

# KIC 007820035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007820035-01	OBS	No	492.406806	145.252049	177.0	8.197	10.4	5.7	12.34	6306	18.39	69.33

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007820035-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS— HALO_GHOST

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

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

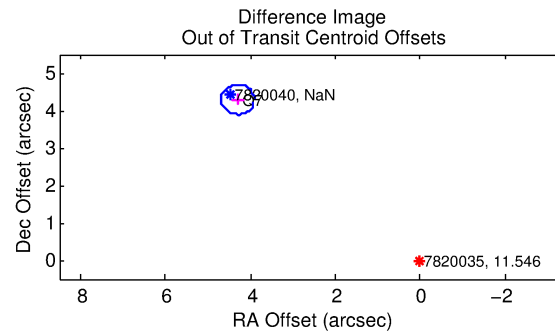
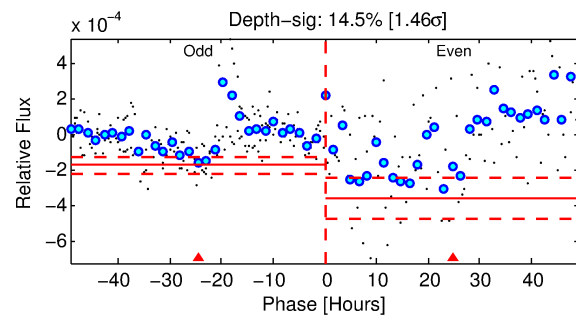
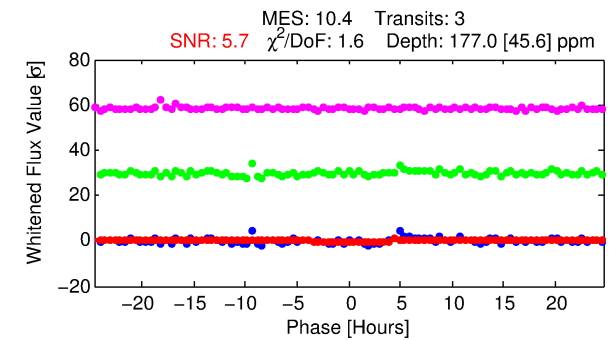
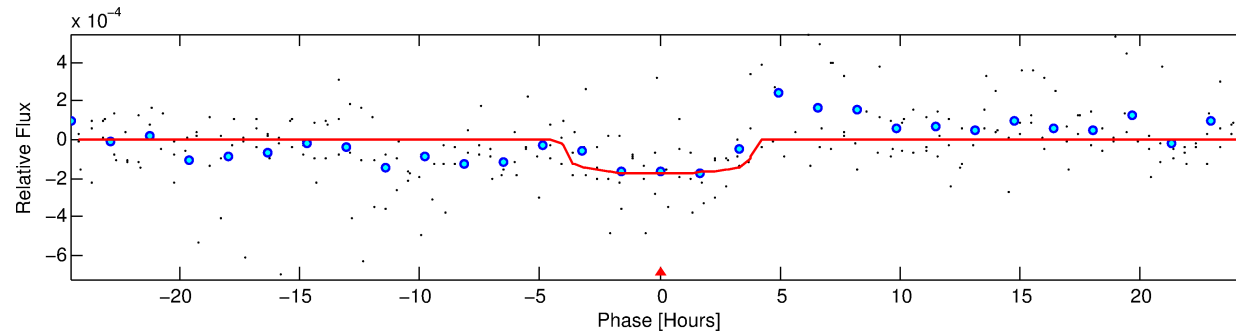
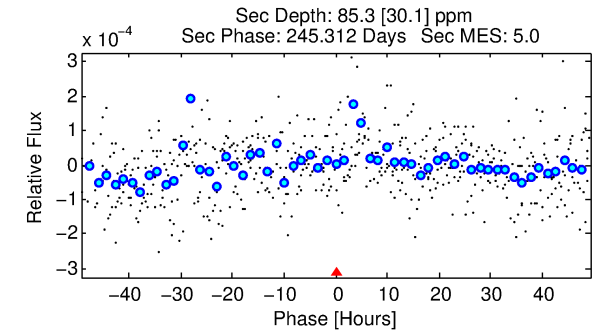
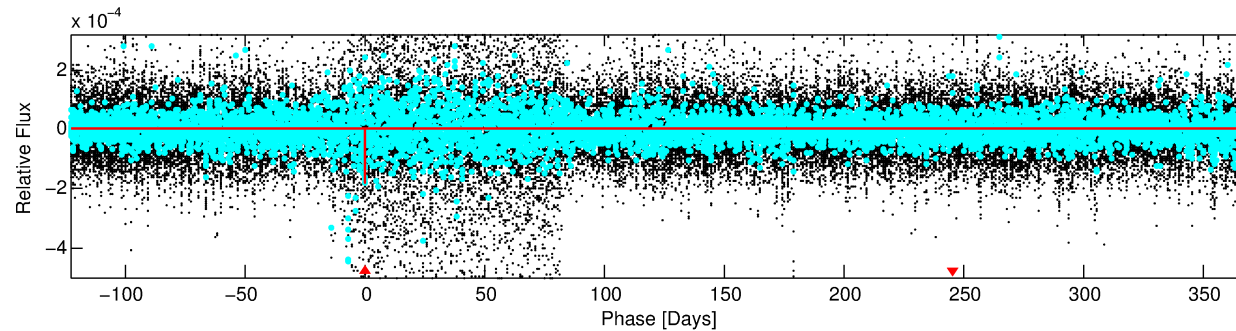
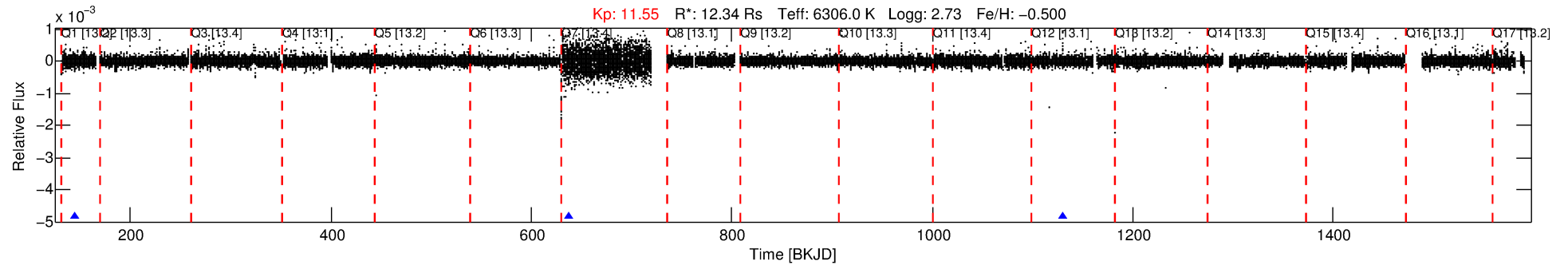
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007820035-01

No Significant Match Found

# DV One-Page Summary

KIC: 7820035 Candidate: 1 of 1 Period: 492.407 d



## DV Fit Results:

Period = 492.40681 [0.01167] d  
Epoch = 145.2520 [0.0167] BKJD  
Rp/R\* = 0.0137 [0.0047]  
a/R\* = 265.27 [439.40]  
b = 0.83 [0.61]  
Seff = 69.33 [62.06]  
Teq = 736 [165] K  
Rp = 18.39 [12.17] Re  
a = 1.7634 [0.9662] AU  
Ag = 431.20 [504.98] [0.85σ]  
Teff = 5184 [1024] K [4.29σ]

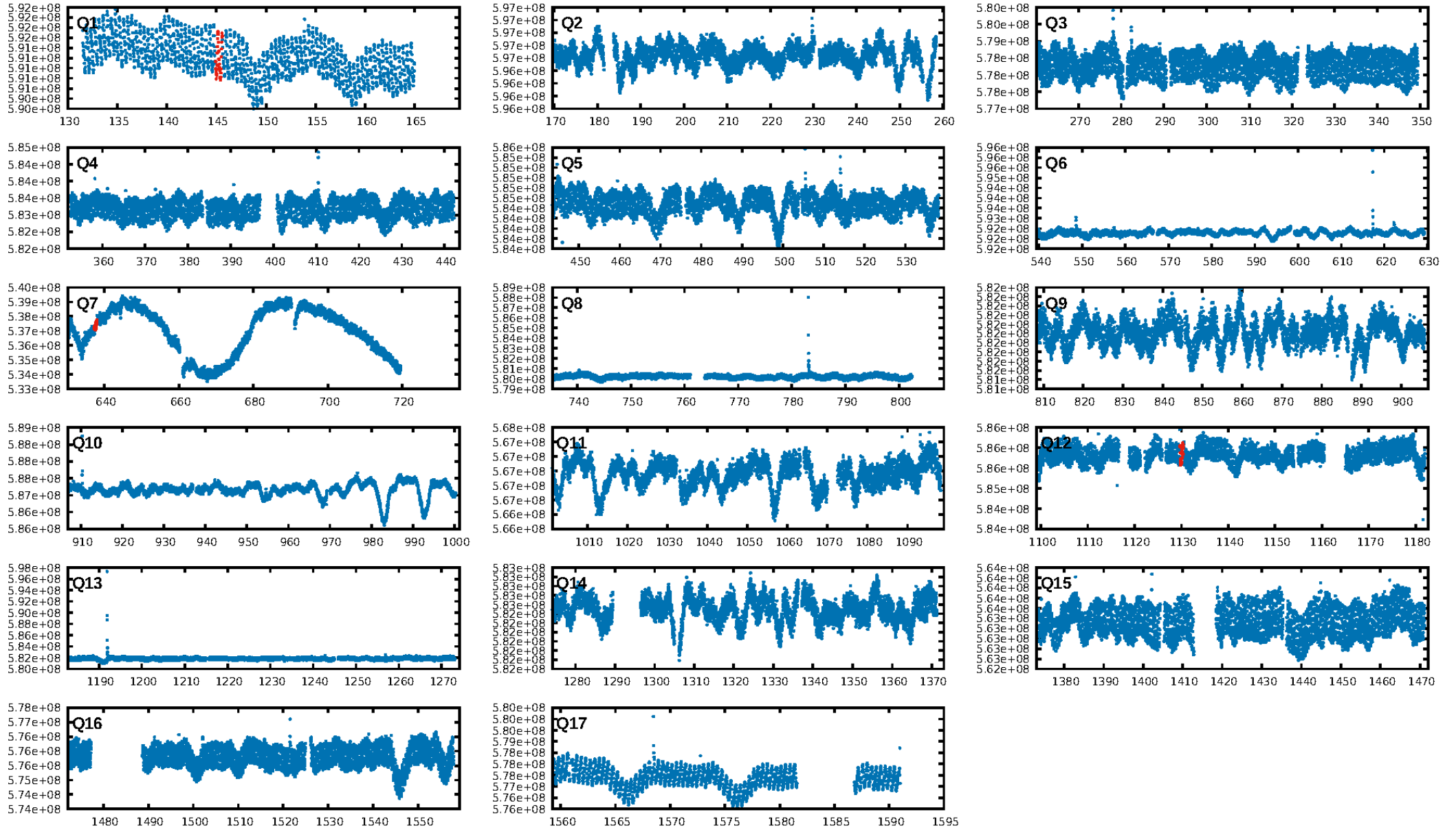
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 7.3%  
ModelChiSquareGof-sig: 48.4%  
Bootstrap-pfa: 2.26e-13  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -0.07124  
Centroid-sig: 1.4%  
Centroid-so: 6.870 arcsec [2.44σ]  
OotOffset-rm: 6.075 arcsec [46.05σ]  
KicOffset-rm: 6.359 arcsec [48.16σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

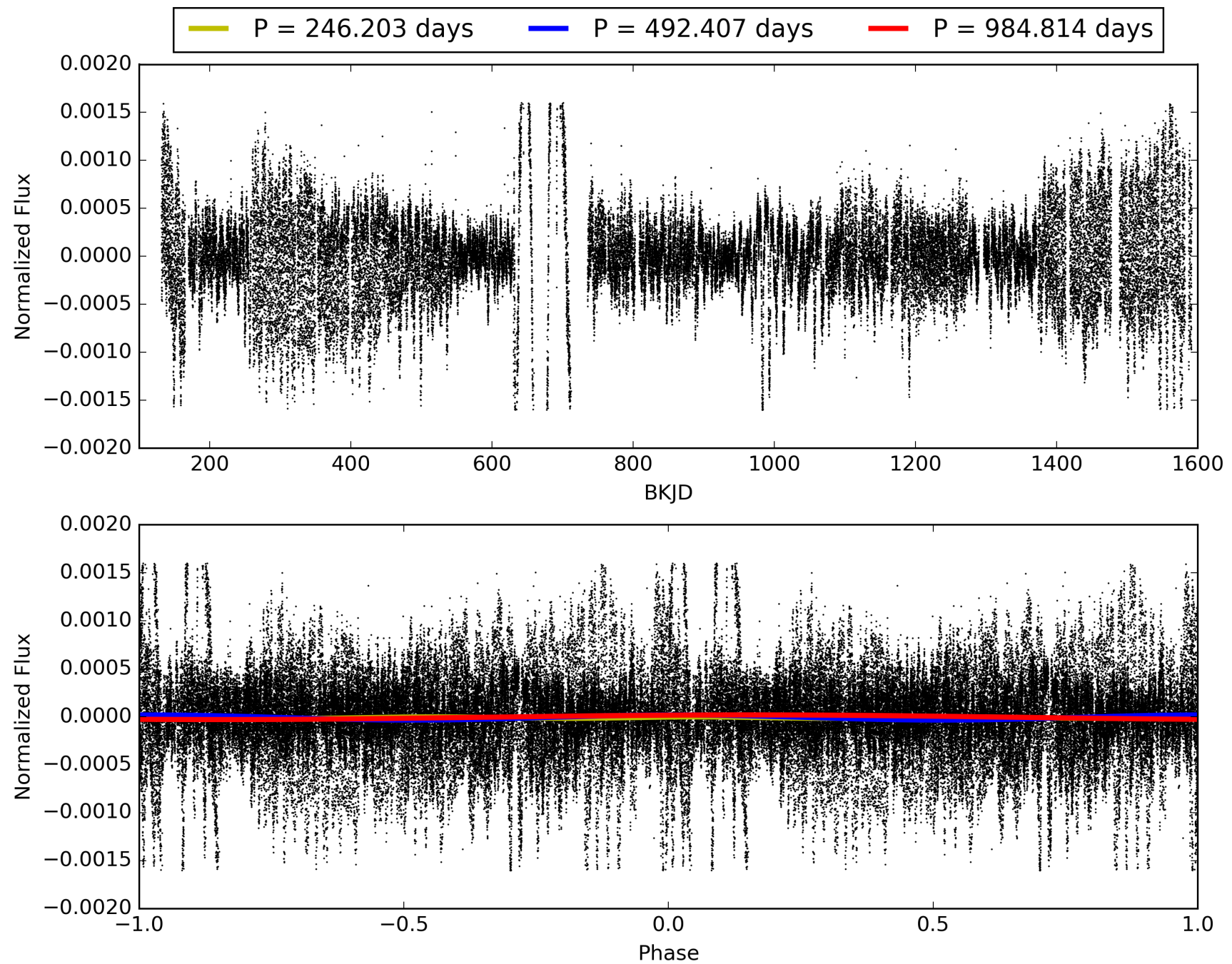
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:36:59 Z

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

# TCE 007820035-01, PDC Light Curves

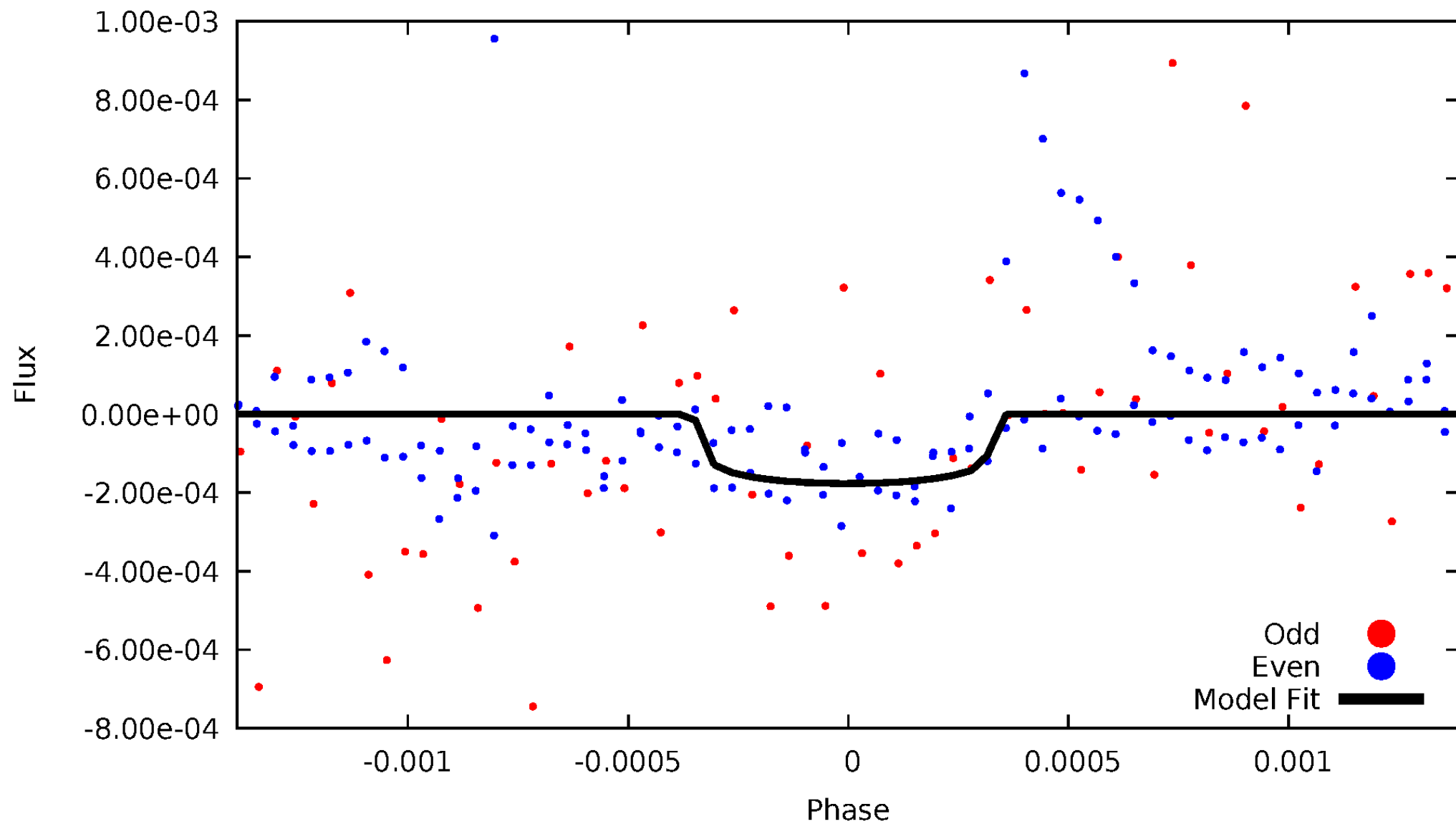


TCE 007820035-01



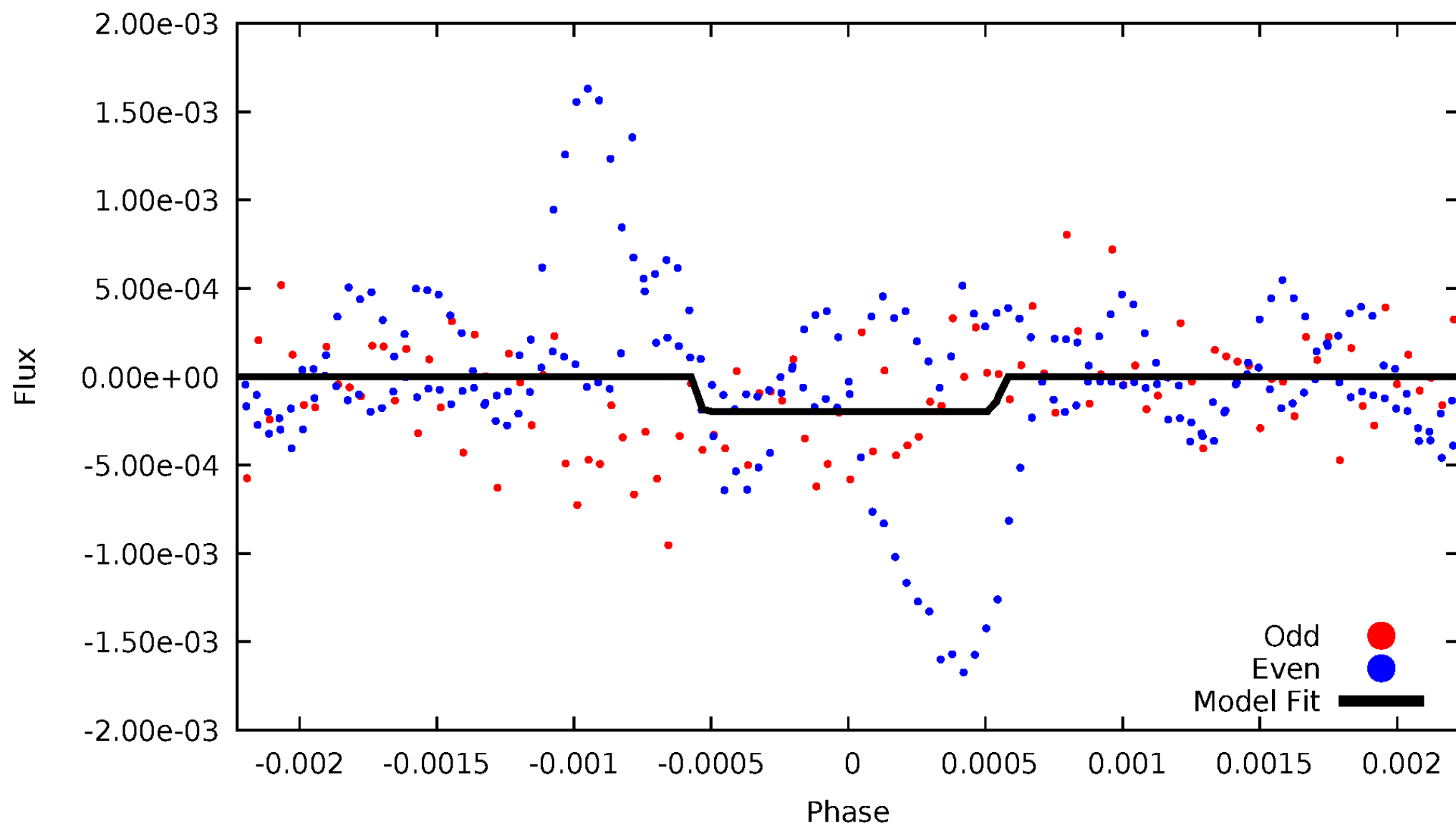
# DV Odd/Even

TCE 007820035-01



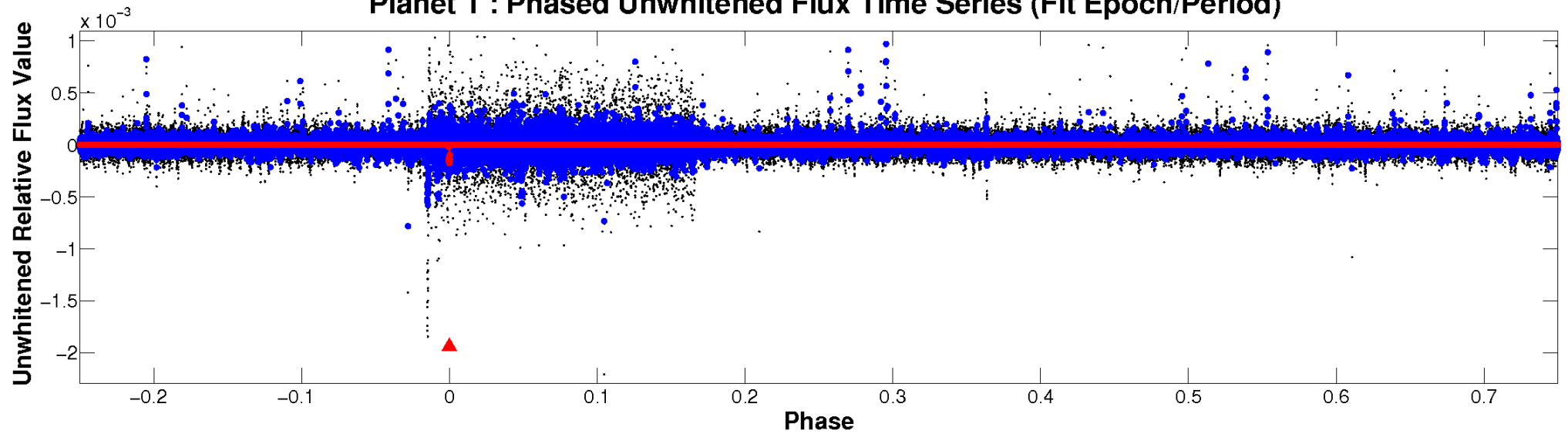
# ALT Odd/Even

TCE 007820035-01

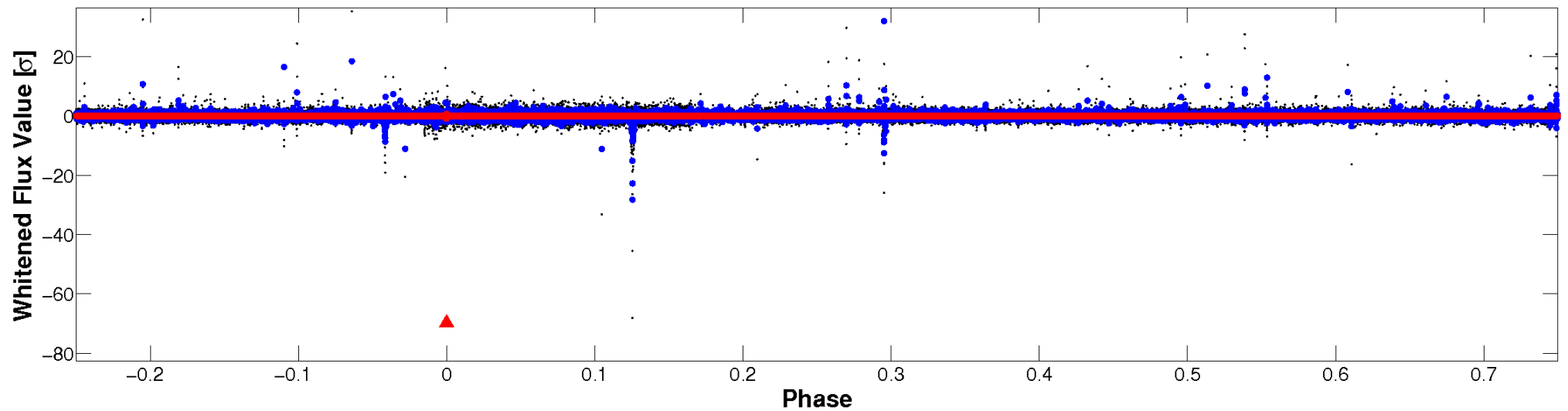


# Non-Whitened Vs. Whitened Light Curve

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

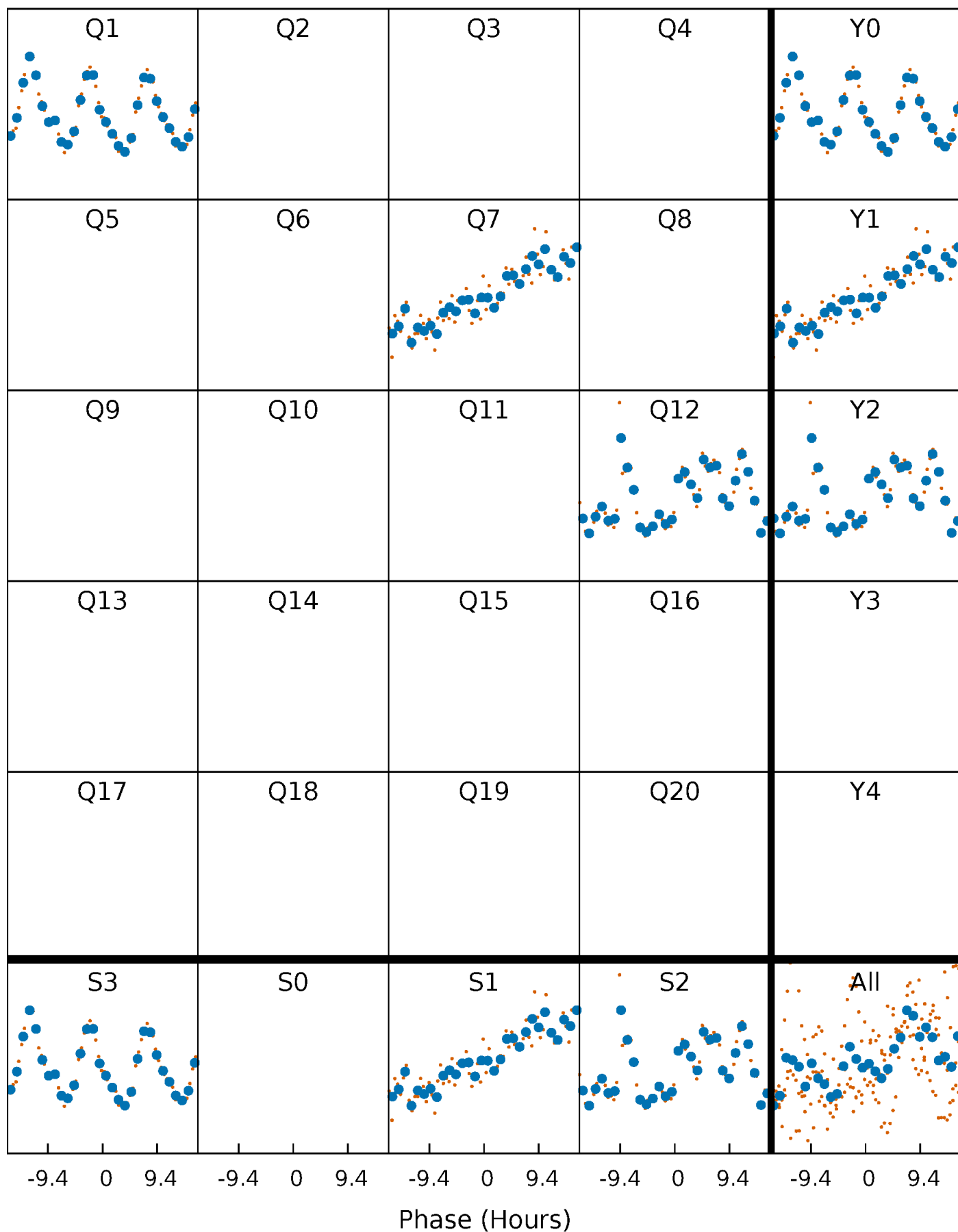


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

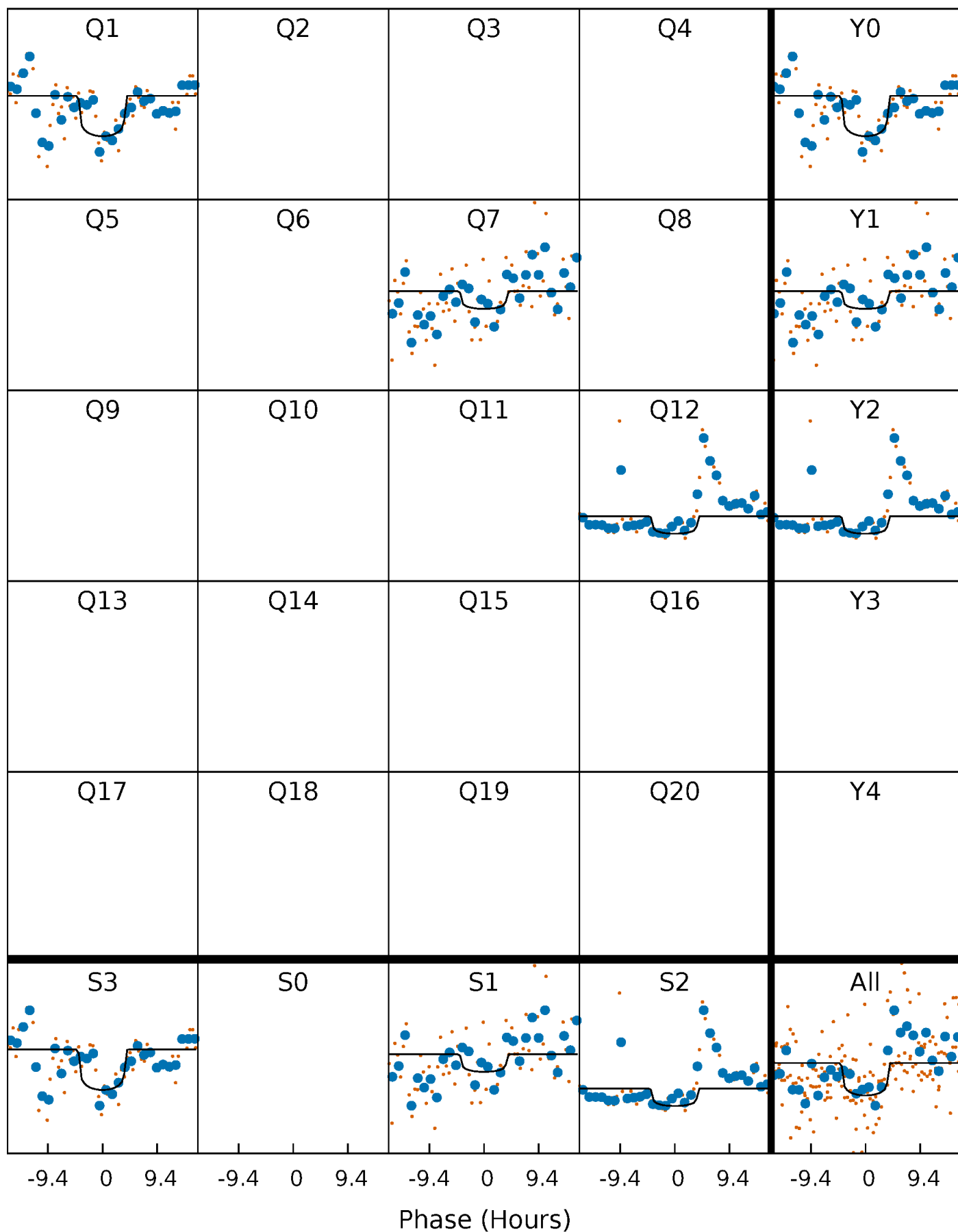
TCE 007820035-01 P=492.406806 Days  $T_0=145.252049$  (BKJD)





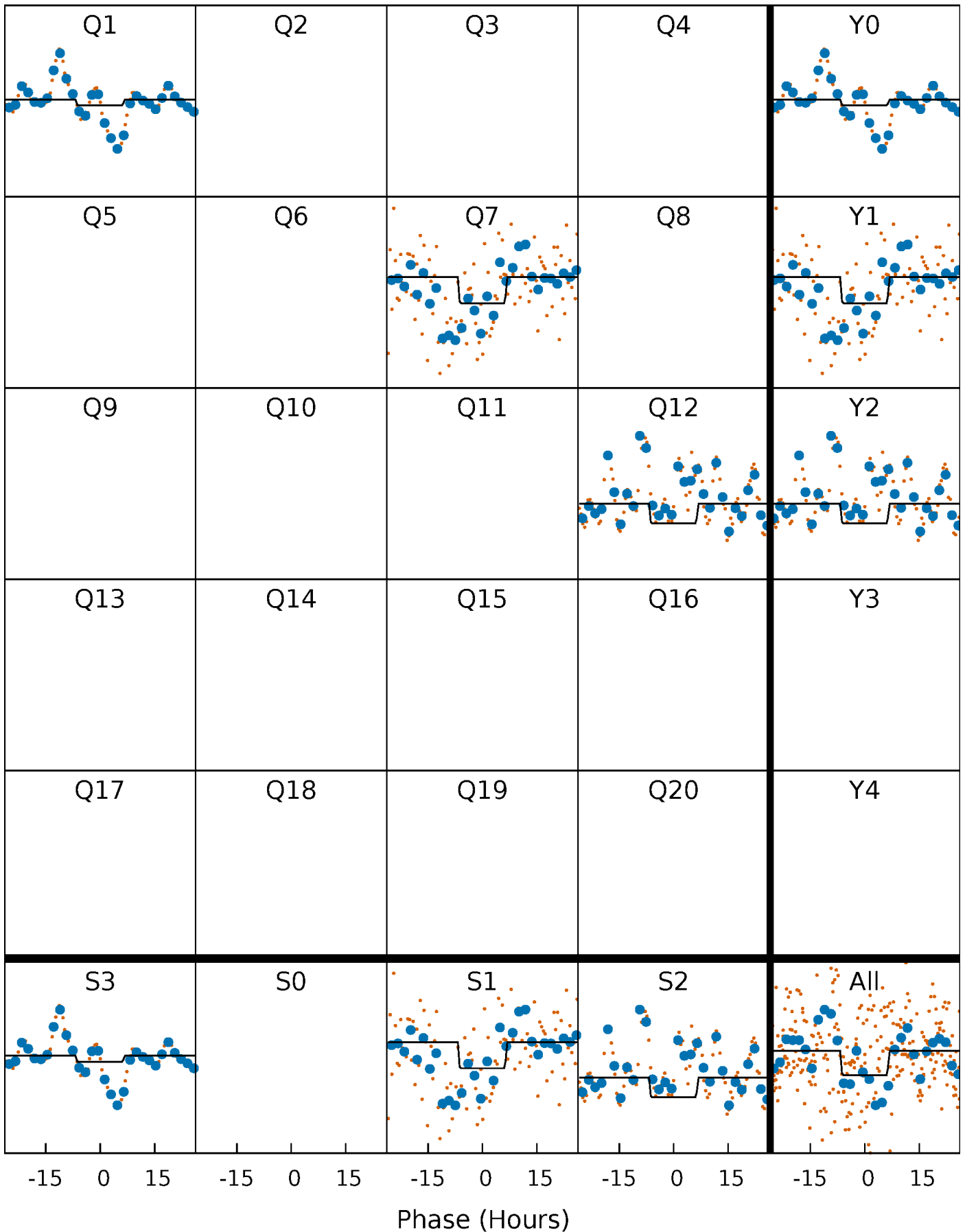
# DV Quarter-Phased Transit Curves

TCE 007820035-01 P=492.406806 Days  $T_0=145.252049$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

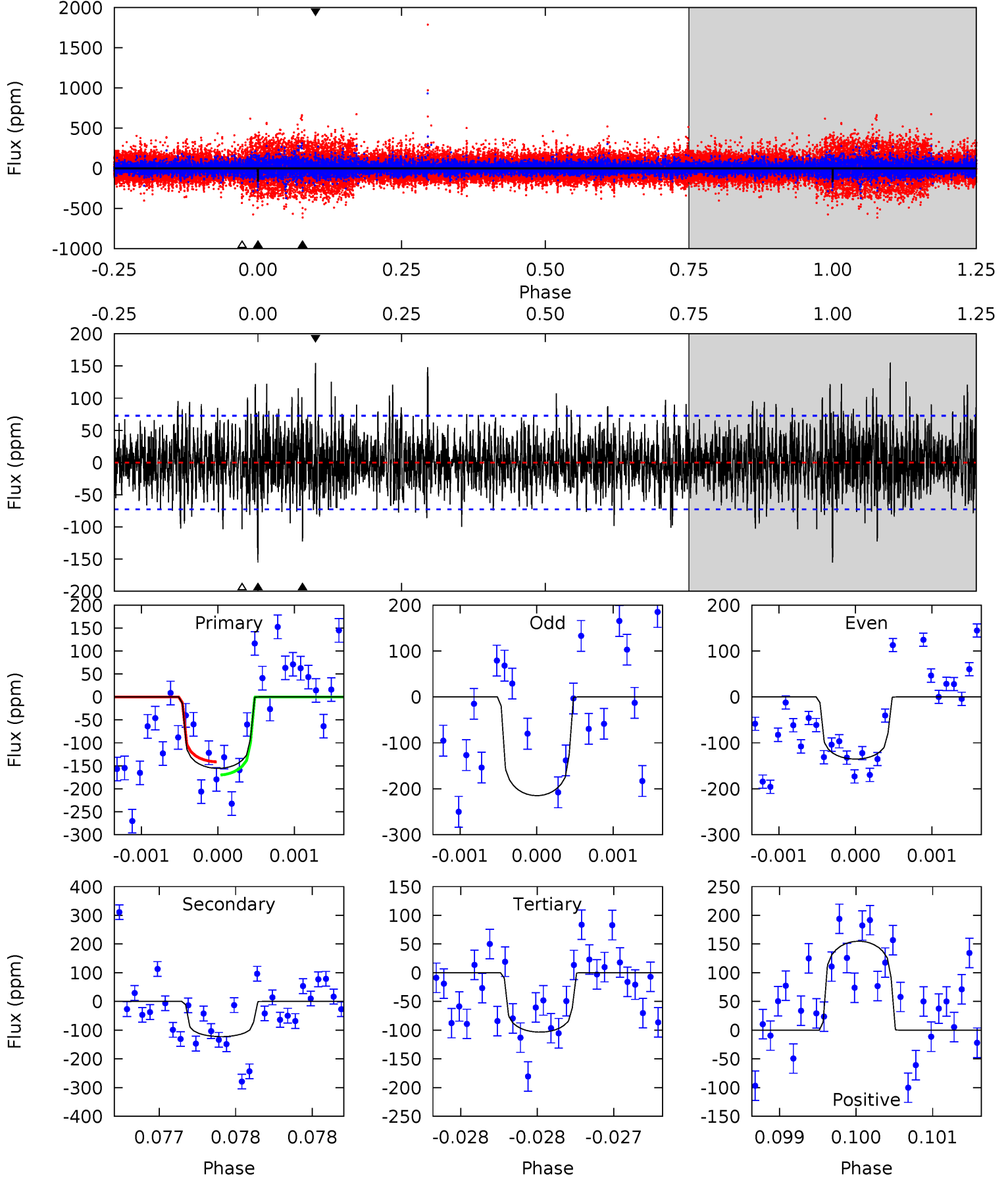
TCE 007820035-01 P=492.428362 Days  $T_0=145.201050$  (BKJD)



# DV Model-Shift Uniqueness Test

007820035-01, P = 492.406806 Days, E = 145.252049 Days

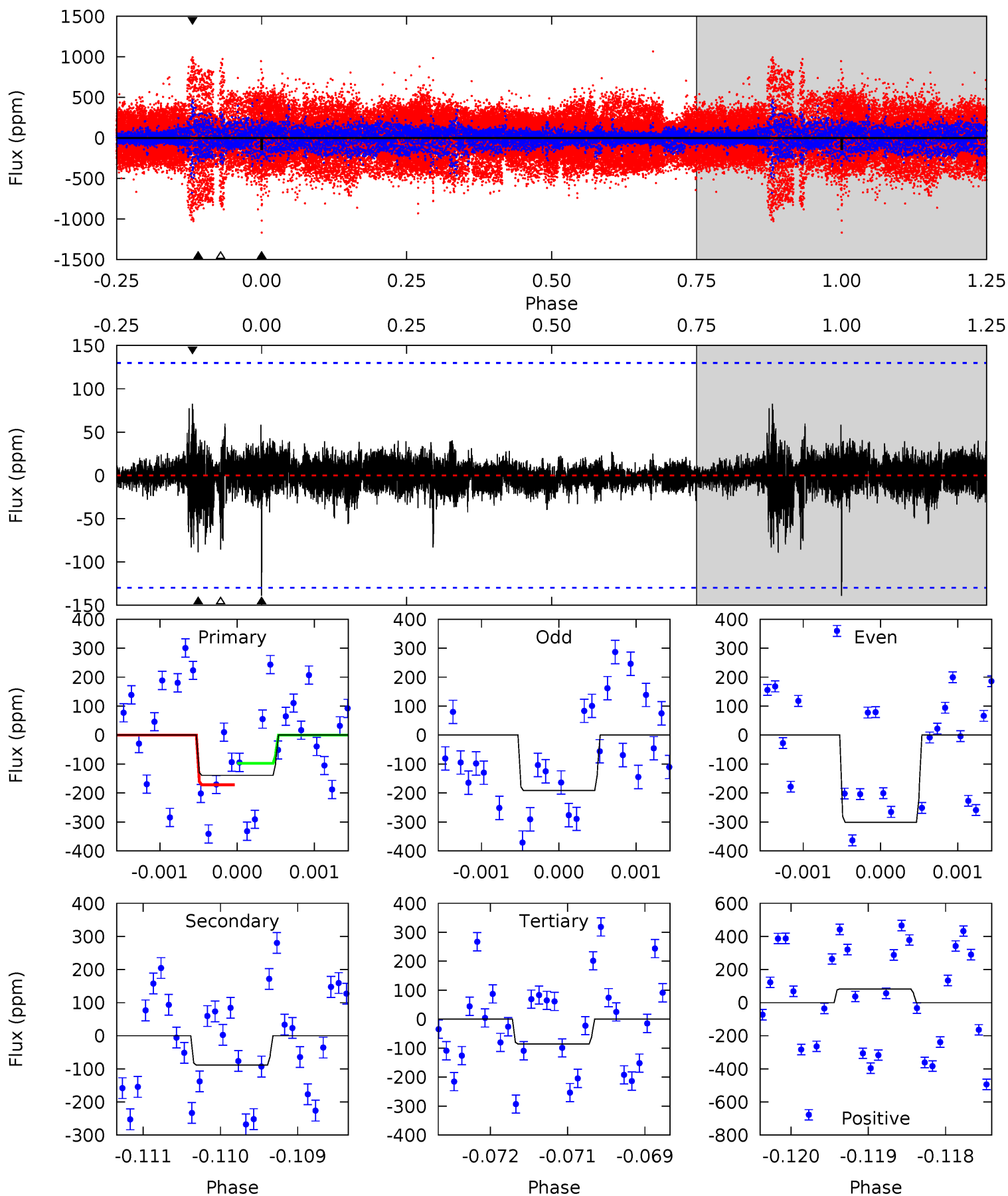
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	9.25	7.82	11.7	5.50	3.37	2.38	3.95	0.05	1.44	-2.46	2.03	1.05	0.50	0



# Alt Model-Shift Uniqueness Test

007820035-01, P = 492.428362 Days, E = 145.201050 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
5.82	3.72	3.58	3.46	5.44	3.27	0.57	2.23	2.36	0.13	0.25	2.15	1.36	0.37	1.56



### Stellar Parameters For KIC 007820035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6306^{+107}_{-258}$	$2.735^{+0.518}_{-0.222}$	$-0.500^{+0.300}_{-0.450}$	$12.335^{+1.744}_{-6.976}$	$3.011^{+0.203}_{-1.152}$	$0.002^{+0.018}_{-0.001}$
	+2%/-4%	+19%/-8%	+60%/-90%	+14%/-57%	+7%/-38%	+788%/-43%
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 007820035-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-122±13	$17.00^{+7.50}_{-6.91}$	$1025^{+66}_{-136}$	$5642^{+1483}_{-698}$	$690^{+1236}_{-362}$
Alt.	-89±24	$17.52^{+7.61}_{-6.76}$	$1024^{+69}_{-134}$	$5163^{+1131}_{-674}$	$455^{+777}_{-241}$

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

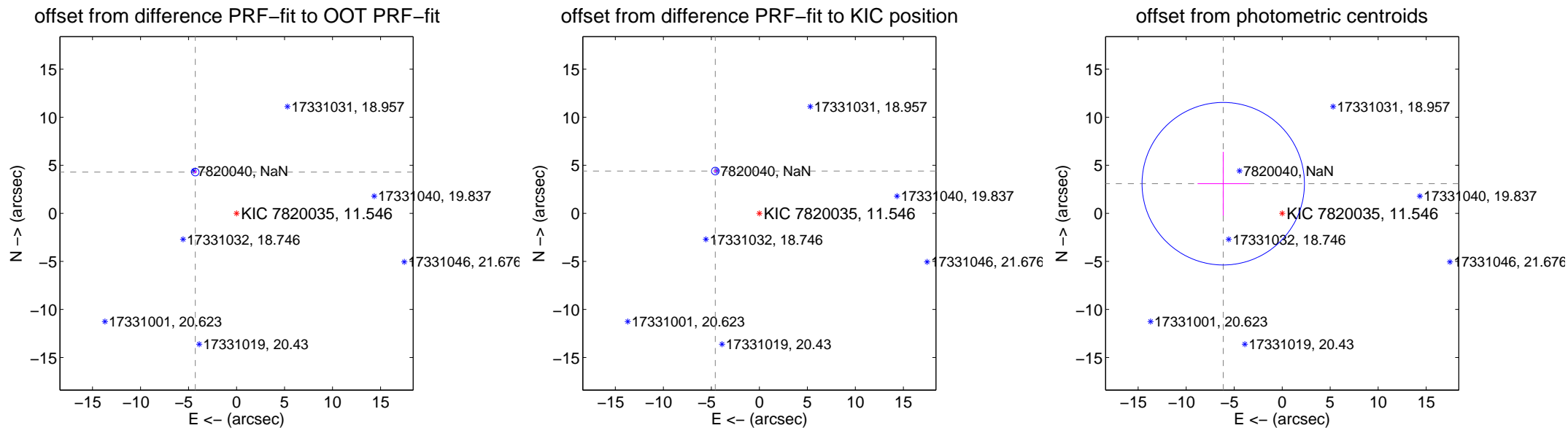
## DV Centroid Data

Supplemental centroid analysis for 007820035-01. **Kepler magnitude: 11.55.** Transit SNR 5.74

**There are 1 quarters with good PRF difference image offsets**

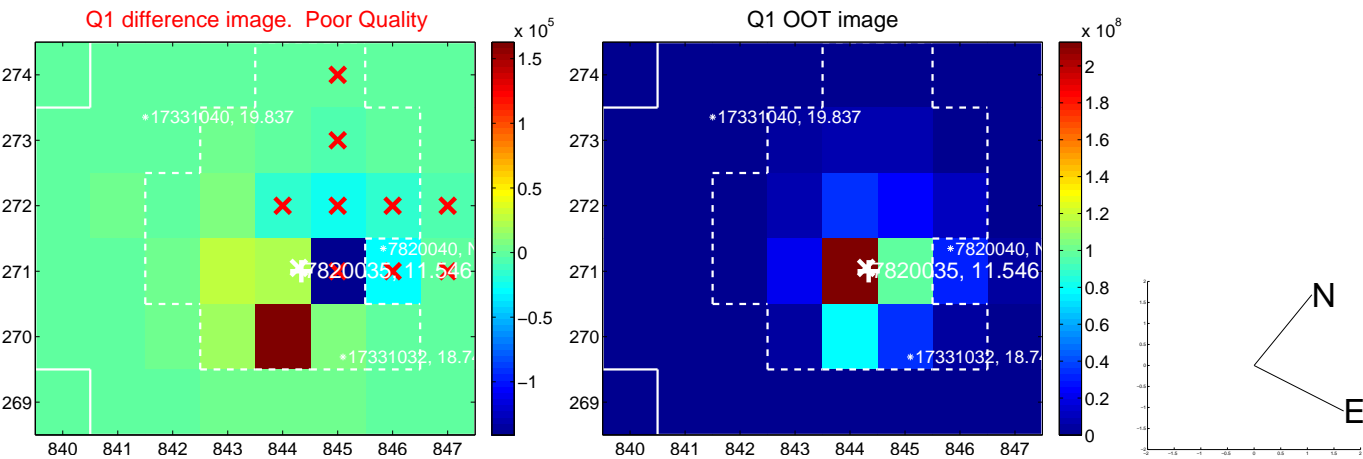
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>6.075 \pm 0.132</math></b>	<b>46.05</b>	$4.299 \pm 0.135$	$4.293 \pm 0.129$
PRF-fit source offset from KIC position	<b><math>6.359 \pm 0.132</math></b>	<b>48.16</b>	$4.591 \pm 0.135$	$4.400 \pm 0.129$
photometric centroid source offset	$6.87 \pm 2.82$	2.44	$6.14 \pm 2.68$	$3.08 \pm 3.32$



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.

Q5 no difference image



Q5 no OOT image



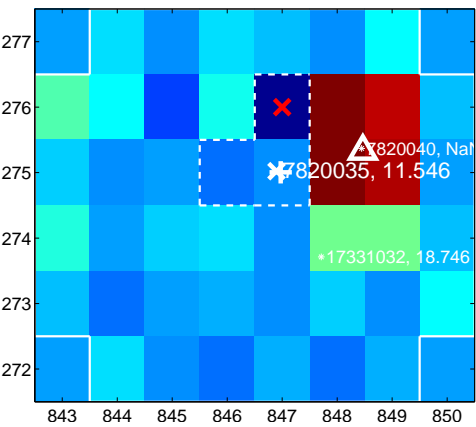
Q6 no difference image



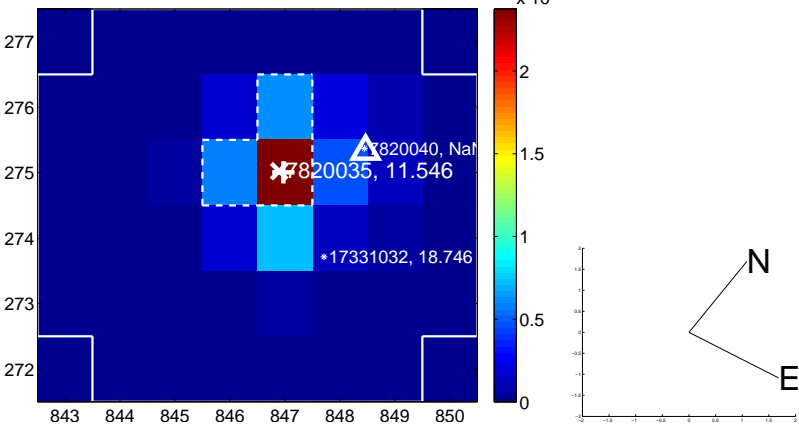
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image





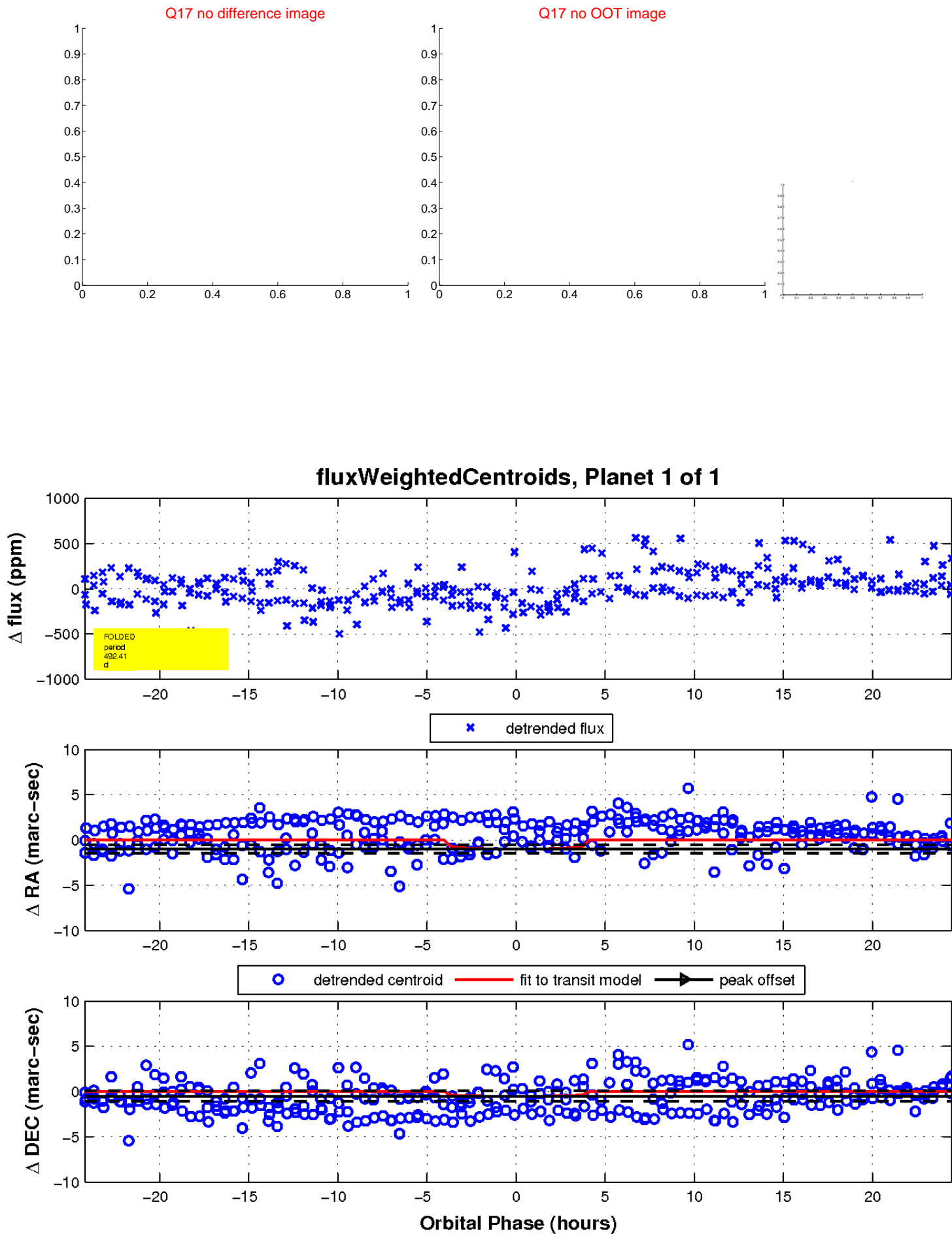
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

