

# KIC 003942575

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003942575-01	OBS	No	629.987951	317.245086	284.5	18.150	7.5	7.3	1.00	6015	1.82	0.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003942575-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

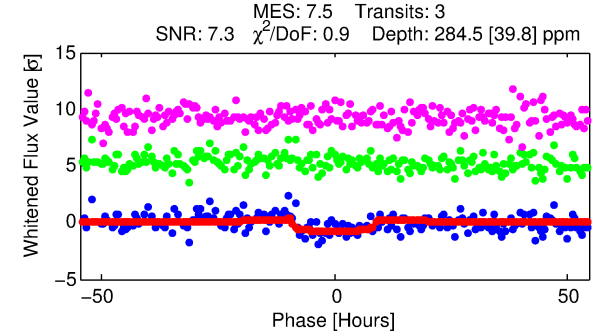
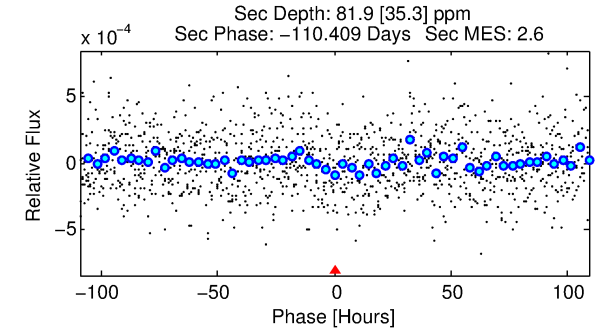
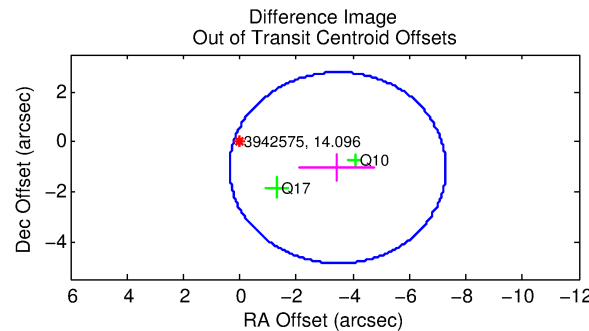
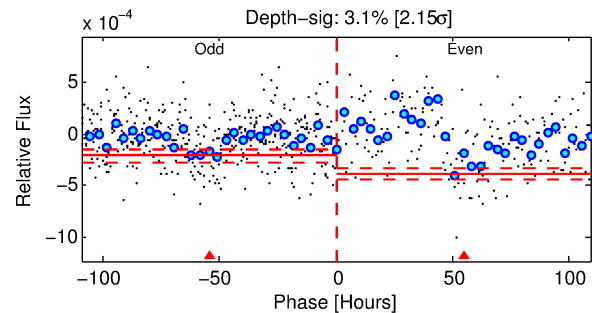
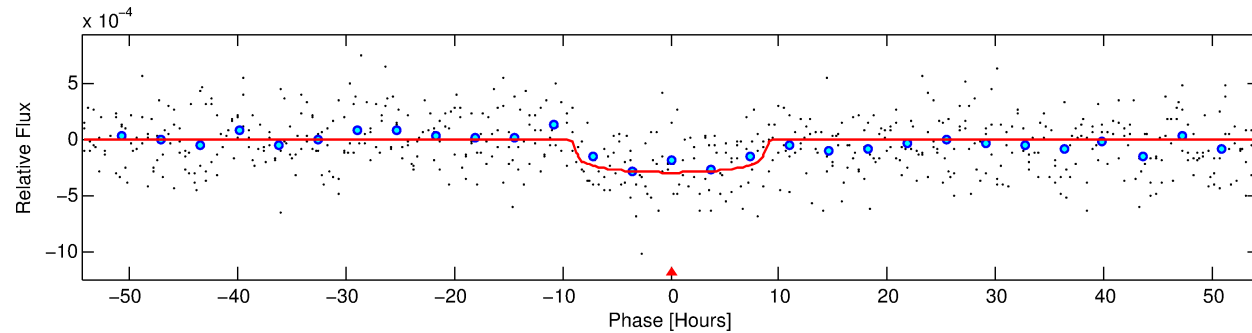
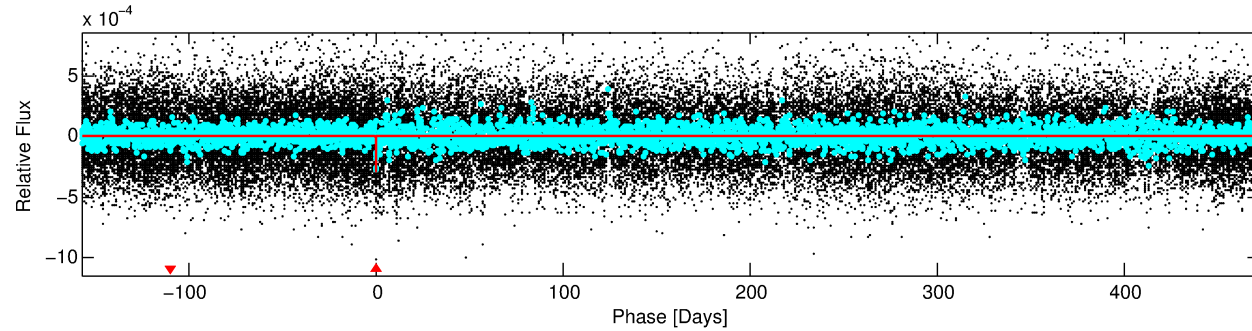
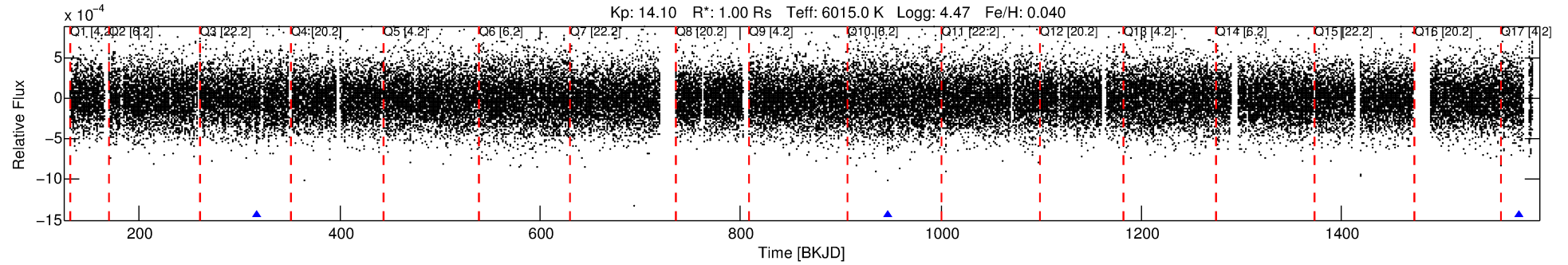
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003942575-01

No Significant Match Found

# DV One-Page Summary

KIC: 3942575 Candidate: 1 of 1 Period: 629.988 d



## DV Fit Results:

Period = 629.98795 [0.01738] d  
Epoch = 317.2451 [0.0225] BKJD  
Rp/R\* = 0.0166 [0.0049]  
a/R\* = 188.94 [256.23]  
b = 0.73 [0.89]  
Seff = 0.54 [0.22]  
Teq = 219 [23] K  
Rp = 1.82 [0.79] Re  
a = 1.4774 [0.3971] AU  
Ag = 29730.00 [24589.90] [1.21 $\sigma$ ]  
Teffp = 4437 [820] K [5.14 $\sigma$ ]

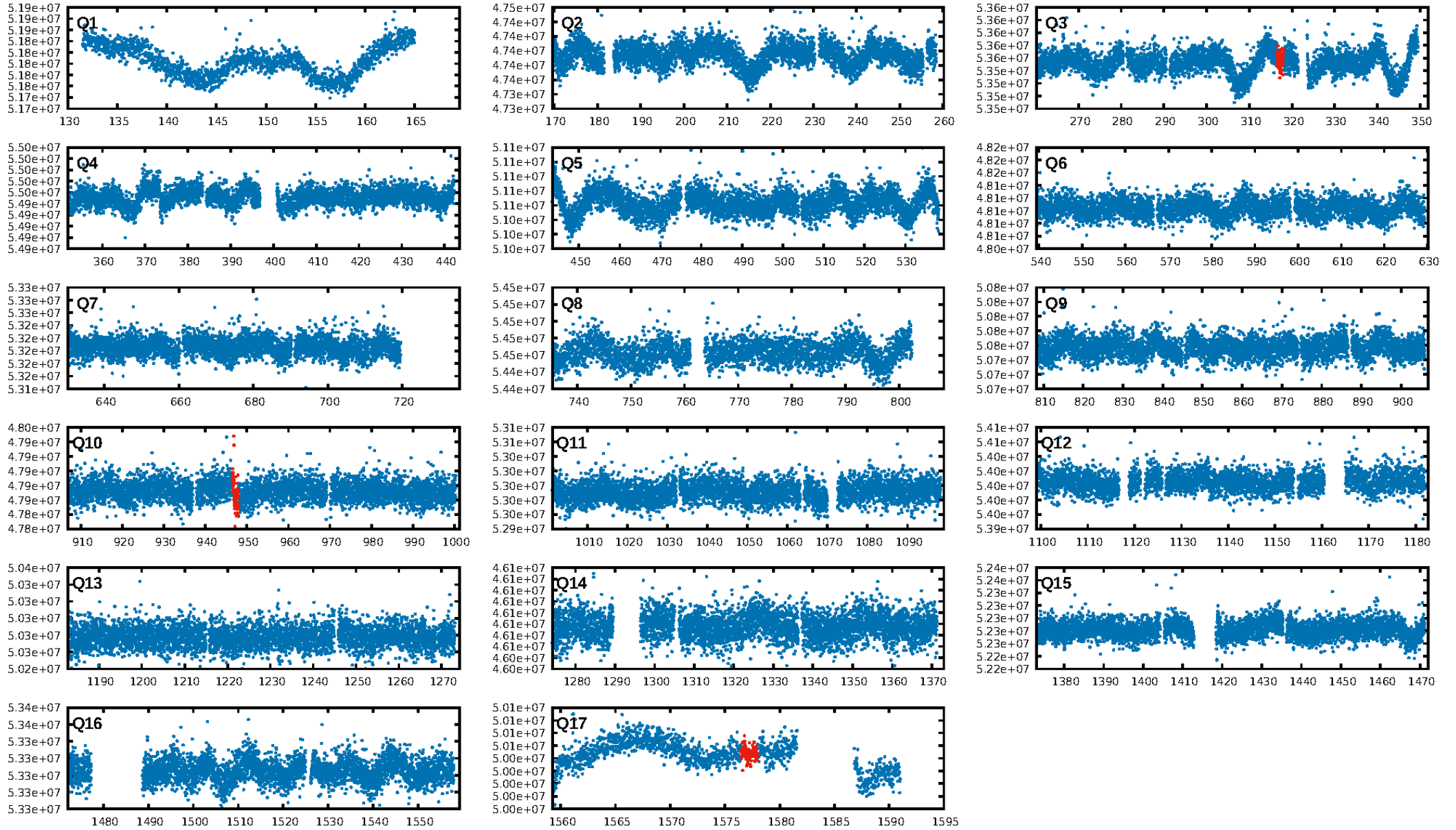
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.7%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.37e-10**  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 9.46  
Centroid-sig: 0.6%  
Centroid-so: 2.020 arcsec [1.37 $\sigma$ ]  
OotOffset-rm: 3.617 arcsec [2.83 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 3.648 arcsec [2.82 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

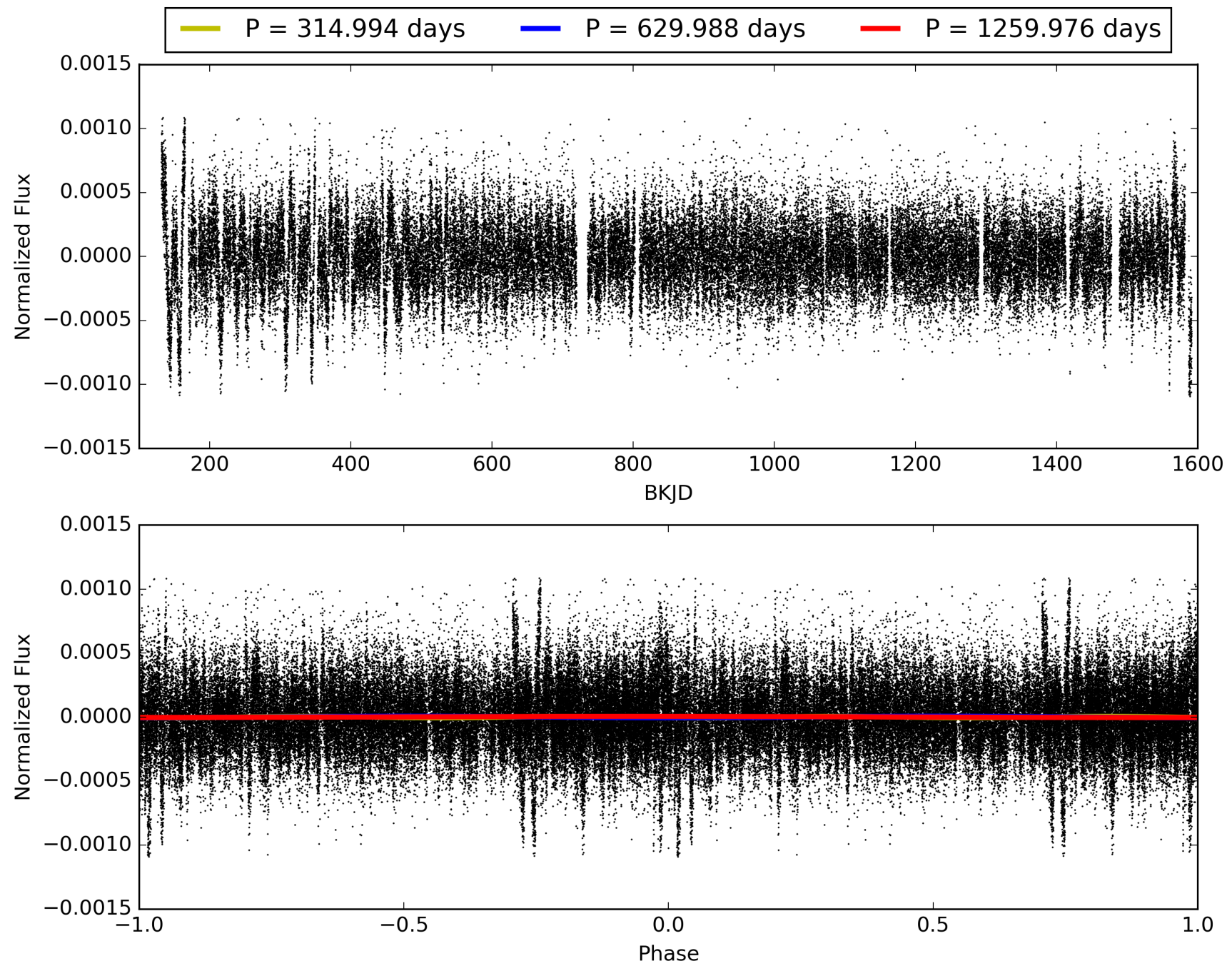
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:23:04 Z

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

# TCE 003942575-01, PDC Light Curves

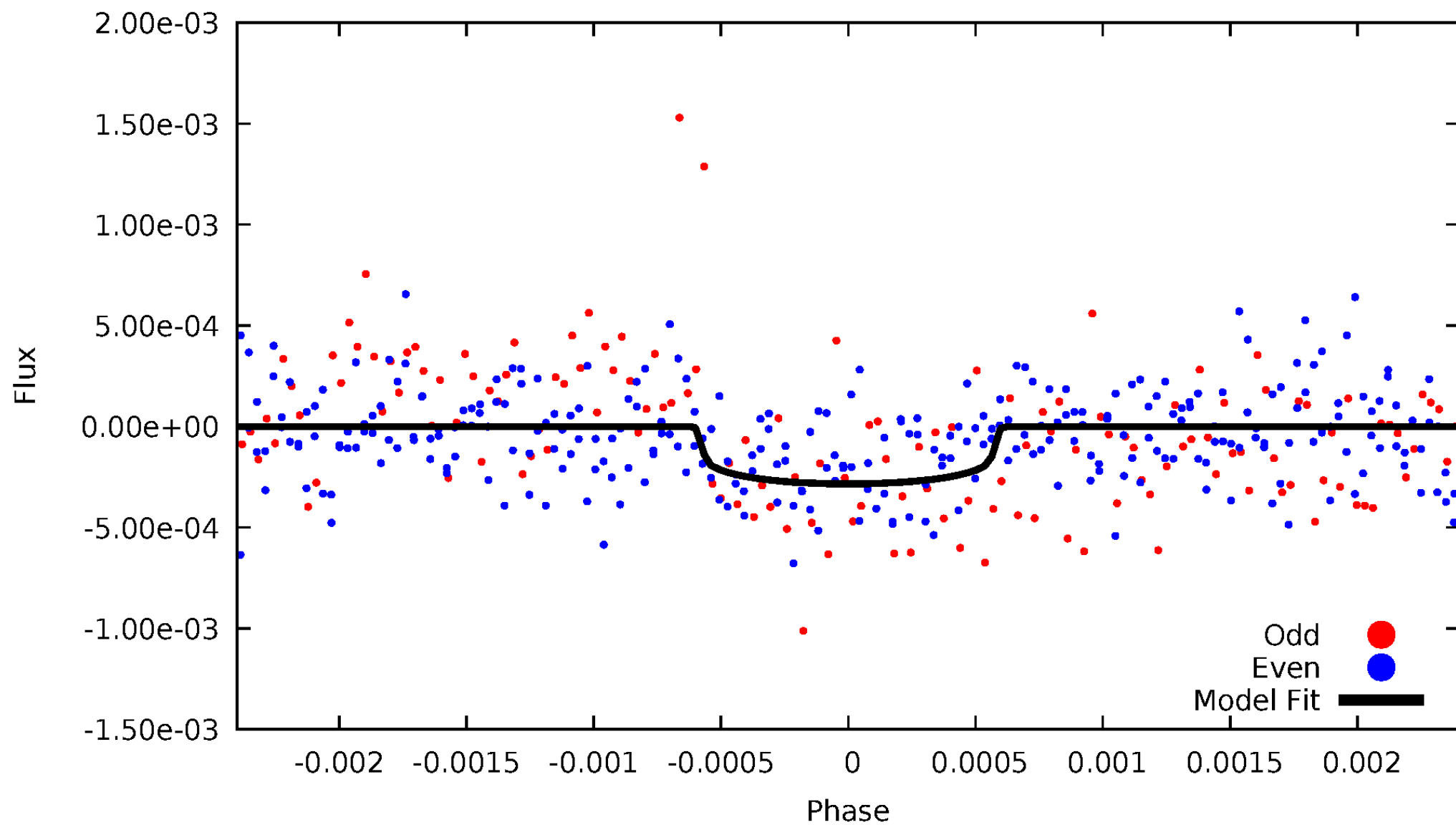


TCE 003942575-01



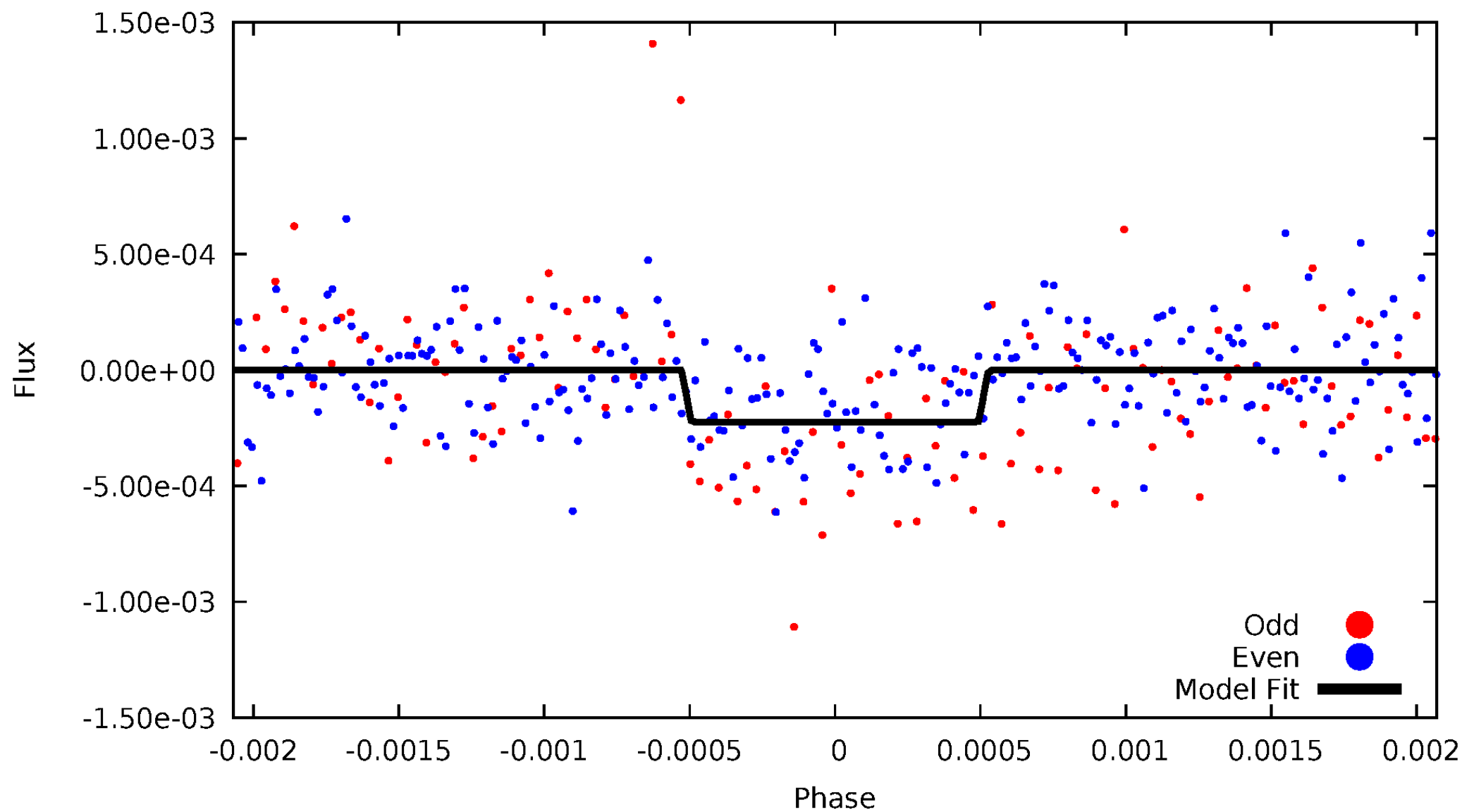
# DV Odd/Even

TCE 003942575-01

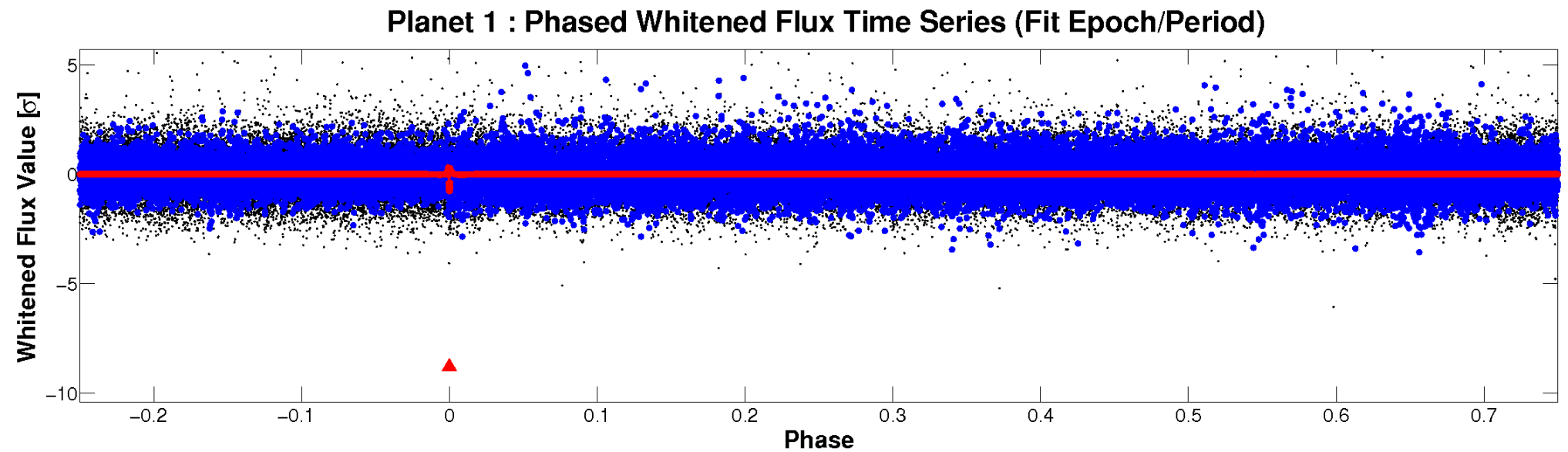
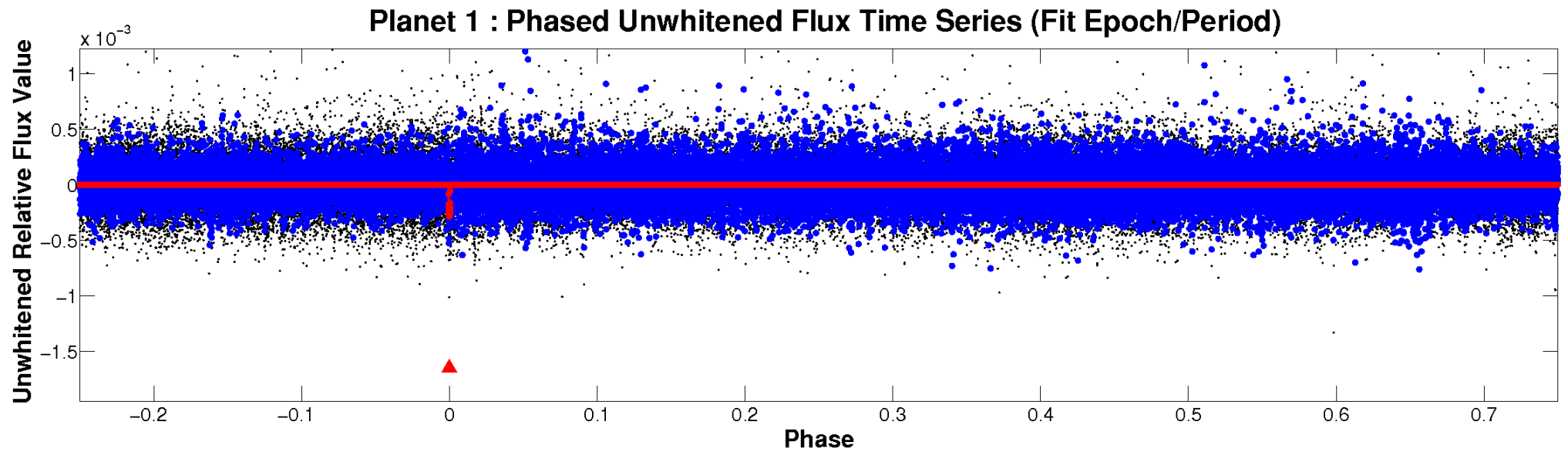


# ALT Odd/Even

TCE 003942575-01



# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

TCE 003942575-01 P=629.987951 Days  $T_0=317.245086$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 003942575-01 P=629.987951 Days  $T_0=317.245086$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

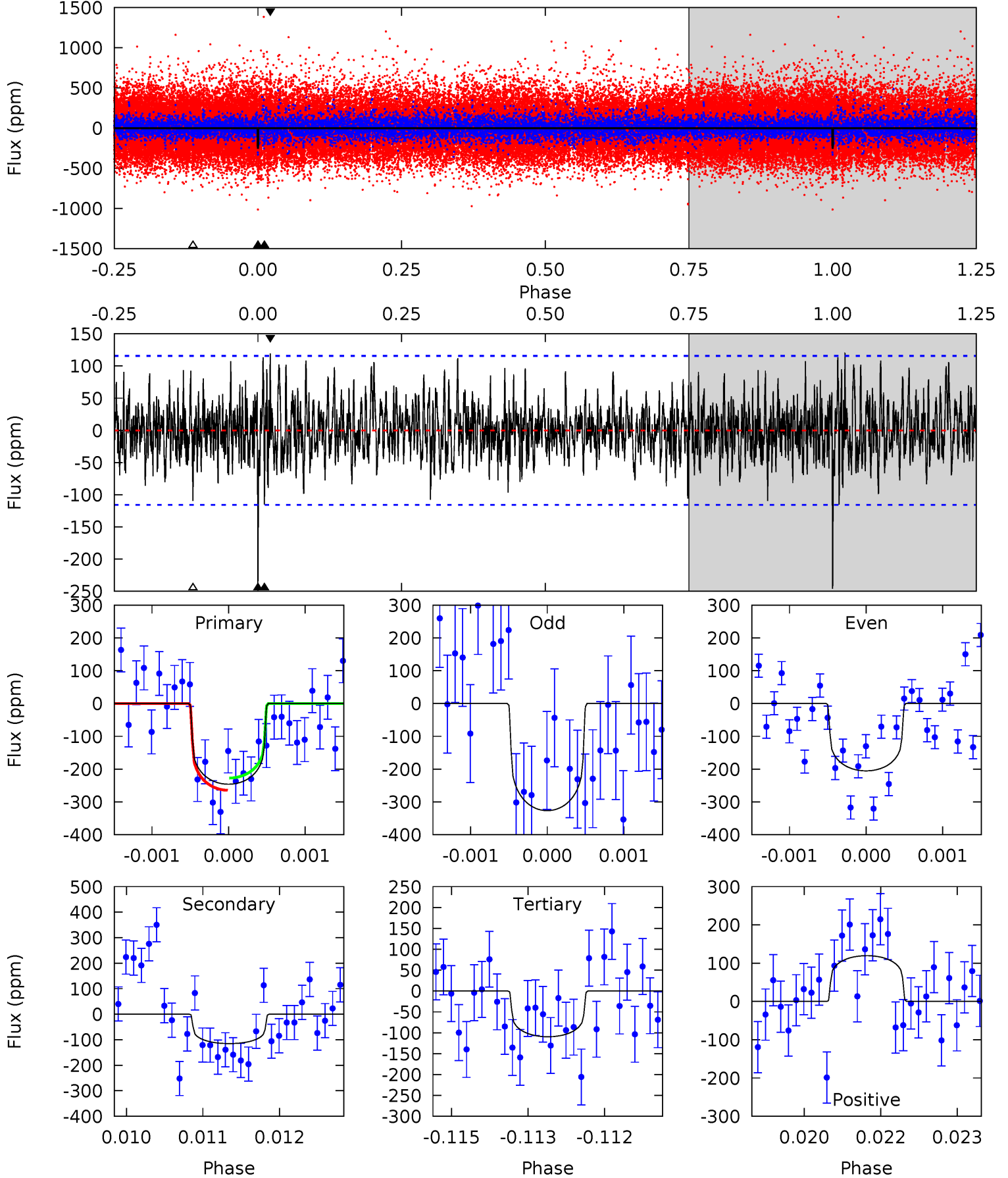
TCE 003942575-01 P=629.973466 Days  $T_0=317.237047$  (BKJD)



# DV Model-Shift Uniqueness Test

003942575-01, P = 629.987951 Days, E = 317.245086 Days

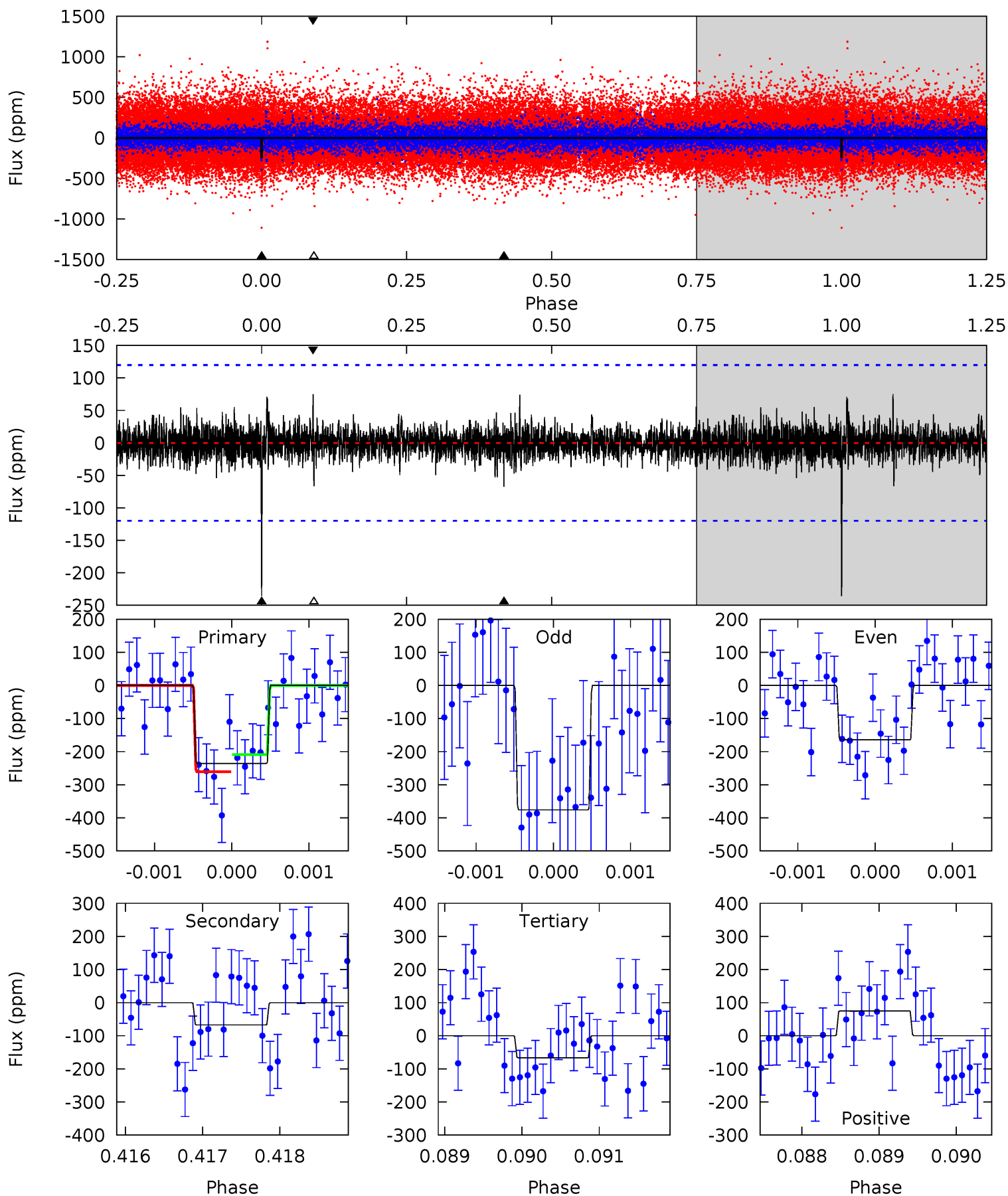
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	5.39	5.13	5.60	5.42	3.24	1.58	6.39	5.92	0.26	-0.21	2.68	0.88	0.33	0.87



# Alt Model-Shift Uniqueness Test

003942575-01, P = 629.973466 Days, E = 317.237047 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
10.7	3.05	3.02	3.40	5.44	3.27	0.68	7.67	7.29	0.04	-0.35	4.53	1.18	0.24	1.17



### Stellar Parameters For KIC 003942575

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6015^{+163}_{-199}$	$4.471^{+0.054}_{-0.216}$	$0.040^{+0.250}_{-0.350}$	$1.002^{+0.318}_{-0.106}$	$1.084^{+0.130}_{-0.145}$	$1.516^{+0.346}_{-0.856}$
	+3%/-3%	+1%/-5%	+625%/-875%	+32%/-11%	+12%/-13%	+23%/-56%
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 003942575-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-115 \pm 21$	$1.90^{+0.65}_{-0.59}$	$311^{+25}_{-15}$	$4874^{+911}_{-480}$	$36441^{+40576}_{-16446}$
Alt.	$-67 \pm 22$	$1.73^{+0.60}_{-0.57}$	$312^{+21}_{-16}$	$4572^{+846}_{-534}$	$26646^{+33335}_{-13503}$

$T_{\text{max}}$  = 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

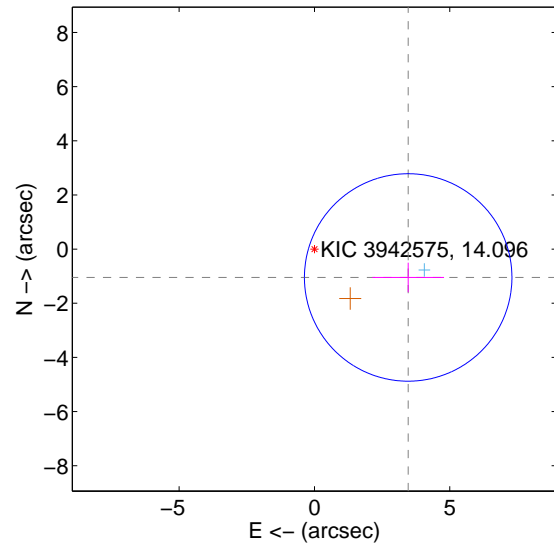
Supplemental centroid analysis for 003942575-01. Kepler magnitude: 14.10. Transit SNR 7.31

There are 1 quarters with good PRF difference image offsets

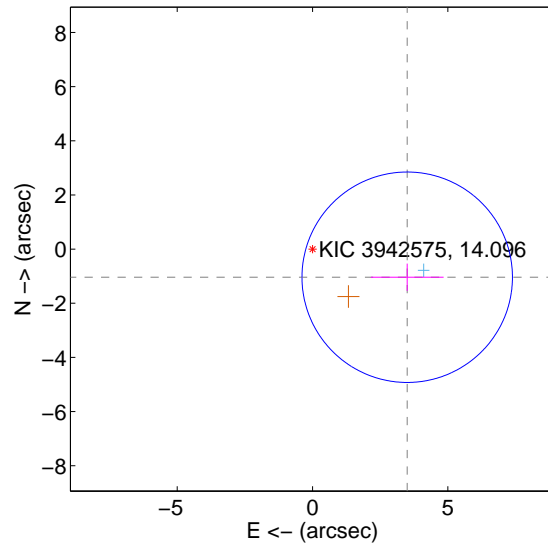
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.617 \pm 1.277$	2.83	$-3.462 \pm 1.324$	$-1.047 \pm 0.547$
PRF-fit source offset from KIC position	$3.648 \pm 1.295$	2.82	$-3.497 \pm 1.343$	$-1.039 \pm 0.502$
photometric centroid source offset	$2.02 \pm 1.48$	1.37	$0.49 \pm 1.53$	$1.96 \pm 1.47$

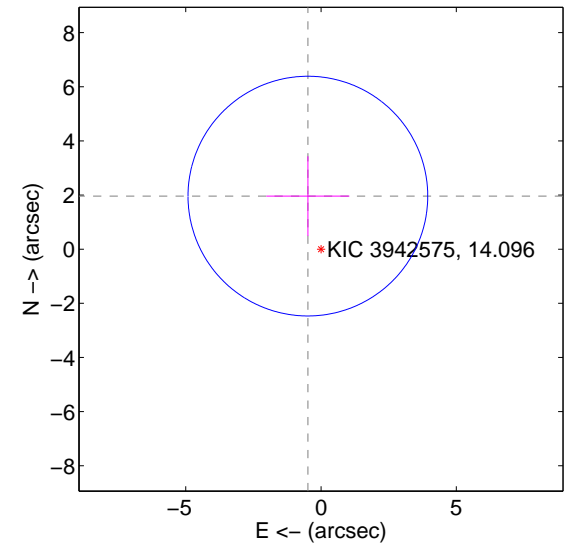
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

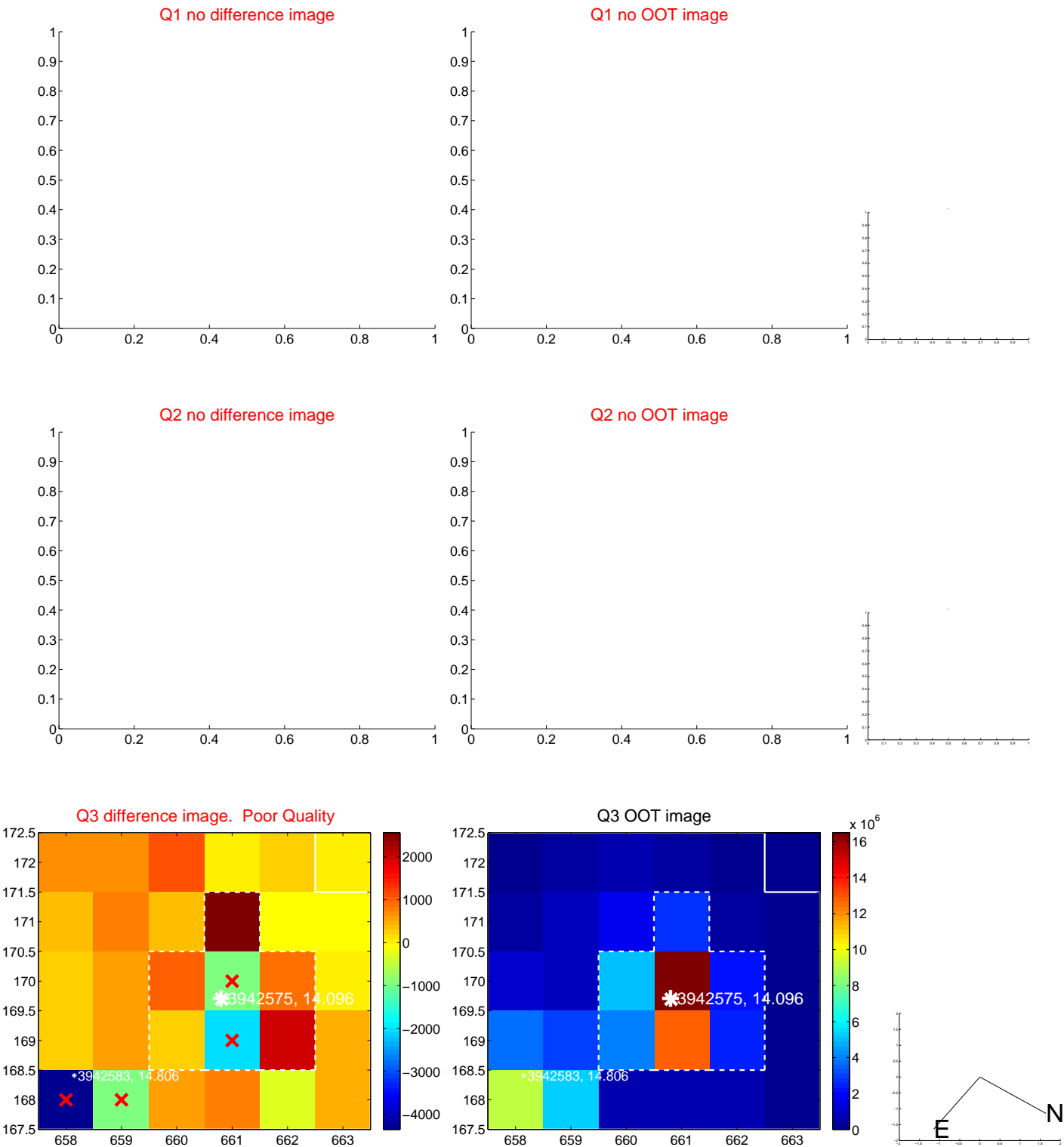


offset from photometric centroids



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.

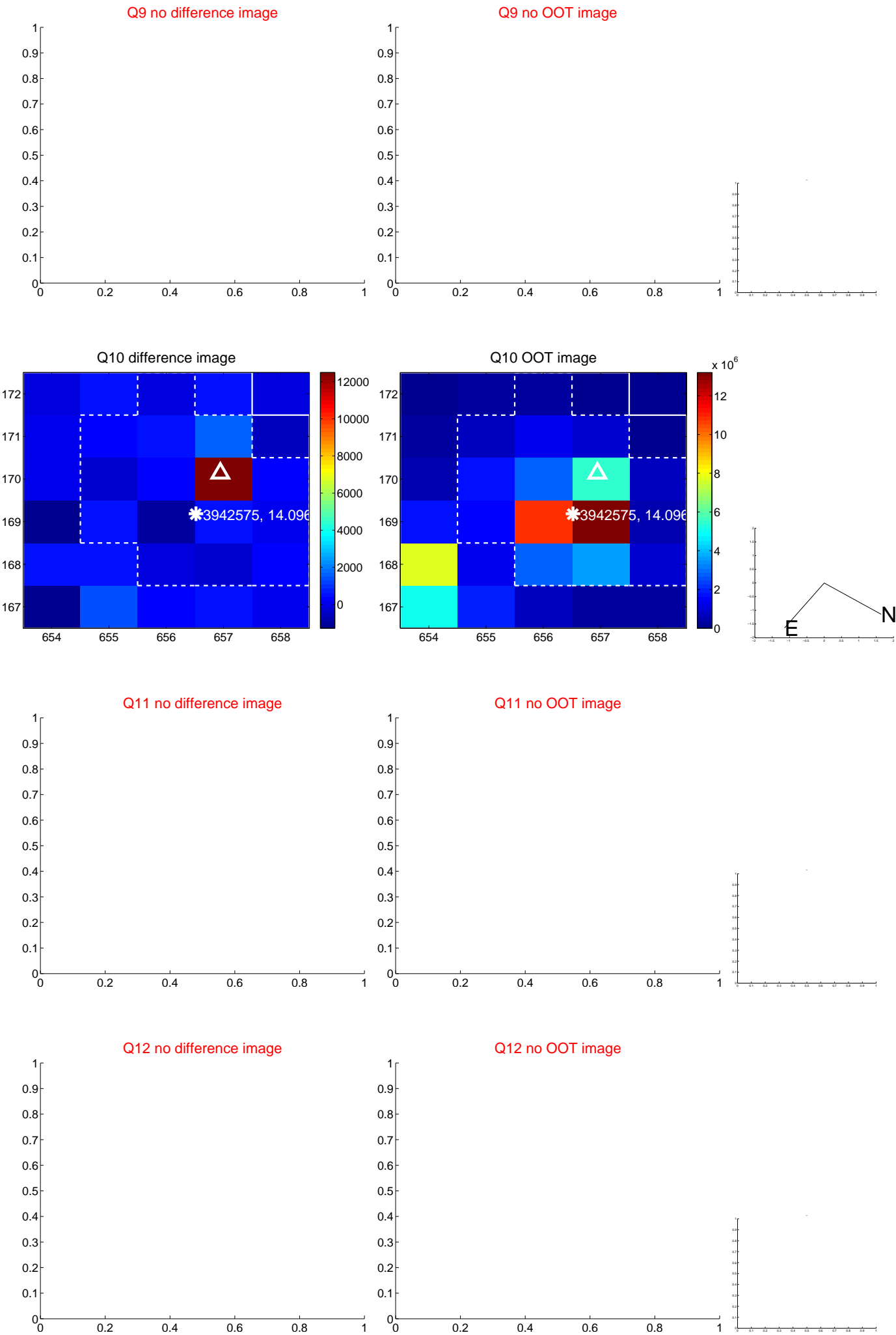




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



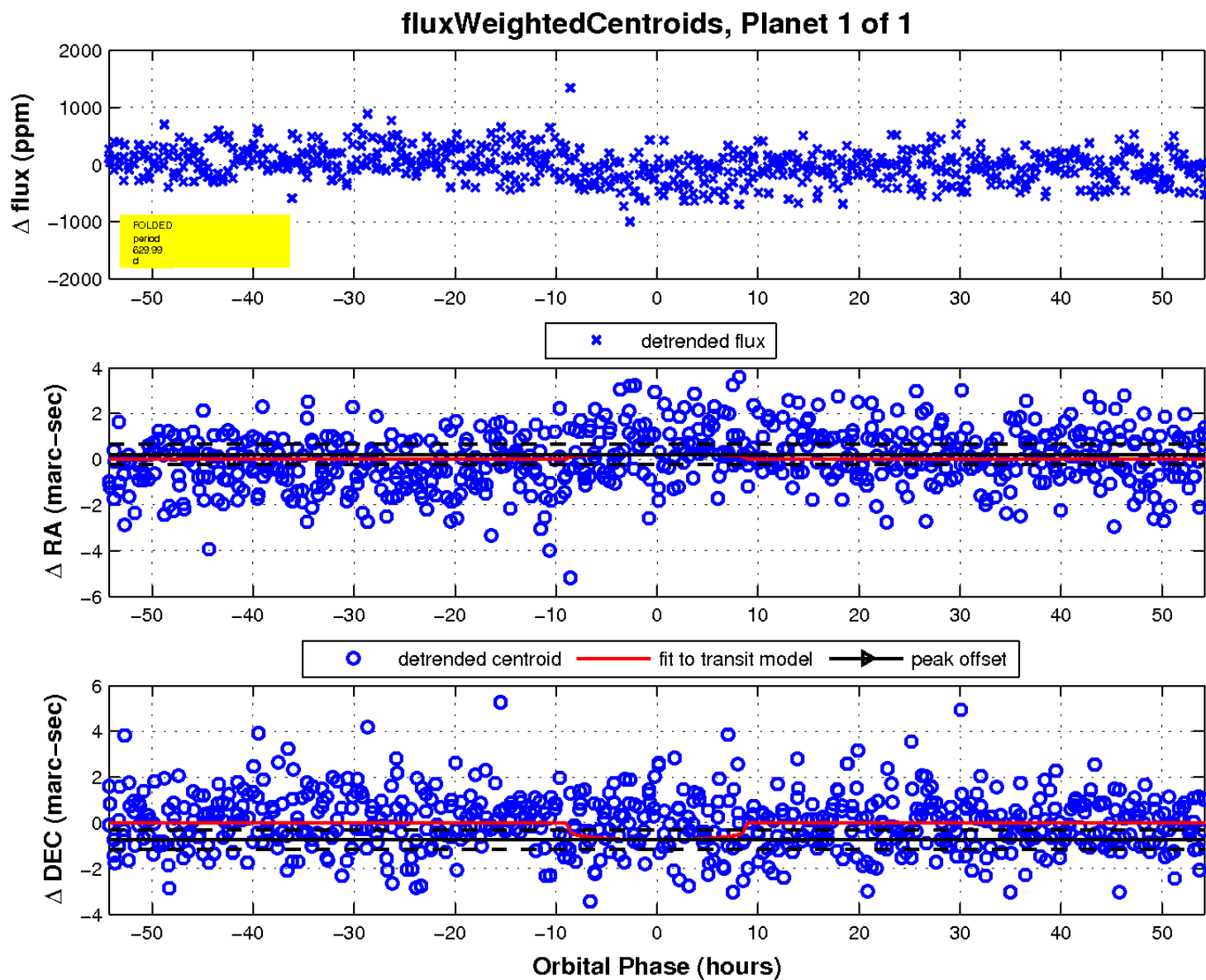
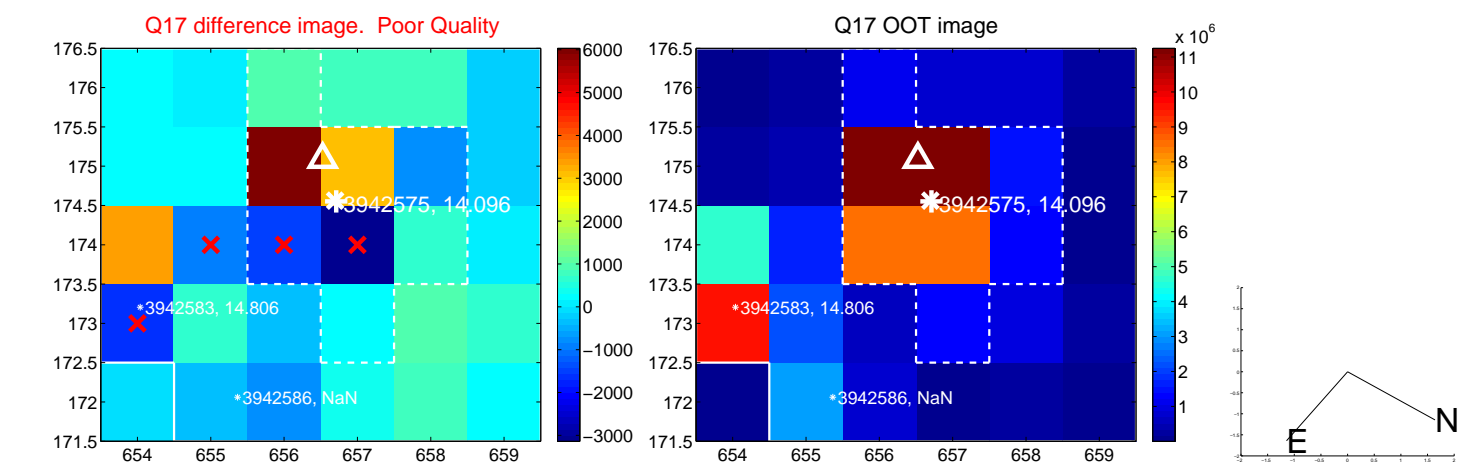
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

