

# KIC 004450028

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004450028-01	OBS	No	3.648014	131.962229	0.0	25.578	11.0	0.0	1.42	6056	0.01	1093.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004450028-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

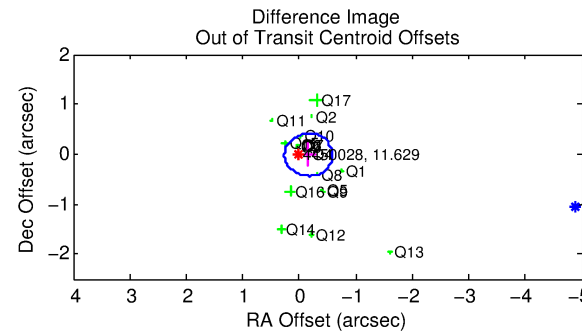
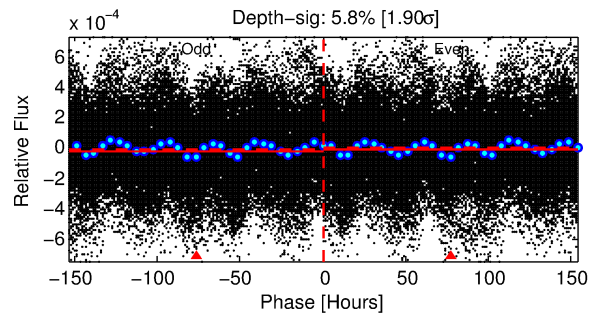
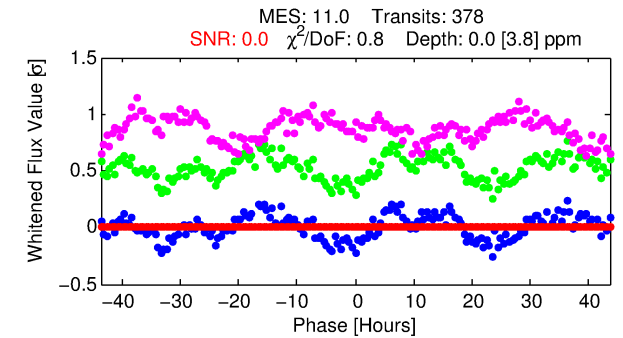
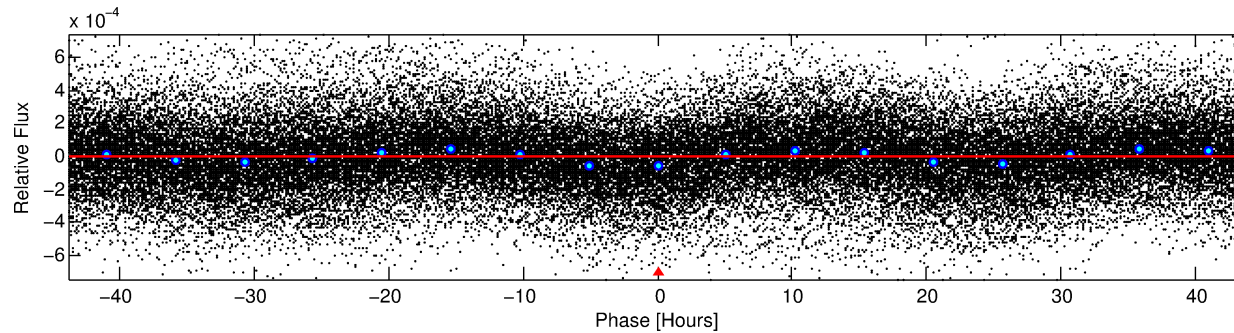
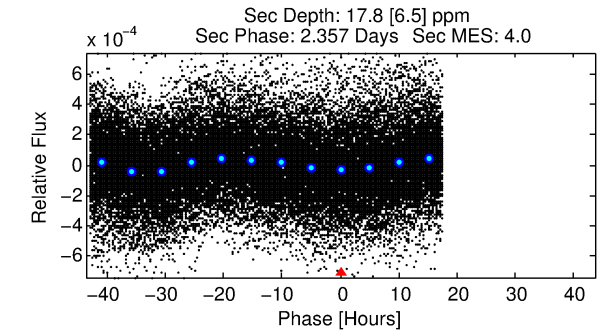
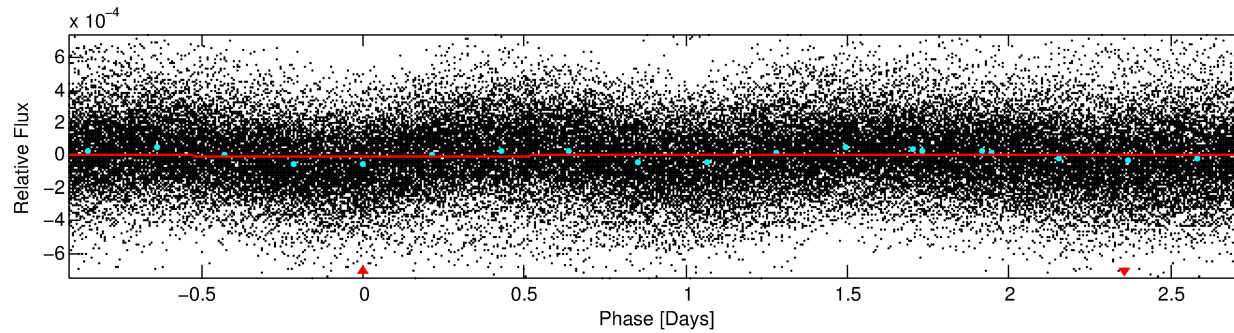
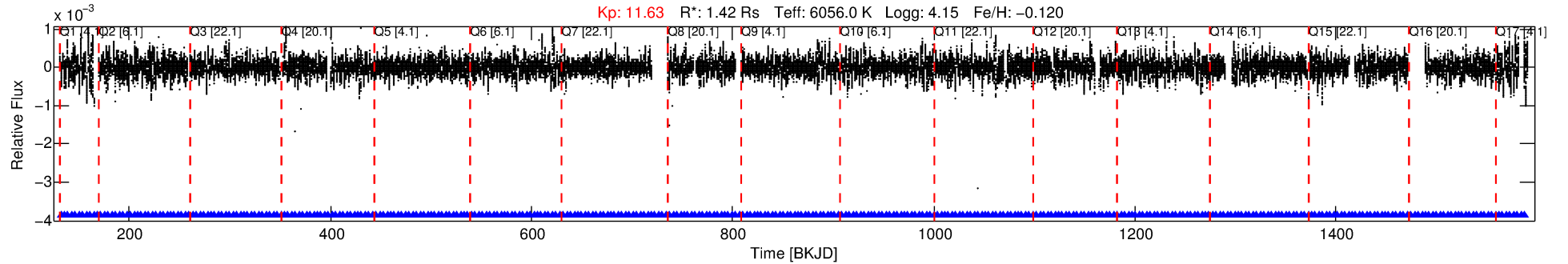
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004450028-01

No Significant Match Found

# DV One-Page Summary

KIC: 4450028 Candidate: 1 of 1 Period: 3.648 d



## DV Fit Results:

Period = 3.64801 [0.33479] d  
Epoch = 131.9622 [53.3479] BKJD  
Rp/R\* = 0.0000 [0.0344]  
a/R\* = 1.26 [132.06]  
b = 0.02 [17047.28]  
Seff = 1093.66 [434.89]  
Peq = 1466 [146] K  
Rp = 0.01 [5.32] Re  
a = 0.0471 [0.0110] AU  
Ag = 410747.39 [601261755.21] [0.00σ]  
Teffp = 57396 [21004872] K [0.00σ]

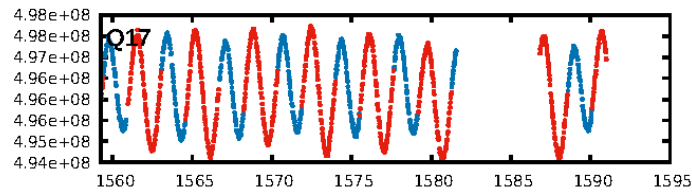
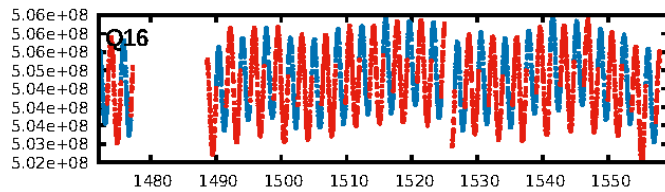
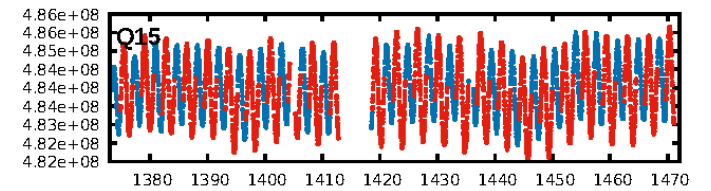
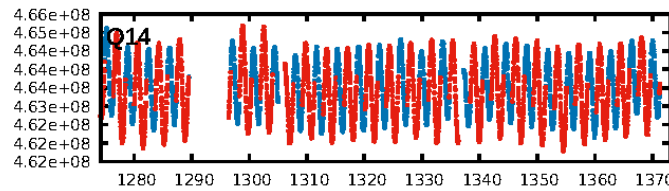
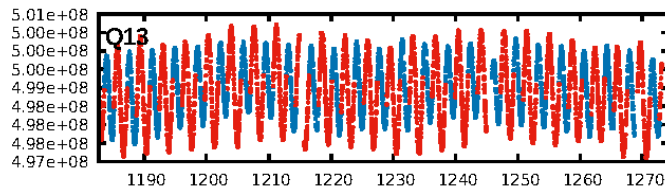
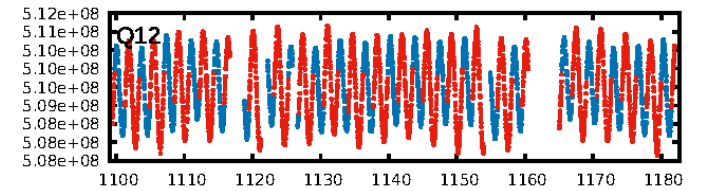
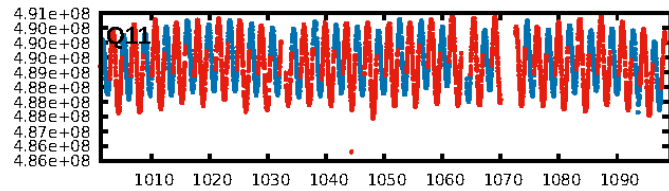
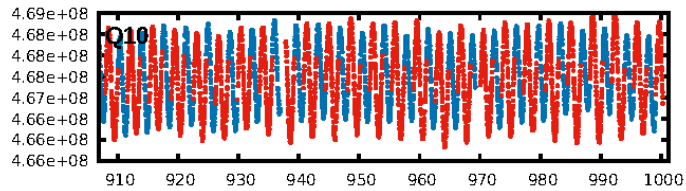
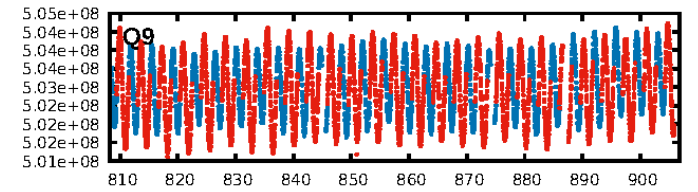
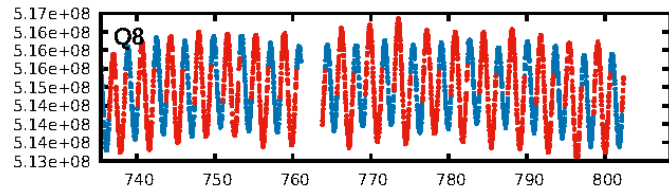
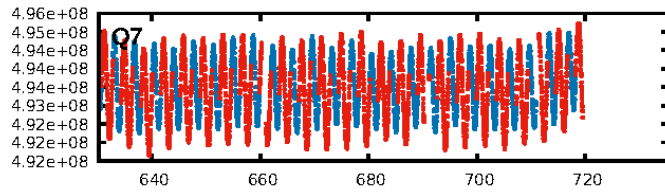
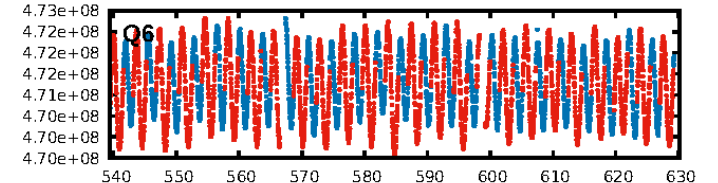
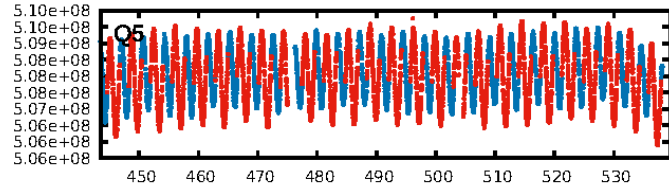
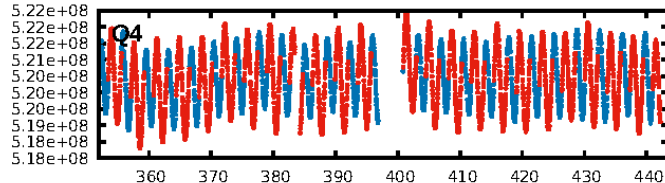
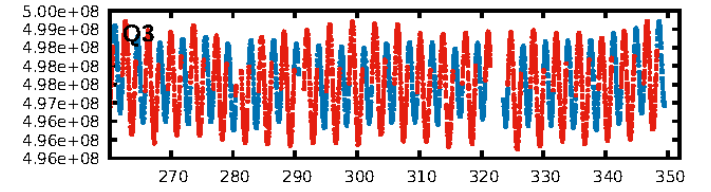
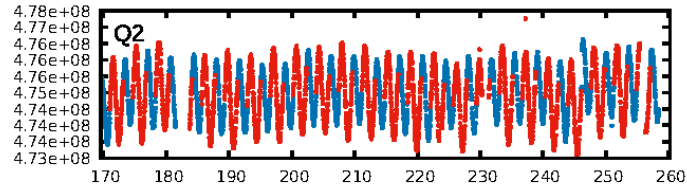
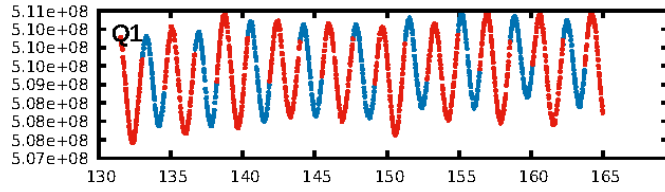
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [360/360]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OptOffset-rm: 0.162 arcsec [1.14σ]  
KicOffset-rm: 0.110 arcsec [0.81σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.88 [15/17]  
DiffImageOverlap-fno: 1.00 [17/17]

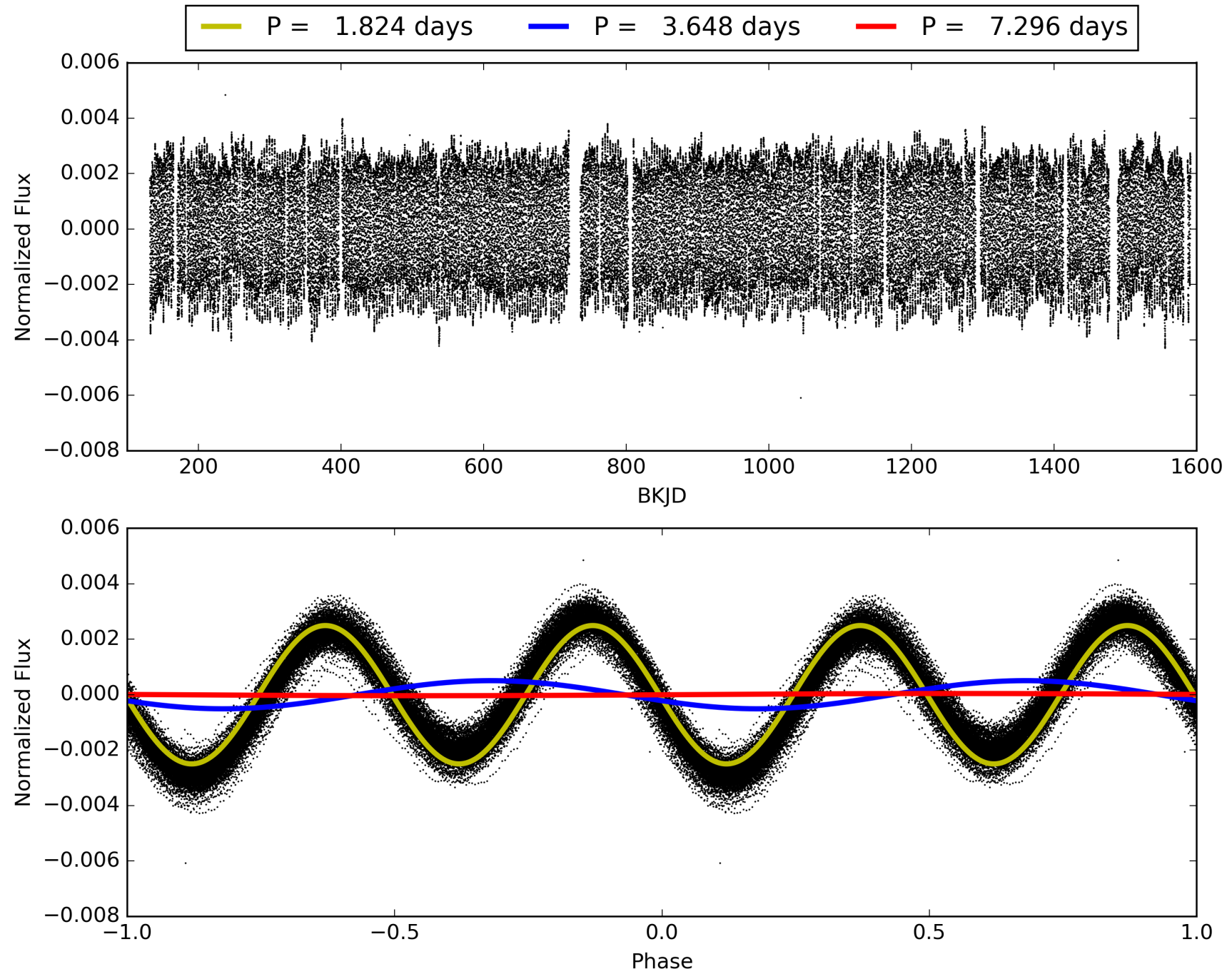
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:36:42 Z

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

# TCE 004450028-01, PDC Light Curves

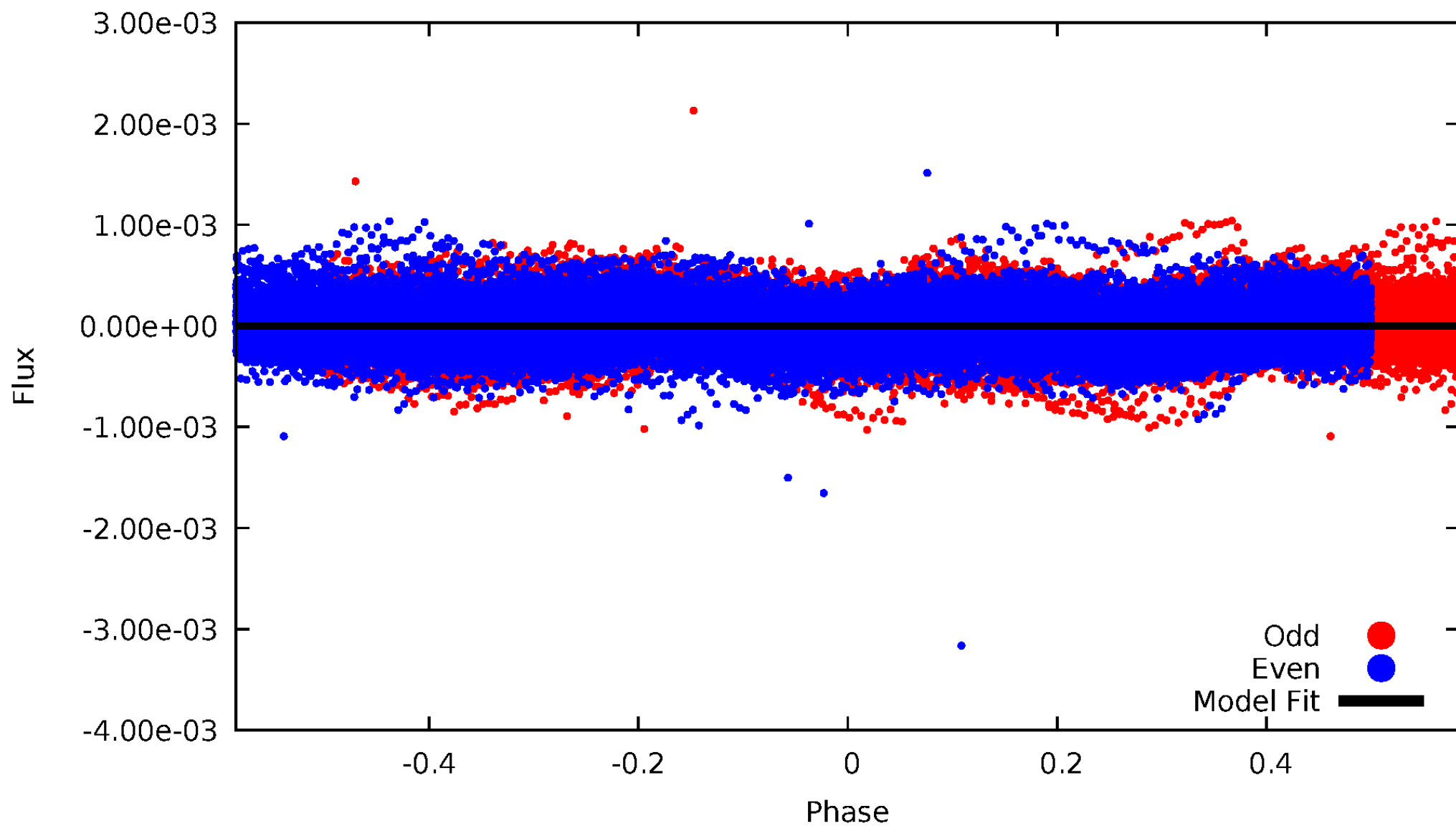


TCE 004450028-01



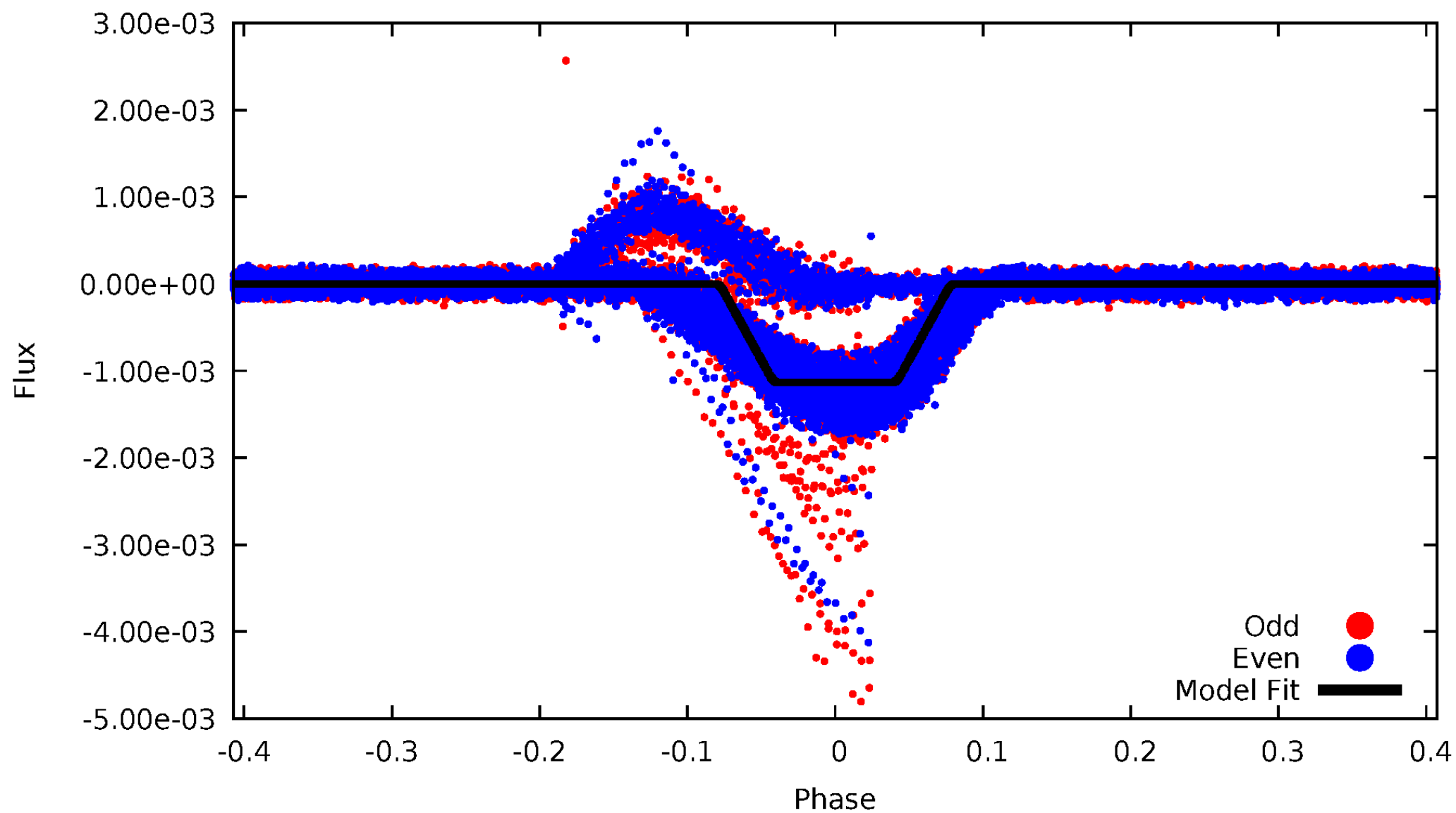
# DV Odd/Even

TCE 004450028-01



# ALT Odd/Even

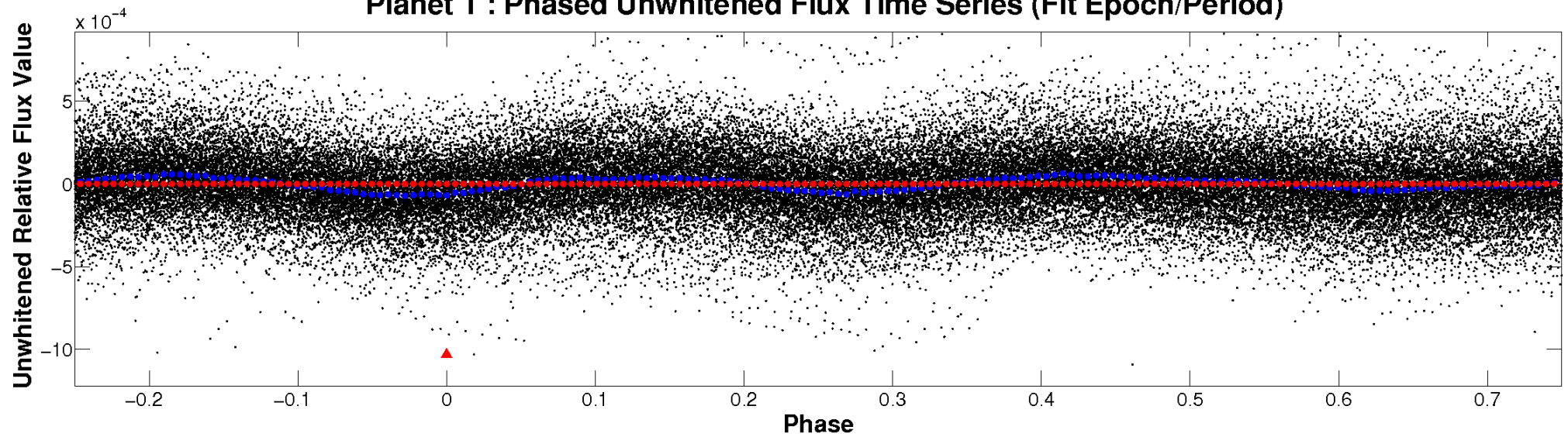
TCE 004450028-01



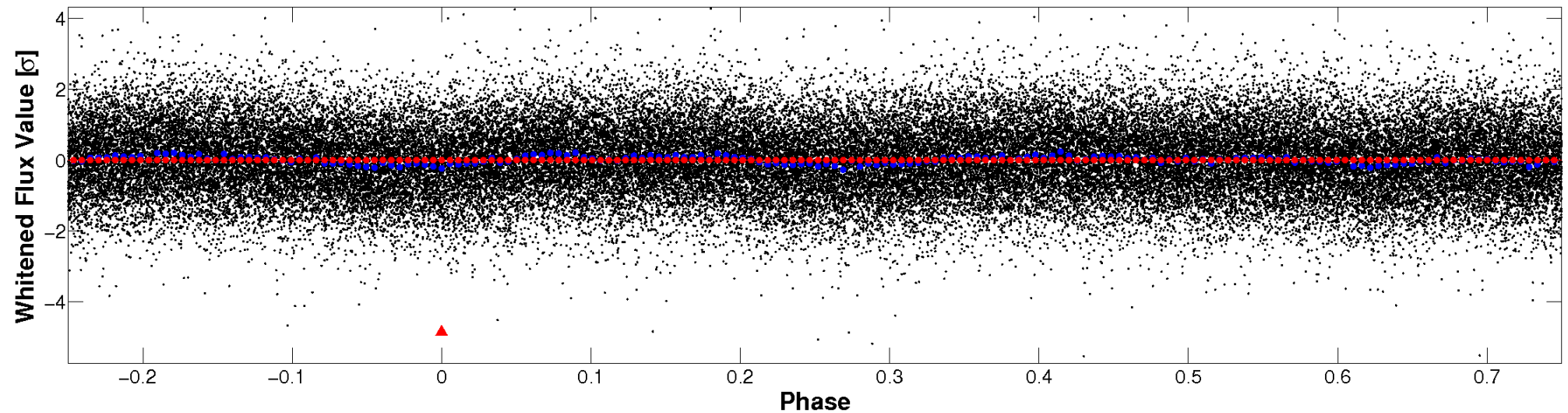


# Non-Whitened Vs. Whitened Light Curve

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

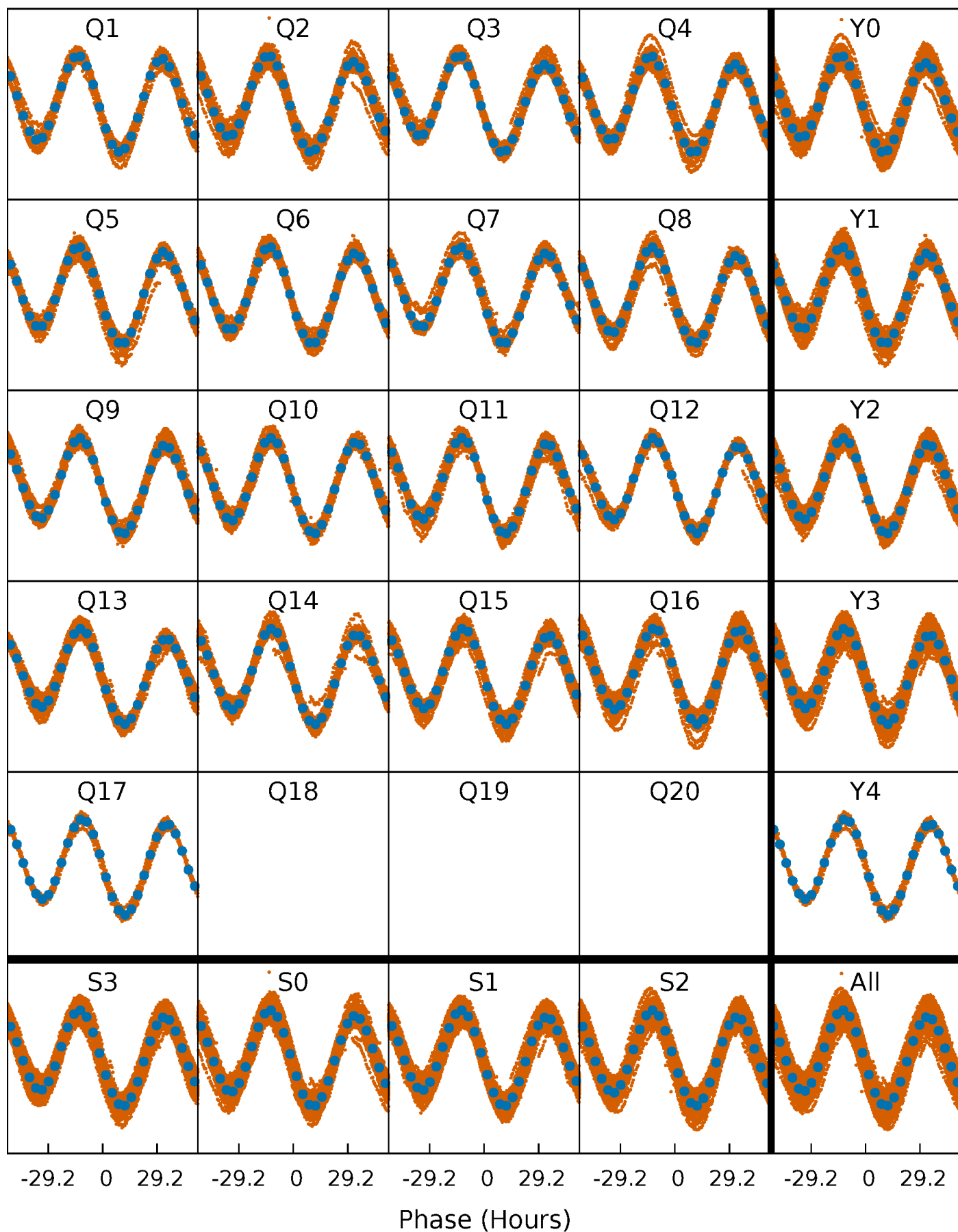


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

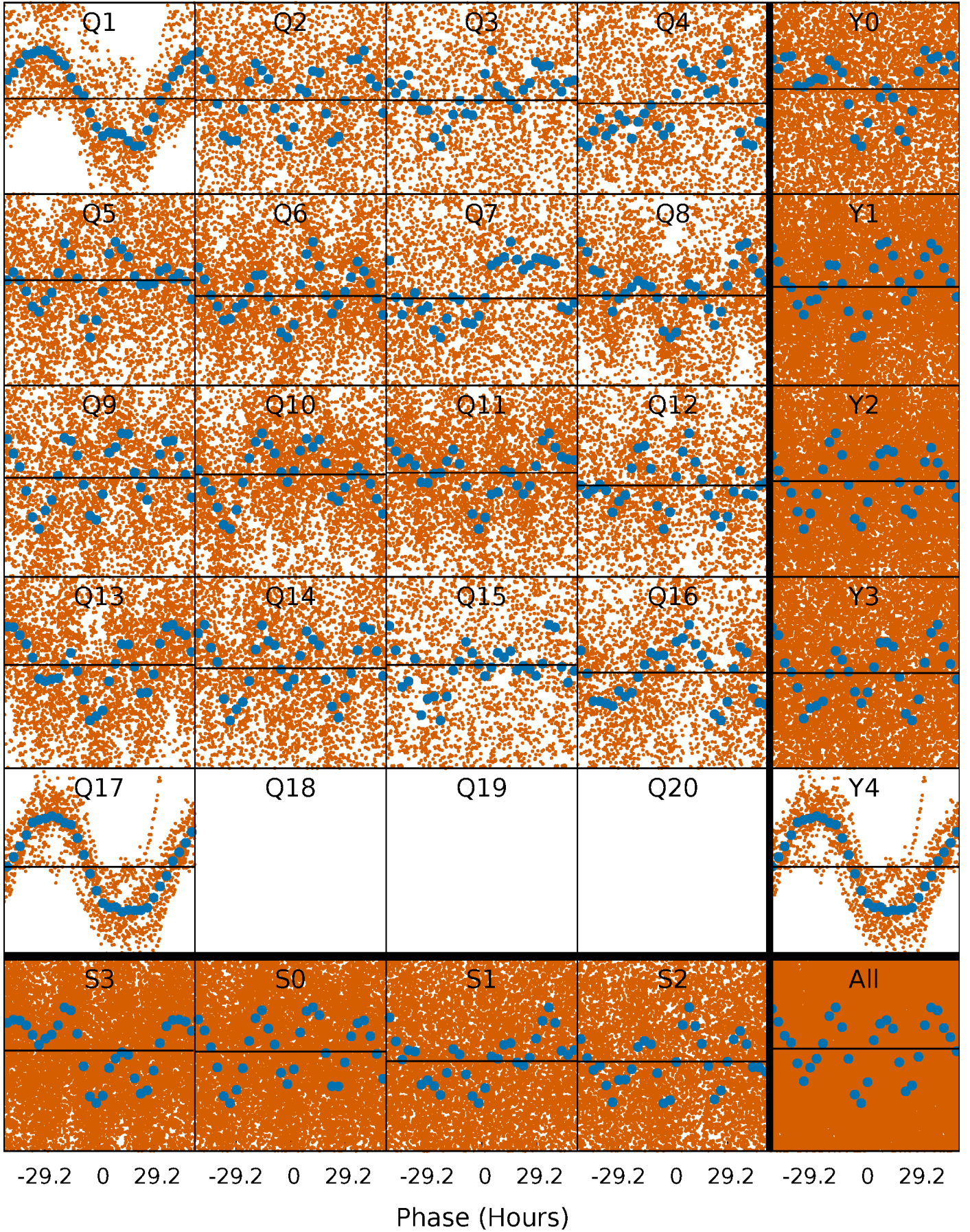
TCE 004450028-01   P= 3.648014 Days    $T_0=131.962229$  (BKJD)





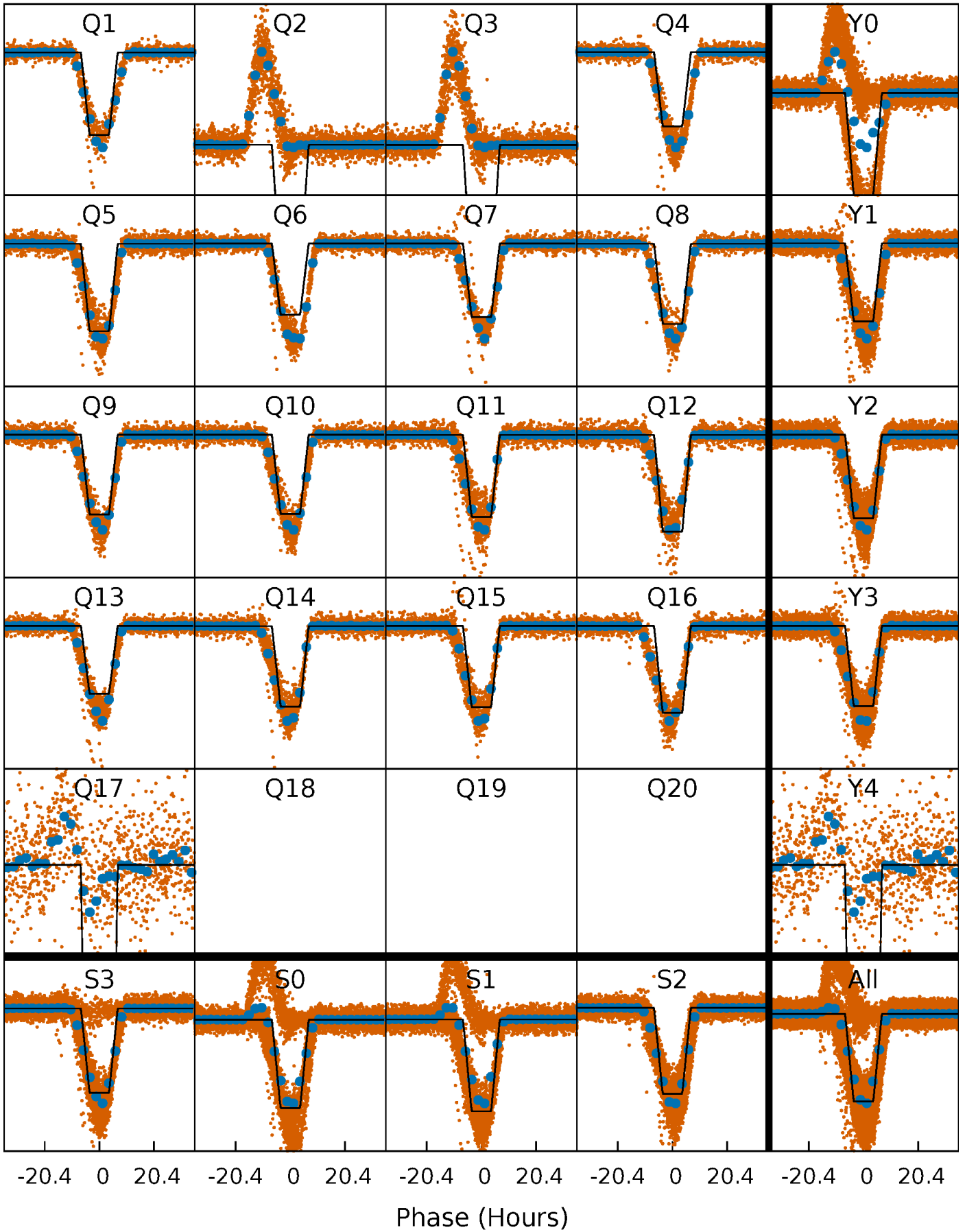
# DV Quarter-Phased Transit Curves

TCE 004450028-01 P= 3.648014 Days  $T_0=131.962229$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

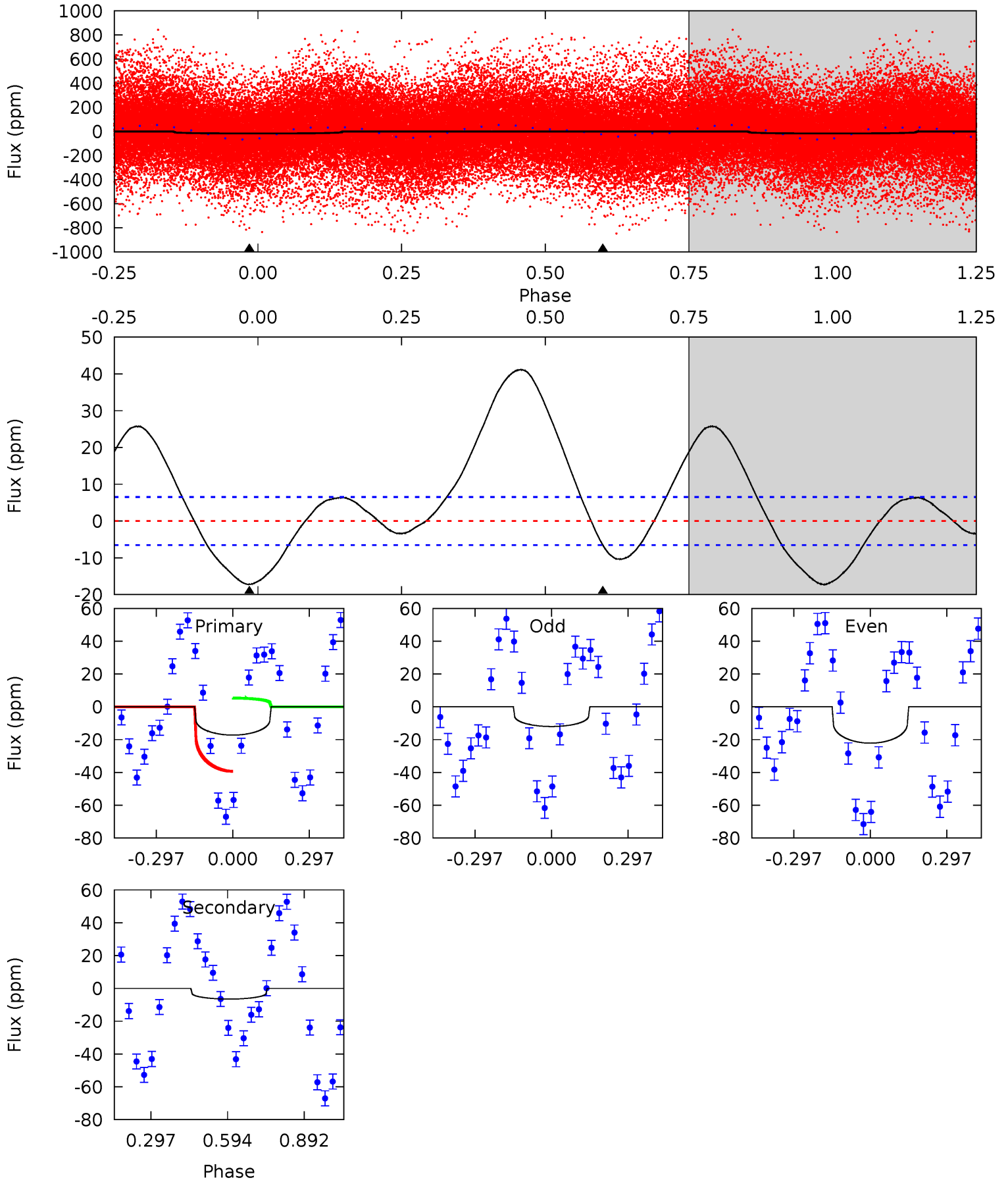
TCE 004450028-01 P= 3.648480 Days  $T_0=132.076285$  (BKJD)



# DV Model-Shift Uniqueness Test

004450028-01, P = 3.648014 Days, E = 128.314215 Days

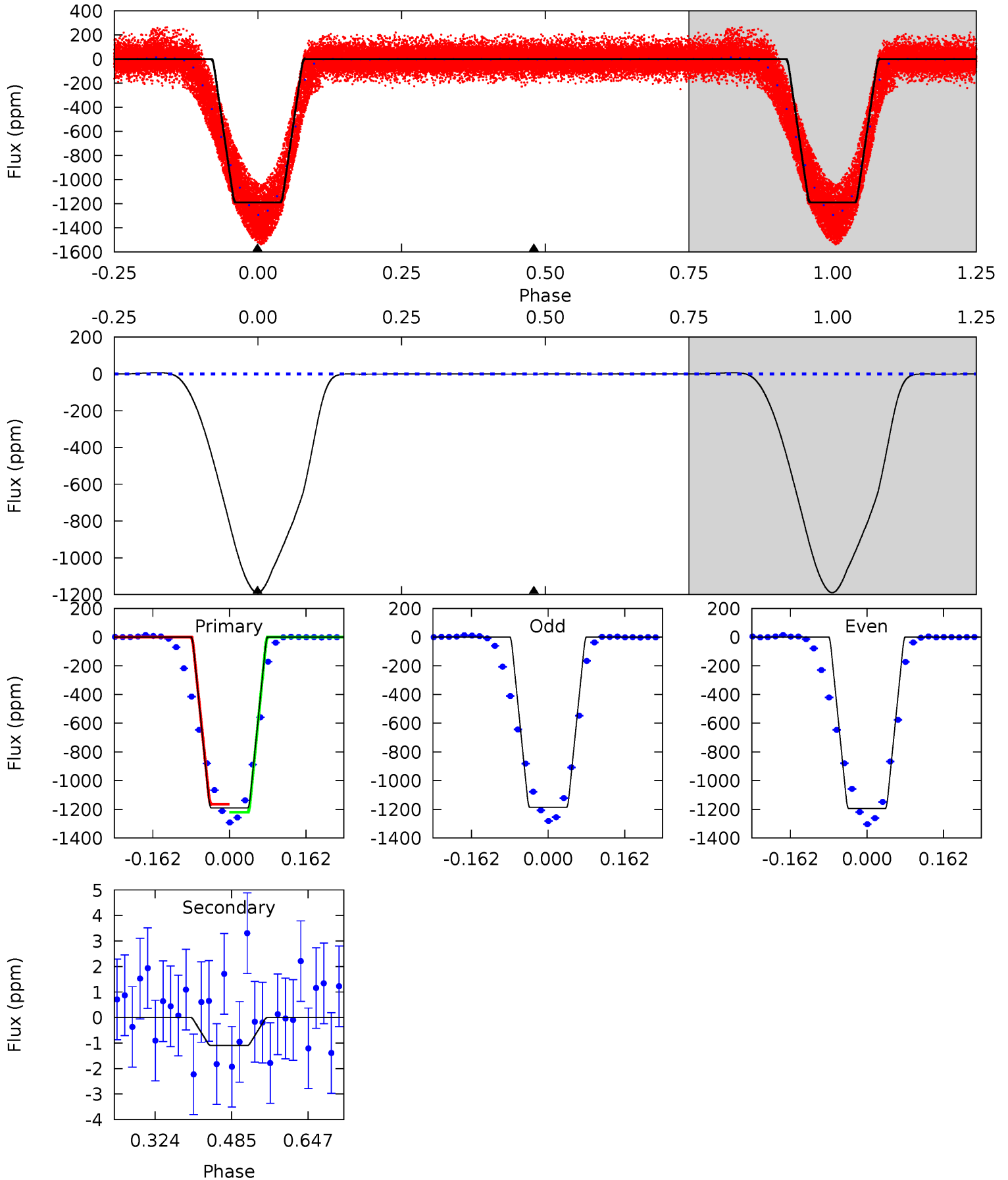
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	4.30	0	0	4.33	1.04	2.62	11.4	11.4	4.30	4.30	3.27	1.28	0.70	11.8



# Alt Model-Shift Uniqueness Test

004450028-01, P = 3.648480 Days, E = 128.427805 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
1757	1.61	0	0	4.46	1.40	2.88	1757	1757	1.61	1.61	4.94	0.93	0.01	40.3



### Stellar Parameters For KIC 004450028

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6056^{+164}_{-183}$	$4.154^{+0.210}_{-0.123}$	$-0.120^{+0.300}_{-0.300}$	$1.419^{+0.300}_{-0.334}$	$1.048^{+0.160}_{-0.145}$	$0.517^{+0.591}_{-0.206}$
	+3%/-3%	+5%/-3%	+250%/-250%	+21%/-24%	+15%/-14%	+114%/-40%
Source	PHO1	FLK73	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 004450028-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-7 \pm 2$	$3.59^{+3.72}_{-2.54}$	$2030^{+146}_{-152}$	$2524^{+1510}_{-4833}$	$0.616^{+6.909}_{-0.468}$
Alt.	$-1 \pm 1$	$6.18^{+4.78}_{-3.86}$	$2035^{+152}_{-153}$	$-2443^{+434}_{-130}$	$0.031^{+0.220}_{-0.024}$

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



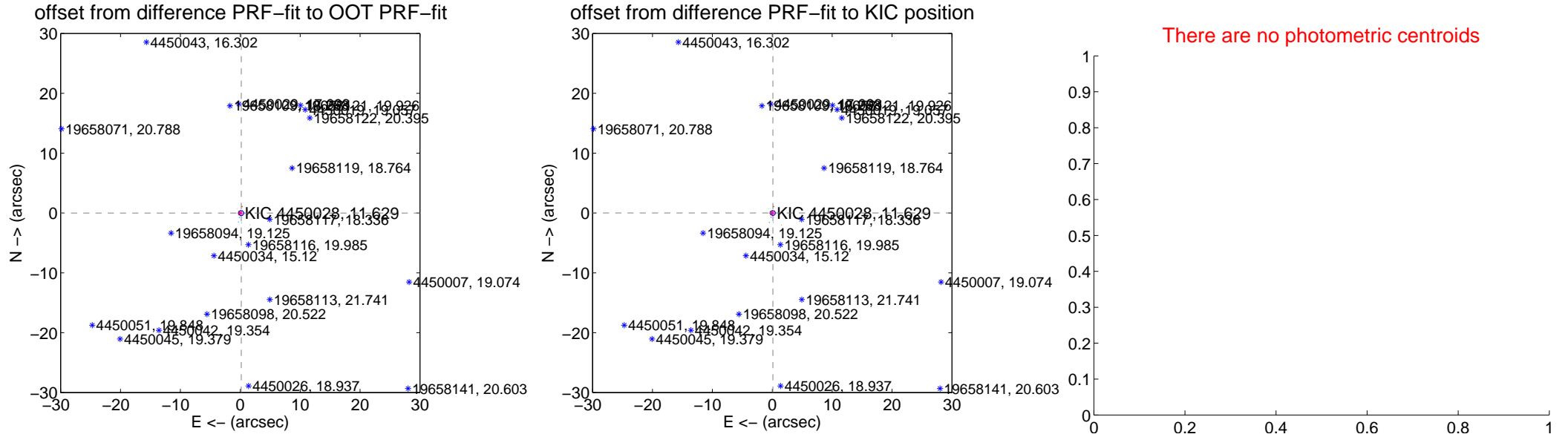
## DV Centroid Data

Supplemental centroid analysis for 004450028-01. **Kepler magnitude: 11.63.** Transit SNR 0.00

There are 15 quarters with good PRF difference image offsets

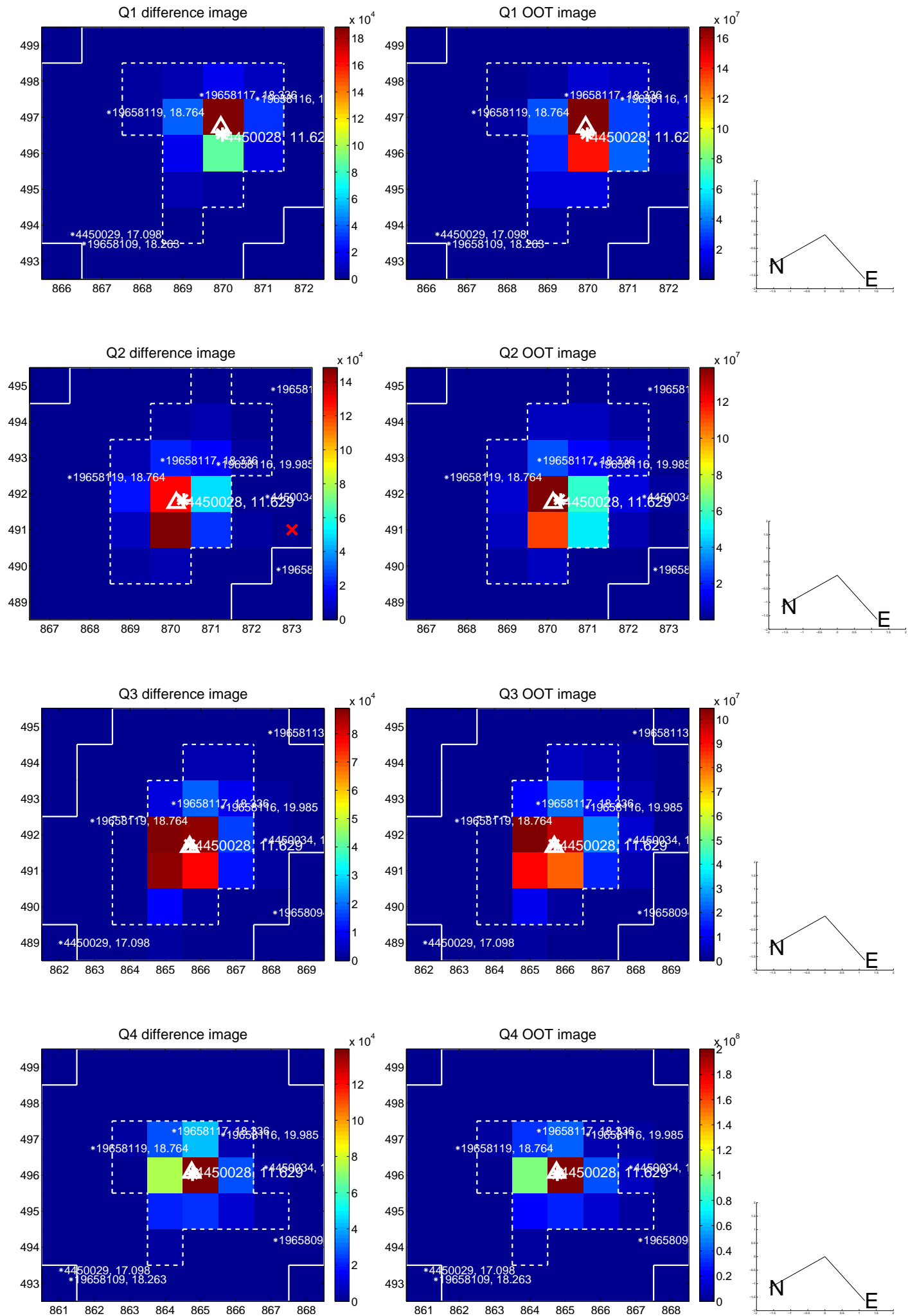
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.162 \pm 0.142$	1.14	$-0.161 \pm 0.134$	$-0.013 \pm 0.218$
PRF-fit source offset from KIC position	$0.110 \pm 0.135$	0.81	$-0.110 \pm 0.137$	$0.003 \pm 0.202$
photometric centroid source offset	—	—	—	—

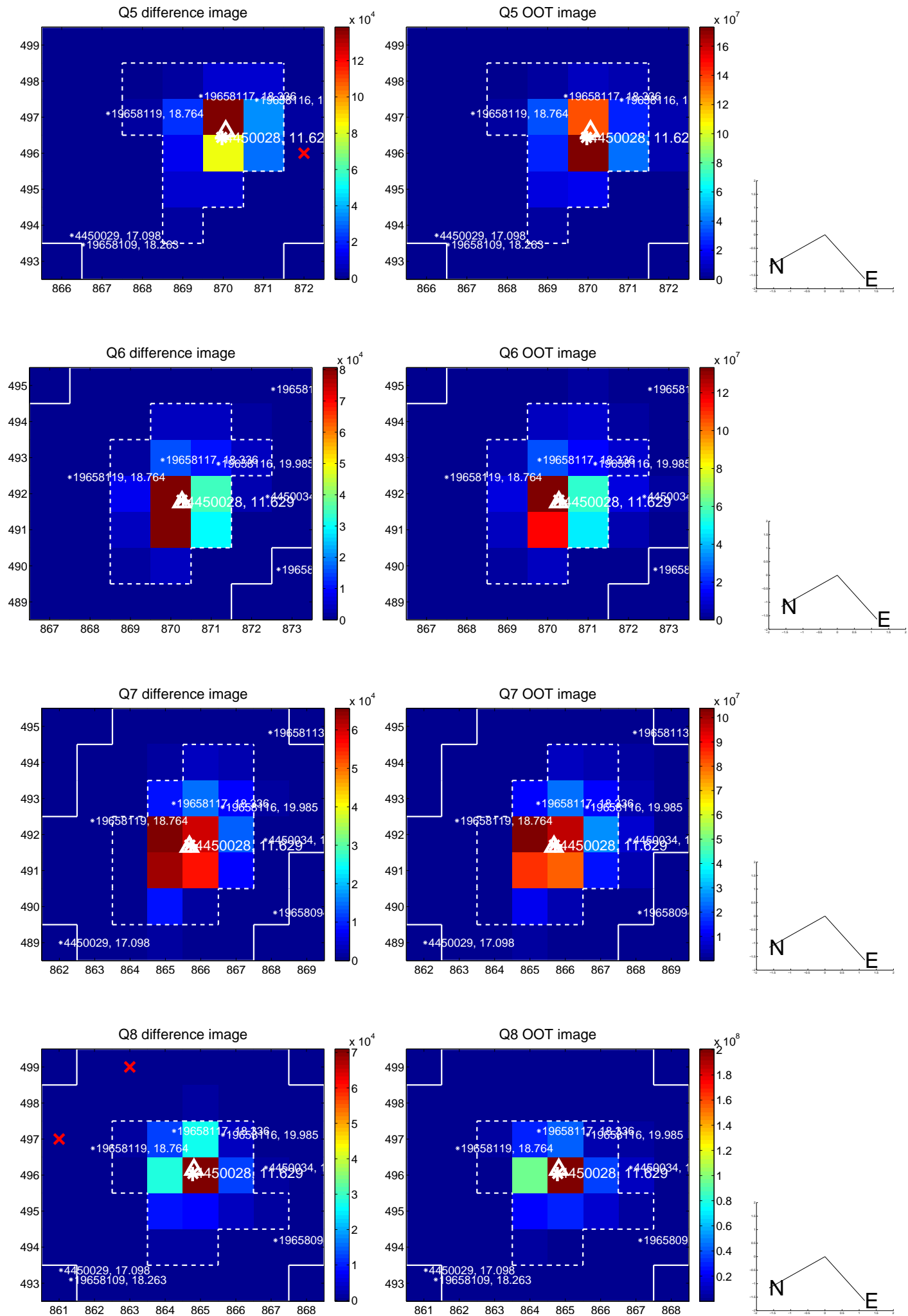


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

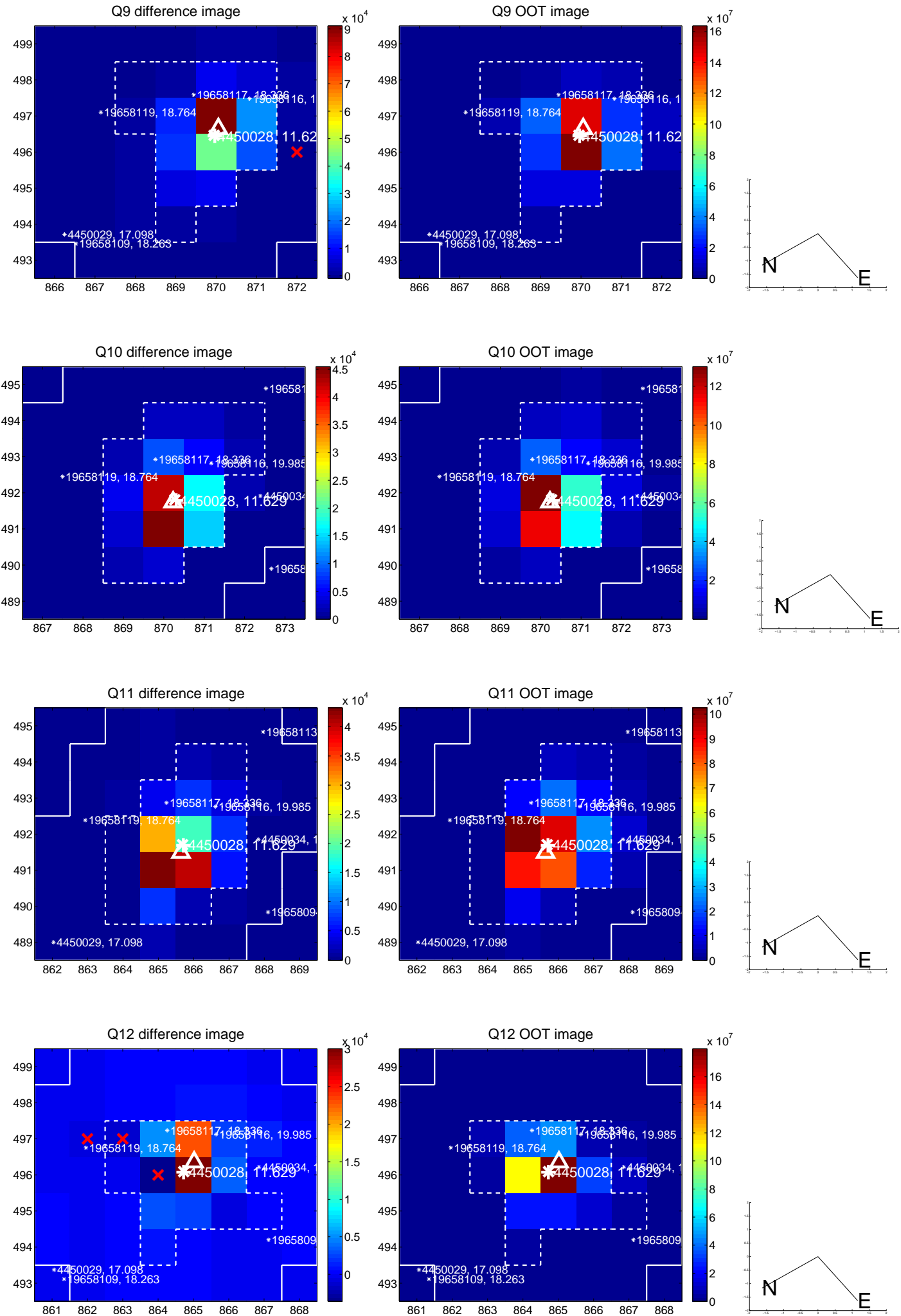
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



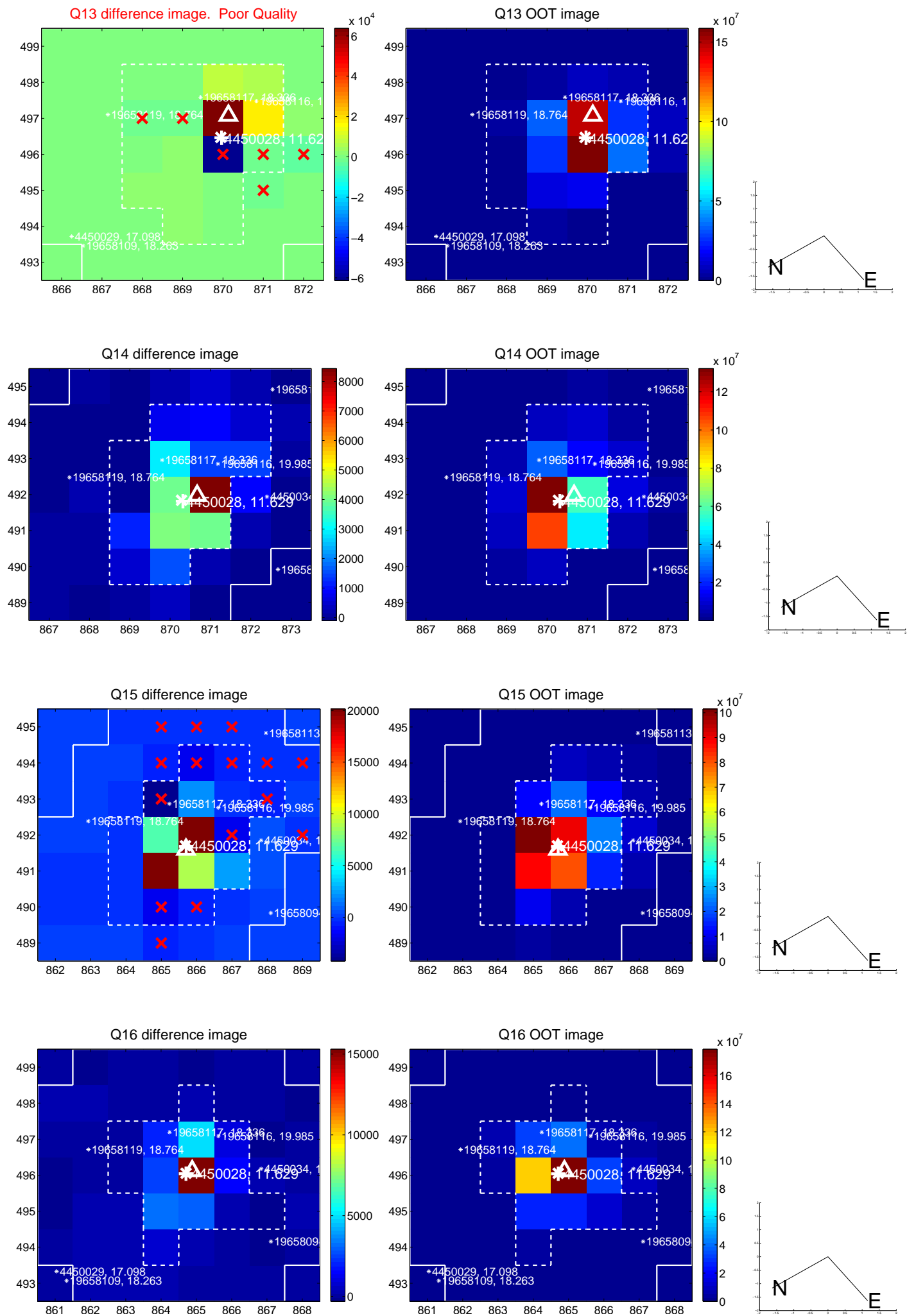
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

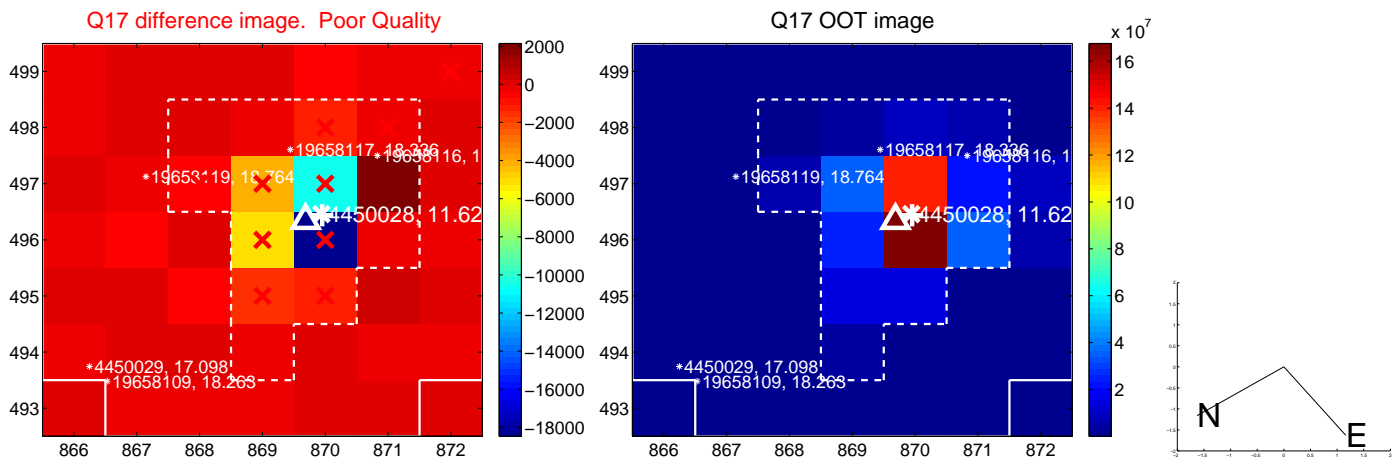


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



folded centroid time series figure for this object.

This astronomical image displays a field of stars against a dark background. A coordinate grid is overlaid, with Right Ascension (RA) values (58.0, 57.0, 19:07:56.0, 55.0, 54.0) and Declination (Dec) values (20.0, 30.0, 40.0) marked in green. The central star is the brightest and is located at the intersection of the 19:07:56.0 RA and 40.0 Dec coordinates. Other stars of varying brightness are scattered across the field, with a notable cluster of stars in the upper right quadrant.

Declination