

# KIC 009277360

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009277360-01	OBS	No	365.626232	404.565940	486.9	5.326	9.4	8.4	0.97	6046	2.20	1.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009277360-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

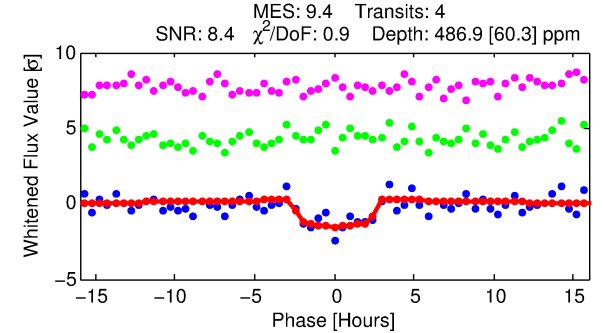
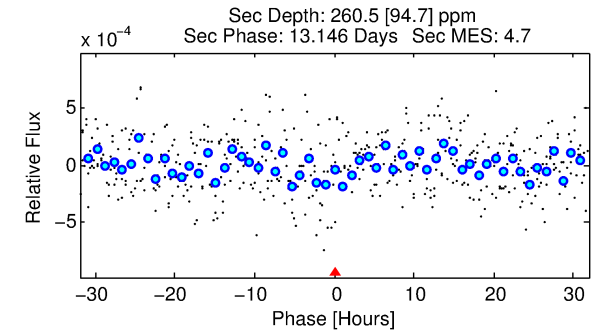
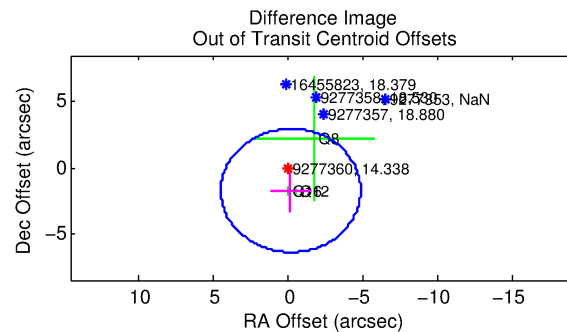
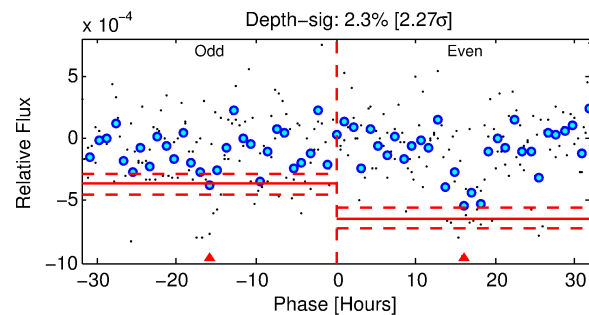
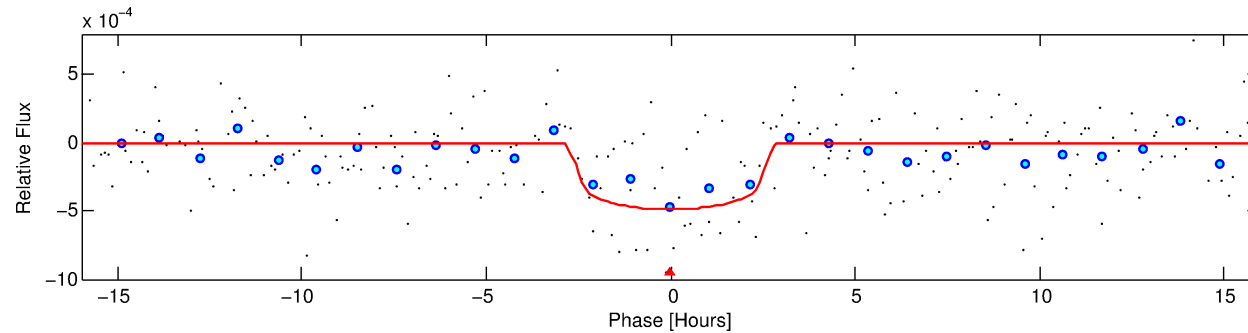
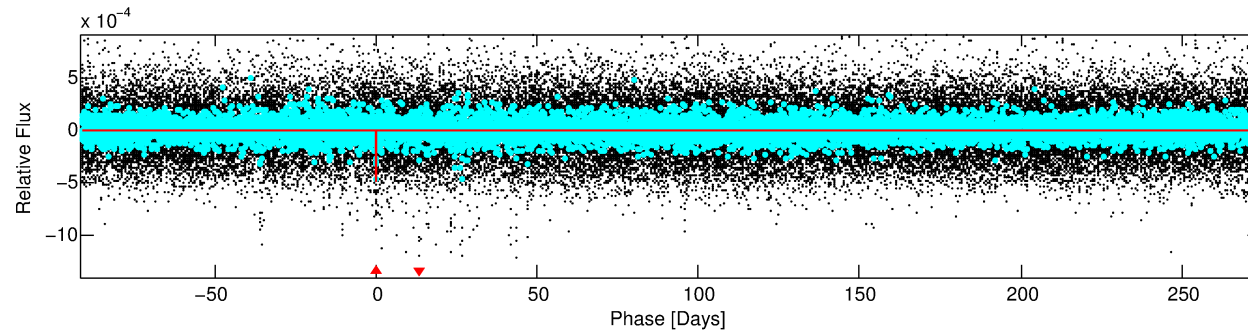
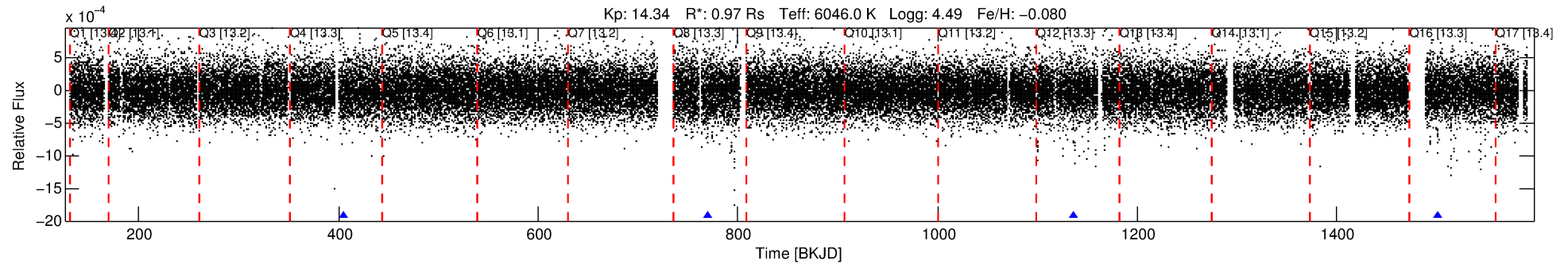
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009277360-01

No Significant Match Found

# DV One-Page Summary

KIC: 9277360 Candidate: 1 of 1 Period: 365.626 d



## DV Fit Results:

Period = 365.62623 [0.00500] d  
Epoch = 404.5659 [0.0095] BKJD  
Rp/R\* = 0.0208 [0.0337]  
a/R\* = 468.08 [3627.10]  
b = 0.50 [11.90]  
Seff = 1.09 [0.43]  
Teff = 261 [25] K  
Rp = 2.20 [3.64] Re  
a = 1.0190 [0.2616] AU  
Ag = 30722.35 [101040.78] [0.30σ]  
Teffp = 5332 [4360] K [1.16σ]

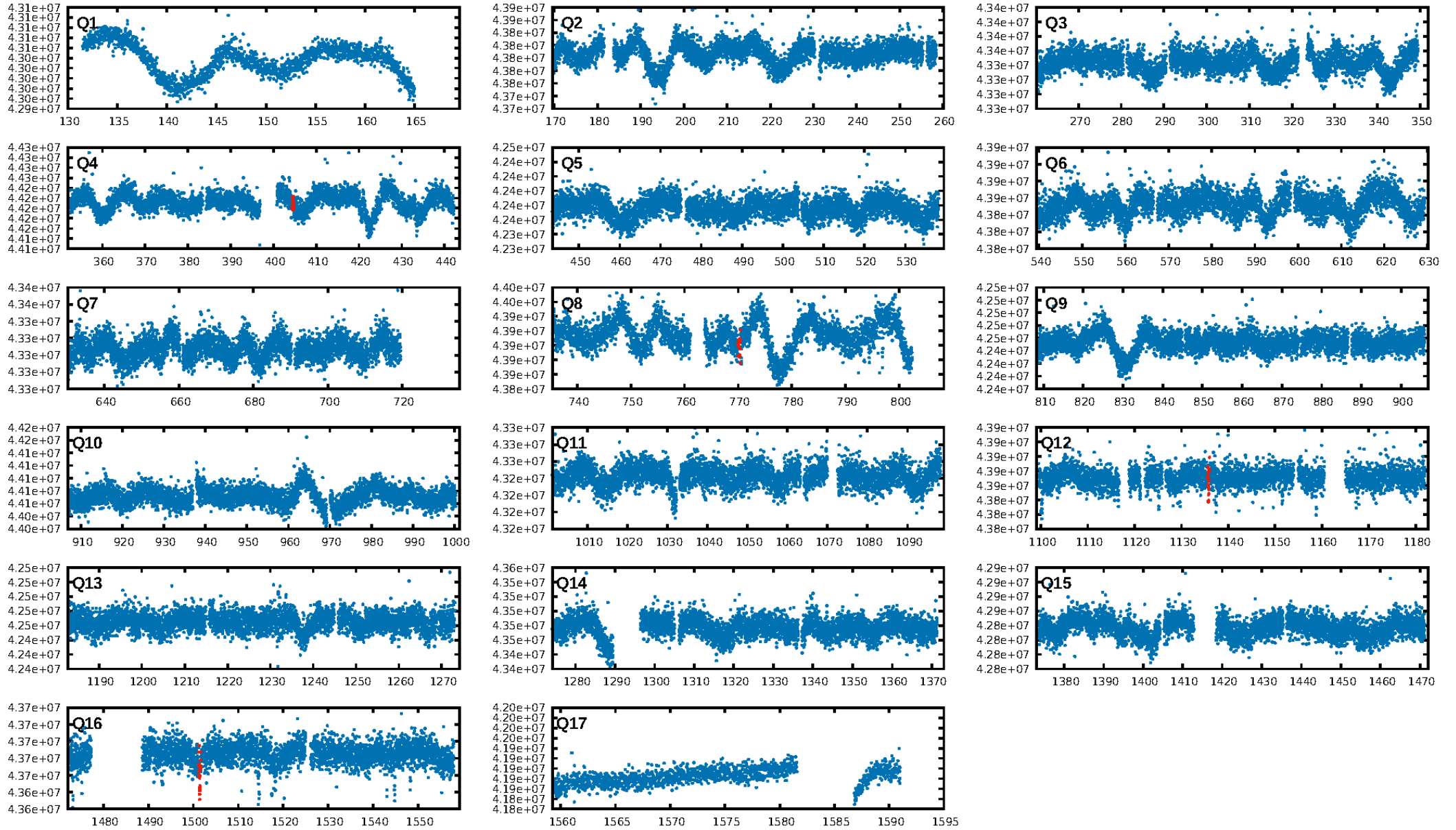
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 82.4%  
Bootstrap-pfa: 7.48e-11  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 5.304  
Centroid-sig: 1.0%  
Centroid-so: 1.697 arcsec [1.30σ]  
OotOffset-rm: 1.750 arcsec [1.12σ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-rm: 1.706 arcsec [1.10σ]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [4/4]

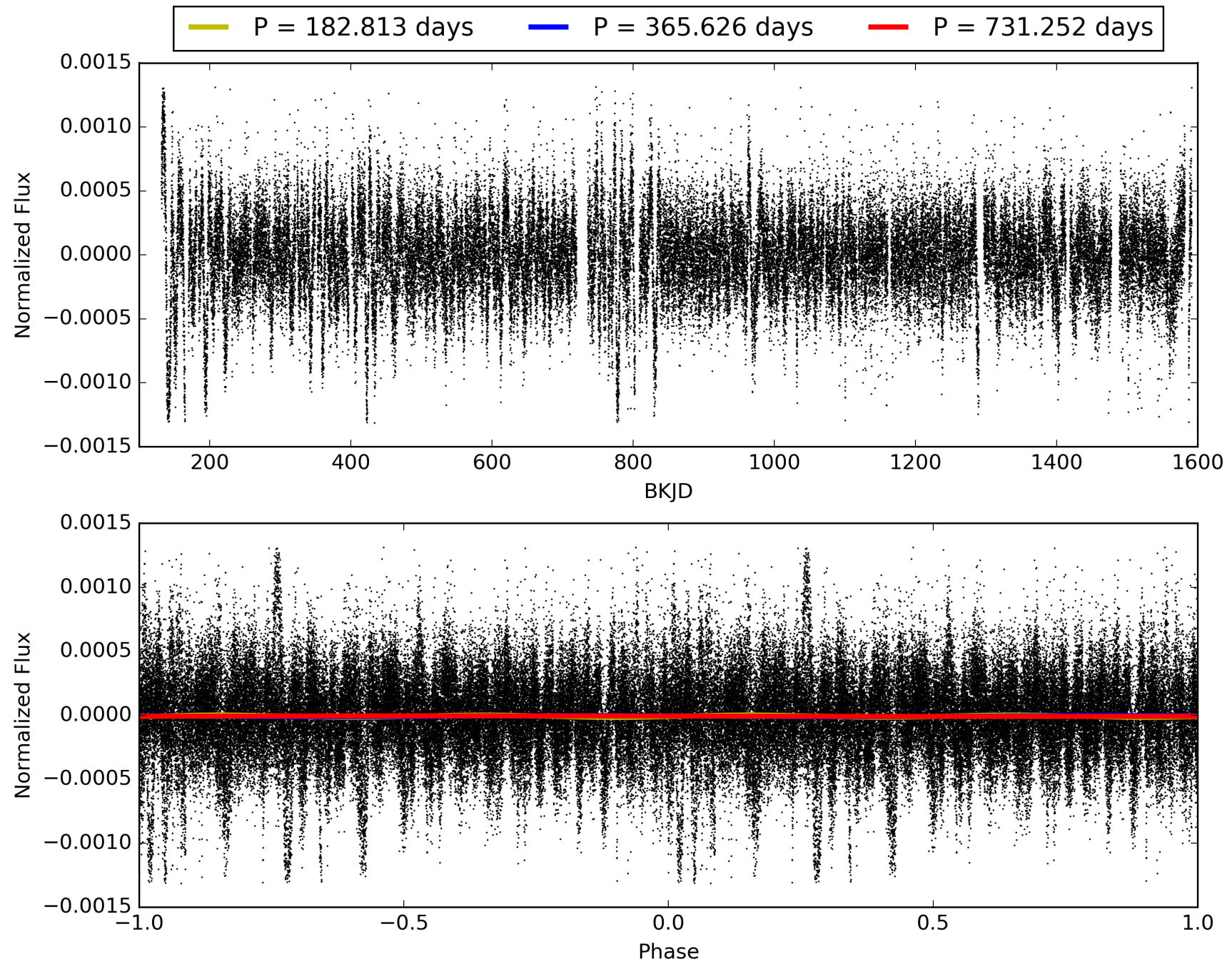
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:12:31 Z

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

# TCE 009277360-01, PDC Light Curves

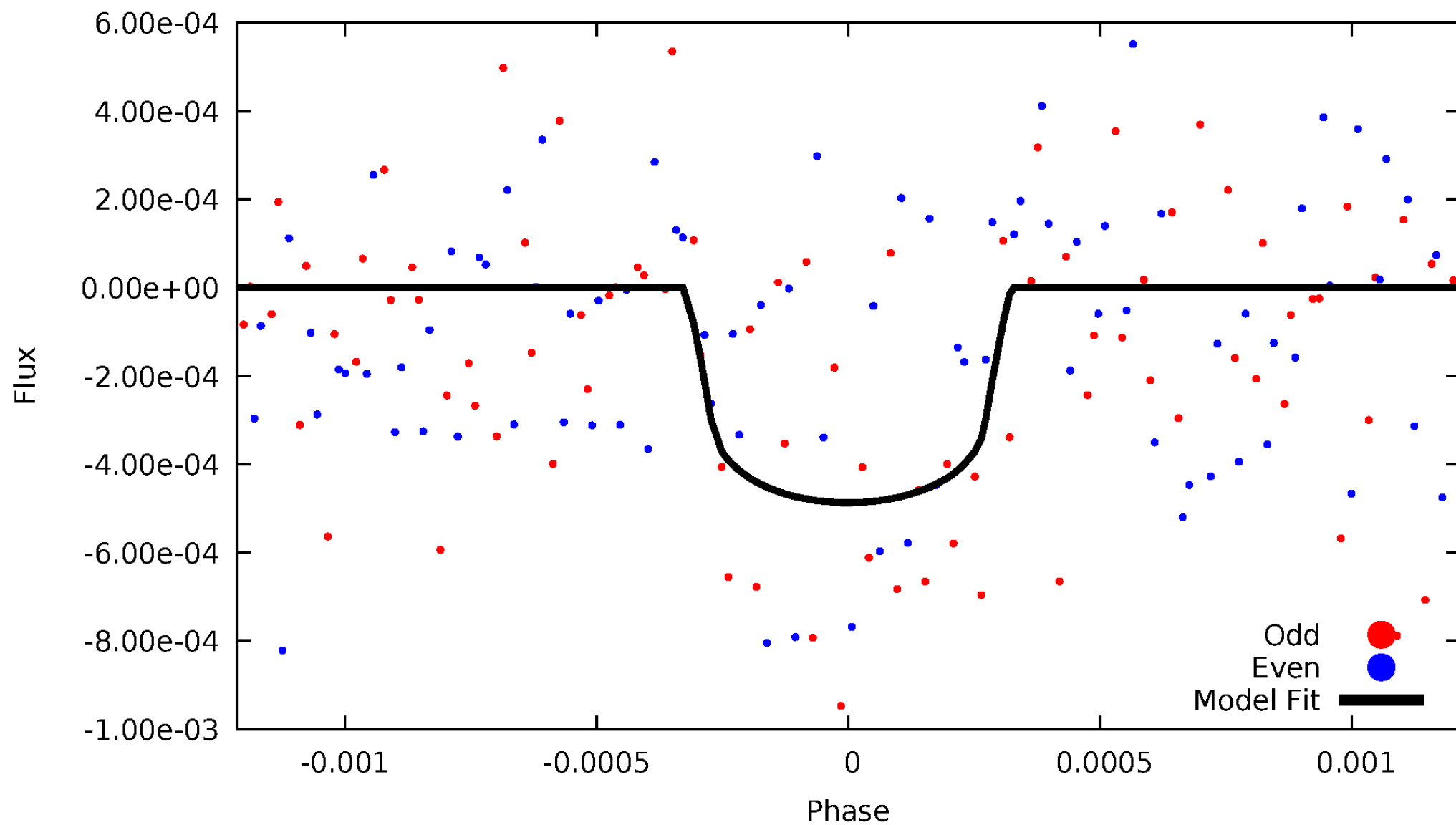


TCE 009277360-01



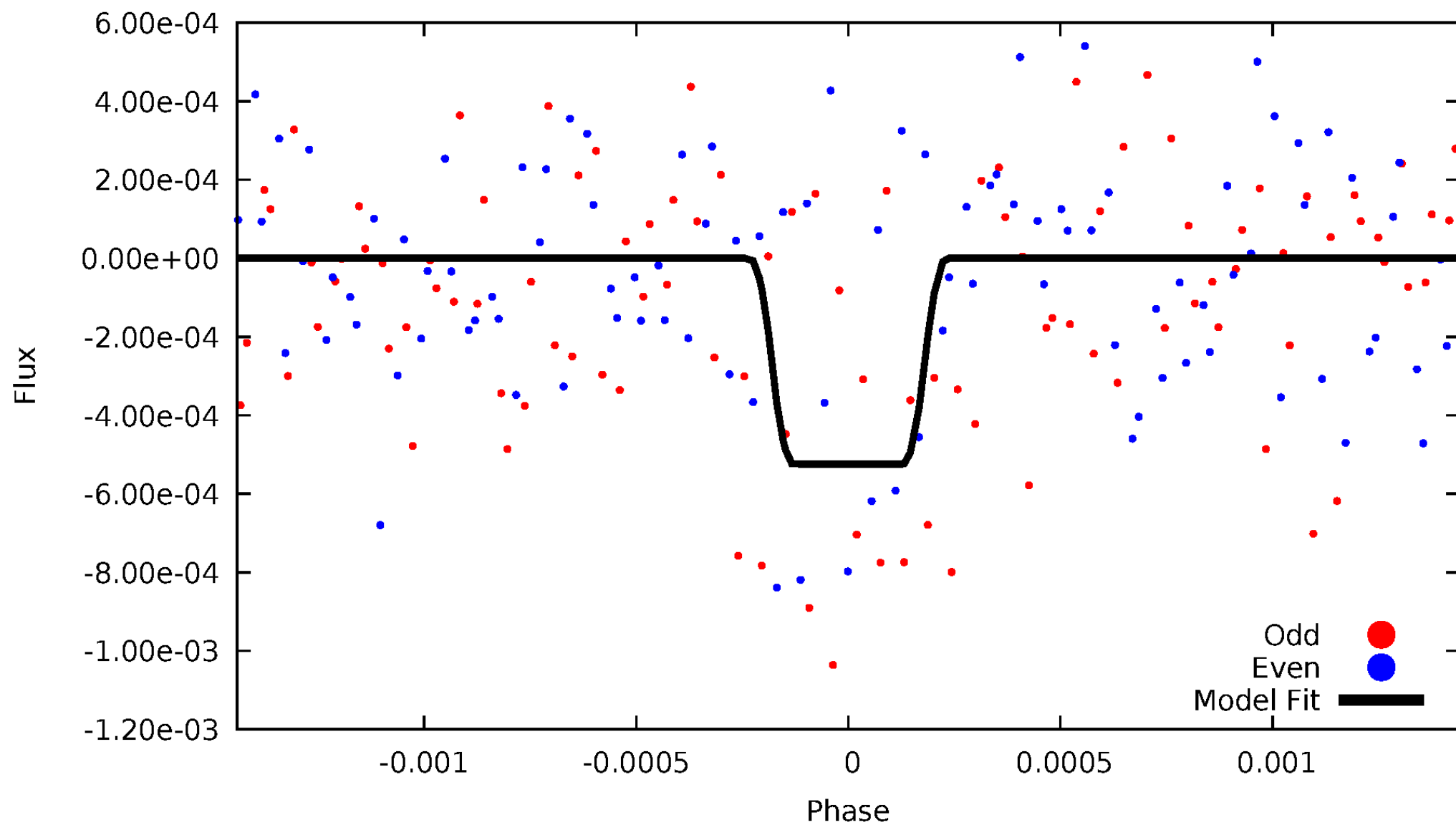
# DV Odd/Even

TCE 009277360-01

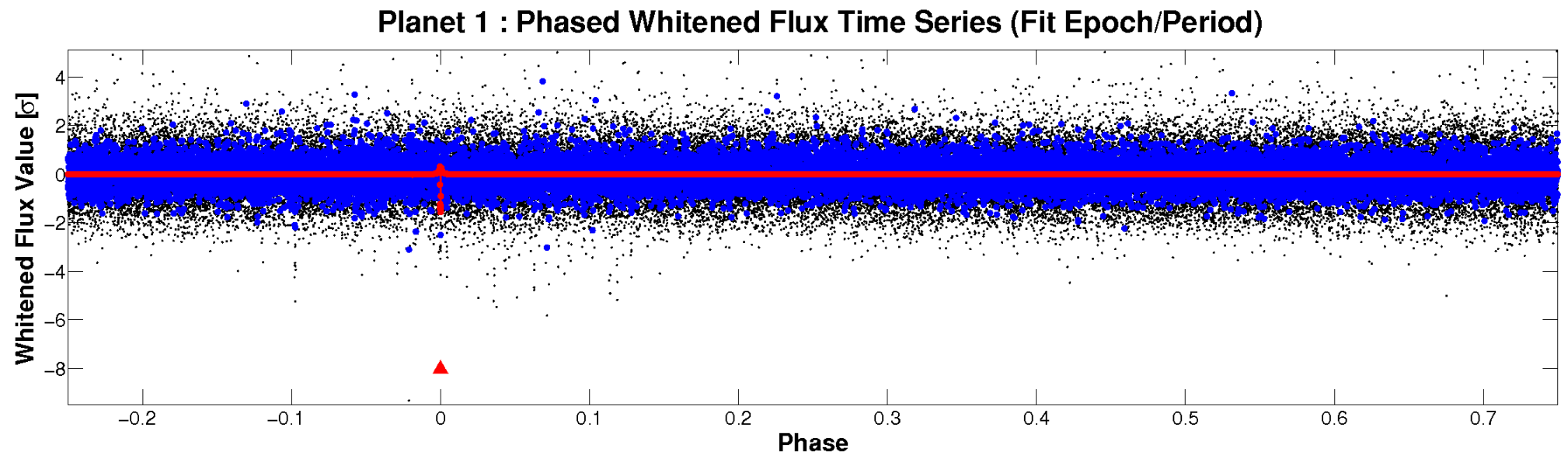
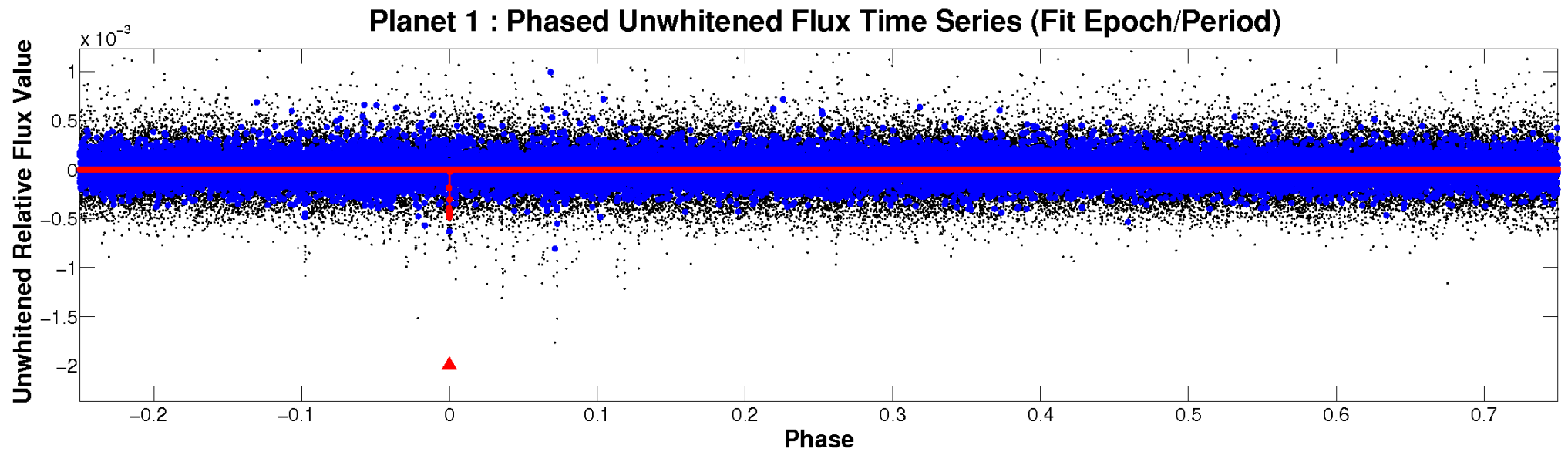


# ALT Odd/Even

TCE 009277360-01



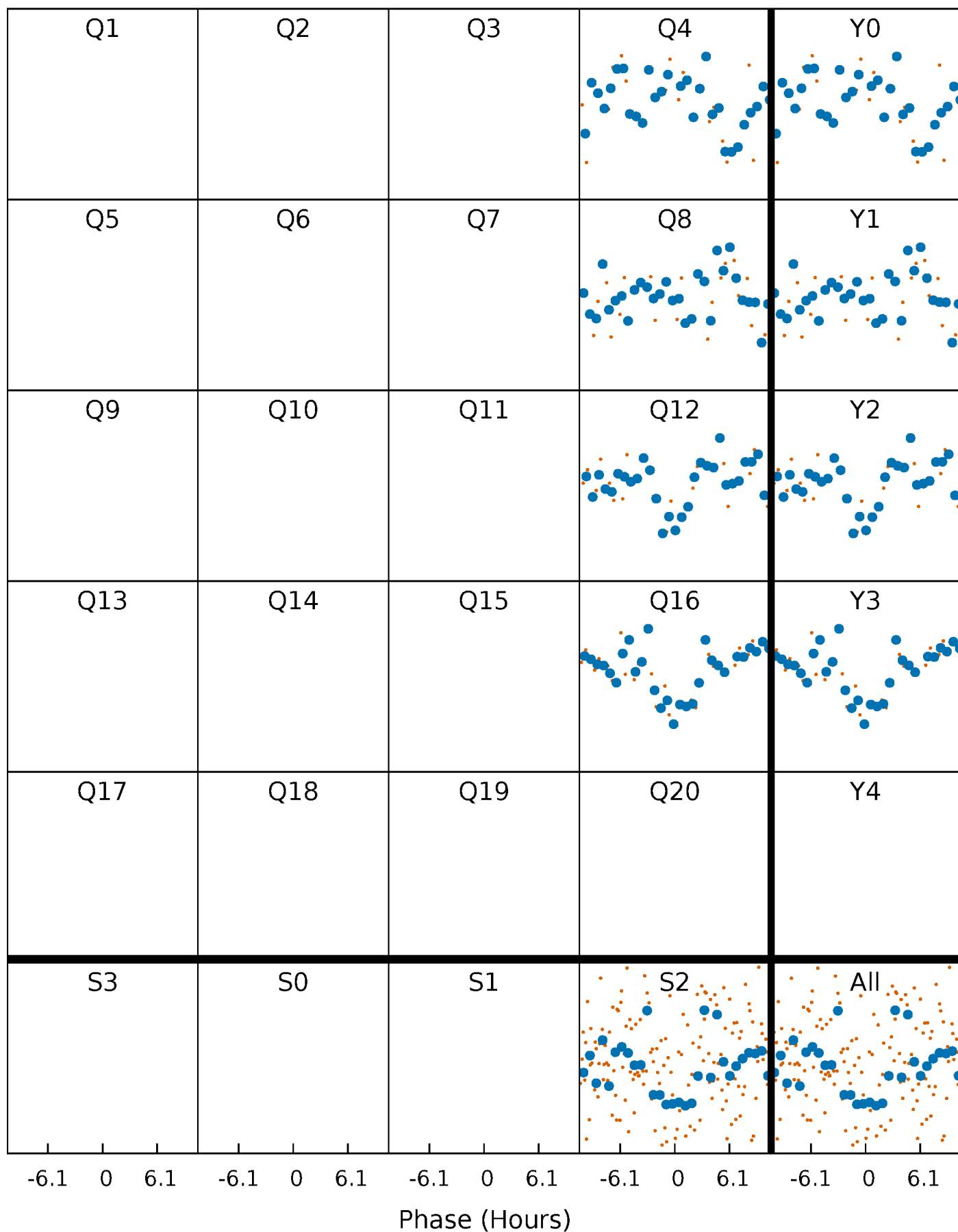
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

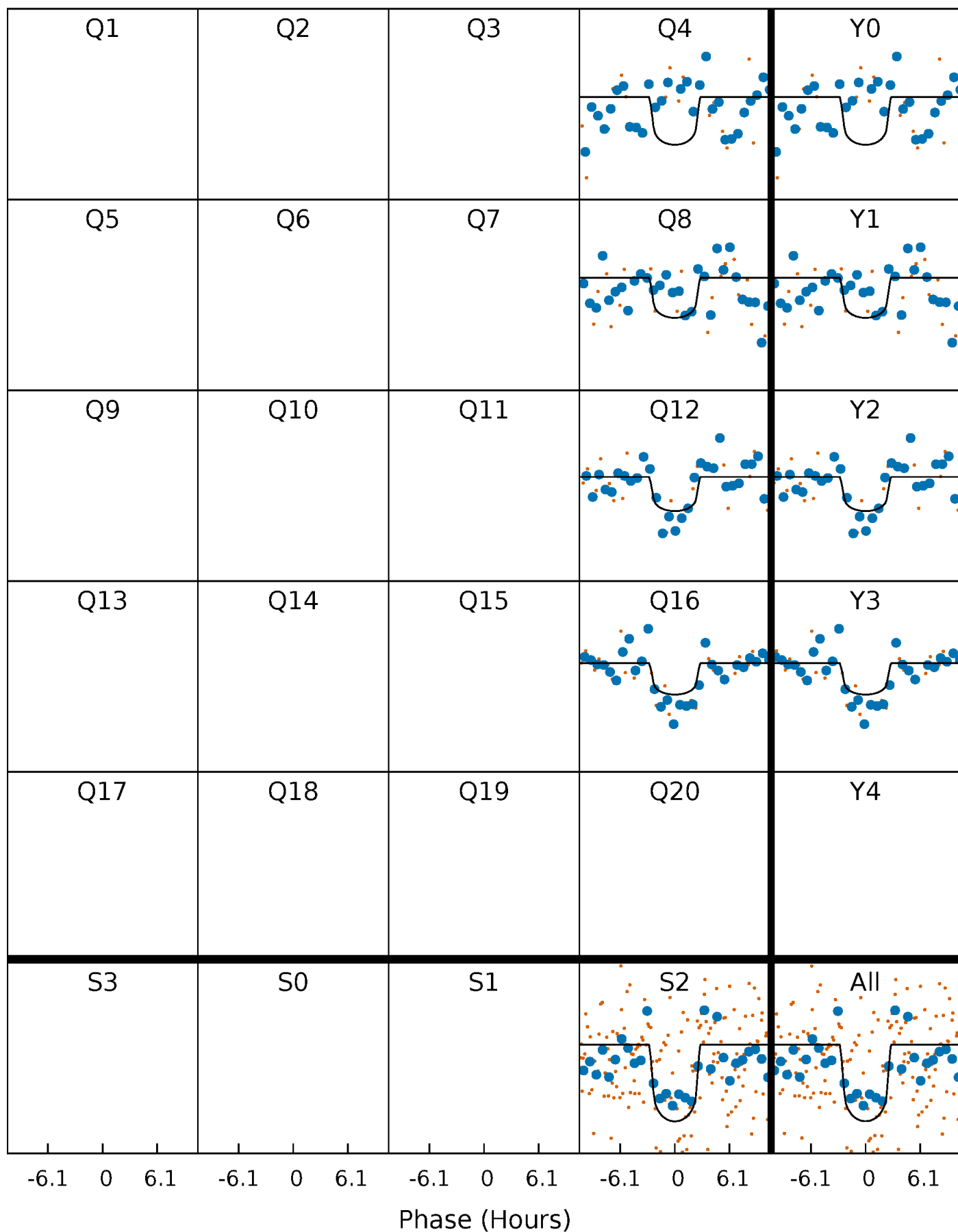
TCE 009277360-01 P=365.626232 Days  $T_0=404.565940$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 009277360-01 P=365.626232 Days  $T_0=404.565940$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

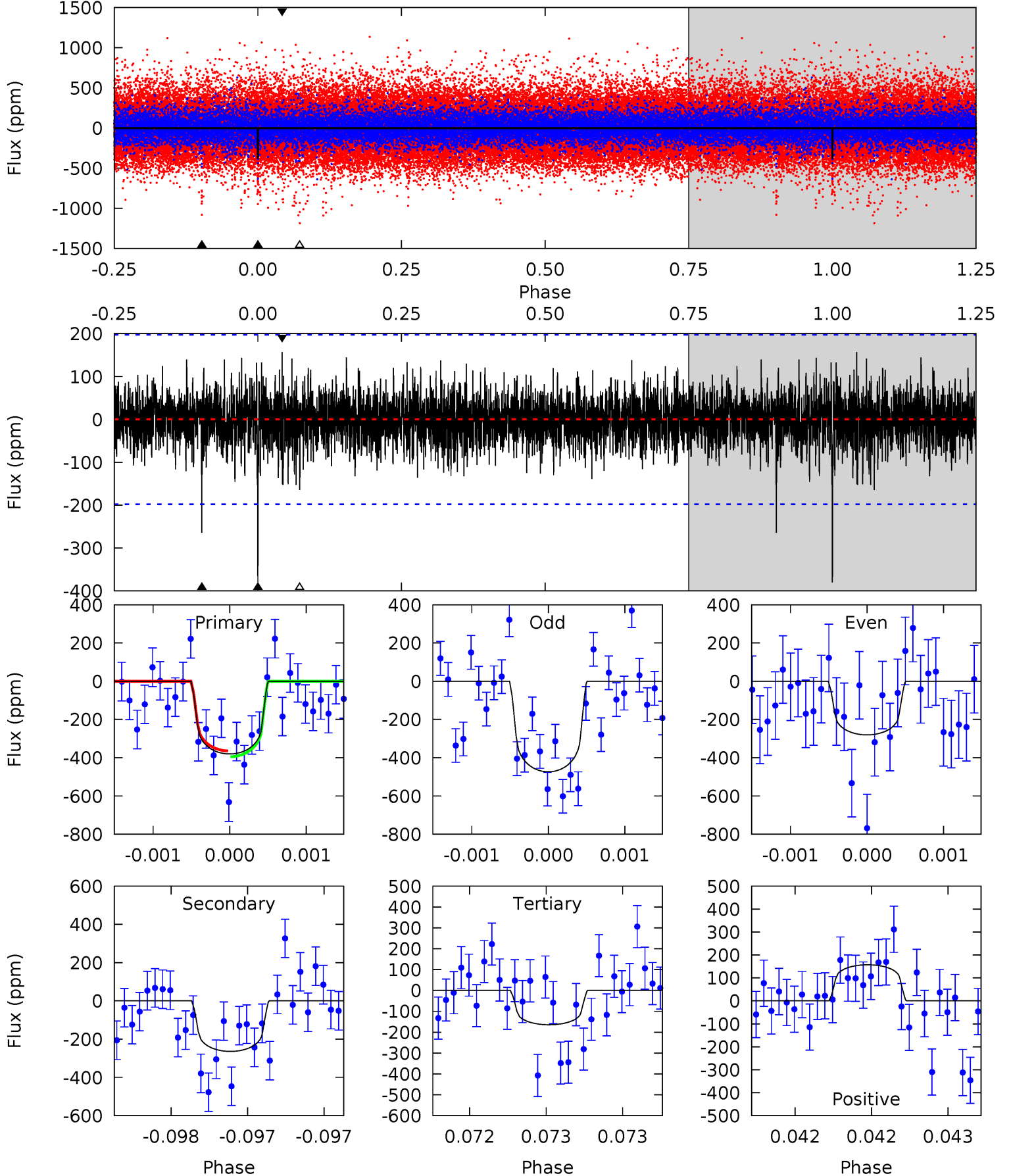
TCE 009277360-01 P=365.631311 Days  $T_0=404.558503$  (BKJD)



# DV Model-Shift Uniqueness Test

009277360-01,  $P = 365.626232$  Days,  $E = 38.939708$  Days

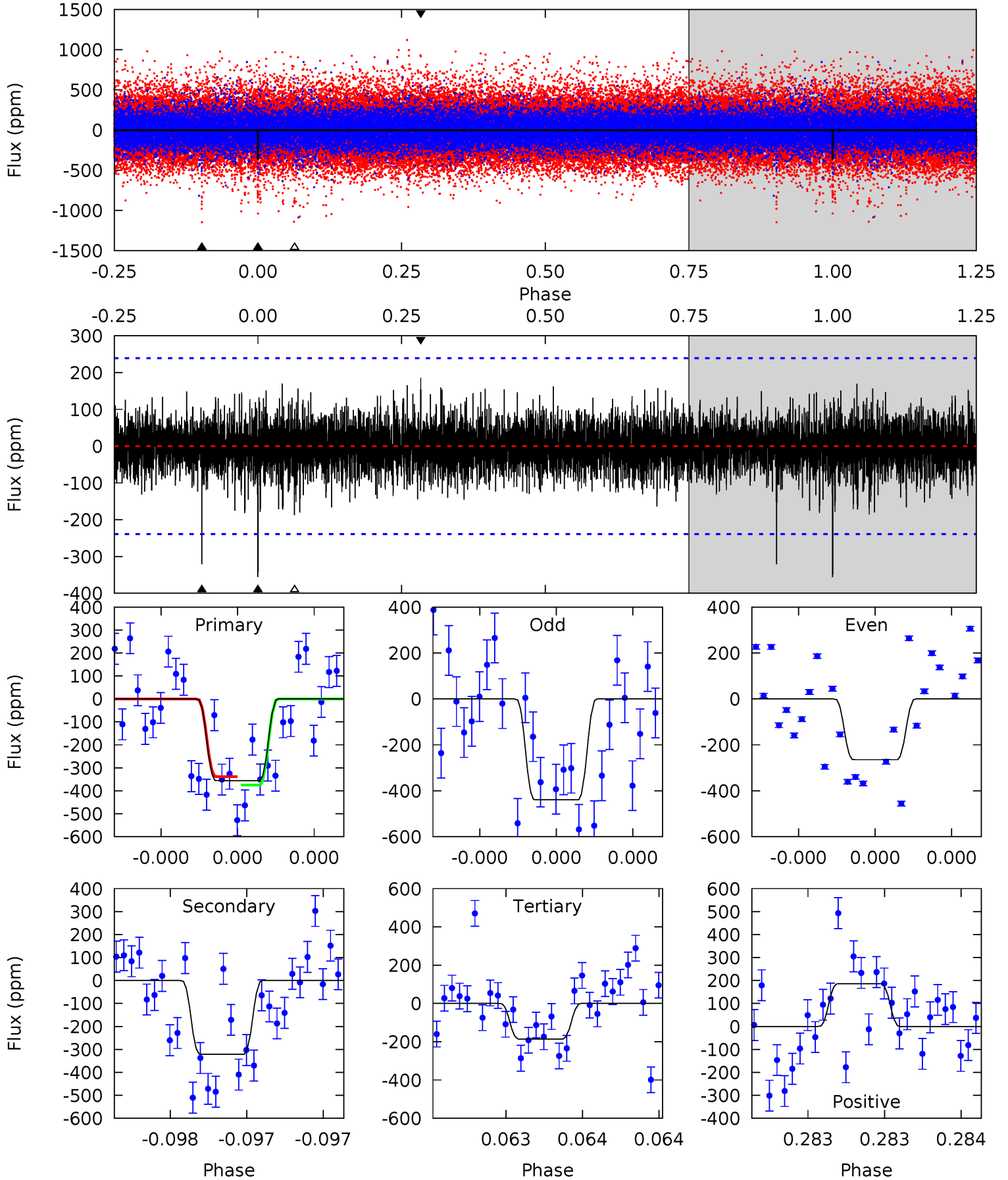
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	7.38	4.59	4.39	5.53	3.41	1.20	6.03	6.23	2.79	2.99	2.70	0.95	0.29	0.42



# Alt Model-Shift Uniqueness Test

009277360-01,  $P = 365.631311$  Days,  $E = 38.927192$  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
8.32	7.50	4.35	4.35	5.59	3.51	1.10	3.97	3.97	3.15	3.16	2.11	0.90	0.34	0.43



### Stellar Parameters For KIC 009277360

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6046^{+168}_{-189}$	$4.486^{+0.050}_{-0.200}$	$-0.080^{+0.250}_{-0.350}$	$0.972^{+0.300}_{-0.100}$	$1.053^{+0.129}_{-0.142}$	$1.615^{+0.434}_{-0.827}$
	+3%/-3%	+1%/-4%	+312%/-438%	+31%/-10%	+12%/-13%	+27%/-51%
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 009277360-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-264 \pm 36$	$3.65^{+3.40}_{-2.40}$	$371^{+25}_{-17}$	$4446^{+3006}_{-908}$	$10935^{+81948}_{-8075}$
Alt.	$-321 \pm 43$	$3.34^{+3.57}_{-2.14}$	$372^{+25}_{-19}$	$4731^{+3137}_{-1040}$	$15225^{+100820}_{-11457}$

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

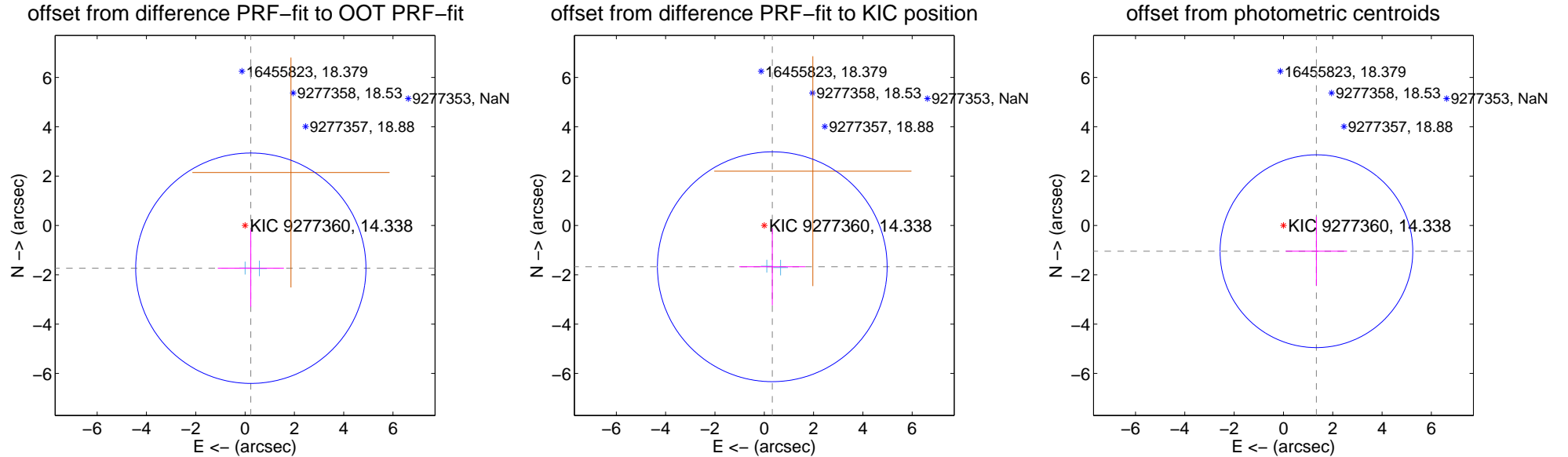
## DV Centroid Data

Supplemental centroid analysis for 009277360-01. Kepler magnitude: 14.34. Transit SNR 8.43

There are 2 quarters with good PRF difference image offsets

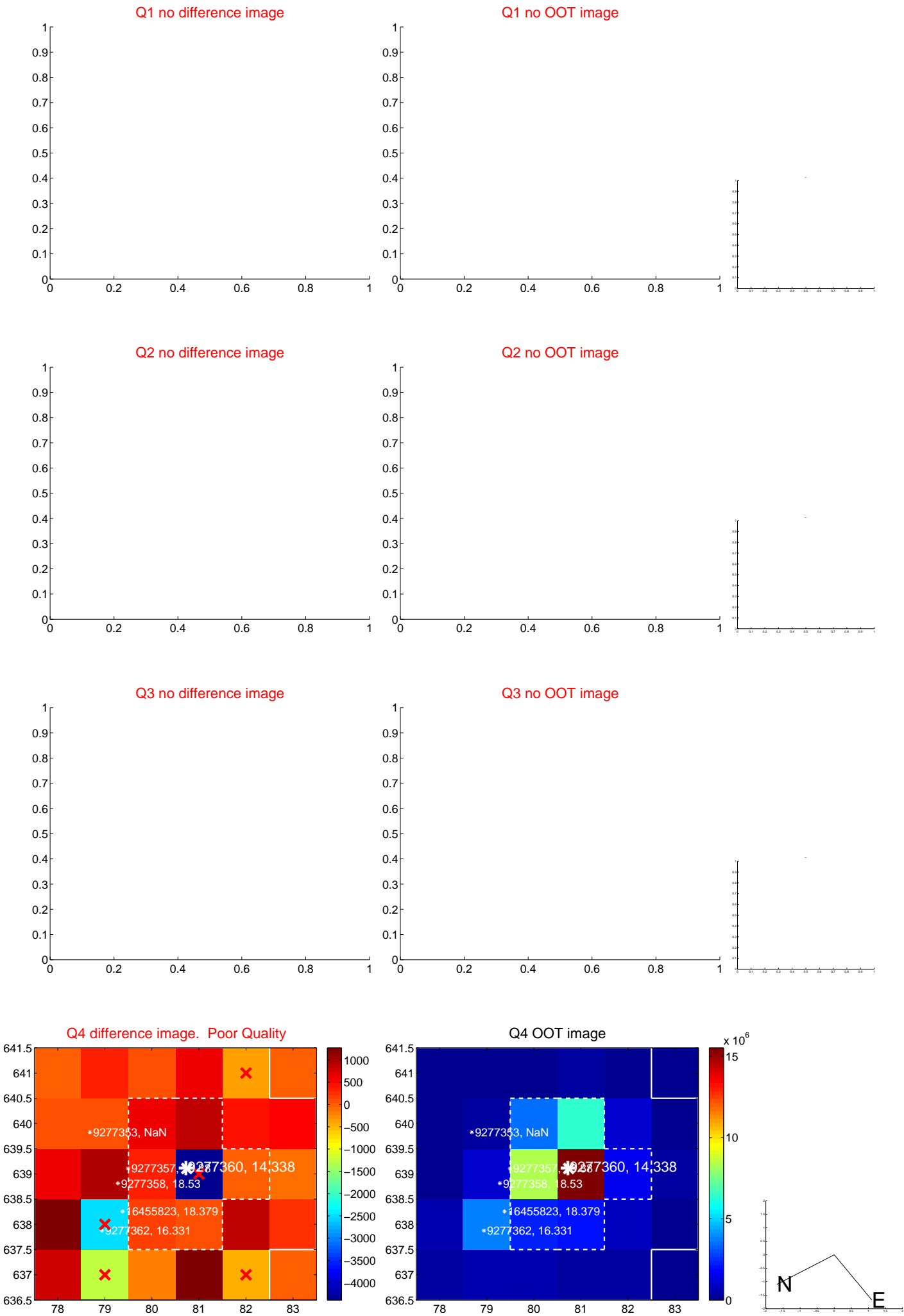
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.750 \pm 1.556$	1.12	$-0.233 \pm 1.341$	$-1.734 \pm 1.560$
PRF-fit source offset from KIC position	$1.706 \pm 1.553$	1.10	$-0.326 \pm 1.341$	$-1.675 \pm 1.560$
photometric centroid source offset	$1.70 \pm 1.30$	1.30	$-1.34 \pm 1.24$	$-1.04 \pm 1.39$



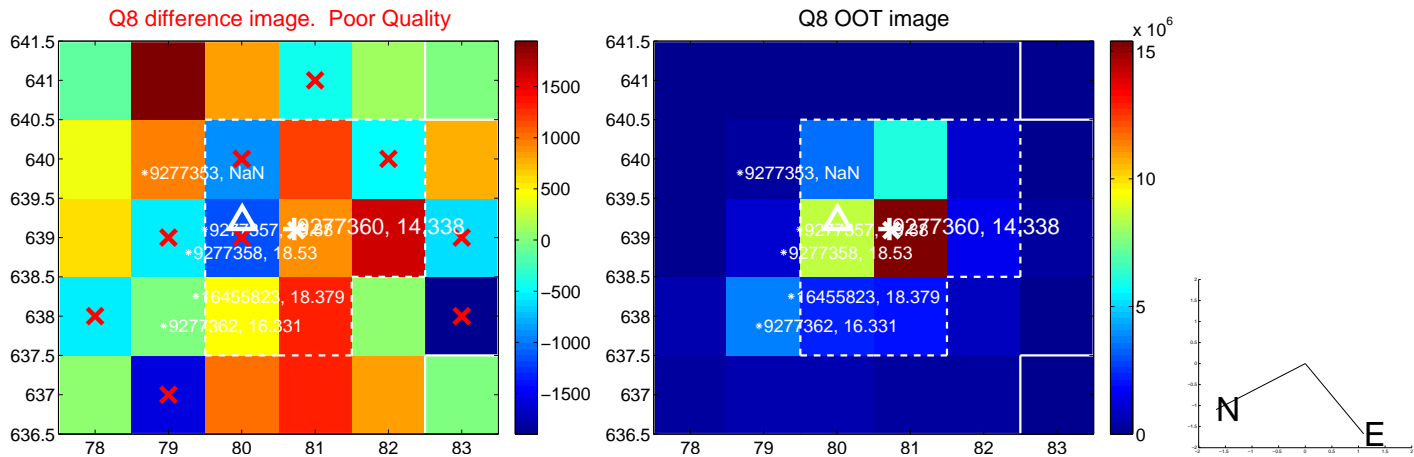
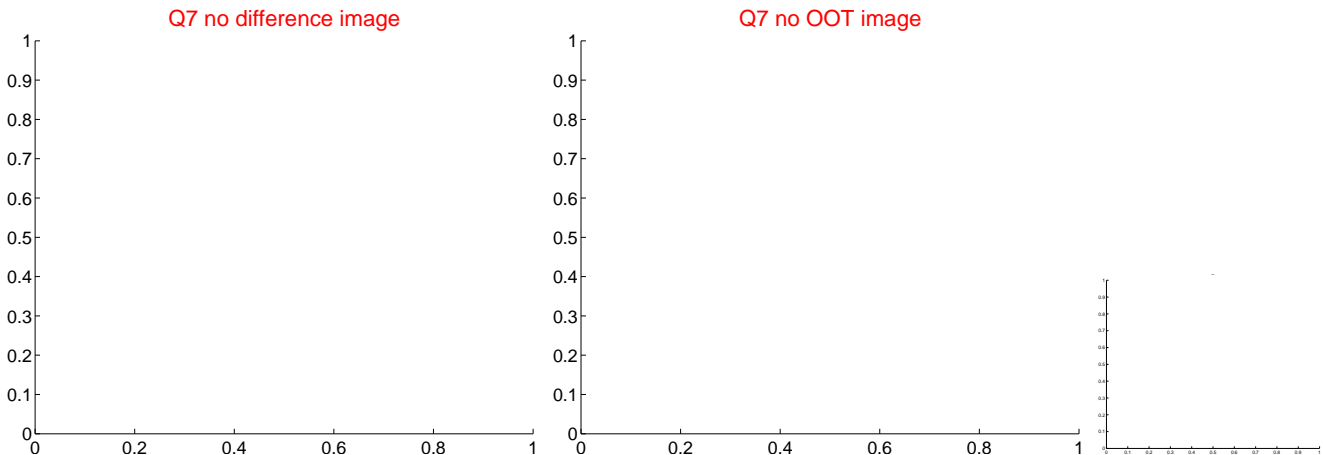
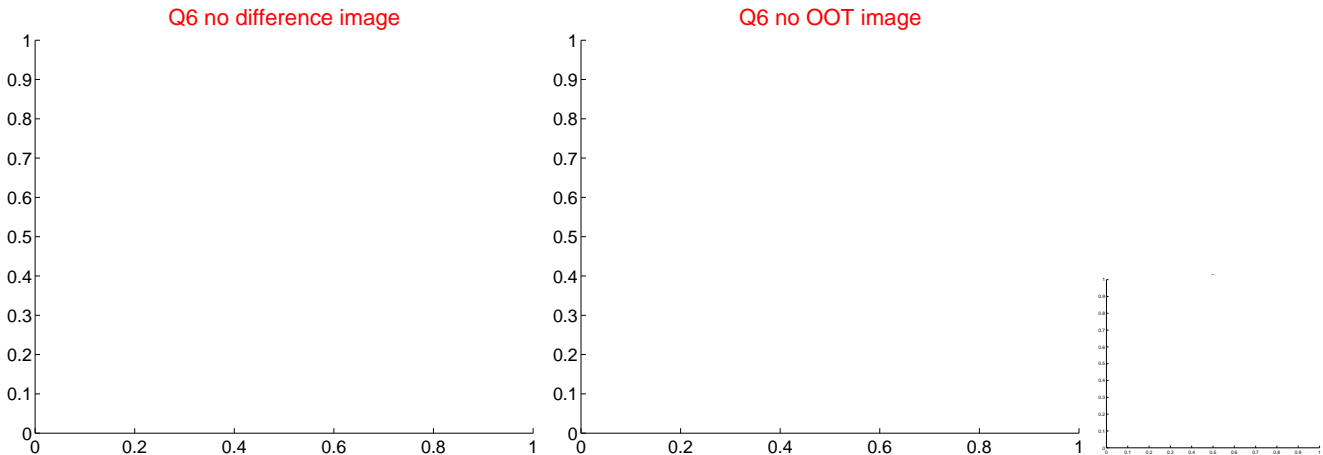
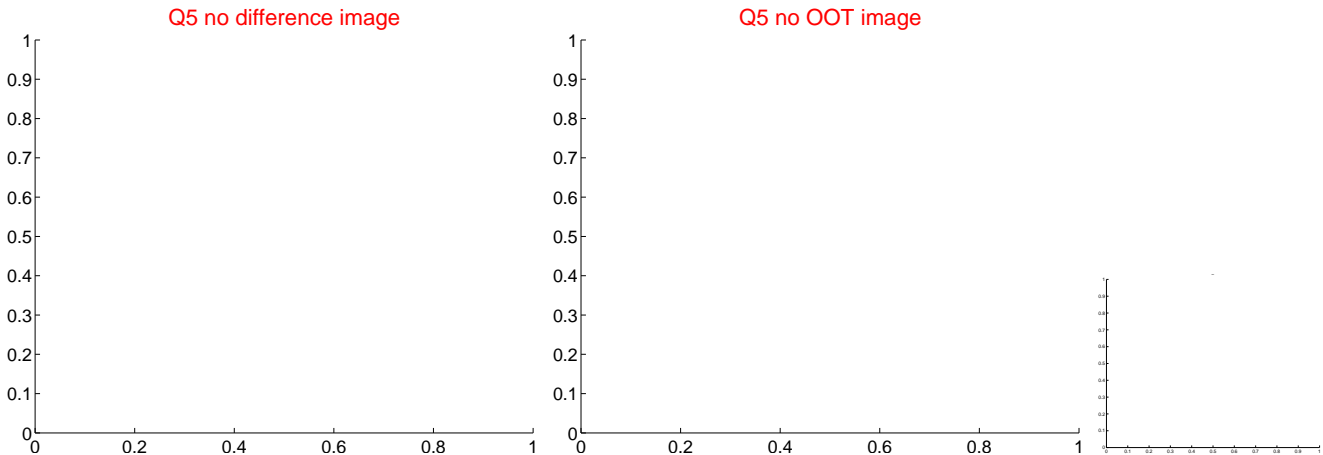
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

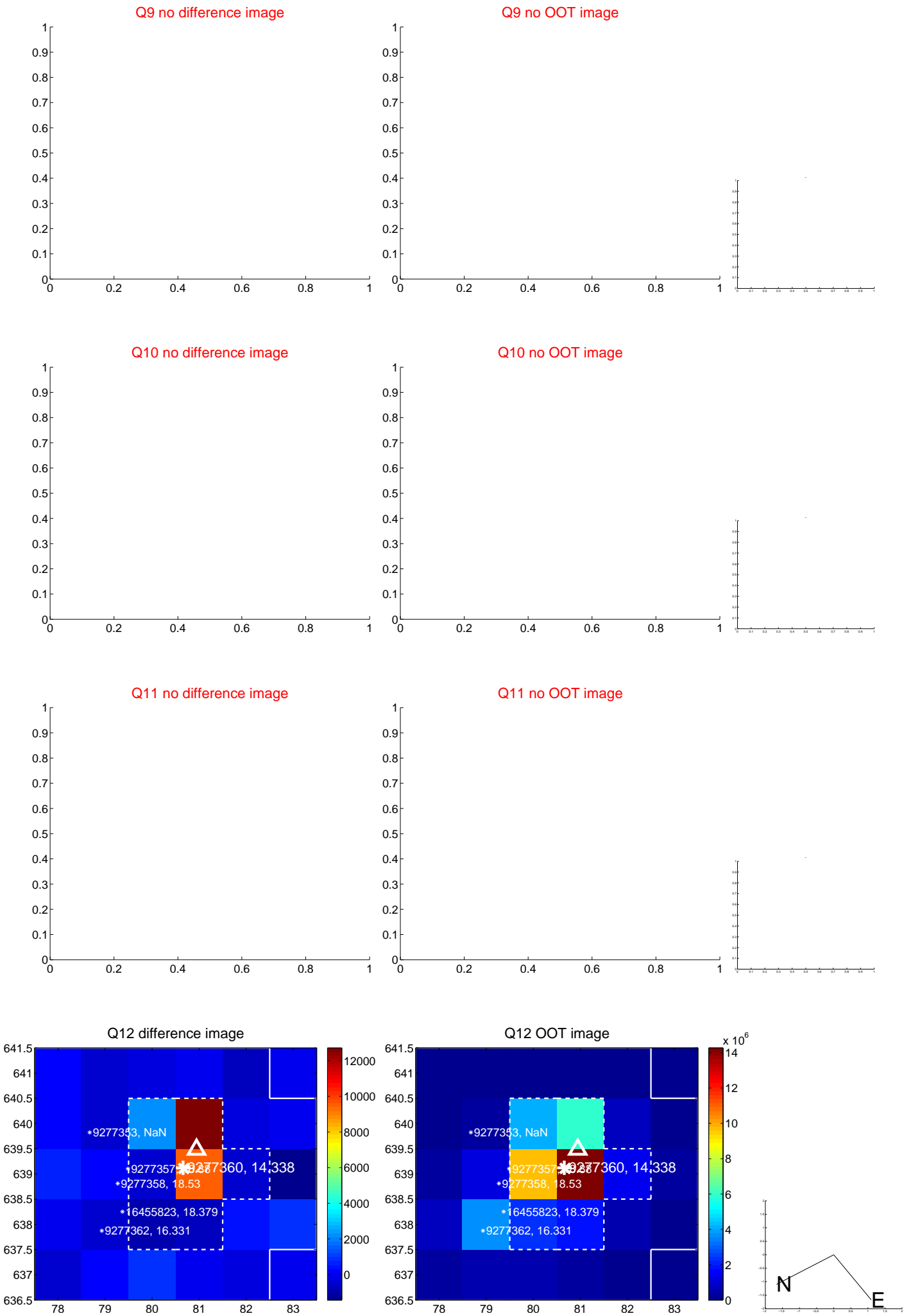




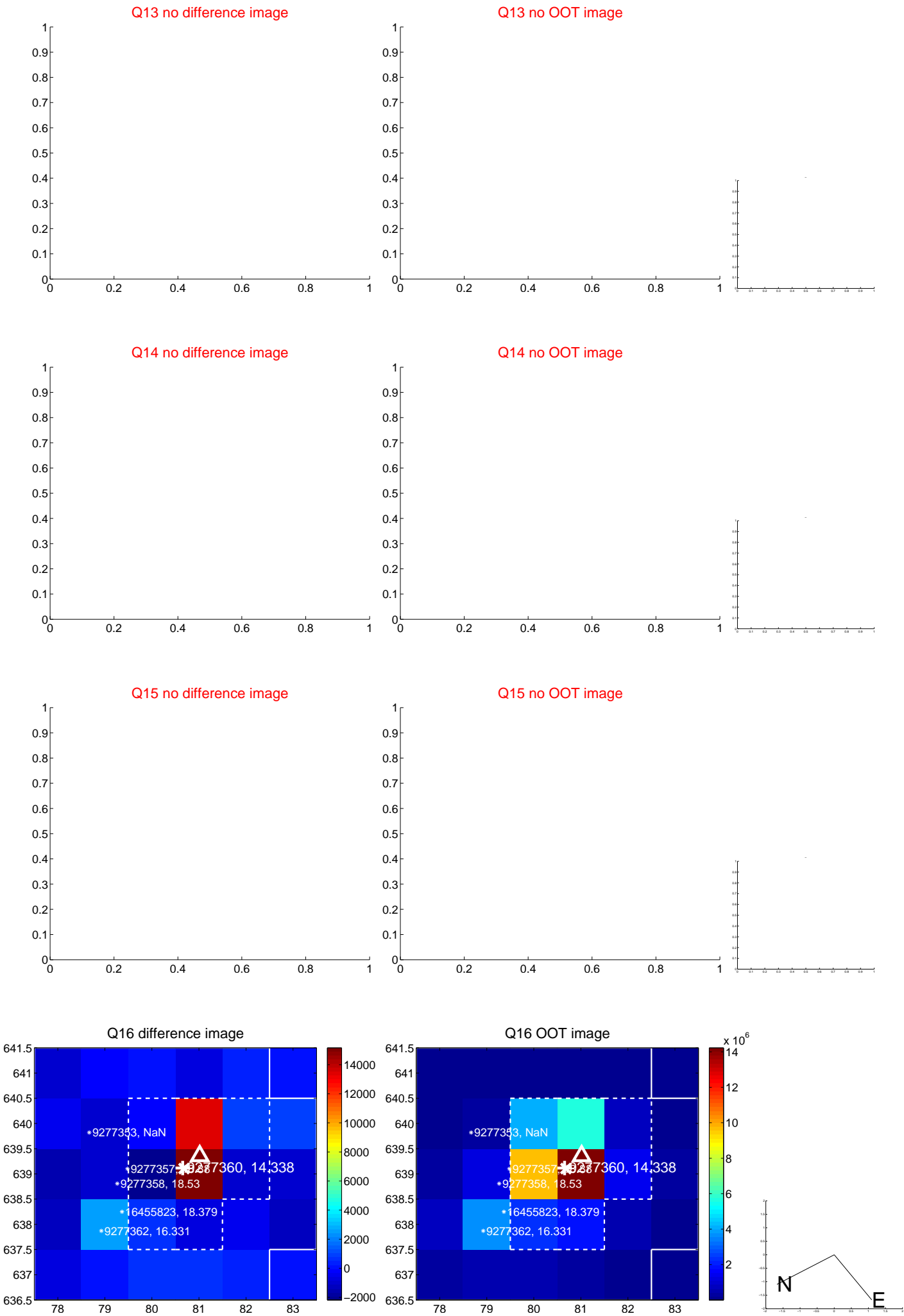
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



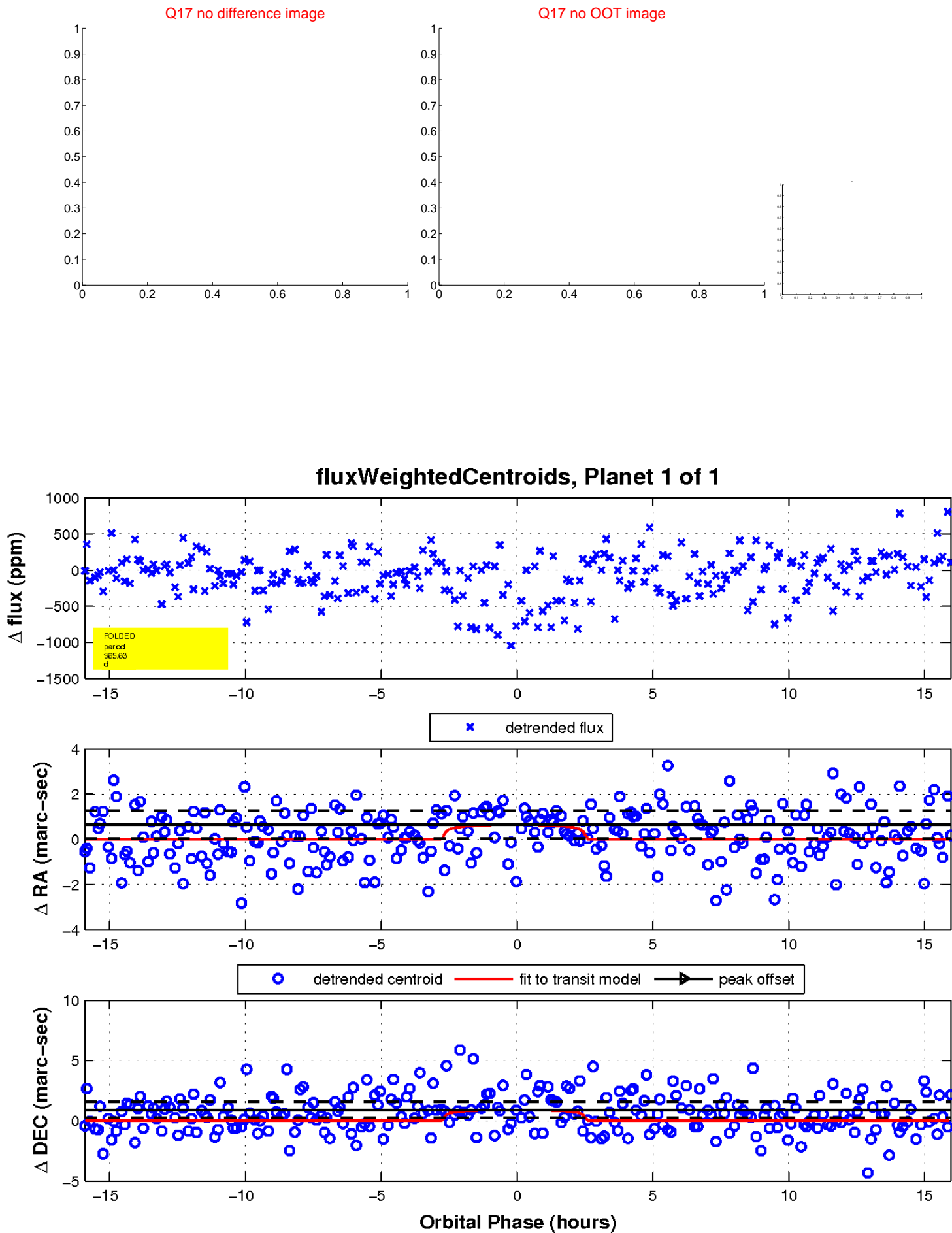
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

