

# KIC 005710069

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005710069-01	OBS	3396.01	36.258036	146.843403	391.0	6.955	11.6	12.4	0.85	5818	2.12	16.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005710069-01	OBS	PC	0.95	0	0	0	0	NO_COMMENT

**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 005710069-01

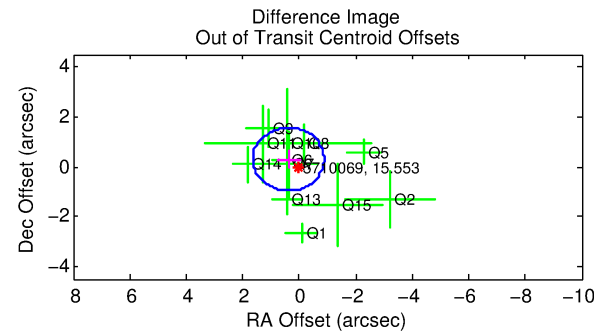
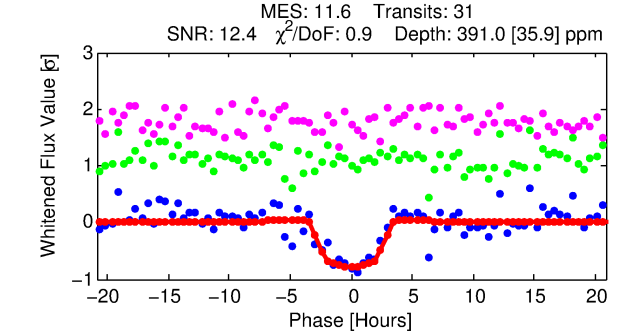
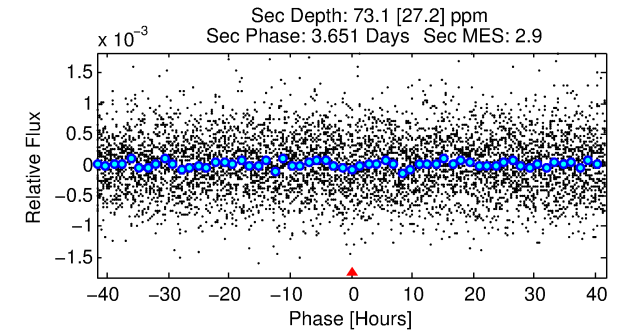
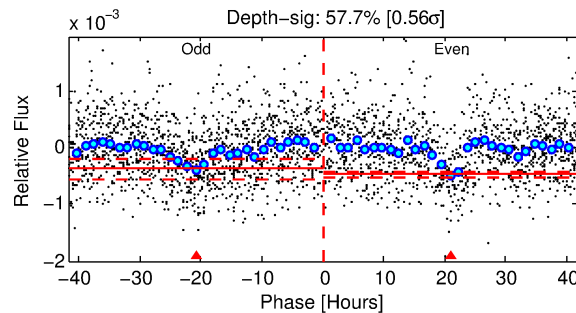
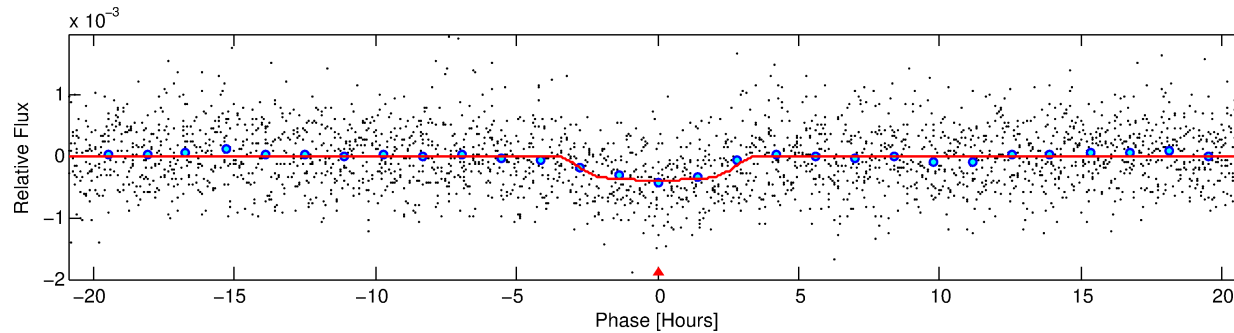
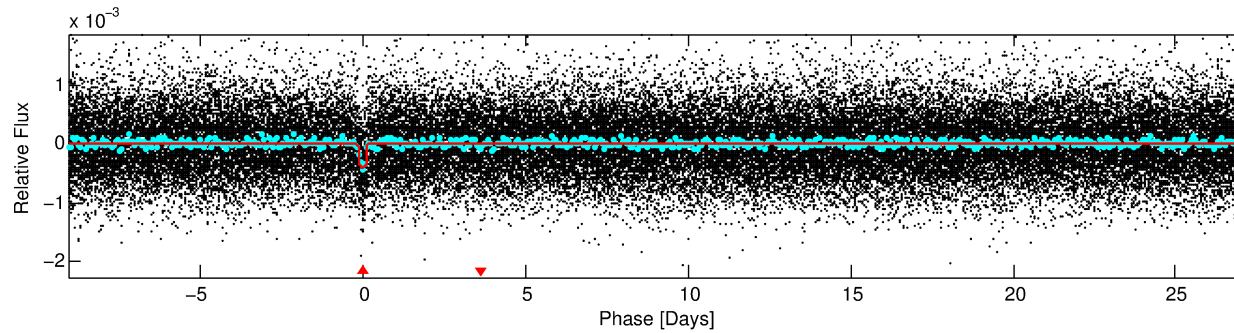
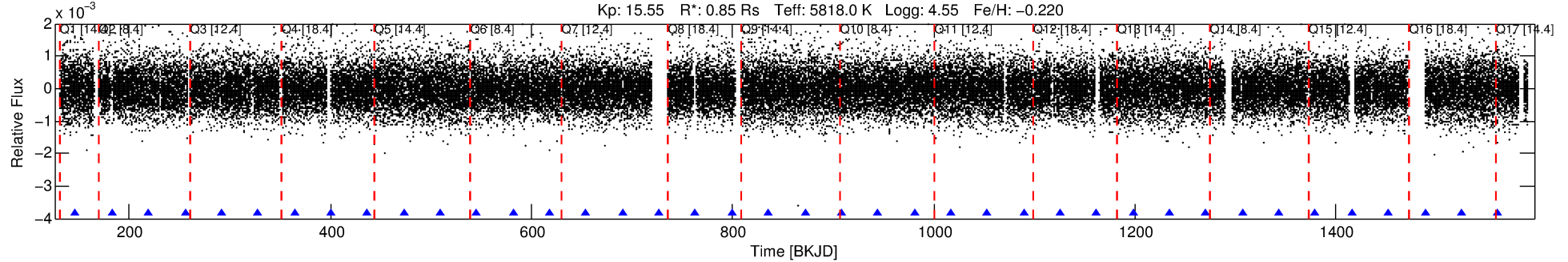
No Significant Match Found

# DV One-Page Summary

KIC: 5710069 Candidate: 1 of 1 Period: 36.258 d

KOI: K03396.01 Corr: 0.923

Kp: 15.55 R\*: 0.85 Rs Teff: 5818.0 K Logg: 4.55 Fe/H: -0.220



## DV Fit Results:

Period = 36.25804 [0.00059] d  
Epoch = 146.8434 [0.0132] BKJD  
Rp/R\* = 0.0230 [0.0019]  
a/R\* = 14.98 [4.54]  
b = 0.95 [0.03]  
Seff = 16.74 [5.28]  
Teq = 516 [41] K  
Rp = 2.12 [0.53] Re  
a = 0.2100 [0.0419] AU  
Ag = 392.83 [197.06] [1.99σ]  
Teffp = 3550 [377] K [7.99σ]

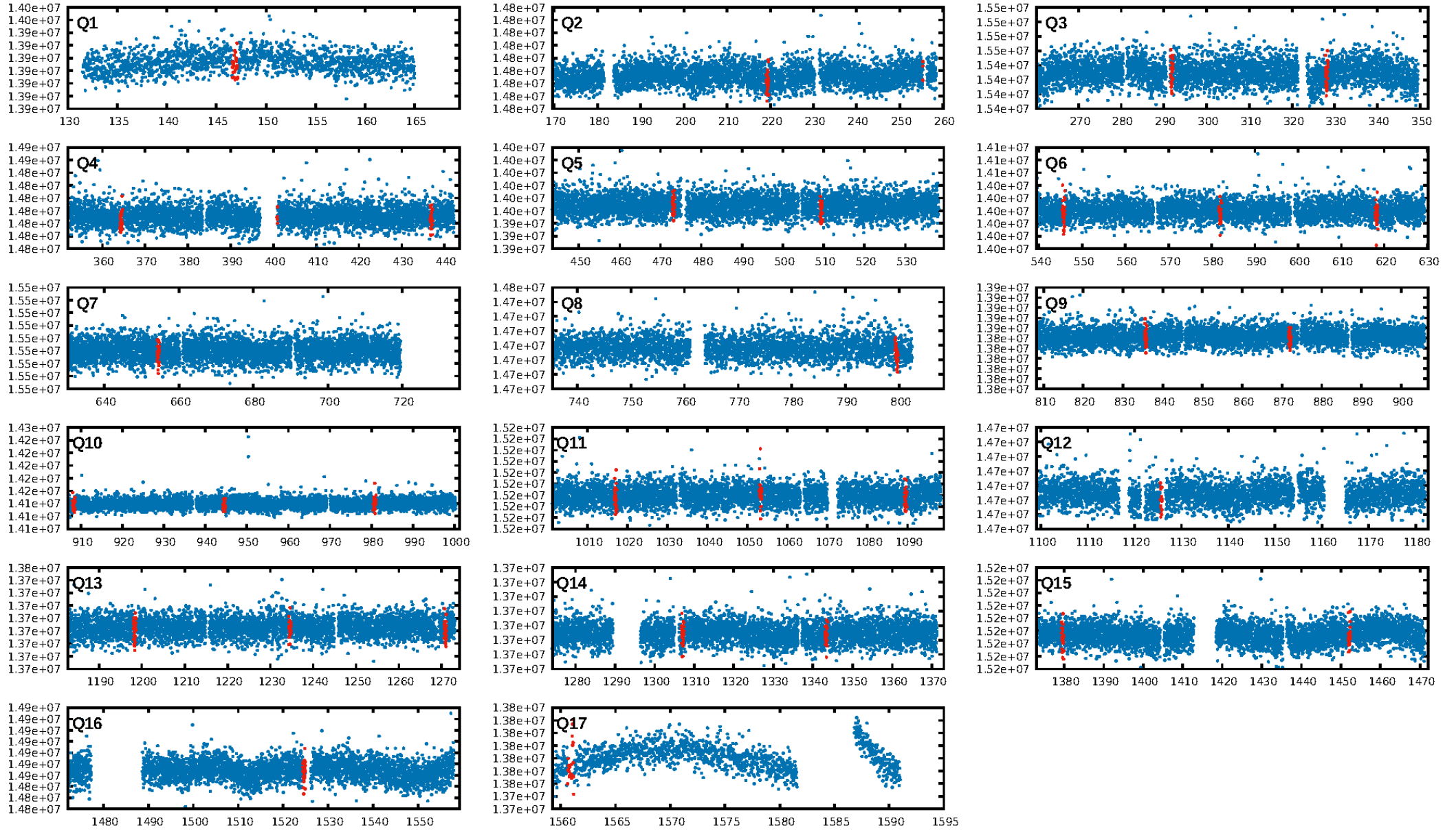
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.60e-31  
RollingBand-fgt: 1.00 [29/29]  
GhostDiagnostic-chr: 25.68  
Centroid-sig: 75.2%  
Centroid-so: 0.626 arcsec [0.55σ]  
OotOffset-rm: 0.483 arcsec [1.15σ]  
KicOffset-rm: 0.428 arcsec [0.97σ]  
OotOffset-st: 4/3/1/4 [12]  
KicOffset-st: 4/3/1/4 [12]  
DiffImageQuality-fgm: 0.42 [5/12]  
DiffImageOverlap-fno: 1.00 [14/14]

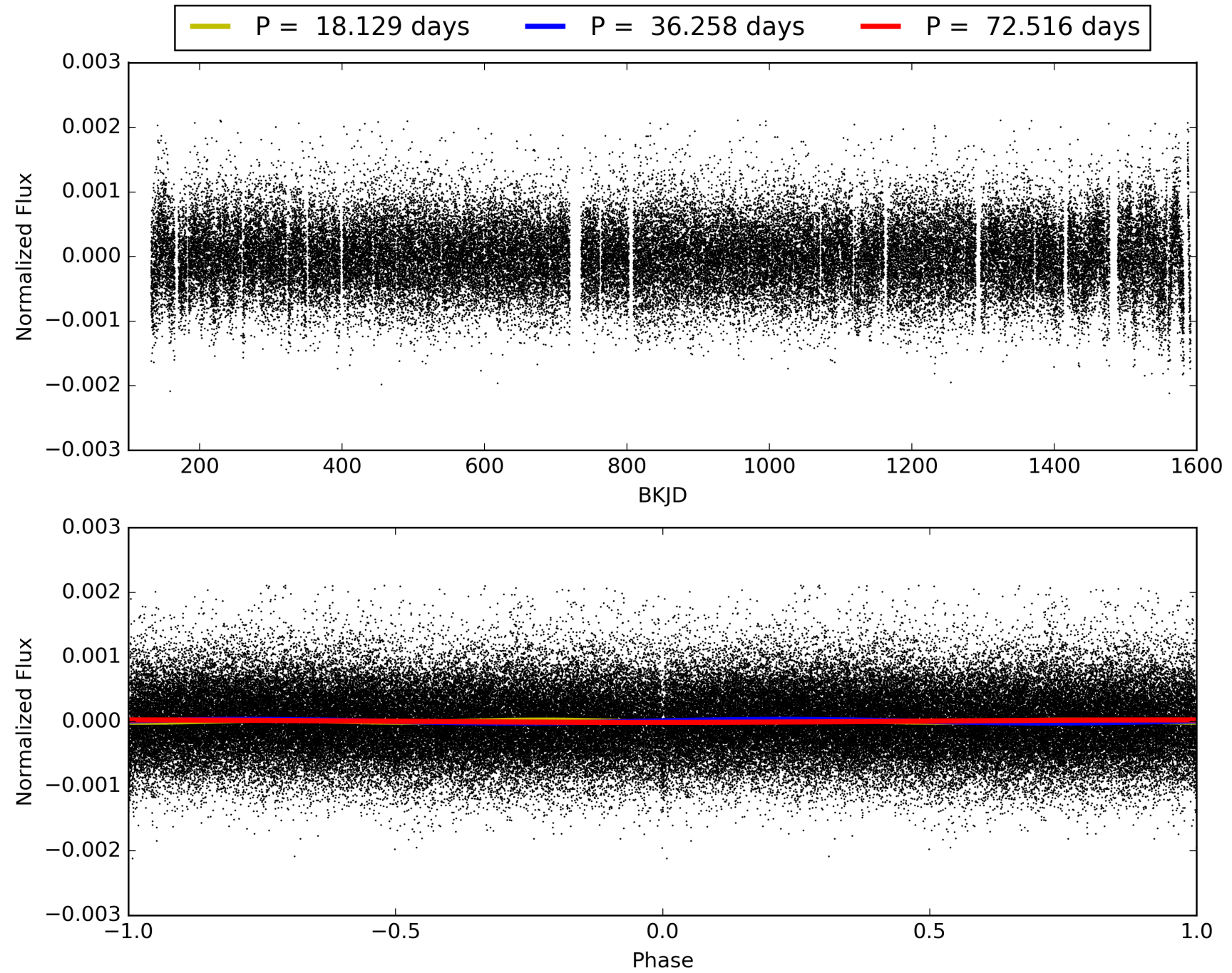
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:38:49 Z

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

# TCE 005710069-01, PDC Light Curves

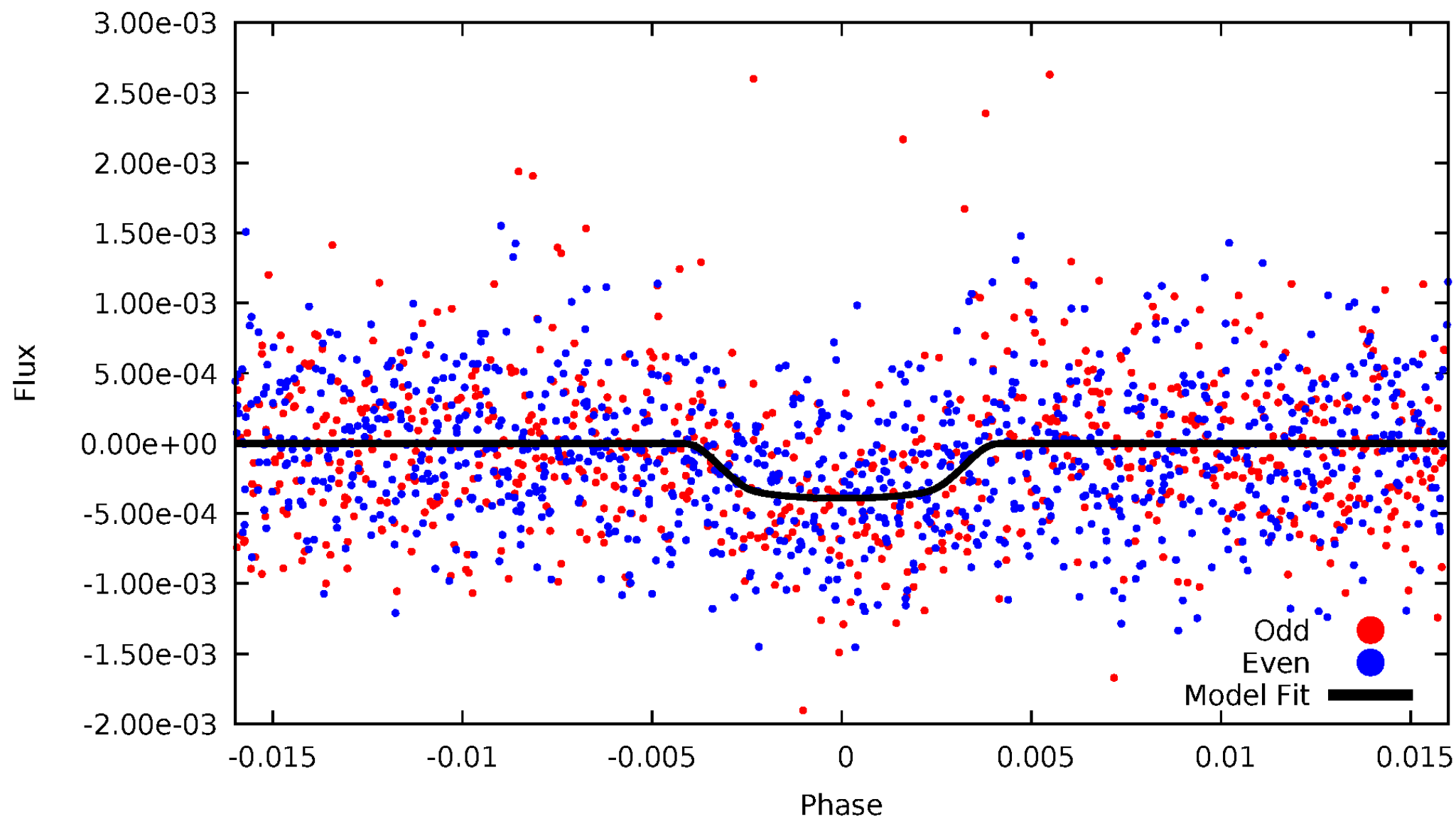


TCE 005710069-01



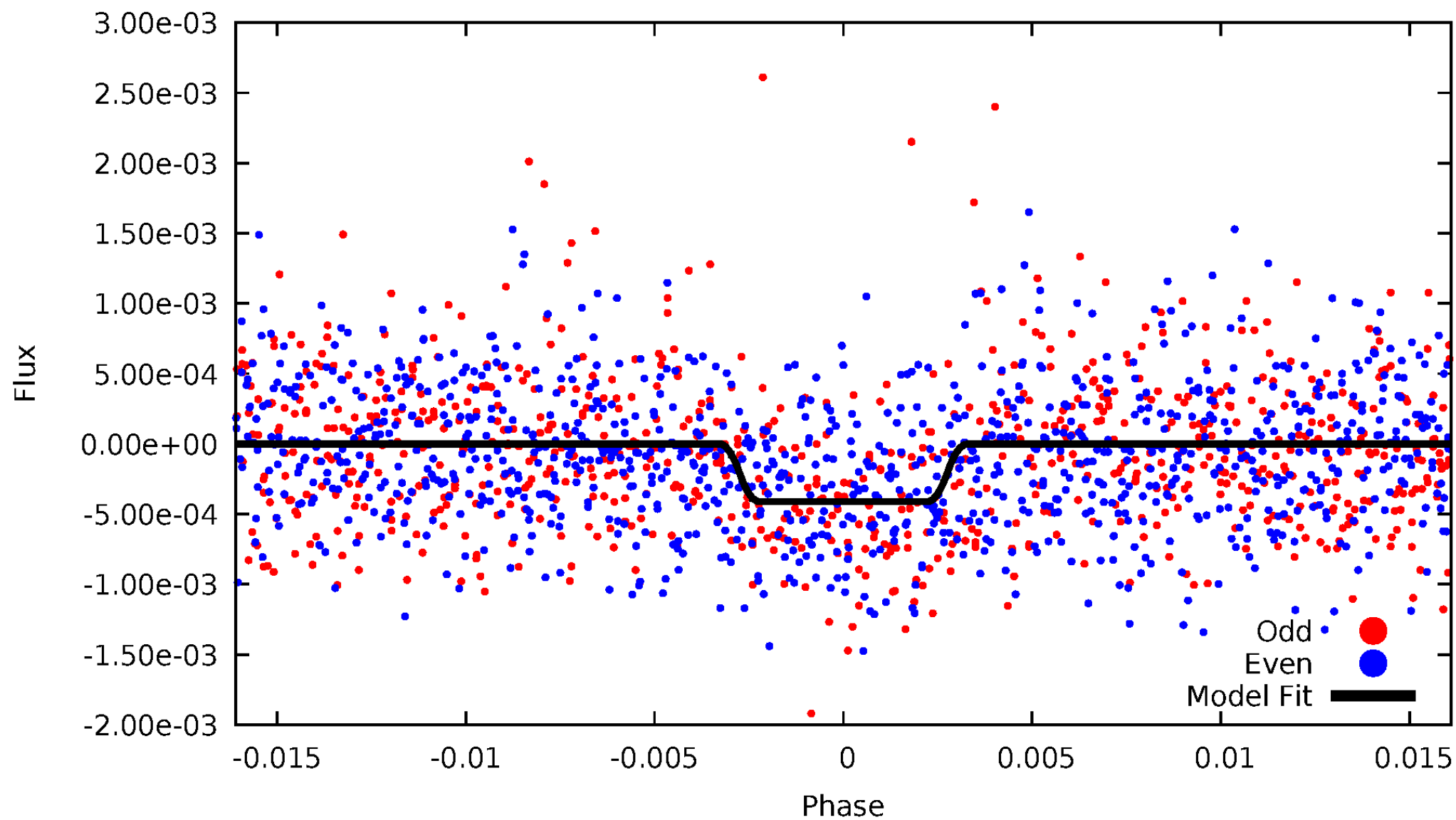
# DV Odd/Even

TCE 005710069-01



# ALT Odd/Even

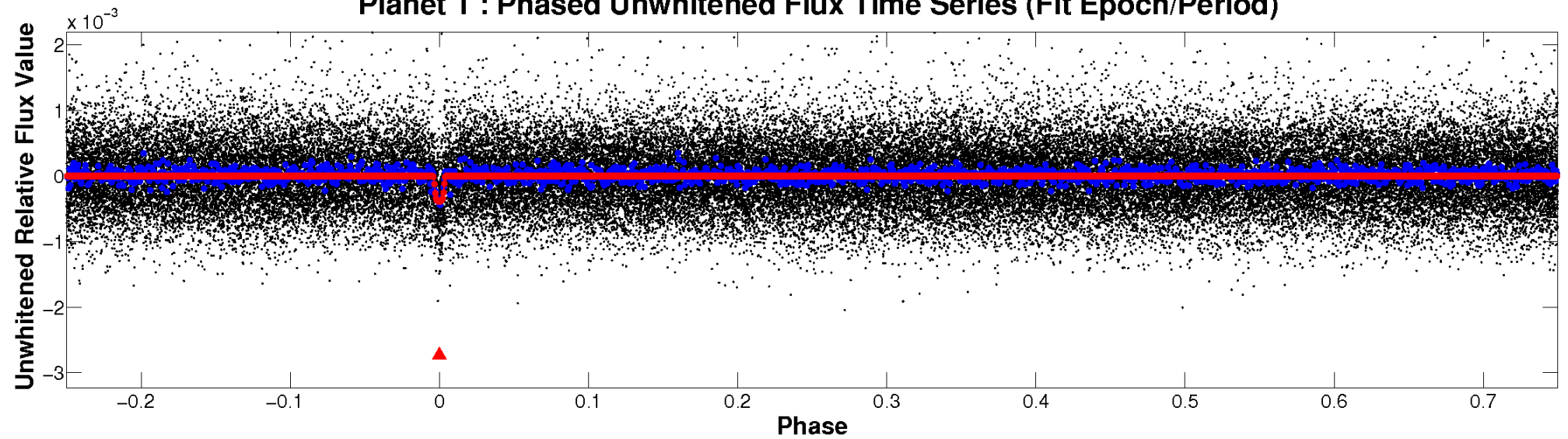
TCE 005710069-01



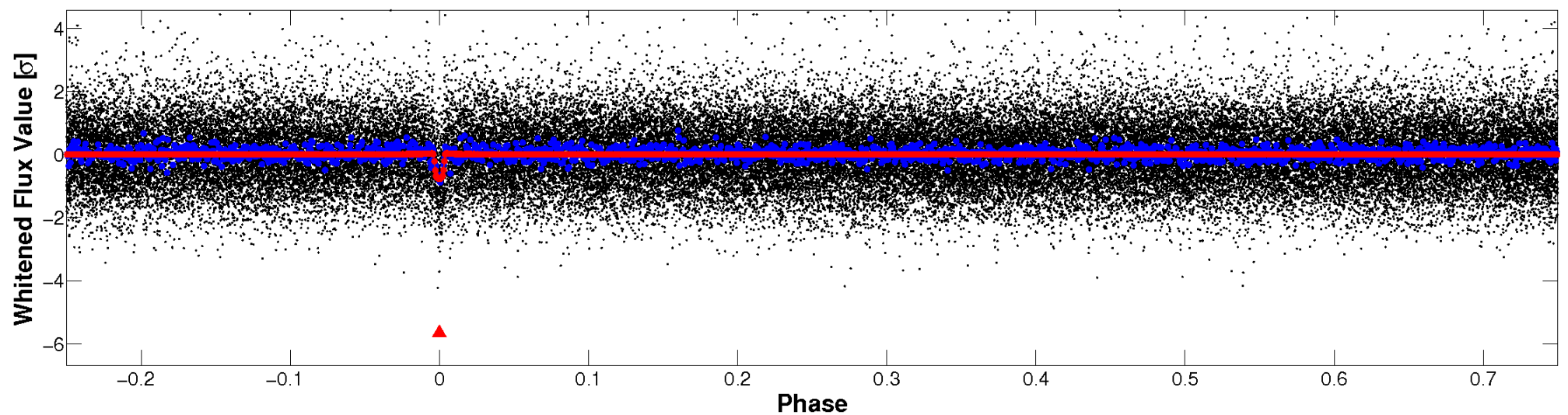


# Non-Whitened Vs. Whitened Light Curve

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

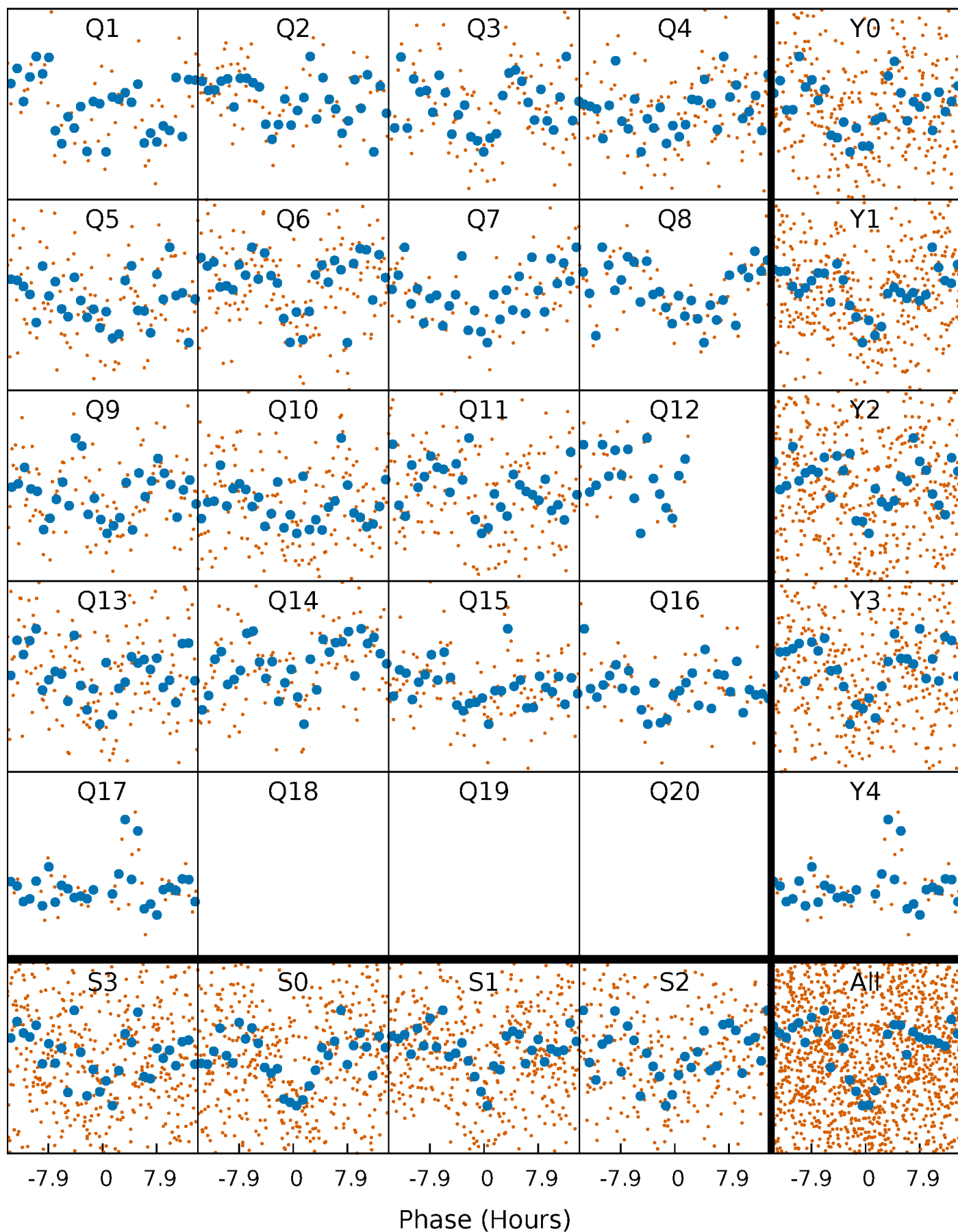


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

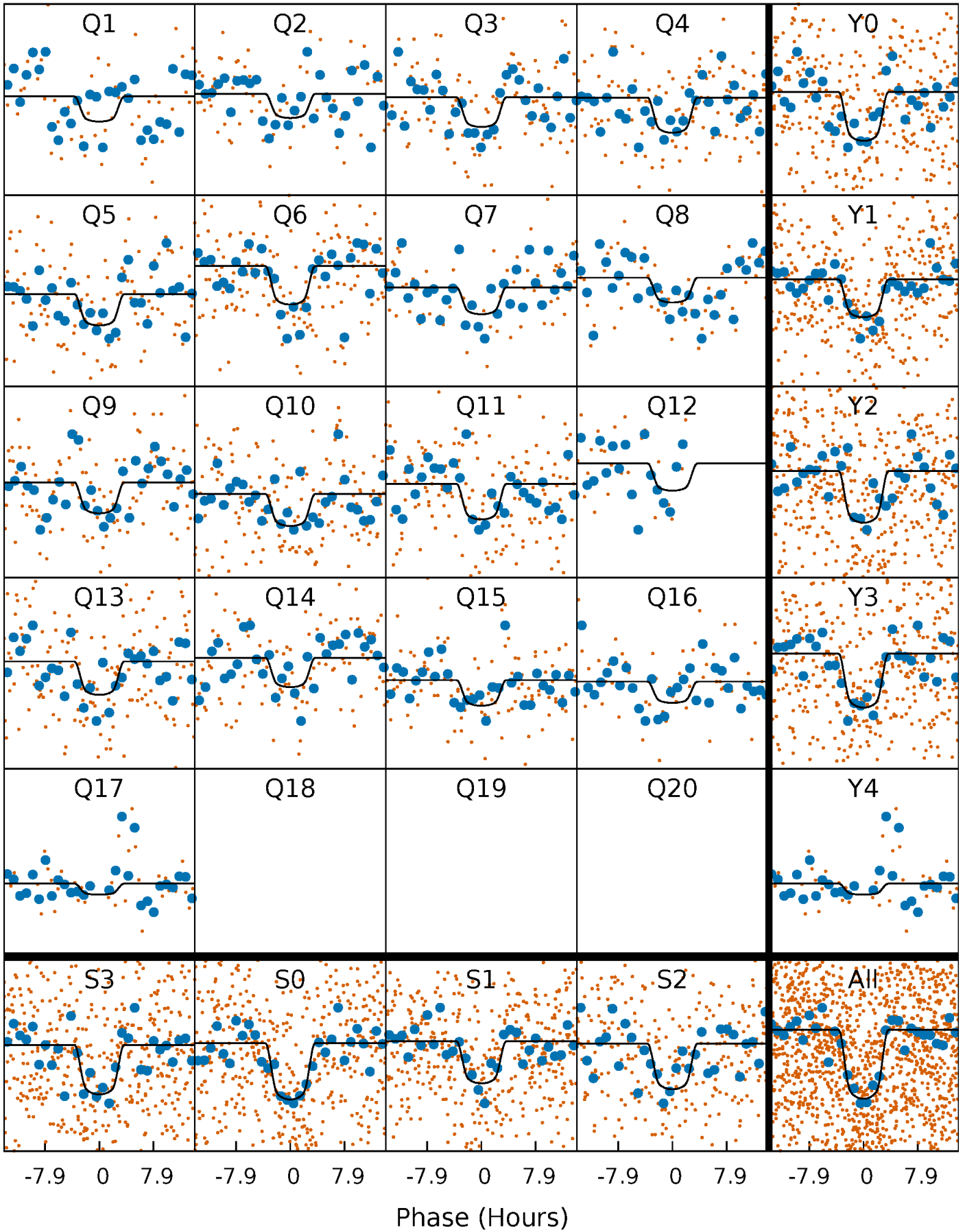
TCE 005710069-01 P= 36.258036 Days  $T_0=146.843402$  (BKJD)





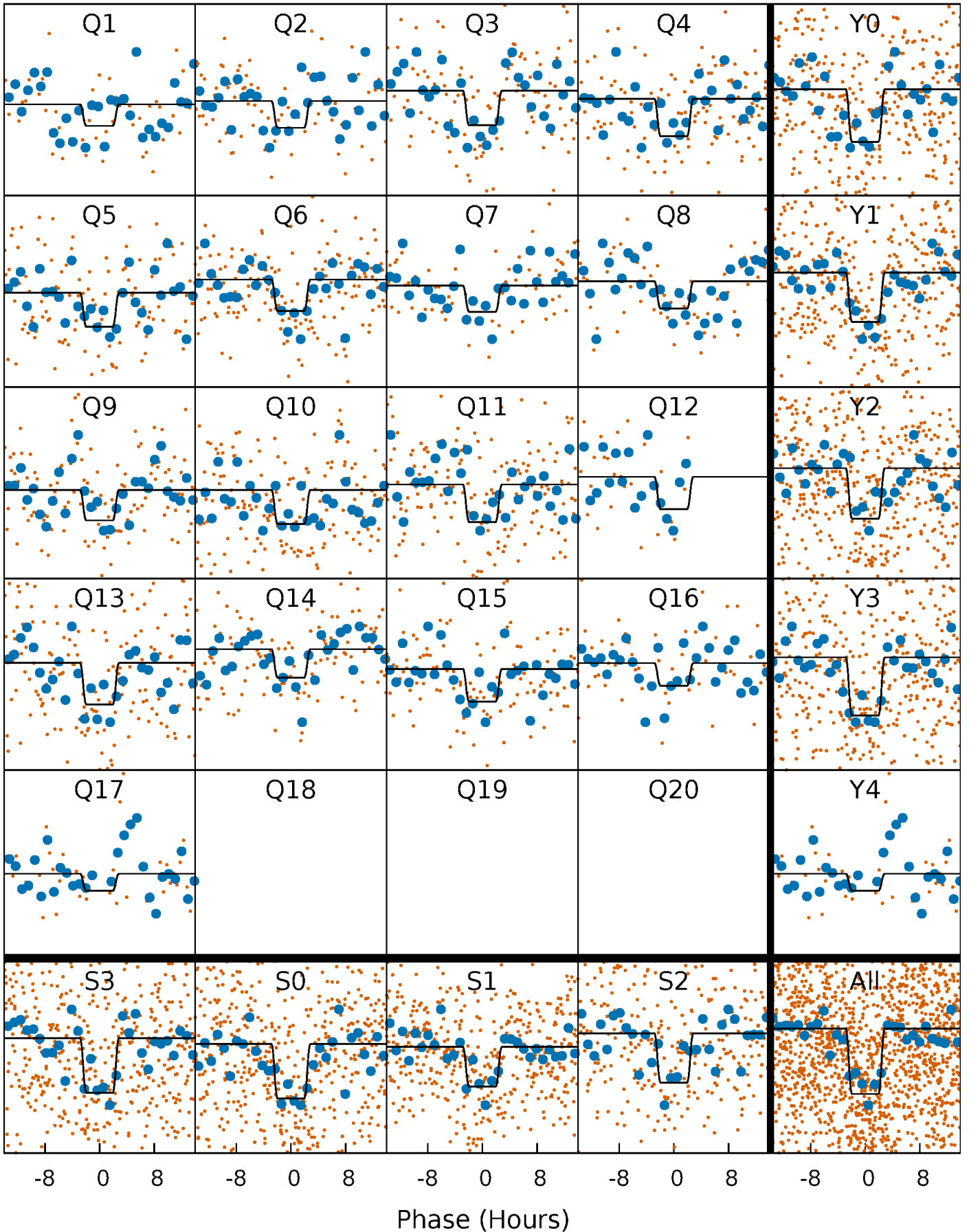
# DV Quarter-Phased Transit Curves

TCE 005710069-01 P= 36.258036 Days  $T_0=146.843402$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

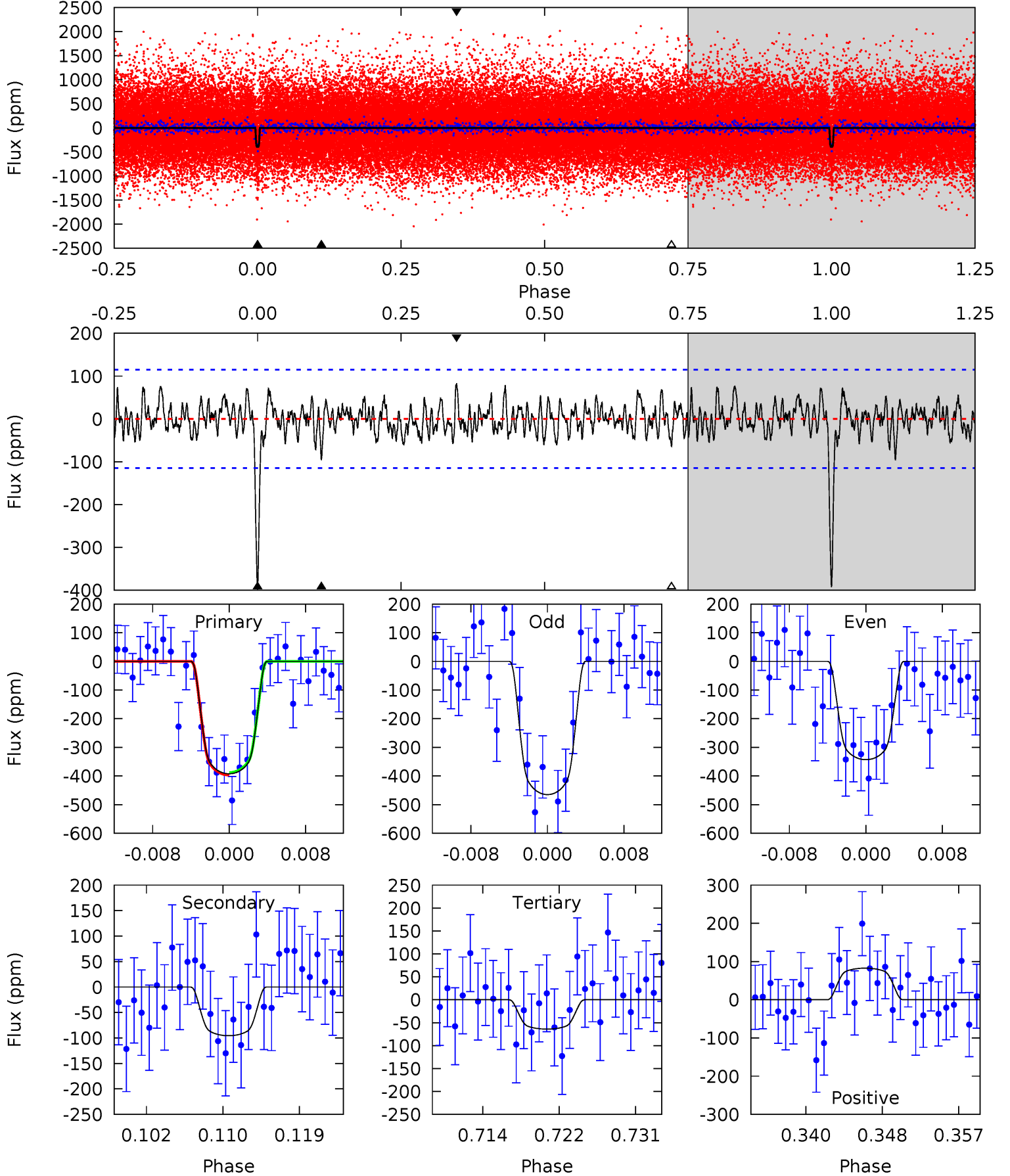
TCE 005710069-01 P= 36.257959 Days  $T_0=146.838336$  (BKJD)



# DV Model-Shift Uniqueness Test

005710069-01, P = 36.258036 Days, E = 110.585366 Days

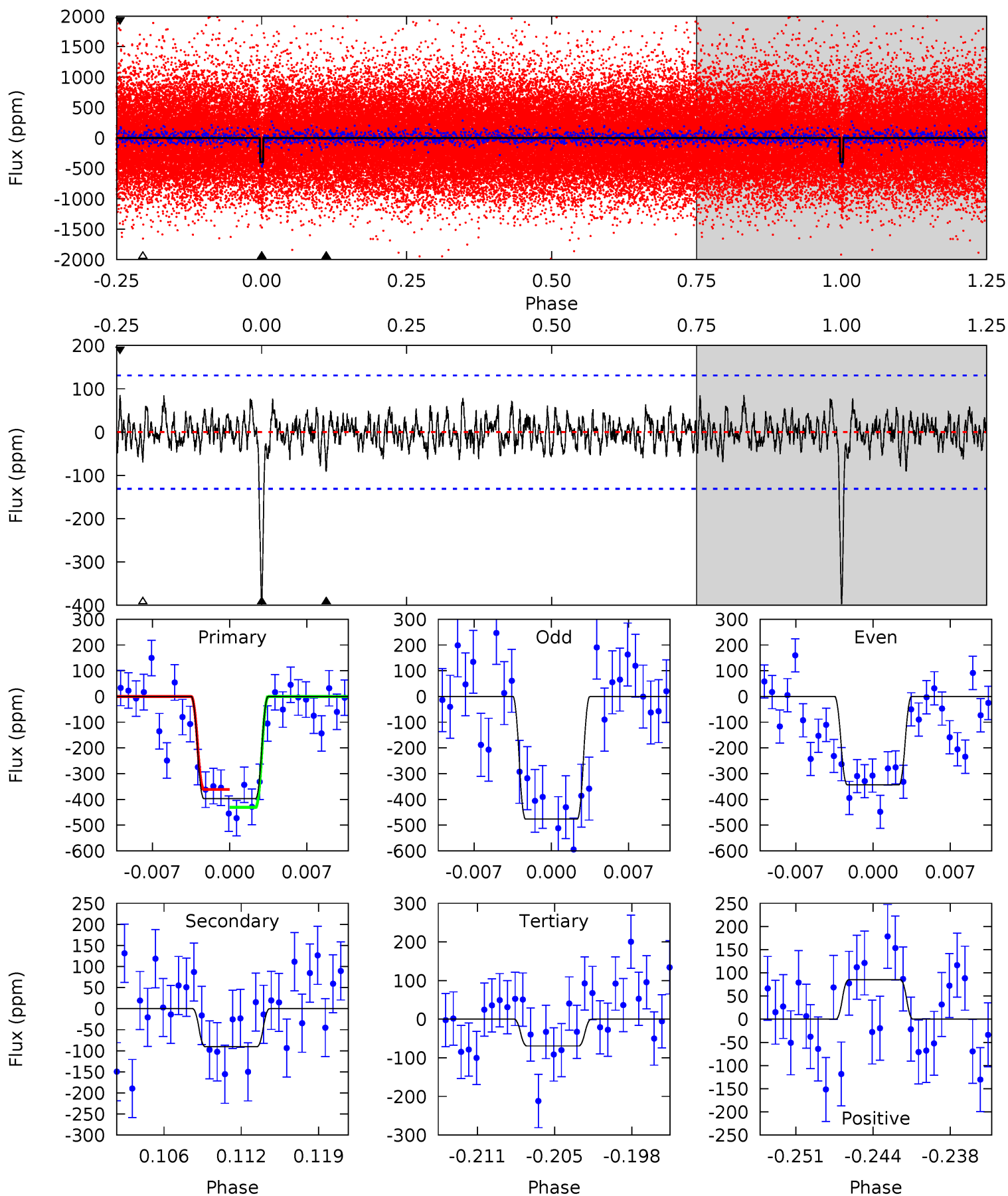
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	4.20	2.81	3.64	5.06	2.63	1.25	14.5	13.6	1.39	0.57	2.64	0.97	0.17	0.18



# Alt Model-Shift Uniqueness Test

005710069-01,  $P = 36.257959$  Days,  $E = 110.580377$  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
15.5	3.52	2.71	3.32	5.11	2.72	1.05	12.8	12.2	0.82	0.21	2.56	0.96	0.18	1.36



### Stellar Parameters For KIC 005710069

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5818^{+145}_{-174}$	$4.554^{+0.040}_{-0.160}$	$-0.220^{+0.300}_{-0.300}$	$0.848^{+0.200}_{-0.071}$	$0.937^{+0.091}_{-0.111}$	$2.166^{+0.446}_{-0.926}$
	+2%/-3%	+1%/-4%	+136%/-136%	+24%/-8%	+10%/-12%	+21%/-43%
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 005710069-01 / KOI 3396.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-96 \pm 23$	$2.20^{+0.29}_{-0.24}$	$733^{+43}_{-32}$	$4064^{+236}_{-217}$	$457^{+170}_{-133}$
Alt.	$-90 \pm 26$	$1.93^{+0.29}_{-0.26}$	$731^{+39}_{-28}$	$4211^{+284}_{-285}$	$556^{+267}_{-190}$

$T_{max}$  = 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

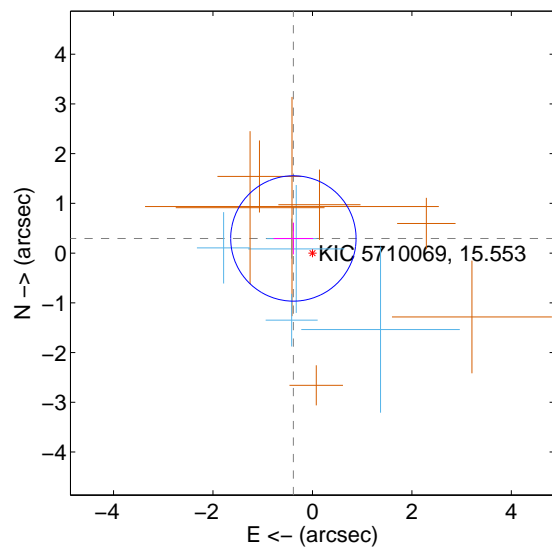
Supplemental centroid analysis for 005710069-01. Kepler magnitude: 15.55. Transit SNR 12.38

There are 5 quarters with good PRF difference image offsets

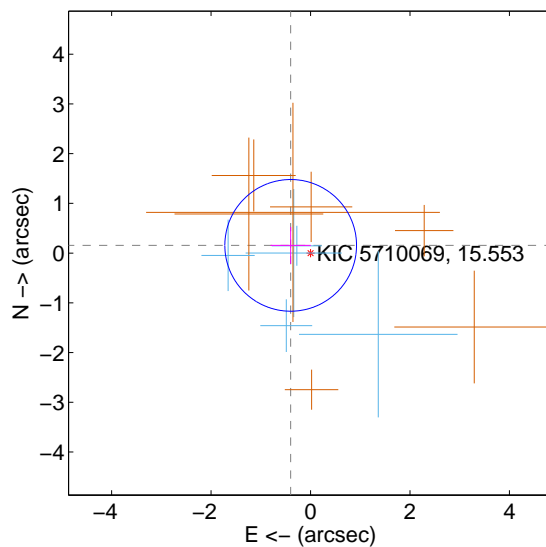
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.483 \pm 0.420$	1.15	$0.383 \pm 0.398$	$0.295 \pm 0.320$
PRF-fit source offset from KIC position	$0.428 \pm 0.441$	0.97	$0.399 \pm 0.405$	$0.155 \pm 0.372$
photometric centroid source offset	$0.63 \pm 1.14$	0.55	$-0.57 \pm 1.15$	$-0.27 \pm 1.10$

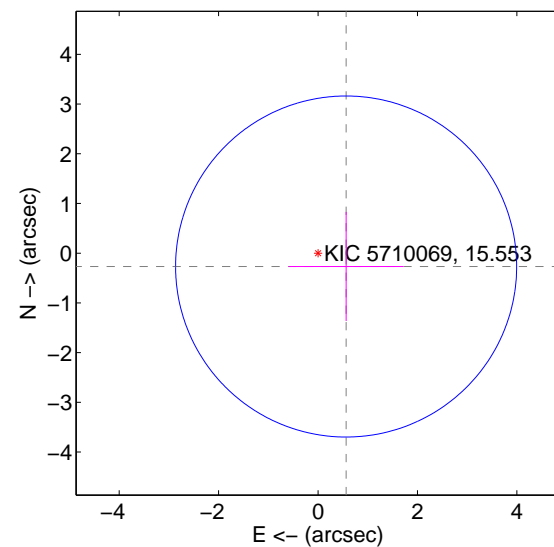
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

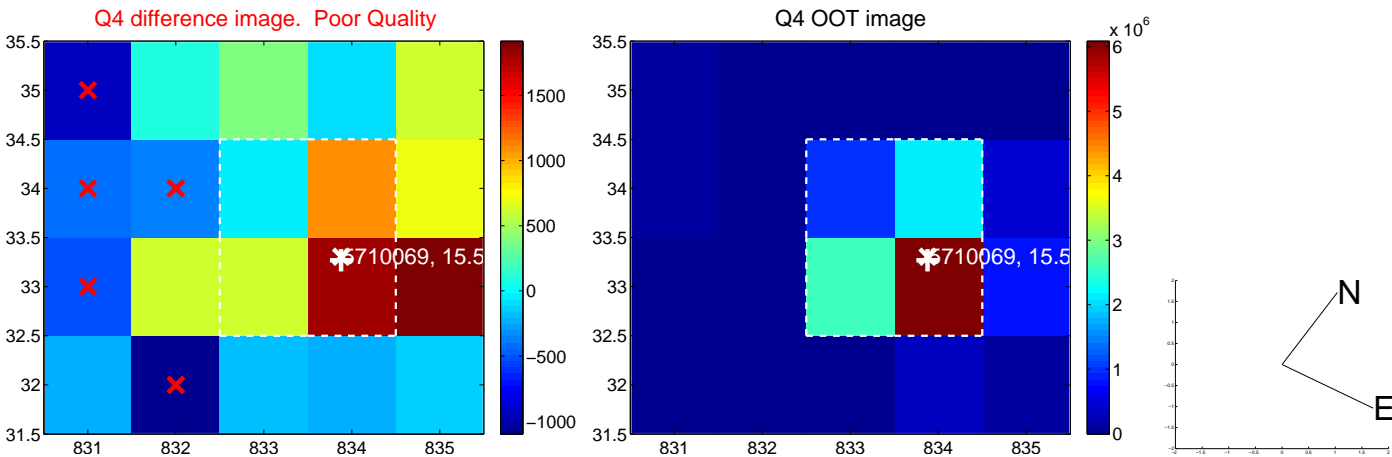
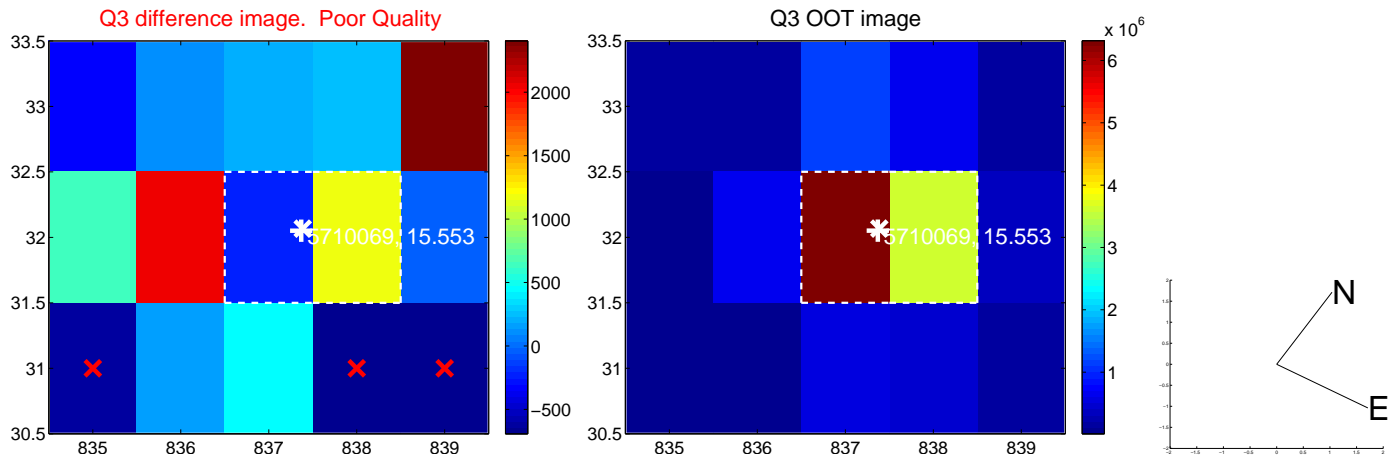
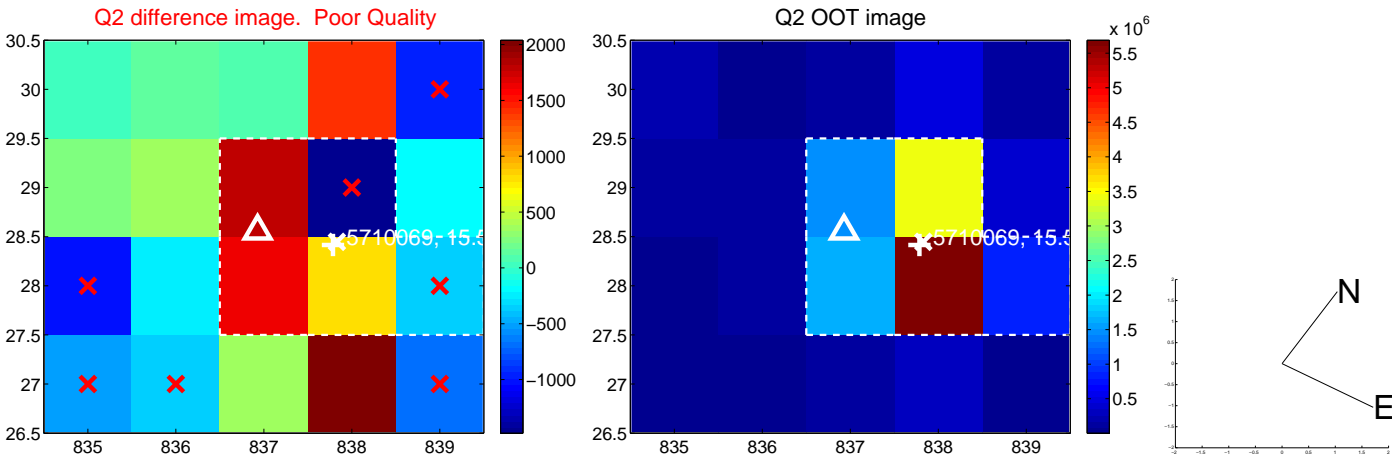
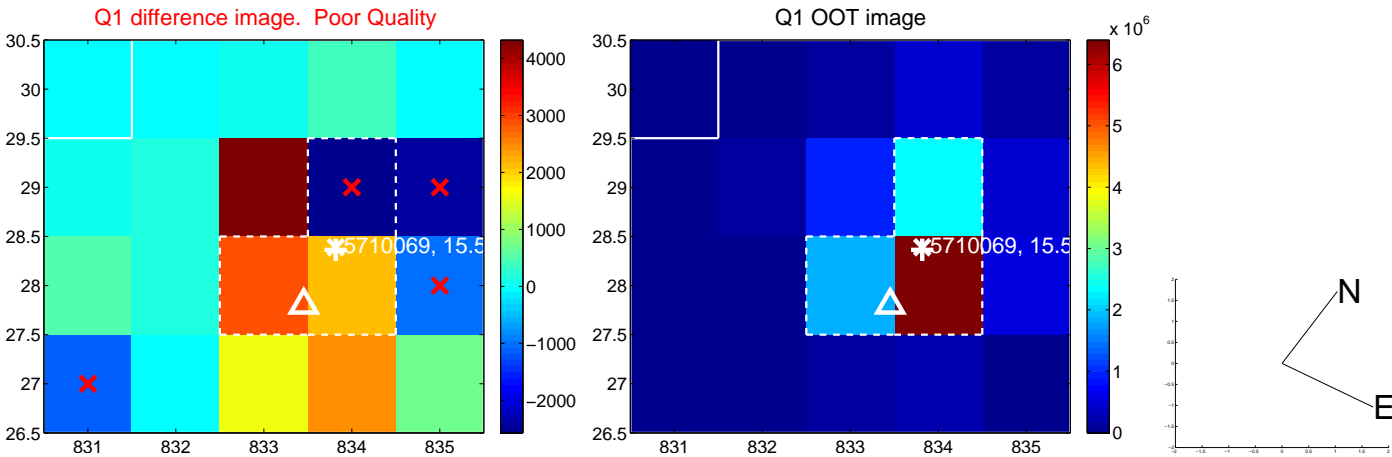


offset from photometric centroids

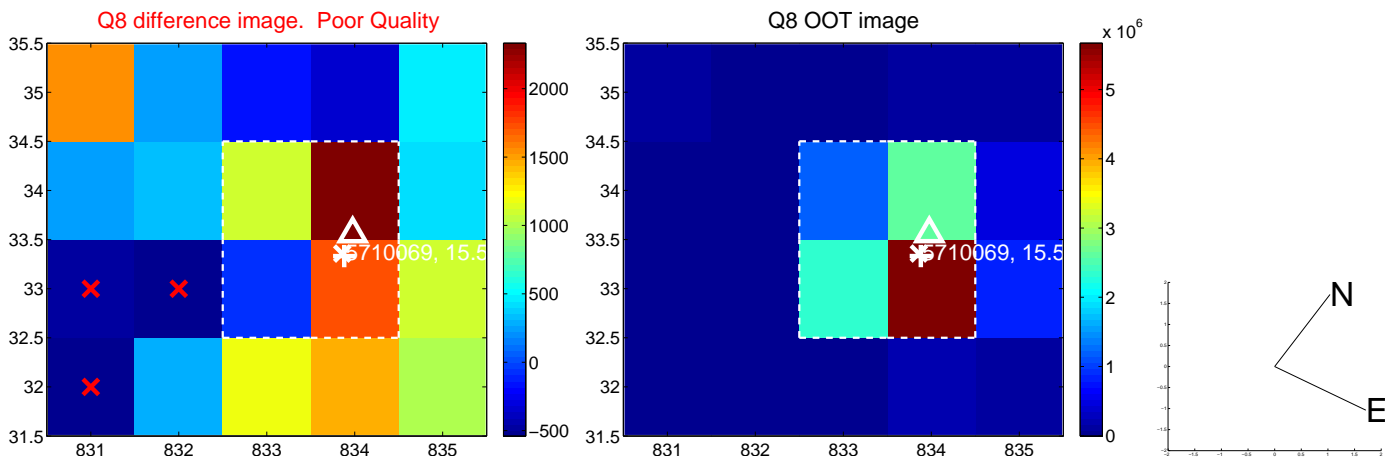
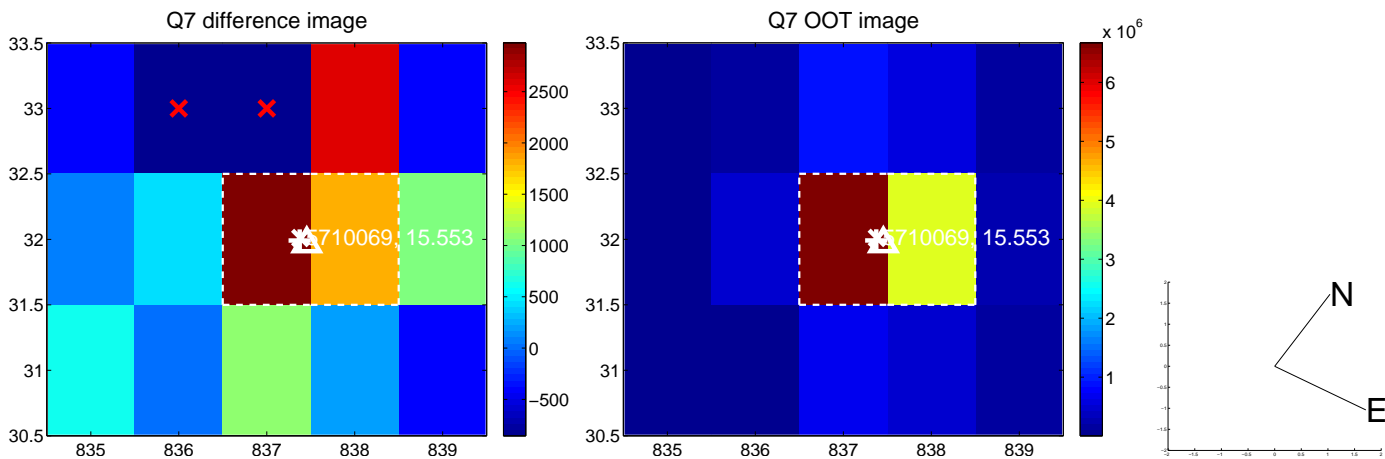
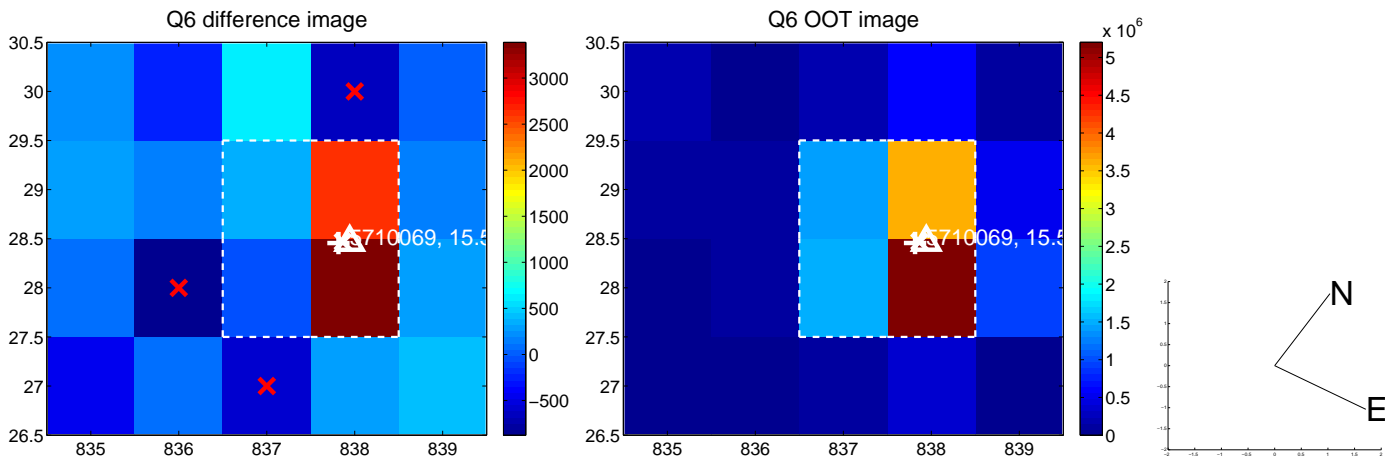
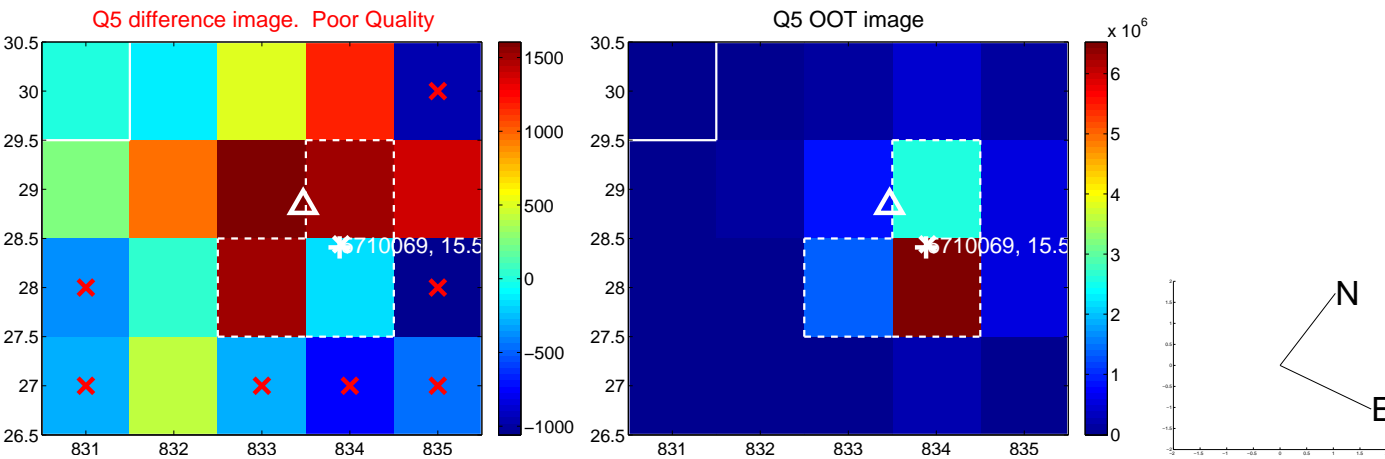


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

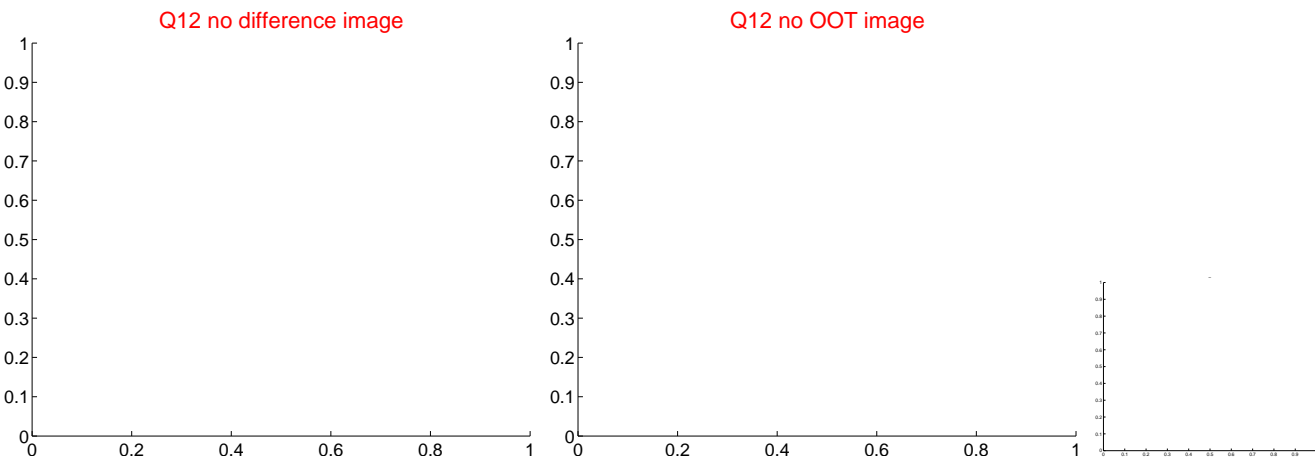
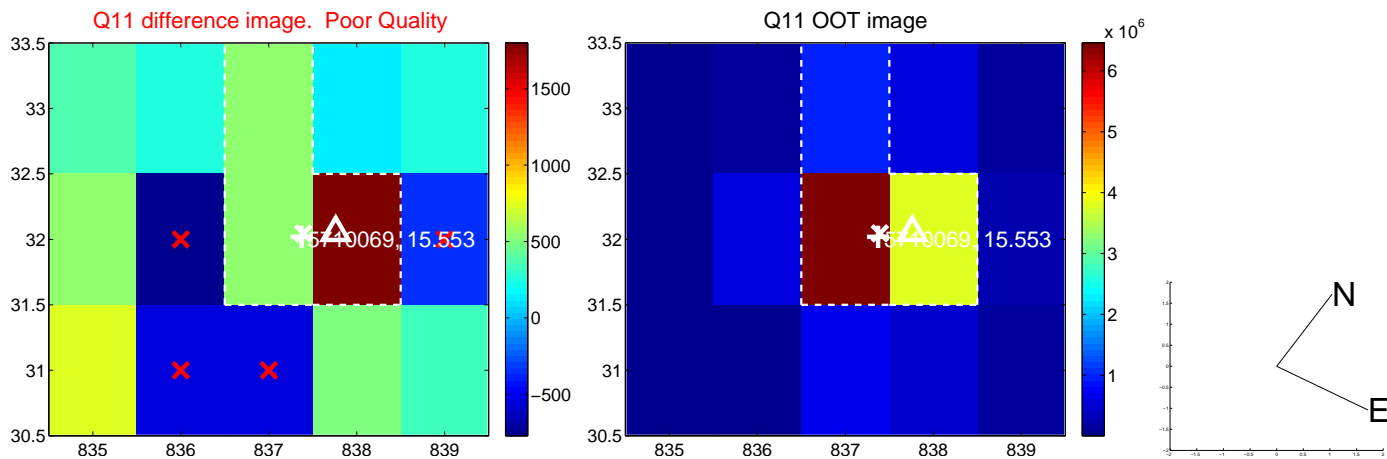
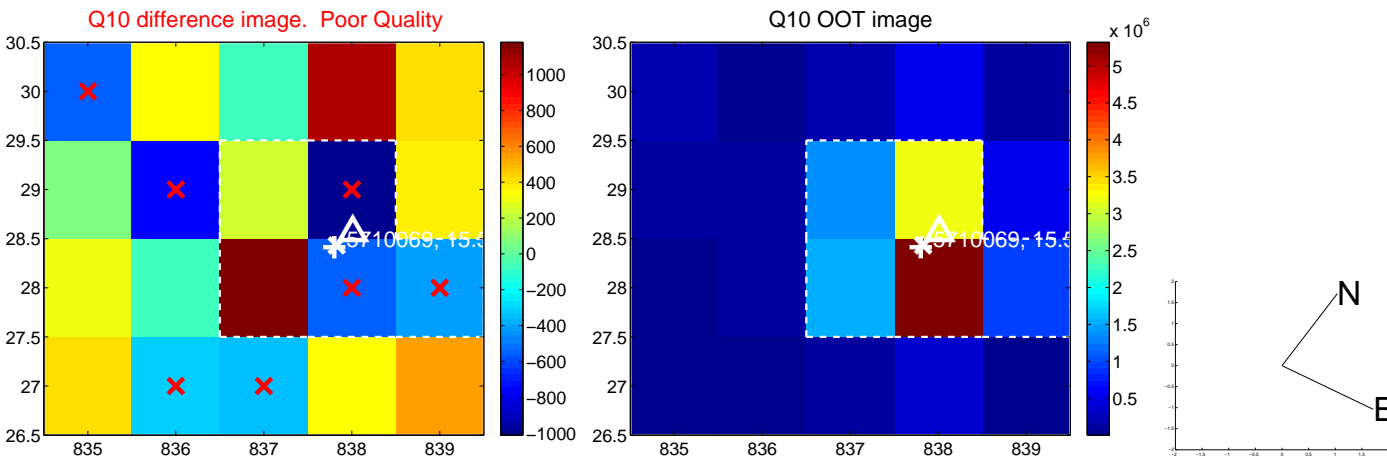
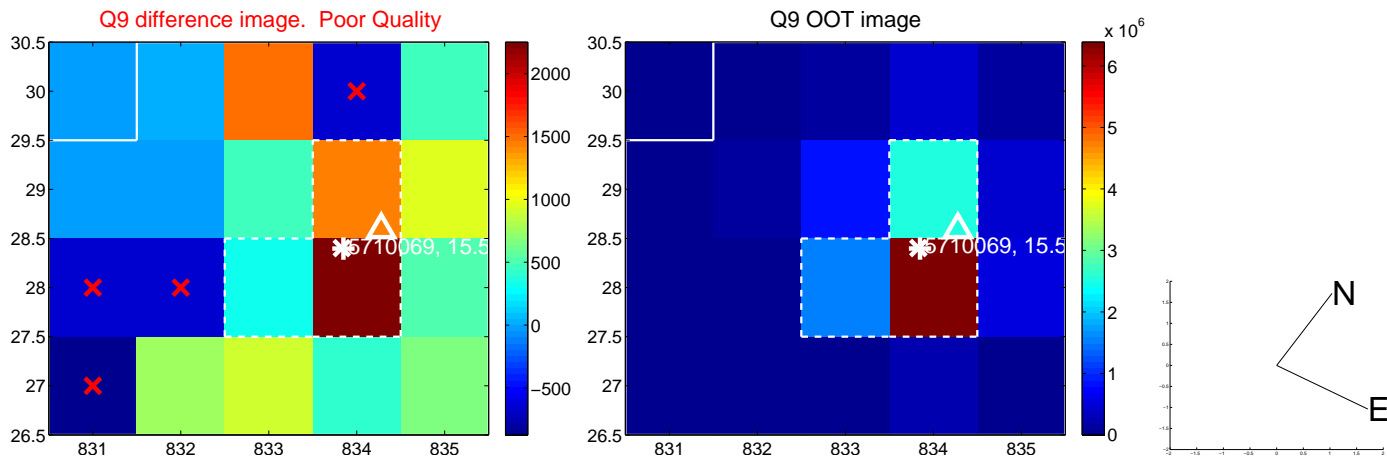
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



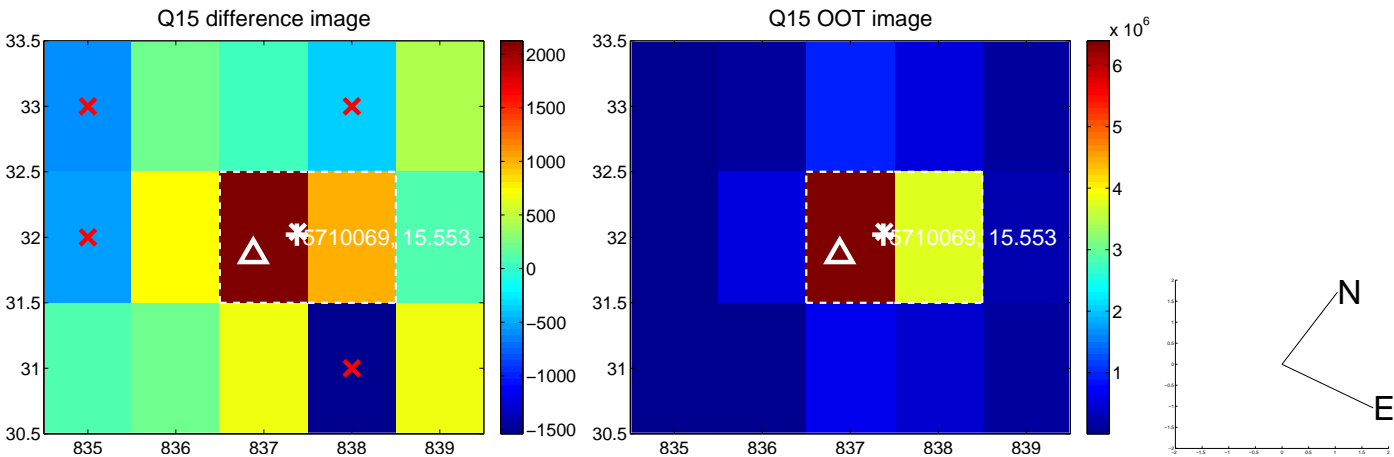
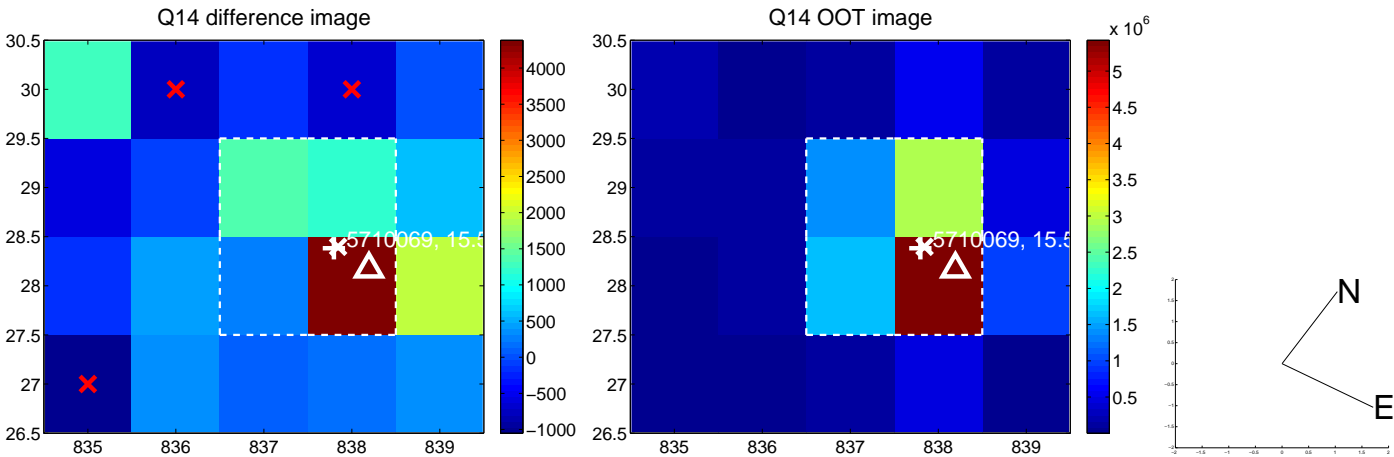
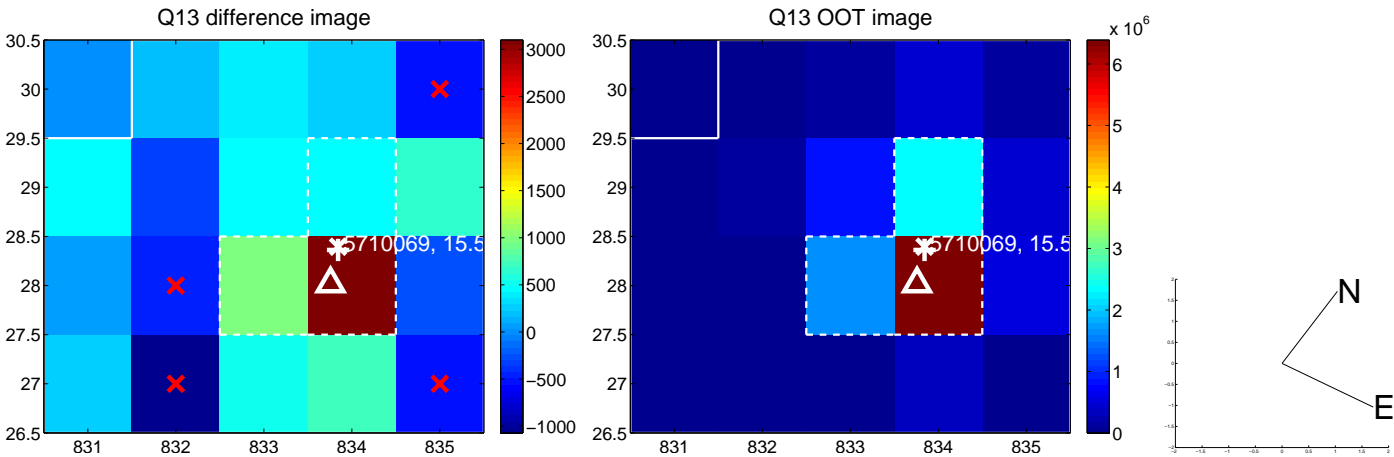
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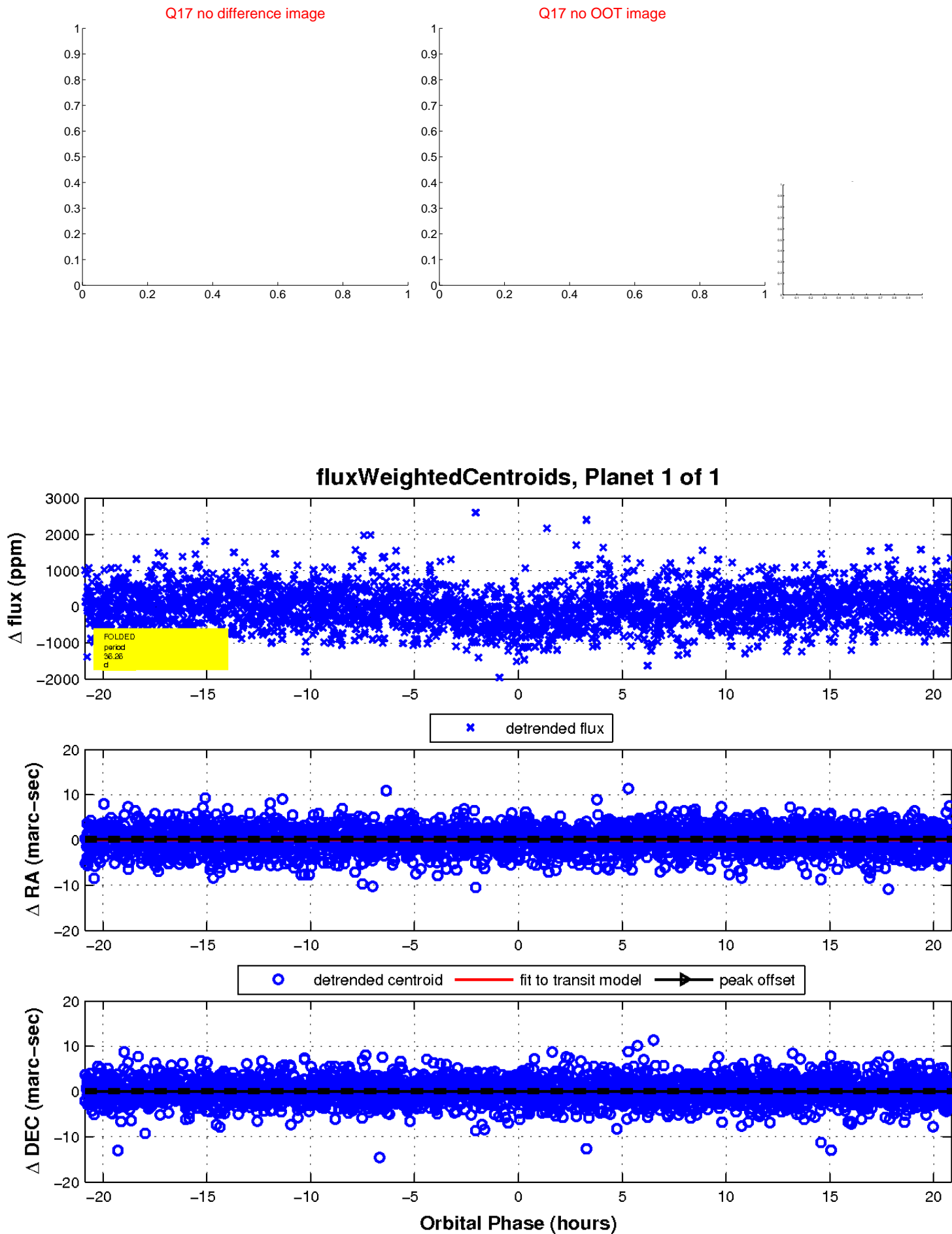


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

