

# KIC 008873455

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008873455-01	OBS	No	434.092381	486.464514	493.3	5.462	7.9	5.5	1.05	6033	2.71	0.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008873455-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

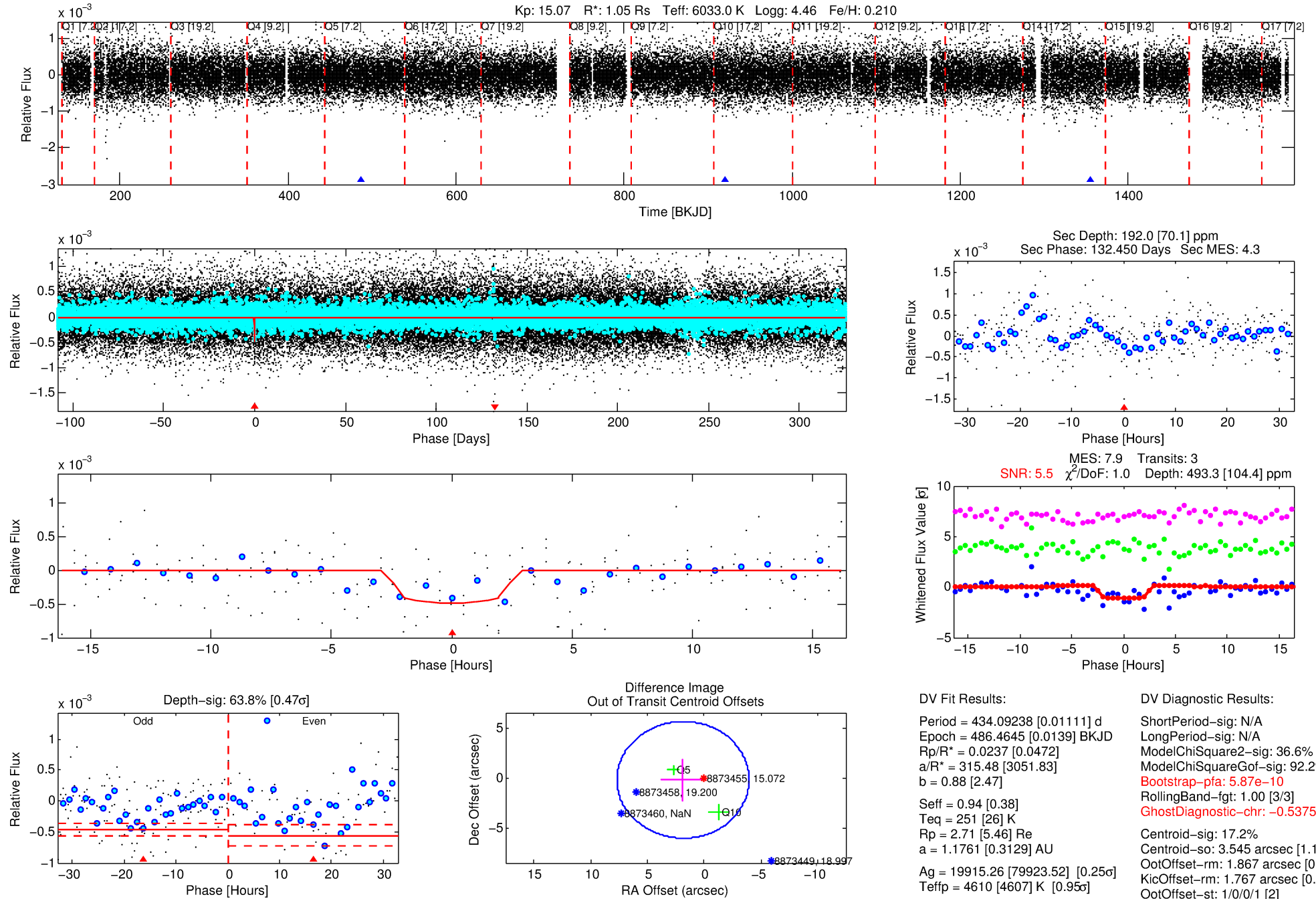
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008873455-01

No Significant Match Found

# DV One-Page Summary

KIC: 8873455 Candidate: 1 of 1 Period: 434.092 d



## DV Fit Results:

Period = 434.09238 [0.01111] d  
Epoch = 486.4645 [0.0139] BKJD  
Rp/R\* = 0.0237 [0.0472]  
a/R\* = 315.48 [3051.83]  
b = 0.88 [2.47]  
Seff = 0.94 [0.38]  
Teq = 251 [26] K  
Rp = 2.71 [5.46] Re  
a = 1.1761 [0.3129] AU  
Ag = 19915.26 [79923.52] [0.25 $\sigma$ ]  
Teff = 4610 [4607] K [0.95 $\sigma$ ]

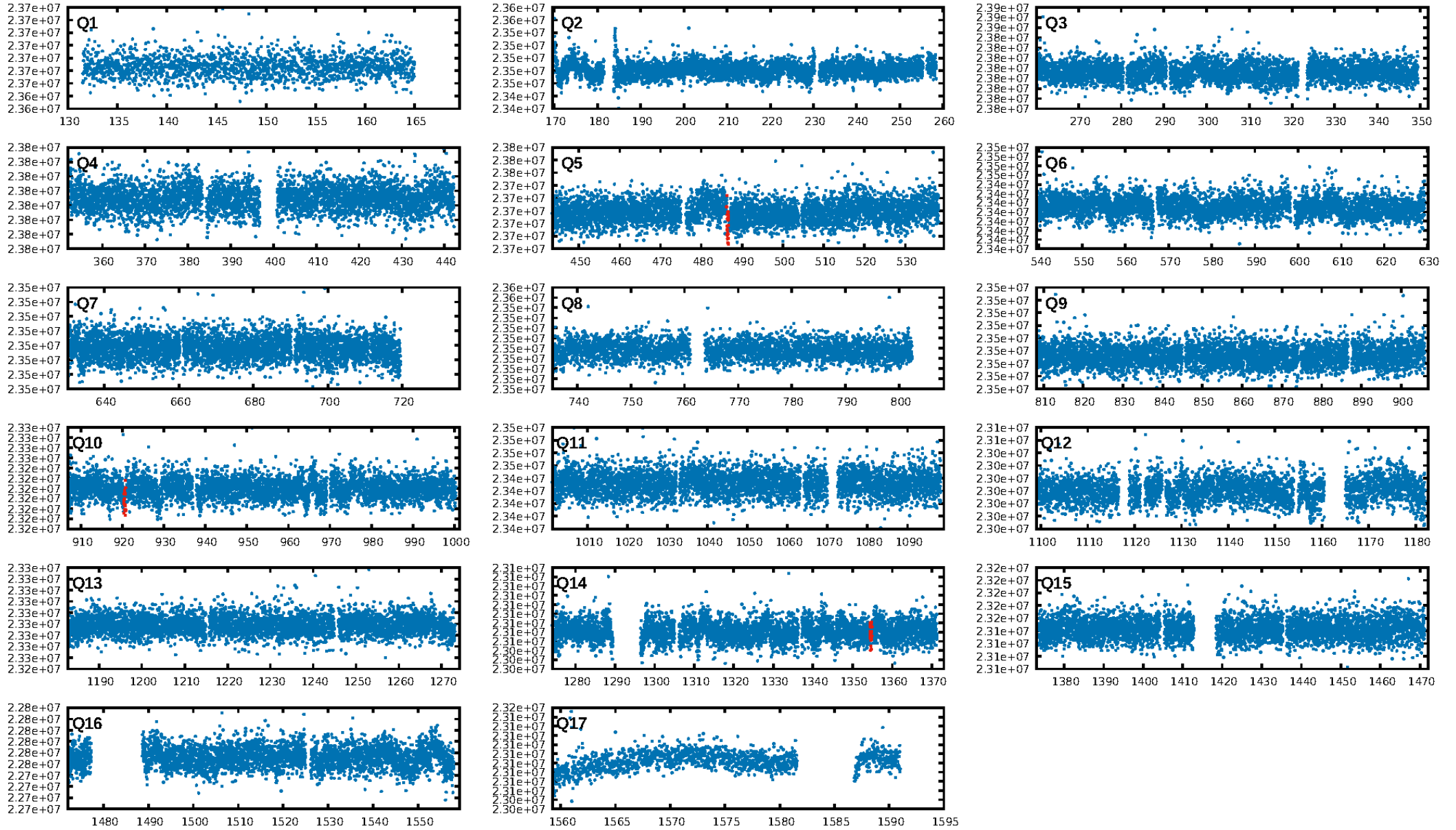
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 36.6%  
ModelChiSquareGof-sig: 92.2%  
**Bootstrap-pfa: 5.87e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -0.5375**  
Centroid-sig: 17.2%  
Centroid-so: 3.545 arcsec [1.19 $\sigma$ ]  
OotOffset-rm: 1.867 arcsec [0.96 $\sigma$ ]  
KicOffset-rm: 1.767 arcsec [0.90 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

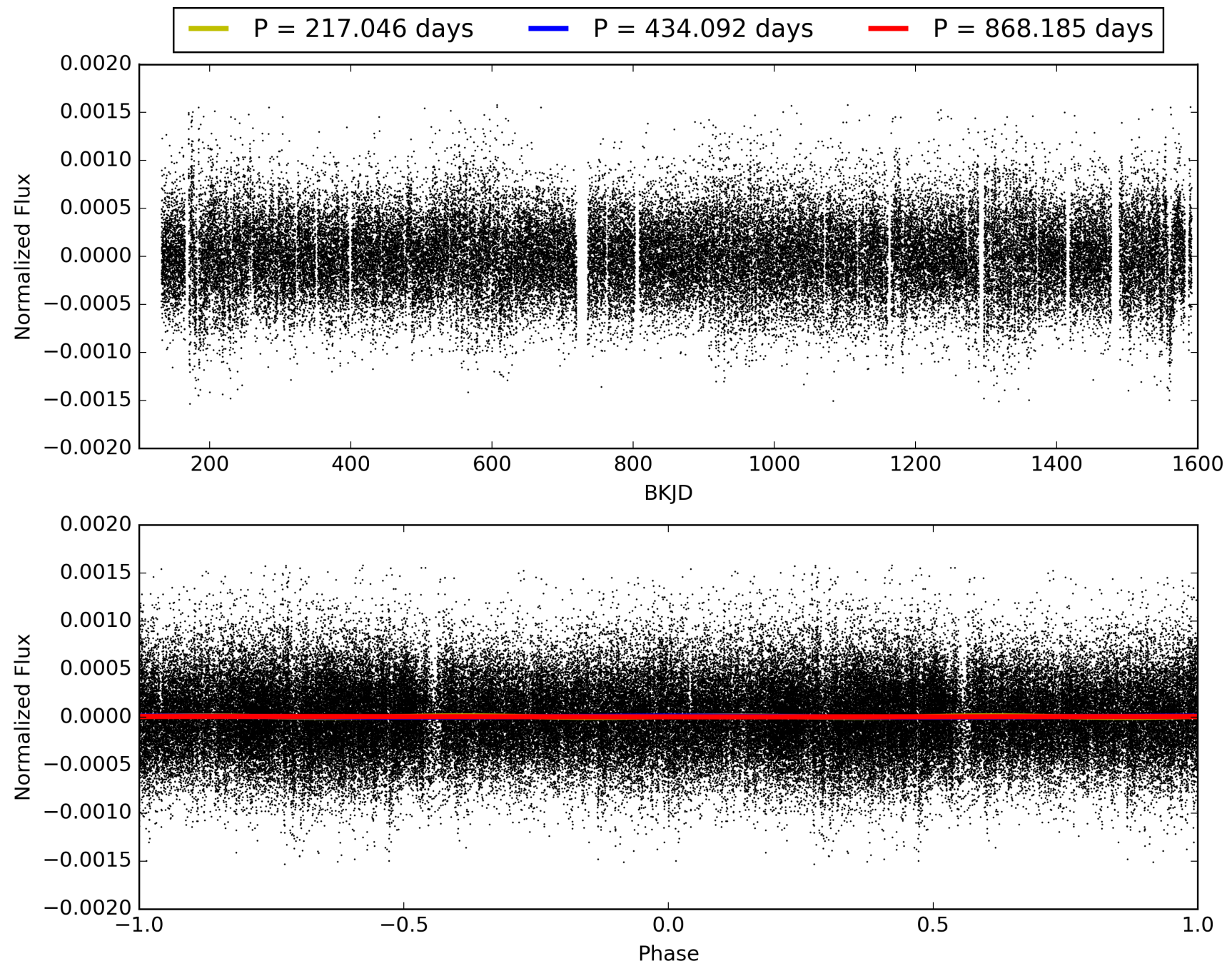
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:20:27 Z

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

# TCE 008873455-01, PDC Light Curves

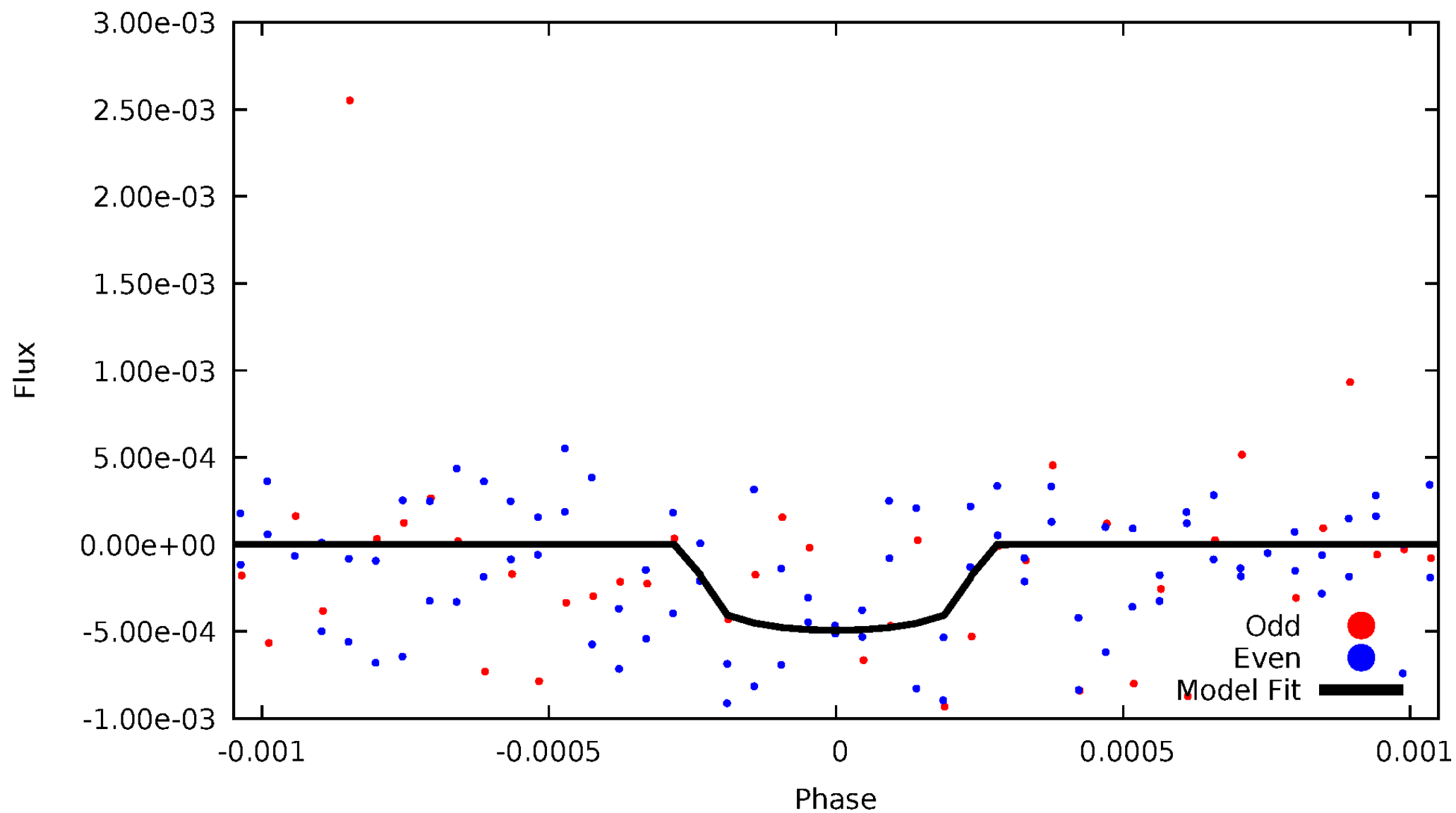


TCE 008873455-01



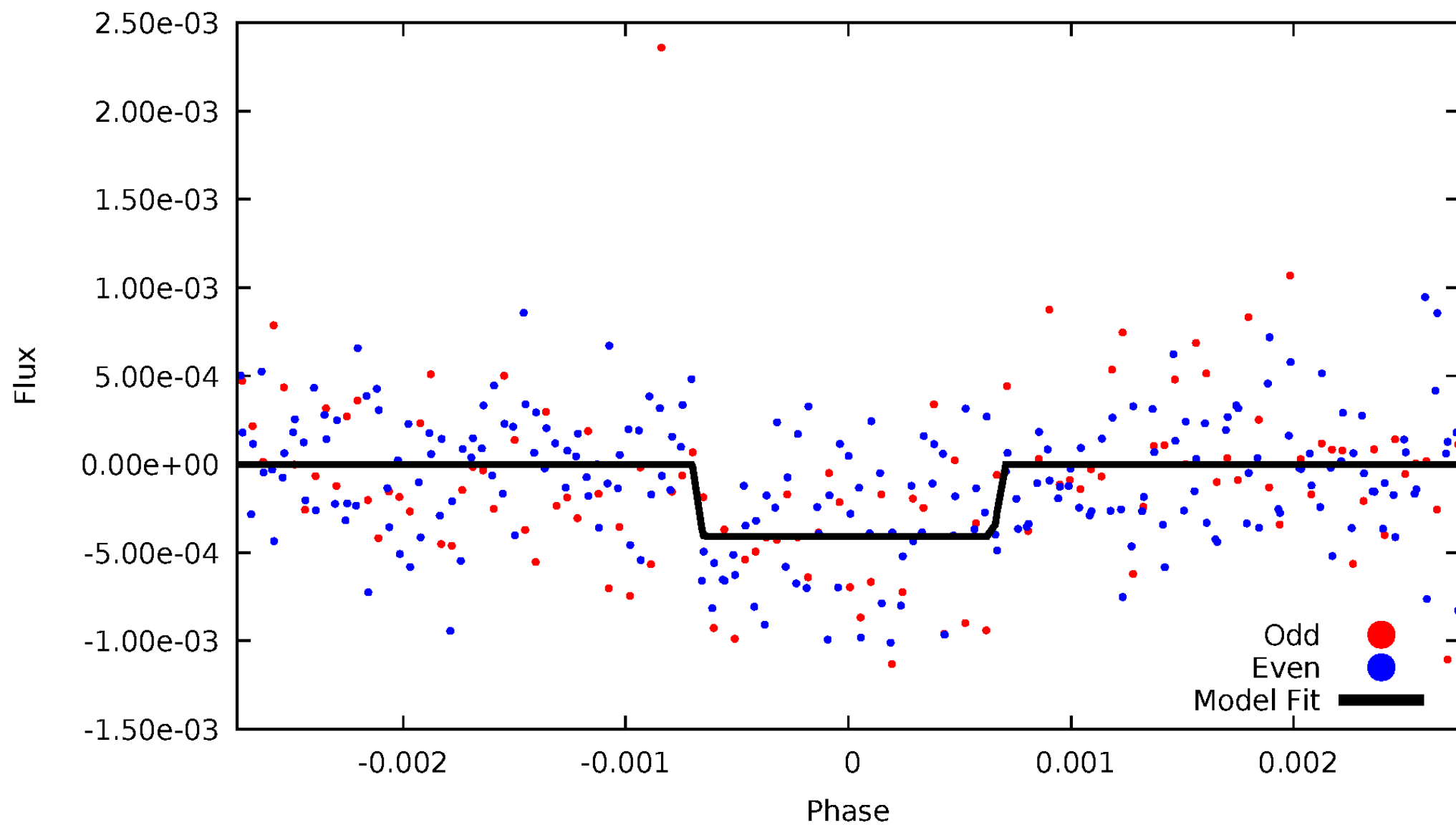
# DV Odd/Even

TCE 008873455-01



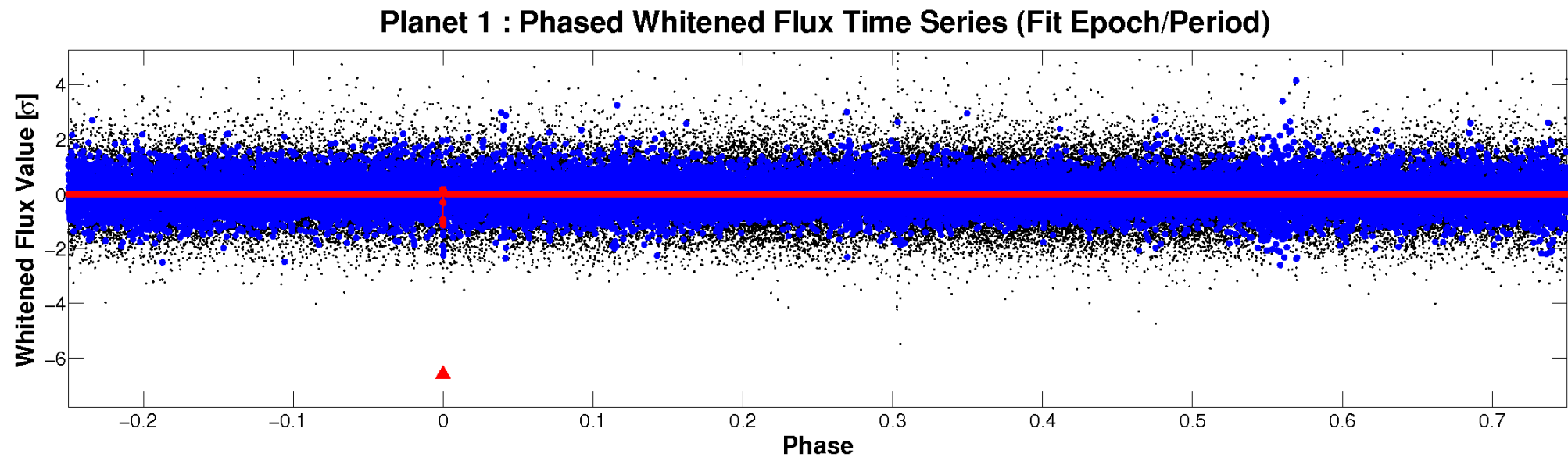
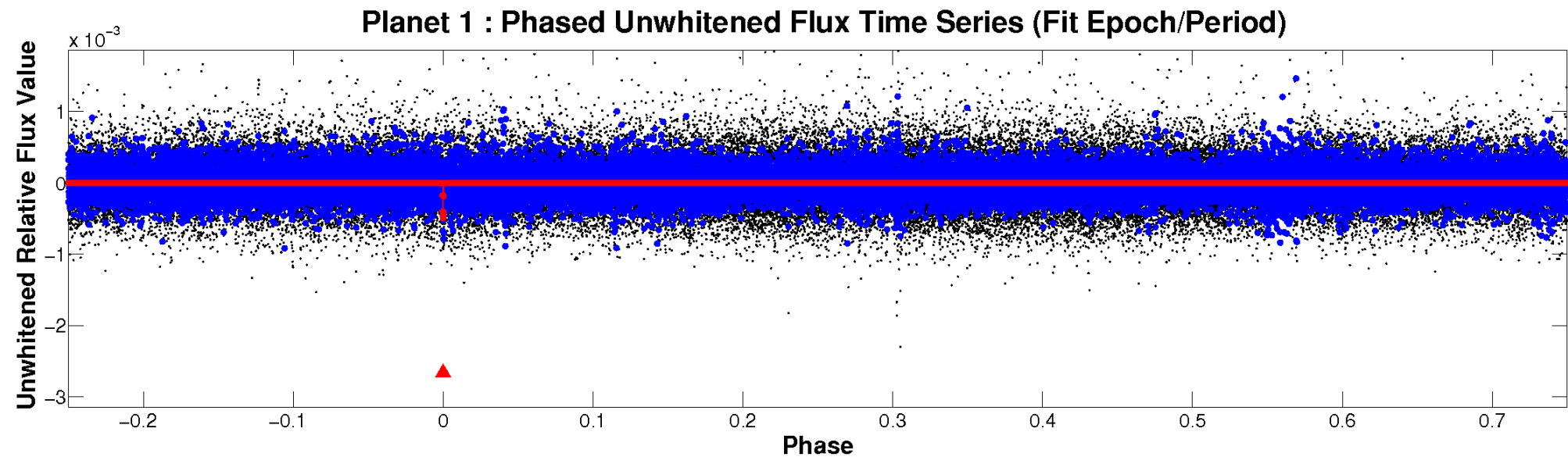
# ALT Odd/Even

TCE 008873455-01



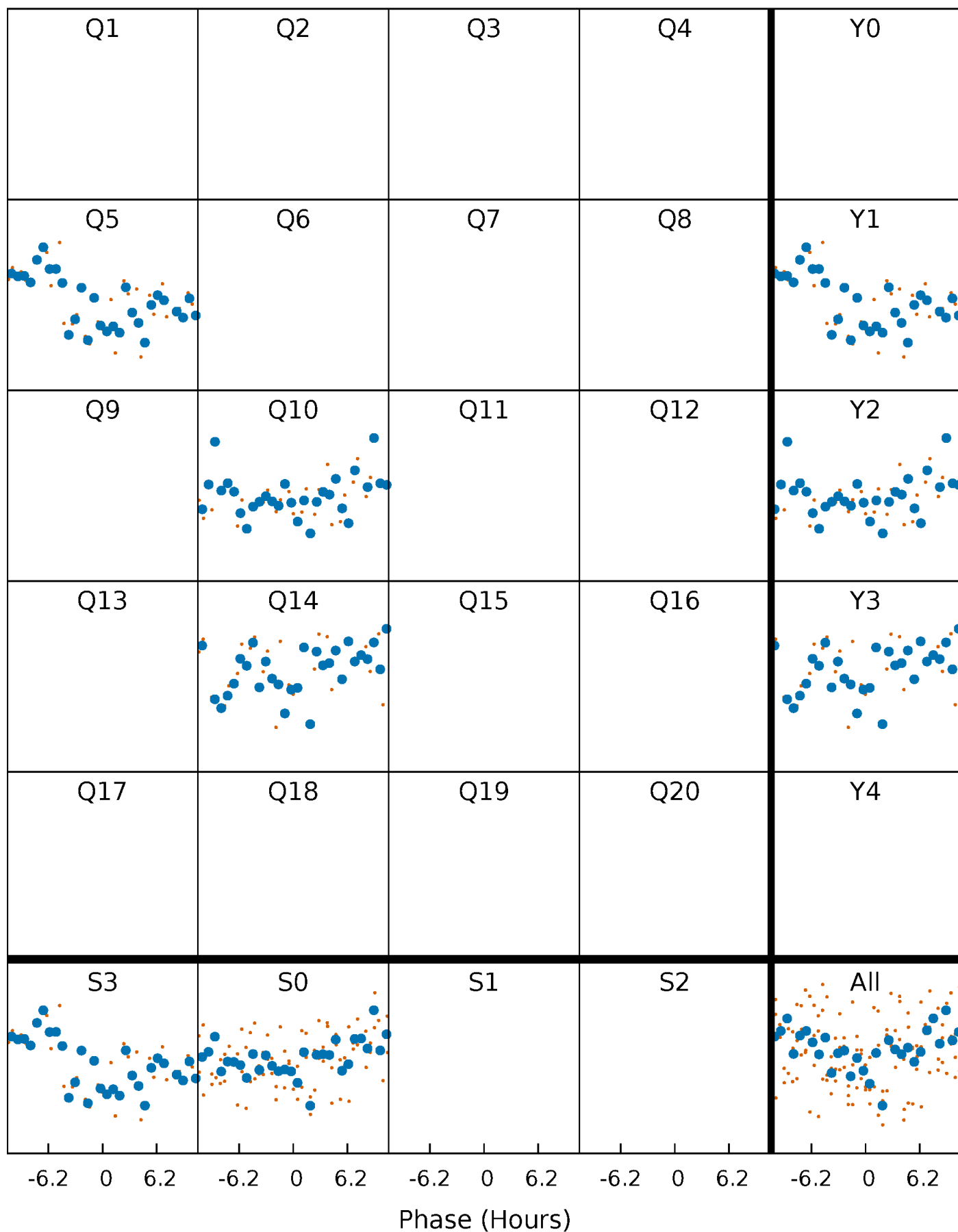


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

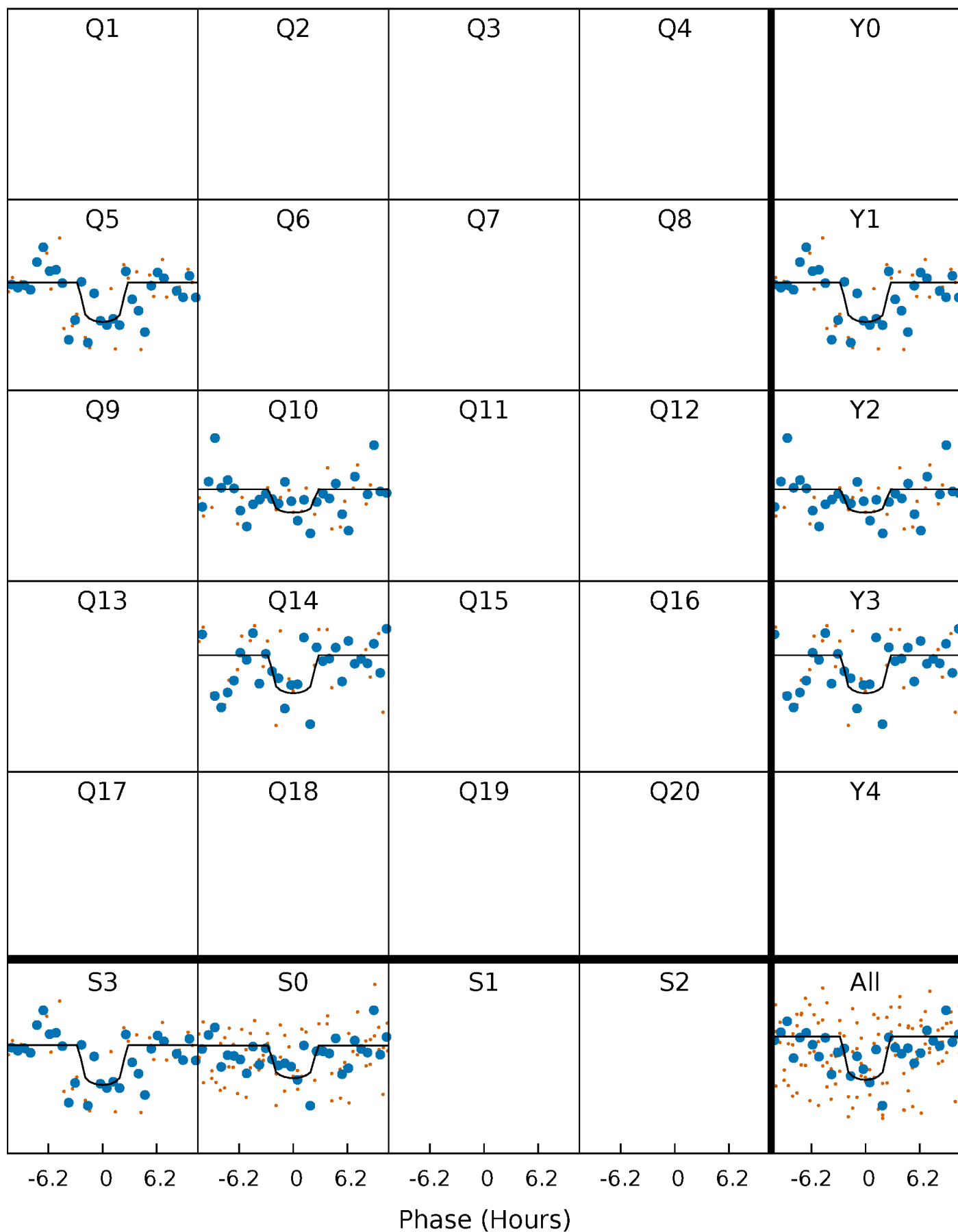
TCE 008873455-01 P=434.092381 Days  $T_0=486.464514$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008873455-01 P=434.092381 Days  $T_0=486.464514$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

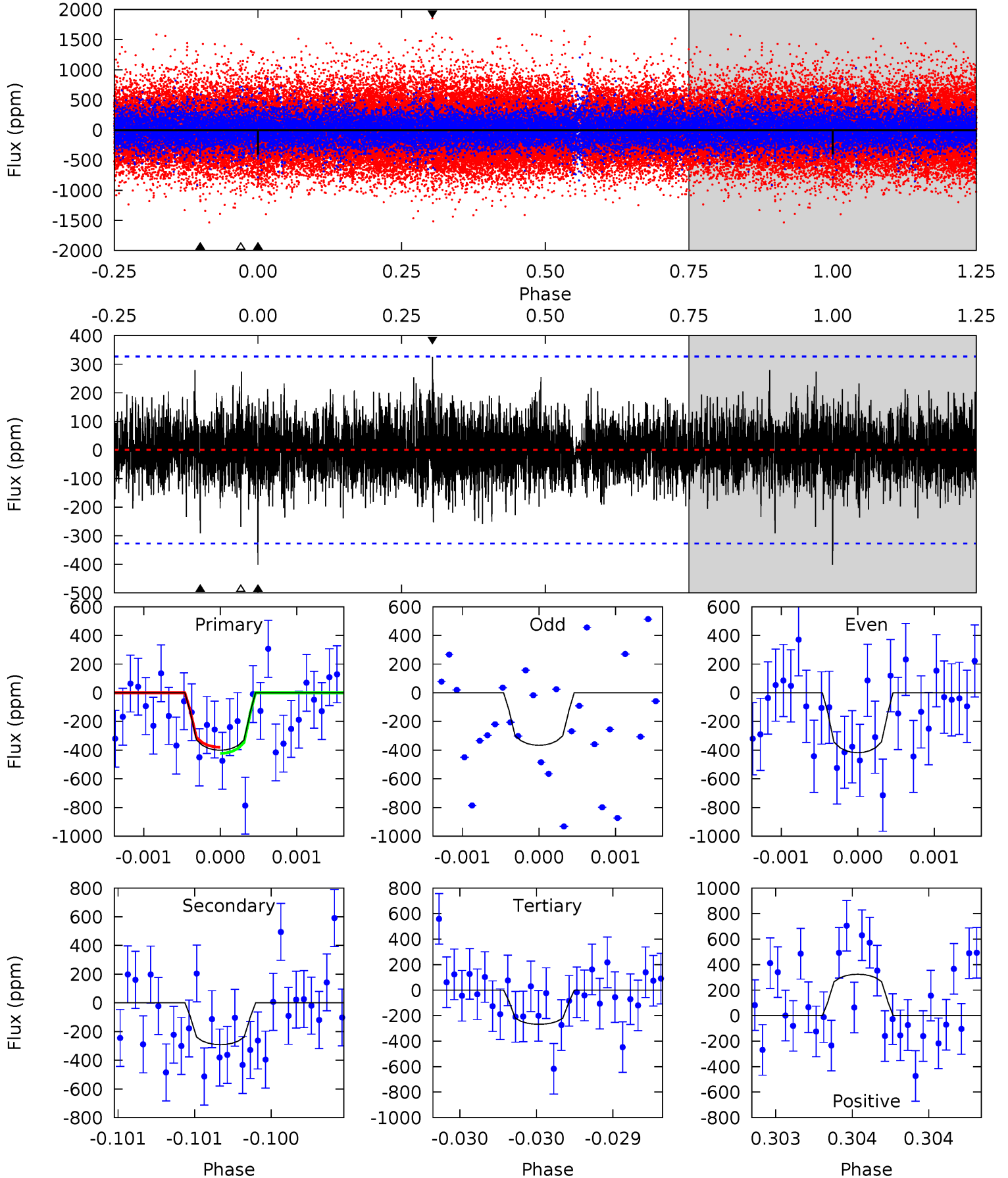
TCE 008873455-01 P=433.988381 Days  $T_0=486.565672$  (BKJD)



# DV Model-Shift Uniqueness Test

008873455-01, P = 434.092381 Days, E = 52.372133 Days

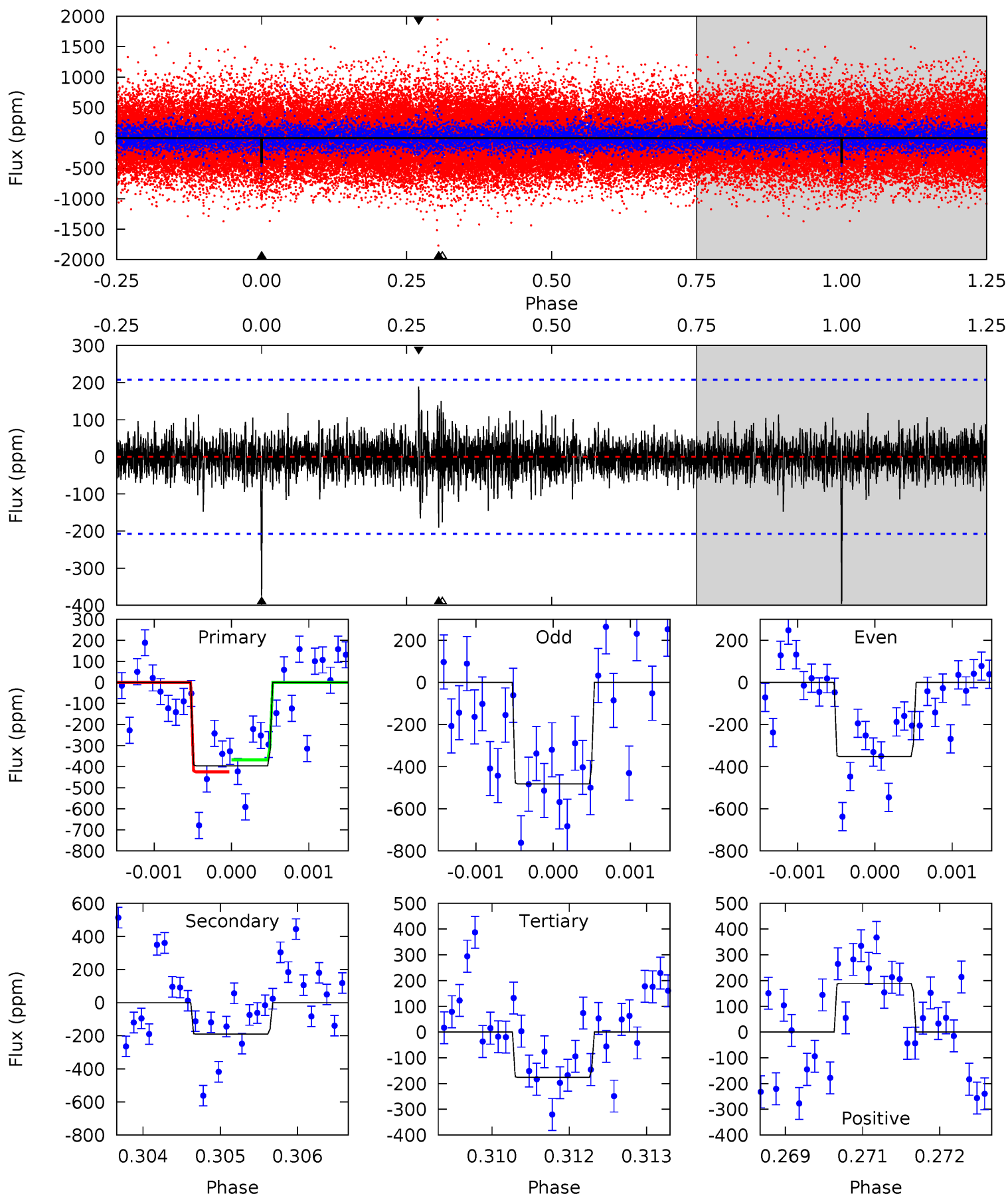
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.79	4.93	4.54	5.50	5.54	3.43	1.18	2.25	1.29	0.39	-0.57	0.41	1.09	0.45	0.36



# Alt Model-Shift Uniqueness Test

008873455-01, P = 433.988381 Days, E = 52.577291 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
10.3	4.95	4.58	4.91	5.40	3.21	0.93	5.72	5.39	0.37	0.04	1.60	0.85	0.32	0.75



### Stellar Parameters For KIC 008873455

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6033^{+169}_{-211}$	$4.460^{+0.052}_{-0.208}$	$0.210^{+0.200}_{-0.300}$	$1.046^{+0.334}_{-0.111}$	$1.153^{+0.125}_{-0.166}$	$1.418^{+0.383}_{-0.755}$
	+3%/-3%	+1%/-5%	+95%/-143%	+32%/-11%	+11%/-14%	+27%/-53%
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 008873455-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-291 \pm 59$	$4.89^{+5.02}_{-3.28}$	$359^{+24}_{-17}$	$4145^{+2512}_{-866}$	$9026^{+73161}_{-6889}$
Alt.	$-190 \pm 38$	$4.51^{+5.08}_{-2.81}$	$357^{+26}_{-18}$	$3931^{+1966}_{-803}$	$6729^{+42672}_{-5246}$

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

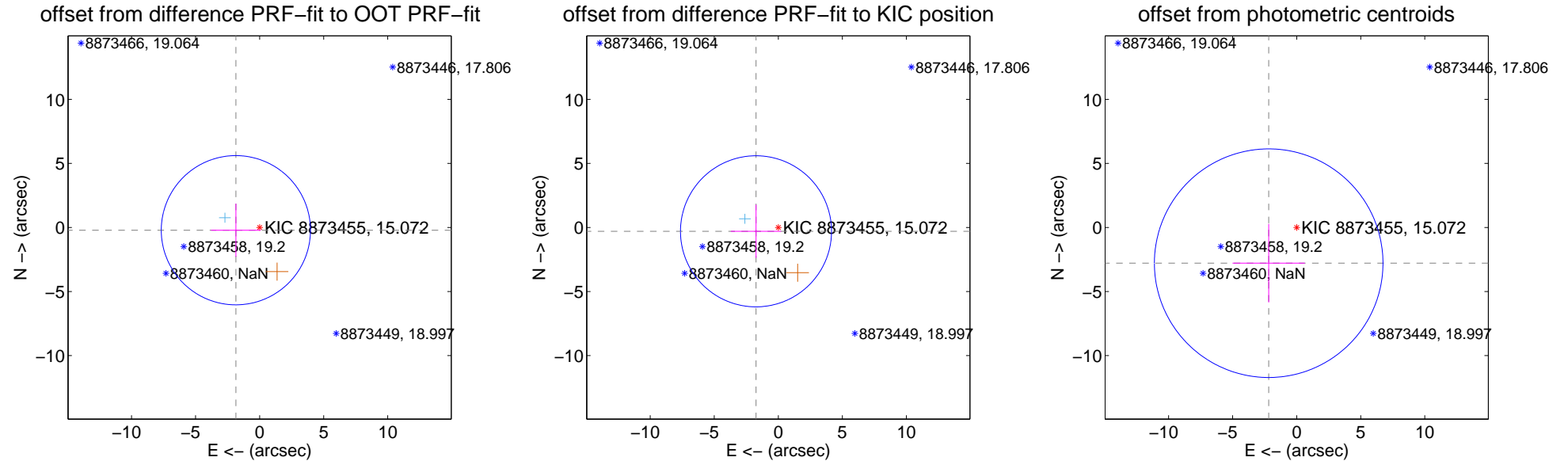
## DV Centroid Data

Supplemental centroid analysis for 008873455-01. Kepler magnitude: 15.07. Transit SNR 5.50

There are 1 quarters with good PRF difference image offsets

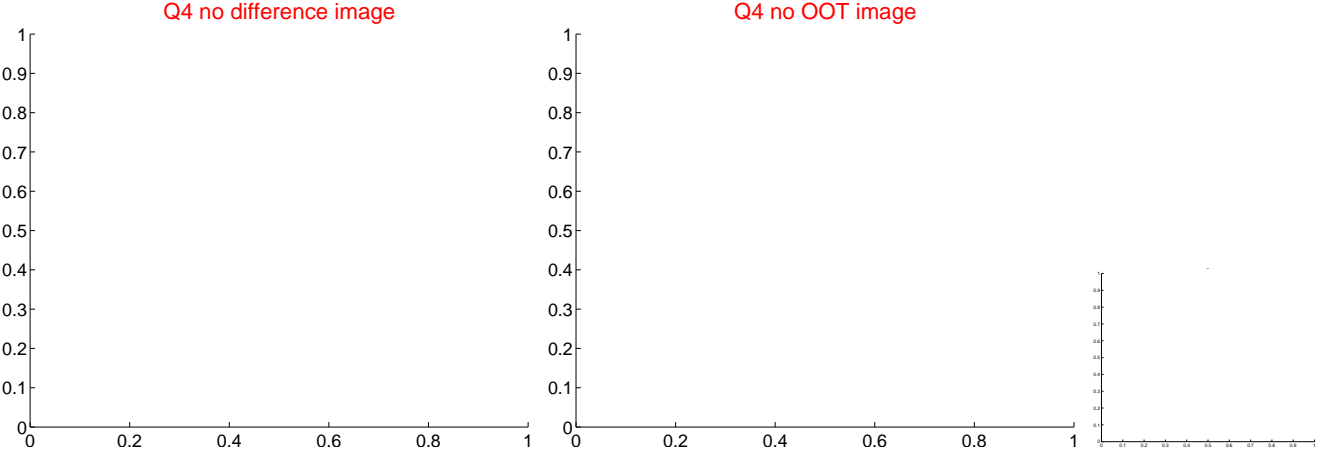
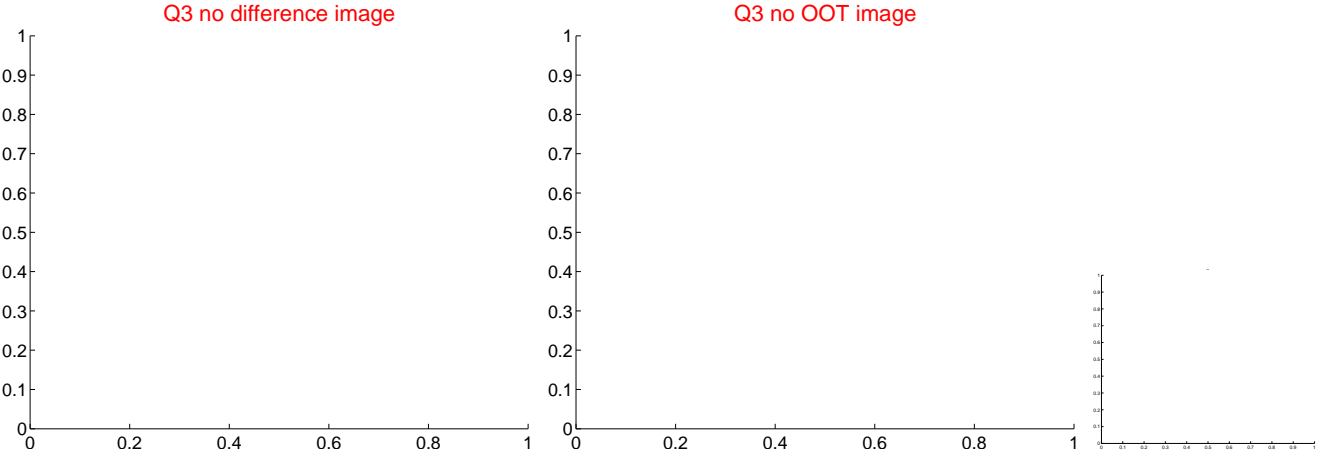
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.867 \pm 1.942$	0.96	$1.855 \pm 1.940$	$-0.216 \pm 2.077$
PRF-fit source offset from KIC position	$1.767 \pm 1.966$	0.90	$1.741 \pm 1.963$	$-0.300 \pm 2.076$
photometric centroid source offset	$3.54 \pm 2.97$	1.19	$2.19 \pm 2.82$	$-2.79 \pm 3.07$



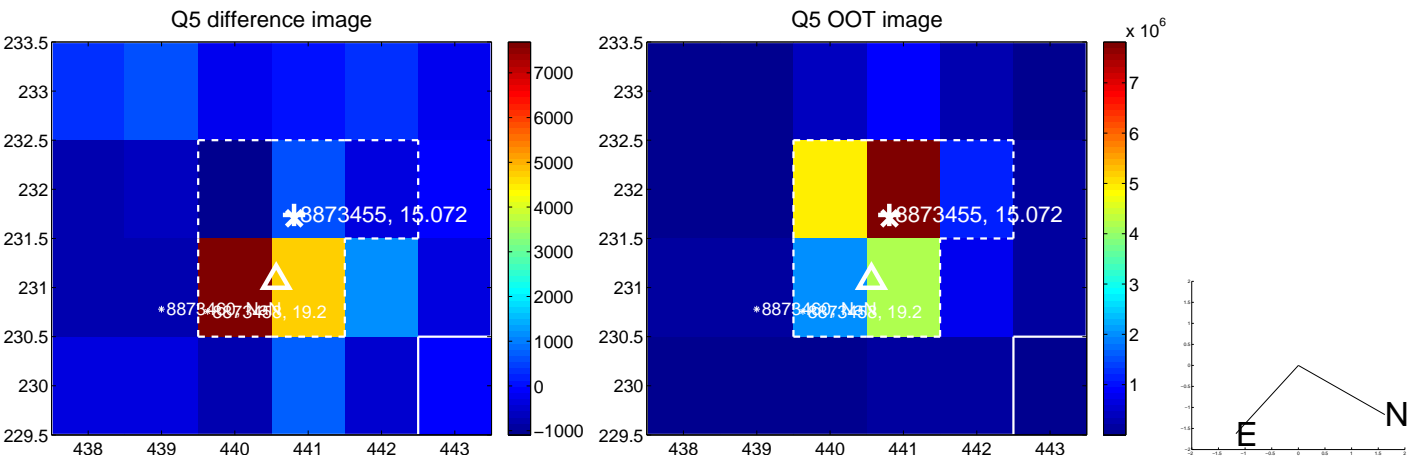
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

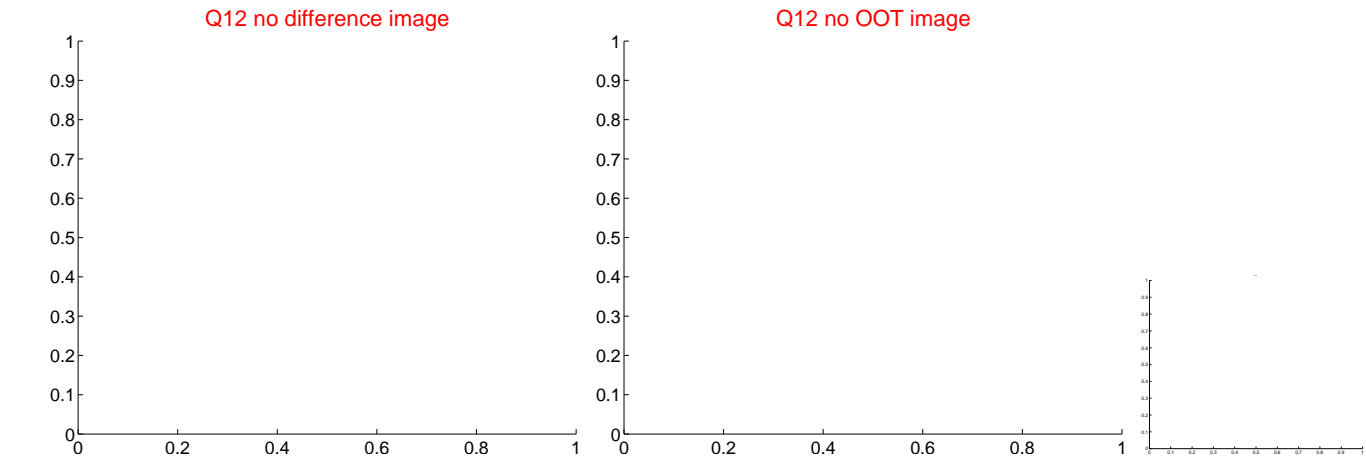
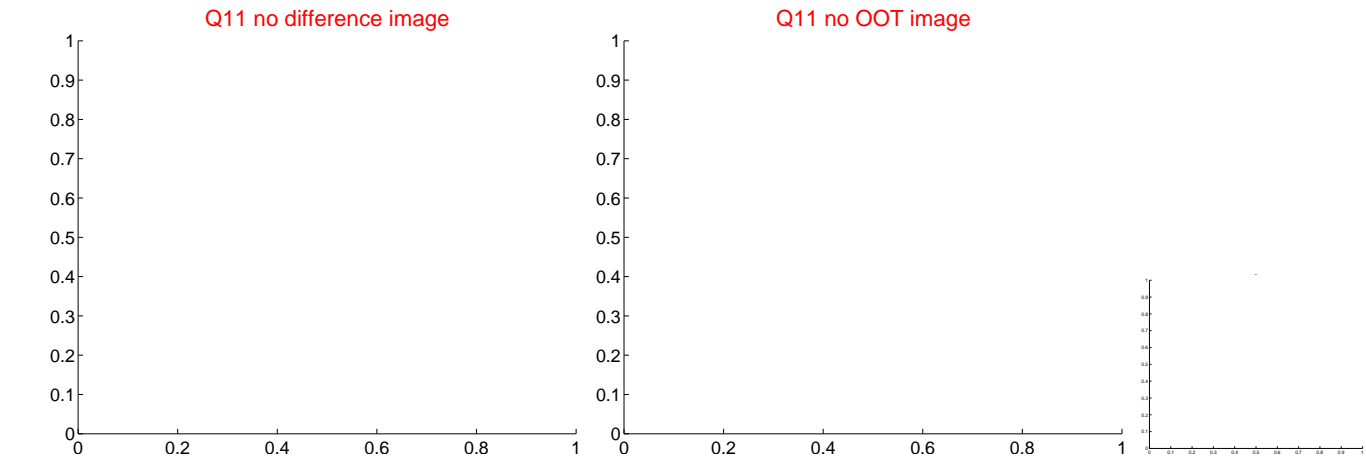
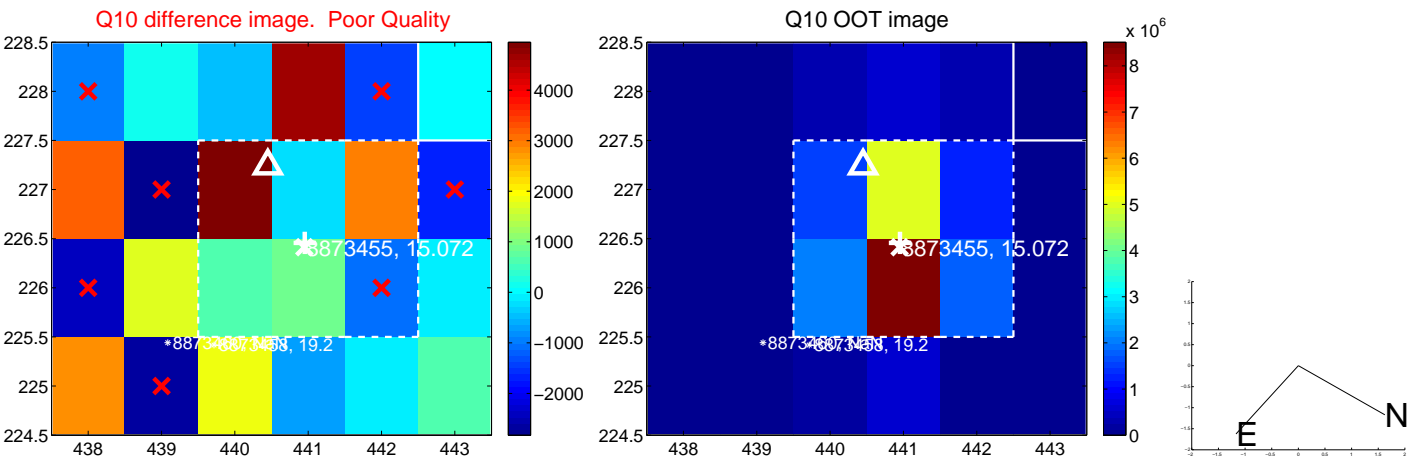
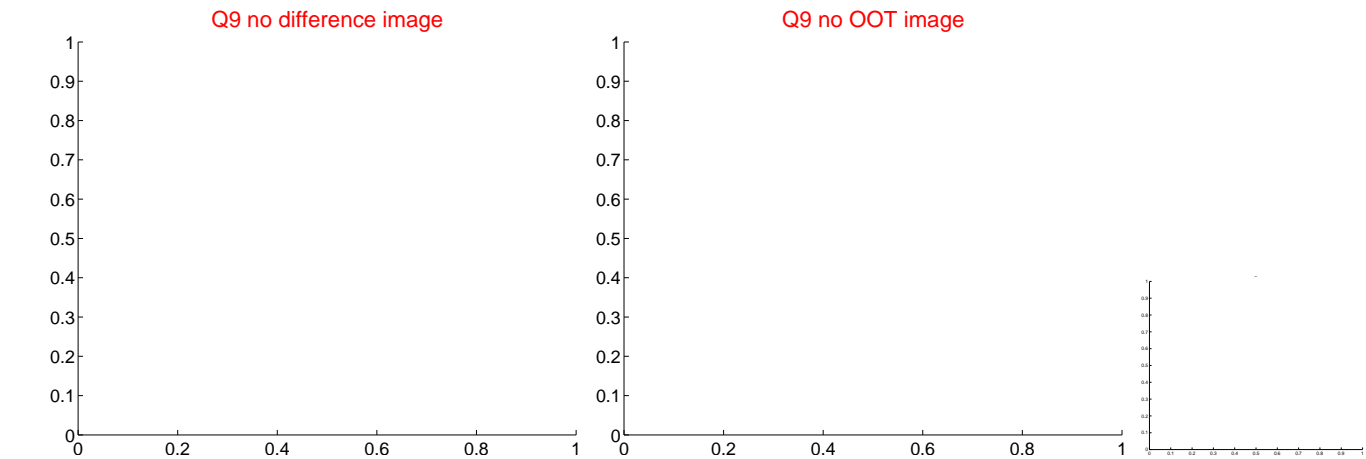




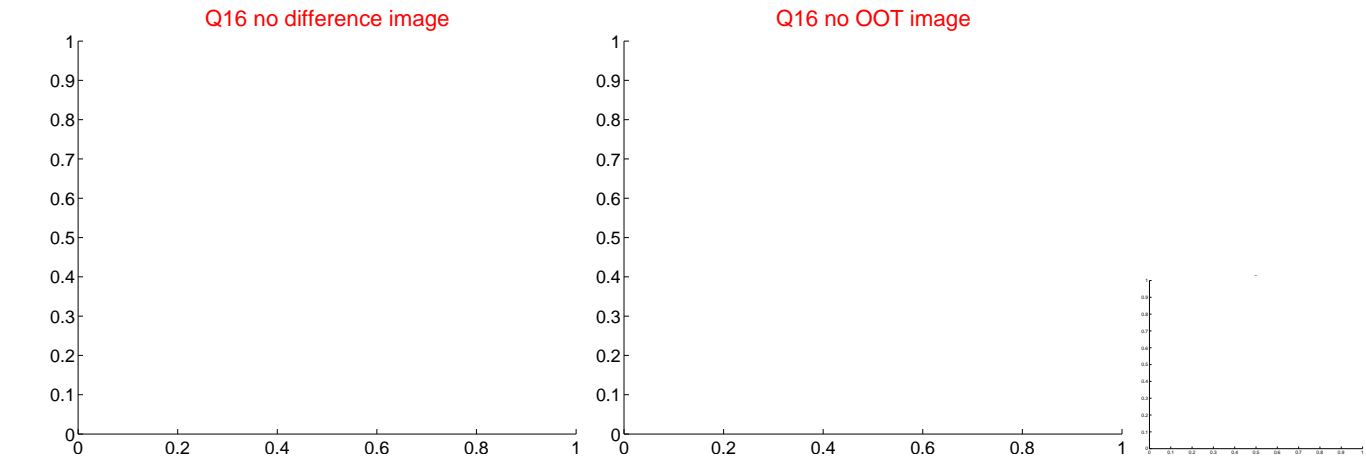
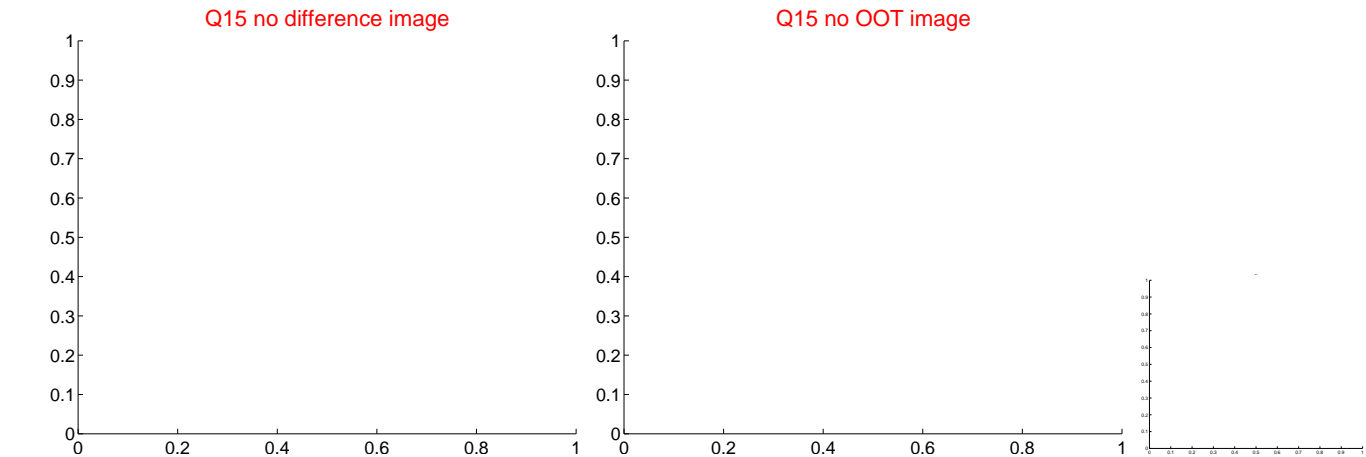
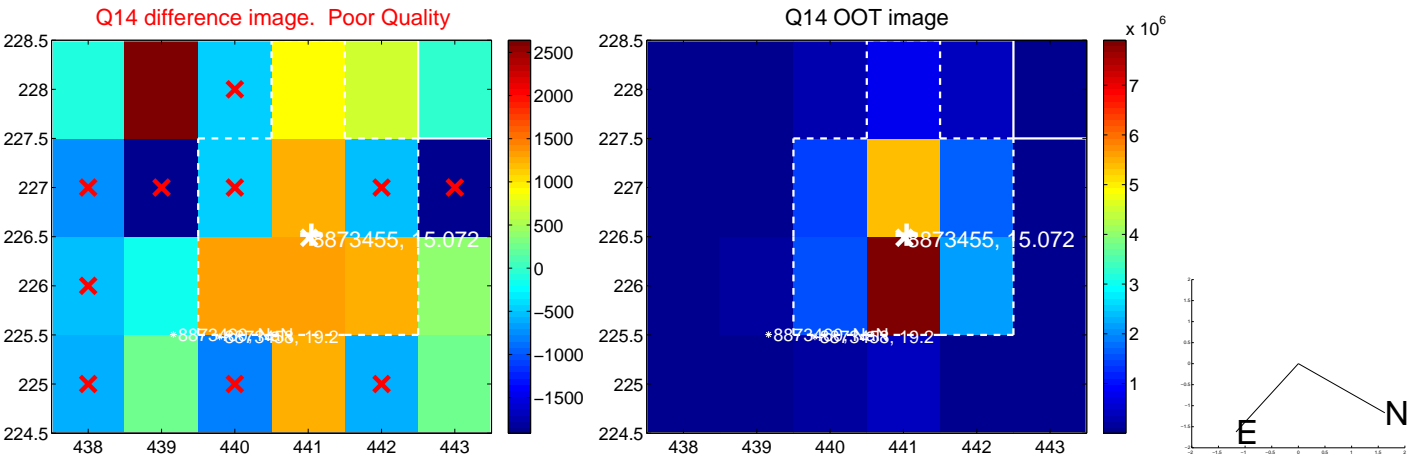
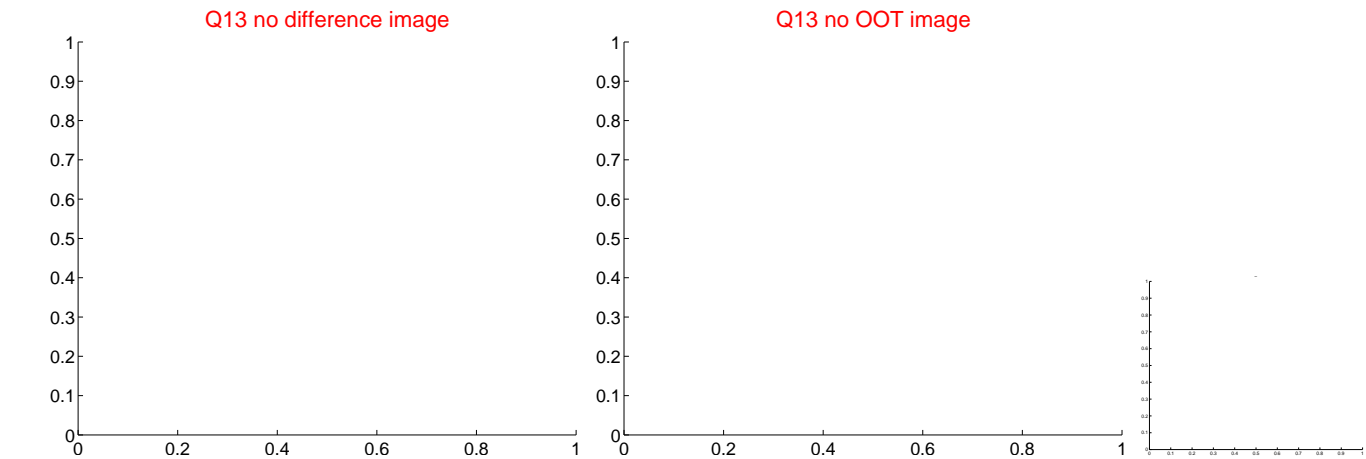
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



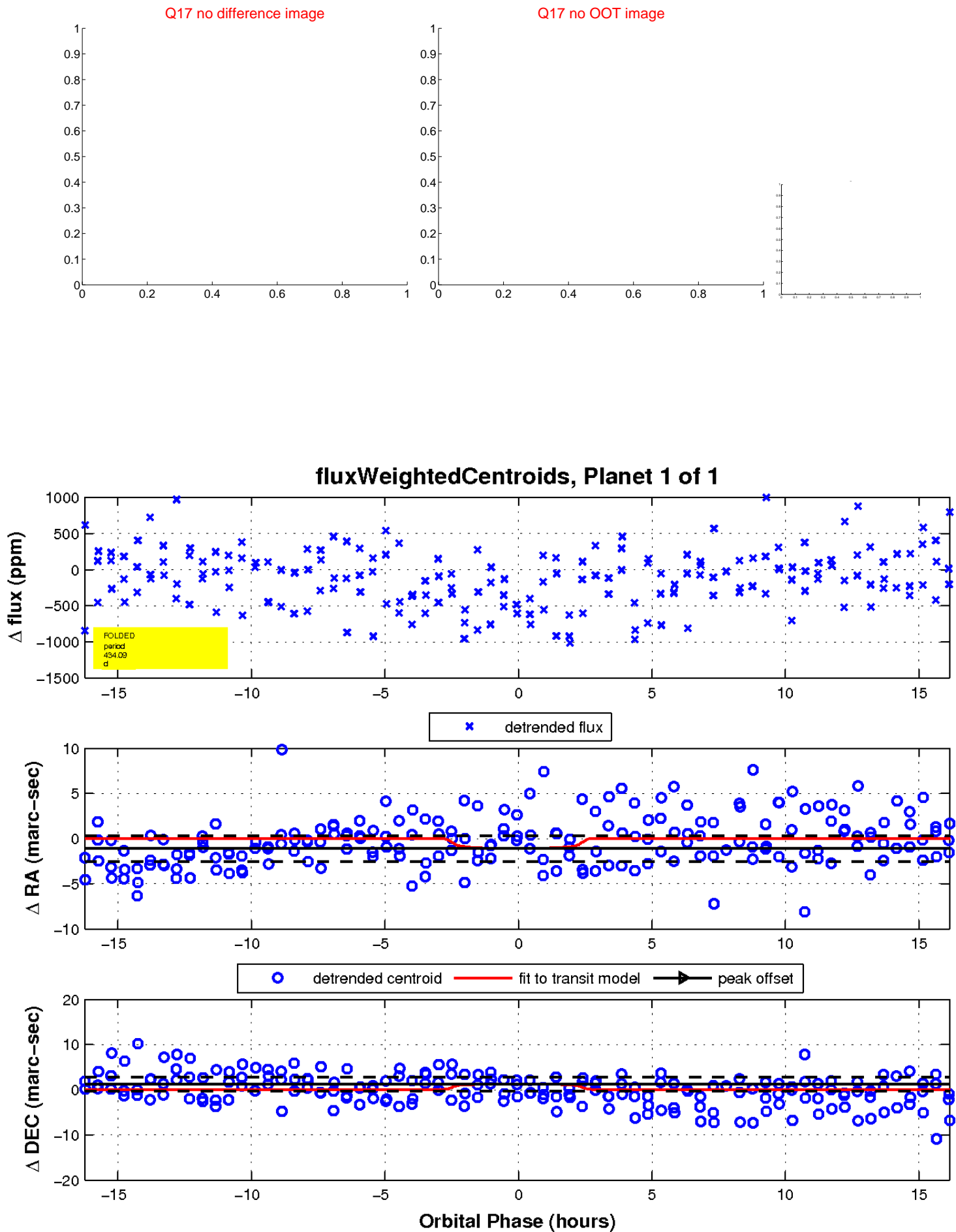
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



# UKIRT Image

Declination

