

# KIC 008973000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008973000-01	OBS	No	28.027909	148.770773	184033.8	6.430	7442.6	4712.7	0.56	5222	24.69	9.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008973000-01	OBS	FP	0.00	1	0	0	0	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 008973000-01

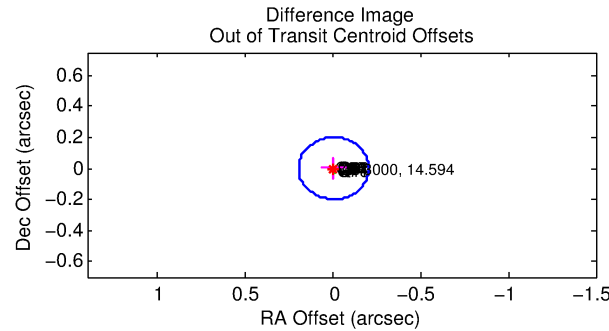
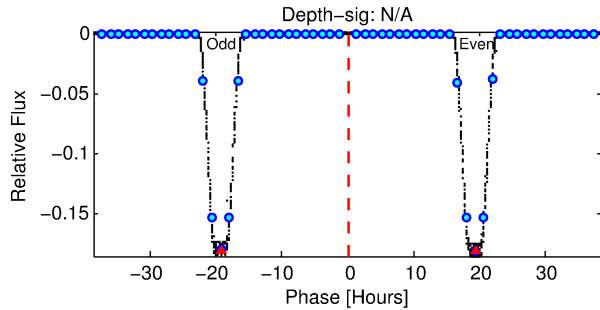
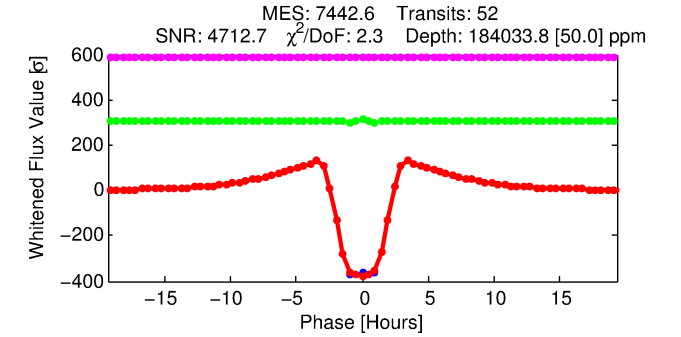
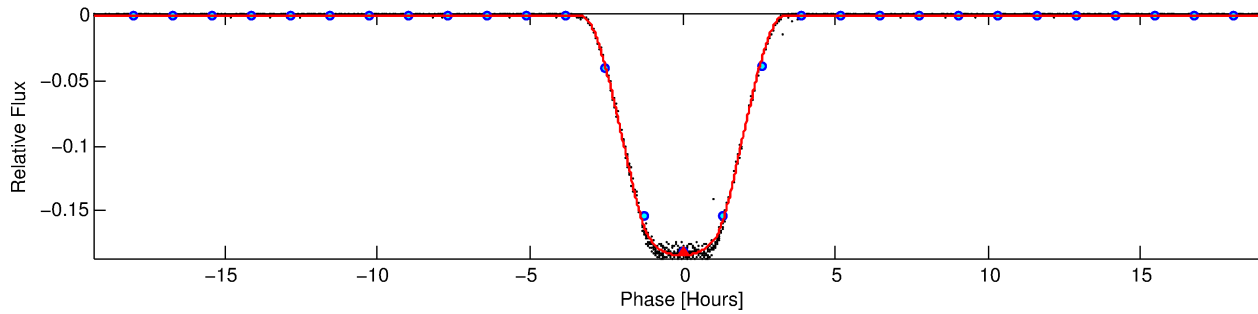
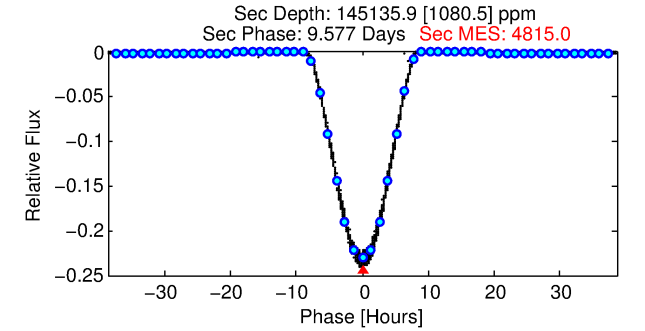
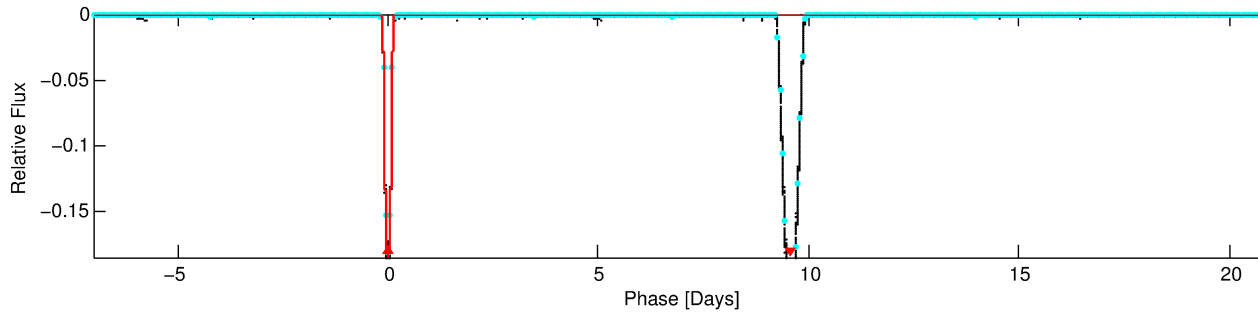
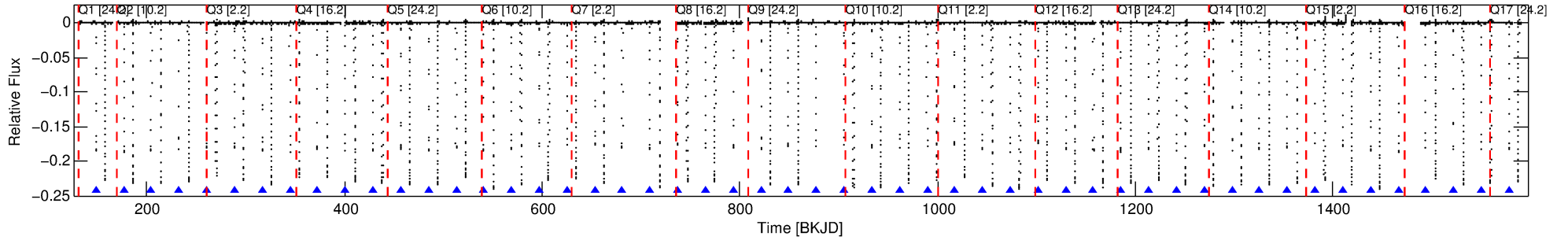
No Significant Match Found

# DV One-Page Summary

KIC: 8973000 Candidate: 1 of 1 Period: 28.028 d

KOI: K07118 Corr: No Ephemeris Match

Kp: 14.59 R\*: 0.56 Rs Teff: 5222.0 K Logg: 4.70 Fe/H: -1.980



## DV Fit Results:

Period = 28.02791 [0.00000] d  
Epoch = 148.7708 [0.0000] BKJD  
Rp/R\* = 0.4041 [0.0001]  
a/R\* = 45.37 [0.02]  
b = 0.34 [0.00]  
Seff = 9.25 [1.34]  
Teq = 445 [16] K  
Rp = 24.69 [1.28] Re  
a = 0.1503 [0.0077] AU  
Ag = 2957.24 [245.74] [12.03σ]  
Teffp = 5070 [152] K [30.31σ]

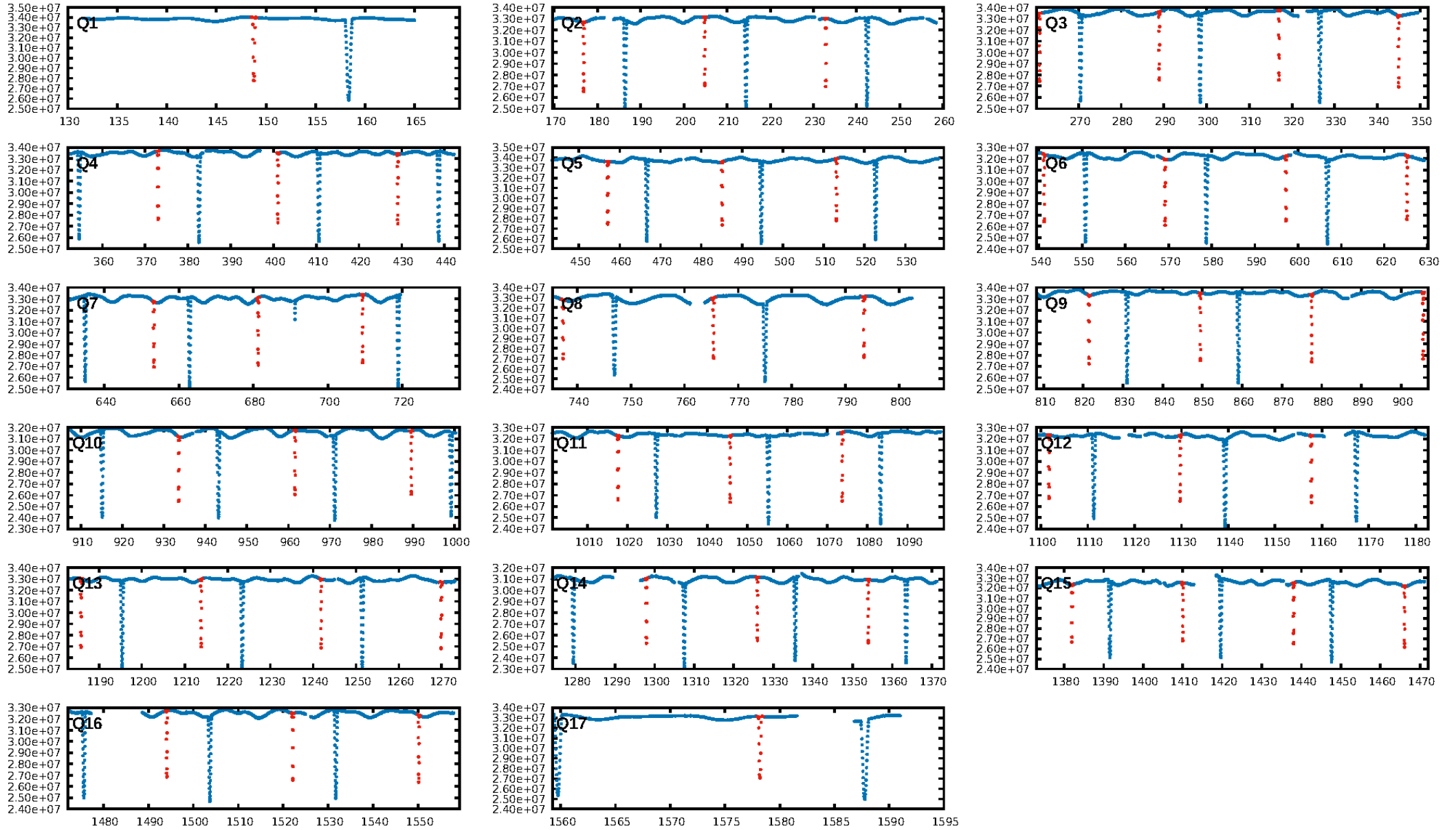
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [50/50]  
GhostDiagnostic-chr: 2.251  
Centroid-sig: 0.0%  
Centroid-so: 0.144 arcsec [84.82σ]  
OotOffset-rm: 0.005 arcsec [0.08σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.133 arcsec [1.88σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

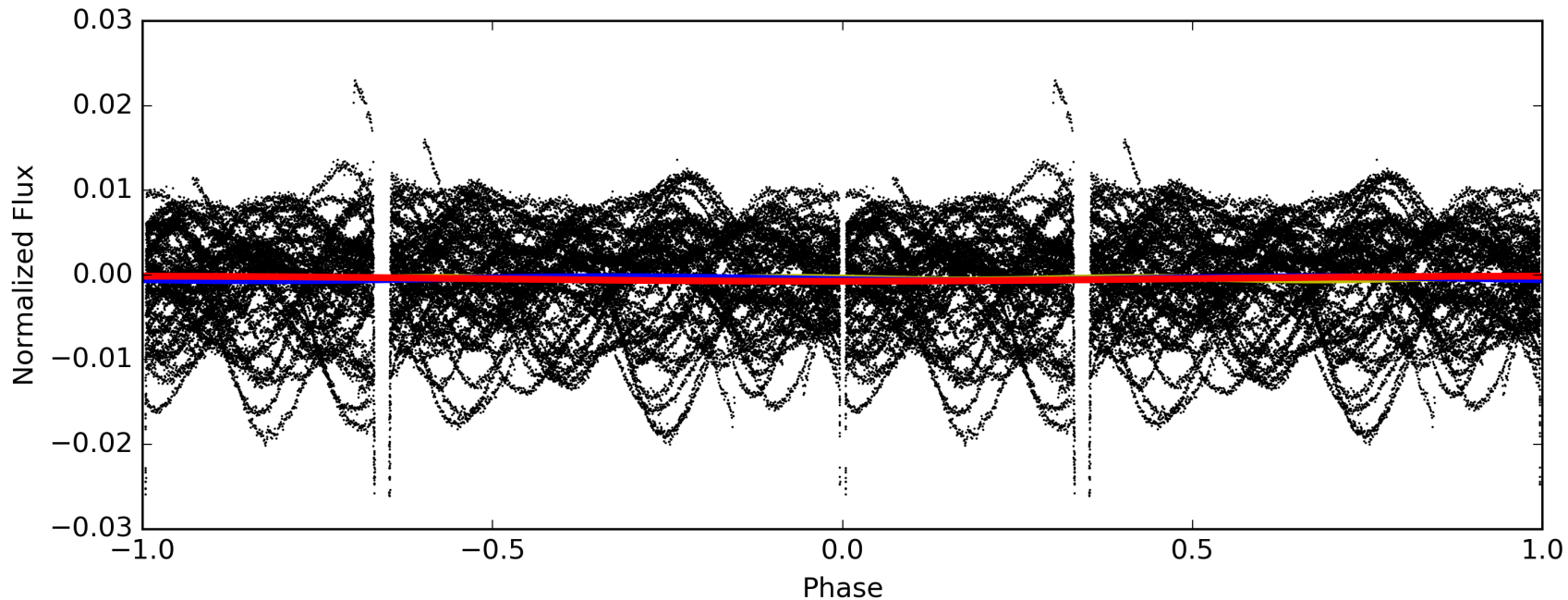
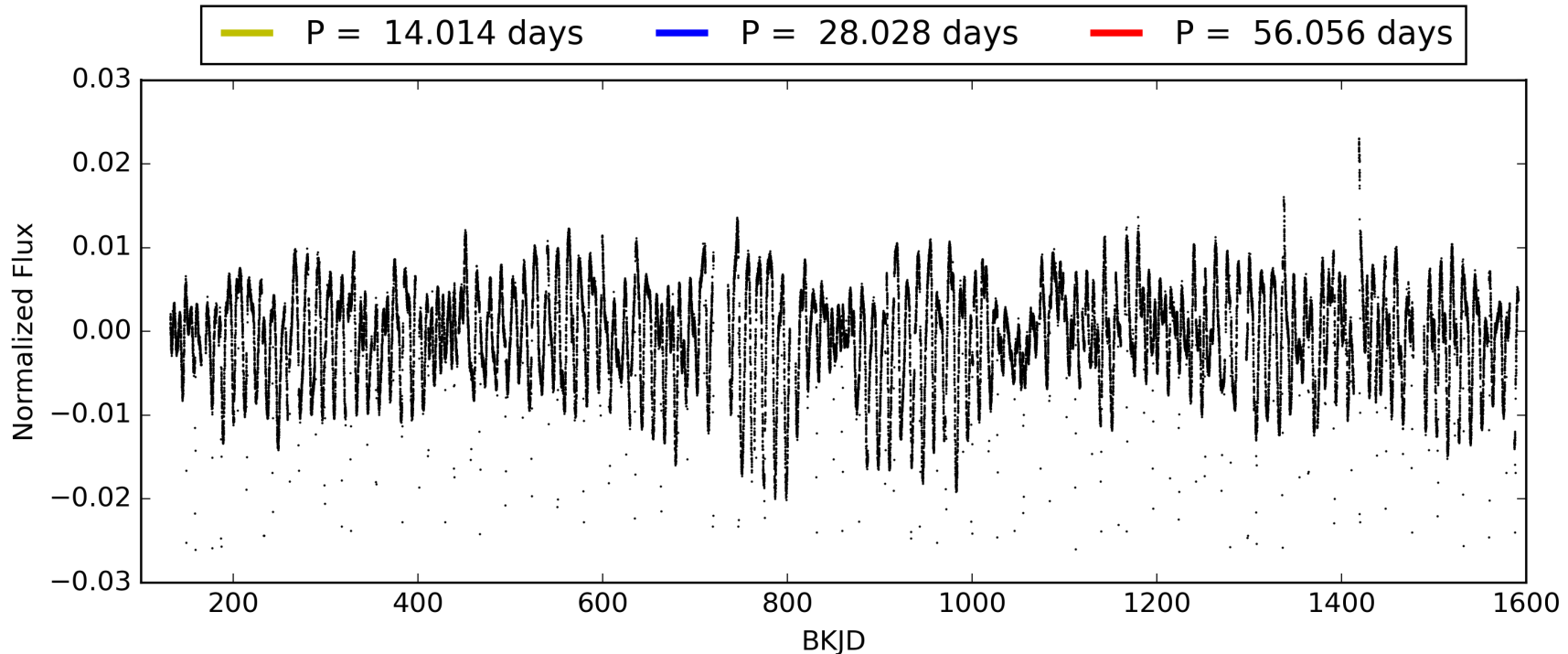
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 22:46:03 Z

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

# TCE 008973000-01, PDC Light Curves

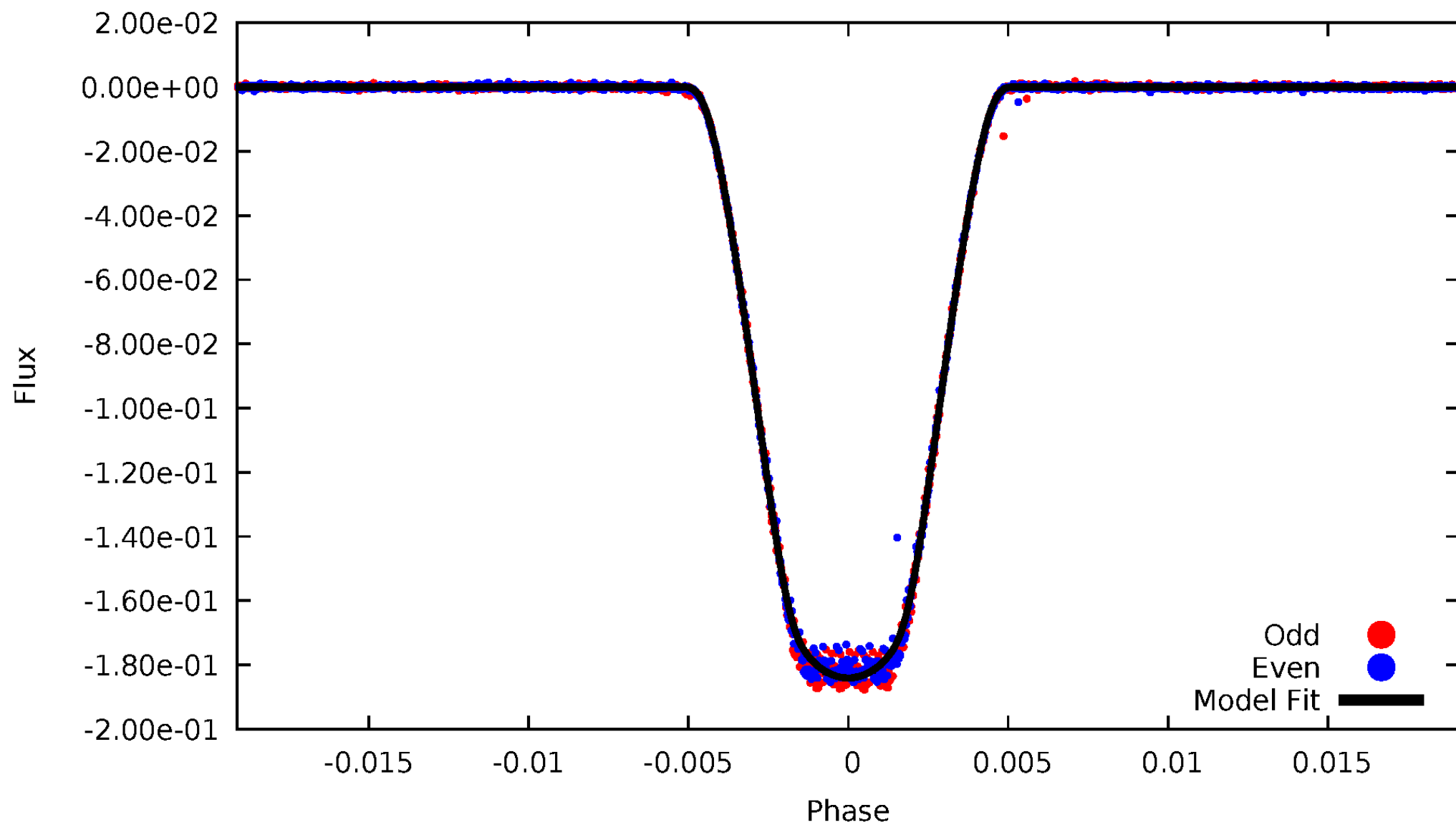


TCE 008973000-01



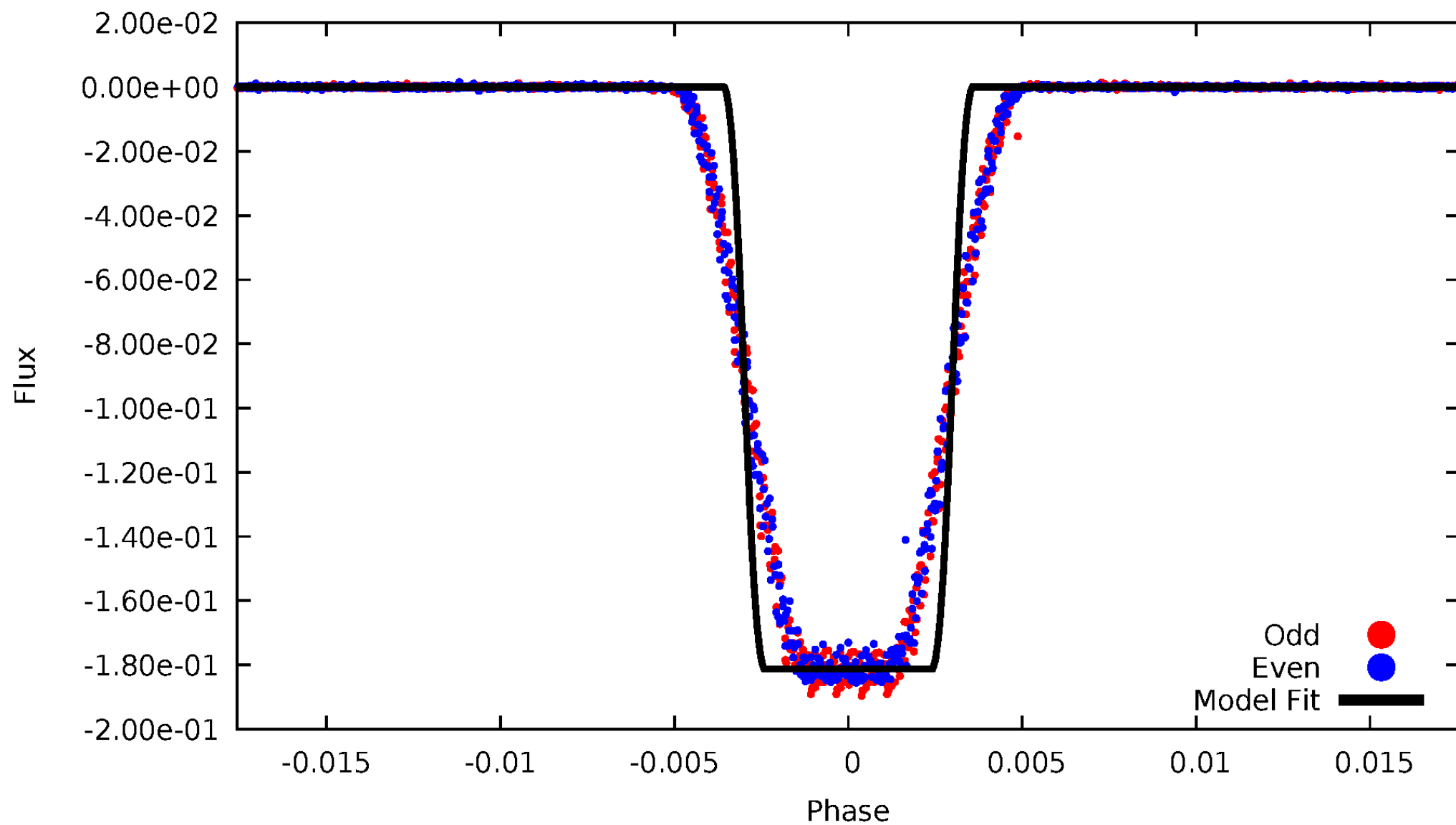
# DV Odd/Even

TCE 008973000-01



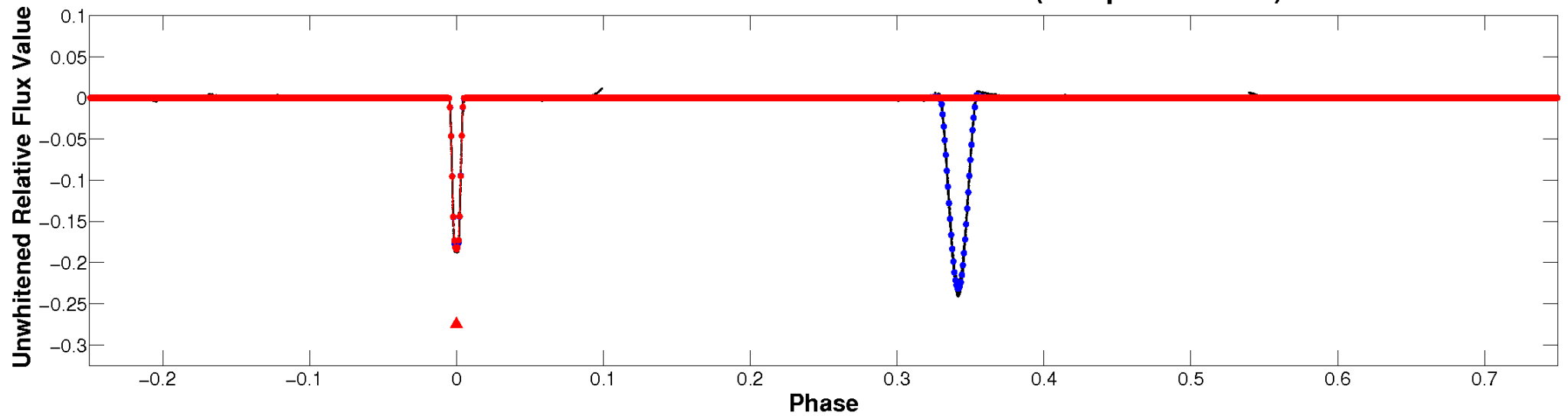
# ALT Odd/Even

TCE 008973000-01

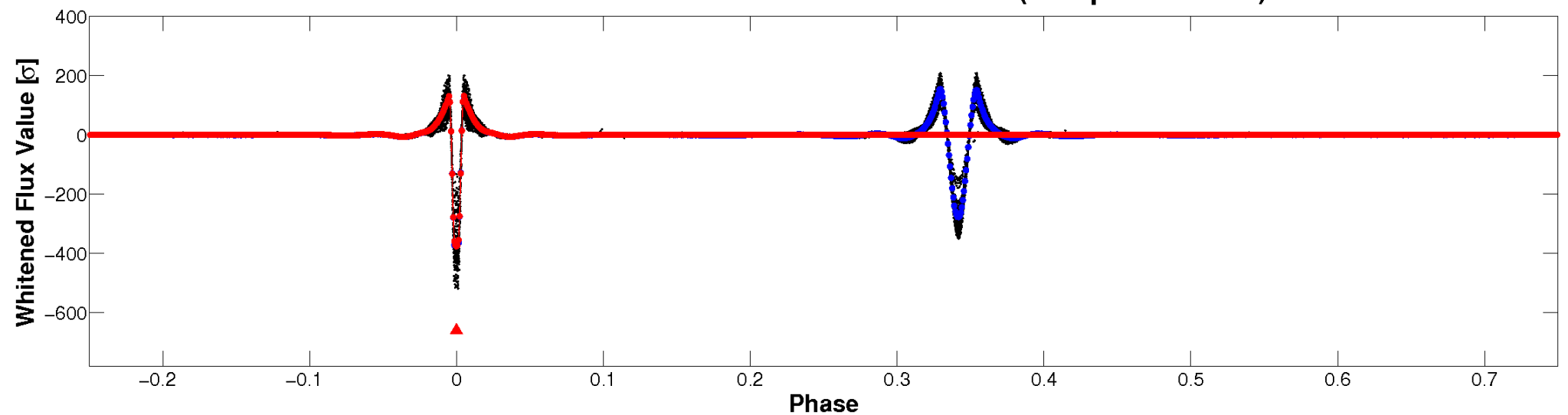


# Non-Whitened Vs. Whitened Light Curve

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

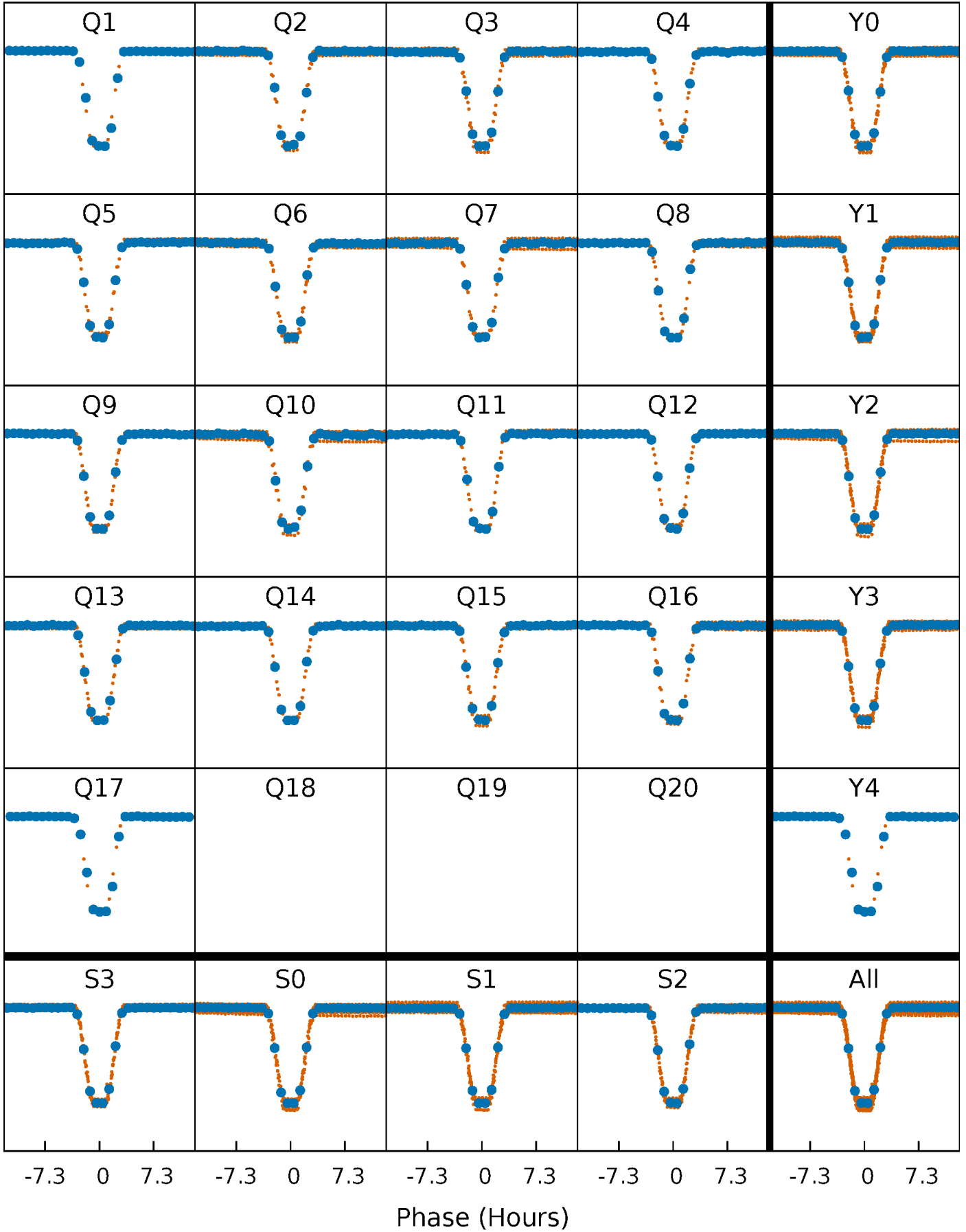


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

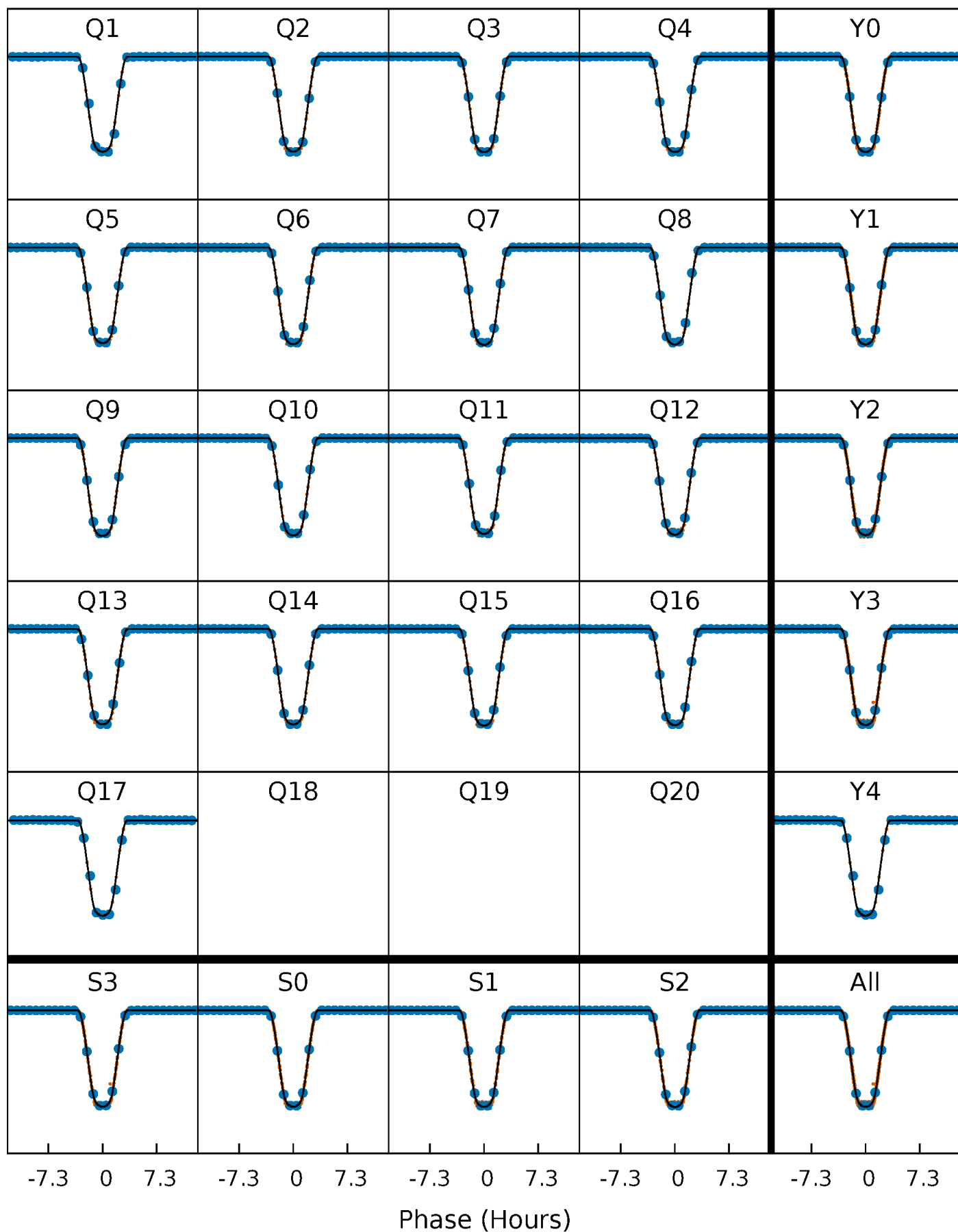
TCE 008973000-01   P= 28.027909 Days    $T_0=148.770773$  (BKJD)





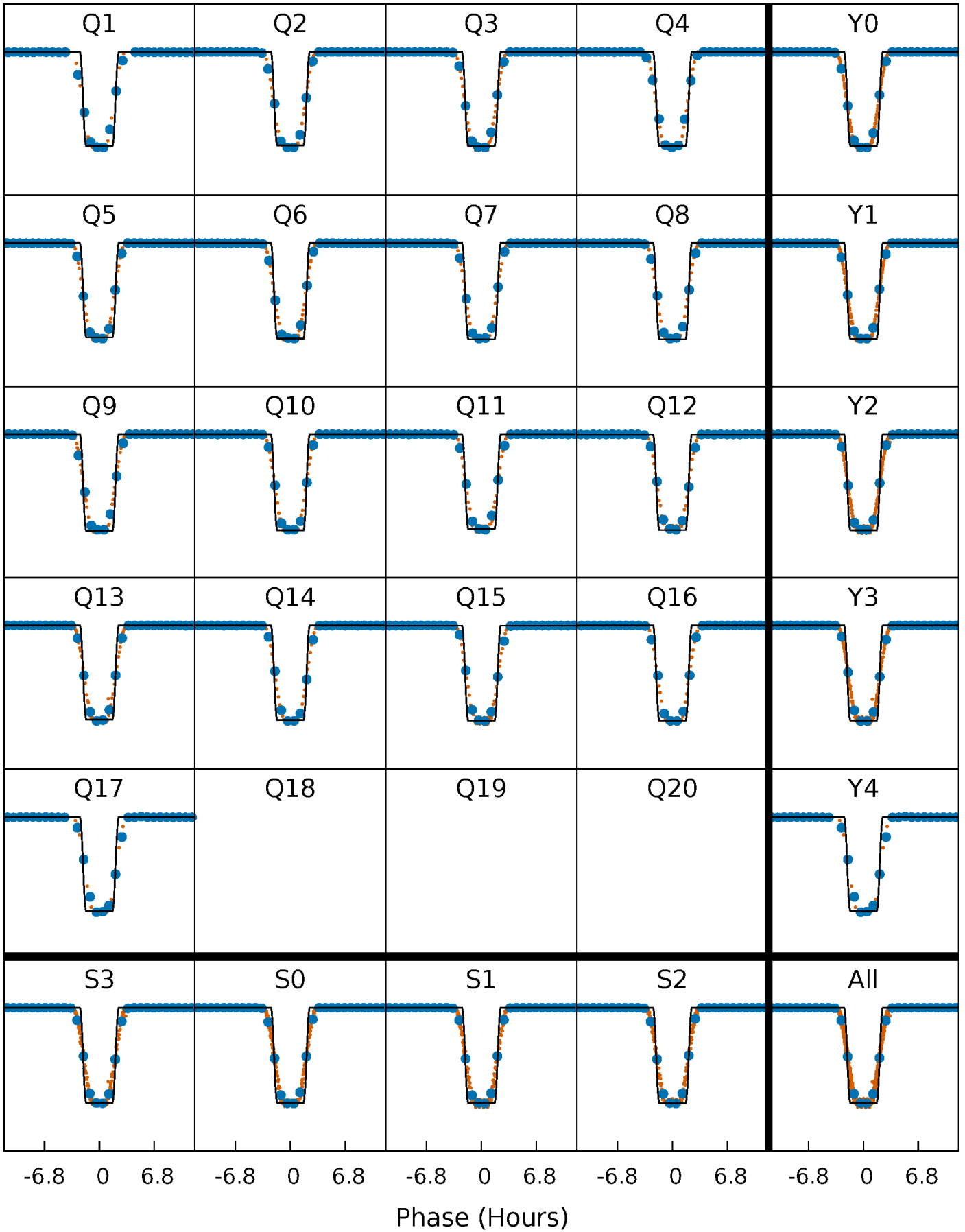
# DV Quarter-Phased Transit Curves

TCE 008973000-01 P= 28.027909 Days  $T_0=148.770773$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

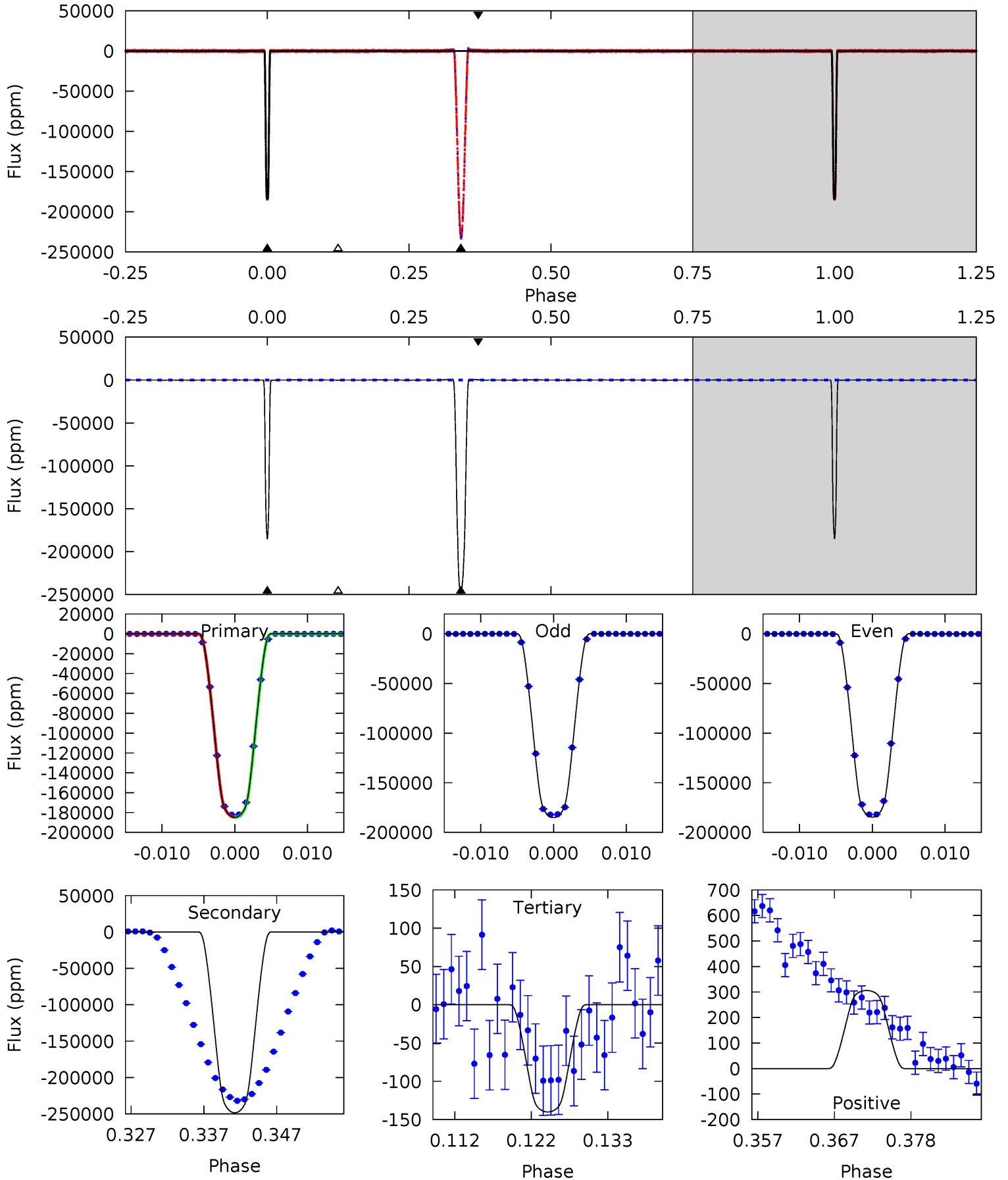
TCE 008973000-01 P= 28.027708 Days  $T_0=148.775727$  (BKJD)



# DV Model-Shift Uniqueness Test

008973000-01, P = 28.027909 Days, E = 120.742864 Days

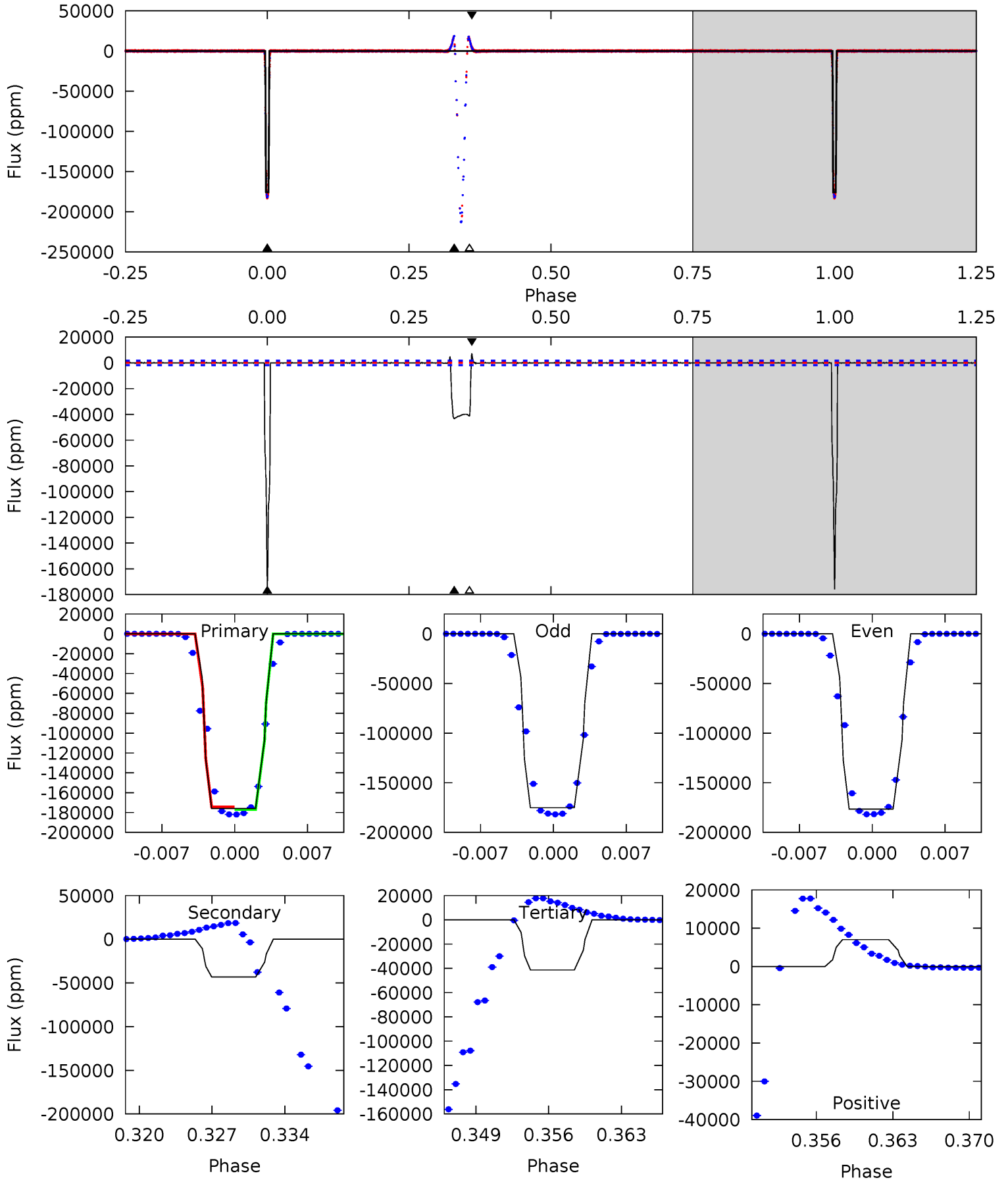
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3577	4806	2.71	5.92	5.02	2.57	34.0	3574	3571	4804	4800	5.08	1.00	0.00	1.10



# Alt Model-Shift Uniqueness Test

008973000-01, P = 28.027708 Days, E = 120.748019 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
525.2	129.3	123.4	20.9	5.09	2.69	3.46	401.8	504.3	5.92	108.4	2.14	1.00	0.04	3.53



### Stellar Parameters For KIC 008973000

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5222^{+156}_{-156}$	$4.702^{+0.049}_{-0.021}$	$-1.980^{+0.150}_{-0.050}$	$0.560^{+0.022}_{-0.029}$	$0.576^{+0.038}_{-0.017}$	$4.618^{+0.758}_{-0.392}$
	+3%/-3%	+1%/-0%	+8%/-3%	+4%/-5%	+7%/-3%	+16%/-8%
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 008973000-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-248337 \pm 52$	$24.70^{+0.63}_{-0.84}$	$619^{+21}_{-20}$	$6165^{+209}_{-196}$	$6822^{+419}_{-290}$
Alt.	$-43285 \pm 335$	$25.99^{+0.64}_{-0.86}$	$616^{+22}_{-18}$	$3975^{+100}_{-92}$	$844^{+48}_{-36}$

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

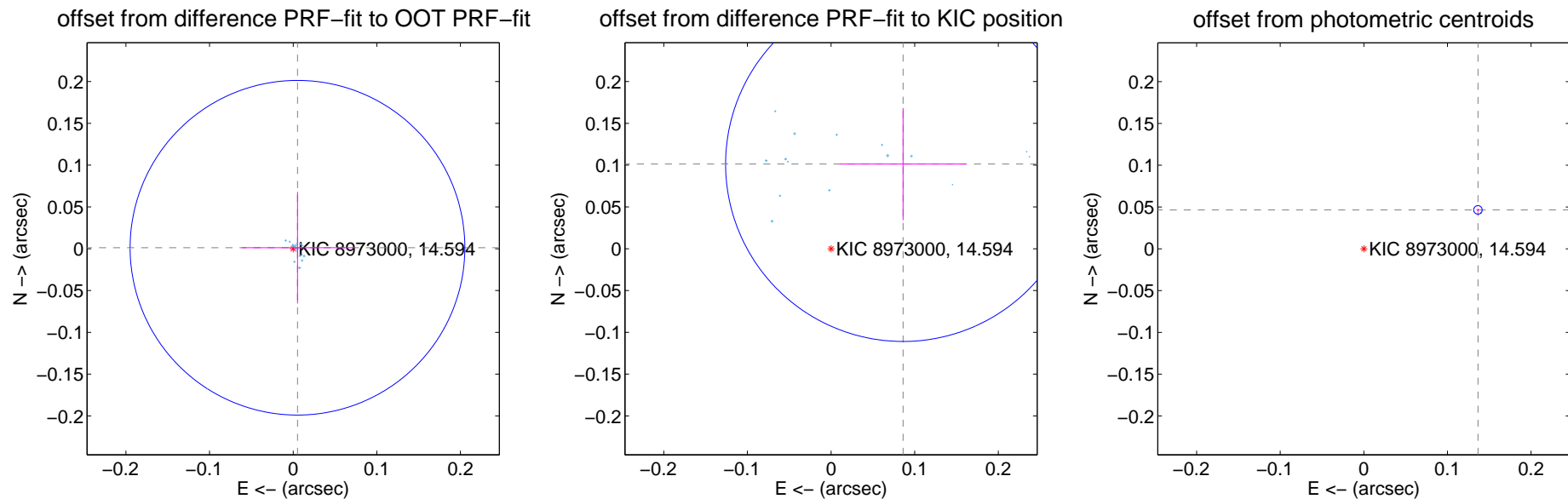
## DV Centroid Data

Supplemental centroid analysis for 008973000-01. Kepler magnitude: 14.59. Transit SNR 4712.72

There are 17 quarters with good PRF difference image offsets

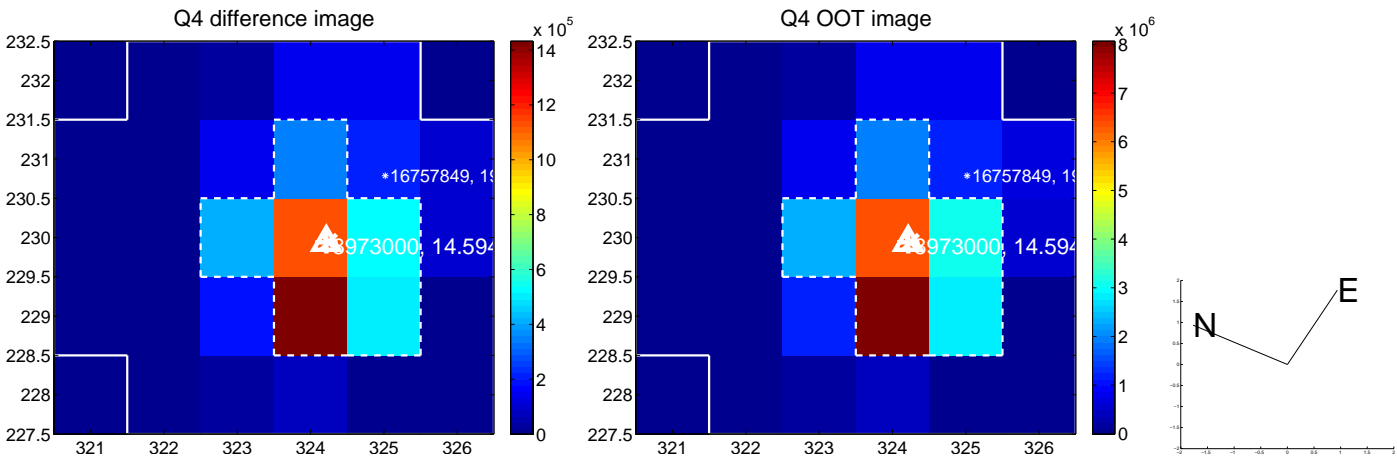
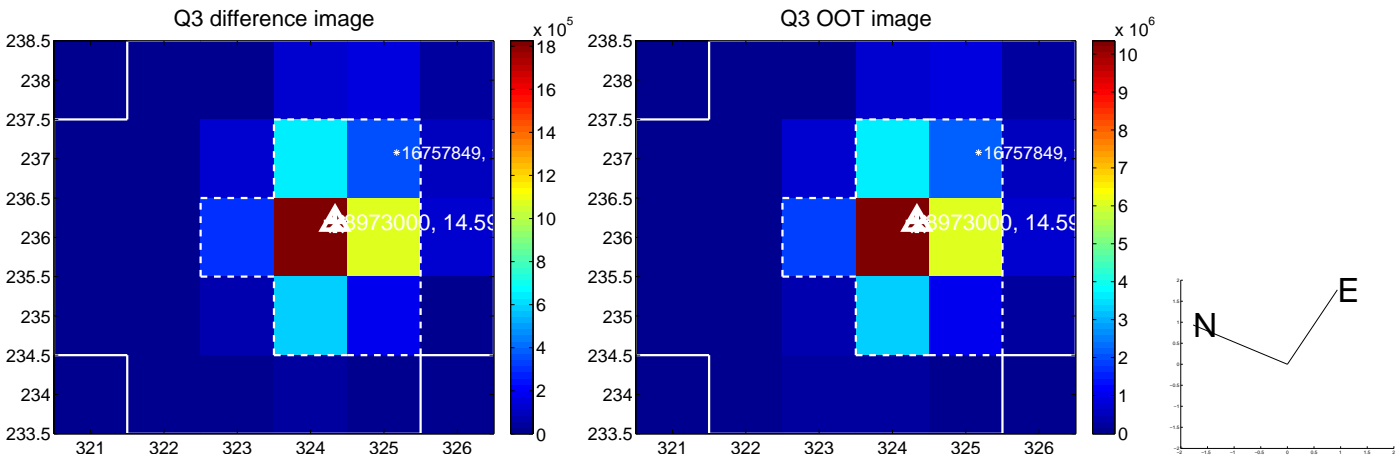
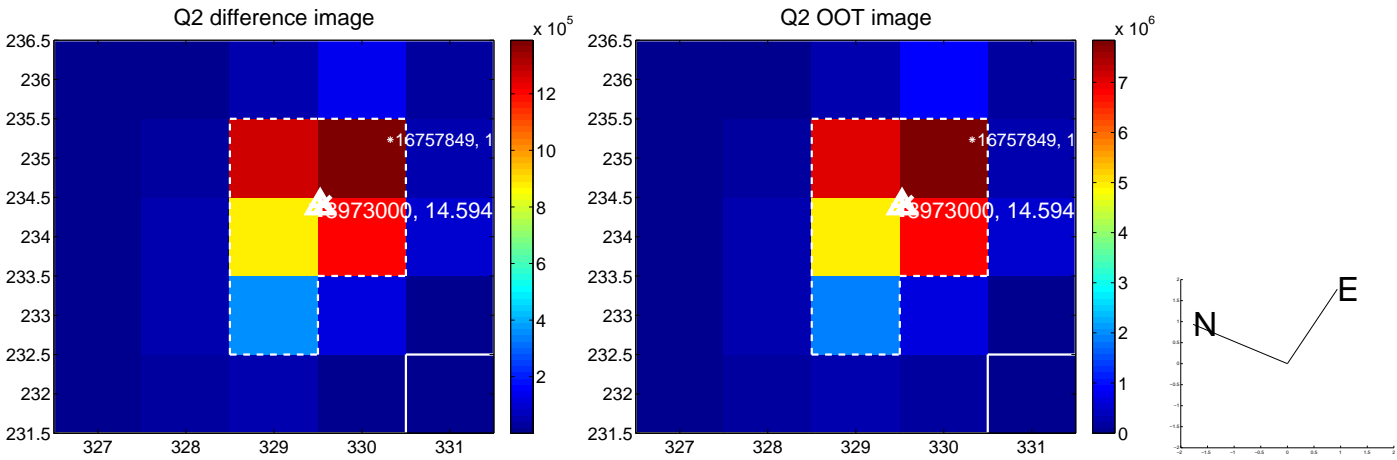
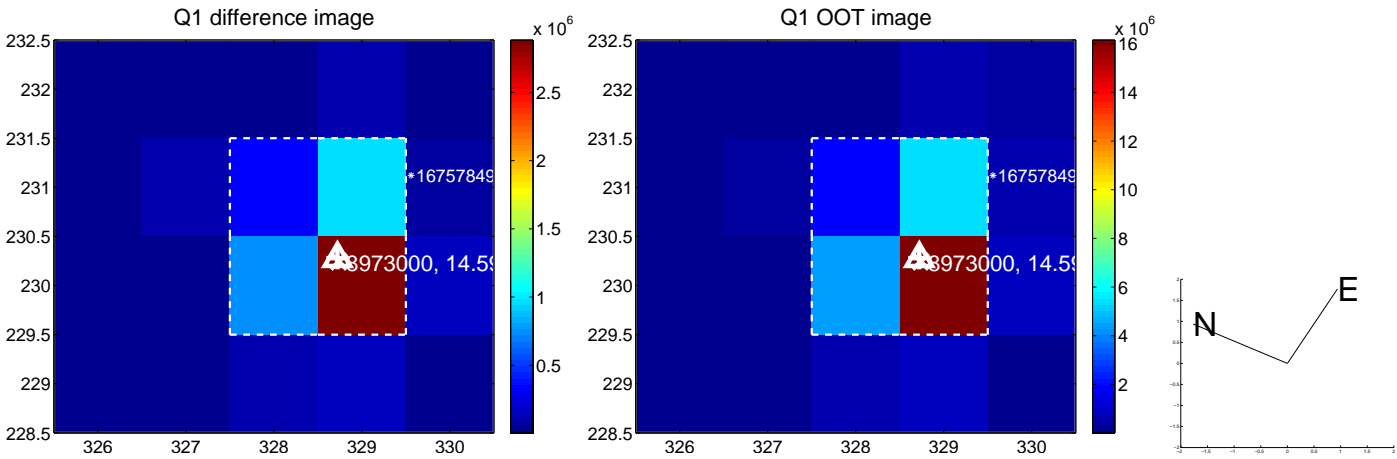
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.005 \pm 0.067$	0.08	$-0.005 \pm 0.067$	$0.001 \pm 0.067$
PRF-fit source offset from KIC position	$0.133 \pm 0.071$	1.88	$-0.086 \pm 0.076$	$0.101 \pm 0.067$
photometric centroid source offset	$0.14 \pm 0.00$	84.82	$-0.14 \pm 0.00$	$0.05 \pm 0.00$

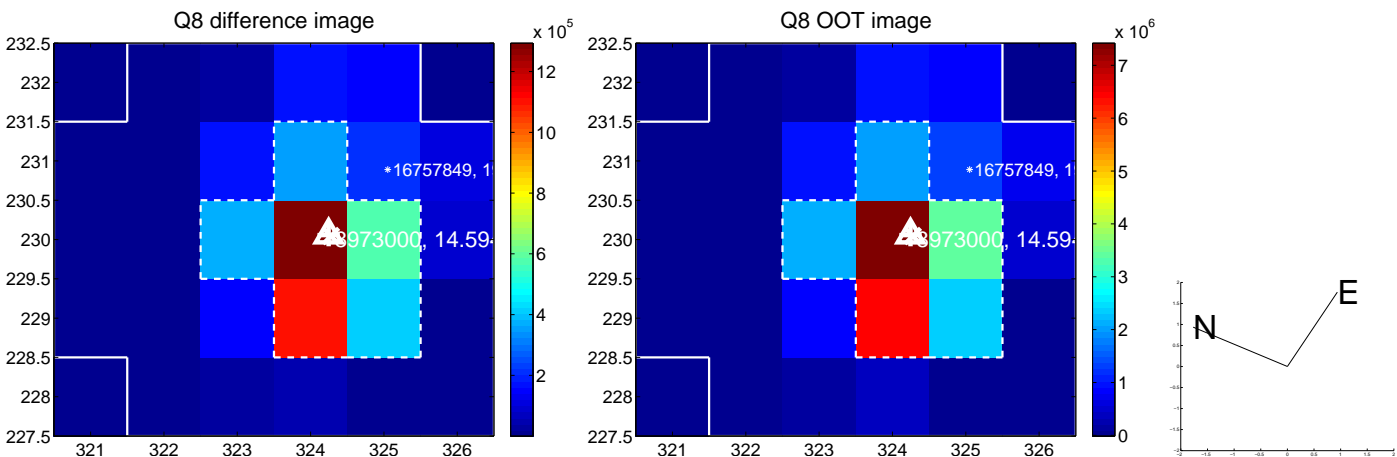
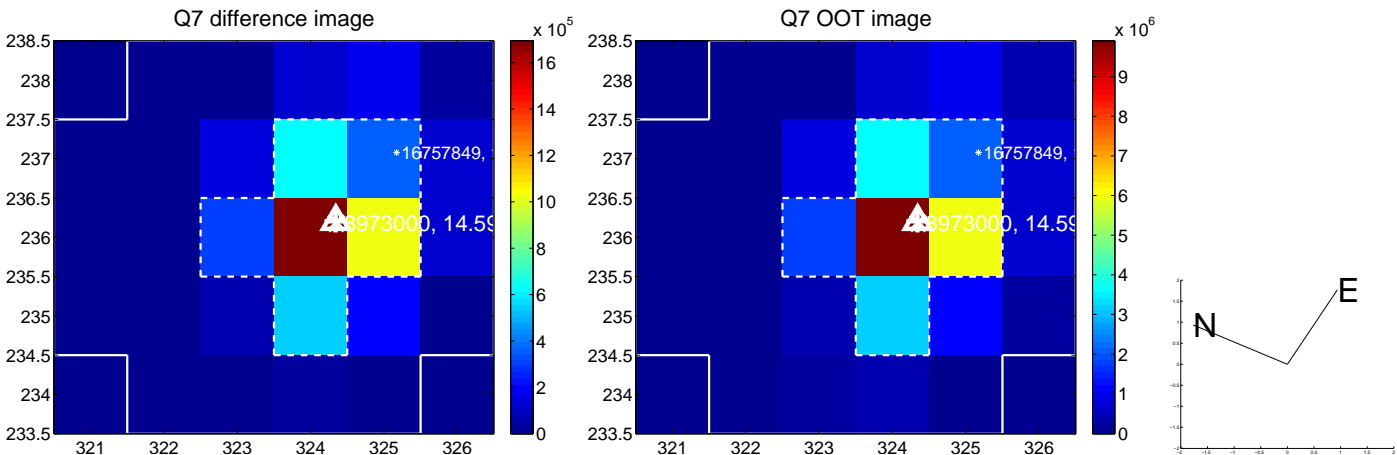
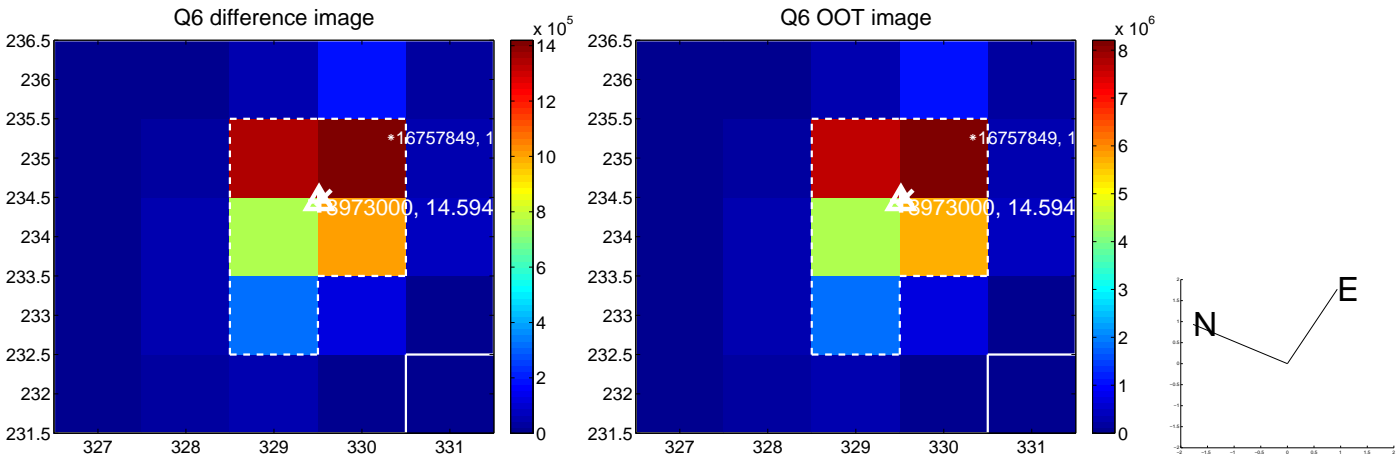
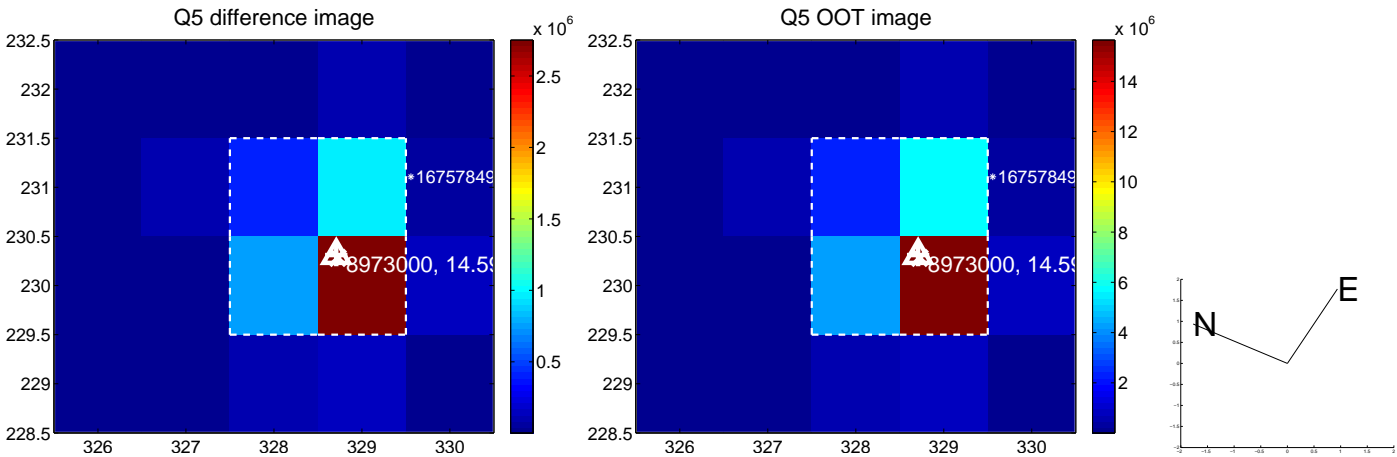


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

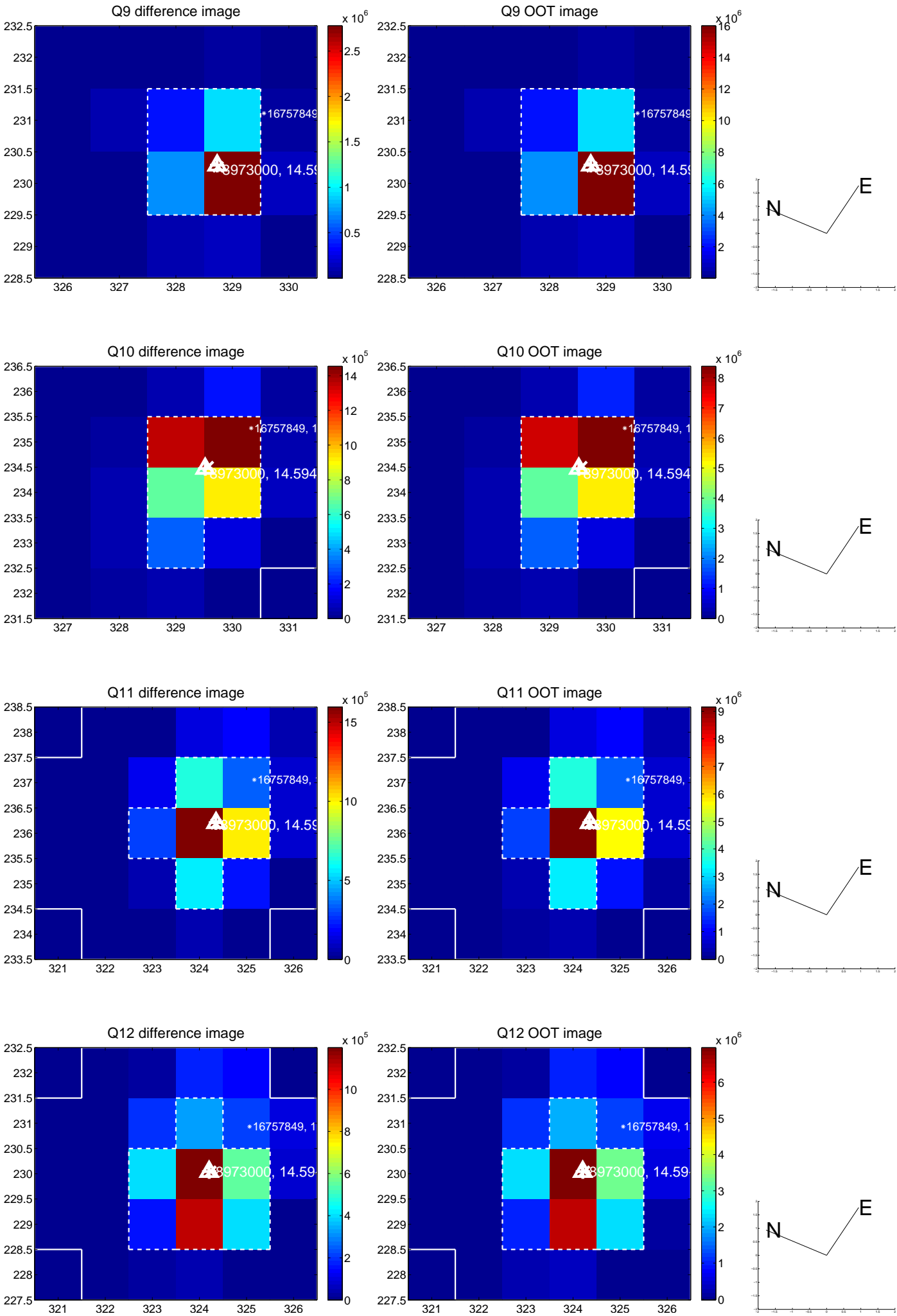


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

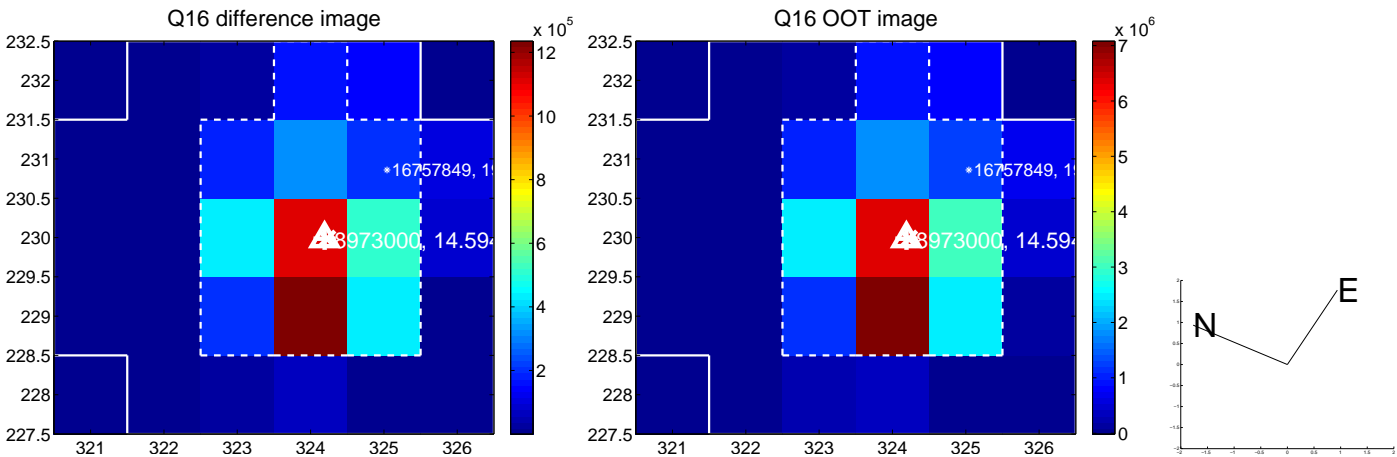
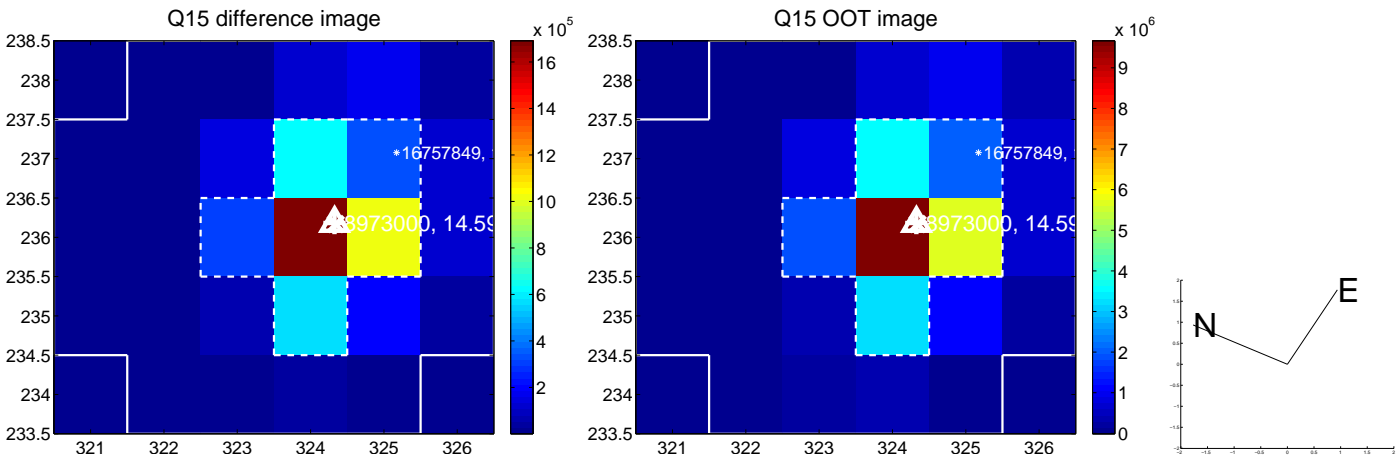
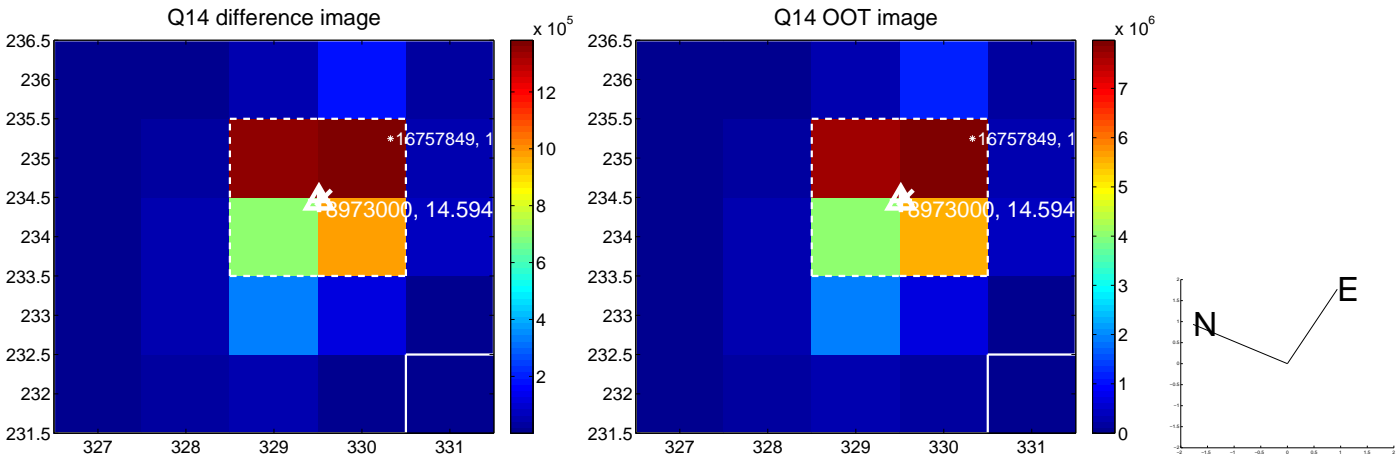
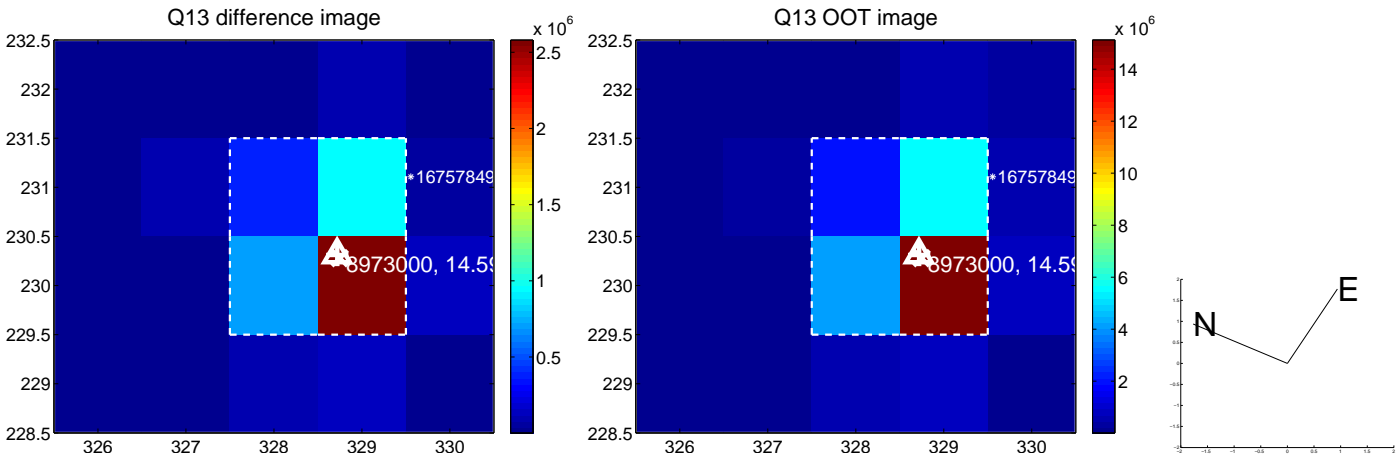




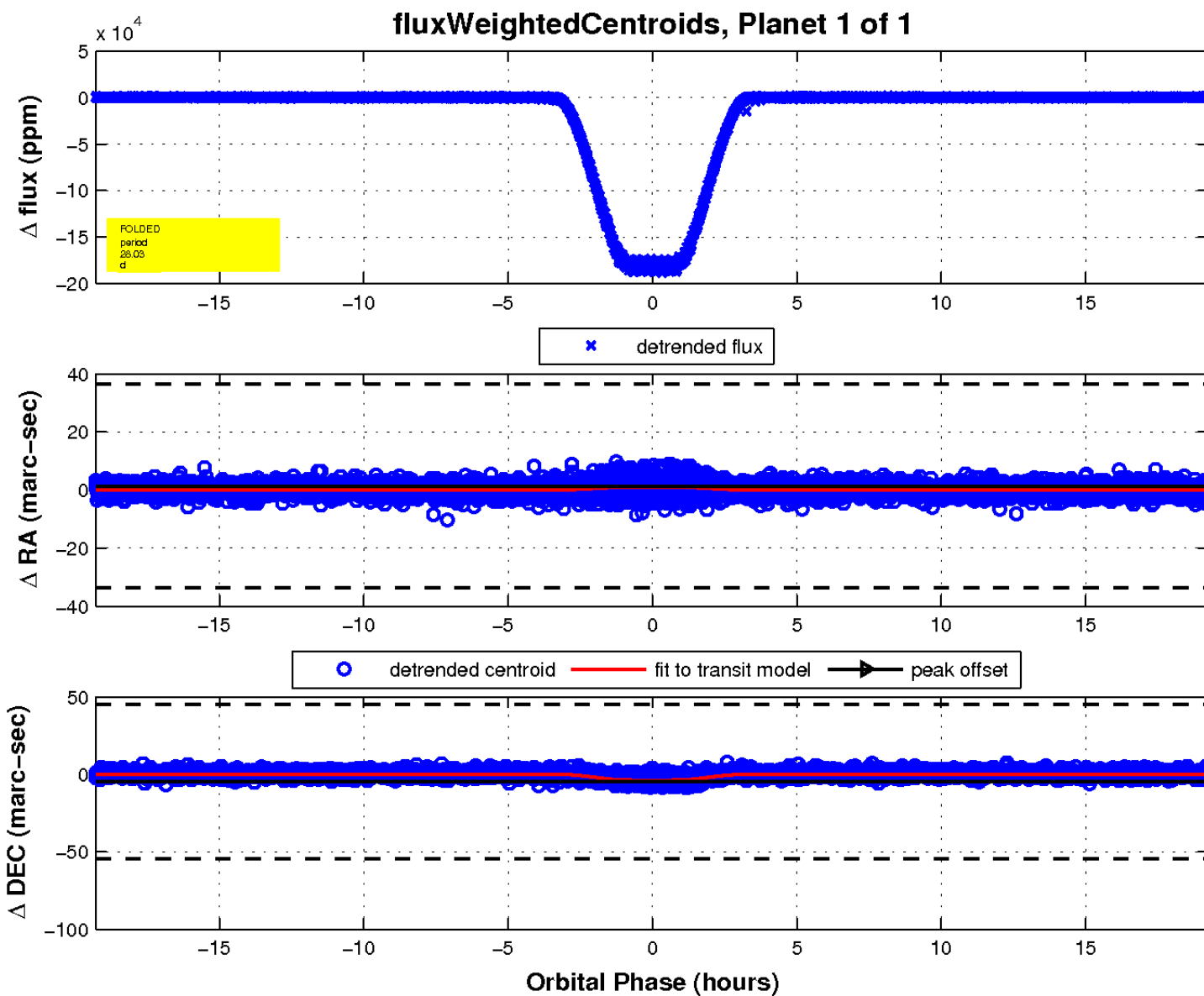
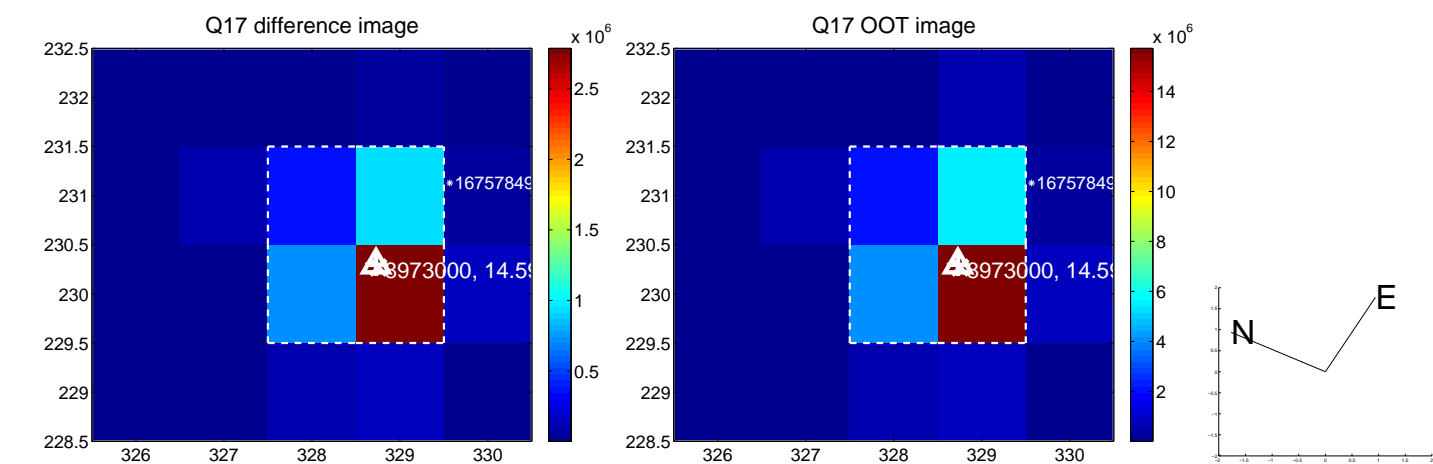
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

