

# KIC 012008916

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012008916-01	OBS	8074.01	47.431168	174.655770	197.1	5.212	7.3	6.9	6.89	5166	12.91	265.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012008916-01	OBS	FP	0.20	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—MOD_NONUNIQ_ALT

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

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

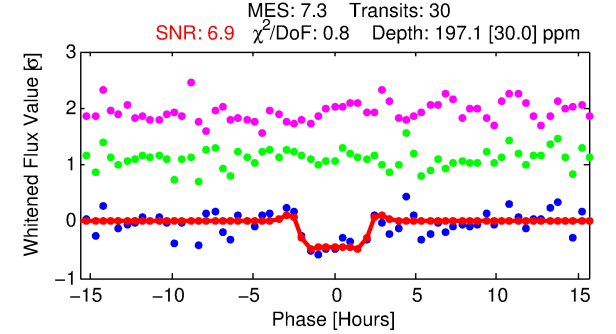
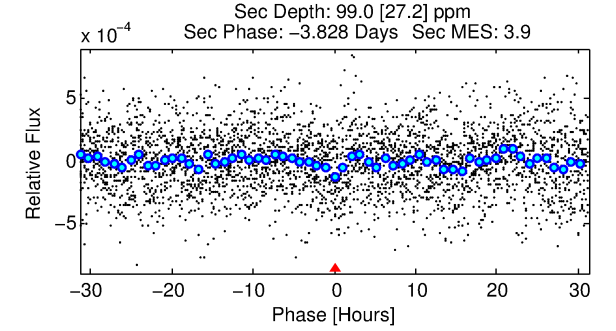
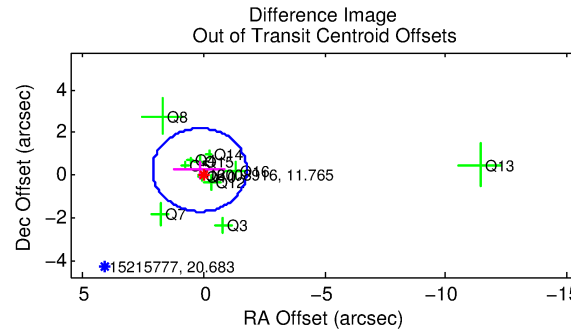
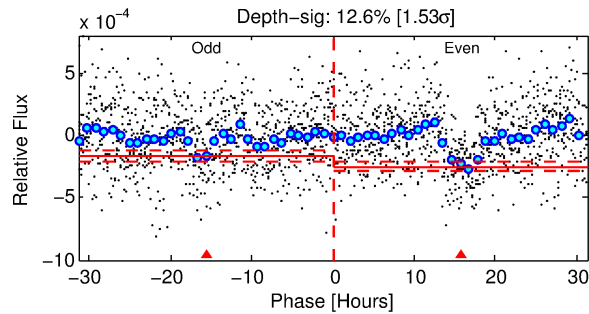
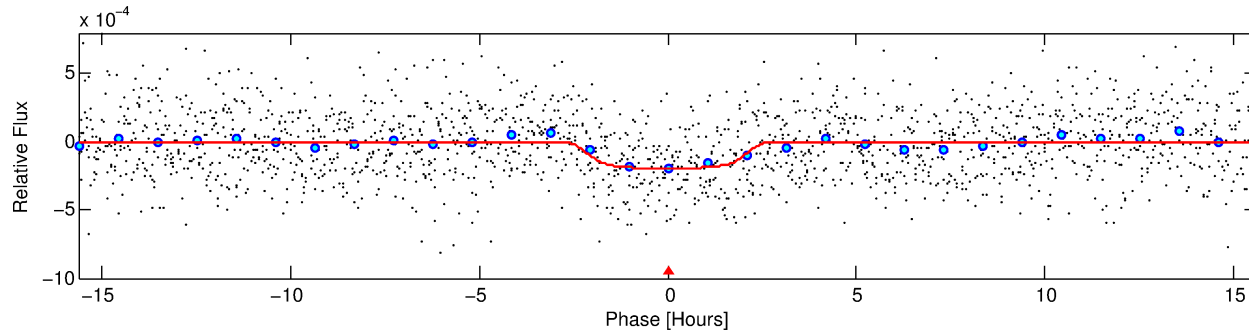
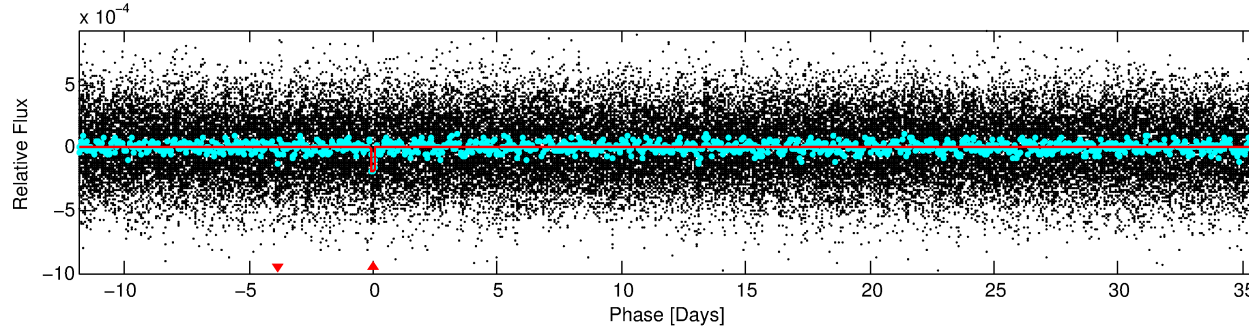
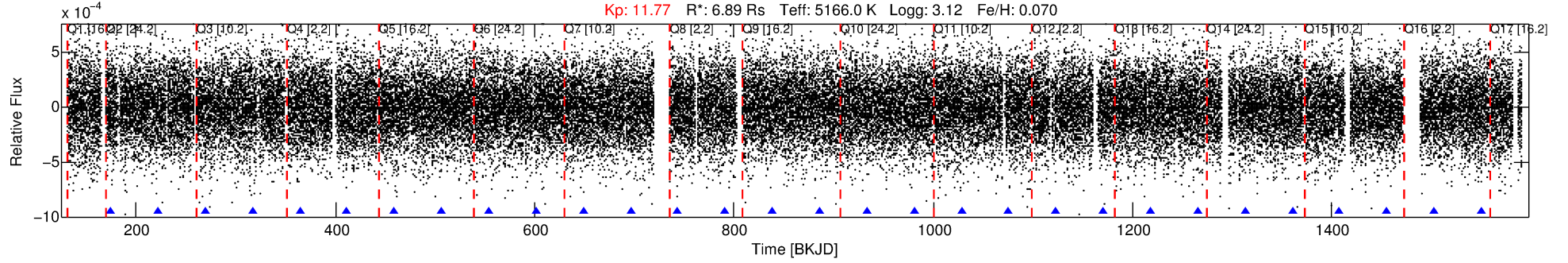
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012008916-01

No Significant Match Found

# DV One-Page Summary

KIC: 12008916 Candidate: 1 of 1 Period: 47.431 d



## DV Fit Results:

Period = 47.43117 [0.00064] d  
Epoch = 174.6558 [0.0106] BKJD  
Rp/R\* = 0.0172 [0.0018]  
a/R\* = 23.35 [6.45]  
b = 0.96 [0.02]  
Seff = 265.63 [75.00]  
Teff = 1029 [73] K  
Rp = 12.91 [4.21] Re  
a = 0.3377 [0.0702] AU  
Ag = 37.27 [15.13] [2.40σ]  
Teffp = 3933 [385] K [7.41σ]

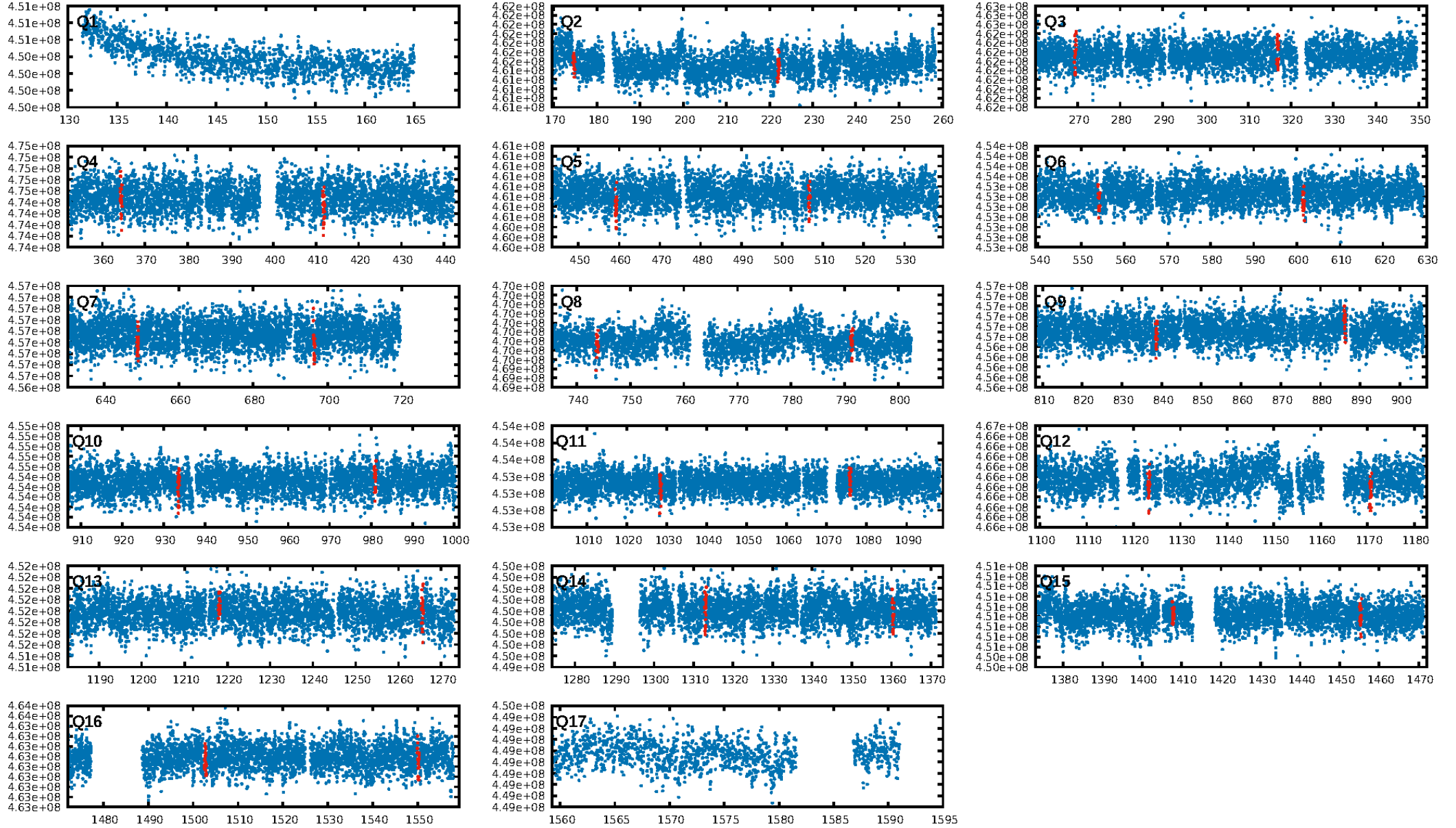
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 78.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.57e-12**  
RollingBand-fgt: 1.00 [30/30]  
GhostDiagnostic-chr: -44.43  
Centroid-sig: 66.8%  
Centroid-so: 0.134 arcsec [0.36σ]  
OotOffset-rm: 0.294 arcsec [0.45σ]  
OotOffset-st: 3/3/4/2 [12]  
KicOffset-rm: 0.242 arcsec [0.36σ]  
KicOffset-st: 3/3/4/2 [12]  
DiffImageQuality-fgm: 0.83 [10/12]  
DiffImageOverlap-fno: 1.00 [15/15]

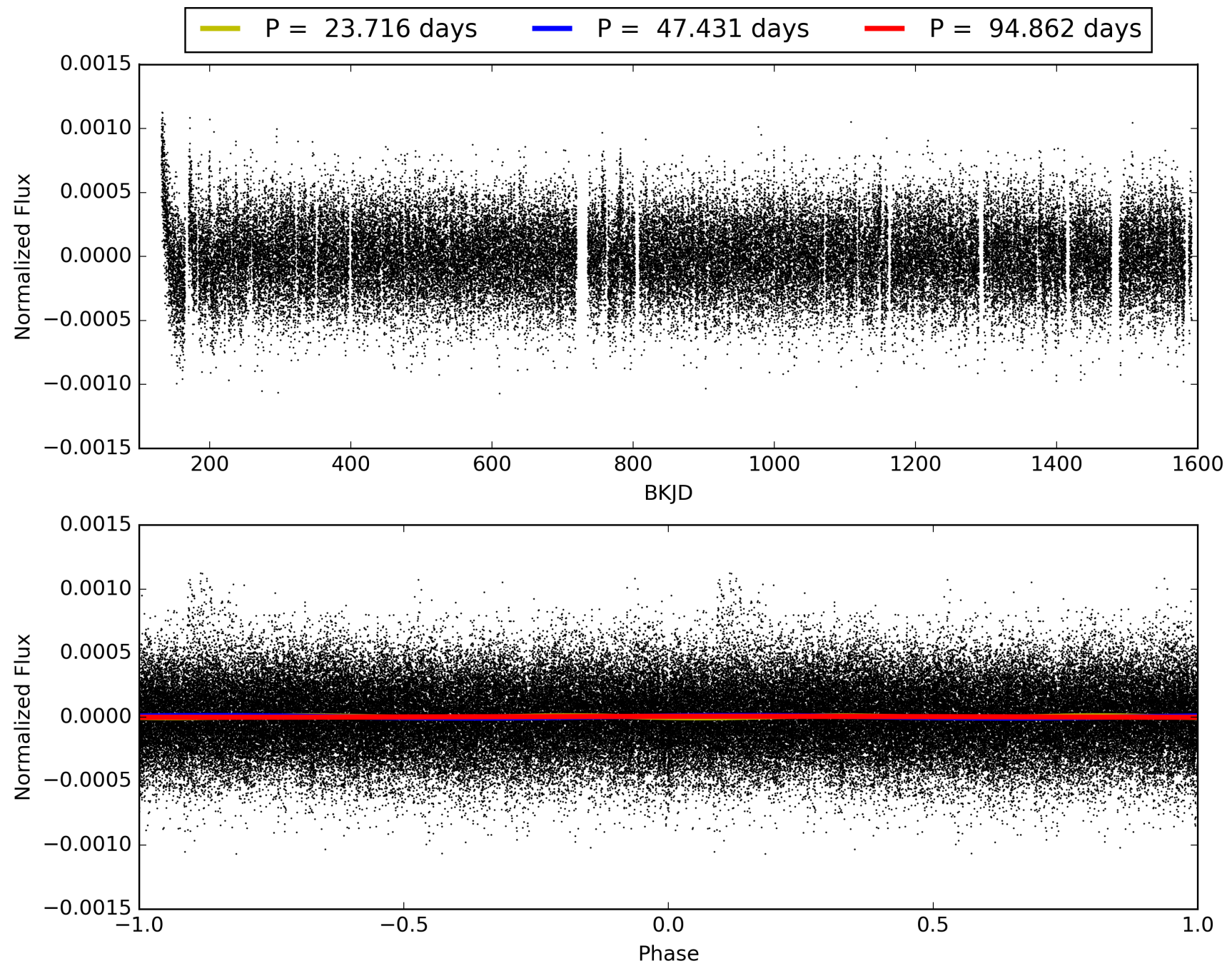
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:49:49 Z

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

# TCE 012008916-01, PDC Light Curves

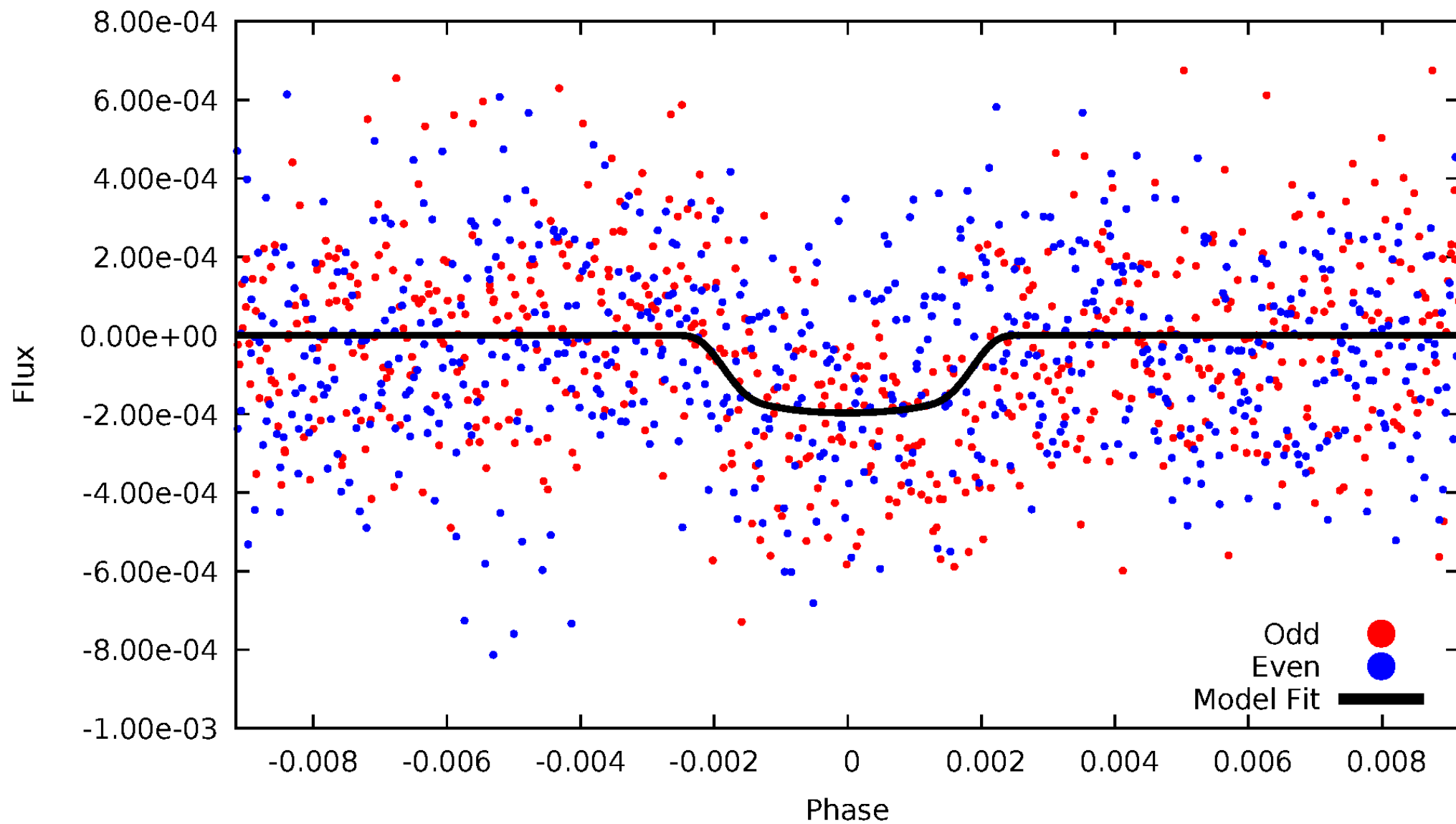


TCE 012008916-01



# DV Odd/Even

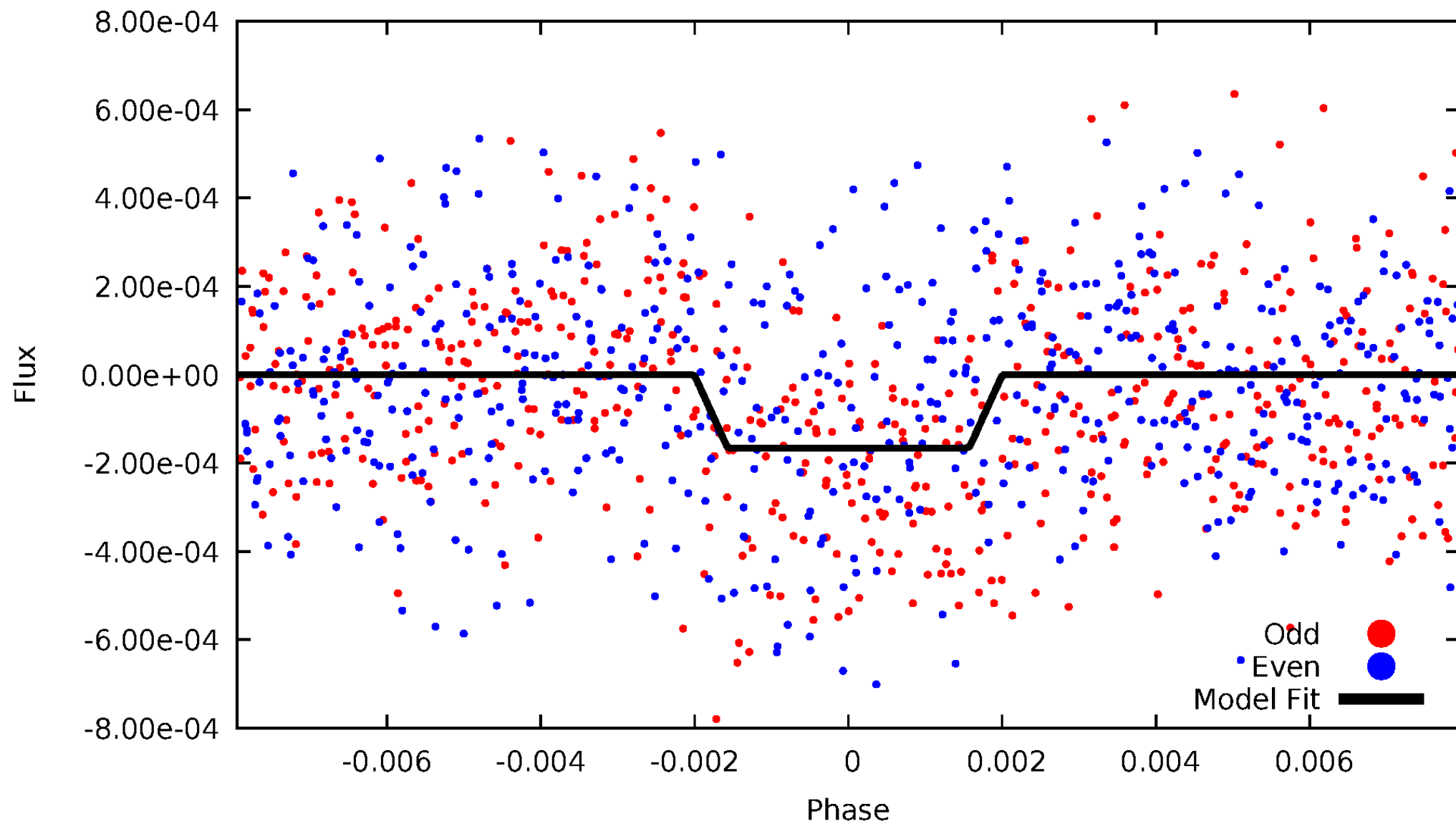
TCE 012008916-01



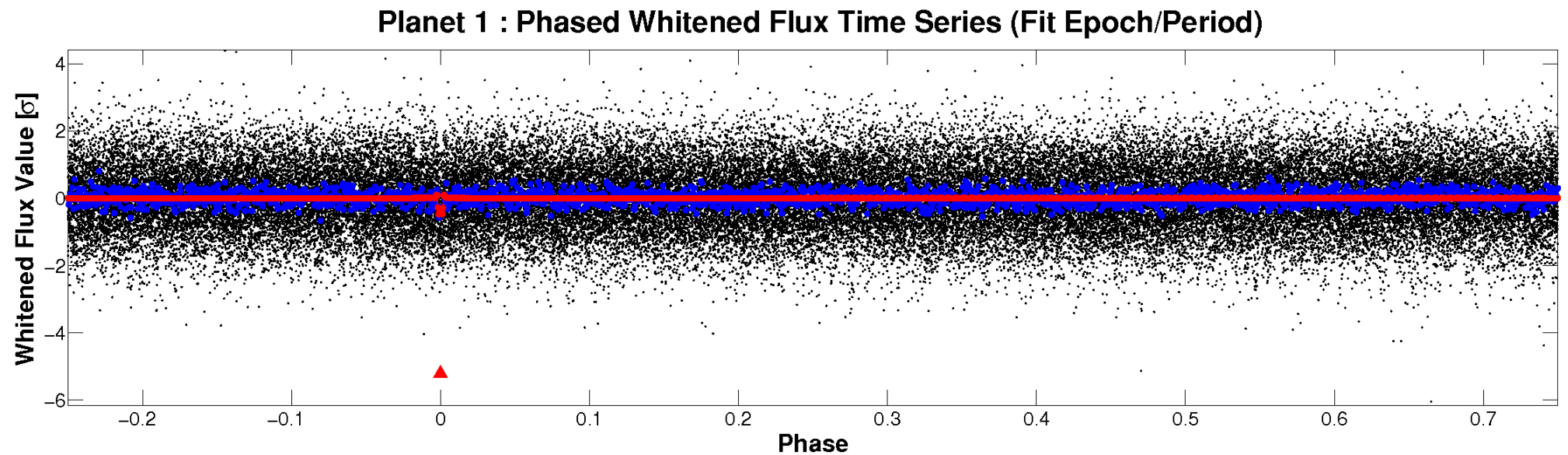
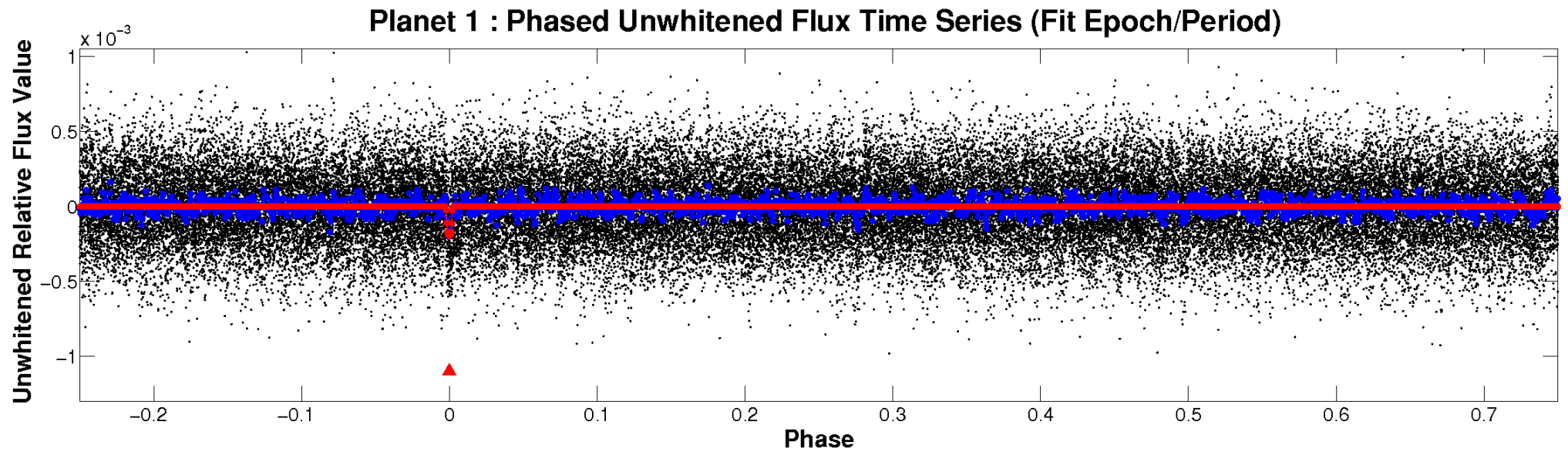


# ALT Odd/Even

TCE 012008916-01

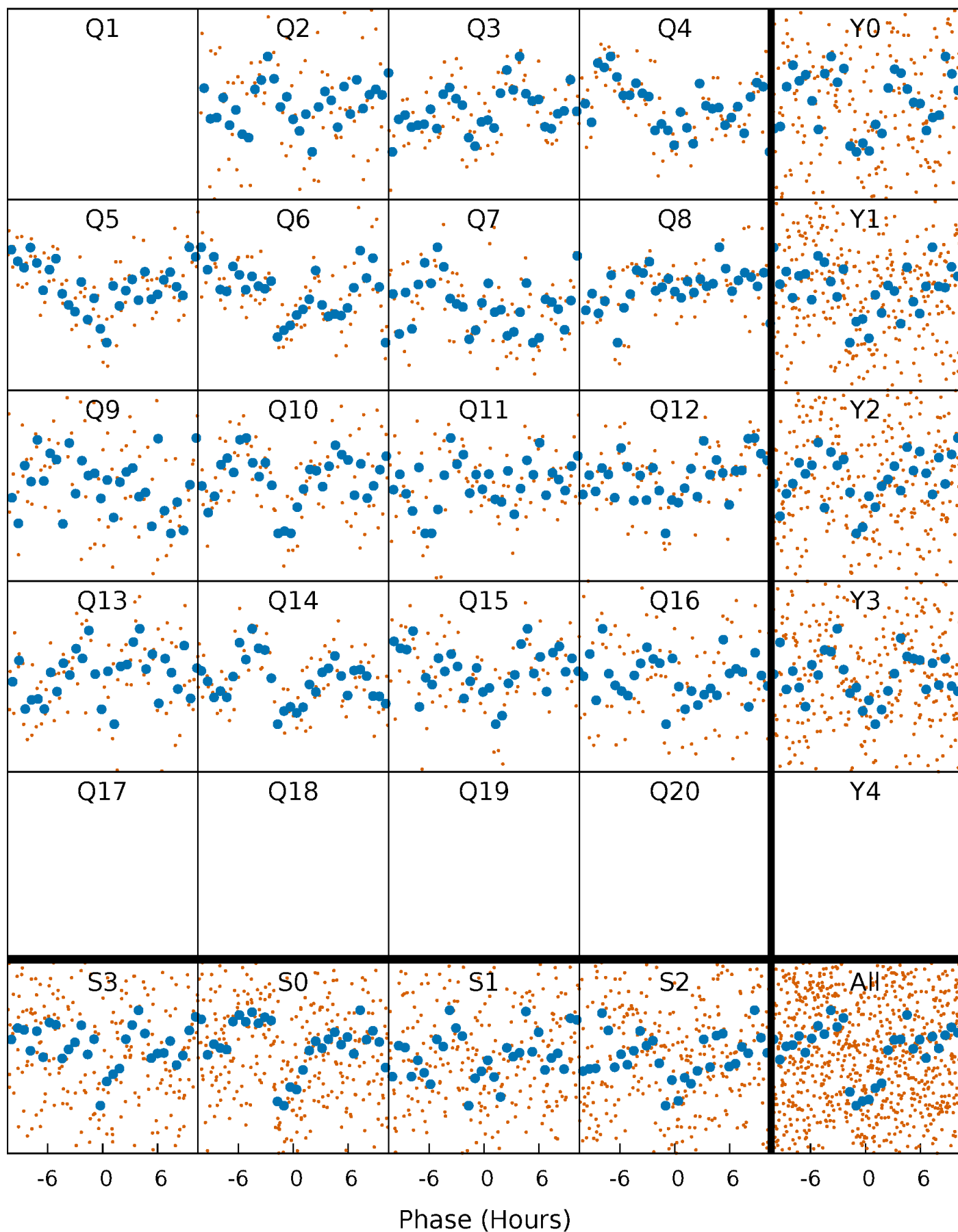


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

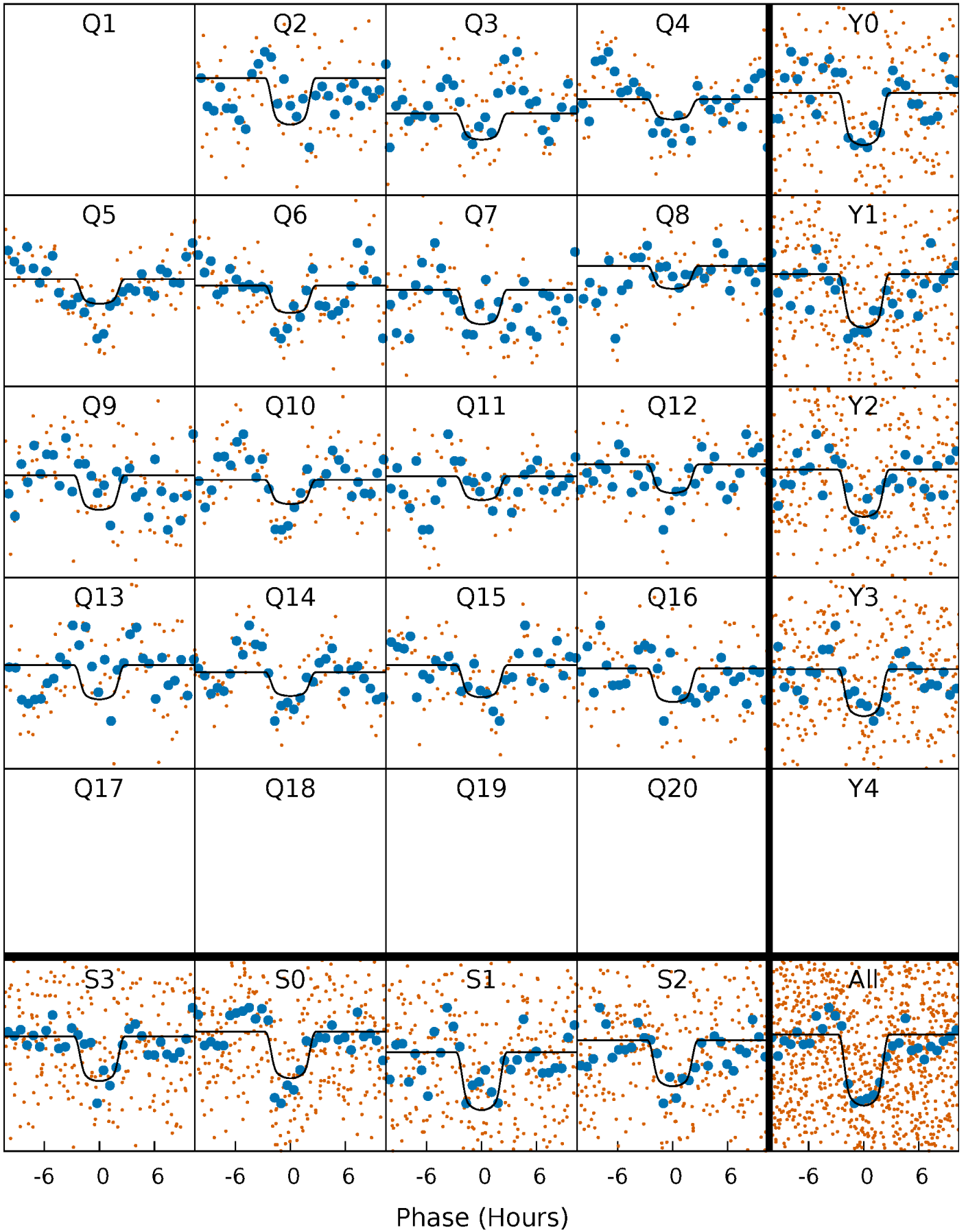
TCE 012008916-01 P= 47.431168 Days  $T_0=174.655770$  (BKJD)





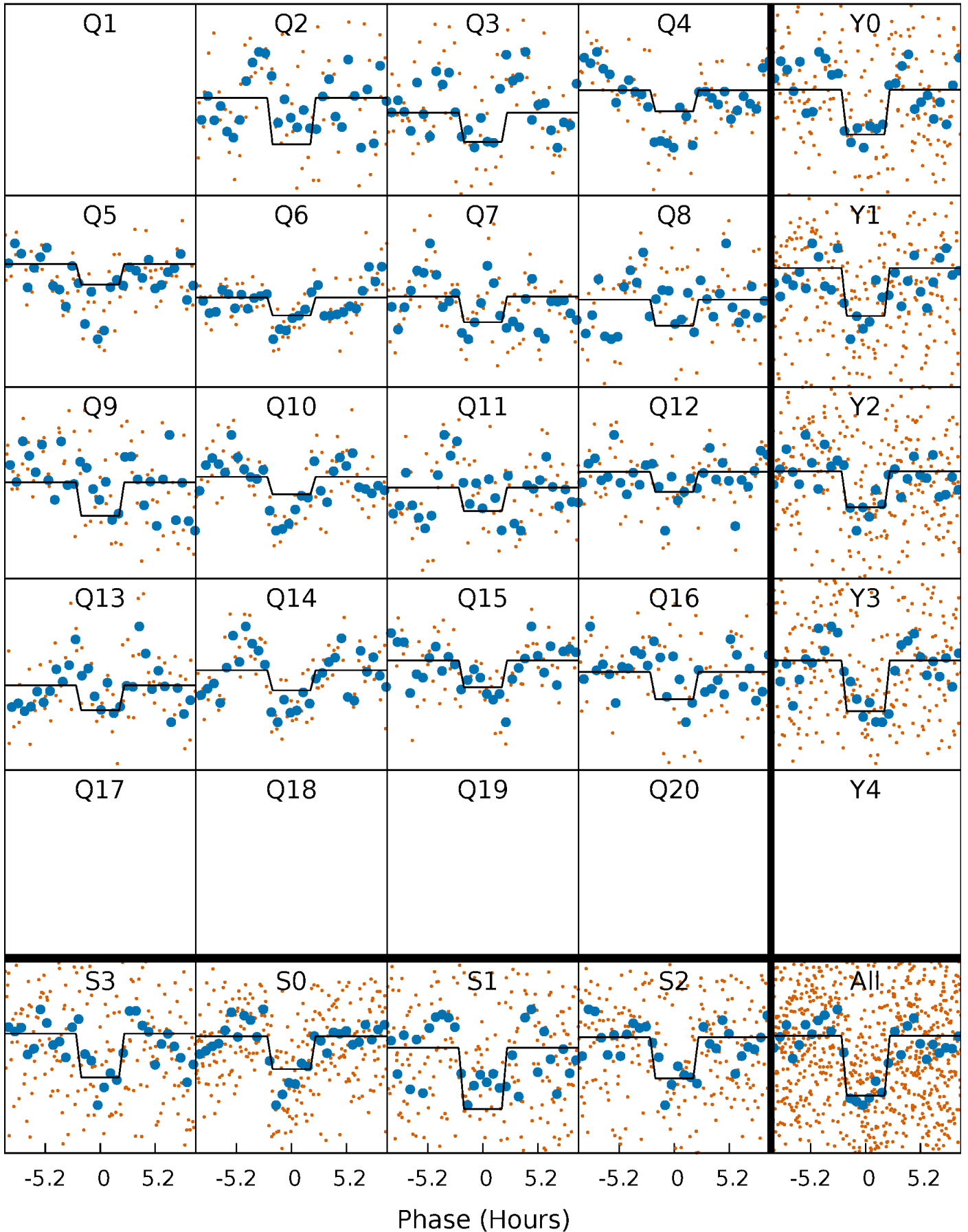
# DV Quarter-Phased Transit Curves

TCE 012008916-01 P= 47.431168 Days  $T_0=174.655770$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

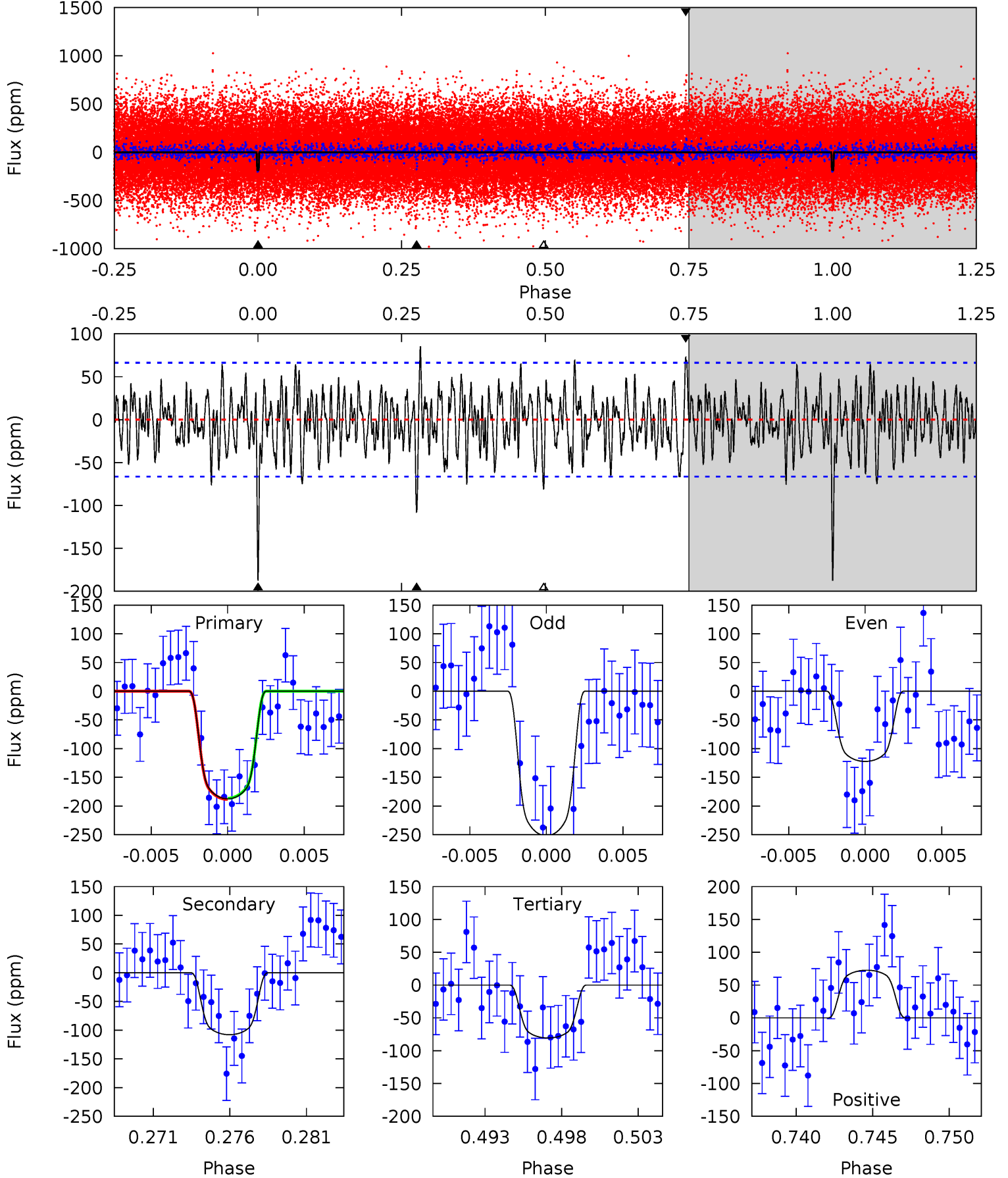
TCE 012008916-01 P= 47.430704 Days  $T_0=174.664277$  (BKJD)



# DV Model-Shift Uniqueness Test

012008916-01, P = 47.431168 Days, E = 127.224602 Days

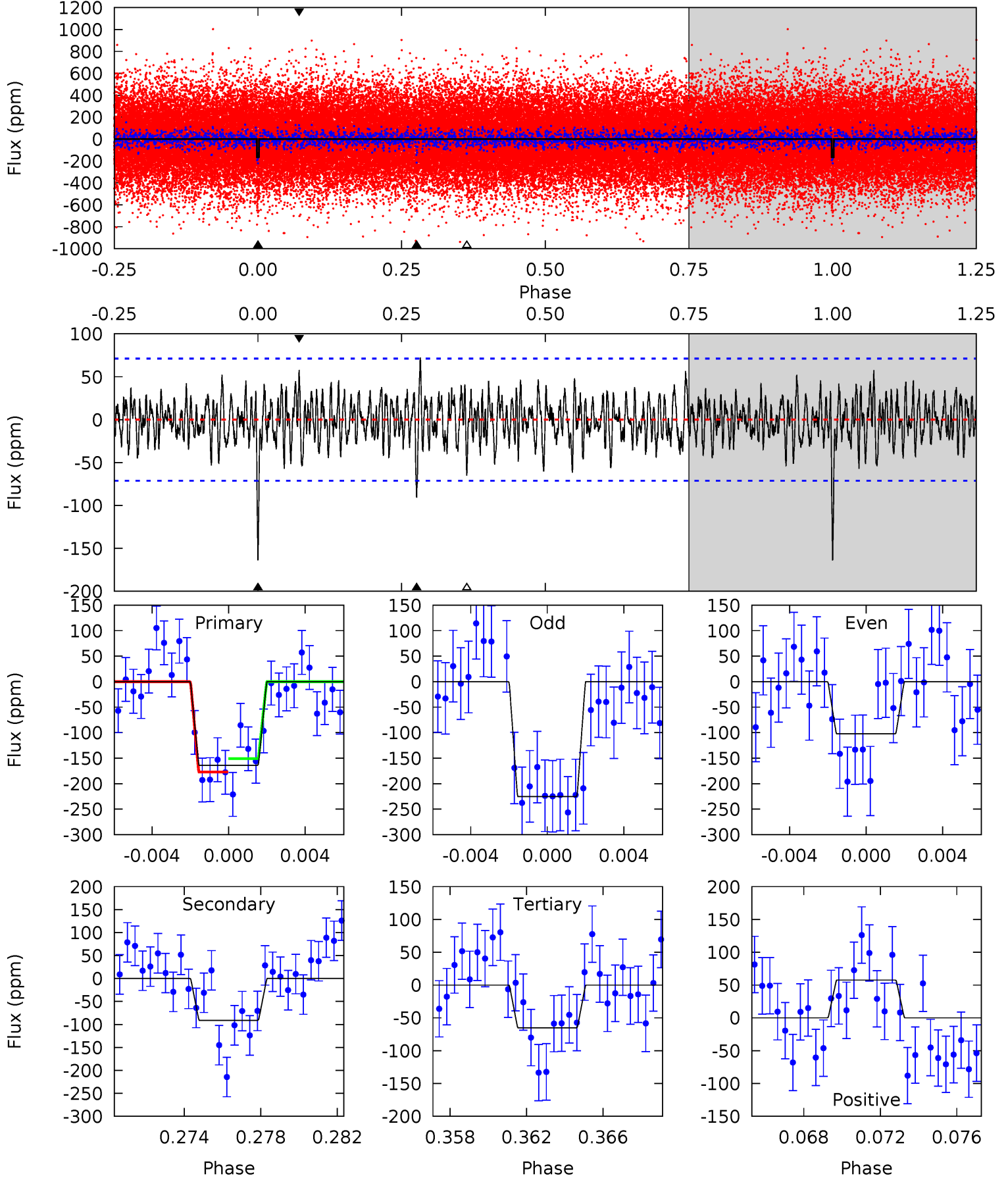
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	8.40	6.28	5.65	5.16	2.81	2.12	8.32	8.94	2.12	2.75	5.04	0.78	0.31	0.08



# Alt Model-Shift Uniqueness Test

012008916-01, P = 47.430704 Days, E = 127.233573 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	6.65	4.75	4.21	5.20	2.88	1.54	7.22	7.76	1.89	2.43	4.51	0.79	0.31	0.96



### Stellar Parameters For KIC 012008916

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5166^{+59}_{-239}$	$3.120^{+0.036}_{-0.027}$	$0.070^{+0.150}_{-0.450}$	$6.891^{+0.224}_{-2.129}$	$2.282^{+0.130}_{-1.168}$	$0.010^{+0.005}_{-0.001}$
	+1%/-5%	+1%/-1%	+214%/-643%	+3%/-31%	+6%/-51%	+48%/-7%
Source	PHO1	AST11	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 012008916-01 / KOI 8074.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-108 \pm 13$	$13.09^{+1.42}_{-1.60}$	$1432^{+29}_{-61}$	$4173^{+218}_{-206}$	$40^{+12}_{-8}$
Alt.	$-91 \pm 14$	$9.81^{+1.48}_{-1.59}$	$1433^{+27}_{-67}$	$4500^{+322}_{-284}$	$61^{+23}_{-18}$

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



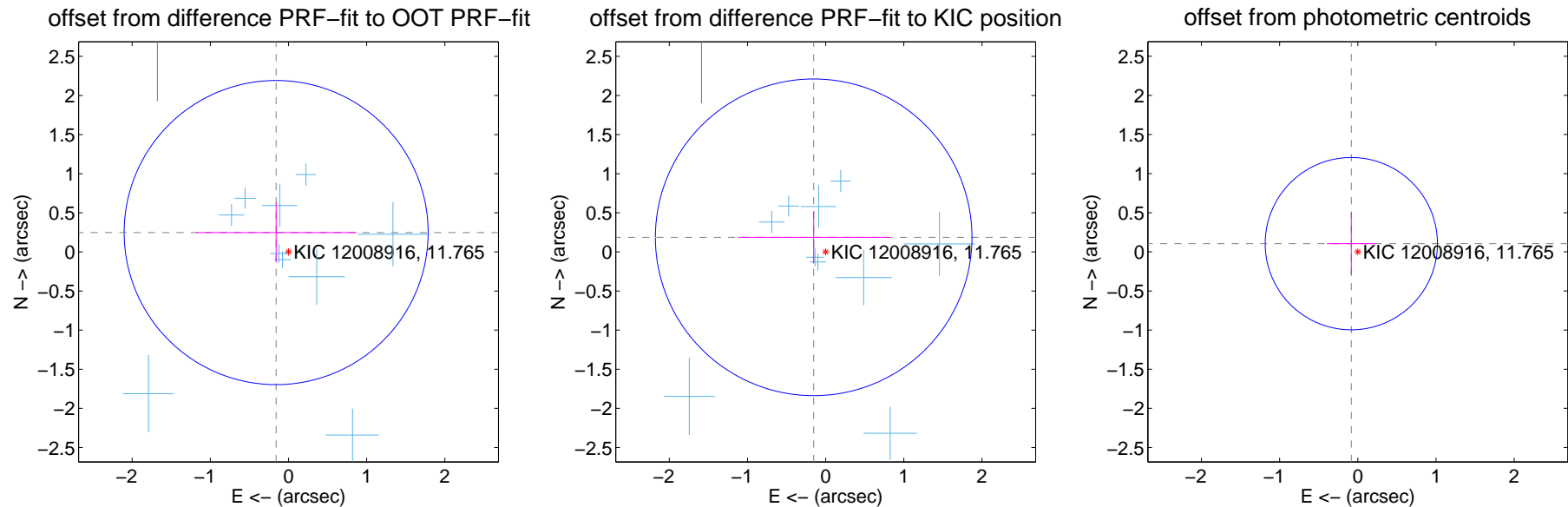
## DV Centroid Data

Supplemental centroid analysis for 012008916-01. **Kepler magnitude: 11.77.** Transit SNR 6.90

There are 10 quarters with good PRF difference image offsets

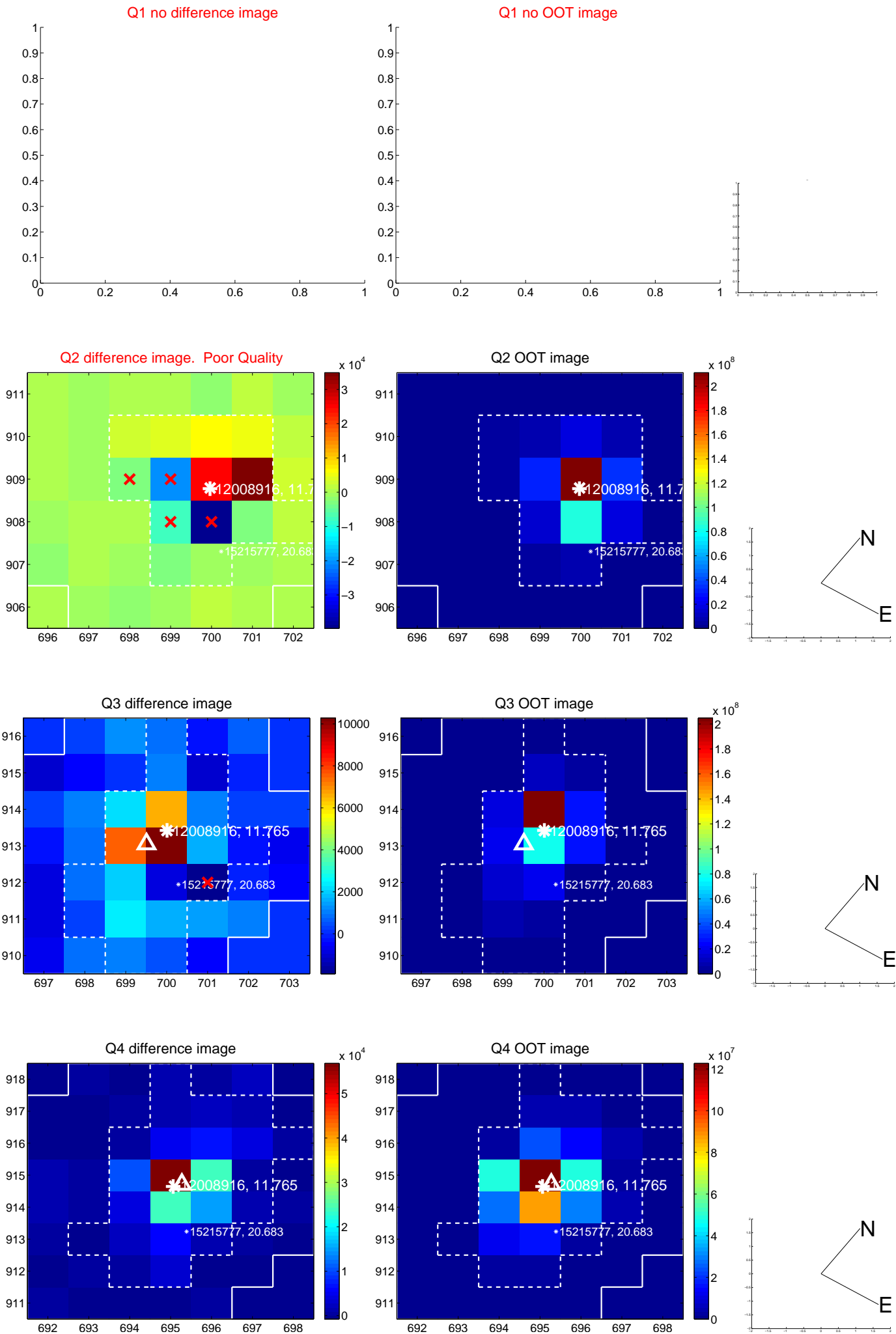
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.294 \pm 0.648$	0.45	$0.158 \pm 1.027$	$0.247 \pm 0.382$
PRF-fit source offset from KIC position	$0.242 \pm 0.675$	0.36	$0.153 \pm 0.965$	$0.187 \pm 0.335$
photometric centroid source offset	$0.13 \pm 0.37$	0.36	$0.08 \pm 0.31$	$0.10 \pm 0.40$

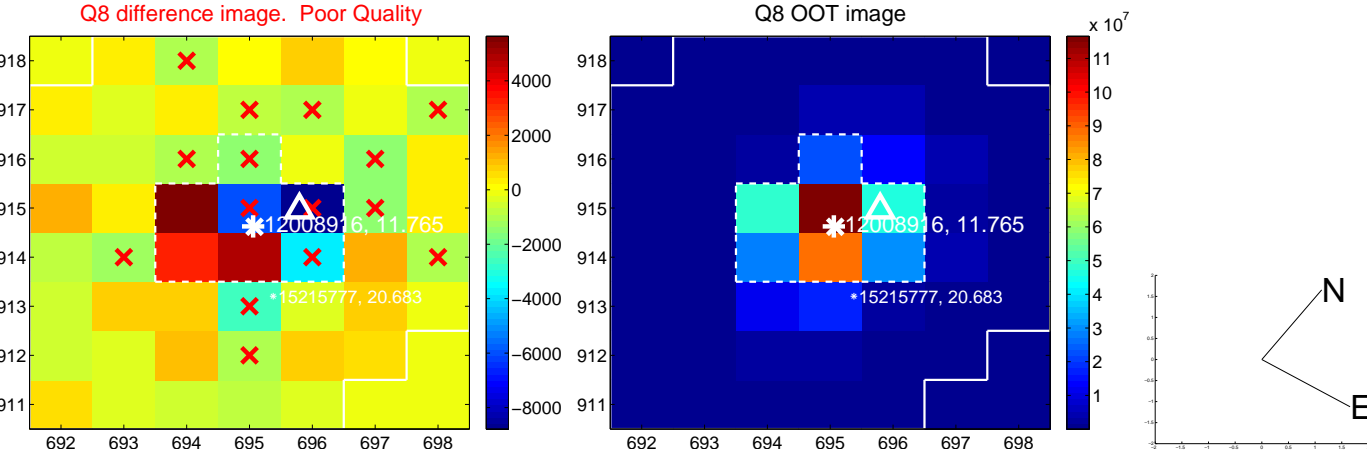
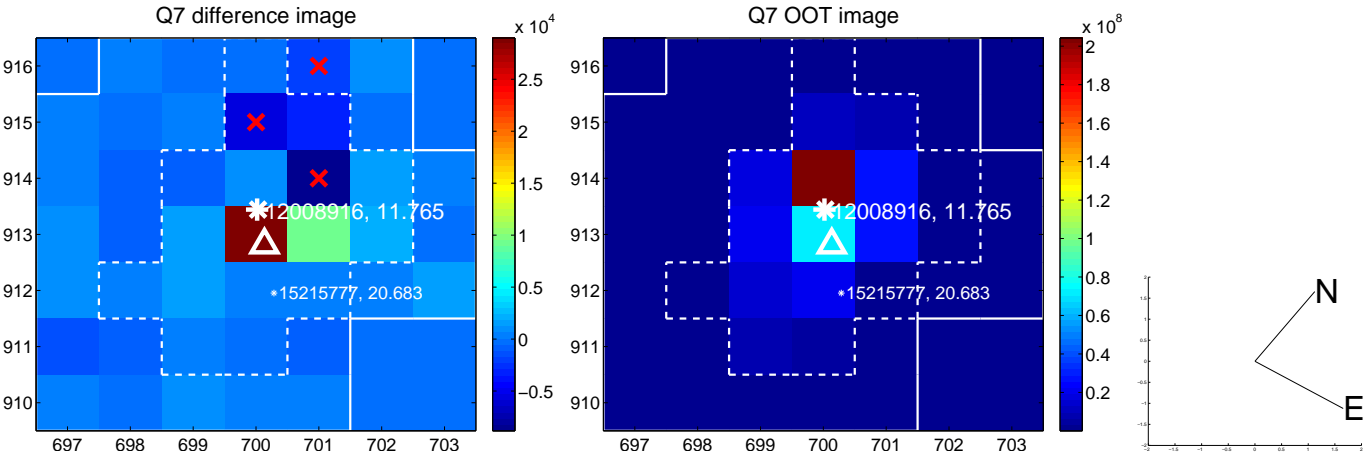
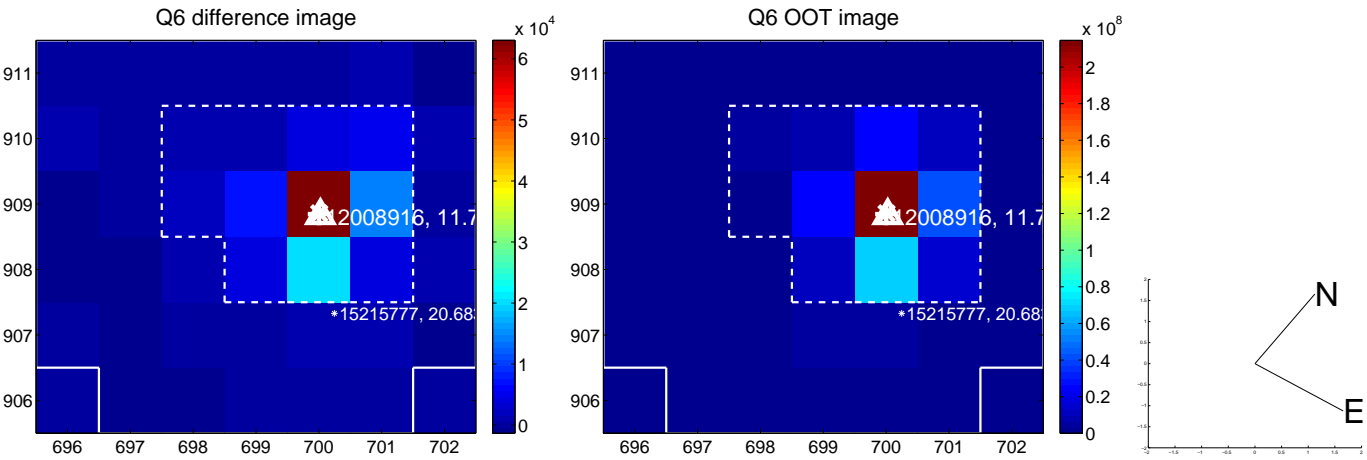
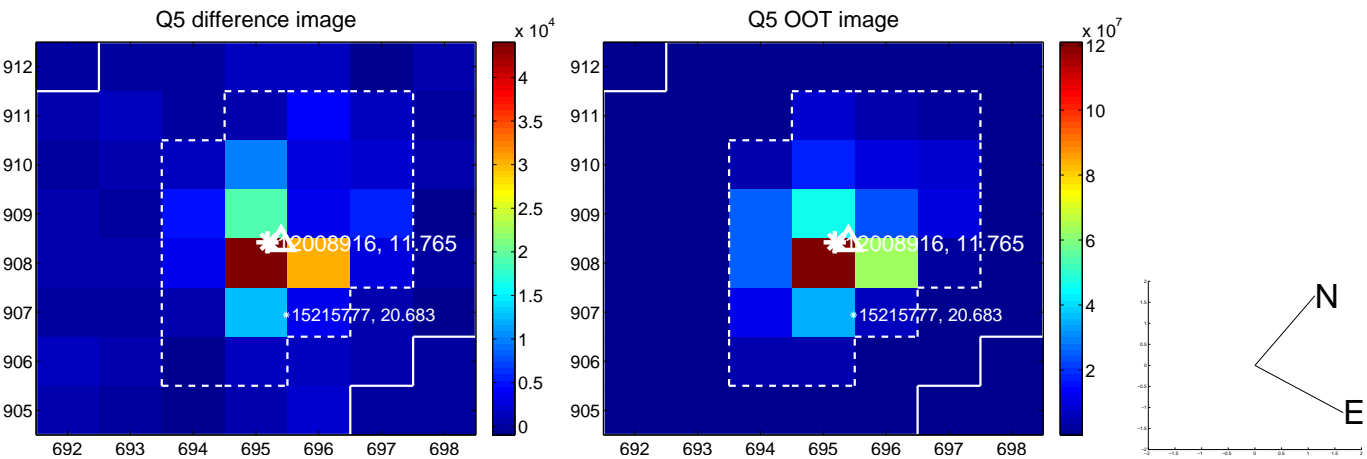


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

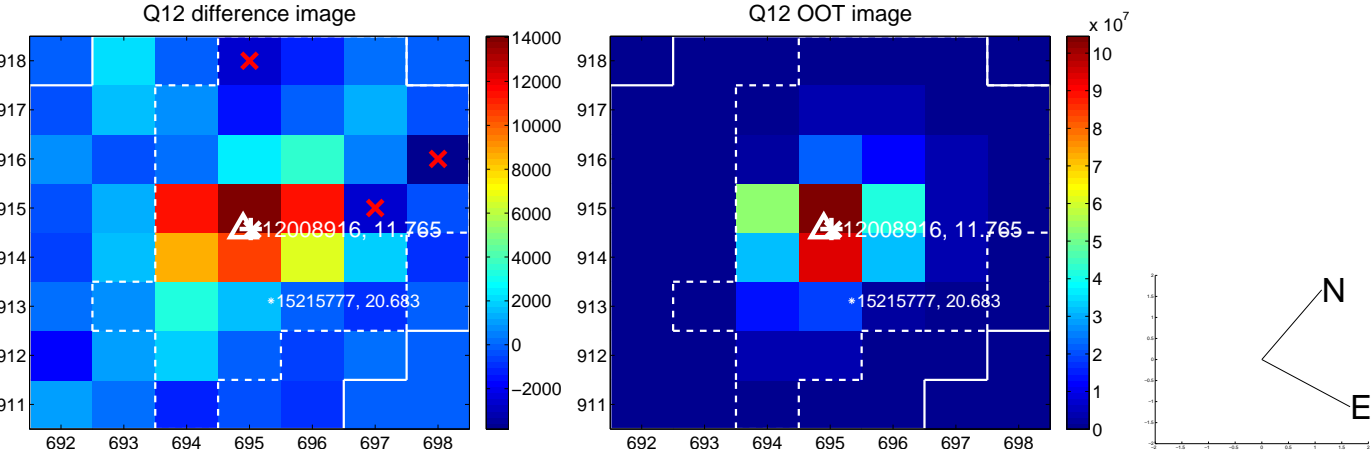
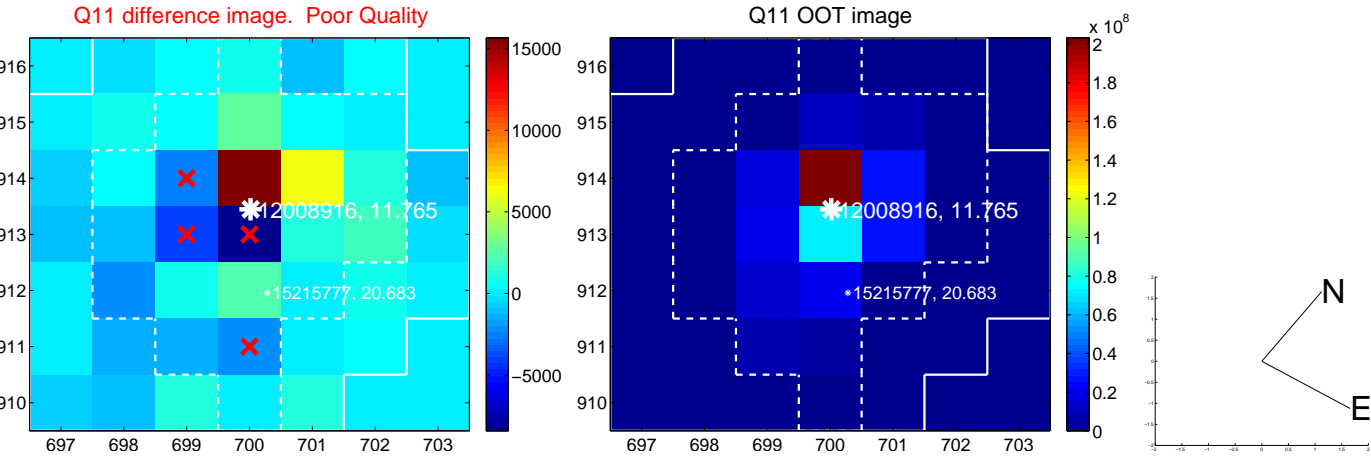
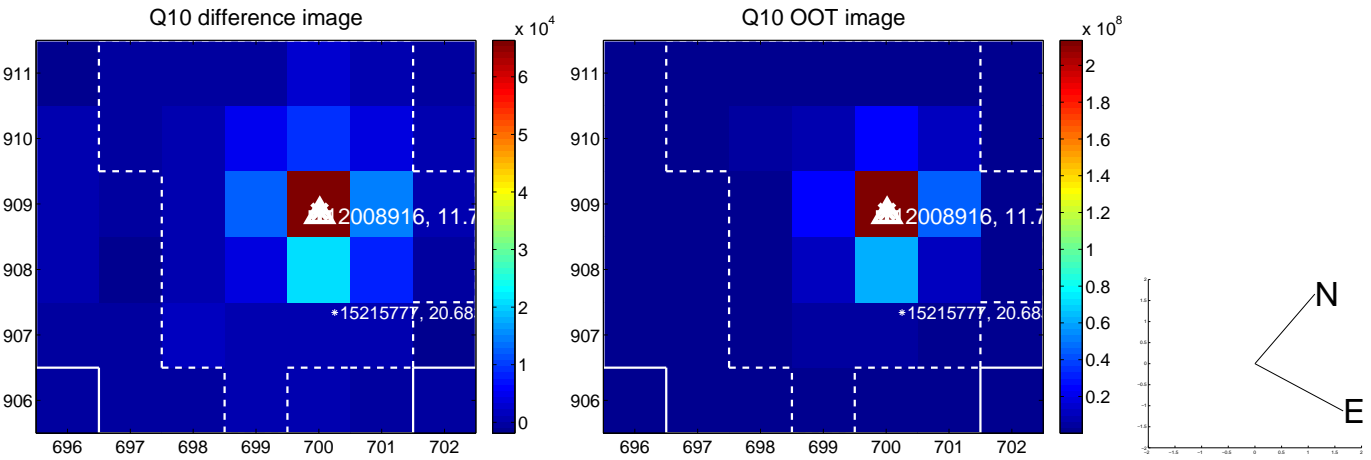
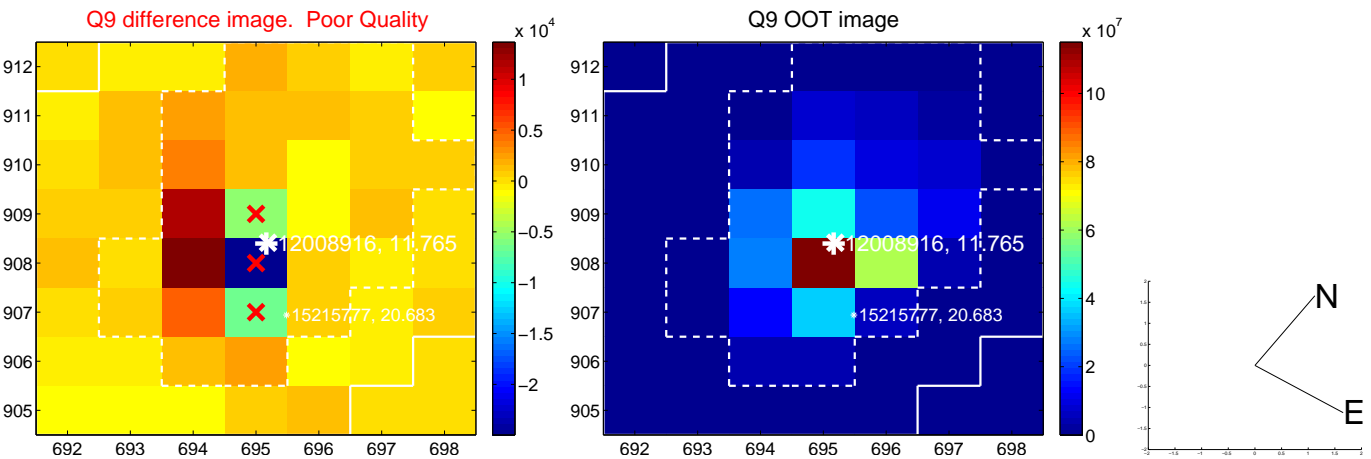
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



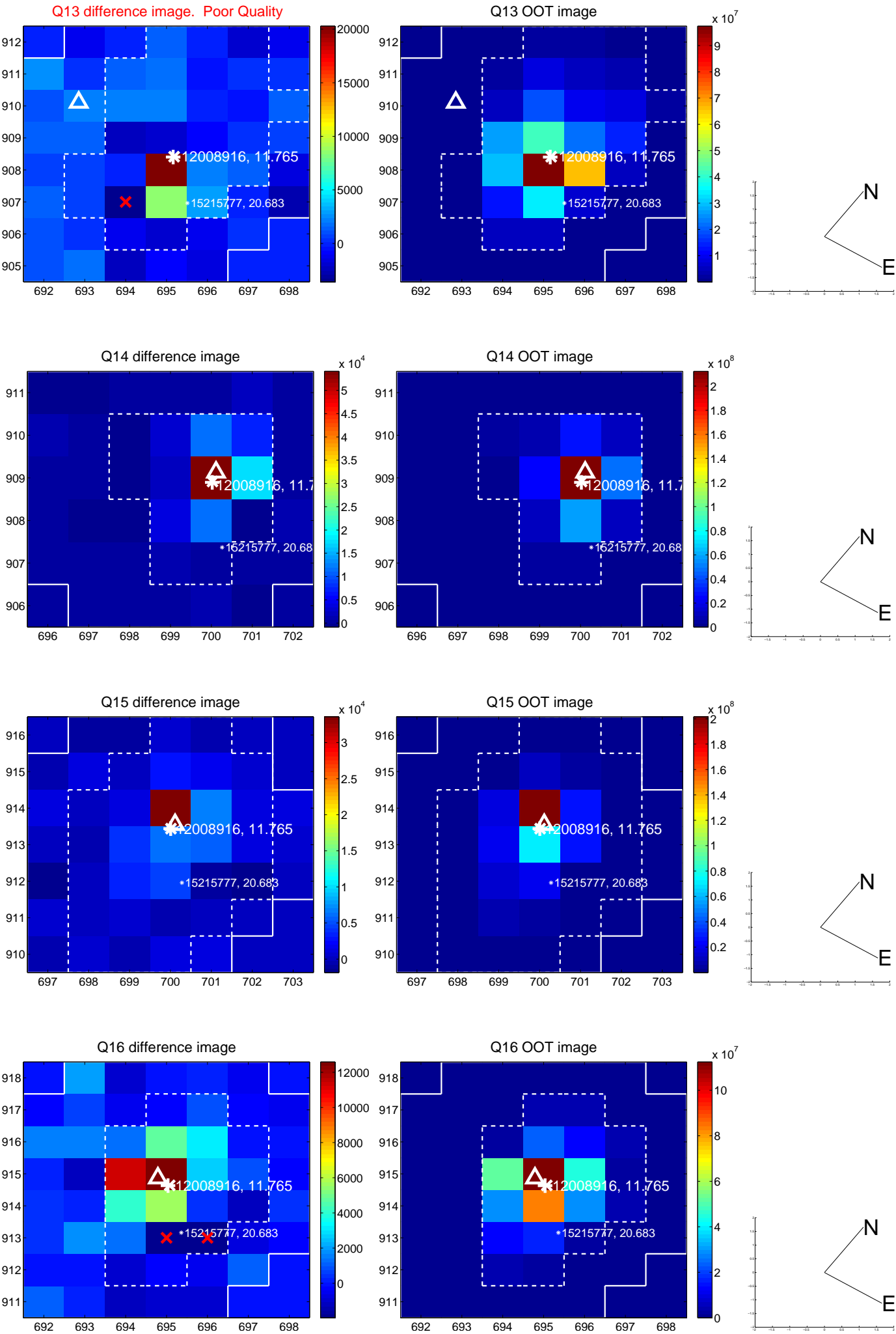
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

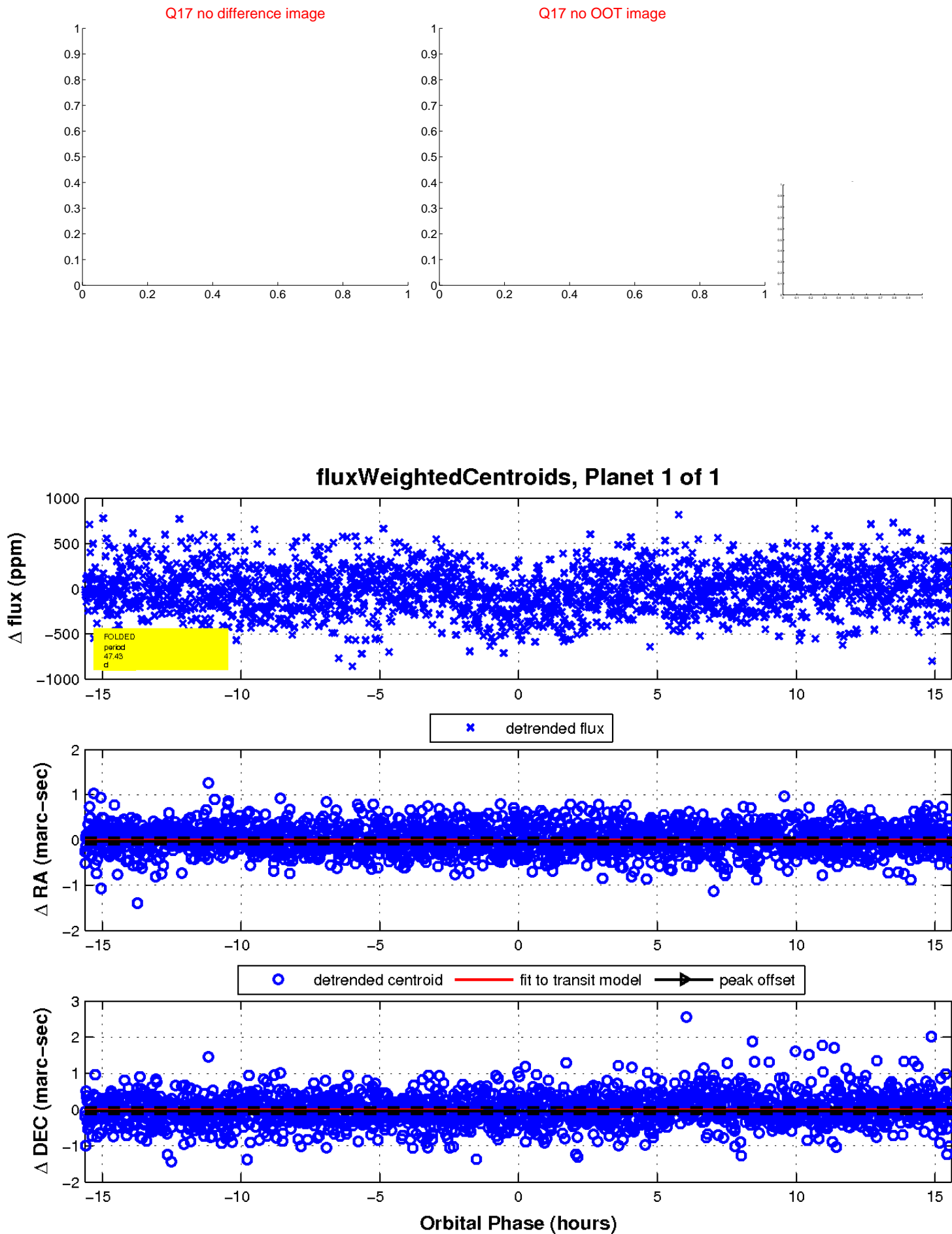


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

