

# KIC 007499398

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007499398-01	OBS	1473.01	23.020278	150.604364	5065.8	3.541	99.7	95.2	0.96	5613	7.63	31.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007499398-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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

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

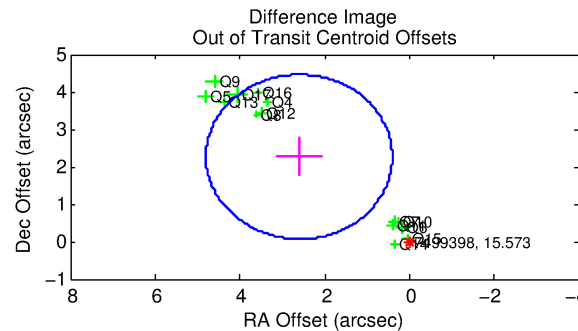
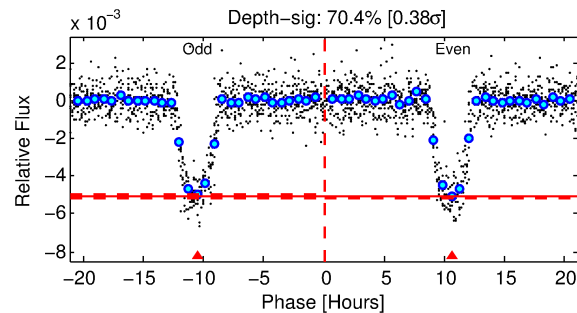
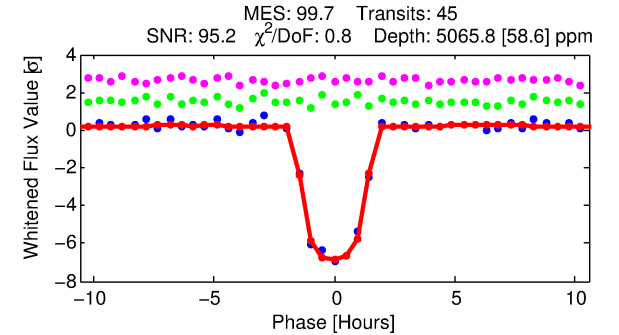
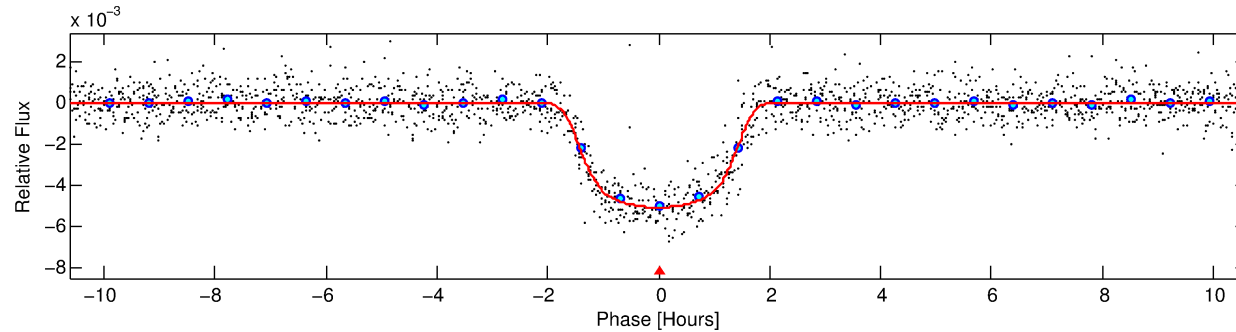
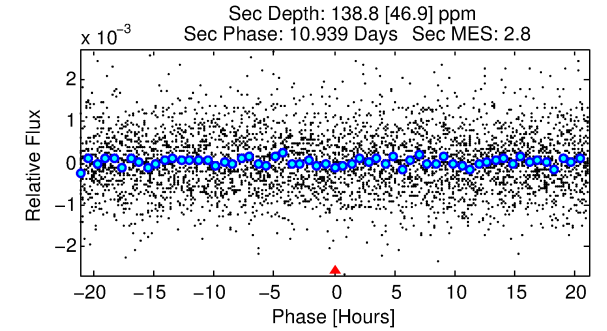
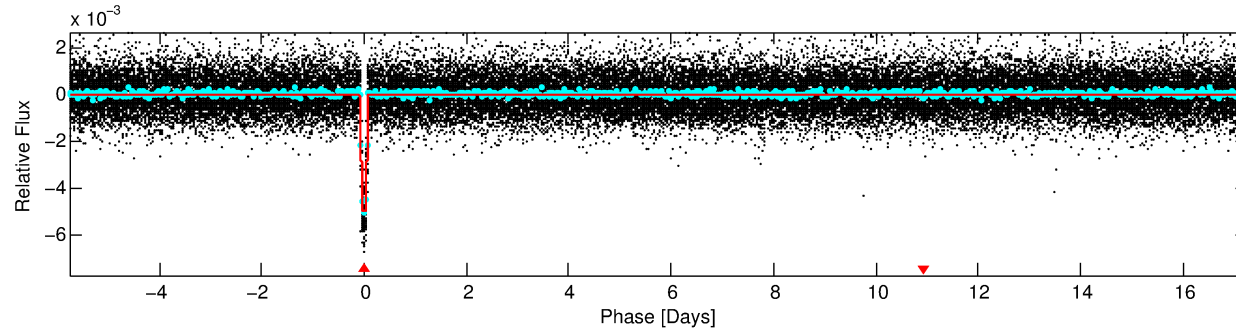
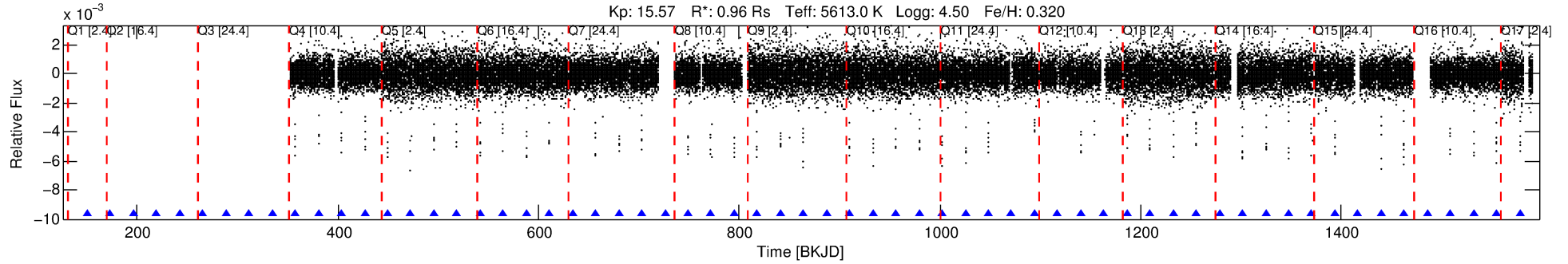
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007499398-01

No Significant Match Found

# DV One-Page Summary

KIC: 7499398 Candidate: 1 of 1 Period: 23.020 d  
KOI: K01473.01 Corr: 0.994



## DV Fit Results:

Period = 23.02028 [0.00003] d  
Epoch = 150.6044 [0.0010] BKJD  
Rp/R\* = 0.0731 [0.0015]  
a/R\* = 35.11 [2.55]  
b = 0.81 [0.03]  
Seff = 31.47 [11.84]  
Teq = 604 [57] K  
Rp = 7.63 [2.13] Re  
a = 0.1607 [0.0381] AU  
Ag = 33.89 [16.51] [1.99σ]  
Teffp = 2253 [208] K [7.65σ]

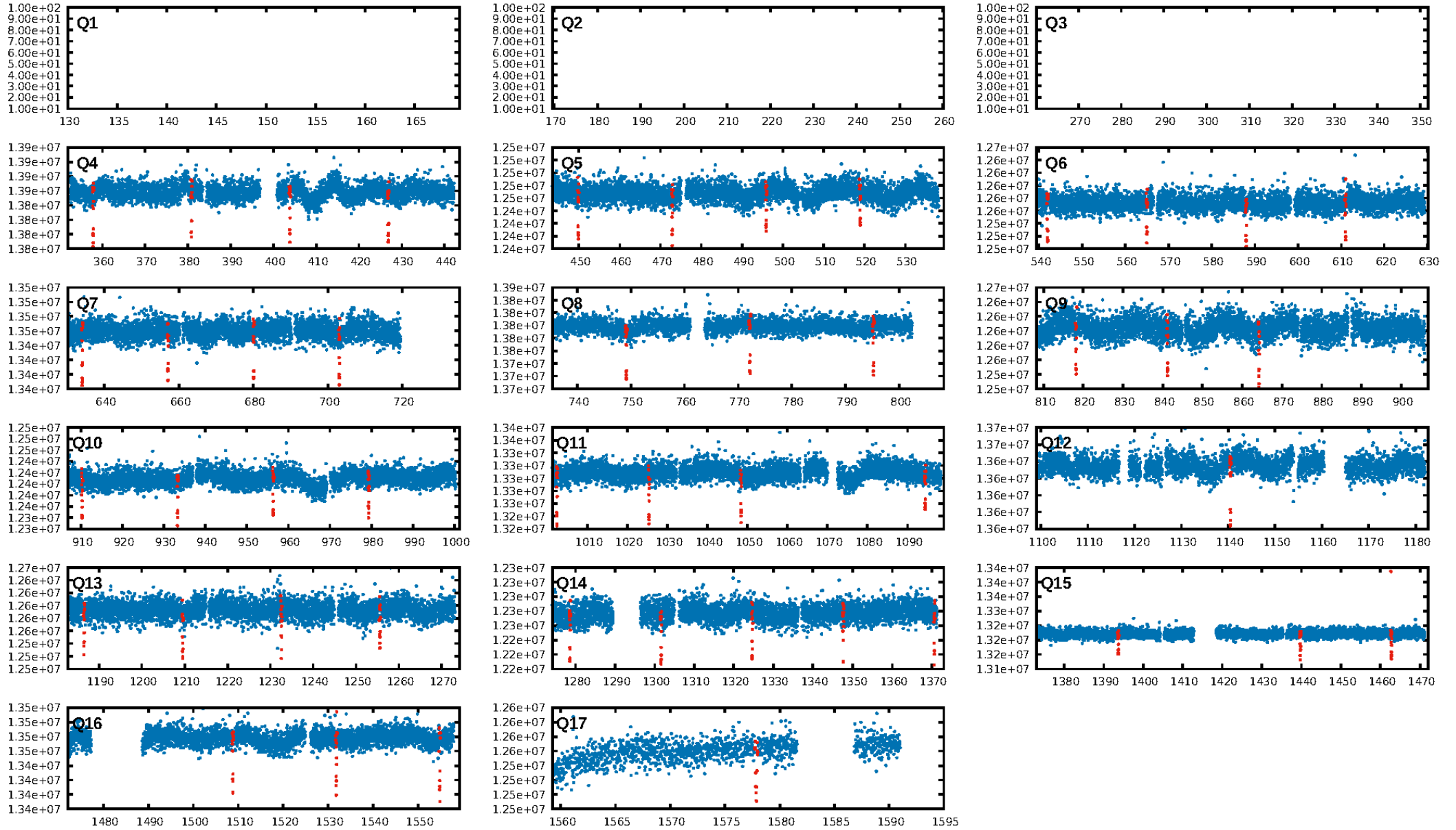
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 77.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [44/44]  
GhostDiagnostic-chr: 4.061  
Centroid-sig: 0.0%  
Centroid-so: 2.099 arcsec [18.65σ]  
OotOffset-rm: 3.446 arcsec [4.70σ]  
KicOffset-rm: 0.293 arcsec [3.07σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

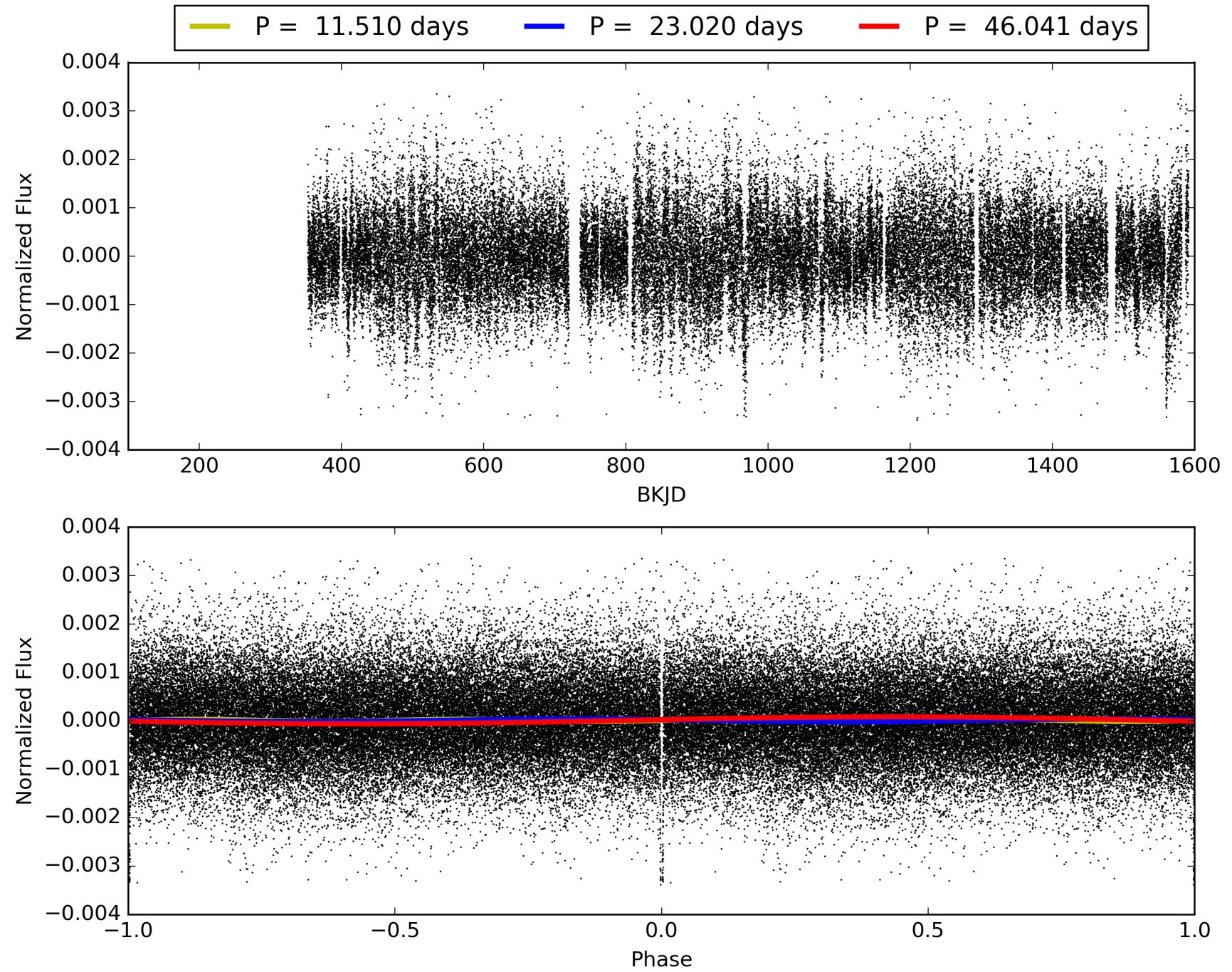
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:20:54 Z

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

# TCE 007499398-01, PDC Light Curves

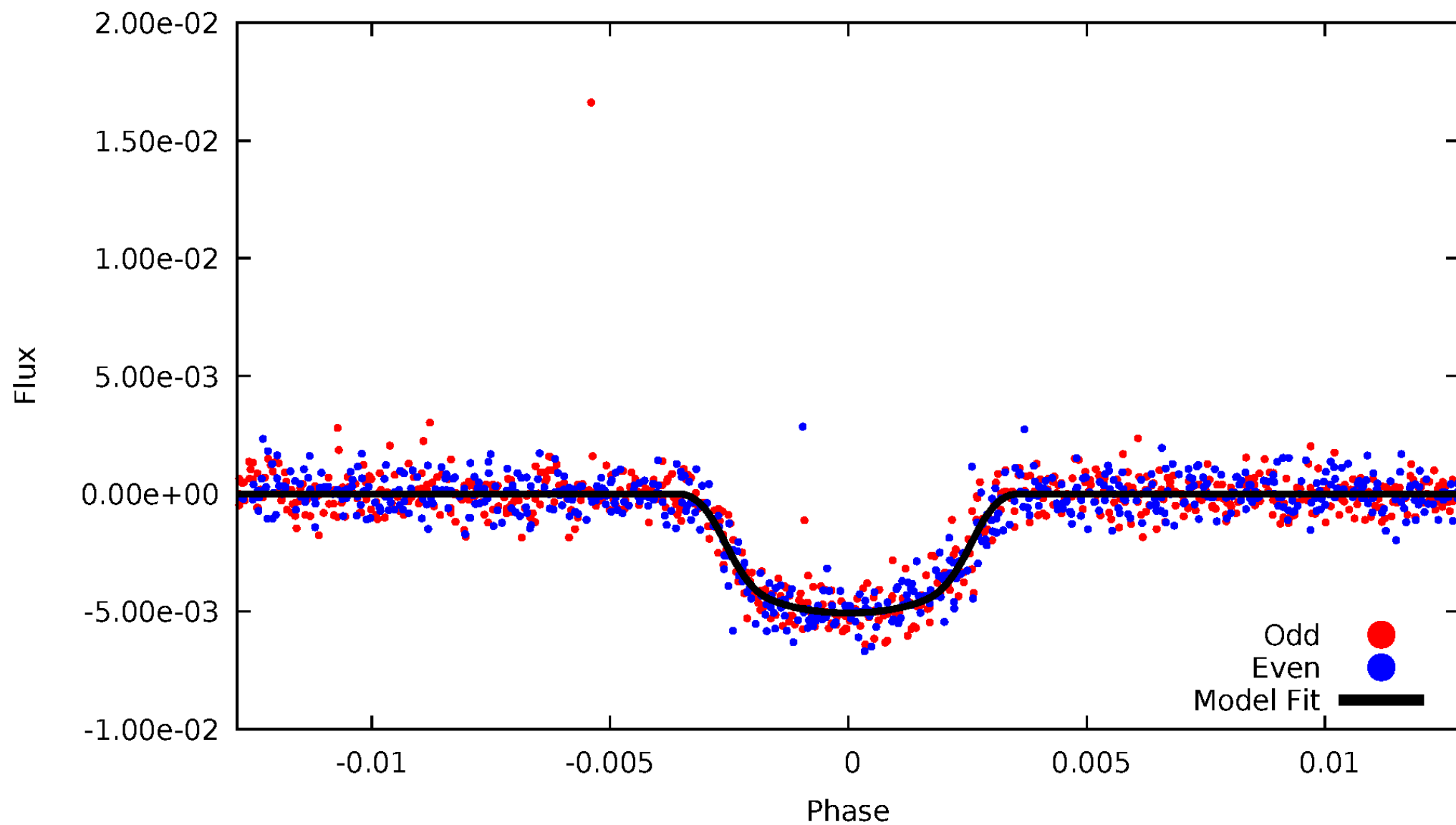


# TCE 007499398-01



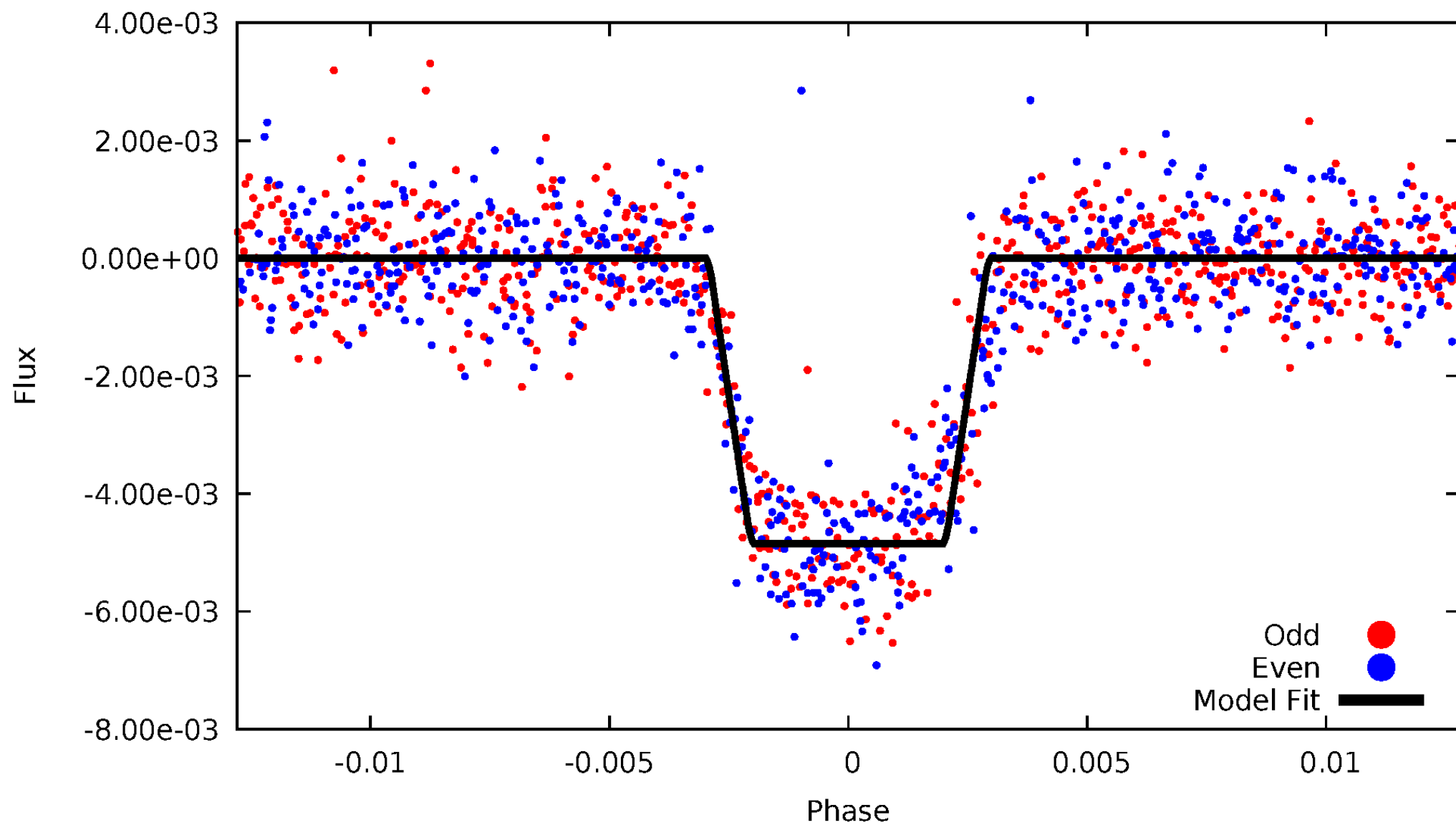
# DV Odd/Even

TCE 007499398-01



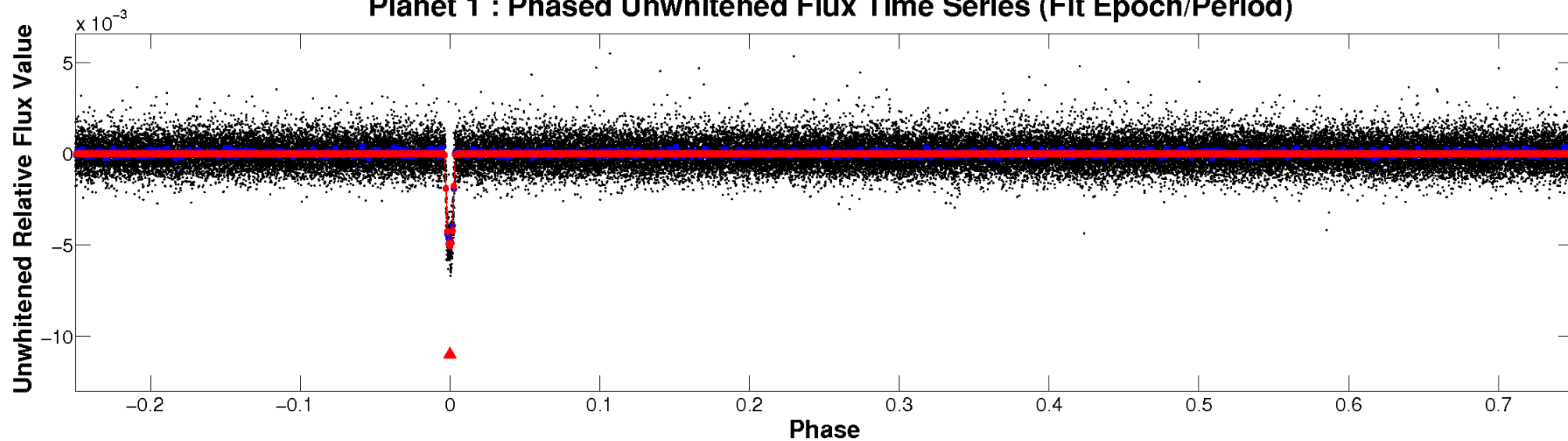
# ALT Odd/Even

TCE 007499398-01

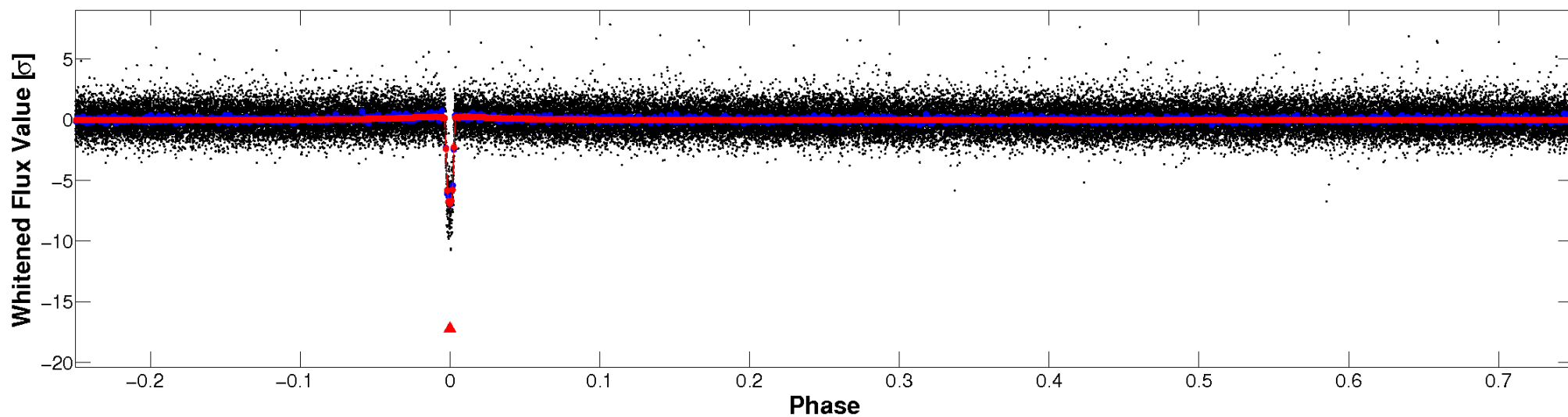


# Non-Whitened Vs. Whitened Light Curve

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



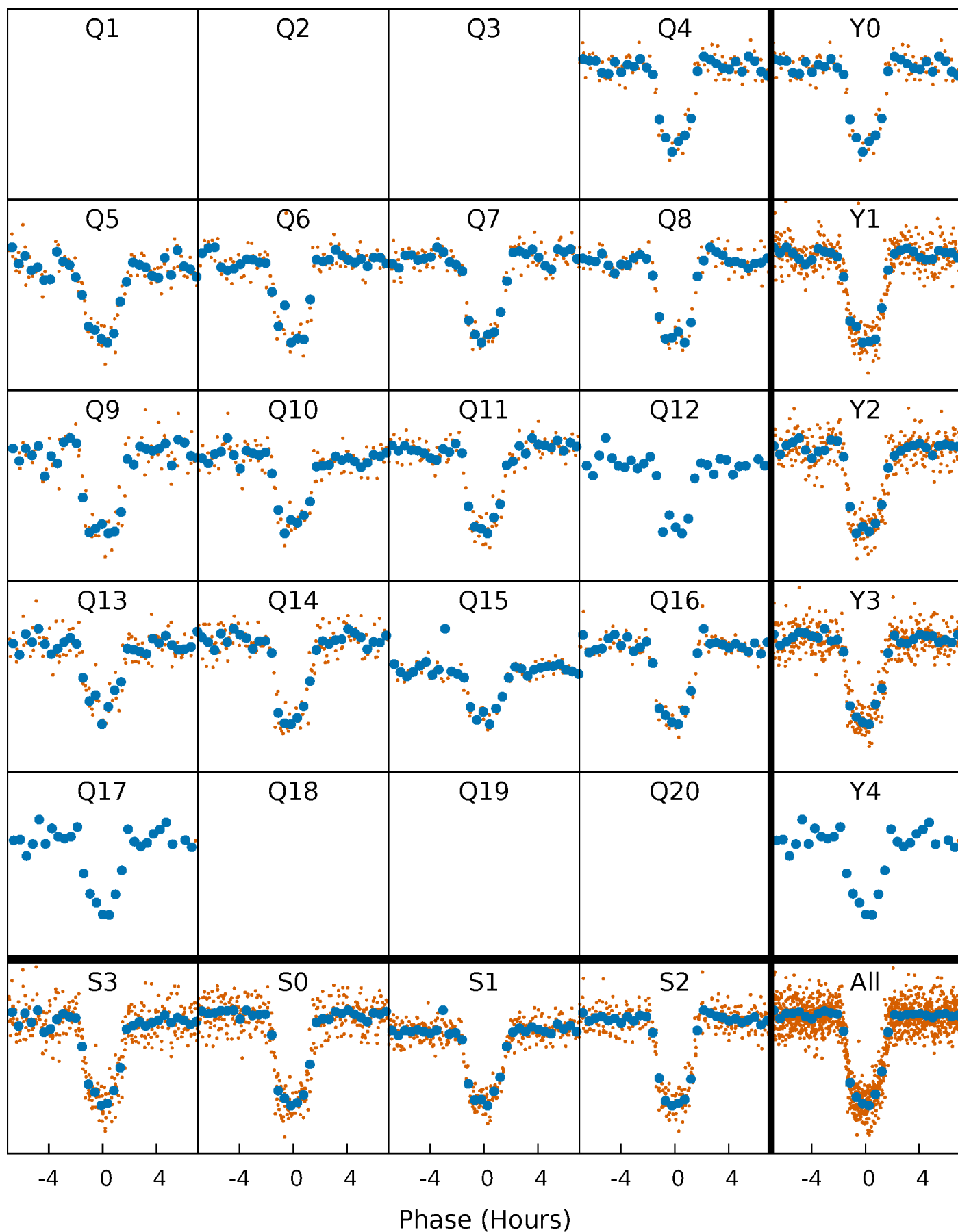
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

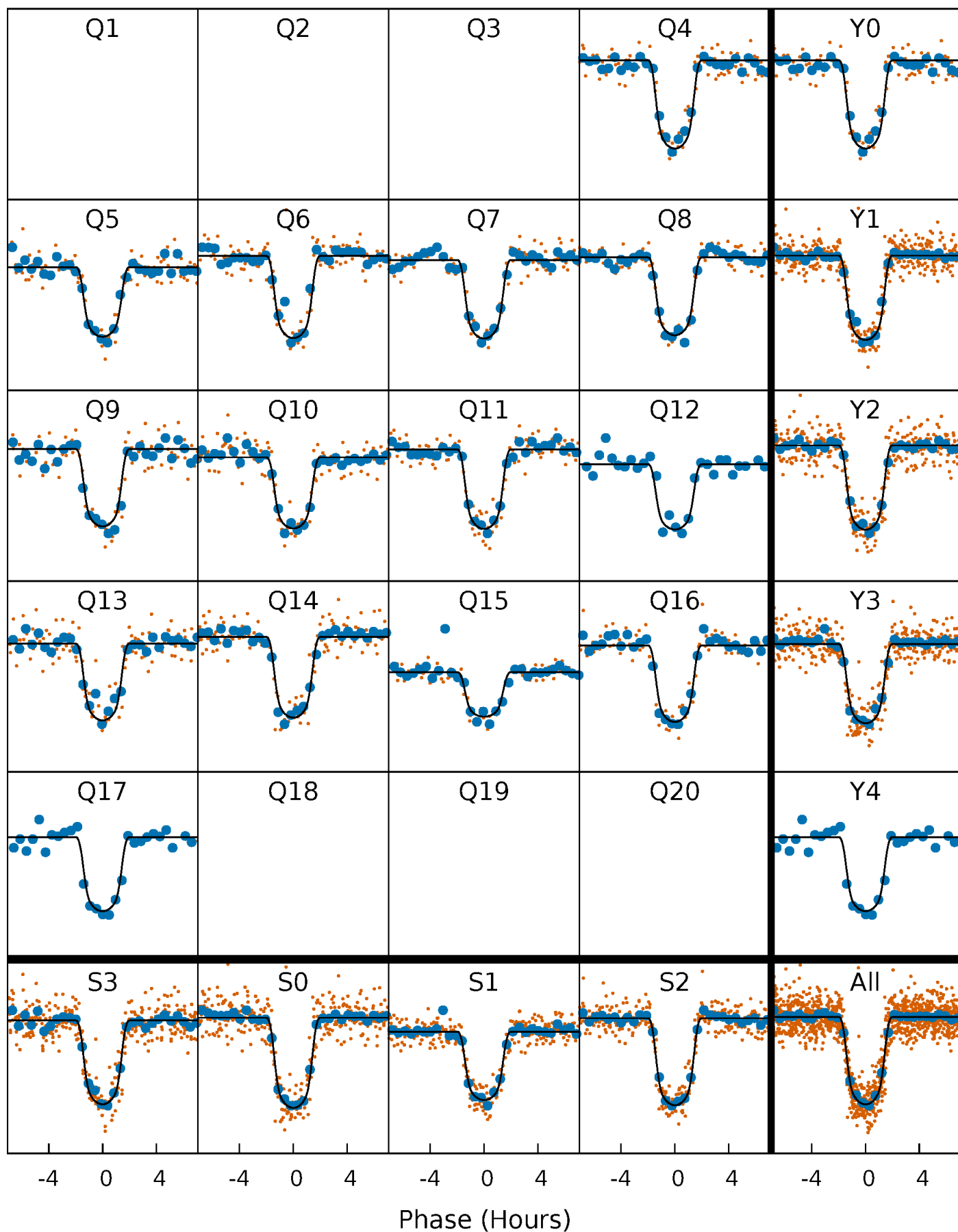
TCE 007499398-01   P= 23.020278 Days    $T_0=150.604364$  (BKJD)





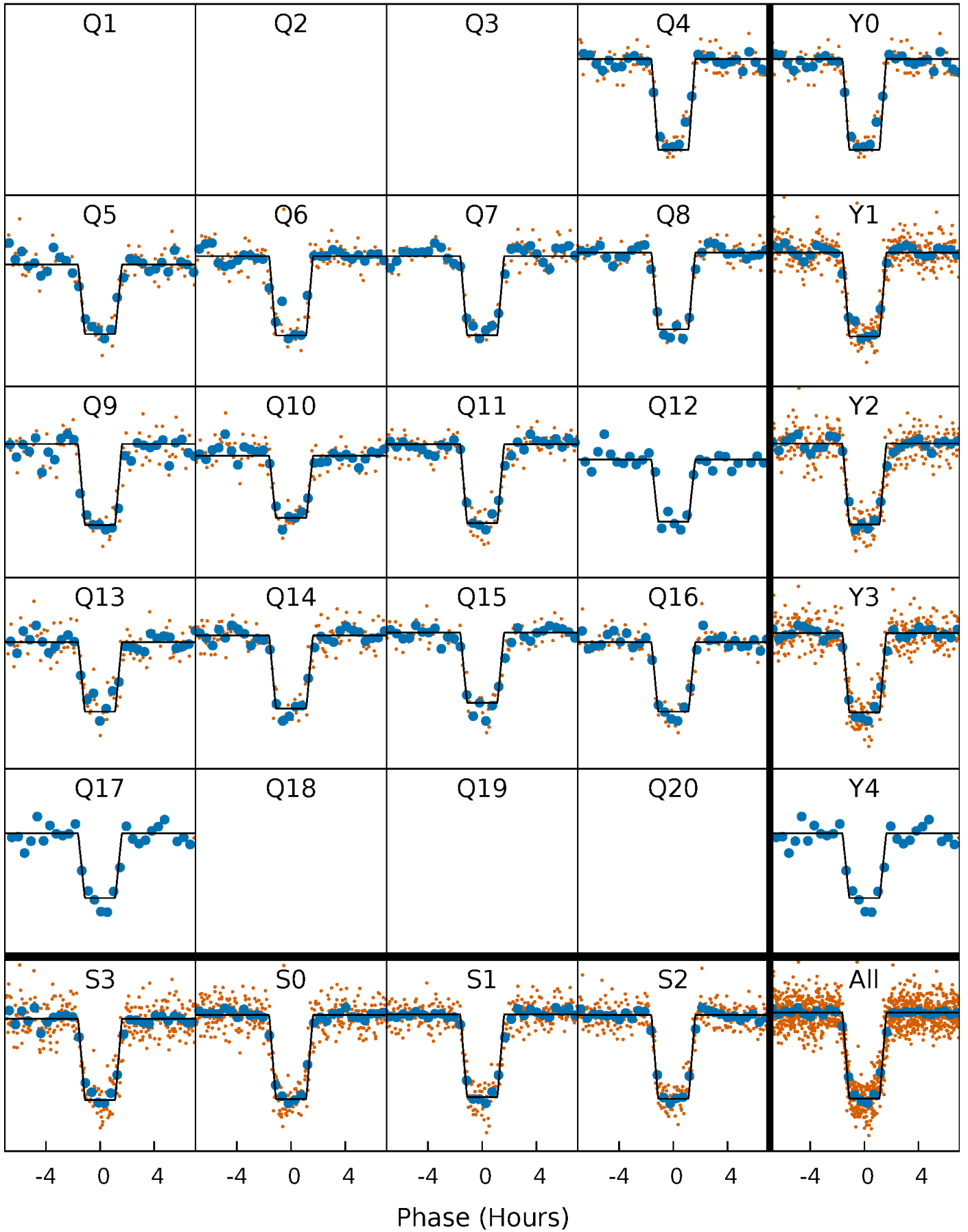
# DV Quarter-Phased Transit Curves

TCE 007499398-01 P= 23.020278 Days  $T_0=150.604364$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

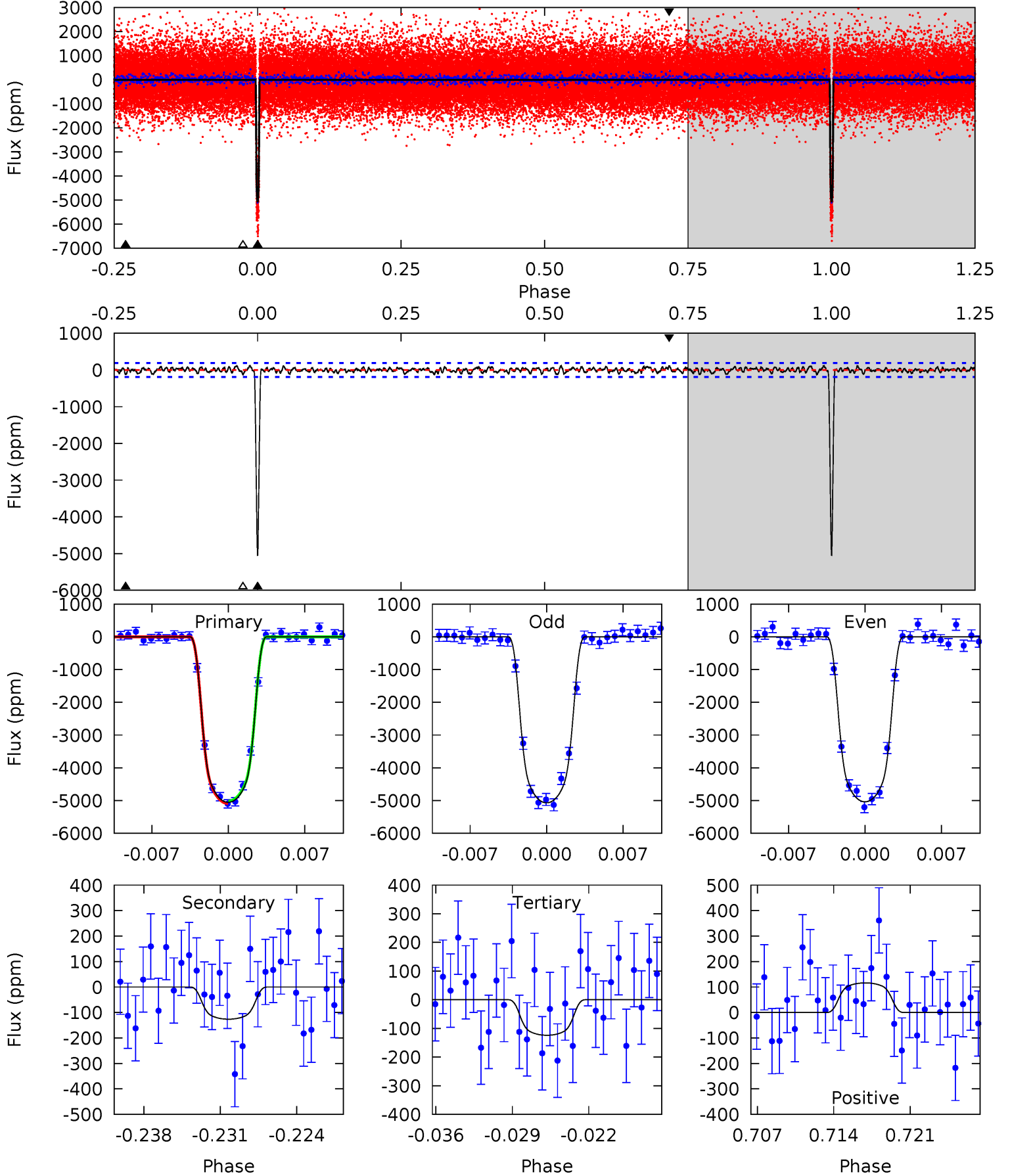
TCE 007499398-01 P= 23.020194 Days  $T_0=150.606668$  (BKJD)



# DV Model-Shift Uniqueness Test

007499398-01, P = 23.020278 Days, E = 150.604364 Days

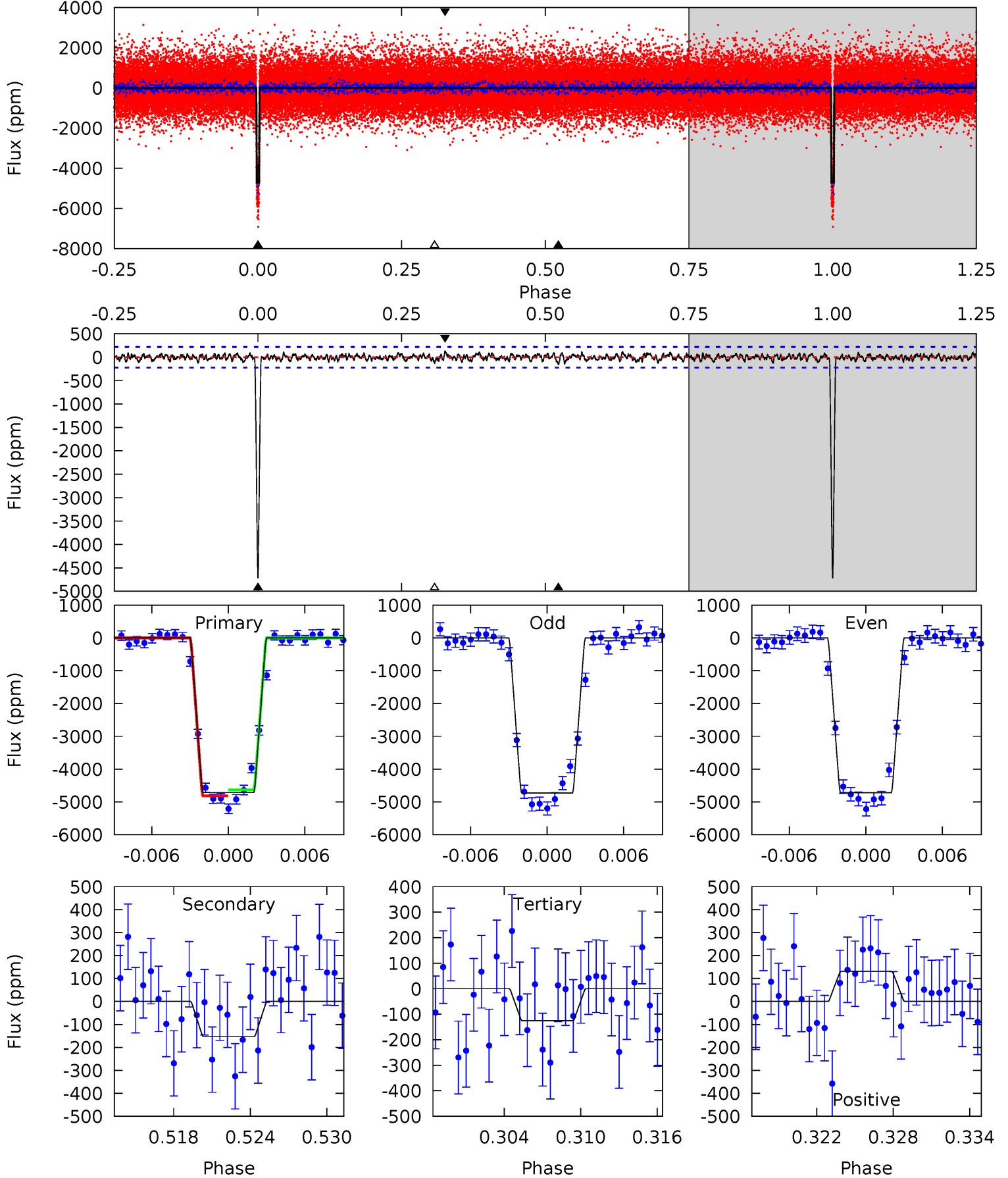
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
136.1	3.40	3.34	3.13	5.09	2.69	1.27	132.7	132.9	0.06	0.27	0.44	0.98	0.02	0.99



# Alt Model-Shift Uniqueness Test

007499398-01,  $P = 23.020194$  Days,  $E = 150.606668$  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
109.0	3.54	2.91	3.03	5.12	2.75	1.03	106.1	106.0	0.63	0.51	0.09	0.99	0.03	2.12



### Stellar Parameters For KIC 007499398

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5613^{+166}_{-200}$	$4.496^{+0.048}_{-0.192}$	$0.320^{+0.150}_{-0.300}$	$0.956^{+0.266}_{-0.089}$	$1.046^{+0.094}_{-0.126}$	$1.686^{+0.413}_{-0.851}$
	+3%/-4%	+1%/-4%	+47%/-94%	+28%/-9%	+9%/-12%	+25%/-50%
Source	KIC0	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 007499398-01 / KOI 1473.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-126 \pm 37$	$7.76^{+1.12}_{-0.51}$	$859^{+54}_{-38}$	$2889^{+127}_{-145}$	$27^{+11}_{-9}$
Alt.	$-153 \pm 43$	$7.41^{+1.15}_{-0.53}$	$858^{+59}_{-41}$	$3018^{+126}_{-151}$	$38^{+13}_{-13}$

$T_{max}$  = 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

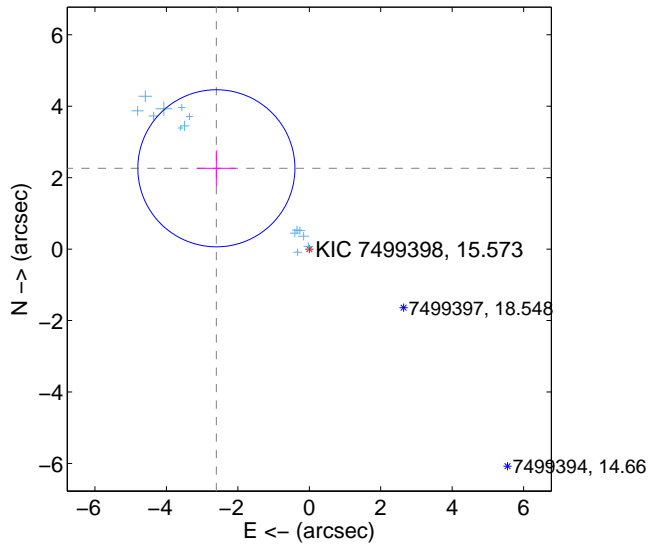
Supplemental centroid analysis for 007499398-01. Kepler magnitude: 15.57. Transit SNR 95.18

There are 14 quarters with good PRF difference image offsets

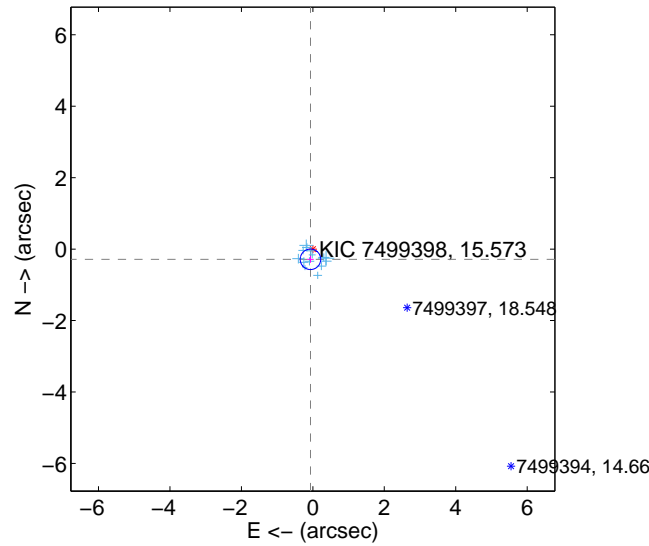
The OOT PRF centroid is offset from the target star catalog position by about 6.10 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.446 \pm 0.733$	4.70	$2.600 \pm 0.544$	$2.261 \pm 0.499$
PRF-fit source offset from KIC position	$0.293 \pm 0.096$	3.07	$0.067 \pm 0.091$	$-0.286 \pm 0.096$
photometric centroid source offset	$2.10 \pm 0.11$	18.65	$-1.77 \pm 0.11$	$-1.13 \pm 0.11$

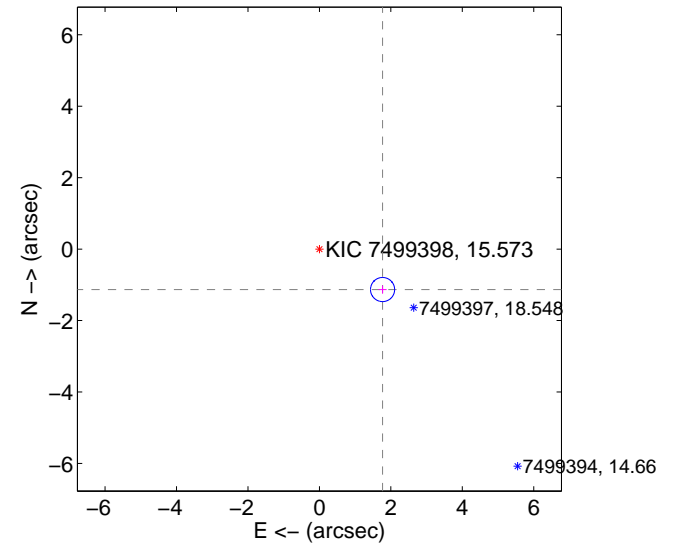
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

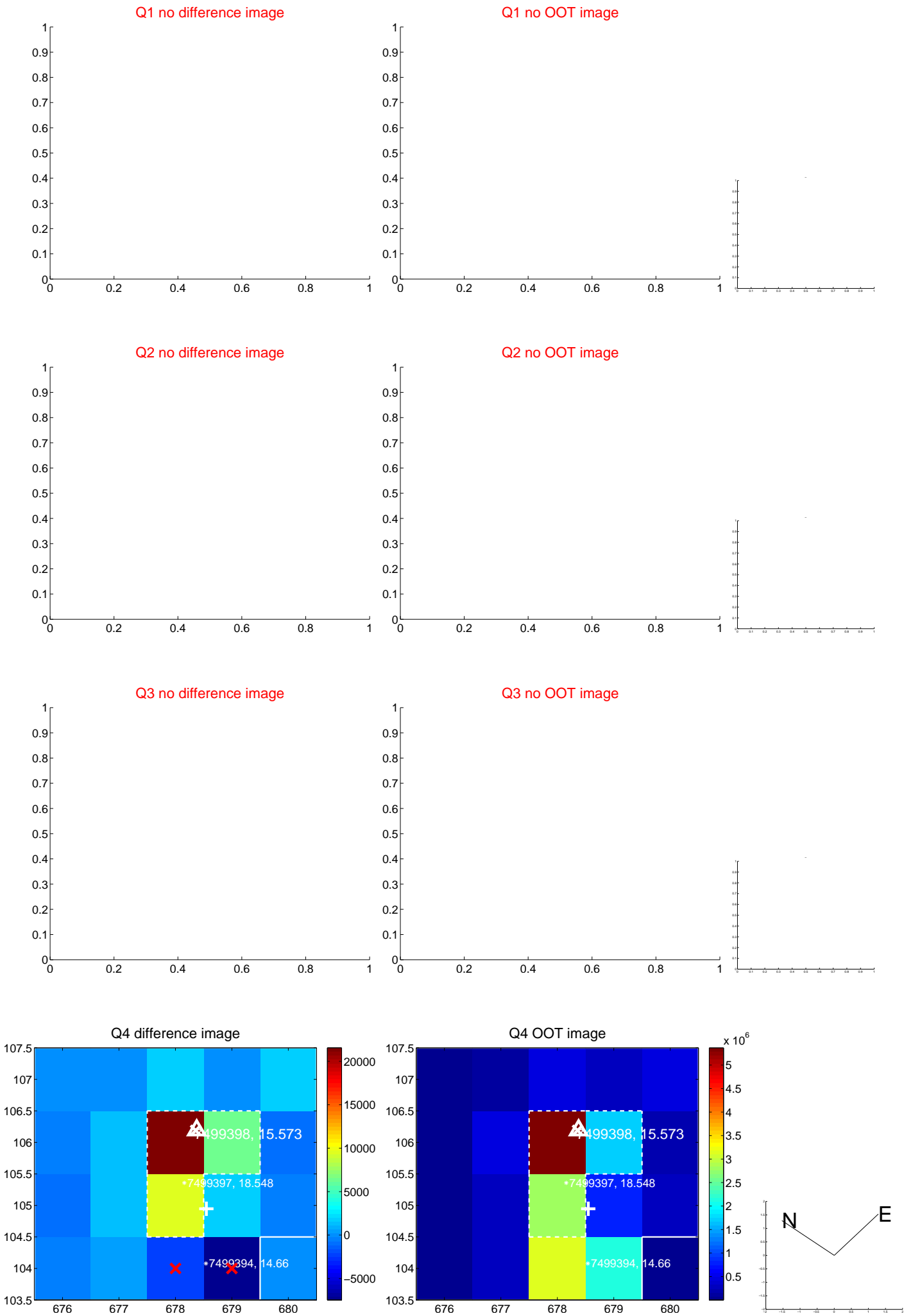


offset from photometric centroids



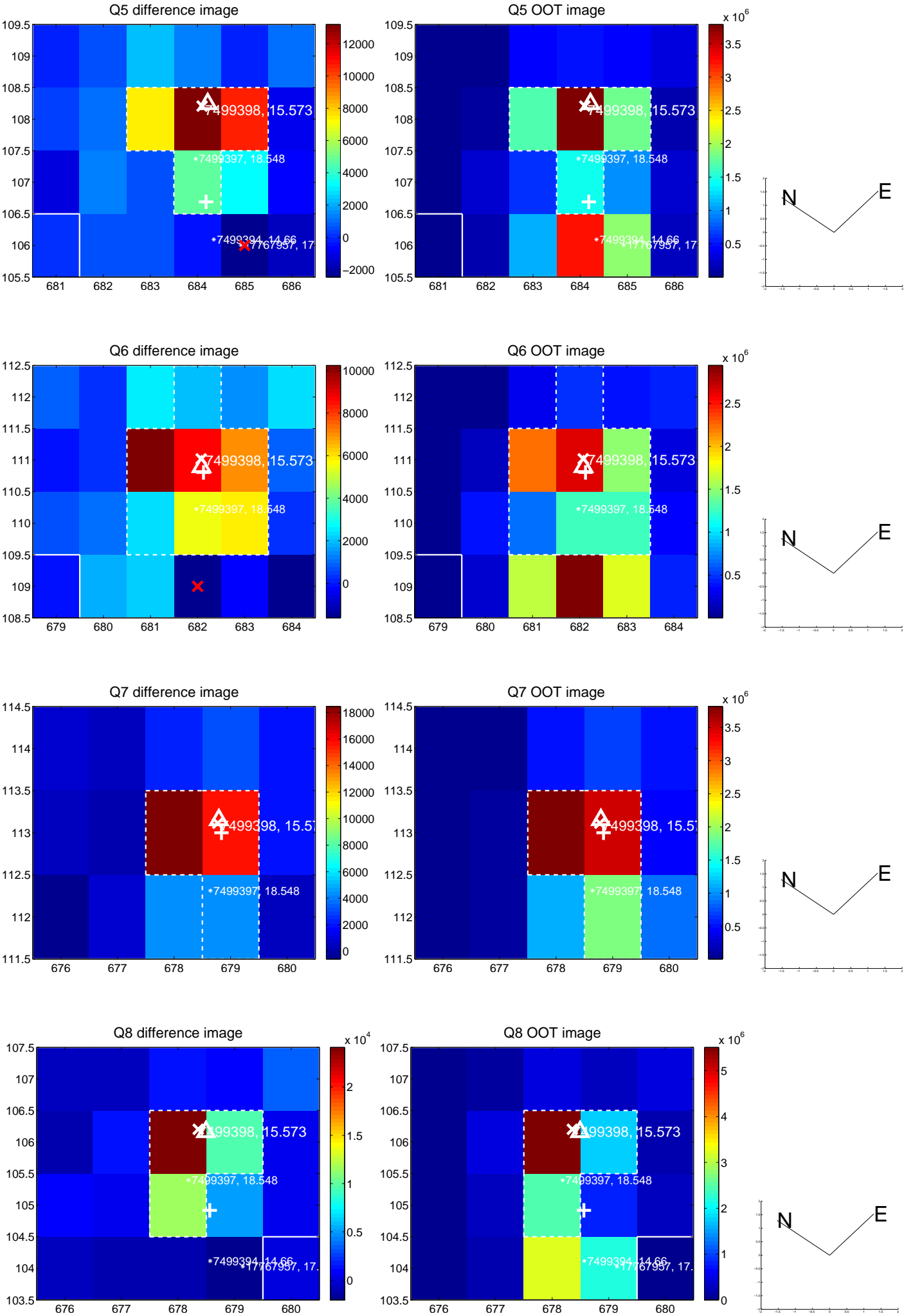
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

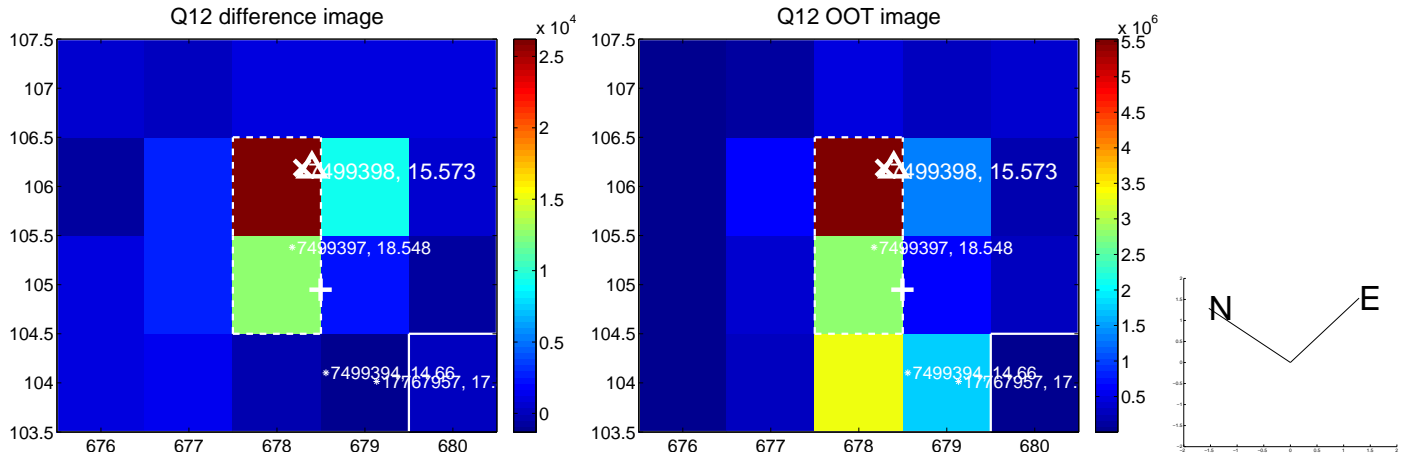
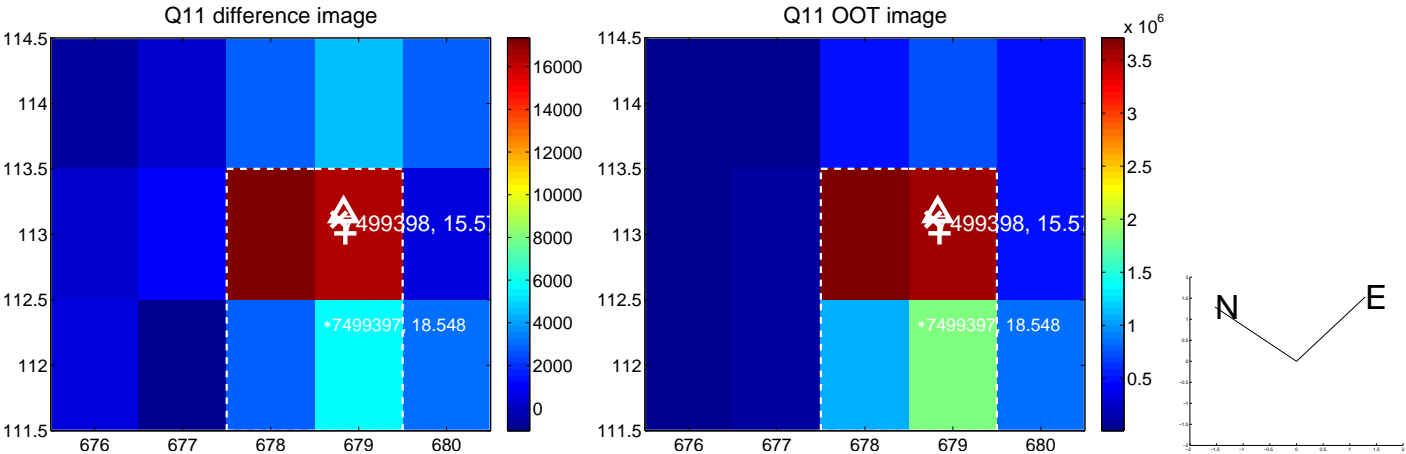
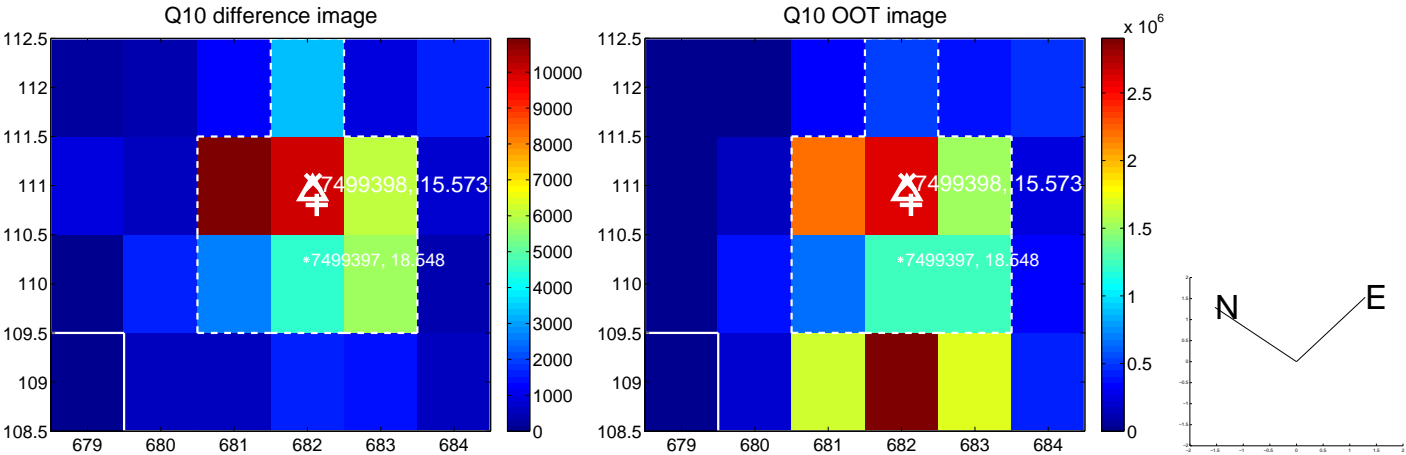
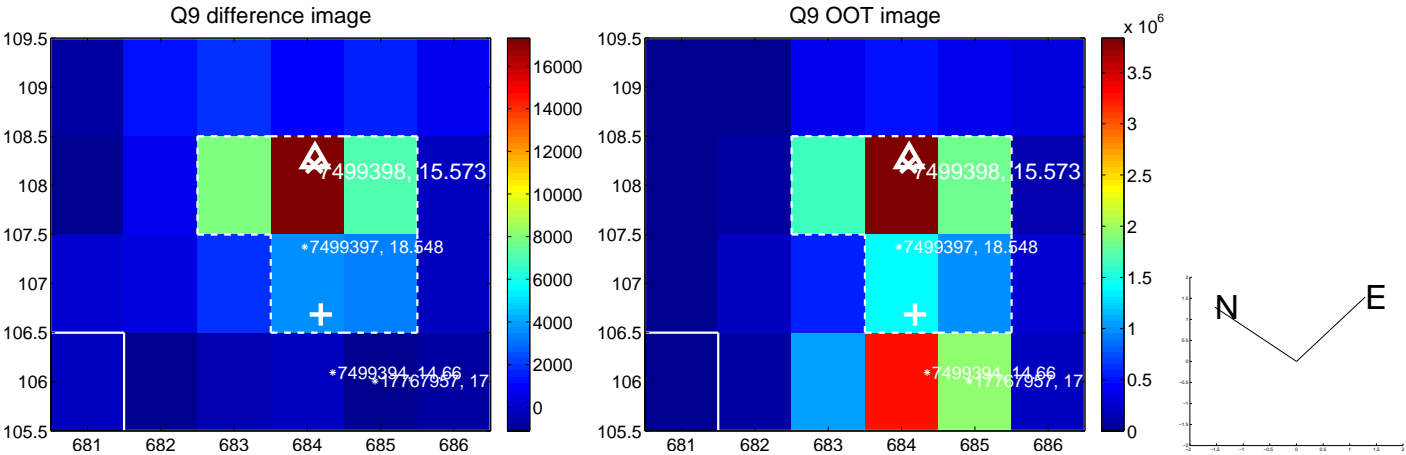




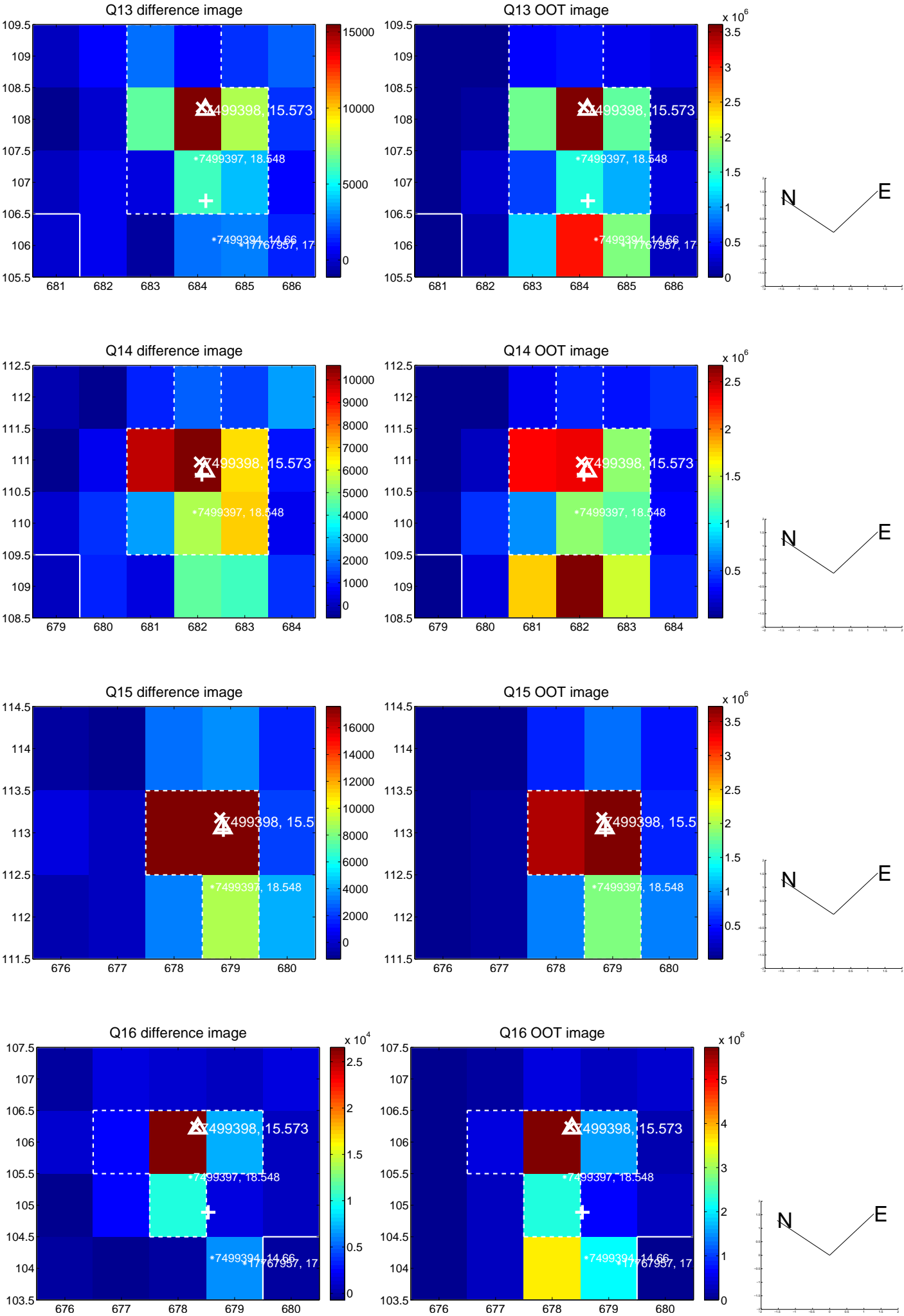
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



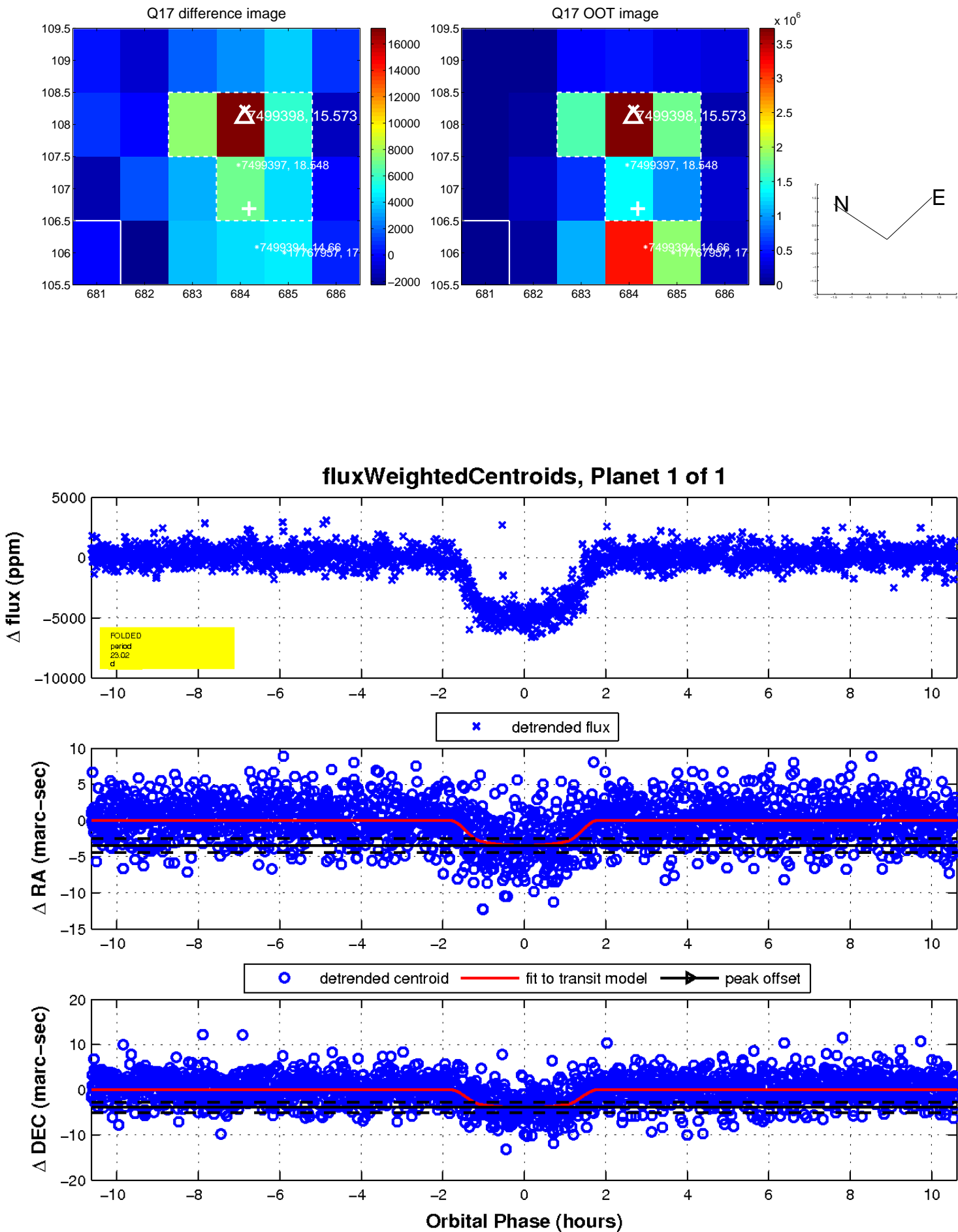
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

