

# KIC 005281818

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005281818-01	OBS	No	717.560124	142.050197	782.3	9.467	11.9	5.6	3.94	5812	11.24	4.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005281818-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

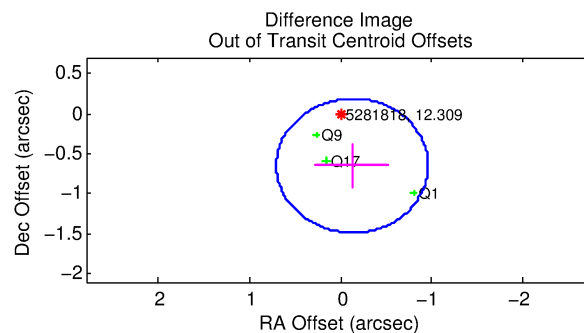
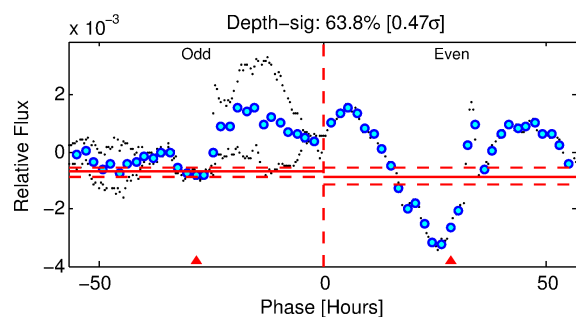
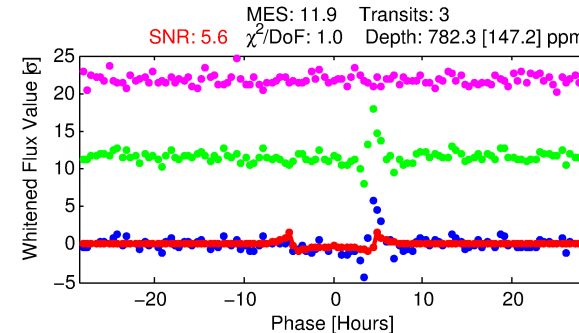
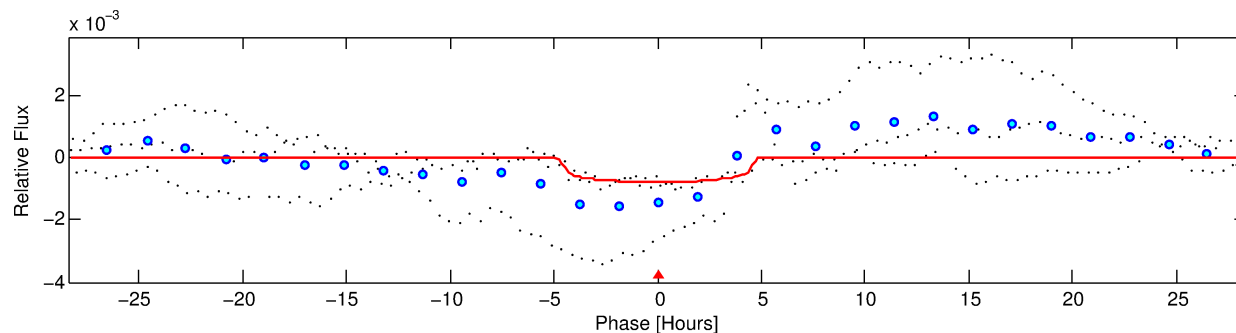
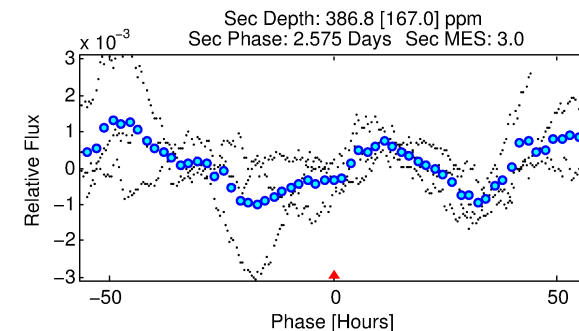
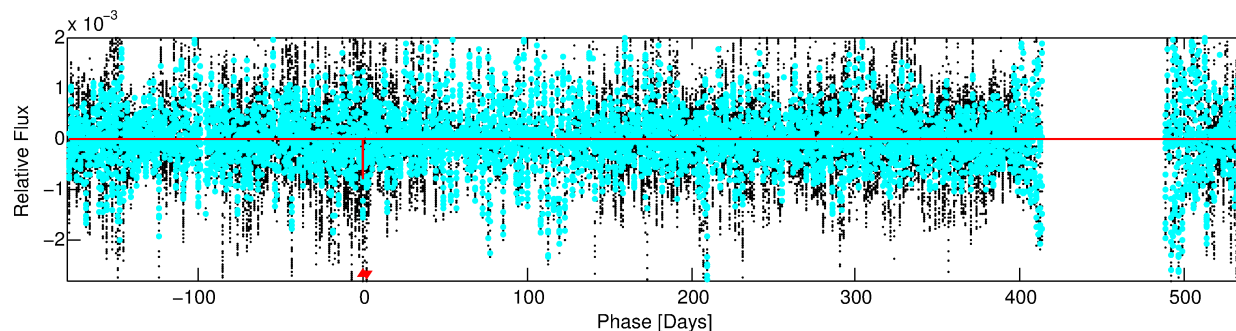
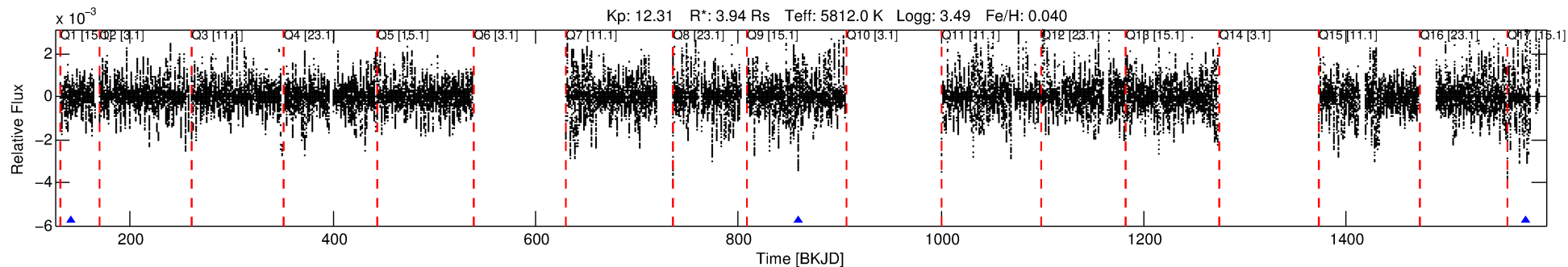
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005281818-01

No Significant Match Found

# DV One-Page Summary

KIC: 5281818 Candidate: 1 of 1 Period: 717.560 d



## DV Fit Results:

Period = 717.56012 [0.00410] d  
Epoch = 142.0502 [0.0048] BKJD  
Rp/R\* = 0.0262 [0.0078]  
a/R\* = 523.00 [603.28]  
b = 0.49 [1.82]  
Seff = 4.46 [2.17]  
Teq = 371 [45] K  
Rp = 11.24 [5.24] Re  
a = 1.8835 [0.6003] AU  
Ag = 5972.05 [5241.82] [1.14 $\sigma$ ]  
Teffp = 5038 [925] K [5.04 $\sigma$ ]

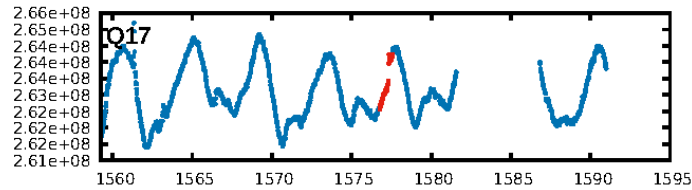
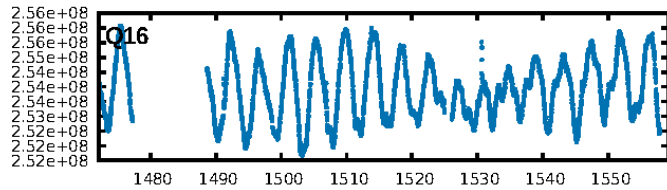
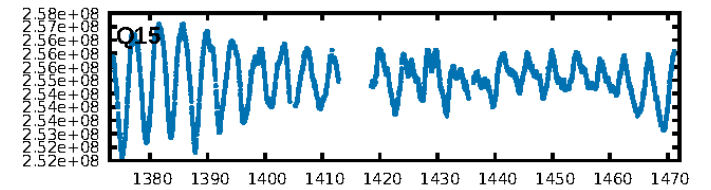
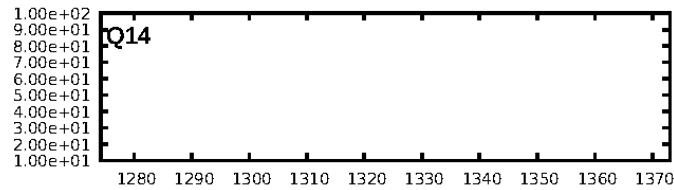
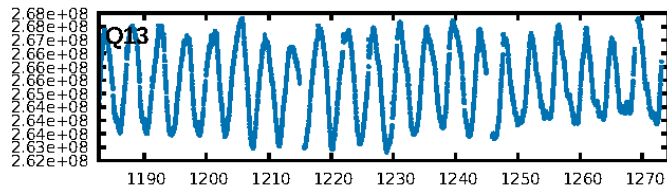
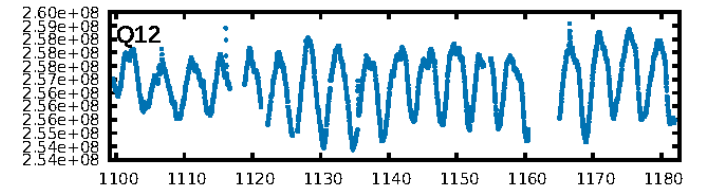
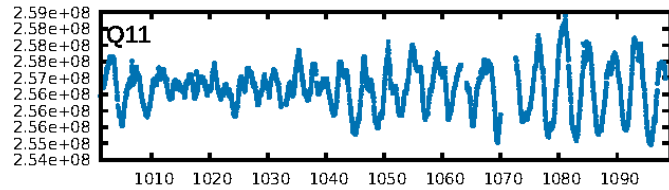
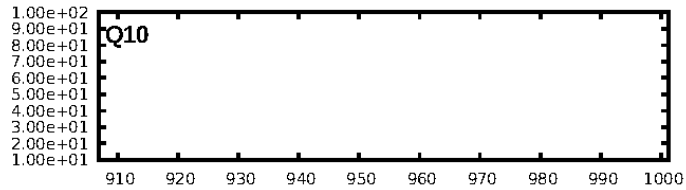
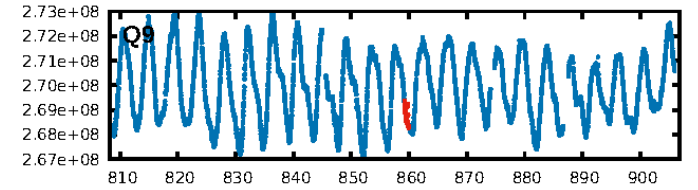
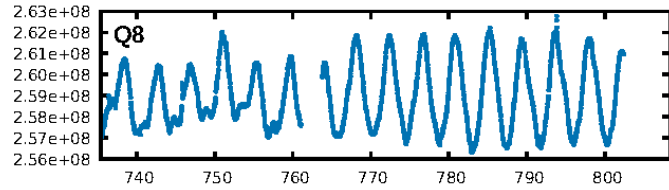
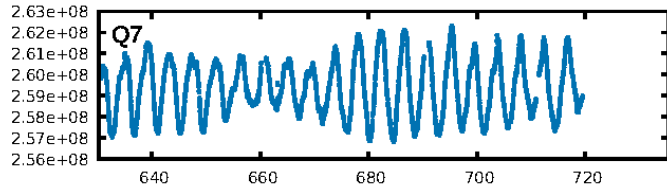
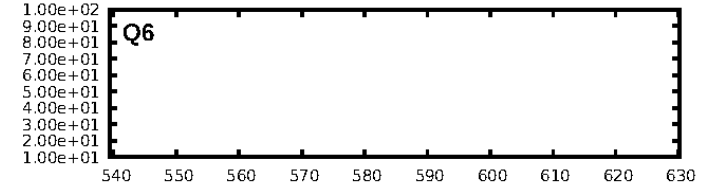
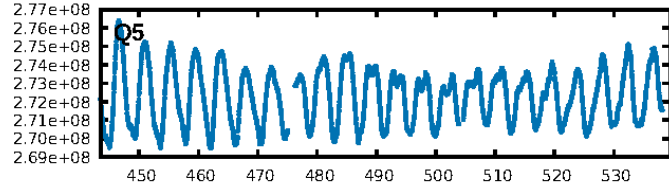
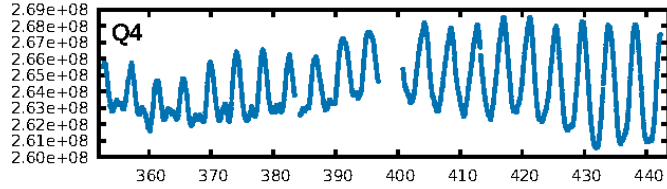
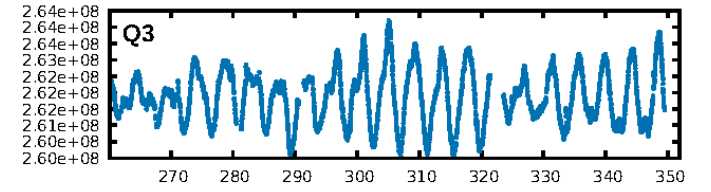
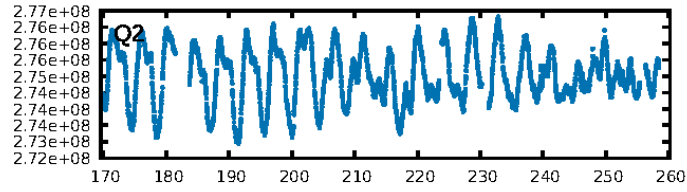
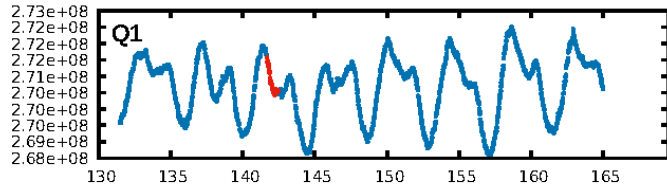
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 88.8%  
ModelChiSquareGof-sig: 98.7%  
**Bootstrap-pfa: 6.72e-10**  
RollingBand-fgt: 1.00 [1/1]  
GhostDiagnostic-chr: -0.2949  
Centroid-sig: 15.6%  
Centroid-so: 0.298 arcsec [1.23 $\sigma$ ]  
OotOffset-rm: 0.664 arcsec [2.39 $\sigma$ ]  
KicOffset-rm: 0.597 arcsec [2.06 $\sigma$ ]  
OotOffset-st: 0/0/0/3 [3]  
KicOffset-st: 0/0/0/3 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

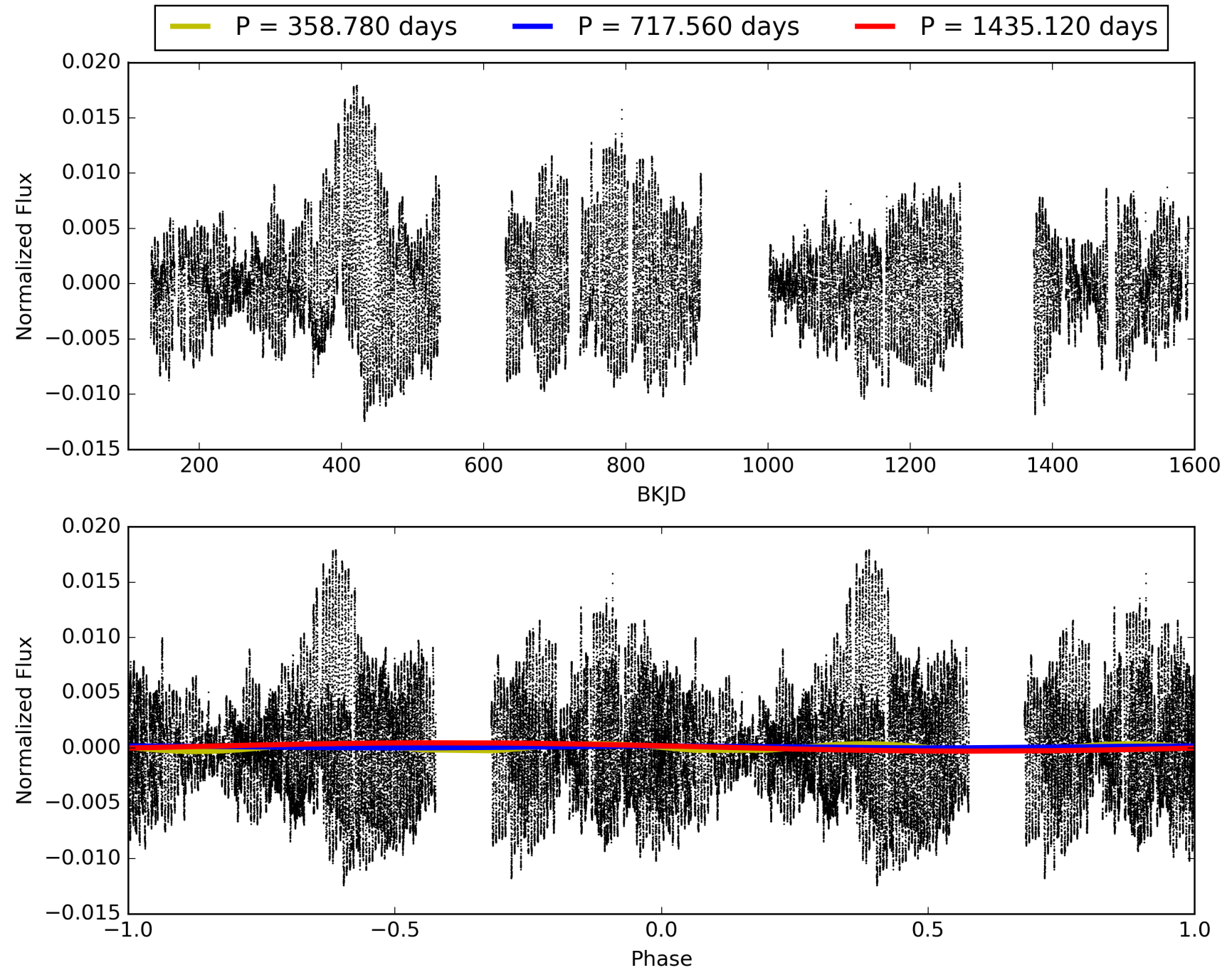
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:27:49 Z

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

# TCE 005281818-01, PDC Light Curves

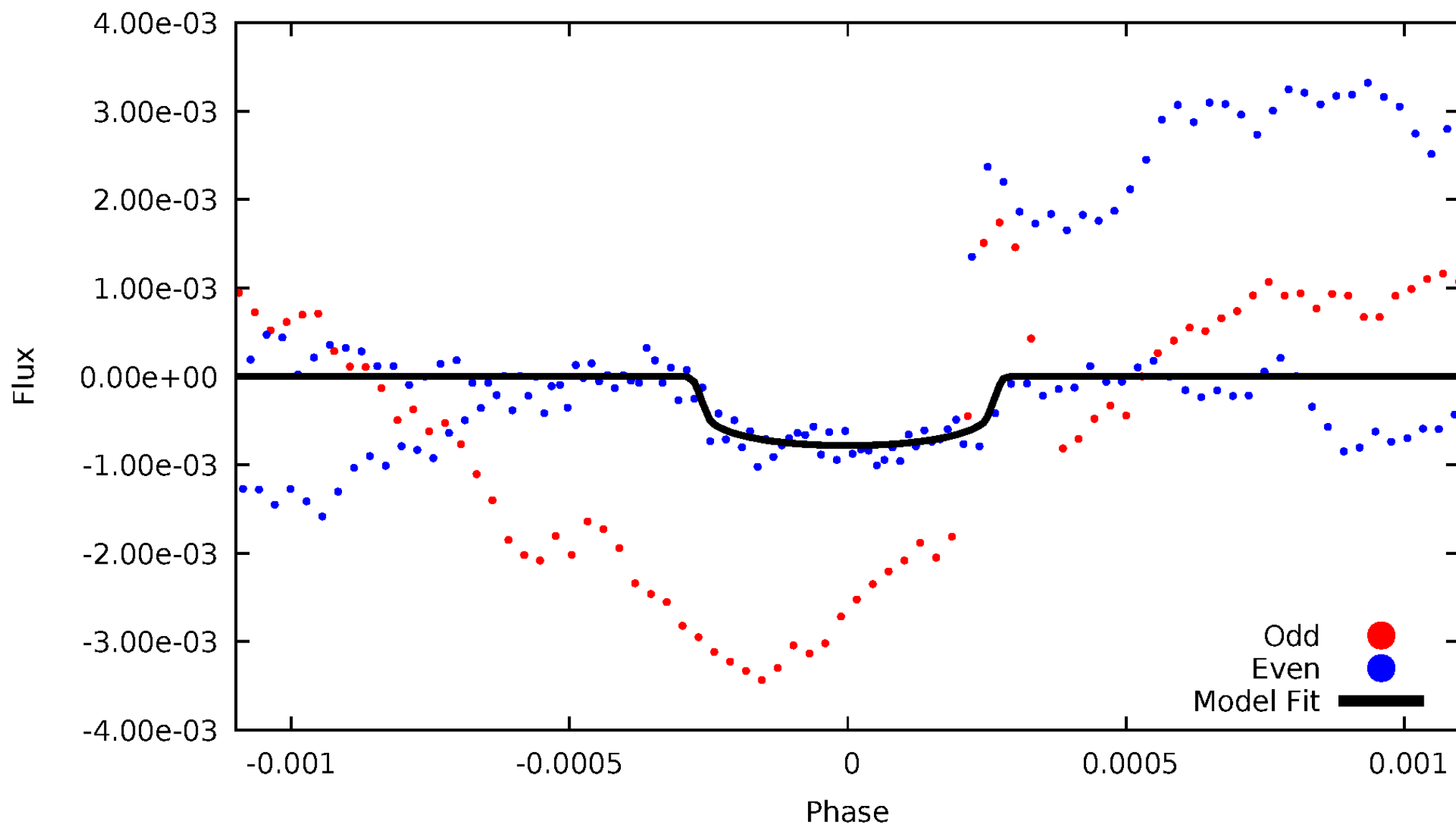


# TCE 005281818-01



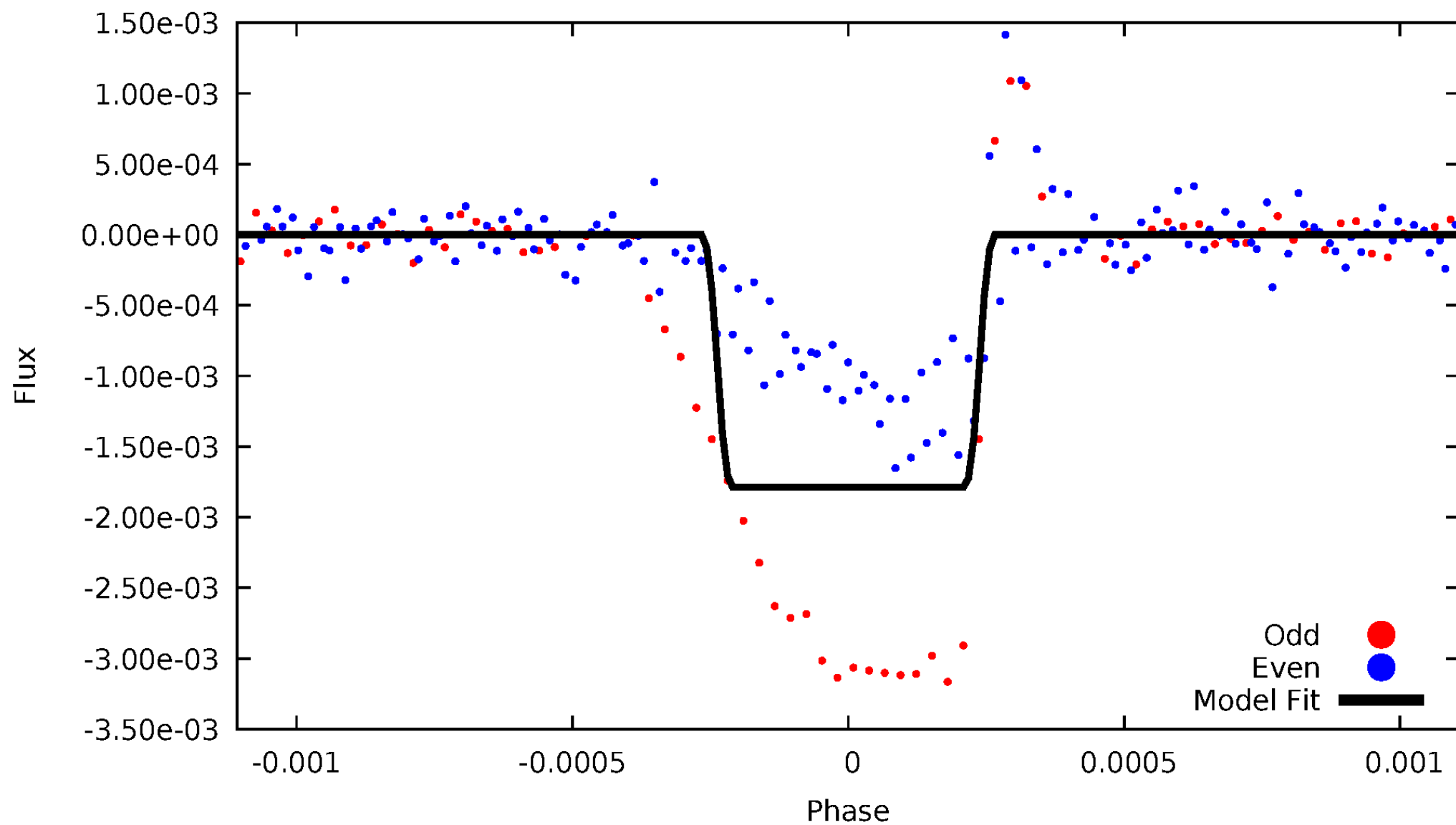
# DV Odd/Even

TCE 005281818-01



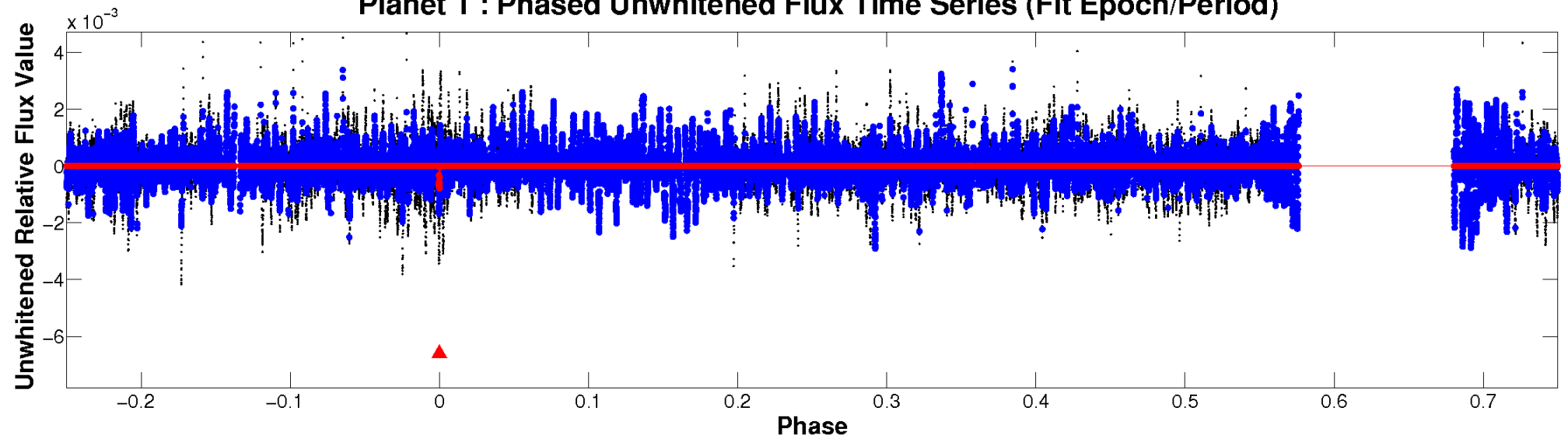
# ALT Odd/Even

TCE 005281818-01

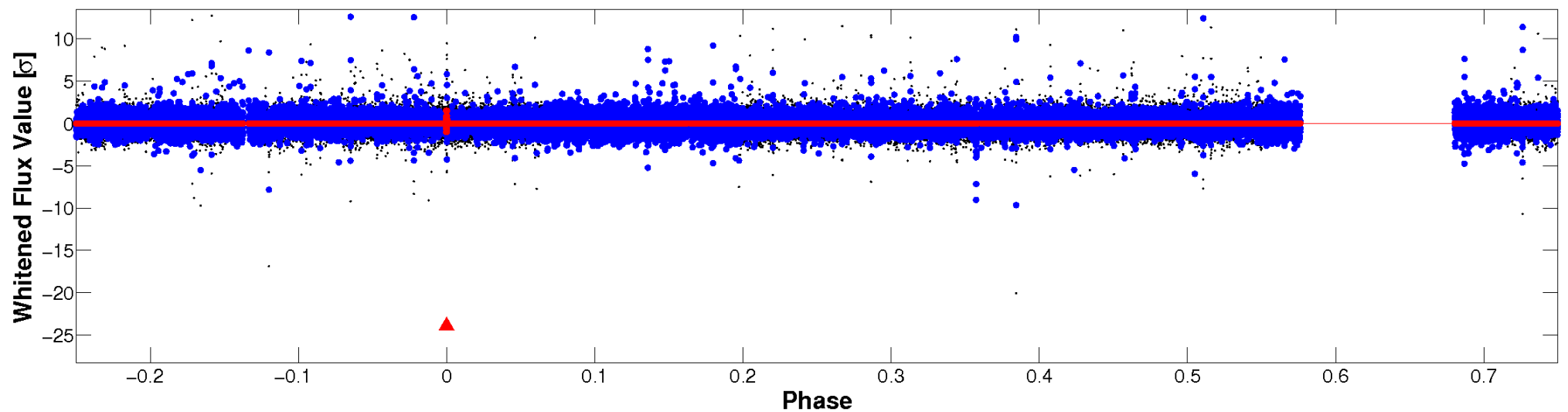


# Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

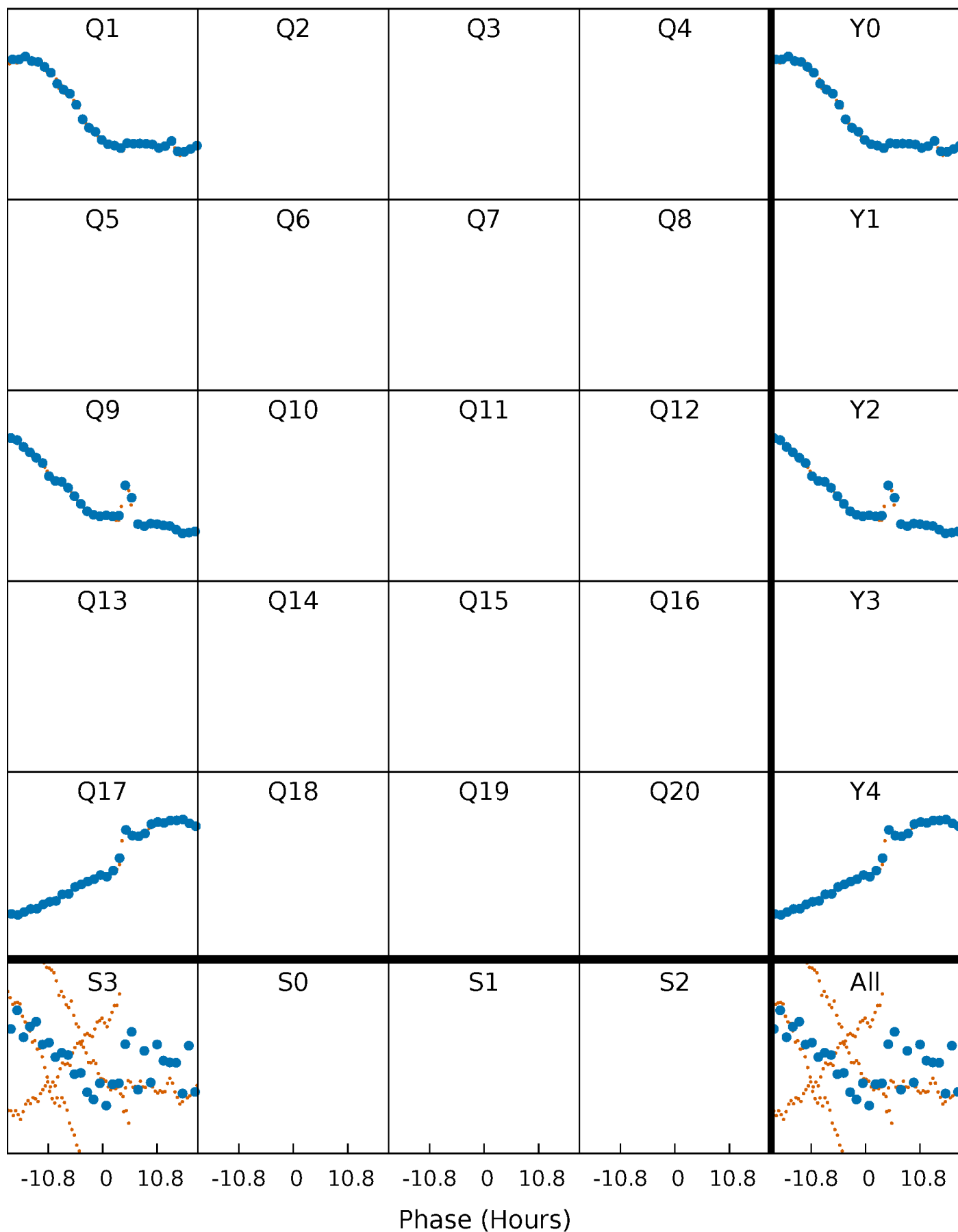


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



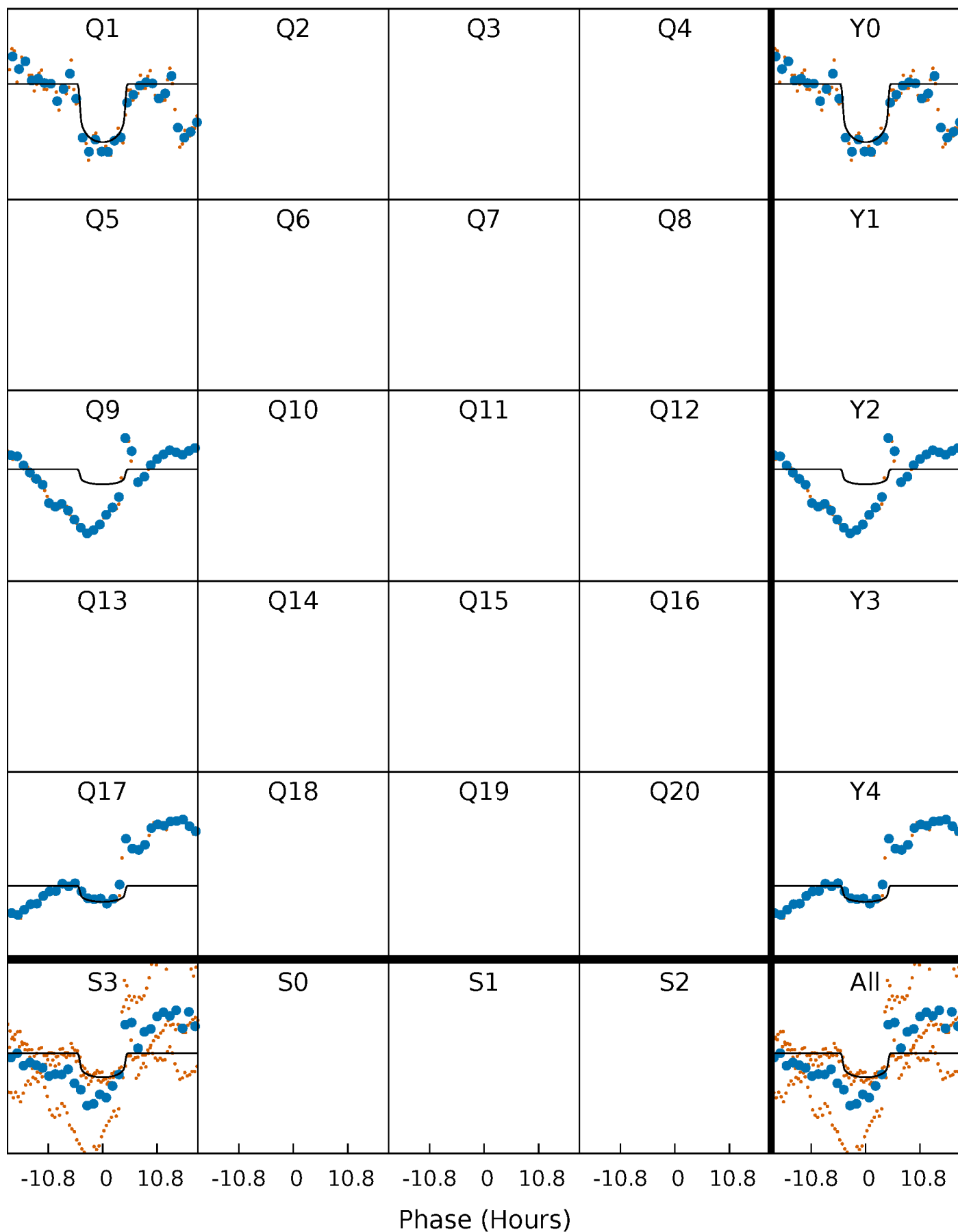
# PDC Quarter-Phased Transit Curves

TCE 005281818-01 P=717.560124 Days  $T_0=142.050197$  (BKJD)



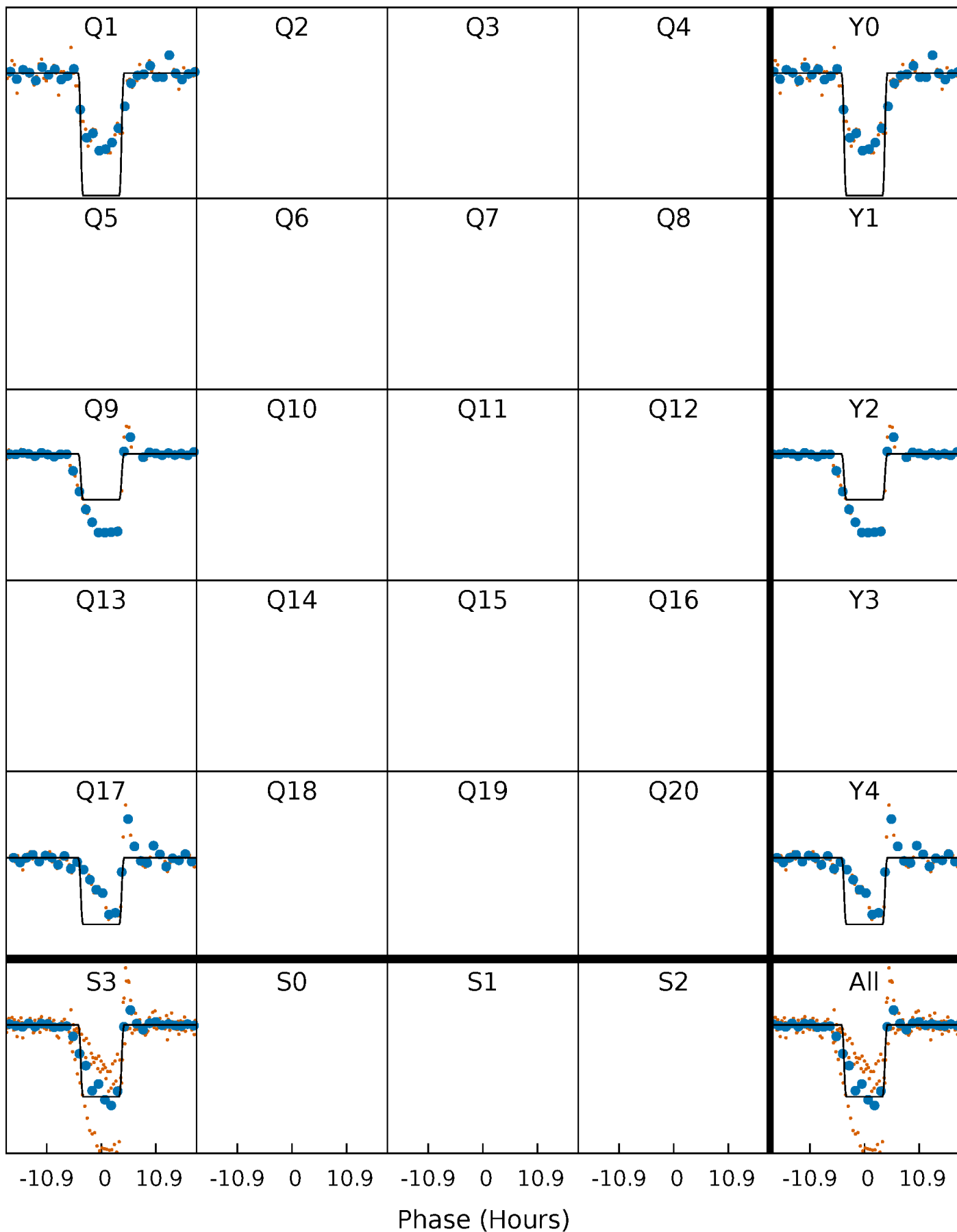
# DV Quarter-Phased Transit Curves

TCE 005281818-01 P=717.560124 Days  $T_0=142.050197$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

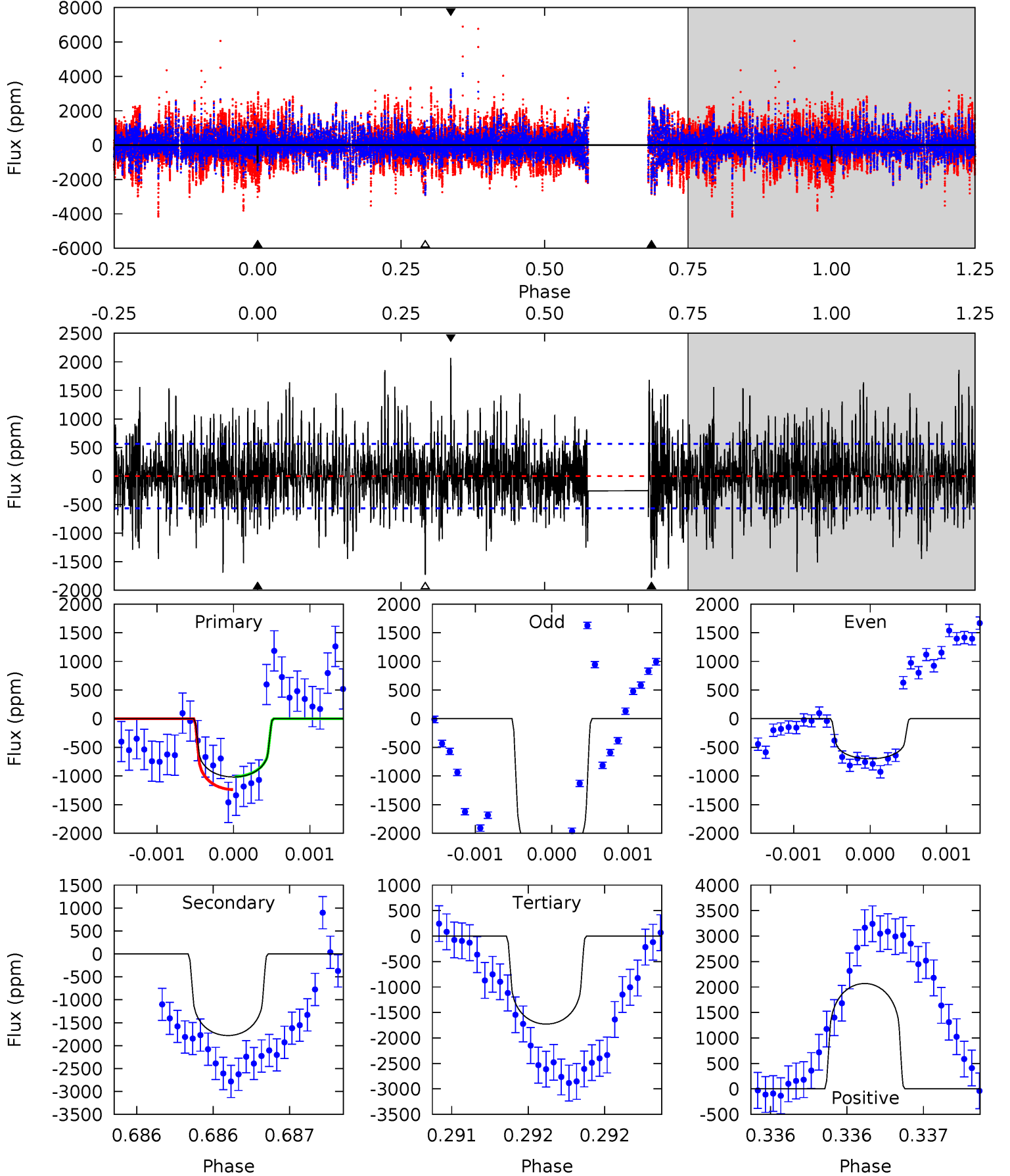
TCE 005281818-01 P=717.551704 Days  $T_0=142.043397$  (BKJD)



# DV Model-Shift Uniqueness Test

005281818-01, P = 717.560124 Days, E = 142.050197 Days

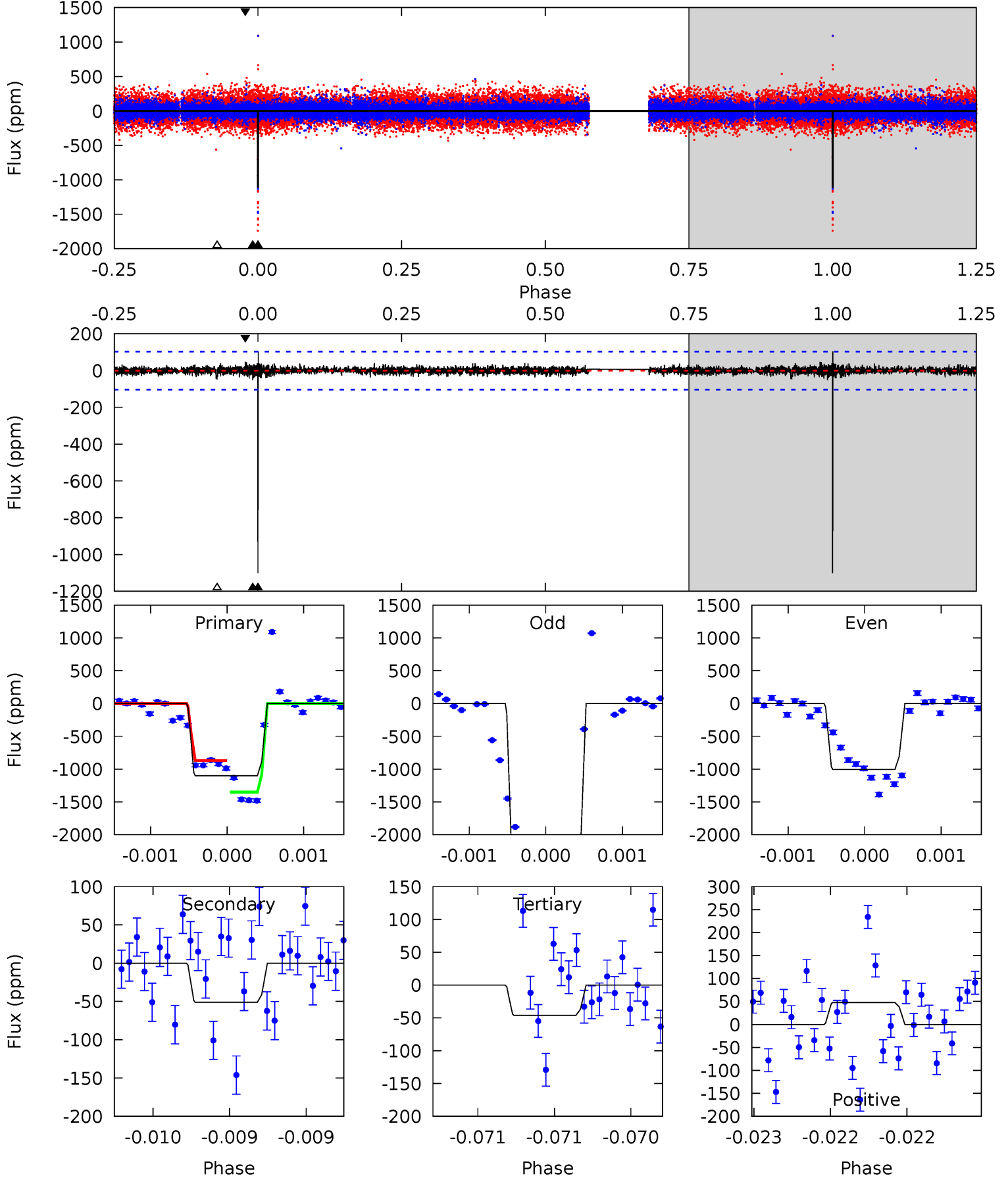
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	17.5	17.0	20.4	5.55	3.45	4.53	-6.99	-10.3	0.51	-2.84	9.58	1.50	0.54	1.11



# Alt Model-Shift Uniqueness Test

005281818-01, P = 717.551704 Days, E = 142.043397 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
59.5	2.76	2.48	2.58	5.57	3.48	0.52	57.0	56.9	0.28	0.18	62.7	1.58	0.09	12.6



### Stellar Parameters For KIC 005281818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5812^{+78}_{-78}$	$3.486^{+0.273}_{-0.126}$	$0.040^{+0.200}_{-0.150}$	$3.936^{+0.911}_{-1.418}$	$1.733^{+0.161}_{-0.375}$	$0.040^{+0.083}_{-0.015}$
	+1%/-1%	+8%/-4%	+500%/-375%	+23%/-36%	+9%/-22%	+208%/-38%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005281818-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-1780 $\pm$ 102	$10.64^{+3.95}_{-3.36}$	$513^{+30}_{-41}$	$7459^{+1924}_{-1029}$	$30647^{+34531}_{-14335}$
Alt.	-51 $\pm$ 19	$17.14^{+4.69}_{-4.15}$	$513^{+31}_{-44}$	$3028^{+253}_{-216}$	$321^{+285}_{-143}$

$T_{\text{max}}$  = 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

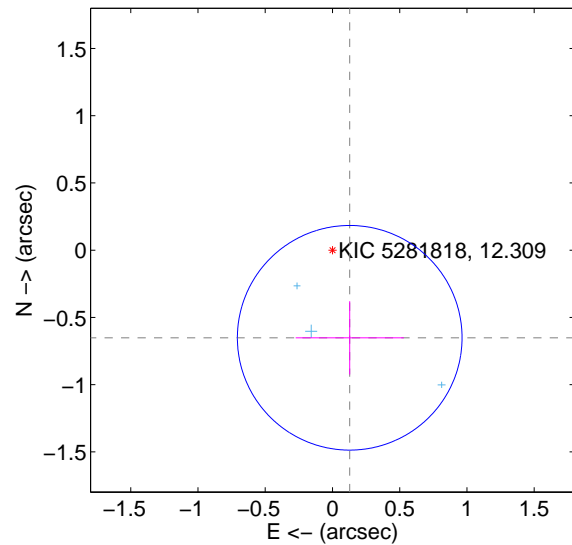
Supplemental centroid analysis for 005281818-01. Kepler magnitude: 12.31. Transit SNR 5.60

There are 3 quarters with good PRF difference image offsets

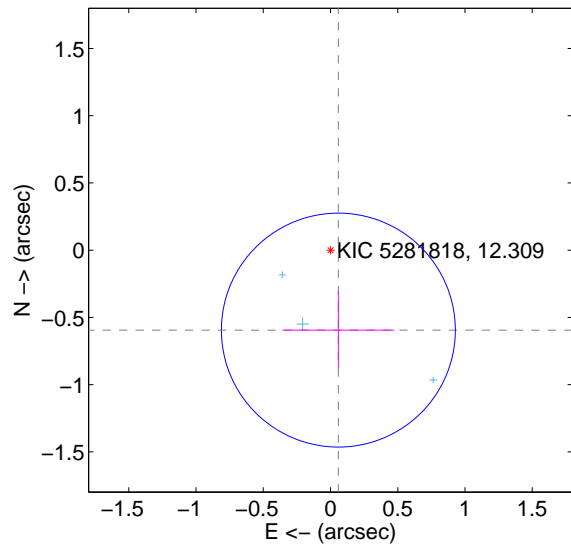
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.664 \pm 0.278$	2.39	$-0.128 \pm 0.402$	$-0.651 \pm 0.272$
PRF-fit source offset from KIC position	$0.597 \pm 0.290$	2.06	$-0.058 \pm 0.415$	$-0.594 \pm 0.288$
photometric centroid source offset	$0.30 \pm 0.24$	1.23	$0.24 \pm 0.26$	$0.17 \pm 0.20$

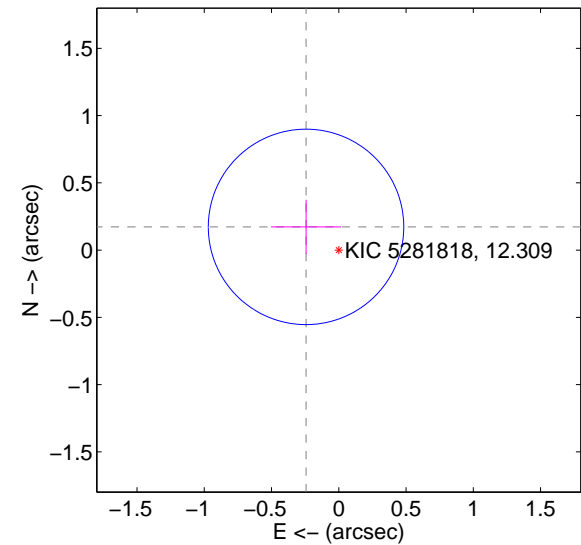
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

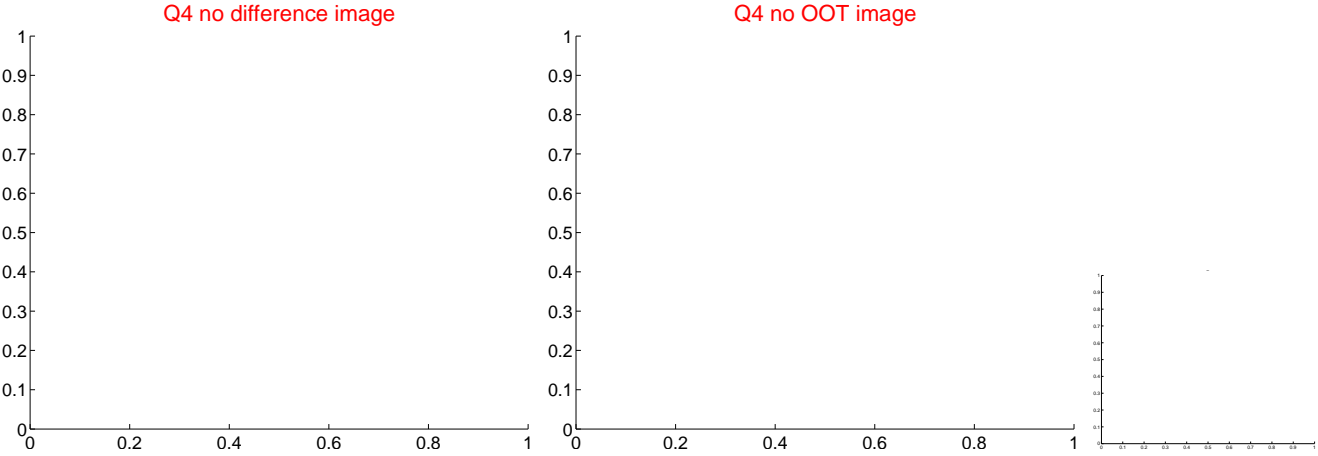
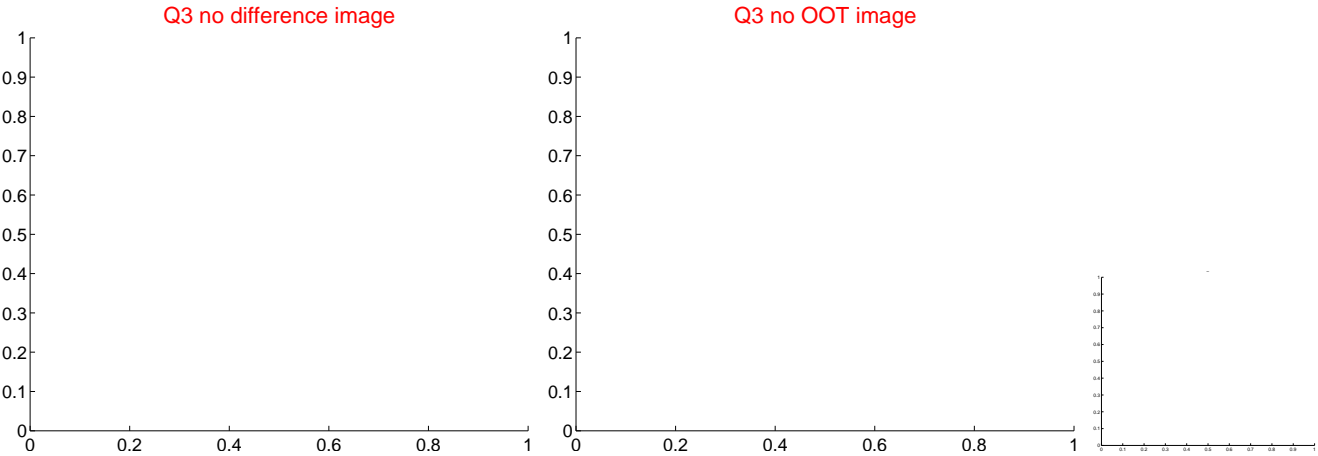
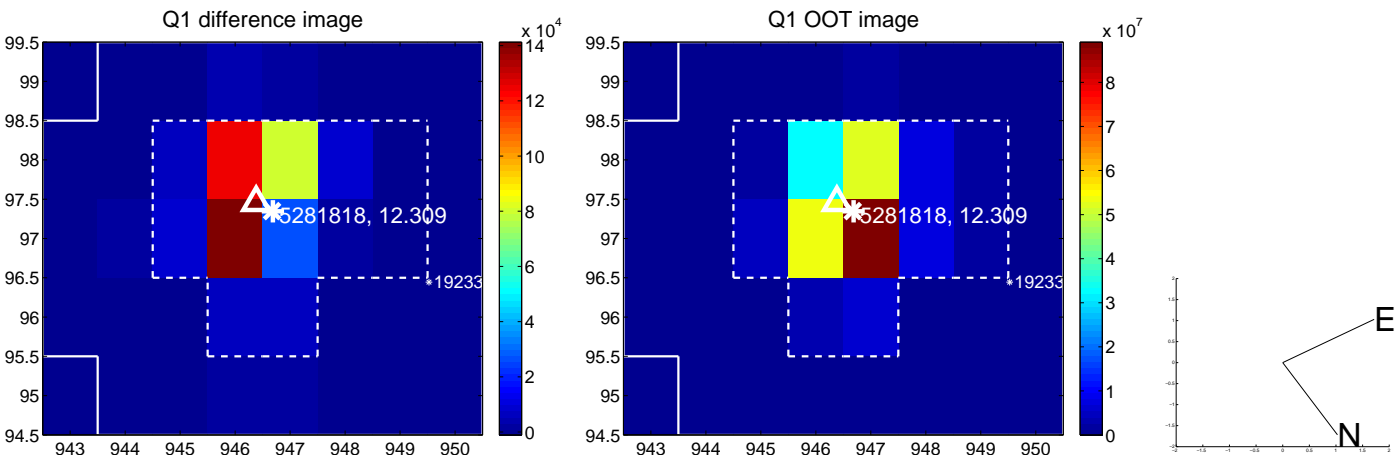


offset from photometric centroids



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.

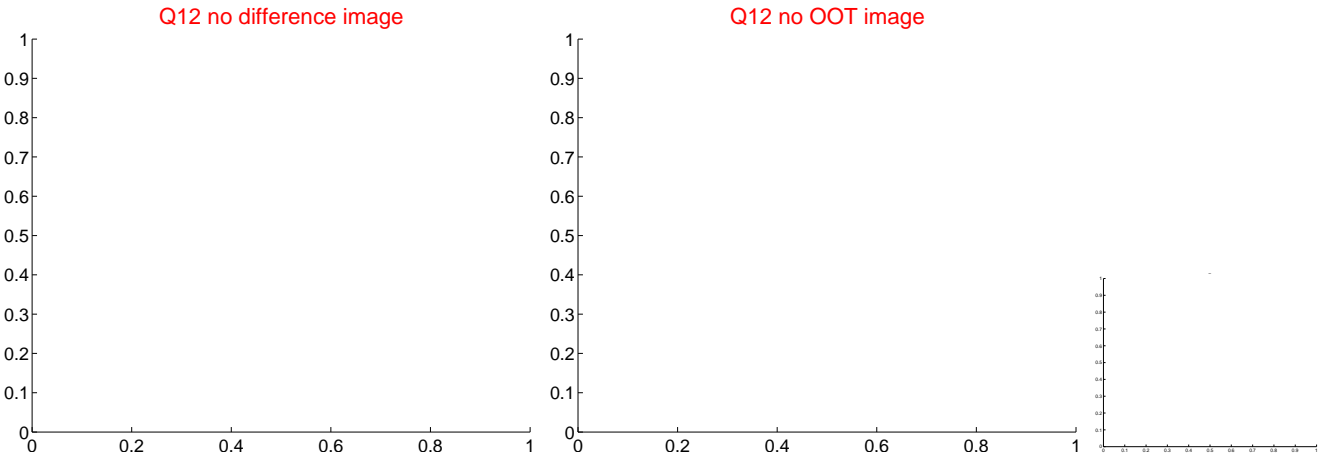
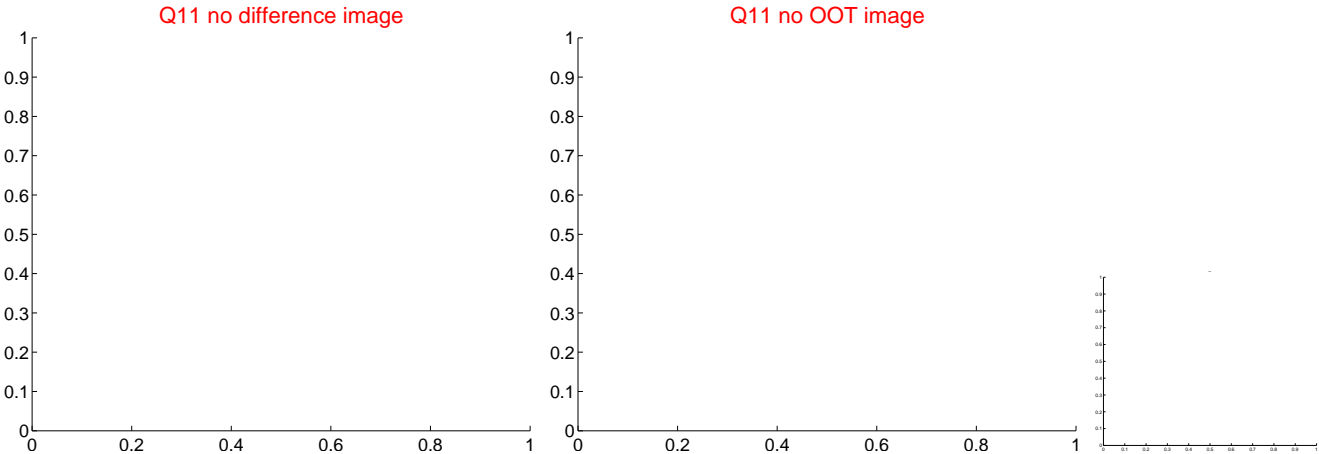
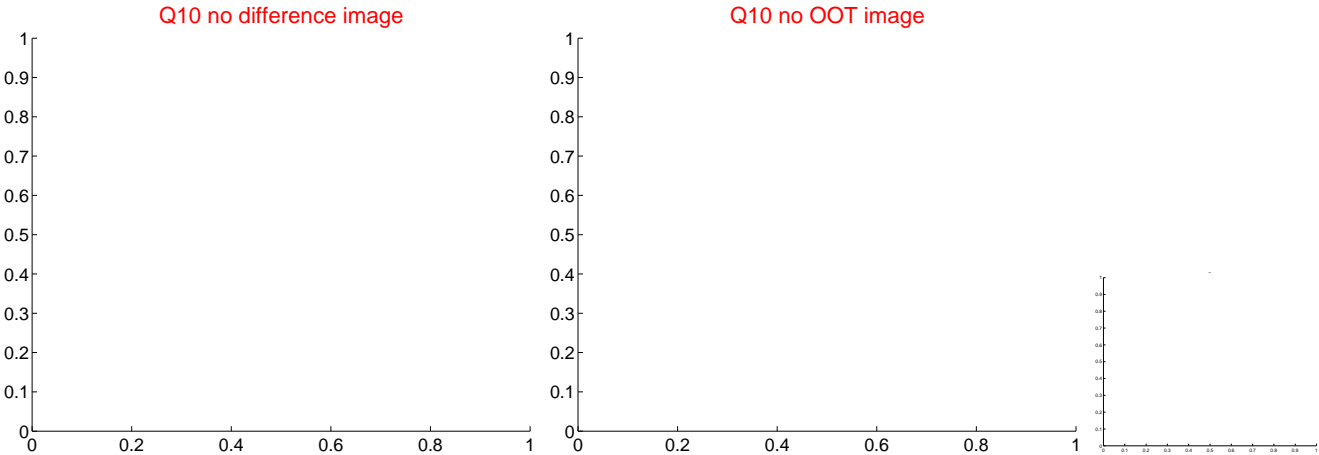
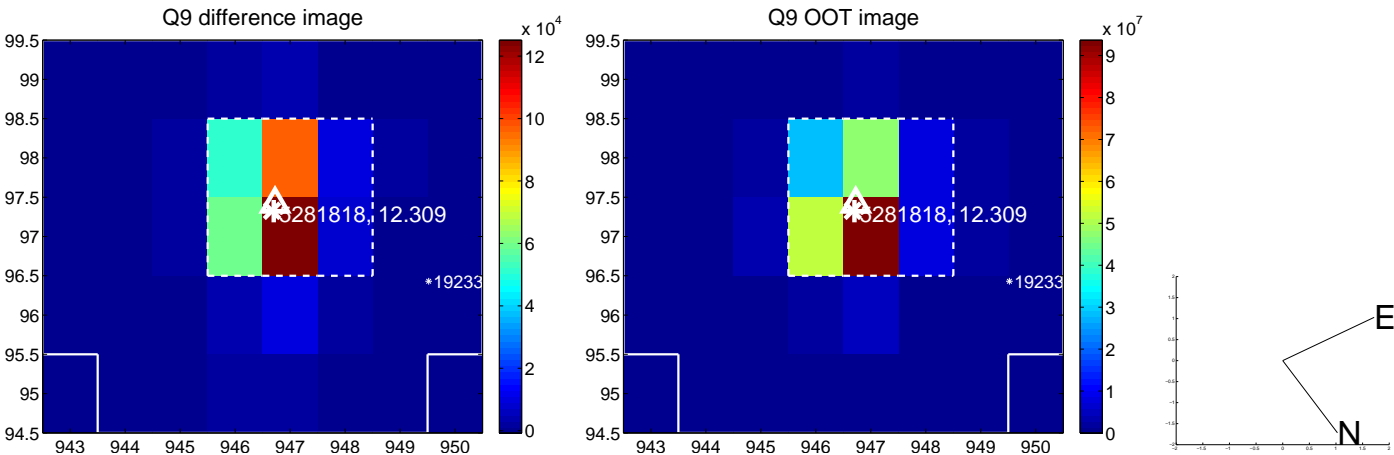
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



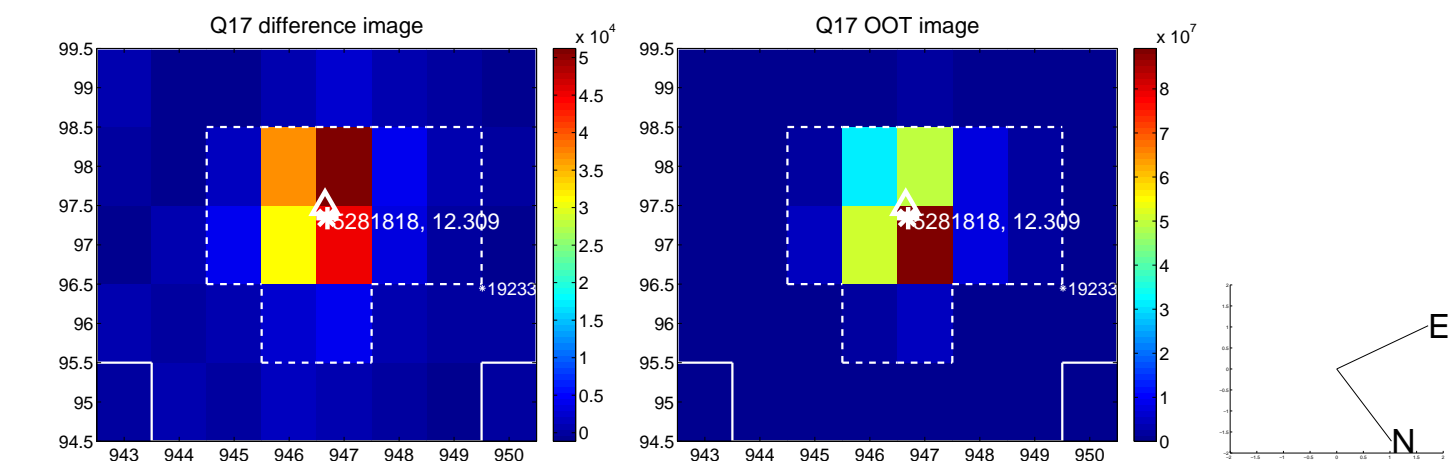
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



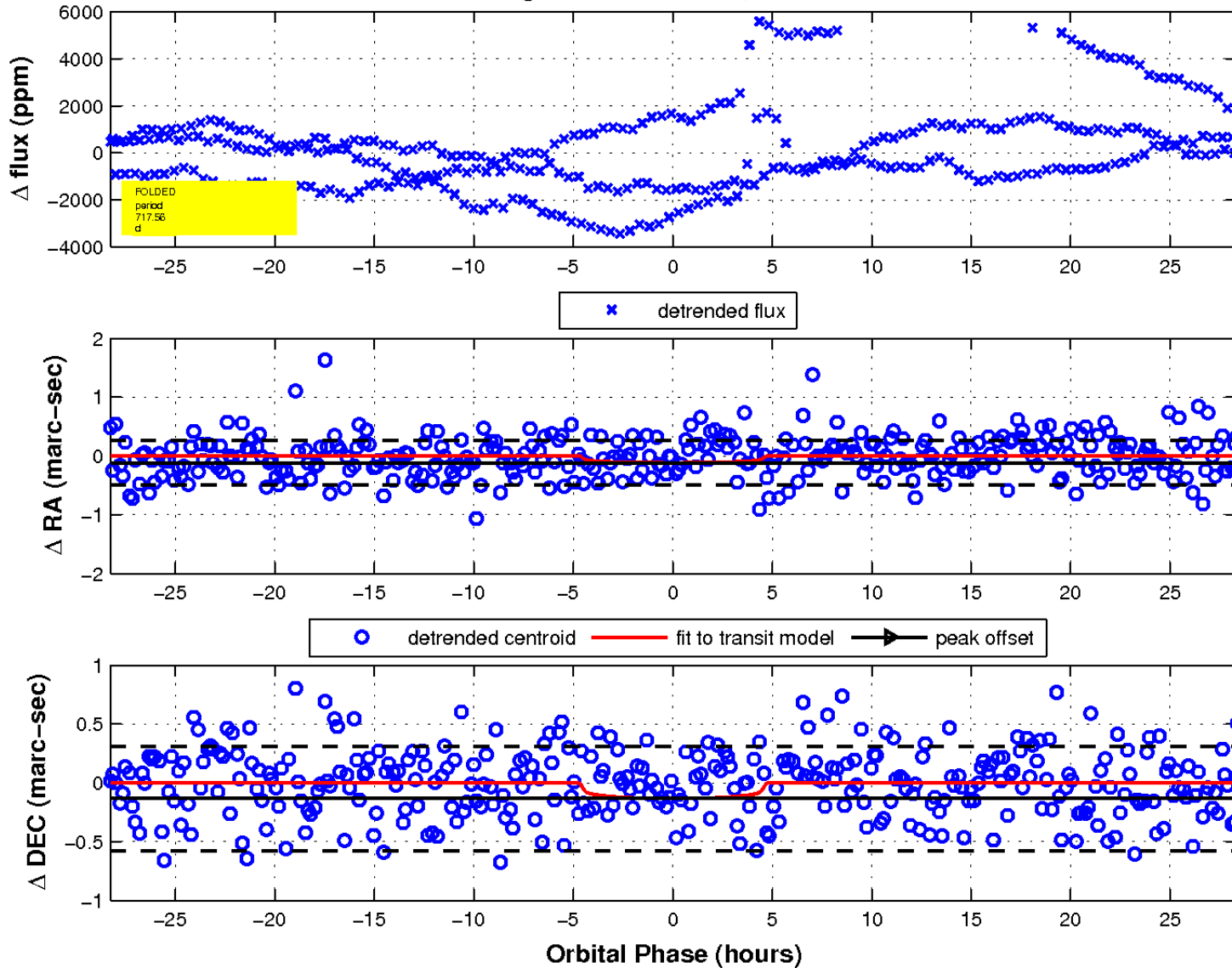
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

