

# KIC 009758497

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009758497-01	OBS	No	342.225385	397.970974	138.5	12.055	7.3	6.5	0.83	5973	1.08	0.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009758497-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—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.

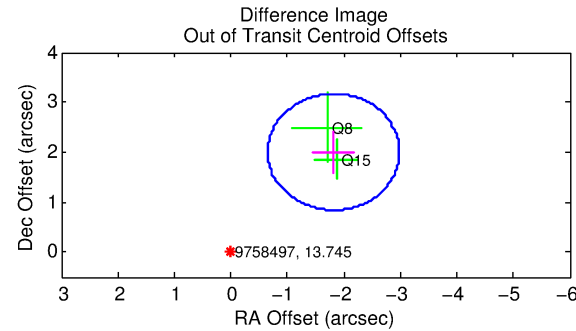
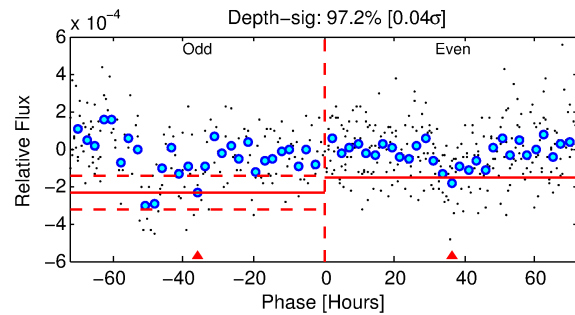
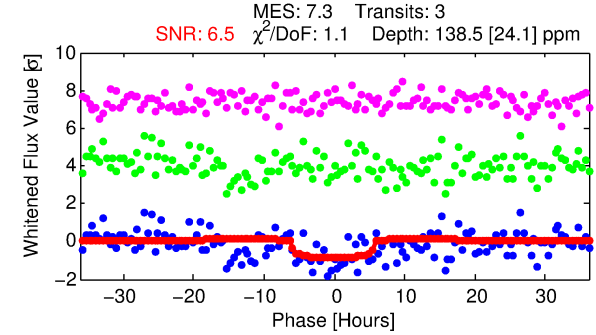
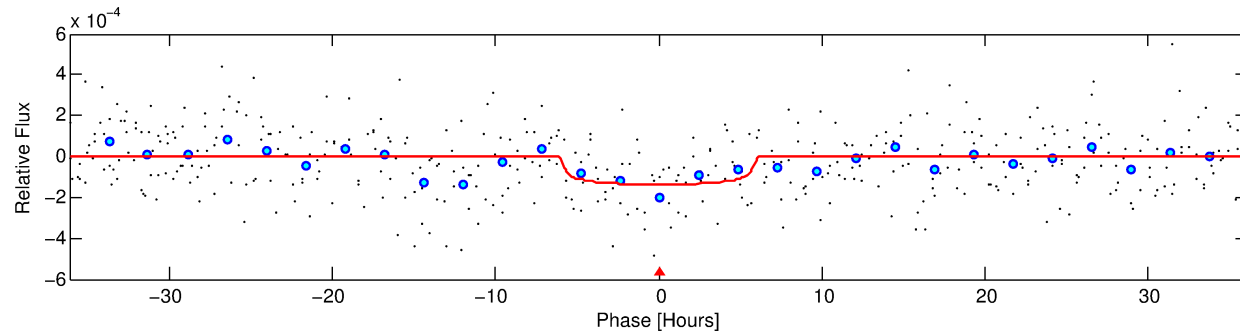
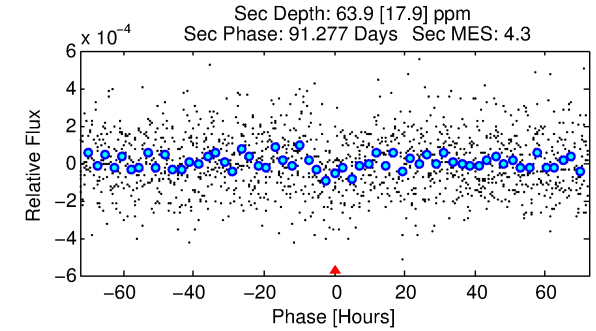
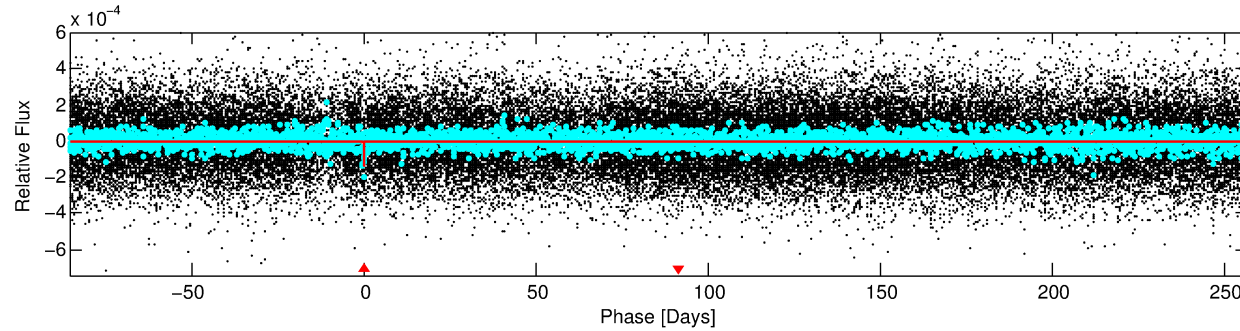
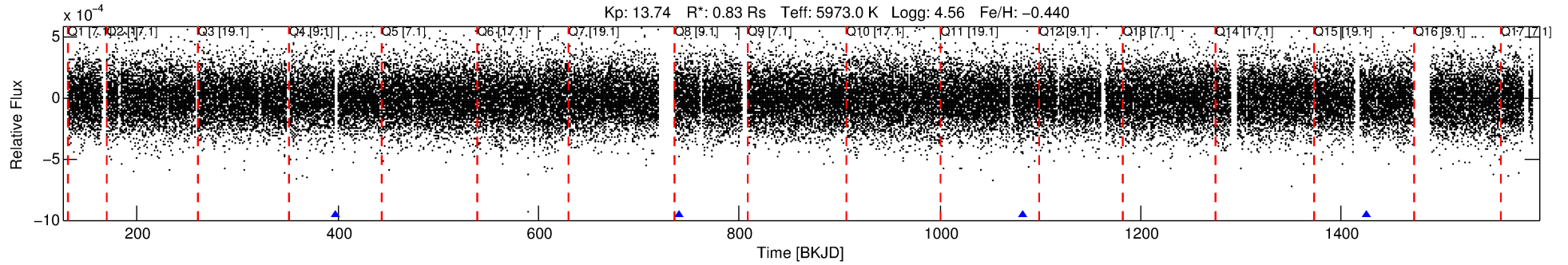
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009758497-01

No Significant Match Found

# DV One-Page Summary

KIC: 9758497 Candidate: 1 of 1 Period: 342.225 d



## DV Fit Results:

Period = 342.22538 [0.01997] d  
Epoch = 397.9710 [0.0456] BKJD  
Rp/R\* = 0.0120 [0.0073]  
a/R\* = 131.76 [409.16]  
b = 0.81 [1.33]  
Seff = 0.91 [0.28]  
Teq = 249 [19] K  
Rp = 1.08 [0.70] Re  
a = 0.9296 [0.1793] AU  
Ag = 25867.60 [32999.35] [0.78σ]  
Teffp = 4879 [1523] K [3.04σ]

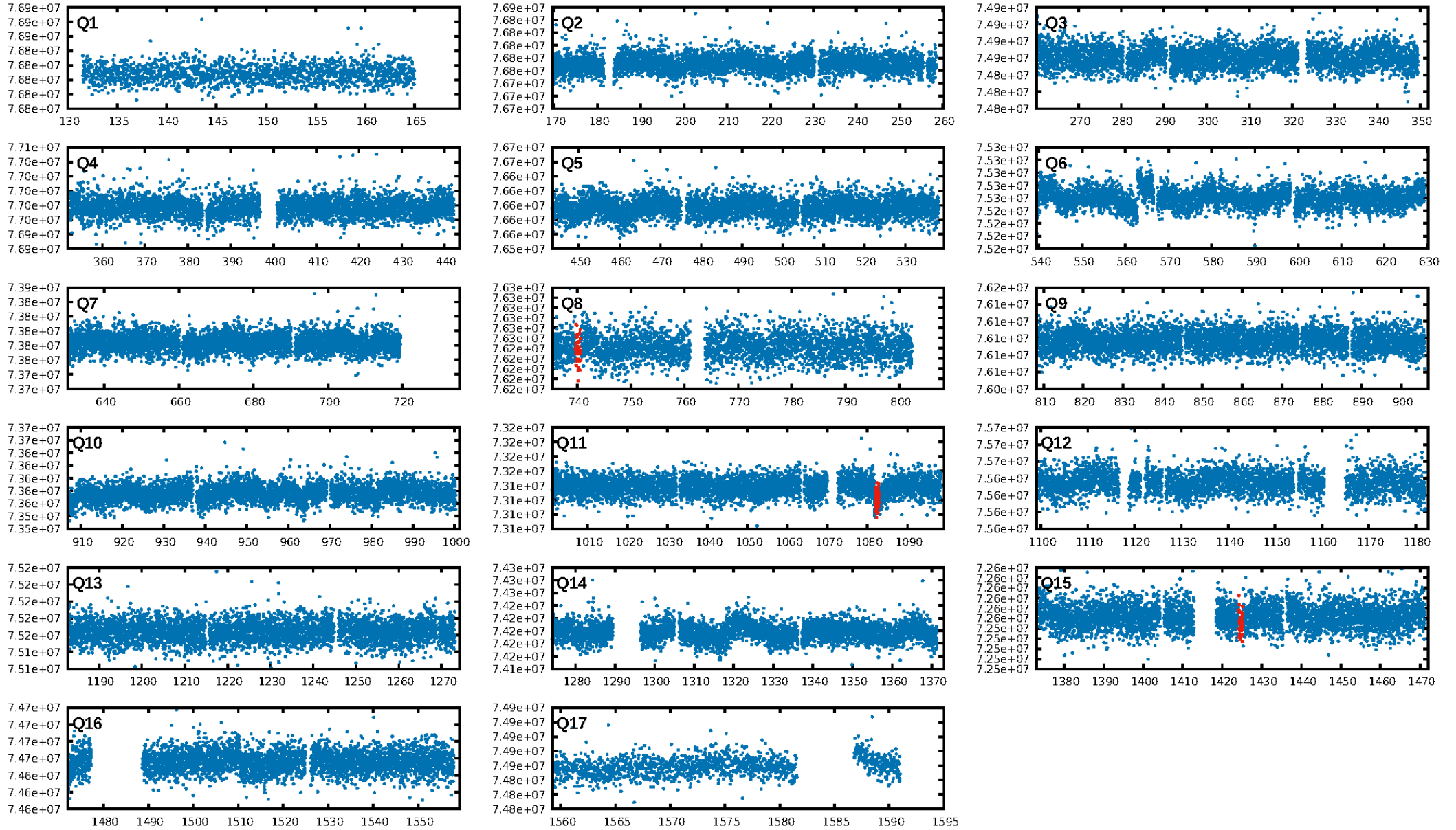
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 21.7%  
ModelChiSquareGof-sig: 99.0%  
**Bootstrap-pfa: 9.44e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.636  
Centroid-sig: 64.4%  
Centroid-so: 1.128 arcsec [0.57σ]  
**OotOffset-rm: 2.705 arcsec [6.96σ]**  
**KicOffset-rm: 2.667 arcsec [6.92σ]**  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

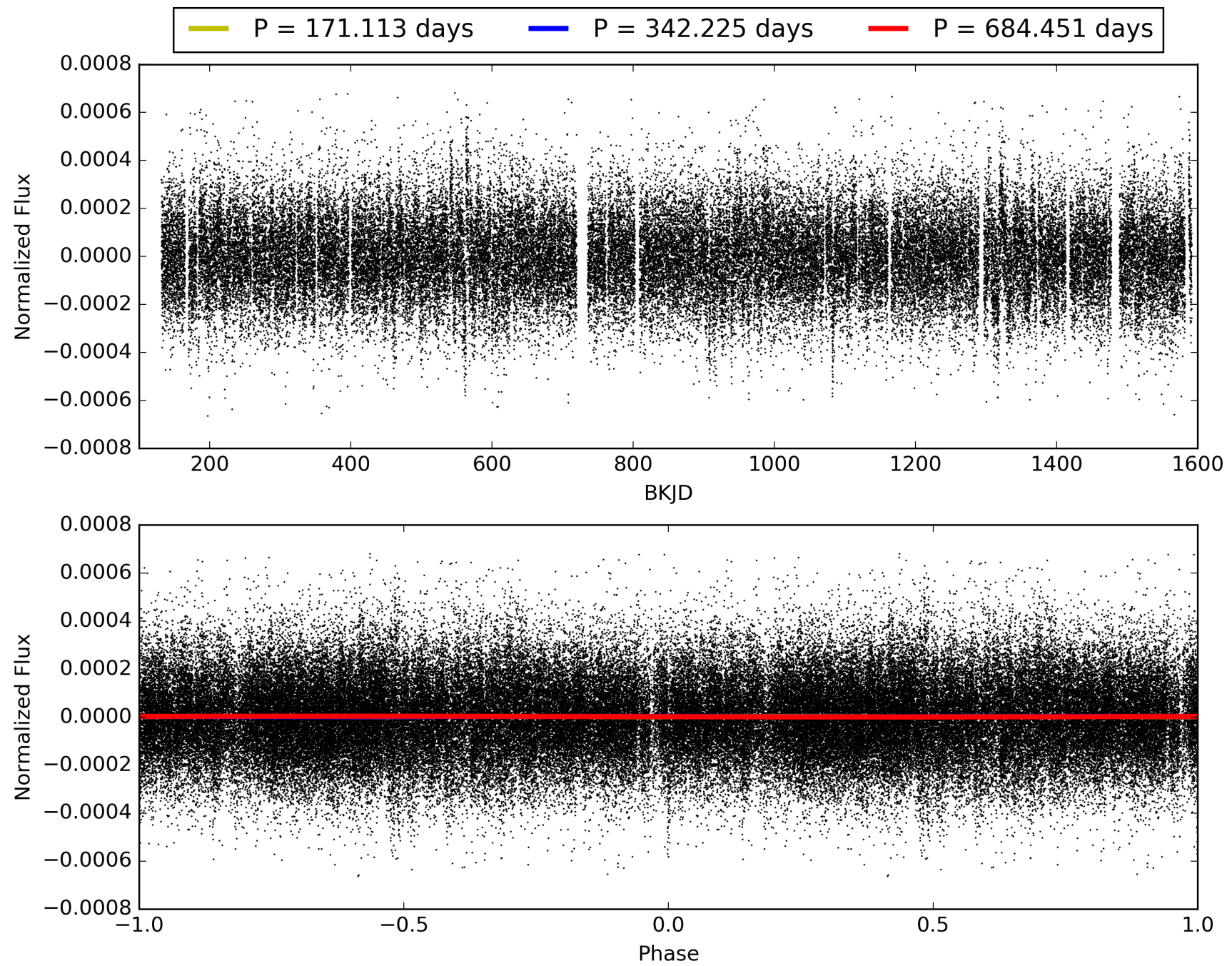
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:07:44 Z

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

# TCE 009758497-01, PDC Light Curves

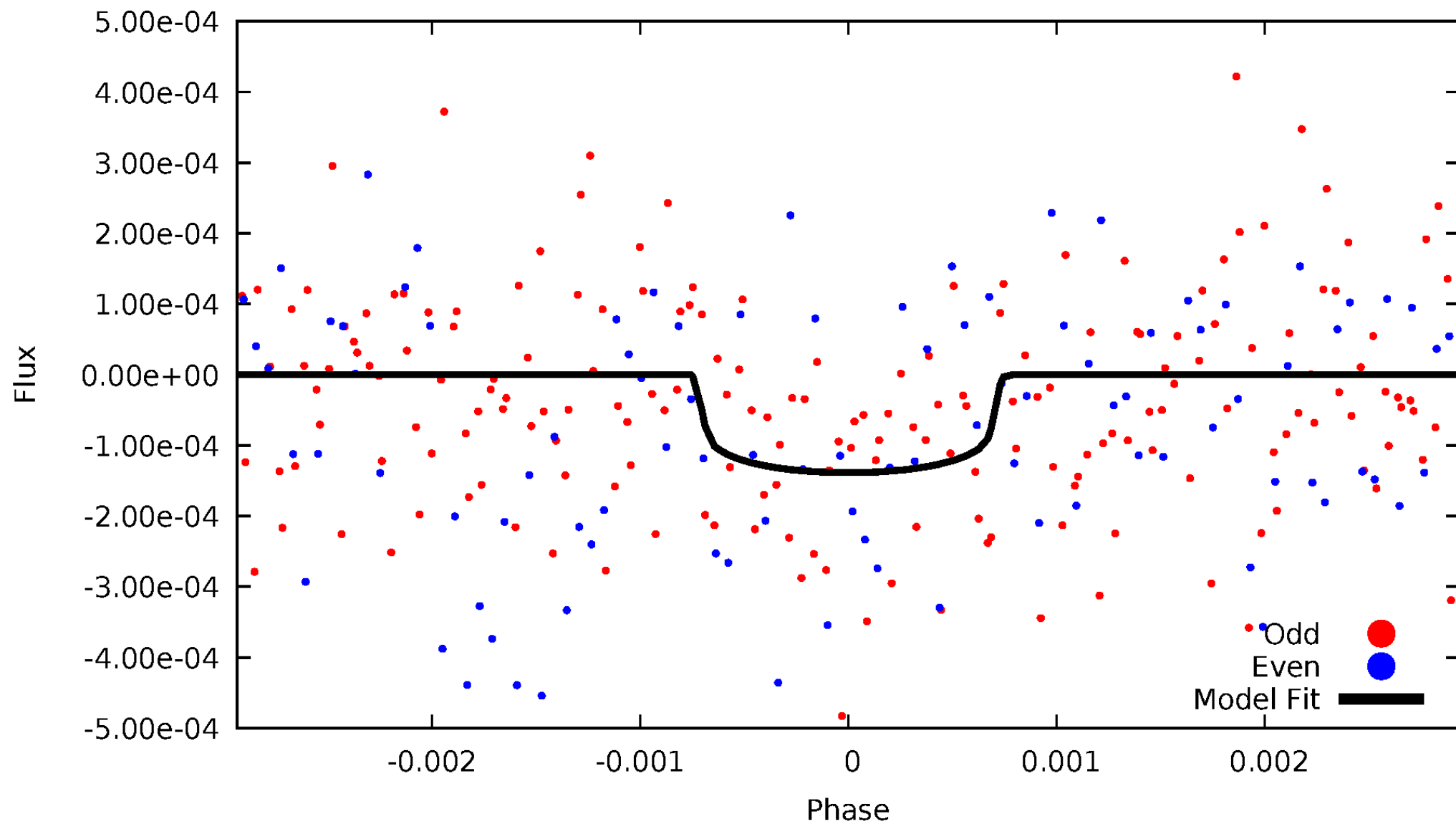


TCE 009758497-01



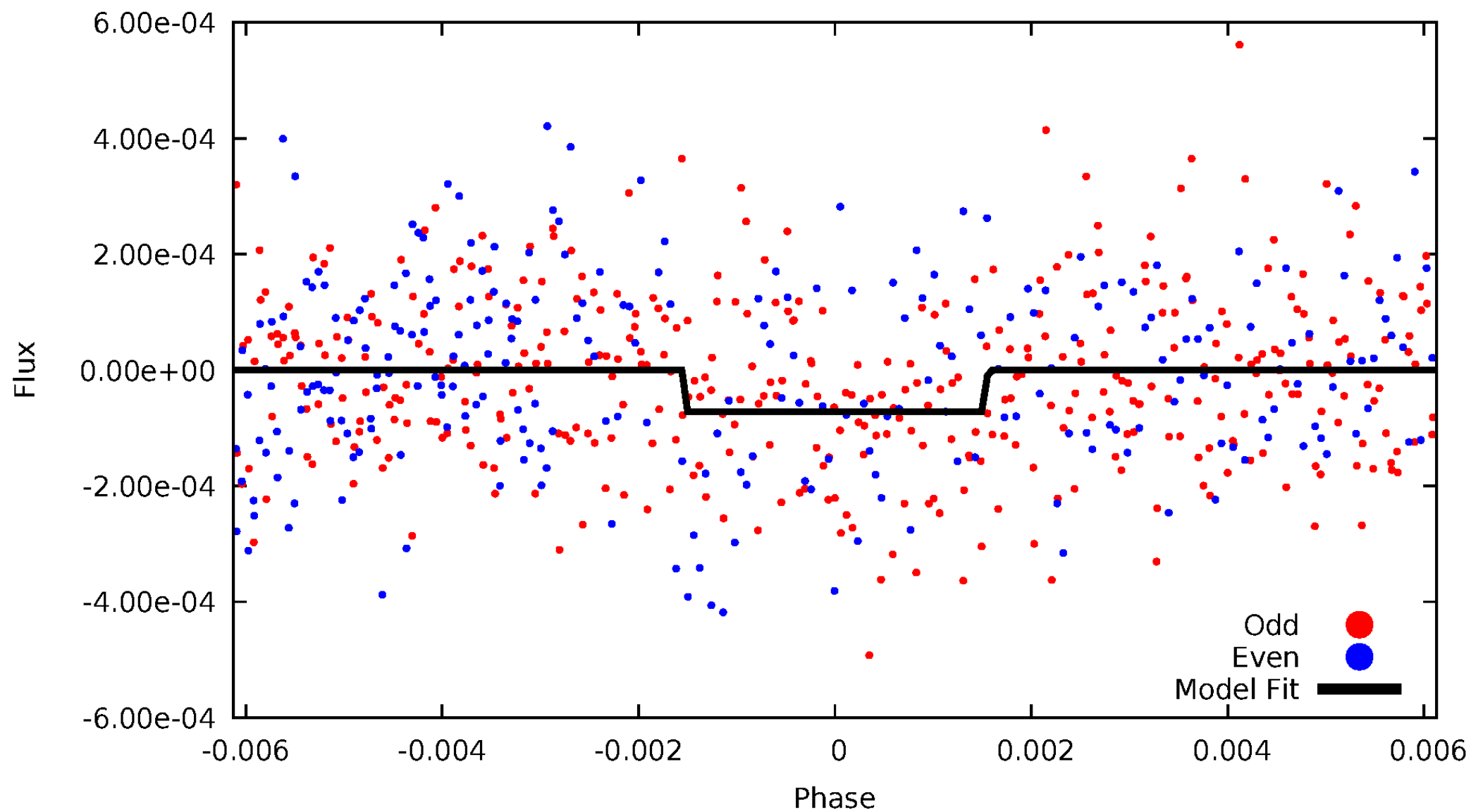
# DV Odd/Even

TCE 009758497-01



# ALT Odd/Even

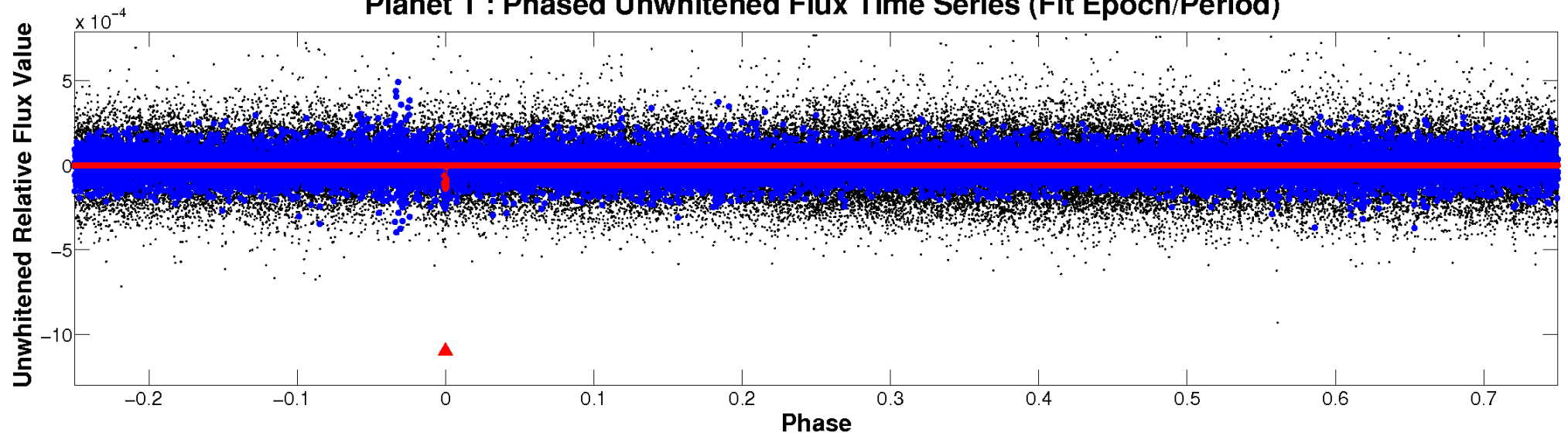
TCE 009758497-01



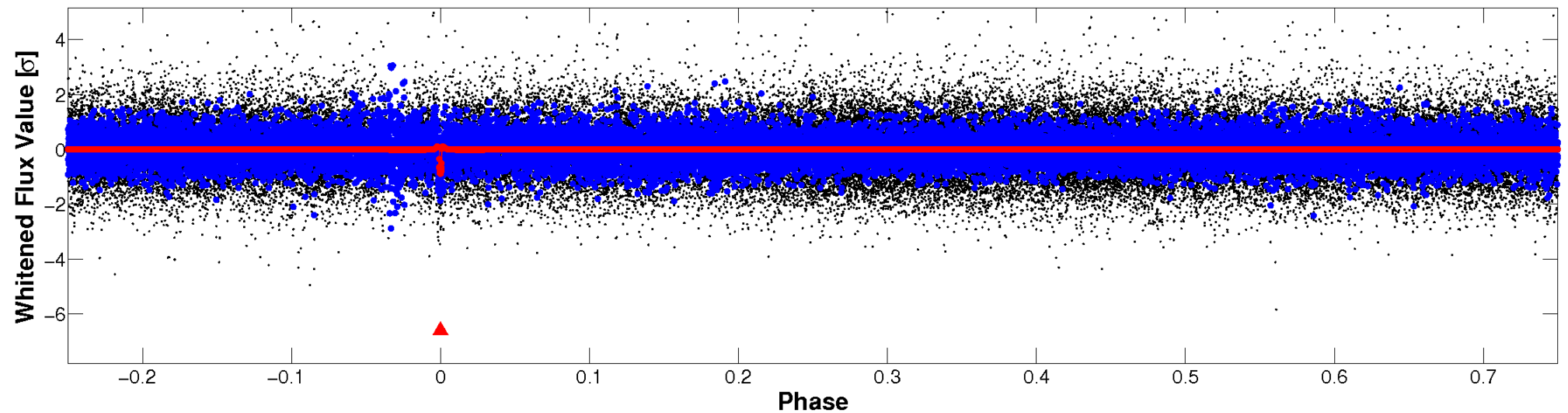


# Non-Whitened Vs. Whitened Light Curve

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

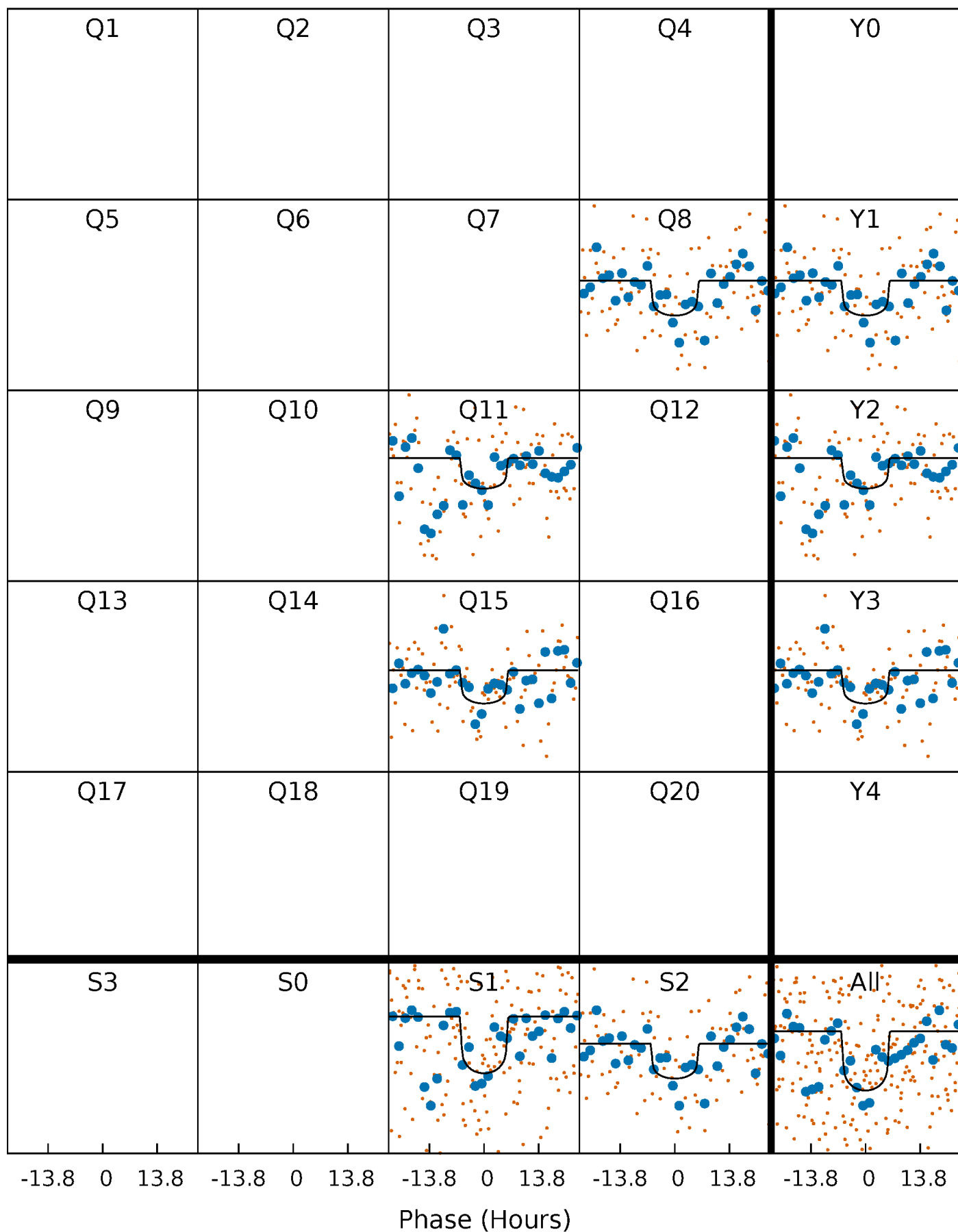
TCE 009758497-01   P=342.225385 Days    $T_0=397.970974$  (BKJD)





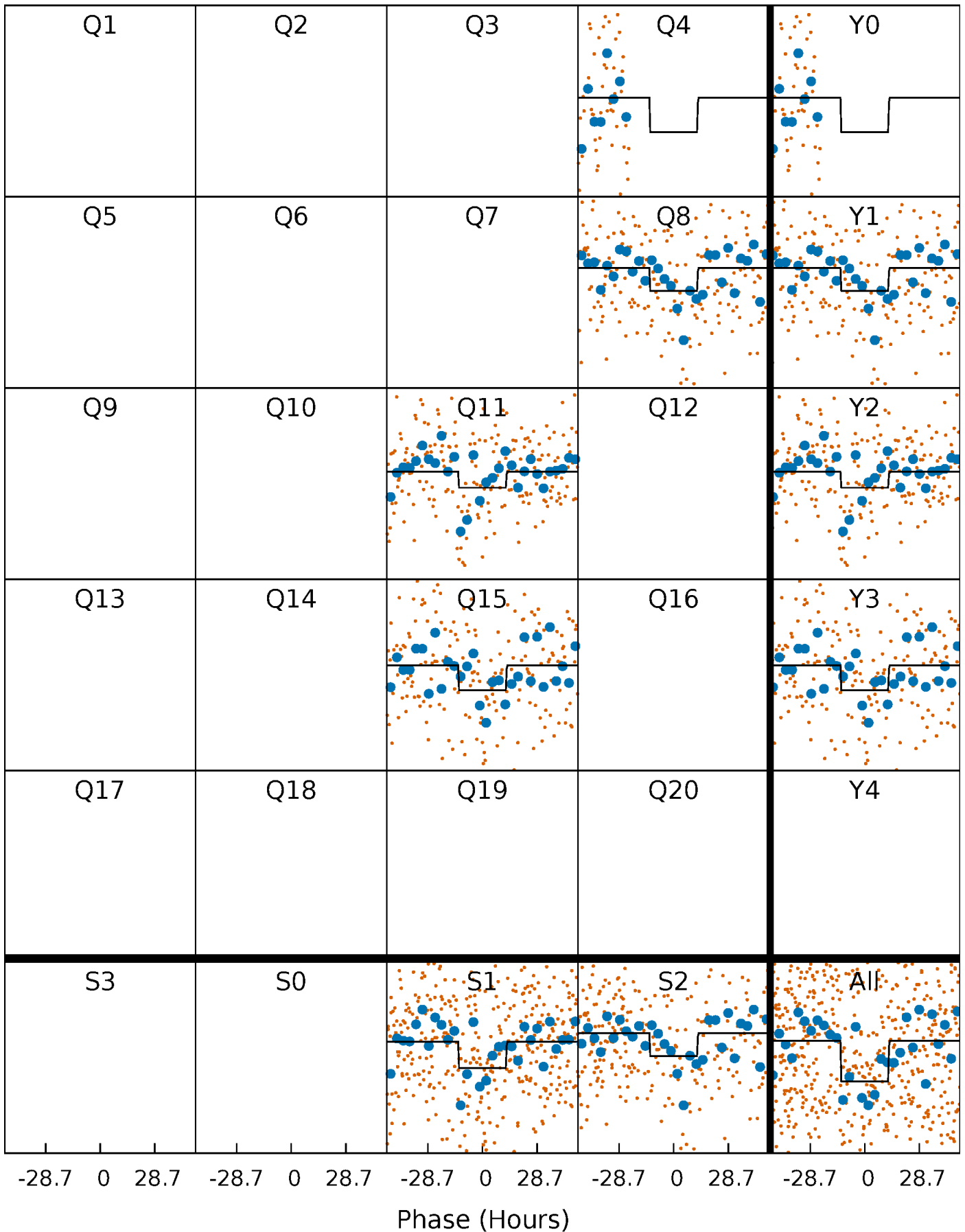
# DV Quarter-Phased Transit Curves

TCE 009758497-01     $P=342.225385$  Days     $T_0=397.970974$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

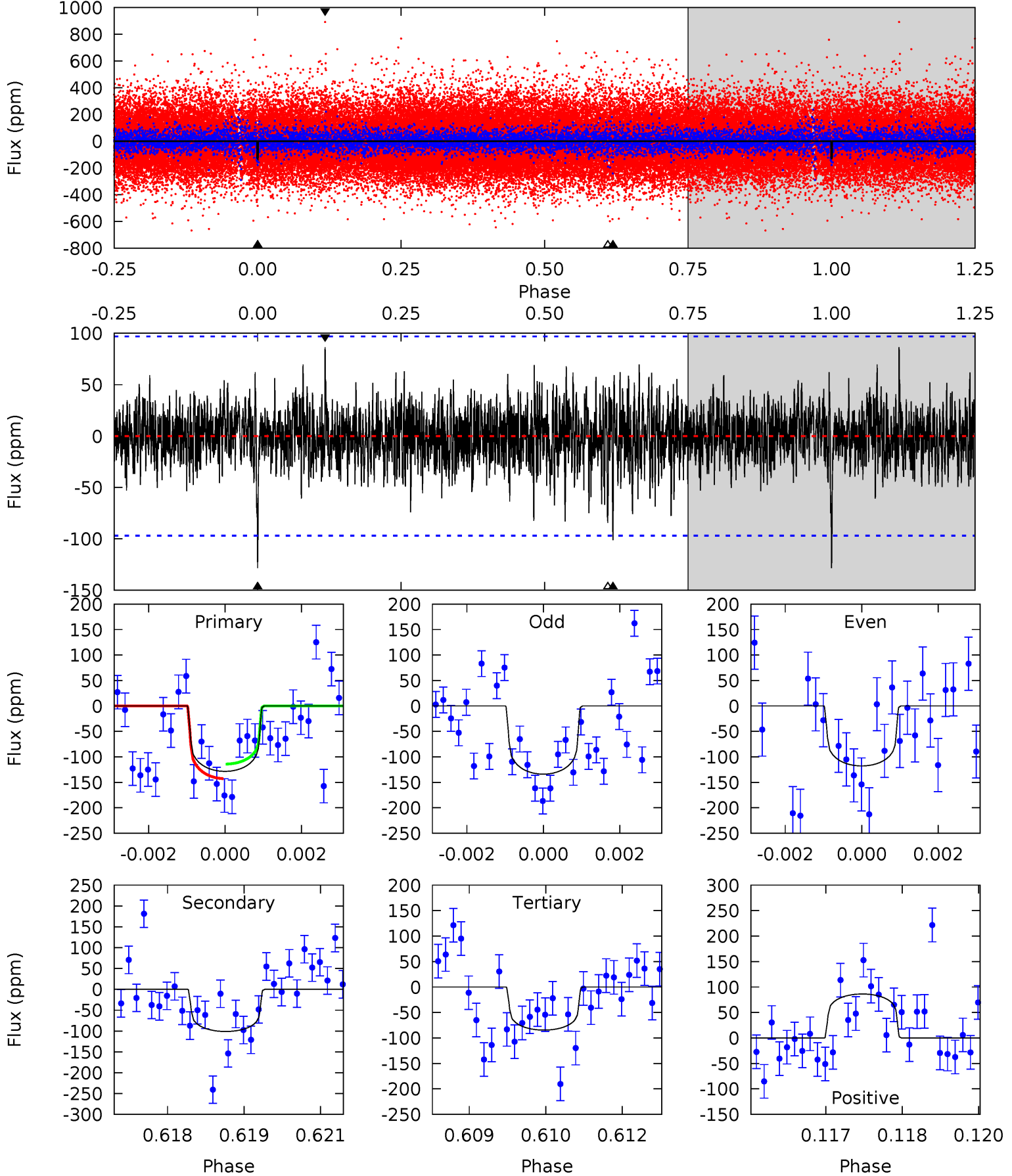
TCE 009758497-01     $P=342.241696$  Days     $T_0=397.824112$  (BKJD)



# DV Model-Shift Uniqueness Test

009758497-01,  $P = 342.225385$  Days,  $E = 55.745589$  Days

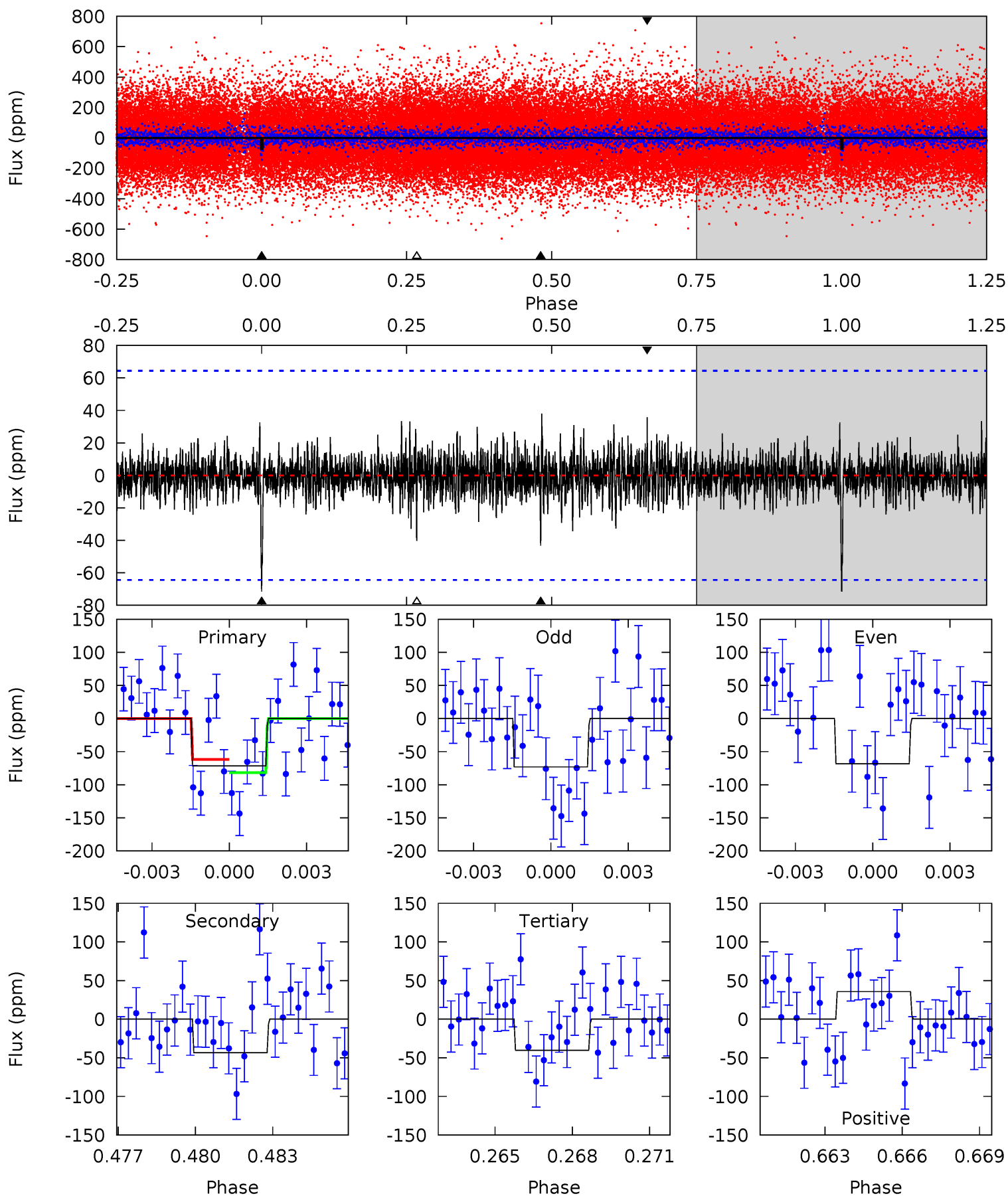
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.13	5.61	4.69	4.79	5.37	3.17	1.21	2.44	2.34	0.92	0.82	0.42	1.00	0.40	0.79



# Alt Model-Shift Uniqueness Test

009758497-01, P = 342.241696 Days, E = 55.582416 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
5.82	3.52	3.27	2.91	5.24	2.95	0.72	2.55	2.90	0.25	0.61	0.19	1.05	0.35	0.81



### Stellar Parameters For KIC 009758497

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5973^{+134}_{-179}$	$4.562^{+0.040}_{-0.160}$	$-0.440^{+0.300}_{-0.300}$	$0.829^{+0.185}_{-0.066}$	$0.915^{+0.090}_{-0.110}$	$2.265^{+0.474}_{-0.984}$
	+2%/-3%	+1%/-4%	+68%/-68%	+22%/-8%	+10%/-12%	+21%/-43%
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 009758497-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-101 \pm 18$	$1.17^{+0.63}_{-0.61}$	$353^{+19}_{-14}$	$5377^{+2545}_{-891}$	$34195^{+120556}_{-20026}$
Alt.	$-43 \pm 12$	$0.92^{+0.72}_{-0.54}$	$353^{+19}_{-14}$	$4892^{+2794}_{-951}$	$22795^{+114818}_{-15839}$

$T_{max}$  = 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

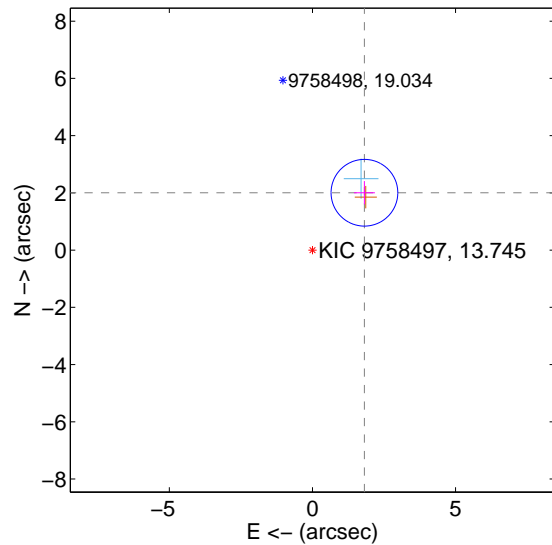
Supplemental centroid analysis for 009758497-01. Kepler magnitude: 13.74. Transit SNR 6.52

There are 1 quarters with good PRF difference image offsets

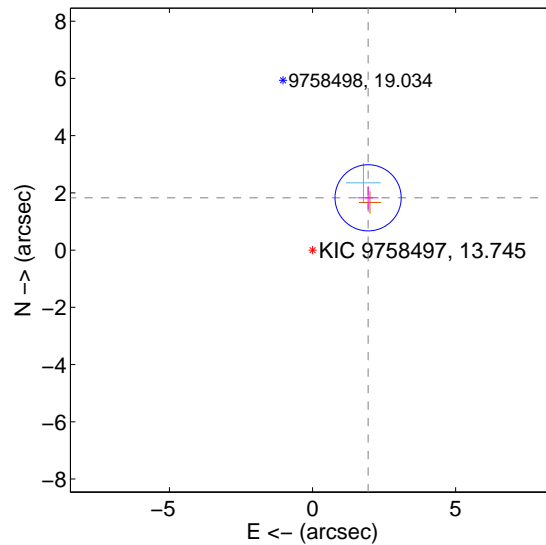
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	2.705 $\pm$ 0.389	6.96	-1.817 $\pm$ 0.366	2.004 $\pm$ 0.406
PRF-fit source offset from KIC position	2.667 $\pm$ 0.385	6.92	-1.942 $\pm$ 0.366	1.827 $\pm$ 0.406
photometric centroid source offset	1.13 $\pm$ 1.97	0.57	-0.50 $\pm$ 1.77	-1.01 $\pm$ 2.02

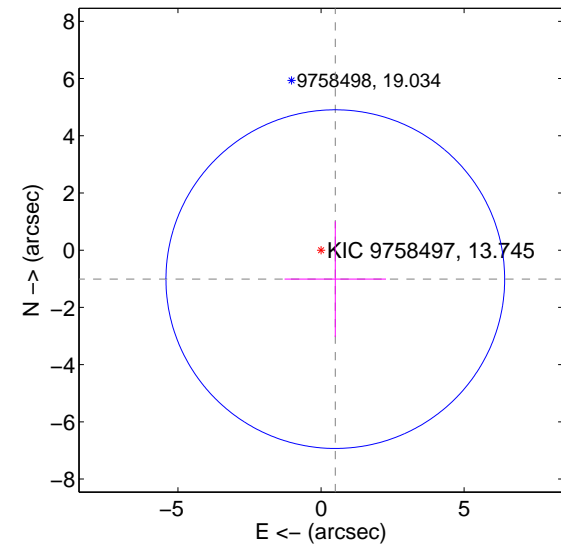
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



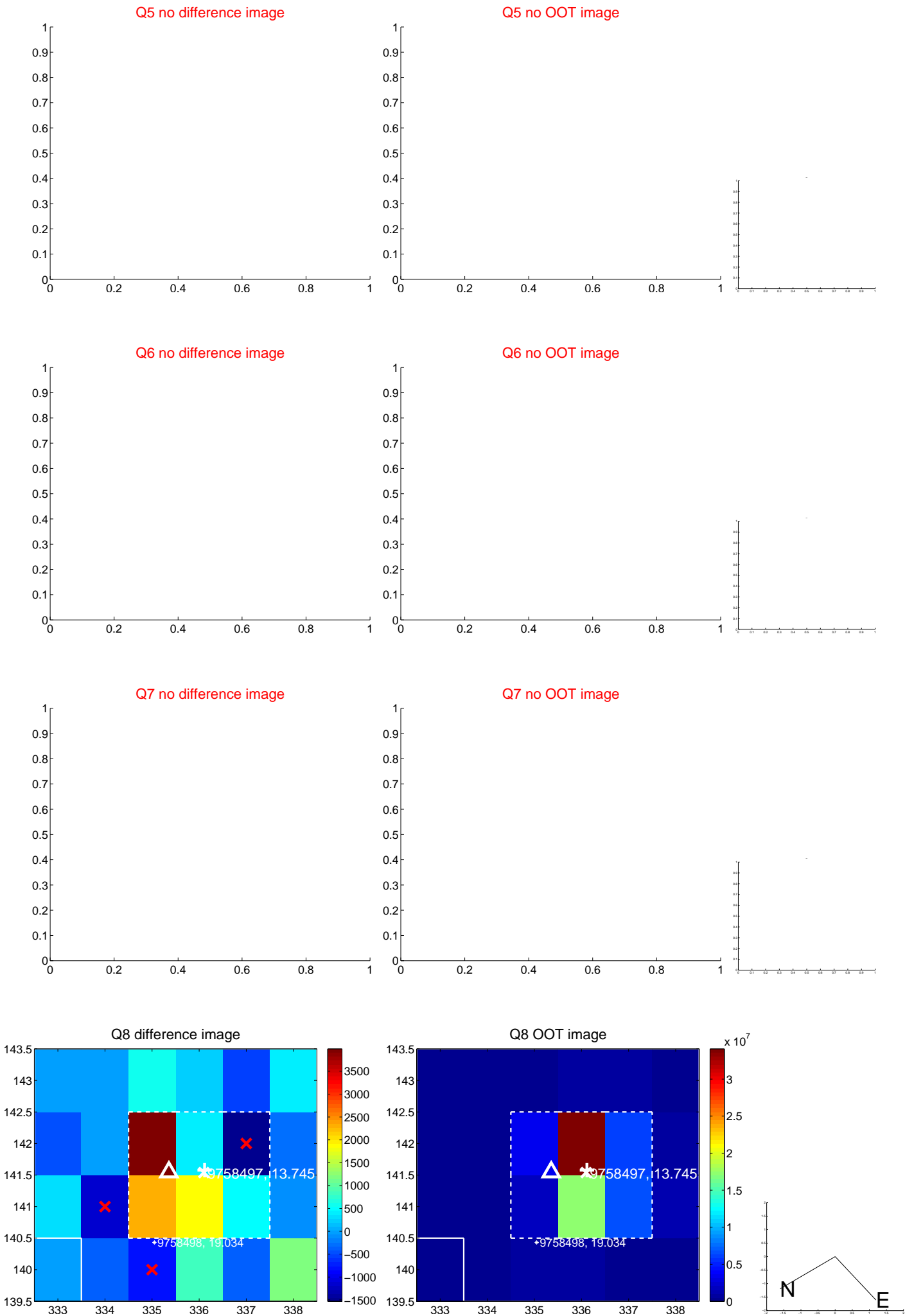
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



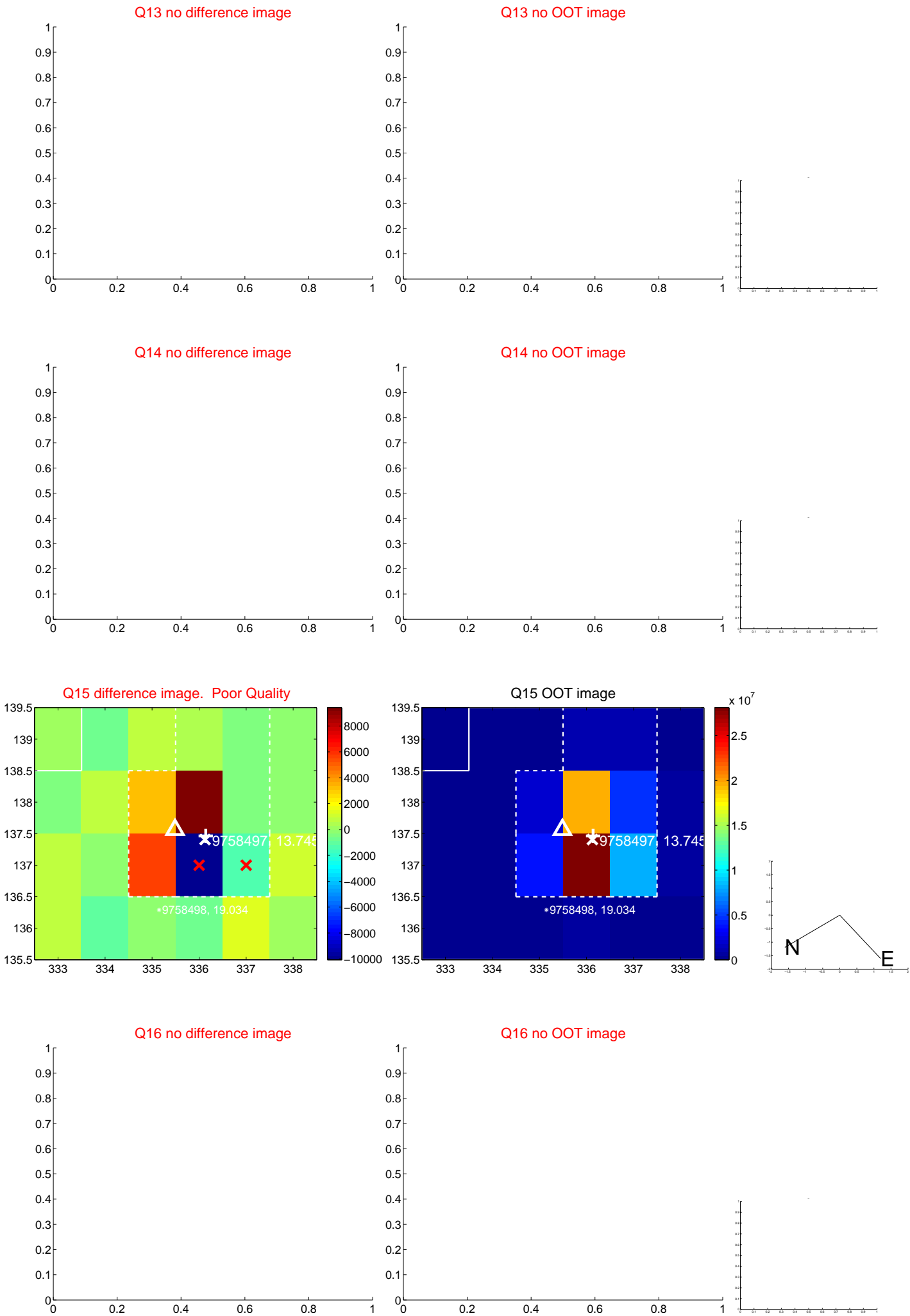
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



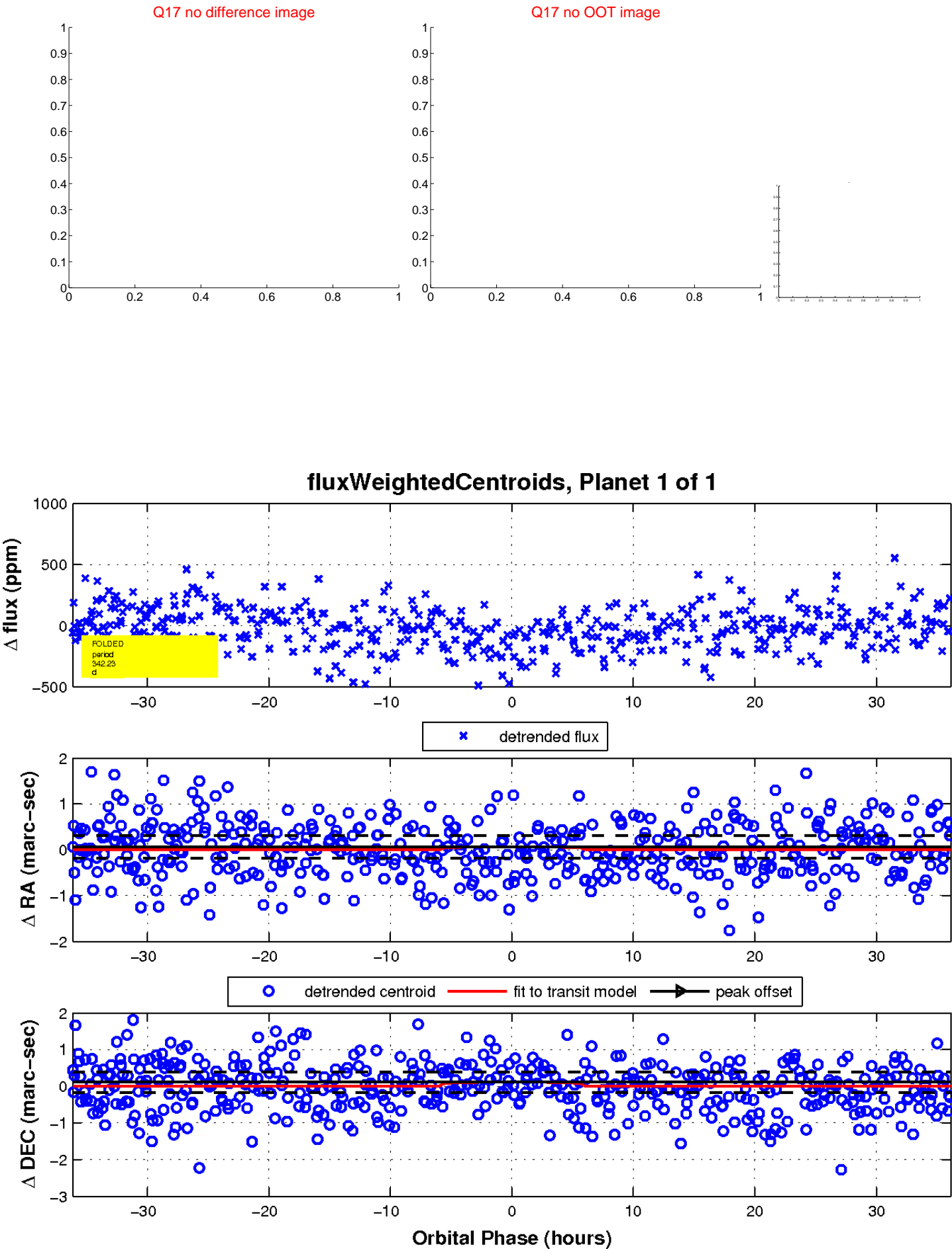
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

