

# KIC 009650785

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009650785-01	OBS	No	463.841018	458.588754	169.6	12.801	8.7	9.1	1.30	6139	1.90	1.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009650785-01	OBS	FP	0.00	1	0	0	0	INDIV_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.

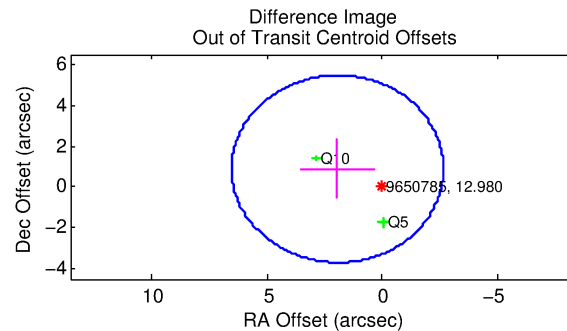
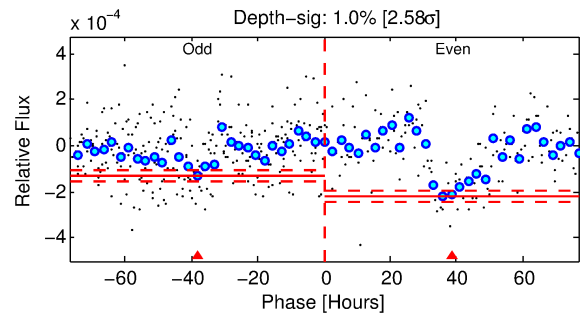
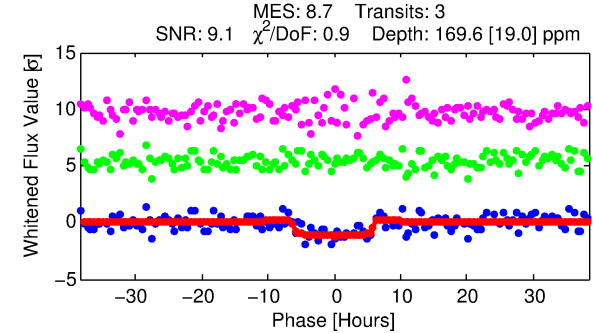
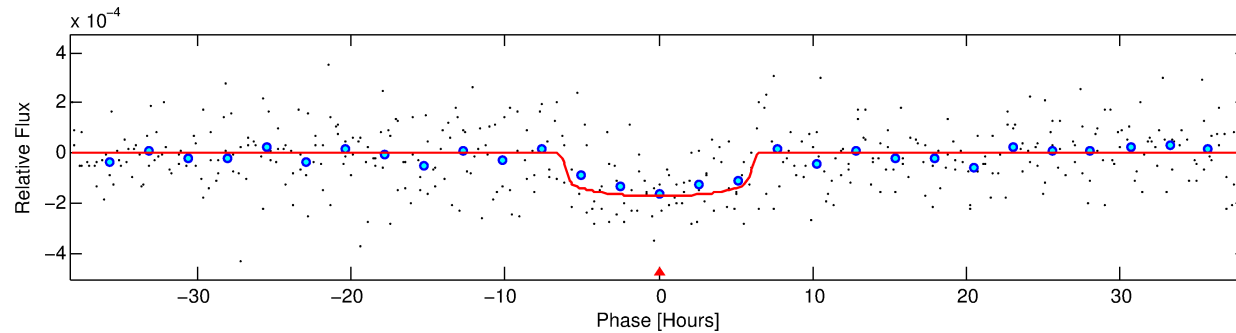
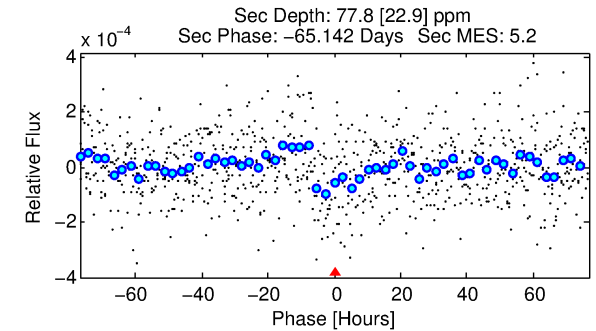
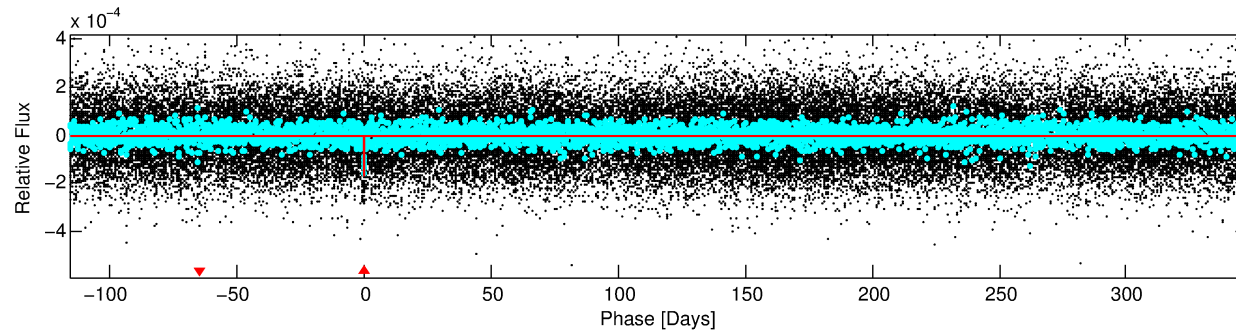
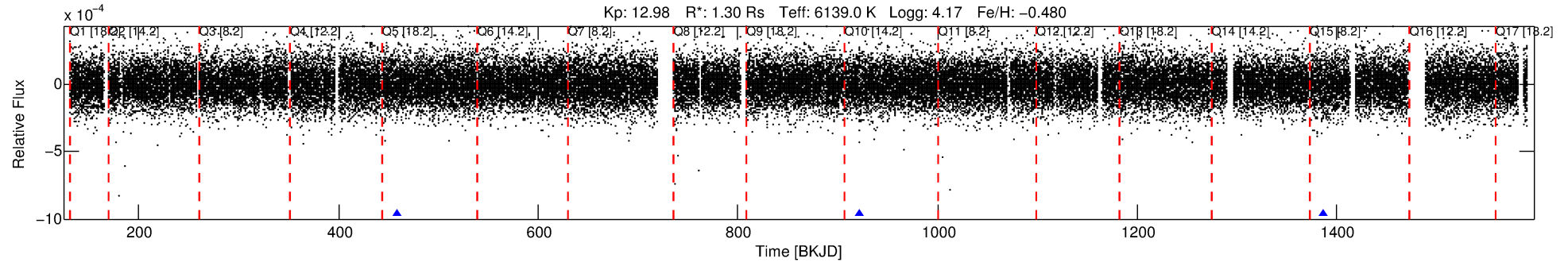
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009650785-01

No Significant Match Found

# DV One-Page Summary

KIC: 9650785 Candidate: 1 of 1 Period: 463.841 d



## DV Fit Results:

Period = 463.84102 [0.01238] d  
Epoch = 458.5888 [0.0162] BKJD  
Rp/R\* = 0.0134 [0.0038]  
a/R\* = 160.20 [238.17]  
b = 0.83 [0.56]  
Seff = 1.65 [0.67]  
Teq = 289 [29] K  
Rp = 1.90 [0.69] Re  
a = 1.1406 [0.2688] AU  
Ag = 15490.55 [11601.27] [1.34σ]  
Teffp = 4983 [810] K [5.79σ]

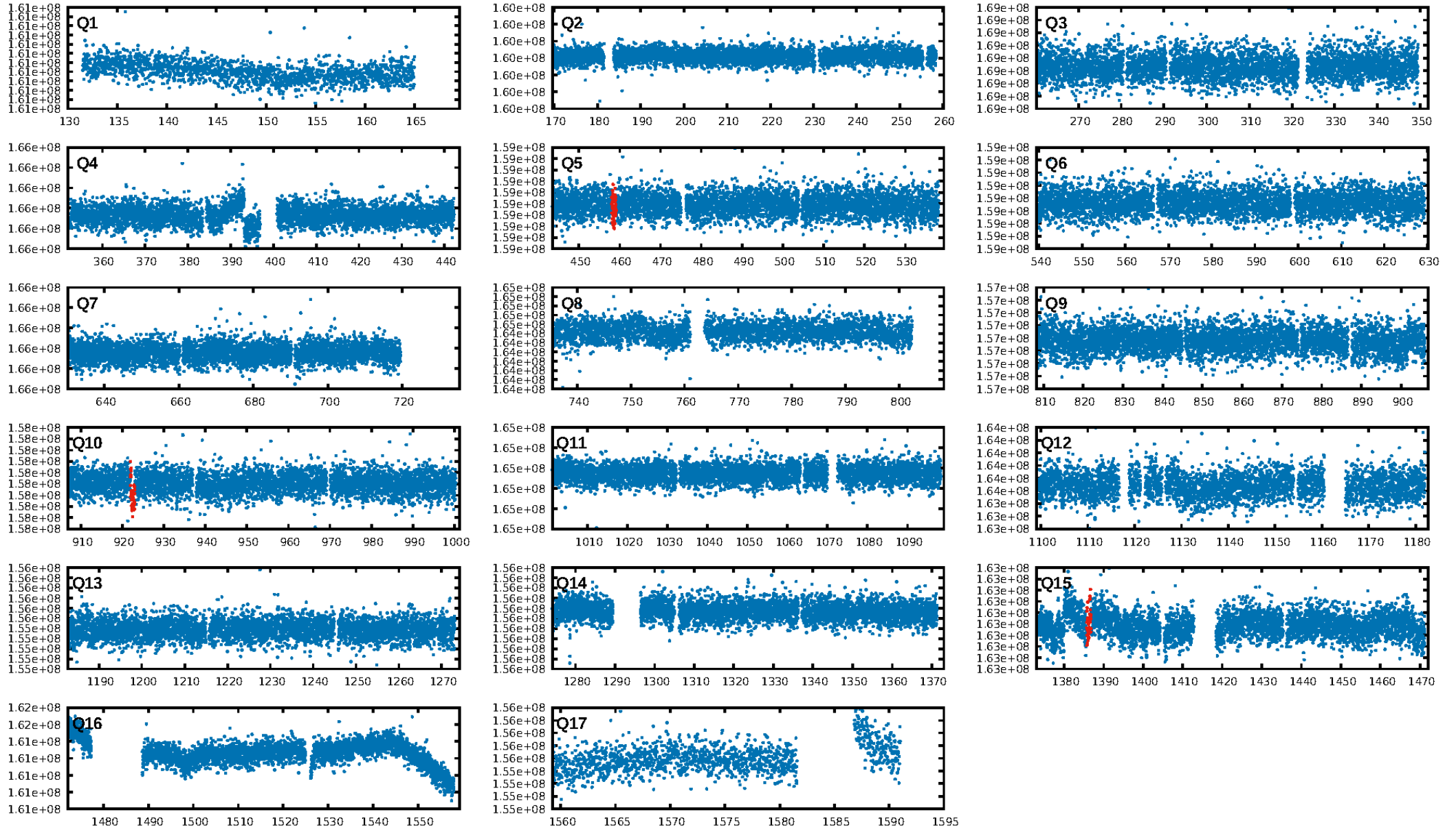
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.07e-15  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.401  
Centroid-sig: 2.8%  
Centroid-so: 2.030 arcsec [1.49σ]  
OotOffset-rm: 2.134 arcsec [1.40σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 1.981 arcsec [1.29σ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

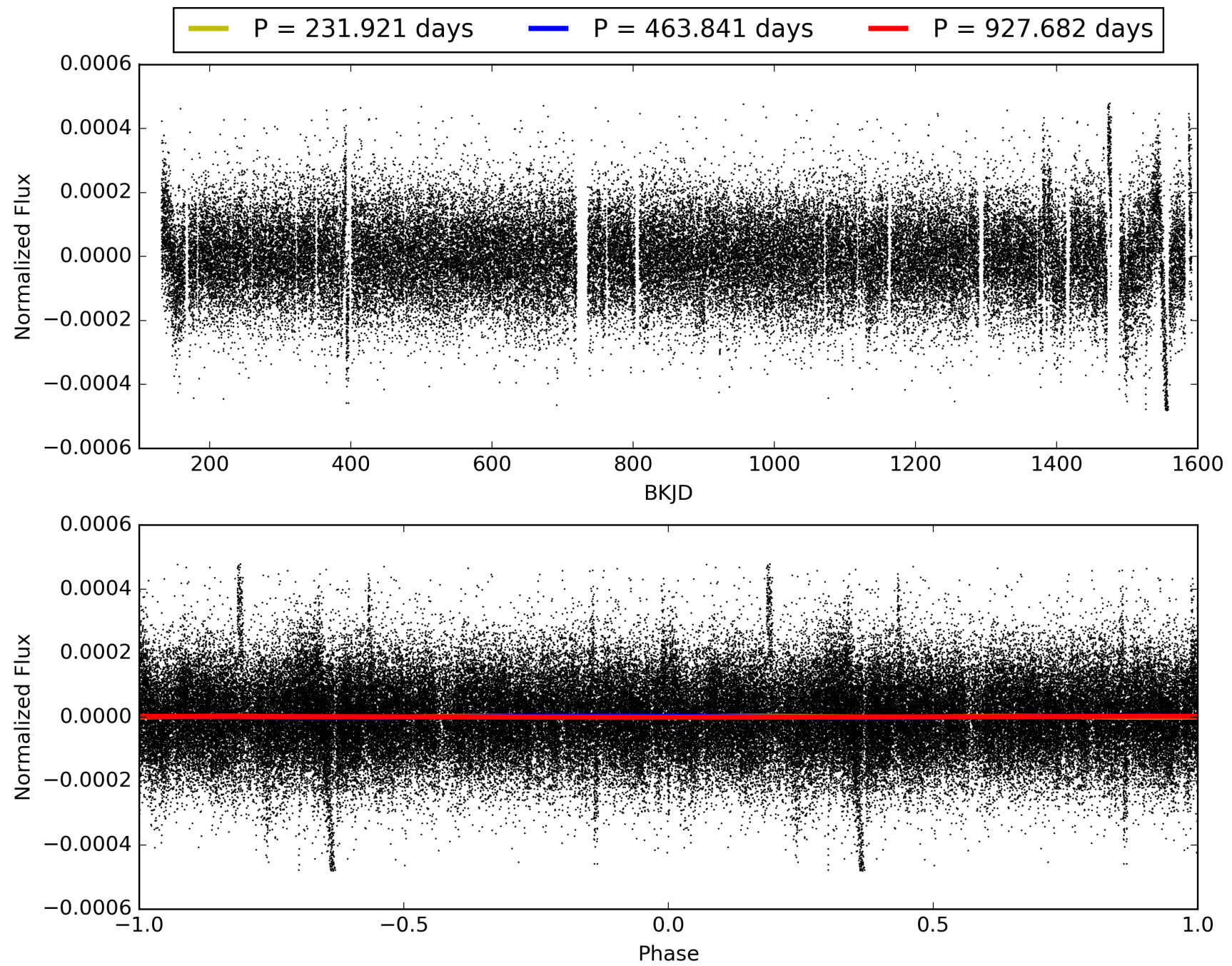
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:11:38 Z

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

# TCE 009650785-01, PDC Light Curves

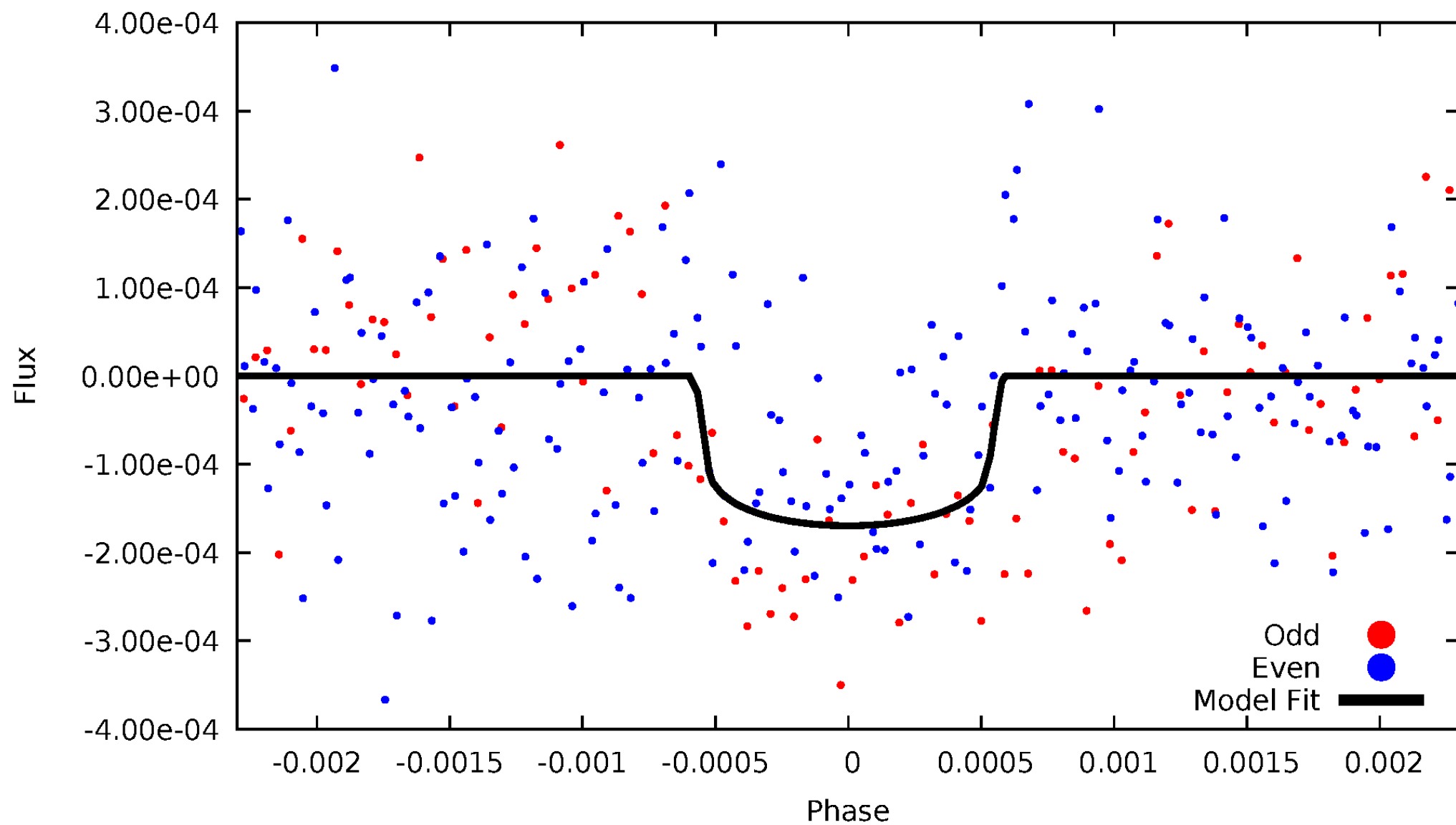


TCE 009650785-01



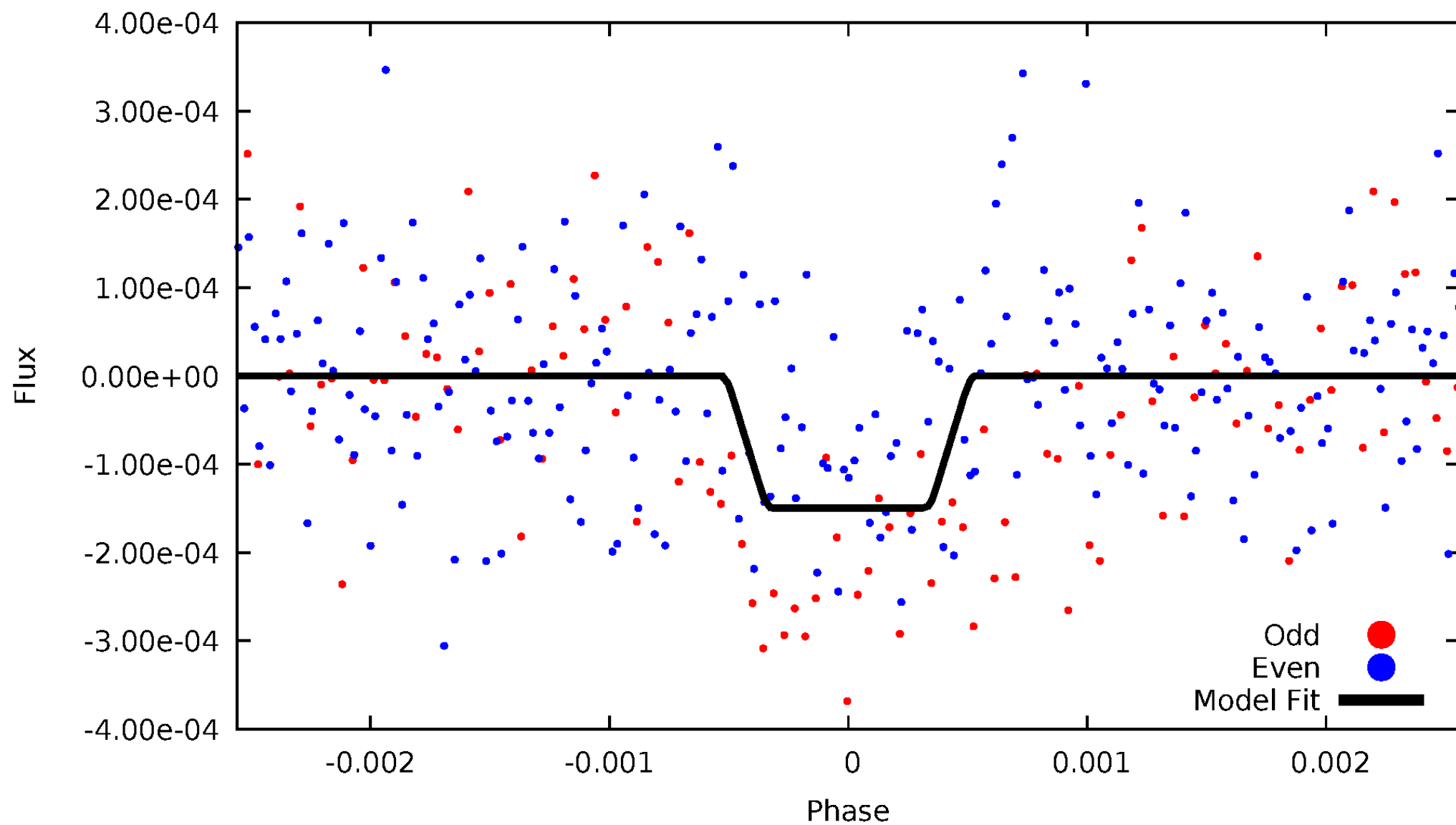
# DV Odd/Even

TCE 009650785-01



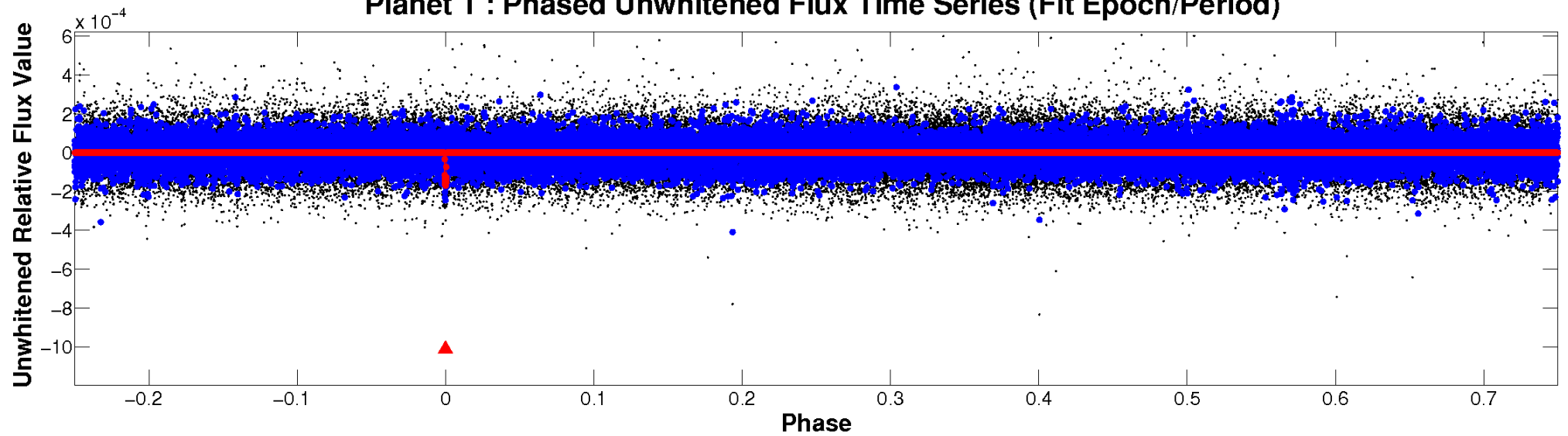
# ALT Odd/Even

TCE 009650785-01

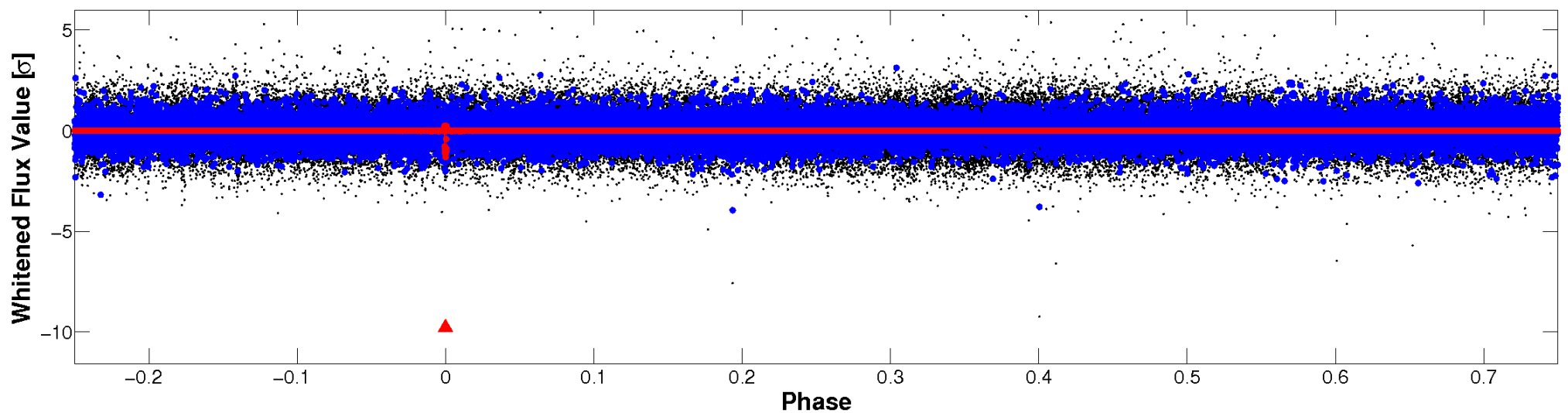


# Non-Whitened Vs. Whitened Light Curve

**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 009650785-01 P=463.841018 Days  $T_0=458.588754$  (BKJD)





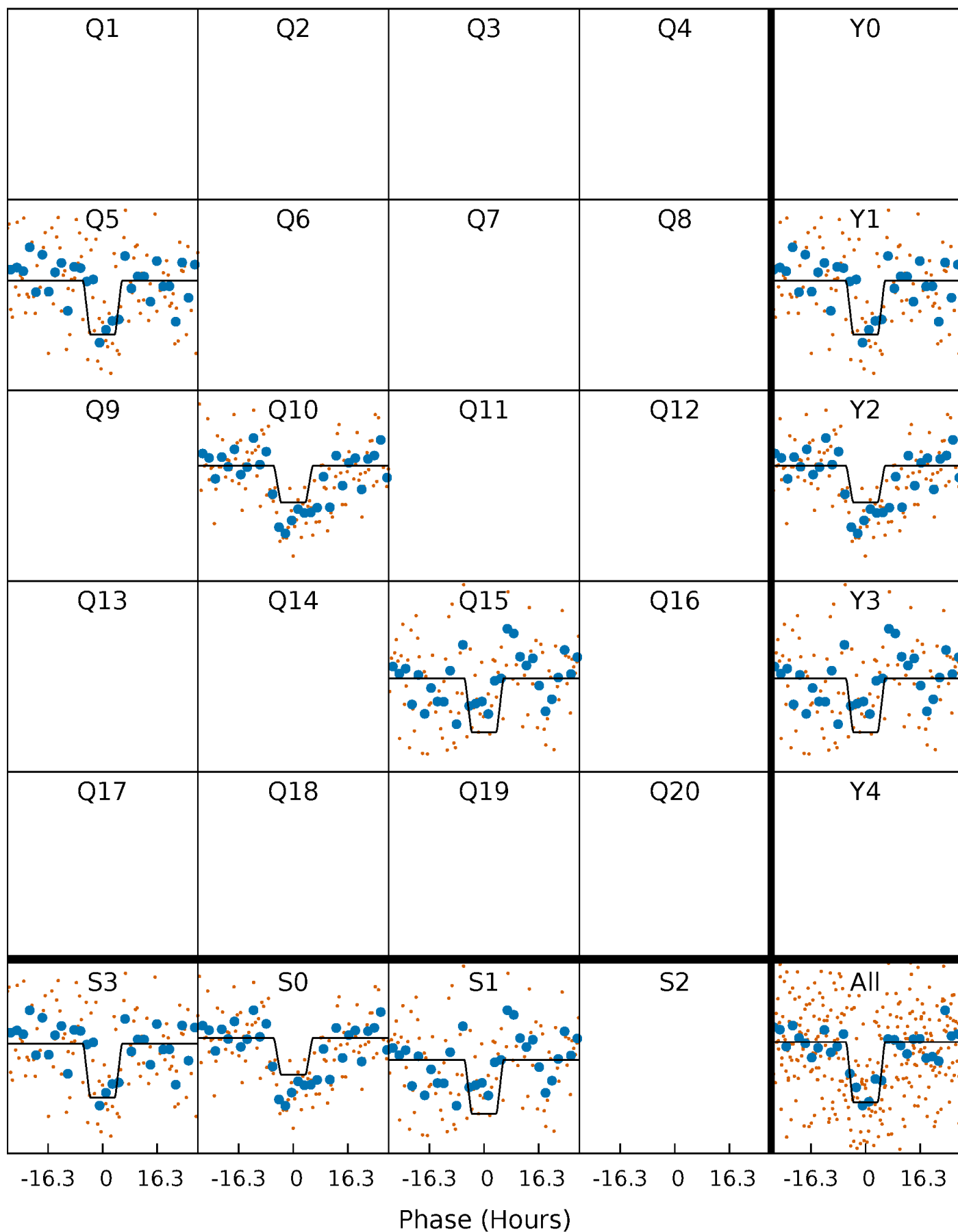
# DV Quarter-Phased Transit Curves

TCE 009650785-01     $P=463.841018$  Days     $T_0=458.588754$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

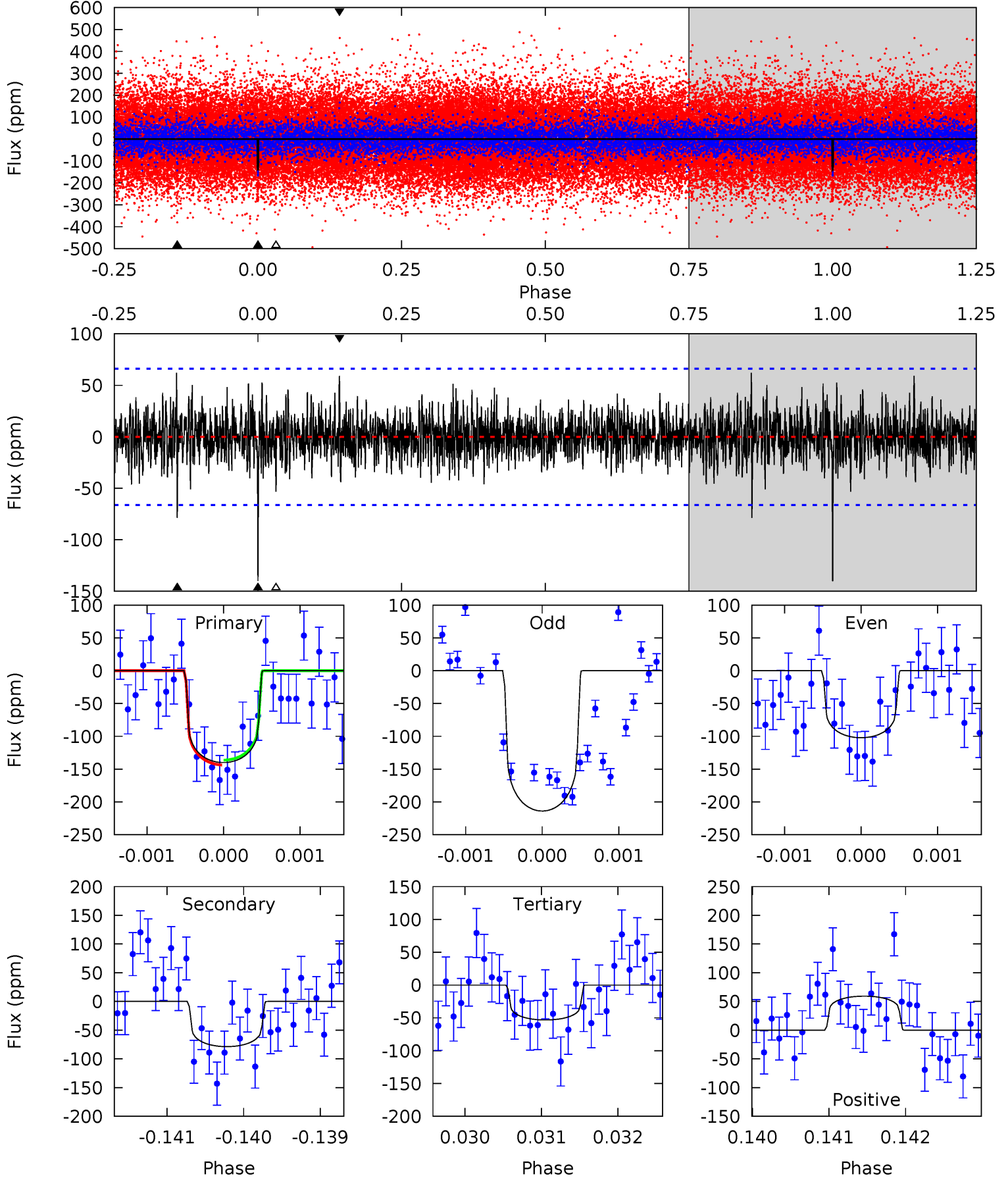
TCE 009650785-01 P=463.828190 Days  $T_0=458.590468$  (BKJD)



# DV Model-Shift Uniqueness Test

009650785-01, P = 463.841018 Days, E = 458.588754 Days

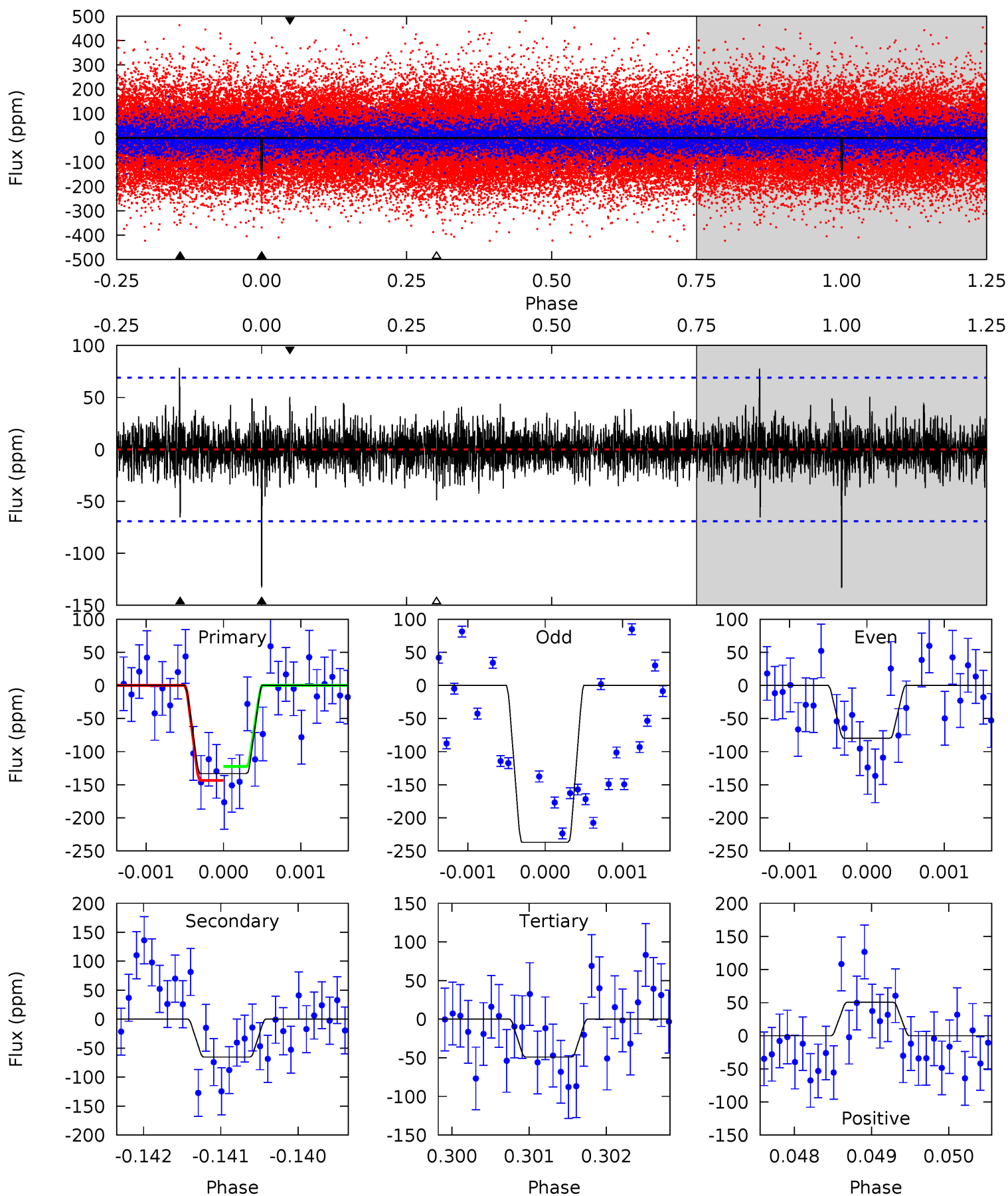
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	6.45	4.36	4.86	5.43	3.25	1.27	7.11	6.62	2.08	1.59	4.39	1.30	0.31	0.30



# Alt Model-Shift Uniqueness Test

009650785-01, P = 463.828190 Days, E = 458.590468 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
10.5	5.15	3.86	3.98	5.44	3.27	1.04	6.63	6.51	1.28	1.16	5.92	1.24	0.37	0.83



### Stellar Parameters For KIC 009650785

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6139^{+165}_{-184}$	$4.175^{+0.234}_{-0.126}$	$-0.480^{+0.300}_{-0.250}$	$1.298^{+0.268}_{-0.297}$	$0.920^{+0.143}_{-0.095}$	$0.593^{+0.700}_{-0.242}$
	+3%/-3%	+6%/-3%	+62%/-52%	+21%/-23%	+16%/-10%	+118%/-41%
Source	PHO1	FLK73	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 009650785-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-79 \pm 12$	$1.80^{+0.65}_{-0.54}$	$399^{+26}_{-30}$	$5096^{+936}_{-532}$	$17669^{+18984}_{-8099}$
Alt.	$-65 \pm 13$	$1.70^{+0.56}_{-0.55}$	$400^{+24}_{-28}$	$5059^{+924}_{-594}$	$16624^{+19258}_{-7802}$

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

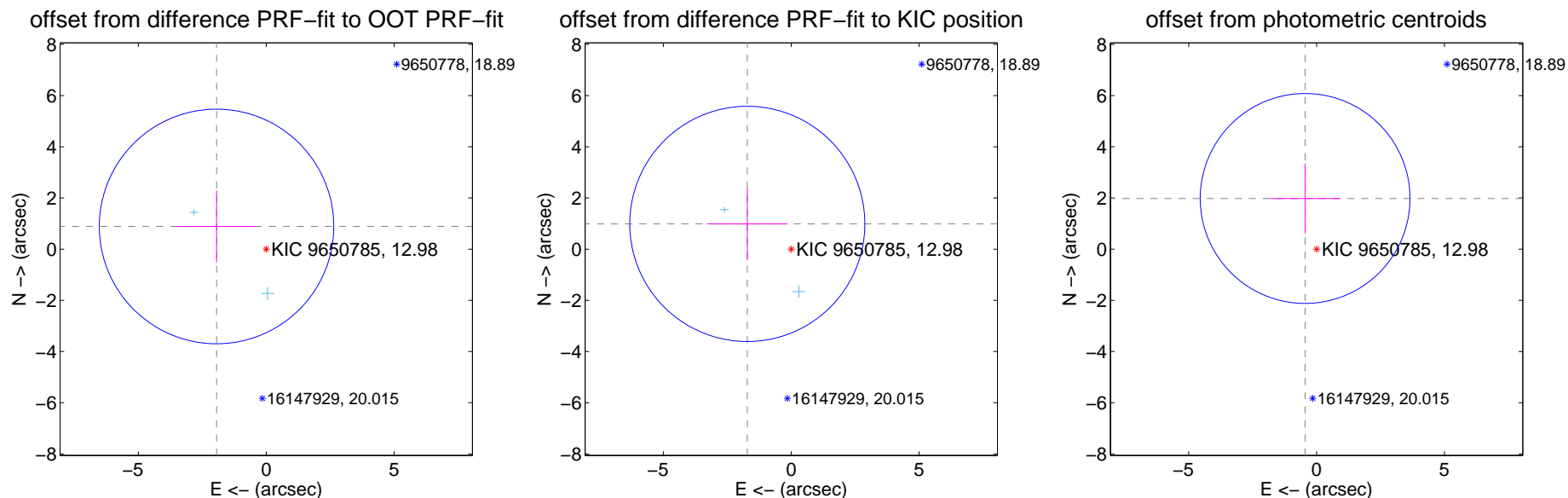
## DV Centroid Data

Supplemental centroid analysis for 009650785-01. Kepler magnitude: 12.98. Transit SNR 9.08

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.134 \pm 1.528$	1.40	$1.941 \pm 1.552$	$0.887 \pm 1.403$
PRF-fit source offset from KIC position	$1.981 \pm 1.532$	1.29	$1.718 \pm 1.568$	$0.987 \pm 1.416$
photometric centroid source offset	$2.03 \pm 1.37$	1.49	$0.45 \pm 1.38$	$1.98 \pm 1.37$



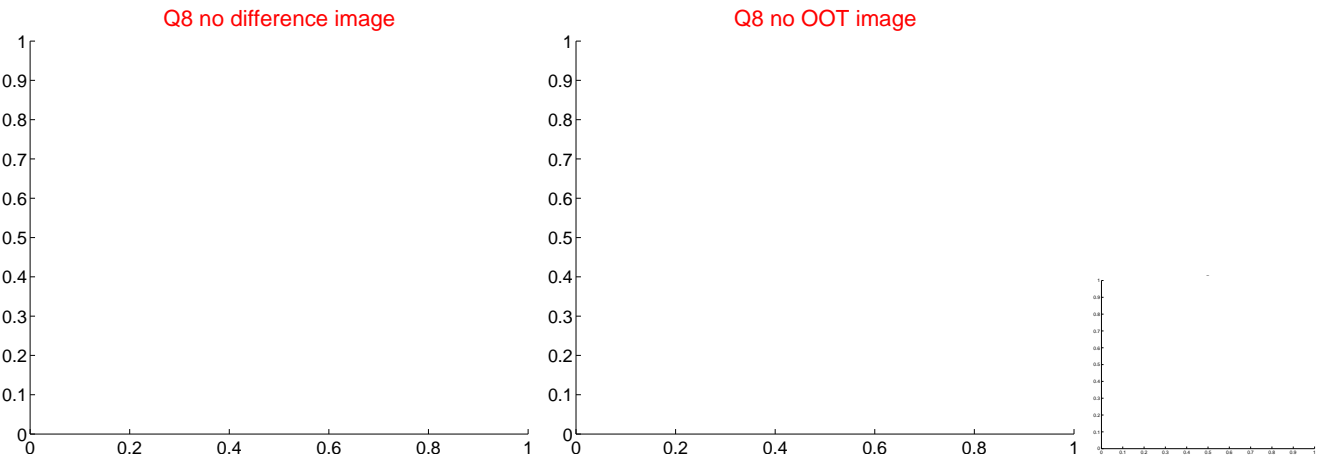
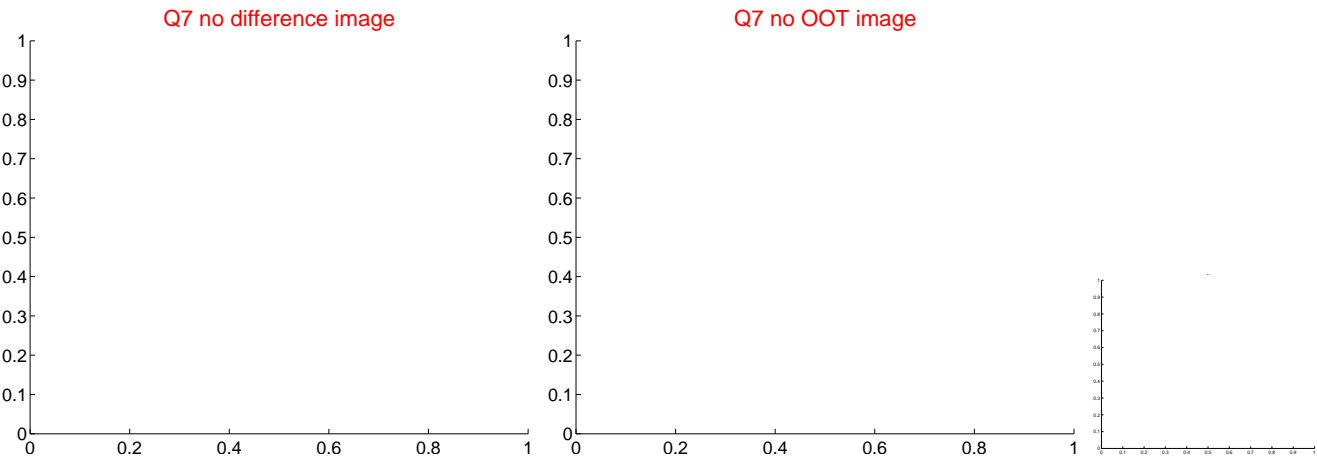
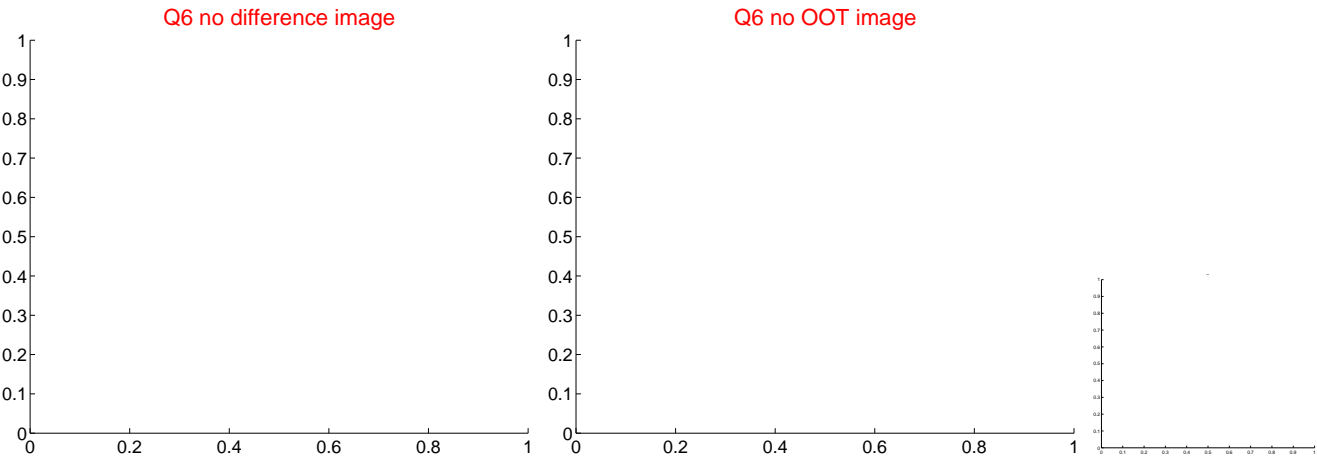
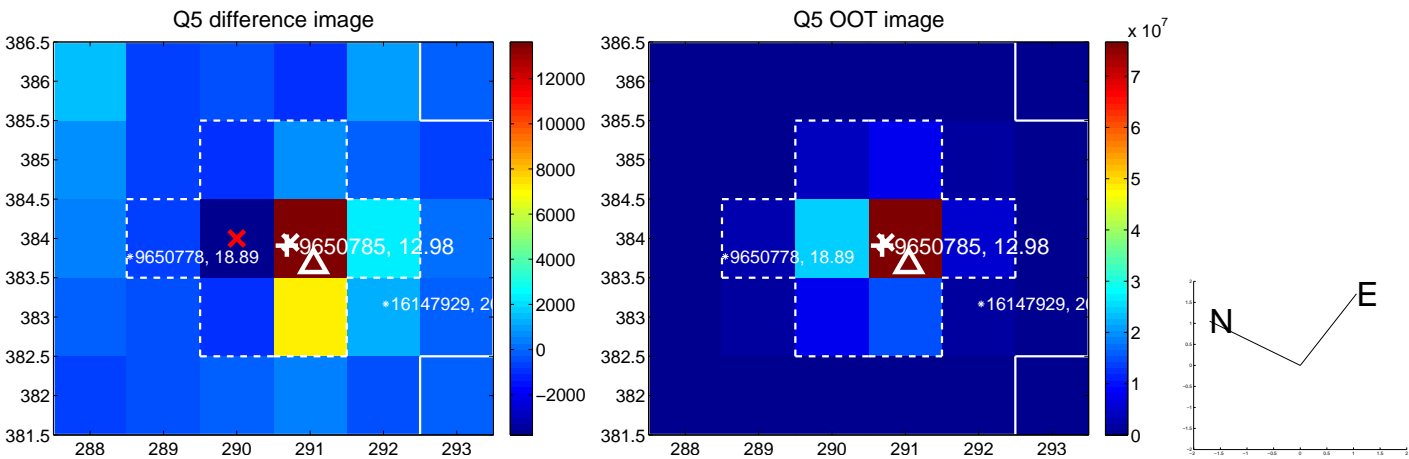
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

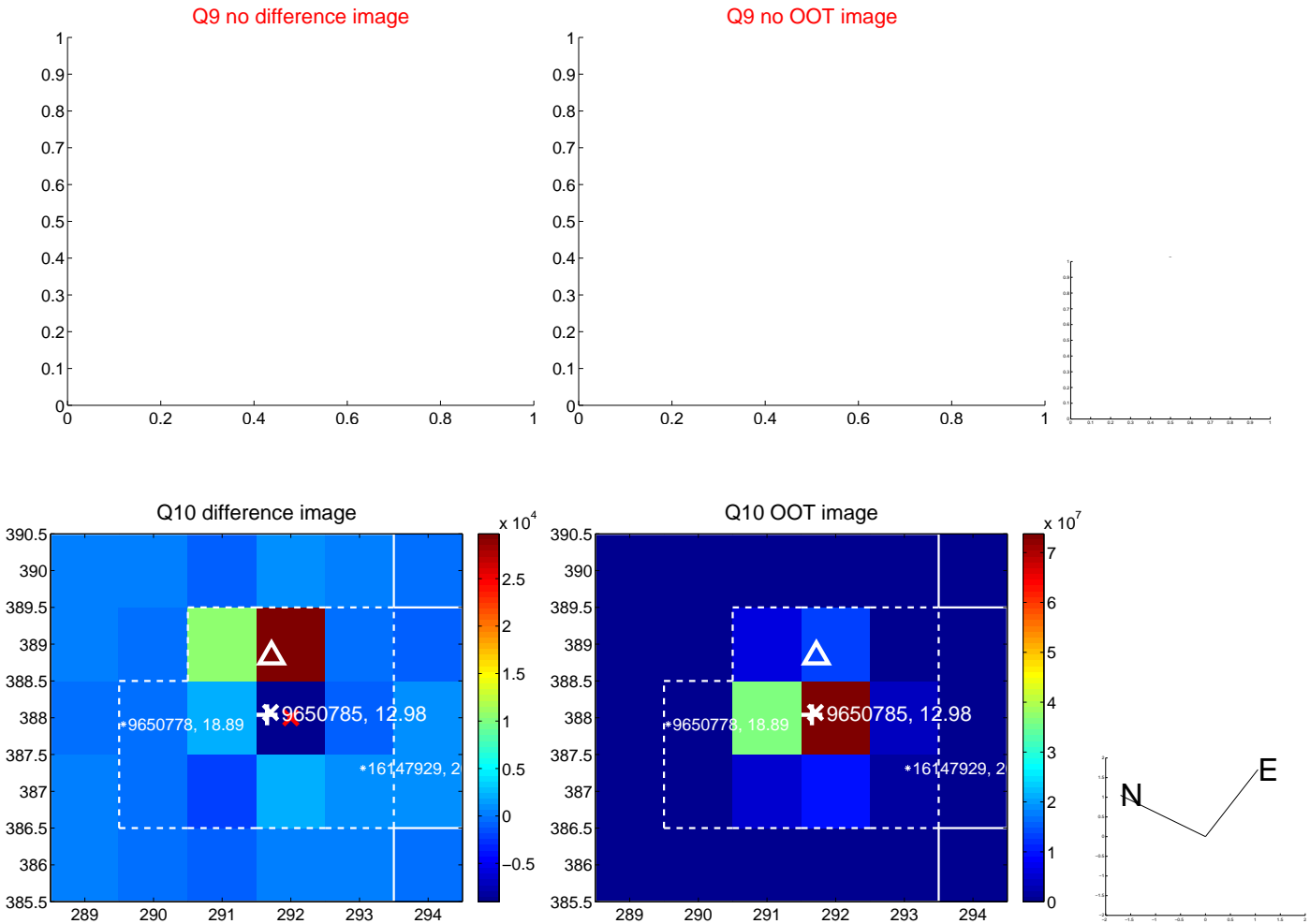




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



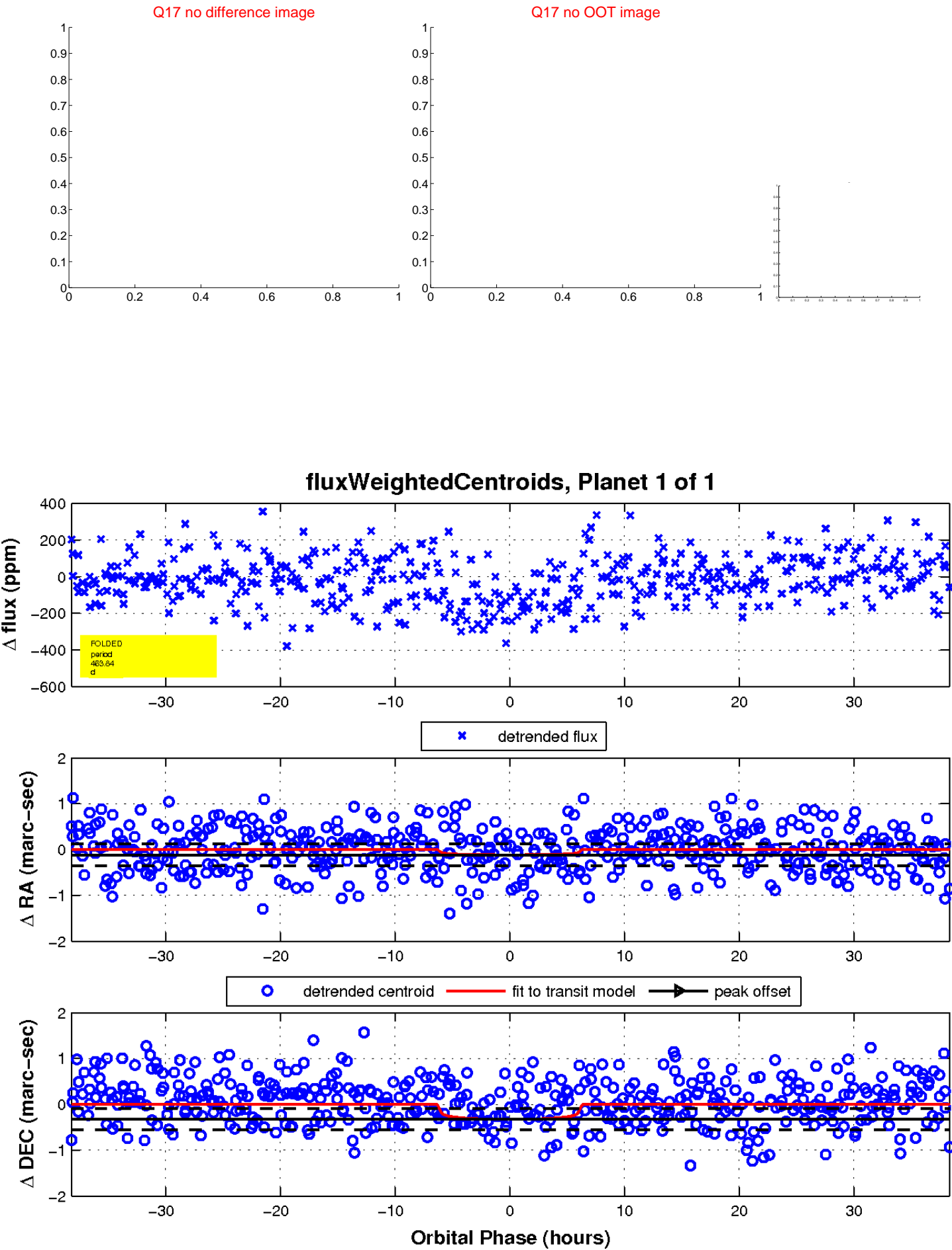
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

