

# KIC 008216910

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008216910-01	OBS	No	0.970064	131.963993	33.2	8.718	13.9	15.8	4.25	6517	3.51	50150.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008216910-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_MEAS

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

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

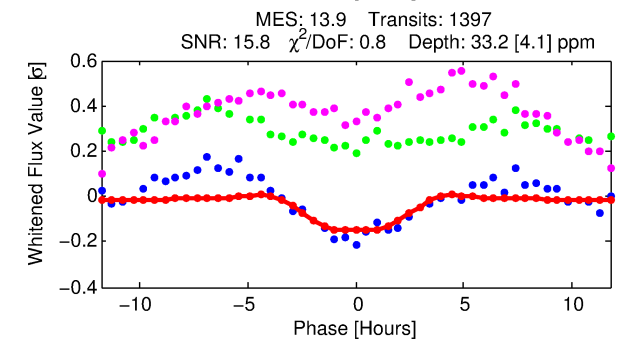
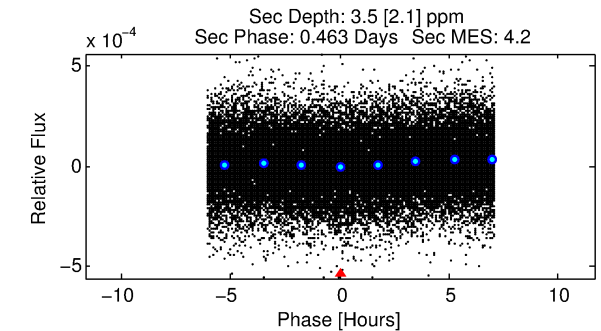
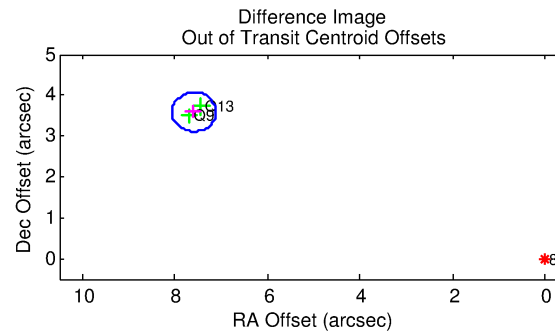
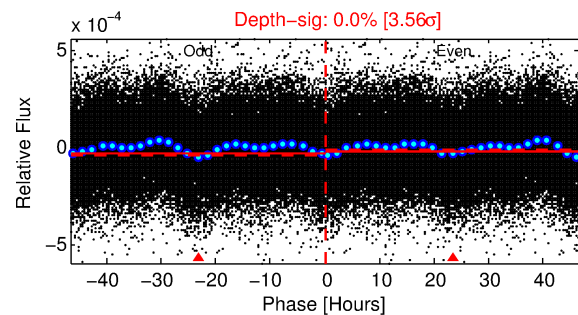
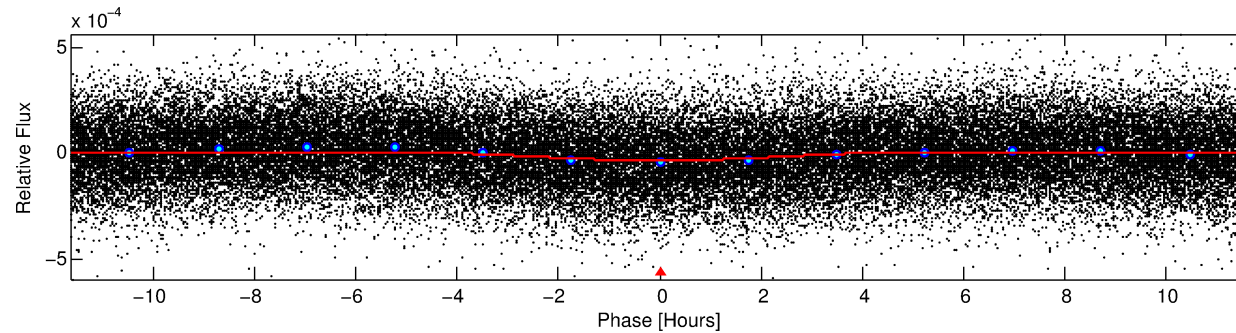
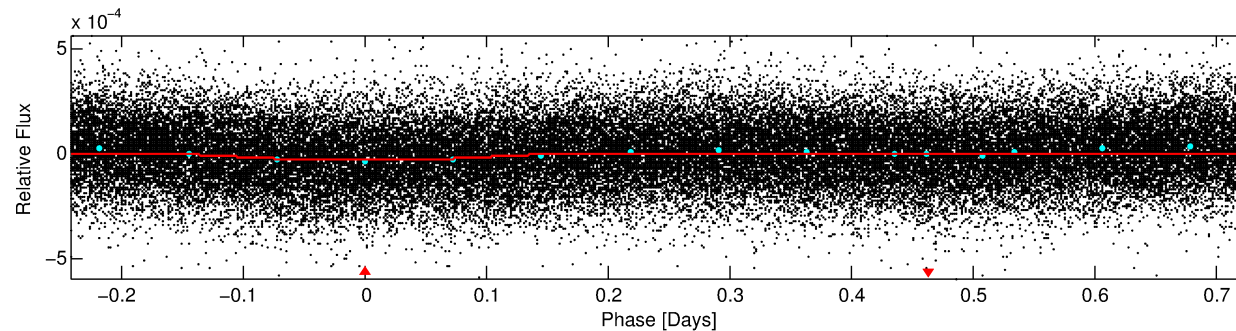
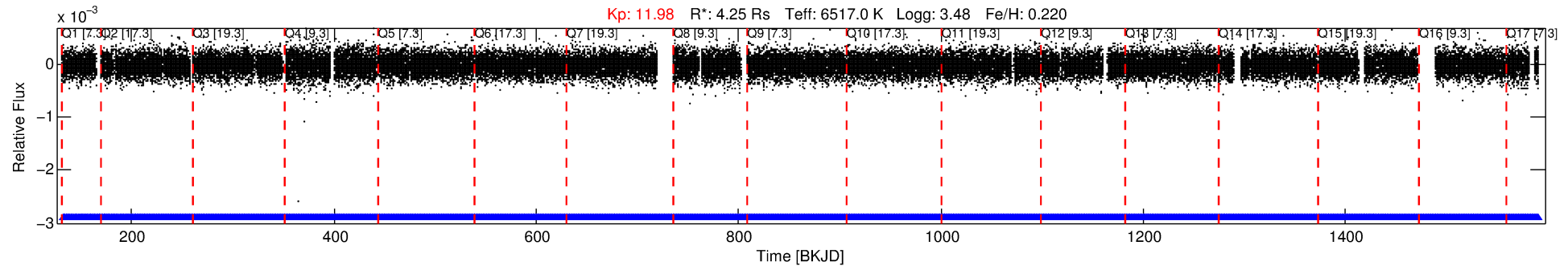
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008216910-01

No Significant Match Found

# DV One-Page Summary

KIC: 8216910 Candidate: 1 of 1 Period: 0.970 d



## DV Fit Results:

Period = 0.97006 [0.00001] d  
Epoch = 131.9640 [0.0084] BKJD  
Rp/R\* = 0.0076 [0.0006]  
a/R\* = 1.01 [0.00]  
b = 0.99 [0.00]  
Seff = 50150.74 [31009.81]  
Teq = 3816 [590] K  
Rp = 3.51 [1.35] Re  
a = 0.0241 [0.0090] AU  
Ag = 0.09 [0.08] [-11.50 $\sigma$ ]  
Teff = 3249 [503] K [-0.73 $\sigma$ ]

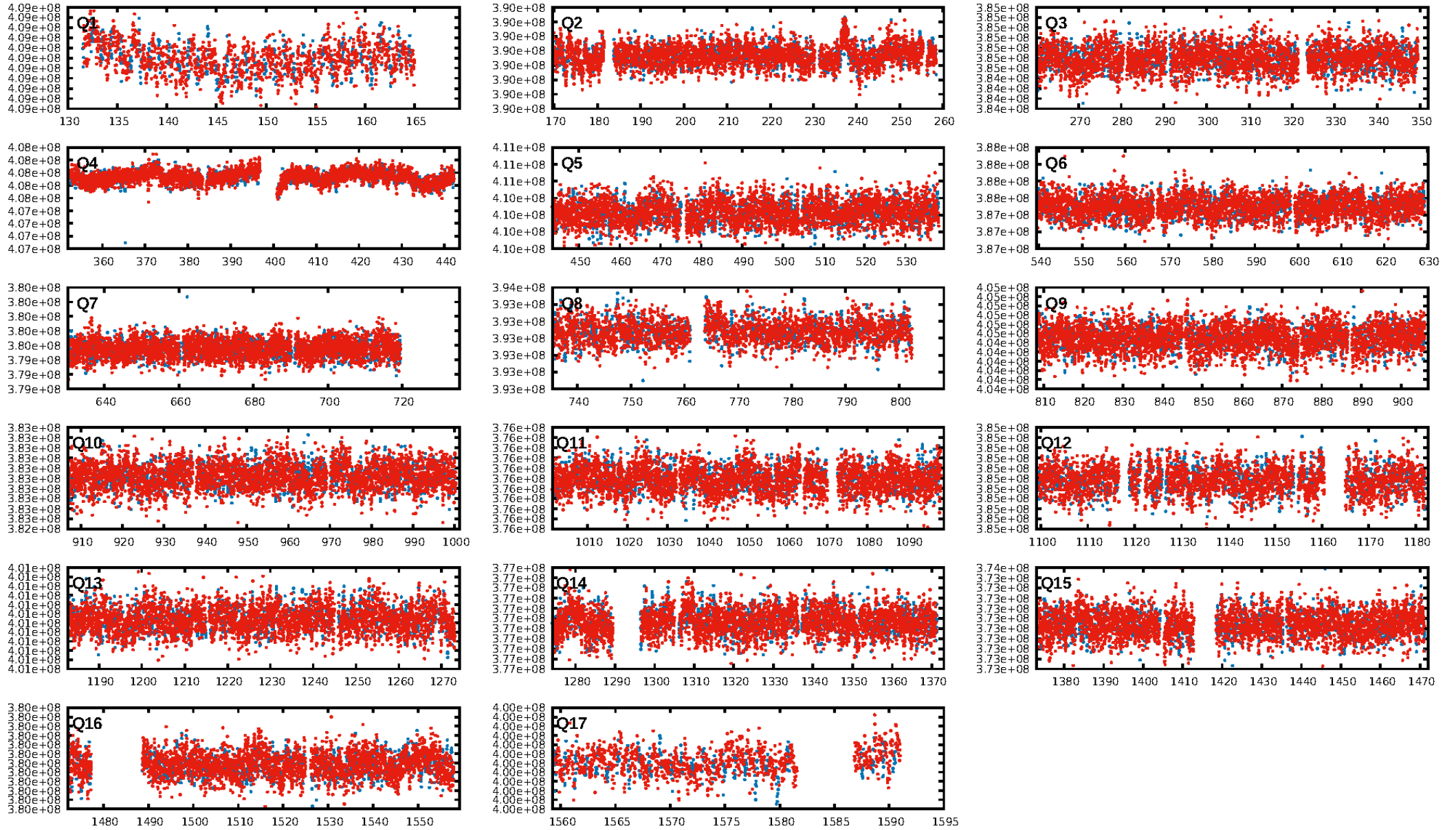
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1334/1334]  
GhostDiagnostic-chr: 4.245  
Centroid-sig: 10.9%  
Centroid-so: 0.064 arcsec [0.30 $\sigma$ ]  
OotOffset-rm: 8.397 arcsec [52.80 $\sigma$ ]  
KicOffset-rm: 8.481 arcsec [51.66 $\sigma$ ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [17/17]

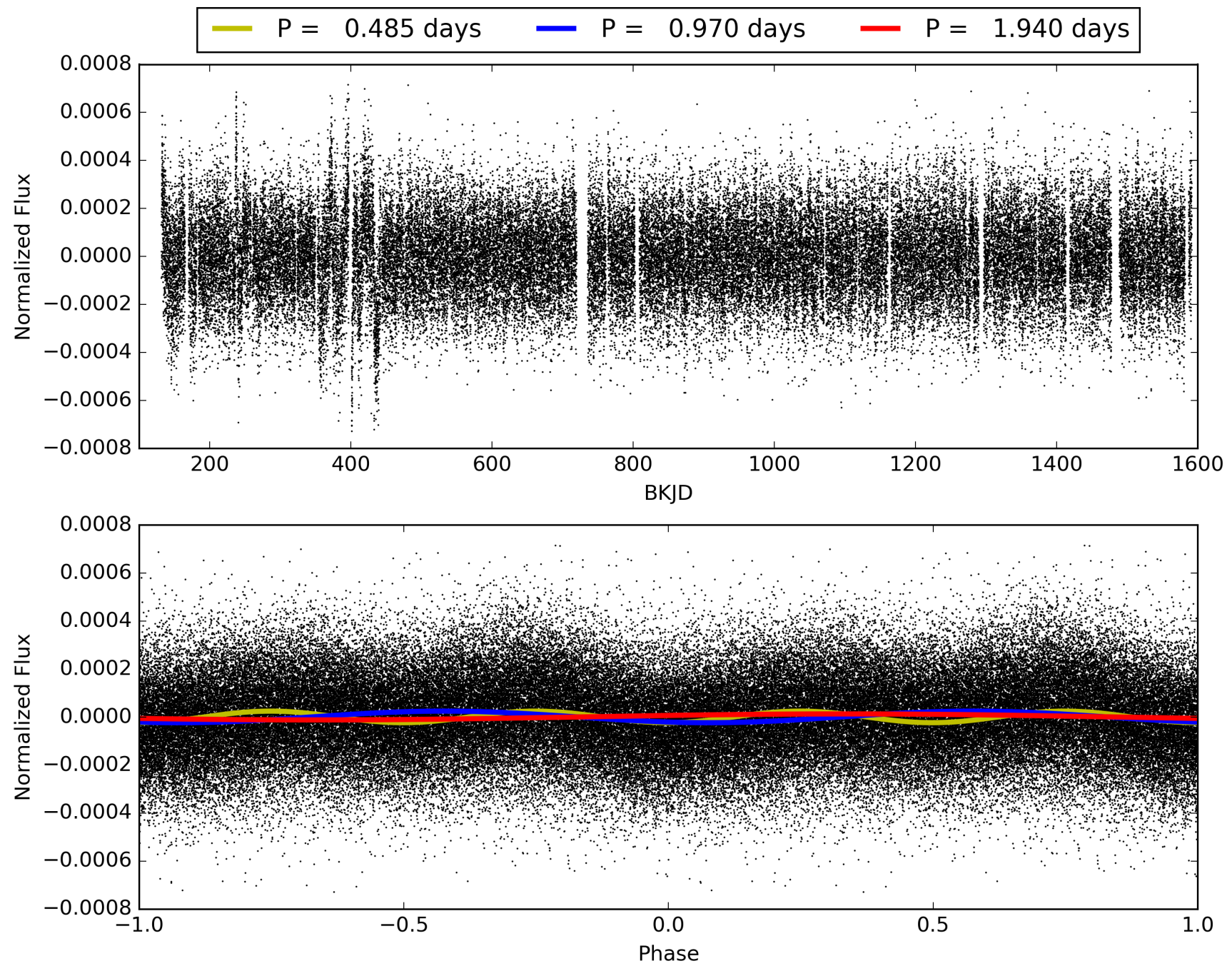
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:28:42 Z

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

# TCE 008216910-01, PDC Light Curves



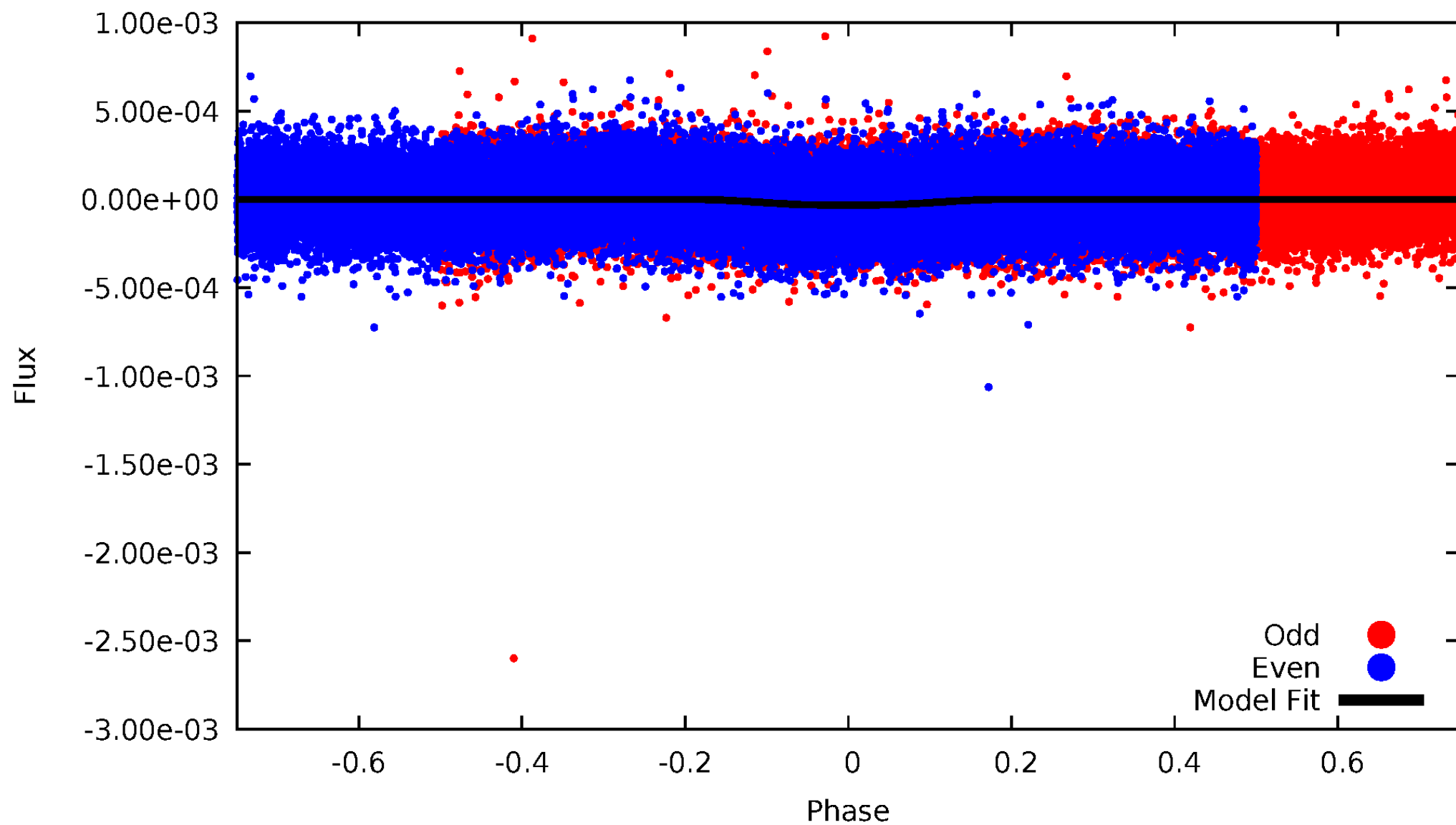
TCE 008216910-01





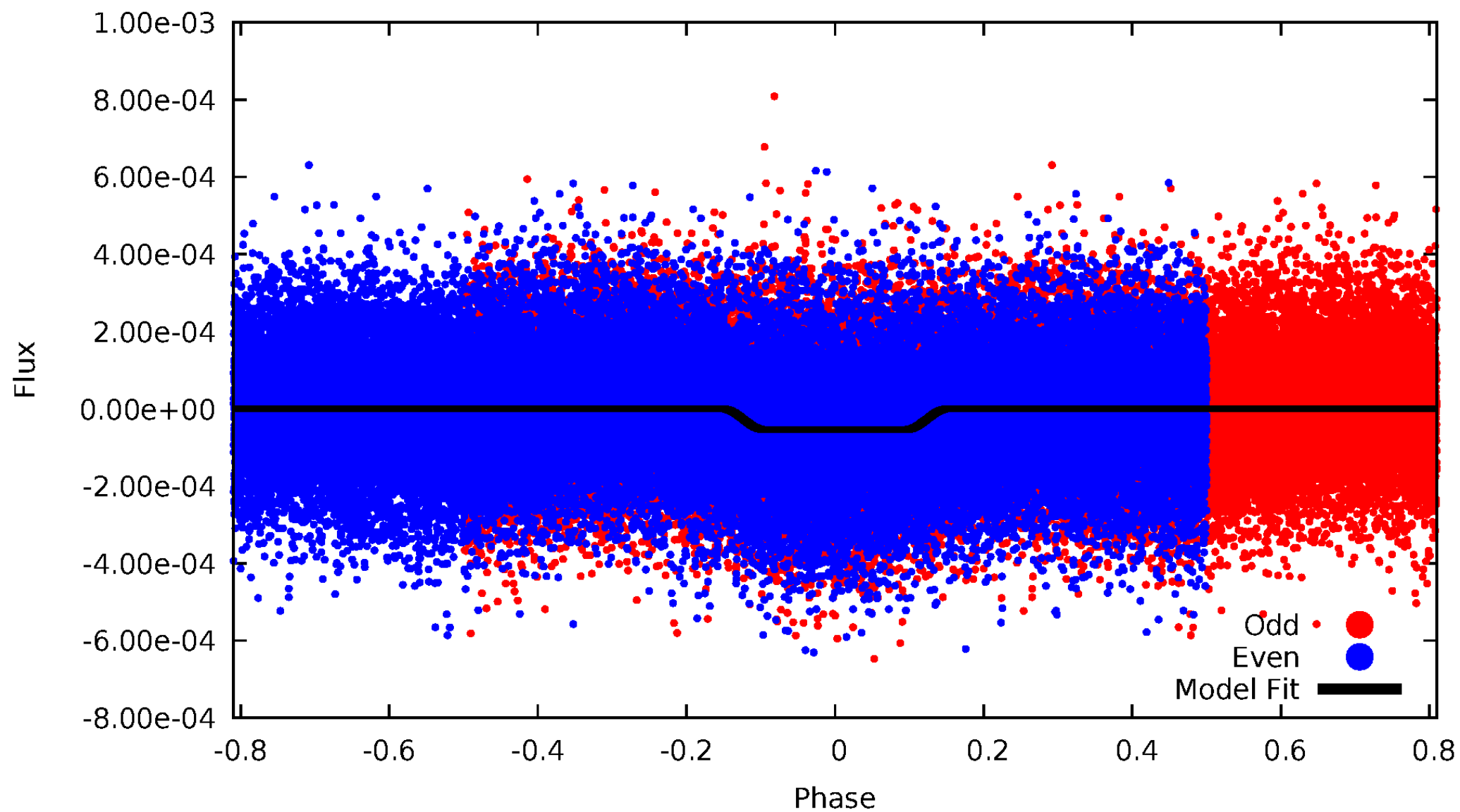
DV Odd/Even

TCE 008216910-01



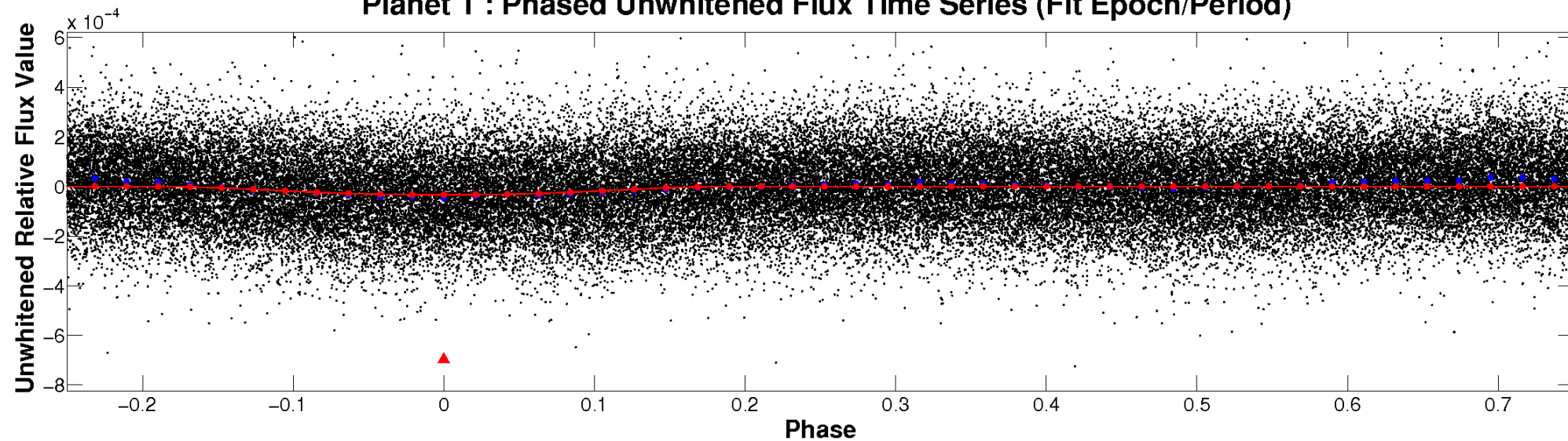
# ALT Odd/Even

TCE 008216910-01

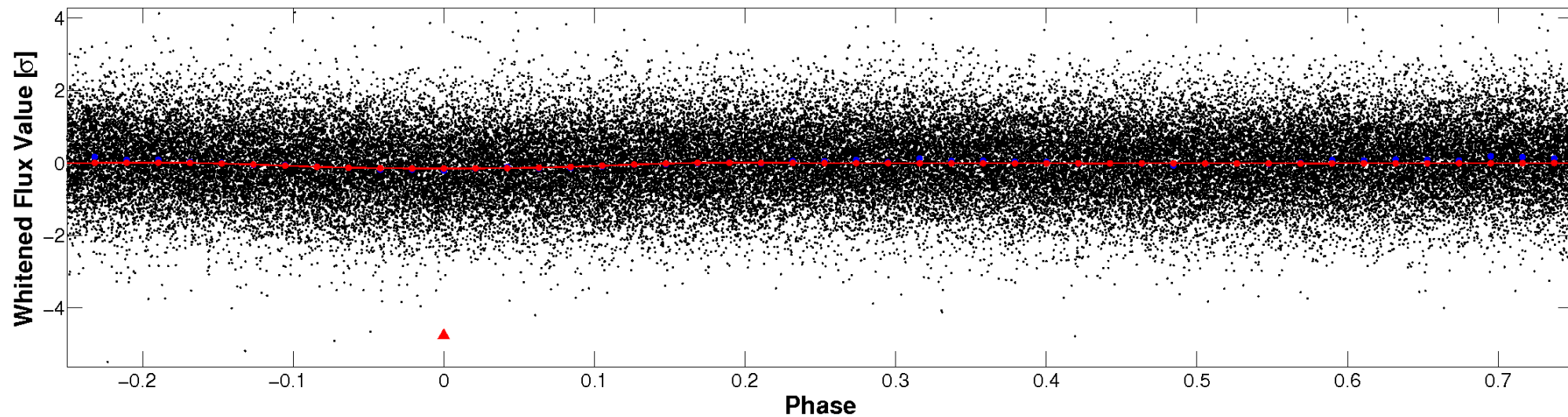


# Non-Whitened Vs. Whitened Light Curve

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

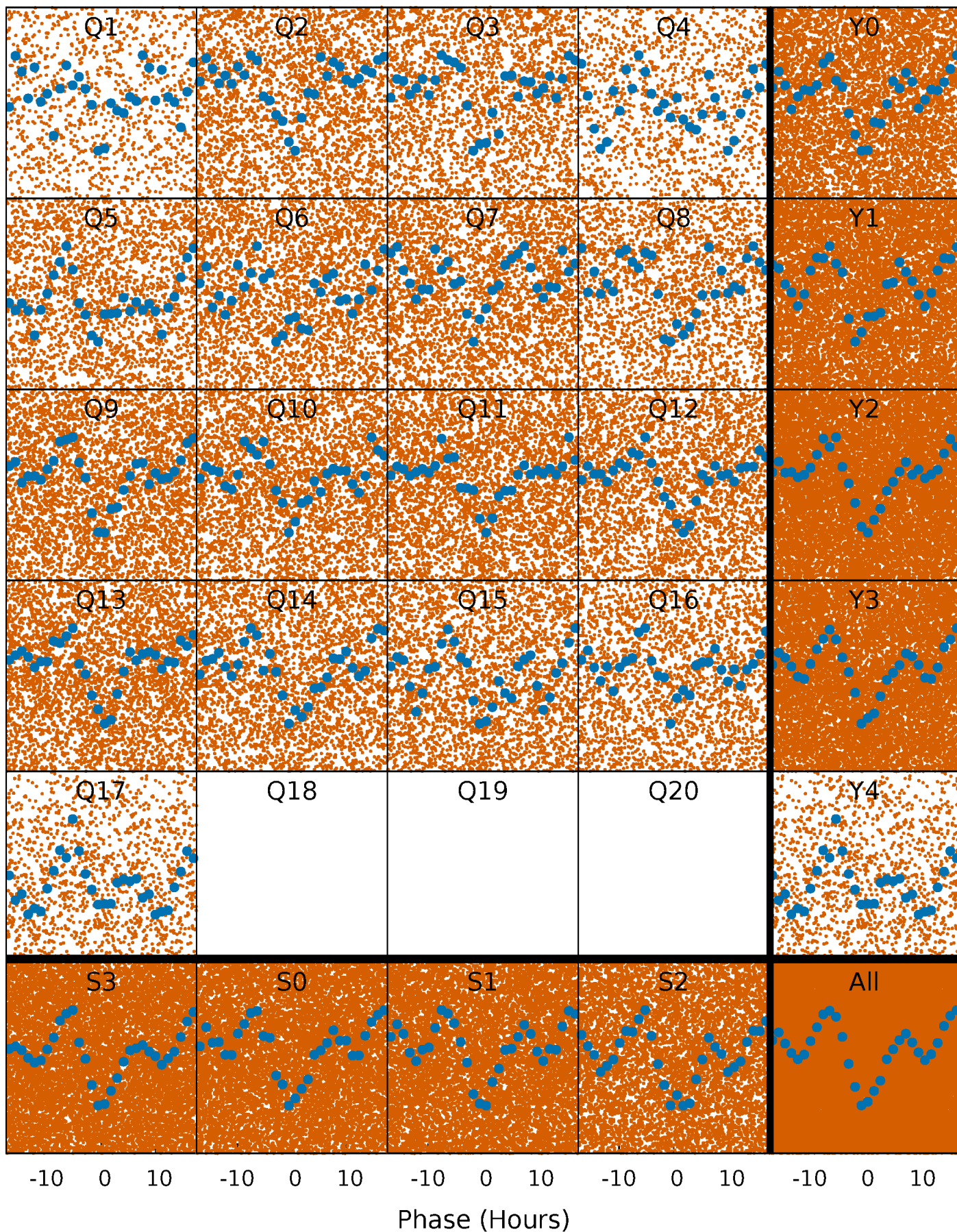


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

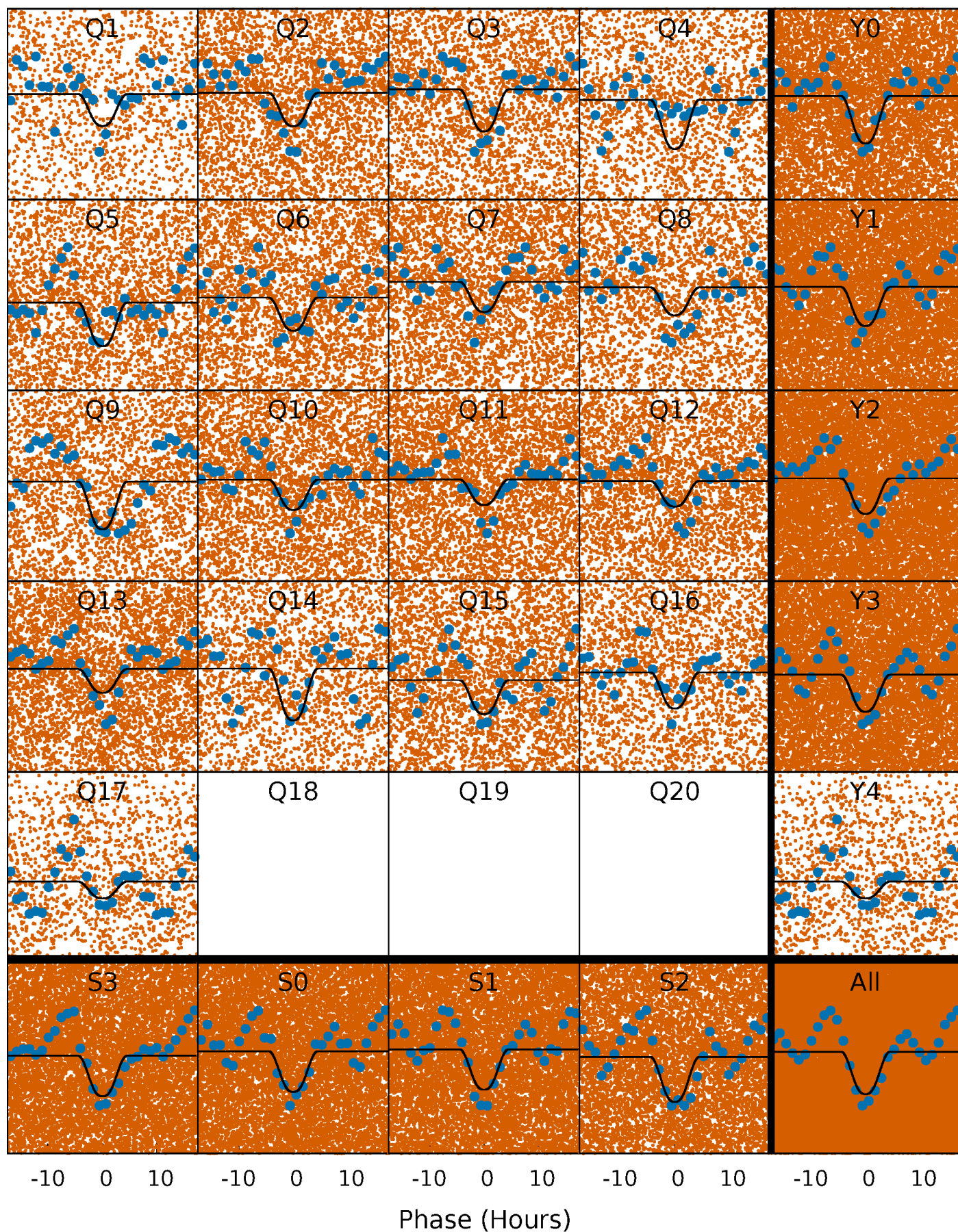
TCE 008216910-01 P= 0.970064 Days  $T_0=131.963993$  (BKJD)





# DV Quarter-Phased Transit Curves

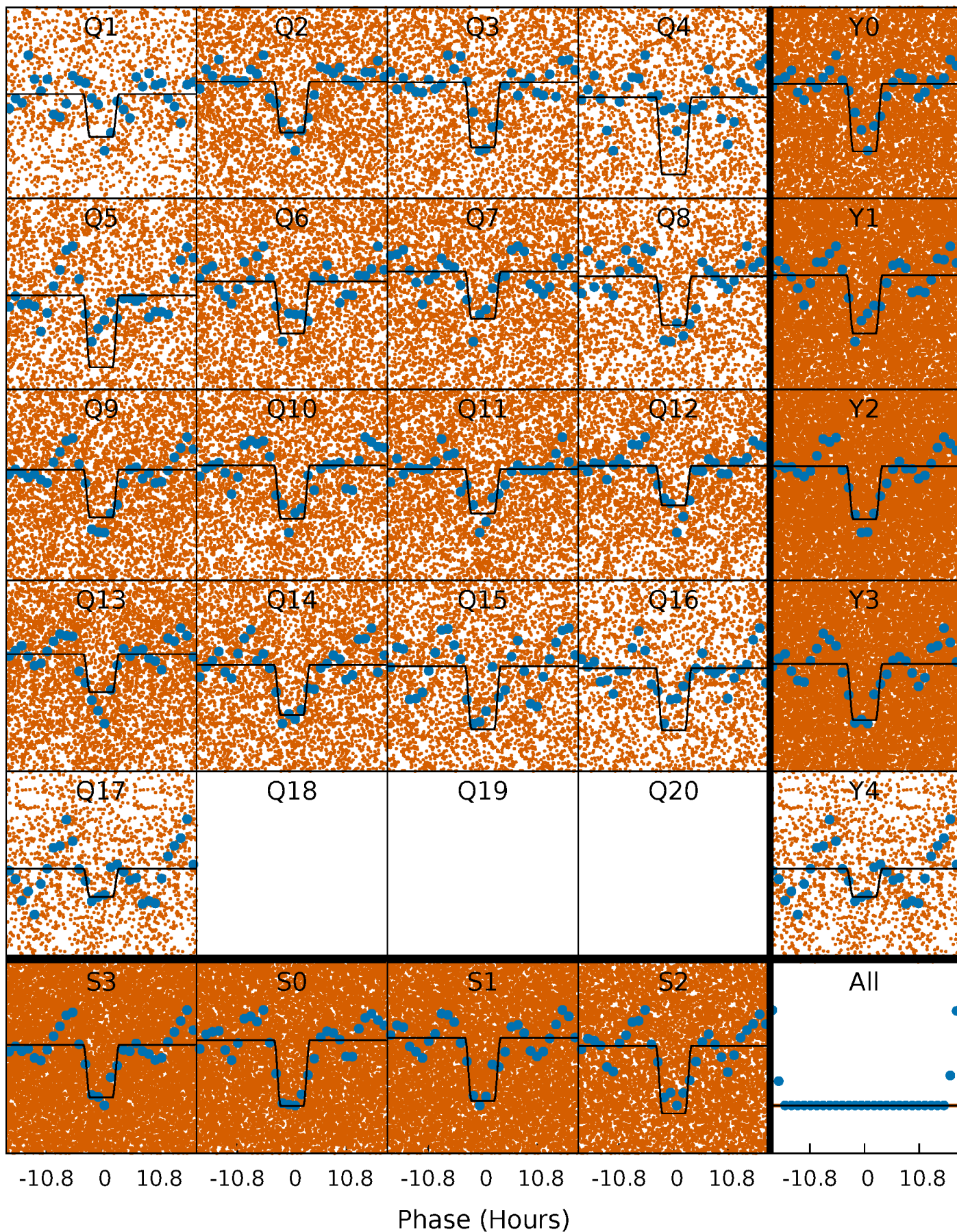
TCE 008216910-01 P= 0.970064 Days  $T_0=131.963993$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

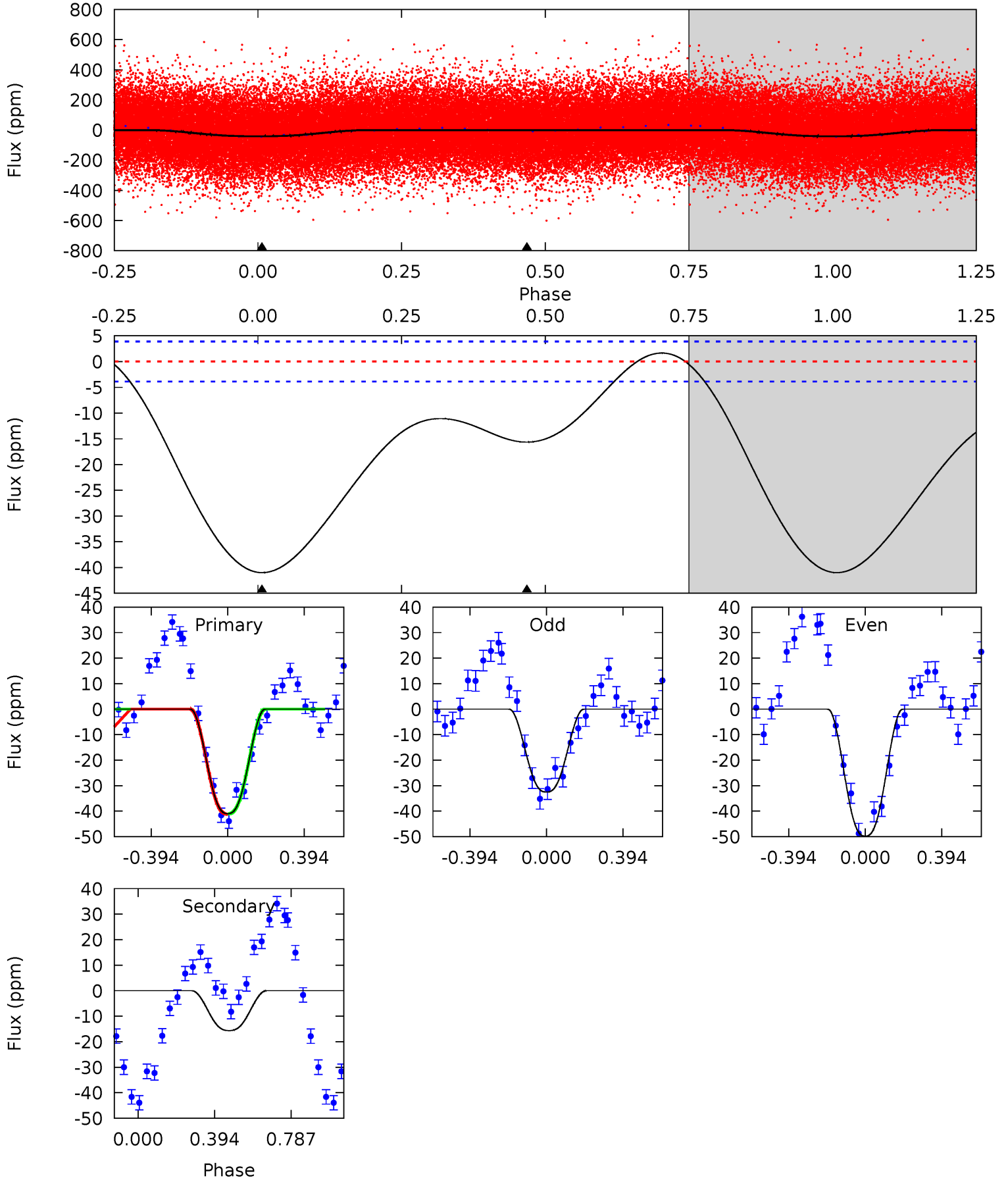
TCE 008216910-01 P= 0.970135 Days  $T_0=131.922511$  (BKJD)



# DV Model-Shift Uniqueness Test

008216910-01, P = 0.970064 Days, E = 130.993929 Days

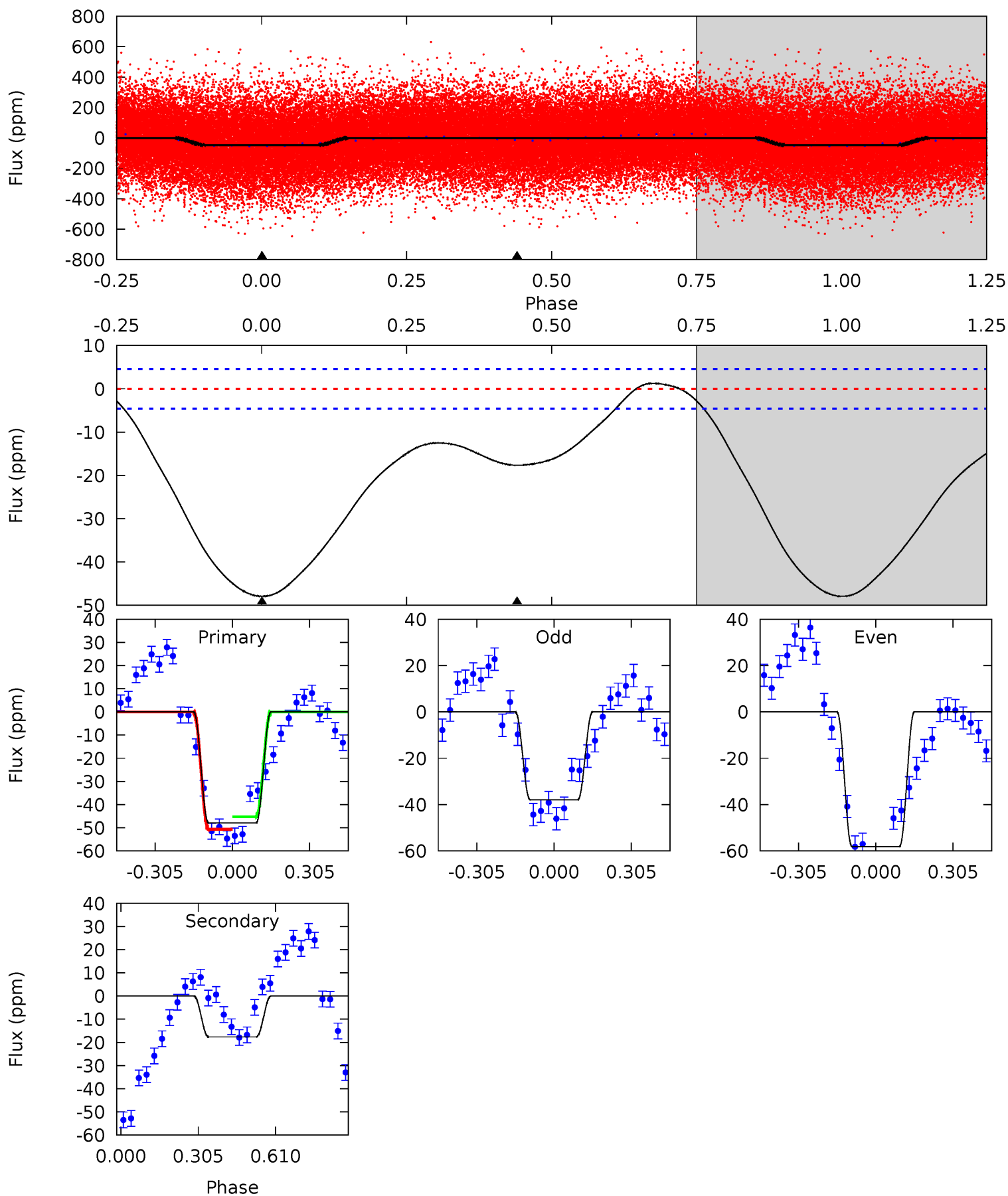
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.9	17.2	0	0	4.27	0.85	5.57	44.9	44.9	17.2	17.2	9.52	0.92	0.04	0.08



# Alt Model-Shift Uniqueness Test

008216910-01, P = 0.970135 Days, E = 130.952376 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
45.5	16.8	0	0	4.32	1.03	2.07	45.5	45.5	16.8	16.8	9.63	1.02	0.03	2.39





### Stellar Parameters For KIC 008216910

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6517^{+154}_{-193}$	$3.480^{+0.360}_{-0.090}$	$0.220^{+0.200}_{-0.250}$	$4.250^{+0.571}_{-1.599}$	$1.991^{+0.136}_{-0.380}$	$0.037^{+0.098}_{-0.010}$
	+2%/-3%	+10%/-3%	+91%/-114%	+13%/-38%	+7%/-19%	+269%/-27%
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 008216910-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-16 \pm 1$	$3.35^{+0.50}_{-0.72}$	$5208^{+323}_{-531}$	$3895^{+479}_{-699}$	$0.443^{+0.250}_{-0.107}$
Alt.	$-18 \pm 1$	$3.22^{+0.54}_{-0.60}$	$5219^{+326}_{-509}$	$4259^{+385}_{-486}$	$0.540^{+0.255}_{-0.142}$

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

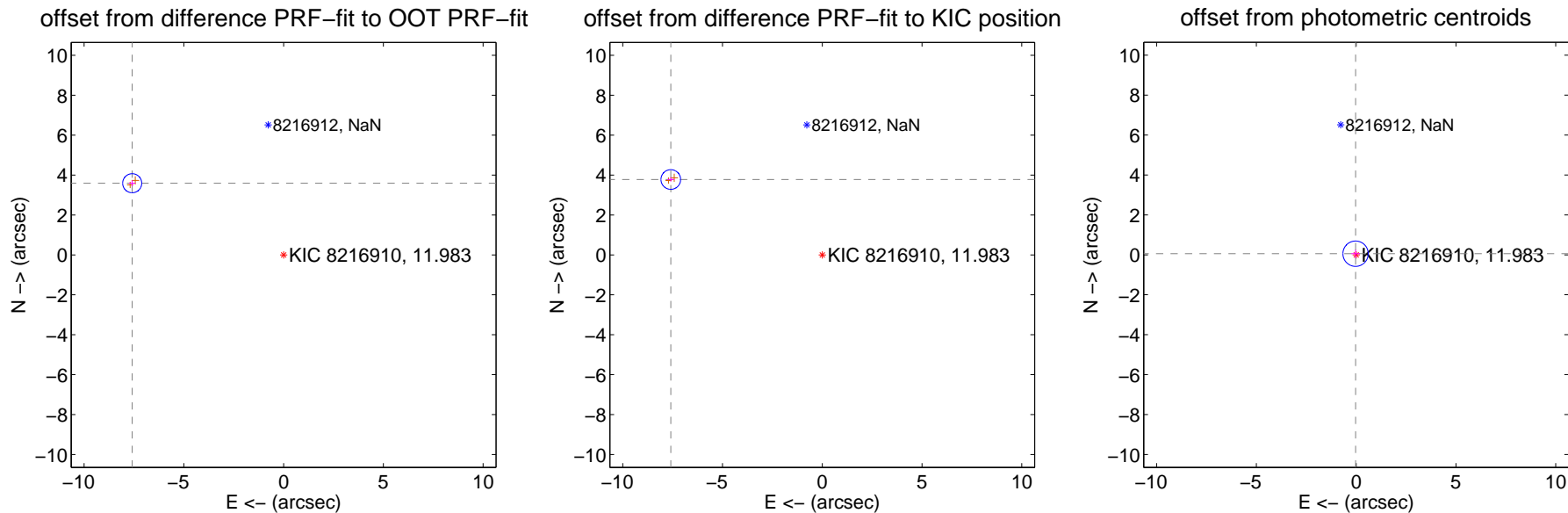
## DV Centroid Data

Supplemental centroid analysis for 008216910-01. **Kepler magnitude: 11.98.** Transit SNR 15.79

**There are 0 quarters with good PRF difference image offsets**

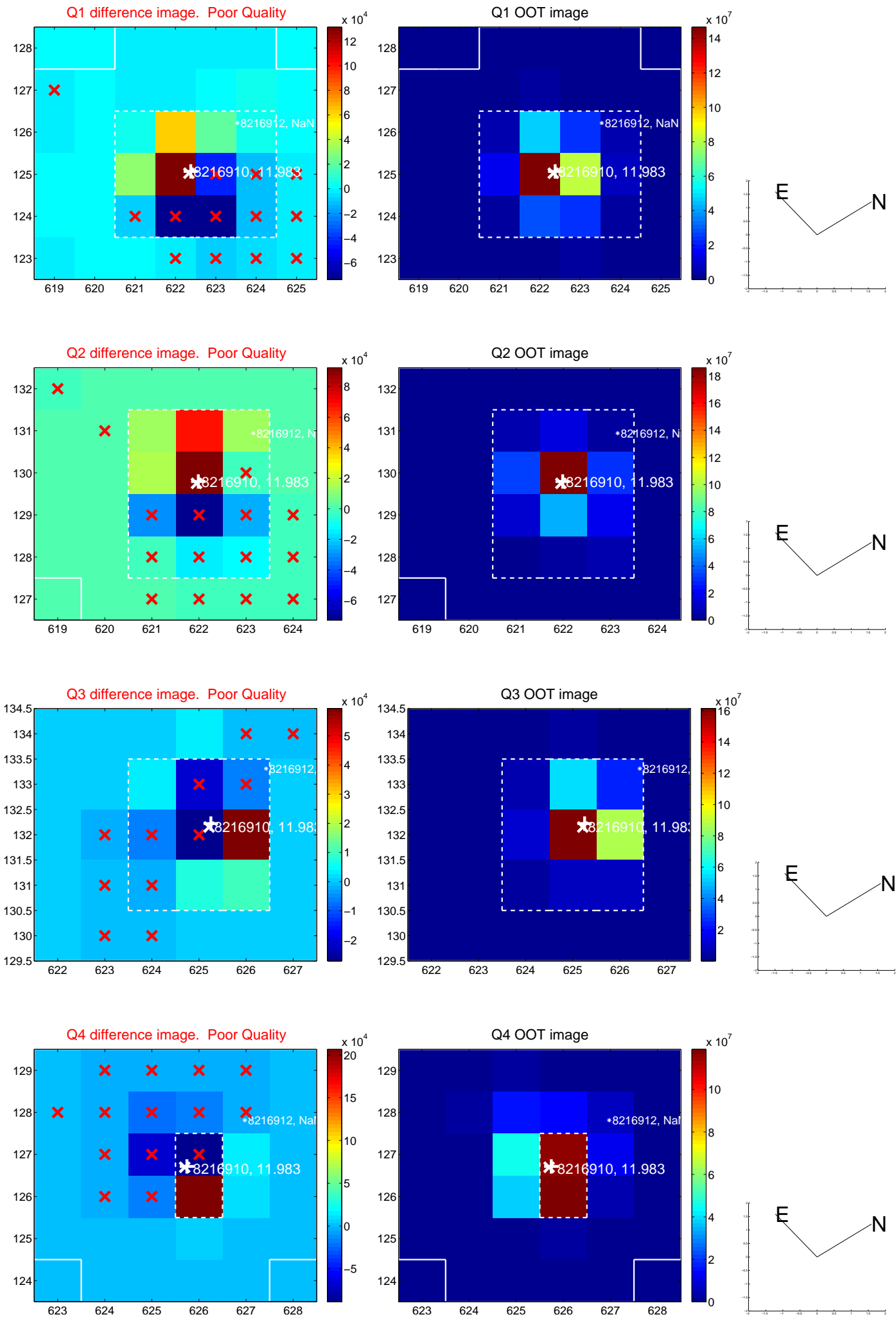
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>8.397 \pm 0.159</math></b>	<b>52.80</b>	$7.590 \pm 0.162$	$3.591 \pm 0.146$
PRF-fit source offset from KIC position	<b><math>8.481 \pm 0.164</math></b>	<b>51.66</b>	$7.593 \pm 0.176$	$3.777 \pm 0.104$
photometric centroid source offset	$0.06 \pm 0.21$	0.30	$0.03 \pm 0.22$	$0.06 \pm 0.21$

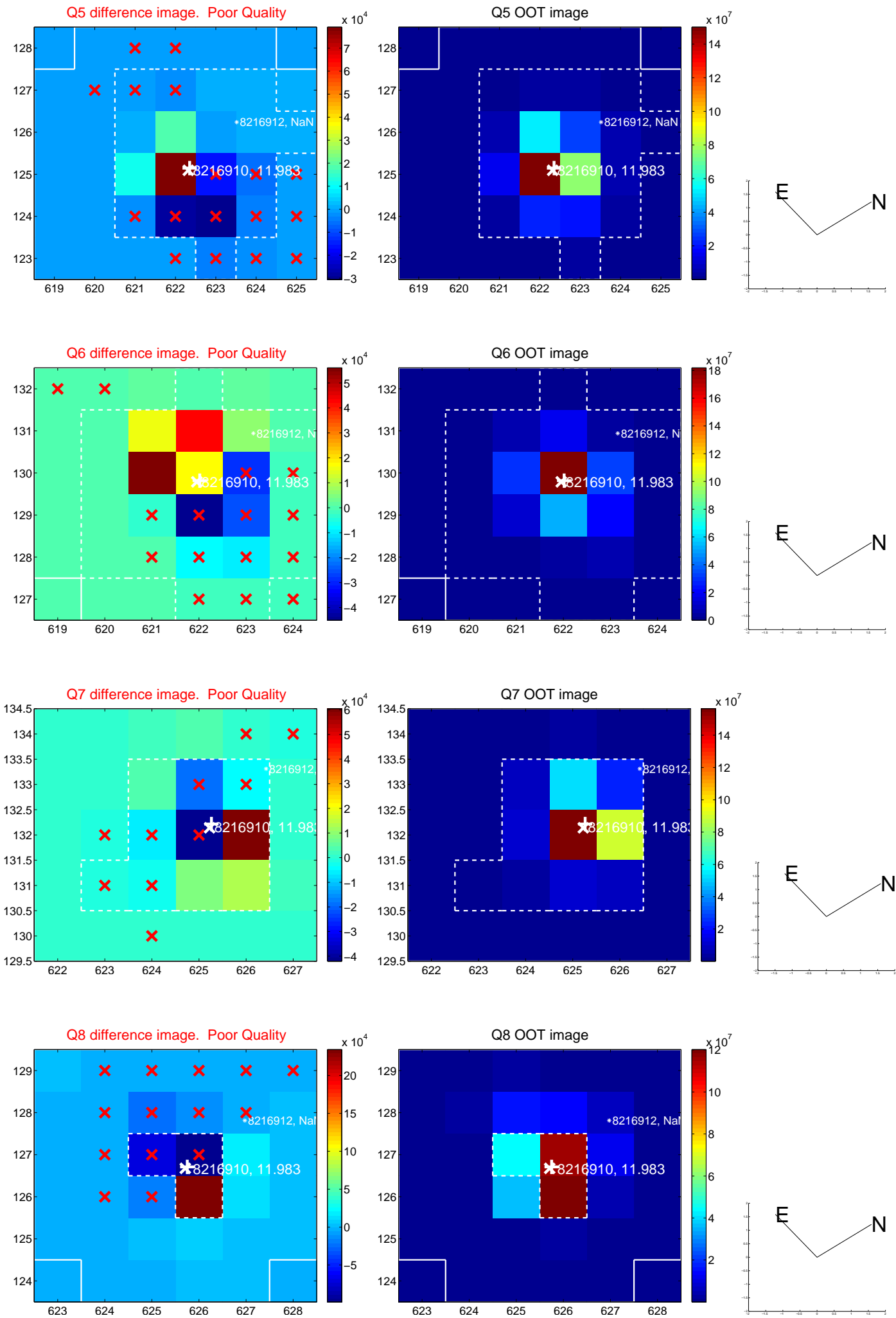


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

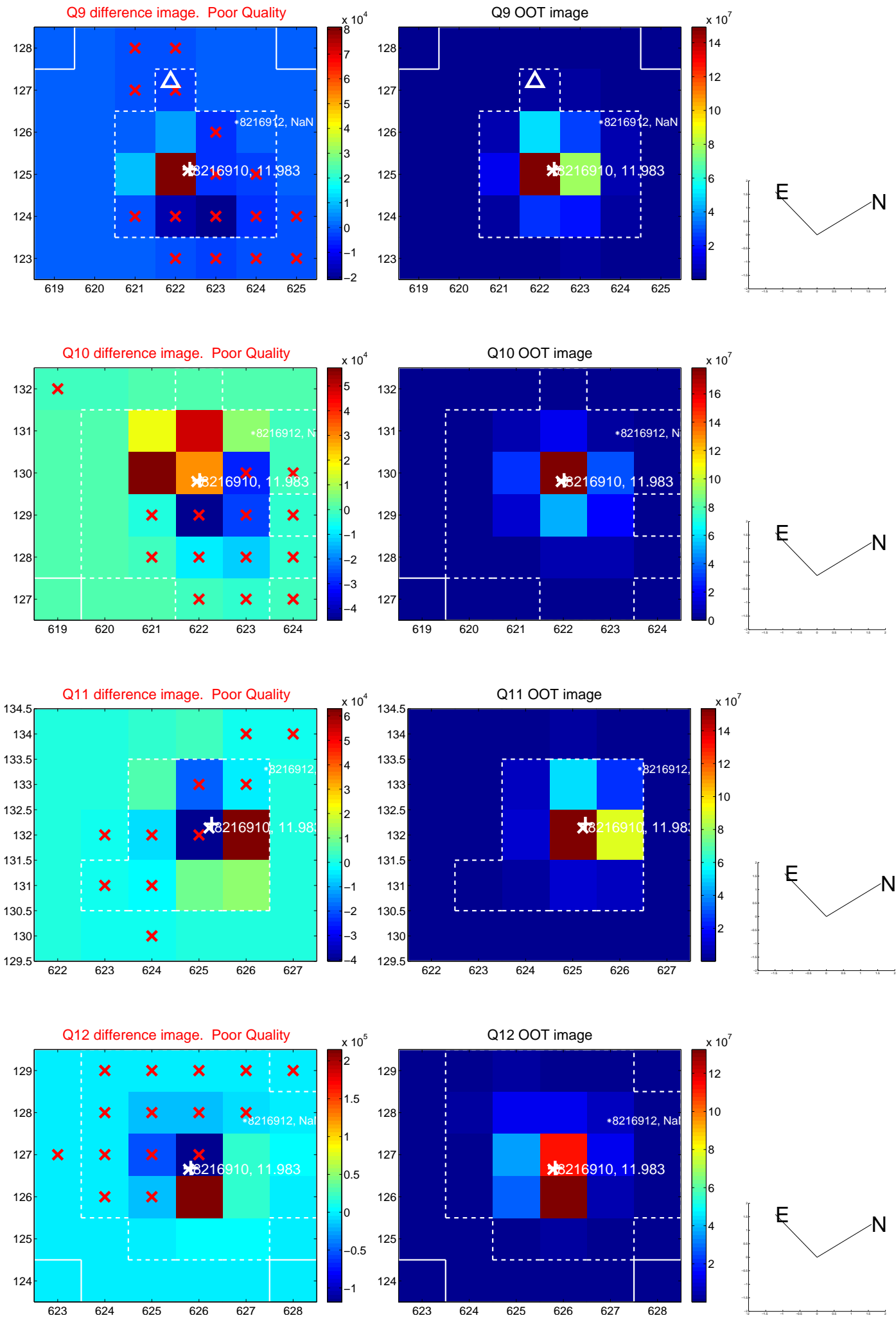


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

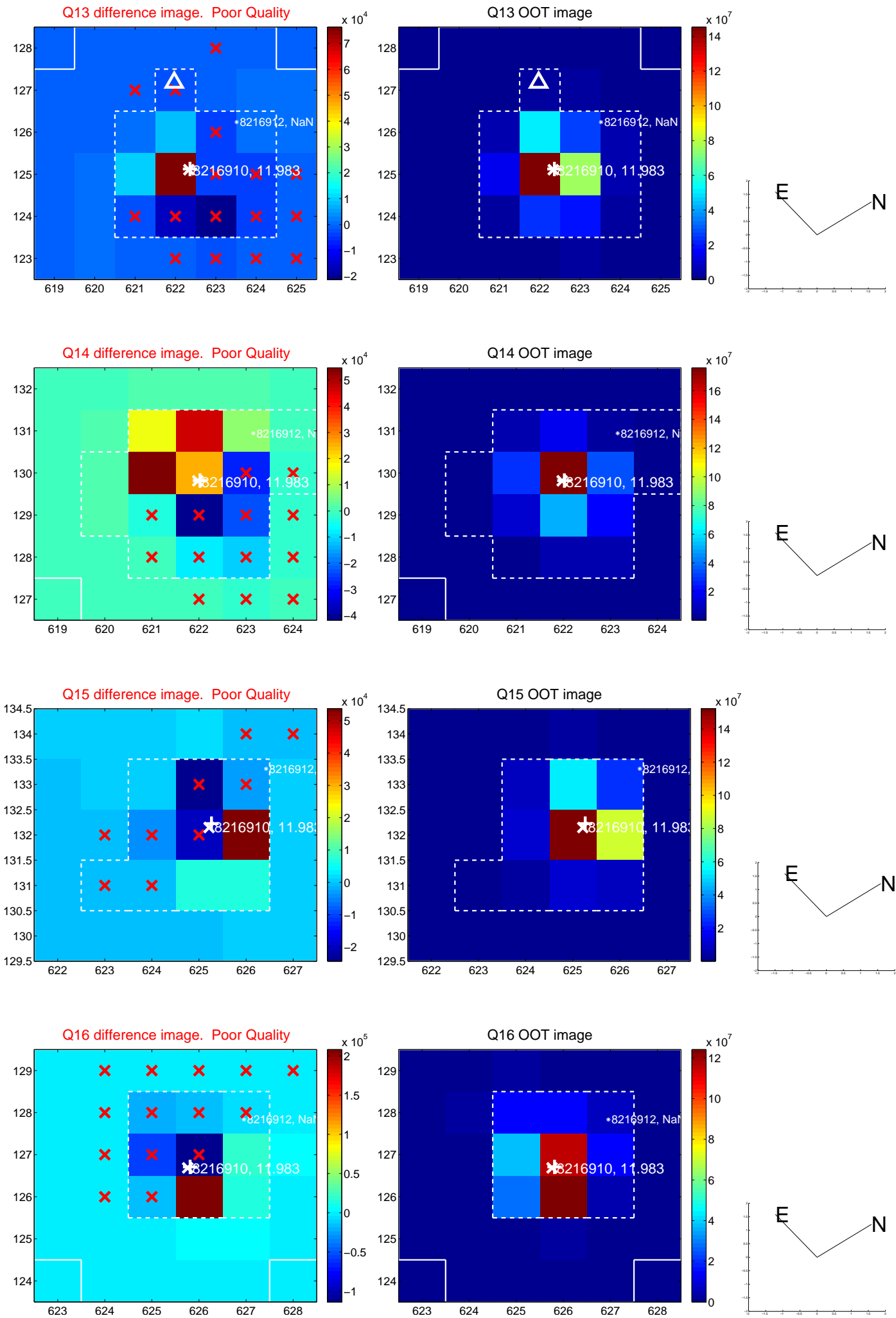




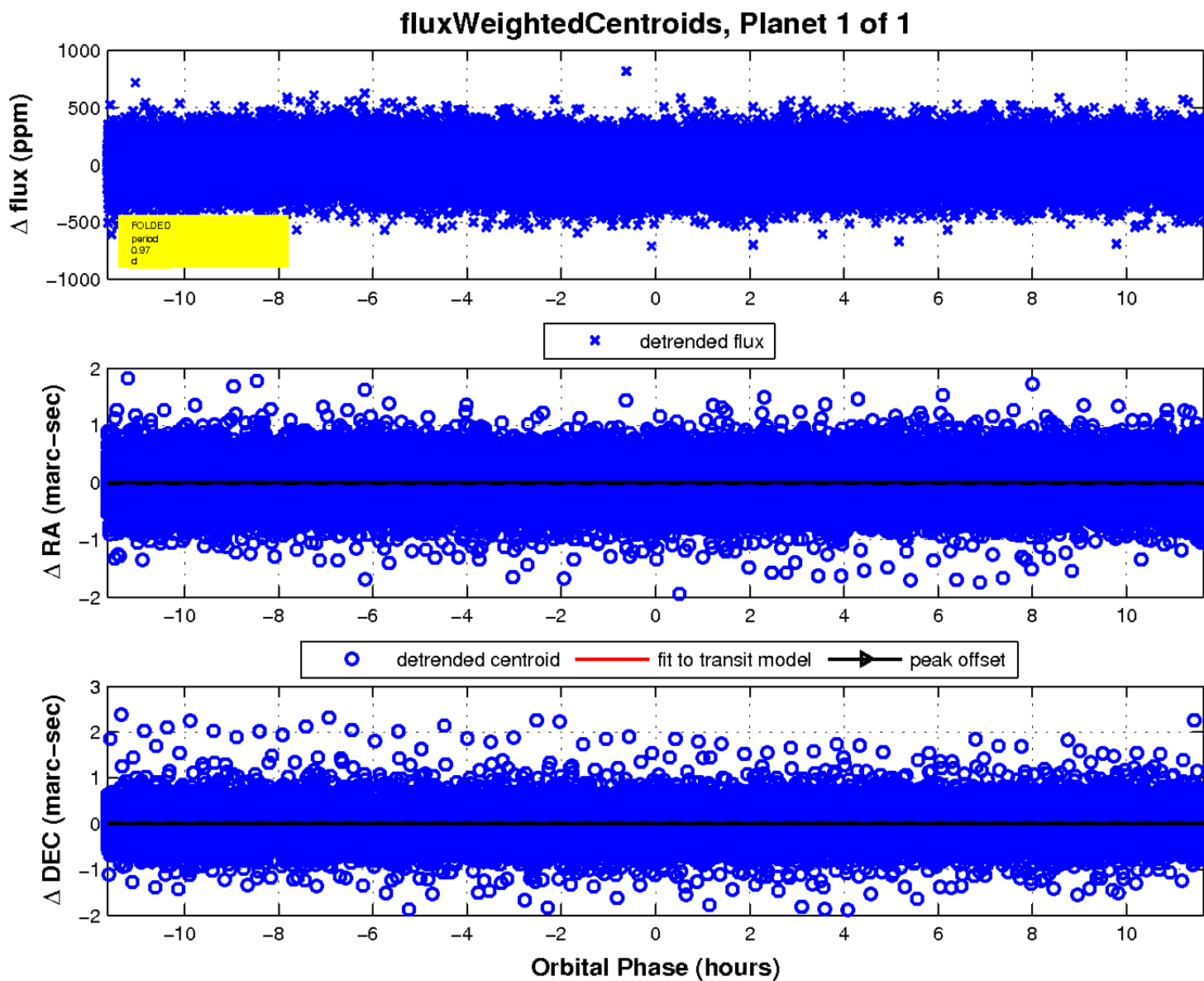
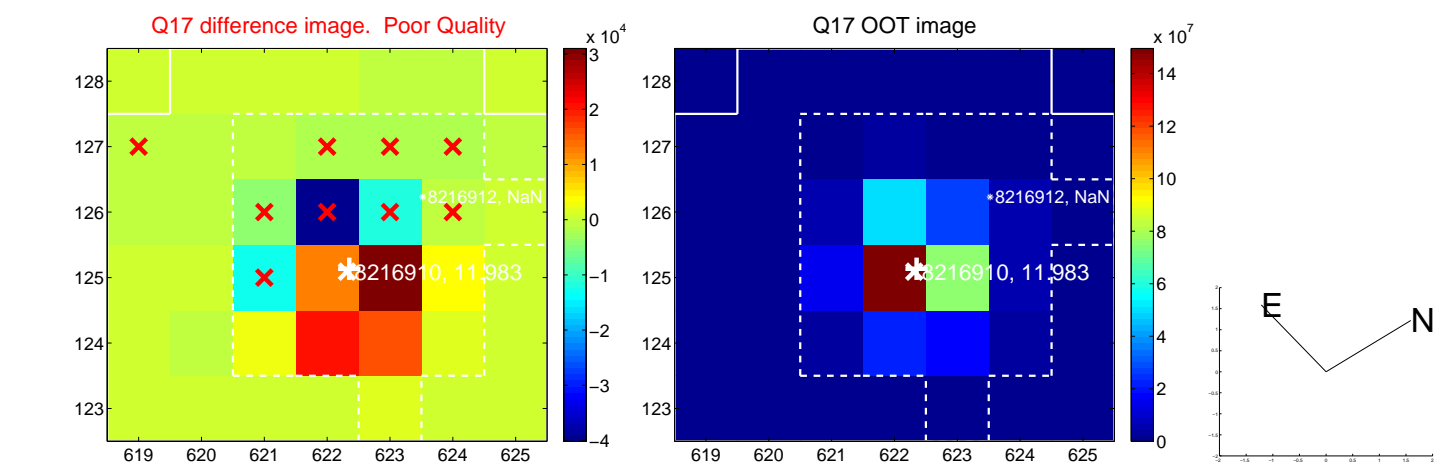
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

