

# KIC 007281468

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007281468-01	OBS	No	0.566750	131.863691	21.1	4.402	12.1	7.2	0.93	5984	0.44	5499.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007281468-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH

**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.

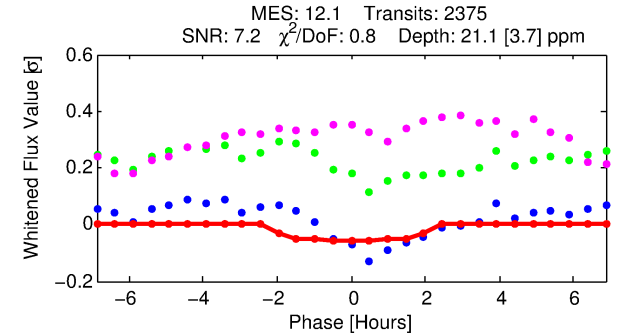
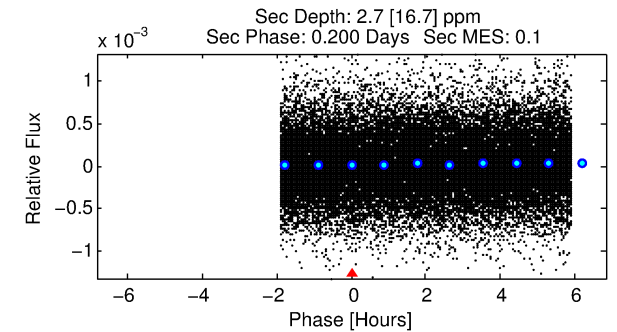
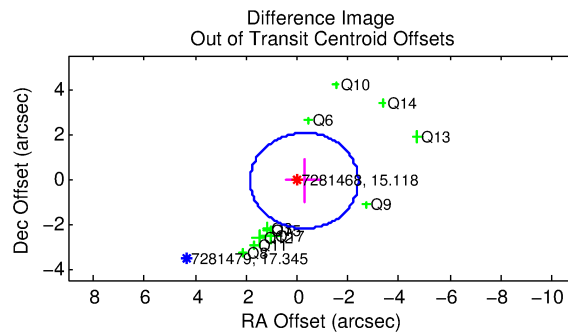
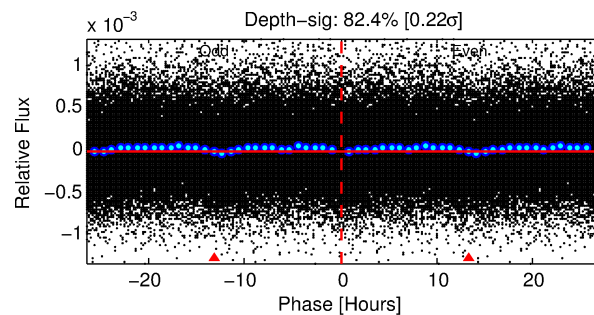
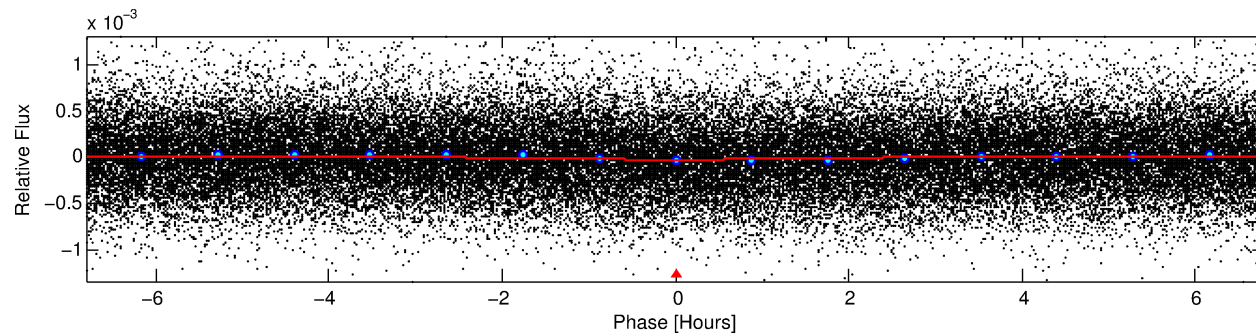
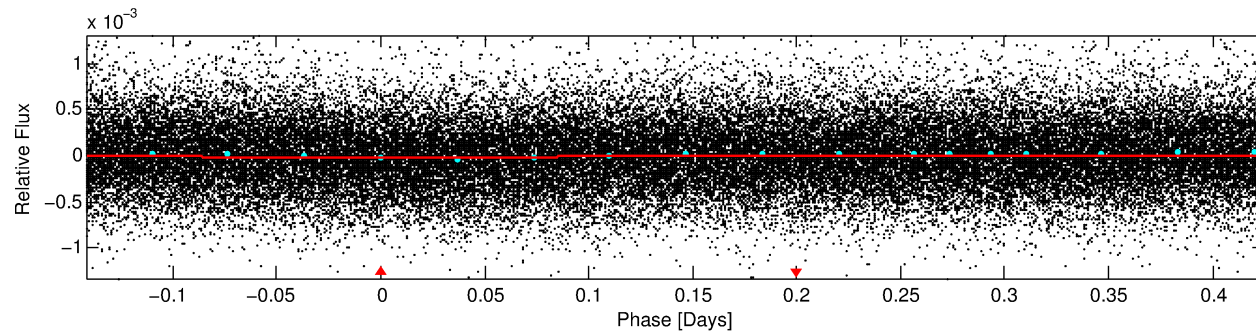
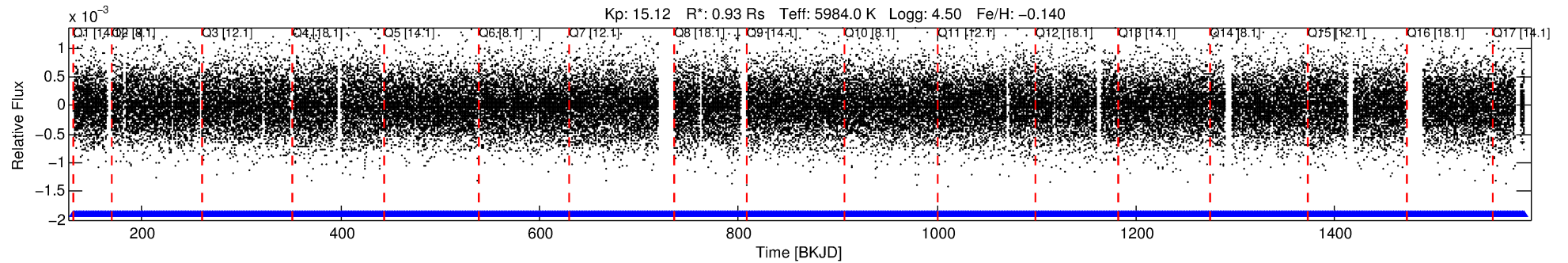
## Ephemeris Match Information For 007281468-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007281468-01	7281468	RR-Lyr-pri	7198959	1:1	652.0	55	154	7.86	15.12	29681.00	Direct-PRF	0	0.53	22.04

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7281468 Candidate: 1 of 1 Period: 0.567 d



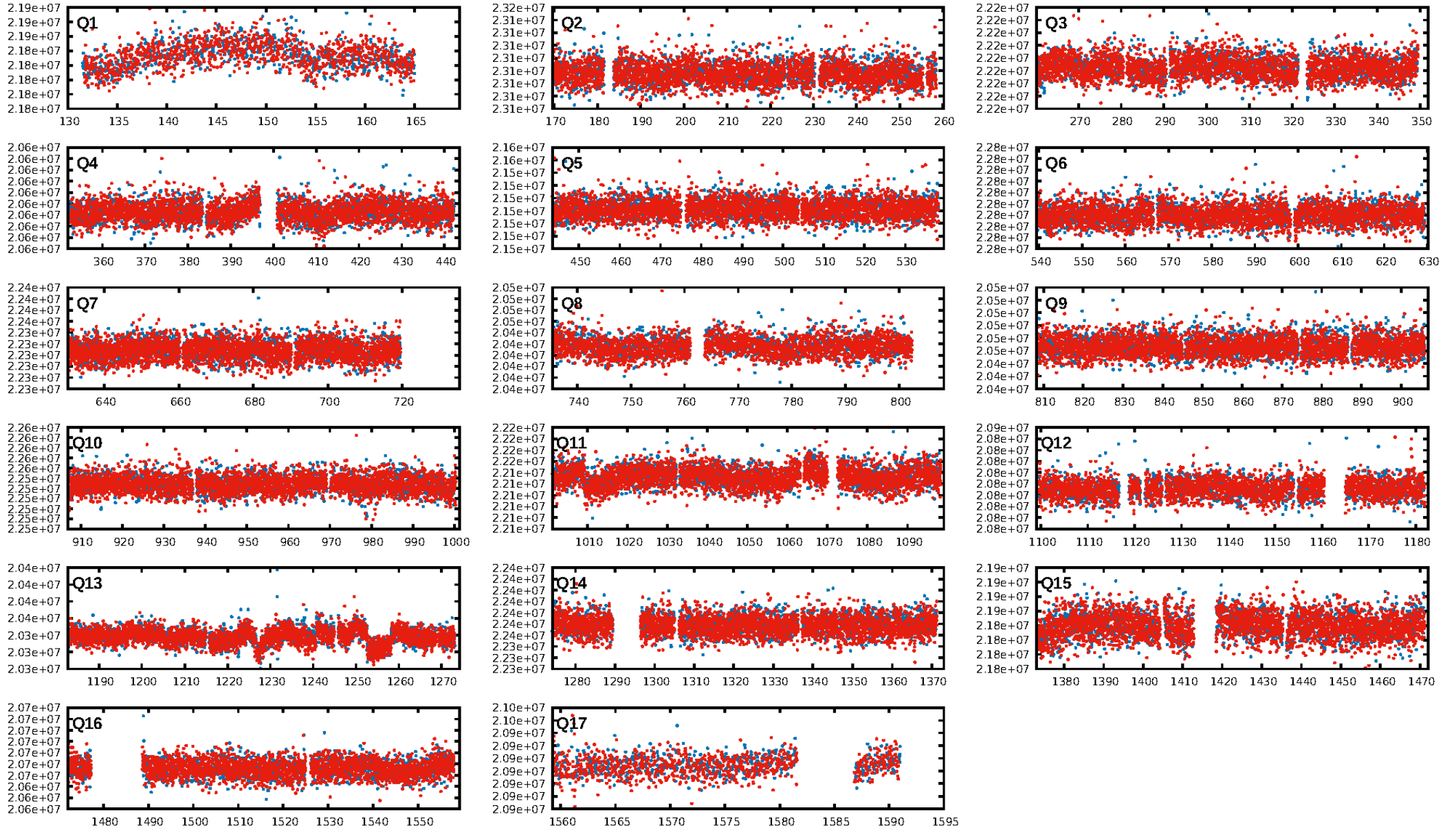
## DV Fit Results:

Period = 0.56675 [0.00001] d  
Epoch = 131.8637 [0.0071] BKJD  
Rp/R\* = 0.0043 [0.0065]  
a/R\* = 1.14 [1.93]  
b = 0.47 [11.95]  
Seff = 5499.27 [2194.21]  
Teff = 2196 [219] K  
Rp = 0.44 [0.68] Re  
a = 0.0135 [0.0034] AU  
Ag = 1.41 [9.69] [0.04 $\sigma$ ]  
Teffp = 3700 [6348] K [0.24 $\sigma$ ]

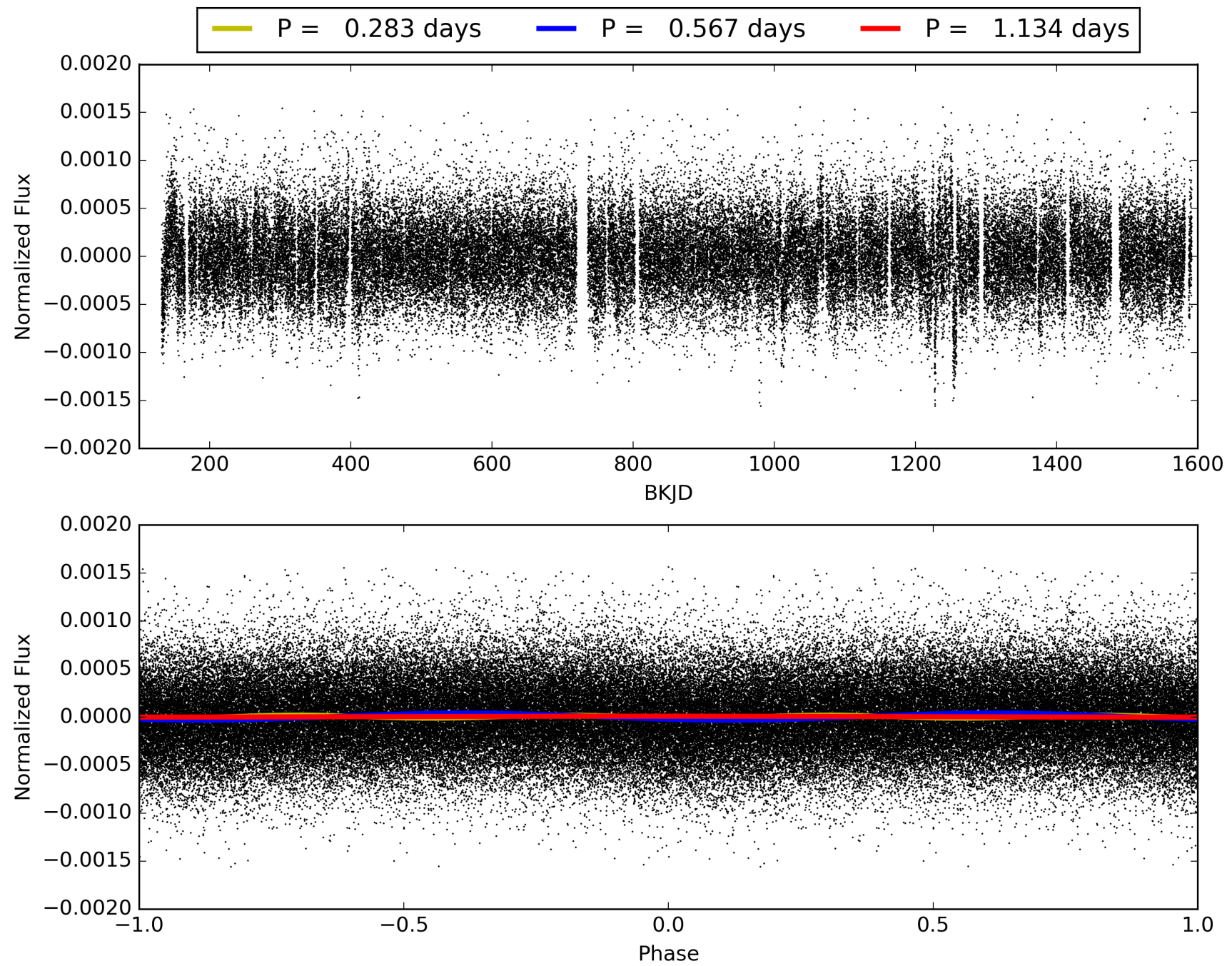
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2269/2269]  
**GhostDiagnostic-chr: 0.2387**  
**Centroid-sig: 0.1%**  
Centroid-so: 4.049 arcsec [2.24 $\sigma$ ]  
OotOffset-rm: 0.291 arcsec [0.41 $\sigma$ ]  
KicOffset-rm: 0.349 arcsec [0.45 $\sigma$ ]  
OotOffset-st: 3/4/2/3 [12]  
KicOffset-st: 3/4/2/3 [12]  
DiffImageQuality-fgm: 0.58 [7/12]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007281468-01, PDC Light Curves



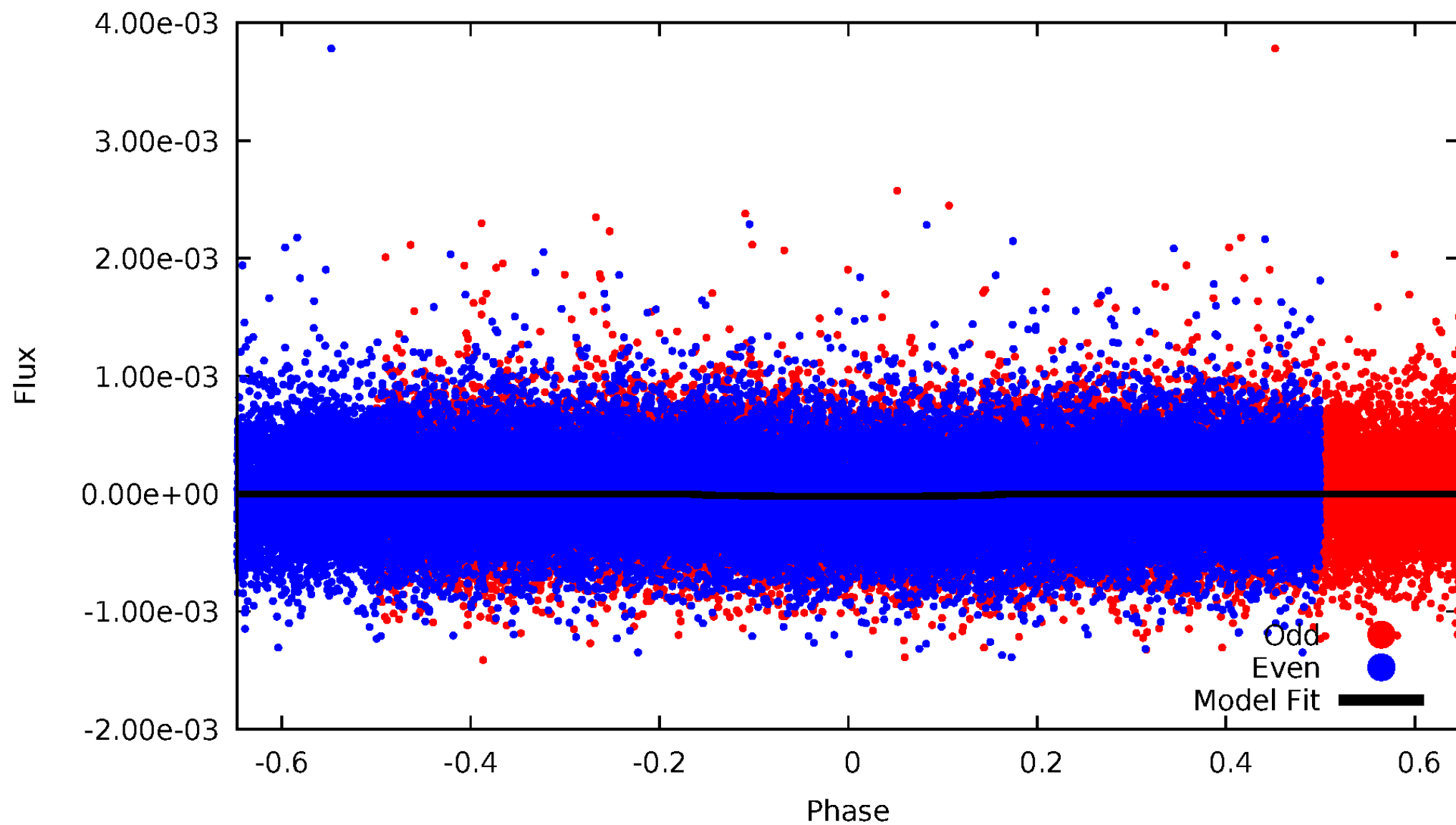
TCE 007281468-01





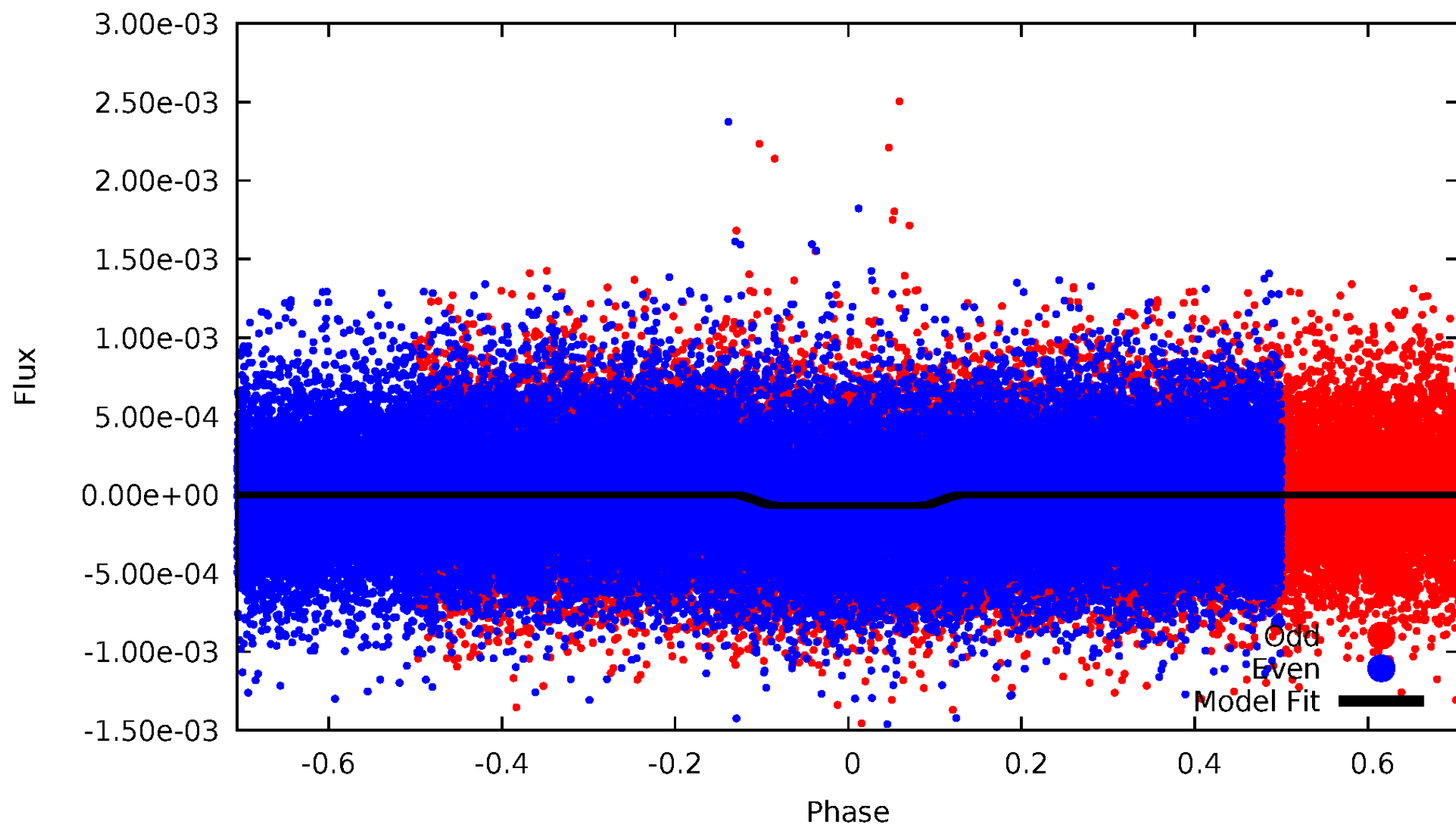
# DV Odd/Even

TCE 007281468-01



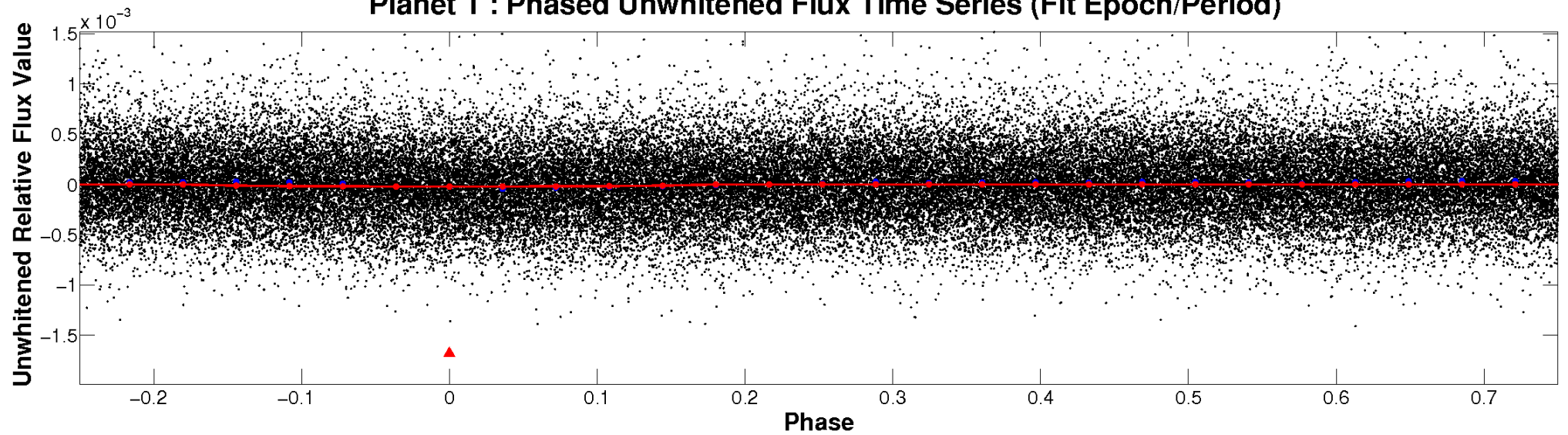
# ALT Odd/Even

TCE 007281468-01

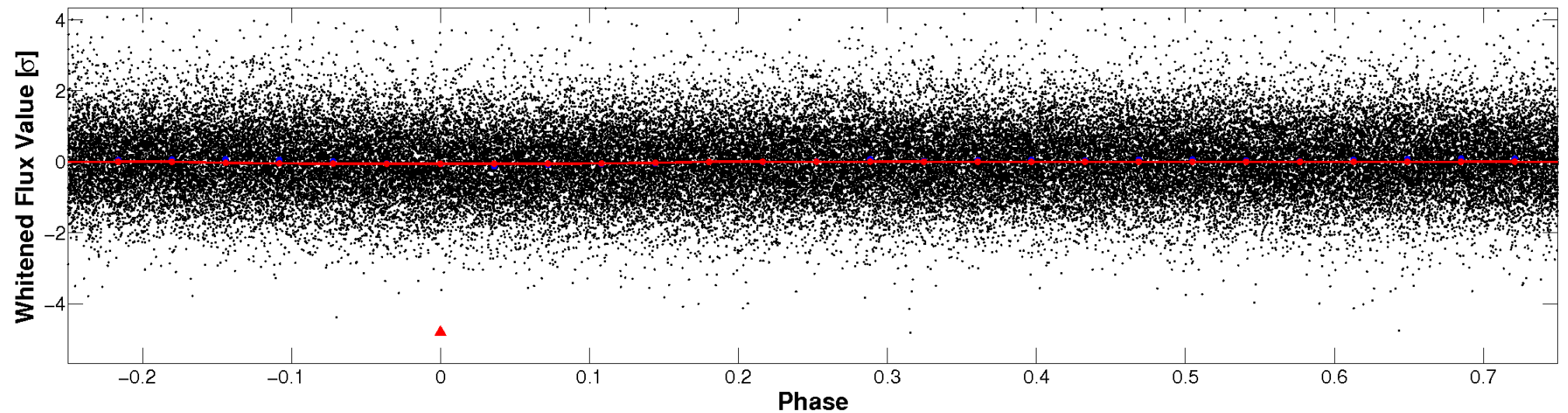


# Non-Whitened Vs. Whitened Light Curve

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

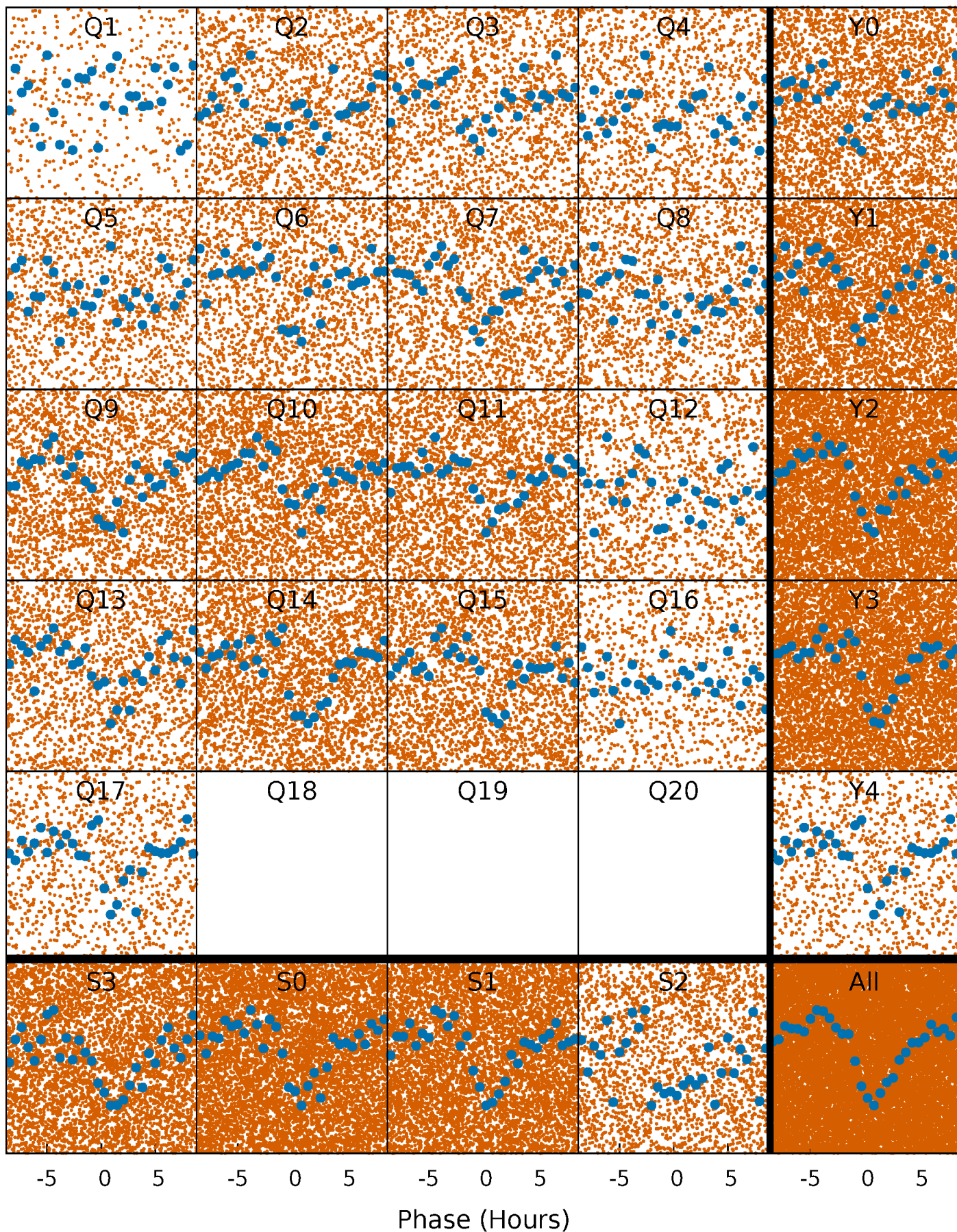


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

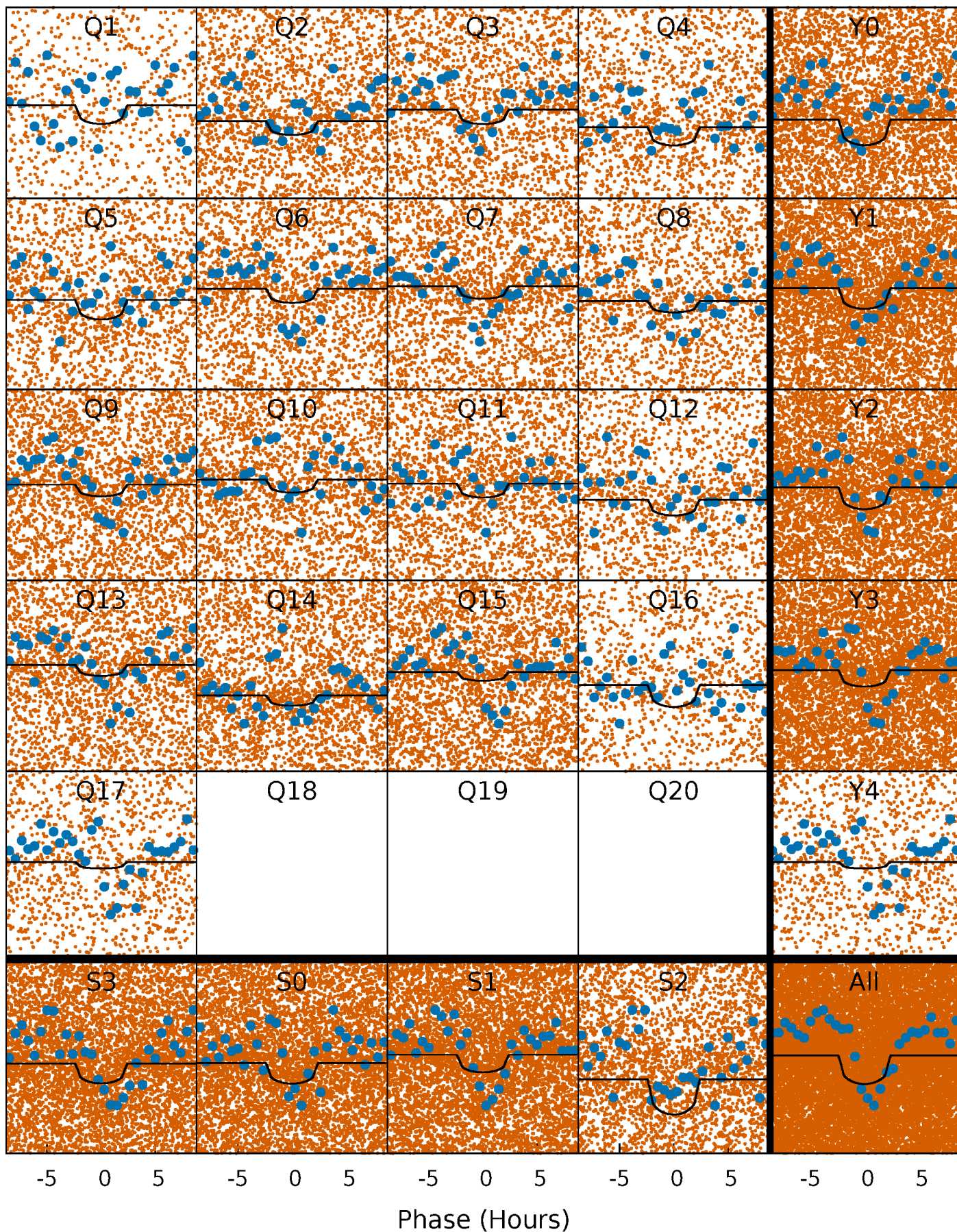
TCE 007281468-01 P= 0.566750 Days  $T_0=131.863691$  (BKJD)





# DV Quarter-Phased Transit Curves

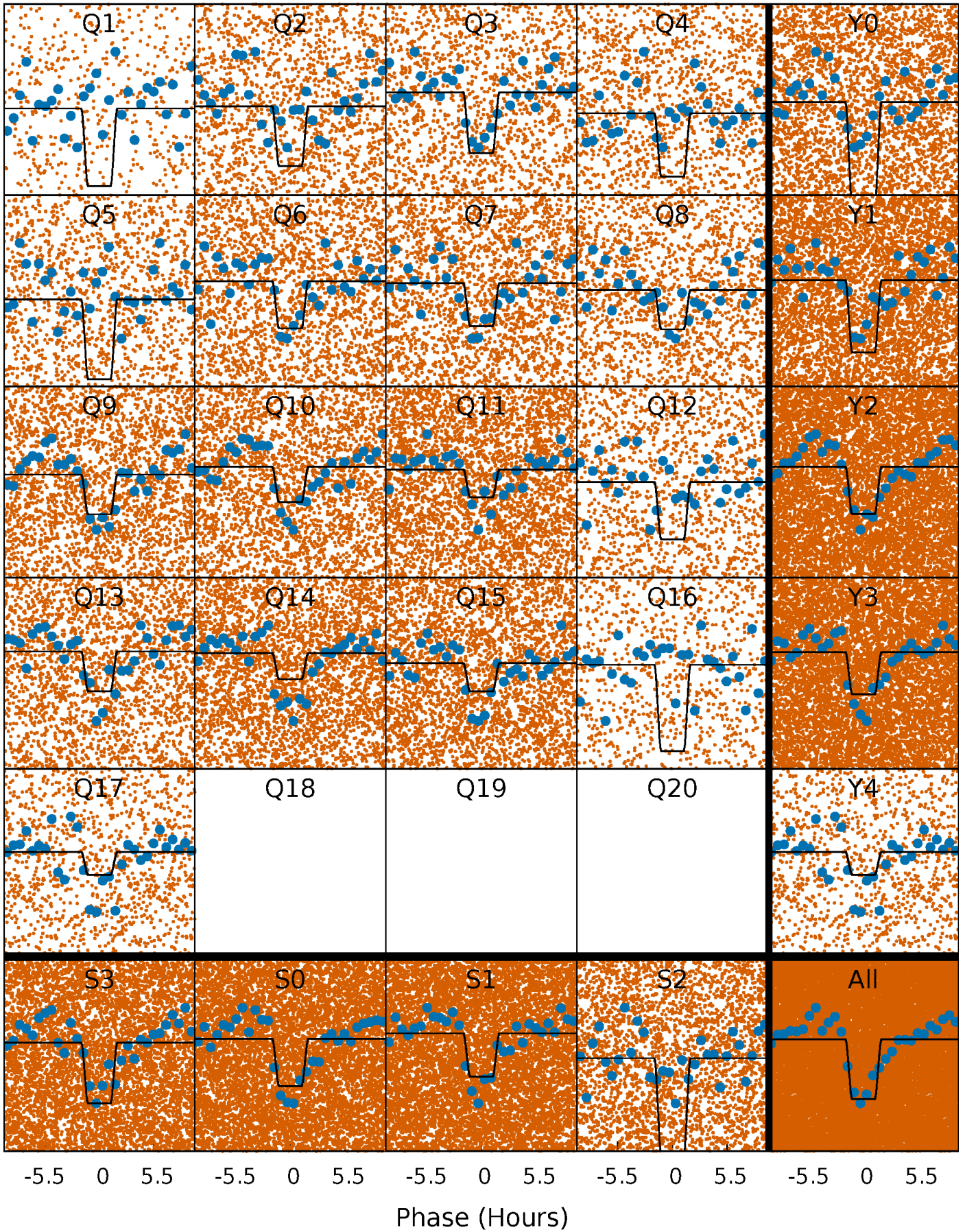
TCE 007281468-01 P= 0.566750 Days  $T_0=131.863691$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

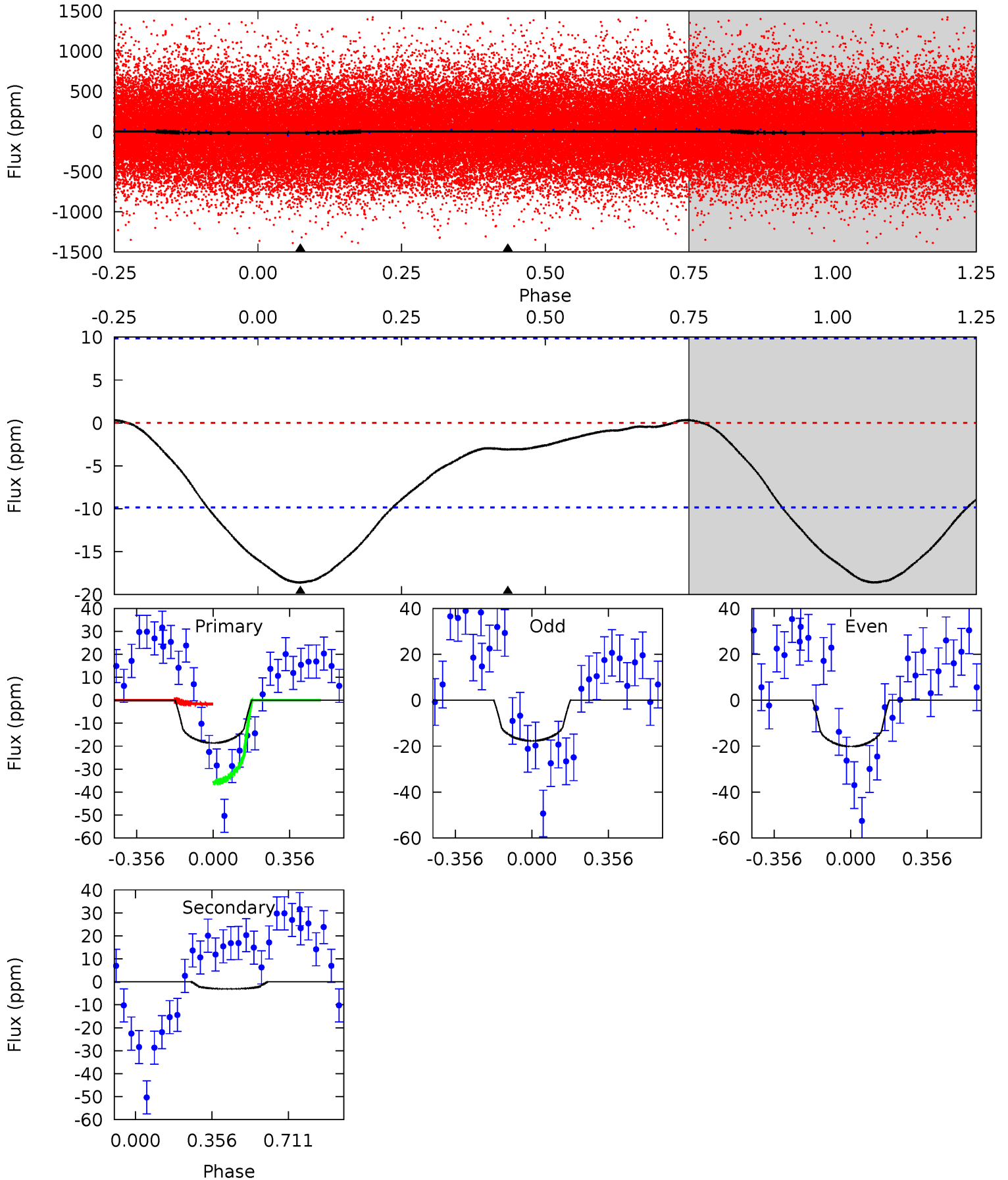
TCE 007281468-01 P= 0.566788 Days  $T_0=131.841185$  (BKJD)



# DV Model-Shift Uniqueness Test

007281468-01, P = 0.566750 Days, E = 131.296941 Days

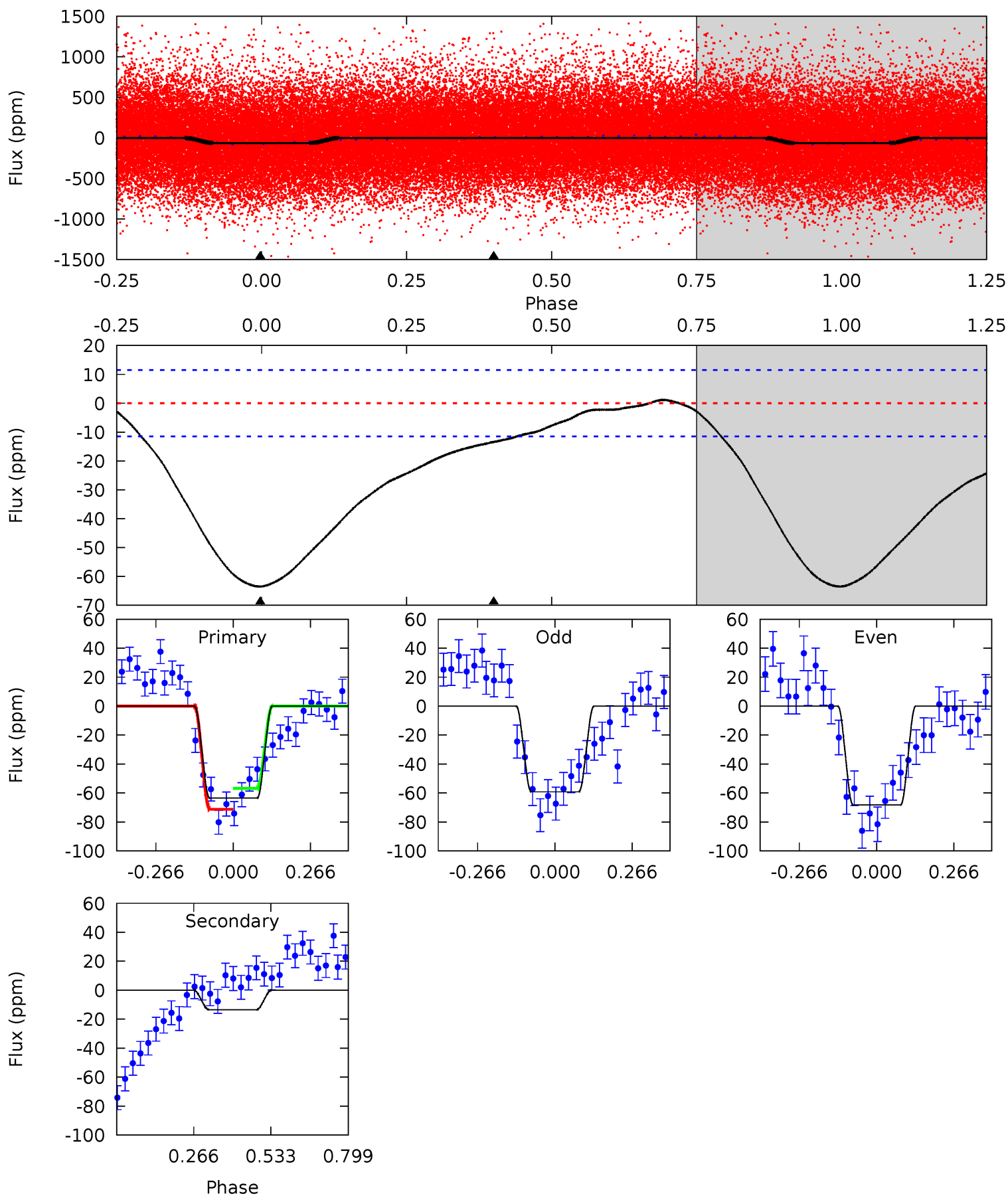
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.11	1.36	0	0	4.29	0.92	0.18	8.11	8.11	1.36	1.36	0.54	0.94	0.02	7.39



# Alt Model-Shift Uniqueness Test

007281468-01, P = 0.566788 Days, E = 131.274397 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
24.1	5.08	0	0	4.35	1.11	0.38	24.1	24.1	5.08	5.08	1.72	0.93	0.02	2.71





### Stellar Parameters For KIC 007281468

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5984^{+161}_{-197}$	$4.505^{+0.052}_{-0.208}$	$-0.140^{+0.300}_{-0.300}$	$0.931^{+0.279}_{-0.093}$	$1.011^{+0.131}_{-0.131}$	$1.768^{+0.396}_{-0.947}$
	+3%/-3%	+1%/-5%	+214%/-214%	+30%/-10%	+13%/-13%	+22%/-54%
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 007281468-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3 \pm 2$	$0.67^{+0.65}_{-0.44}$	$3135^{+224}_{-156}$	$3013^{+2175}_{-6076}$	$0.515^{+4.351}_{-0.425}$
Alt.	$-13 \pm 3$	$0.96^{+0.60}_{-0.56}$	$3125^{+219}_{-145}$	$3904^{+1992}_{-930}$	$1.402^{+6.982}_{-0.917}$

$T_{max}$  = 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

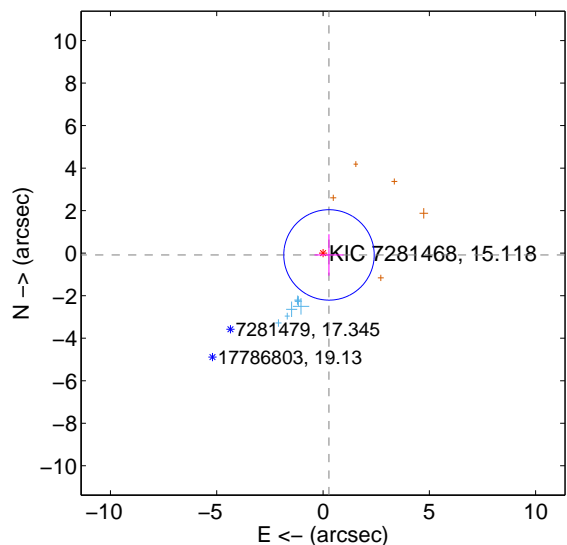
Supplemental centroid analysis for 007281468-01. Kepler magnitude: 15.12. Transit SNR 7.22

There are 7 quarters with good PRF difference image offsets

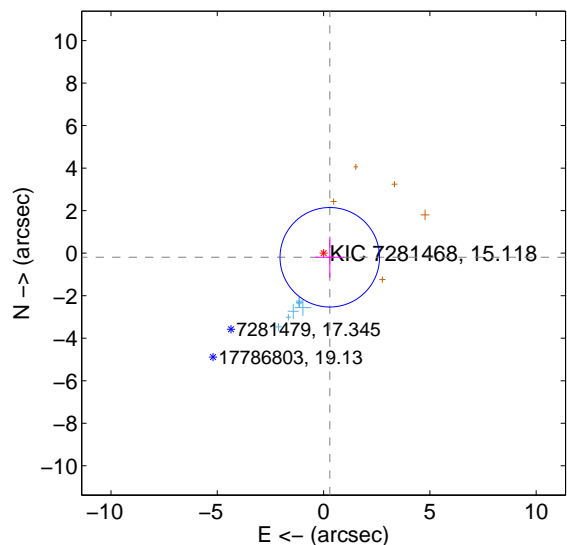
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.291 \pm 0.709$	0.41	$-0.280 \pm 0.681$	$-0.082 \pm 0.976$
PRF-fit source offset from KIC position	$0.349 \pm 0.780$	0.45	$-0.292 \pm 0.681$	$-0.192 \pm 0.969$
photometric centroid source offset	$4.05 \pm 1.81$	2.24	$-1.22 \pm 1.95$	$-3.86 \pm 1.80$

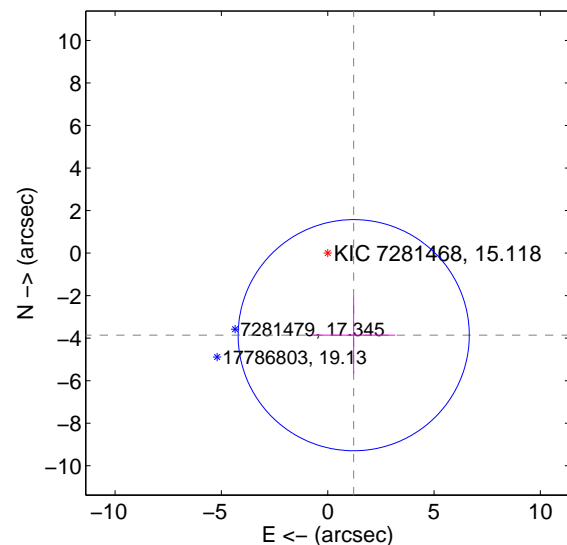
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

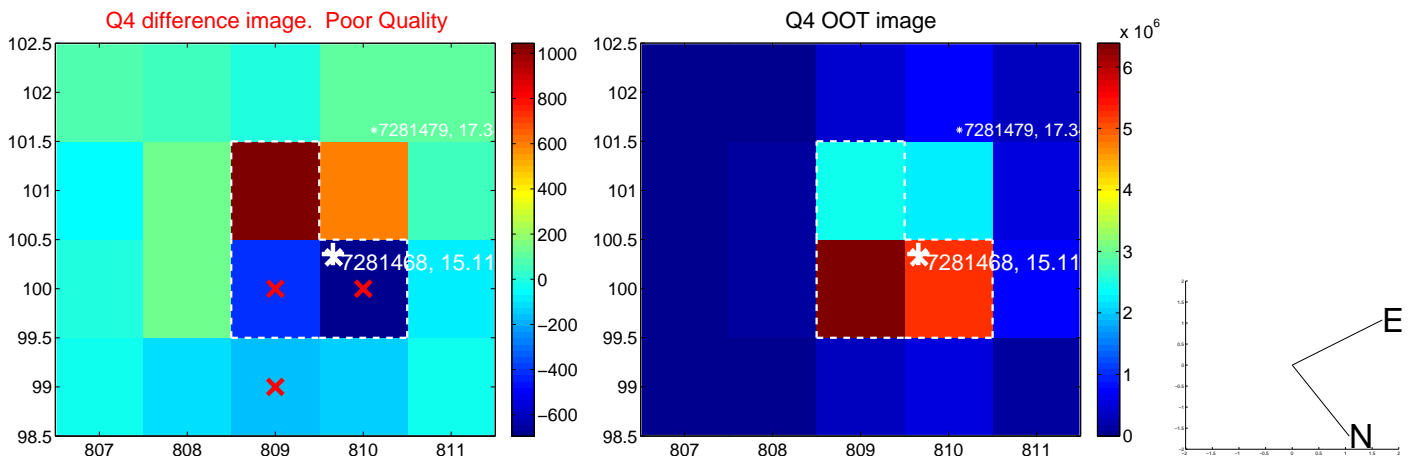
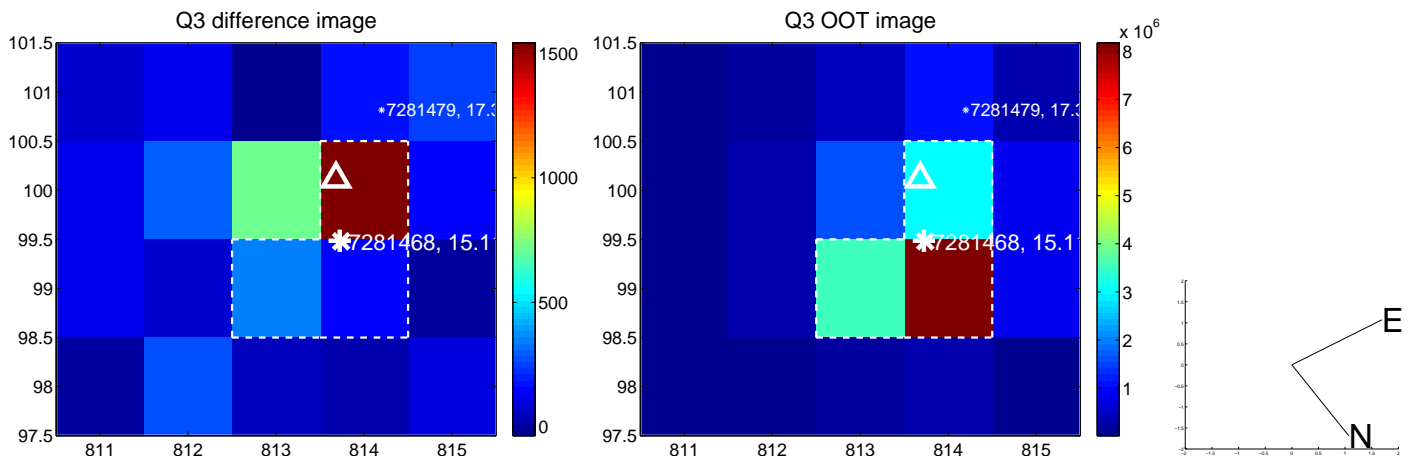
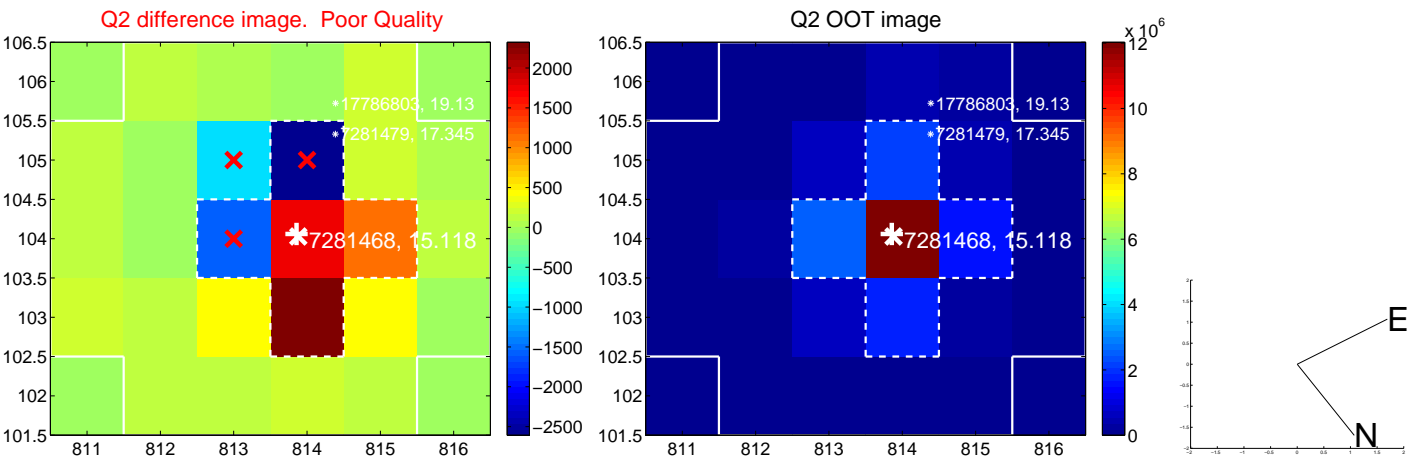
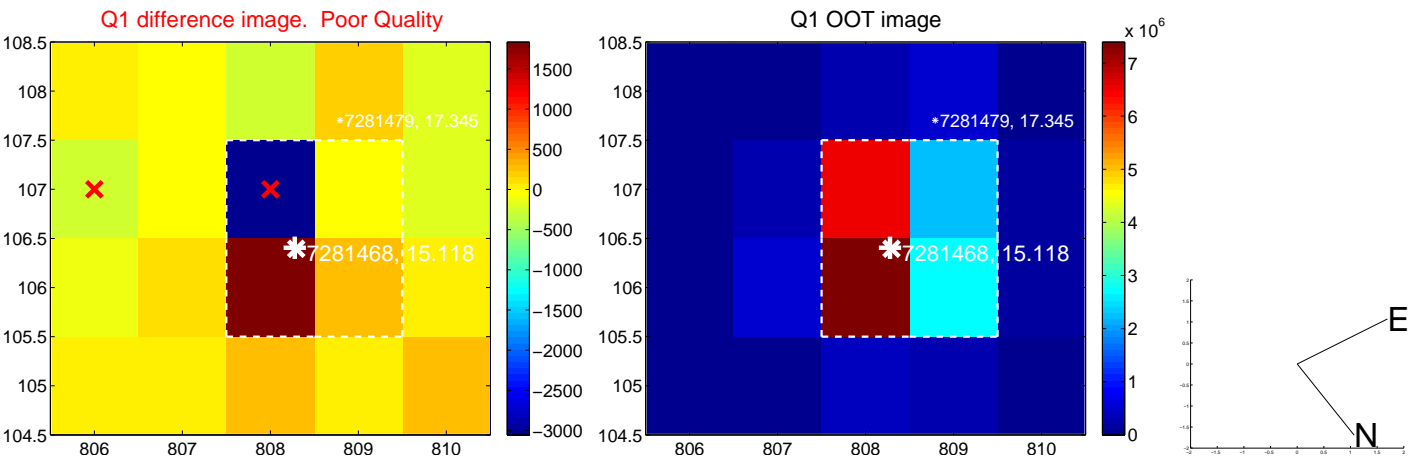


offset from photometric centroids

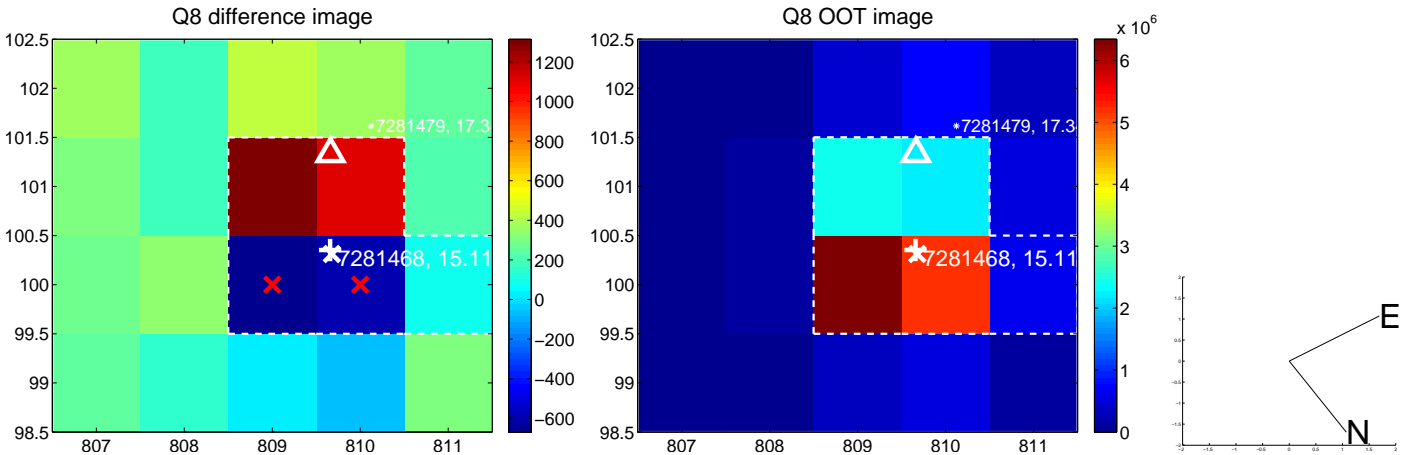
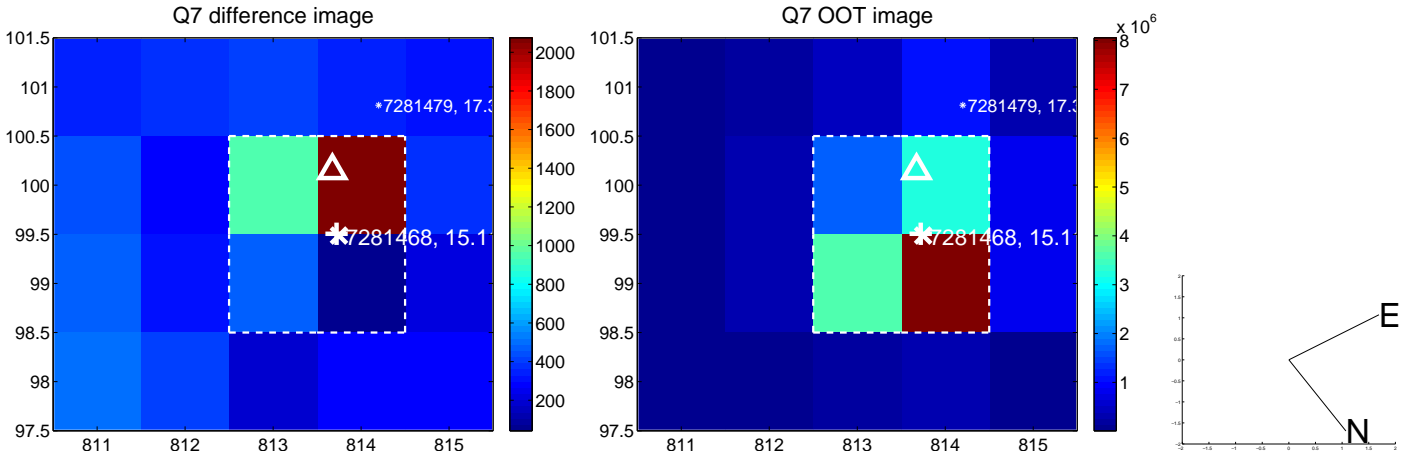
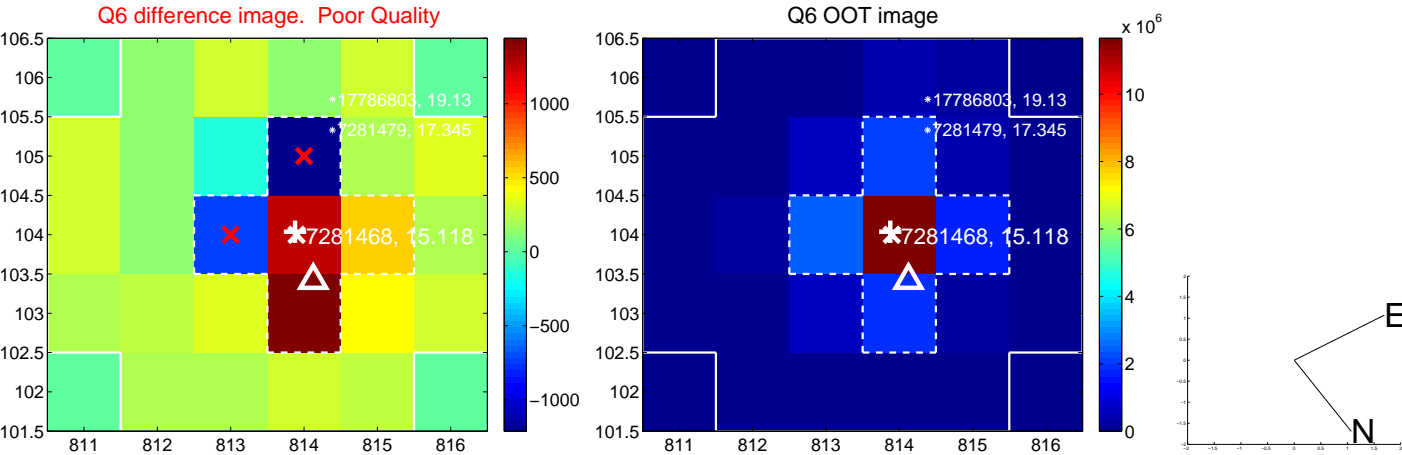
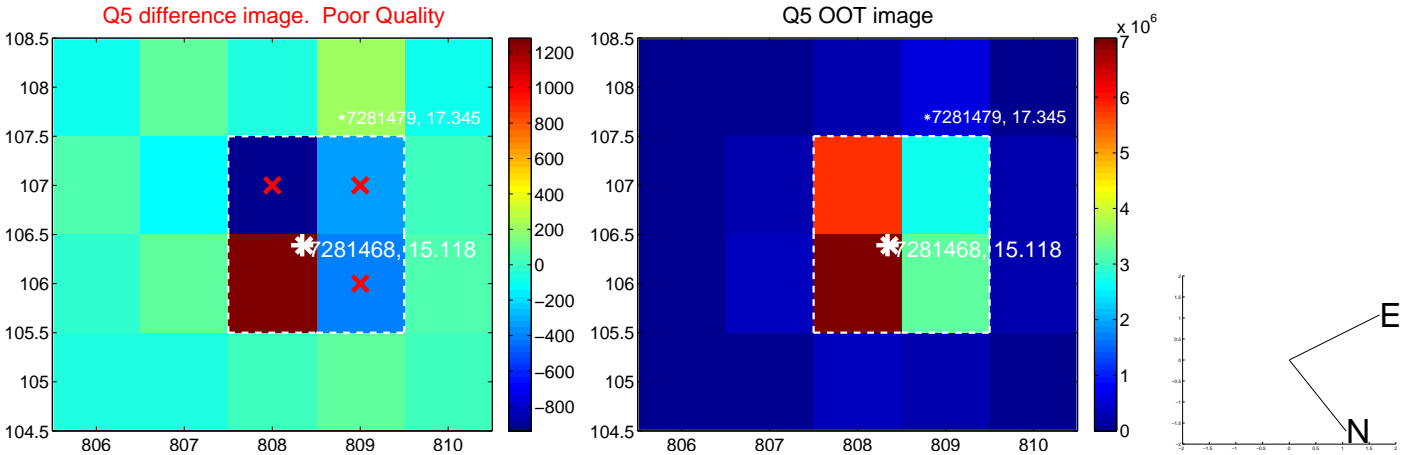


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

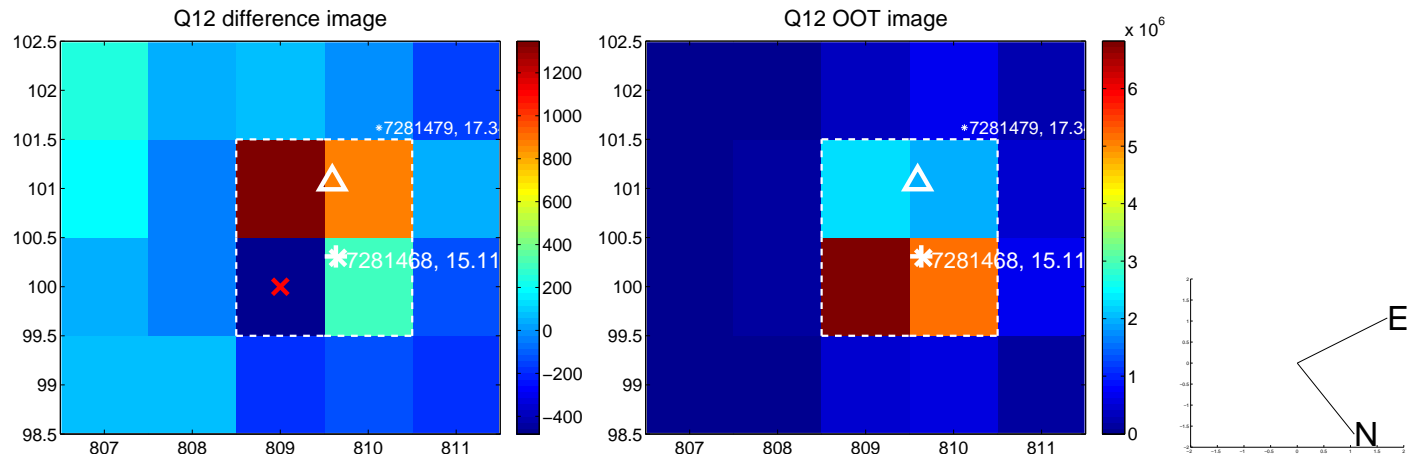
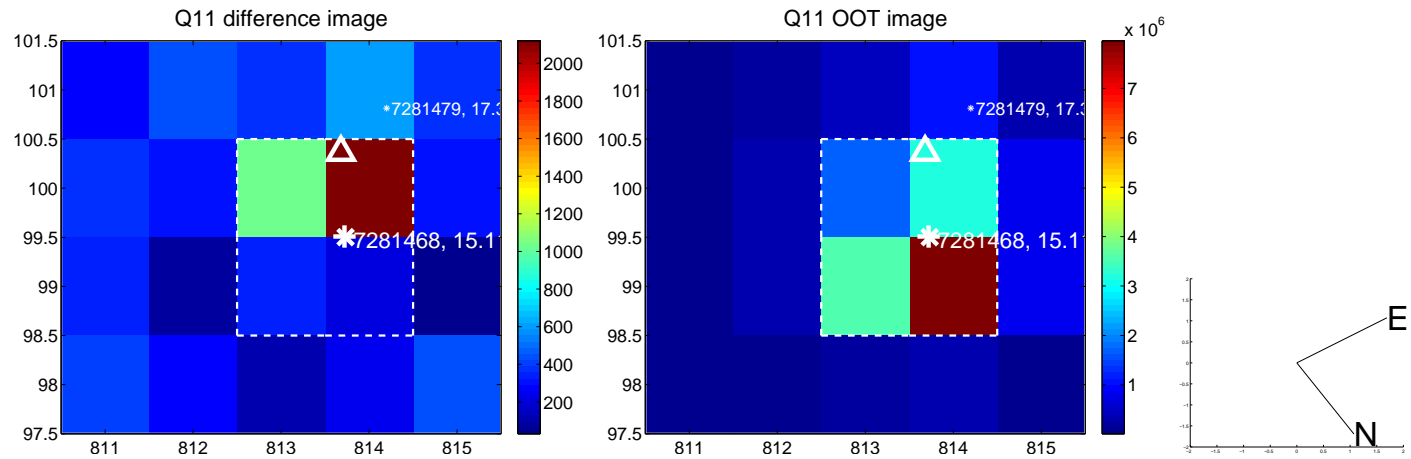
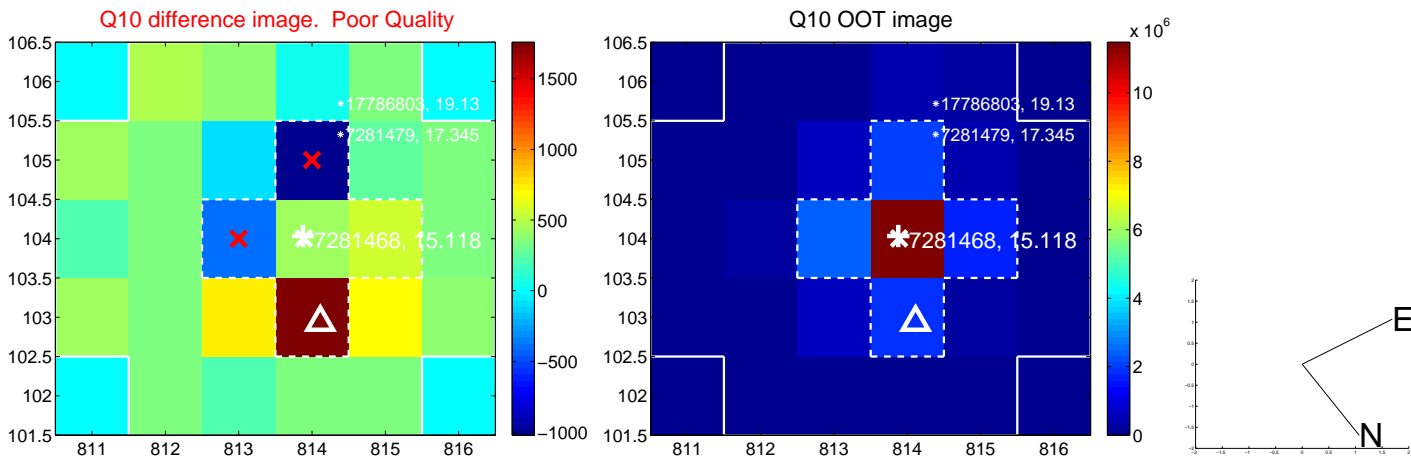
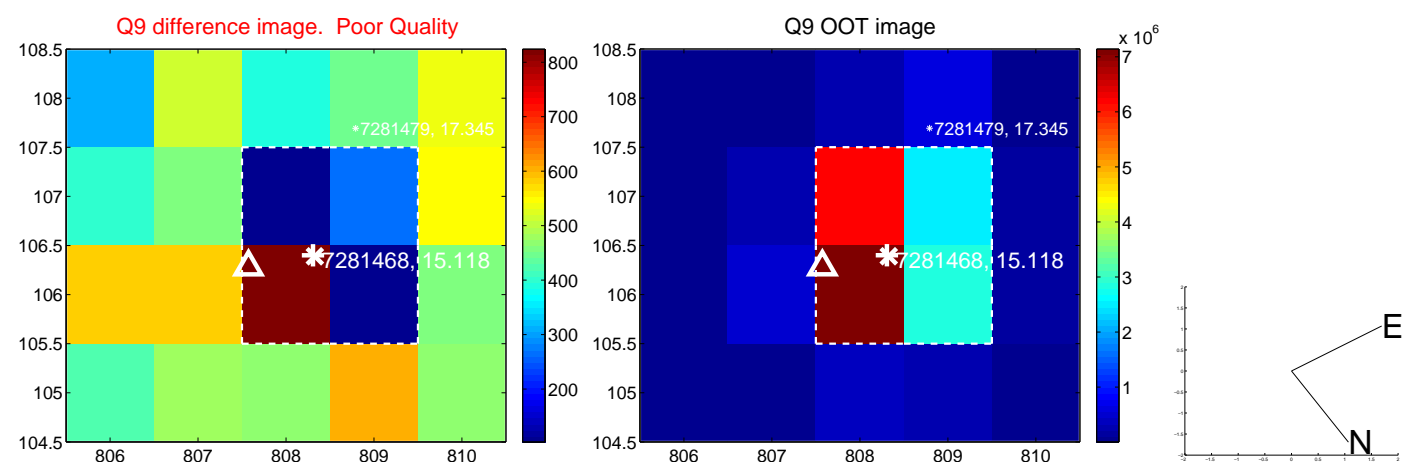


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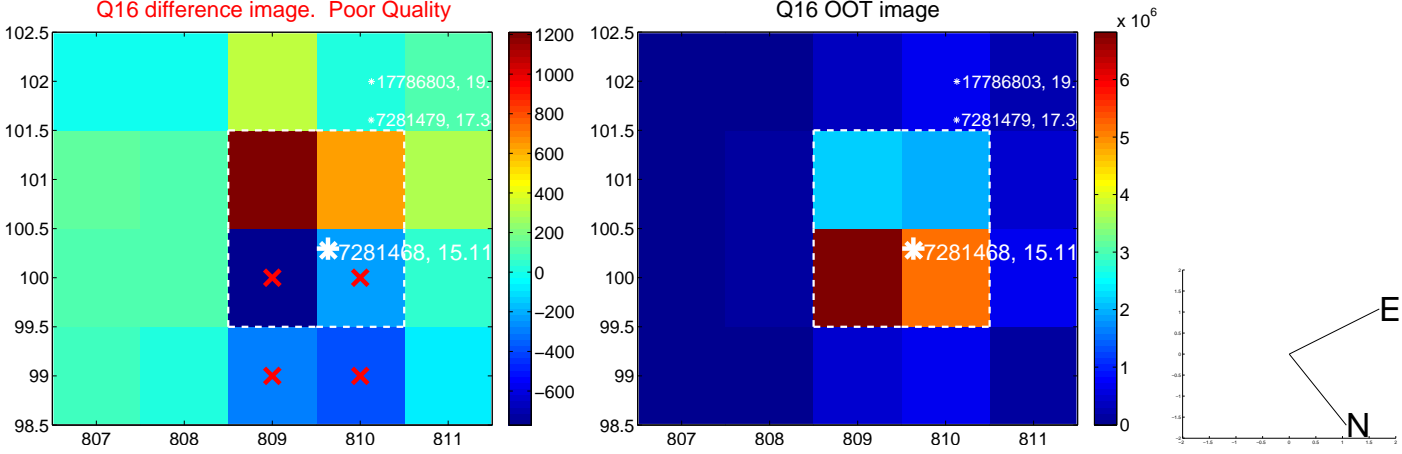
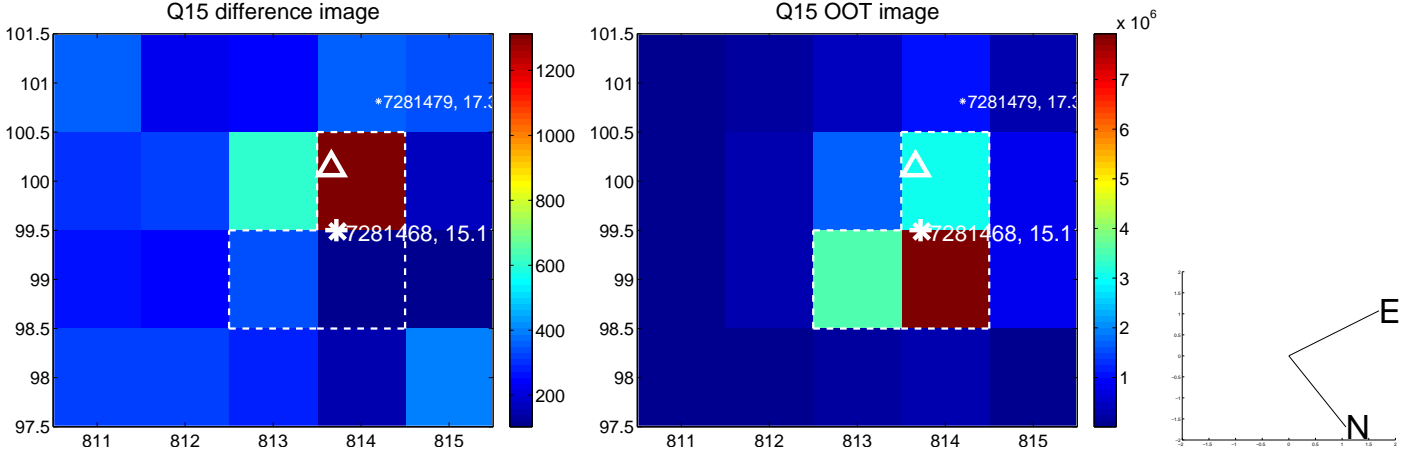
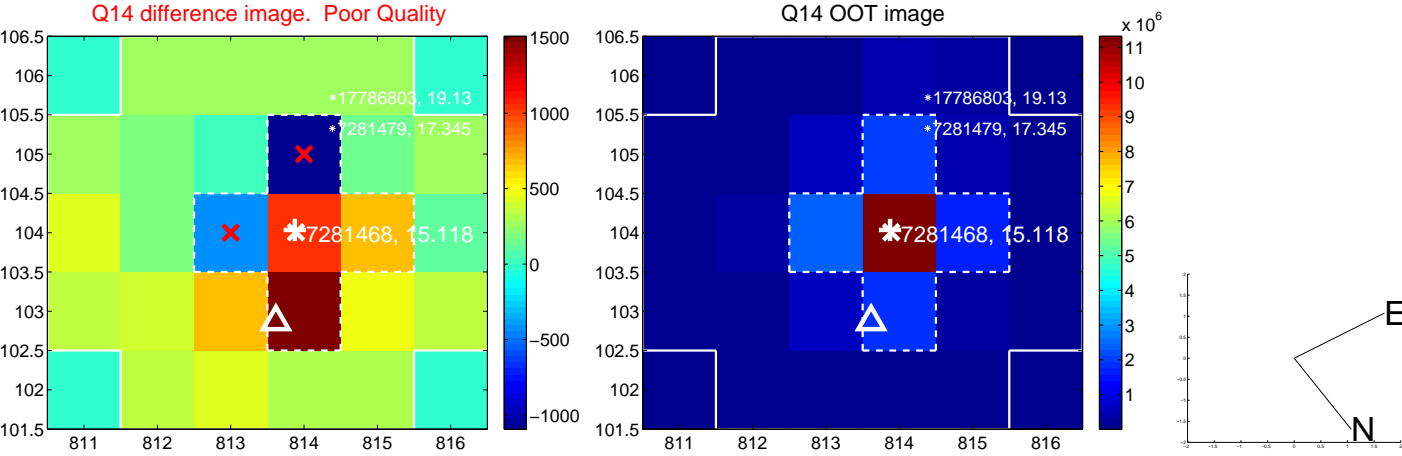
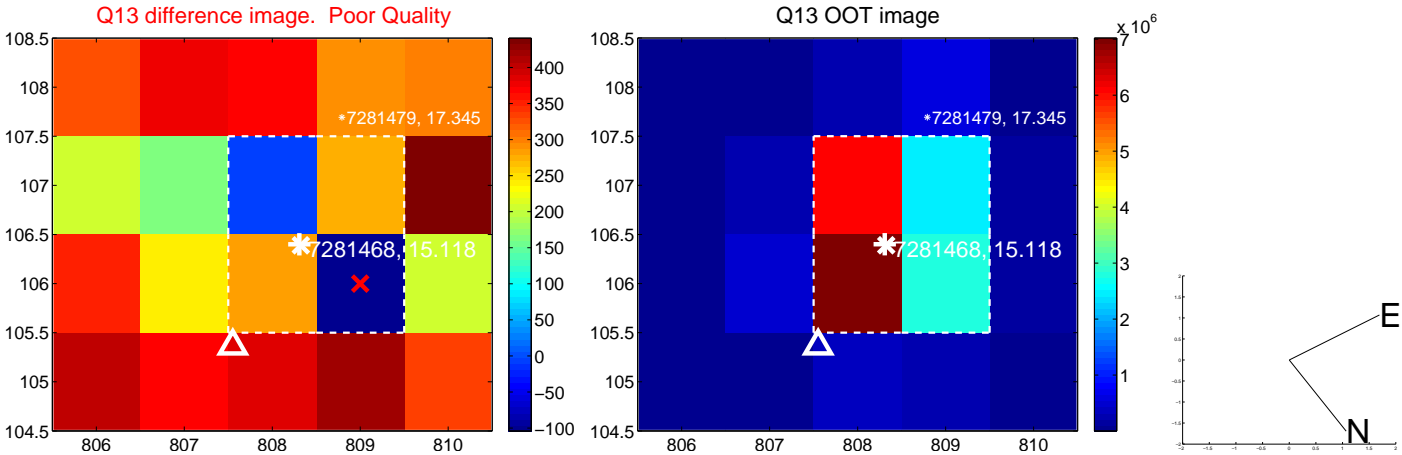




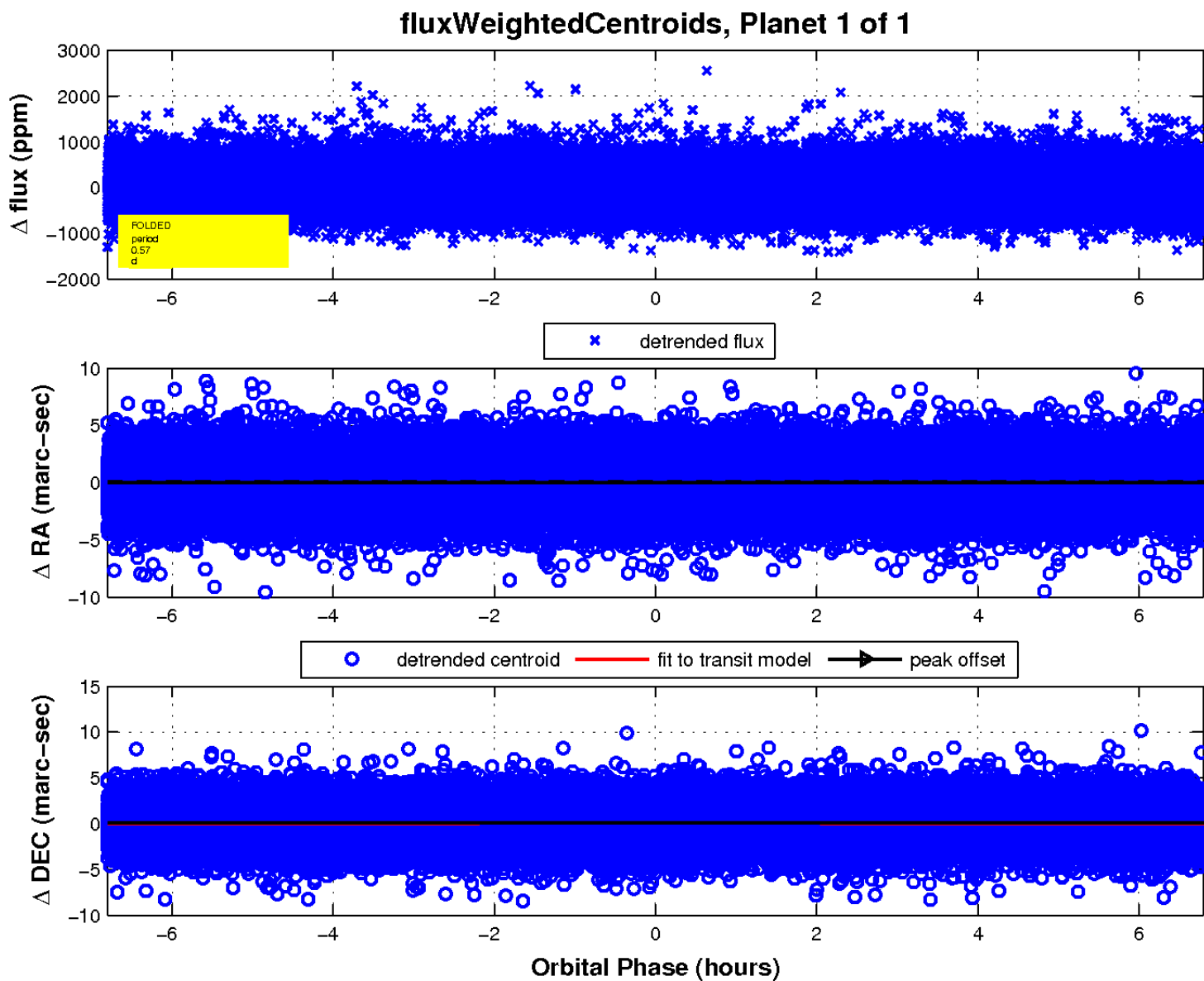
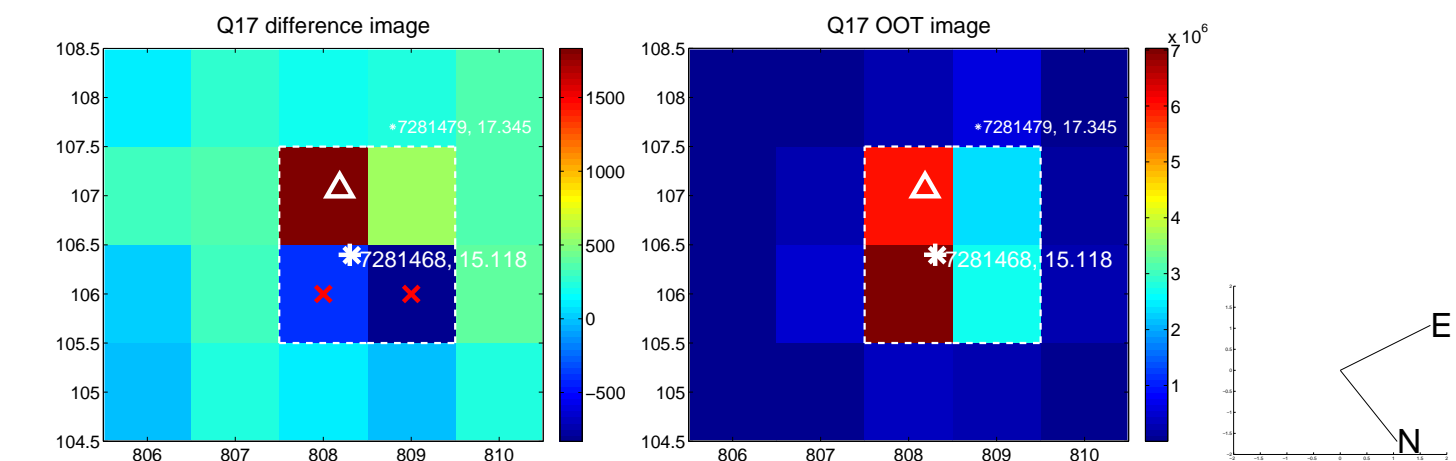
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

