

# KIC 006861082

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006861082-01	OBS	No	408.496831	461.767937	332.4	6.829	7.7	7.2	1.18	5830	2.44	1.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006861082-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—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.

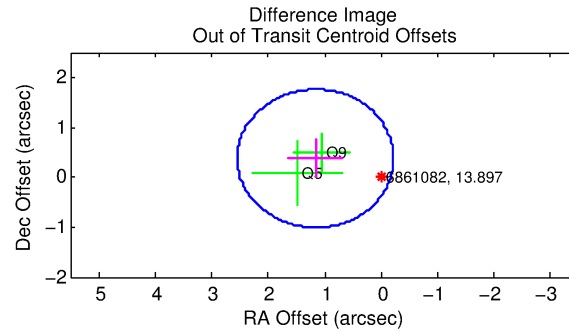
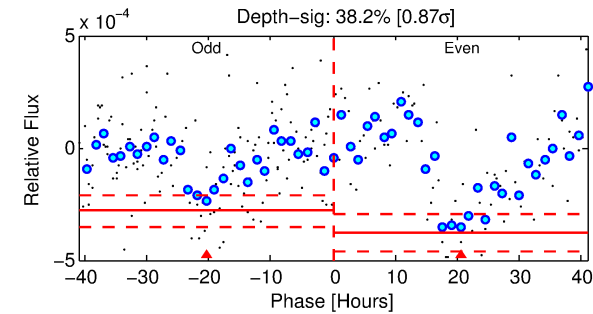
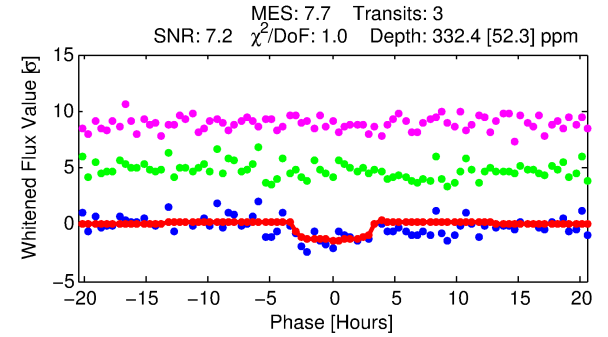
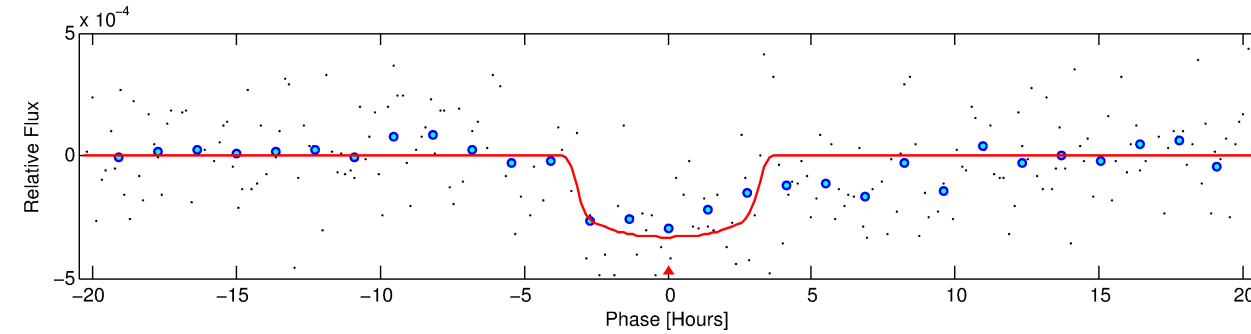
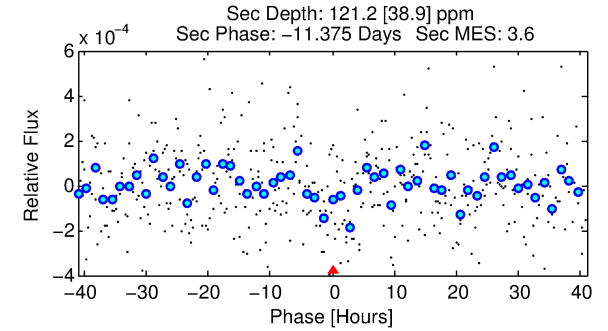
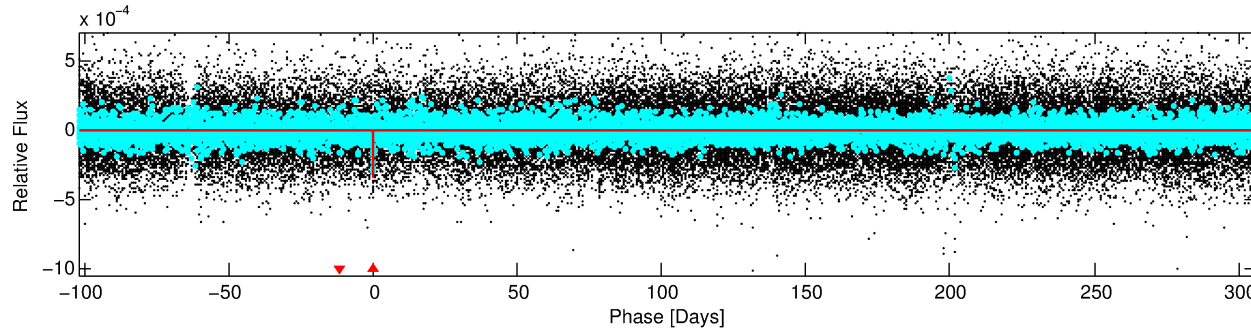
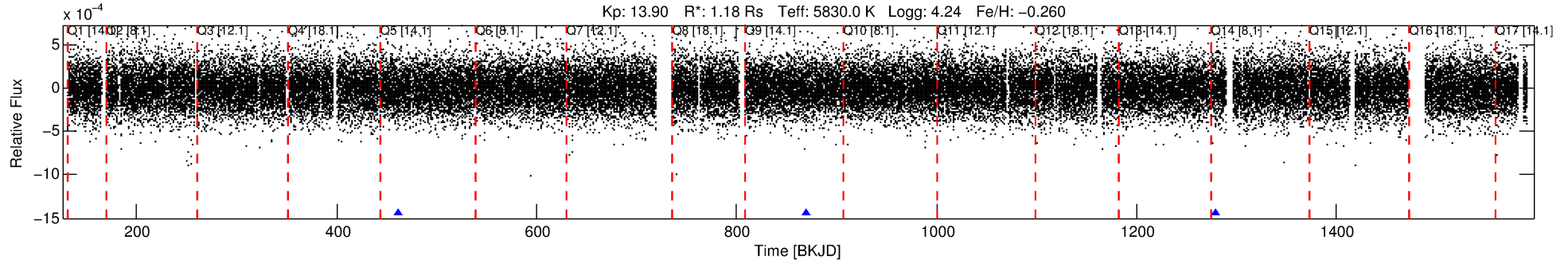
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006861082-01

No Significant Match Found

# DV One-Page Summary

KIC: 6861082 Candidate: 1 of 1 Period: 408.497 d



## DV Fit Results:

Period = 408.49683 [0.01244] d  
Epoch = 461.7679 [0.0117] BKJD  
Rp/R\* = 0.0189 [0.0099]  
a/R\* = 261.54 [647.44]  
b = 0.84 [0.86]  
Seff = 1.34 [0.60]  
Teff = 274 [31] K  
Rp = 2.44 [1.44] Re  
a = 1.0375 [0.2769] AU  
Ag = 12052.79 [14222.54] [0.85σ]  
Teffp = 4445 [1225] K [3.40σ]

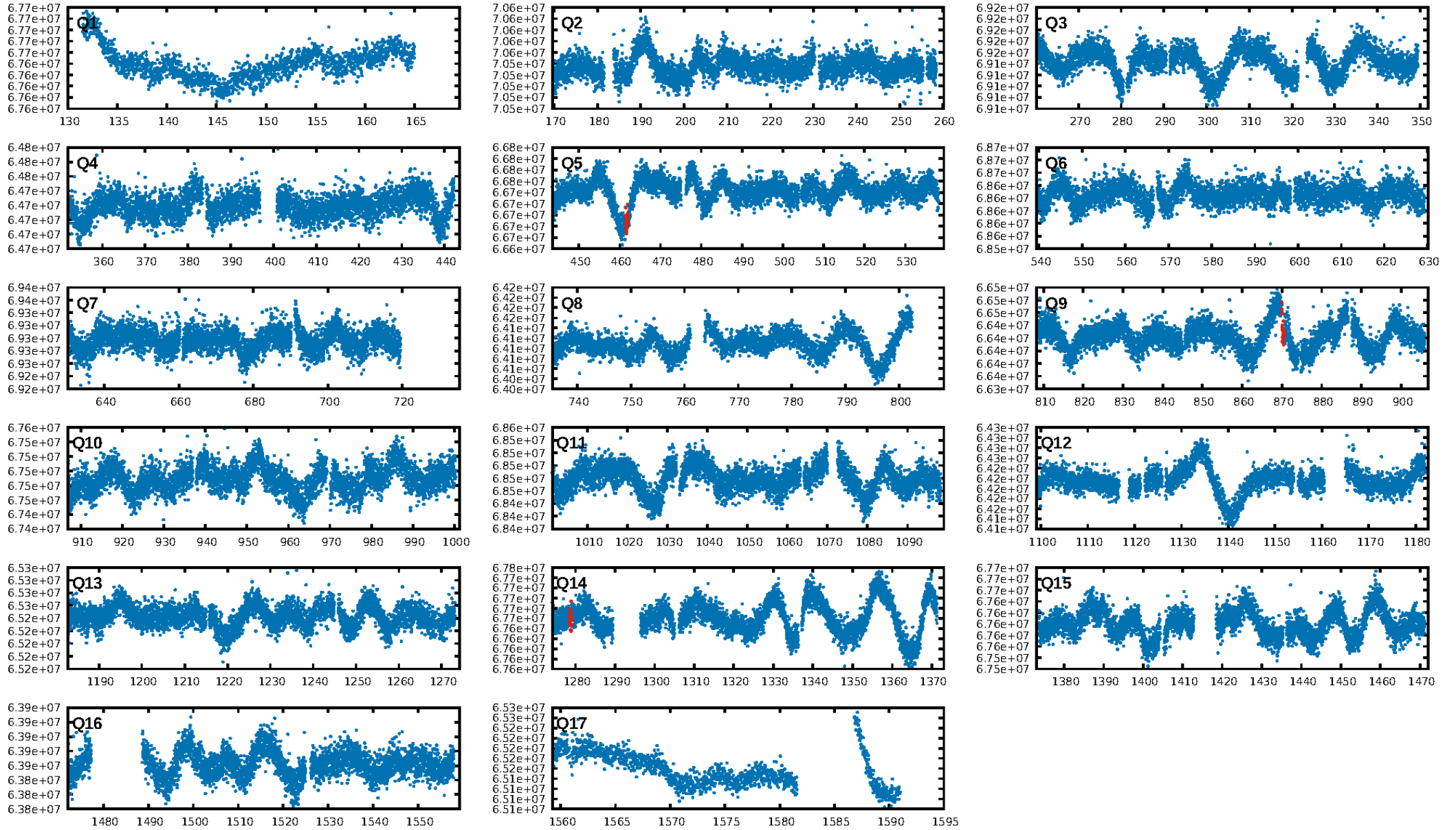
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 95.1%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.29e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 4.584  
Centroid-sig: 12.7%  
Centroid-so: 1.195 arcsec [1.11σ]  
OotOffset-rm: 1.221 arcsec [2.65σ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-rm: 1.218 arcsec [2.64σ]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

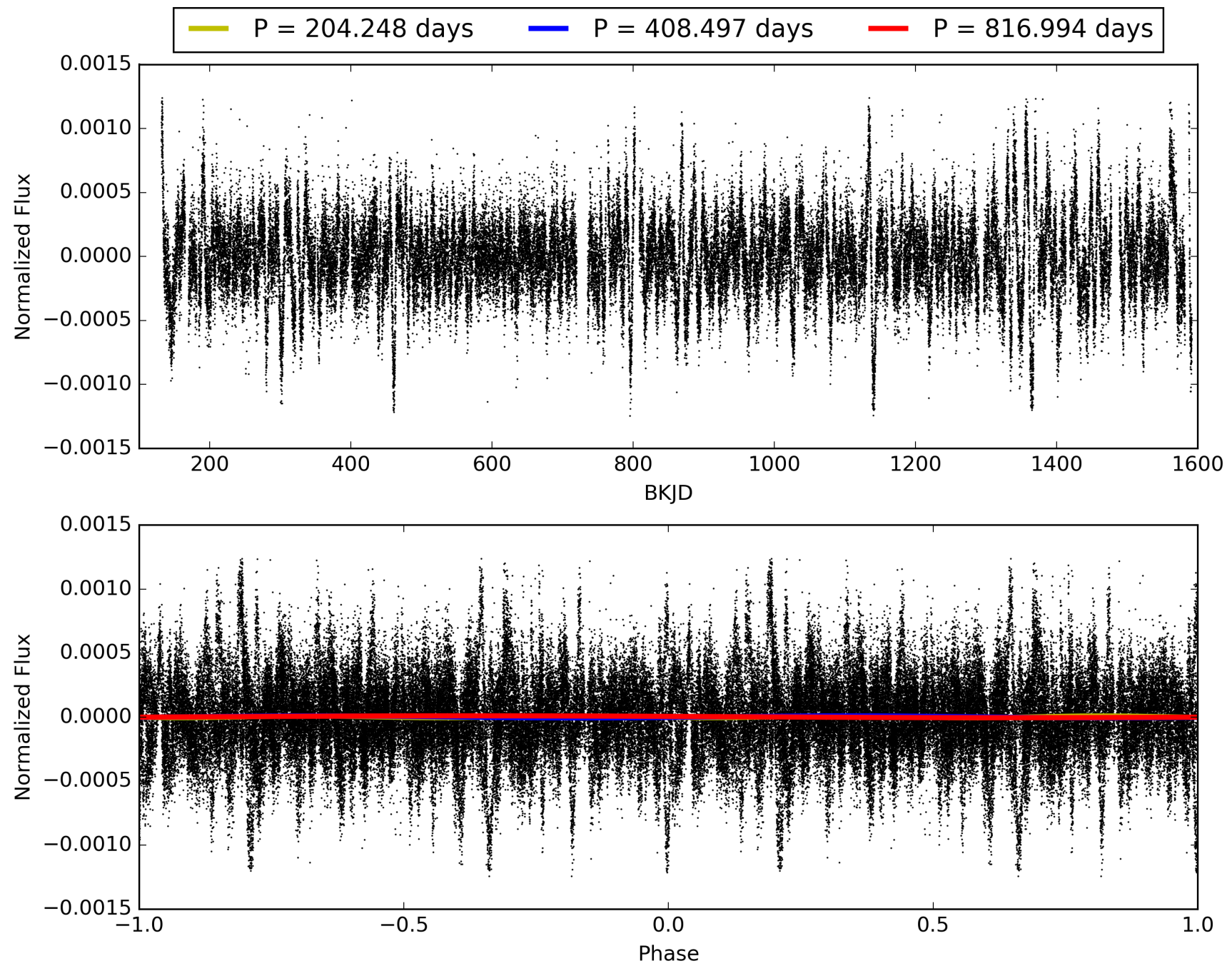
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:16:24 Z

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

# TCE 006861082-01, PDC Light Curves

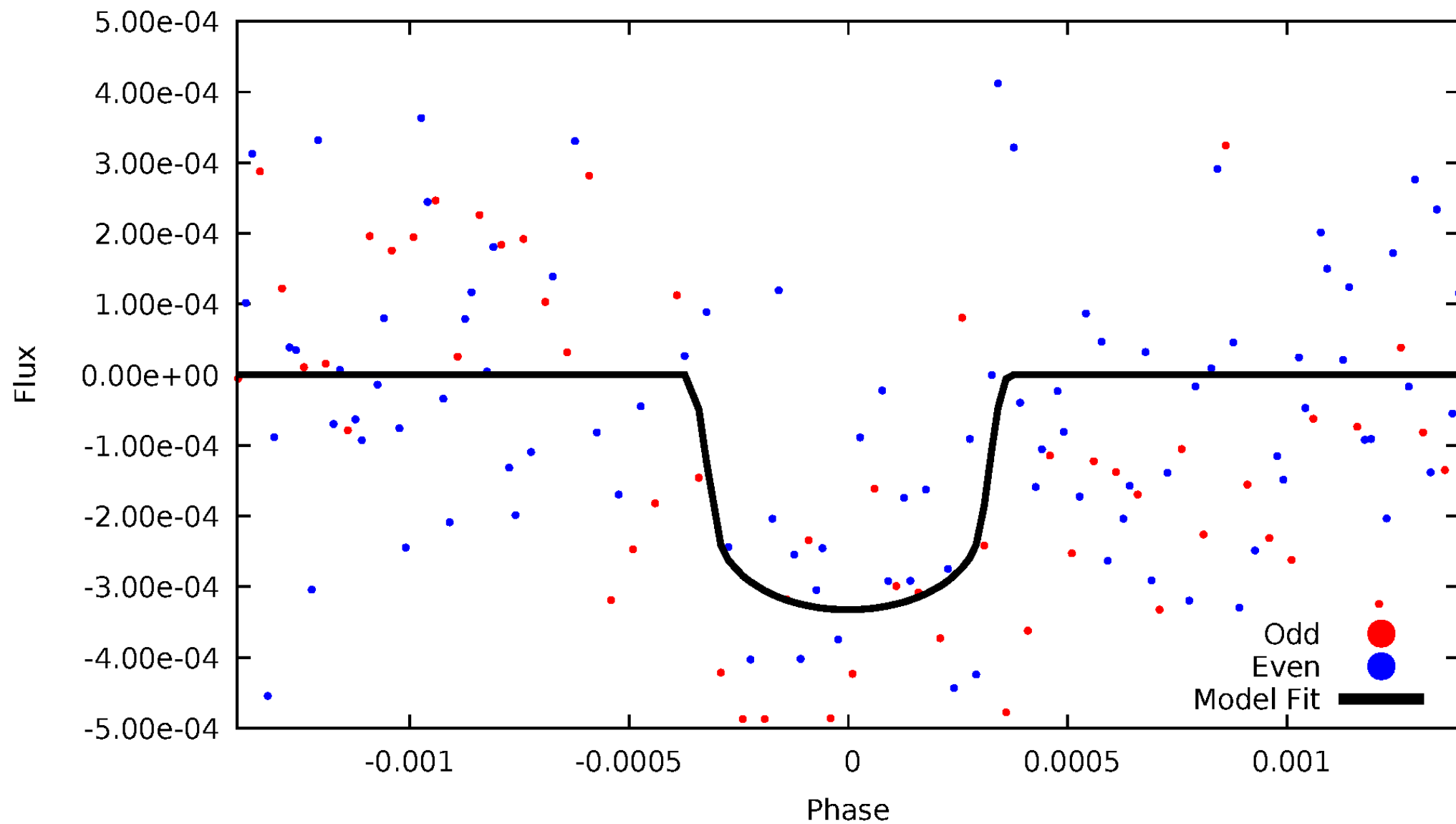


TCE 006861082-01



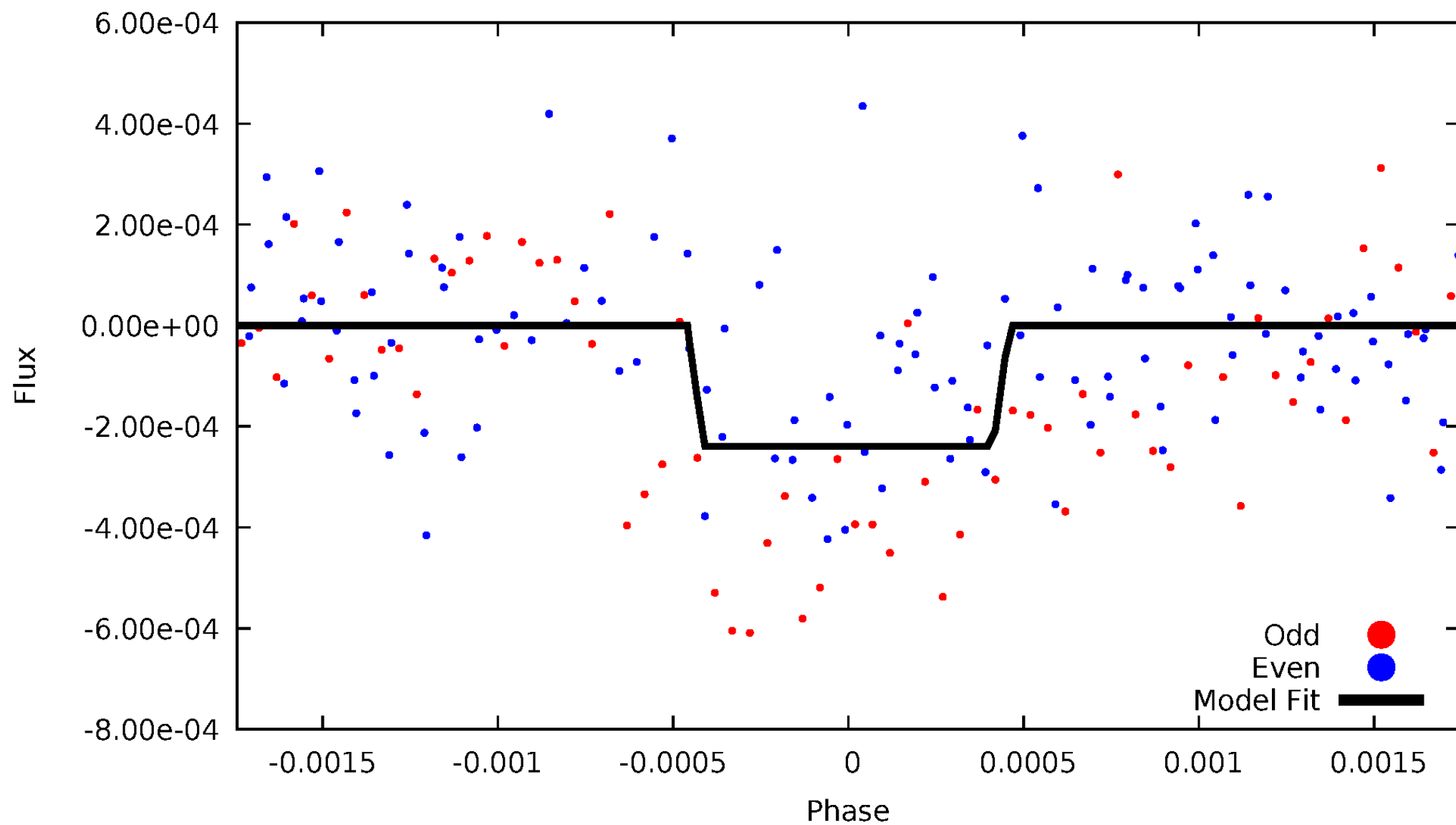
# DV Odd/Even

TCE 006861082-01

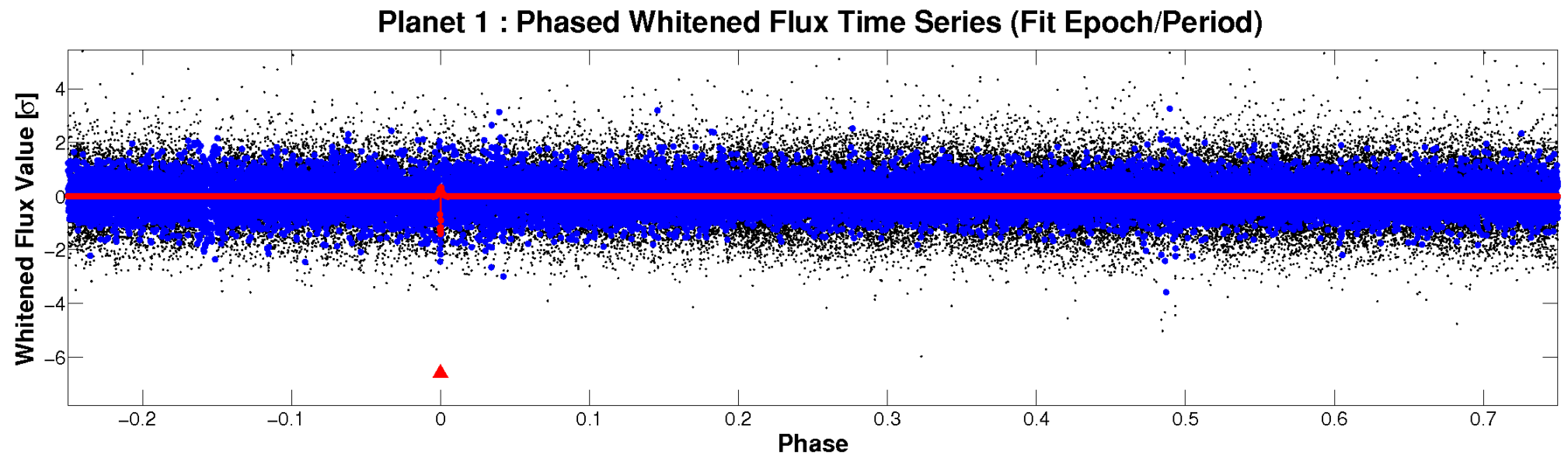
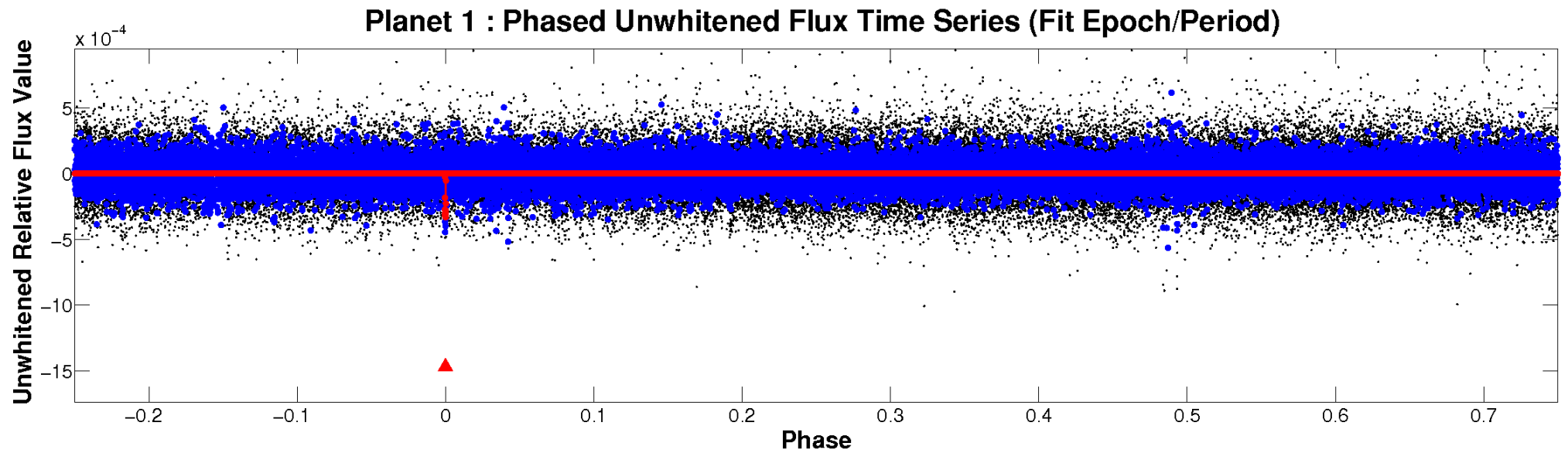


# ALT Odd/Even

TCE 006861082-01



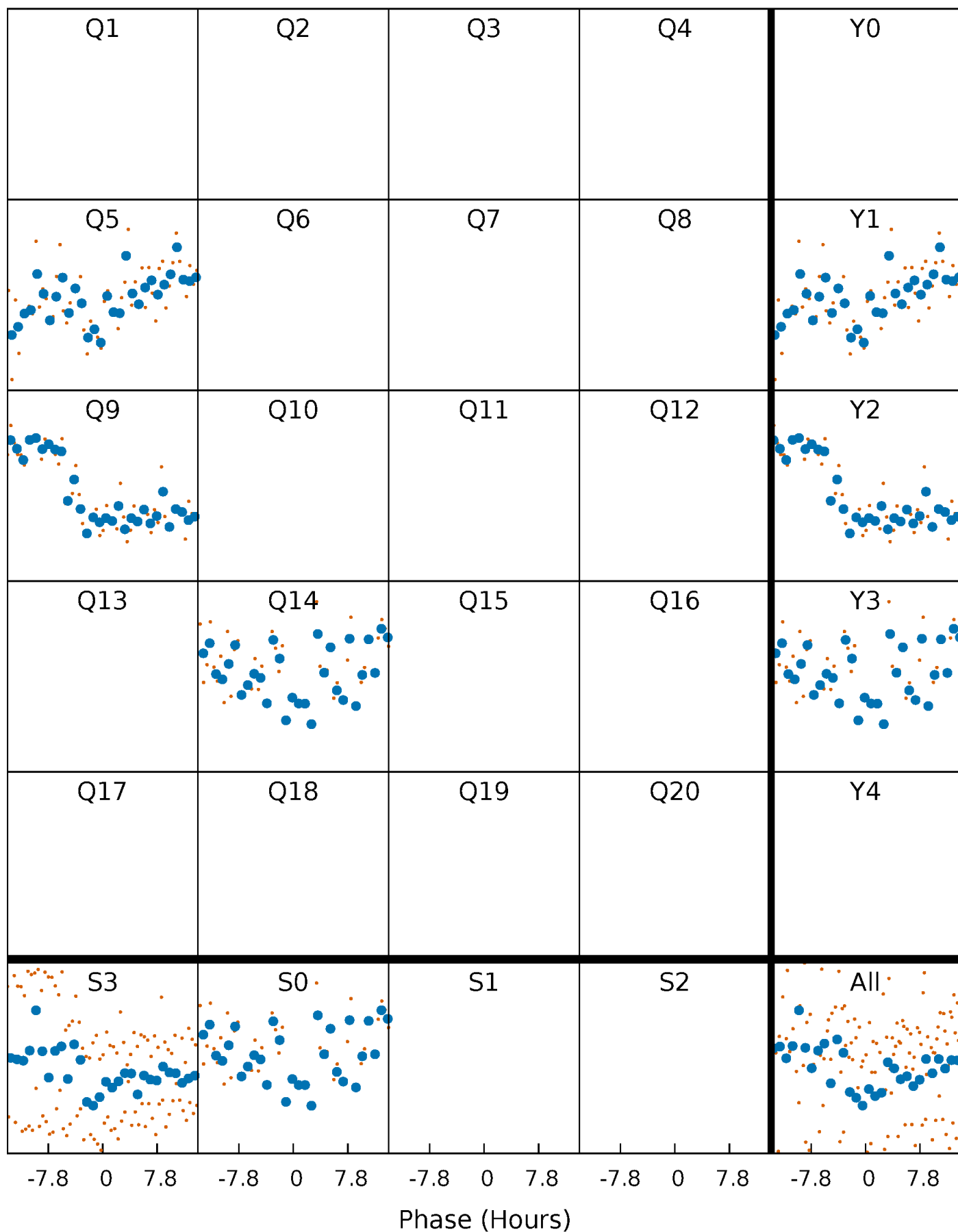
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

TCE 006861082-01 P=408.496831 Days  $T_0=461.767937$  (BKJD)





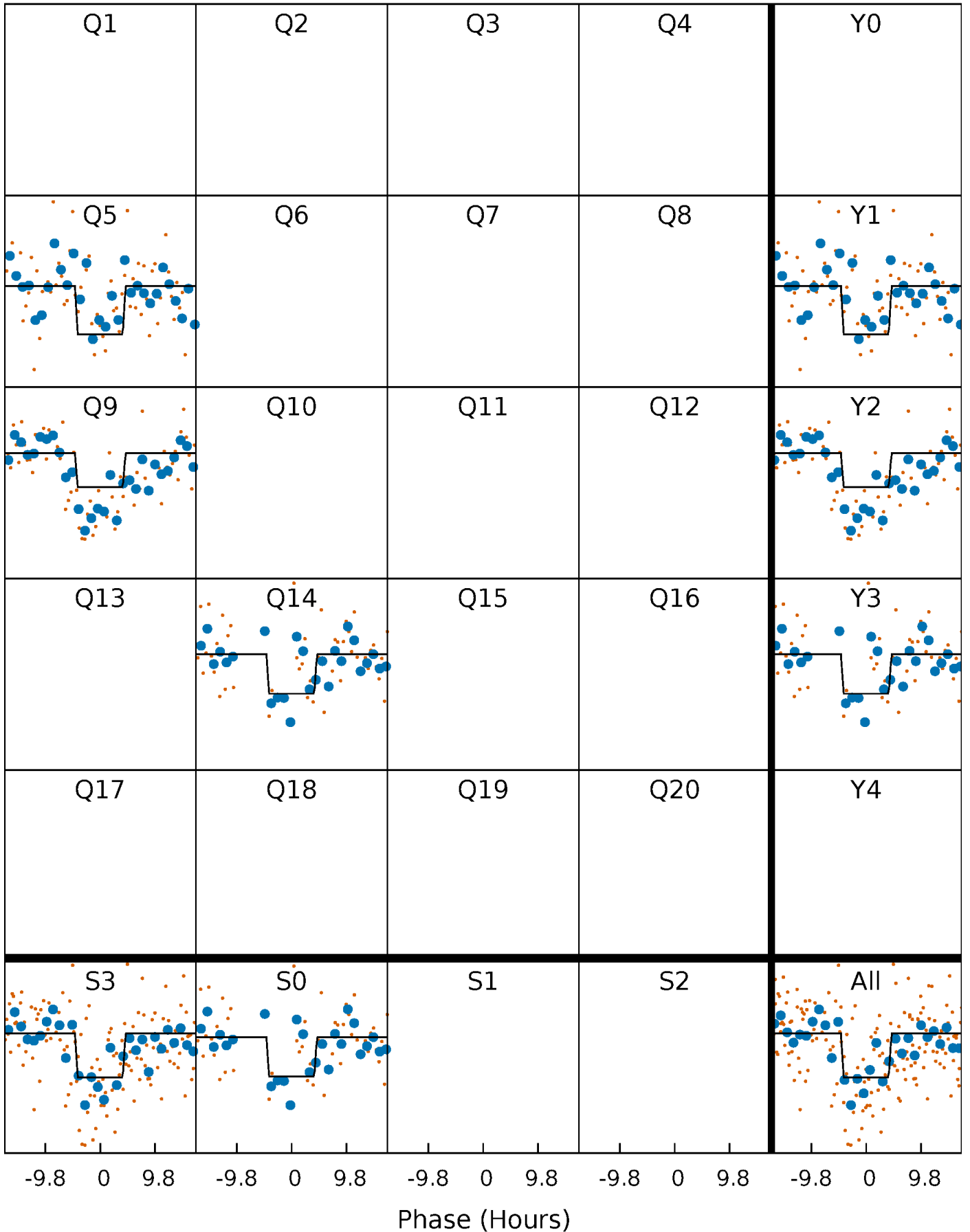
# DV Quarter-Phased Transit Curves

TCE 006861082-01 P=408.496831 Days  $T_0=461.767937$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

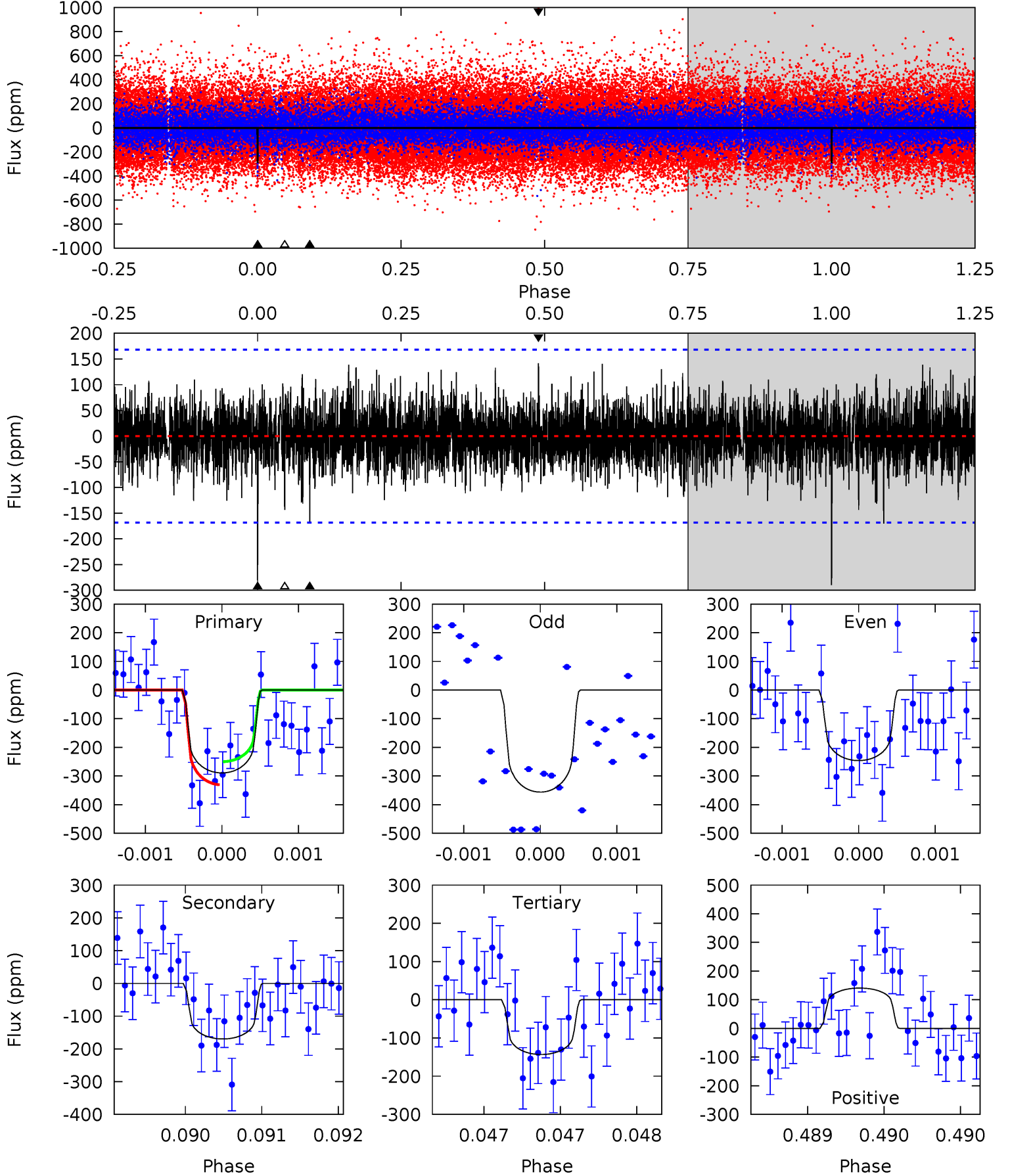
TCE 006861082-01 P=408.582655 Days  $T_0=461.719053$  (BKJD)



# DV Model-Shift Uniqueness Test

006861082-01, P = 408.496831 Days, E = 53.271106 Days

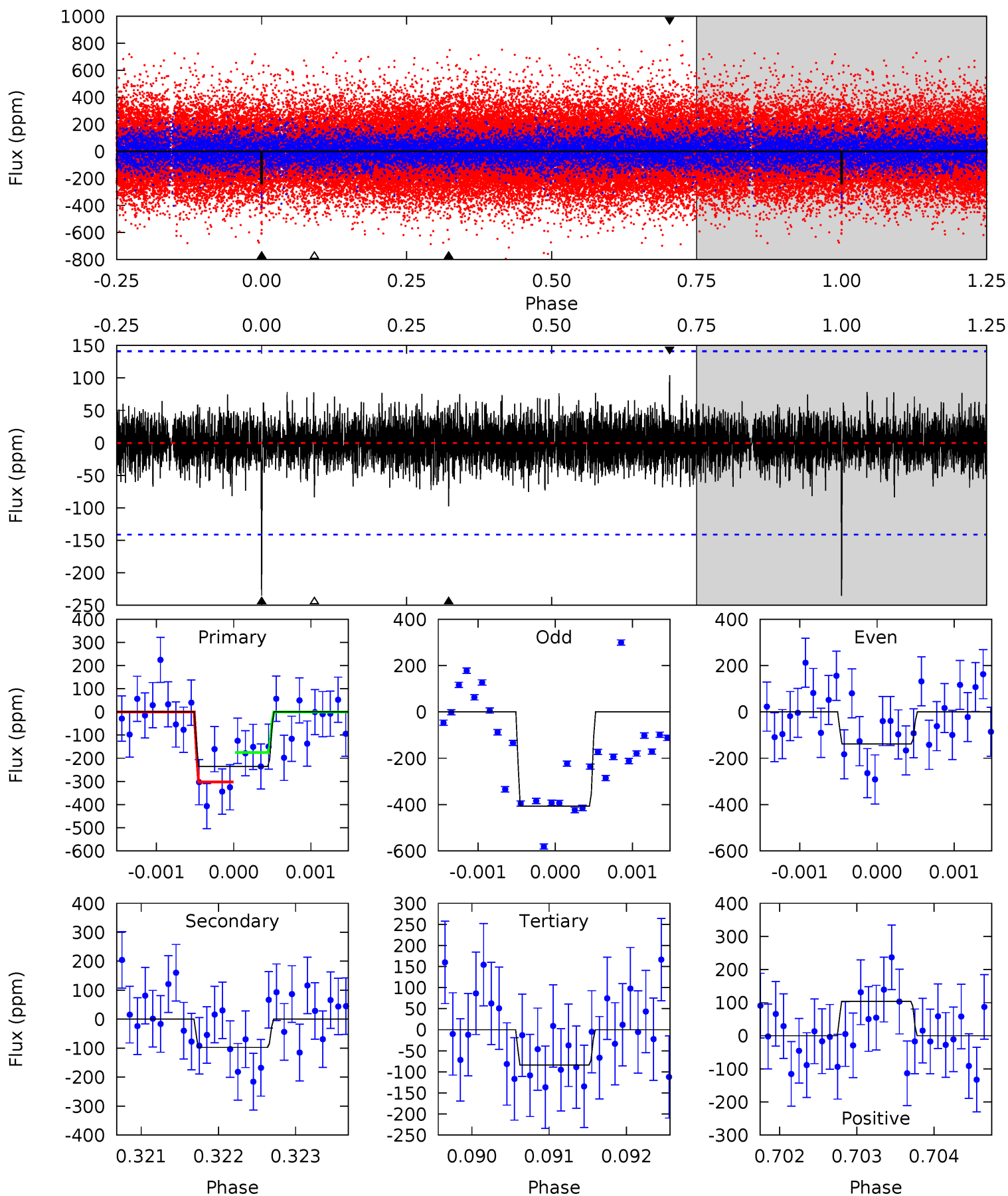
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.48	5.56	4.69	4.61	5.51	3.38	1.25	4.79	4.87	0.87	0.95	1.78	1.01	0.33	1.31



# Alt Model-Shift Uniqueness Test

006861082-01, P = 408.582655 Days, E = 53.136398 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
9.13	3.78	3.24	4.03	5.47	3.32	0.89	5.89	5.10	0.54	-0.25	5.05	1.39	0.31	2.46



### Stellar Parameters For KIC 006861082

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5830^{+157}_{-157}$	$4.244^{+0.258}_{-0.172}$	$-0.260^{+0.300}_{-0.300}$	$1.181^{+0.317}_{-0.317}$	$0.891^{+0.132}_{-0.077}$	$0.763^{+1.022}_{-0.383}$
	+3%/-3%	+6%/-4%	+115%/-115%	+27%/-27%	+15%/-9%	+134%/-50%
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 006861082-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-170 \pm 31$	$2.32^{+1.31}_{-1.19}$	$381^{+29}_{-32}$	$5022^{+2051}_{-850}$	$18771^{+63180}_{-11221}$
Alt.	$-98 \pm 26$	$2.02^{+1.38}_{-1.13}$	$380^{+29}_{-30}$	$4714^{+2005}_{-840}$	$14029^{+60237}_{-9160}$

$T_{max}$  = 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

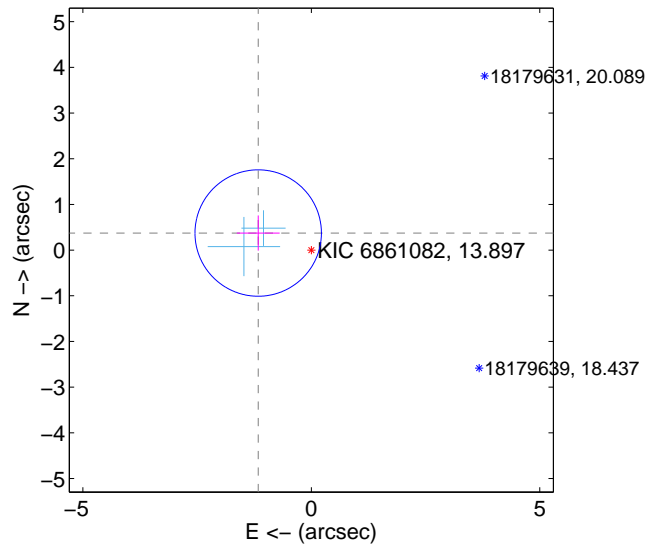
Supplemental centroid analysis for 006861082-01. Kepler magnitude: 13.90. Transit SNR 7.17

There are 2 quarters with good PRF difference image offsets

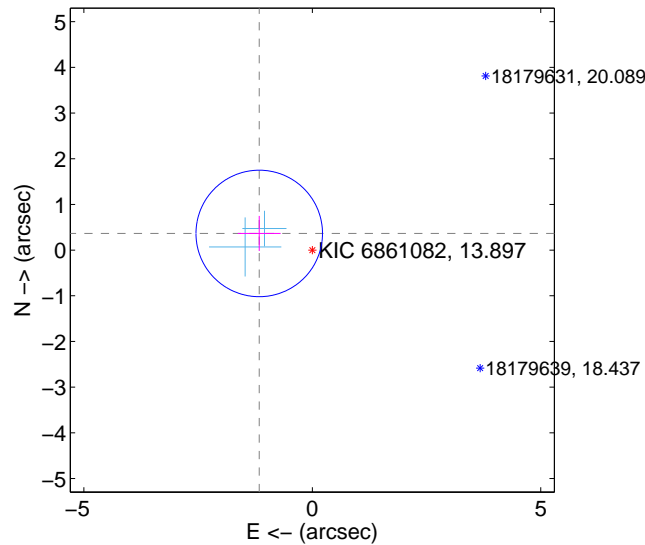
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.221 \pm 0.461$	2.65	$1.163 \pm 0.469$	$0.374 \pm 0.384$
PRF-fit source offset from KIC position	$1.218 \pm 0.462$	2.64	$1.162 \pm 0.469$	$0.365 \pm 0.384$
photometric centroid source offset	$1.20 \pm 1.07$	1.11	$-0.71 \pm 1.15$	$0.96 \pm 1.03$

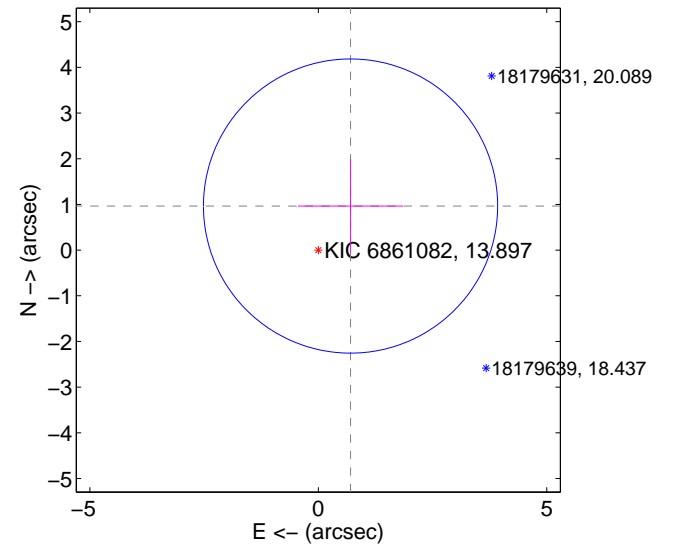
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



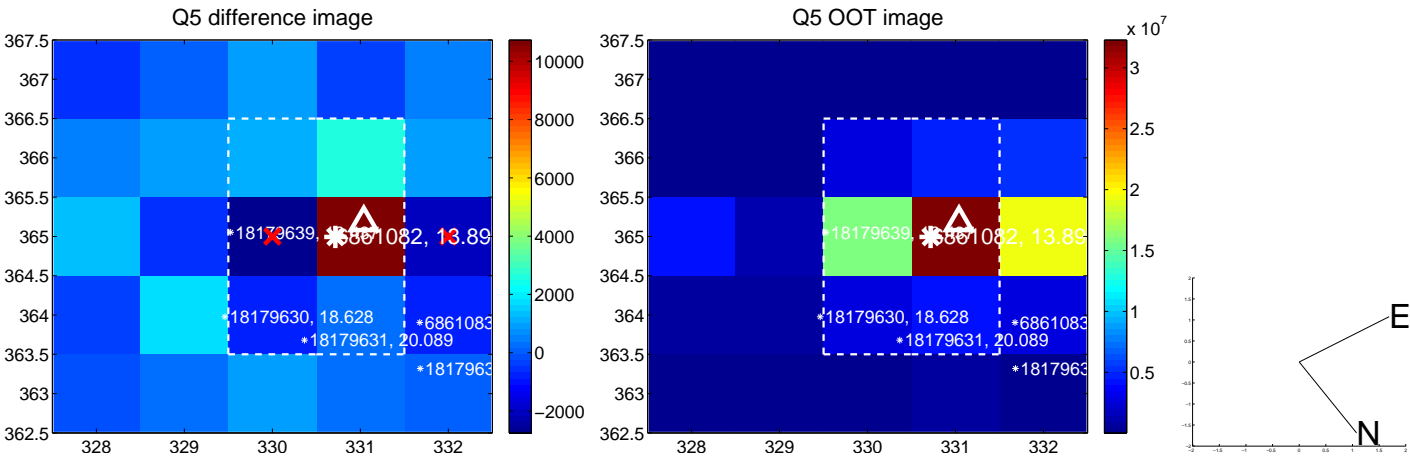
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

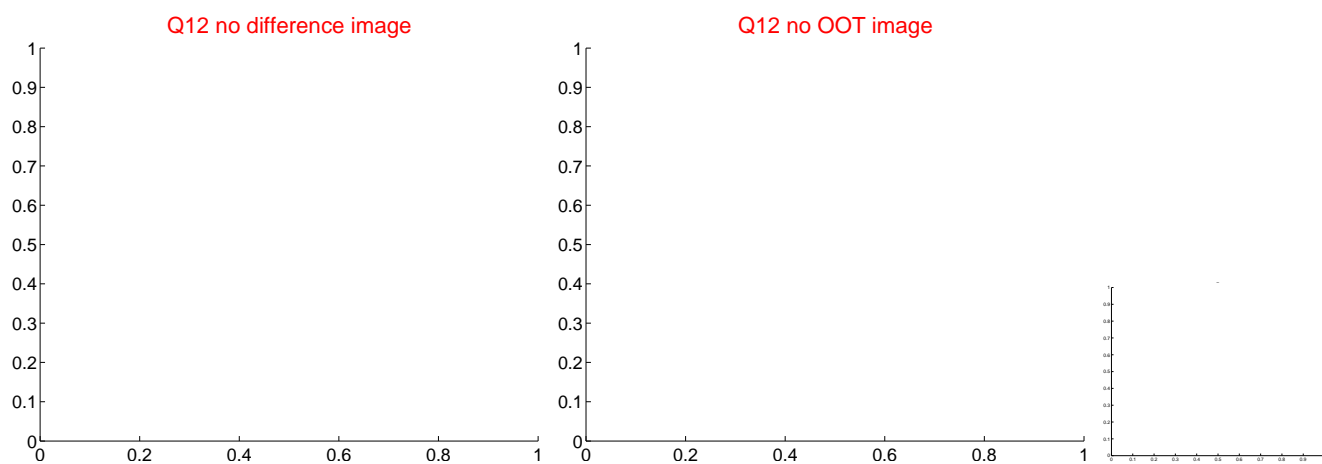
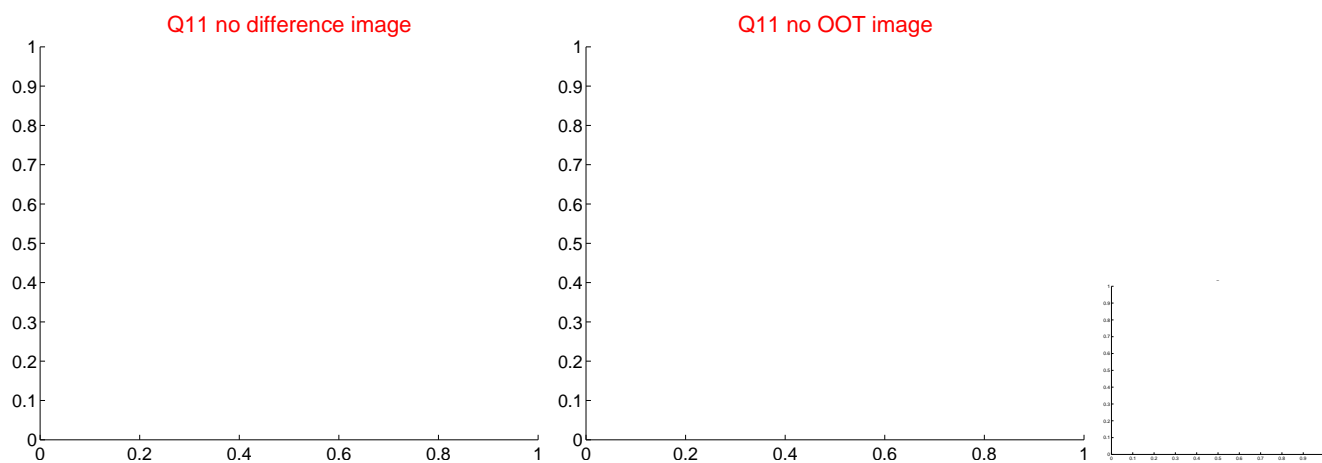
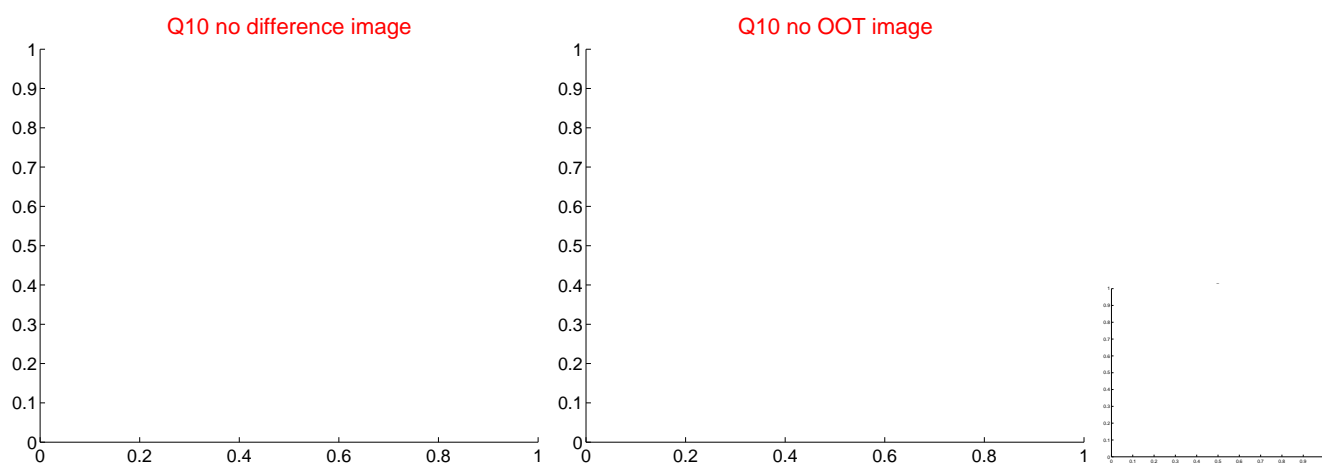
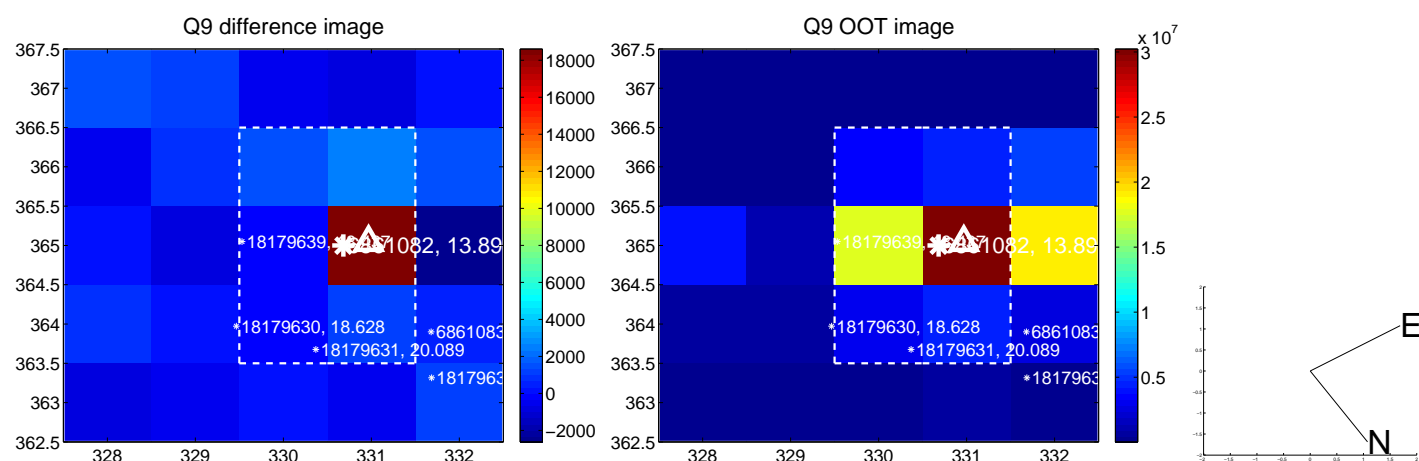




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



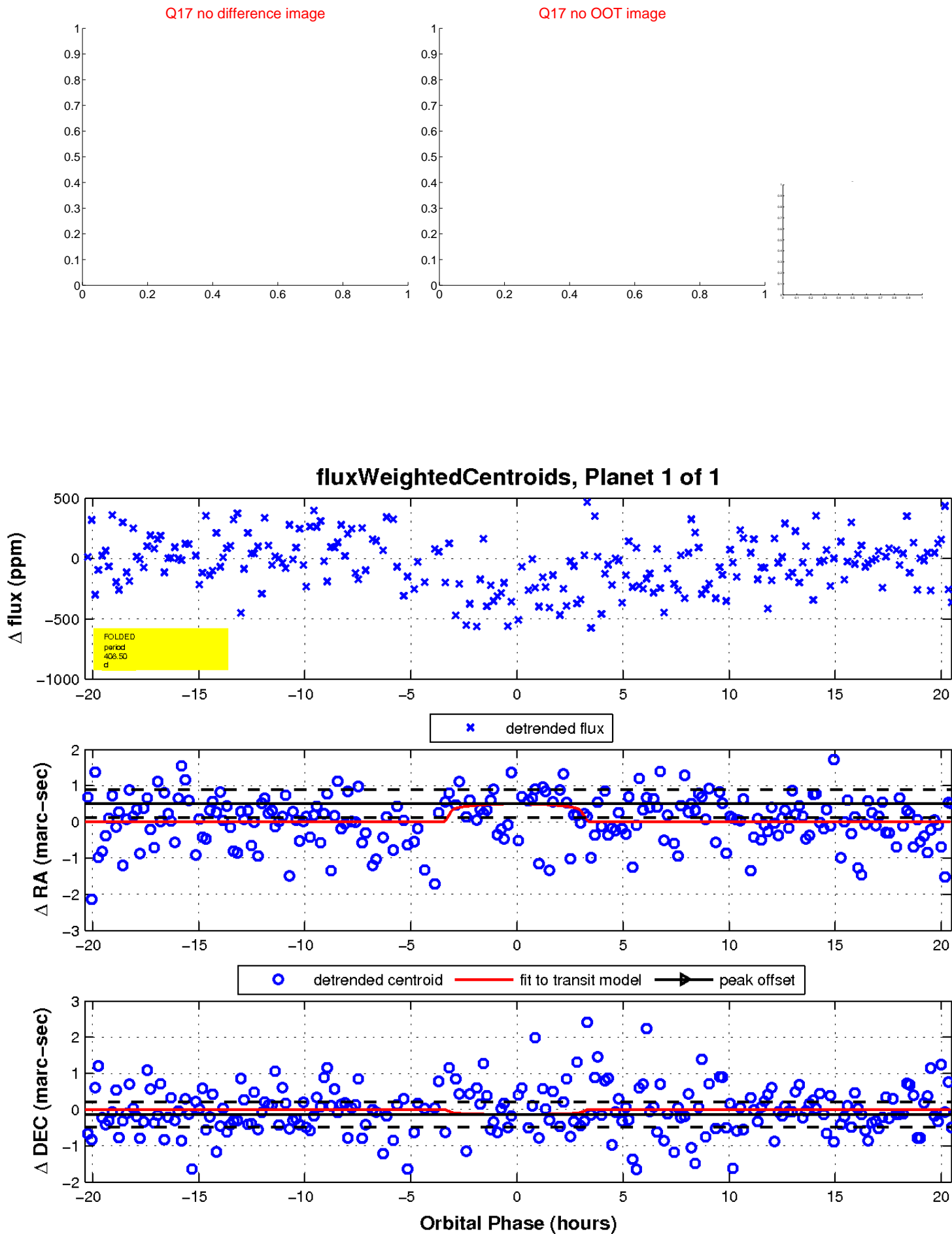
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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UKIRT Image

Declination

