

# KIC 010471515

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010471515-01	OBS	2961.01	3.784829	133.494061	32.4	2.998	11.4	12.1	1.21	6017	0.81	699.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010471515-01	OBS	PC	0.99	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.

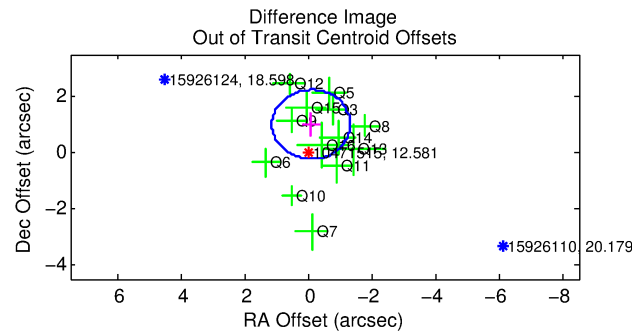
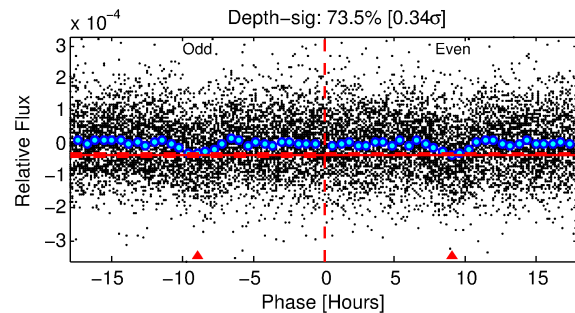
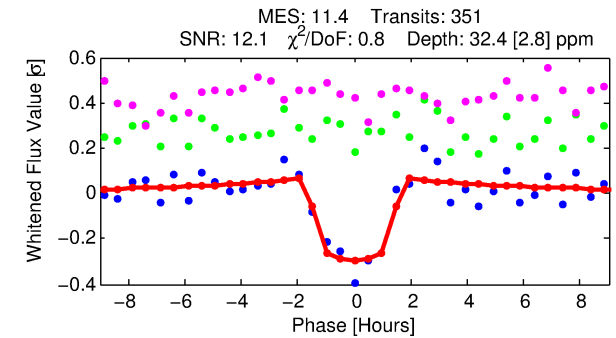
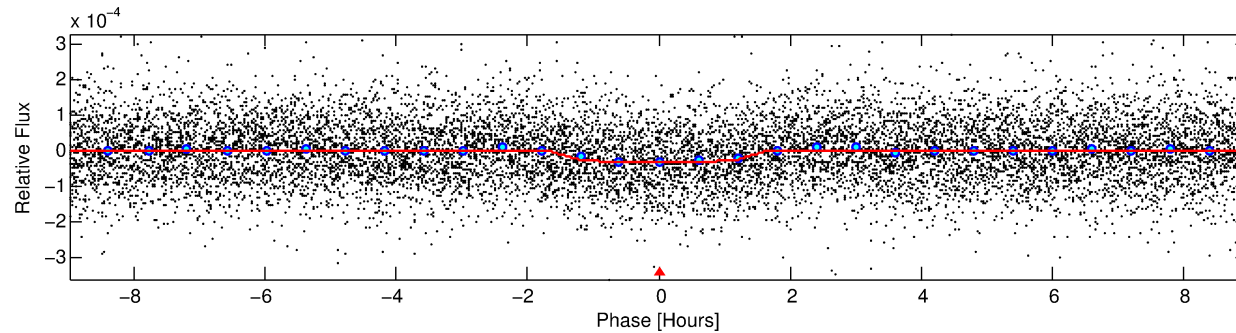
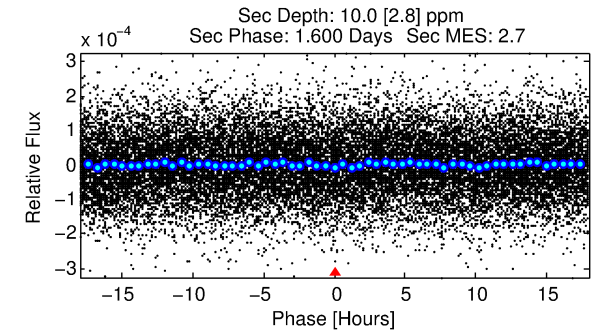
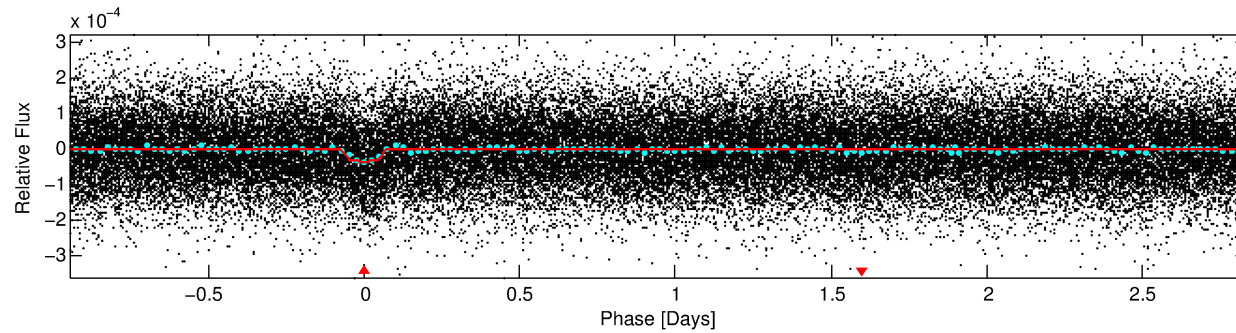
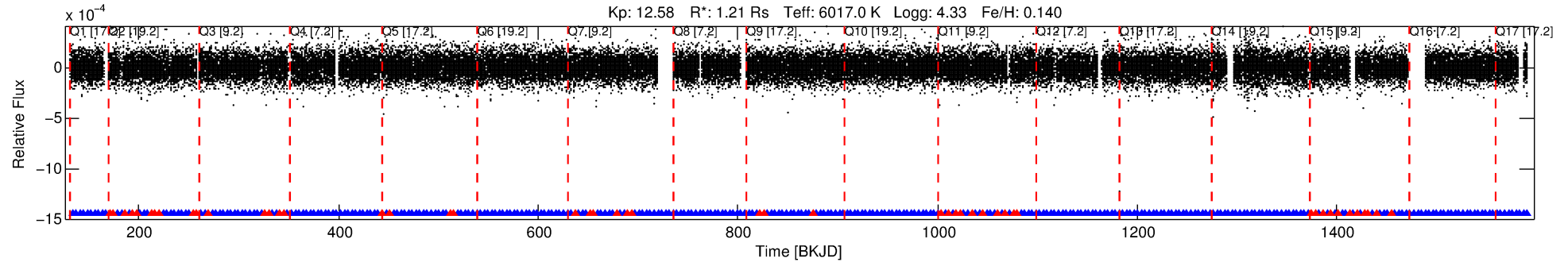
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010471515-01

No Significant Match Found

# DV One-Page Summary

KIC: 10471515 Candidate: 1 of 1 Period: 3.785 d  
KOI: K02961.01 Corr: 0.903



## DV Fit Results:

Period = 3.78483 [0.00002] d  
Epoch = 133.4941 [0.0033] BKJD  
Rp/R\* = 0.0062 [0.0021]  
a/R\* = 4.46 [7.27]  
b = 0.90 [0.37]  
Seff = 699.17 [158.50]  
Teq = 1311 [74] K  
Rp = 0.81 [0.31] Re  
a = 0.0494 [0.0070] AU  
Ag = 20.50 [15.68] [1.24σ]  
Teffp = 4314 [799] K [3.74σ]

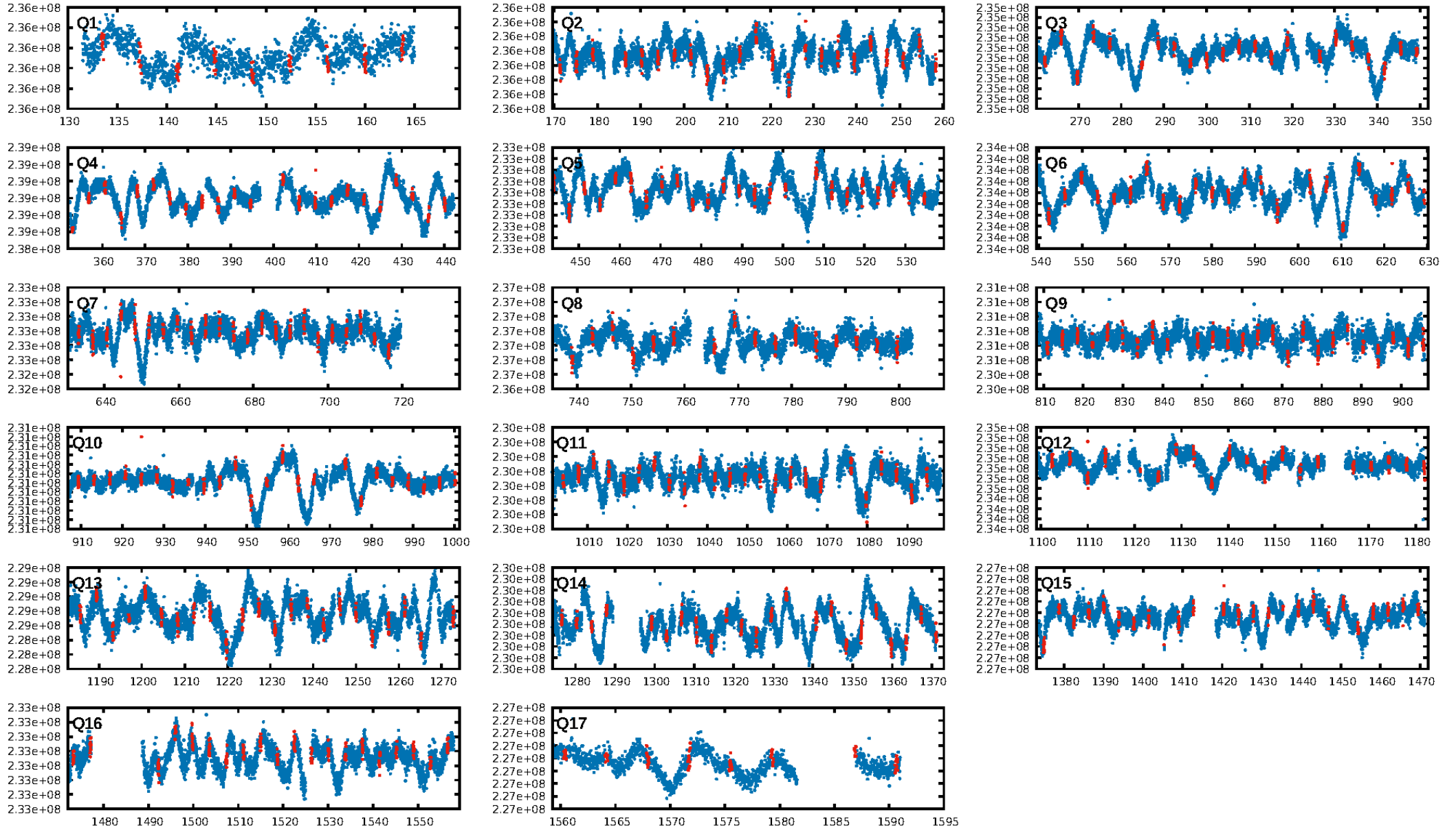
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 1.03e-28  
RollingBand-fgt: 0.85 [285/334]  
**GhostDiagnostic-chr: 0.752**  
Centroid-sig: 56.6%  
Centroid-so: 0.531 arcsec [0.66σ]  
OotOffset-rm: 1.007 arcsec [2.45σ]  
KicOffset-rm: 0.983 arcsec [2.61σ]  
OotOffset-st: 3/4/3/3 [13]  
KicOffset-st: 3/4/3/3 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [17/17]

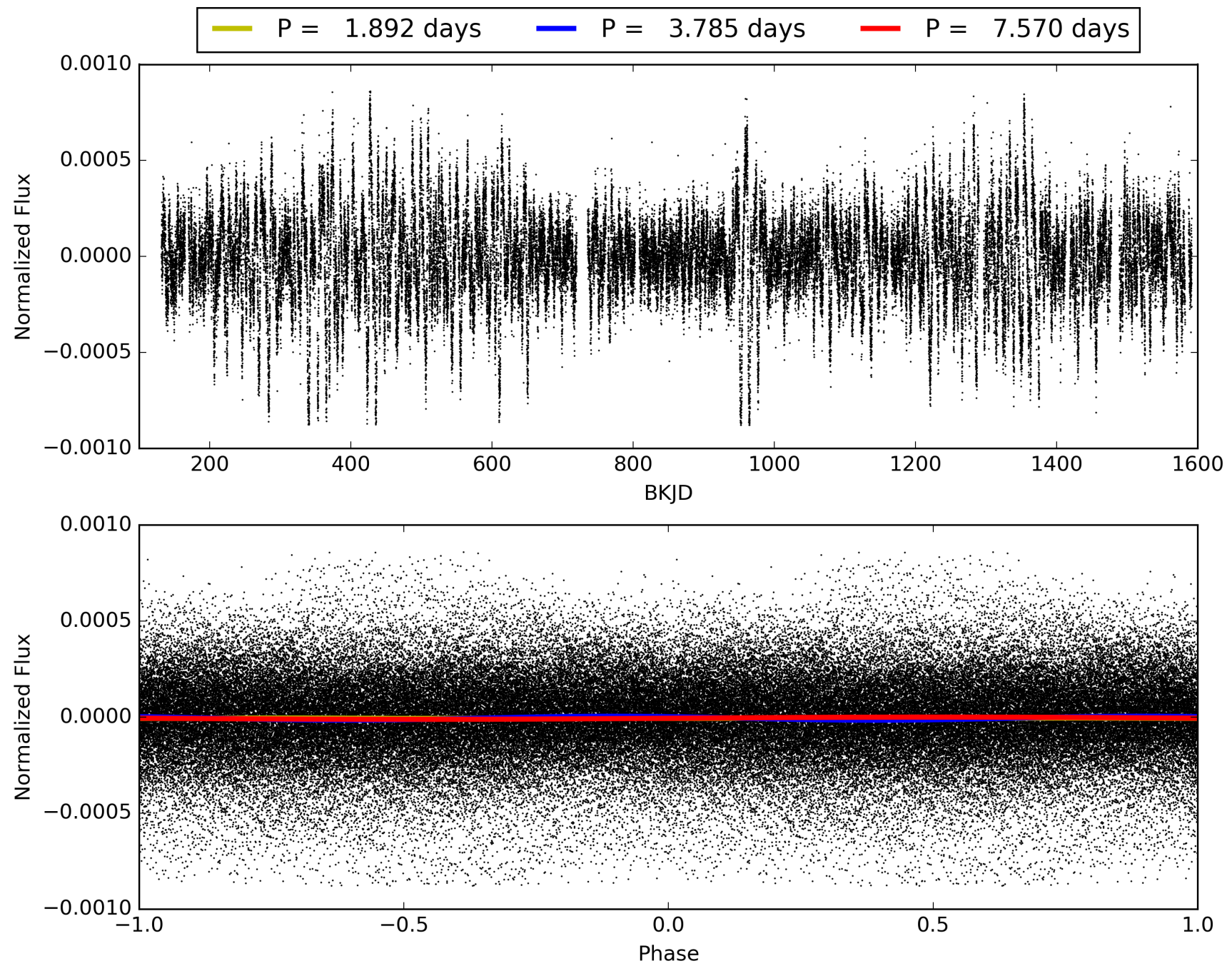
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:27:25 Z

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

# TCE 010471515-01, PDC Light Curves

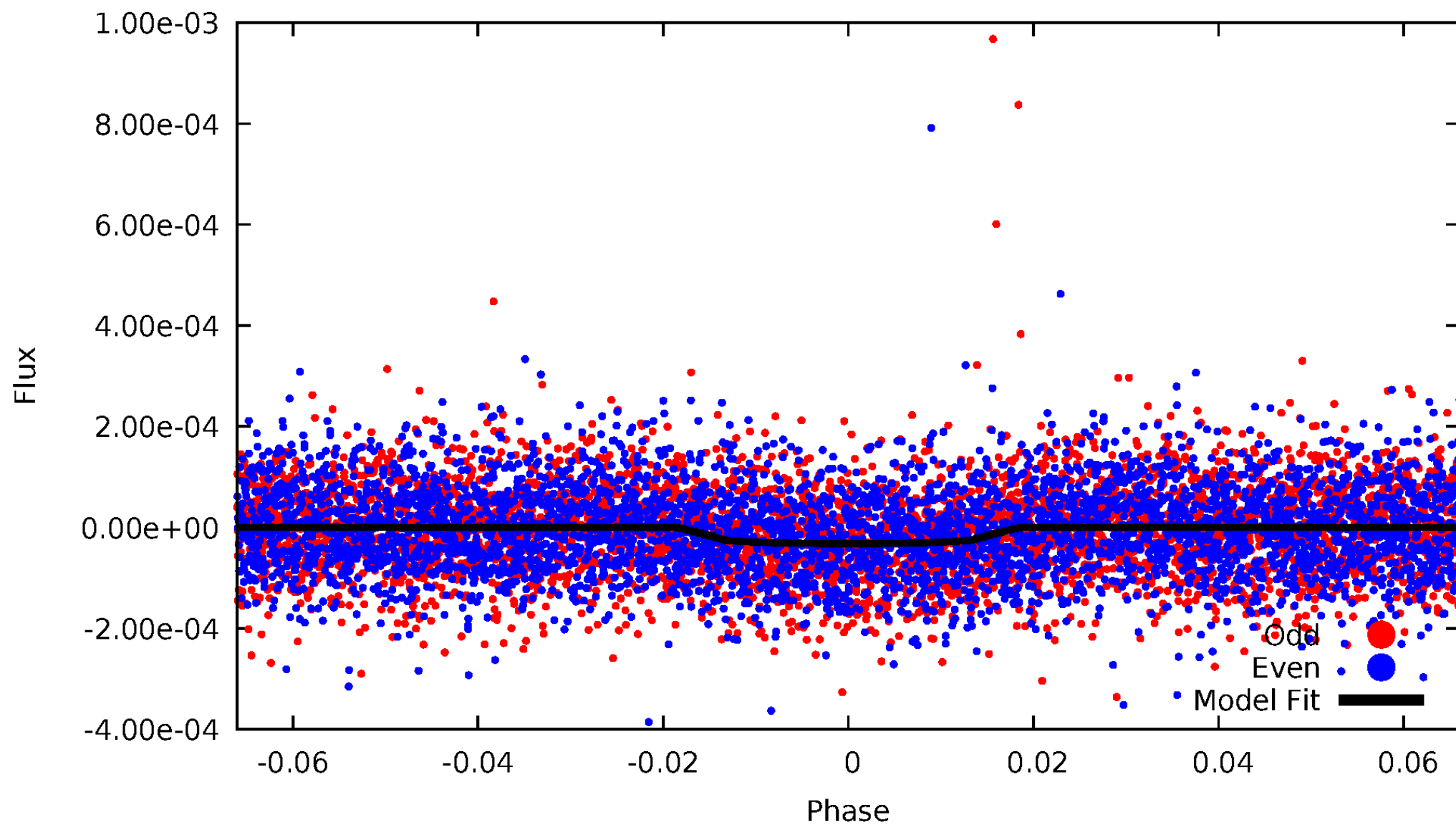


TCE 010471515-01



# DV Odd/Even

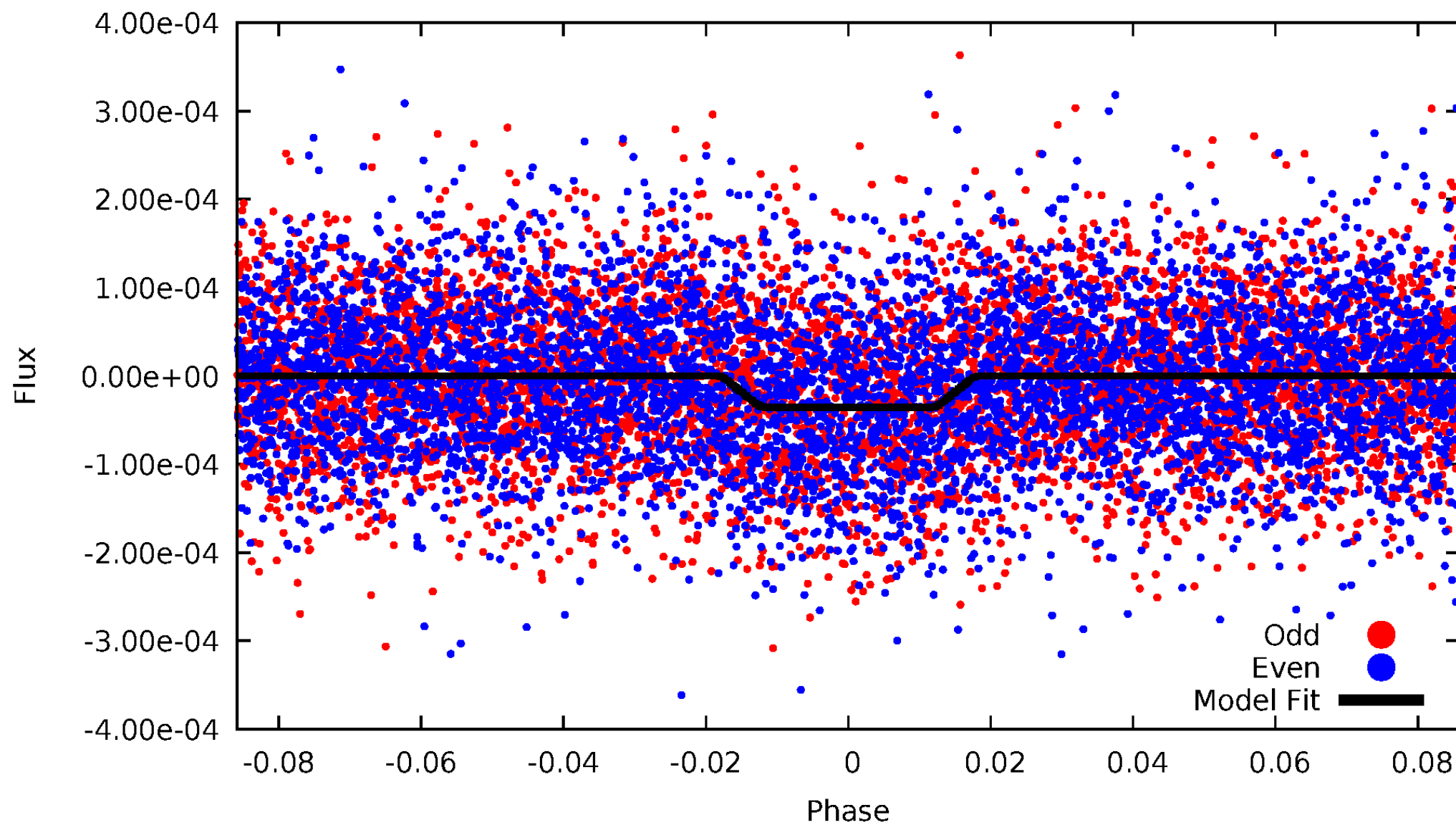
TCE 010471515-01





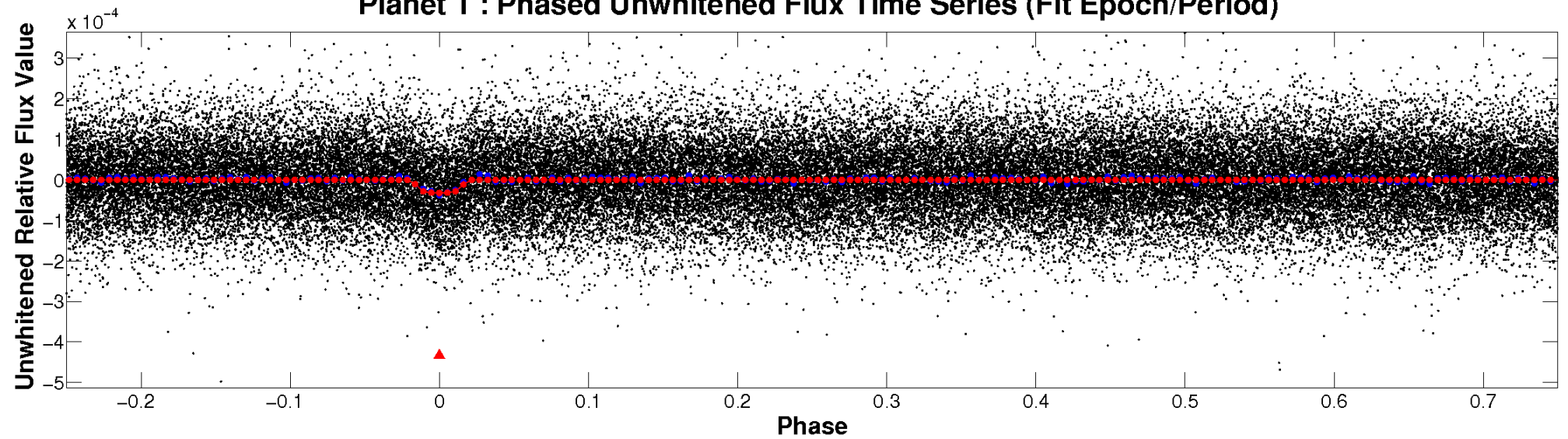
# ALT Odd/Even

TCE 010471515-01

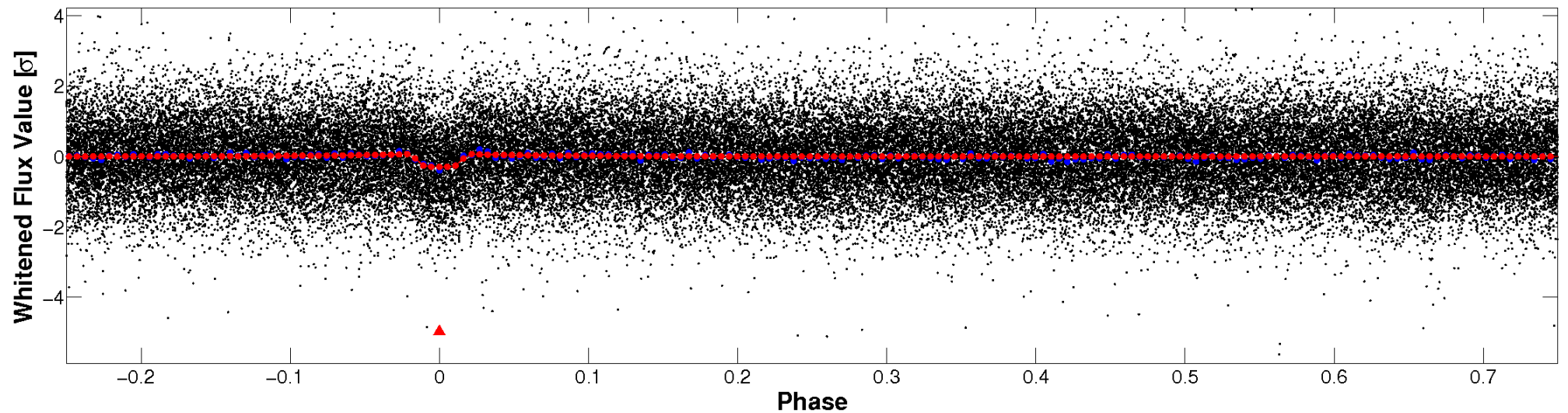


# Non-Whitened Vs. Whitened Light Curve

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

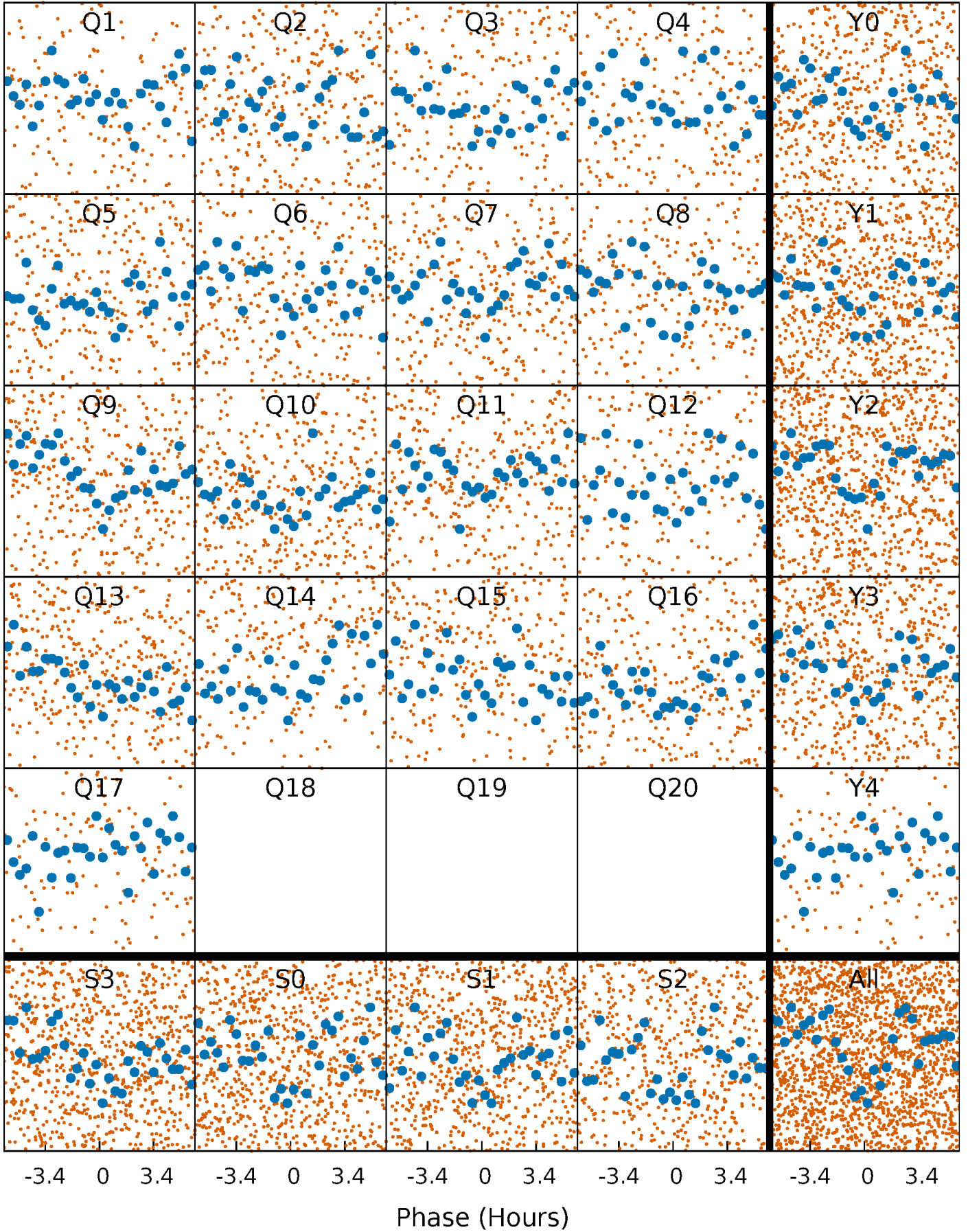


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

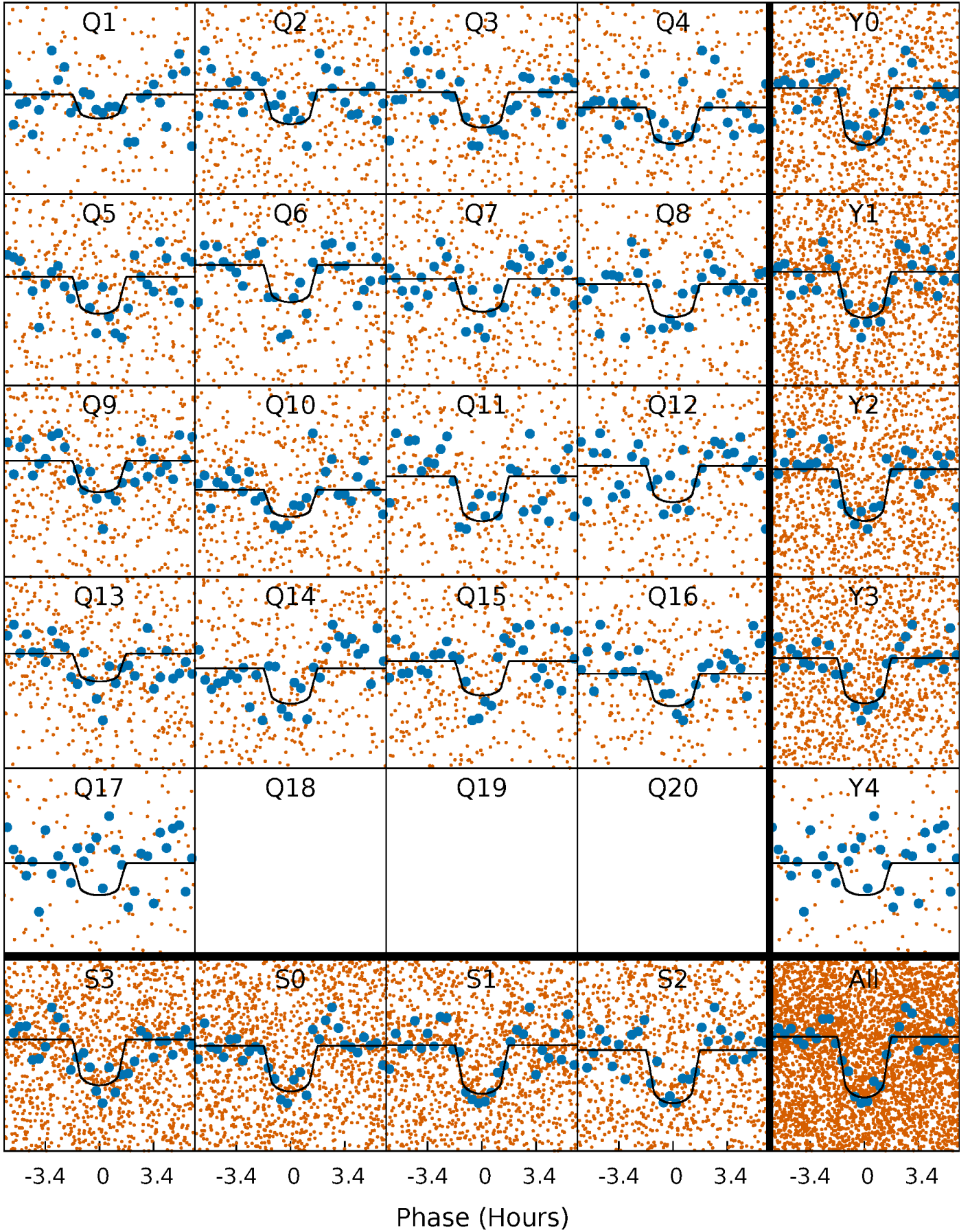
TCE 010471515-01   P= 3.784829 Days    $T_0=133.494061$  (BKJD)





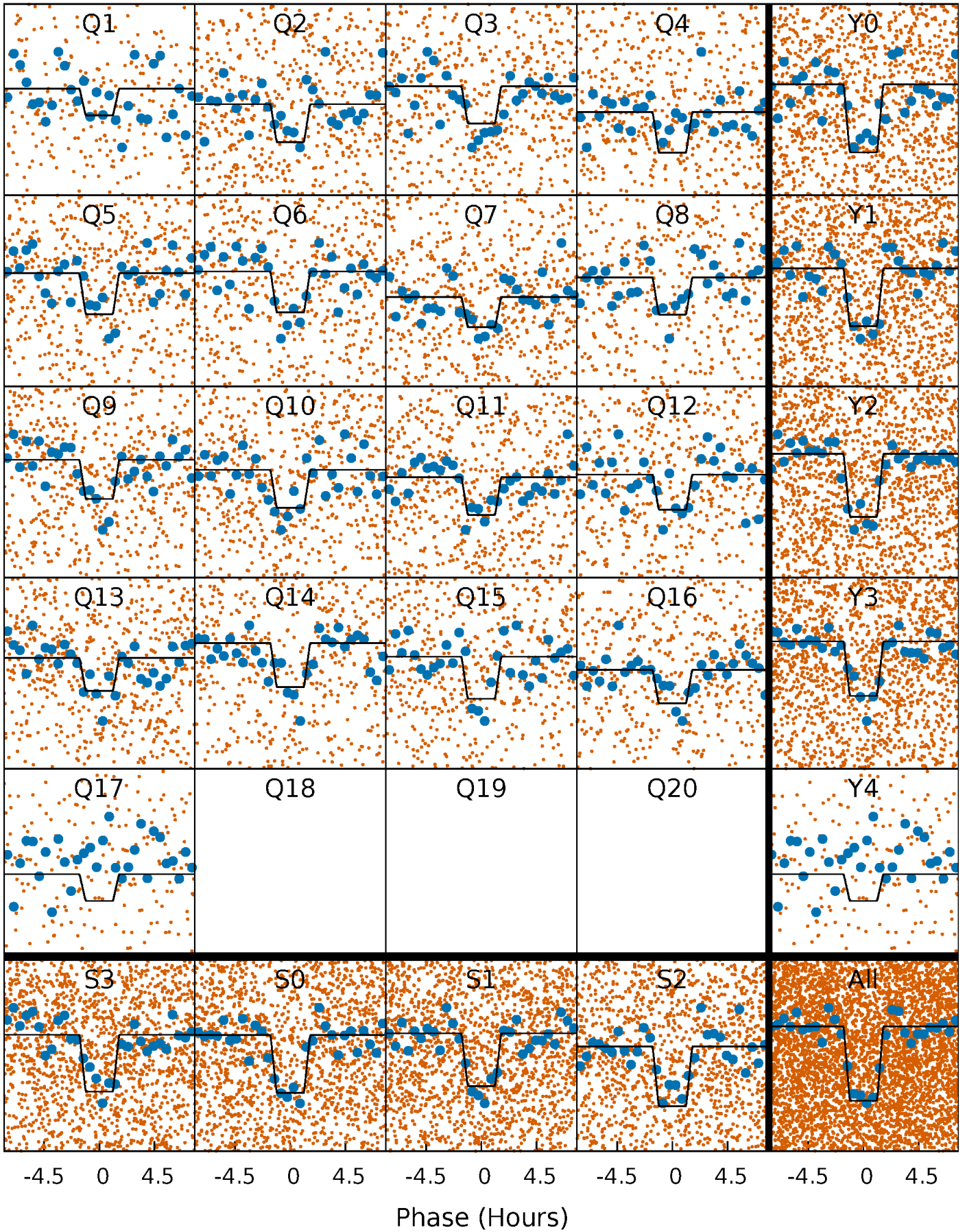
# DV Quarter-Phased Transit Curves

TCE 010471515-01 P= 3.784829 Days  $T_0=133.494061$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

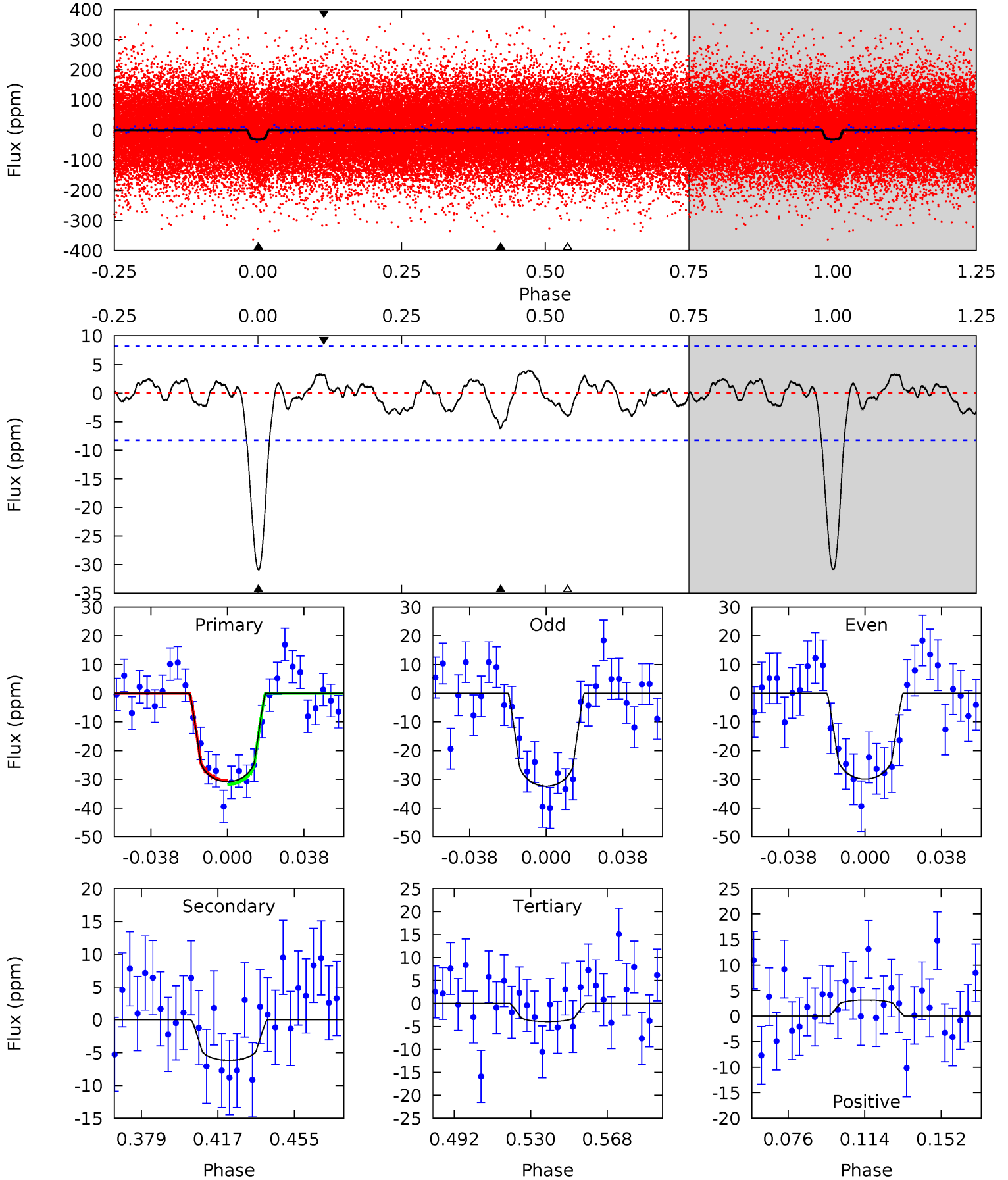
TCE 010471515-01 P= 3.784775 Days  $T_0=133.506705$  (BKJD)



# DV Model-Shift Uniqueness Test

010471515-01, P = 3.784829 Days, E = 129.709232 Days

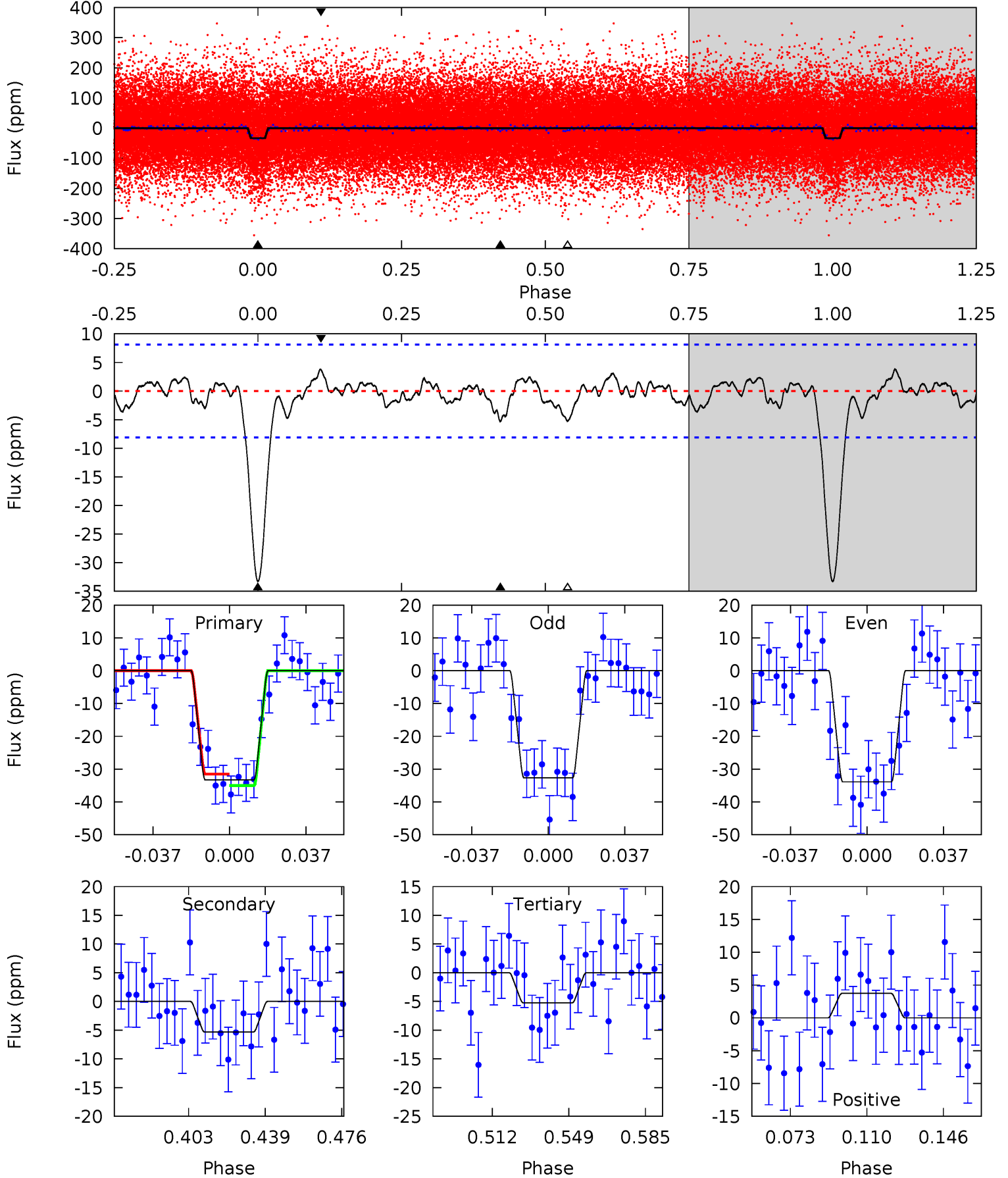
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	3.57	2.30	1.84	4.76	2.08	1.09	15.5	16.0	1.27	1.73	0.73	0.95	0.11	0.38



# Alt Model-Shift Uniqueness Test

010471515-01, P = 3.784775 Days, E = 129.721930 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
19.6	3.13	3.09	2.20	4.77	2.09	1.00	16.5	17.3	0.04	0.92	0.37	0.97	0.10	1.03





### Stellar Parameters For KIC 010471515

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6017^{+107}_{-131}$	$4.326^{+0.084}_{-0.116}$	$0.140^{+0.150}_{-0.150}$	$1.206^{+0.199}_{-0.133}$	$1.126^{+0.080}_{-0.089}$	$0.905^{+0.354}_{-0.322}$
	+2%/-2%	+2%/-3%	+107%/-107%	+17%/-11%	+7%/-8%	+39%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 010471515-01 / KOI 2961.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-6 \pm 2$	$0.80^{+0.30}_{-0.28}$	$1829^{+77}_{-69}$	$4094^{+748}_{-489}$	$13^{+18}_{-6}$
Alt.	$-5 \pm 2$	$0.80^{+0.28}_{-0.30}$	$1838^{+72}_{-69}$	$3983^{+798}_{-437}$	$11^{+17}_{-5}$

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

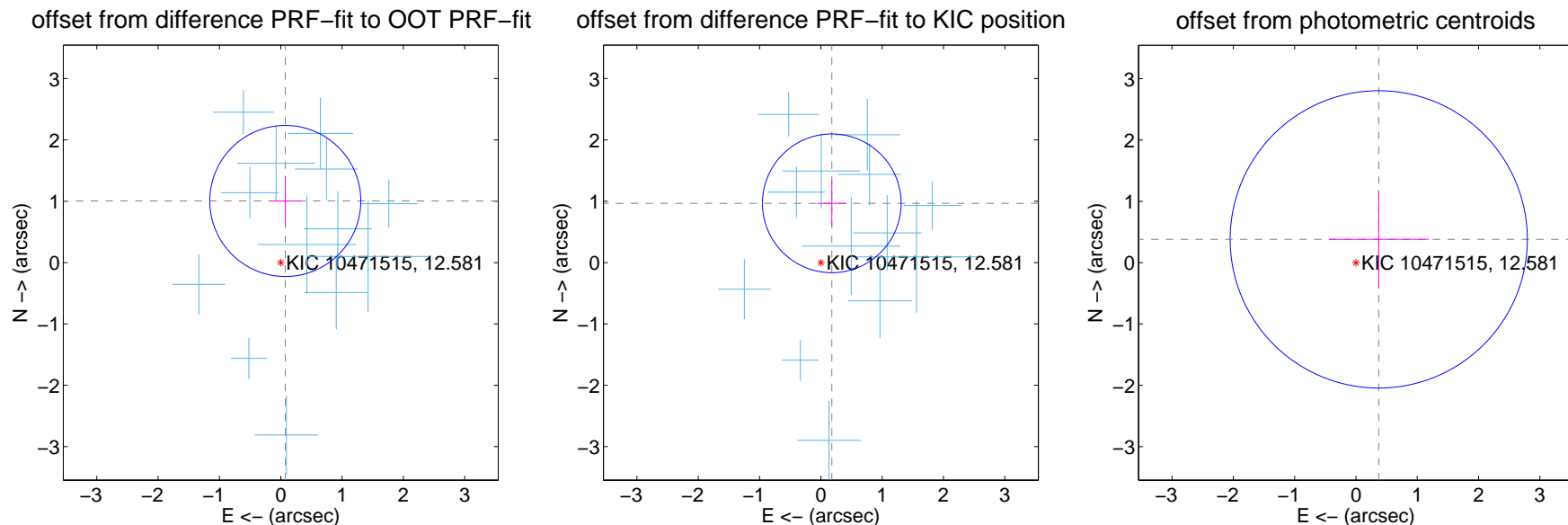
## DV Centroid Data

Supplemental centroid analysis for 010471515-01. Kepler magnitude: 12.58. Transit SNR 12.09

There are 13 quarters with good PRF difference image offsets

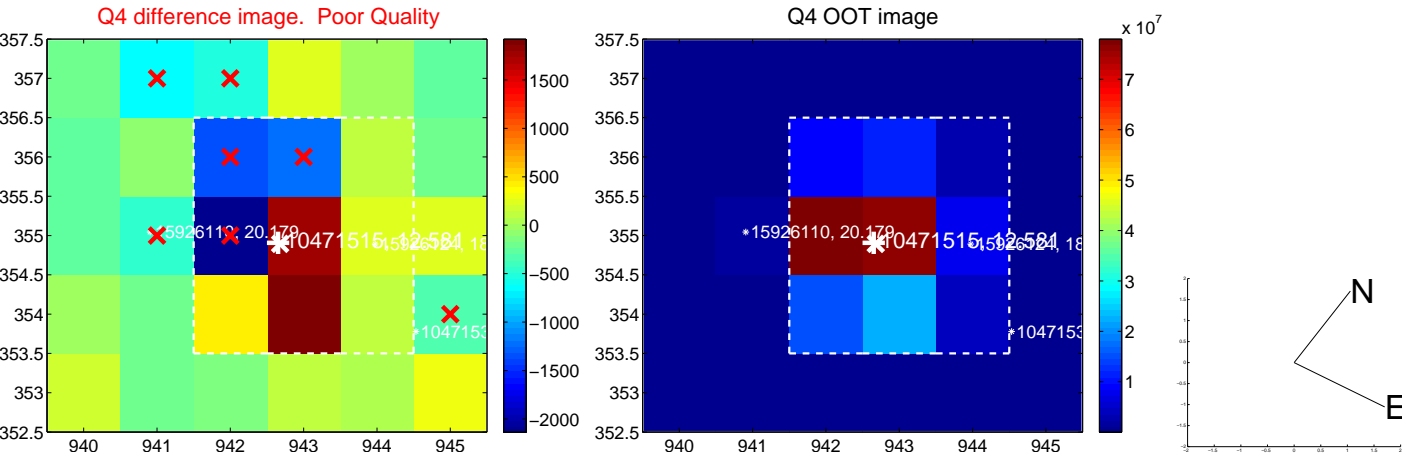
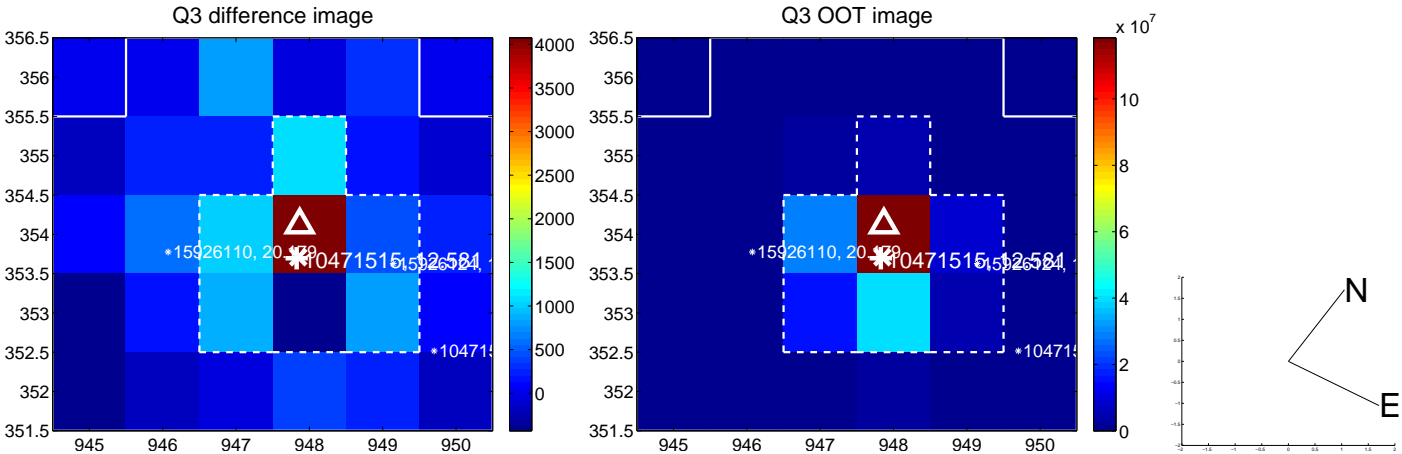
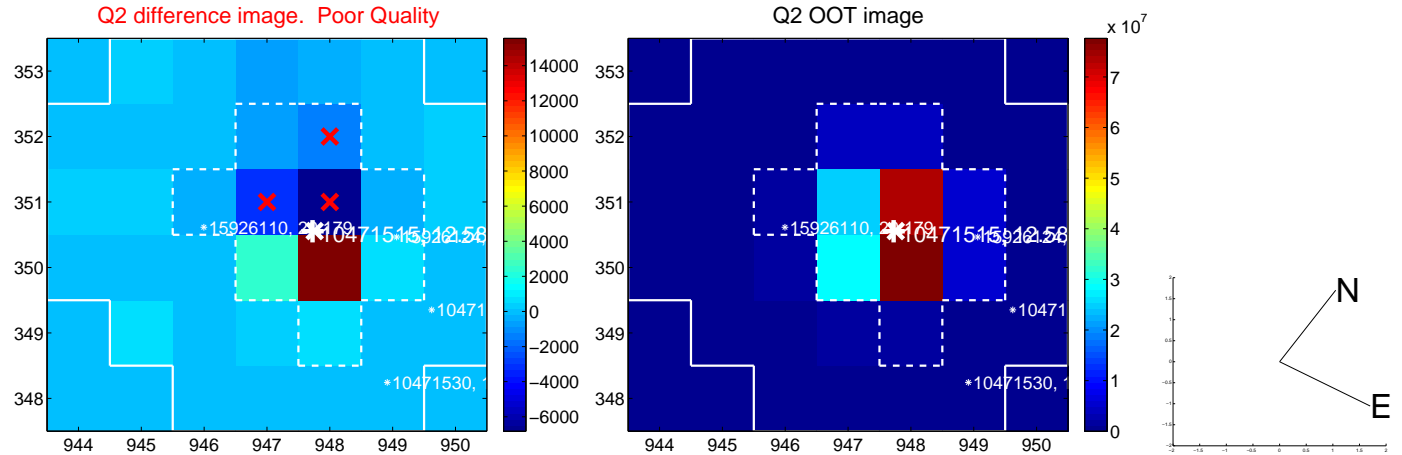
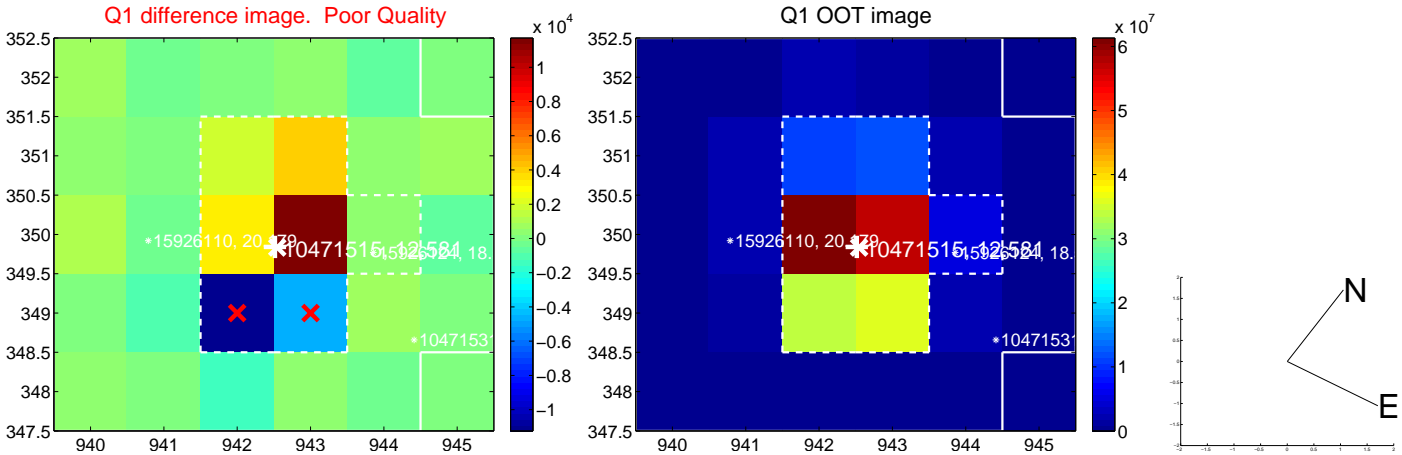
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.007 \pm 0.410$	2.45	$-0.074 \pm 0.261$	$1.005 \pm 0.407$
PRF-fit source offset from KIC position	$0.983 \pm 0.377$	2.61	$-0.178 \pm 0.239$	$0.966 \pm 0.374$
photometric centroid source offset	$0.53 \pm 0.81$	0.66	$-0.37 \pm 0.81$	$0.38 \pm 0.80$



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.

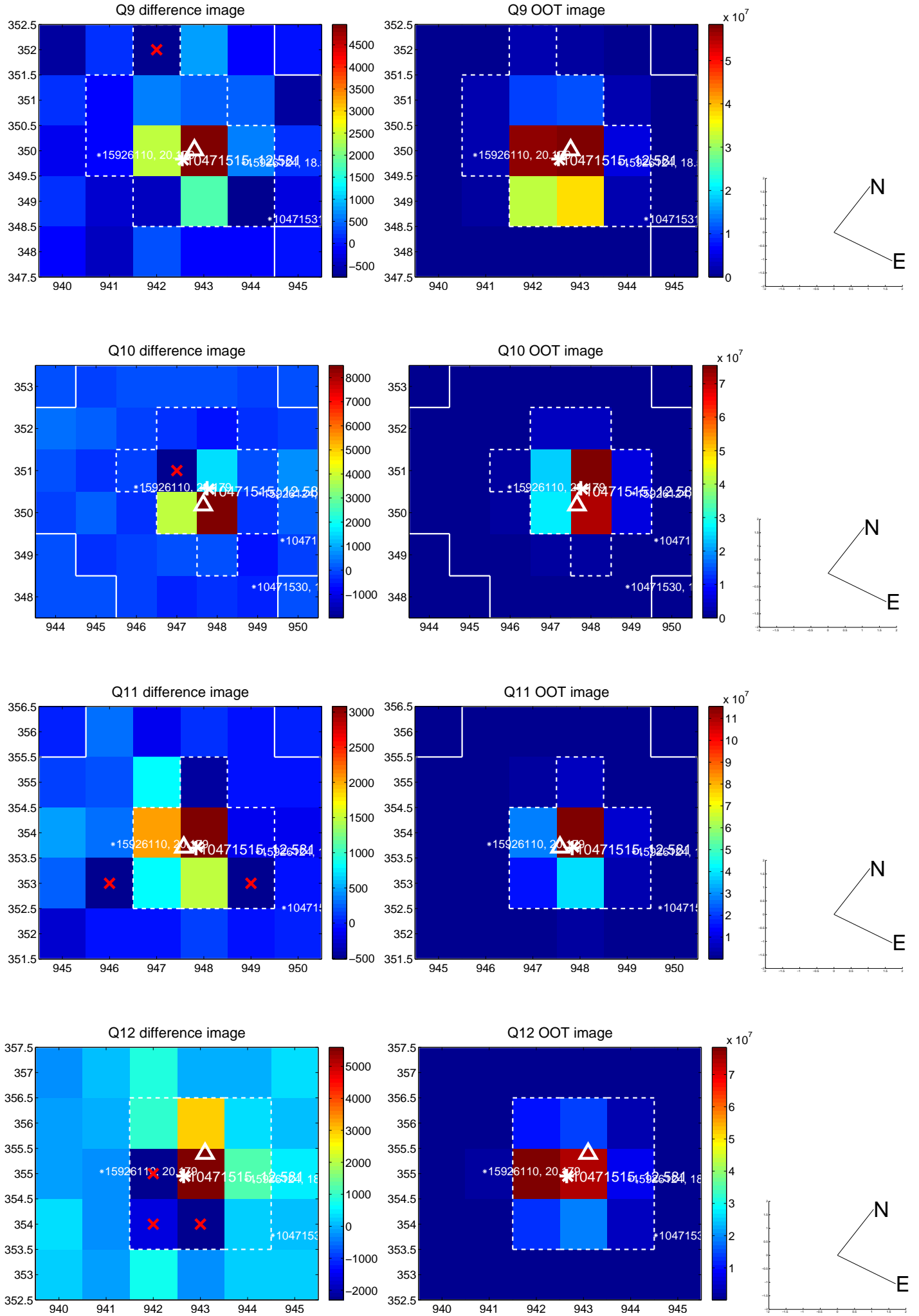
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



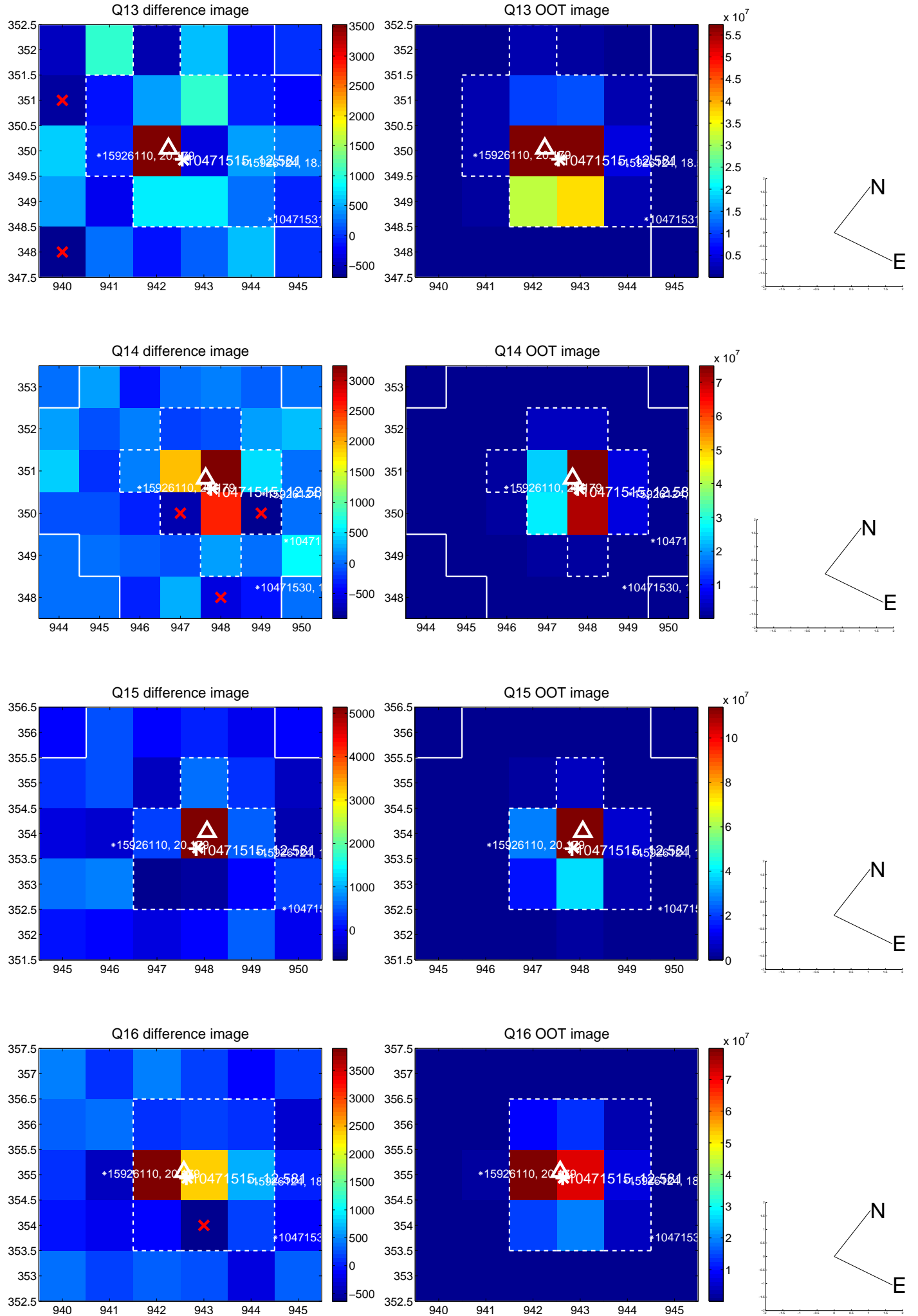




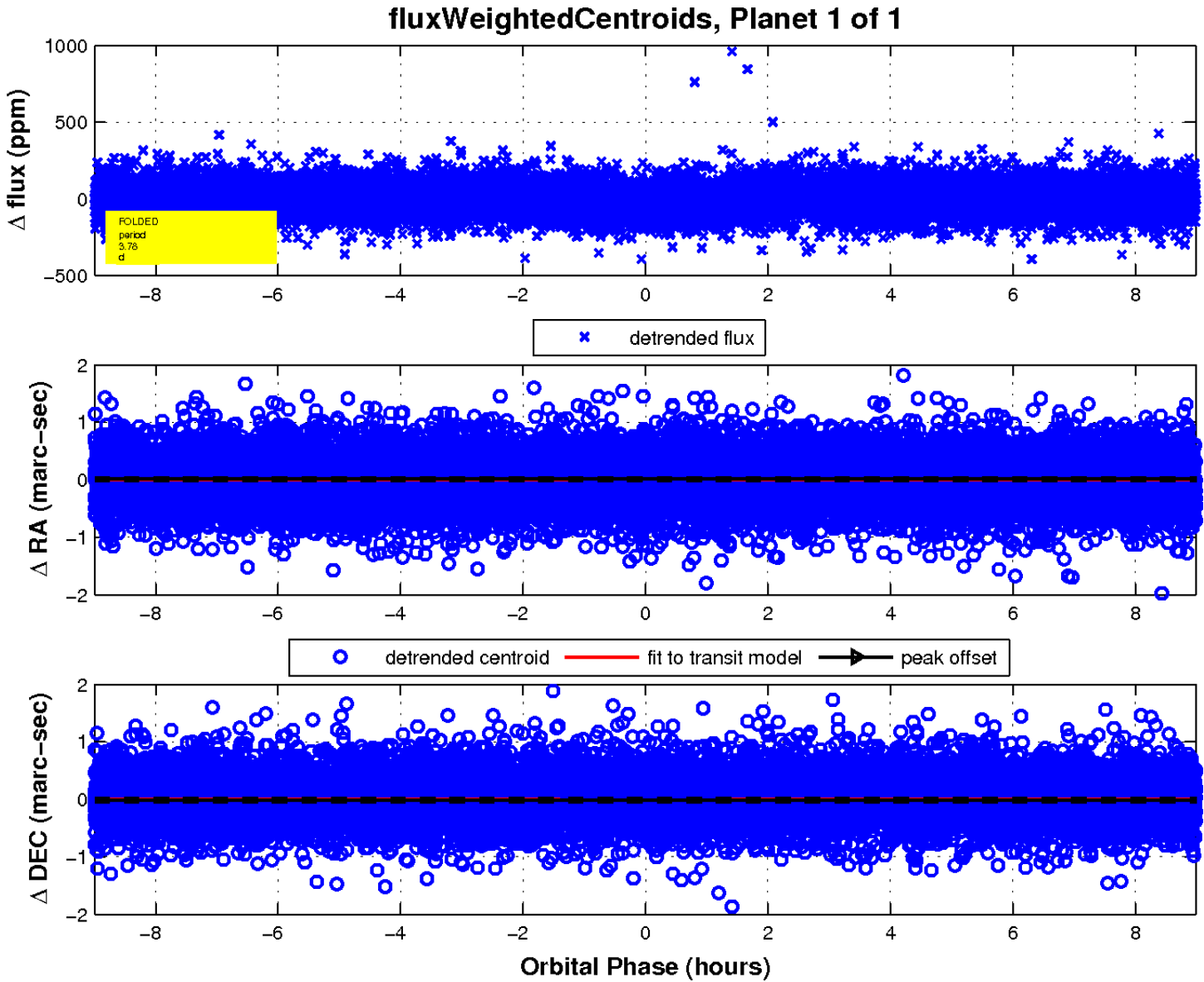
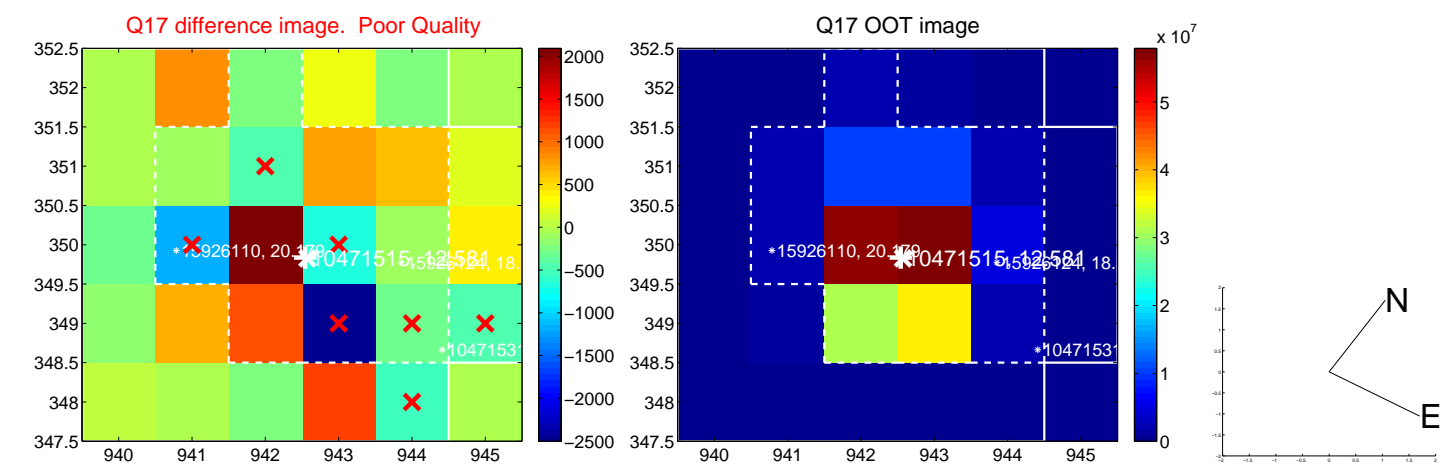
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

