

# KIC 007214475

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007214475-01	OBS	No	0.845462	132.029424	74.7	8.209	9.8	10.1	1.71	7113	1.49	16858.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007214475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

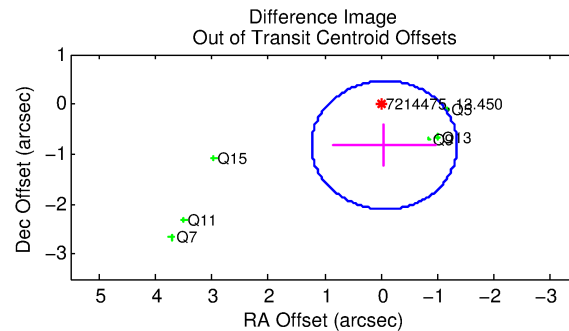
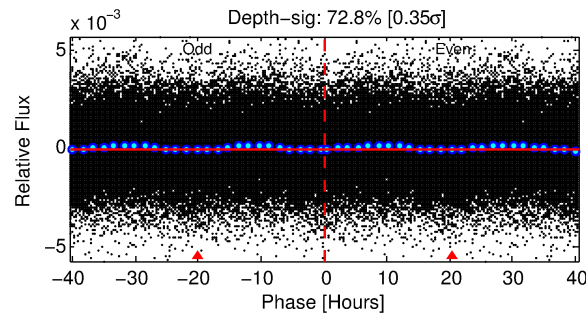
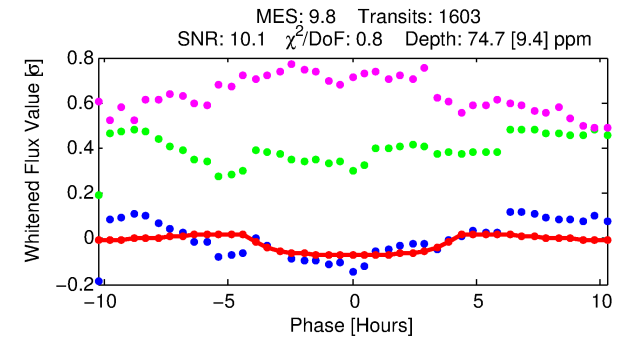
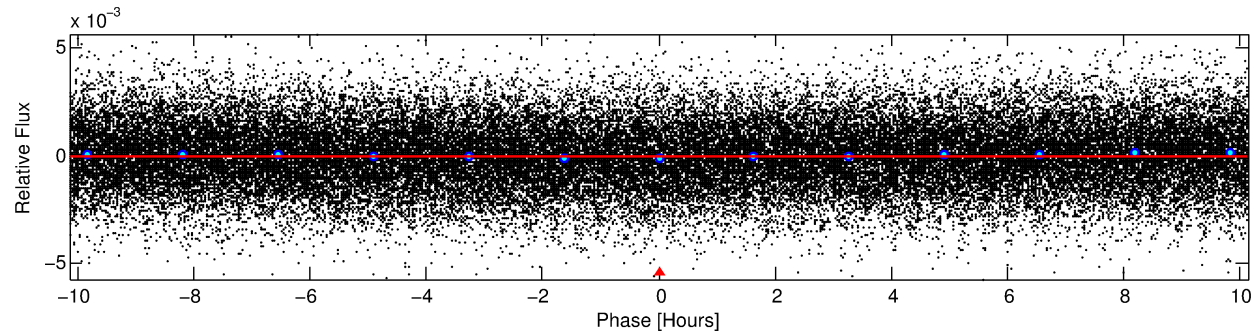
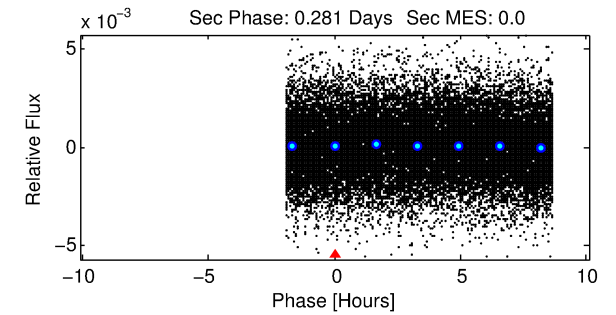
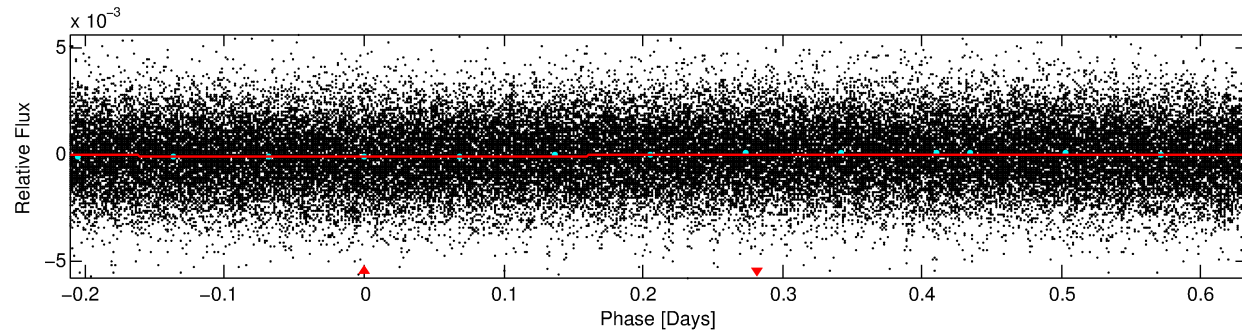
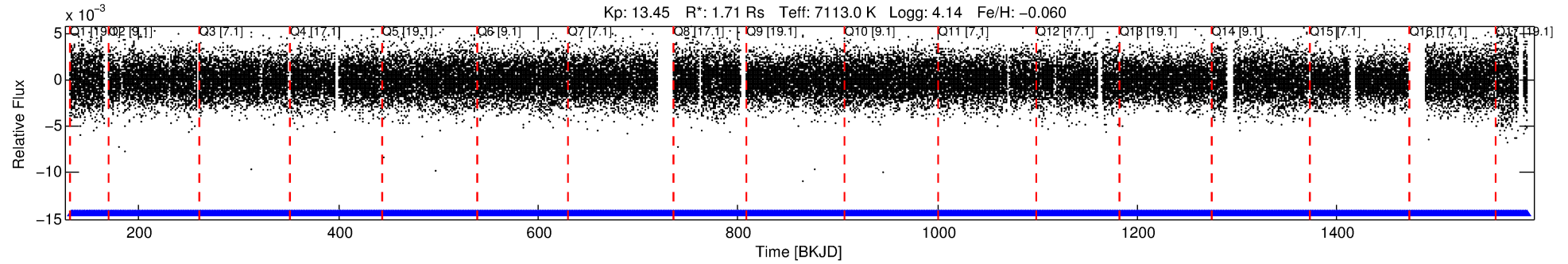
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007214475-01

No Significant Match Found

# DV One-Page Summary

KIC: 7214475 Candidate: 1 of 1 Period: 0.845 d



## DV Fit Results:

Period = 0.84546 [0.00001] d  
Epoch = 132.0294 [0.0085] BKJD  
Rp/R\* = 0.0080 [0.0078]  
a/R\* = 1.06 [0.58]  
b = 0.02 [336.45]  
Seff = 16858.08 [6584.22]  
Teq = 2906 [284] K  
Rp = 1.49 [1.52] Re  
a = 0.0199 [0.0049] AU  
Ag = N/A  
Teffp = N/A

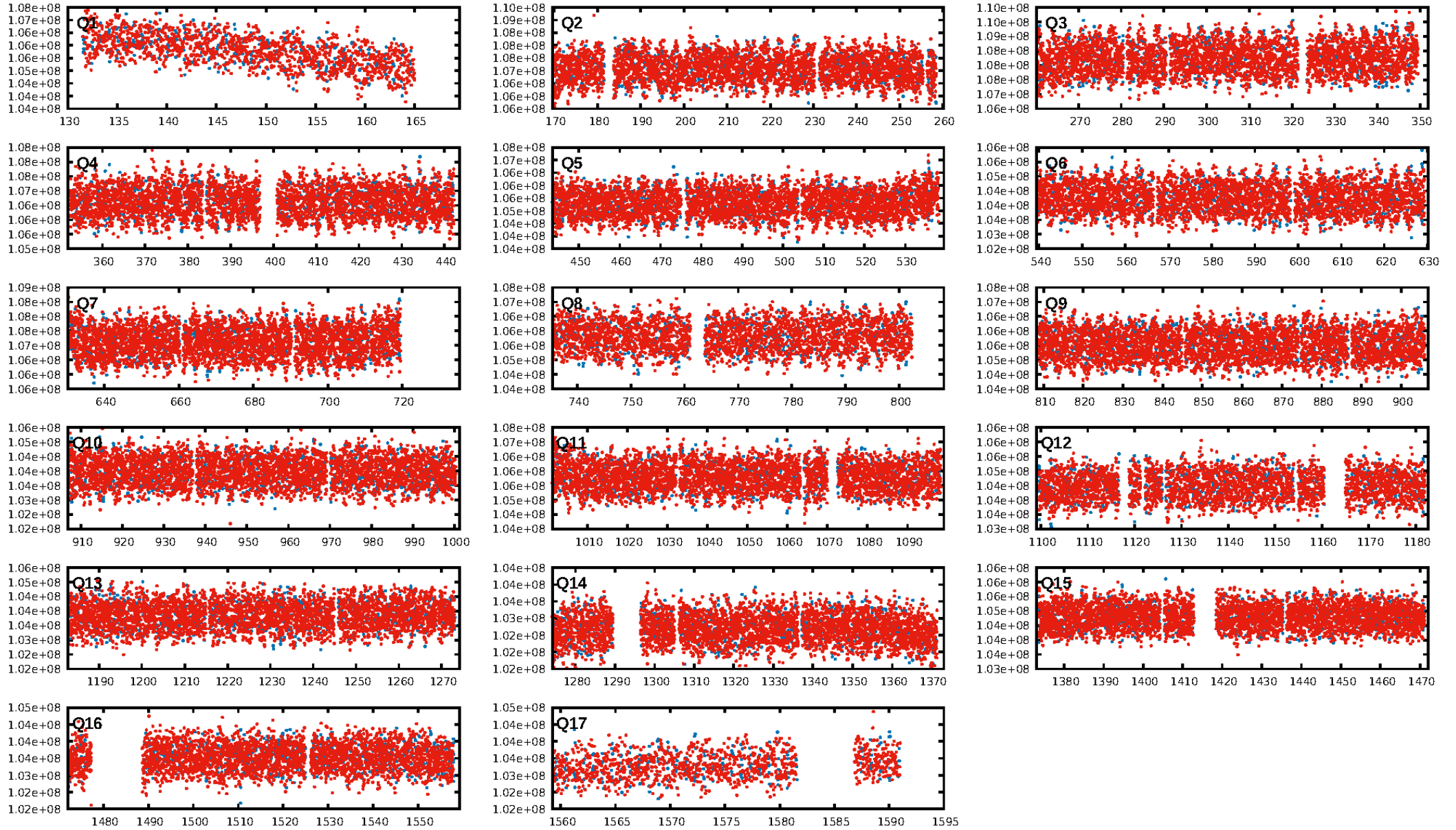
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1531/1531]  
GhostDiagnostic-chr: 1.316  
Centroid-sig: 13.6%  
Centroid-so: 0.246 arcsec [1.68σ]  
OotOffset-rm: 0.821 arcsec [1.91σ]  
KicOffset-rm: 0.798 arcsec [1.85σ]  
OotOffset-st: 0/3/0/3 [6]  
KicOffset-st: 0/3/0/3 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:30 Z

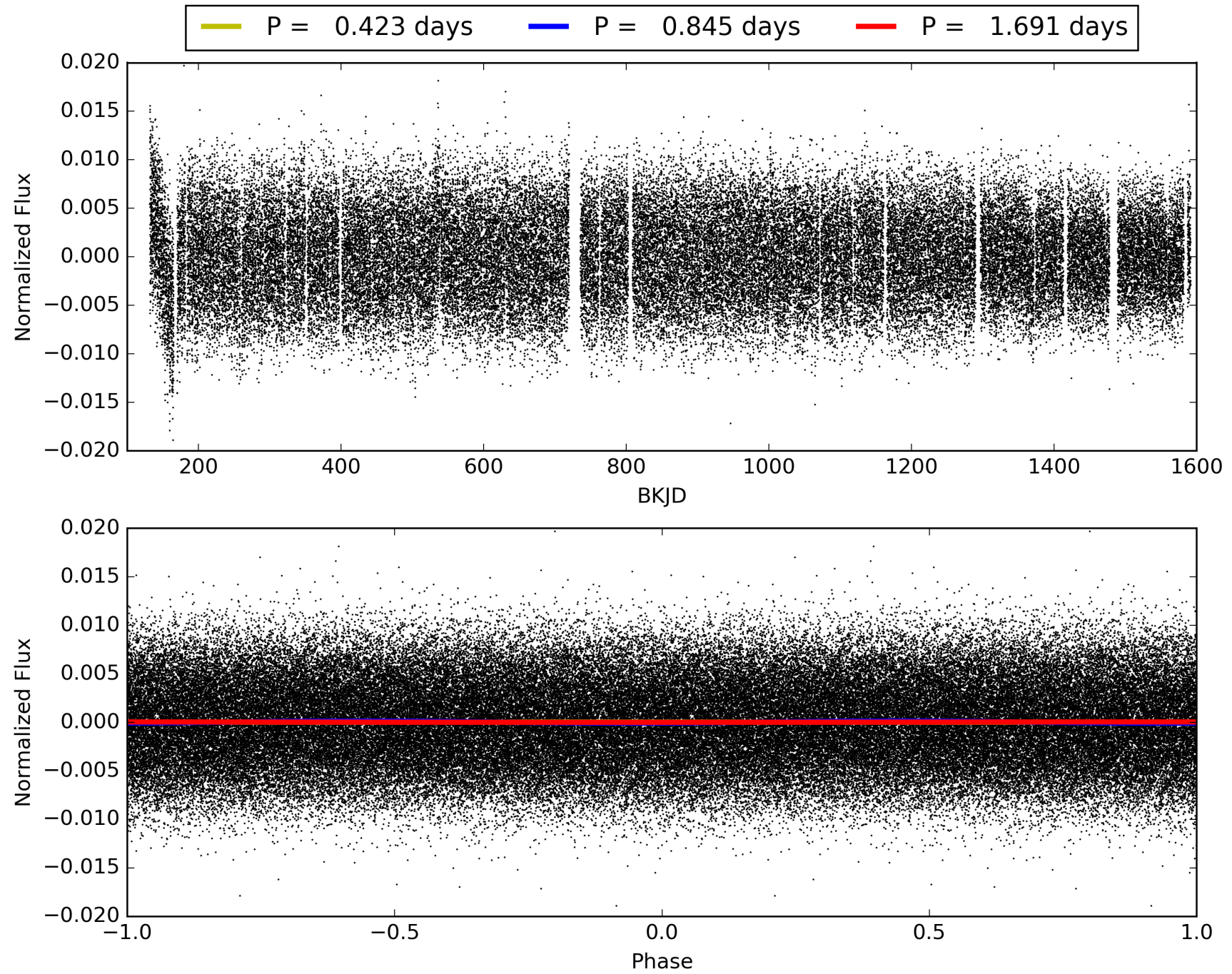
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007214475-01, PDC Light Curves



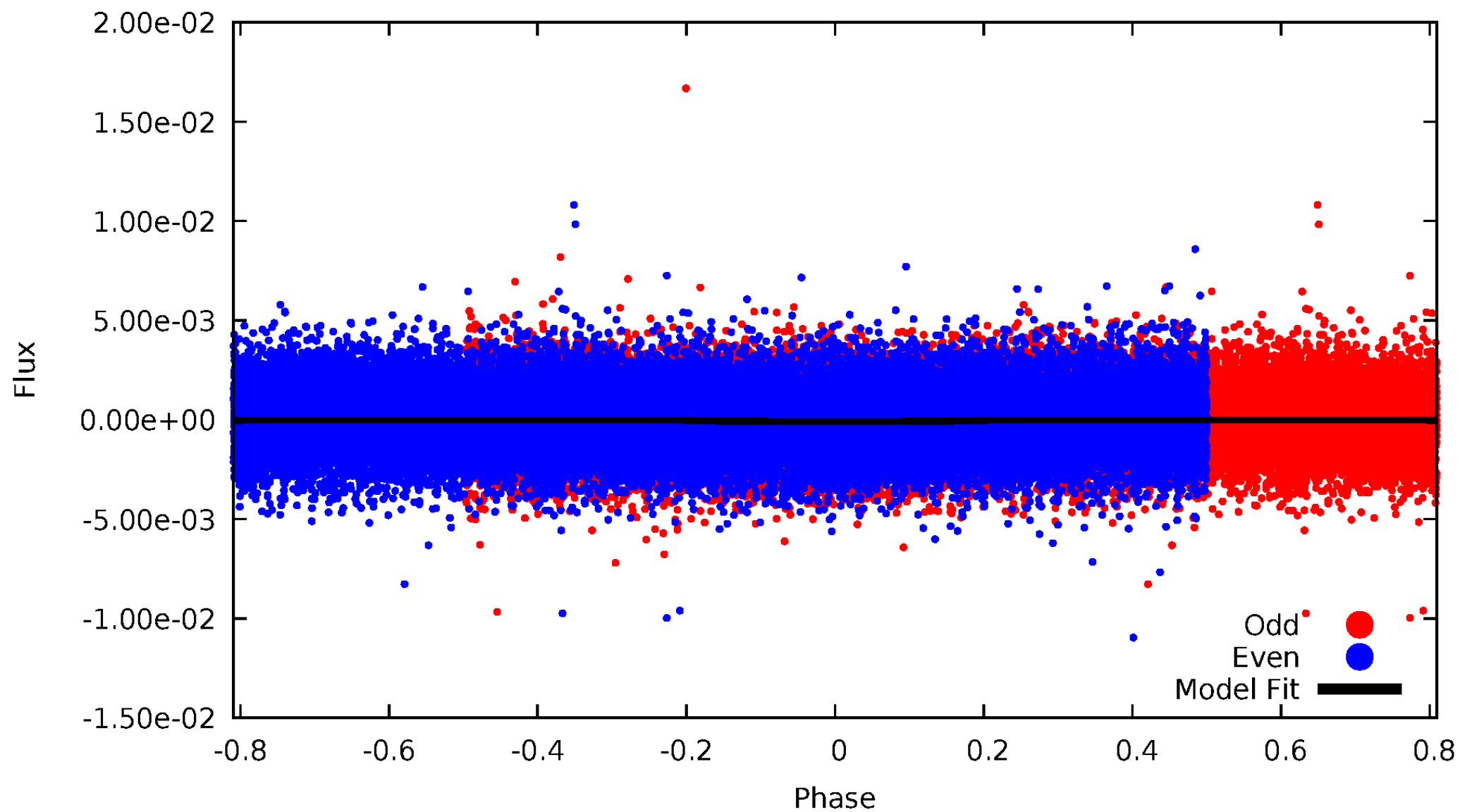


# TCE 007214475-01



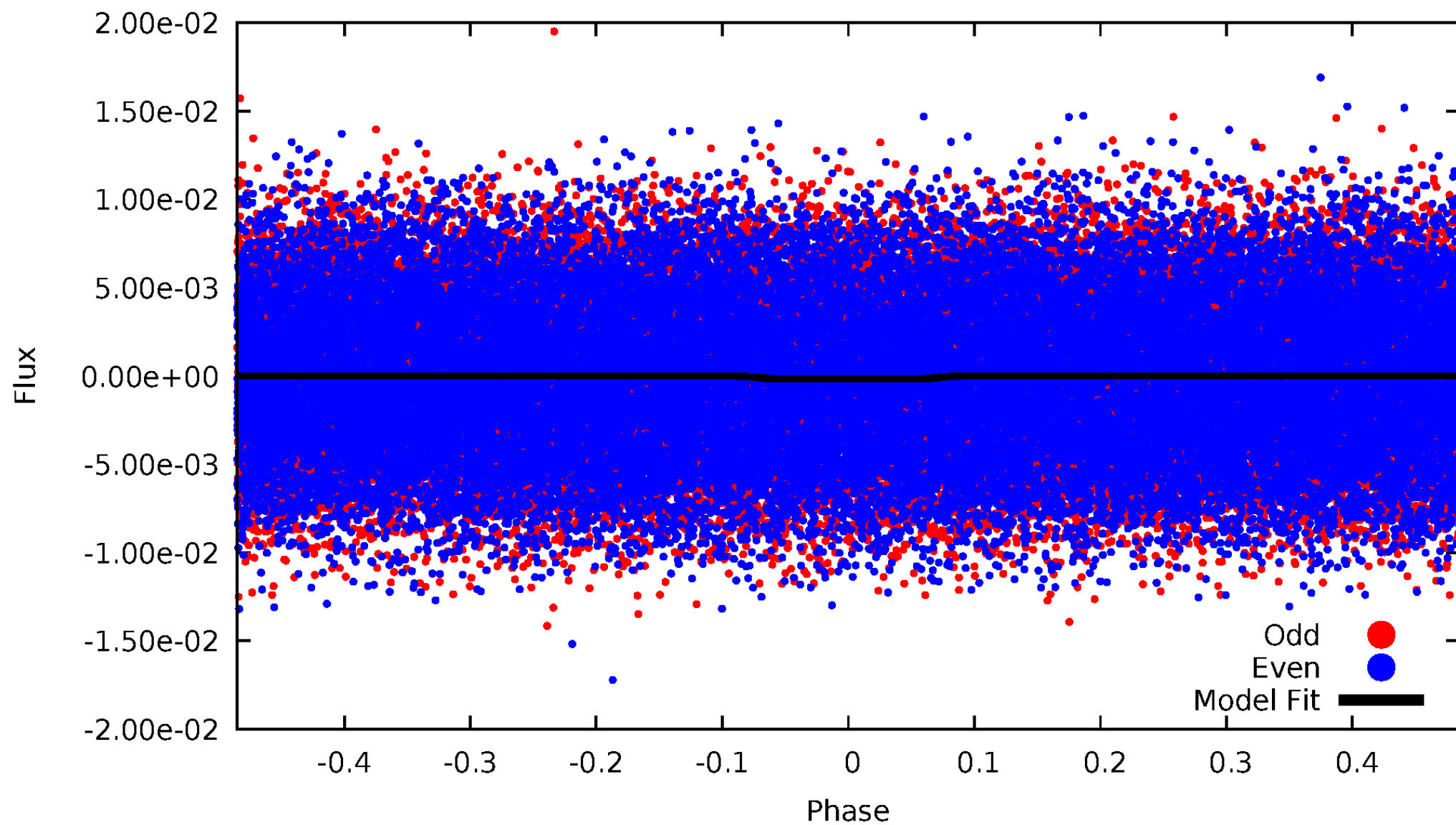
# DV Odd/Even

TCE 007214475-01



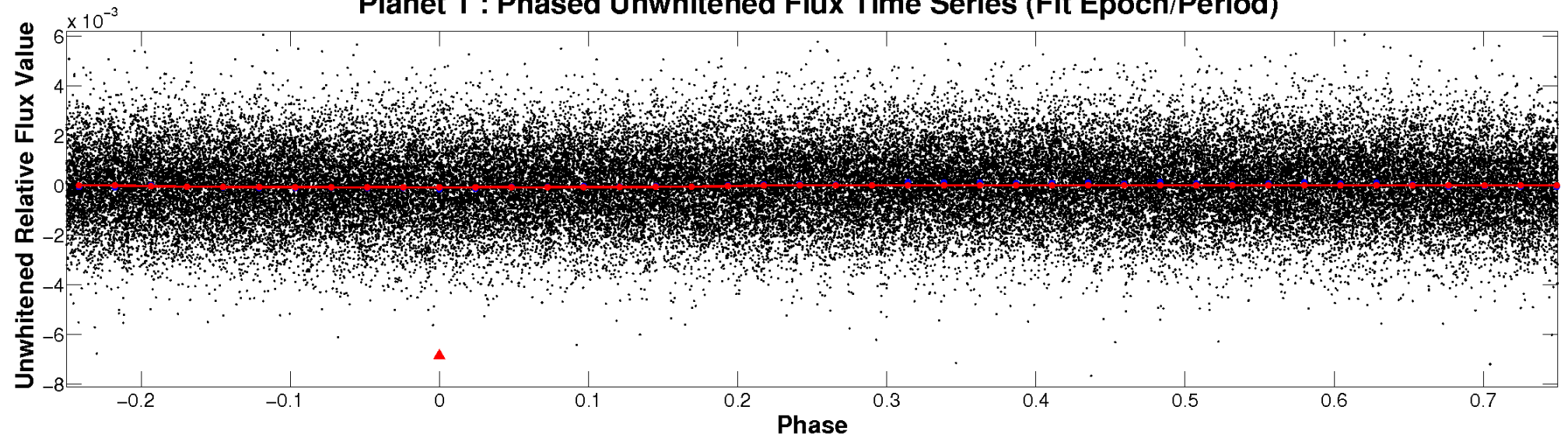
# ALT Odd/Even

TCE 007214475-01

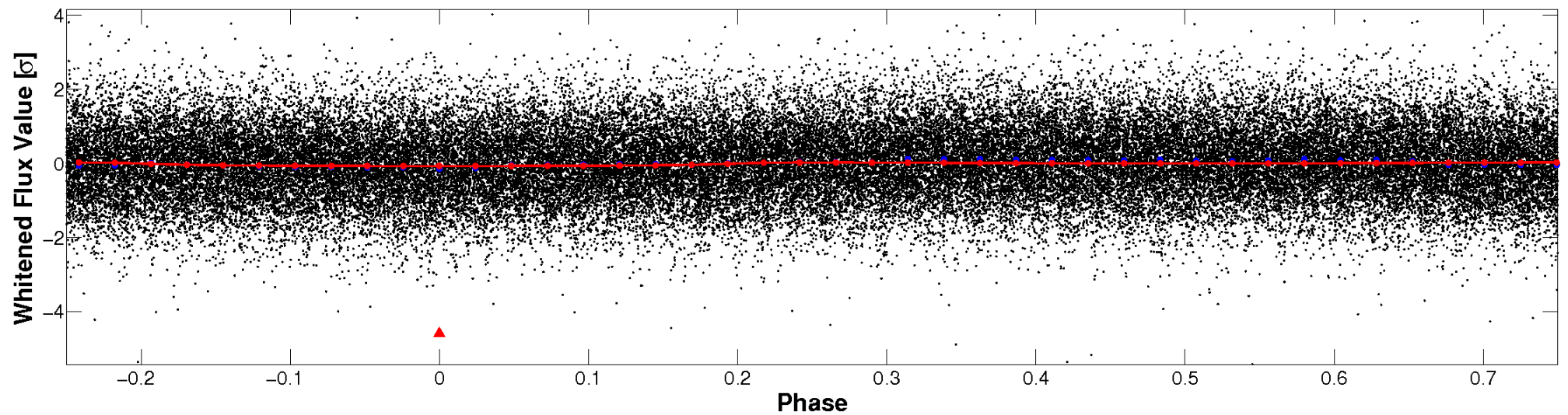


# Non-Whitened Vs. Whitened Light Curve

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



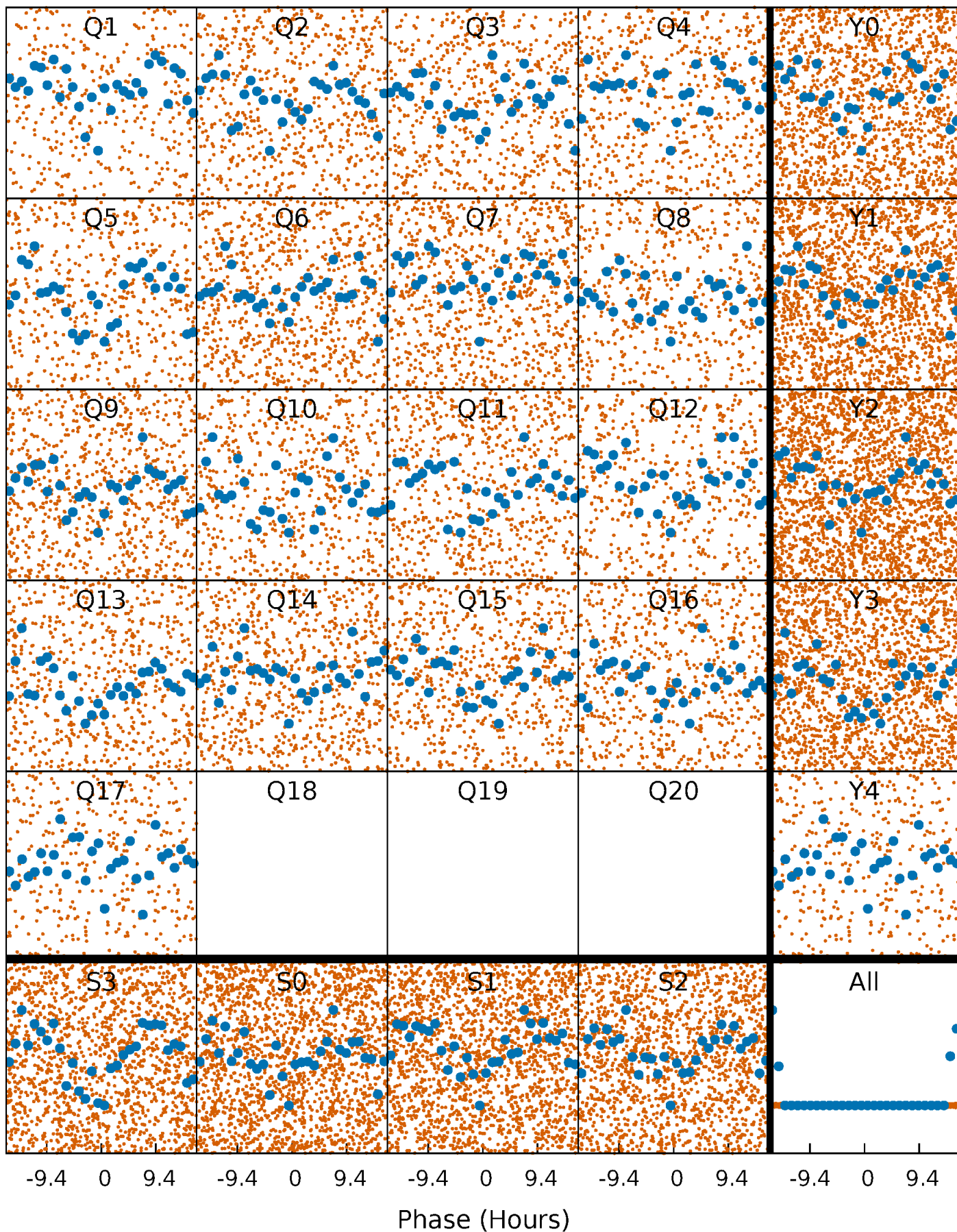
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

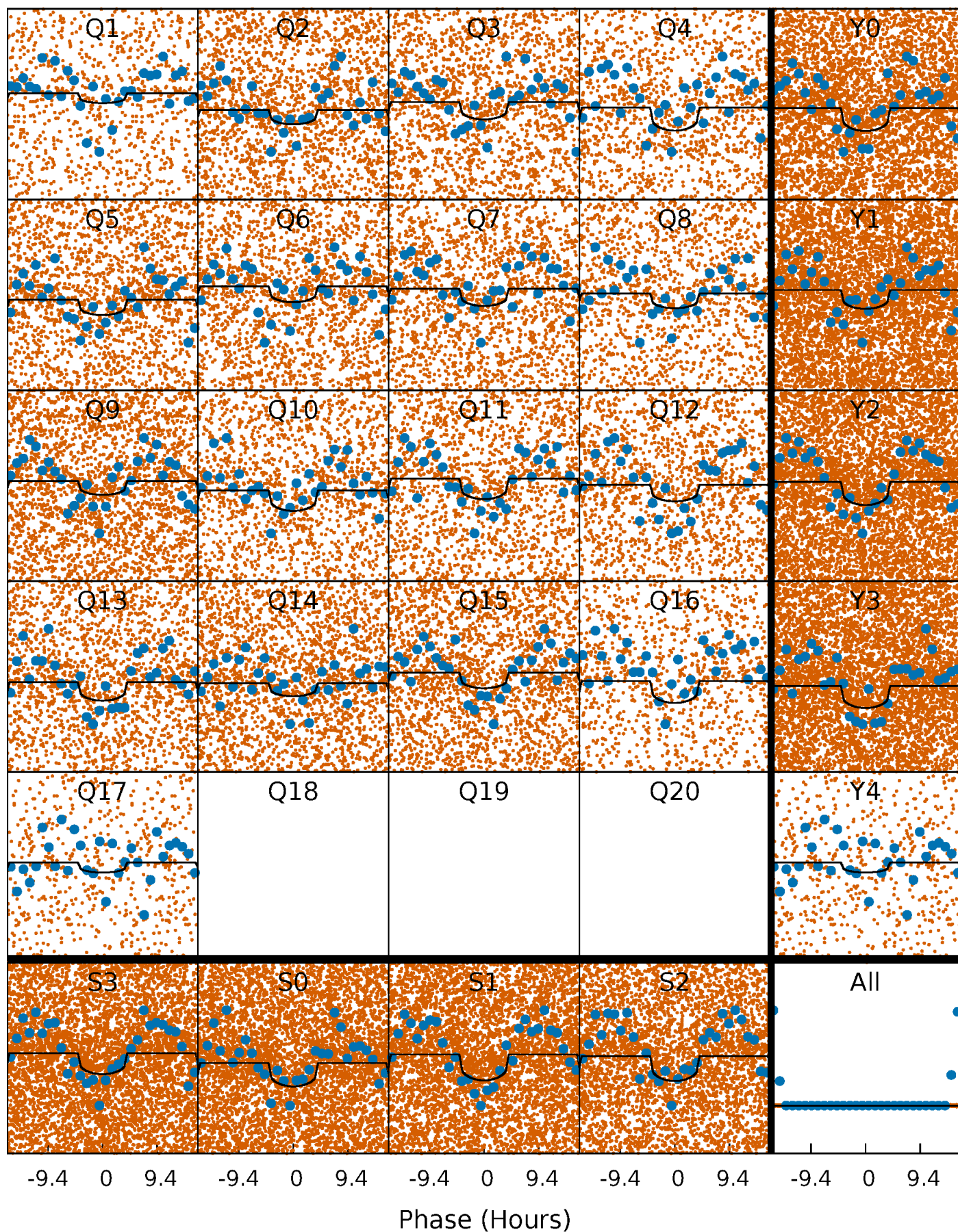
TCE 007214475-01   P= 0.845462 Days    $T_0=132.029424$  (BKJD)





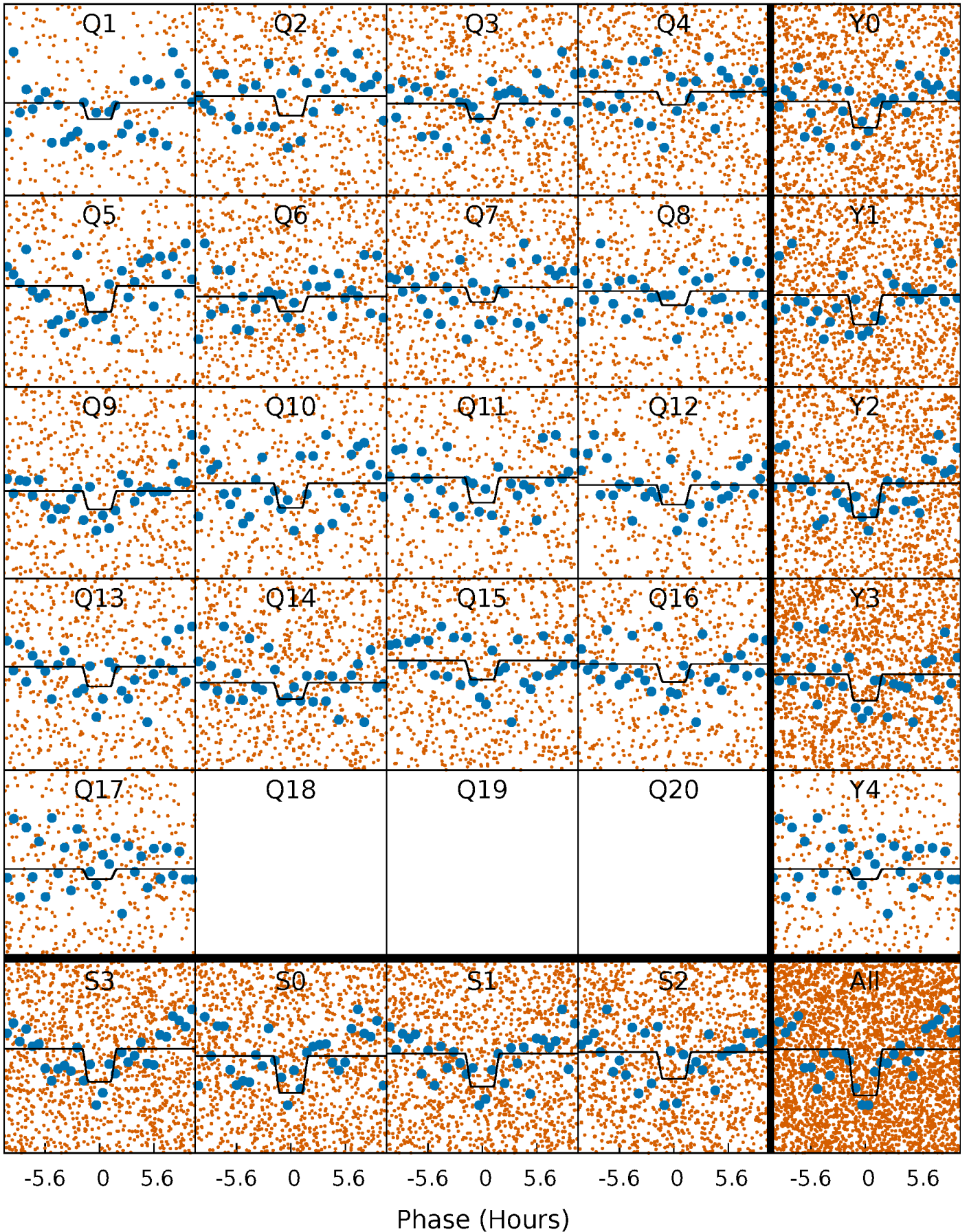
# DV Quarter-Phased Transit Curves

TCE 007214475-01   P= 0.845462 Days    $T_0=132.029424$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007214475-01 P= 0.845394 Days  $T_0=132.061230$  (BKJD)

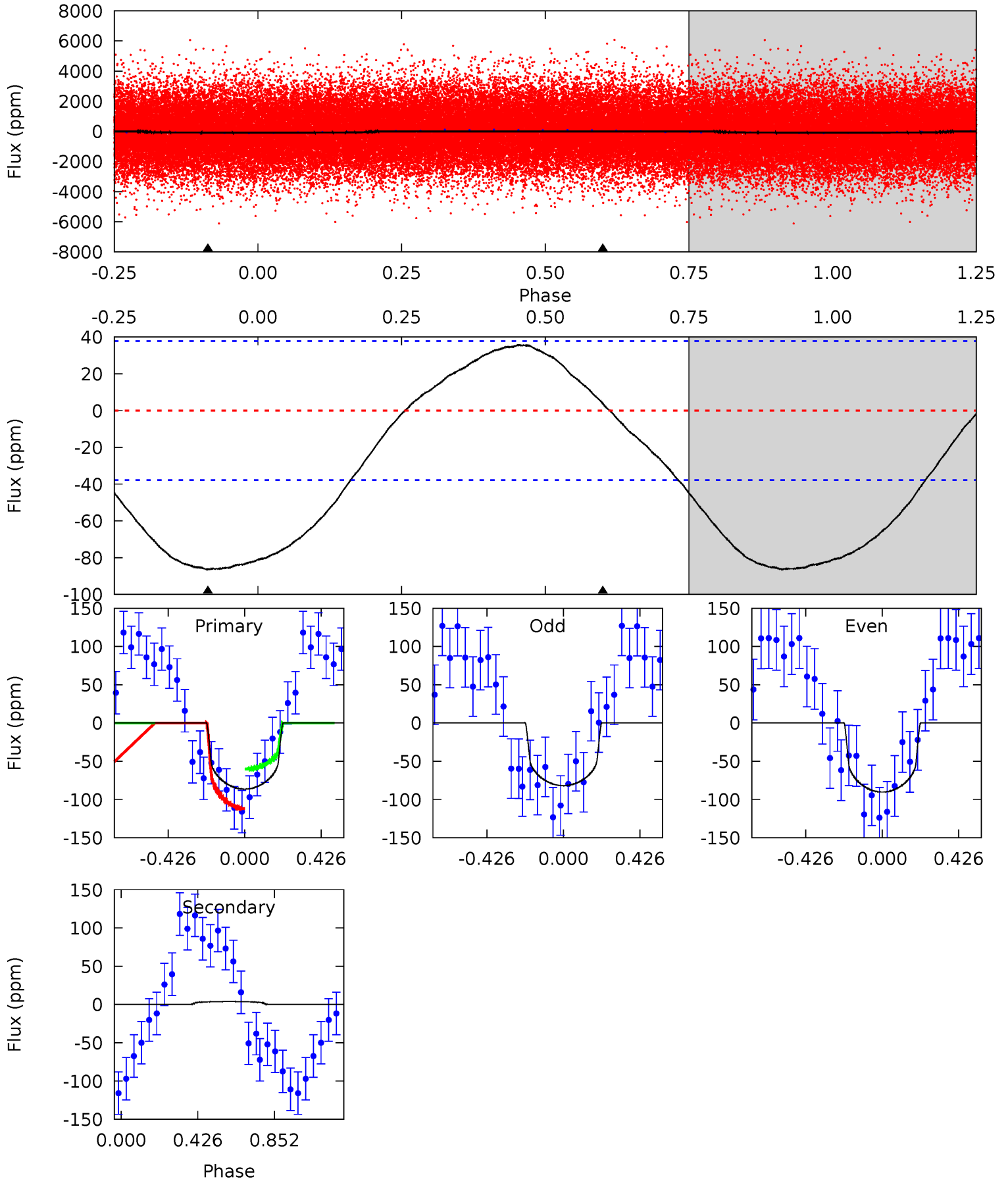




# DV Model-Shift Uniqueness Test

007214475-01,  $P = 0.845462$  Days,  $E = 131.183962$  Days

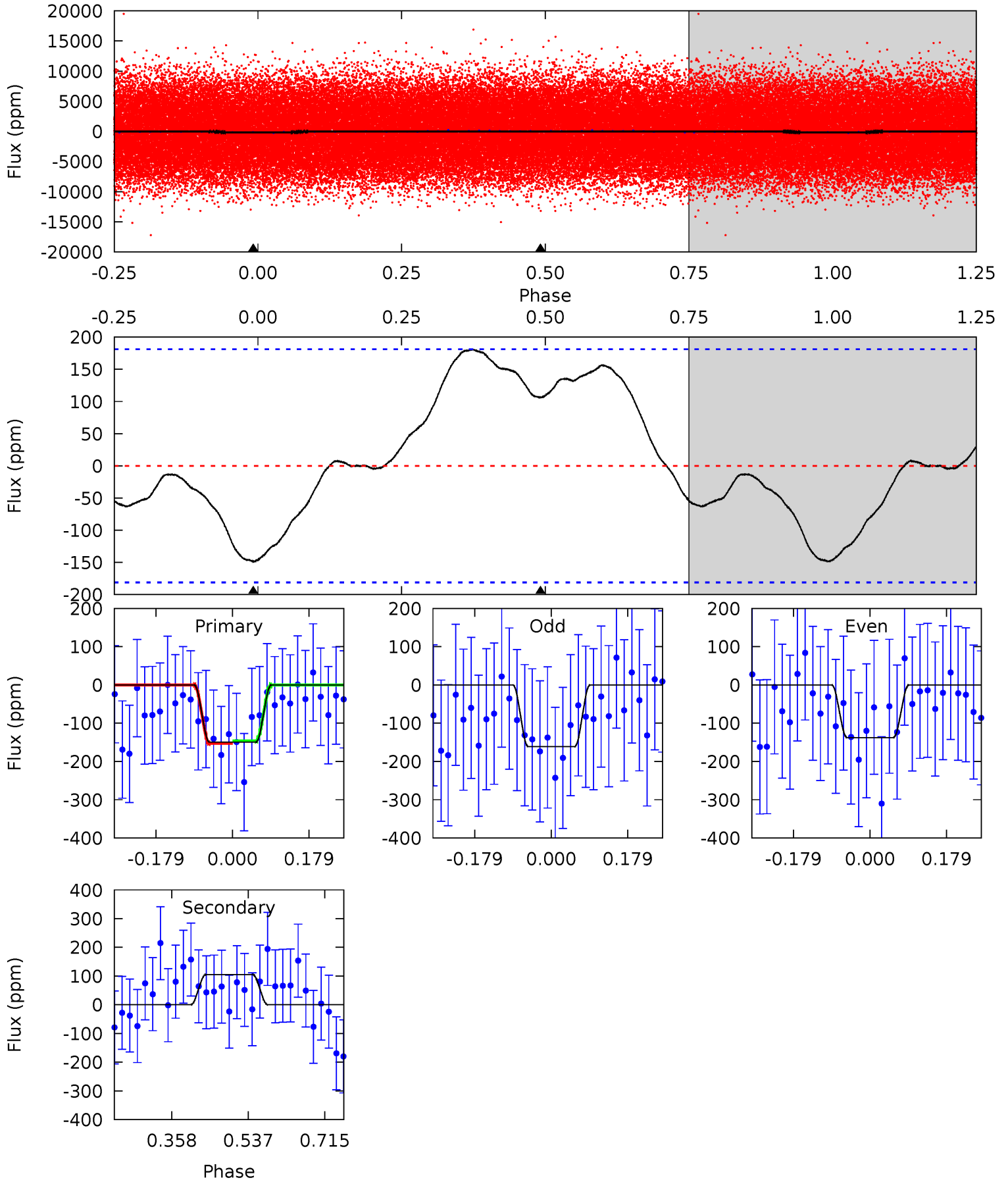
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.71	-0.44	0	0	4.25	0.80	1.06	9.71	9.71	-0.44	-0.44	0.47	0.96	0.29	2.88



# Alt Model-Shift Uniqueness Test

007214475-01, P = 0.845394 Days, E = 131.215836 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
3.67	-2.59	0	0	4.44	1.34	1.11	3.67	3.67	-2.59	-2.59	0.29	0.91	0.55	0.08





### Stellar Parameters For KIC 007214475

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7113^{+200}_{-325}$	$4.142^{+0.132}_{-0.181}$	$-0.060^{+0.250}_{-0.350}$	$1.709^{+0.525}_{-0.350}$	$1.477^{+0.218}_{-0.239}$	$0.417^{+0.314}_{-0.208}$
	+3%/-5%	+3%/-4%	+417%/-583%	+31%/-20%	+15%/-16%	+75%/-50%
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 007214475-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$4 \pm 9$	$1.80^{+1.34}_{-1.15}$	$4066^{+292}_{-265}$	$-4046^{+7198}_{-1229}$	$-0.184^{+0.604}_{-1.403}$
Alt.	$106 \pm 41$	$2.52^{+1.45}_{-1.31}$	$4095^{+299}_{-287}$	$-6207^{+1138}_{-3232}$	$-3.468^{+2.295}_{-11.473}$

$T_{\text{max}}$  = 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

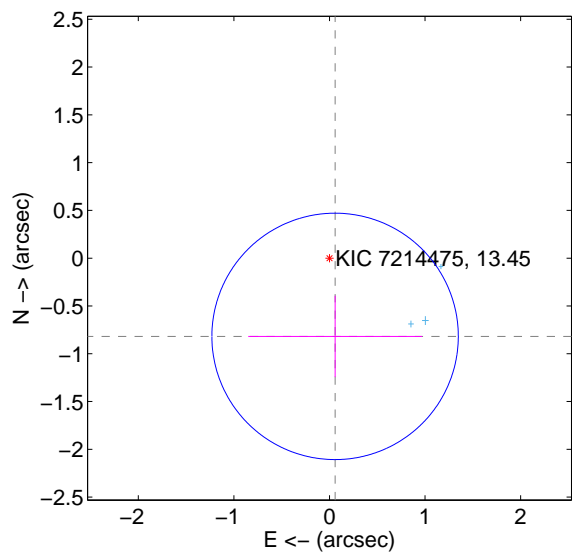
Supplemental centroid analysis for 007214475-01. Kepler magnitude: 13.45. Transit SNR 10.09

There are 4 quarters with good PRF difference image offsets

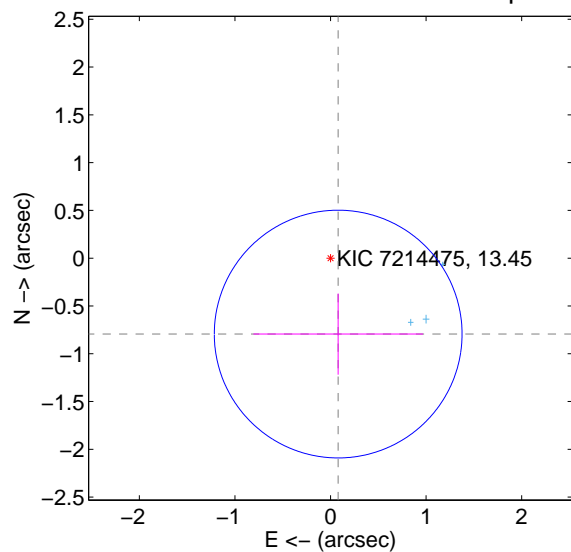
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.821 \pm 0.430$	1.91	$-0.059 \pm 0.909$	$-0.818 \pm 0.426$
PRF-fit source offset from KIC position	$0.798 \pm 0.432$	1.85	$-0.080 \pm 0.887$	$-0.794 \pm 0.425$
photometric centroid source offset	$0.25 \pm 0.15$	1.68	$-0.18 \pm 0.15$	$-0.16 \pm 0.15$

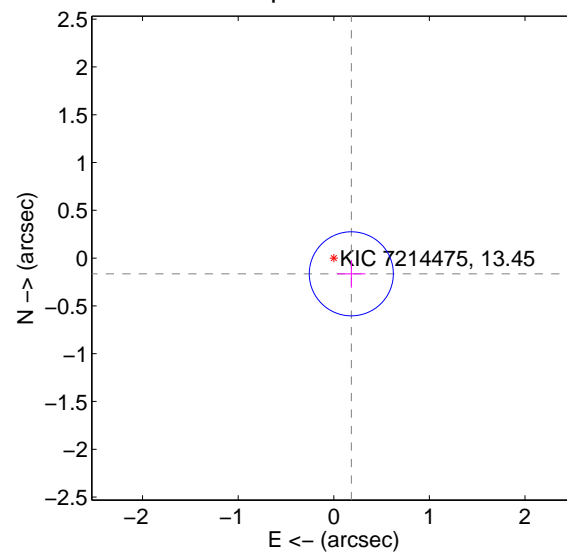
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

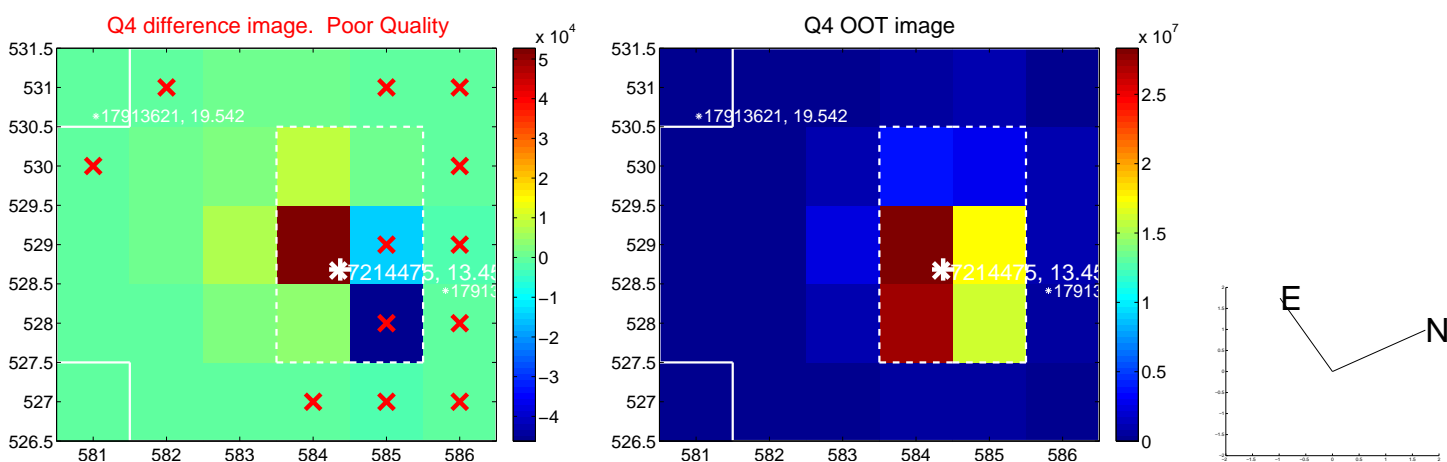
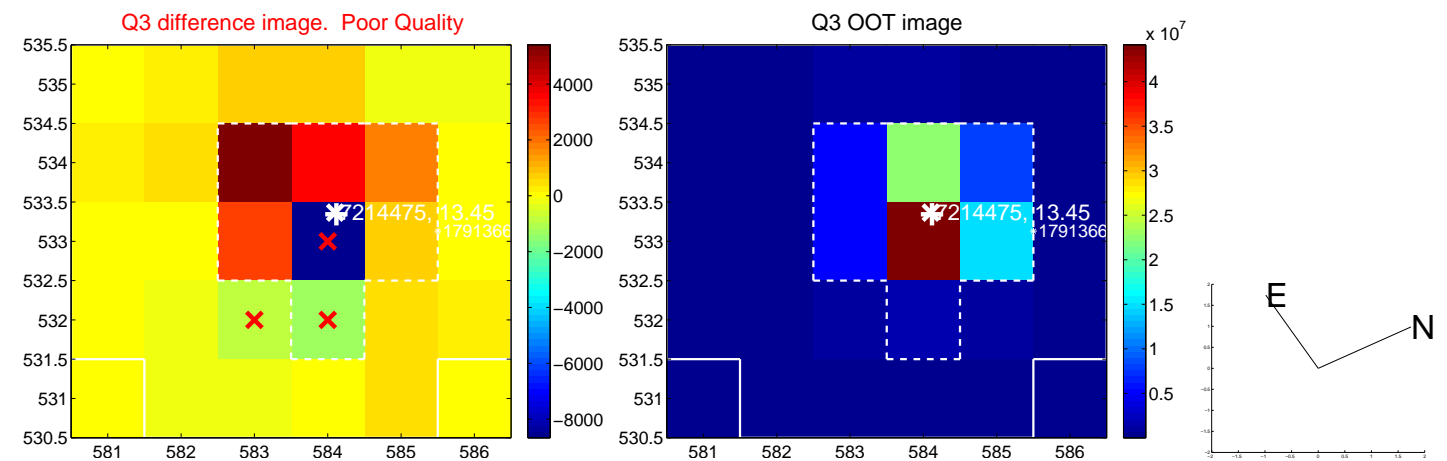
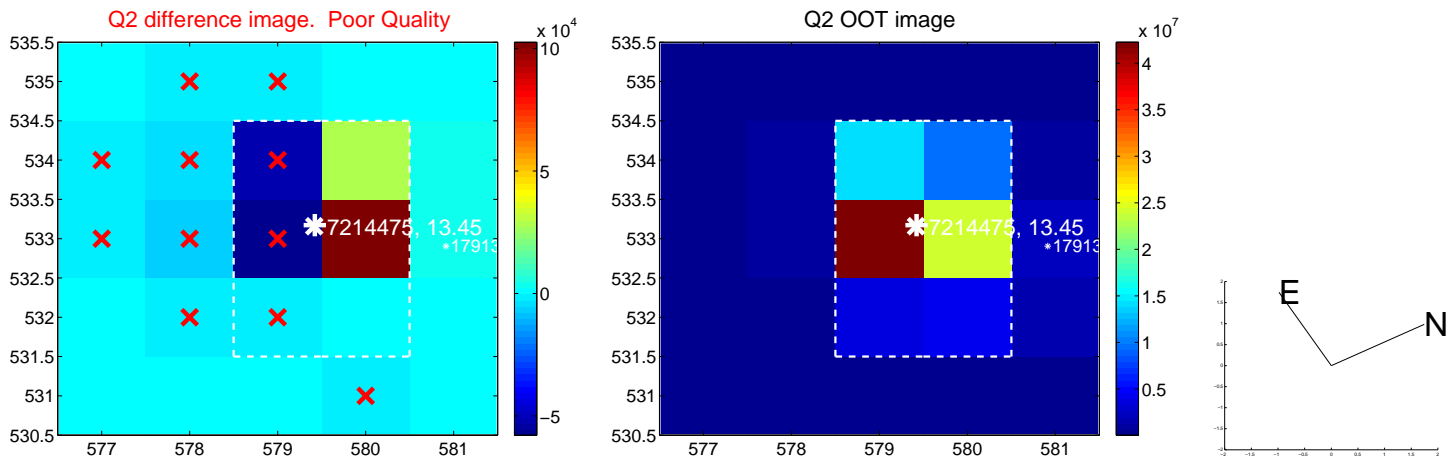
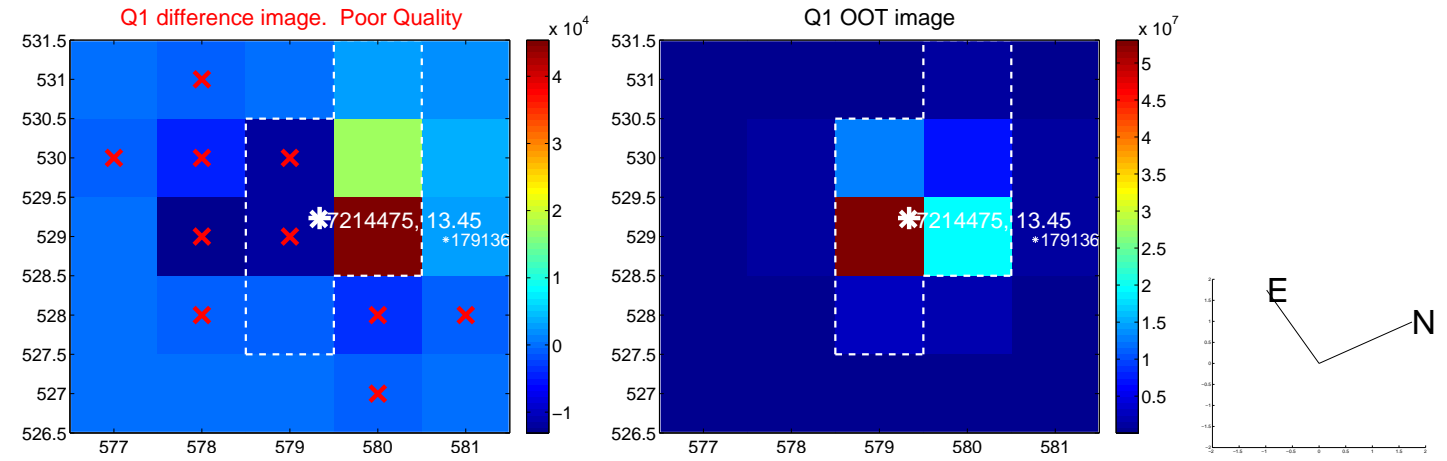


offset from photometric centroids

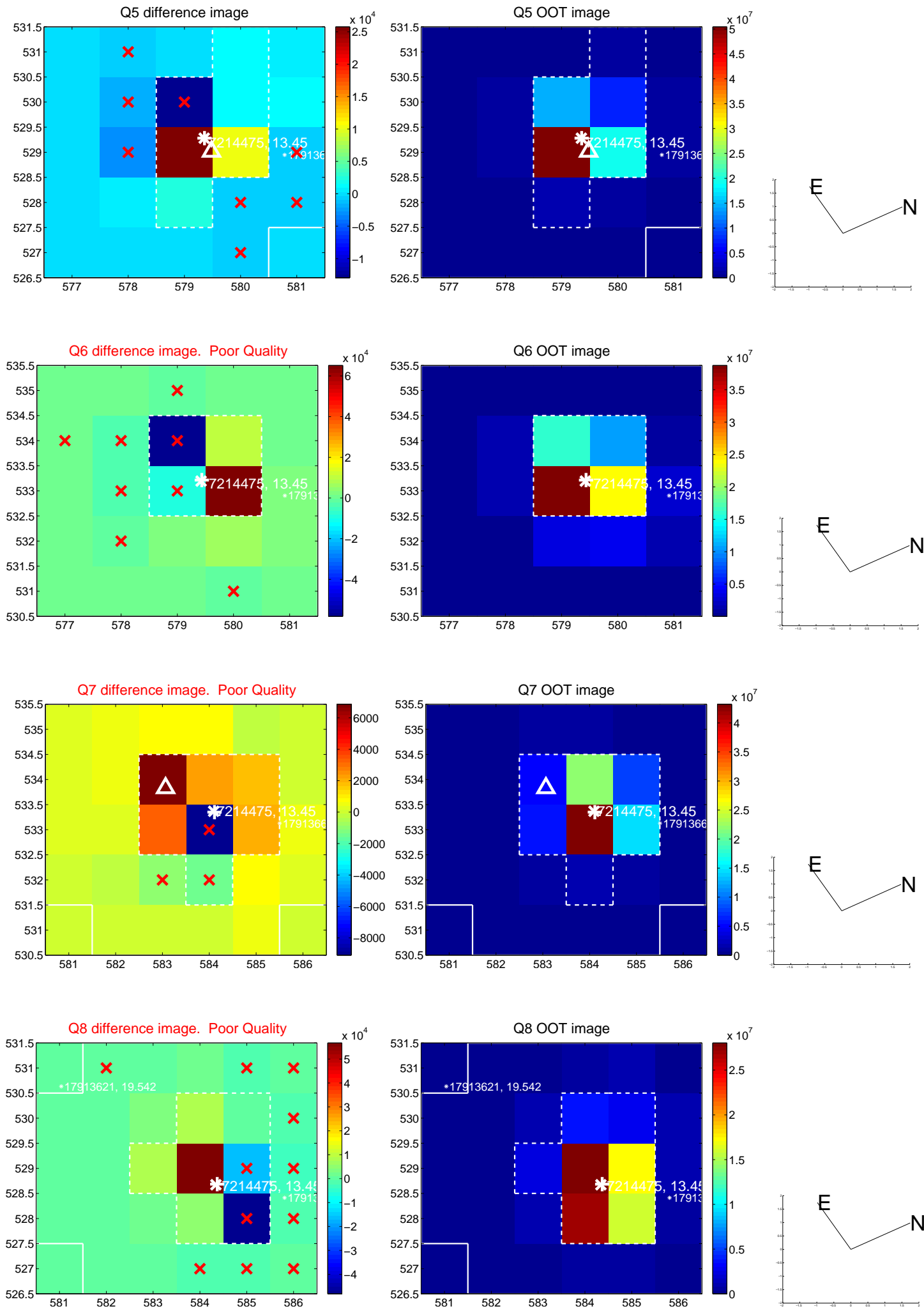


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

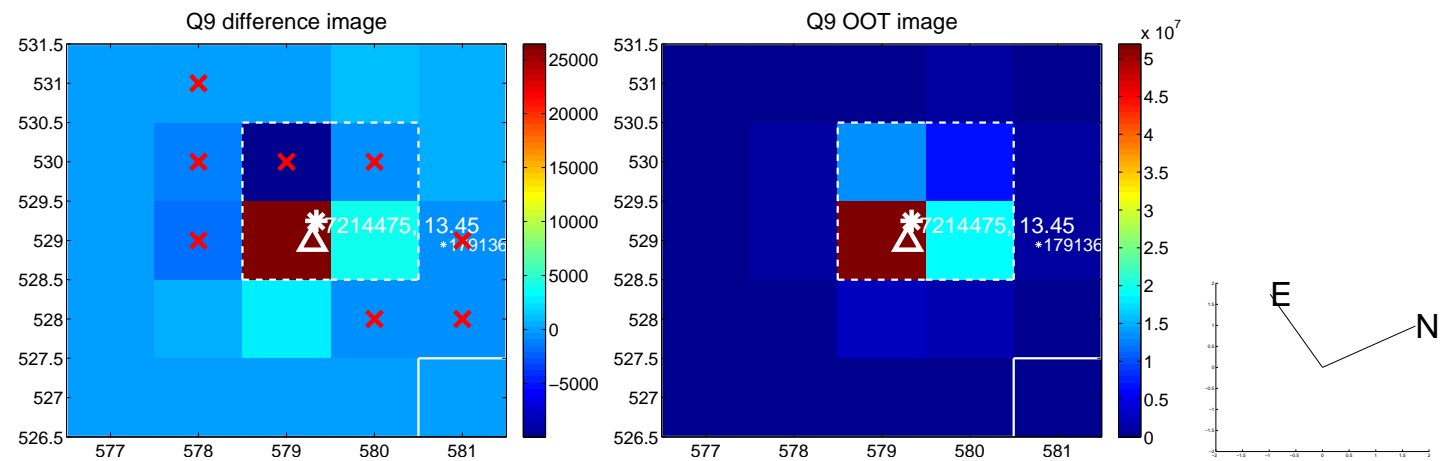


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

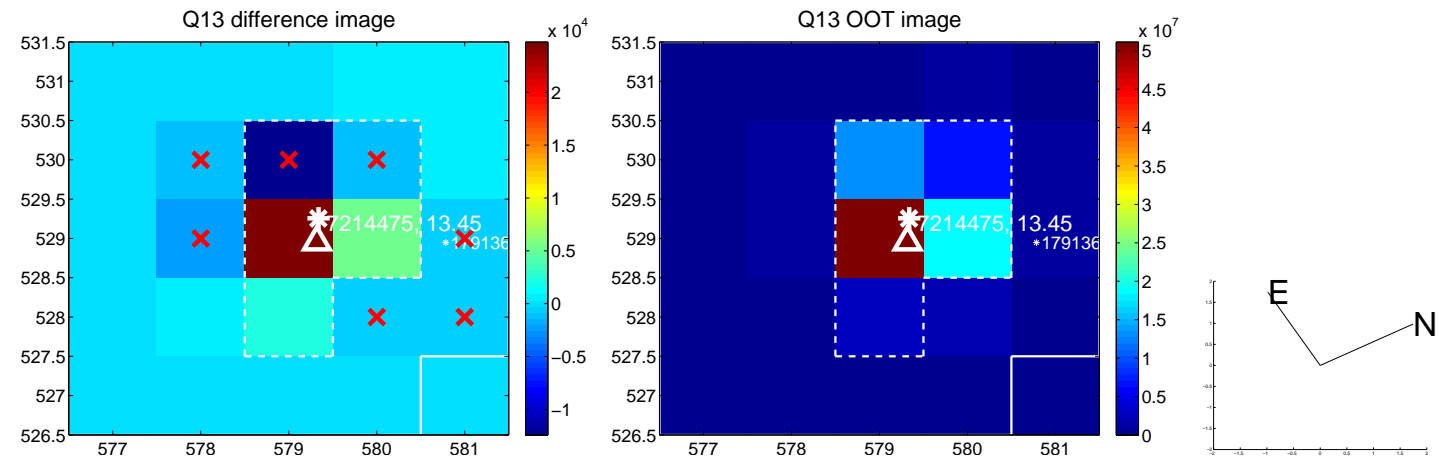




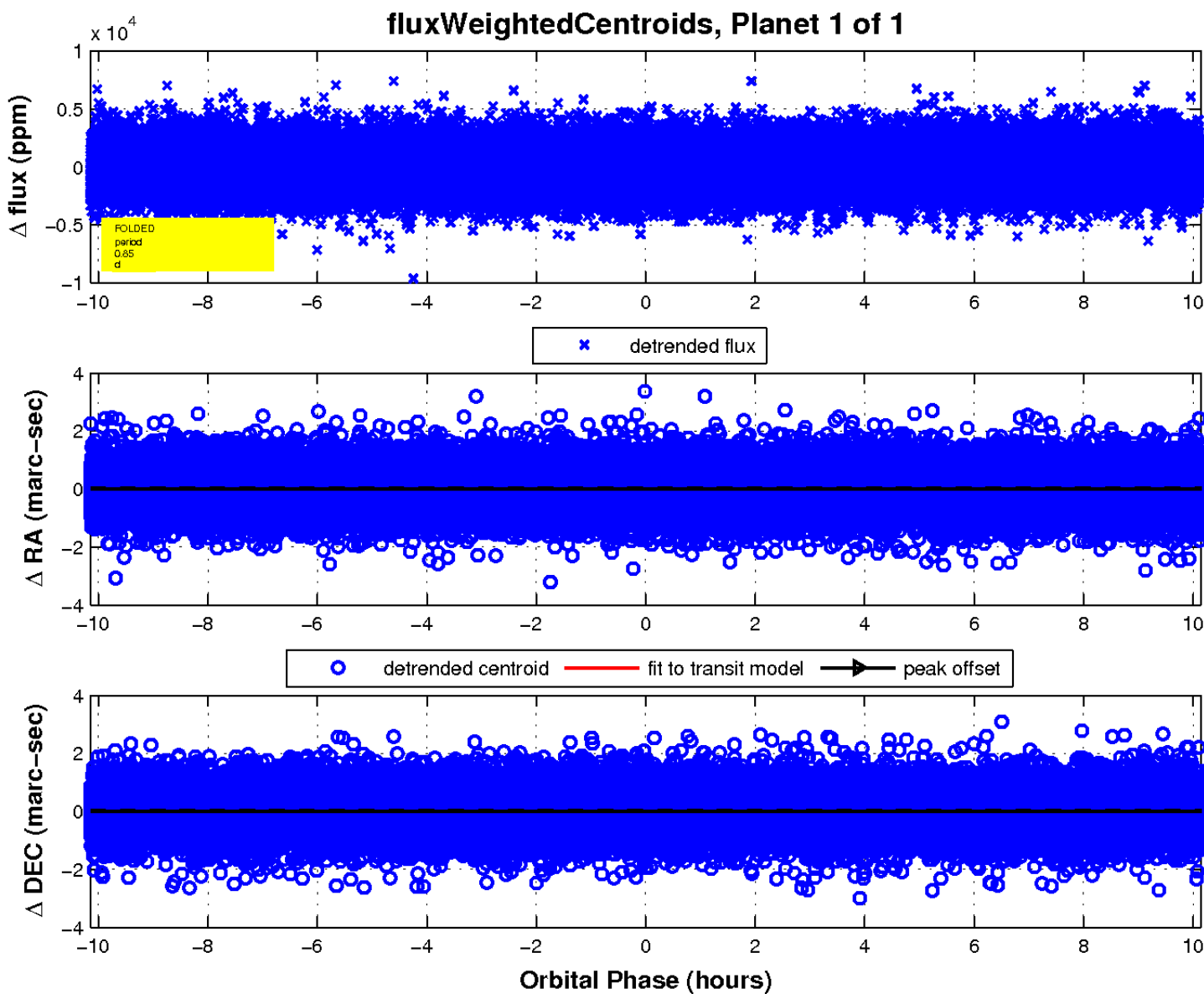
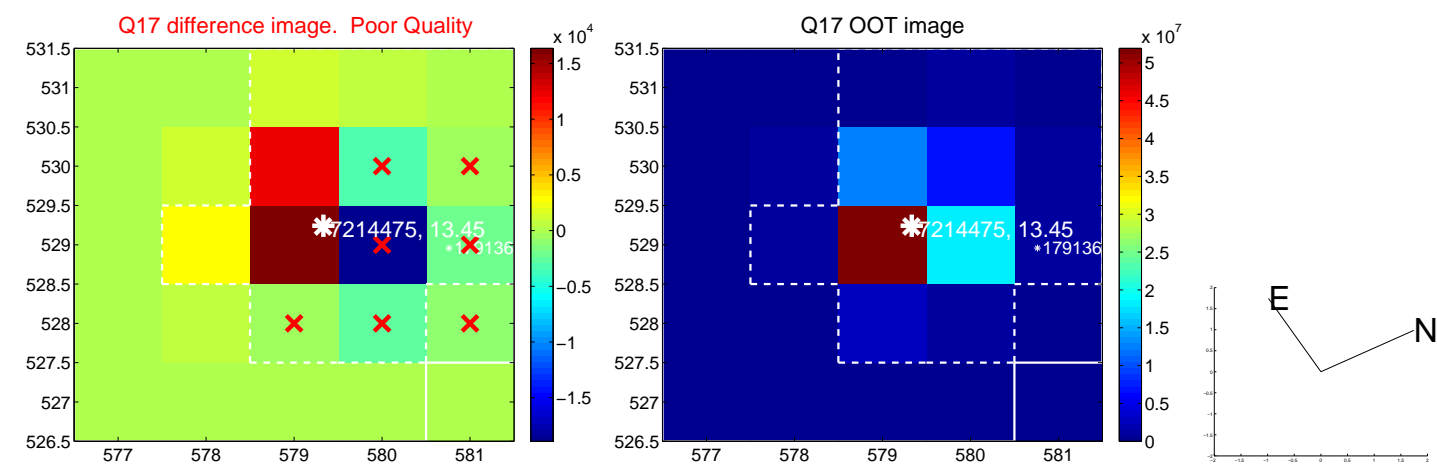
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

