

# KIC 007969331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007969331-01	OBS	No	367.901508	236.670159	875.7	15.293	7.3	7.2	0.91	5208	2.71	0.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007969331-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—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.

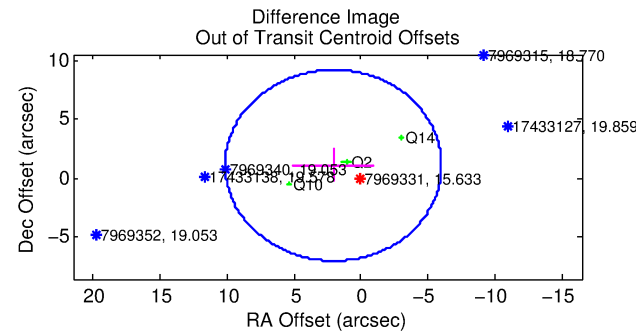
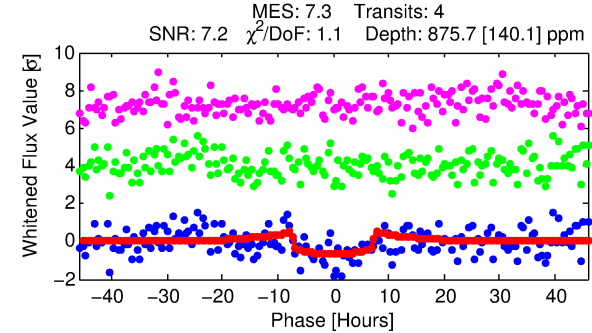
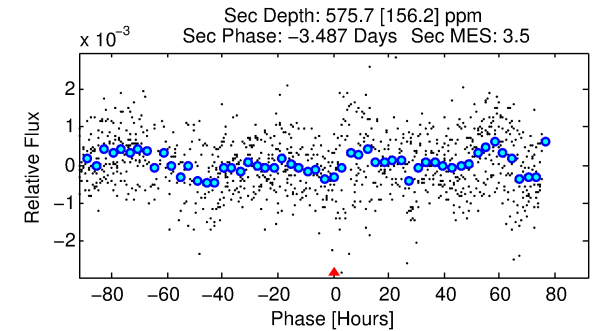
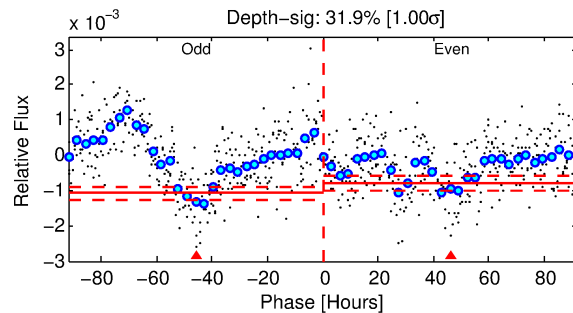
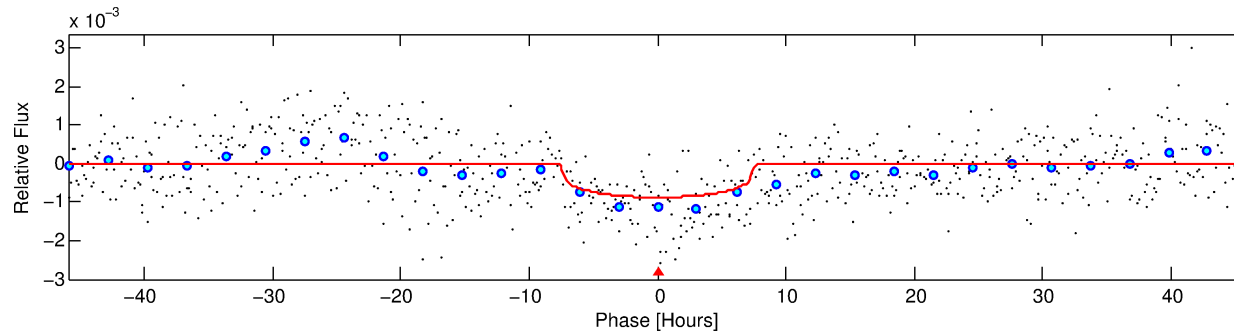
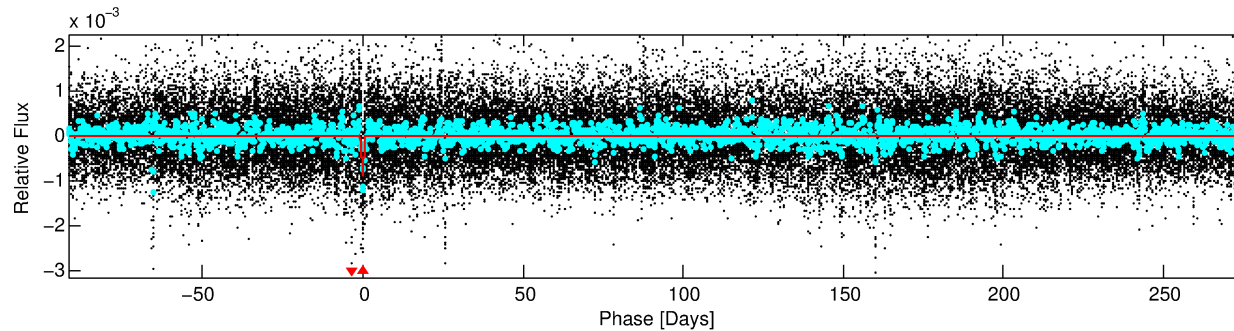
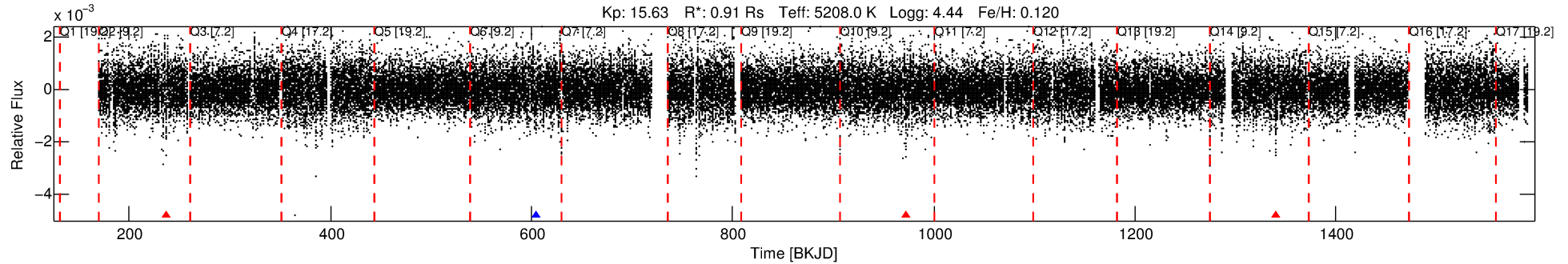
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007969331-01

No Significant Match Found

# DV One-Page Summary

KIC: 7969331 Candidate: 1 of 1 Period: 367.902 d



## DV Fit Results:

Period = 367.90151 [0.01097] d  
Epoch = 236.6702 [0.0196] BKJD  
Rp/R\* = 0.0274 [0.0163]  
a/R\* = 166.07 [349.76]  
b = 0.49 [3.31]  
Seff = 0.61 [0.19]  
Teq = 225 [17] K  
Rp = 2.71 [1.70] Re  
a = 0.9432 [0.1682] AU  
Ag = 38424.23 [48232.49] [0.80 $\sigma$ ]  
Teff = 4877 [1502] K [3.10 $\sigma$ ]

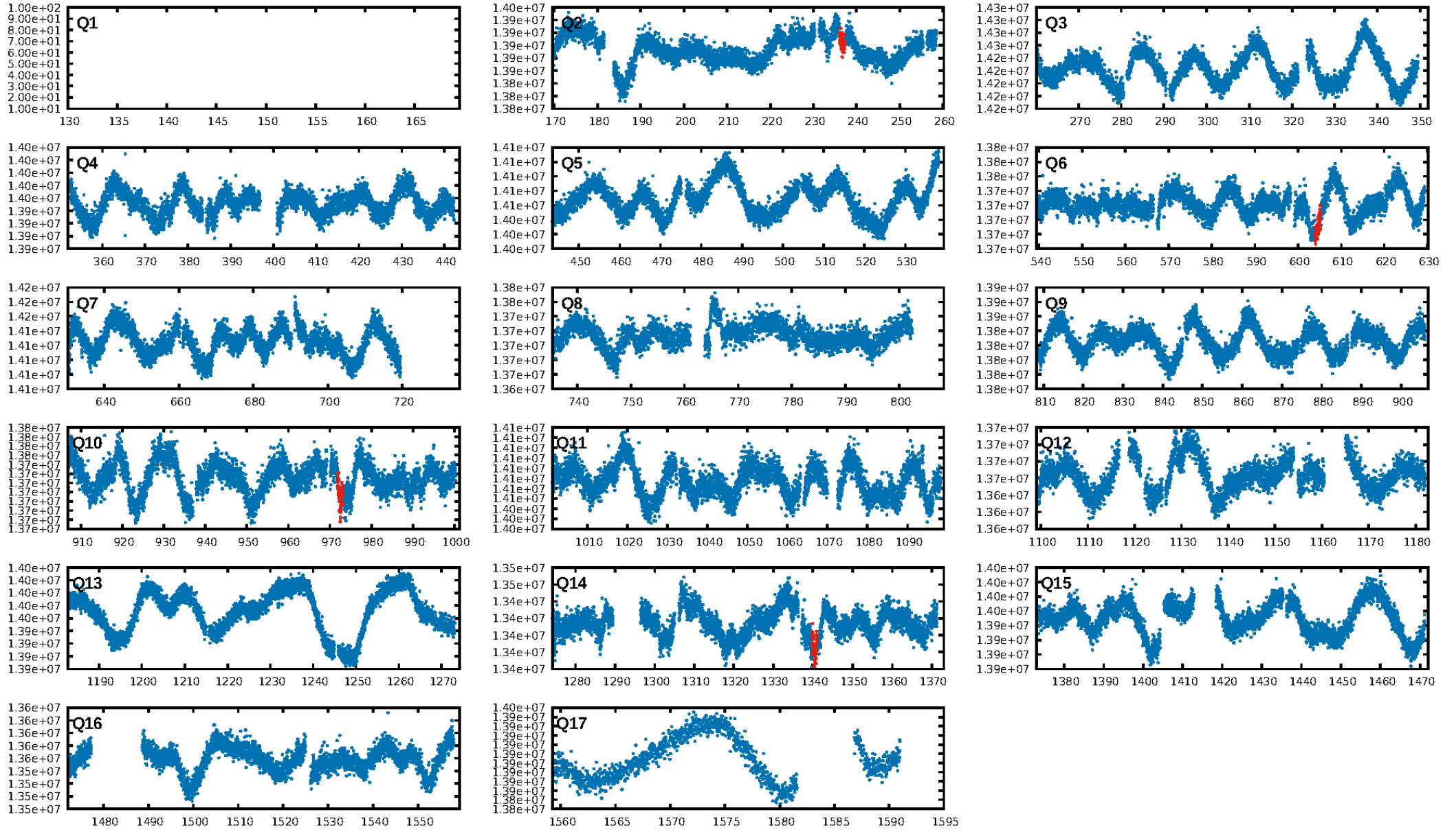
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 49.3%  
ModelChiSquareGof-sig: 99.5%  
Bootstrap-pfa: 1.06e-08  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: -0.01899  
Centroid-sig: 5.1%  
Centroid-so: 4.759 arcsec [1.74 $\sigma$ ]  
OotOffset-rm: 2.337 arcsec [0.87 $\sigma$ ]  
KicOffset-rm: 2.456 arcsec [0.94 $\sigma$ ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [4/4]

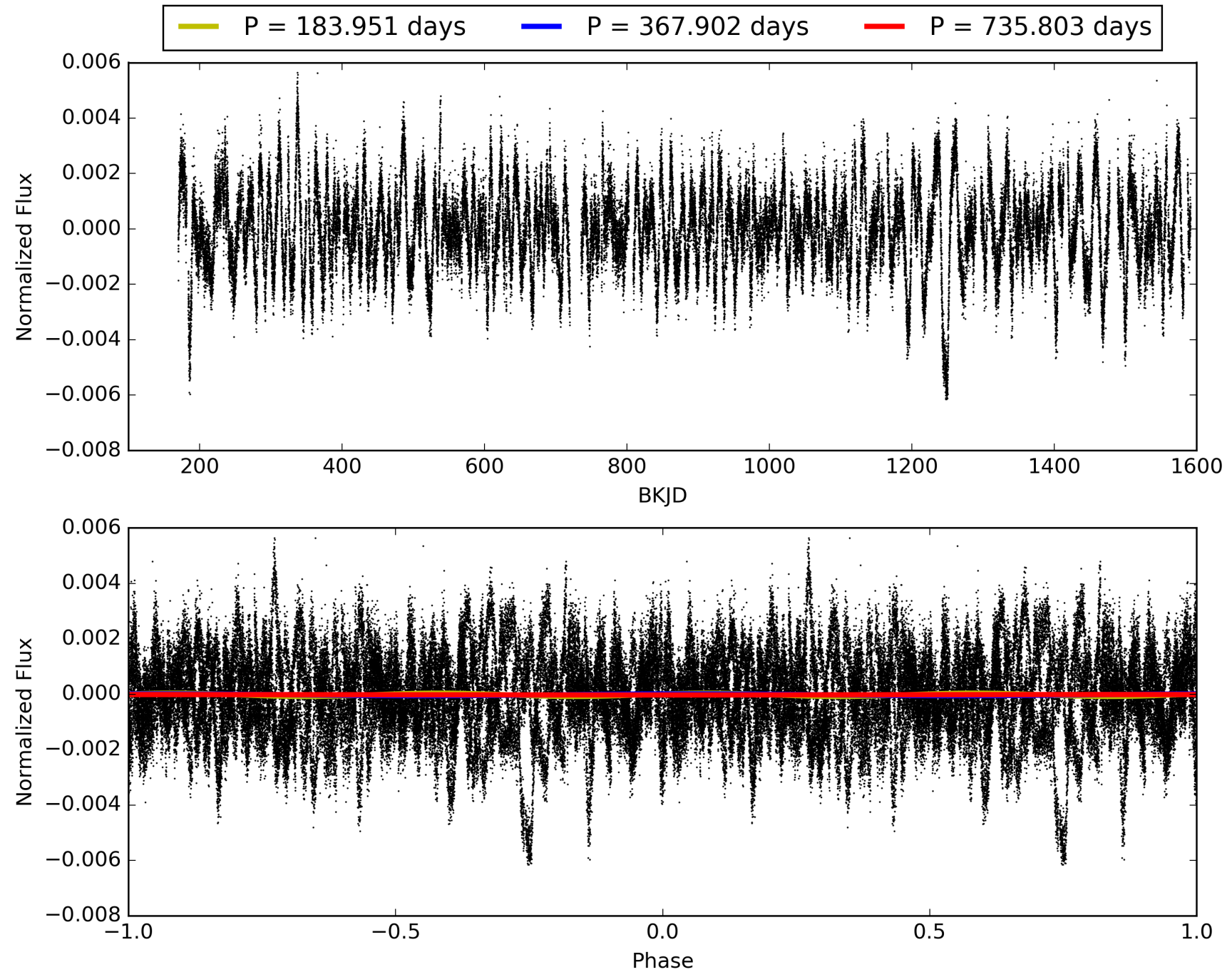
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:59:17 Z

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

# TCE 007969331-01, PDC Light Curves

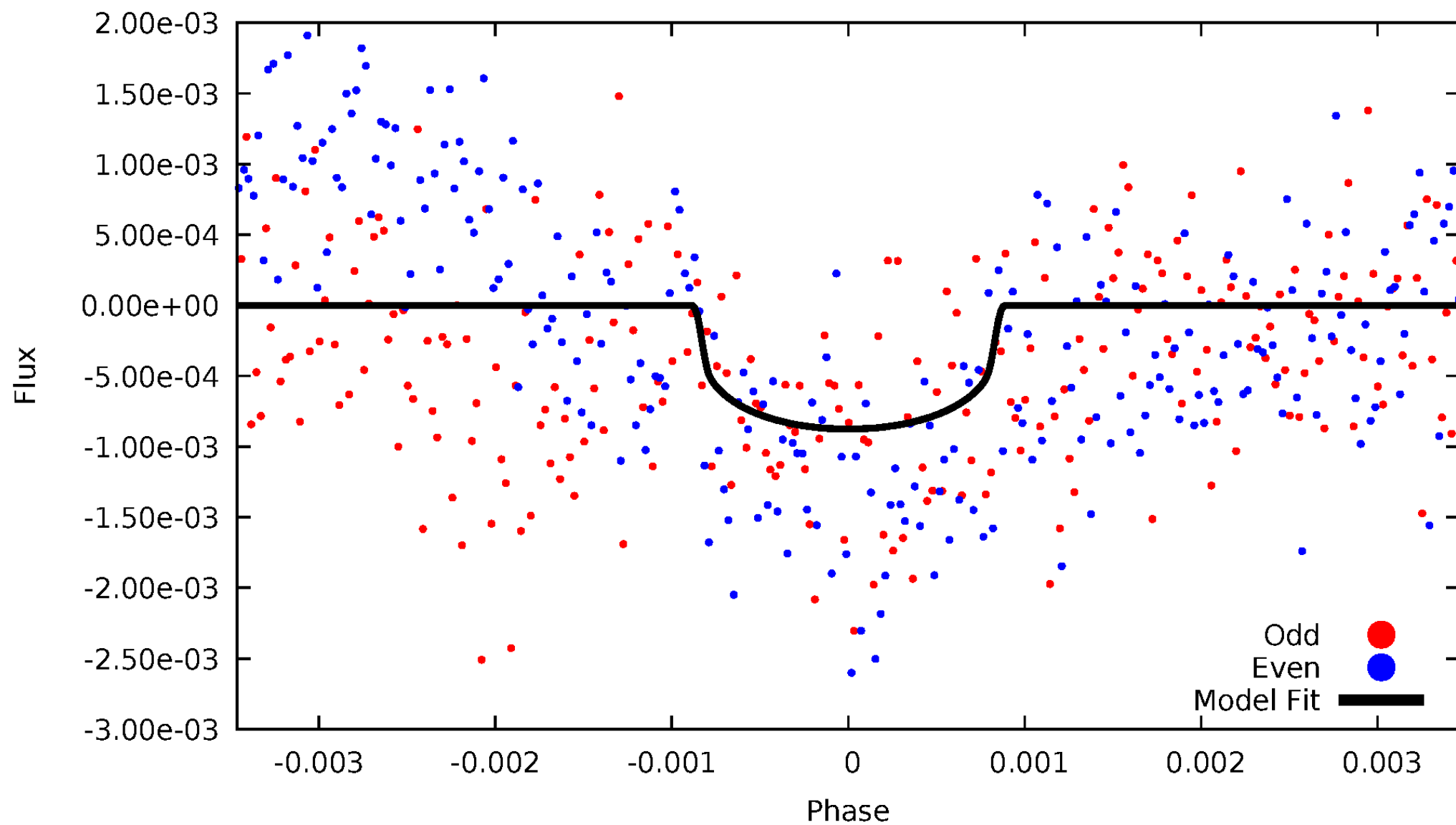


TCE 007969331-01



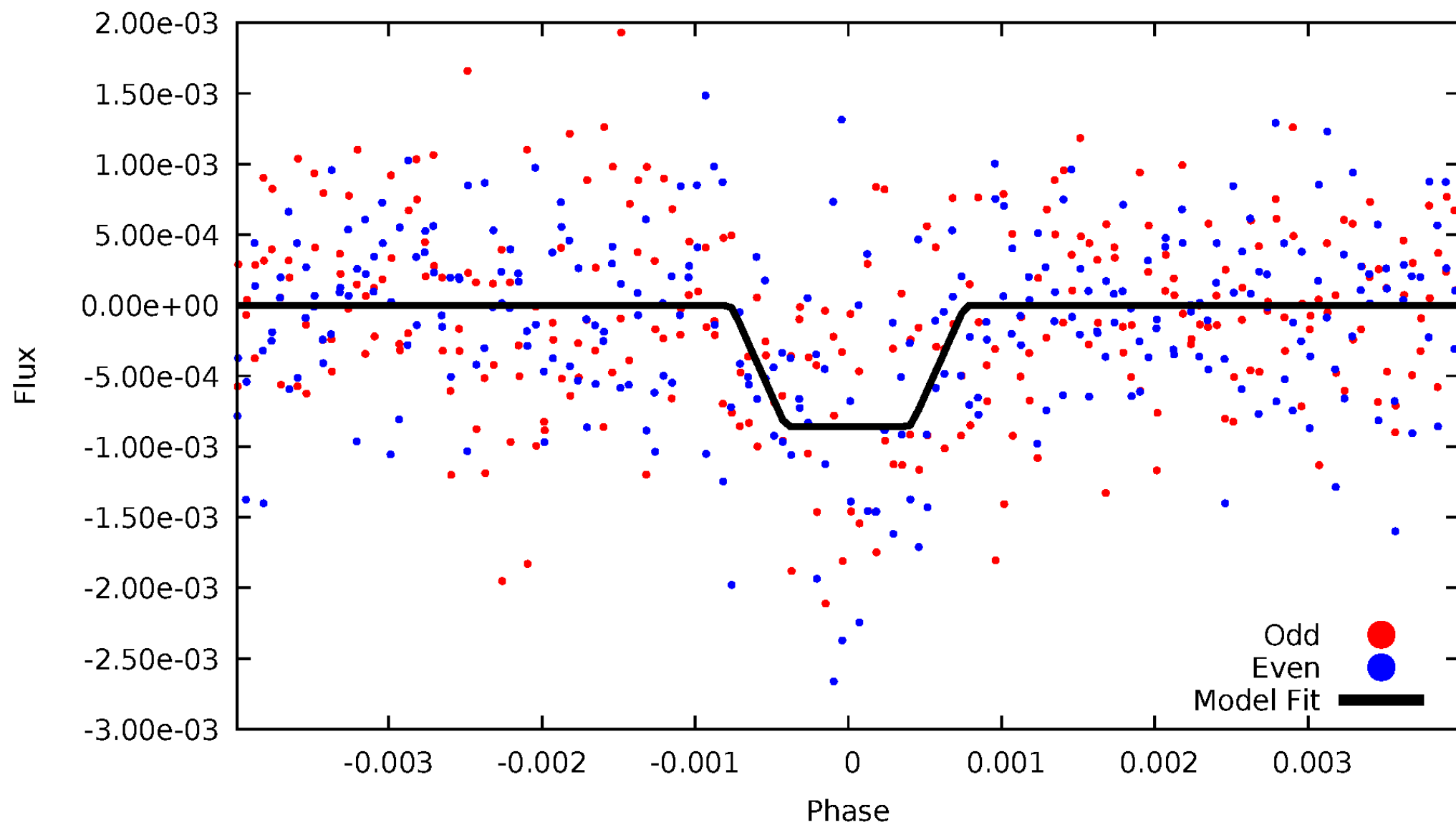
# DV Odd/Even

TCE 007969331-01



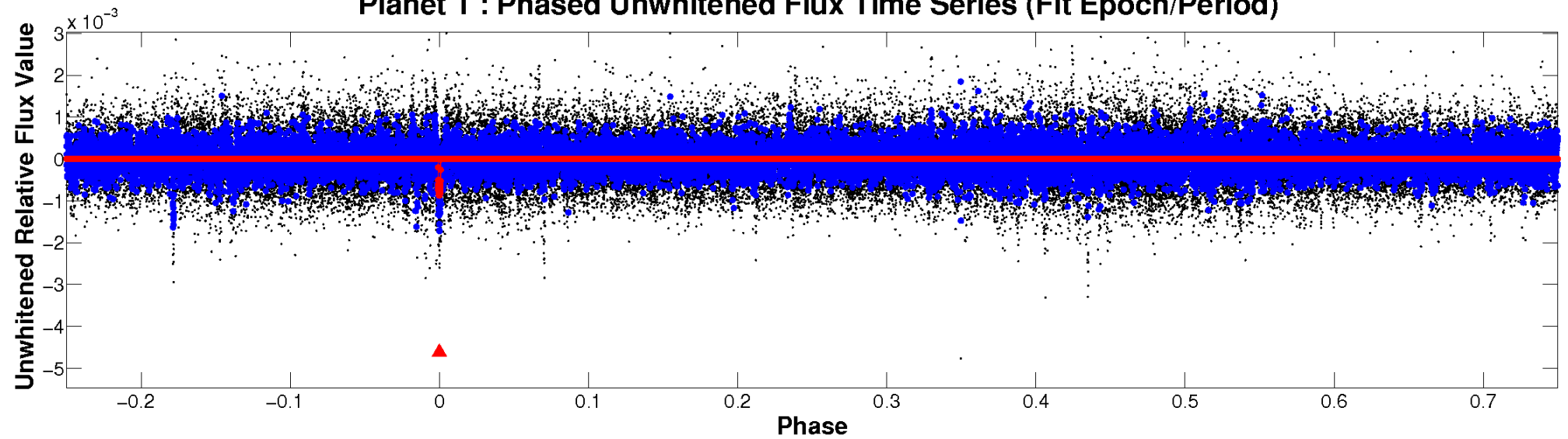
# ALT Odd/Even

TCE 007969331-01

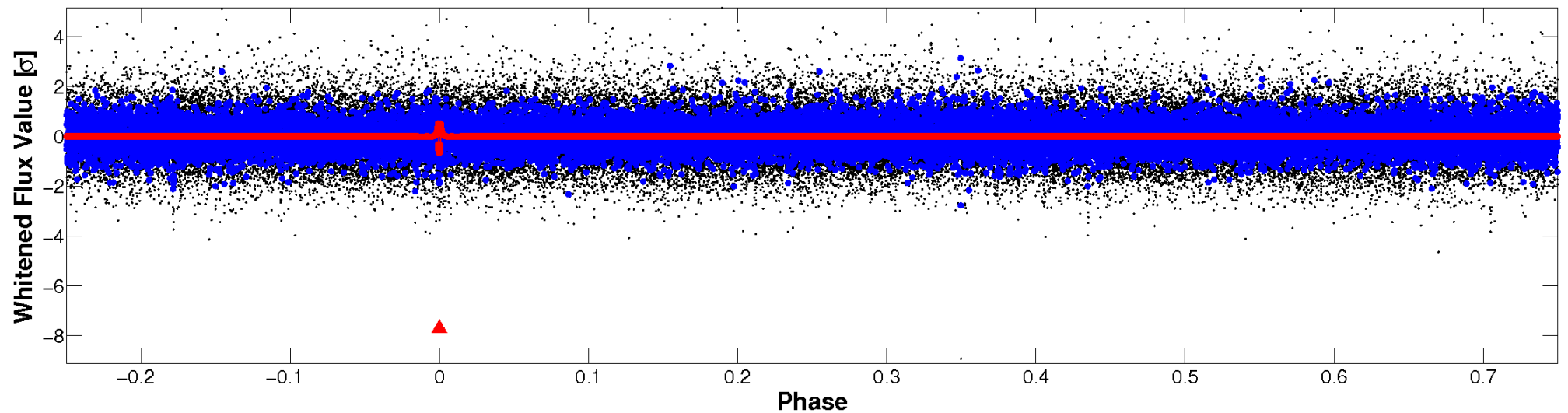


# Non-Whitened Vs. Whitened Light Curve

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



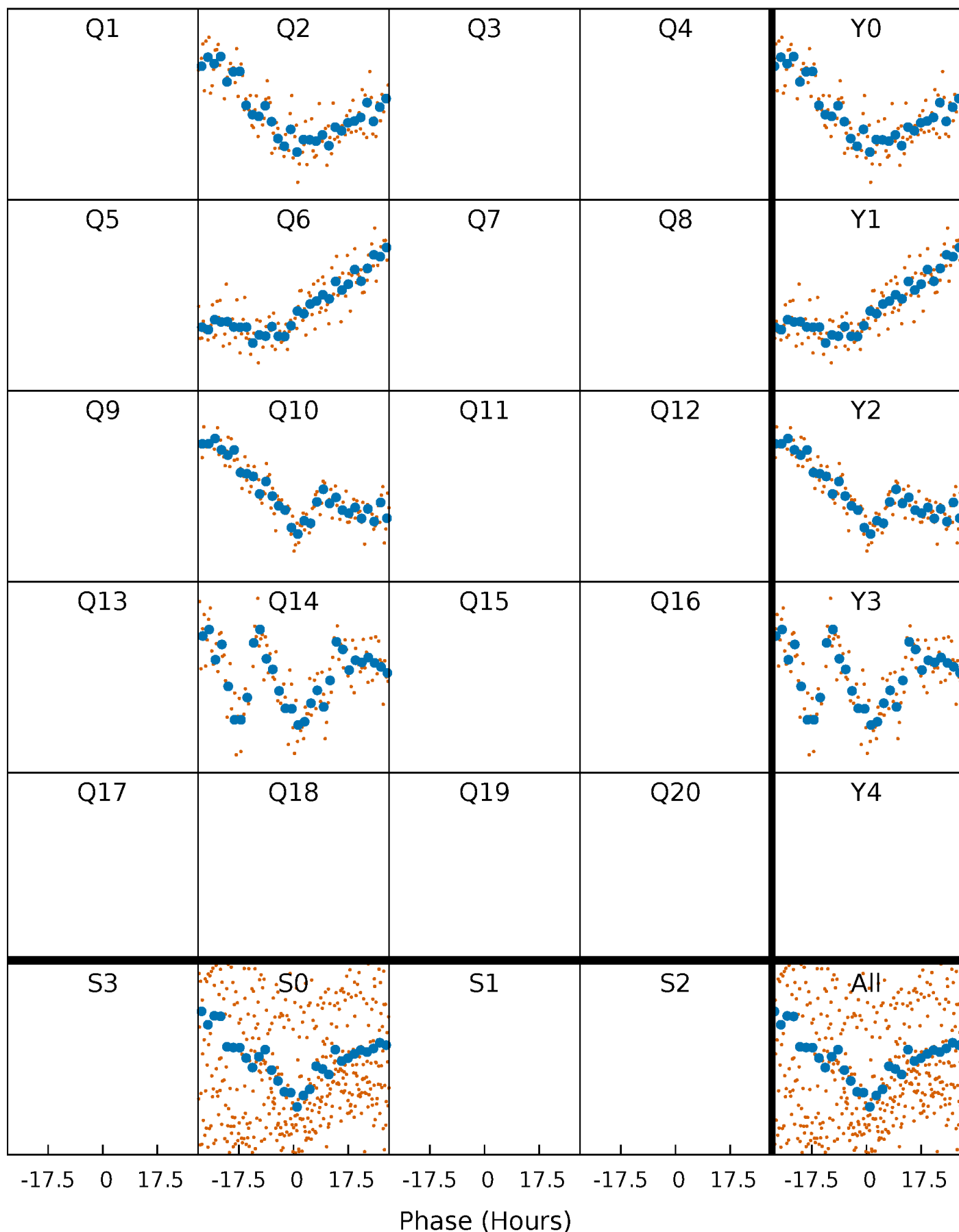
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

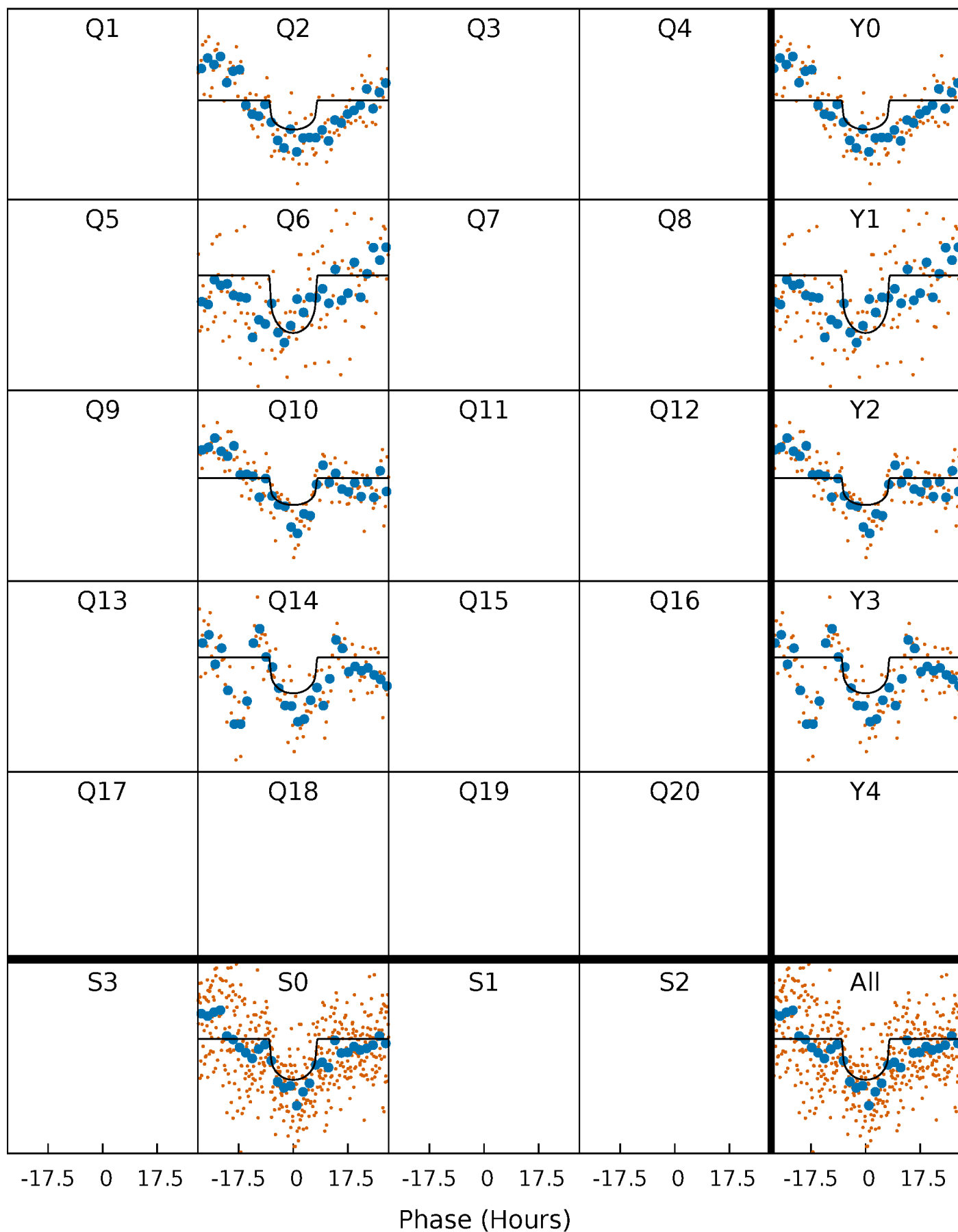
TCE 007969331-01 P=367.901508 Days  $T_0=236.670159$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 007969331-01 P=367.901508 Days  $T_0=236.670159$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

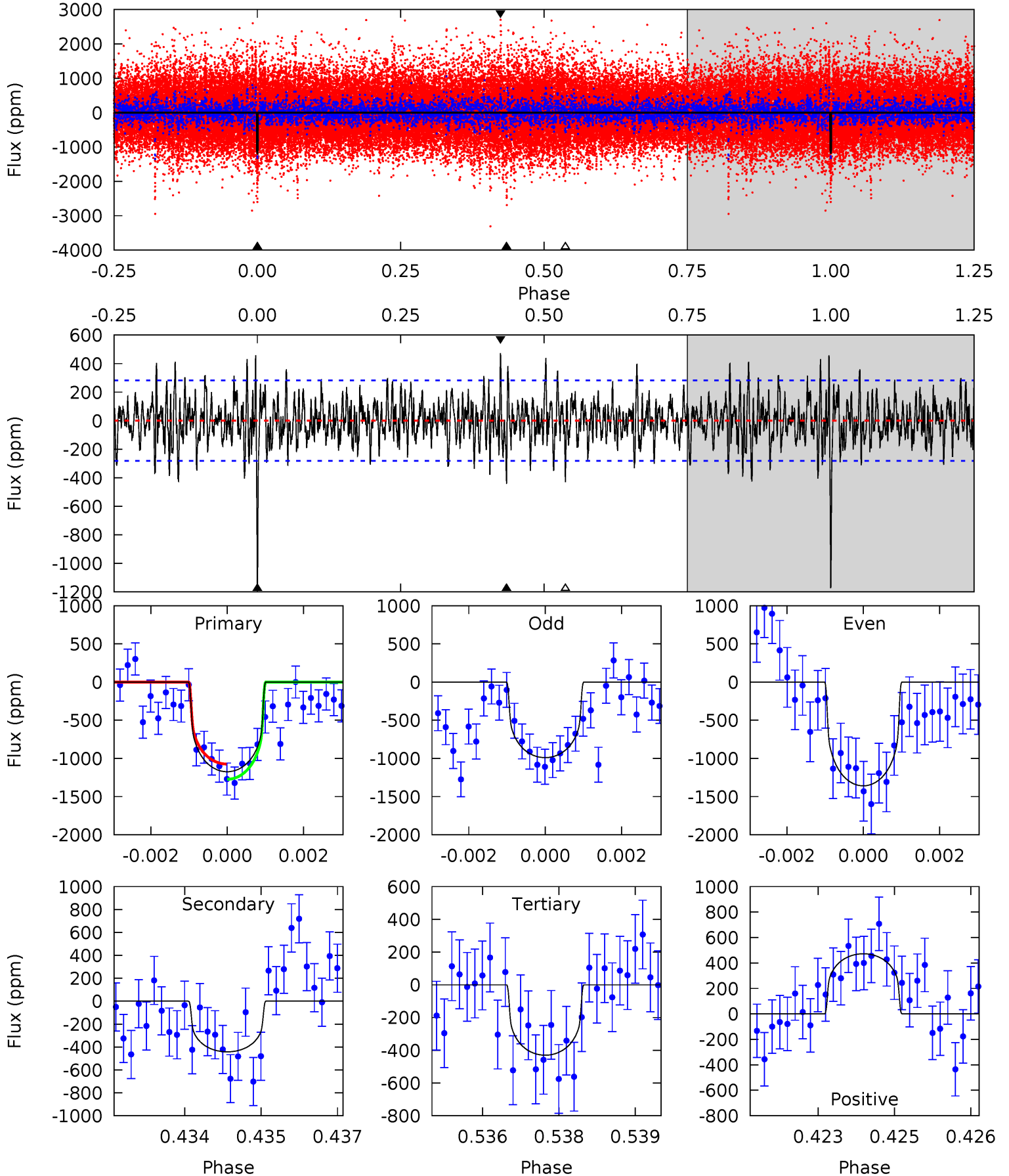
TCE 007969331-01 P=367.926681 Days  $T_0=236.661249$  (BKJD)



# DV Model-Shift Uniqueness Test

007969331-01, P = 367.901508 Days, E = 236.670159 Days

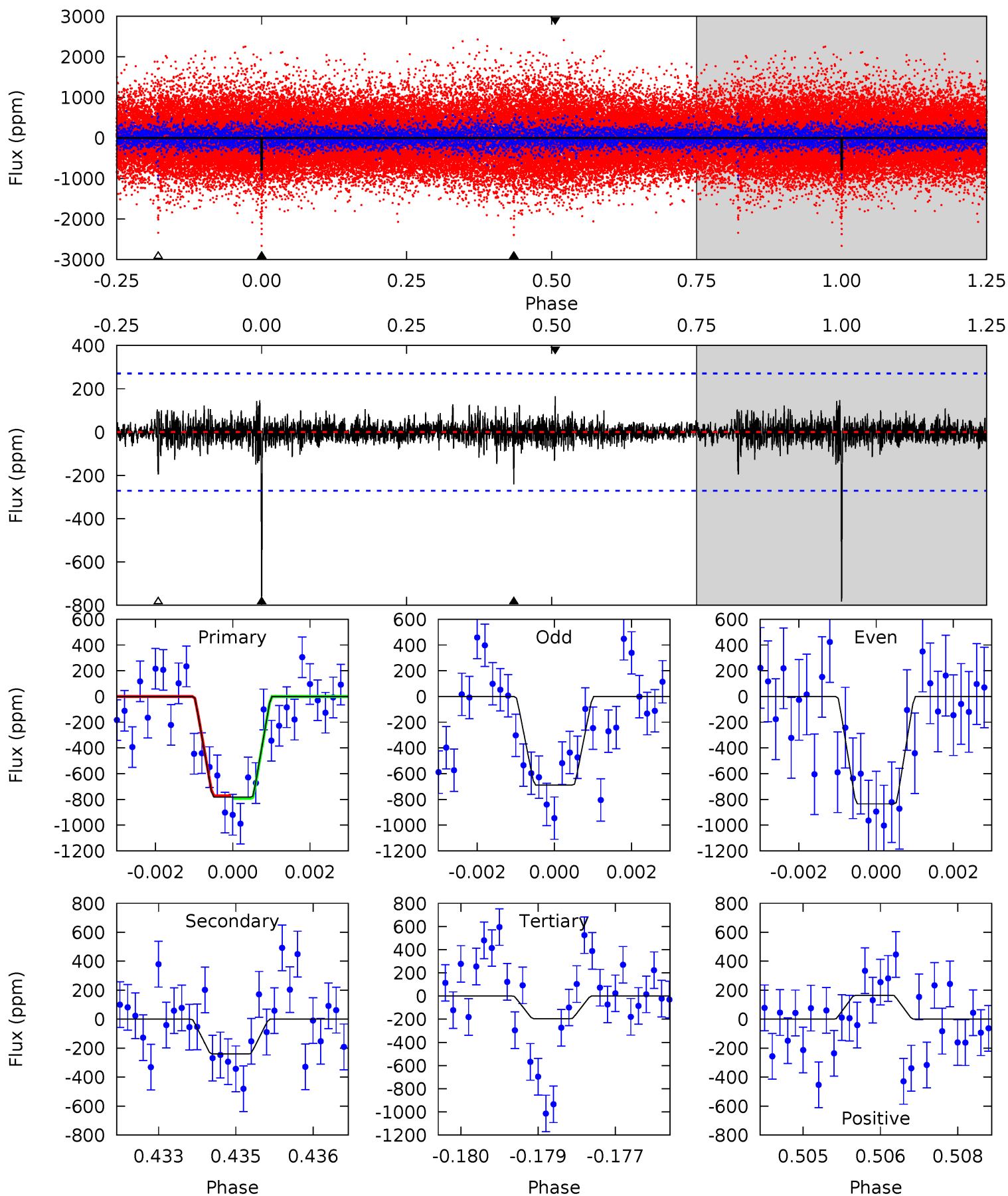
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	8.38	8.15	8.95	5.35	3.13	2.38	14.1	13.3	0.23	-0.57	3.50	0.91	0.29	1.89



# Alt Model-Shift Uniqueness Test

007969331-01, P = 367.926681 Days, E = 236.661249 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	4.77	3.87	3.27	5.37	3.16	0.69	11.7	12.3	0.89	1.49	1.45	1.07	0.17	0.21



### Stellar Parameters For KIC 007969331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5208^{+181}_{-145}$	$4.440^{+0.116}_{-0.160}$	$0.120^{+0.250}_{-0.300}$	$0.907^{+0.176}_{-0.122}$	$0.826^{+0.096}_{-0.064}$	$1.562^{+0.833}_{-0.672}$
	+3%/-3%	+3%/-4%	+208%/-250%	+19%/-13%	+12%/-8%	+53%/-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 007969331-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-442 \pm 53$	$2.82^{+1.74}_{-1.44}$	$318^{+20}_{-17}$	$4594^{+1733}_{-696}$	$26648^{+83294}_{-16198}$
Alt.	$-240 \pm 50$	$3.01^{+1.82}_{-1.47}$	$318^{+21}_{-17}$	$4032^{+1294}_{-614}$	$12654^{+36876}_{-7832}$

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

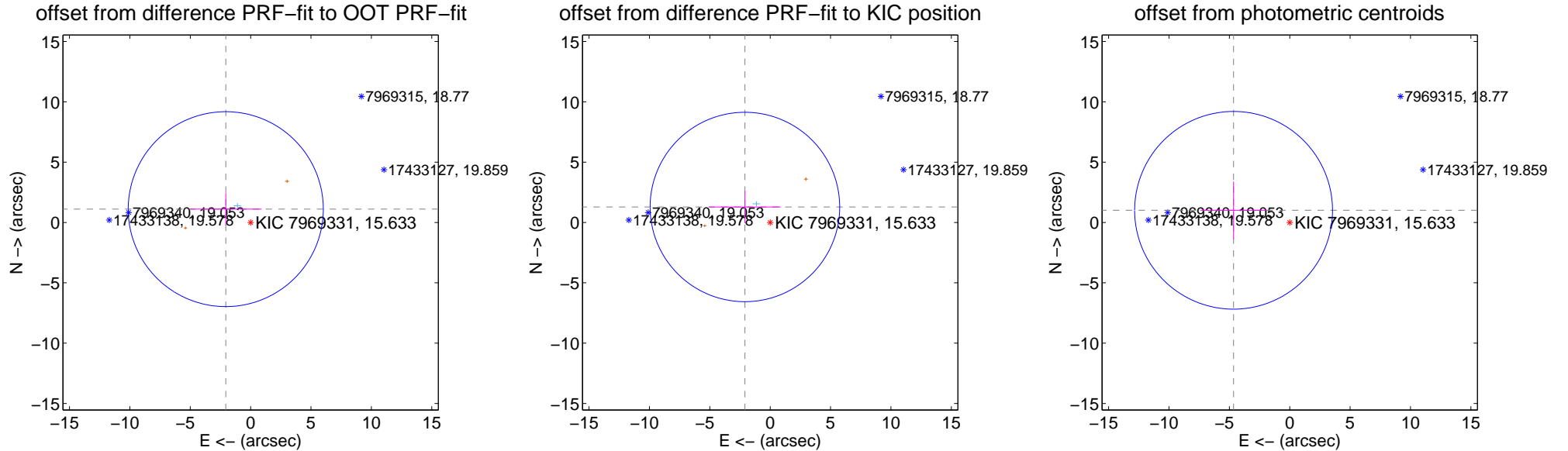
## DV Centroid Data

Supplemental centroid analysis for 007969331-01. Kepler magnitude: 15.63. Transit SNR 7.17

There are 1 quarters with good PRF difference image offsets

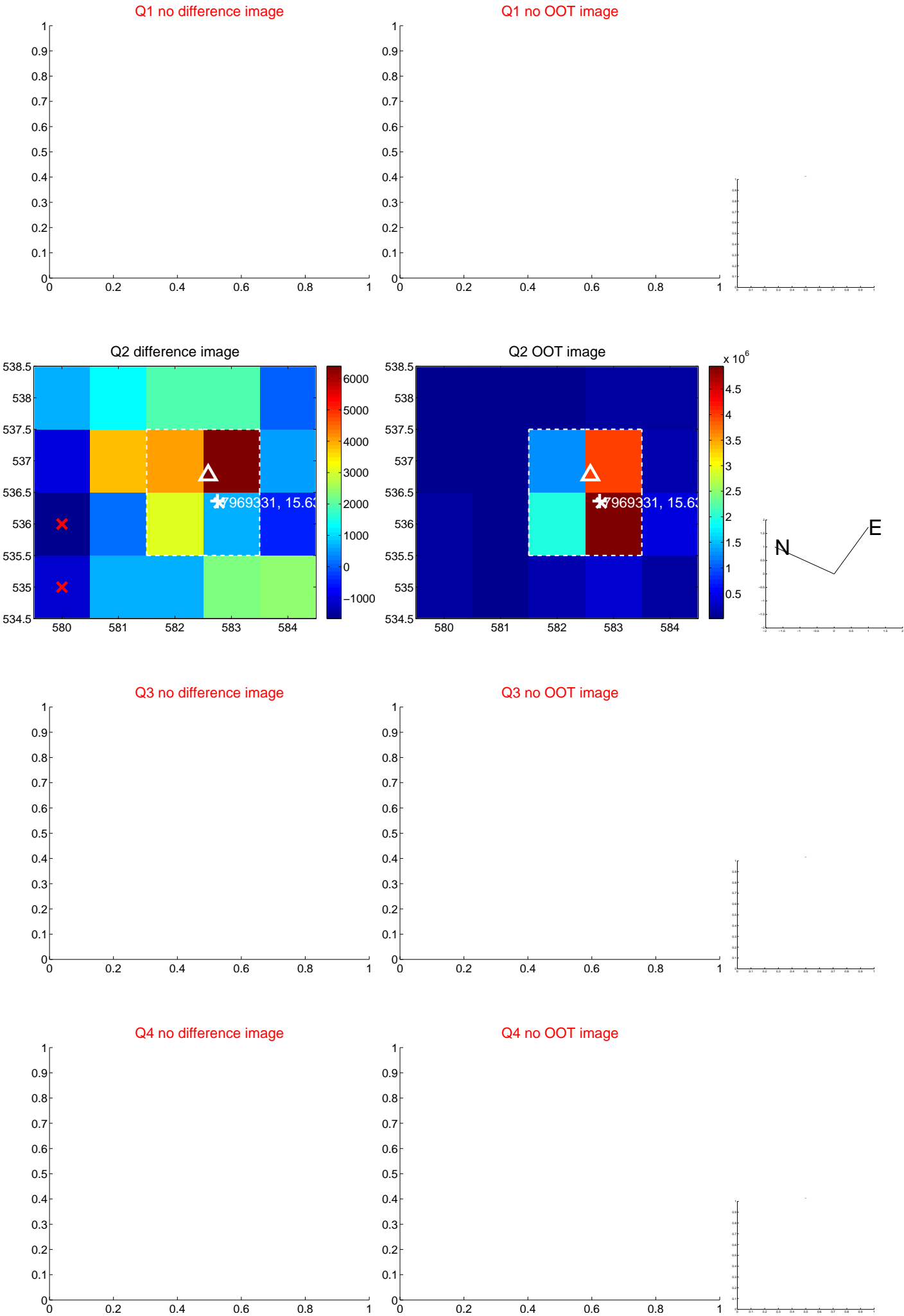
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.337 \pm 2.692$	0.87	$2.059 \pm 2.971$	$1.105 \pm 1.332$
PRF-fit source offset from KIC position	$2.456 \pm 2.616$	0.94	$2.094 \pm 2.959$	$1.284 \pm 1.329$
photometric centroid source offset	$4.76 \pm 2.73$	1.74	$4.65 \pm 2.75$	$1.01 \pm 2.38$



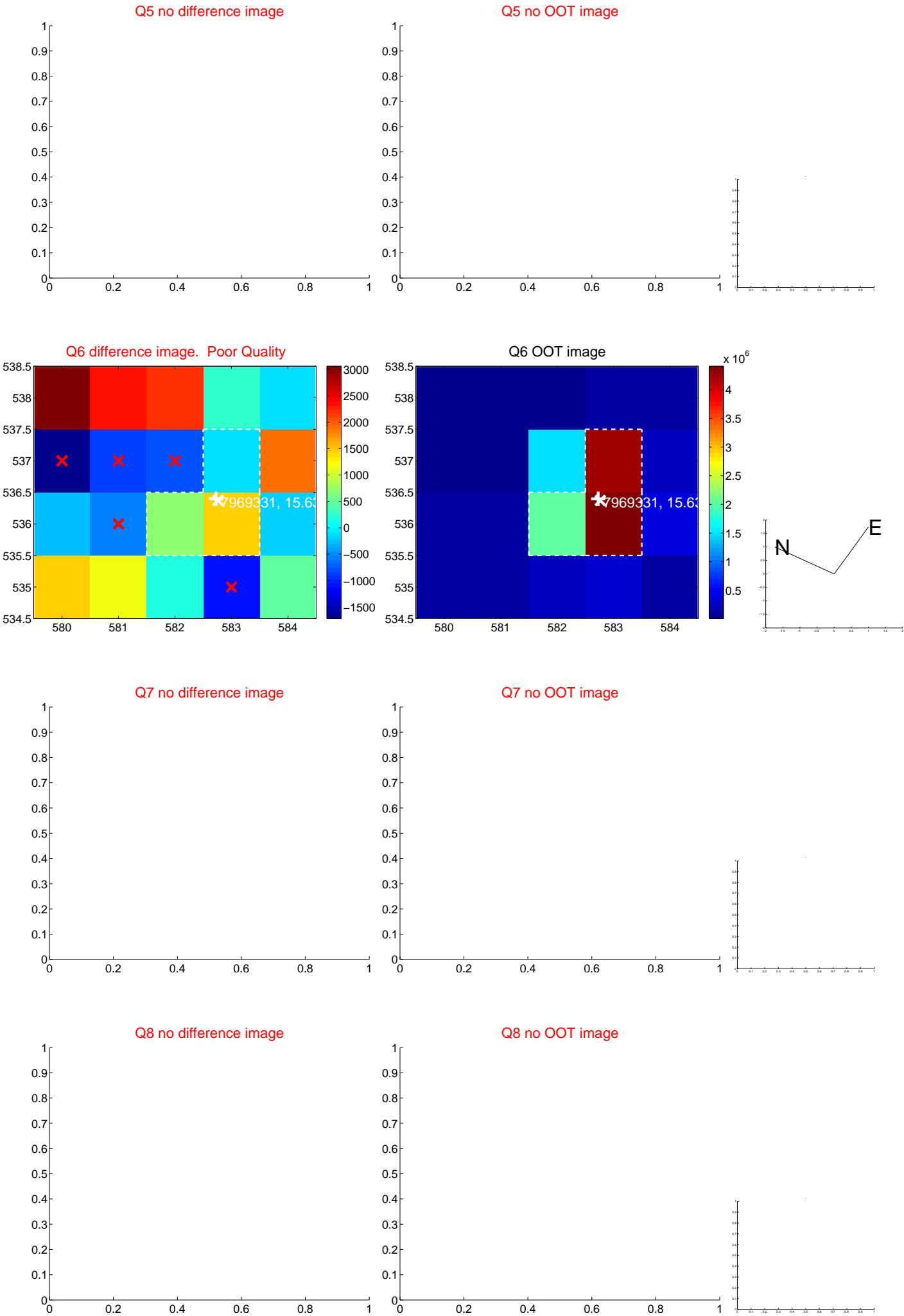
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

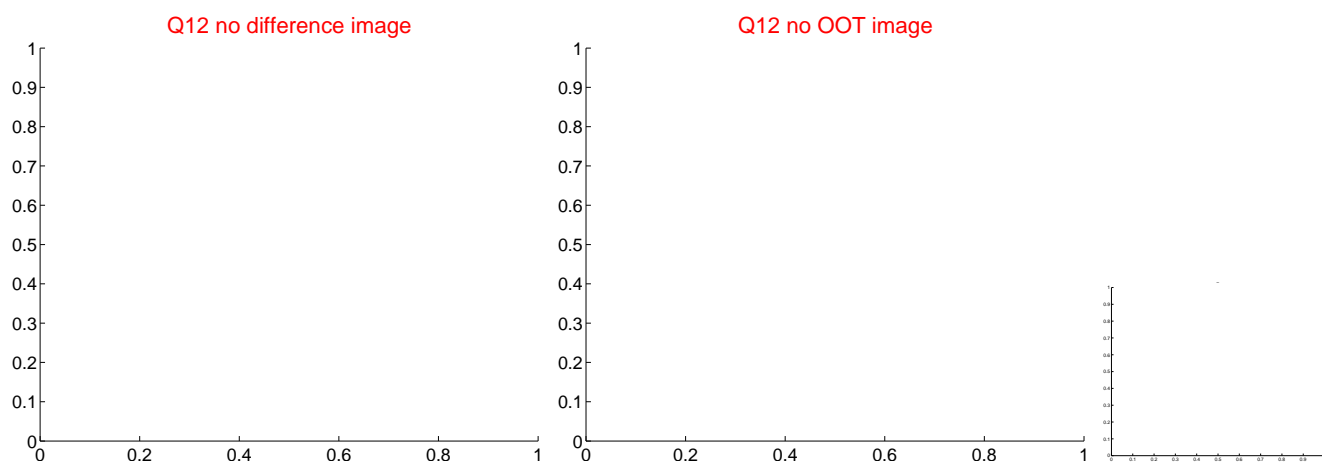
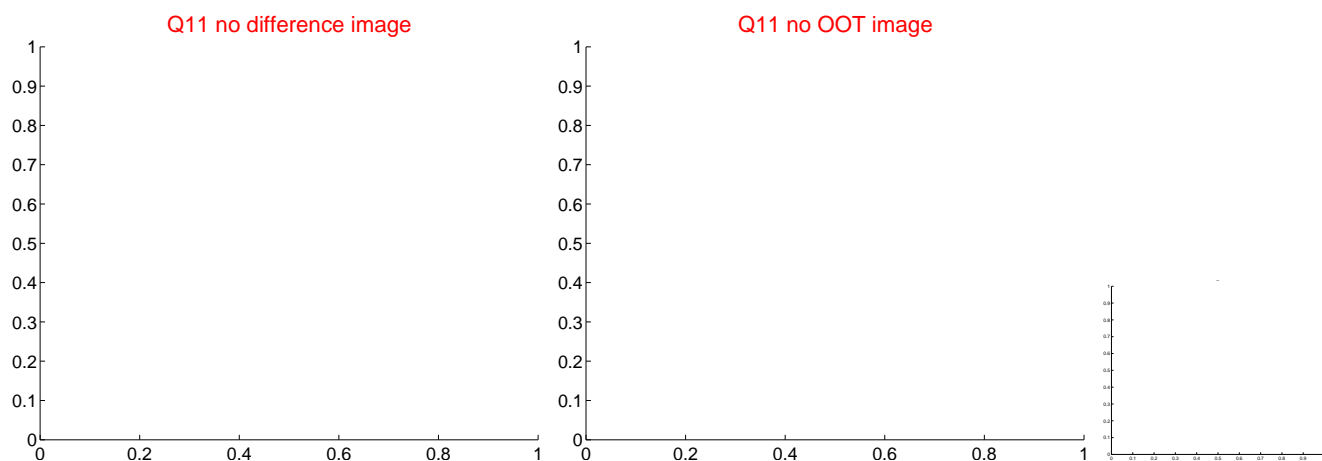
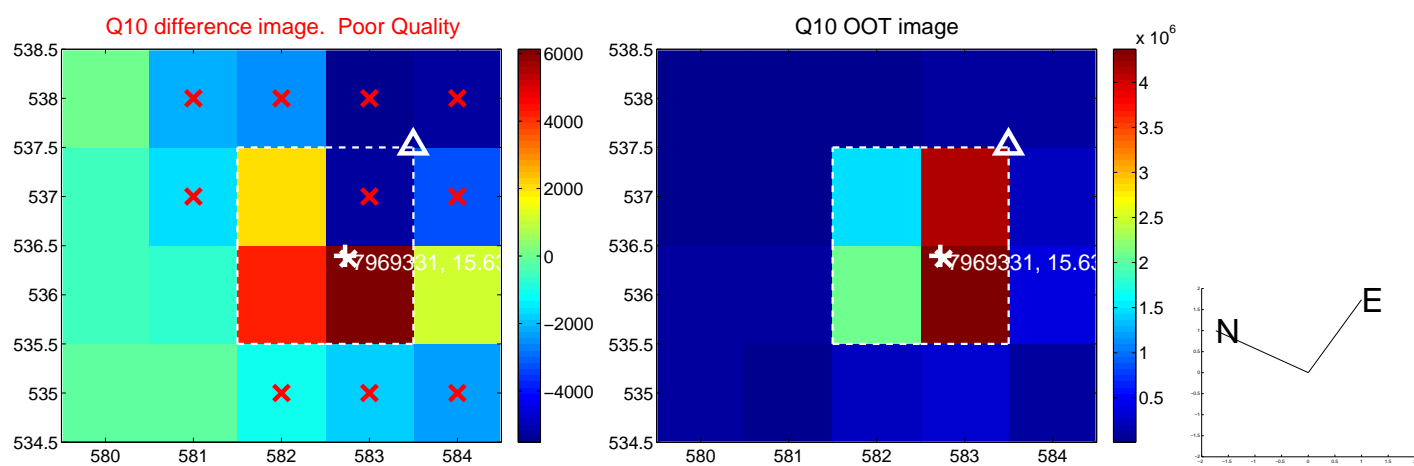
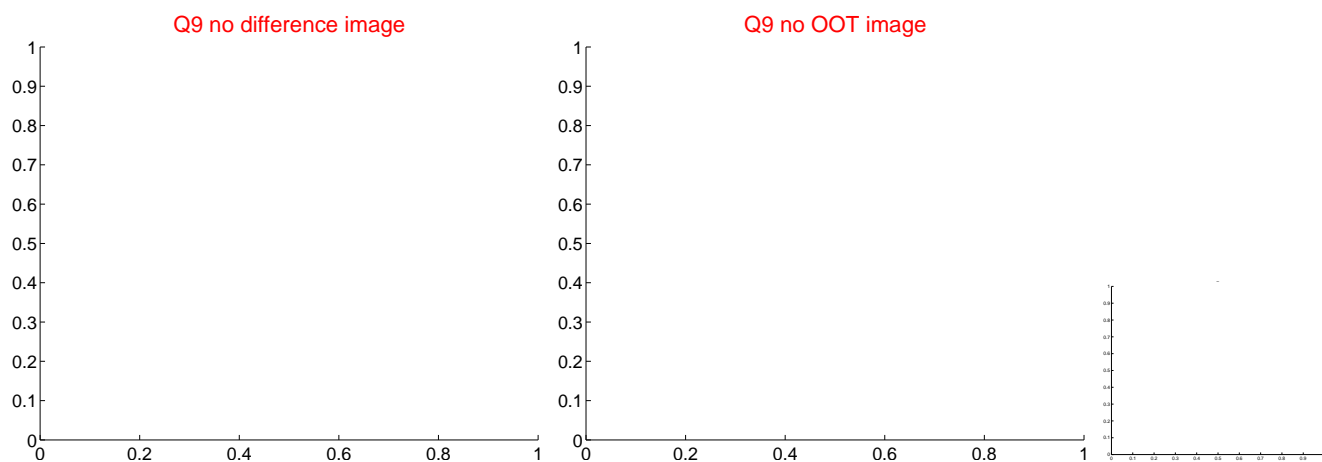




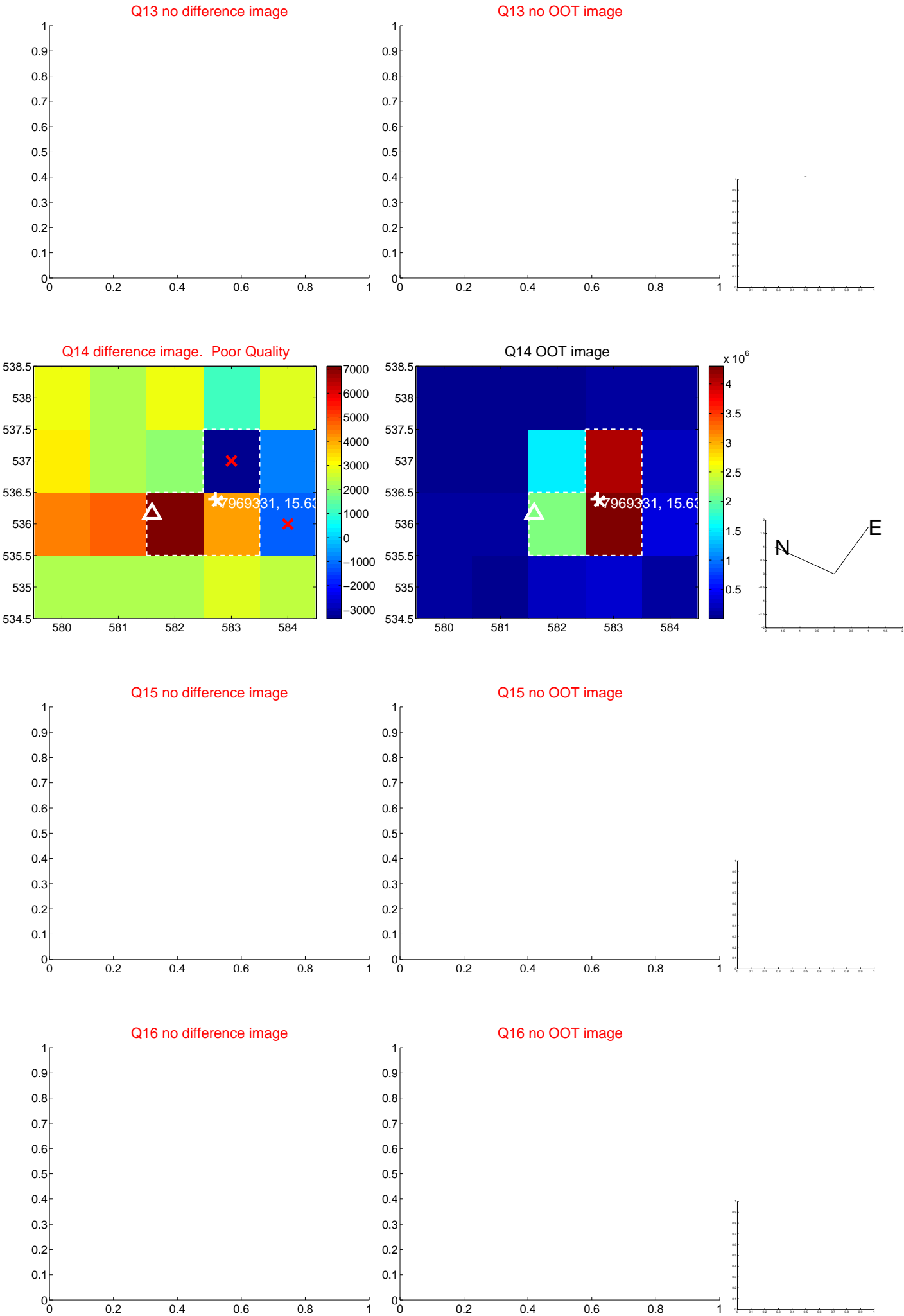
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



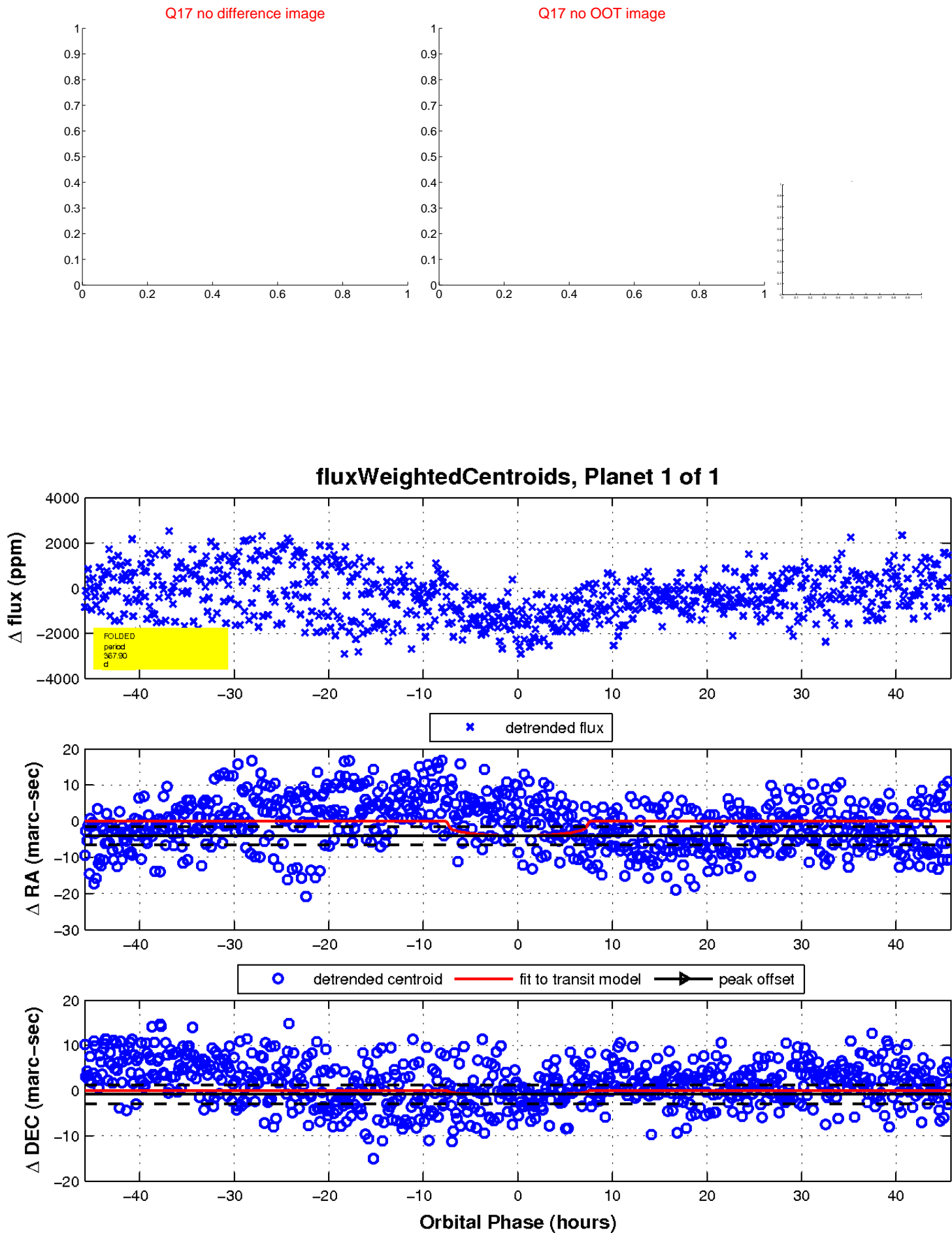
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

