

# KIC 009846086

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009846086-01	OBS	0617.01	37.865119	160.734273	6835.0	2.947	221.3	221.1	0.96	5858	12.79	19.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009846086-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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

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

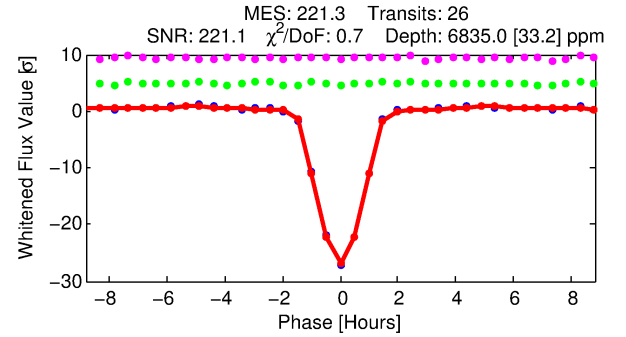
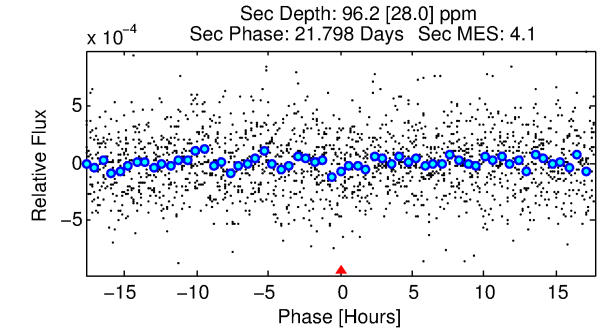
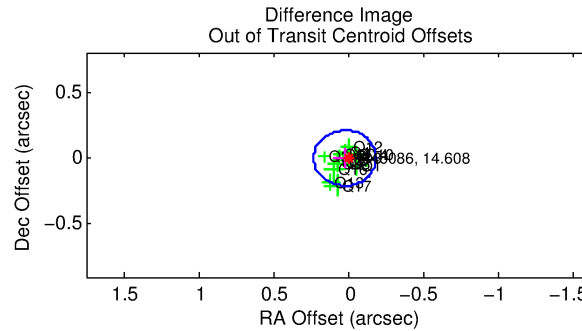
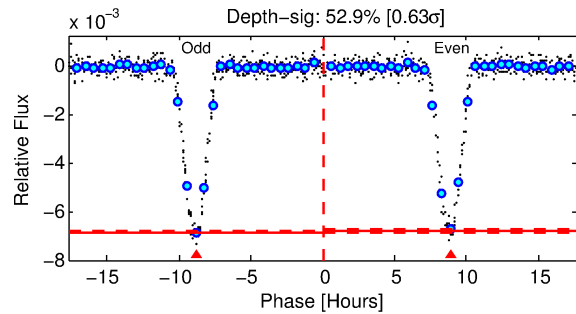
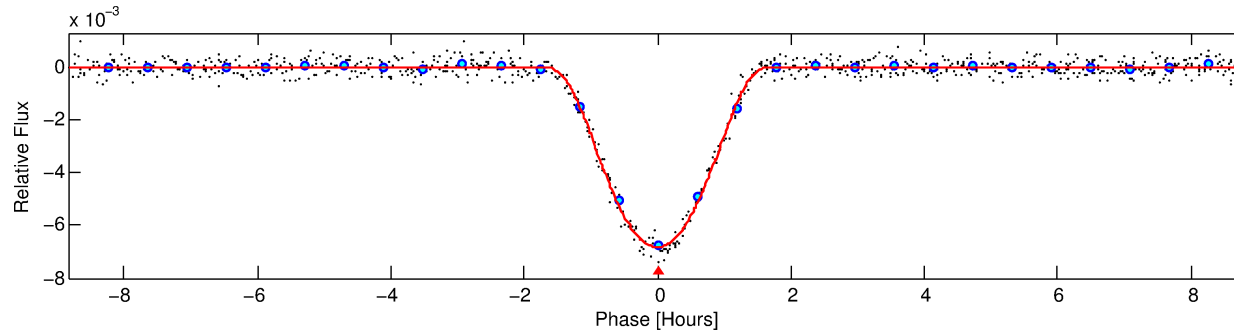
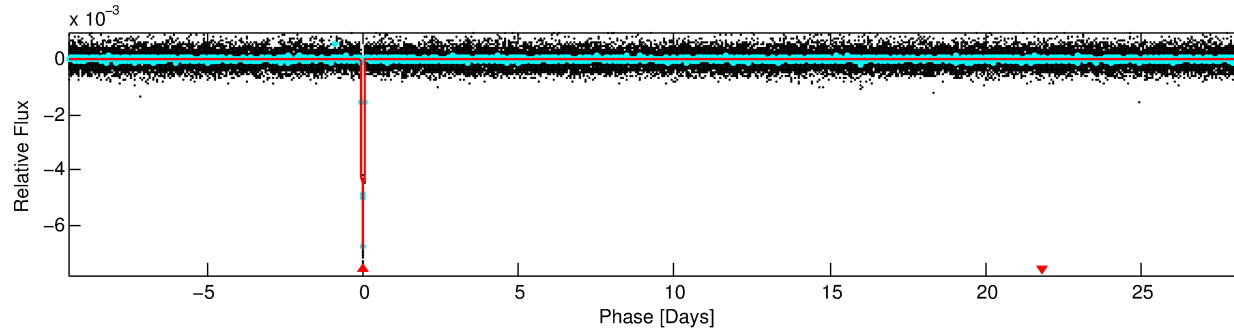
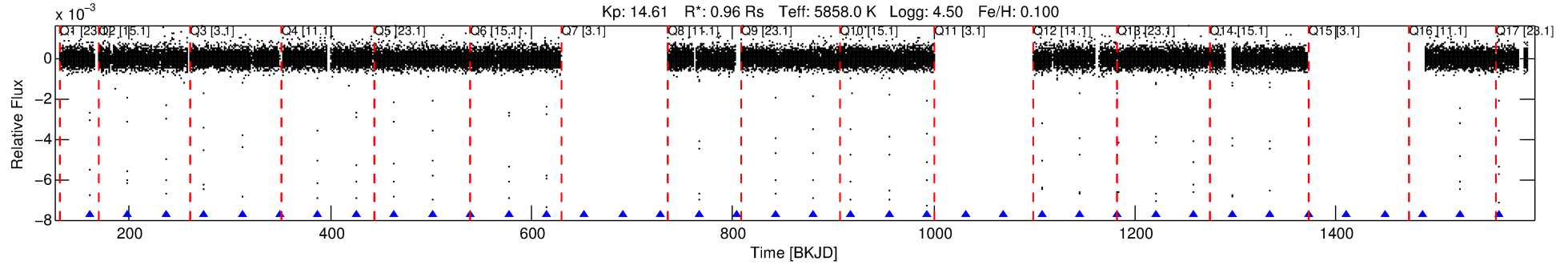
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009846086-01

No Significant Match Found

# DV One-Page Summary

KIC: 9846086 Candidate: 1 of 1 Period: 37.865 d  
KOI: K00617.01 Corr: 0.993



## DV Fit Results:

Period = 37.86512 [0.00001] d  
Epoch = 160.7343 [0.0003] BKJD  
Rp/R\* = 0.1217 [0.0213]  
a/R\* = 54.71 [2.15]  
b = 0.97 [0.03]  
Seff = 19.35 [7.85]  
Teq = 535 [54] K  
Rp = 12.78 [4.67] Re  
a = 0.2249 [0.0600] AU  
Ag = 16.38 [9.75] [1.58 $\sigma$ ]  
Teffp = 1663 [197] K [5.53 $\sigma$ ]

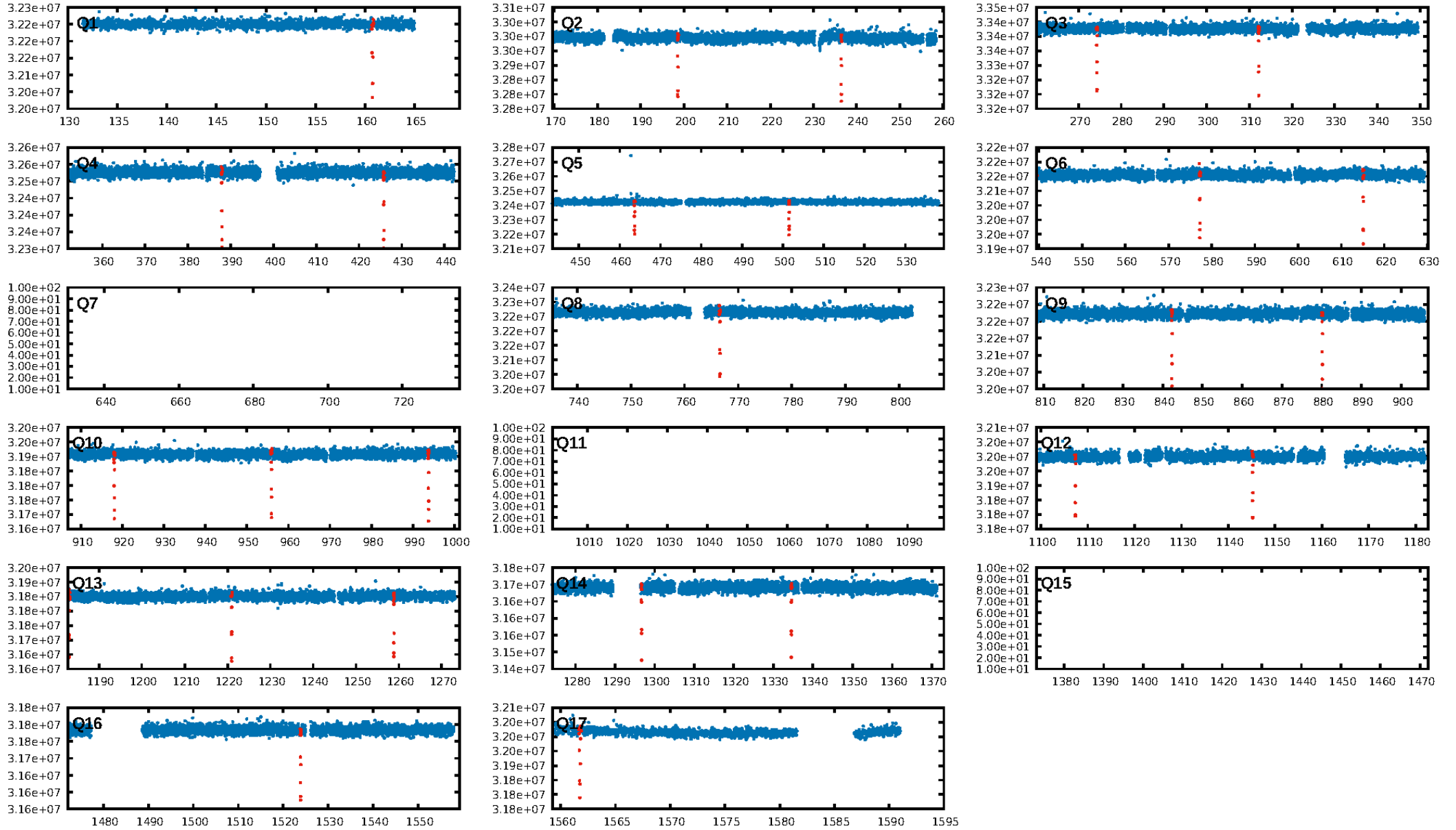
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [24/24]  
GhostDiagnostic-chr: 5.609  
Centroid-sig: 1.3%  
Centroid-so: 0.182 arcsec [2.78 $\sigma$ ]  
OotOffset-rm: 0.021 arcsec [0.29 $\sigma$ ]  
KicOffset-rm: 0.006 arcsec [0.08 $\sigma$ ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

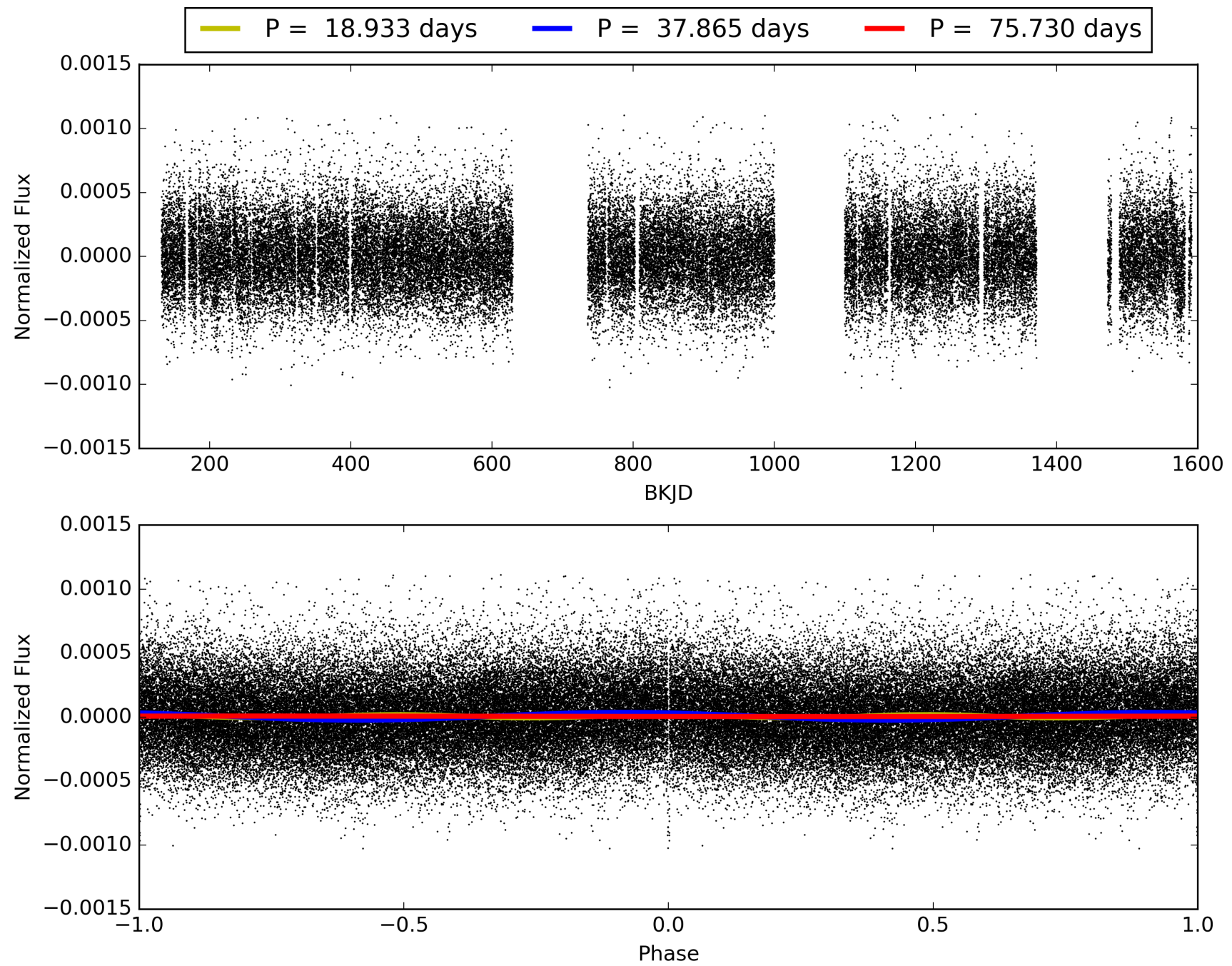
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:16:18 Z

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

# TCE 009846086-01, PDC Light Curves

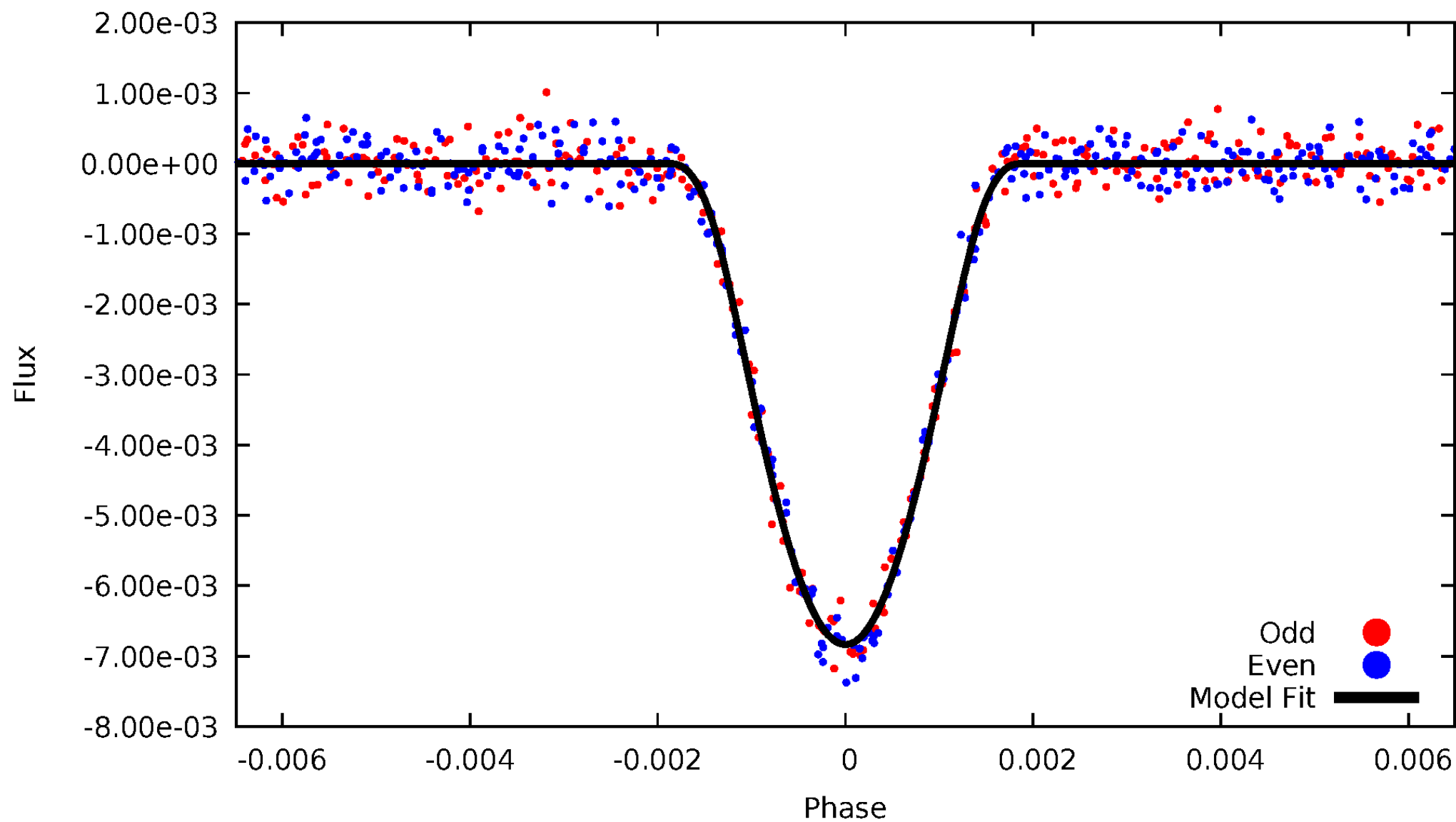


TCE 009846086-01



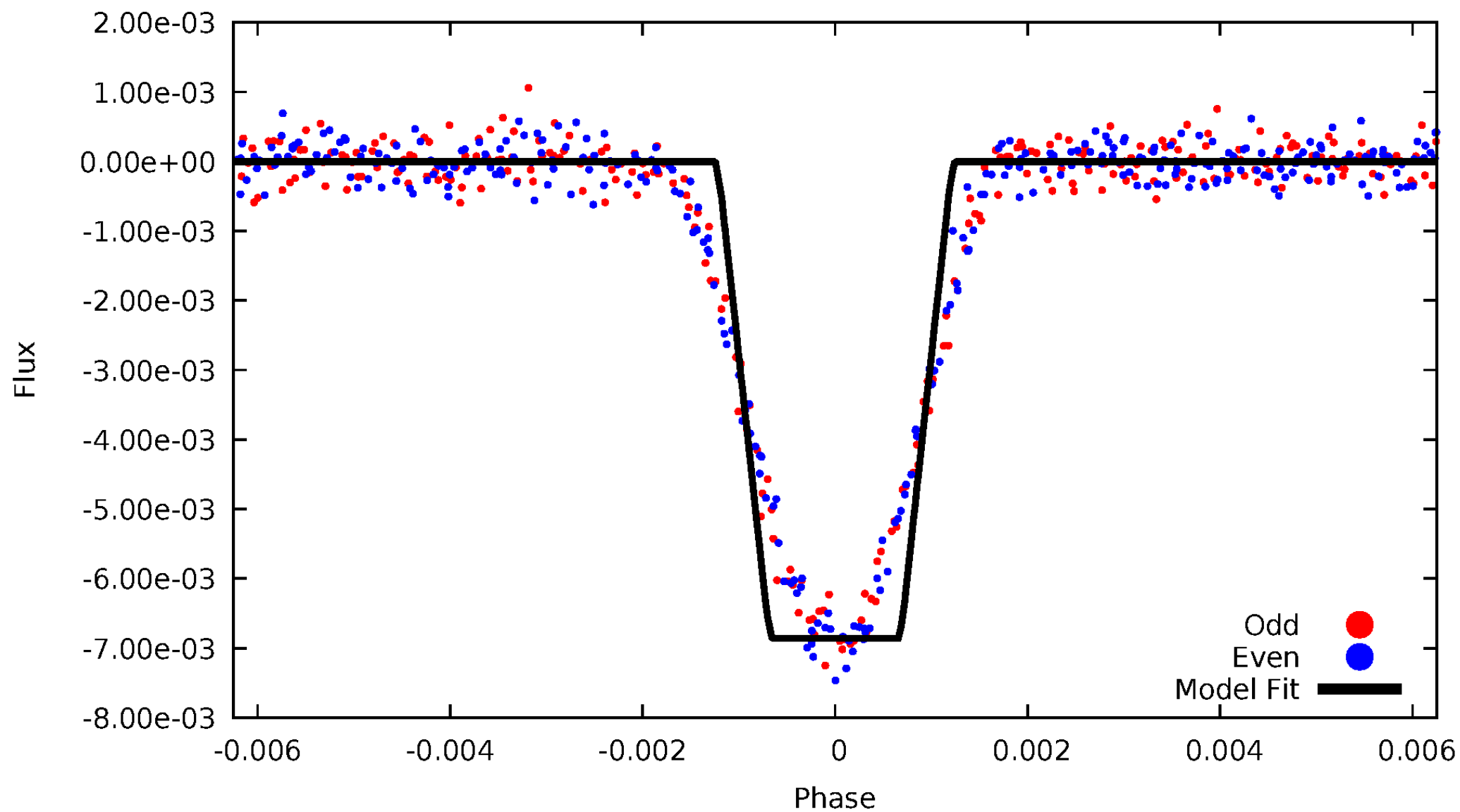
# DV Odd/Even

TCE 009846086-01



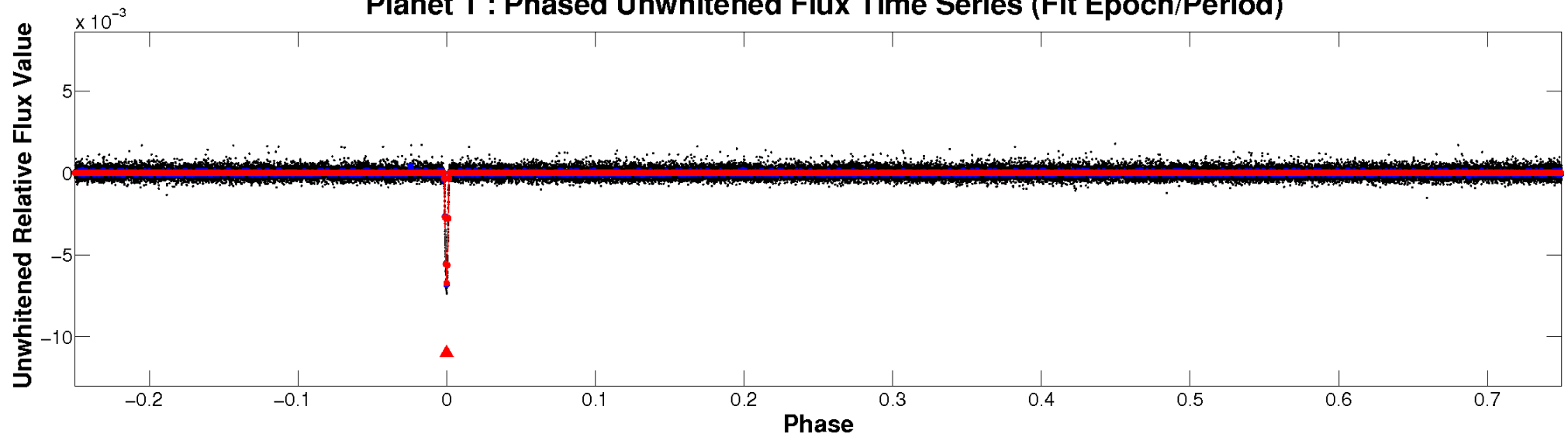
# ALT Odd/Even

TCE 009846086-01

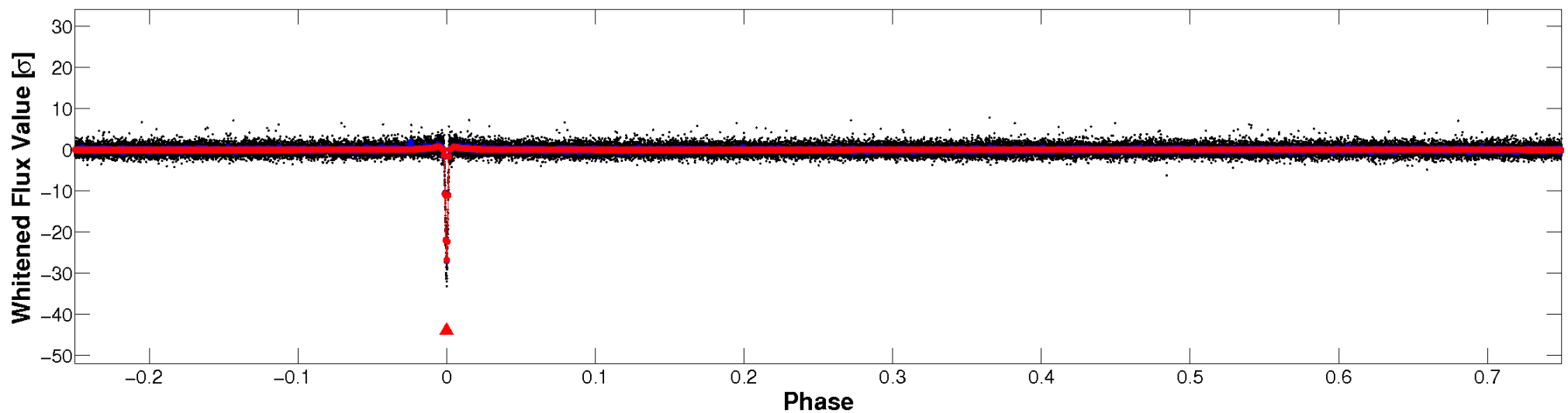


# Non-Whitened Vs. Whitened Light Curve

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

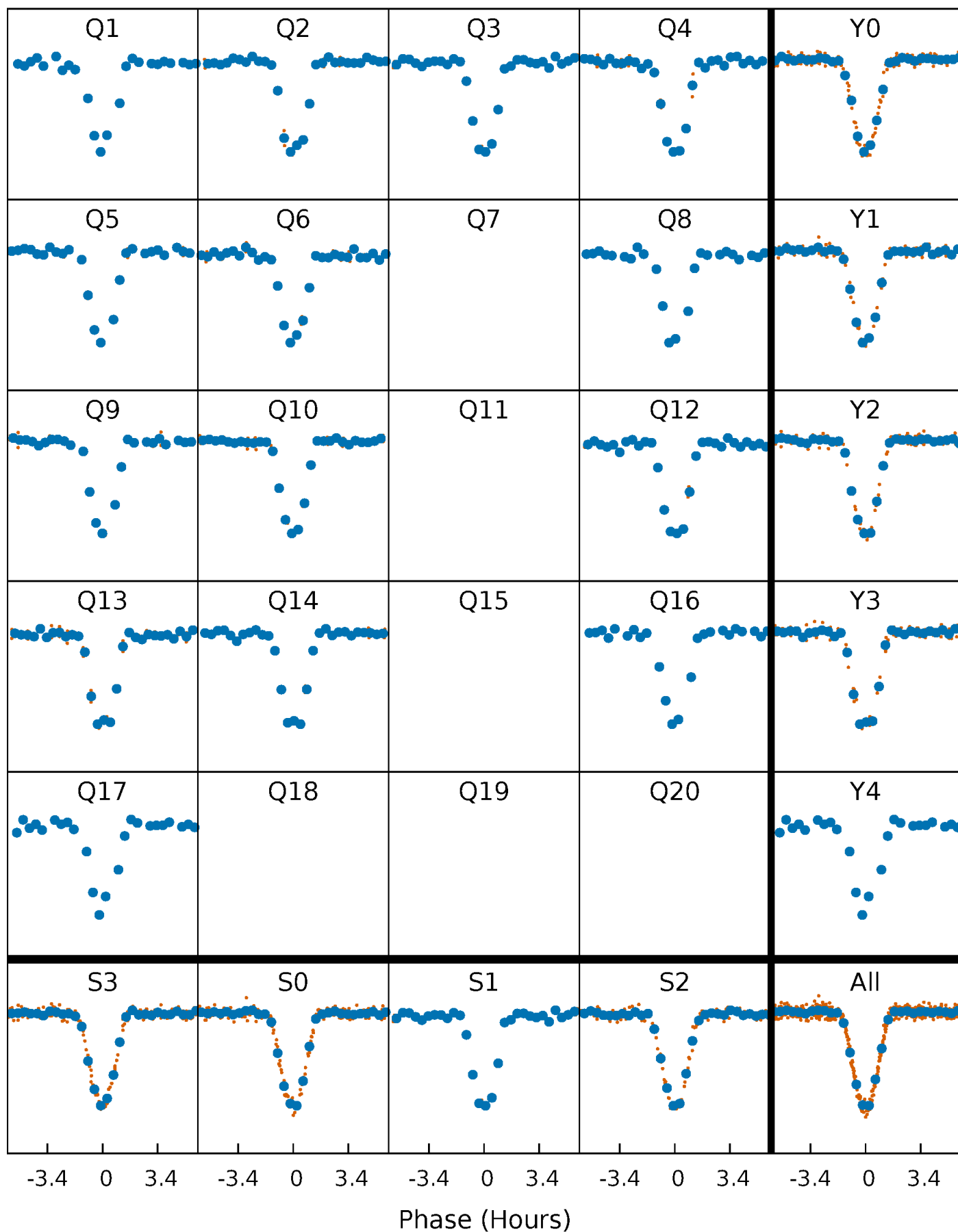


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

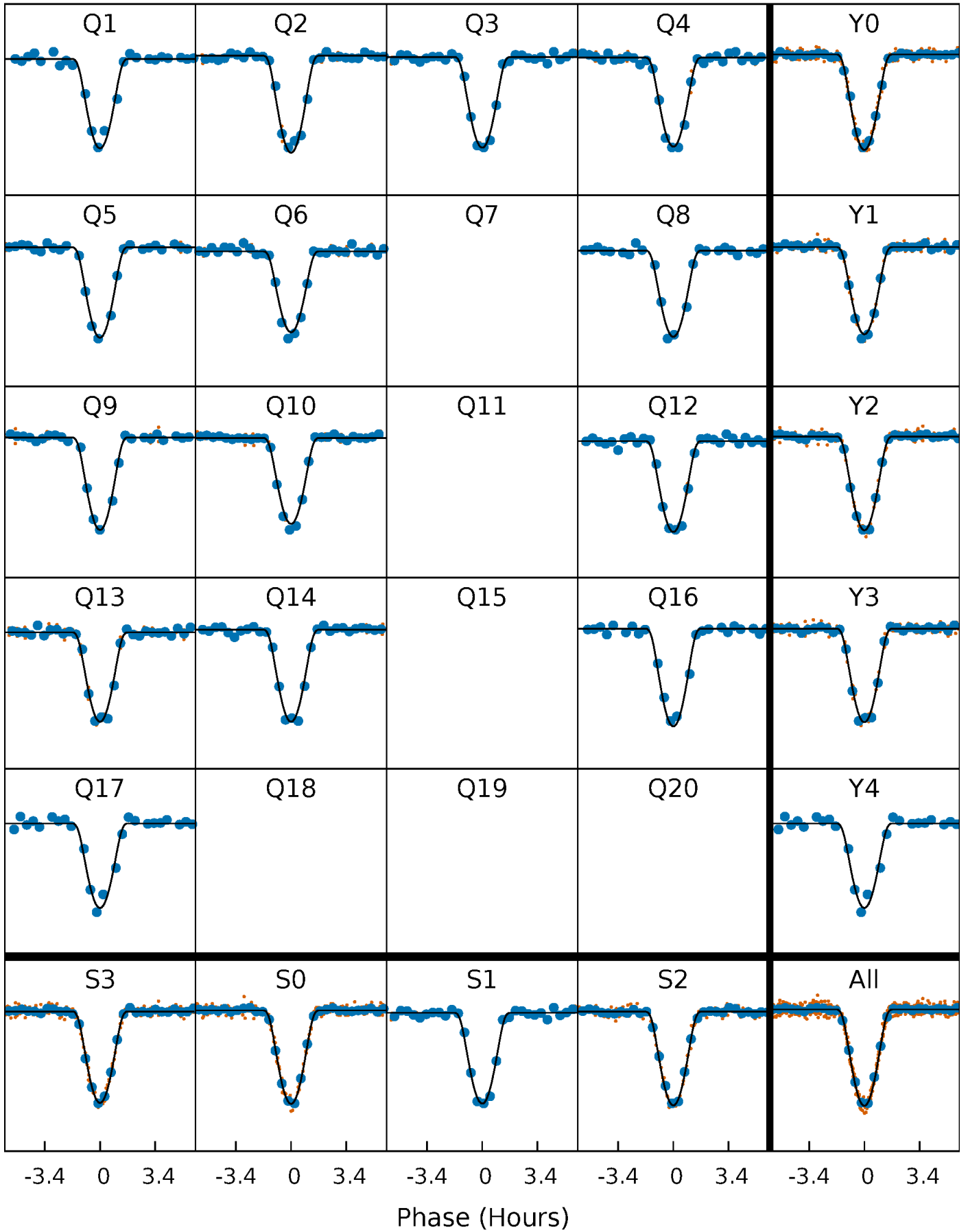
TCE 009846086-01 P= 37.865119 Days  $T_0=160.734273$  (BKJD)





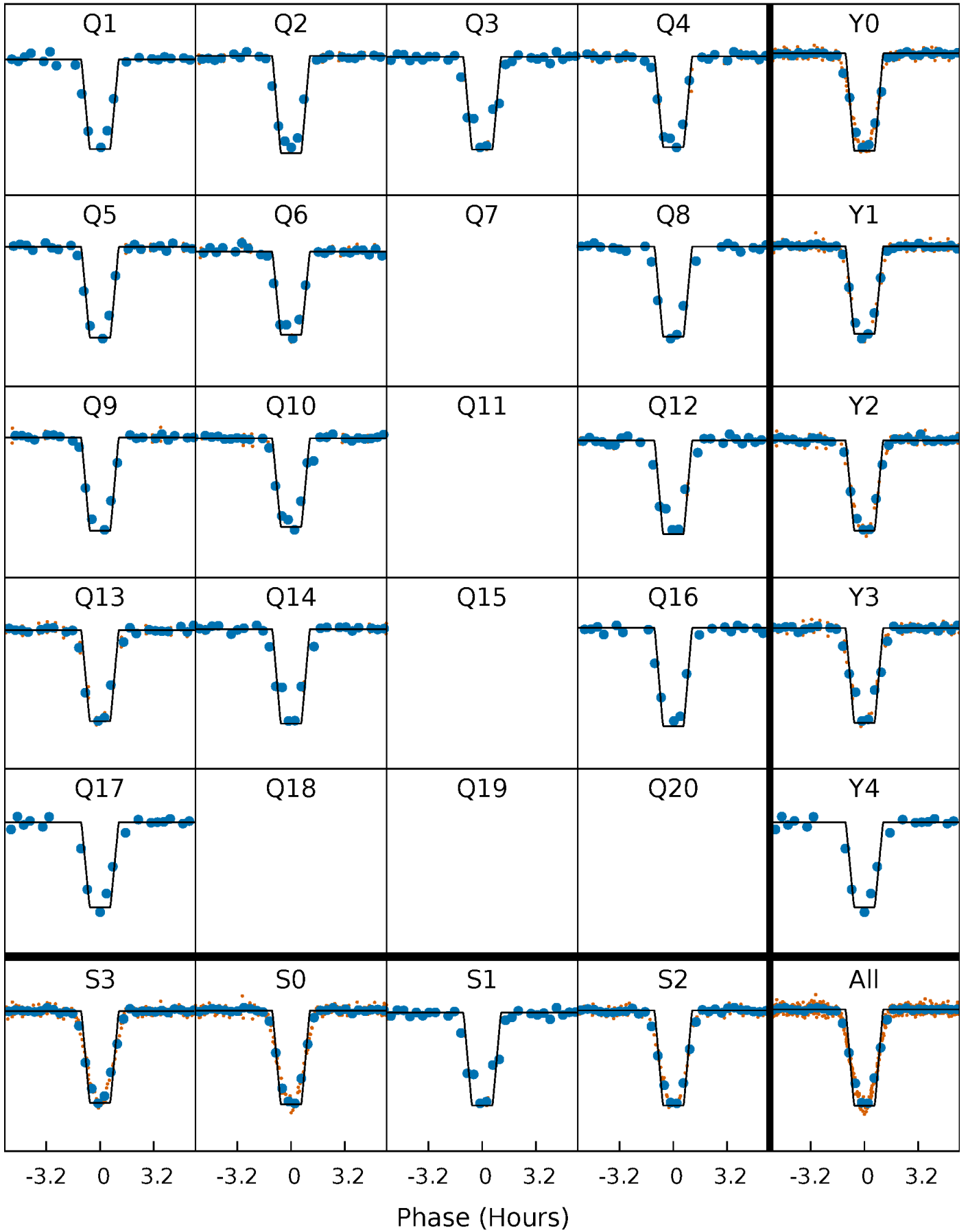
# DV Quarter-Phased Transit Curves

TCE 009846086-01 P= 37.865119 Days  $T_0=160.734273$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

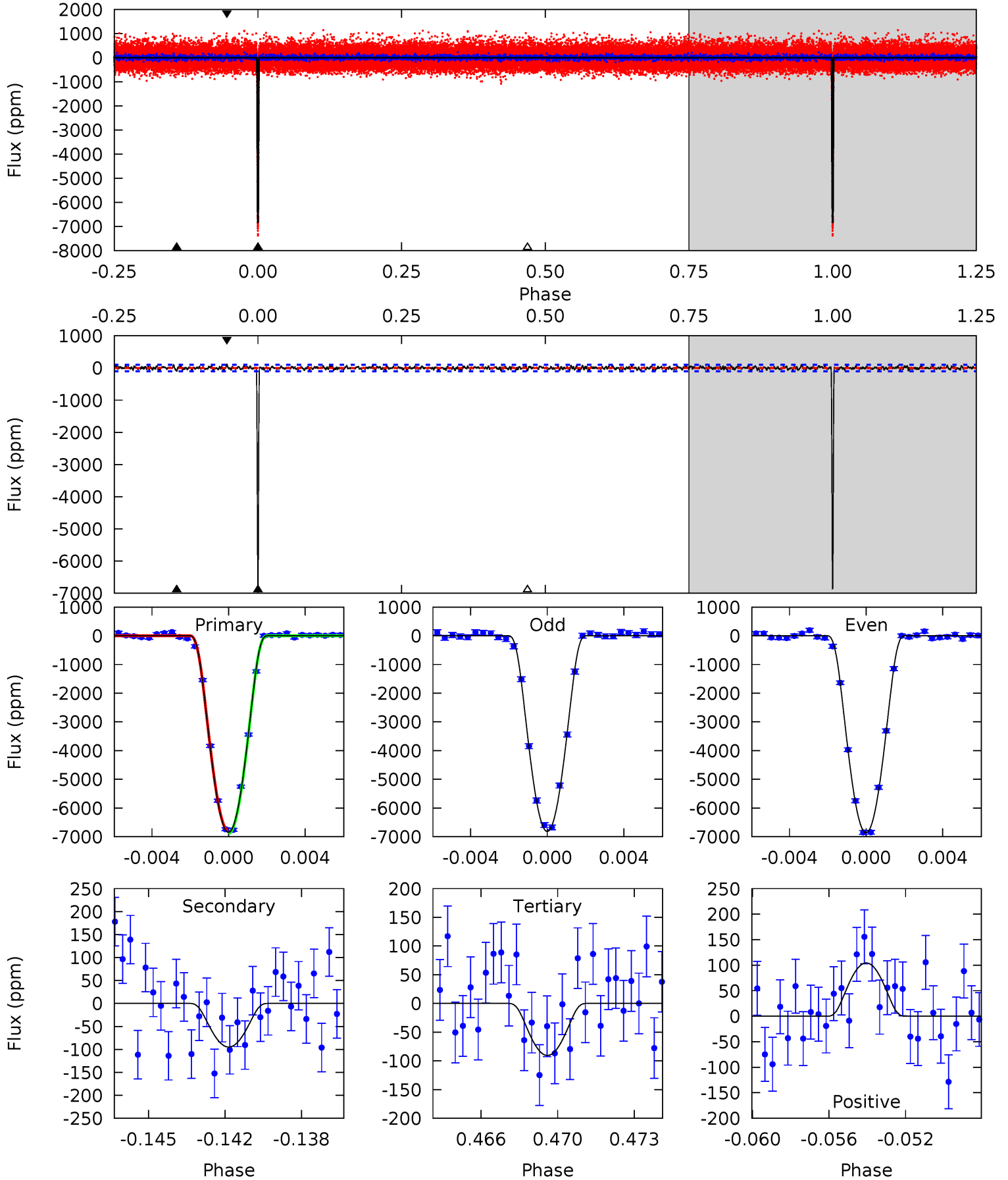
TCE 009846086-01   P= 37.865086 Days    $T_0=160.734746$  (BKJD)



# DV Model-Shift Uniqueness Test

009846086-01, P = 37.865119 Days, E = 122.869154 Days

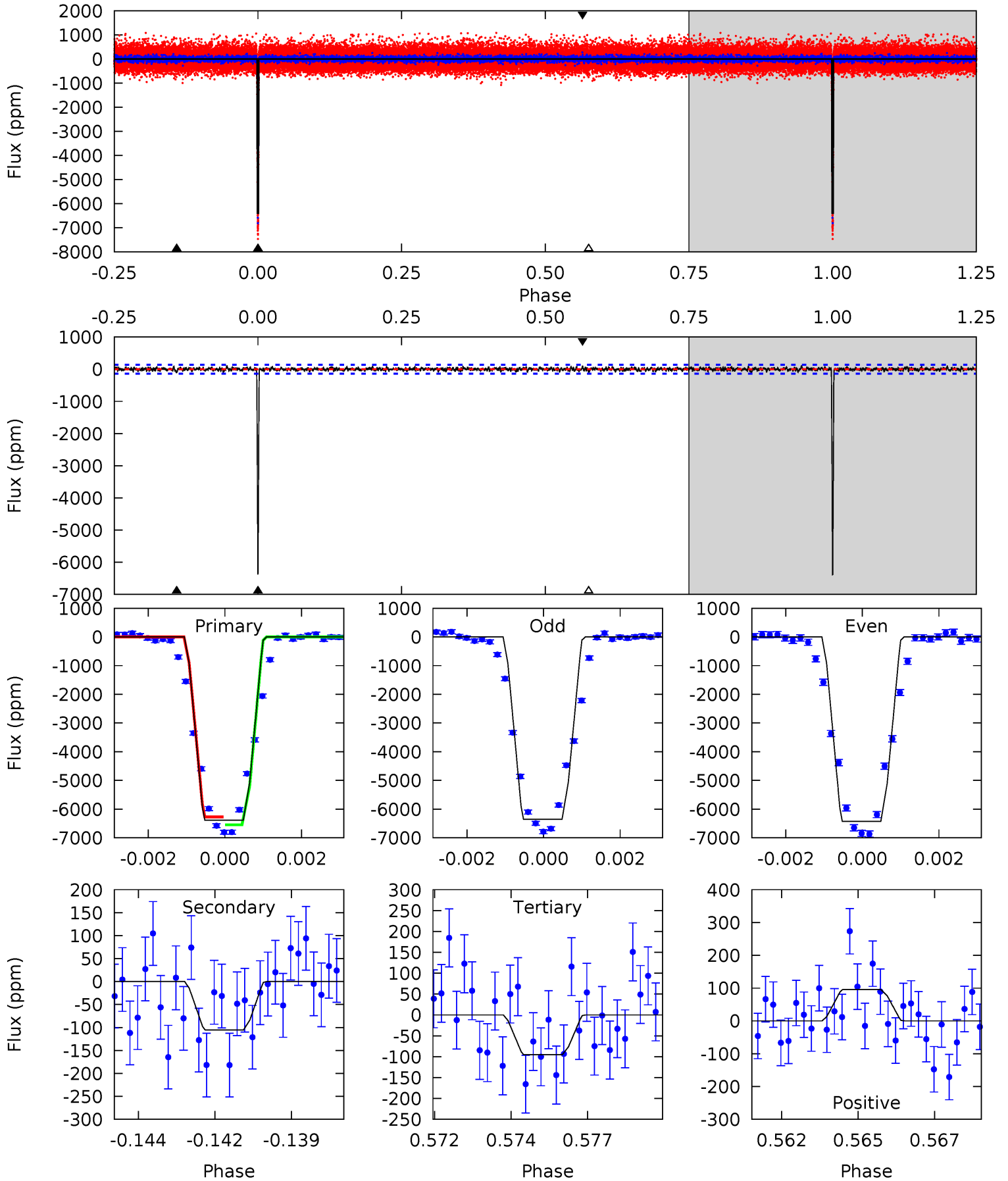
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
350.9	4.86	4.64	5.35	5.21	2.90	1.48	346.2	345.5	0.22	-0.49	1.20	1.00	0.02	2.19



# Alt Model-Shift Uniqueness Test

009846086-01, P = 37.865086 Days, E = 122.869660 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
242.8	4.01	3.63	3.63	5.29	3.03	1.10	239.2	239.2	0.38	0.38	1.36	1.00	0.01	5.15



### Stellar Parameters For KIC 009846086

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5858^{+156}_{-191}$	$4.495^{+0.052}_{-0.208}$	$0.100^{+0.200}_{-0.300}$	$0.963^{+0.309}_{-0.096}$	$1.056^{+0.112}_{-0.137}$	$1.665^{+0.357}_{-0.901}$
	+3%/-3%	+1%/-5%	+200%/-300%	+32%/-10%	+11%/-13%	+21%/-54%
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 009846086-01 / KOI 0617.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-95 \pm 20$	$13.45^{+3.09}_{-2.64}$	$762^{+58}_{-36}$	$2489^{+152}_{-117}$	$14^{+8}_{-5}$
Alt.	$-105 \pm 26$	$9.07^{+2.95}_{-2.35}$	$763^{+62}_{-38}$	$2788^{+275}_{-188}$	$34^{+33}_{-15}$

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

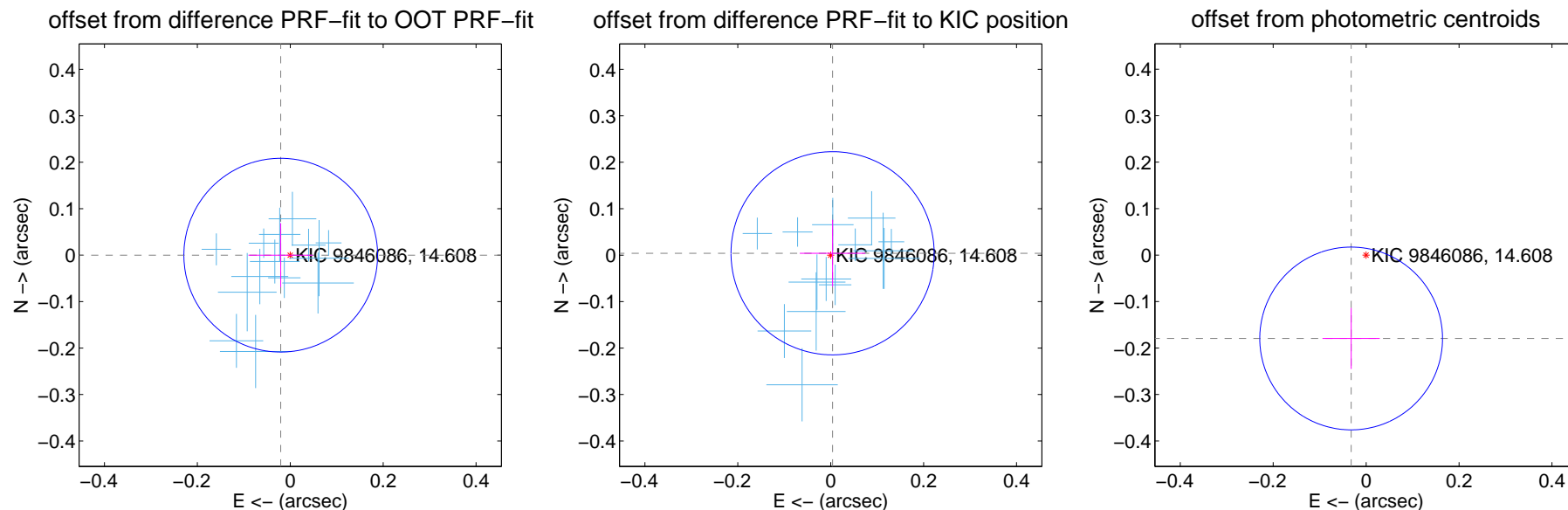
## DV Centroid Data

Supplemental centroid analysis for 009846086-01. Kepler magnitude: 14.61. Transit SNR 221.12

There are 14 quarters with good PRF difference image offsets

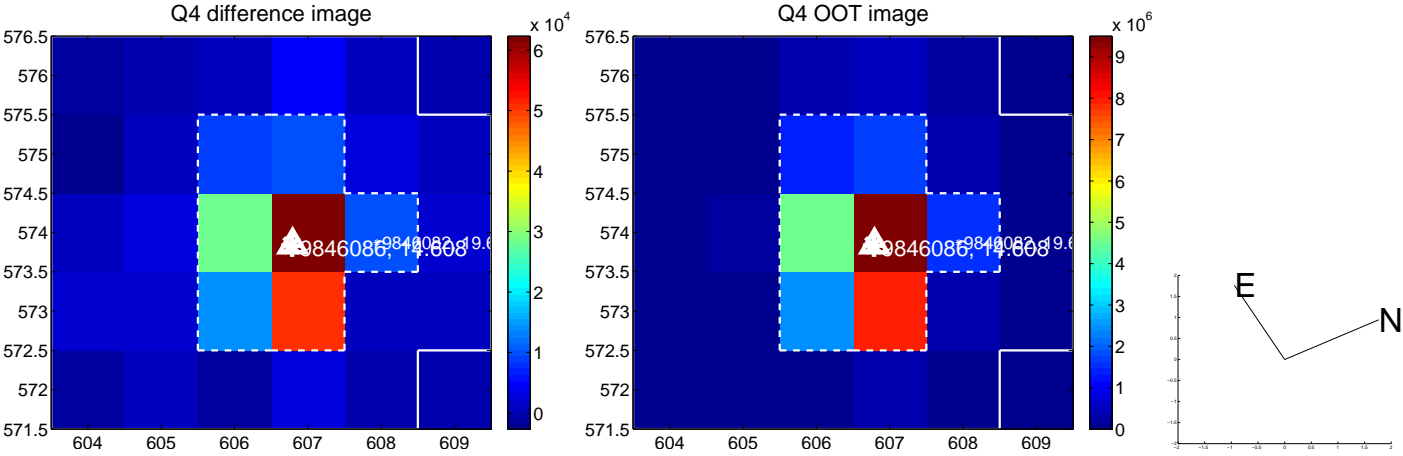
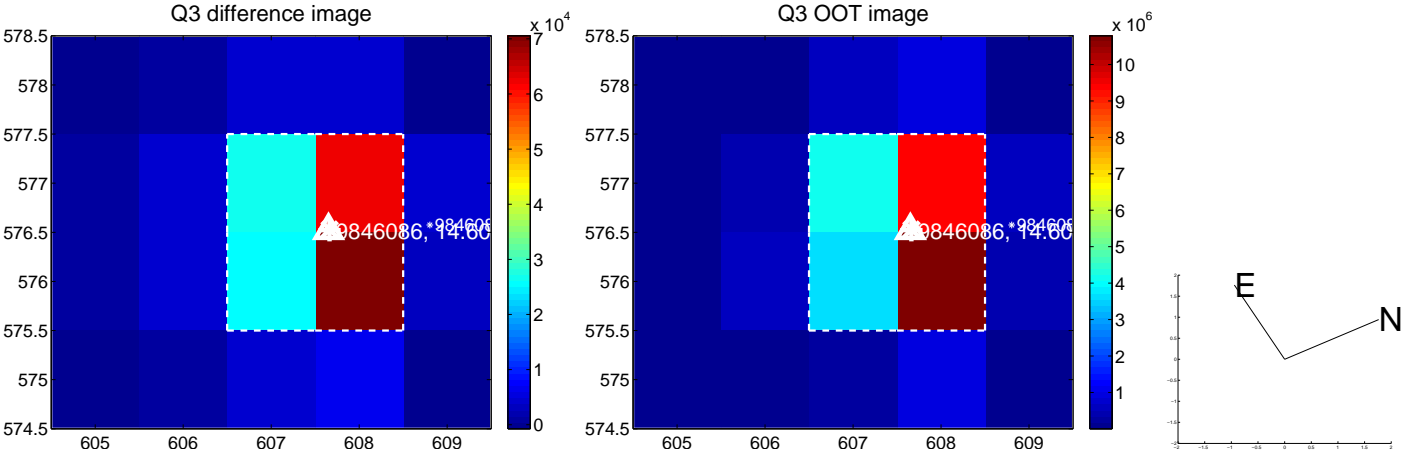
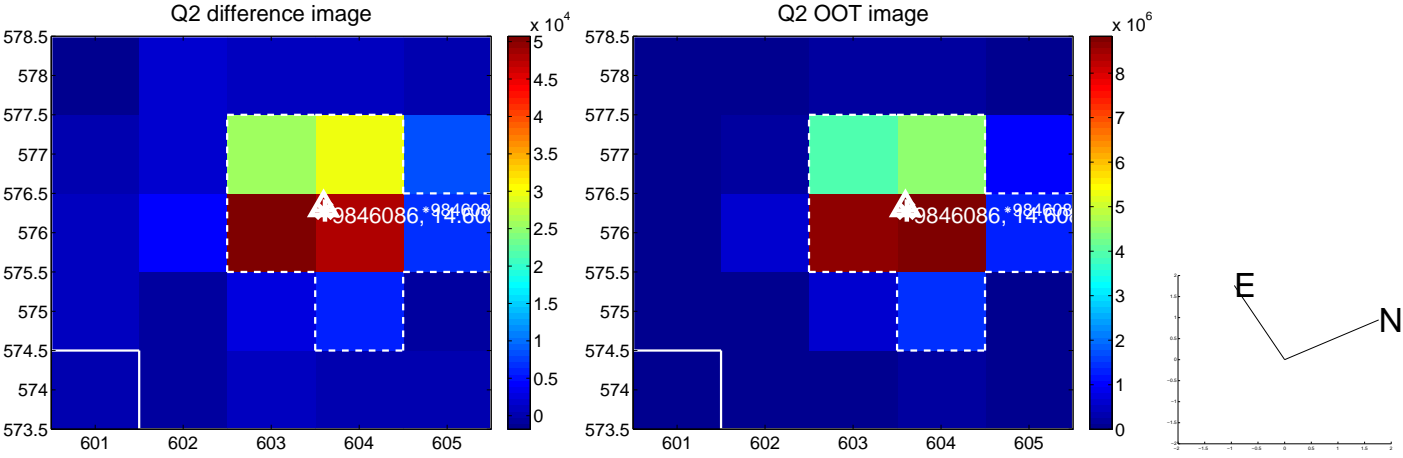
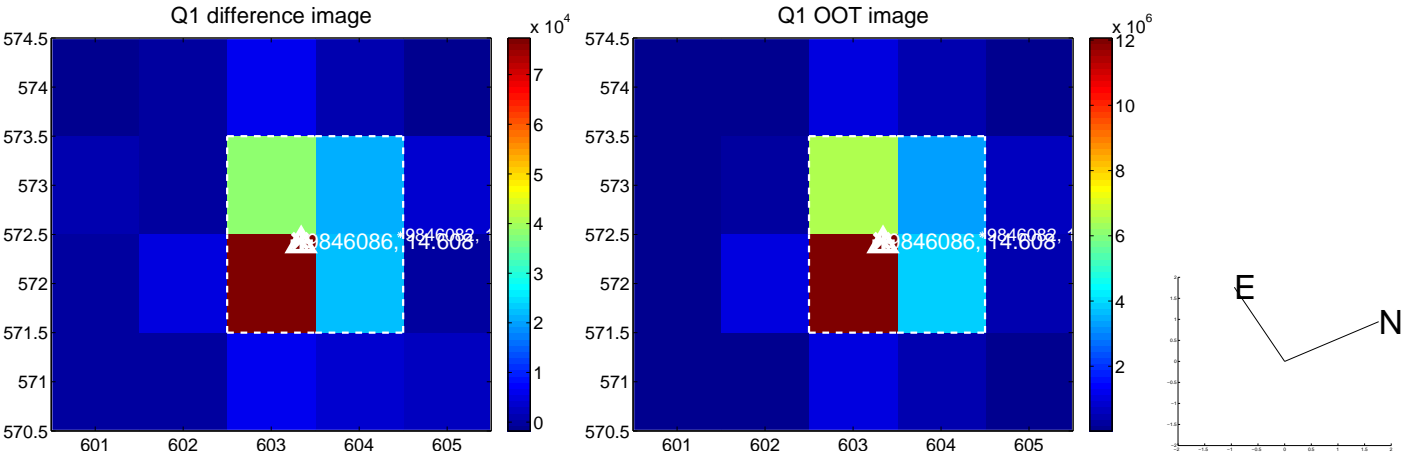
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.021 \pm 0.070$	0.29	$0.021 \pm 0.070$	$-0.000 \pm 0.069$
PRF-fit source offset from KIC position	$0.006 \pm 0.073$	0.08	$-0.004 \pm 0.071$	$0.004 \pm 0.072$
photometric centroid source offset	$0.18 \pm 0.07$	2.78	$0.03 \pm 0.06$	$-0.18 \pm 0.07$

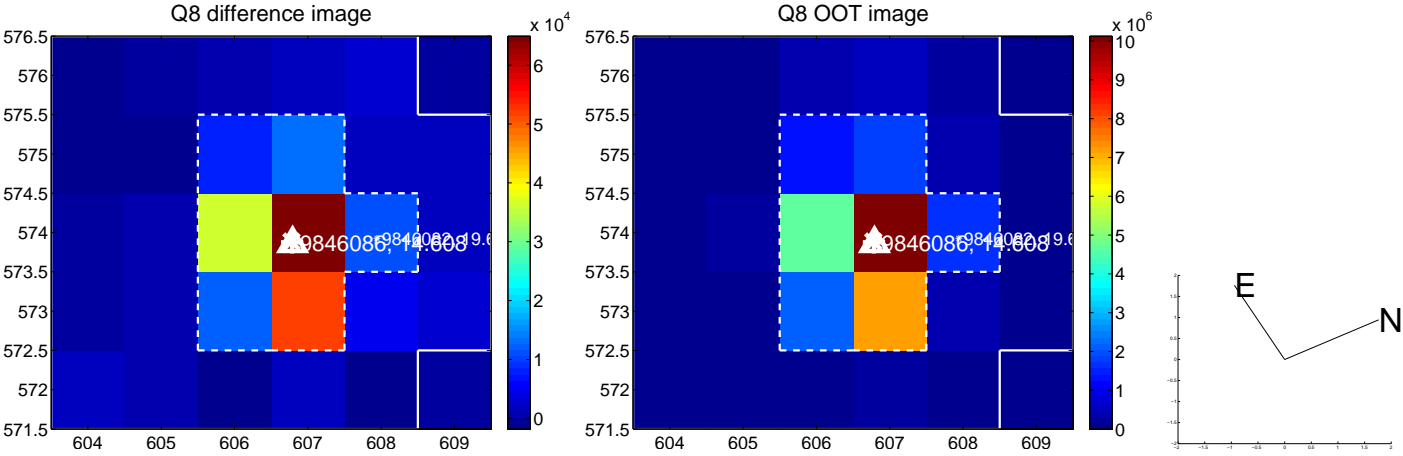
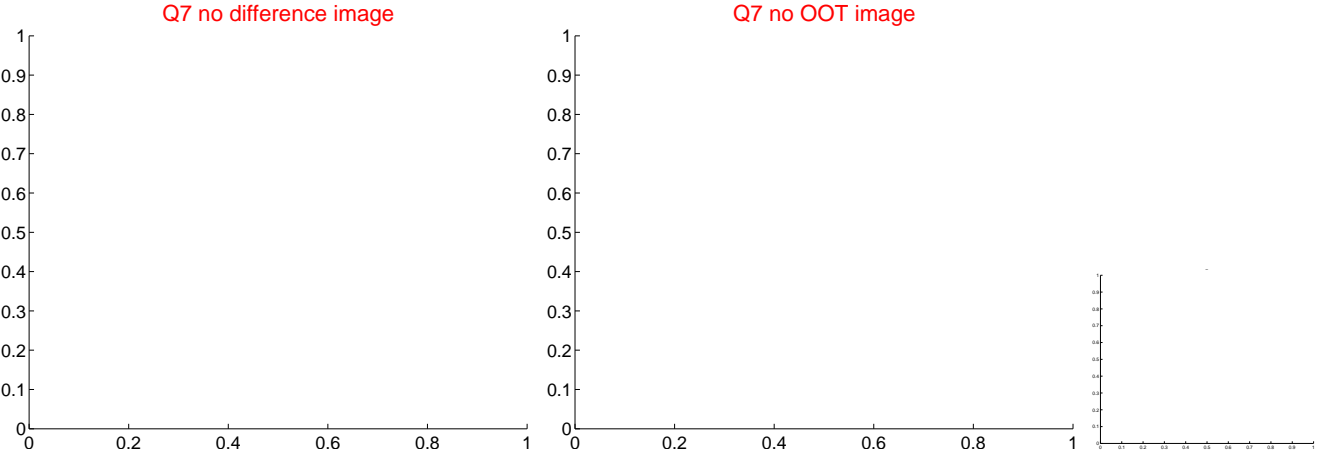
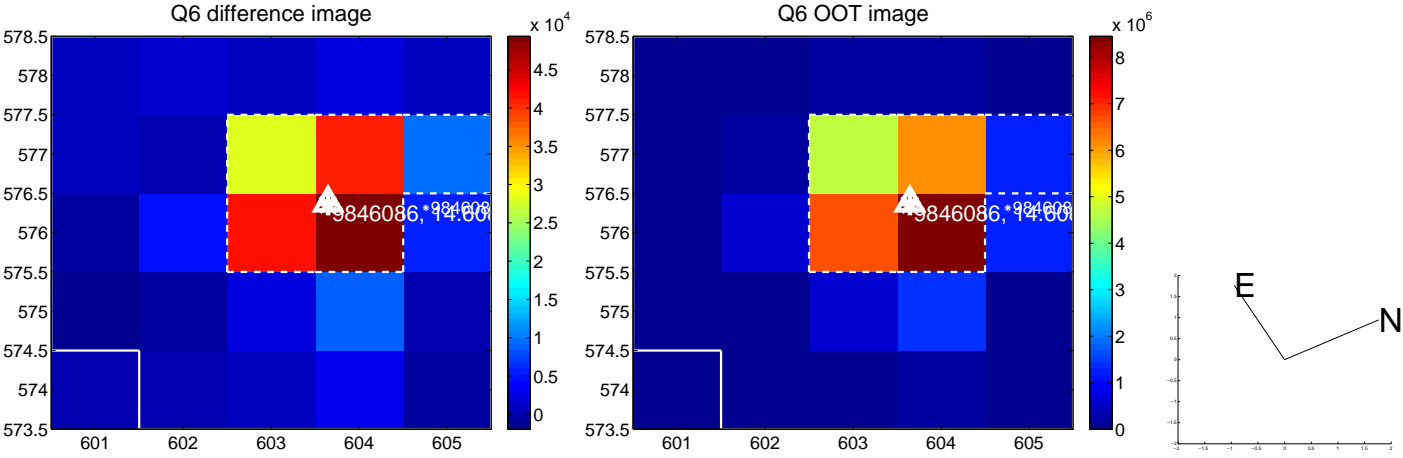
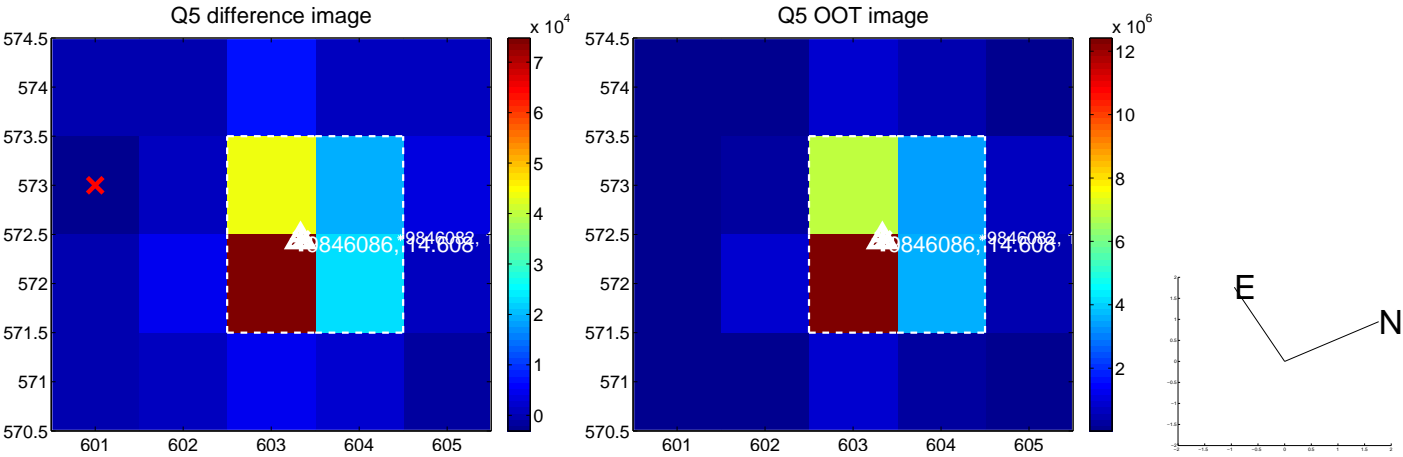


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

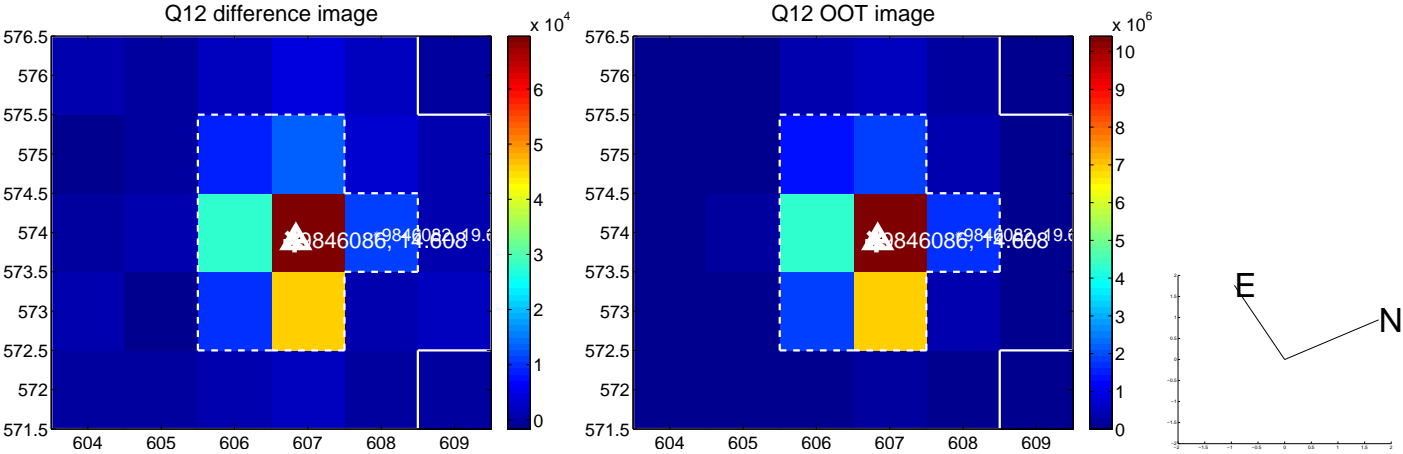
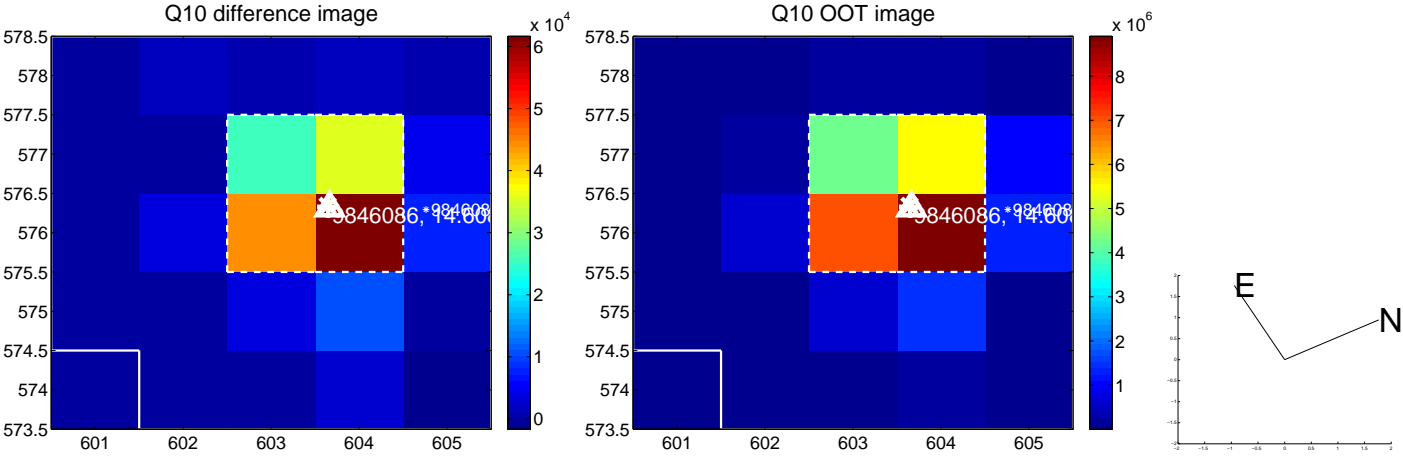
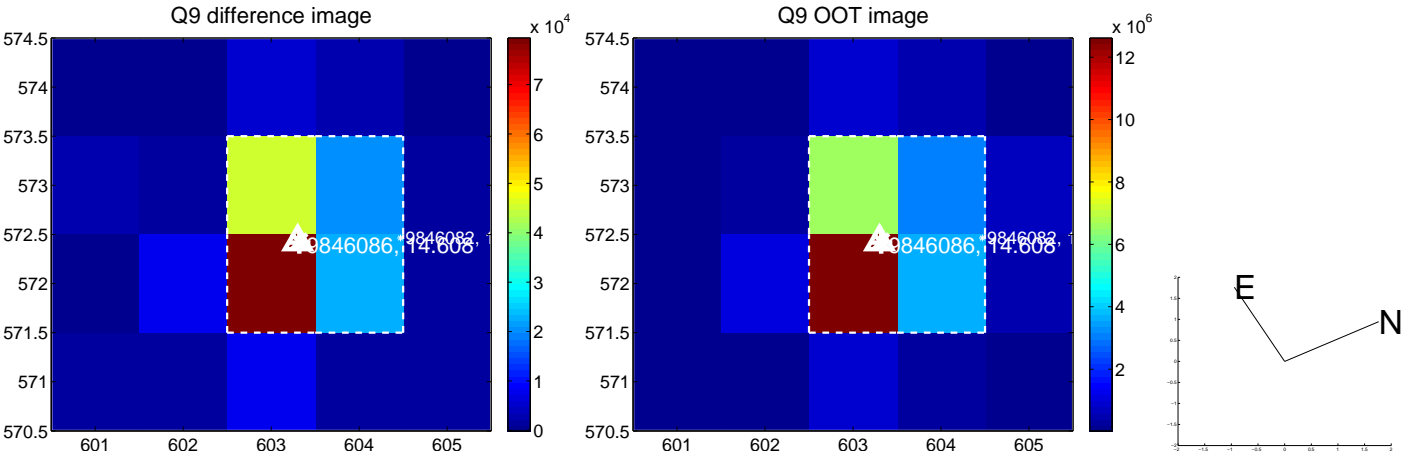


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

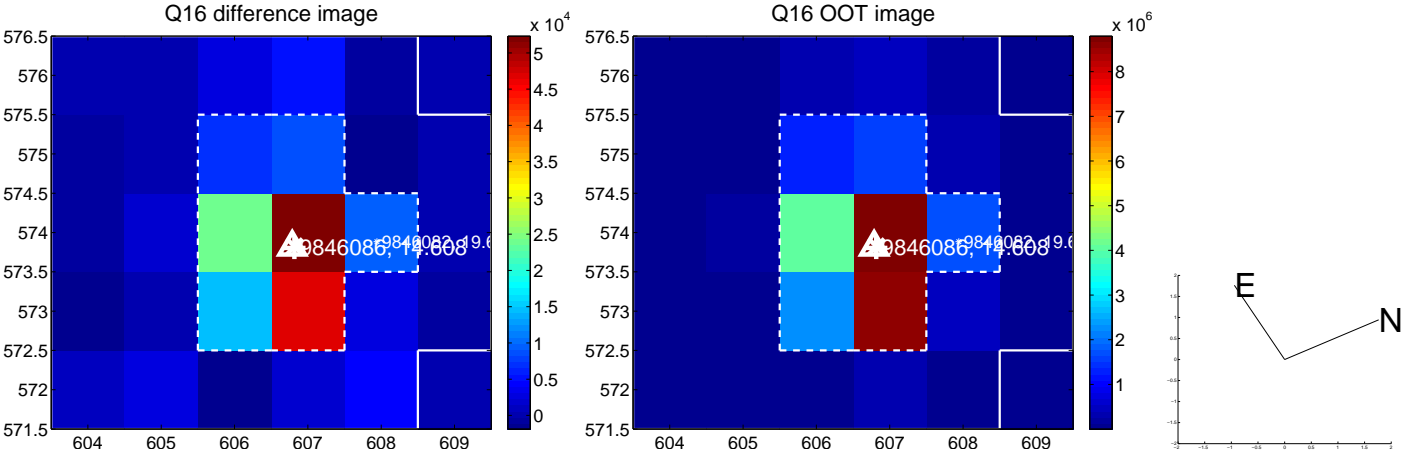
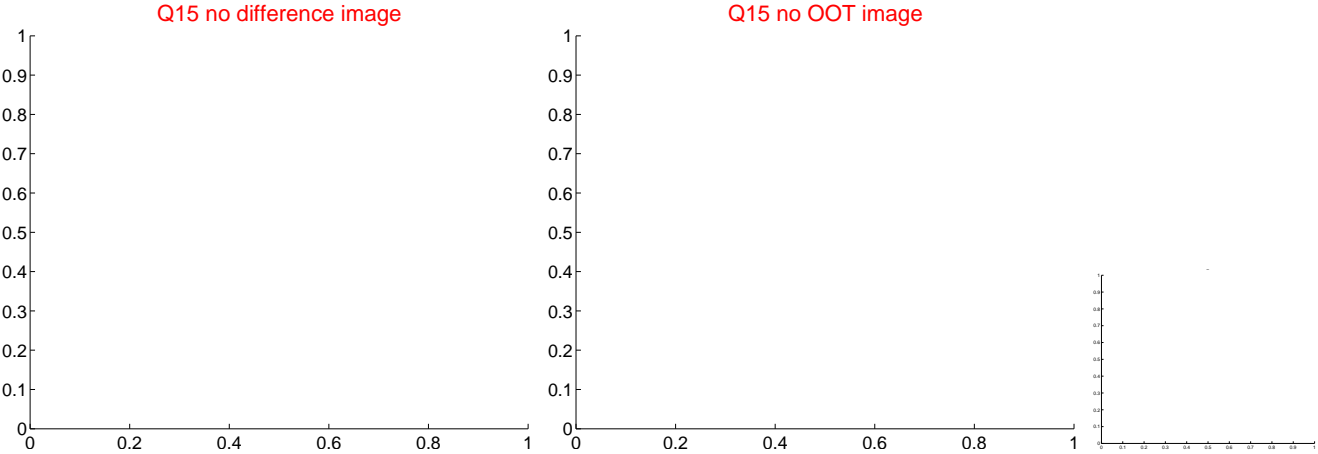
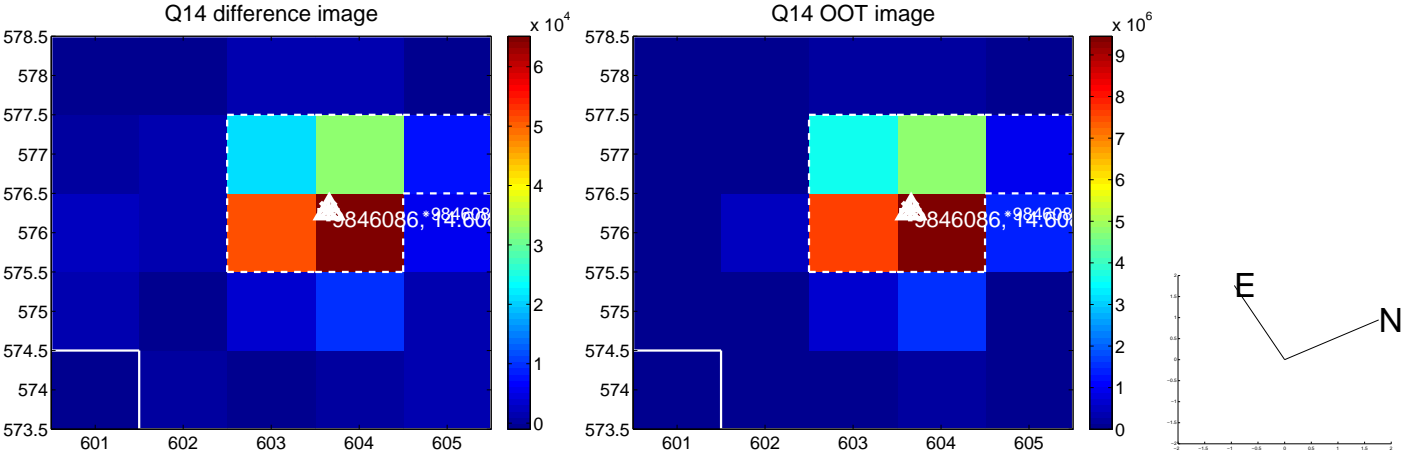
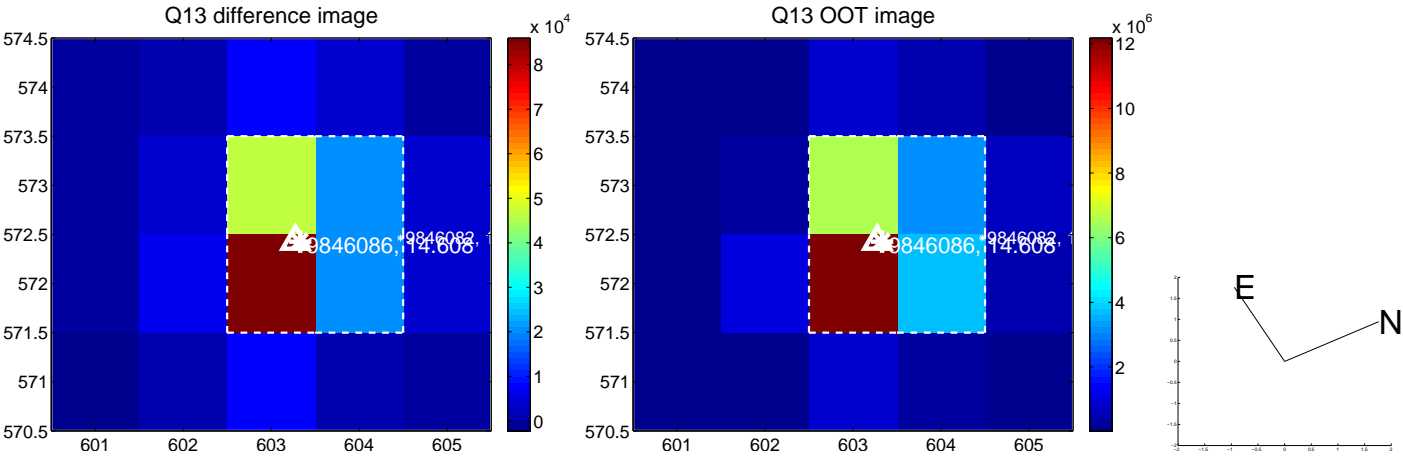




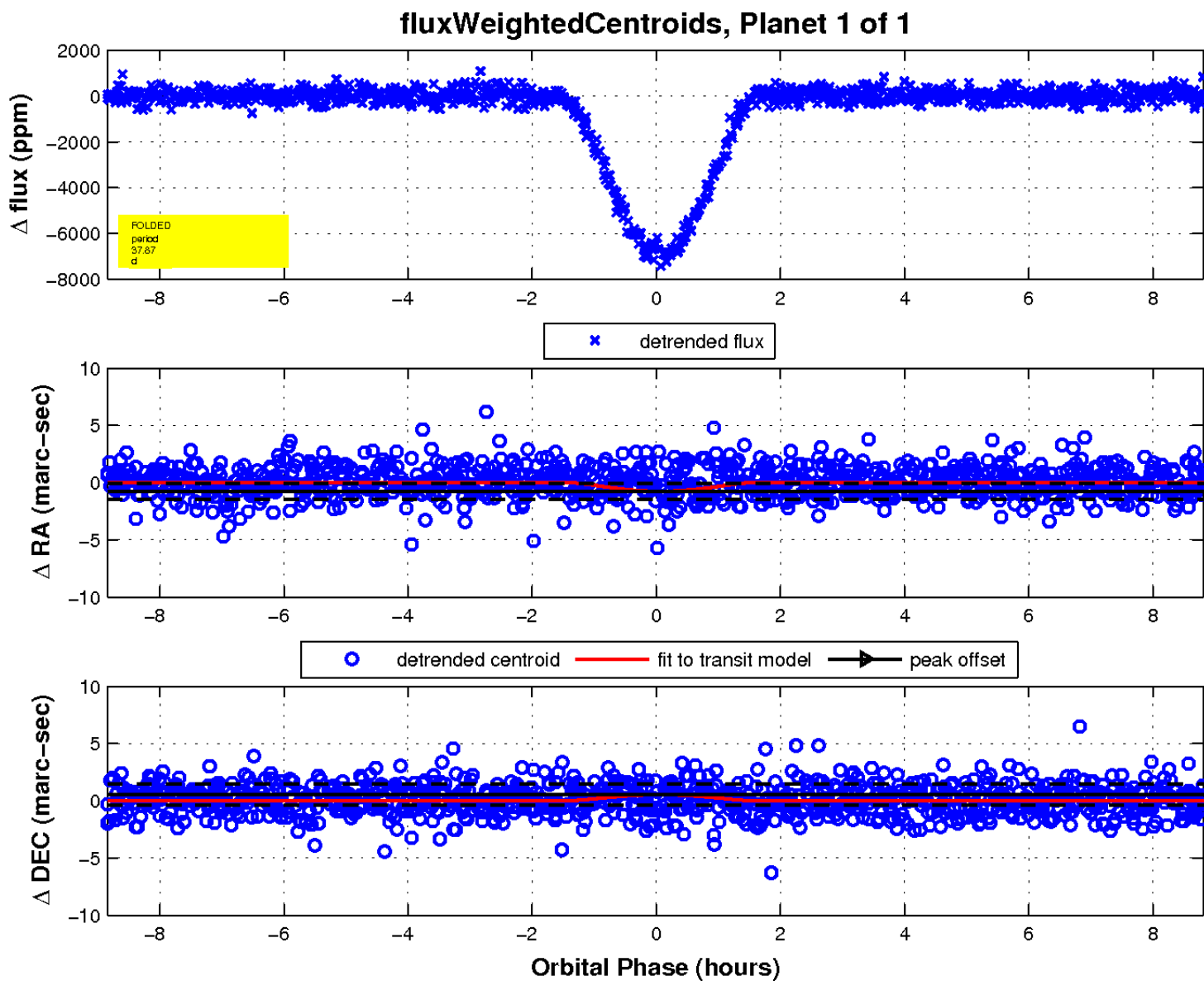
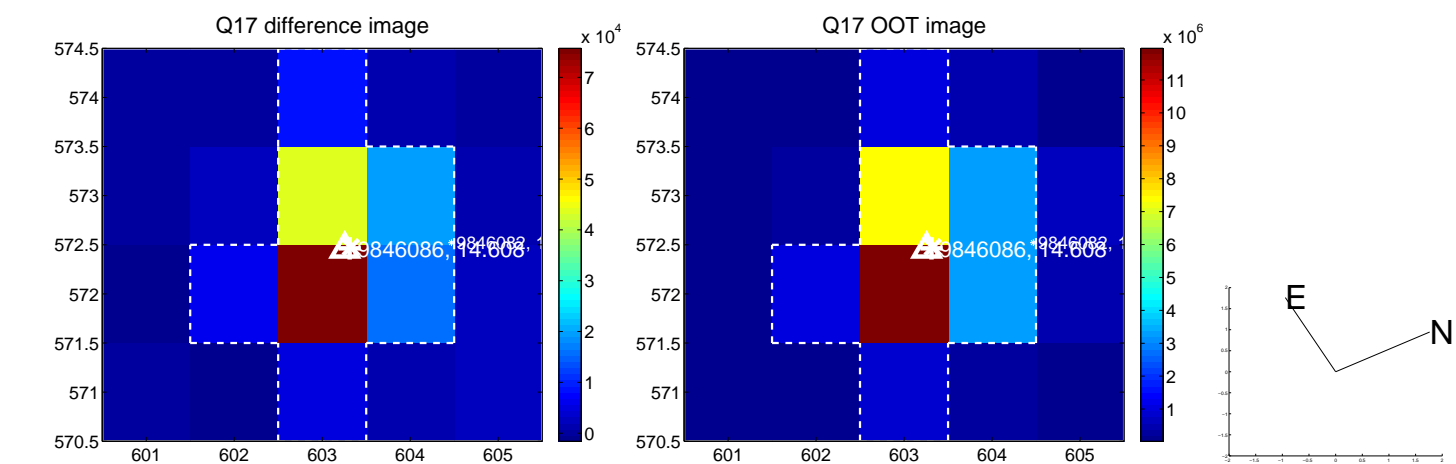
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

