

# KIC 009097120

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009097120-01	OBS	0927.01	23.899634	141.183526	20814.9	3.801	586.6	543.8	0.92	6192	22.00	42.87

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009097120-01	OBS	FP	0.00	0	1	0	0	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 009097120-01

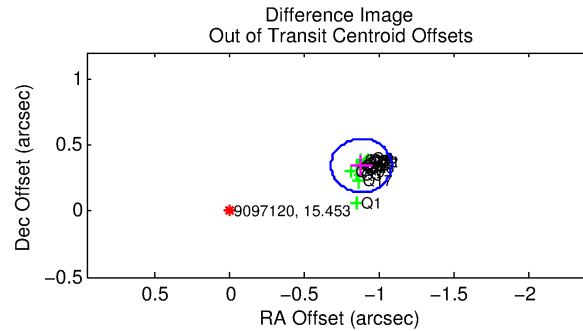
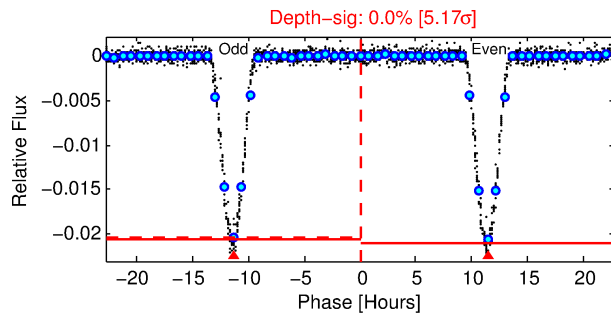
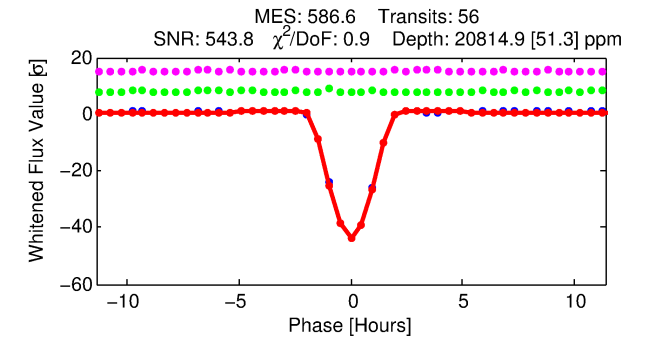
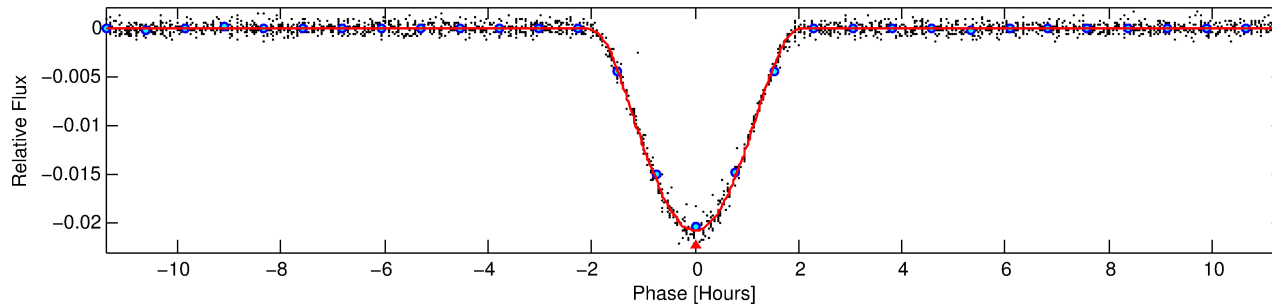
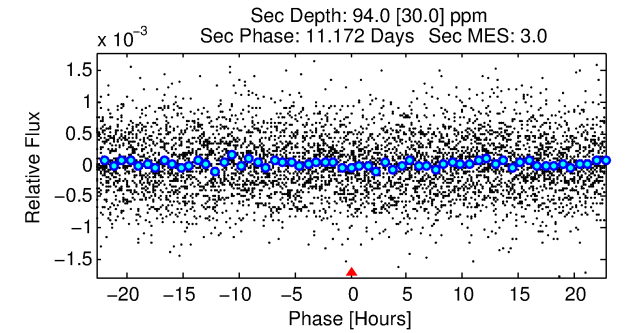
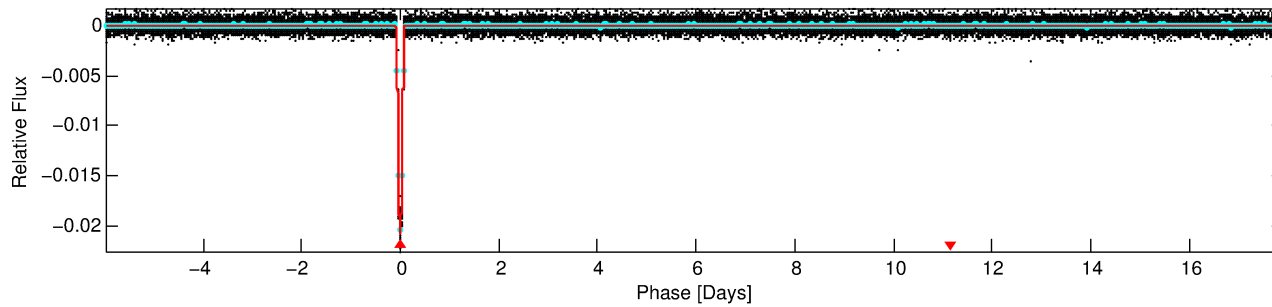
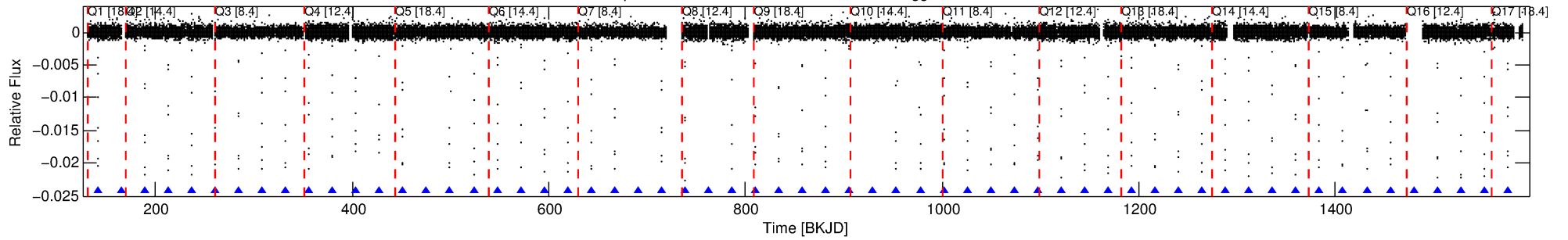
No Significant Match Found

# DV One-Page Summary

KIC: 9097120 Candidate: 1 of 1 Period: 23.900 d

KOI: K00927.01 Corr: 0.996

Kp: 15.45 R\*: 0.92 Rs Teff: 6192.0 K Logg: 4.50 Fe/H: -0.380



## DV Fit Results:

Period = 23.89963 [0.00000] d  
Epoch = 141.1835 [0.0002] BKJD  
Rp/R\* = 0.2182 [0.0223]  
a/R\* = 34.64 [0.43]  
b = 0.98 [0.03]  
Seff = 42.87 [17.53]  
Teq = 652 [67] K  
Rp = 22.00 [7.28] Re  
a = 0.1620 [0.0427] AU  
Ag = 2.80 [1.51] [1.20σ]  
Teffp = 1305 [132] K [4.41σ]

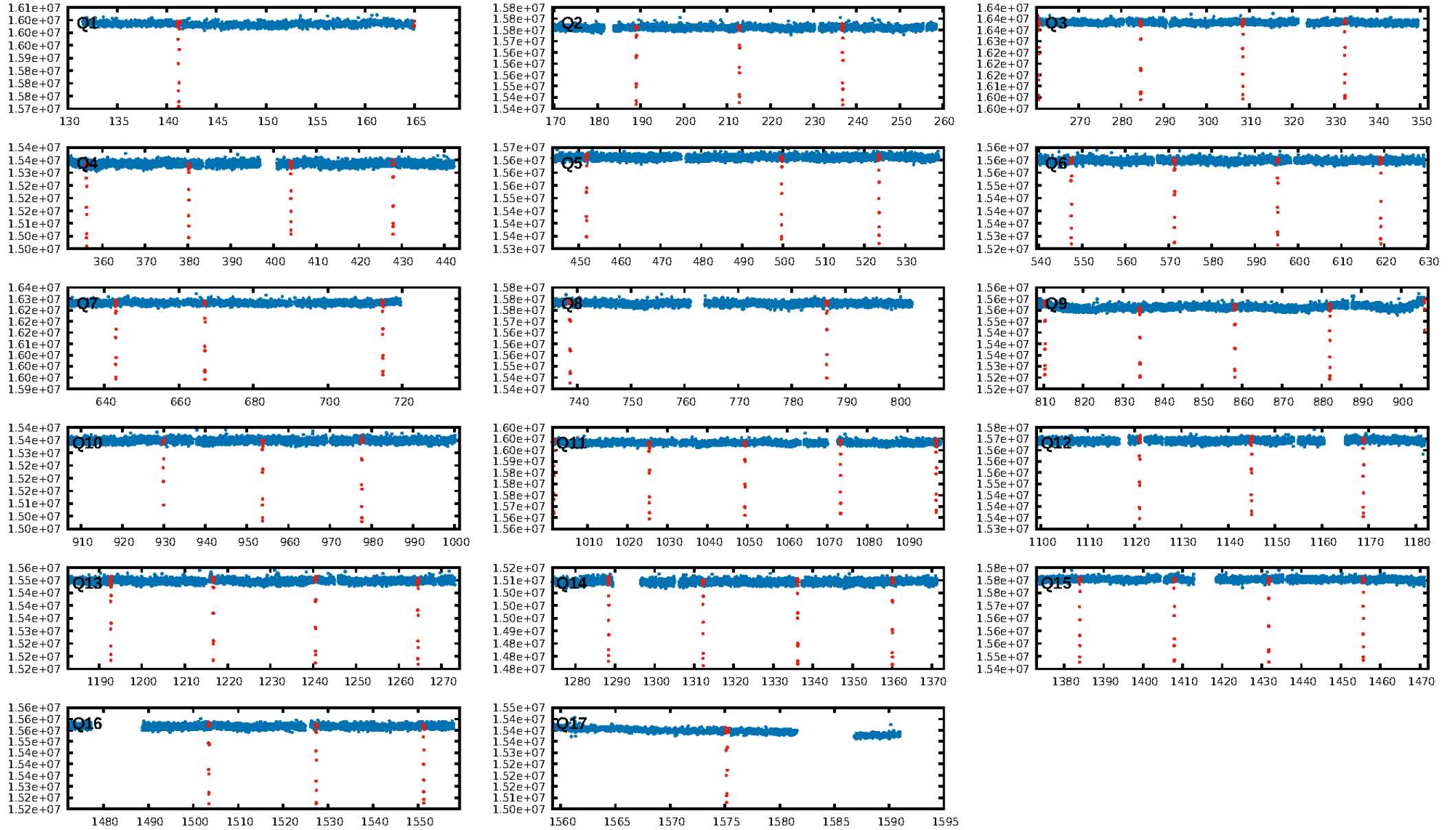
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [54/54]  
GhostDiagnostic-chr: 4.142  
Centroid-sig: 0.0%  
Centroid-so: 1.131 arcsec [46.68σ]  
OotOffset-rm: 0.950 arcsec [14.05σ]  
KicOffset-rm: 1.073 arcsec [15.73σ]  
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]

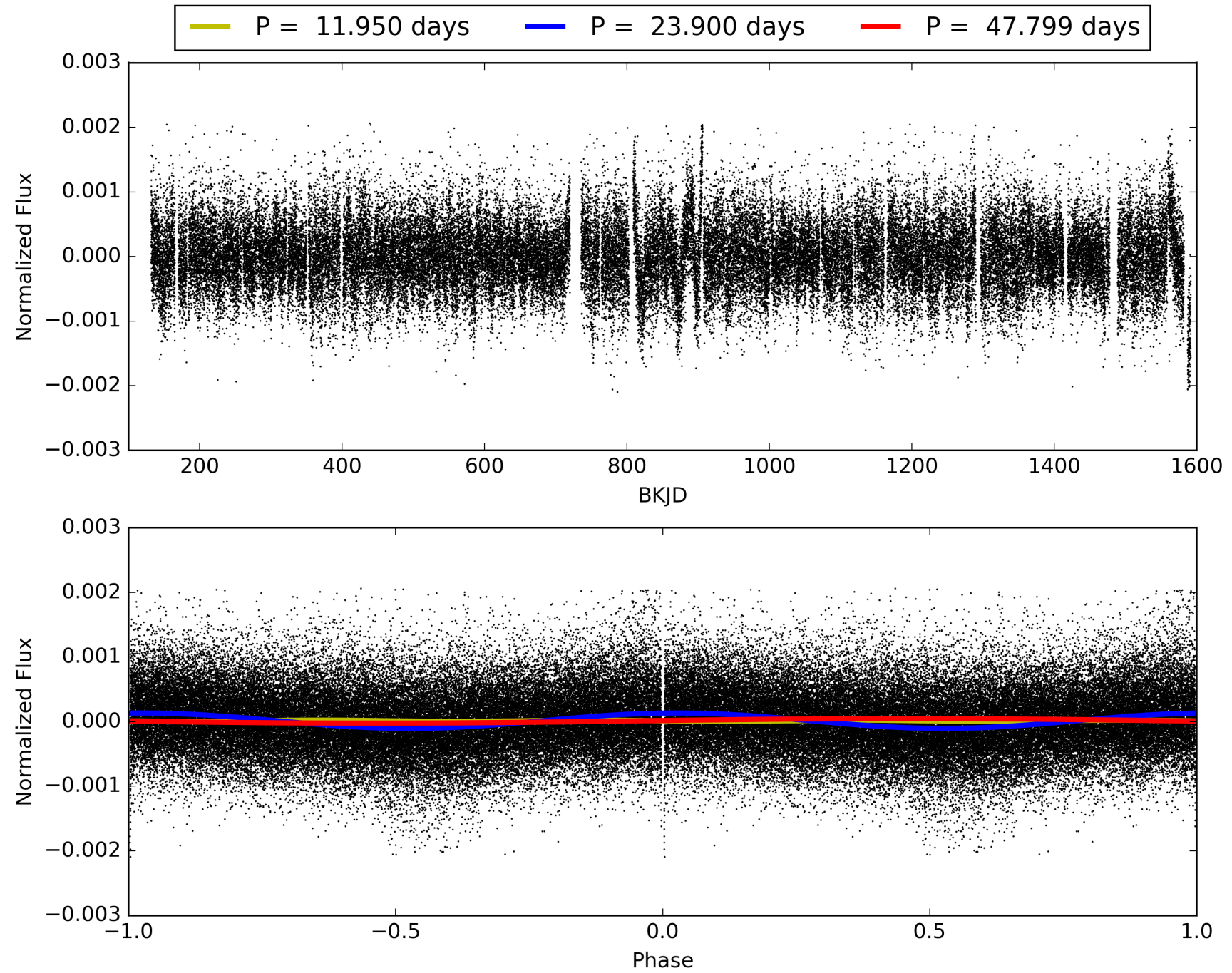
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:37:20 Z

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

# TCE 009097120-01, PDC Light Curves

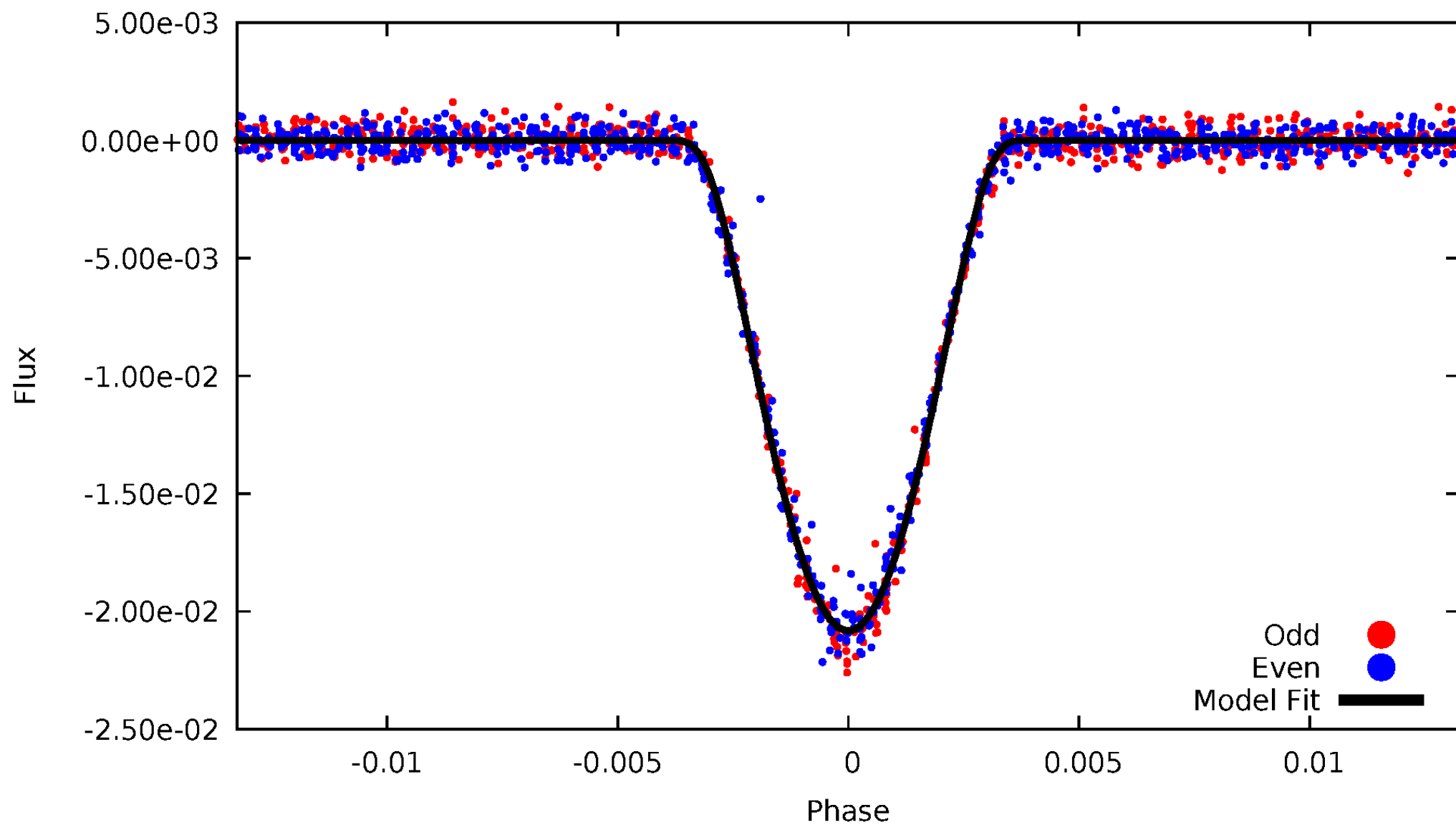


TCE 009097120-01



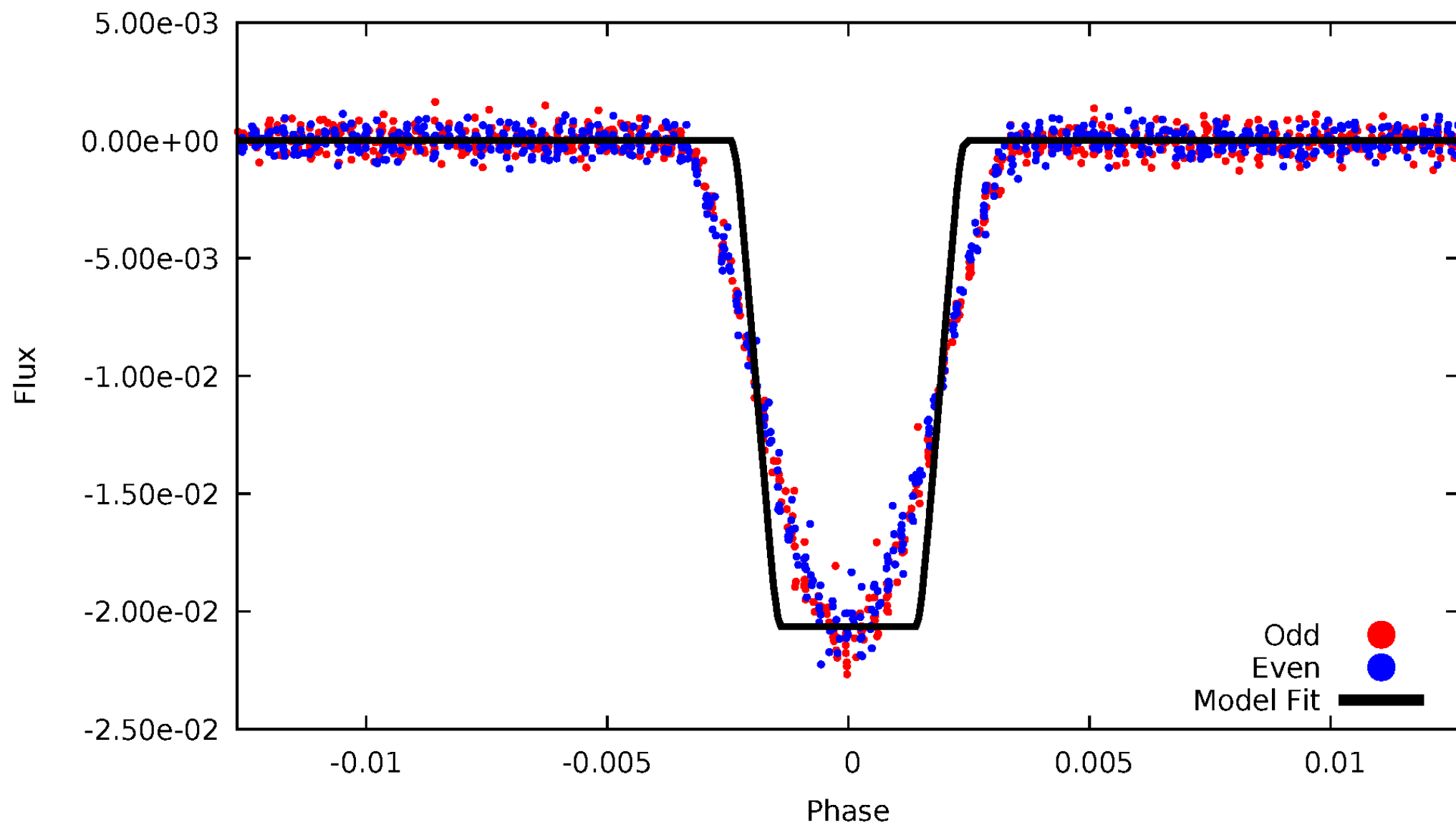
# DV Odd/Even

TCE 009097120-01



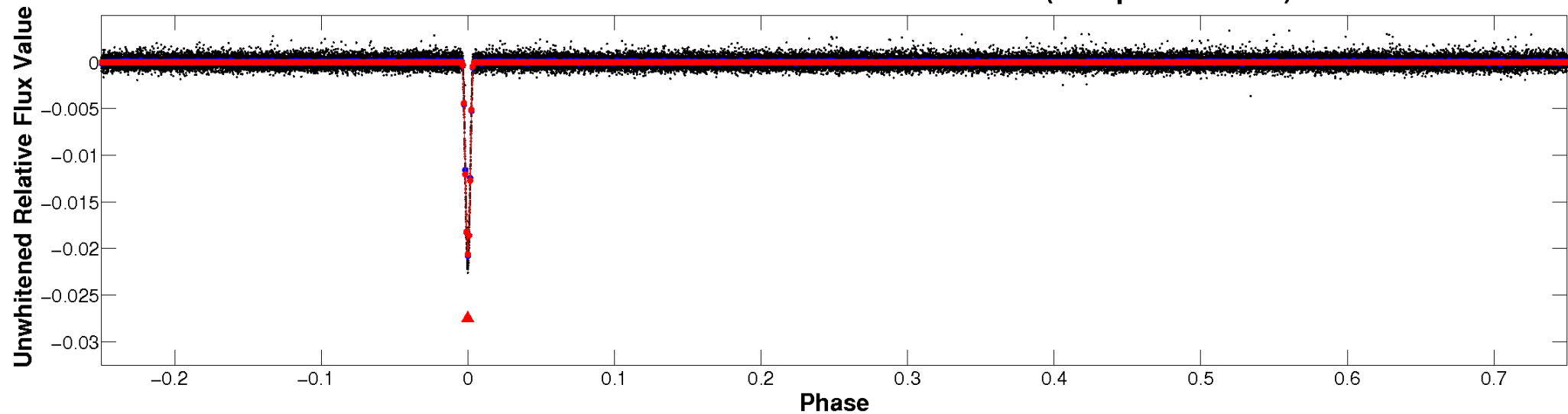
# ALT Odd/Even

TCE 009097120-01

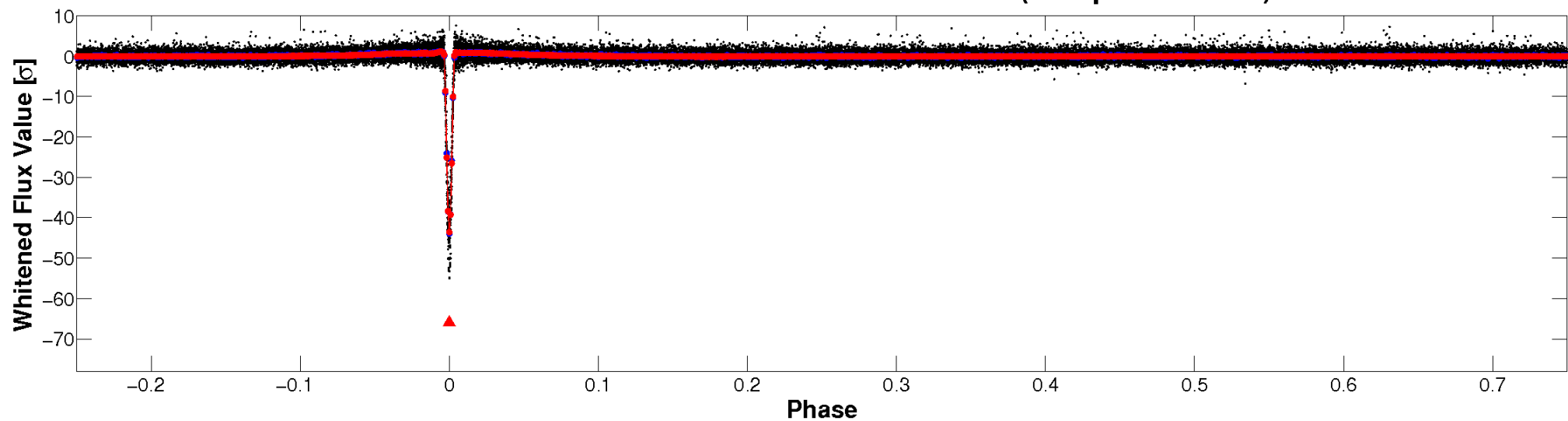


# Non-Whitened Vs. Whitened Light Curve

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

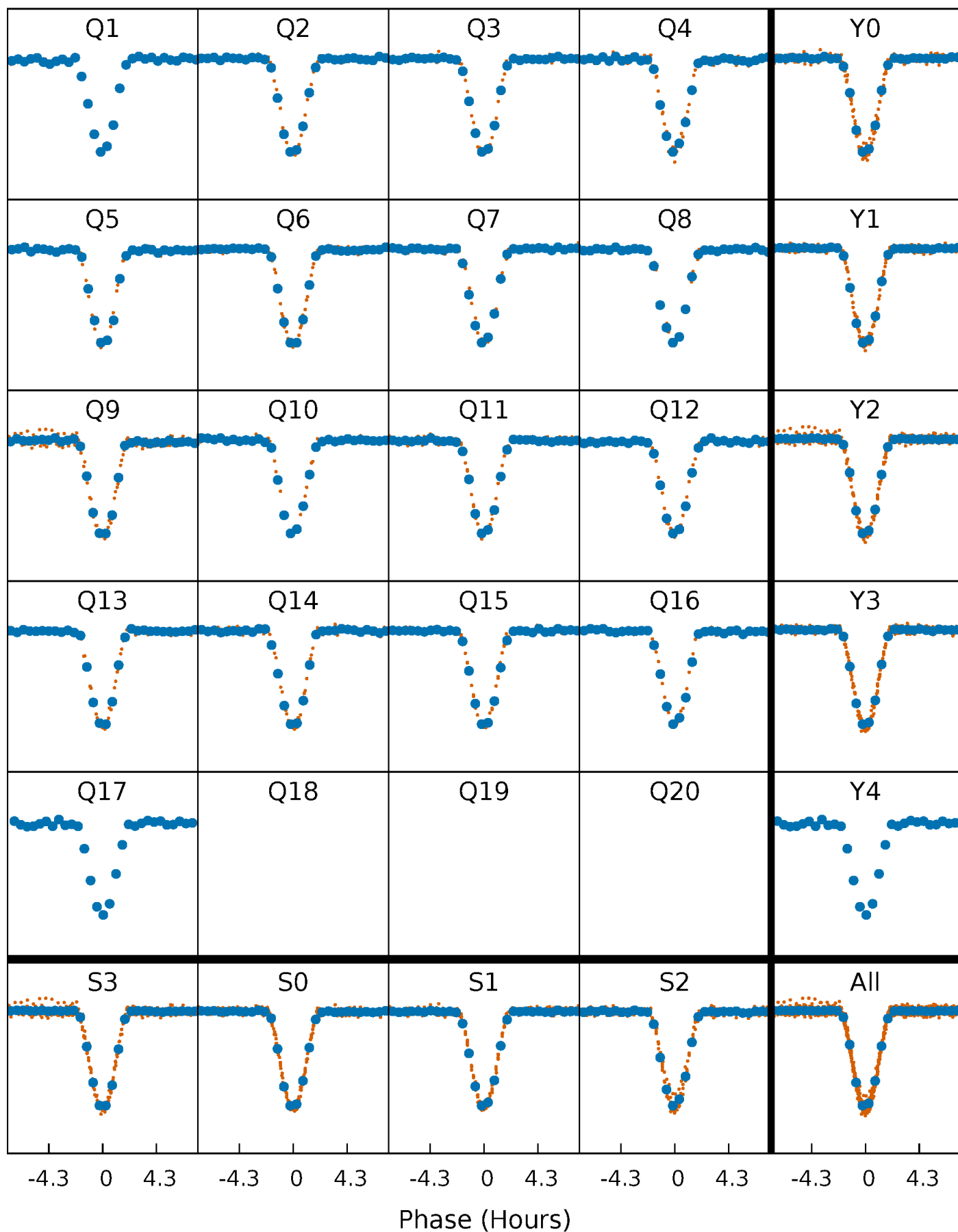


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

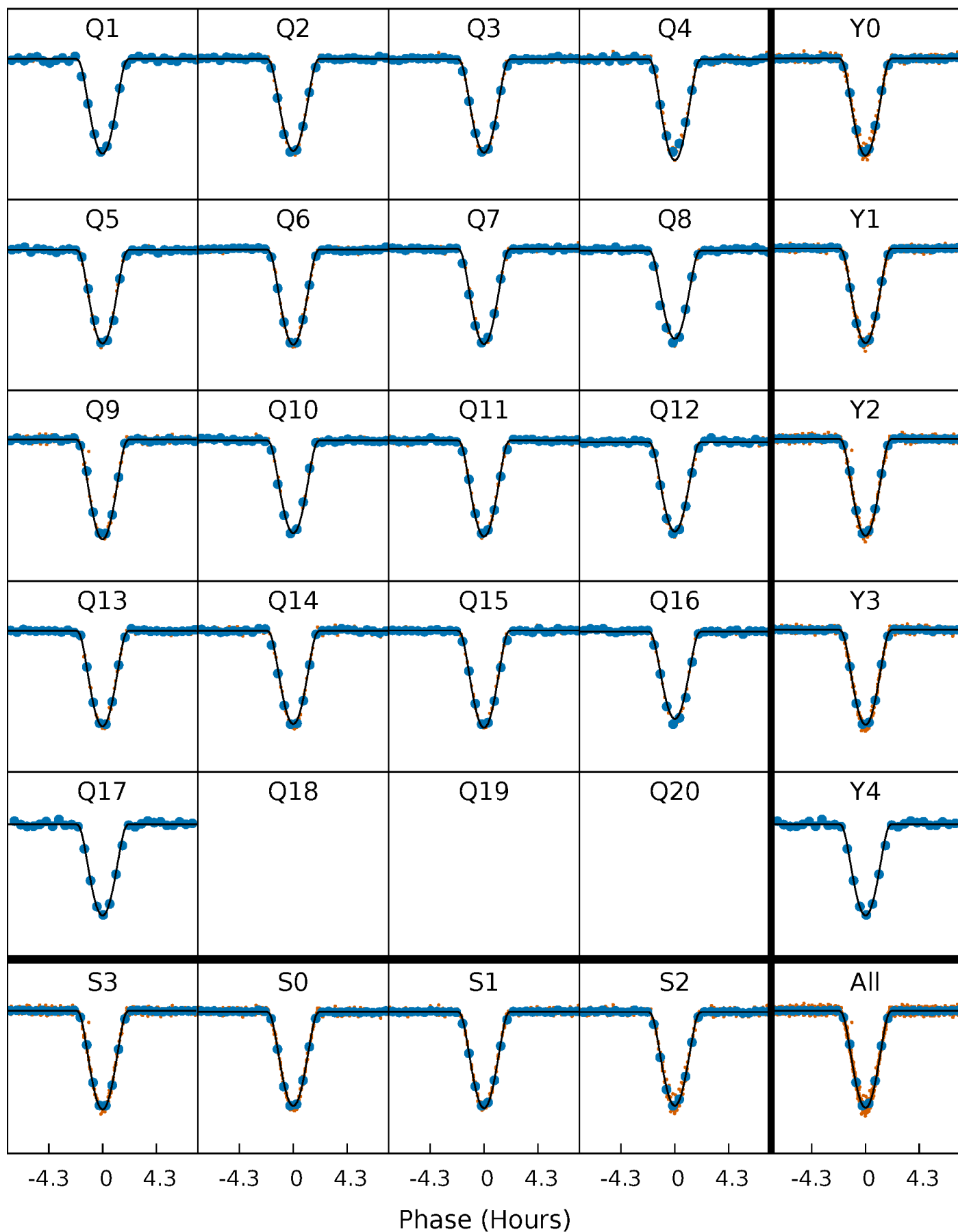
TCE 009097120-01 P= 23.899634 Days  $T_0=141.183526$  (BKJD)





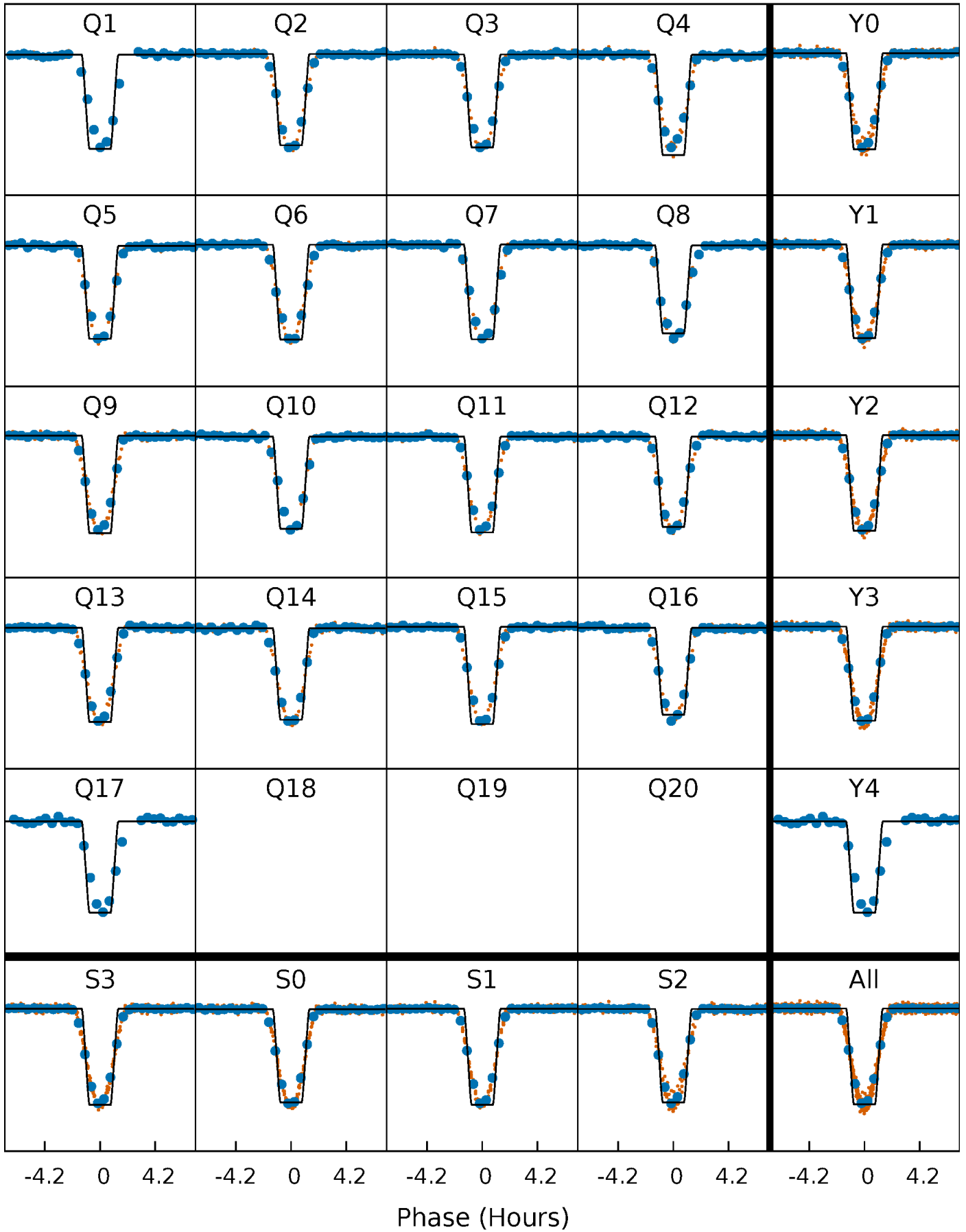
# DV Quarter-Phased Transit Curves

TCE 009097120-01 P= 23.899634 Days  $T_0=141.183526$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

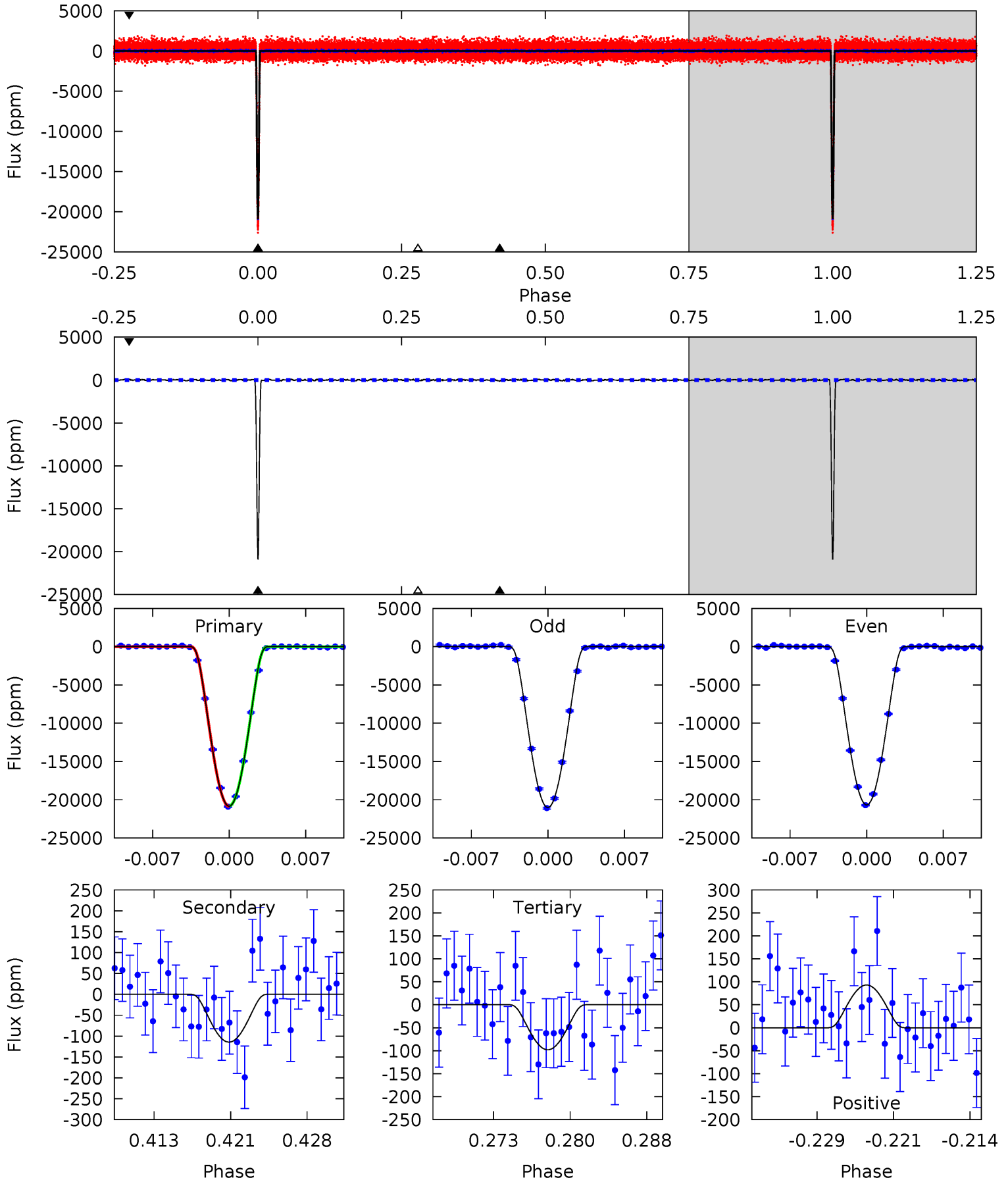
TCE 009097120-01 P= 23.899639 Days  $T_0=141.183418$  (BKJD)



# DV Model-Shift Uniqueness Test

009097120-01, P = 23.899634 Days, E = 117.283892 Days

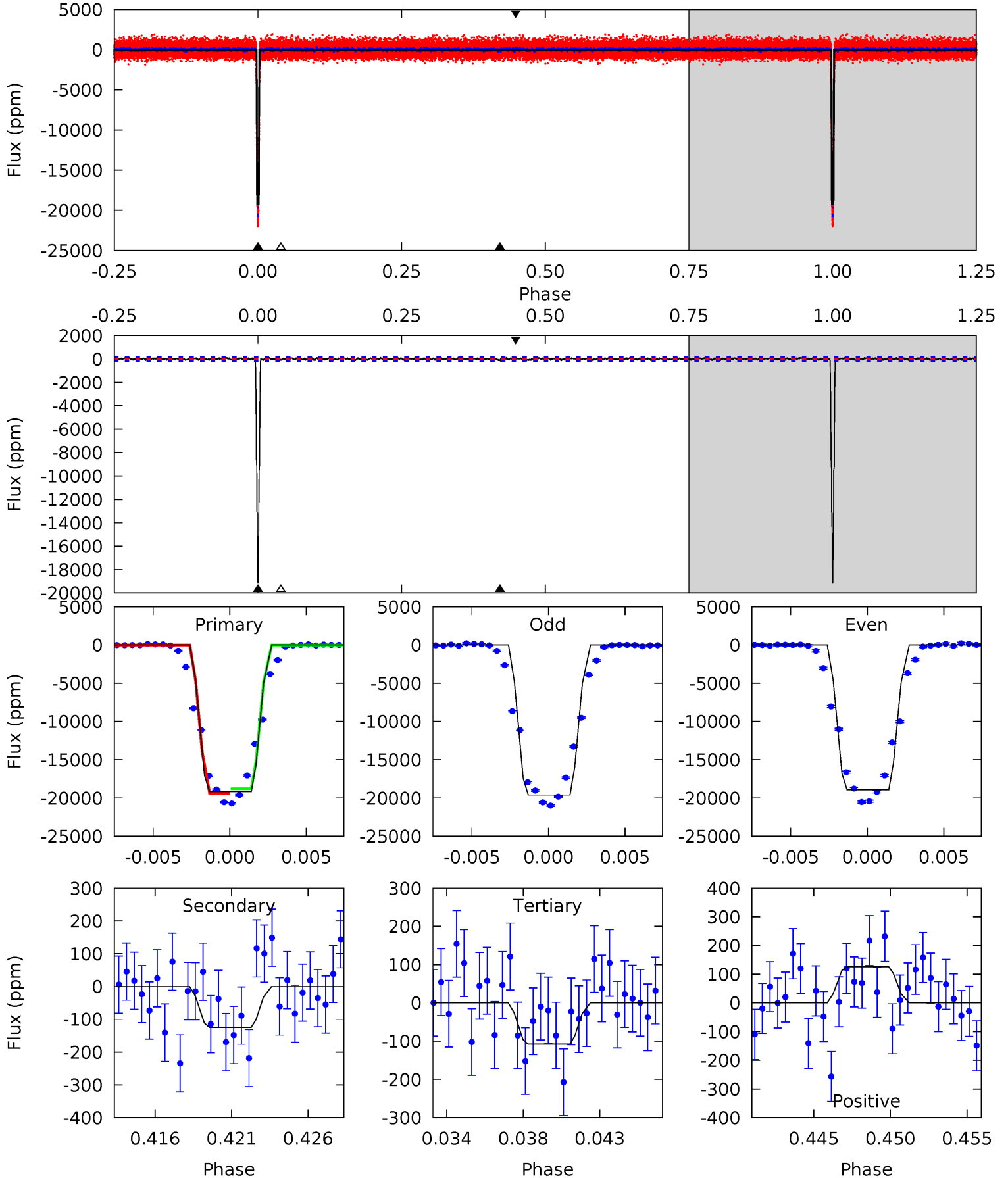
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
971.3	5.33	4.56	4.33	5.08	2.68	1.56	966.7	967.0	0.77	1.00	8.21	0.99	0.00	1.96



# Alt Model-Shift Uniqueness Test

009097120-01, P = 23.899639 Days, E = 117.283779 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
618.0	4.04	3.48	4.07	5.17	2.82	1.12	614.5	613.9	0.56	-0.03	10.8	1.00	0.01	8.79



### Stellar Parameters For KIC 009097120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6192^{+169}_{-225}$	$4.503^{+0.052}_{-0.208}$	$-0.380^{+0.300}_{-0.300}$	$0.924^{+0.291}_{-0.097}$	$0.991^{+0.123}_{-0.136}$	$1.768^{+0.385}_{-0.972}$
	+3%/-4%	+1%/-5%	+79%/-79%	+31%/-10%	+12%/-14%	+22%/-55%
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 009097120-01 / KOI 0927.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-114 \pm 21$	$22.82^{+4.52}_{-3.21}$	$931^{+74}_{-46}$	$2266^{+84}_{-85}$	$3.087^{+1.193}_{-1.054}$
Alt.	$-125 \pm 31$	$15.10^{+3.25}_{-2.84}$	$929^{+67}_{-44}$	$2545^{+146}_{-133}$	$7.613^{+4.508}_{-2.758}$

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

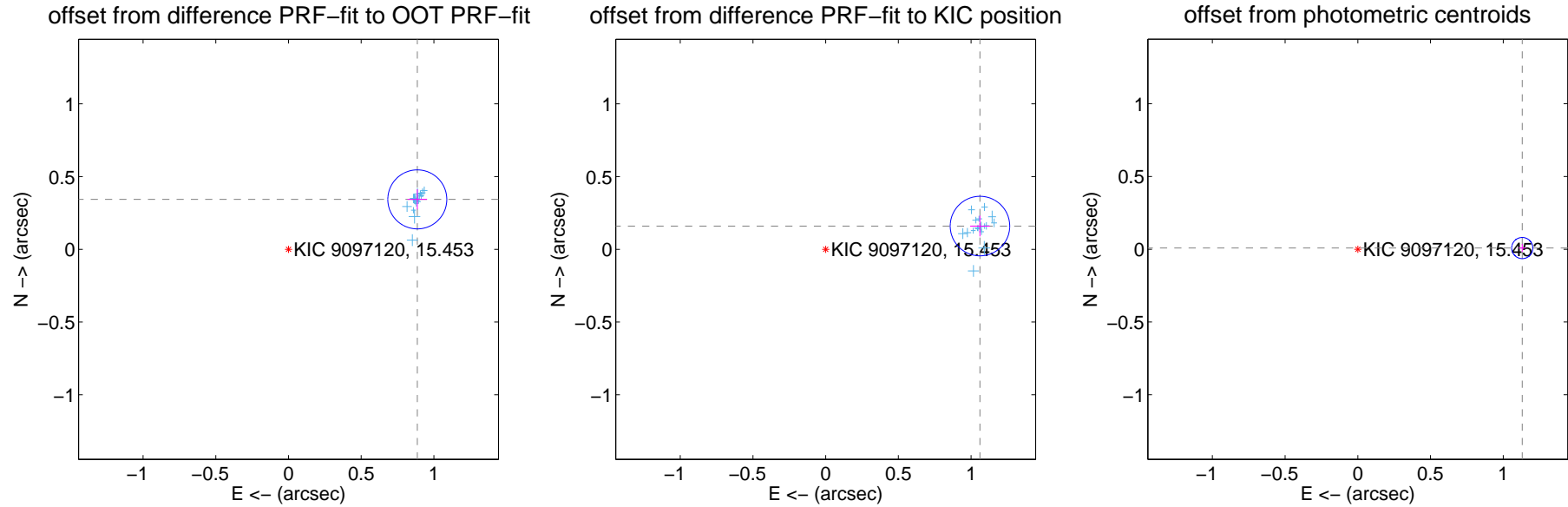
## DV Centroid Data

Supplemental centroid analysis for 009097120-01. Kepler magnitude: 15.45. Transit SNR 543.75

There are 17 quarters with good PRF difference image offsets

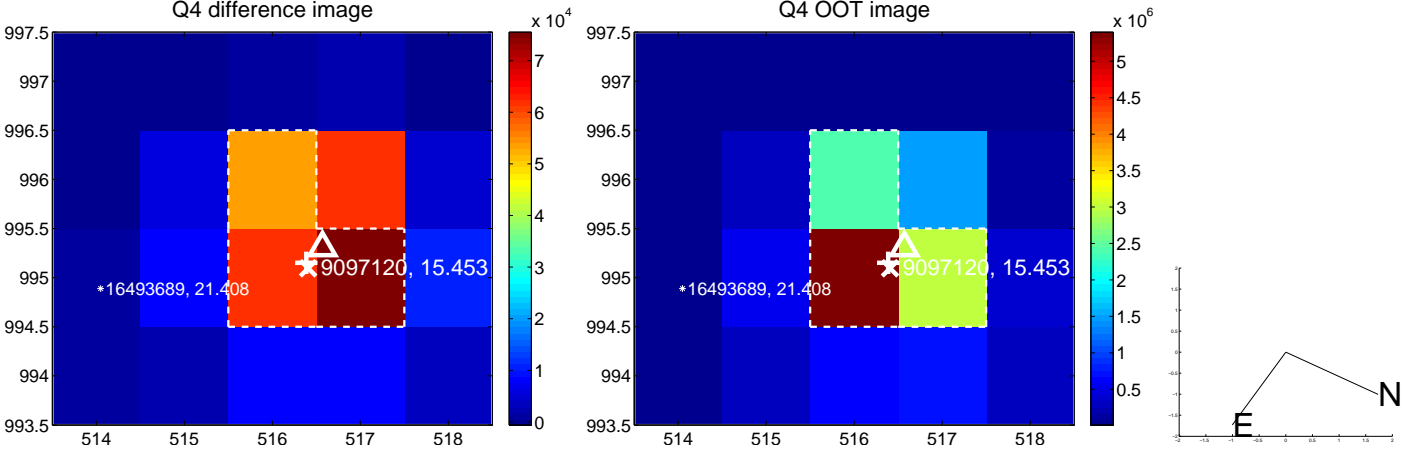
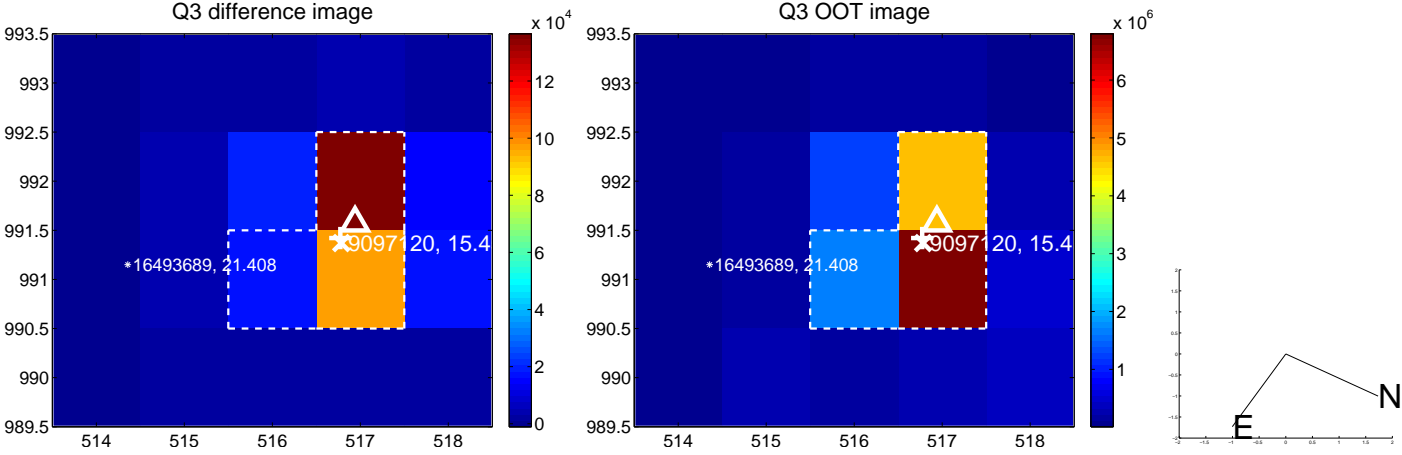
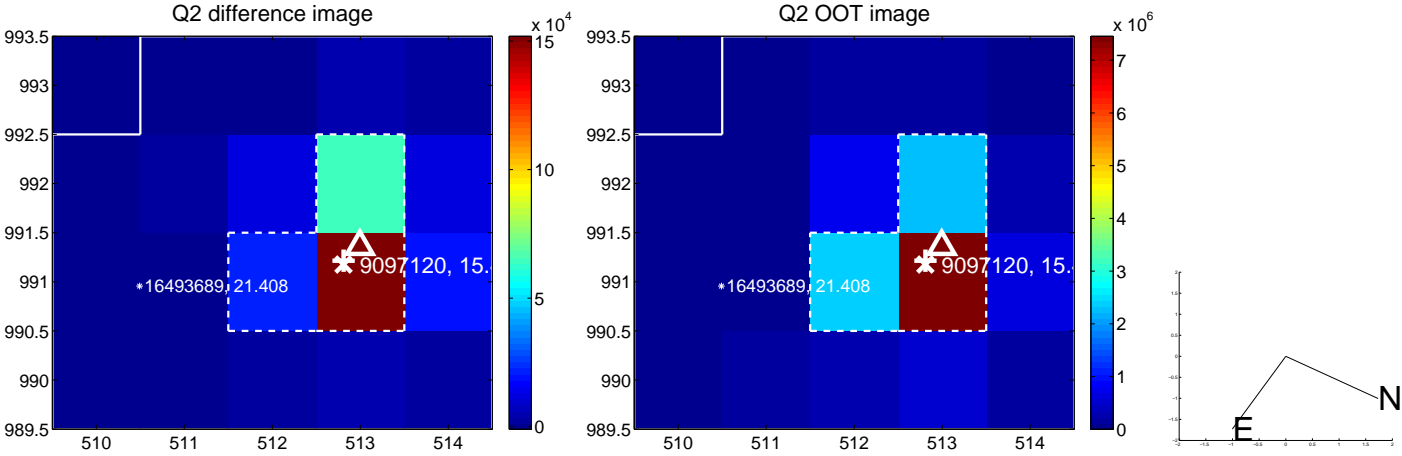
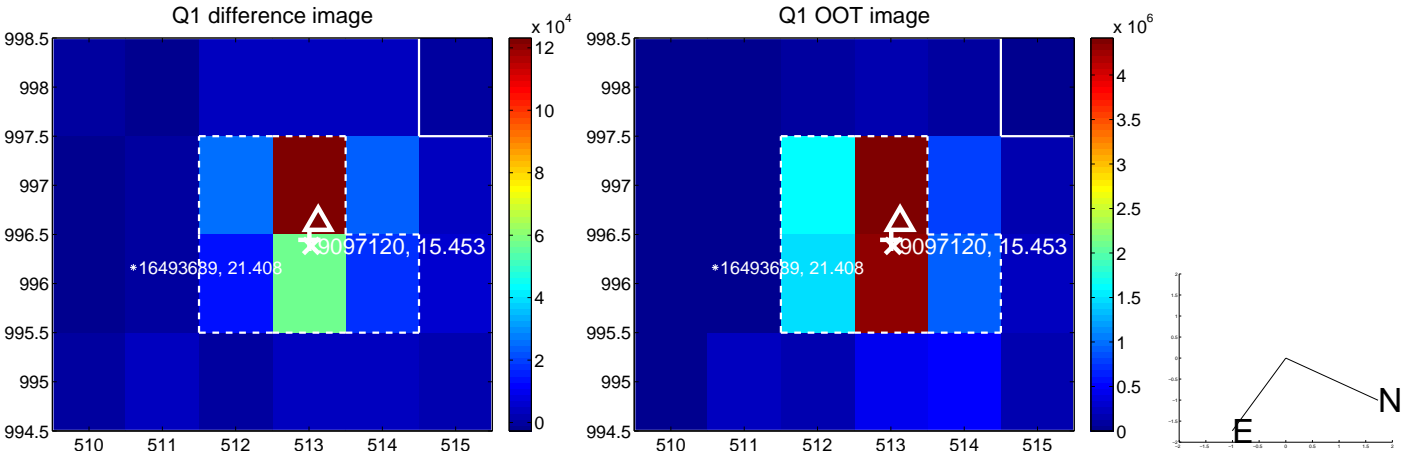
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.950 \pm 0.068$	14.05	$-0.886 \pm 0.067$	$0.343 \pm 0.069$
PRF-fit source offset from KIC position	$1.073 \pm 0.068$	15.73	$-1.061 \pm 0.068$	$0.160 \pm 0.071$
photometric centroid source offset	$1.13 \pm 0.02$	46.68	$-1.13 \pm 0.02$	$0.01 \pm 0.03$

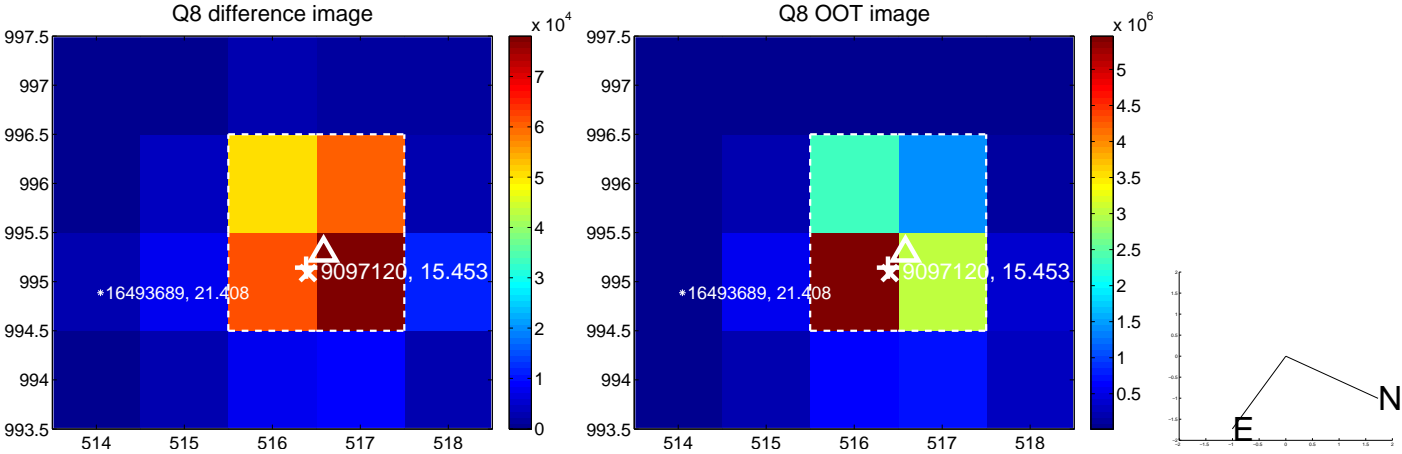
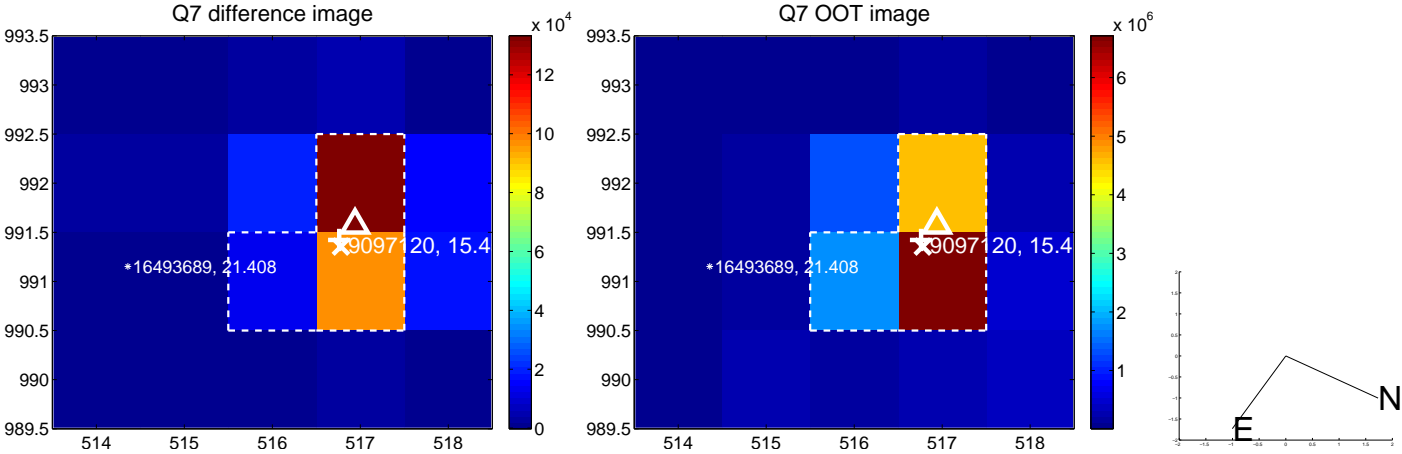
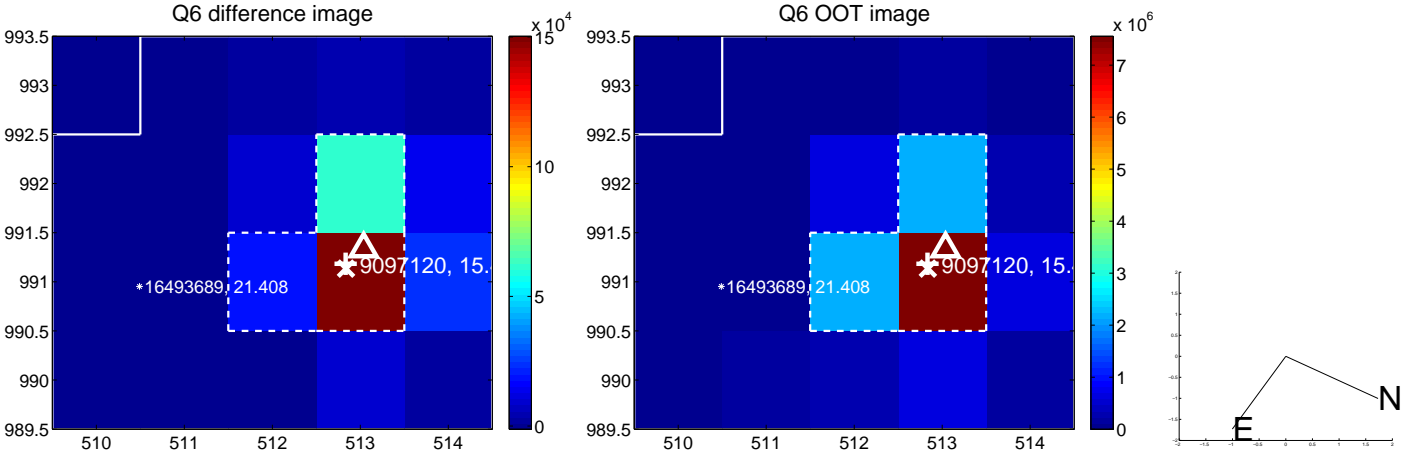
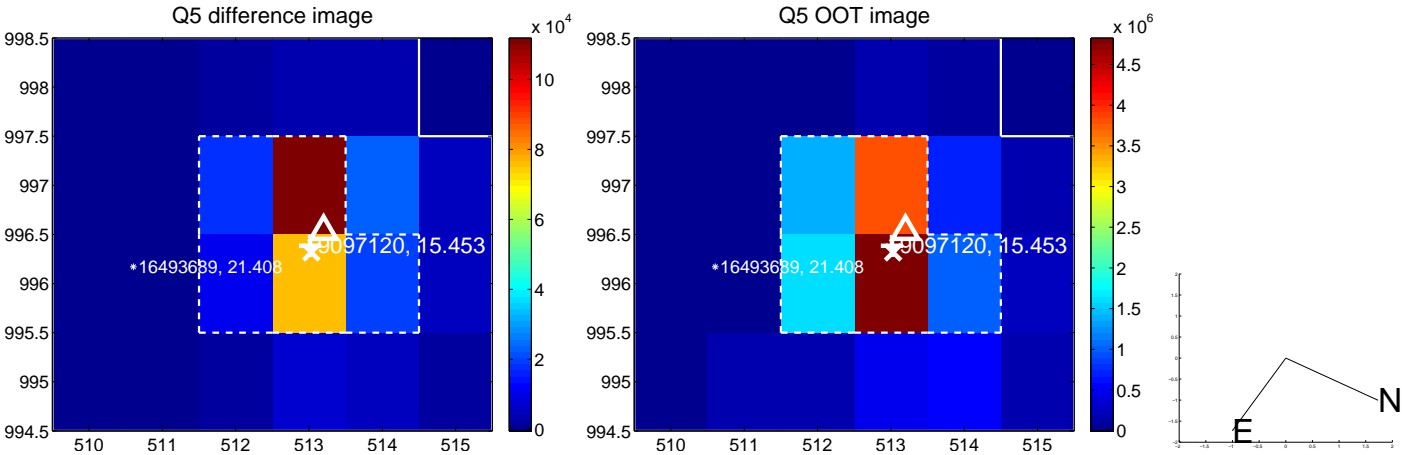


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

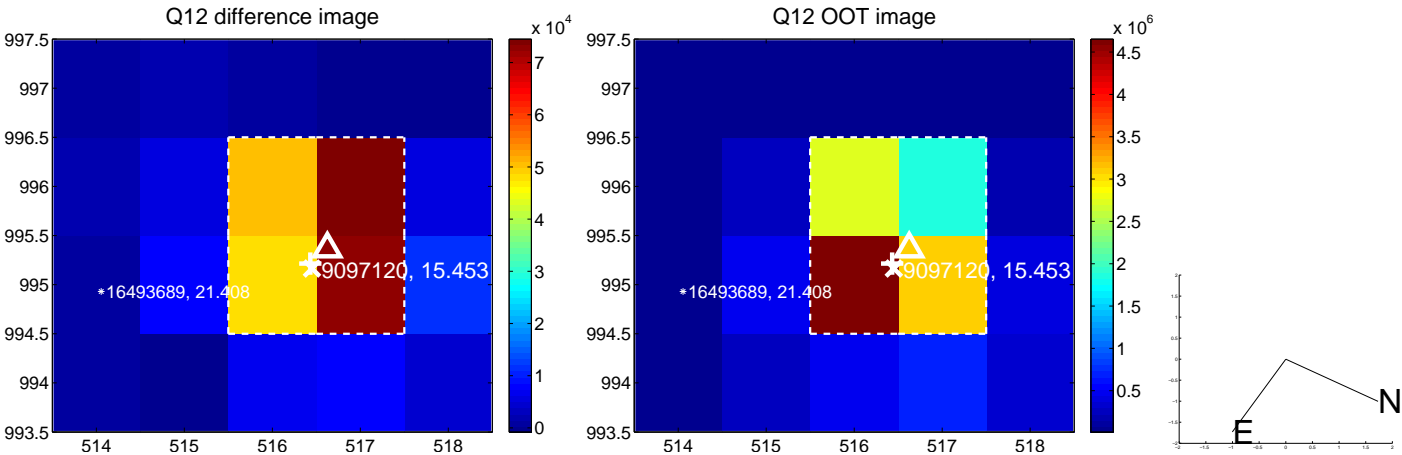
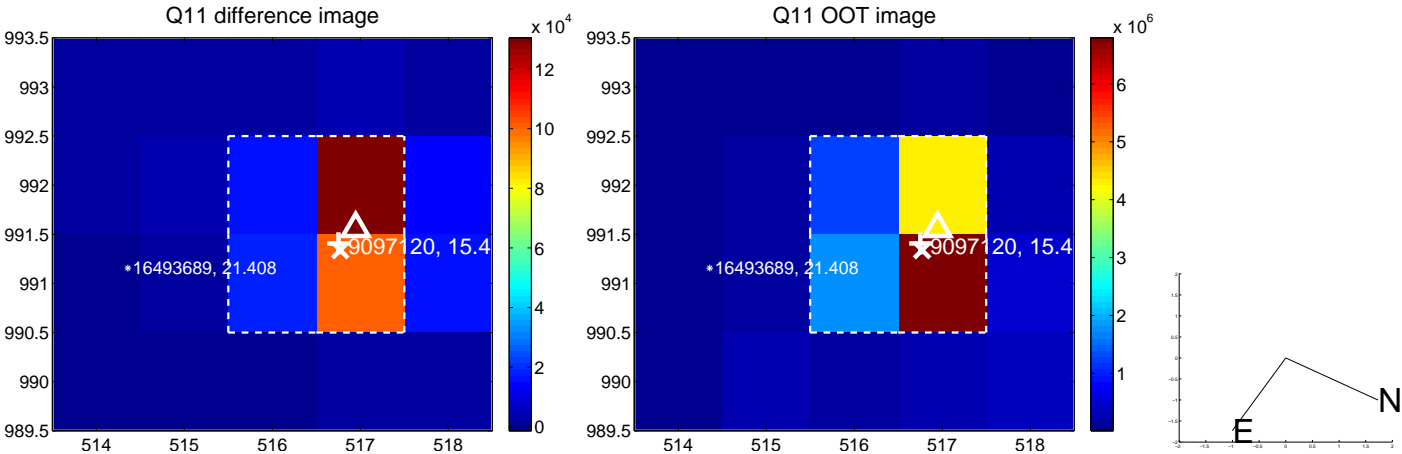
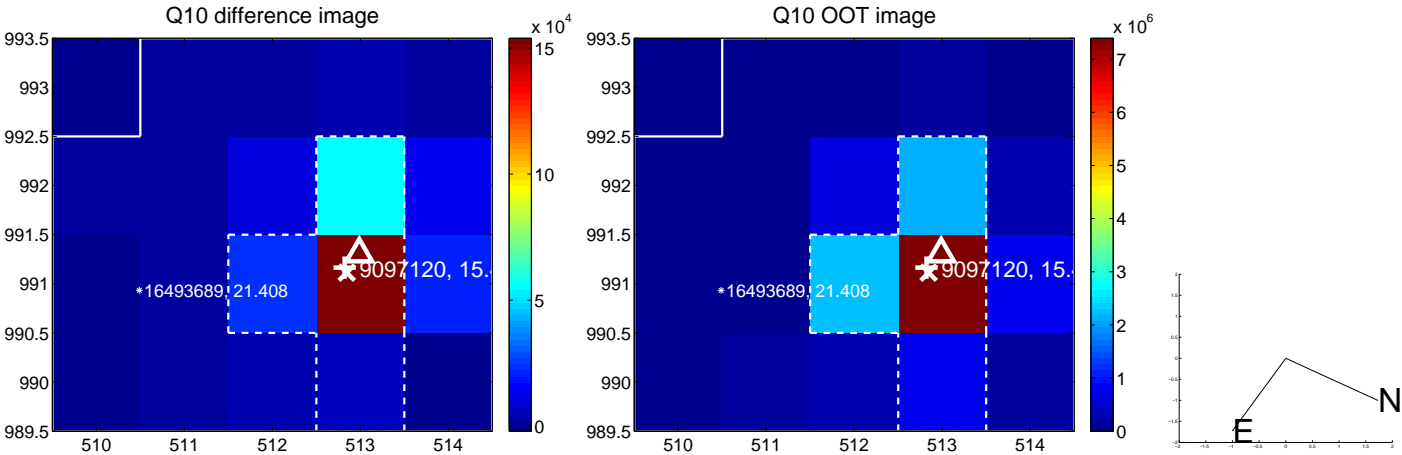
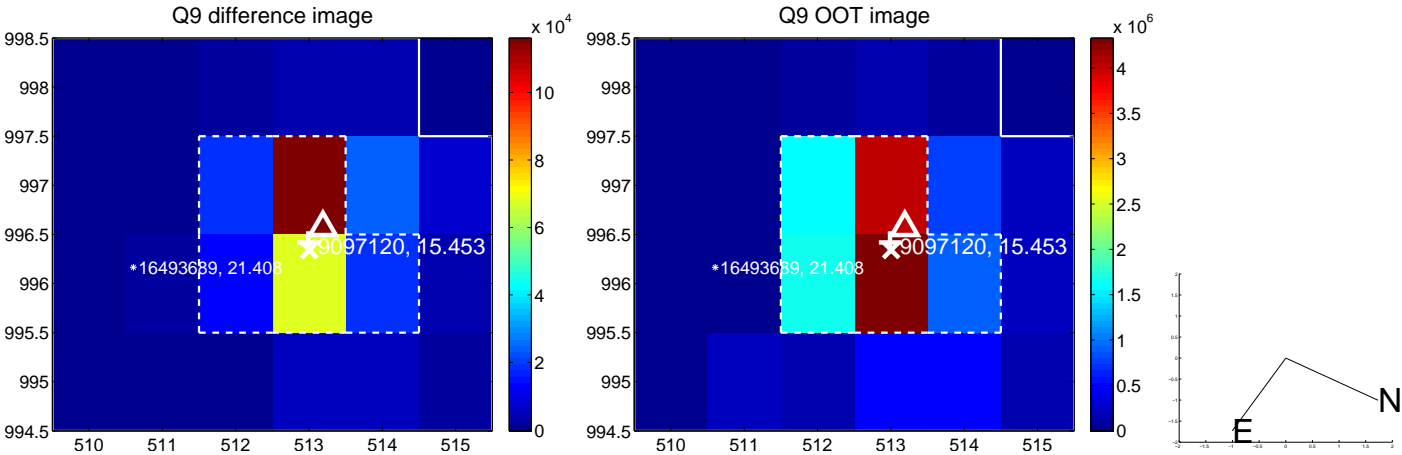


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

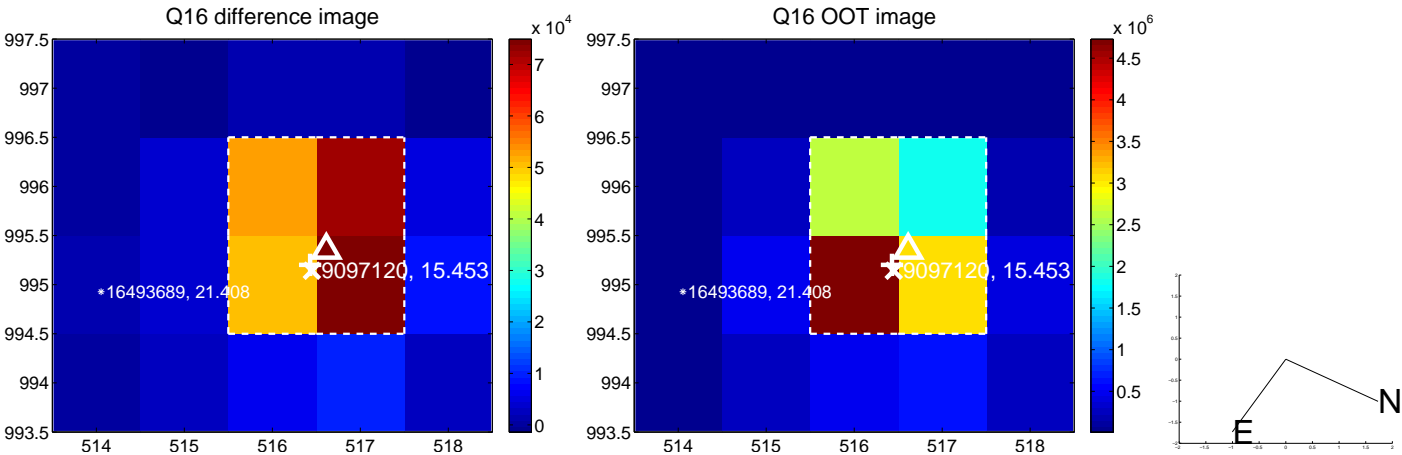
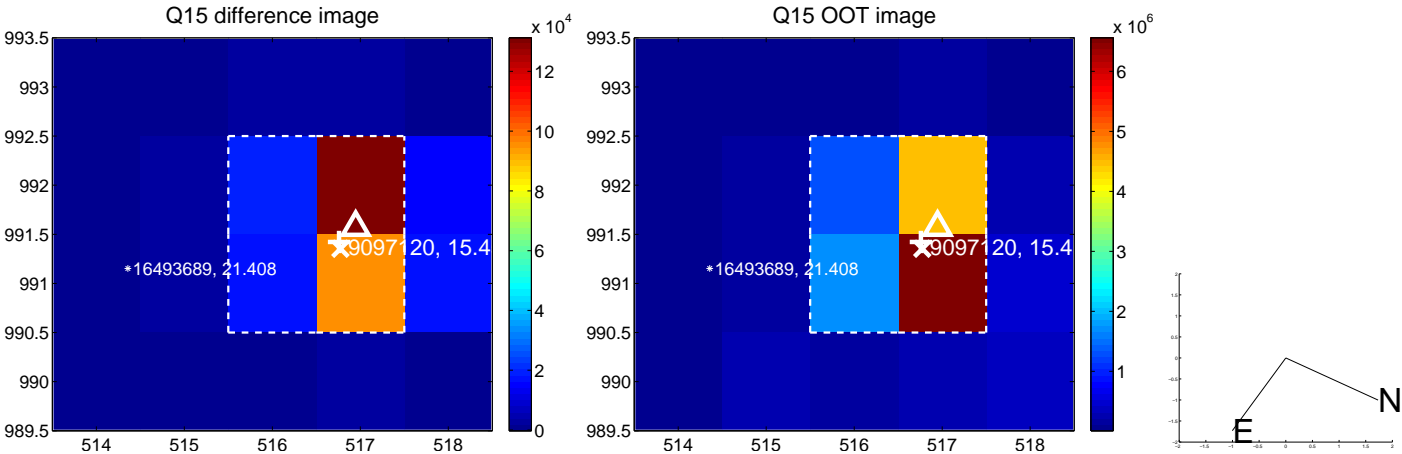
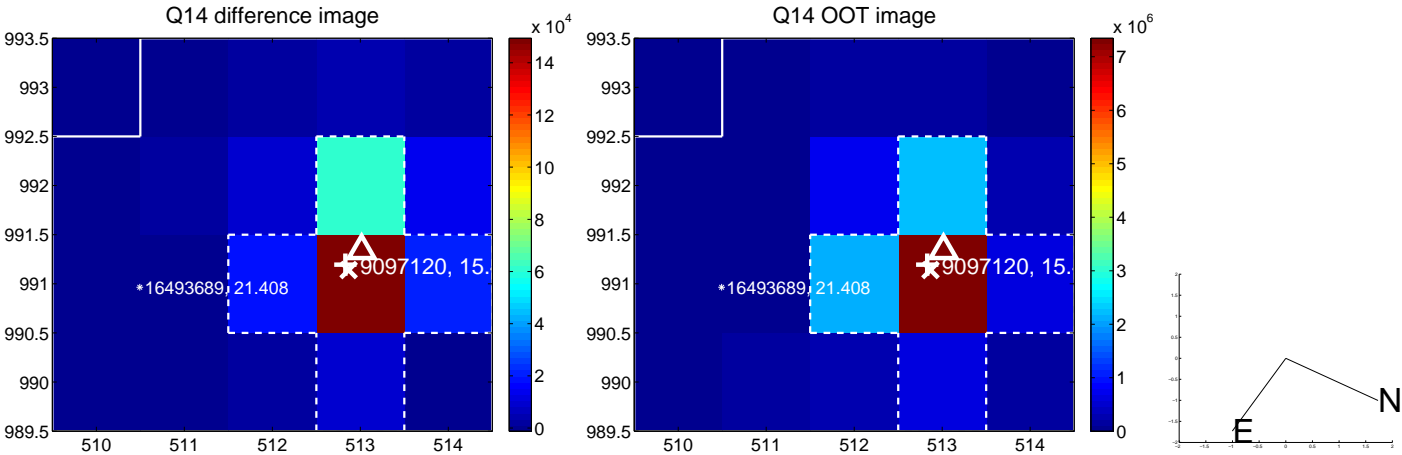
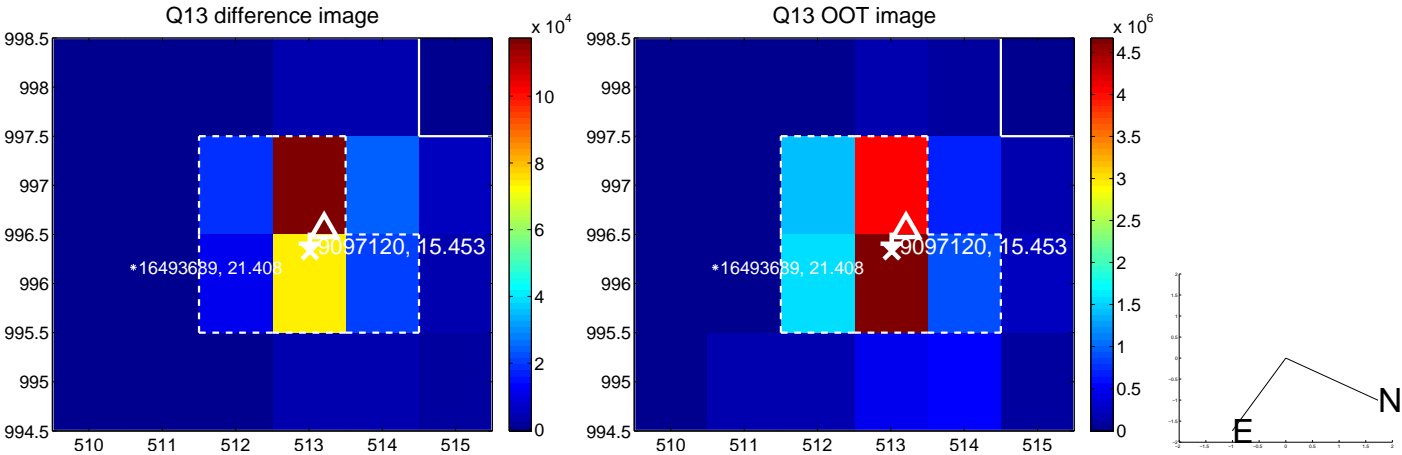




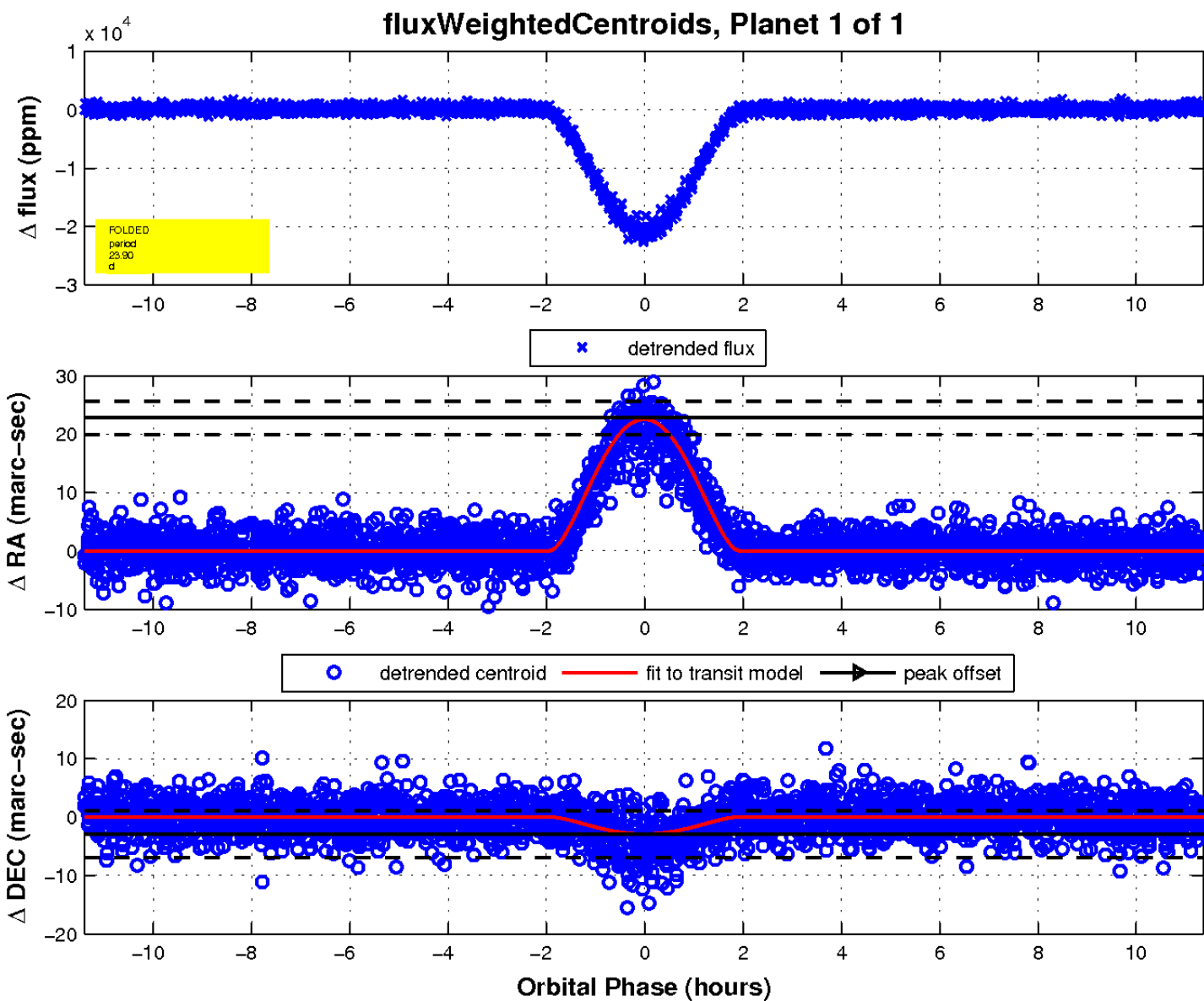
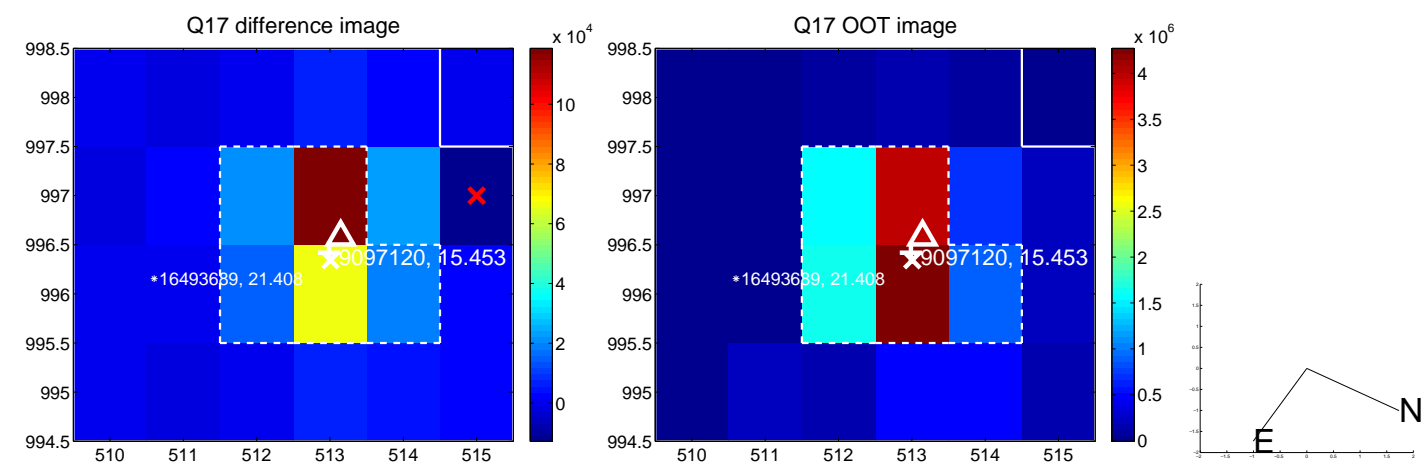
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

