

# KIC 011020028

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011020028-01	OBS	No	394.909444	487.382112	519.3	3.000	14.3	-1.0	0.53	4576	1.17	0.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011020028-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

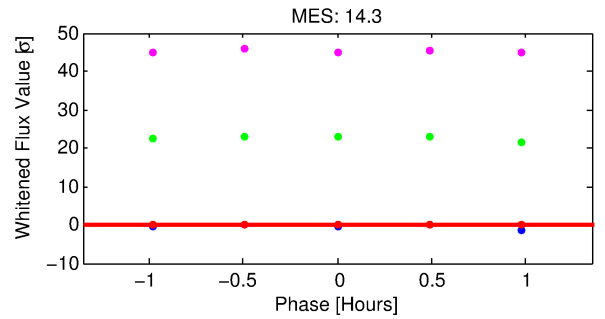
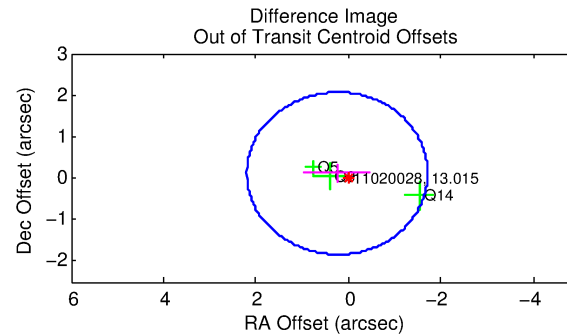
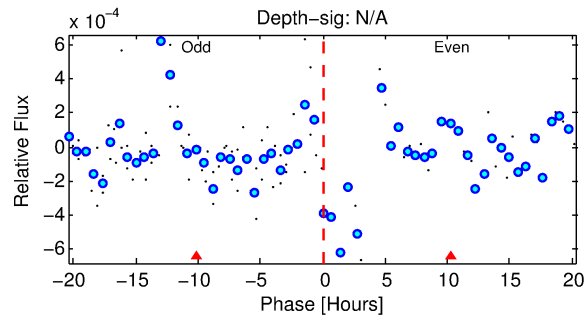
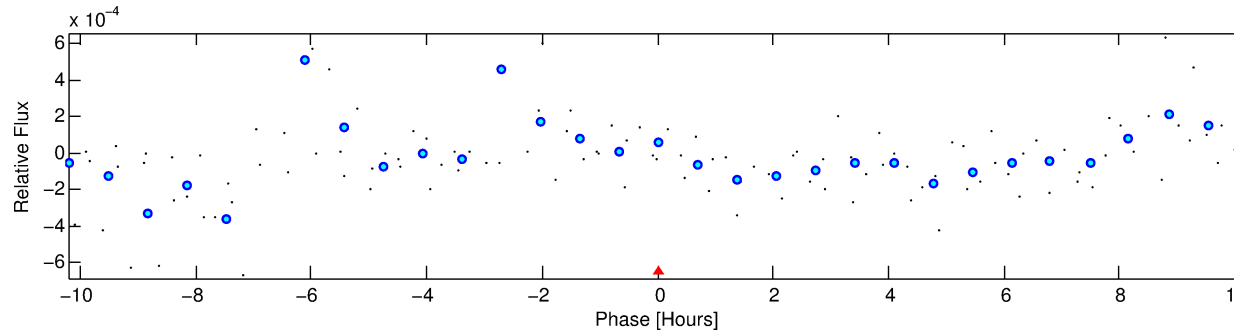
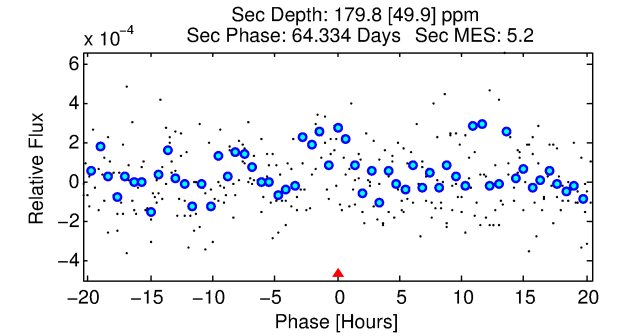
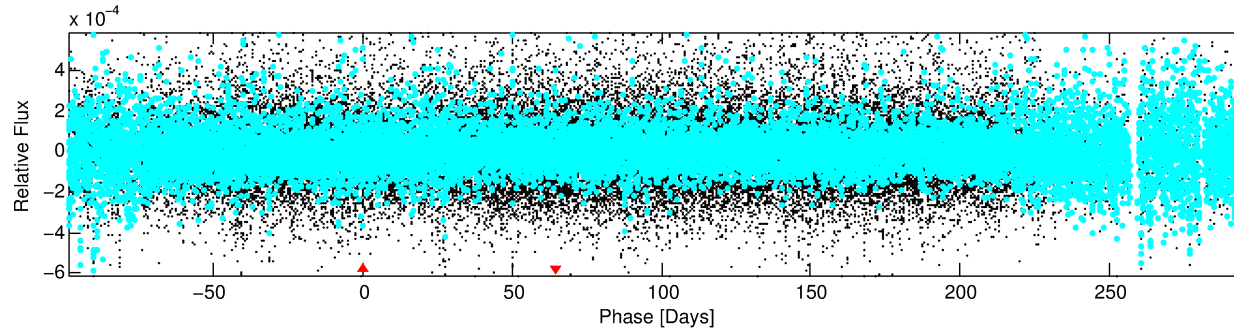
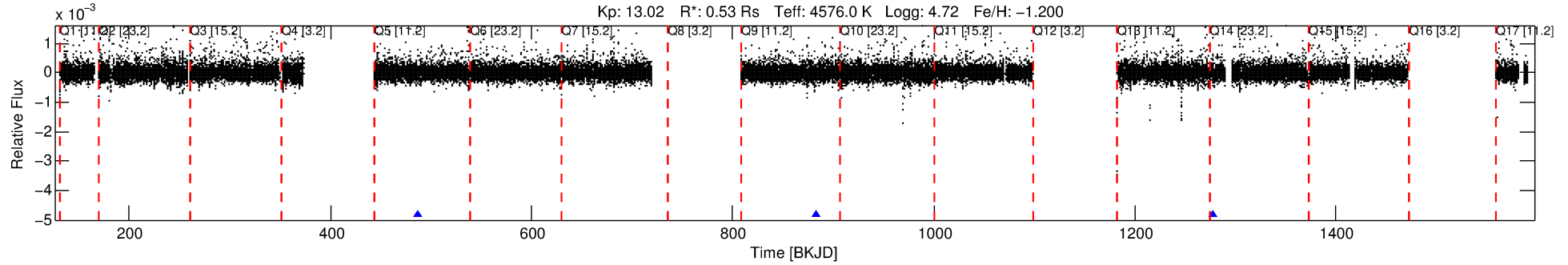
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011020028-01

No Significant Match Found

# DV One-Page Summary

KIC: 11020028 Candidate: 1 of 1 Period: 394.909 d



## TPS TCE Results:

Period = 394.90944 d  
Epoch = 487.3821 BKJD

DV fit results are unavailable

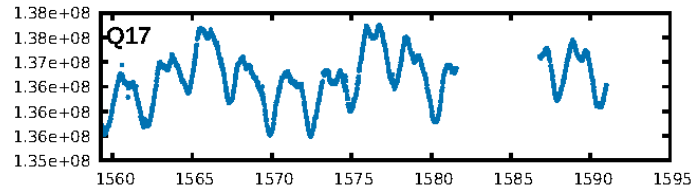
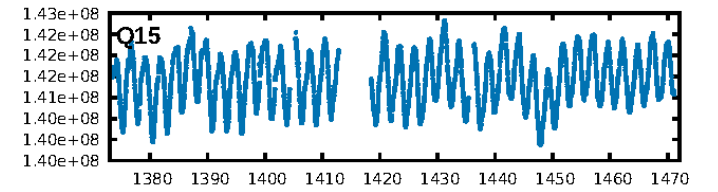
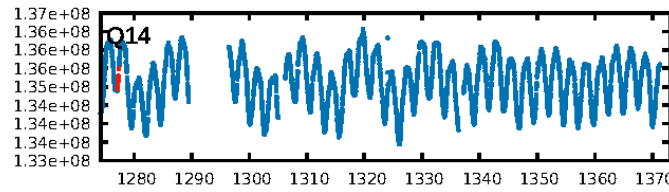
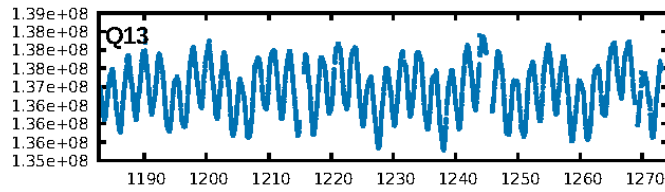
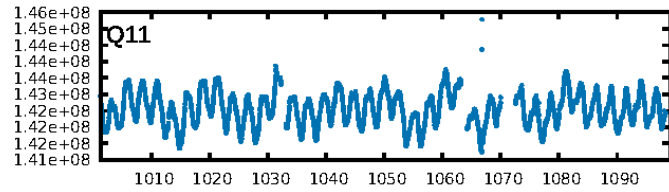
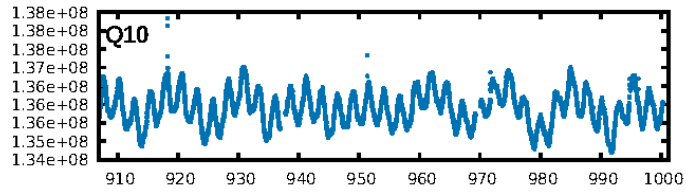
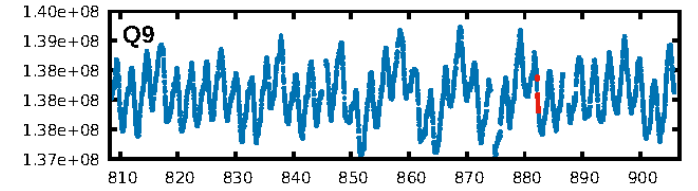
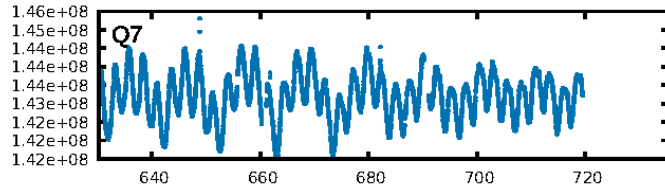
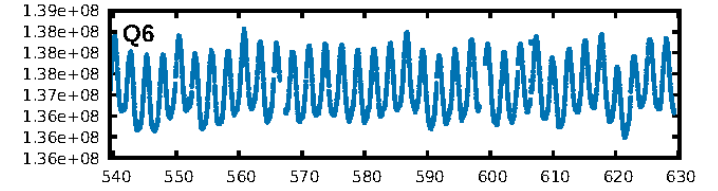
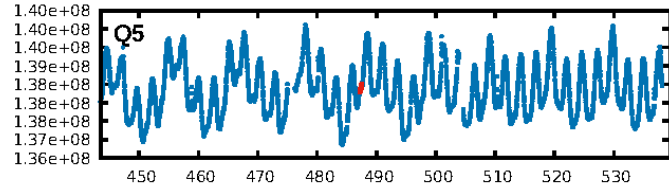
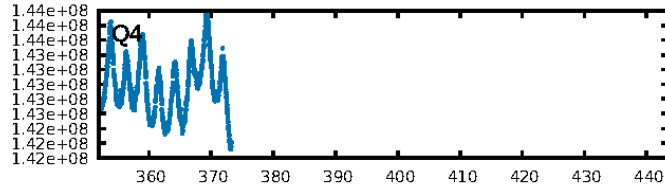
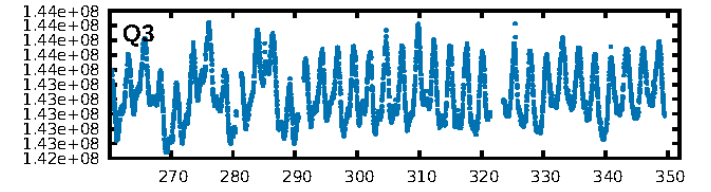
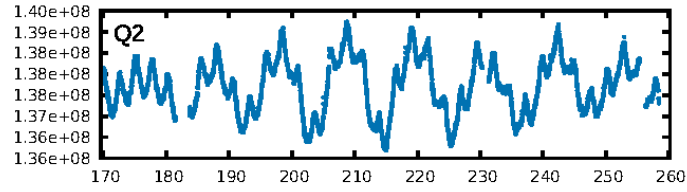
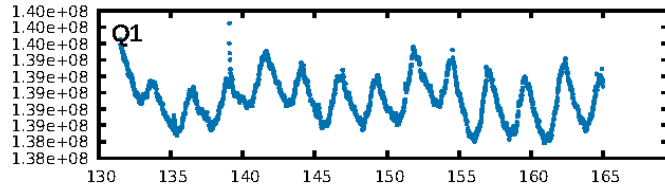
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.10e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.6025  
Centroid-sig: 14.3%  
Centroid-so: 23.731 arcsec [1.24σ]  
OotOffset-rm: 0.273 arcsec [0.42σ]  
KicOffset-rm: 0.267 arcsec [0.52σ]  
OotOffset-st: 1/0/0/2 [3]  
KicOffset-st: 1/0/0/2 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

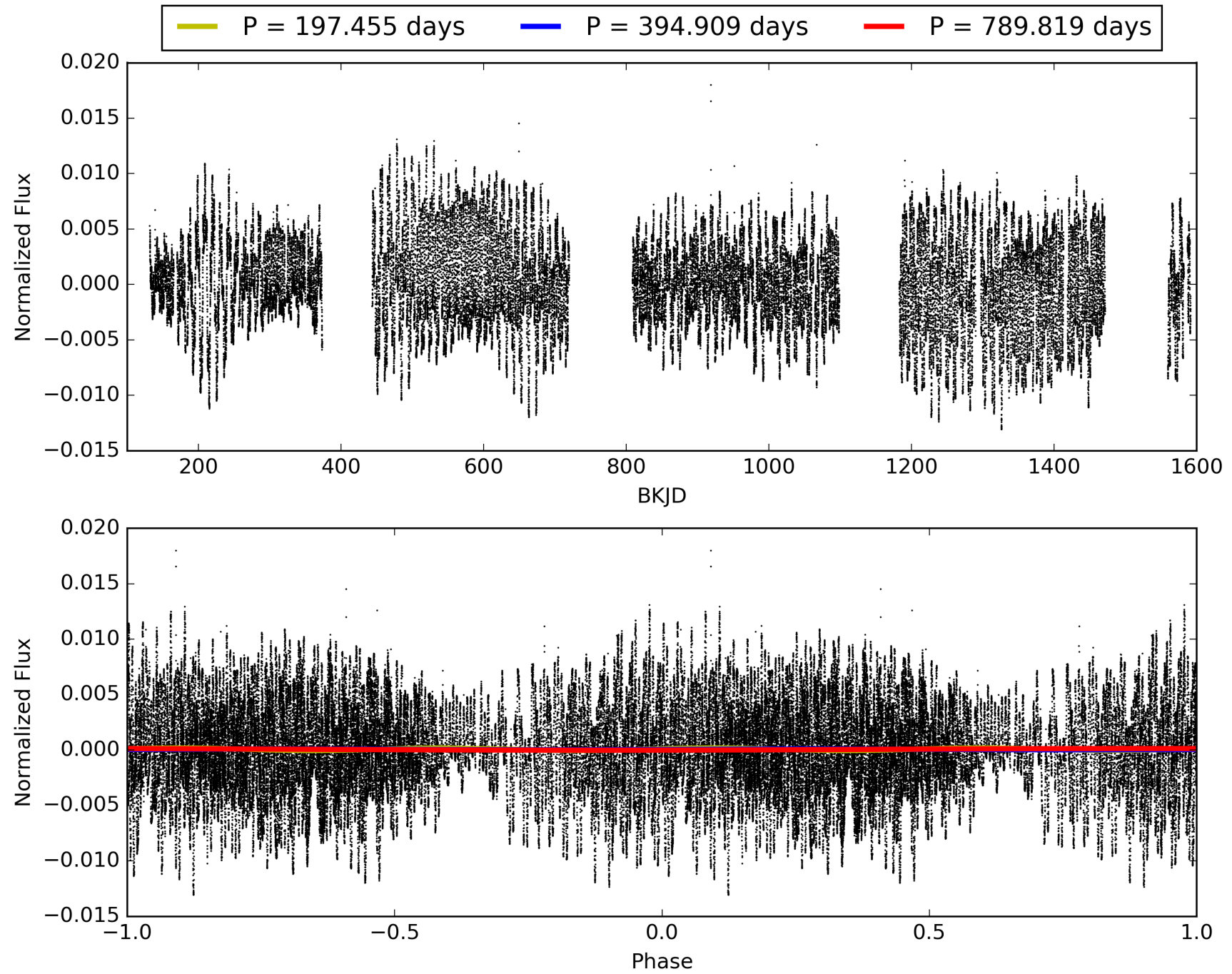
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:23:55 Z

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

# TCE 011020028-01, PDC Light Curves

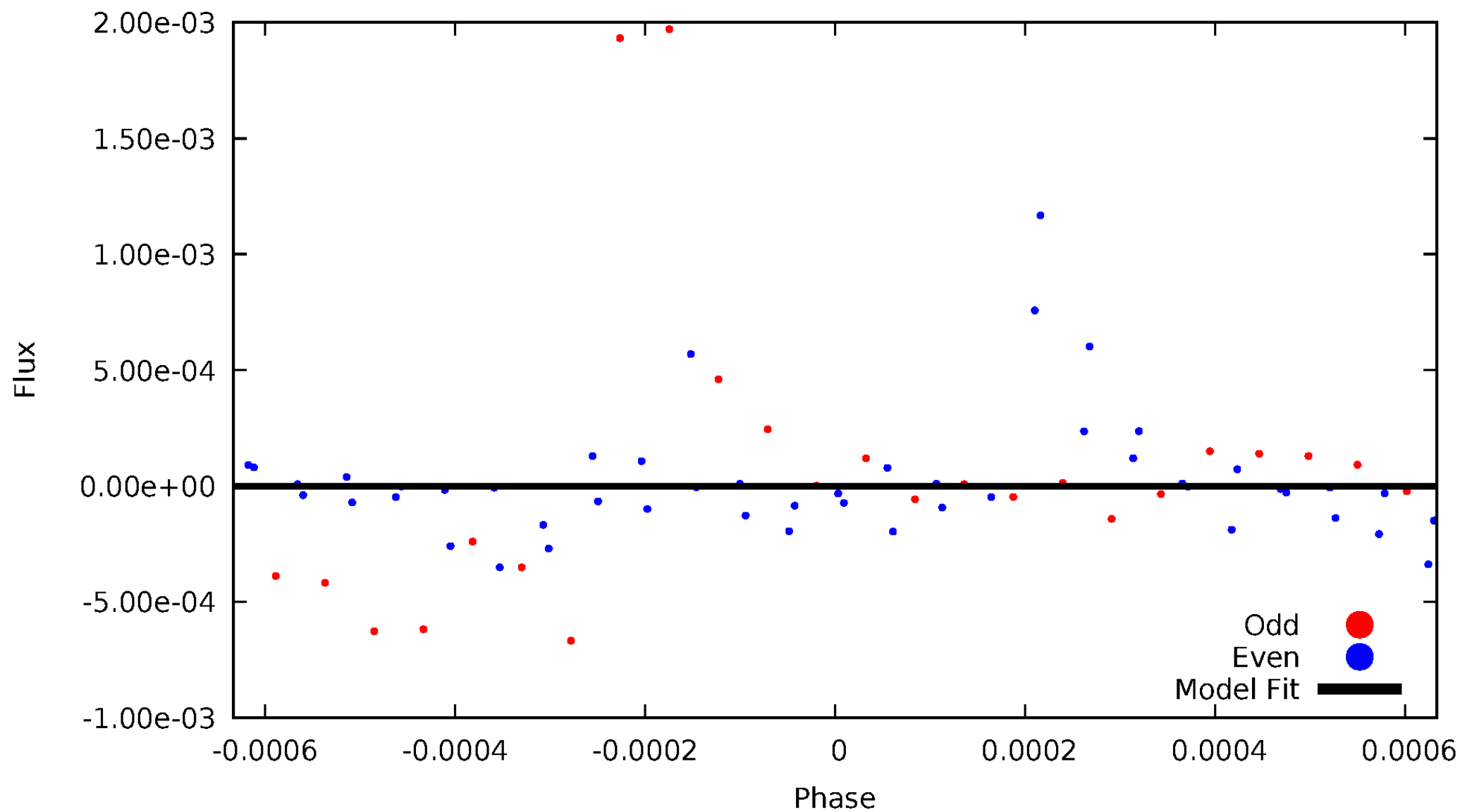


TCE 011020028-01



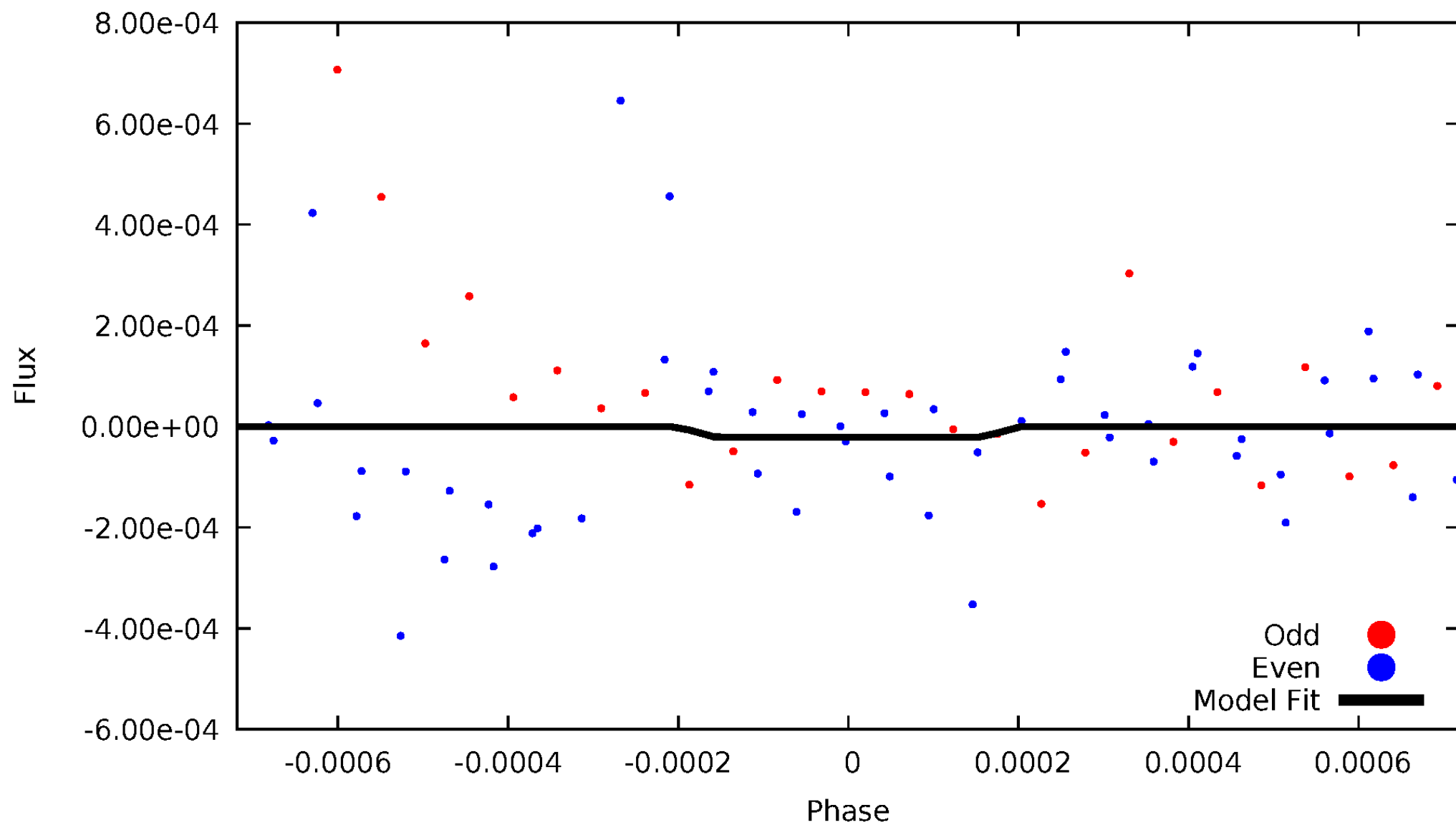
# DV Odd/Even

TCE 011020028-01

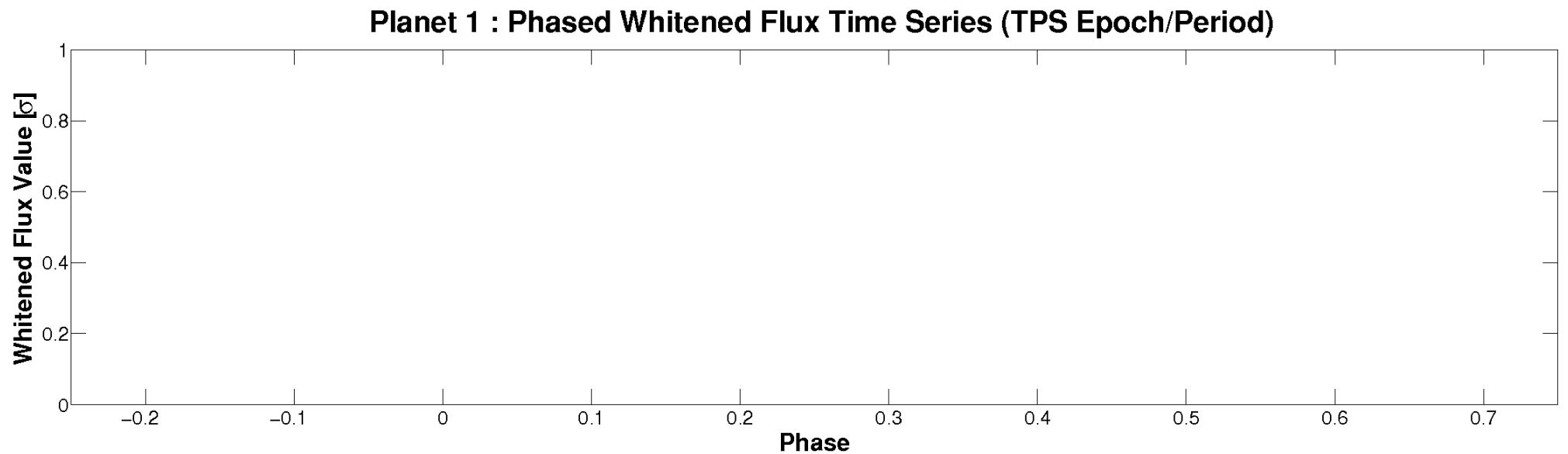
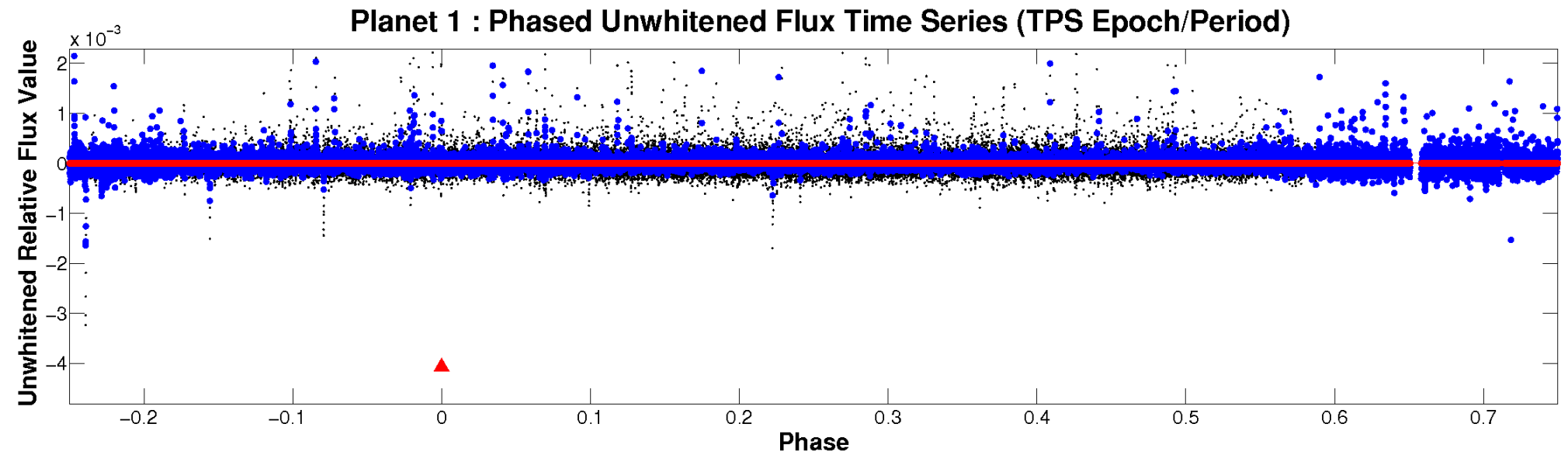


# ALT Odd/Even

TCE 011020028-01

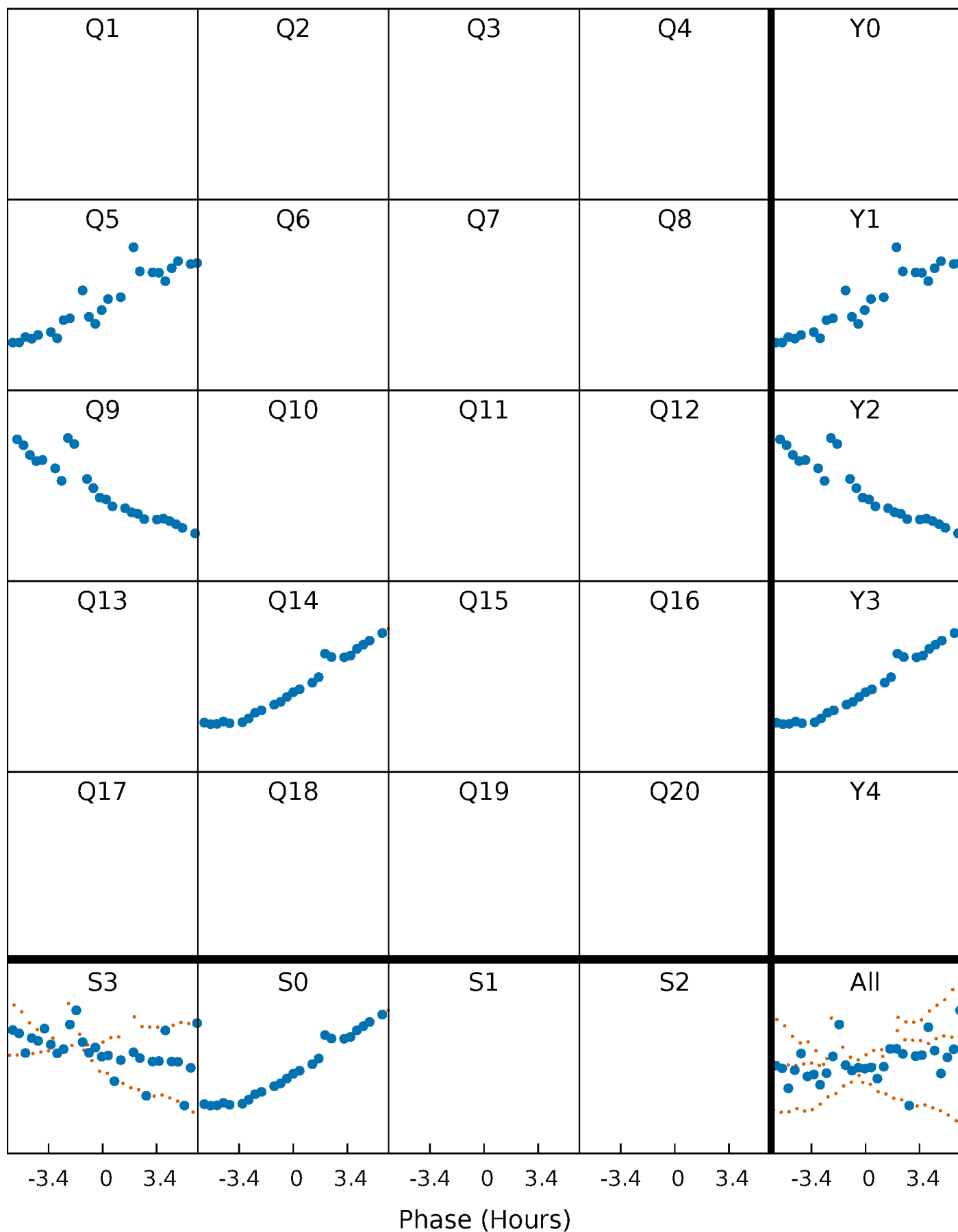


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

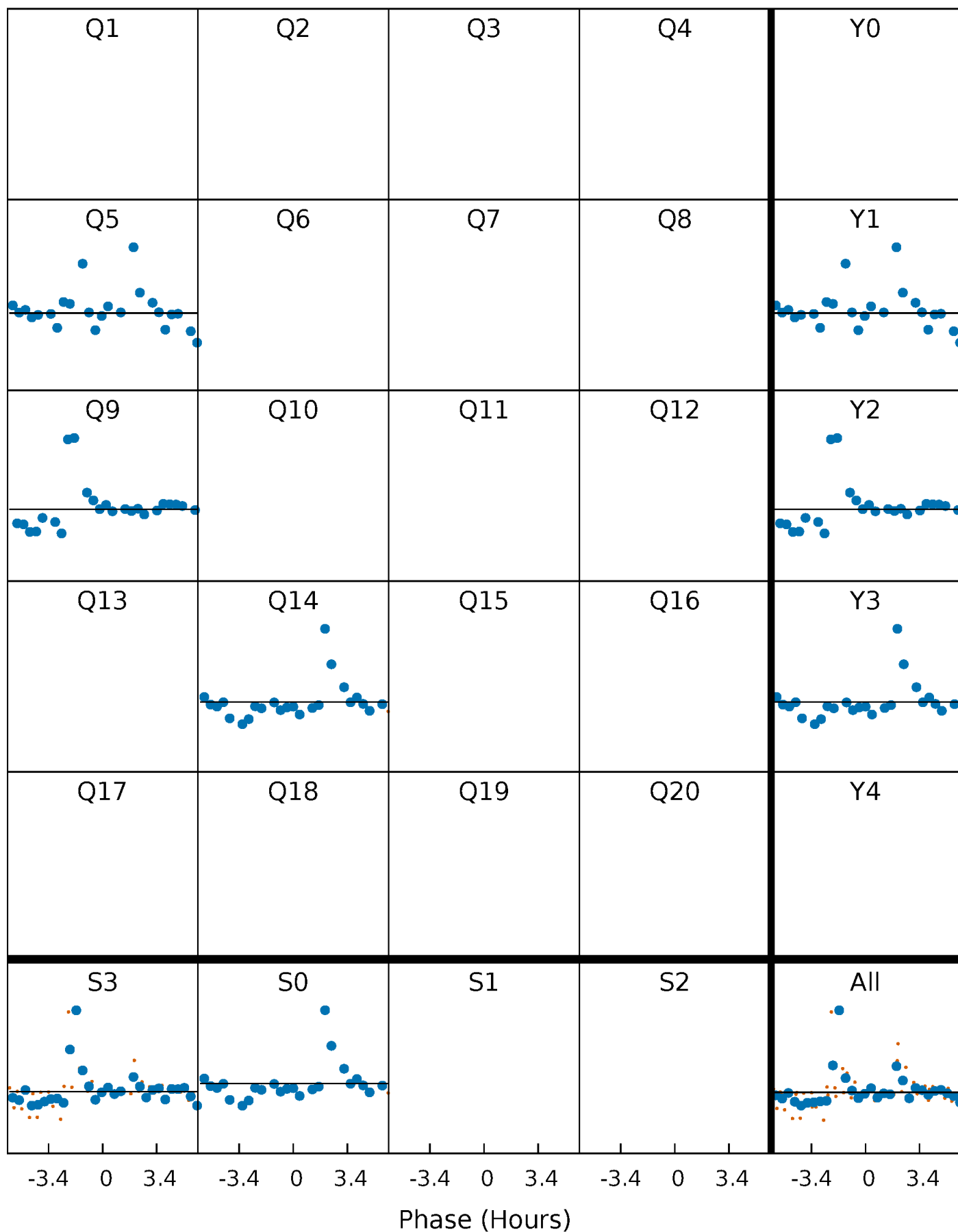
TCE 011020028-01   P=394.909444 Days    $T_0=487.382112$  (BKJD)





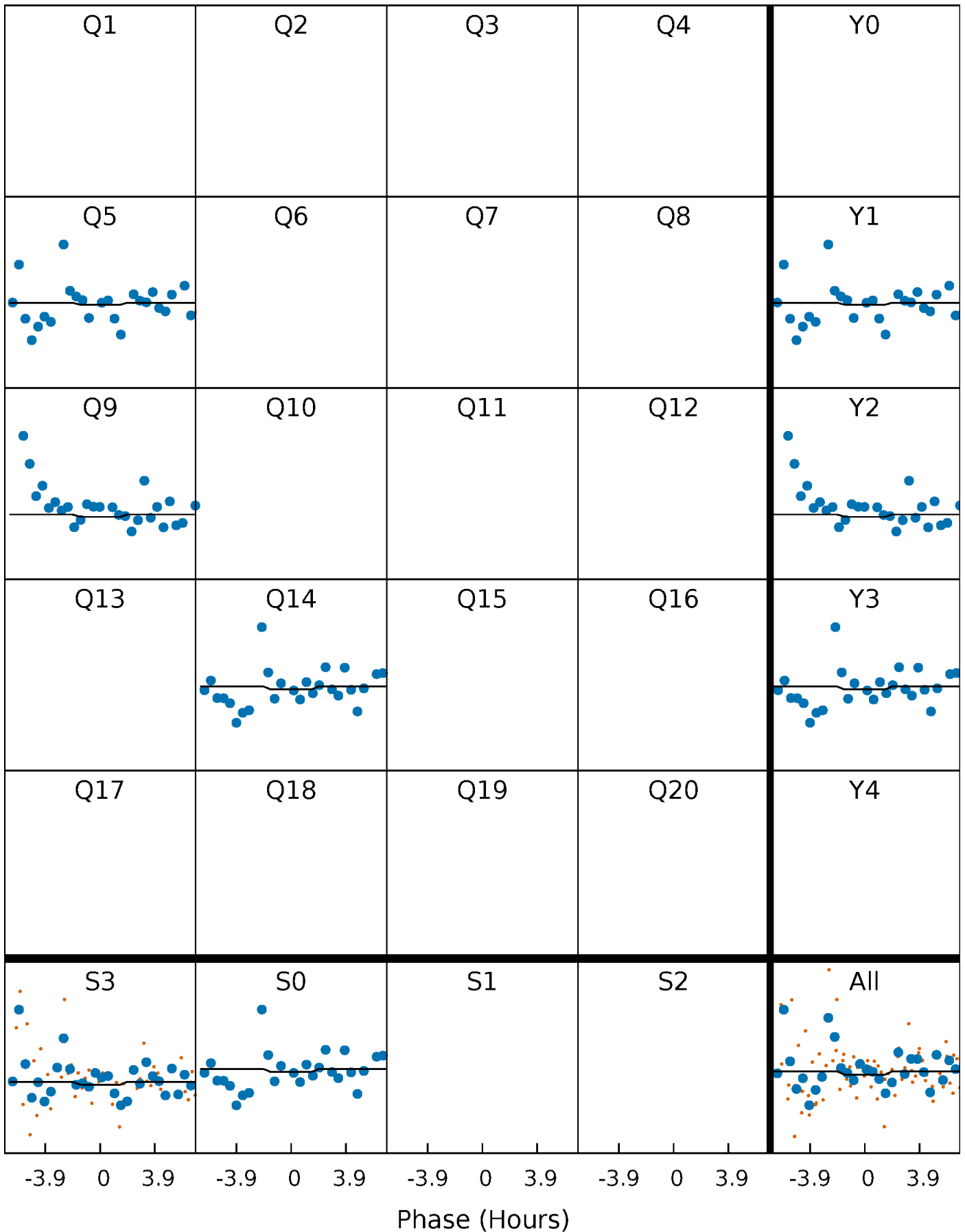
# DV Quarter-Phased Transit Curves

TCE 011020028-01     $P=394.909444$  Days     $T_0=487.382112$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

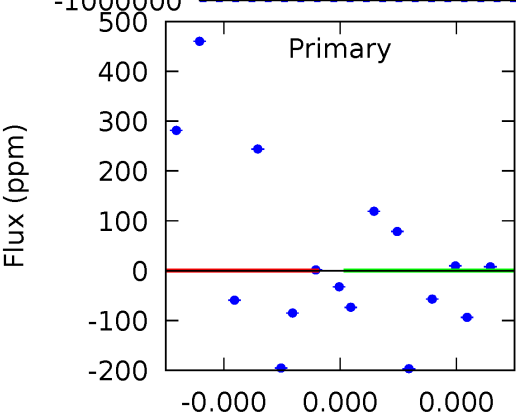
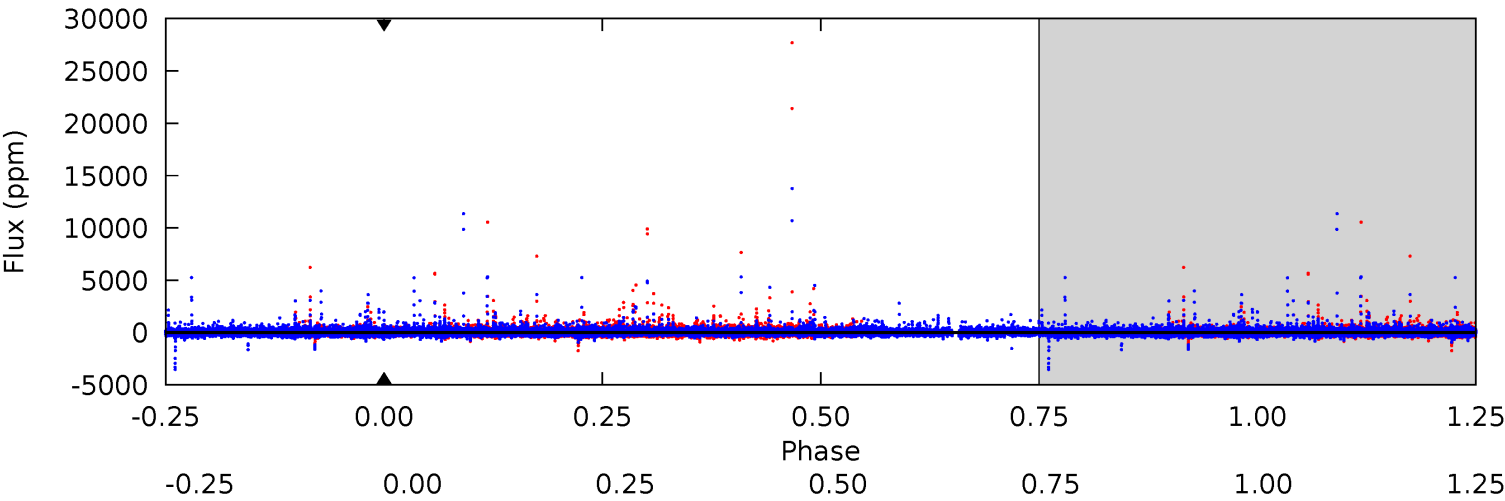
TCE 011020028-01     $P=394.909444$  Days     $T_0=487.570931$  (BKJD)



# DV Model-Shift Uniqueness Test

011020028-01, P = 394.909444 Days, E = 92.472668 Days

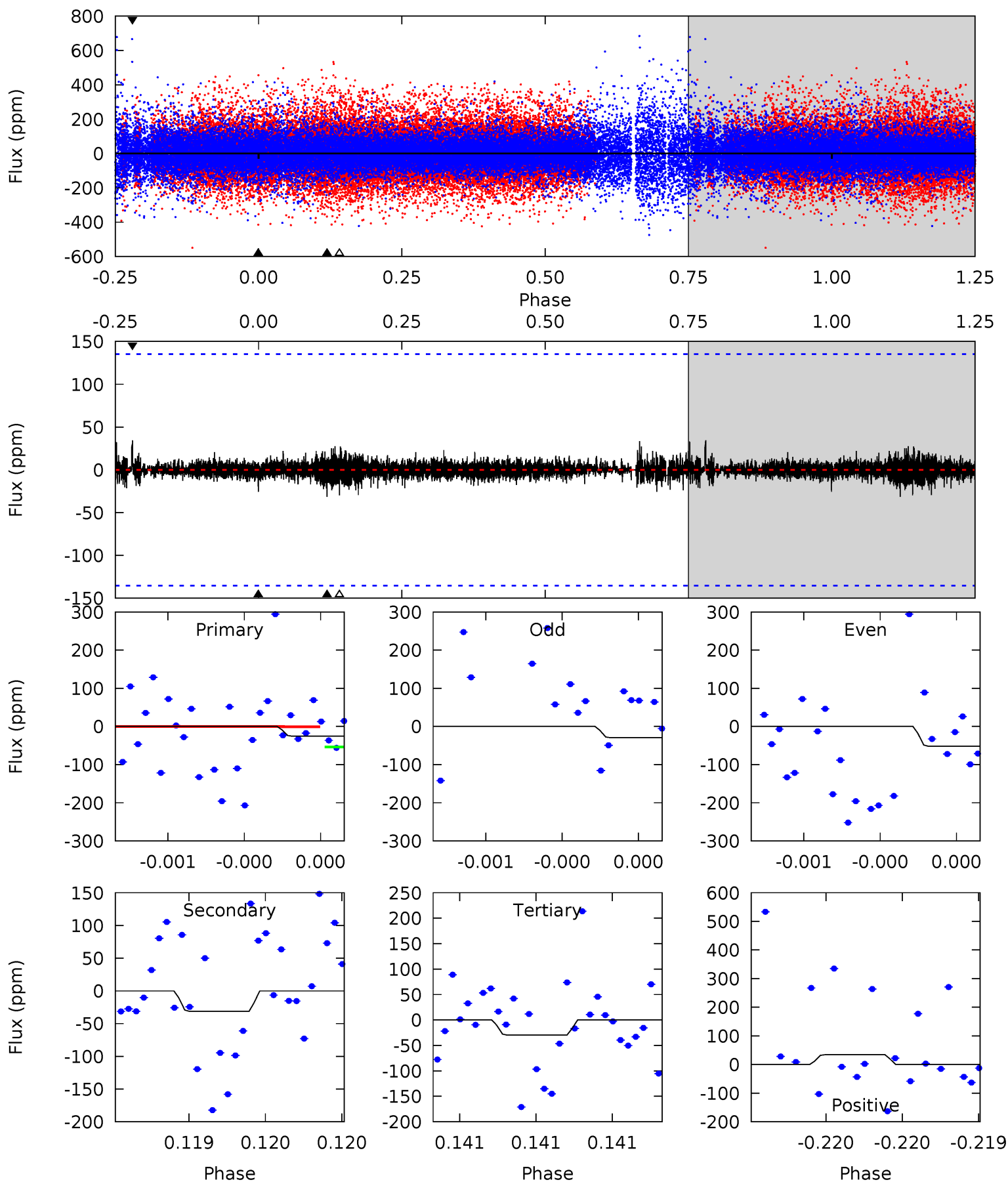
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

011020028-01, P = 394.909444 Days, E = 92.661487 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
1.06	1.30	1.24	1.43	5.63	3.56	0.24	-0.18	-0.37	0.06	-0.13	0.44	1.52	0.52	1.09



### Stellar Parameters For KIC 011020028

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4576^{+139}_{-139}$	$4.720^{+0.048}_{-0.028}$	$-1.200^{+0.300}_{-0.300}$	$0.525^{+0.034}_{-0.038}$	$0.528^{+0.040}_{-0.023}$	$5.140^{+0.992}_{-0.618}$
	+3%/-3%	+1%/-1%	+25%/-25%	+6%/-7%	+8%/-4%	+19%/-12%
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 011020028-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$4.29^{+4.66}_{-3.03}$	$221^{+7}_{-8}$	$-3633^{+15108}_{-8970}$	$-34462.213^{+3356891.415}_{-4063139.854}$
Alt.	$-31 \pm 24$	$4.02^{+4.38}_{-2.88}$	$221^{+8}_{-7}$	$2133^{+844}_{-410}$	$596^{+7938}_{-525}$

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

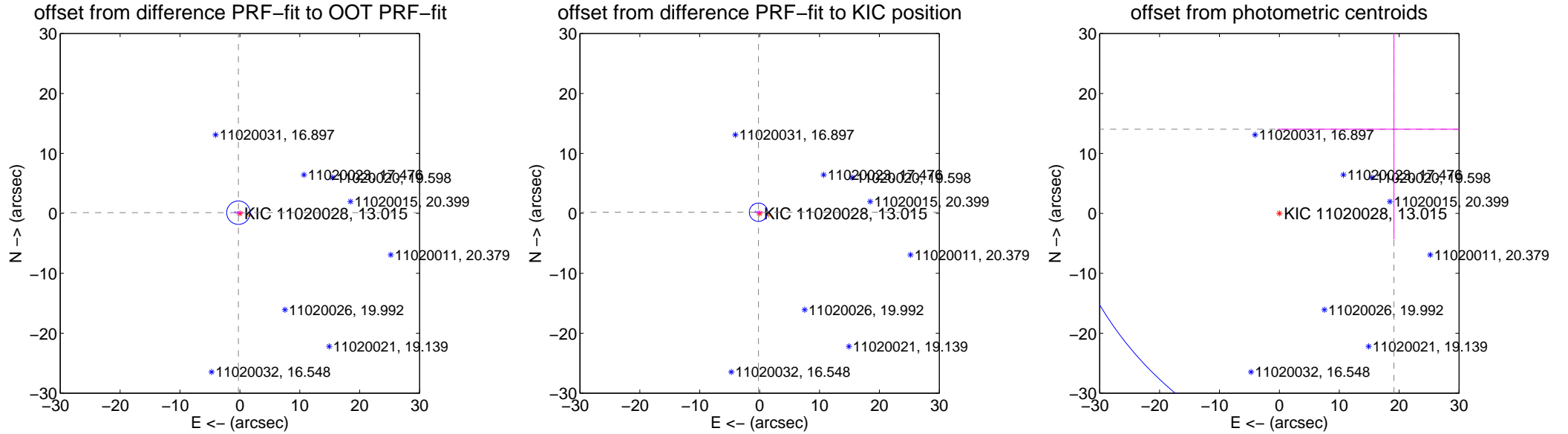
## DV Centroid Data

Supplemental centroid analysis for 011020028-01. Kepler magnitude: 13.02. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.273 \pm 0.651$	0.42	$0.247 \pm 0.712$	$0.115 \pm 0.202$
PRF-fit source offset from KIC position	$0.267 \pm 0.510$	0.52	$0.190 \pm 0.687$	$0.188 \pm 0.210$
photometric centroid source offset	$23.73 \pm 19.07$	1.24	$-19.13 \pm 19.42$	$14.03 \pm 18.39$

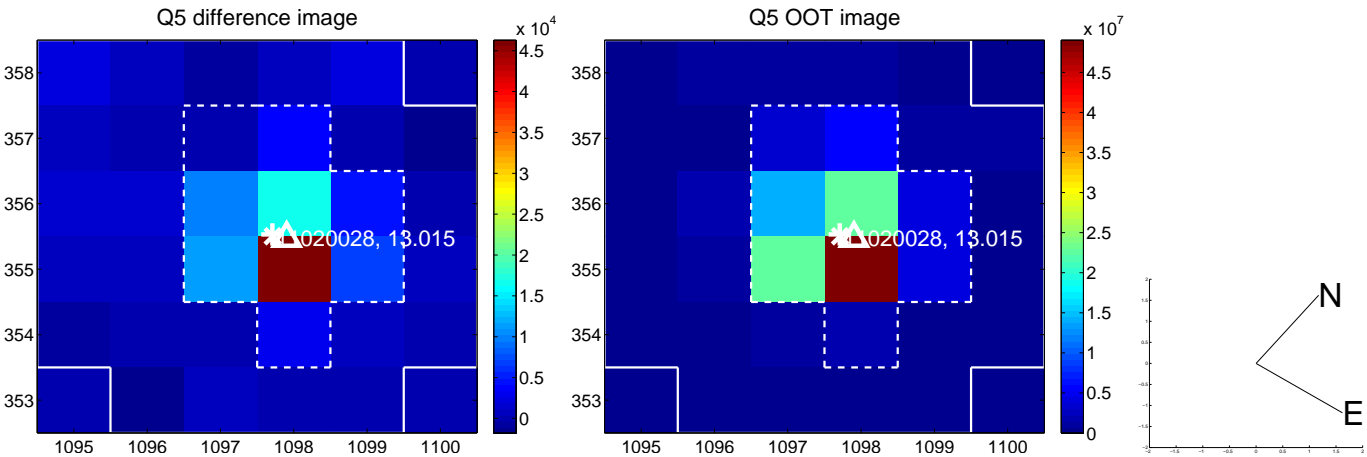


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

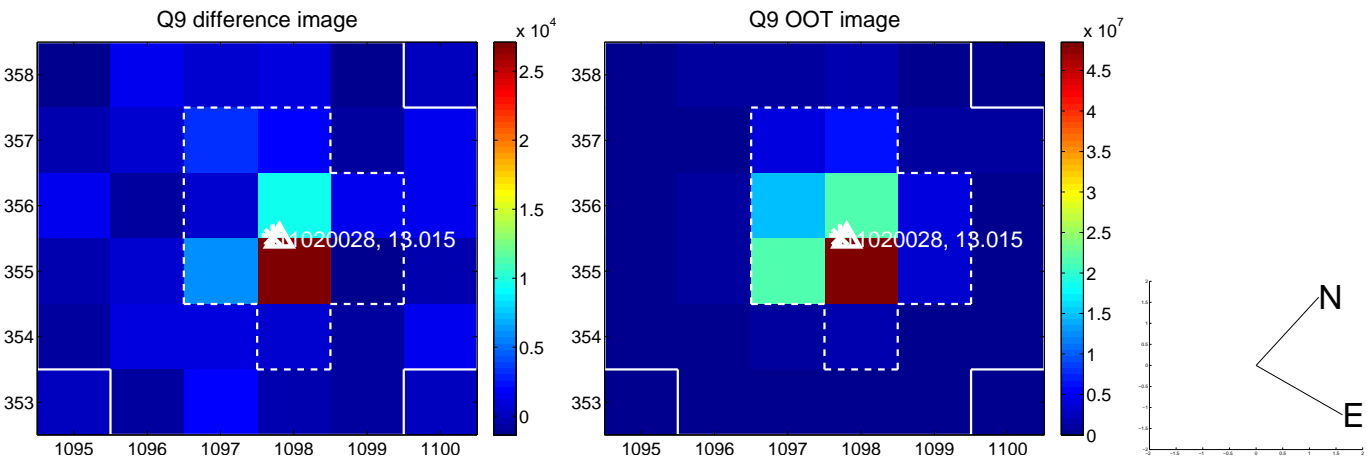


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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

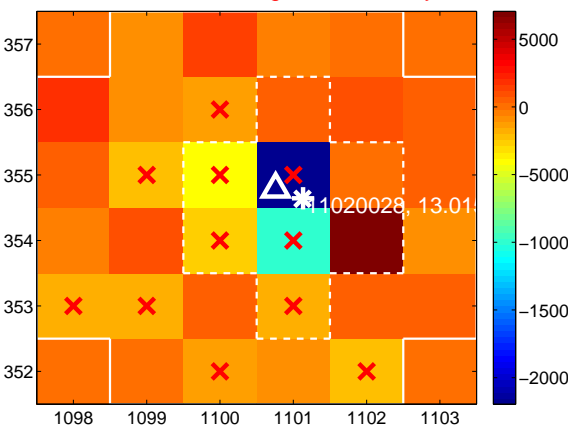
Q13 no difference image



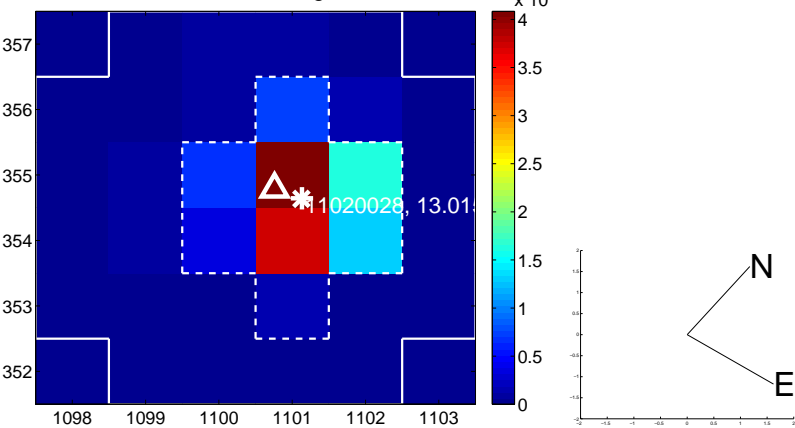
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



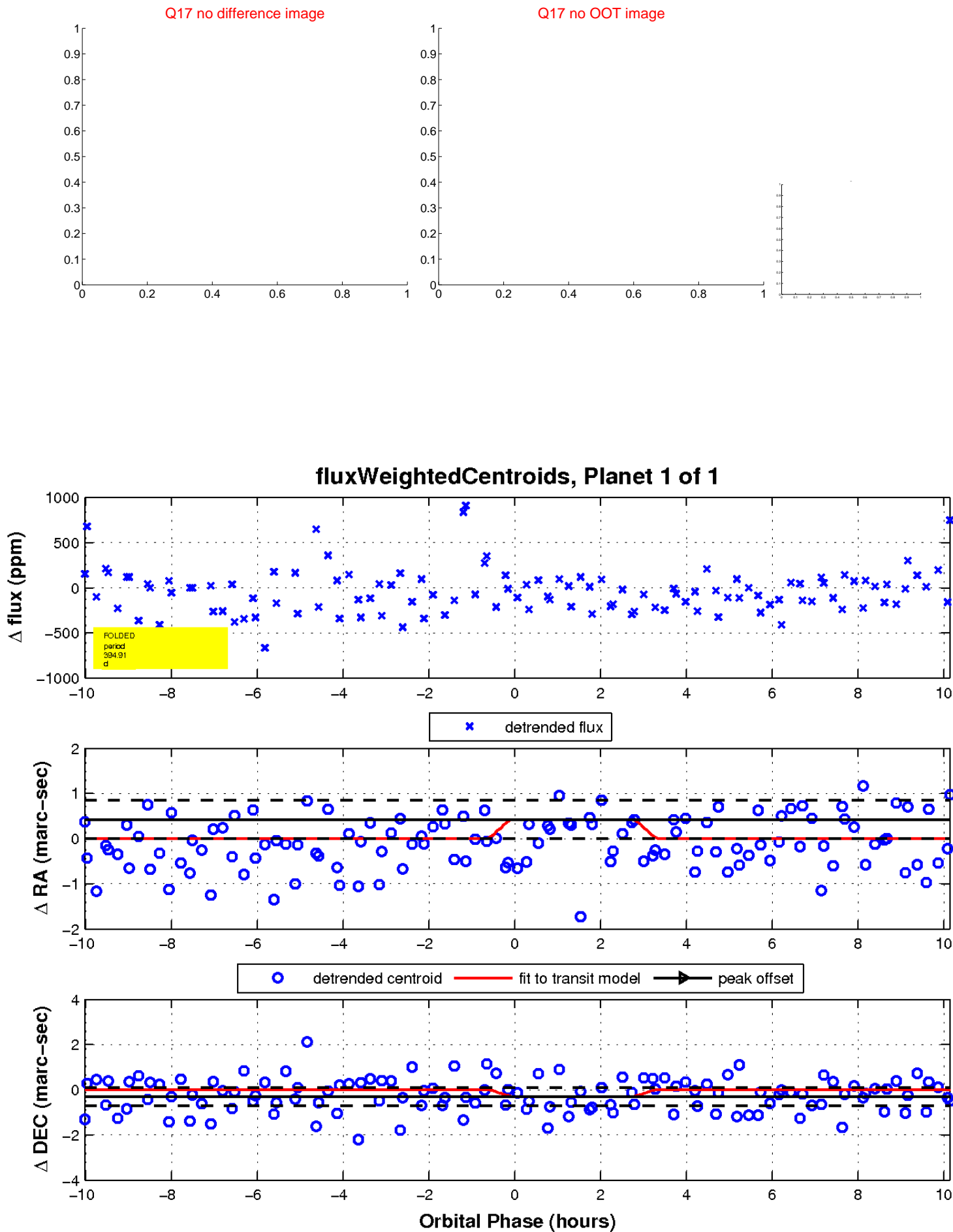
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

