

# KIC 007757698

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007757698-01	OBS	7848.01	369.183503	399.514156	901.5	3.439	7.5	8.3	0.86	5959	2.89	0.85

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007757698-01	OBS	FP	0.21	1	0	0	0	MOD_NONUNIQ_ALT—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.

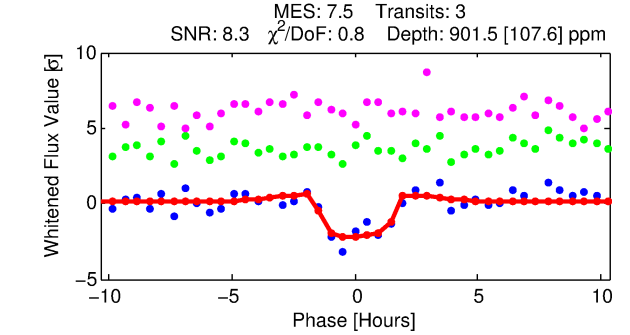
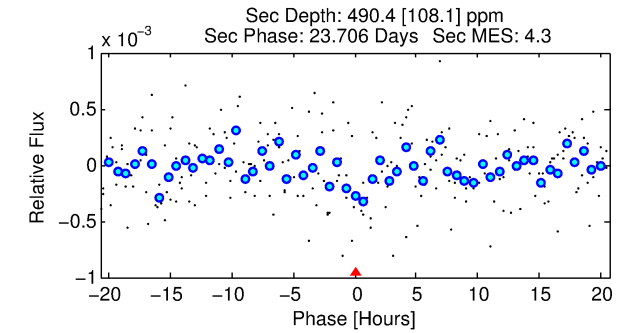
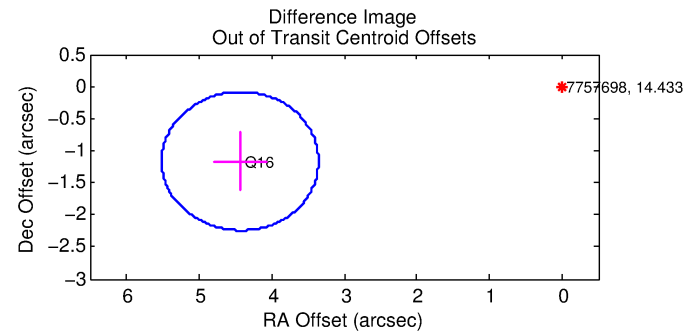
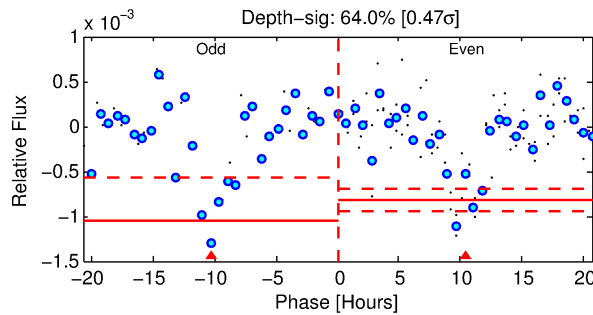
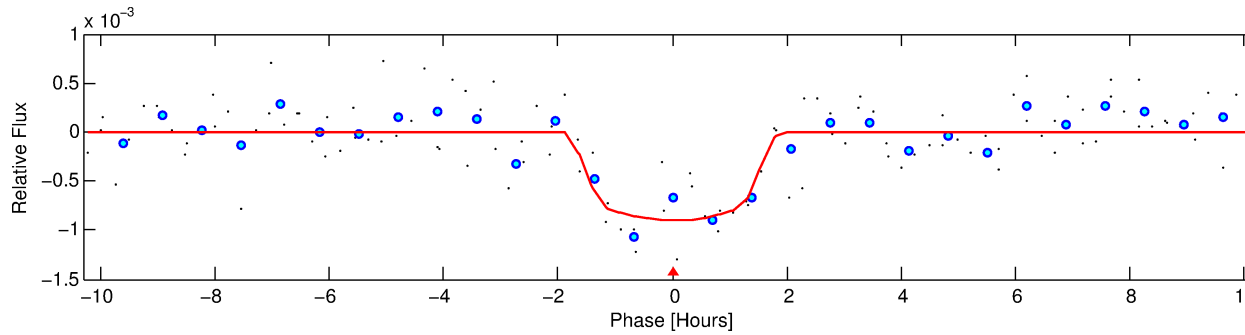
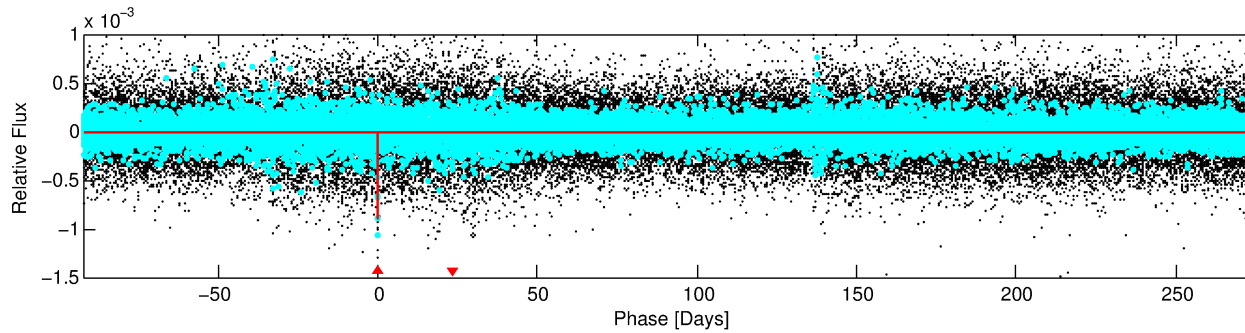
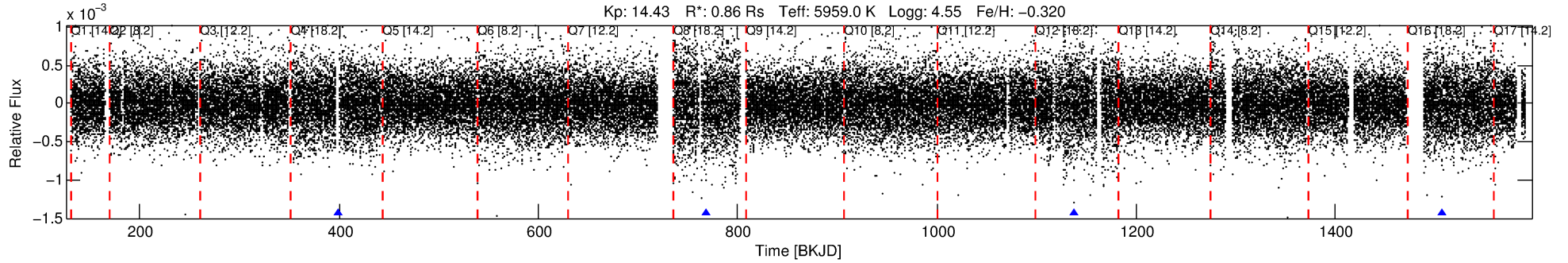
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007757698-01

No Significant Match Found

# DV One-Page Summary

KIC: 7757698 Candidate: 1 of 1 Period: 369.184 d



## DV Fit Results:

Period = 369.18350 [0.00498] d  
Epoch = 399.5142 [0.0115] BKJD  
Rp/R\* = 0.0308 [0.0117]  
a/R\* = 510.12 [934.62]  
b = 0.82 [0.73]  
Seff = 0.85 [0.33]  
Teff = 245 [24] K  
Rp = 2.89 [1.39] Re  
a = 0.9890 [0.2478] AU  
Ag = 31664.64 [27636.76] [1.15 $\sigma$ ]  
Teffp = 5053 [1010] K [4.76 $\sigma$ ]

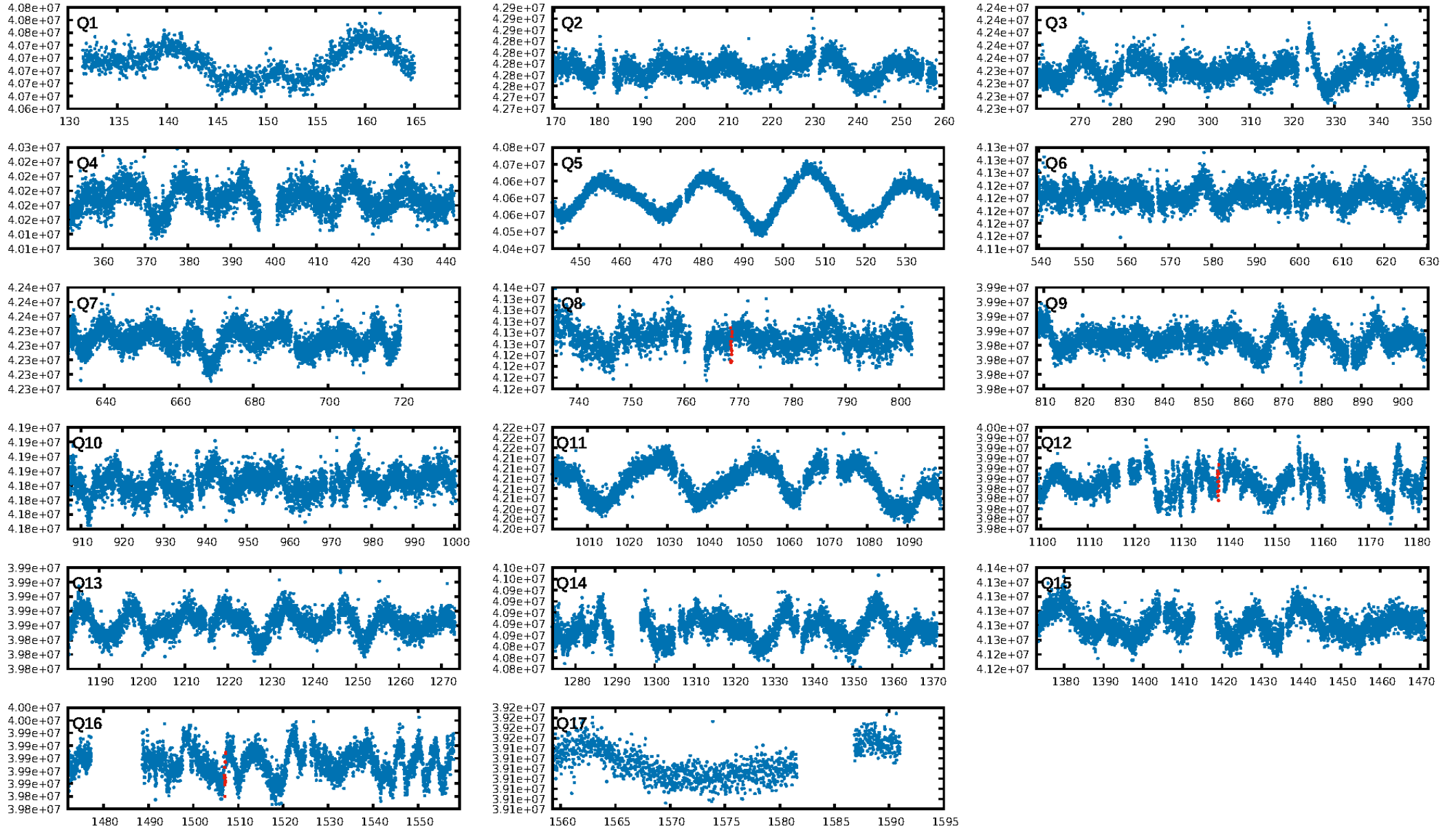
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 67.3%  
ModelChiSquareGof-sig: 99.3%  
Bootstrap-pfa: 8.42e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.592  
Centroid-sig: 6.8%  
Centroid-so: 2.780 arcsec [2.12 $\sigma$ ]  
OotOffset-rm: 4.582 arcsec [12.73 $\sigma$ ]  
KicOffset-rm: 4.755 arcsec [13.28 $\sigma$ ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

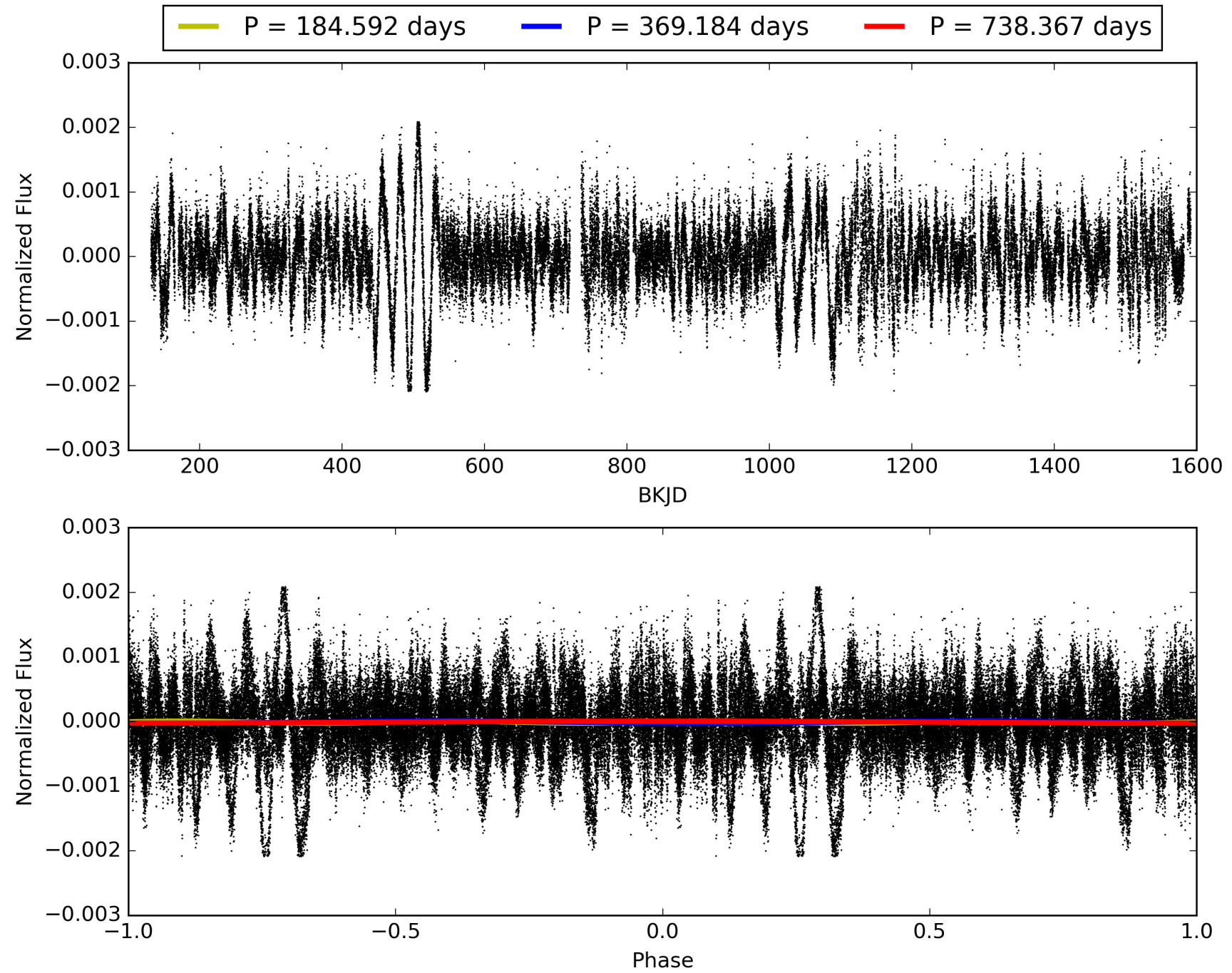
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:13:07 Z

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

# TCE 007757698-01, PDC Light Curves

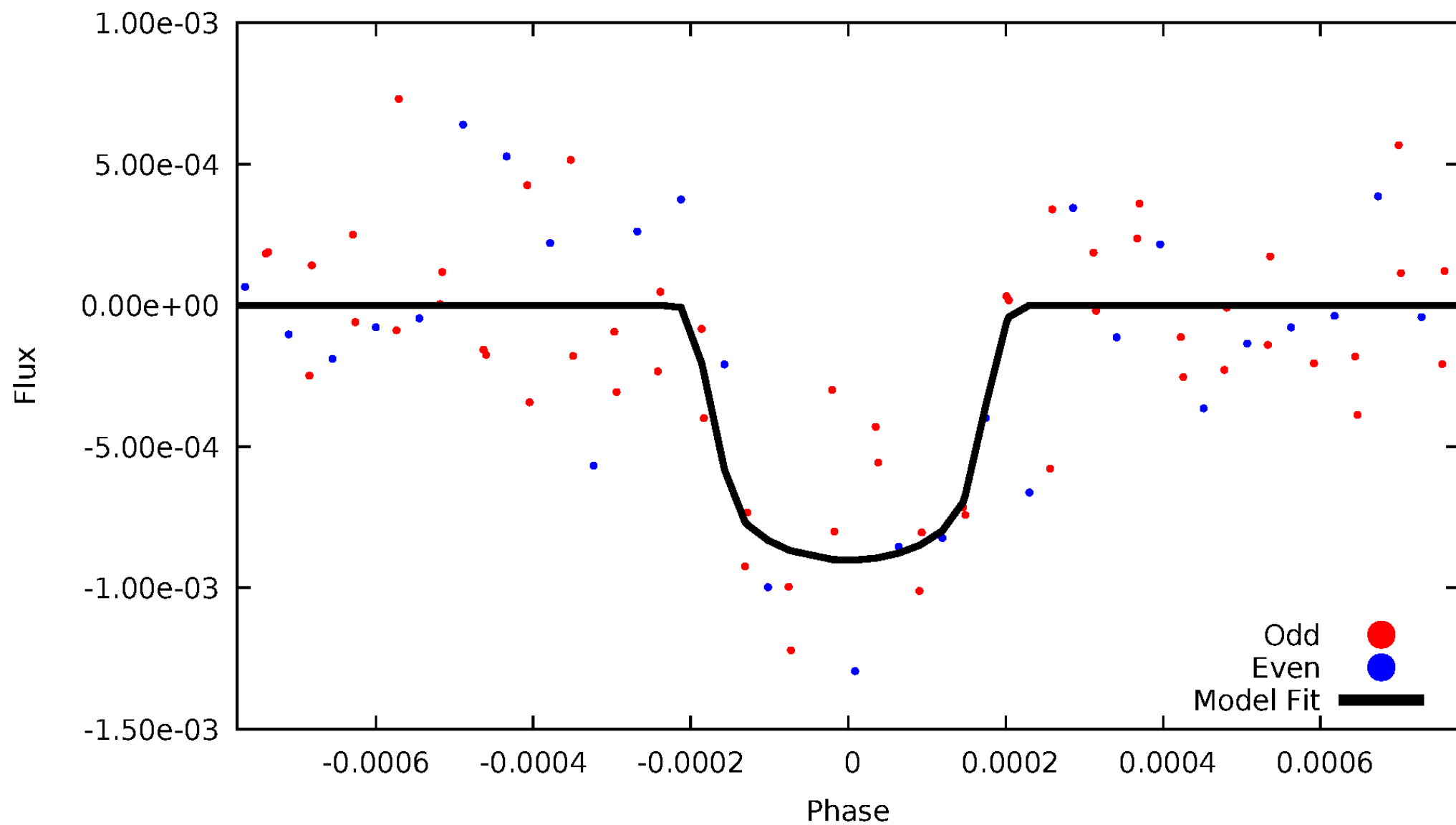


TCE 007757698-01



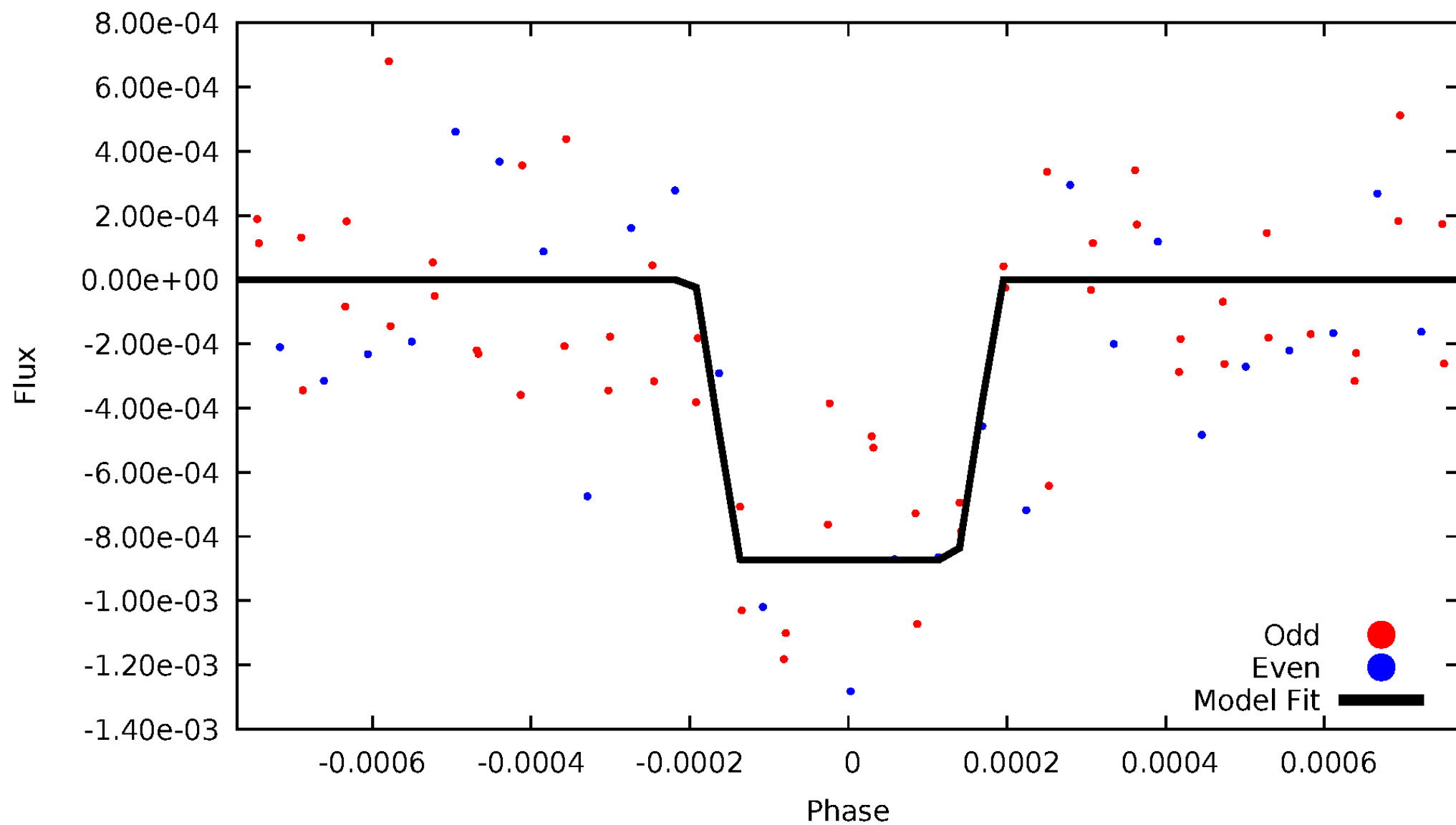
# DV Odd/Even

TCE 007757698-01



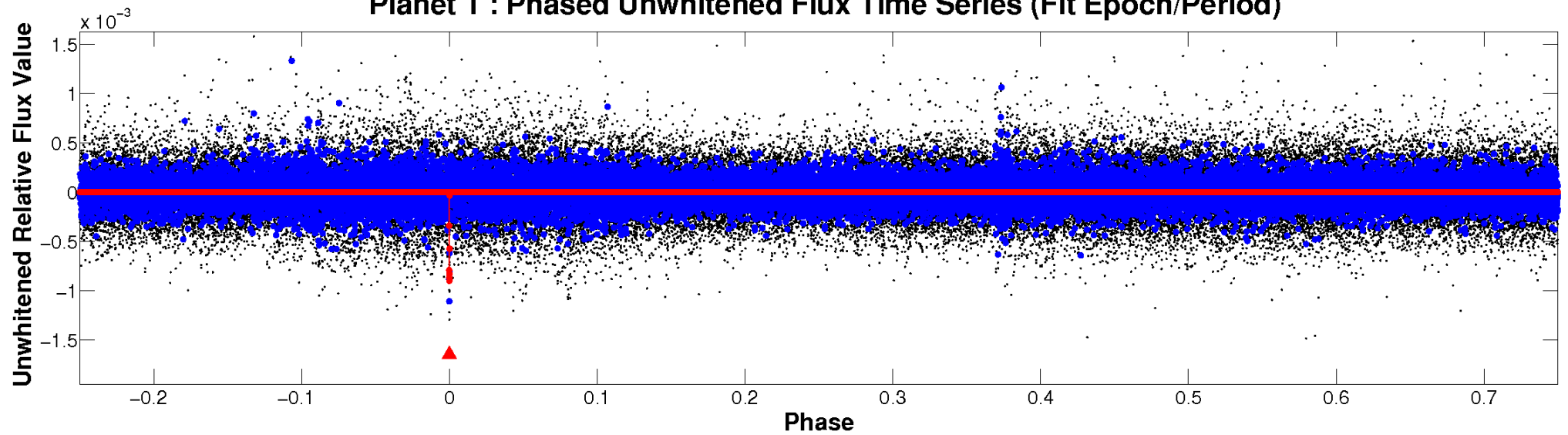
# ALT Odd/Even

TCE 007757698-01

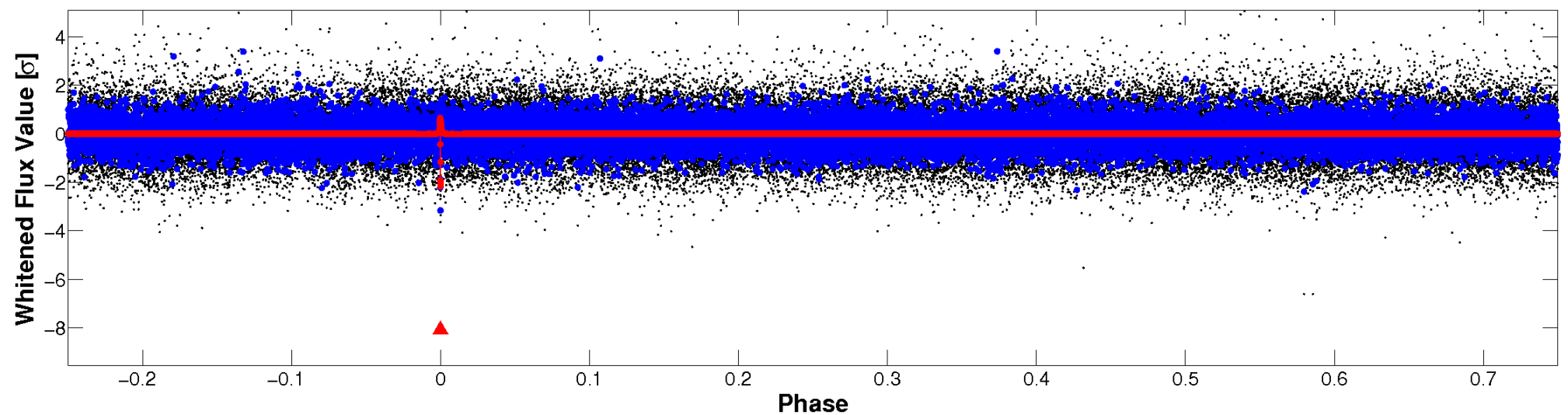


# Non-Whitened Vs. Whitened Light Curve

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

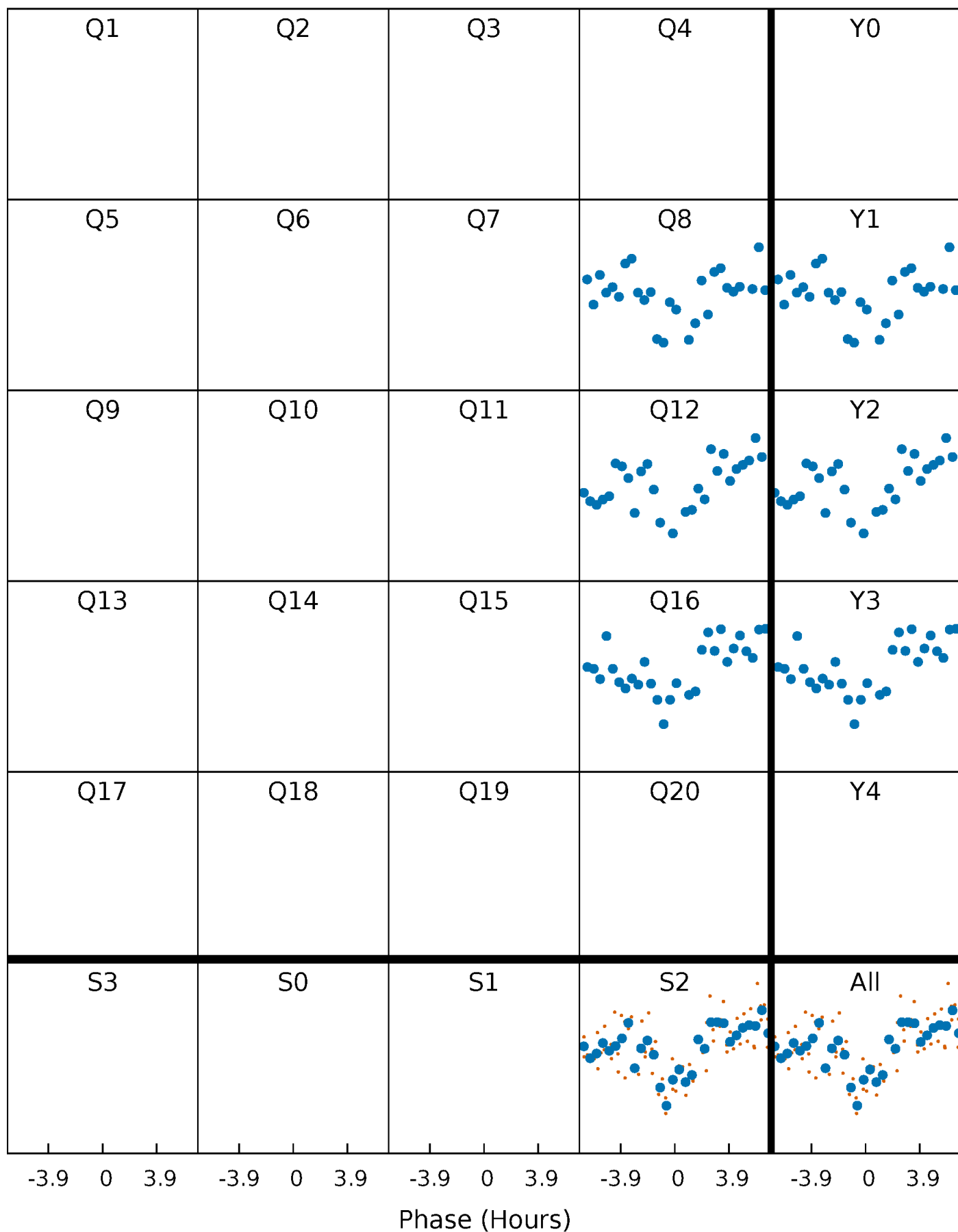


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

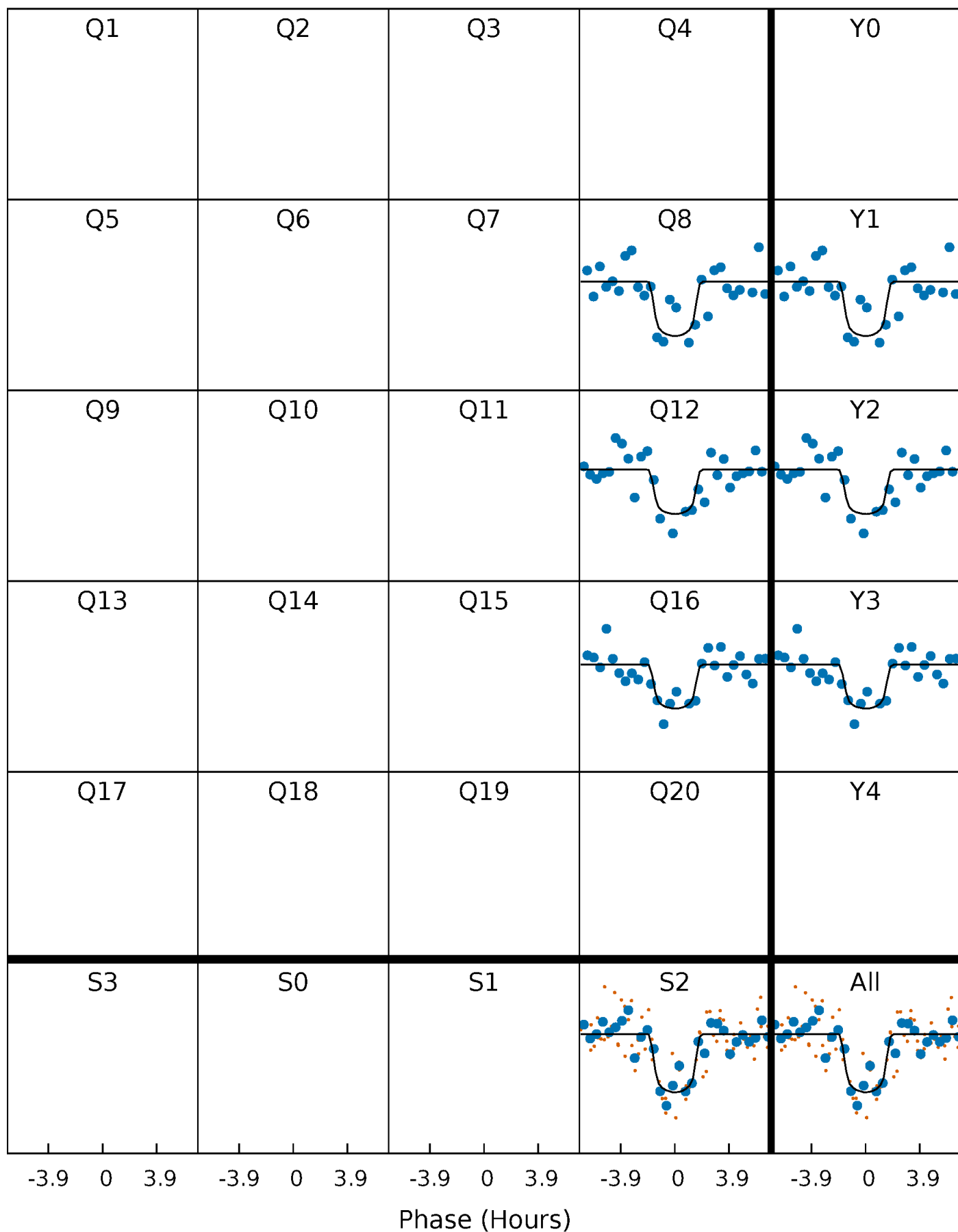
TCE 007757698-01 P=369.183503 Days  $T_0=399.514156$  (BKJD)





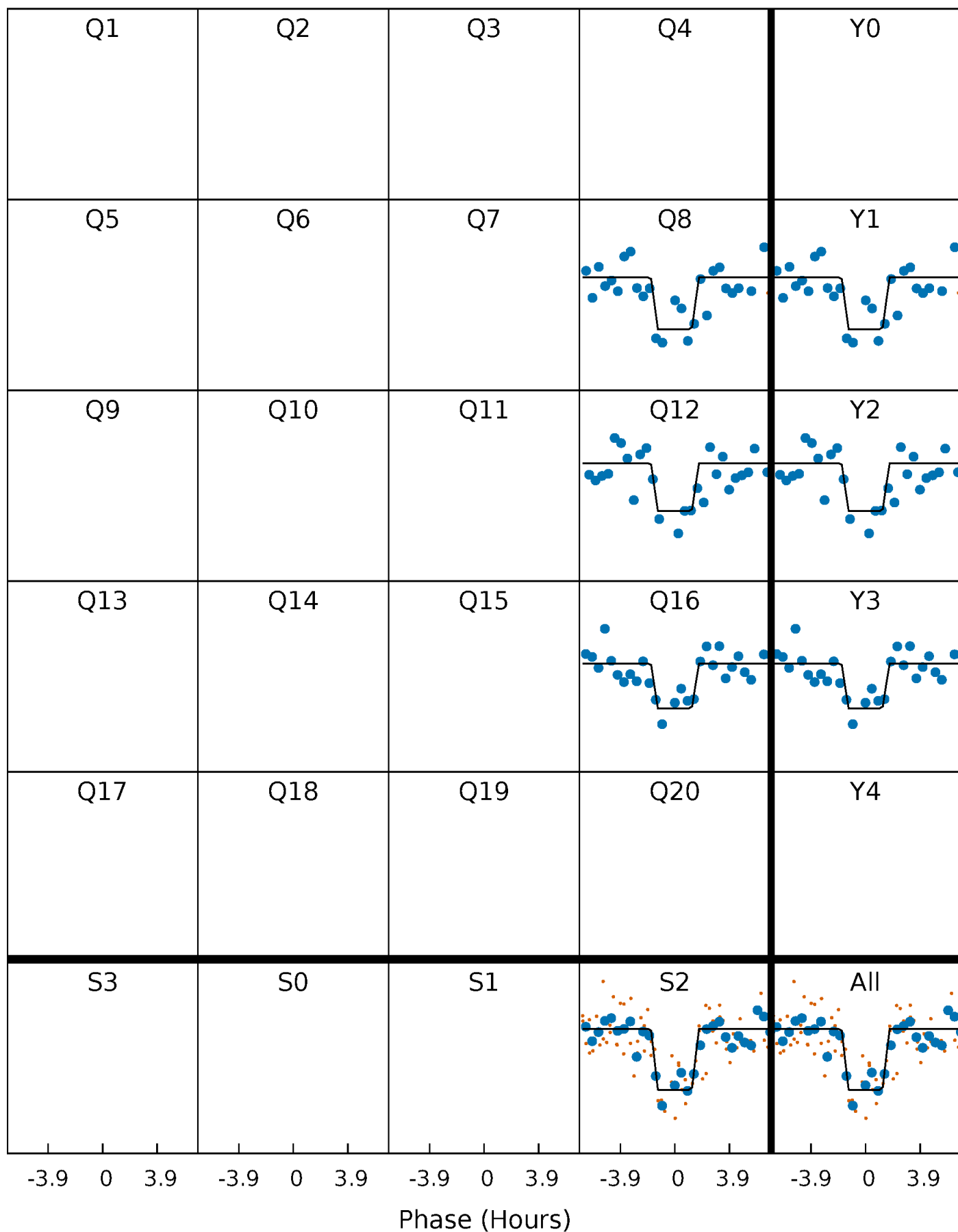
# DV Quarter-Phased Transit Curves

TCE 007757698-01 P=369.183503 Days  $T_0=399.514156$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

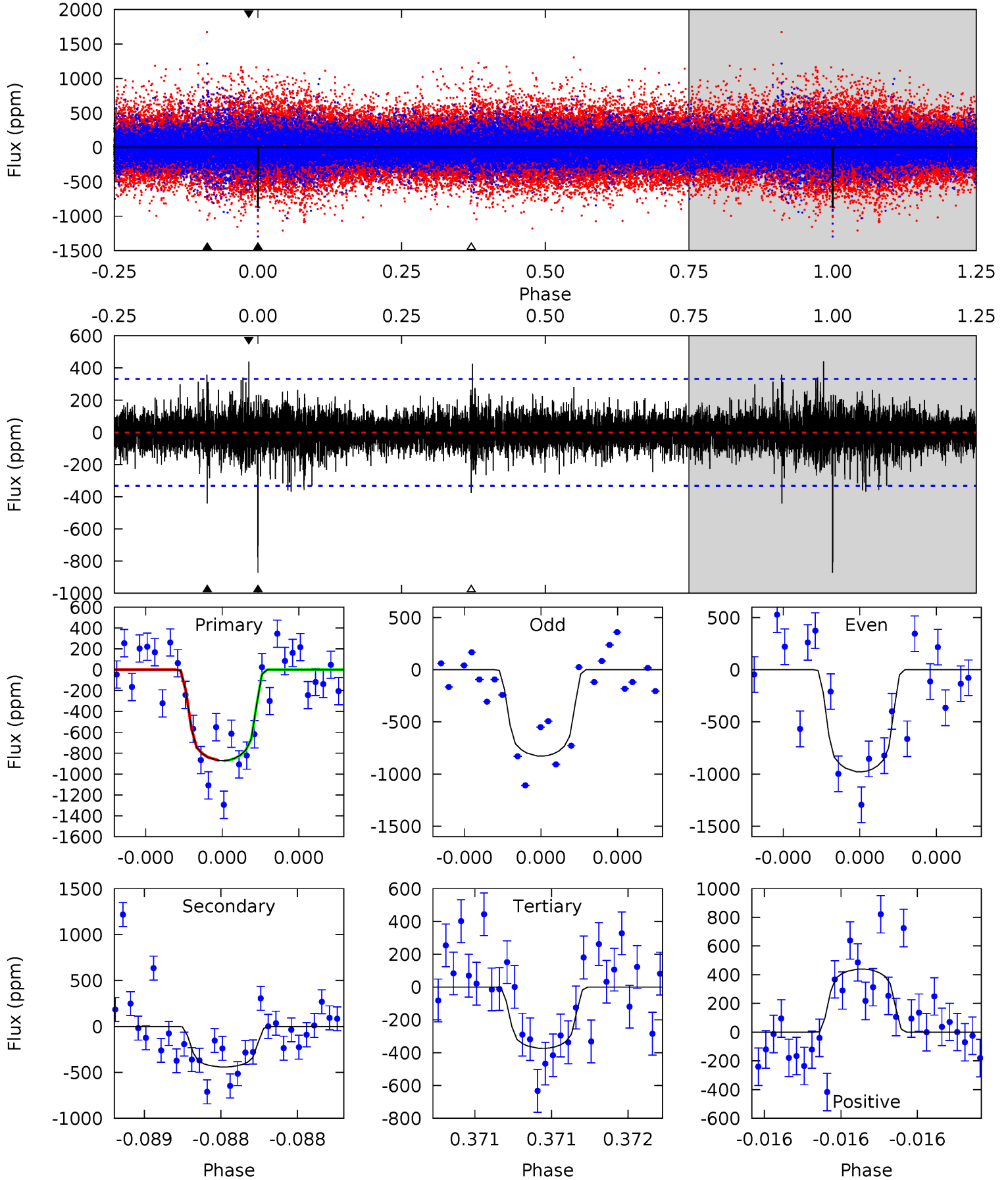
TCE 007757698-01     $P=369.184438$  Days     $T_0=399.514405$  (BKJD)



# DV Model-Shift Uniqueness Test

007757698-01,  $P = 369.183503$  Days,  $E = 30.330653$  Days

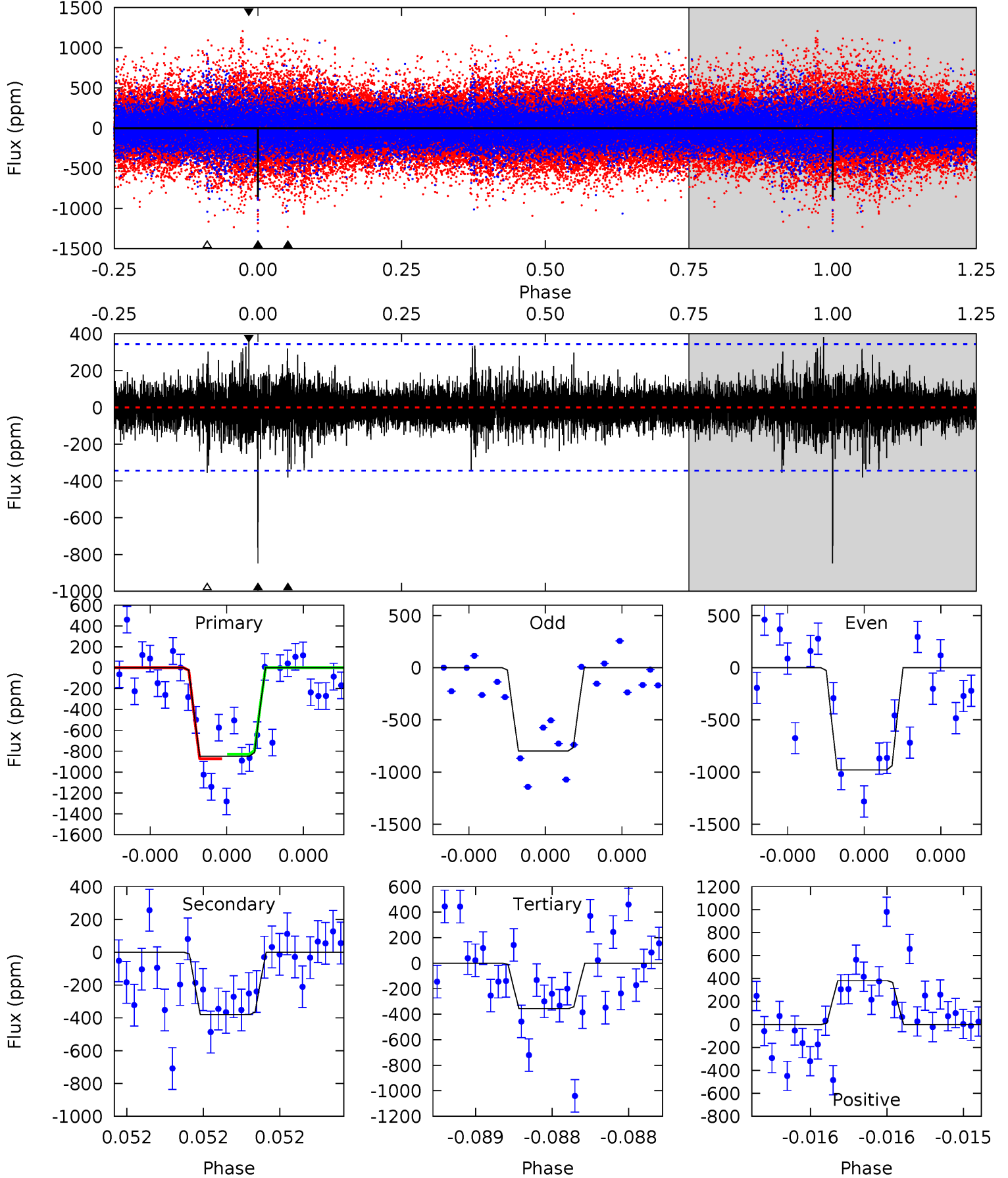
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	7.46	6.32	7.43	5.62	3.55	1.29	8.41	7.30	1.14	0.03	1.17	0.99	0.34	0.04



# Alt Model-Shift Uniqueness Test

007757698-01, P = 369.184438 Days, E = 30.329967 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
13.8	6.20	5.82	6.23	5.62	3.55	1.11	8.03	7.61	0.39	-0.03	1.40	1.04	0.31	0.36



### Stellar Parameters For KIC 007757698

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5959^{+160}_{-178}$	$4.546^{+0.036}_{-0.204}$	$-0.320^{+0.300}_{-0.300}$	$0.859^{+0.252}_{-0.079}$	$0.948^{+0.109}_{-0.120}$	$2.104^{+0.422}_{-1.099}$
	+3%/-3%	+1%/-4%	+94%/-94%	+29%/-9%	+11%/-13%	+20%/-52%
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 007757698-01 / KOI 7848.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-442 \pm 59$	$3.05^{+1.21}_{-1.22}$	$351^{+25}_{-15}$	$4986^{+1323}_{-624}$	$24961^{+46099}_{-12657}$
Alt.	$-380 \pm 61$	$2.87^{+1.26}_{-1.17}$	$351^{+26}_{-16}$	$4981^{+1296}_{-664}$	$24327^{+44313}_{-12518}$

$T_{\text{max}}$  = 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

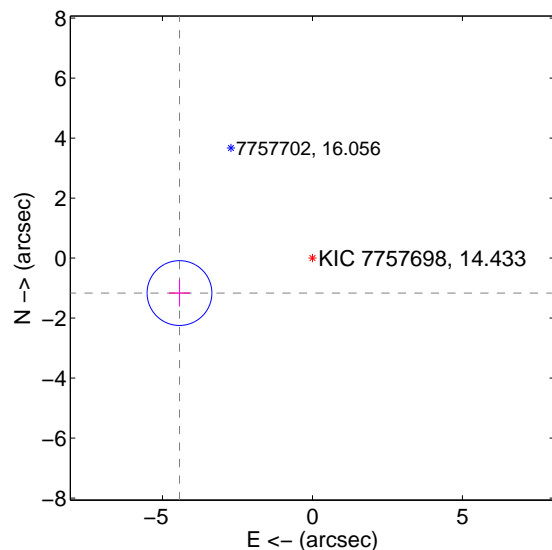
Supplemental centroid analysis for 007757698-01. Kepler magnitude: 14.43. Transit SNR 8.27

There are 0 quarters with good PRF difference image offsets

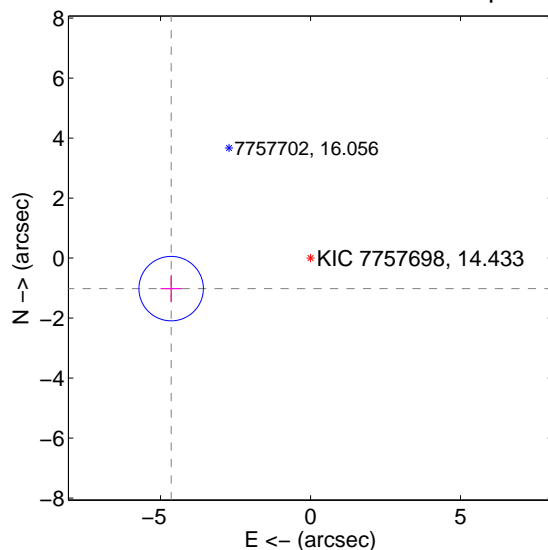
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	4.582 $\pm$ 0.360	12.73	4.431 $\pm$ 0.353	-1.165 $\pm$ 0.445
PRF-fit source offset from KIC position	4.755 $\pm$ 0.358	13.28	4.645 $\pm$ 0.353	-1.017 $\pm$ 0.445
photometric centroid source offset	2.78 $\pm$ 1.31	2.12	2.48 $\pm$ 1.37	1.26 $\pm$ 1.09

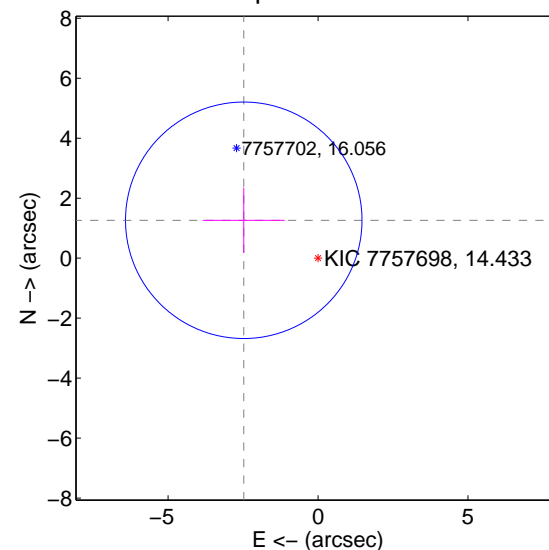
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

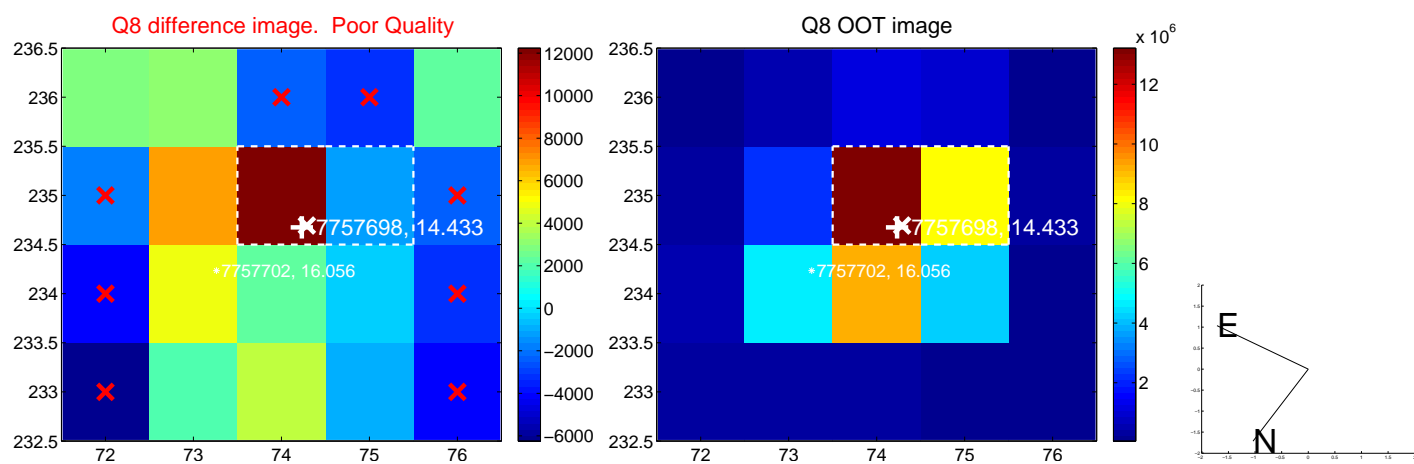
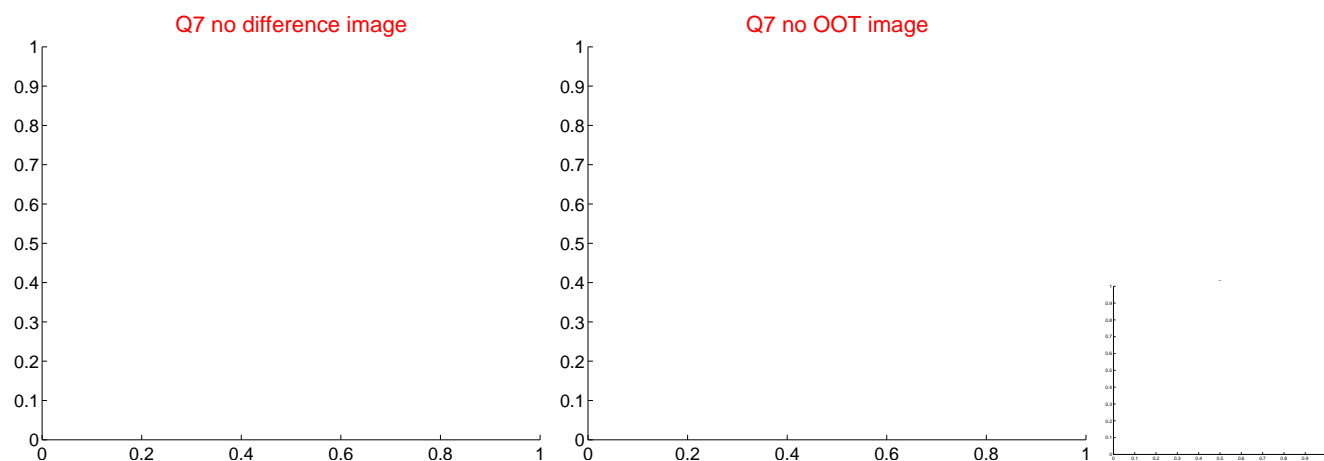
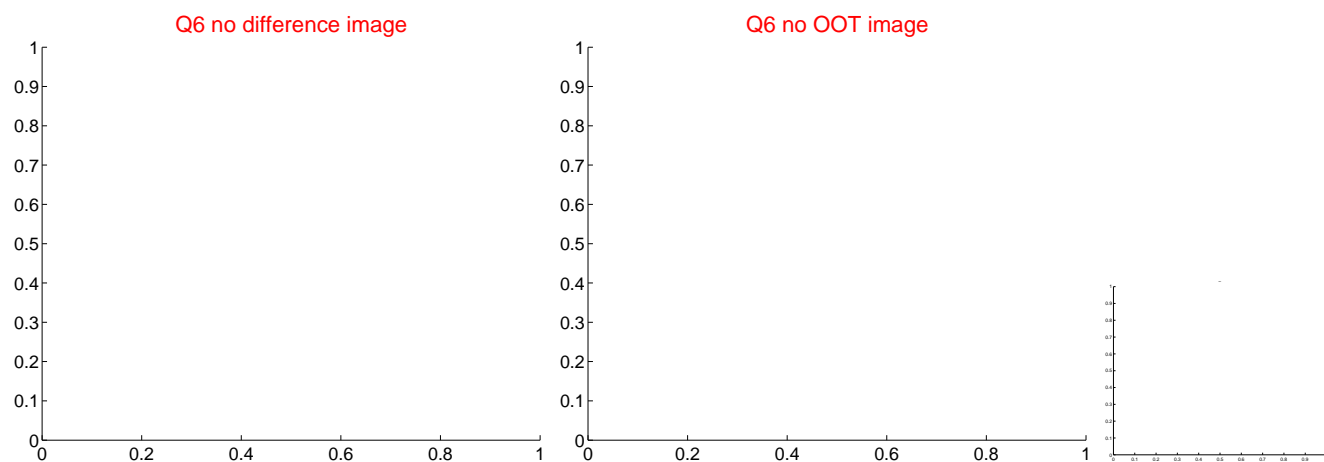
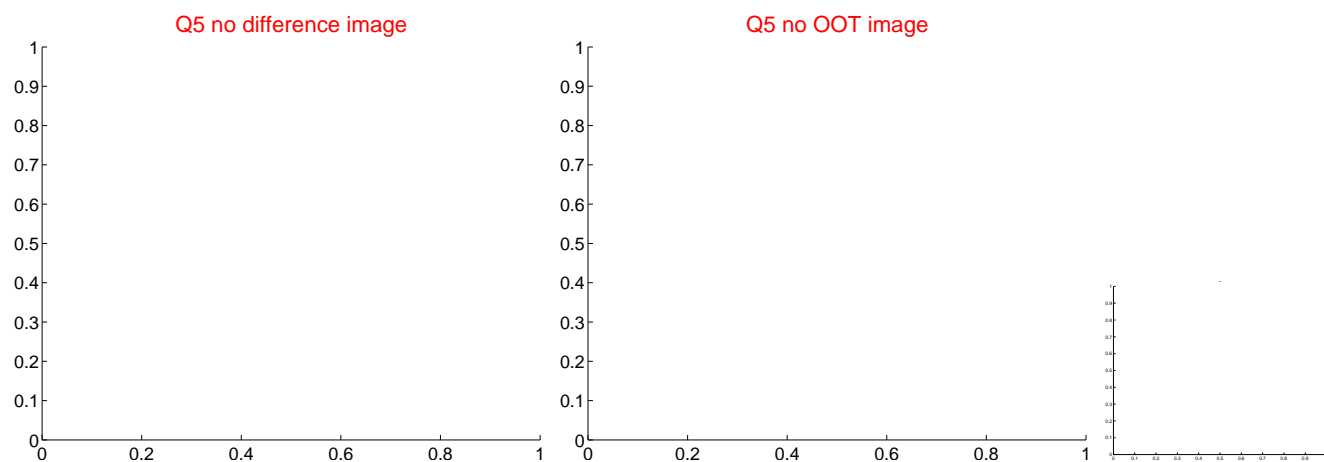


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

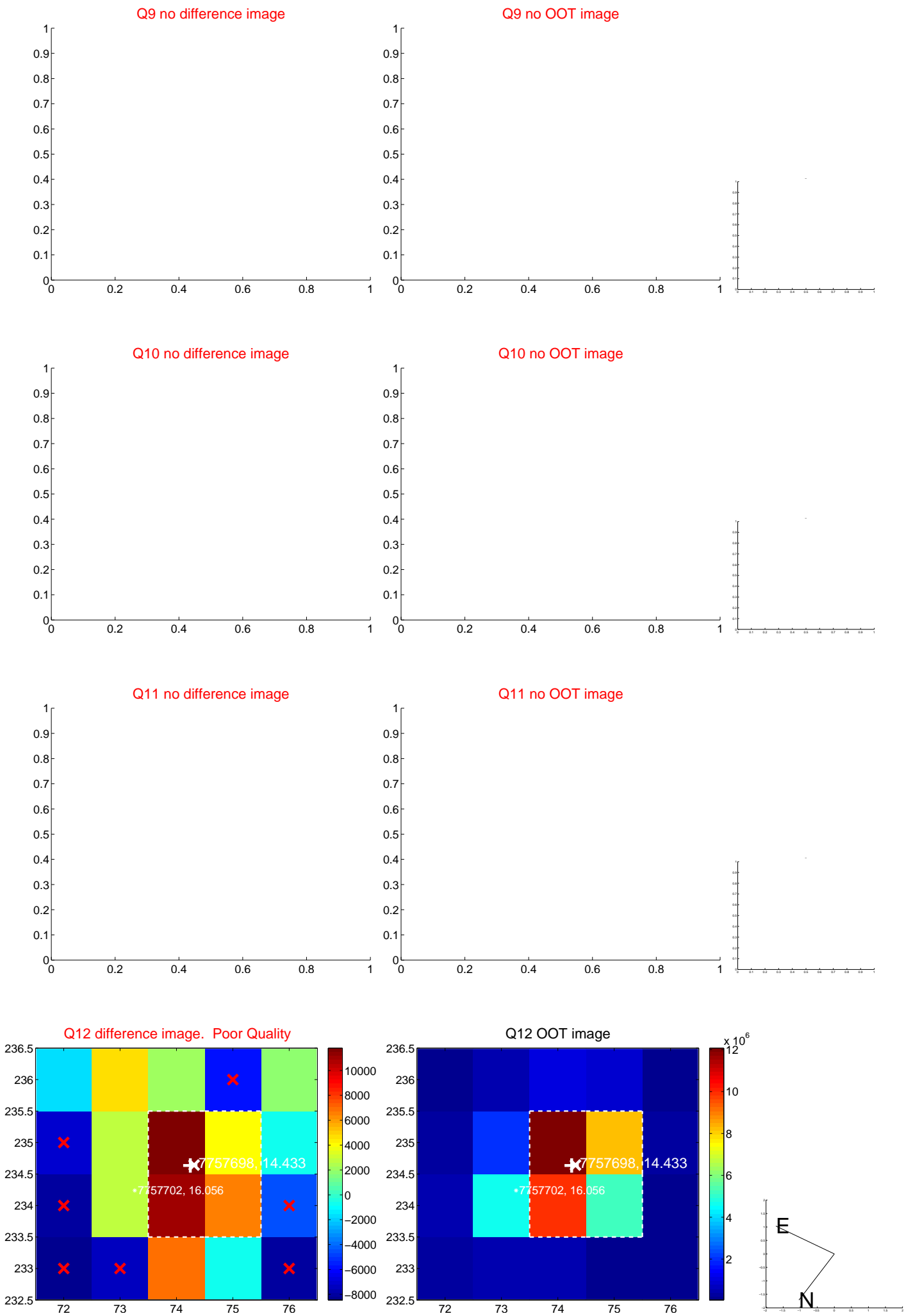


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value

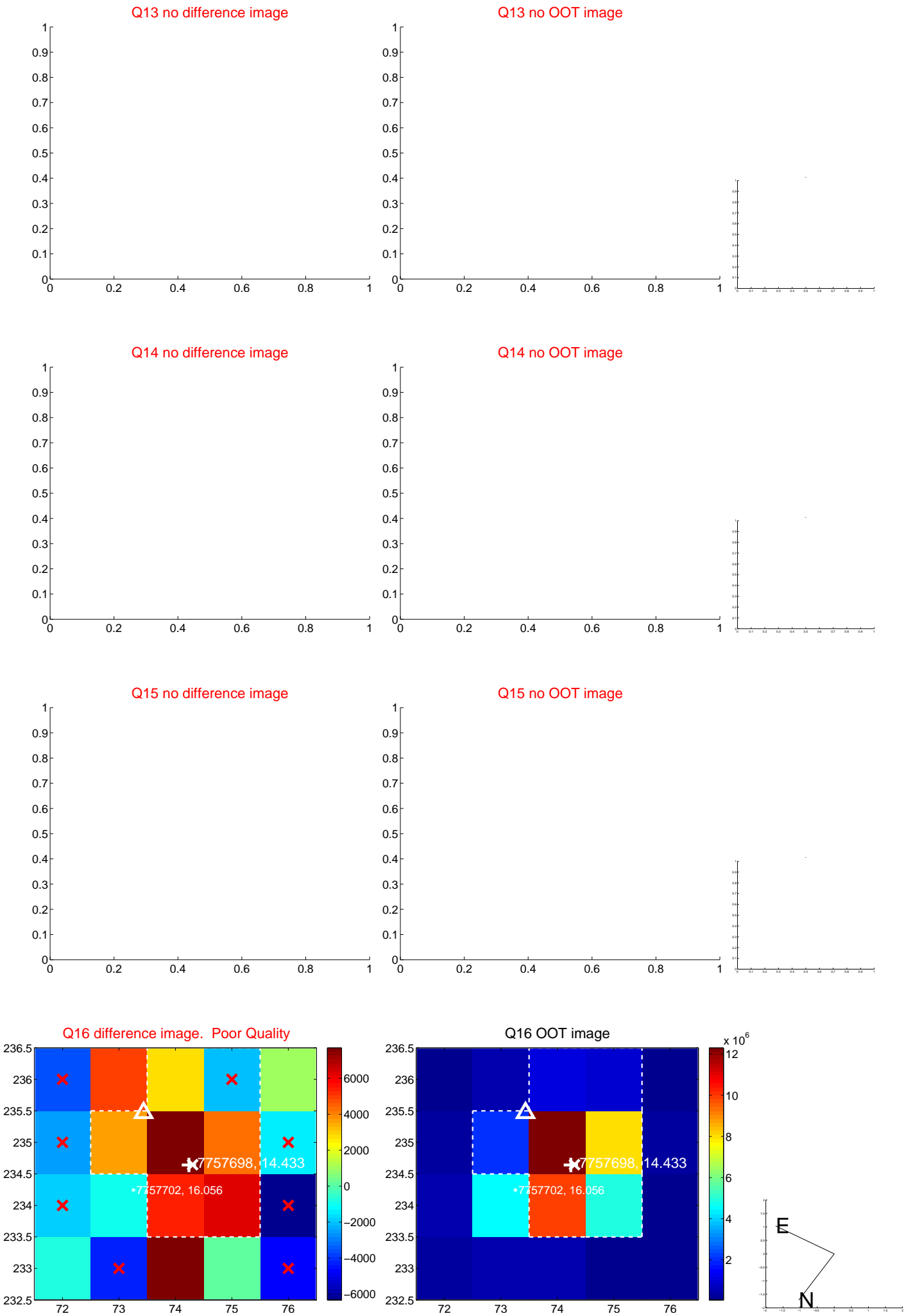




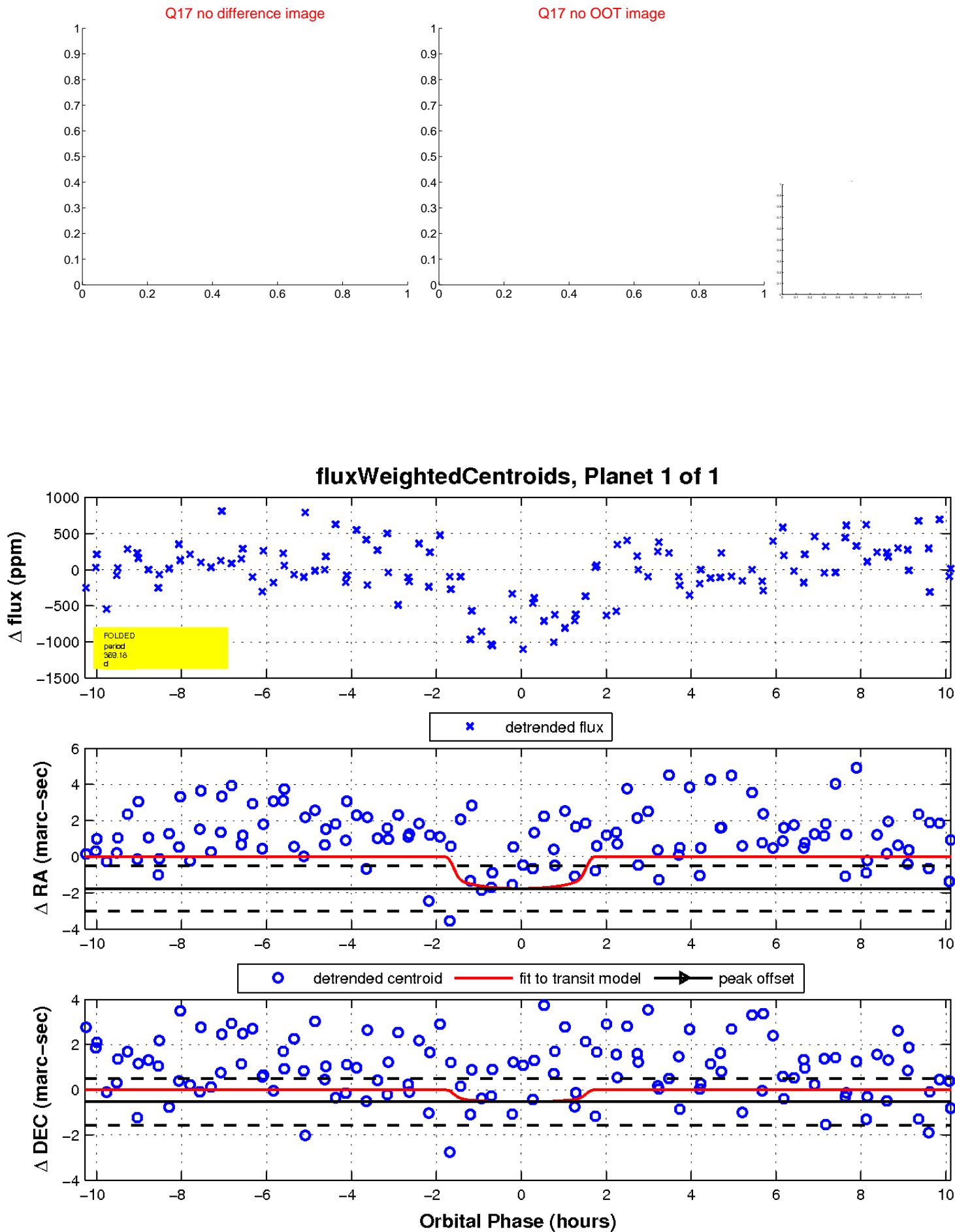
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



# UKIRT Image

Declination

