

# KIC 010070468

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010070468-01	OBS	2628.01	1.681880	133.080640	76.8	2.816	14.6	15.1	1.37	5827	1.41	2433.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010070468-01	OBS	PC	1.00	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.

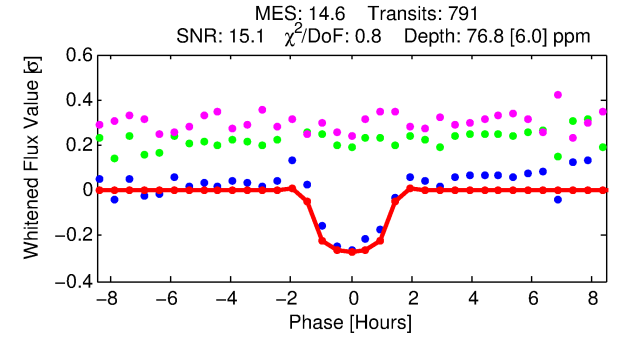
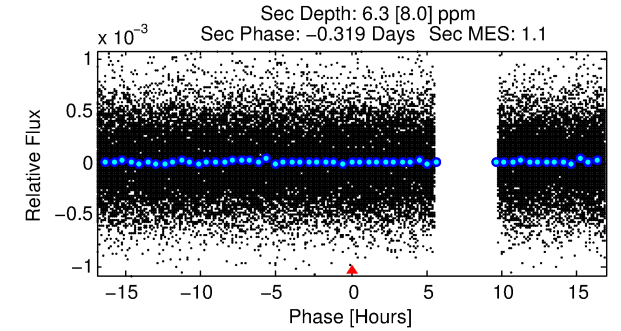
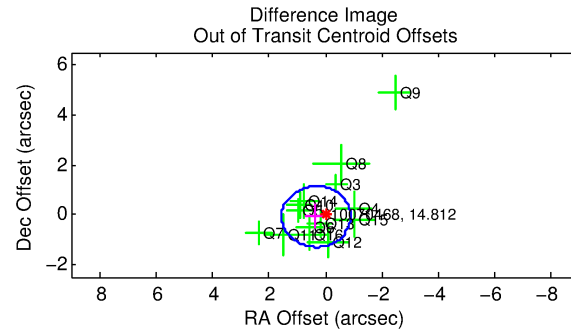
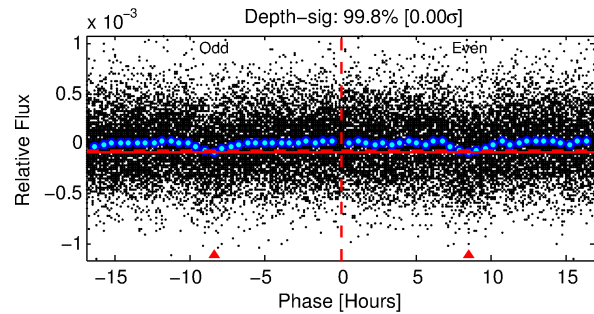
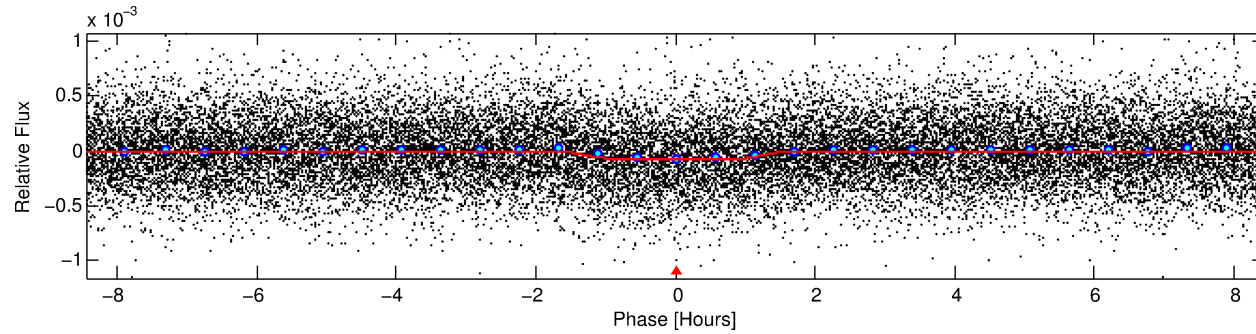
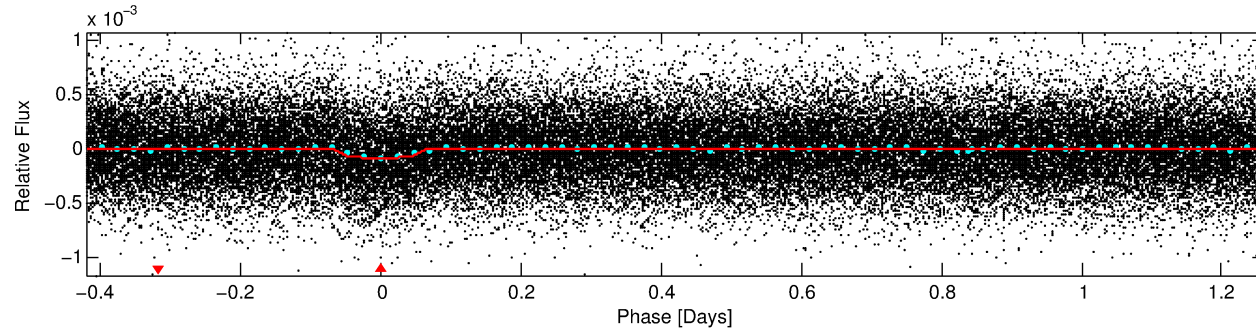
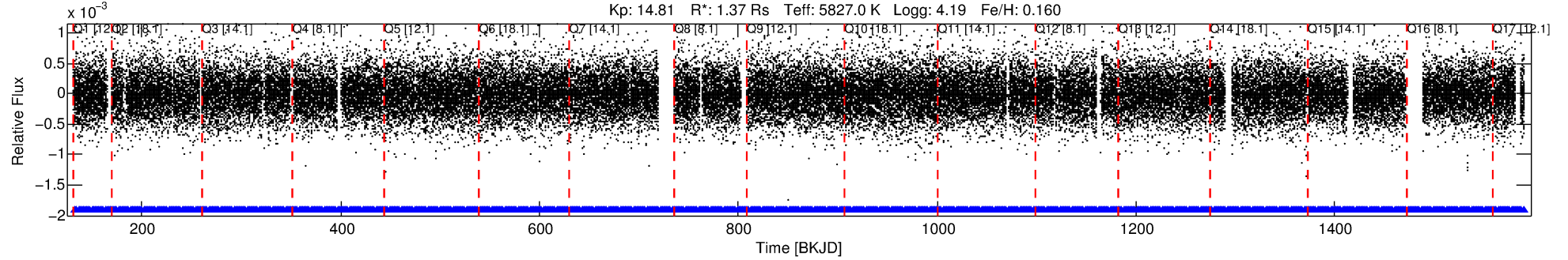
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010070468-01

No Significant Match Found

# DV One-Page Summary

KIC: 10070468 Candidate: 1 of 1 Period: 1.682 d  
KOI: K02628.01 Corr: 0.953



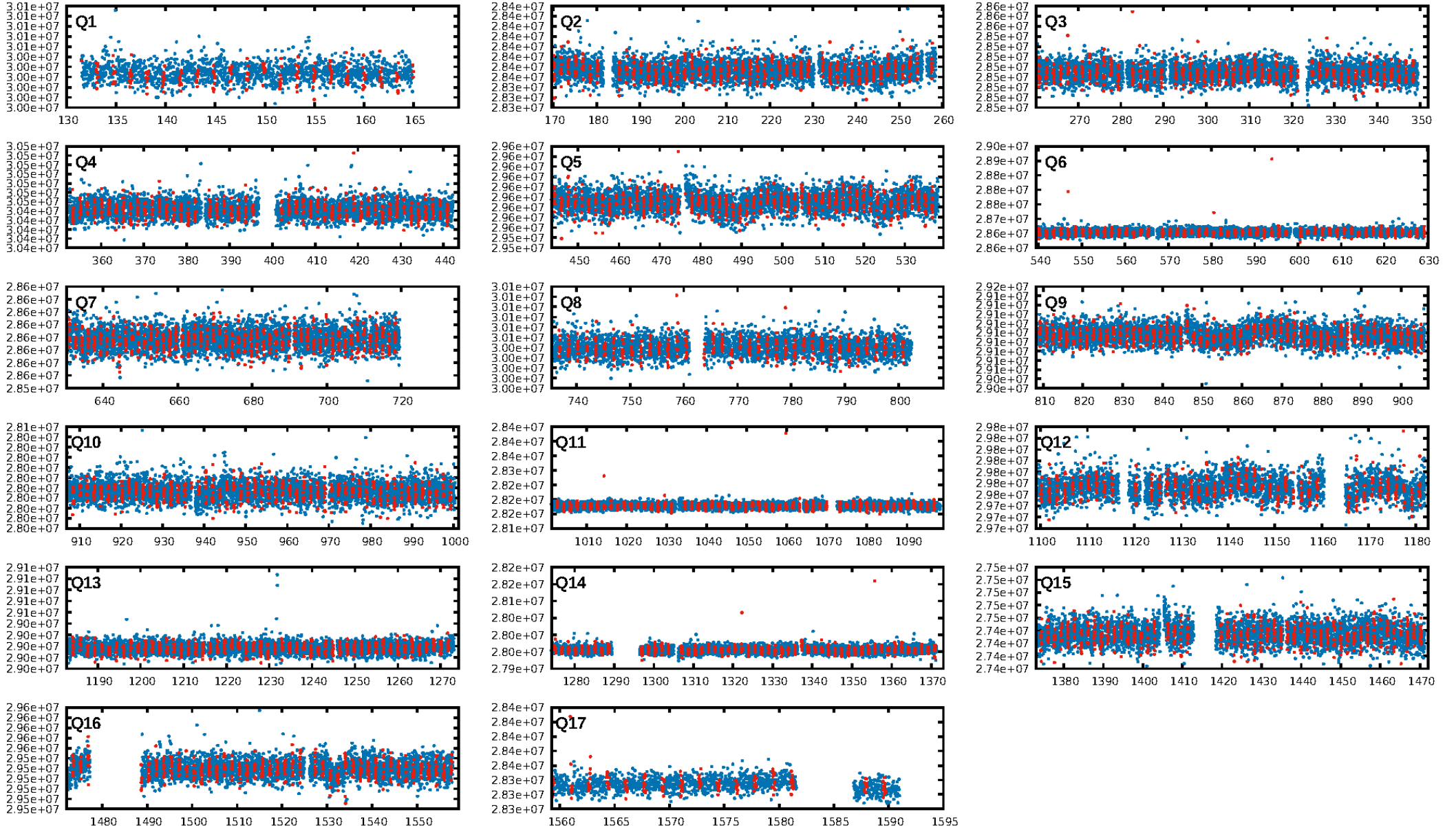
## DV Fit Results:

Period = 1.68188 [0.00001] d  
Epoch = 133.0806 [0.0027] BKJD  
Rp/R\* = 0.0094 [0.0047]  
a/R\* = 2.40 [4.66]  
b = 0.89 [0.58]  
Seff = 2433.73 [684.17]  
Teff = 1791 [126] K  
Rp = 1.41 [0.74] Re  
a = 0.0283 [0.0049] AU  
Ag = 1.38 [2.27] [0.17σ]  
Teffp = 3004 [1215] K [0.99σ]

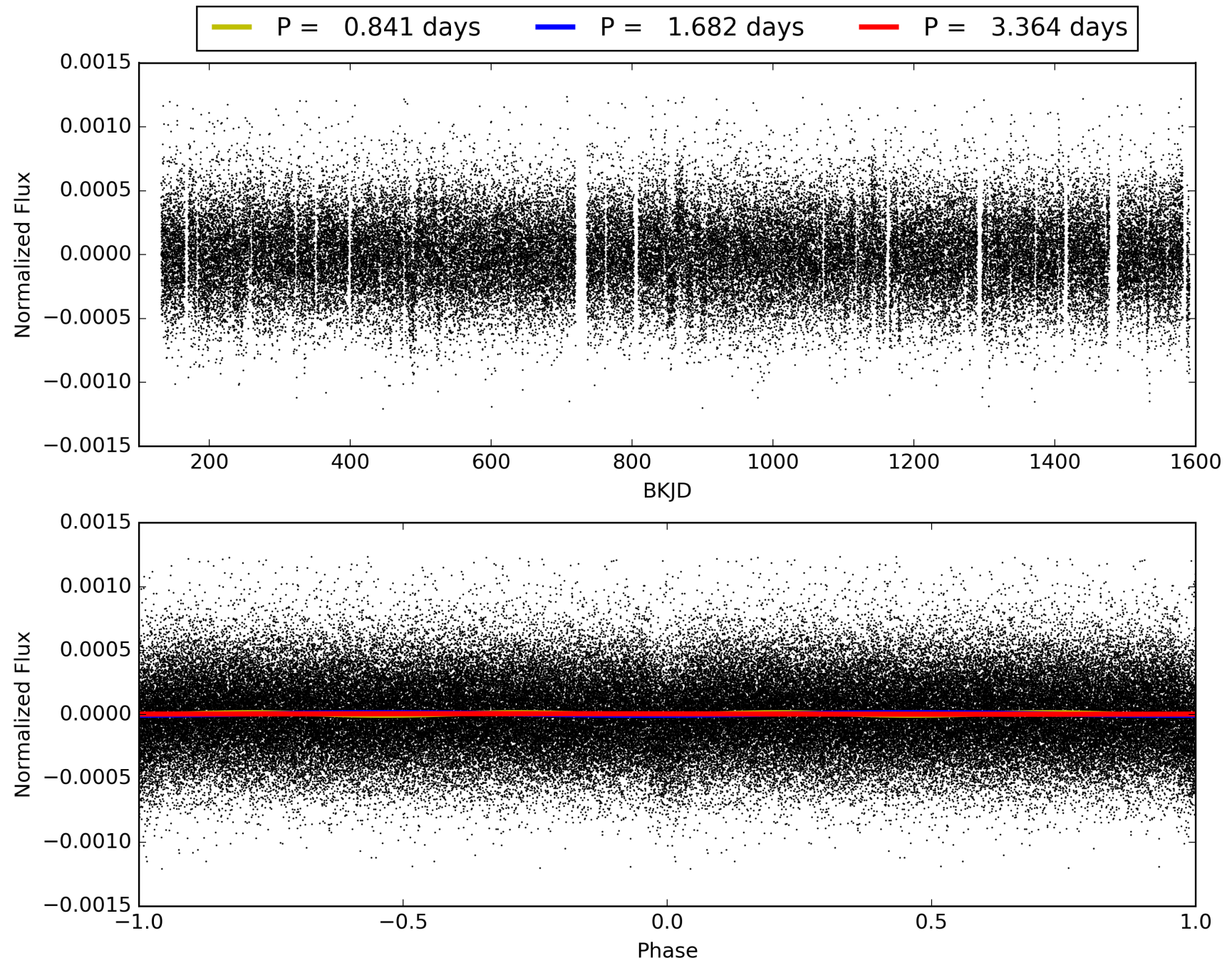
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.50e-48  
RollingBand-fgt: 1.00 [755/755]  
GhostDiagnostic-chr: 6.488  
Centroid-sig: 67.0%  
Centroid-so: 0.493 arcsec [0.58σ]  
OotOffset-rm: 0.344 arcsec [0.85σ]  
KicOffset-rm: 0.321 arcsec [0.66σ]  
OotOffset-st: 3/4/4/3 [14]  
KicOffset-st: 3/4/4/3 [14]  
DiffImageQuality-fgm: 0.86 [12/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010070468-01, PDC Light Curves



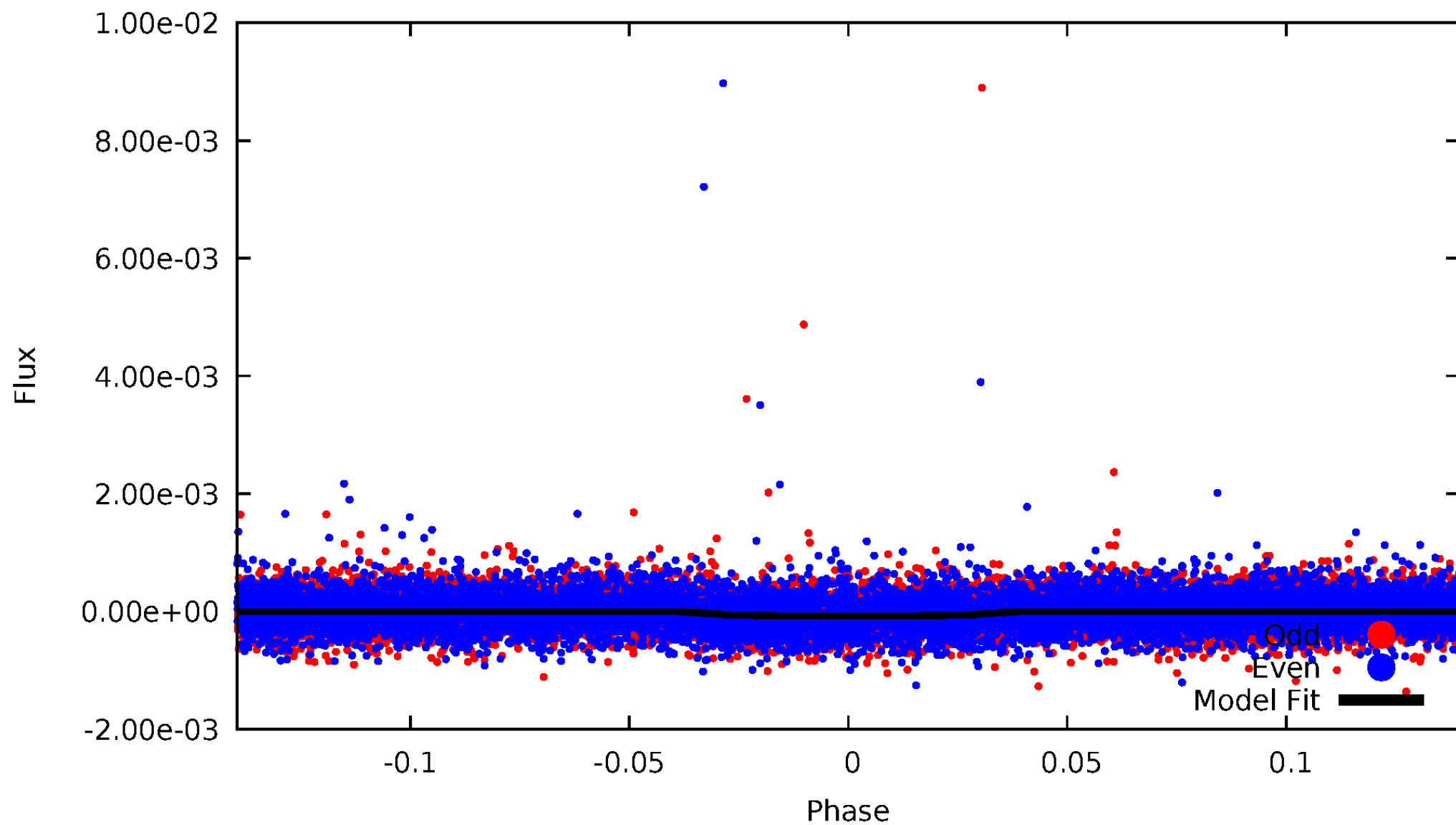
TCE 010070468-01





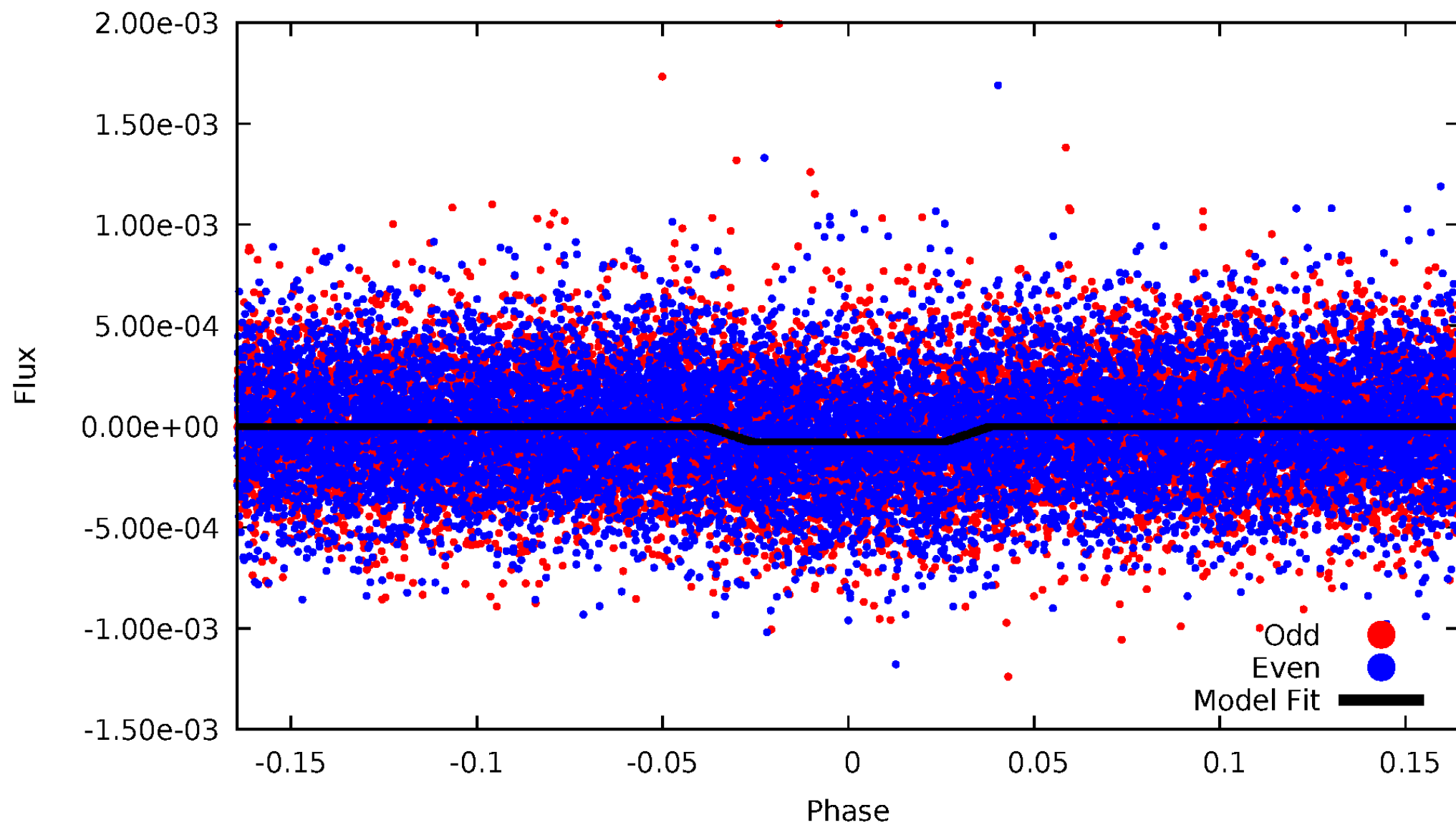
# DV Odd/Even

TCE 010070468-01



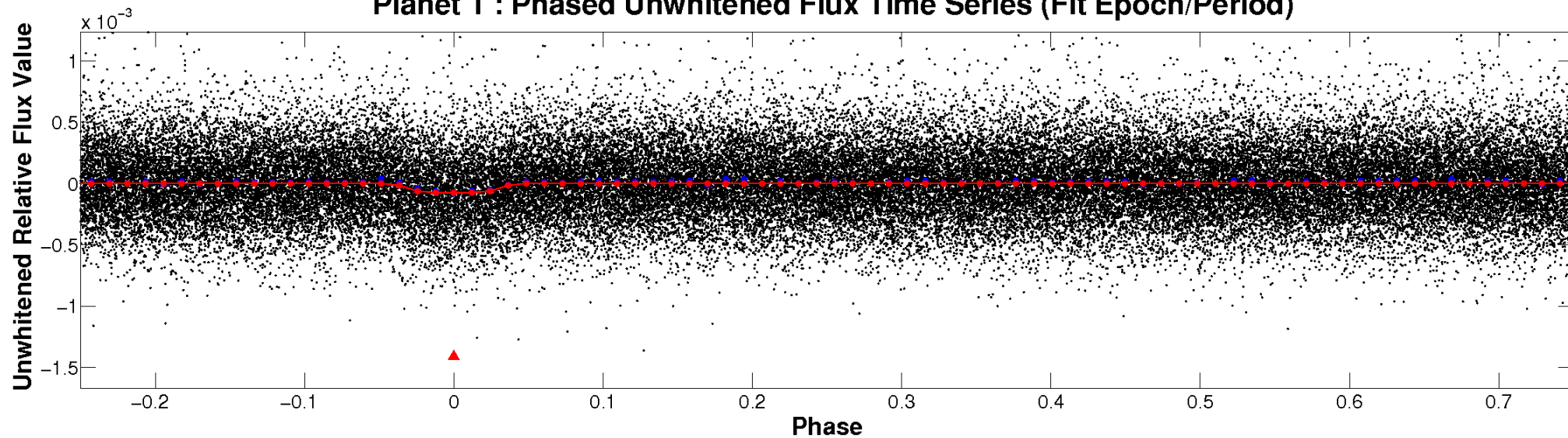
# ALT Odd/Even

TCE 010070468-01

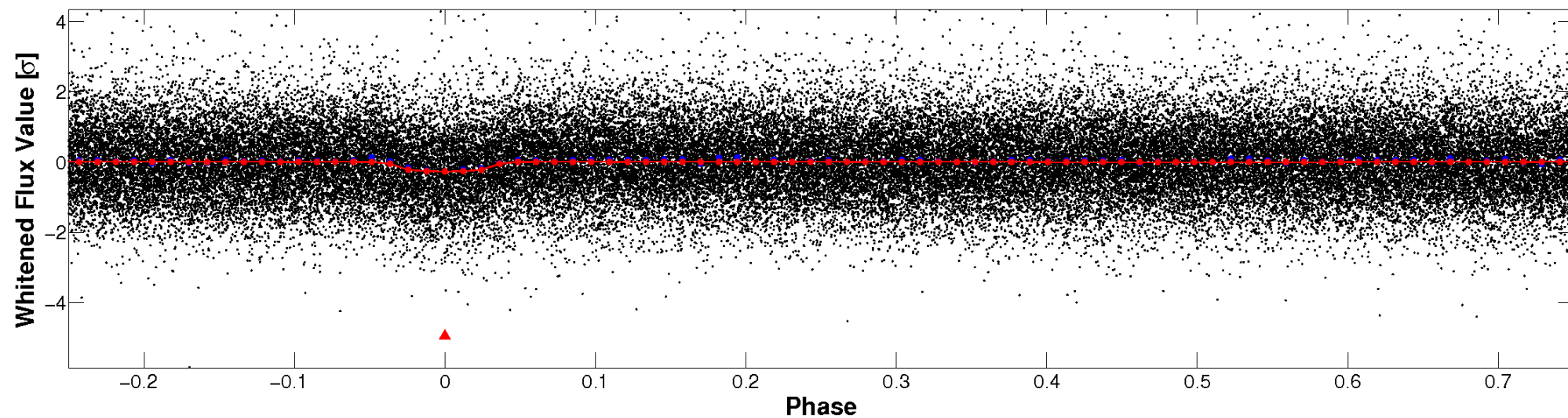


# Non-Whitened Vs. Whitened Light Curve

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

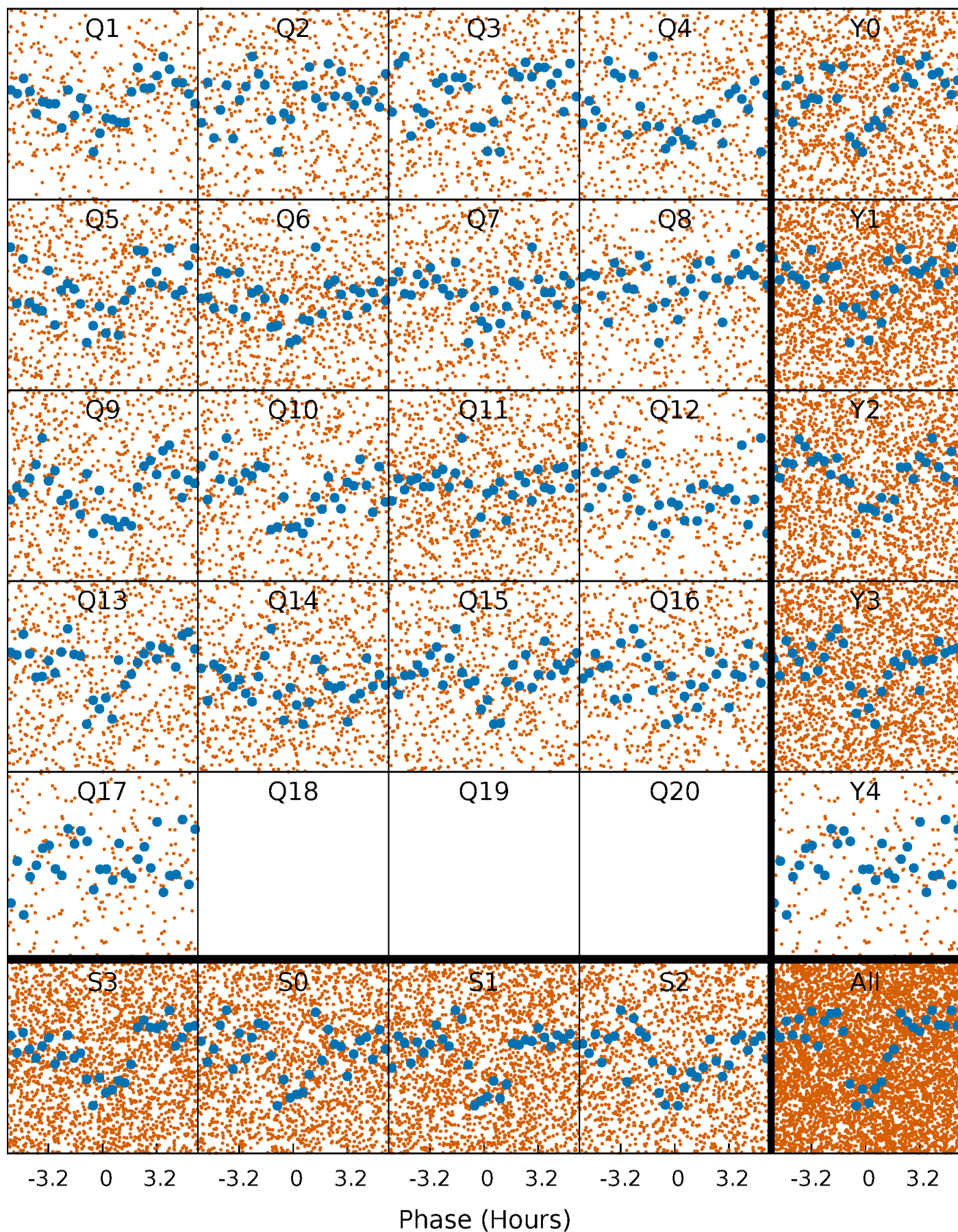


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

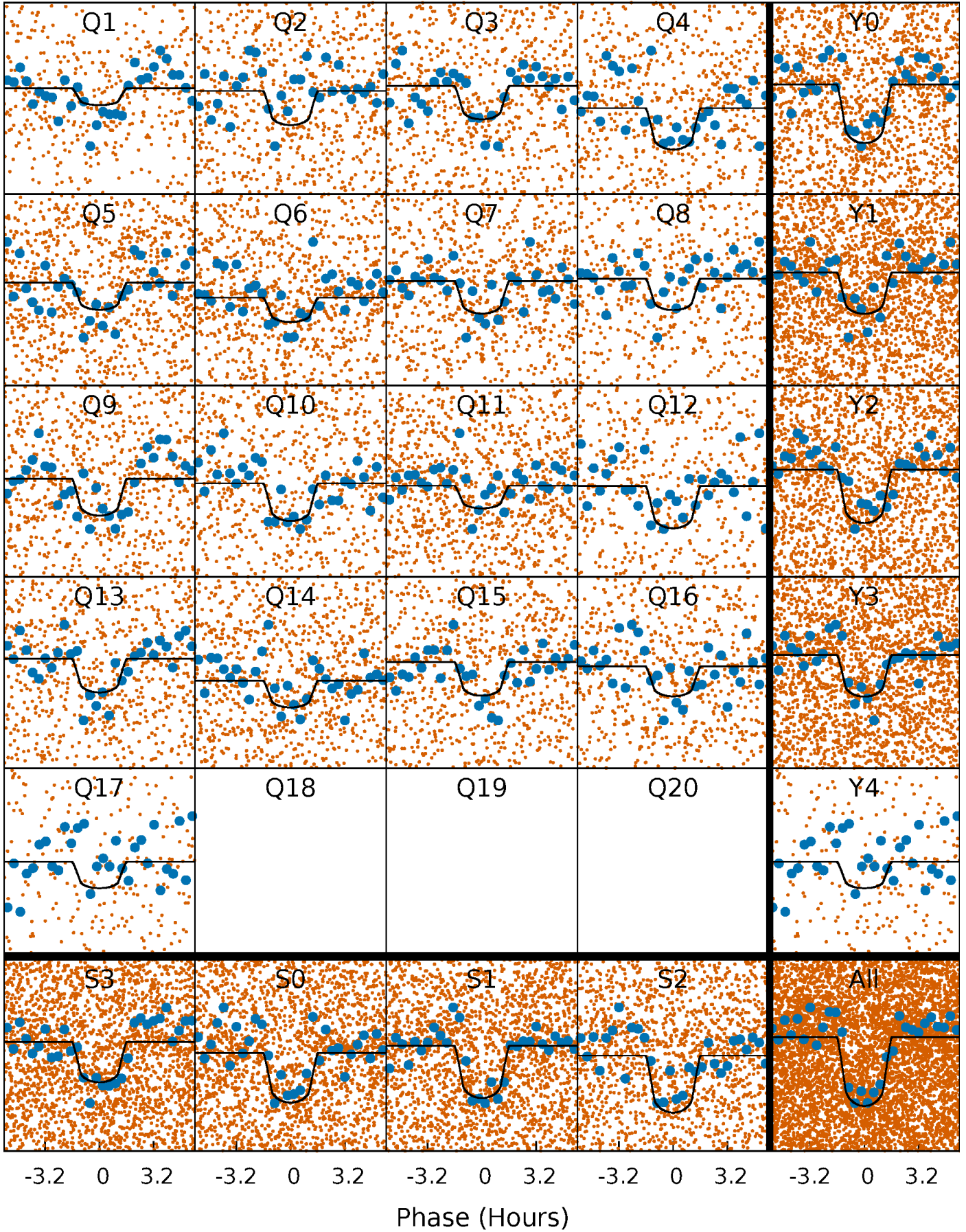
TCE 010070468-01 P= 1.681880 Days  $T_0=133.080640$  (BKJD)





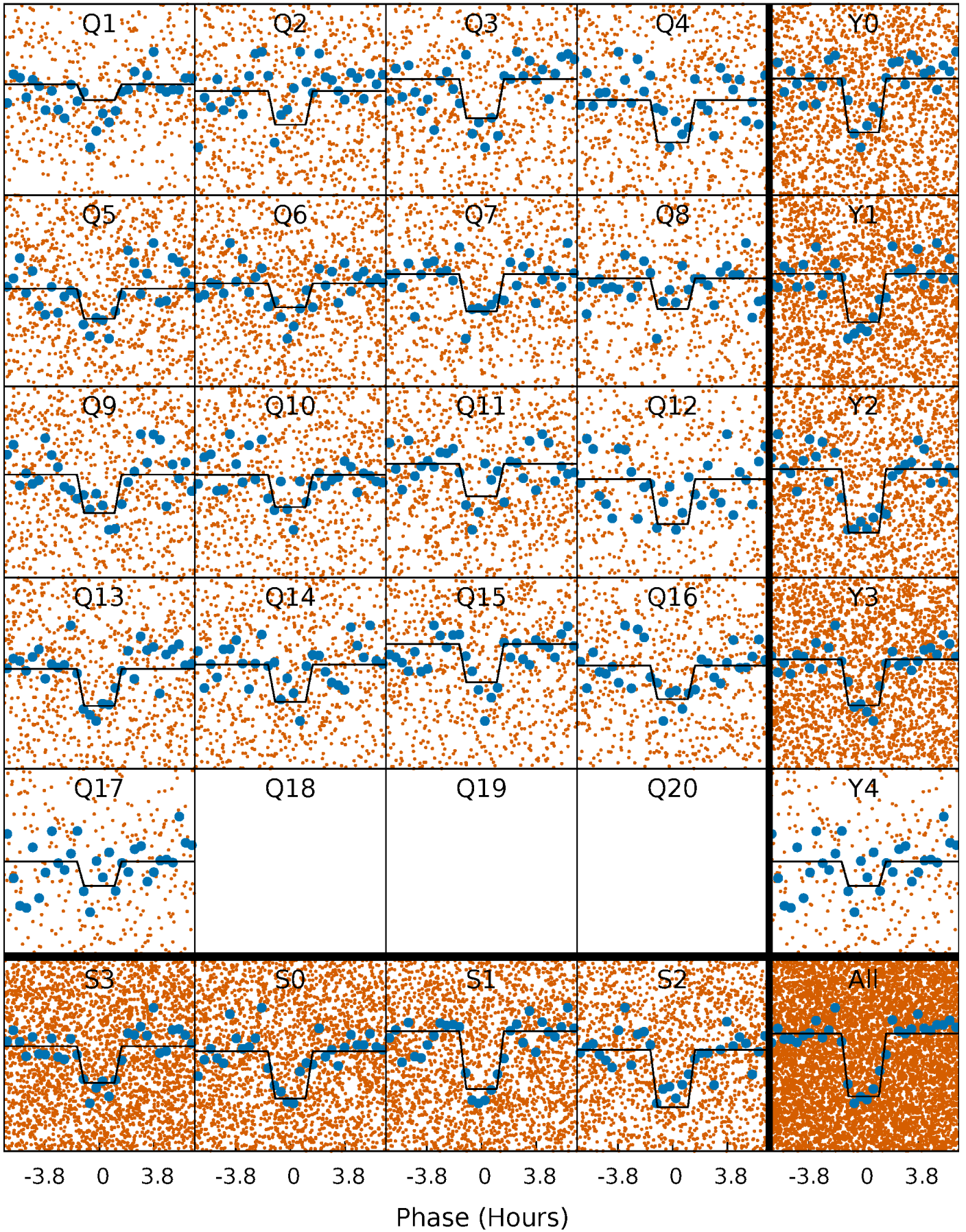
# DV Quarter-Phased Transit Curves

TCE 010070468-01 P= 1.681880 Days  $T_0=133.080640$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

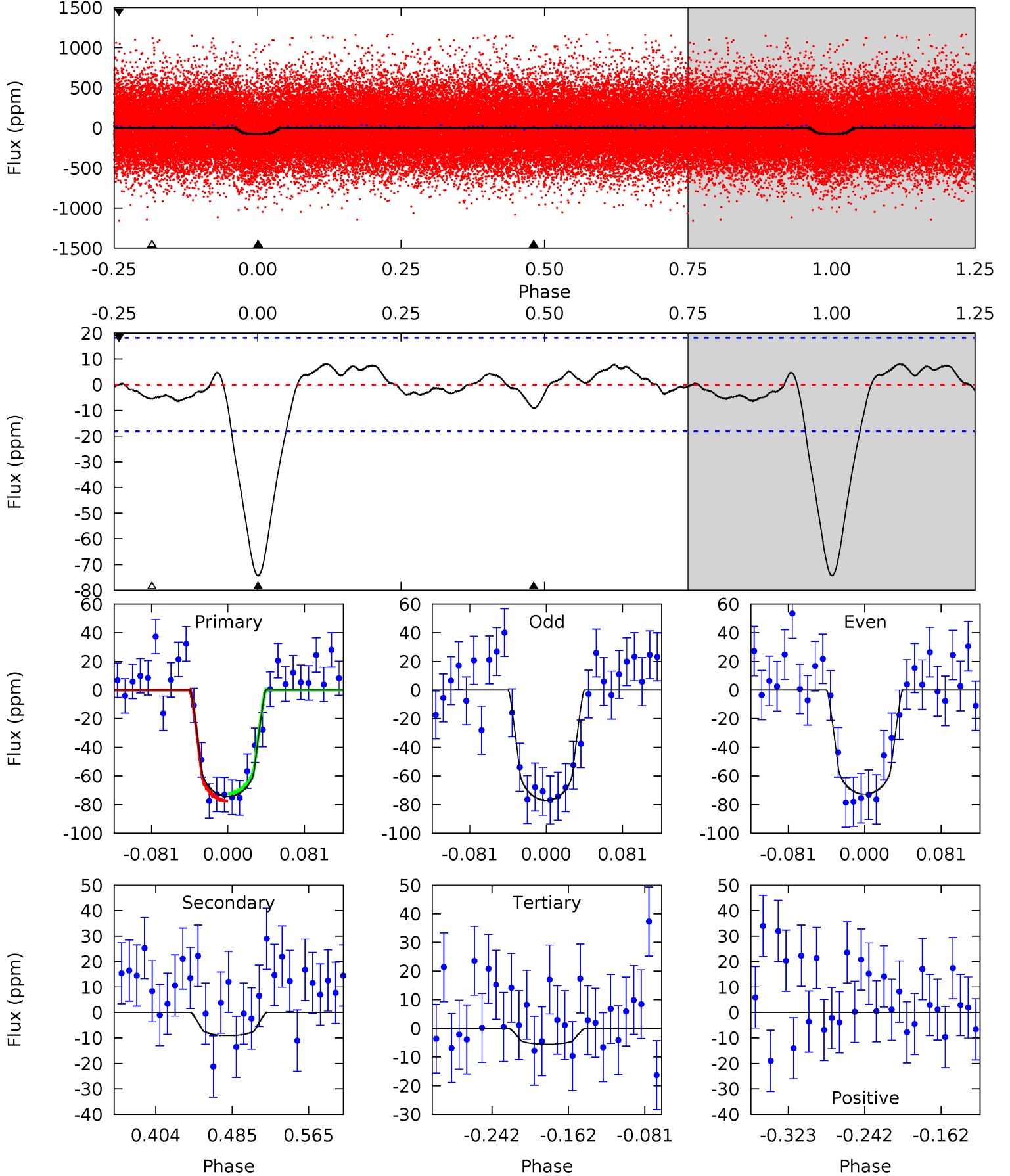
TCE 010070468-01 P= 1.681886 Days  $T_0=133.080294$  (BKJD)



# DV Model-Shift Uniqueness Test

010070468-01, P = 1.681880 Days, E = 131.398760 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
18.8	2.31	1.40	0	4.61	1.75	1.06	17.4	18.8	0.90	2.31	0.54	0.84	0.10	0.66

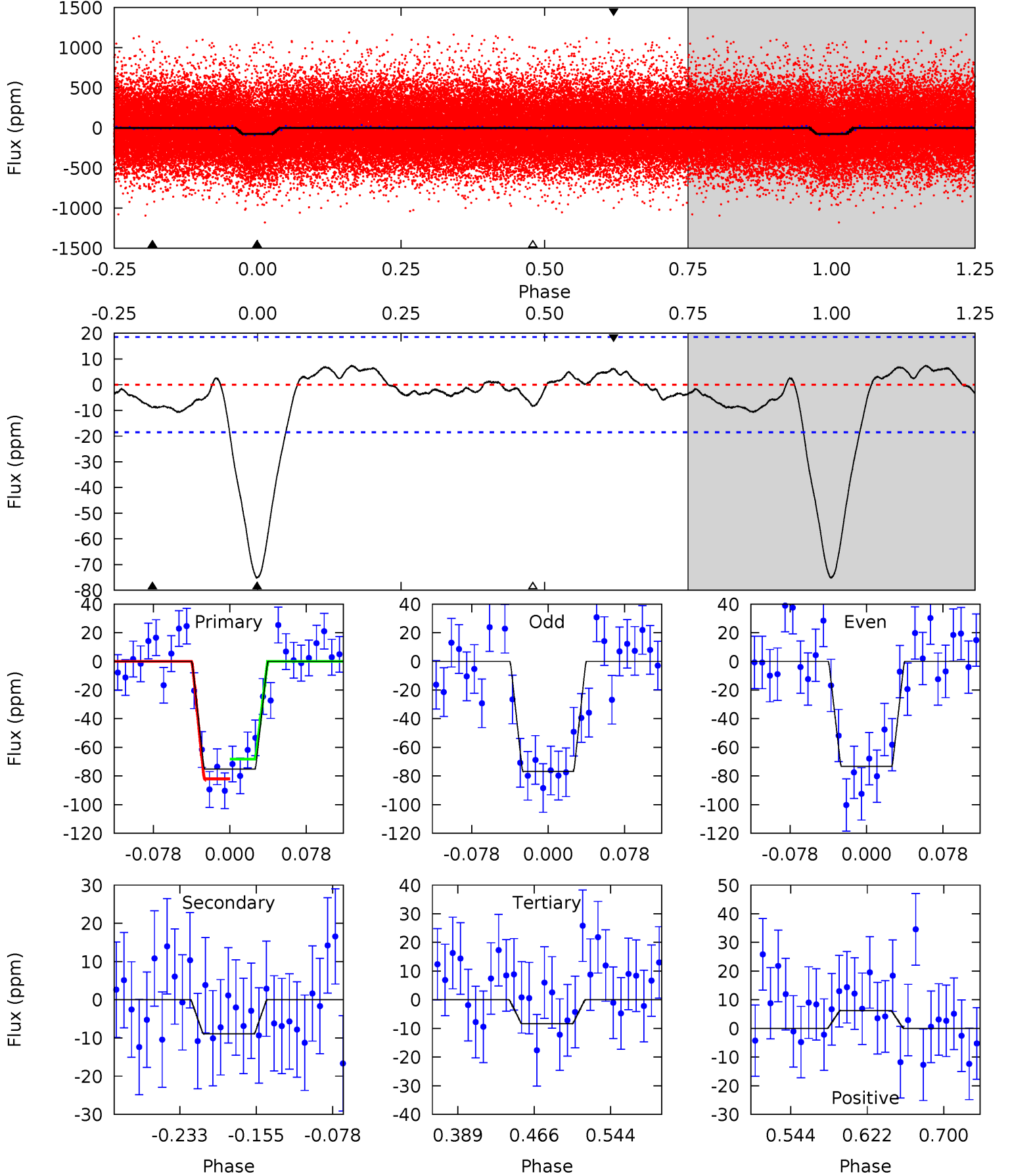




# Alt Model-Shift Uniqueness Test

010070468-01, P = 1.681886 Days, E = 131.398408 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
18.7	2.23	2.08	1.56	4.62	1.76	0.97	16.6	17.2	0.15	0.67	0.45	1.04	0.09	1.72





### Stellar Parameters For KIC 010070468

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5827^{+70}_{-79}$	$4.191^{+0.162}_{-0.108}$	$0.160^{+0.150}_{-0.150}$	$1.374^{+0.221}_{-0.246}$	$1.068^{+0.098}_{-0.071}$	$0.580^{+0.481}_{-0.194}$
	+1%/-1%	+4%/-3%	+94%/-94%	+16%/-18%	+9%/-7%	+83%/-33%
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 010070468-01 / KOI 2628.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-9 \pm 4$	$1.38^{+0.69}_{-0.76}$	$2489^{+108}_{-131}$	$3626^{+1273}_{-656}$	$2.179^{+7.881}_{-1.427}$
Alt.	$-9 \pm 4$	$1.37^{+0.71}_{-0.65}$	$2498^{+98}_{-130}$	$3603^{+1074}_{-700}$	$2.067^{+5.682}_{-1.372}$

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

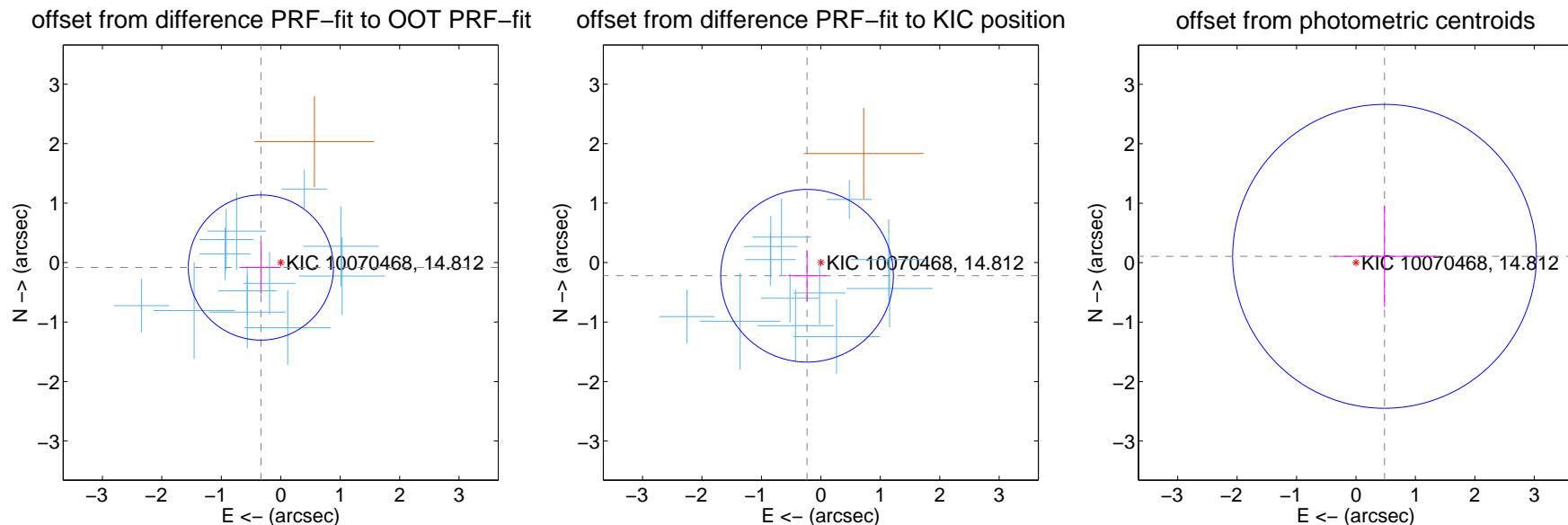
## DV Centroid Data

Supplemental centroid analysis for 010070468-01. Kepler magnitude: 14.81. Transit SNR 15.11

There are 12 quarters with good PRF difference image offsets

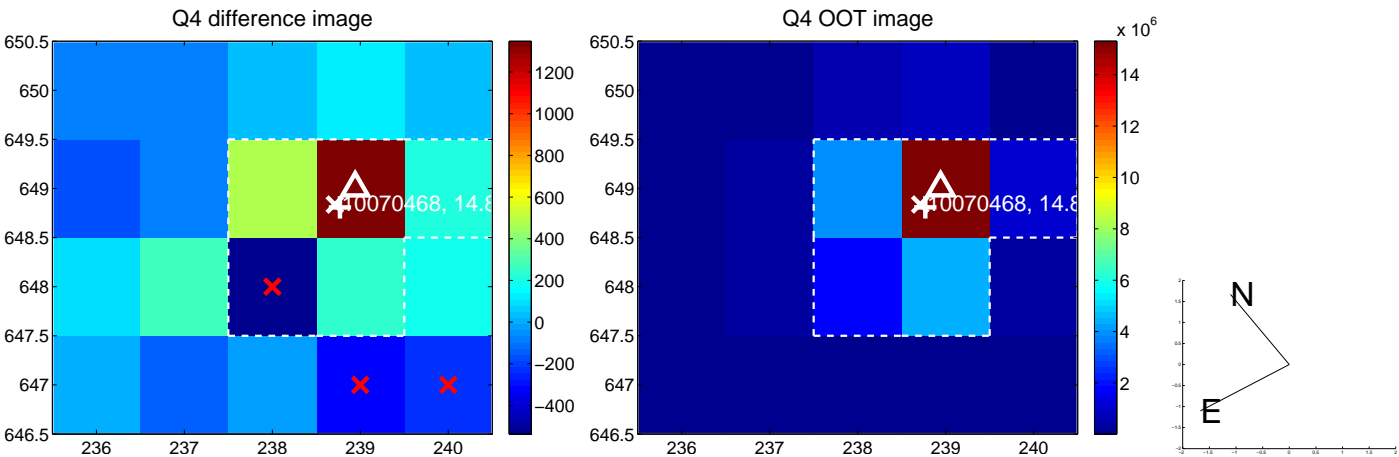
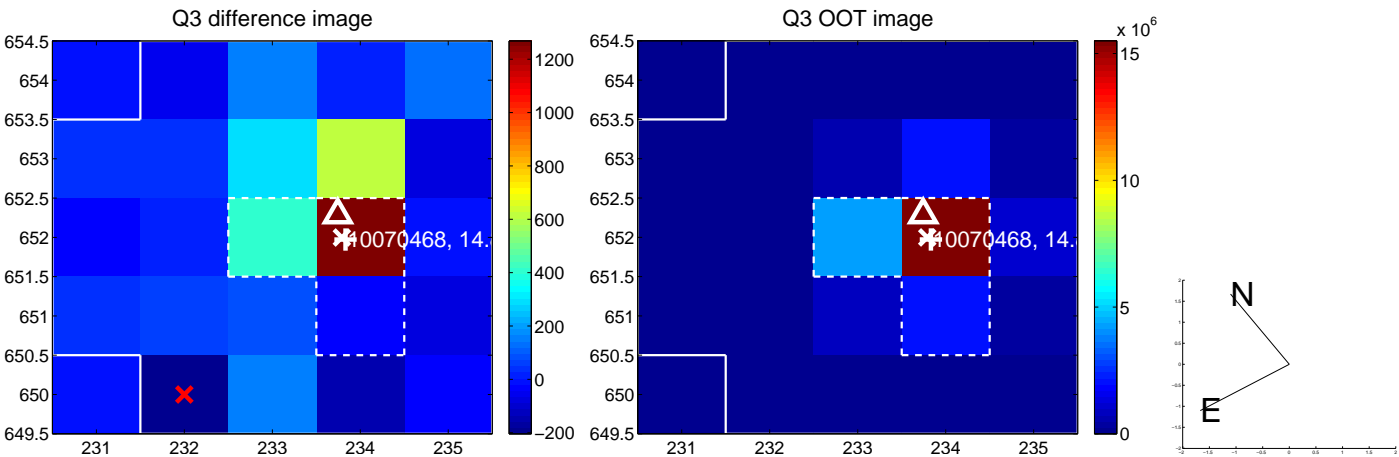
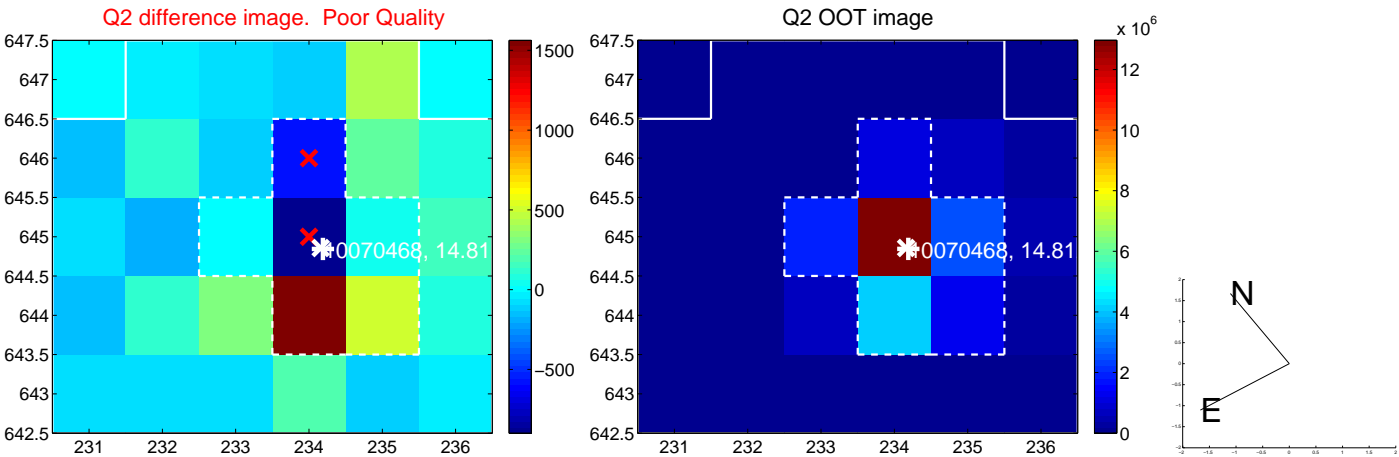
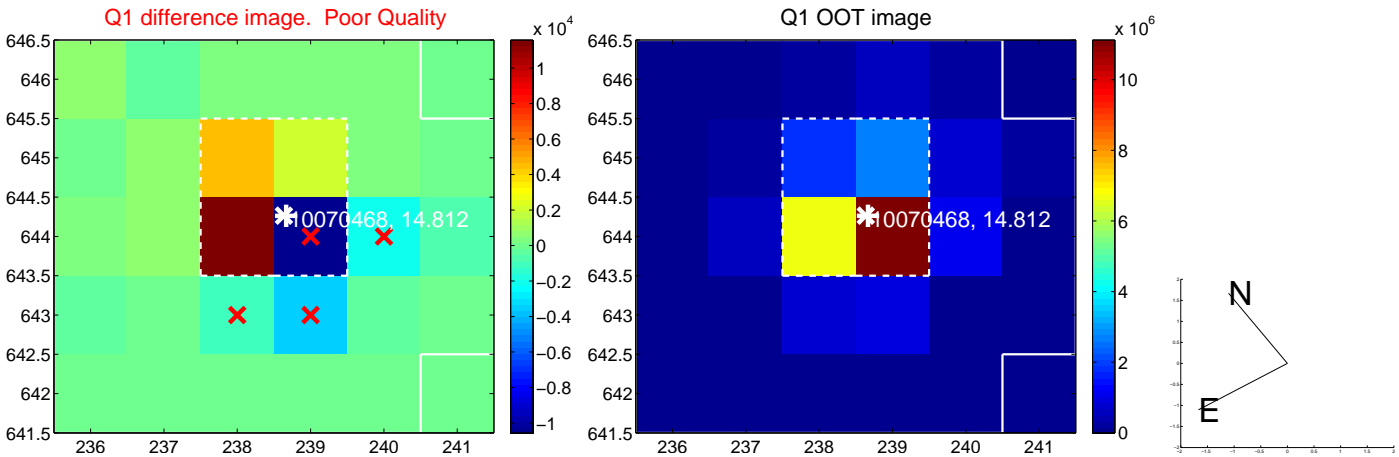
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.344 \pm 0.407$	0.85	$0.334 \pm 0.335$	$-0.083 \pm 0.444$
PRF-fit source offset from KIC position	$0.321 \pm 0.484$	0.66	$0.232 \pm 0.324$	$-0.221 \pm 0.423$
photometric centroid source offset	$0.49 \pm 0.85$	0.58	$-0.48 \pm 0.85$	$0.11 \pm 0.85$

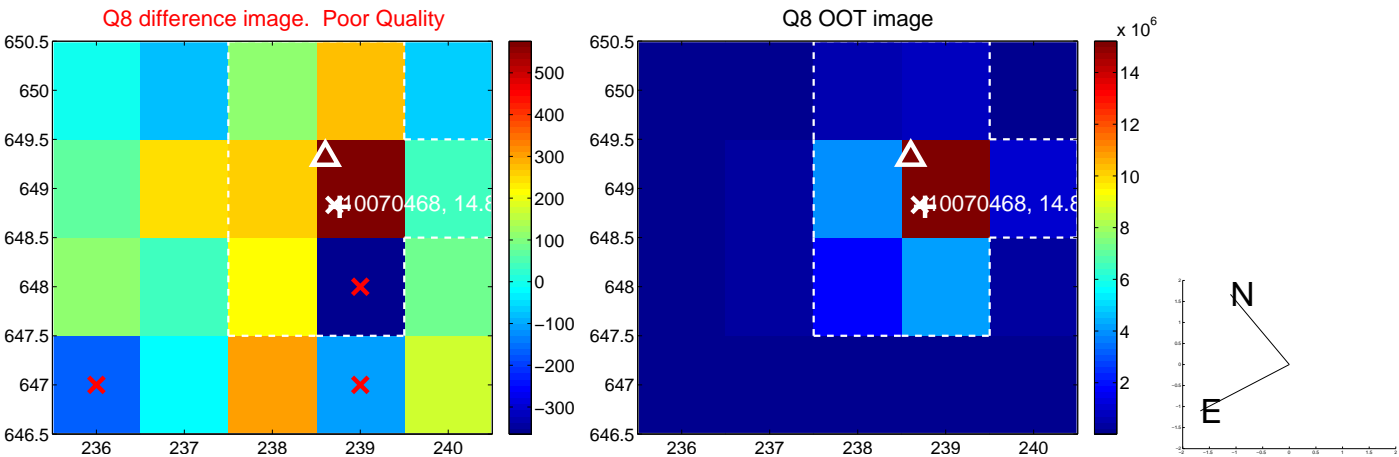
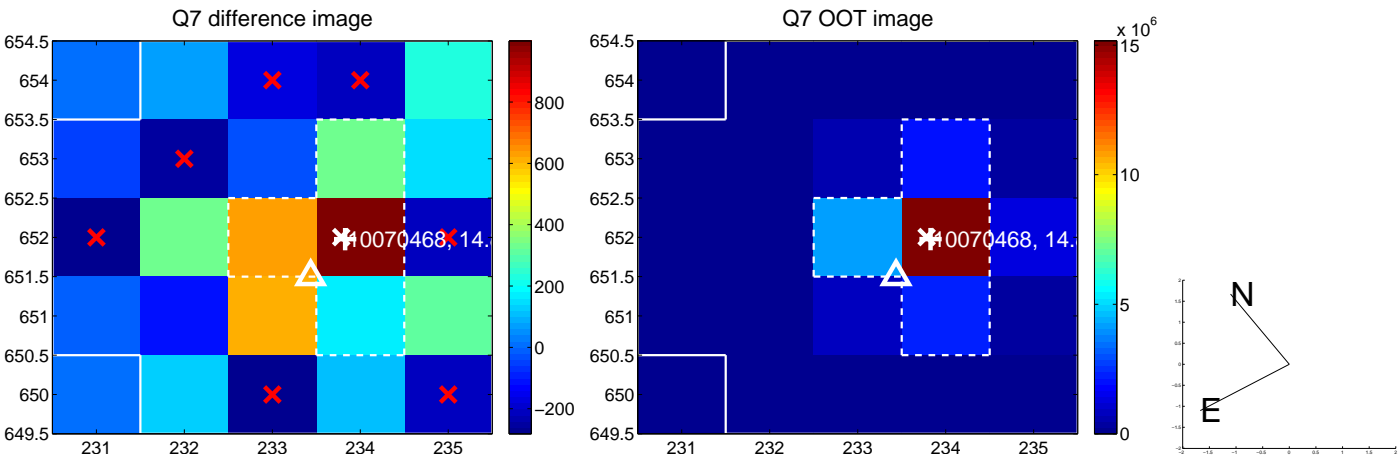
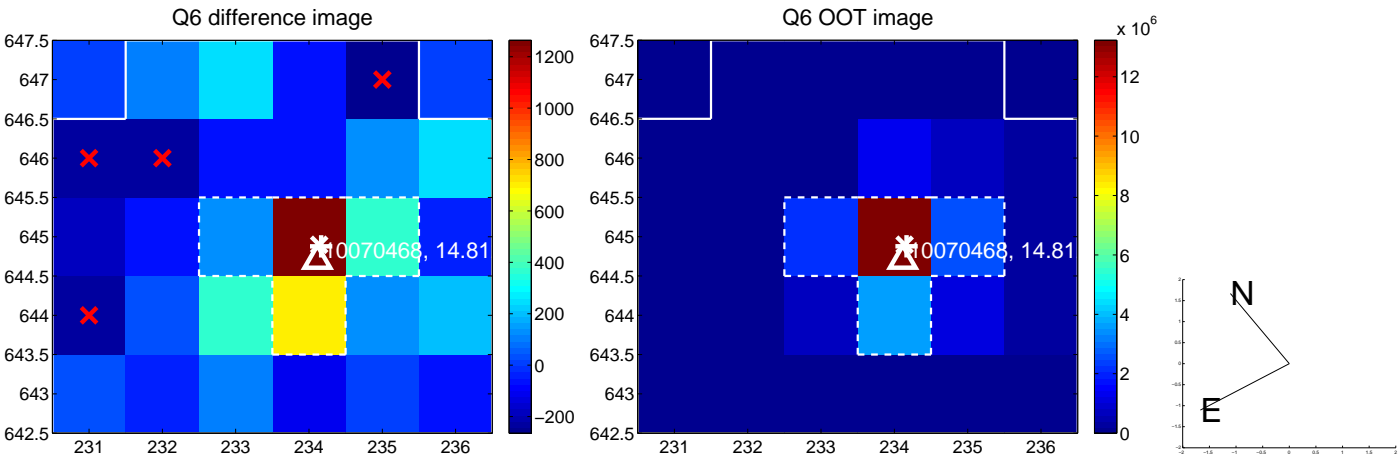
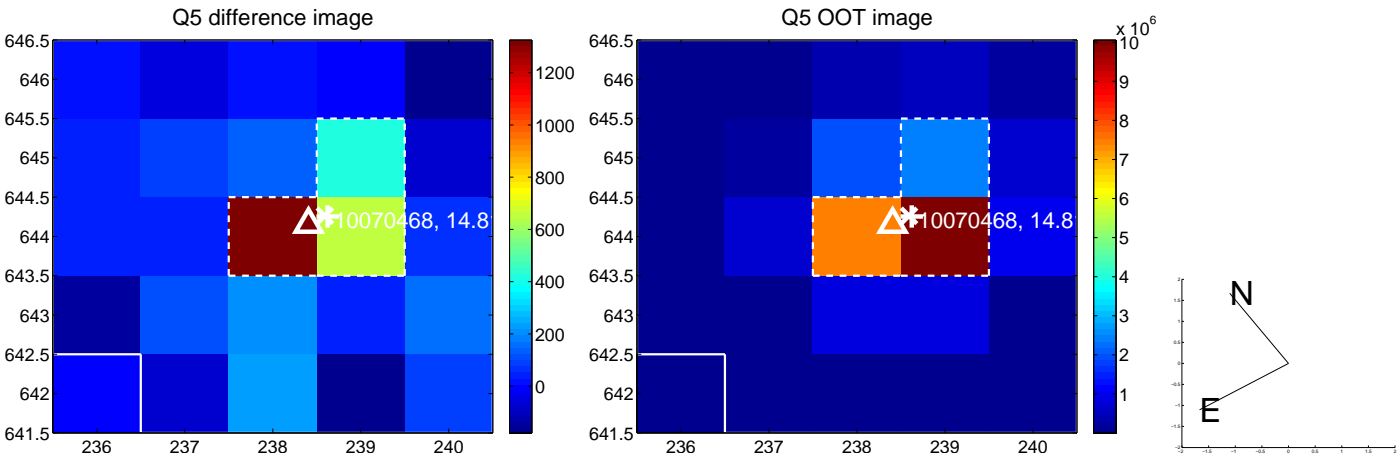


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

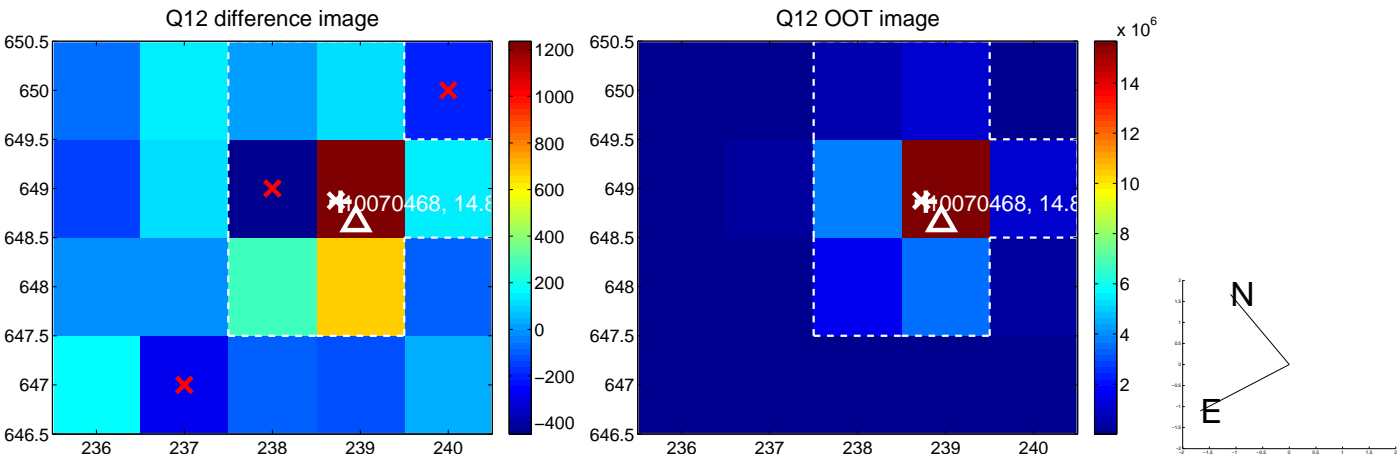
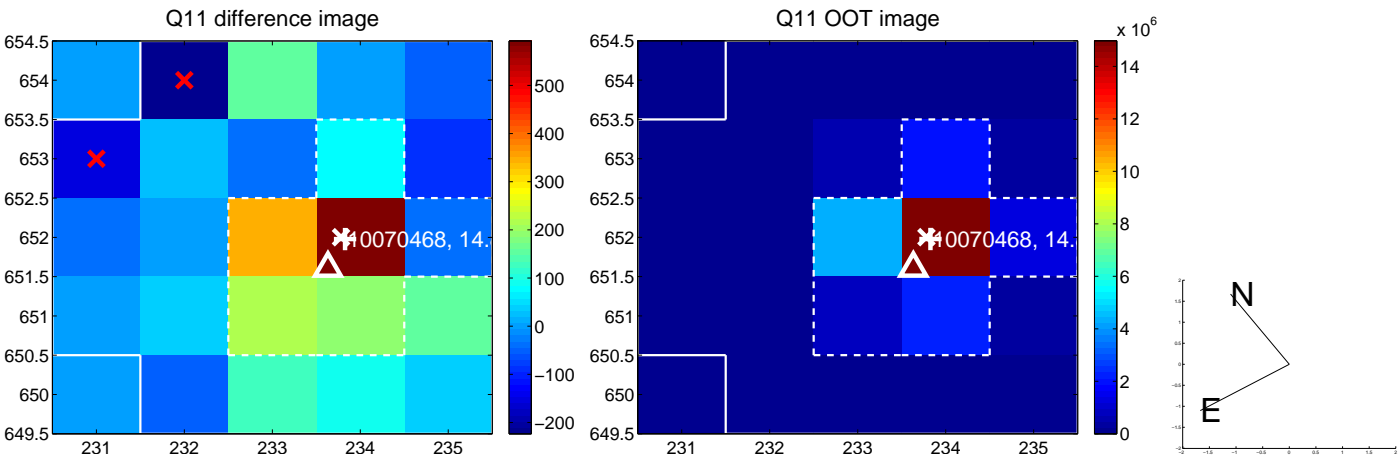
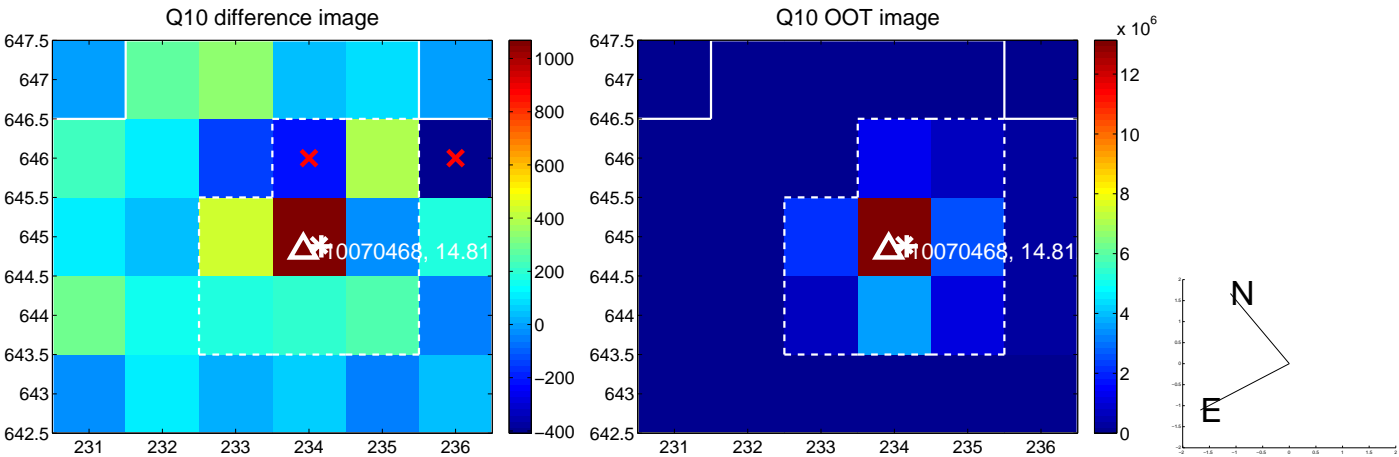
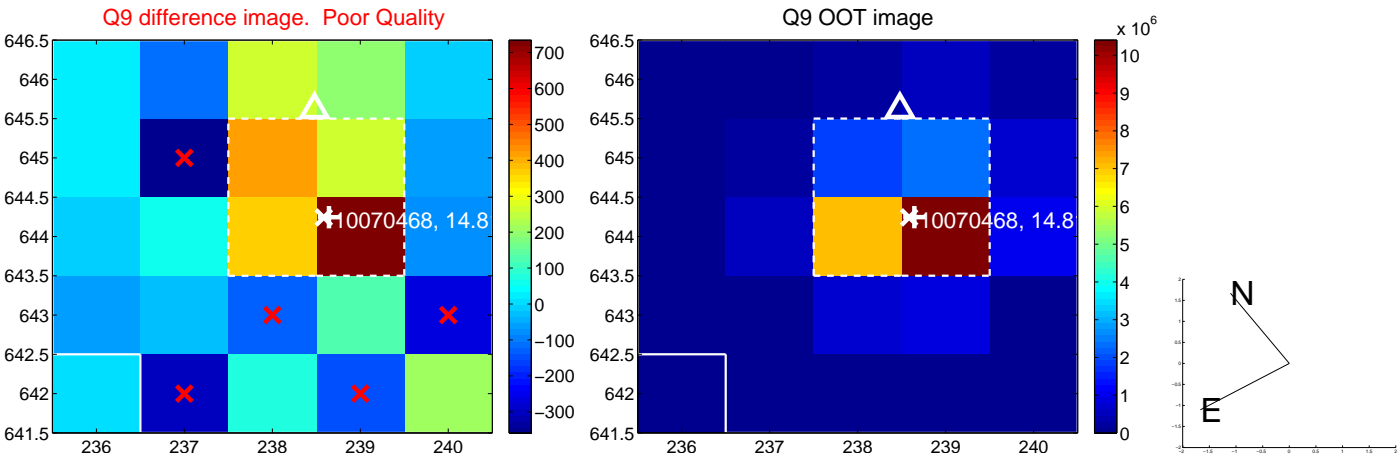


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

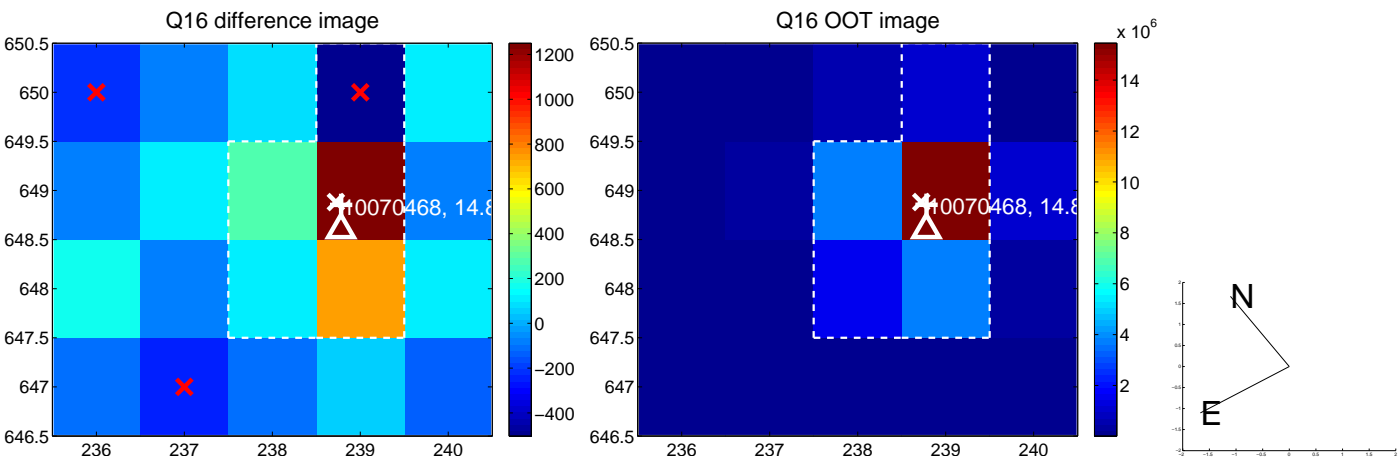
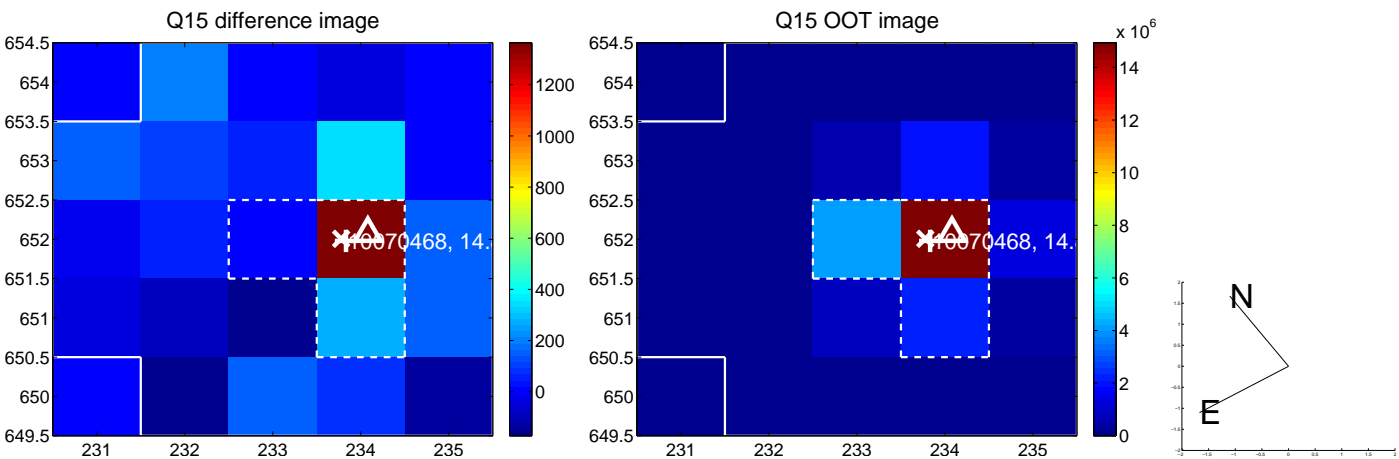
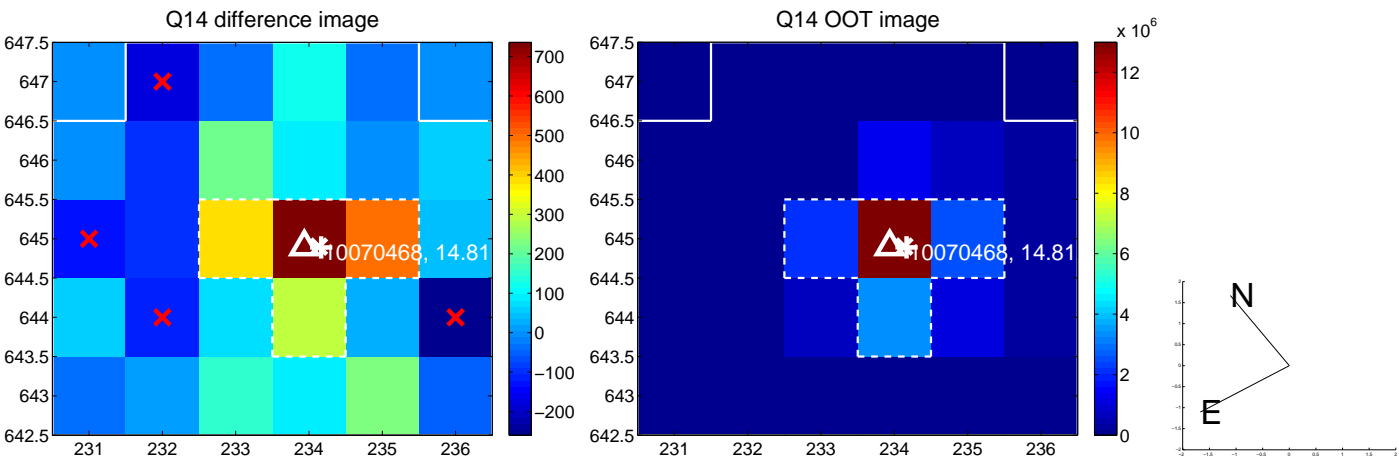
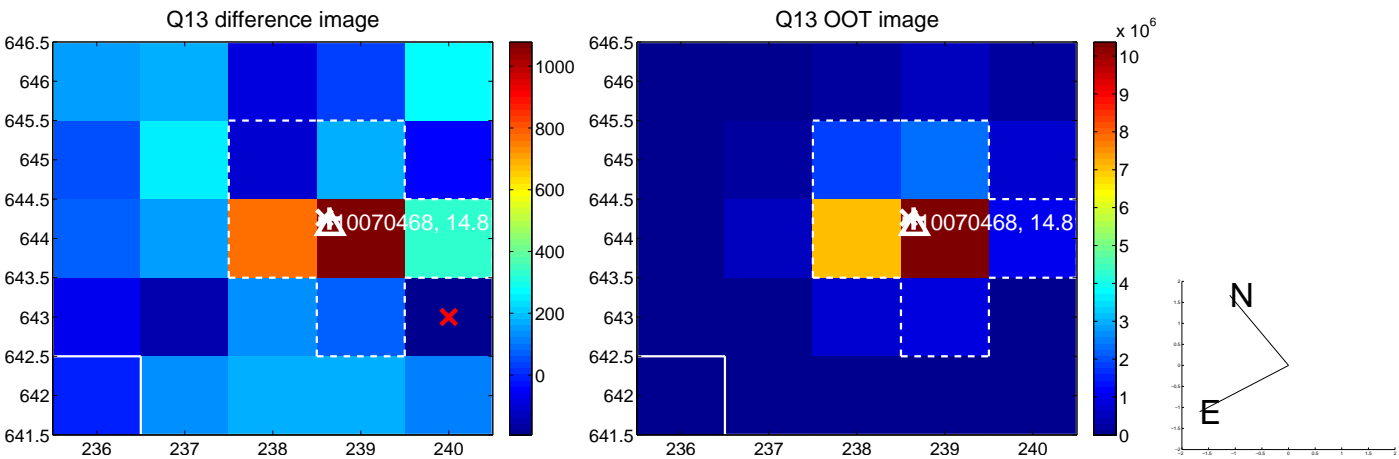




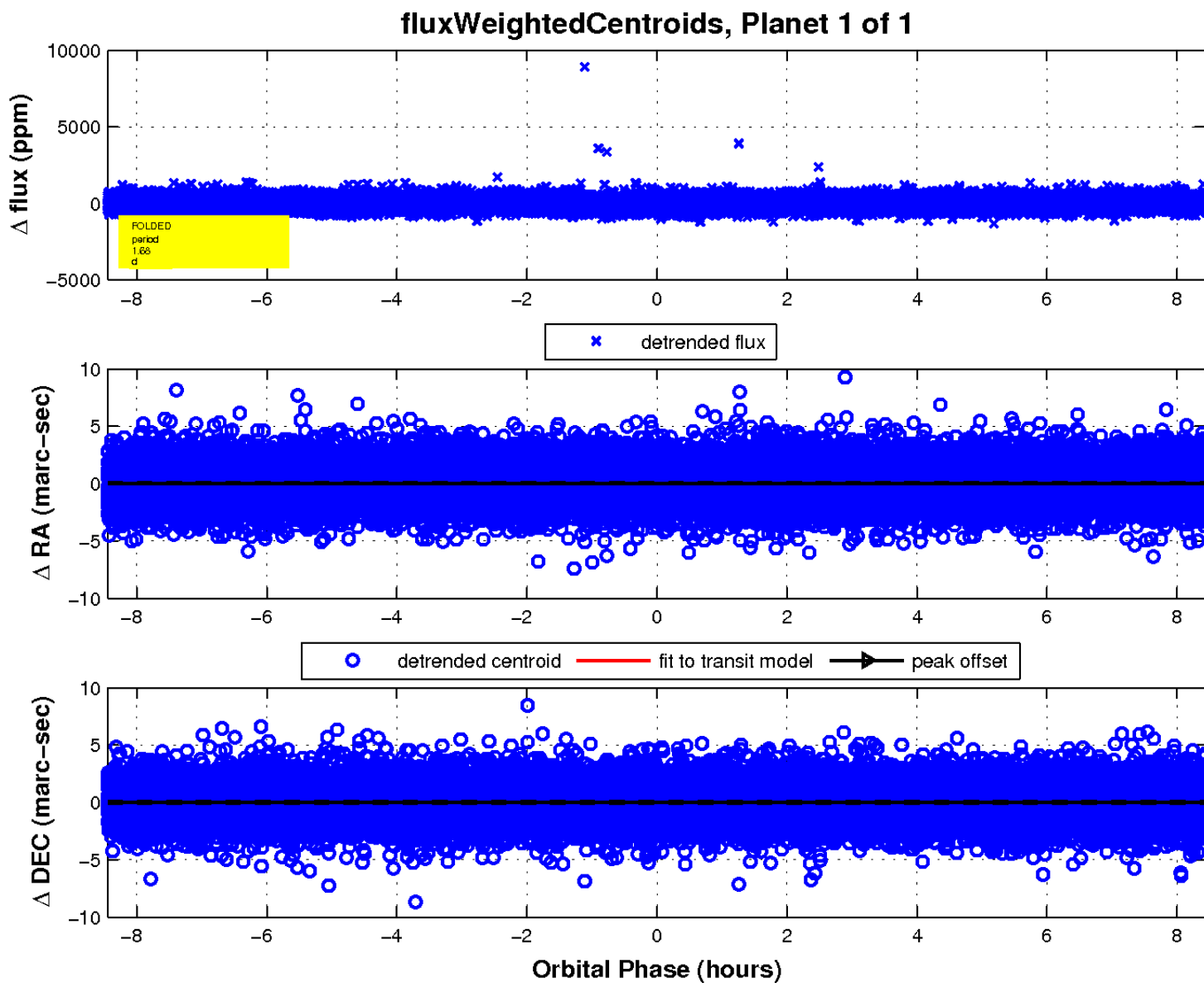
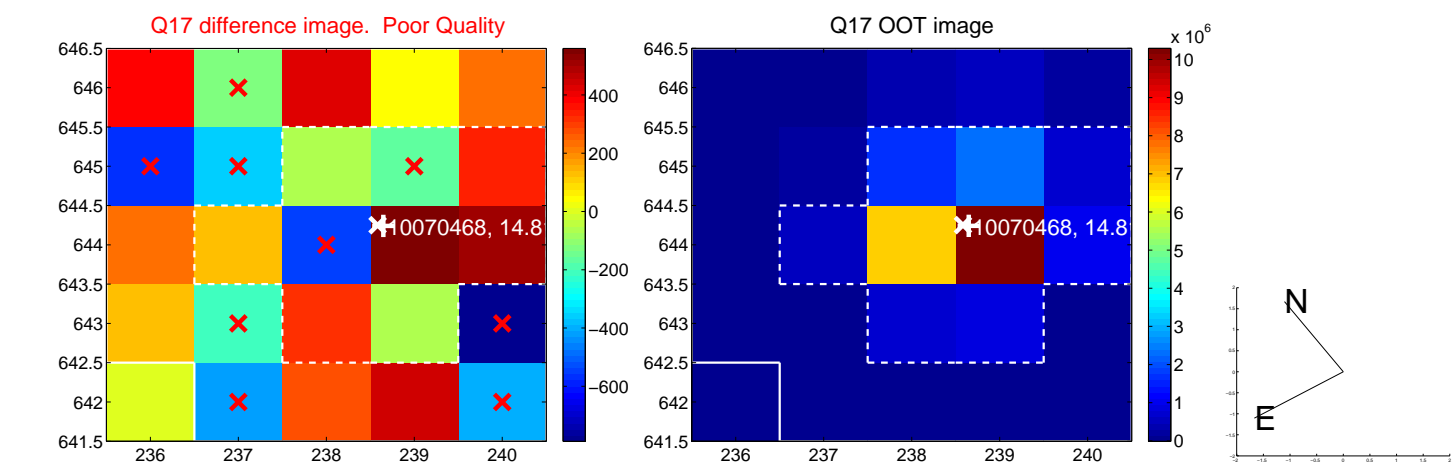
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

