

# KIC 008429415

## 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> )
008429415-01	OBS	2965.01	1.352529	132.068156	33.3	3.075	16.1	16.4	1.82	6463	1.26	8491.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008429415-01	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 008429415-01

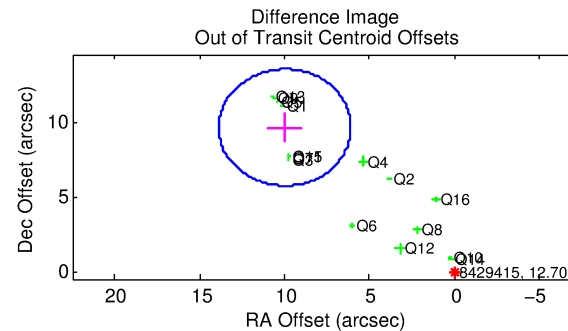
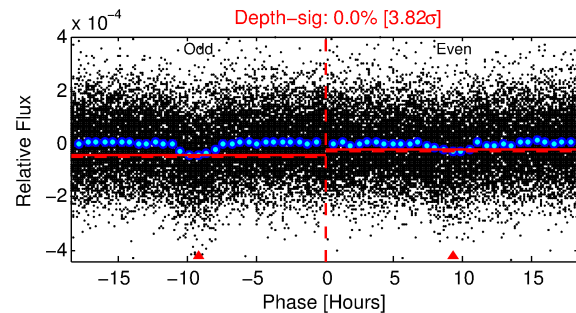
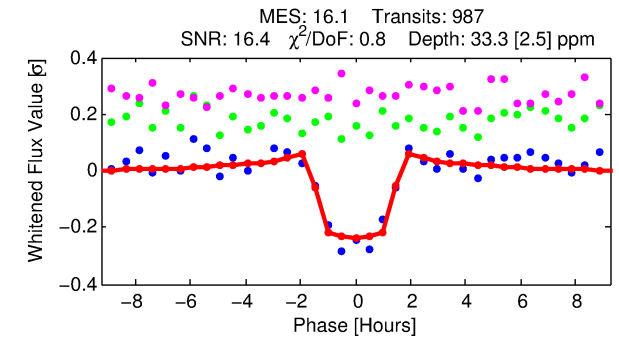
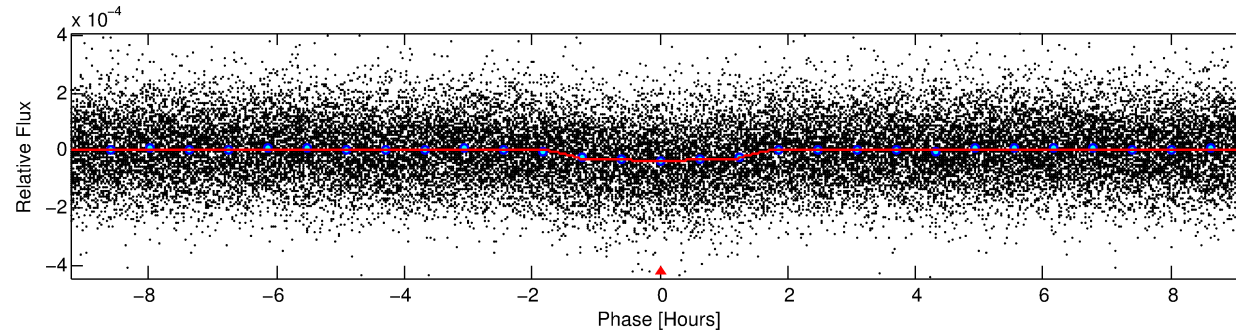
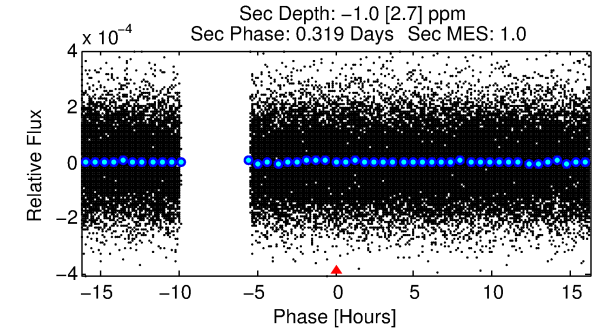
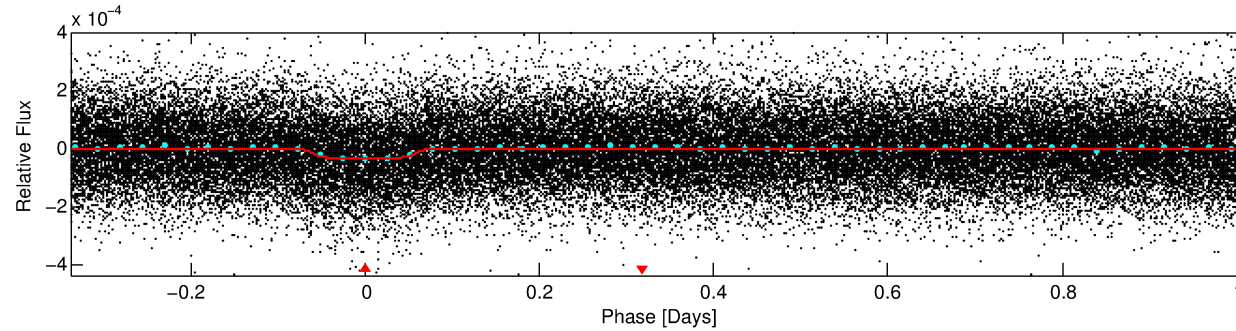
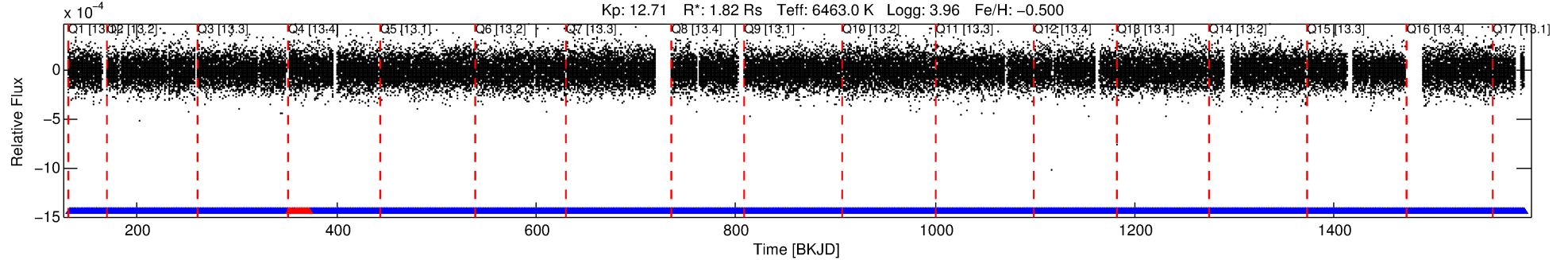
TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
008429415-01	8429415	7039.01	8429450	1:1	28.6	7	-1	13.11	12.71	9795.50	Direct-PRF	0	2.95	2.01

**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: 8429415 Candidate: 1 of 1 Period: 1.353 d  
KOI: K02965.01 Corr: 0.902

Kp: 12.71 R\*: 1.82 Rs Teff: 6463.0 K Logg: 3.96 Fe/H: -0.500



## DV Fit Results:

Period = 1.35253 [0.00001] d  
Epoch = 132.0682 [0.0020] BKJD  
Rp/R\* = 0.0063 [0.0012]  
a/R\* = 1.64 [1.20]  
b = 0.92 [0.19]  
Seff = 8491.03 [4239.36]  
Teq = 2448 [306] K  
Rp = 1.26 [0.46] Re  
a = 0.0247 [0.0075] AU  
Ag = N/A  
Teffp = N/A

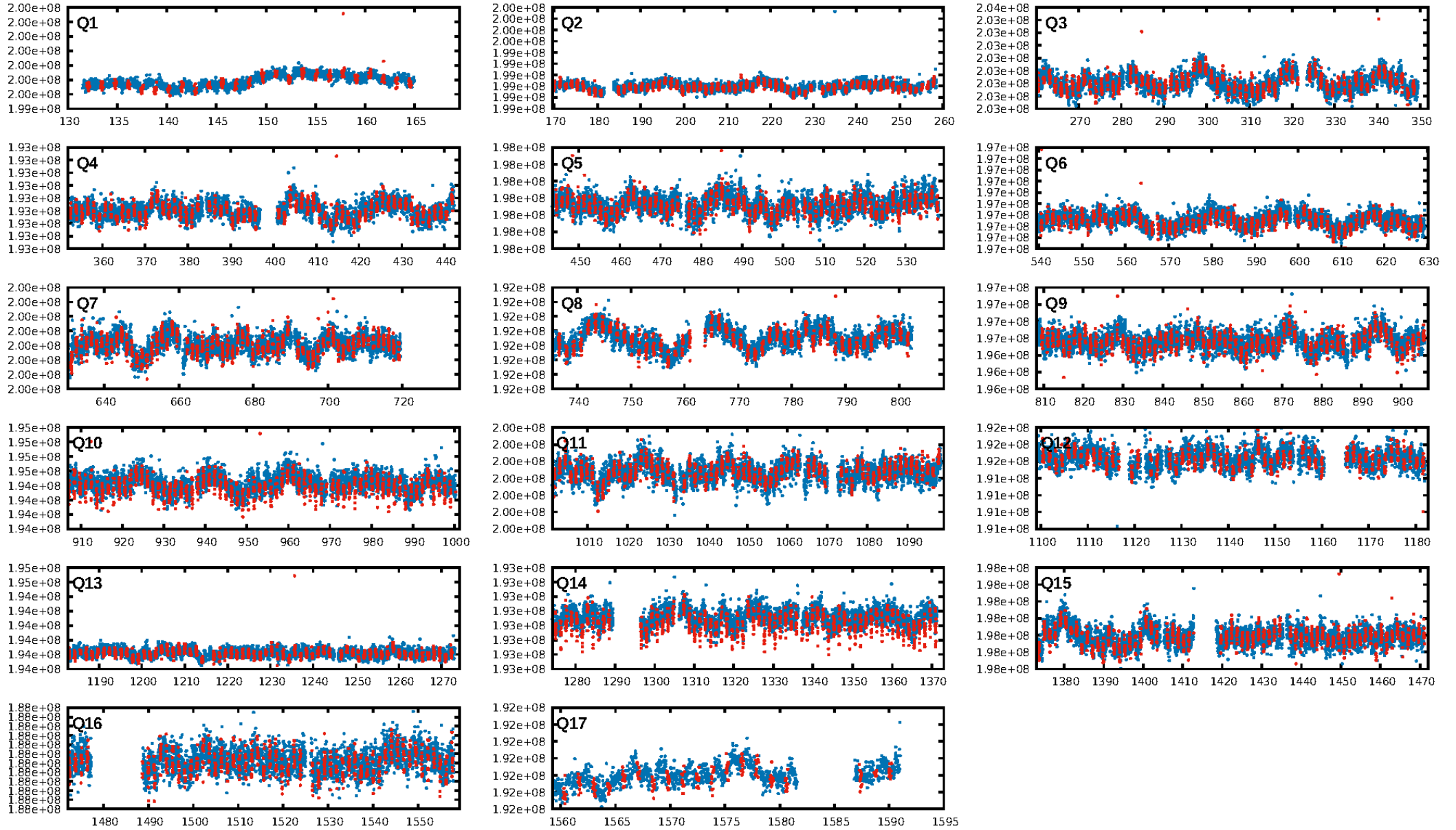
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.10e-52  
RollingBand-fgt: 0.99 [929/943]  
GhostDiagnostic-chr: -0.2186  
Centroid-sig: 0.0%  
Centroid-so: 8.303 arcsec [13.40σ]  
OotOffset-rm: 13.856 arcsec [10.67σ]  
KicOffset-rm: 13.846 arcsec [10.28σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.75 [12/16]  
DiffImageOverlap-fno: 1.00 [17/17]

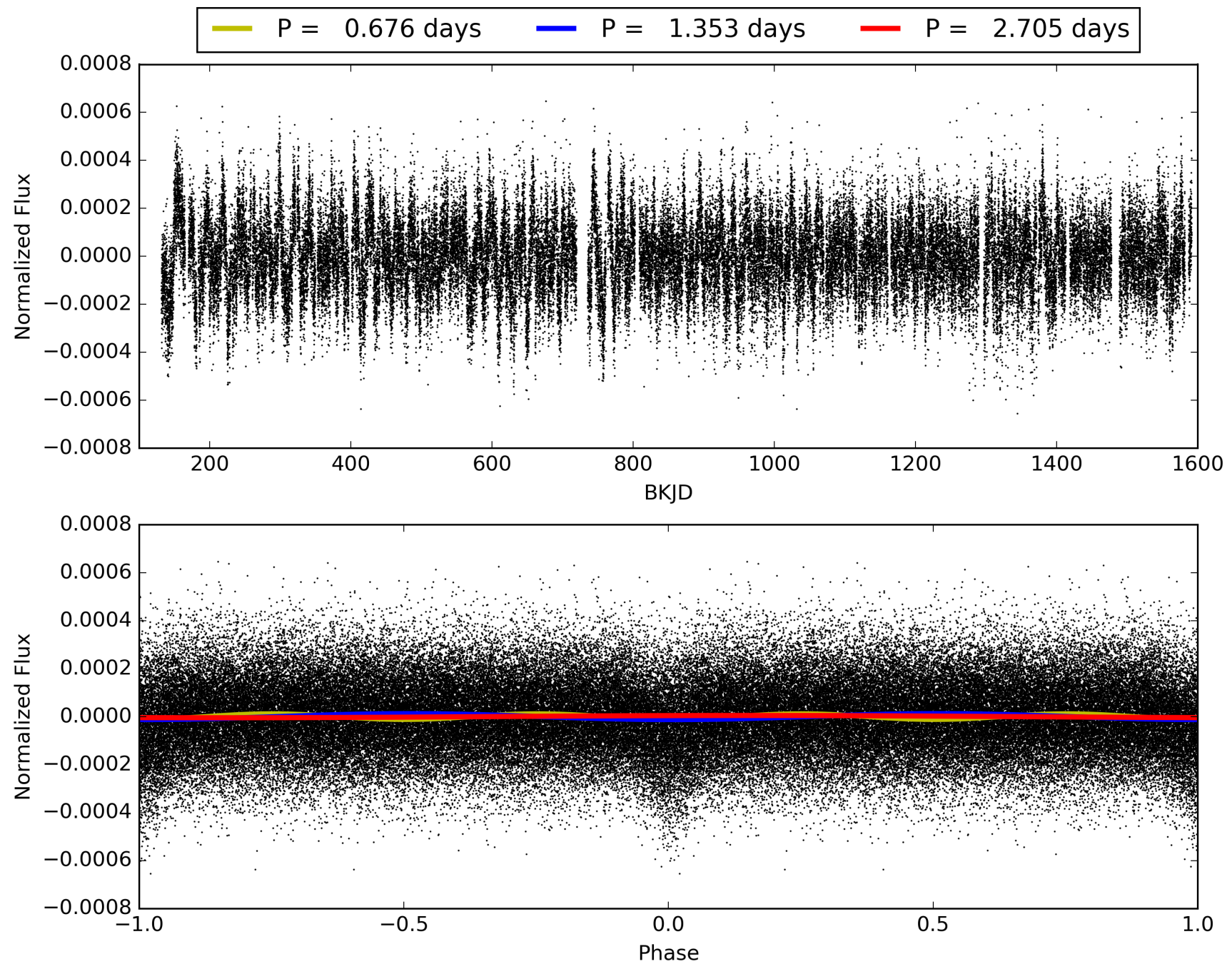
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:44:06 Z

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

# TCE 008429415-01, PDC Light Curves

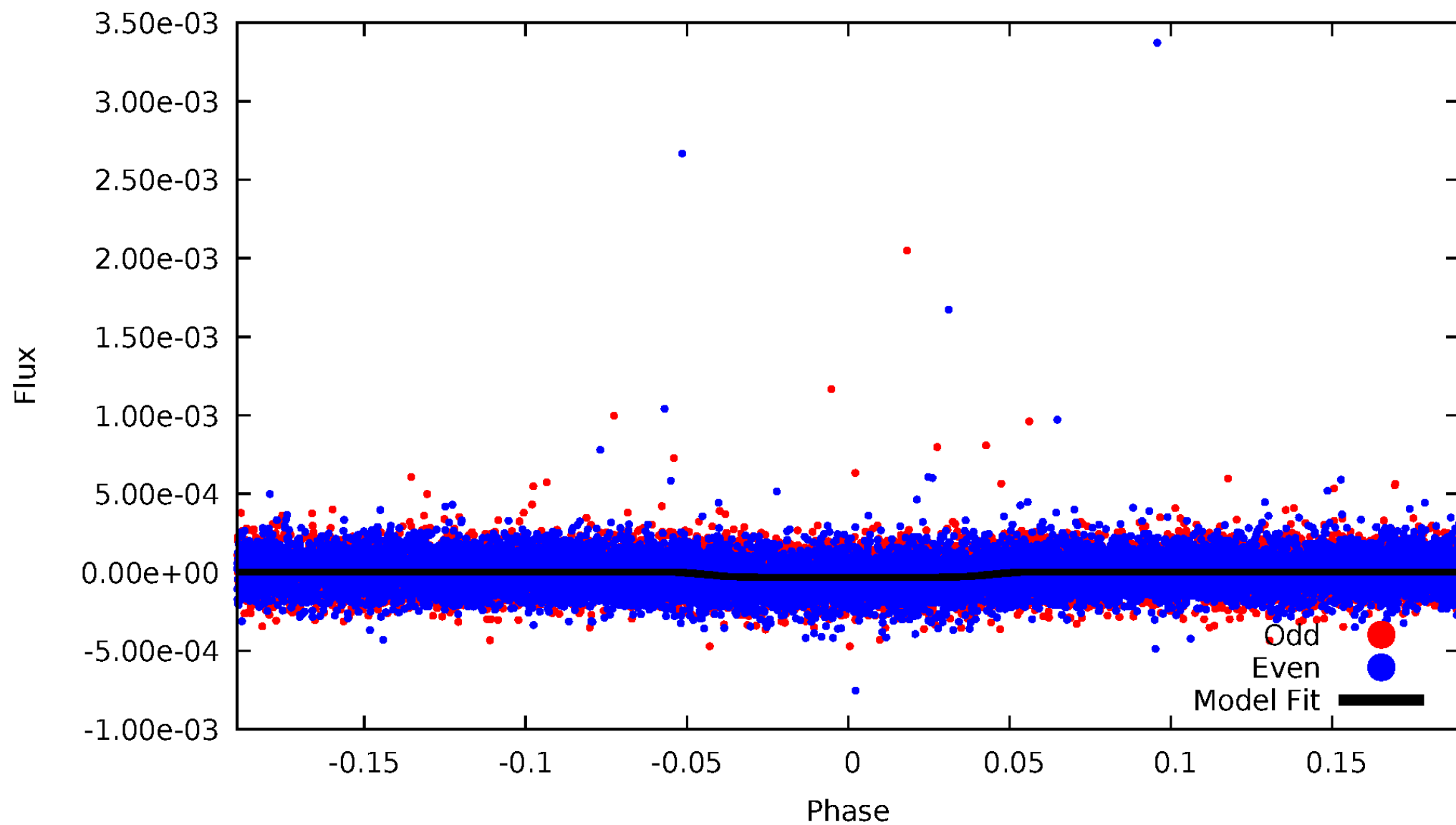


TCE 008429415-01



# DV Odd/Even

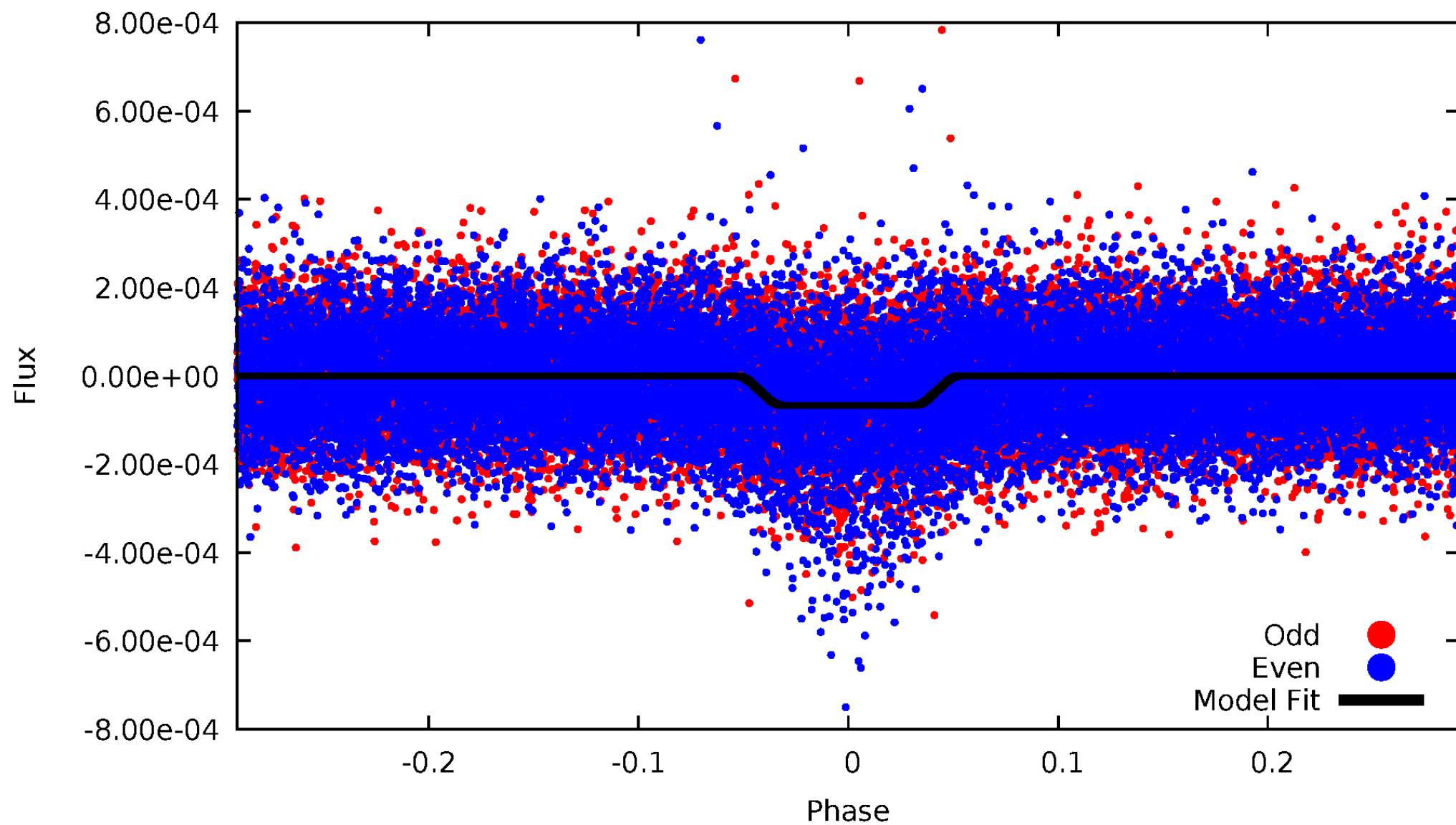
TCE 008429415-01





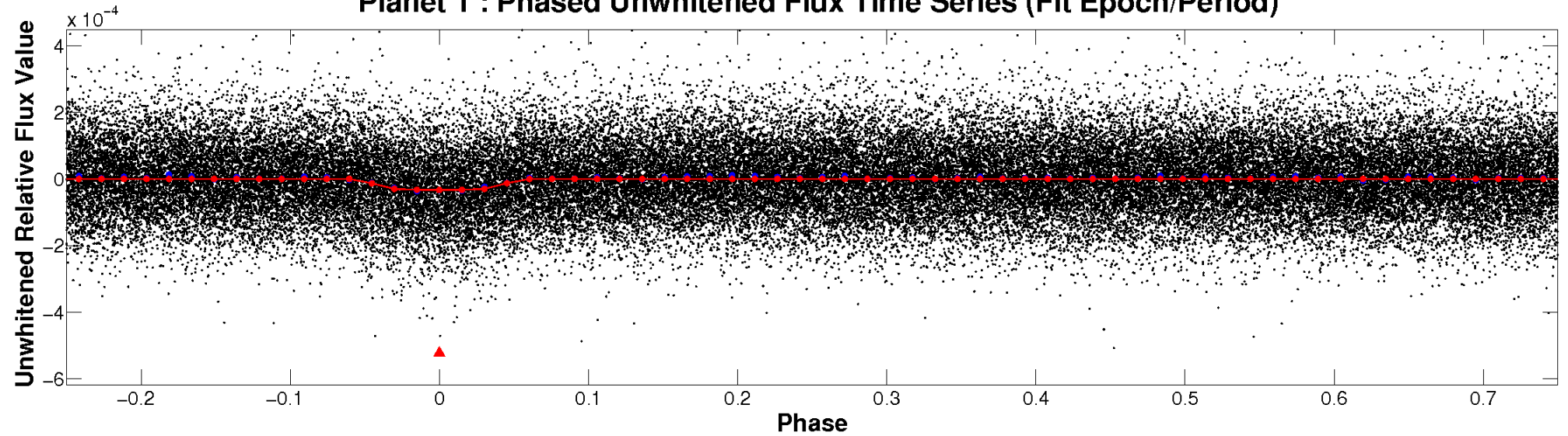
# ALT Odd/Even

TCE 008429415-01

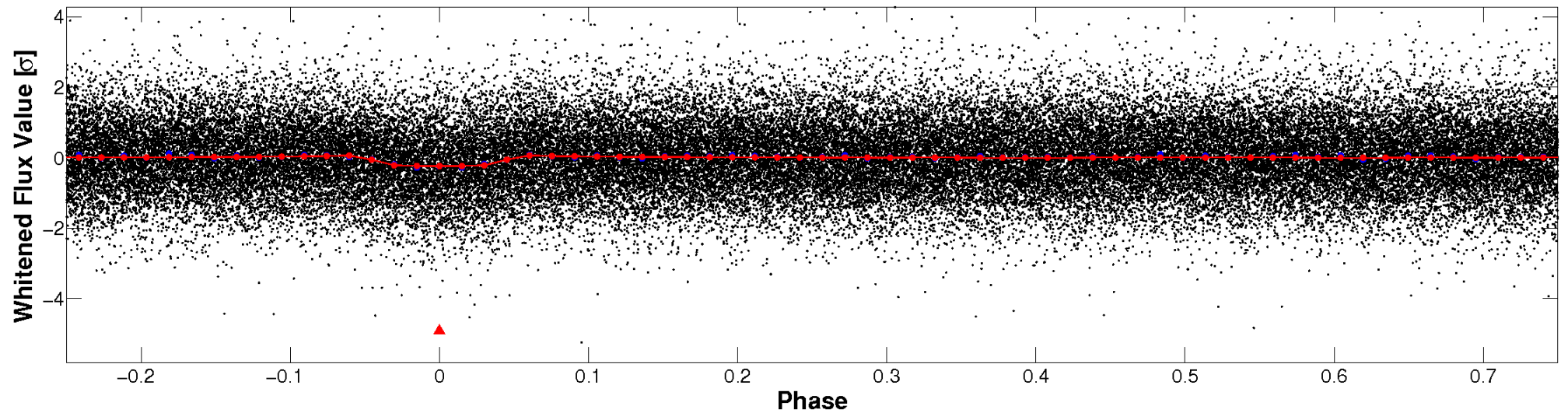


# Non-Whitened Vs. Whitened Light Curve

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

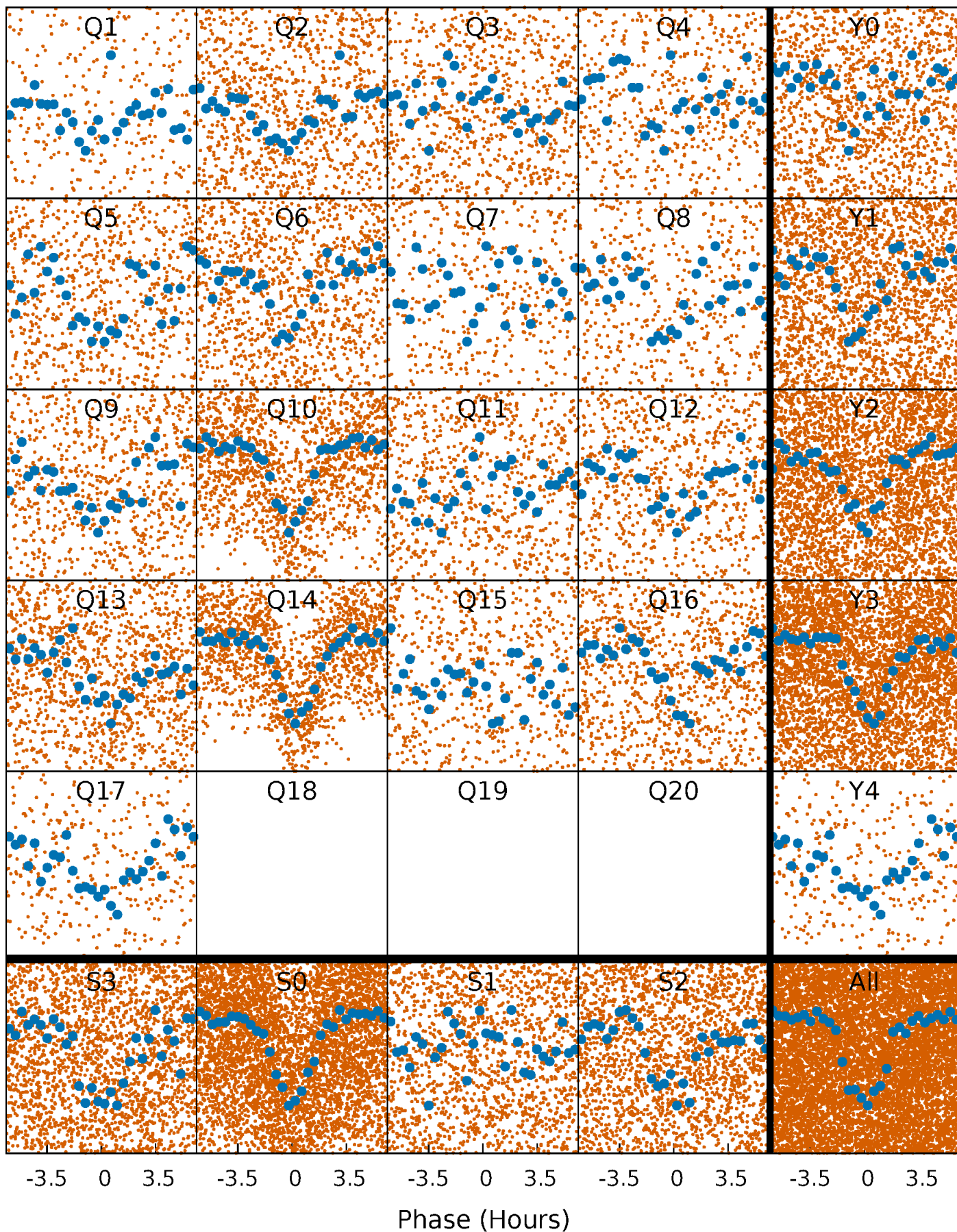


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

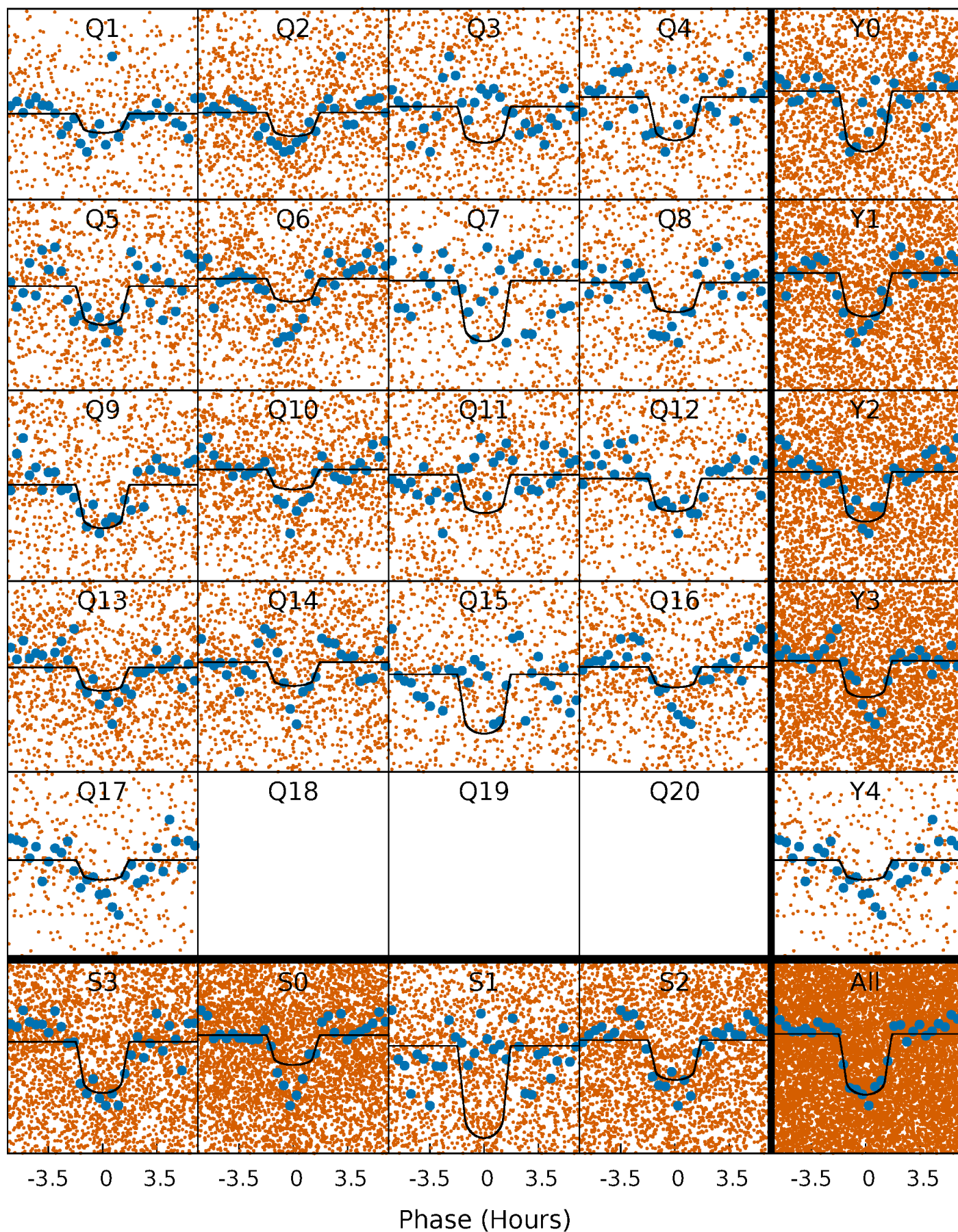
TCE 008429415-01 P= 1.352529 Days  $T_0=132.068156$  (BKJD)





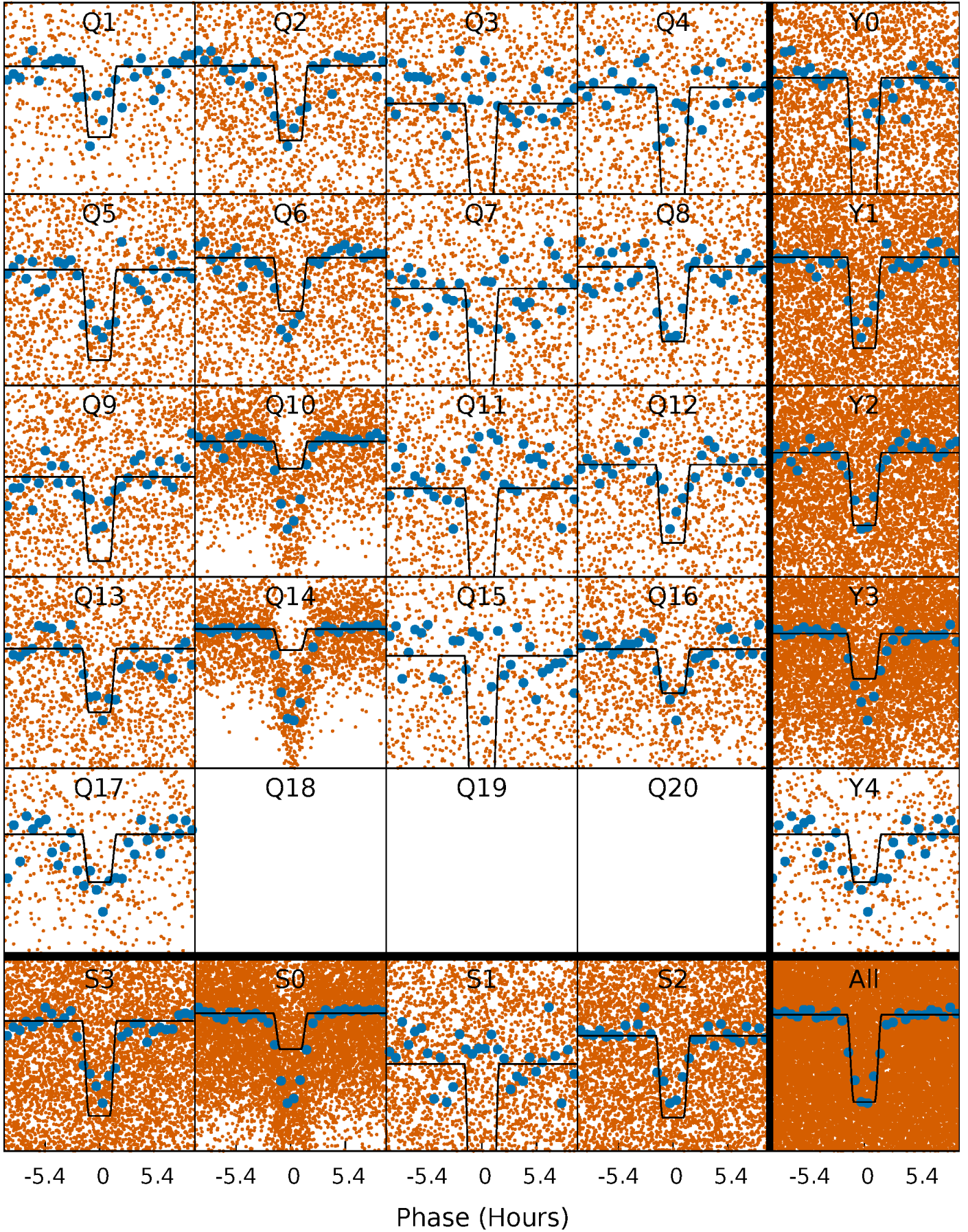
# DV Quarter-Phased Transit Curves

TCE 008429415-01 P= 1.352529 Days  $T_0=132.068156$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008429415-01 P= 1.352554 Days  $T_0=132.053408$  (BKJD)

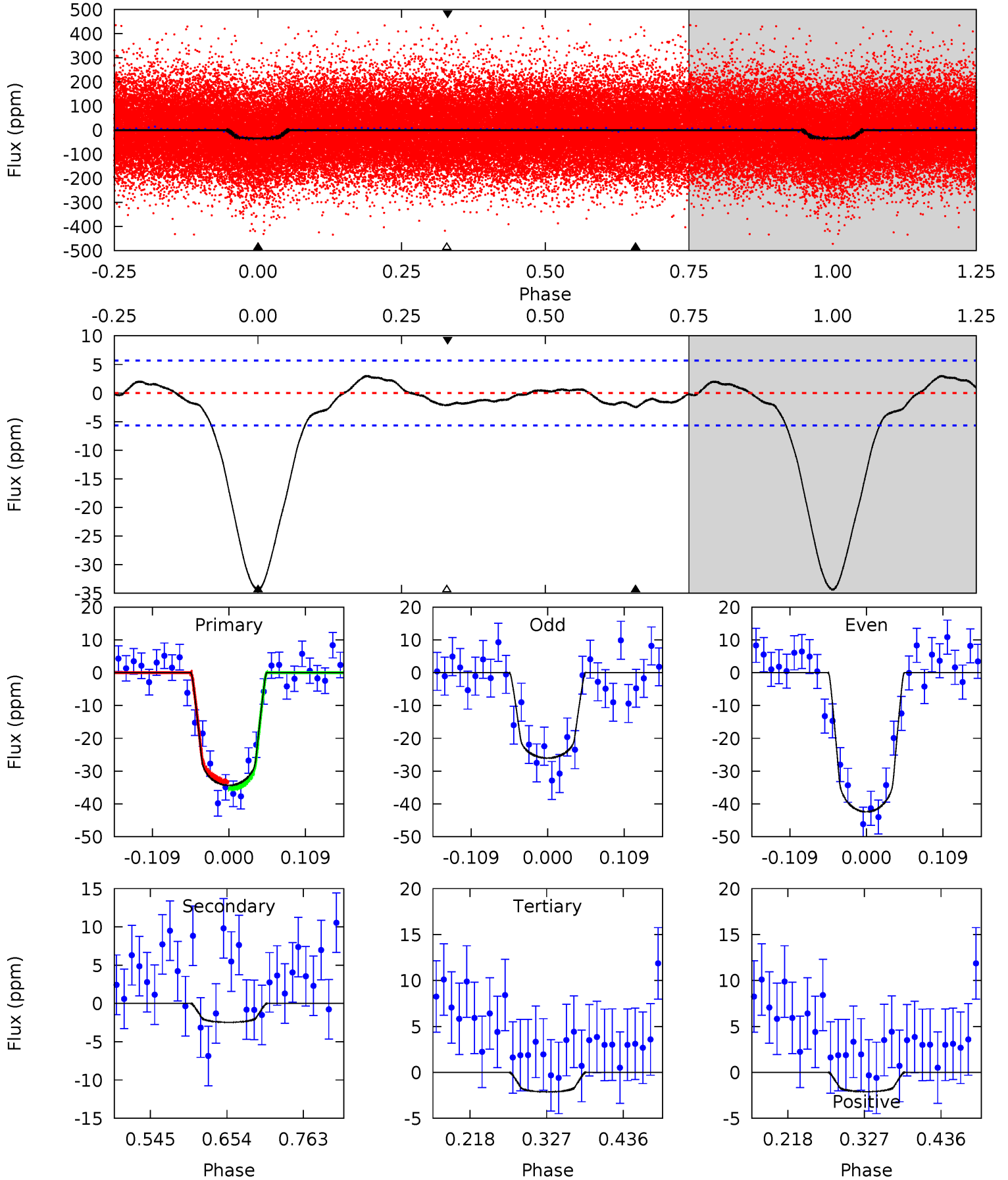




# DV Model-Shift Uniqueness Test

008429415-01, P = 1.352529 Days, E = 130.715627 Days

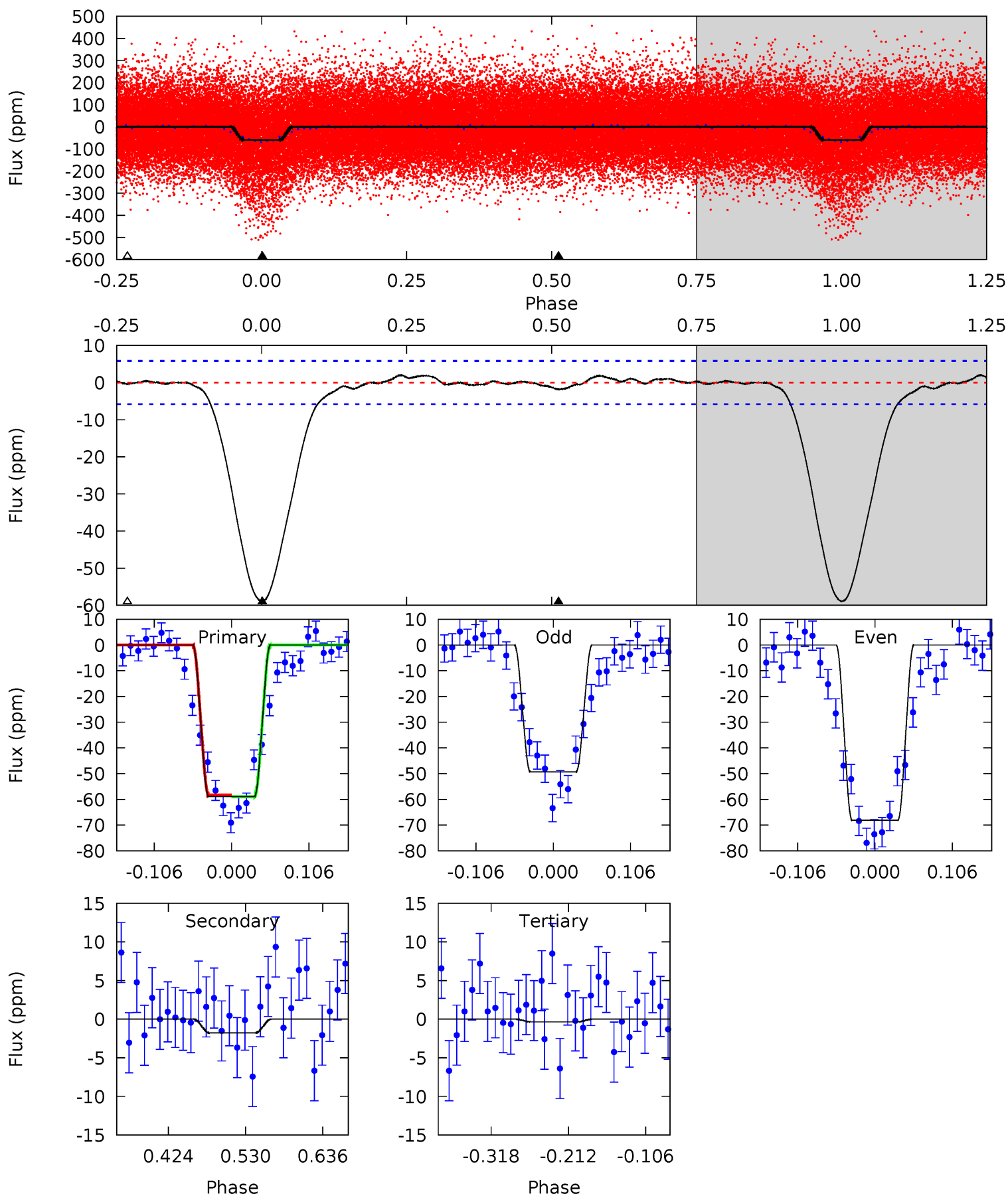
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	1.97	1.70	-1.68	4.55	1.60	1.19	25.8	29.2	0.27	3.65	6.57	1.02	0.08	0.83



# Alt Model-Shift Uniqueness Test

008429415-01, P = 1.352554 Days, E = 130.700854 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
46.0	1.39	0.28	0	4.55	1.62	0.79	45.7	46.0	1.11	1.39	7.32	1.24	0.03	0.27





### Stellar Parameters For KIC 008429415

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6463^{+175}_{-175}$	$3.959^{+0.287}_{-0.123}$	$-0.500^{+0.300}_{-0.300}$	$1.823^{+0.380}_{-0.570}$	$1.103^{+0.192}_{-0.157}$	$0.256^{+0.459}_{-0.090}$
	+3%/-3%	+7%/-3%	+60%/-60%	+21%/-31%	+17%/-14%	+179%/-35%
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 008429415-01 / KOI 2965.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	-2 $\pm$ 1	$1.21^{+0.31}_{-0.30}$	$3383^{+214}_{-282}$	$3202^{+580}_{-5866}$	$0.542^{+0.529}_{-0.301}$
Alt.	-2 $\pm$ 1	$1.58^{+0.32}_{-0.35}$	$3382^{+210}_{-271}$	$-2657^{+5638}_{-580}$	$0.242^{+0.239}_{-0.174}$

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

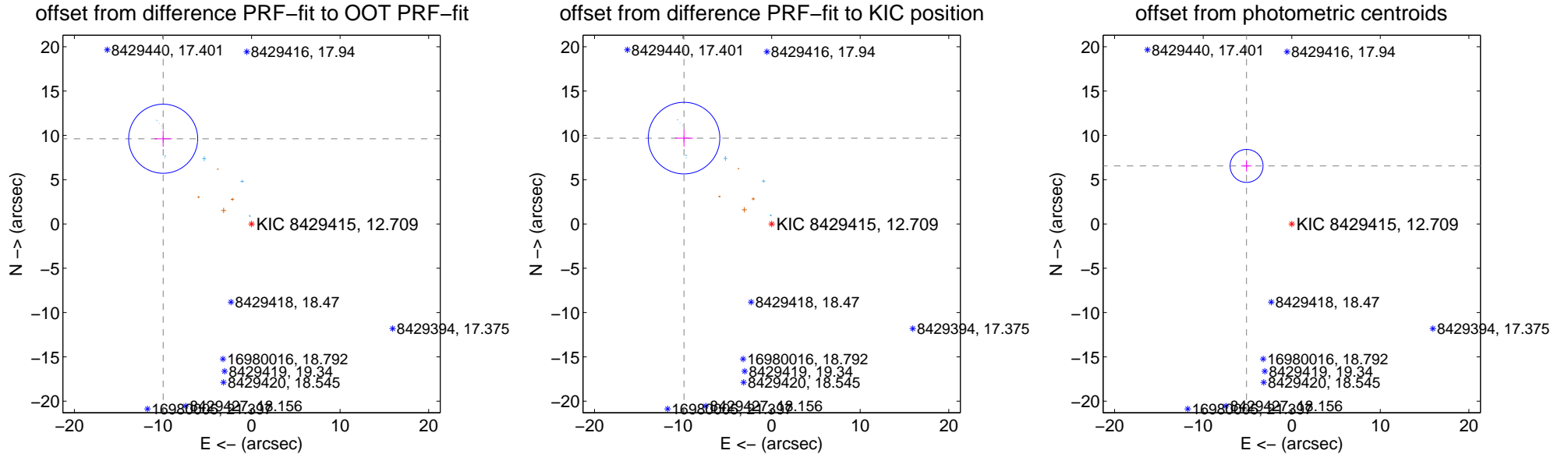
## DV Centroid Data

Supplemental centroid analysis for 008429415-01. Kepler magnitude: 12.71. Transit SNR 16.38

There are 12 quarters with good PRF difference image offsets

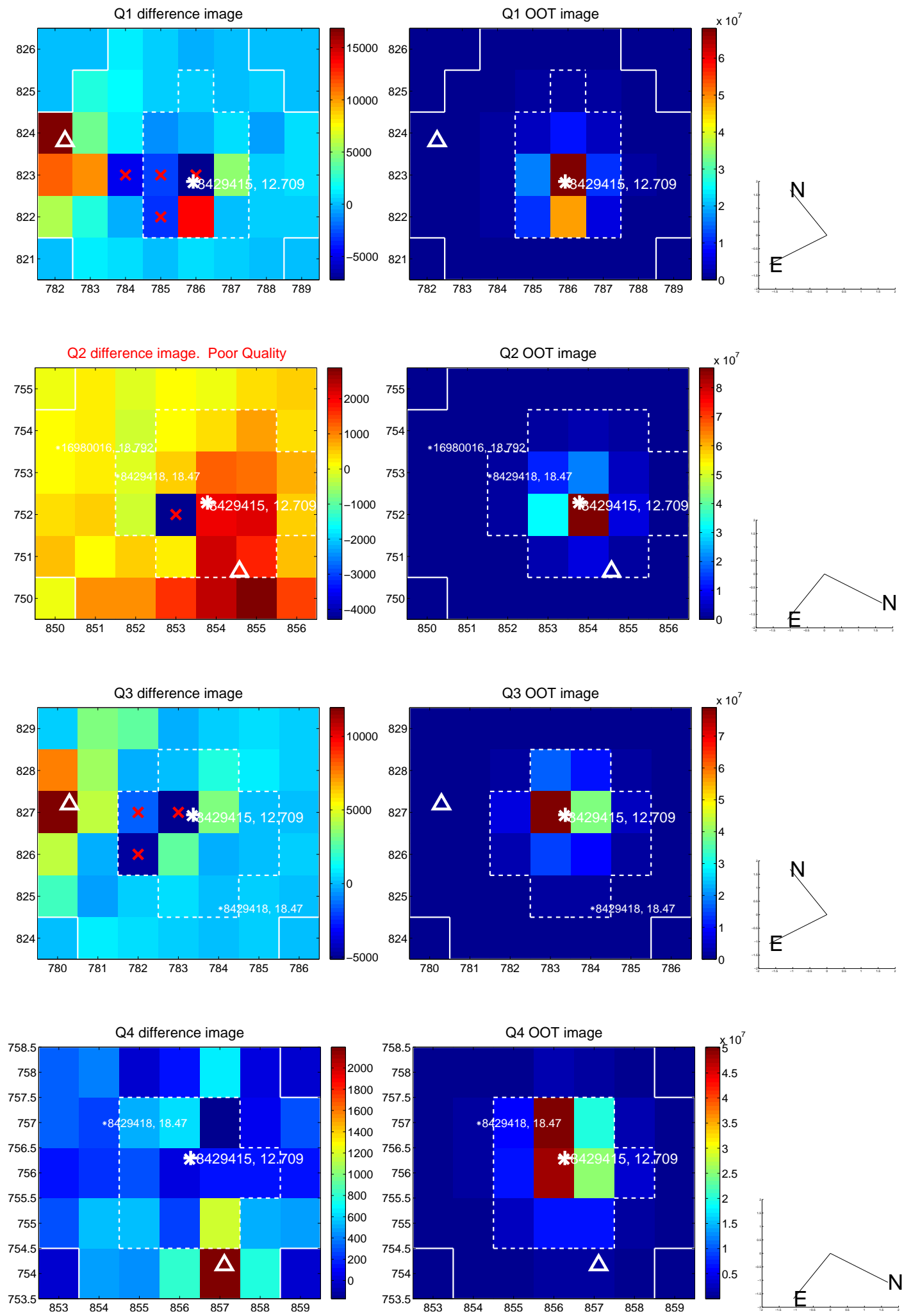
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$13.856 \pm 1.299$	10.67	$9.975 \pm 0.991$	$9.617 \pm 0.906$
PRF-fit source offset from KIC position	$13.846 \pm 1.346$	10.28	$9.891 \pm 1.005$	$9.689 \pm 0.952$
photometric centroid source offset	$8.30 \pm 0.62$	13.40	$5.10 \pm 0.59$	$6.55 \pm 0.64$

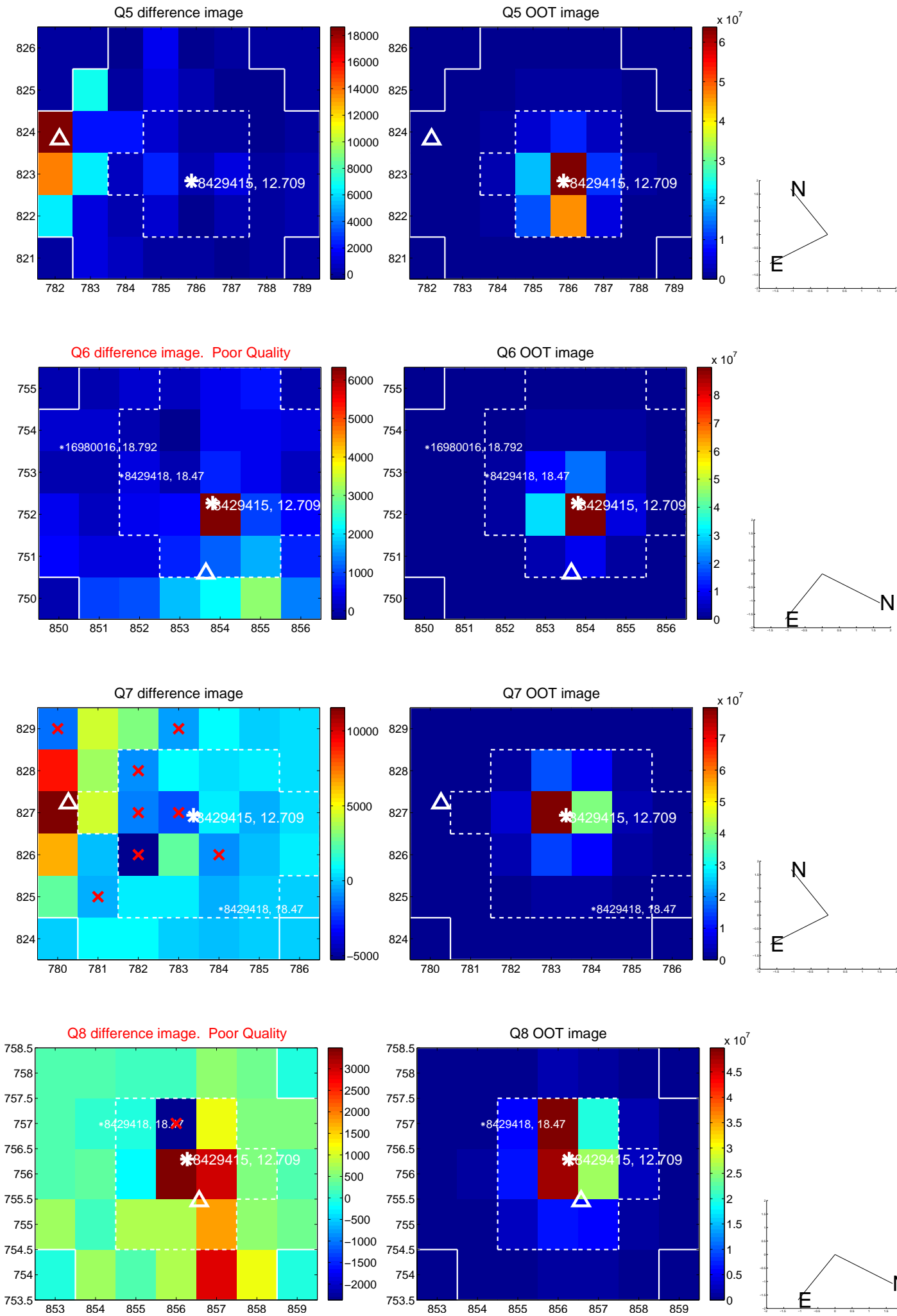


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

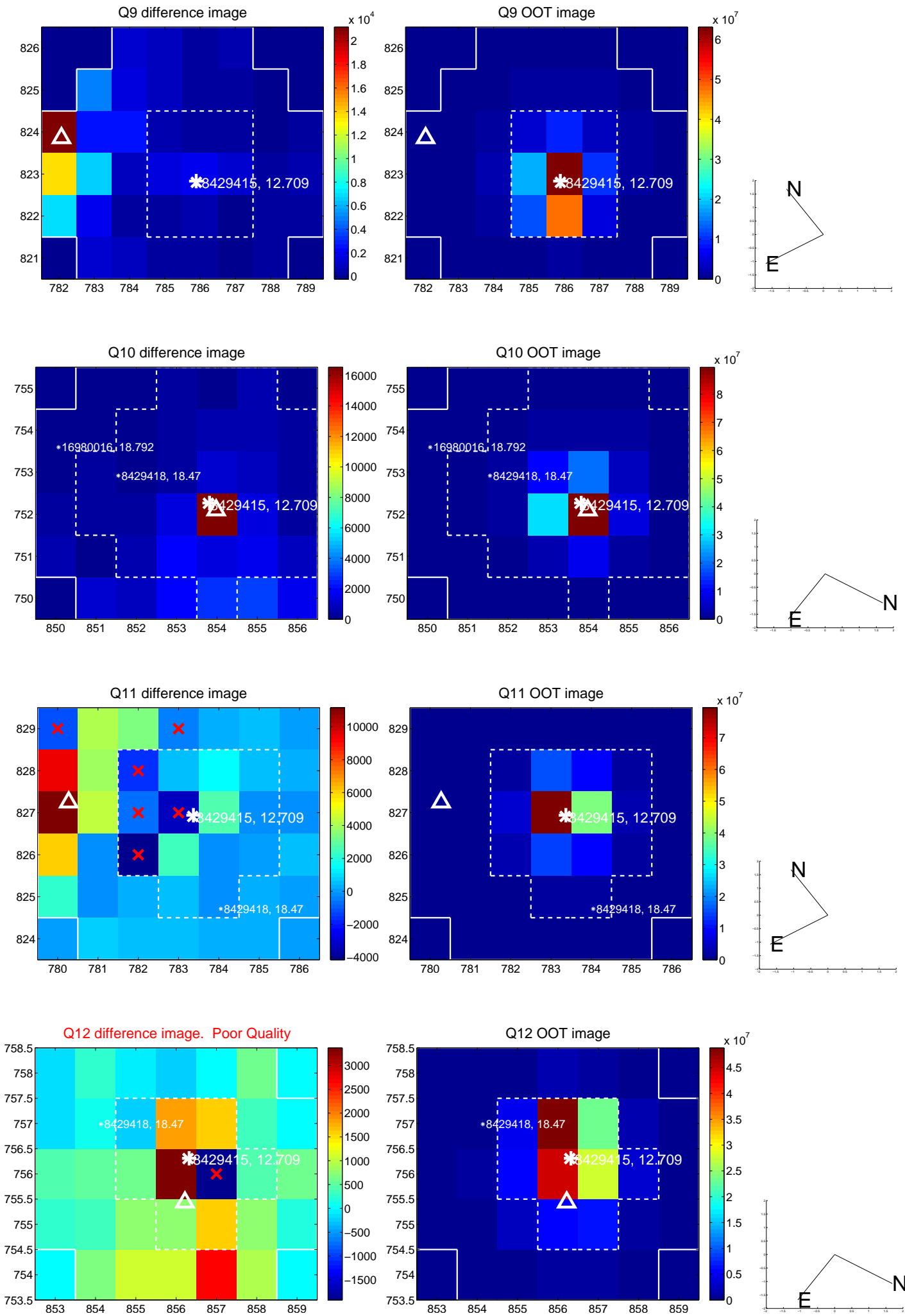


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

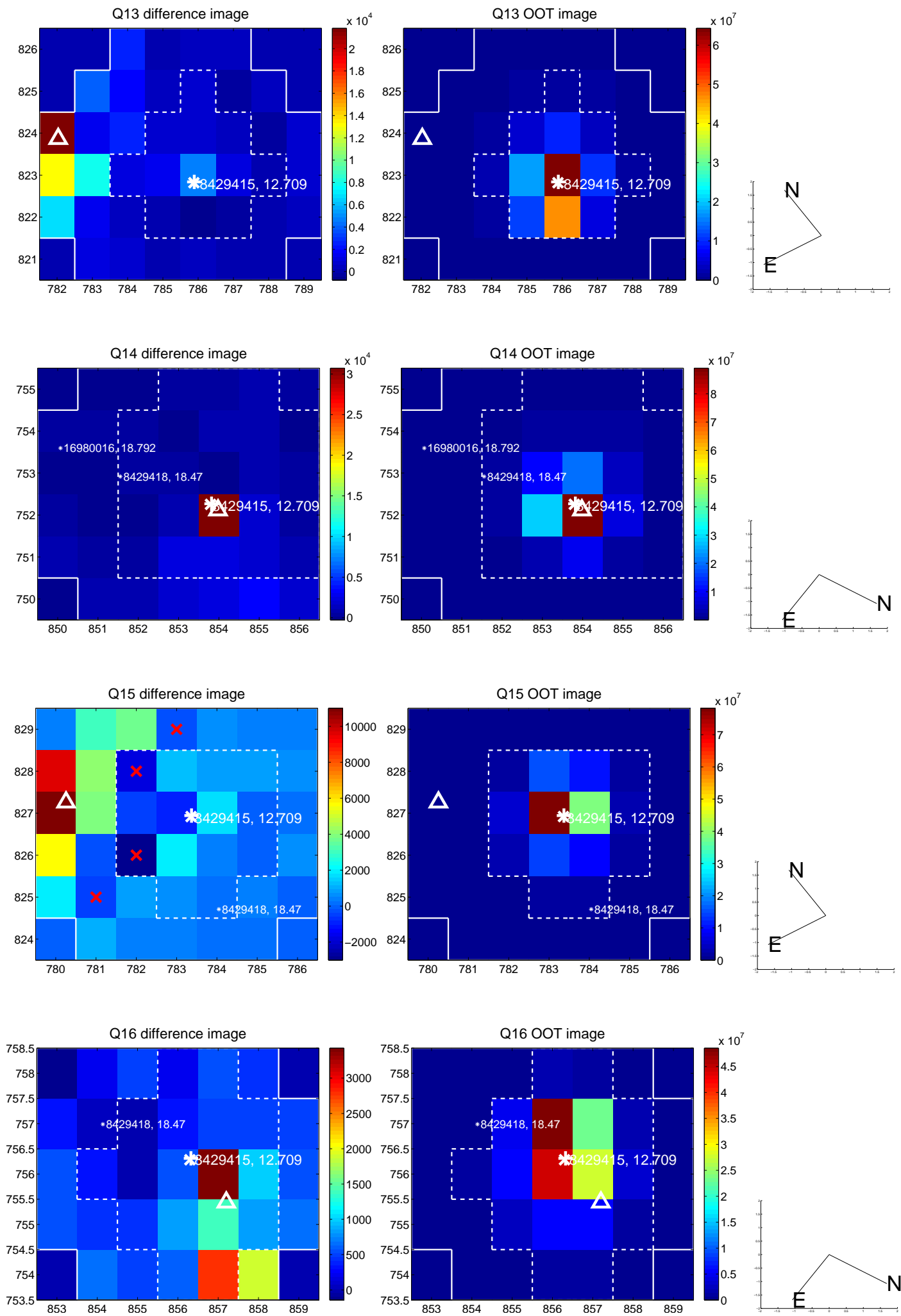




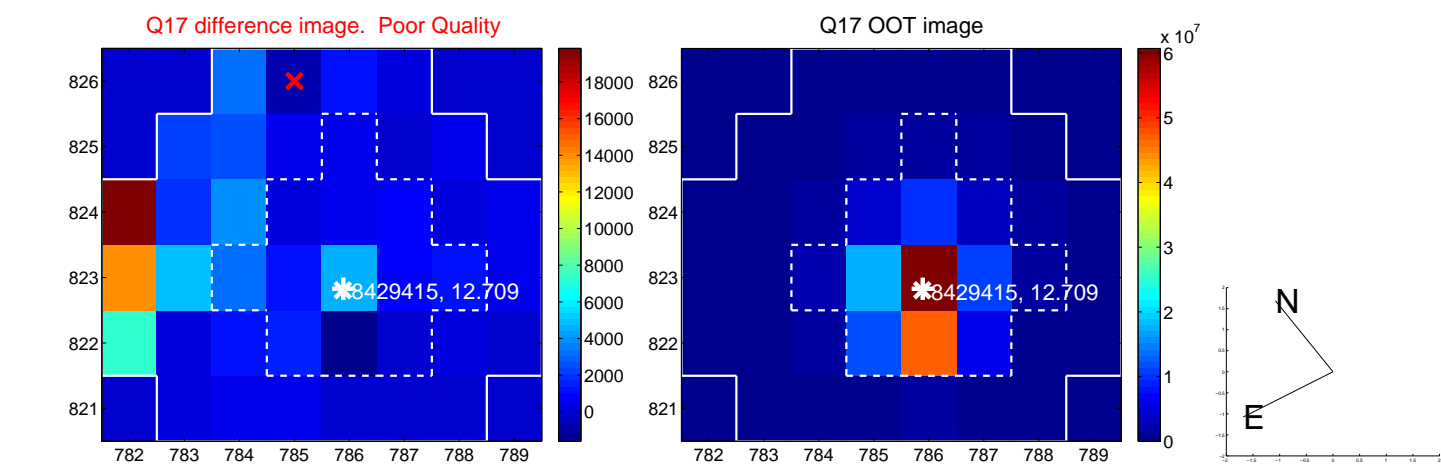
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



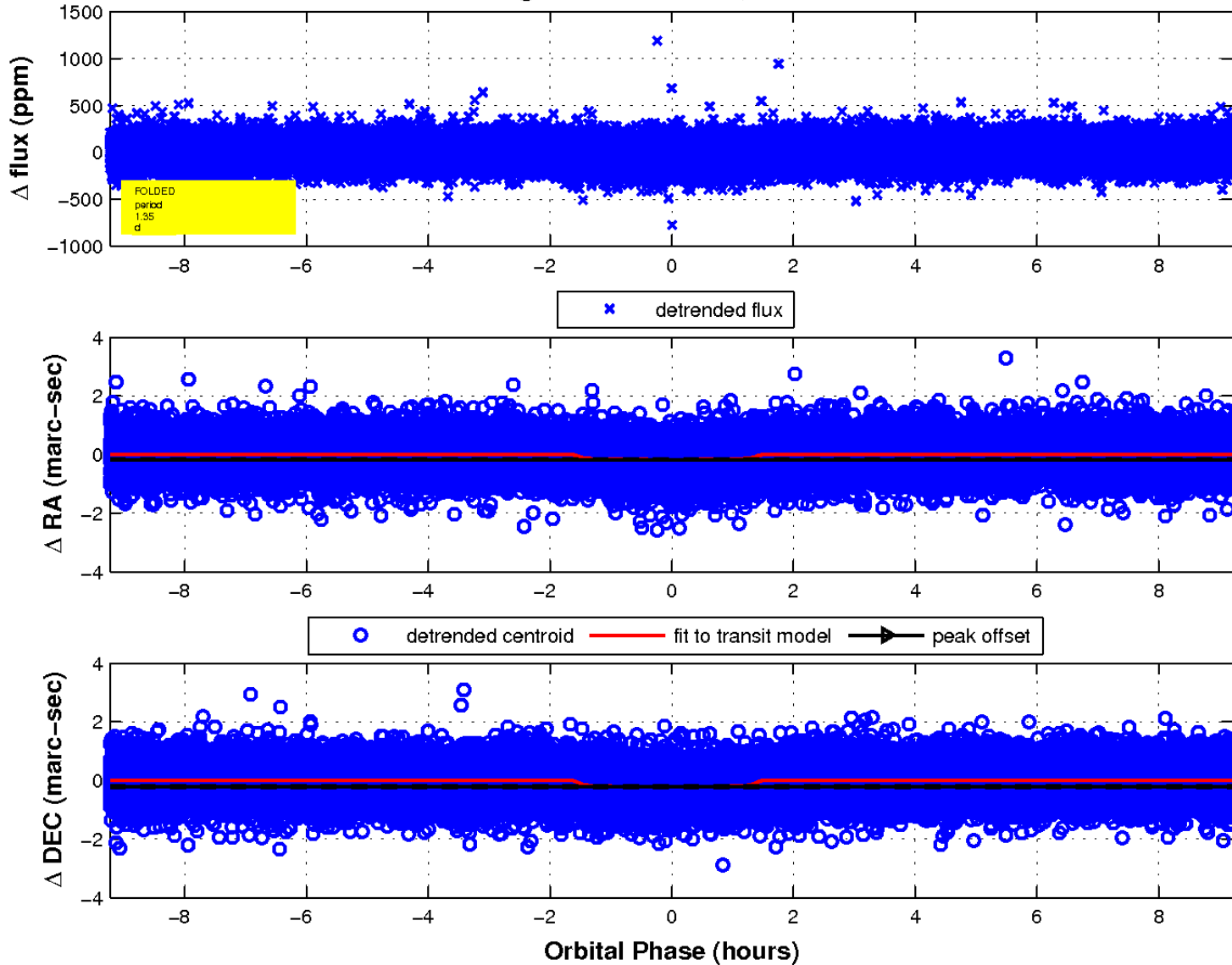
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

