

# KIC 002437897

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002437897-01	OBS	4909.01	3.306369	132.414366	225.1	1.762	8.3	8.6	0.66	4544	1.19	118.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002437897-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST

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

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

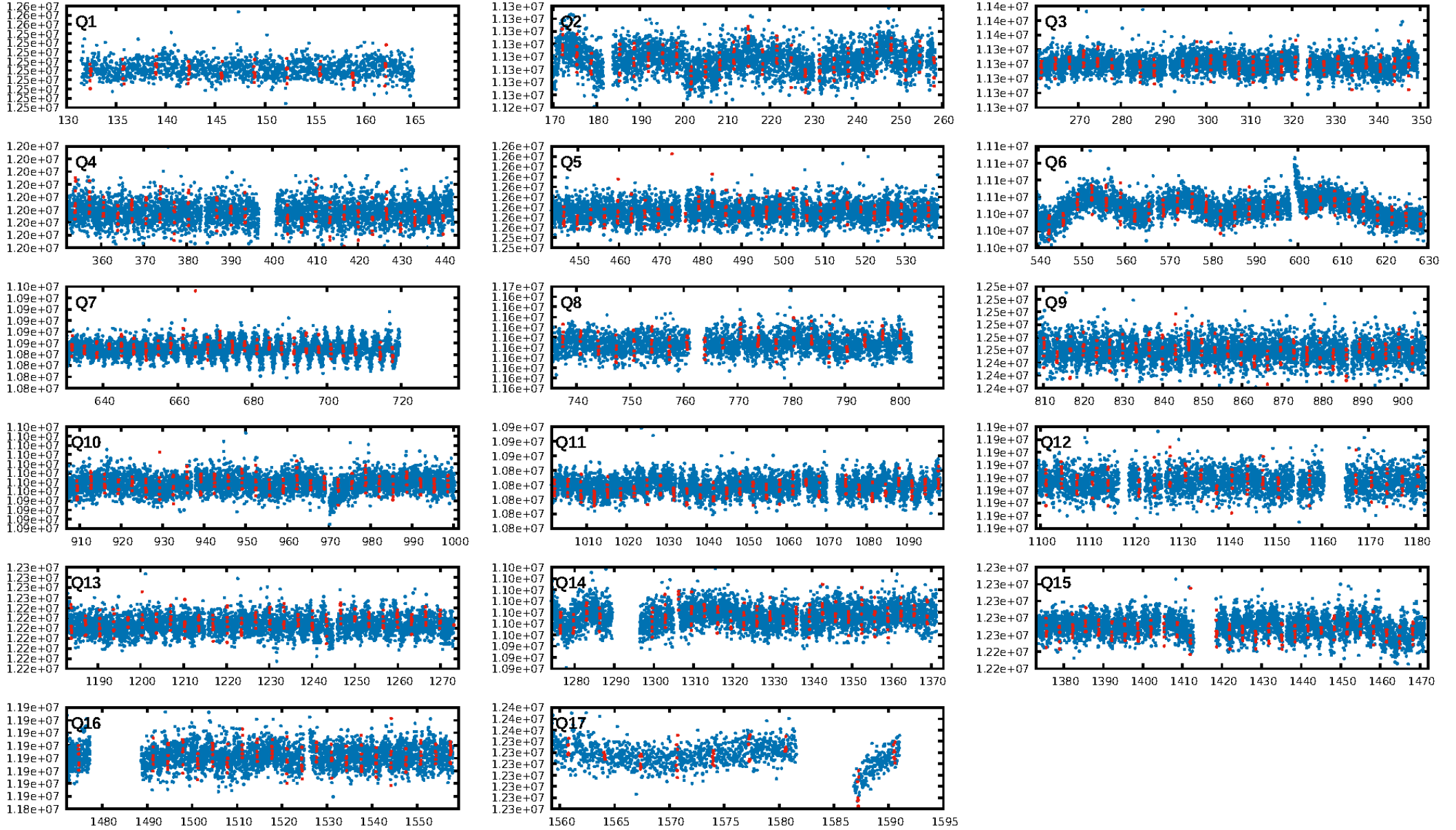
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002437897-01

No Significant Match Found

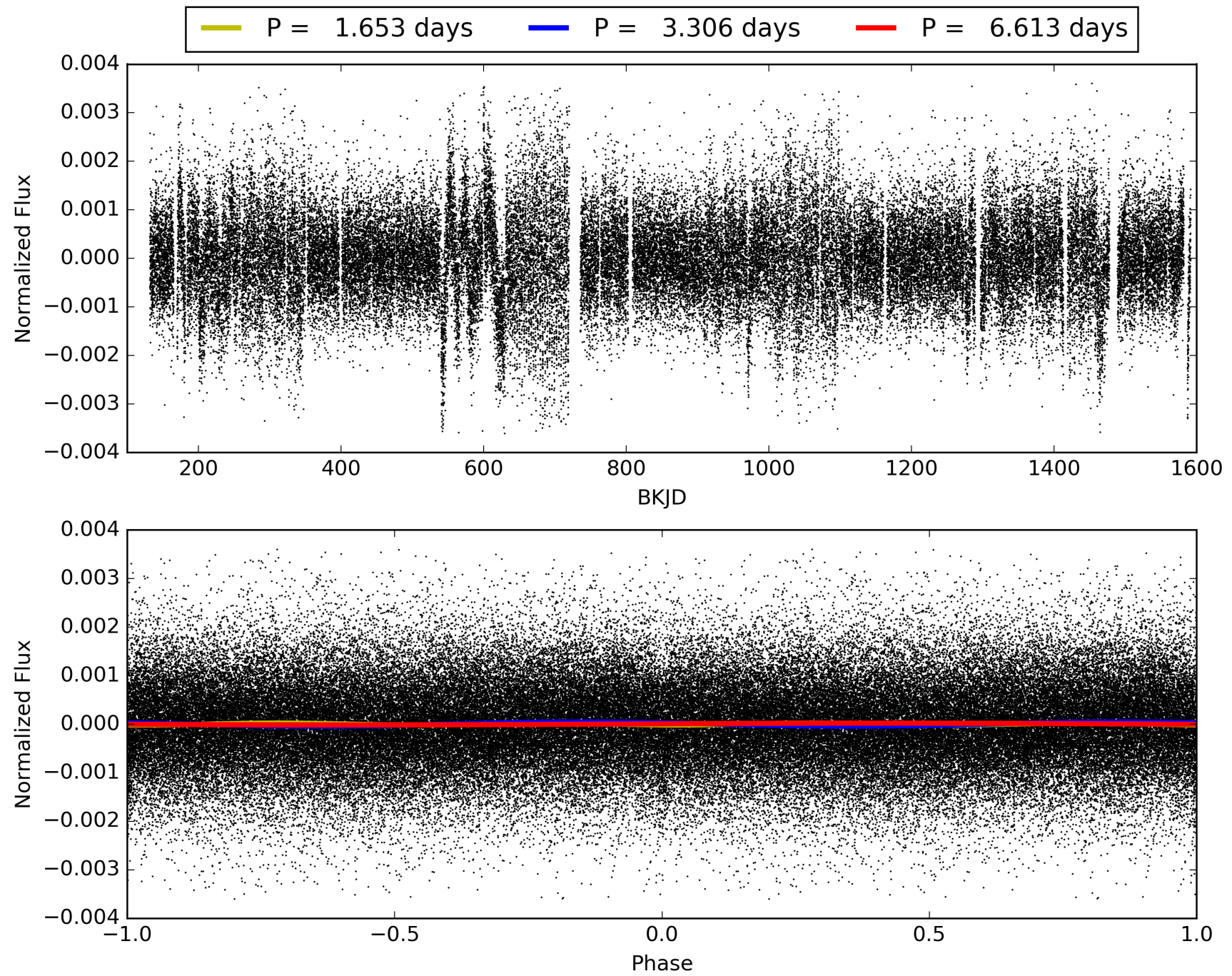
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002437897-01, PDC Light Curves



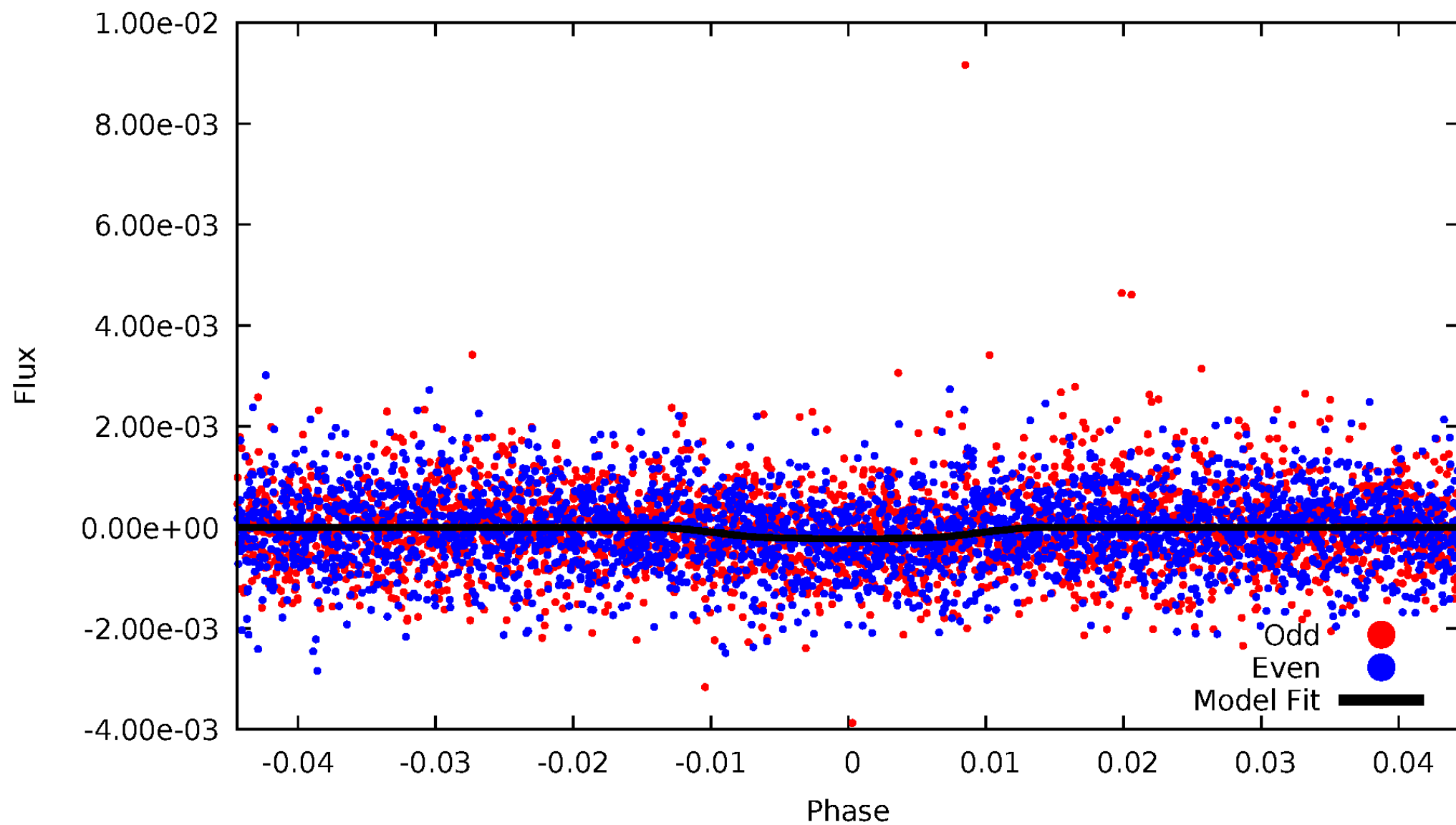


TCE 002437897-01



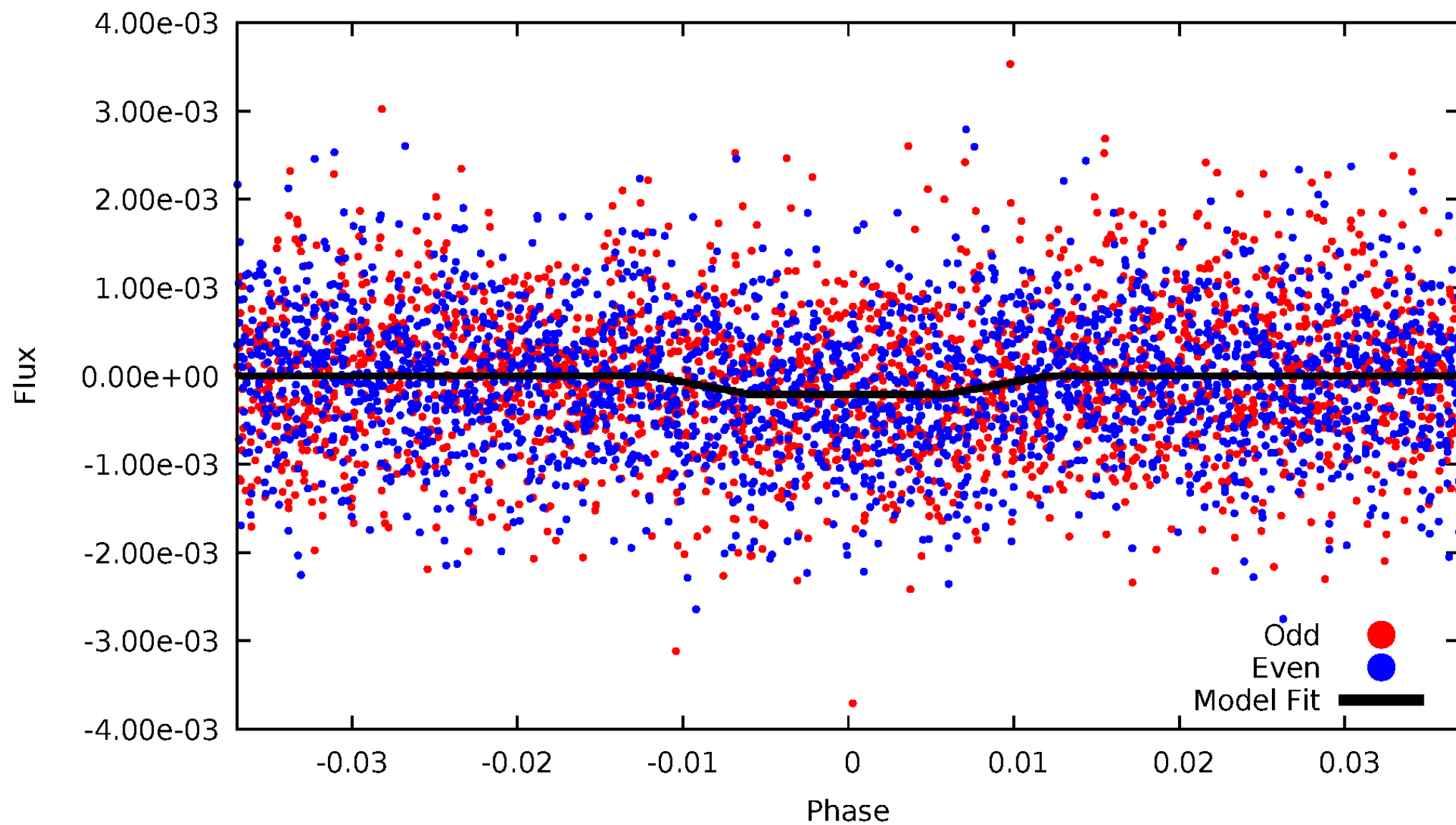
# DV Odd/Even

TCE 002437897-01



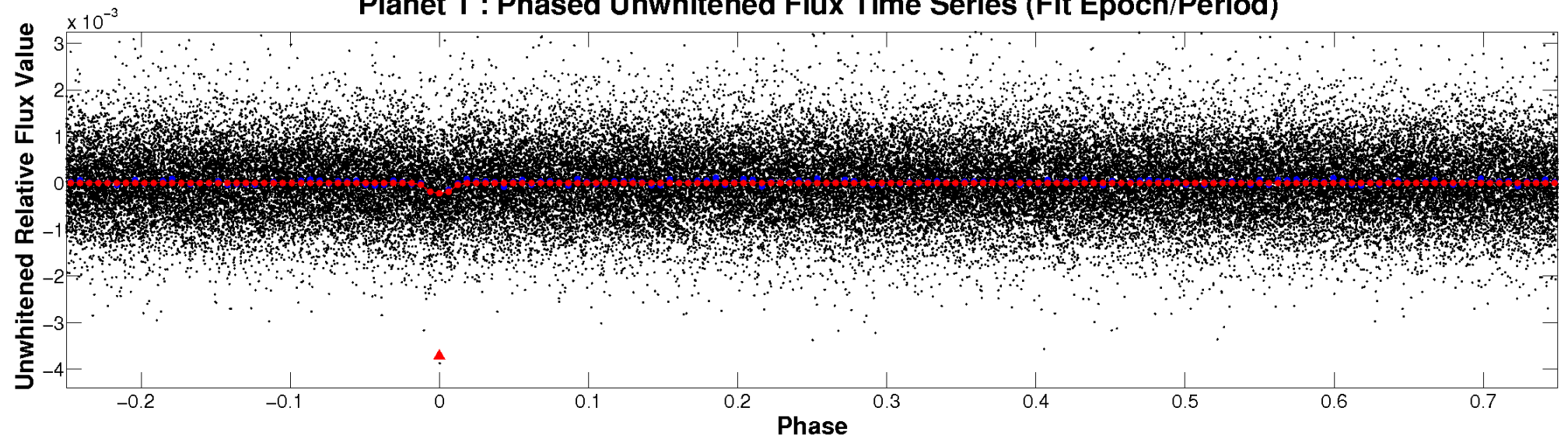
# ALT Odd/Even

TCE 002437897-01

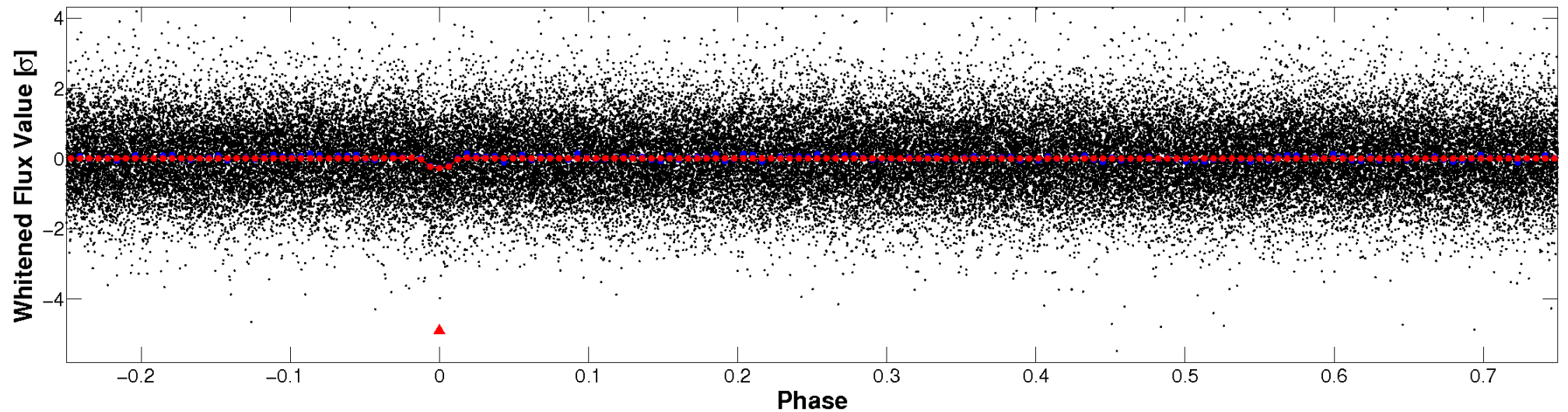


# Non-Whitened Vs. Whitened Light Curve

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



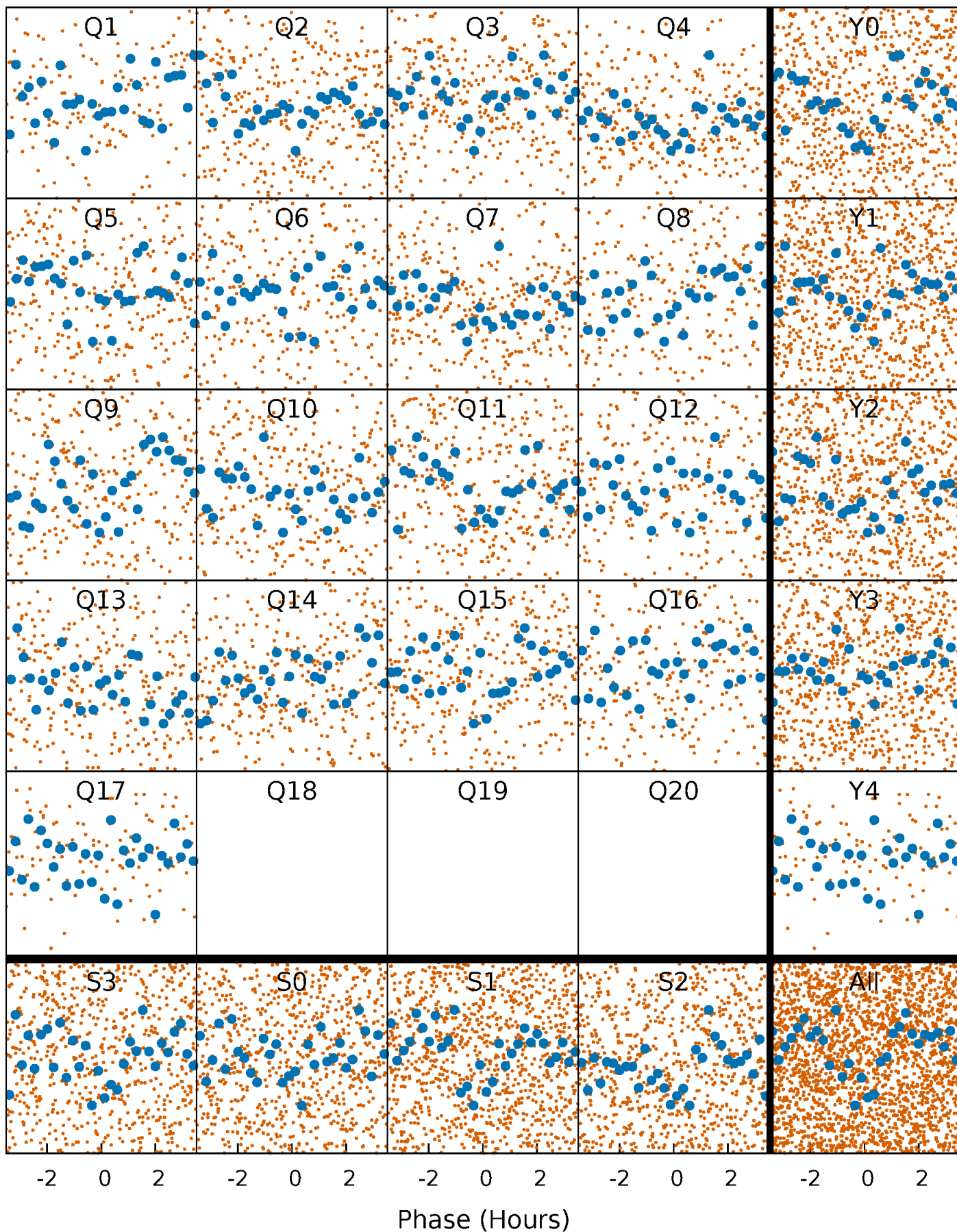
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

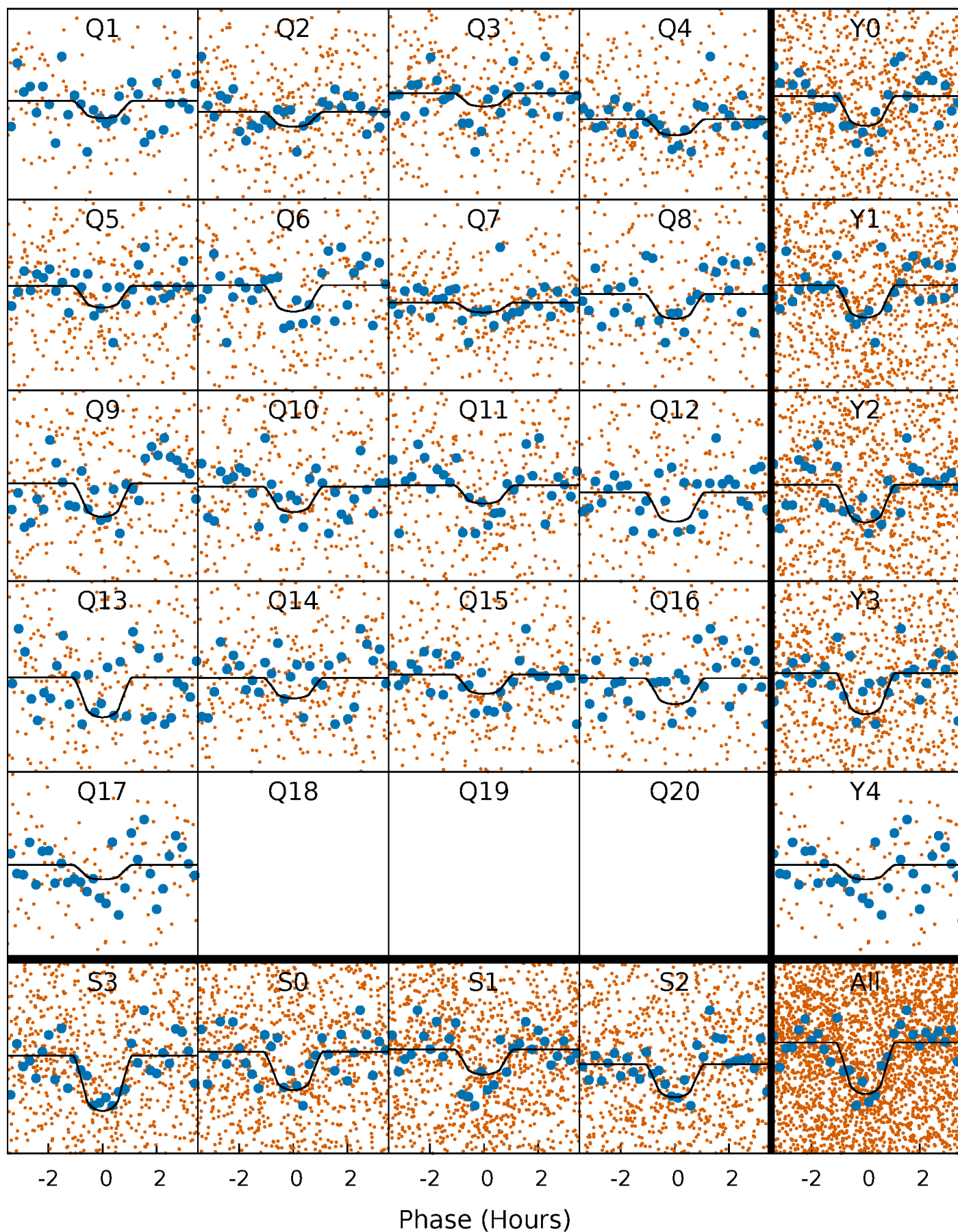
TCE 002437897-01     $P = 3.306369$  Days     $T_0 = 132.414366$  (BKJD)





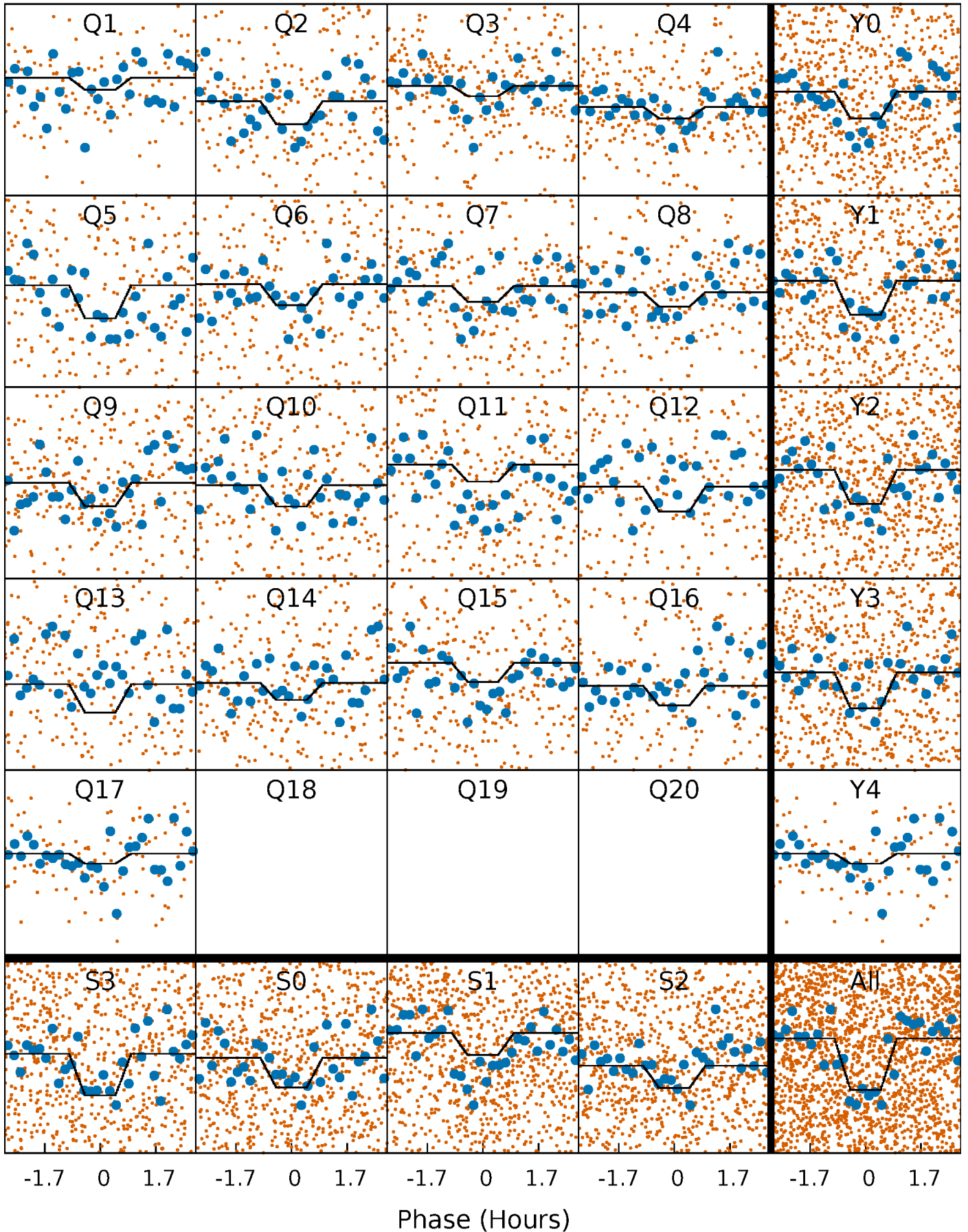
# DV Quarter-Phased Transit Curves

TCE 002437897-01   P= 3.306369 Days    $T_0=132.414366$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

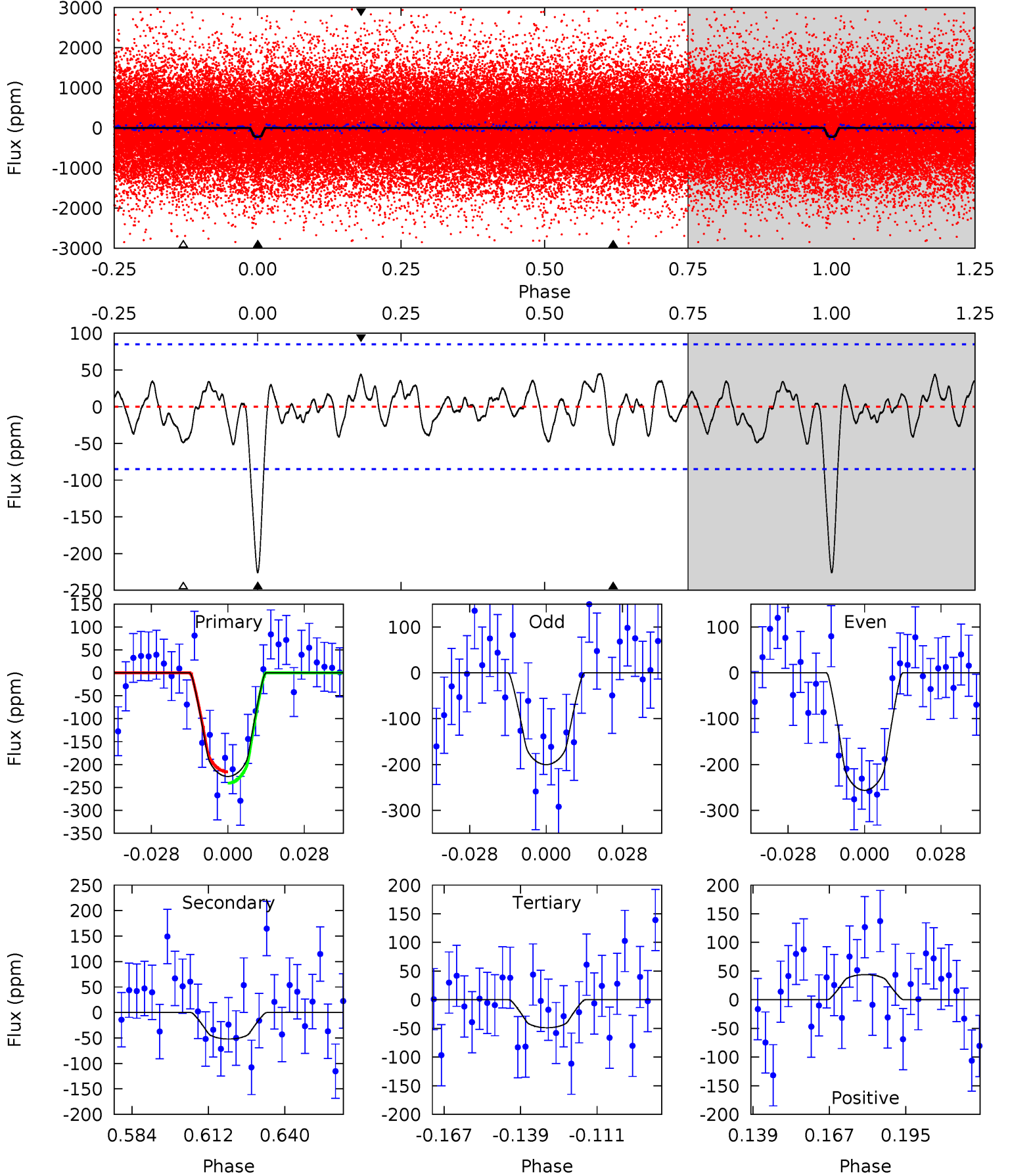
TCE 002437897-01    P= 3.306377 Days     $T_0=132.413884$  (BKJD)



# DV Model-Shift Uniqueness Test

002437897-01, P = 3.306369 Days, E = 129.107997 Days

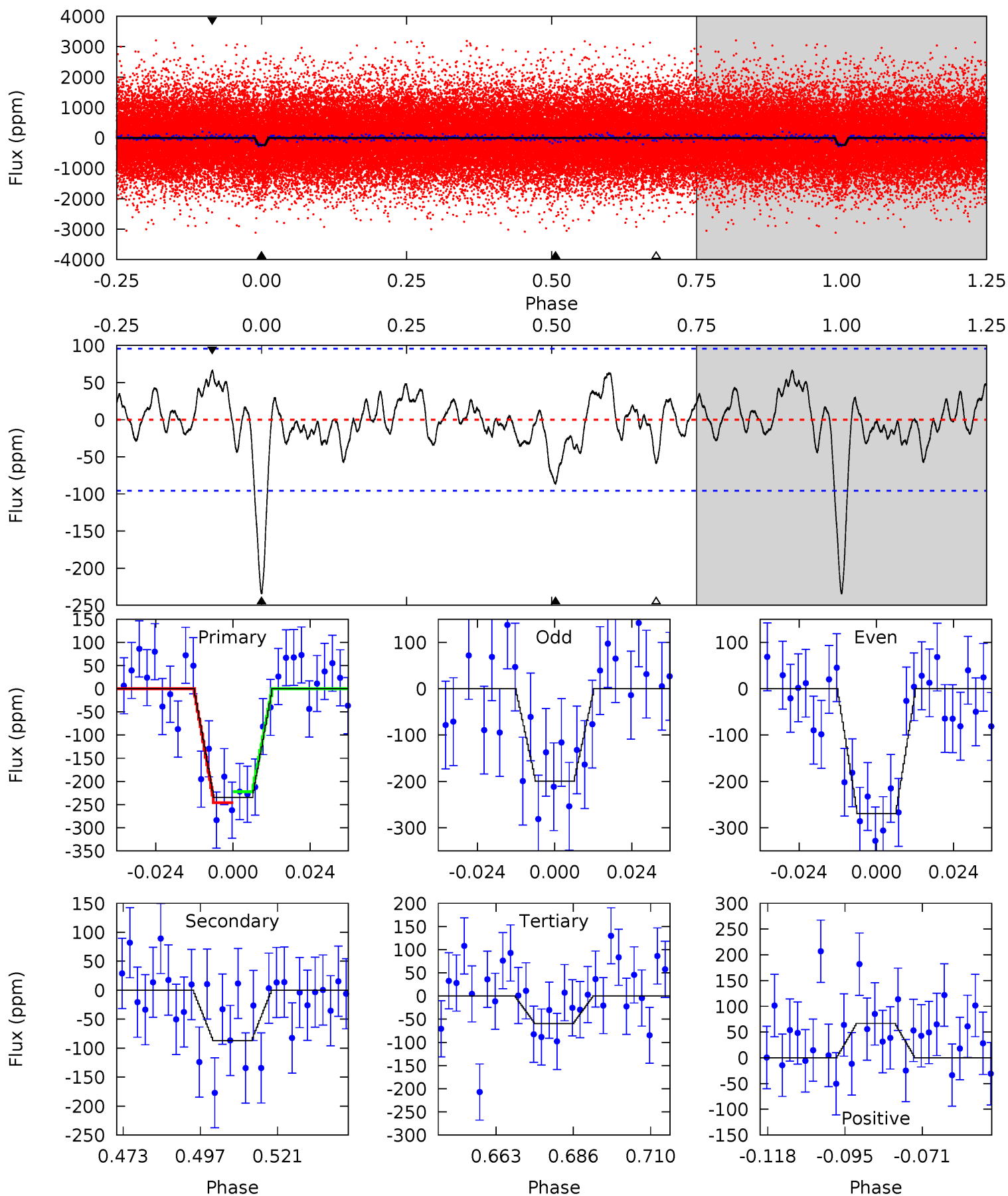
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	2.96	2.78	2.49	4.83	2.20	1.16	10.1	10.4	0.18	0.47	1.60	1.04	0.17	0.70



# Alt Model-Shift Uniqueness Test

002437897-01, P = 3.306377 Days, E = 129.107507 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
11.9	4.42	3.01	3.39	4.86	2.26	1.26	8.92	8.54	1.41	1.03	1.78	0.95	0.22	0.60





### Stellar Parameters For KIC 002437897

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4544^{+123}_{-136}$	$4.609^{+0.056}_{-0.024}$	$-0.220^{+0.300}_{-0.300}$	$0.661^{+0.052}_{-0.058}$	$0.647^{+0.071}_{-0.051}$	$3.157^{+0.794}_{-0.335}$
	+3%/-3%	+1%/-1%	+136%/-136%	+8%/-9%	+11%/-8%	+25%/-11%
Source	PHO1	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 002437897-01 / KOI 4909.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-52 \pm 18$	$1.56^{+1.31}_{-1.01}$	$1163^{+38}_{-38}$	$3086^{+1348}_{-489}$	$16^{+118}_{-12}$
Alt.	$-87 \pm 20$	$1.49^{+1.33}_{-1.02}$	$1167^{+38}_{-38}$	$3432^{+1901}_{-613}$	$29^{+292}_{-21}$

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

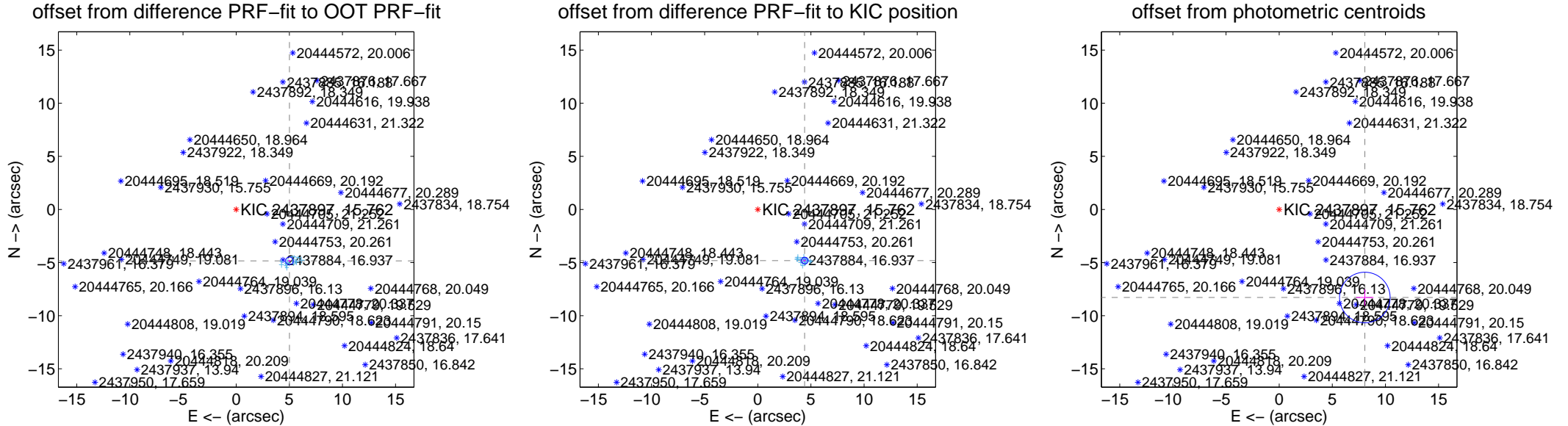
## DV Centroid Data

Supplemental centroid analysis for 002437897-01. Kepler magnitude: 15.76. Transit SNR 8.61

There are 17 quarters with good PRF difference image offsets

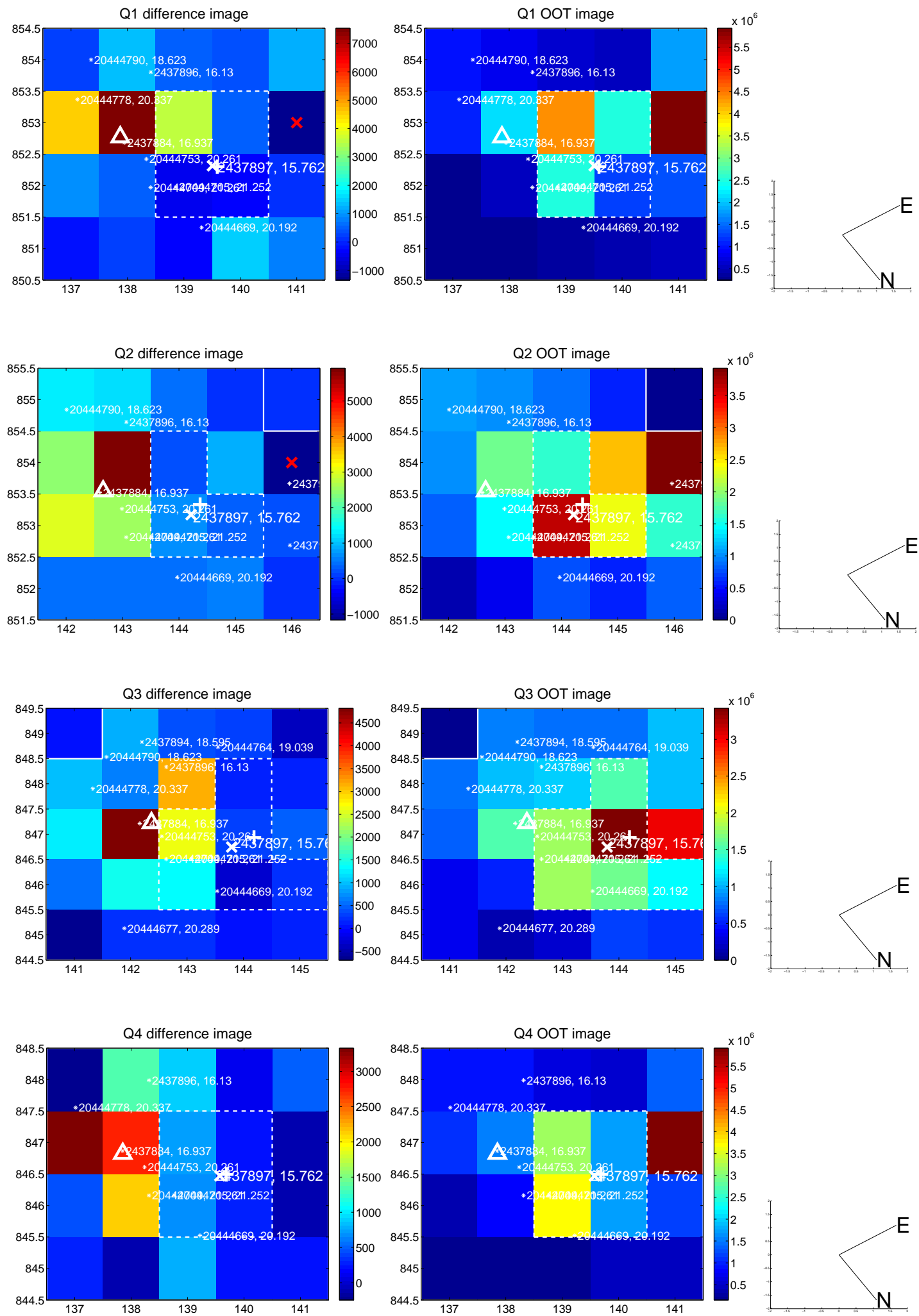
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>6.971 <math>\pm</math> 0.120</b>	<b>58.33</b>	-5.018 $\pm$ 0.135	-4.838 $\pm$ 0.100
PRF-fit source offset from KIC position	<b>6.529 <math>\pm</math> 0.106</b>	<b>61.71</b>	-4.410 $\pm$ 0.113	-4.814 $\pm$ 0.083
photometric centroid source offset	<b>11.56 <math>\pm</math> 0.79</b>	<b>14.58</b>	-8.06 $\pm$ 0.81	-8.29 $\pm$ 0.77

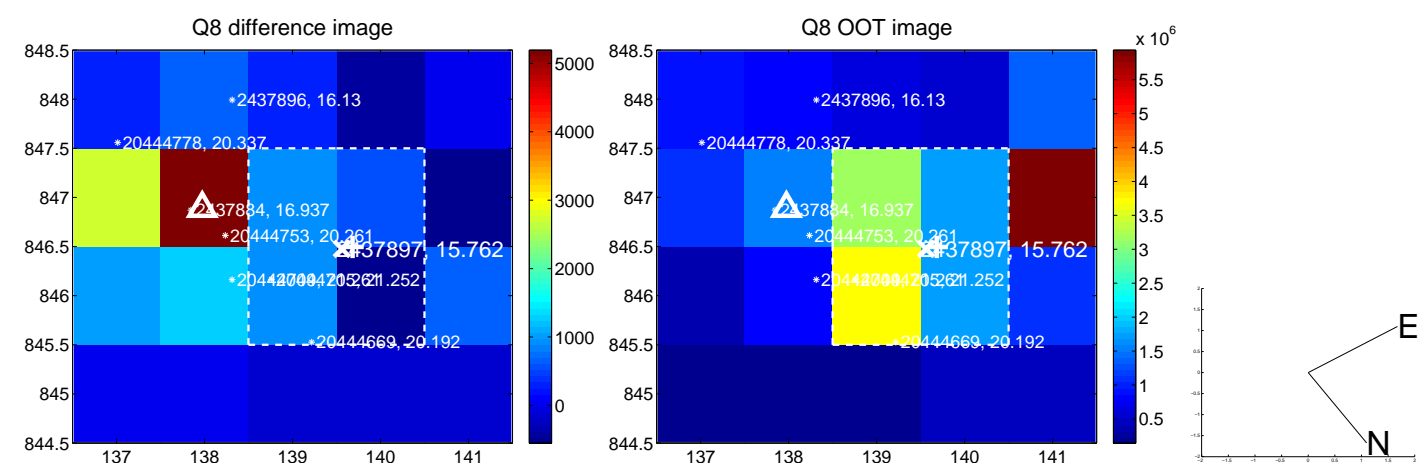
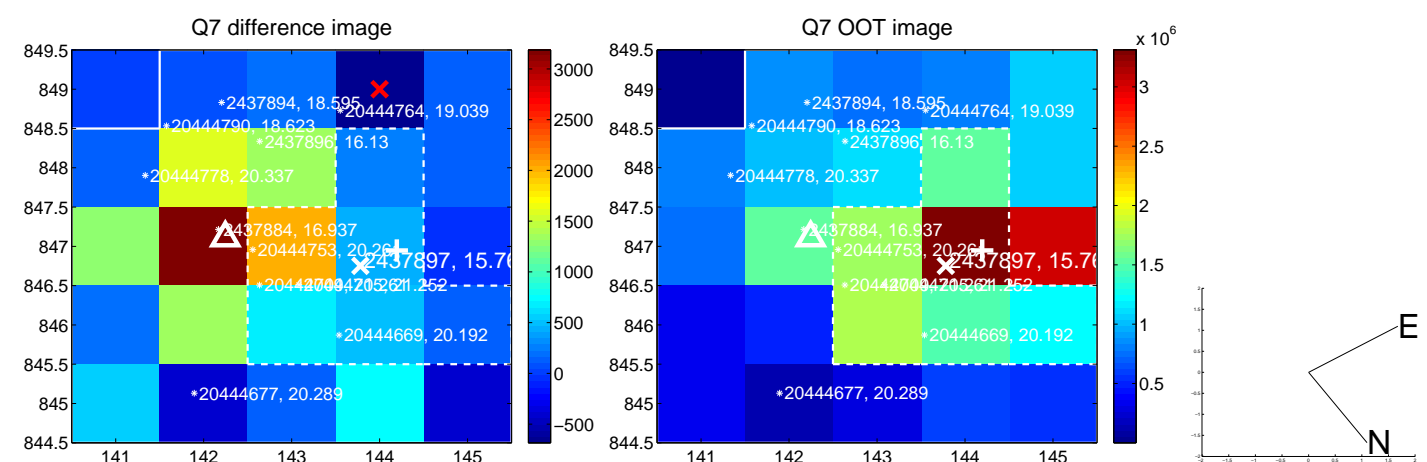
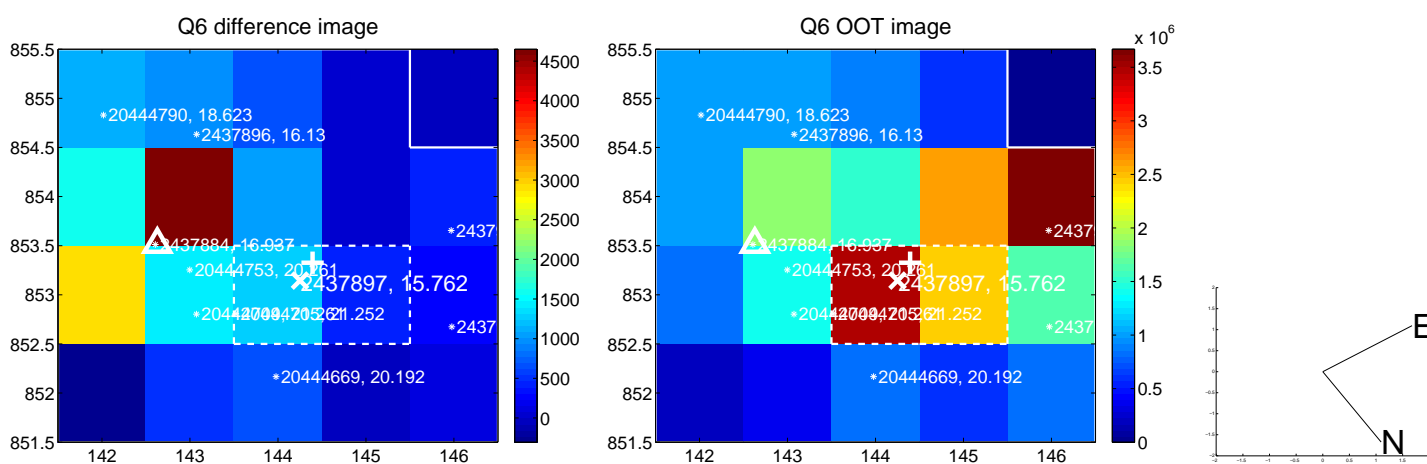
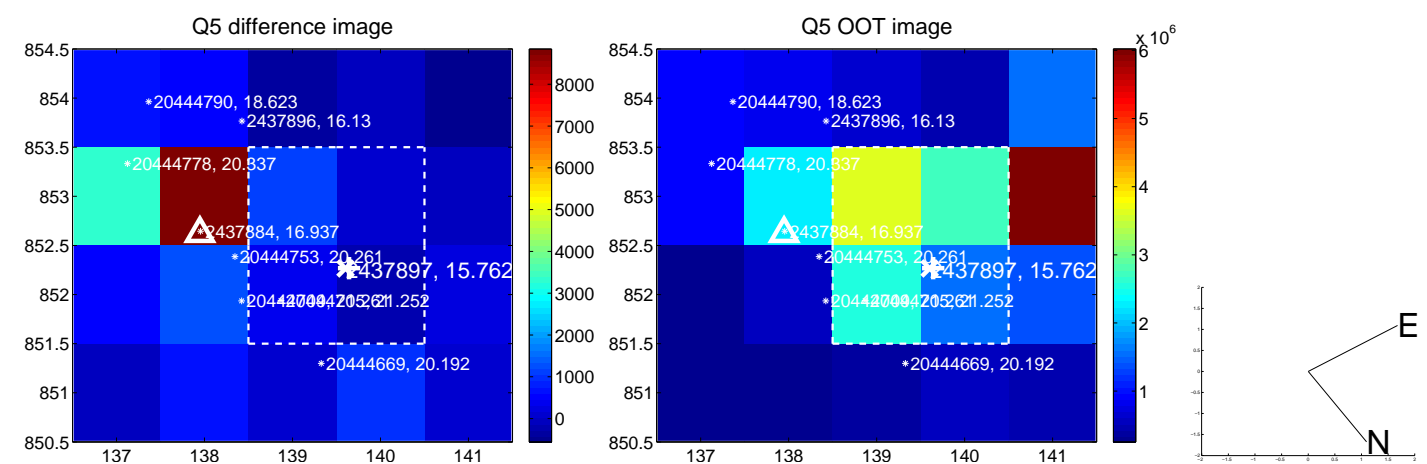


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

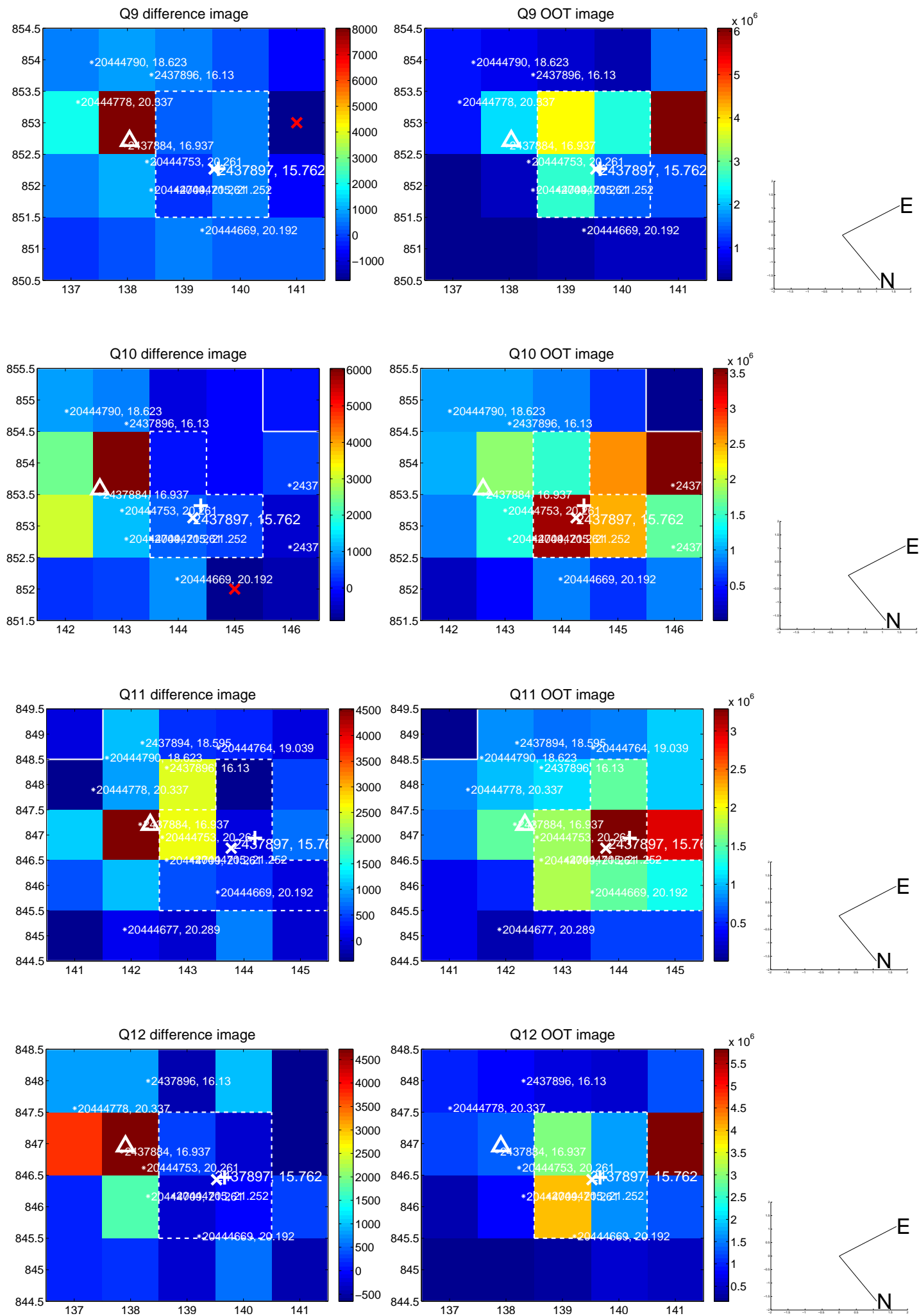


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

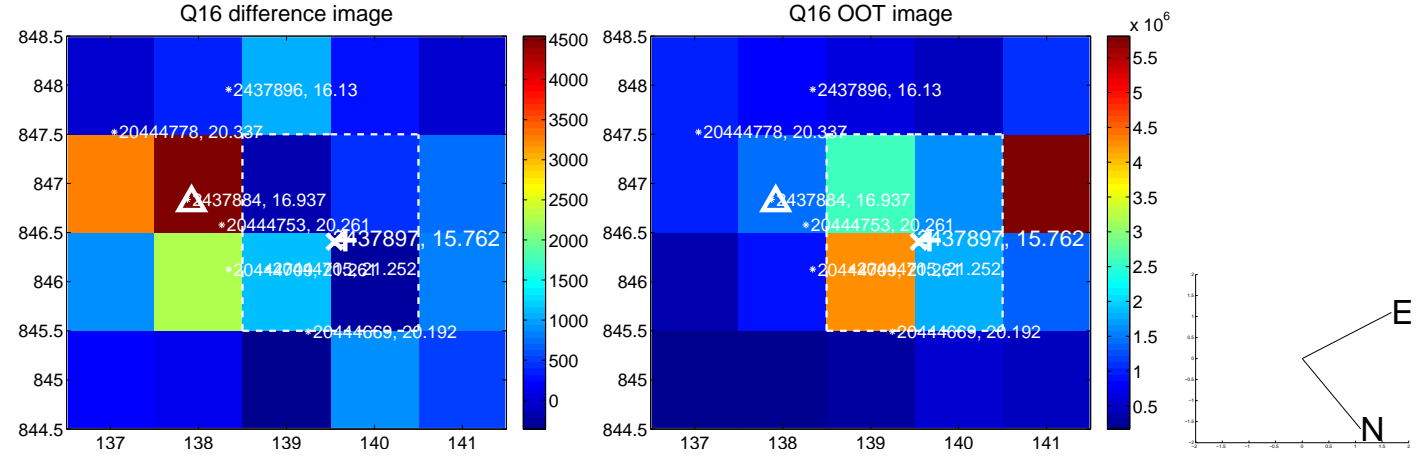
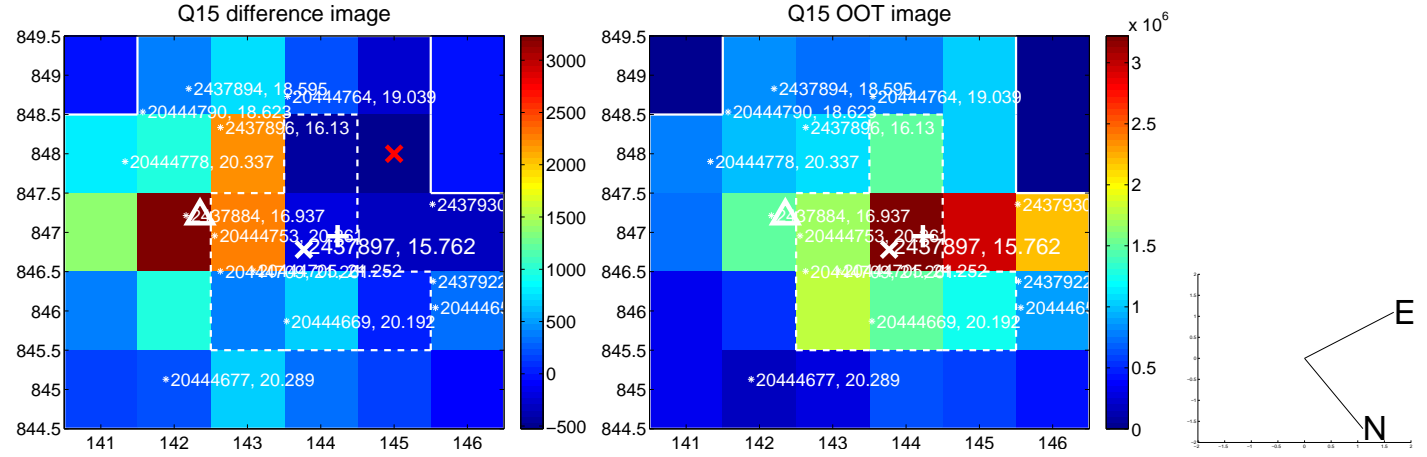
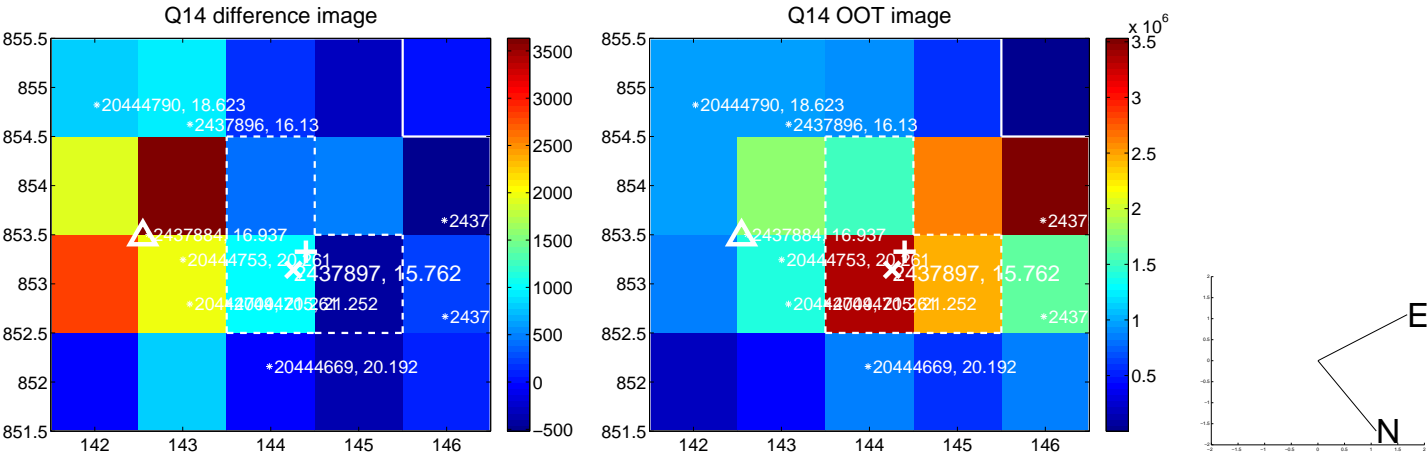
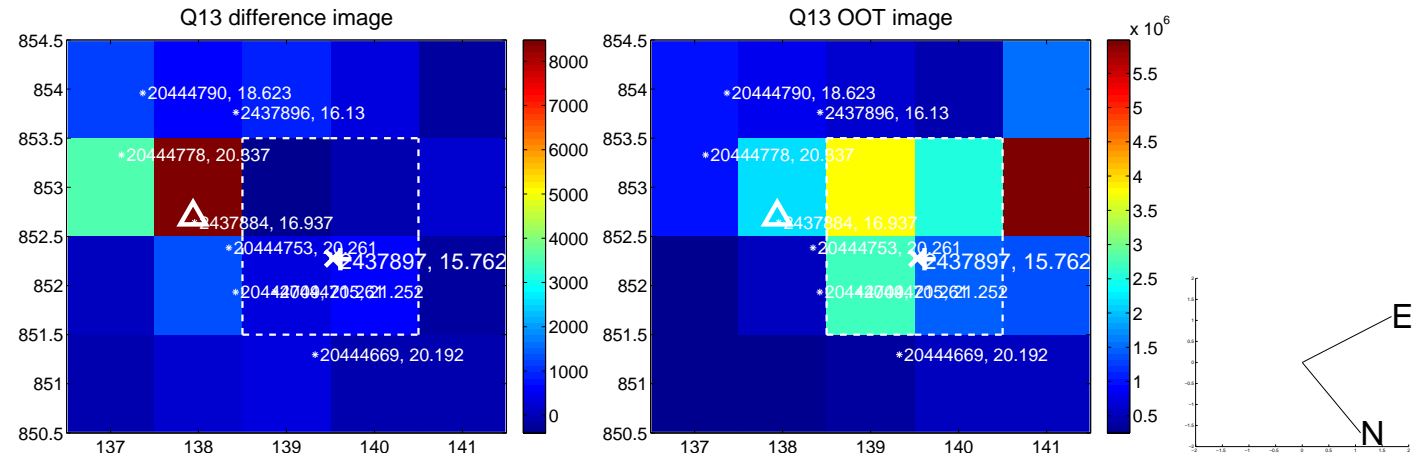




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UKIRT Image

Declination

