

# KIC 009971475

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009971475-01	OBS	7268.01	5.357410	131.637589	198882.7	4.311	11209.8	8038.9	2.06	5768	127.01	1172.77

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009971475-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_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.

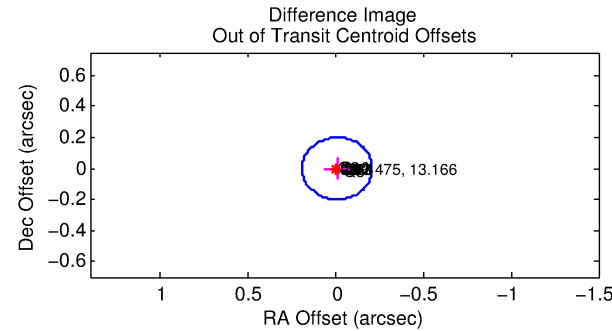
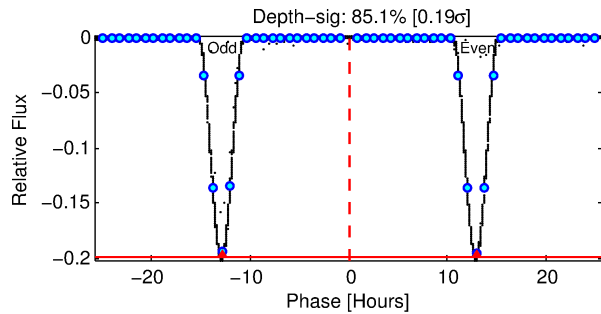
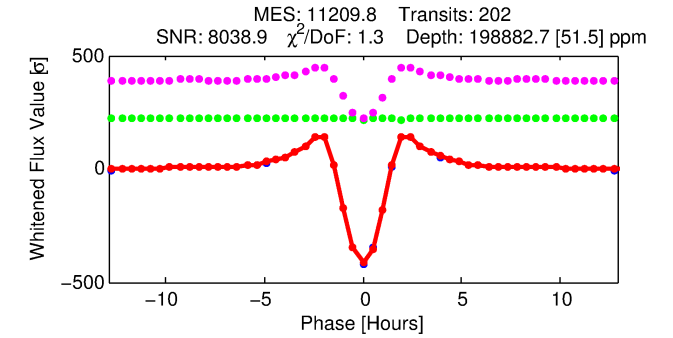
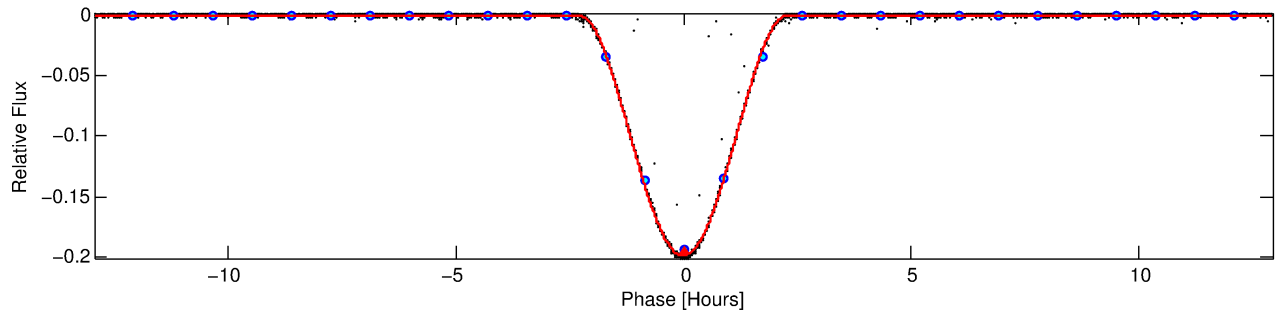
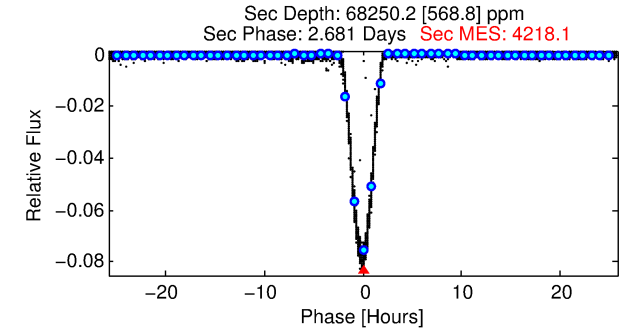
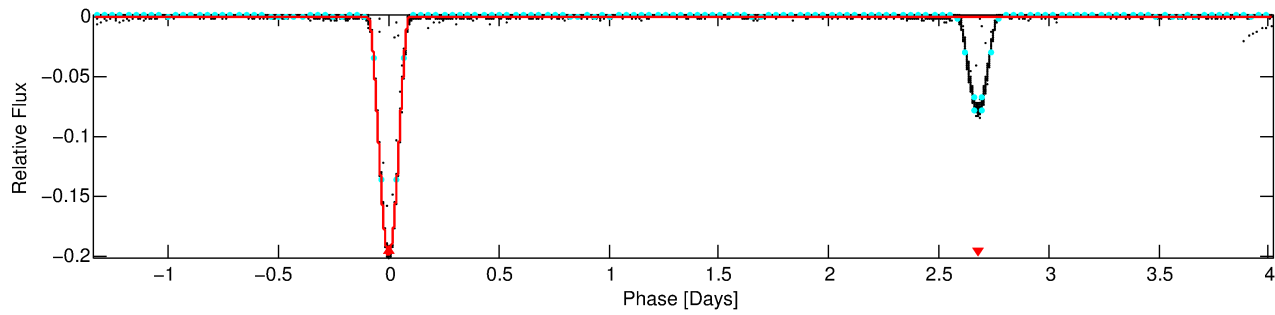
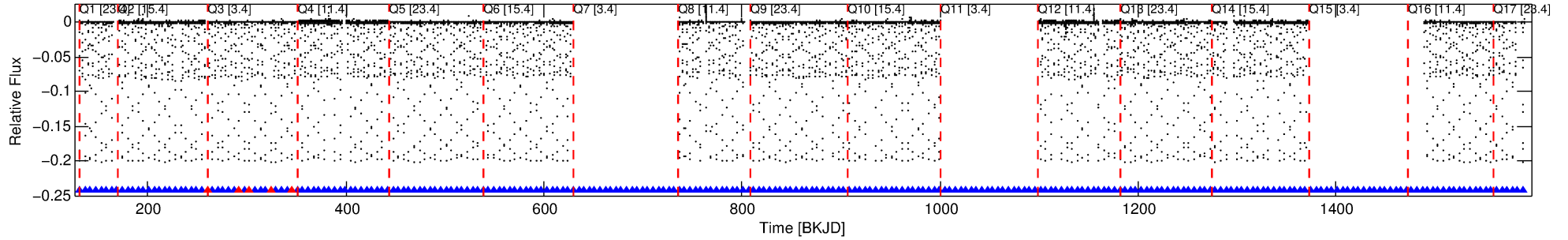
## Ephemeris Match Information For 009971475-01

No Significant Match Found

# DV One-Page Summary

KIC: 9971475 Candidate: 1 of 1 Period: 5.357 d  
KOI: K07268.01 Corr: 0.997

Kp: 13.17 R\*: 2.06 Rs Teff: 5768.0 K Logg: 3.81 Fe/H: -0.560



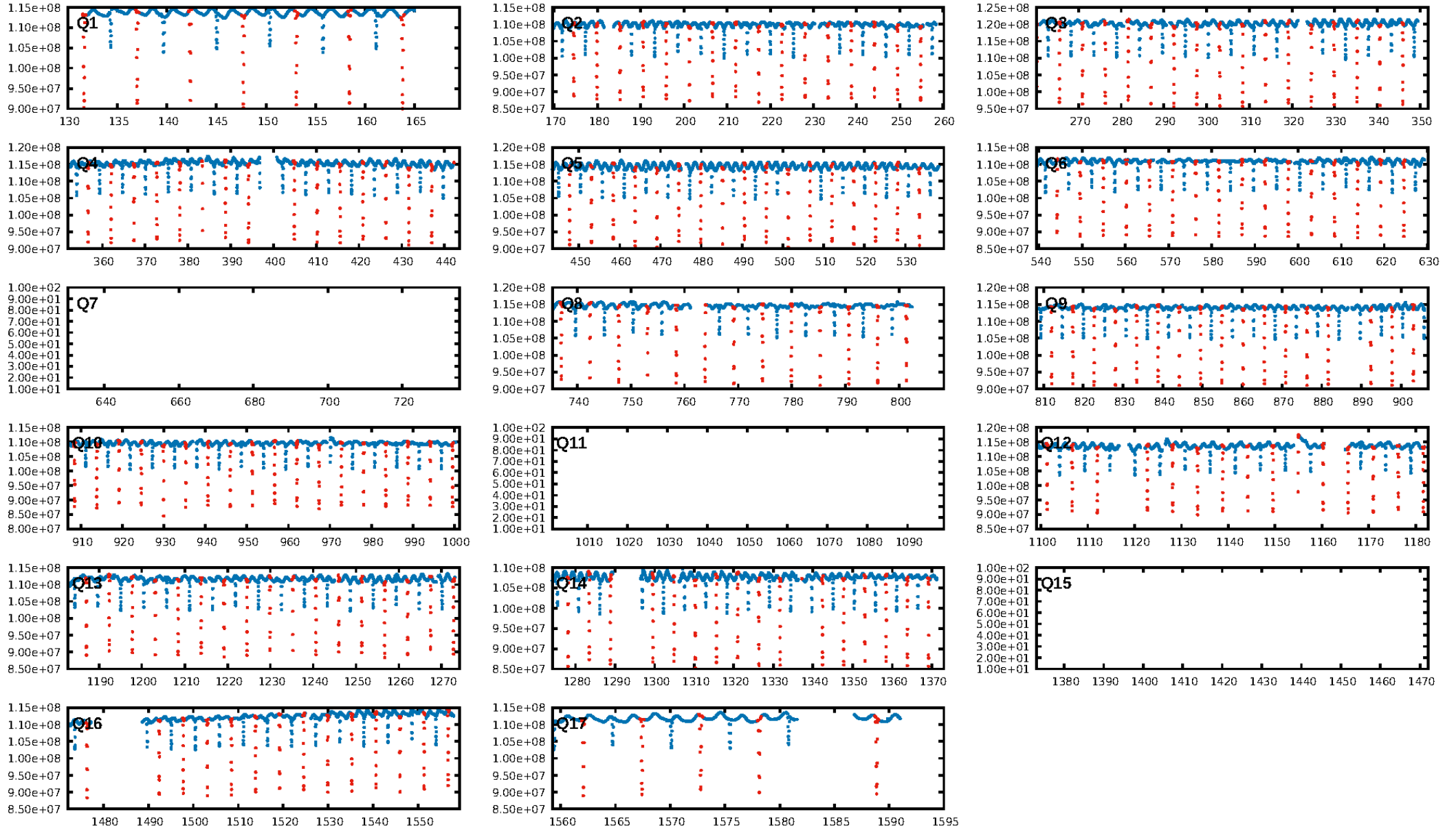
## DV Fit Results:

Period = 5.35741 [0.00000] d  
Epoch = 131.6376 [0.0000] BKJD  
Rp/R\* = 0.5658 [0.0116]  
a/R\* = 12.69 [0.03]  
b = 0.82 [0.02]  
Seff = 1172.77 [1260.53]  
Teq = 1492 [401] K  
Rp = 127.01 [69.51] Re  
a = 0.0598 [0.0371] AU  
Ag = 8.33 [8.89] [0.82σ]  
Teffp = 3919 [136] K [5.73σ]

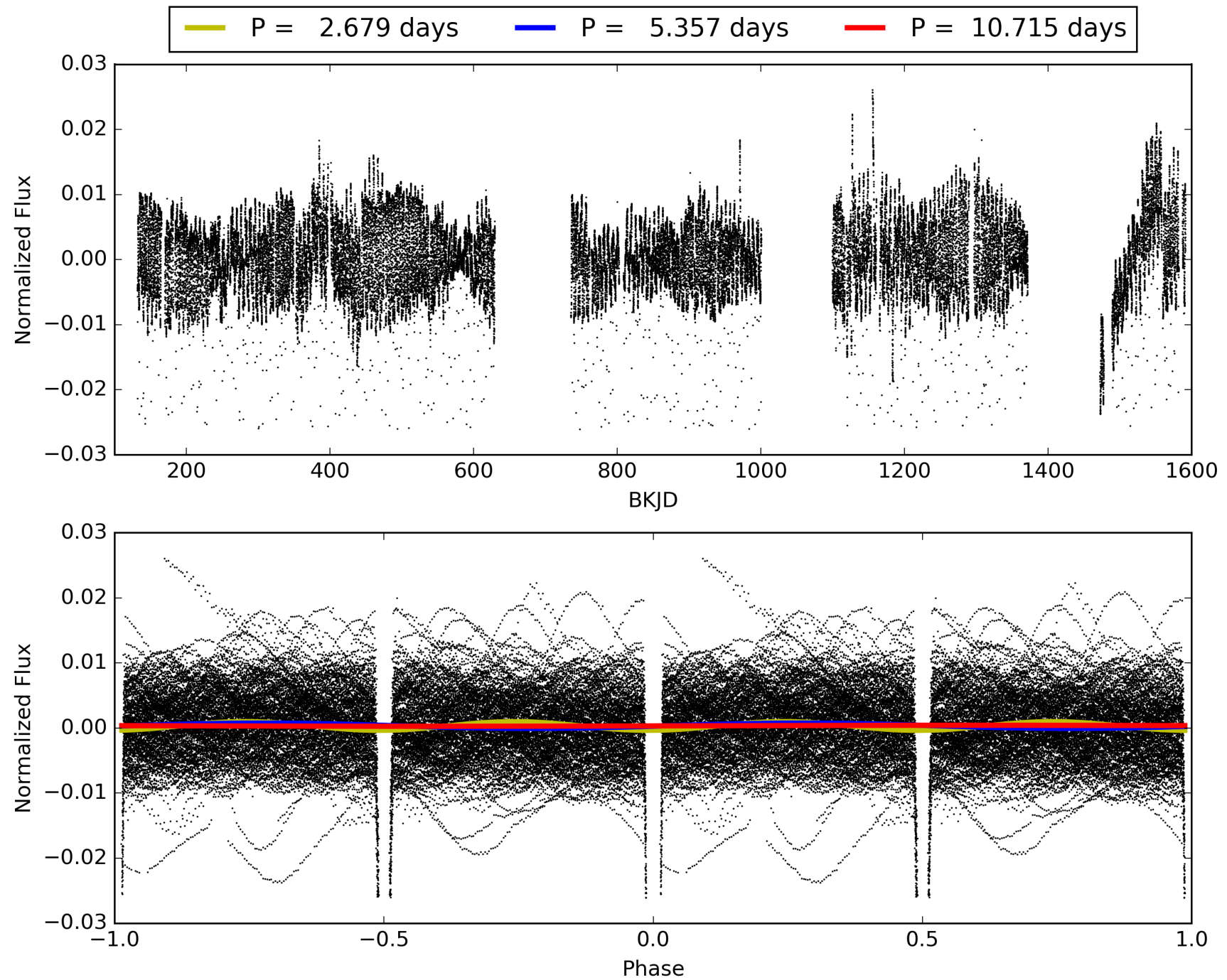
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.97 [185/190]  
GhostDiagnostic-chr: 1.902  
Centroid-sig: 0.0%  
Centroid-so: 0.078 arcsec [155.19σ]  
OotOffset-rm: 0.007 arcsec [0.11σ]  
KicOffset-rm: 0.069 arcsec [1.03σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 009971475-01, PDC Light Curves

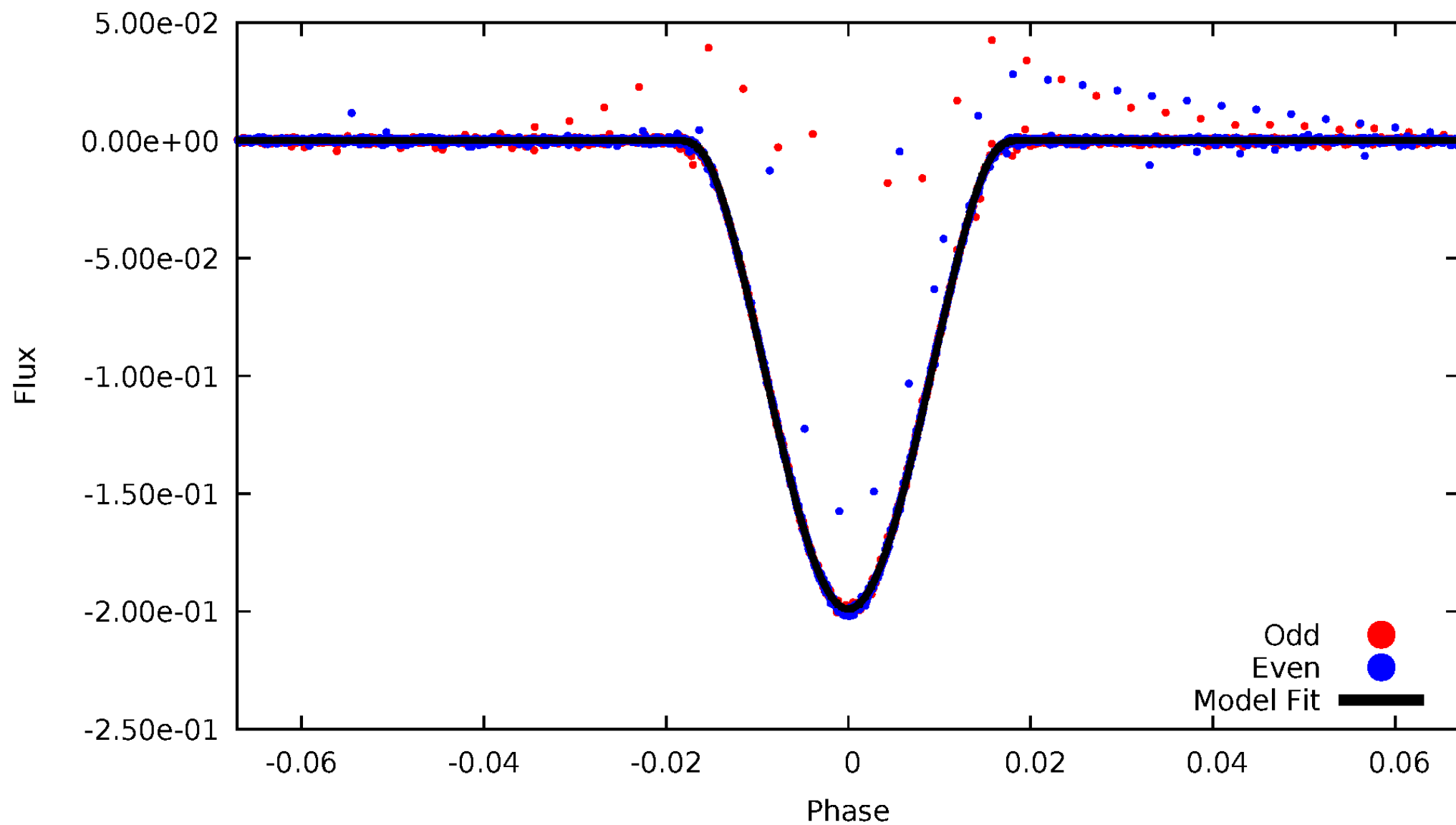


TCE 009971475-01



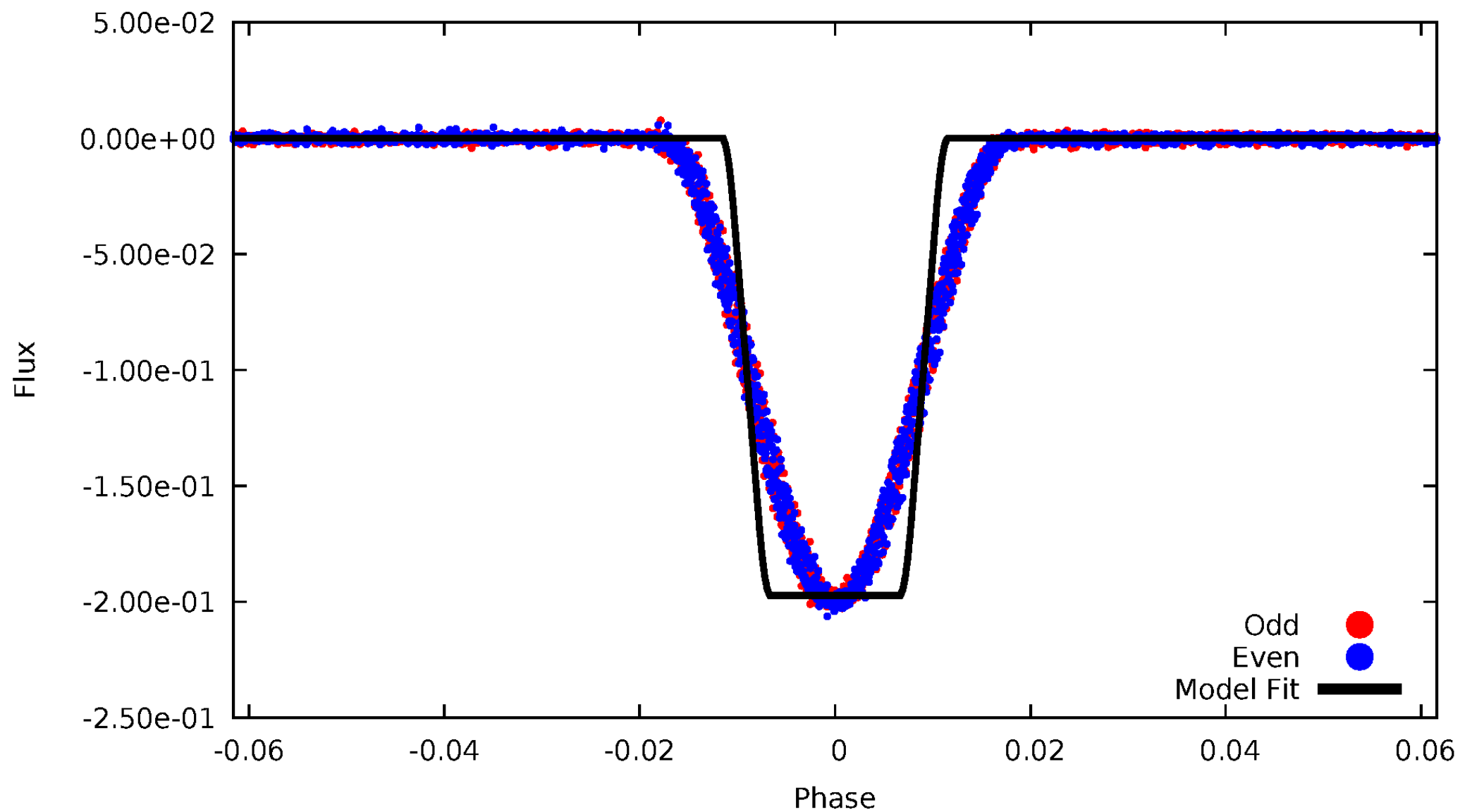
# DV Odd/Even

TCE 009971475-01



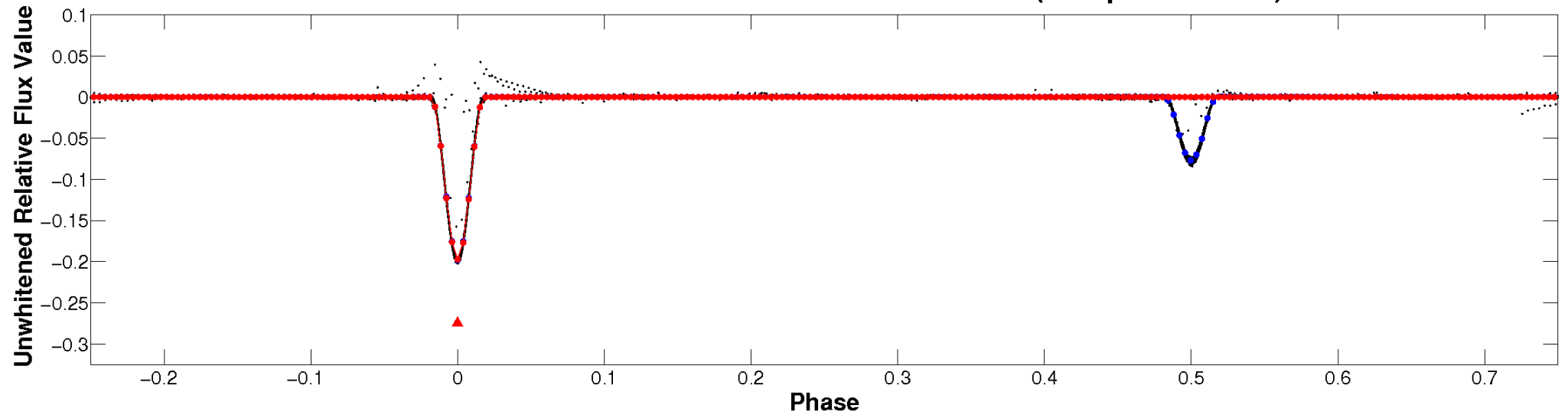
# ALT Odd/Even

TCE 009971475-01

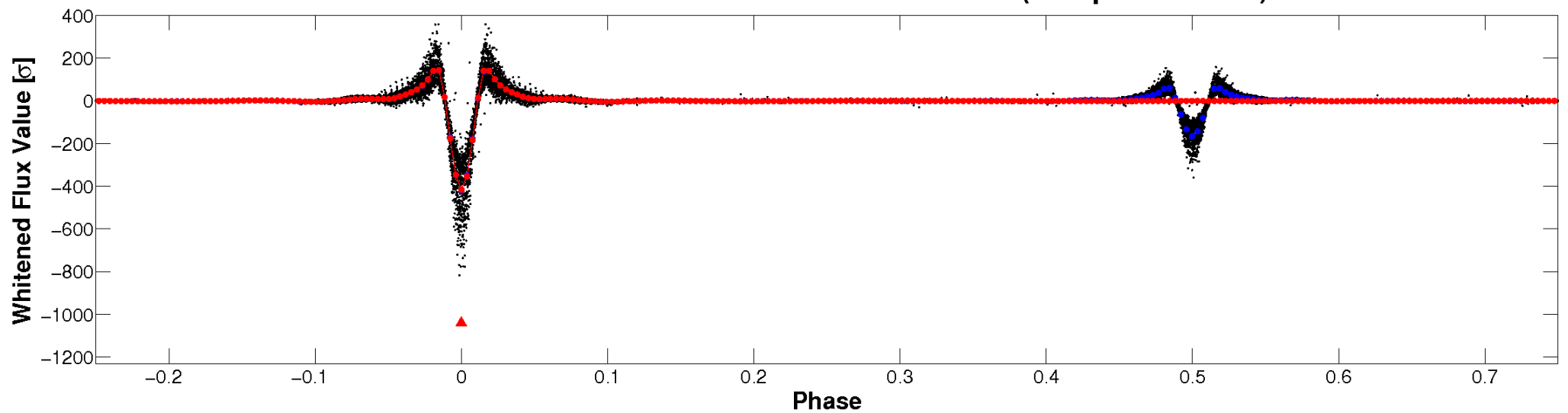


# Non-Whitened Vs. Whitened Light Curve

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

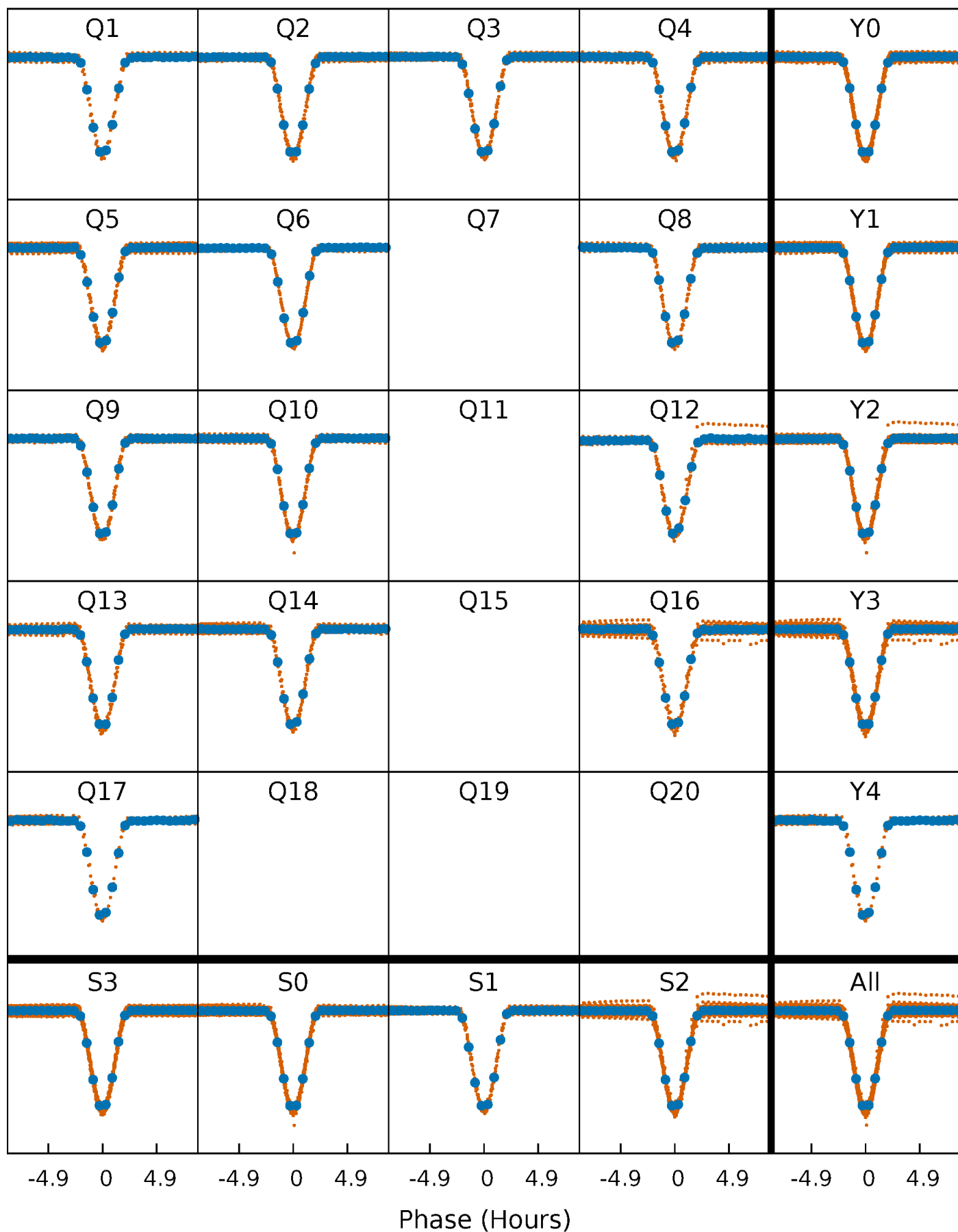


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

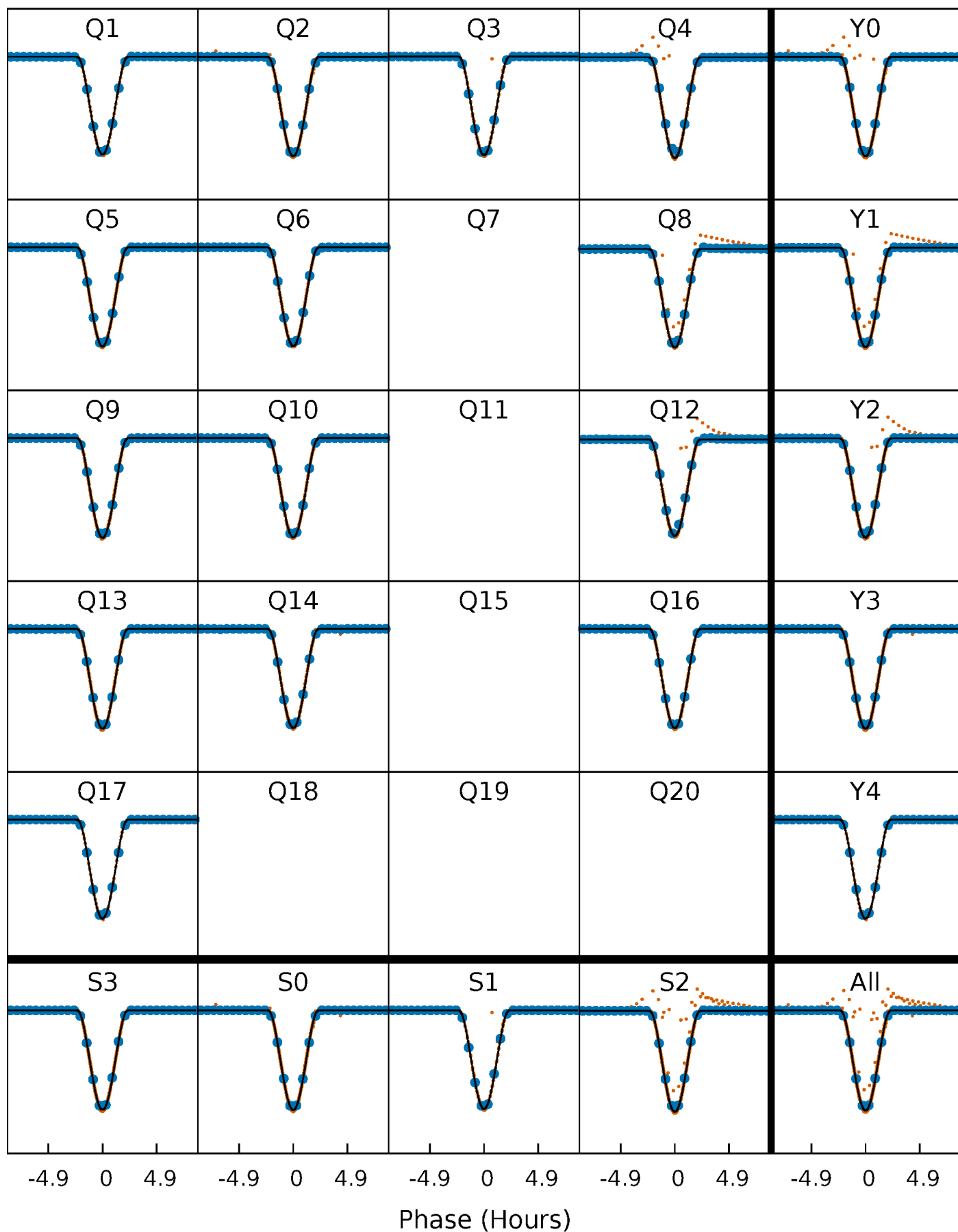
TCE 009971475-01 P= 5.357410 Days  $T_0=131.637589$  (BKJD)





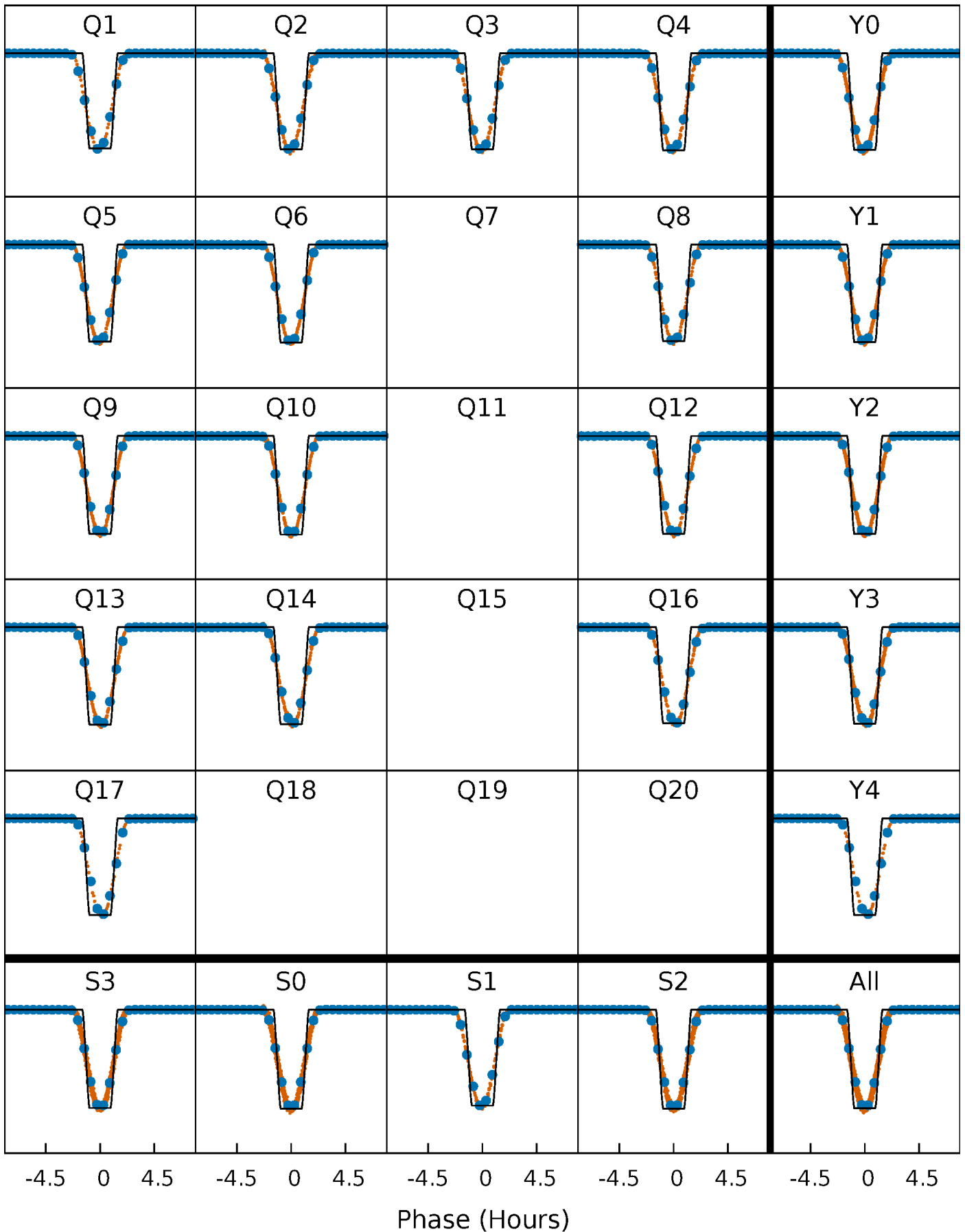
# DV Quarter-Phased Transit Curves

TCE 009971475-01 P= 5.357410 Days  $T_0=131.637589$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

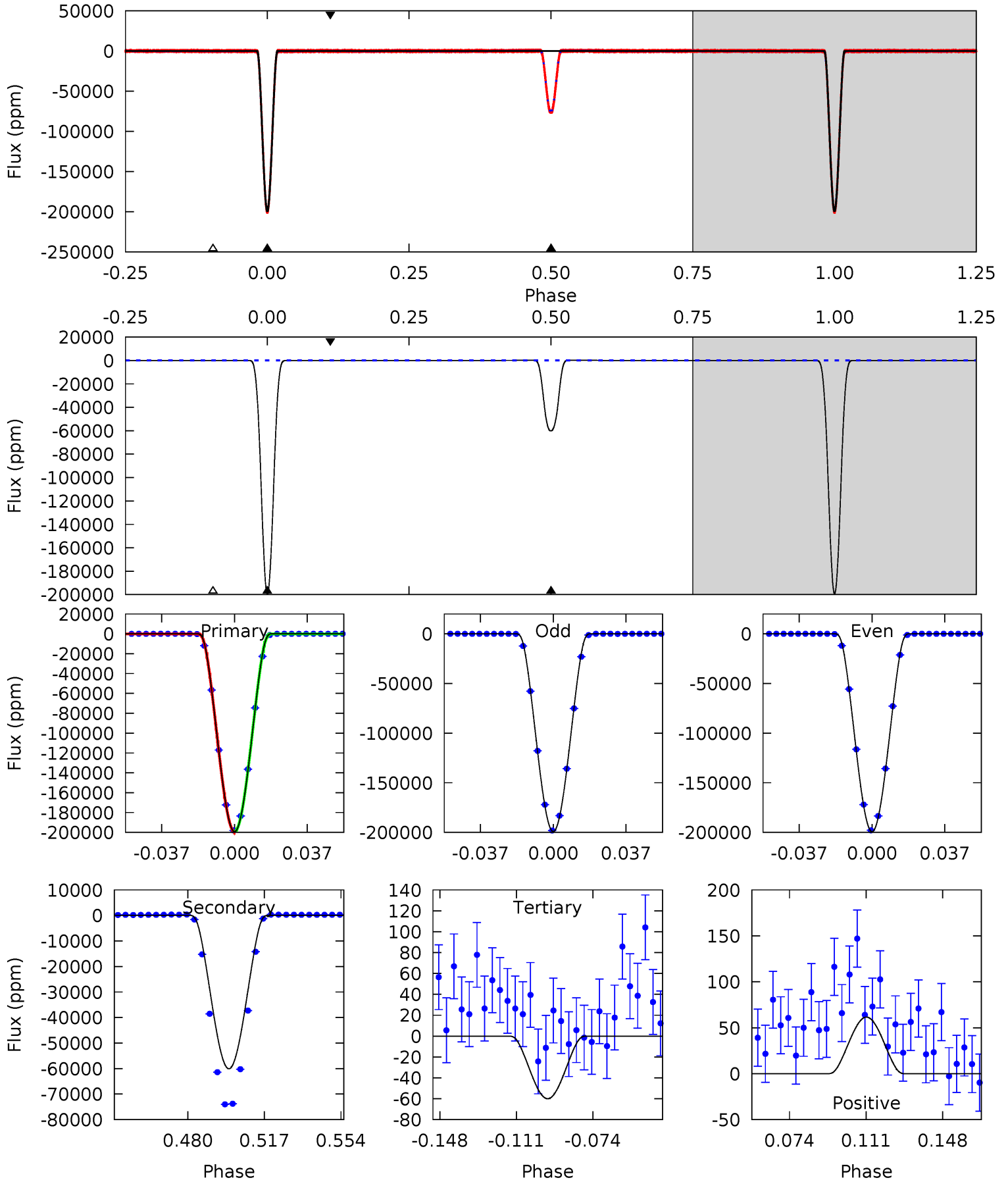
TCE 009971475-01 P= 5.357372 Days  $T_0=131.642014$  (BKJD)



# DV Model-Shift Uniqueness Test

009971475-01, P = 5.357410 Days, E = 126.280179 Days

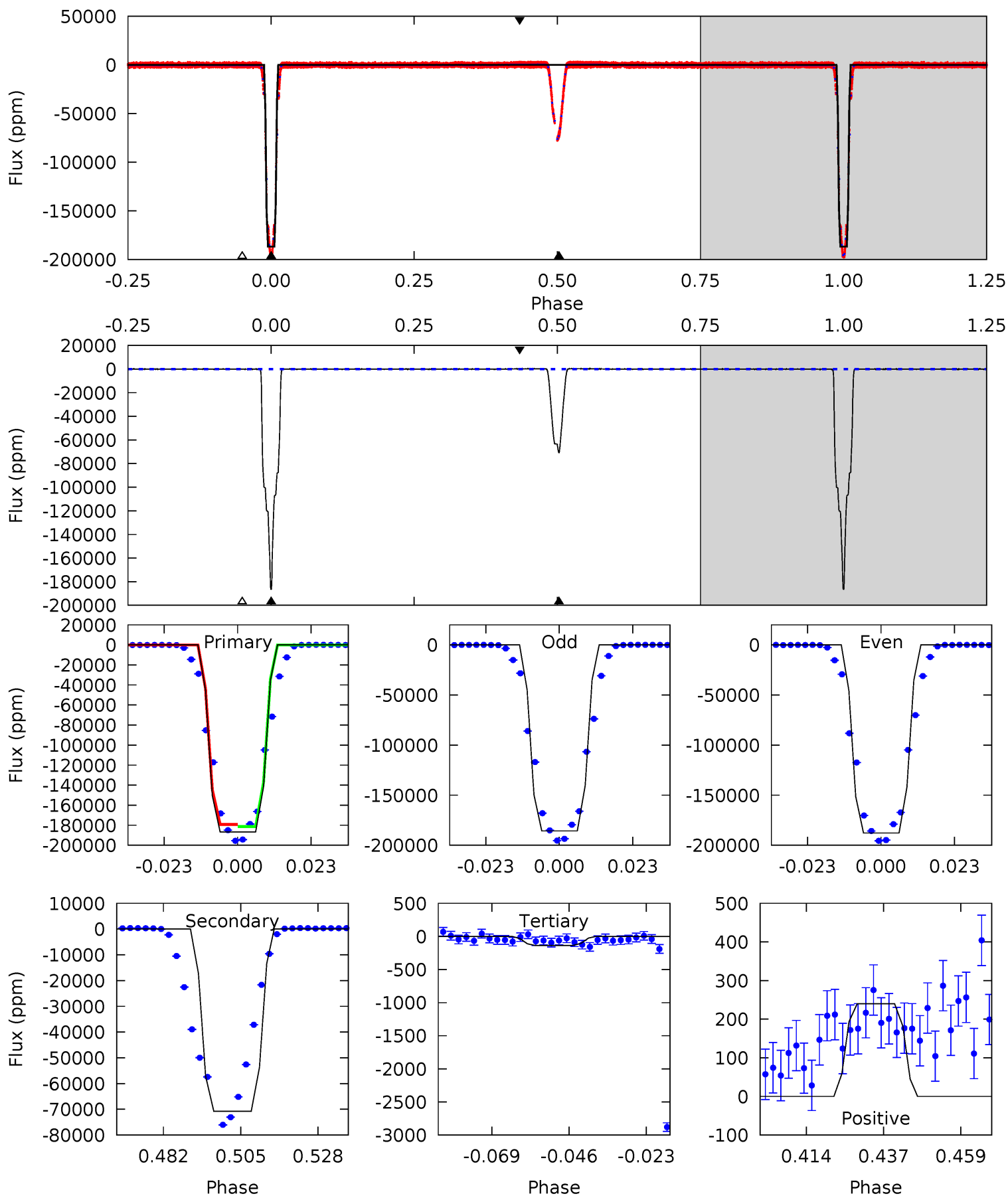
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18466	5569	5.56	5.71	4.77	2.09	7.65	18460	18460	5564	5564	4.59	0.98	0.00	11.8



# Alt Model-Shift Uniqueness Test

009971475-01, P = 5.357372 Days, E = 126.284642 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
3460	1311	2.54	4.44	4.86	2.27	1.68	3458	3456	1309	1307	19.3	1.00	0.00	16.4



### Stellar Parameters For KIC 009971475

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5768^{+191}_{-156}$	$3.809^{+0.653}_{-0.174}$	$-0.560^{+0.350}_{-0.250}$	$2.057^{+0.656}_{-1.125}$	$0.993^{+0.148}_{-0.181}$	$0.161^{+1.616}_{-0.091}$
	+3%/-3%	+17%/-5%	+62%/-45%	+32%/-55%	+15%/-18%	+1006%/-57%
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 009971475-01 / KOI 7268.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-60080 \pm 11$	$120.89^{+23.98}_{-35.32}$	$2042^{+188}_{-317}$	$4116^{+101}_{-94}$	$8.590^{+7.644}_{-2.405}$
Alt.	$-70740 \pm 54$	$94.47^{+17.90}_{-26.68}$	$2022^{+194}_{-296}$	$4669^{+135}_{-109}$	$17^{+15}_{-5}$

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

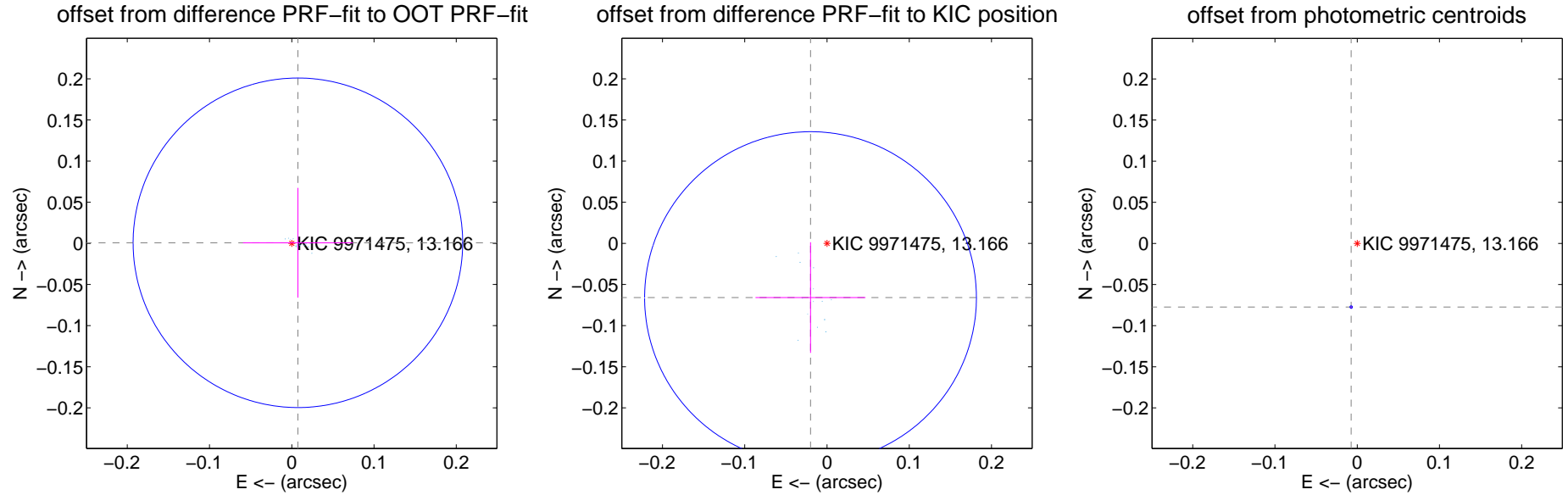
## DV Centroid Data

Supplemental centroid analysis for 009971475-01. Kepler magnitude: 13.17. Transit SNR 8038.85

There are 14 quarters with good PRF difference image offsets

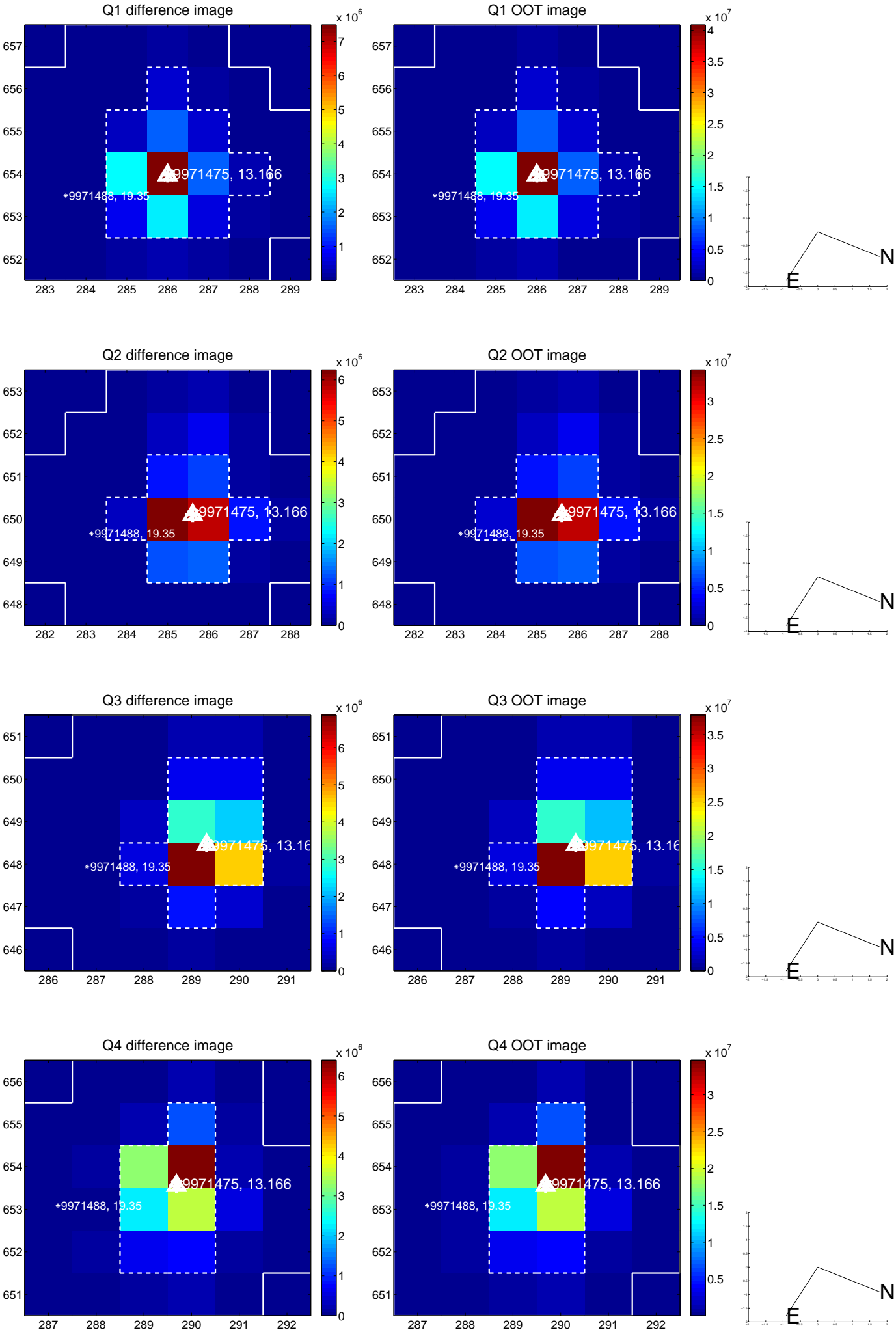
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.007 \pm 0.067$	0.11	$-0.007 \pm 0.067$	$0.001 \pm 0.067$
PRF-fit source offset from KIC position	$0.069 \pm 0.067$	1.03	$0.020 \pm 0.067$	$-0.066 \pm 0.067$
photometric centroid source offset	$0.08 \pm 0.00$	155.19	$0.01 \pm 0.00$	$-0.08 \pm 0.00$

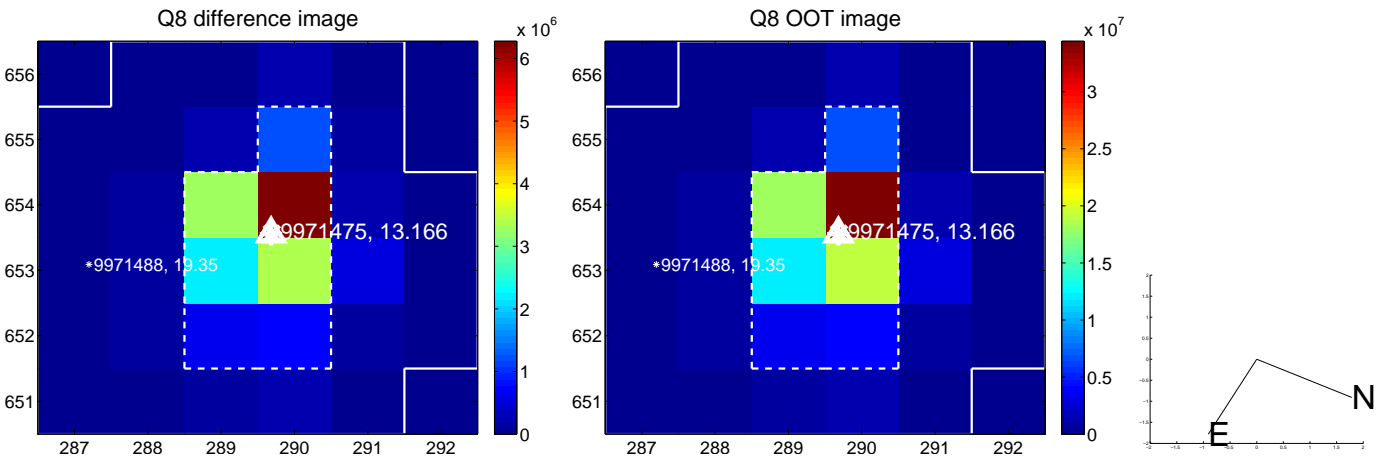
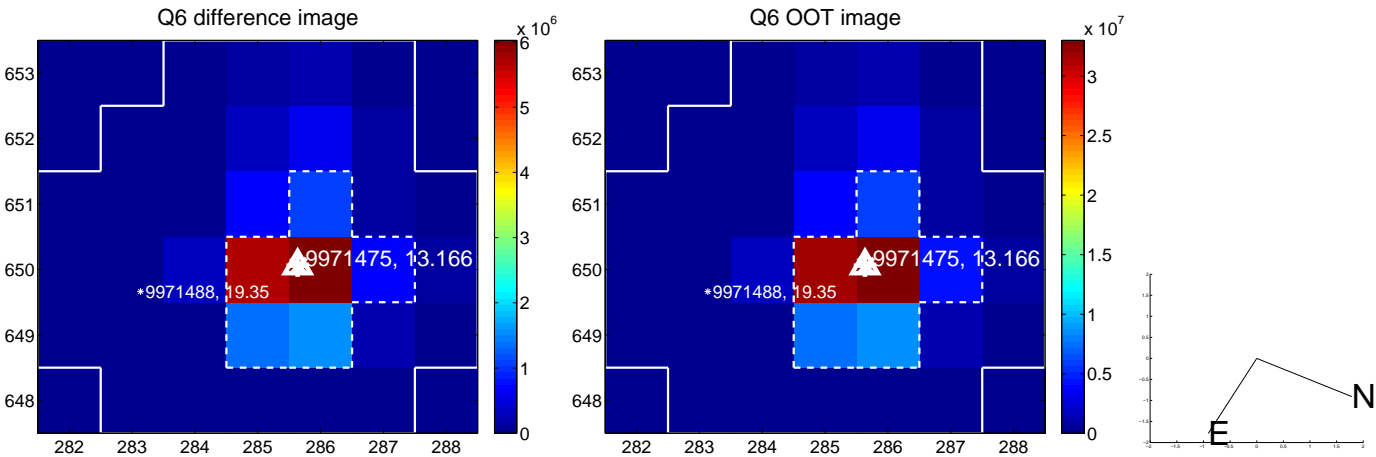
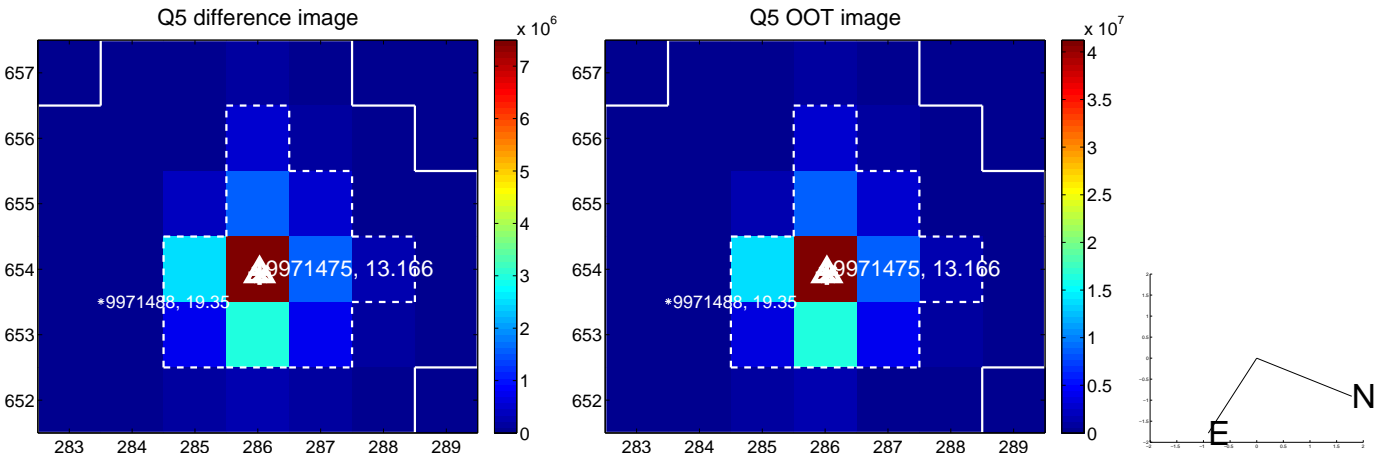


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

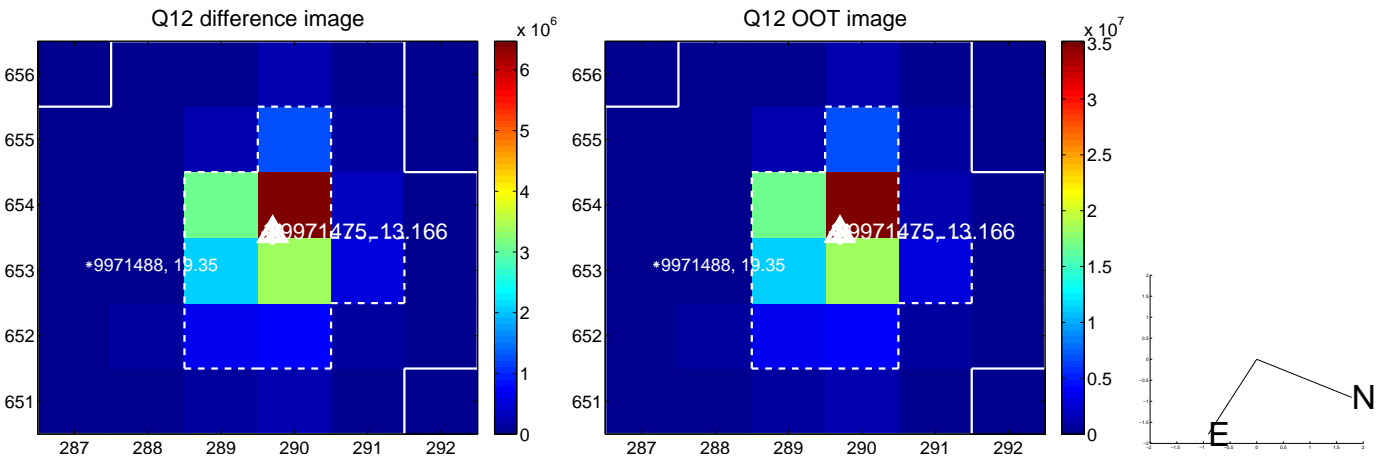
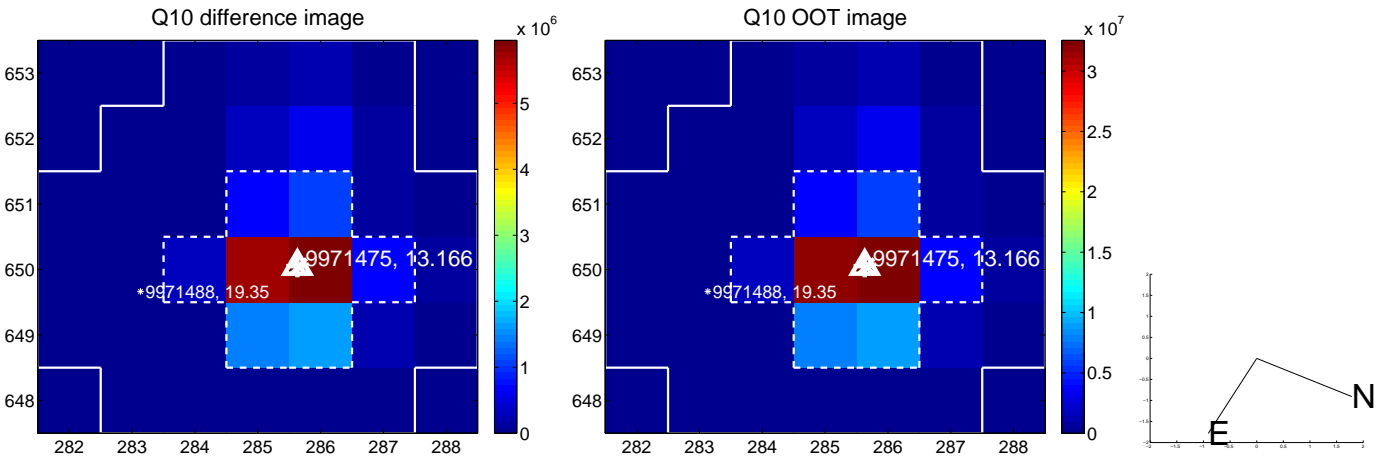
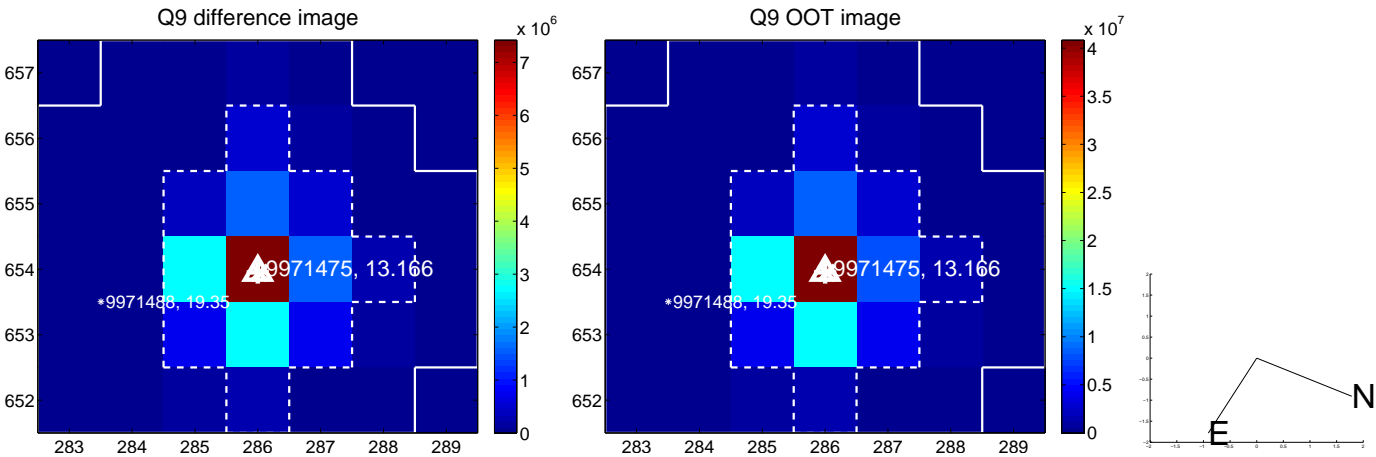


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

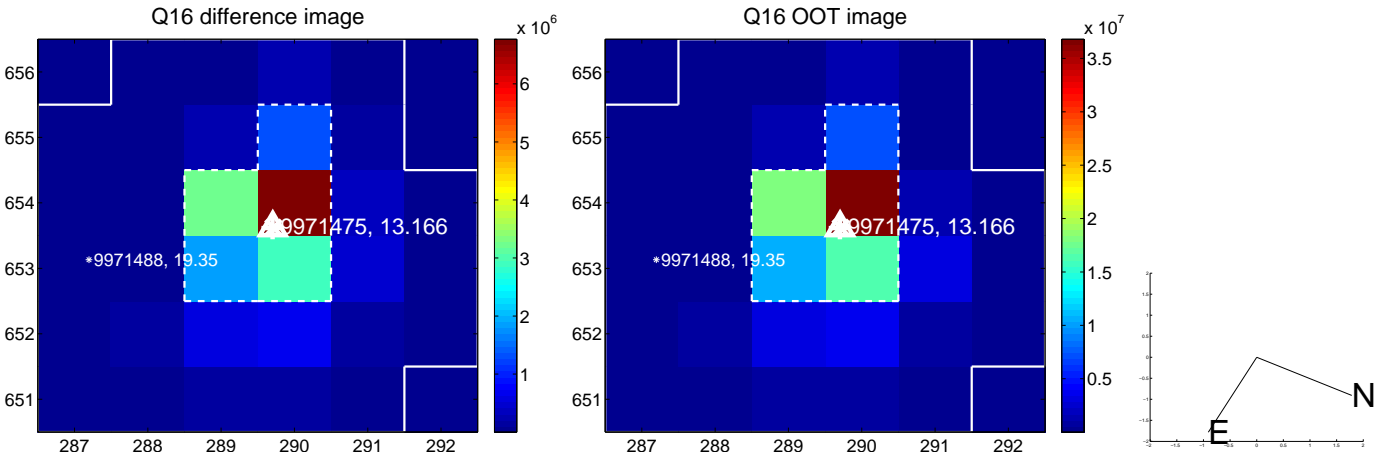
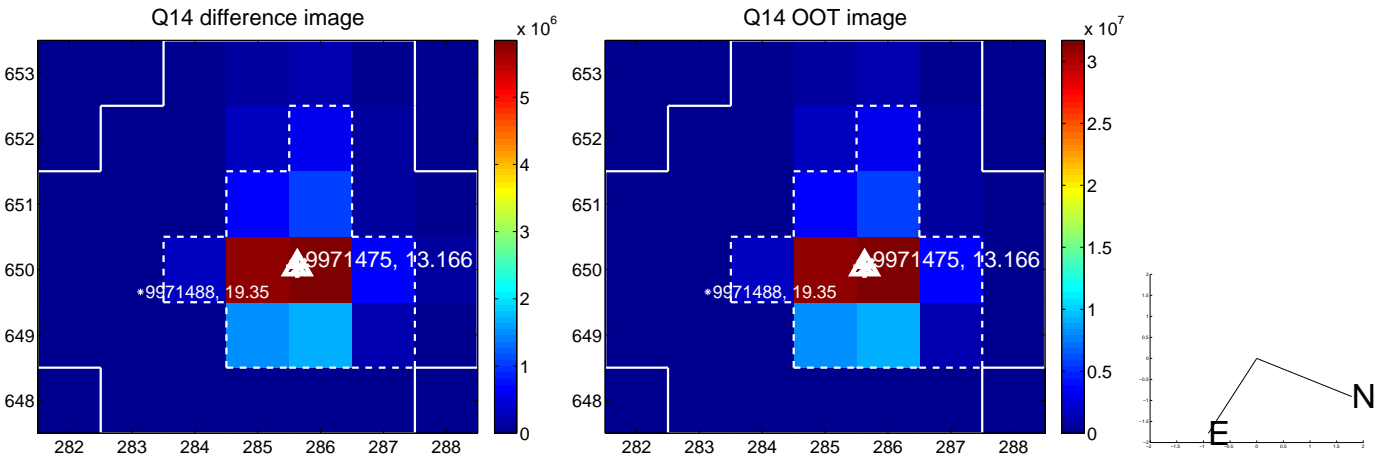
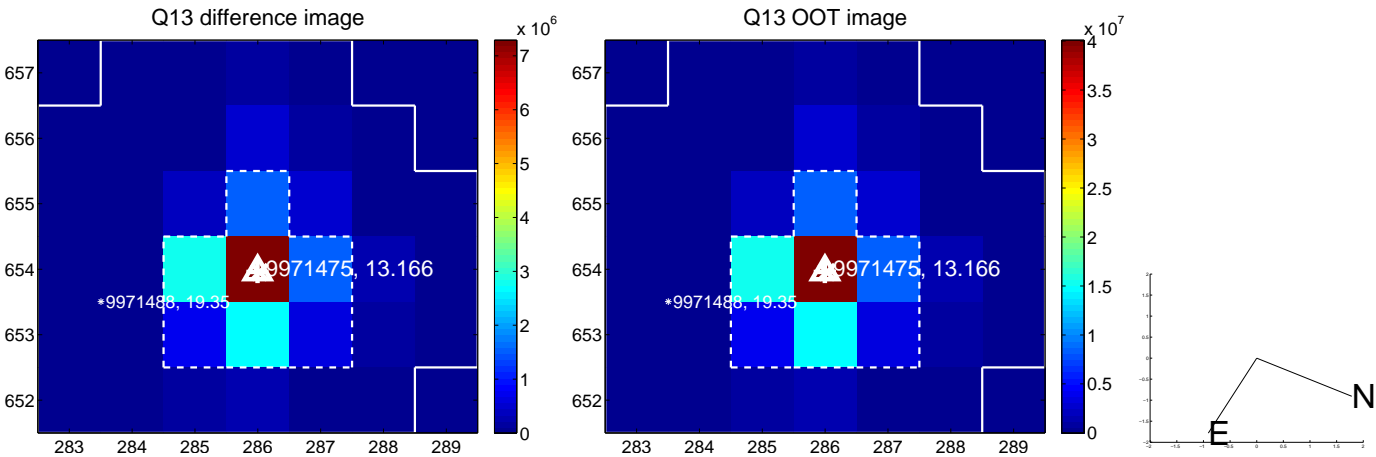




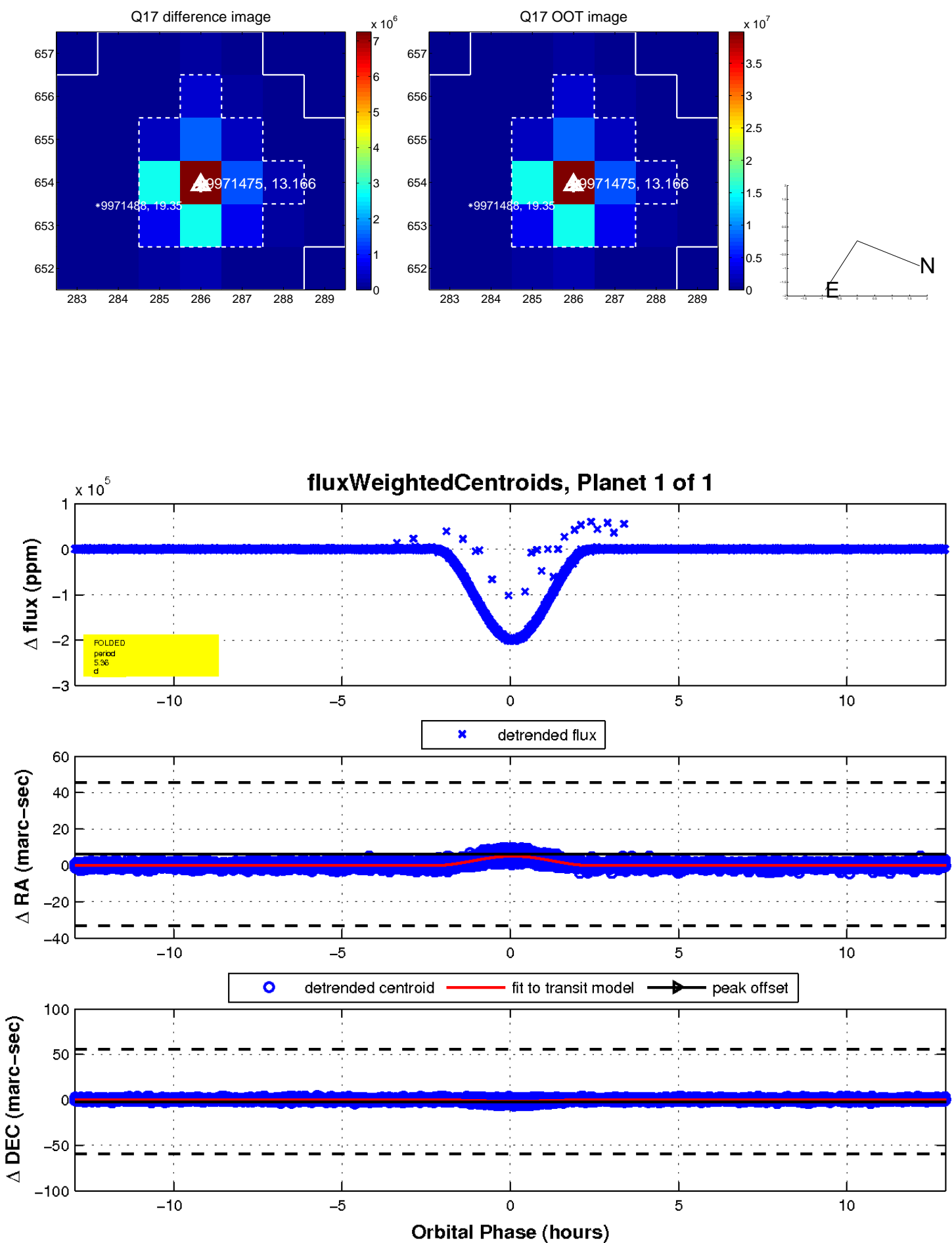
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

