

# KIC 010139720

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010139720-01	OBS	No	351.774118	187.338234	1067.3	39.738	7.2	8.5	0.90	5790	5.68	0.86

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010139720-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE--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.

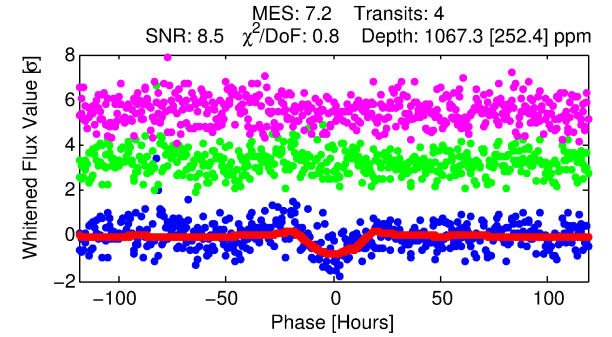
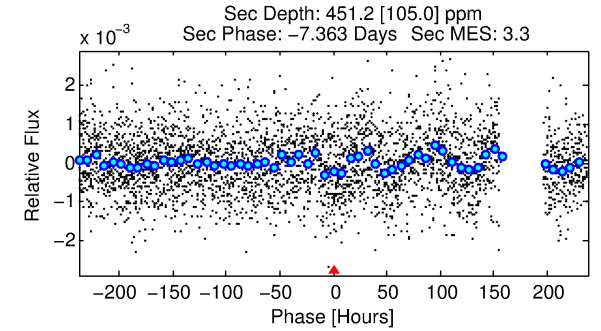
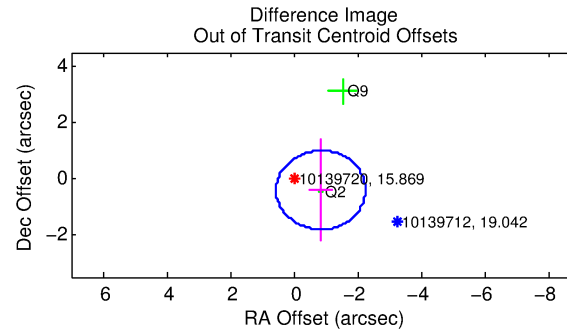
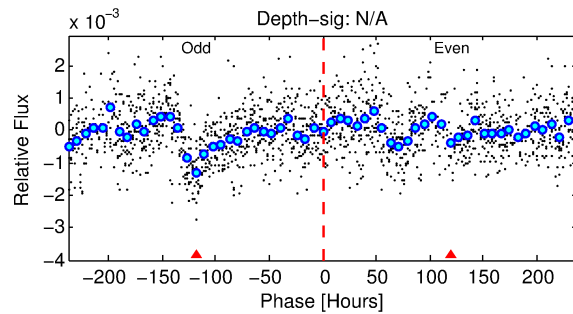
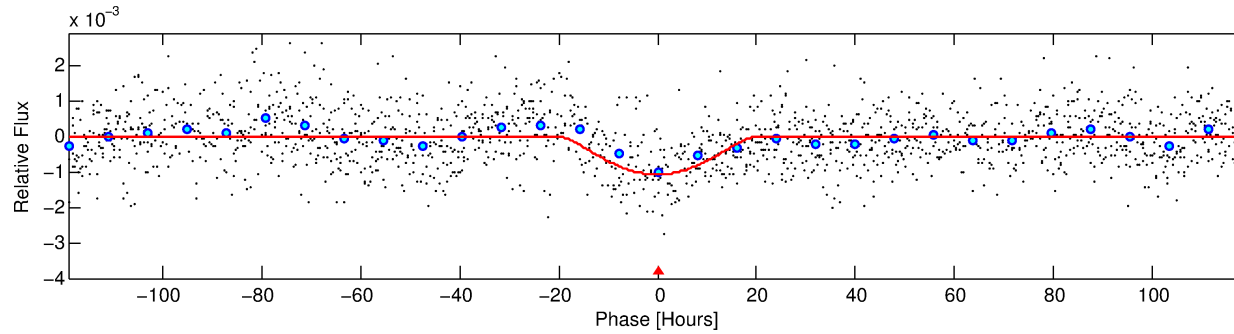
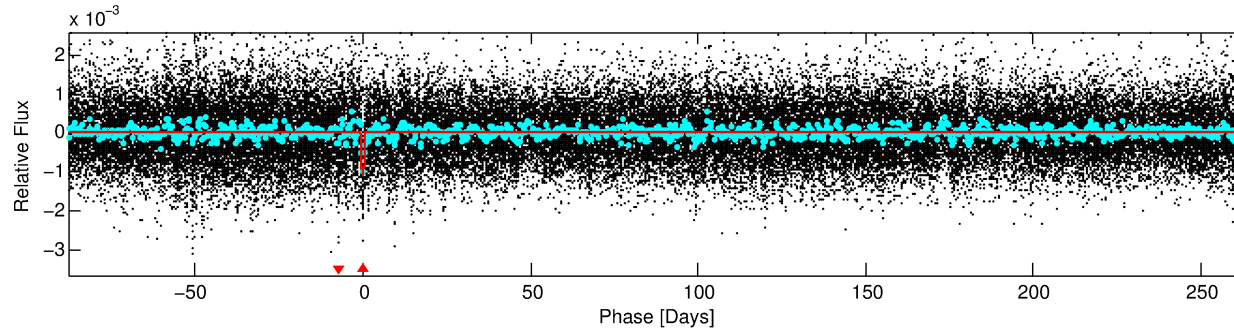
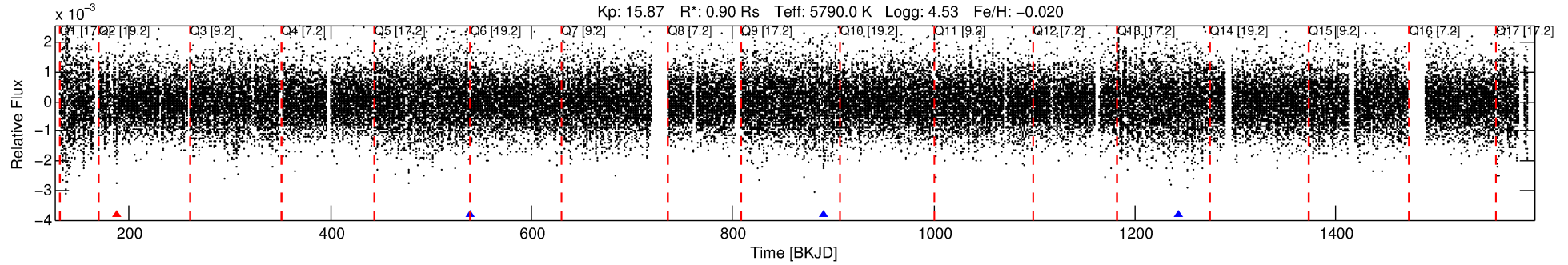
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010139720-01

No Significant Match Found

# DV One-Page Summary

KIC: 10139720 Candidate: 1 of 1 Period: 351.774 d



## DV Fit Results:

Period = 351.77412 [0.03655] d  
Epoch = 187.3382 [0.0587] BKJD  
Rp/R\* = 0.0579 [0.1591]  
a/R\* = 23.47 [14.93]  
b = 1.00 [0.24]  
Seff = 0.86 [0.34]  
Teq = 245 [24] K  
Rp = 5.68 [15.71] Re  
a = 0.9743 [0.2418] AU  
Ag = 7296.34 [40251.04] [0.18σ]  
Teffp = 3508 [4829] K [0.68σ]

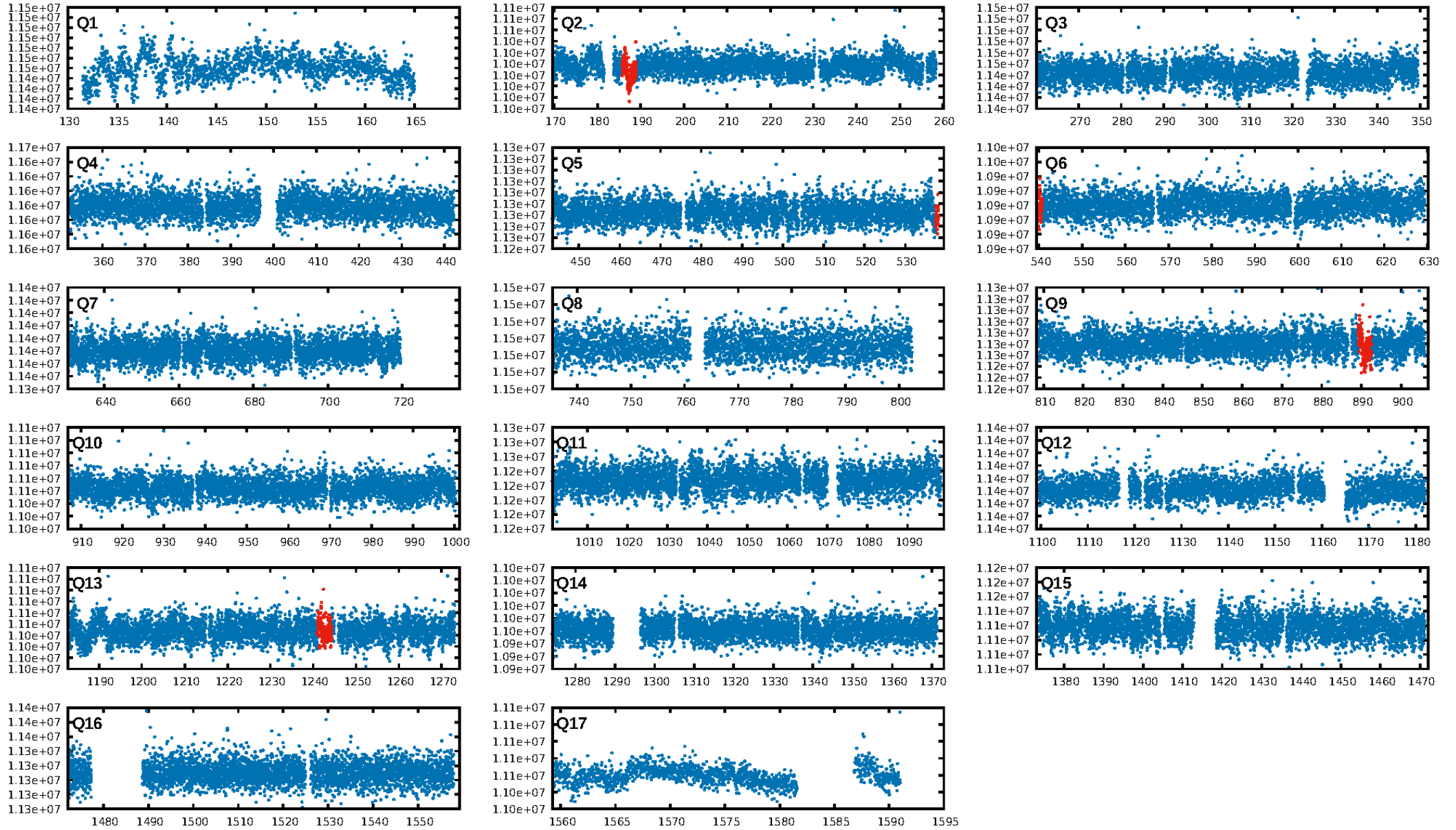
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 7.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.19e-10  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: -0.3366  
Centroid-sig: 0.0%  
Centroid-so: 4.243 arcsec [2.17σ]  
OotOffset-rm: 0.938 arcsec [2.00σ]  
KicOffset-rm: 0.969 arcsec [3.57σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

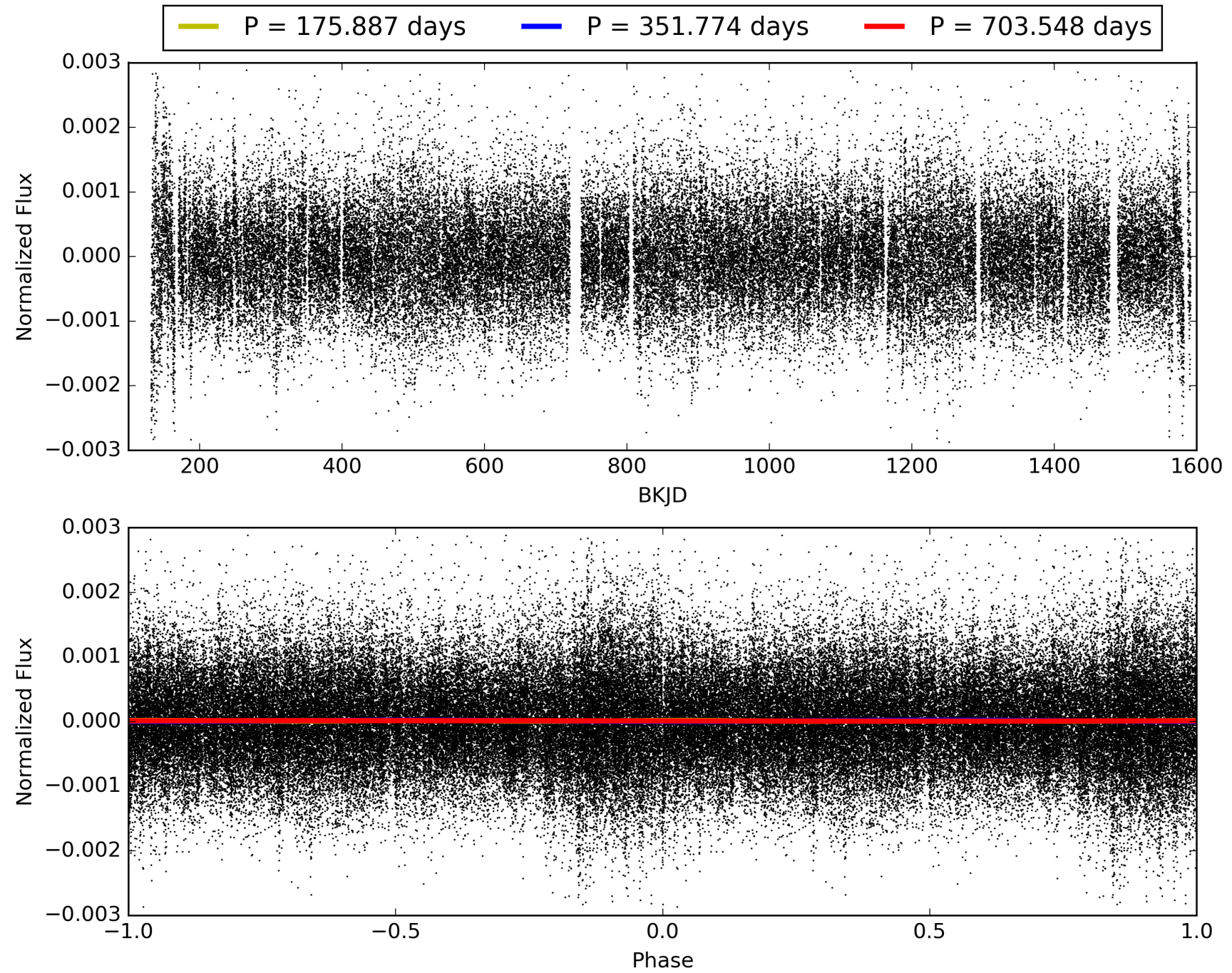
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:31:05 Z

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

# TCE 010139720-01, PDC Light Curves

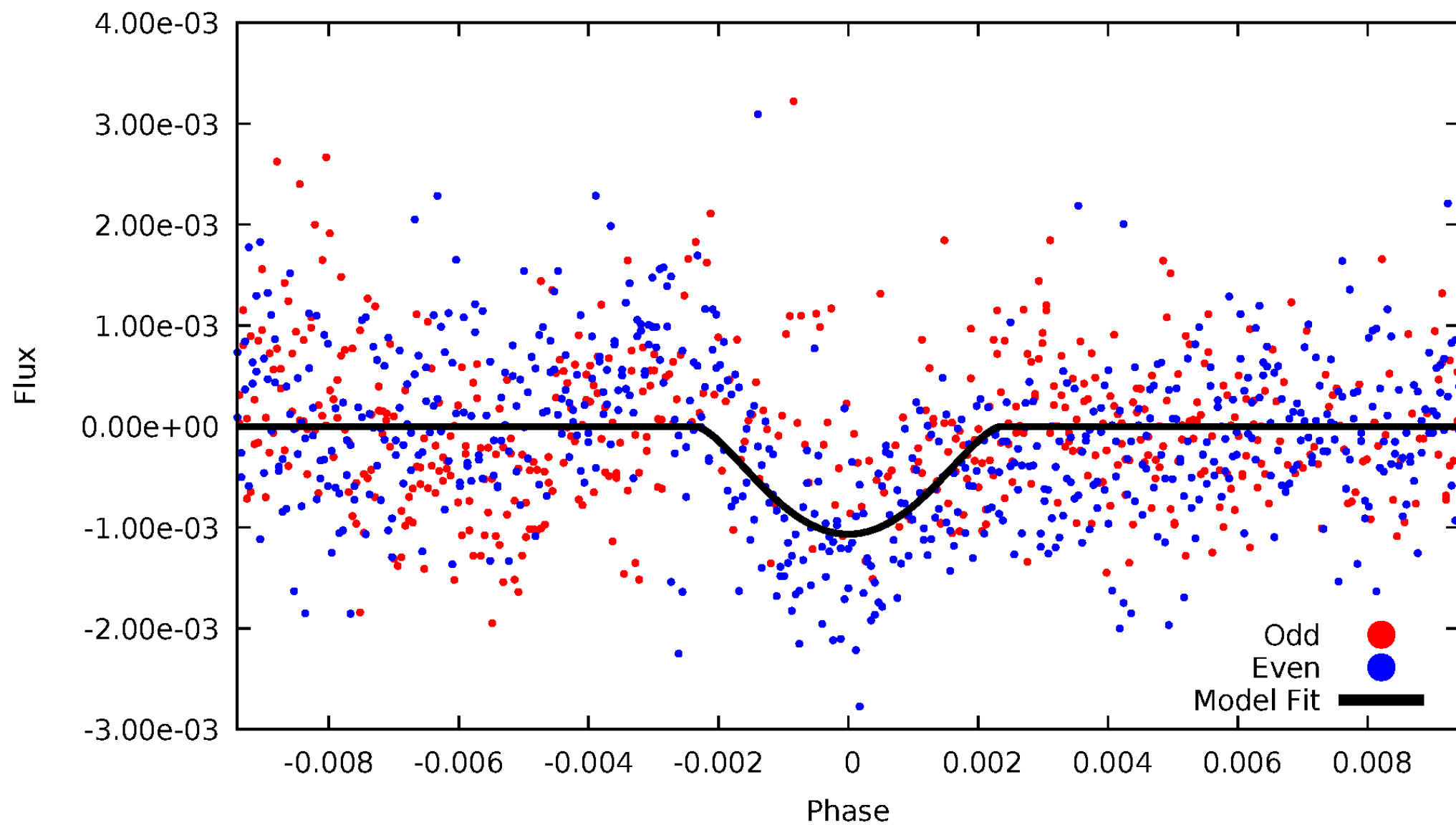


TCE 010139720-01



# DV Odd/Even

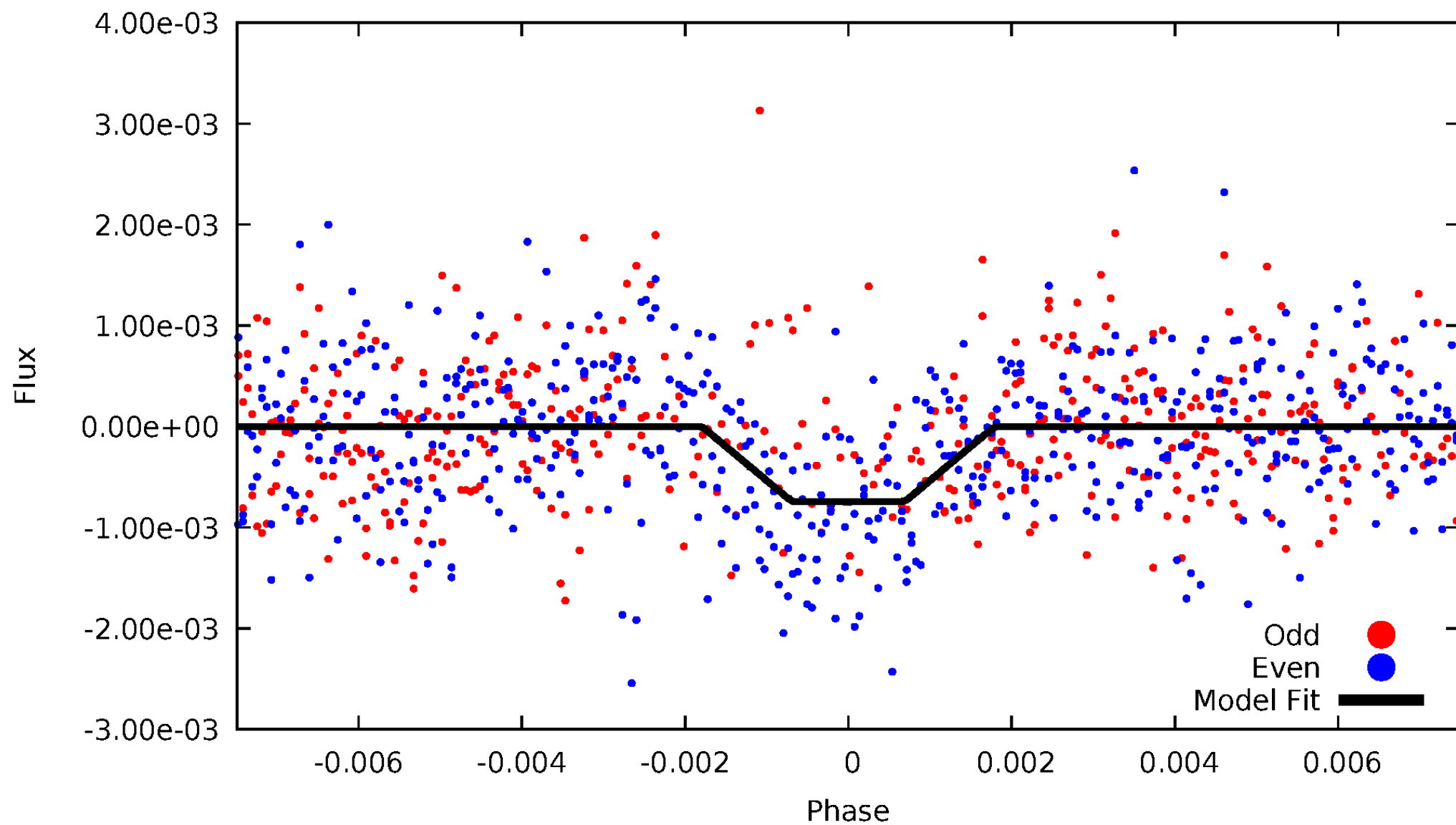
TCE 010139720-01





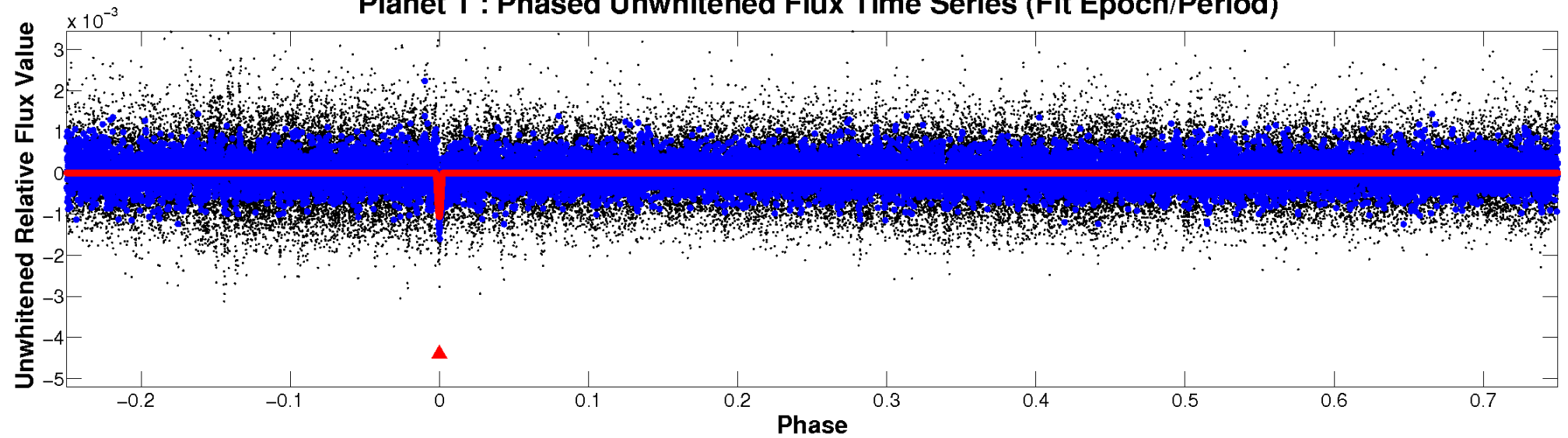
# ALT Odd/Even

TCE 010139720-01

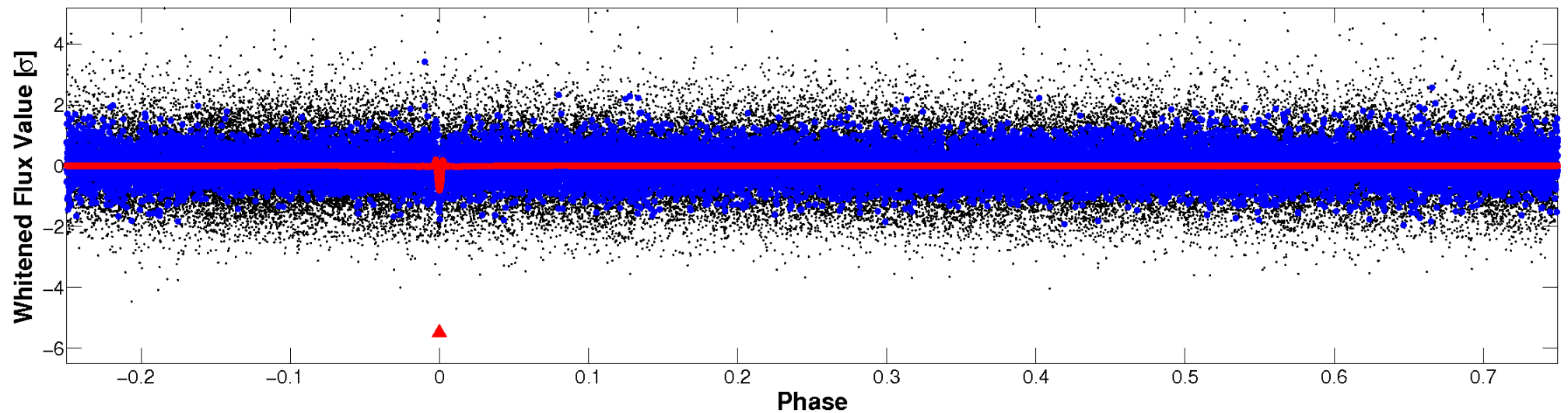


# Non-Whitened Vs. Whitened Light Curve

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

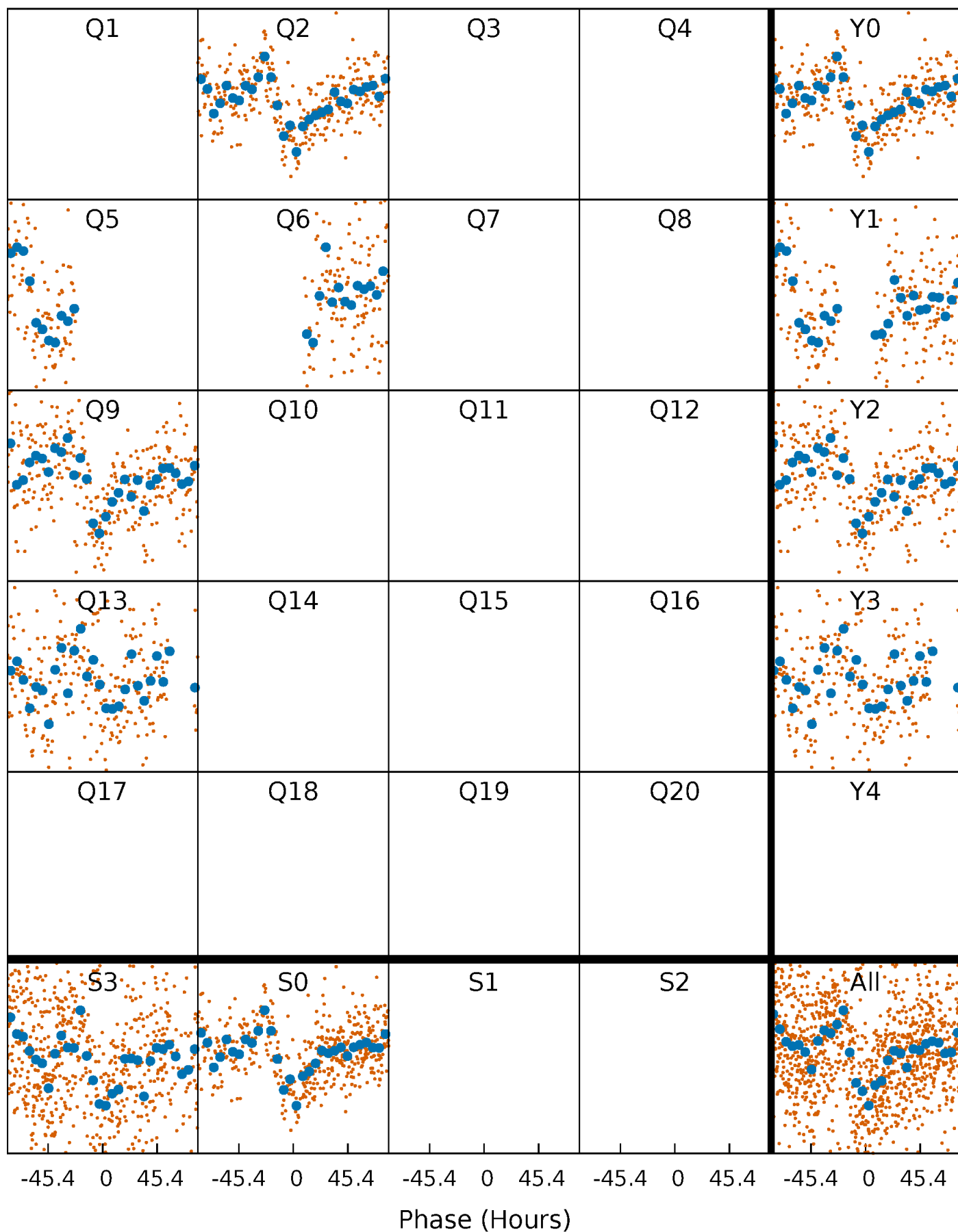


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

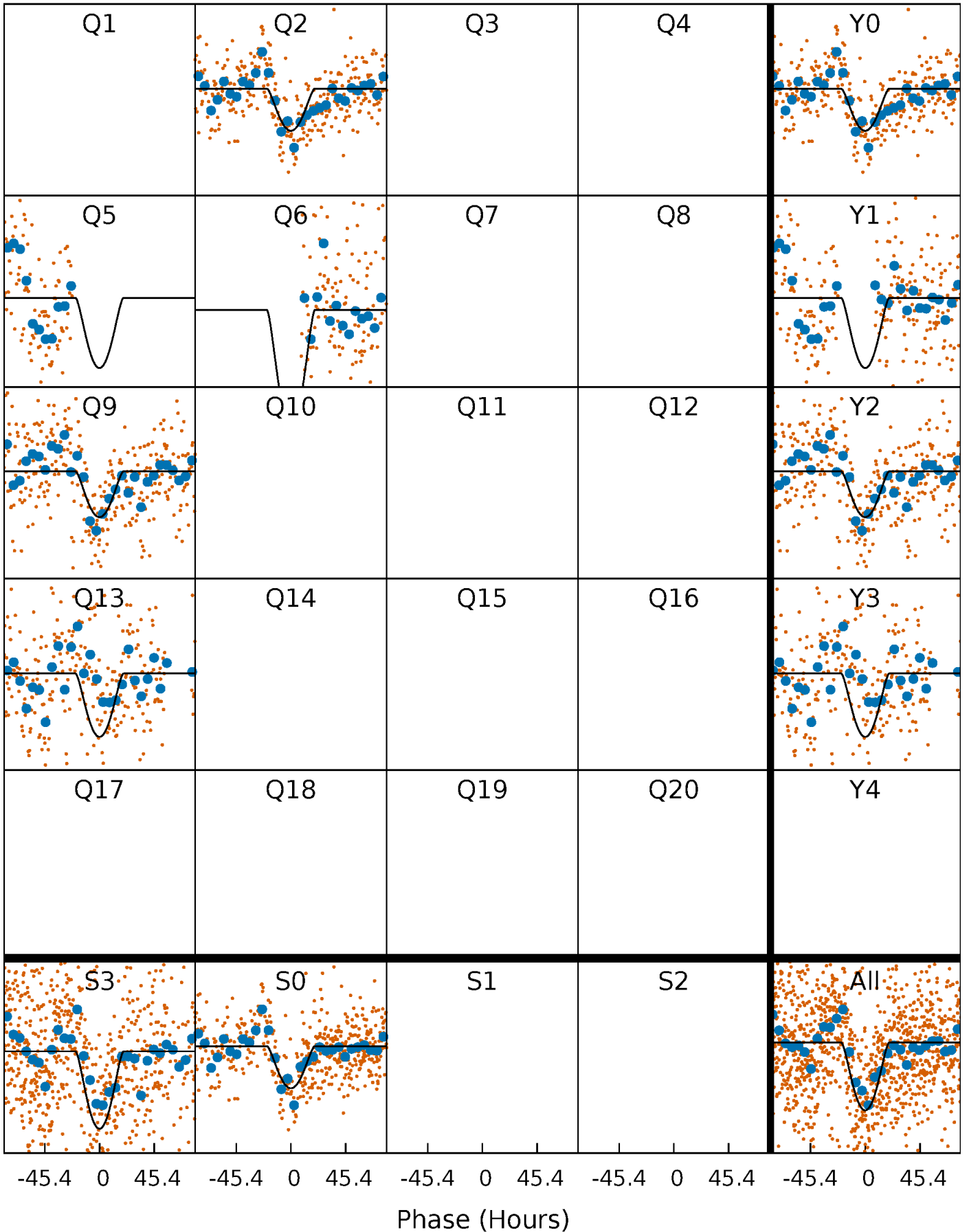
TCE 010139720-01 P=351.774118 Days  $T_0=187.338234$  (BKJD)





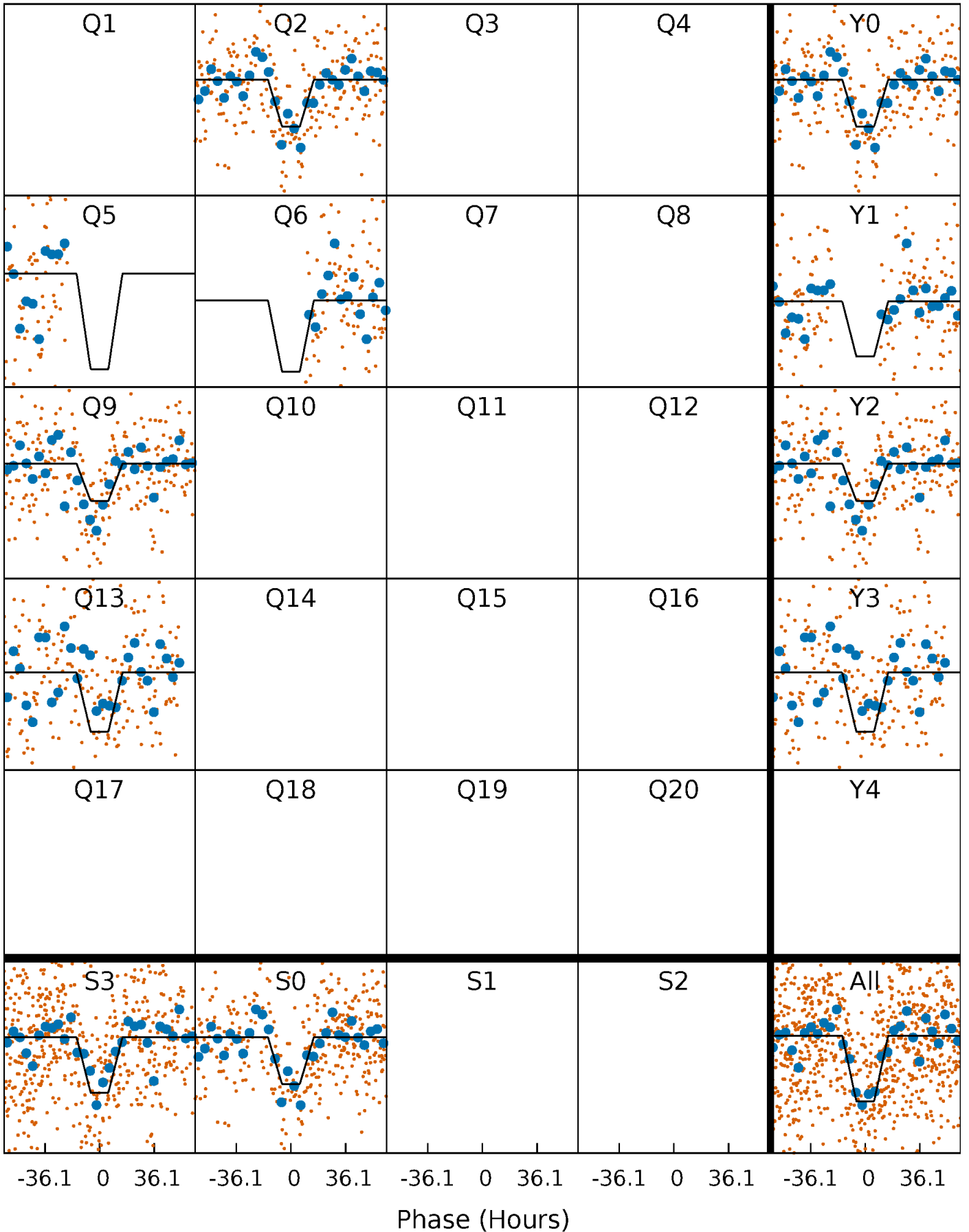
# DV Quarter-Phased Transit Curves

TCE 010139720-01 P=351.774118 Days  $T_0=187.338234$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

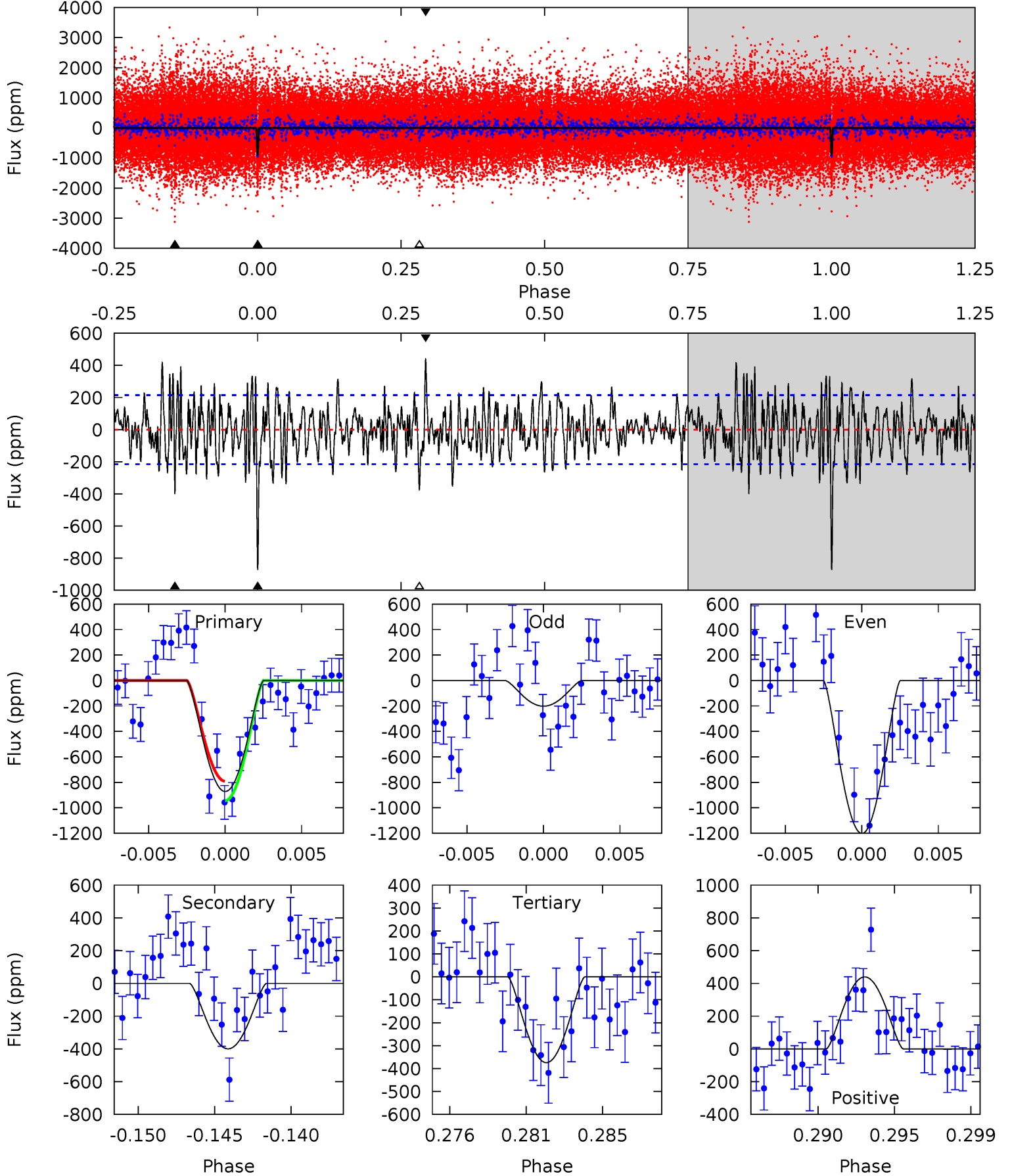
TCE 010139720-01 P=351.845470 Days  $T_0=187.209770$  (BKJD)



# DV Model-Shift Uniqueness Test

010139720-01, P = 351.774118 Days, E = 187.338234 Days

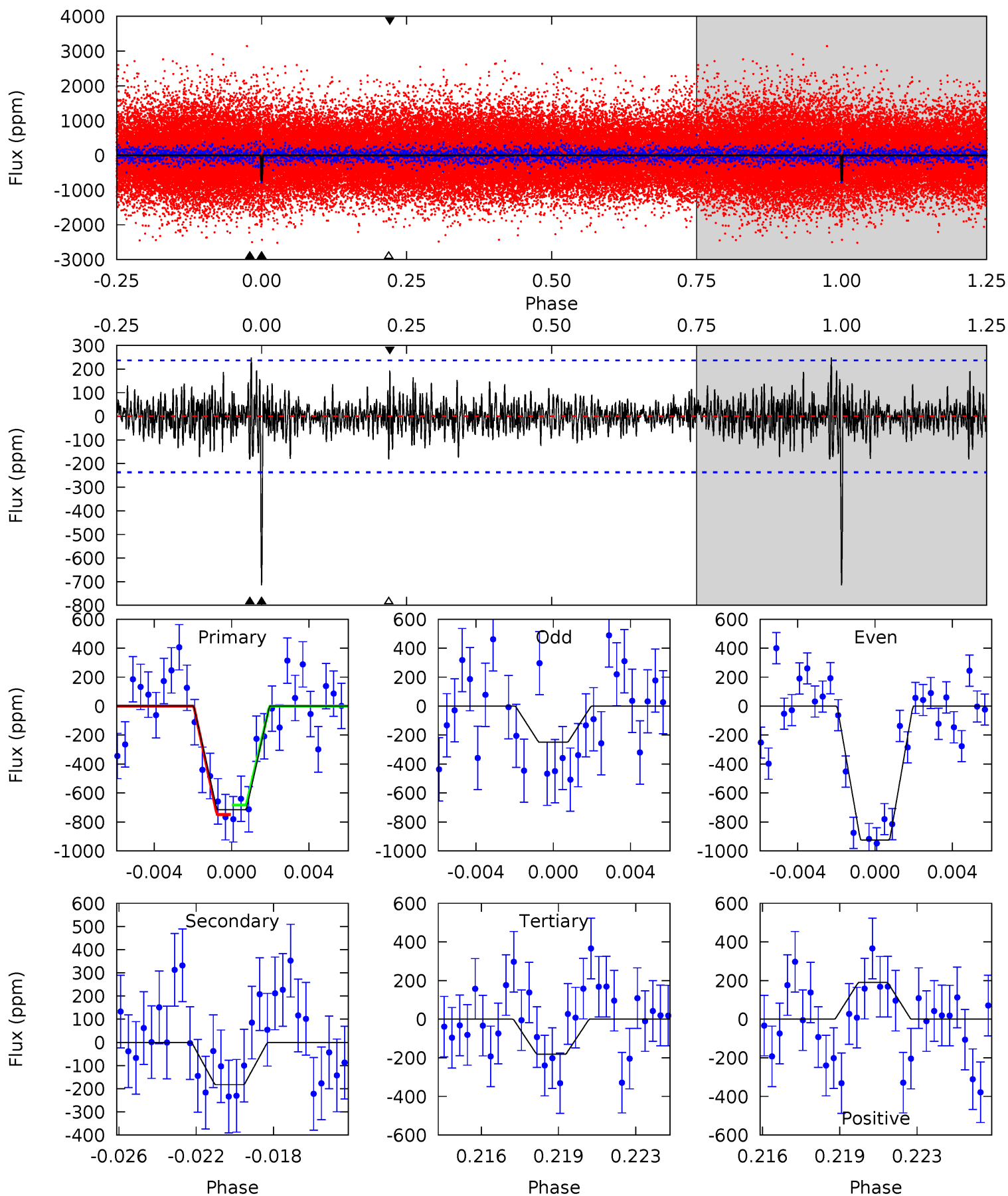
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	9.62	9.00	10.6	5.17	2.83	2.96	12.0	10.4	0.61	-0.96	11.8	0.93	0.34	1.81



# Alt Model-Shift Uniqueness Test

010139720-01, P = 351.845470 Days, E = 187.209770 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
15.7	4.02	4.00	4.19	5.22	2.91	1.13	11.8	11.6	0.03	-0.17	7.23	0.88	0.26	0.72



### Stellar Parameters For KIC 010139720

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5790^{+157}_{-192}$	$4.528^{+0.036}_{-0.204}$	$-0.020^{+0.300}_{-0.300}$	$0.900^{+0.260}_{-0.087}$	$0.998^{+0.116}_{-0.116}$	$1.926^{+0.374}_{-0.985}$
	+3%/-3%	+1%/-5%	+1500%/-1500%	+29%/-10%	+12%/-12%	+19%/-51%
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 010139720-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-400 \pm 42$	$12.89^{+13.03}_{-8.64}$	$351^{+23}_{-17}$	$2985^{+1314}_{-502}$	$1232^{+10291}_{-926}$
Alt.	$-183 \pm 45$	$11.38^{+12.61}_{-8.05}$	$352^{+22}_{-17}$	$2799^{+1182}_{-488}$	$743^{+6976}_{-590}$

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

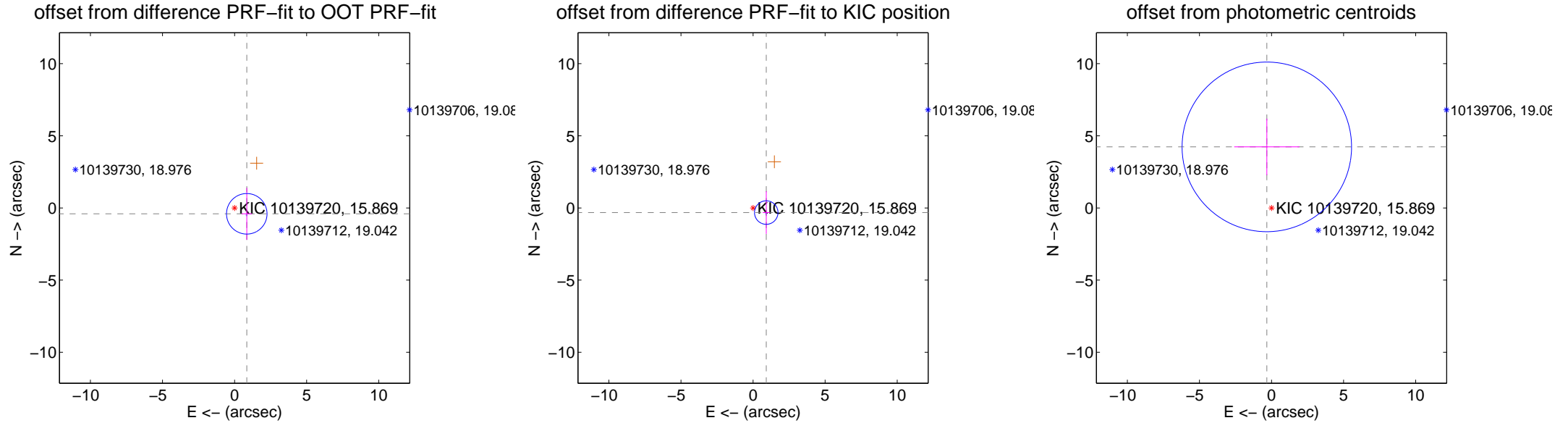
## DV Centroid Data

Supplemental centroid analysis for 010139720-01. Kepler magnitude: 15.87. Transit SNR 8.52

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

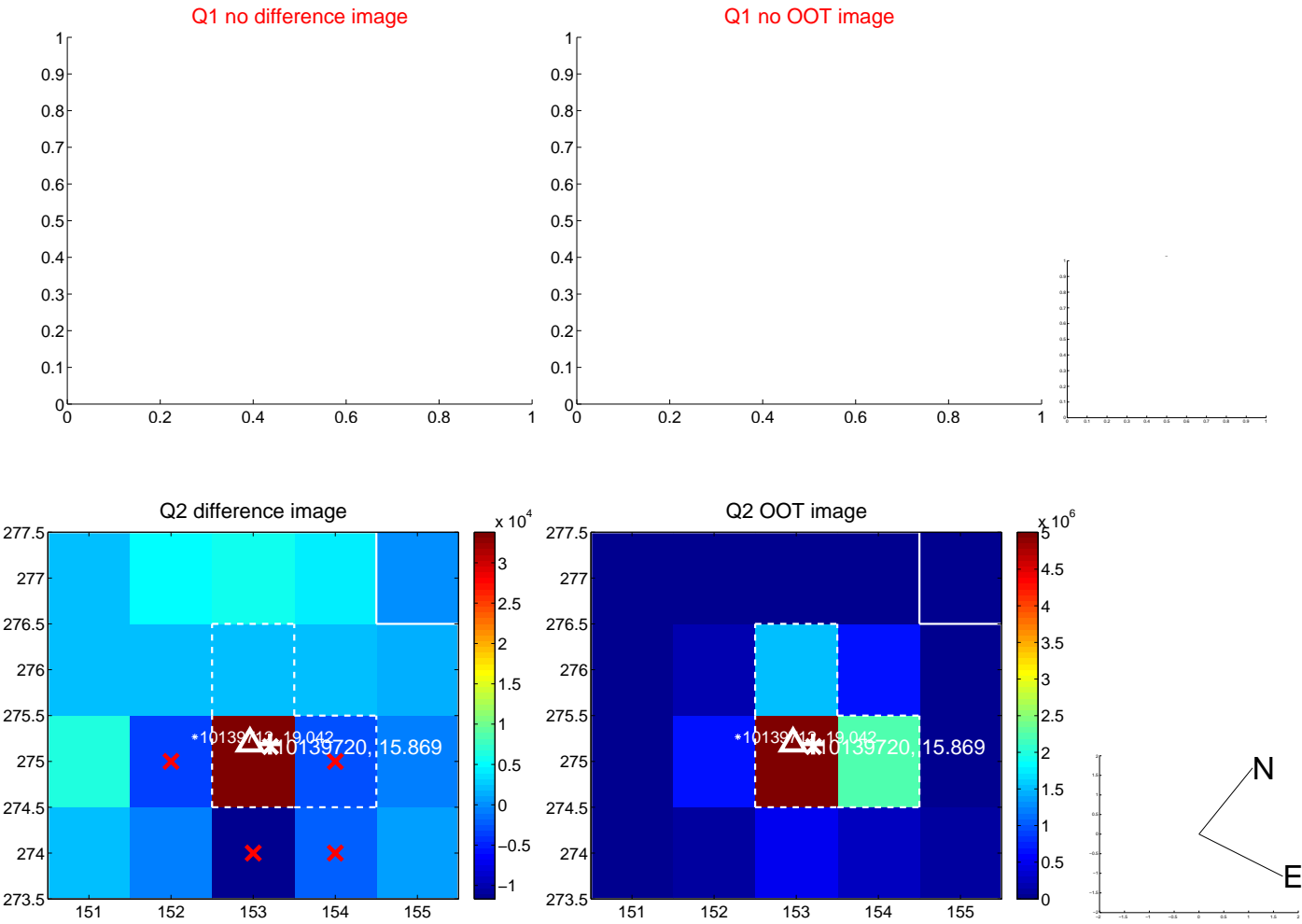
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.938 \pm 0.468$	2.00	$-0.846 \pm 0.356$	$-0.406 \pm 1.802$
PRF-fit source offset from KIC position	<b><math>0.969 \pm 0.271</math></b>	<b>3.57</b>	$-0.915 \pm 0.245$	$-0.319 \pm 1.476$
photometric centroid source offset	$4.24 \pm 1.96$	2.17	$0.33 \pm 2.26$	$4.23 \pm 1.96$



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.



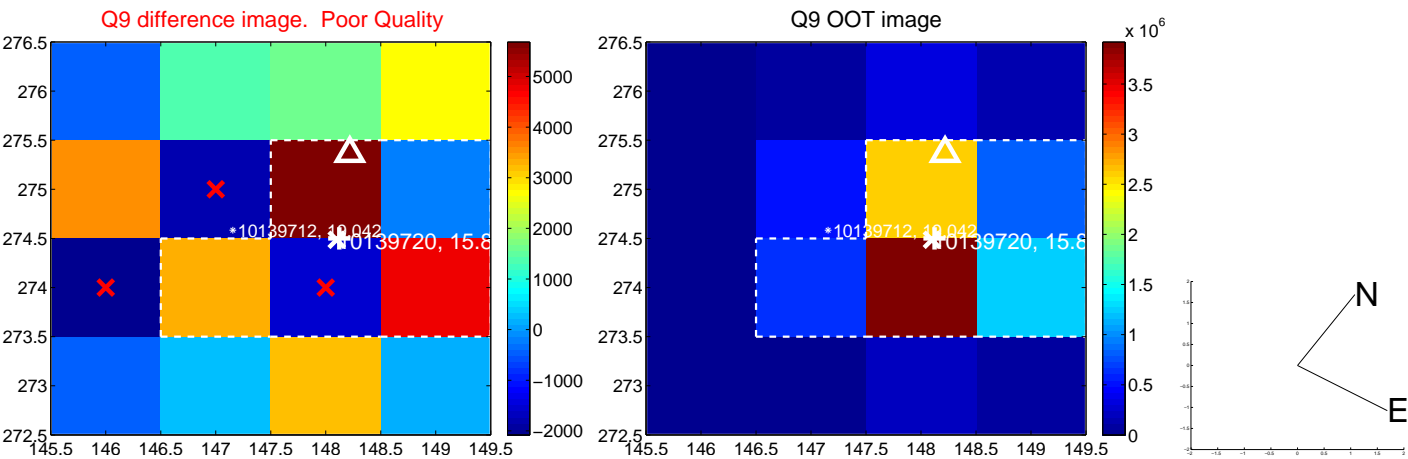
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



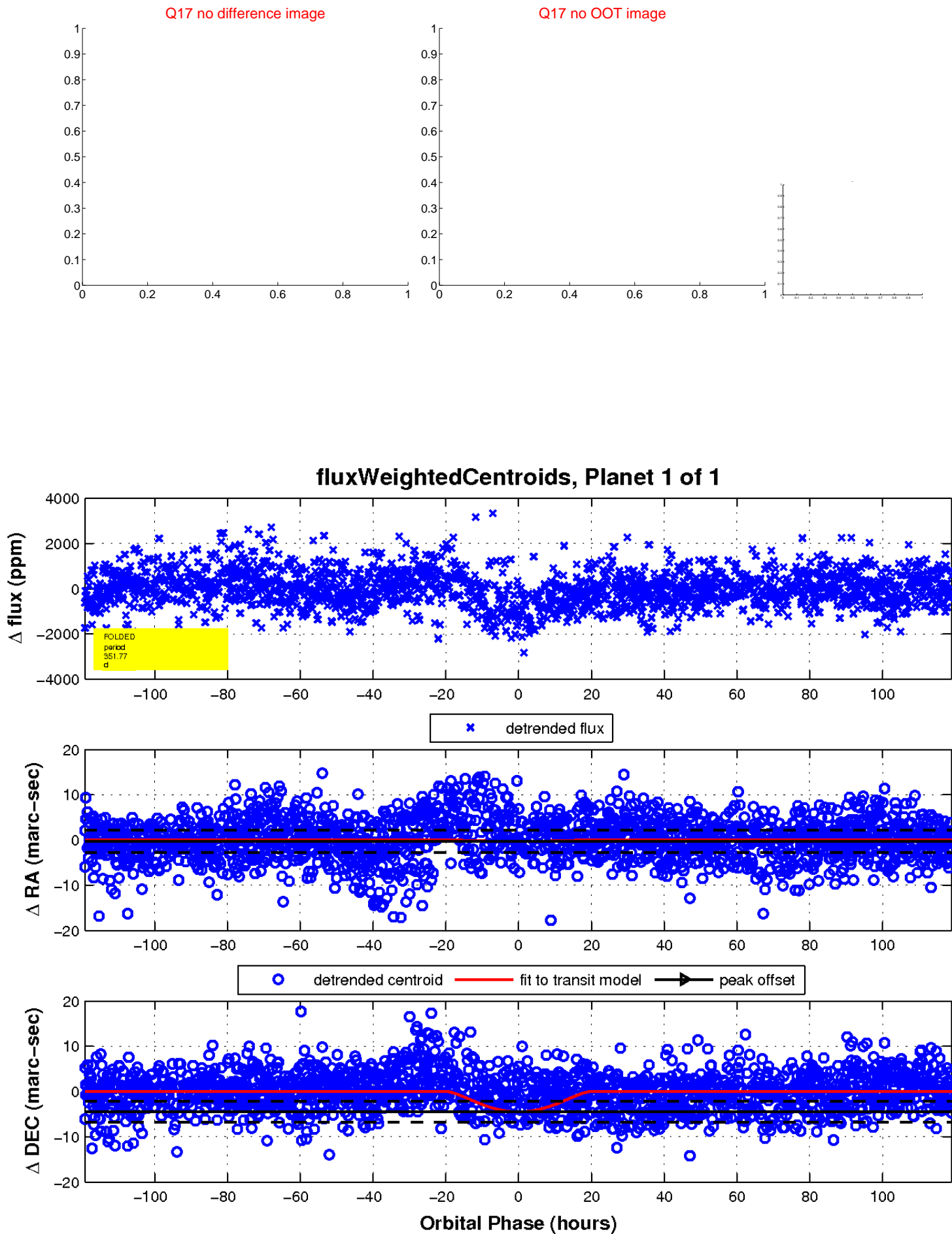
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

