

# KIC 009025971

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009025971-01	OBS	3680.01	141.241467	256.205047	13054.6	6.778	336.3	342.4	1.02	5705	11.55	3.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009025971-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

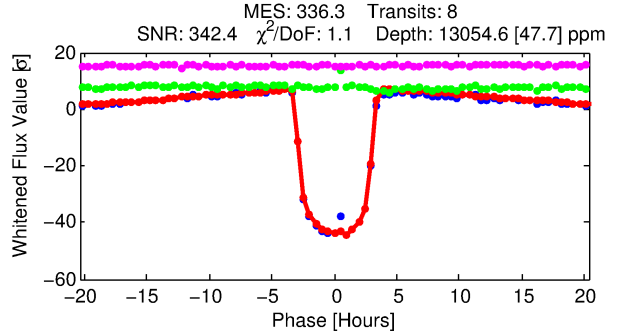
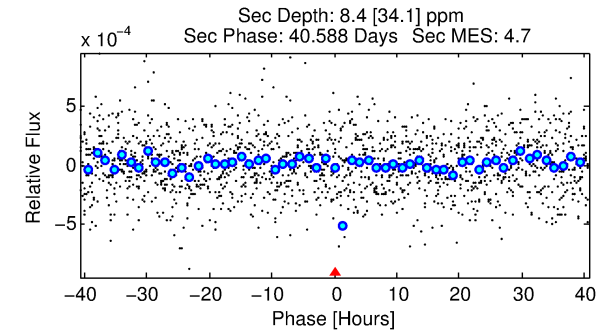
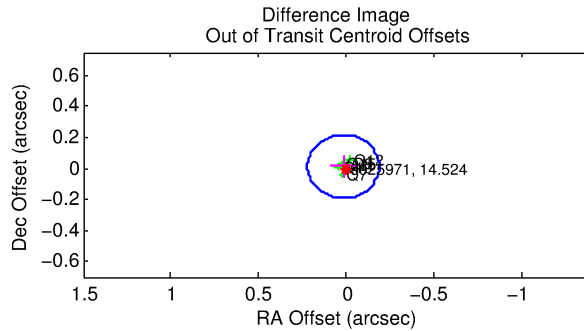
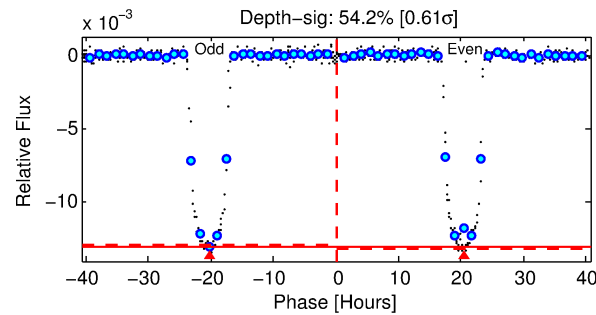
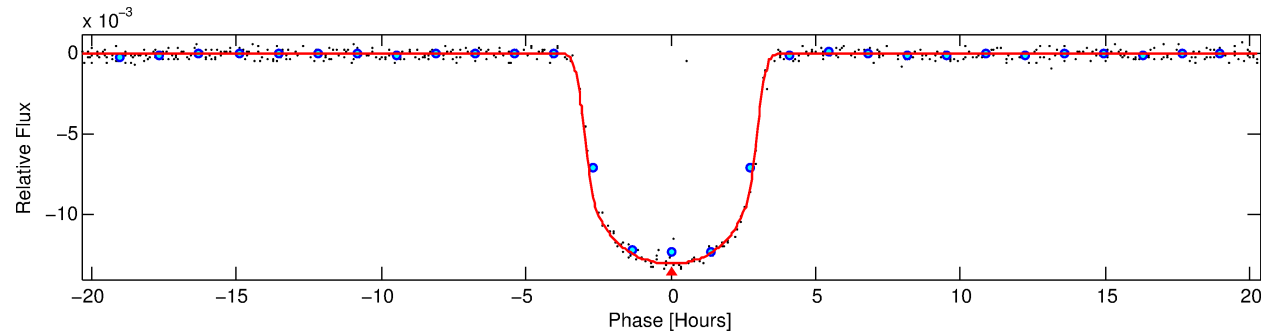
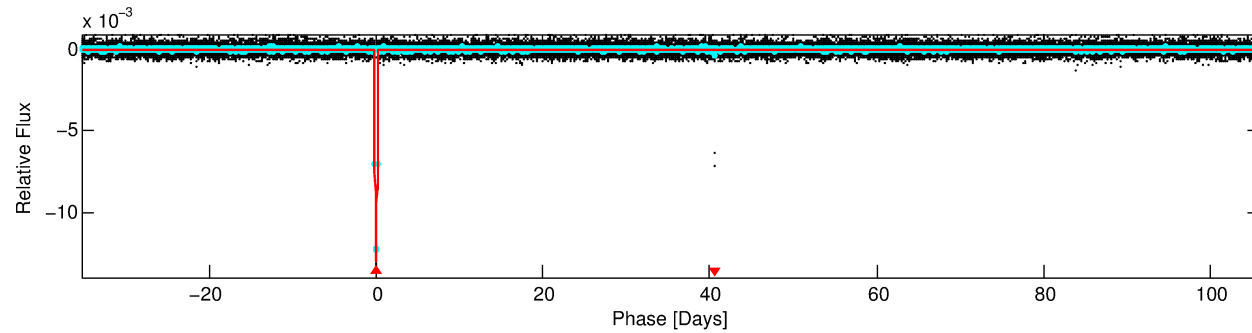
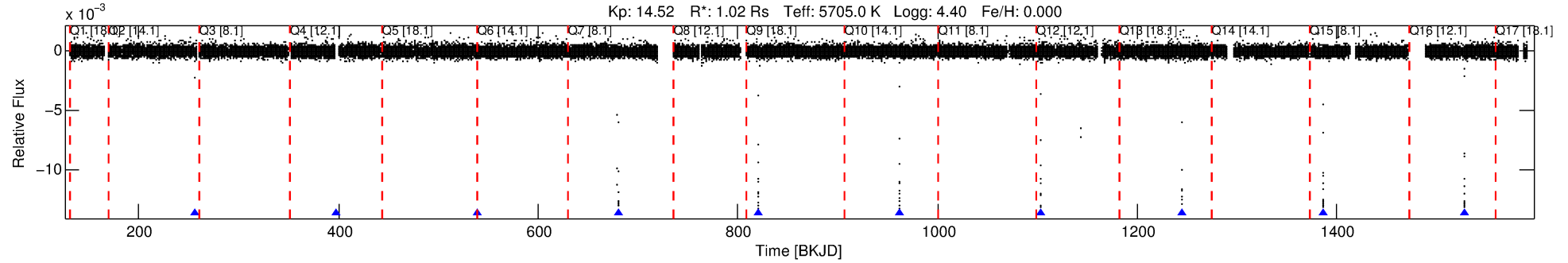
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009025971-01

No Significant Match Found

# DV One-Page Summary

KIC: 9025971 Candidate: 1 of 1 Period: 141.241 d  
KOI: K03680.01 Corr: 0.997



## DV Fit Results:

Period = 141.24147 [0.00010] d  
Epoch = 256.2050 [0.0006] BKJD  
Rp/R\* = 0.1040 [0.0009]  
a/R\* = 172.12 [6.24]  
b = 0.22 [0.15]  
Seff = 3.63 [0.74]  
Teff = 352 [18] K  
Rp = 11.55 [1.67] Re  
a = 0.5203 [0.0654] AU  
Ag = 9.35 [38.12] [0.22 $\sigma$ ]  
Teffp = 951 [969] K [0.62 $\sigma$ ]

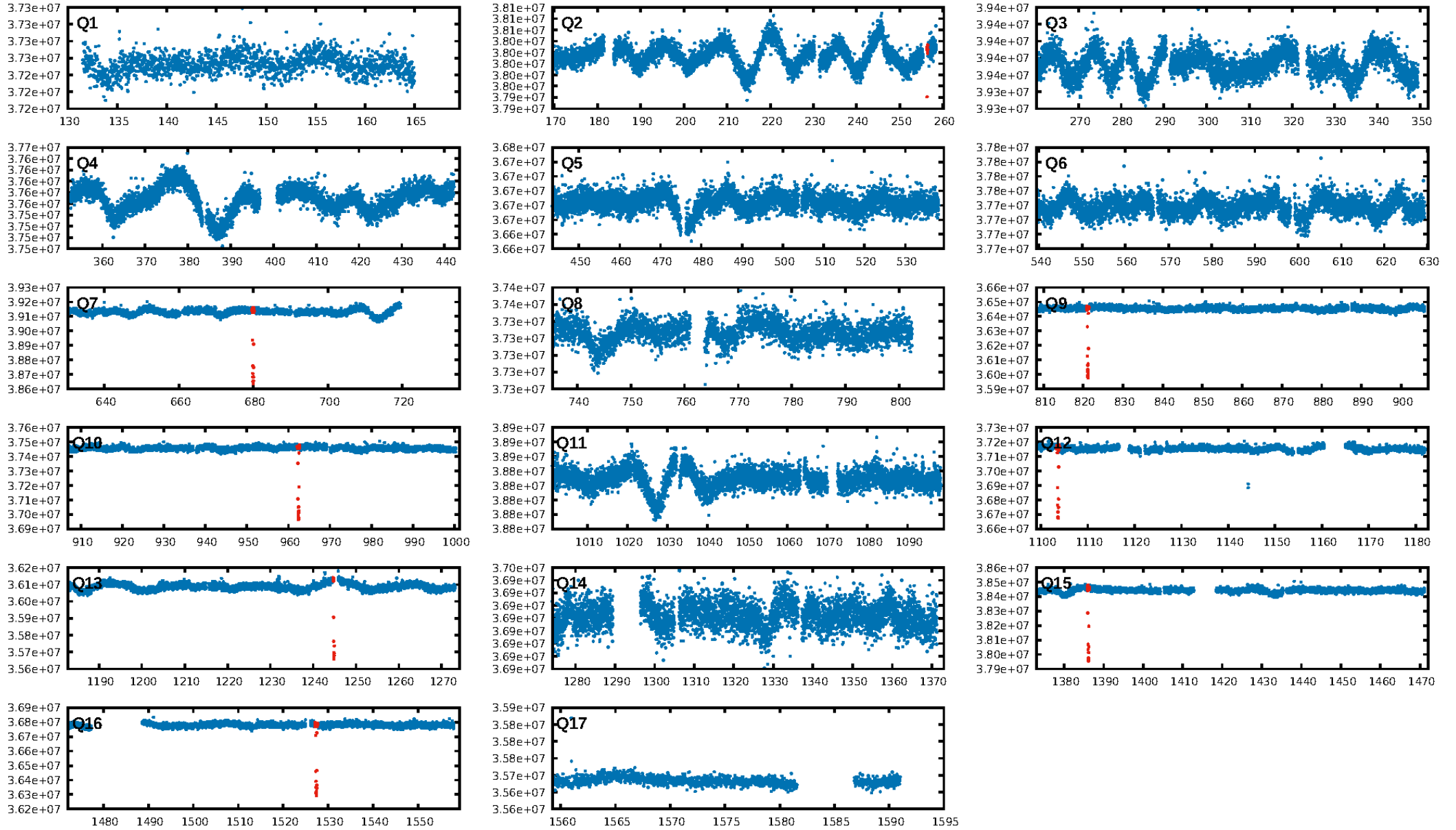
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.4%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 6.701  
Centroid-sig: 0.1%  
Centroid-so: 0.123 arcsec [3.53 $\sigma$ ]  
OotOffset-rm: 0.022 arcsec [0.32 $\sigma$ ]  
KicOffset-rm: 0.063 arcsec [0.84 $\sigma$ ]  
OotOffset-st: 1/2/1/1 [5]  
KicOffset-st: 1/2/1/1 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

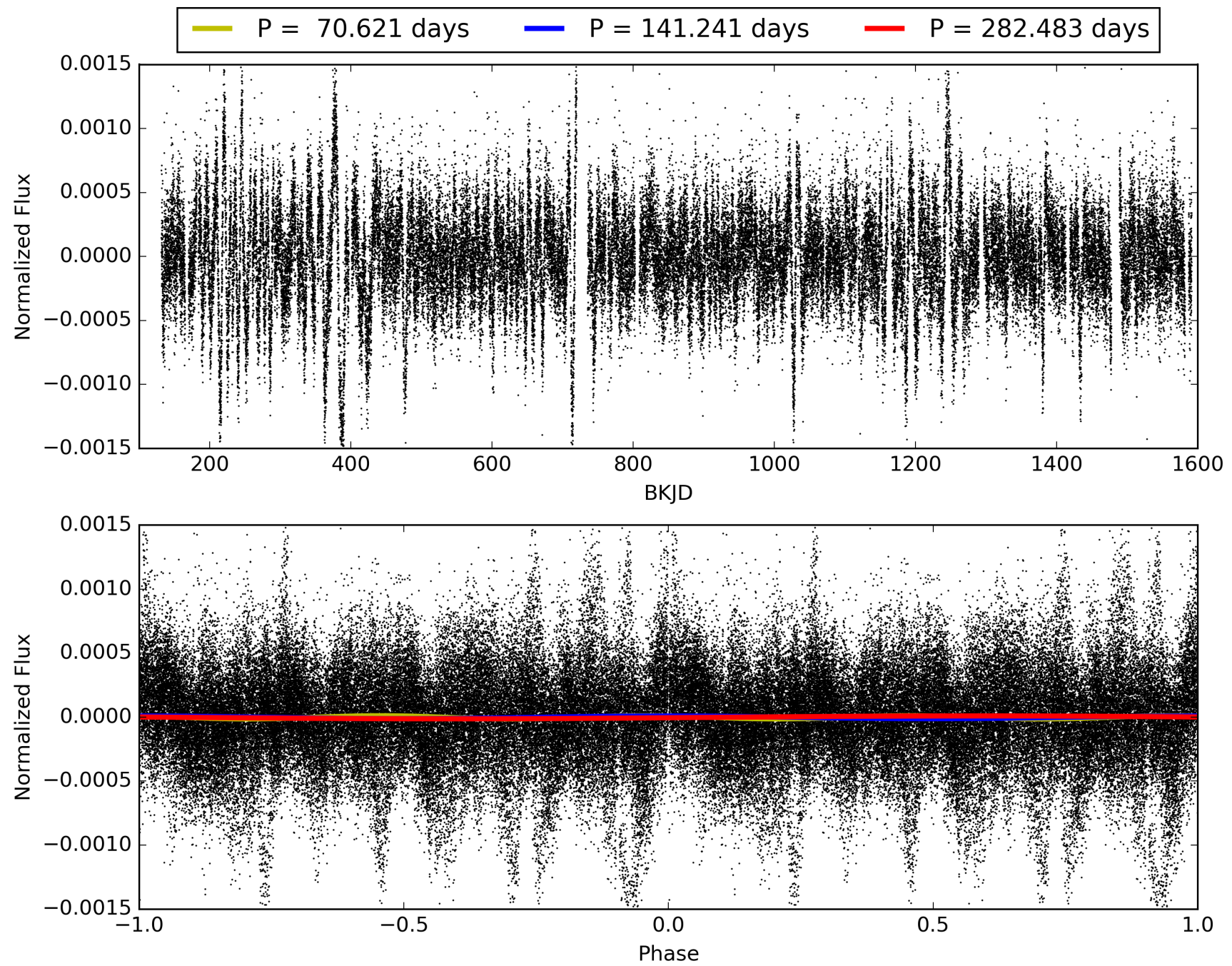
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:24:07 Z

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

# TCE 009025971-01, PDC Light Curves

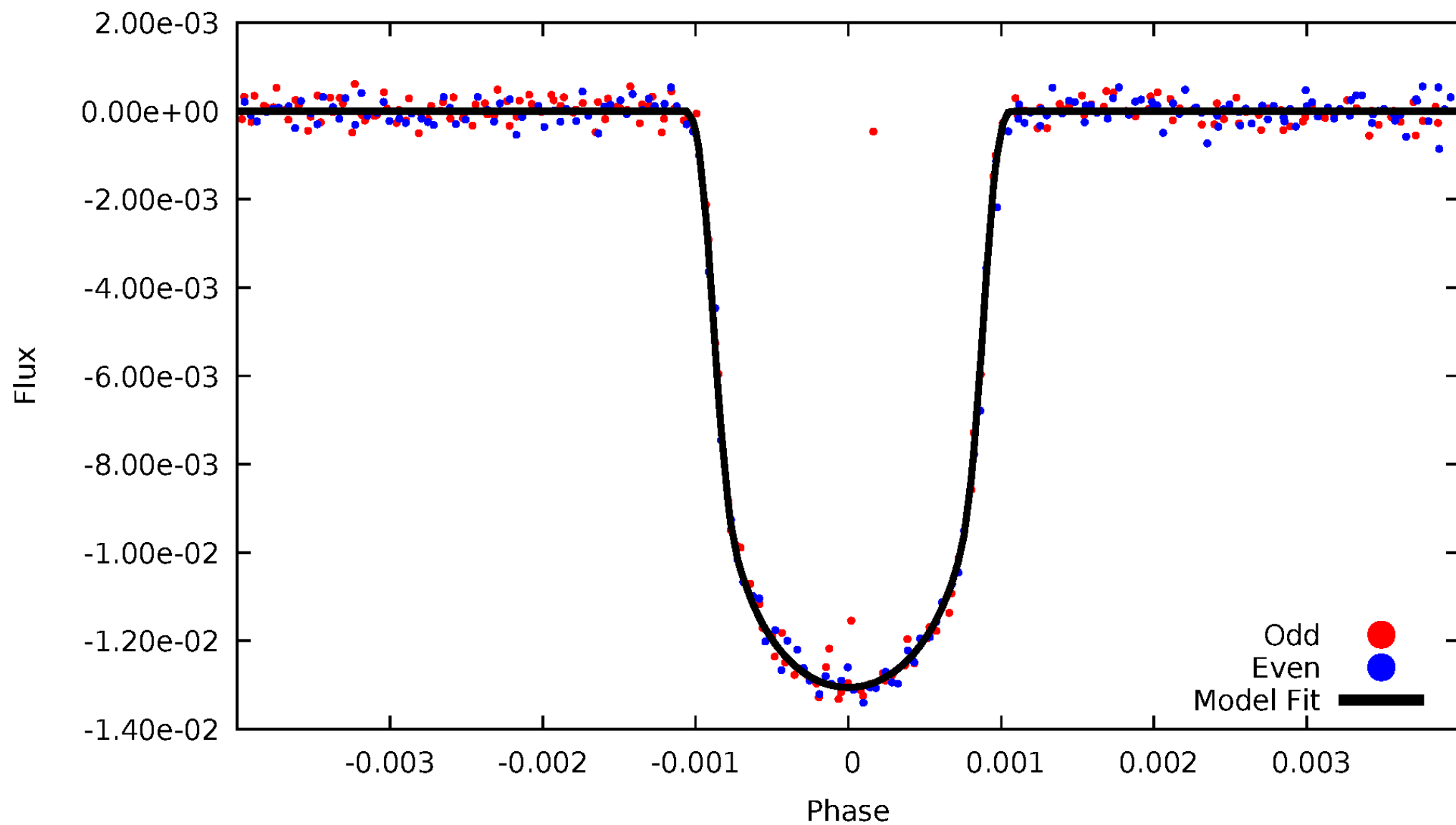


TCE 009025971-01



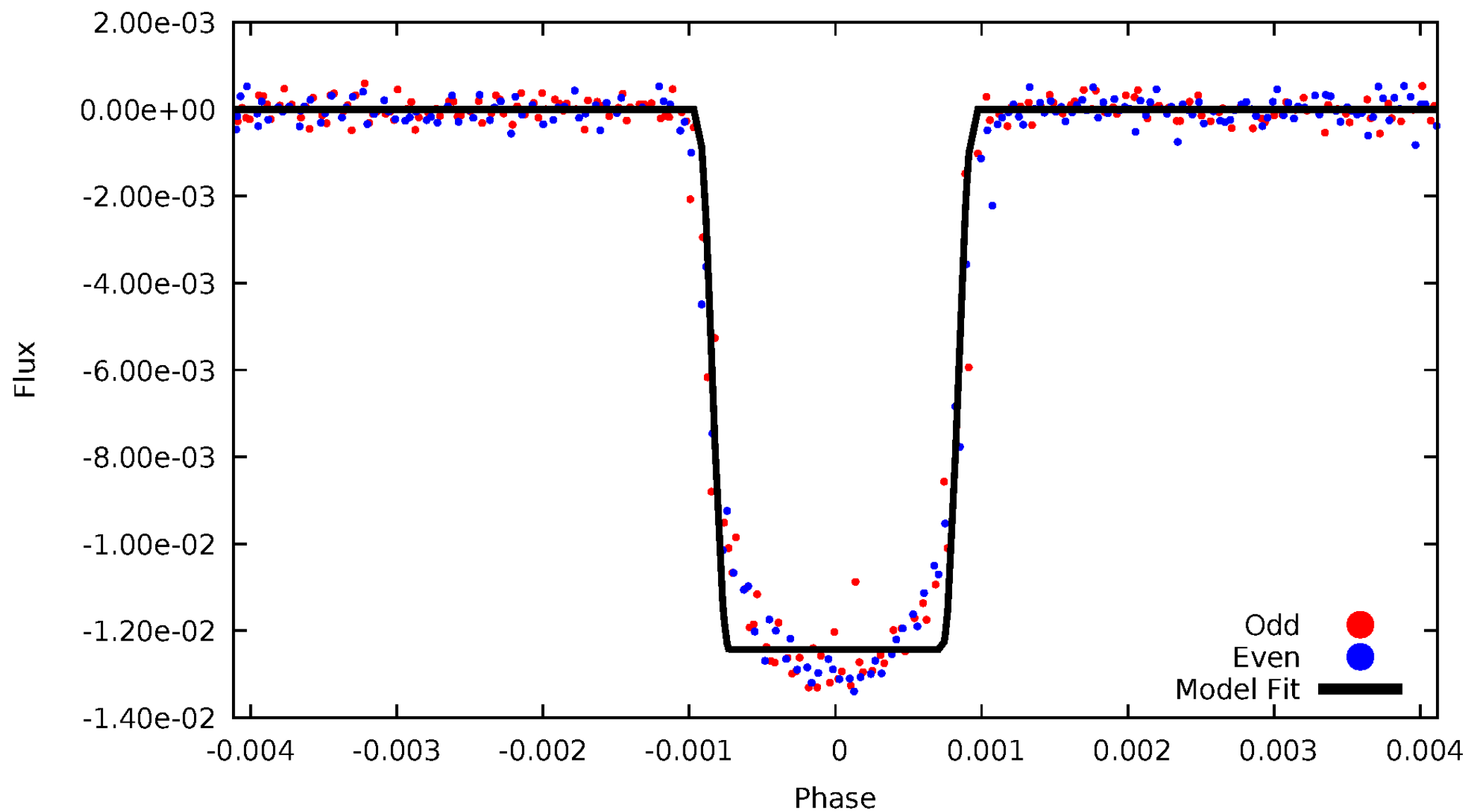
# DV Odd/Even

TCE 009025971-01



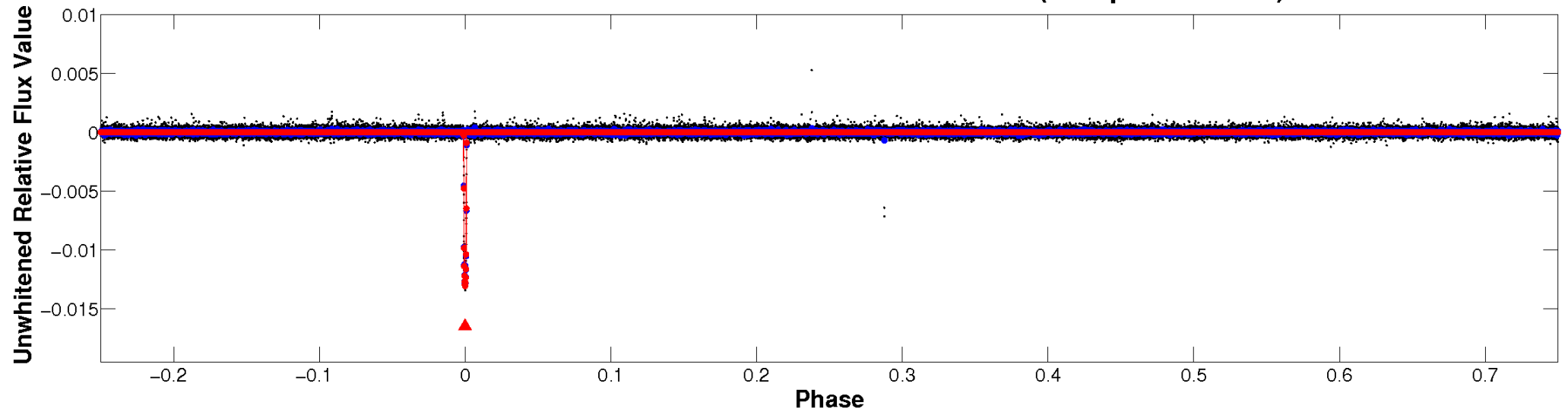
# ALT Odd/Even

TCE 009025971-01

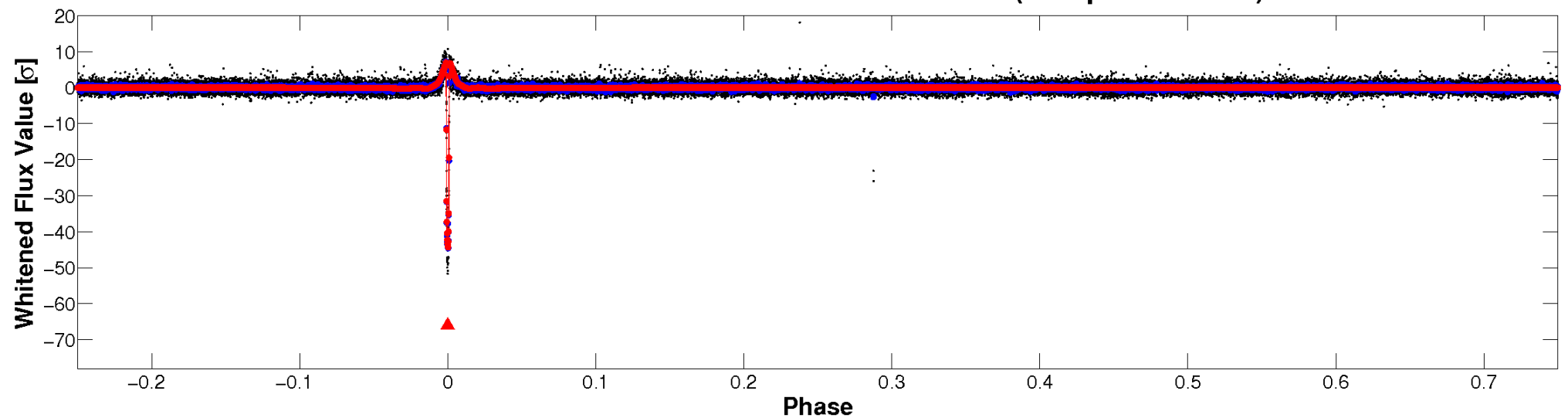


# Non-Whitened Vs. Whitened Light Curve

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

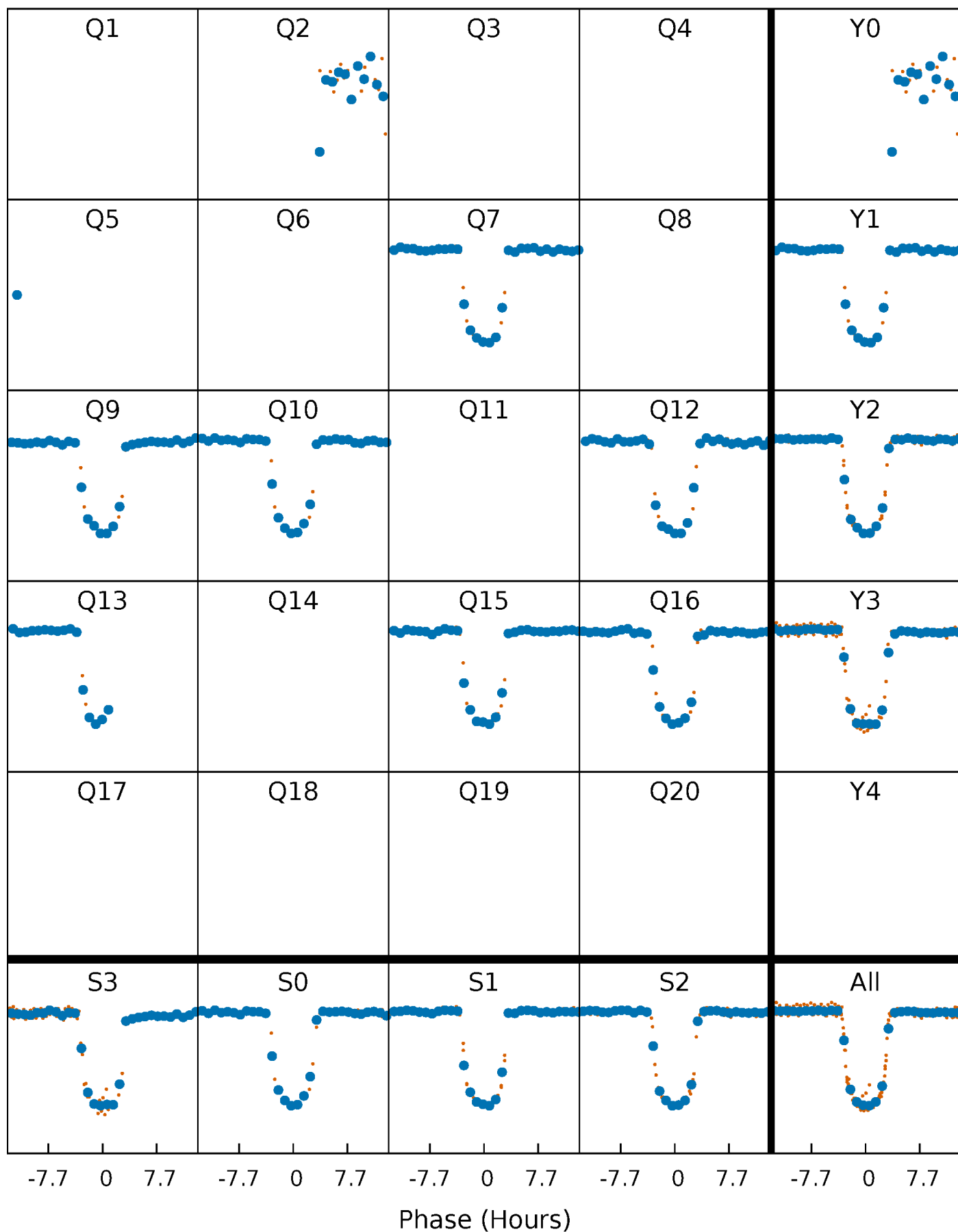


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

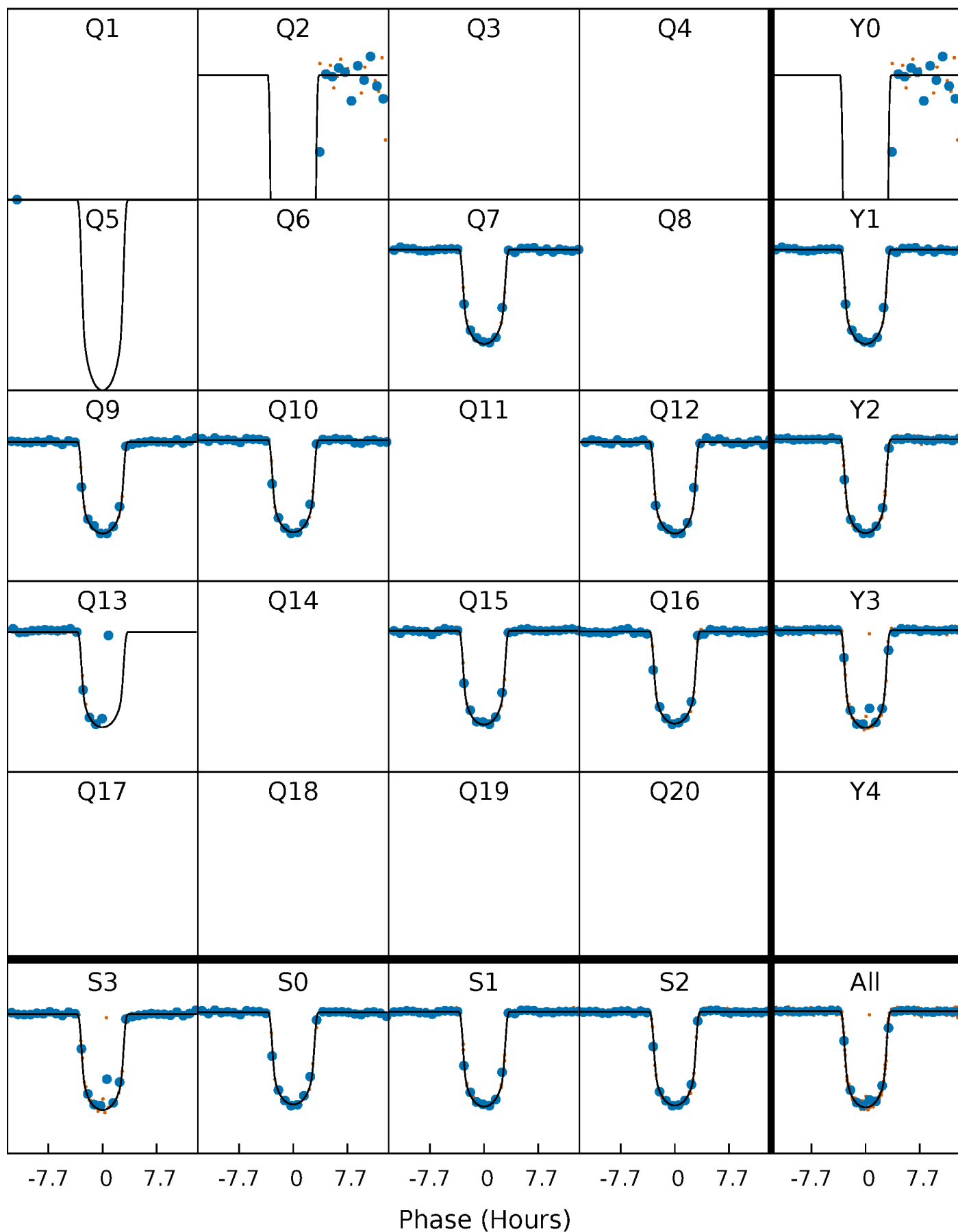
TCE 009025971-01 P=141.241467 Days  $T_0=256.205047$  (BKJD)





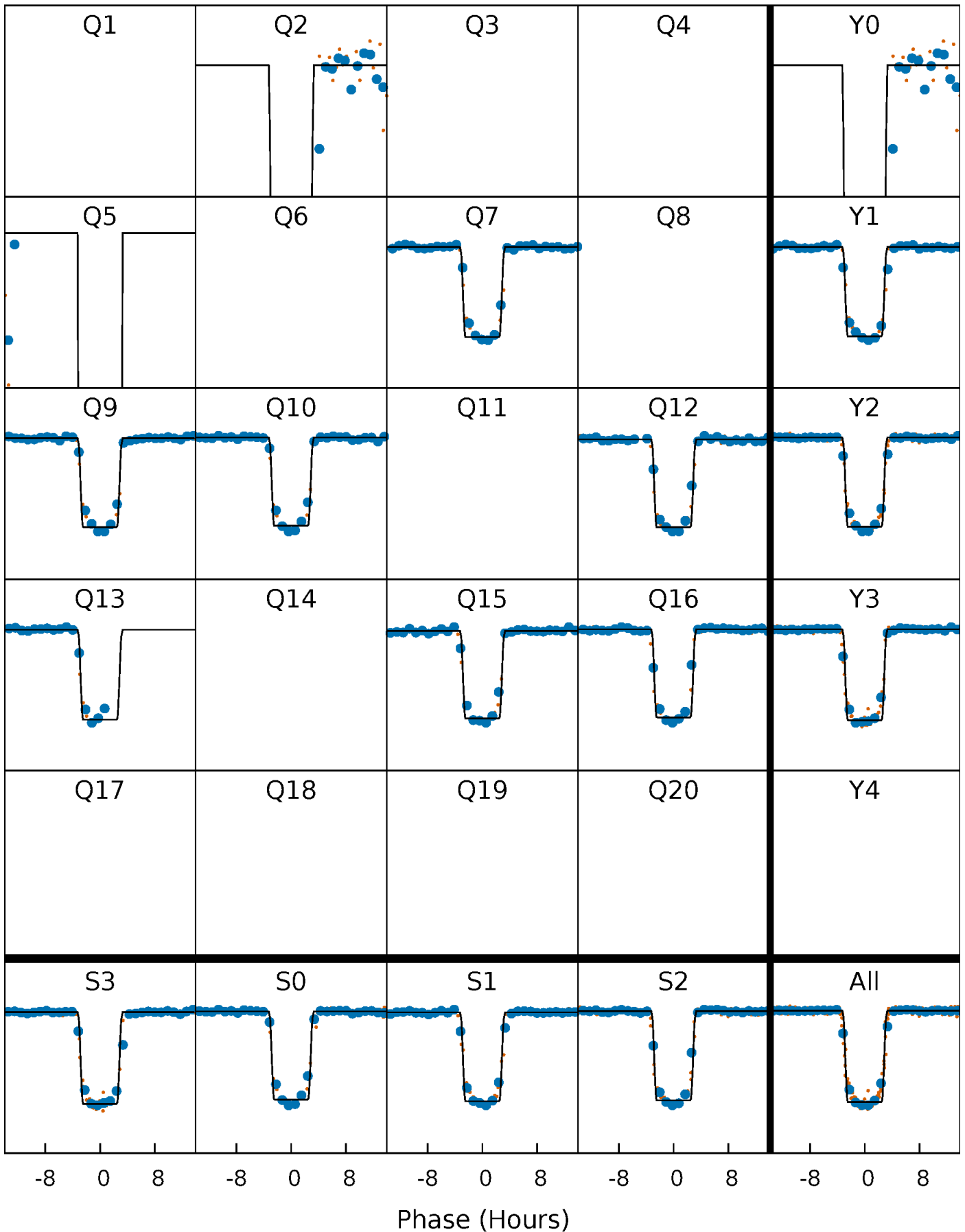
# DV Quarter-Phased Transit Curves

TCE 009025971-01 P=141.241467 Days  $T_0=256.205047$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

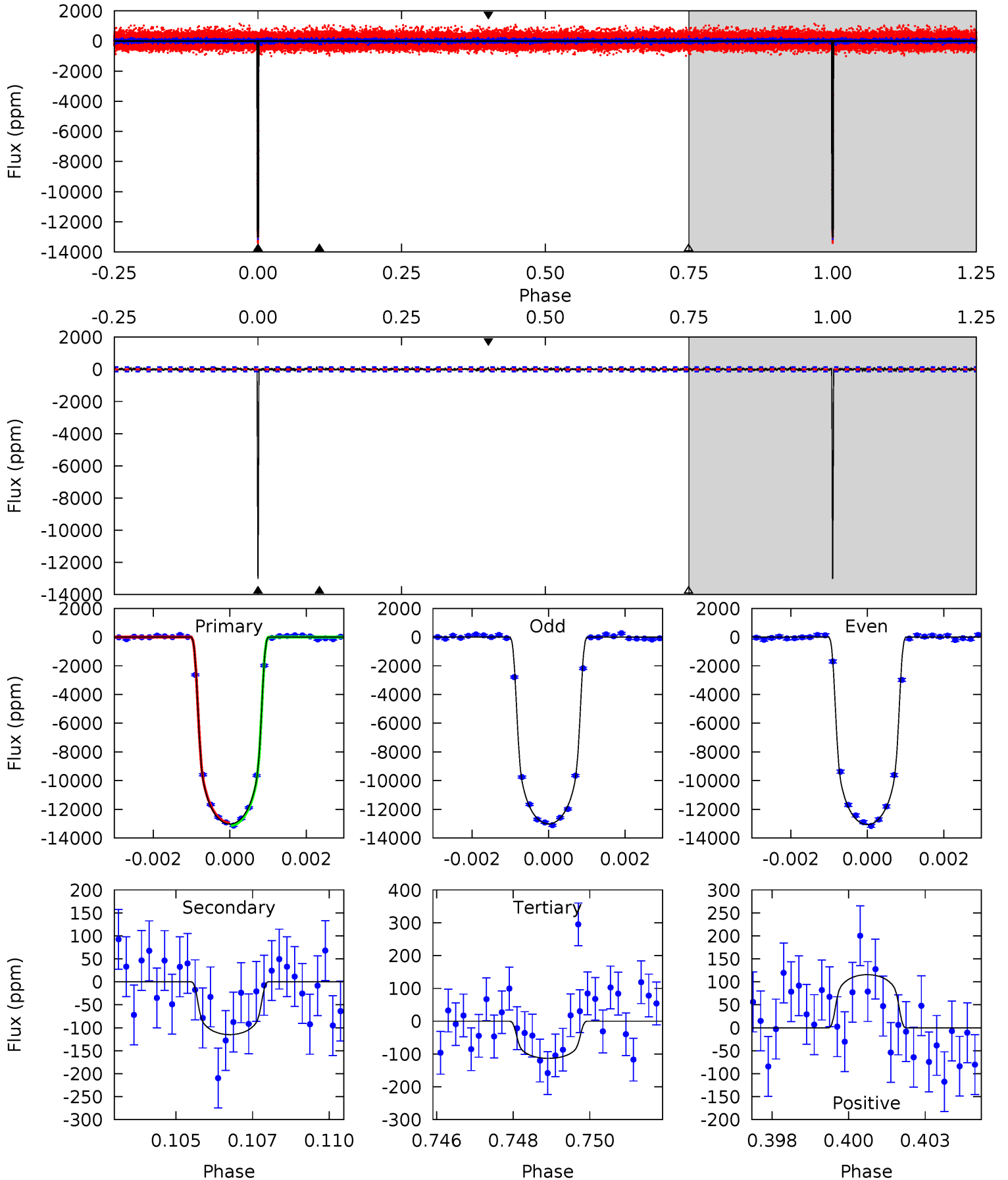
TCE 009025971-01 P=141.243994 Days  $T_0=256.191044$  (BKJD)



# DV Model-Shift Uniqueness Test

009025971-01, P = 141.241467 Days, E = 114.963580 Days

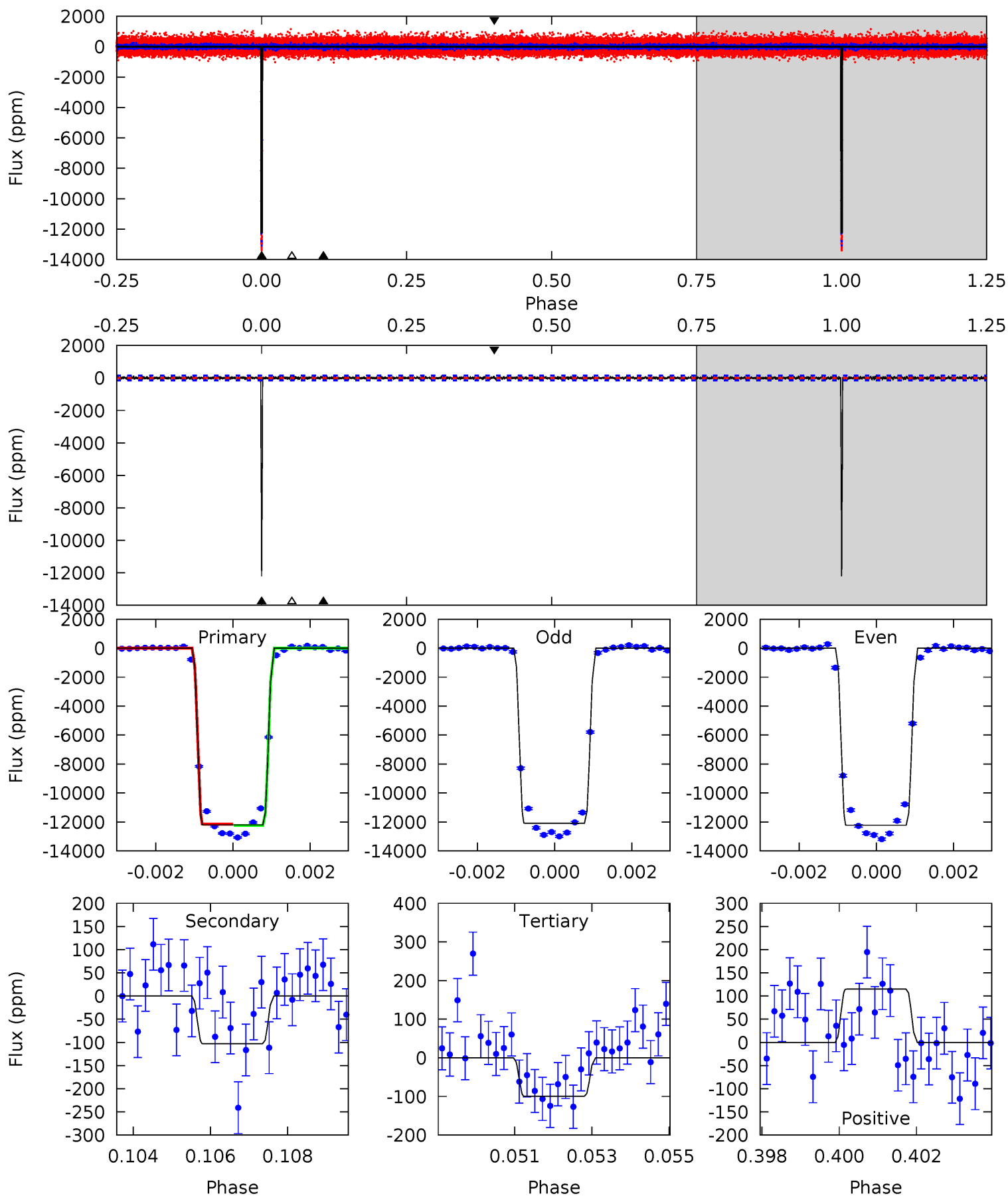
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
507.2	4.48	4.41	4.50	5.32	3.07	1.29	502.8	502.7	0.06	-0.02	0.92	0.97	0.01	3.61



# Alt Model-Shift Uniqueness Test

009025971-01, P = 141.243994 Days, E = 114.947050 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
429.2	3.61	3.50	4.04	5.34	3.12	1.03	425.7	425.1	0.11	-0.43	2.53	1.00	0.01	1.53



### Stellar Parameters For KIC 009025971

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5705^{+104}_{-115}$	$4.397^{+0.095}_{-0.105}$	$0.000^{+0.150}_{-0.150}$	$1.017^{+0.147}_{-0.107}$	$0.941^{+0.068}_{-0.056}$	$1.261^{+0.503}_{-0.426}$
	+2%/-2%	+2%/-2%	+inf%/-inf%	+14%/-11%	+7%/-6%	+40%/-34%
Source	SPE57	SPE57	SPE57	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009025971-01 / KOI 3680.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-115 \pm 26$	$11.55^{+0.98}_{-0.74}$	$493^{+20}_{-19}$	$2635^{+70}_{-92}$	$125^{+37}_{-31}$
Alt.	$-103 \pm 28$	$12.36^{+1.01}_{-0.79}$	$491^{+20}_{-19}$	$2544^{+86}_{-110}$	$98^{+33}_{-32}$

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

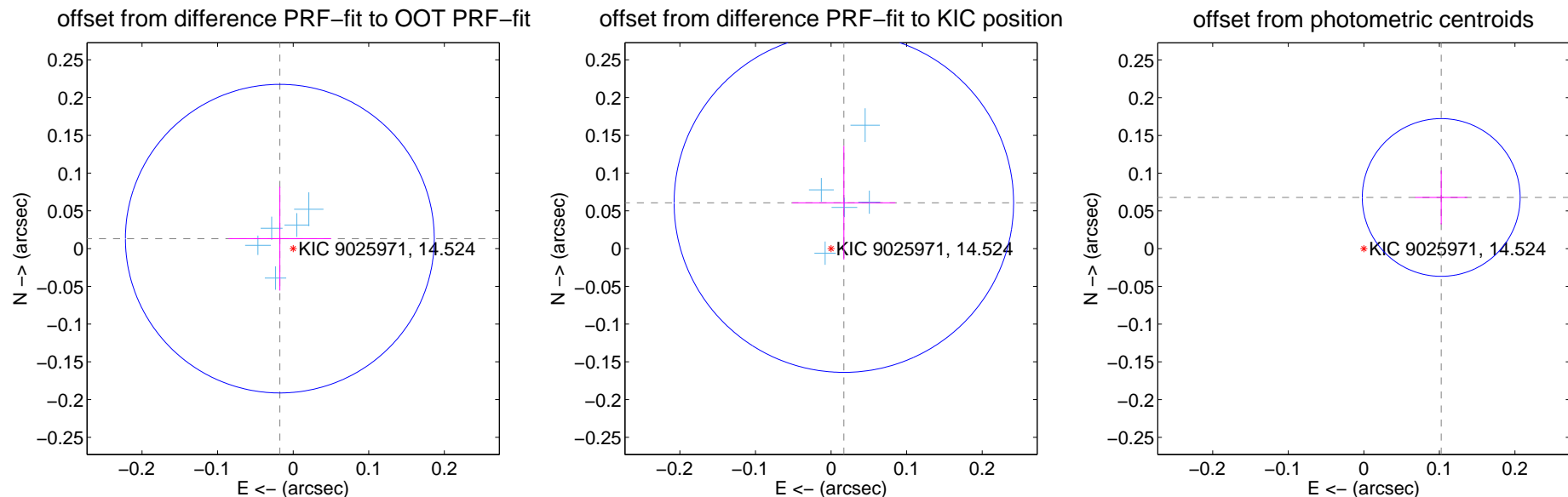
## DV Centroid Data

Supplemental centroid analysis for 009025971-01. Kepler magnitude: 14.52. Transit SNR 342.45

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.022 \pm 0.068$	0.32	$0.018 \pm 0.068$	$0.013 \pm 0.069$
PRF-fit source offset from KIC position	$0.063 \pm 0.075$	0.84	$-0.017 \pm 0.068$	$0.061 \pm 0.075$
photometric centroid source offset	$0.12 \pm 0.03$	3.53	$-0.10 \pm 0.03$	$0.07 \pm 0.04$

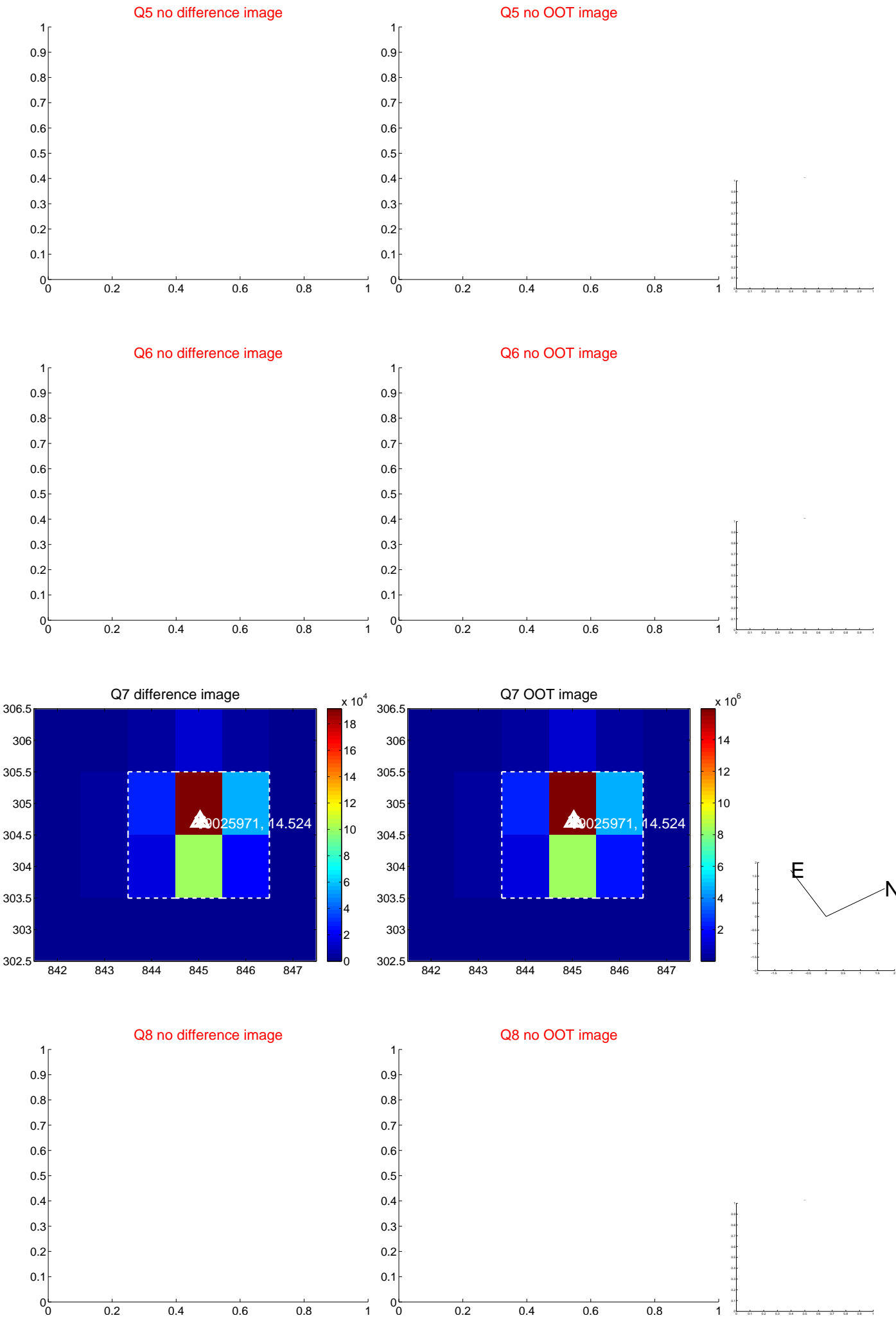


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

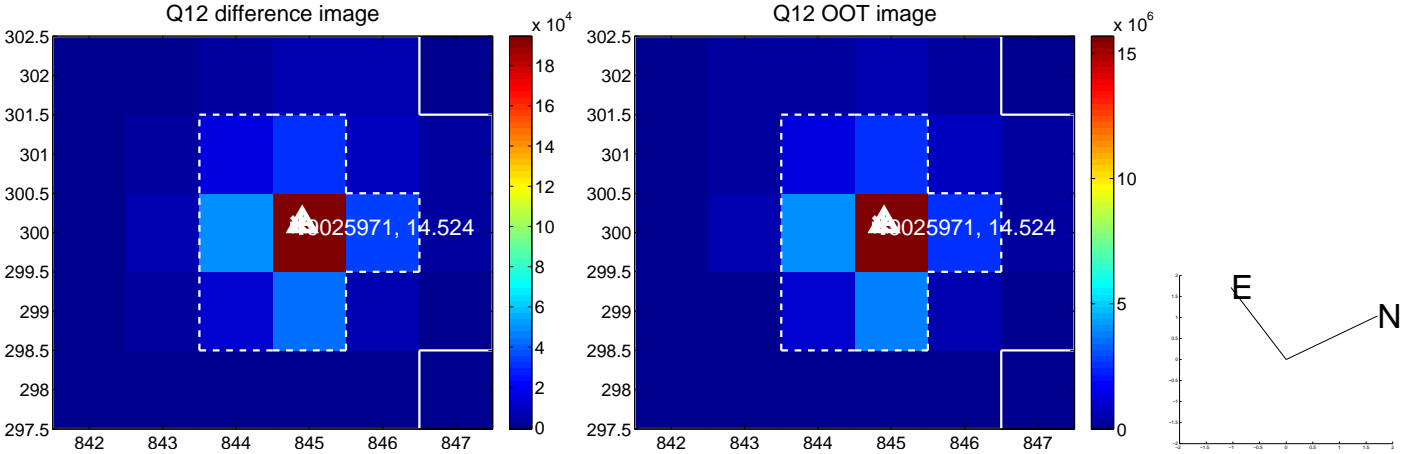
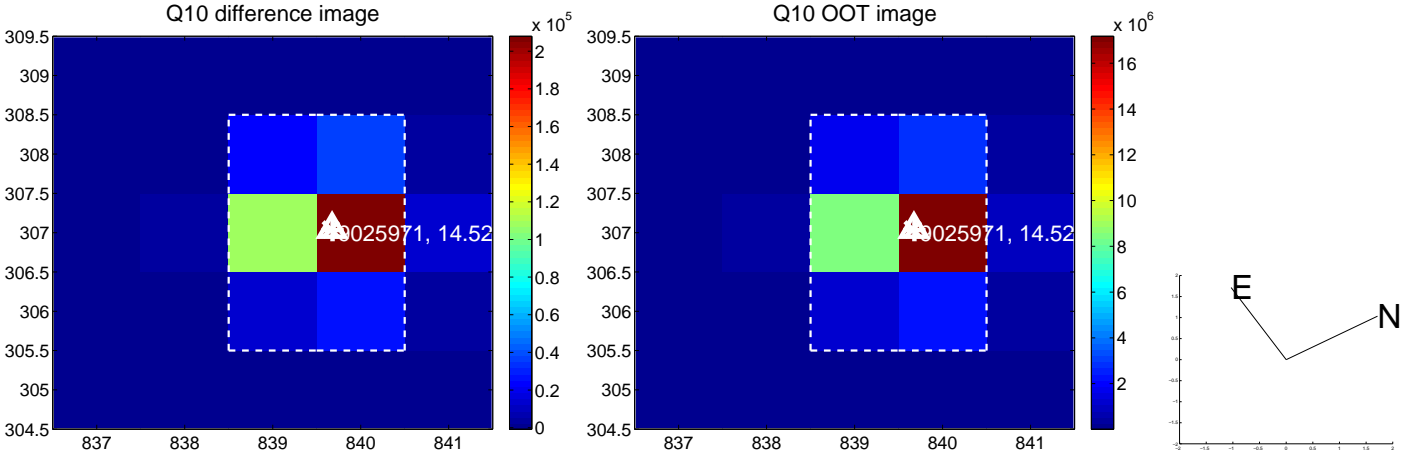
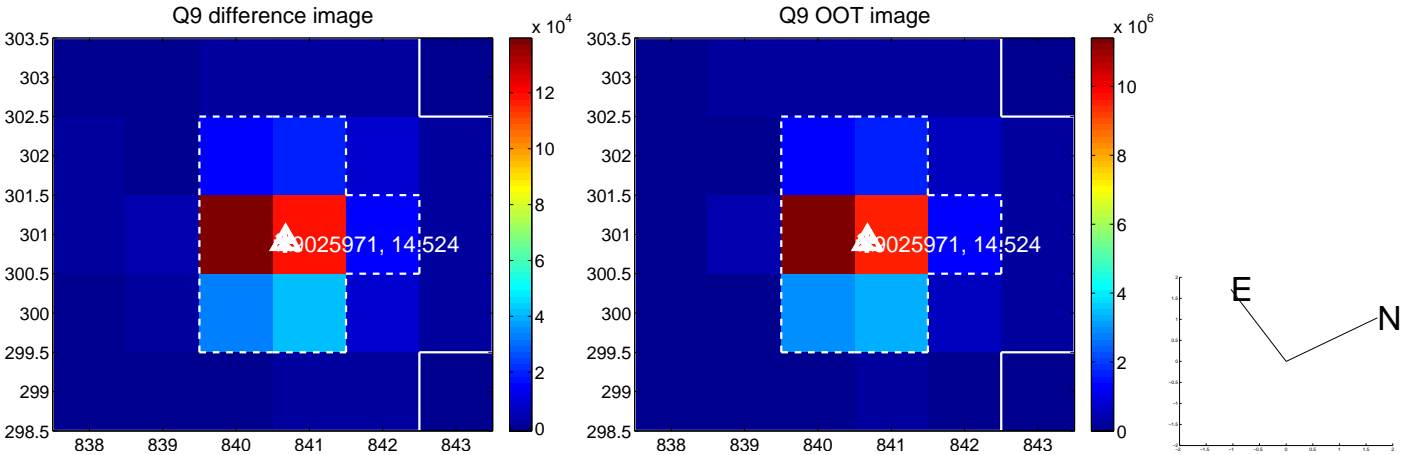


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

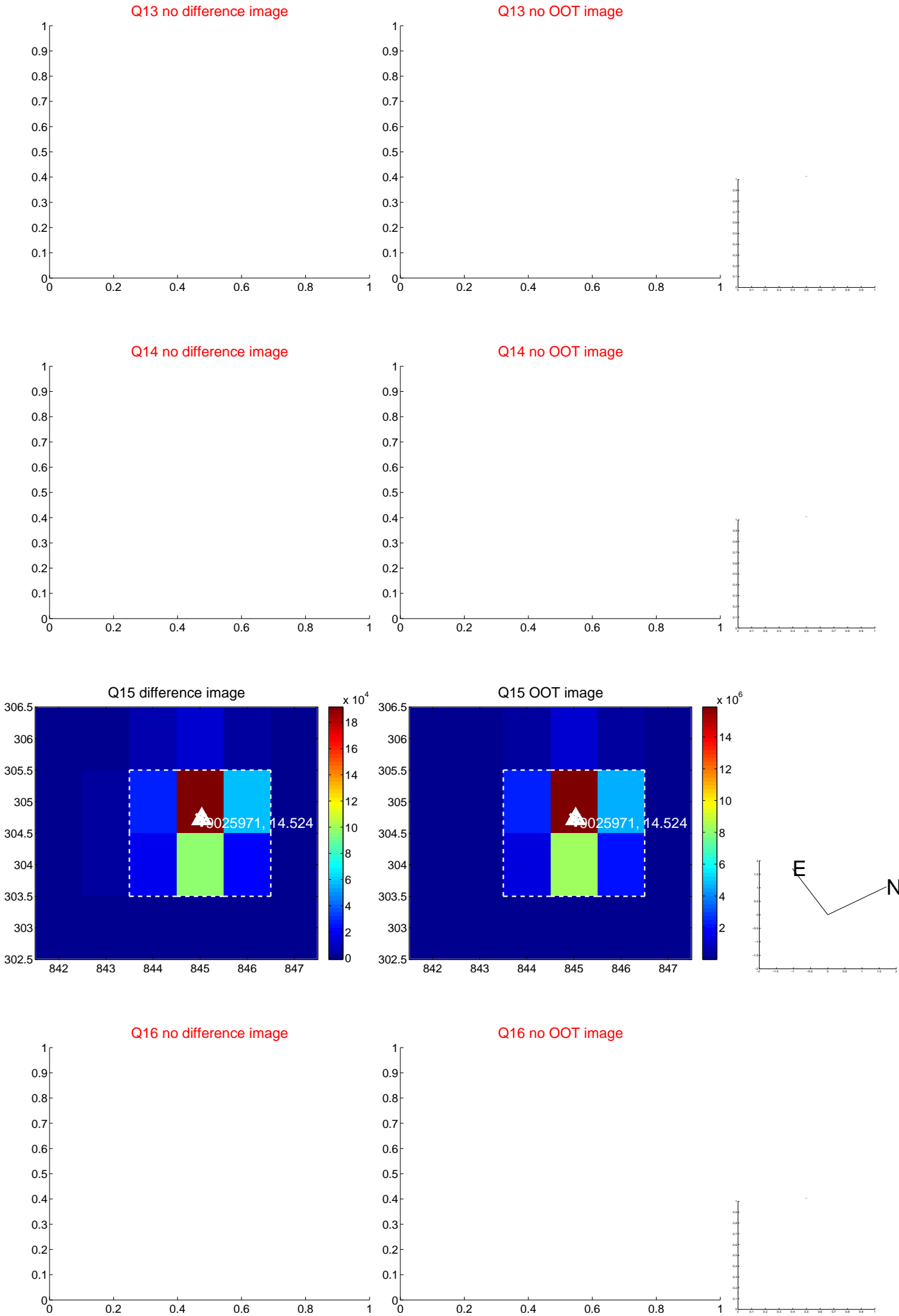




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



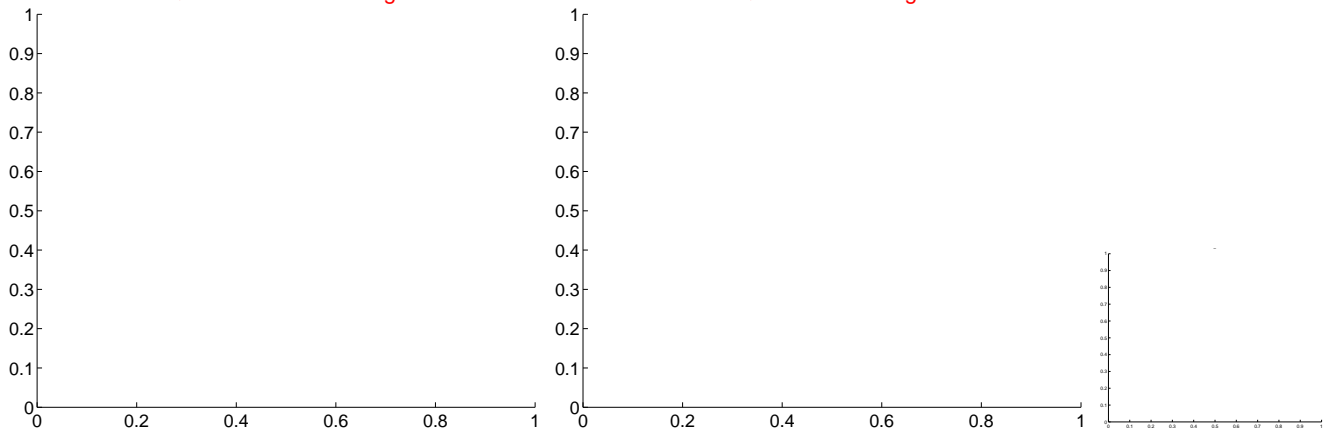
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



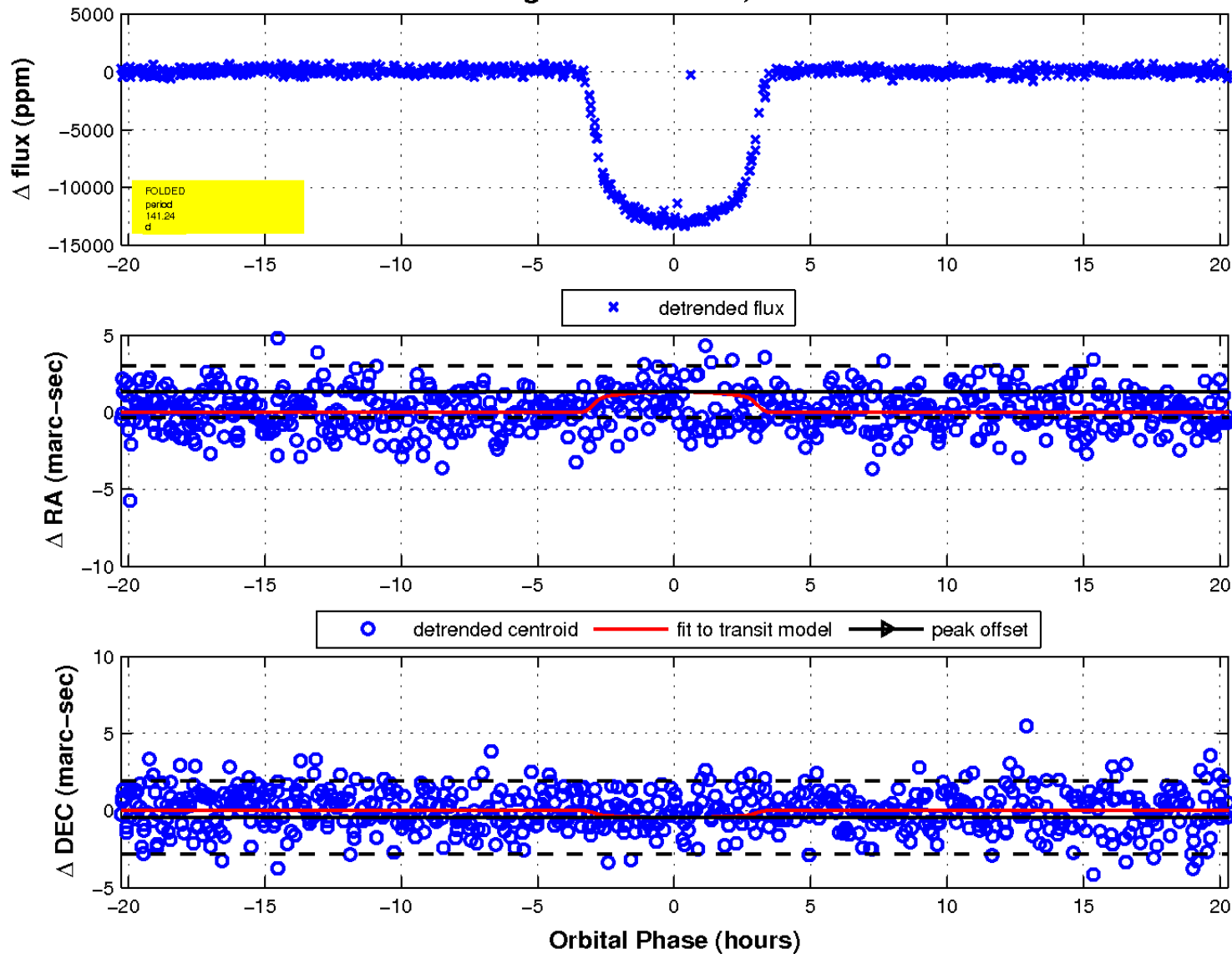
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

