

# KIC 004851145

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
004851145-01	OBS	4688.01	1.235182	131.957490	85.6	3.723	9.9	9.4	0.96	5999	0.91	2039.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851145-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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 004851145-01

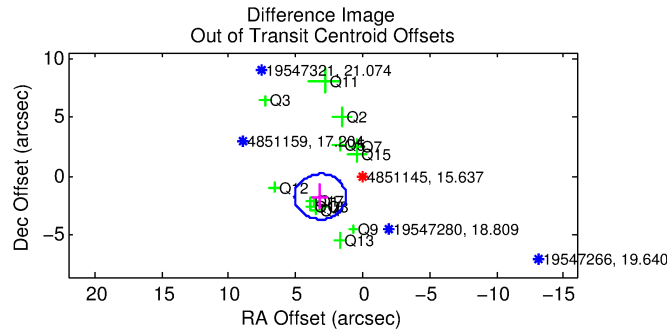
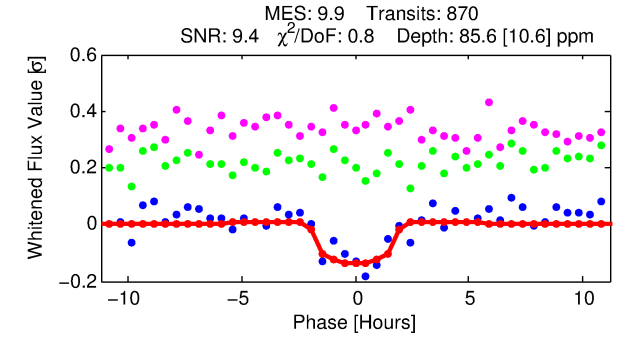
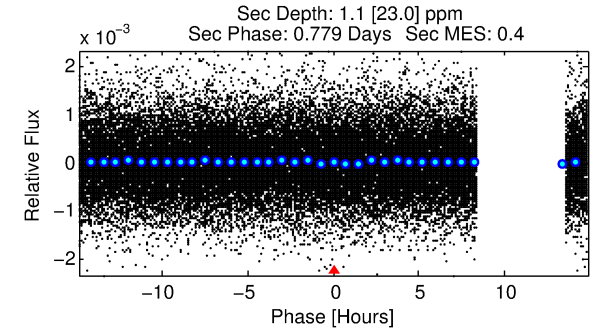
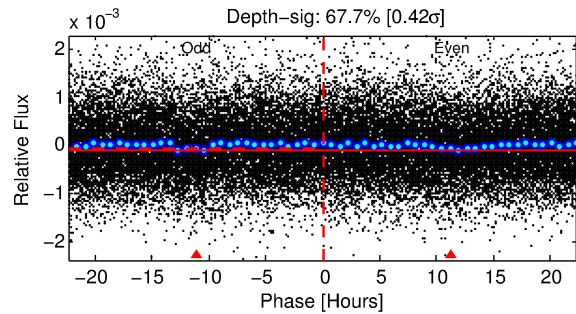
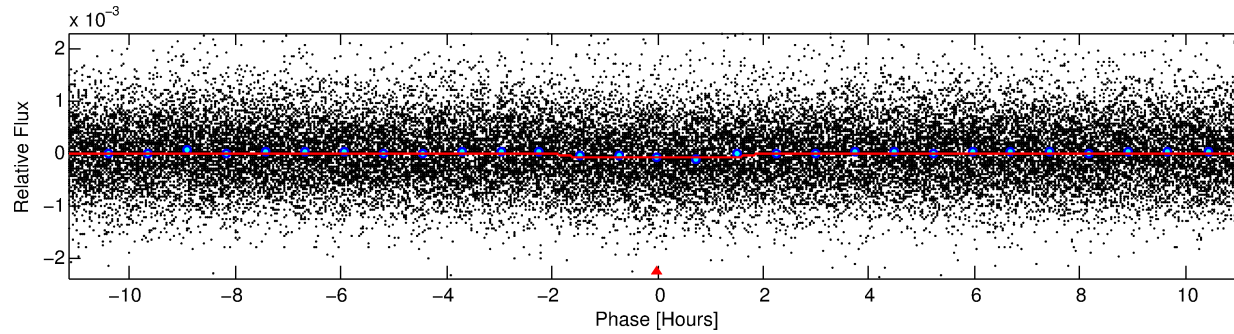
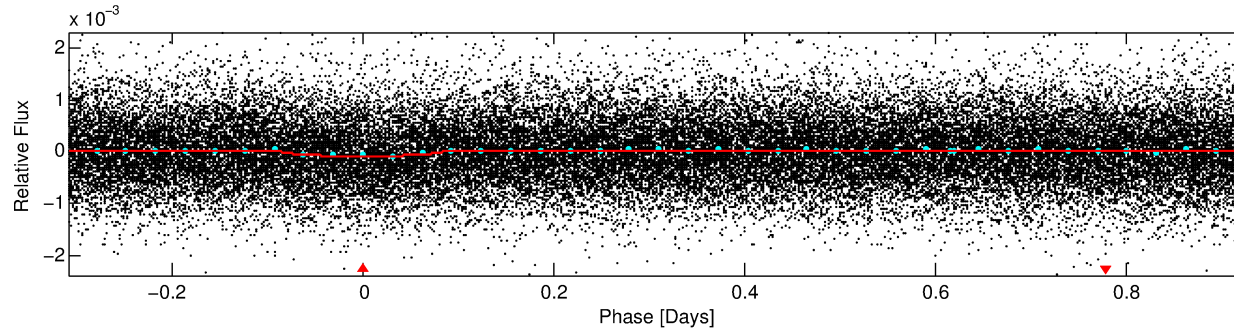
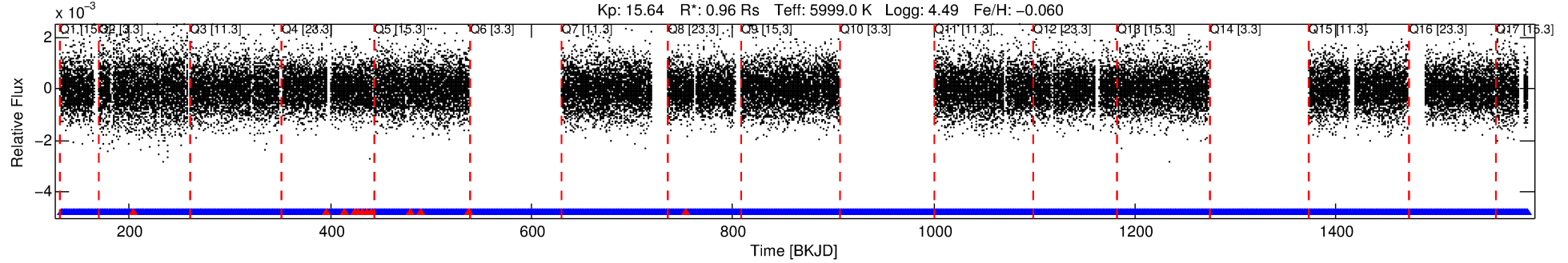
TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
004851145-01	4851145	004851217-01	4851217	1:1	90.8	22	-2	11.11	15.64	102.99	Direct-PRF	0	3.49	2.96

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 4851145 Candidate: 1 of 1 Period: 1.235 d  
KOI: K04688.01 Corr: 0.791

Kp: 15.64 R\*: 0.96 Rs Teff: 5999.0 K Logg: 4.49 Fe/H: -0.060



## DV Fit Results:

Period = 1.23518 [0.00001] d  
Epoch = 131.9575 [0.0051] BKJD  
Rp/R\* = 0.0087 [0.0074]  
a/R\* = 2.32 [7.55]  
b = 0.51 [5.83]  
Seff = 2039.14 [711.79]  
Teq = 1714 [150] K  
Rp = 0.91 [0.81] Re  
a = 0.0229 [0.0051] AU  
Ag = 0.38 [7.97] [-0.08σ]  
Teff = 2085 [10836] K [0.03σ]

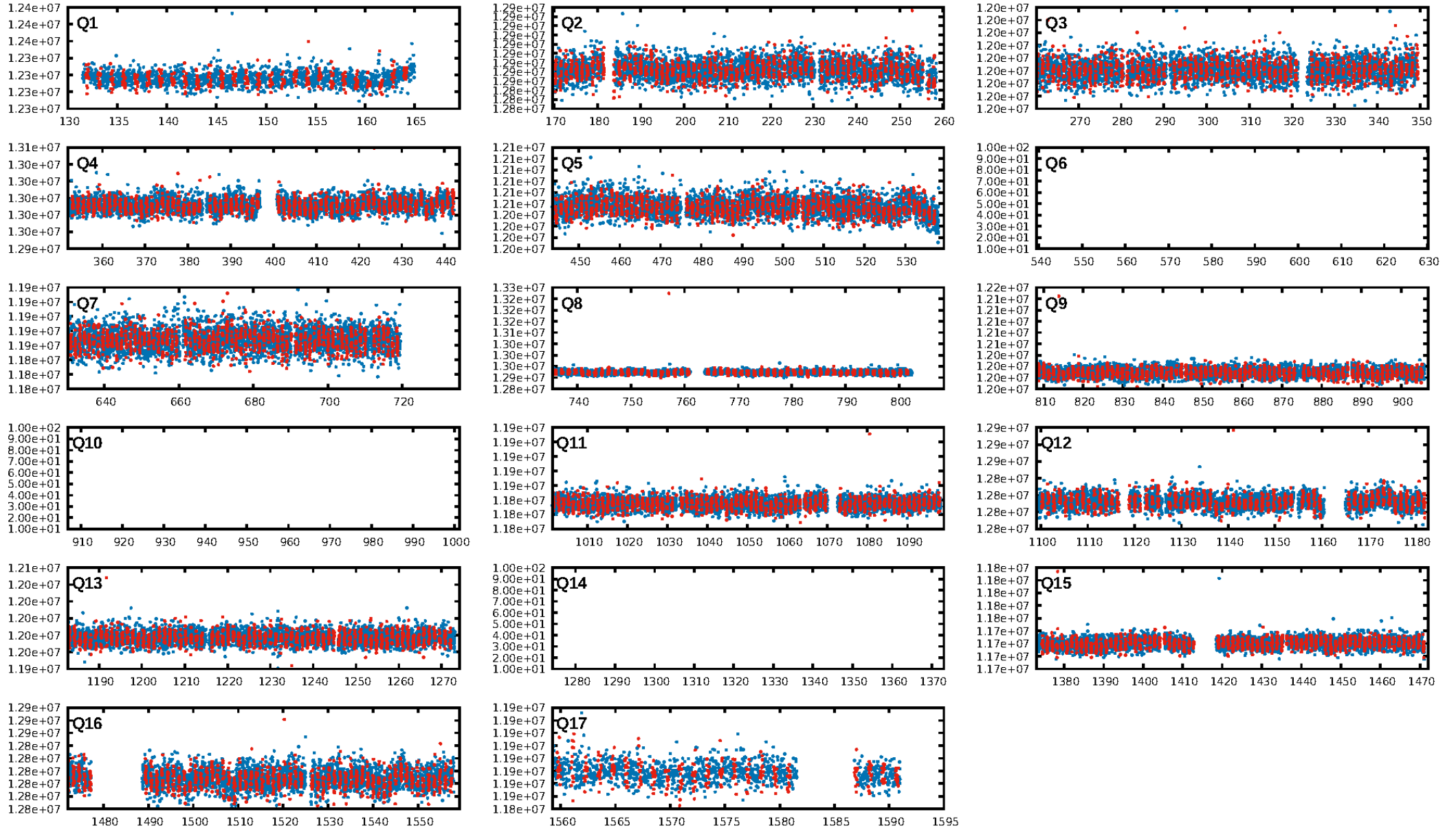
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.77e-21  
RollingBand-fgt: 0.99 [809/821]  
GhostDiagnostic-chr: 0.1423  
Centroid-sig: 0.0%  
Centroid-so: 4.171 arcsec [2.67σ]  
OotOffset-rm: 3.603 arcsec [5.63σ]  
KicOffset-rm: 3.591 arcsec [5.39σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 1.00 [14/14]

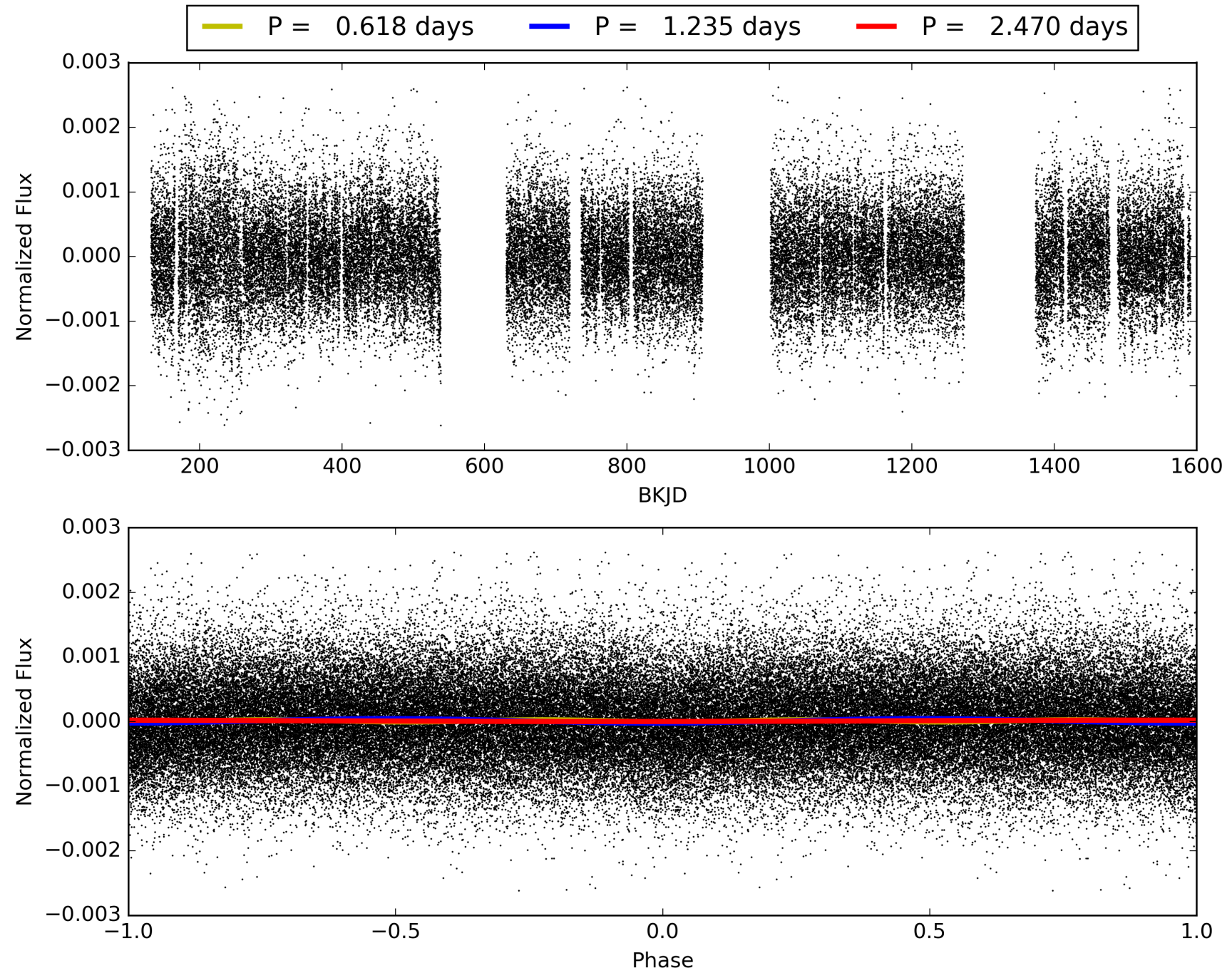
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:09:58 Z

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

# TCE 004851145-01, PDC Light Curves

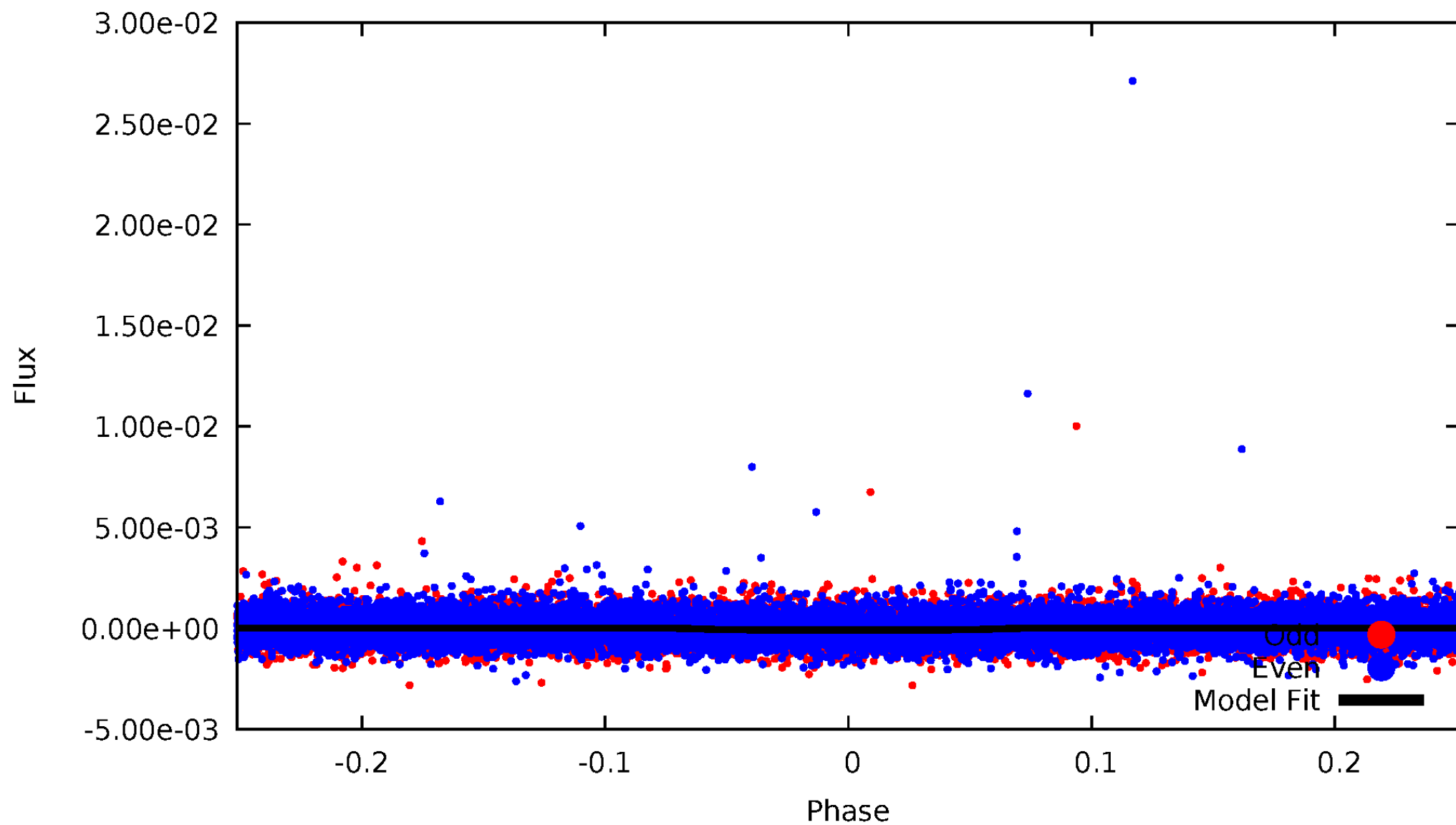


TCE 004851145-01



# DV Odd/Even

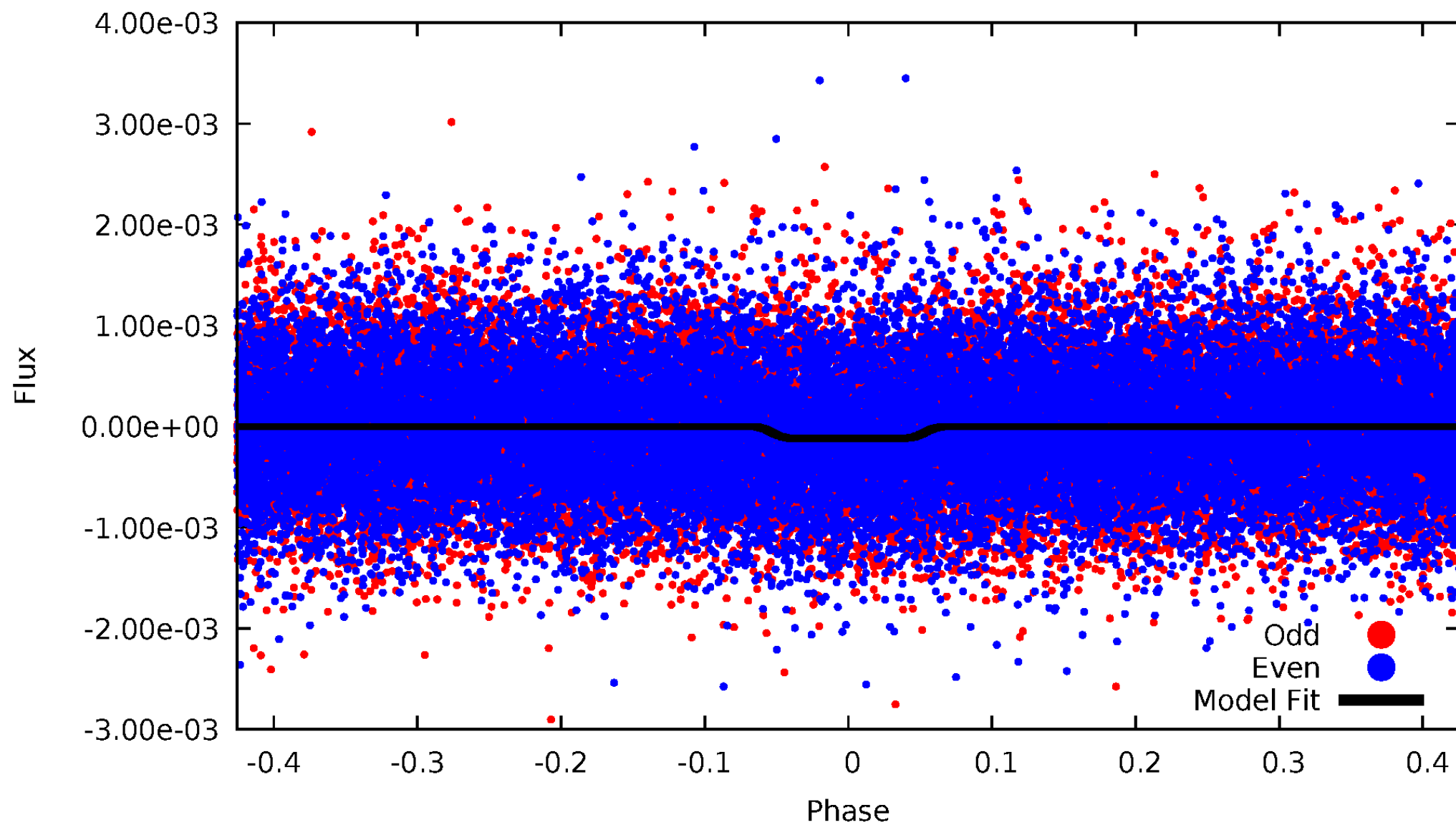
TCE 004851145-01



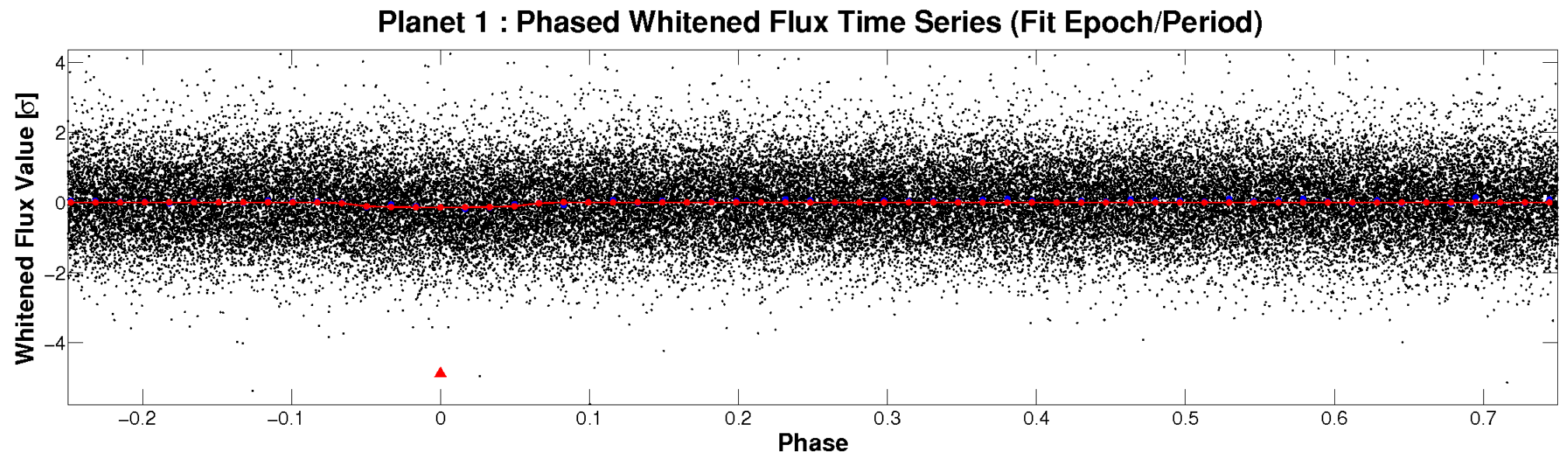
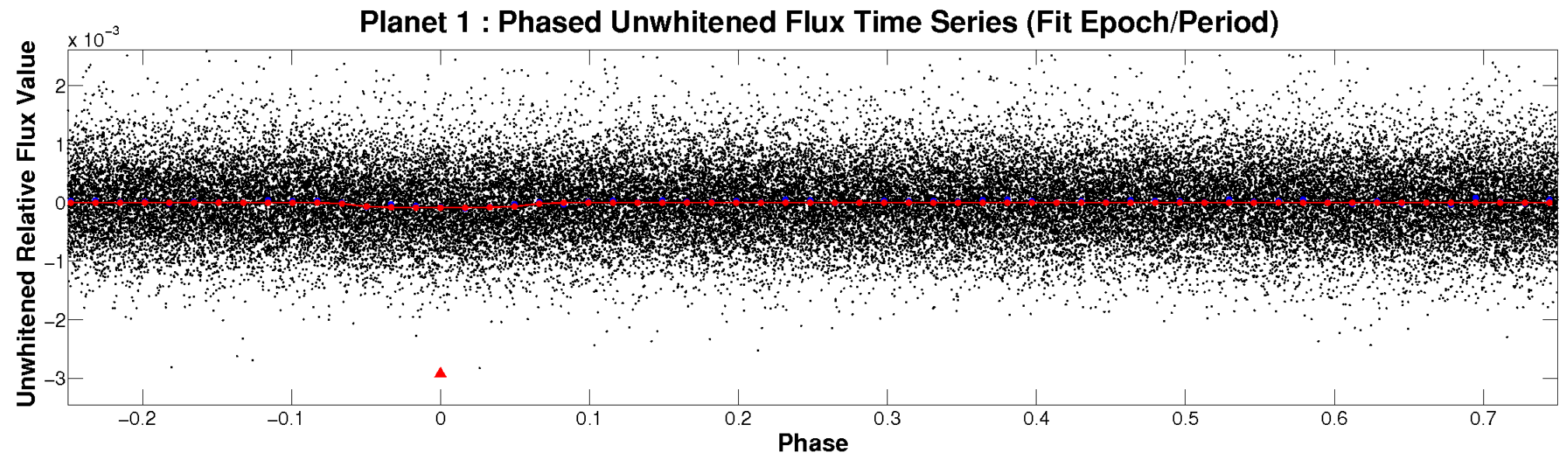


# ALT Odd/Even

TCE 004851145-01

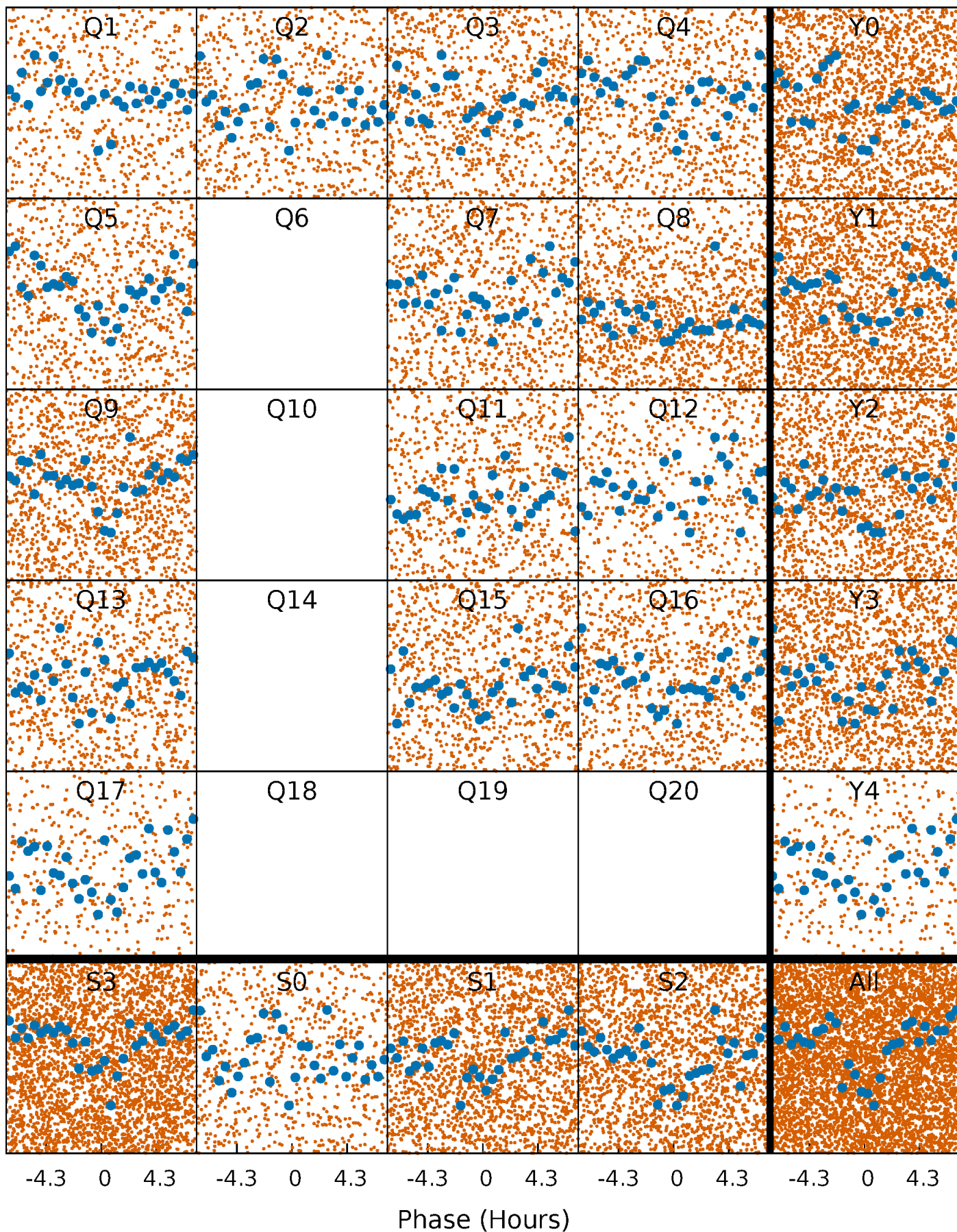


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

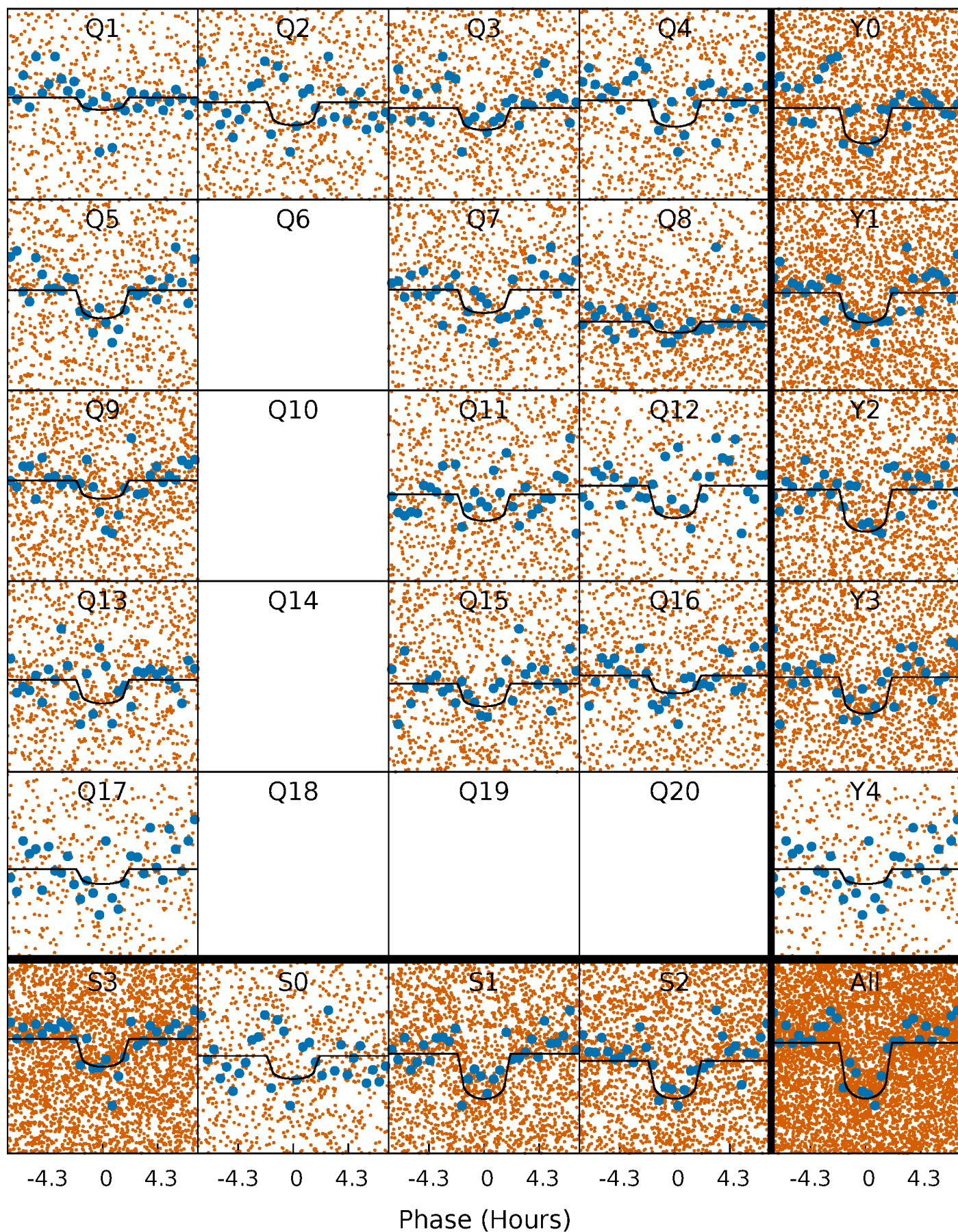
TCE 004851145-01 P= 1.235182 Days  $T_0=131.957490$  (BKJD)





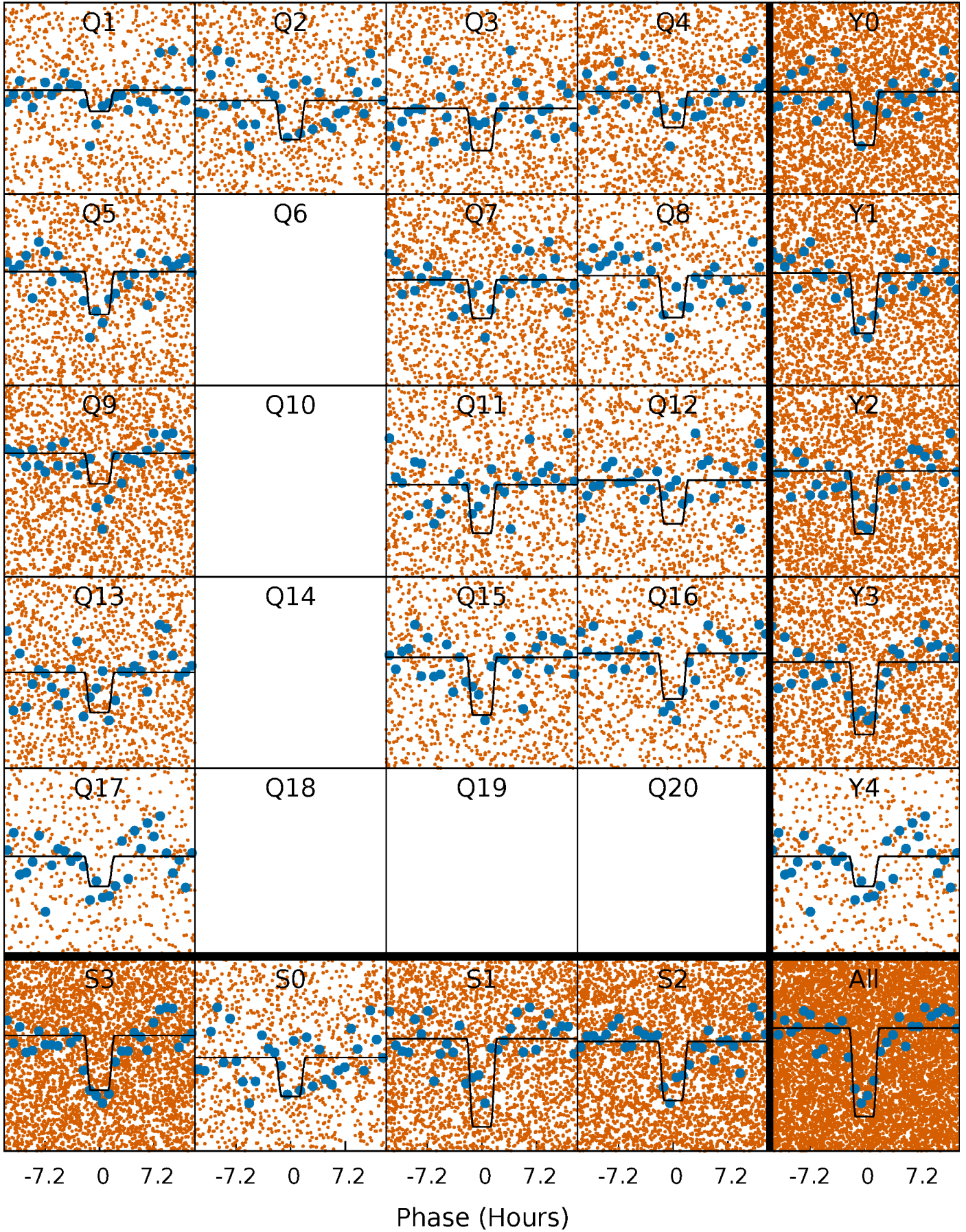
# DV Quarter-Phased Transit Curves

TCE 004851145-01 P= 1.235182 Days  $T_0=131.957490$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004851145-01 P= 1.235132 Days  $T_0=131.994618$  (BKJD)

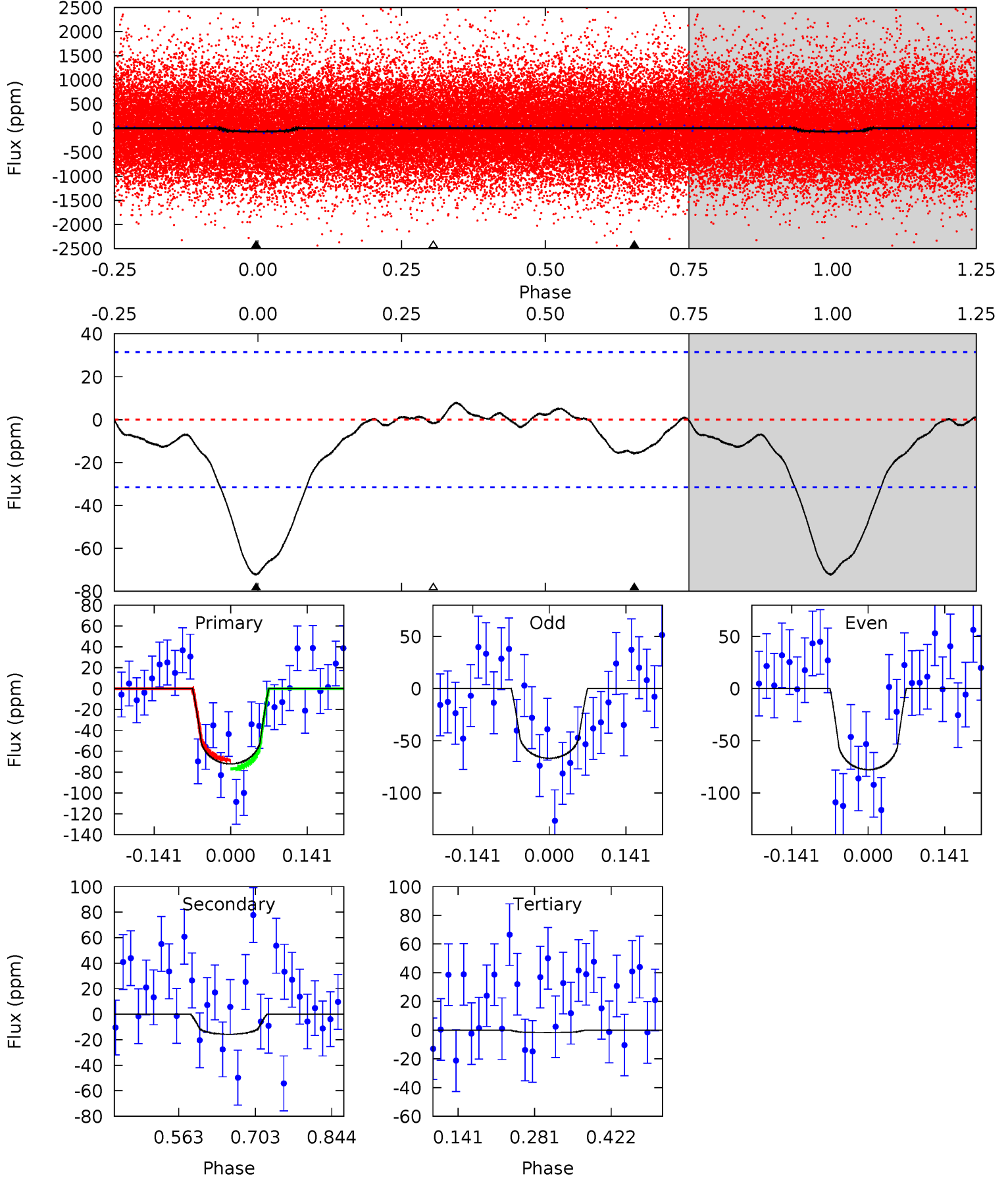




# DV Model-Shift Uniqueness Test

004851145-01, P = 1.235182 Days, E = 130.722308 Days

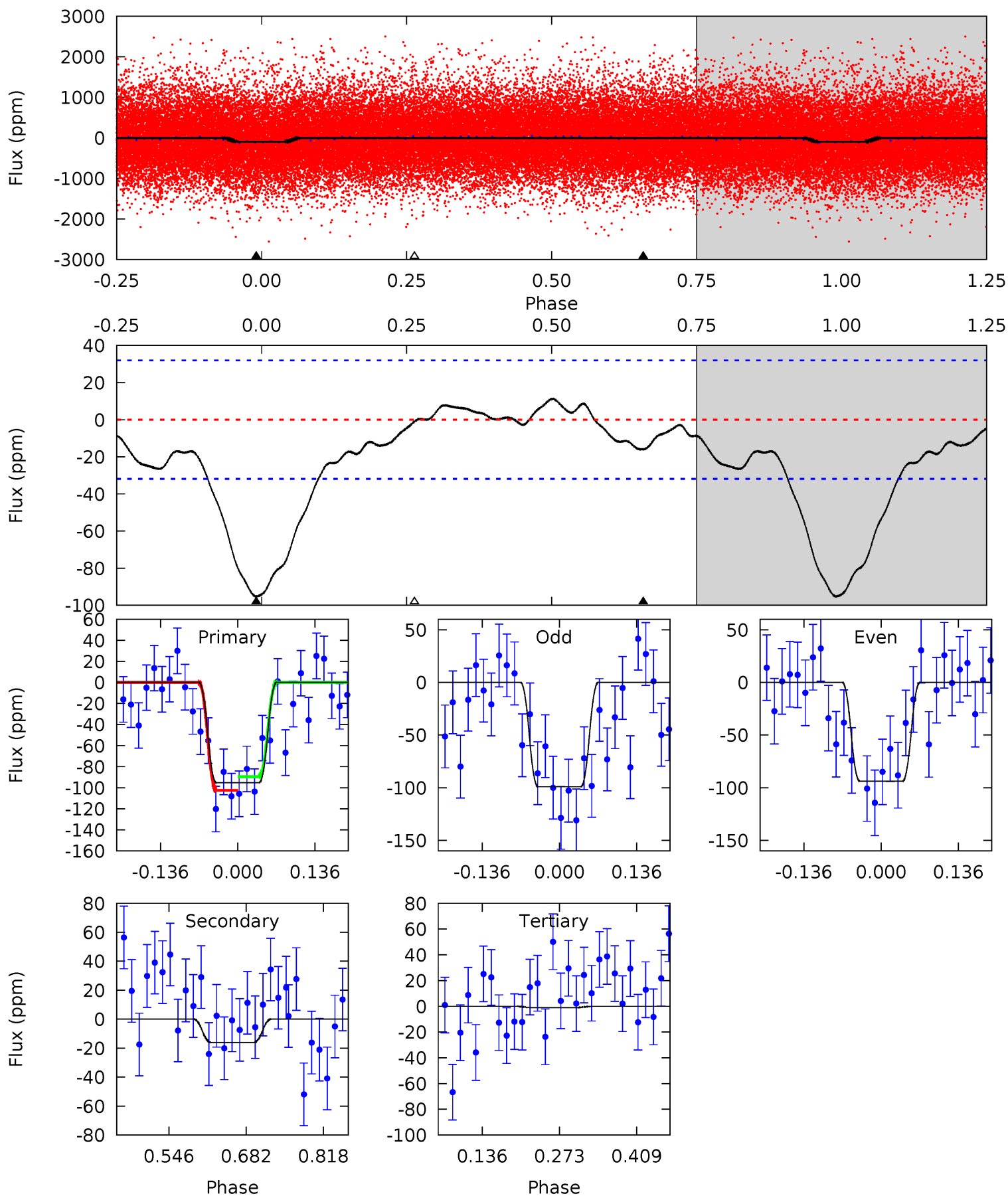
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	2.24	0.23	0	4.49	1.47	0.73	10.1	10.3	2.01	2.24	0.78	1.01	0.10	0.60



# Alt Model-Shift Uniqueness Test

004851145-01, P = 1.235132 Days, E = 130.759486 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
13.4	2.26	0.14	0	4.50	1.49	1.58	13.3	13.4	2.11	2.26	0.37	0.99	0.11	0.90





### Stellar Parameters For KIC 004851145

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5999^{+180}_{-198}$	$4.494^{+0.044}_{-0.176}$	$-0.060^{+0.300}_{-0.300}$	$0.959^{+0.255}_{-0.102}$	$1.045^{+0.129}_{-0.129}$	$1.670^{+0.387}_{-0.778}$
	+3%/-3%	+1%/-4%	+500%/-500%	+27%/-11%	+12%/-12%	+23%/-47%
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 004851145-01 / KOI 4688.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-16 \pm 7$	$1.06^{+0.77}_{-0.65}$	$2443^{+145}_{-108}$	$4003^{+2135}_{-868}$	$3.748^{+21.220}_{-2.709}$
Alt.	$-16 \pm 7$	$1.27^{+0.85}_{-0.71}$	$2445^{+162}_{-109}$	$3788^{+1622}_{-773}$	$2.694^{+12.563}_{-1.860}$

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

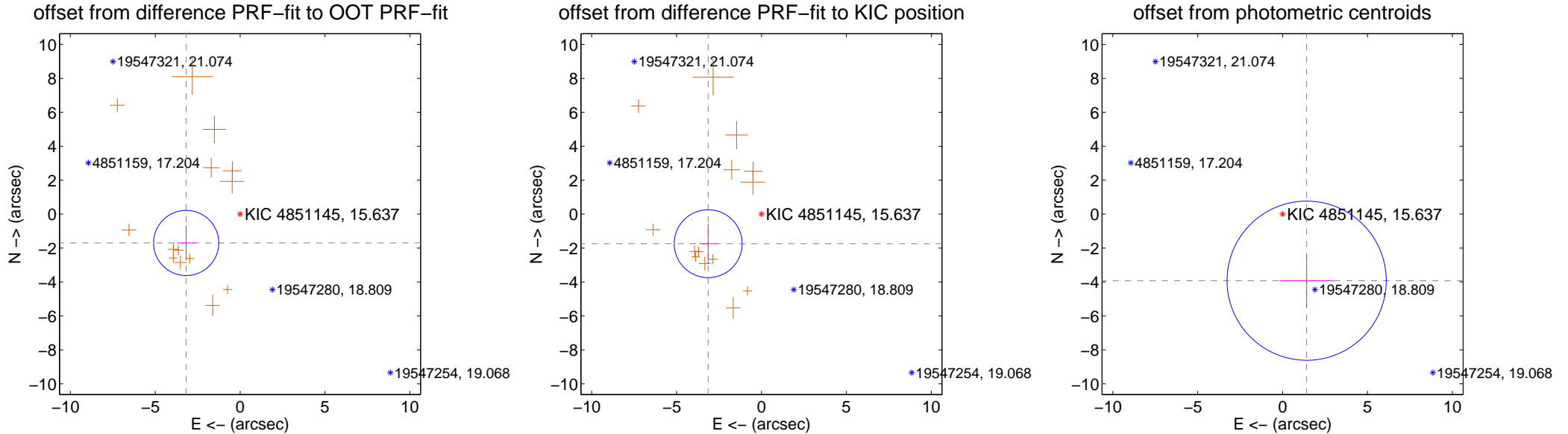
## DV Centroid Data

Supplemental centroid analysis for 004851145-01. Kepler magnitude: 15.64. Transit SNR 9.41

There are 0 quarters with good PRF difference image offsets

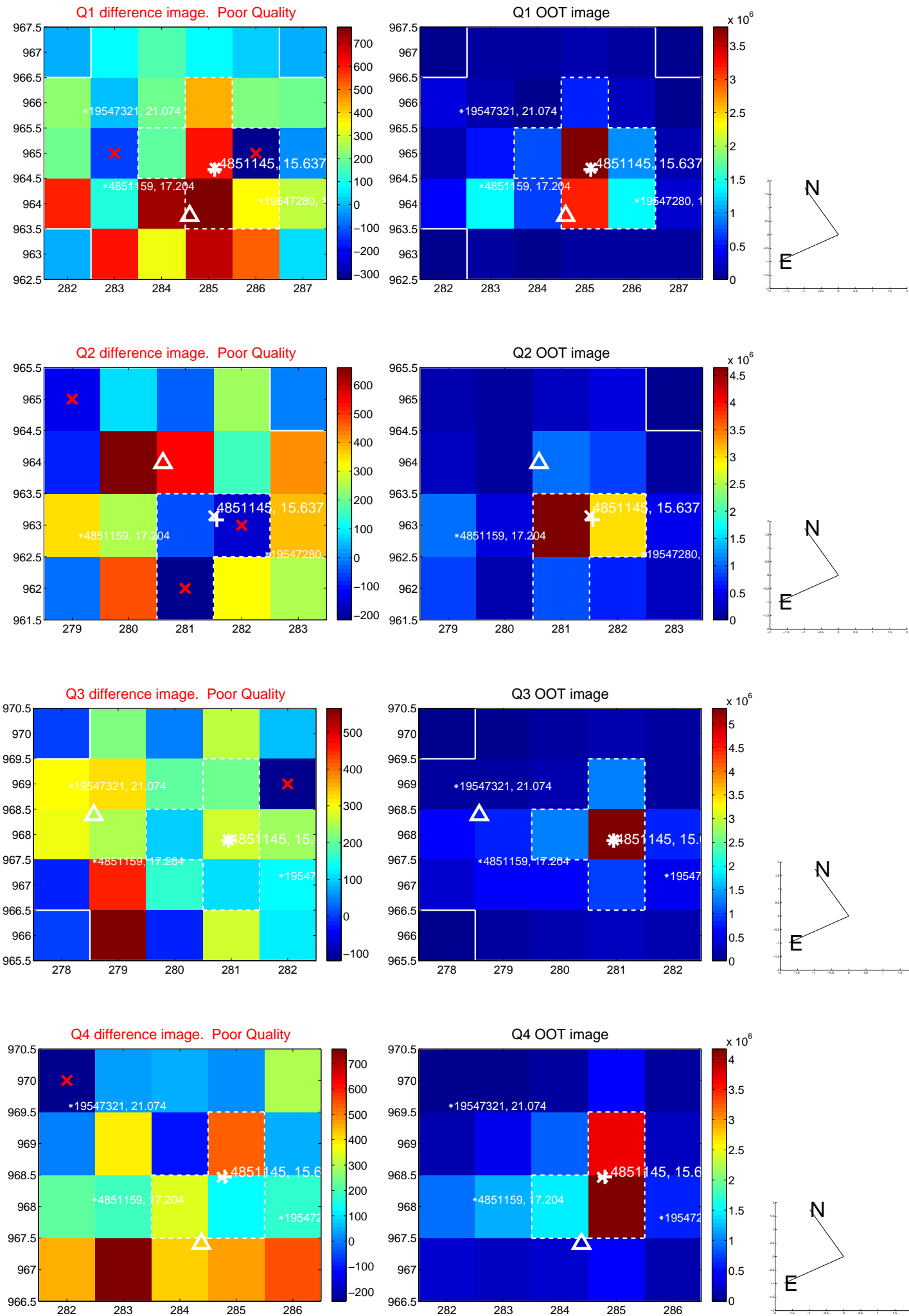
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.603 \pm 0.640$	5.63	$3.177 \pm 0.536$	$-1.699 \pm 1.020$
PRF-fit source offset from KIC position	$3.591 \pm 0.667$	5.39	$3.141 \pm 0.525$	$-1.742 \pm 1.187$
photometric centroid source offset	$4.17 \pm 1.56$	2.67	$-1.42 \pm 1.60$	$-3.92 \pm 1.56$

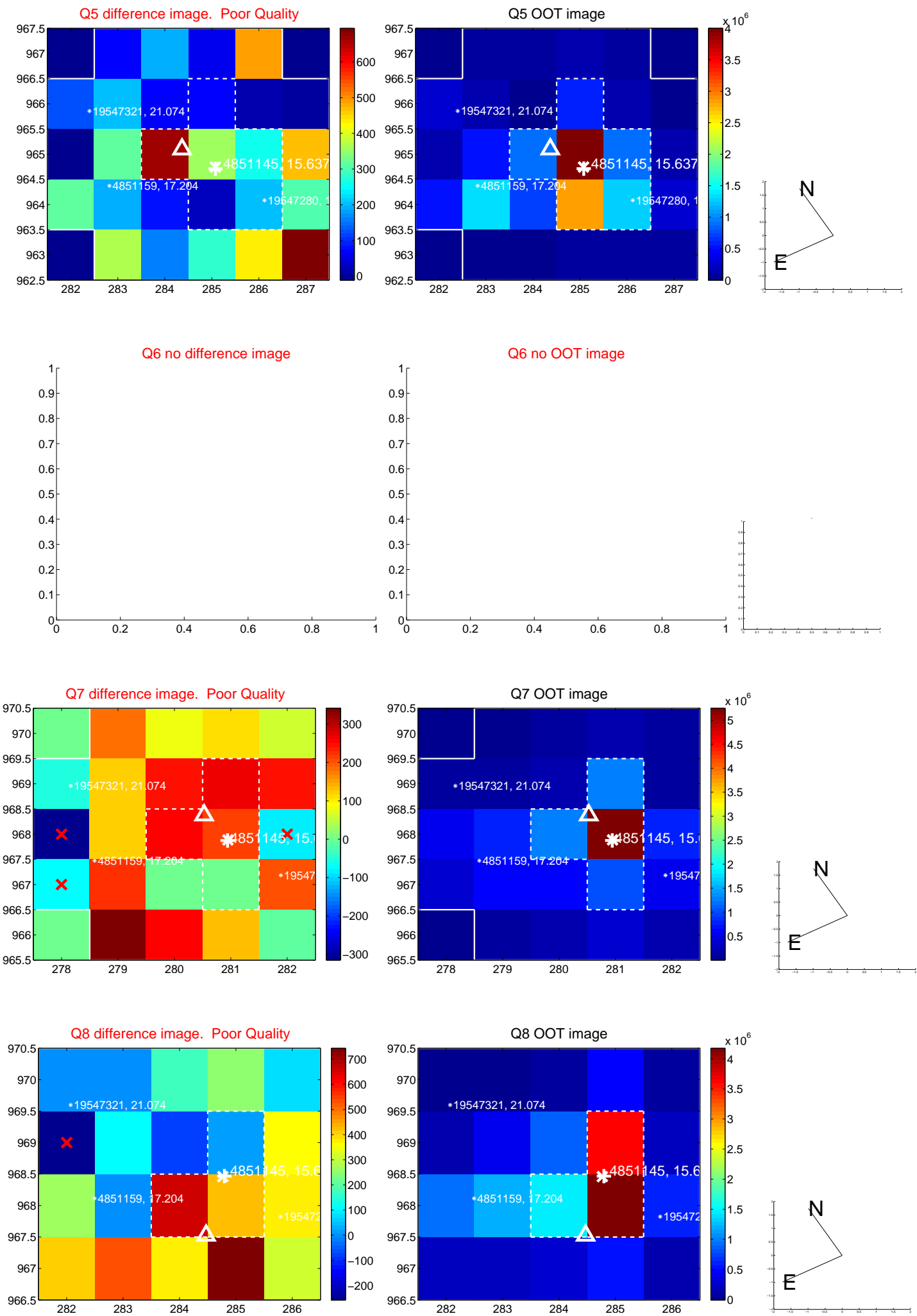


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

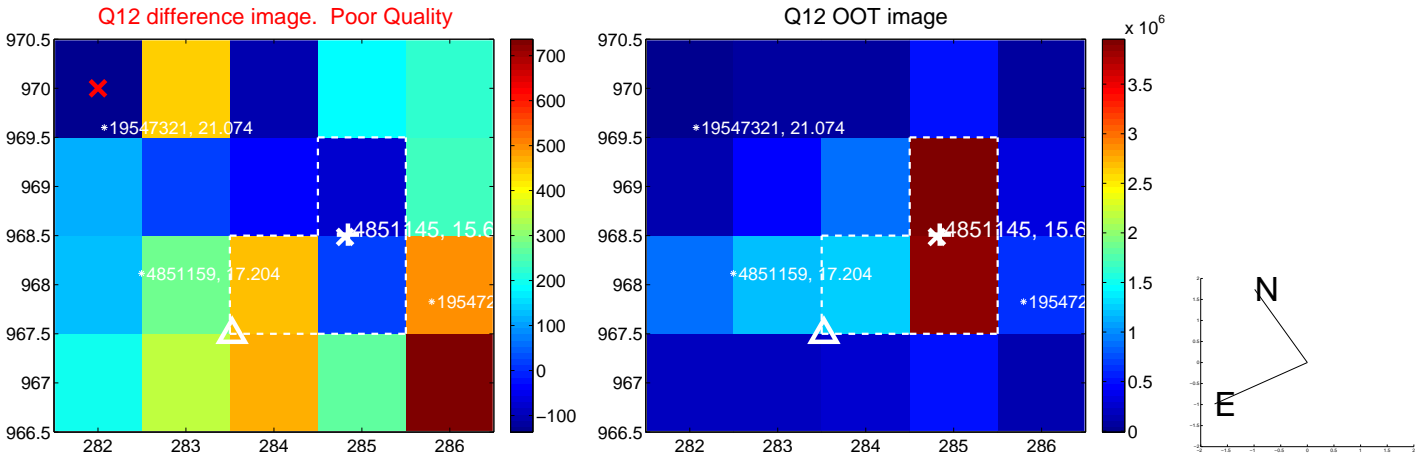
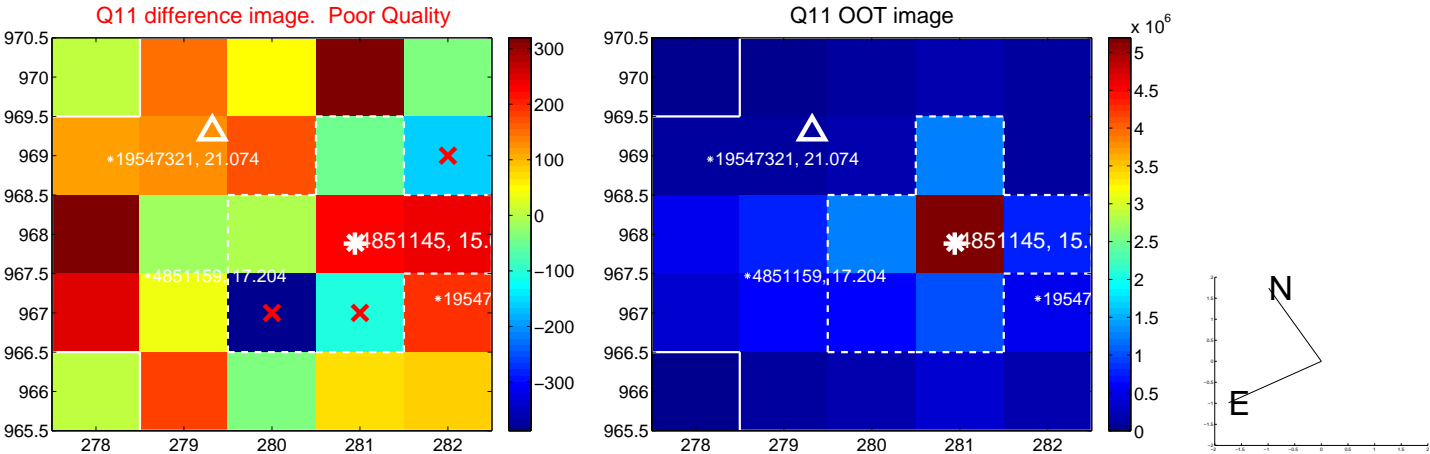
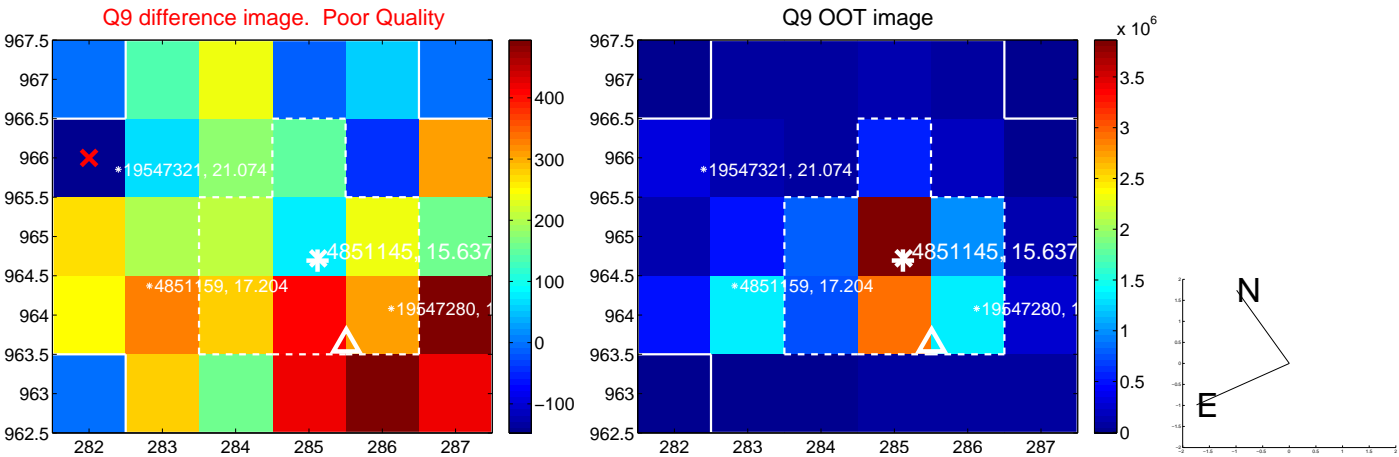


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

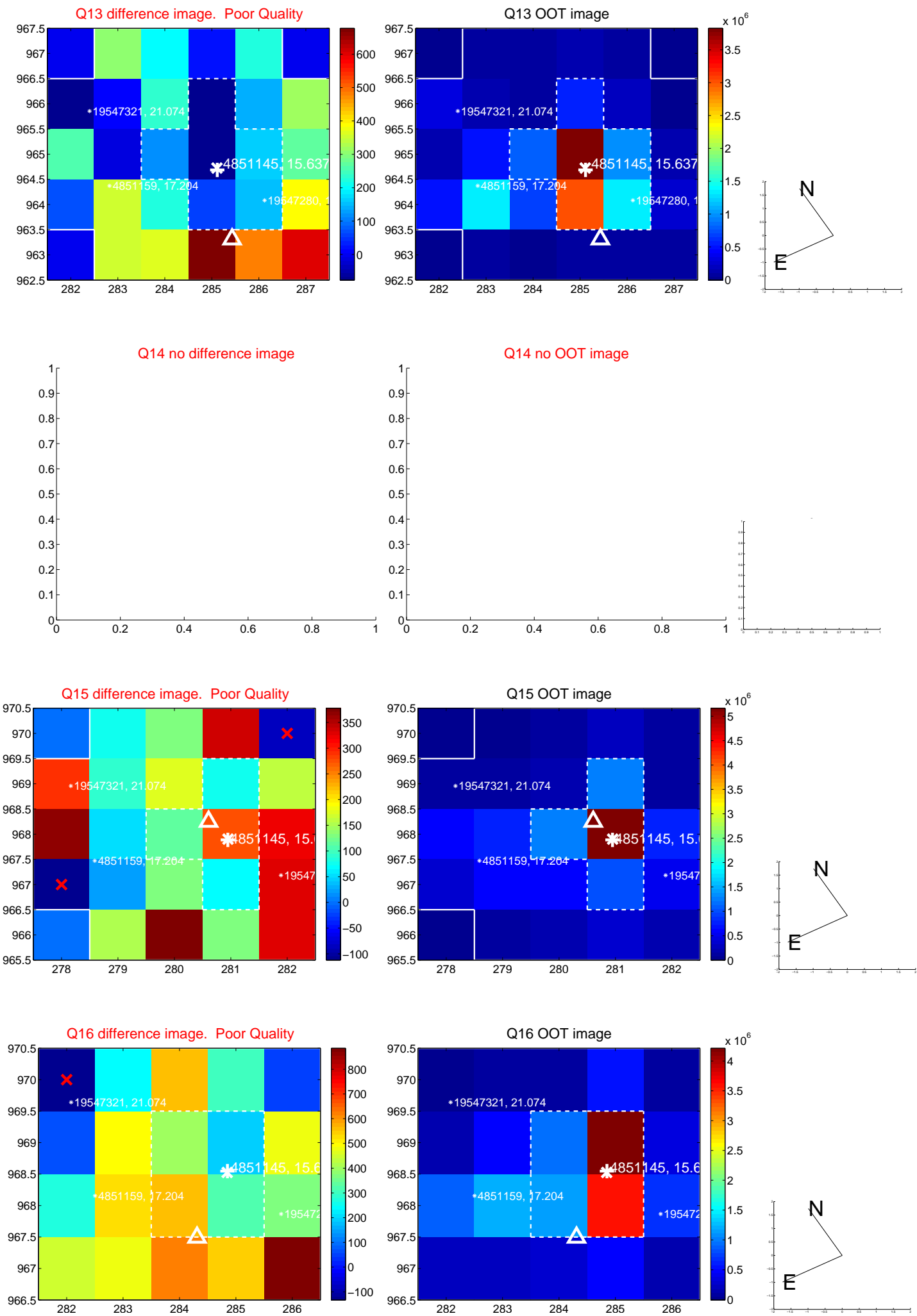




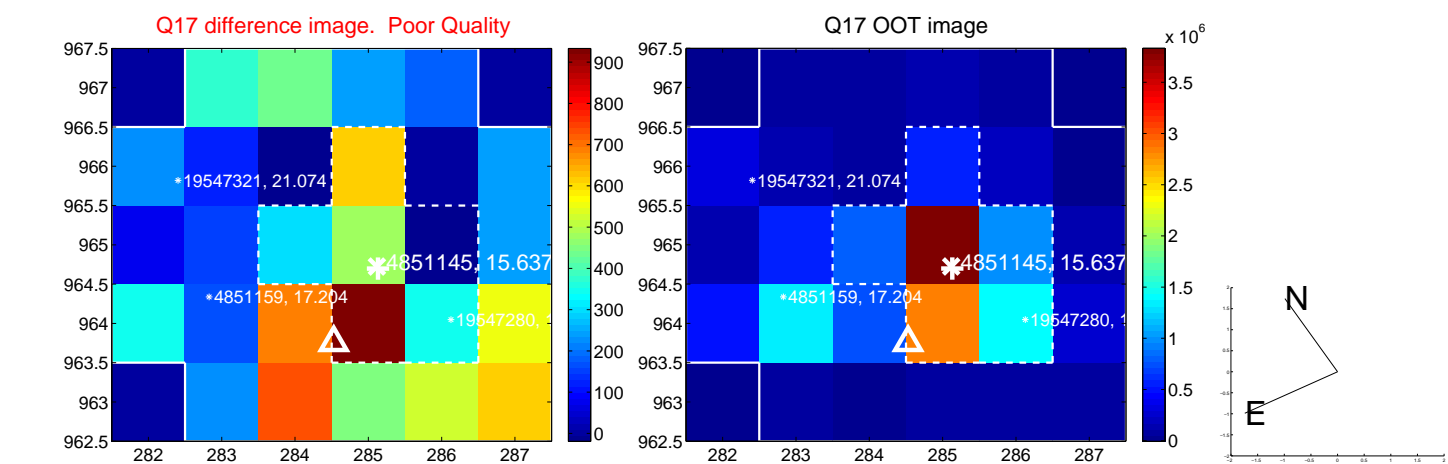
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



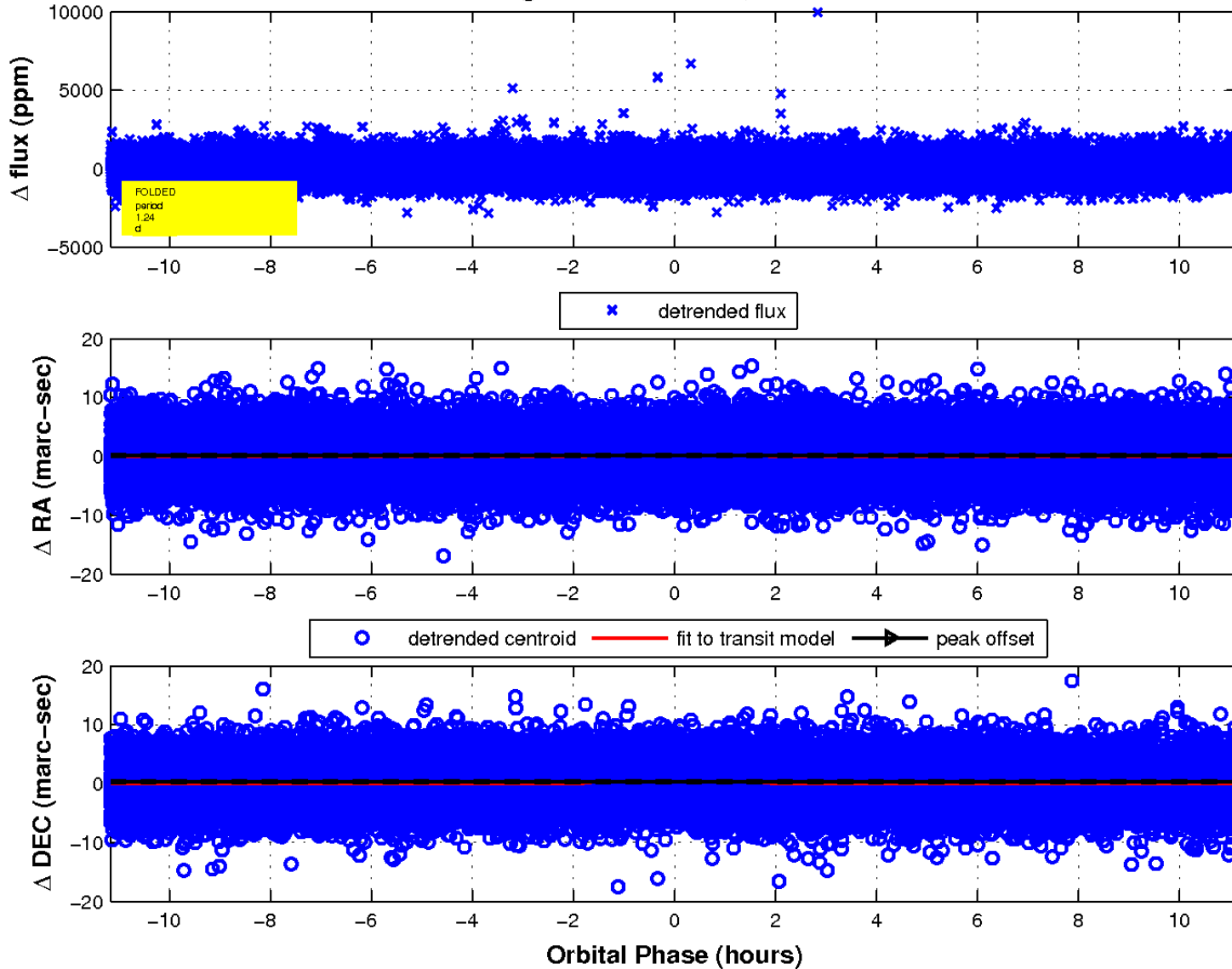
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

