

# KIC 012073340

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012073340-01	OBS	No	1.227332	132.697204	188.4	14.728	7.7	9.2	0.74	5469	1.43	996.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012073340-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

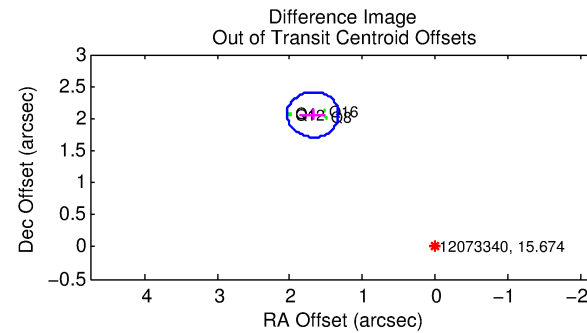
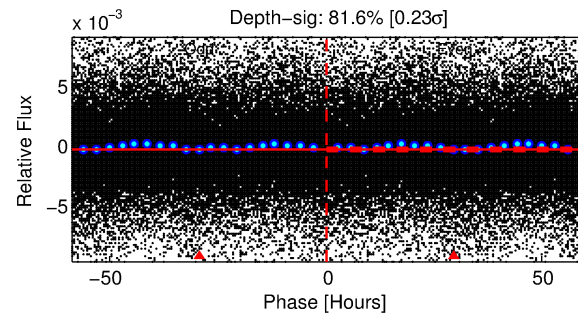
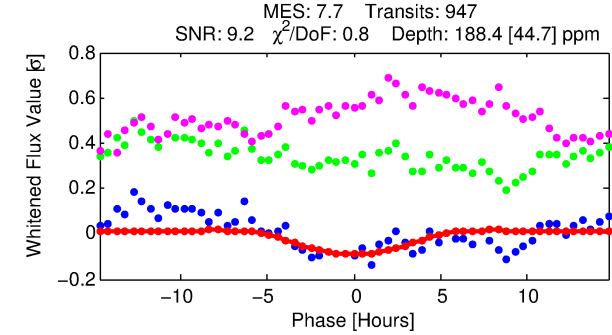
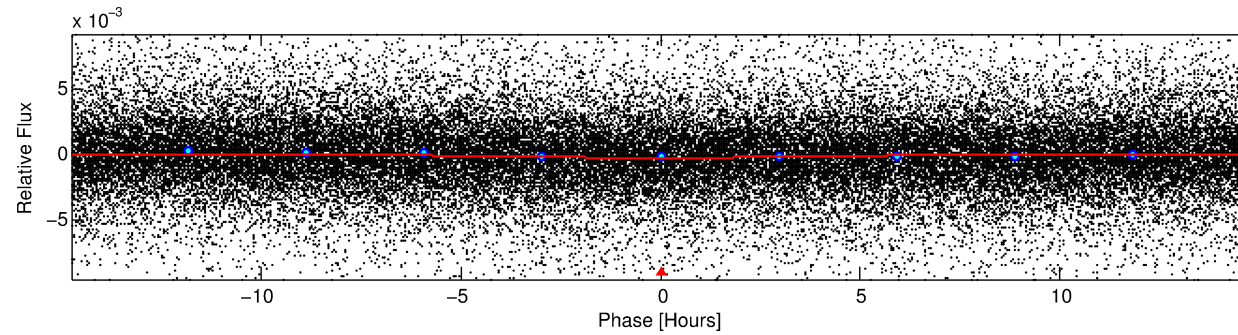
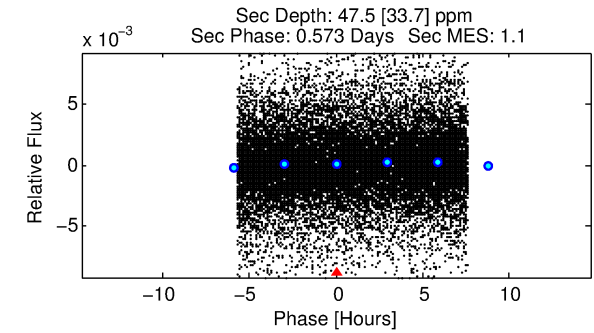
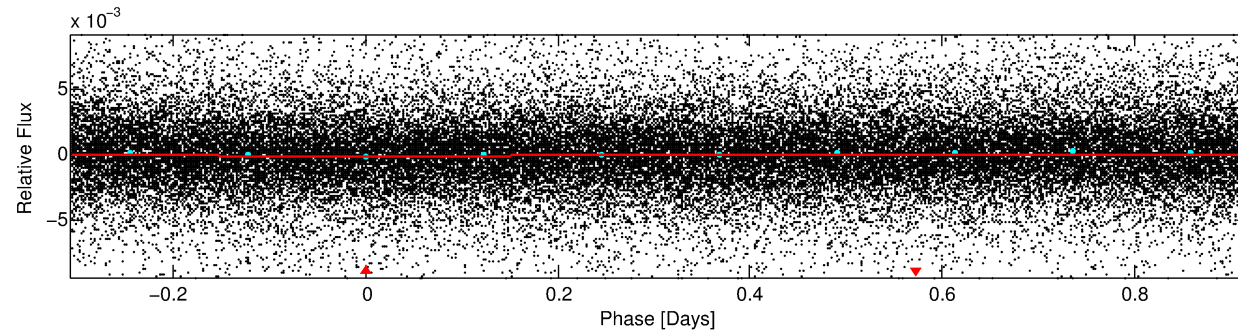
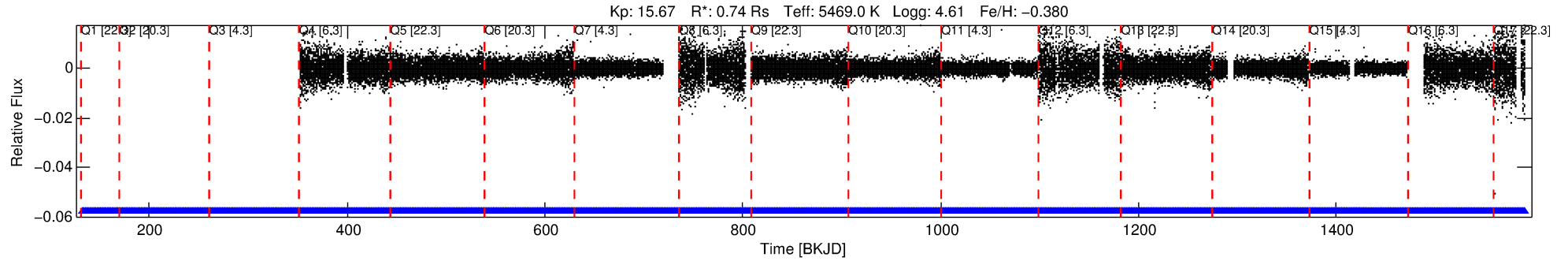
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012073340-01

No Significant Match Found

# DV One-Page Summary

KIC: 12073340 Candidate: 1 of 1 Period: 1.227 d



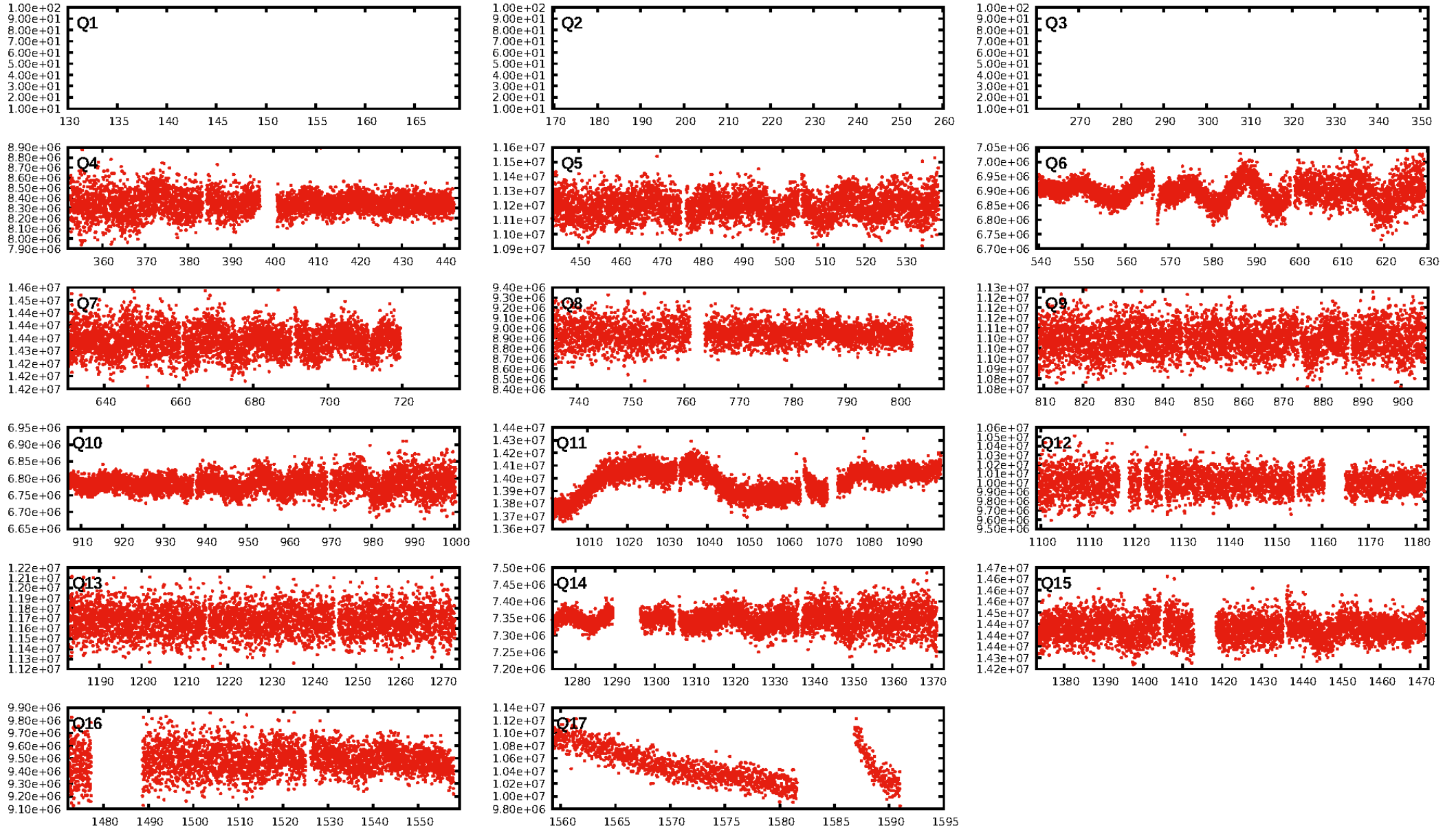
## DV Fit Results:

Period = 1.22733 [0.00005] d  
Epoch = 132.6972 [0.0349] BKJD  
Rp/R\* = 0.0177 [0.0031]  
a/R\* = 1.01 [0.01]  
b = 0.98 [0.01]  
Seff = 996.81 [262.46]  
Teff = 1433 [94] K  
Rp = 1.43 [0.37] Re  
a = 0.0209 [0.0033] AU  
Ag = 5.62 [4.62] [1.00 $\sigma$ ]  
Teffp = 3410 [684] K [2.86 $\sigma$ ]

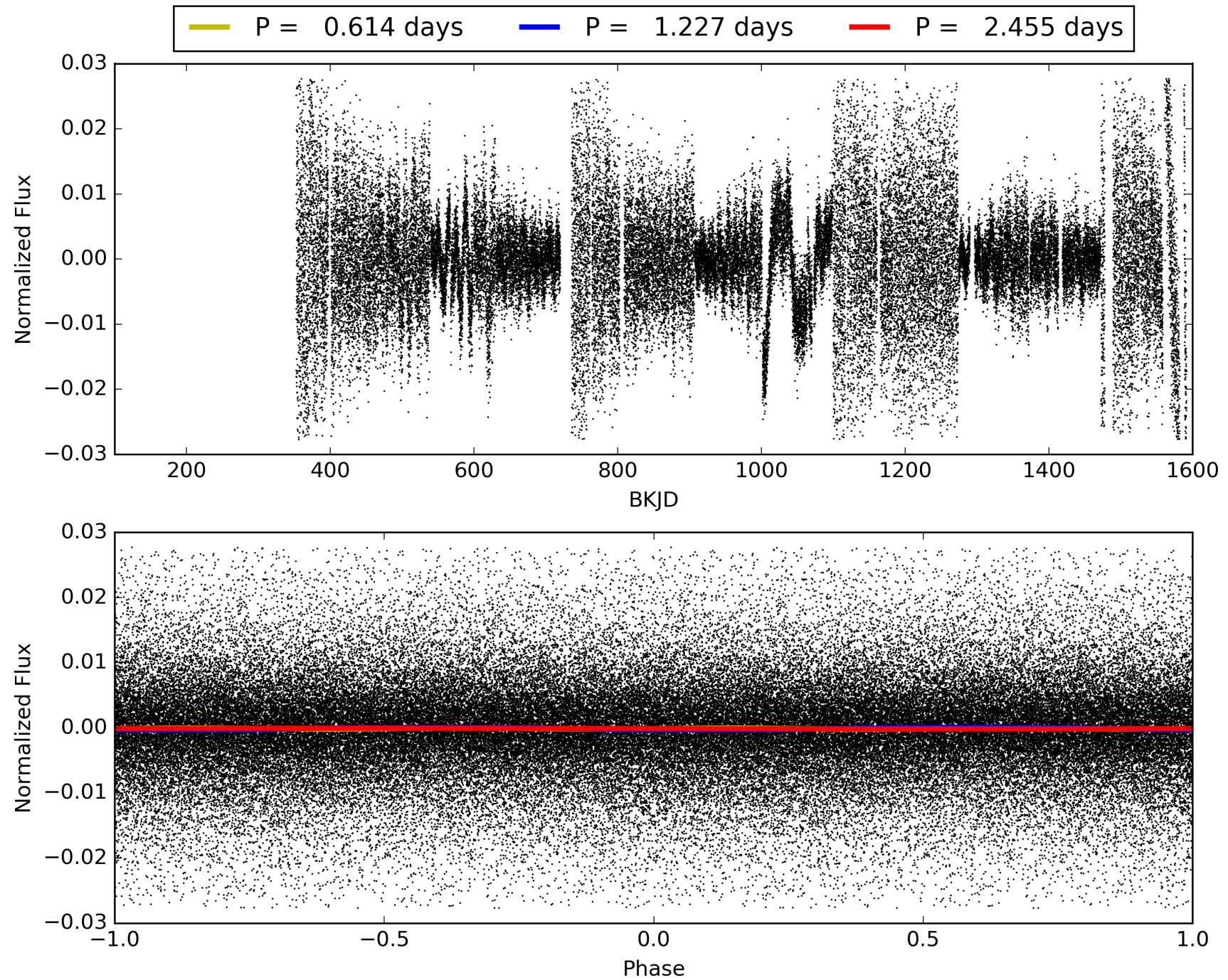
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [925/925]  
GhostDiagnostic-chr: -0.8283  
Centroid-sig: 0.0%  
Centroid-so: 2.990 arcsec [35.57 $\sigma$ ]  
OotOffset-rm: 2.662 arcsec [22.58 $\sigma$ ]  
KicOffset-rm: 2.448 arcsec [11.29 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 1/2/4/0 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 012073340-01, PDC Light Curves



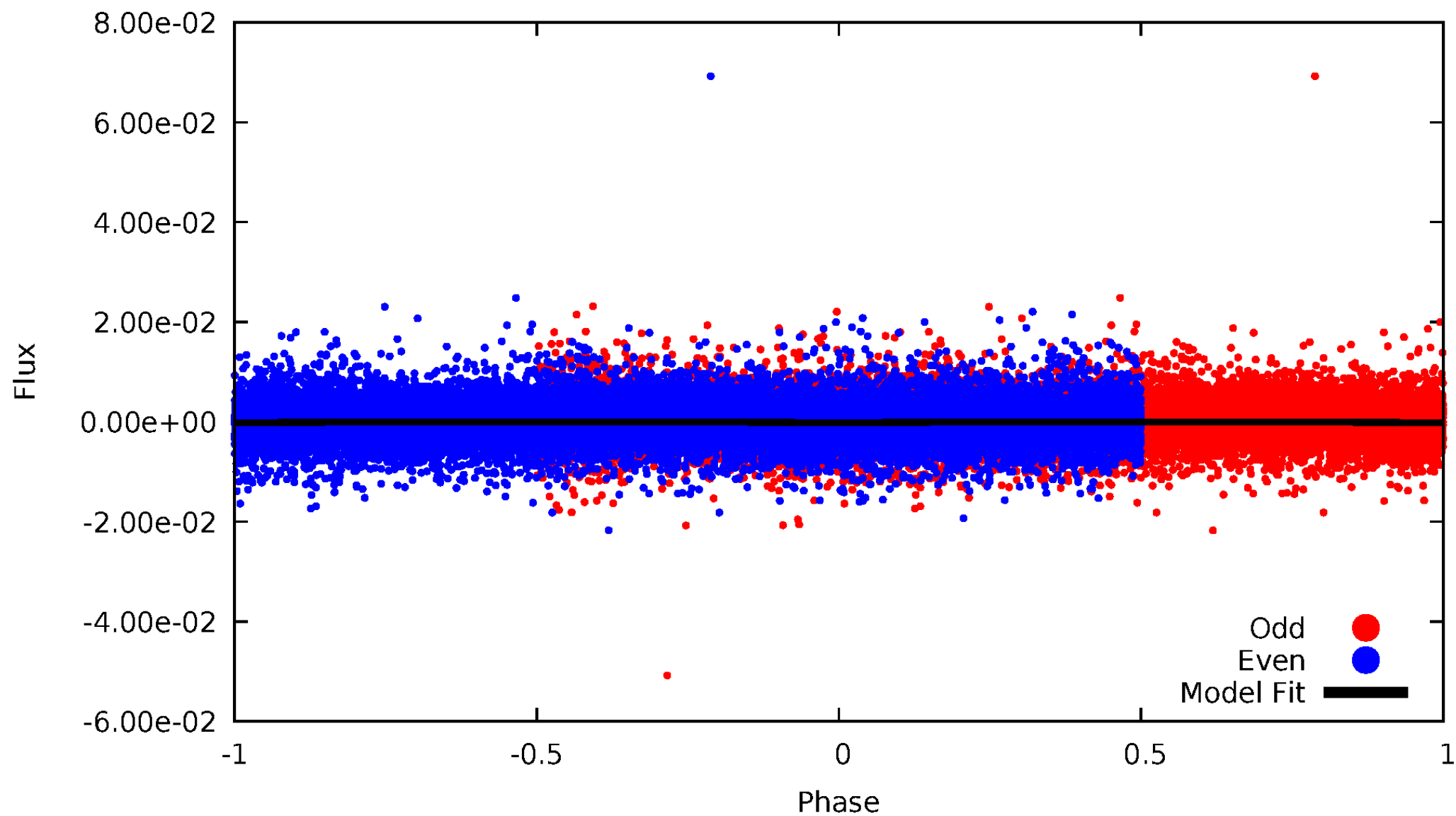
TCE 012073340-01





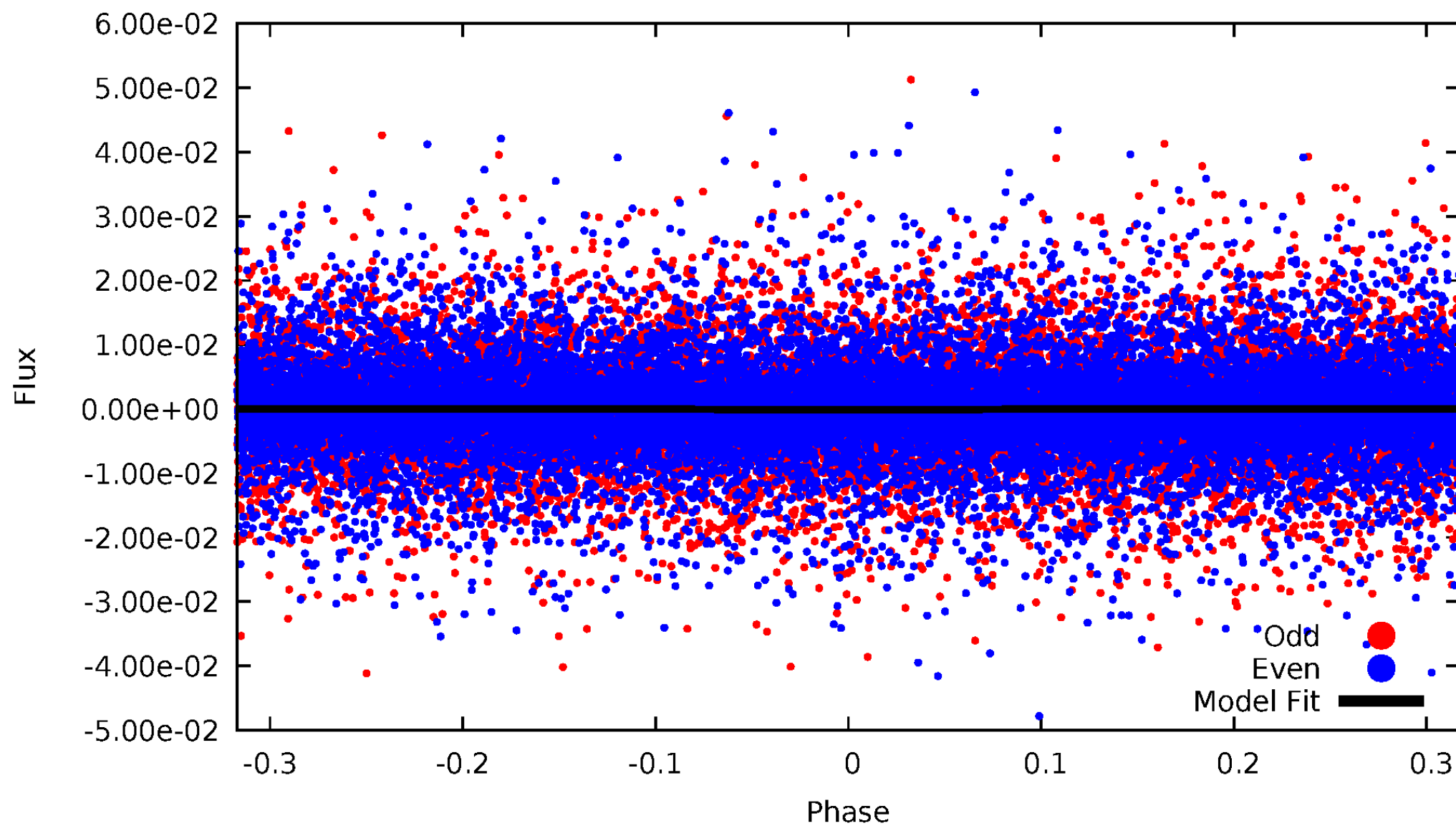
# DV Odd/Even

TCE 012073340-01



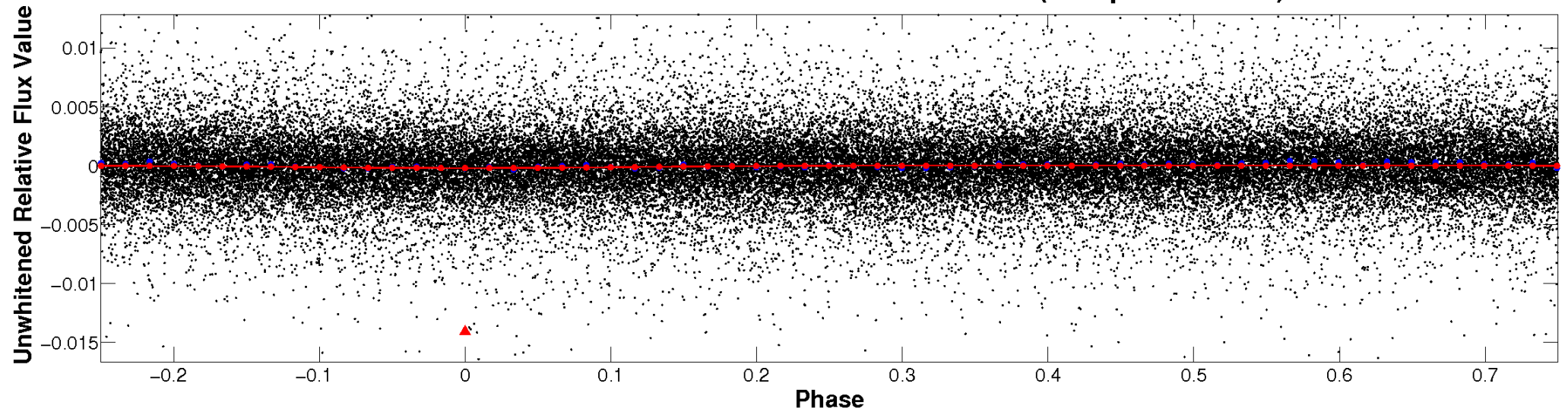
# ALT Odd/Even

TCE 012073340-01

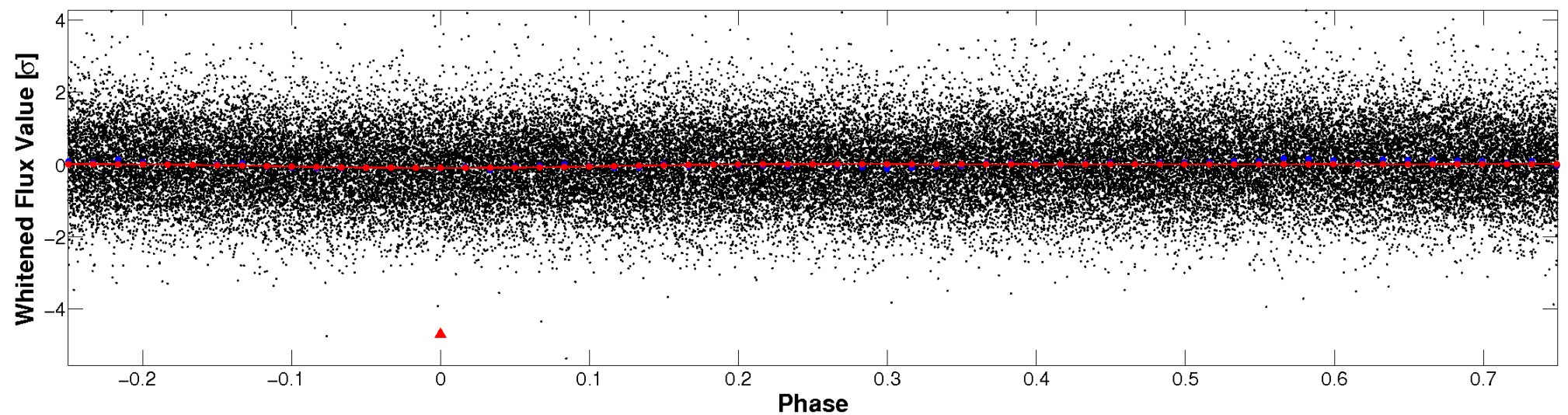


# Non-Whitened Vs. Whitened Light Curve

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

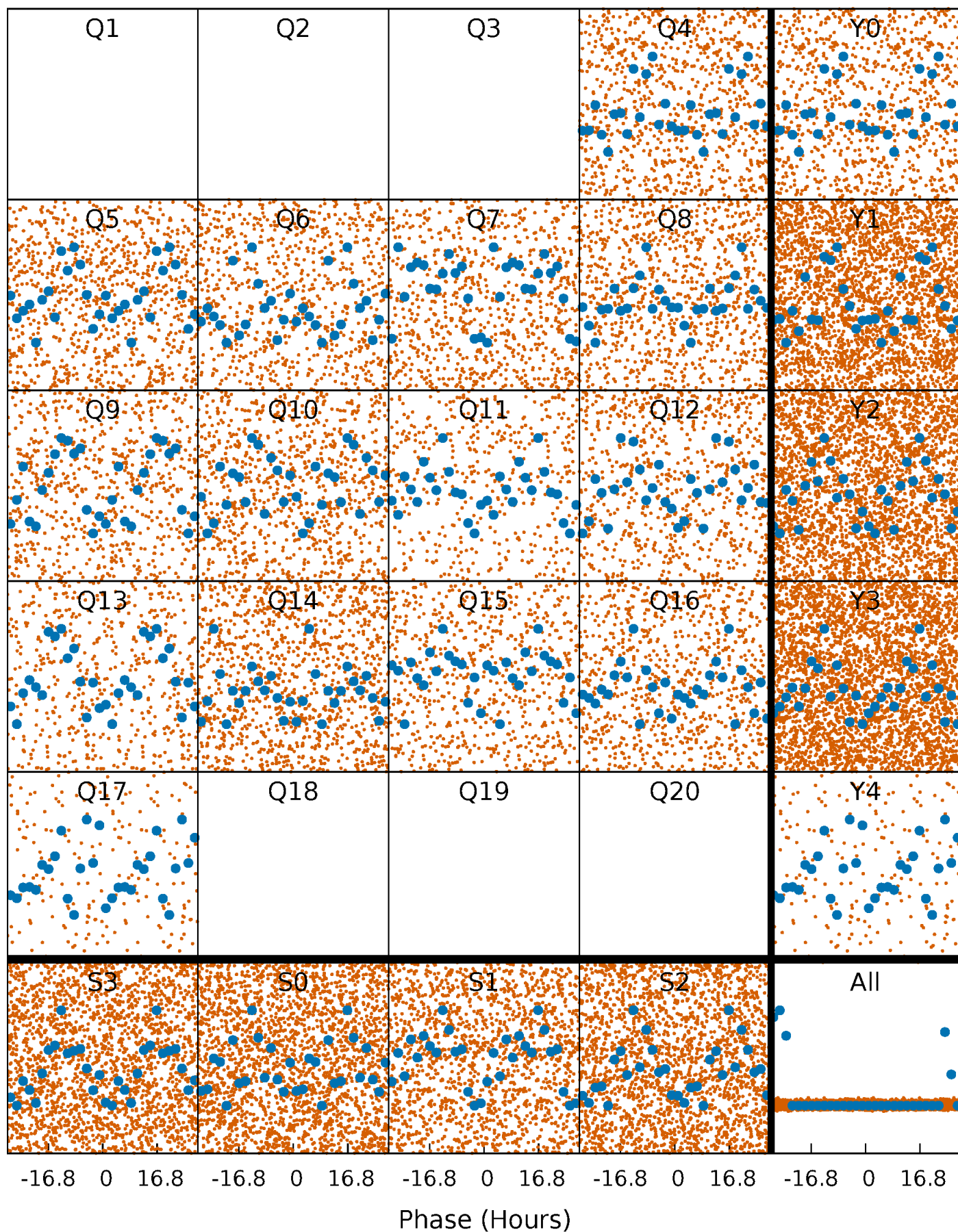


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

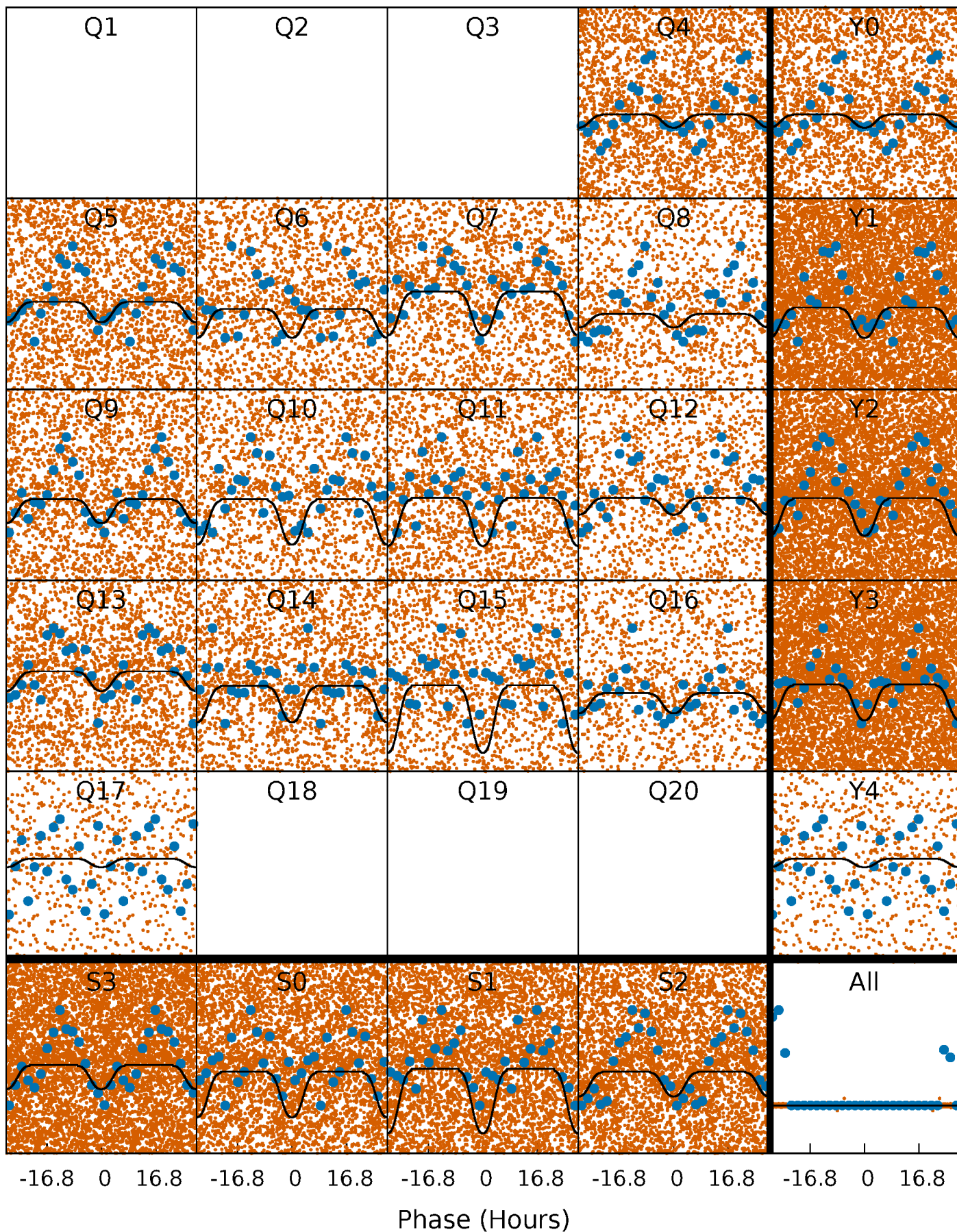
TCE 012073340-01 P= 1.227332 Days  $T_0=132.697204$  (BKJD)





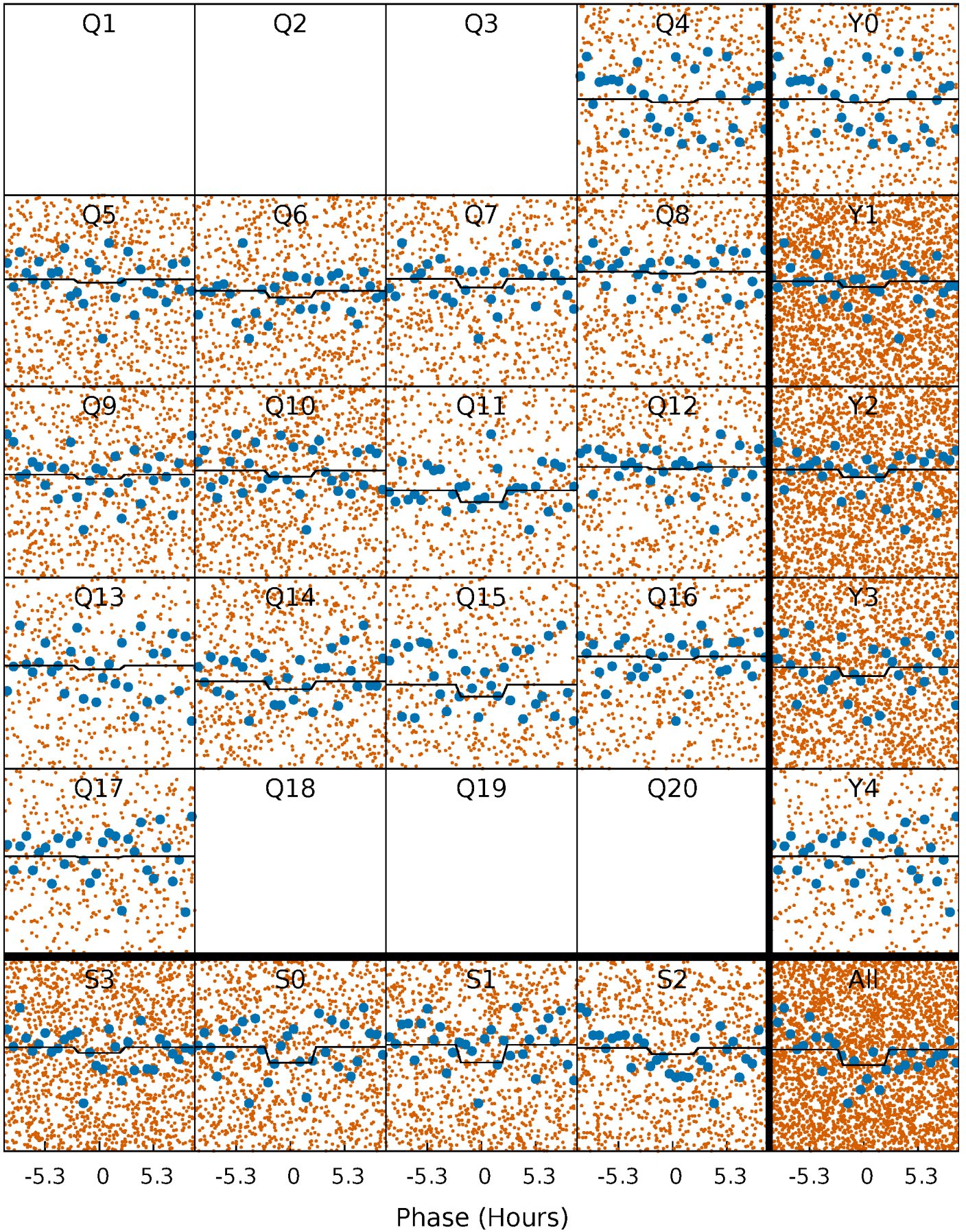
# DV Quarter-Phased Transit Curves

TCE 012073340-01 P= 1.227332 Days  $T_0=132.697204$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

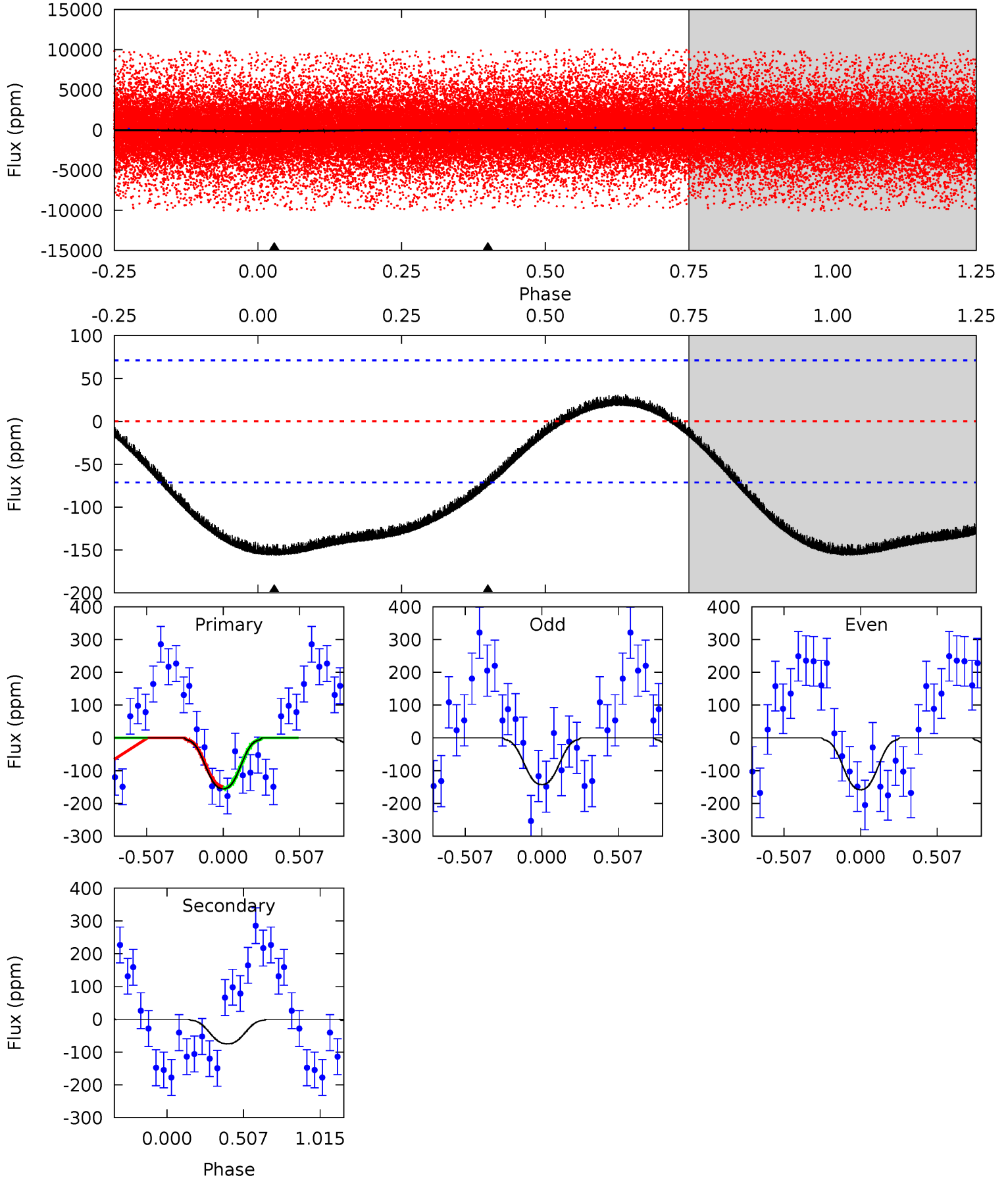
TCE 012073340-01 P= 1.227290 Days  $T_0=132.686362$  (BKJD)



# DV Model-Shift Uniqueness Test

012073340-01, P = 1.227332 Days, E = 132.697204 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
9.19	4.43	0	0	4.21	0.66	0.77	9.19	9.19	4.43	4.43	0.47	-0.29	0.17	0.21

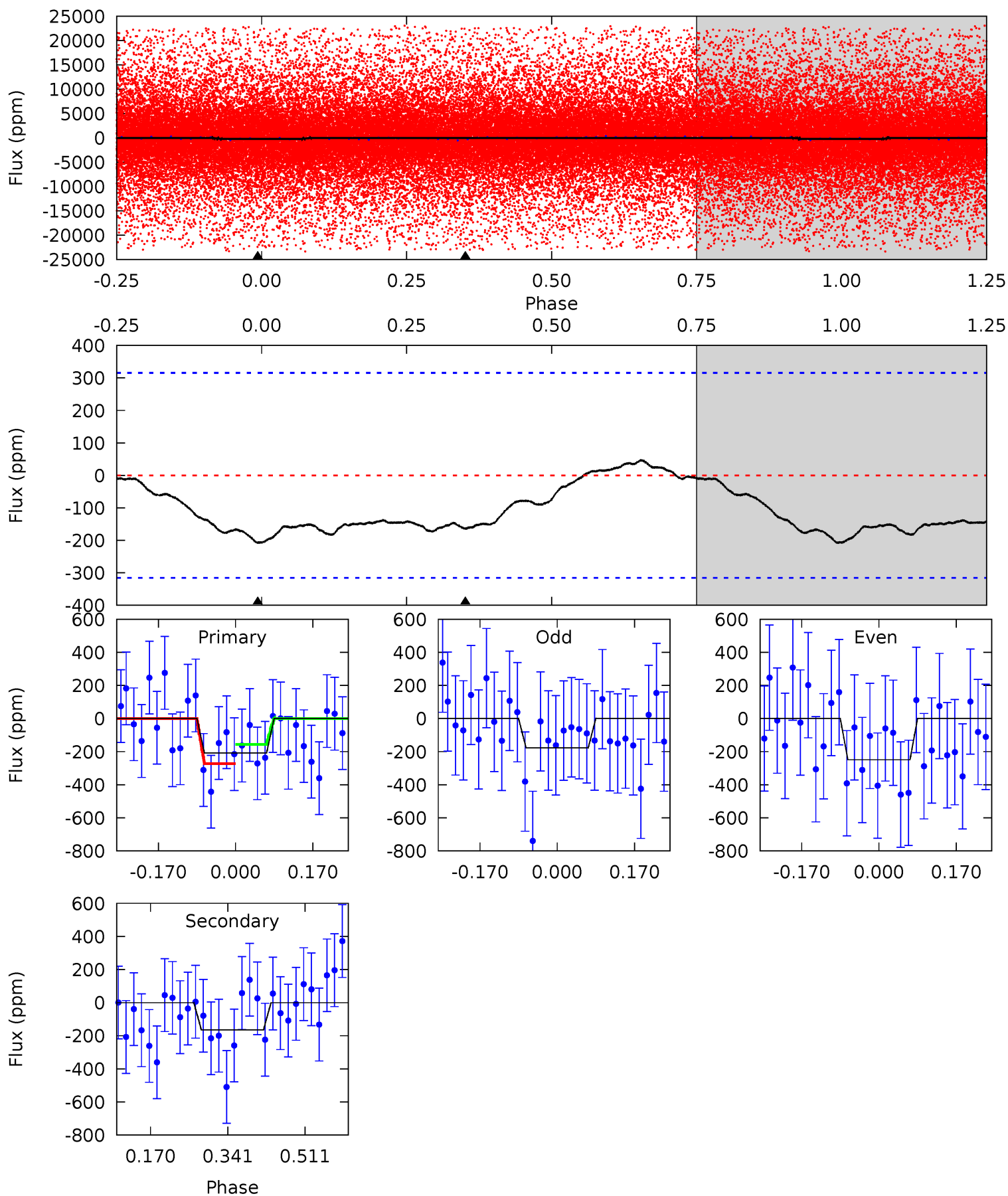




# Alt Model-Shift Uniqueness Test

012073340-01, P = 1.227290 Days, E = 132.686362 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
2.93	2.32	0	0	4.45	1.37	0.60	2.93	2.93	2.32	2.32	0.51	1.02	0.18	0.81





### Stellar Parameters For KIC 012073340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5469^{+187}_{-187}$	$4.611^{+0.040}_{-0.120}$	$-0.380^{+0.300}_{-0.300}$	$0.738^{+0.143}_{-0.061}$	$0.826^{+0.084}_{-0.093}$	$2.891^{+0.488}_{-1.083}$
	+3%/-3%	+1%/-3%	+79%/-79%	+19%/-8%	+10%/-11%	+17%/-37%
Source	KIC0	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 012073340-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-75 \pm 17$	$1.48^{+0.30}_{-0.30}$	$2034^{+104}_{-90}$	$4067^{+388}_{-317}$	$8.236^{+4.746}_{-2.865}$
Alt.	$-164 \pm 71$	$0.81^{+0.25}_{-0.27}$	$2026^{+97}_{-84}$	$6180^{+1670}_{-1102}$	$60^{+78}_{-34}$

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

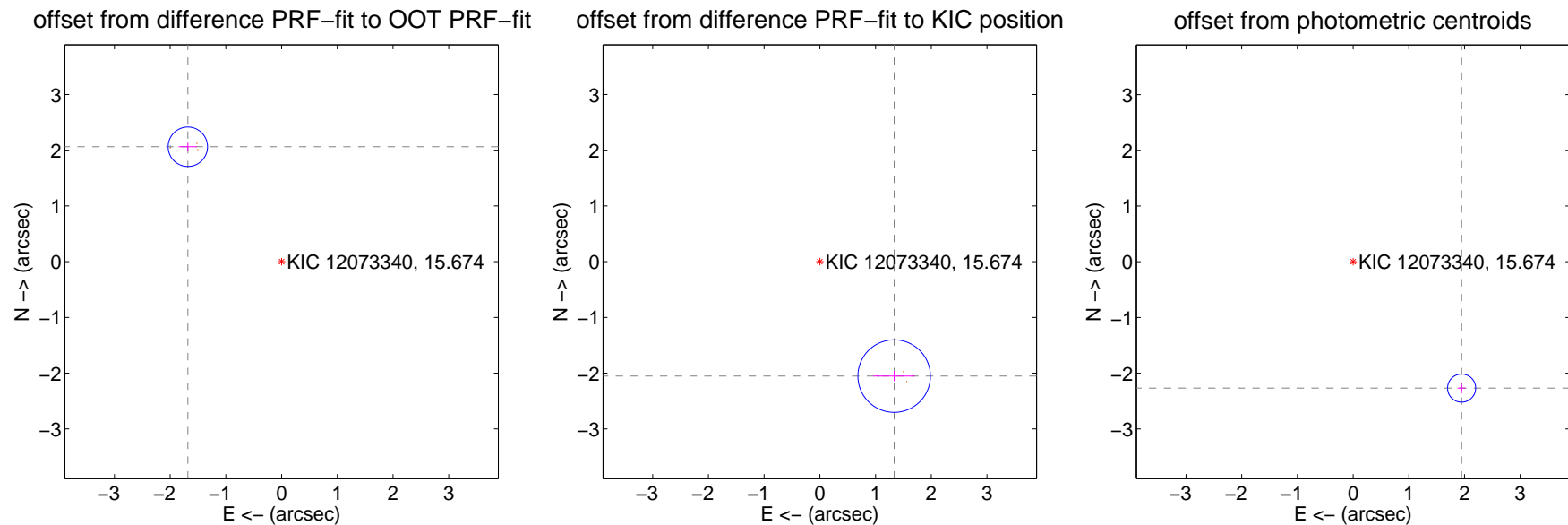
## DV Centroid Data

Supplemental centroid analysis for 012073340-01. Kepler magnitude: 15.67. Transit SNR 9.19

There are 3 quarters with good PRF difference image offsets

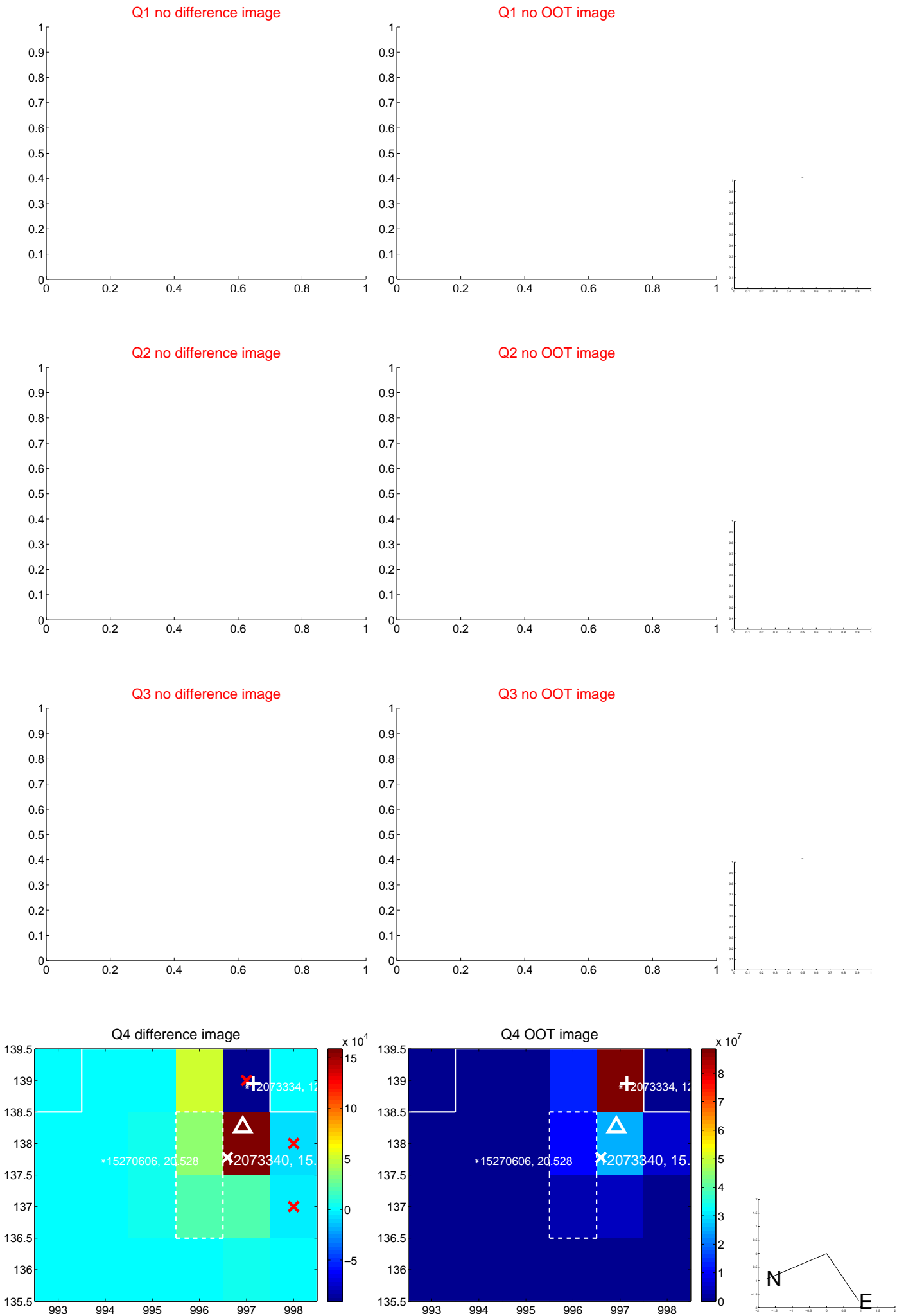
The OOT PRF centroid is offset from the target star catalog position by about 5.09 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.662 \pm 0.118$	22.58	$1.683 \pm 0.164$	$2.062 \pm 0.072$
PRF-fit source offset from KIC position	$2.448 \pm 0.217$	11.29	$-1.334 \pm 0.372$	$-2.053 \pm 0.092$
photometric centroid source offset	$2.99 \pm 0.08$	35.57	$-1.95 \pm 0.07$	$-2.27 \pm 0.09$

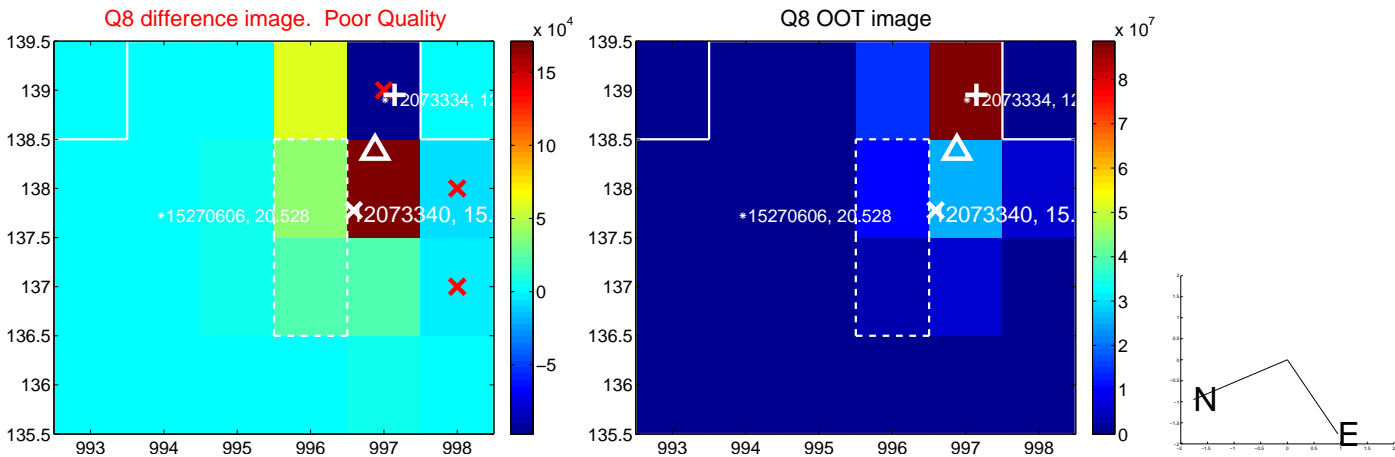
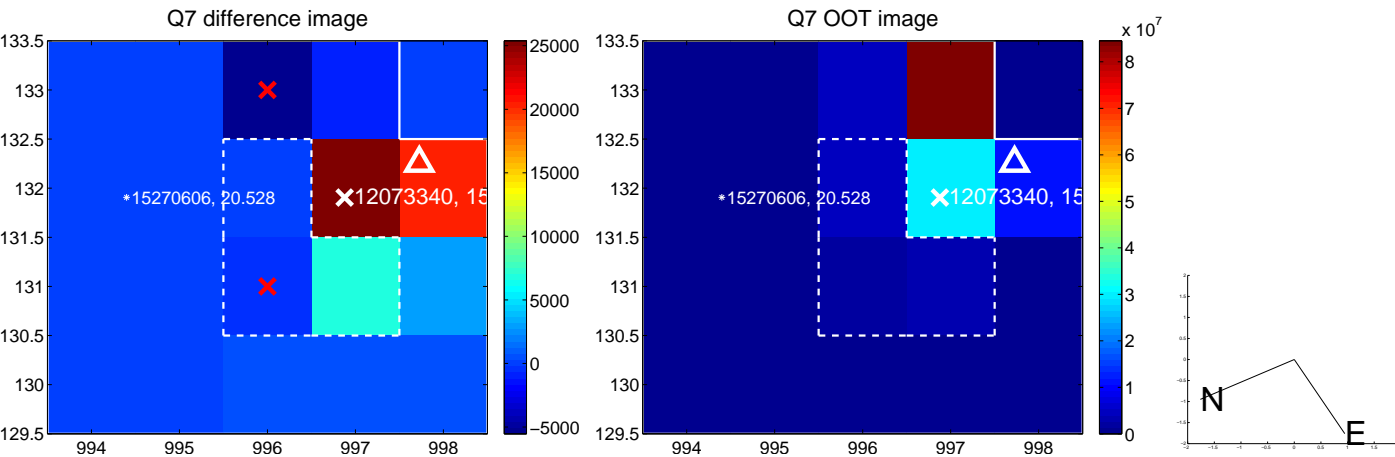
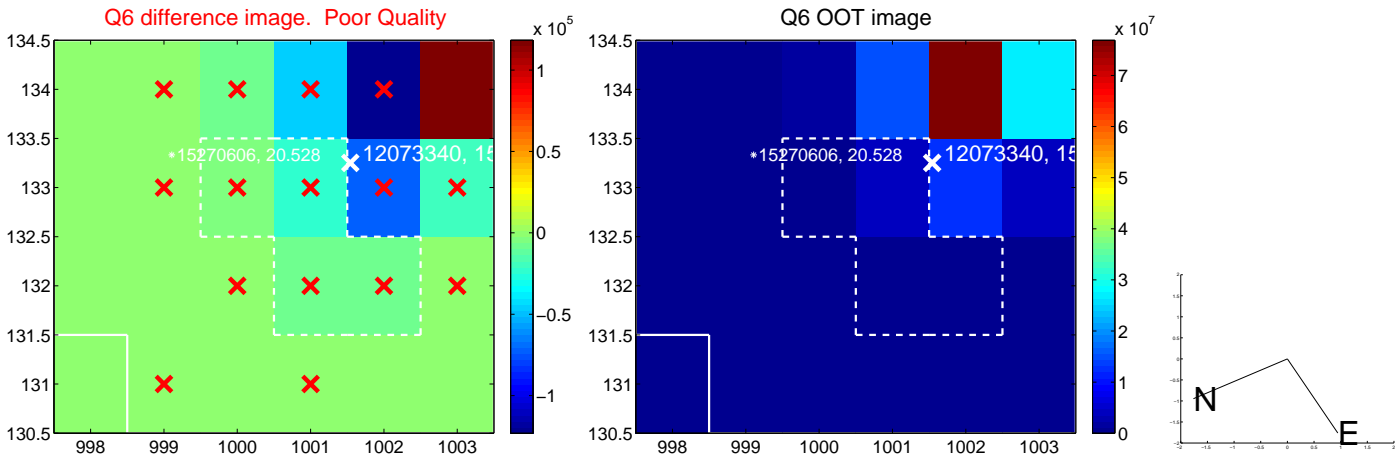
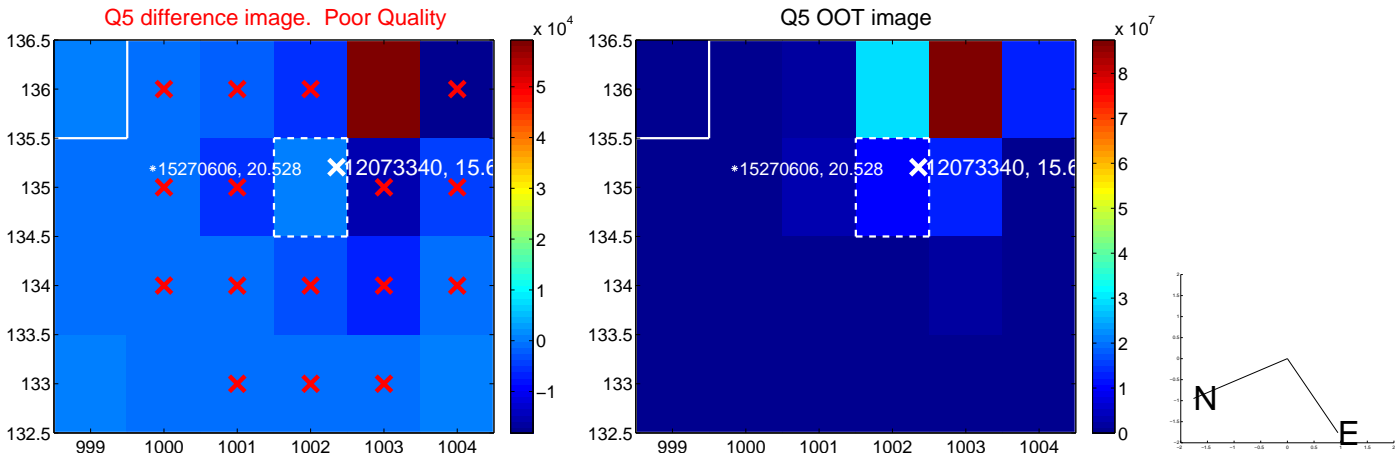


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

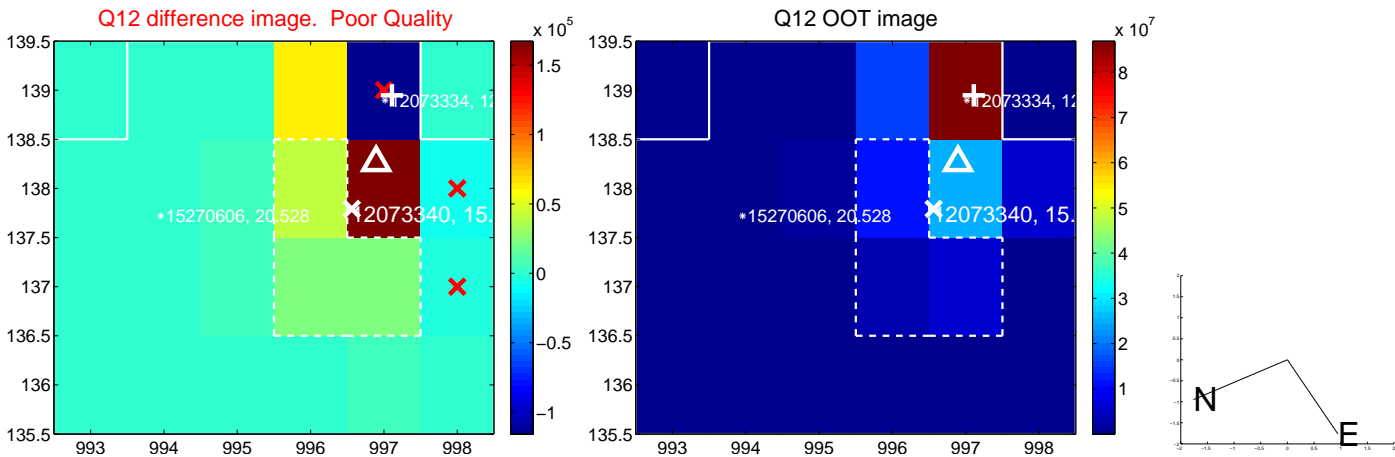
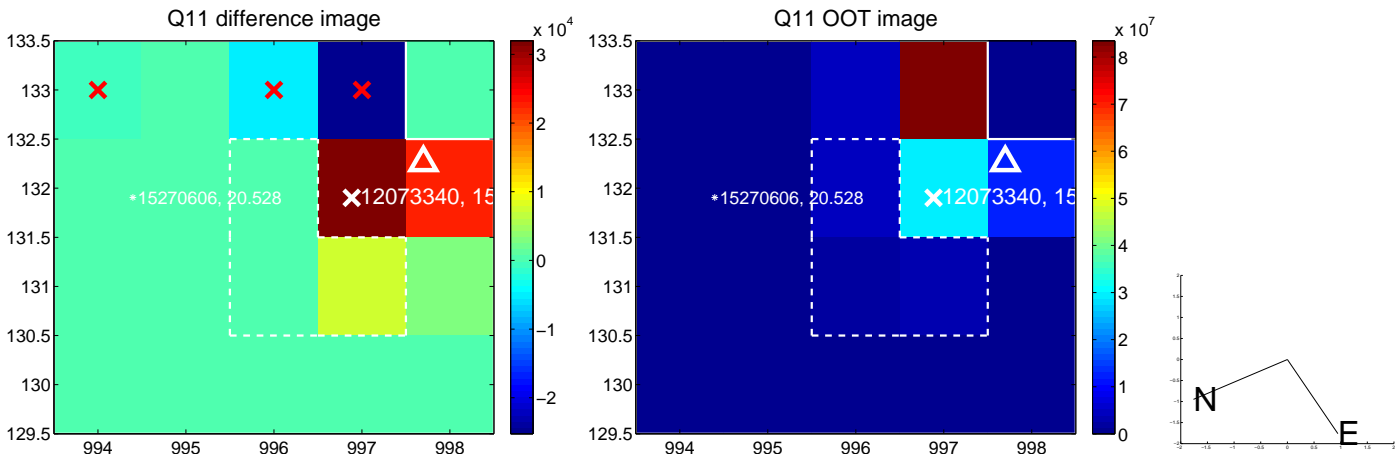
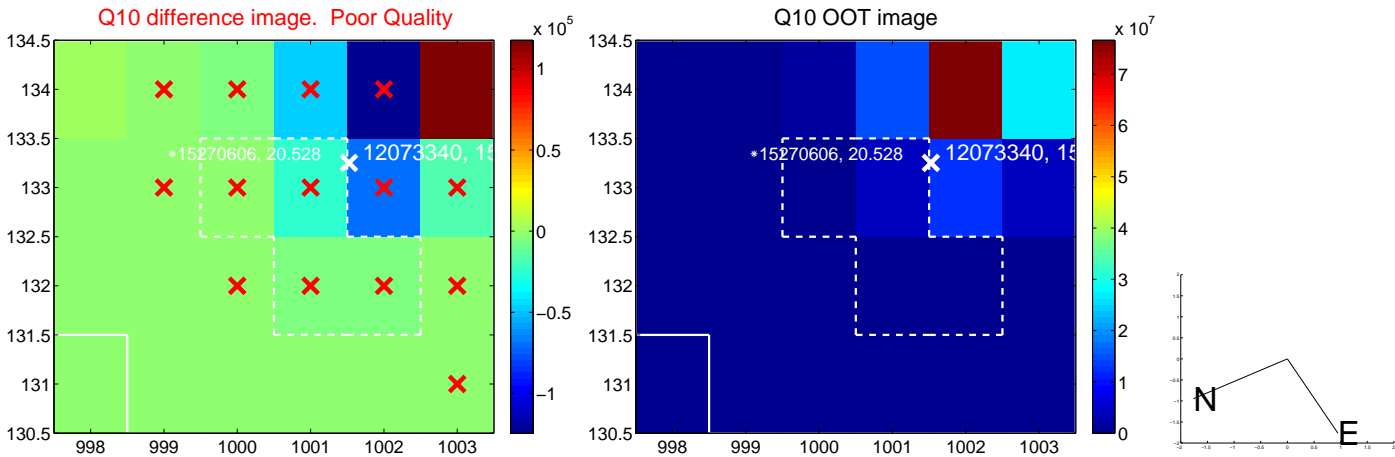
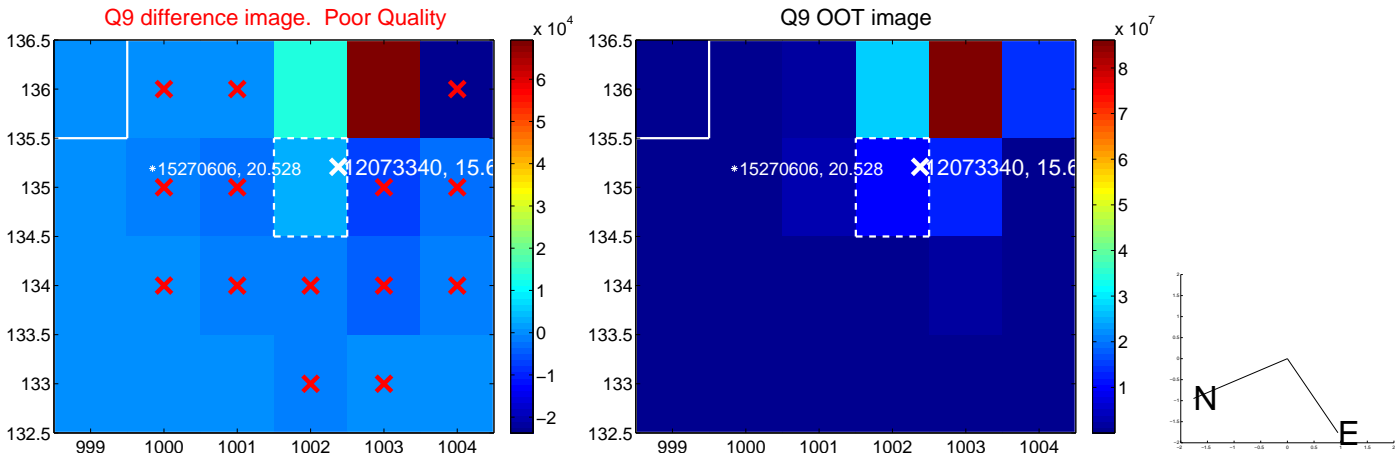


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

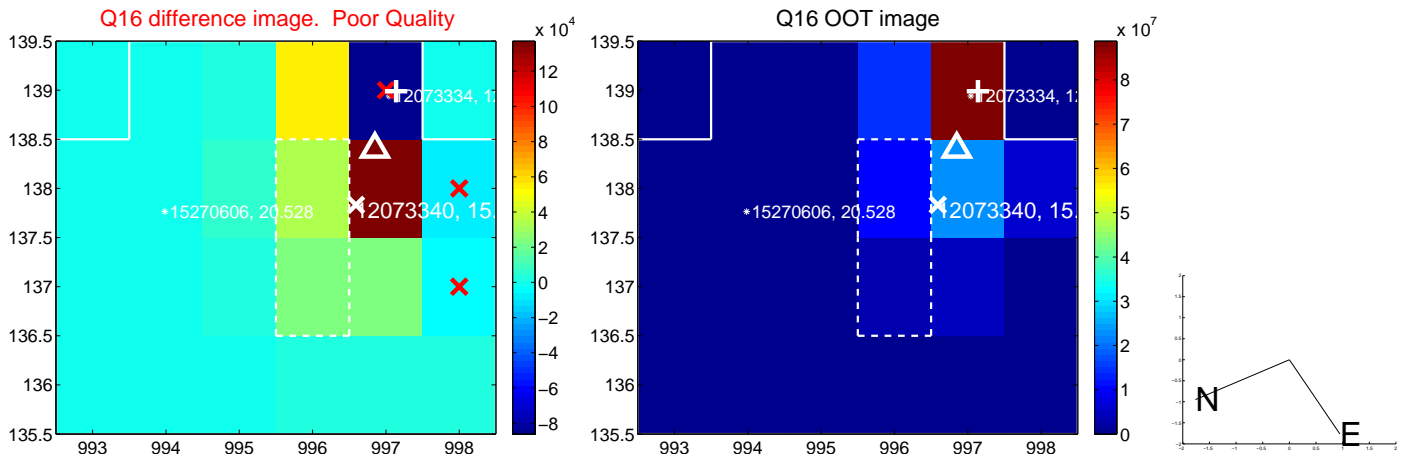
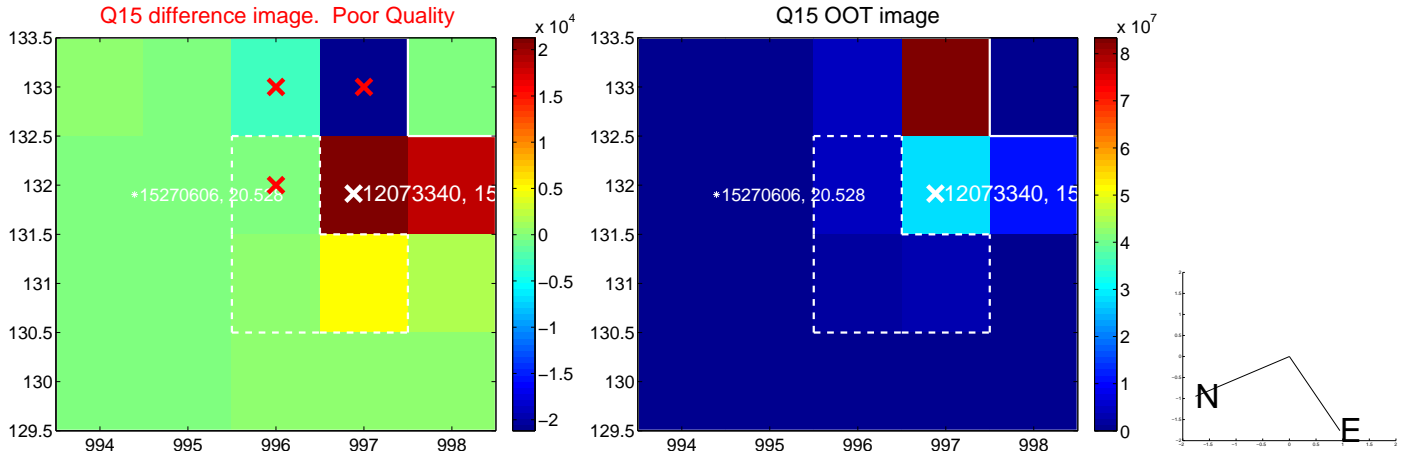
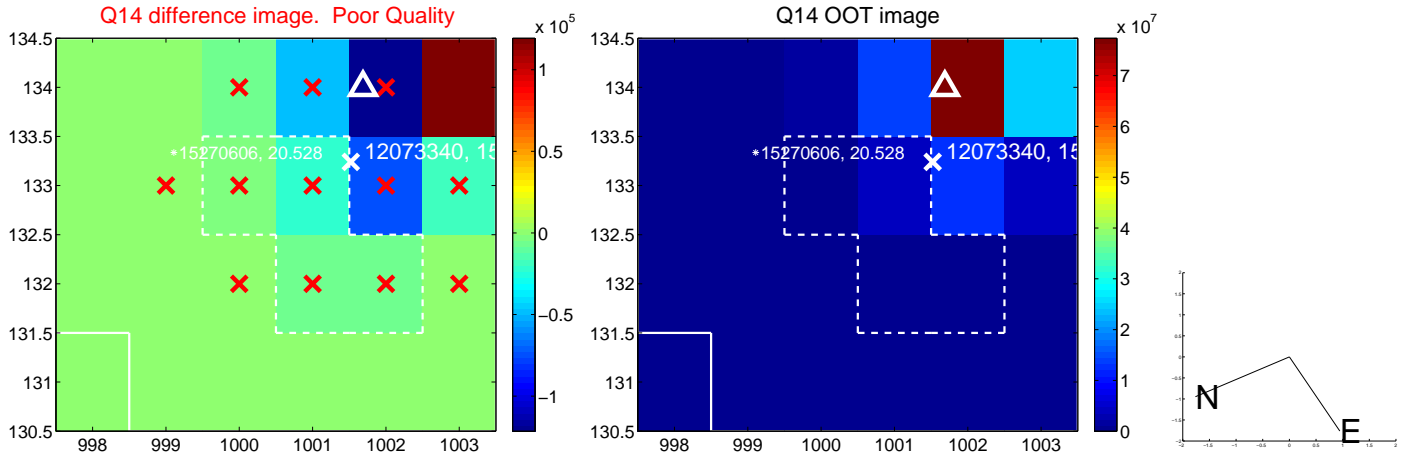
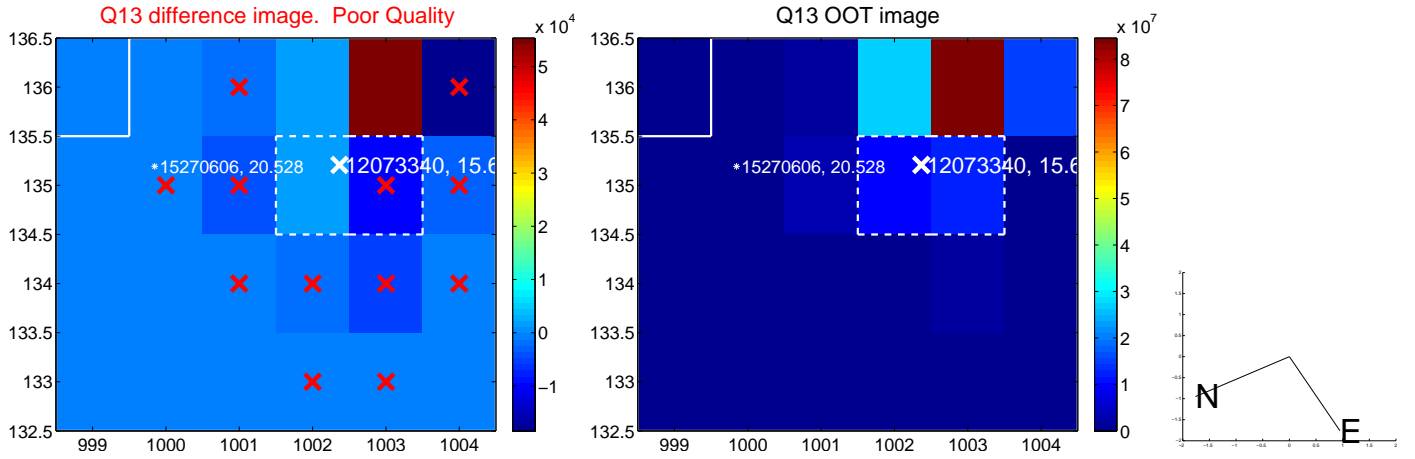




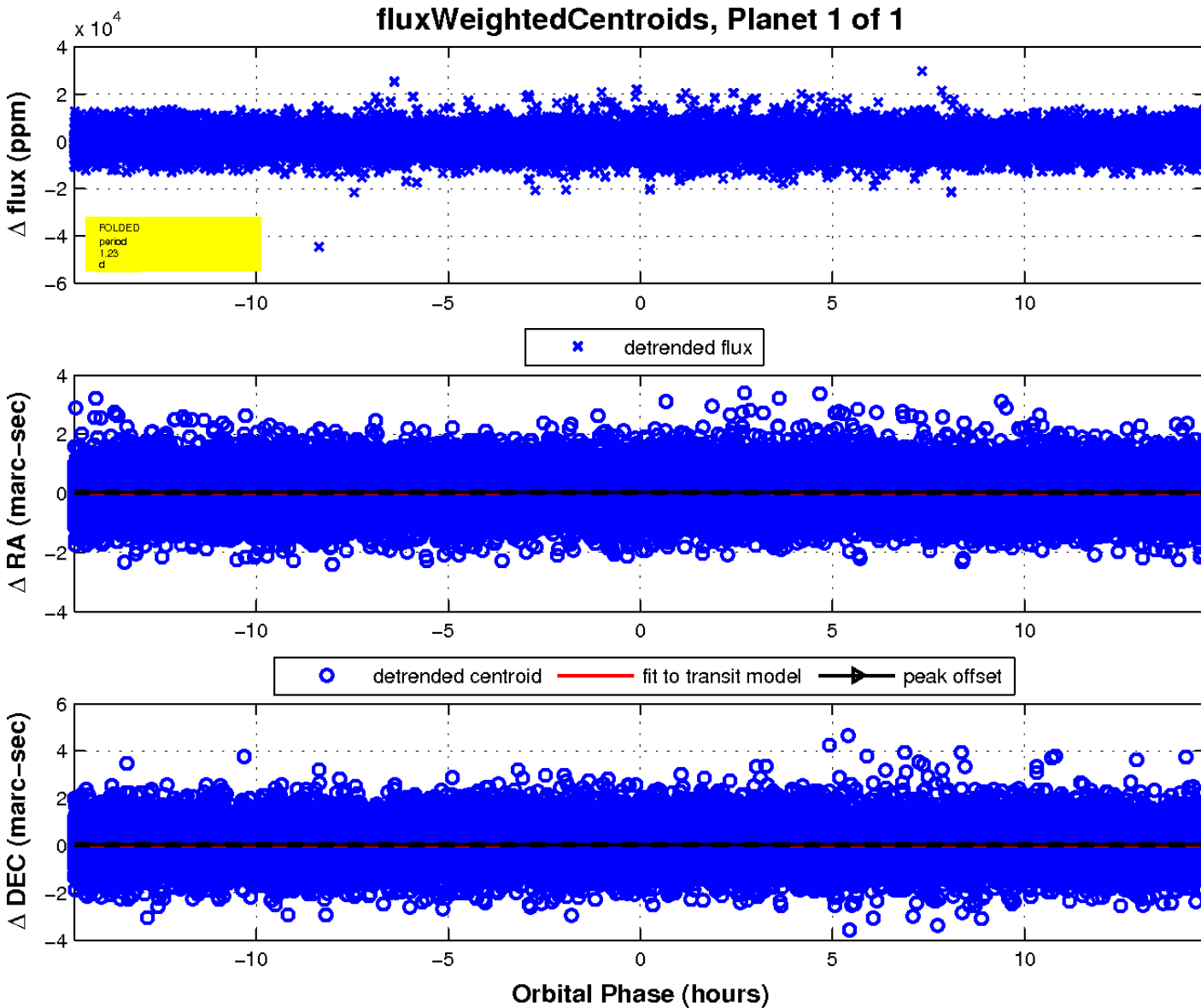
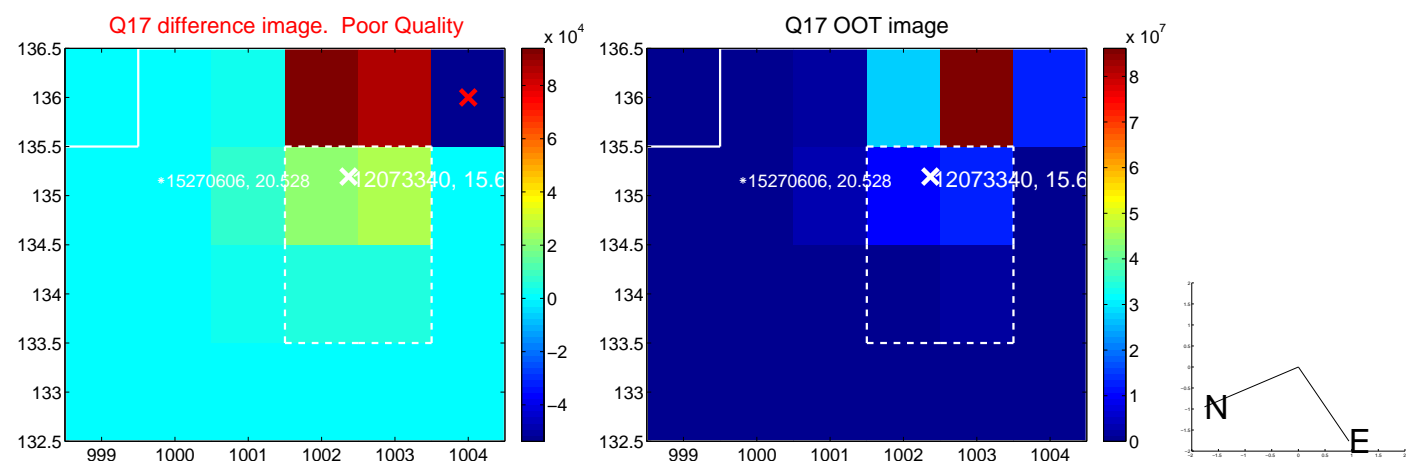
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

