

# KIC 005513866

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005513866-01	OBS	2854.01	0.755050	131.856448	28.4	2.928	19.3	11.4	1.00	5780	0.54	3795.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005513866-01	OBS	FP	0.00	1	0	1	1	LPP_DV—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 005513866-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
005513866-01	5513866	005513893-01	5513893	1:1	43.3	-5	9	13.01	13.57	1.29	Direct-PRF	1	4.12	1.87

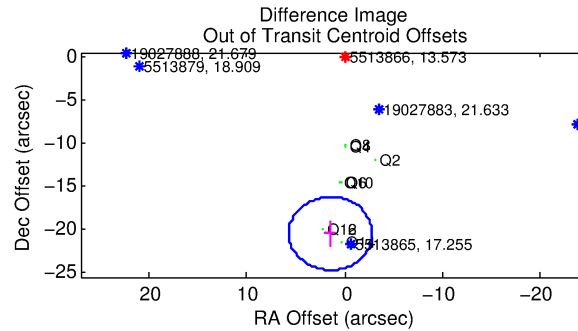
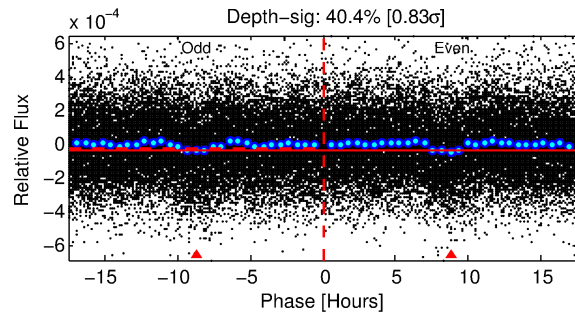
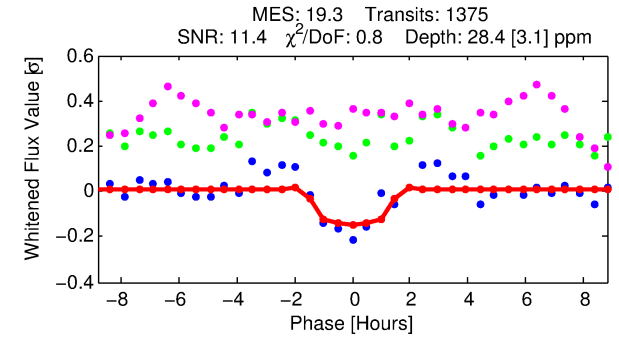
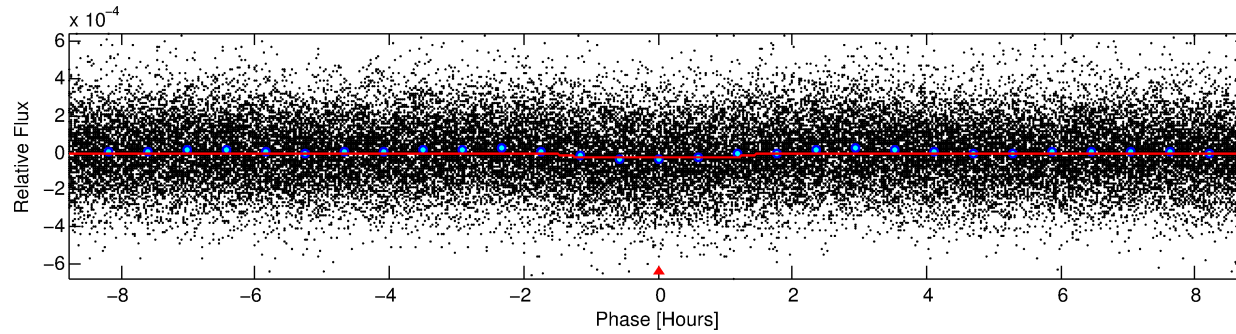
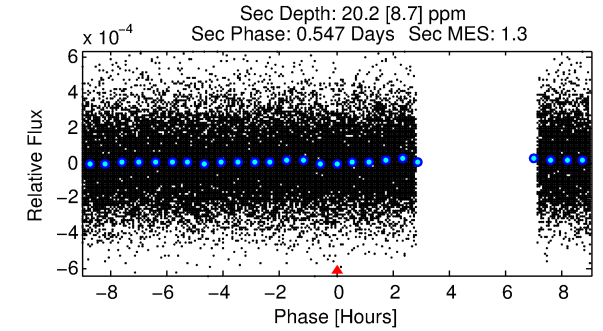
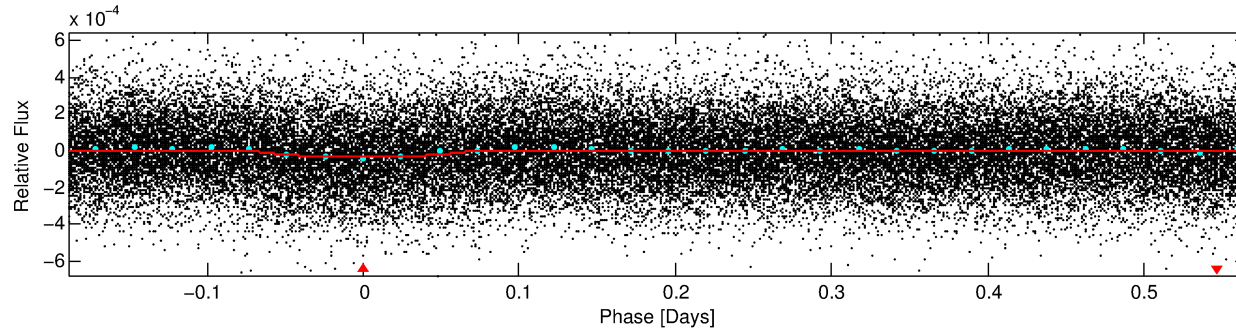
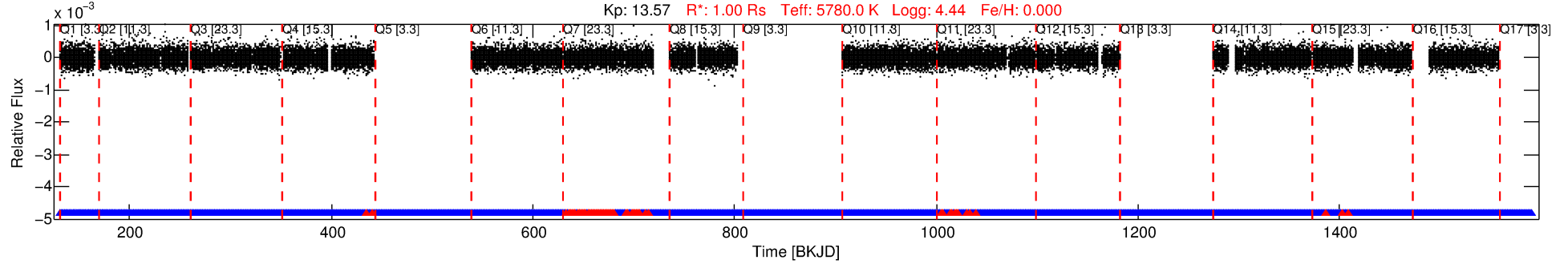
**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5513866 Candidate: 1 of 1 Period: 0.755 d

KOI: K02854.01 Corr: 0.764

Kp: 13.57 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



## DV Fit Results:

Period = 0.75505 [0.00001] d  
Epoch = 131.8564 [0.0031] BKJD  
Rp/R\* = 0.0049 [0.0032]  
a/R\* = 1.96 [4.19]  
b = 0.37 [6.87]  
Seff = 3795.81 [0.06]  
Teff = 2001 [0] K  
Rp = 0.54 [0.35] Re  
a = 0.0162 [0.0000] AU  
Ag = 10.21 [14.17] [0.65σ]  
Teffp = 5532 [1919] K [1.84σ]

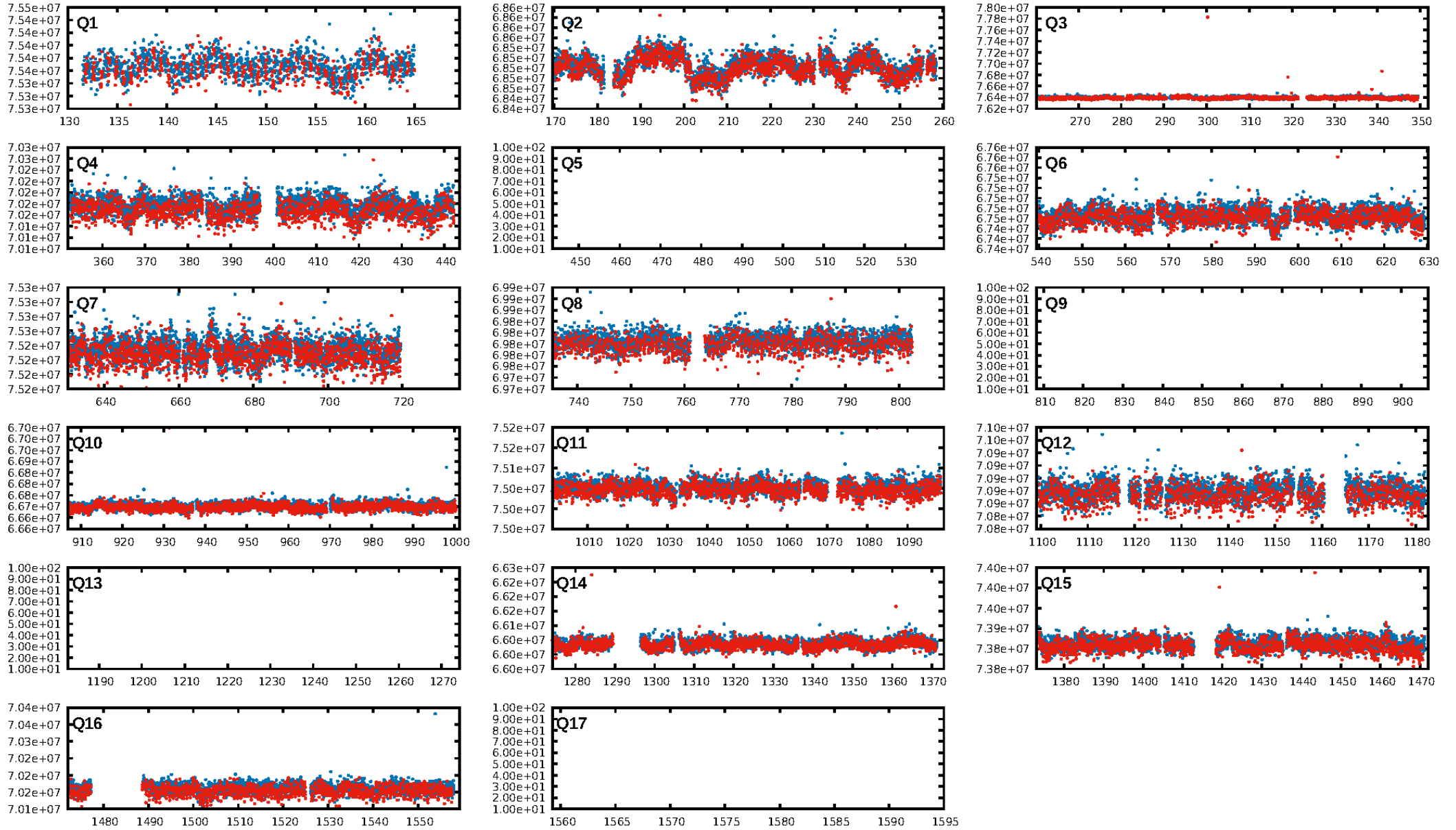
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.20e-71  
RollingBand-fgt: 0.94 [1256/1331]  
GhostDiagnostic-chr: 0.2125  
Centroid-sig: 0.0%  
Centroid-so: 10.295 arcsec [9.39σ]  
OotOffset-rm: 20.526 arcsec [14.50σ]  
KicOffset-rm: 20.405 arcsec [14.31σ]  
OotOffset-st: 4/0/4/0 [8]  
KicOffset-st: 4/0/4/0 [8]  
DiffImageQuality-fgm: 0.88 [7/8]  
DiffImageOverlap-fno: 1.00 [13/13]

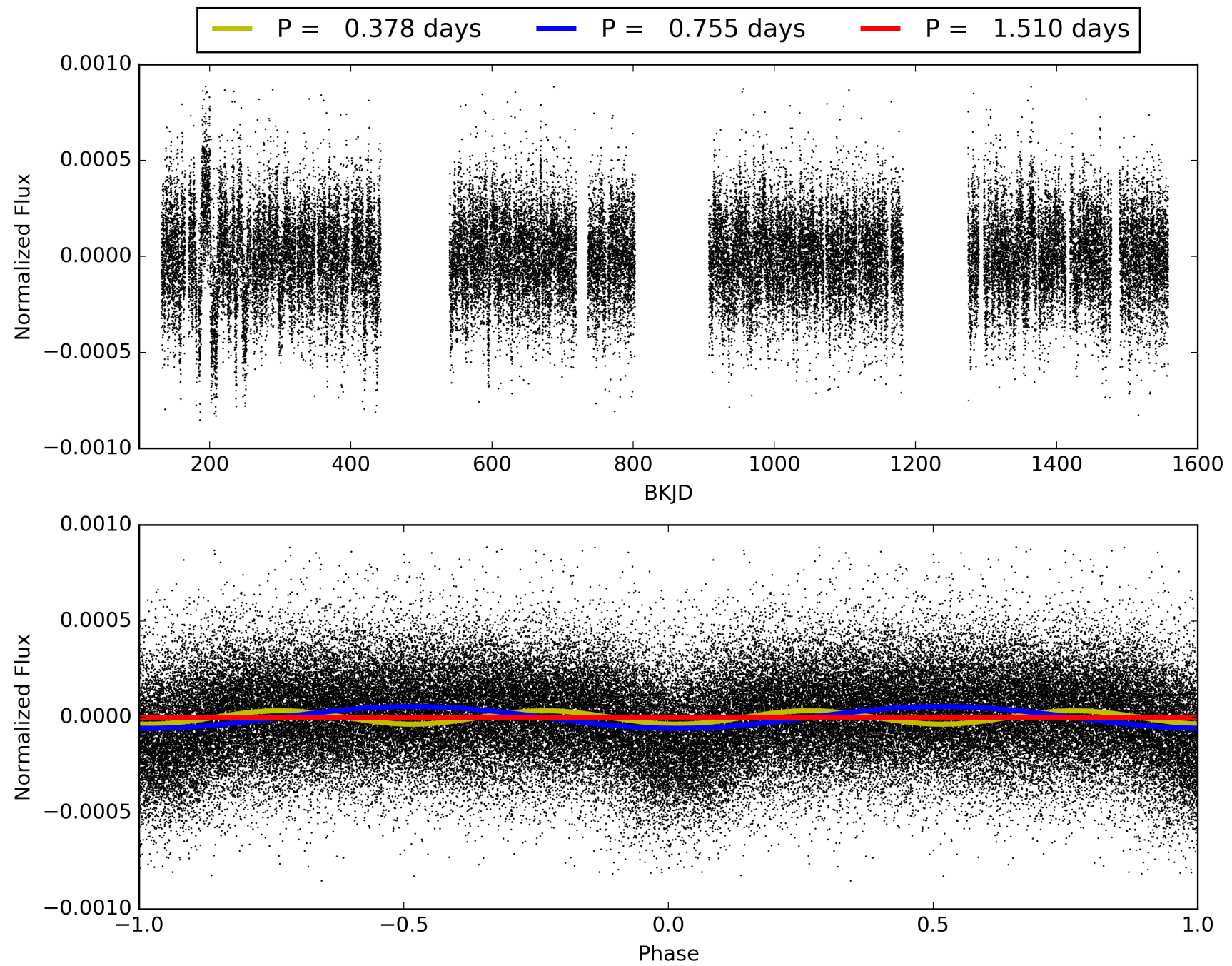
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:11:53 Z

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

# TCE 005513866-01, PDC Light Curves

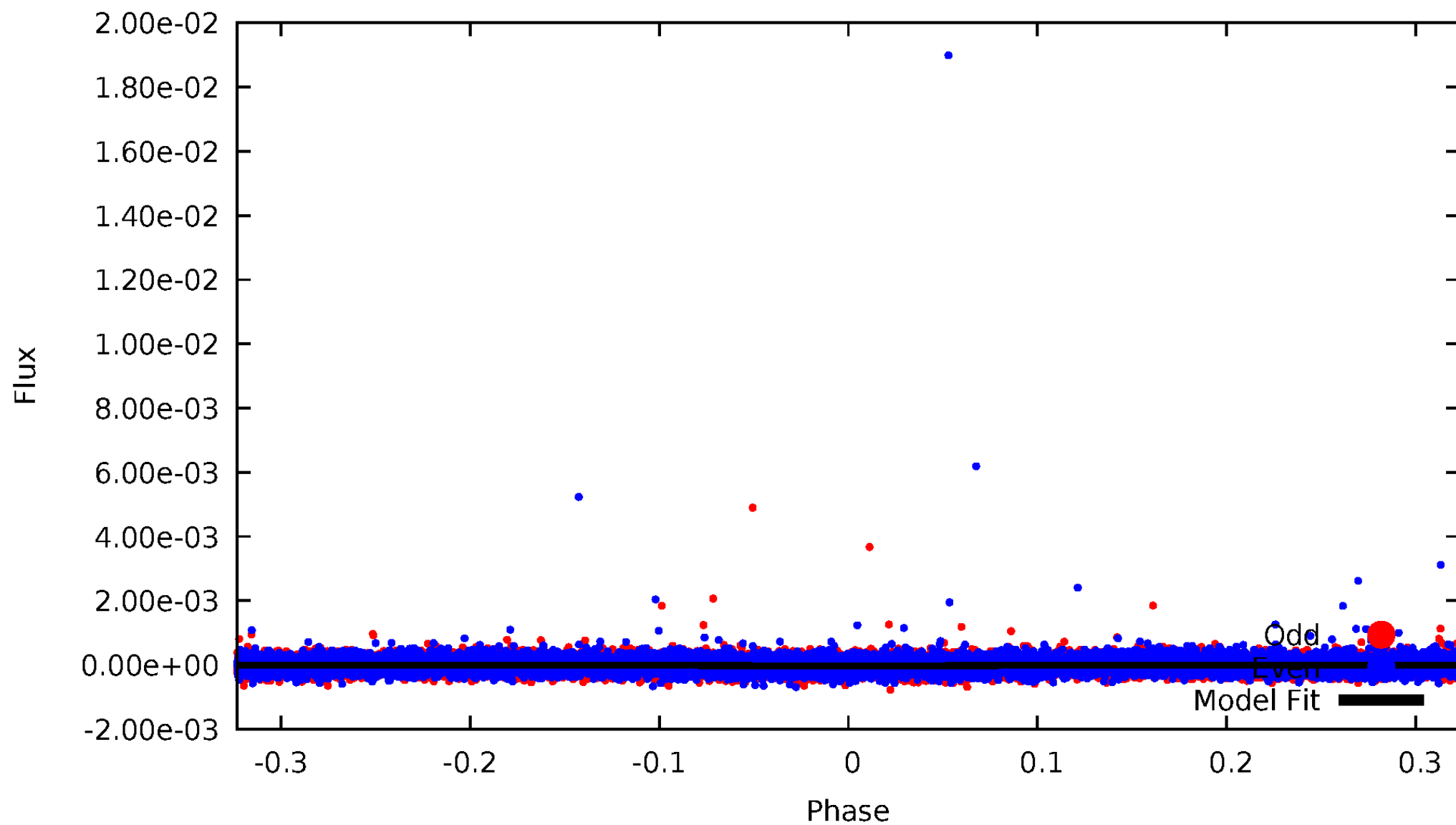


TCE 005513866-01



# DV Odd/Even

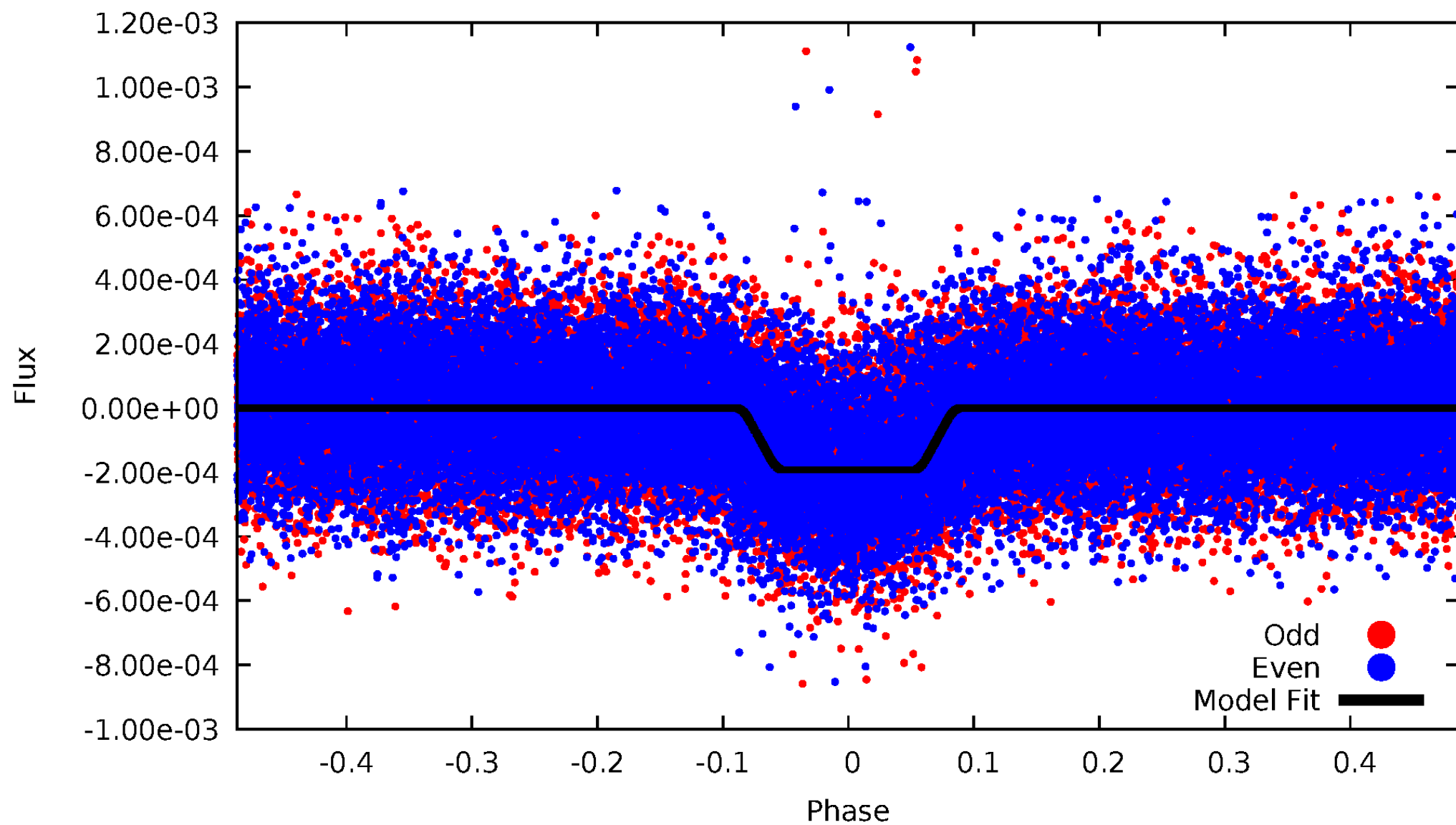
TCE 005513866-01





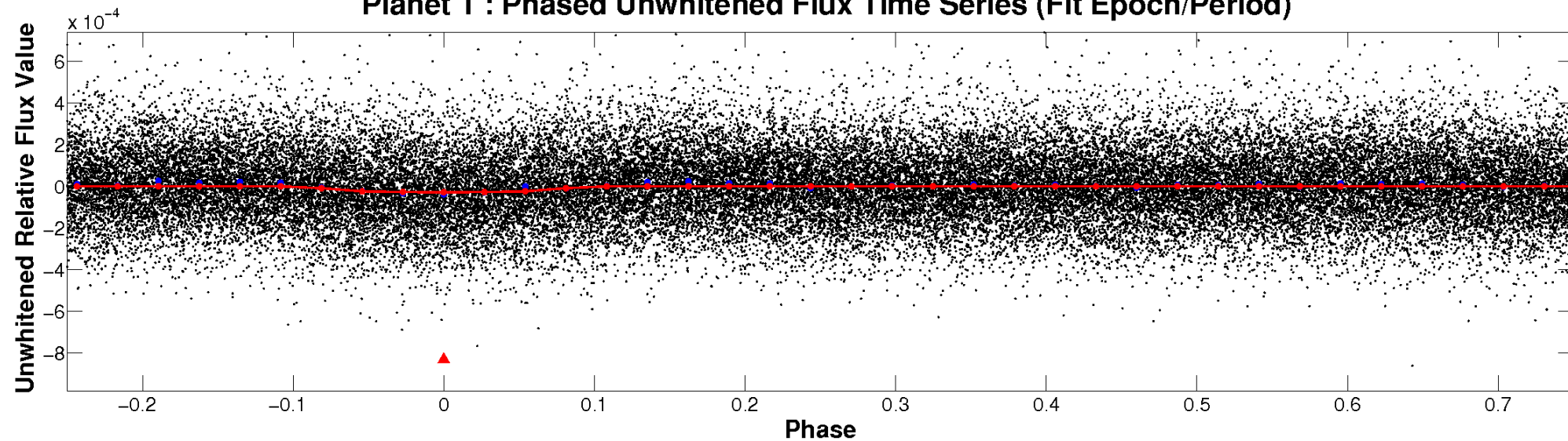
# ALT Odd/Even

TCE 005513866-01

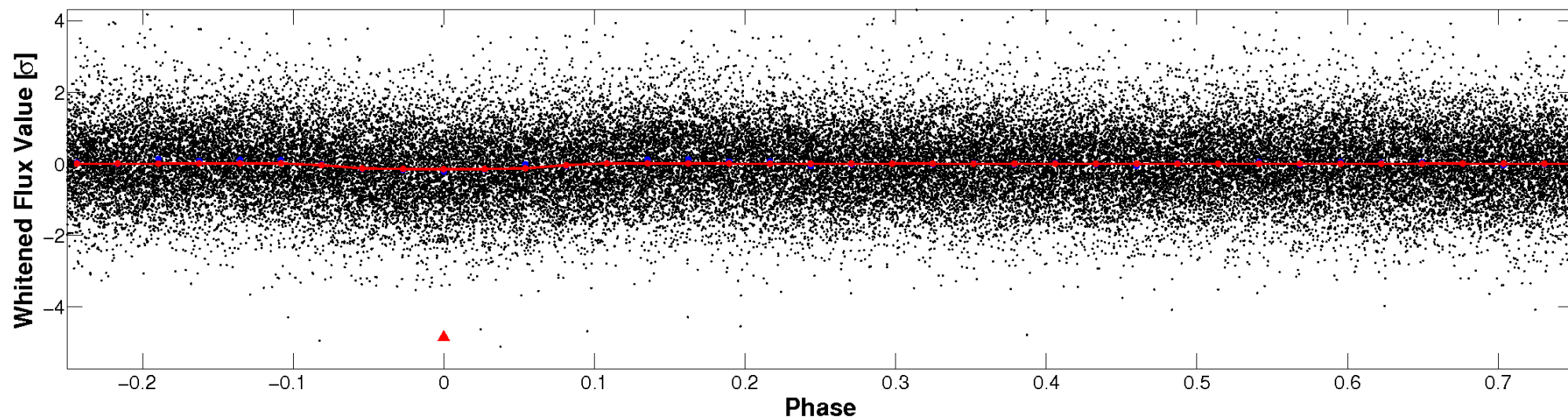


# Non-Whitened Vs. Whitened Light Curve

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

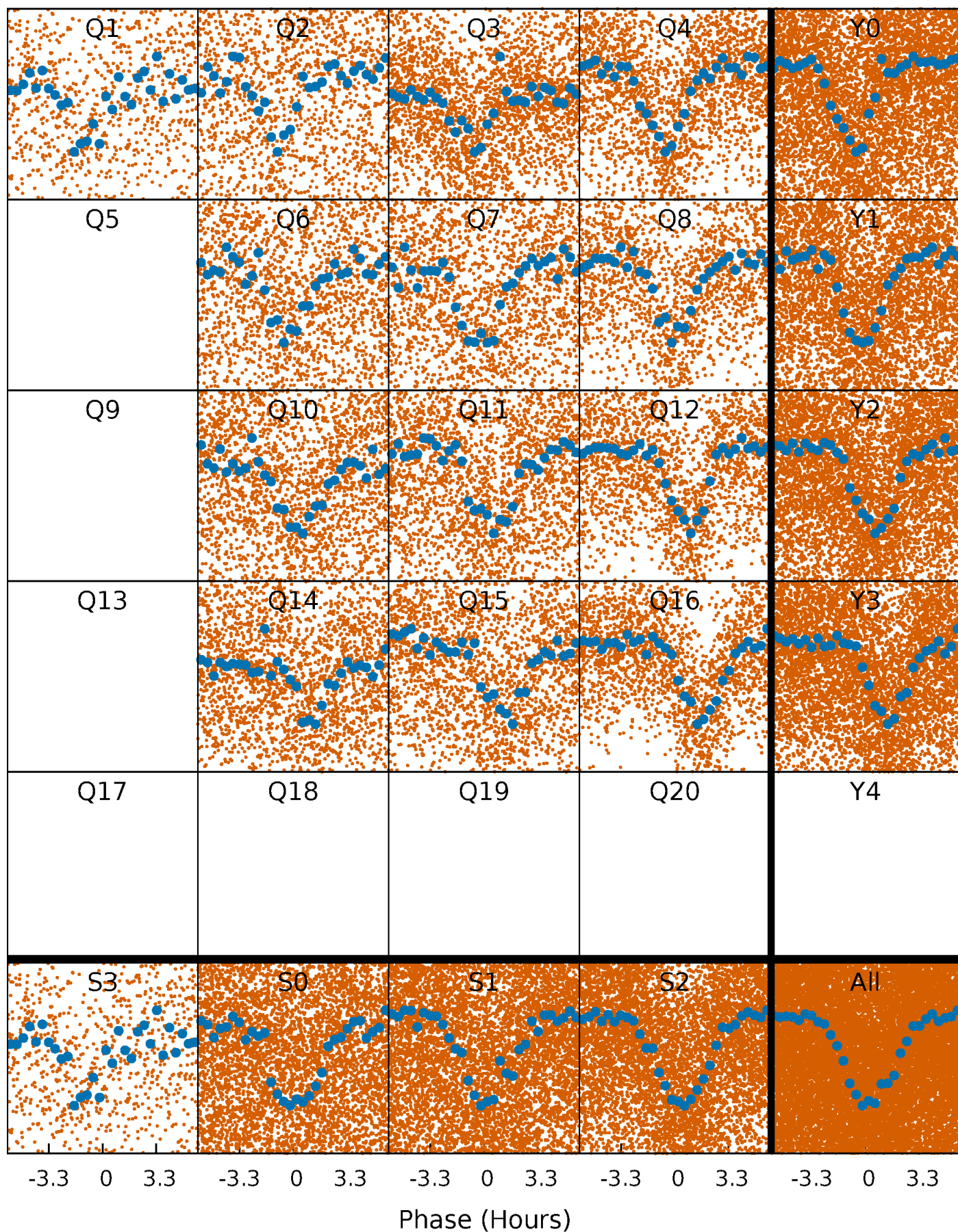


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

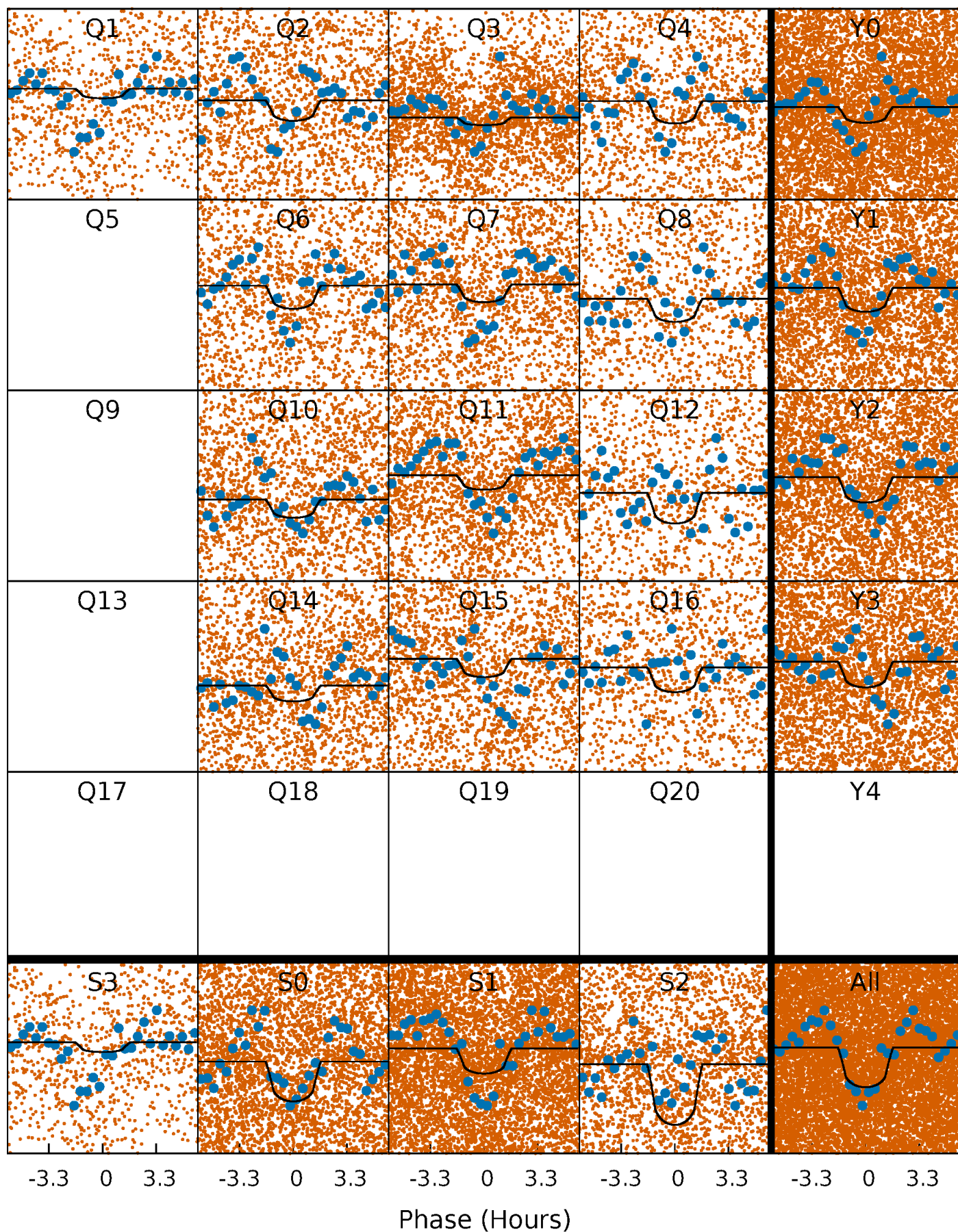
TCE 005513866-01 P= 0.755050 Days  $T_0=131.856448$  (BKJD)





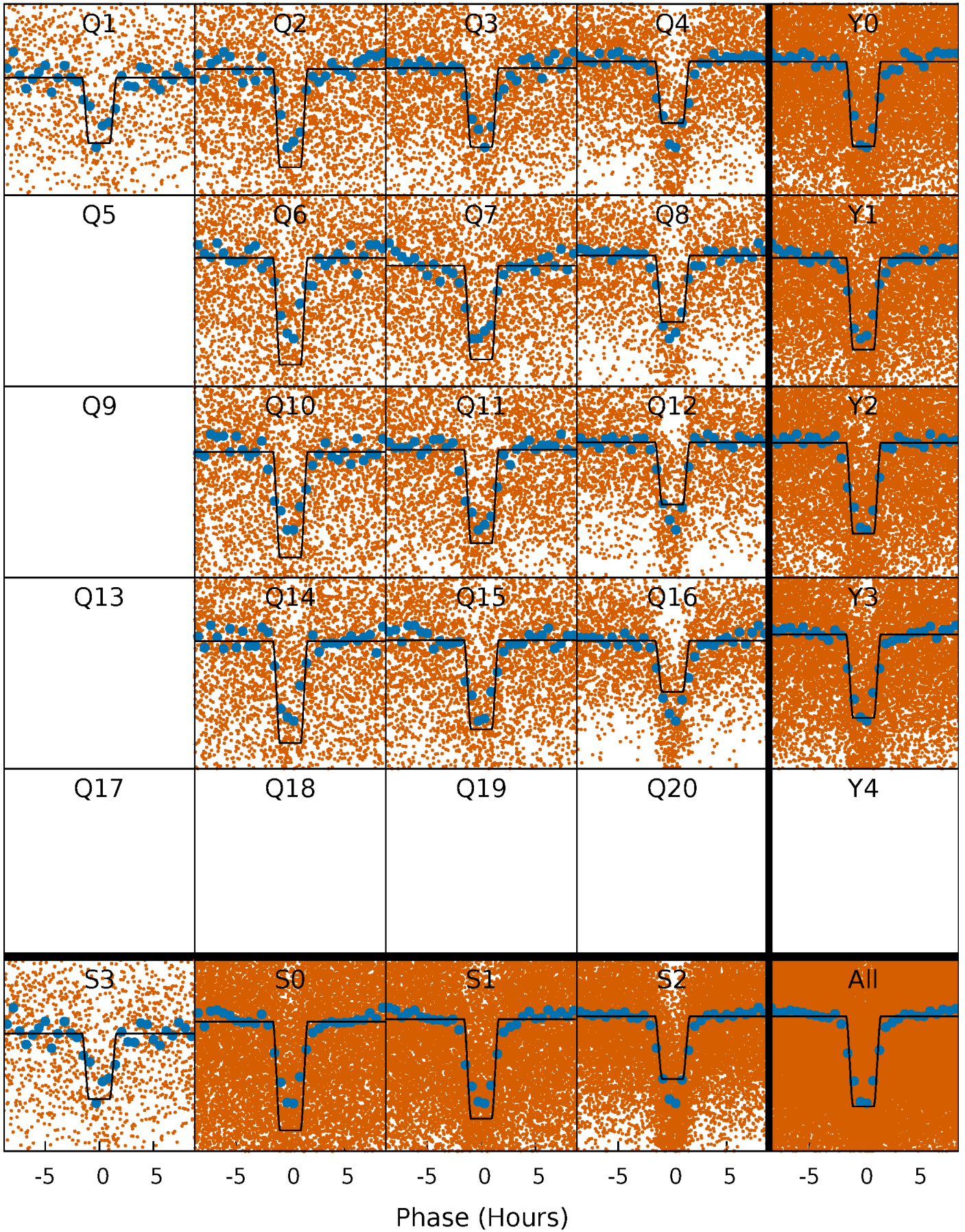
# DV Quarter-Phased Transit Curves

TCE 005513866-01 P= 0.755050 Days  $T_0=131.856448$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

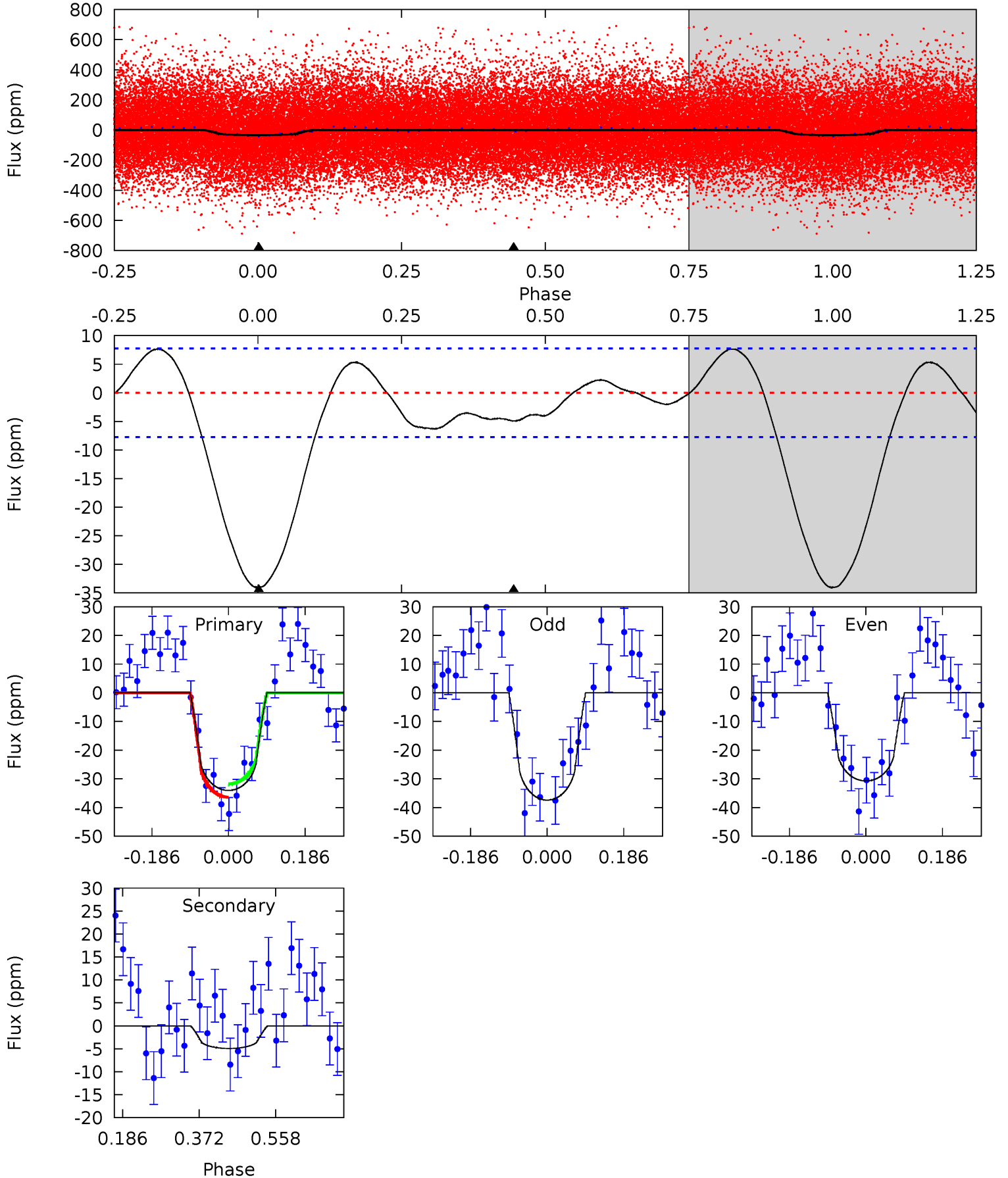
TCE 005513866-01 P= 0.755112 Days  $T_0=131.807407$  (BKJD)



# DV Model-Shift Uniqueness Test

005513866-01, P = 0.755050 Days, E = 131.101398 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
19.4	2.82	0	0	4.43	1.32	1.56	19.4	19.4	2.82	2.82	1.91	0.88	0.18	1.34

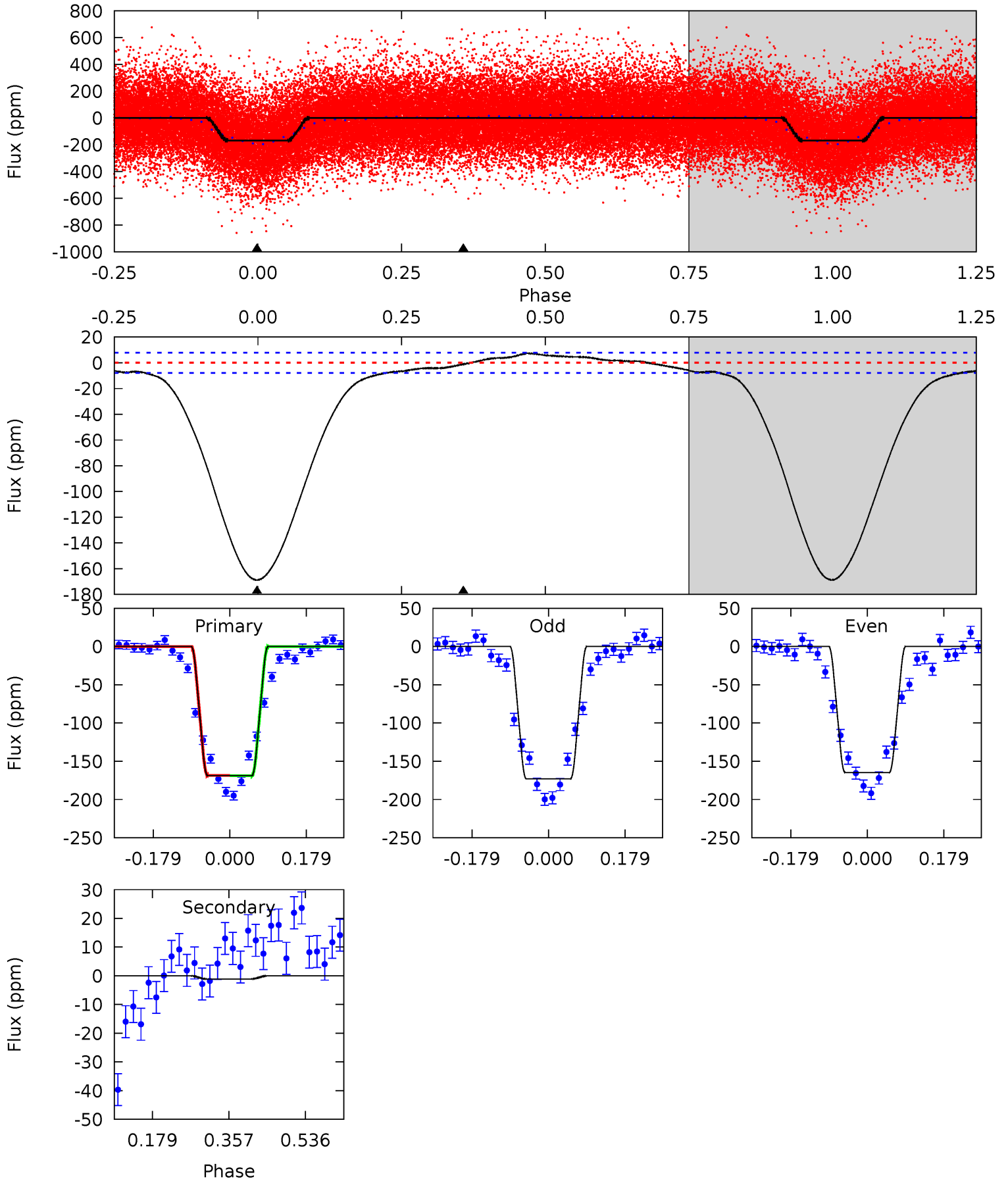




# Alt Model-Shift Uniqueness Test

005513866-01, P = 0.755112 Days, E = 131.052295 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
95.1	0.63	0	0	4.44	1.35	2.55	95.1	95.1	0.63	0.63	2.29	1.01	0.04	0.16





### Stellar Parameters For KIC 005513866

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005513866-01 / KOI 2854.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 2$	$0.56^{+0.35}_{-0.31}$	$2806^{+134}_{-143}$	$3952^{+1632}_{-824}$	$2.192^{+8.758}_{-1.458}$
Alt.	$-1 \pm 2$	$1.52^{+0.38}_{-0.38}$	$2792^{+140}_{-128}$	$-2852^{+366}_{-197}$	$0.073^{+0.144}_{-0.117}$

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

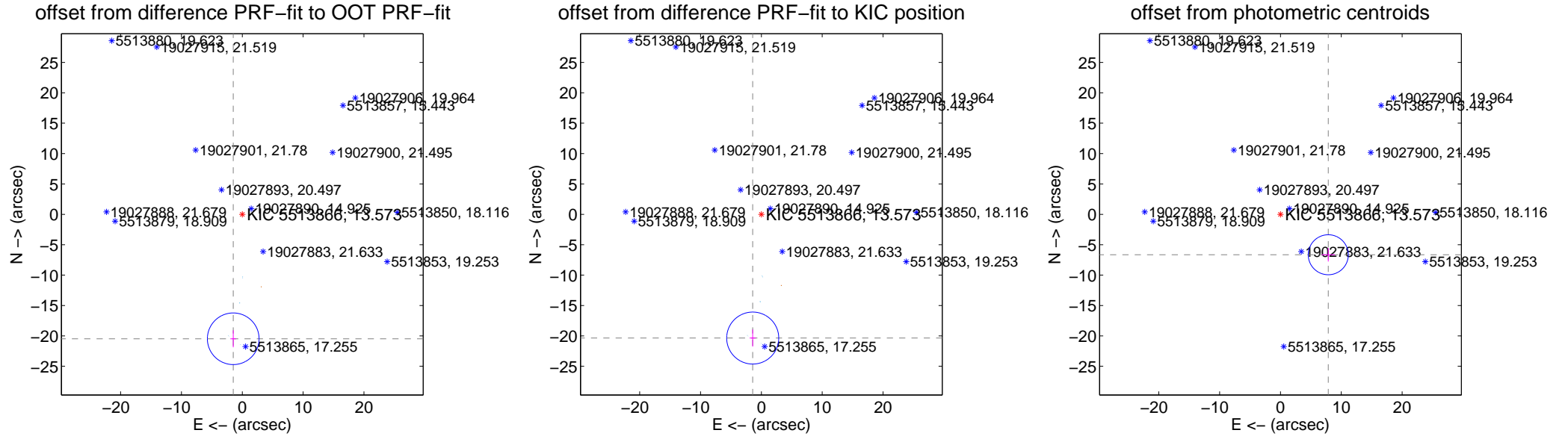
## DV Centroid Data

Supplemental centroid analysis for 005513866-01. Kepler magnitude: 13.57. Transit SNR 11.36

There are 7 quarters with good PRF difference image offsets

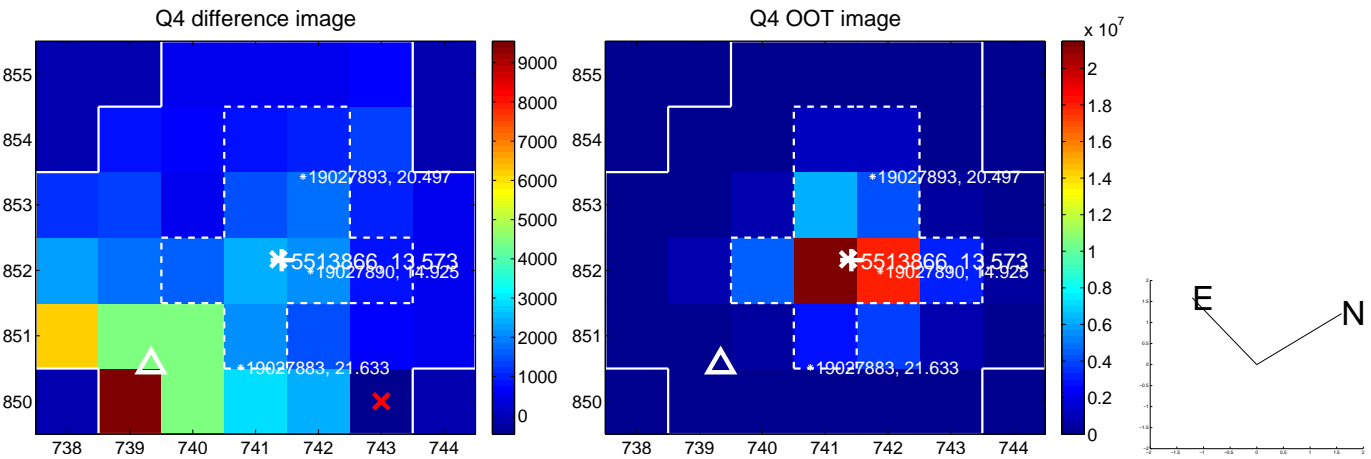
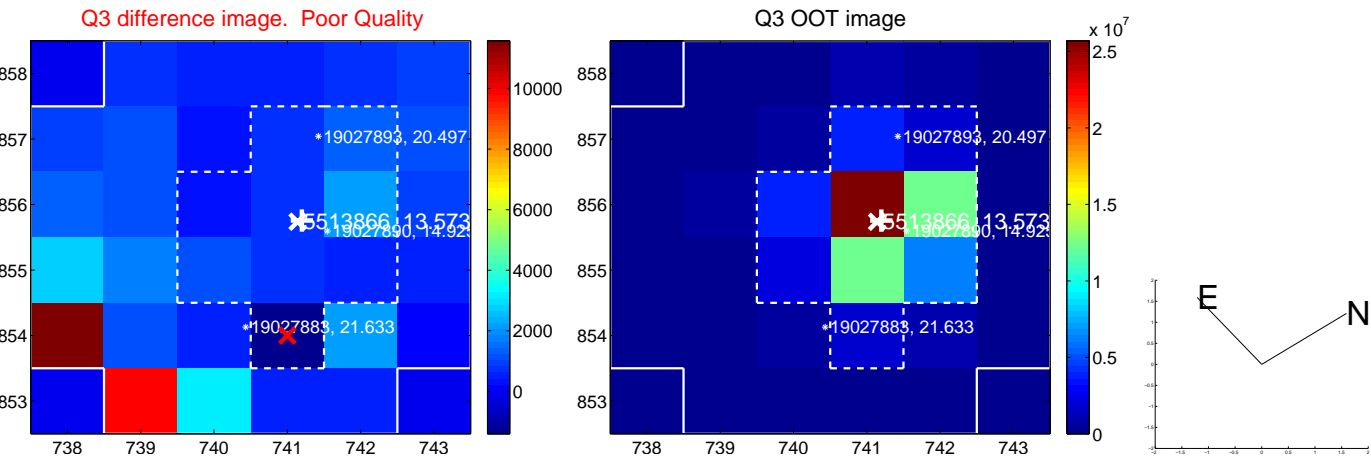
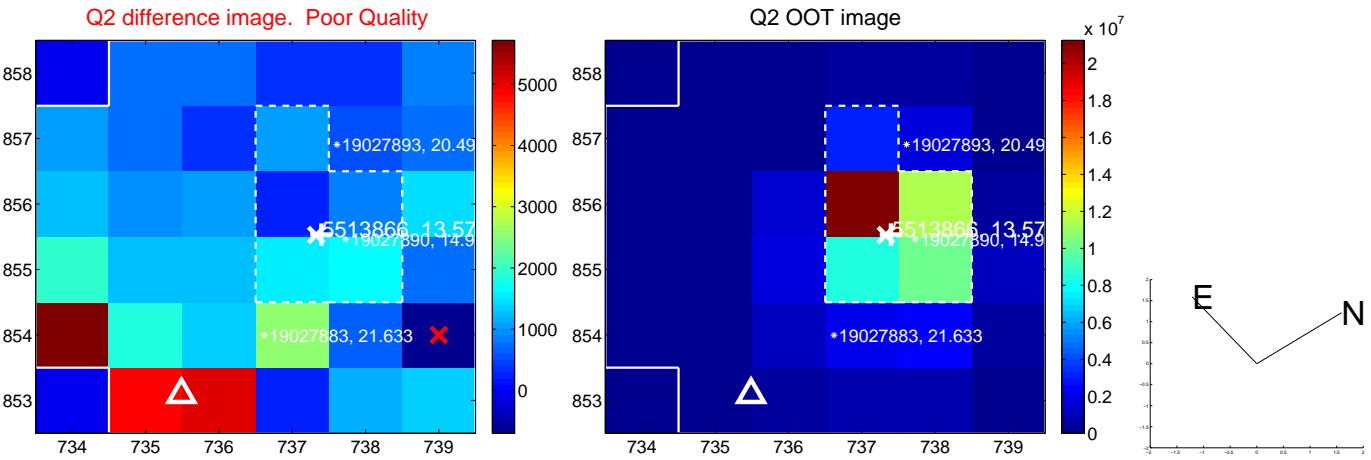
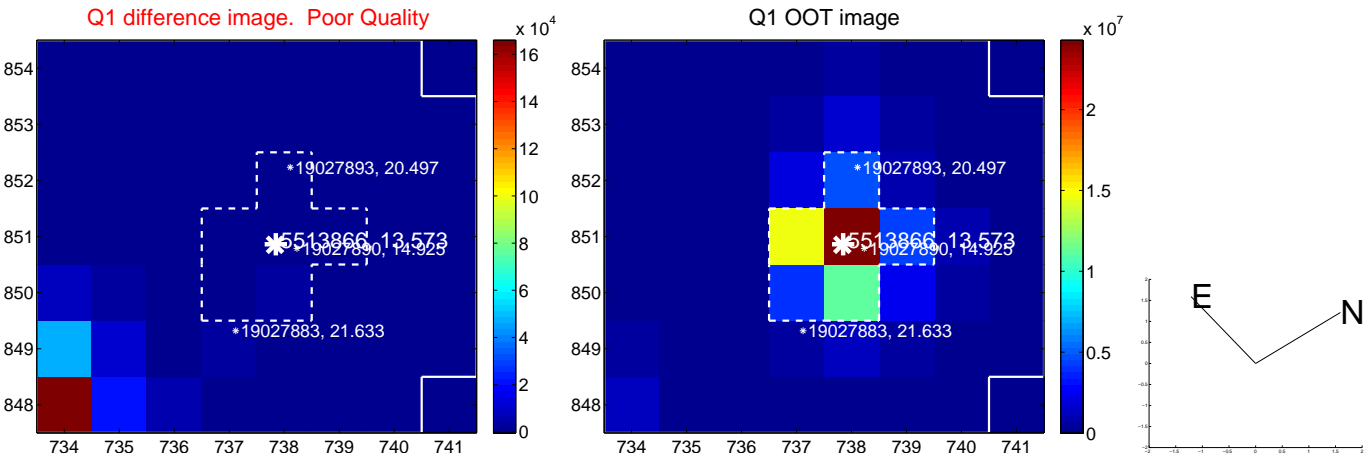
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>20.526 <math>\pm</math> 1.416</b>	<b>14.50</b>	1.489 $\pm$ 0.468	-20.471 $\pm$ 1.401
PRF-fit source offset from KIC position	<b>20.405 <math>\pm</math> 1.426</b>	<b>14.31</b>	1.422 $\pm$ 0.507	-20.356 $\pm$ 1.408
photometric centroid source offset	<b>10.29 <math>\pm</math> 1.10</b>	<b>9.39</b>	-7.86 $\pm$ 1.09	-6.65 $\pm$ 1.11

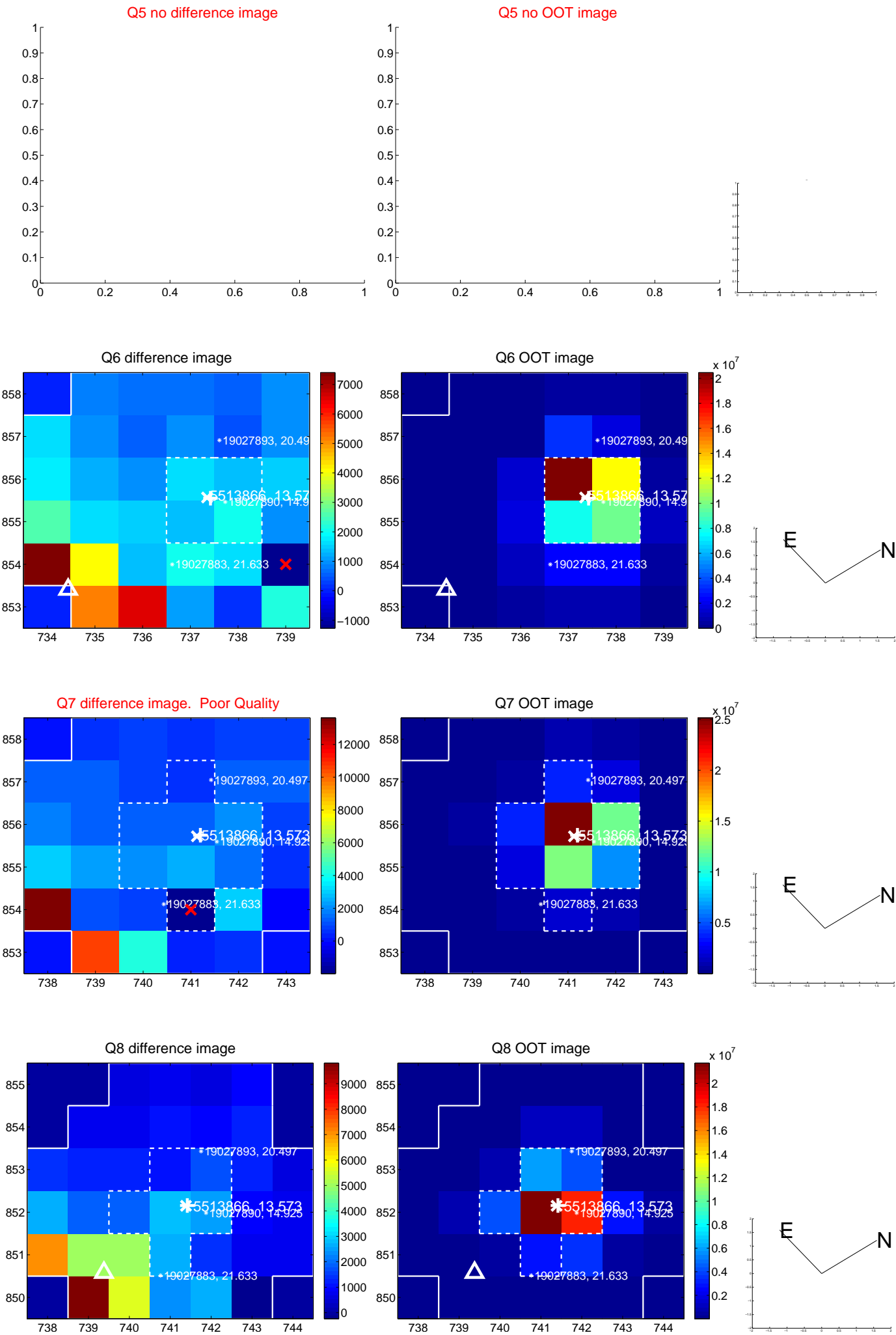


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

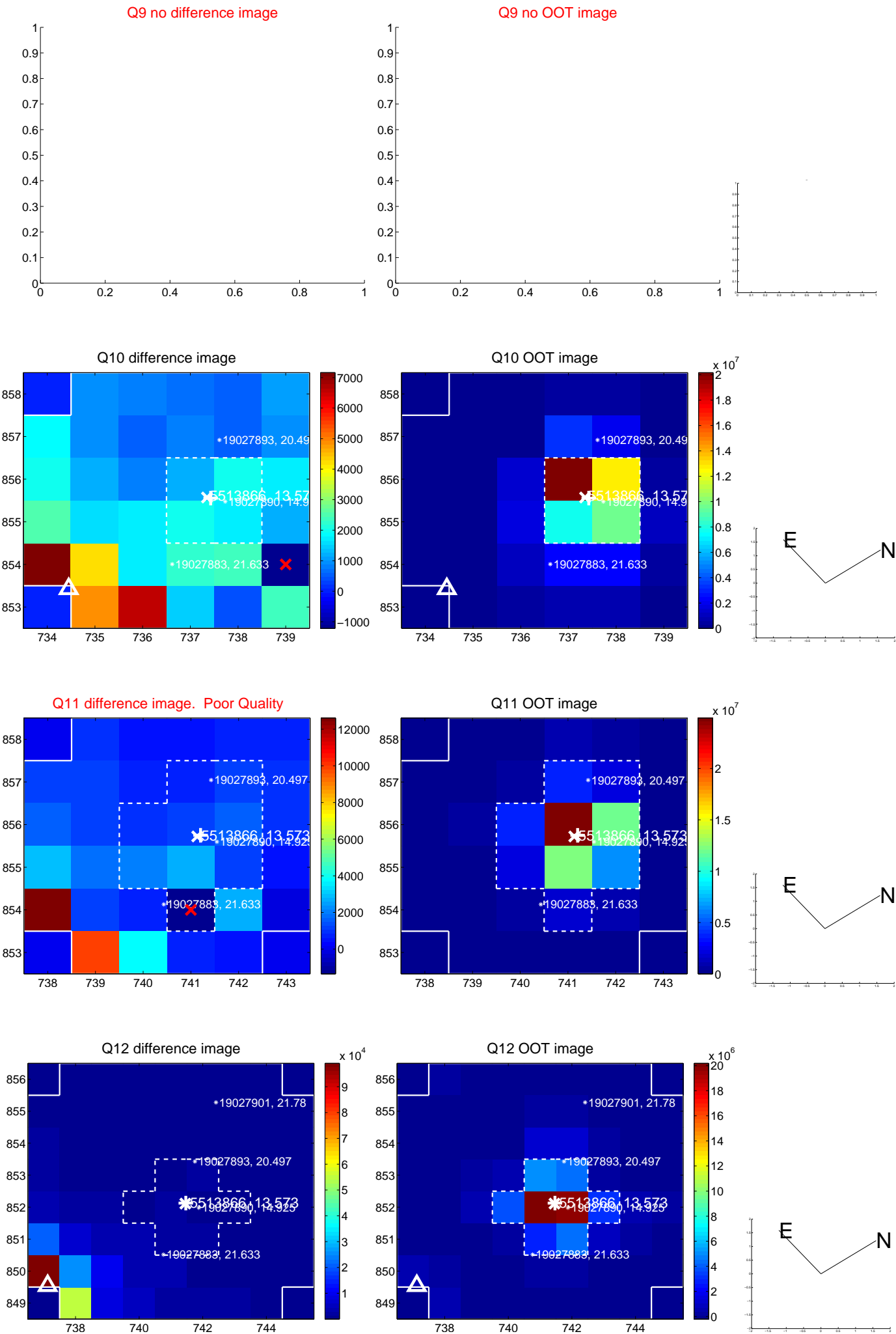


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

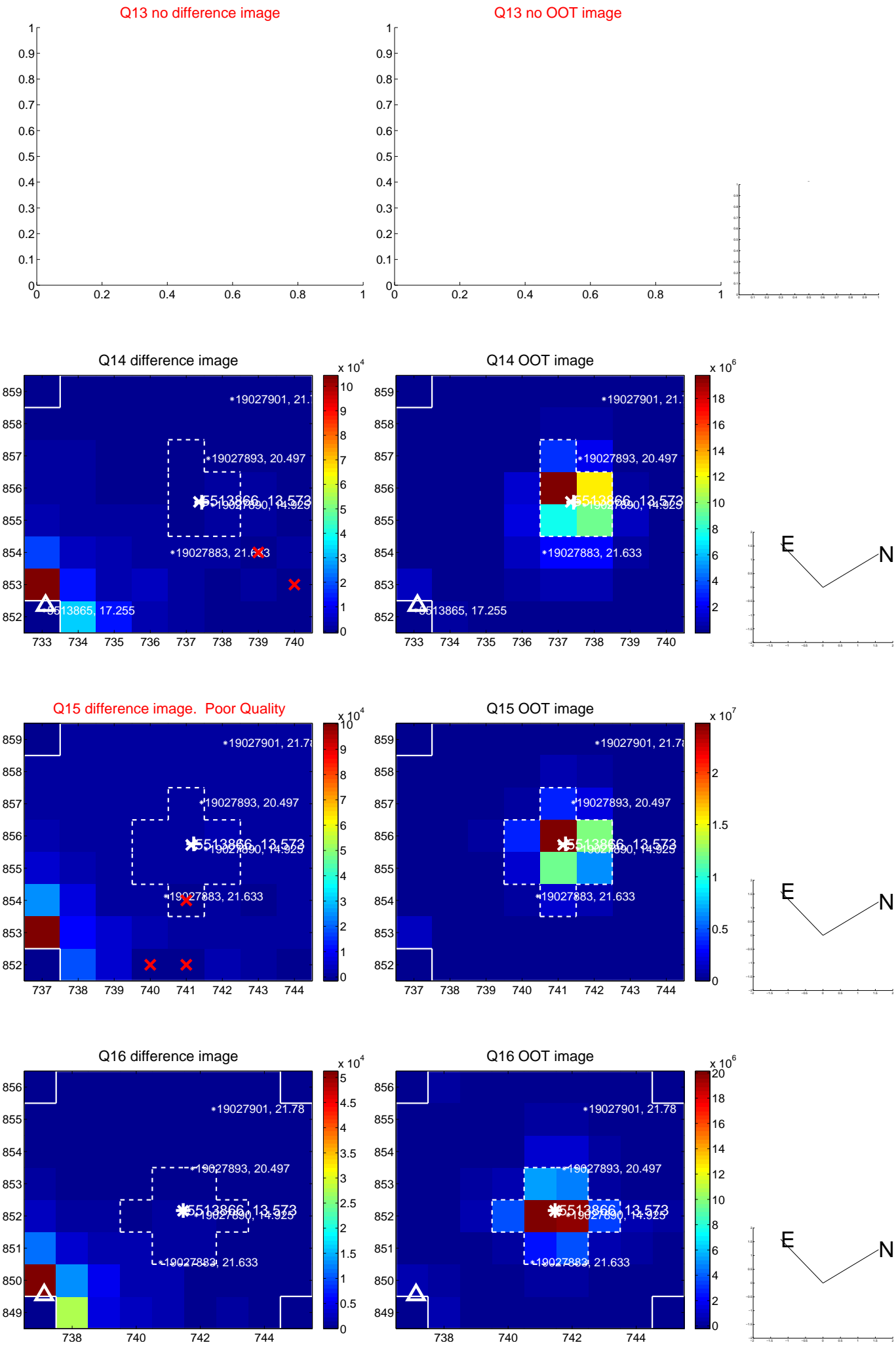




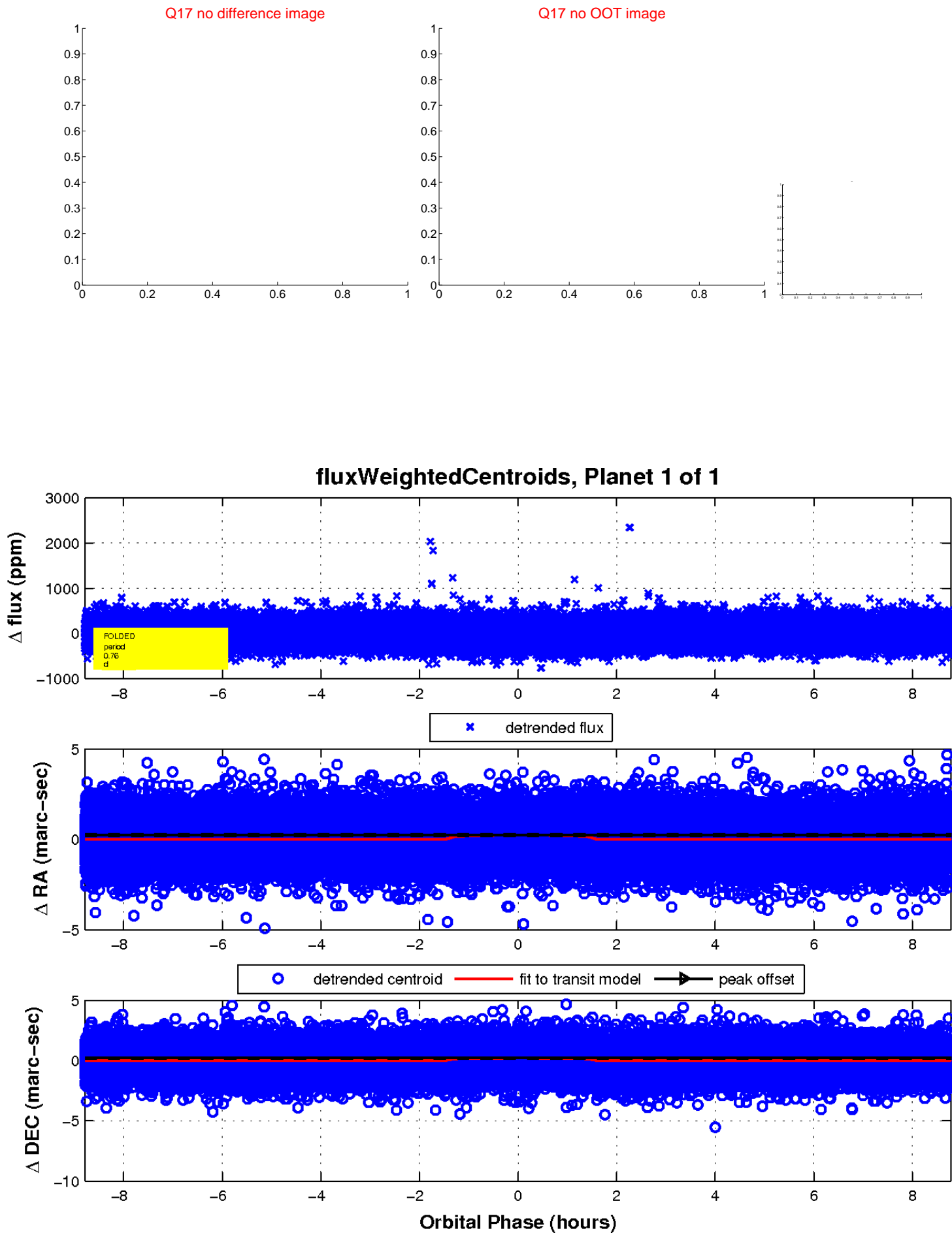
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

