

# KIC 009705079

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009705079-01	OBS	No	385.258172	397.426646	911.7	12.189	12.7	8.3	0.23	3282	0.75	0.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009705079-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

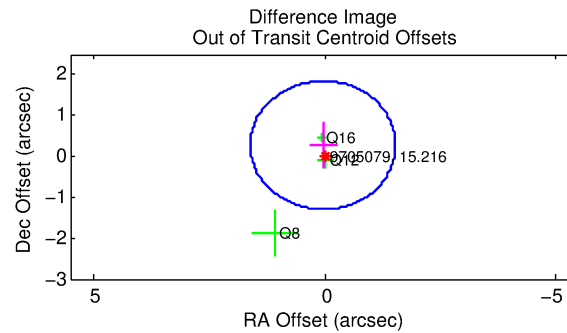
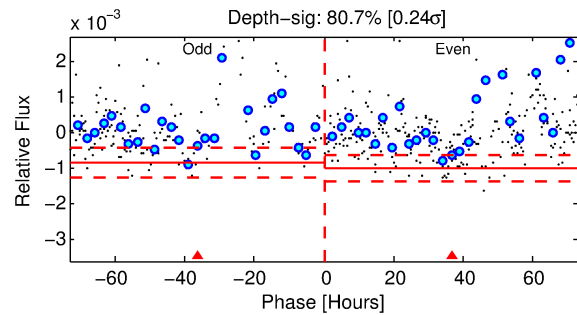
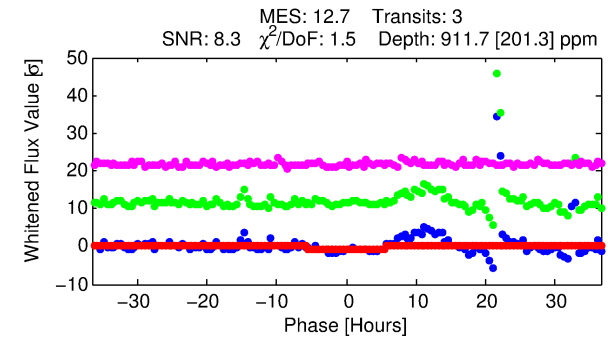
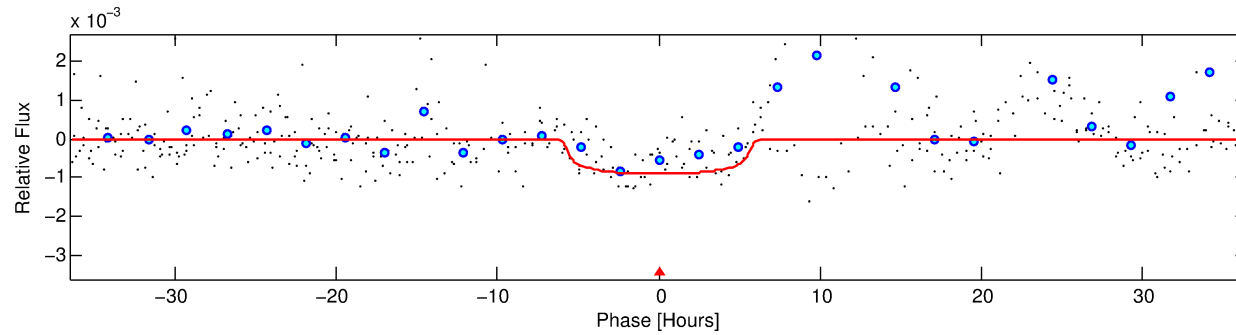
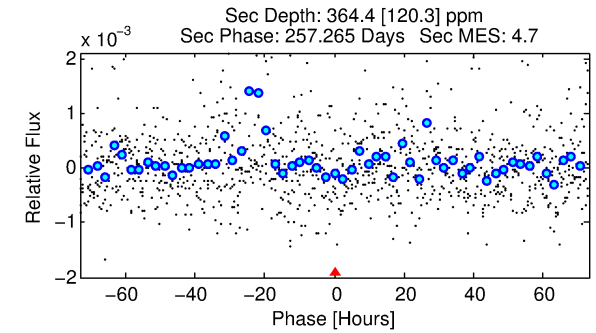
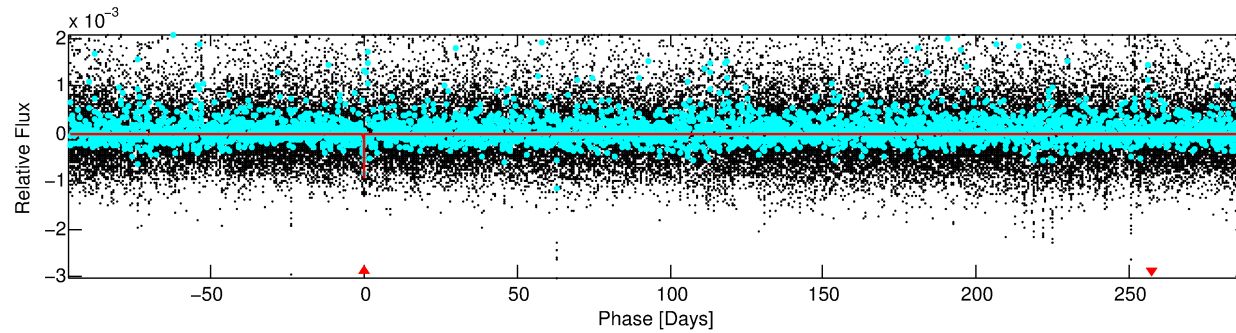
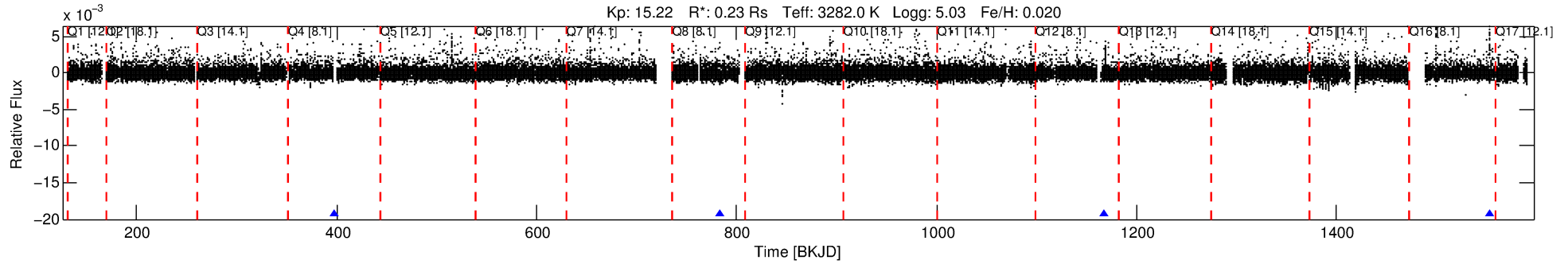
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009705079-01

No Significant Match Found

# DV One-Page Summary

KIC: 9705079 Candidate: 1 of 1 Period: 385.258 d



## DV Fit Results:

Period = 385.25817 [0.02258] d  
Epoch = 397.4266 [0.0506] BKJD  
Rp/R\* = 0.0297 [0.0112]  
a/R\* = 176.65 [260.58]  
b = 0.72 [0.98]  
Seff = 0.01 [0.00]  
Teq = 89 [3] K  
Rp = 0.75 [0.30] Re  
a = 0.6160 [0.0656] AU  
Ag = 135728.90 [112699.34] [1.20 sigma]  
Teffp = 2631 [541] K [4.70 sigma]

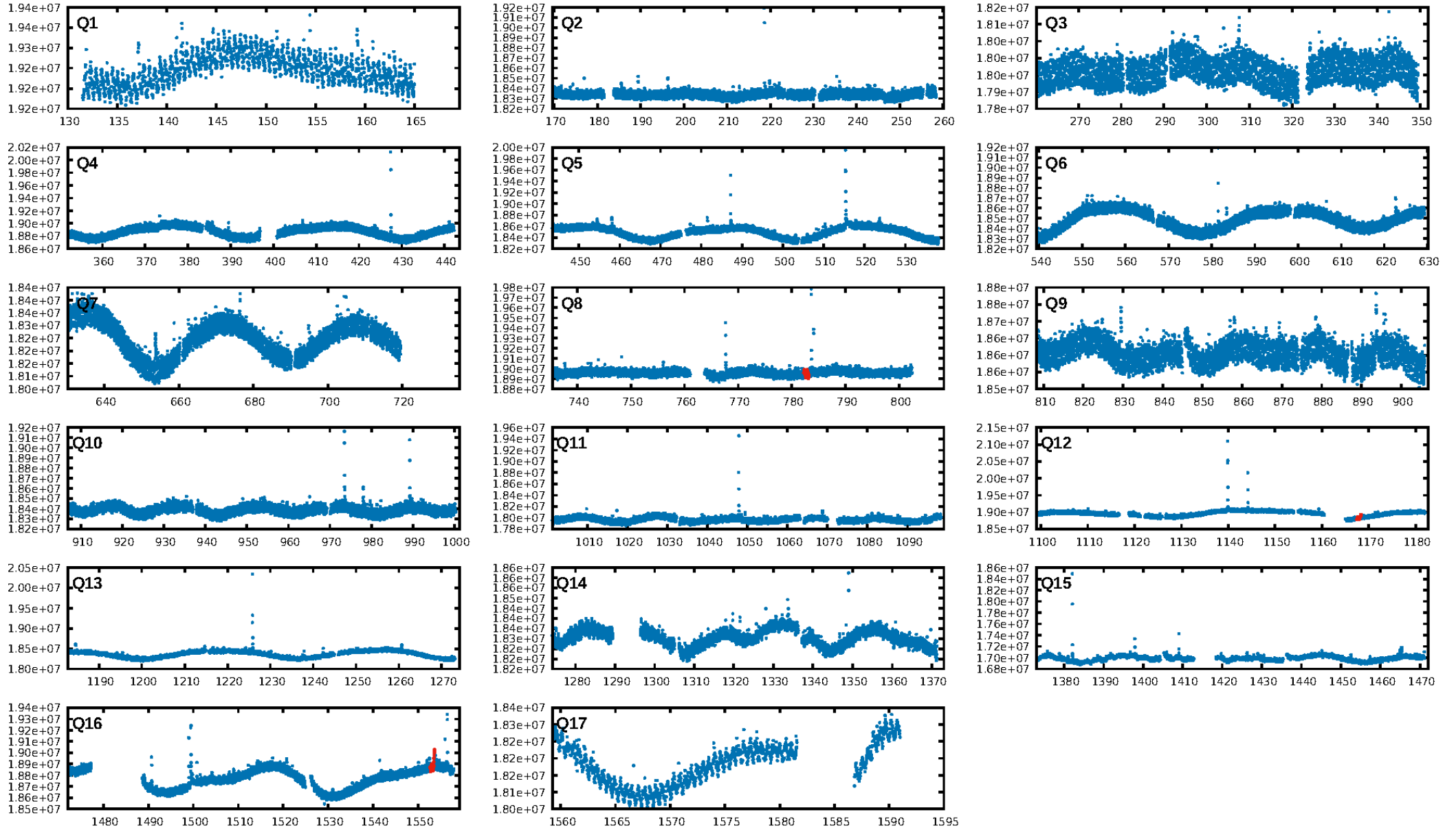
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 18.9%  
ModelChiSquareGoF-sig: 99.8%  
Bootstrap-pfa: 6.37e-17  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -7.756  
Centroid-sig: 48.8%  
Centroid-so: 1.230 arcsec [1.45 sigma]  
OotOffset-rm: 0.277 arcsec [0.53 sigma]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-rm: 0.320 arcsec [0.60 sigma]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

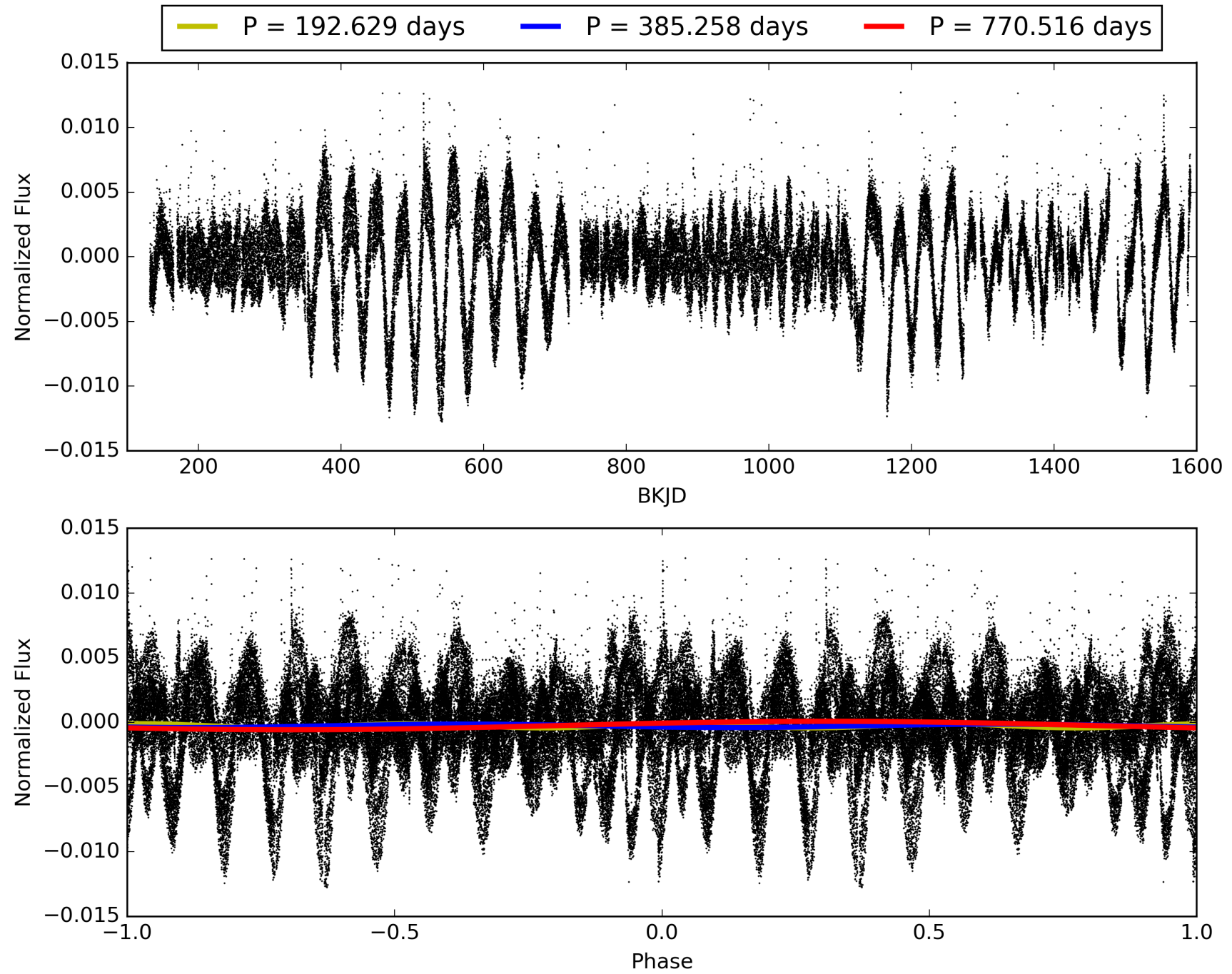
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:42:44 Z

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

# TCE 009705079-01, PDC Light Curves

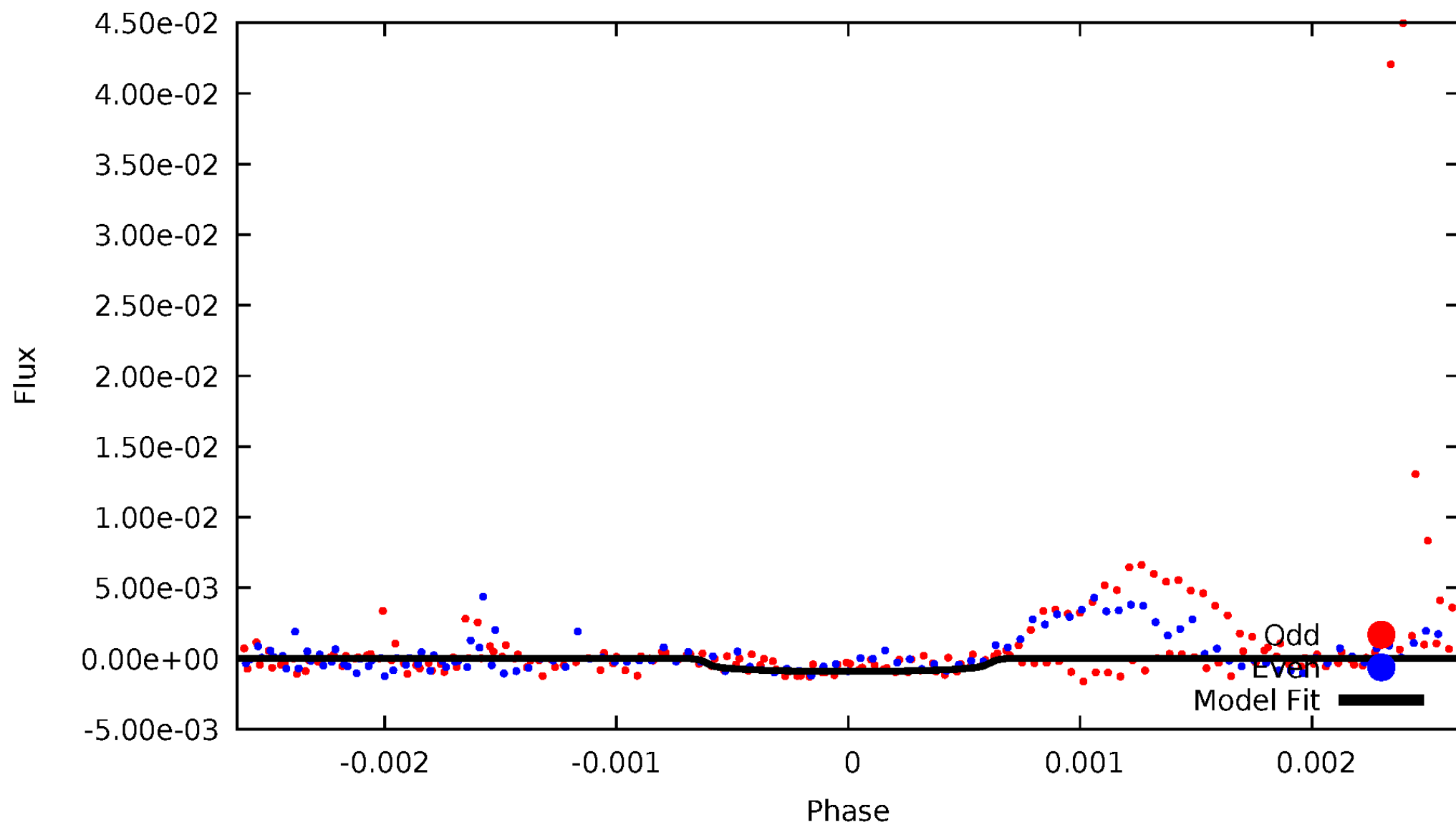


TCE 009705079-01



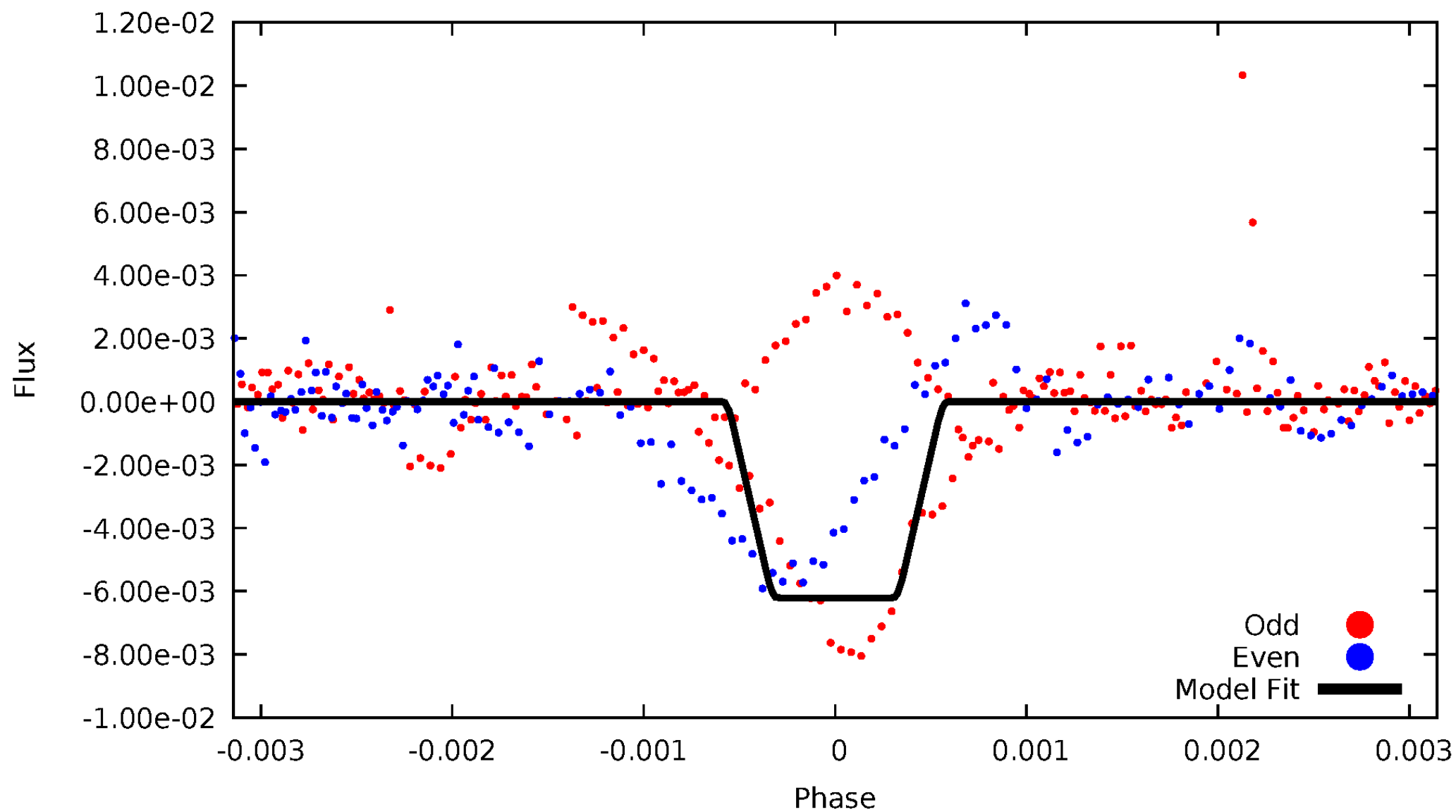
# DV Odd/Even

TCE 009705079-01



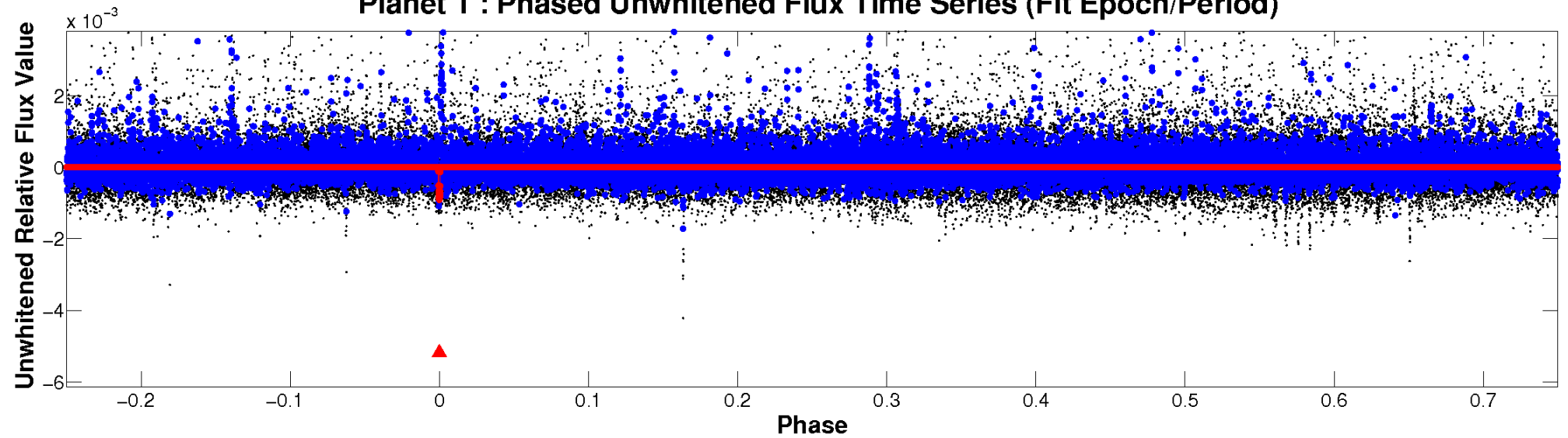
# ALT Odd/Even

TCE 009705079-01

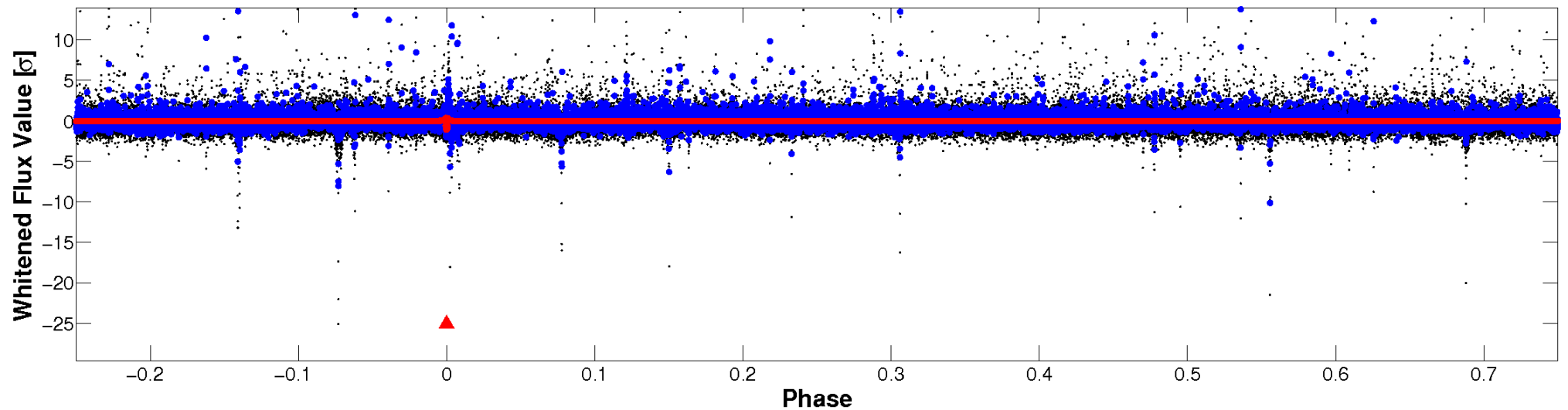


# Non-Whitened Vs. Whitened Light Curve

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

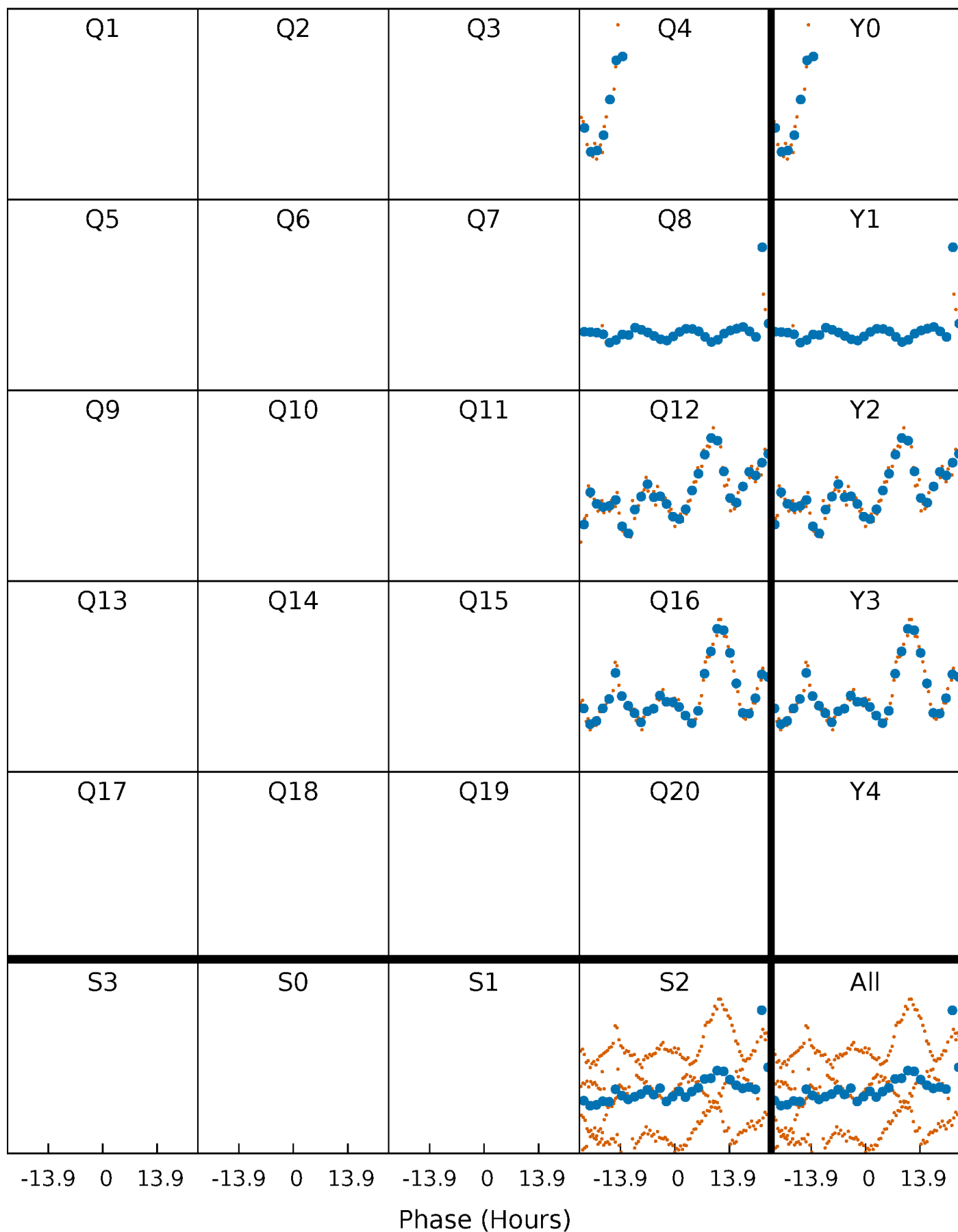


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

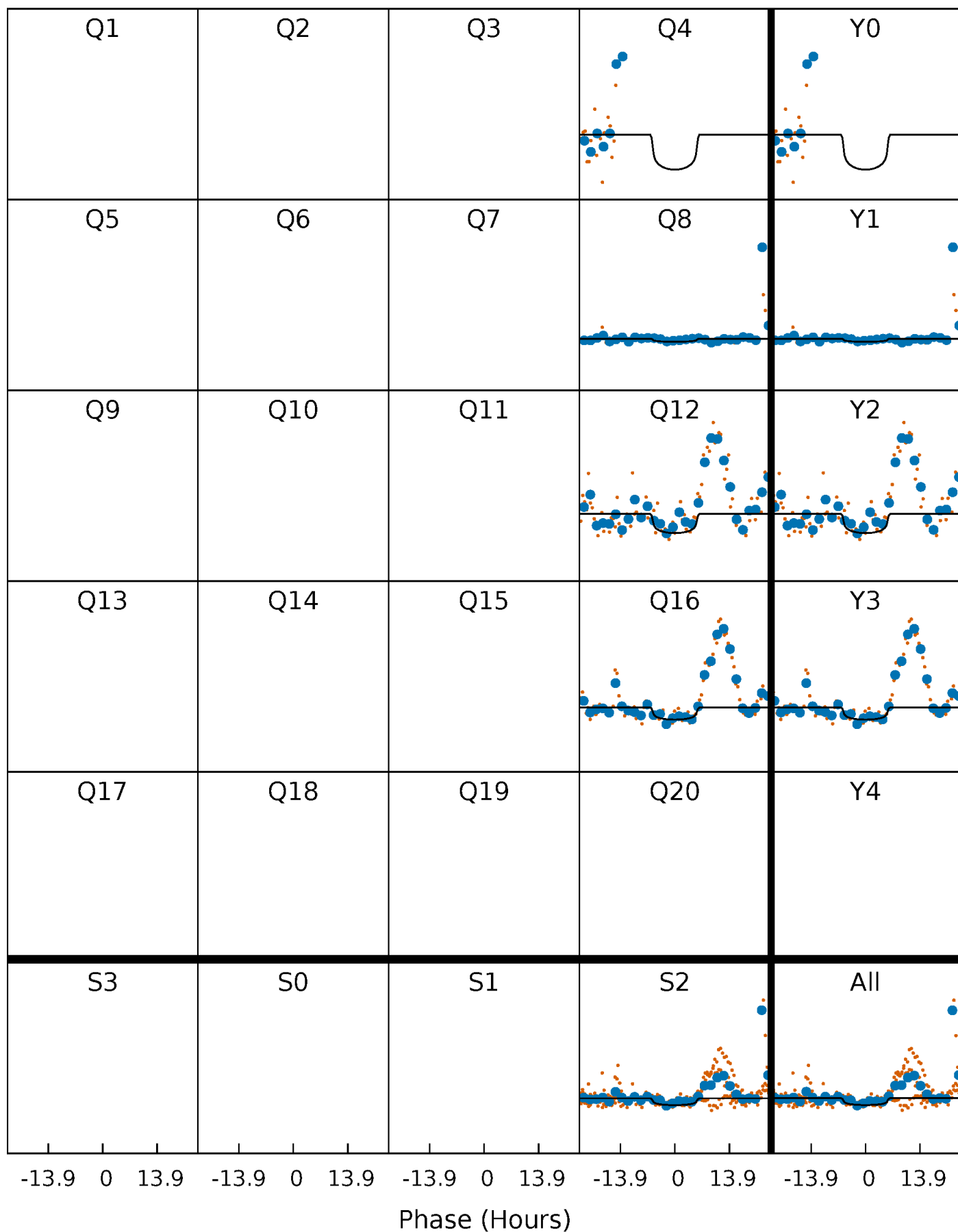
TCE 009705079-01 P=385.258172 Days  $T_0=397.426647$  (BKJD)





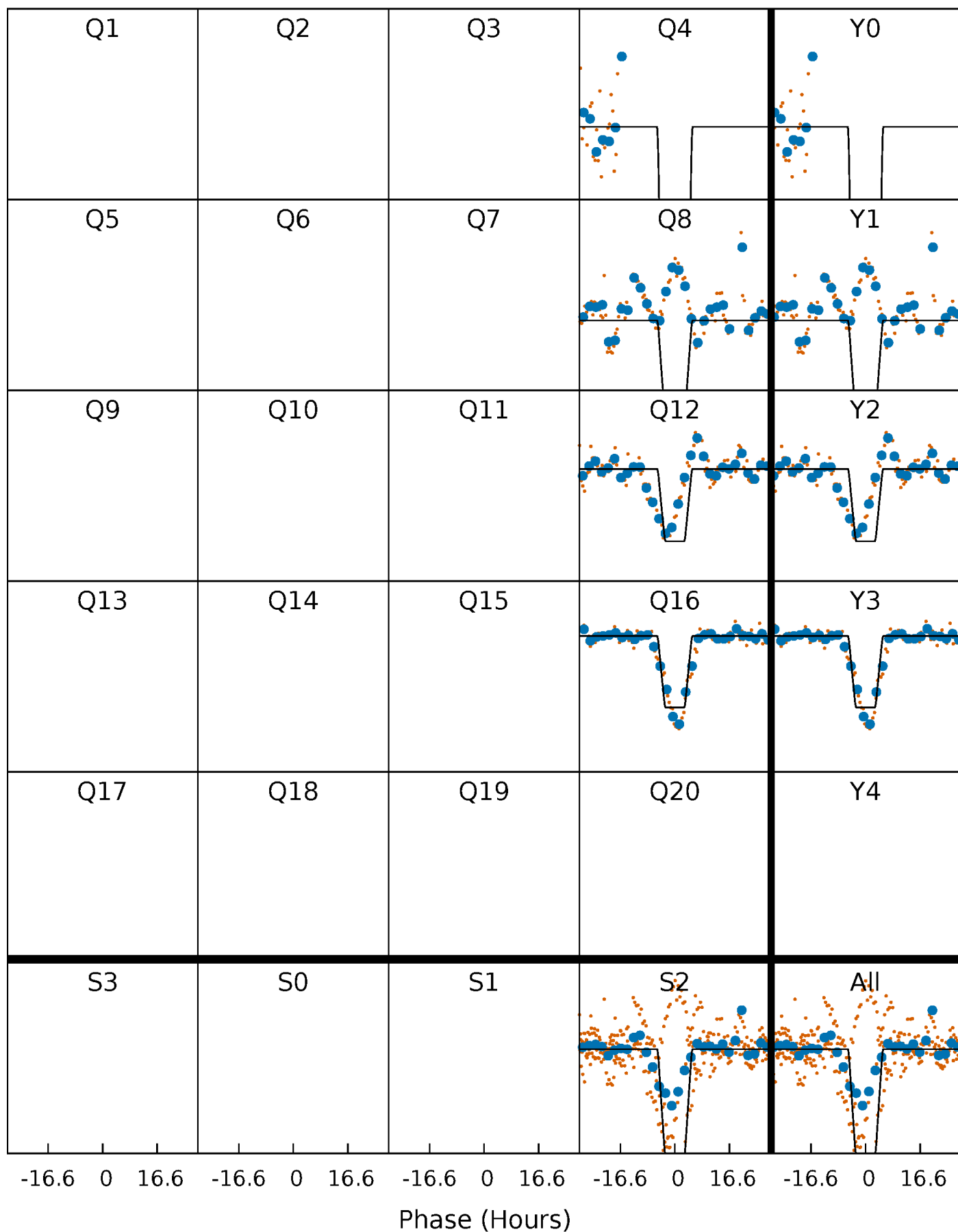
# DV Quarter-Phased Transit Curves

TCE 009705079-01 P=385.258172 Days  $T_0=397.426647$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

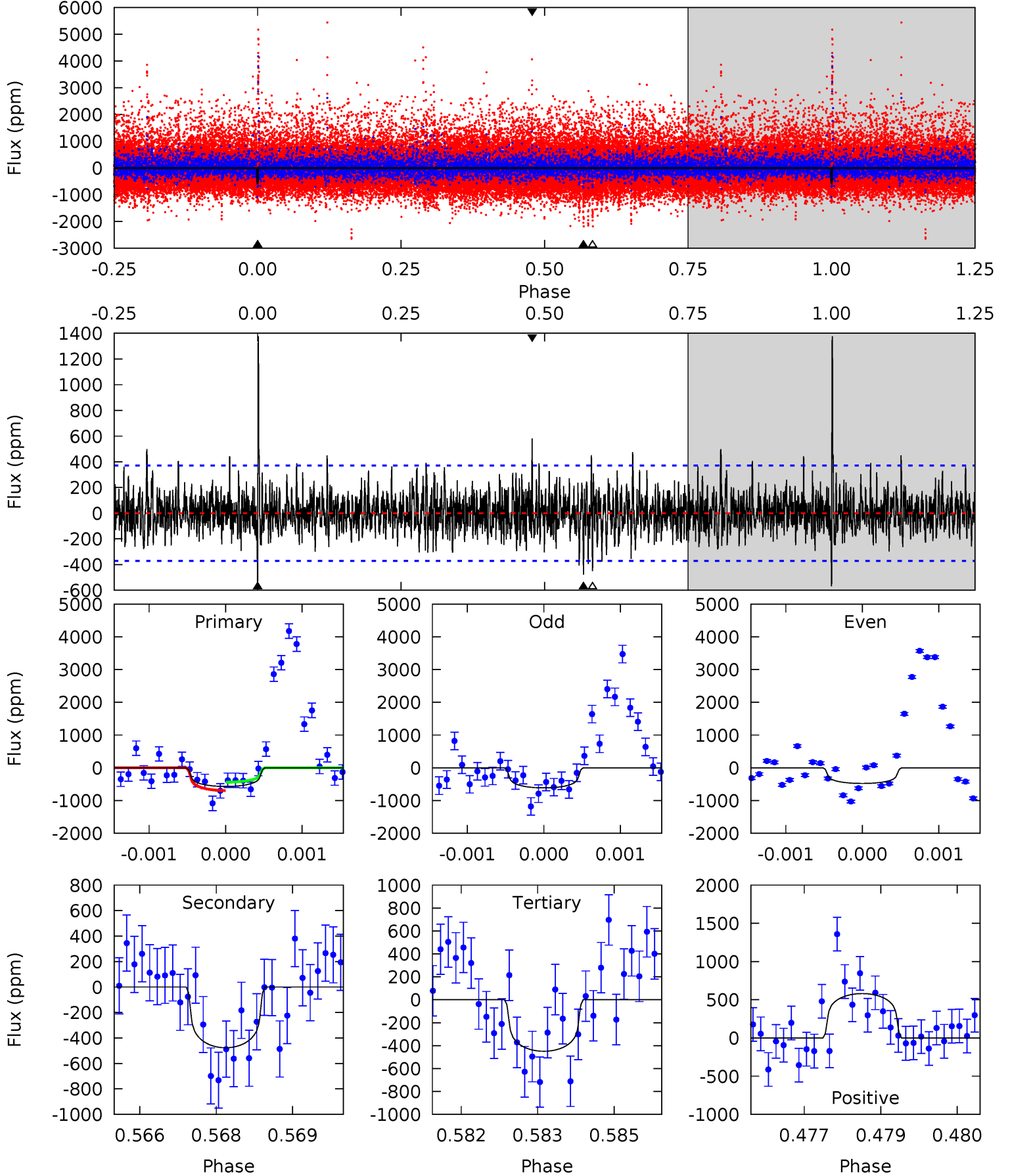
TCE 009705079-01 P=385.281585 Days  $T_0=397.525794$  (BKJD)



# DV Model-Shift Uniqueness Test

009705079-01, P = 385.258172 Days, E = 12.168475 Days

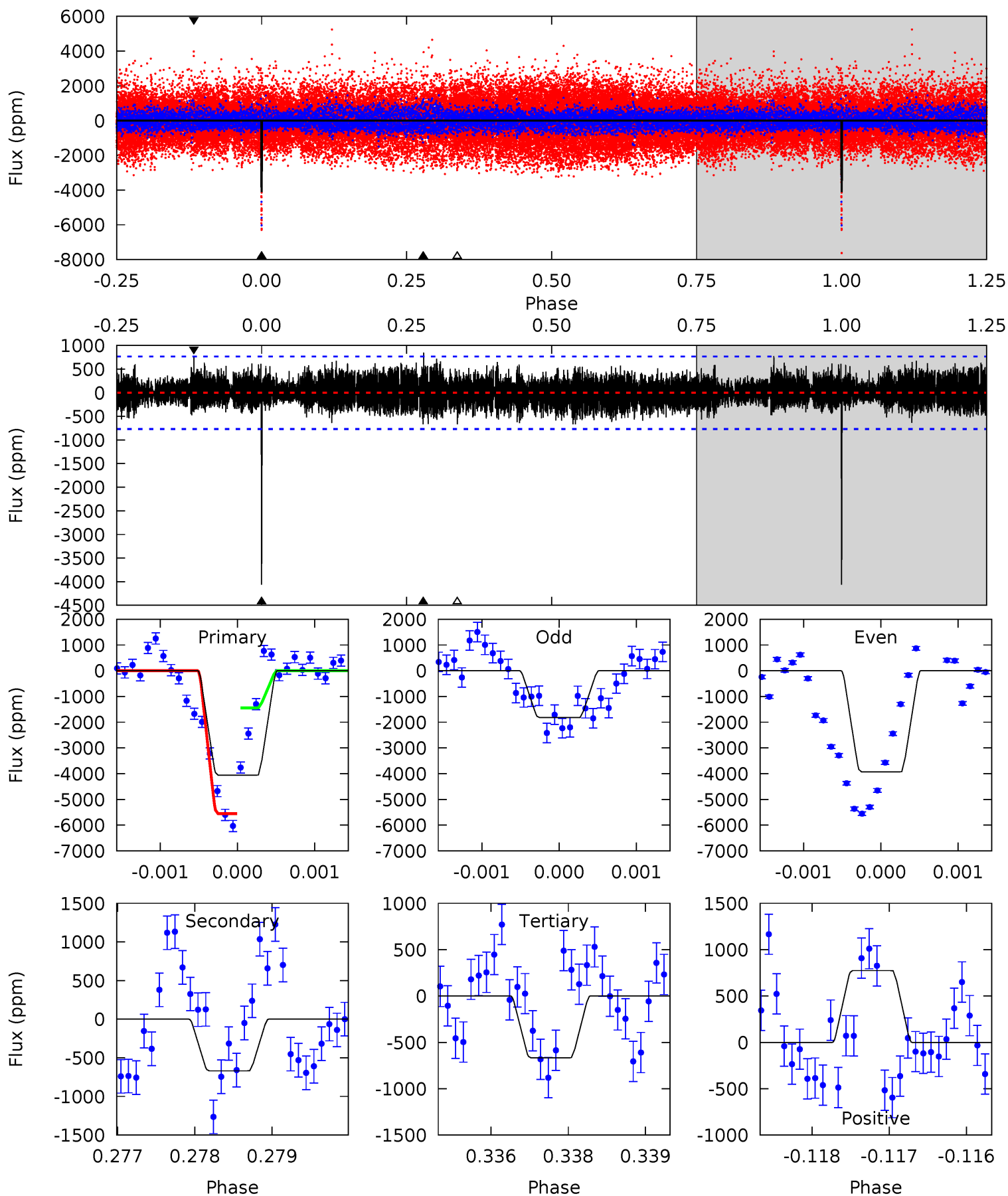
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.29	6.94	6.54	8.45	5.40	3.21	1.81	1.75	-0.17	0.40	-1.52	0.84	1.19	0.71	1.88



# Alt Model-Shift Uniqueness Test

009705079-01,  $P = 385.281585$  Days,  $E = 12.244209$  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
28.7	4.73	4.72	5.48	5.43	3.25	1.71	24.0	23.2	0.01	-0.75	9.08	0.64	0.17	14.0



### Stellar Parameters For KIC 009705079

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3282^{+44}_{-34}$	$5.033^{+0.044}_{-0.040}$	$0.020^{+0.100}_{-0.100}$	$0.231^{+0.035}_{-0.025}$	$0.209^{+0.041}_{-0.027}$	$24.040^{+6.266}_{-4.977}$
	+1%/-1%	+1%/-1%	+500%/-500%	+15%/-11%	+20%/-13%	+26%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009705079-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-477 \pm 69$	$0.76^{+0.30}_{-0.30}$	$124^{+3}_{-3}$	$2998^{+473}_{-268}$	$176226^{+295565}_{-90076}$
Alt.	$-669 \pm 141$	$1.98^{+0.33}_{-0.32}$	$124^{+3}_{-3}$	$2433^{+118}_{-95}$	$35568^{+16459}_{-10273}$

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

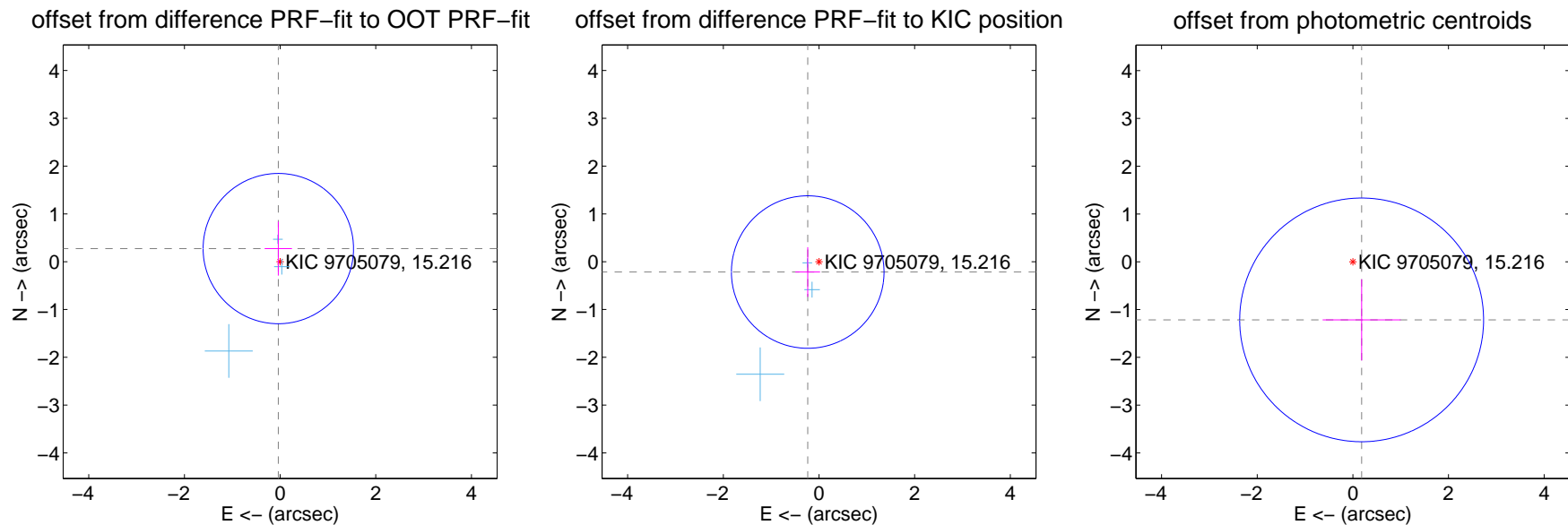
## DV Centroid Data

Supplemental centroid analysis for 009705079-01. Kepler magnitude: 15.22. Transit SNR 8.27

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.277 \pm 0.524$	0.53	$0.037 \pm 0.285$	$0.274 \pm 0.565$
PRF-fit source offset from KIC position	$0.320 \pm 0.532$	0.60	$0.236 \pm 0.259$	$-0.216 \pm 0.519$
photometric centroid source offset	$1.23 \pm 0.85$	1.45	$-0.18 \pm 0.82$	$-1.22 \pm 0.85$

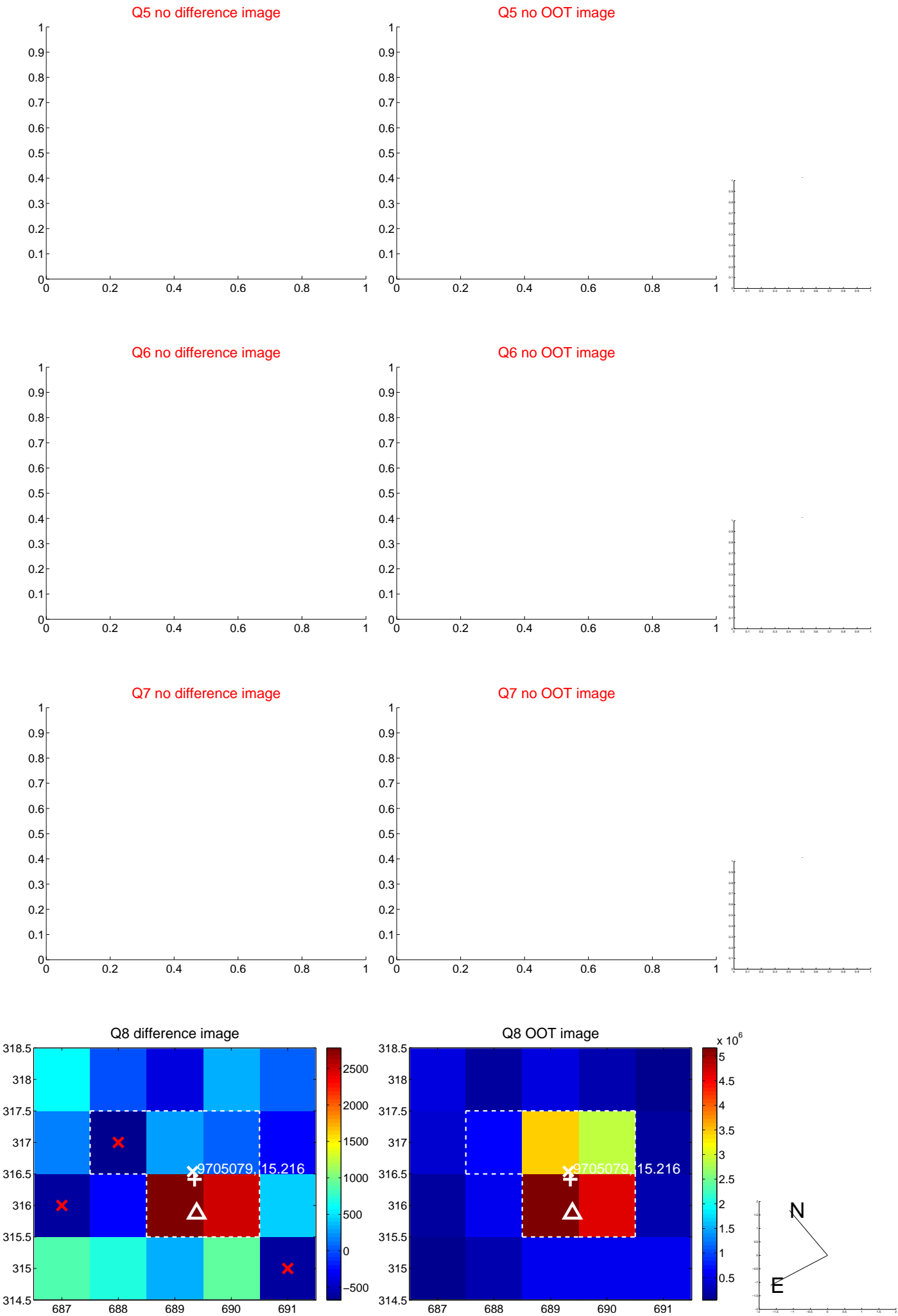


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

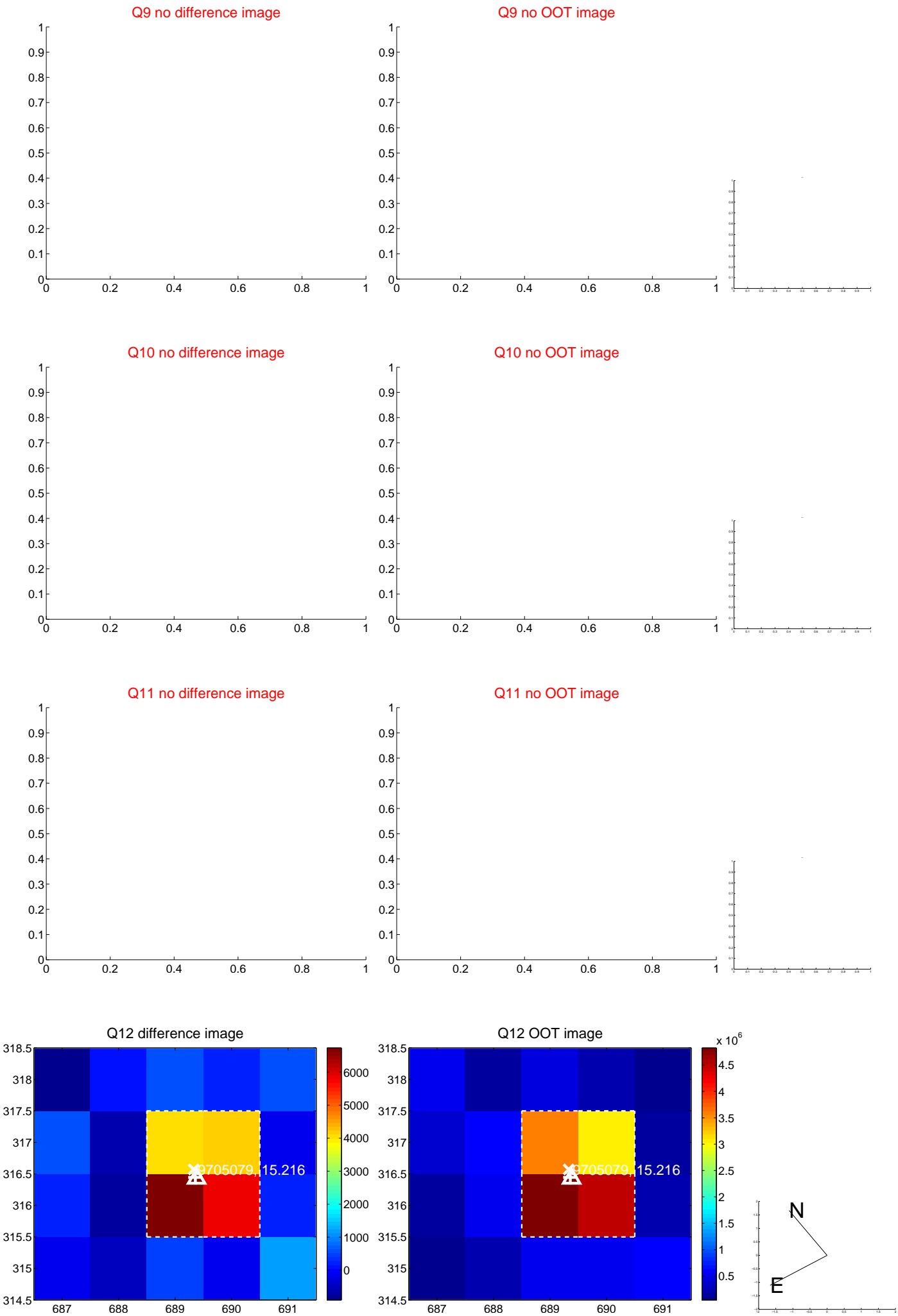


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

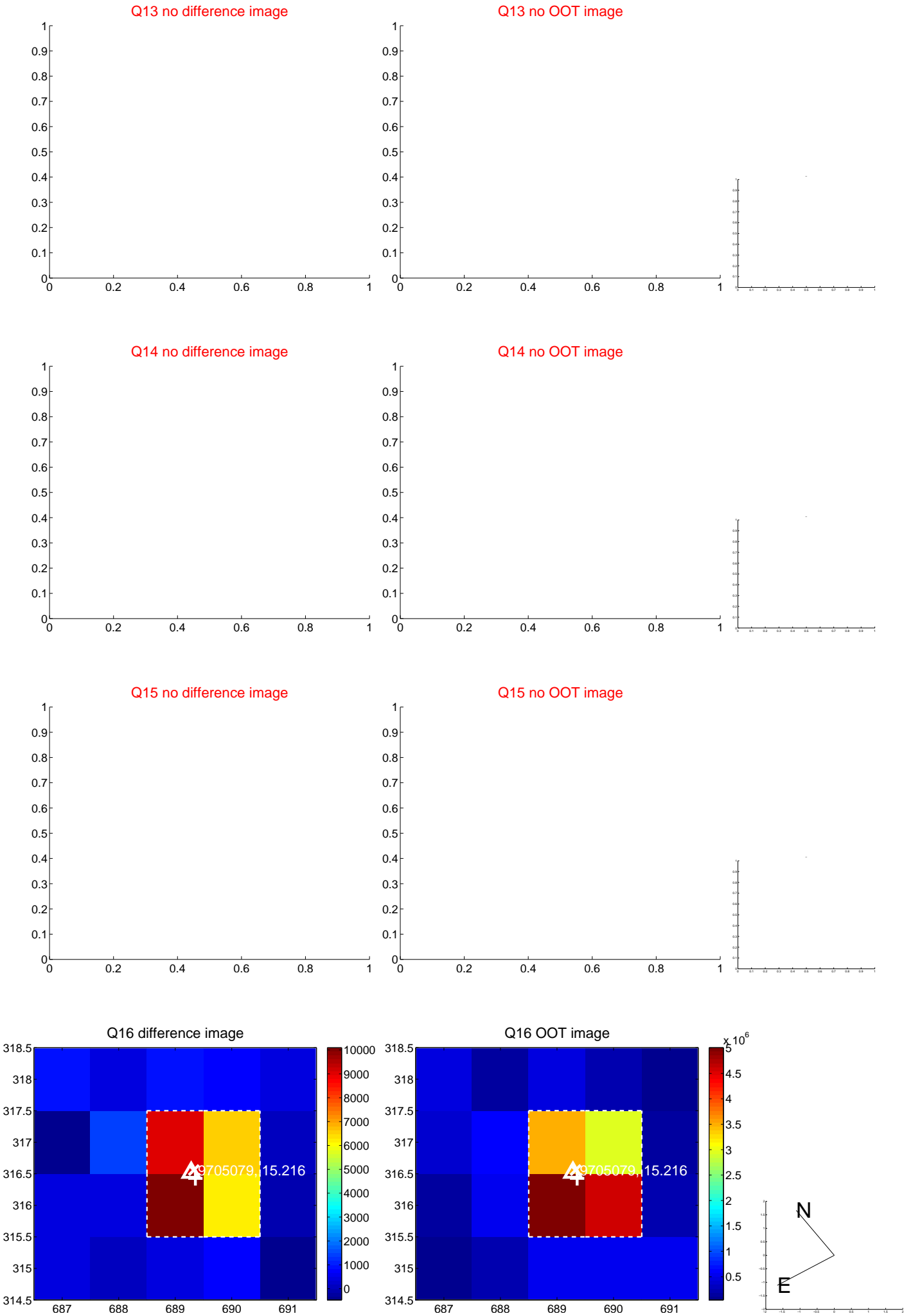




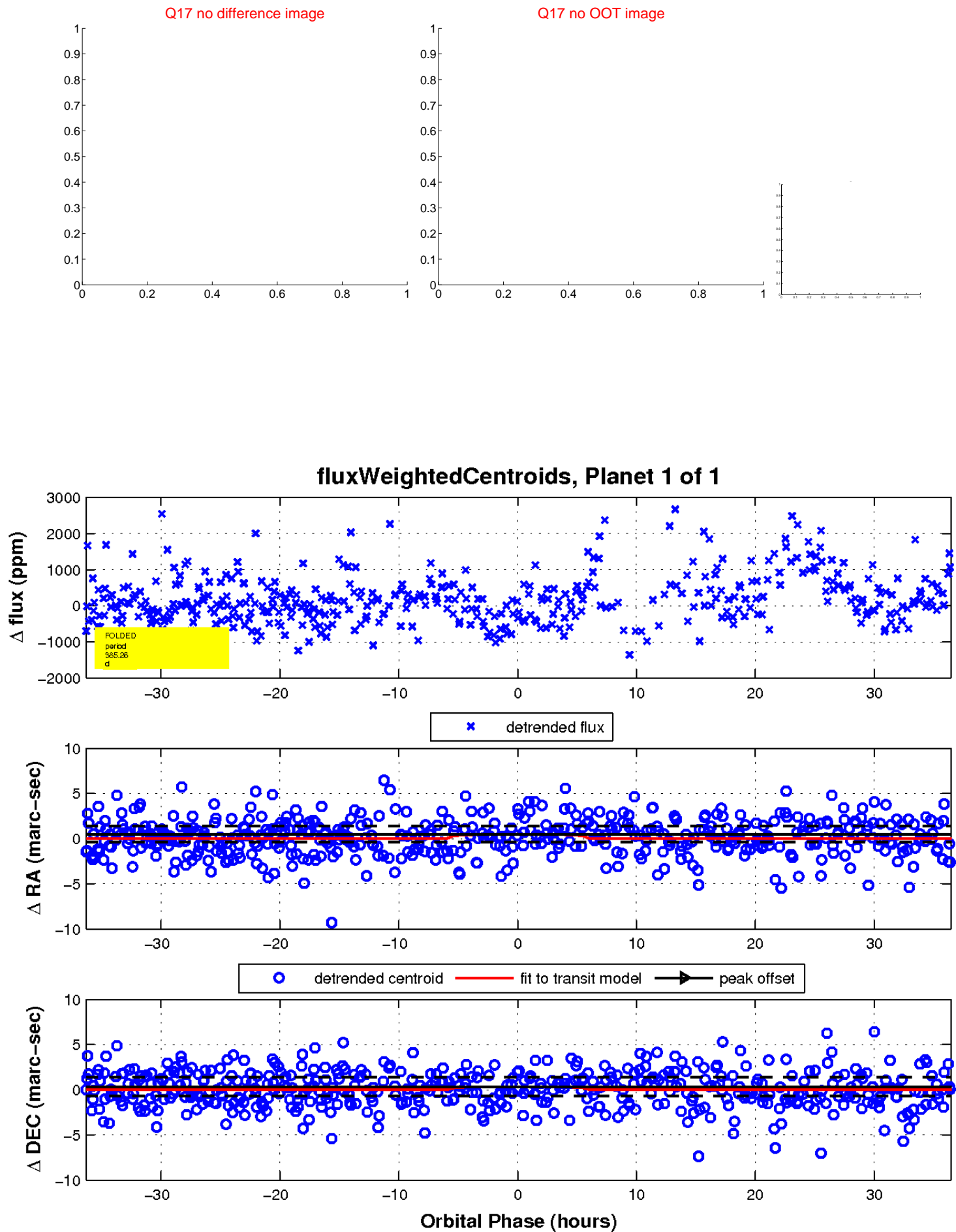
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

