

# KIC 010320341

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010320341-01	OBS	5786.01	30.114680	158.529282	86441.6	5.684	3279.6	2772.8	1.04	6273	44.37	39.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010320341-01	OBS	FP	0.00	0	1	0	0	MOD_ODDEVEN_ALT—DEEP_V_SHAPED

**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.

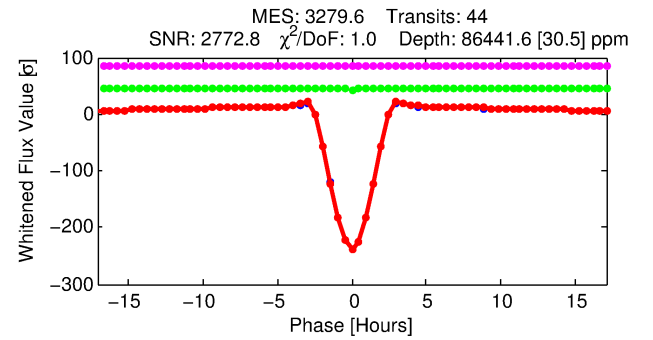
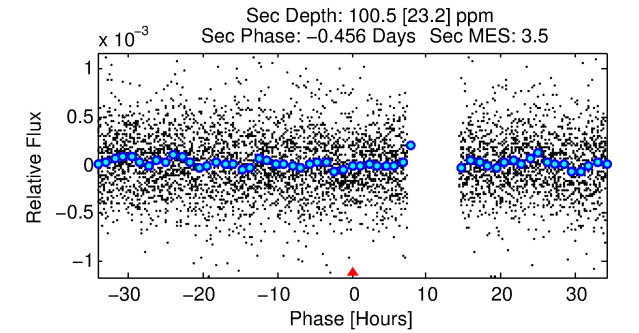
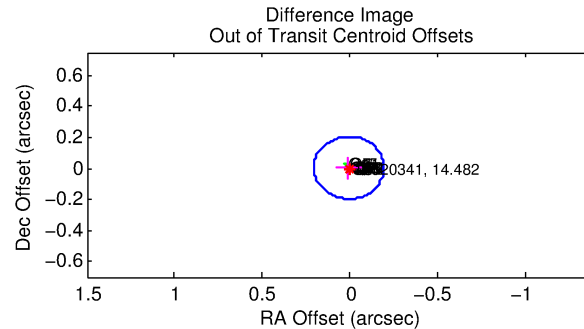
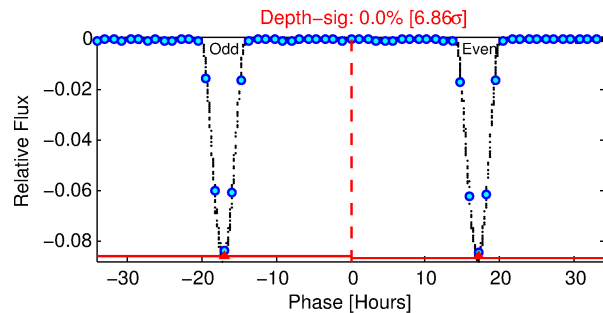
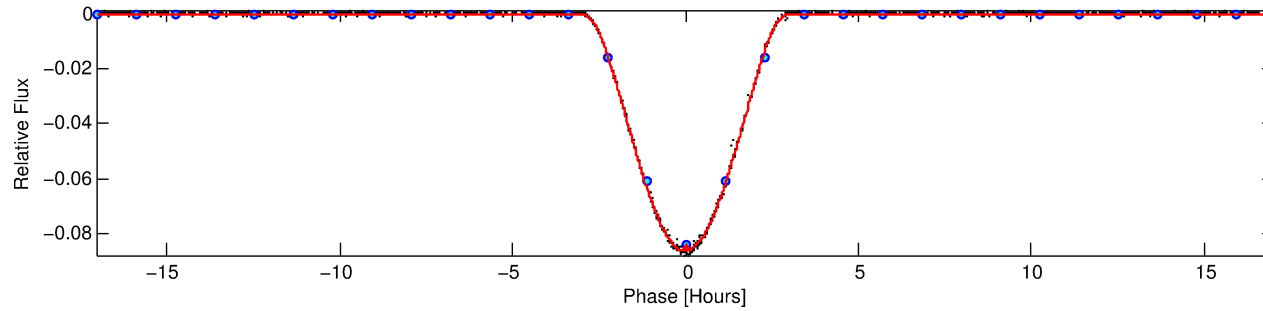
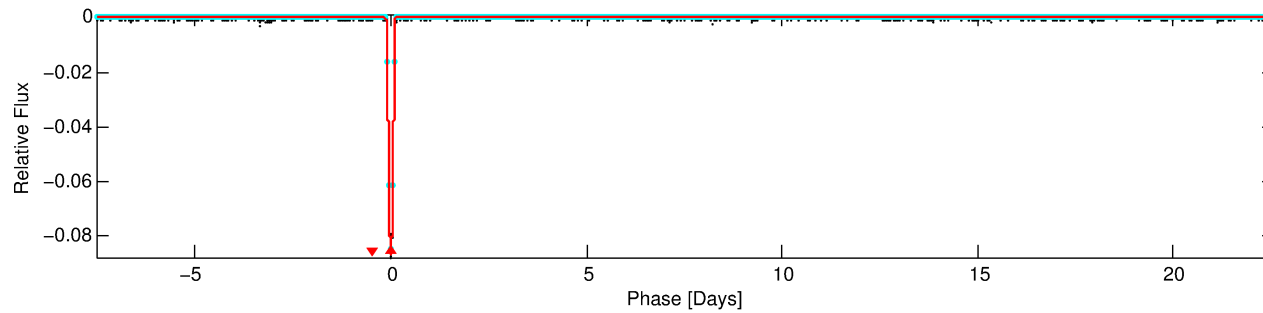
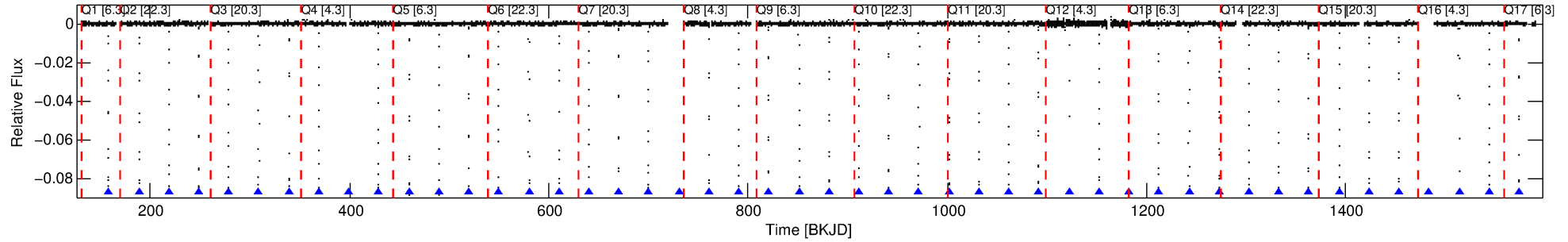
## Ephemeris Match Information For 010320341-01

No Significant Match Found

# DV One-Page Summary

KIC: 10320341 Candidate: 1 of 1 Period: 30.115 d  
KOI: K05786.01 Corr: 0.999

Kp: 14.48 R\*: 1.04 Rs Teff: 6273.0 K Logg: 4.44 Fe/H: -0.140



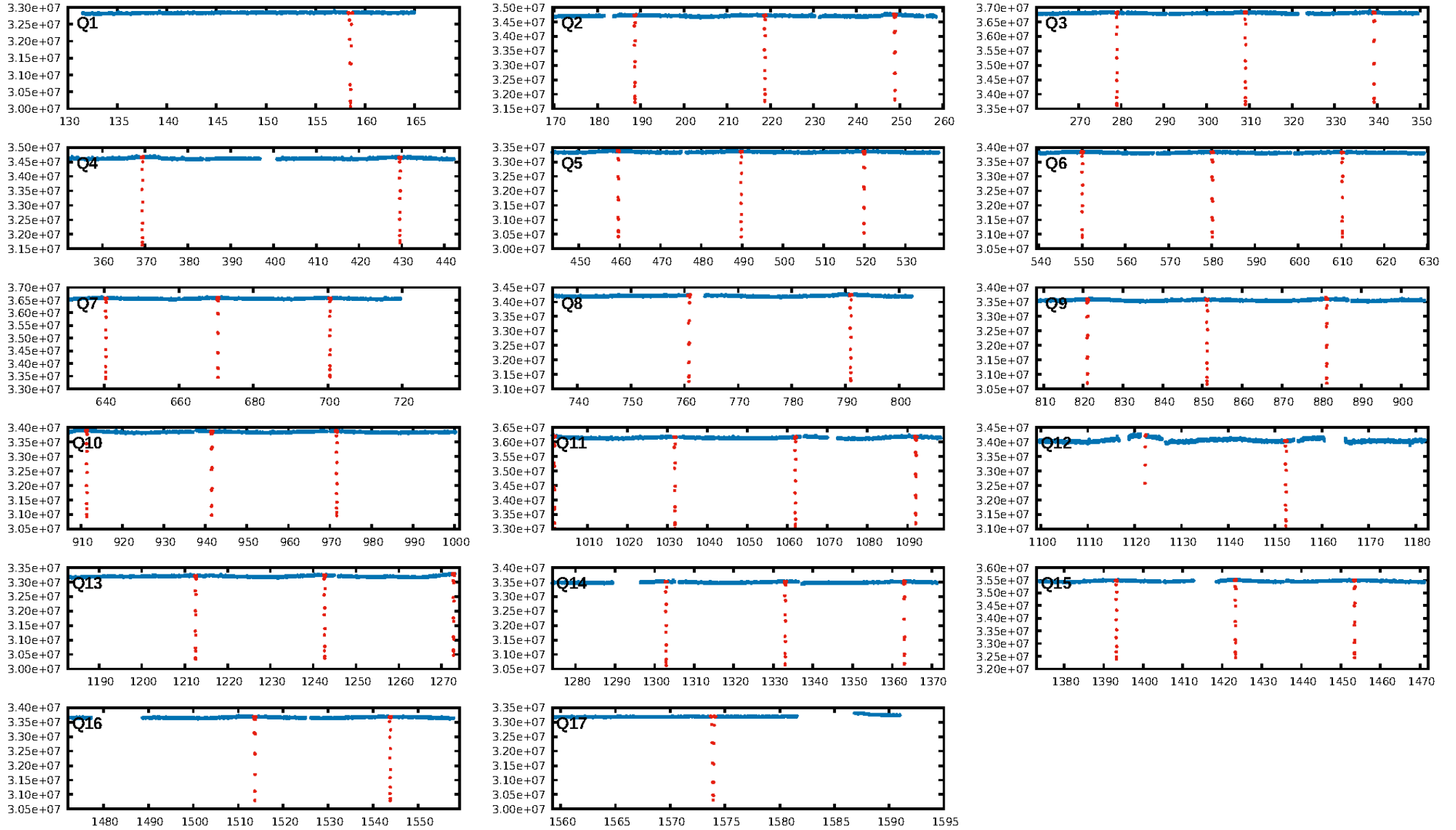
## DV Fit Results:

Period = 30.11468 [0.00000] d  
Epoch = 158.5293 [0.0000] BKJD  
Rp/R\* = 0.3895 [0.0076]  
a/R\* = 42.70 [0.02]  
b = 0.90 [0.01]  
Seff = 39.53 [16.34]  
Teq = 639 [66] K  
Rp = 44.37 [14.86] Re  
a = 0.1956 [0.0538] AU  
Ag = 1.07 [0.49] [0.15σ]  
Teffp = 1006 [68] K [3.88σ]

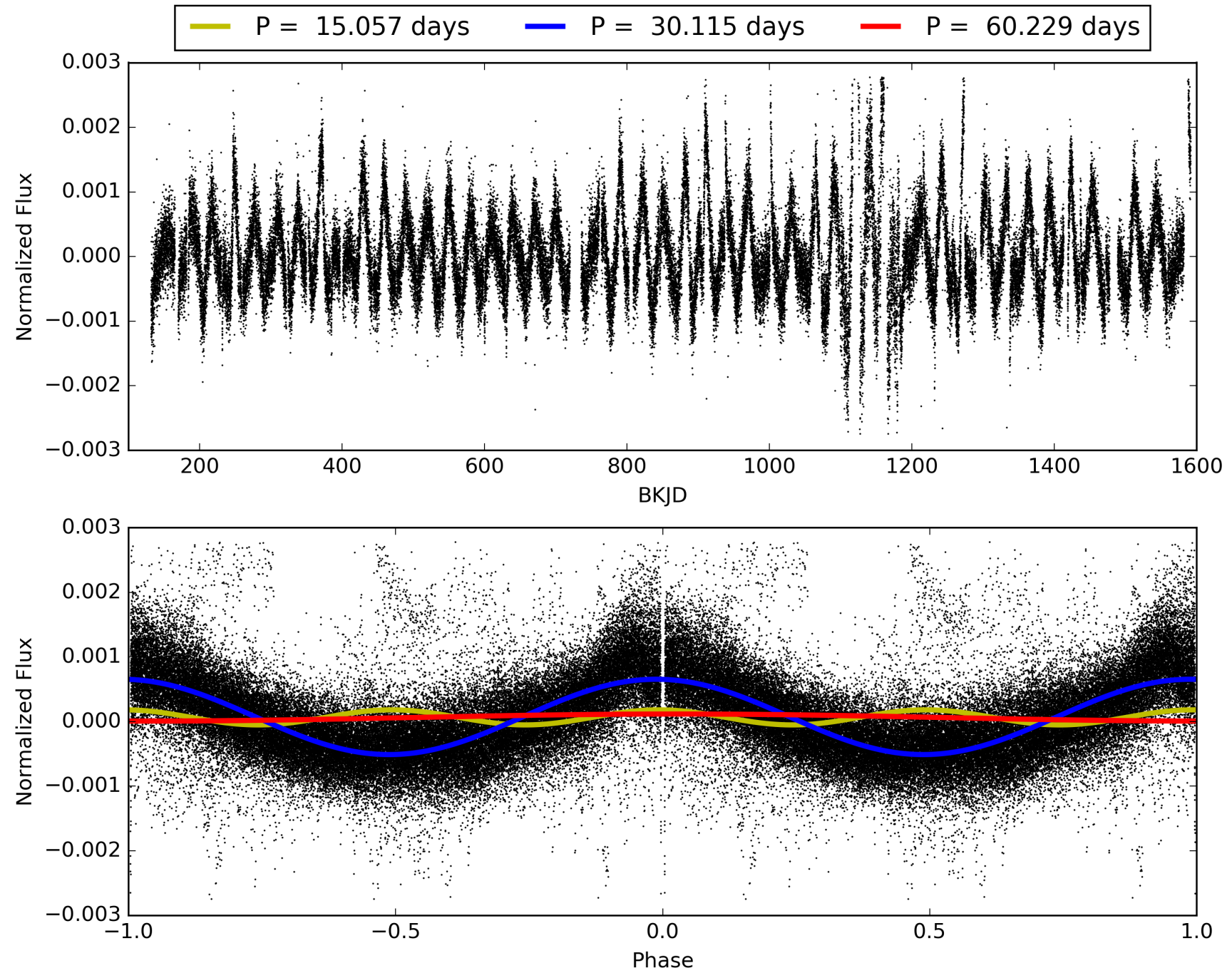
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [42/42]  
GhostDiagnostic-chr: 5.908  
Centroid-sig: 0.0%  
Centroid-so: 0.413 arcsec [114.35σ]  
OotOffset-rm: 0.010 arcsec [0.15σ]  
KicOffset-rm: 0.081 arcsec [1.15σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010320341-01, PDC Light Curves

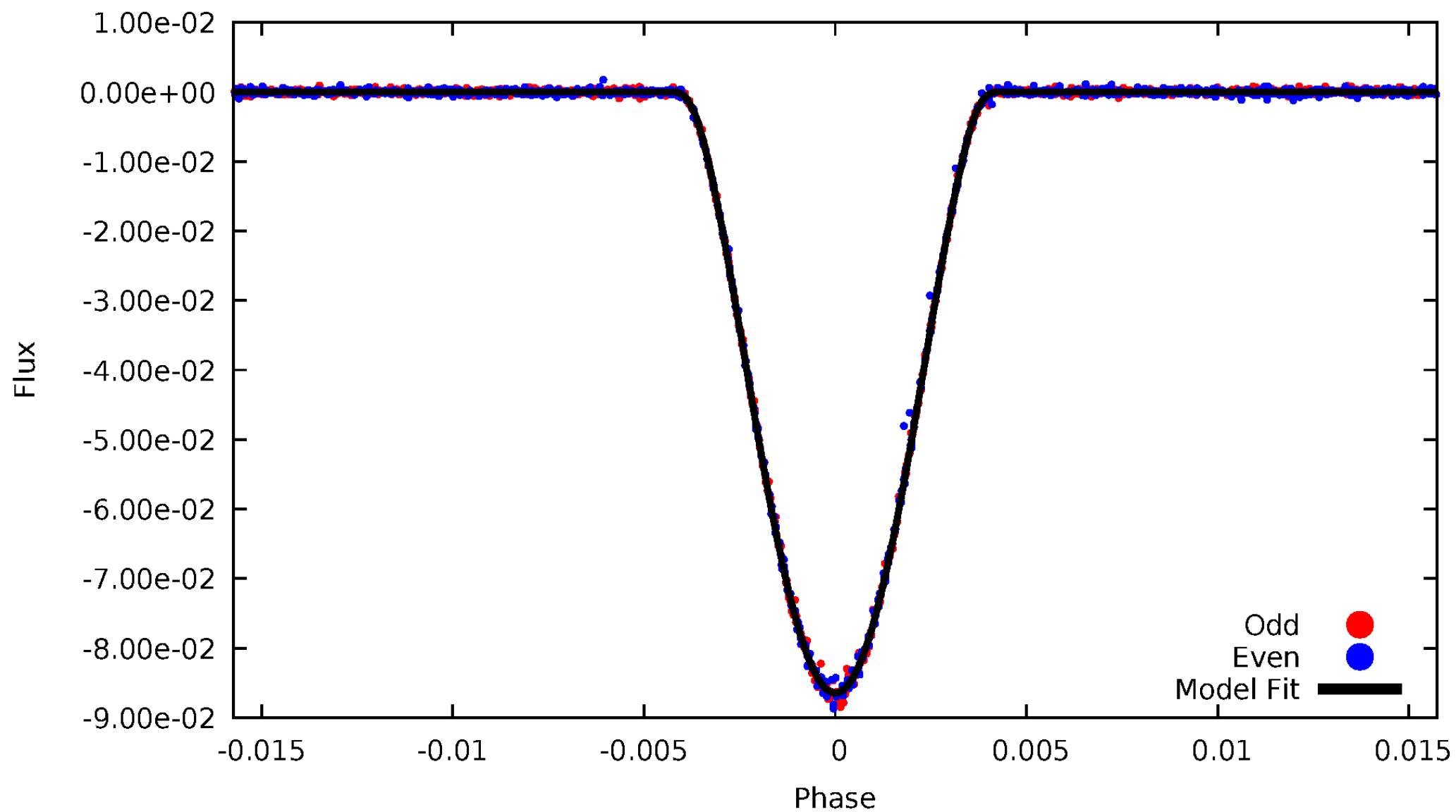


TCE 010320341-01



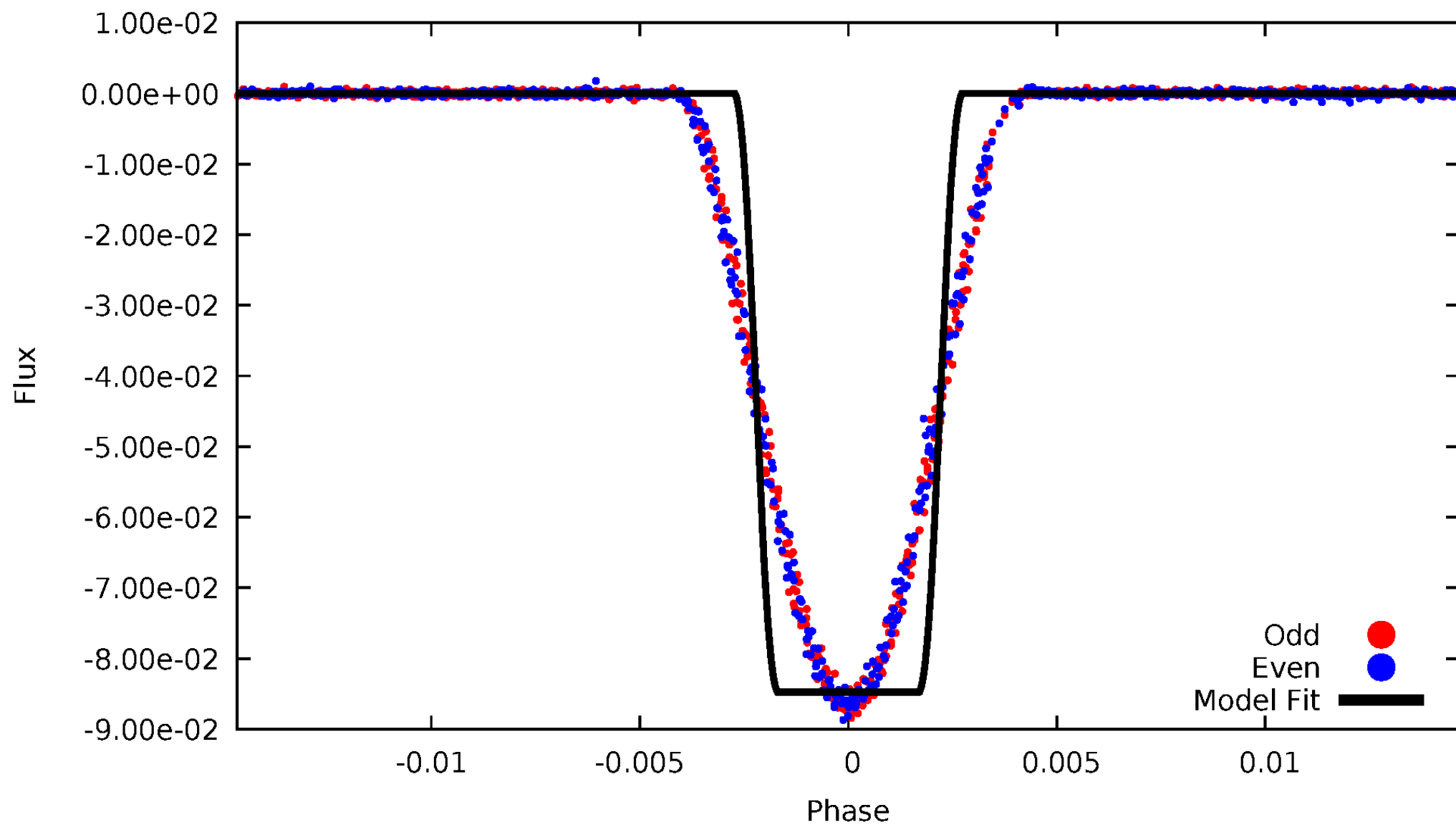
# DV Odd/Even

TCE 010320341-01



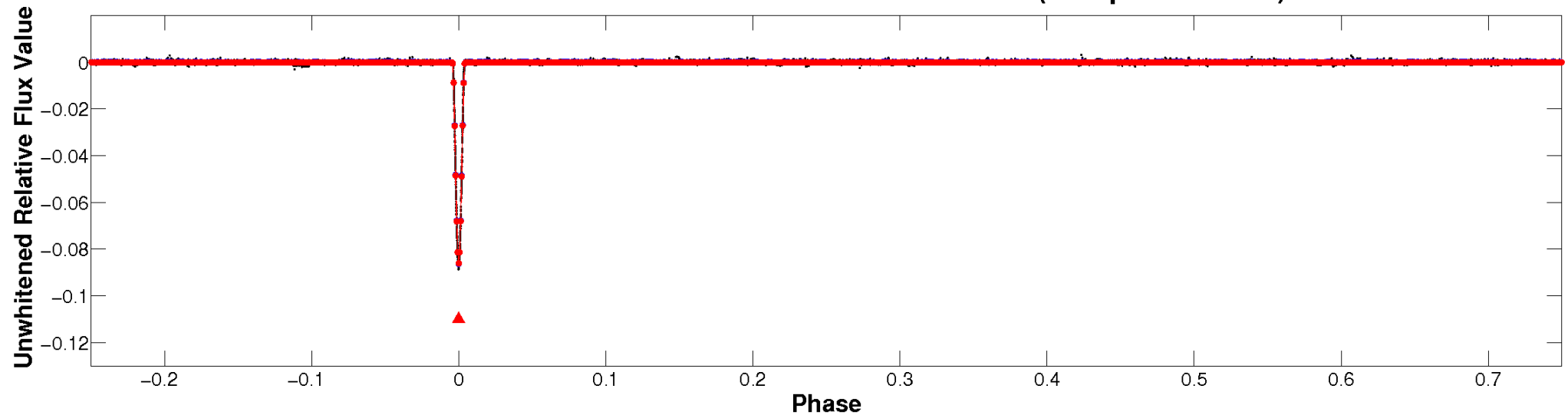
# ALT Odd/Even

TCE 010320341-01

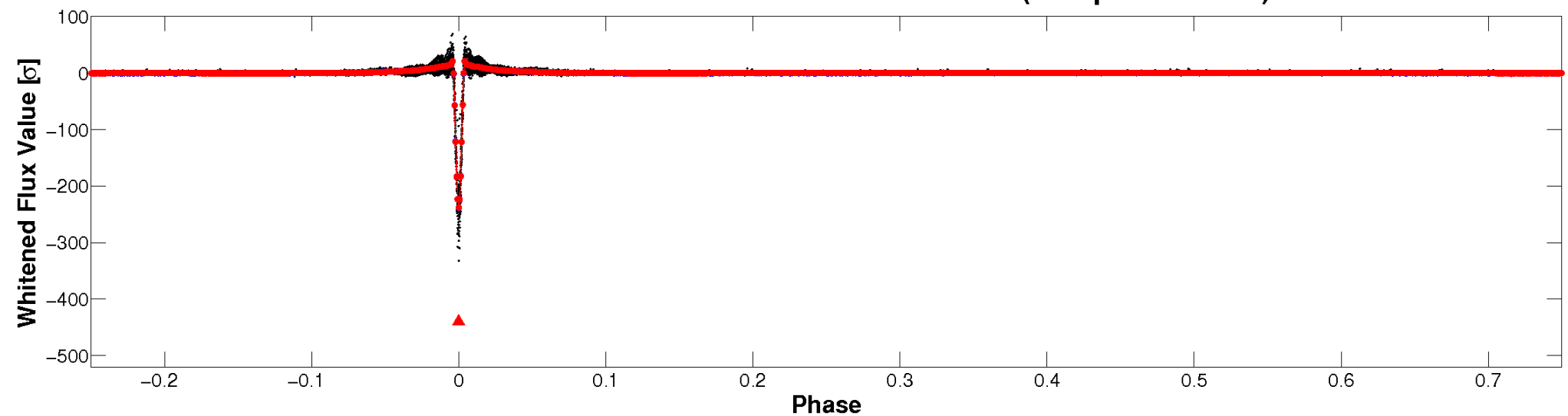


# Non-Whitened Vs. Whitened Light Curve

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

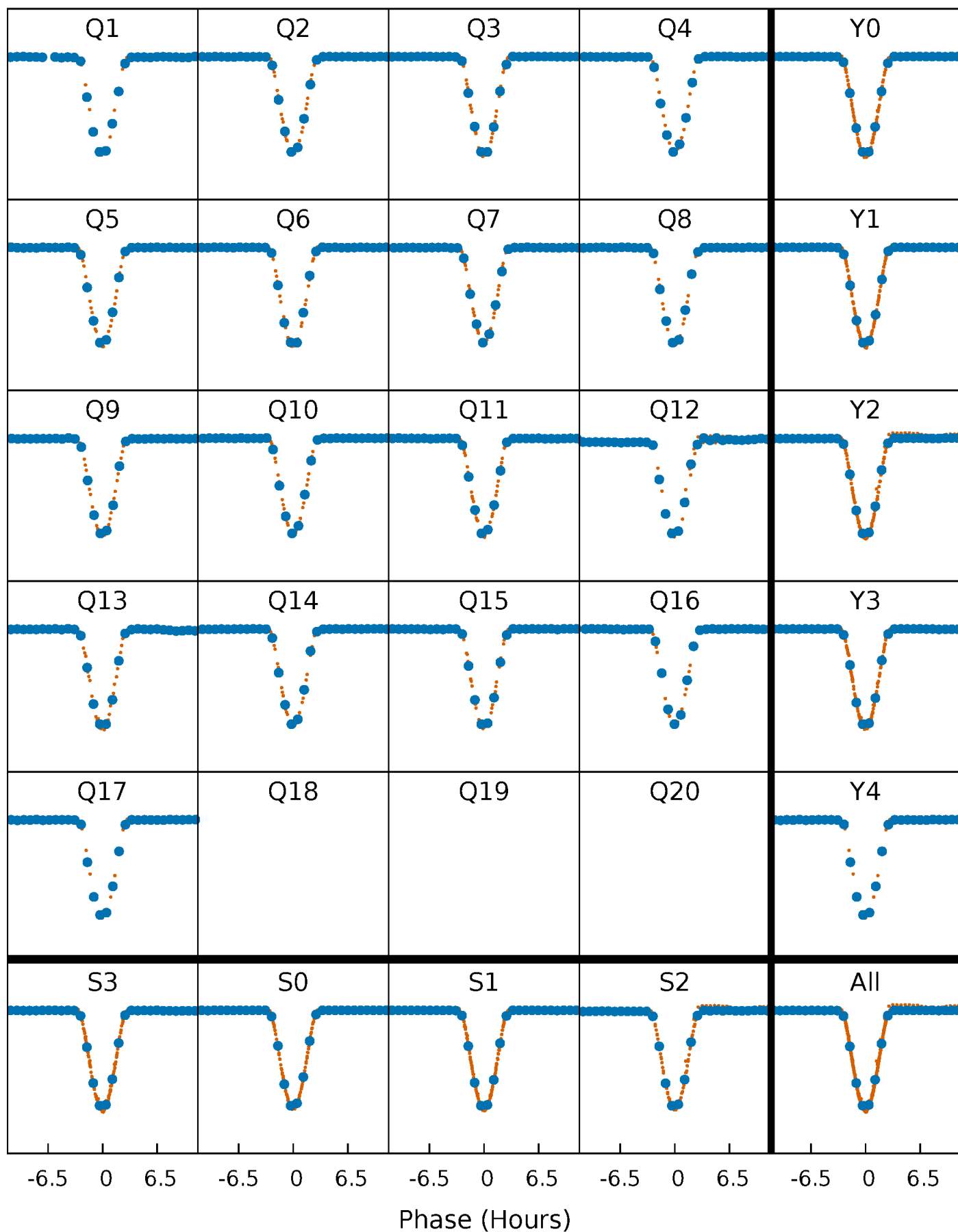


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

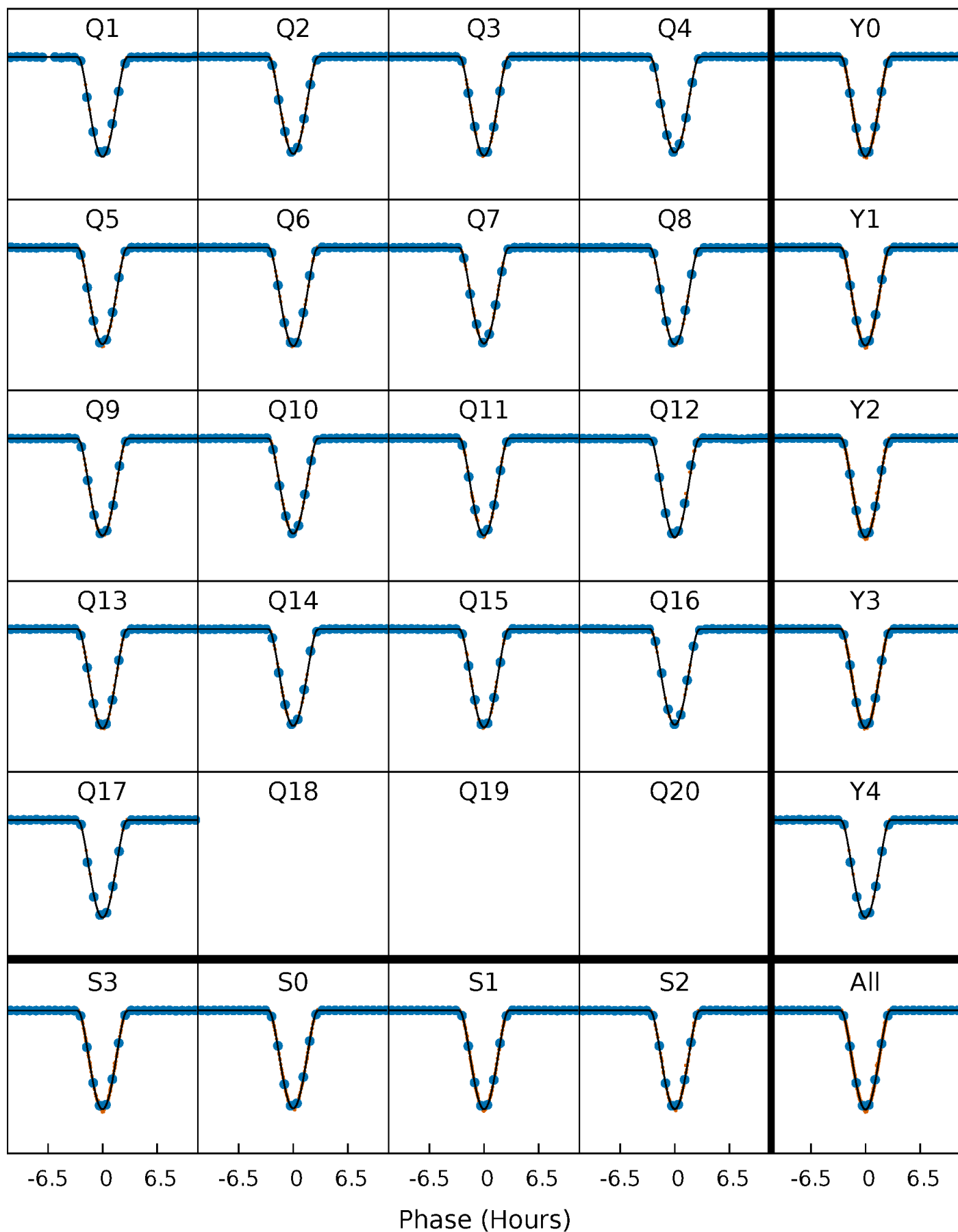
TCE 010320341-01 P= 30.114680 Days  $T_0=158.529282$  (BKJD)





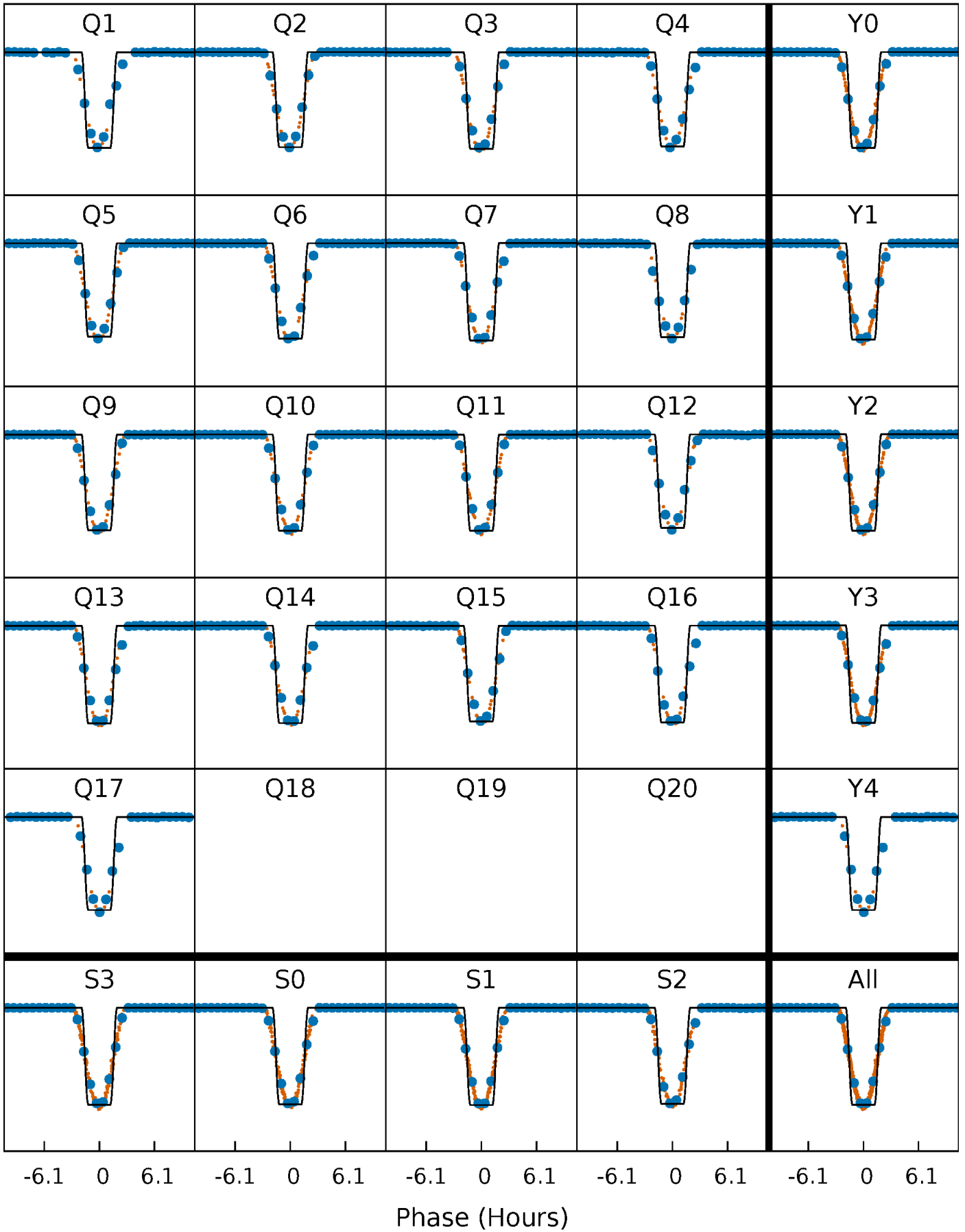
# DV Quarter-Phased Transit Curves

TCE 010320341-01 P= 30.114680 Days  $T_0=158.529282$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

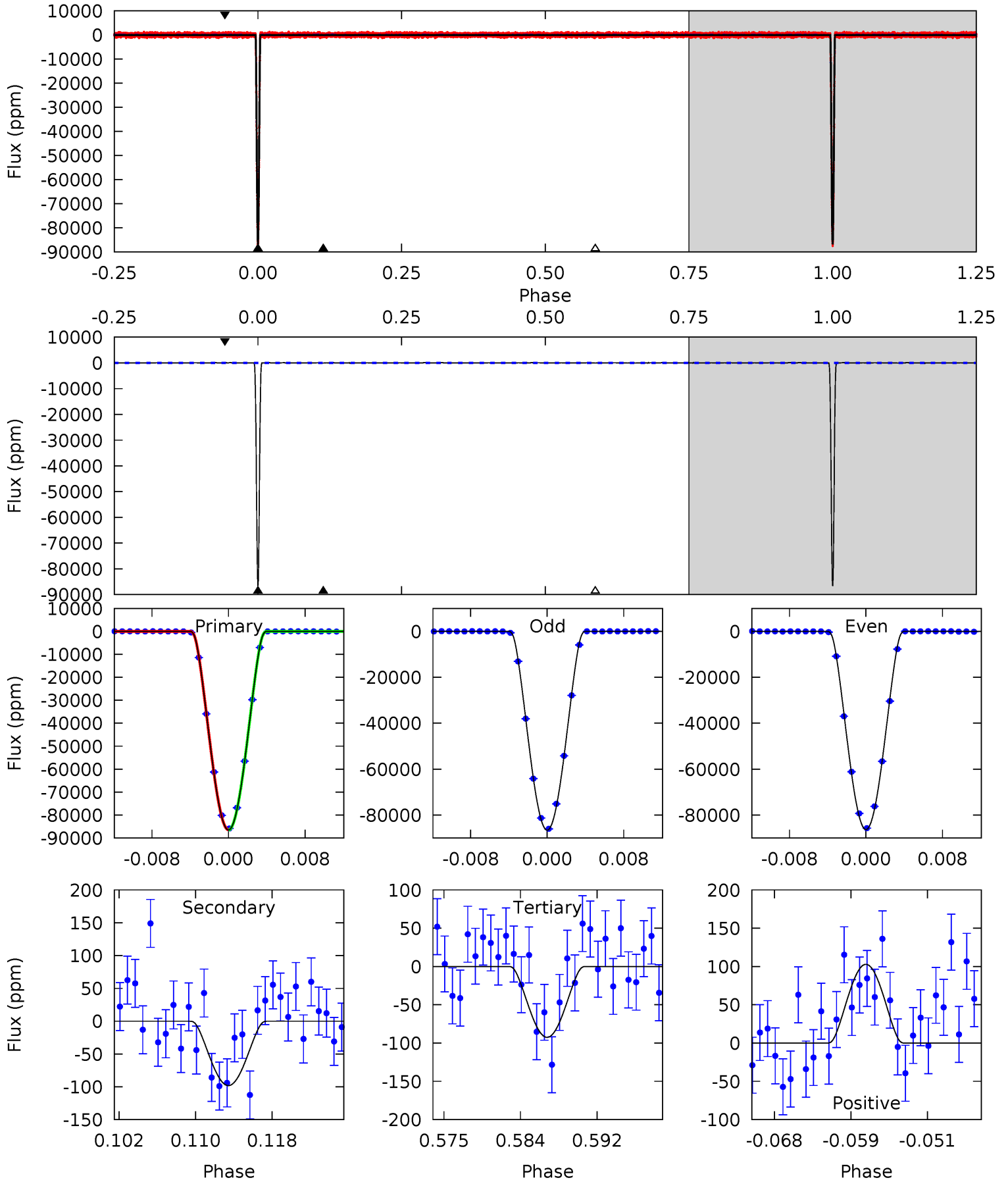
TCE 010320341-01   P= 30.114494 Days    $T_0=158.533534$  (BKJD)



# DV Model-Shift Uniqueness Test

010320341-01, P = 30.114680 Days, E = 128.414602 Days

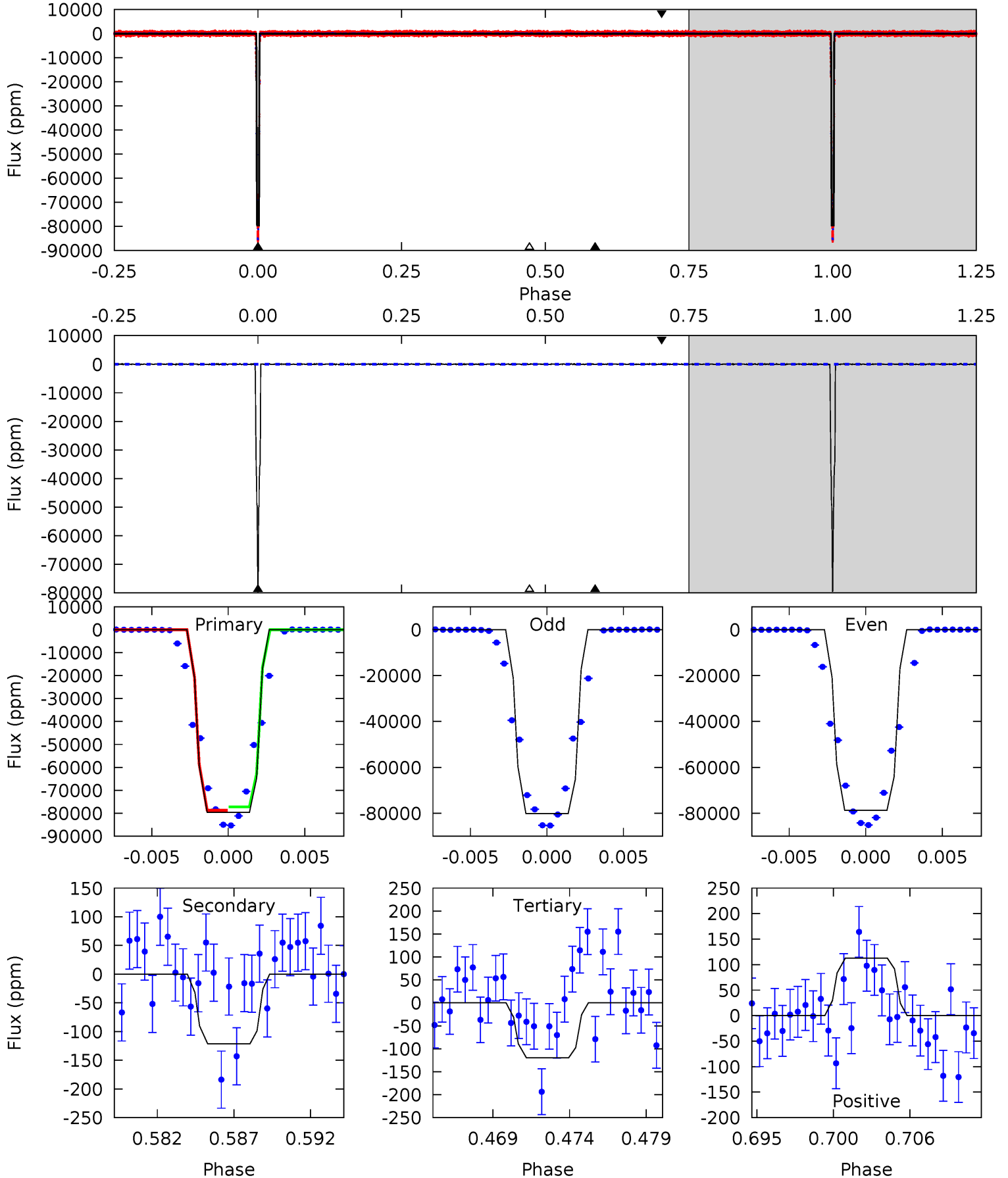
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6099	6.92	6.53	7.25	5.06	2.63	2.14	6092	6092	0.39	-0.33	9.50	1.00	0.00	2.86



# Alt Model-Shift Uniqueness Test

010320341-01, P = 30.114494 Days, E = 128.419040 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
2844	4.34	4.28	4.01	5.14	2.78	1.21	2839	2840	0.06	0.32	25.2	0.99	0.00	0



### Stellar Parameters For KIC 010320341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6273^{+169}_{-206}$	$4.442^{+0.056}_{-0.210}$	$-0.140^{+0.250}_{-0.350}$	$1.044^{+0.349}_{-0.116}$	$1.099^{+0.154}_{-0.154}$	$1.359^{+0.398}_{-0.727}$
	+3%/-3%	+1%/-5%	+179%/-250%	+33%/-11%	+14%/-14%	+29%/-53%
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 010320341-01 / KOI 5786.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-98 \pm 14$	$45.18^{+7.97}_{-3.70}$	$912^{+64}_{-44}$	$1924^{+49}_{-58}$	$0.953^{+0.244}_{-0.245}$
Alt.	$-121 \pm 28$	$34.10^{+5.87}_{-3.10}$	$914^{+69}_{-45}$	$2139^{+67}_{-79}$	$2.068^{+0.671}_{-0.647}$

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

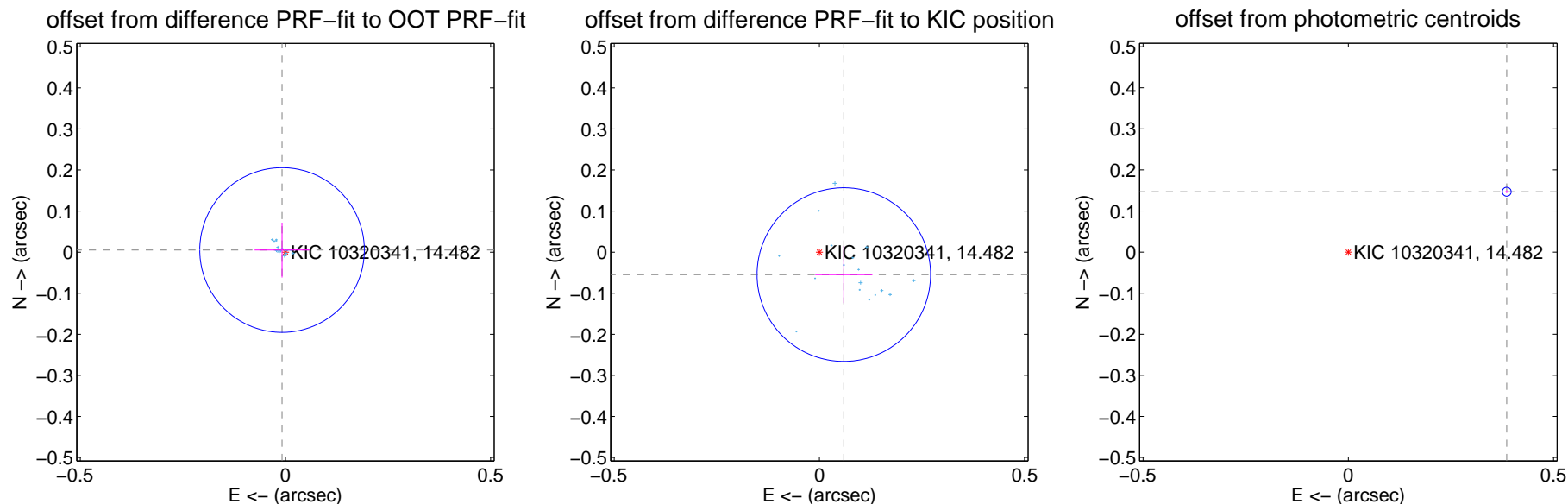
## DV Centroid Data

Supplemental centroid analysis for 010320341-01. Kepler magnitude: 14.48. Transit SNR 2772.80

There are 17 quarters with good PRF difference image offsets

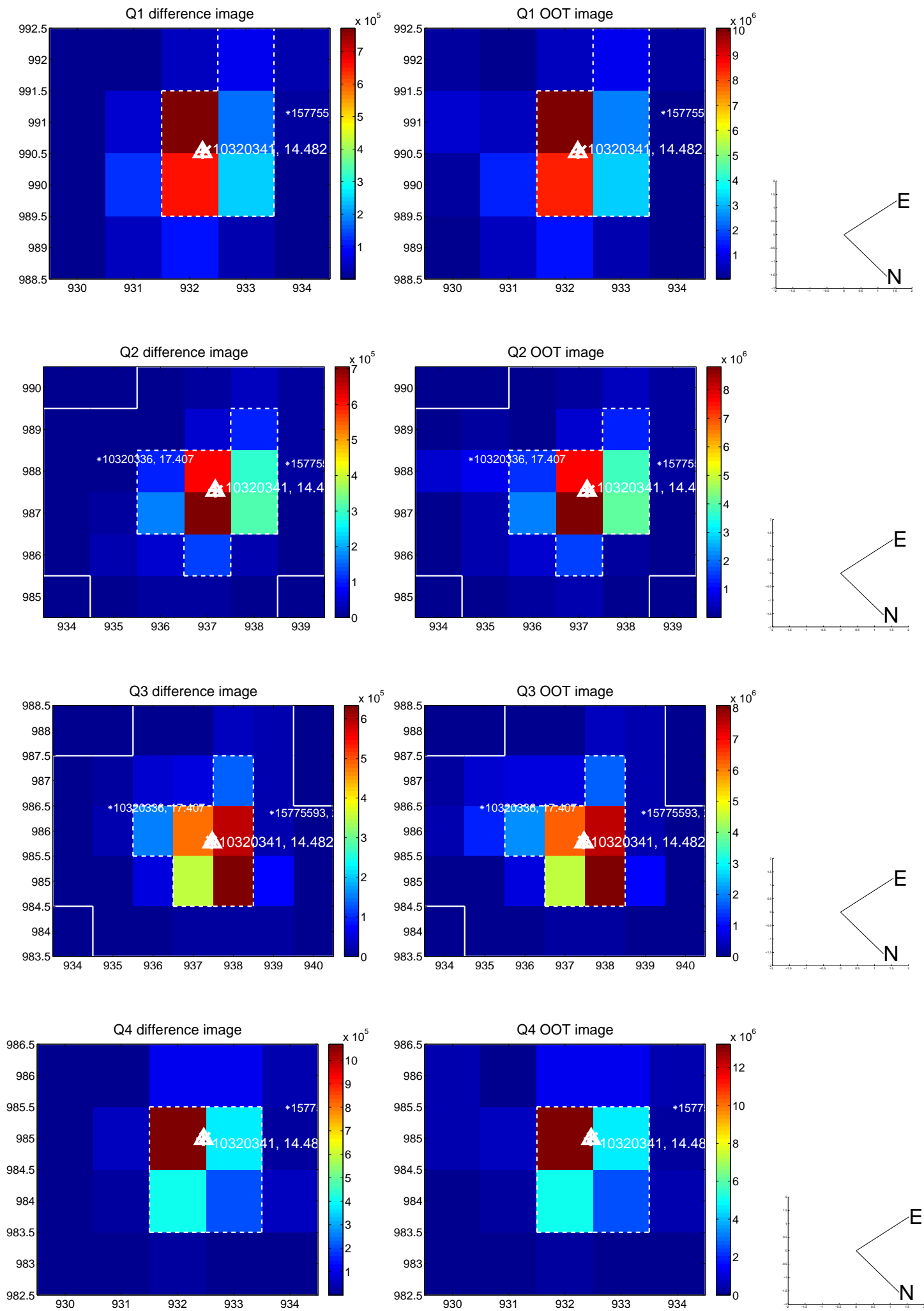
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.010 \pm 0.067$	0.15	$0.008 \pm 0.067$	$0.005 \pm 0.067$
PRF-fit source offset from KIC position	$0.081 \pm 0.070$	1.15	$-0.060 \pm 0.070$	$-0.055 \pm 0.070$
photometric centroid source offset	$0.41 \pm 0.00$	114.35	$-0.39 \pm 0.00$	$0.15 \pm 0.00$

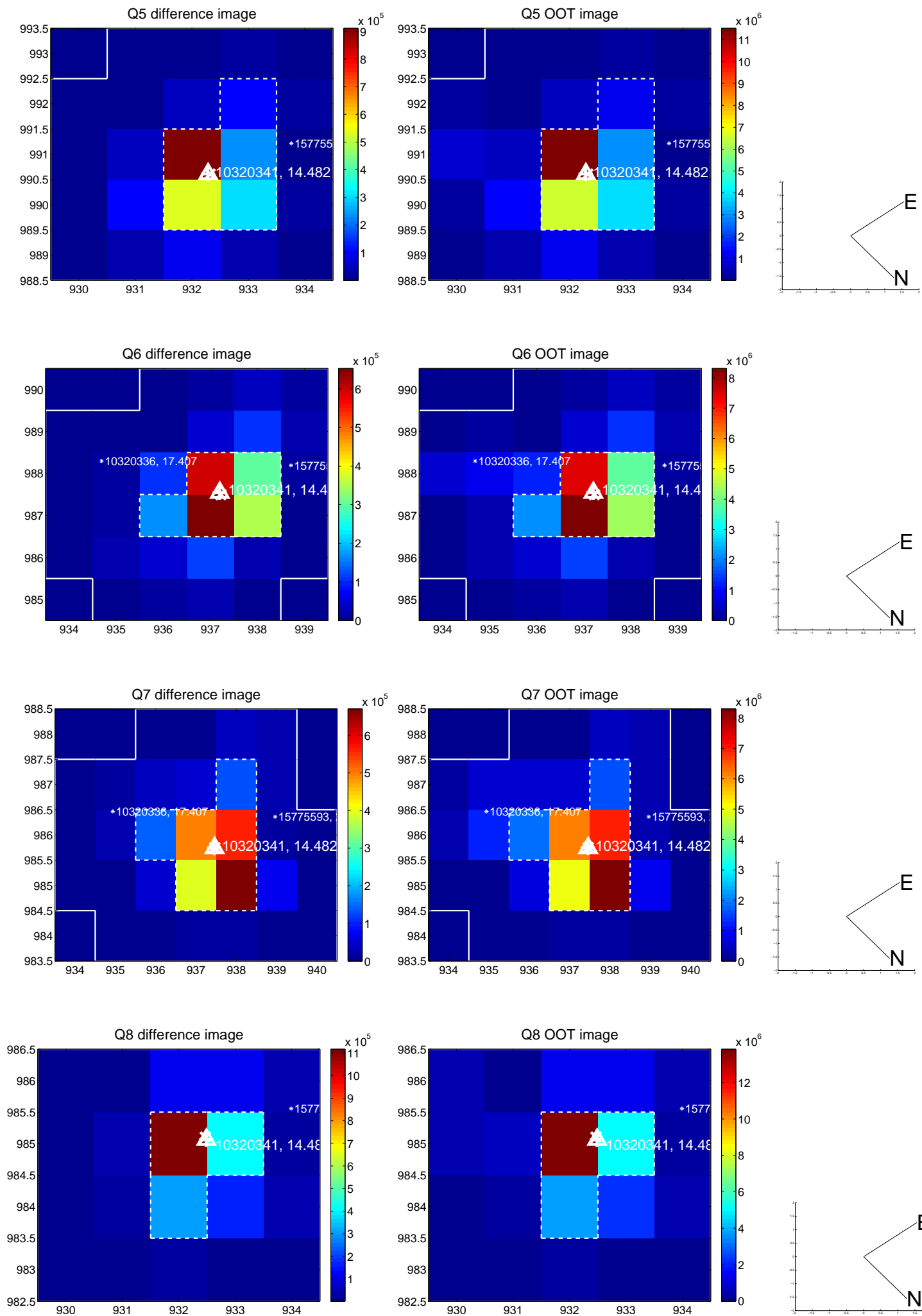


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

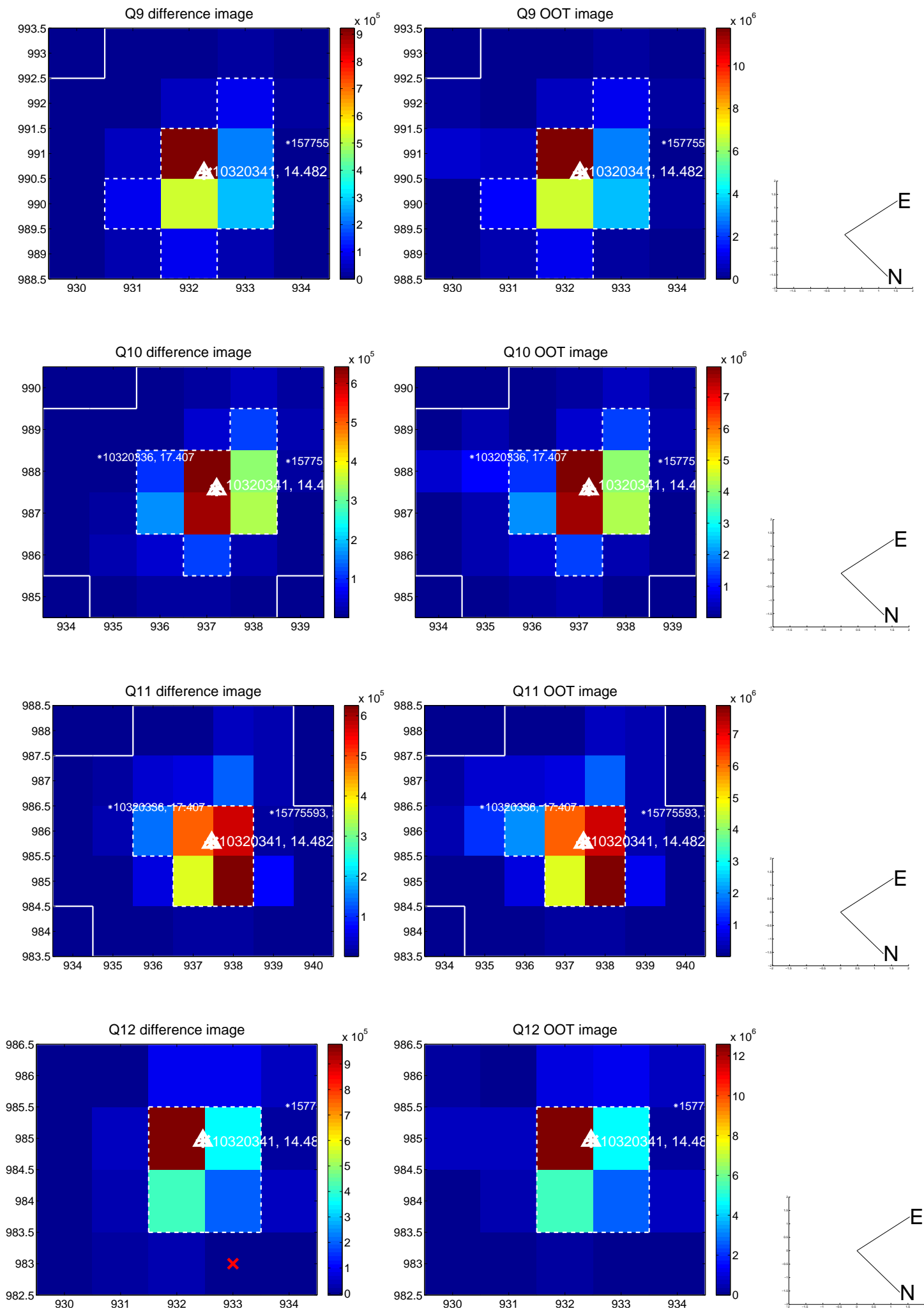


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

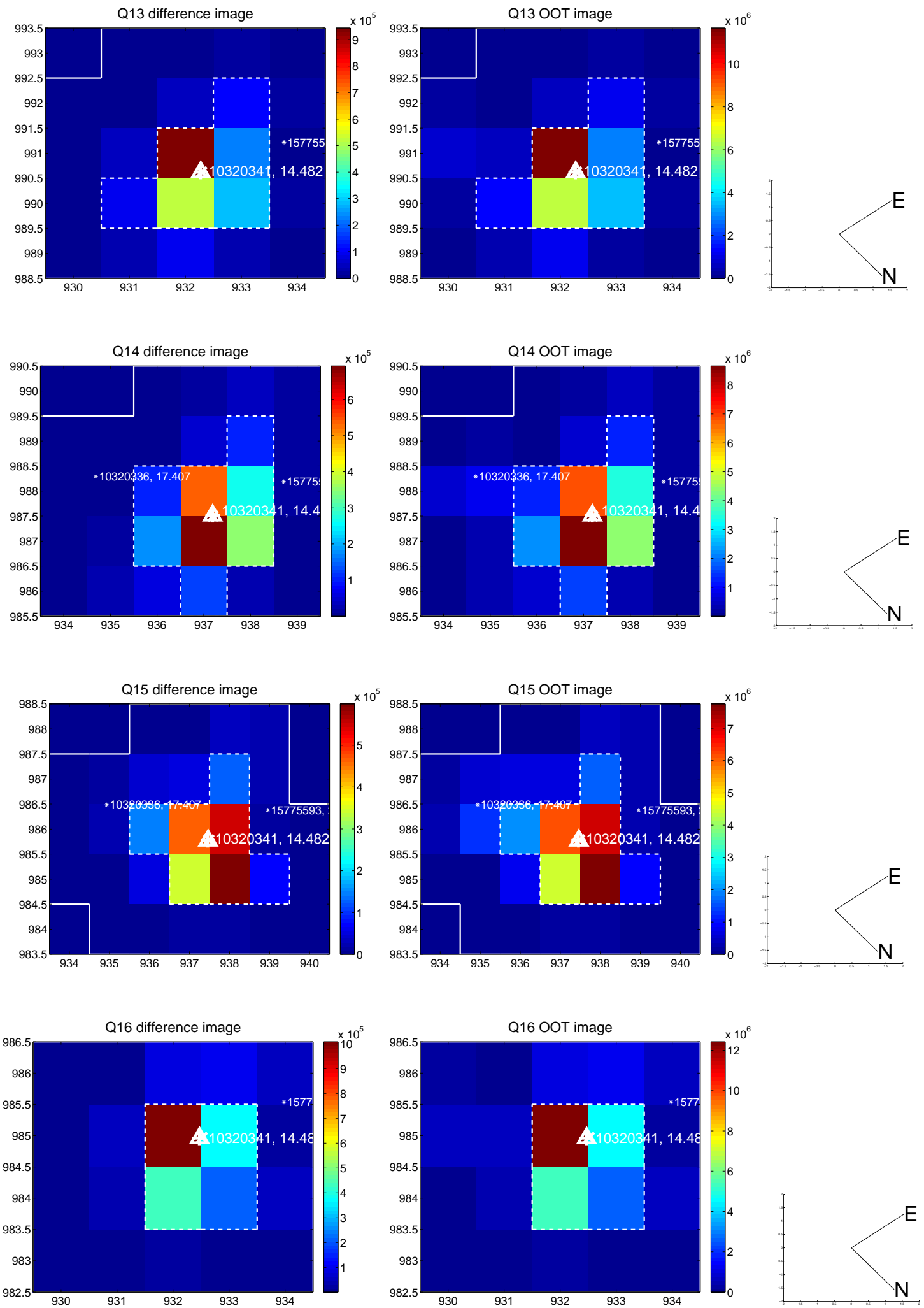




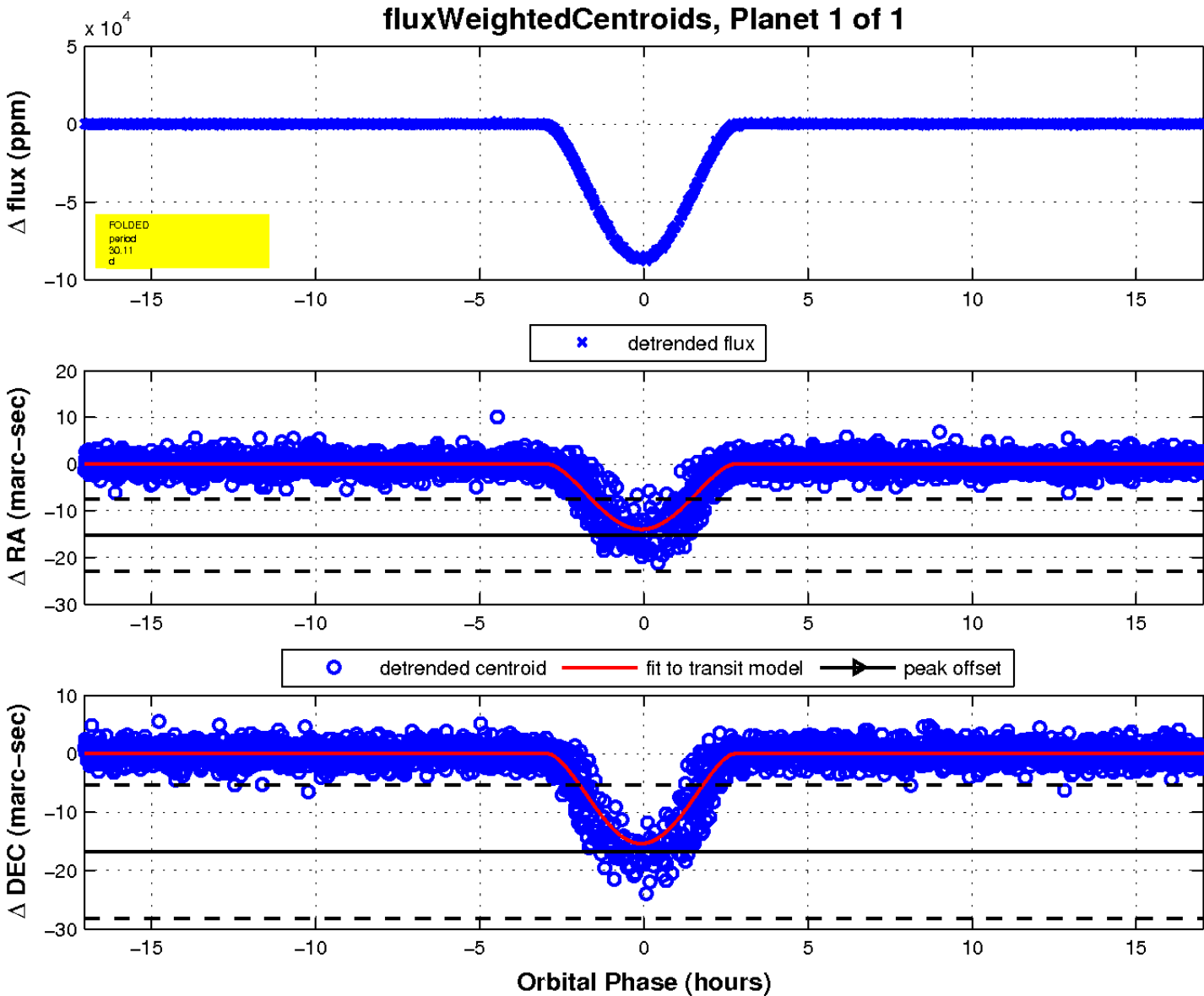
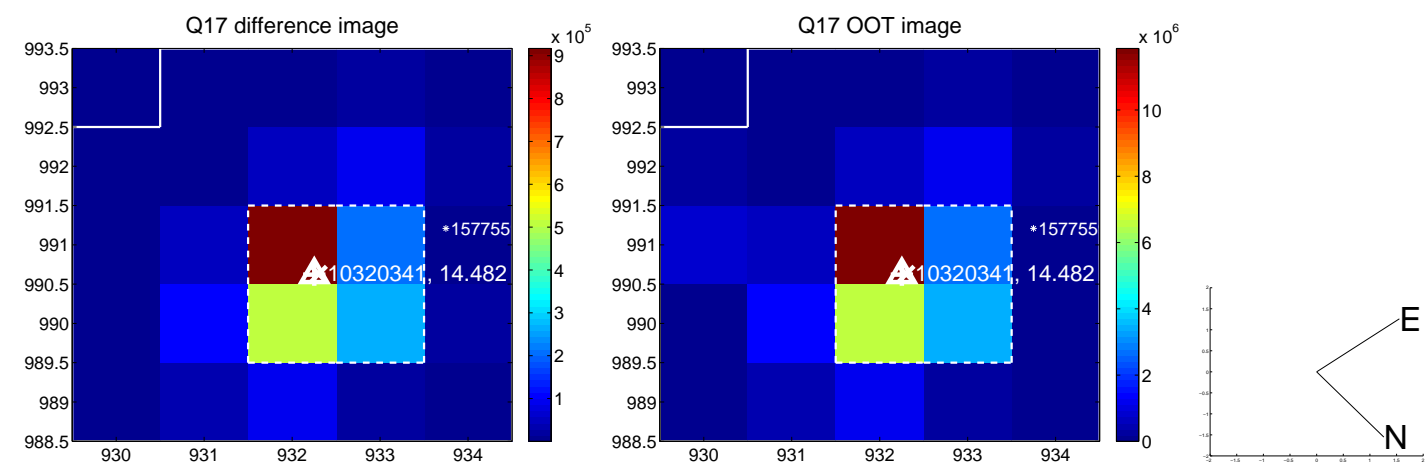
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

