

# KIC 002284957

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002284957-01	OBS	8085.01	419.256089	187.584552	316.6	20.396	7.9	8.1	0.97	5979	1.86	1.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002284957-01	OBS	PC	0.42	0	0	0	0	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.

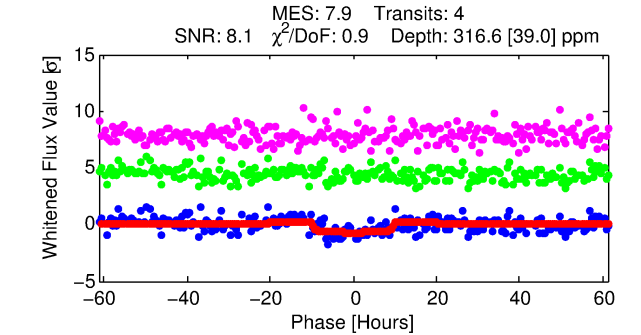
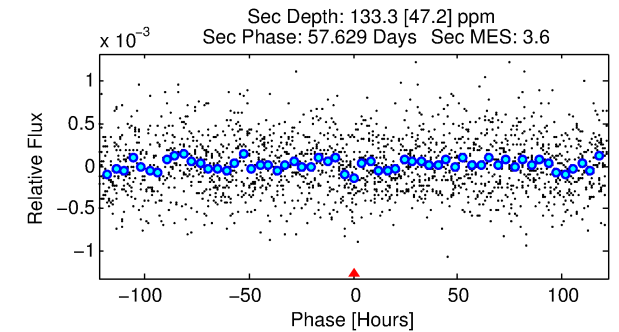
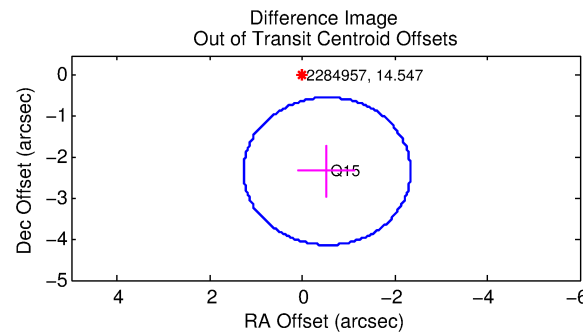
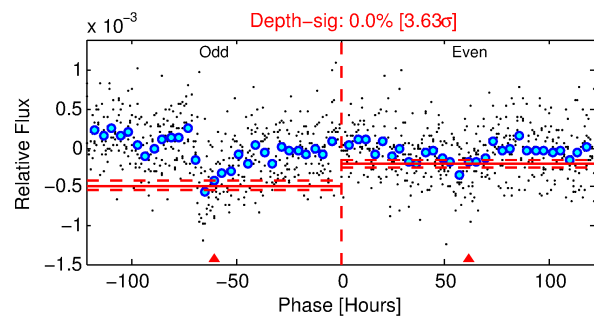
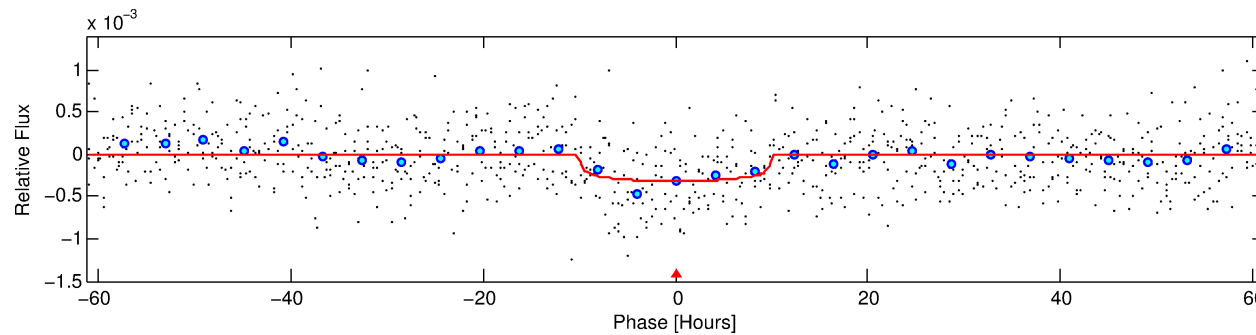
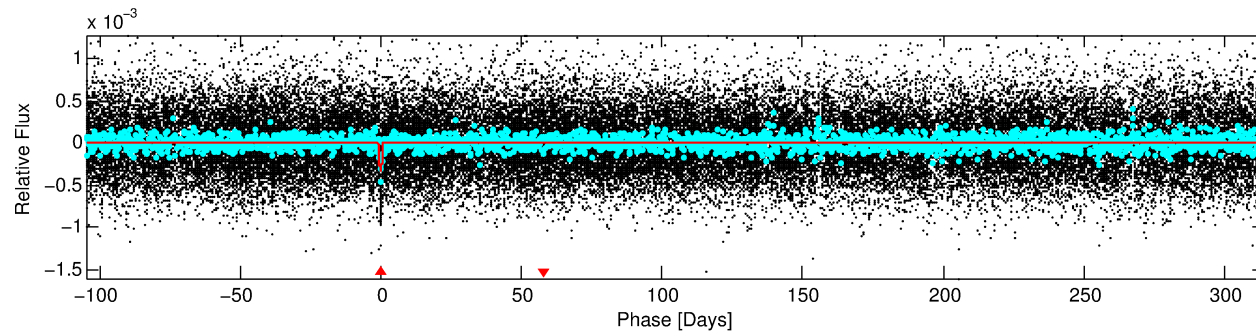
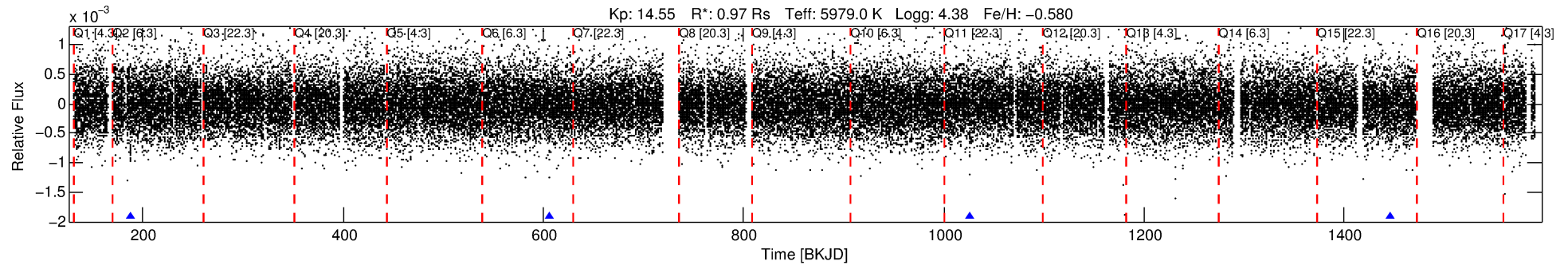
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002284957-01

No Significant Match Found

# DV One-Page Summary

KIC: 2284957 Candidate: 1 of 1 Period: 419.256 d



## DV Fit Results:

Period = 419.25609 [0.01322] d  
Epoch = 187.5846 [0.0258] BKJD  
Rp/R\* = 0.0174 [0.0075]  
a/R\* = 115.62 [251.50]  
b = 0.70 [1.57]  
Seff = 1.03 [0.37]  
Teff = 257 [23] K  
Rp = 1.86 [0.94] Re  
a = 1.0304 [0.2387] AU  
Ag = 22619.00 [22347.94] [1.01σ]  
Teffp = 4865 [1138] K [4.05σ]

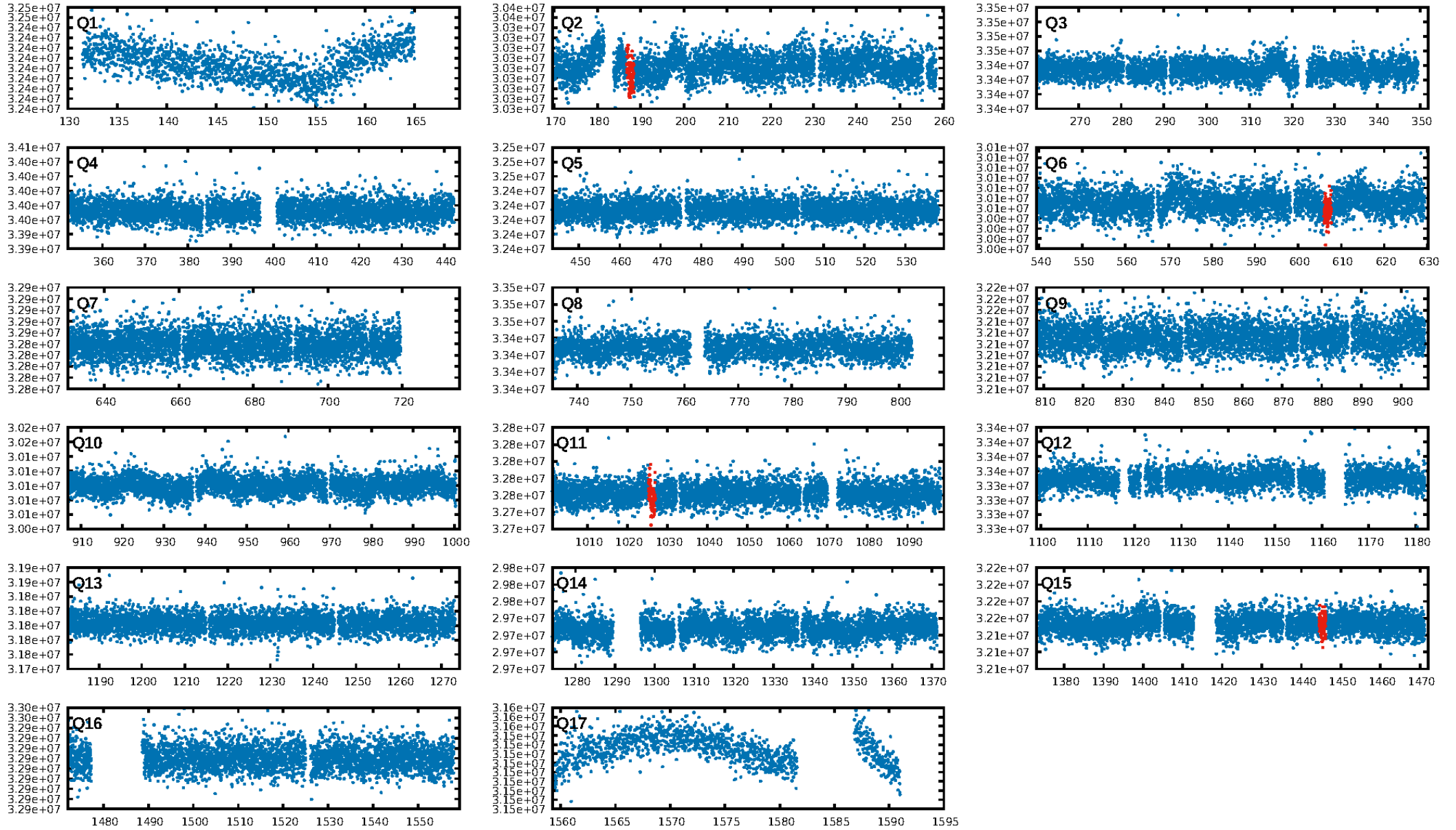
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 10.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.44e-12**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 10.42  
Centroid-sig: 41.8%  
Centroid-so: 2.029 arcsec [1.17σ]  
**OotOffset-rm: 2.398 arcsec [3.98σ]**  
**KicOffset-rm: 2.516 arcsec [4.18σ]**  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

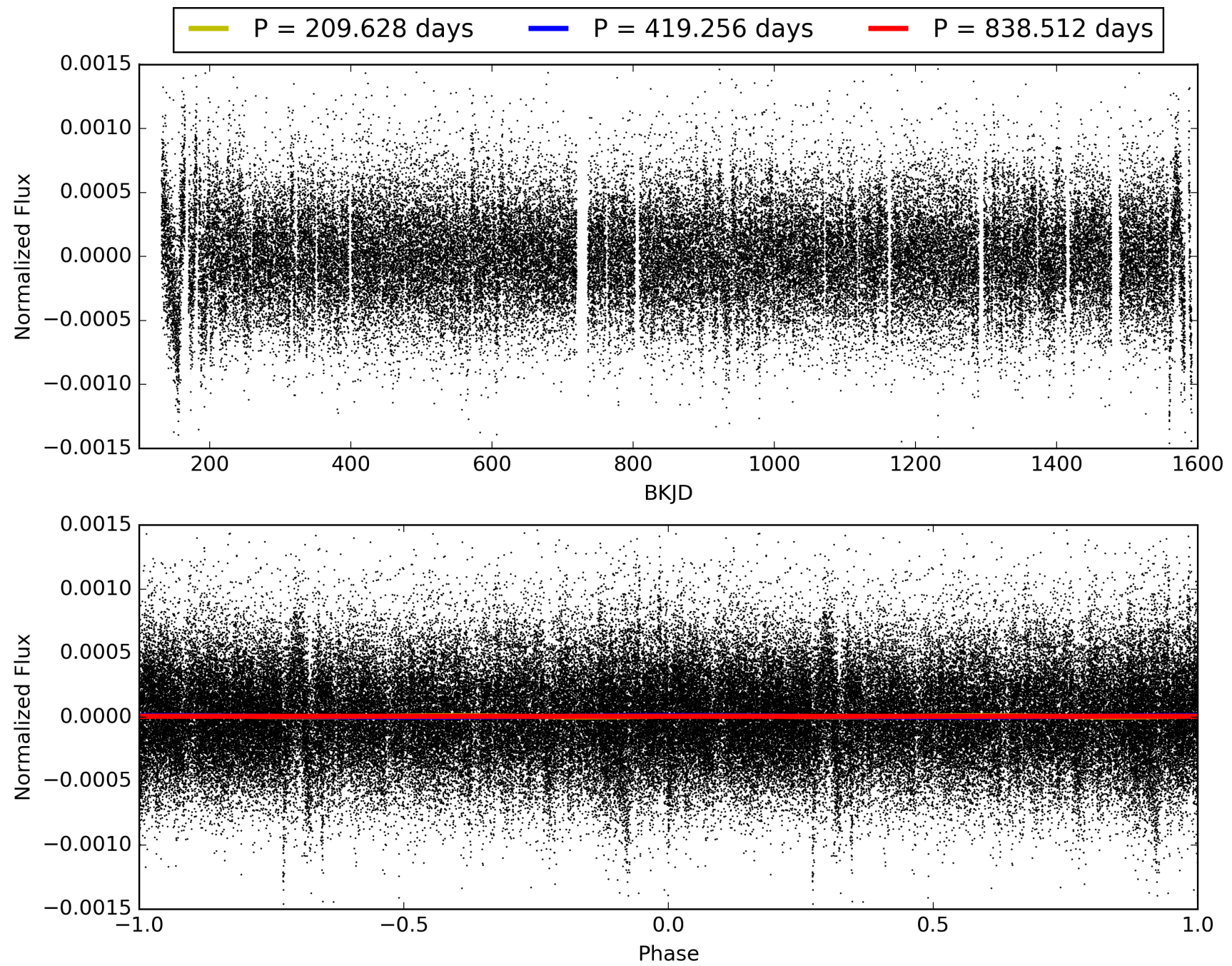
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:04:10 Z

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

# TCE 002284957-01, PDC Light Curves

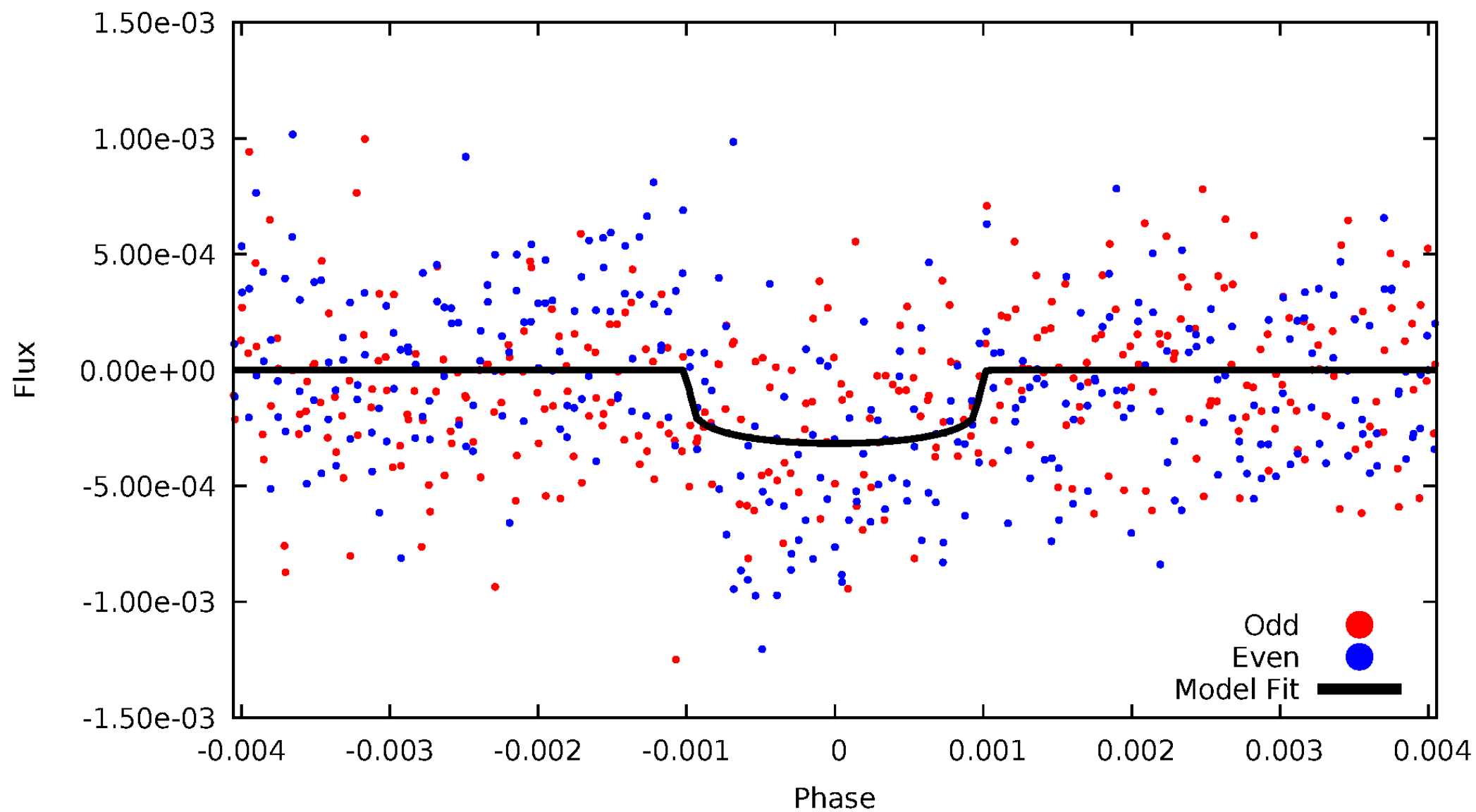


TCE 002284957-01



# DV Odd/Even

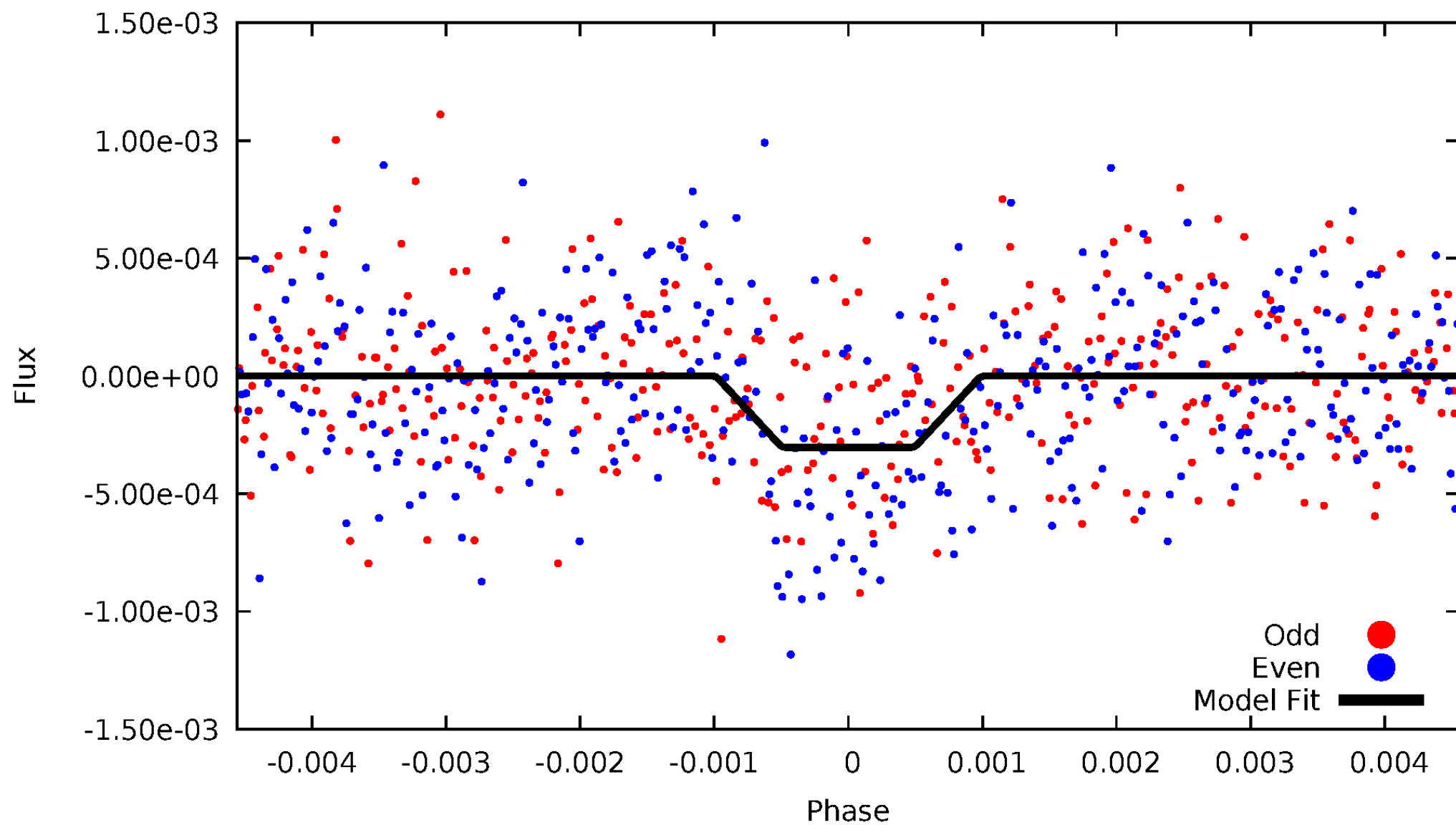
TCE 002284957-01





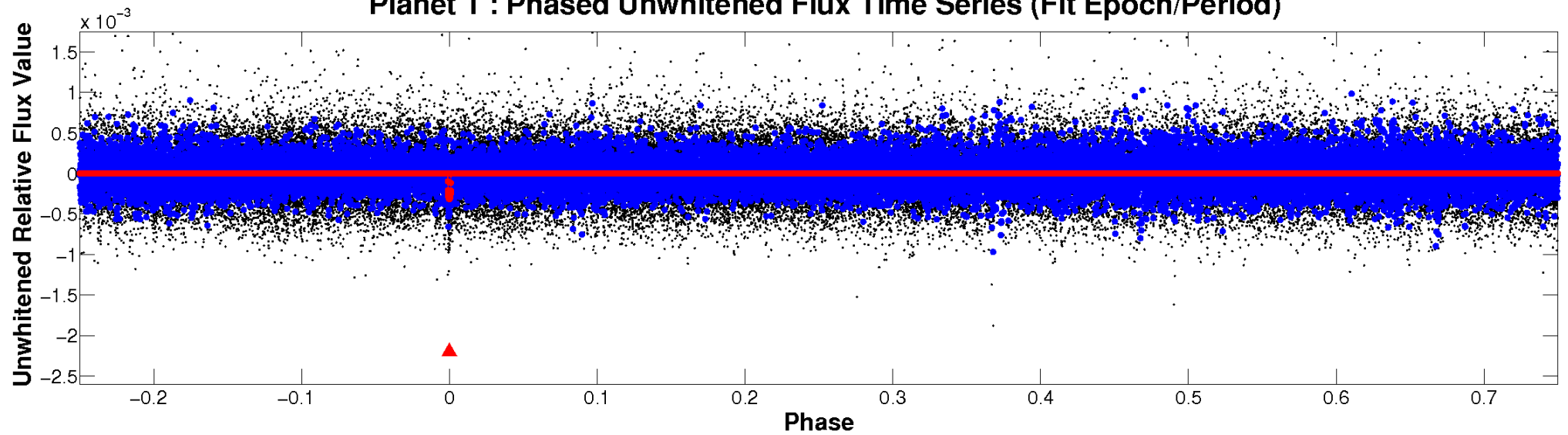
# ALT Odd/Even

TCE 002284957-01

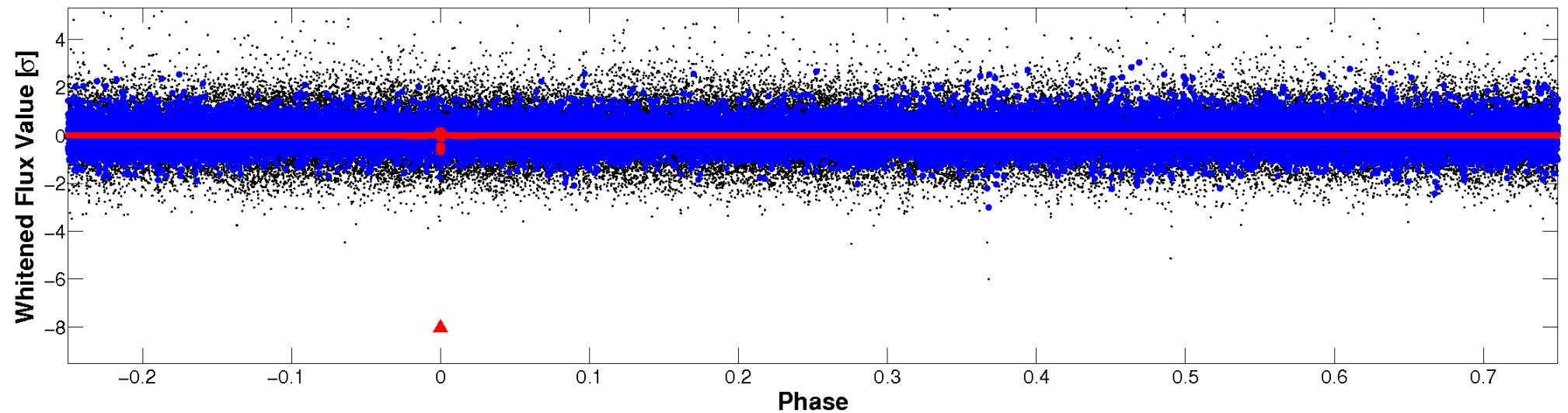


# Non-Whitened Vs. Whitened Light Curve

**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 002284957-01     $P=419.256089$  Days     $T_0=187.584552$  (BKJD)





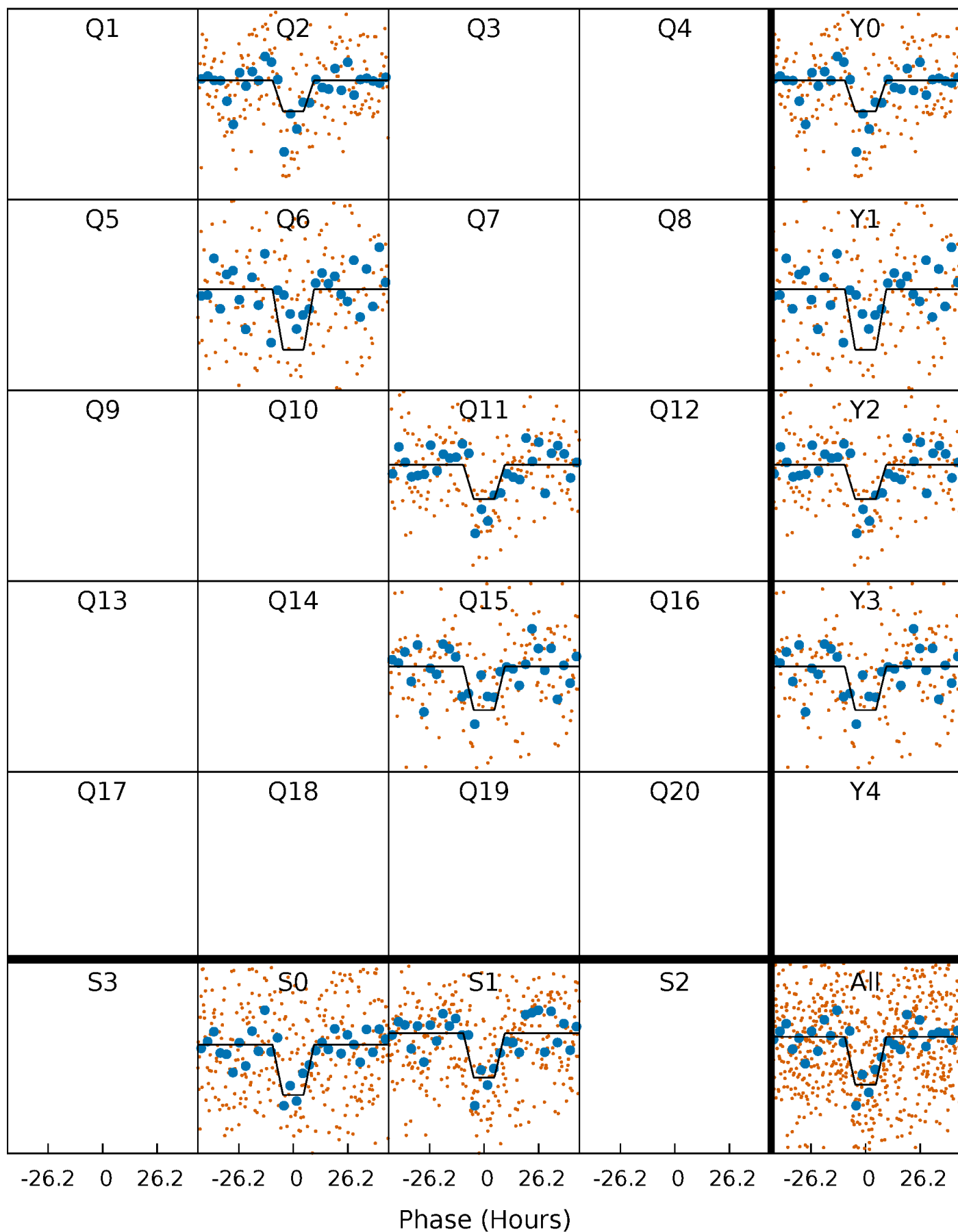
# DV Quarter-Phased Transit Curves

TCE 002284957-01 P=419.256089 Days  $T_0=187.584552$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

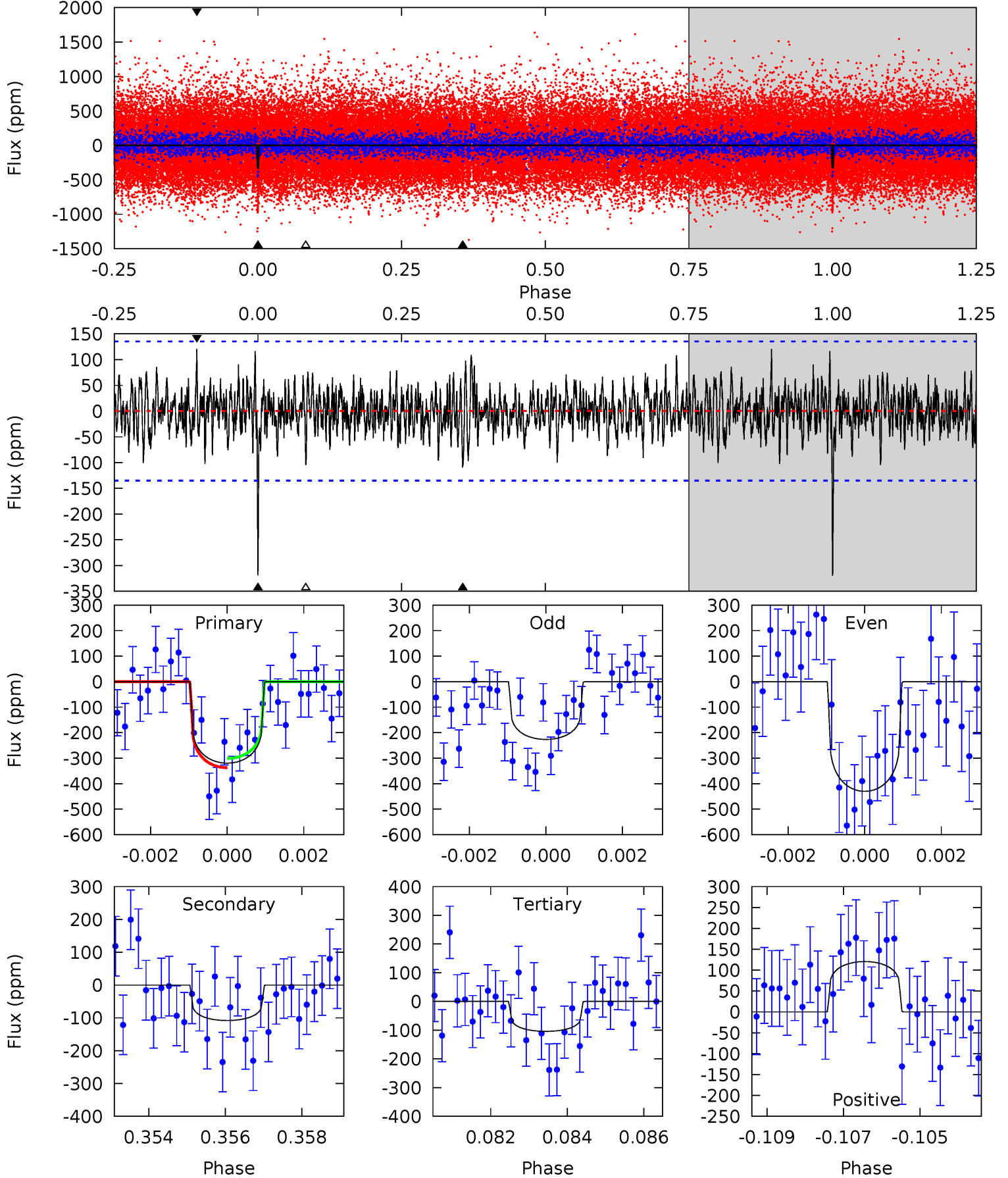
TCE 002284957-01 P=419.283029 Days  $T_0=187.504995$  (BKJD)



# DV Model-Shift Uniqueness Test

002284957-01, P = 419.256089 Days, E = 187.584552 Days

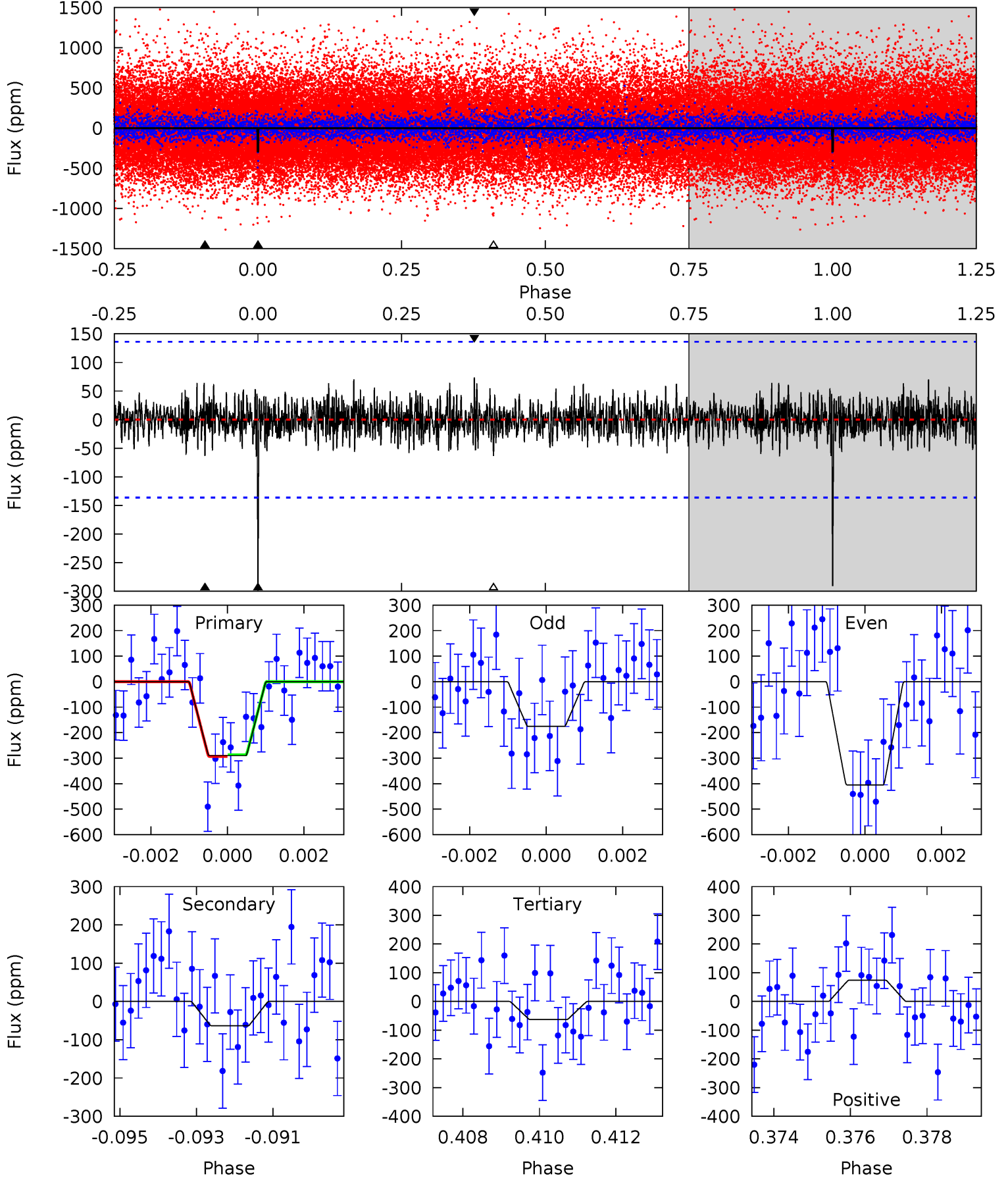
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	4.26	4.10	4.75	5.32	3.08	1.30	8.49	7.84	0.16	-0.49	4.00	1.01	0.27	0.72



# Alt Model-Shift Uniqueness Test

002284957-01, P = 419.283029 Days, E = 187.504995 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
11.4	2.49	2.47	2.89	5.33	3.09	0.82	8.88	8.47	0.02	-0.40	4.50	0.93	0.20	0.12



### Stellar Parameters For KIC 002284957

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5979^{+161}_{-179}$	$4.379^{+0.170}_{-0.187}$	$-0.580^{+0.300}_{-0.300}$	$0.975^{+0.266}_{-0.177}$	$0.830^{+0.108}_{-0.063}$	$1.261^{+1.029}_{-0.598}$
	+3%/-3%	+4%/-4%	+52%/-52%	+27%/-18%	+13%/-8%	+82%/-47%
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 002284957-01 / KOI 8085.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-108 \pm 25$	$1.85^{+0.90}_{-0.76}$	$360^{+26}_{-23}$	$4777^{+1292}_{-671}$	$18631^{+37401}_{-10383}$
Alt.	$-64 \pm 26$	$1.91^{+0.91}_{-0.79}$	$358^{+27}_{-21}$	$4214^{+1065}_{-616}$	$10012^{+20407}_{-6409}$

$T_{max}$  = 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

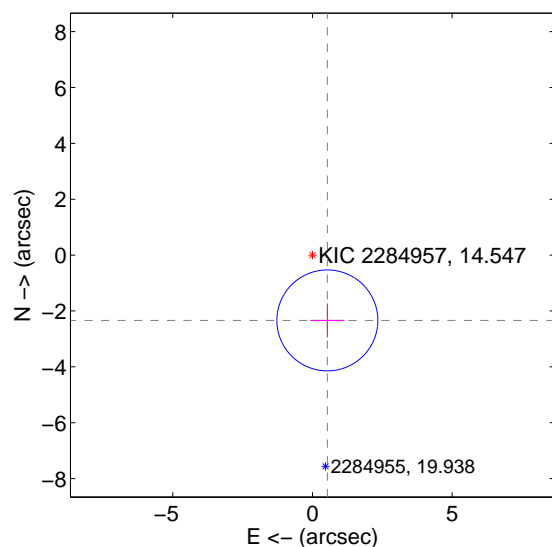
Supplemental centroid analysis for 002284957-01. Kepler magnitude: 14.55. Transit SNR 8.06

There are 0 quarters with good PRF difference image offsets

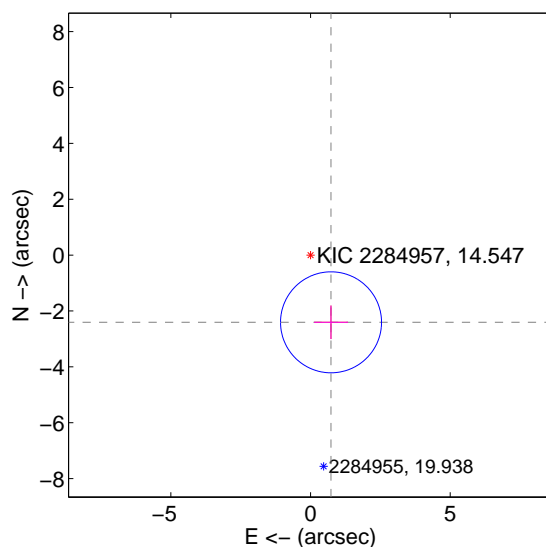
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.398 \pm 0.602$	3.98	$-0.534 \pm 0.608$	$-2.338 \pm 0.602$
PRF-fit source offset from KIC position	$2.516 \pm 0.602$	4.18	$-0.734 \pm 0.608$	$-2.406 \pm 0.602$
photometric centroid source offset	$2.03 \pm 1.73$	1.17	$-1.05 \pm 1.60$	$-1.74 \pm 1.77$

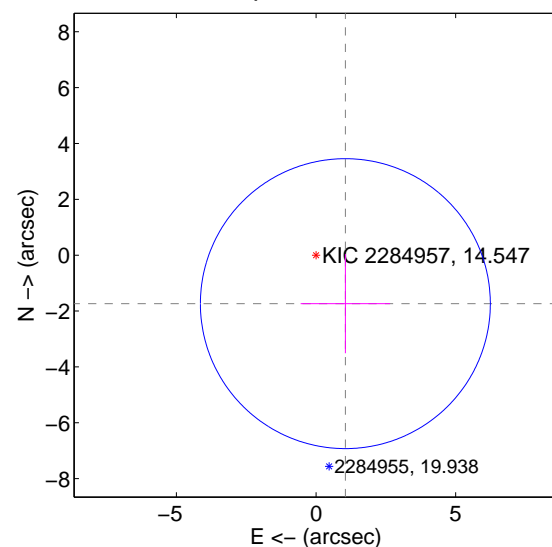
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



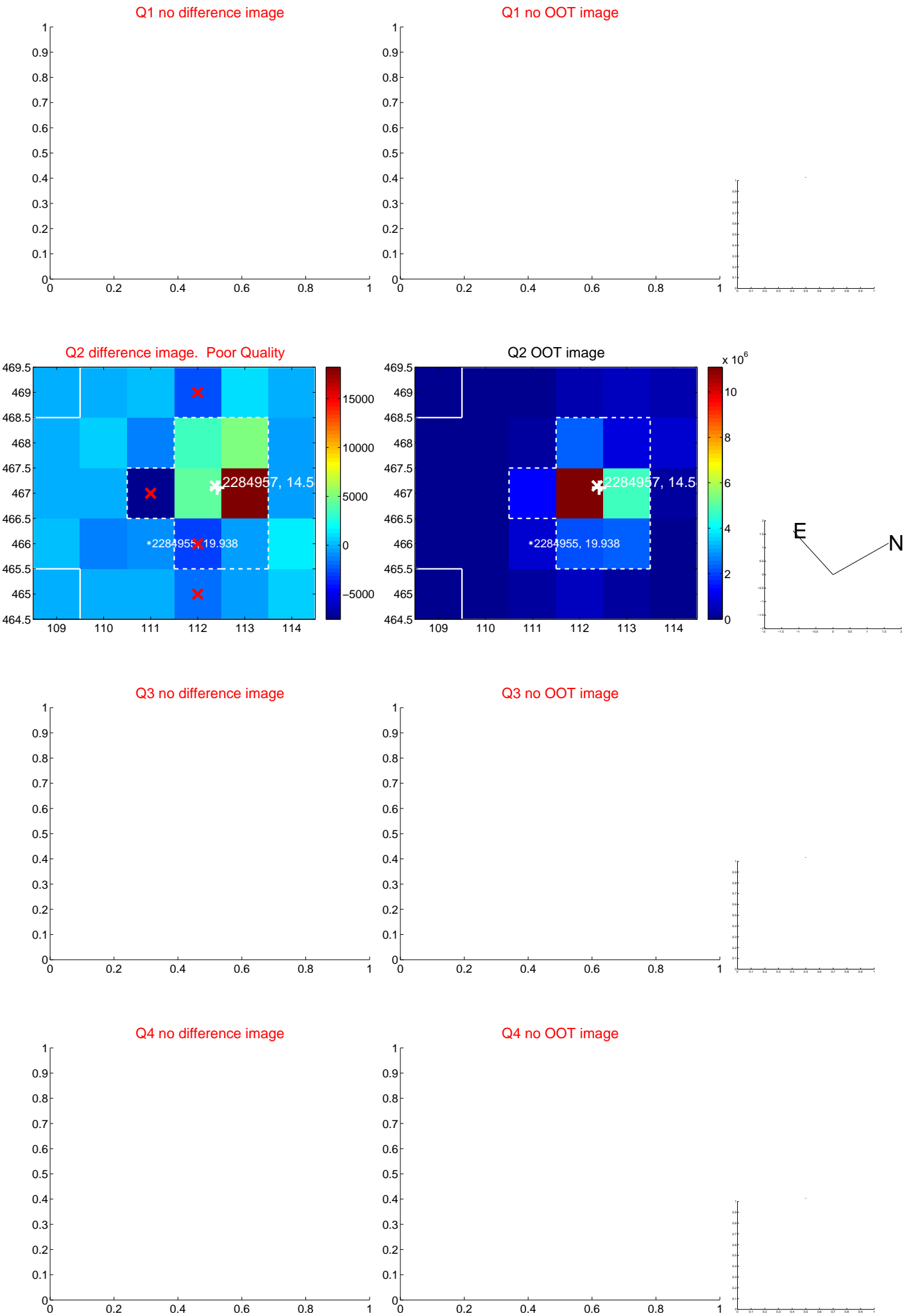
offset from photometric centroids



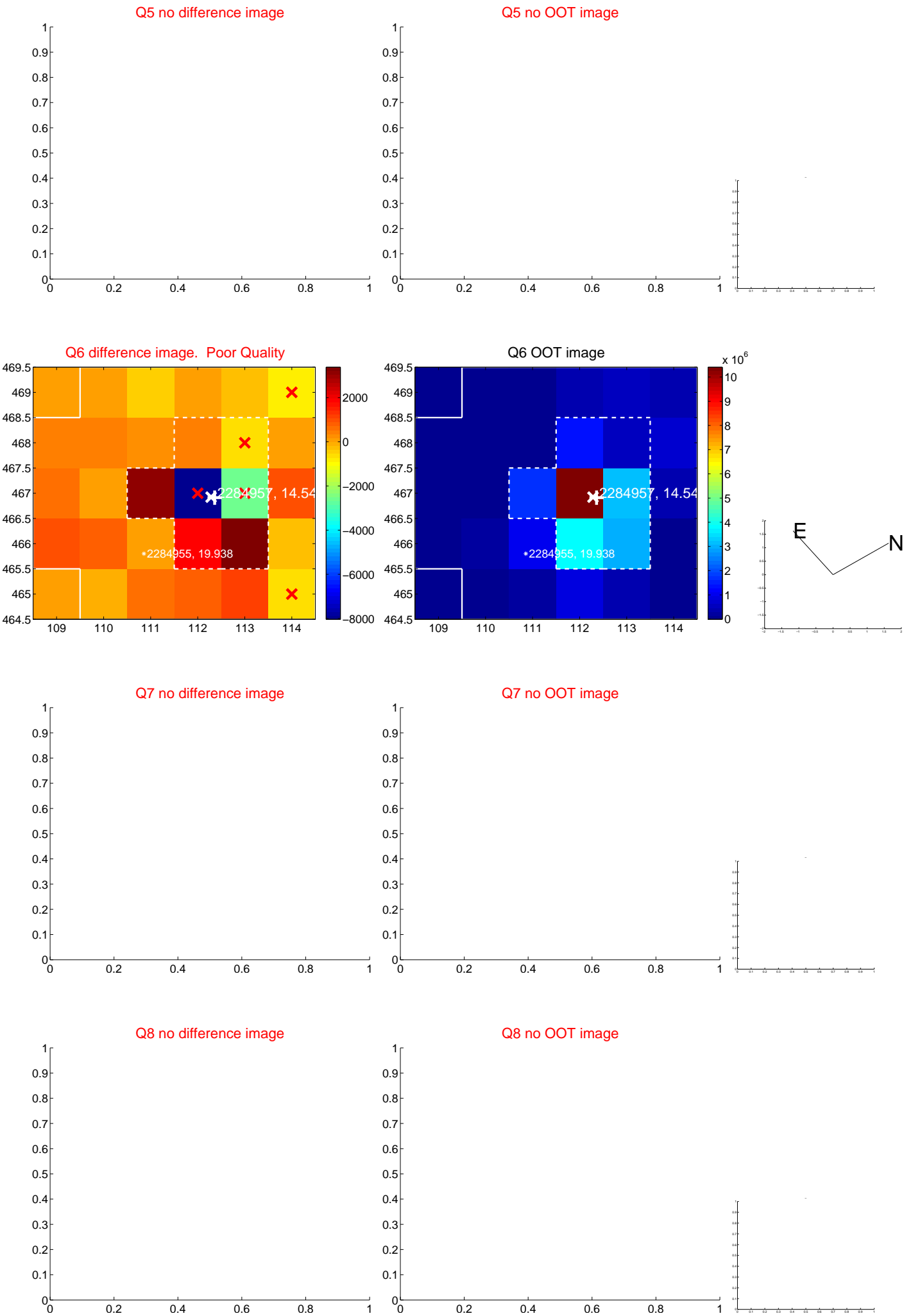
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



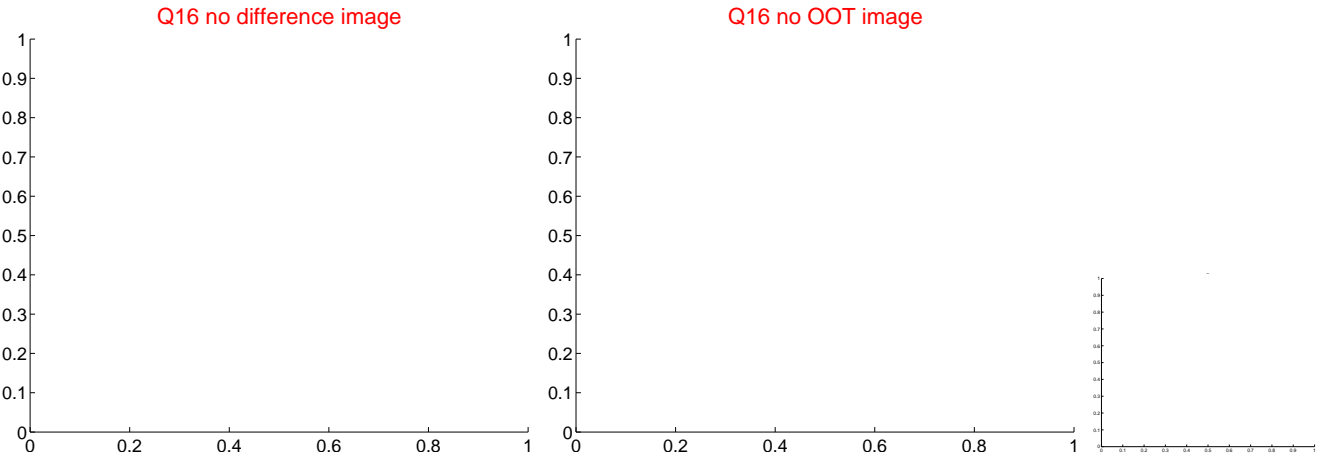
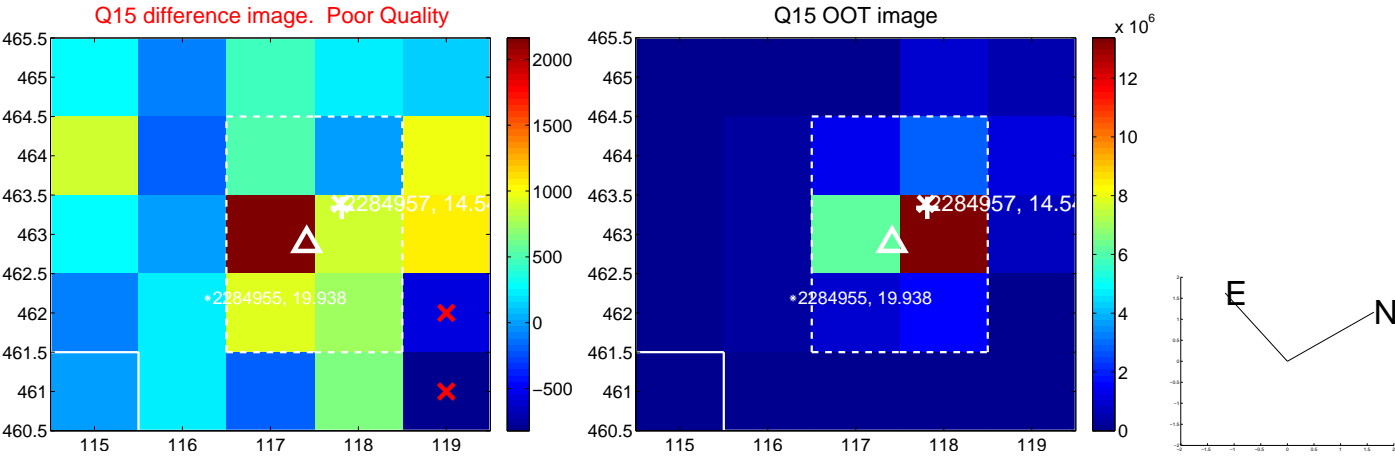
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



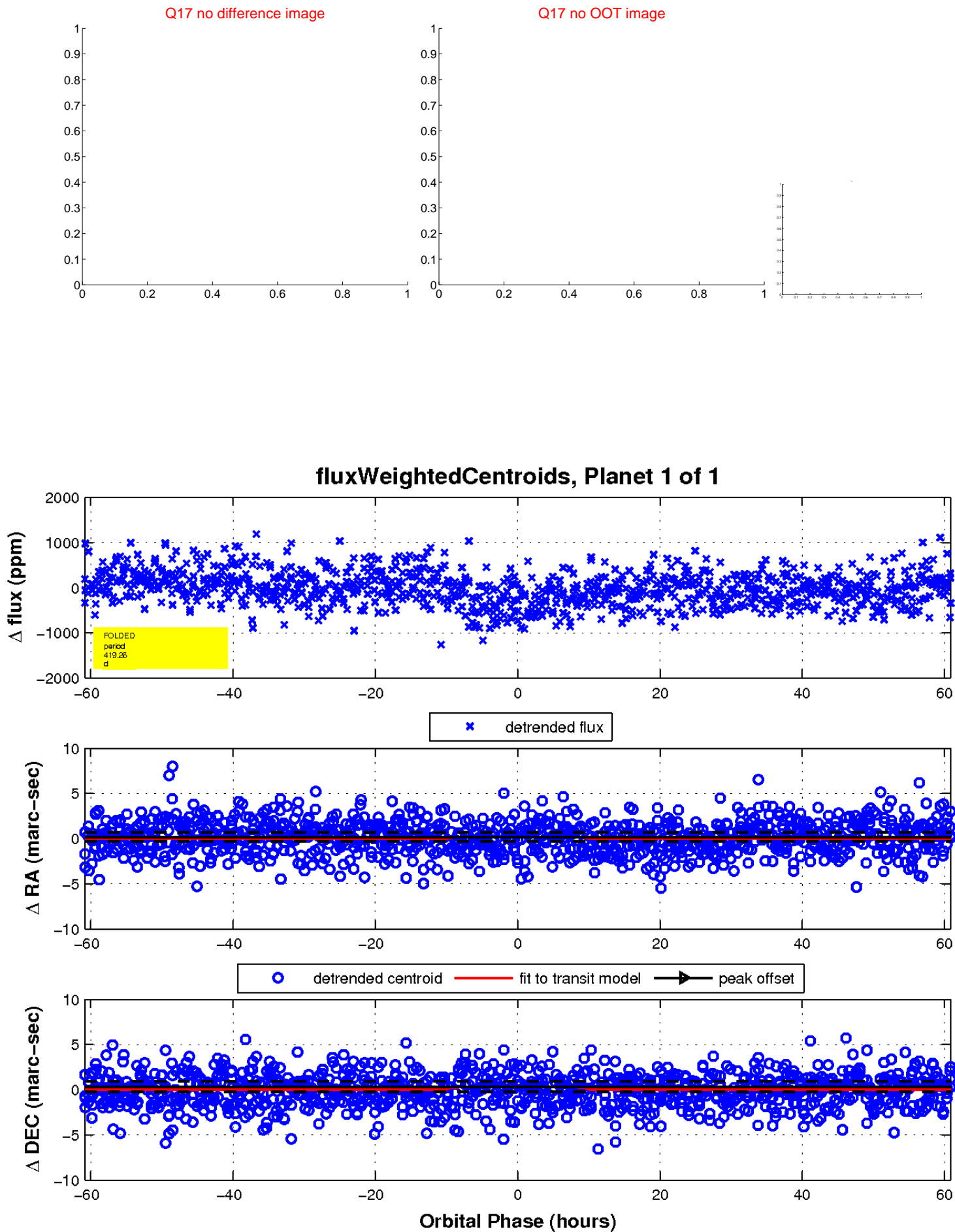
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

