

# KIC 005646300

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005646300-01	OBS	No	0.506170	131.735351	88.1	2.571	8.0	10.4	0.54	4280	0.61	849.85

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005646300-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

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

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

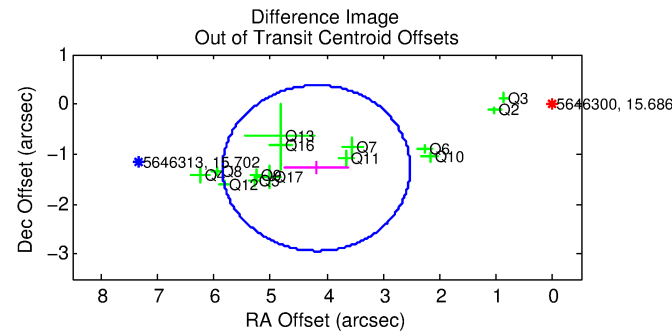
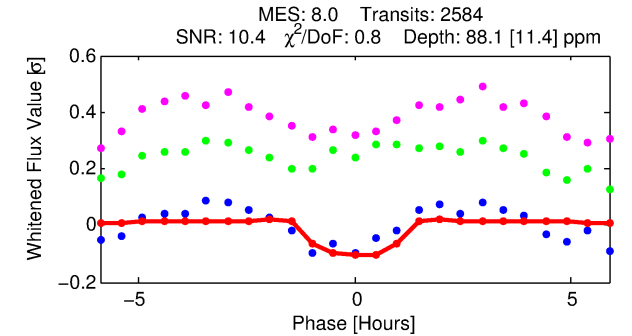
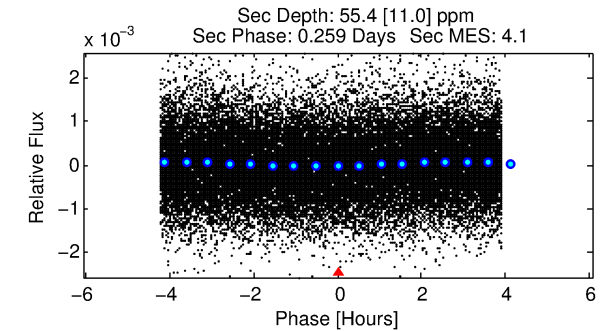
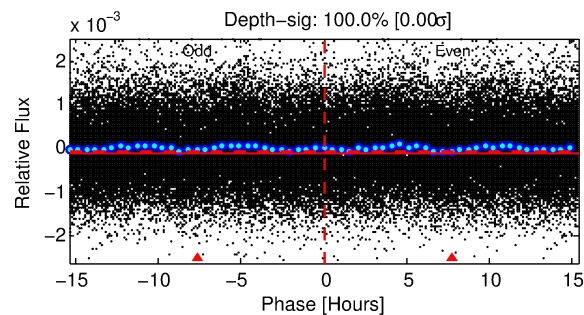
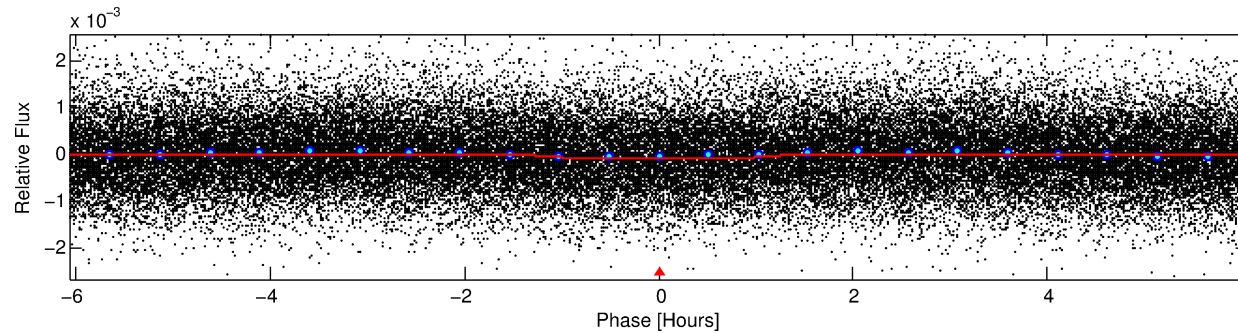
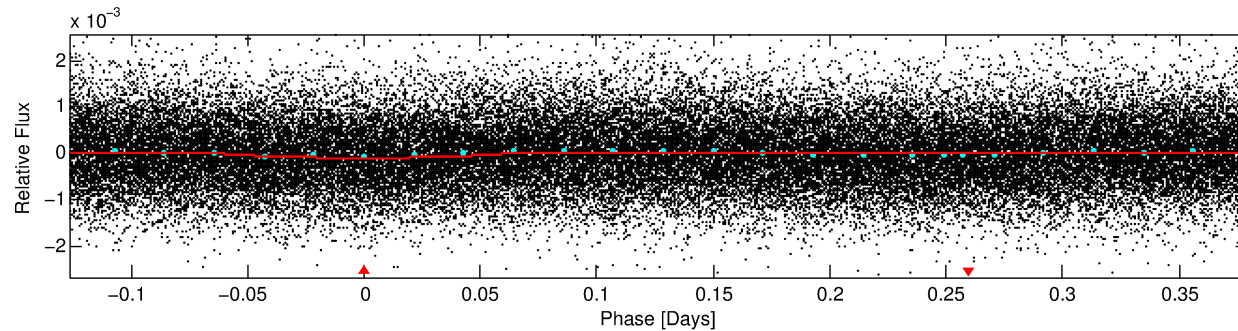
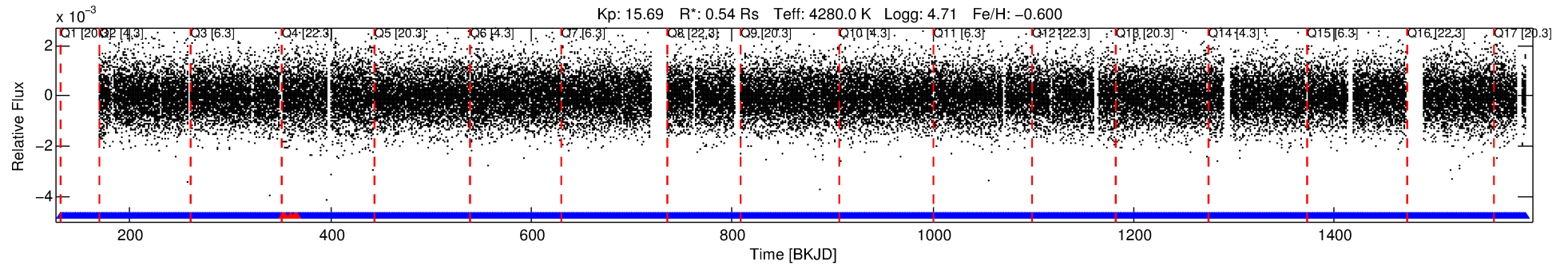
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005646300-01

No Significant Match Found

# DV One-Page Summary

KIC: 5646300 Candidate: 1 of 1 Period: 0.506 d



## DV Fit Results:

Period = 0.50617 [0.00001] d  
Epoch = 131.7354 [0.0027] BKJD  
Rp/R\* = 0.0104 [0.0080]  
a/R\* = 1.17 [1.07]  
b = 0.90 [0.74]  
Seff = 849.85 [137.74]  
Teq = 1377 [56] K  
Rp = 0.61 [0.48] Re  
a = 0.0102 [0.0008] AU  
Ag = 8.45 [13.13] [0.57 $\sigma$ ]  
Teffp = 3629 [1412] K [1.59 $\sigma$ ]

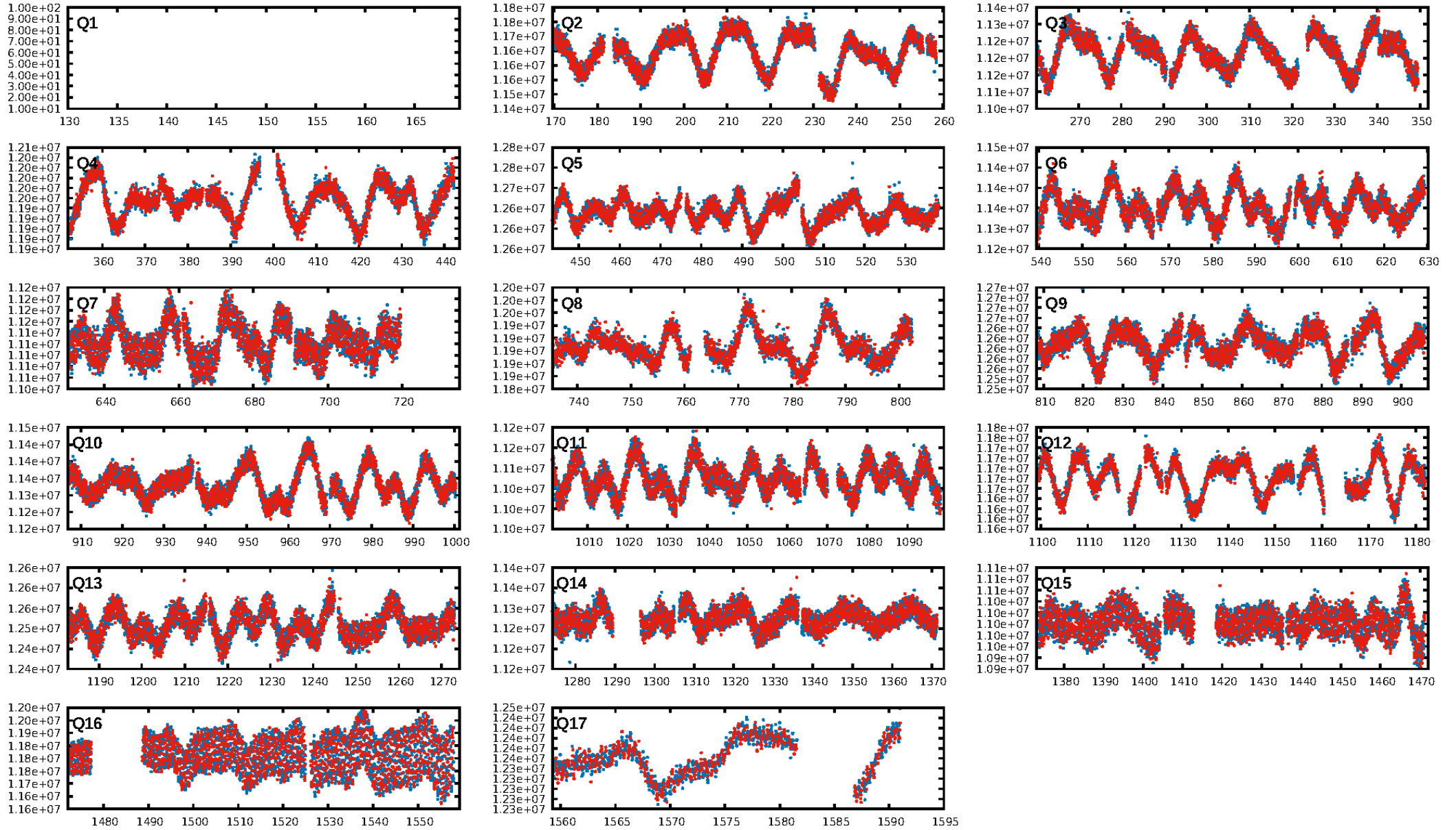
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 2.07e-11**  
RollingBand-fgt: 1.00 [2525/2531]  
GhostDiagnostic-chr: -0.2755  
Centroid-sig: 29.4%  
Centroid-so: 1.829 arcsec [1.69 $\sigma$ ]  
**OotOffset-rm: 4.374 arcsec [7.91 $\sigma$ ]**  
**KicOffset-rm: 7.500 arcsec [69.30 $\sigma$ ]**  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/4/4/4 [15]  
DiffImageQuality-fgm: 0.93 [14/15]  
DiffImageOverlap-fno: 1.00 [16/16]

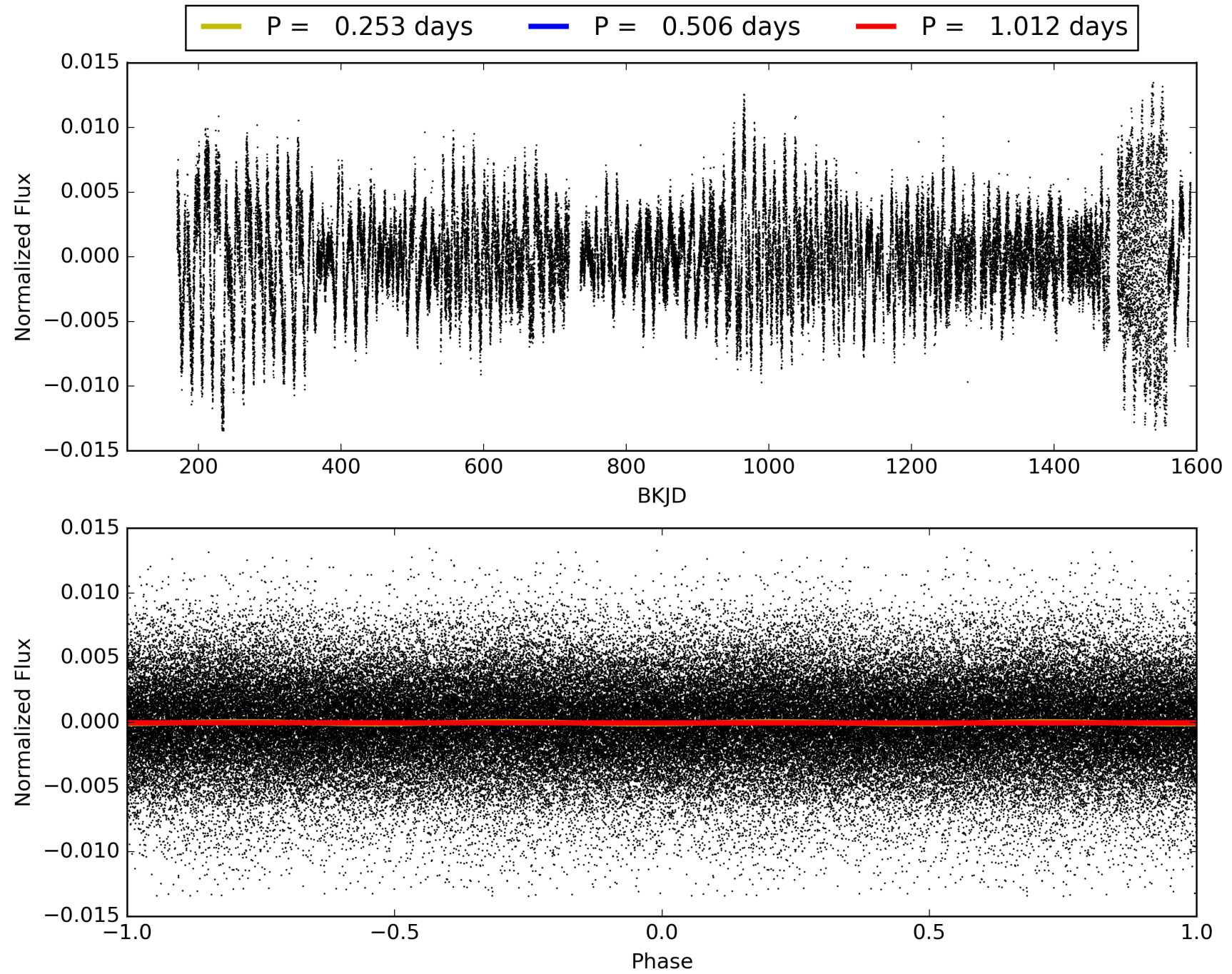
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:26:07 Z

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

# TCE 005646300-01, PDC Light Curves

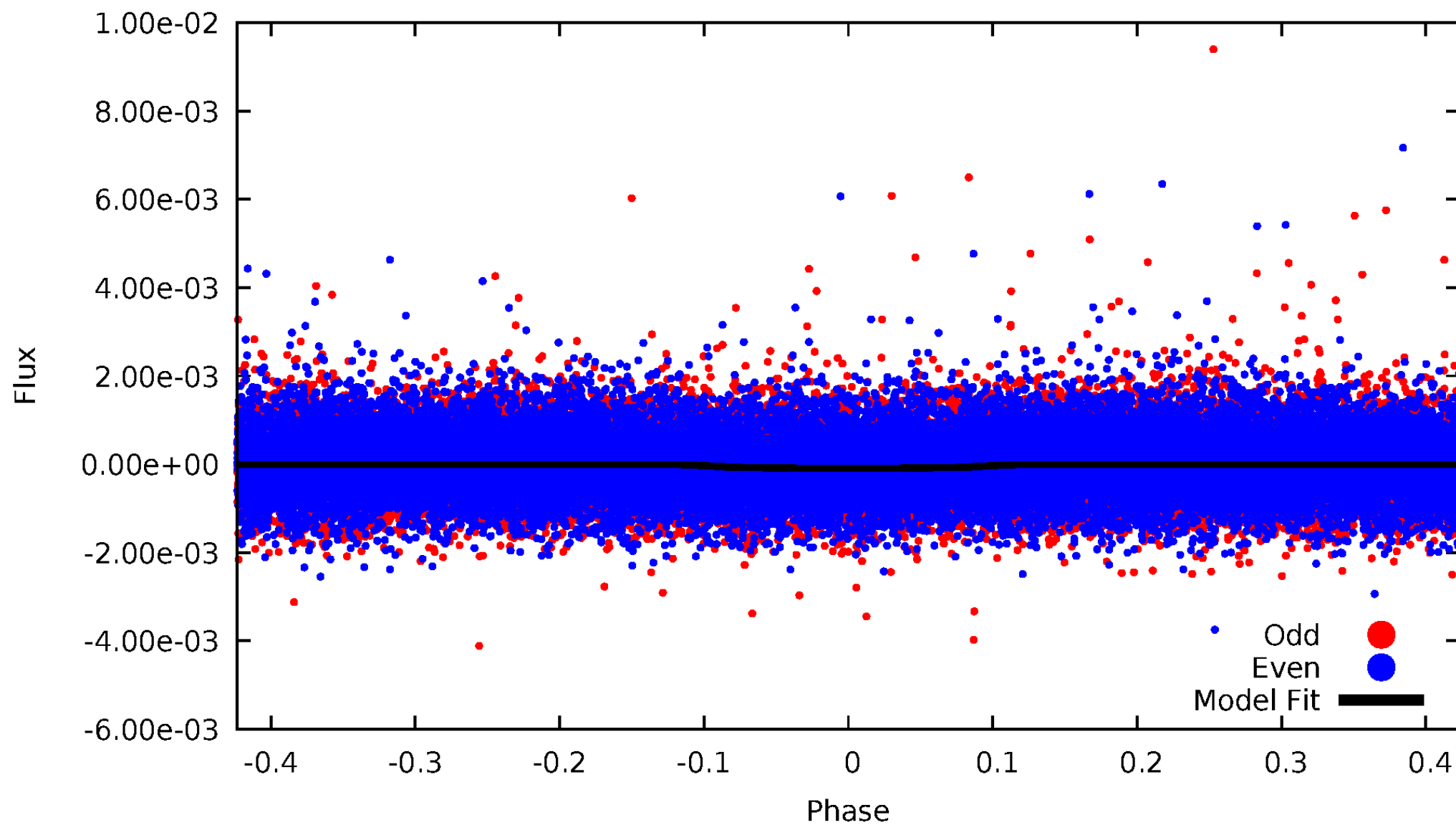


TCE 005646300-01



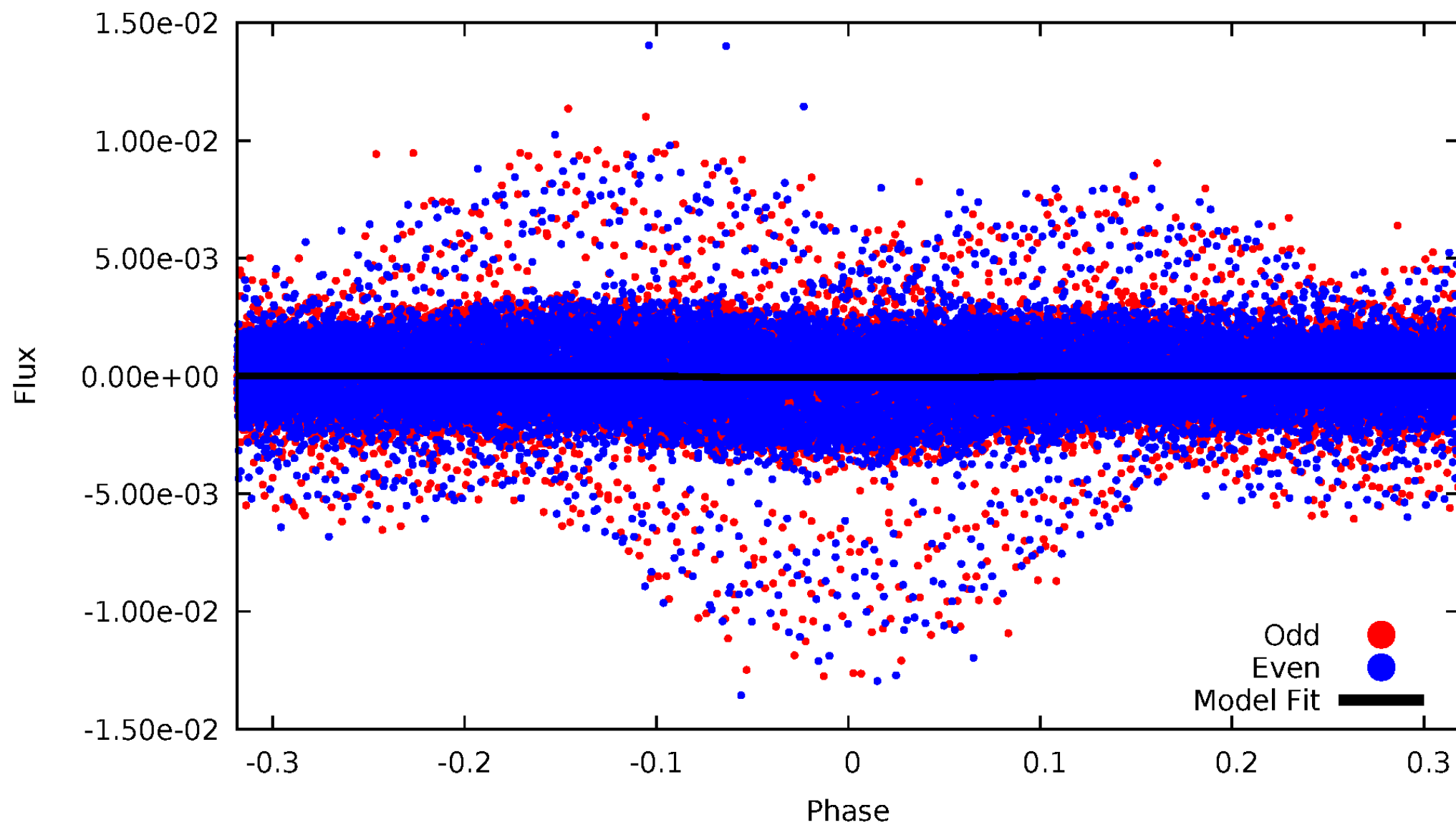
# DV Odd/Even

TCE 005646300-01

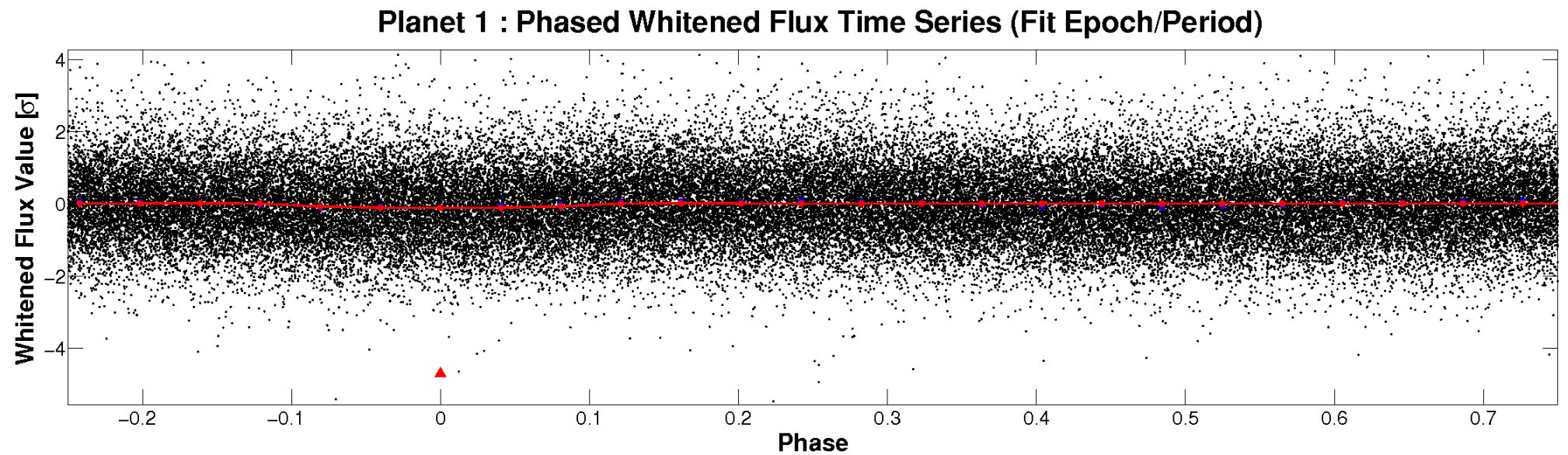
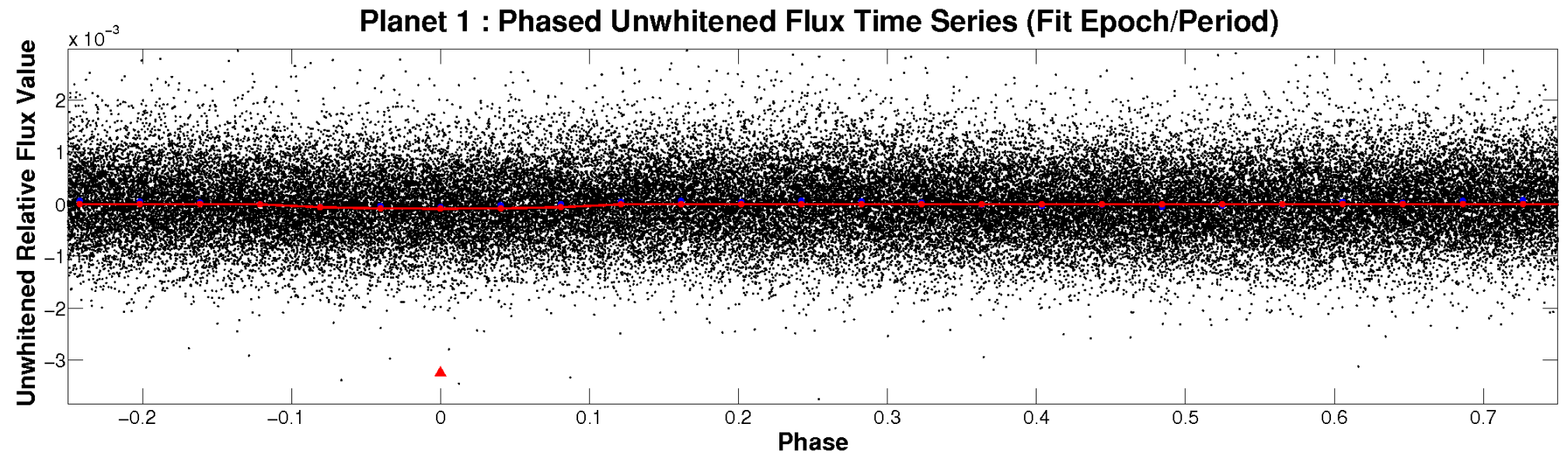


# ALT Odd/Even

TCE 005646300-01

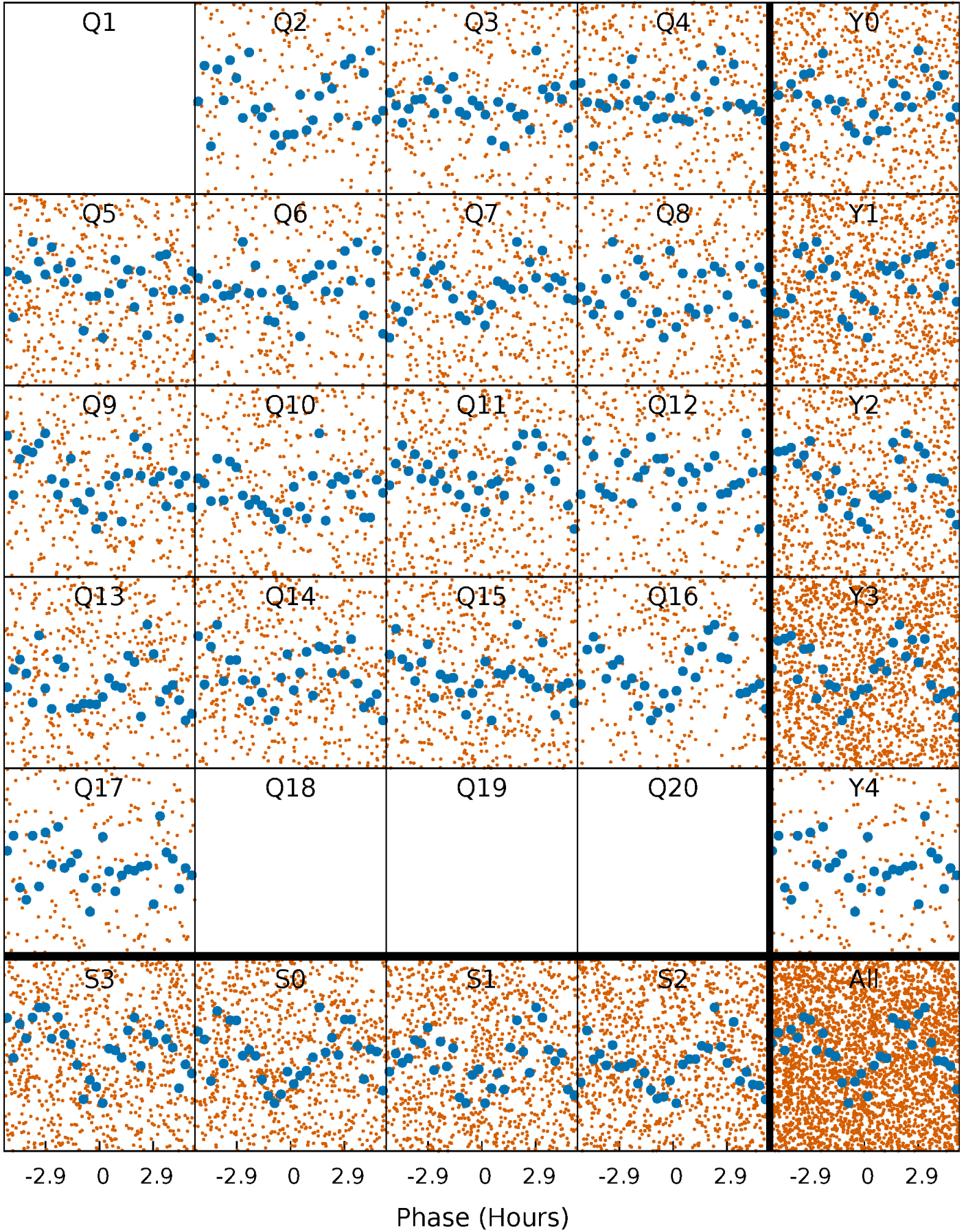


# Non-Whitened Vs. Whitened Light Curve



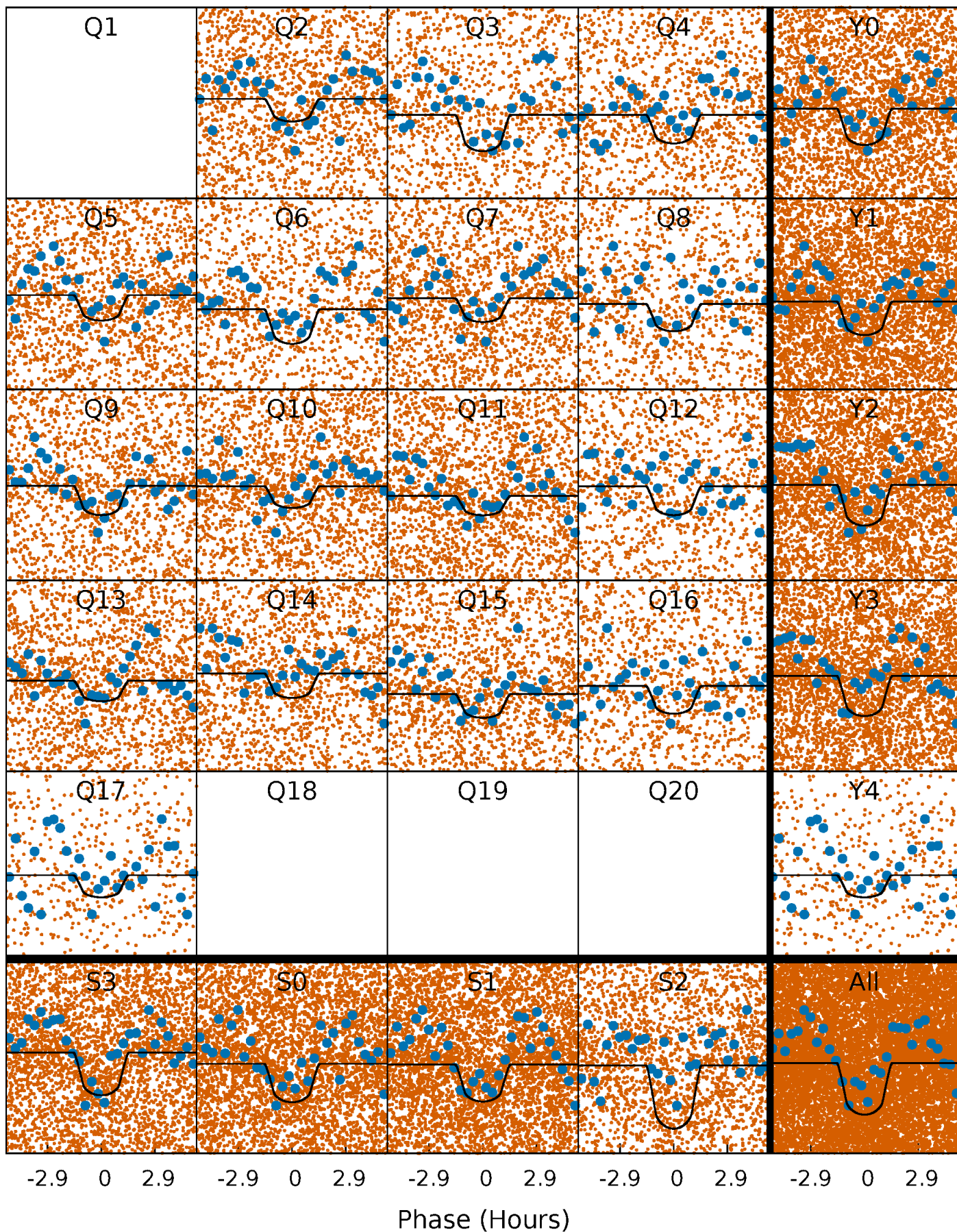
# PDC Quarter-Phased Transit Curves

TCE 005646300-01 P= 0.506170 Days  $T_0=131.735351$  (BKJD)



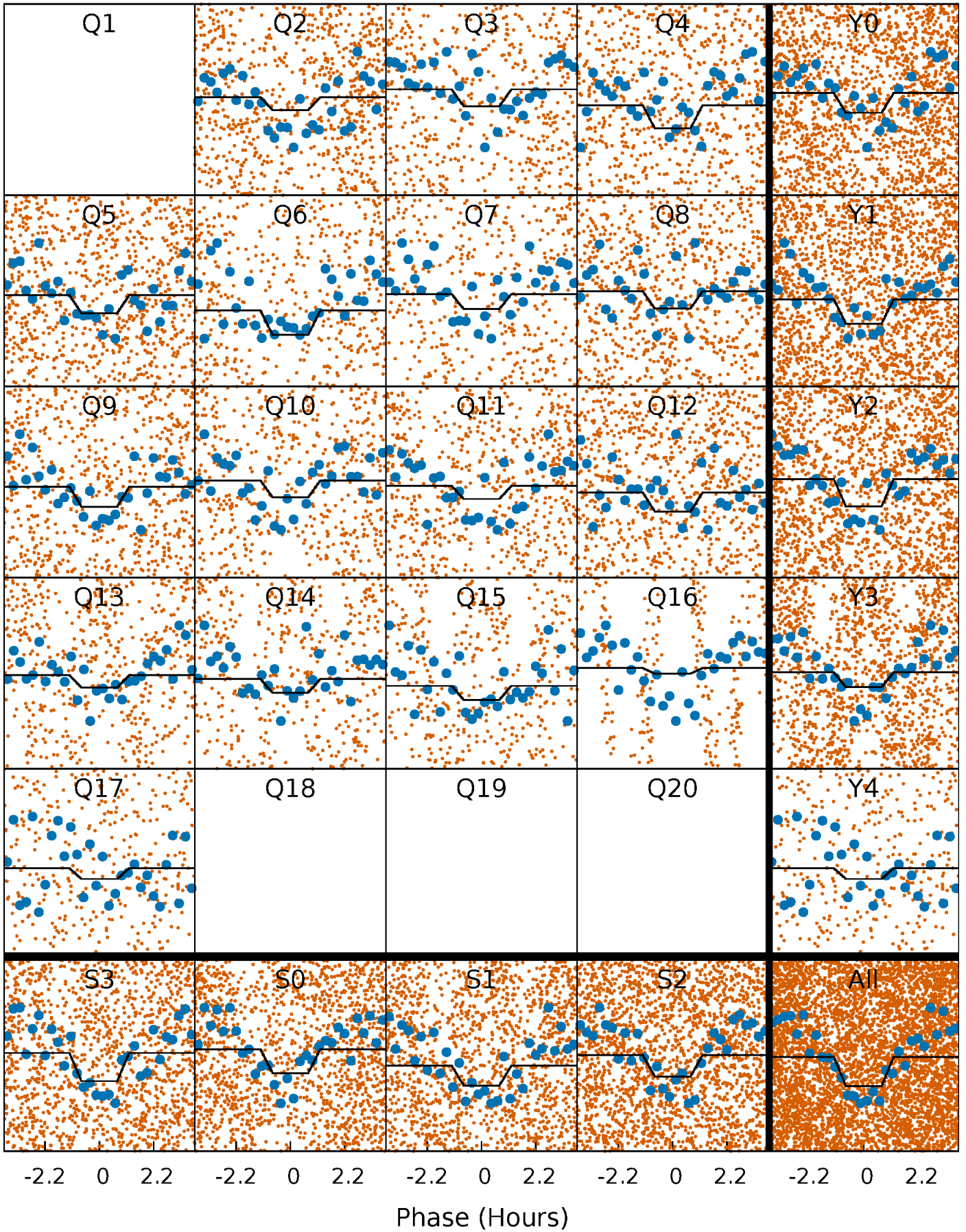
# DV Quarter-Phased Transit Curves

TCE 005646300-01 P= 0.506170 Days  $T_0=131.735351$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

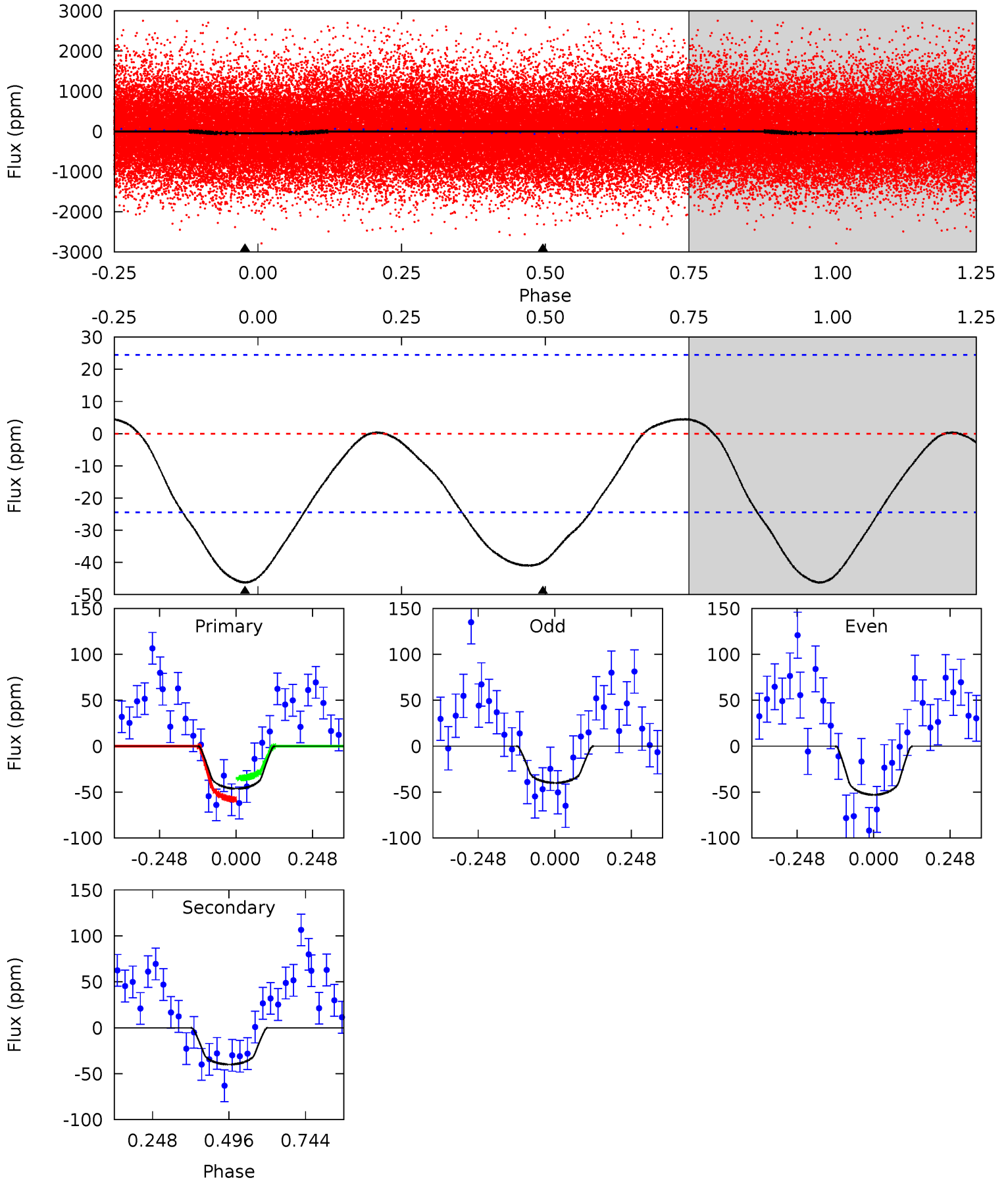
TCE 005646300-01 P= 0.506152 Days  $T_0=131.747977$  (BKJD)



# DV Model-Shift Uniqueness Test

005646300-01, P = 0.506170 Days, E = 131.735351 Days

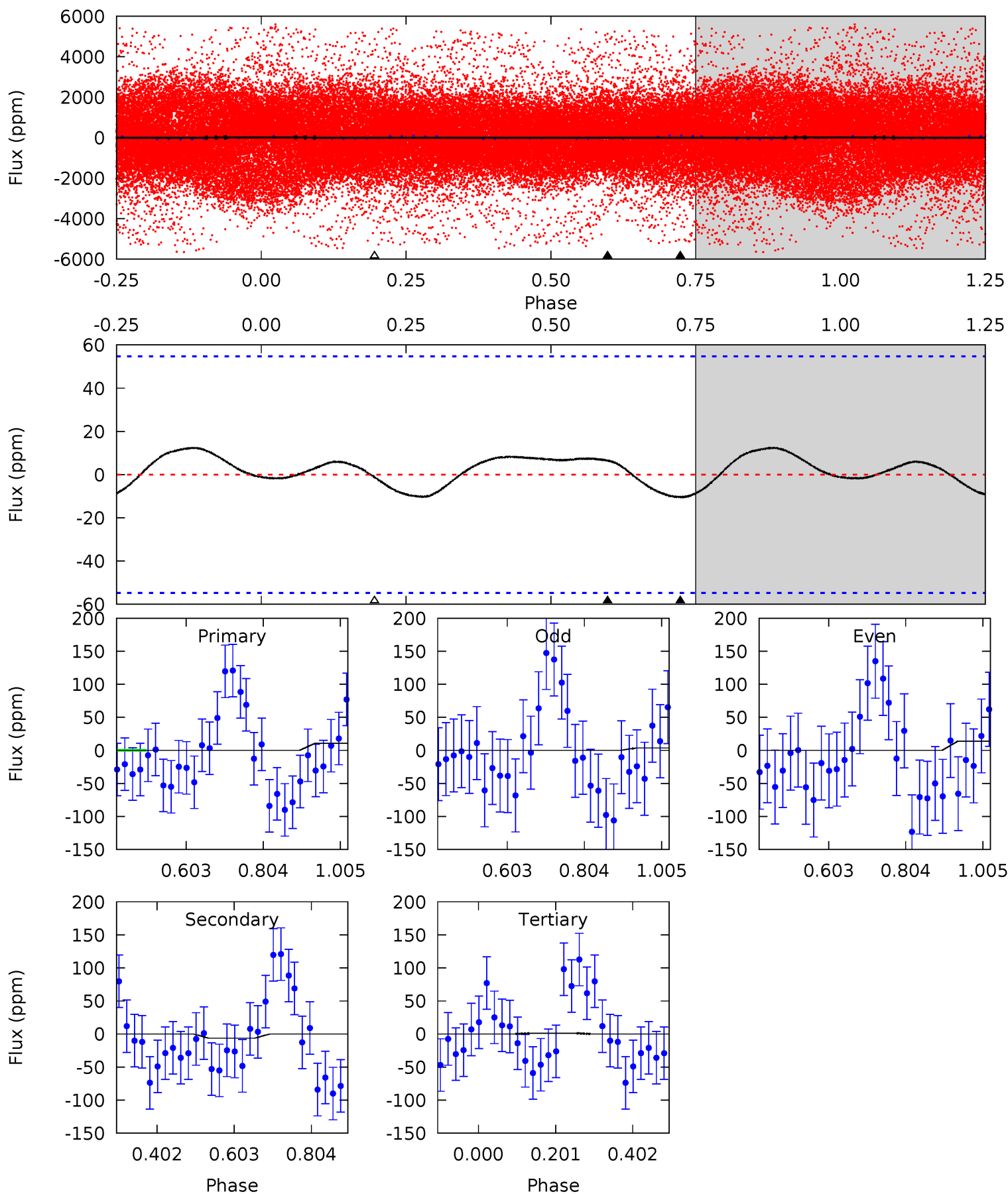
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.27	7.13	0	0	4.37	1.16	0.60	8.27	8.27	7.13	7.13	1.19	0.85	0.09	2.14



# Alt Model-Shift Uniqueness Test

005646300-01, P = 0.506152 Days, E = 131.747977 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
0.85	-0.51	0.10	0	4.42	1.28	0.42	0.75	0.85	-0.61	-0.51	0.40	-0.20	0.54	0.23



### Stellar Parameters For KIC 005646300

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4280^{+127}_{-140}$	$4.713^{+0.045}_{-0.045}$	$-0.600^{+0.300}_{-0.300}$	$0.544^{+0.049}_{-0.054}$	$0.558^{+0.051}_{-0.046}$	$4.874^{+1.165}_{-0.862}$
	+3%/-3%	+1%/-1%	+50%/-50%	+9%/-10%	+9%/-8%	+24%/-18%
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 005646300-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-40 \pm 6$	$0.67^{+0.47}_{-0.40}$	$1926^{+71}_{-69}$	$3457^{+1326}_{-549}$	$5.014^{+26.145}_{-3.247}$
Alt.	$6 \pm 12$	$0.57^{+0.44}_{-0.36}$	$1923^{+68}_{-74}$	$-2779^{+5364}_{-1000}$	$-0.758^{+1.642}_{-7.251}$

$T_{max}$  = 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

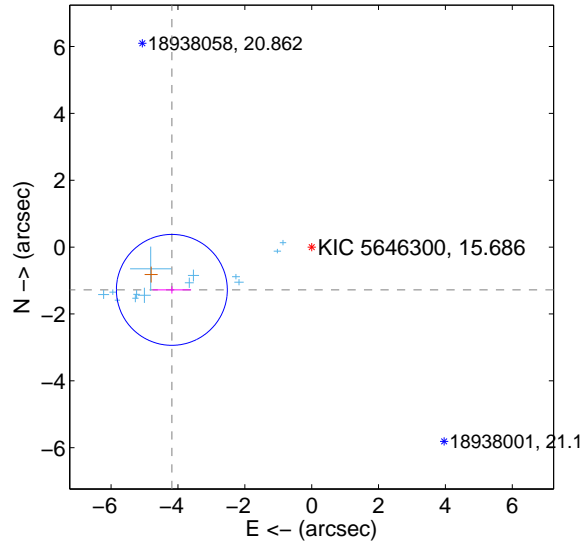
Supplemental centroid analysis for 005646300-01. Kepler magnitude: 15.69. Transit SNR 10.45

There are 14 quarters with good PRF difference image offsets

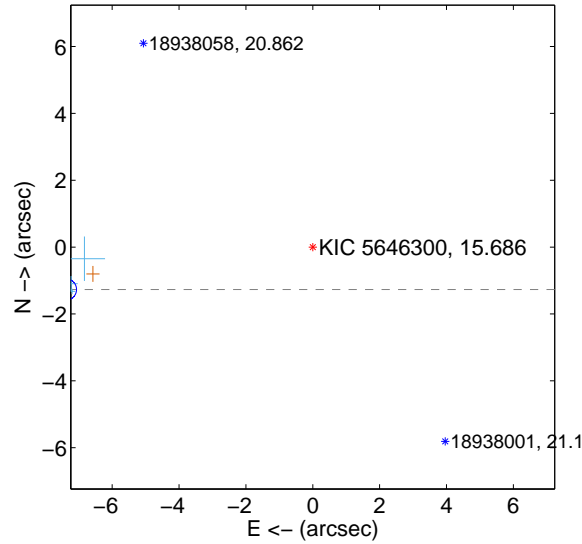
The OOT PRF centroid is offset from the target star catalog position by about 2.25 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.374 \pm 0.553$	7.91	$4.183 \pm 0.577$	$-1.279 \pm 0.111$
PRF-fit source offset from KIC position	$7.500 \pm 0.108$	69.30	$7.392 \pm 0.102$	$-1.268 \pm 0.105$
photometric centroid source offset	$1.83 \pm 1.08$	1.69	$1.49 \pm 1.21$	$-1.06 \pm 0.76$

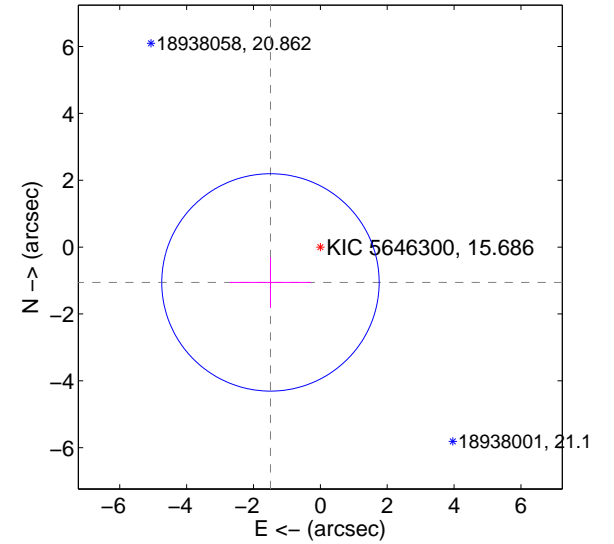
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

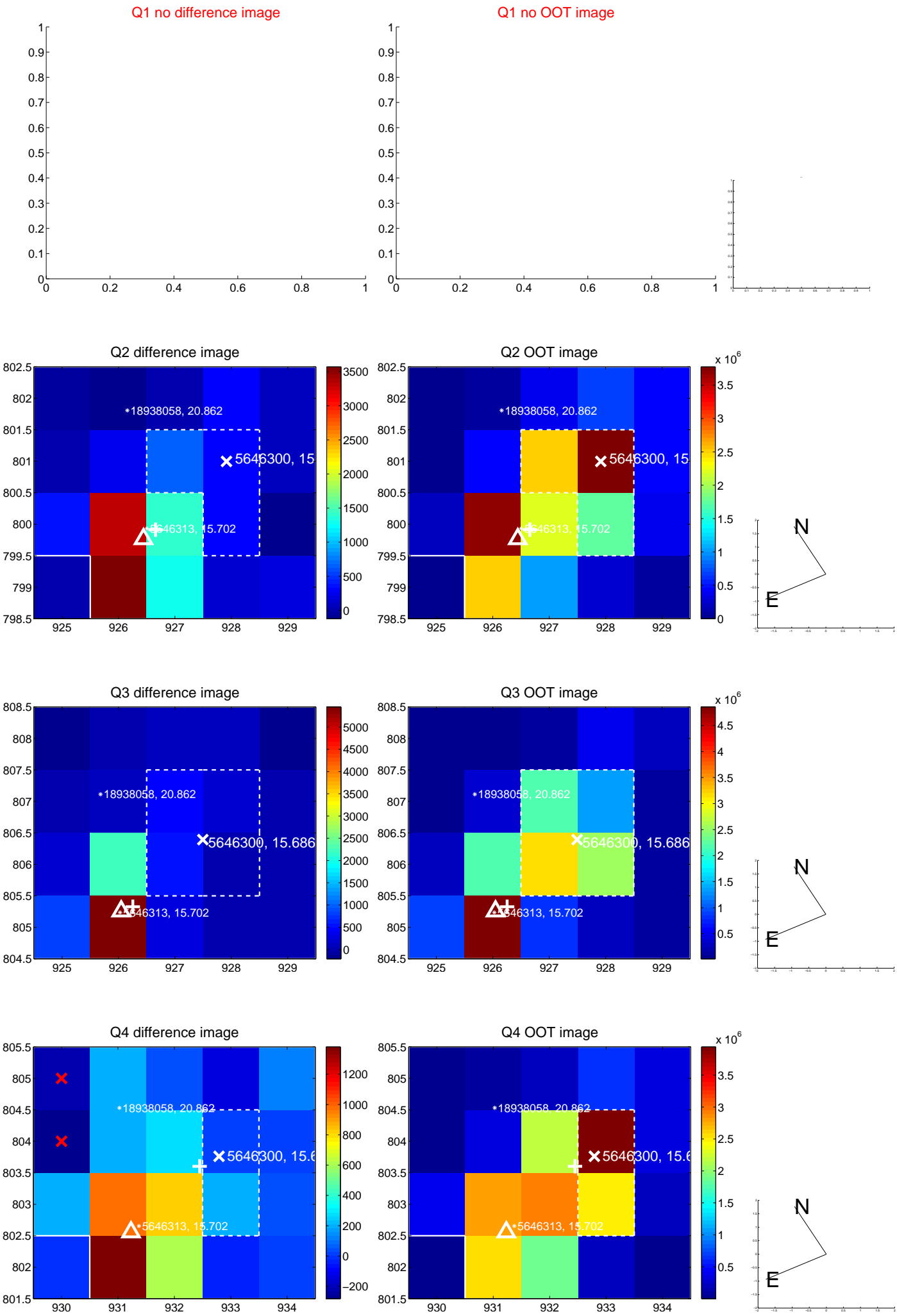


offset from photometric centroids

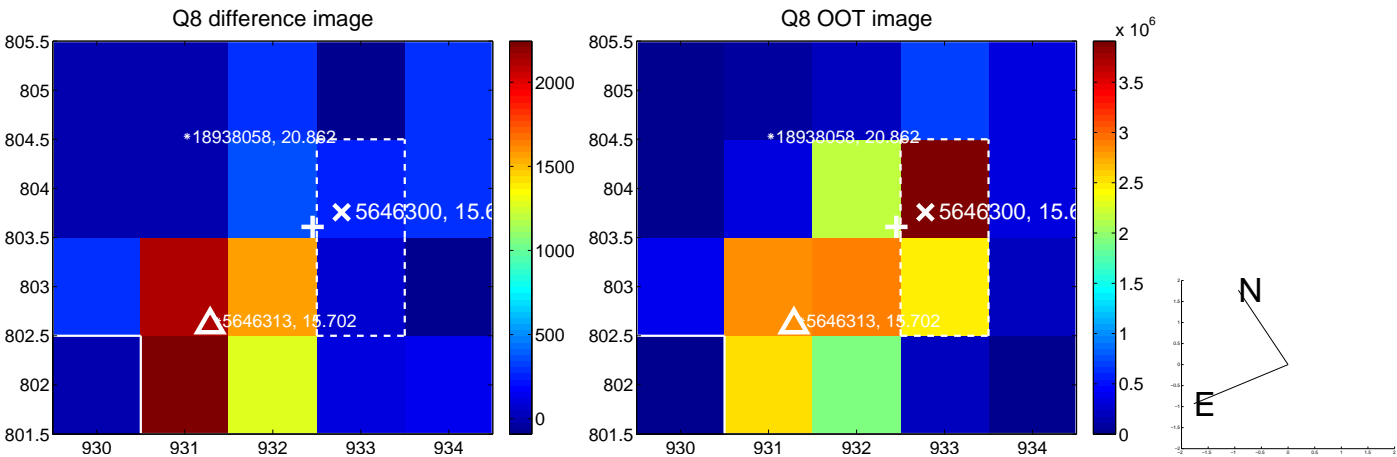
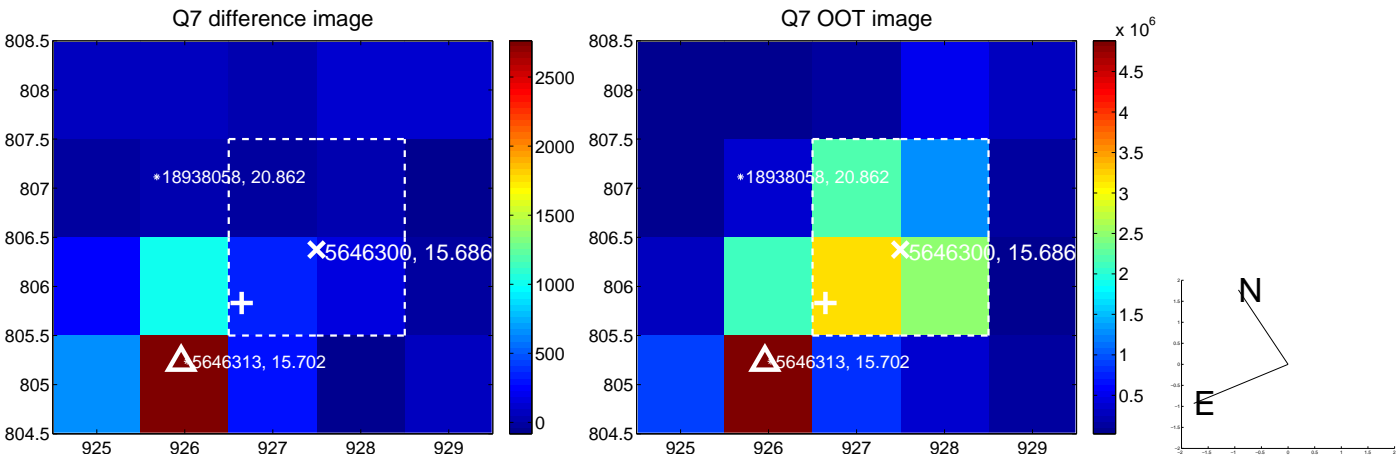
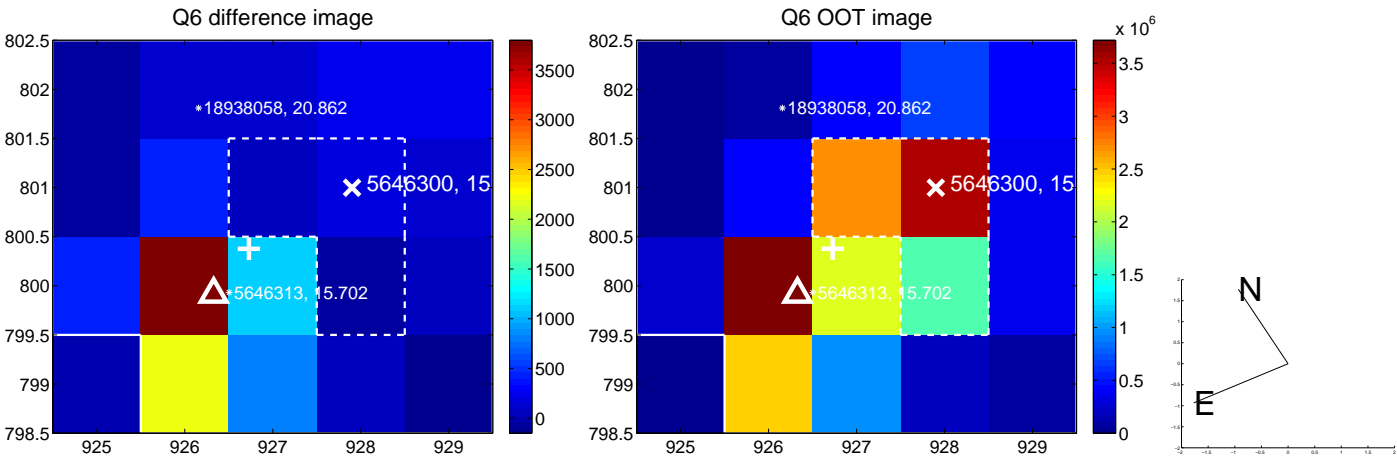
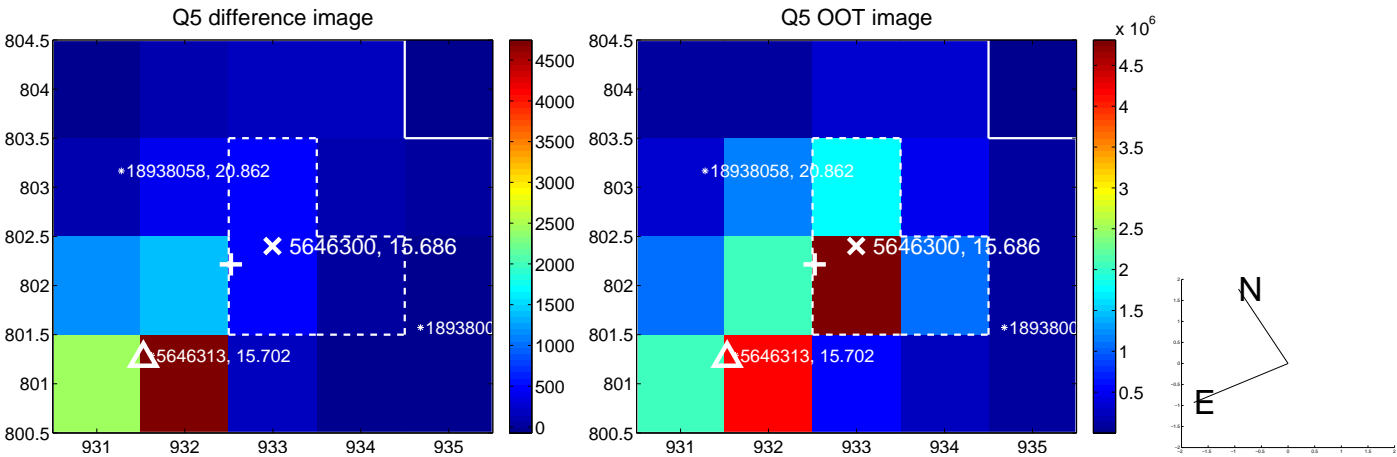


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

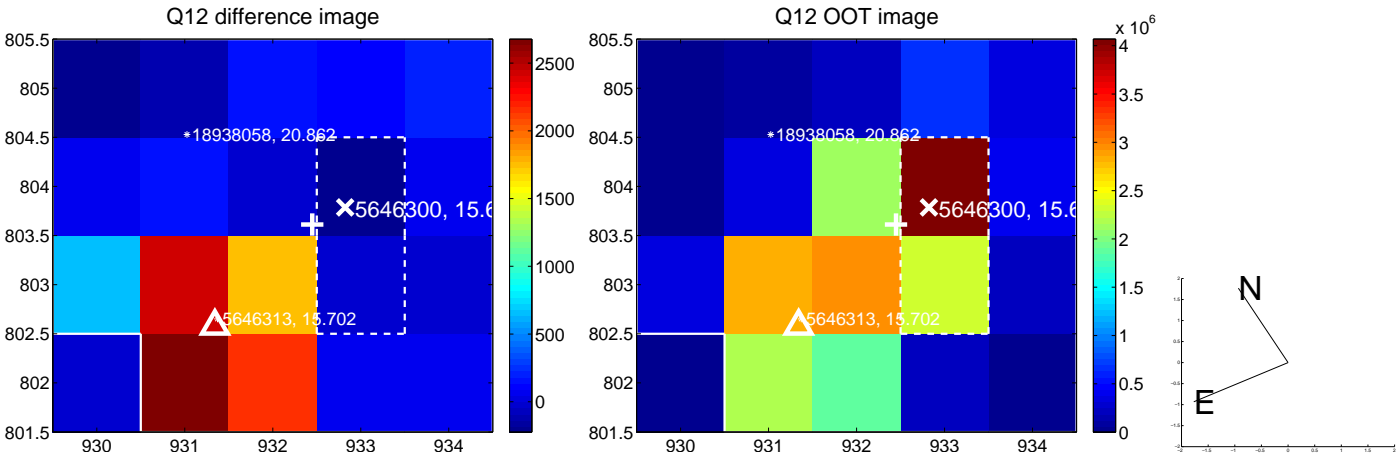
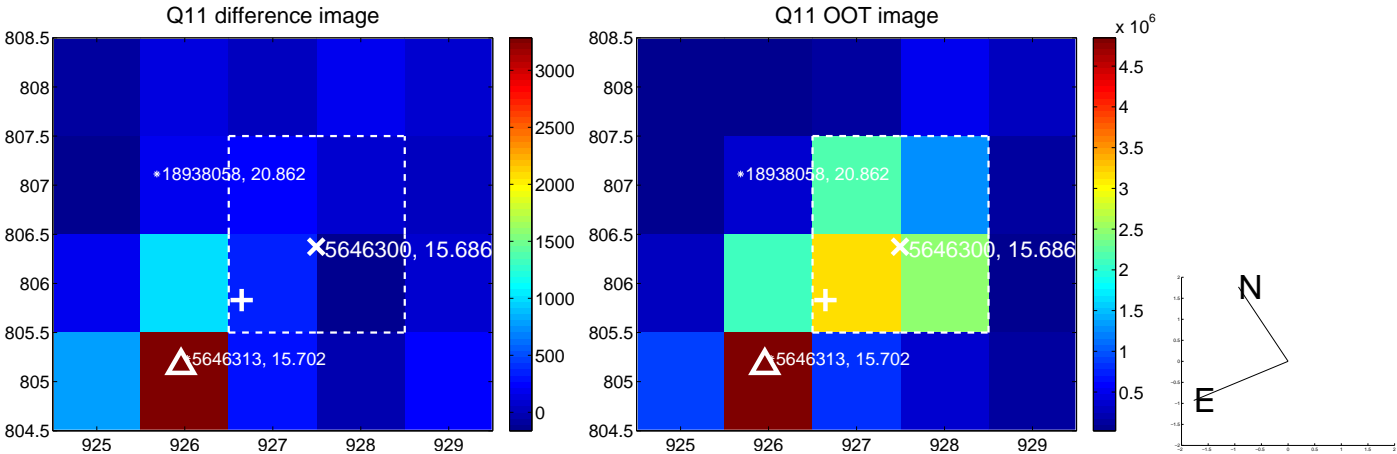
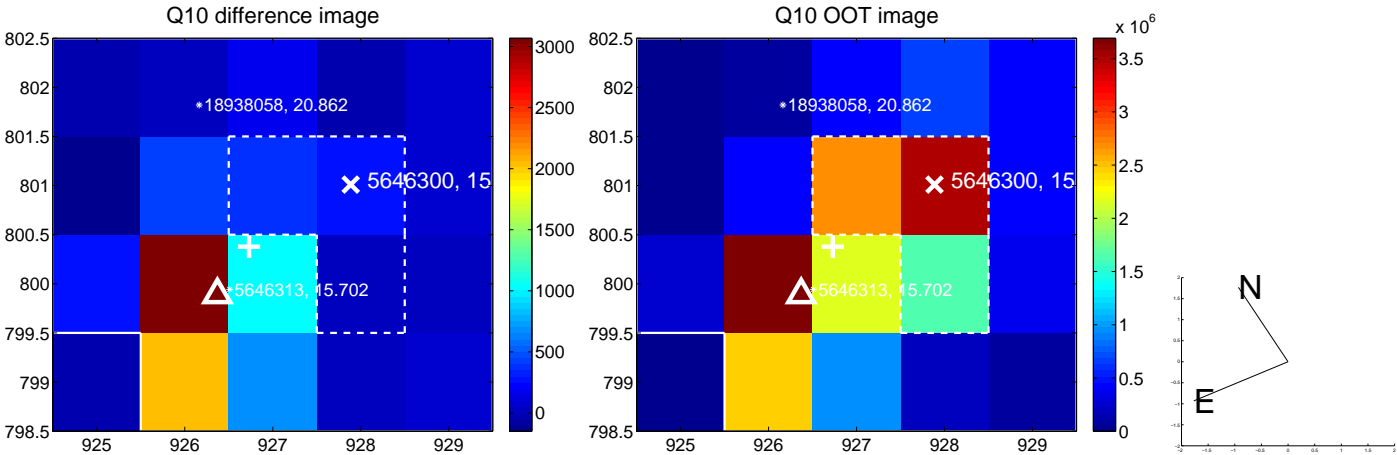
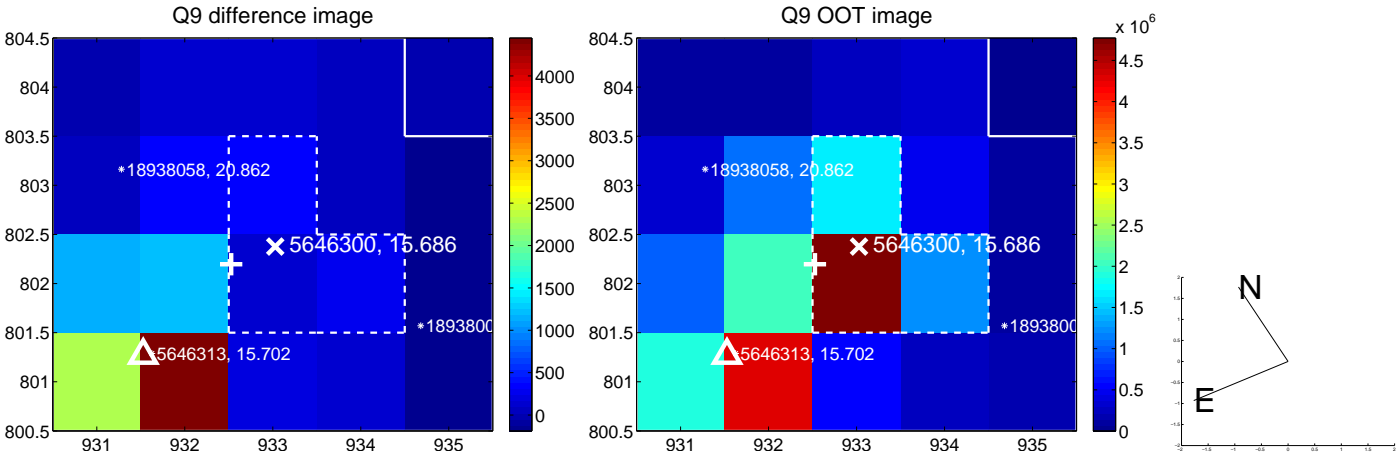
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



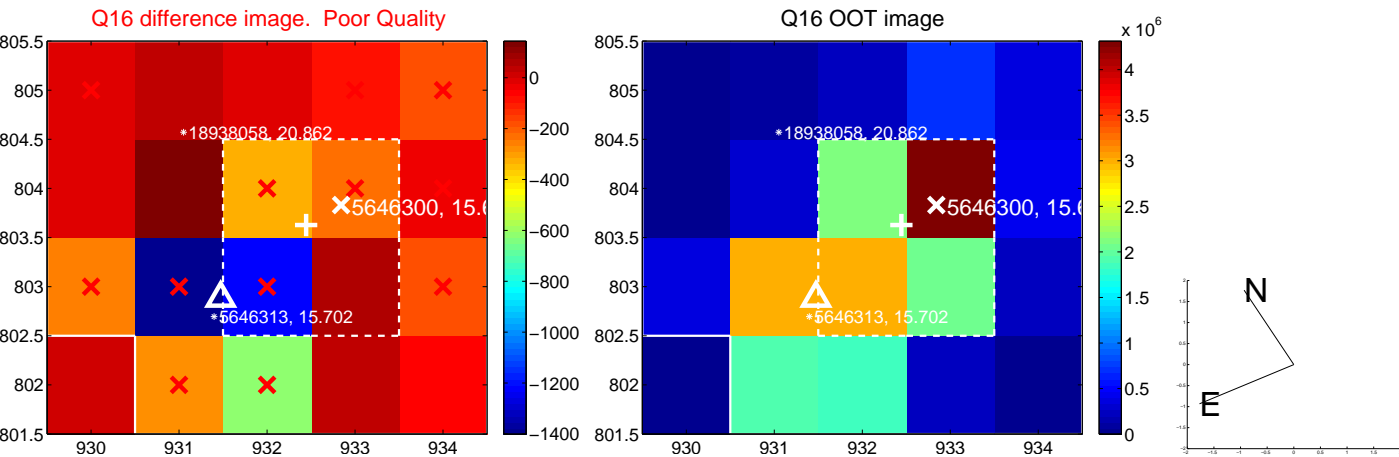
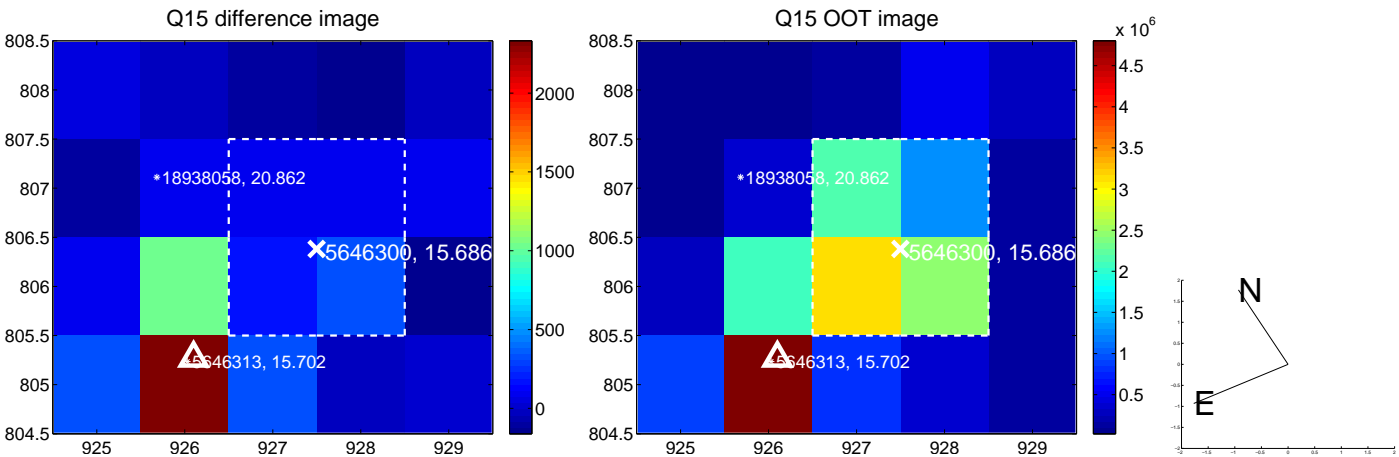
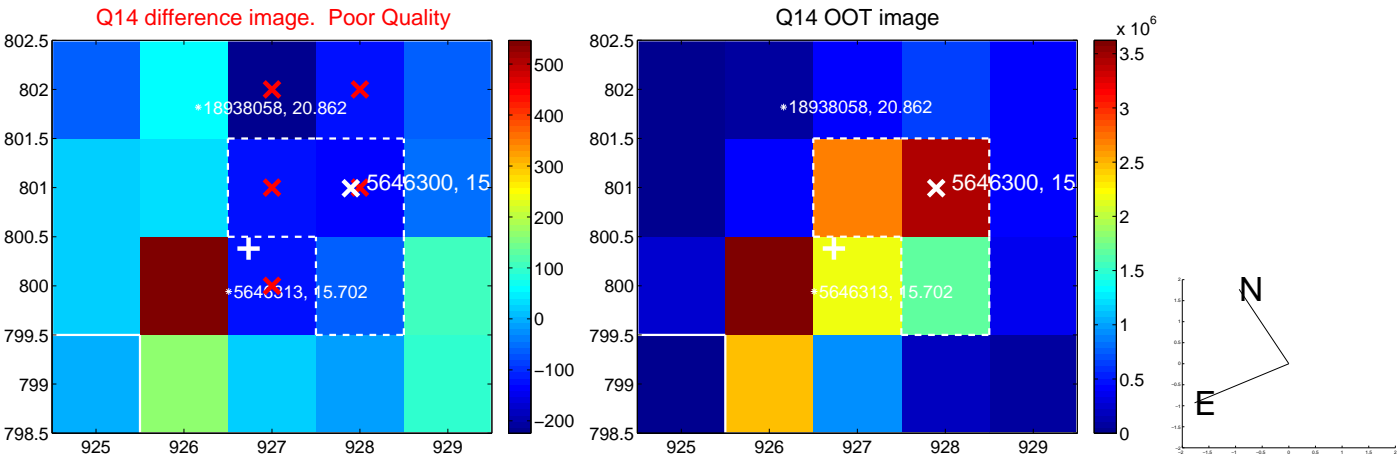
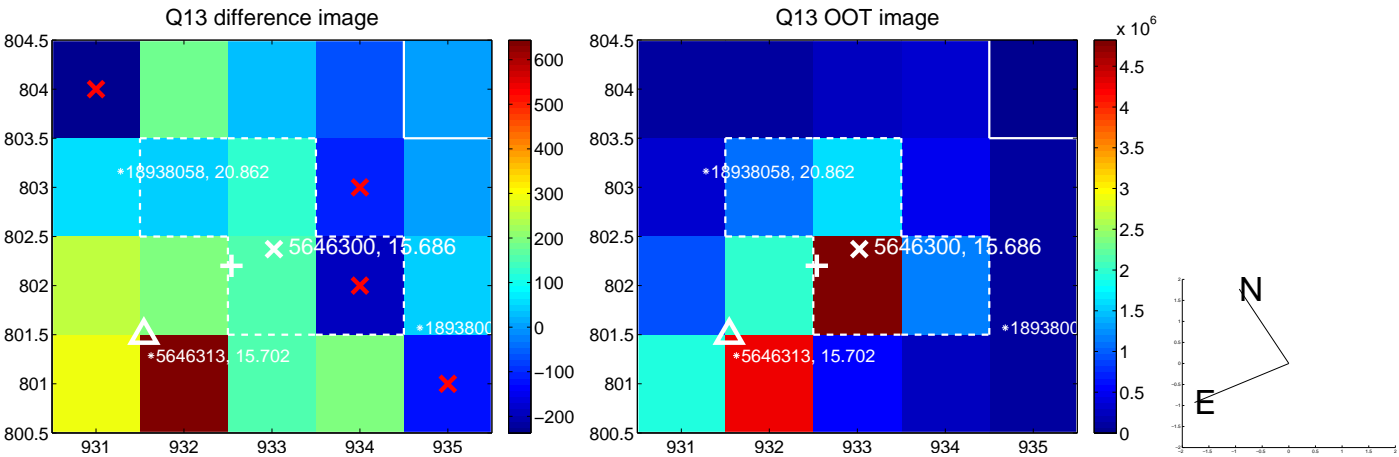
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



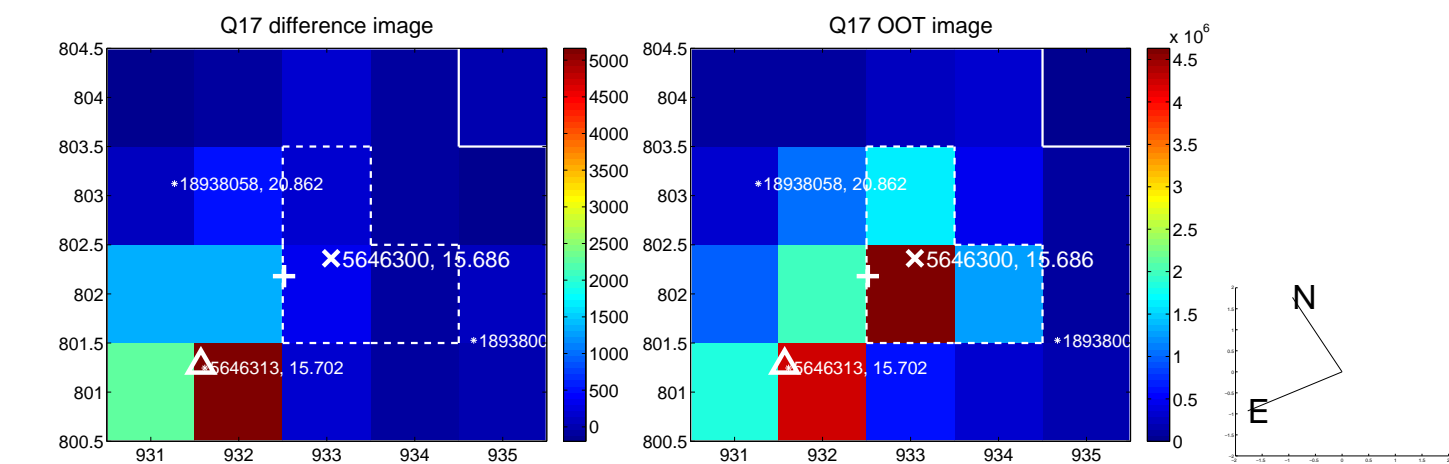
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



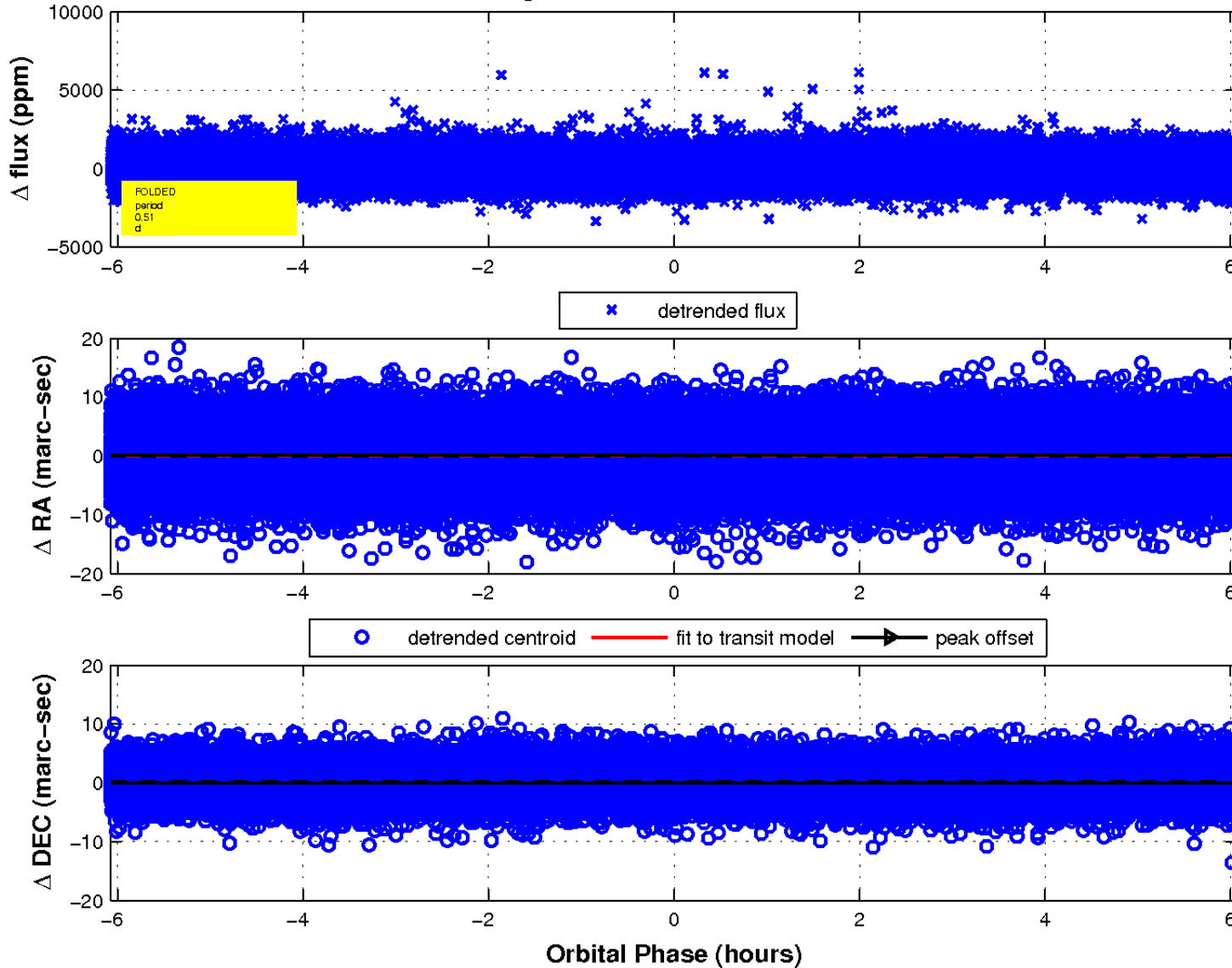
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

