

# KIC 010470882

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010470882-01	OBS	8014.01	0.933749	132.440793	69.9	3.913	9.4	8.5	0.81	5628	0.80	1806.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010470882-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—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.

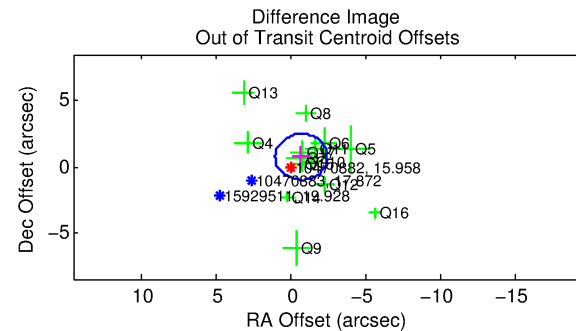
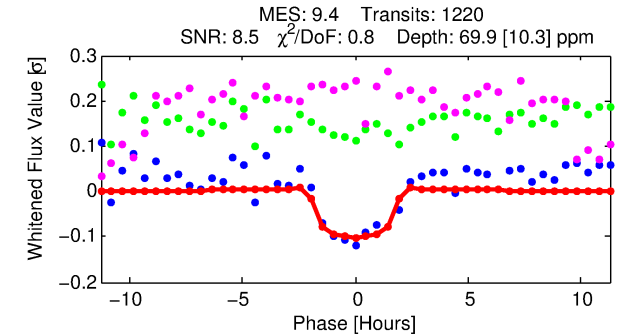
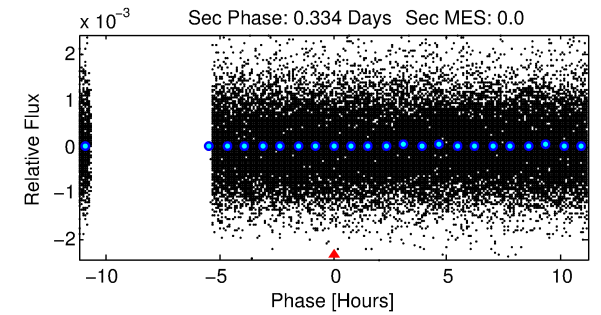
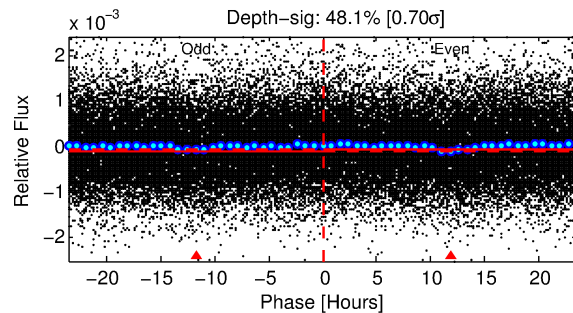
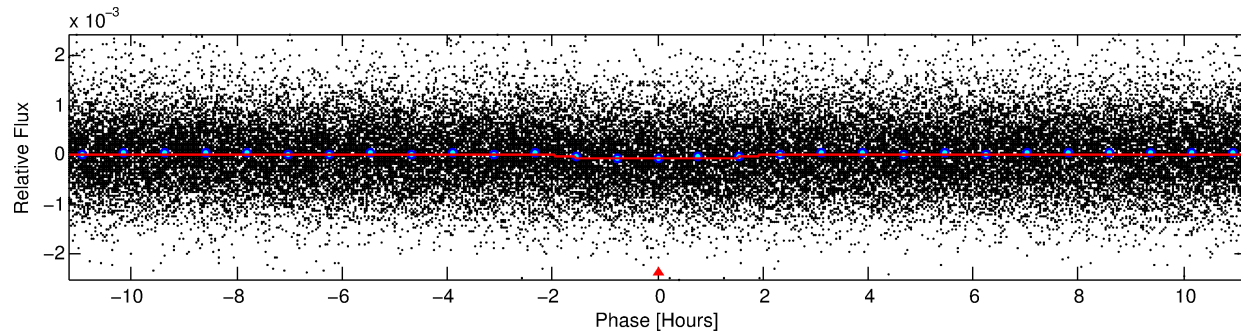
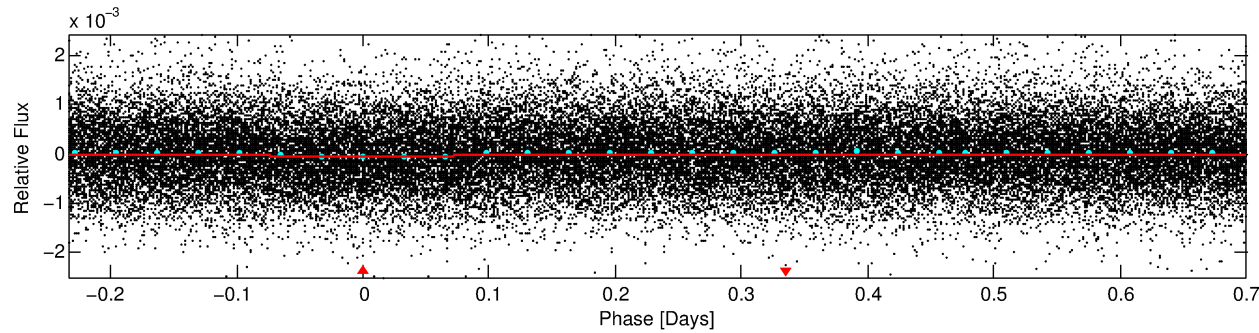
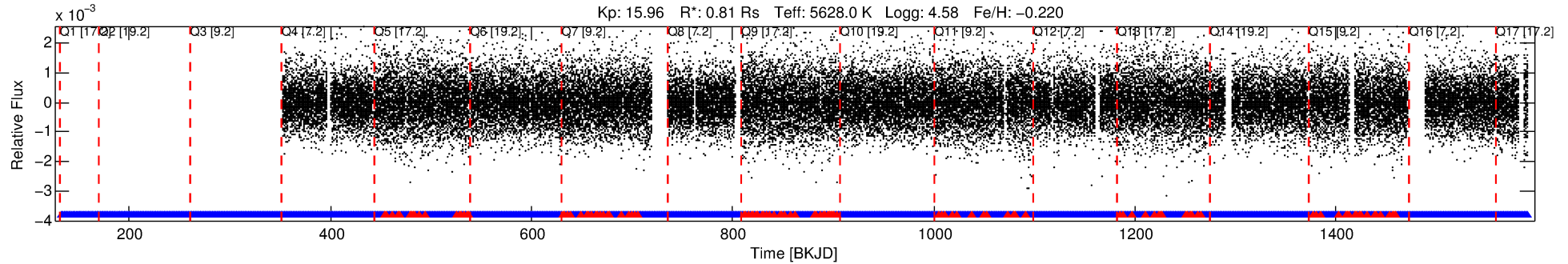
## Ephemeris Match Information For 010470882-01

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	$\sigma_P$	$\sigma_T$
010470882-01	10470882	V2083-Cyg-pri	10342012	1:2	1853.6	339	-320	6.90	15.96	2833.20	Direct-PRF	0	0.05	0.88

**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: 10470882 Candidate: 1 of 1 Period: 0.934 d



## DV Fit Results:

Period = 0.93375 [0.00001] d  
Epoch = 132.4408 [0.0055] BKJD  
Rp/R\* = 0.0091 [0.0073]  
a/R\* = 1.26 [1.78]  
b = 0.90 [0.85]  
Seff = 1806.94 [587.89]  
Teq = 1663 [135] K  
Rp = 0.80 [0.68] Re  
a = 0.0180 [0.0037] AU  
Ag = N/A  
Teffp = N/A

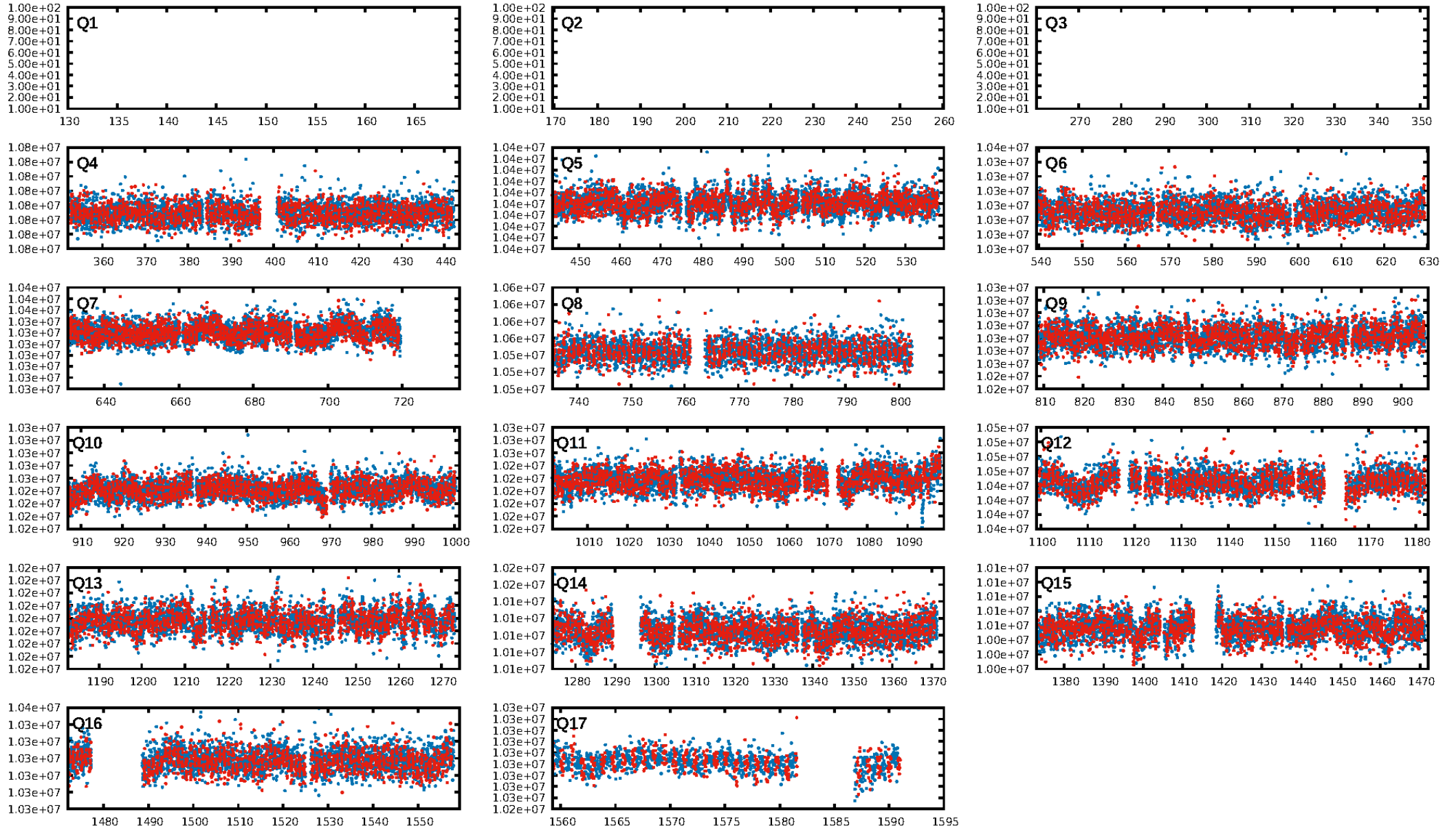
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.83e-20  
RollingBand-fgt: 0.90 [1072/1190]  
**GhostDiagnostic-chr: 0.2284**  
Centroid-sig: 2.5%  
Centroid-so: 4.222 arcsec [1.98σ]  
OotOffset-rm: 1.045 arcsec [1.80σ]  
KicOffset-rm: 1.037 arcsec [2.06σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.07 [1/14]  
DiffImageOverlap-fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:56:23 Z

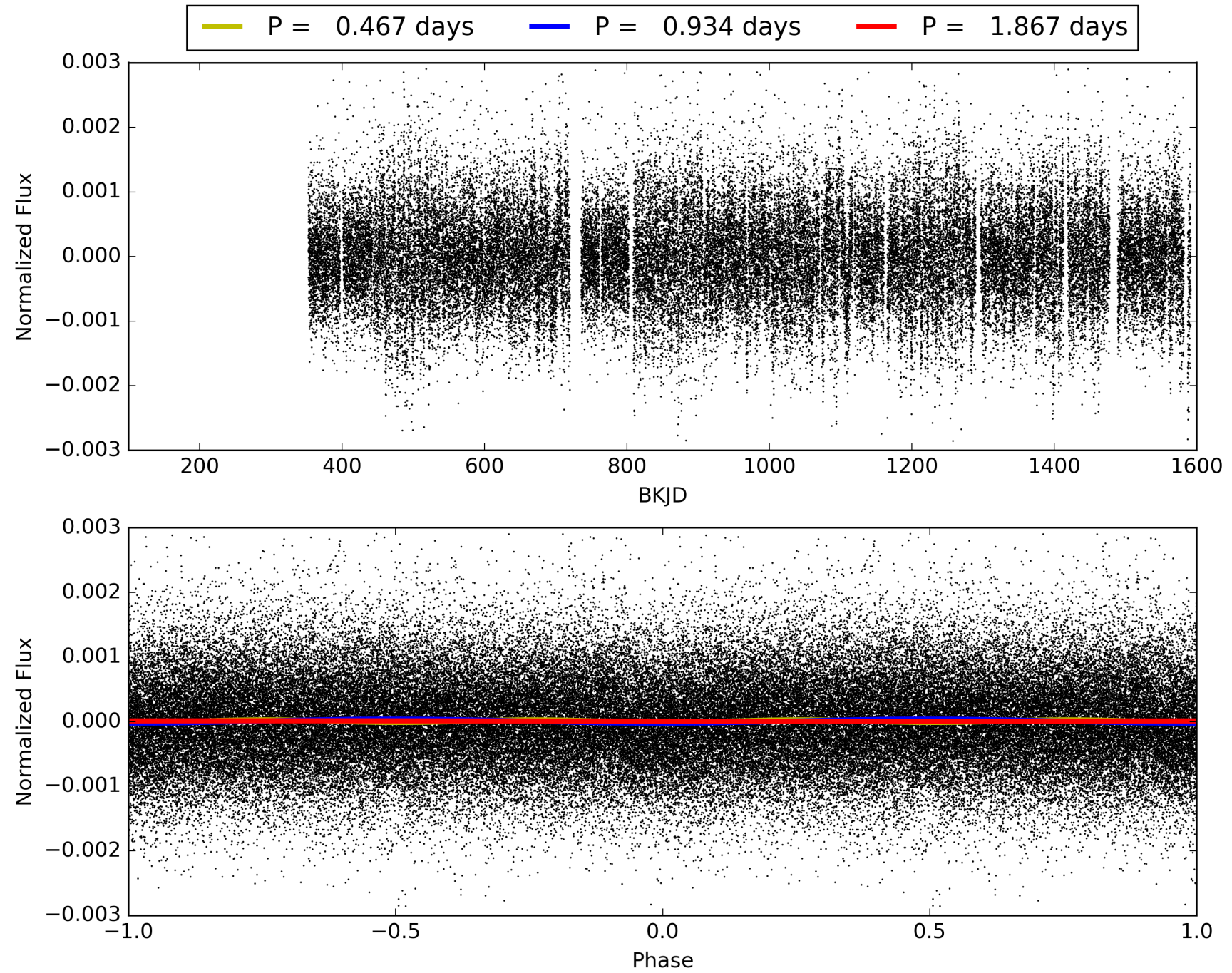
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010470882-01, PDC Light Curves



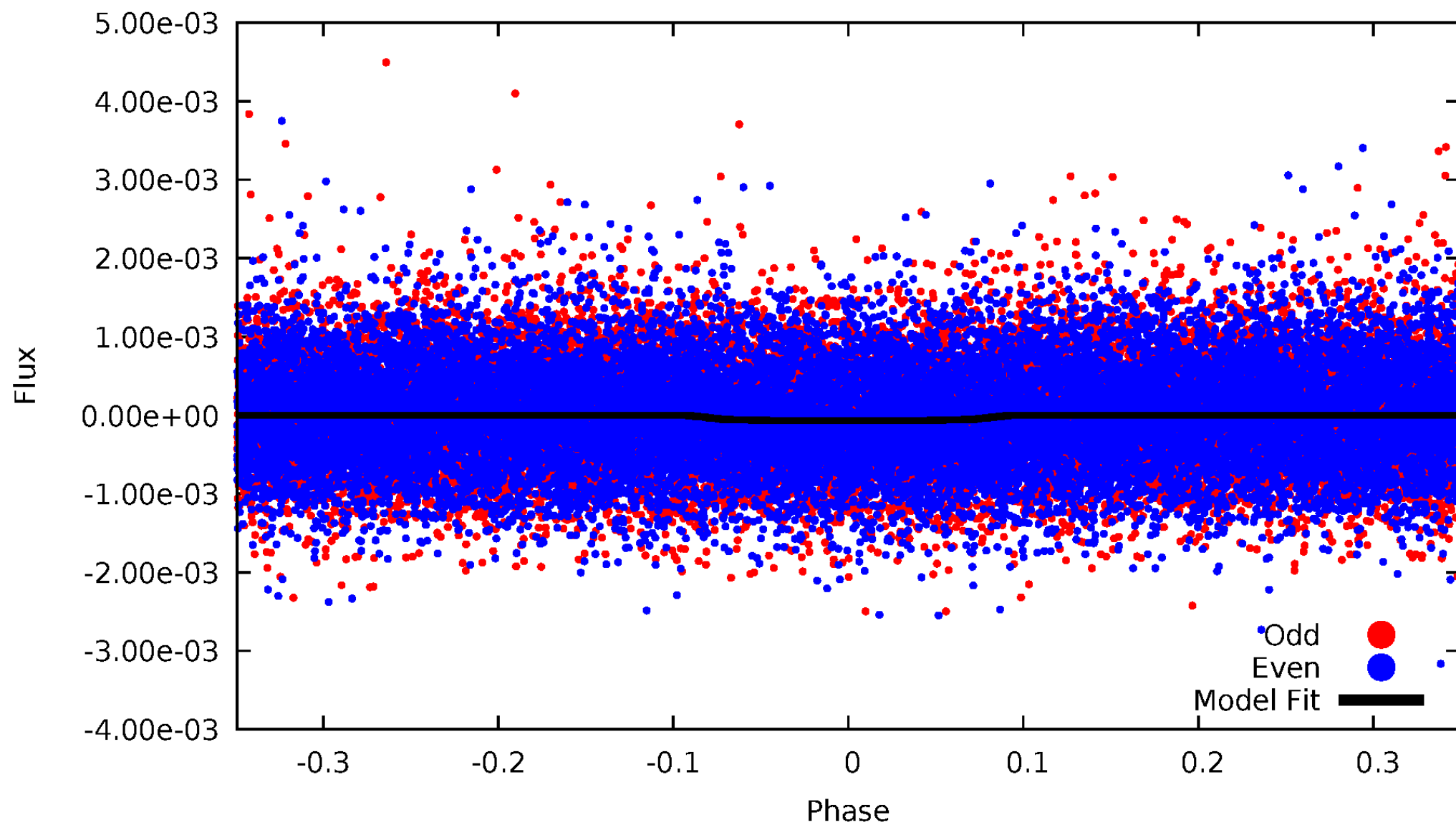


TCE 010470882-01



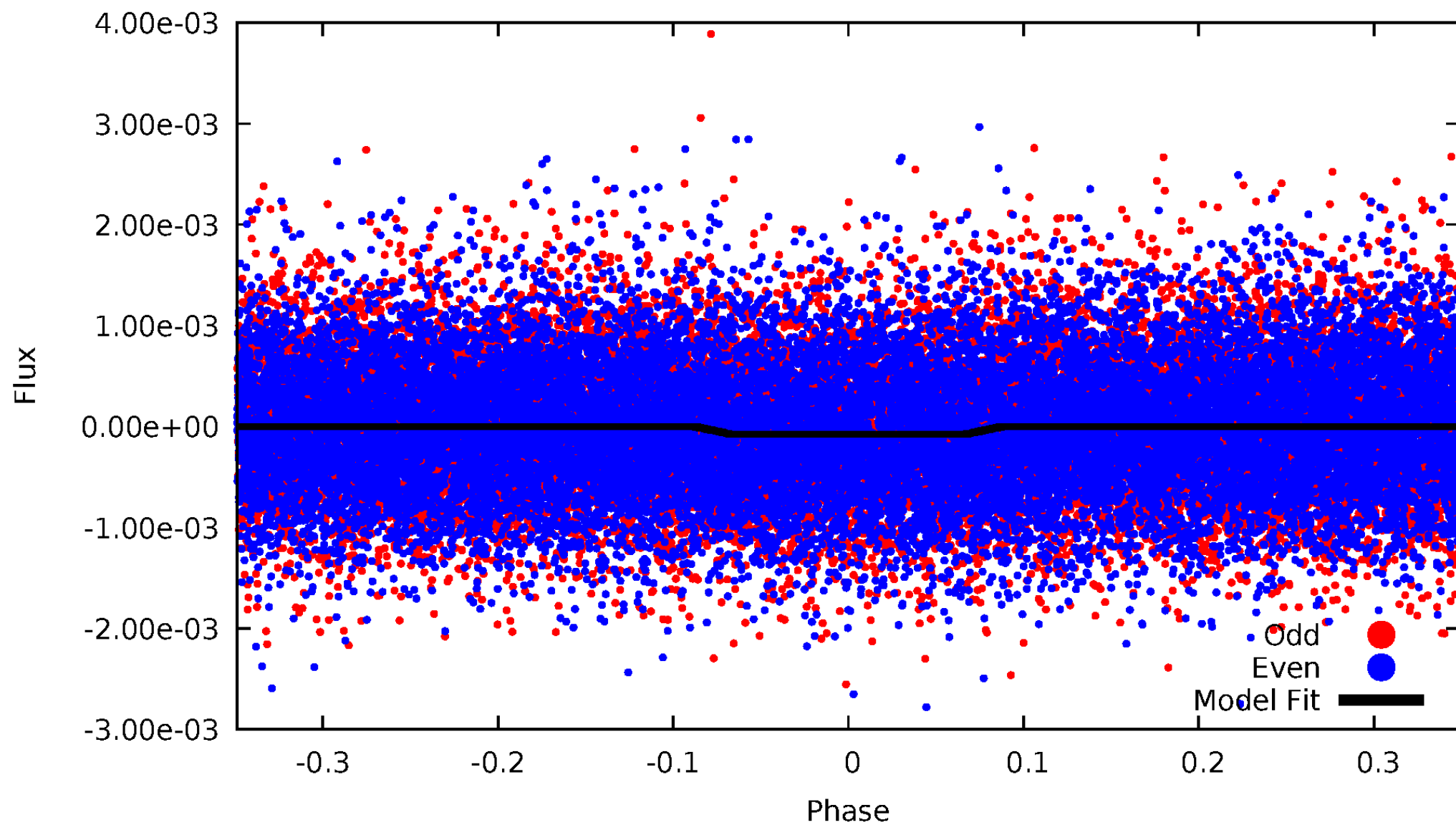
# DV Odd/Even

TCE 010470882-01



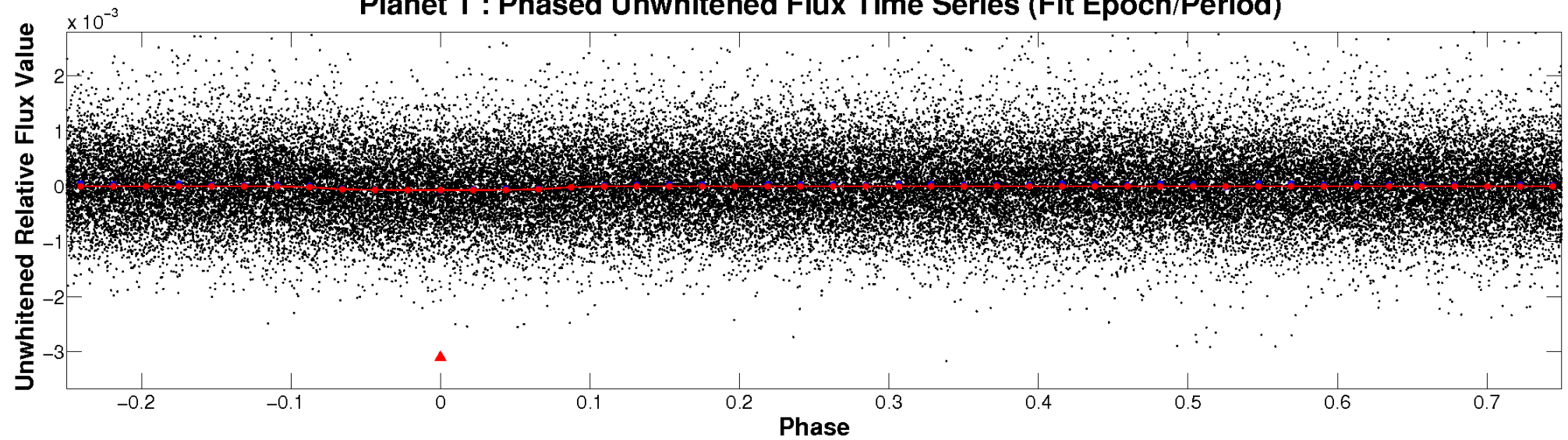
# ALT Odd/Even

TCE 010470882-01

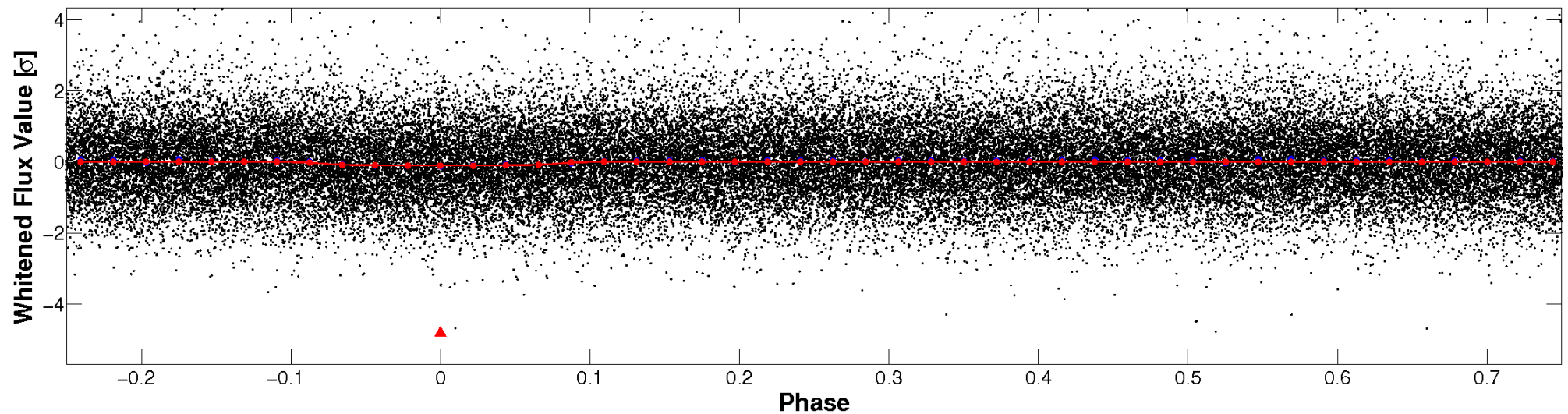


# Non-Whitened Vs. Whitened Light Curve

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



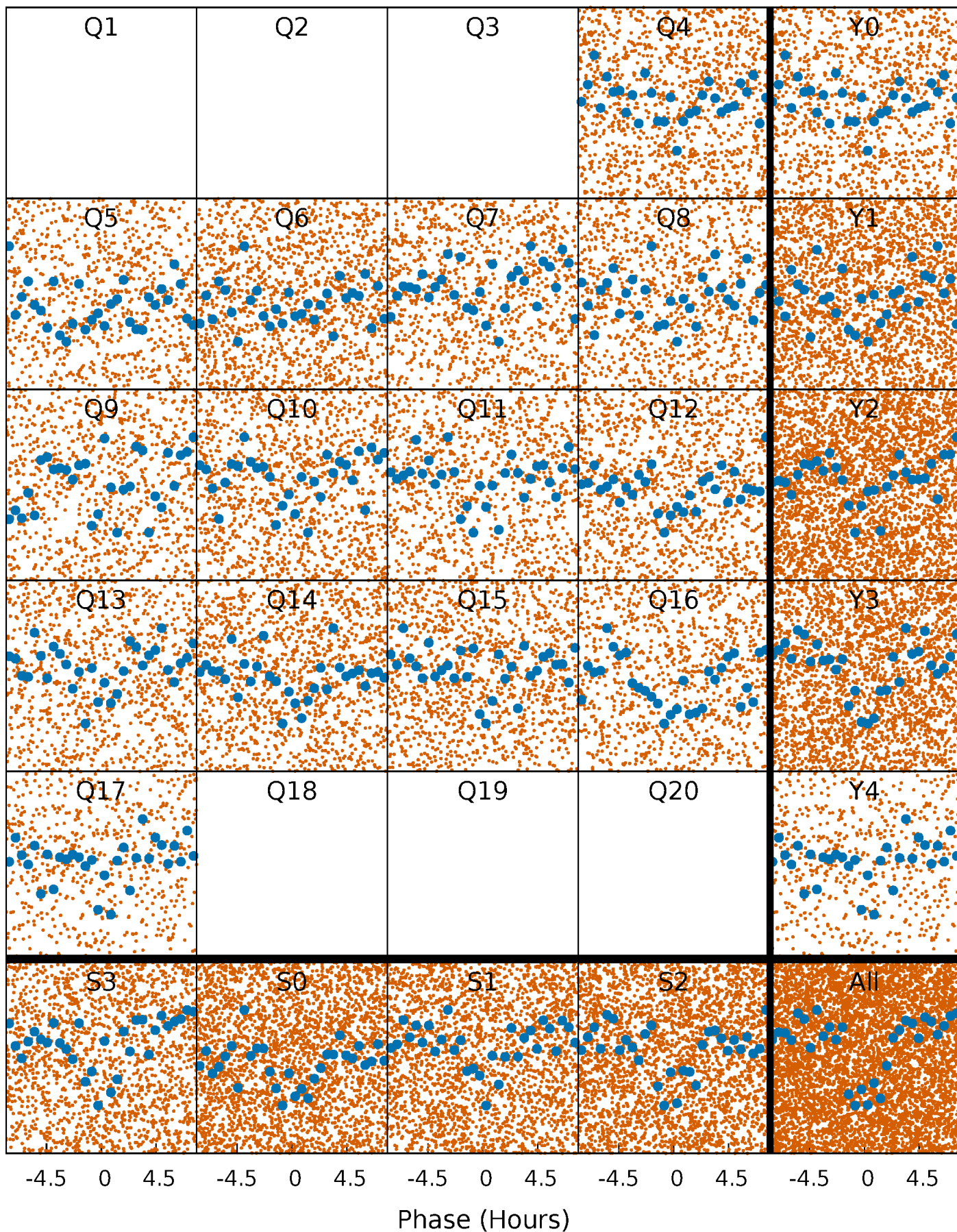
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

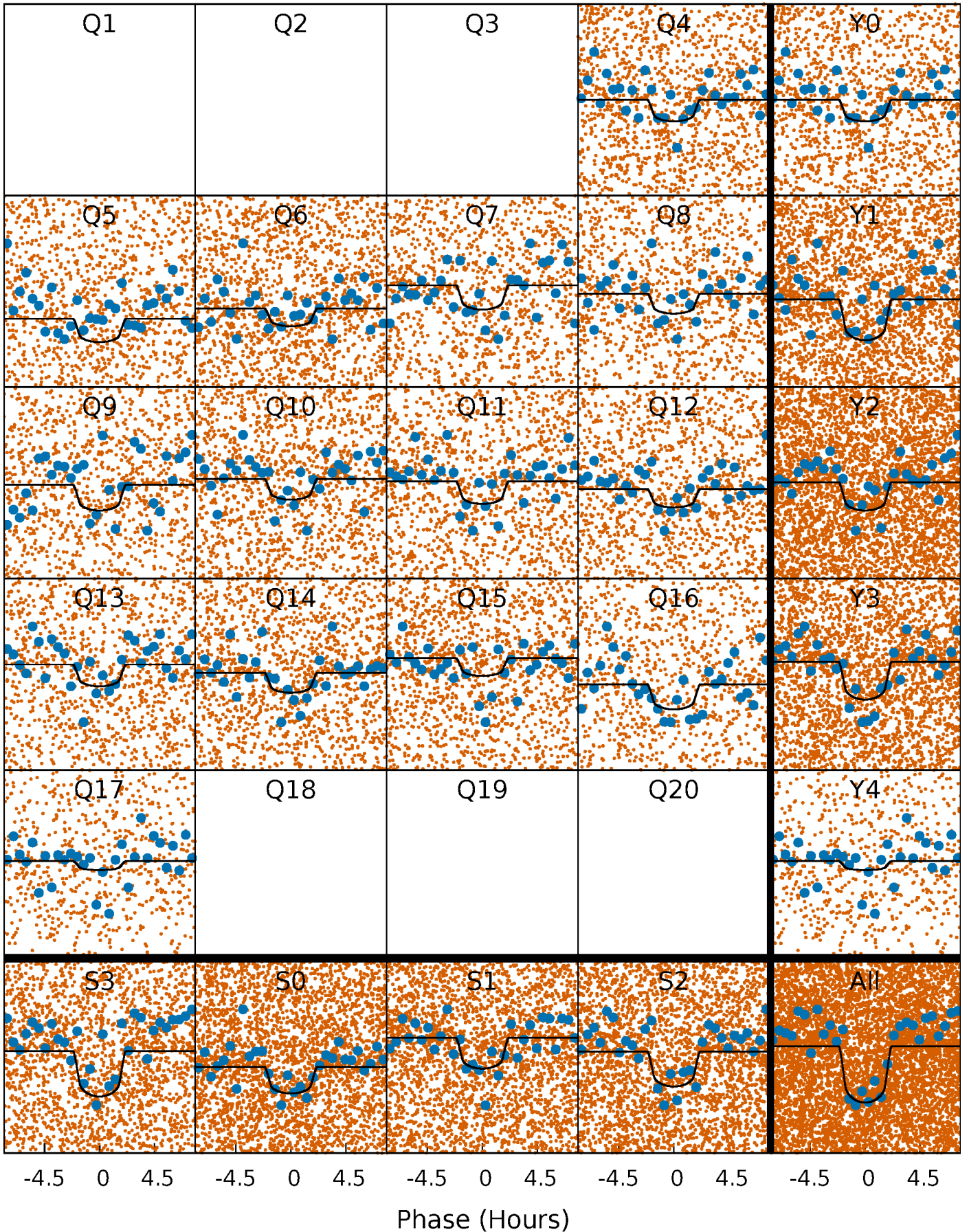
TCE 010470882-01 P= 0.933749 Days  $T_0=132.440793$  (BKJD)





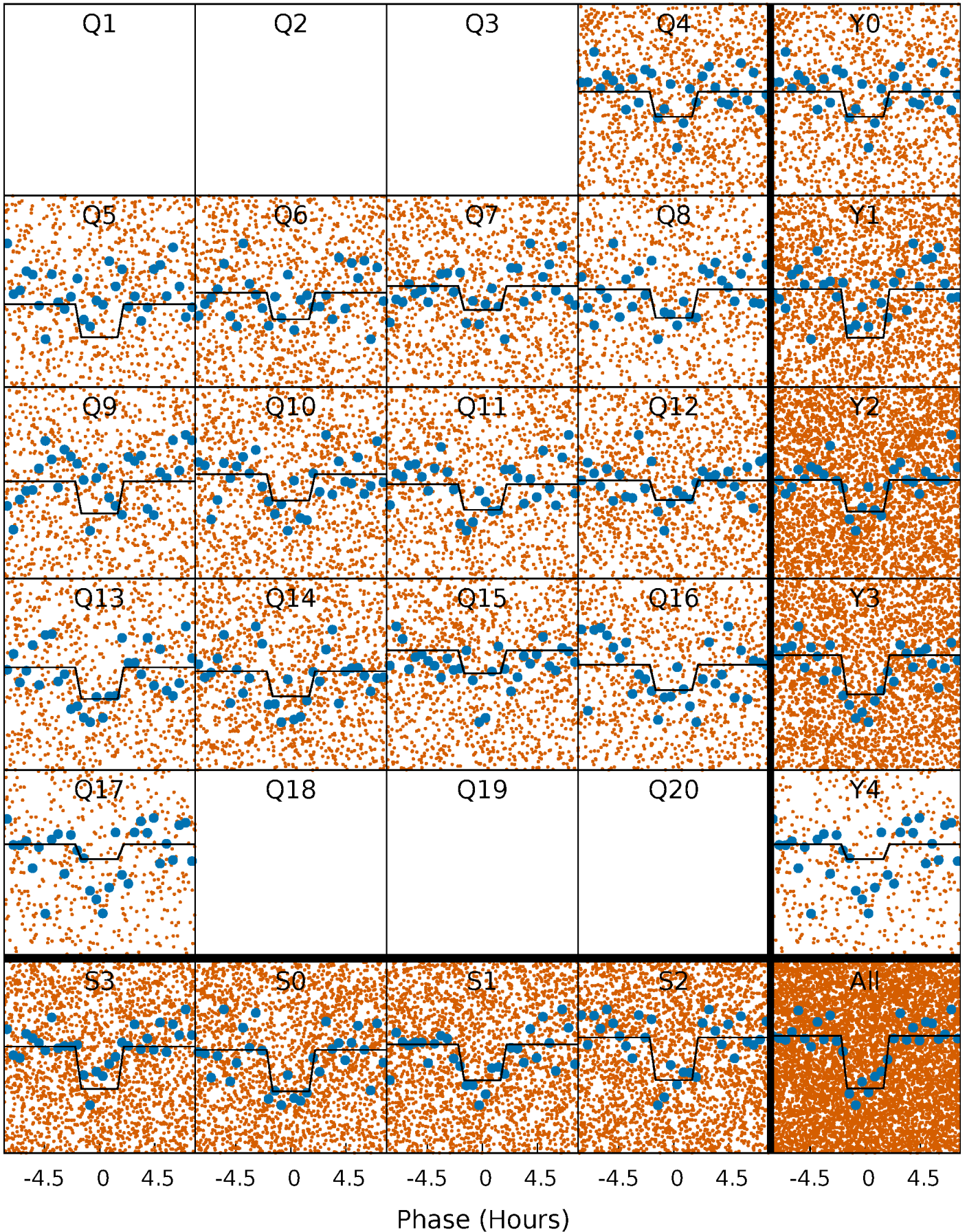
# DV Quarter-Phased Transit Curves

TCE 010470882-01   P= 0.933749 Days    $T_0=132.440793$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010470882-01 P= 0.933759 Days  $T_0=132.439796$  (BKJD)

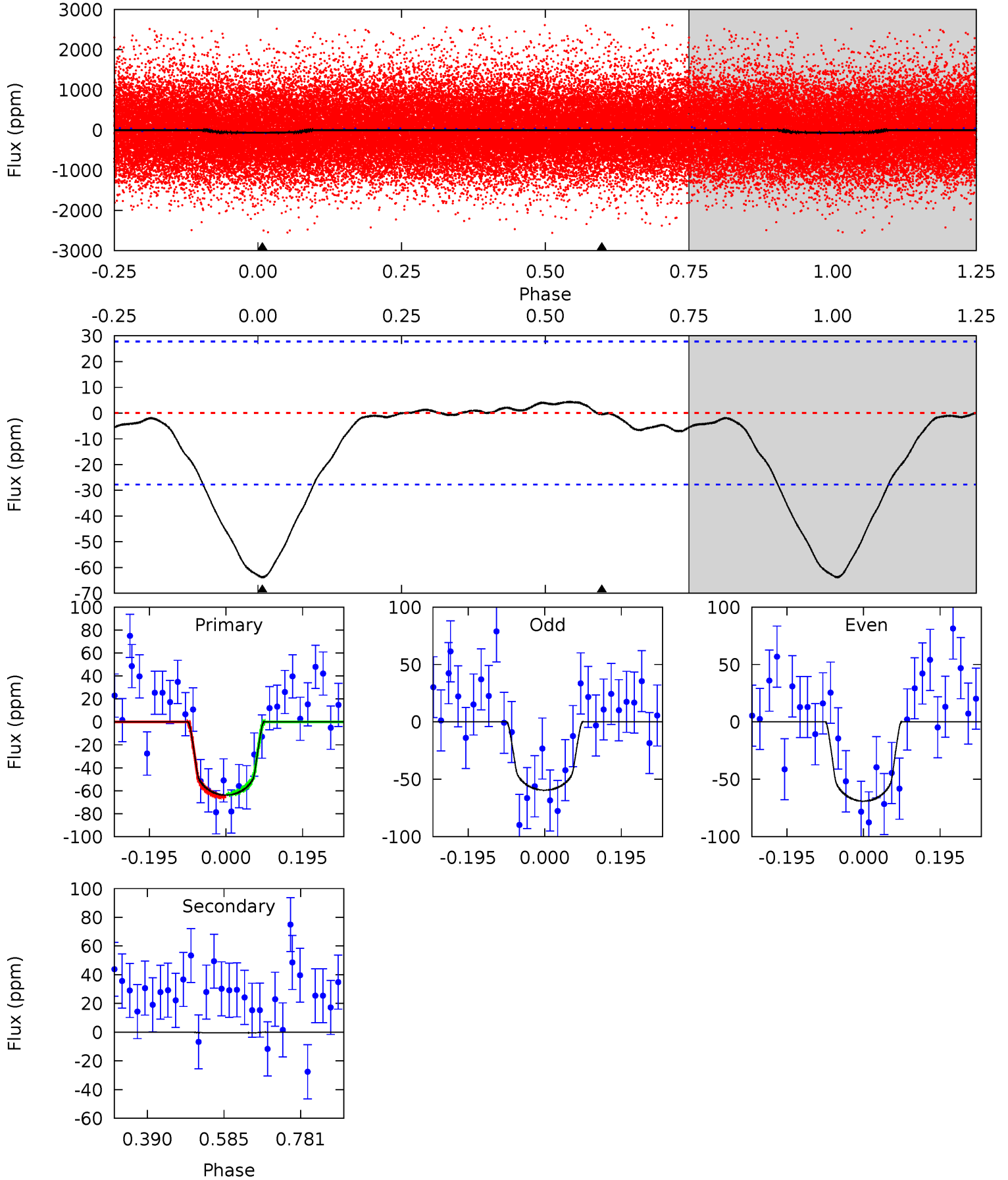




# DV Model-Shift Uniqueness Test

010470882-01, P = 0.933749 Days, E = 132.440793 Days

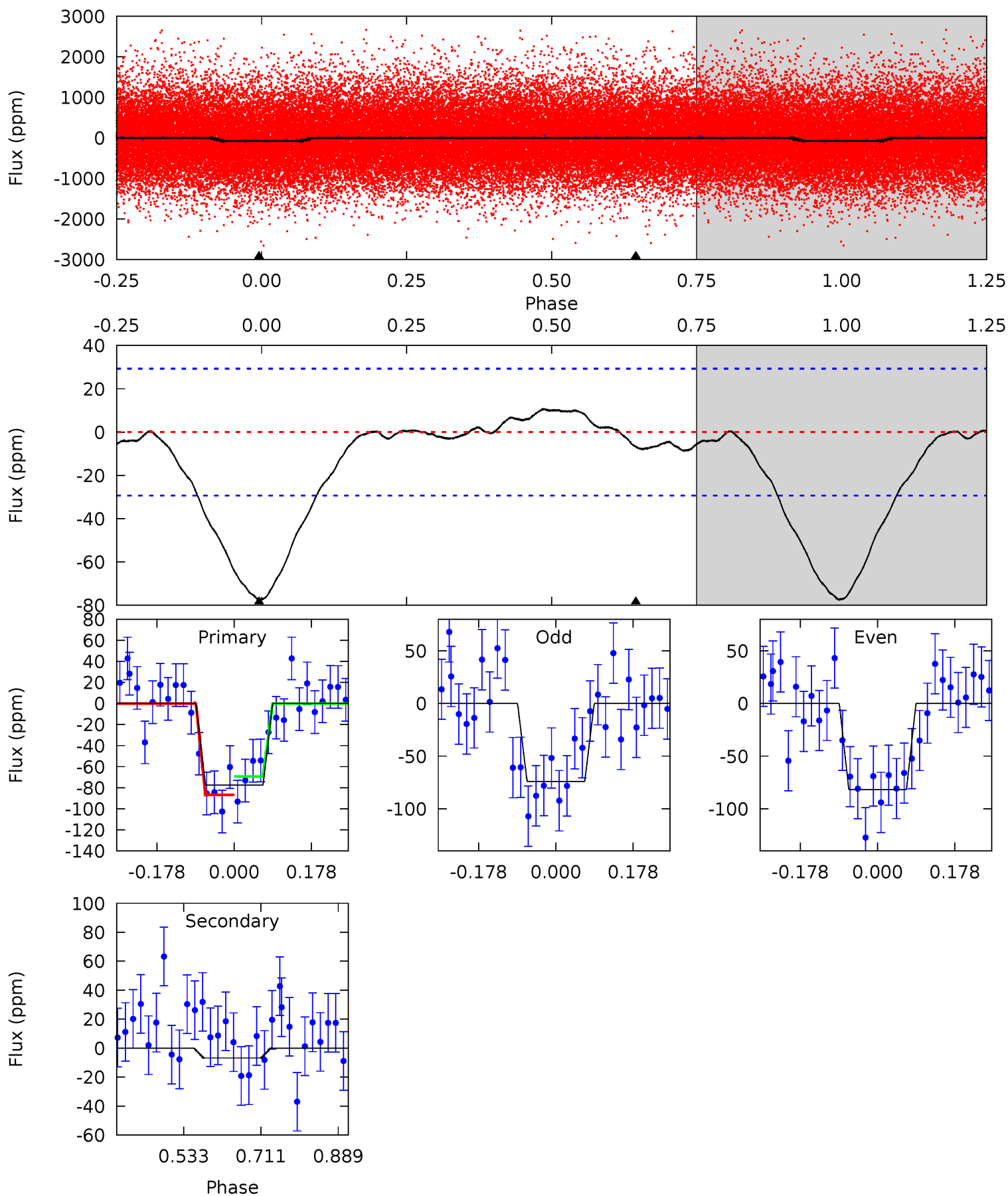
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	0.07	0	0	4.42	1.30	0.18	10.2	10.2	0.07	0.07	0.77	1.11	0.06	0.19



# Alt Model-Shift Uniqueness Test

010470882-01, P = 0.933759 Days, E = 132.439796 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
11.7	1.03	0	0	4.44	1.35	0.43	11.7	11.7	1.03	1.03	0.58	1.14	0.12	1.34





### Stellar Parameters For KIC 010470882

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5628^{+186}_{-186}$	$4.575^{+0.040}_{-0.160}$	$-0.220^{+0.300}_{-0.300}$	$0.808^{+0.203}_{-0.068}$	$0.903^{+0.092}_{-0.102}$	$2.412^{+0.399}_{-1.106}$
	+3%/-3%	+1%/-3%	+136%/-136%	+25%/-8%	+10%/-11%	+17%/-46%
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 010470882-01 / KOI 8014.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-0 \pm 6$	$0.92^{+0.64}_{-0.55}$	$2369^{+138}_{-116}$	$-2571^{+6137}_{-971}$	$0.105^{+2.208}_{-1.675}$
Alt.	$-7 \pm 7$	$0.87^{+0.66}_{-0.47}$	$2366^{+146}_{-104}$	$3234^{+1378}_{-5878}$	$1.313^{+7.155}_{-1.240}$

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

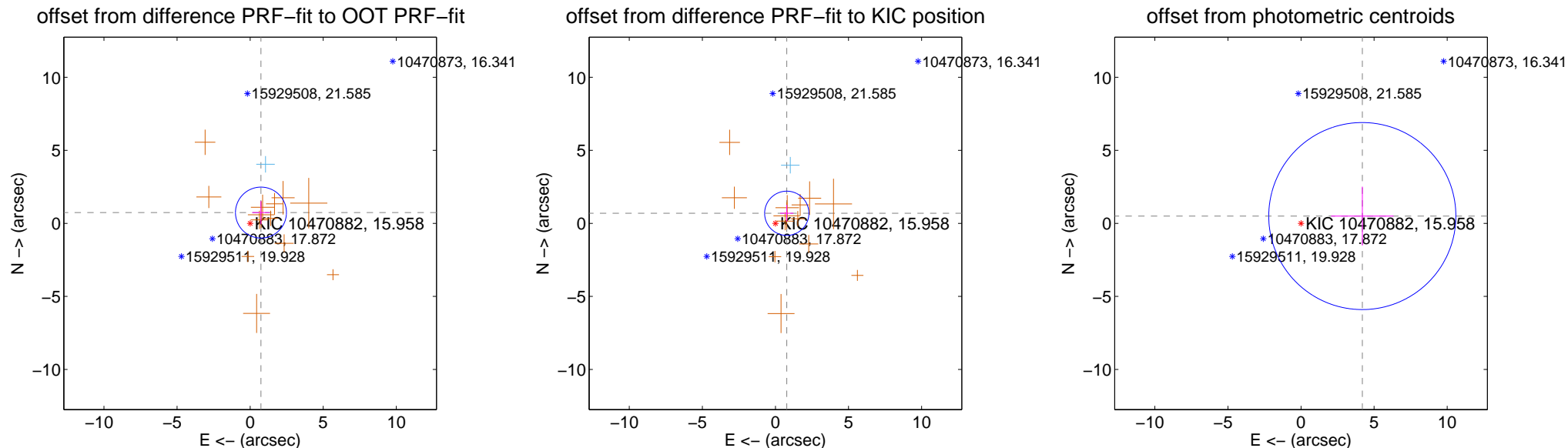
## DV Centroid Data

Supplemental centroid analysis for 010470882-01. Kepler magnitude: 15.96. Transit SNR 8.46

There are 1 quarters with good PRF difference image offsets

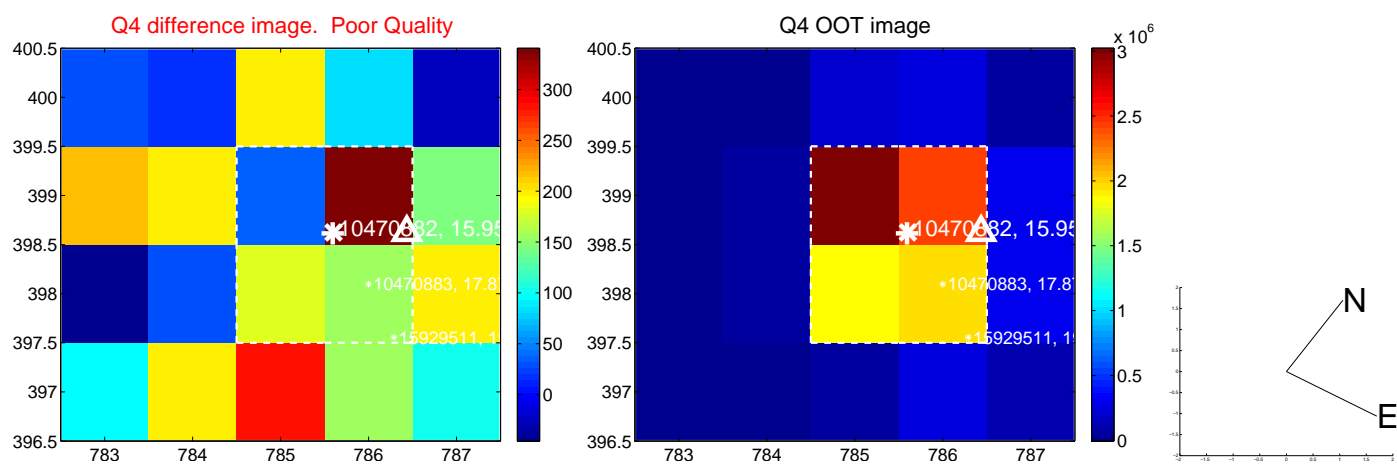
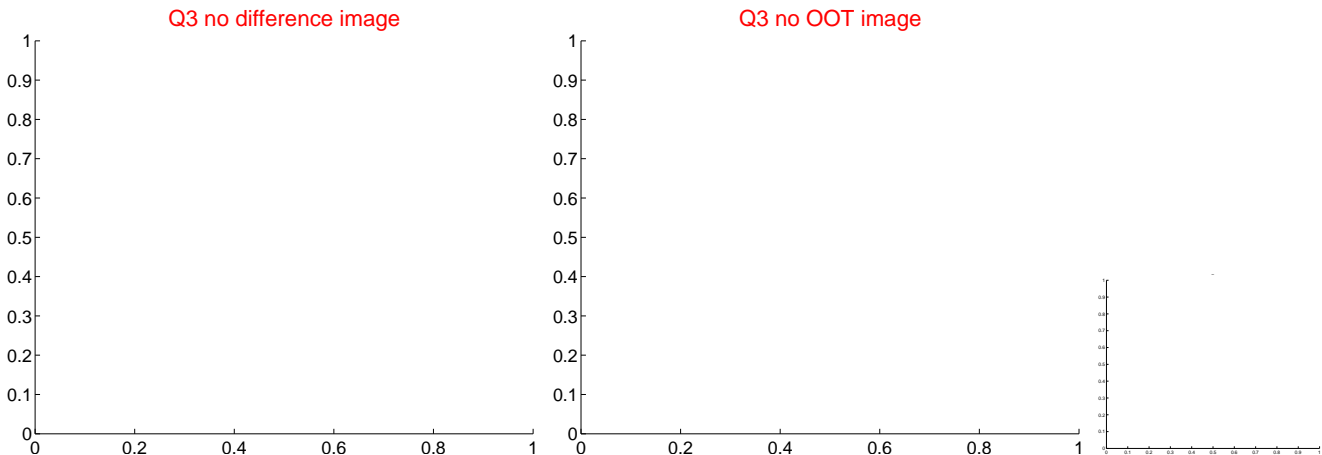
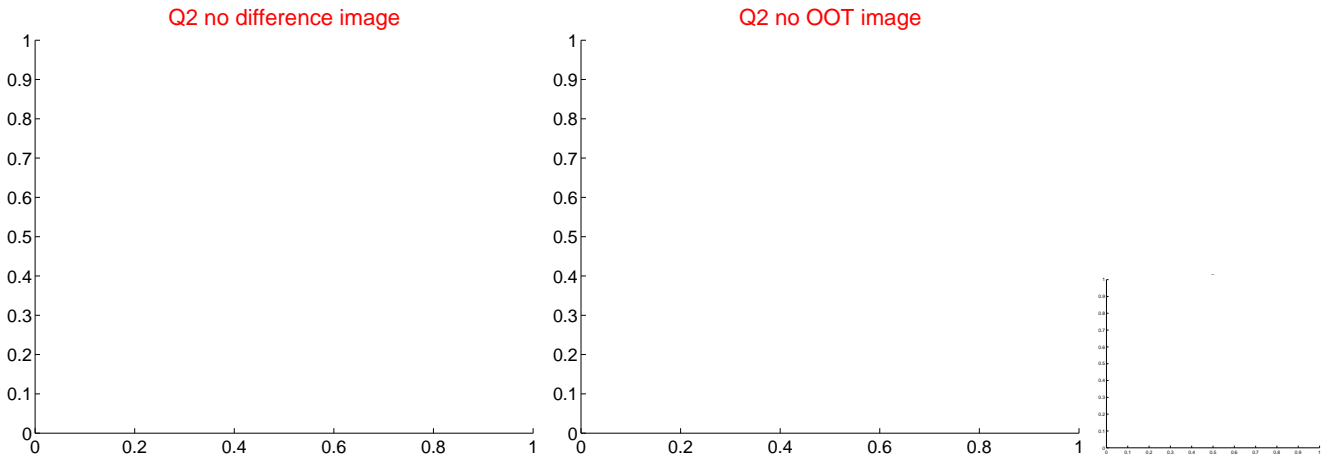
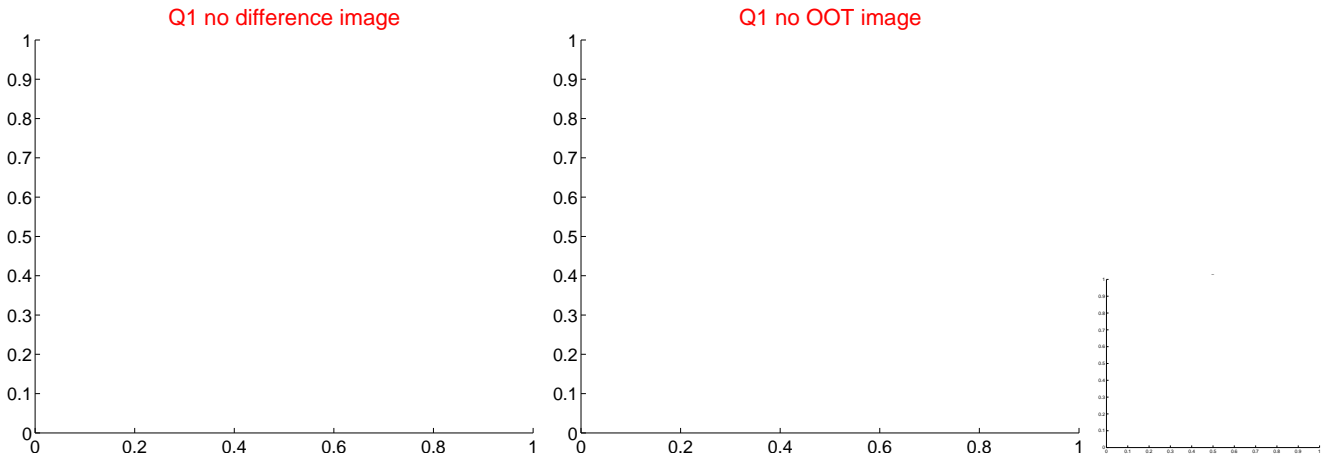
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.045 \pm 0.581$	1.80	$-0.741 \pm 0.598$	$0.738 \pm 0.794$
PRF-fit source offset from KIC position	$1.037 \pm 0.505$	2.06	$-0.775 \pm 0.451$	$0.689 \pm 0.566$
photometric centroid source offset	$4.22 \pm 2.13$	1.98	$-4.19 \pm 2.13$	$0.50 \pm 2.01$

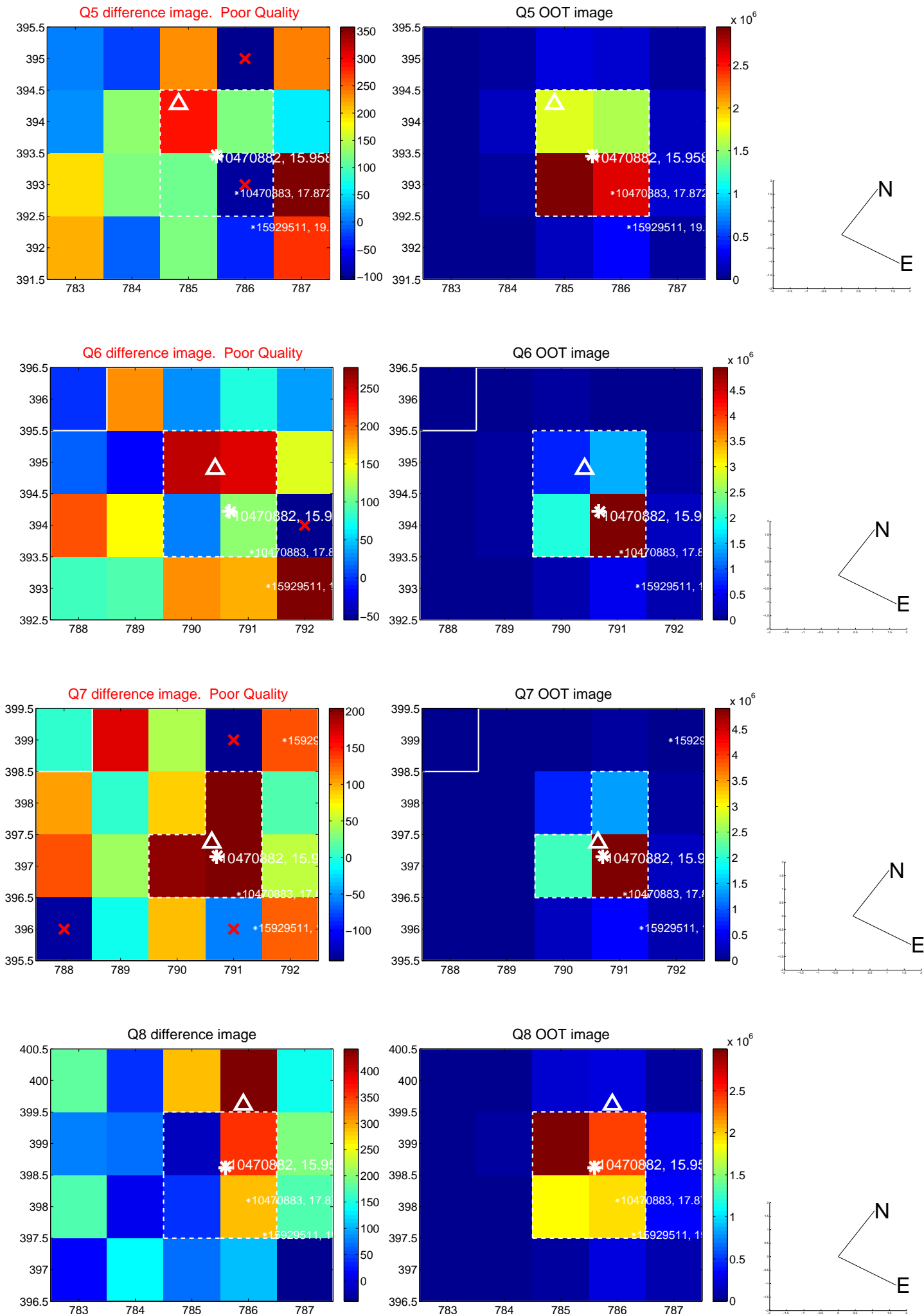


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

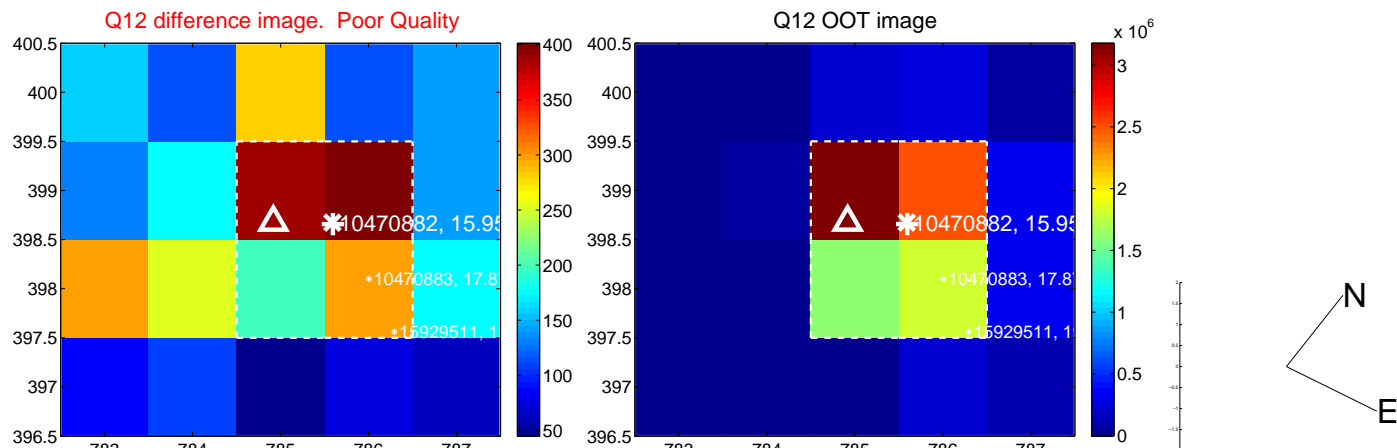
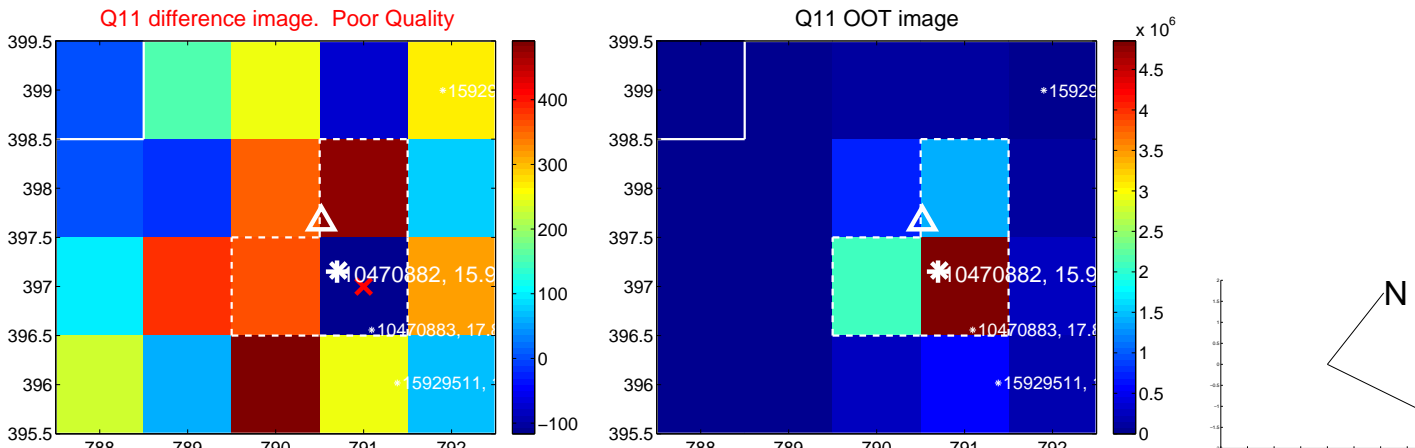
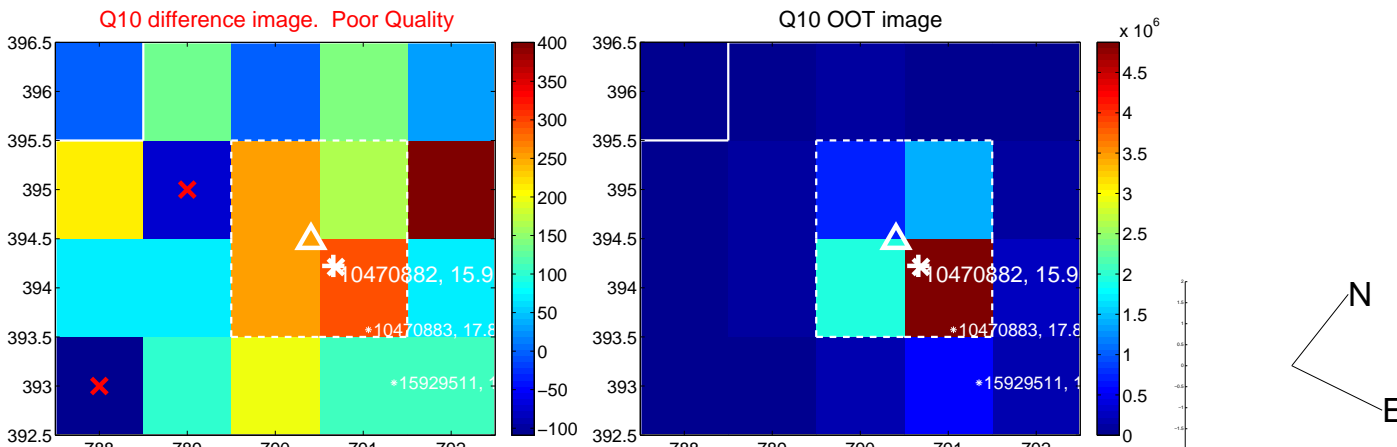
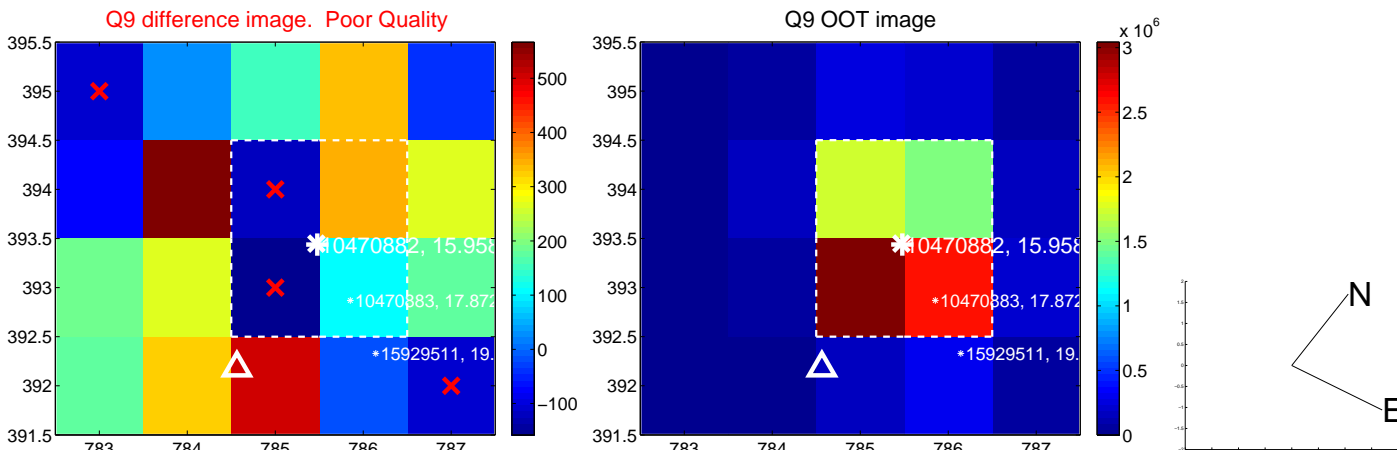


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

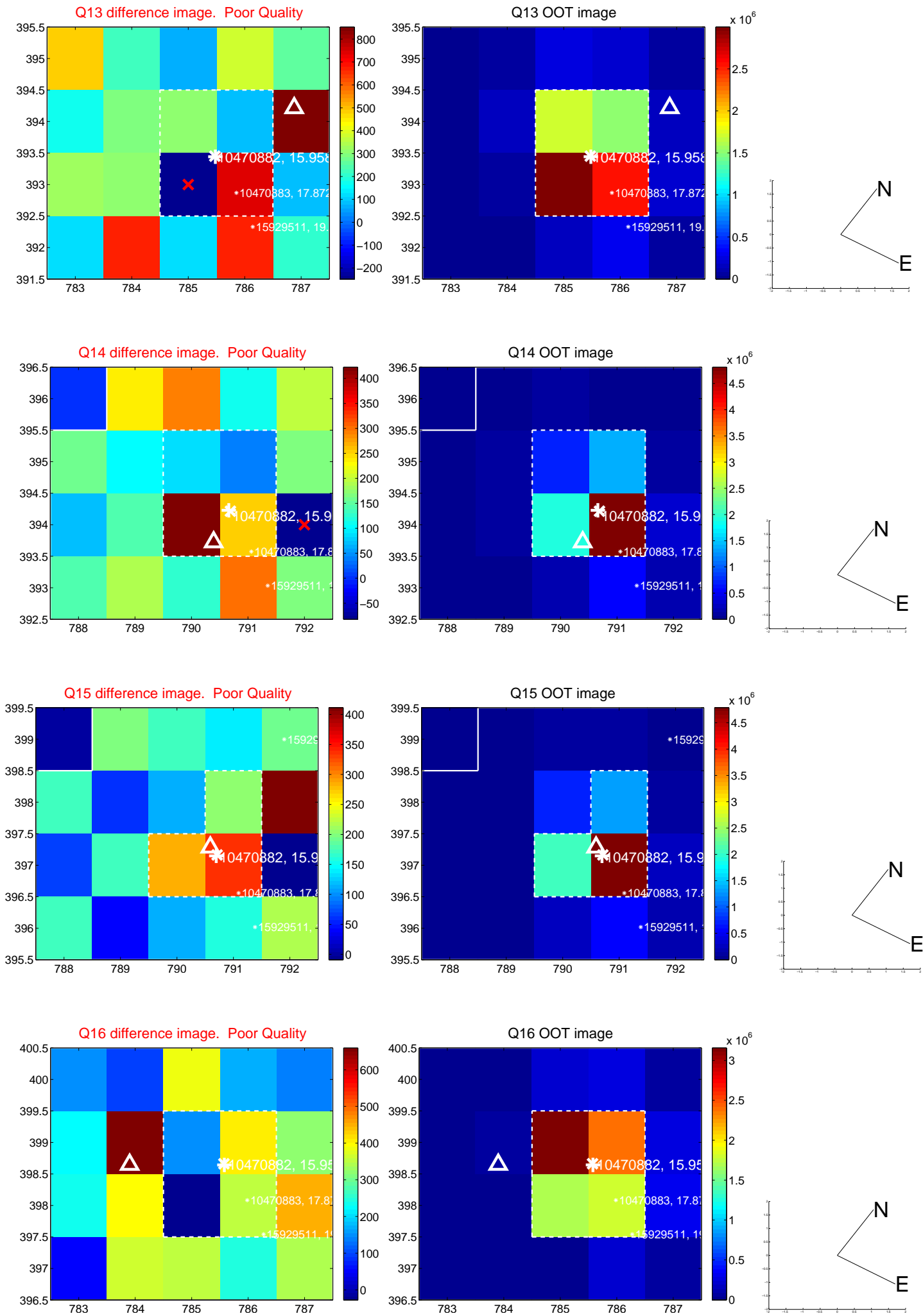




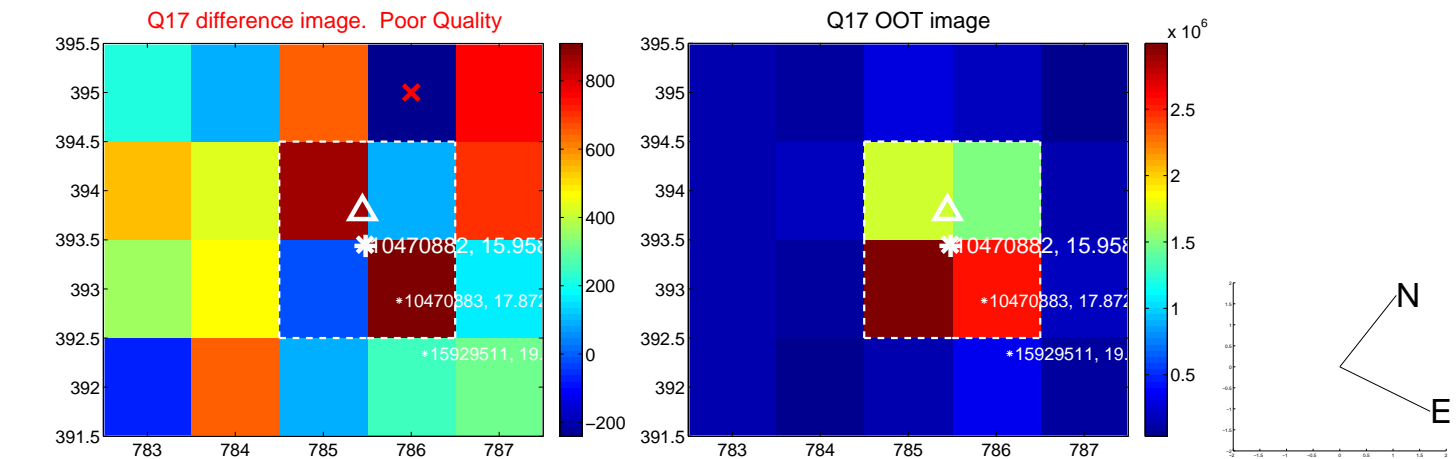
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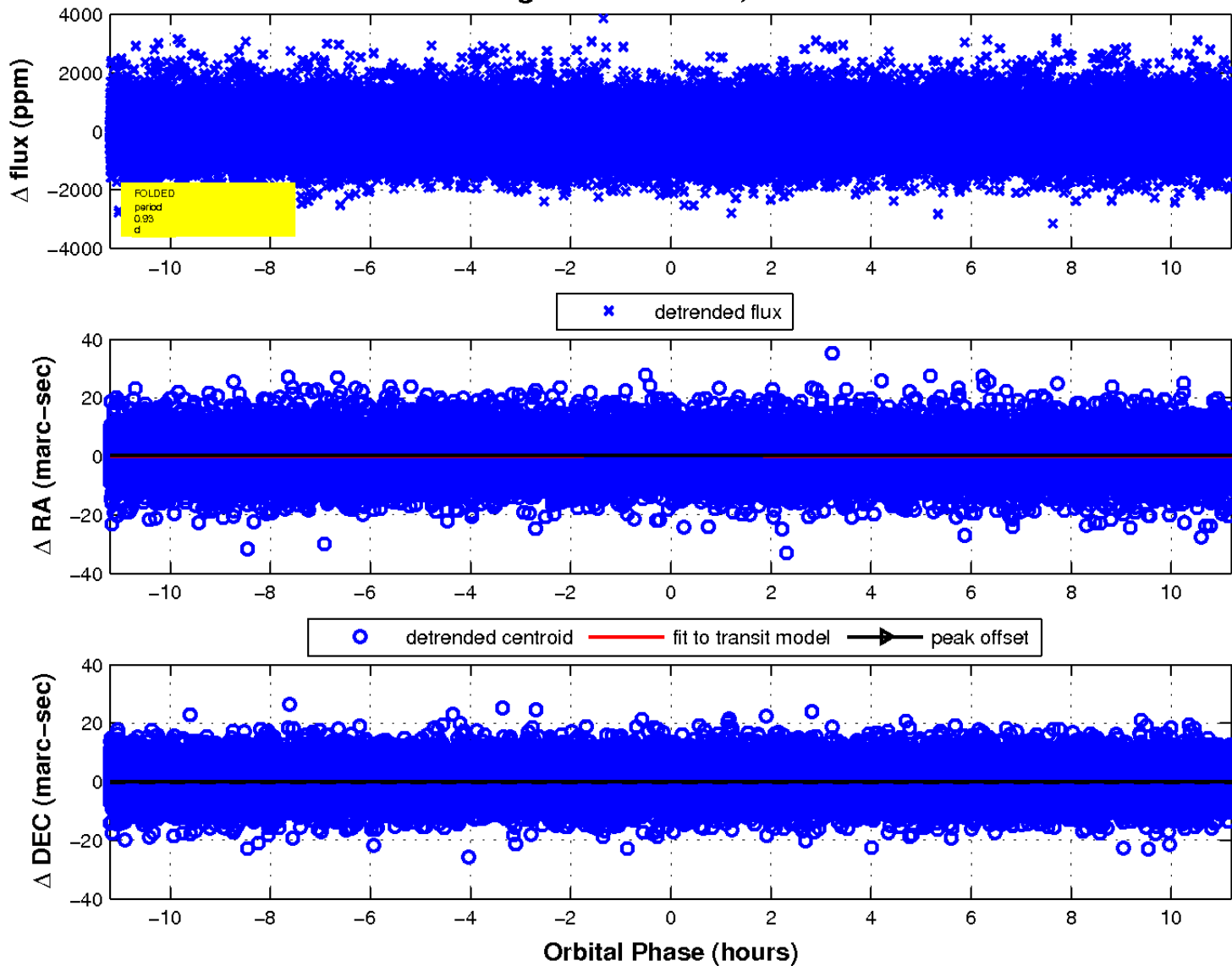
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

