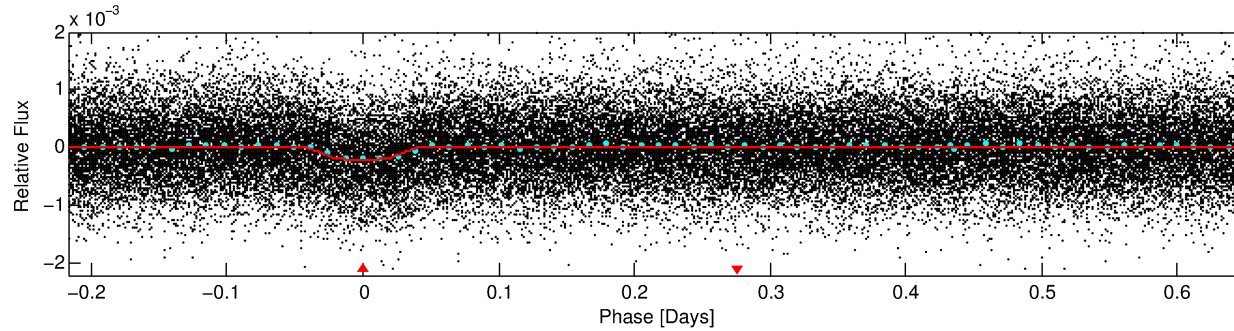
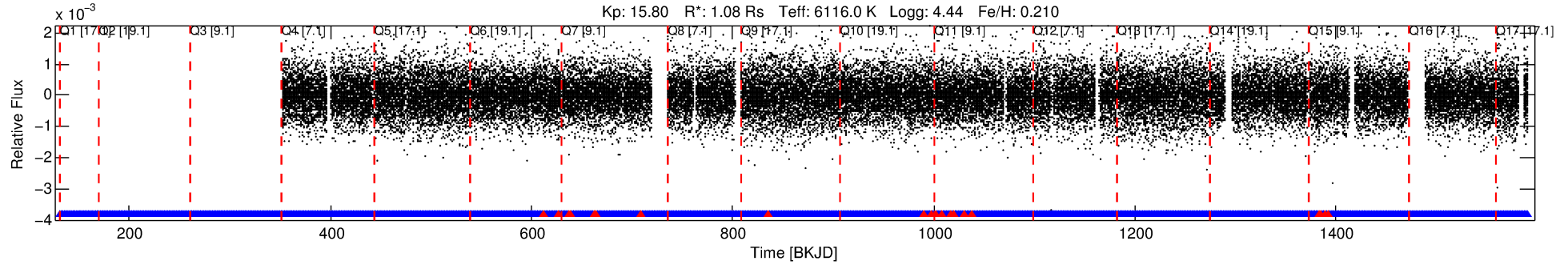
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010604521-01

No Significant Match Found

# DV One-Page Summary

KIC: 10604521 Candidate: 1 of 1 Period: 0.868 d  
KOI: K02797.01 Corr: 0.920



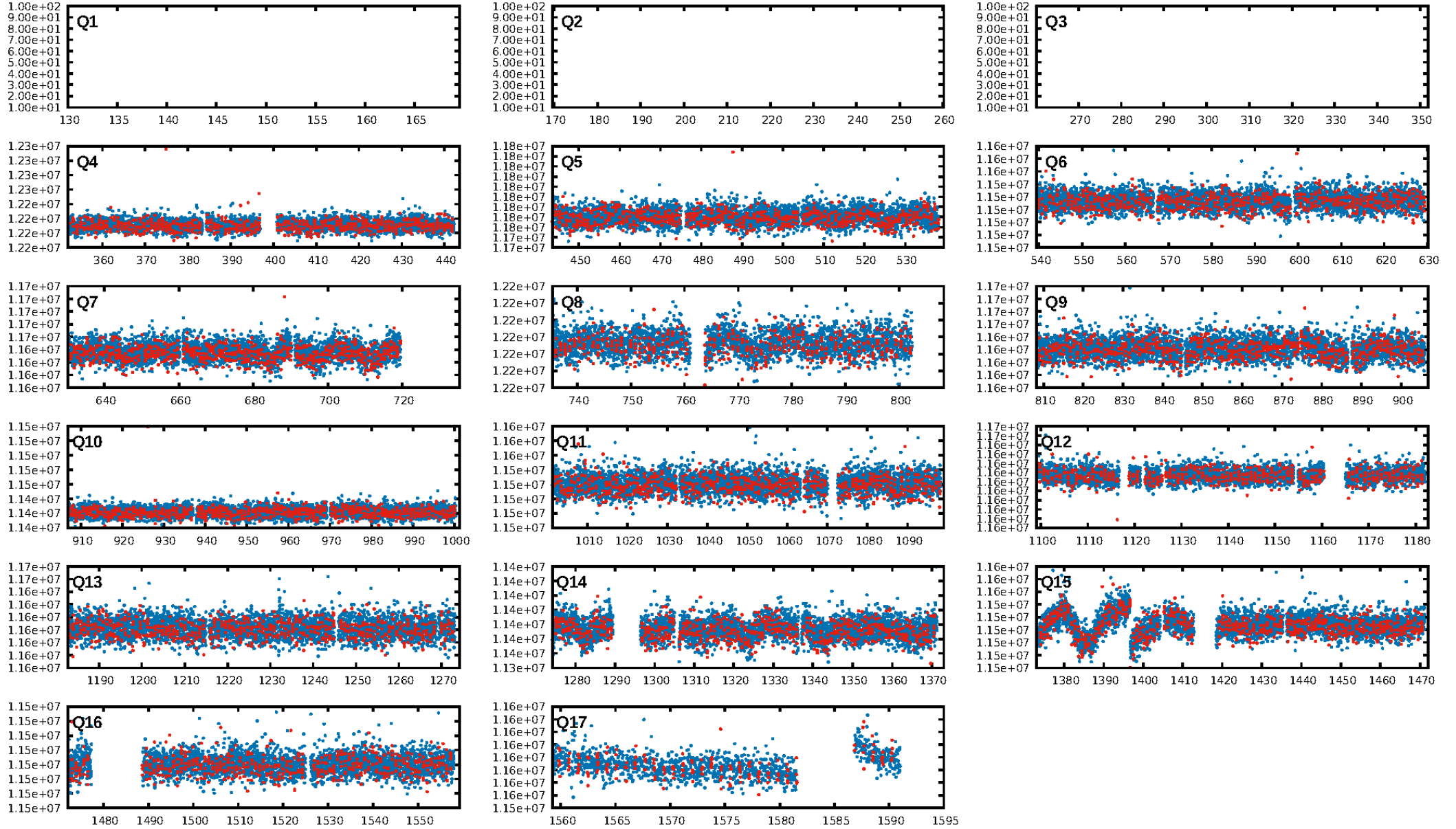
## DV Fit Results:

Period = 0.86811 [0.00000] d  
Epoch = 131.8433 [0.0012] BKJD  
Rp/R\* = 0.0140 [0.0046]  
a/R\* = 3.55 [5.00]  
b = 0.62 [1.53]  
Seff = 4156.10 [1749.83]  
Teff = 2047 [215] K  
Rp = 1.66 [0.77] Re  
a = 0.0188 [0.0051] AU  
Ag = N/A  
Teffp = N/A

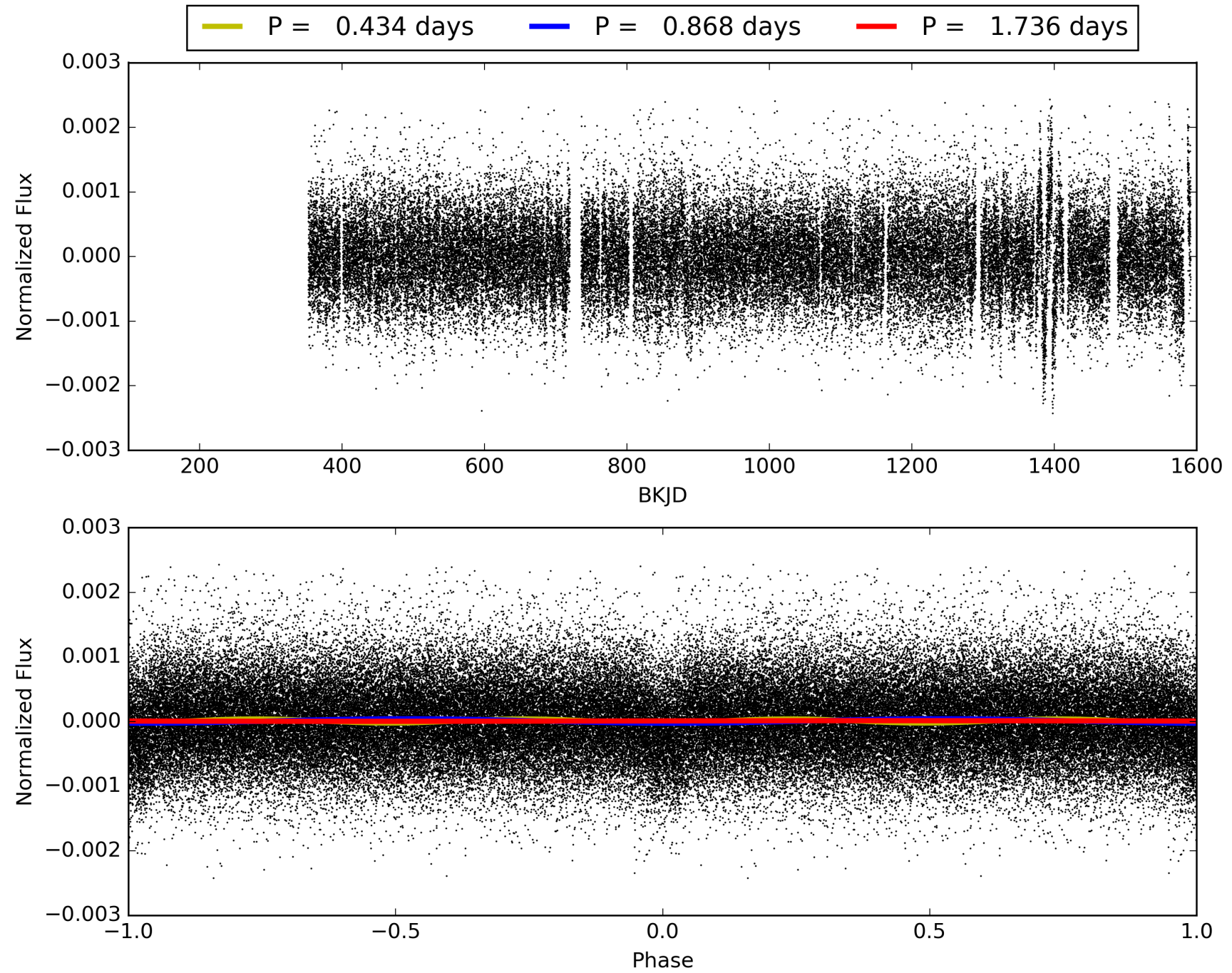
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.37e-57  
RollingBand-fgt: 0.98 [1253/1273]  
GhostDiagnostic-chr: 6.551  
Centroid-sig: 0.0%  
Centroid-so: 0.661 arcsec [1.31 $\sigma$ ]  
OotOffset-rm: 0.775 arcsec [0.84 $\sigma$ ]  
KicOffset-rm: 0.330 arcsec [0.47 $\sigma$ ]  
OotOffset-st: 2/3/3/4 [12]  
KicOffset-st: 2/3/3/4 [12]  
DiffImageQuality-fgm: 0.83 [10/12]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010604521-01, PDC Light Curves

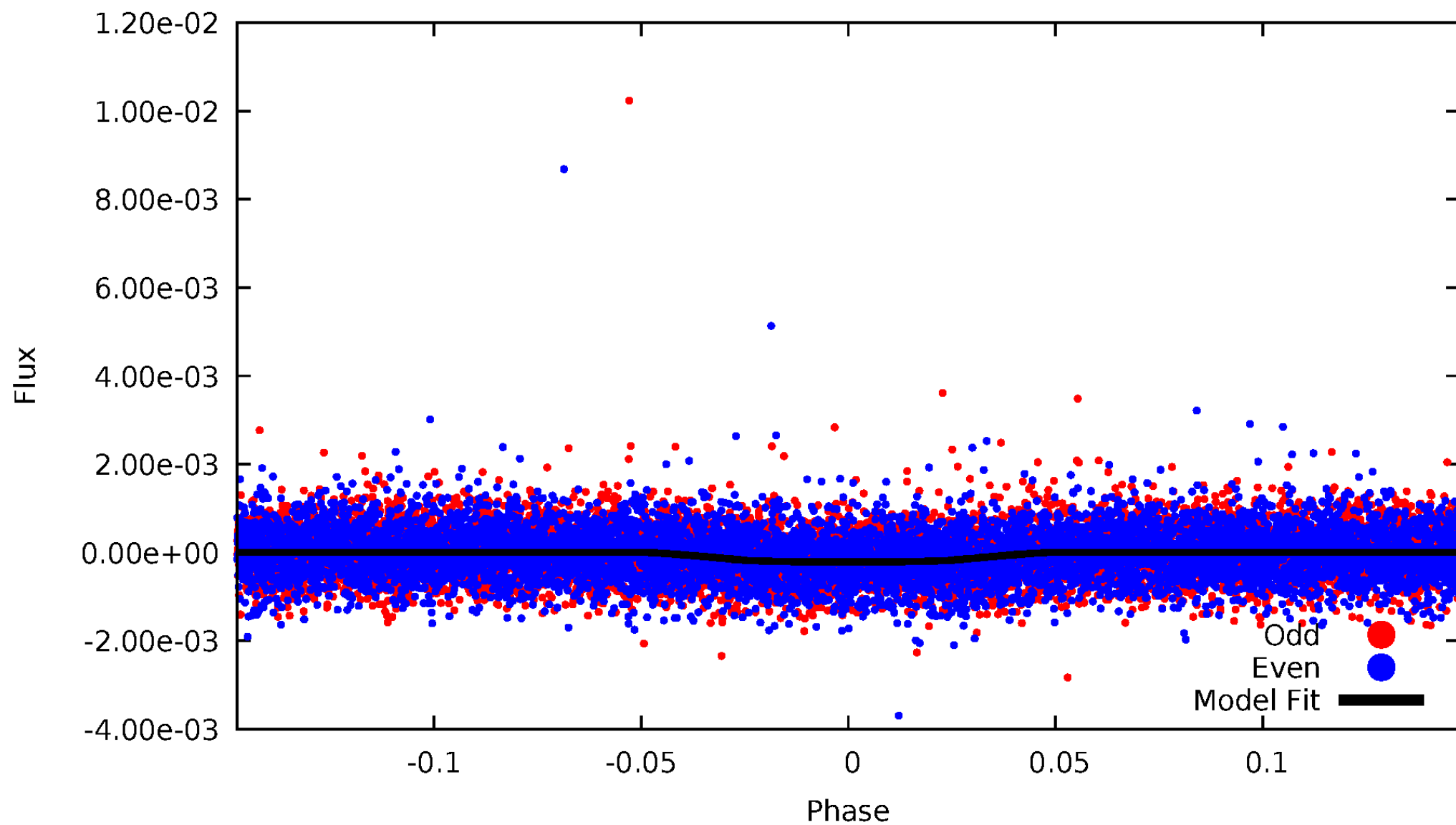


# TCE 010604521-01



# DV Odd/Even

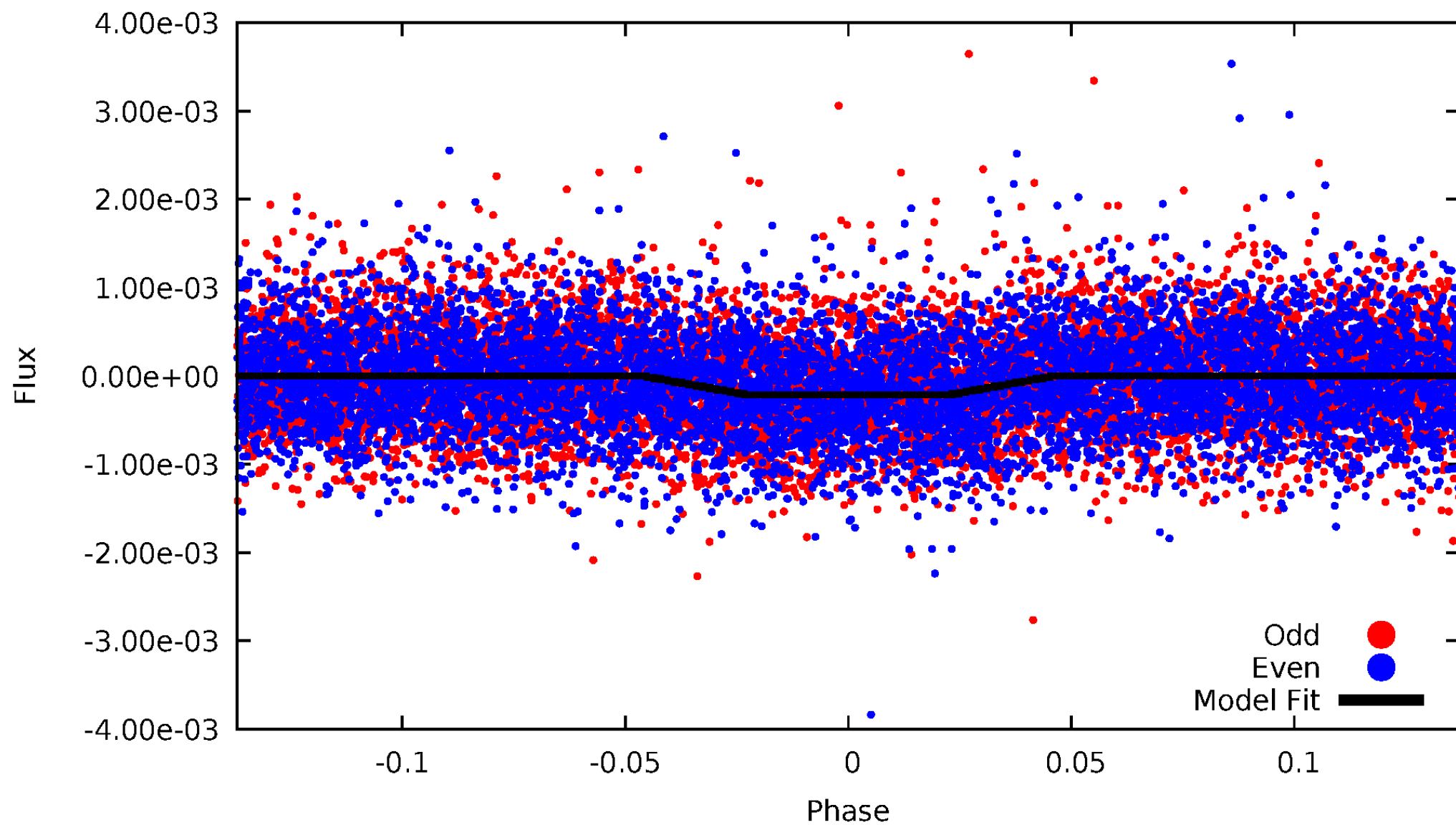
TCE 010604521-01





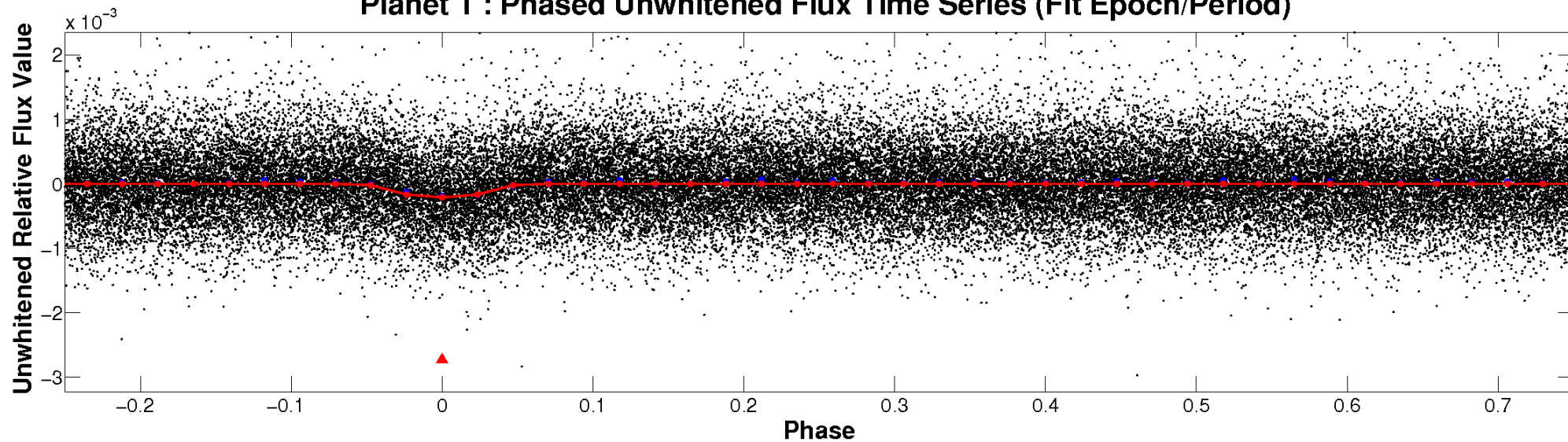
# ALT Odd/Even

TCE 010604521-01

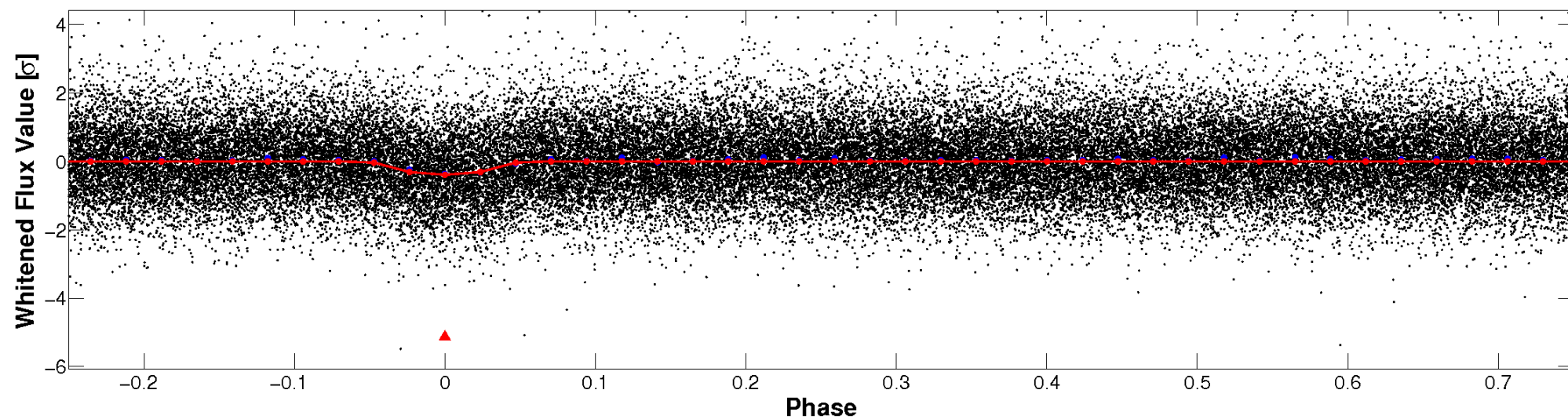


# Non-Whitened Vs. Whitened Light Curve

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

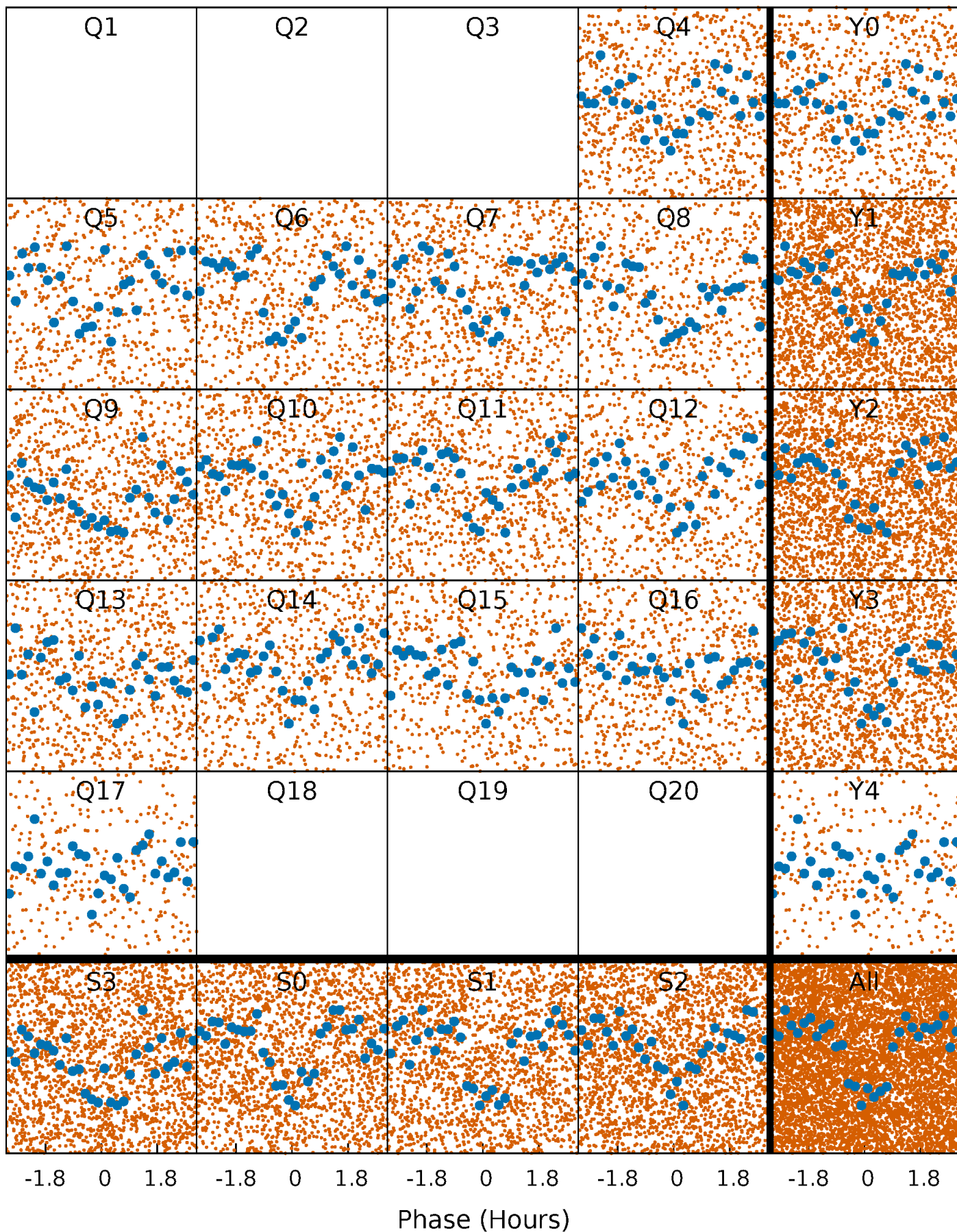


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

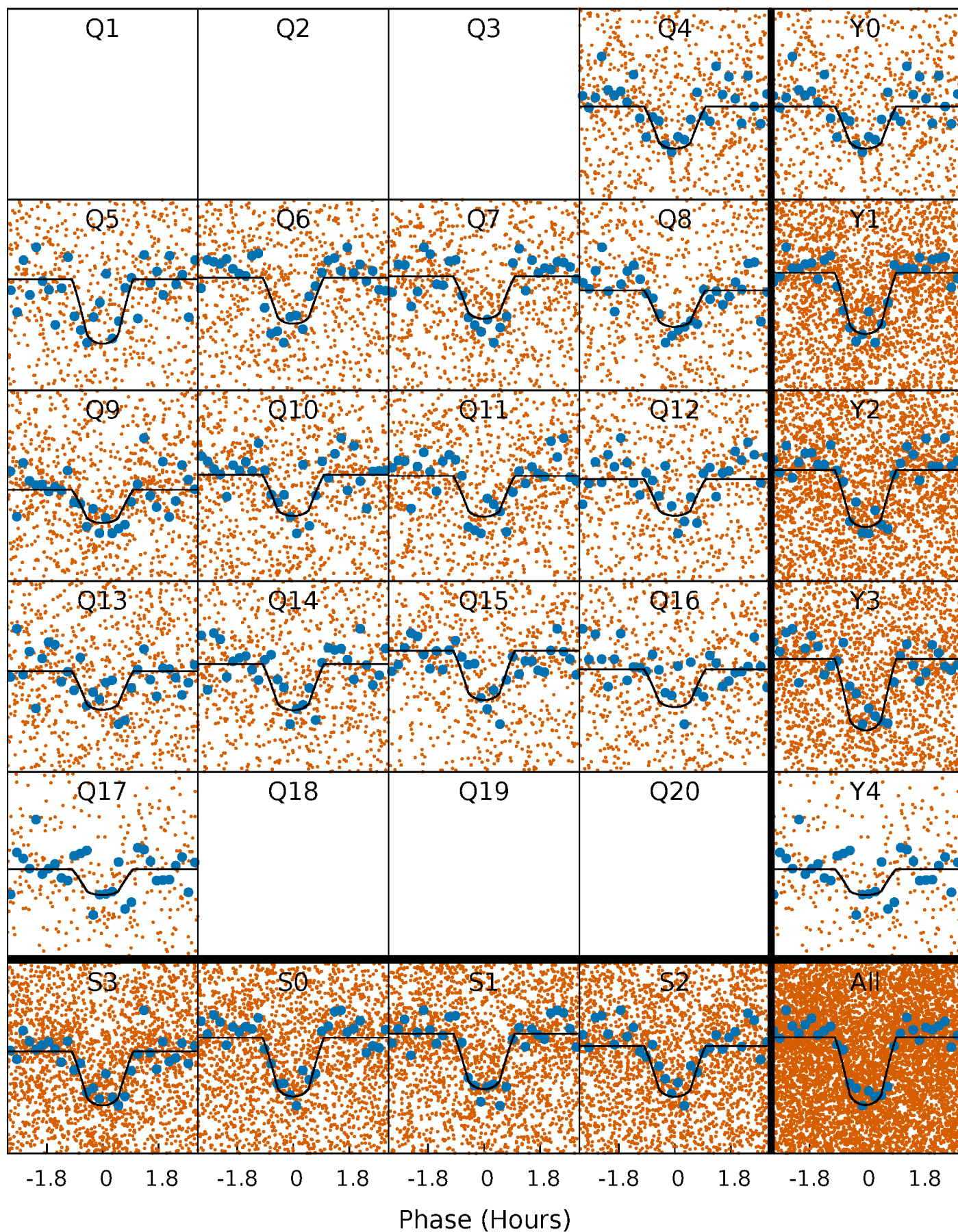
TCE 010604521-01 P= 0.868107 Days  $T_0=131.843257$  (BKJD)





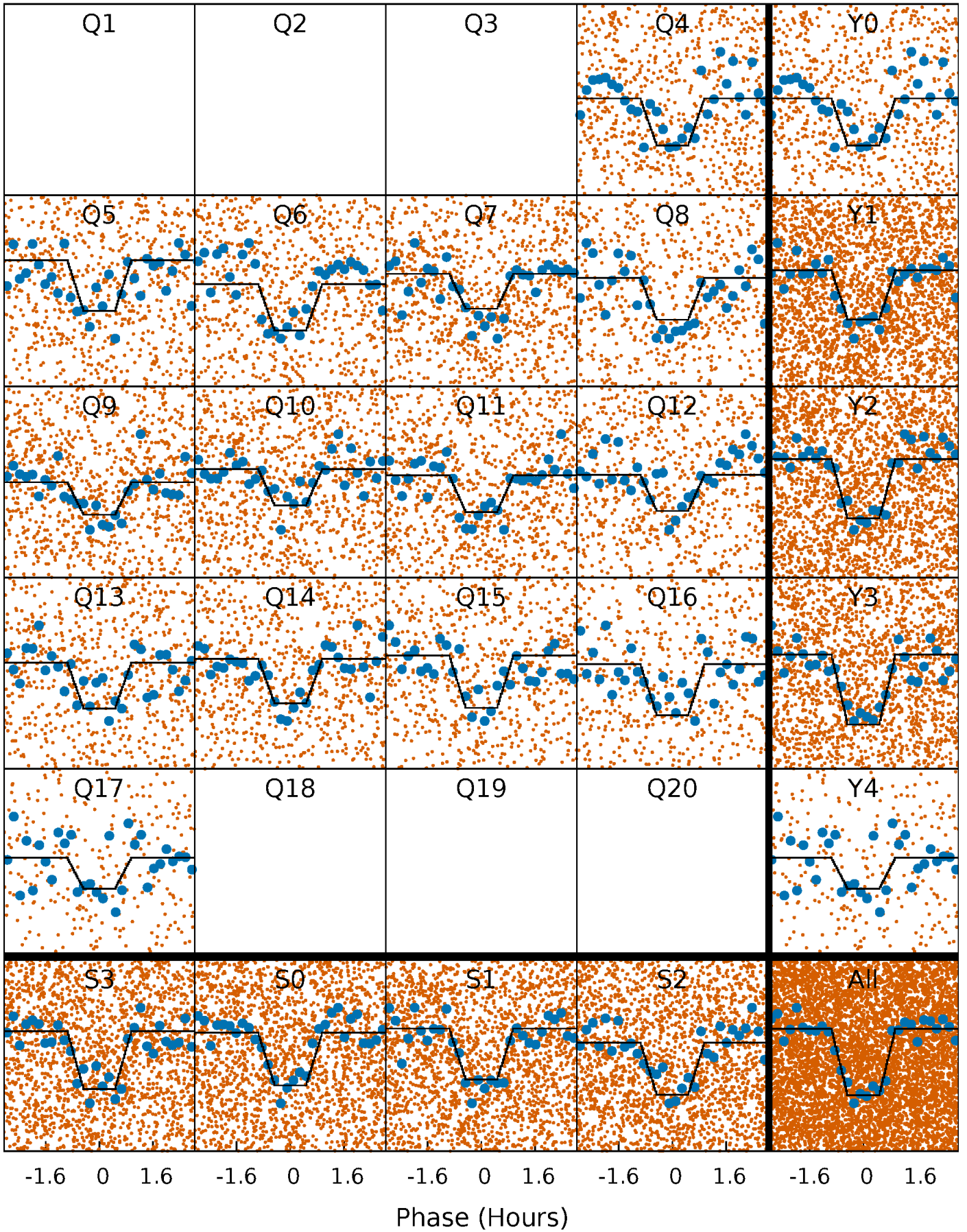
# DV Quarter-Phased Transit Curves

TCE 010604521-01   P= 0.868107 Days    $T_0=131.843257$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

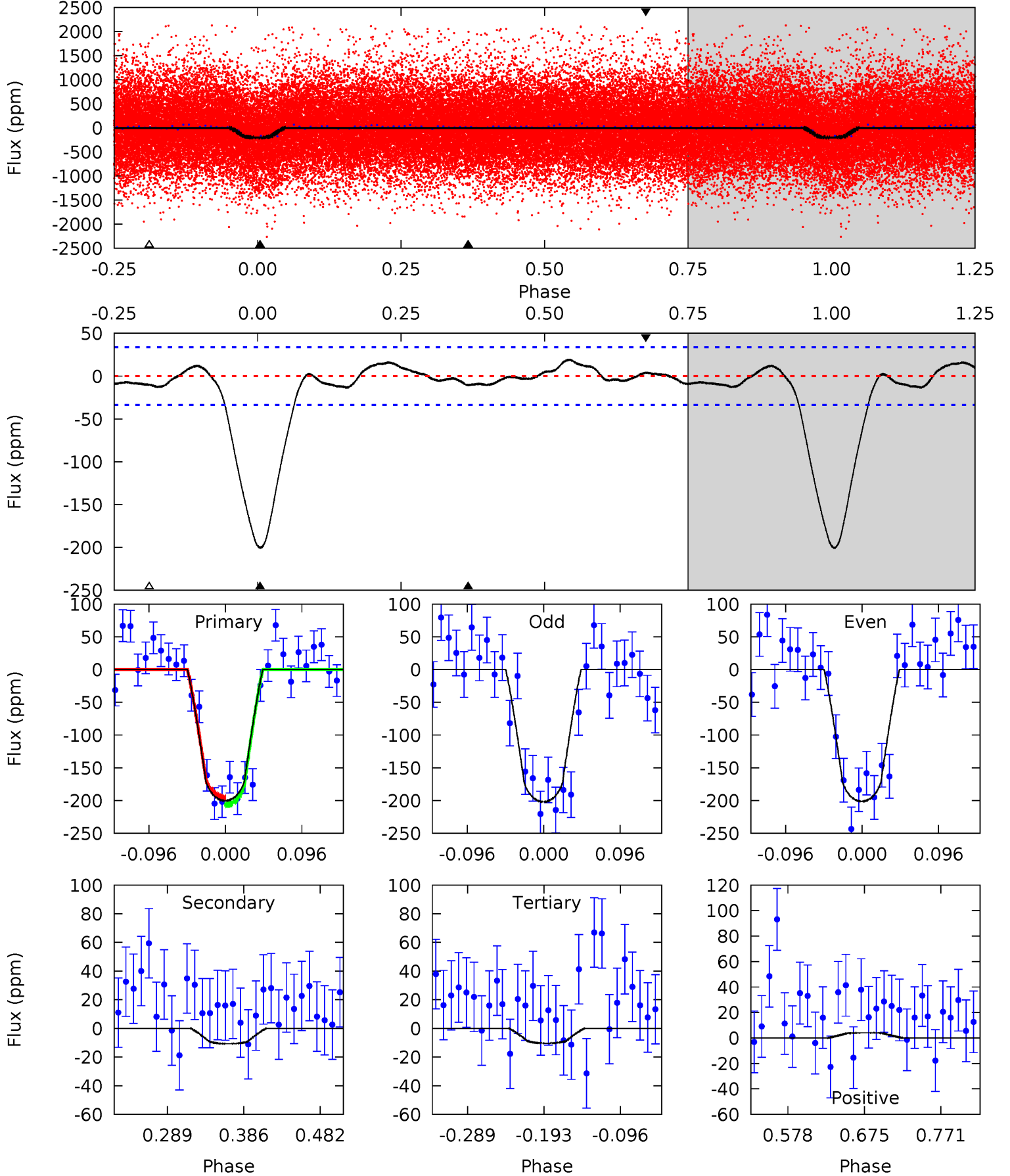
TCE 010604521-01 P= 0.868119 Days  $T_0=131.835897$  (BKJD)



# DV Model-Shift Uniqueness Test

010604521-01, P = 0.868107 Days, E = 131.843257 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
27.1	1.45	1.40	0.55	4.57	1.66	1.21	25.7	26.6	0.05	0.90	0.05	0.97	0.09	0.78

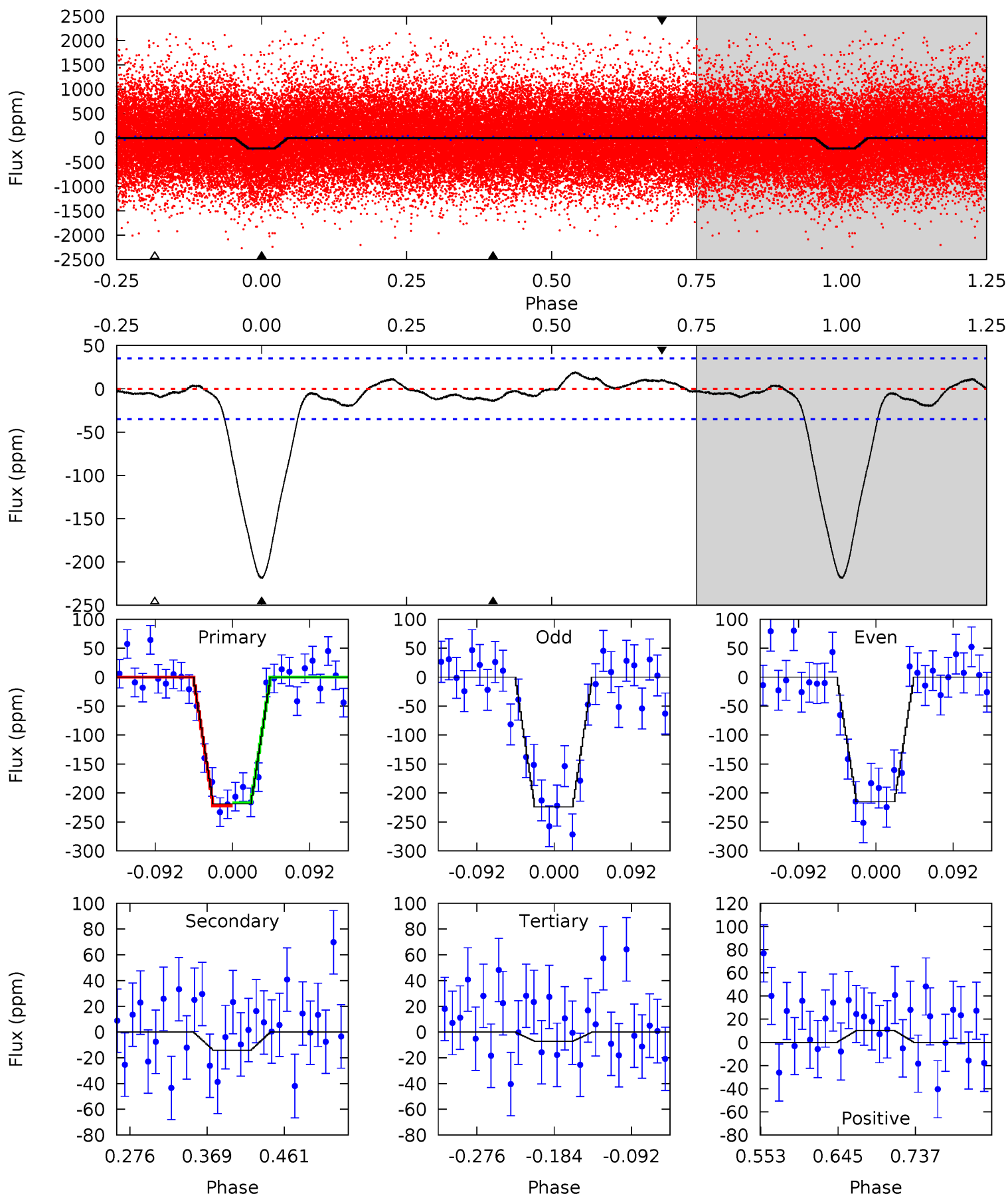




# Alt Model-Shift Uniqueness Test

010604521-01, P = 0.868119 Days, E = 131.835897 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
28.7	1.85	0.95	1.35	4.58	1.68	1.14	27.7	27.4	0.90	0.50	0.58	0.88	0.08	0.35





### Stellar Parameters For KIC 010604521

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6116^{+190}_{-253}$	$4.440^{+0.052}_{-0.208}$	$0.210^{+0.150}_{-0.300}$	$1.084^{+0.356}_{-0.111}$	$1.181^{+0.136}_{-0.151}$	$1.307^{+0.369}_{-0.689}$
	+3%/-4%	+1%/-5%	+71%/-143%	+33%/-10%	+12%/-13%	+28%/-53%
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 010604521-01 / KOI 2797.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-11 \pm 7$	$1.73^{+0.62}_{-0.60}$	$2913^{+222}_{-148}$	$3120^{+784}_{-5817}$	$0.655^{+1.104}_{-0.473}$
Alt.	$-14 \pm 8$	$1.81^{+0.67}_{-0.59}$	$2930^{+211}_{-159}$	$3235^{+792}_{-5516}$	$0.748^{+1.280}_{-0.471}$

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

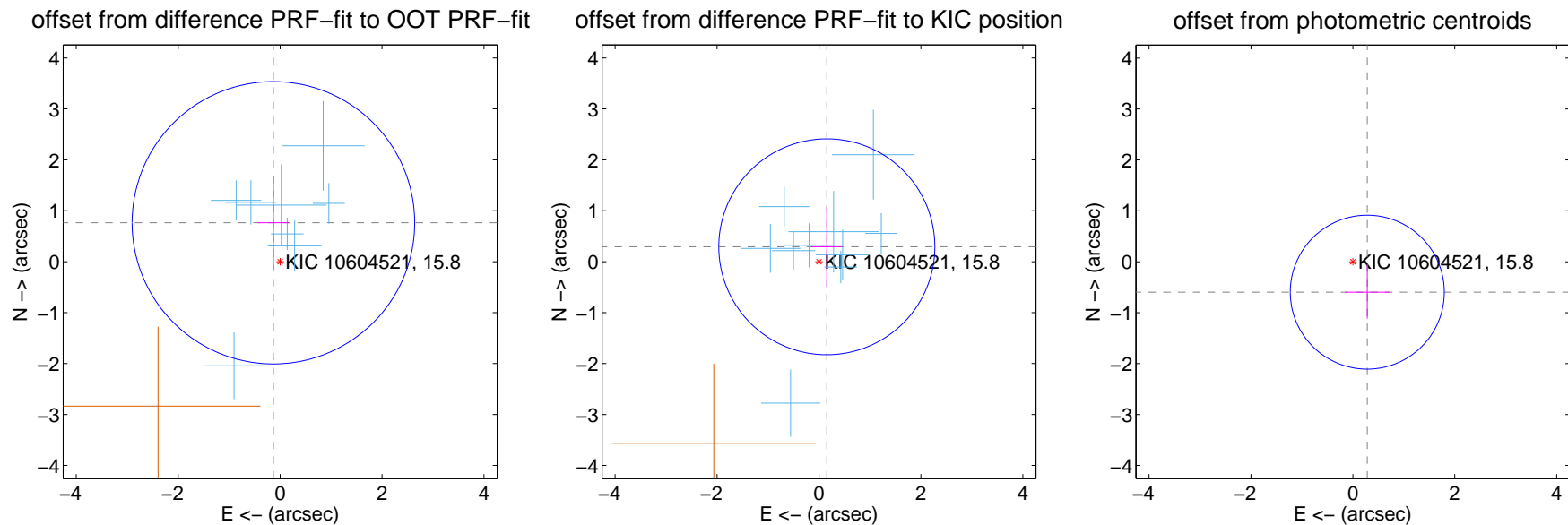
## DV Centroid Data

Supplemental centroid analysis for 010604521-01. Kepler magnitude: 15.80. Transit SNR 20.69

There are 10 quarters with good PRF difference image offsets

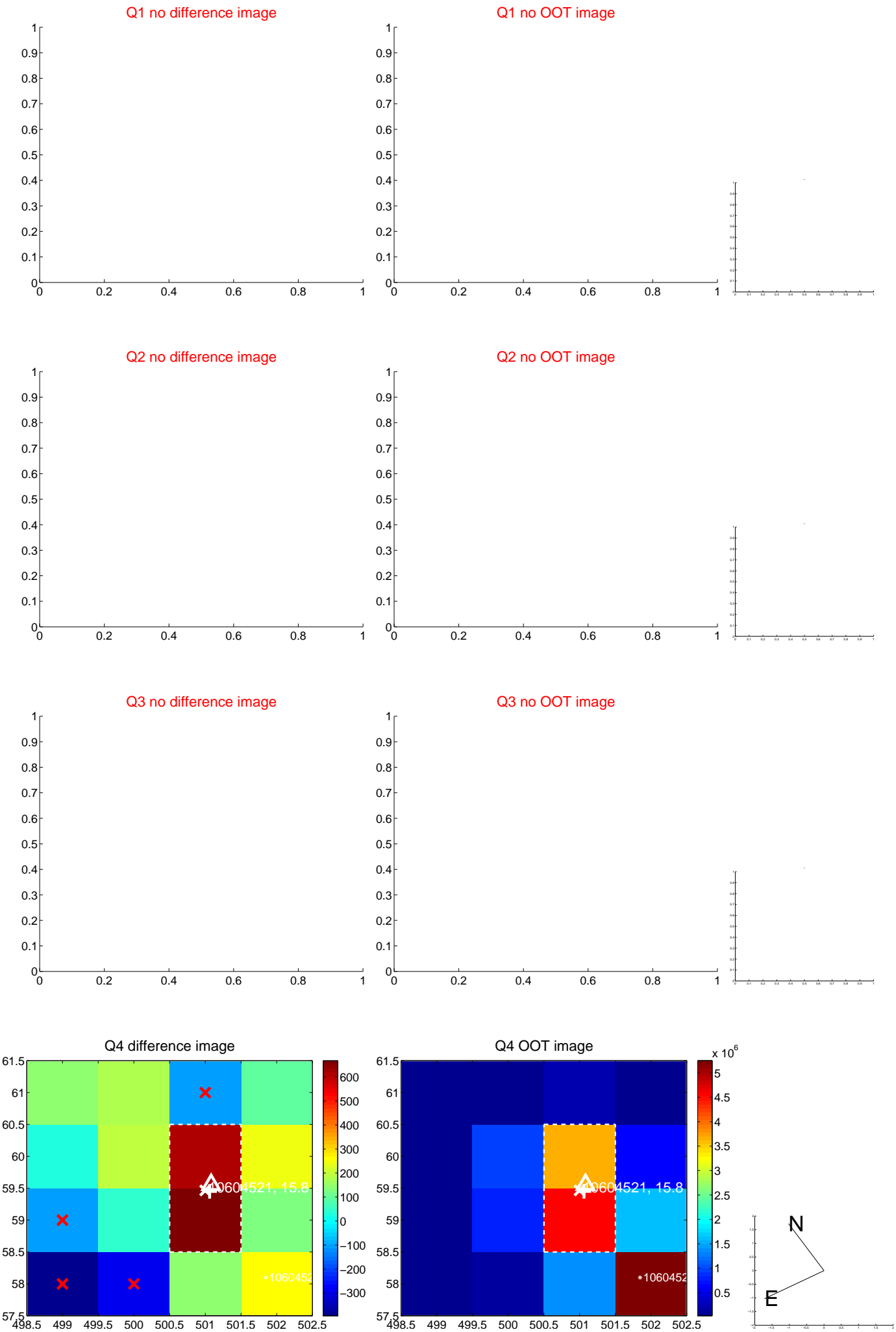
The direct PRF centroid is offset from the target star catalog position by about 0.70 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.775 \pm 0.924$	0.84	$0.132 \pm 0.297$	$0.764 \pm 0.915$
PRF-fit source offset from KIC position	$0.330 \pm 0.706$	0.47	$-0.154 \pm 0.297$	$0.292 \pm 0.793$
photometric centroid source offset	$0.66 \pm 0.50$	1.31	$-0.28 \pm 0.43$	$-0.60 \pm 0.52$



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.

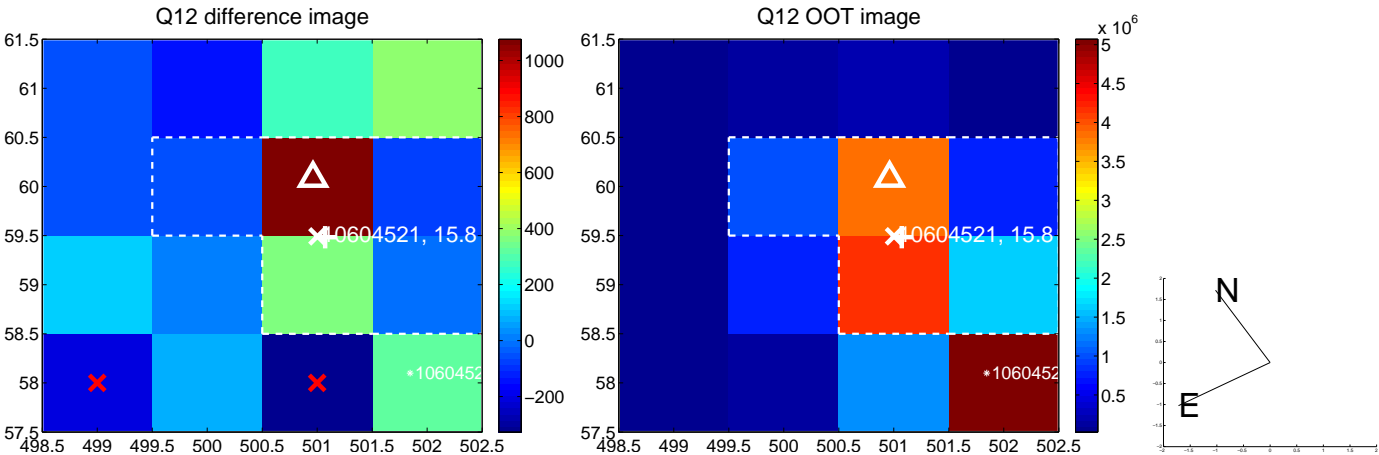
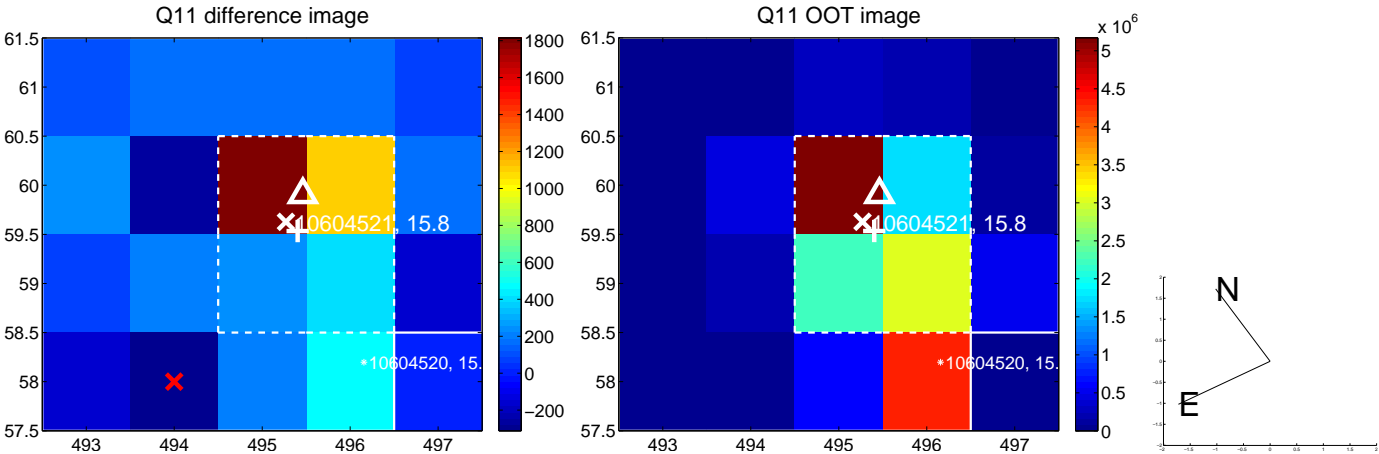
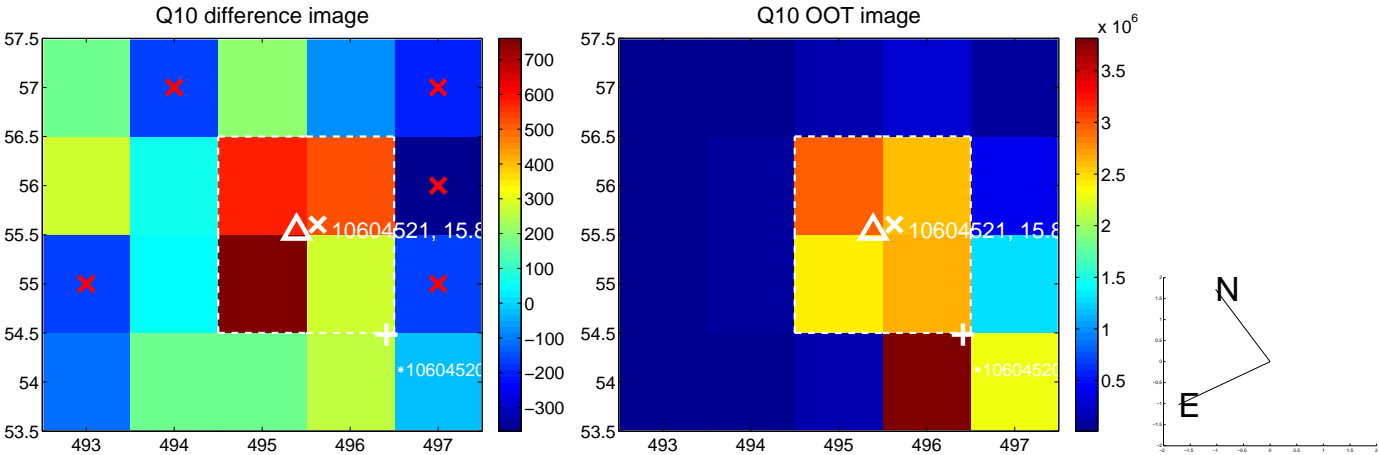
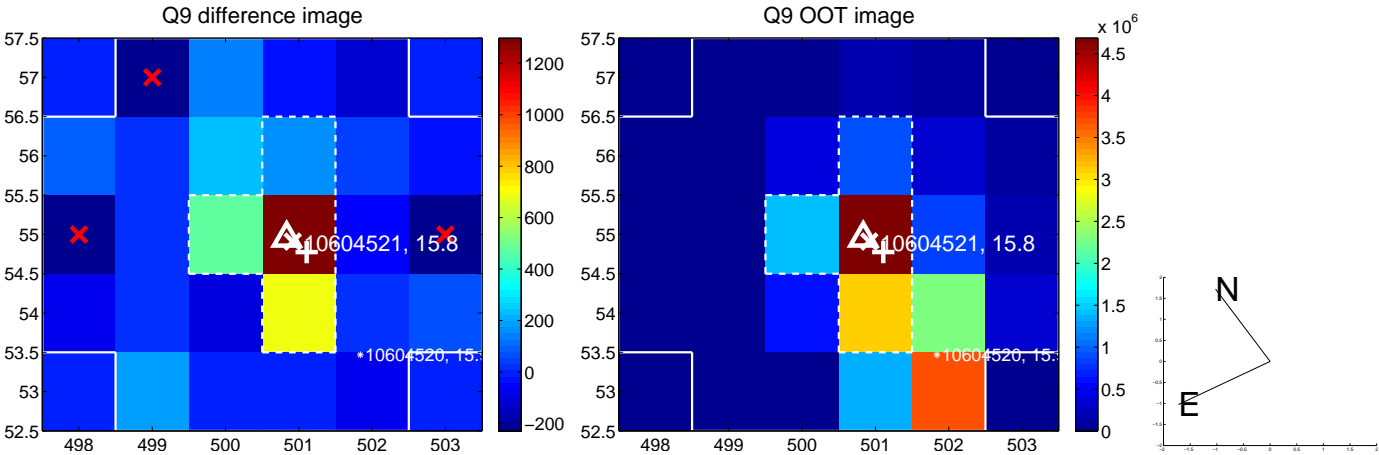
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



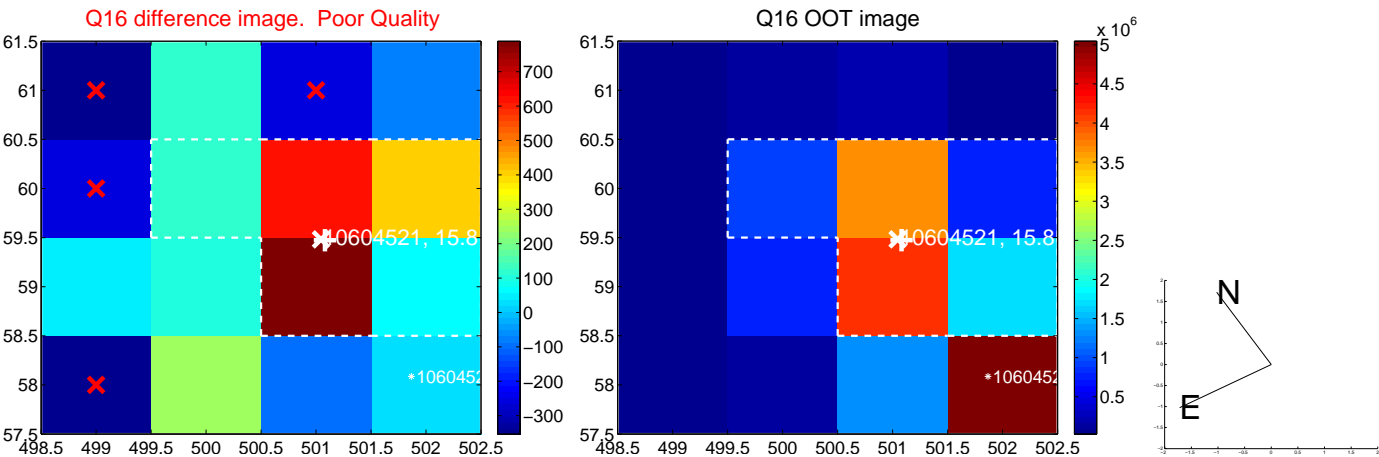
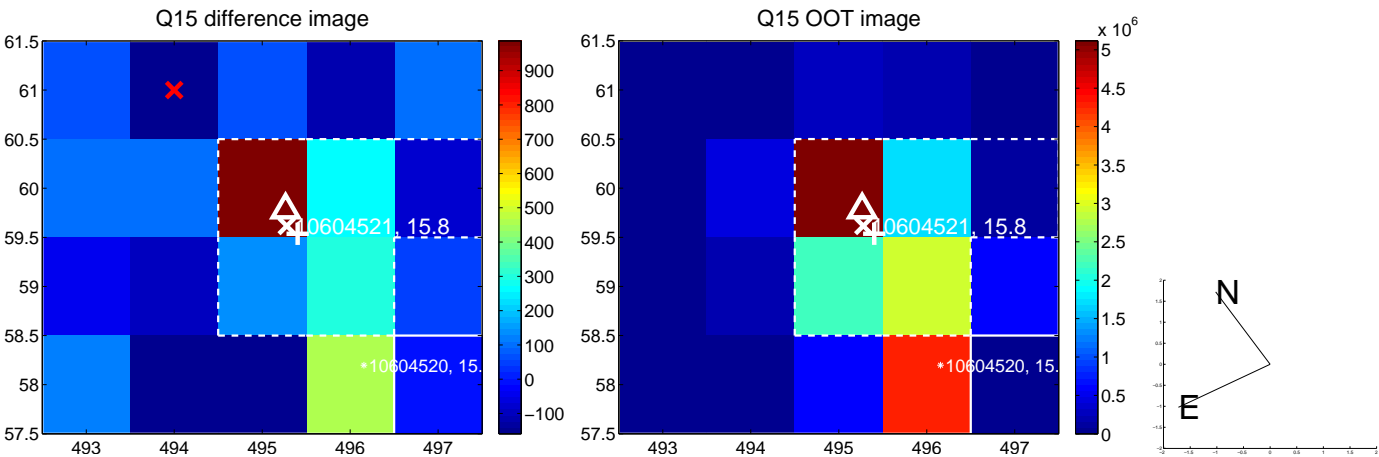
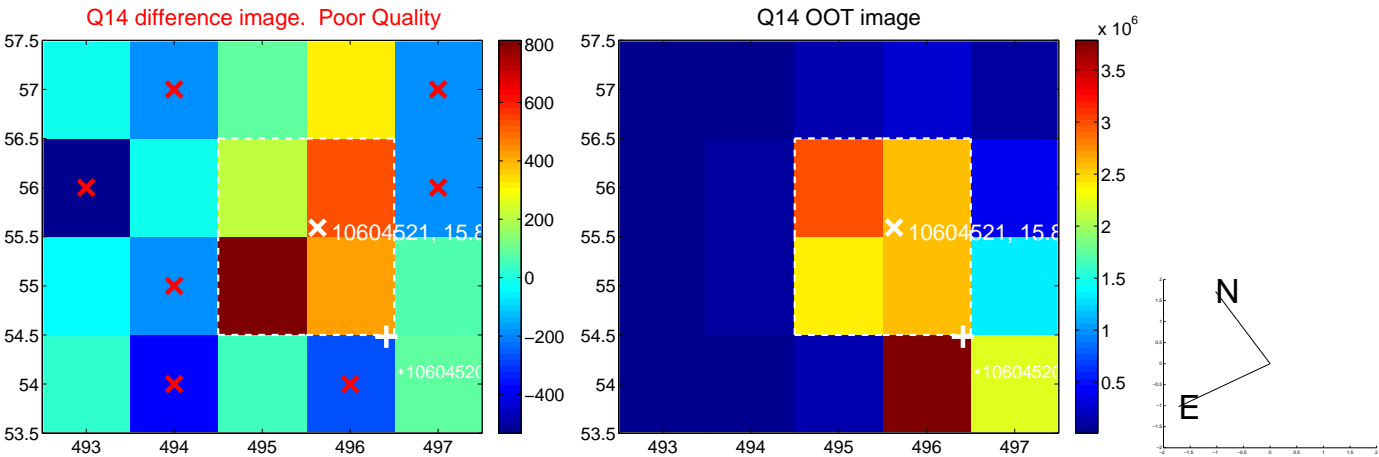
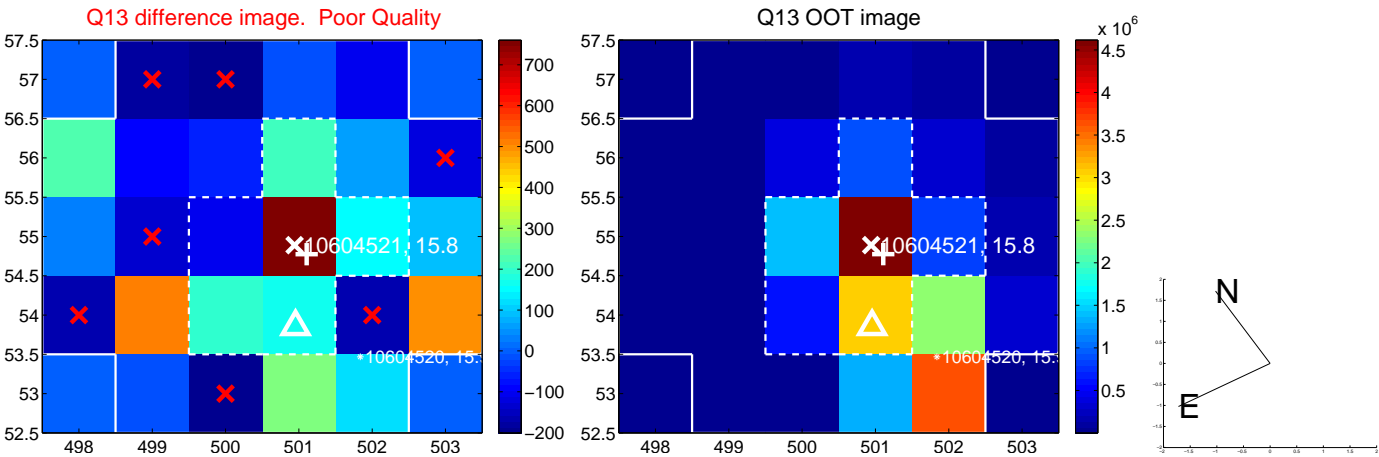




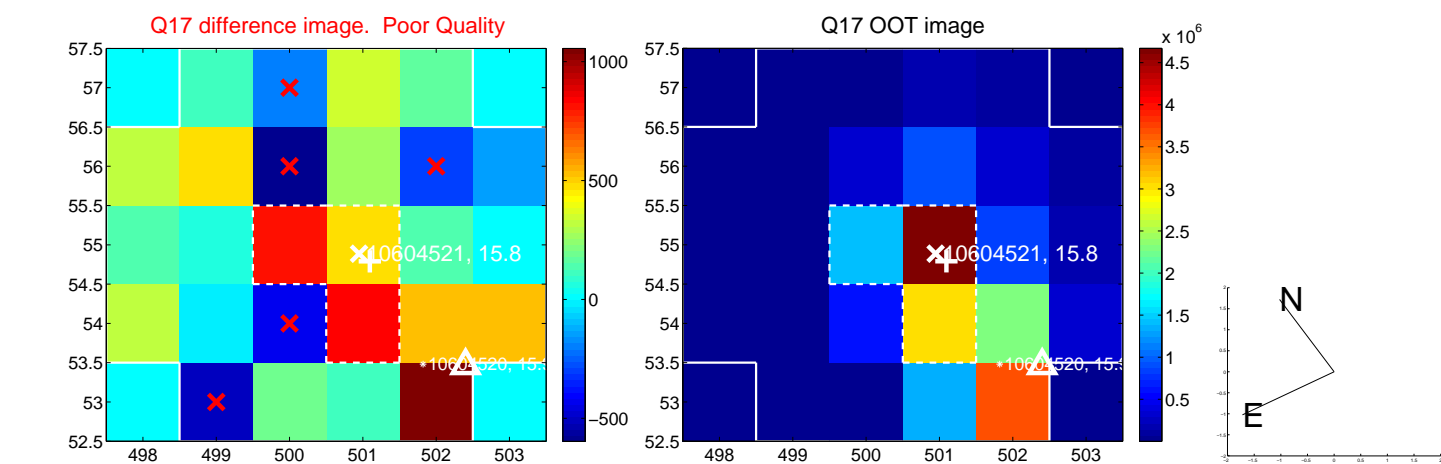
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



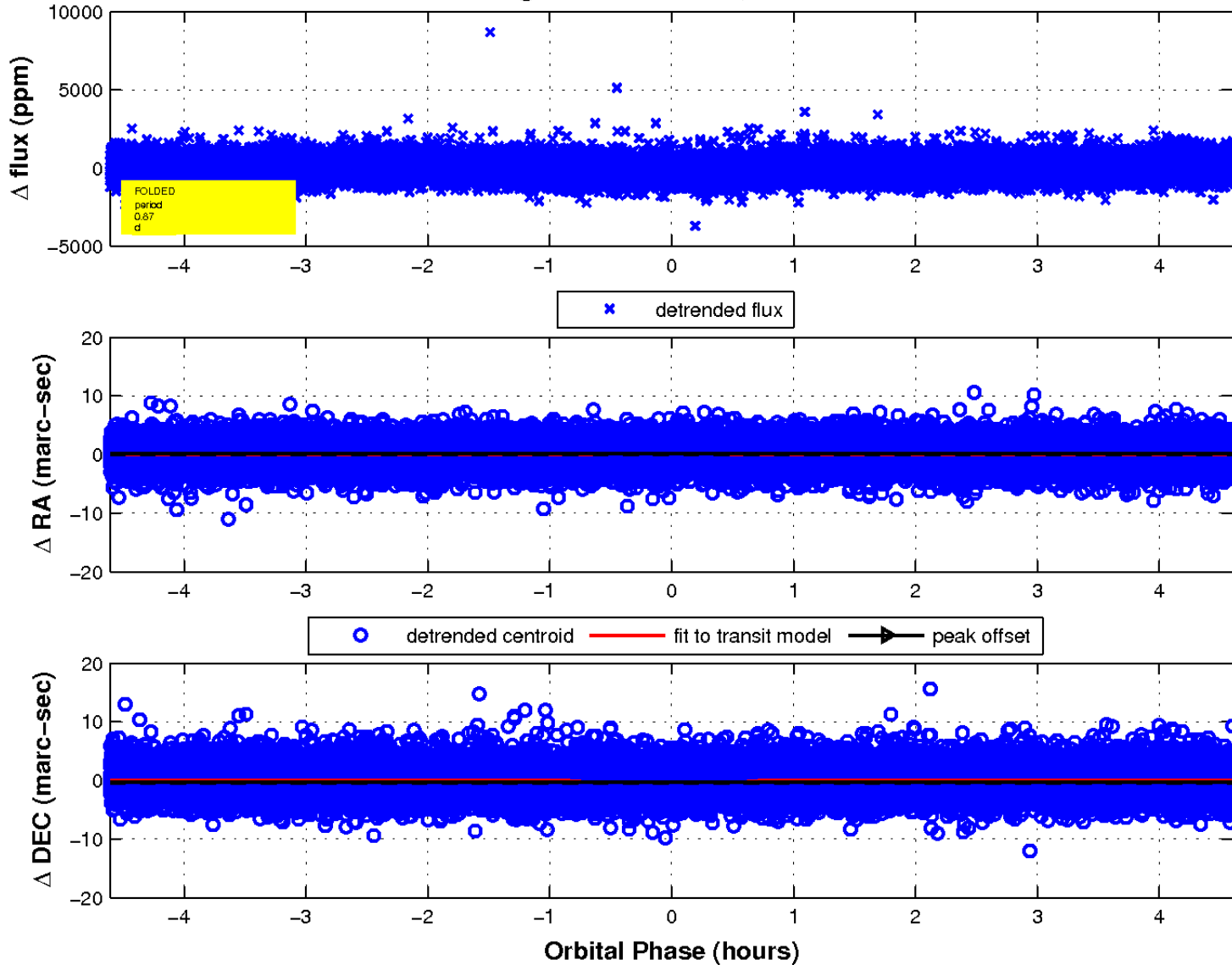
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

