

# KIC 008382091

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008382091-01	OBS	No	1.258657	132.523437	34.5	5.059	7.6	6.7	0.83	5882	0.51	1511.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008382091-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—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.

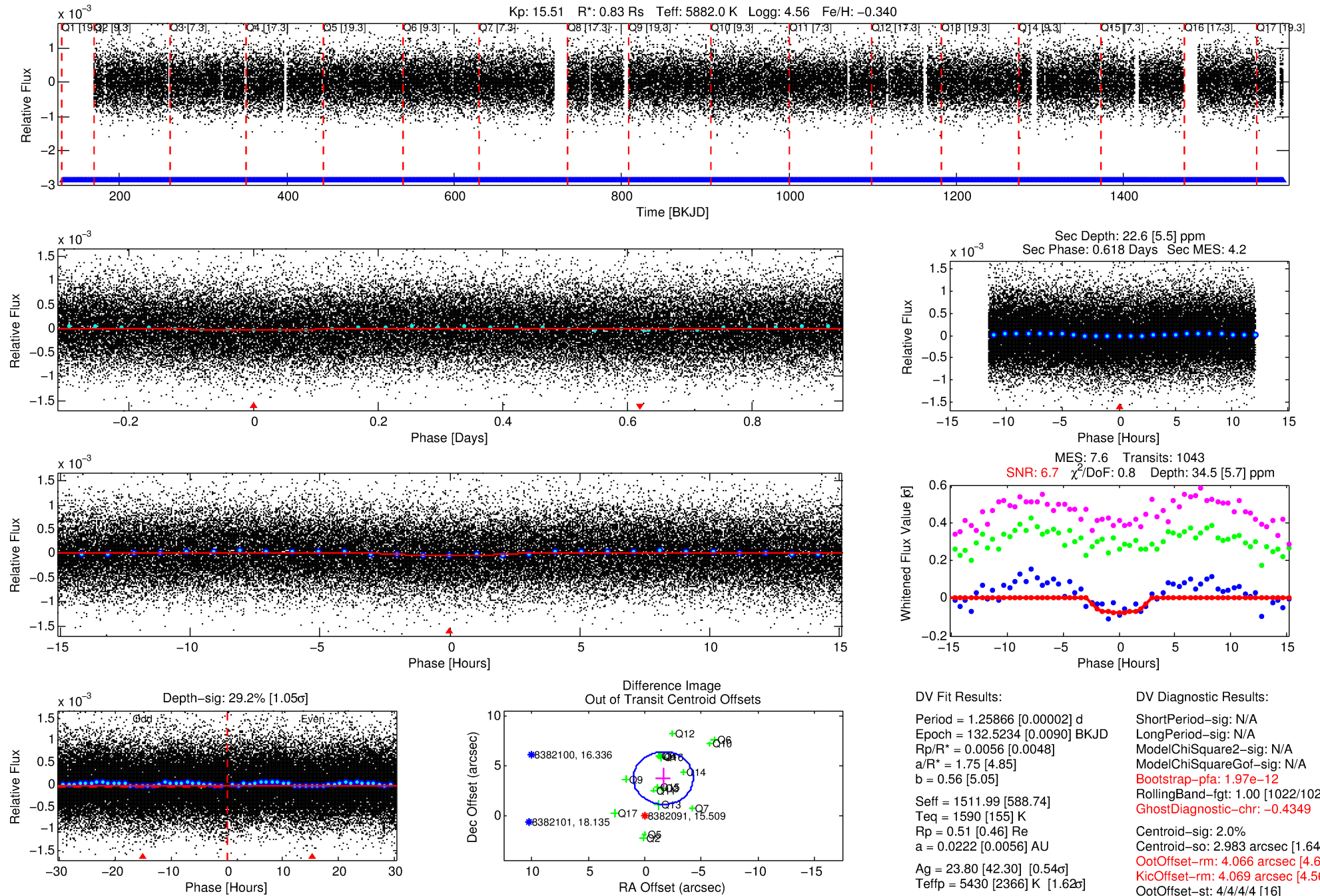
## Ephemeris Match Information For 008382091-01

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	$\sigma_P$	$\sigma_T$
008382091-01	8382091	008382182-pri	8382182	1:1	92.9	23	7	8.18	15.51	432.35	Direct-PRF	0	3.83	2.85

**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: 8382091 Candidate: 1 of 1 Period: 1.259 d



## DV Fit Results:

Period = 1.25866 [0.00002] d  
Epoch = 132.5234 [0.0090] BKJD  
Rp/R\* = 0.0056 [0.0048]  
a/R\* = 1.75 [4.85]  
b = 0.56 [5.05]  
Seff = 1511.99 [588.74]  
Teff = 1590 [155] K  
Rp = 0.51 [0.46] Re  
a = 0.0222 [0.0056] AU  
Ag = 23.80 [42.30] [0.54 $\sigma$ ]  
Teffp = 5430 [2366] K [1.62 $\sigma$ ]

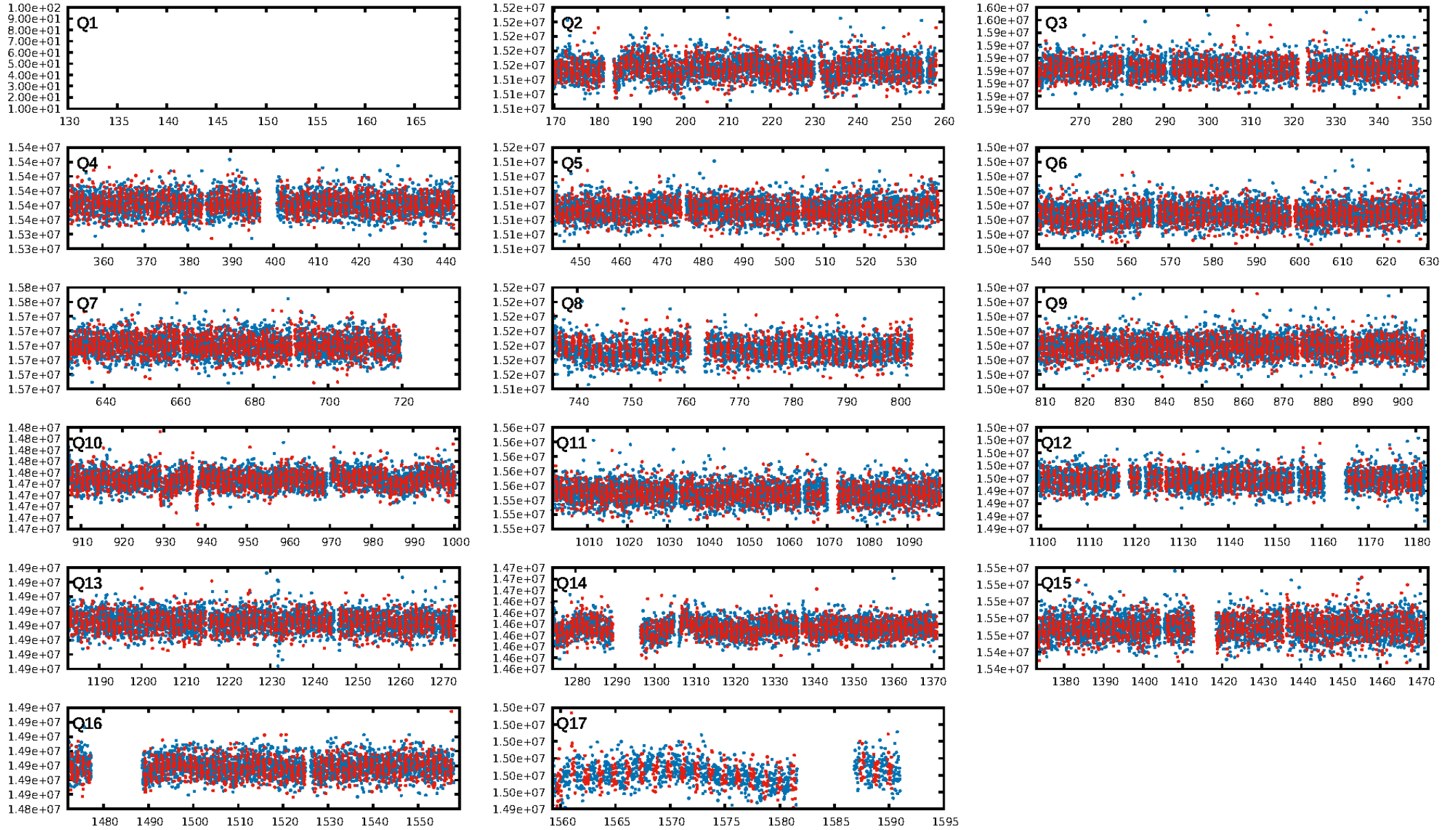
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.97e-12  
RollingBand-fgt: 1.00 [1022/1022]  
GhostDiagnostic-chr: -0.4349  
Centroid-sig: 2.0%  
Centroid-so: 2.983 arcsec [1.64 $\sigma$ ]  
OotOffset-rm: 4.066 arcsec [4.61 $\sigma$ ]  
KicOffset-rm: 4.069 arcsec [4.56 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.06 [1/16]  
DiffImageOverlap-fno: 1.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:11:04 Z

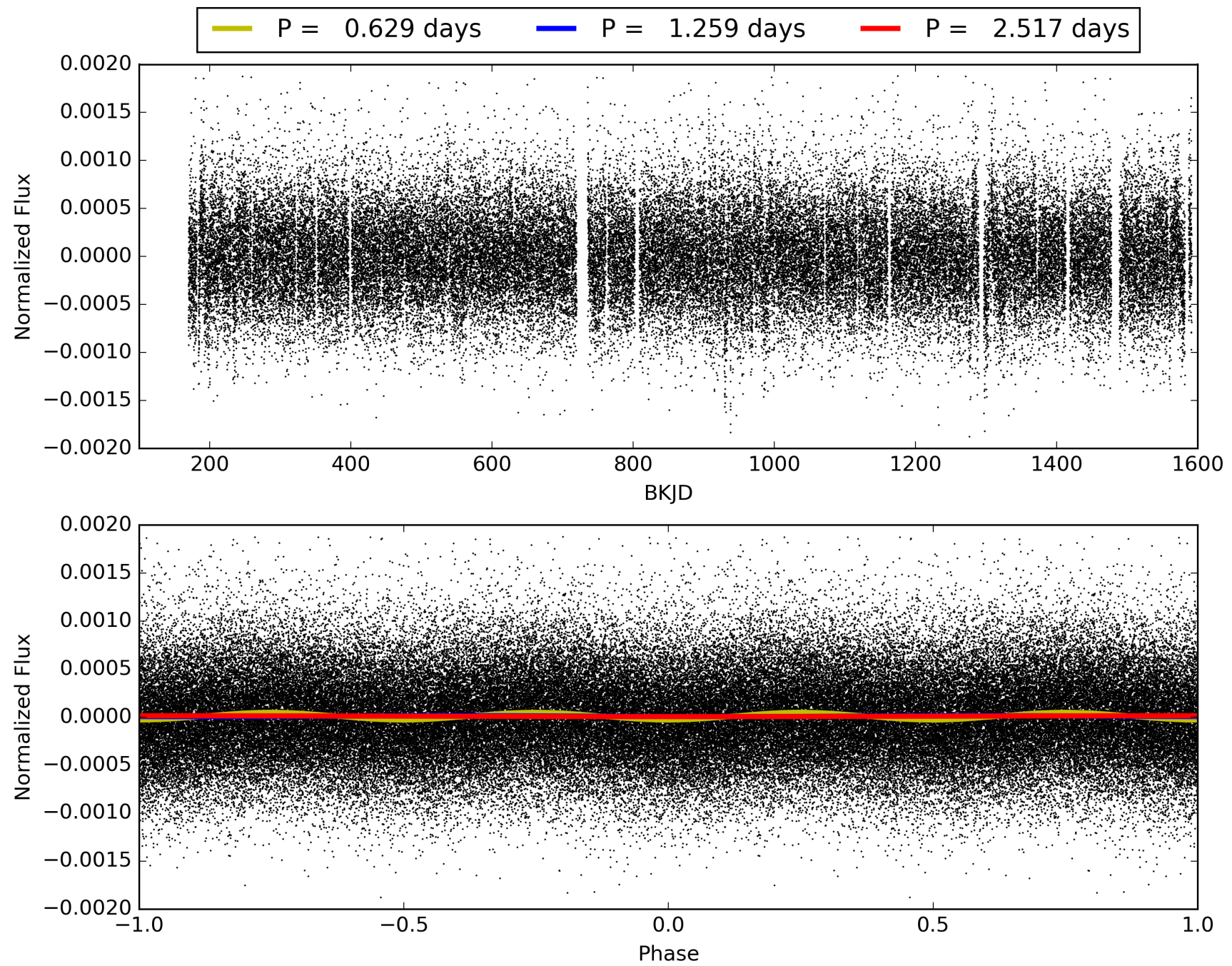
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008382091-01, PDC Light Curves



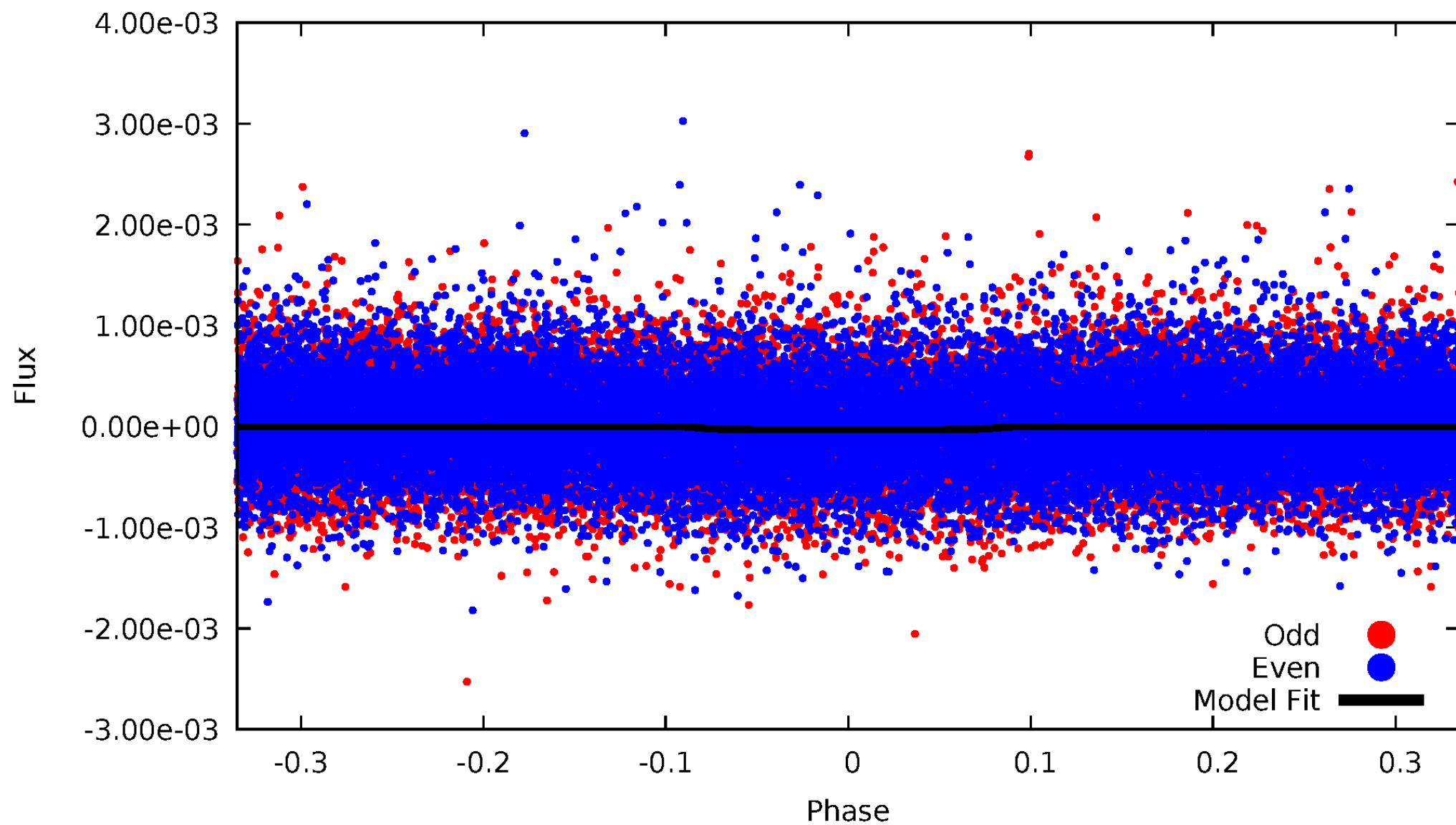


TCE 008382091-01



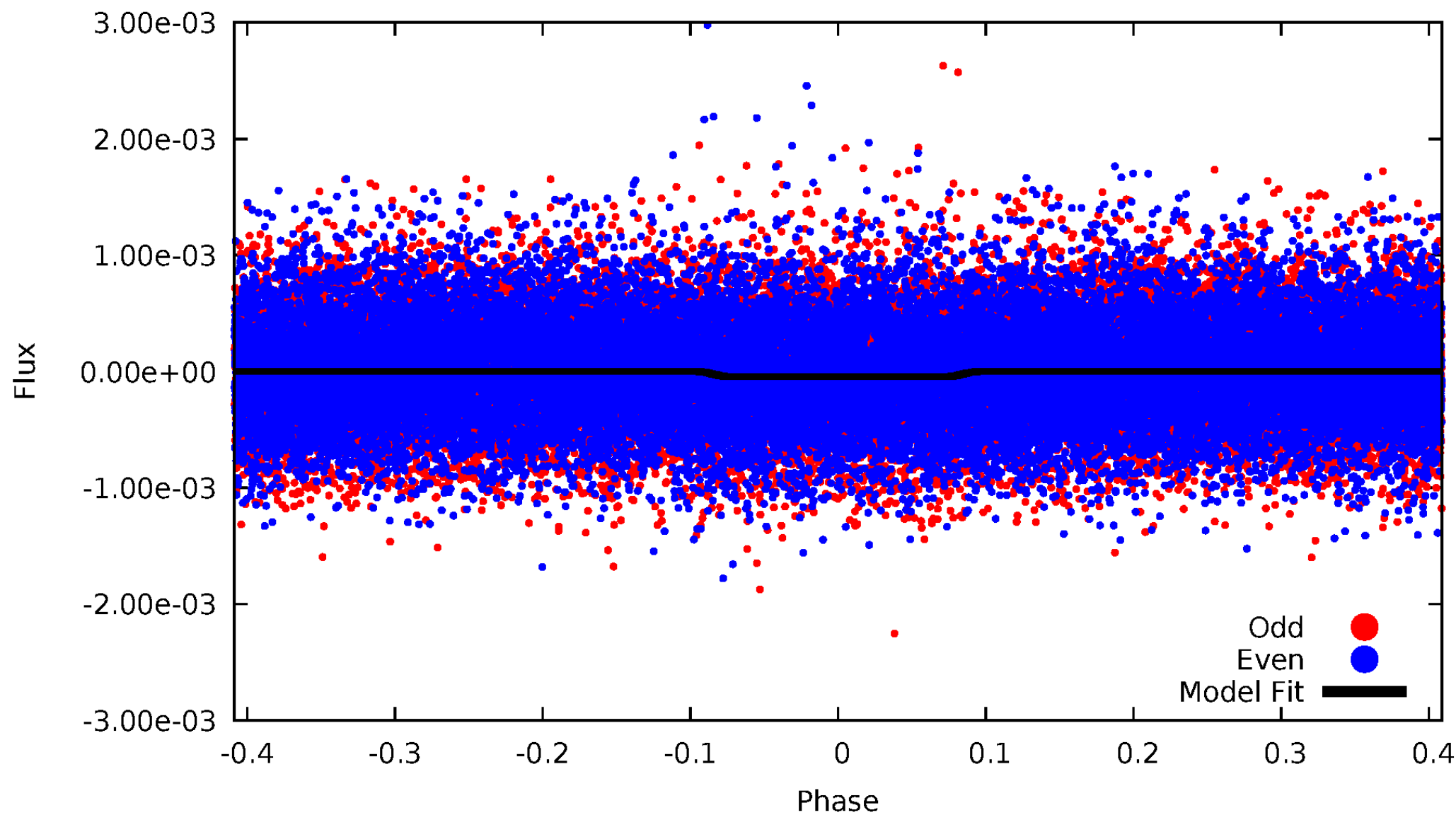
# DV Odd/Even

TCE 008382091-01



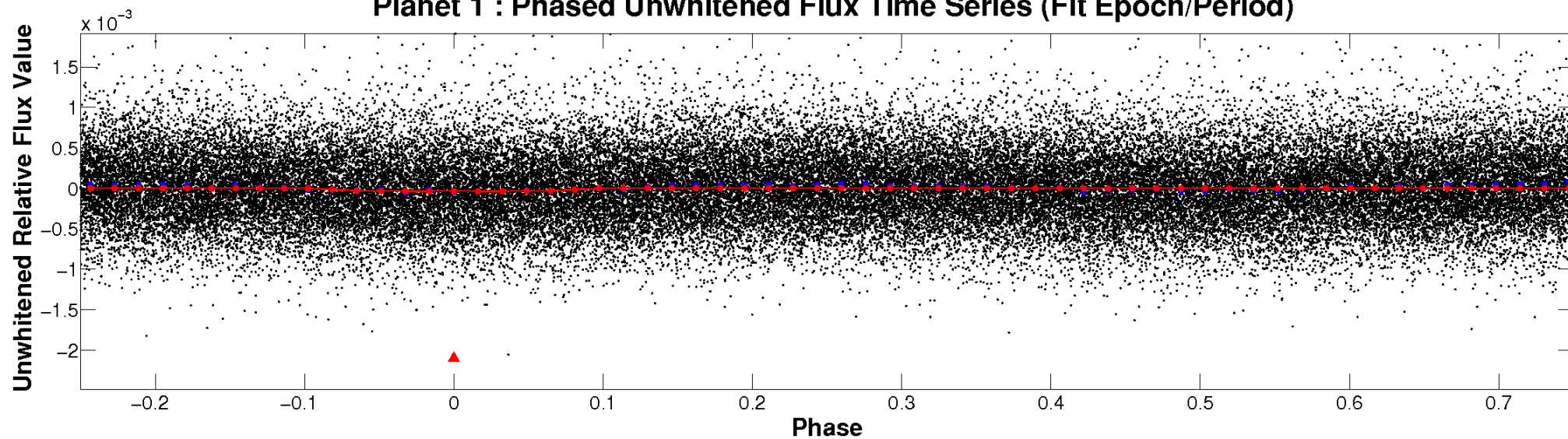
# ALT Odd/Even

TCE 008382091-01

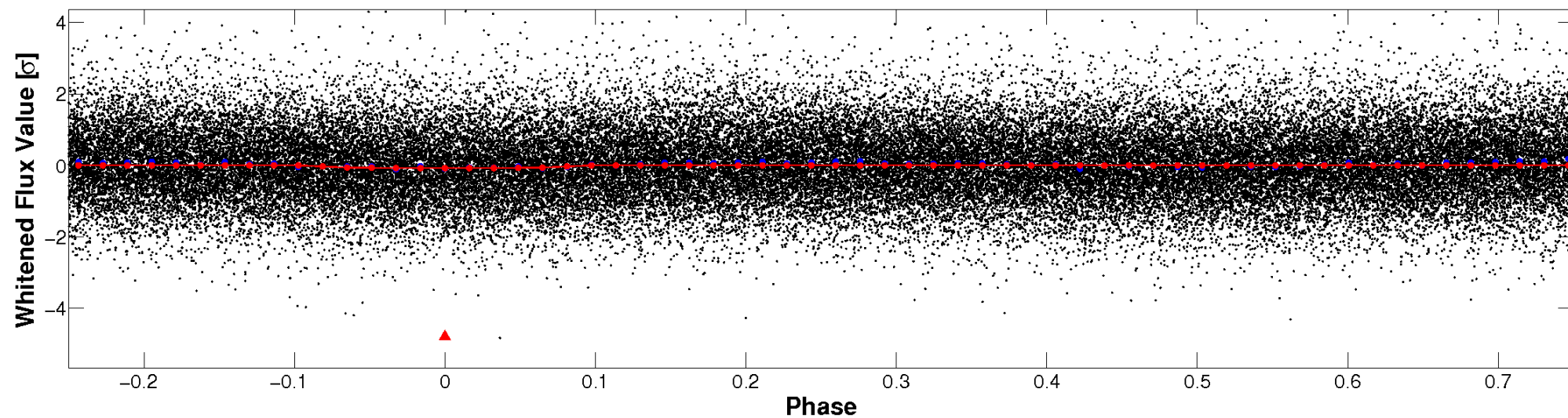


# Non-Whitened Vs. Whitened Light Curve

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



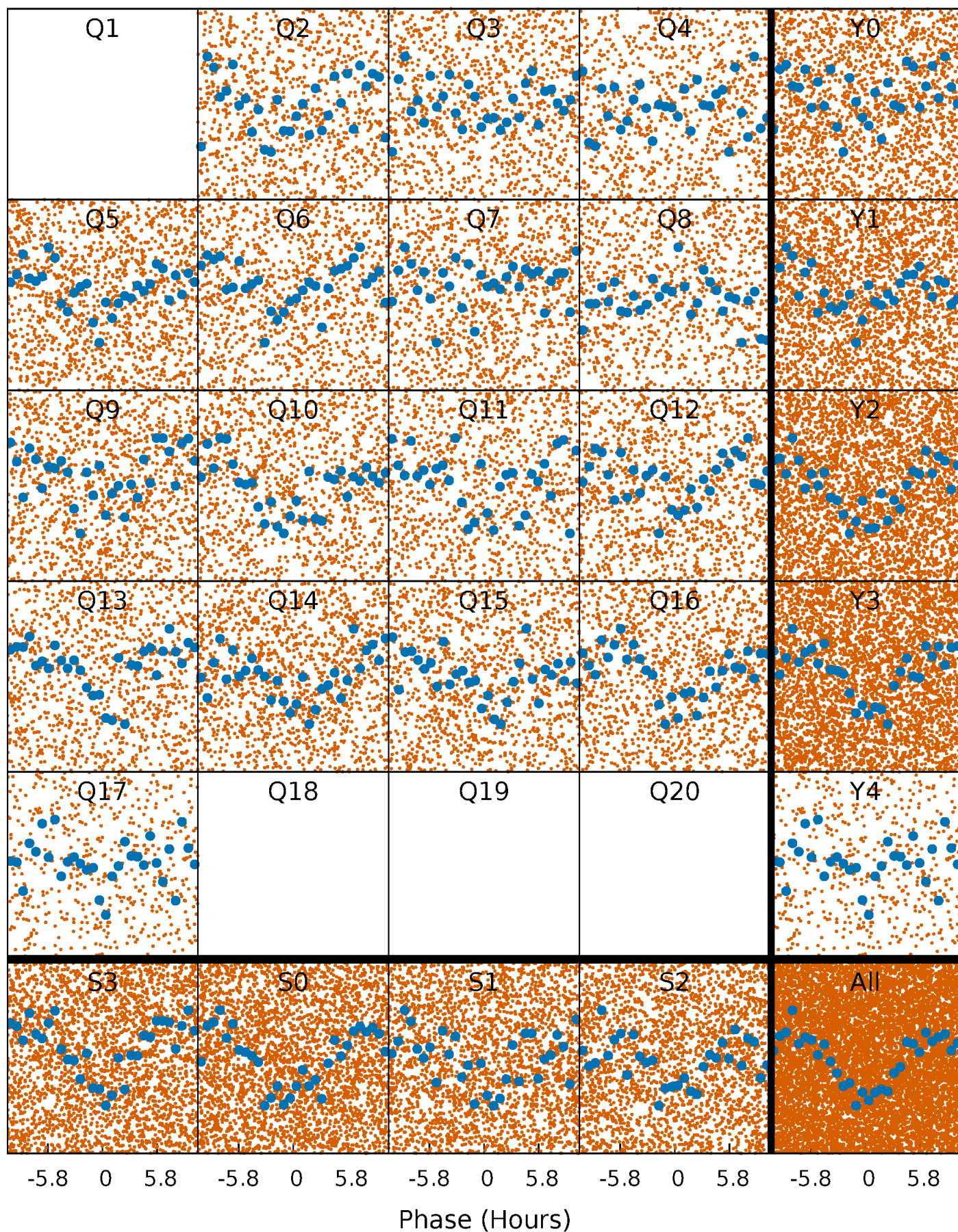
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

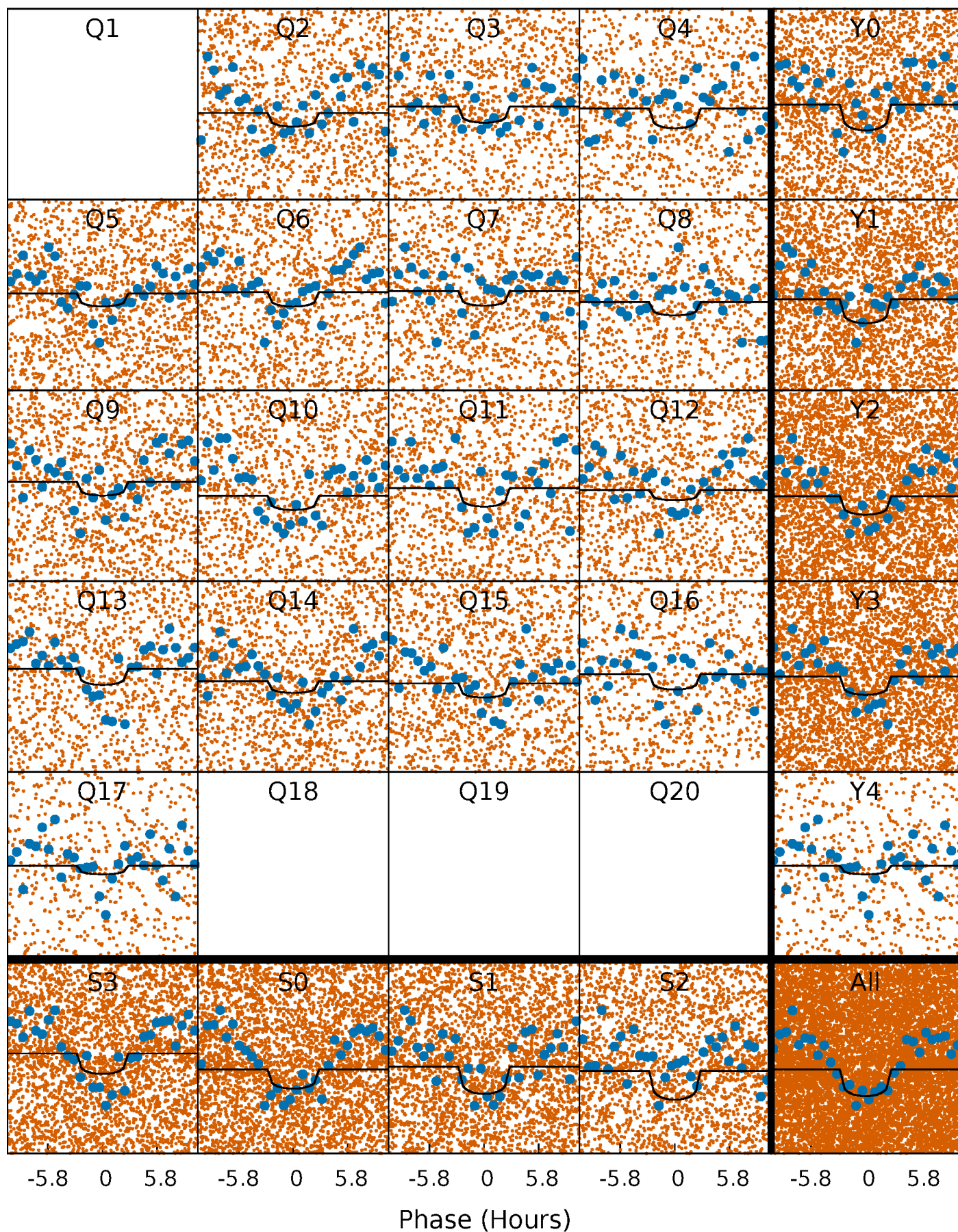
TCE 008382091-01 P= 1.258657 Days  $T_0=132.523437$  (BKJD)





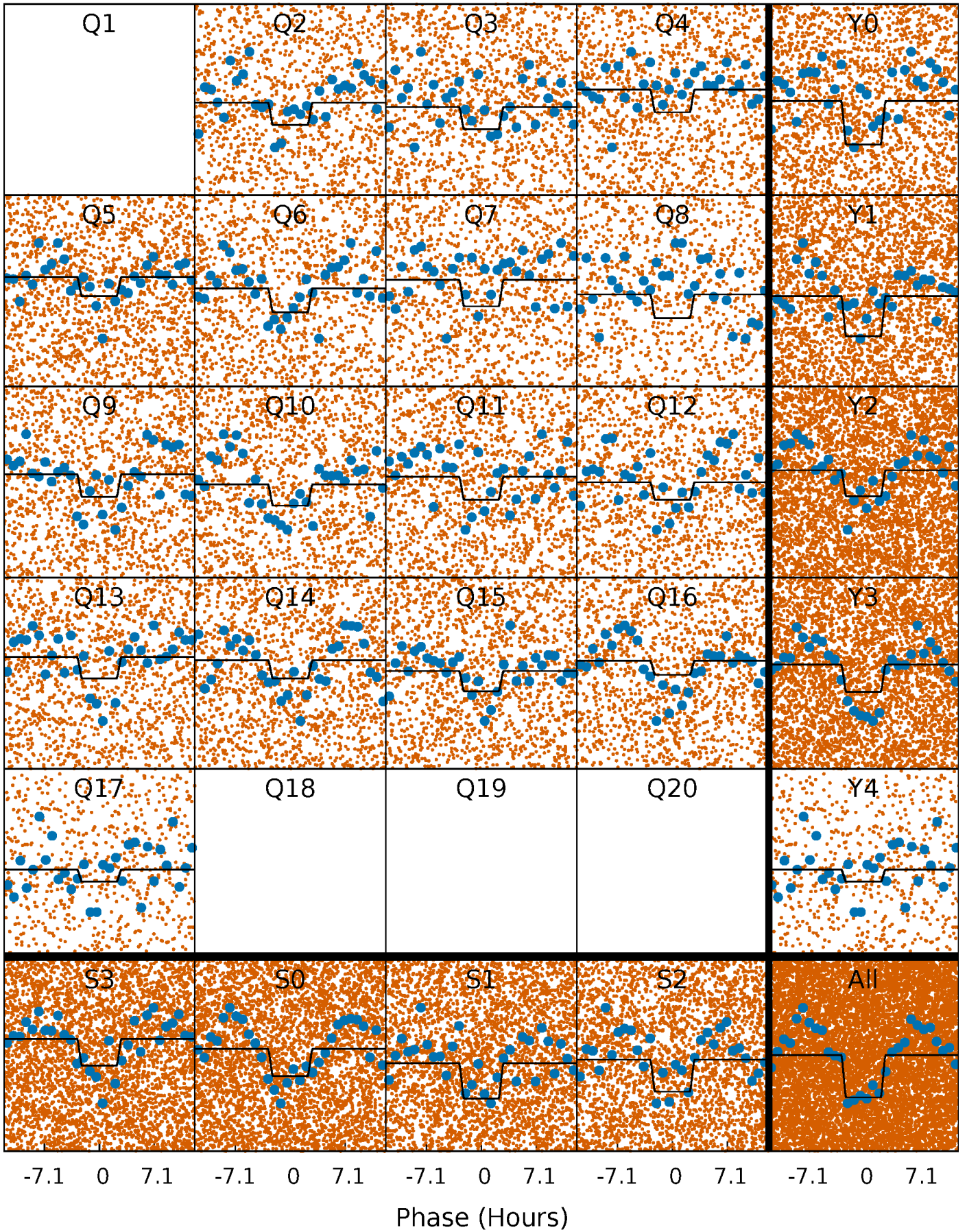
# DV Quarter-Phased Transit Curves

TCE 008382091-01 P= 1.258657 Days  $T_0=132.523437$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008382091-01 P= 1.258733 Days  $T_0=132.472991$  (BKJD)

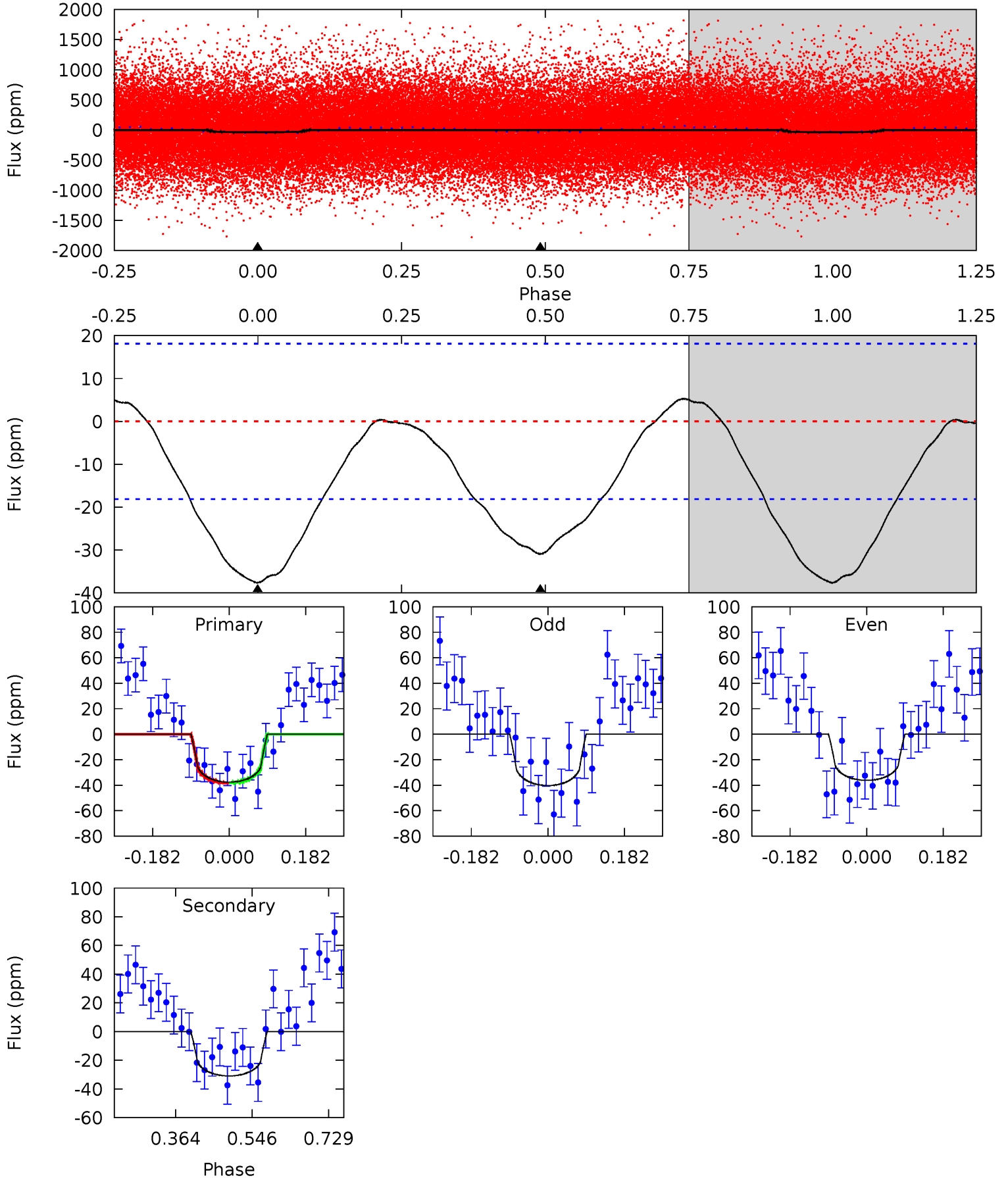




# DV Model-Shift Uniqueness Test

008382091-01, P = 1.258657 Days, E = 132.523437 Days

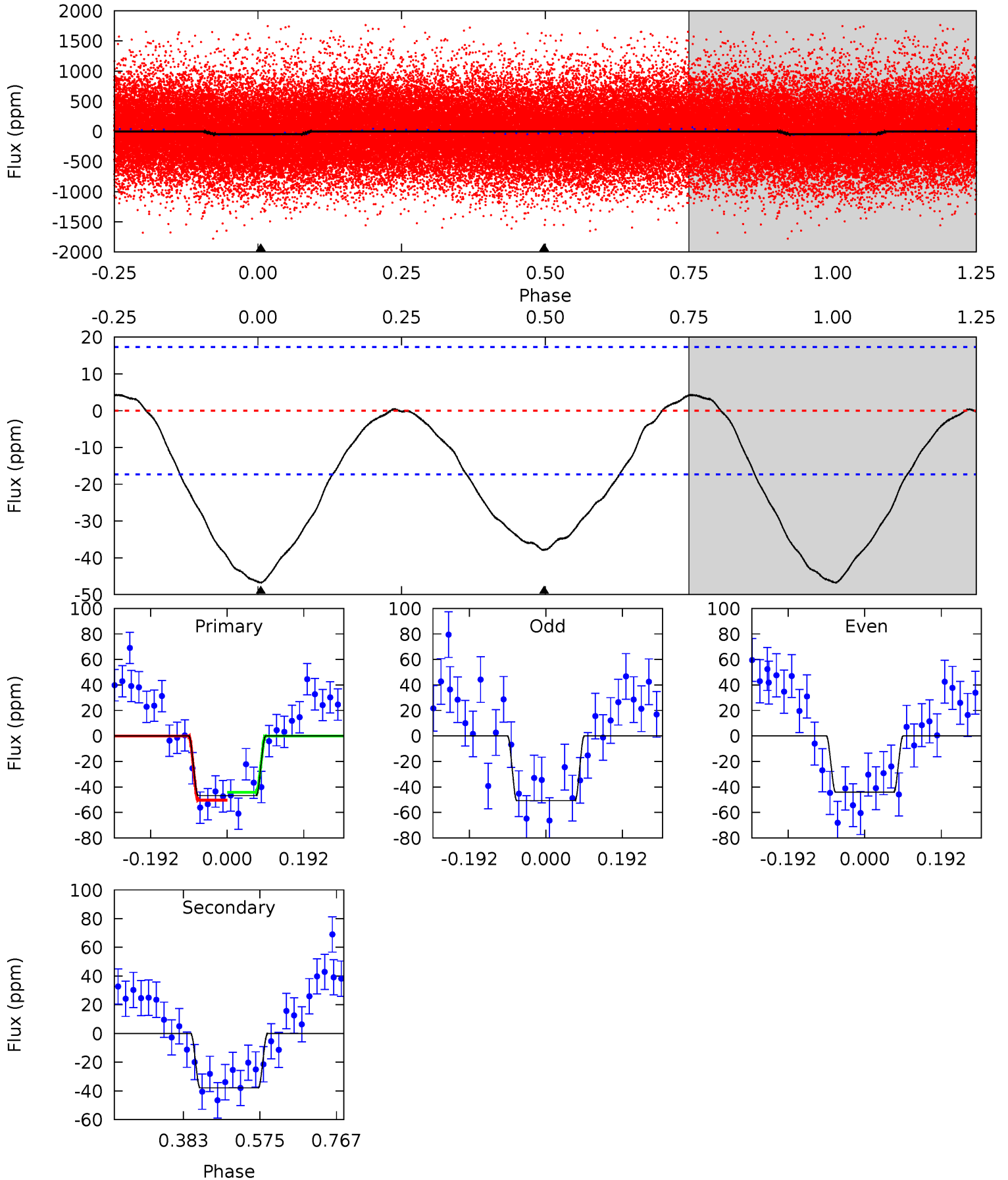
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.21	7.57	0	0	4.44	1.33	0.66	9.21	9.21	7.57	7.57	0.51	1.08	0.12	0.04



# Alt Model-Shift Uniqueness Test

008382091-01, P = 1.258733 Days, E = 132.472991 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
11.9	9.68	0	0	4.43	1.31	0.63	11.9	11.9	9.68	9.68	0.84	1.09	0.08	0.78





### Stellar Parameters For KIC 008382091

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5882^{+175}_{-175}$	$4.560^{+0.036}_{-0.204}$	$-0.340^{+0.300}_{-0.300}$	$0.833^{+0.248}_{-0.083}$	$0.923^{+0.097}_{-0.119}$	$2.247^{+0.446}_{-1.161}$
	+3%/-3%	+1%/-4%	+88%/-88%	+30%/-10%	+11%/-13%	+20%/-52%
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 008382091-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-31 \pm 4$	$0.63^{+0.44}_{-0.38}$	$2281^{+154}_{-109}$	$5479^{+3400}_{-1170}$	$21^{+107}_{-14}$
Alt.	$-38 \pm 4$	$0.72^{+0.47}_{-0.39}$	$2282^{+169}_{-98}$	$5354^{+2888}_{-1000}$	$20^{+75}_{-12}$

$T_{\text{max}}$  = 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

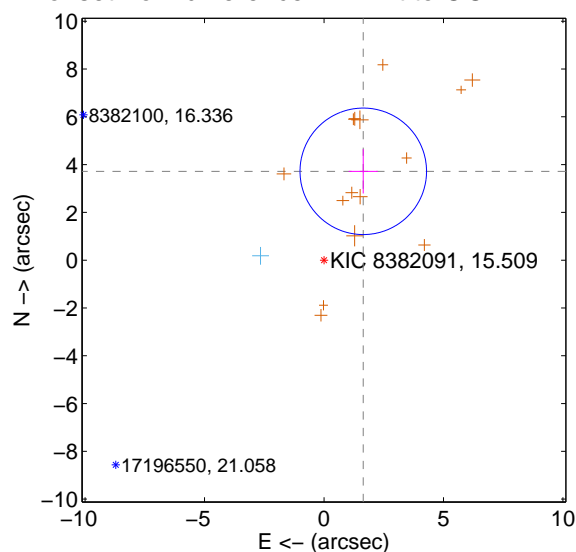
Supplemental centroid analysis for 008382091-01. Kepler magnitude: 15.51. Transit SNR 6.65

There are 1 quarters with good PRF difference image offsets

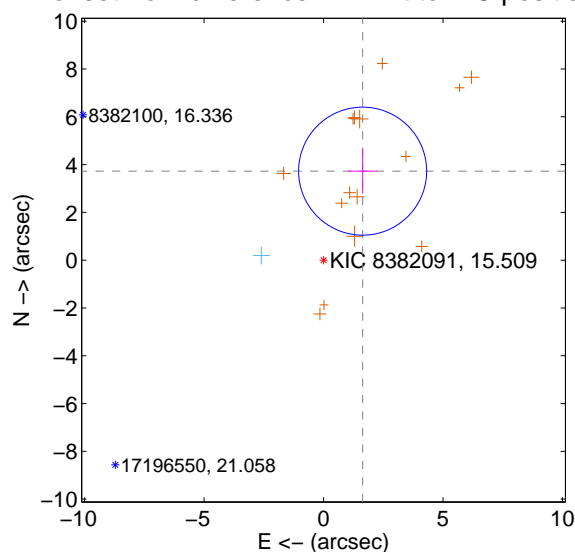
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.066 \pm 0.882$	4.61	$-1.643 \pm 0.609$	$3.719 \pm 0.926$
PRF-fit source offset from KIC position	$4.069 \pm 0.893$	4.56	$-1.635 \pm 0.601$	$3.725 \pm 0.939$
photometric centroid source offset	$2.98 \pm 1.82$	1.64	$-2.05 \pm 1.82$	$-2.16 \pm 1.82$

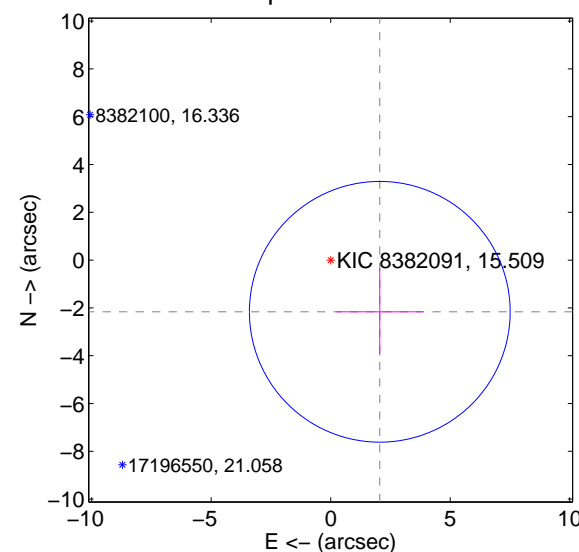
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

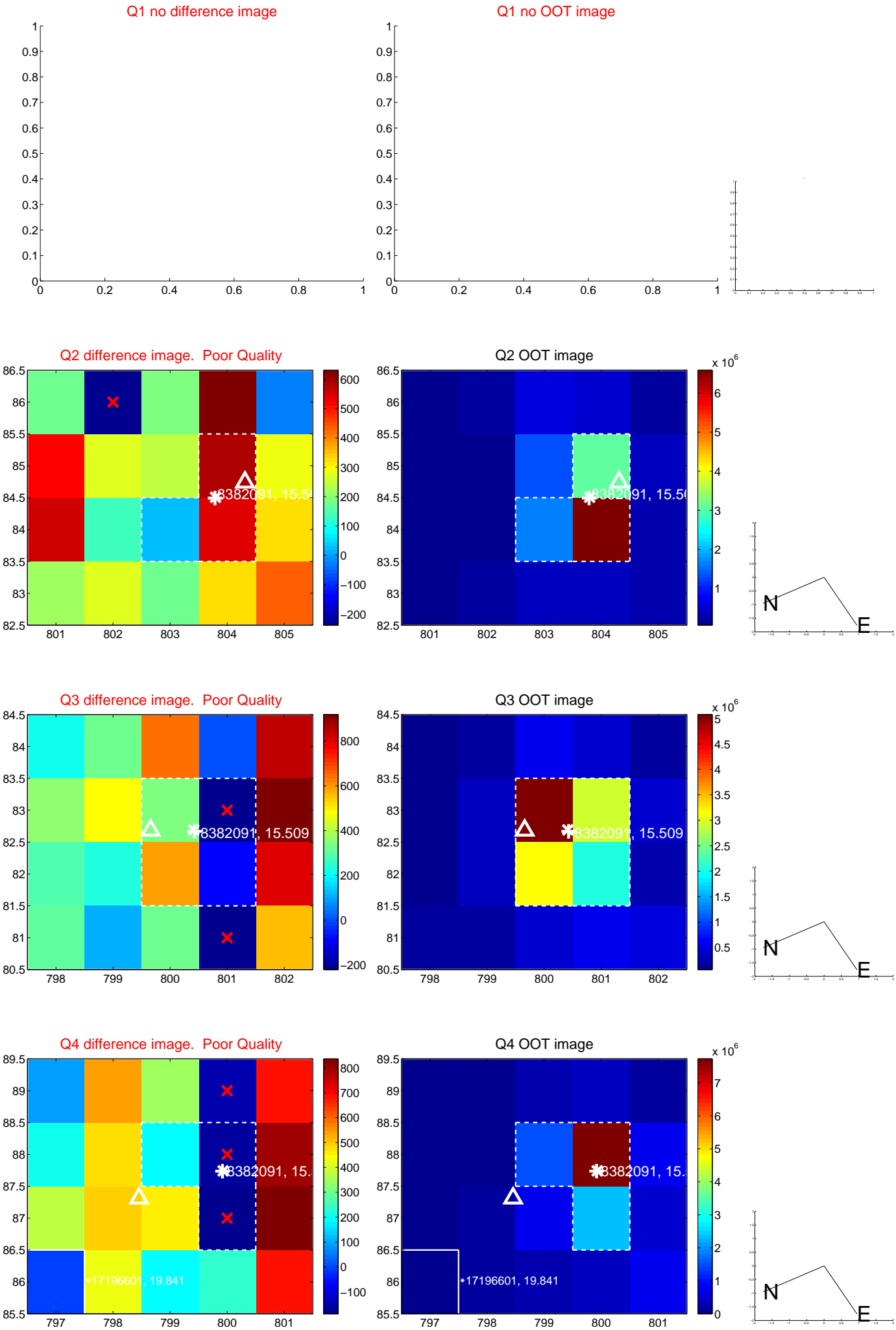


offset from photometric centroids

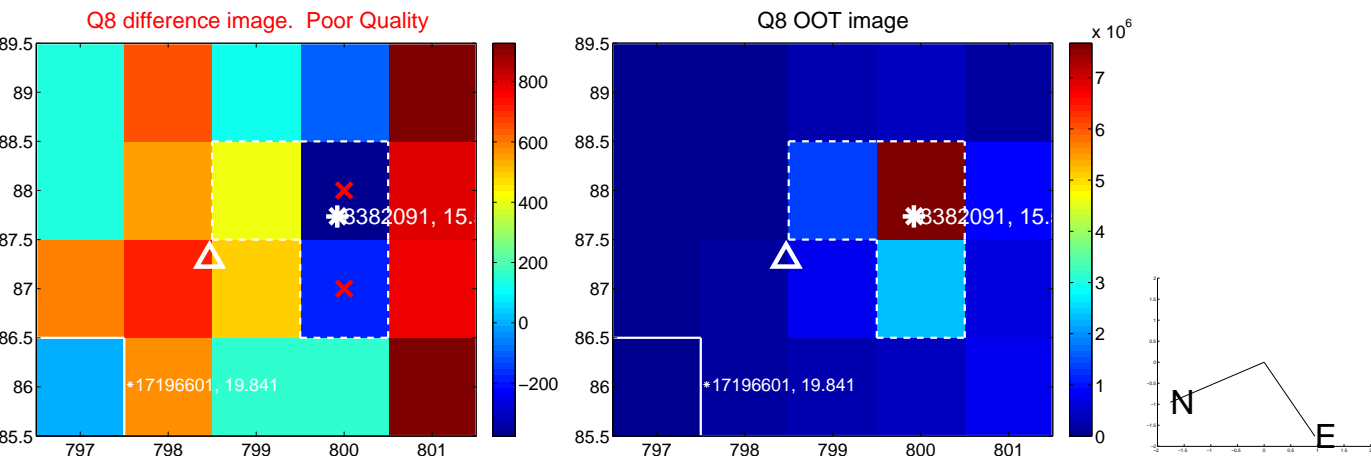
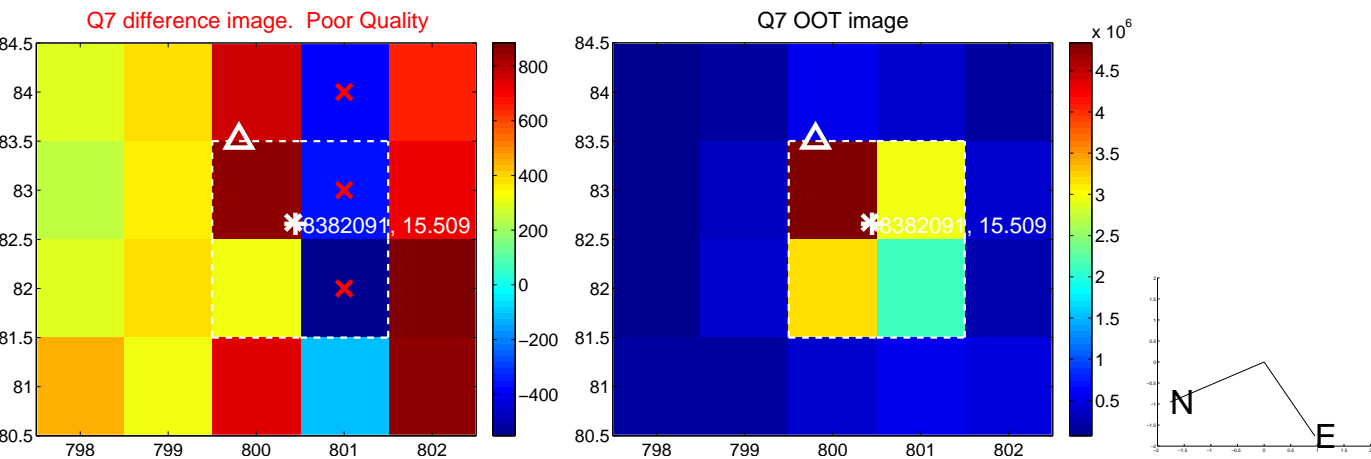
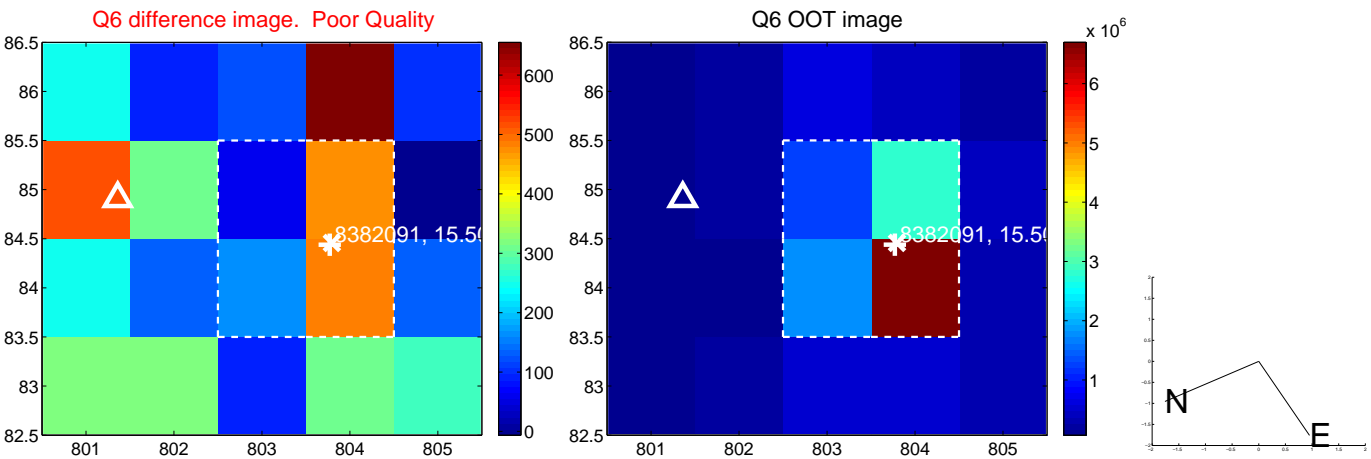
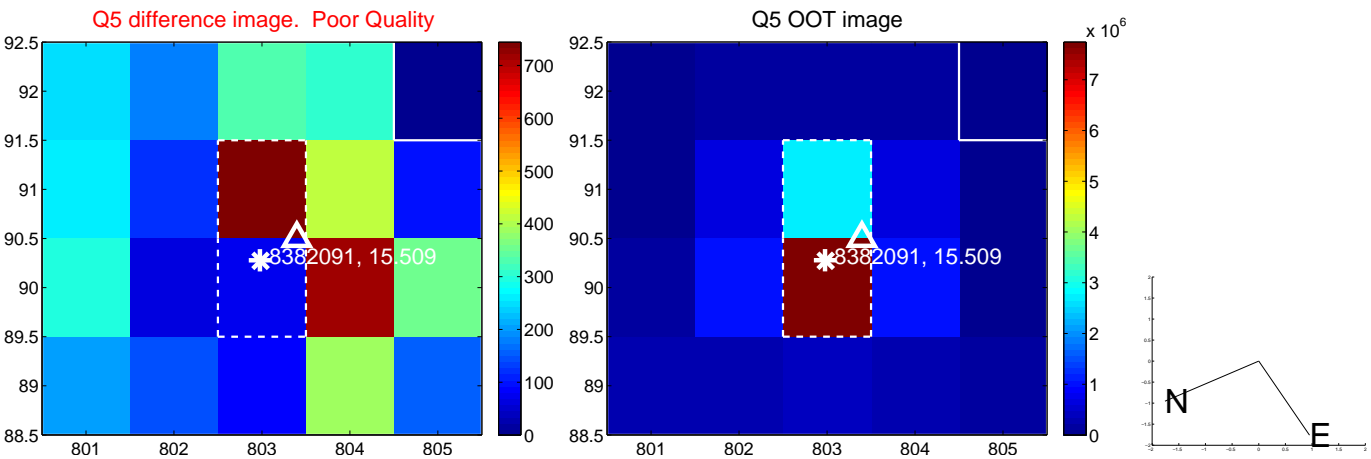


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

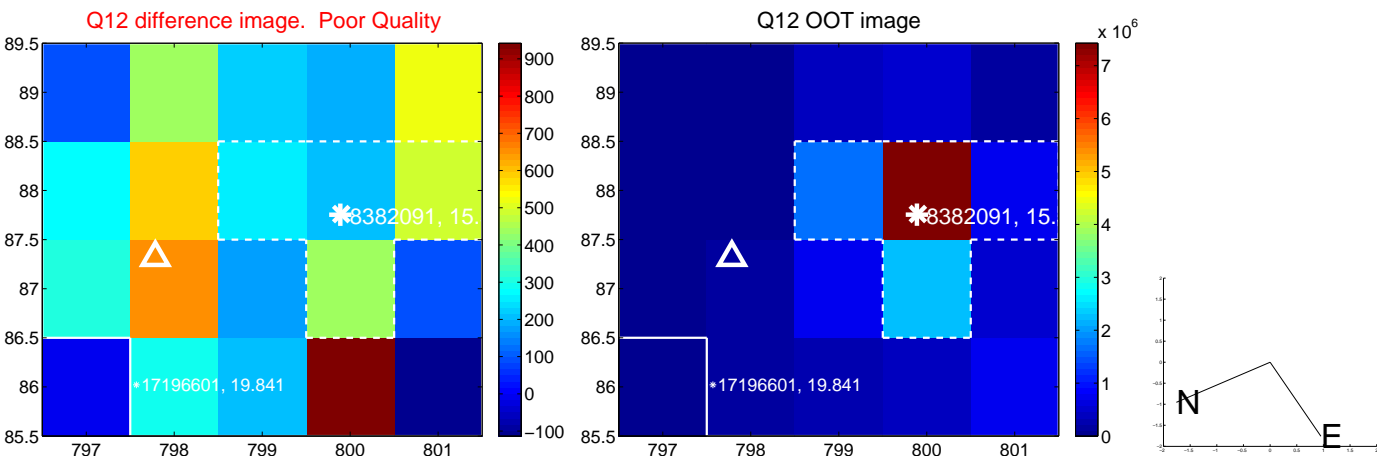
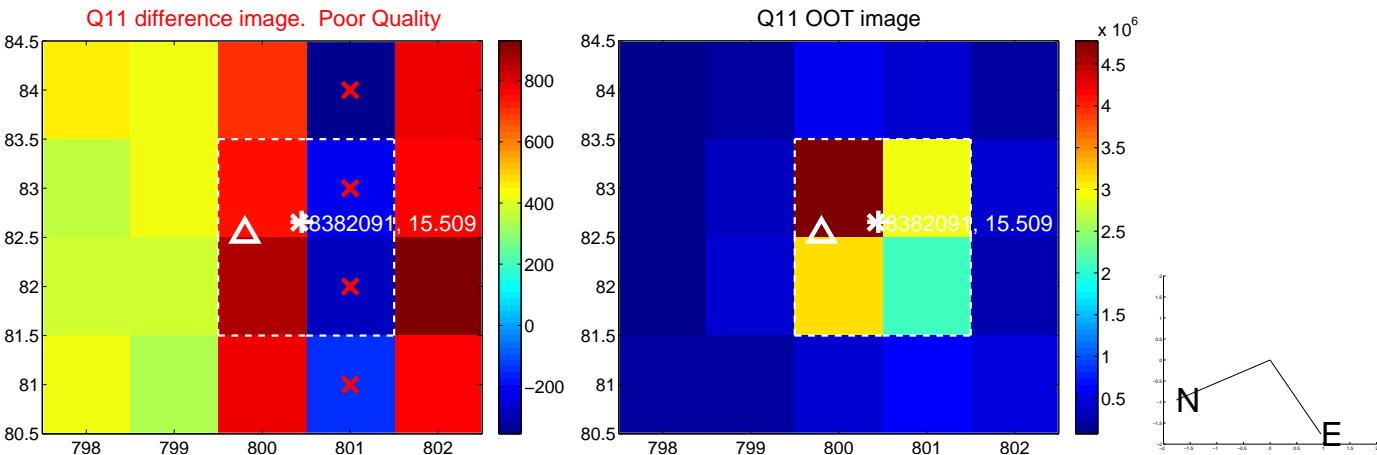
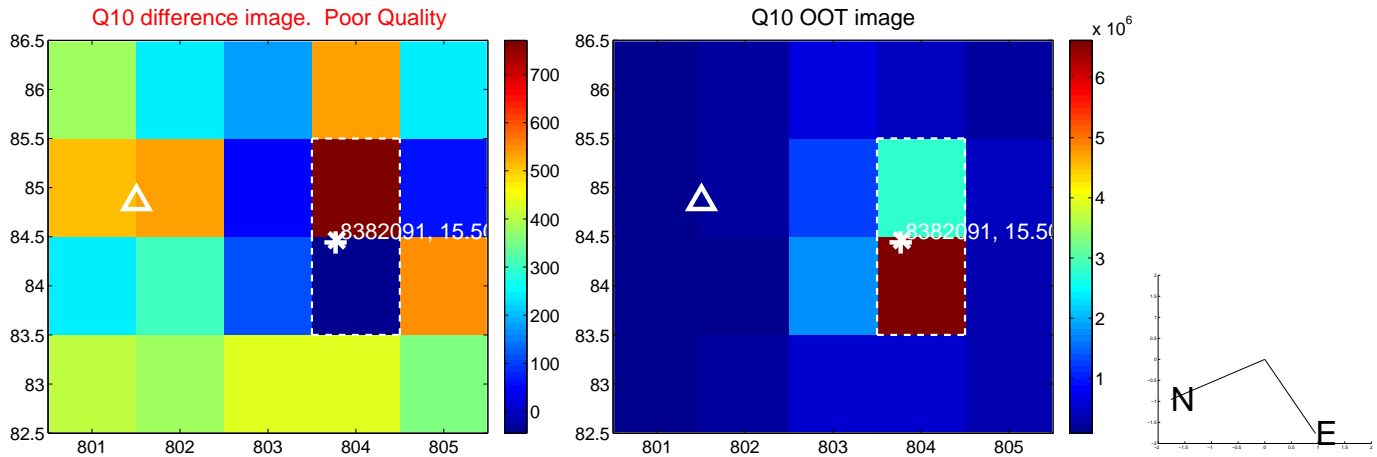
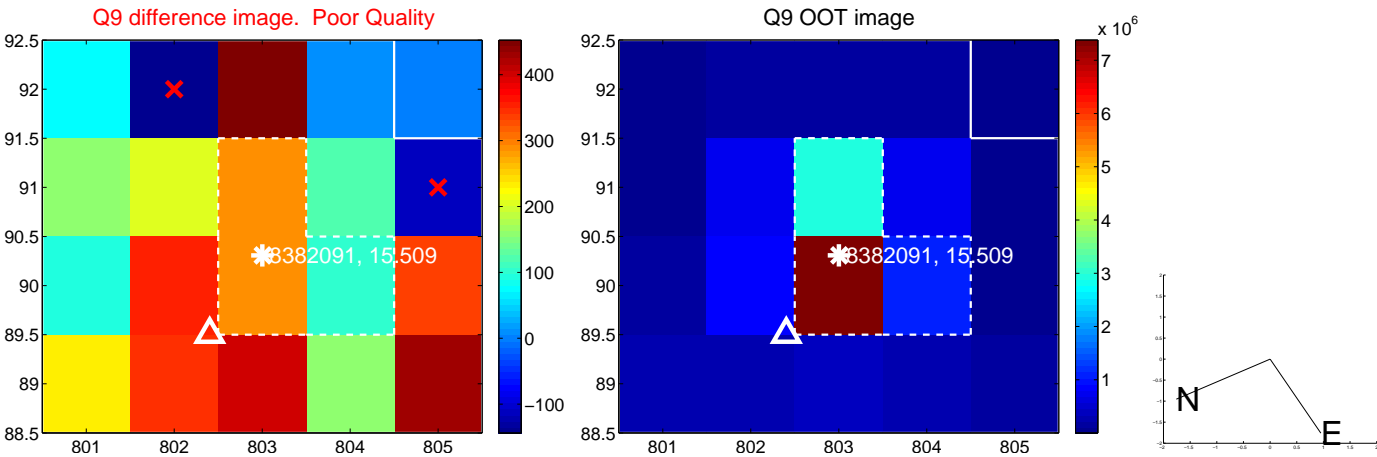


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

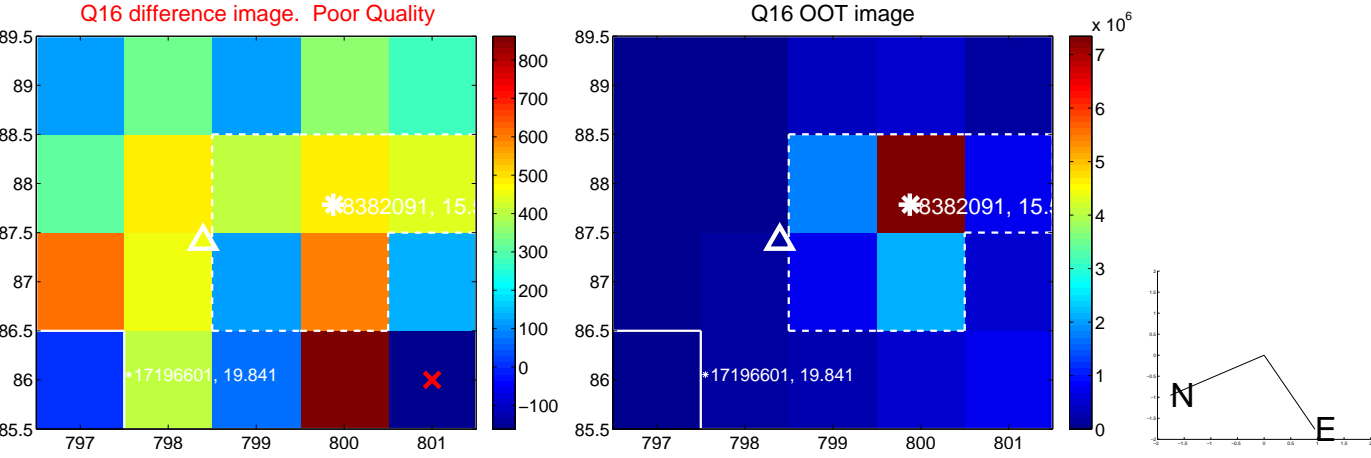
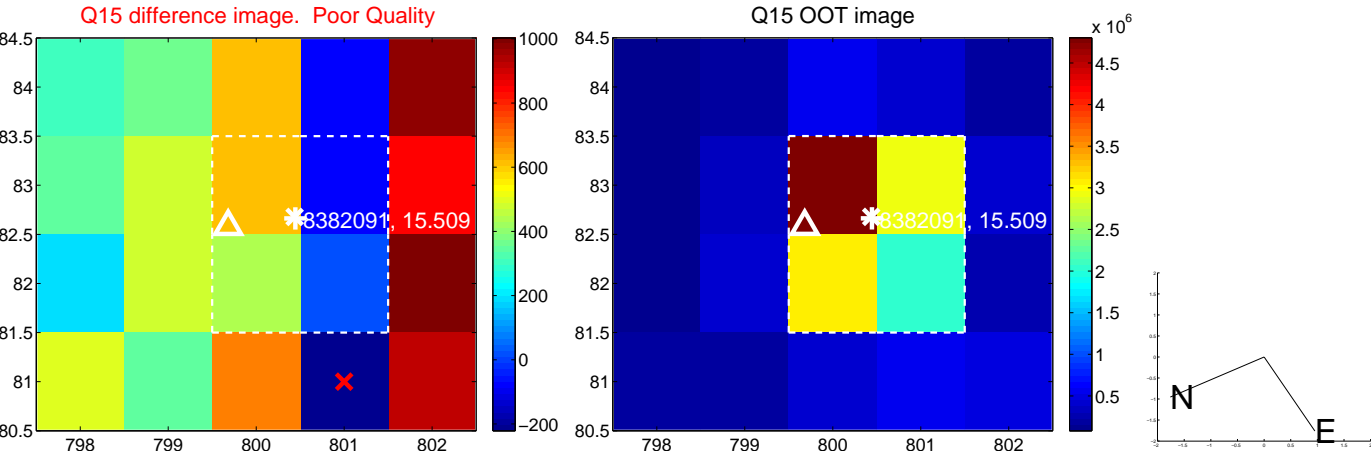
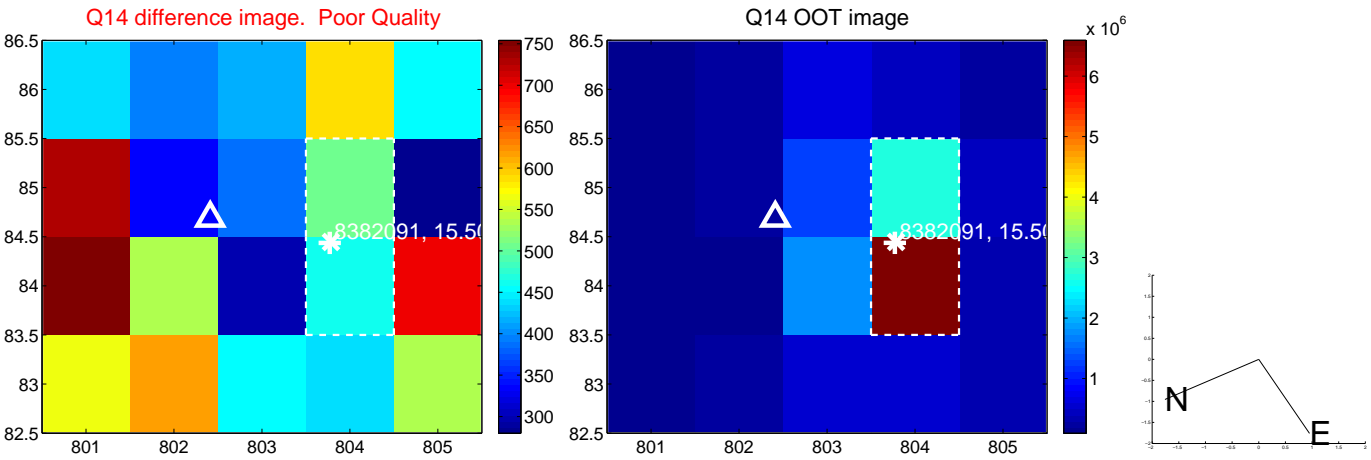
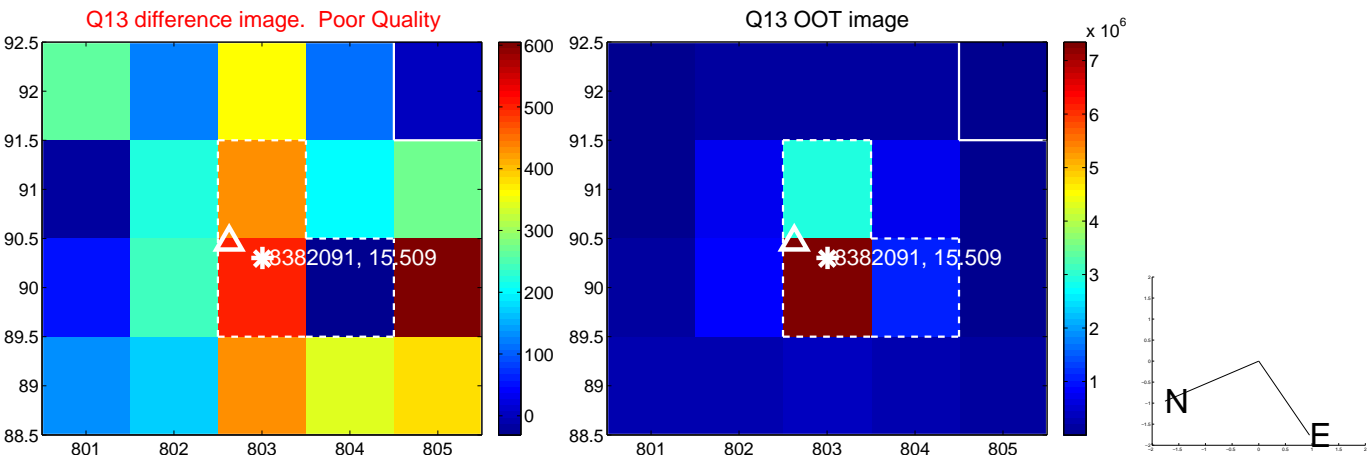




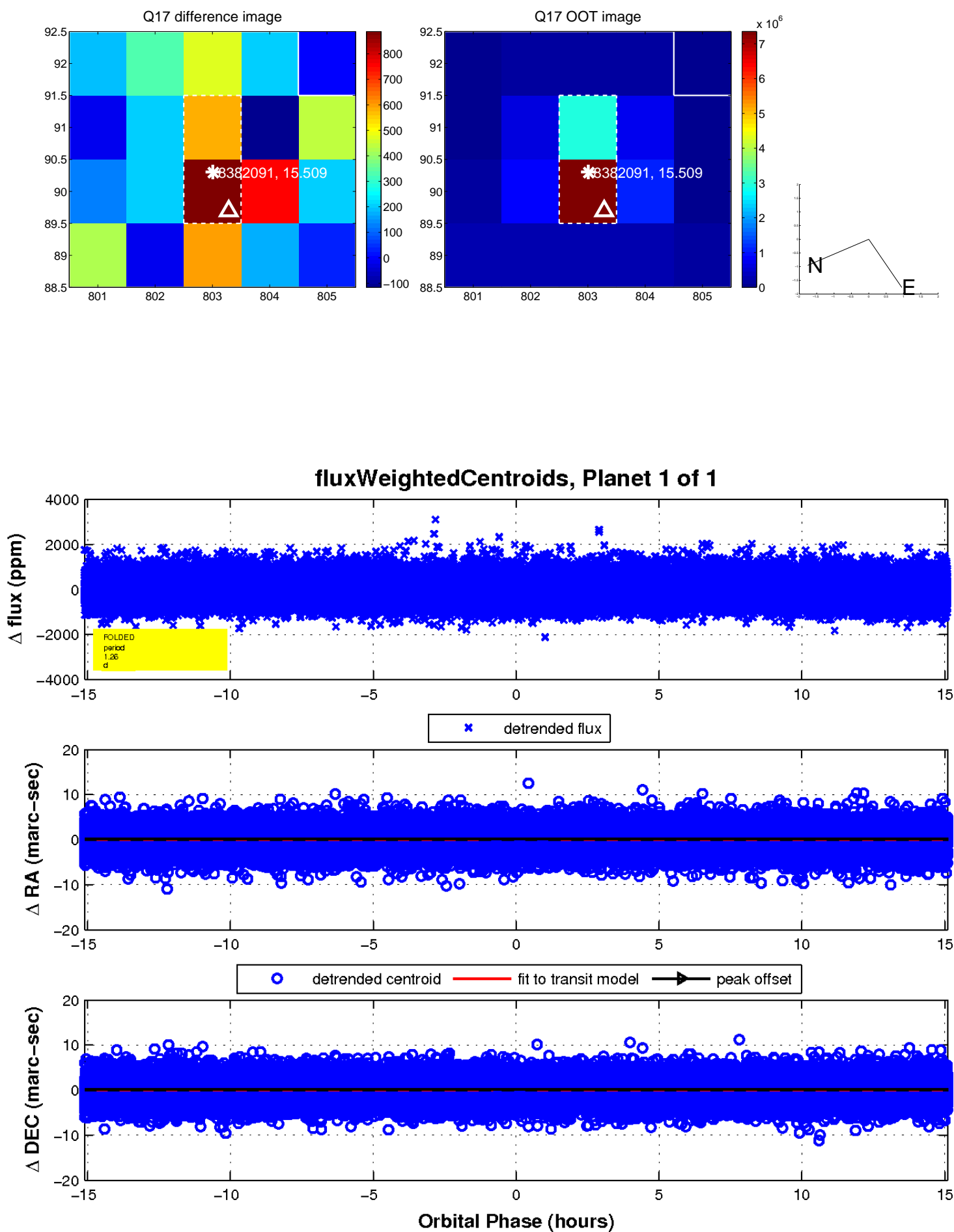
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

