

# KIC 007838655

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007838655-01	OBS	1464.01	2.113130	132.356910	506.0	3.193	178.3	42.5	0.86	5482	2.37	637.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007838655-01	OBS	FP	0.00	0	0	1	1	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 007838655-01

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	$\sigma_P$	$\sigma_T$
007838655-01	7838655	007838639-pri	7838639	1:2	10.0	-1	-3	13.77	15.46	116.80	Direct-PRF	0	4.46	1.48

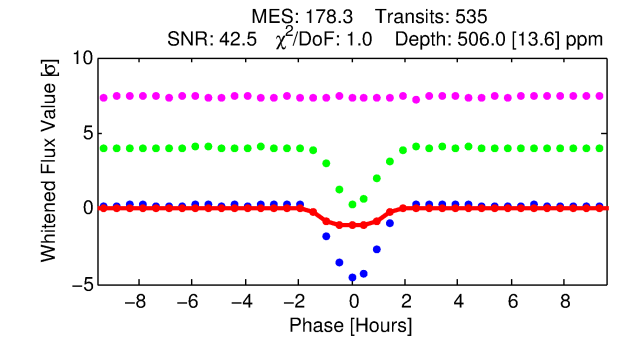
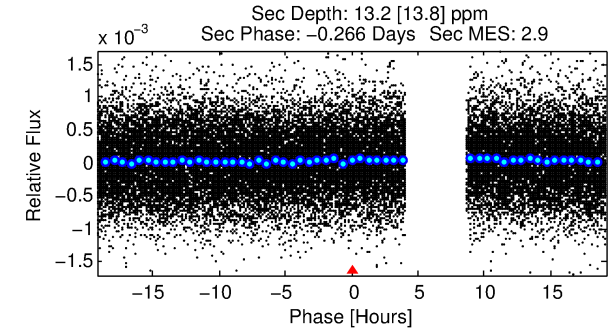
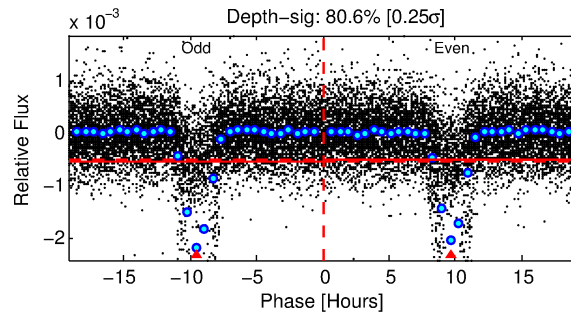
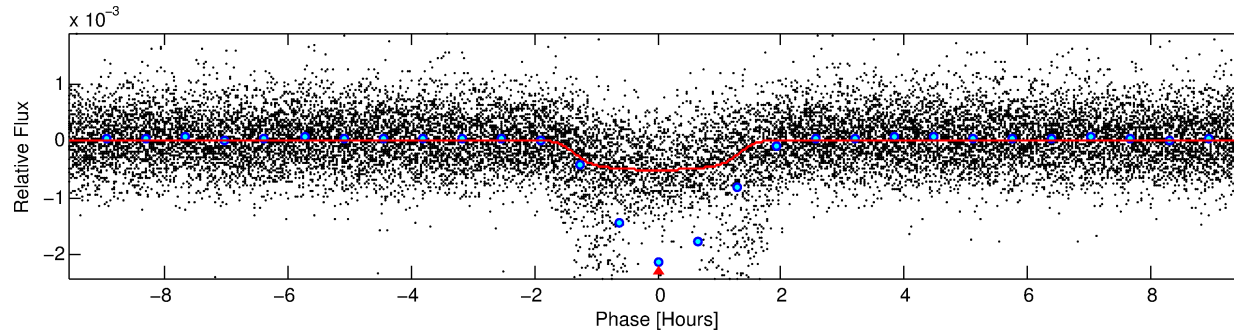
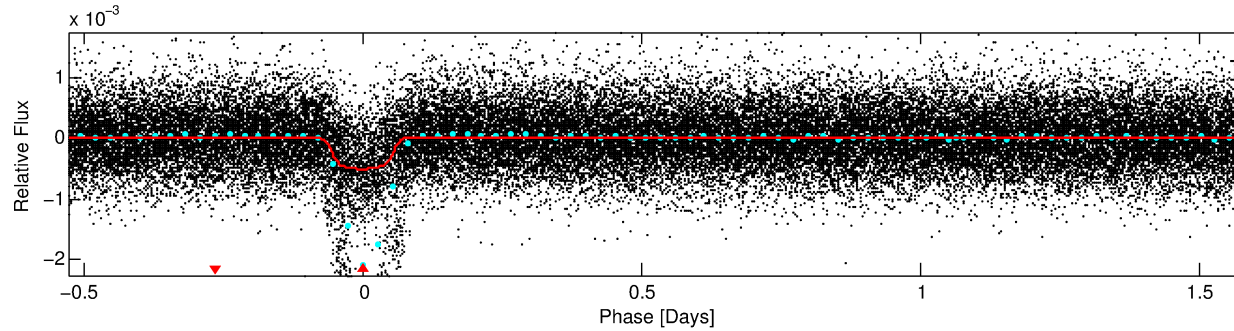
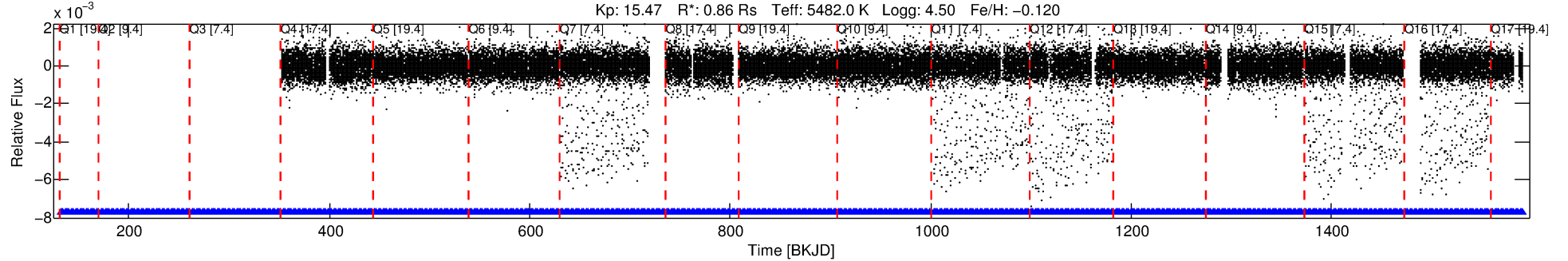
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  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: 7838655 Candidate: 1 of 1 Period: 2.113 d

KOI: K01464.01 Corr: 0.908

Kp: 15.47 R\*: 0.86 Rs Teff: 5482.0 K Logg: 4.50 Fe/H: -0.120



## DV Fit Results:

Period = 2.11313 [0.00000] d  
Epoch = 132.3569 [0.0011] BKJD  
Rp/R\* = 0.0253 [0.0013]  
a/R\* = 2.47 [0.44]  
b = 0.92 [0.04]  
Seff = 637.39 [193.13]  
Teq = 1281 [97] K  
Rp = 2.37 [0.55] Re  
a = 0.0306 [0.0057] AU  
Ag = 1.20 [1.31] [0.16σ]  
Teffp = 2075 [551] K [1.42σ]

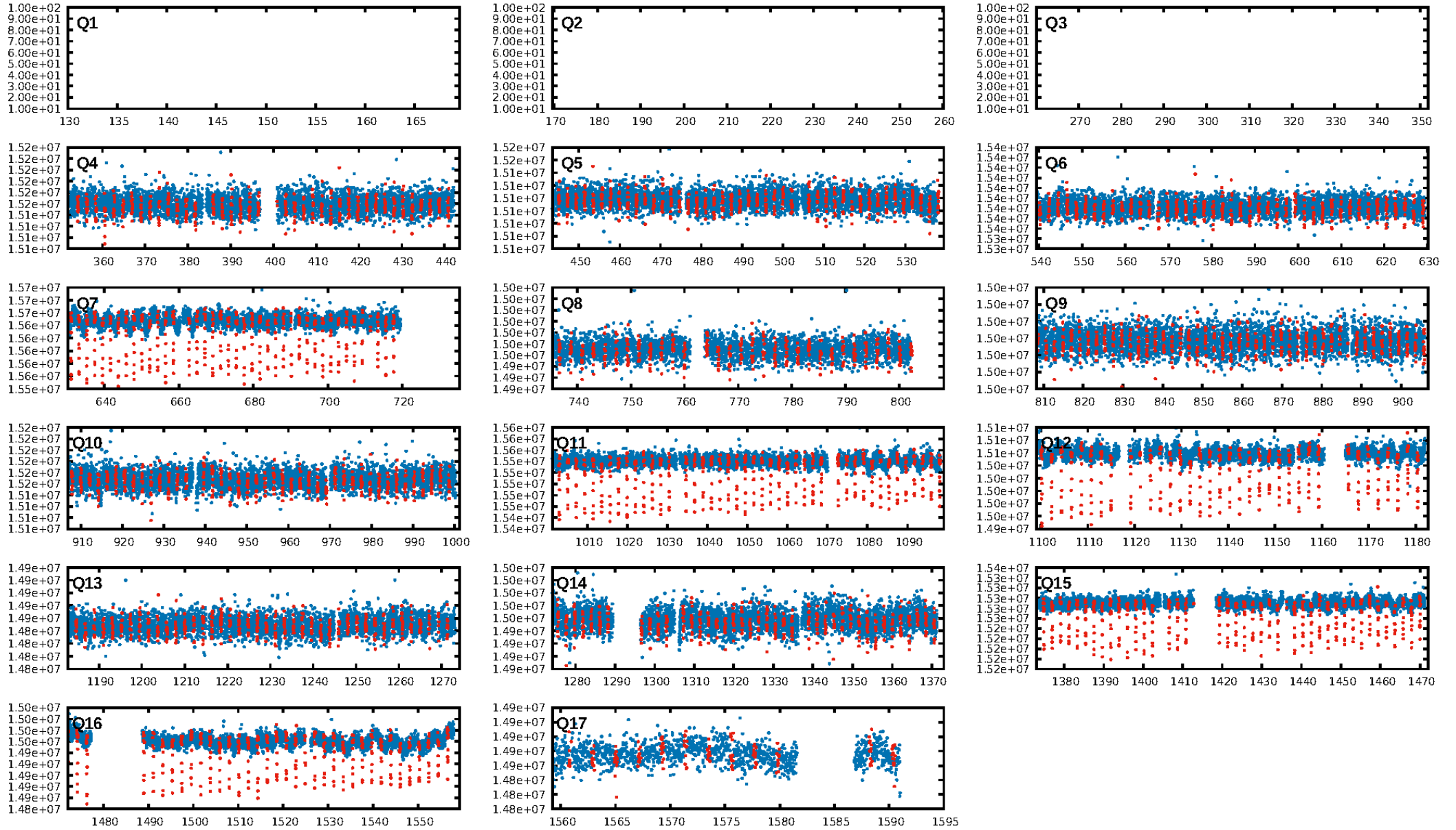
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [523/523]  
GhostDiagnostic-chr: -0.3203  
Centroid-sig: 0.0%  
Centroid-so: 57.726 arcsec [340.26σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [14/14]

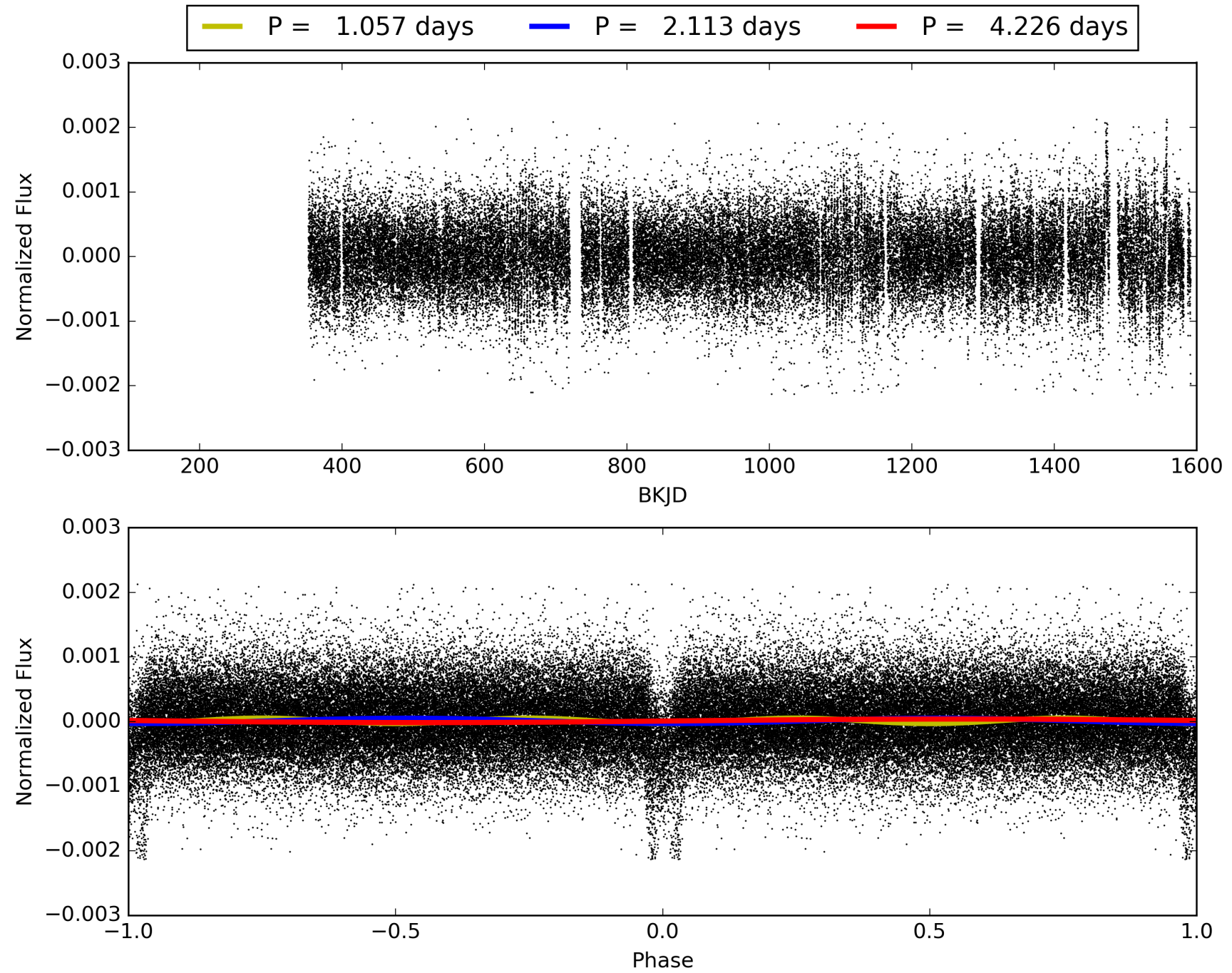
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:53:17 Z

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

# TCE 007838655-01, PDC Light Curves

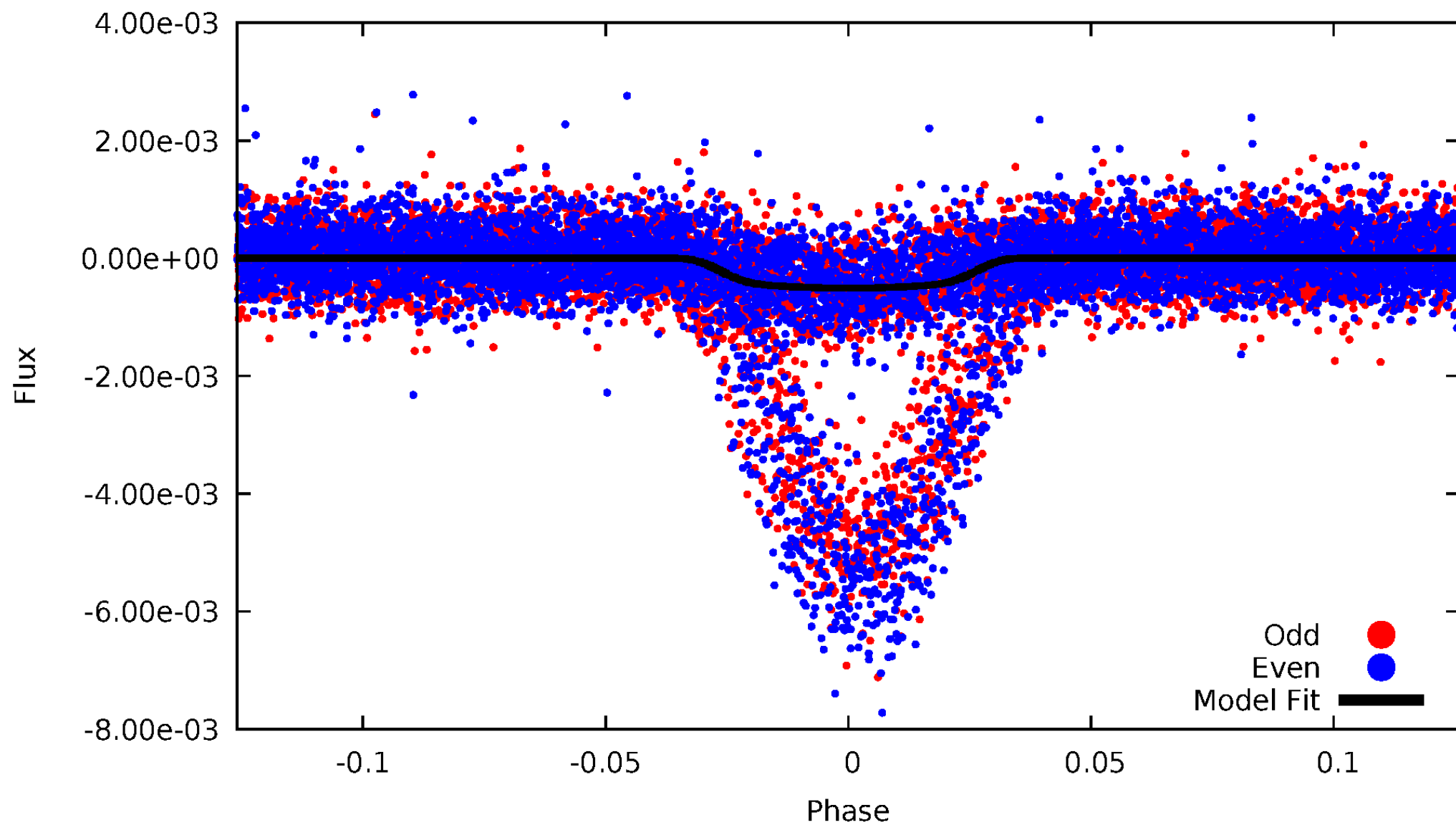


TCE 007838655-01



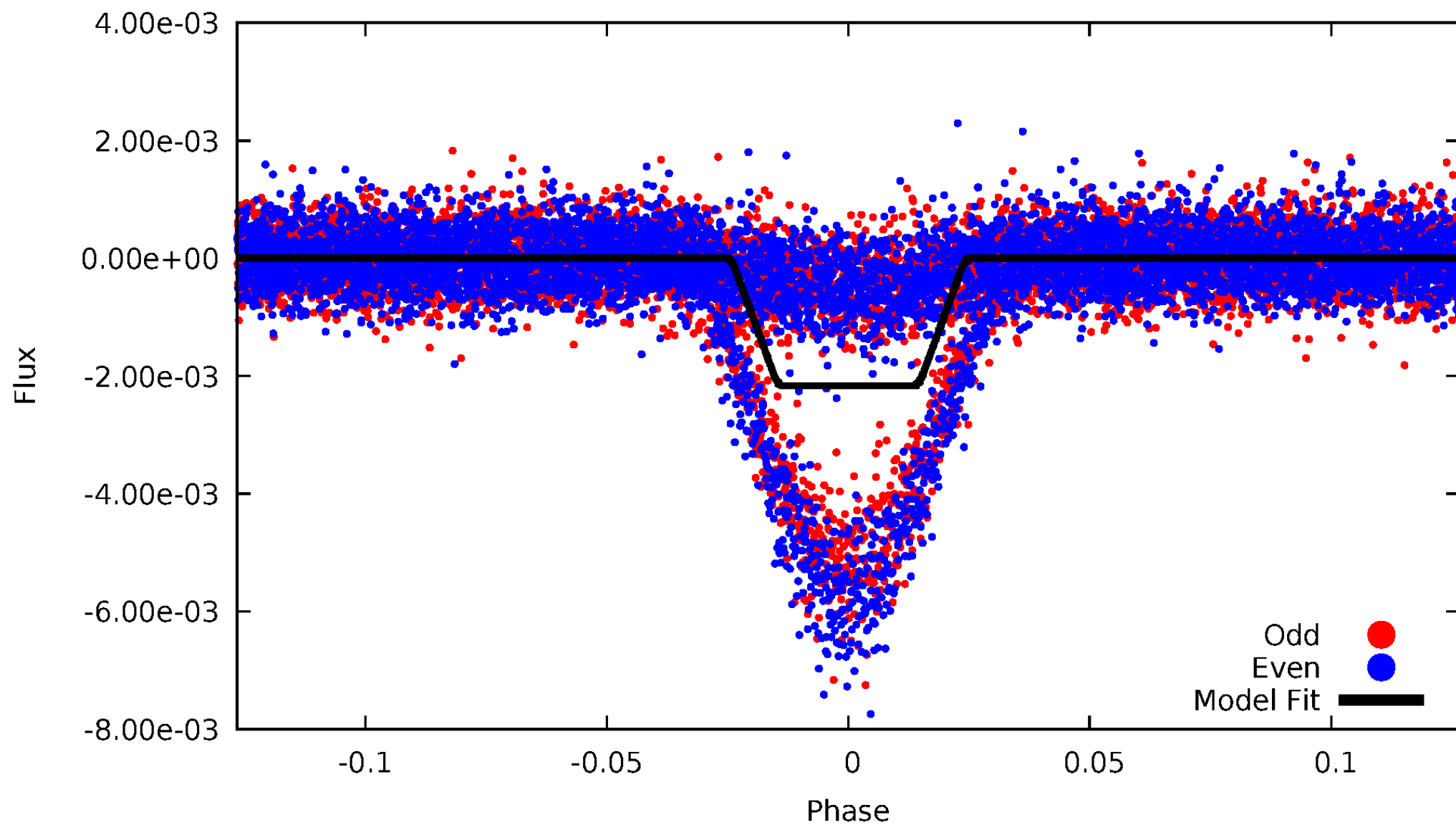
# DV Odd/Even

TCE 007838655-01



# ALT Odd/Even

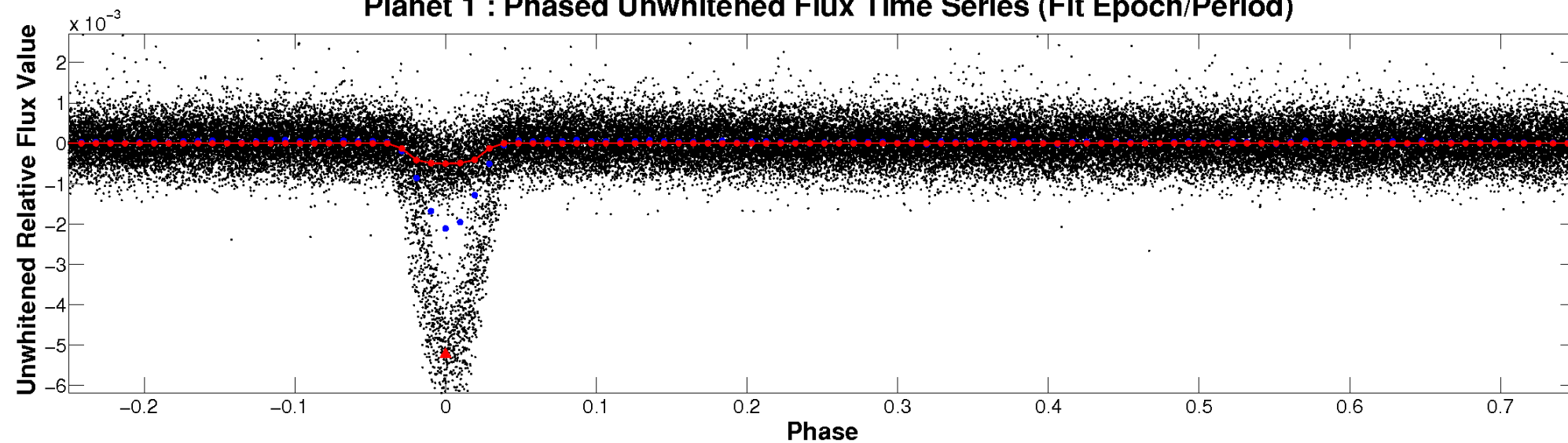
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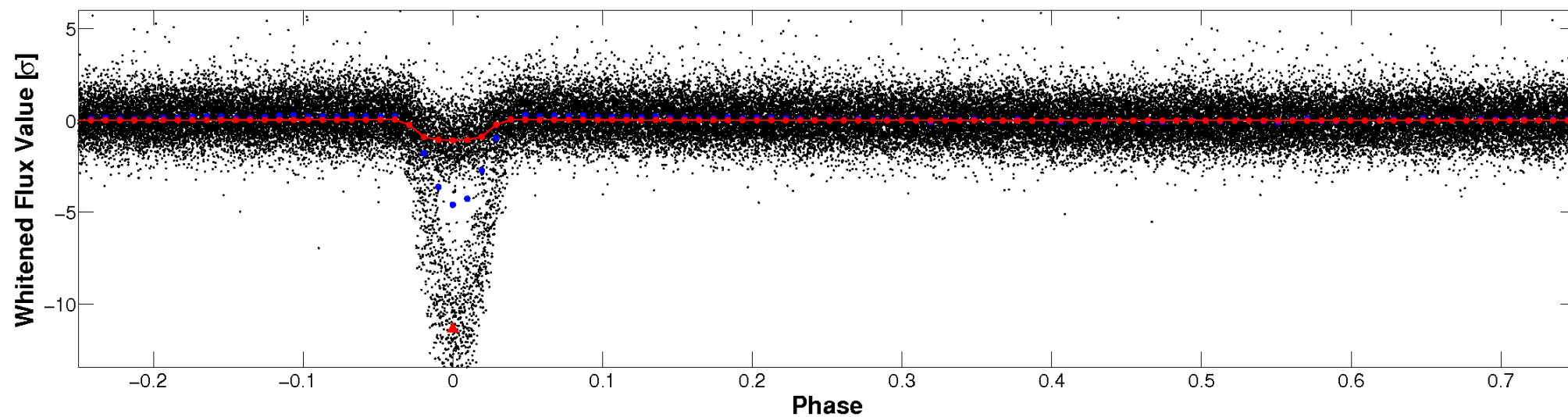


# Non-Whitened Vs. Whitened Light Curve

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

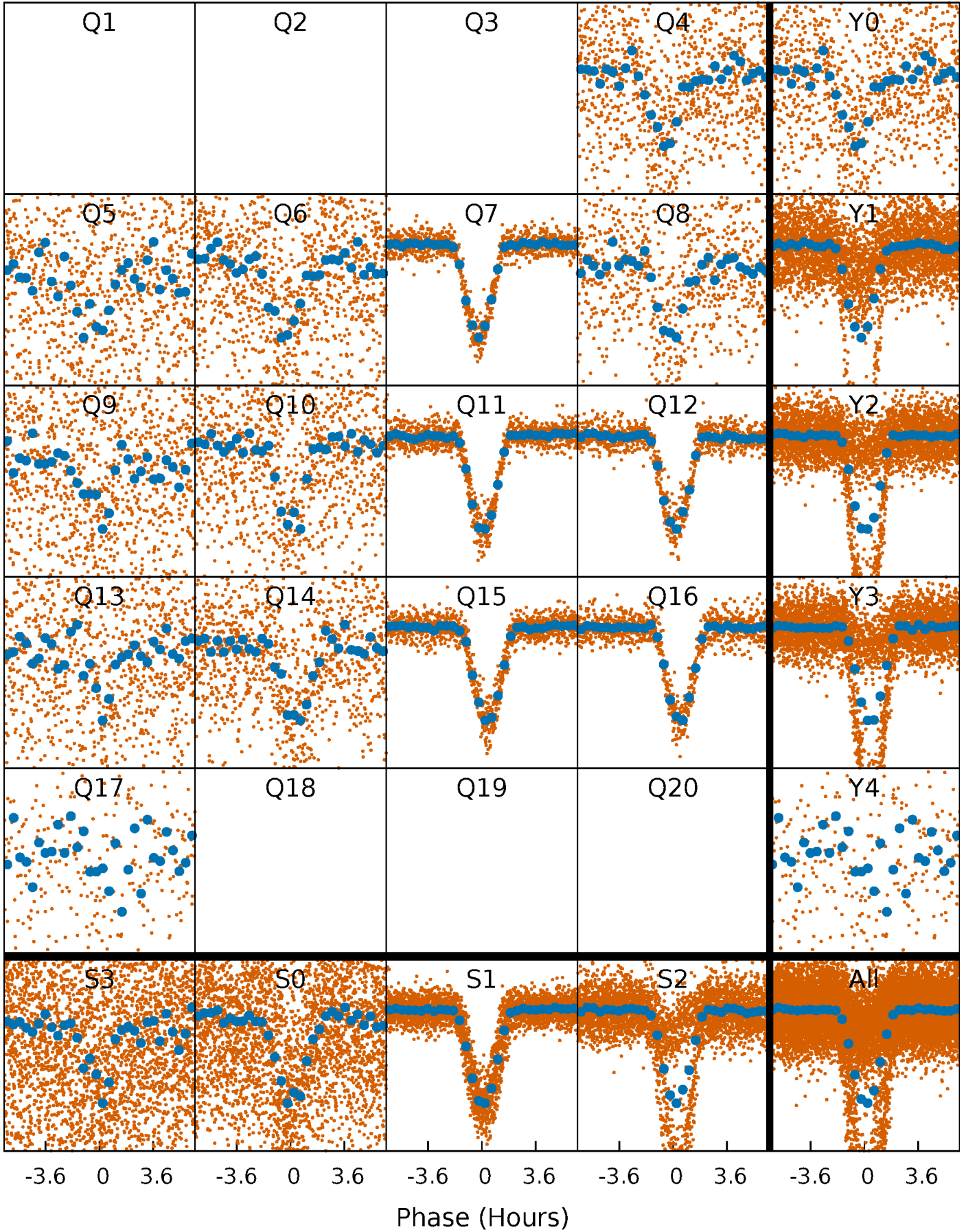


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

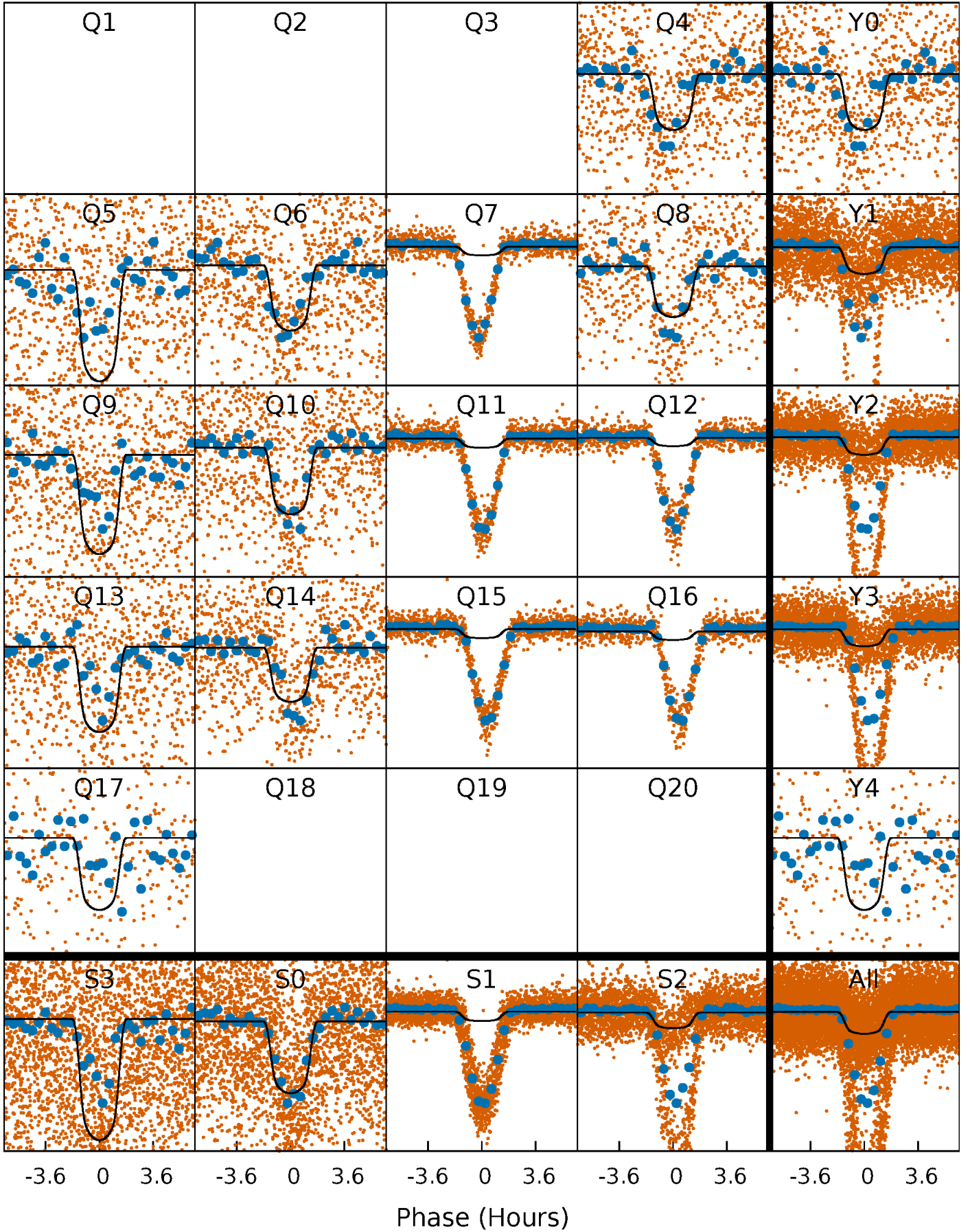
TCE 007838655-01 P= 2.113130 Days  $T_0=132.356910$  (BKJD)





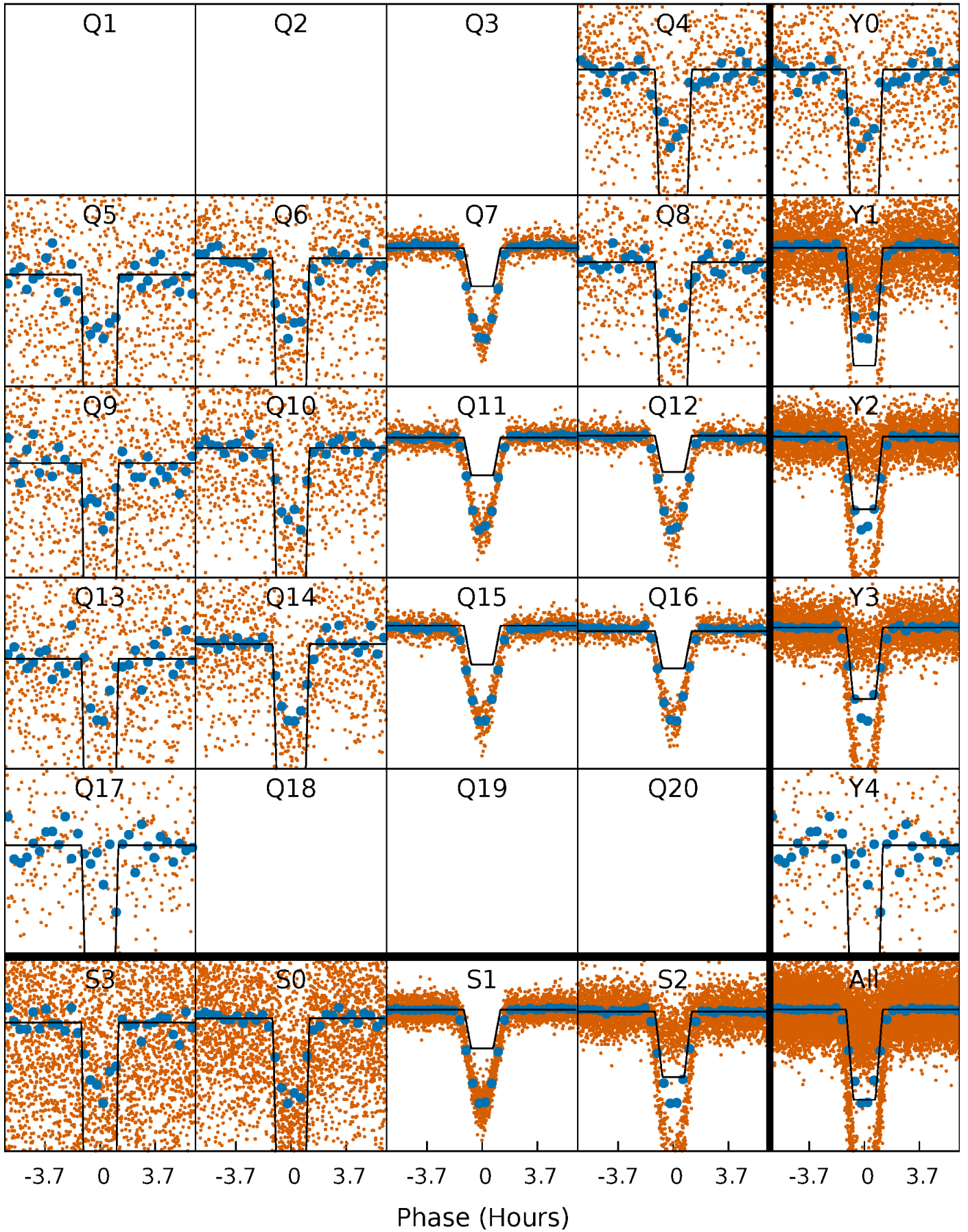
# DV Quarter-Phased Transit Curves

TCE 007838655-01 P= 2.113130 Days  $T_0=132.356910$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

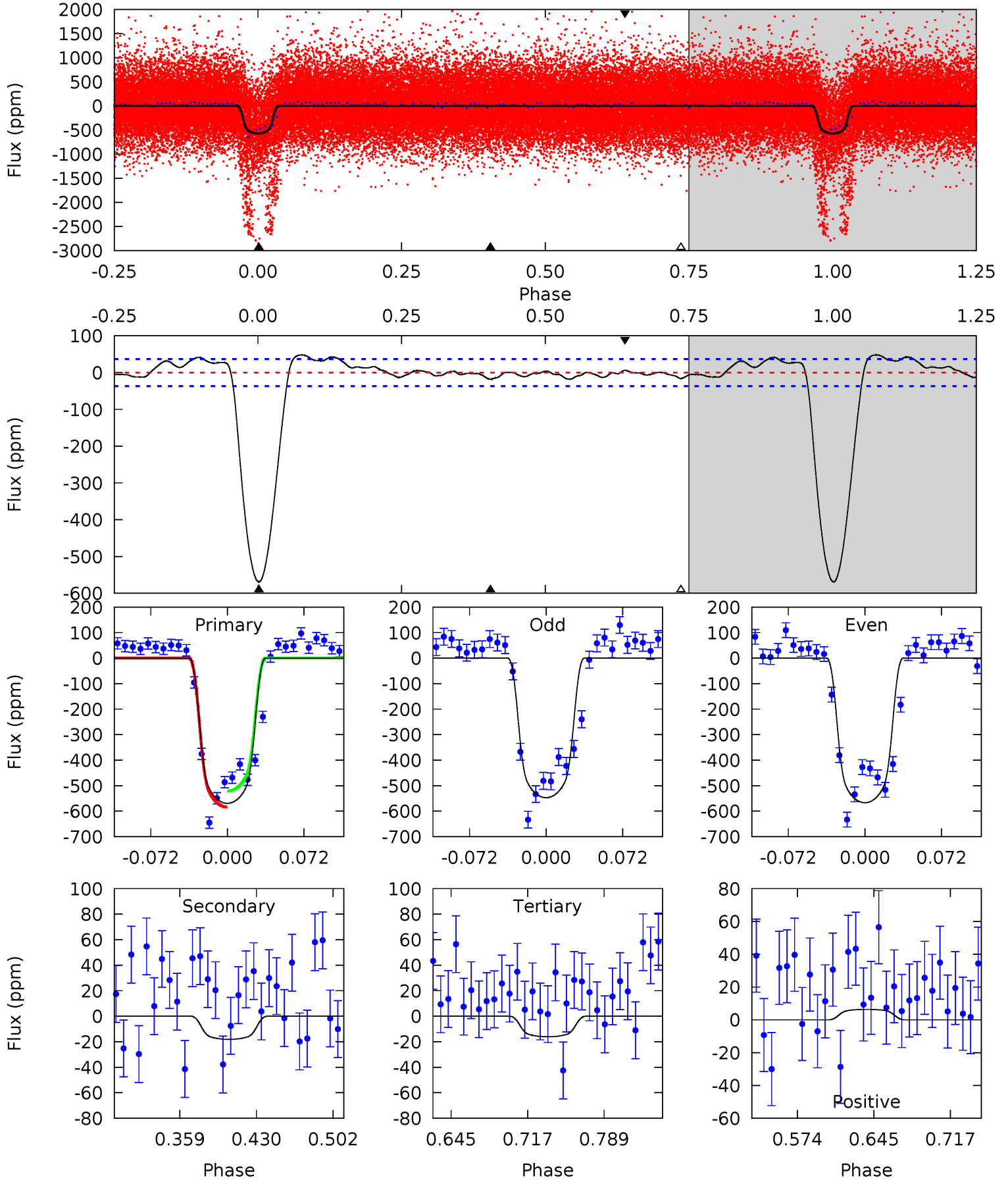
TCE 007838655-01 P= 2.113201 Days  $T_0=132.329545$  (BKJD)



# DV Model-Shift Uniqueness Test

007838655-01, P = 2.113130 Days, E = 132.356910 Days

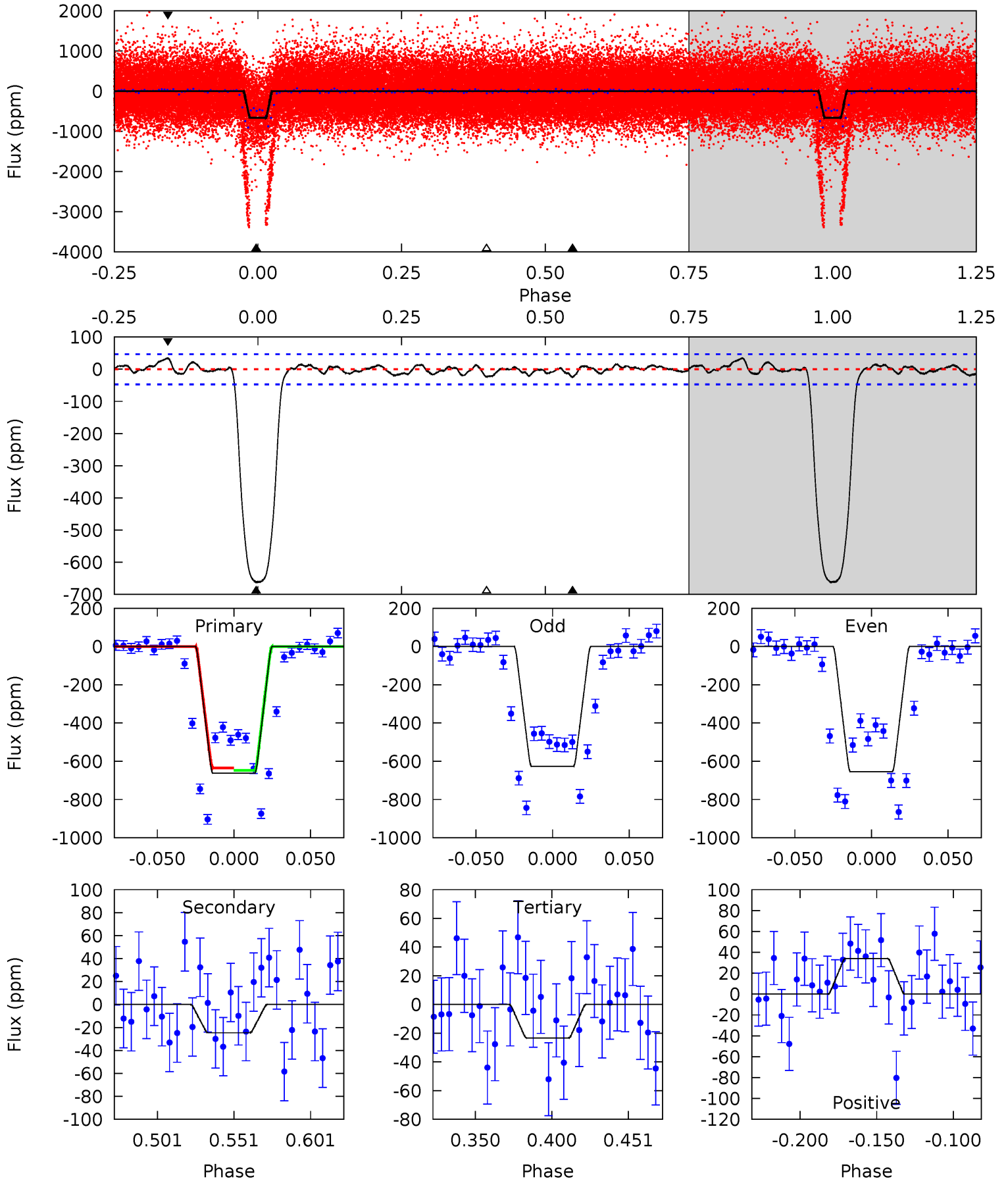
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.7	2.28	2.03	0.80	4.63	1.80	2.16	69.6	70.9	0.26	1.48	1.24	3.00	0.08	3.94



# Alt Model-Shift Uniqueness Test

007838655-01, P = 2.113201 Days, E = 132.329545 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
66.4	2.47	2.34	3.43	4.71	1.96	1.05	64.1	63.0	0.13	-0.96	1.33	2.93	0.05	0



### Stellar Parameters For KIC 007838655

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5482^{+197}_{-180}$	$4.502^{+0.077}_{-0.143}$	$-0.120^{+0.300}_{-0.300}$	$0.858^{+0.195}_{-0.090}$	$0.853^{+0.101}_{-0.082}$	$1.903^{+0.621}_{-0.778}$
	+4%/-3%	+2%/-3%	+250%/-250%	+23%/-10%	+12%/-10%	+33%/-41%
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 007838655-01 / KOI 1464.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-18 \pm 8$	$2.41^{+0.28}_{-0.21}$	$1810^{+109}_{-88}$	$2839^{+203}_{-286}$	$1.539^{+0.837}_{-0.713}$
Alt.	$-25 \pm 10$	$4.40^{+0.55}_{-0.33}$	$1809^{+111}_{-93}$	$2385^{+199}_{-400}$	$0.611^{+0.323}_{-0.258}$

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



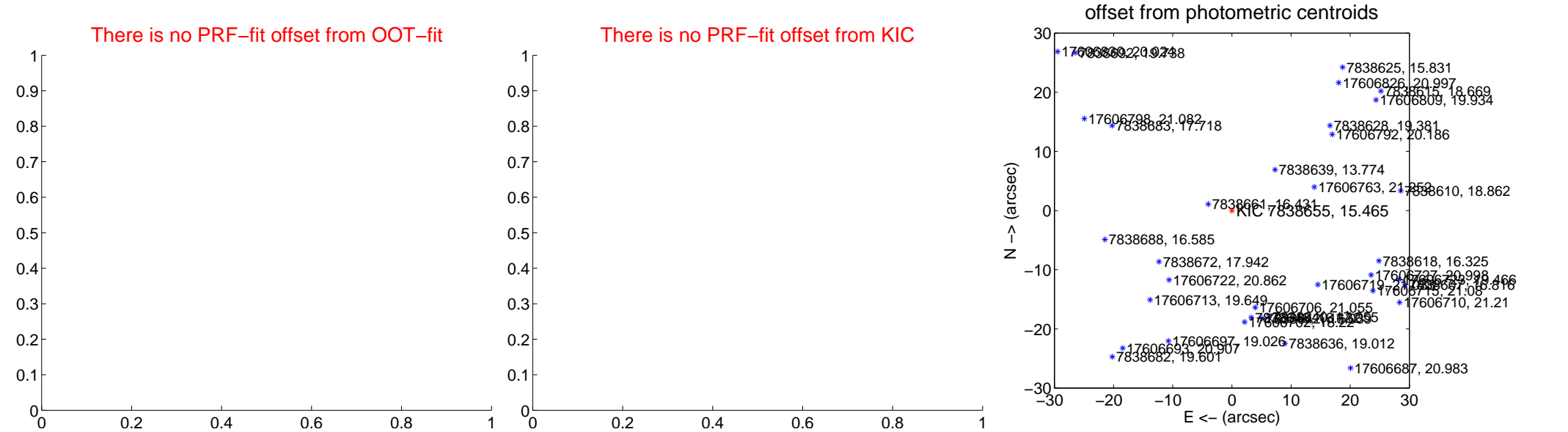
## DV Centroid Data

Supplemental centroid analysis for 007838655-01. Kepler magnitude: 15.46. Transit SNR 42.53

There are 0 quarters with good PRF difference image offsets

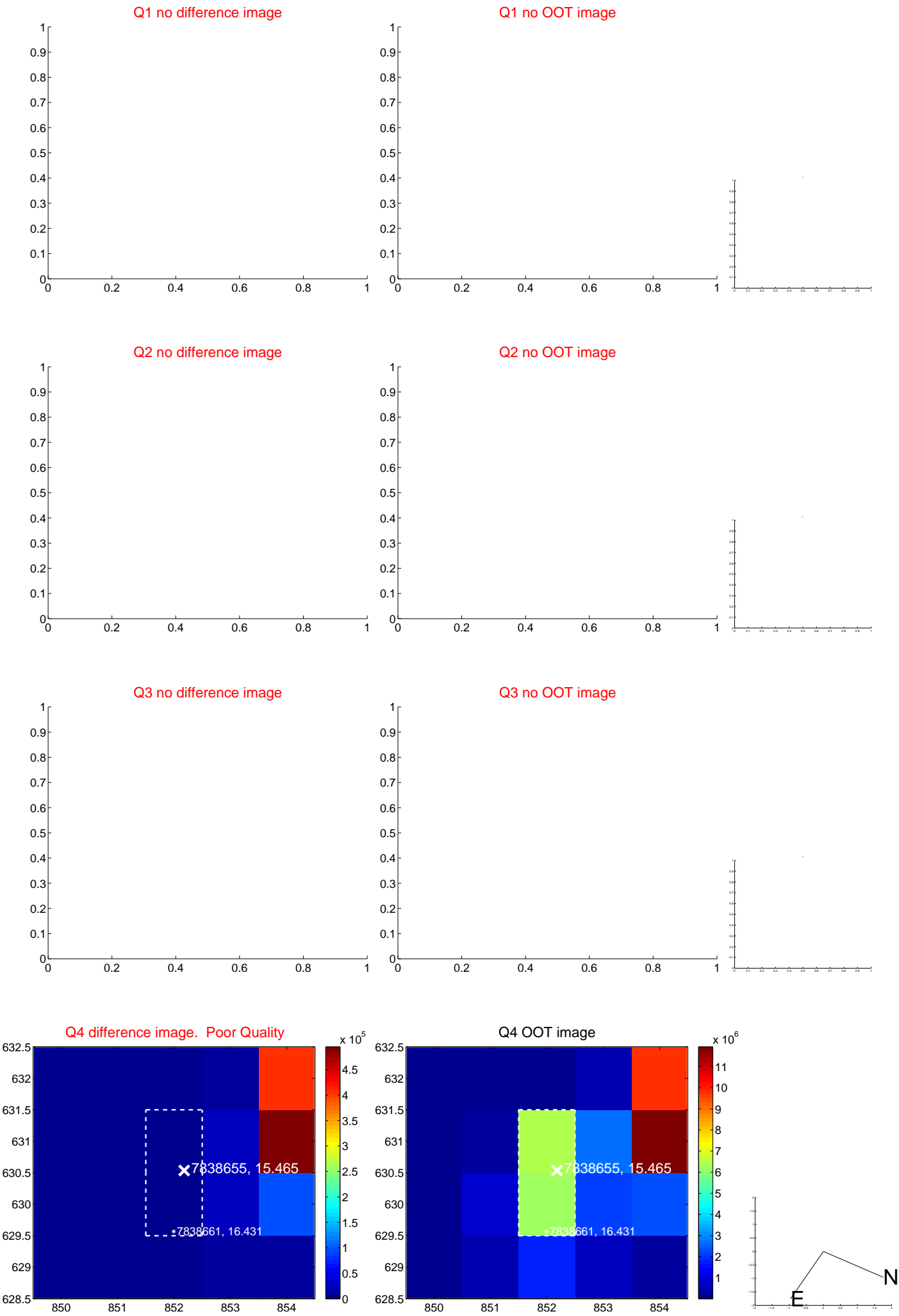
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$57.72 \pm 0.17$	$340.27$	$-47.75 \pm 0.18$	$32.43 \pm 0.15$

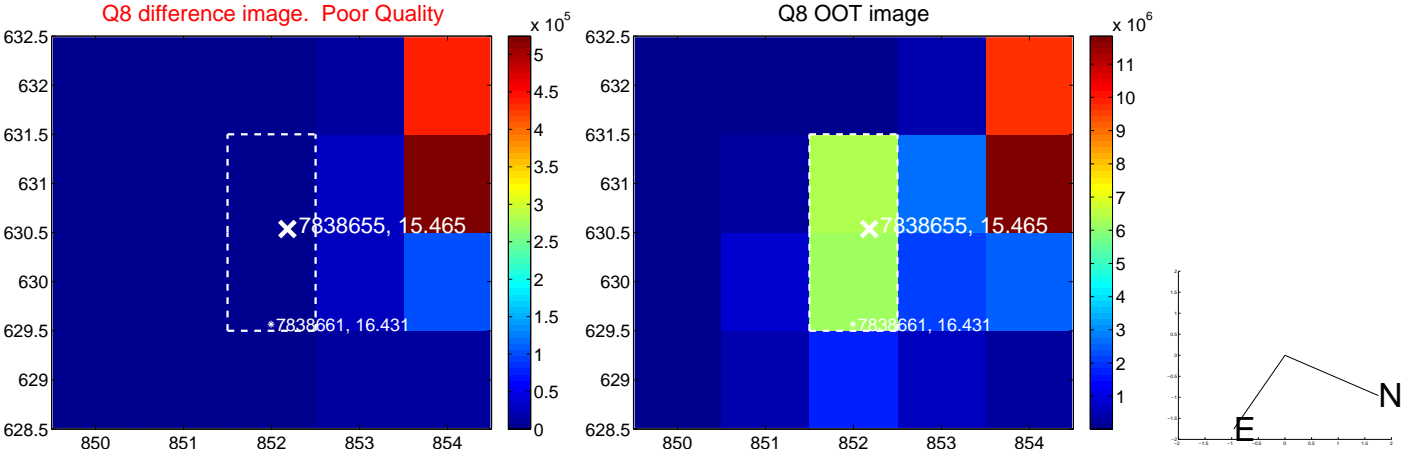
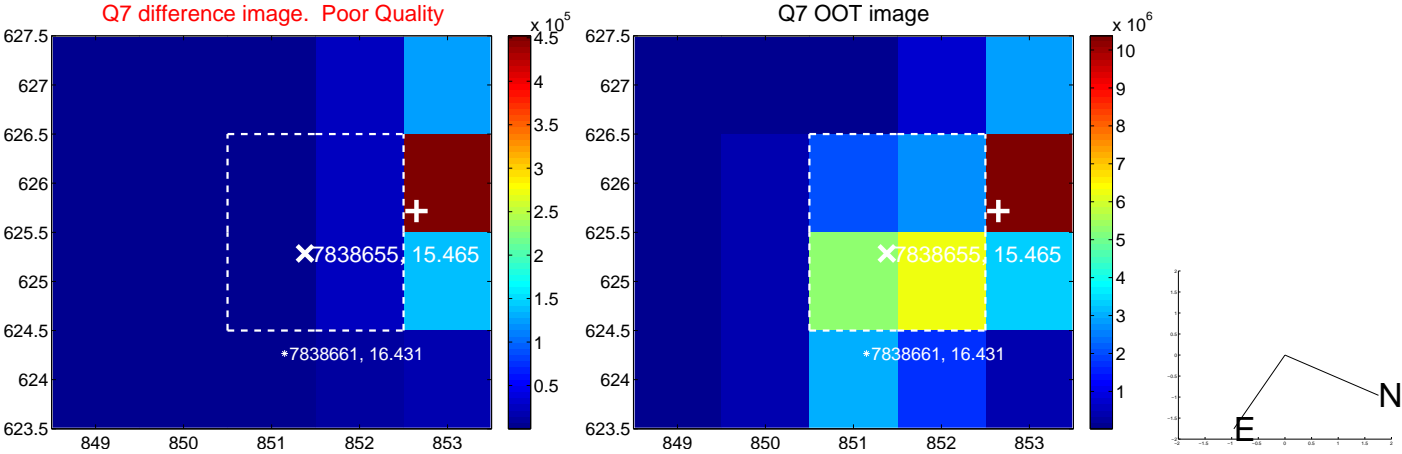
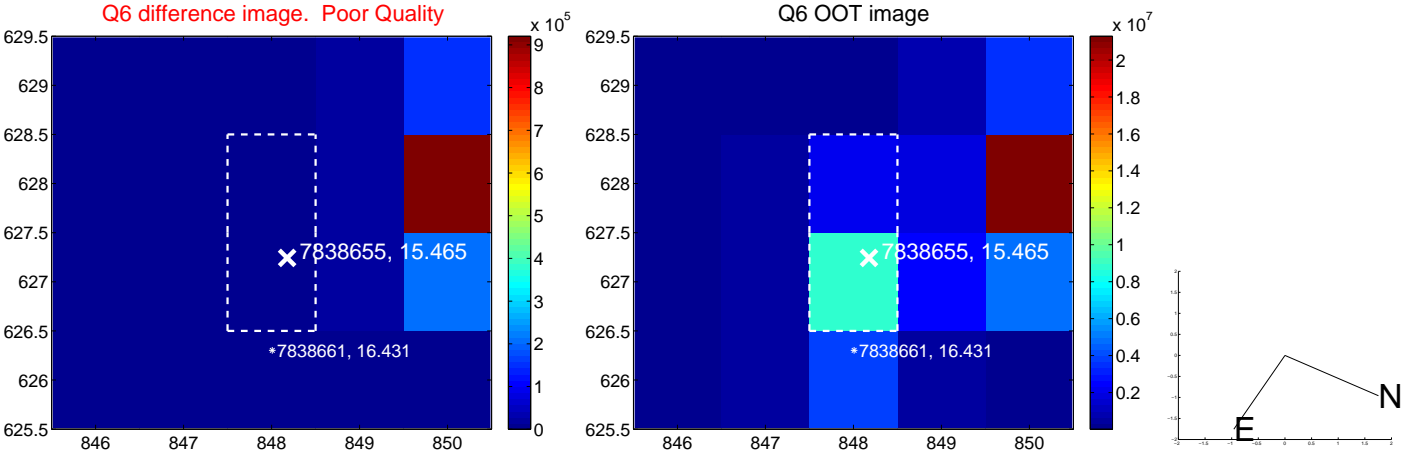
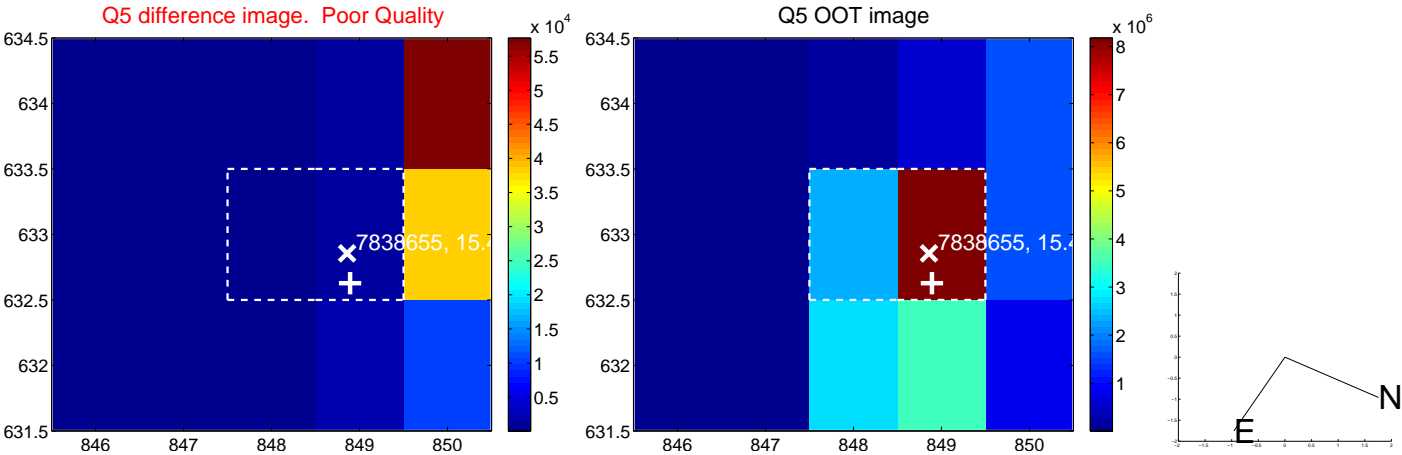


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

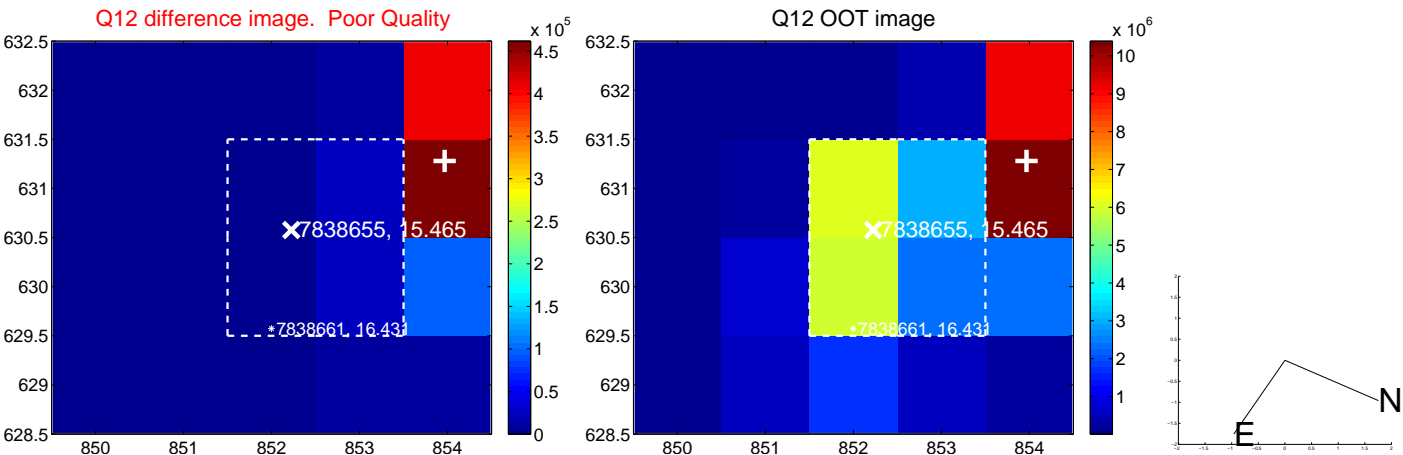
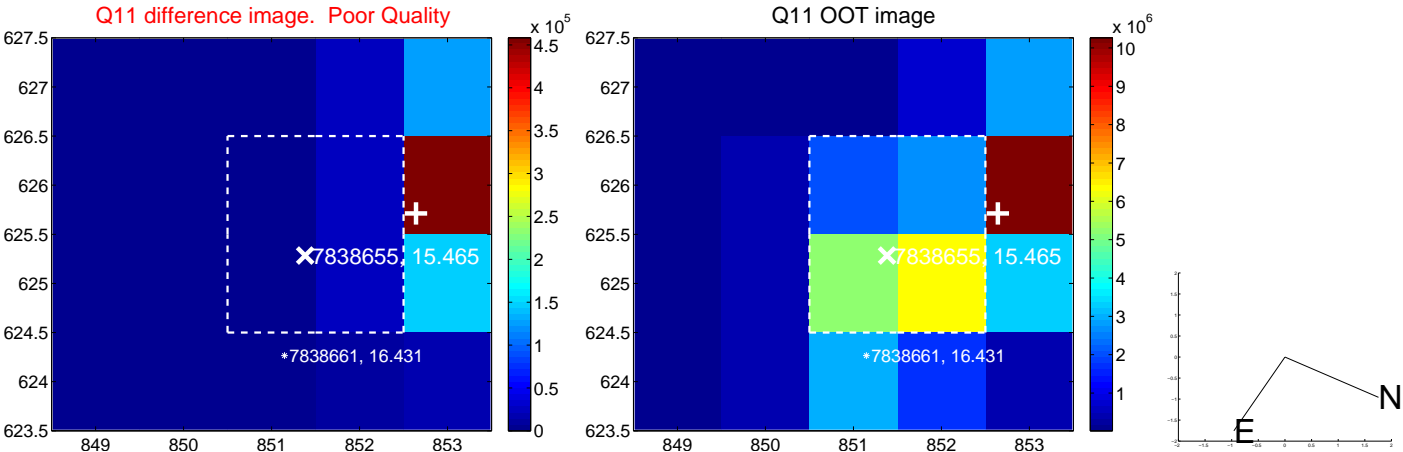
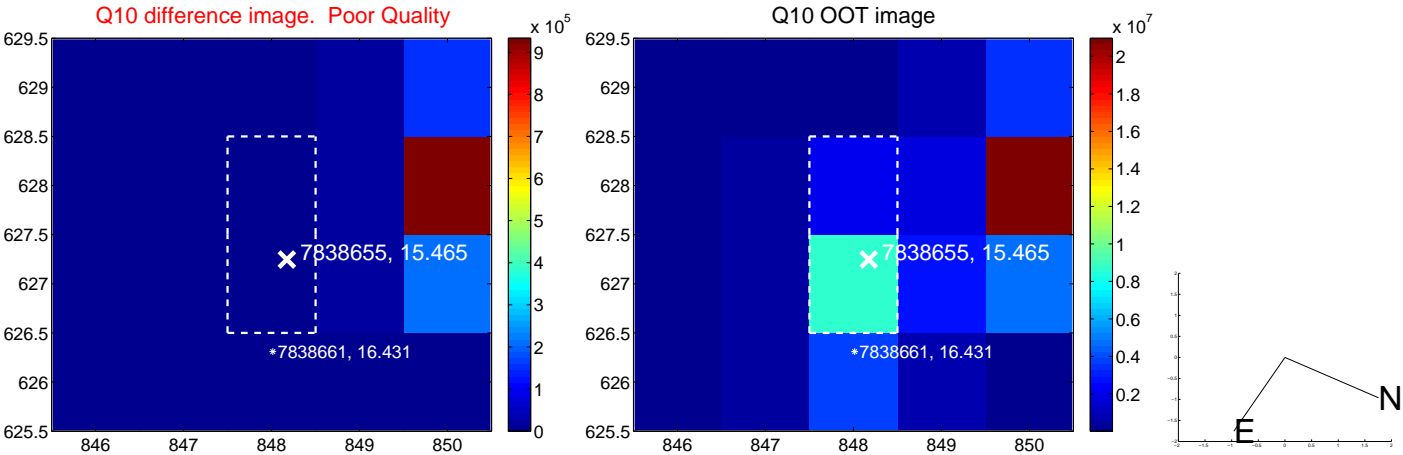
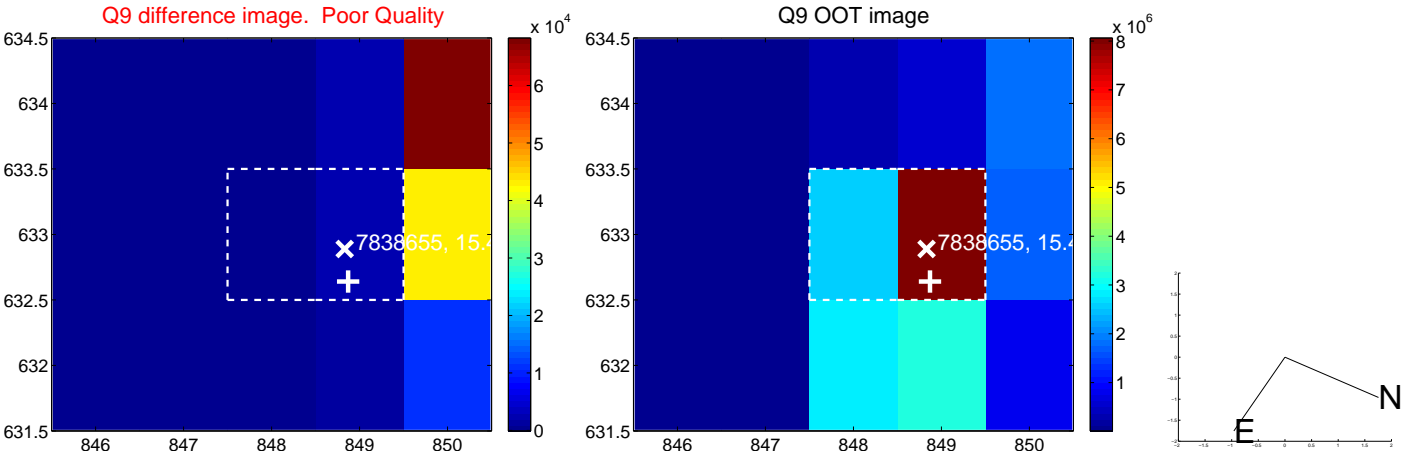
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



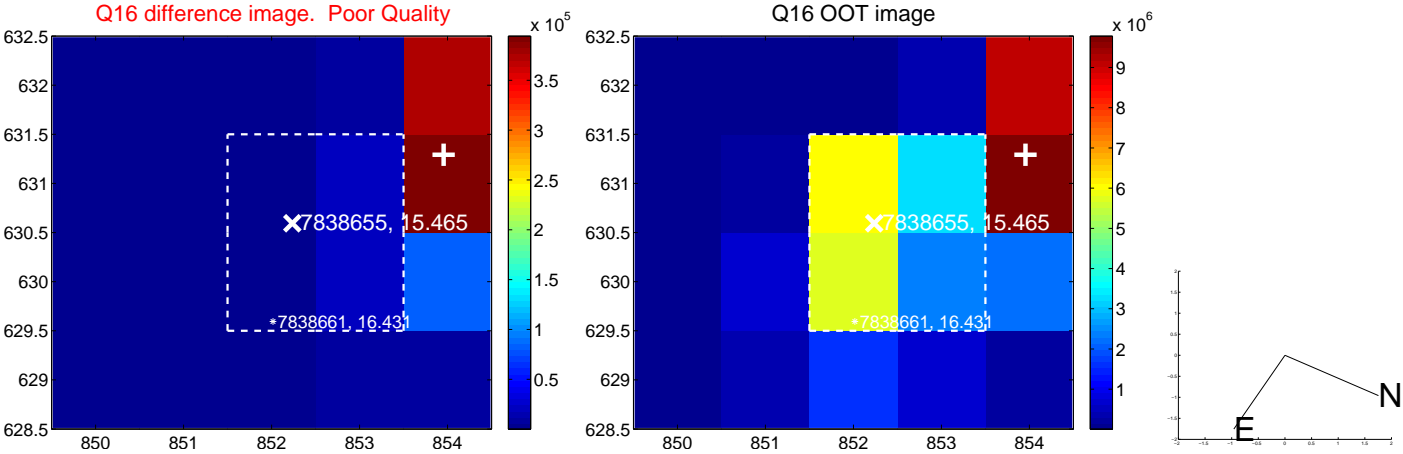
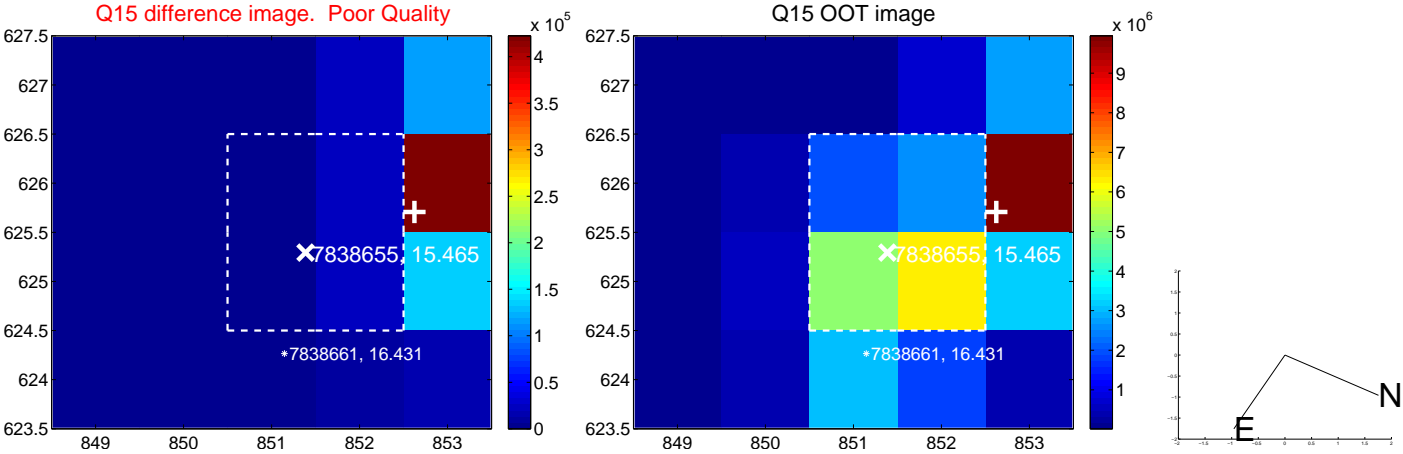
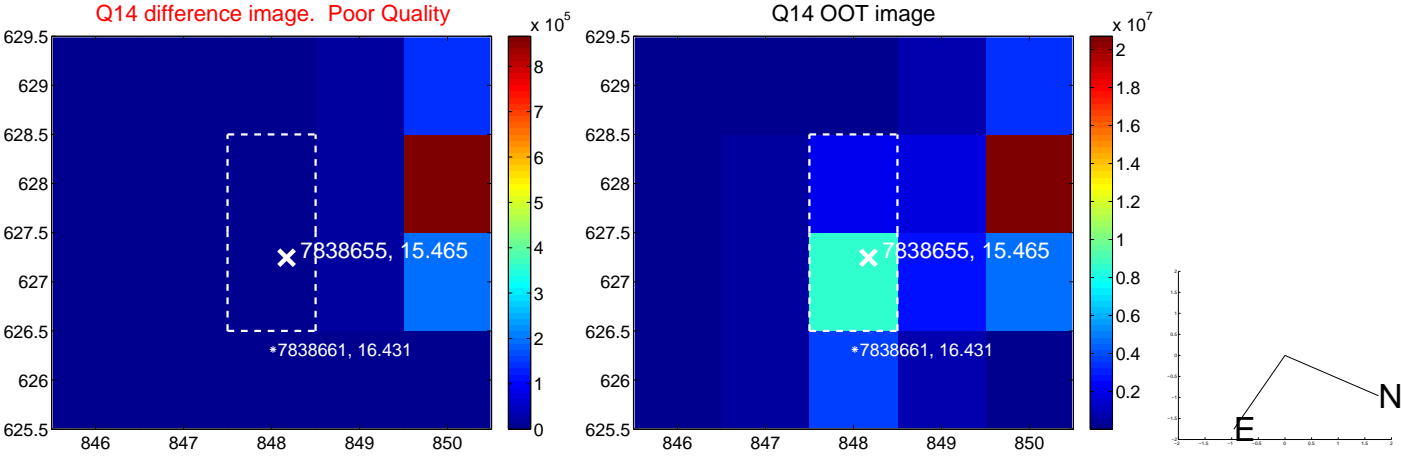
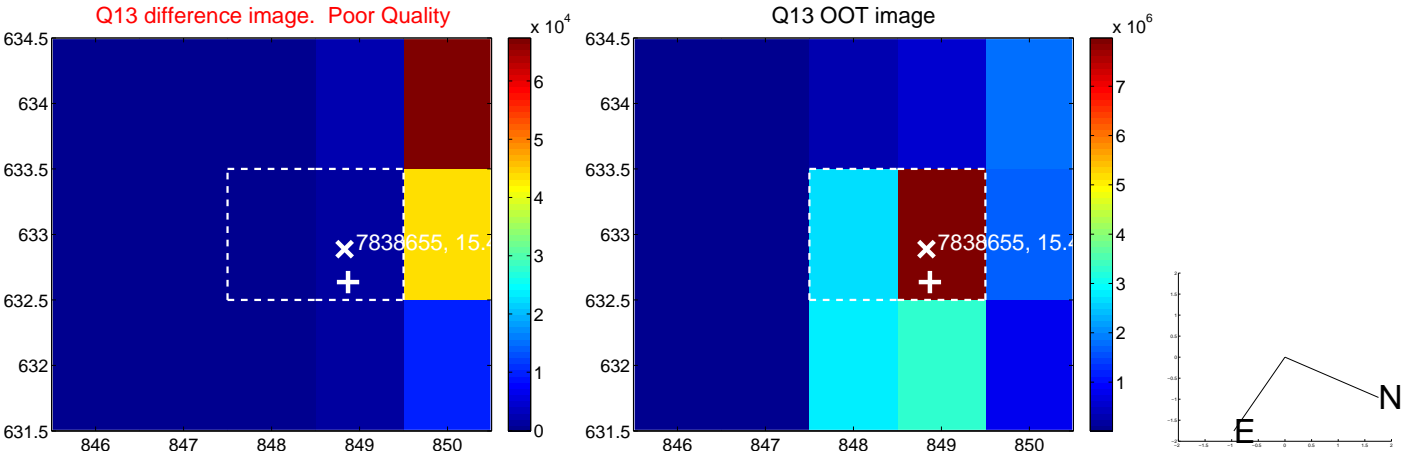
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

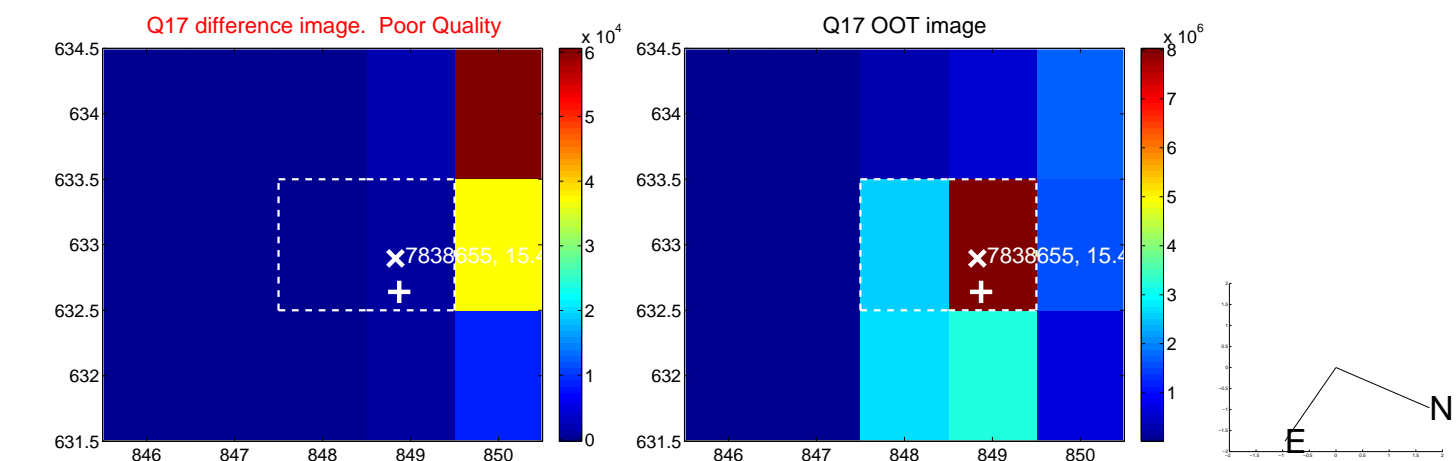


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

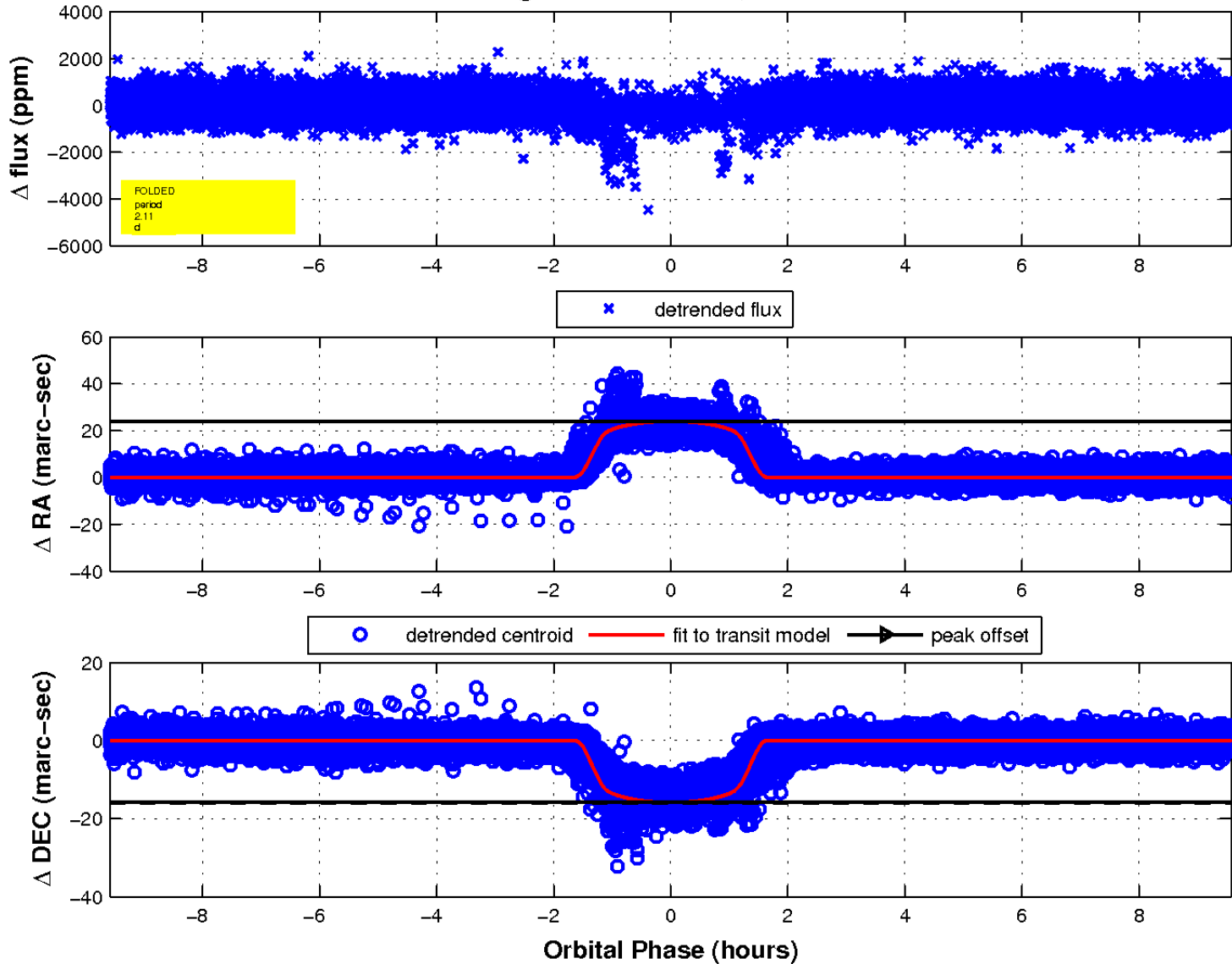




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

