

# KIC 008439712

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008439712-02	OBS	No	365.104966	190.904568	2731.0	24.608	8.6	9.9	0.80	5595	7.61	0.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008439712-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE--CENT_FEW_DIFFS

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

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

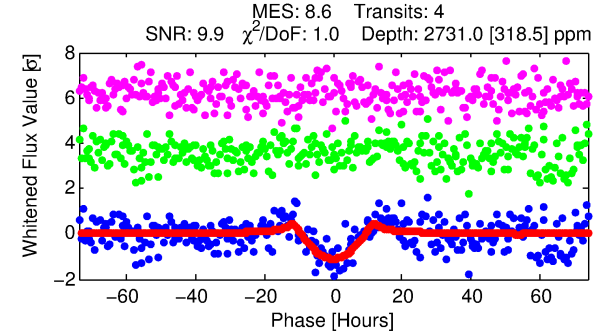
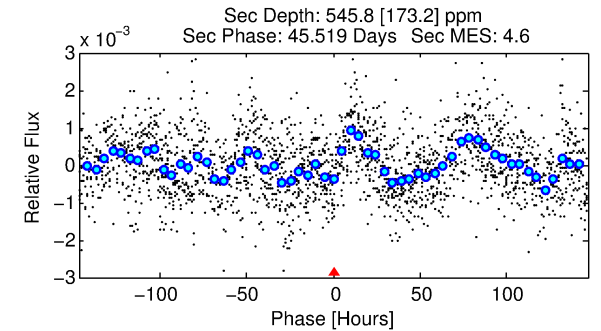
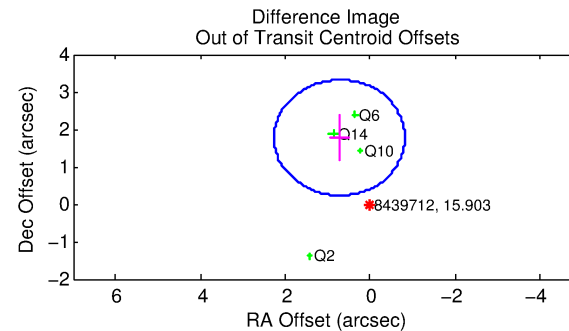
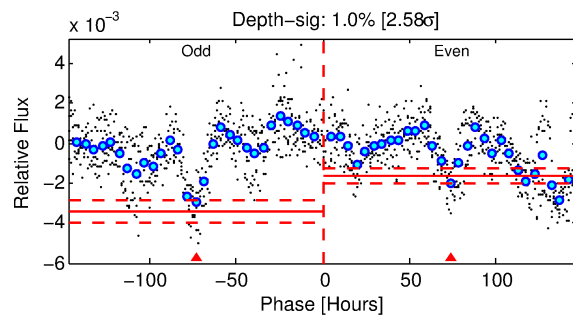
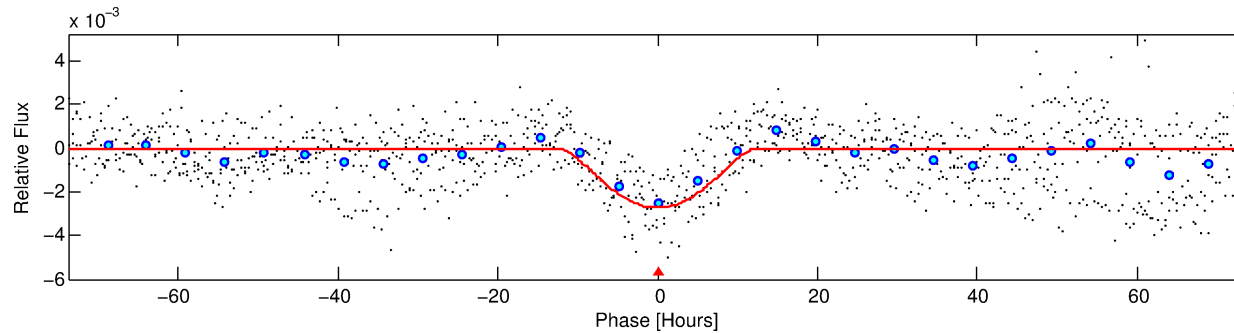
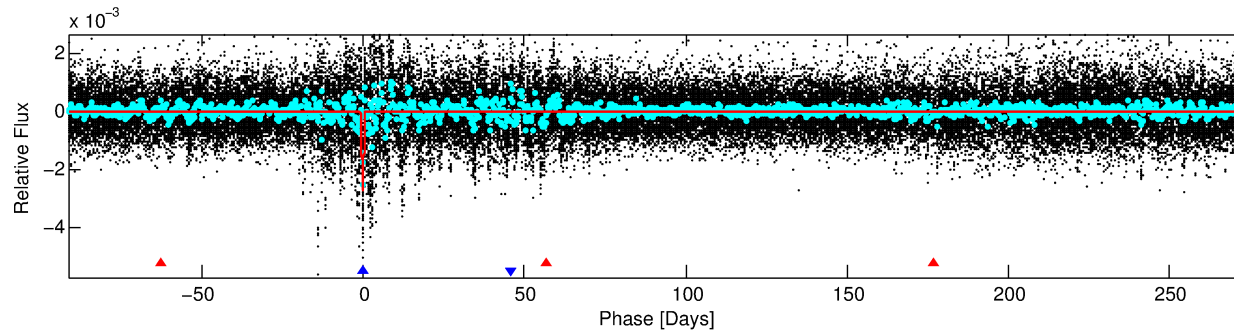
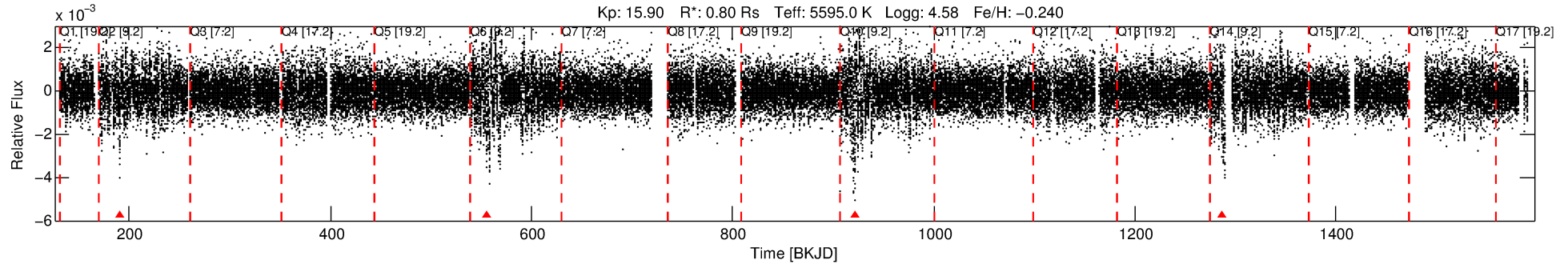
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008439712-02

No Significant Match Found

# DV One-Page Summary

KIC: 8439712 Candidate: 2 of 2 Period: 365.105 d



## DV Fit Results:

Period = 365.10497 [0.01982] d  
Epoch = 190.9046 [0.0333] BKJD  
Rp/R\* = 0.0876 [0.1496]  
a/R\* = 49.64 [17.81]  
b = 1.00 [0.22]  
Seff = 0.61 [0.19]  
Teq = 225 [17] K  
Rp = 7.61 [13.11] Re  
a = 0.9585 [0.1863] AU  
Ag = 4758.79 [16364.82] [0.29 $\sigma$ ]  
Teff = 2889 [2476] K [1.08 $\sigma$ ]

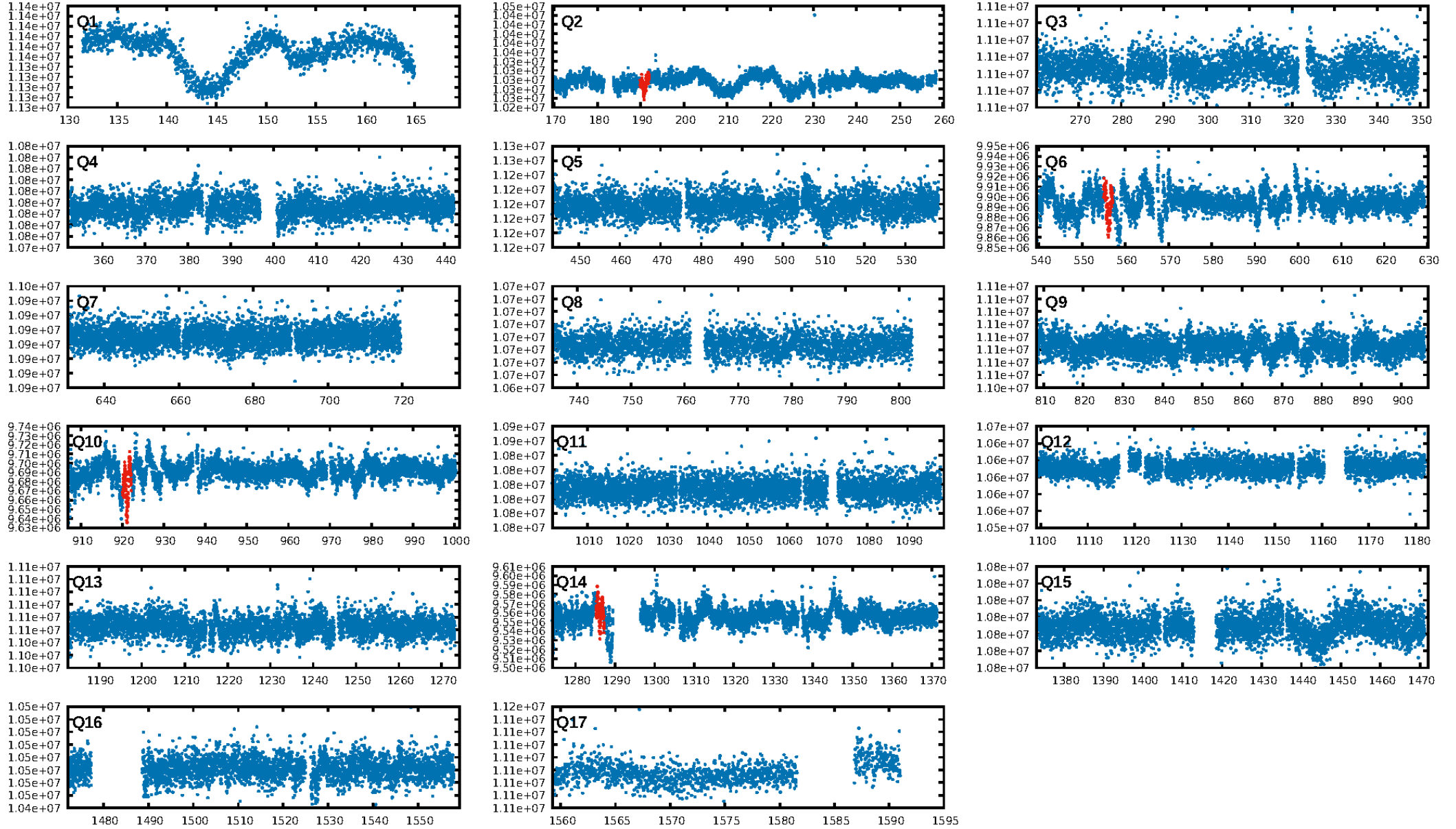
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [221.33 $\sigma$ ]  
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: 2.93e-10  
RollingBand-fgt: 0.00 [0/4]  
GhostDiagnostic-chr: 1.409  
Centroid-sig: 37.7%  
Centroid-so: 1.537 arcsec [1.36 $\sigma$ ]  
OotOffset-rm: 1.914 arcsec [3.72 $\sigma$ ]  
KicOffset-rm: 2.872 arcsec [6.05 $\sigma$ ]  
OotOffset-st: 4/0/0/0 [4]  
KicOffset-st: 4/0/0/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

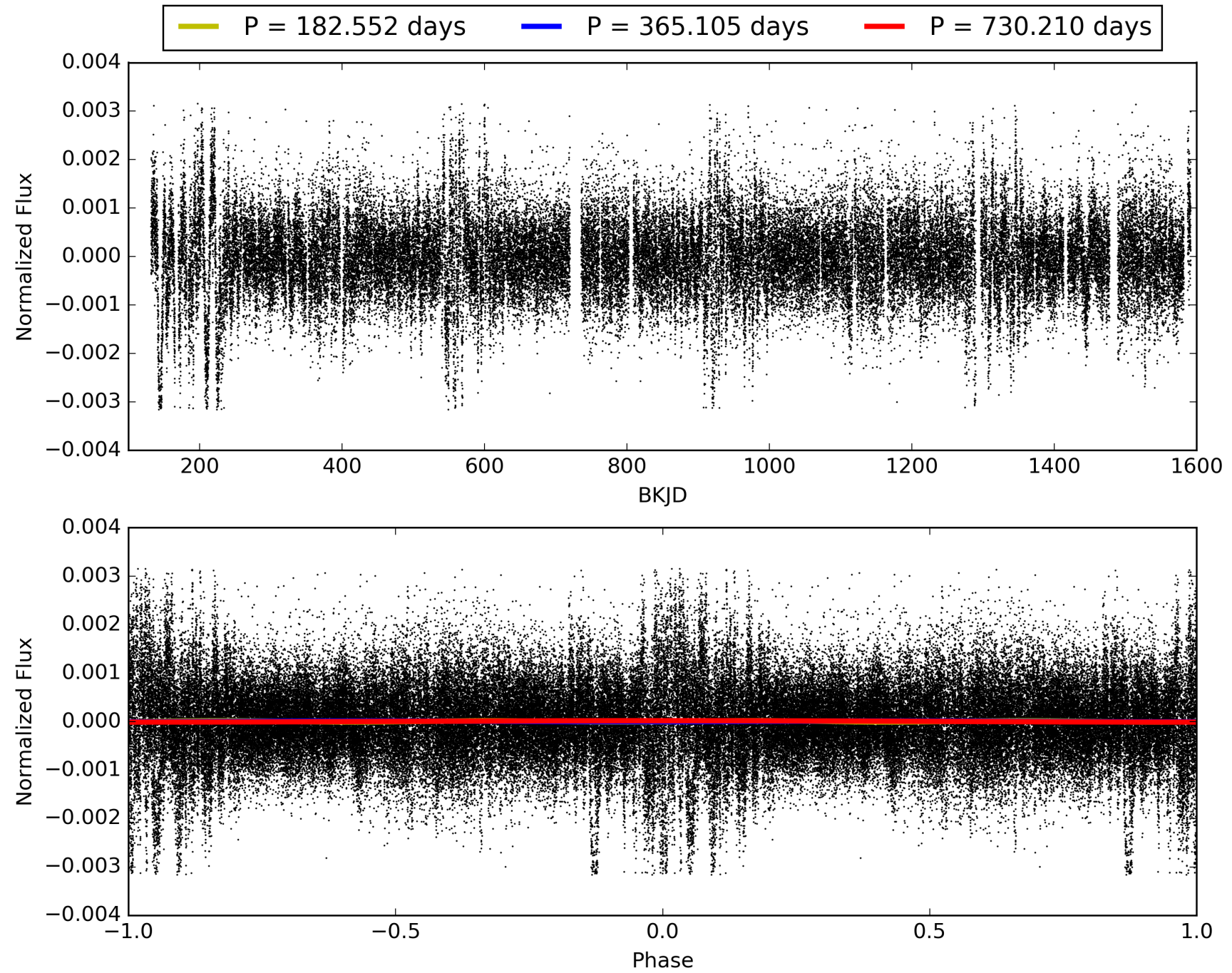
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:36:15 Z

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

# TCE 008439712-02, PDC Light Curves

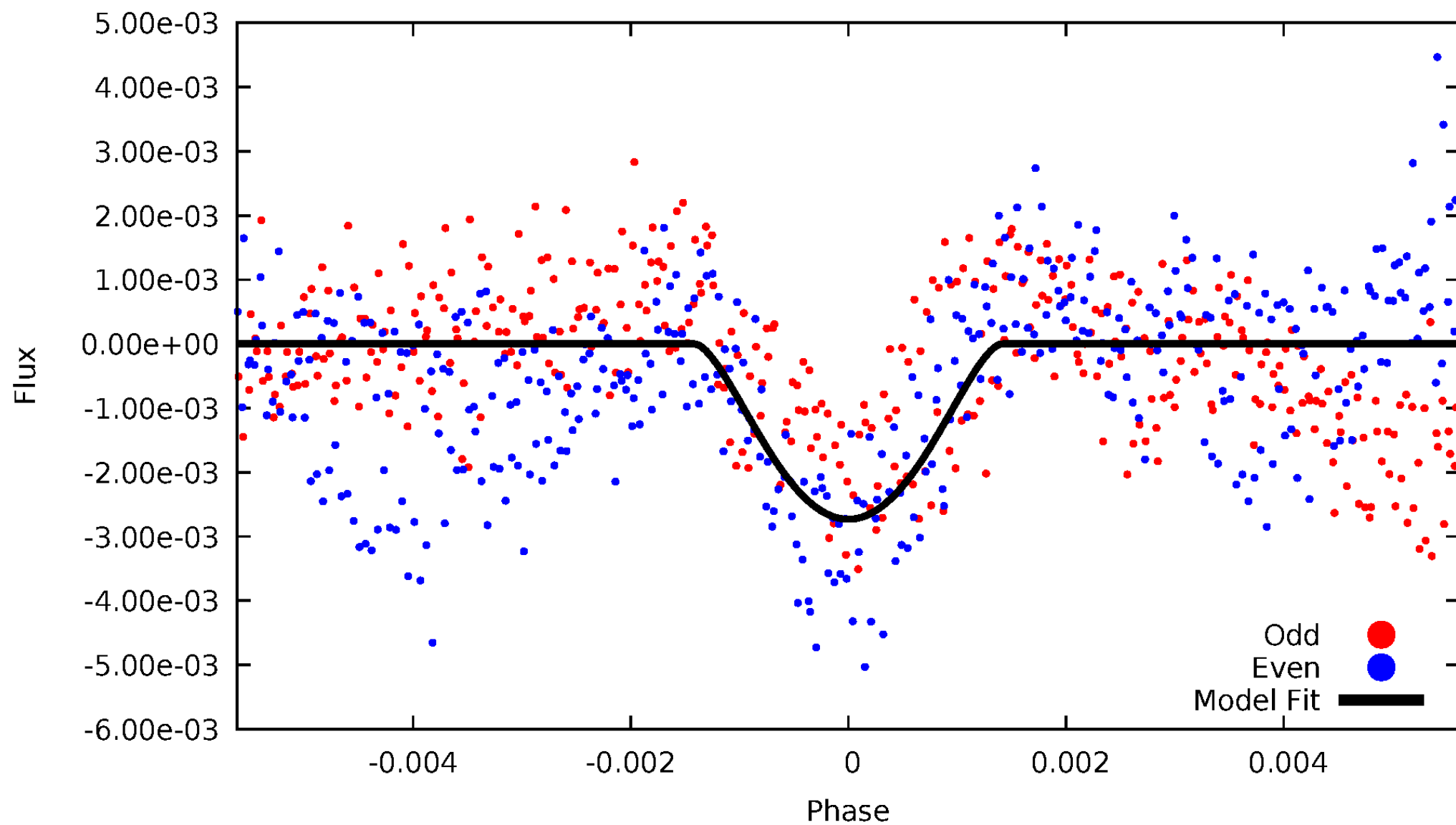


TCE 008439712-02



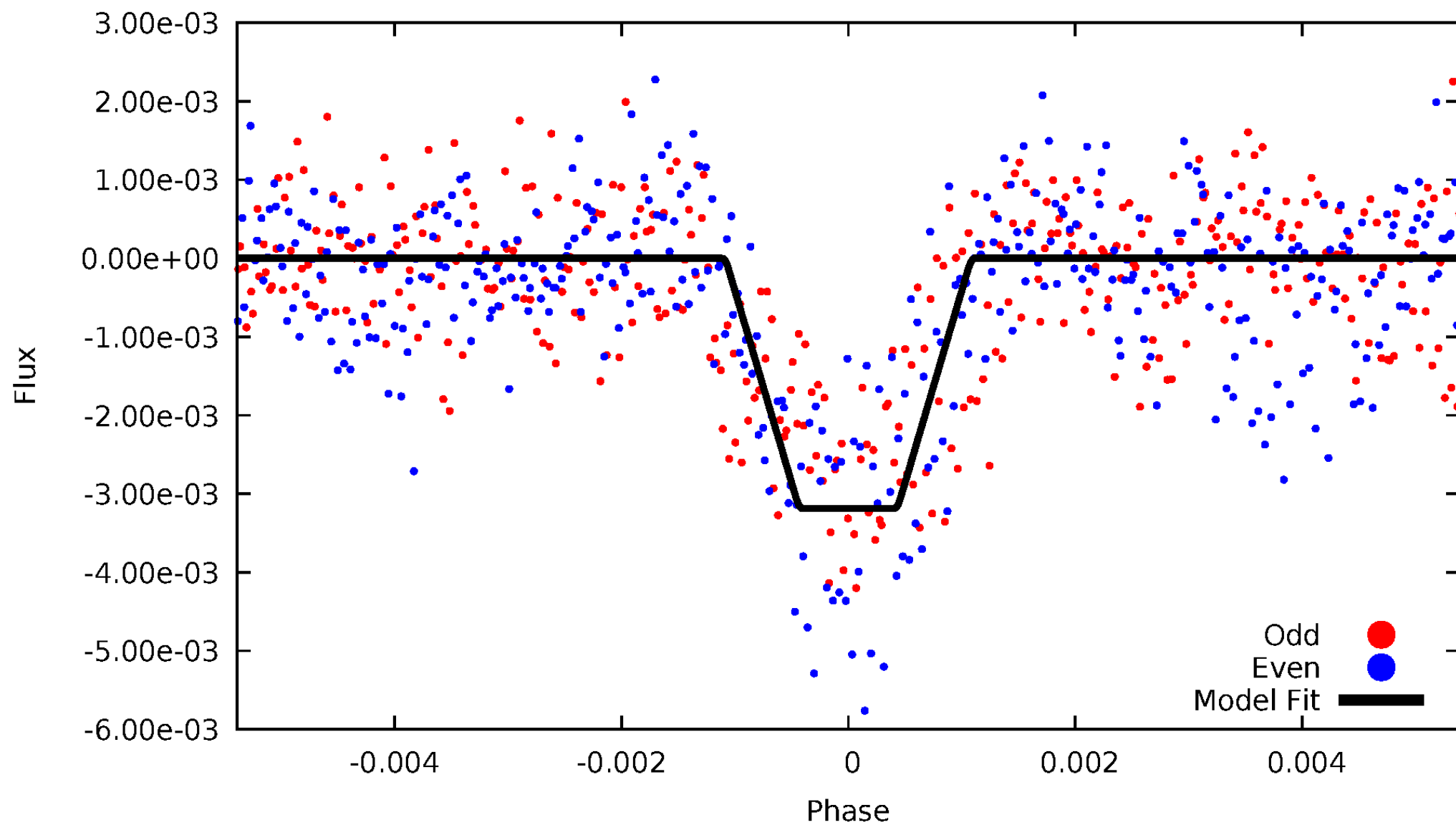
# DV Odd/Even

TCE 008439712-02



# ALT Odd/Even

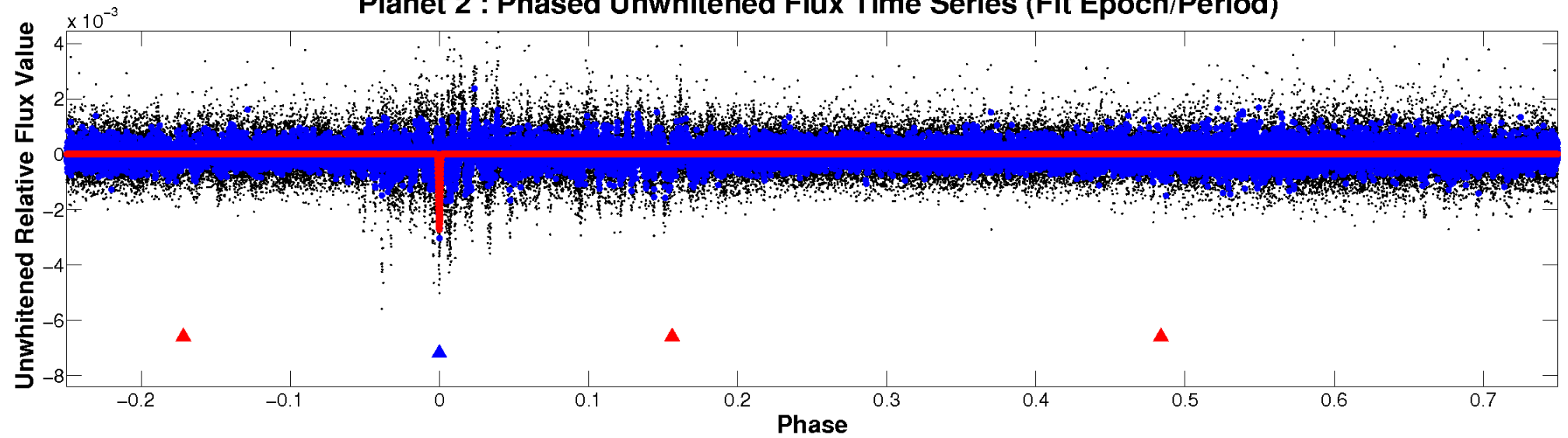
TCE 008439712-02



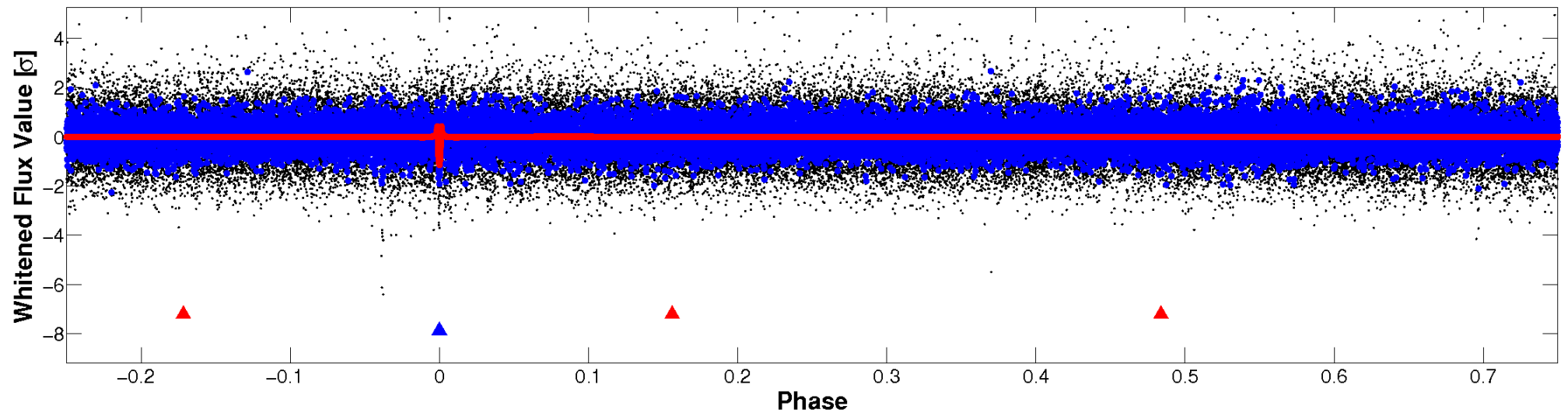


# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

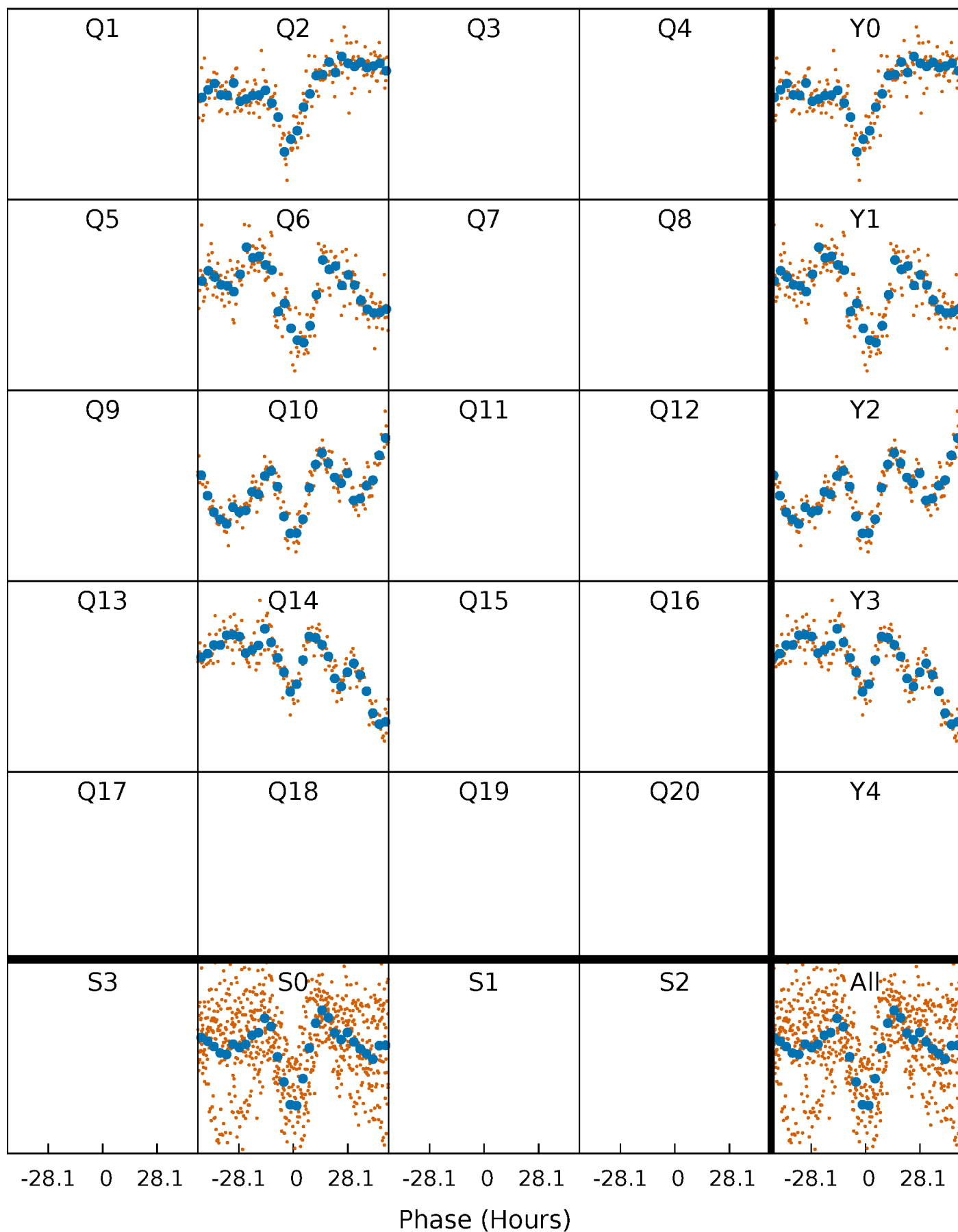


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

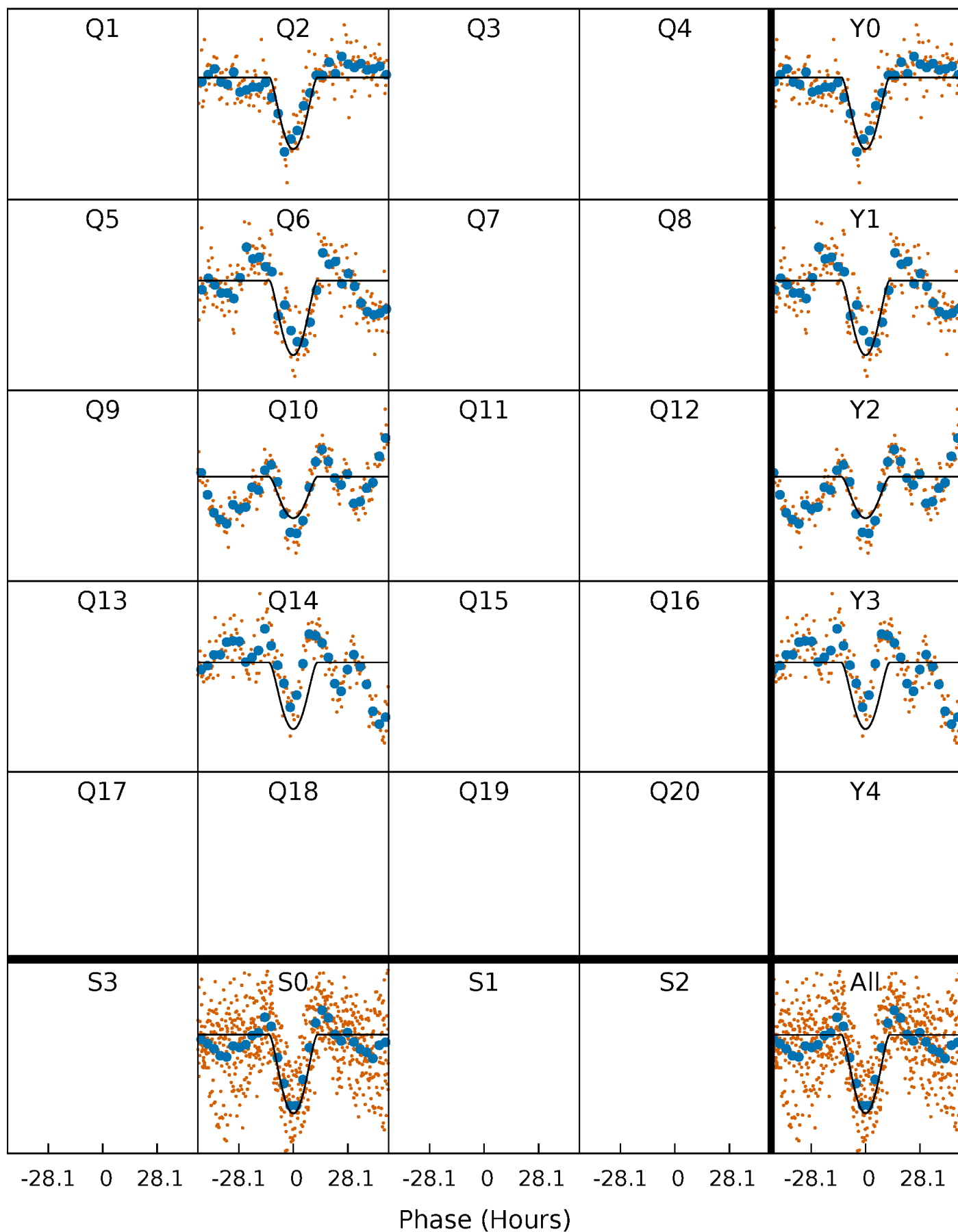
TCE 008439712-02     $P=365.104966$  Days     $T_0=190.904568$  (BKJD)





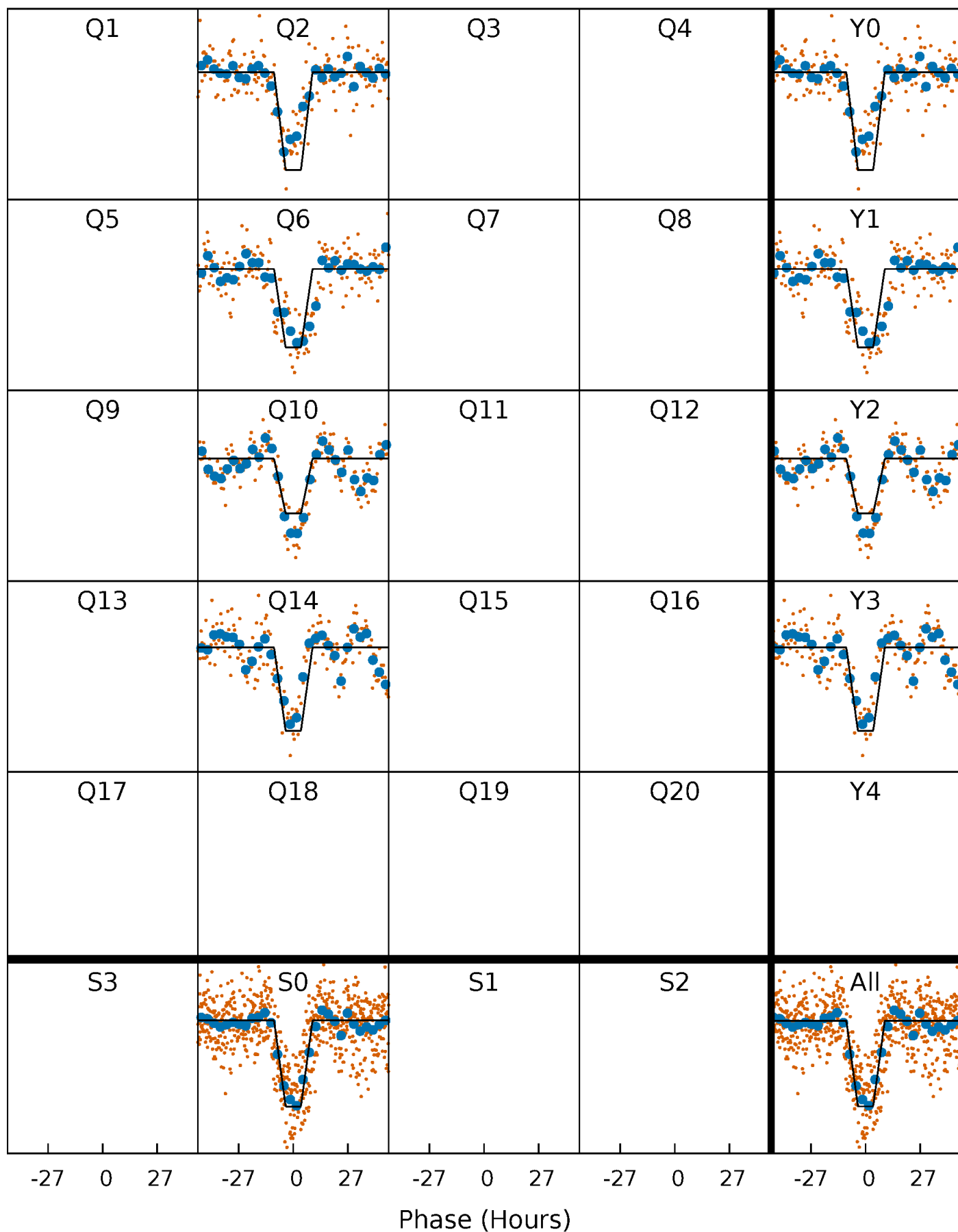
# DV Quarter-Phased Transit Curves

TCE 008439712-02 P=365.104966 Days  $T_0=190.904568$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

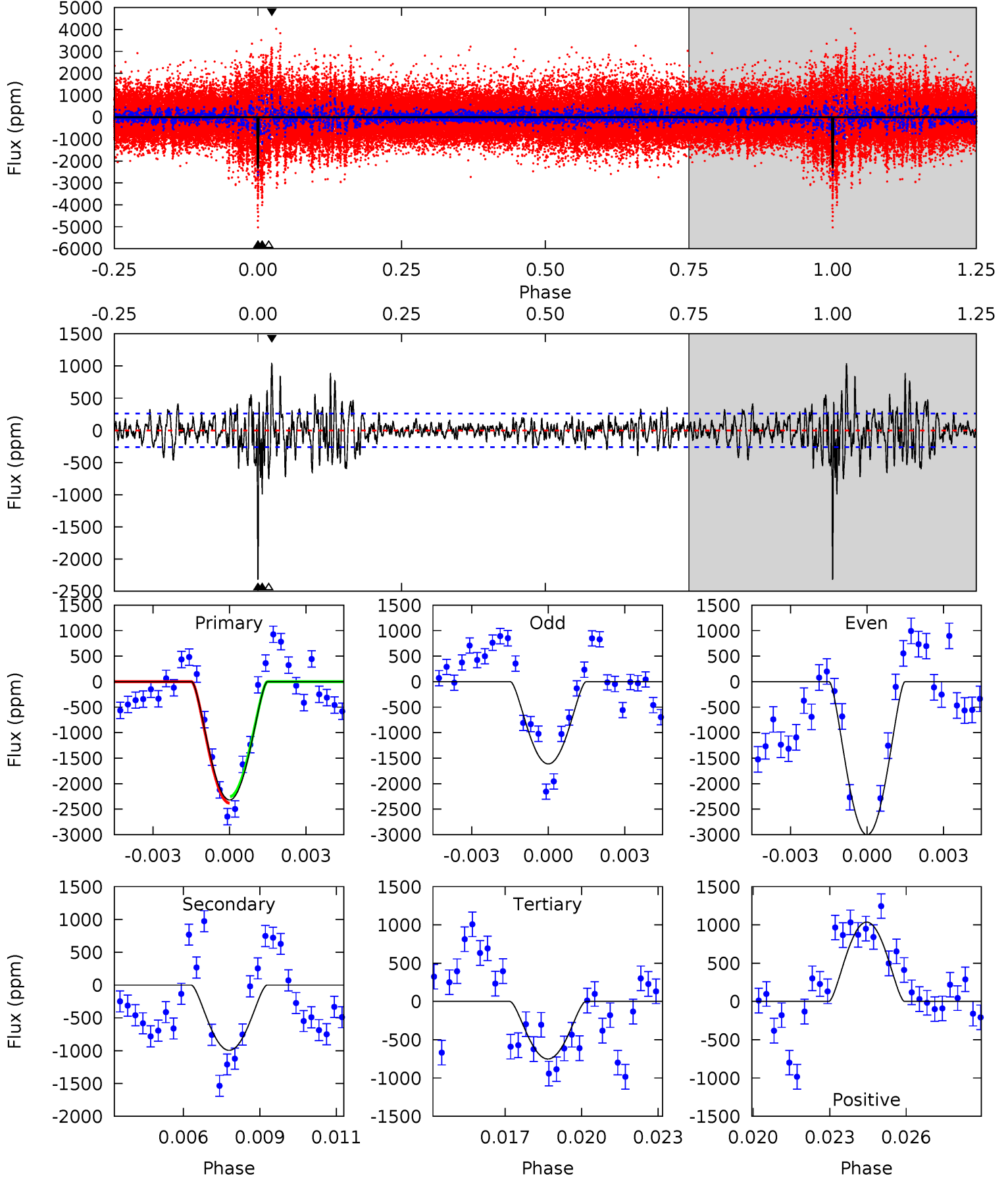
TCE 008439712-02     $P=365.100039$  Days     $T_0=190.917252$  (BKJD)



# DV Model-Shift Uniqueness Test

008439712-02,  $P = 365.104966$  Days,  $E = 190.904568$  Days

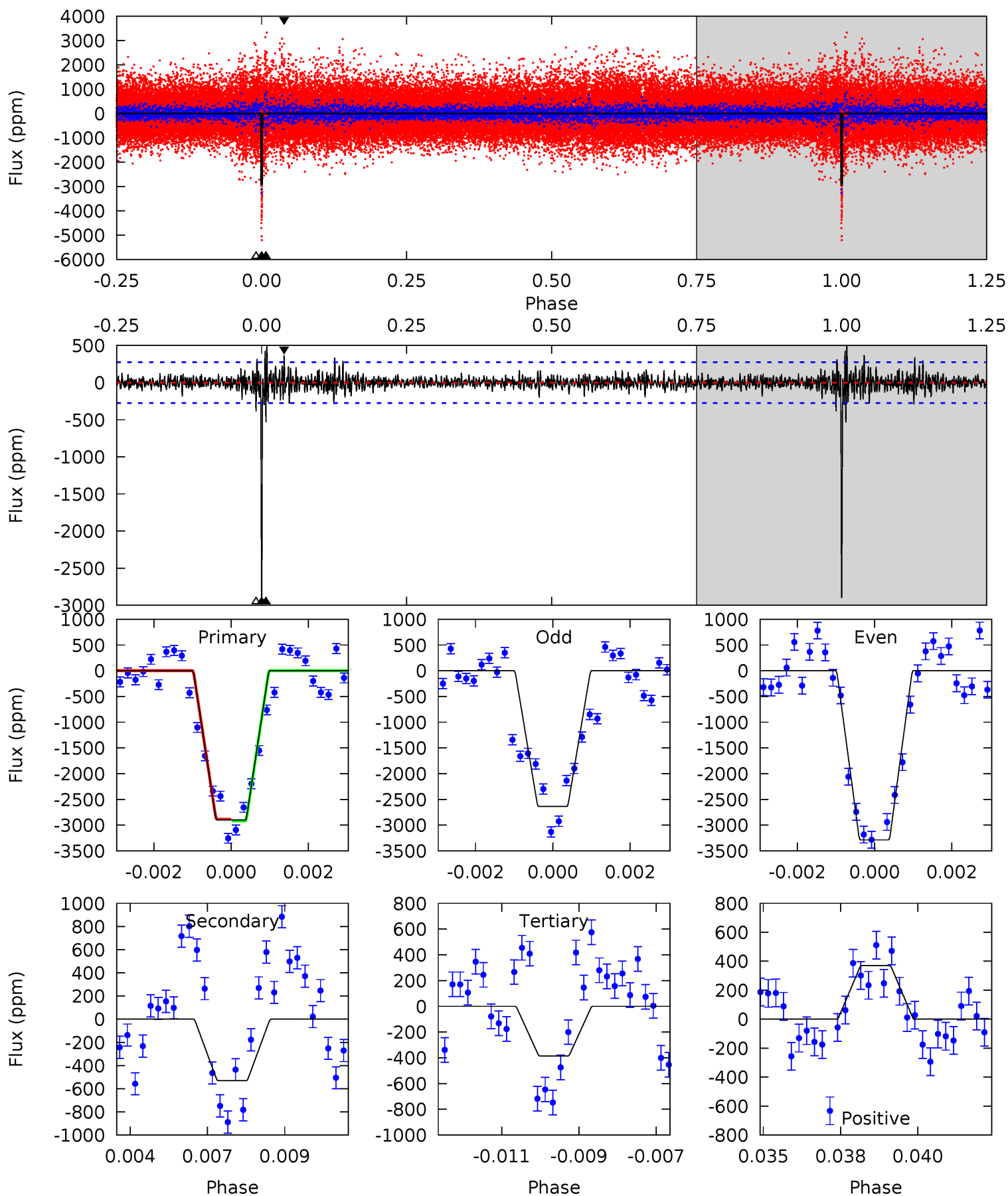
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.7	20.0	15.1	20.8	5.26	2.98	3.71	31.6	25.8	4.89	-0.84	13.9	0.98	0.31	1.26



# Alt Model-Shift Uniqueness Test

008439712-02,  $P = 365.100039$  Days,  $E = 190.917252$  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
56.0	10.2	7.44	7.13	5.31	3.06	1.26	48.5	48.8	2.79	3.11	6.32	1.12	0.15	0.32



### Stellar Parameters For KIC 008439712

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5595^{+167}_{-167}$	$4.581^{+0.036}_{-0.153}$	$-0.240^{+0.300}_{-0.300}$	$0.796^{+0.185}_{-0.062}$	$0.890^{+0.090}_{-0.100}$	$2.487^{+0.477}_{-1.013}$
	+3%/-3%	+1%/-3%	+125%/-125%	+23%/-8%	+10%/-11%	+19%/-41%
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 008439712-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-995 \pm 50$	$13.37^{+10.87}_{-9.30}$	$319^{+18}_{-12}$	$3173^{+1609}_{-485}$	$2741^{+27354}_{-1917}$
Alt.	$-531 \pm 52$	$11.35^{+10.65}_{-7.89}$	$321^{+17}_{-15}$	$3036^{+1341}_{-482}$	$2065^{+18232}_{-1530}$

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

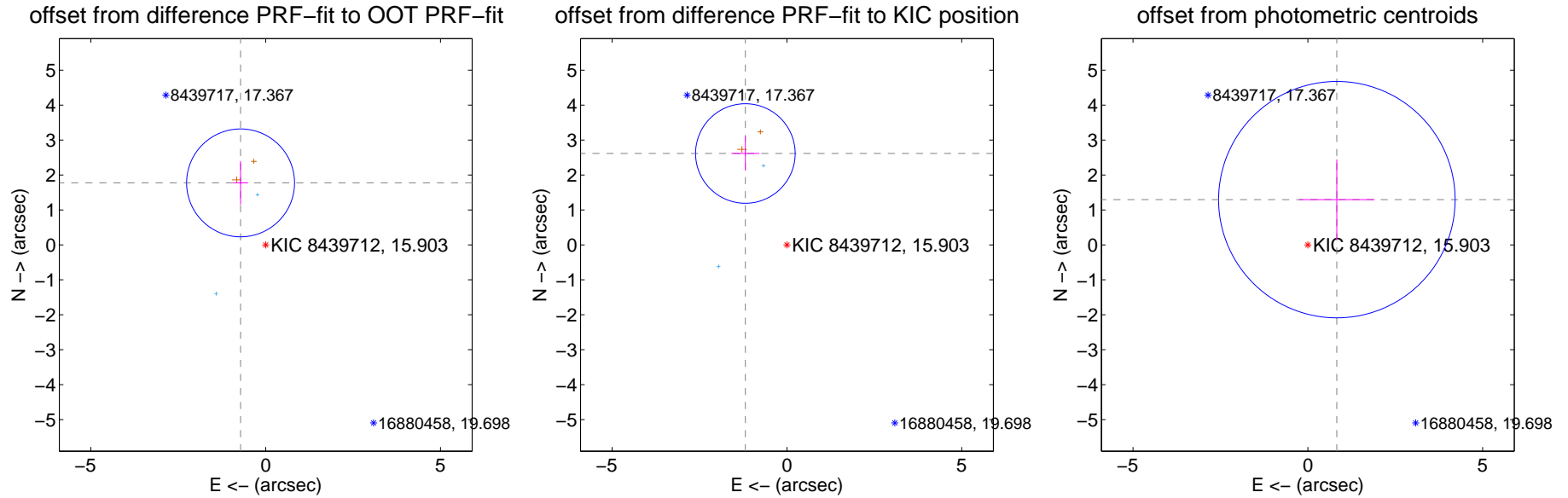
## DV Centroid Data

Supplemental centroid analysis for 008439712-02. Kepler magnitude: 15.90. Transit SNR 9.93

There are 2 quarters with good PRF difference image offsets

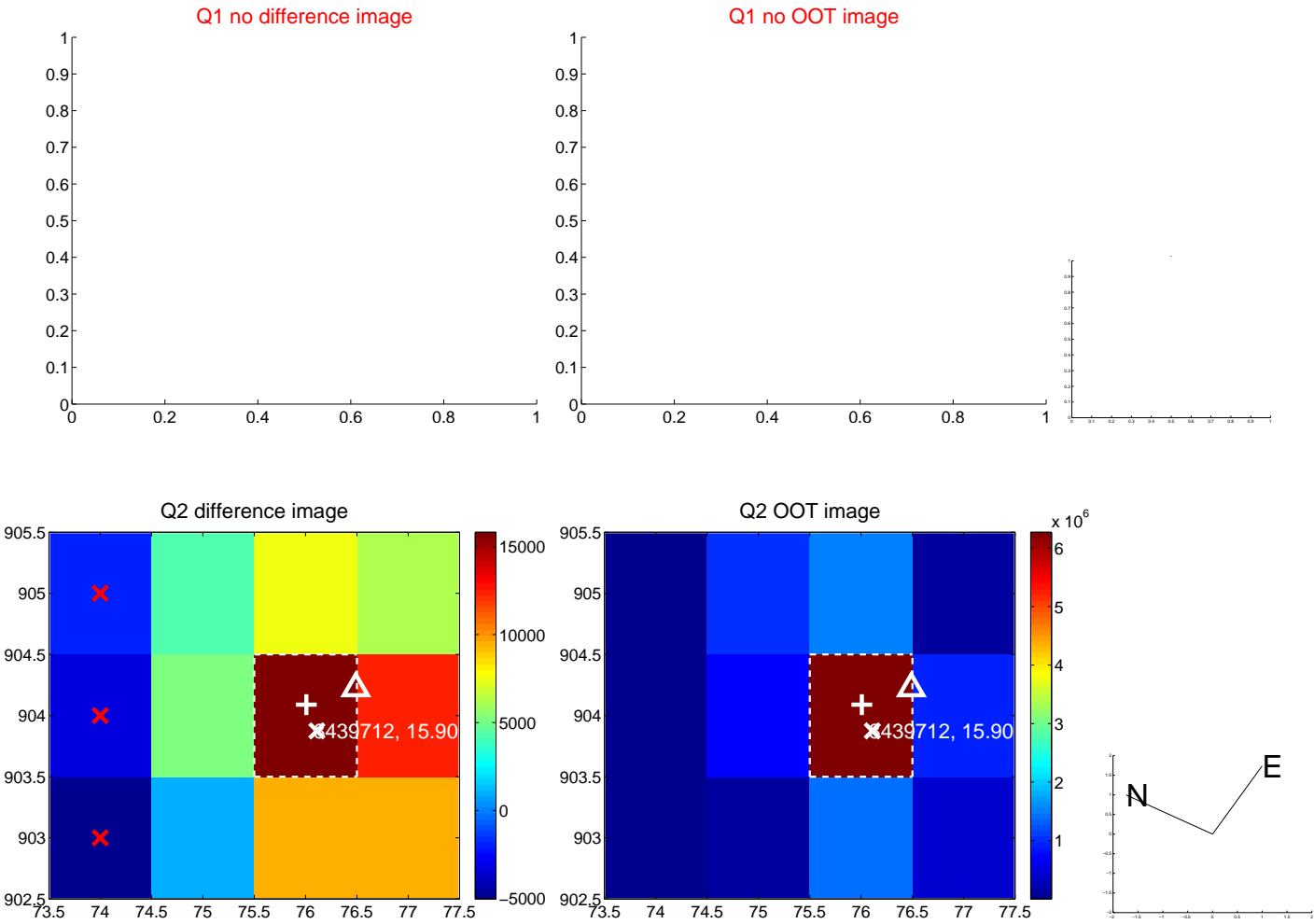
The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	1.914 $\pm$ 0.514	3.72	0.718 $\pm$ 0.216	1.774 $\pm$ 0.624
PRF-fit source offset from KIC position	2.872 $\pm$ 0.475	6.05	1.188 $\pm$ 0.403	2.615 $\pm$ 0.488
photometric centroid source offset	1.54 $\pm$ 1.13	1.36	-0.83 $\pm$ 1.08	1.29 $\pm$ 1.15



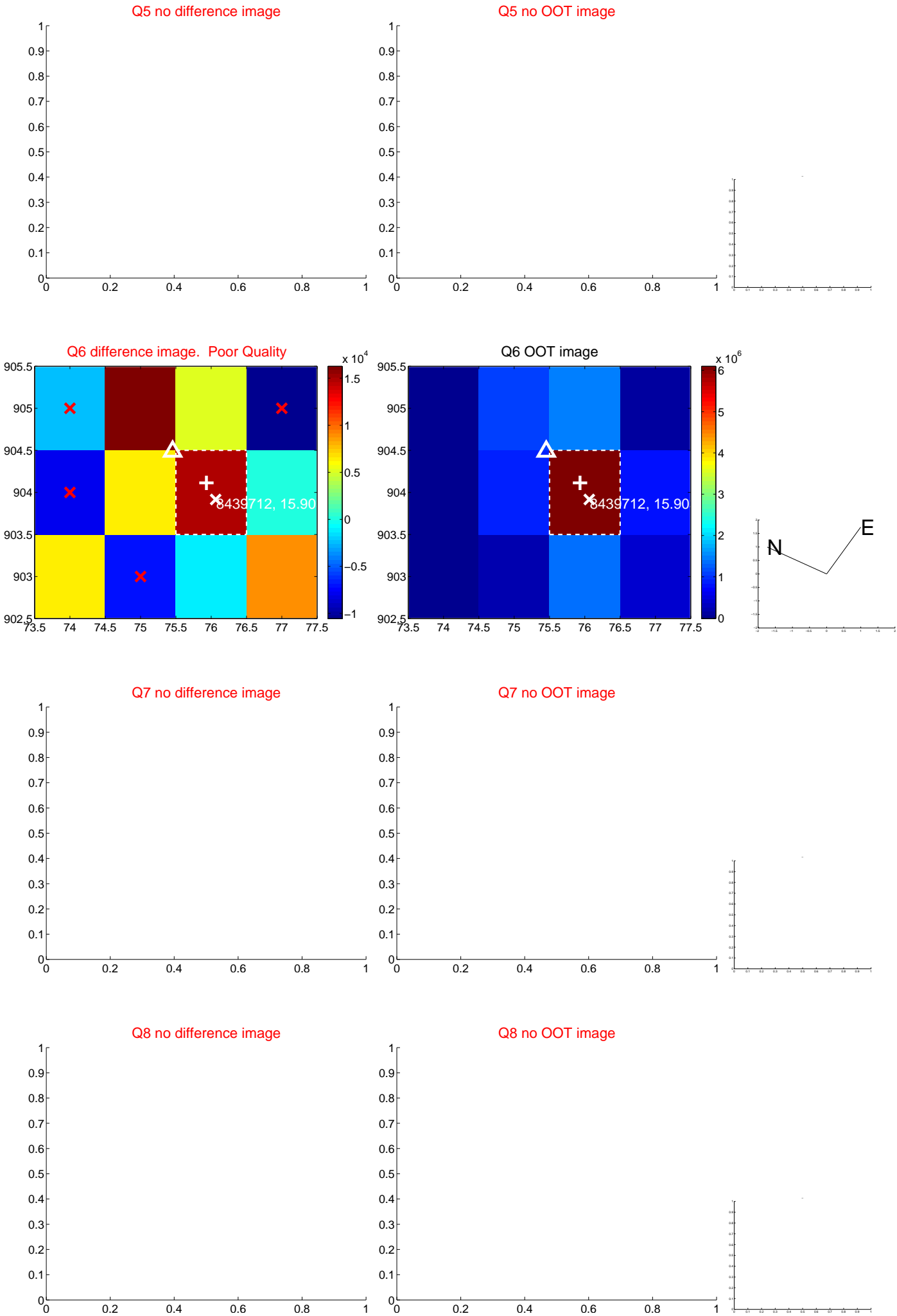
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

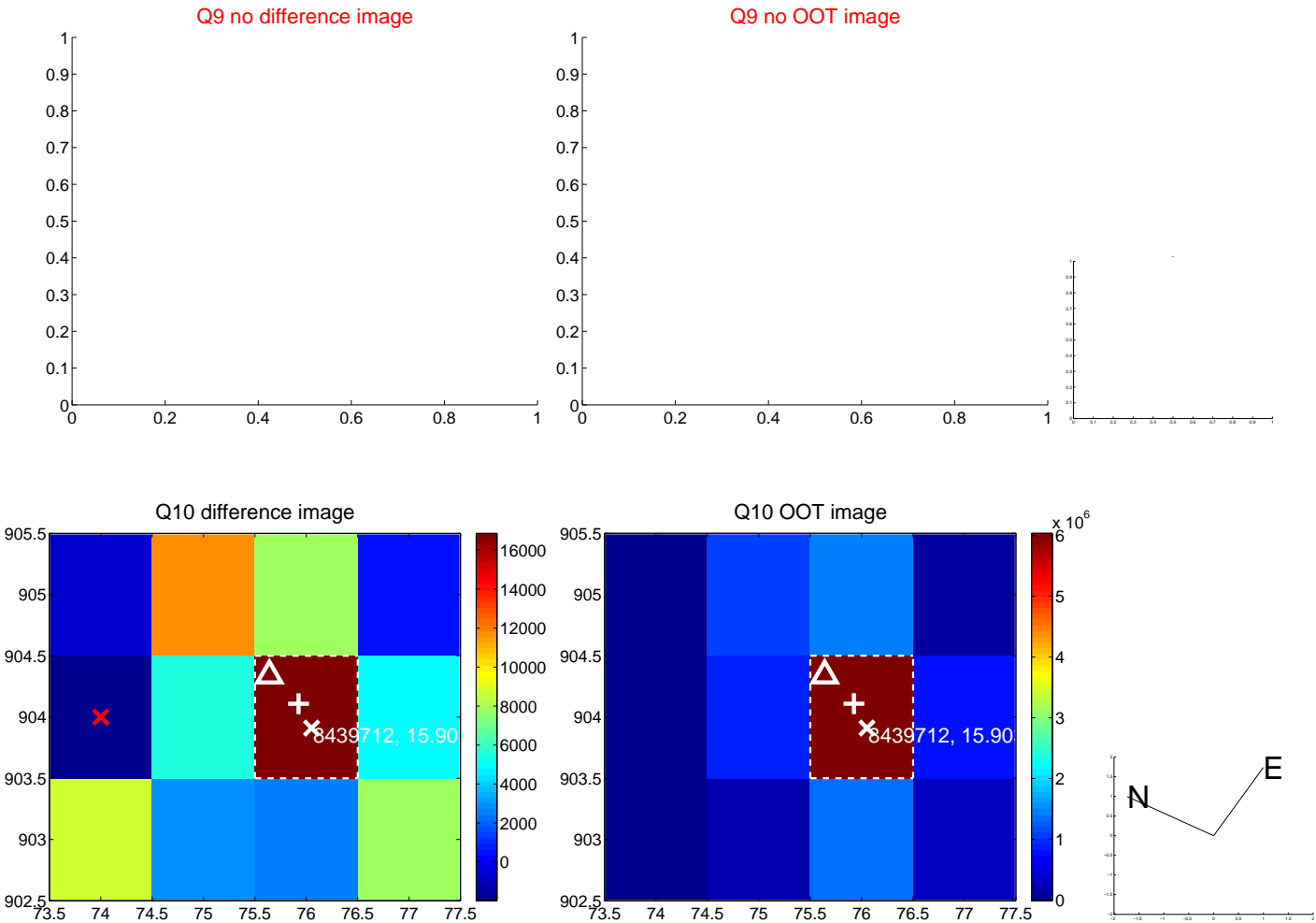




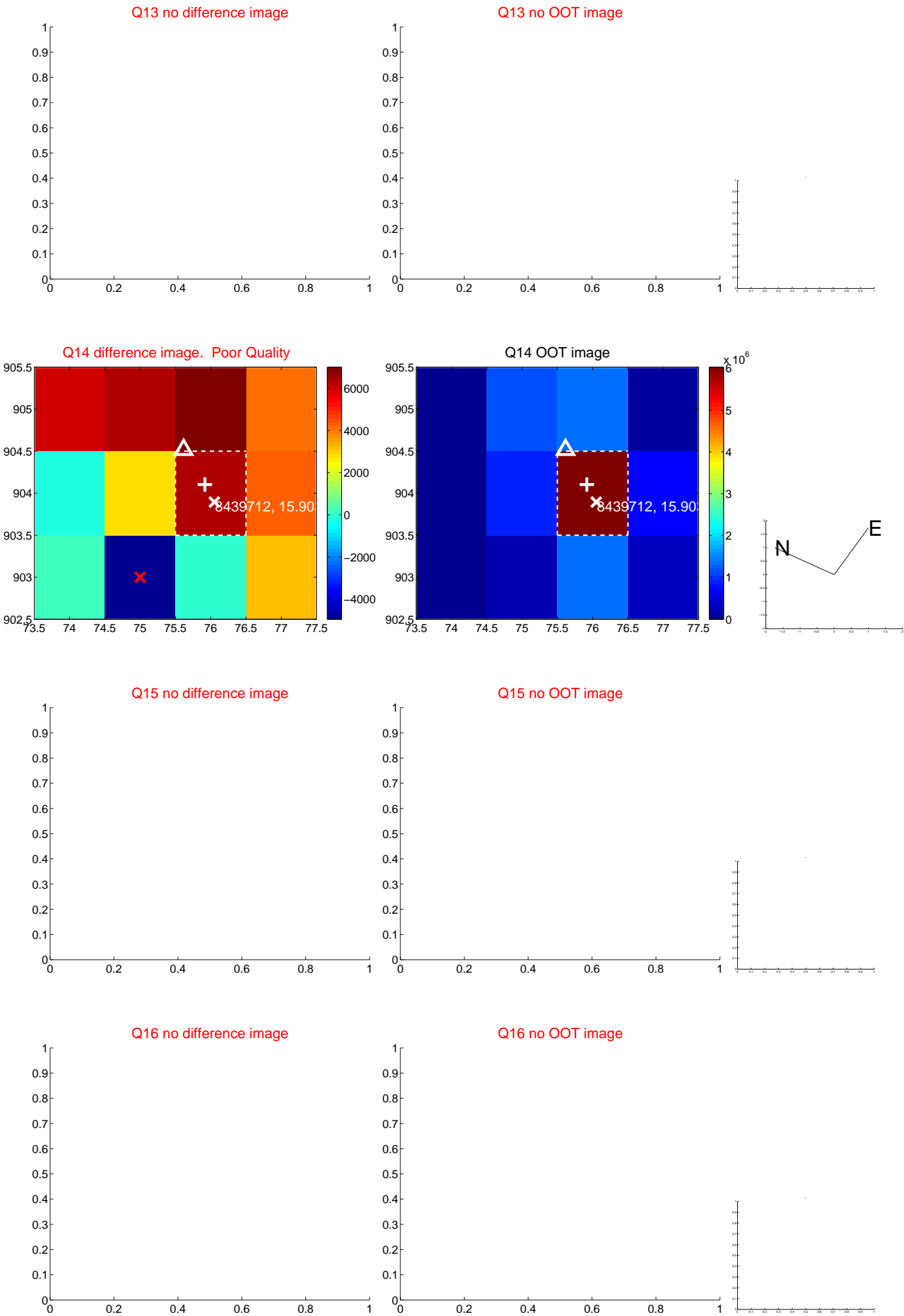
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



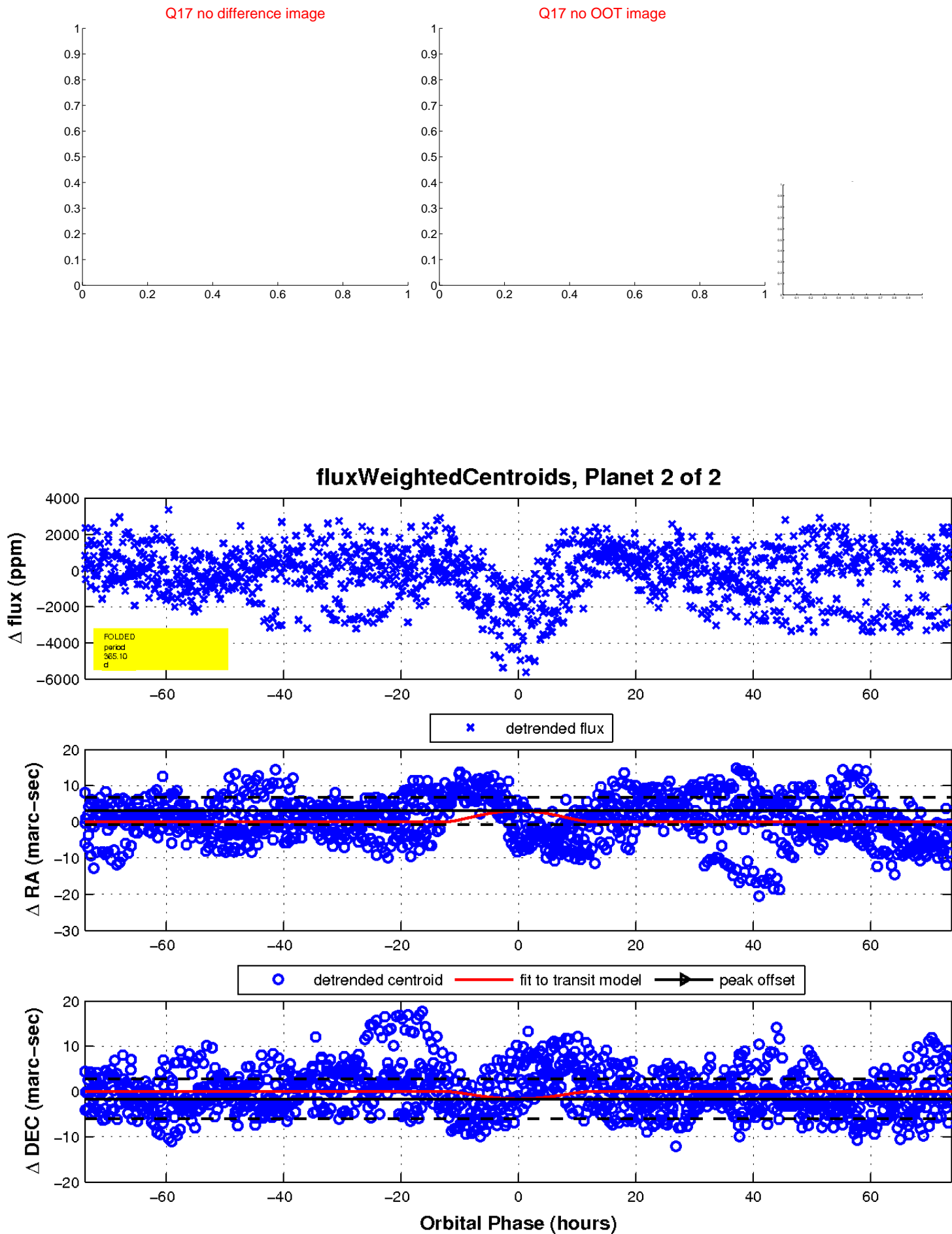
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

