

# KIC 009396399

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009396399-01	OBS	No	0.810376	132.304091	26.8	2.655	9.3	7.1	1.70	7735	1.02	23801.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009396399-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—HALO_GHOST

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

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

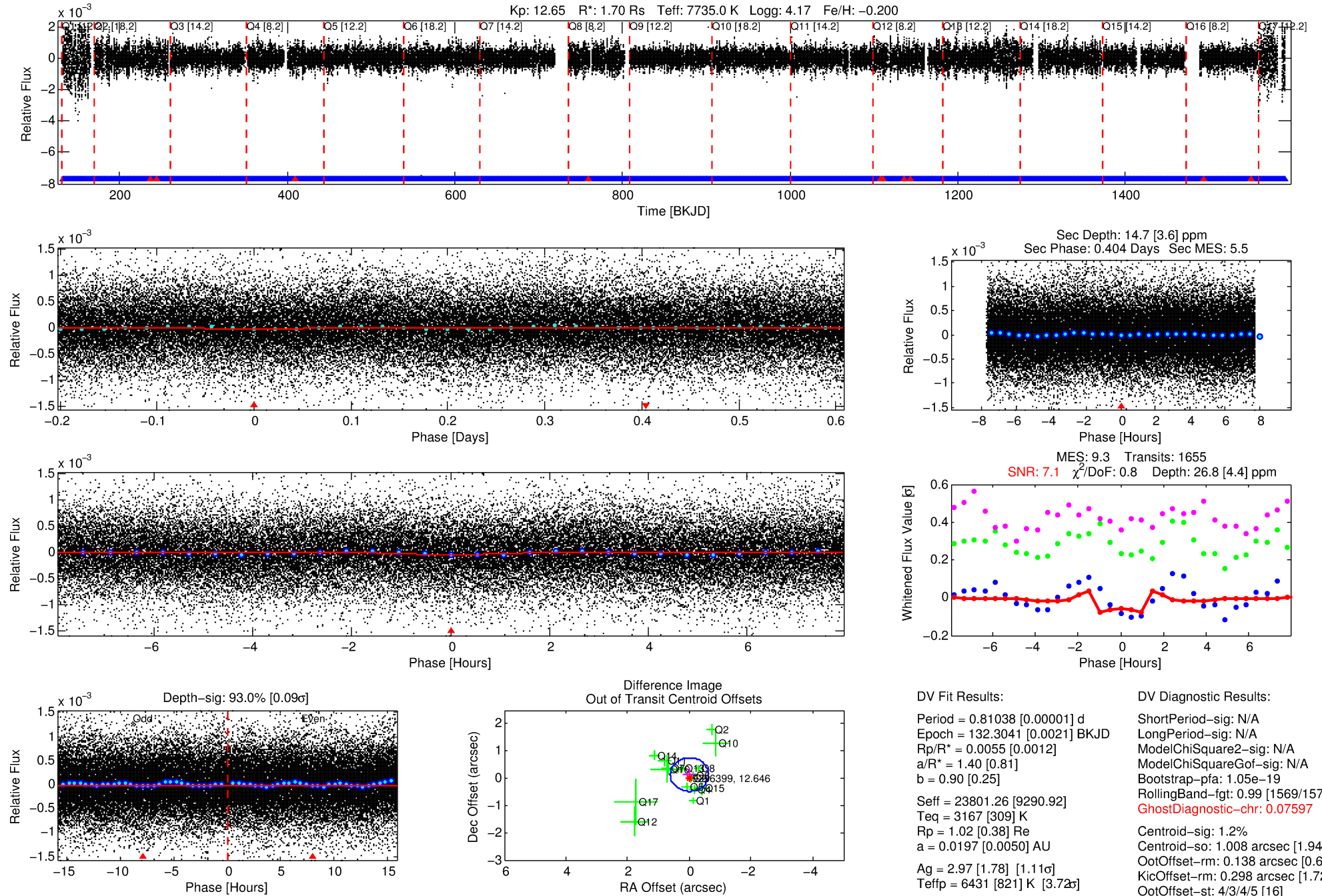
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009396399-01

No Significant Match Found

# DV One-Page Summary

KIC: 9396399 Candidate: 1 of 1 Period: 0.810 d



## DV Fit Results:

Period = 0.81038 [0.00001] d  
Epoch = 132.3041 [0.0021] BKJD  
Rp/R\* = 0.0055 [0.0012]  
a/R\* = 1.40 [0.81]  
b = 0.90 [0.25]  
Seff = 23801.26 [9290.92]  
Teq = 3167 [309] K  
Rp = 1.02 [0.38] Re  
a = 0.0197 [0.0050] AU  
Ag = 2.97 [1.78] [1.11 $\sigma$ ]  
Teffp = 6431 [821] K [3.72 $\sigma$ ]

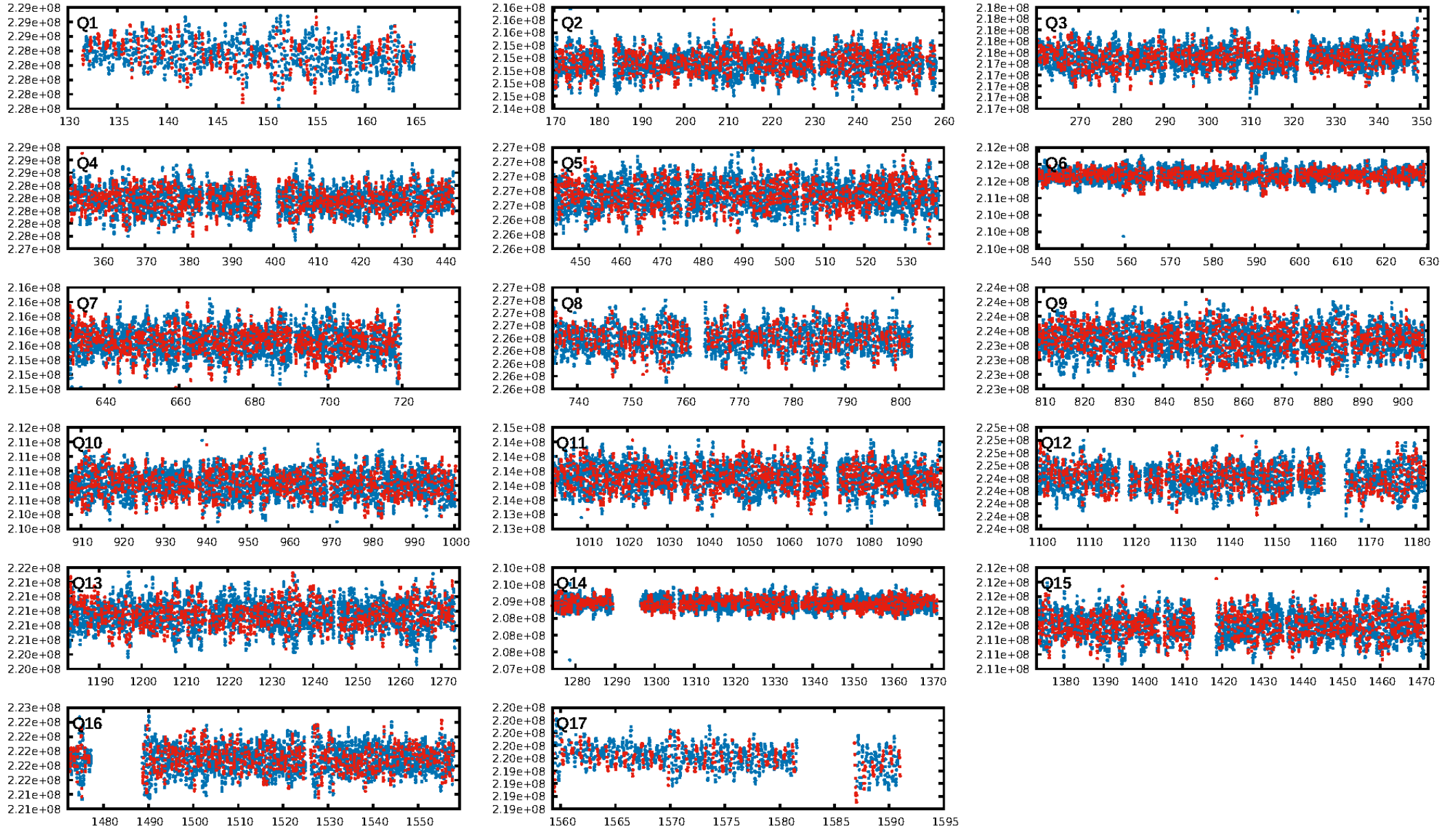
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.05e-19  
RollingBand-fgt: 0.99 [1569/1579]  
GhostDiagnostic-chr: 0.07597  
Centroid-sig: 1.2%  
Centroid-so: 1.008 arcsec [1.94 $\sigma$ ]  
OotOffset-rm: 0.138 arcsec [0.67 $\sigma$ ]  
KicOffset-rm: 0.298 arcsec [1.72 $\sigma$ ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:42:15 Z

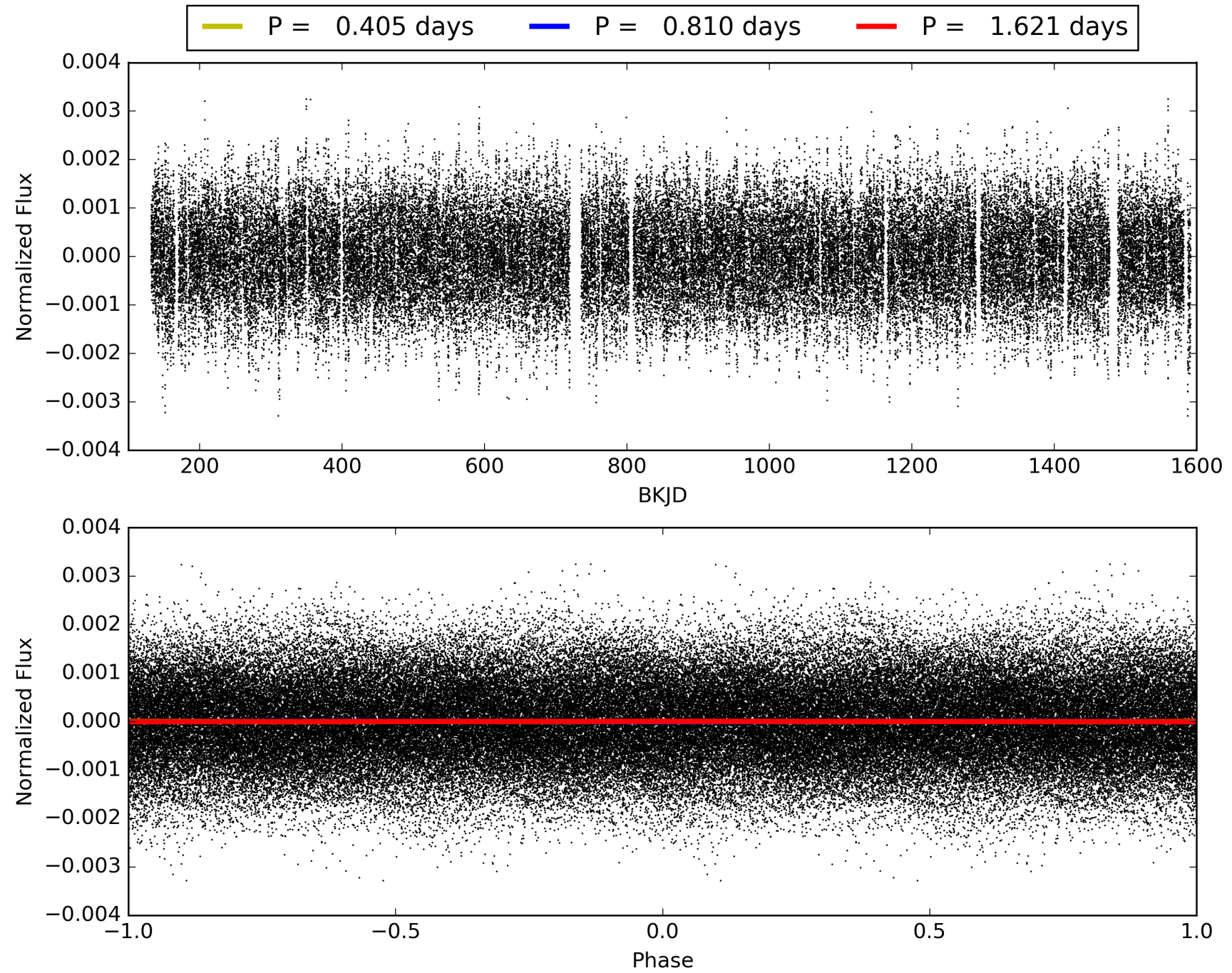
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009396399-01, PDC Light Curves



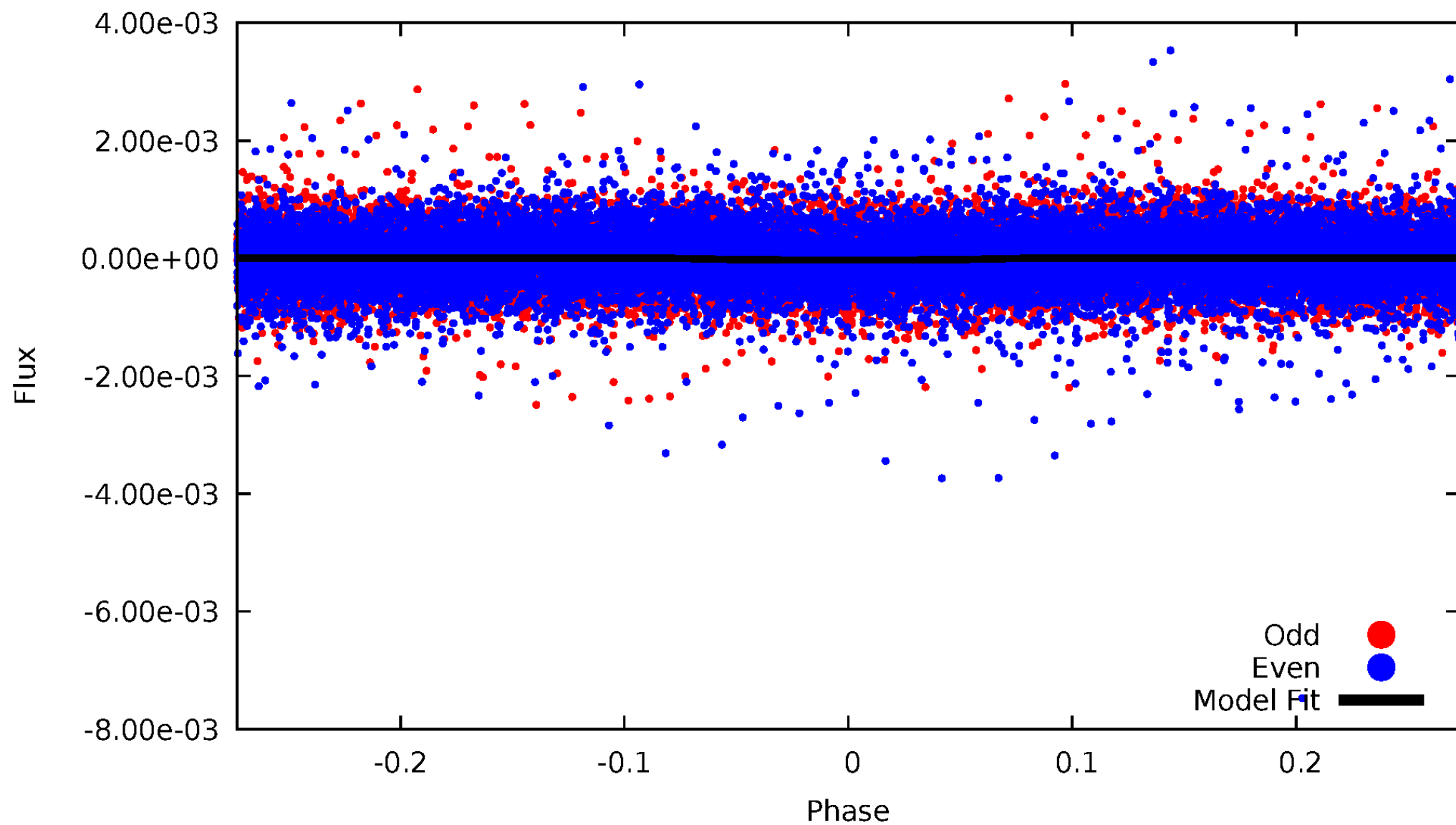


TCE 009396399-01



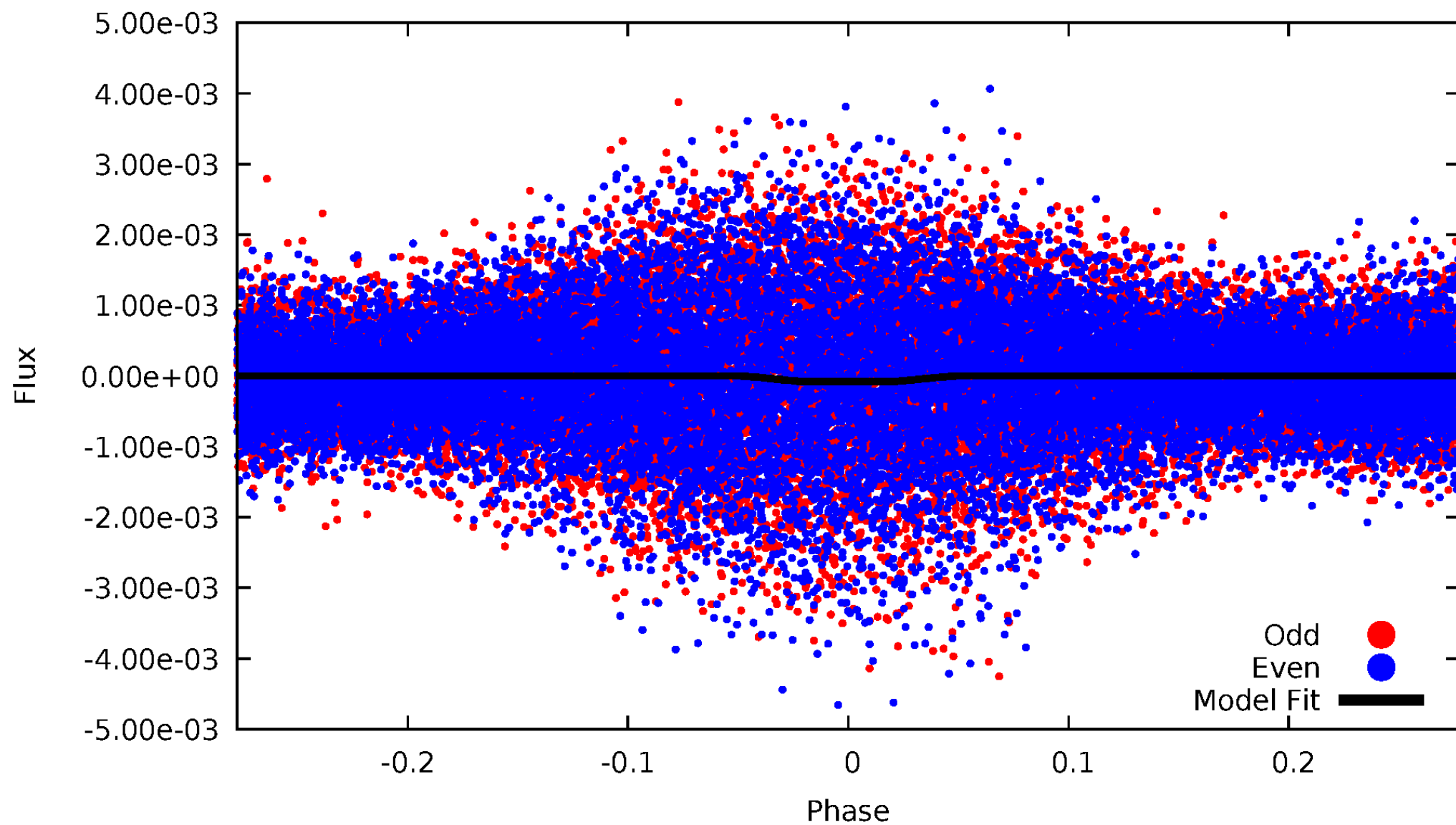
# DV Odd/Even

TCE 009396399-01



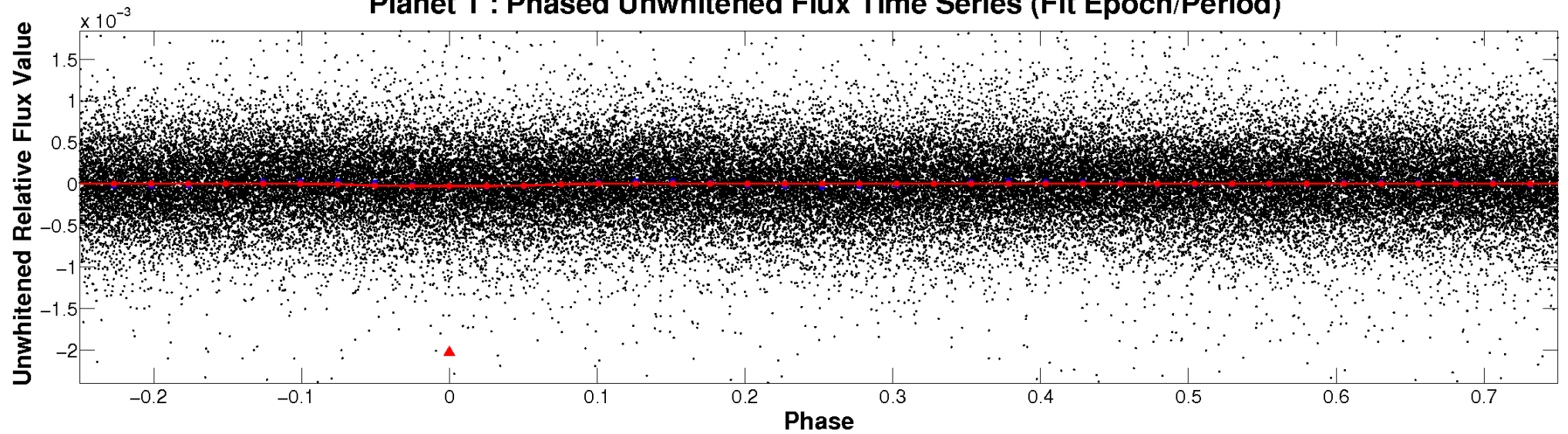
# ALT Odd/Even

TCE 009396399-01

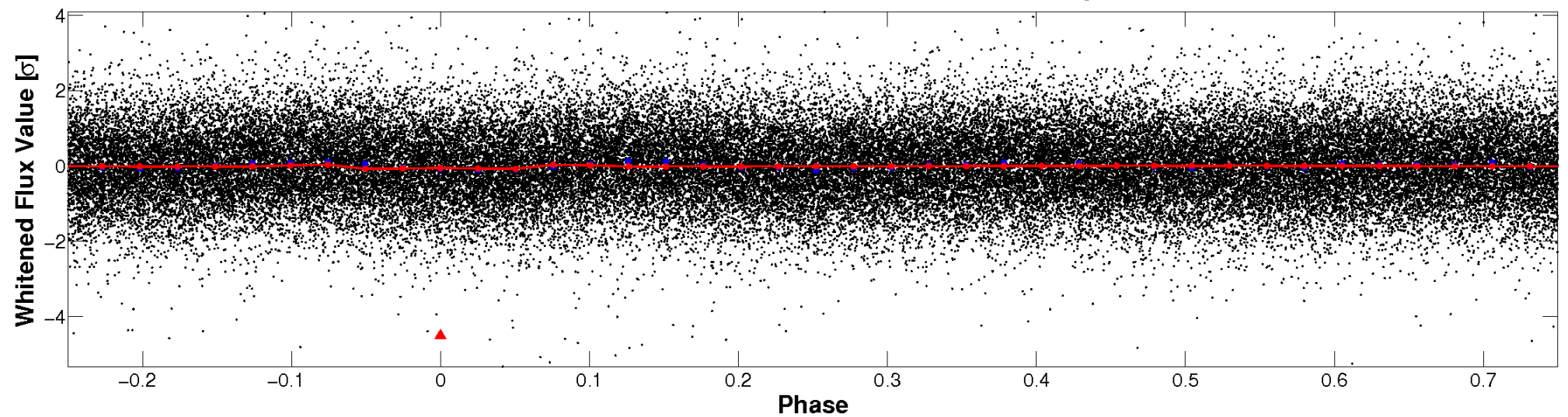


# Non-Whitened Vs. Whitened Light Curve

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



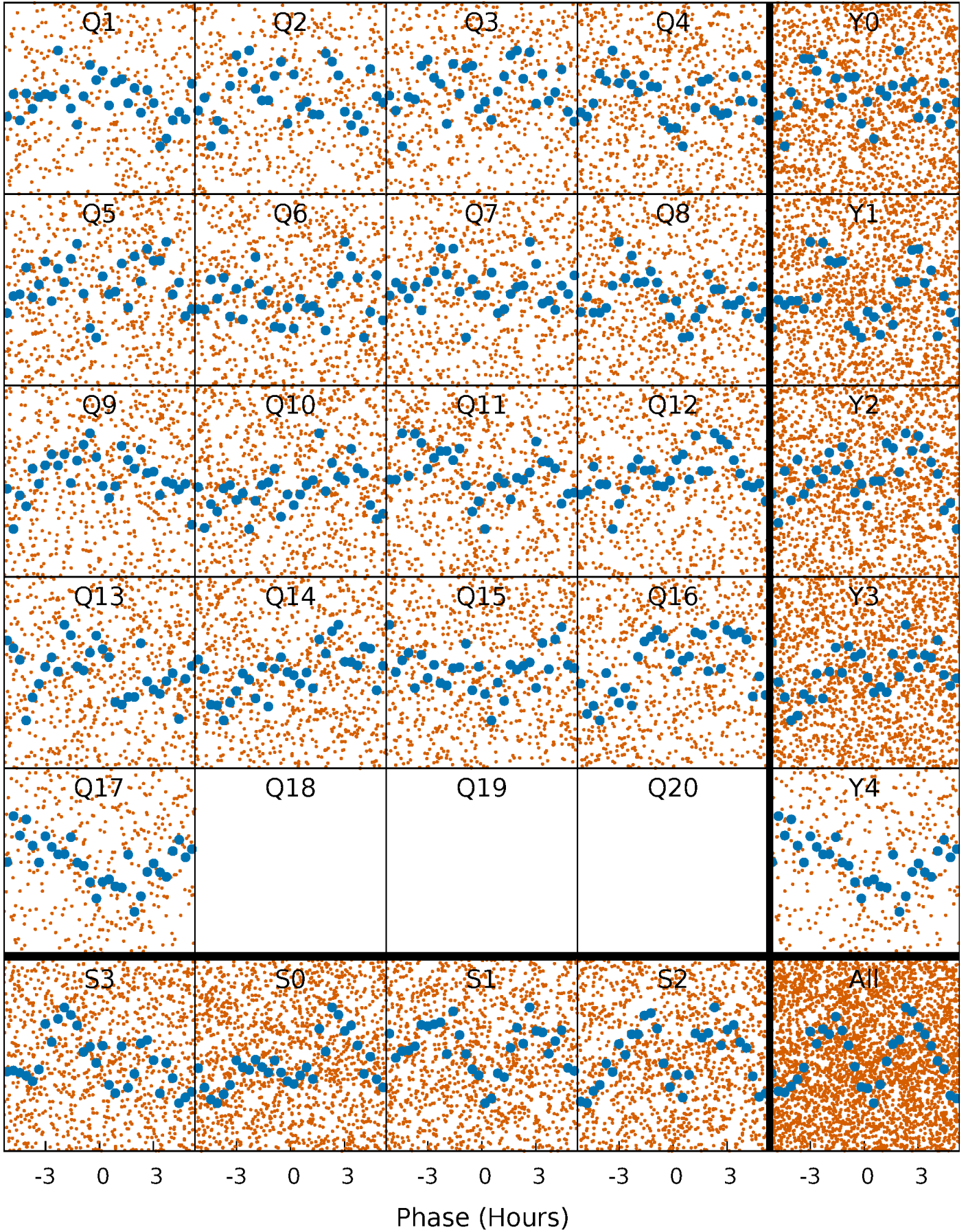
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

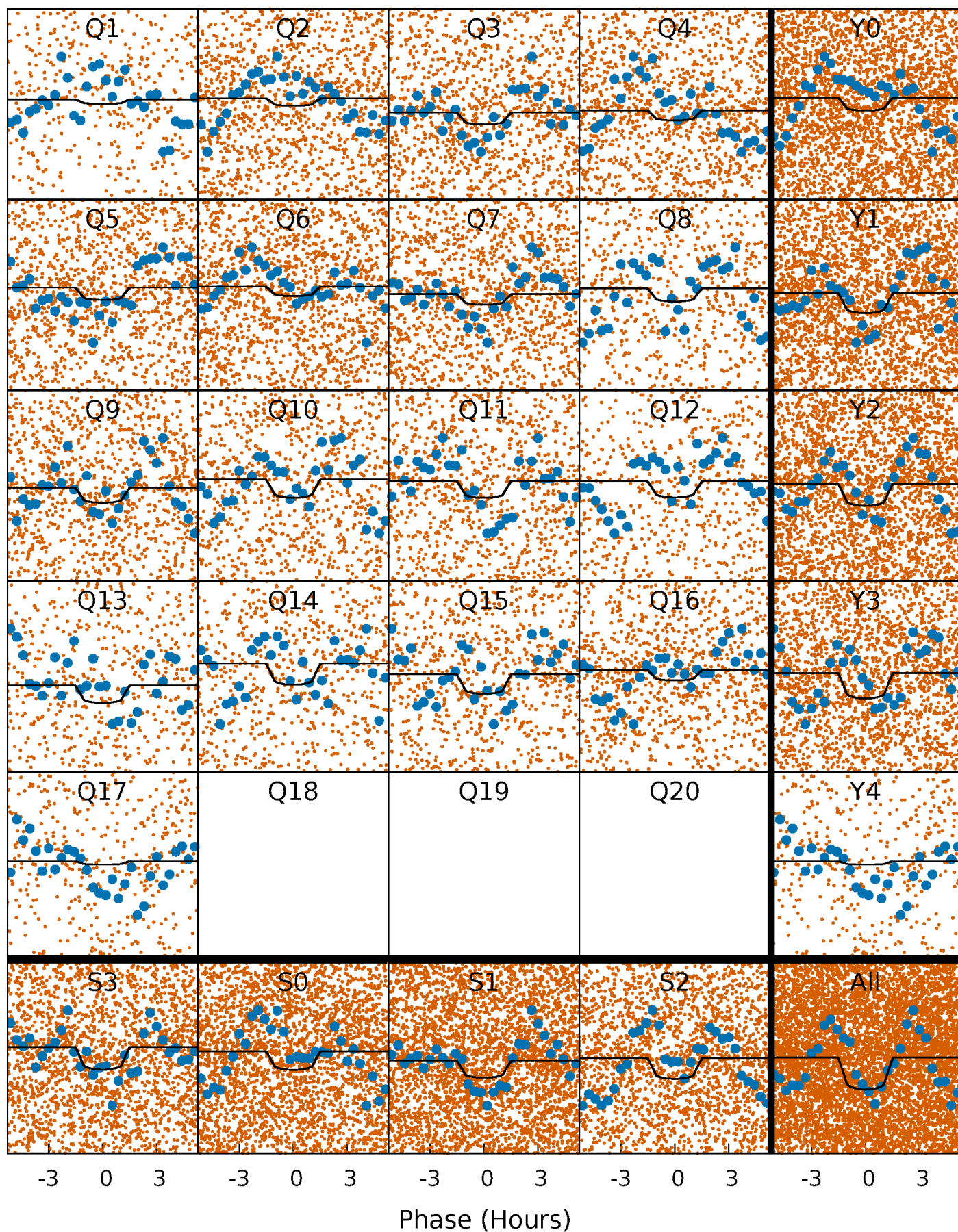
TCE 009396399-01   P= 0.810376 Days    $T_0=132.304091$  (BKJD)





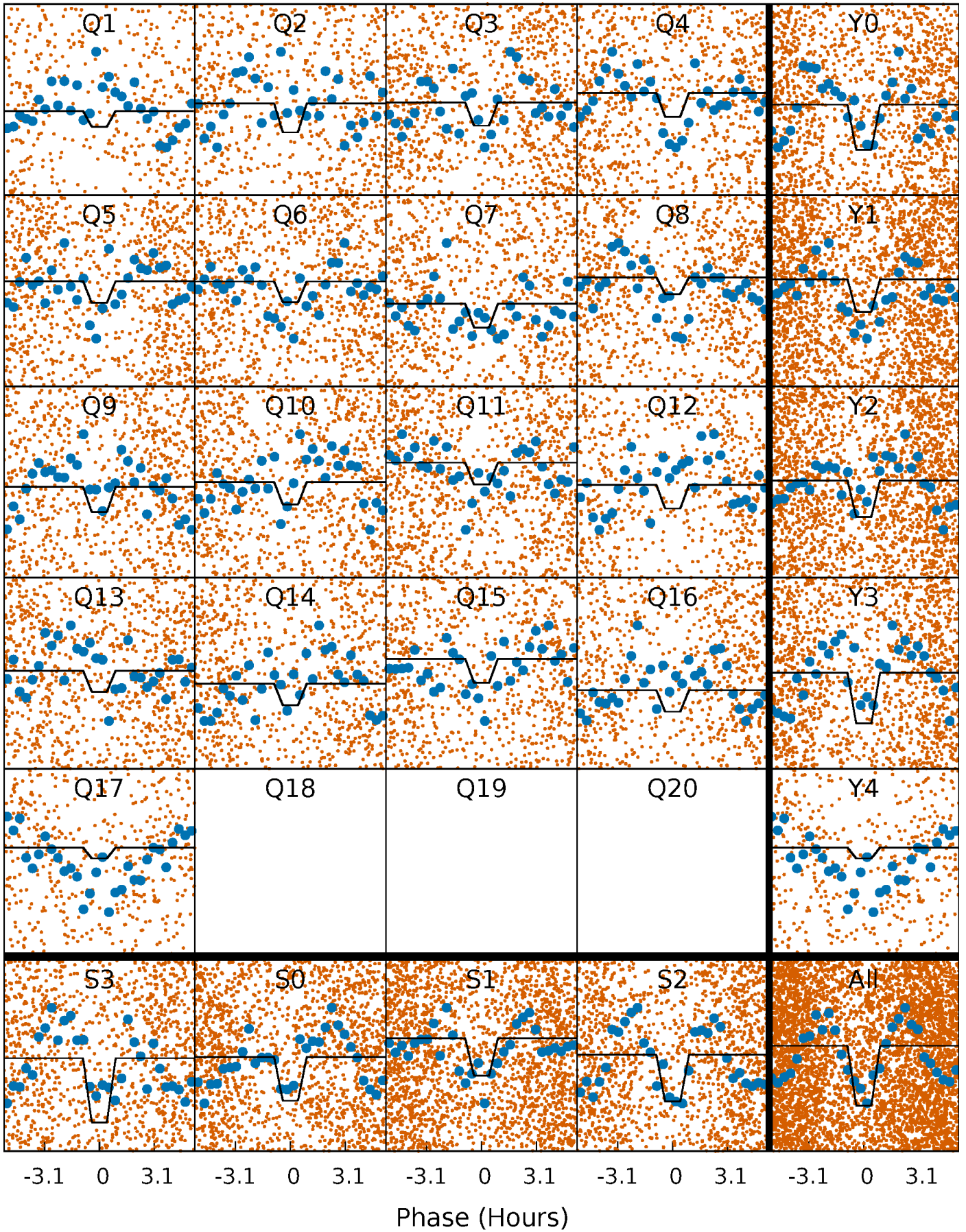
# DV Quarter-Phased Transit Curves

TCE 009396399-01 P= 0.810376 Days  $T_0=132.304091$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009396399-01 P= 0.810399 Days  $T_0=132.300951$  (BKJD)

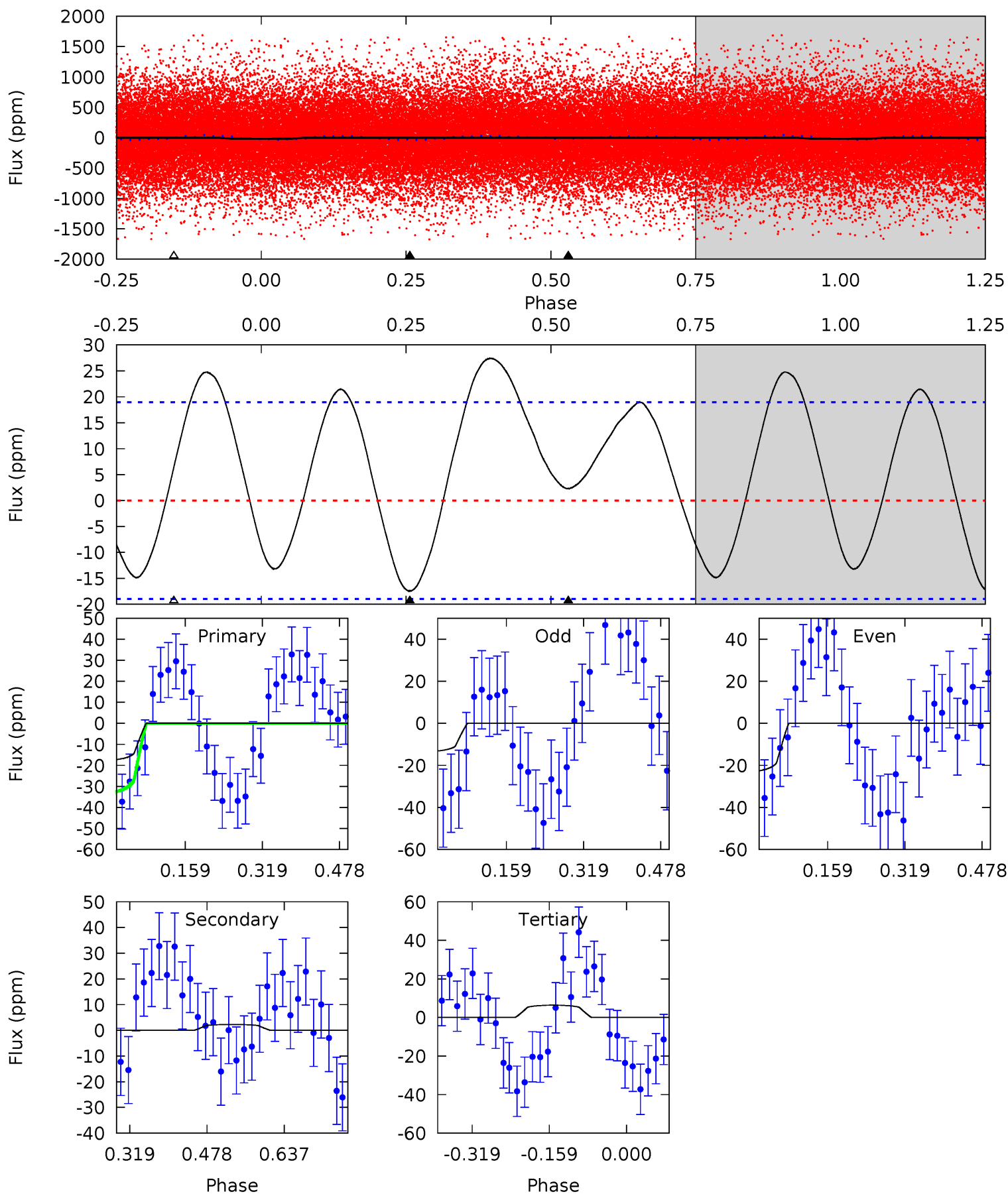




# DV Model-Shift Uniqueness Test

009396399-01, P = 0.810376 Days, E = 131.493715 Days

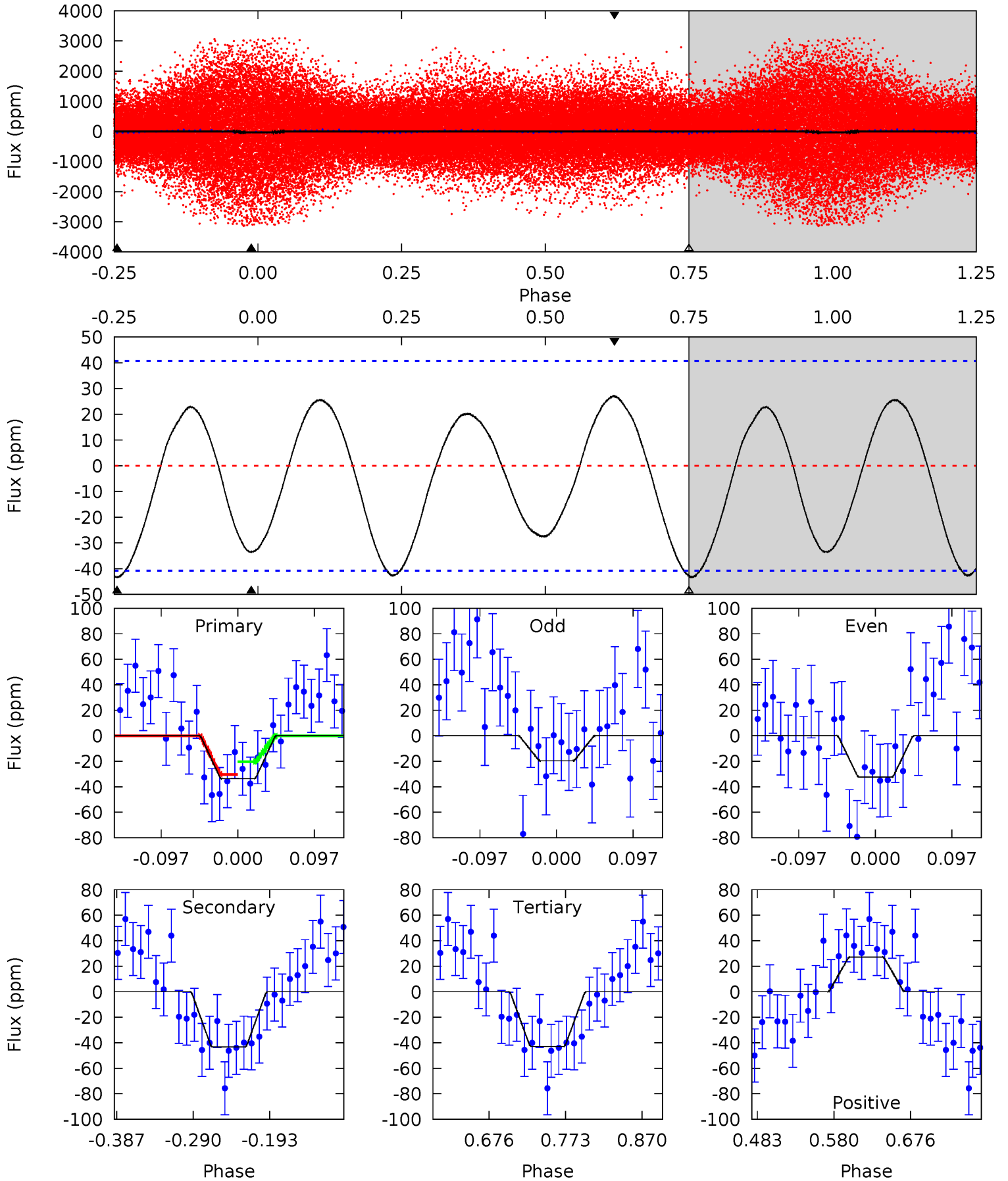
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.11	-0.53	-1.51	0	4.47	1.41	2.94	5.62	4.11	0.97	-0.53	1.14	2.80	0.61	3.49



# Alt Model-Shift Uniqueness Test

009396399-01, P = 0.810399 Days, E = 131.490552 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
3.77	4.86	4.82	3.04	4.57	1.66	2.46	-1.04	0.73	0.04	1.82	0.64	-4.38	0.39	0.50





### Stellar Parameters For KIC 009396399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7735^{+215}_{-322}$	$4.169^{+0.124}_{-0.186}$	$-0.200^{+0.200}_{-0.350}$	$1.695^{+0.528}_{-0.325}$	$1.542^{+0.192}_{-0.235}$	$0.446^{+0.268}_{-0.226}$
	+3%/-4%	+3%/-4%	+100%/-175%	+31%/-19%	+12%/-15%	+60%/-51%
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 009396399-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$2\pm4$	$1.03^{+0.24}_{-0.23}$	$4426^{+343}_{-257}$	$-4566^{+7648}_{-1008}$	$-0.367^{+0.728}_{-1.097}$
Alt.	$-43\pm9$	$1.65^{+0.30}_{-0.28}$	$4435^{+342}_{-270}$	$6357^{+749}_{-608}$	$3.292^{+1.761}_{-1.130}$

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

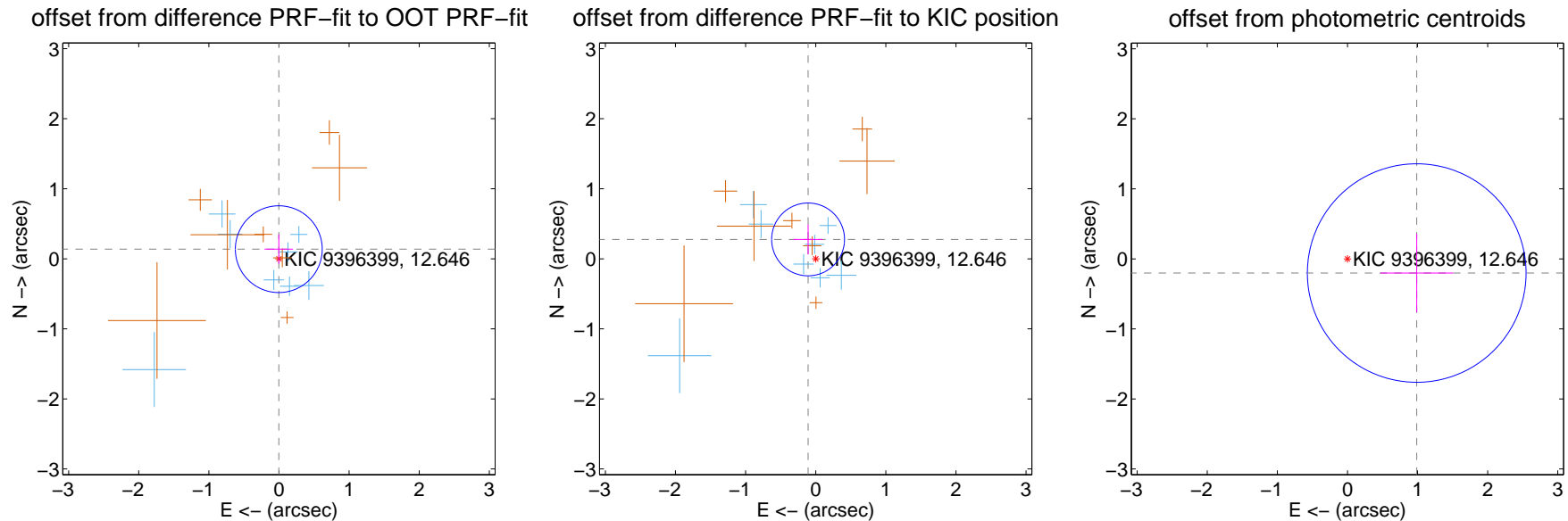
## DV Centroid Data

Supplemental centroid analysis for 009396399-01. Kepler magnitude: 12.65. Transit SNR 7.09

There are 8 quarters with good PRF difference image offsets

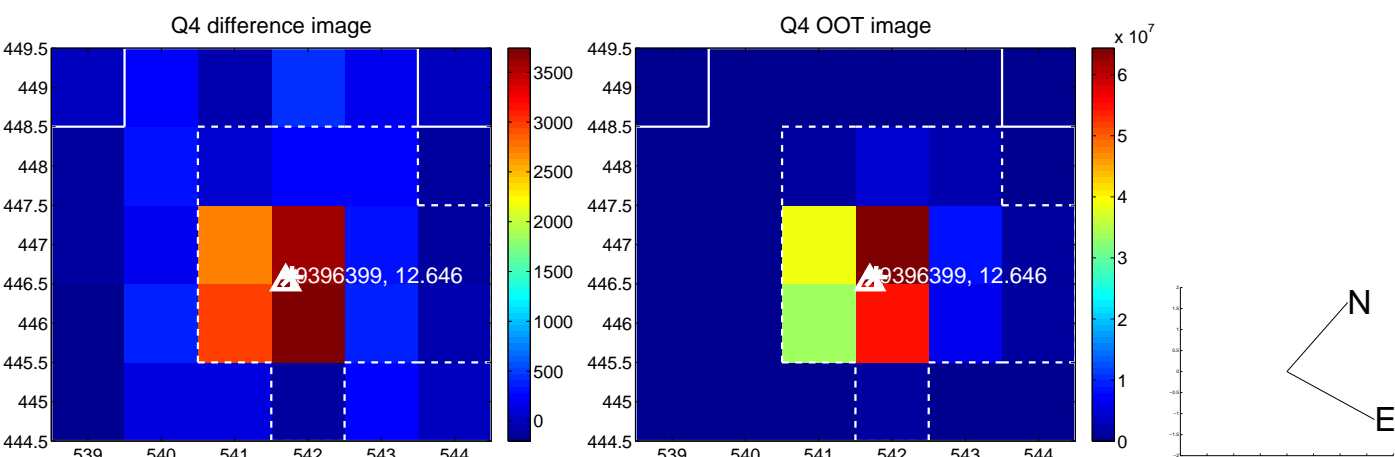
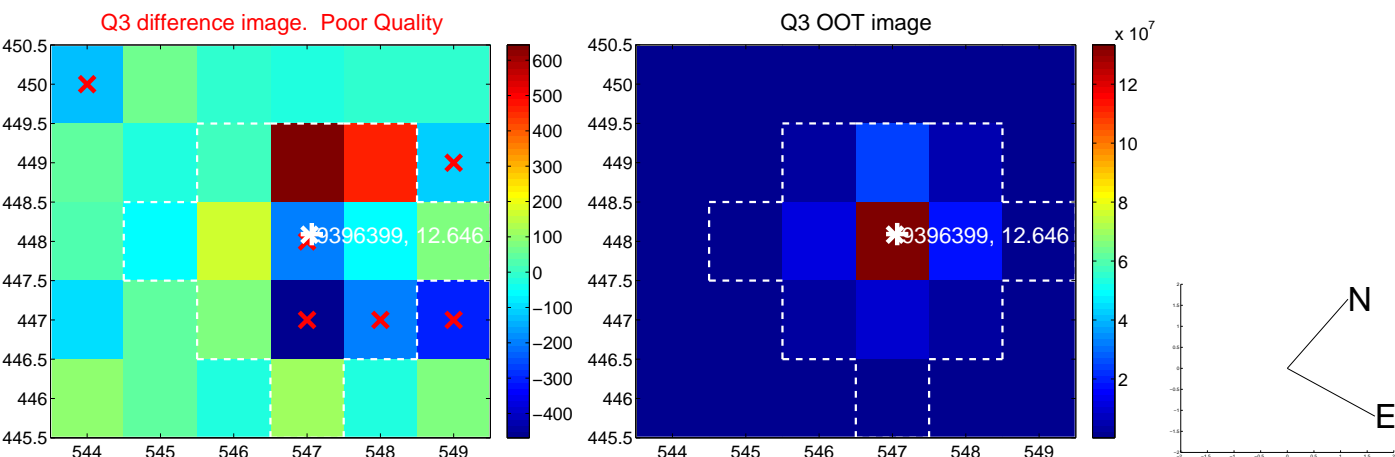
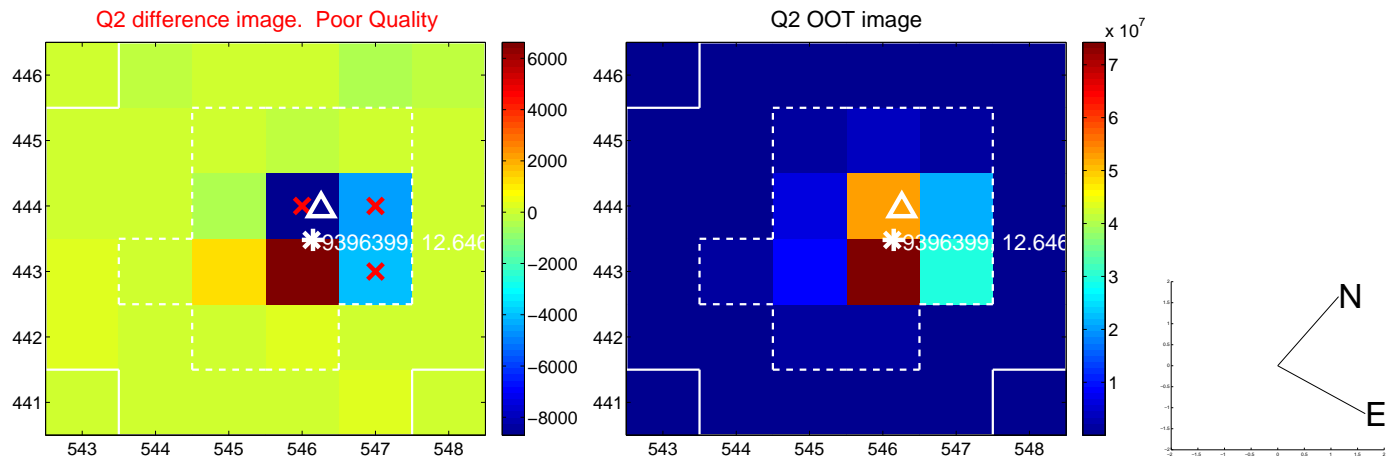
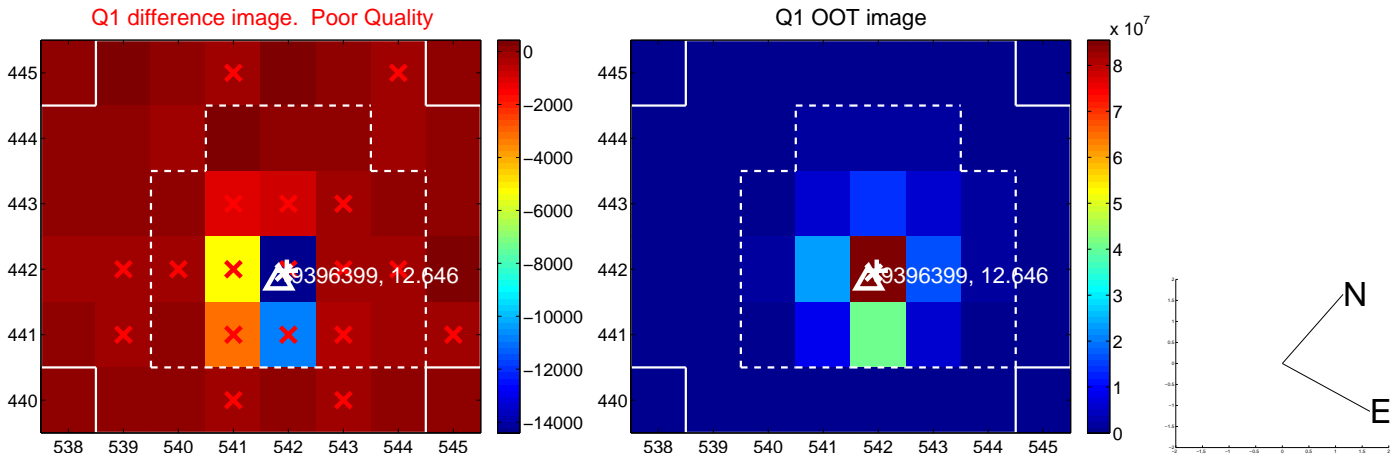
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.138 \pm 0.206$	0.67	$0.003 \pm 0.203$	$0.138 \pm 0.208$
PRF-fit source offset from KIC position	$0.298 \pm 0.173$	1.72	$0.109 \pm 0.206$	$0.277 \pm 0.215$
photometric centroid source offset	$1.01 \pm 0.52$	1.94	$-0.99 \pm 0.52$	$-0.20 \pm 0.56$

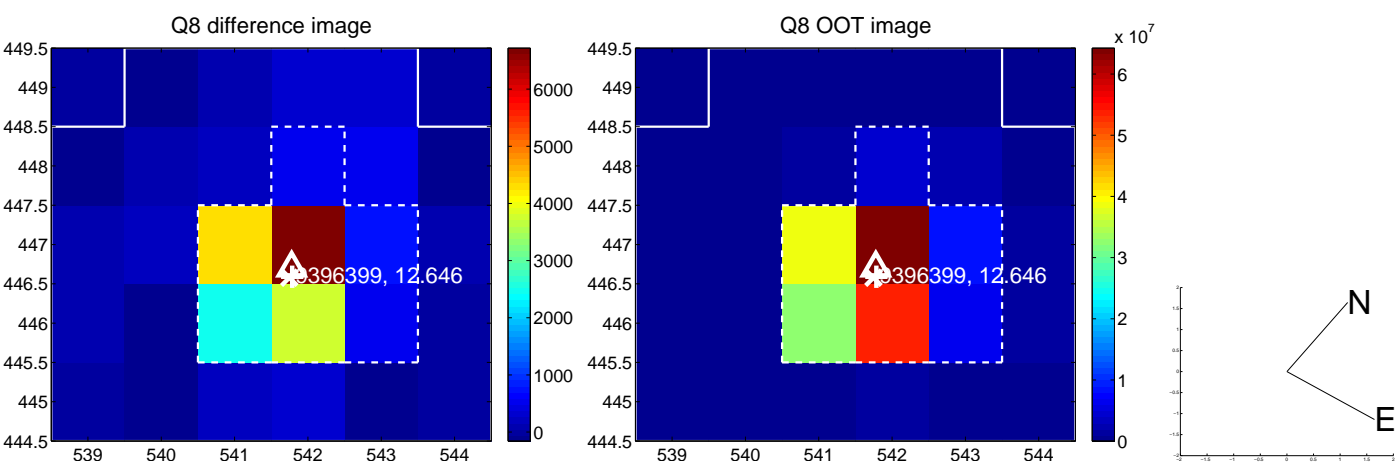
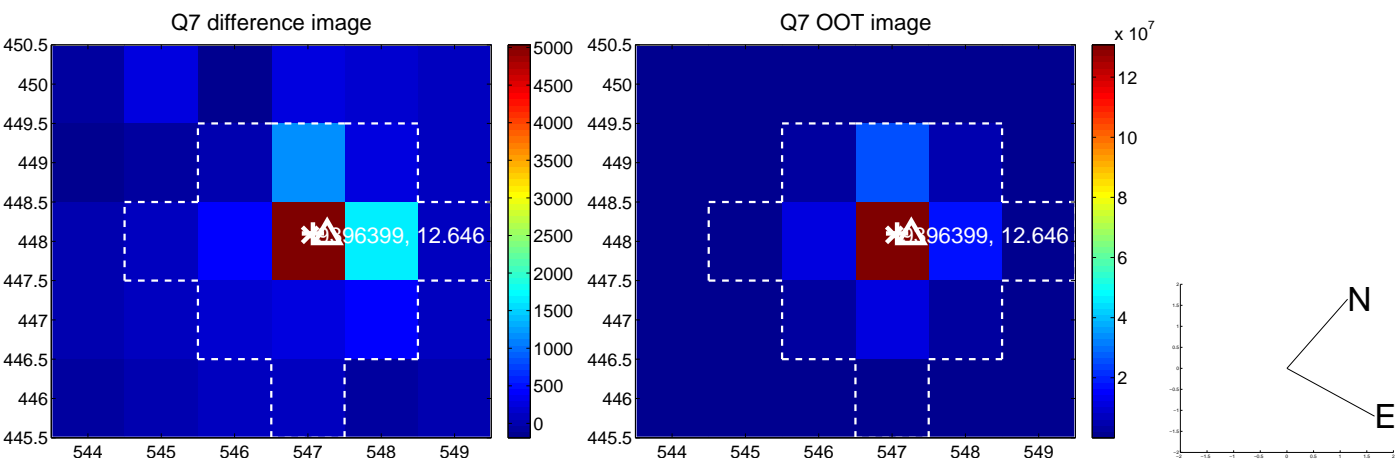
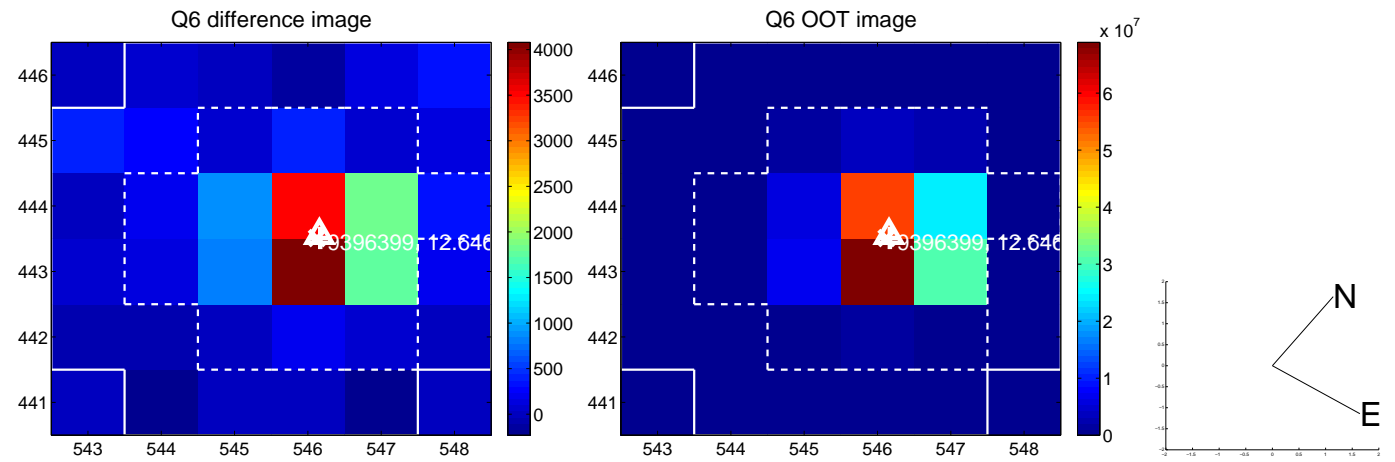
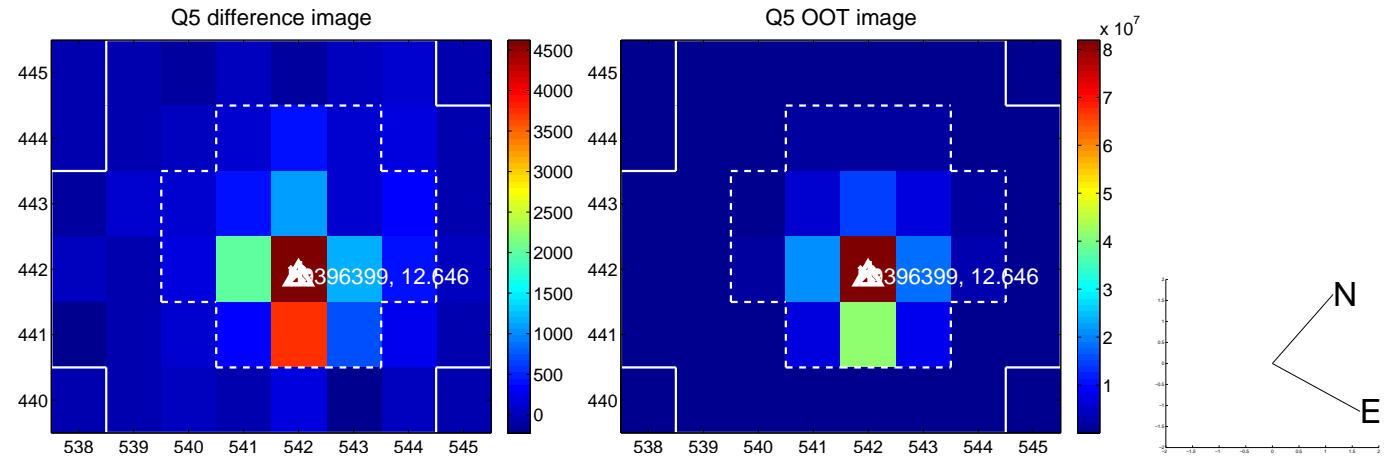


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

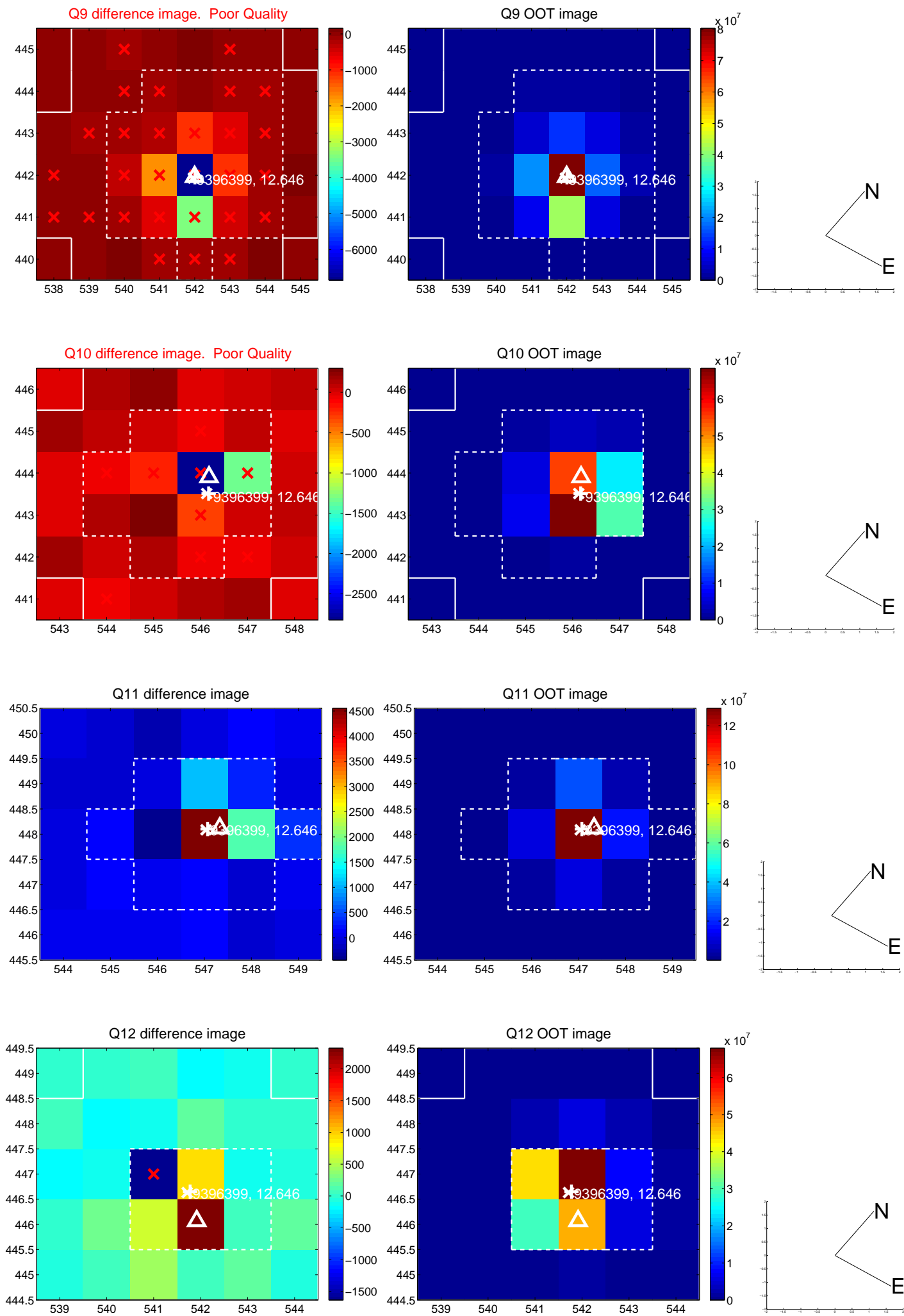


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

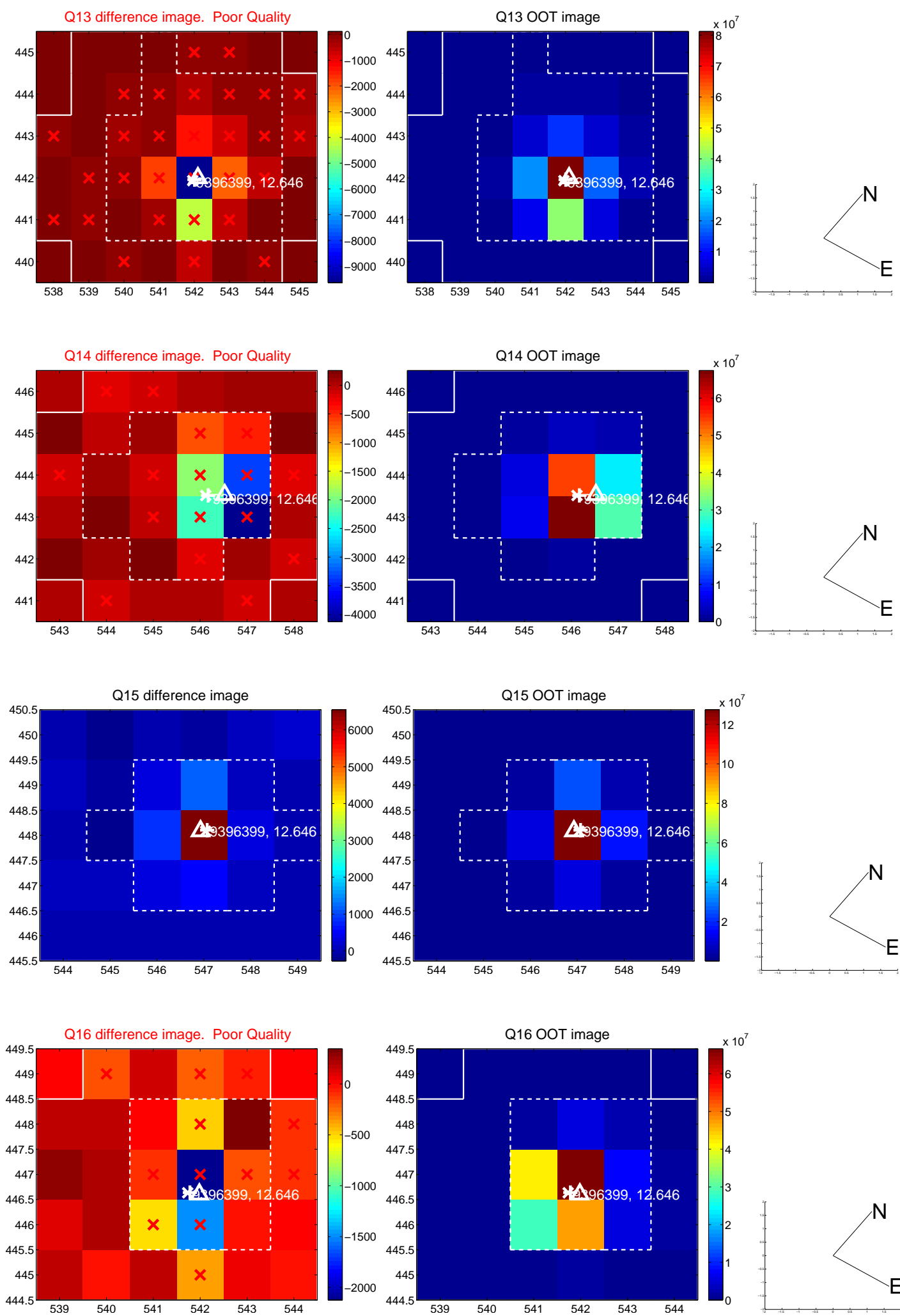




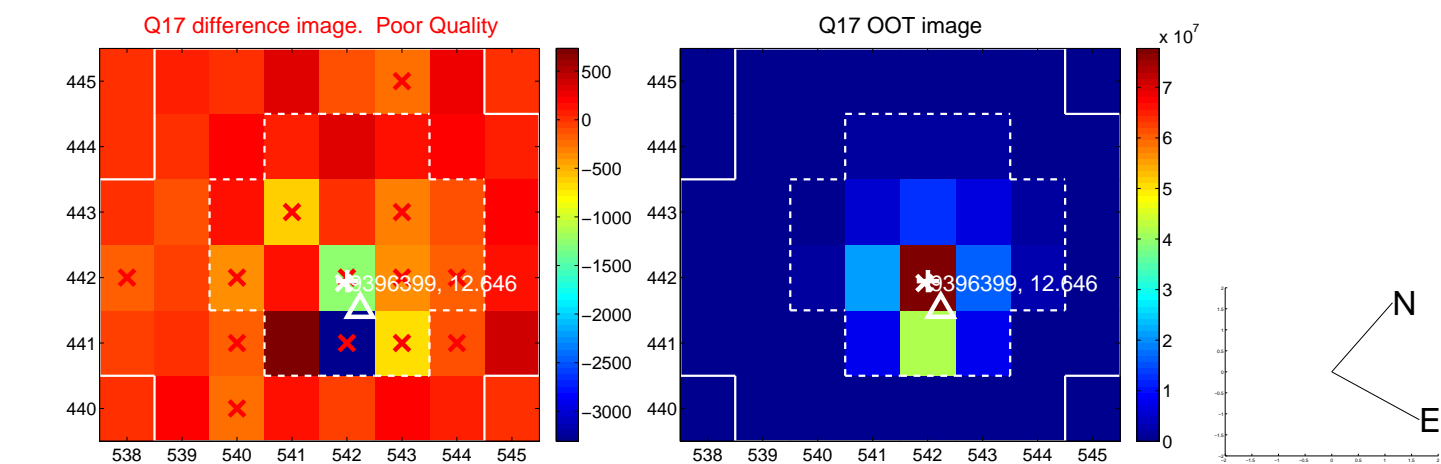
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



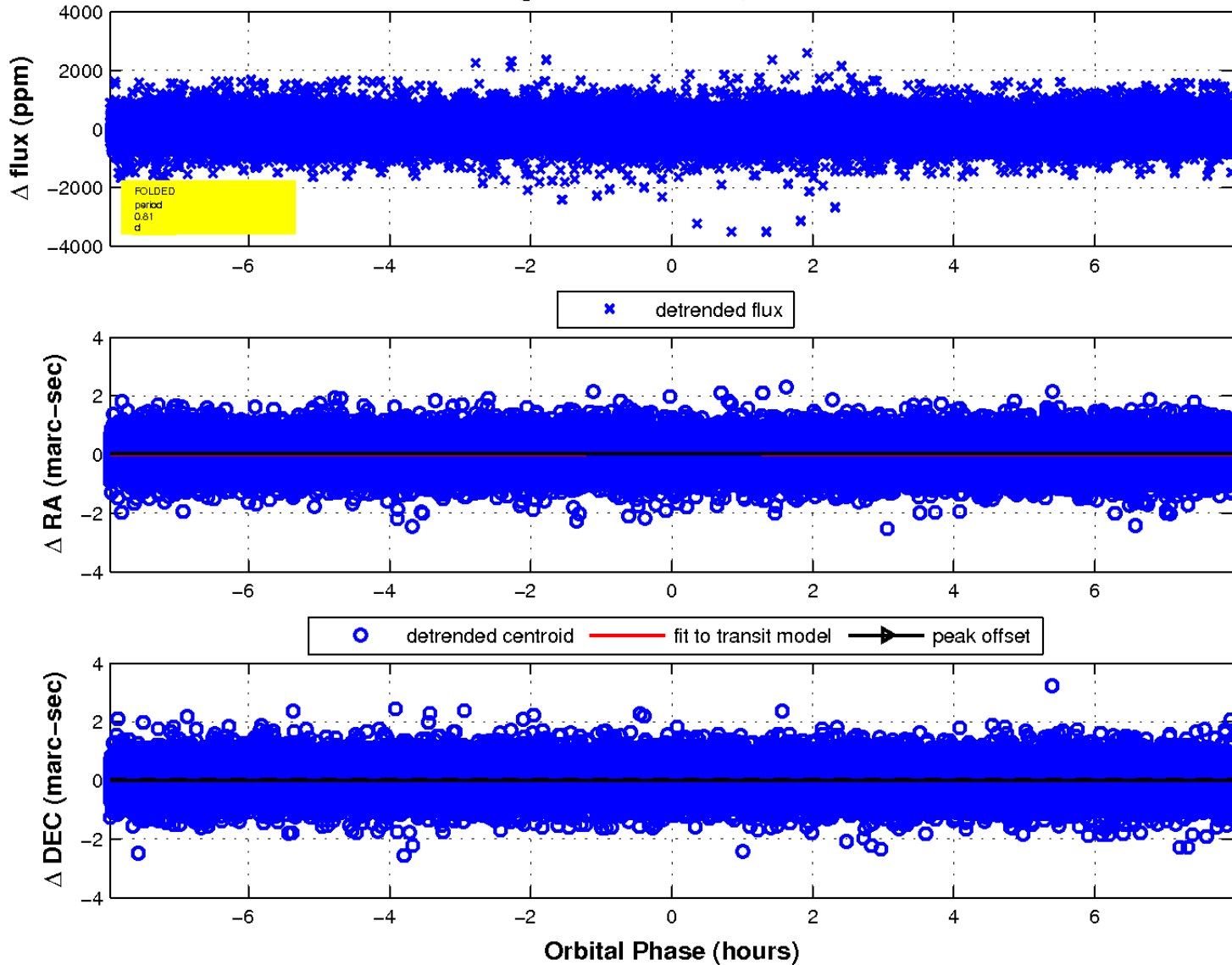
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

