

# KIC 007281902

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007281902-01	OBS	No	0.566761	131.858170	6.6	4.072	8.2	4.2	1.40	5957	0.36	11811.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007281902-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_FEW_DIFFS—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.

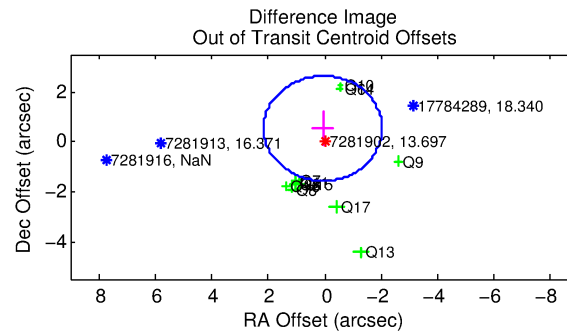
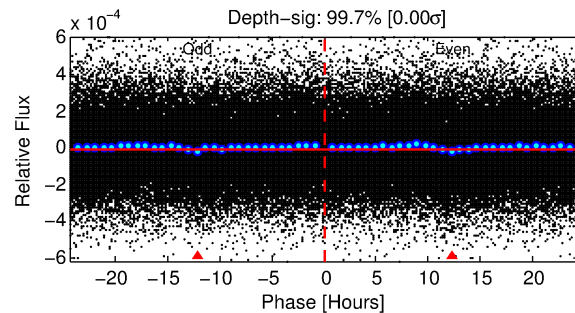
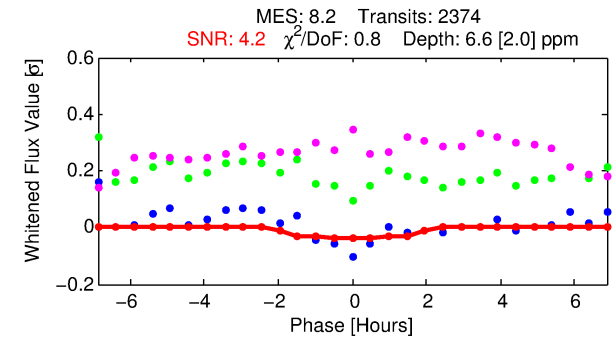
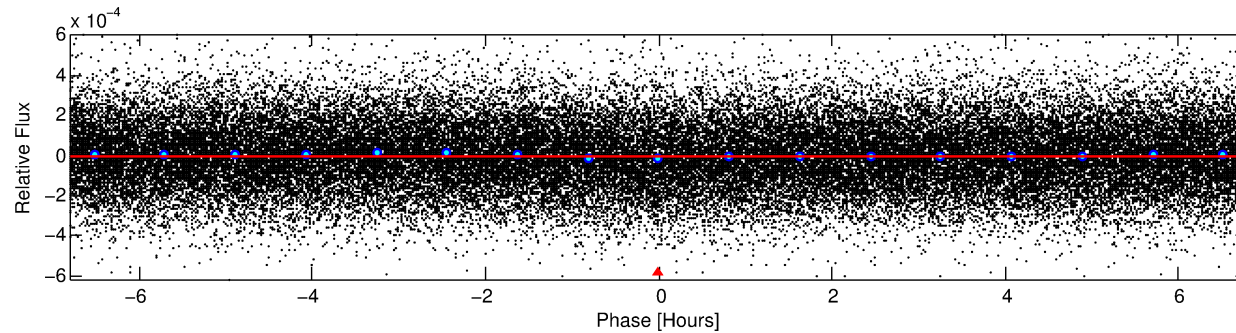
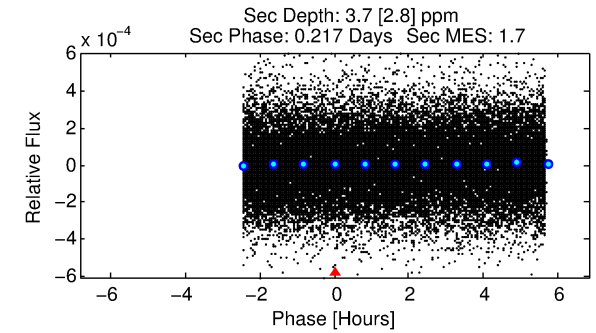
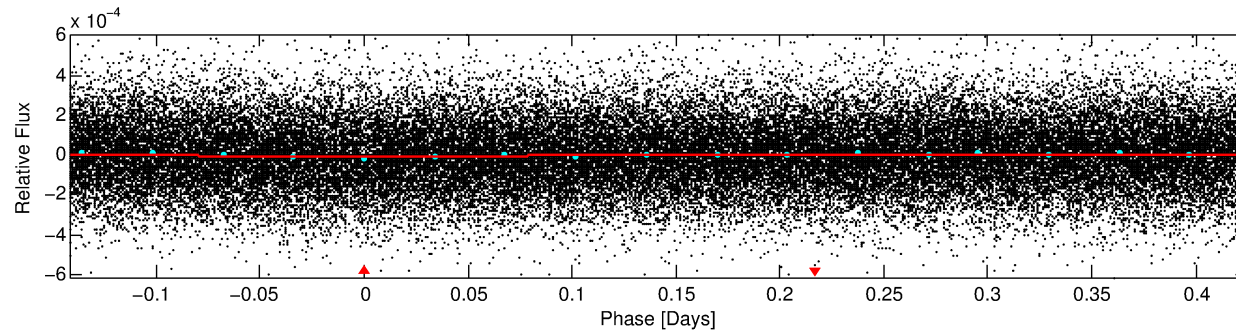
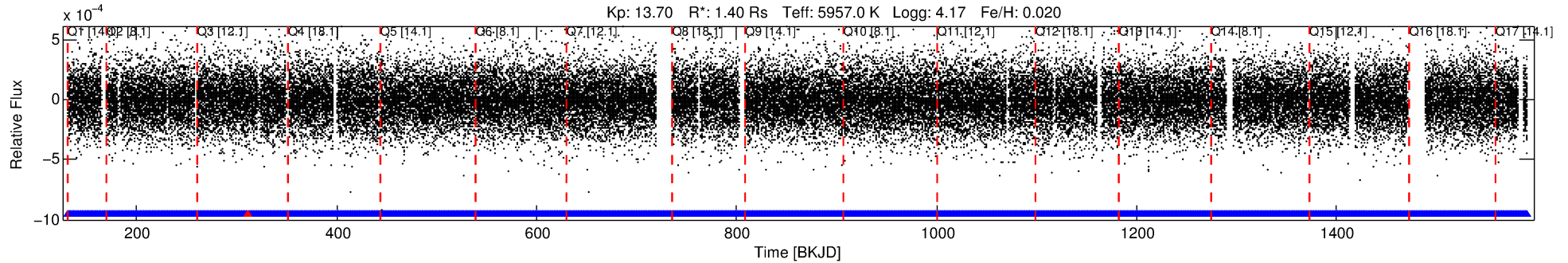
## Ephemeris Match Information For 007281902-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007281902-01	7281902	RR-Lyr-pri	7198959	1:1	1010.2	113	227	7.86	13.69	89042.00	Direct-PRF	0	2.62	22.54

**Notes:**  $P_1:P_2$  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.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  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: 7281902 Candidate: 1 of 1 Period: 0.567 d



## DV Fit Results:

Period = 0.56676 [0.00002] d  
Epoch = 131.8582 [0.0104] BKJD  
Rp/R\* = 0.0023 [0.0075]  
a/R\* = 1.24 [6.41]  
b = 0.10 [148.68]  
Seff = 11811.46 [5169.95]  
Teff = 2658 [291] K  
Rp = 0.36 [1.15] Re  
a = 0.0137 [0.0036] AU  
Ag = 2.96 [19.13] [0.10σ]  
Teffp = 5392 [8690] K [0.31σ]

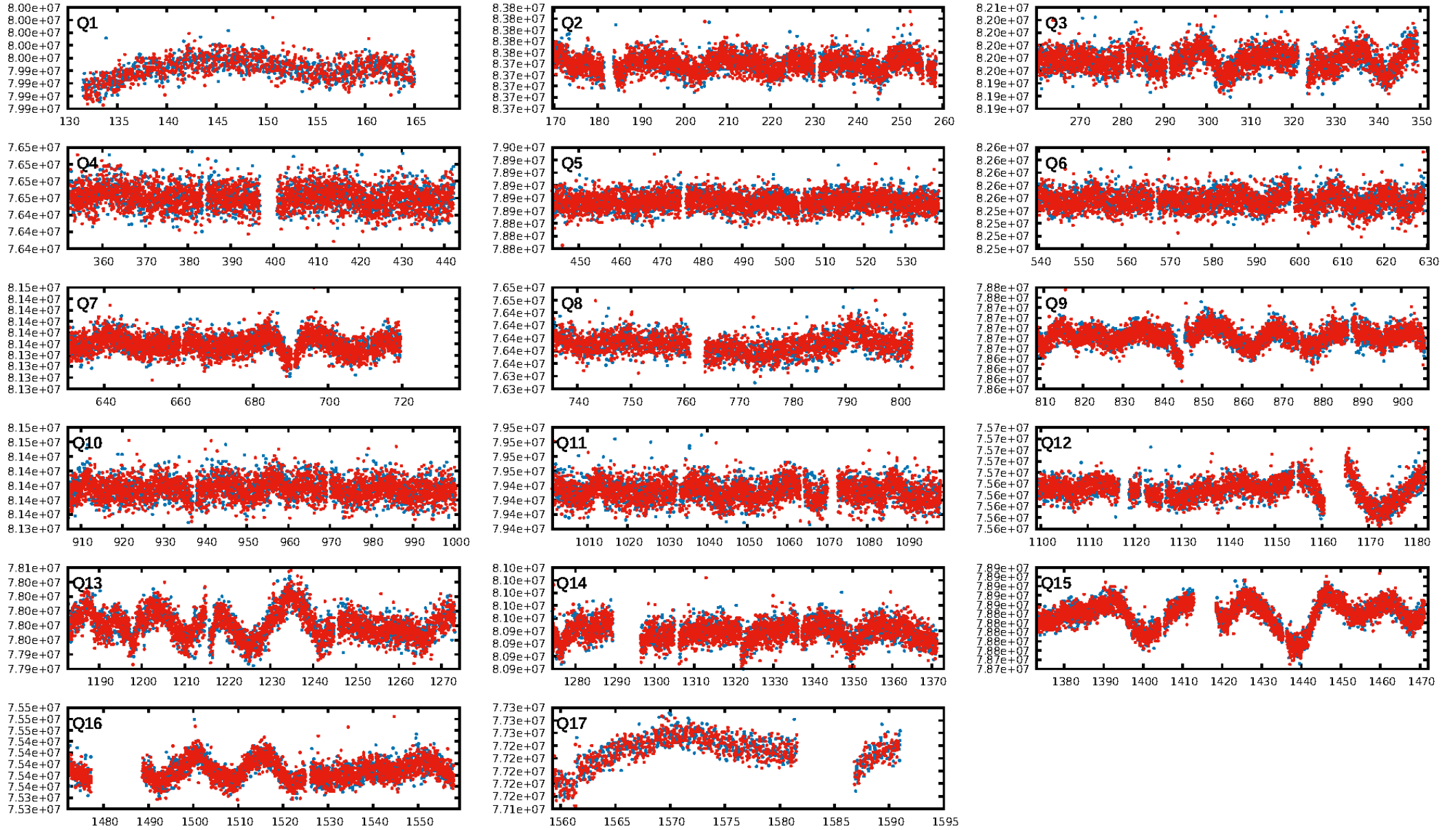
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 1.11e-12**  
RollingBand-fgt: 1.00 [2267/2268]  
**GhostDiagnostic-chr: 0.3289**  
**Centroid-sig: 0.0%**  
Centroid-so: 6.597 arcsec [2.50σ]  
OotOffset-rm: 0.538 arcsec [0.77σ]  
KicOffset-rm: 0.461 arcsec [0.67σ]  
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]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:53:39 Z

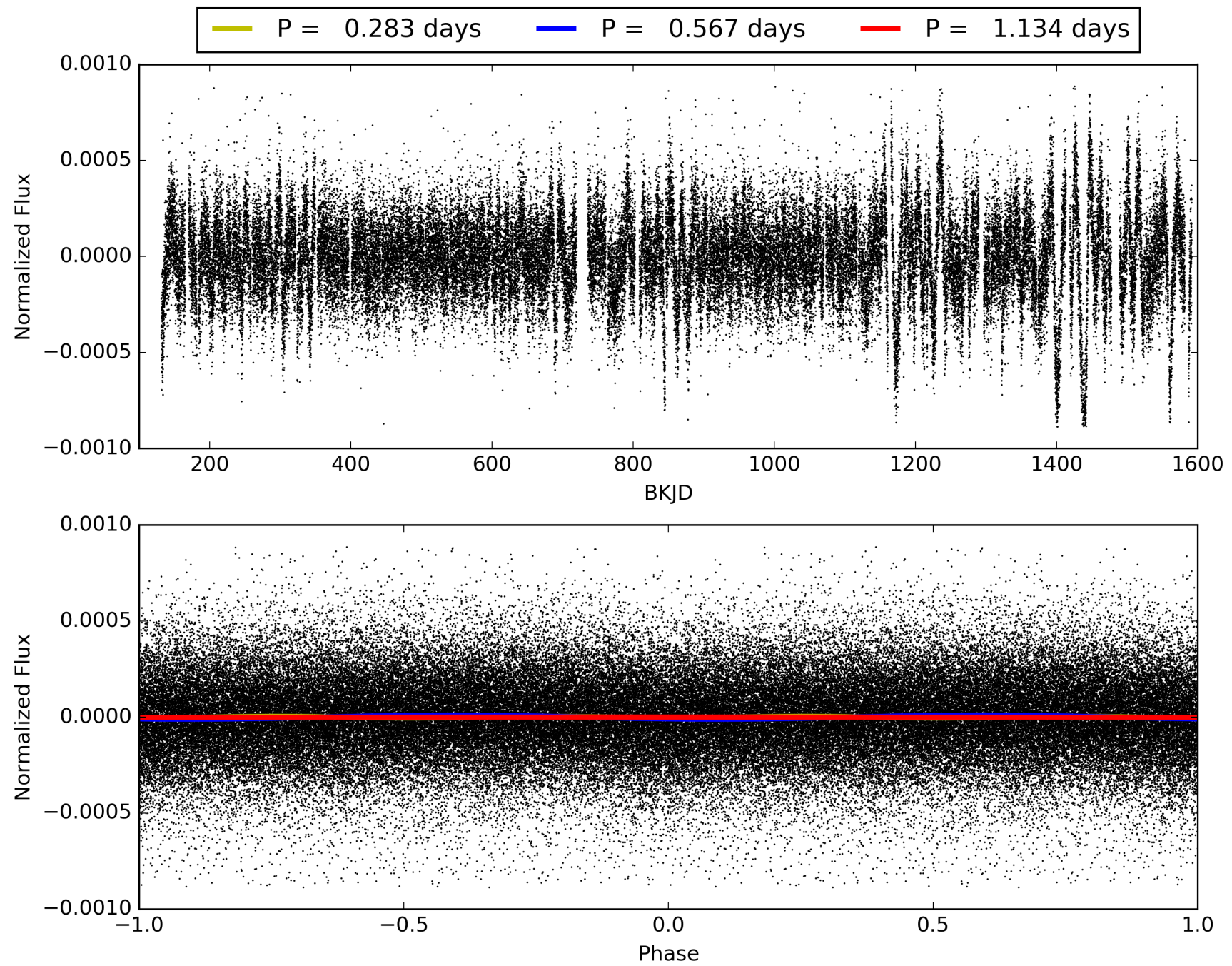
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007281902-01, PDC Light Curves



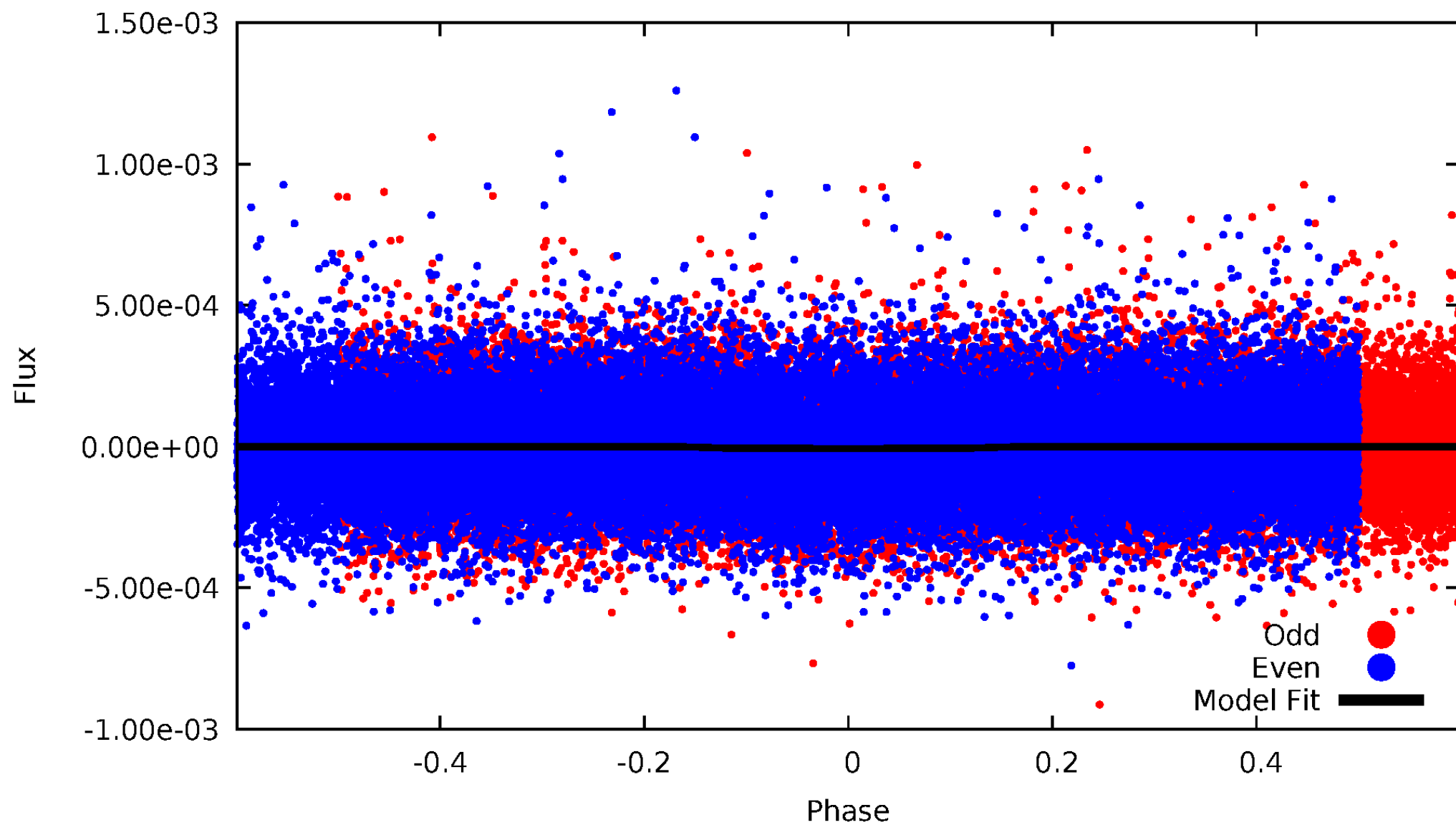


TCE 007281902-01



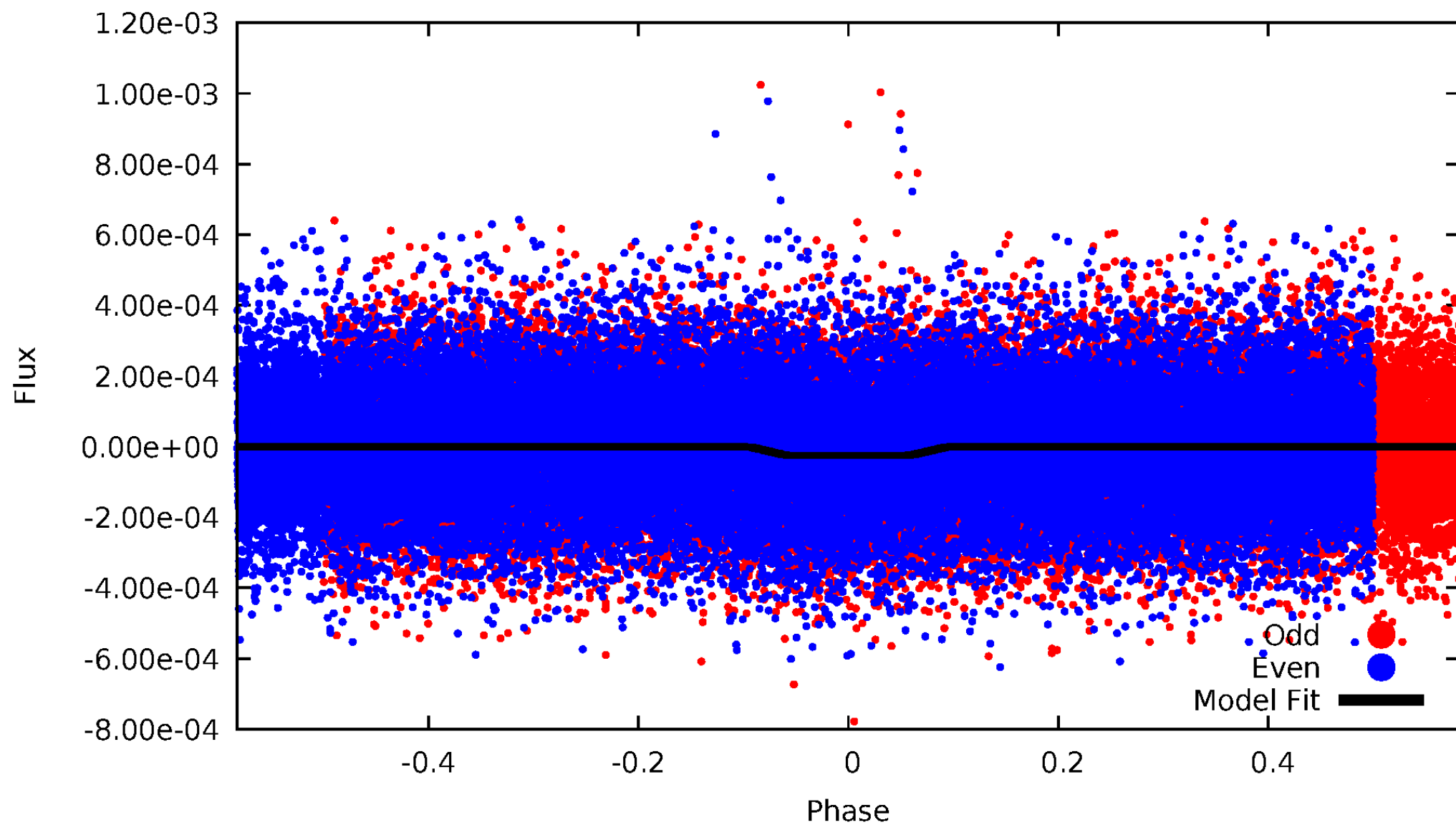
# DV Odd/Even

TCE 007281902-01



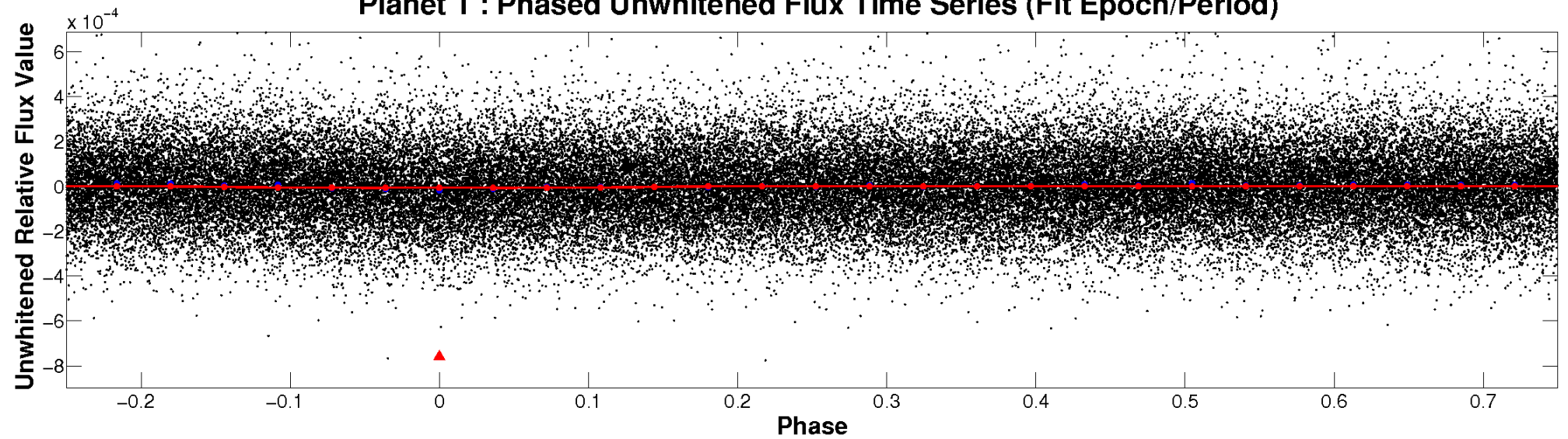
# ALT Odd/Even

TCE 007281902-01

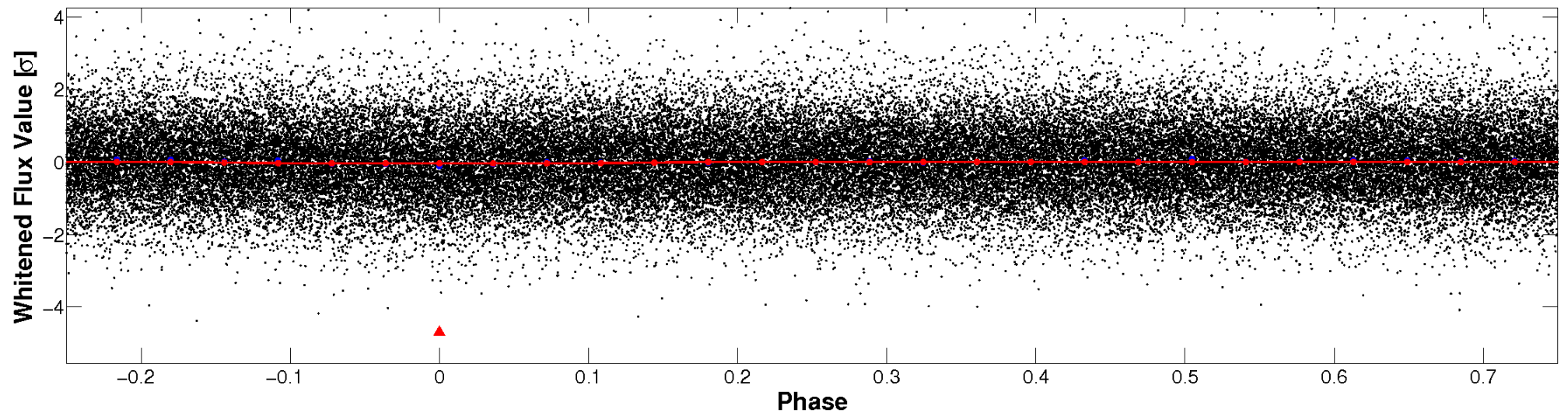


# Non-Whitened Vs. Whitened Light Curve

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



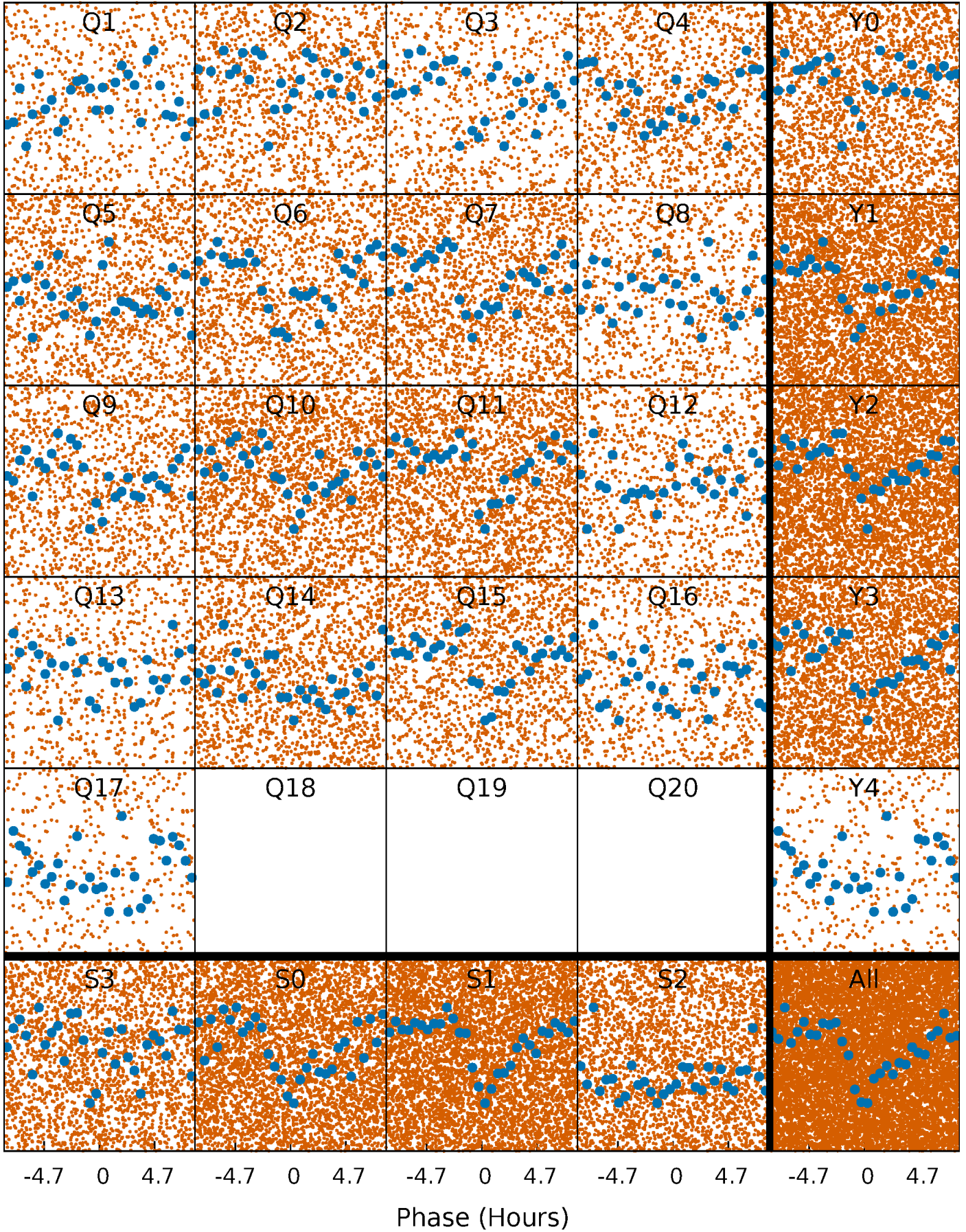
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

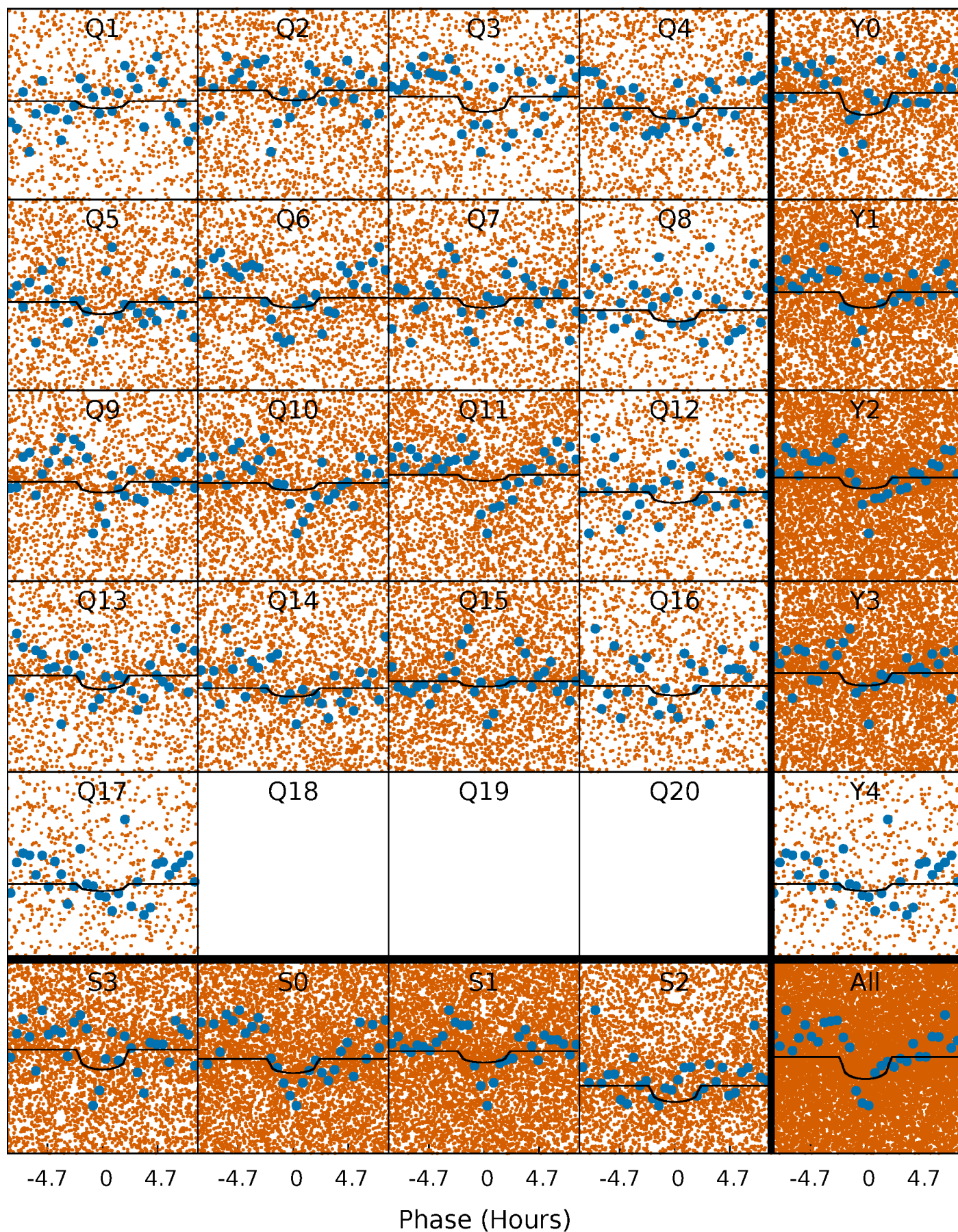
TCE 007281902-01 P= 0.566761 Days  $T_0=131.858170$  (BKJD)





# DV Quarter-Phased Transit Curves

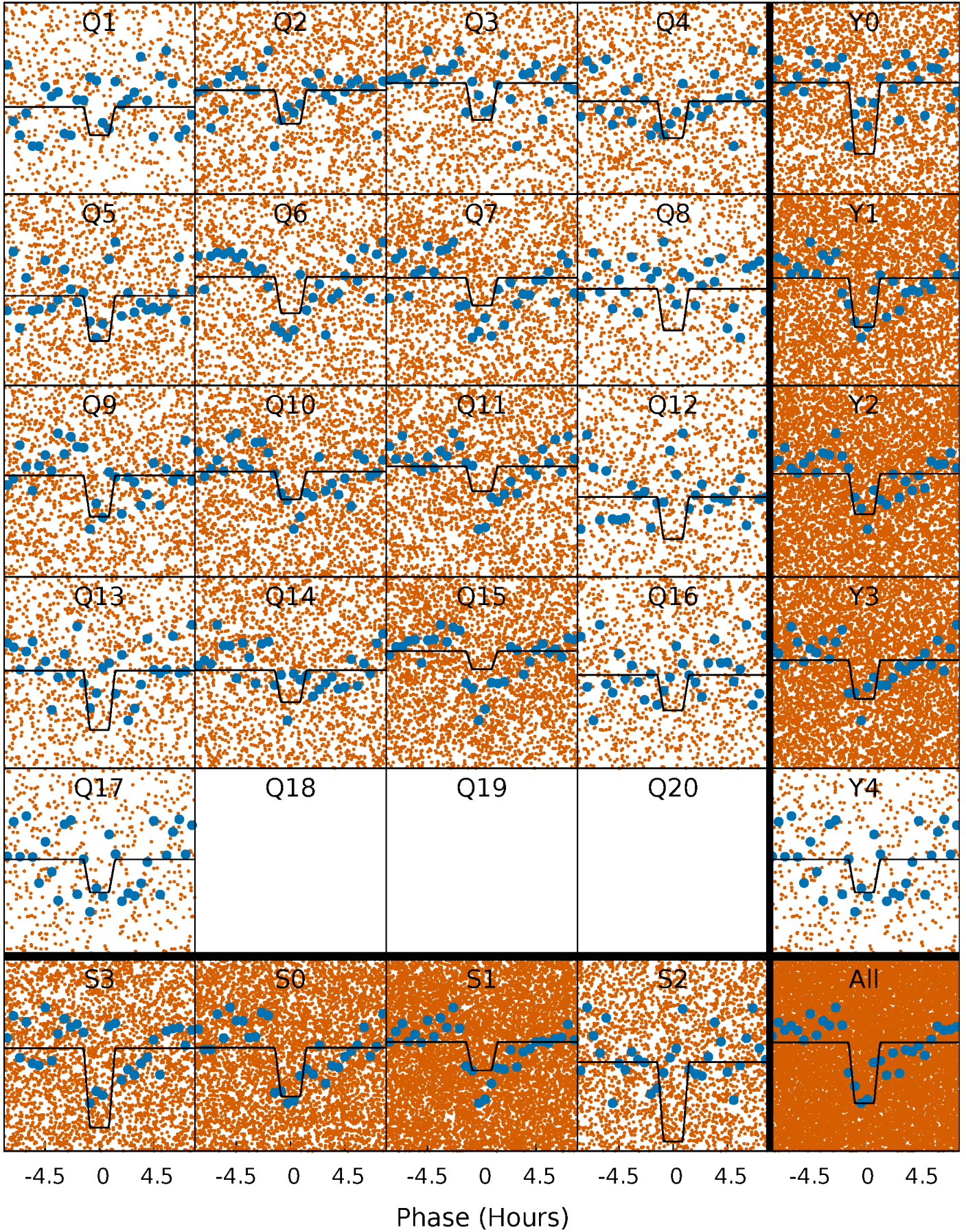
TCE 007281902-01 P= 0.566761 Days  $T_0=131.858170$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

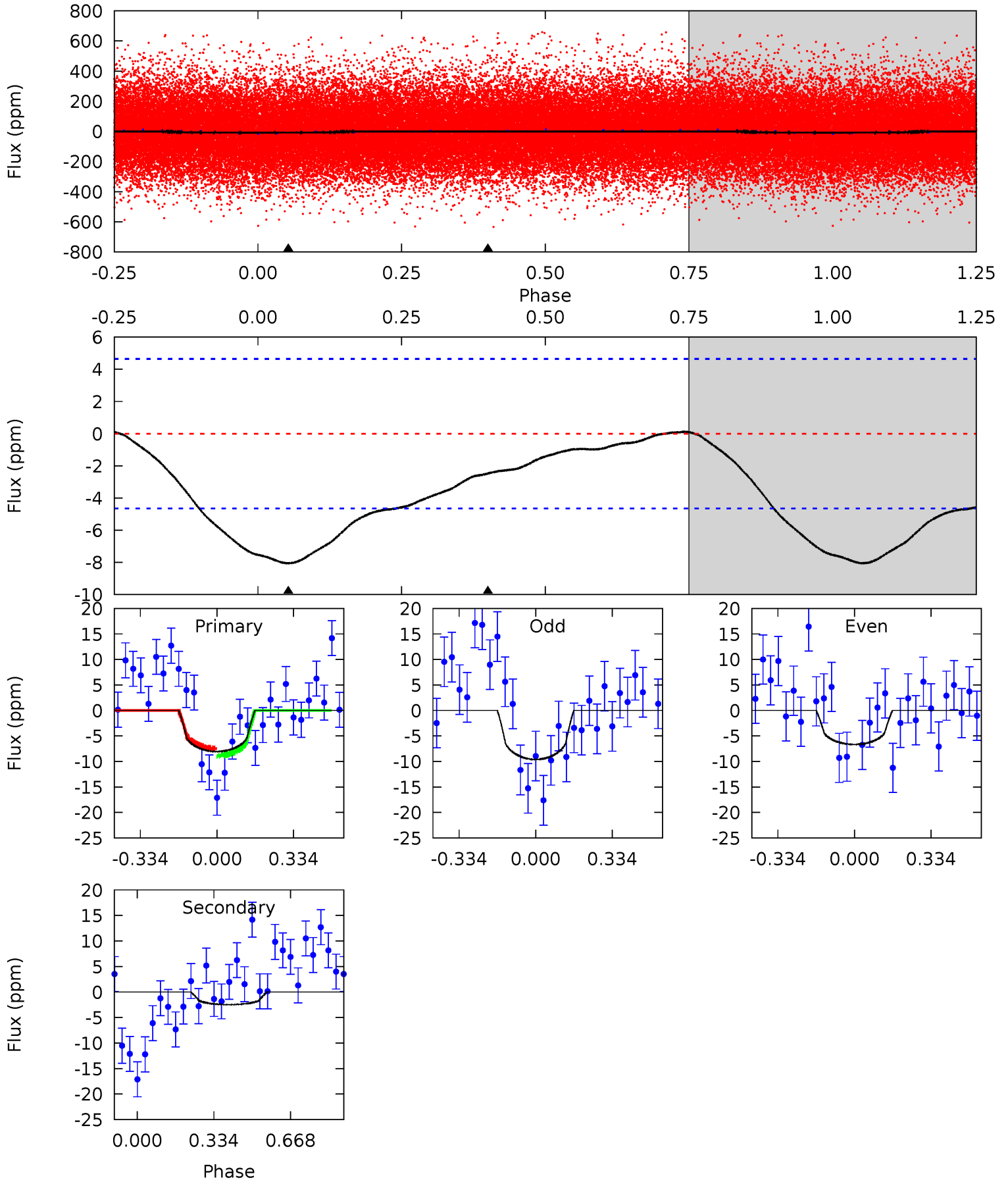
TCE 007281902-01 P= 0.566788 Days  $T_0=131.821802$  (BKJD)



# DV Model-Shift Uniqueness Test

007281902-01, P = 0.566761 Days, E = 131.291409 Days

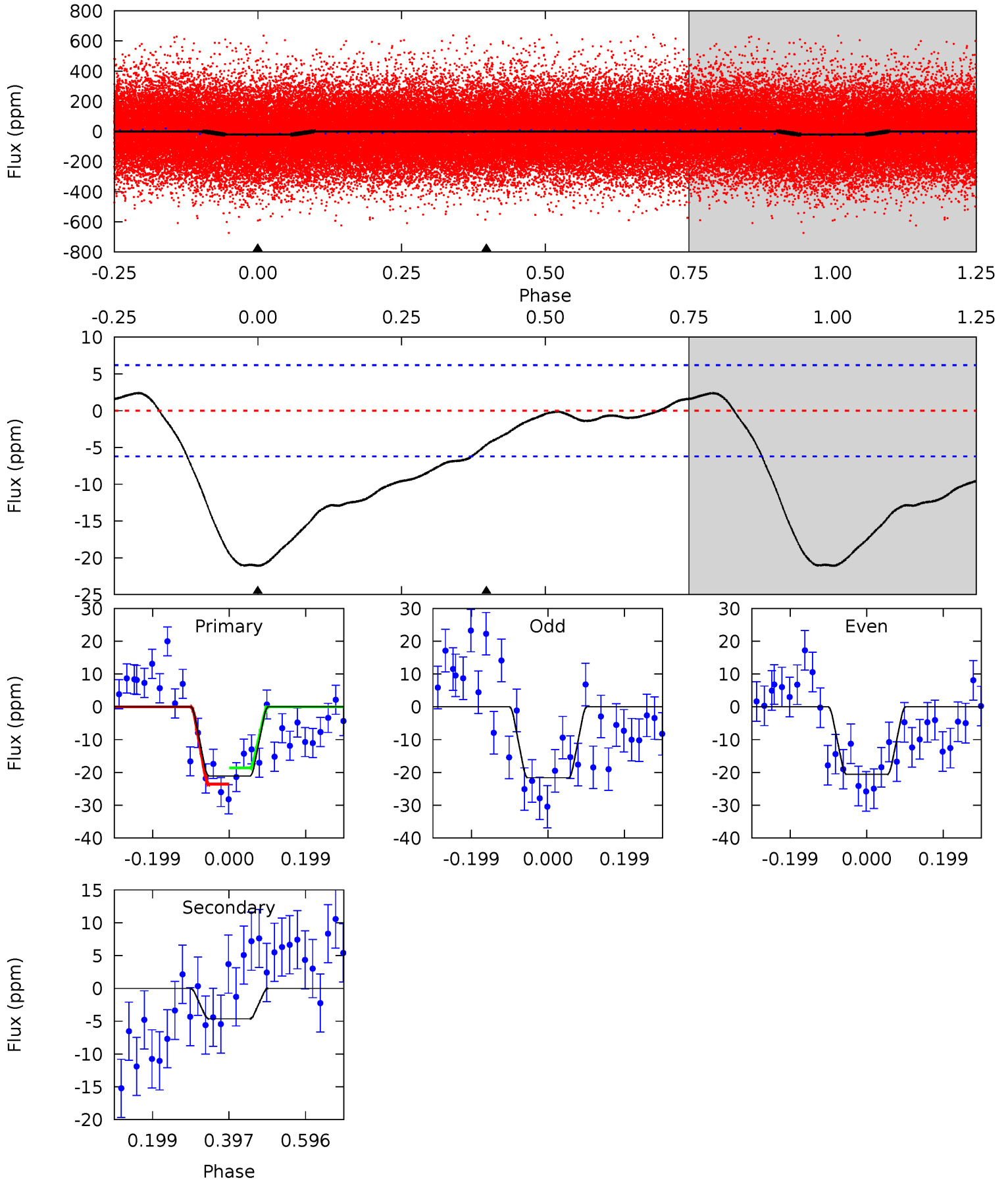
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.47	2.30	0	0	4.31	0.97	0.11	7.47	7.47	2.30	2.30	1.37	1.06	0.02	0.66



# Alt Model-Shift Uniqueness Test

007281902-01, P = 0.566788 Days, E = 131.255014 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
15.0	3.30	0	0	4.42	1.29	0.95	15.0	15.0	3.30	3.30	0.38	1.08	0.10	1.75





### Stellar Parameters For KIC 007281902

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5957^{+181}_{-181}$	$4.173^{+0.246}_{-0.164}$	$0.020^{+0.250}_{-0.300}$	$1.402^{+0.389}_{-0.389}$	$1.067^{+0.152}_{-0.138}$	$0.546^{+0.716}_{-0.252}$
	+3%/-3%	+6%/-4%	+1250%/-1500%	+28%/-28%	+14%/-13%	+131%/-46%
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 007281902-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2\pm 1$	$0.88^{+0.95}_{-0.58}$	$3694^{+274}_{-281}$	$-2085^{+7146}_{-1321}$	$0.295^{+2.475}_{-0.236}$
Alt.	$-5\pm 1$	$1.10^{+0.90}_{-0.79}$	$3689^{+259}_{-300}$	$2848^{+2980}_{-6146}$	$0.377^{+4.594}_{-0.270}$

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

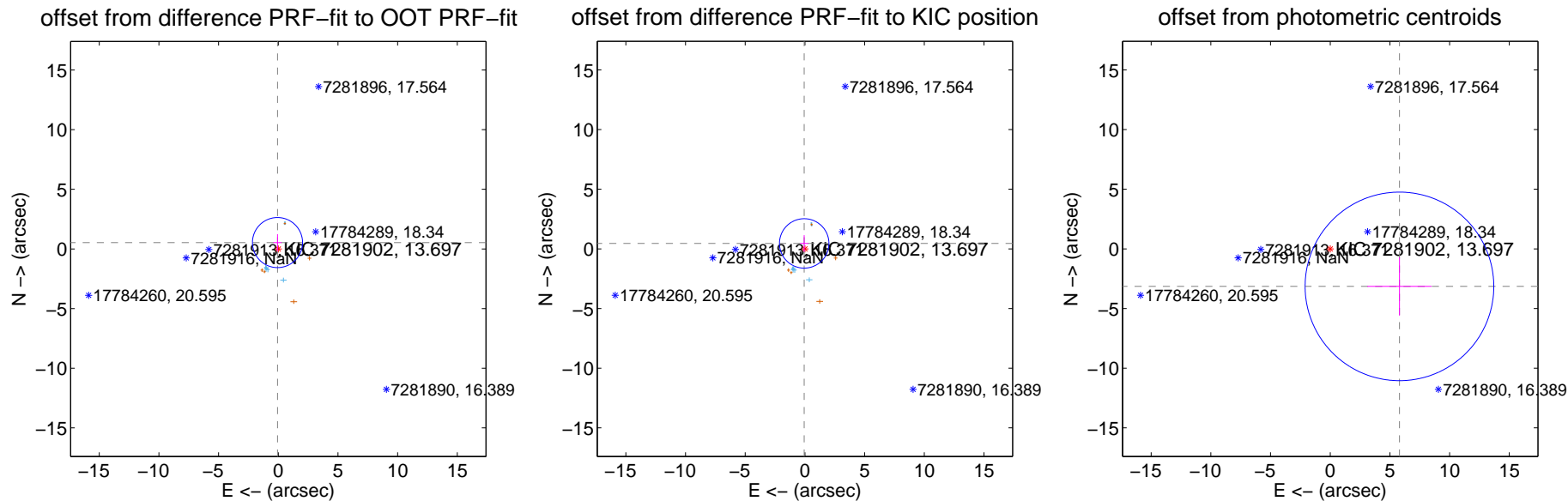
## DV Centroid Data

Supplemental centroid analysis for 007281902-01. Kepler magnitude: 13.70. Transit SNR 4.24

There are 7 quarters with good PRF difference image offsets

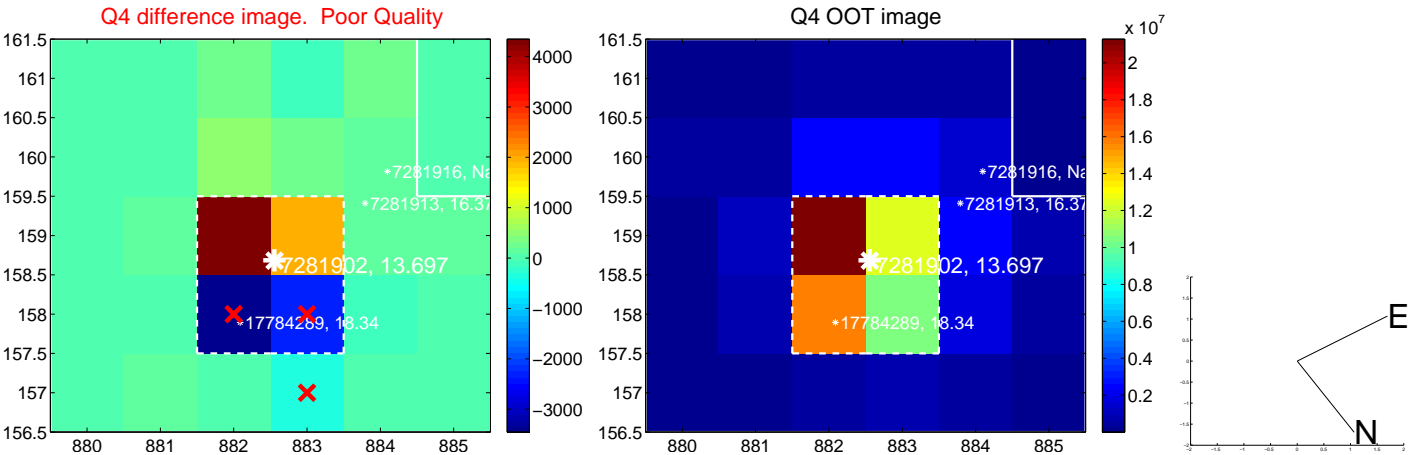
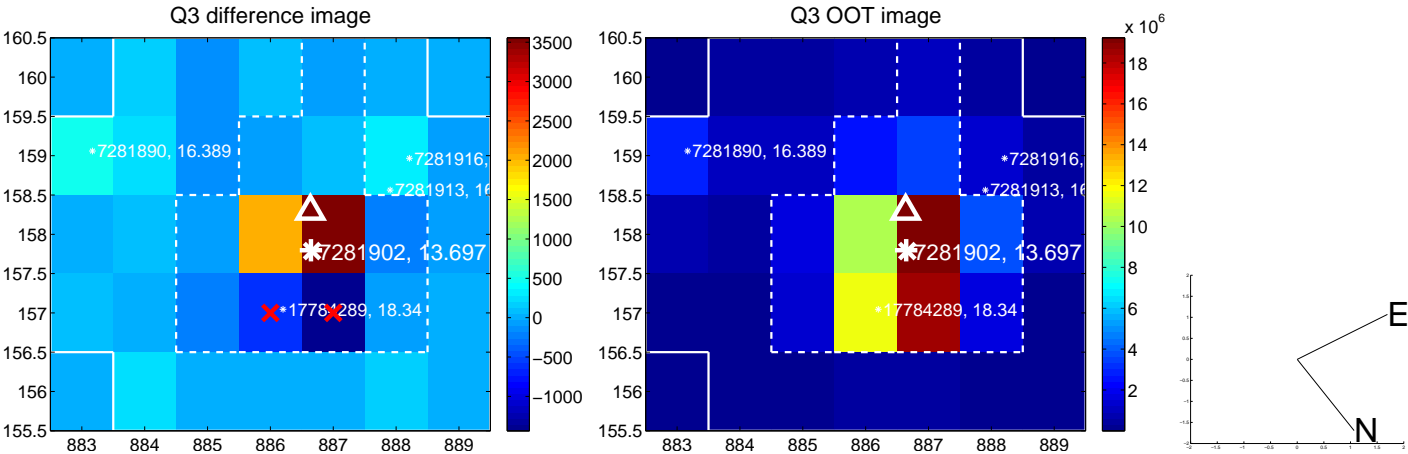
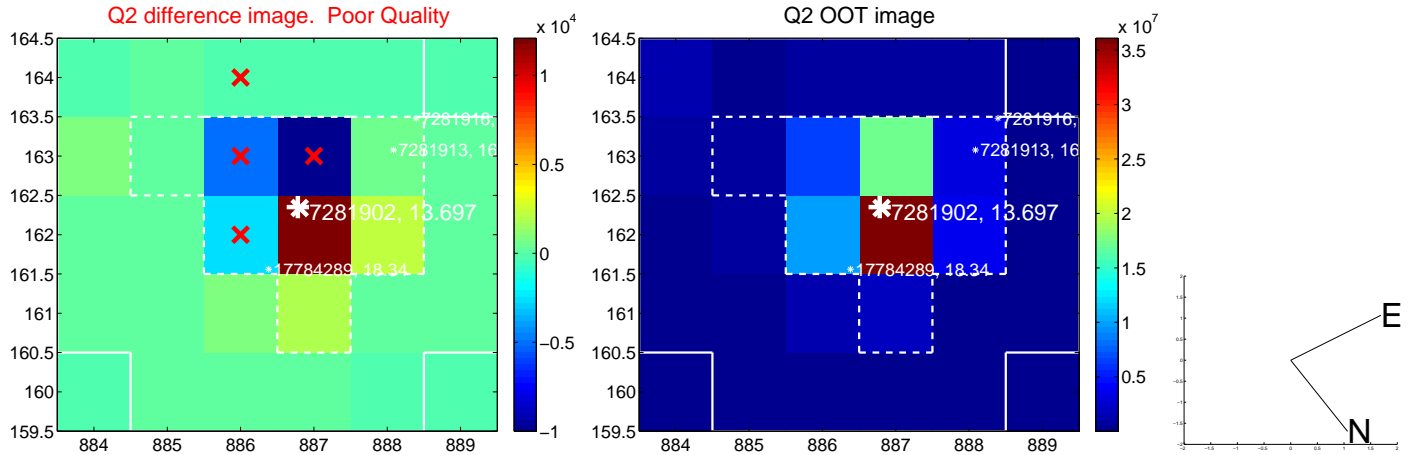
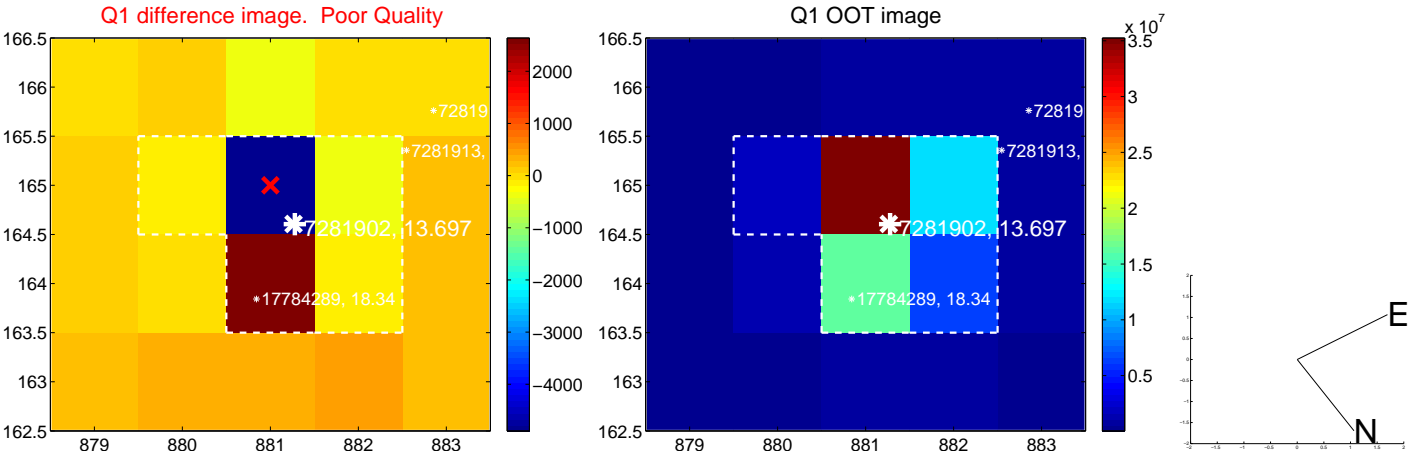
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.538 \pm 0.700$	0.77	$0.066 \pm 0.344$	$0.534 \pm 0.704$
PRF-fit source offset from KIC position	$0.461 \pm 0.690$	0.67	$0.060 \pm 0.341$	$0.457 \pm 0.695$
photometric centroid source offset	$6.60 \pm 2.63$	2.50	$-5.80 \pm 2.69$	$-3.14 \pm 2.44$

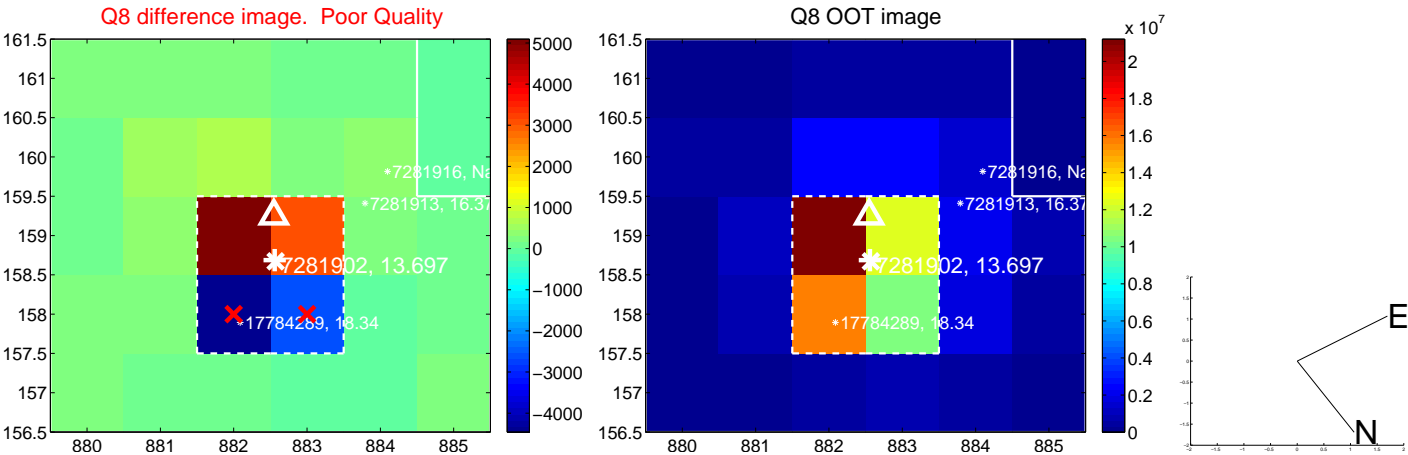
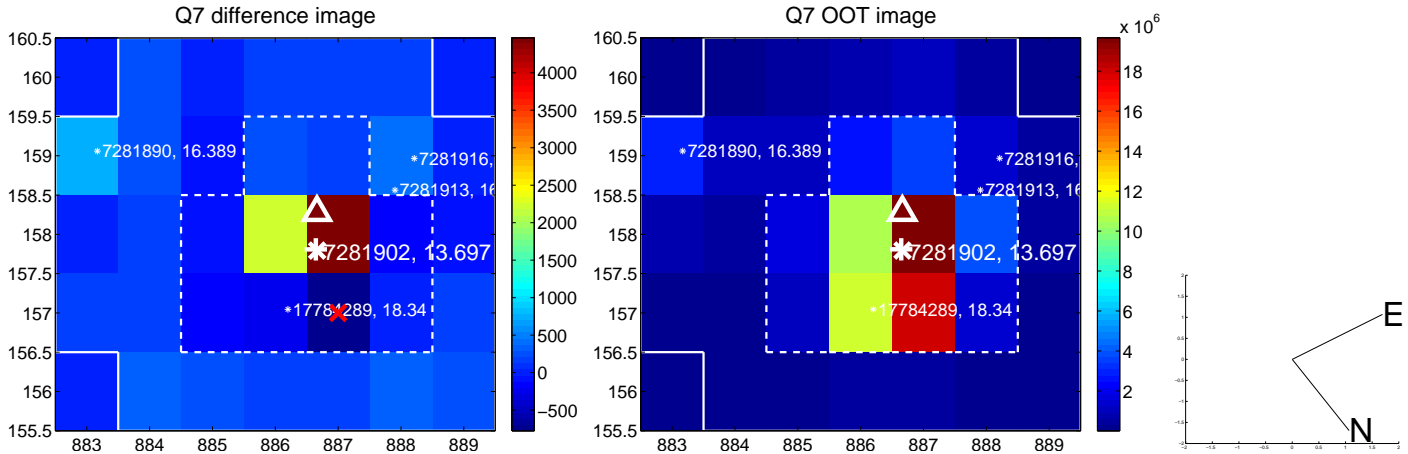
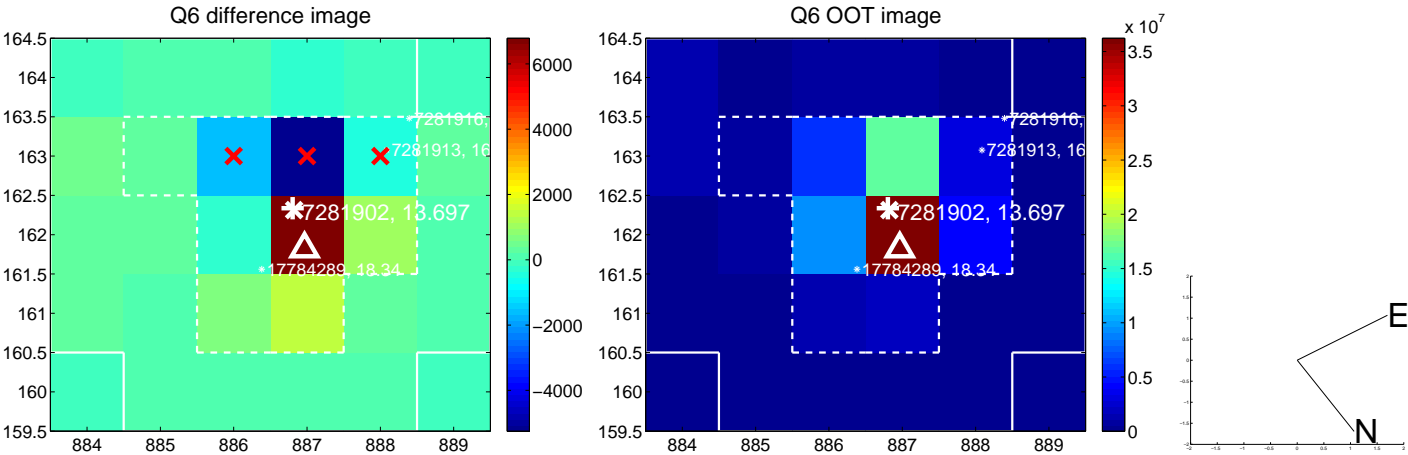
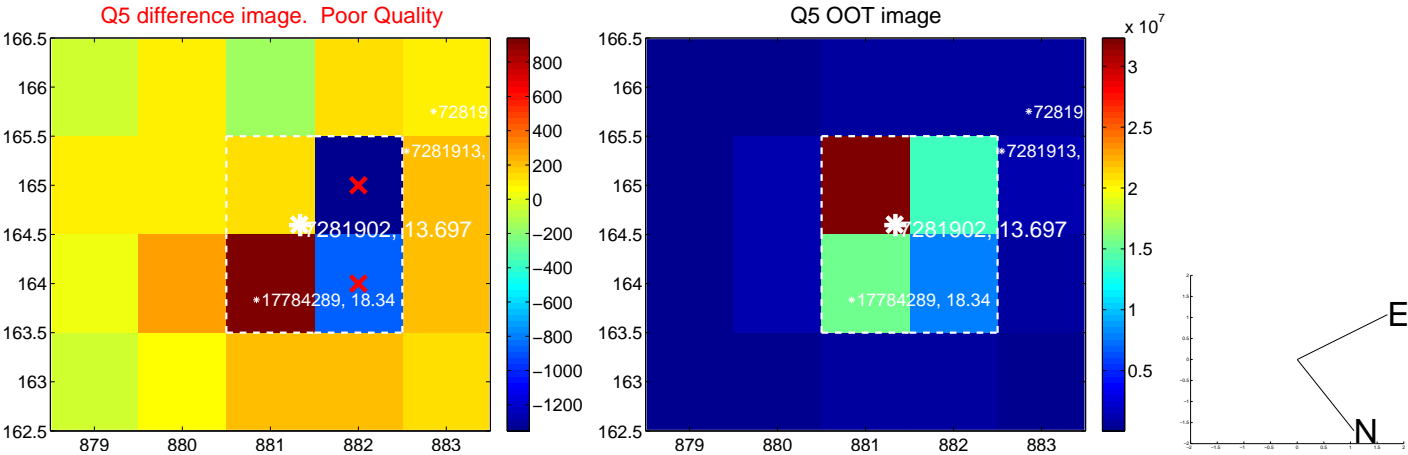


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

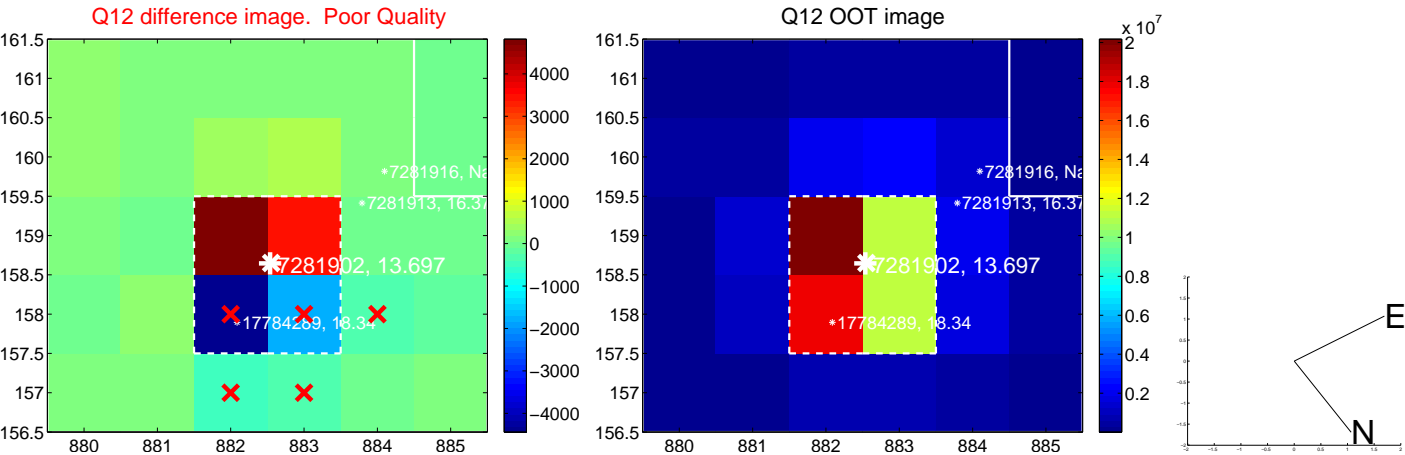
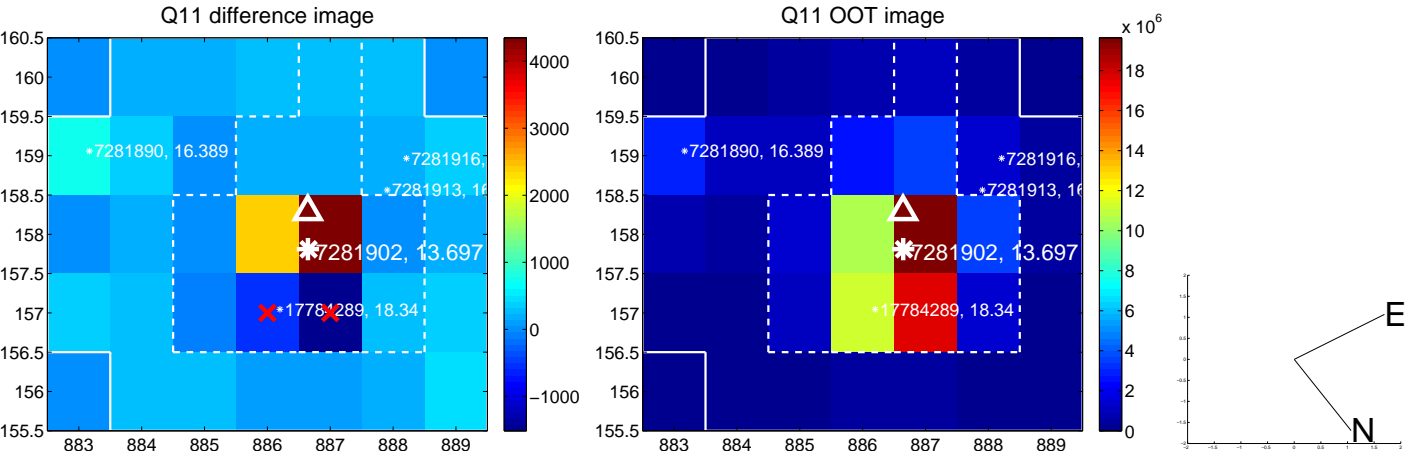
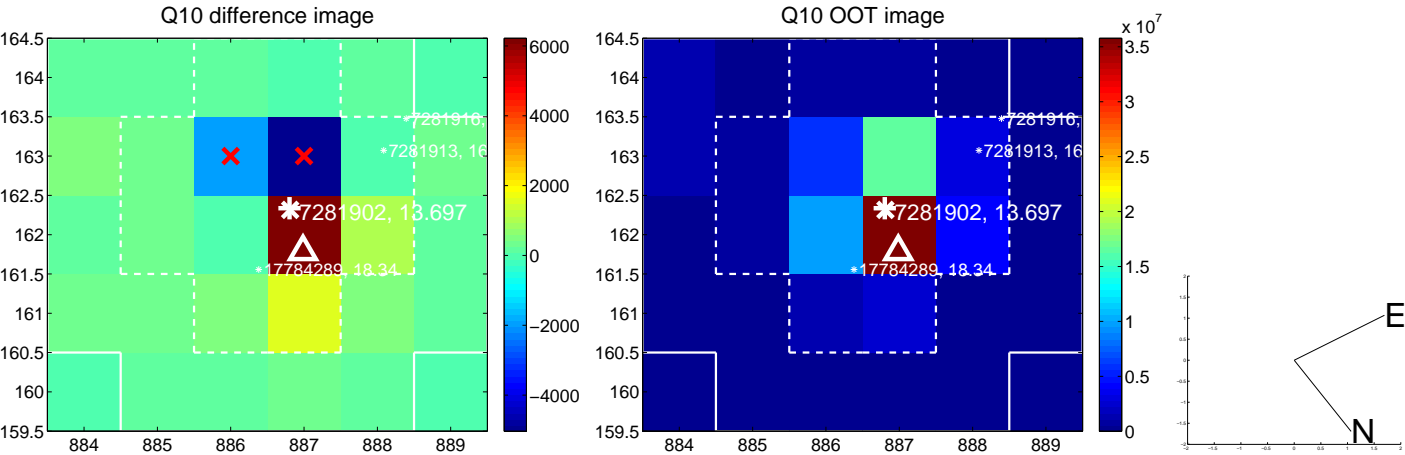
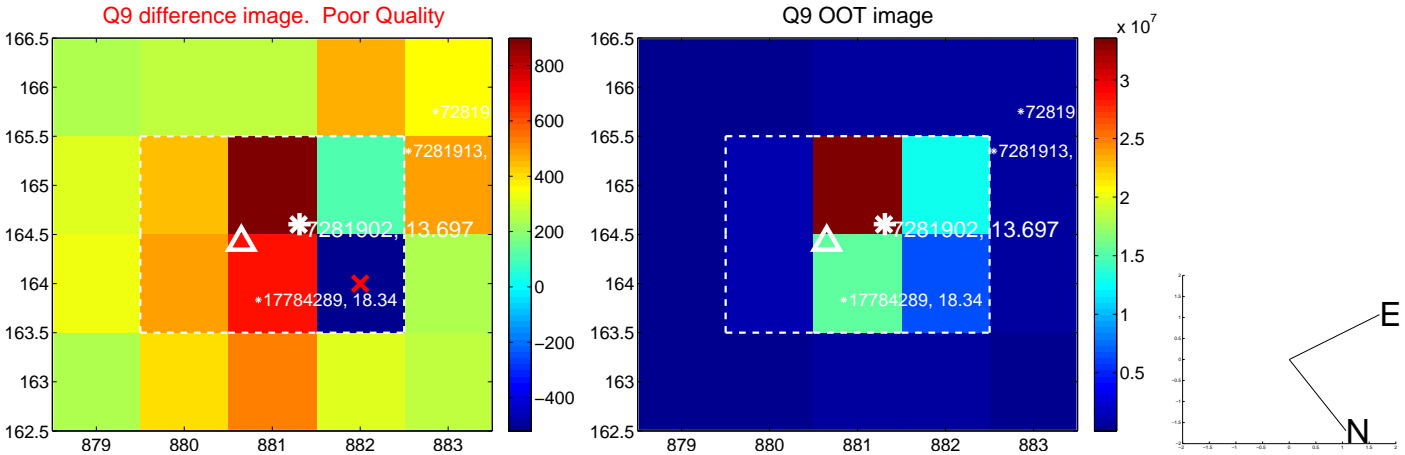


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

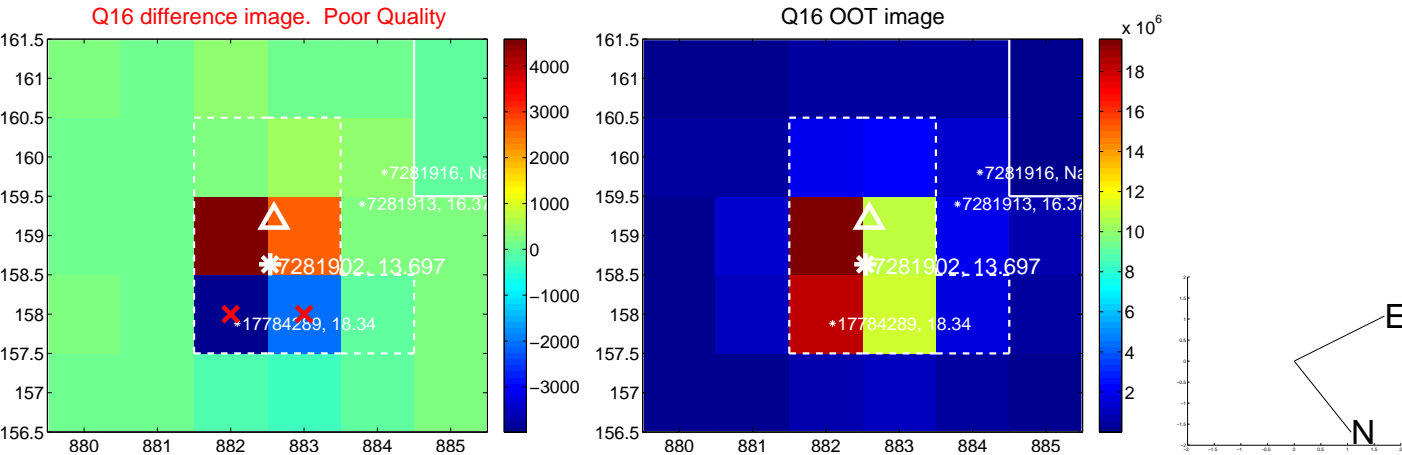
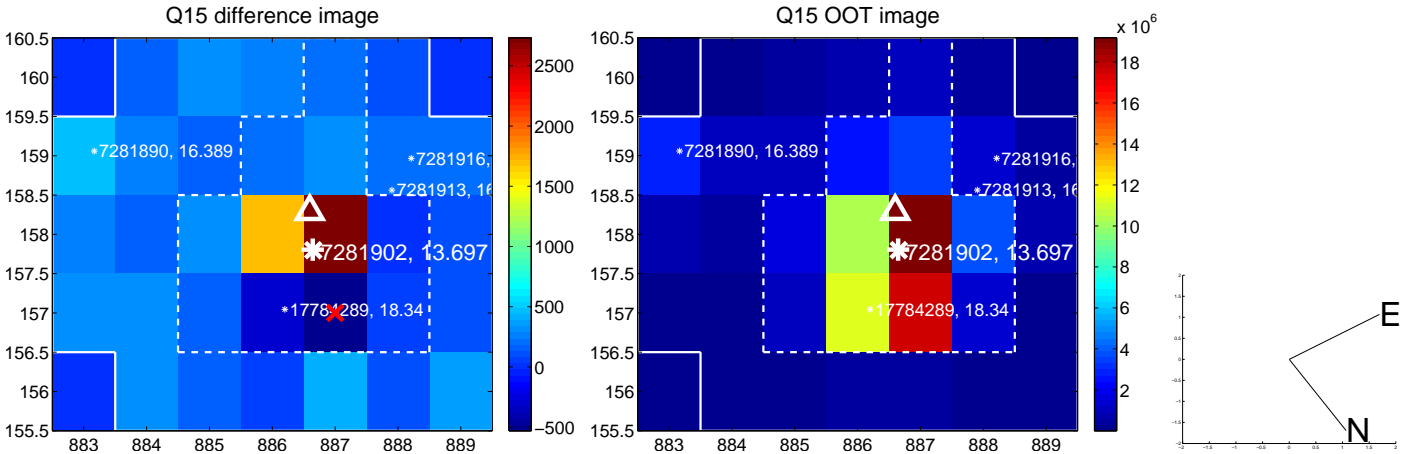
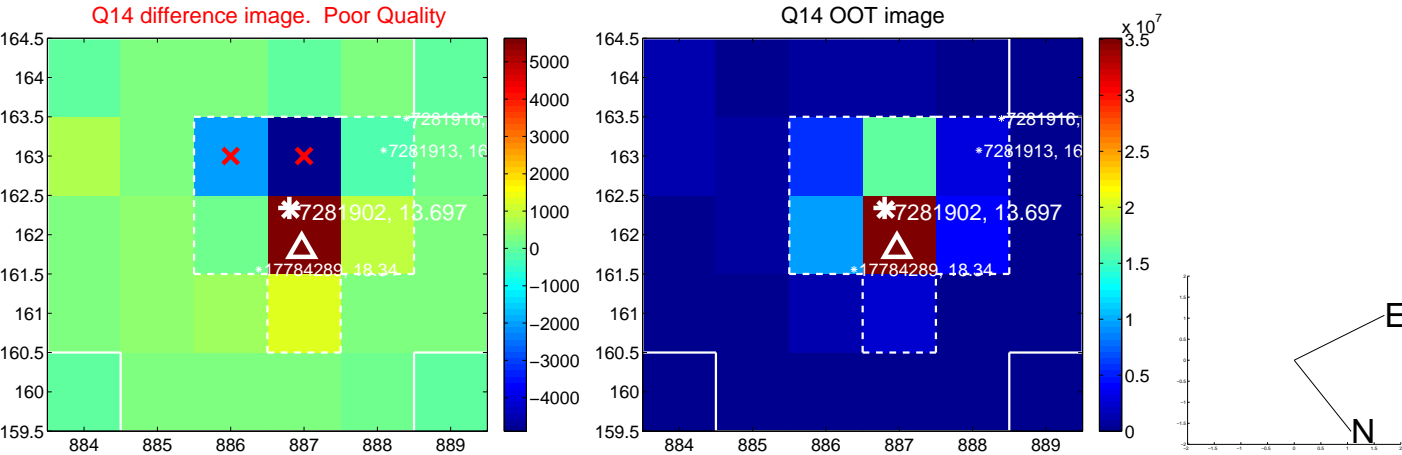
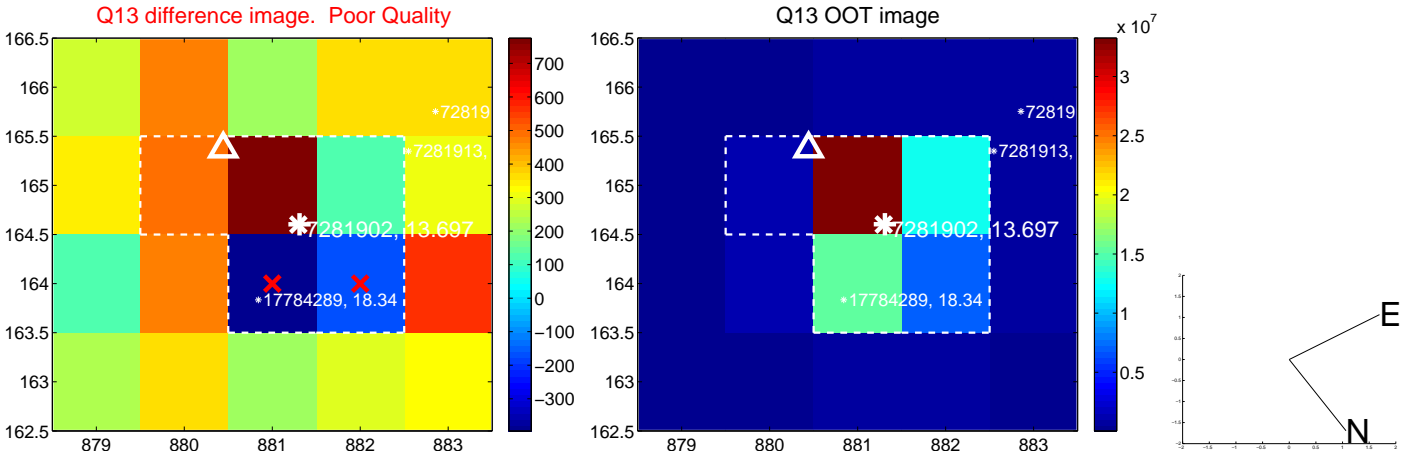




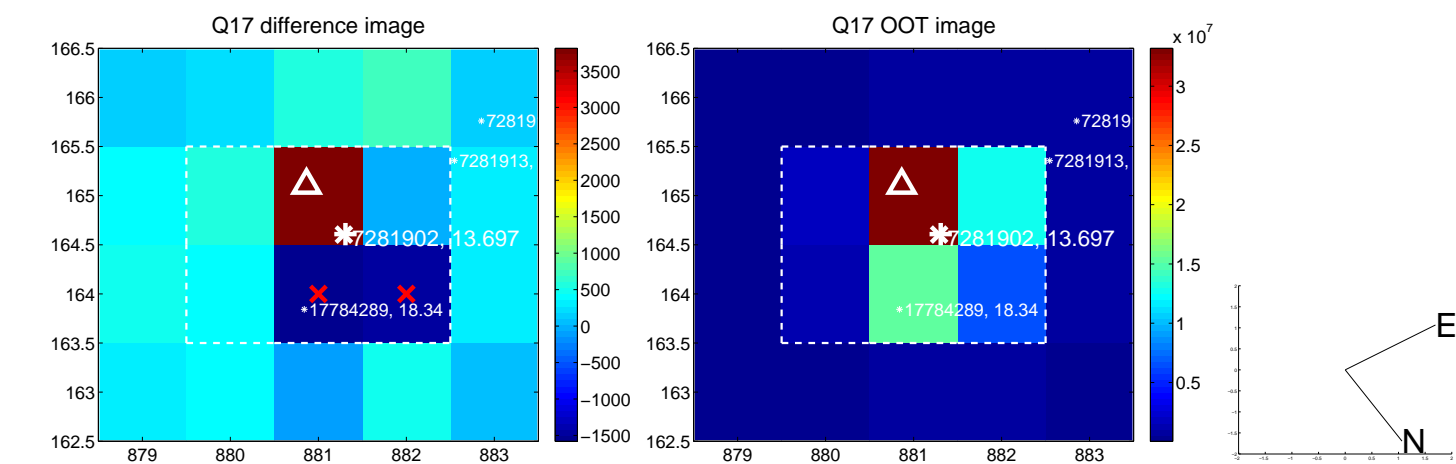
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



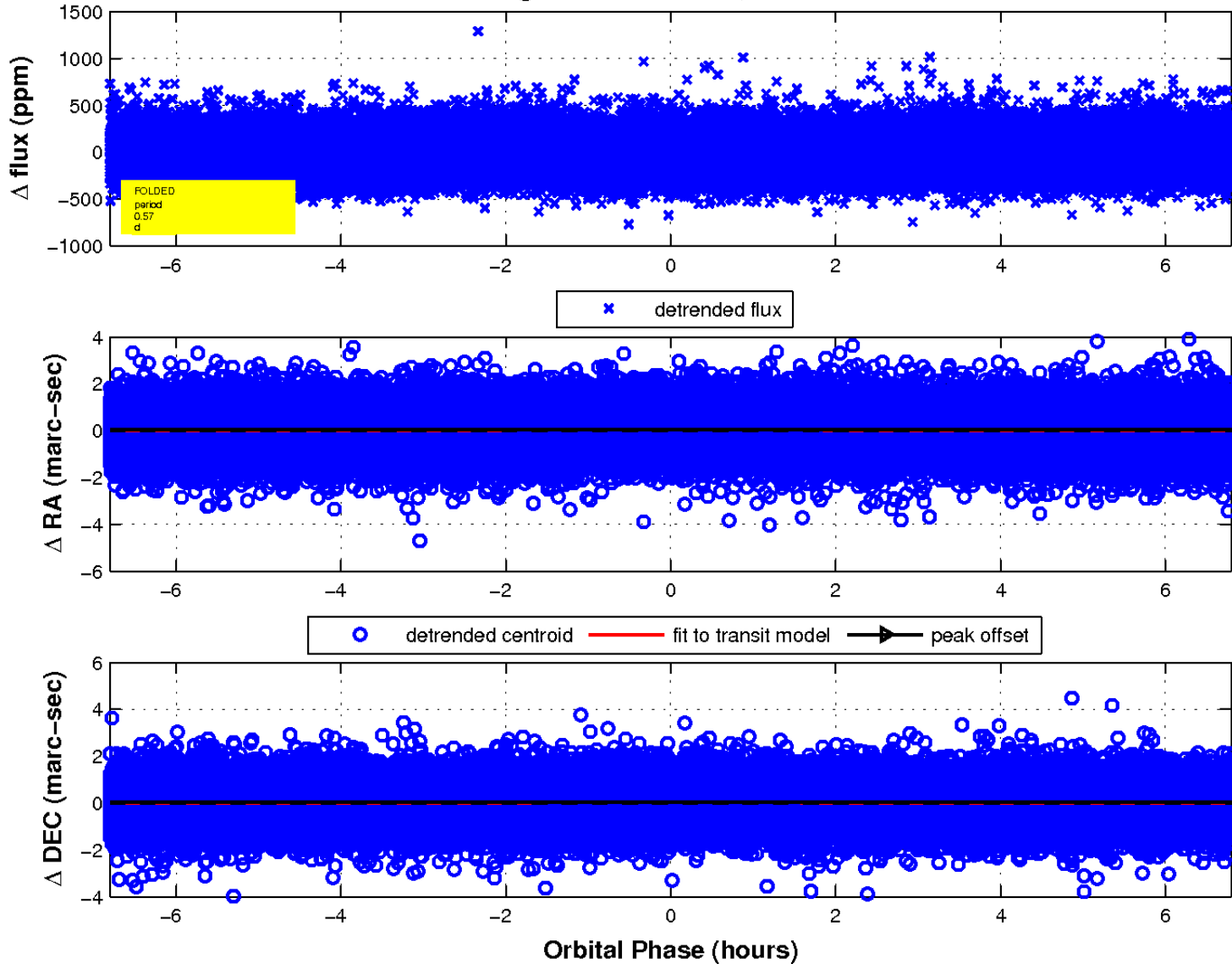
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

