

# KIC 005939166

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005939166-01	OBS	No	552.538644	407.513800	423.1	16.137	8.2	7.6	0.84	4889	1.77	0.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005939166-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_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.

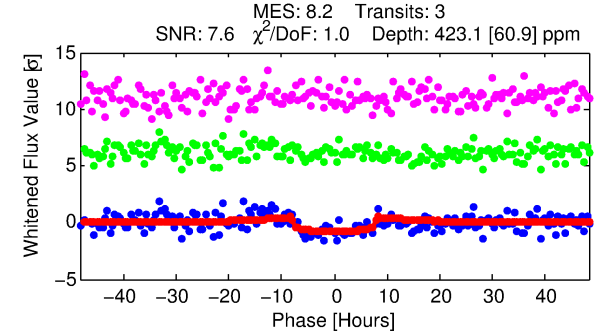
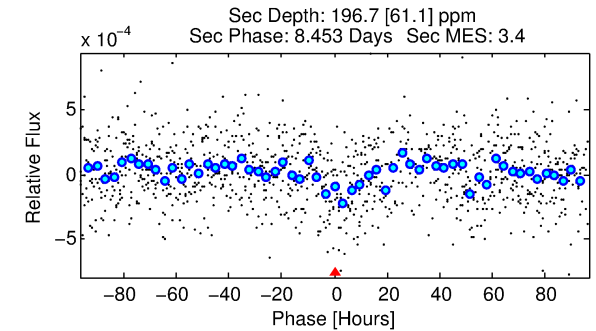
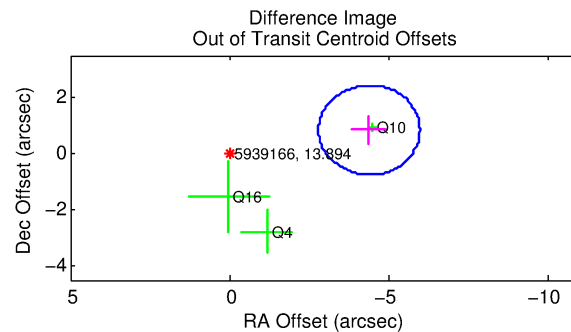
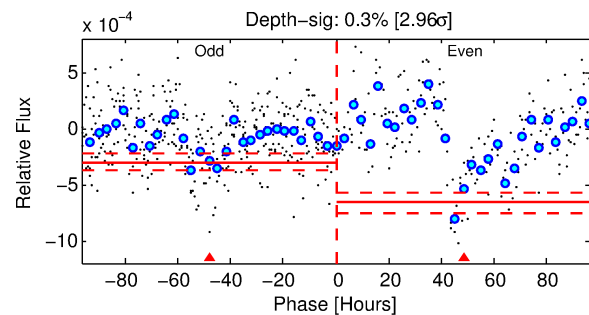
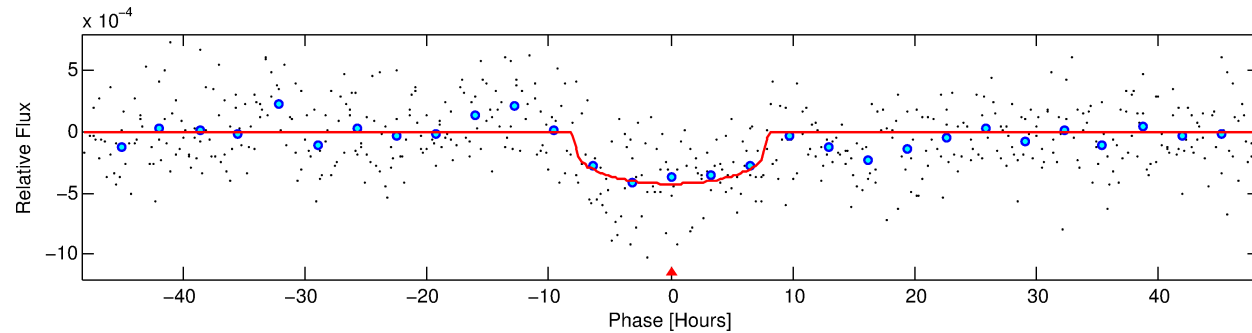
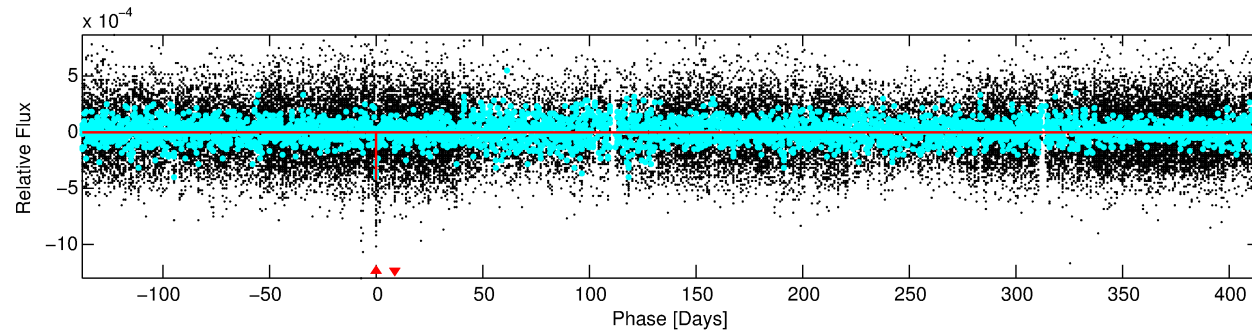
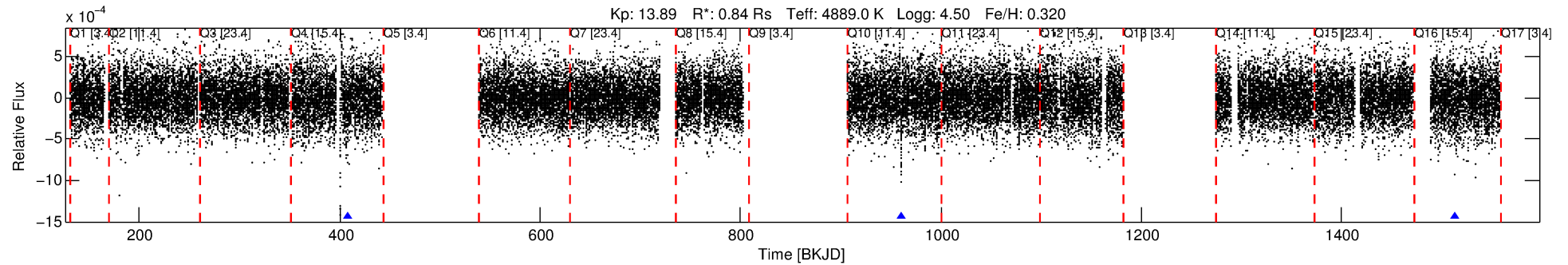
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005939166-01

No Significant Match Found

# DV One-Page Summary

KIC: 5939166 Candidate: 1 of 1 Period: 552.539 d



## DV Fit Results:

Period = 552.53864 [0.01568] d  
Epoch = 407.5138 [0.0196] BKJD  
Rp/R\* = 0.0192 [0.0125]  
a/R\* = 221.03 [462.57]  
b = 0.57 [2.51]  
Seff = 0.24 [0.05]  
Teq = 179 [9] K  
Rp = 1.77 [1.16] Re  
a = 1.2269 [0.1212] AU  
Ag = 52201.99 [70226.09] [0.74 $\sigma$ ]  
Teffp = 4173 [1400] K [2.85 $\sigma$ ]

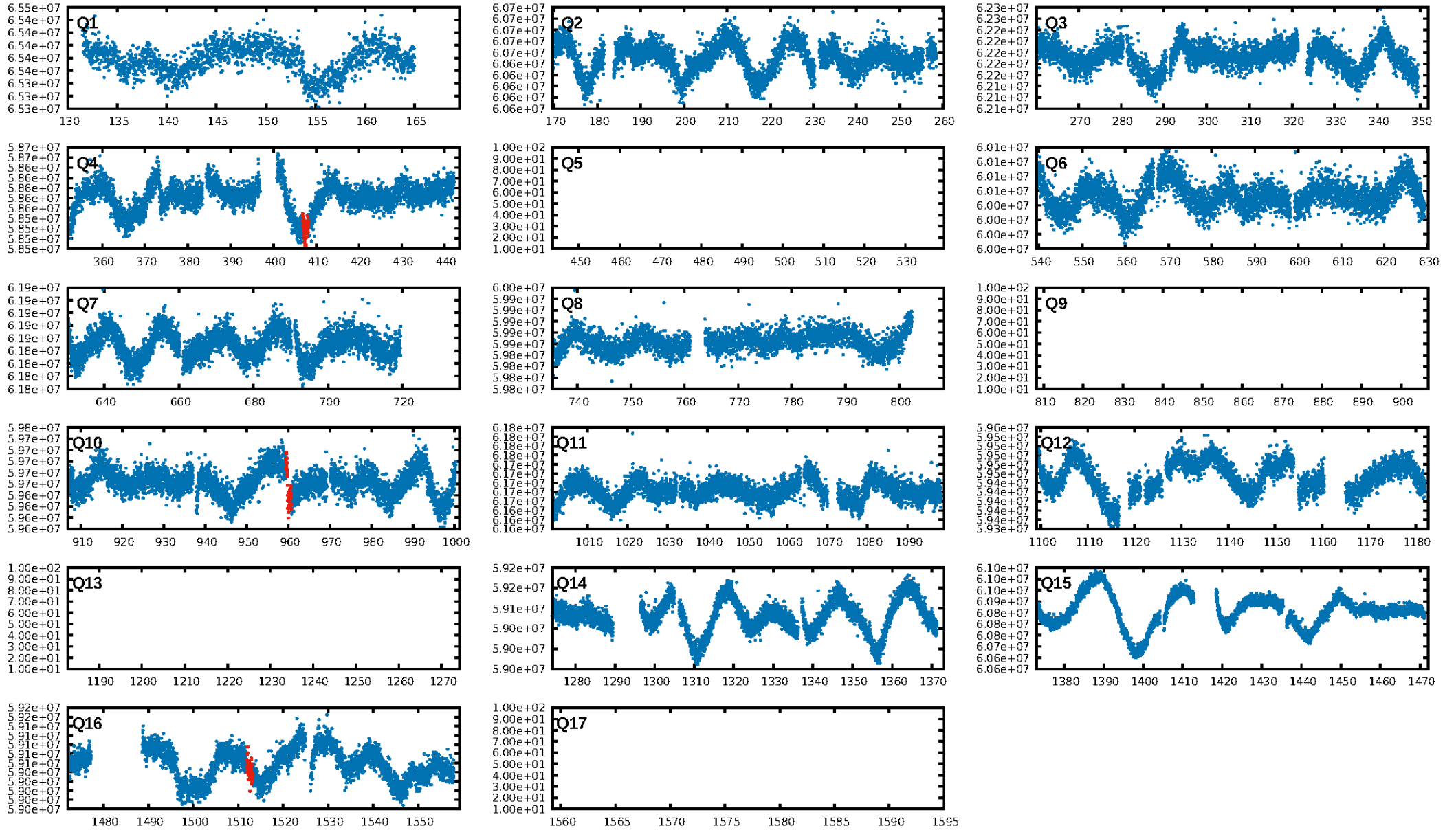
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 15.9%  
ModelChiSquareGof-sig: 98.8%  
**Bootstrap-pfa: 1.88e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.845  
Centroid-sig: 20.5%  
Centroid-so: 1.543 arcsec [1.30 $\sigma$ ]  
**OotOffset-rm: 4.484 arcsec [8.43 $\sigma$ ]**  
**KicOffset-rm: 4.319 arcsec [4.77 $\sigma$ ]**  
OotOffset-st: 1/0/2/0 [3]  
KicOffset-st: 1/0/2/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

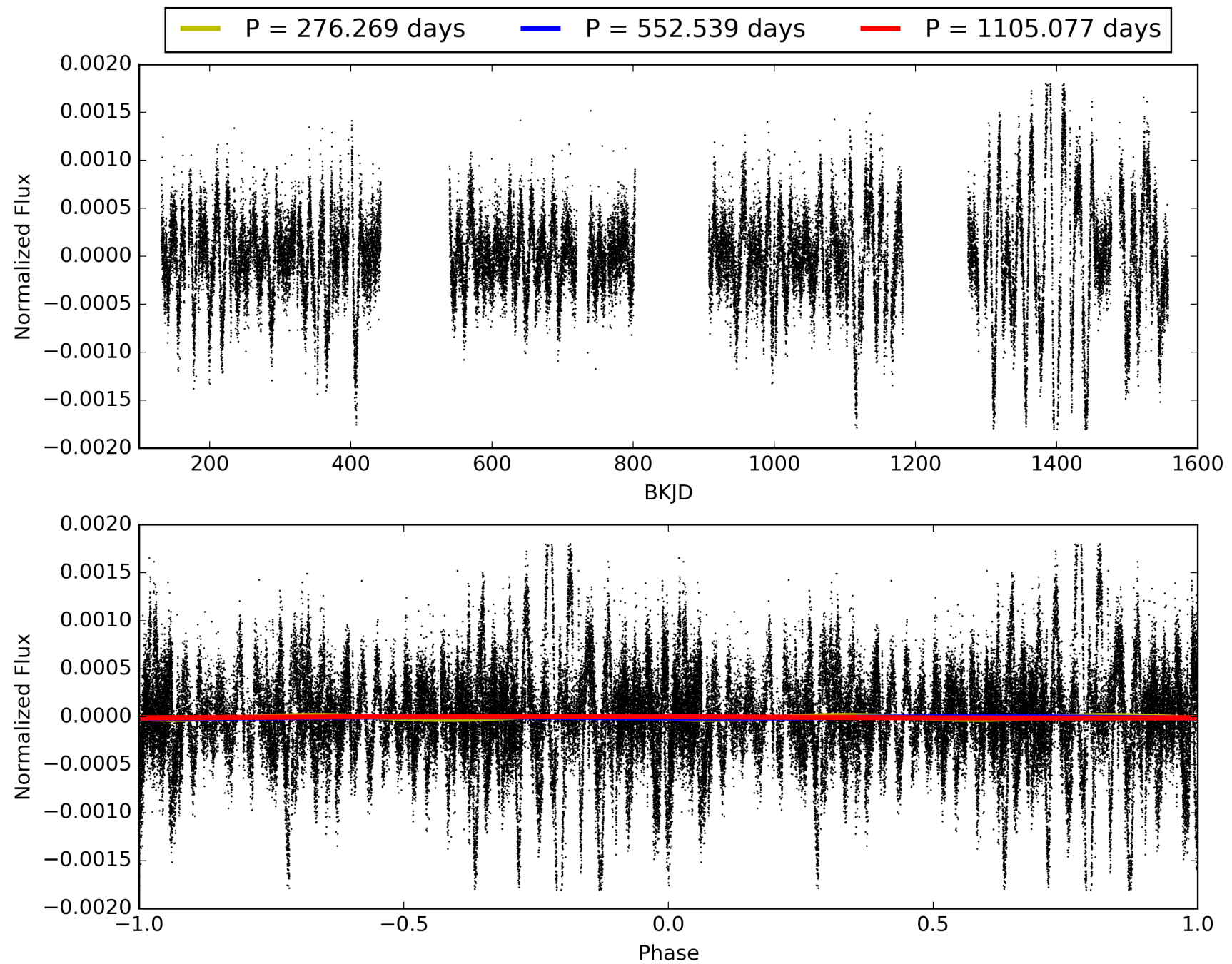
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:15:55 Z

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

# TCE 005939166-01, PDC Light Curves

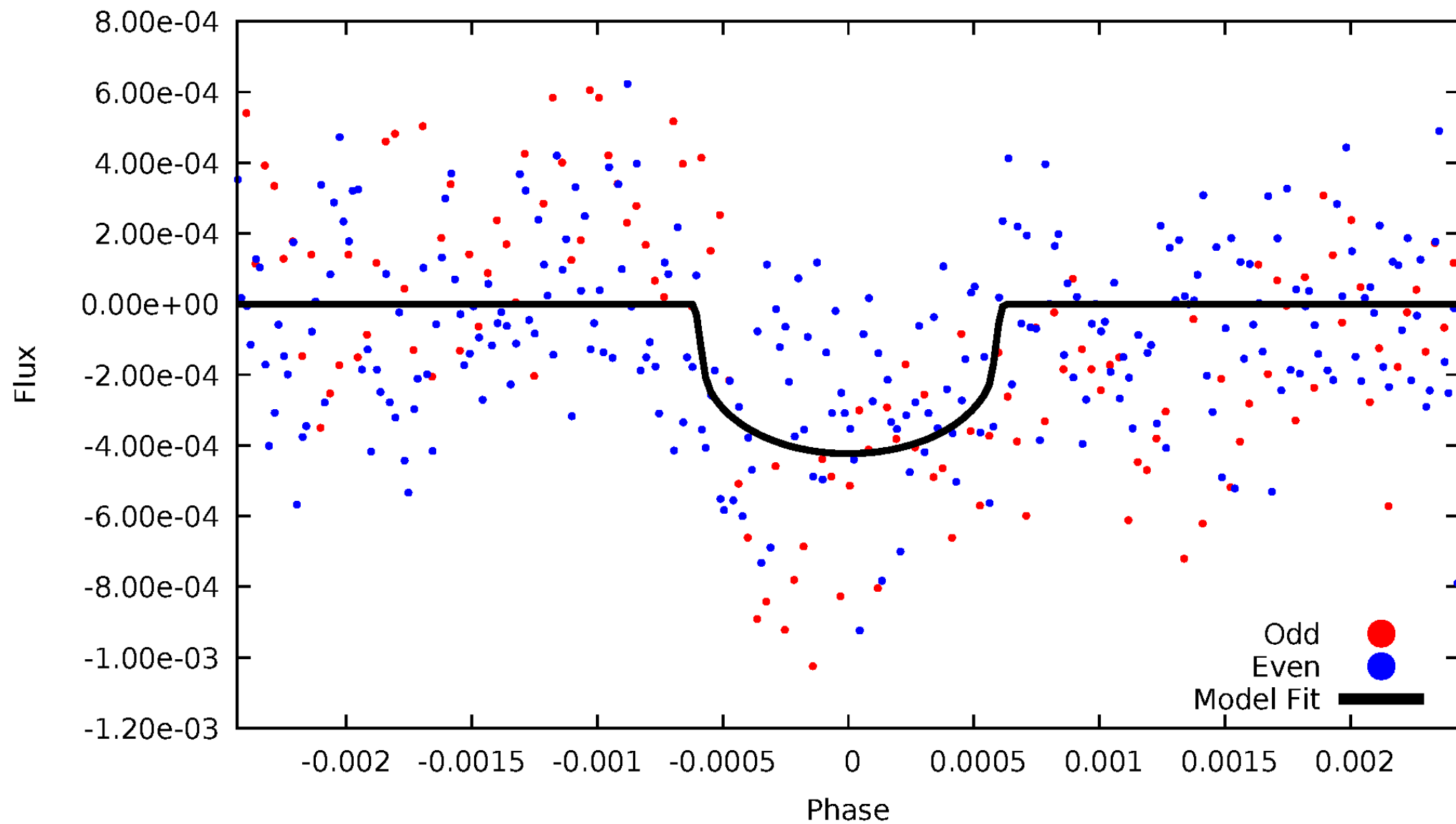


TCE 005939166-01



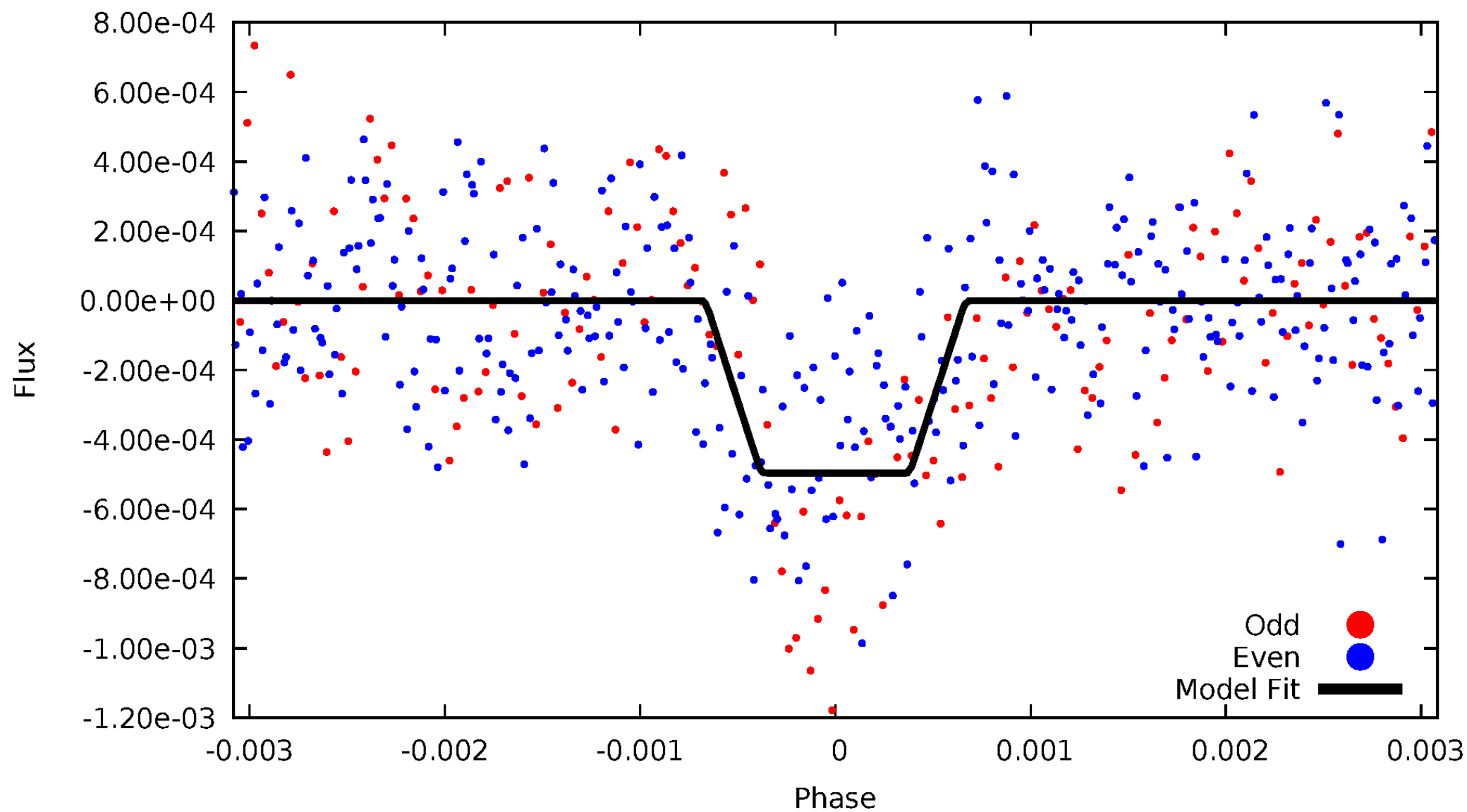
# DV Odd/Even

TCE 005939166-01



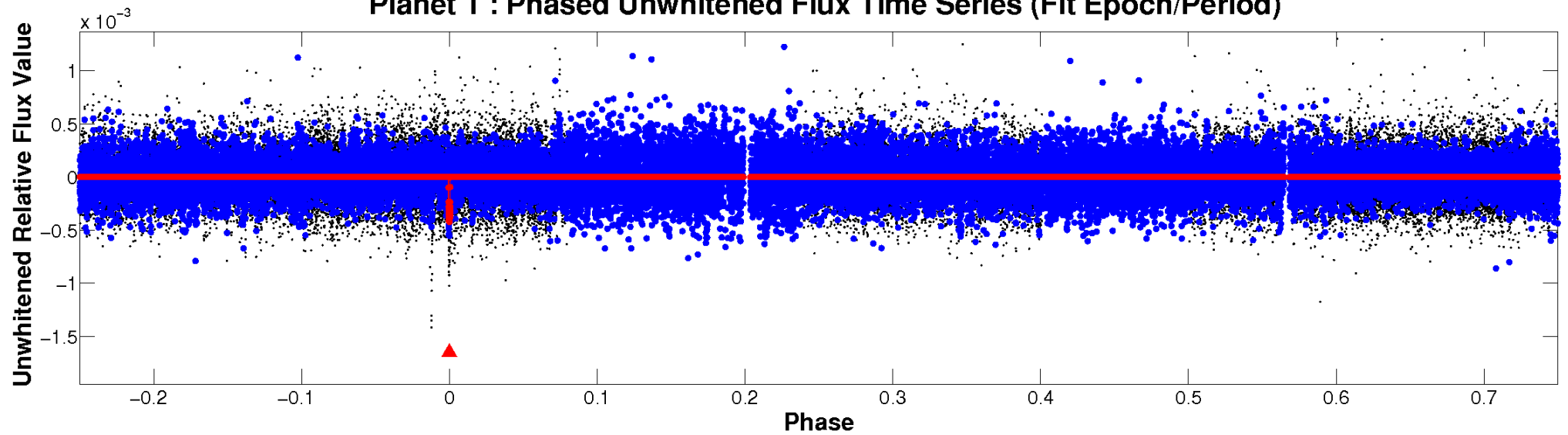
# ALT Odd/Even

TCE 005939166-01

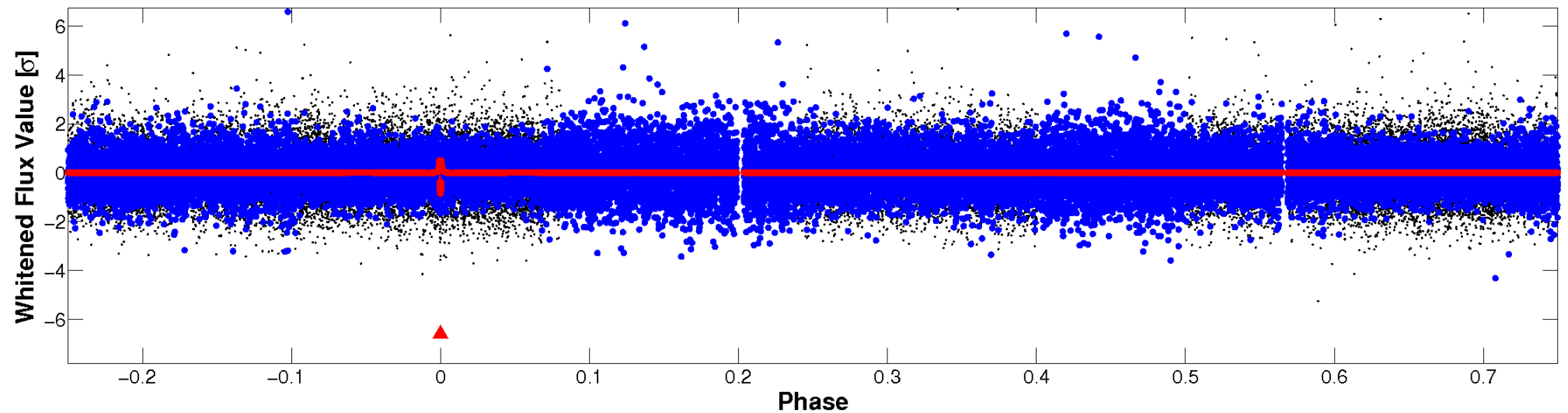


# Non-Whitened Vs. Whitened Light Curve

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

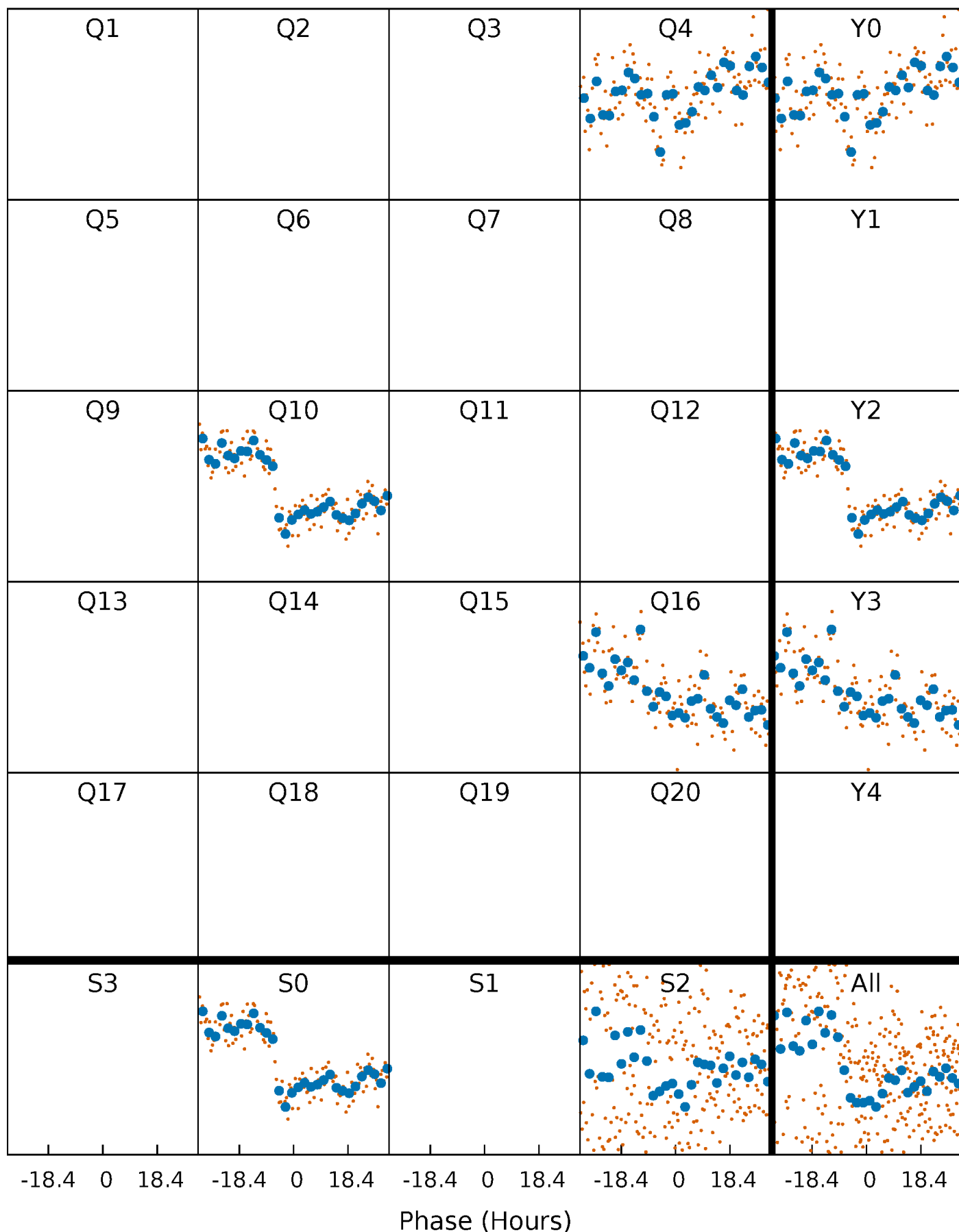


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

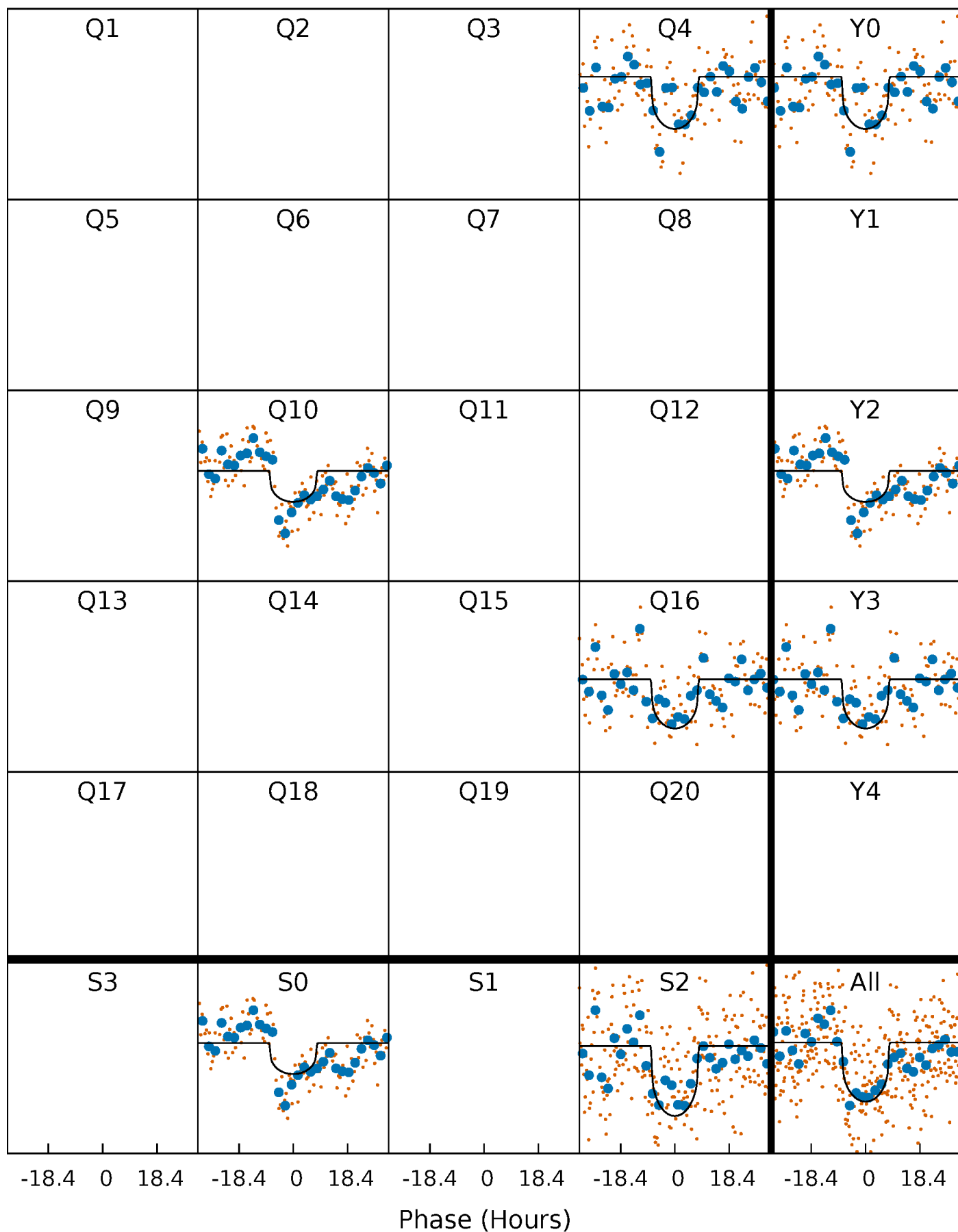
TCE 005939166-01 P=552.538644 Days  $T_0=407.513800$  (BKJD)





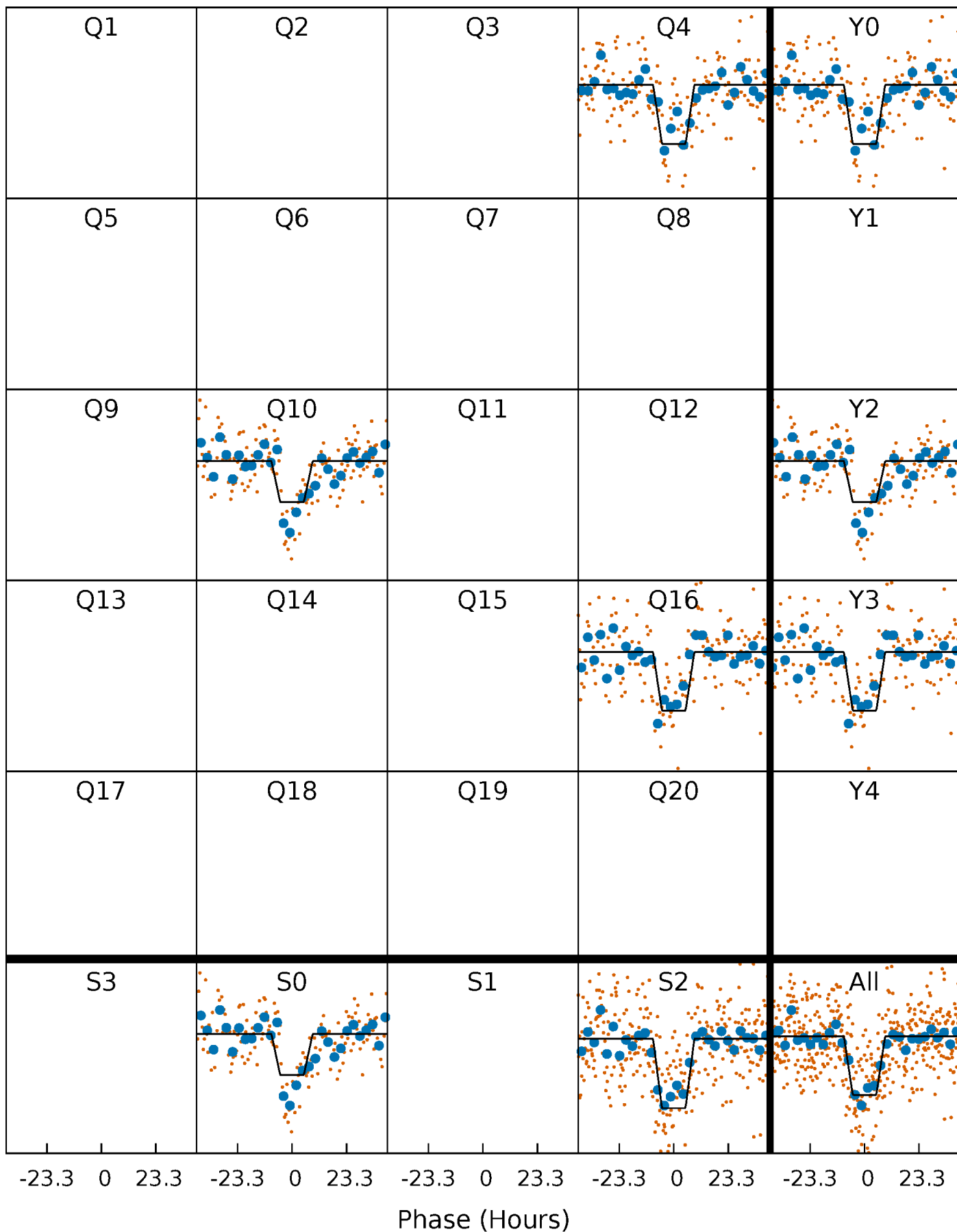
# DV Quarter-Phased Transit Curves

TCE 005939166-01 P=552.538644 Days  $T_0=407.513800$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

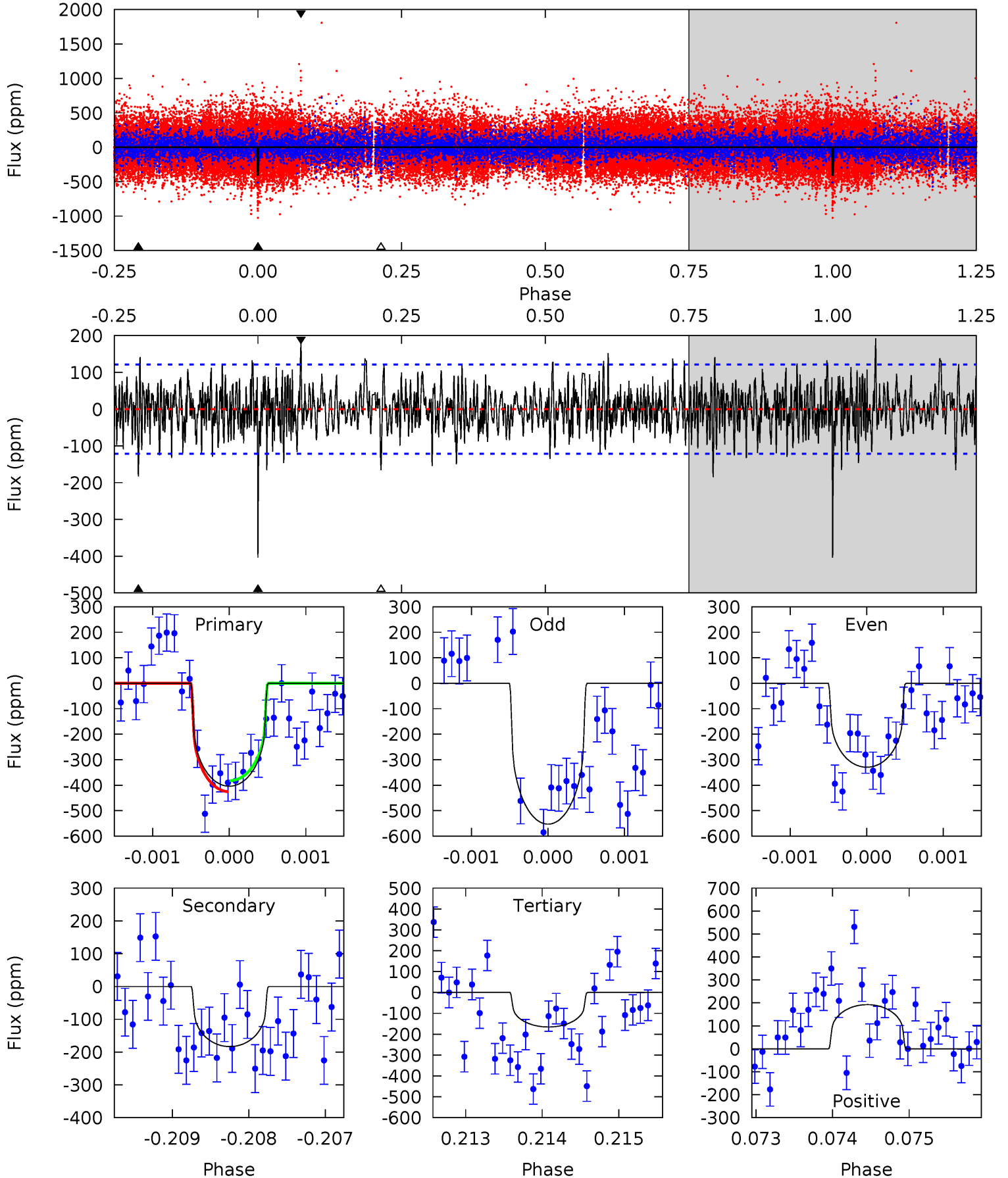
TCE 005939166-01 P=552.557518 Days  $T_0=407.425594$  (BKJD)



# DV Model-Shift Uniqueness Test

005939166-01, P = 552.538644 Days, E = 407.513800 Days

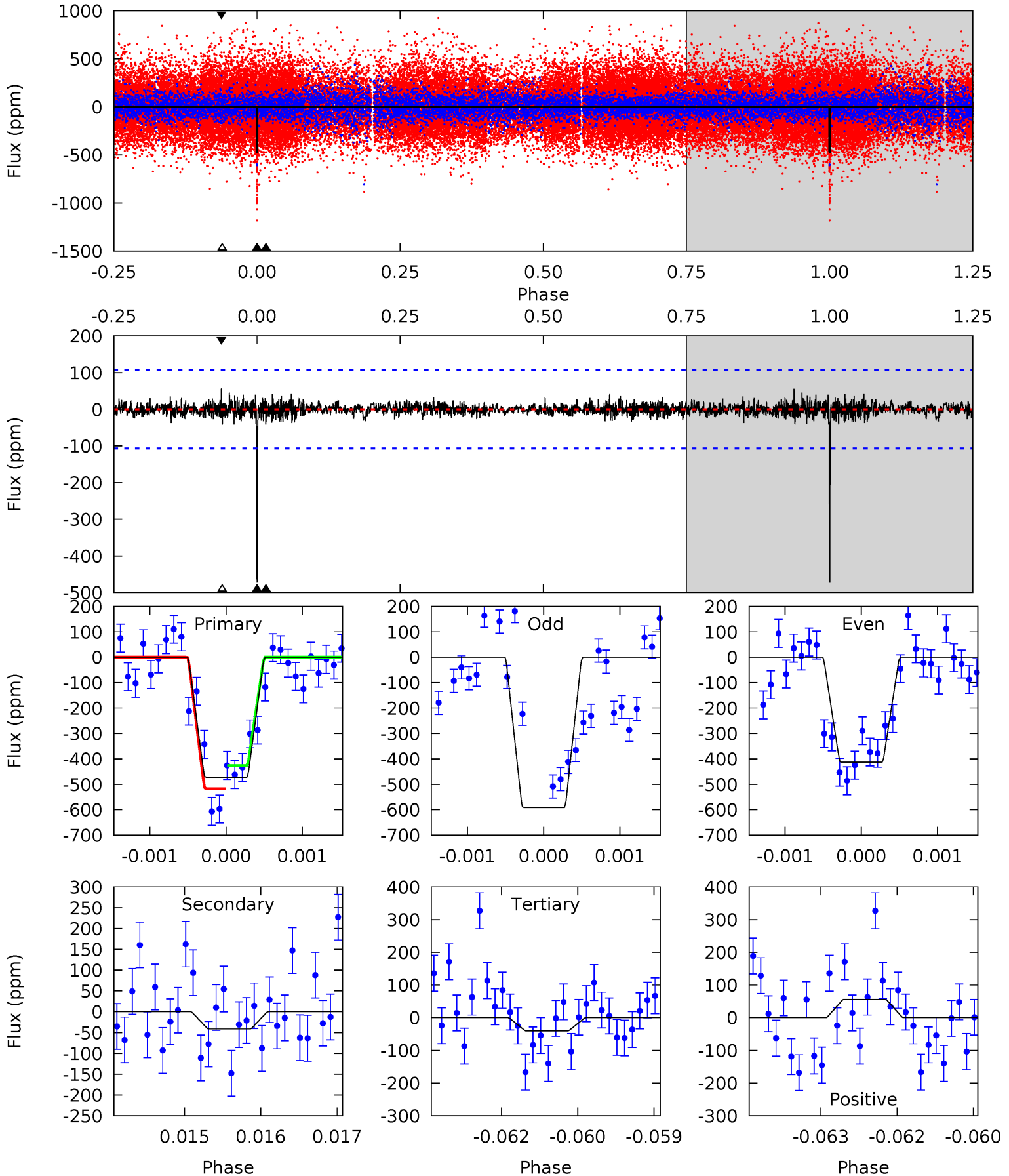
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	8.18	7.39	8.59	5.41	3.23	2.09	10.6	9.45	0.79	-0.40	4.63	1.15	0.32	0.96



# Alt Model-Shift Uniqueness Test

005939166-01, P = 552.557518 Days, E = 407.425594 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
23.9	2.09	2.04	2.83	5.40	3.21	0.56	21.9	21.1	0.04	-0.75	4.18	1.12	0.11	2.28



### Stellar Parameters For KIC 005939166

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4889^{+145}_{-145}$	$4.495^{+0.088}_{-0.064}$	$0.320^{+0.100}_{-0.300}$	$0.841^{+0.070}_{-0.091}$	$0.807^{+0.057}_{-0.052}$	$1.909^{+0.738}_{-0.447}$
	+3%/-3%	+2%/-1%	+31%/-94%	+8%/-11%	+7%/-6%	+39%/-23%
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 005939166-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-183 \pm 22$	$1.80^{+1.13}_{-1.01}$	$249^{+9}_{-10}$	$4249^{+1757}_{-689}$	$48662^{+201900}_{-30838}$
Alt.	$-41 \pm 20$	$2.09^{+1.16}_{-1.03}$	$249^{+11}_{-10}$	$3114^{+828}_{-443}$	$7501^{+22518}_{-5119}$

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

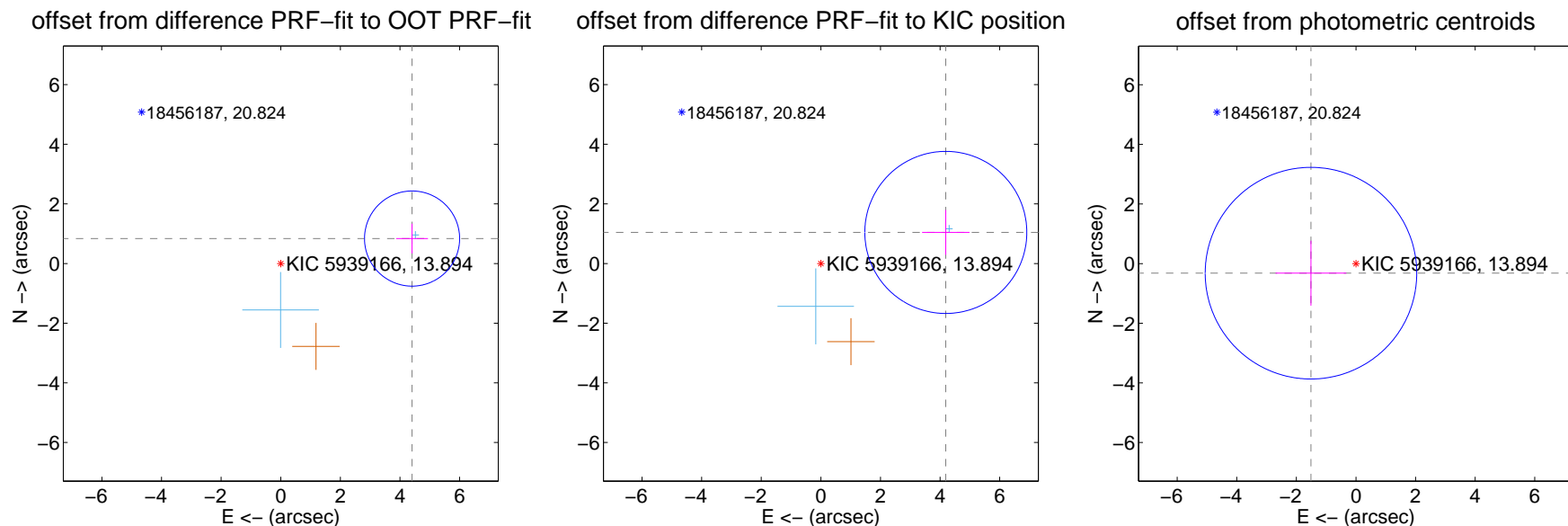
## DV Centroid Data

Supplemental centroid analysis for 005939166-01. Kepler magnitude: 13.89. Transit SNR 7.57

There are 2 quarters with good PRF difference image offsets

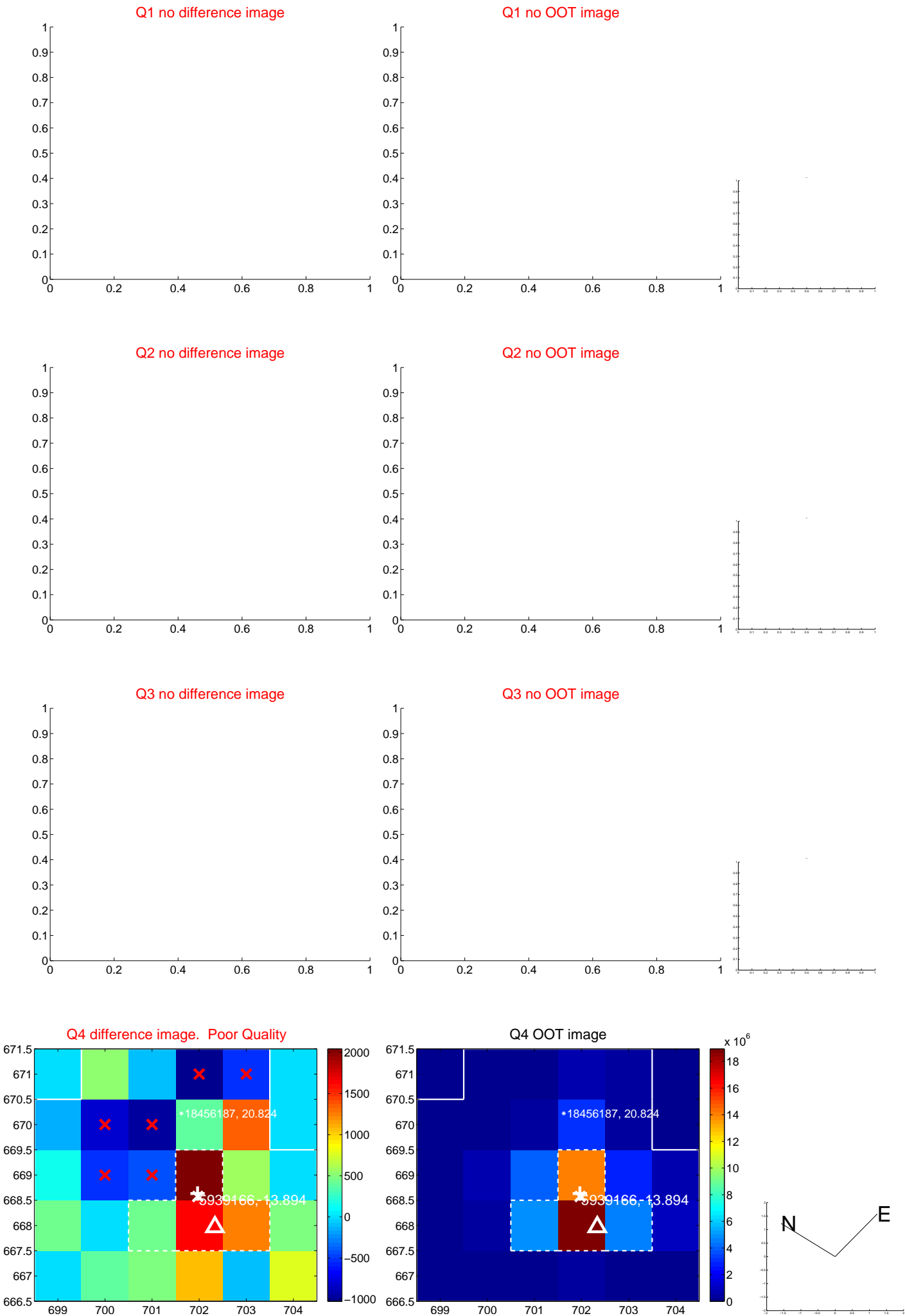
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.484 \pm 0.532$	8.43	$-4.406 \pm 0.533$	$0.837 \pm 0.498$
PRF-fit source offset from KIC position	$4.319 \pm 0.906$	4.77	$-4.191 \pm 0.794$	$1.043 \pm 0.751$
photometric centroid source offset	$1.54 \pm 1.18$	1.30	$1.51 \pm 1.19$	$-0.32 \pm 1.09$



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.

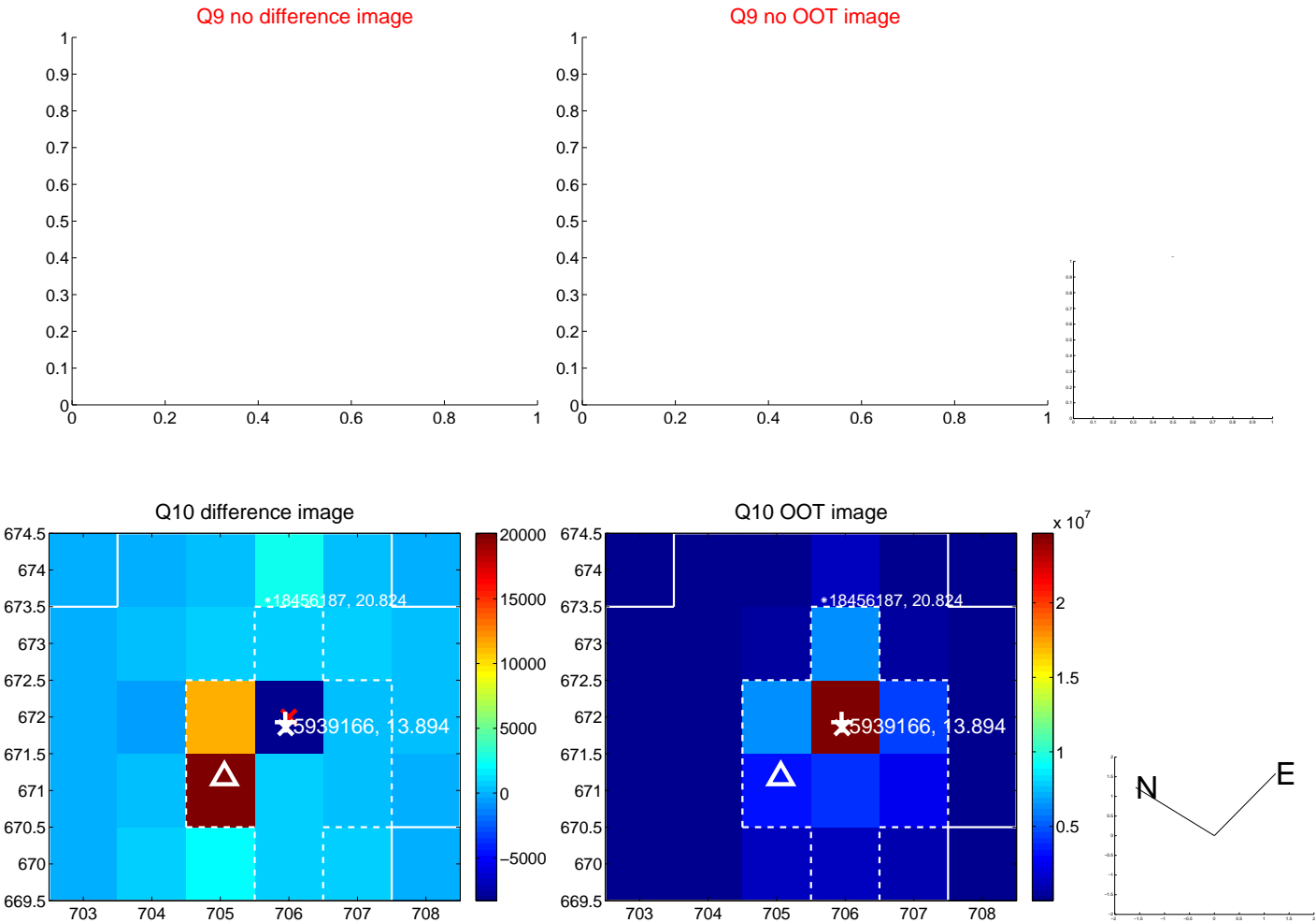


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

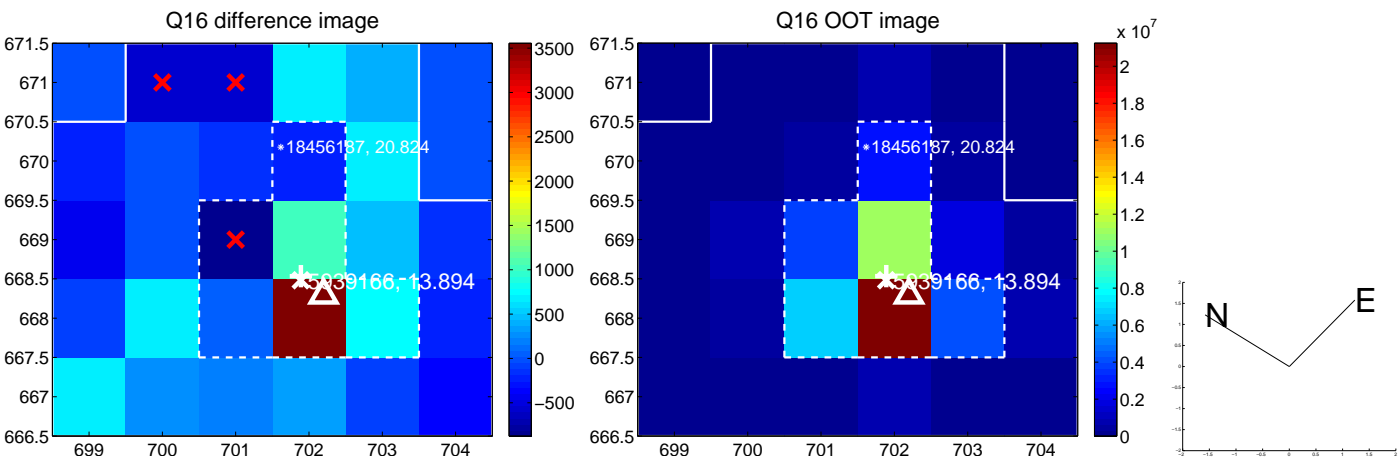
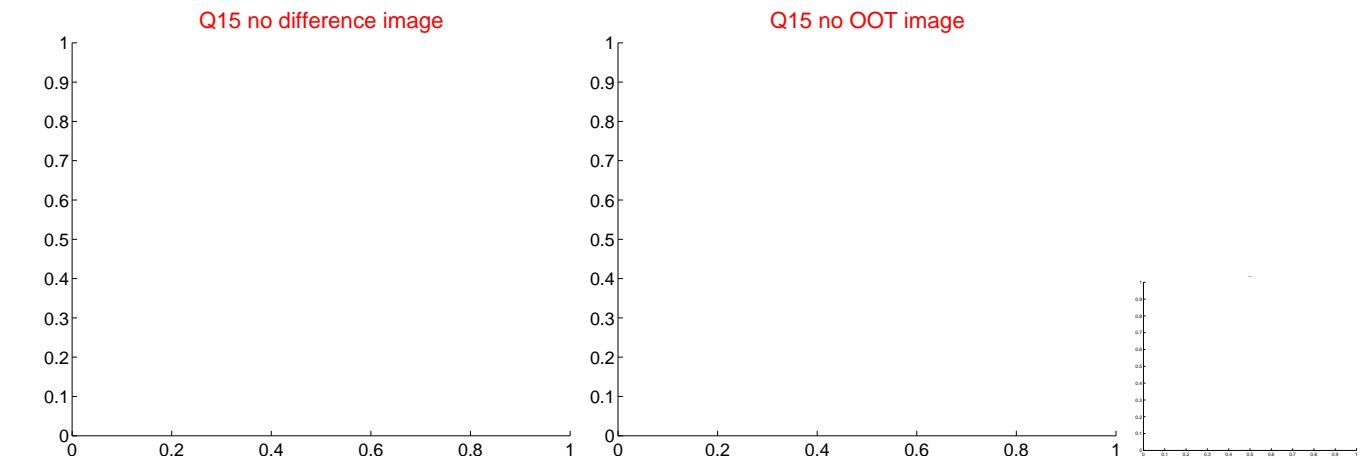
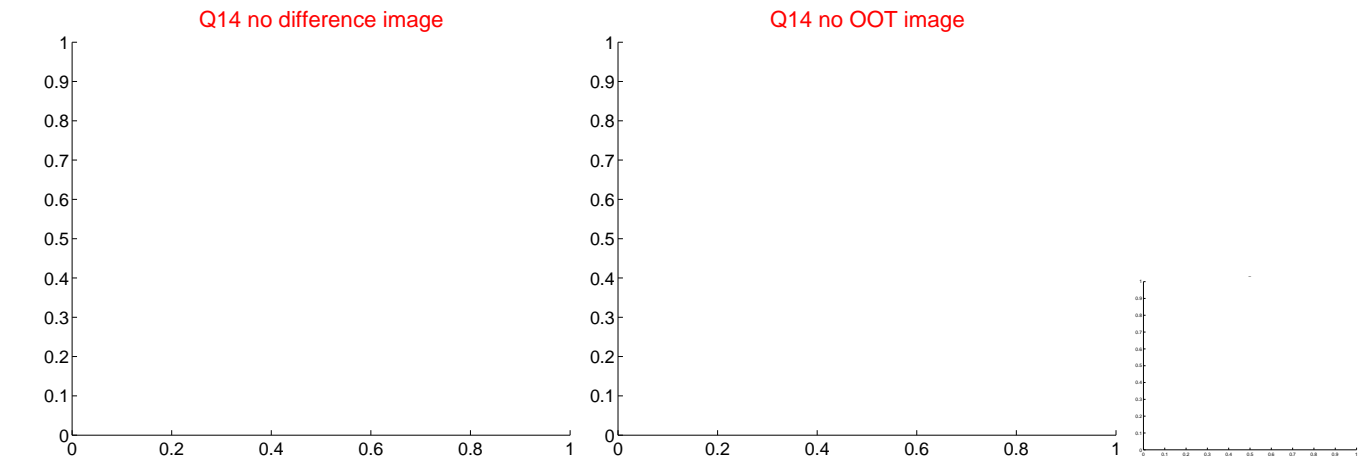
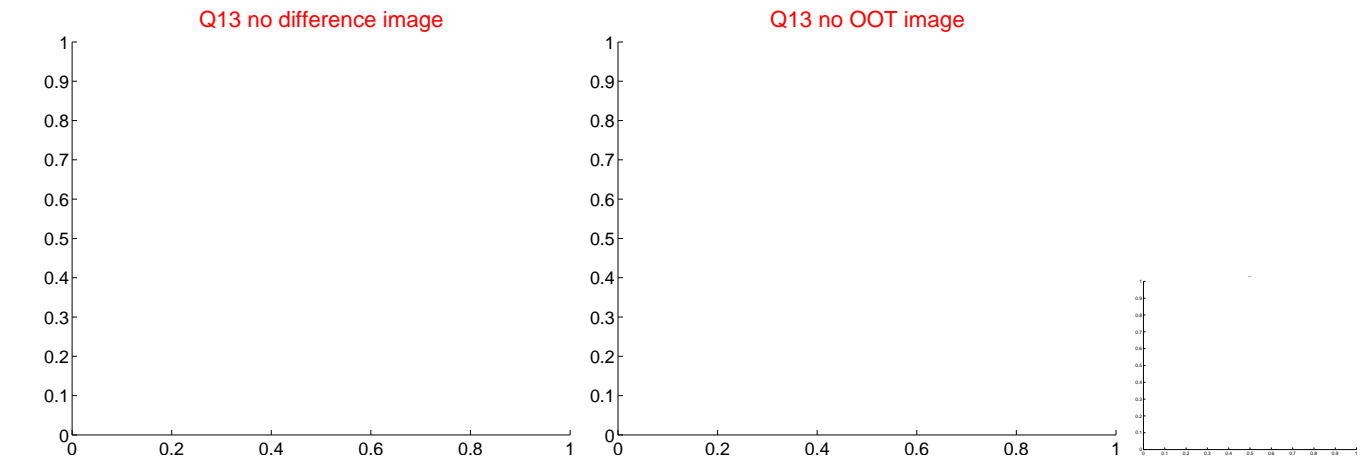




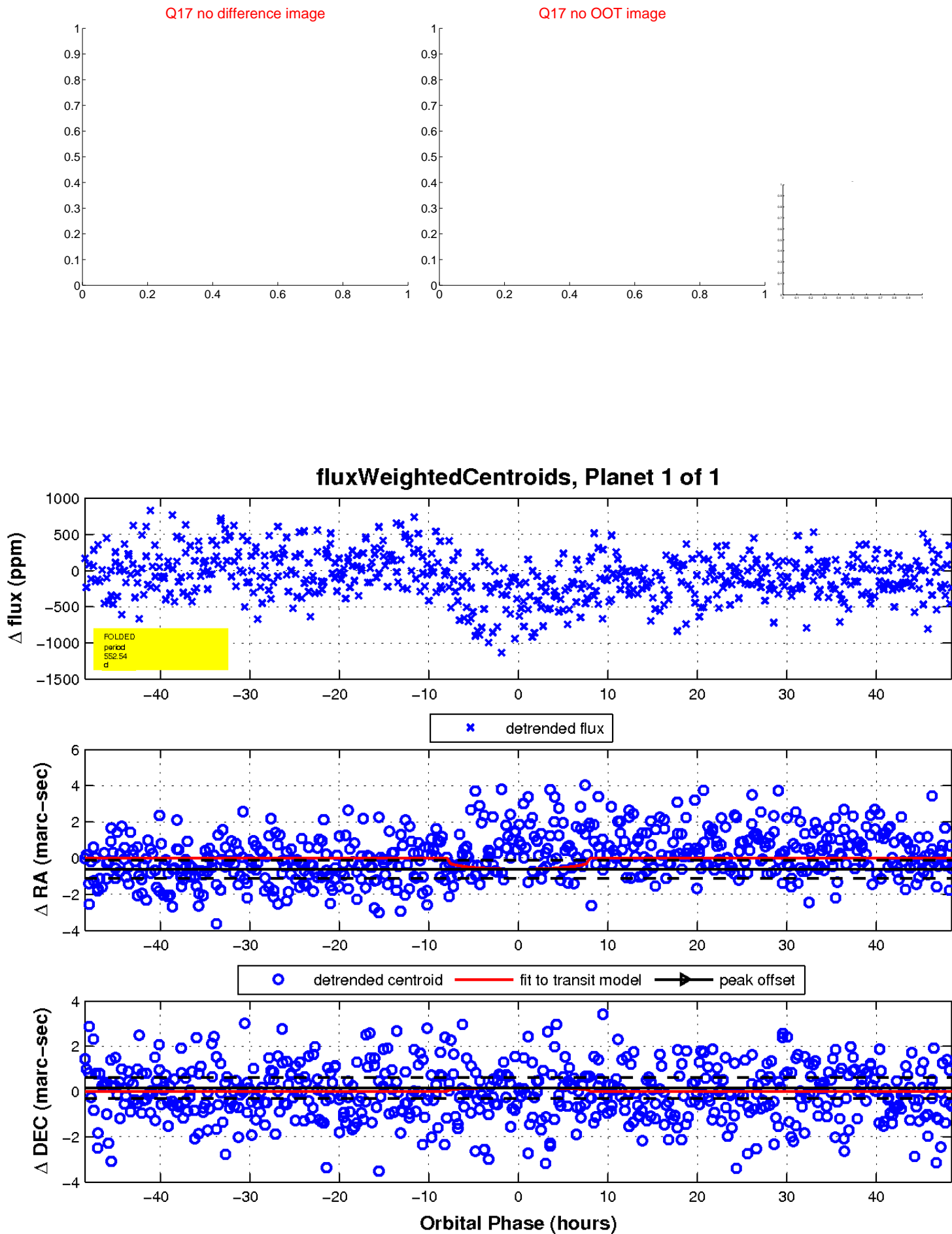
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



# UKIRT Image

Declination

