

# KIC 011187972

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011187972-01	OBS	7416.01	37.465103	138.646881	51.0	5.175	7.4	8.2	1.34	6266	1.12	49.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011187972-01	OBS	PC	0.35	0	0	0	0	NO_COMMENT

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

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

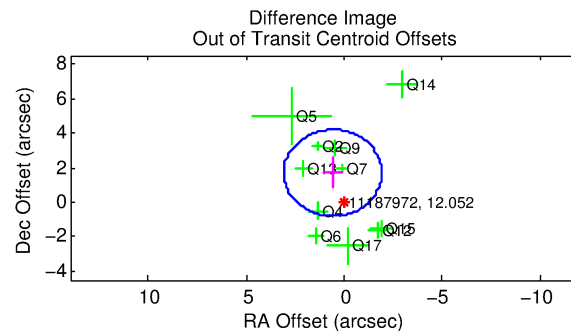
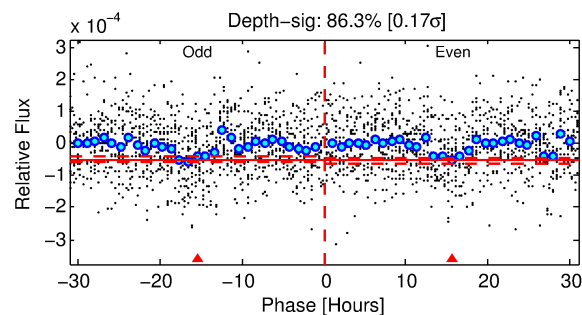
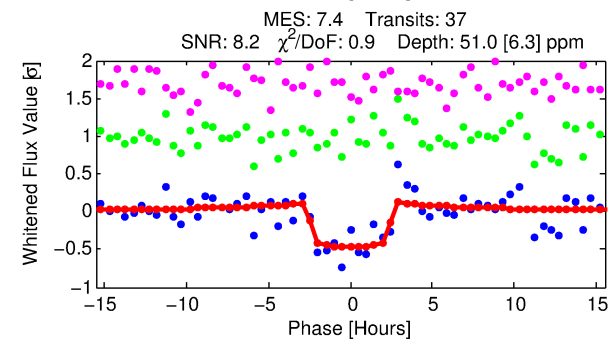
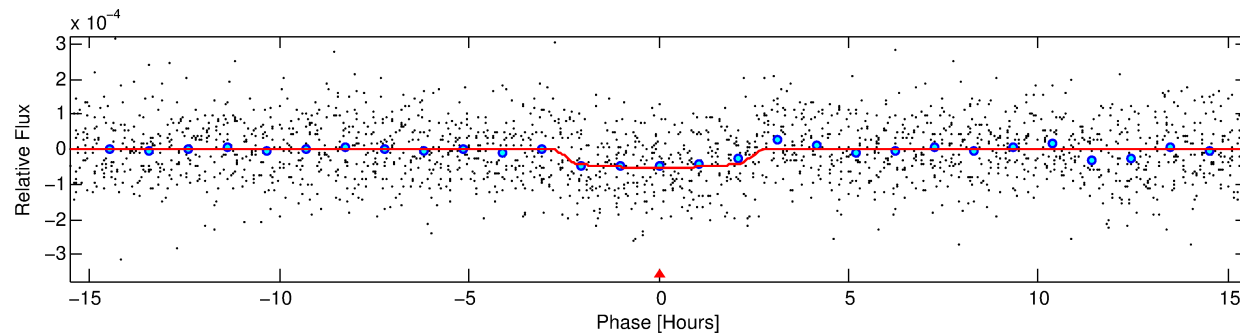
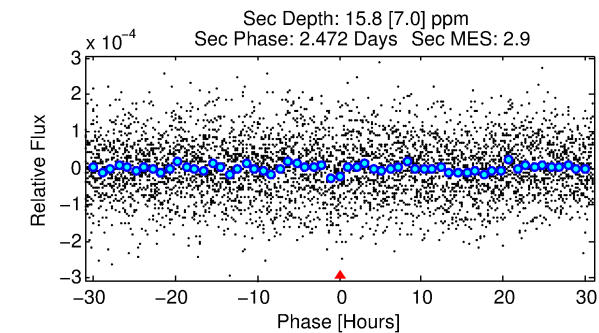
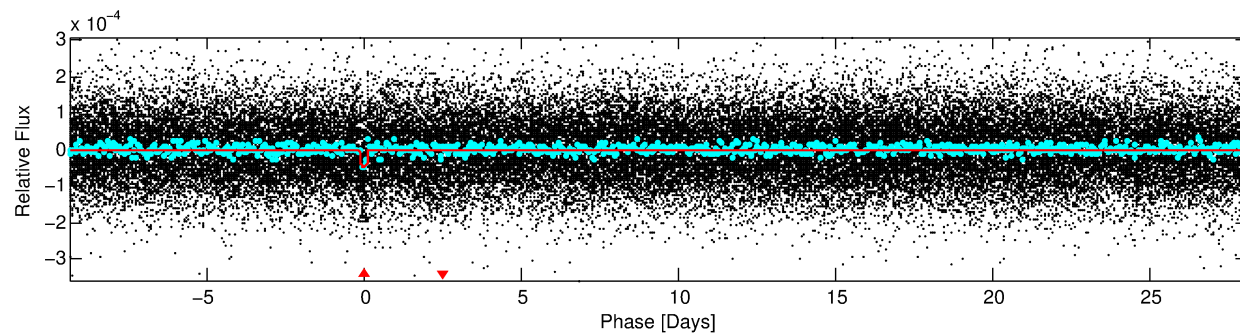
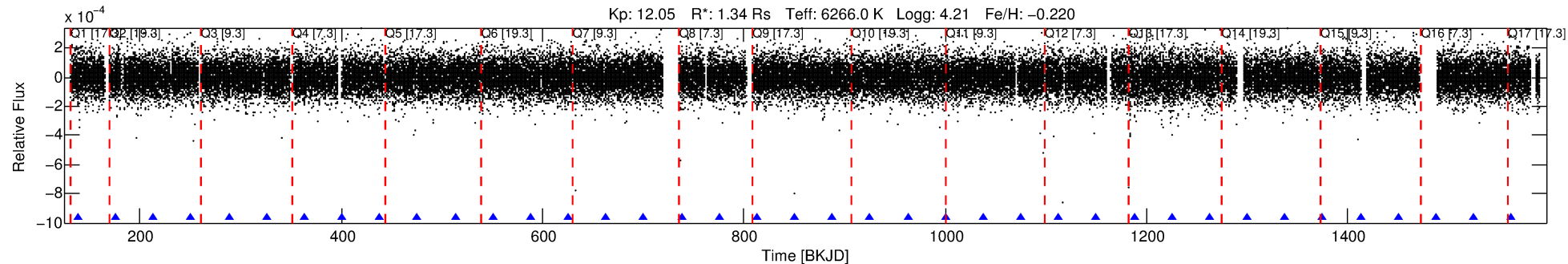
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011187972-01

No Significant Match Found

# DV One-Page Summary

KIC: 11187972 Candidate: 1 of 1 Period: 37.465 d  
KOI: K07416.01 Corr: 0.909



## DV Fit Results:

Period = 37.46510 [0.00049] d  
Epoch = 138.6469 [0.0103] BKJD  
Rp/R\* = 0.0077 [0.0039]  
a/R\* = 25.00 [70.84]  
b = 0.90 [0.60]  
Seff = 49.72 [20.38]  
Teq = 677 [69] K  
Rp = 1.12 [0.65] Re  
a = 0.2237 [0.0563] AU  
Ag = 344.61 [403.40] [0.85σ]  
Teffp = 4511 [1261] K [3.04σ]

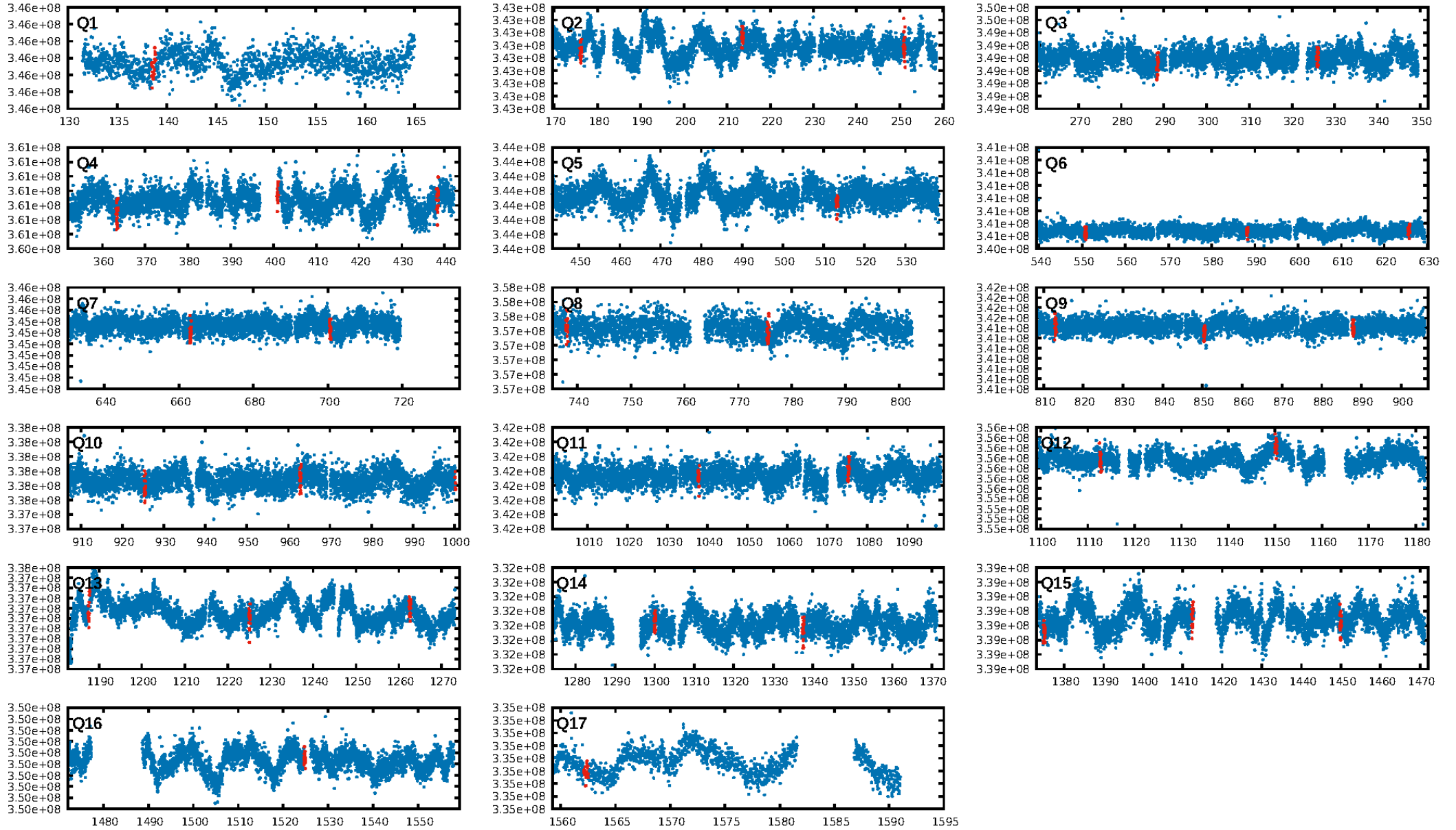
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 70.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.85e-13  
RollingBand-fgt: 1.00 [35/35]  
GhostDiagnostic-chr: 1.821  
Centroid-sig: 10.3%  
Centroid-so: 1.341 arcsec [1.28σ]  
OotOffset-rm: 1.792 arcsec [2.15σ]  
KicOffset-rm: 1.655 arcsec [1.87σ]  
OotOffset-st: 3/2/2/4 [11]  
KicOffset-st: 3/2/2/4 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [16/16]

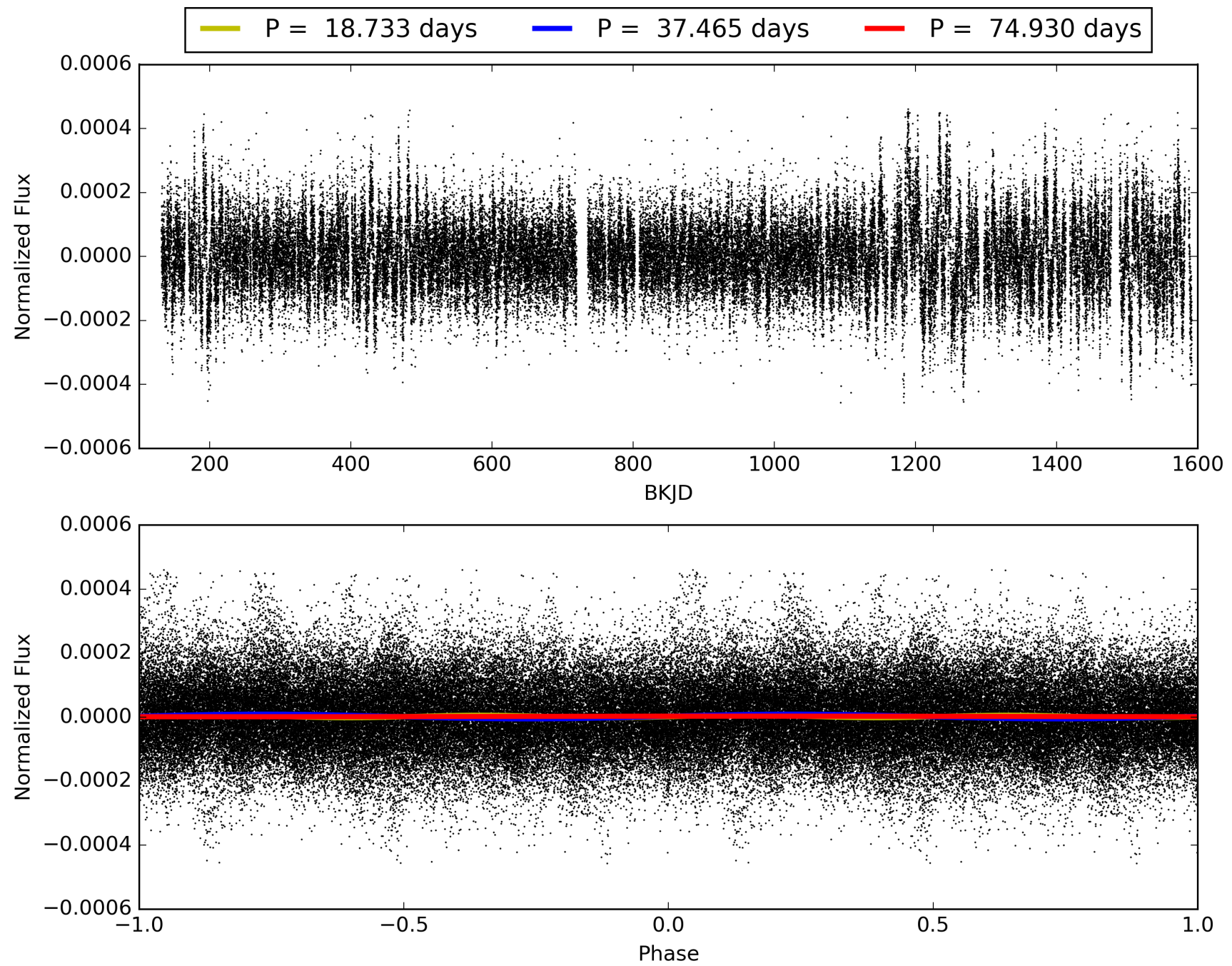
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:27:35 Z

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

# TCE 011187972-01, PDC Light Curves

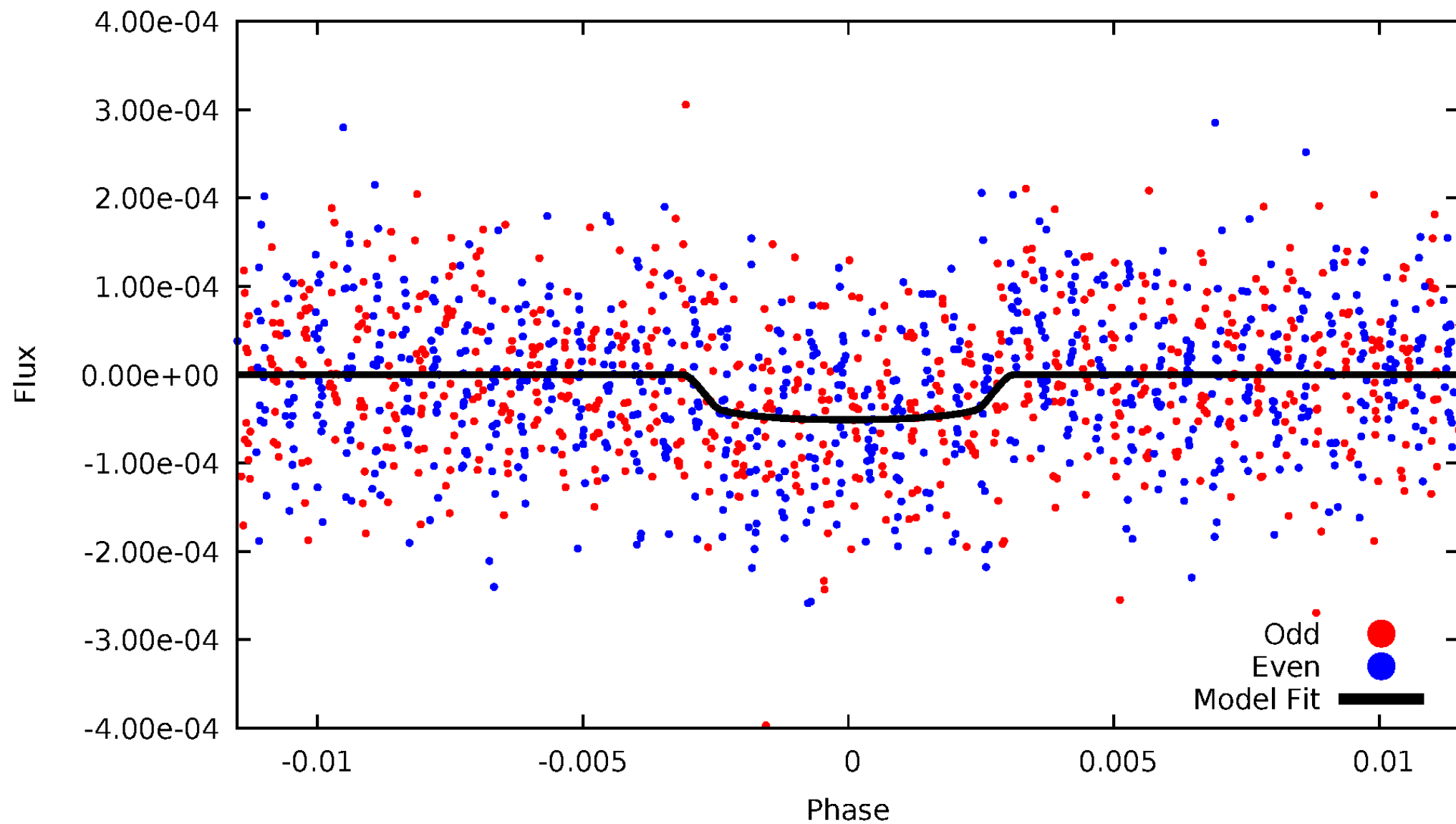


# TCE 011187972-01



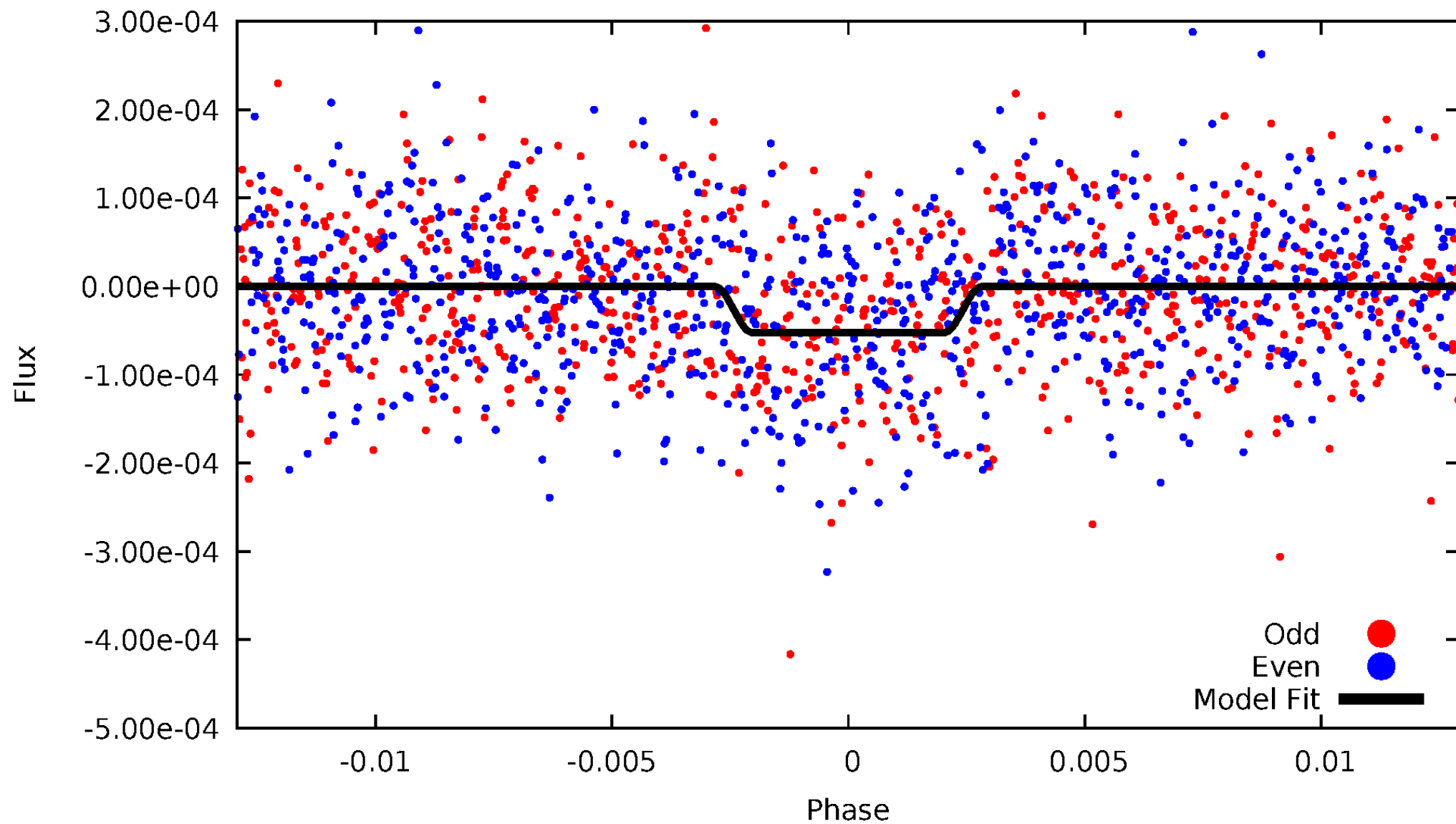
# DV Odd/Even

TCE 011187972-01



# ALT Odd/Even

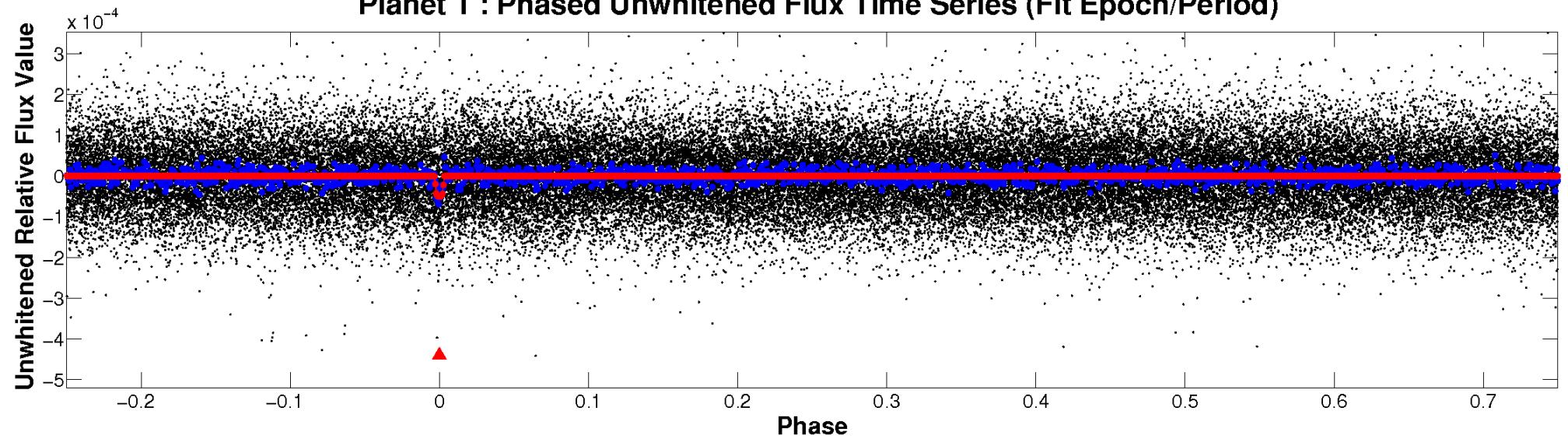
TCE 011187972-01



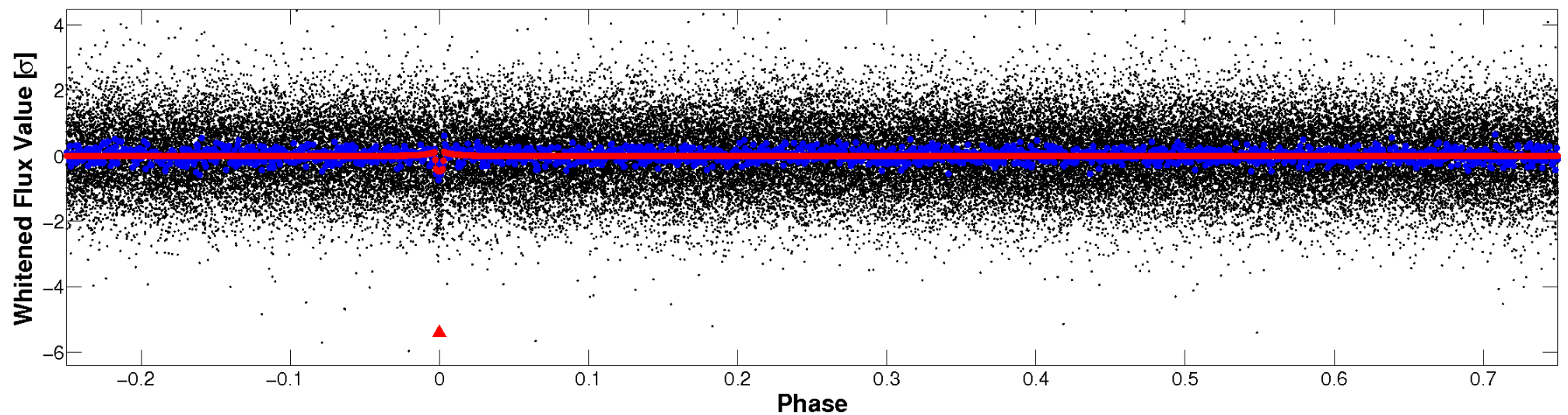


# Non-Whitened Vs. Whitened Light Curve

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

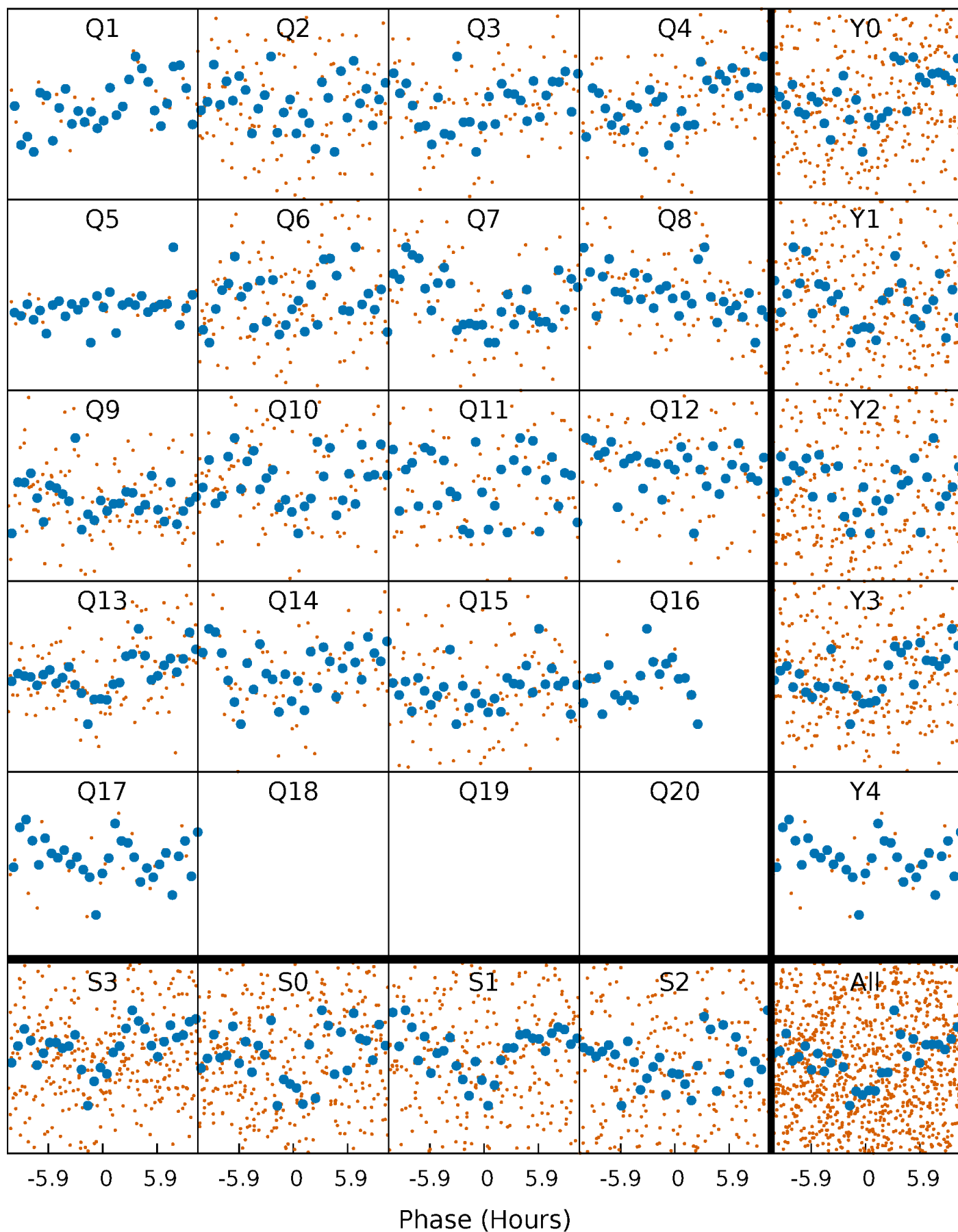


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

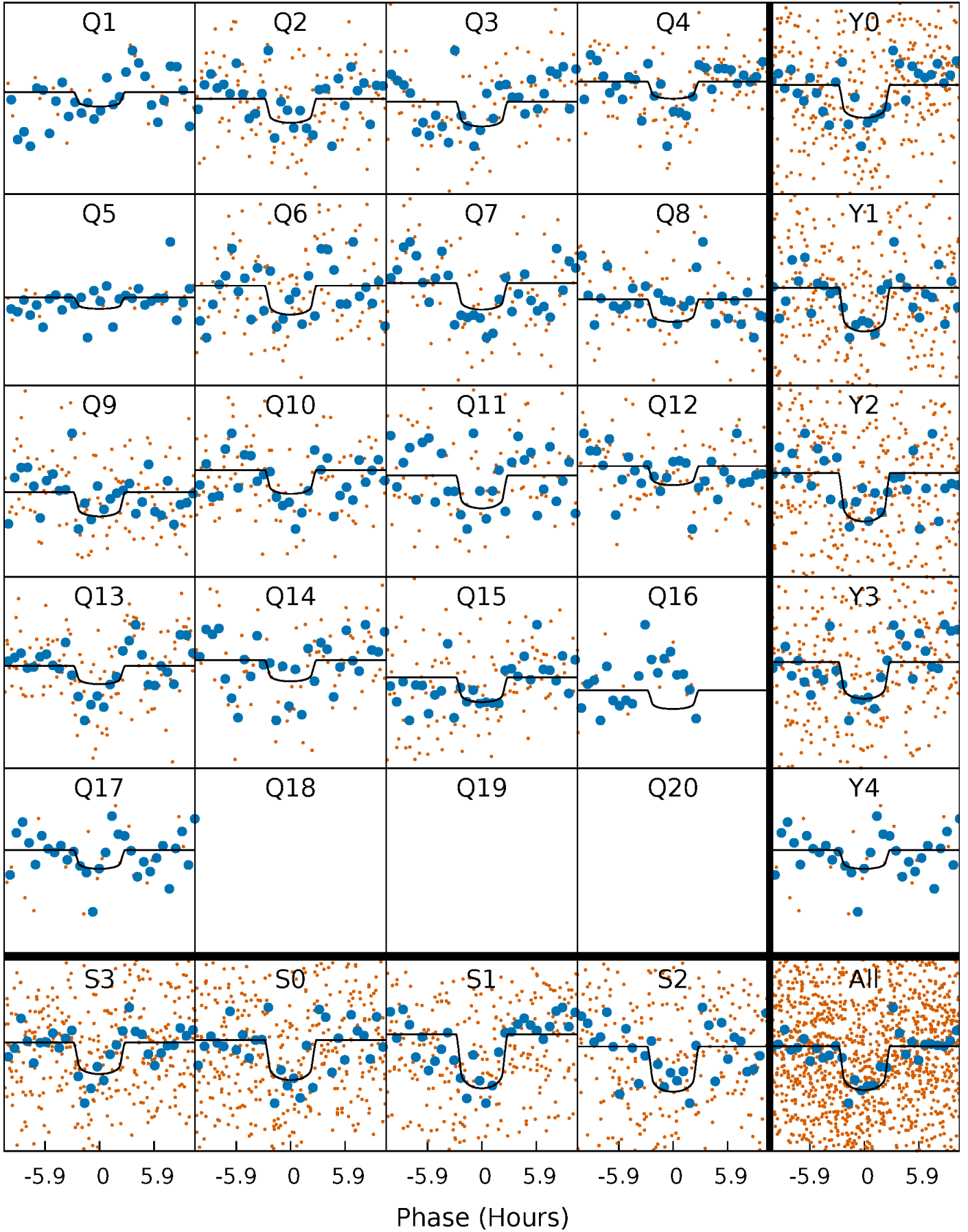
TCE 011187972-01 P= 37.465103 Days  $T_0=138.646881$  (BKJD)





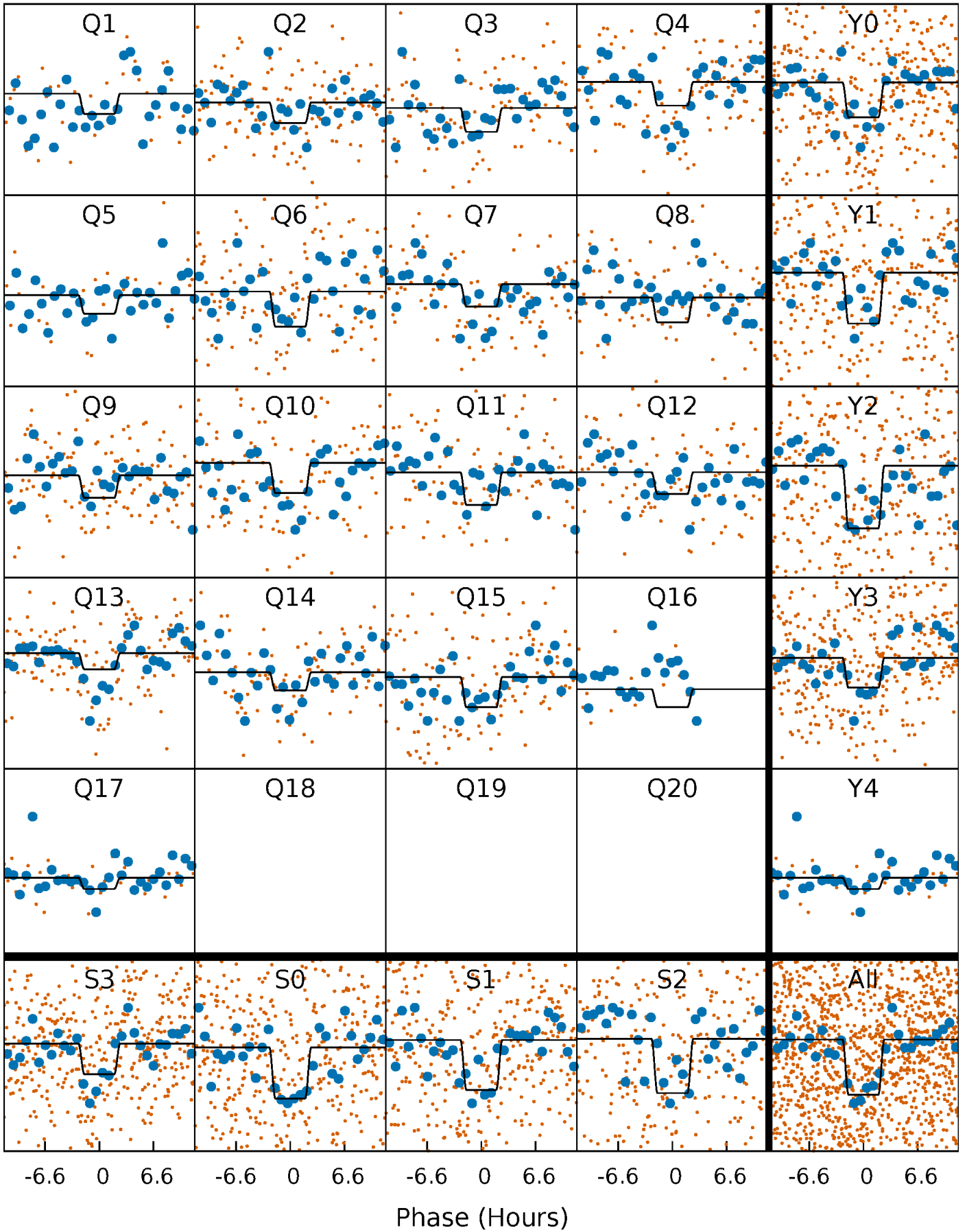
# DV Quarter-Phased Transit Curves

TCE 011187972-01 P= 37.465103 Days  $T_0=138.646881$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

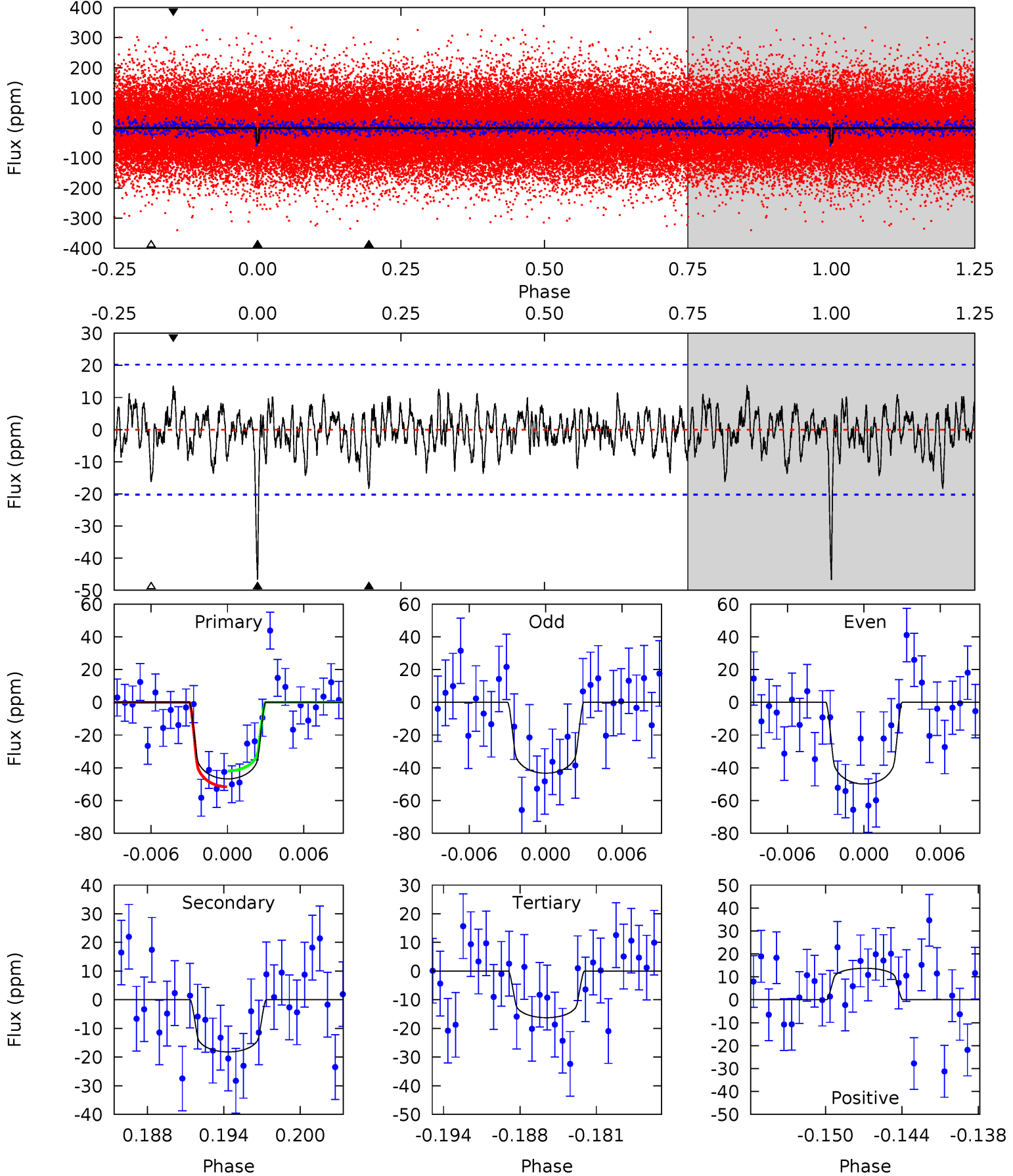
TCE 011187972-01 P= 37.464708 Days  $T_0=138.646228$  (BKJD)



# DV Model-Shift Uniqueness Test

011187972-01,  $P = 37.465103$  Days,  $E = 101.181778$  Days

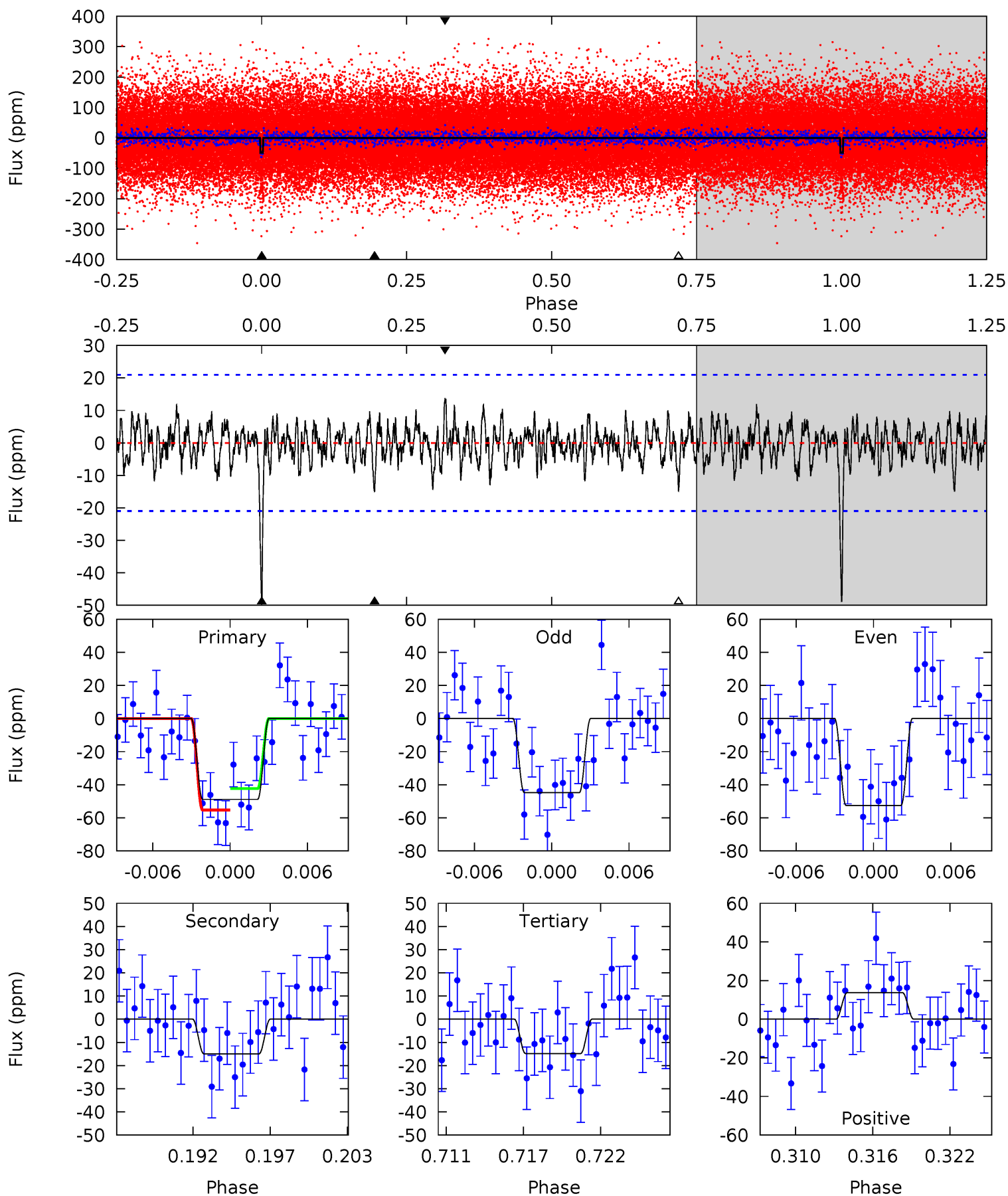
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	4.60	4.11	3.47	5.12	2.73	1.26	7.71	8.35	0.49	1.13	0.84	1.08	0.23	1.22



# Alt Model-Shift Uniqueness Test

011187972-01,  $P = 37.464708$  Days,  $E = 101.181520$  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
12.0	3.66	3.63	3.37	5.14	2.77	1.12	8.33	8.59	0.03	0.29	0.94	1.10	0.22	1.59



### Stellar Parameters For KIC 011187972

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6266^{+197}_{-241}$	$4.209^{+0.214}_{-0.175}$	$-0.220^{+0.250}_{-0.300}$	$1.342^{+0.384}_{-0.314}$	$1.060^{+0.181}_{-0.131}$	$0.618^{+0.647}_{-0.294}$
	+3%/-4%	+5%/-4%	+114%/-136%	+29%/-23%	+17%/-12%	+105%/-48%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 011187972-01 / KOI 7416.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-18 \pm 4$	$1.15^{+0.62}_{-0.57}$	$946^{+75}_{-69}$	$4769^{+1570}_{-739}$	$382^{+1095}_{-229}$
Alt.	$-15 \pm 4$	$1.06^{+0.58}_{-0.54}$	$939^{+73}_{-63}$	$4674^{+1741}_{-730}$	$363^{+1139}_{-220}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

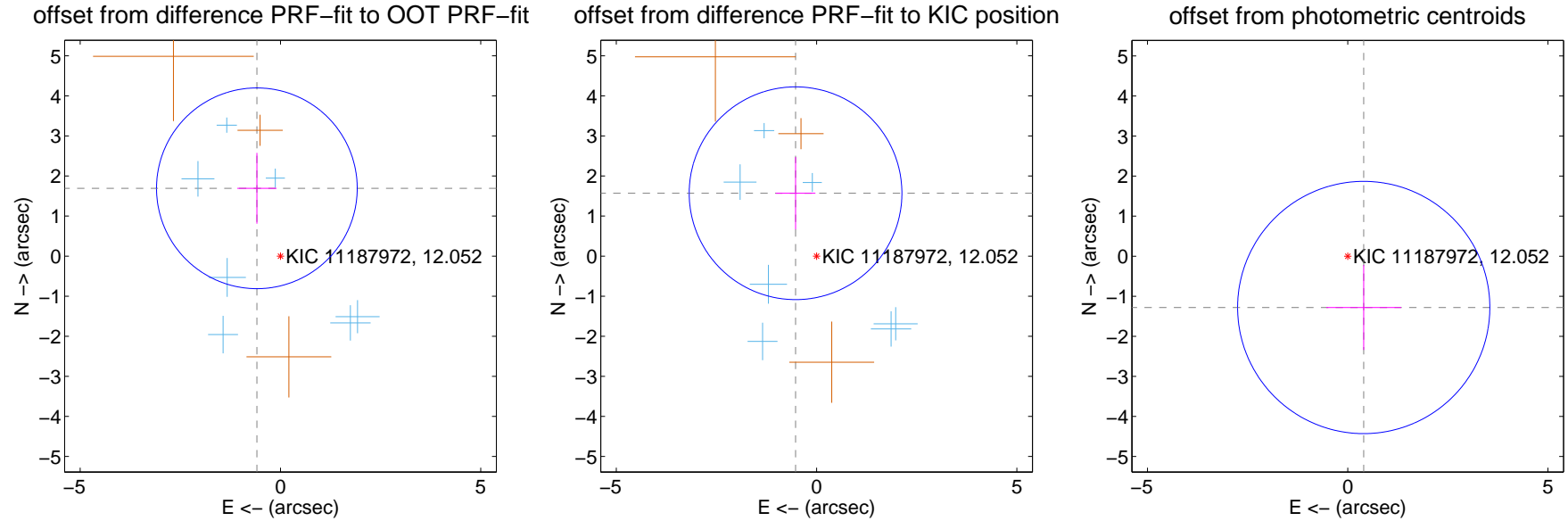
## DV Centroid Data

Supplemental centroid analysis for 011187972-01. Kepler magnitude: 12.05. Transit SNR 8.22

There are 7 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

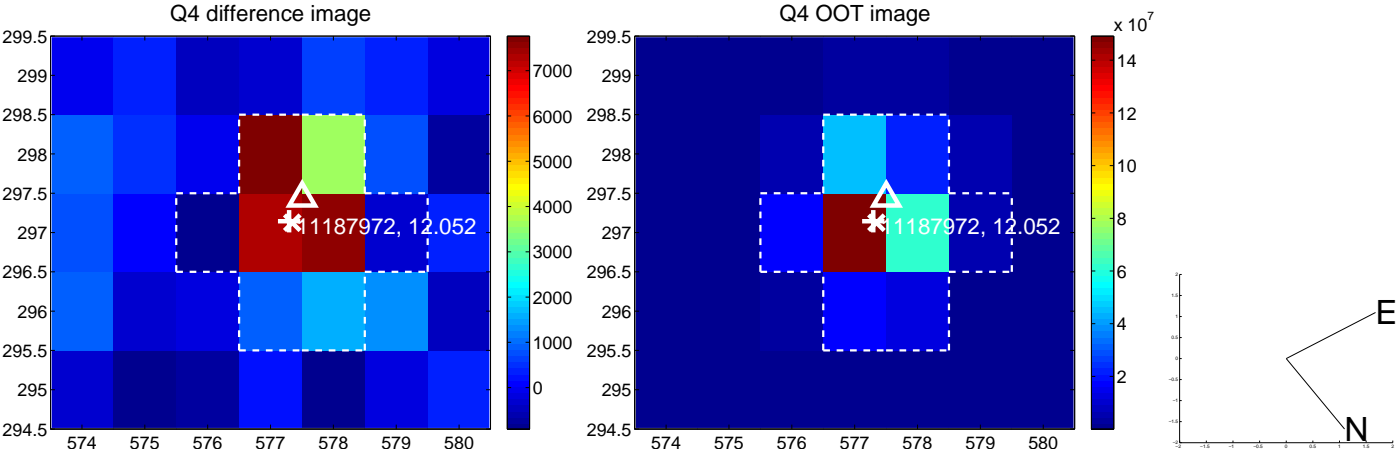
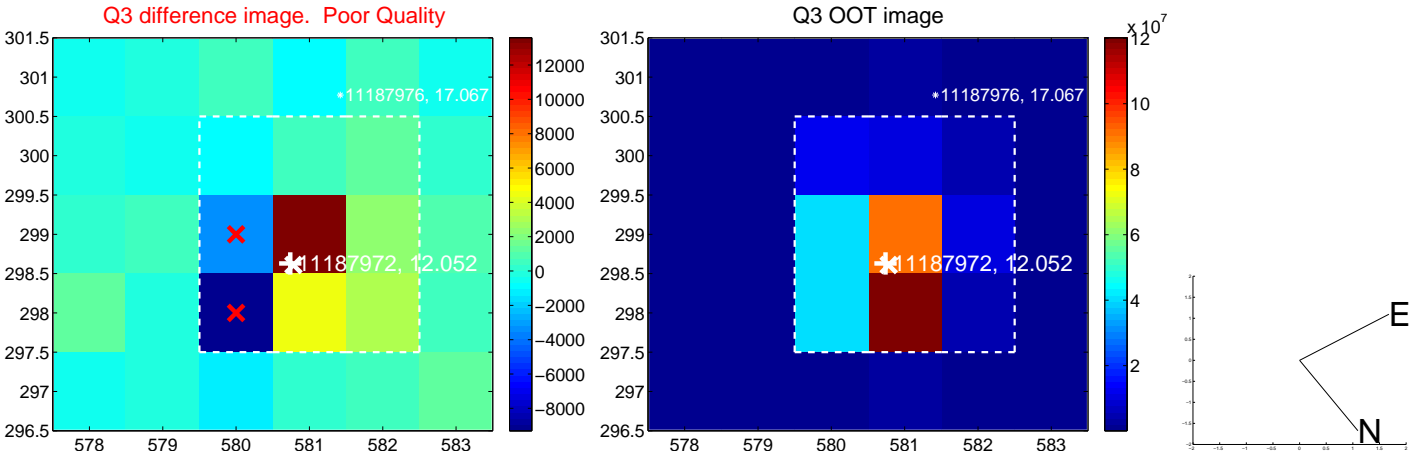
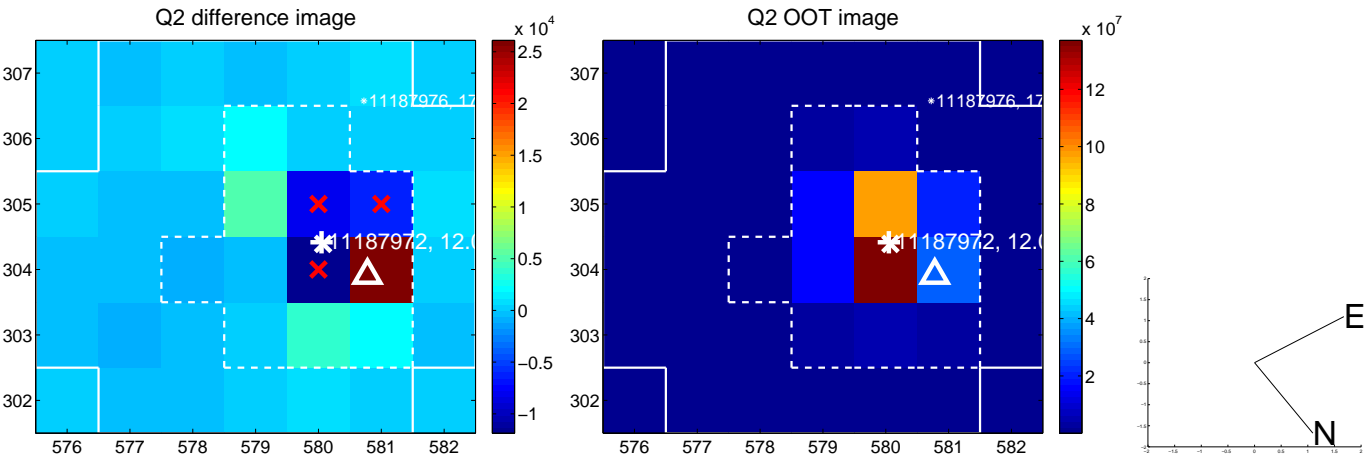
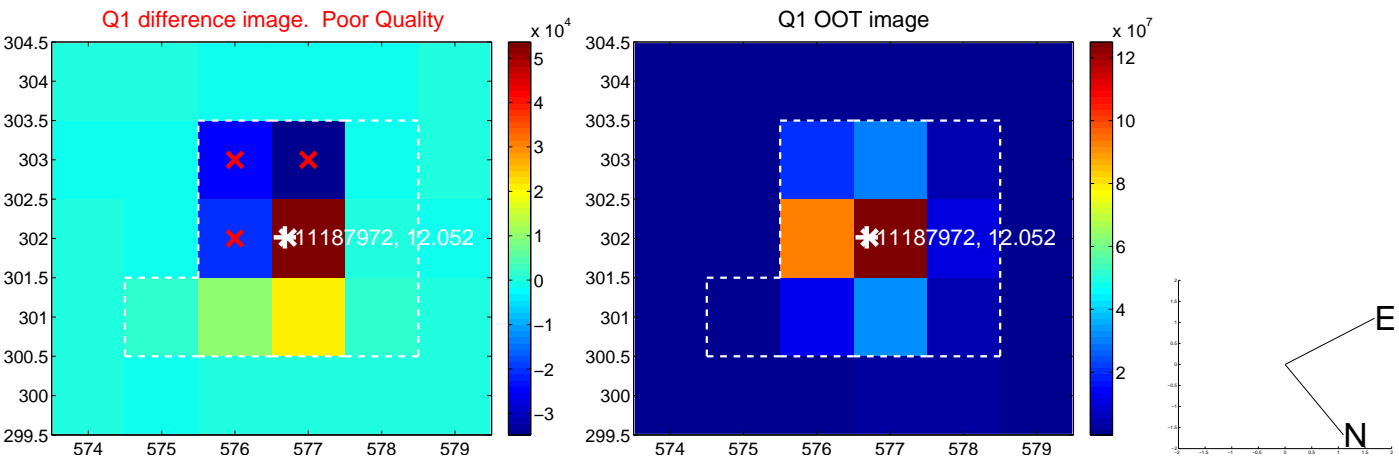
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.792 \pm 0.835$	2.15	$0.589 \pm 0.490$	$1.693 \pm 0.884$
PRF-fit source offset from KIC position	$1.655 \pm 0.885$	1.87	$0.525 \pm 0.496$	$1.569 \pm 0.902$
photometric centroid source offset	$1.34 \pm 1.05$	1.28	$-0.40 \pm 0.94$	$-1.28 \pm 1.06$



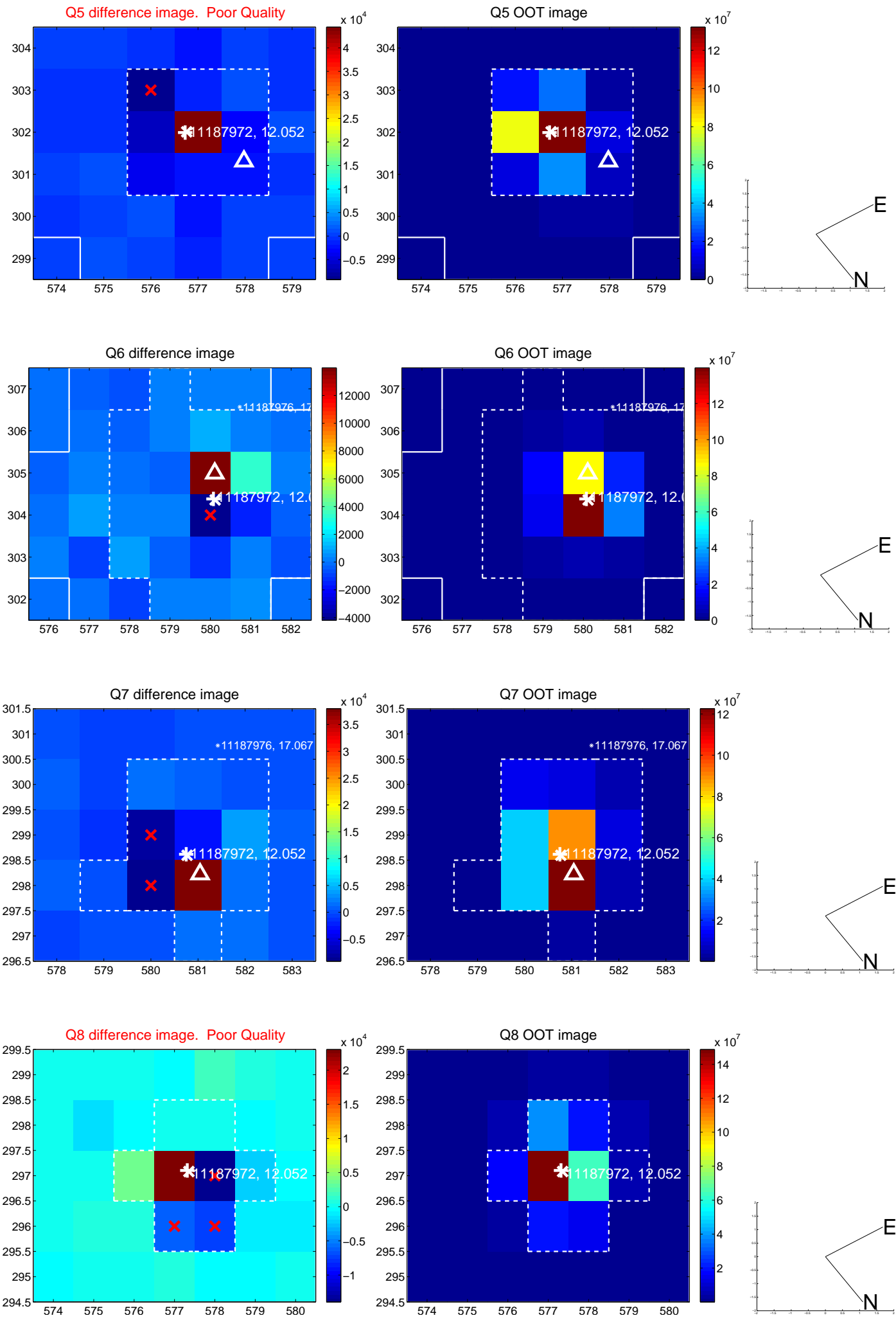
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



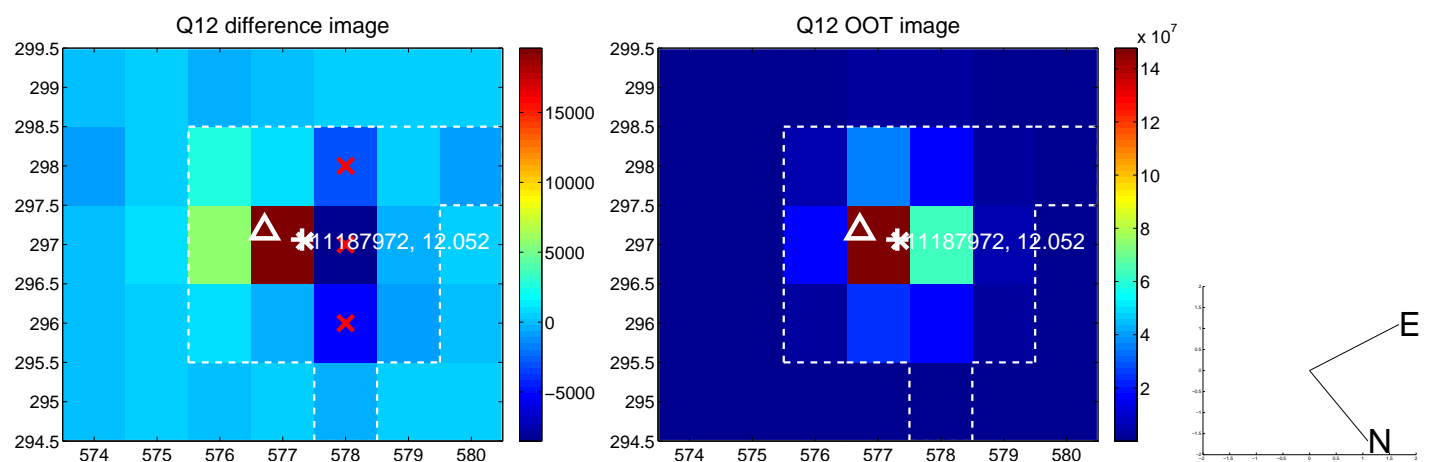
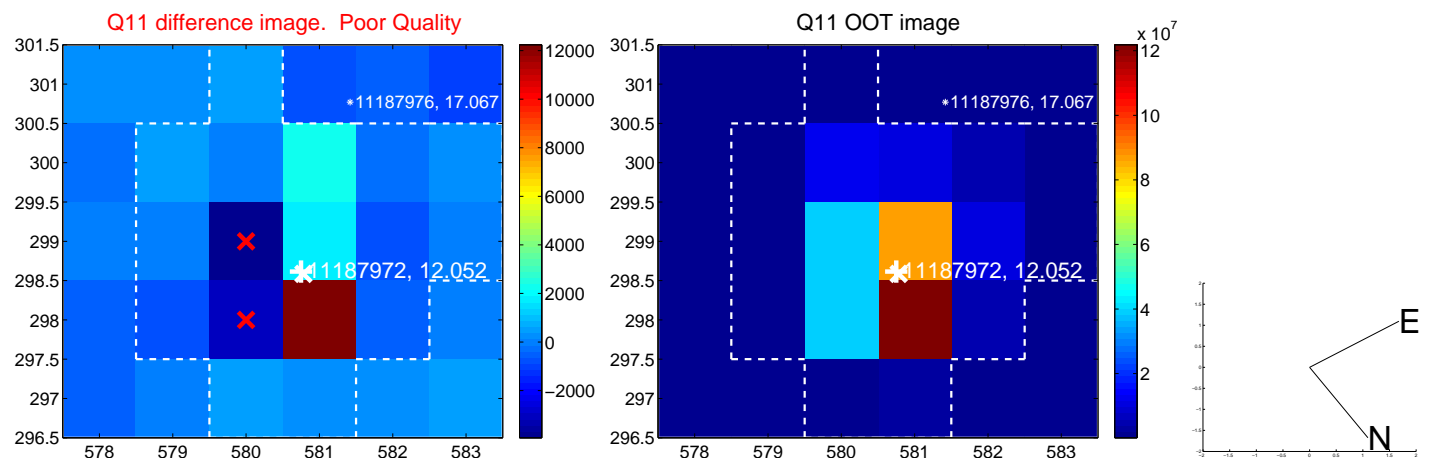
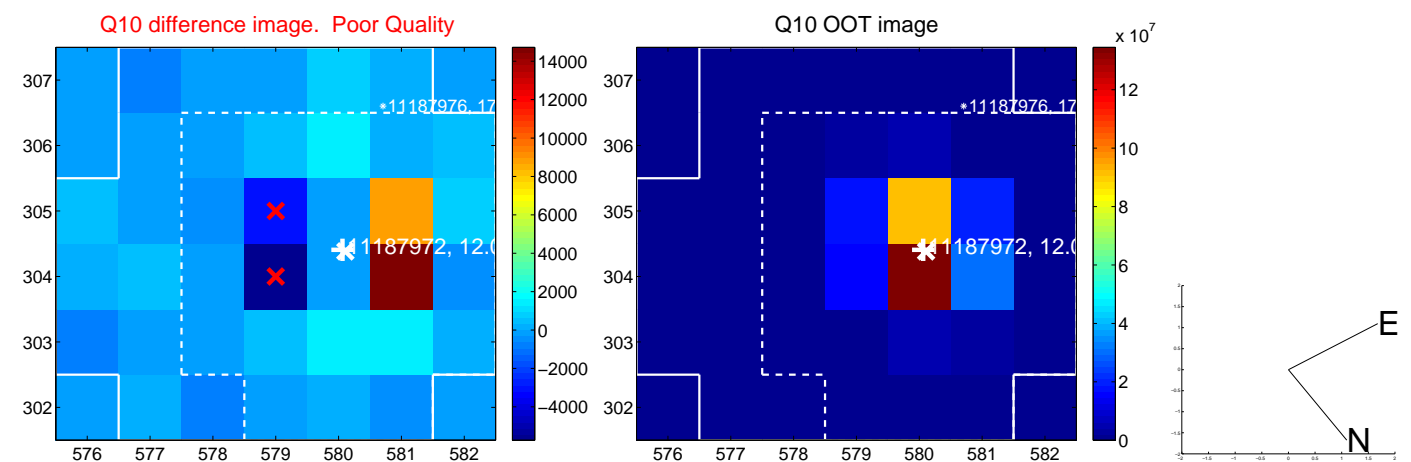
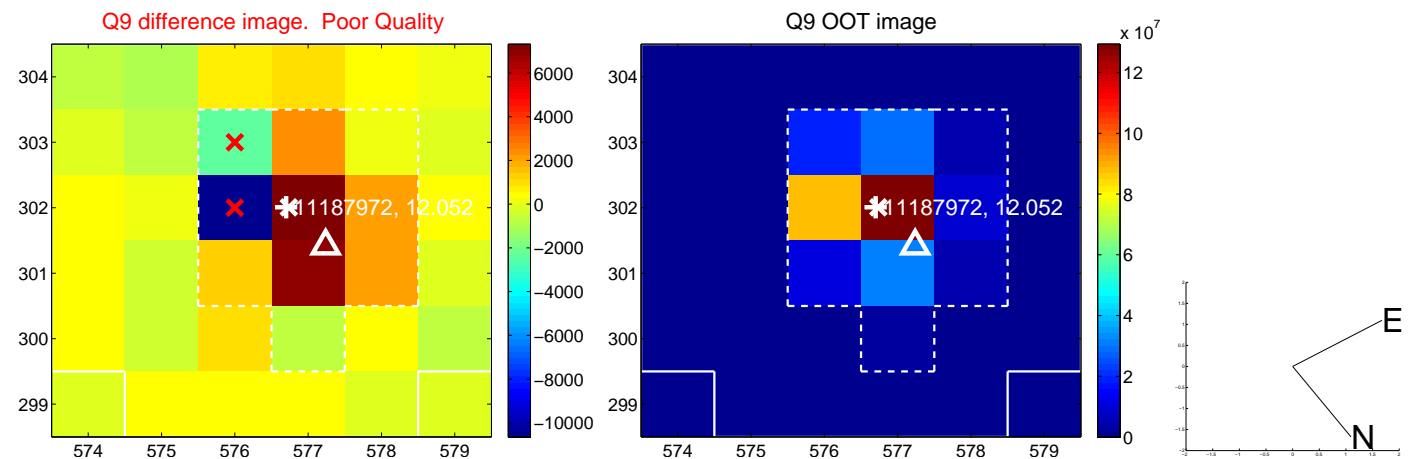
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



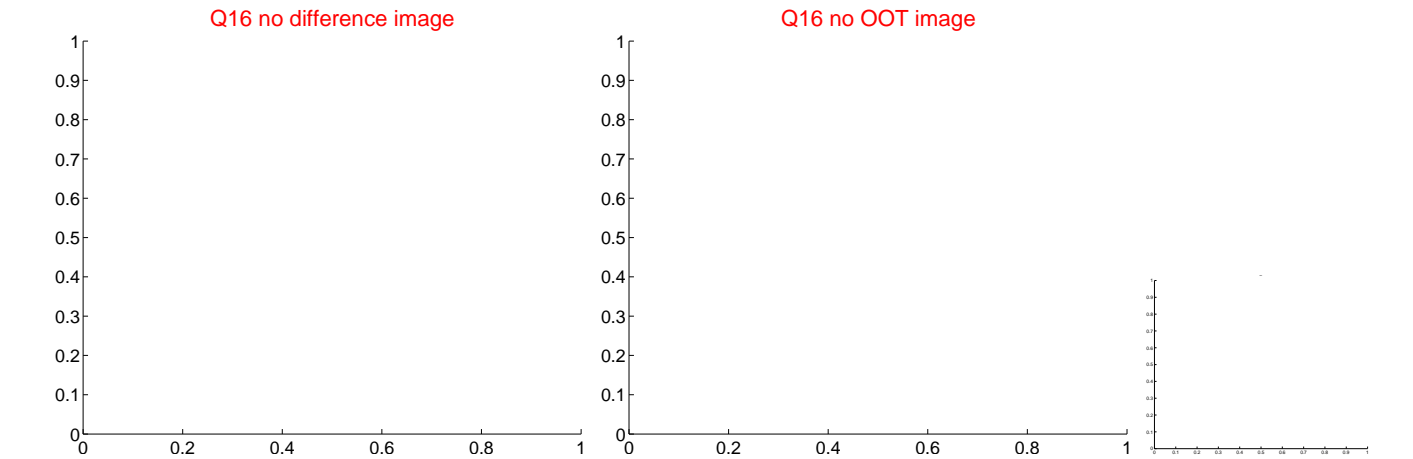
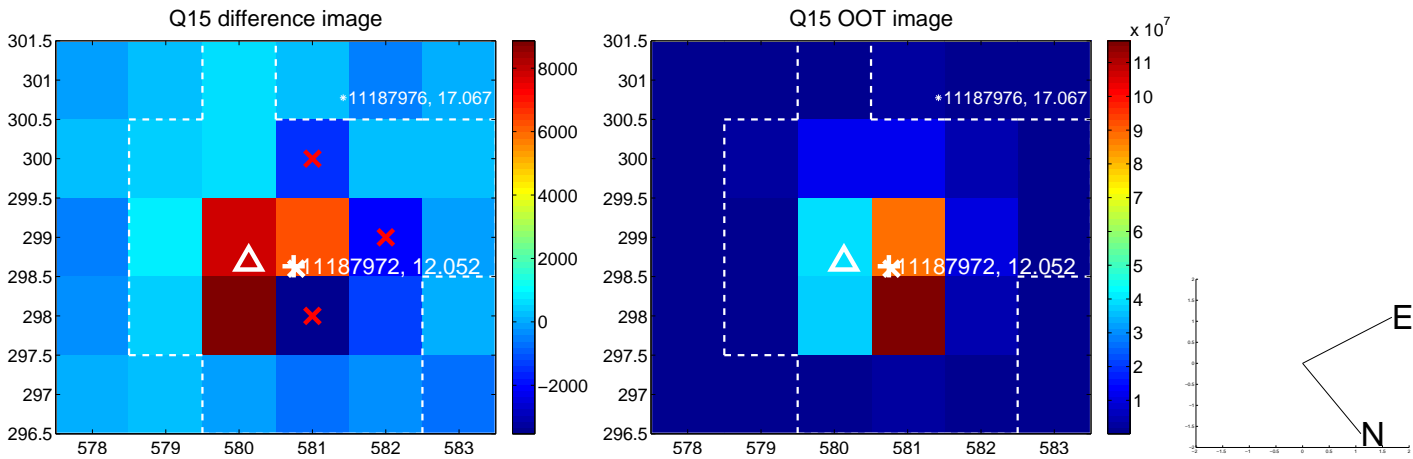
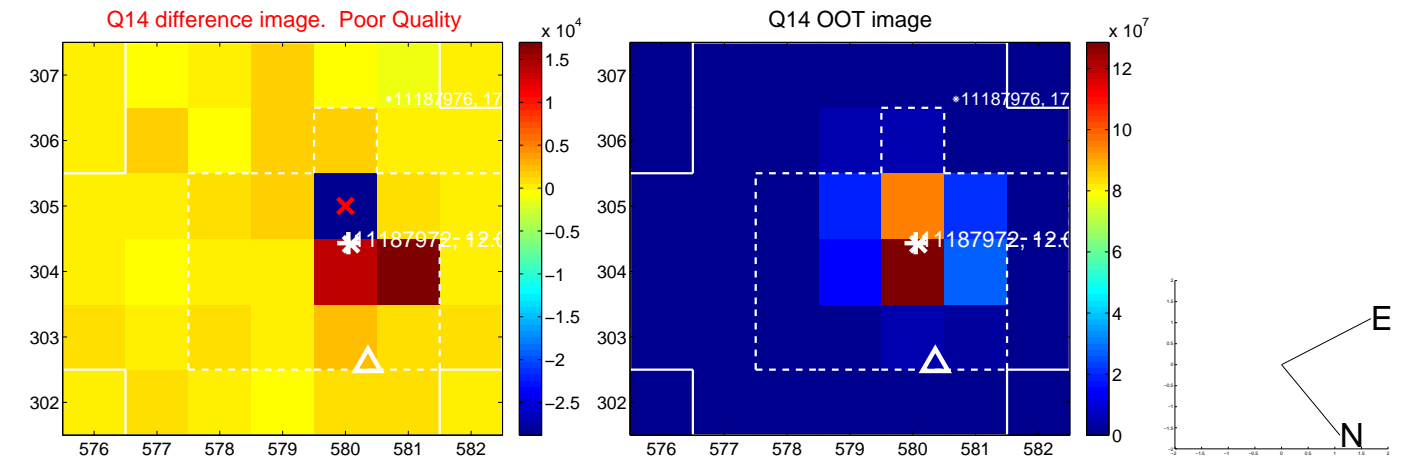
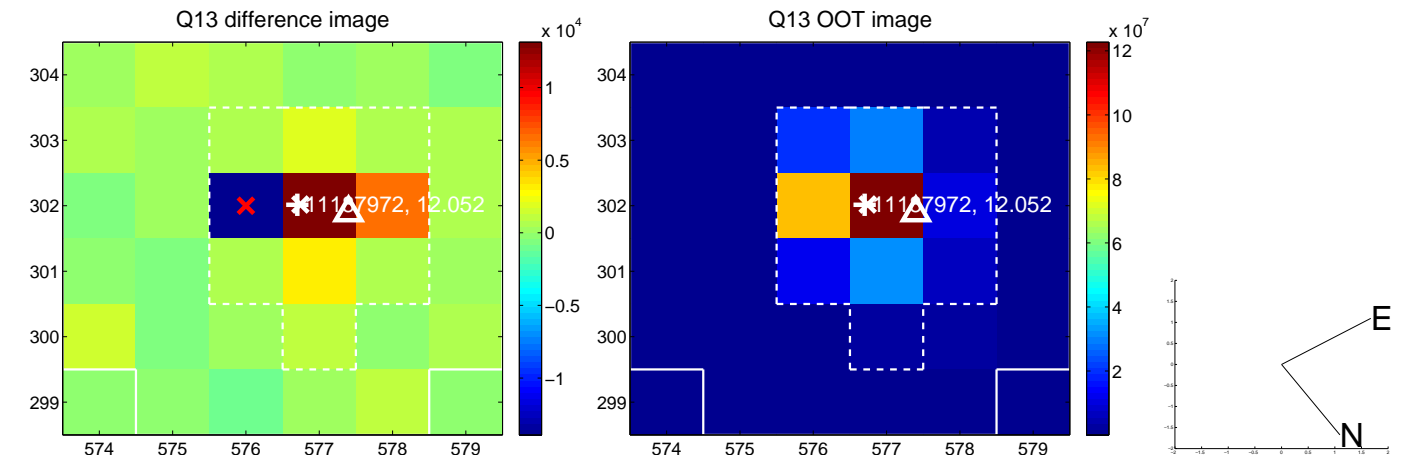
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



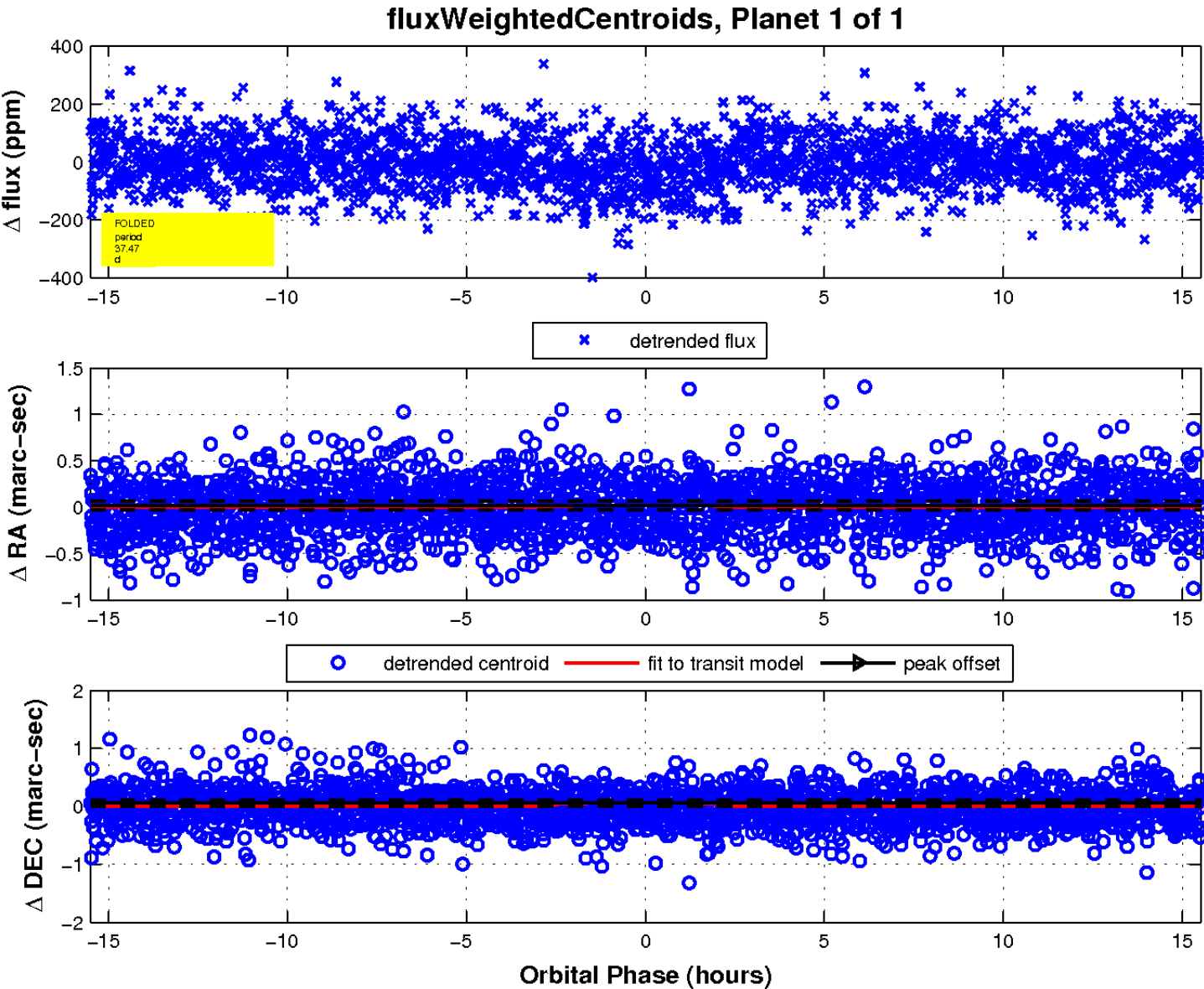
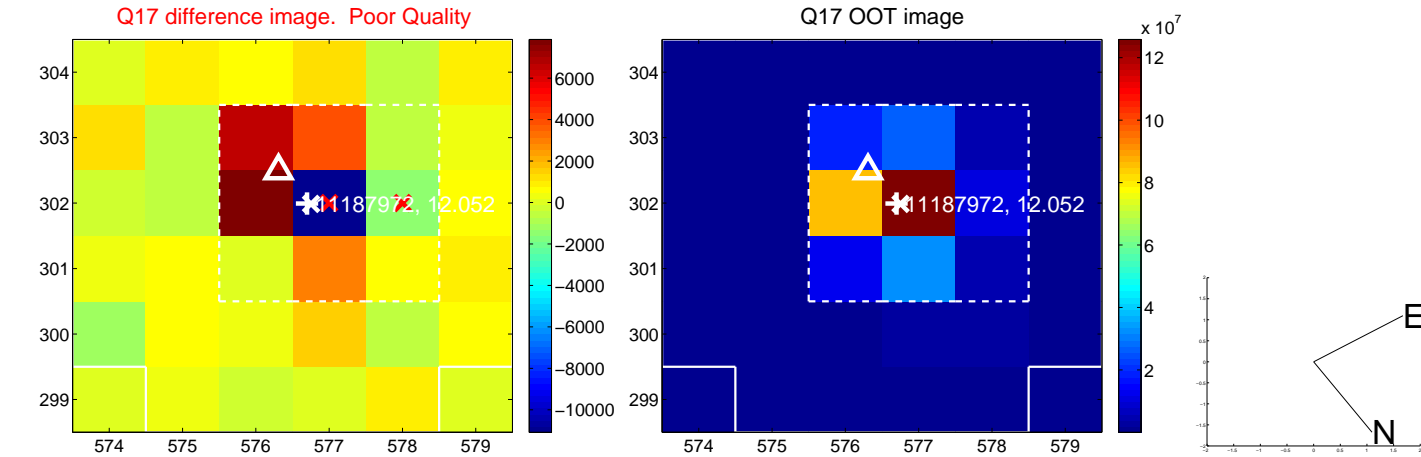
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

