

# KIC 008621781

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008621781-01	OBS	No	419.935272	468.411964	245.0	11.924	7.9	7.7	0.99	5953	1.64	0.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008621781-01	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.

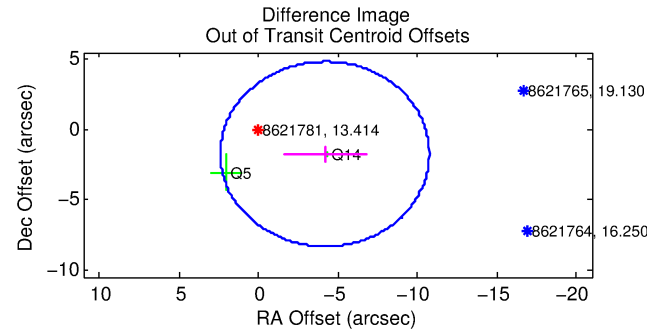
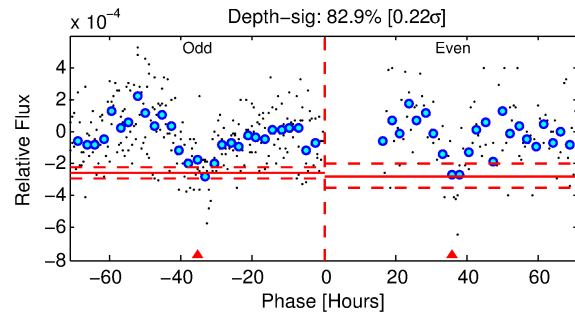
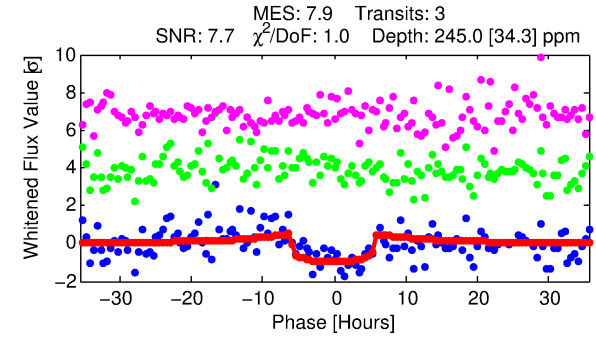
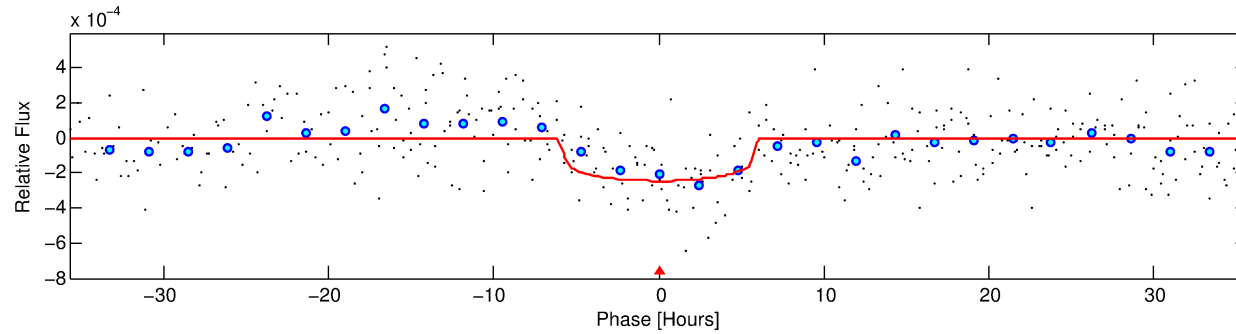
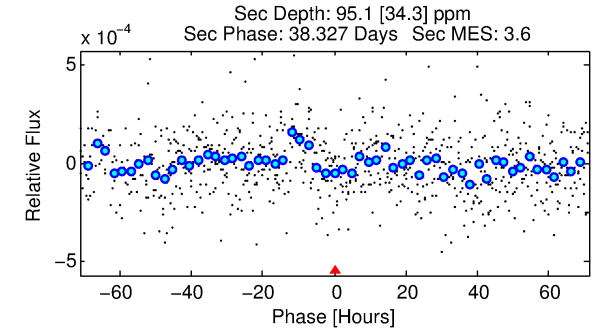
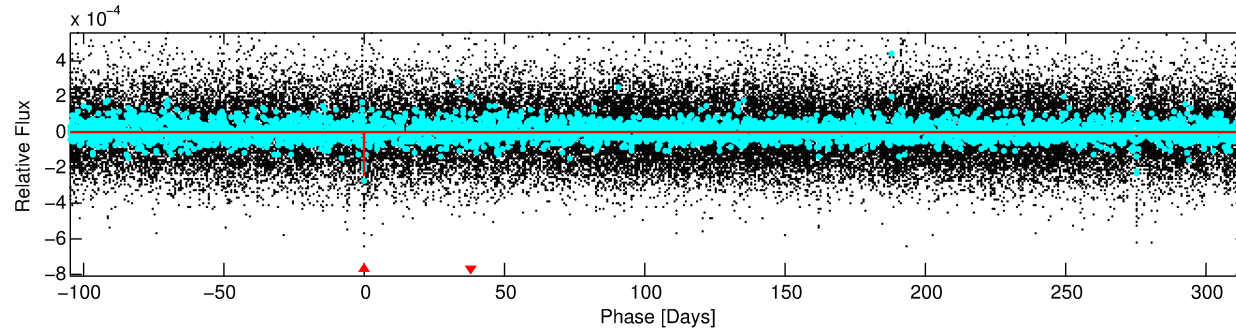
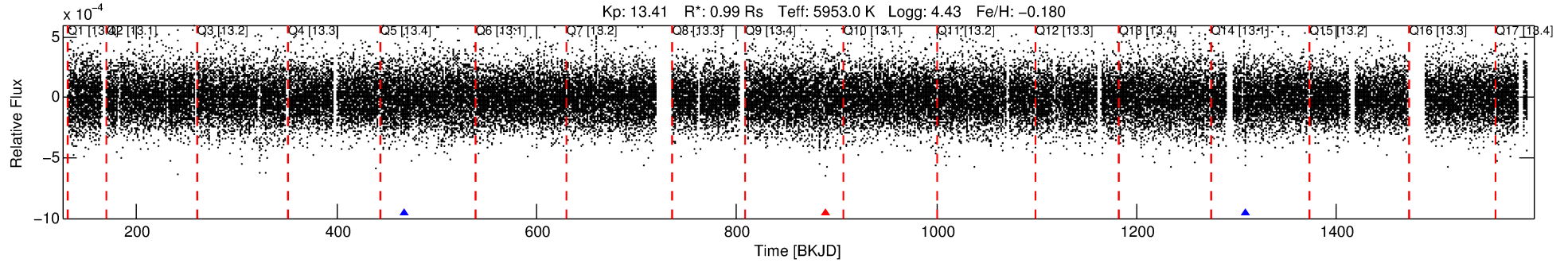
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008621781-01

No Significant Match Found

# DV One-Page Summary

KIC: 8621781 Candidate: 1 of 1 Period: 419.935 d



## DV Fit Results:

Period = 419.93527 [0.01152] d  
Epoch = 468.4120 [0.0156] BKJD  
Rp/R\* = 0.0152 [0.0098]  
a/R\* = 207.86 [630.74]  
b = 0.66 [2.64]  
Seff = 0.93 [0.36]  
Teq = 251 [24] K  
Rp = 1.64 [1.17] Re  
a = 1.0862 [0.2771] AU  
Ag = 23011.89 [31952.20] [0.72σ]  
Teffp = 4774 [1603] K [2.82σ]

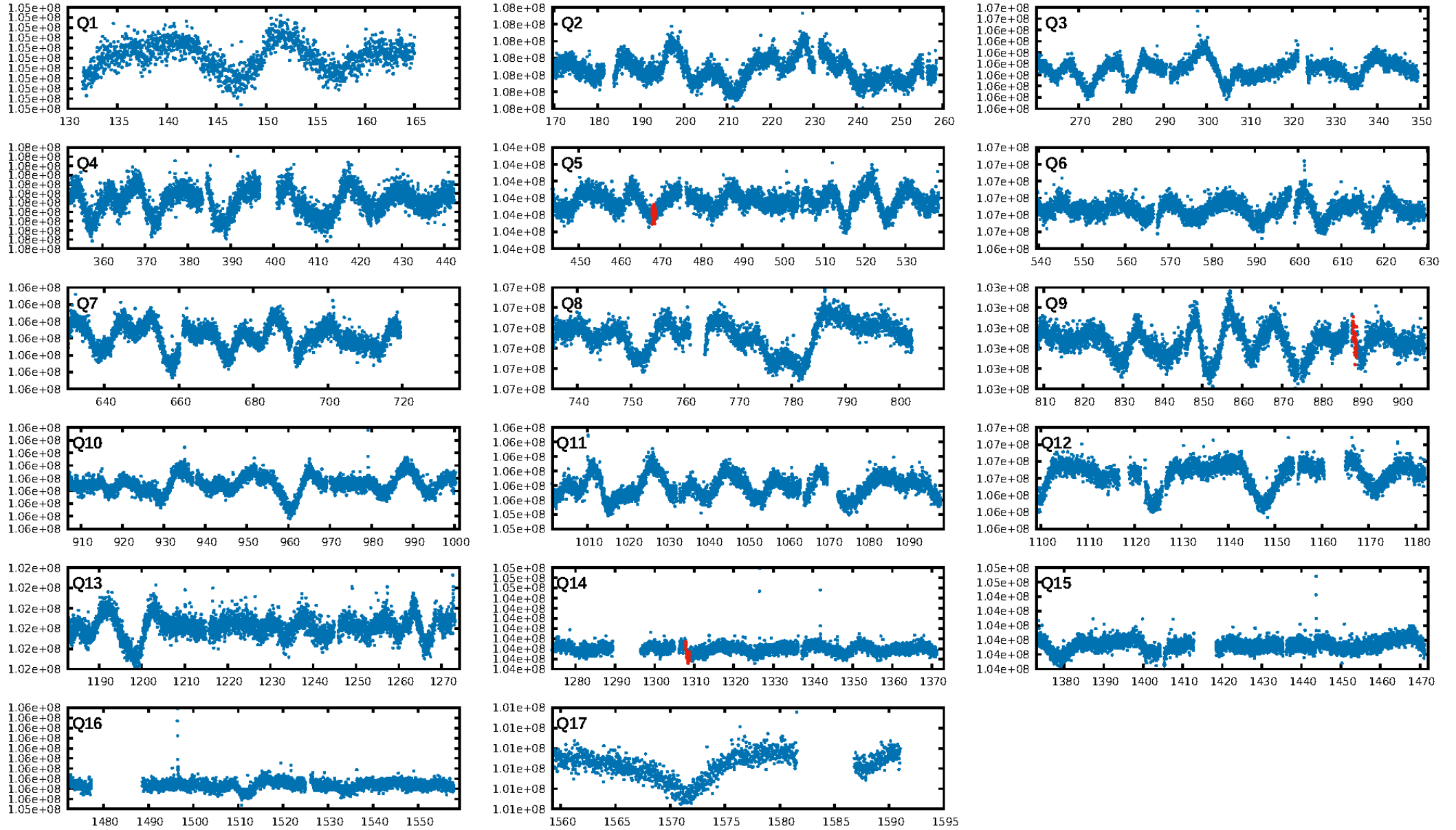
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.8%  
ModelChiSquareGof-sig: 99.6%  
Bootstrap-pfa: 2.75e-09  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: 7.654  
Centroid-sig: 5.8%  
Centroid-so: 4.802 arcsec [1.57σ]  
OotOffset-rm: 4.543 arcsec [2.07σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 4.558 arcsec [2.89σ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

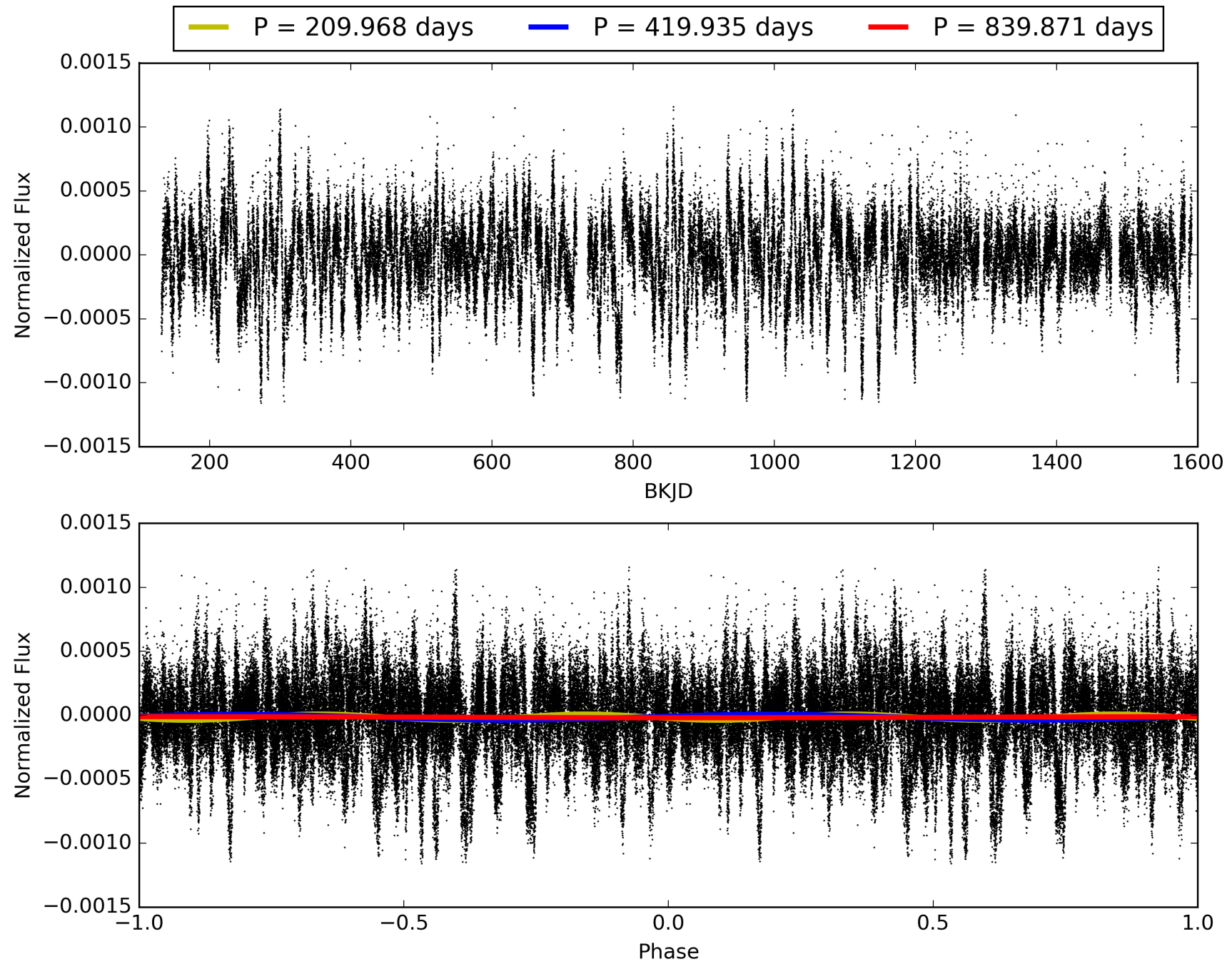
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:45:29 Z

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

# TCE 008621781-01, PDC Light Curves

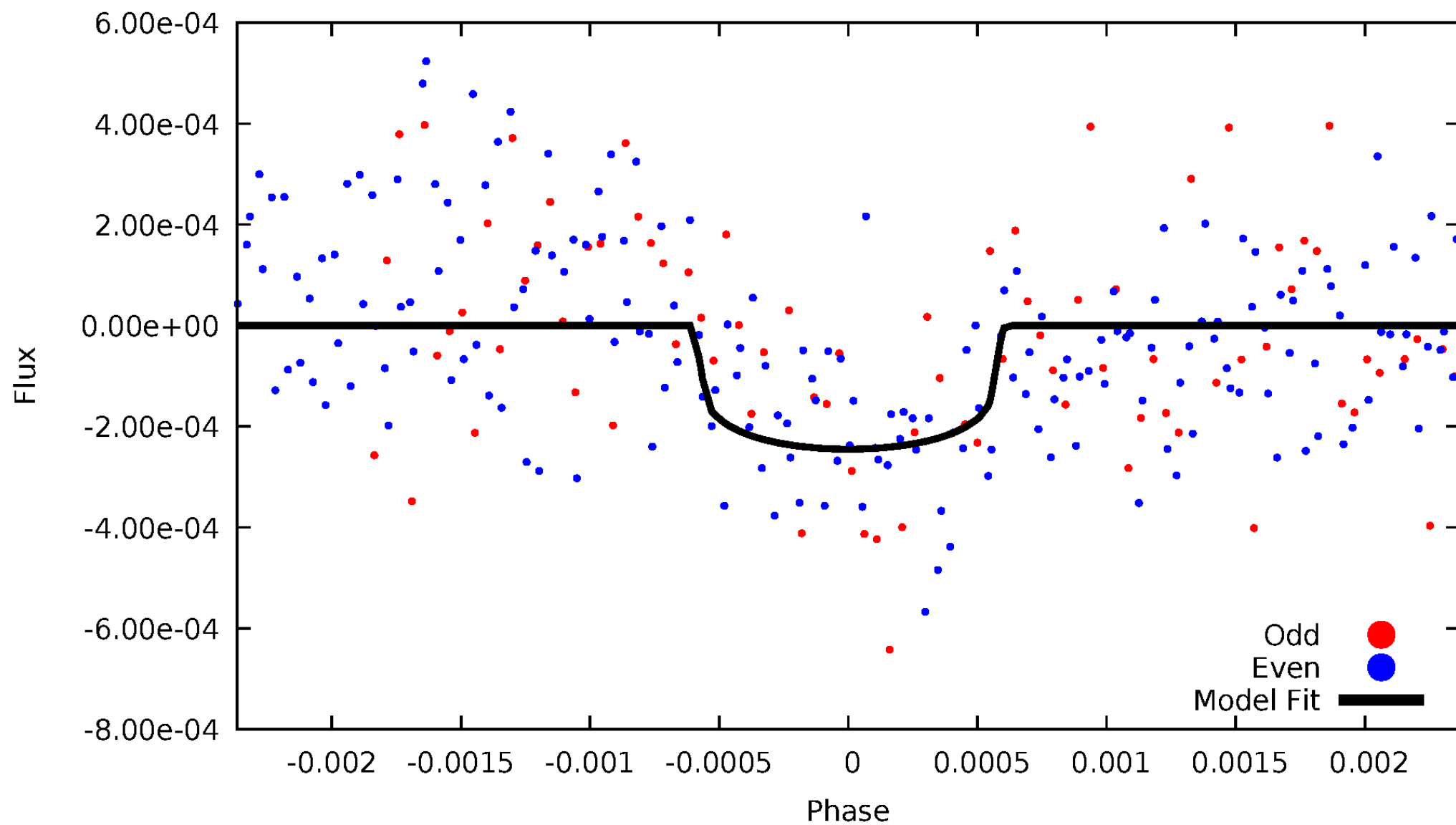


TCE 008621781-01



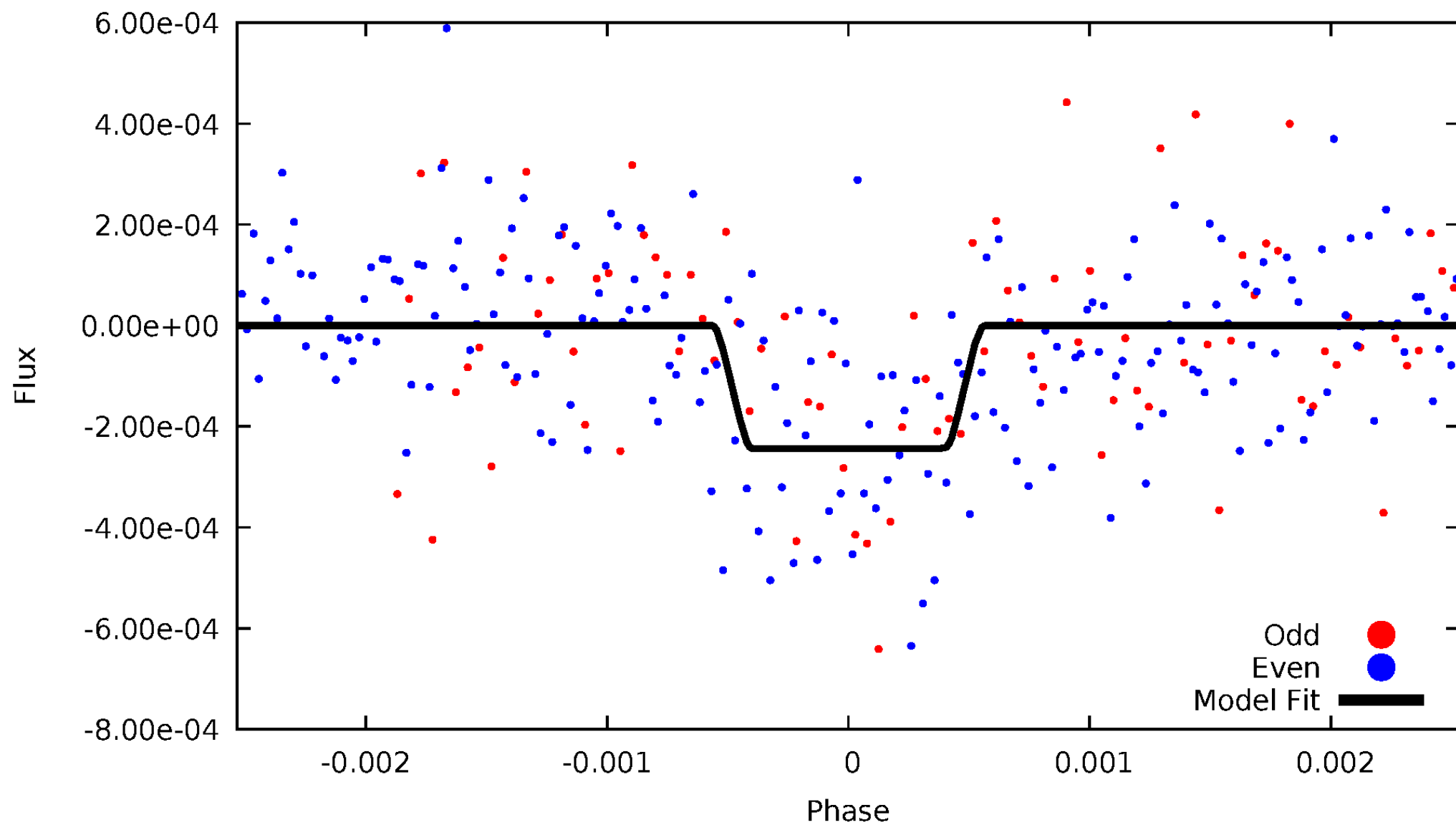
# DV Odd/Even

TCE 008621781-01

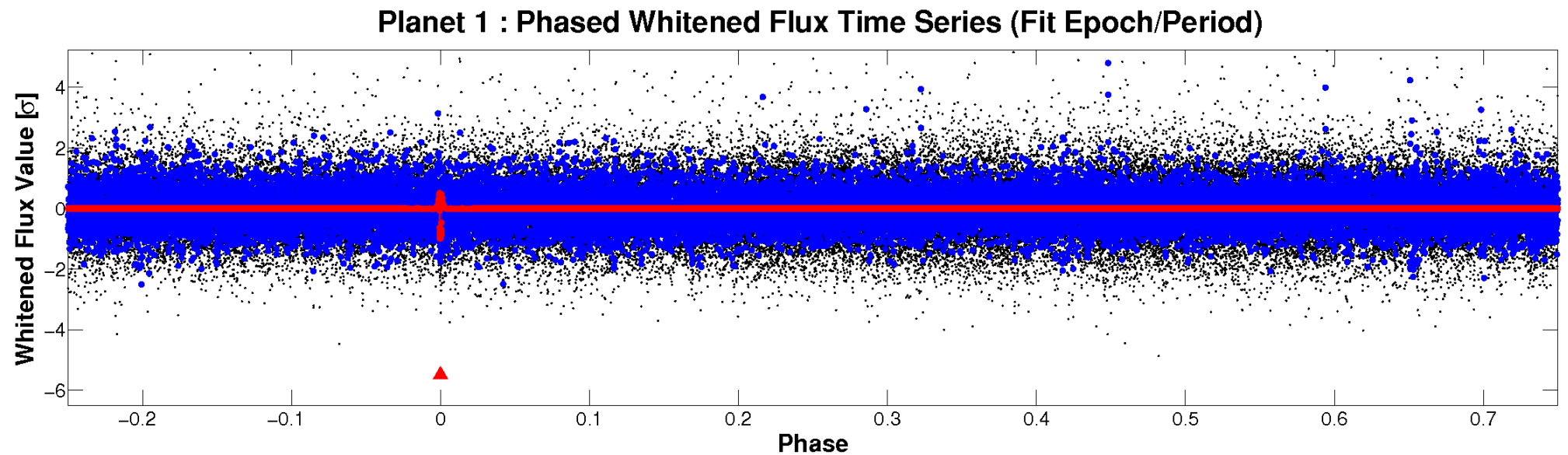
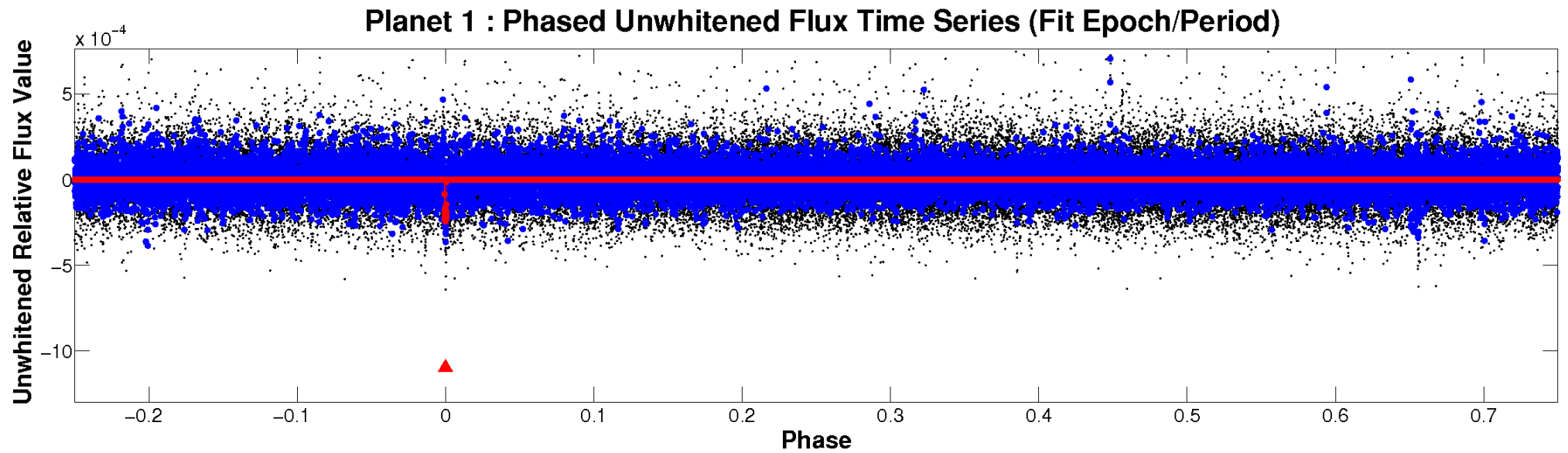


# ALT Odd/Even

TCE 008621781-01

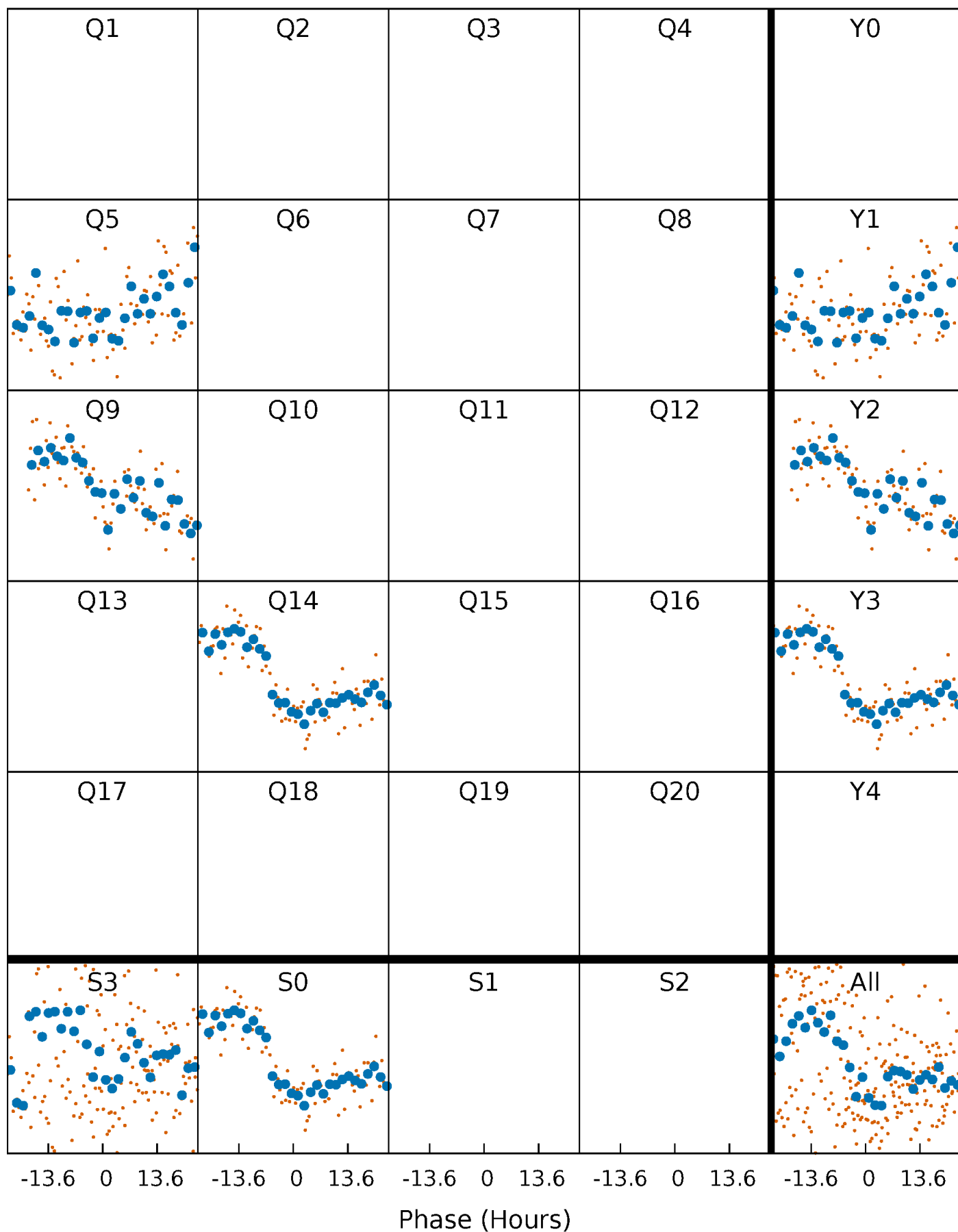


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

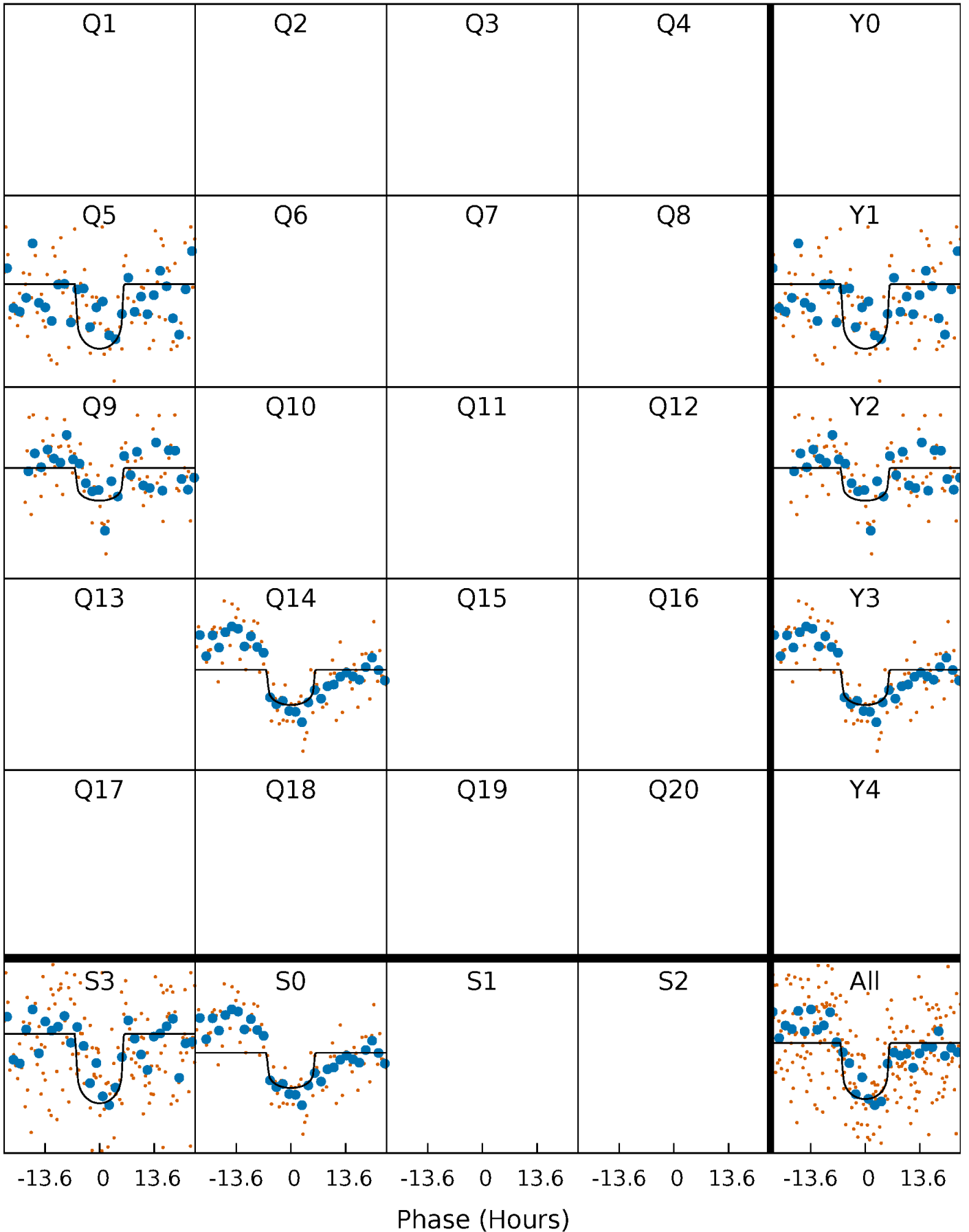
TCE 008621781-01 P=419.935272 Days  $T_0=468.411964$  (BKJD)





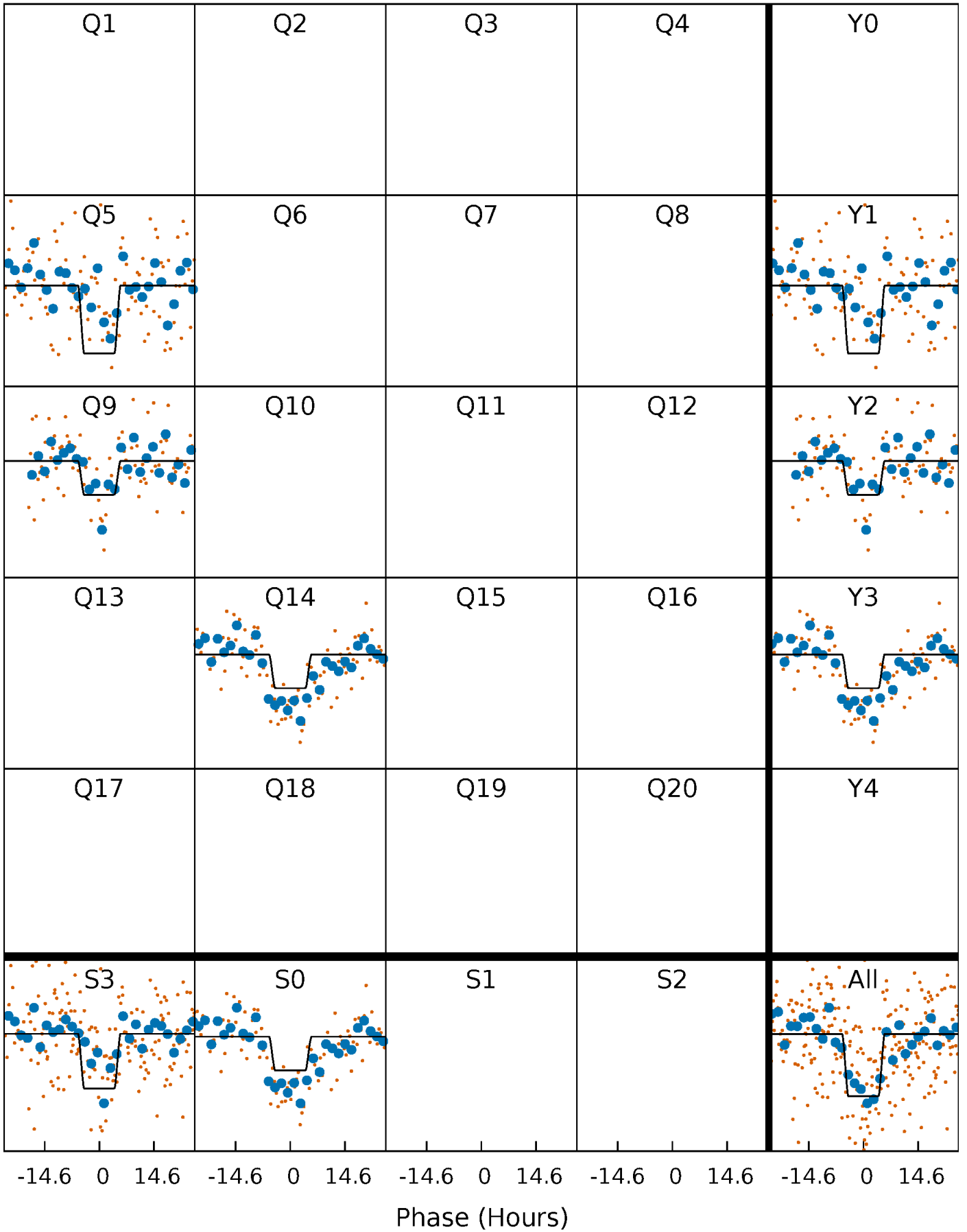
# DV Quarter-Phased Transit Curves

TCE 008621781-01     $P=419.935272$  Days     $T_0=468.411964$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

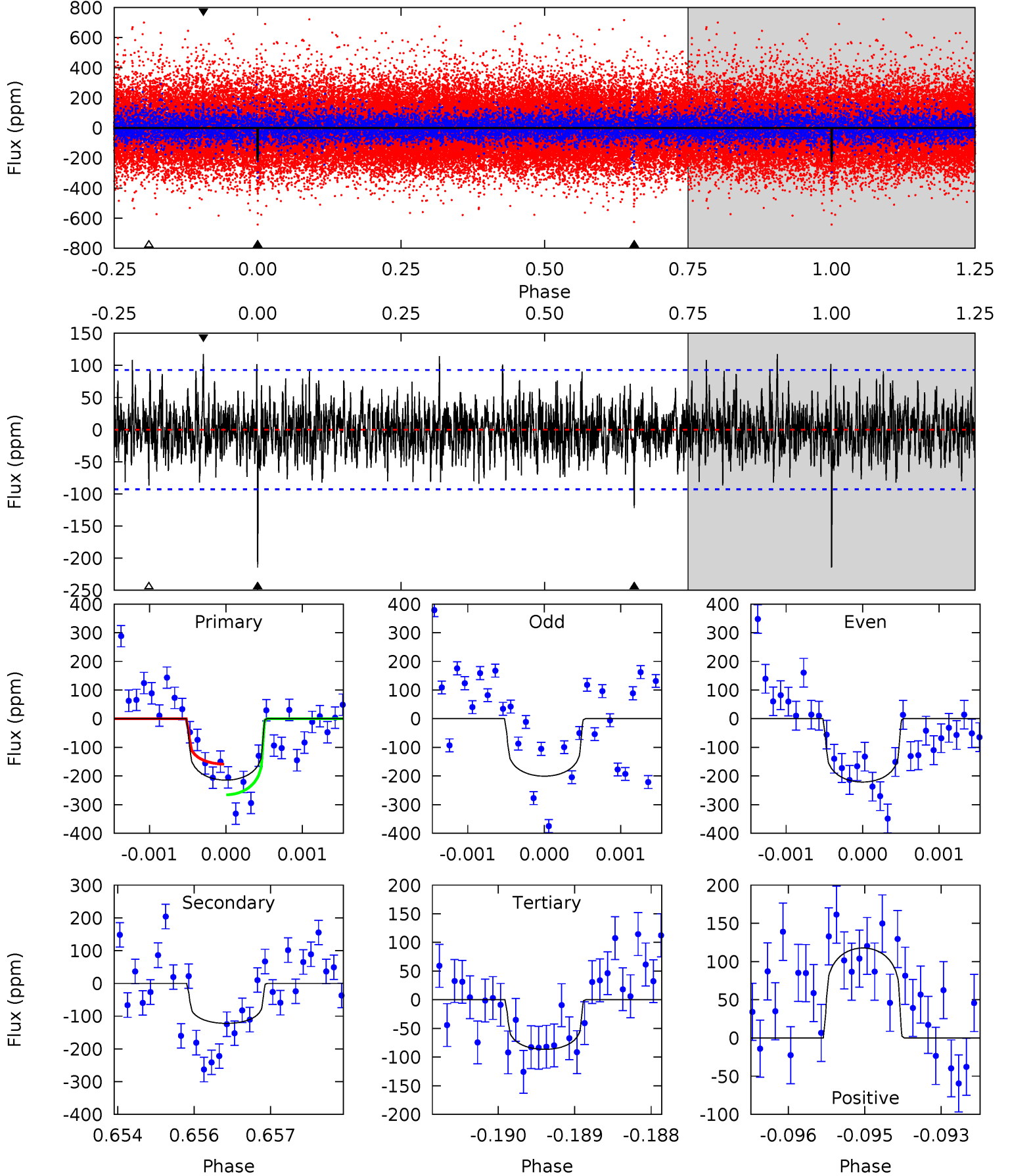
TCE 008621781-01 P=419.936903 Days  $T_0=468.424530$  (BKJD)



# DV Model-Shift Uniqueness Test

008621781-01,  $P = 419.935272$  Days,  $E = 48.476692$  Days

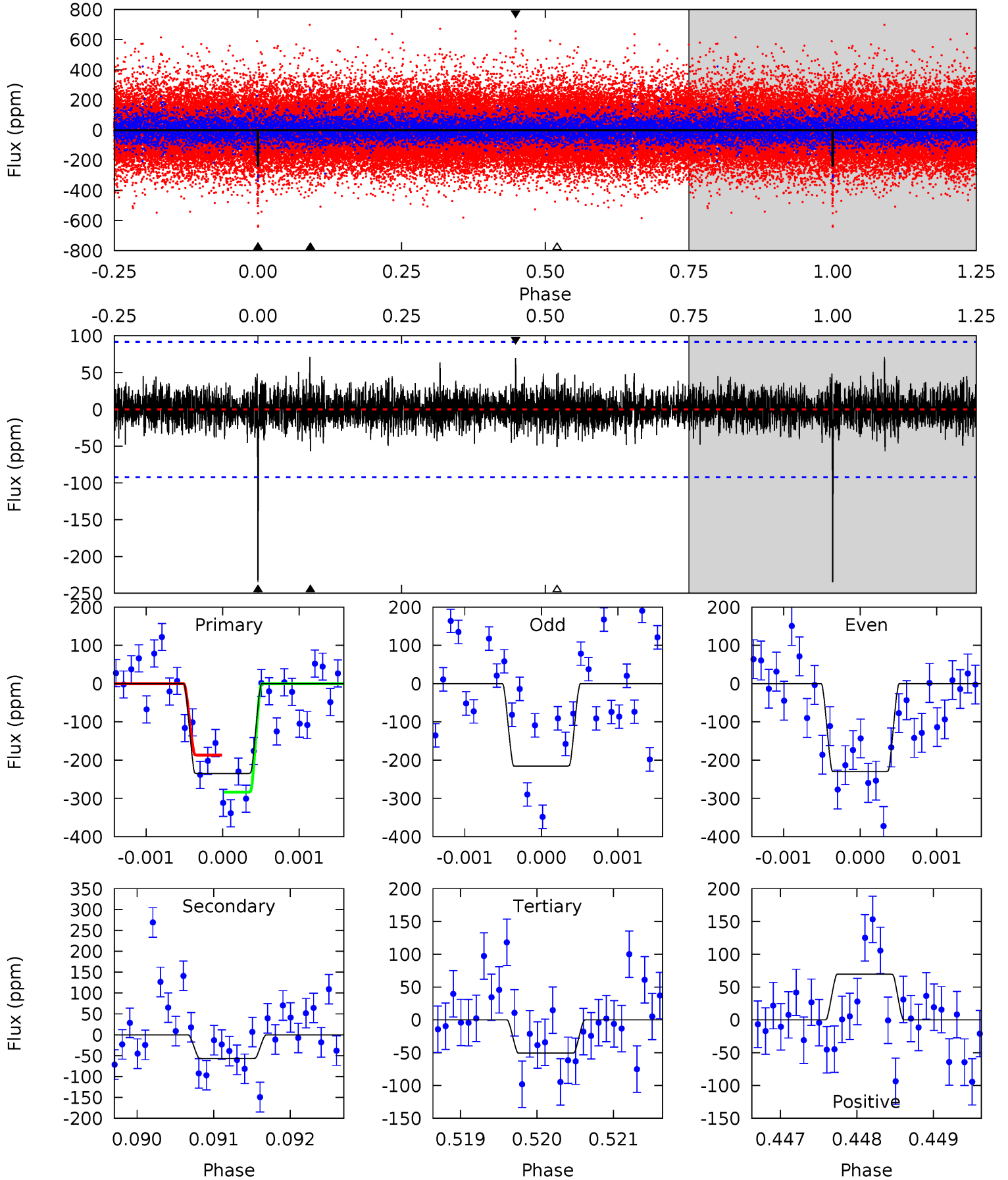
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	7.14	5.06	6.88	5.42	3.24	1.68	7.48	5.66	2.08	0.26	0.56	1.07	0.35	3.11



# Alt Model-Shift Uniqueness Test

008621781-01,  $P = 419.936903$  Days,  $E = 48.487627$  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
13.9	3.36	3.00	4.12	5.43	3.26	0.89	10.9	9.76	0.36	-0.76	0.40	1.04	0.23	2.87



### Stellar Parameters For KIC 008621781

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5953^{+161}_{-179}$	$4.433^{+0.087}_{-0.203}$	$-0.180^{+0.300}_{-0.300}$	$0.990^{+0.300}_{-0.129}$	$0.968^{+0.132}_{-0.119}$	$1.407^{+0.521}_{-0.737}$
	+3%/-3%	+2%/-5%	+167%/-167%	+30%/-13%	+14%/-12%	+37%/-52%
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 008621781-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-122 \pm 17$	$1.81^{+1.11}_{-0.98}$	$354^{+25}_{-18}$	$4982^{+2251}_{-828}$	$24057^{+82530}_{-14933}$
Alt.	$-57 \pm 17$	$1.79^{+1.00}_{-1.01}$	$354^{+25}_{-18}$	$4312^{+1902}_{-703}$	$11318^{+50463}_{-7180}$

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

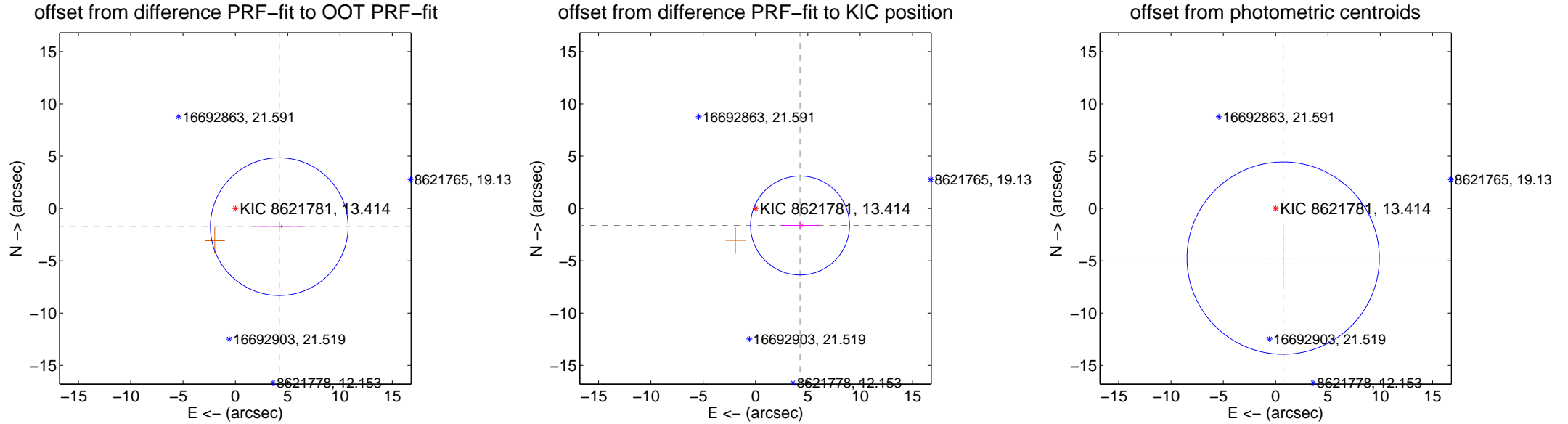
## DV Centroid Data

Supplemental centroid analysis for 008621781-01. Kepler magnitude: 13.41. Transit SNR 7.75

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.543 \pm 2.193$	2.07	$-4.195 \pm 2.604$	$-1.742 \pm 0.557$
PRF-fit source offset from KIC position	$4.558 \pm 1.576$	2.89	$-4.257 \pm 1.846$	$-1.628 \pm 0.421$
photometric centroid source offset	$4.80 \pm 3.06$	1.57	$-0.72 \pm 1.84$	$-4.75 \pm 3.09$

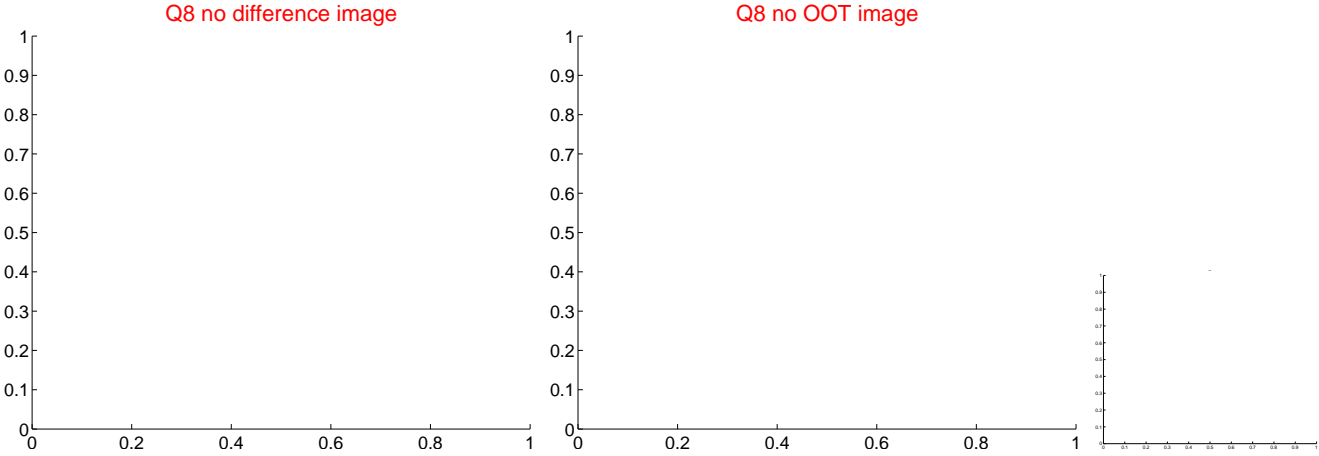
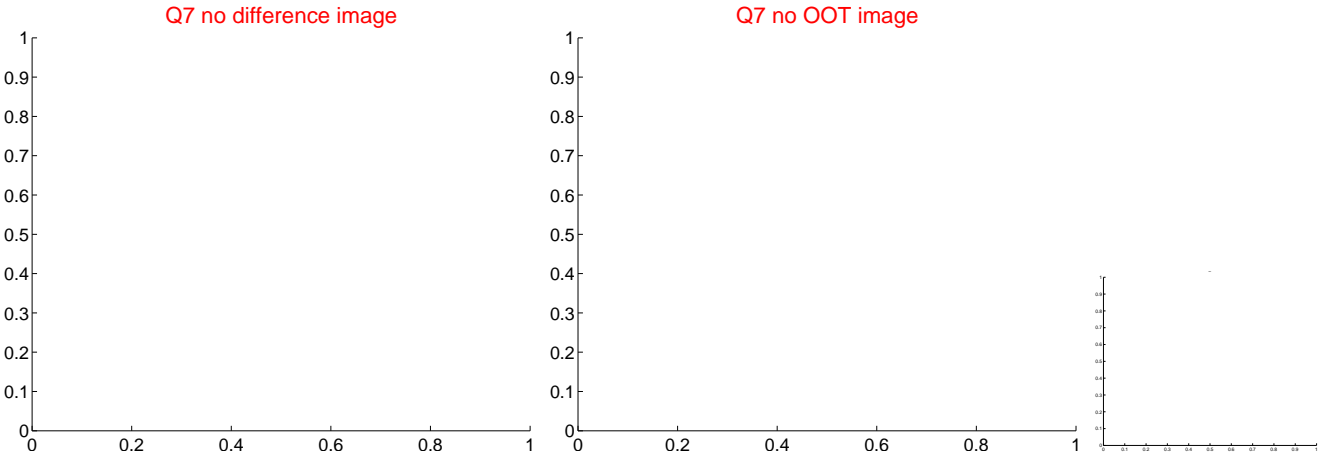
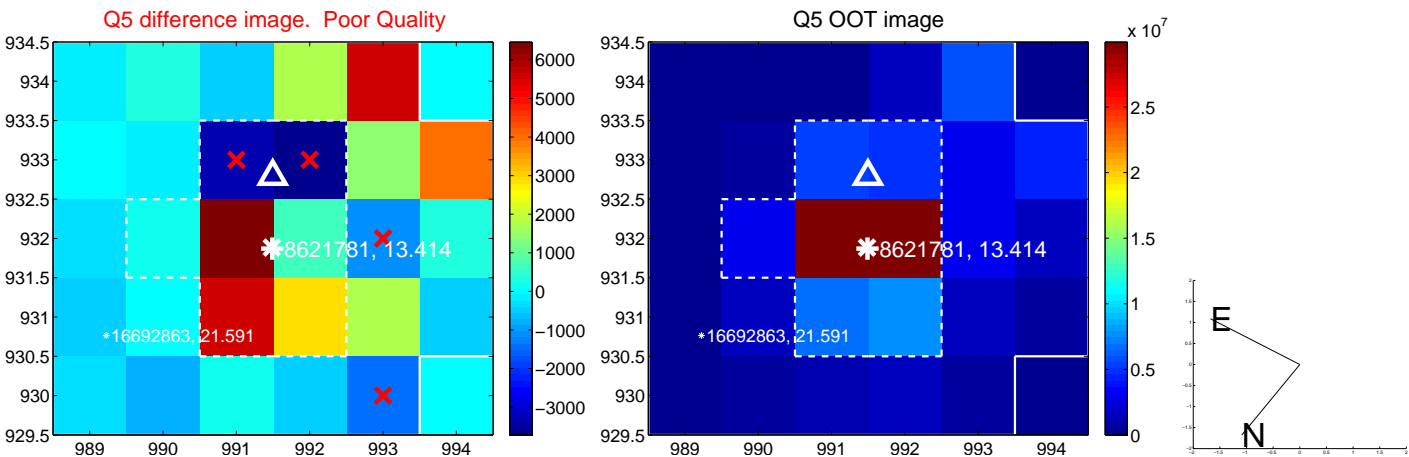


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

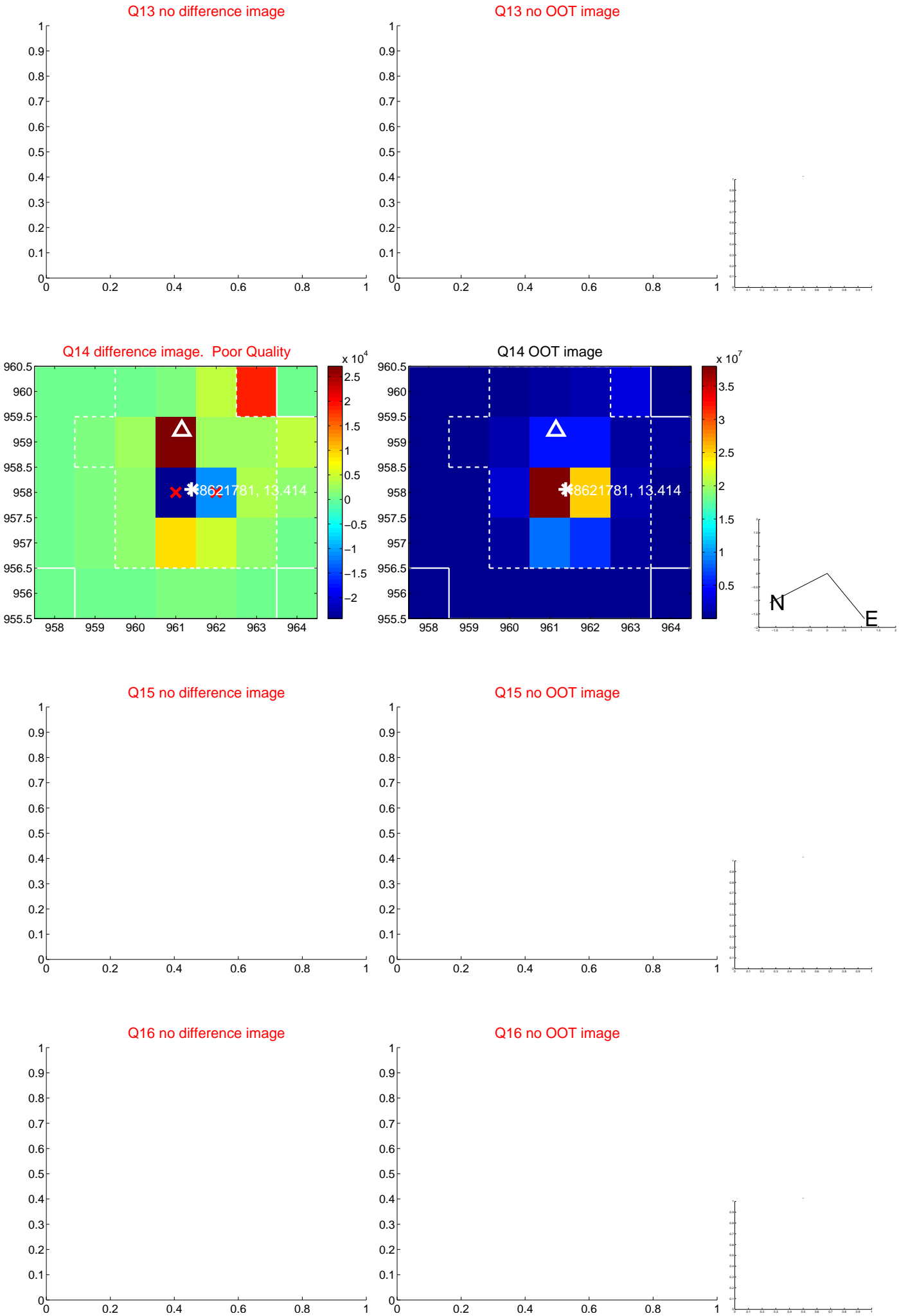




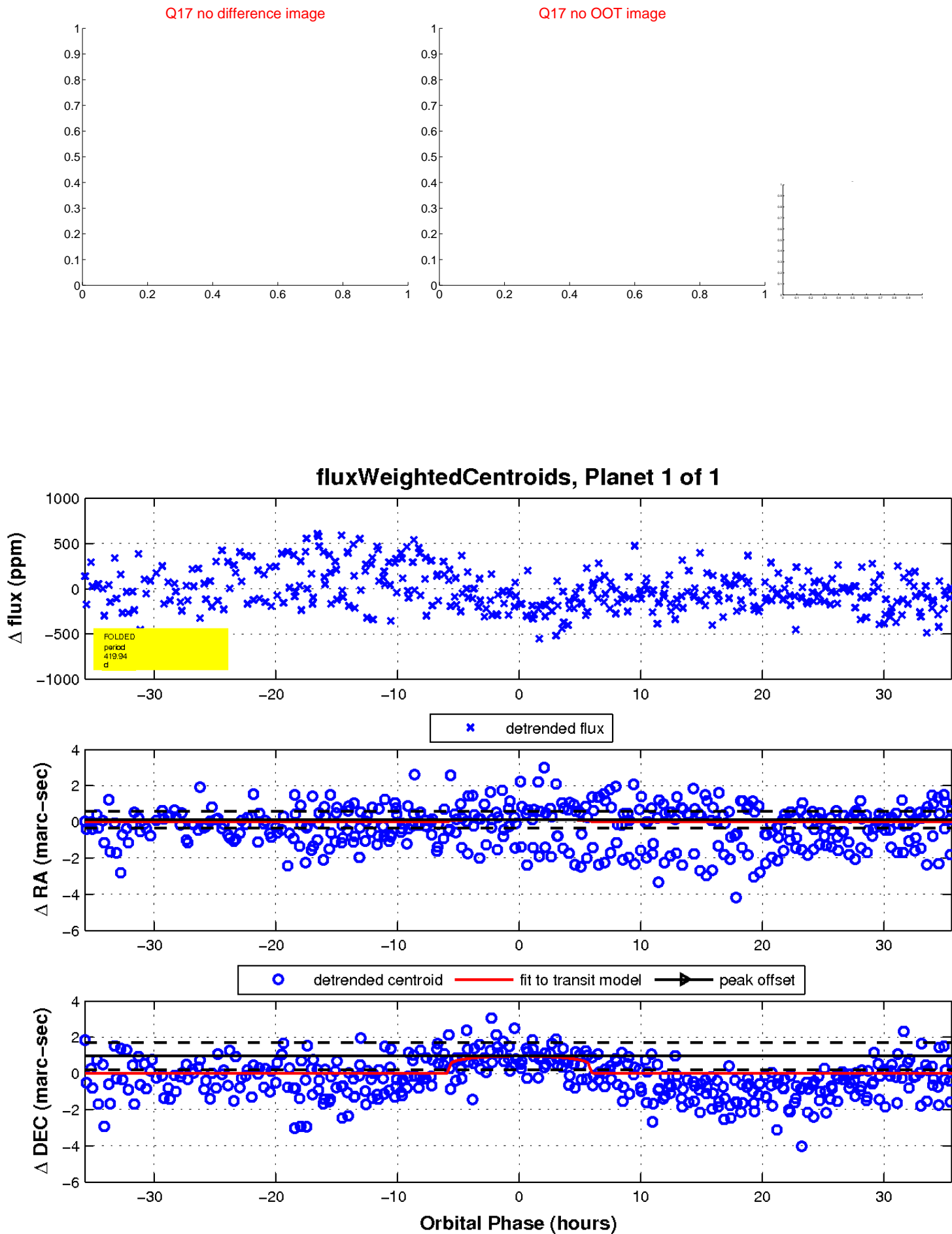
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

