

# KIC 005021024

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005021024-01	OBS	No	0.694019	132.023551	9.7	2.560	8.2	7.1	1.71	8456	0.62	37689.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005021024-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

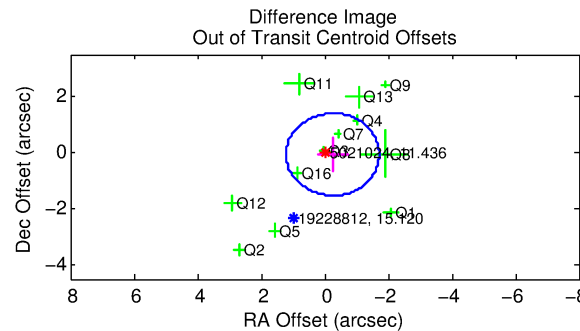
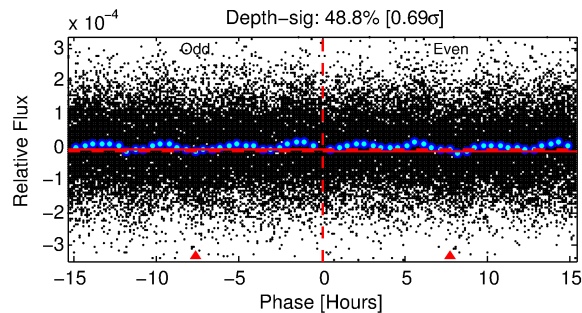
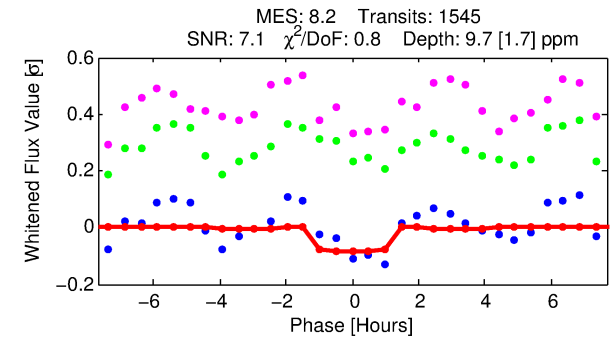
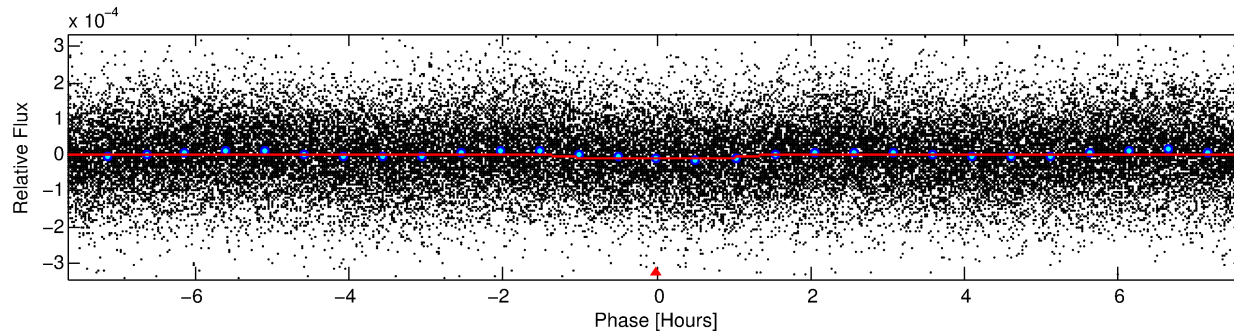
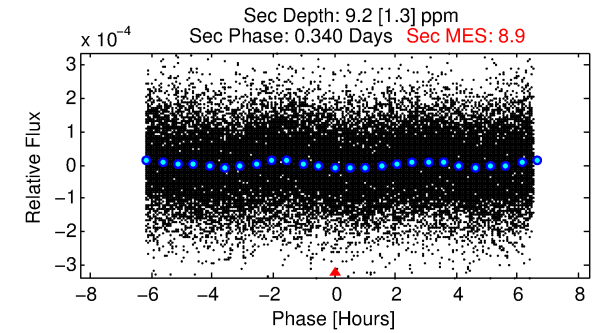
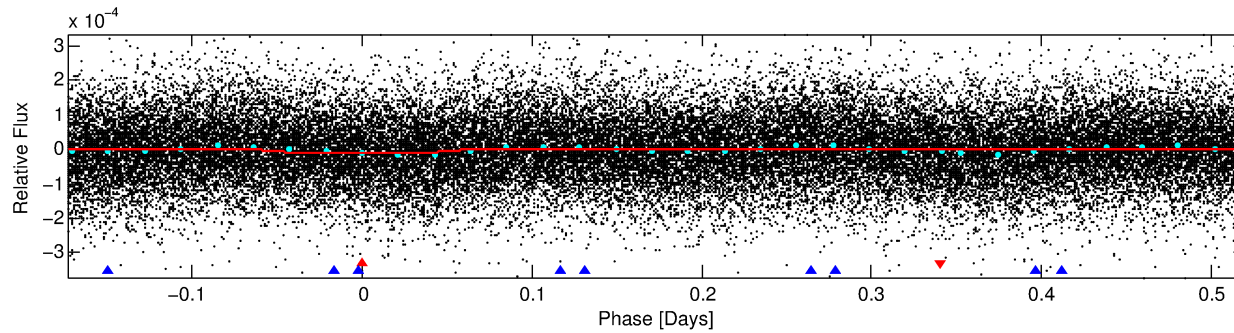
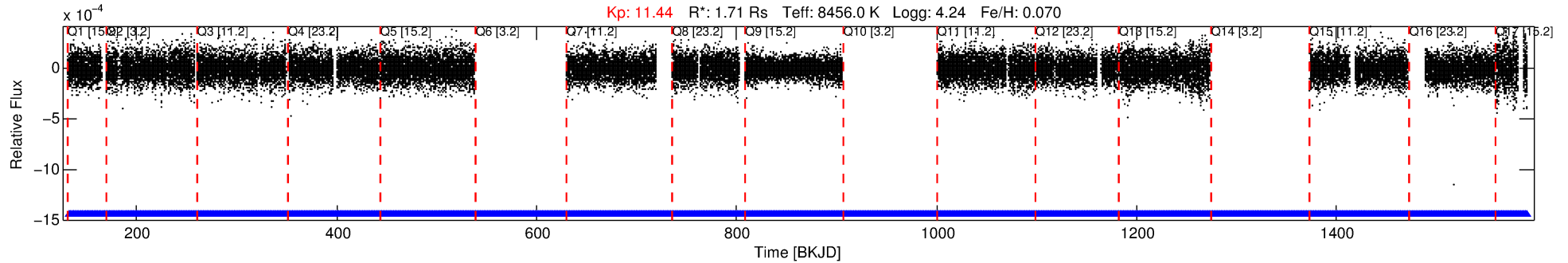
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005021024-01

No Significant Match Found

# DV One-Page Summary

KIC: 5021024 Candidate: 1 of 2 Period: 0.694 d



## DV Fit Results:

Period = 0.69402 [0.00001] d  
Epoch = 132.0236 [0.0035] BKJD  
Rp/R\* = 0.0033 [0.0008]  
a/R\* = 1.31 [0.86]  
b = 0.90 [0.33]  
Seff = 37689.49 [16112.29]  
Teq = 3553 [380] K  
Rp = 0.62 [0.25] Re  
a = 0.0188 [0.0050] AU  
Ag = 4.70 [3.03] [1.22σ]  
Teffp = 8088 [1115] K [3.85σ]

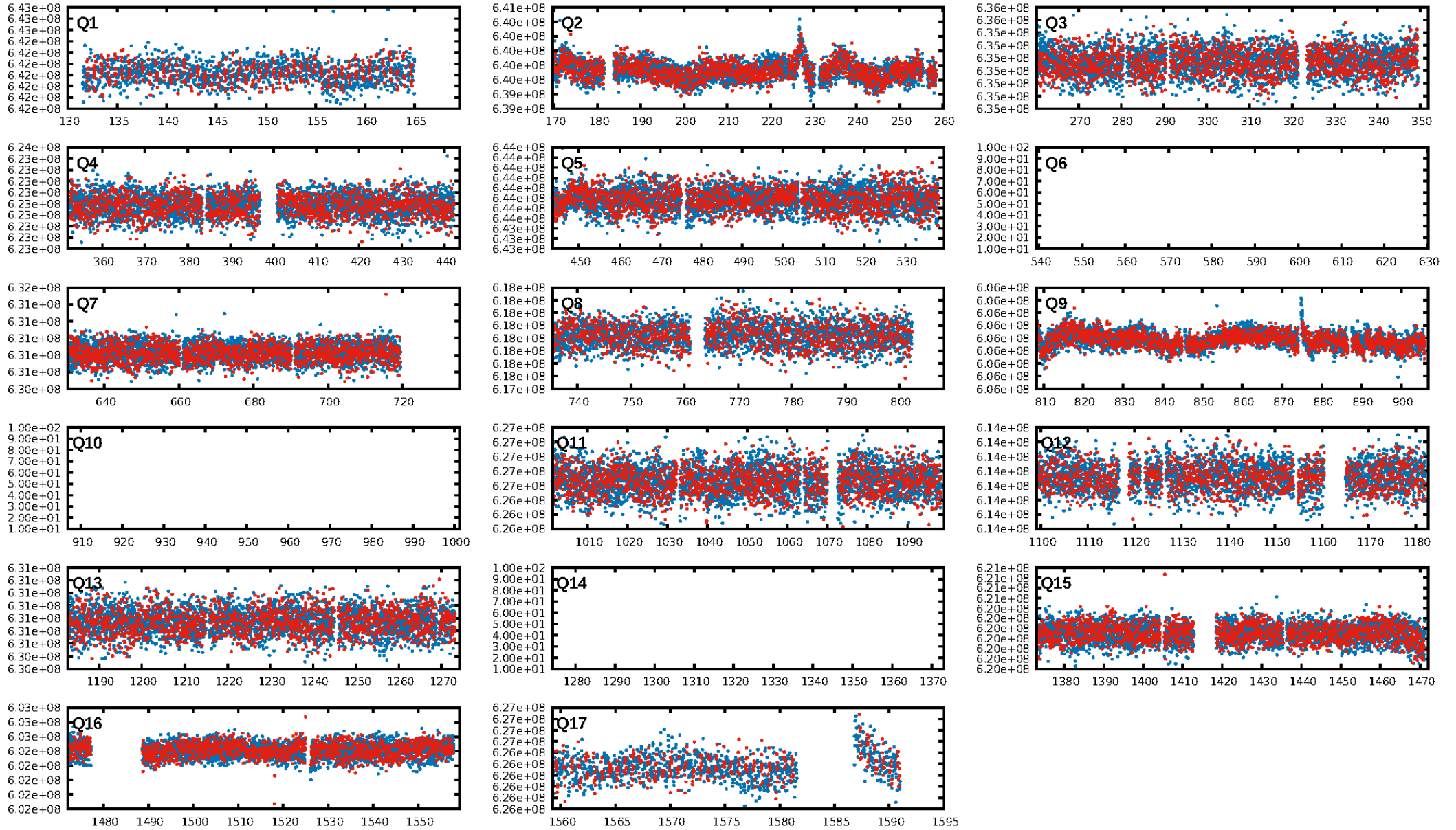
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [629.85σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.33e-13  
RollingBand-fgt: 1.00 [1459/1459]  
GhostDiagnostic-chr: 3.827  
Centroid-sig: 50.5%  
Centroid-so: 0.729 arcsec [0.73σ]  
OotOffset-rm: 0.262 arcsec [0.54σ]  
OotOffset-st: 1/3/4/4 [12]  
KicOffset-rm: 0.247 arcsec [0.51σ]  
KicOffset-st: 1/3/4/4 [12]  
DiffImageQuality-fgm: 0.75 [9/12]  
DiffImageOverlap-fno: 1.00 [14/14]

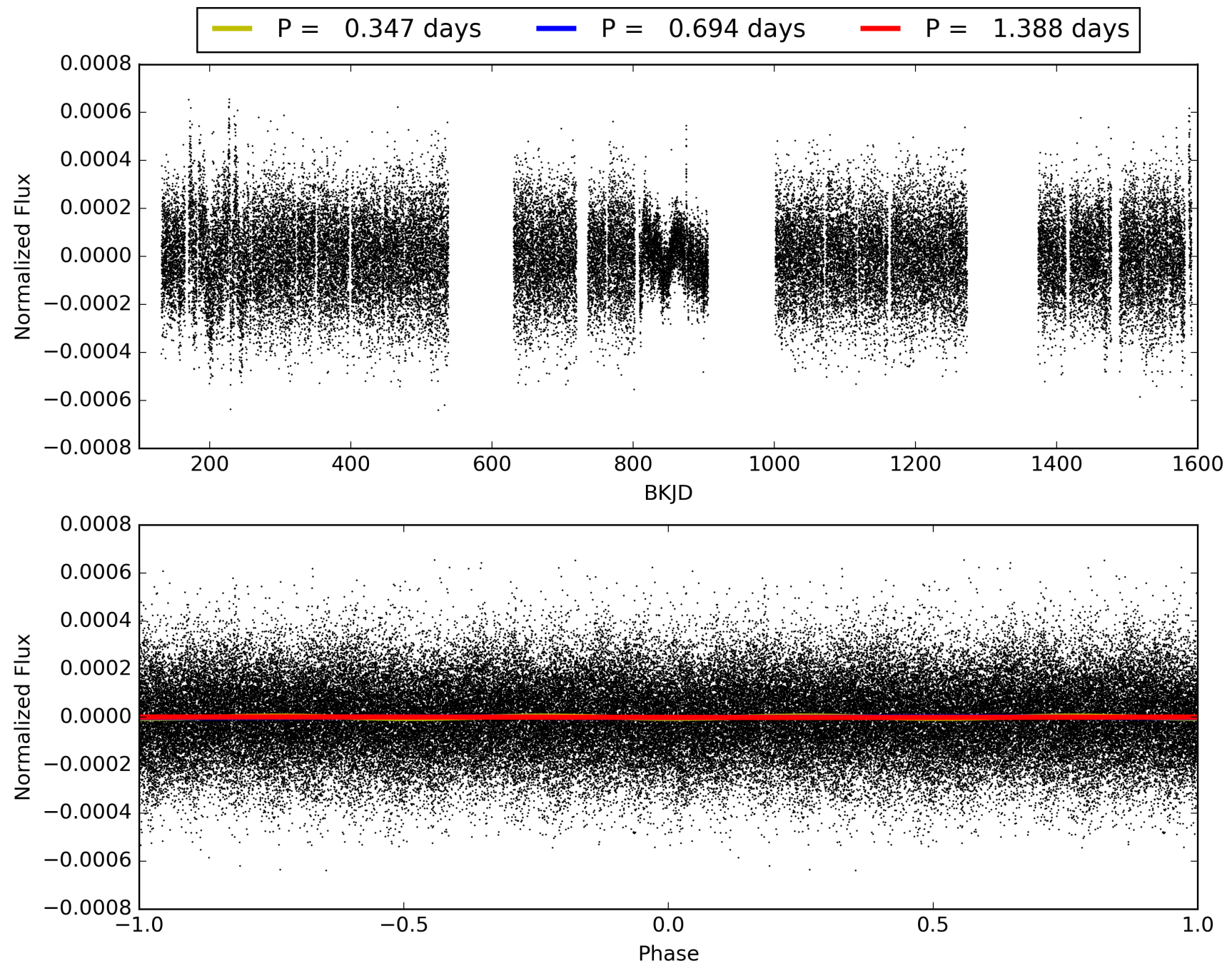
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:35:47 Z

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

# TCE 005021024-01, PDC Light Curves

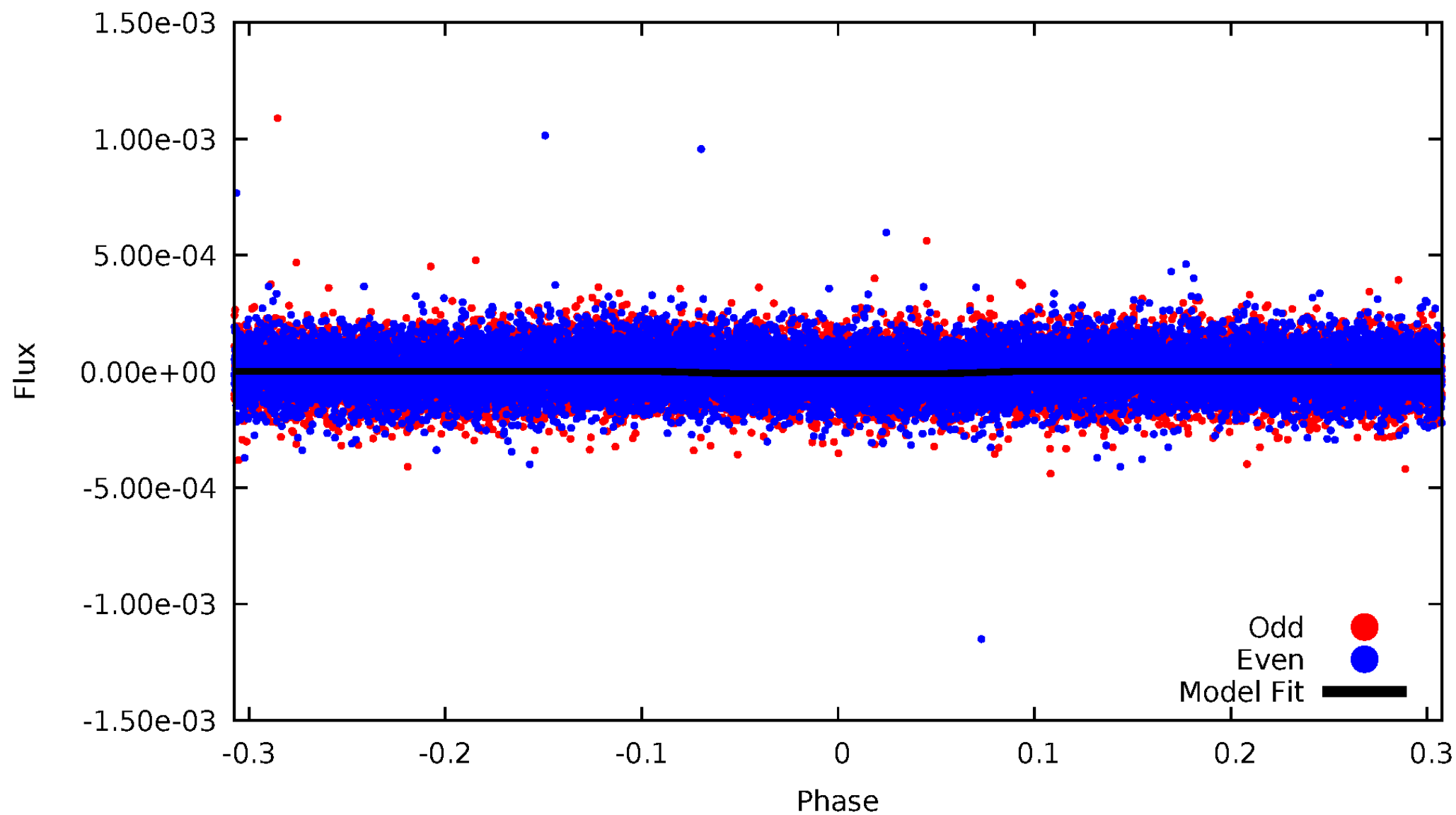


TCE 005021024-01



# DV Odd/Even

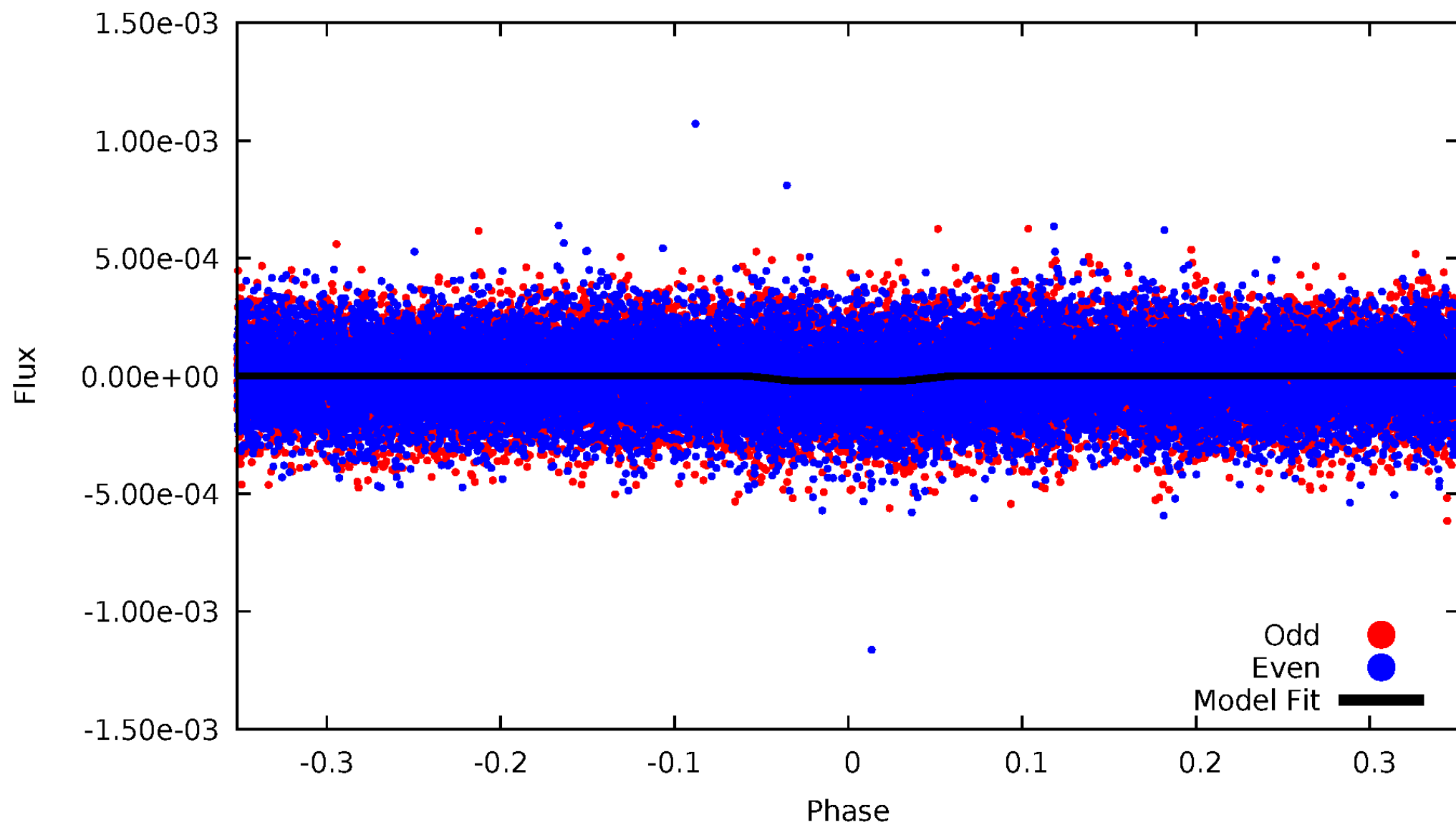
TCE 005021024-01





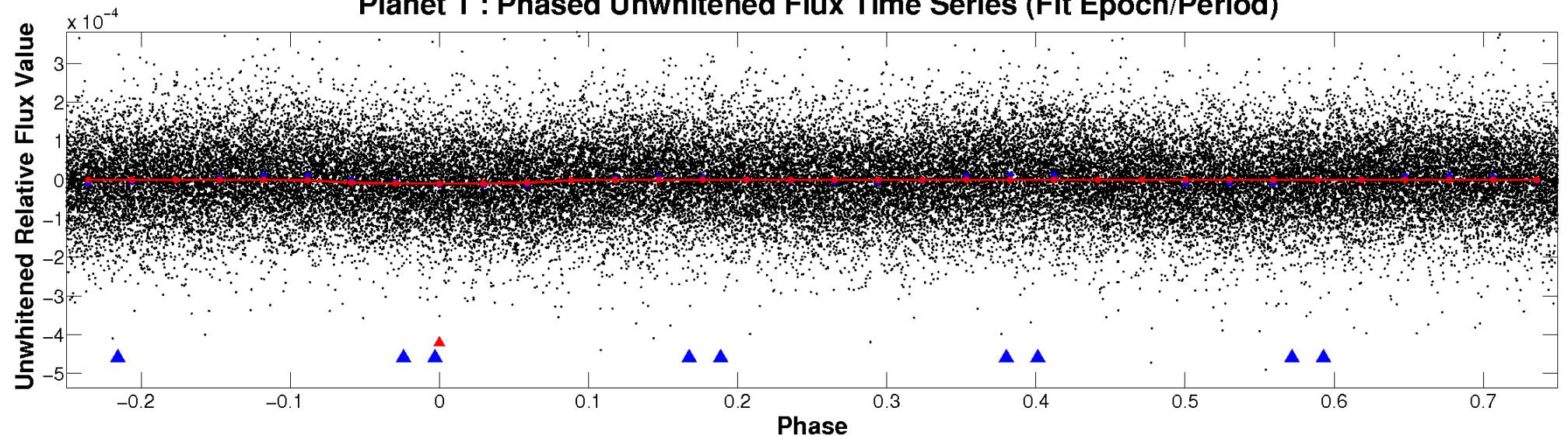
# ALT Odd/Even

TCE 005021024-01

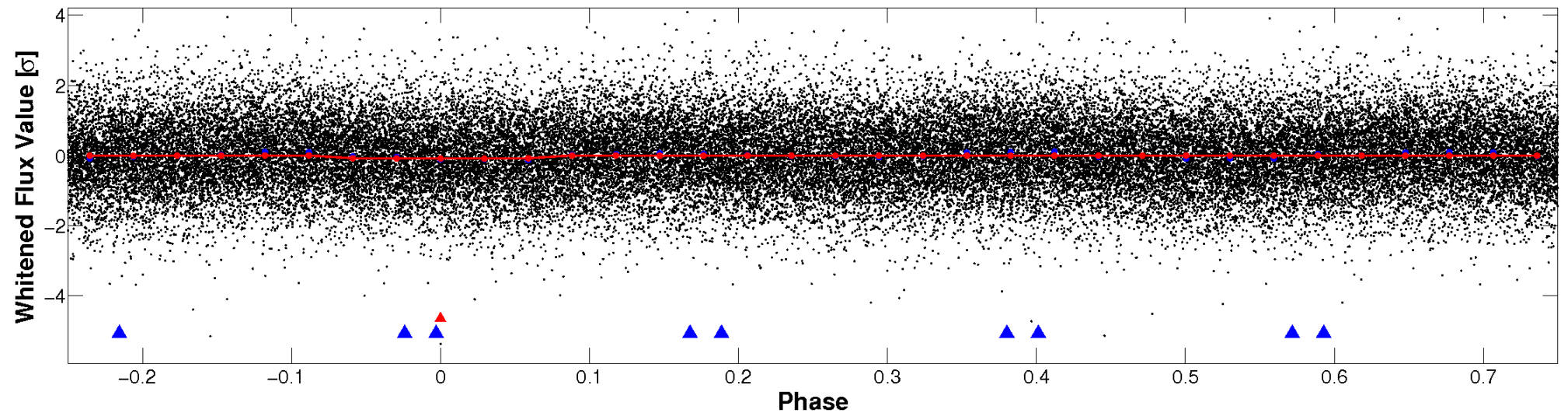


# Non-Whitened Vs. Whitened Light Curve

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

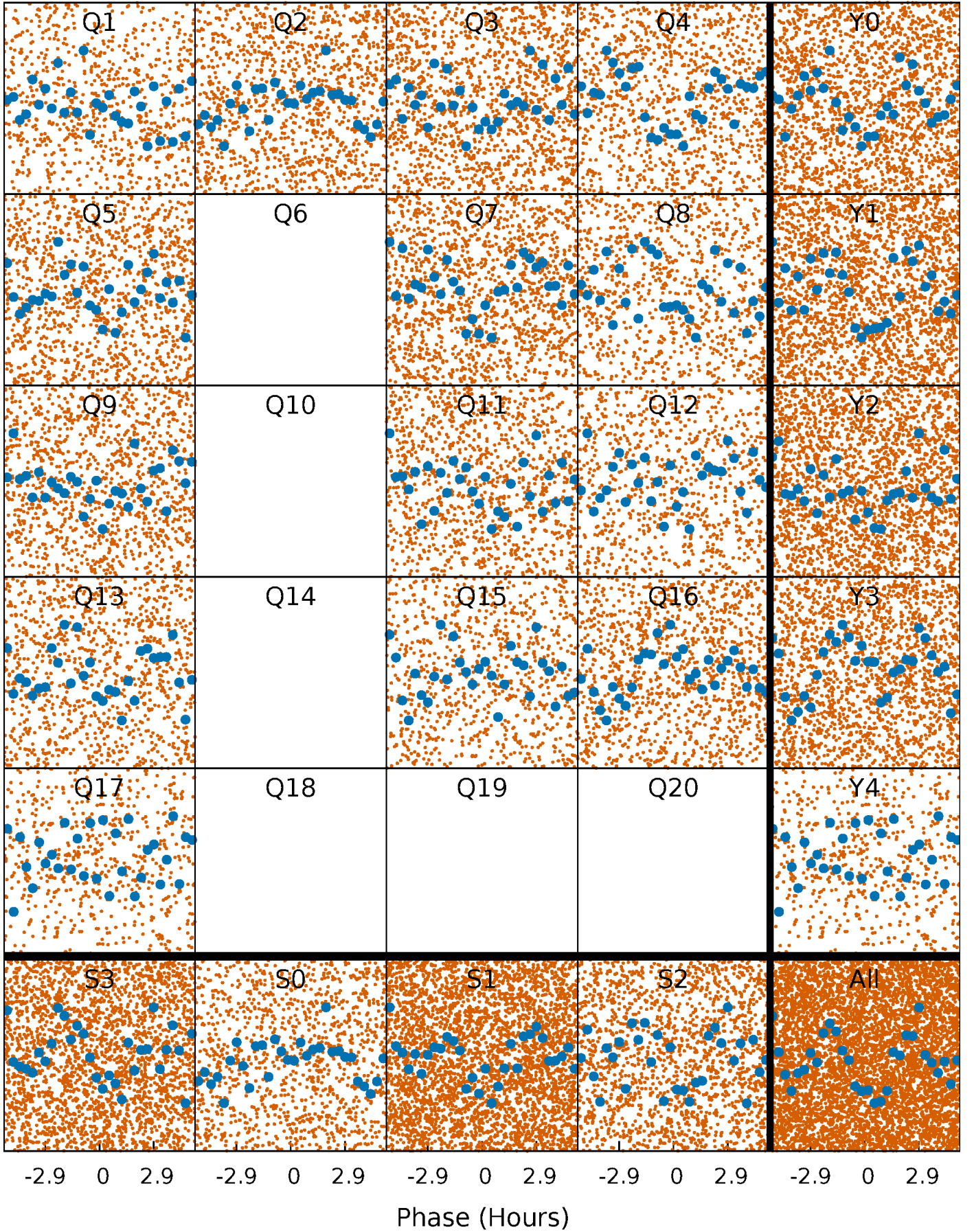


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

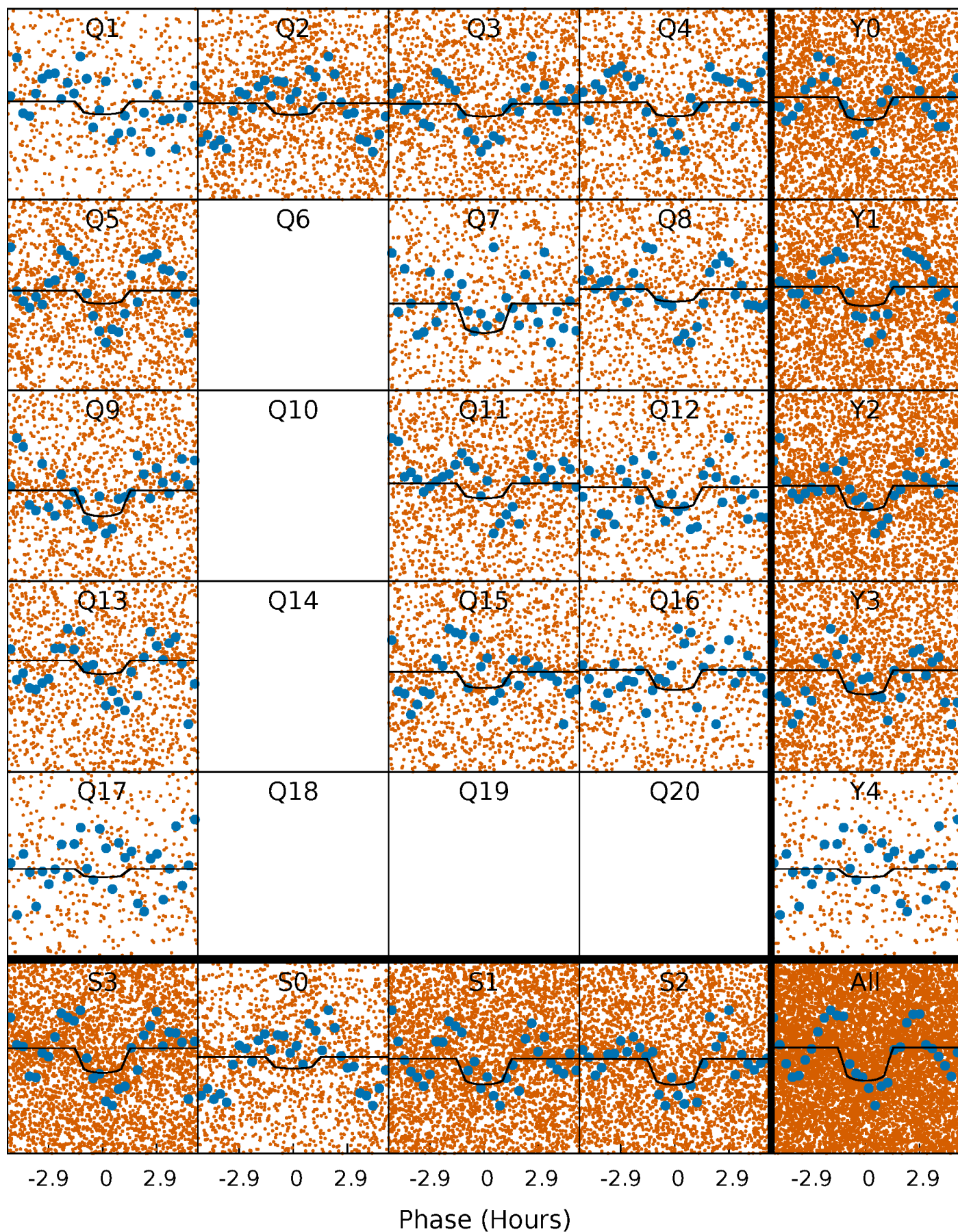
TCE 005021024-01 P= 0.694019 Days  $T_0=132.023551$  (BKJD)





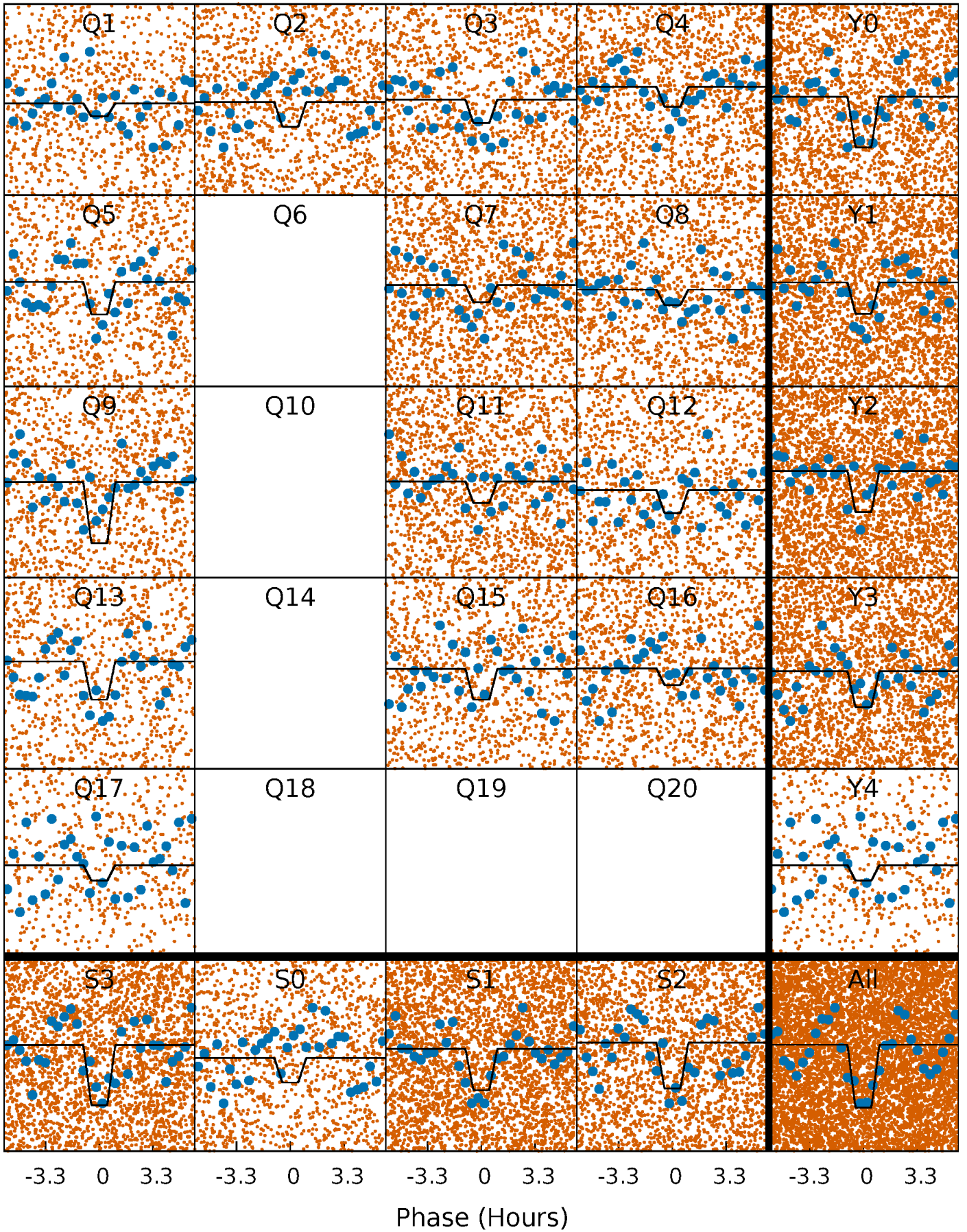
# DV Quarter-Phased Transit Curves

TCE 005021024-01 P= 0.694019 Days  $T_0=132.023551$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005021024-01 P= 0.694044 Days  $T_0=132.015312$  (BKJD)

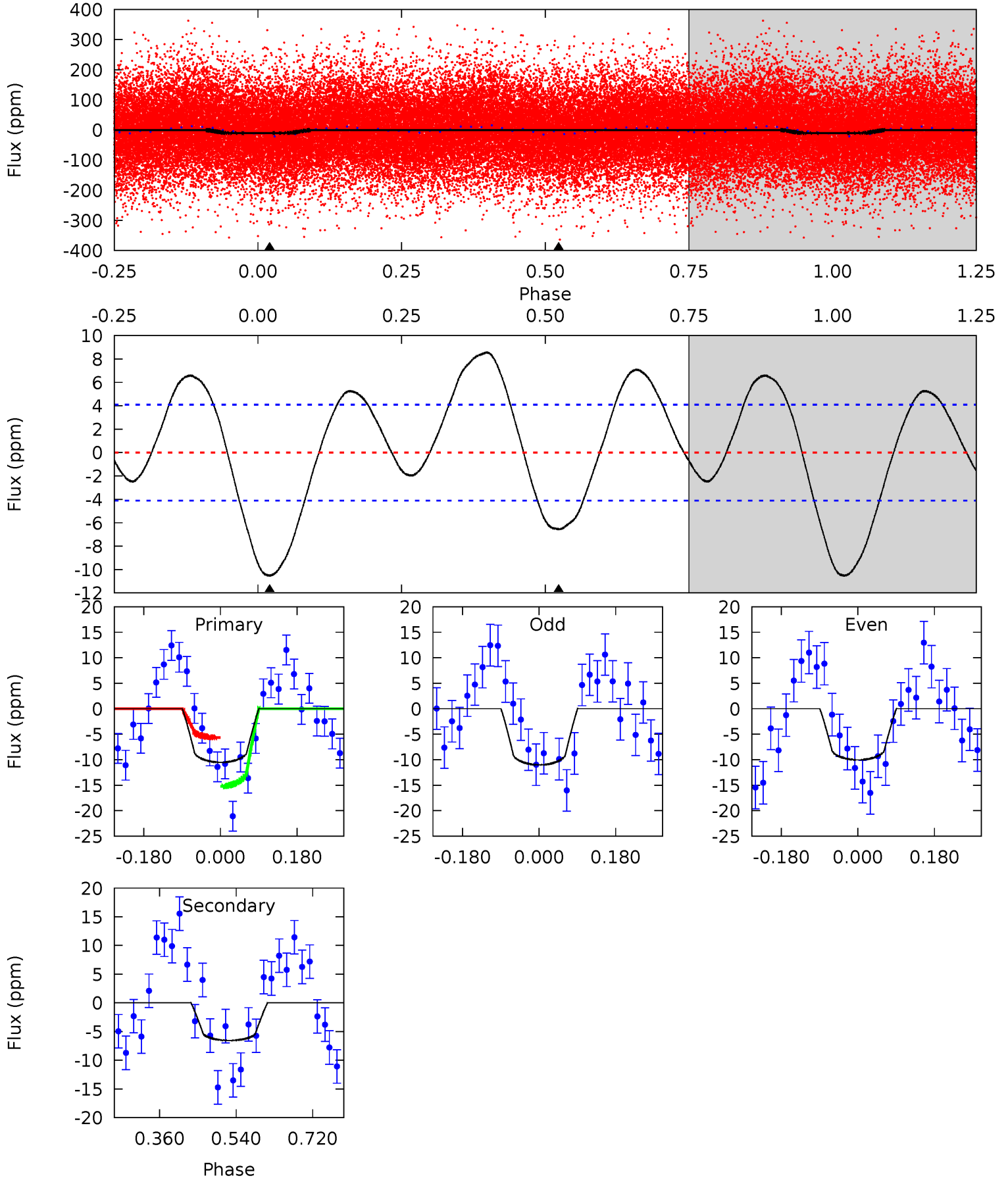




# DV Model-Shift Uniqueness Test

005021024-01, P = 0.694019 Days, E = 131.329532 Days

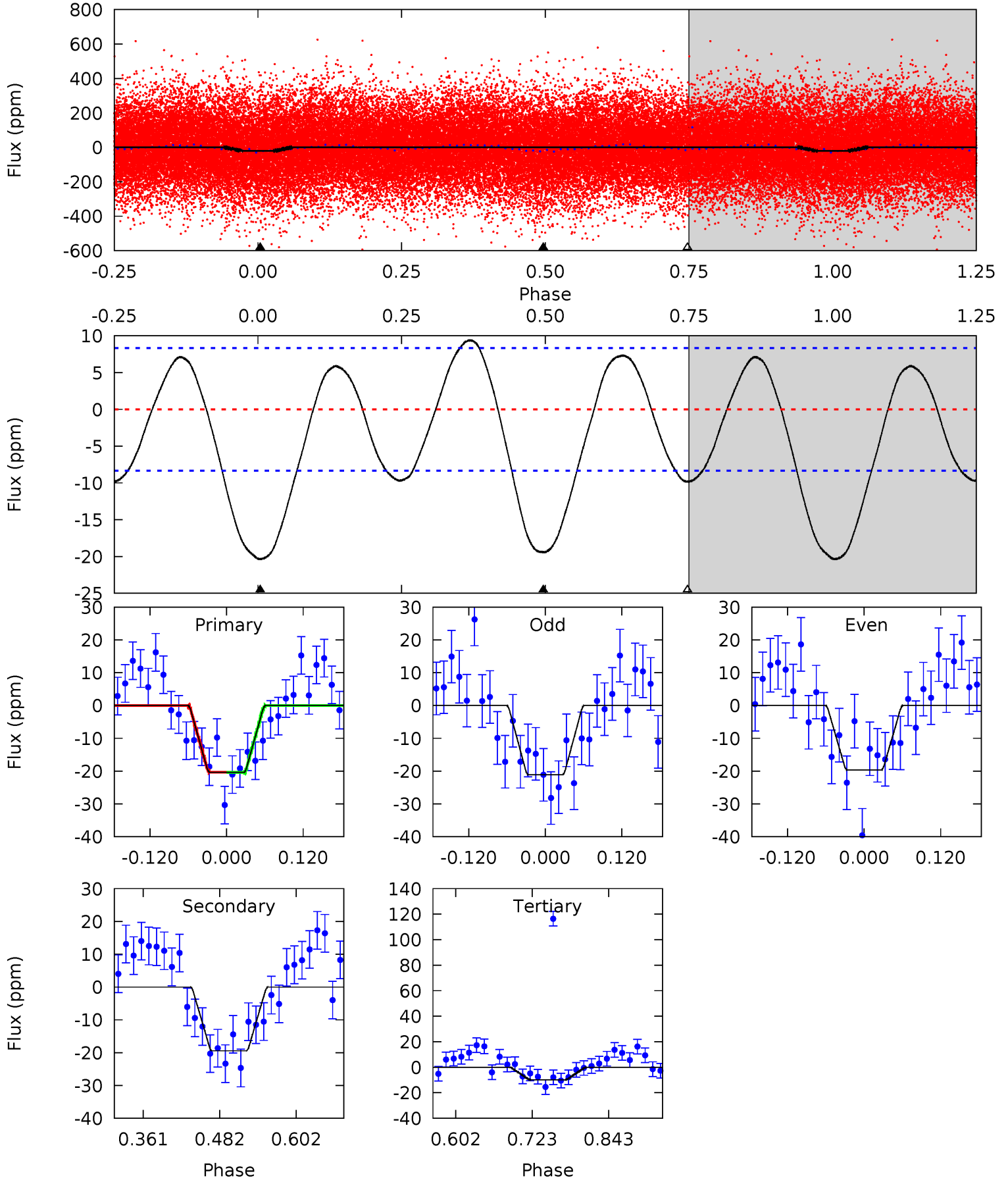
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	7.10	0	0	4.44	1.34	2.20	11.4	11.4	7.10	7.10	0.53	0.97	0.45	5.28



# Alt Model-Shift Uniqueness Test

005021024-01, P = 0.694044 Days, E = 131.321268 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
11.1	10.5	5.34	0	4.53	1.55	3.46	5.72	11.1	5.21	10.5	0.40	1.18	0.32	0.01





### Stellar Parameters For KIC 005021024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8456^{+232}_{-398}$	$4.240^{+0.065}_{-0.208}$	$0.070^{+0.250}_{-0.500}$	$1.709^{+0.546}_{-0.234}$	$1.852^{+0.364}_{-0.298}$	$0.523^{+0.186}_{-0.265}$
	+3%/-5%	+2%/-5%	+357%/-714%	+32%/-14%	+20%/-16%	+36%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005021024-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7 \pm 1$	$0.64^{+0.20}_{-0.17}$	$5045^{+388}_{-298}$	$6943^{+1445}_{-881}$	$2.994^{+2.506}_{-1.198}$
Alt.	$-19 \pm 2$	$0.92^{+0.22}_{-0.18}$	$5057^{+387}_{-280}$	$7807^{+1252}_{-814}$	$4.321^{+2.464}_{-1.424}$

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

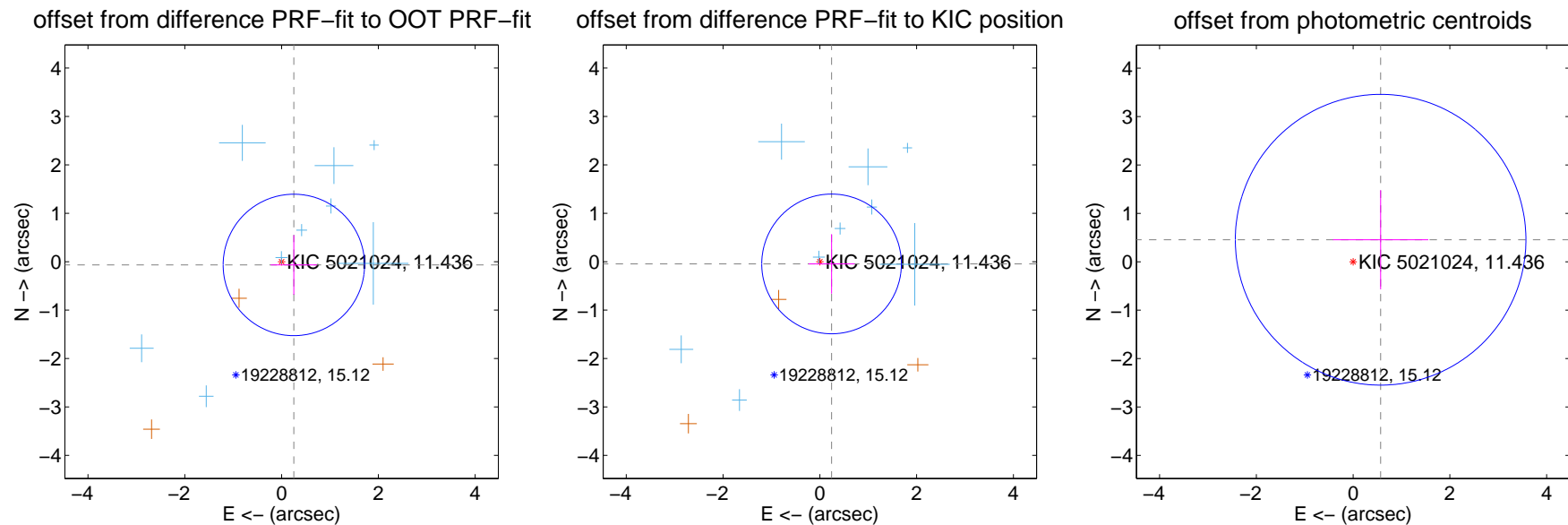
## DV Centroid Data

Supplemental centroid analysis for 005021024-01. **Kepler magnitude: 11.44.** Transit SNR 7.10

There are 9 quarters with good PRF difference image offsets

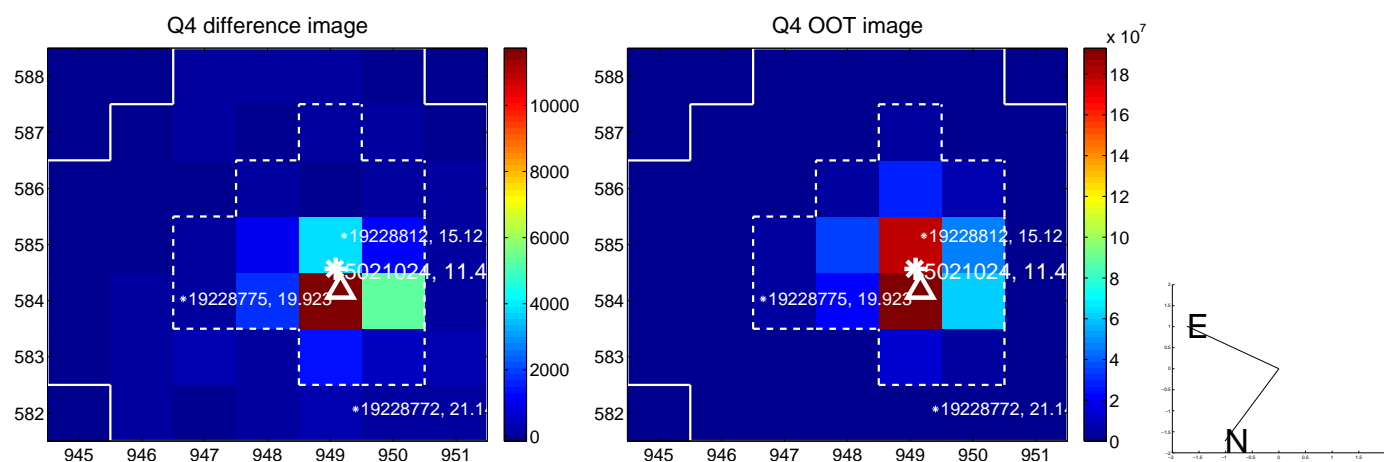
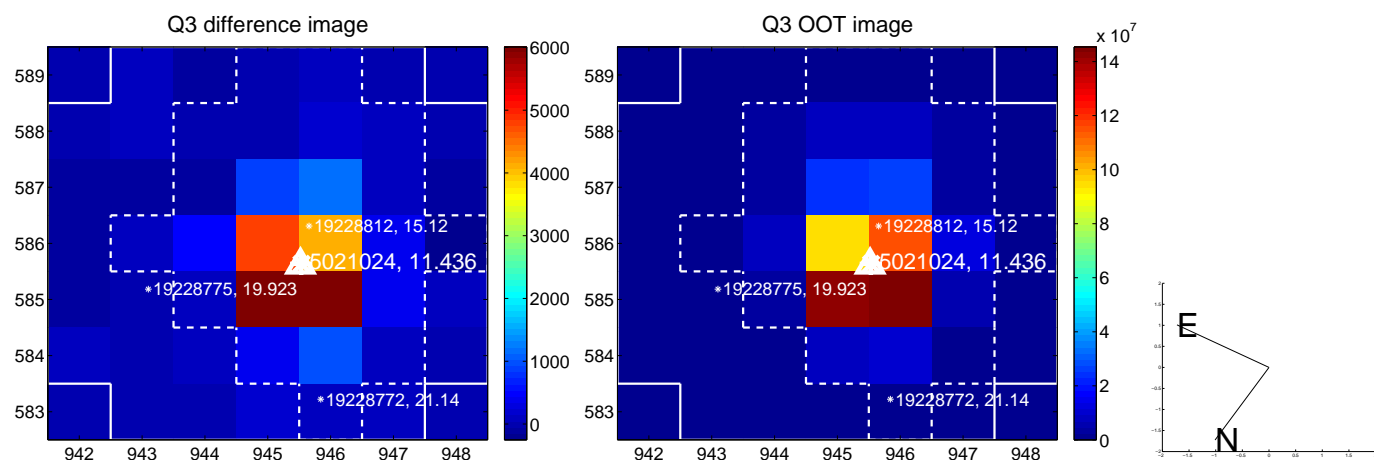
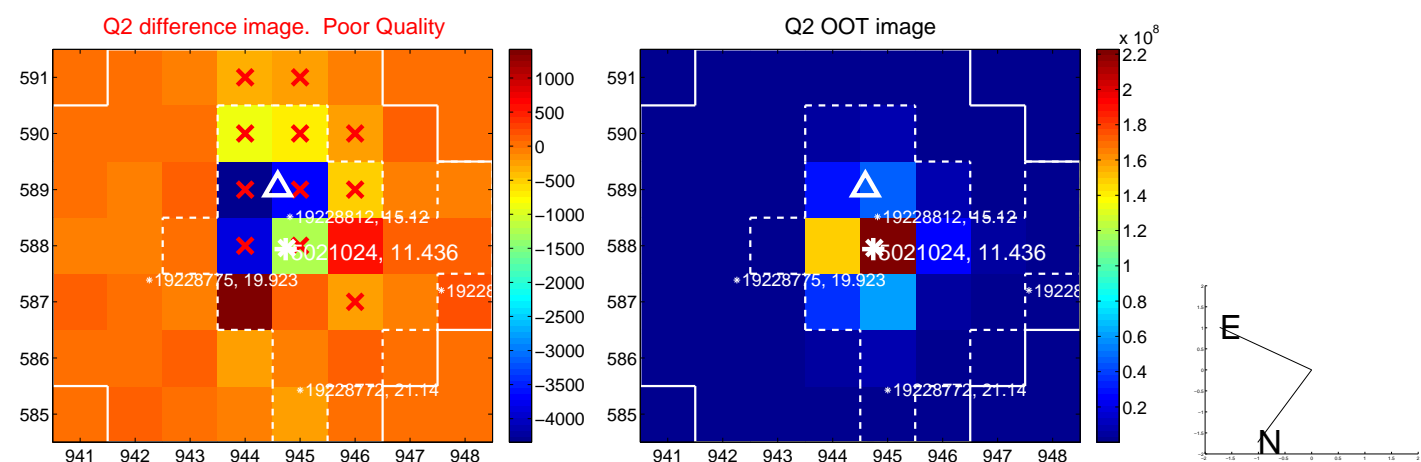
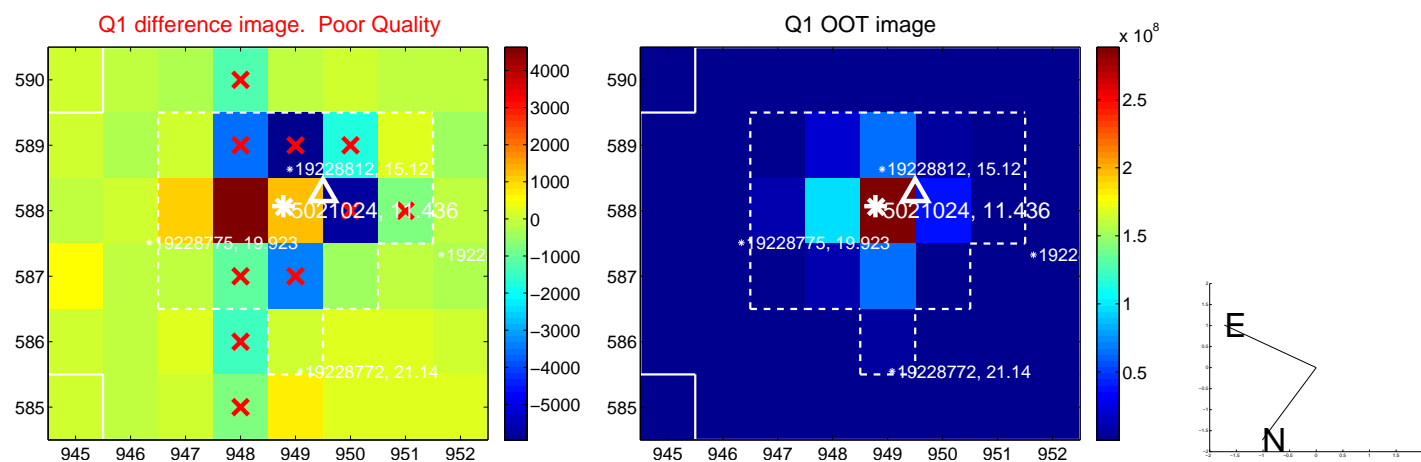
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.262 \pm 0.487$	0.54	$-0.254 \pm 0.477$	$-0.067 \pm 0.615$
PRF-fit source offset from KIC position	$0.247 \pm 0.481$	0.51	$-0.242 \pm 0.475$	$-0.046 \pm 0.615$
photometric centroid source offset	$0.73 \pm 1.00$	0.73	$-0.57 \pm 0.99$	$0.46 \pm 1.02$

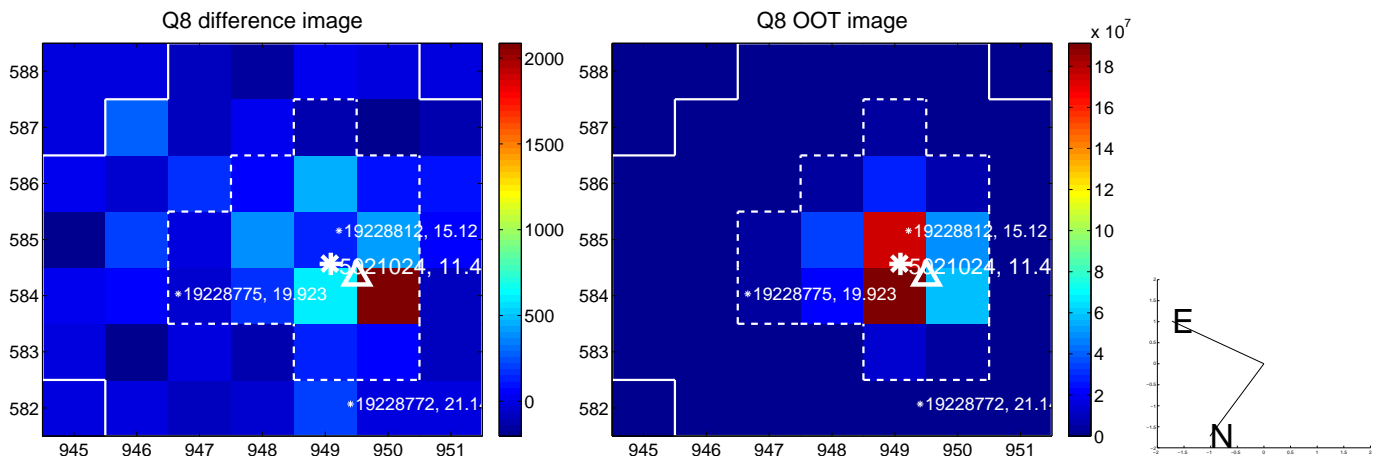
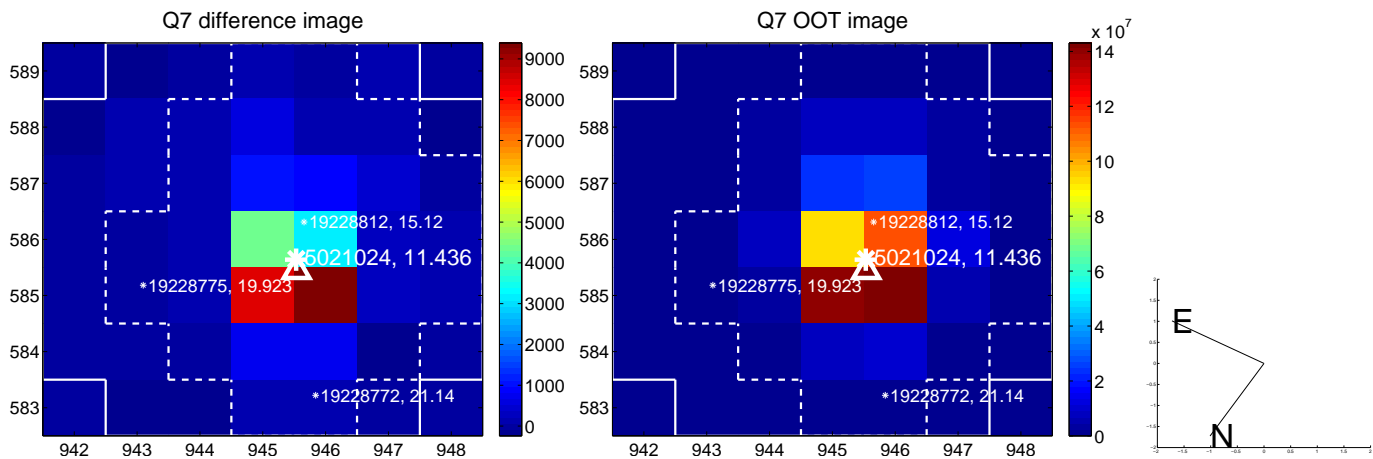
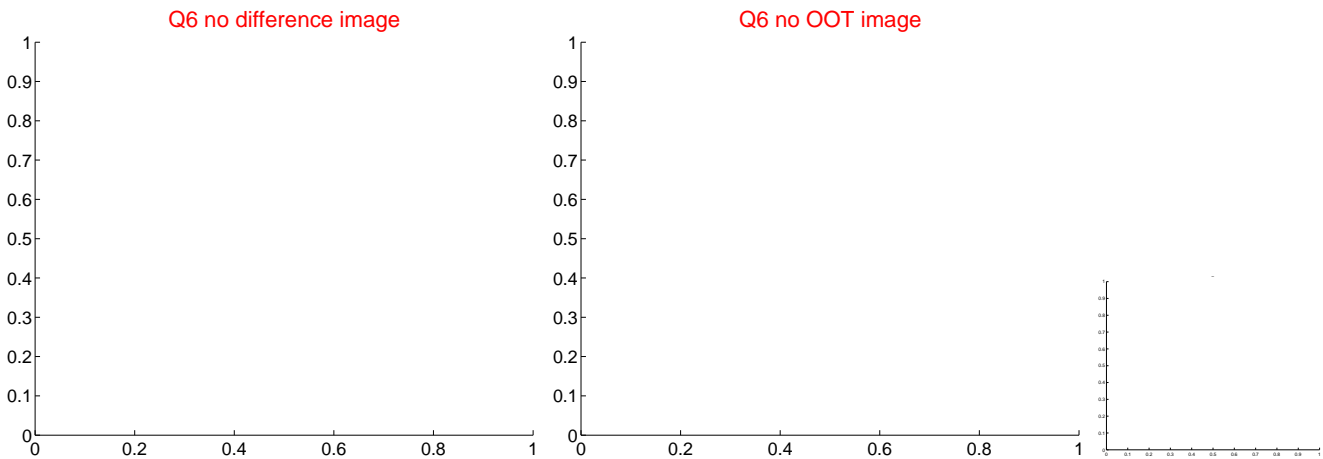
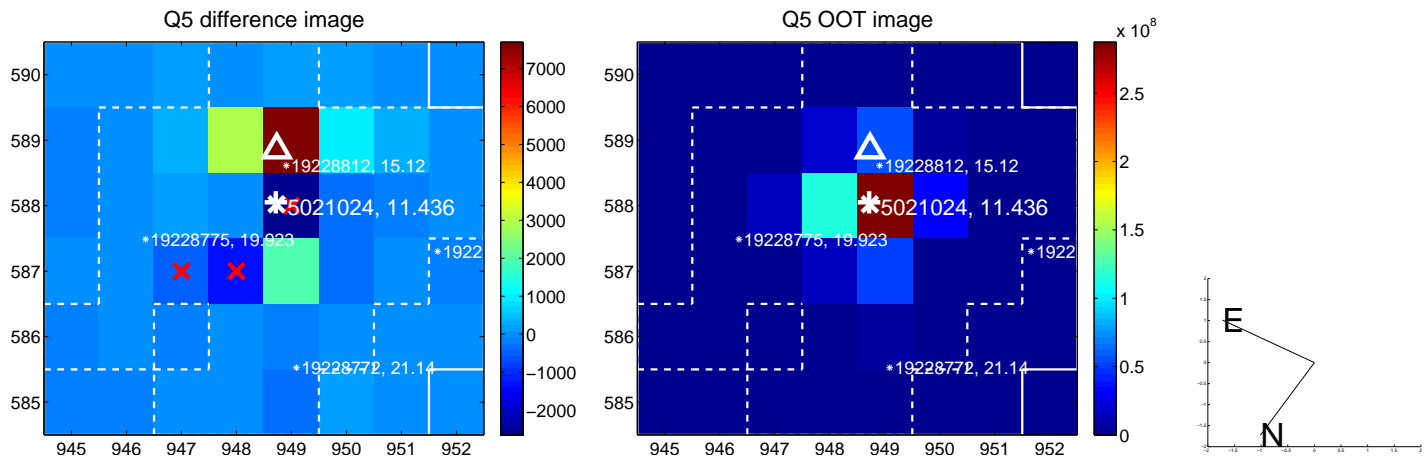


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

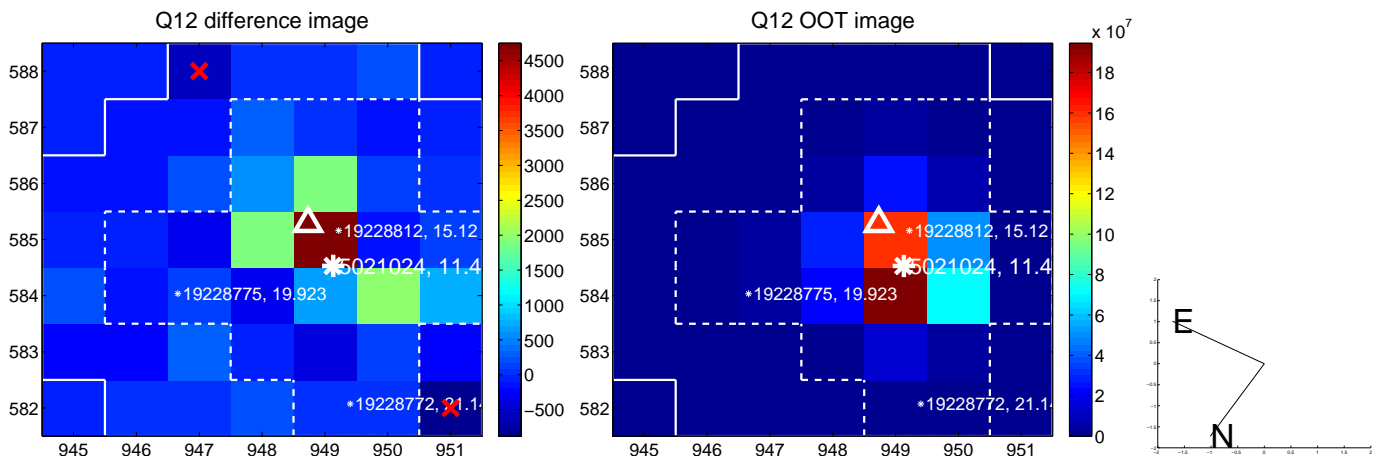
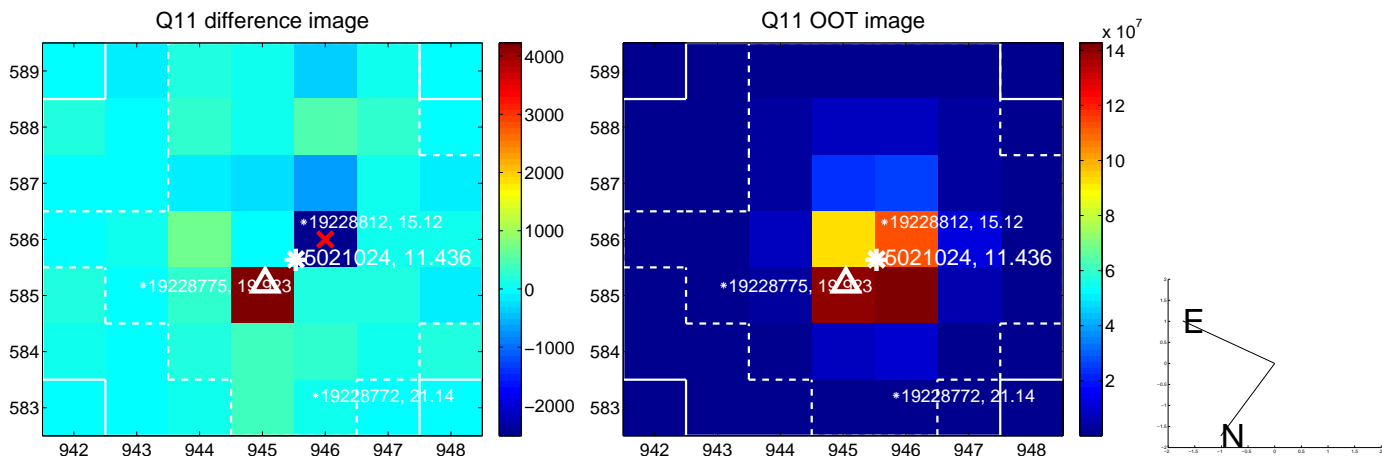
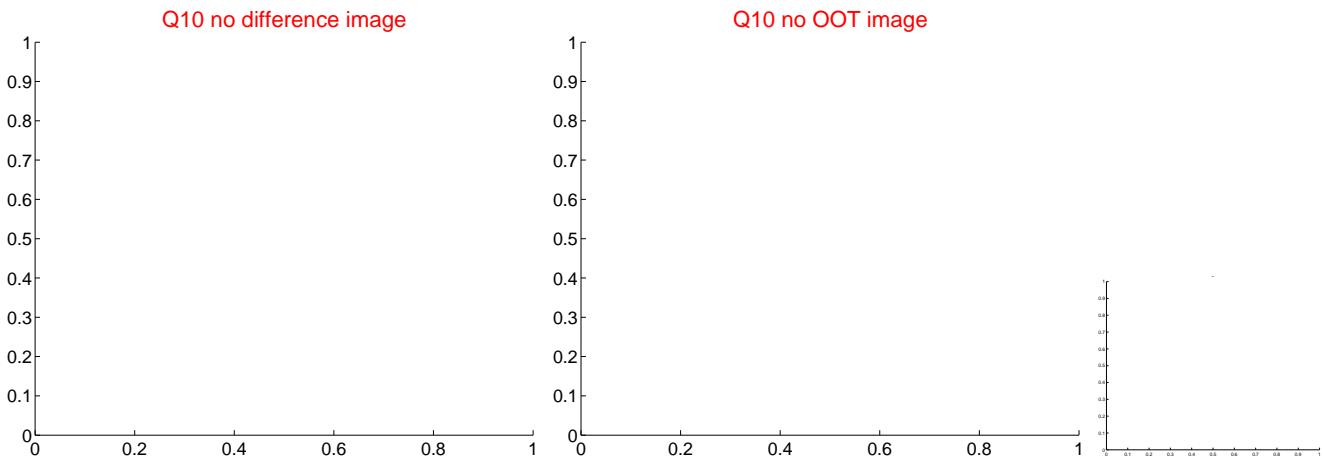
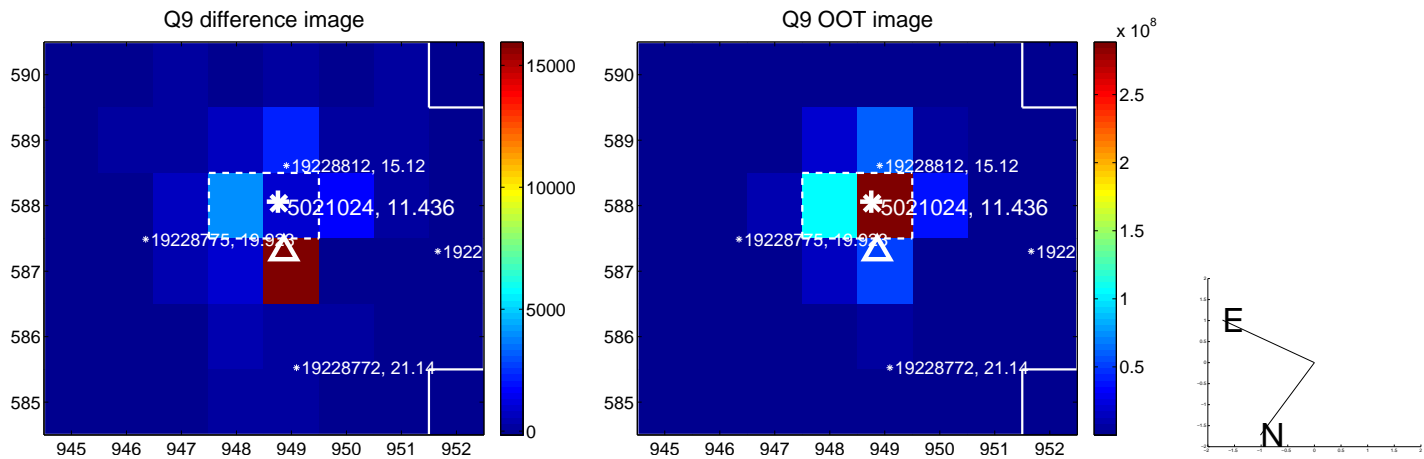


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

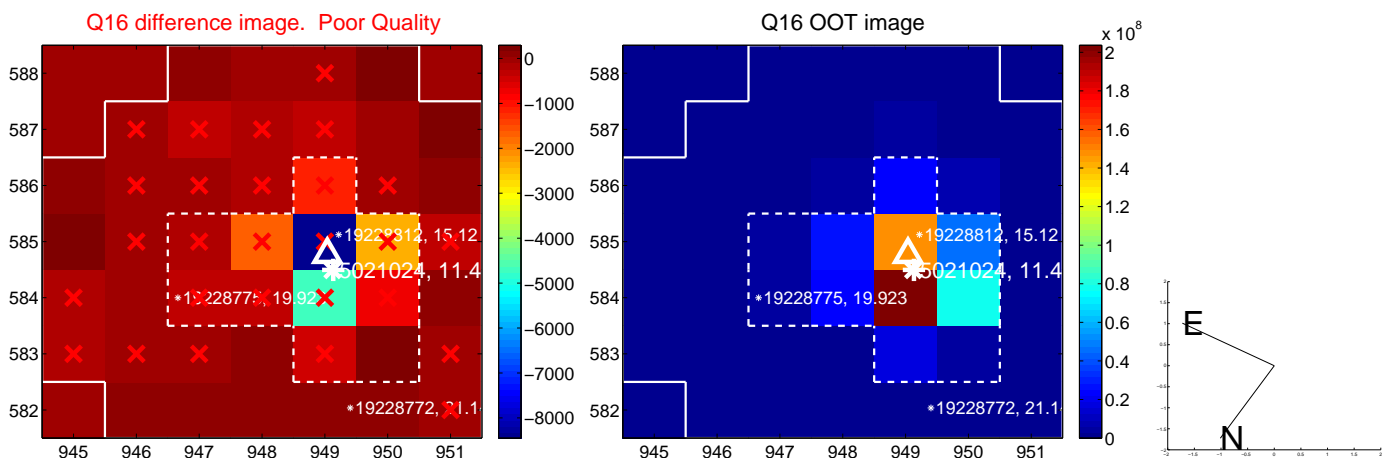
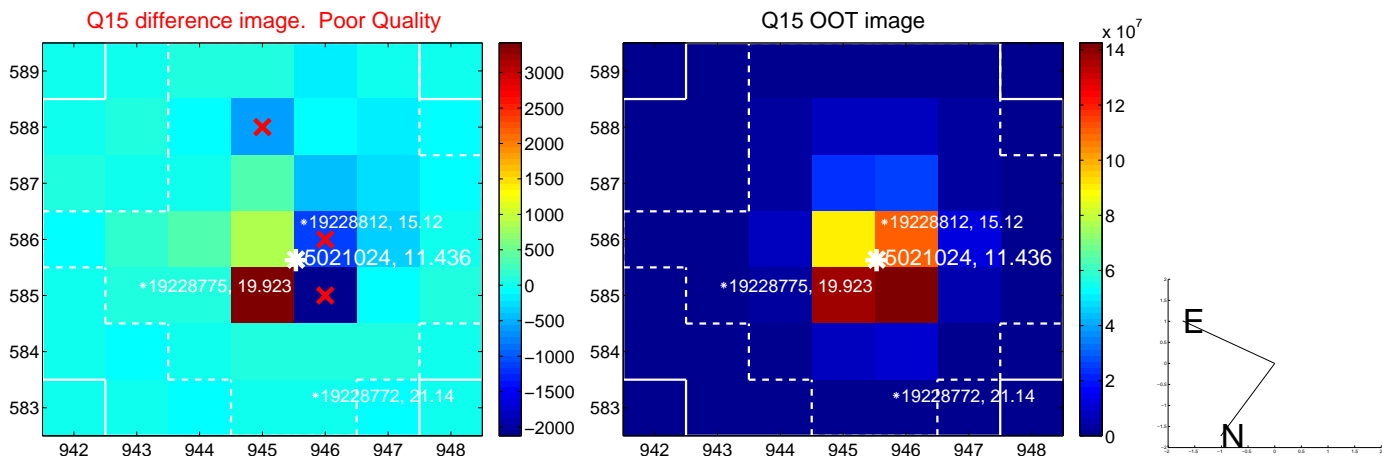
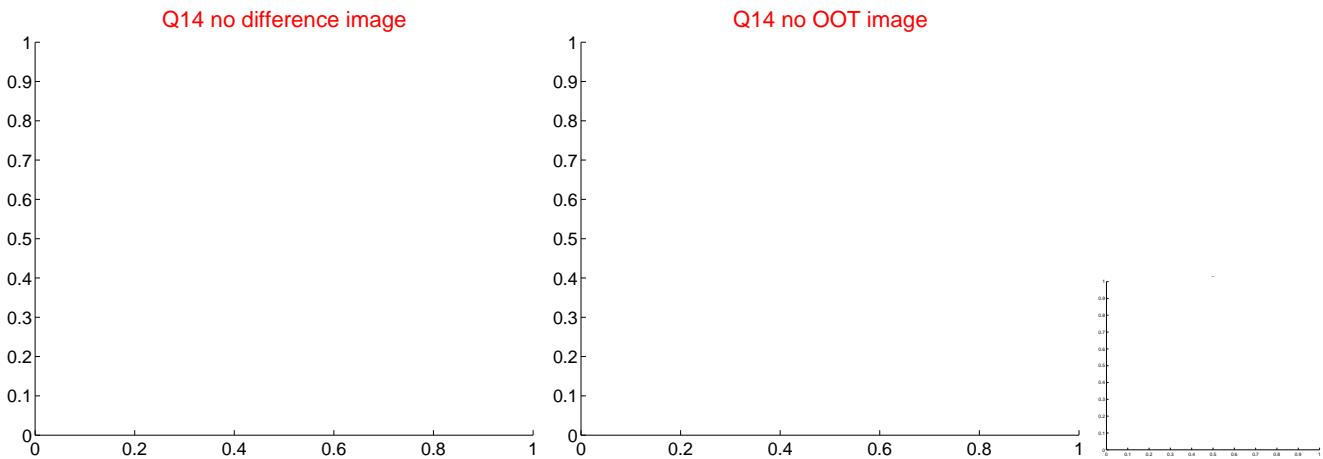
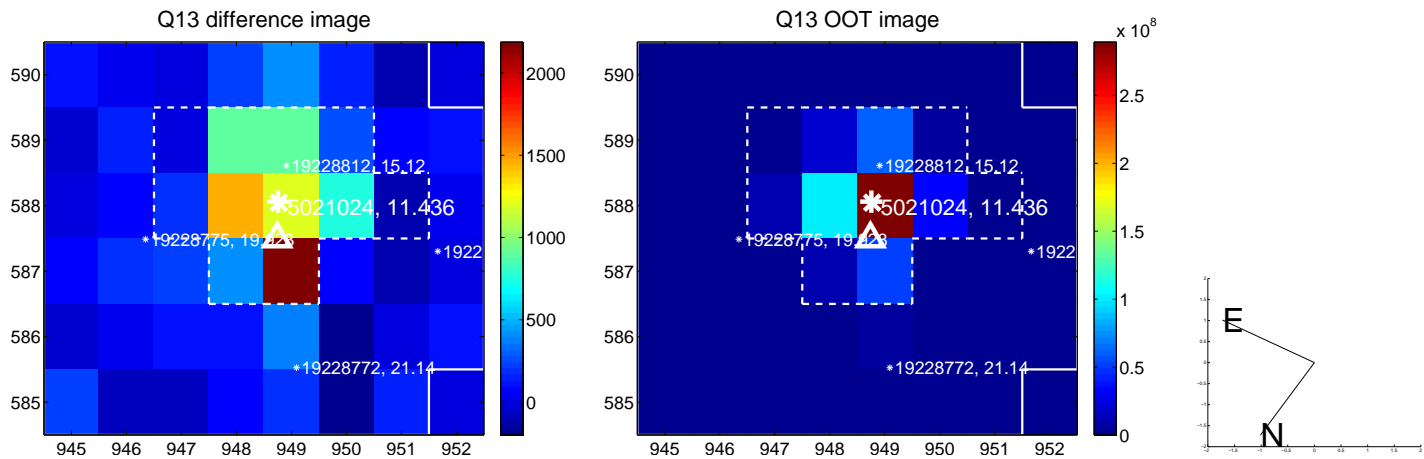




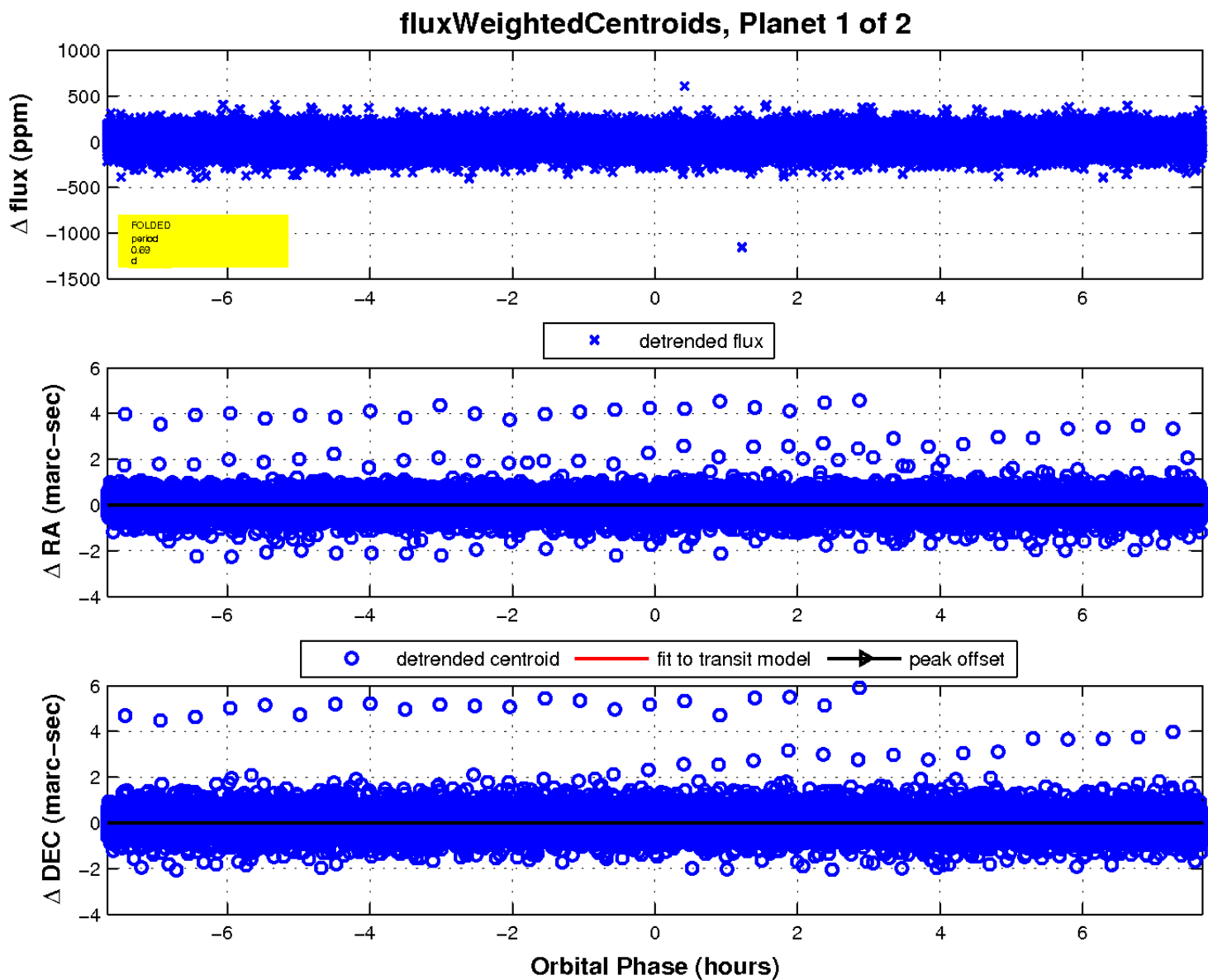
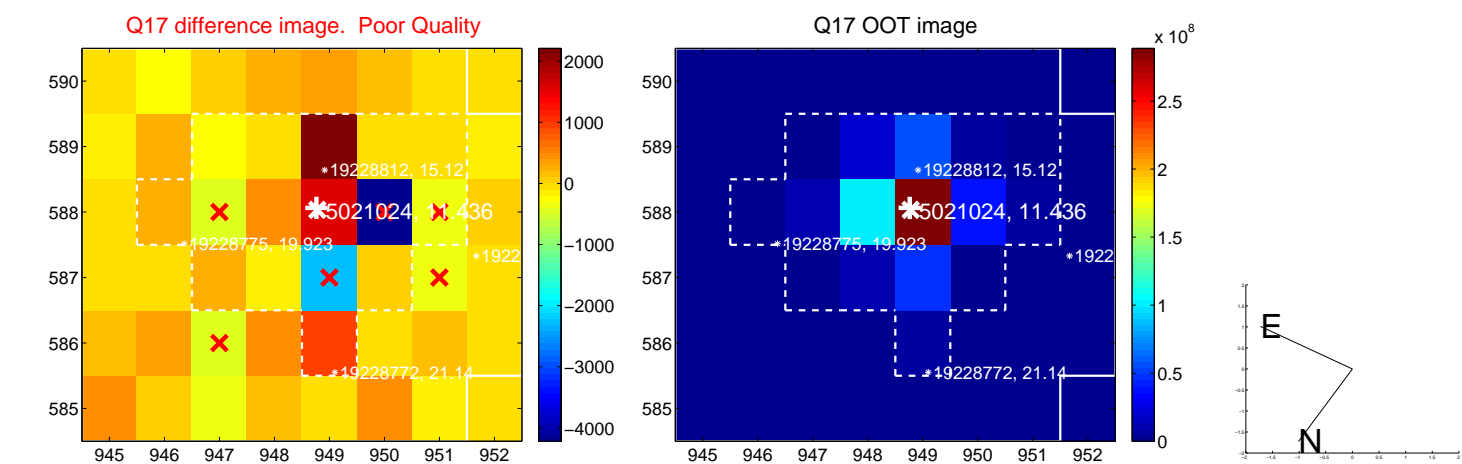
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

