

# KIC 011967872

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011967872-01	OBS	8072.01	134.373341	249.300128	427.0	8.776	7.9	7.7	0.94	5910	2.08	3.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011967872-01	OBS	FP	0.25	1	0	0	0	INDIV_TRANS_SKYE—CENT_FEW_MEAS

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

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

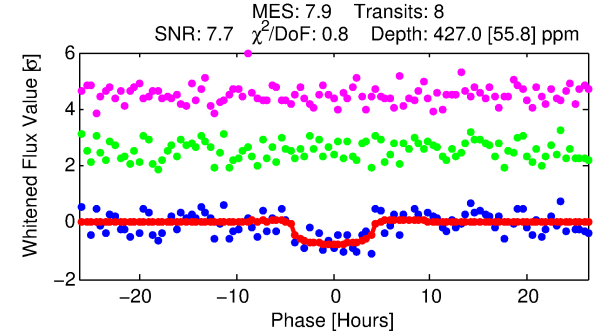
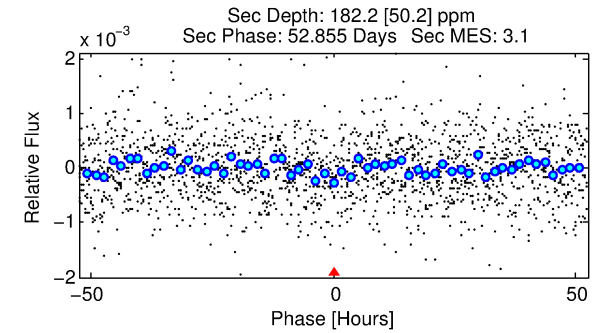
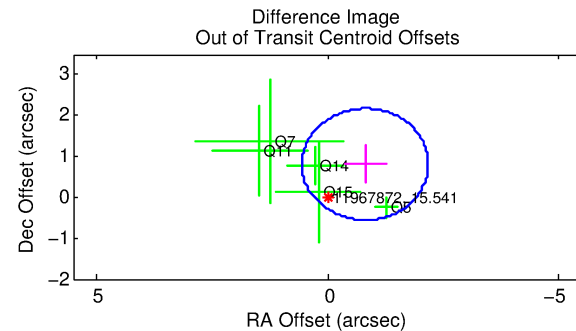
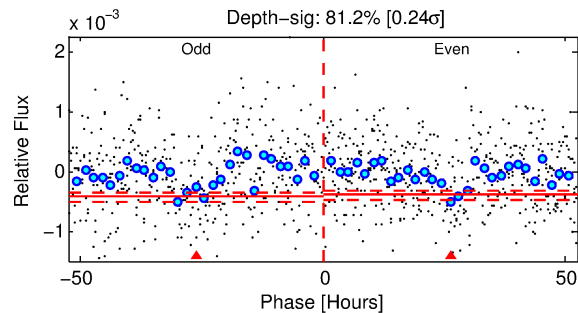
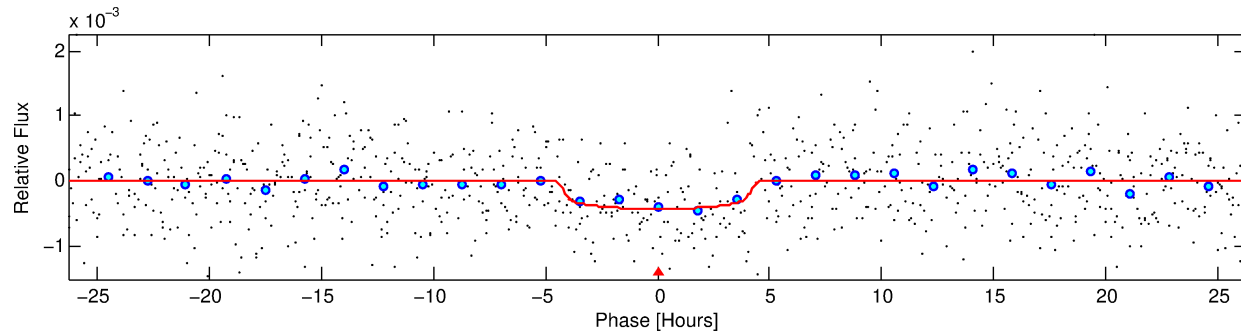
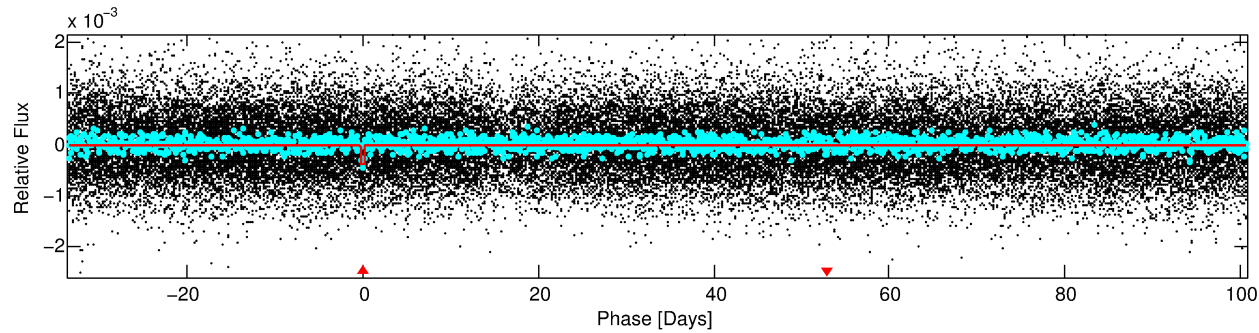
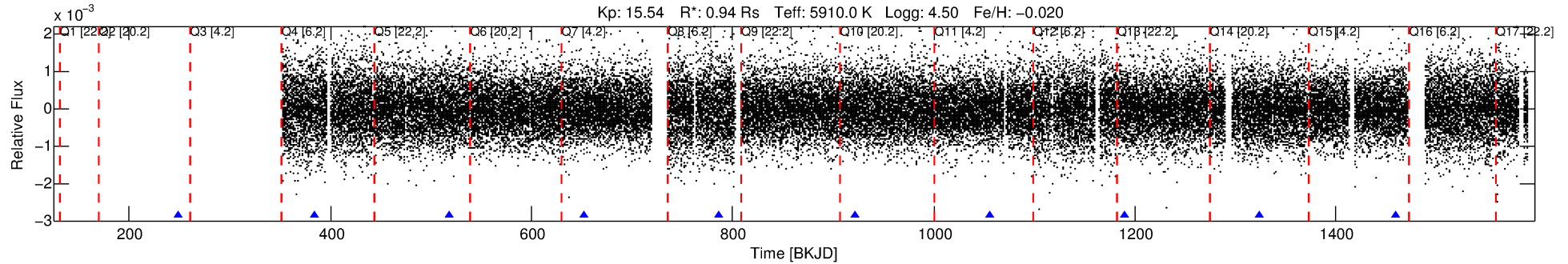
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011967872-01

No Significant Match Found

# DV One-Page Summary

KIC: 11967872 Candidate: 1 of 1 Period: 134.373 d



## DV Fit Results:

Period = 134.37334 [0.00450] d  
Epoch = 249.3001 [0.0274] BKJD  
Rp/R\* = 0.0203 [0.0140]  
a/R\* = 84.89 [270.39]  
b = 0.72 [2.17]  
Seff = 3.59 [1.52]  
Teq = 351 [37] K  
Rp = 2.09 [1.58] Re  
a = 0.5188 [0.1403] AU  
Ag = 6206.64 [9092.07] [0.68 $\sigma$ ]  
Teffp = 4816 [1705] K [2.62 $\sigma$ ]

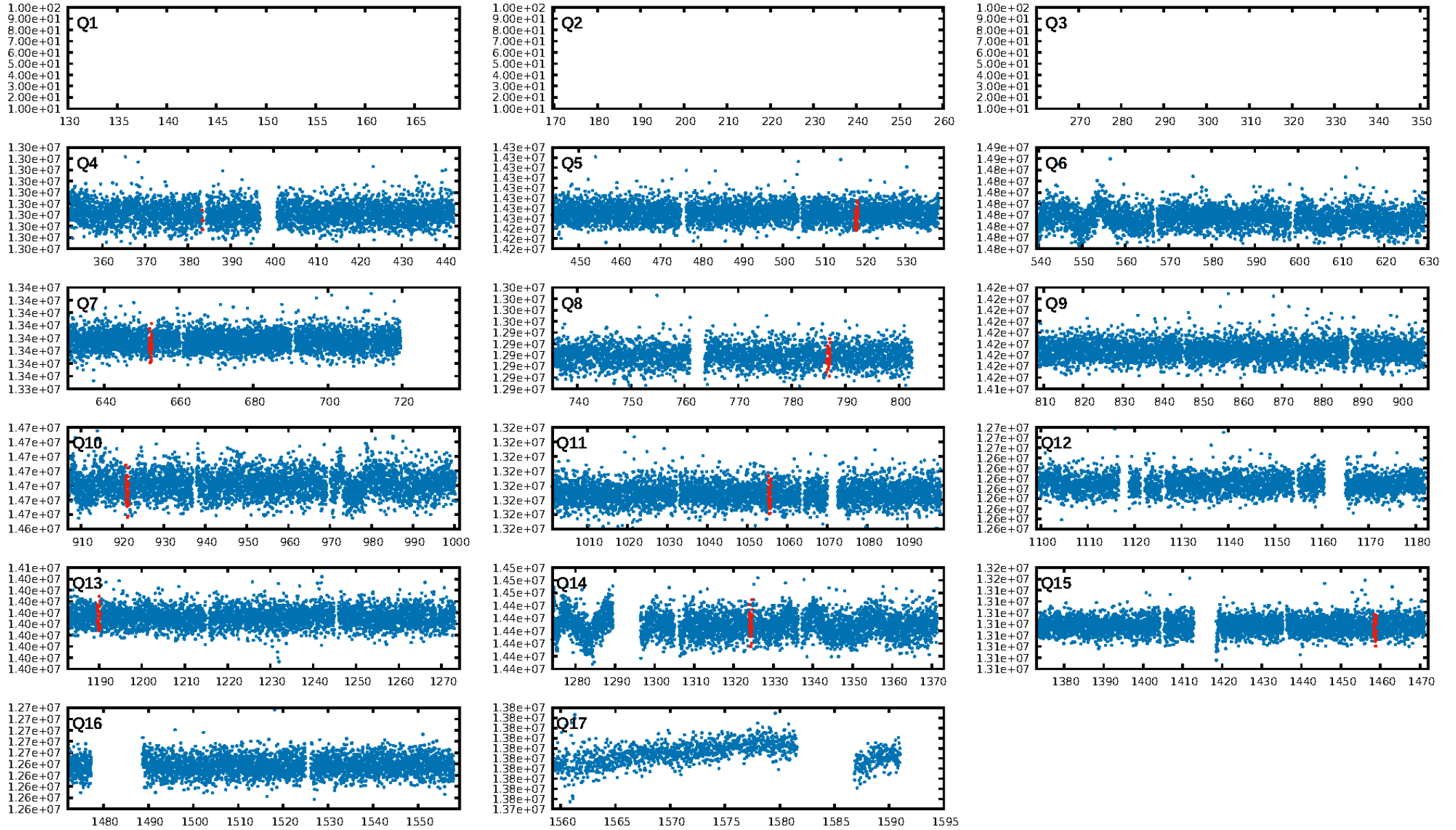
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 83.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.70e-13  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 2.271  
Centroid-sig: 21.3%  
Centroid-so: 1.660 arcsec [0.90 $\sigma$ ]  
OotOffset-rm: 1.144 arcsec [2.51 $\sigma$ ]  
KicOffset-rm: 0.967 arcsec [2.10 $\sigma$ ]  
OotOffset-st: 1/3/0/1 [5]  
KicOffset-st: 1/3/0/1 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 1.00 [8/8]

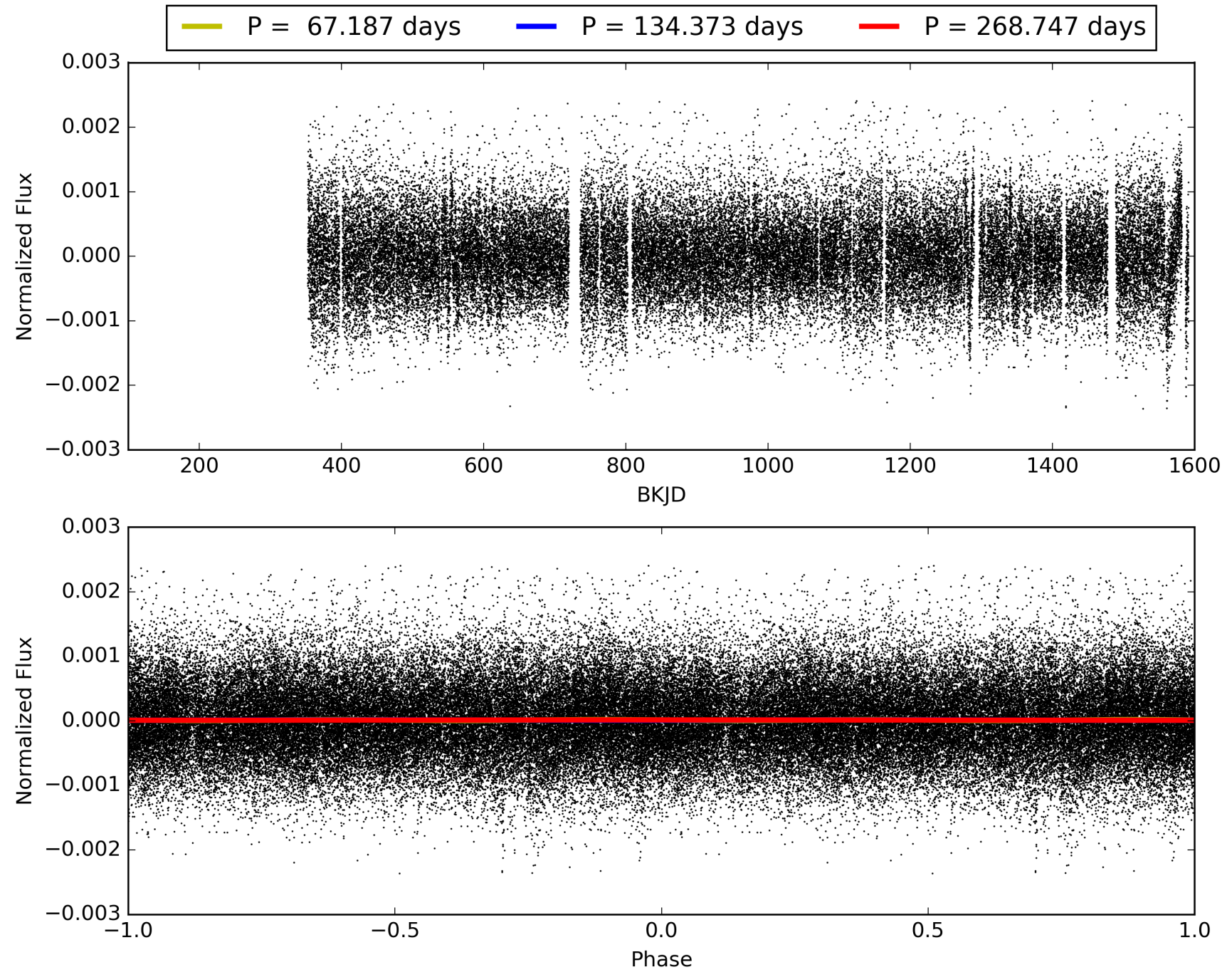
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 18:57:05 Z

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

# TCE 011967872-01, PDC Light Curves

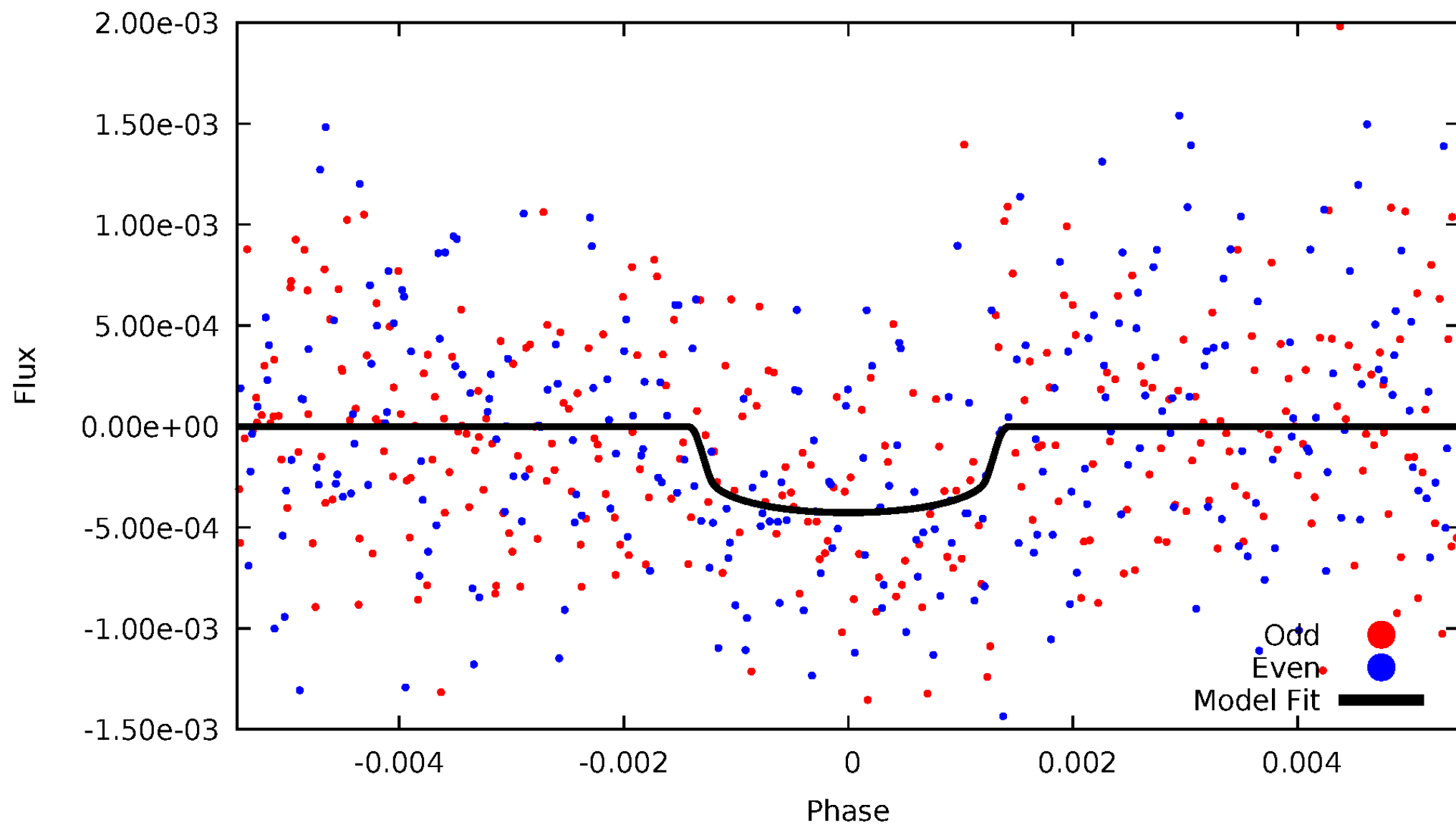


# TCE 011967872-01



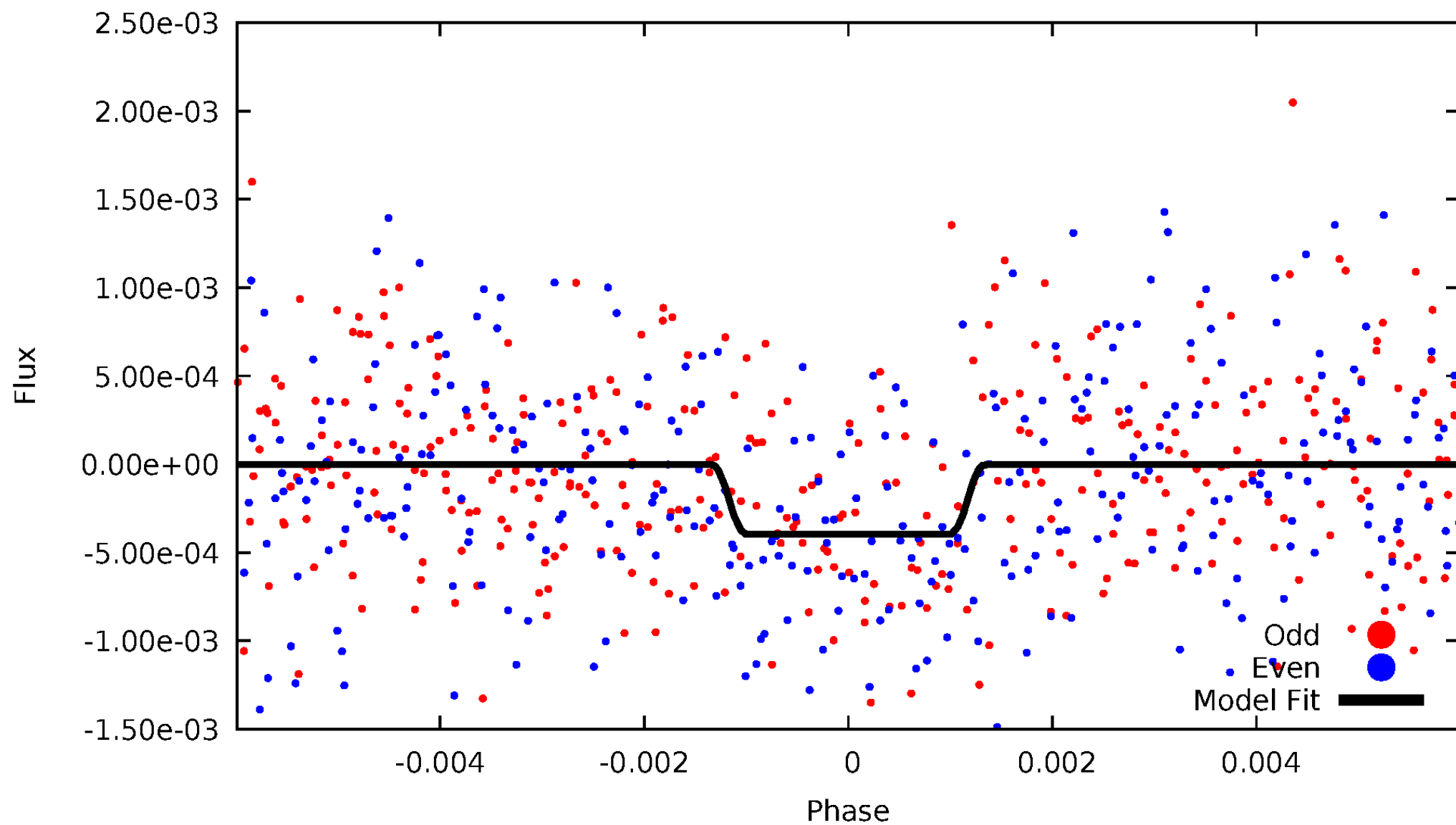
# DV Odd/Even

TCE 011967872-01



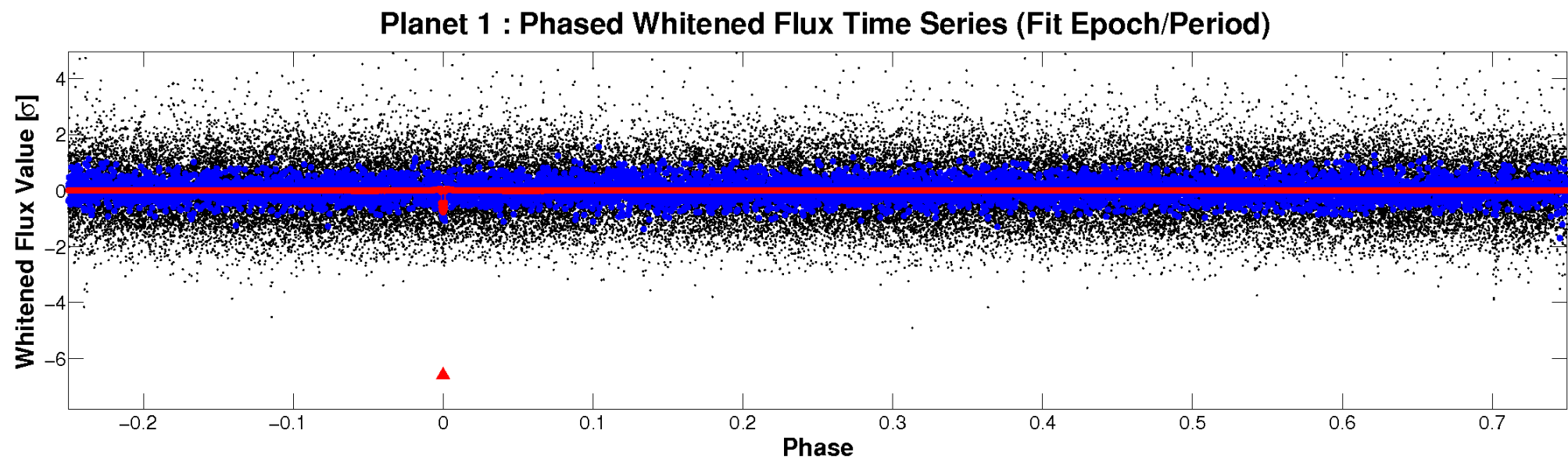
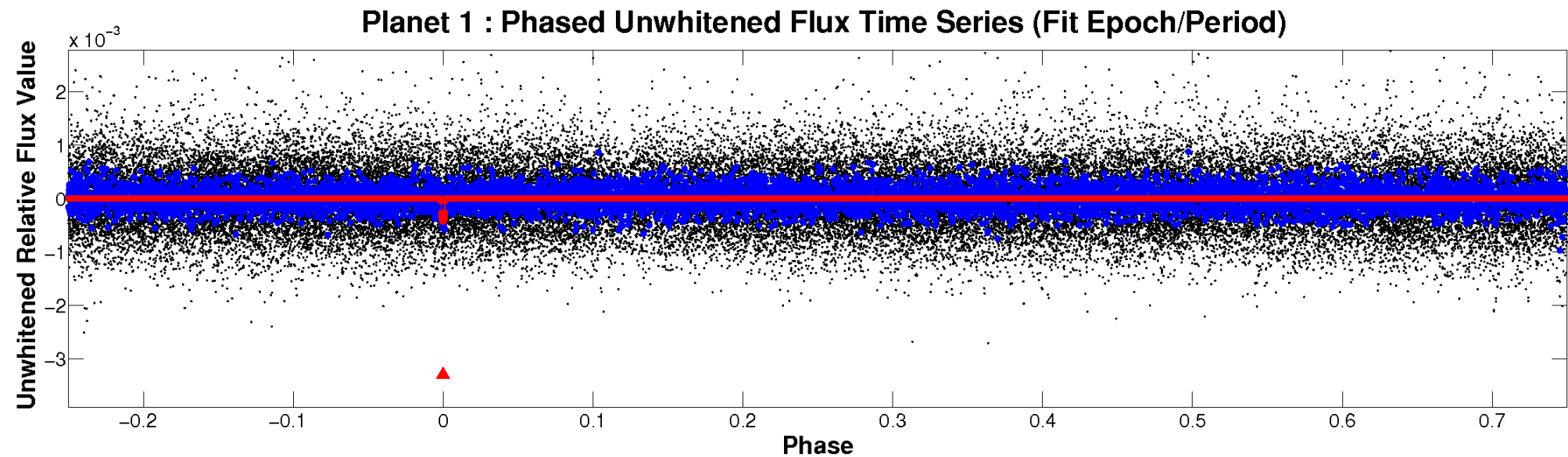
# ALT Odd/Even

TCE 011967872-01



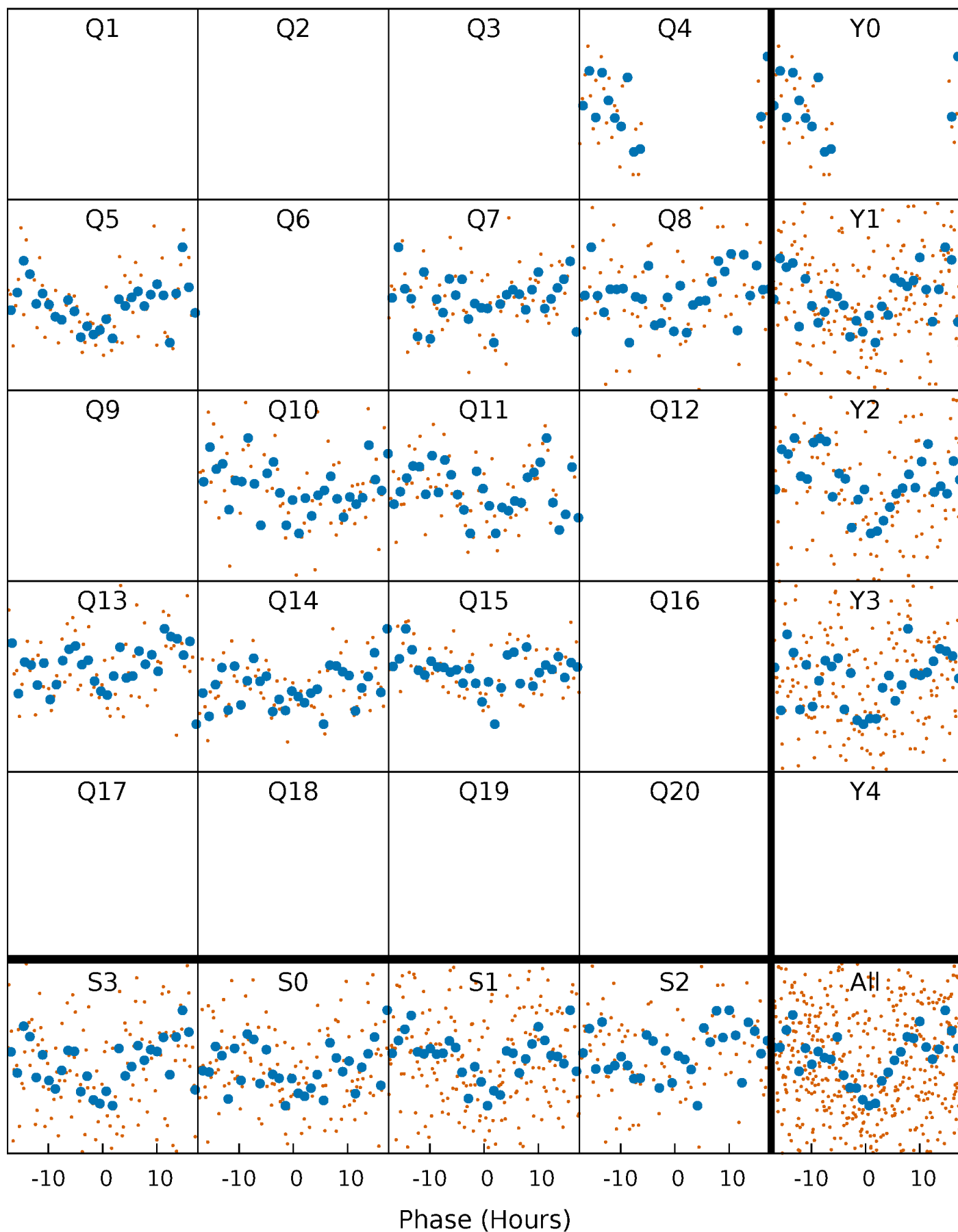


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

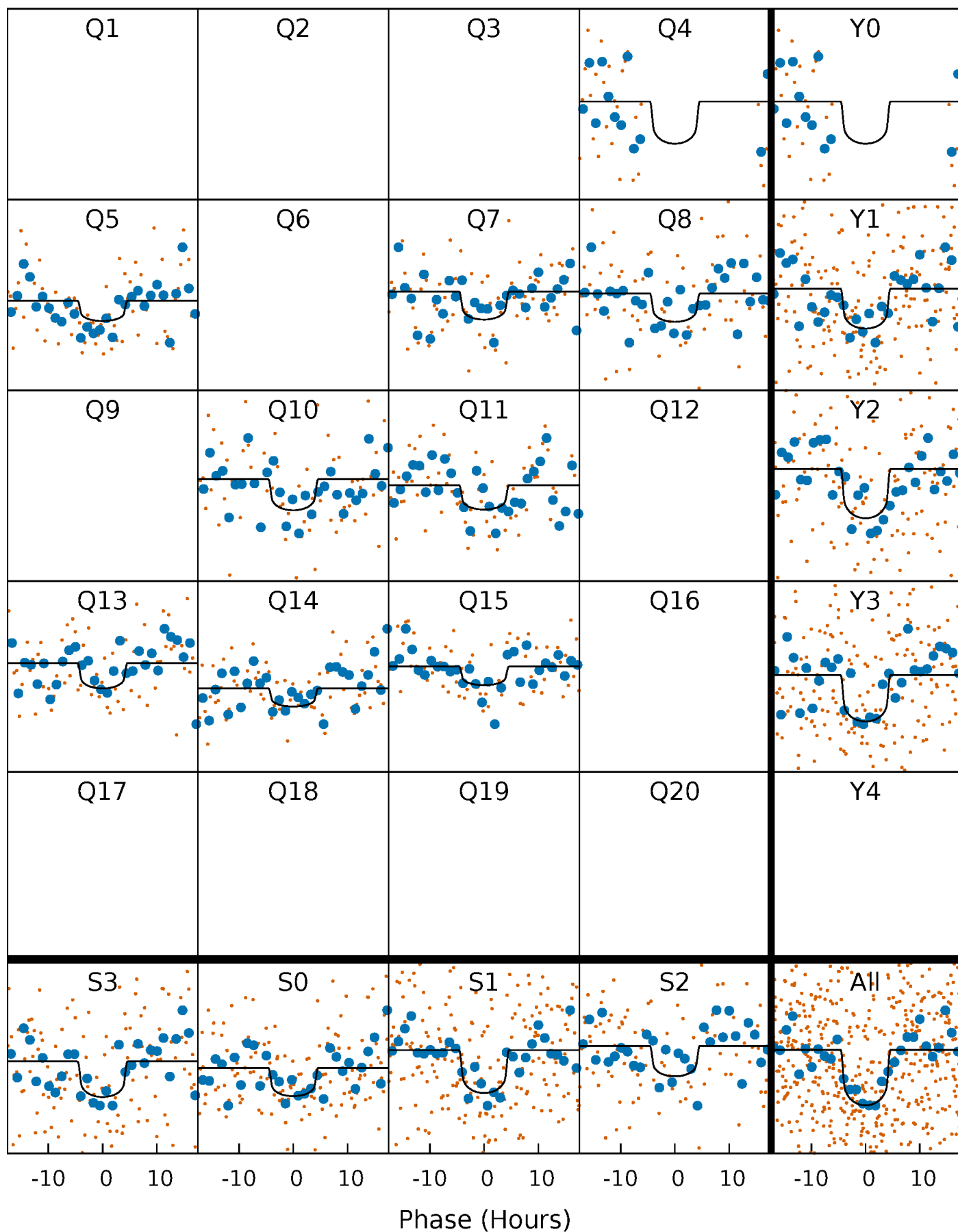
TCE 011967872-01 P=134.373341 Days  $T_0=249.300128$  (BKJD)





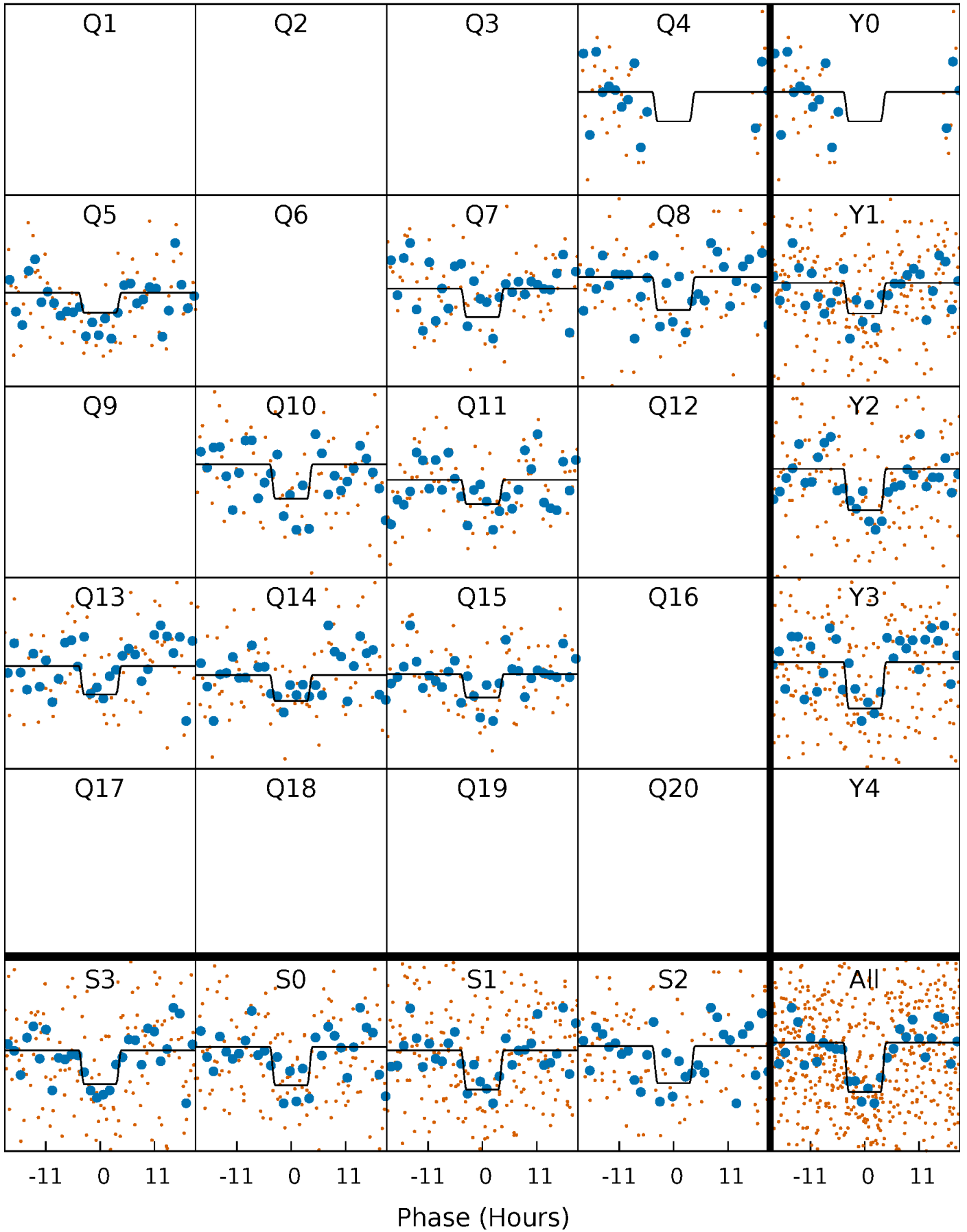
# DV Quarter-Phased Transit Curves

TCE 011967872-01 P=134.373341 Days  $T_0=249.300128$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

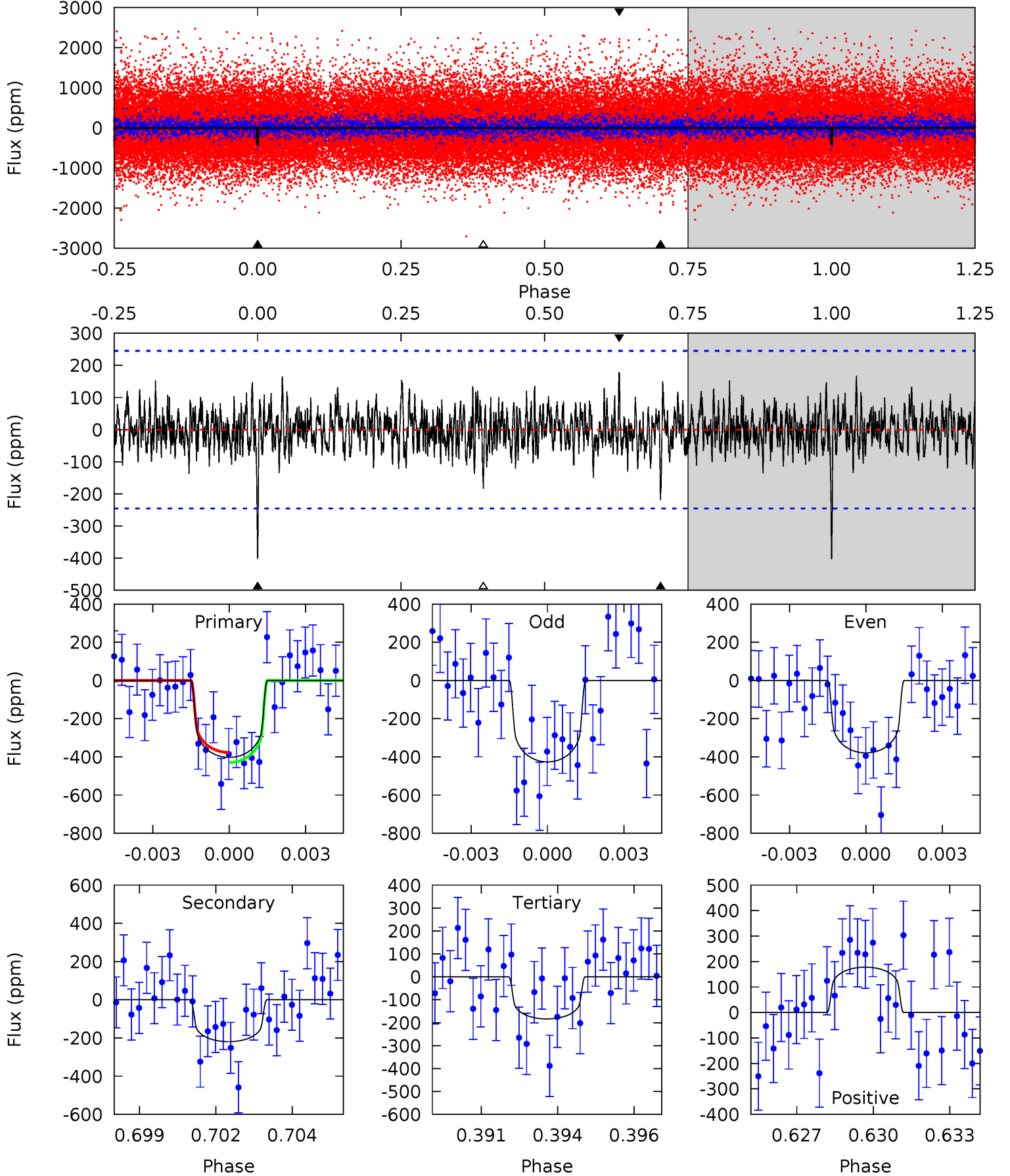
TCE 011967872-01 P=134.377902 Days  $T_0=249.271015$  (BKJD)



# DV Model-Shift Uniqueness Test

011967872-01, P = 134.373341 Days, E = 249.300128 Days

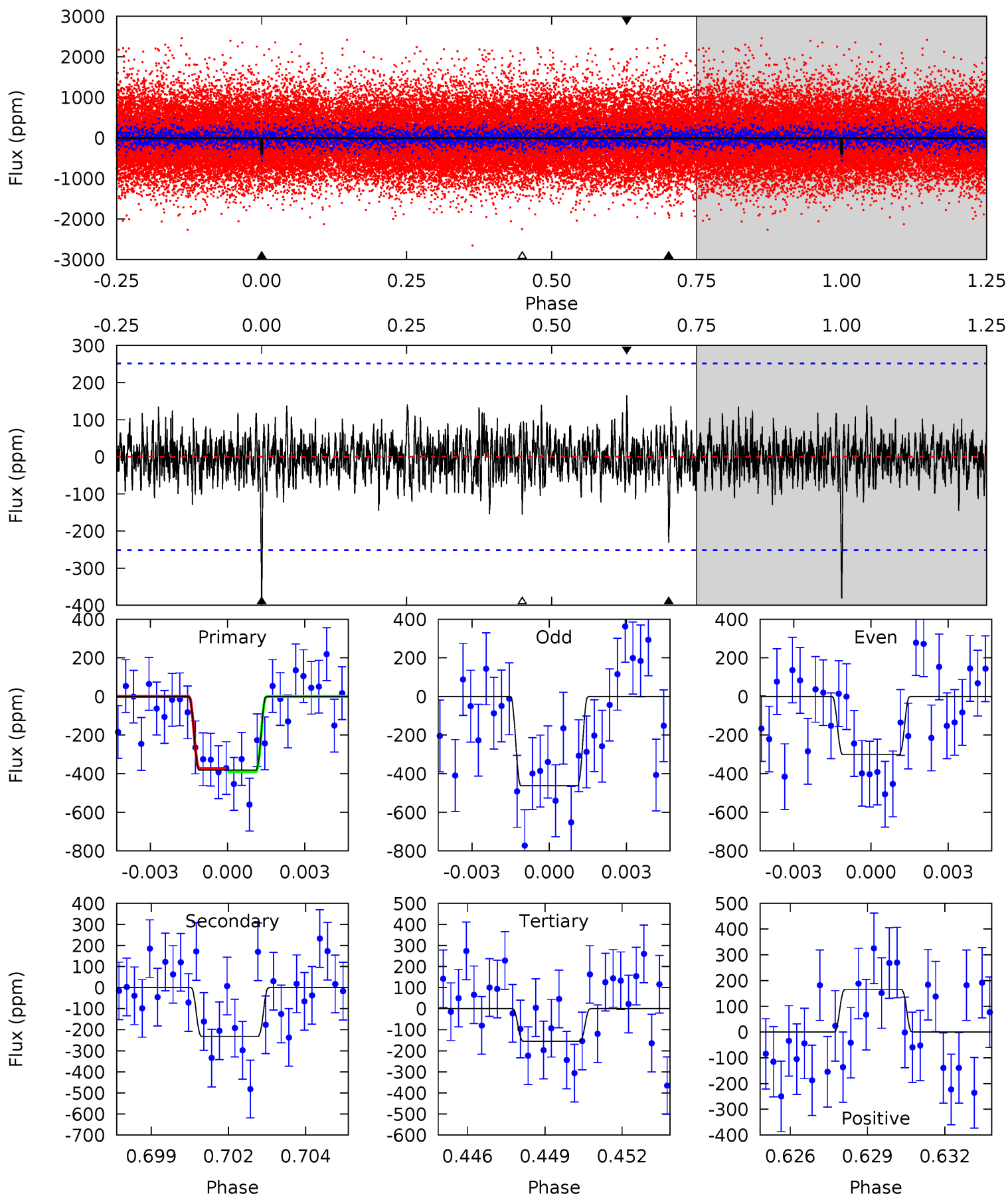
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.65	4.71	3.94	3.82	5.26	2.98	1.07	4.70	4.83	0.77	0.89	0.51	0.99	0.31	0.57



# Alt Model-Shift Uniqueness Test

011967872-01, P = 134.377902 Days, E = 249.271015 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
8.00	4.85	3.24	3.46	5.27	3.00	0.93	4.76	4.54	1.61	1.39	1.69	1.00	0.30	0.17



### Stellar Parameters For KIC 011967872

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5910^{+184}_{-205}$	$4.505^{+0.039}_{-0.221}$	$-0.020^{+0.250}_{-0.300}$	$0.940^{+0.297}_{-0.099}$	$1.032^{+0.124}_{-0.138}$	$1.750^{+0.373}_{-0.942}$
	+3%/-3%	+1%/-5%	+1250%/-1500%	+32%/-11%	+12%/-13%	+21%/-54%
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 011967872-01 / KOI 8072.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-219 \pm 47$	$2.38^{+1.46}_{-1.23}$	$501^{+39}_{-24}$	$4952^{+2072}_{-858}$	$5603^{+18438}_{-3468}$
Alt.	$-232 \pm 48$	$2.39^{+1.53}_{-1.34}$	$504^{+40}_{-26}$	$4957^{+2468}_{-875}$	$5707^{+22573}_{-3618}$

$T_{max}$  = 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

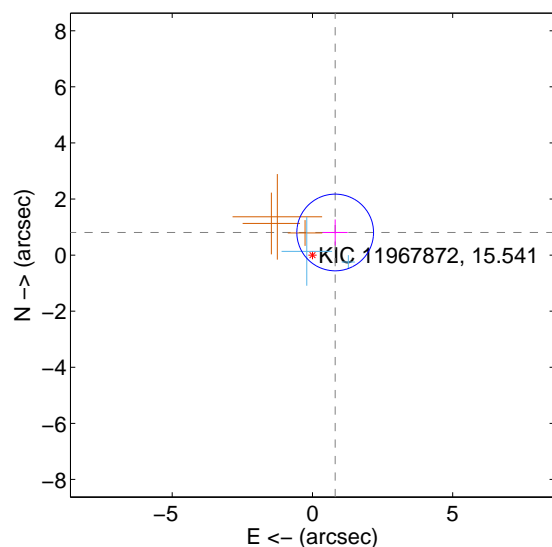
Supplemental centroid analysis for 011967872-01. Kepler magnitude: 15.54. Transit SNR 7.72

There are 2 quarters with good PRF difference image offsets

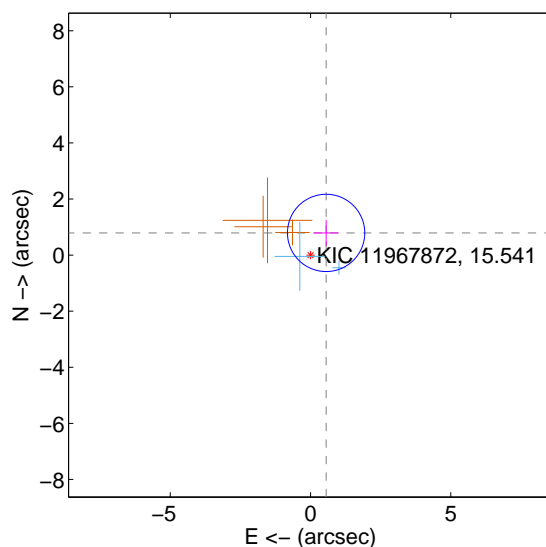
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.144 \pm 0.456$	2.51	$-0.811 \pm 0.445$	$0.807 \pm 0.466$
PRF-fit source offset from KIC position	$0.967 \pm 0.459$	2.10	$-0.556 \pm 0.445$	$0.791 \pm 0.466$
photometric centroid source offset	$1.66 \pm 1.84$	0.90	$1.01 \pm 1.79$	$-1.32 \pm 1.88$

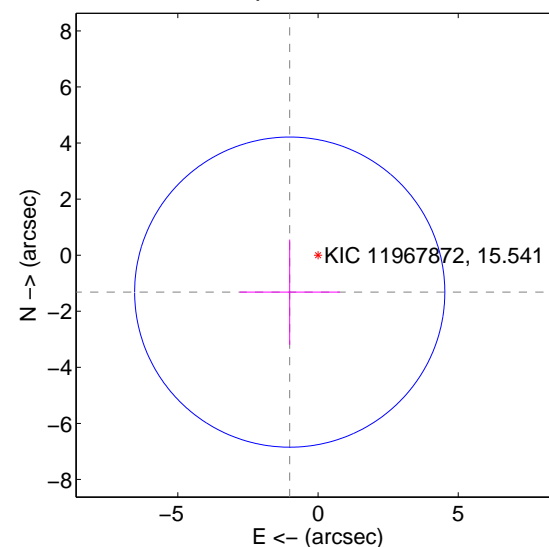
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



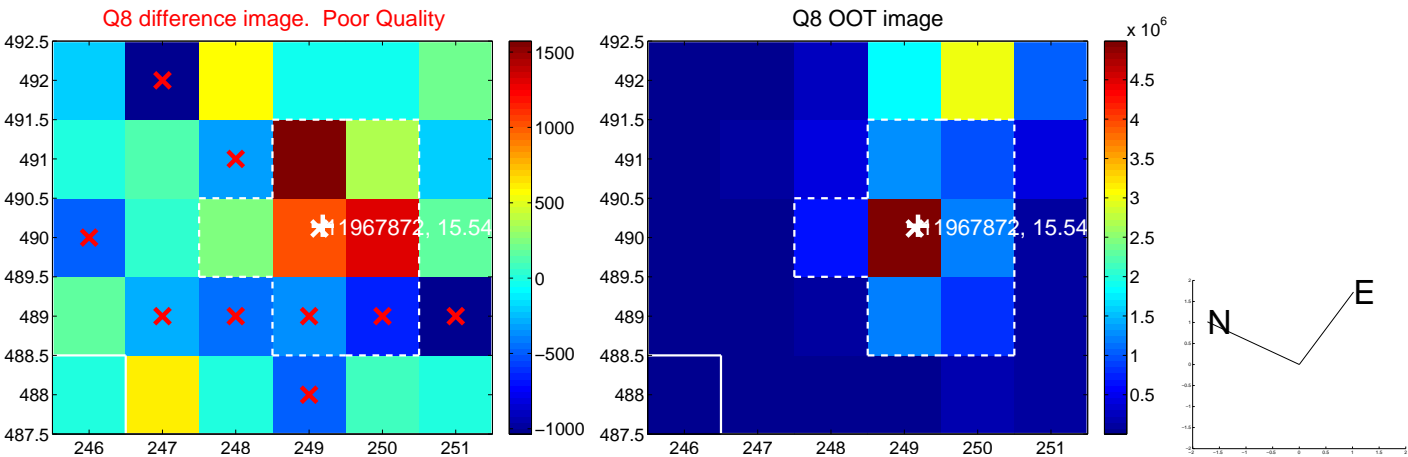
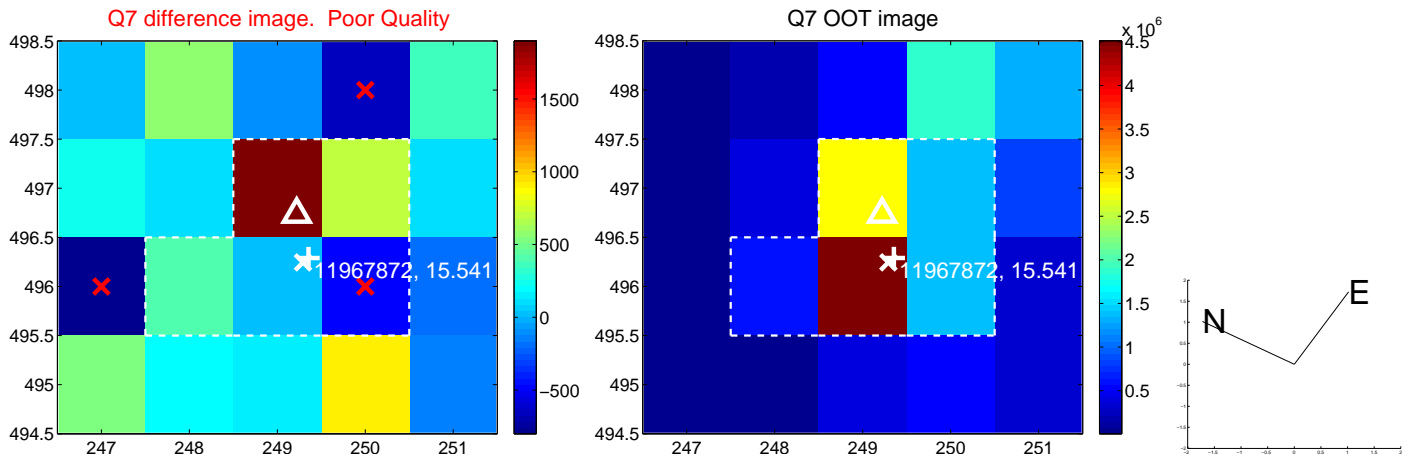
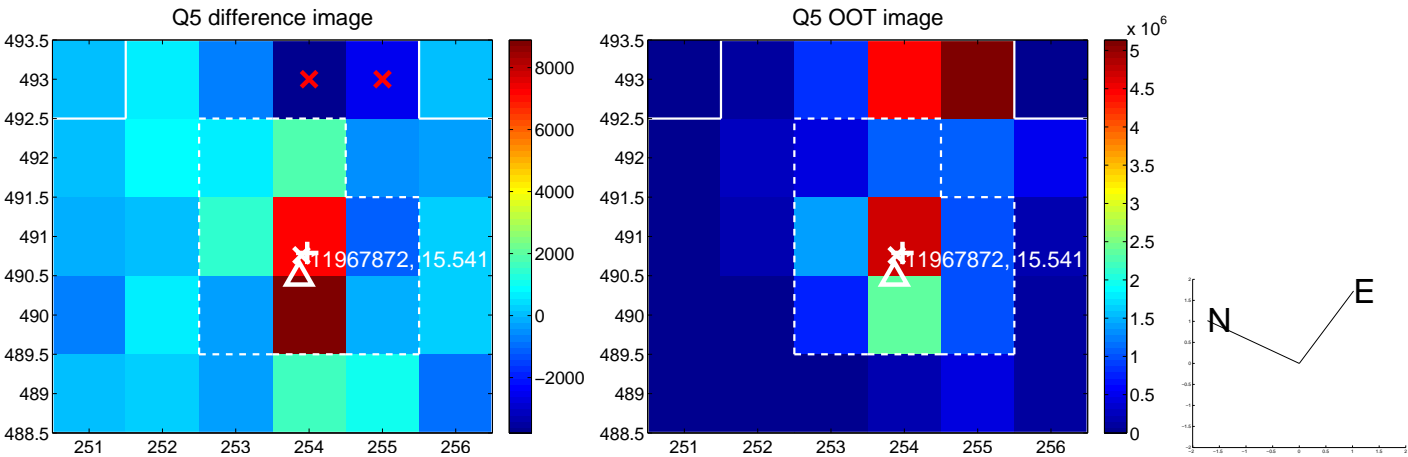
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



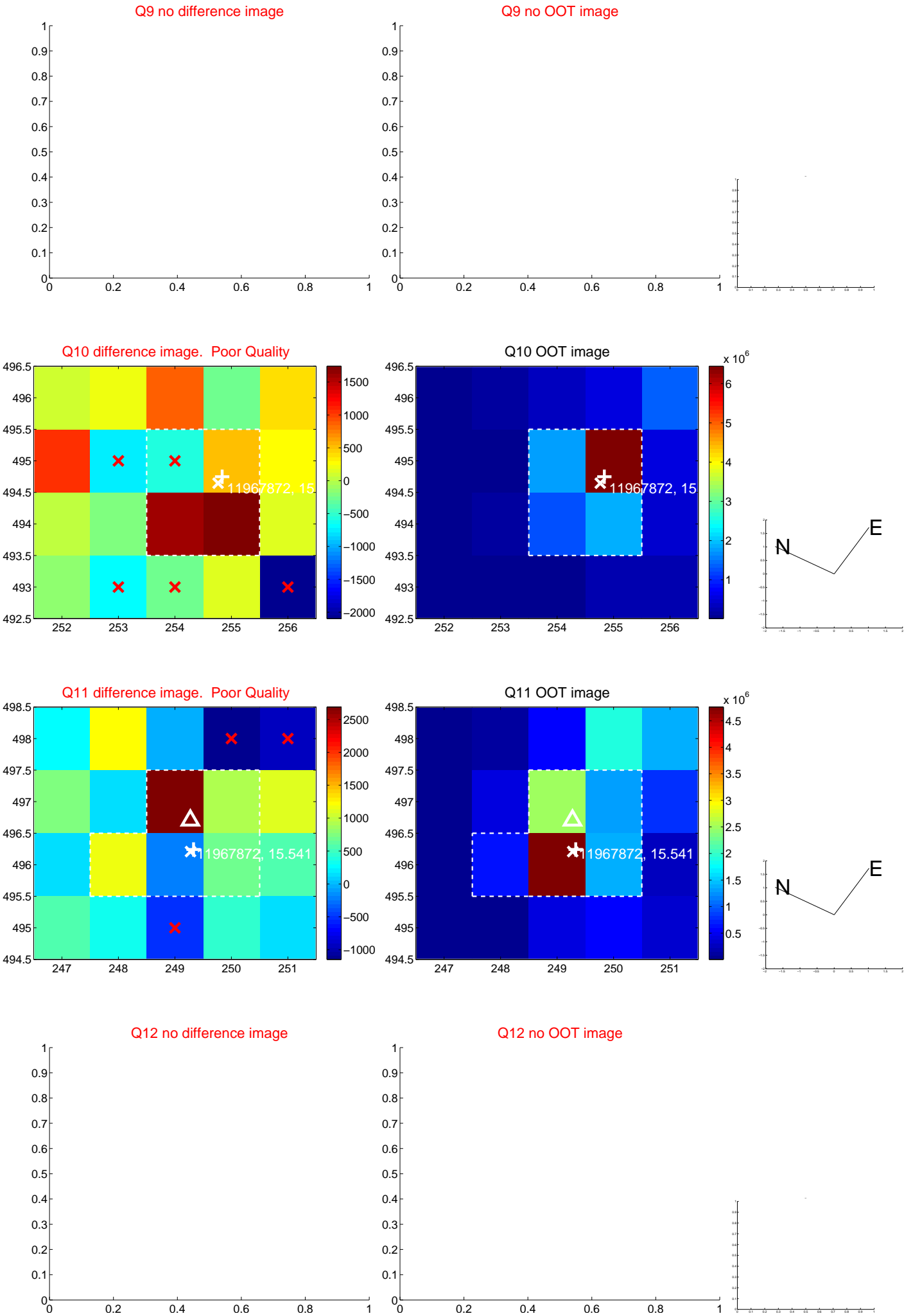
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



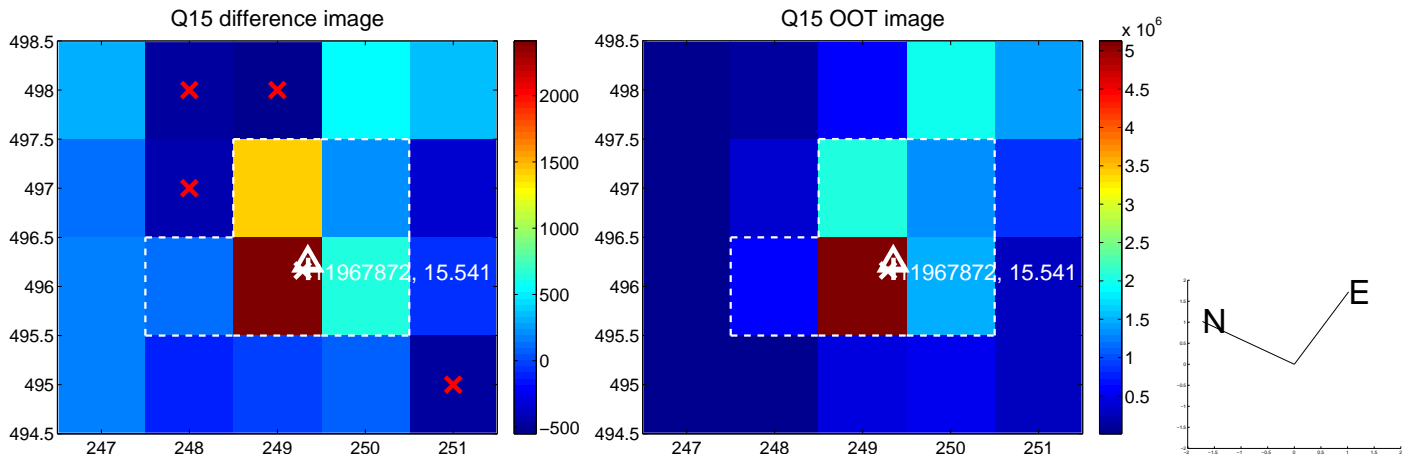
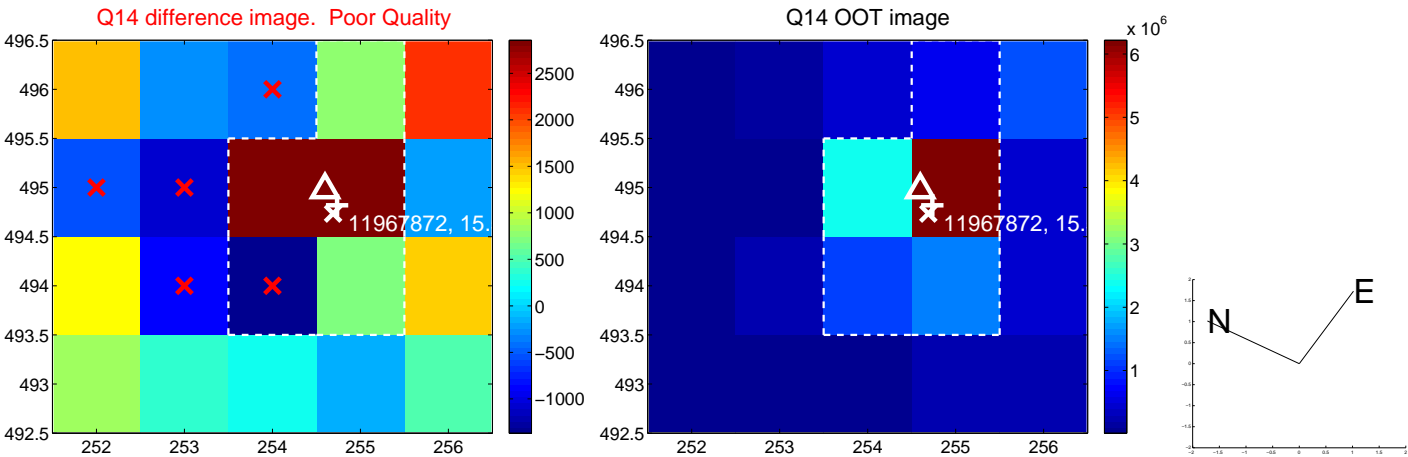
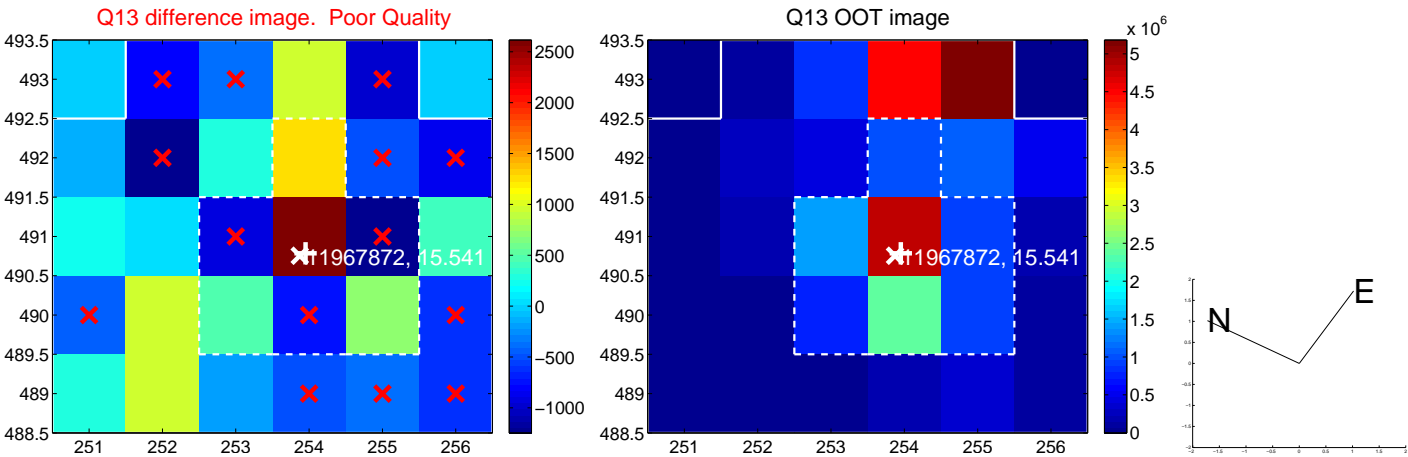
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



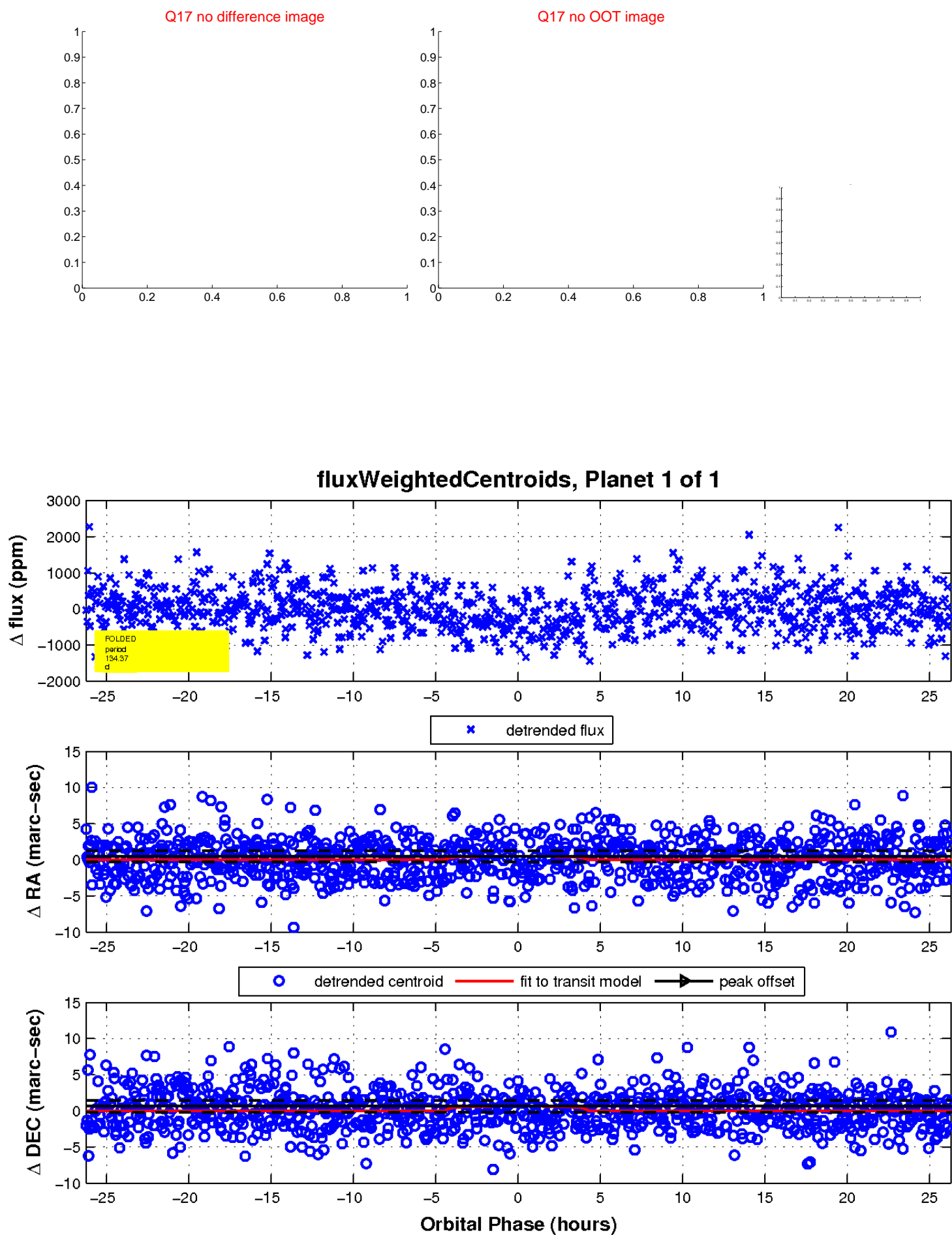
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



This astronomical image shows a field of stars against a dark, noisy background. A blue grid is overlaid on the image, with green text labels indicating coordinates. The labels are as follows:

- Top-left: 19:36:20.0
- Top-center: 18.0
- Top-right: 20.0
- Middle-left: 50.0
- Middle-center: 50.0
- Middle-right: 50.0
- Bottom-left: 20.0
- Bottom-center: 30.0
- Bottom-right: 20.0

Declination