

# KIC 007271221

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007271221-01	OBS	No	1.512553	132.419298	19.4	6.744	8.4	9.0	1.43	6131	0.65	4074.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007271221-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET

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

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

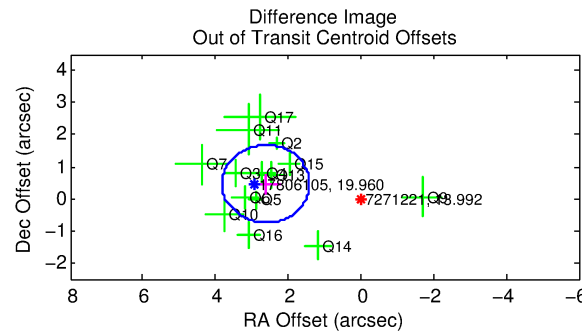
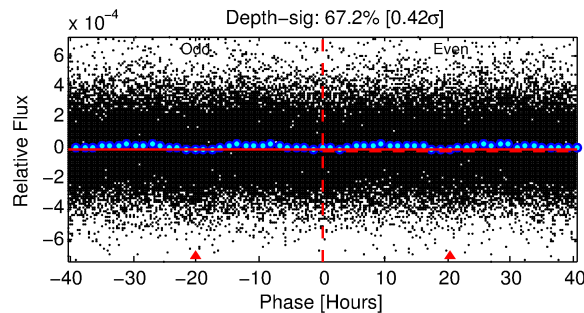
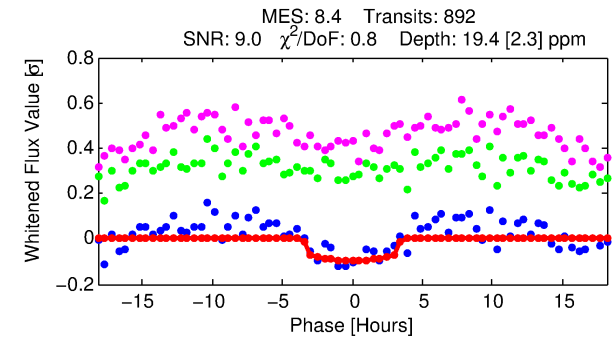
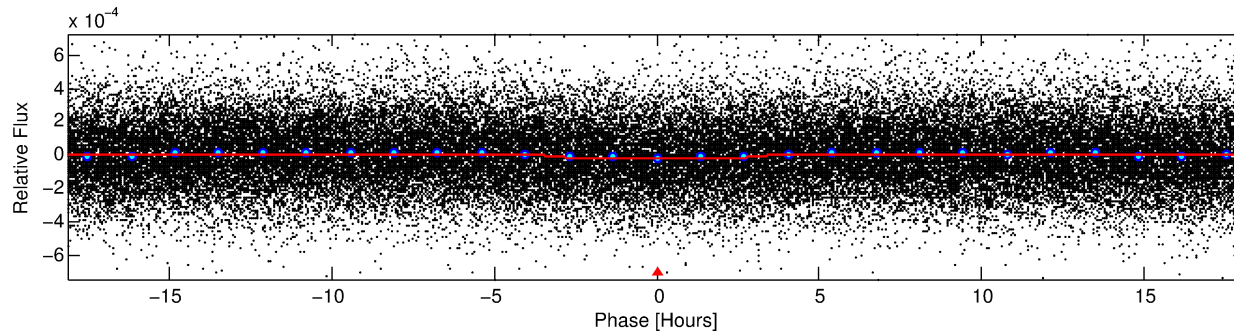
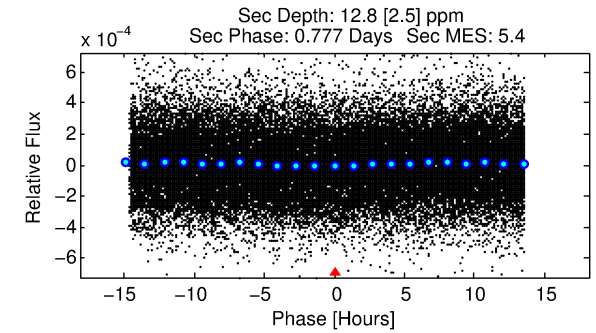
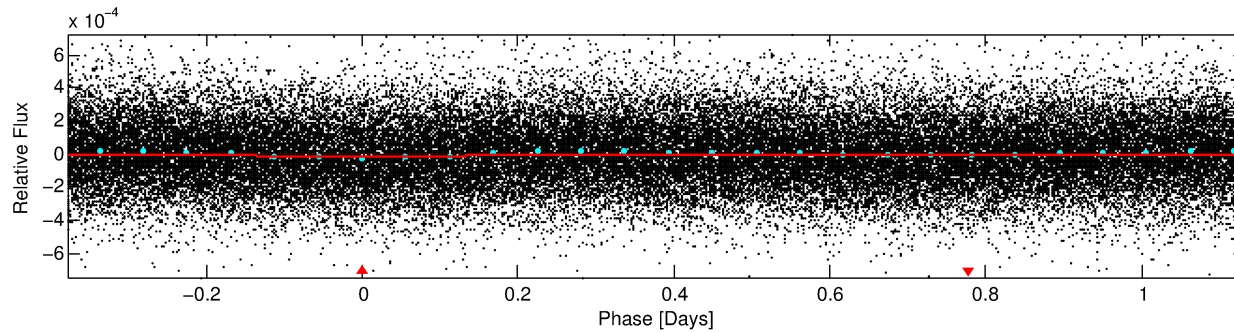
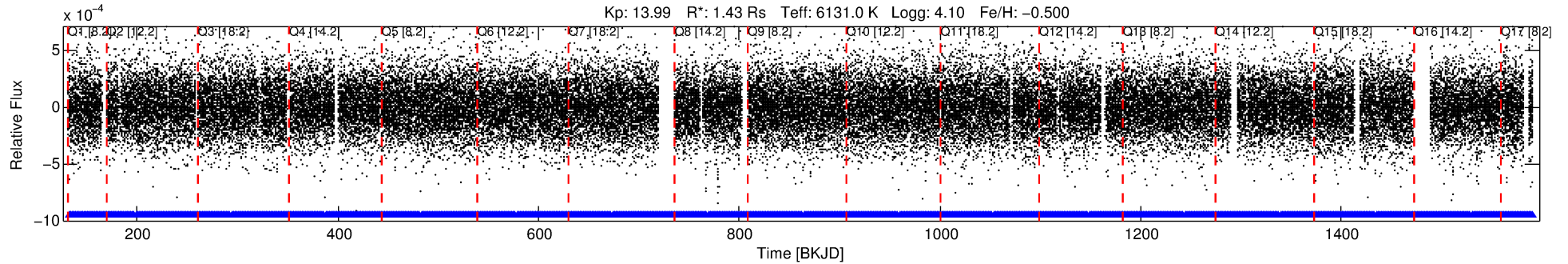
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007271221-01

No Significant Match Found

# DV One-Page Summary

KIC: 7271221 Candidate: 1 of 1 Period: 1.513 d



## DV Fit Results:

Period = 1.51255 [0.00002] d  
Epoch = 132.4193 [0.0078] BKJD  
Rp/R\* = 0.0042 [0.0020]  
a/R\* = 1.62 [2.47]  
b = 0.54 [3.19]  
Seff = 4074.68 [1368.46]  
Teff = 2037 [171] K  
Rp = 0.65 [0.34] Re  
a = 0.0252 [0.0052] AU  
Ag = 10.51 [10.81] [0.88σ]  
Teffp = 5671 [1383] K [2.61σ]

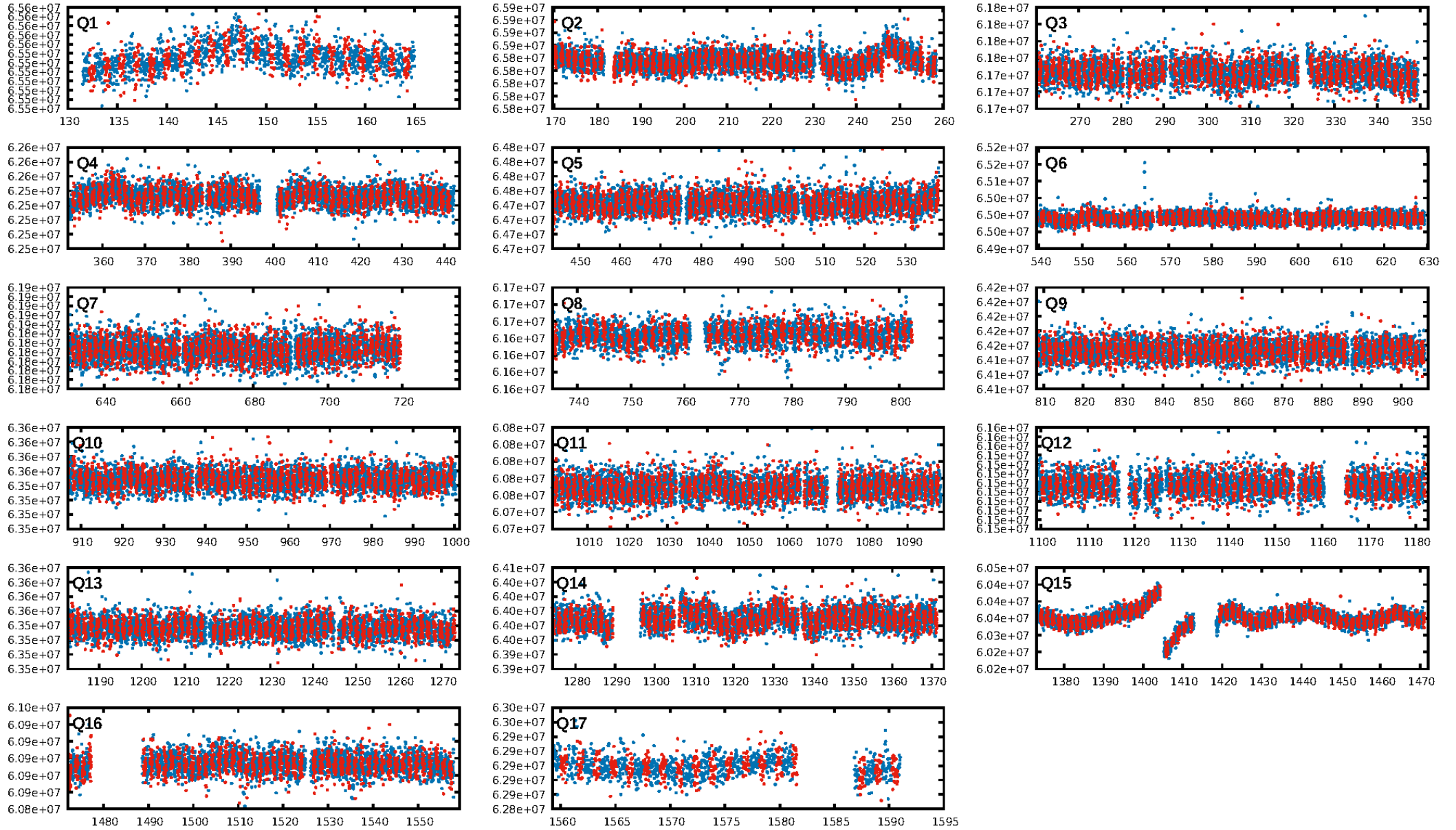
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.74e-16  
RollingBand-fgt: 1.00 [852/852]  
GhostDiagnostic-chr: 4.704  
Centroid-sig: 0.0%  
Centroid-so: 3.902 arcsec [3.04σ]  
OotOffset-rm: 2.664 arcsec [6.62σ]  
KicOffset-rm: 2.631 arcsec [6.71σ]  
OotOffset-st: 4/4/2/4 [14]  
KicOffset-st: 4/4/2/4 [14]  
DiffImageQuality-fgm: 0.64 [9/14]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:19:19 Z

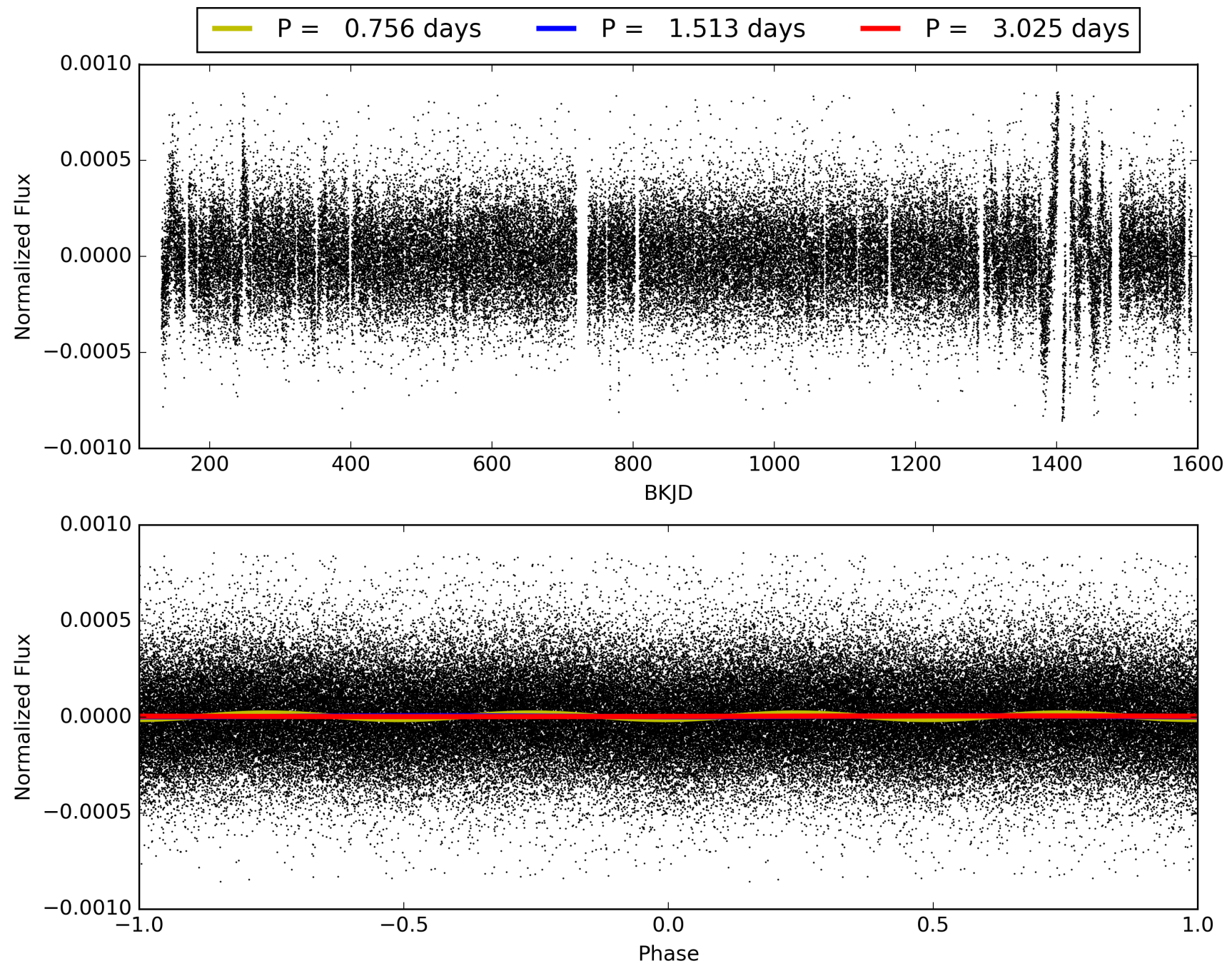
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007271221-01, PDC Light Curves



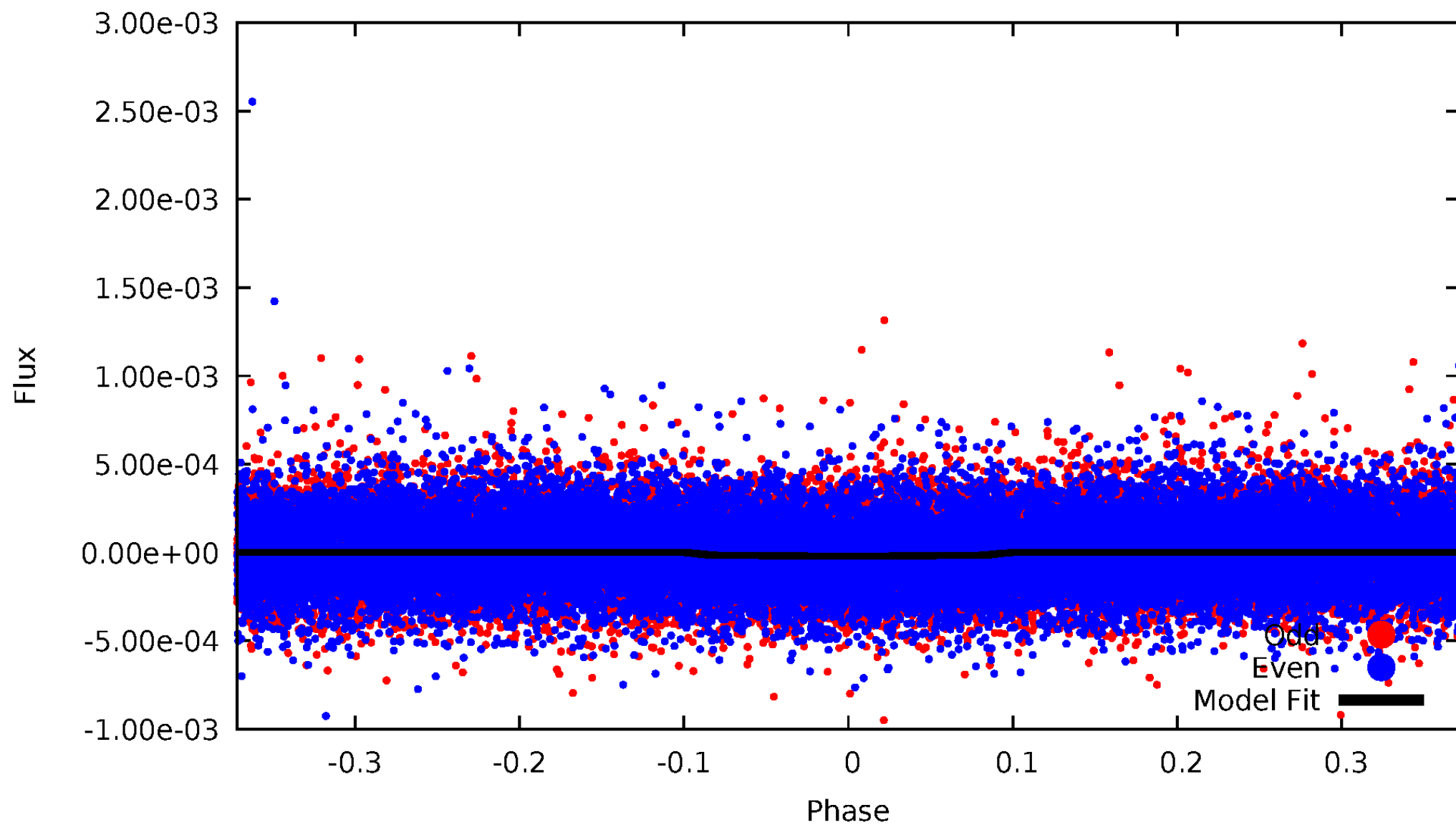


TCE 007271221-01



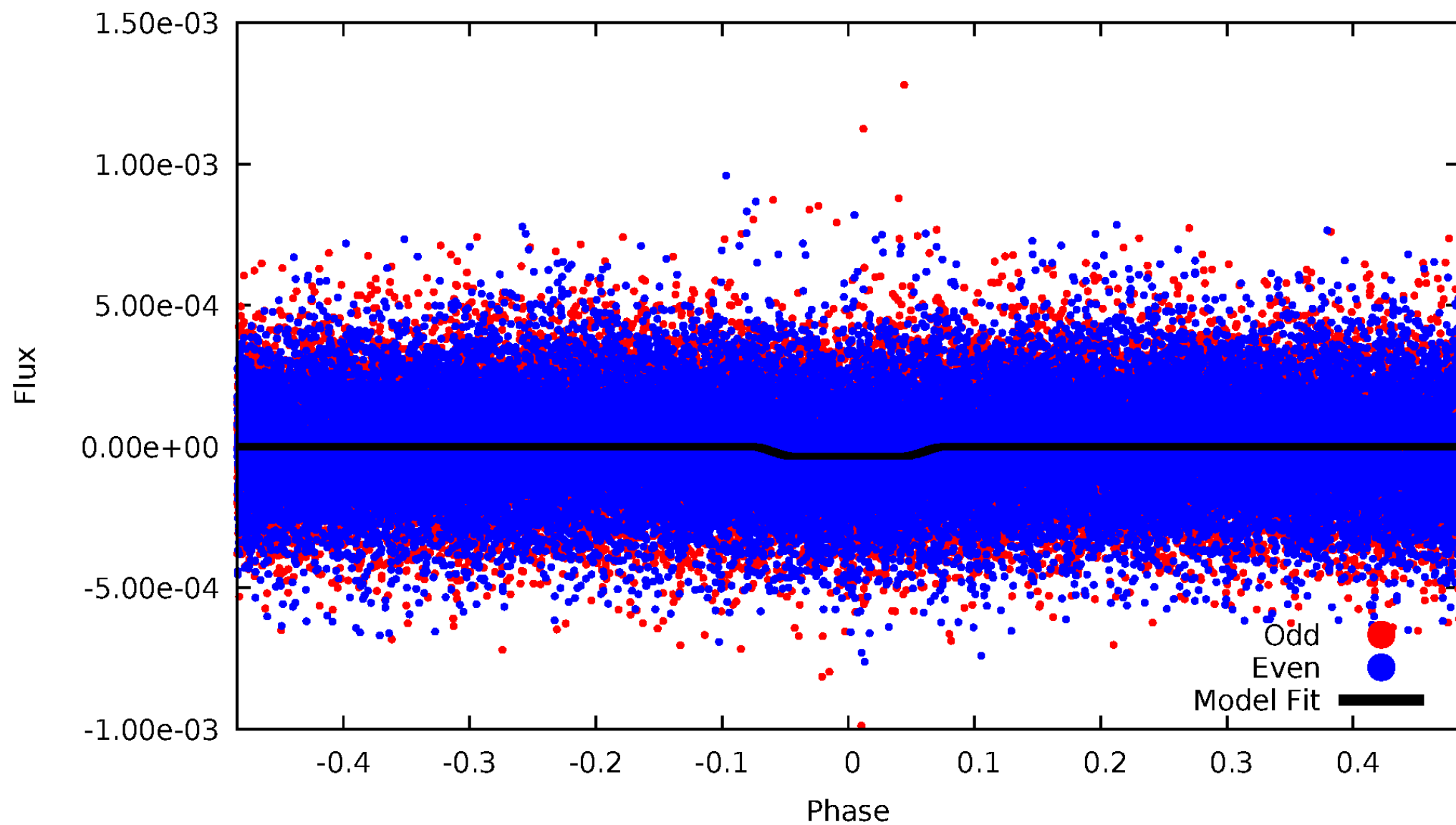
# DV Odd/Even

TCE 007271221-01



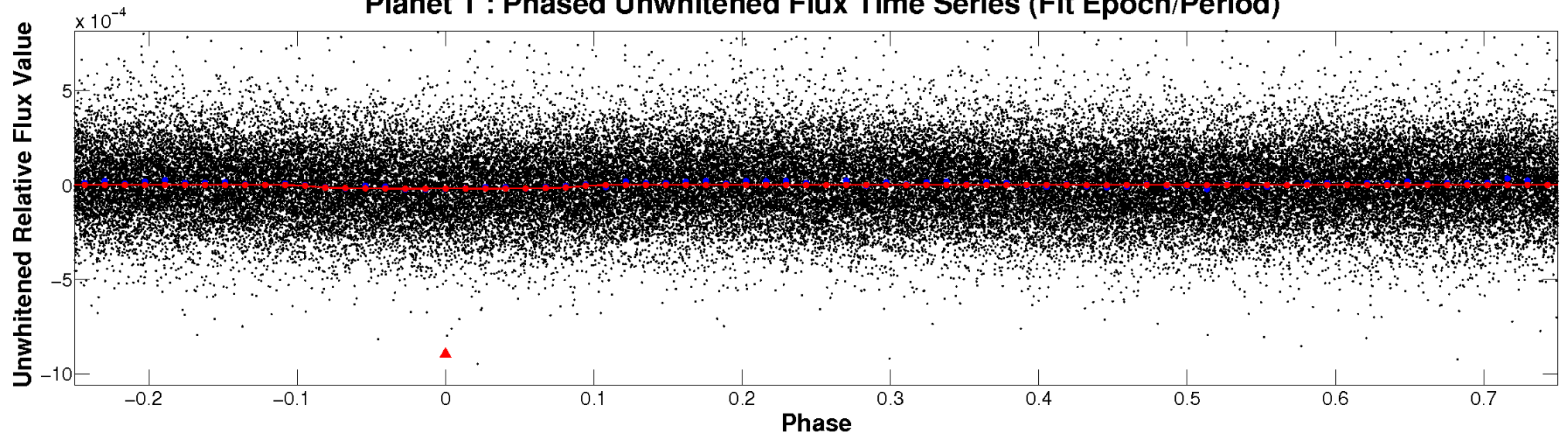
# ALT Odd/Even

TCE 007271221-01

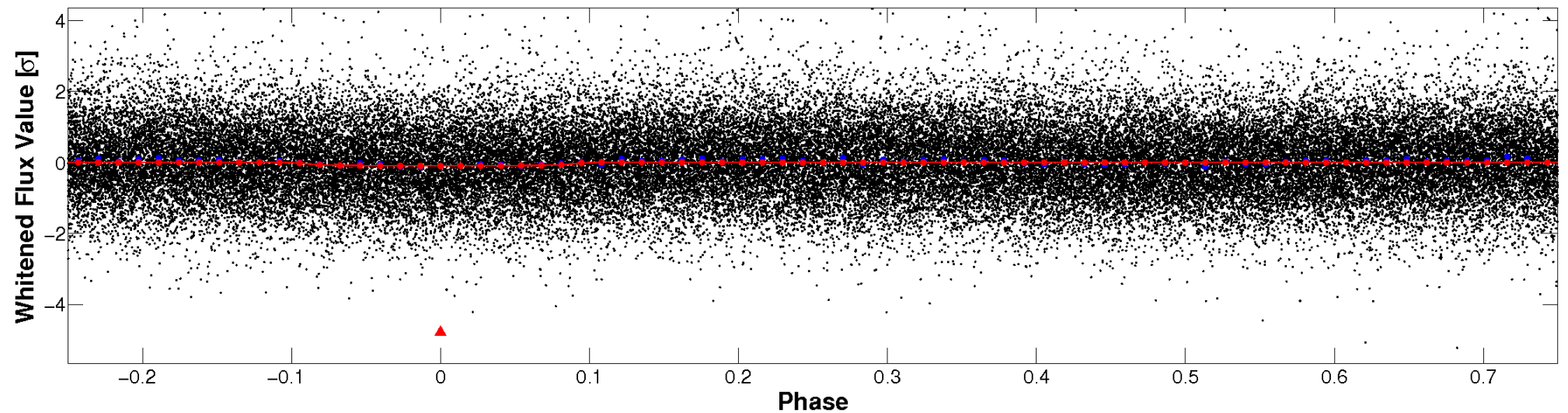


# Non-Whitened Vs. Whitened Light Curve

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



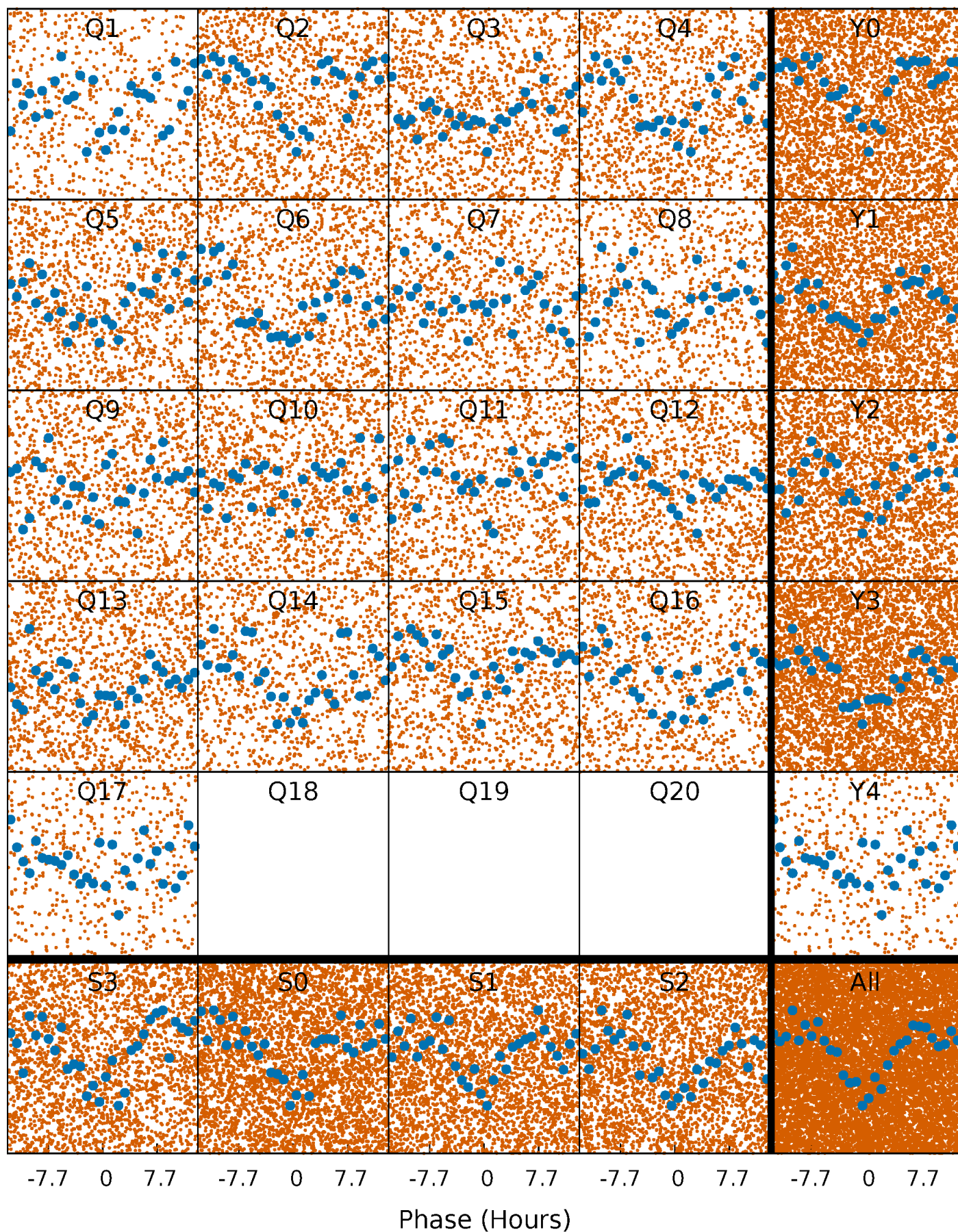
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

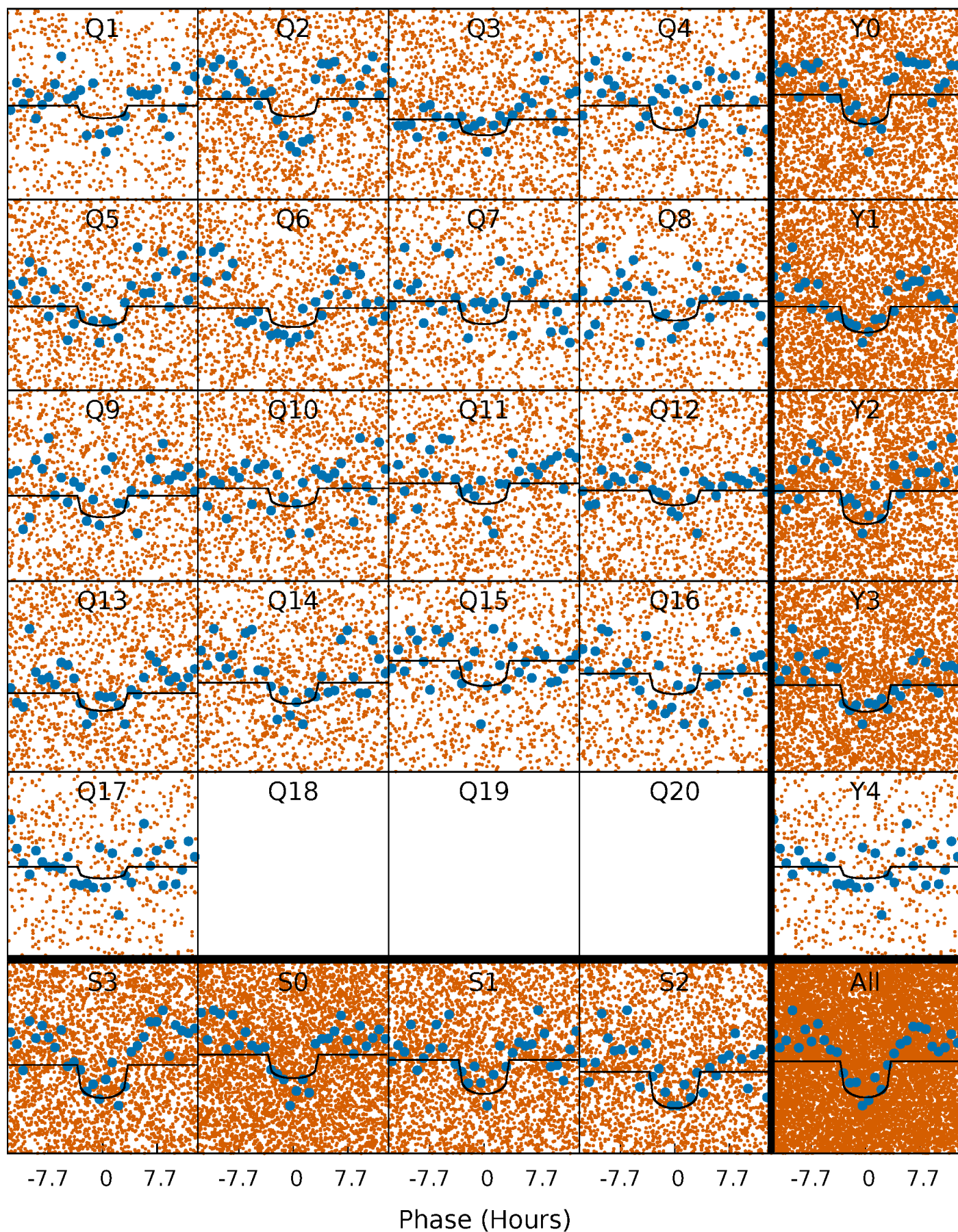
TCE 007271221-01 P= 1.512553 Days  $T_0=132.419298$  (BKJD)





# DV Quarter-Phased Transit Curves

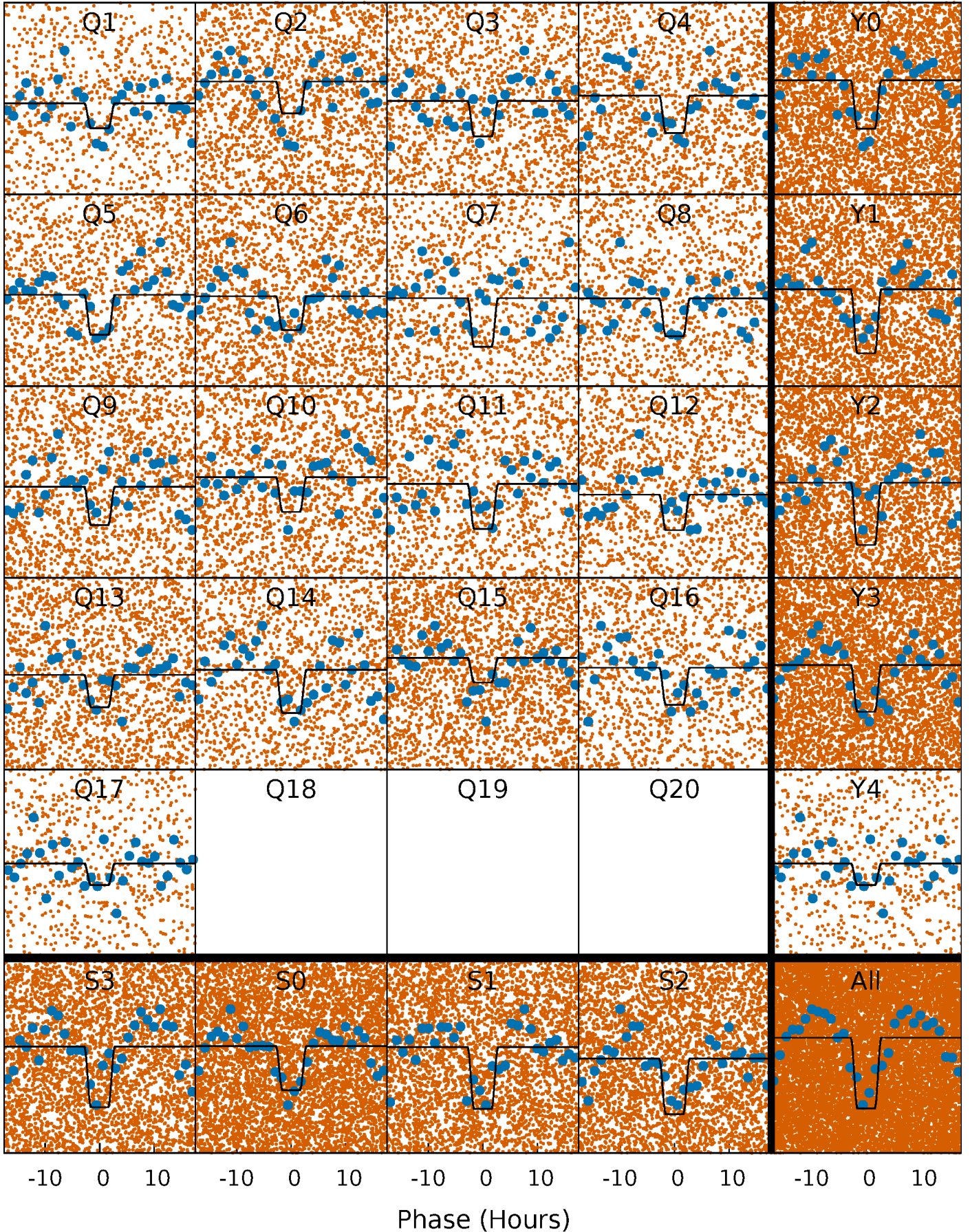
TCE 007271221-01 P= 1.512553 Days  $T_0=132.419298$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

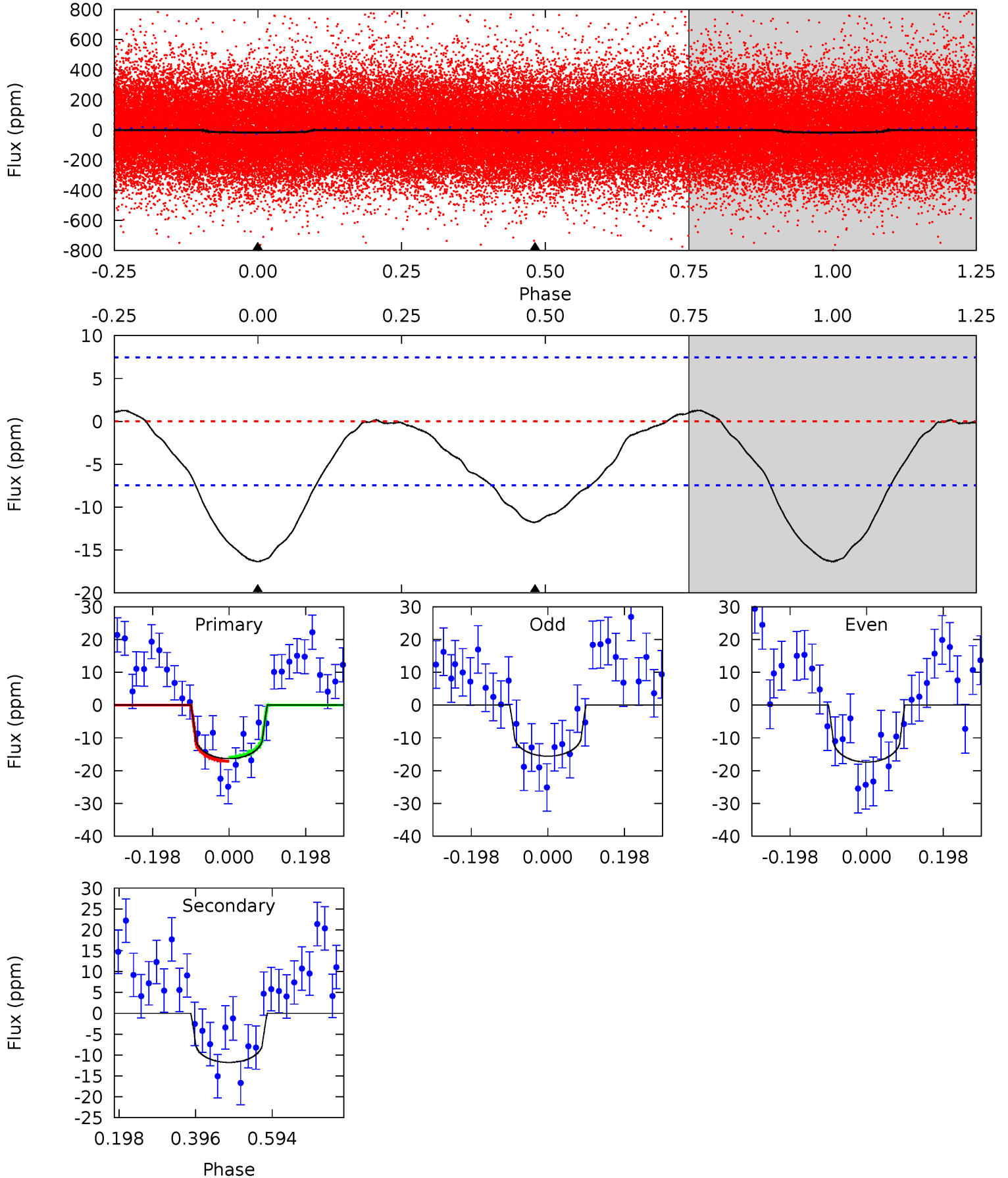
TCE 007271221-01 P= 1.512480 Days  $T_0=132.448641$  (BKJD)



# DV Model-Shift Uniqueness Test

007271221-01, P = 1.512553 Days, E = 130.906745 Days

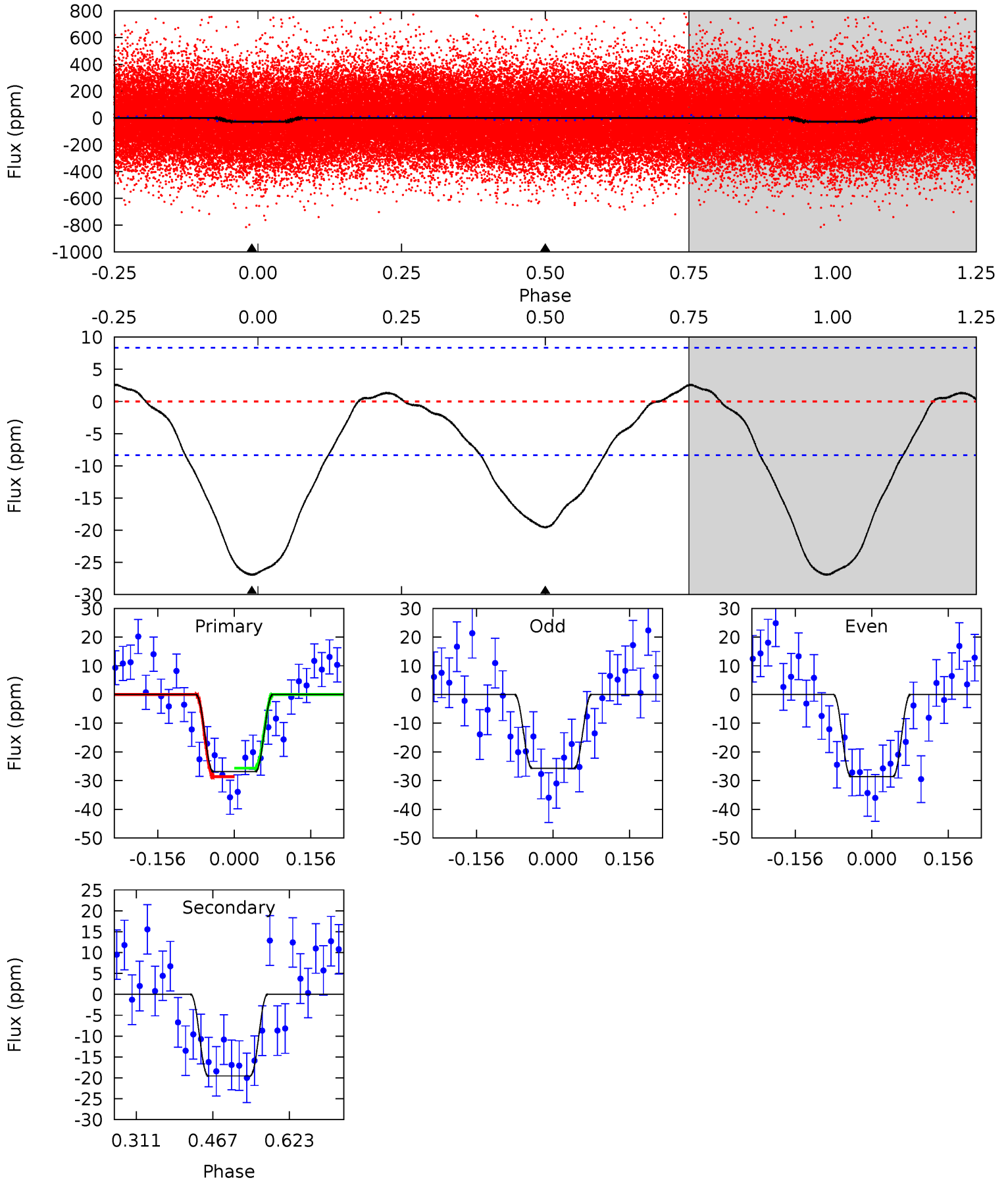
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.69	6.98	0	0	4.42	1.29	0.39	9.69	9.69	6.98	6.98	0.54	0.86	0.07	0.37



# Alt Model-Shift Uniqueness Test

007271221-01, P = 1.512480 Days, E = 130.936161 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
14.4	10.5	0	0	4.47	1.42	0.89	14.4	14.4	10.5	10.5	0.78	0.92	0.09	0.79





### Stellar Parameters For KIC 007271221

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6131^{+85}_{-79}$	$4.097^{+0.195}_{-0.105}$	$-0.500^{+0.150}_{-0.150}$	$1.429^{+0.249}_{-0.304}$	$0.931^{+0.072}_{-0.065}$	$0.450^{+0.460}_{-0.142}$
	+1%/-1%	+5%/-3%	+30%/-30%	+17%/-21%	+8%/-7%	+102%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 007271221-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-12 \pm 2$	$0.64^{+0.30}_{-0.30}$	$2819^{+139}_{-163}$	$5502^{+2092}_{-842}$	$9.896^{+24.825}_{-5.287}$
Alt.	$-20 \pm 2$	$0.86^{+0.31}_{-0.30}$	$2816^{+139}_{-169}$	$5379^{+1247}_{-664}$	$9.151^{+12.607}_{-4.164}$

$T_{max}$  = 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

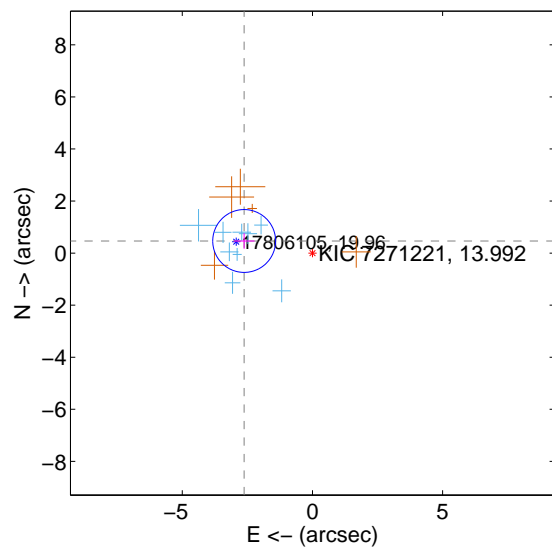
Supplemental centroid analysis for 007271221-01. Kepler magnitude: 13.99. Transit SNR 9.01

There are 9 quarters with good PRF difference image offsets

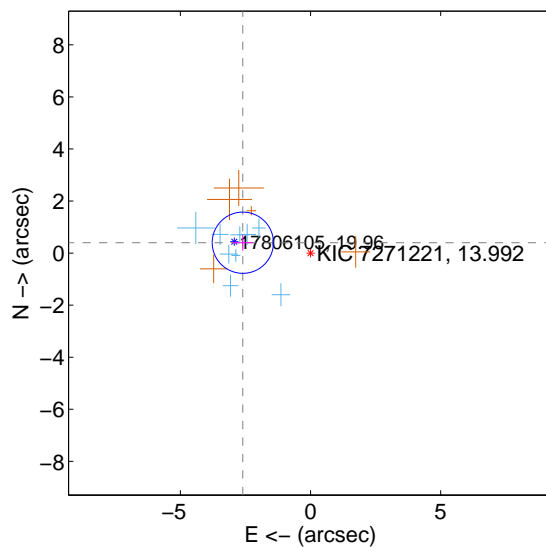
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.664 <math>\pm</math> 0.402</b>	<b>6.62</b>	2.623 $\pm$ 0.398	0.466 $\pm$ 0.299
PRF-fit source offset from KIC position	<b>2.631 <math>\pm</math> 0.392</b>	<b>6.71</b>	2.601 $\pm$ 0.391	0.399 $\pm$ 0.307
photometric centroid source offset	<b>3.90 <math>\pm</math> 1.28</b>	<b>3.04</b>	3.85 $\pm$ 1.28	-0.64 $\pm$ 1.38

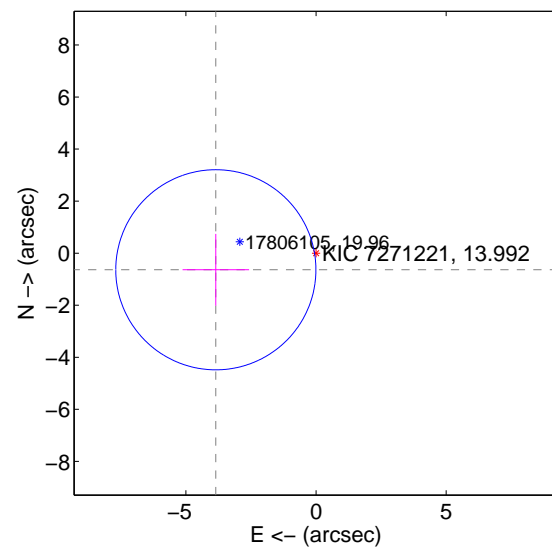
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

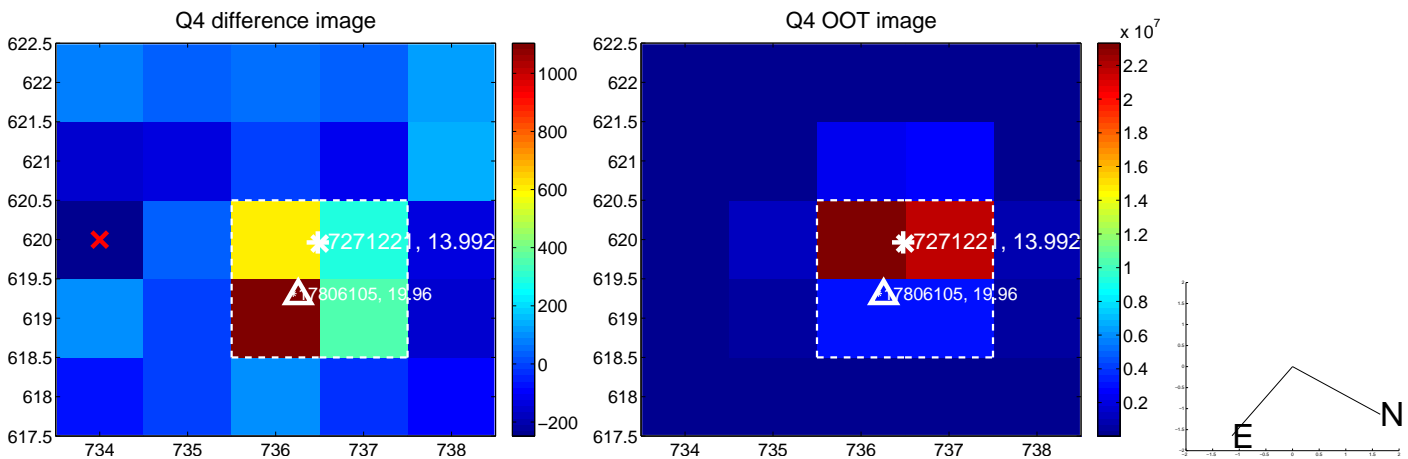
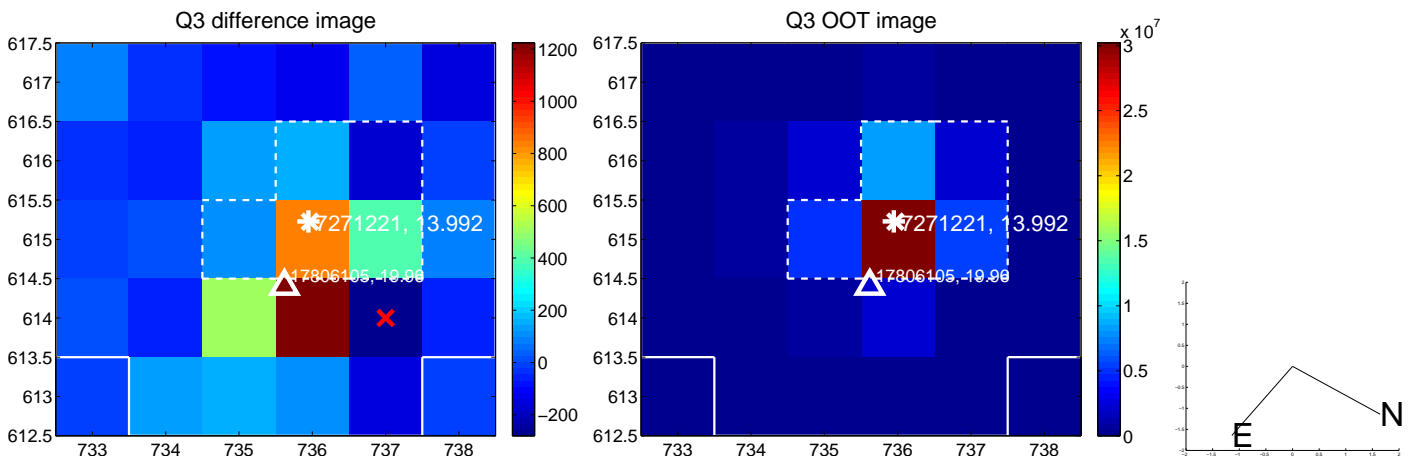
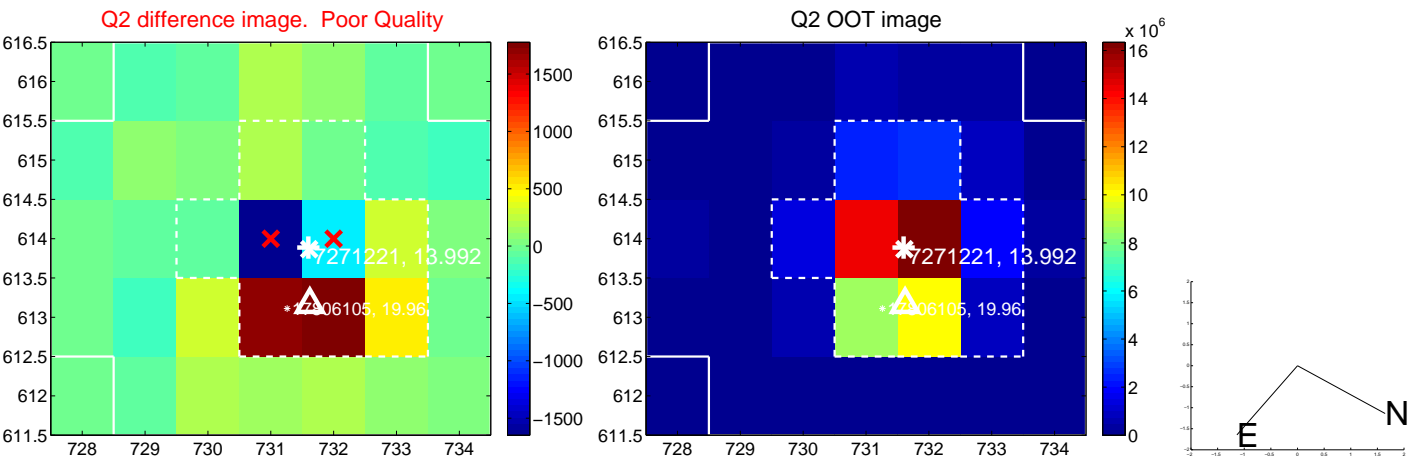
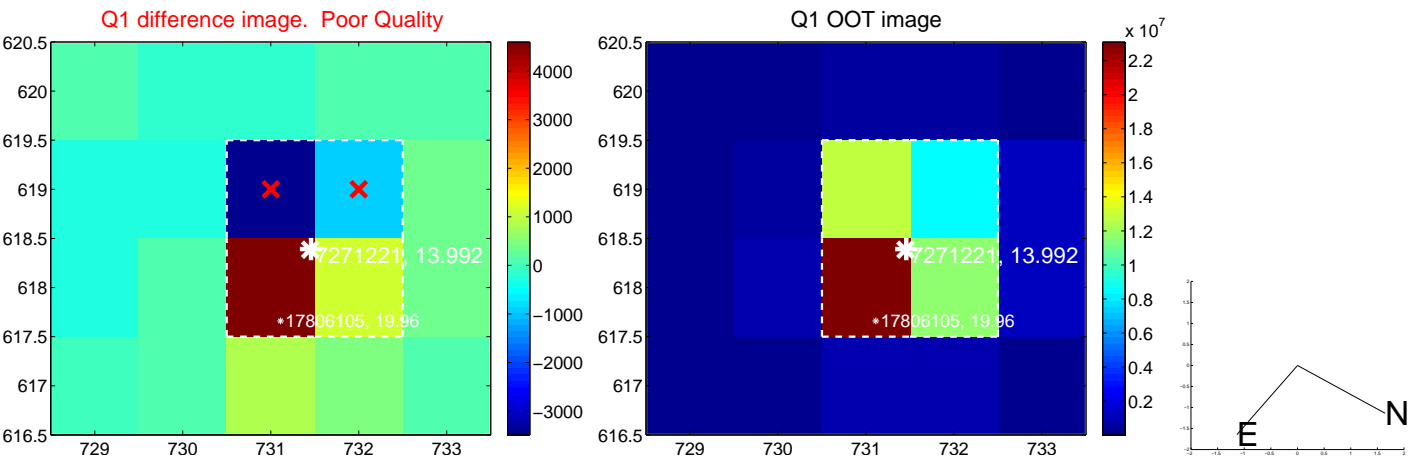


offset from photometric centroids

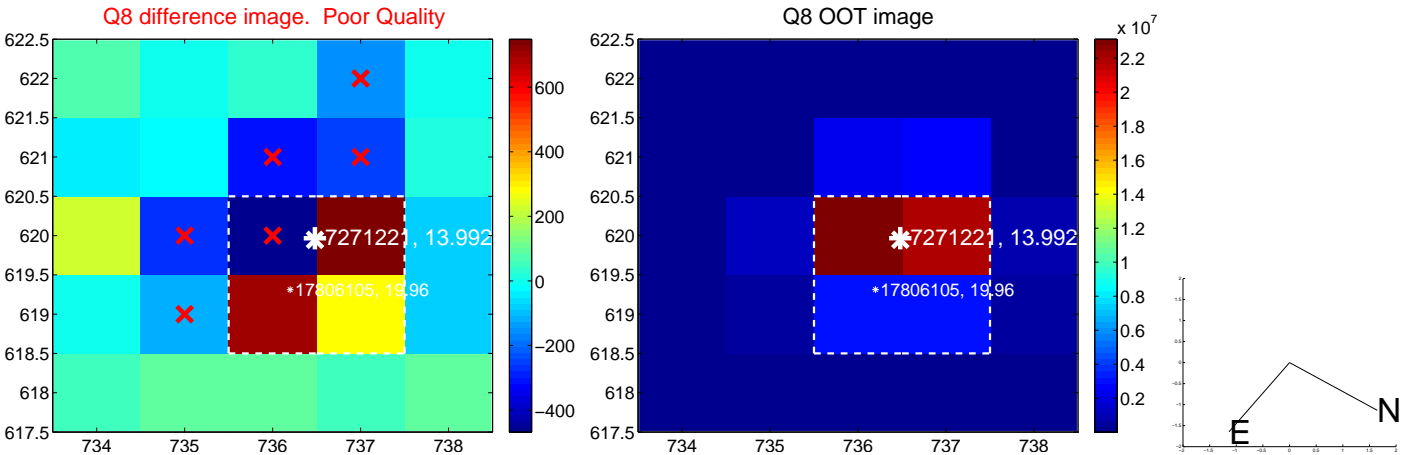
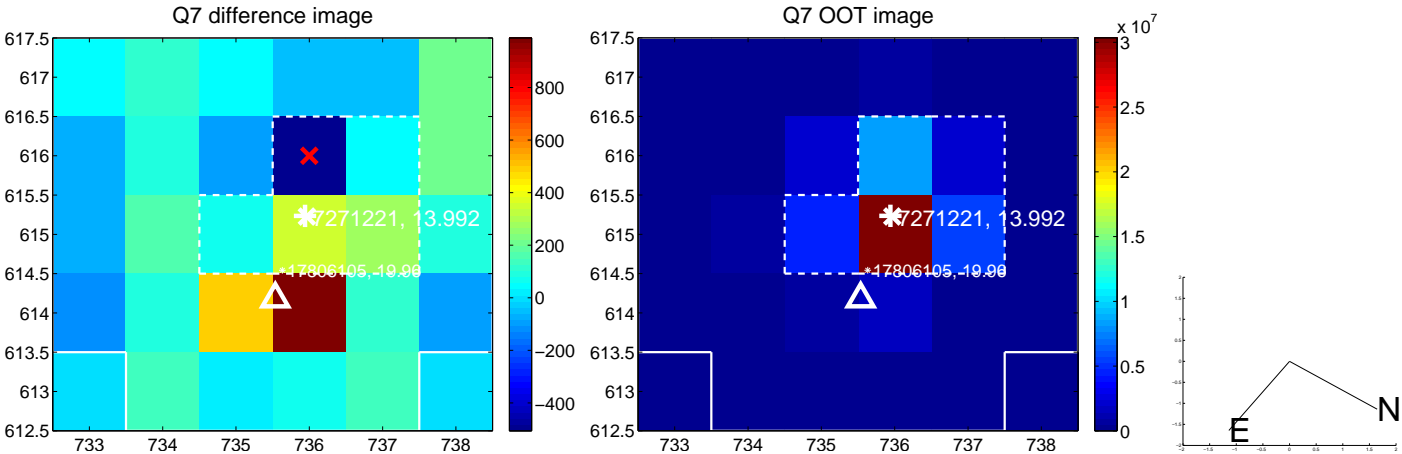
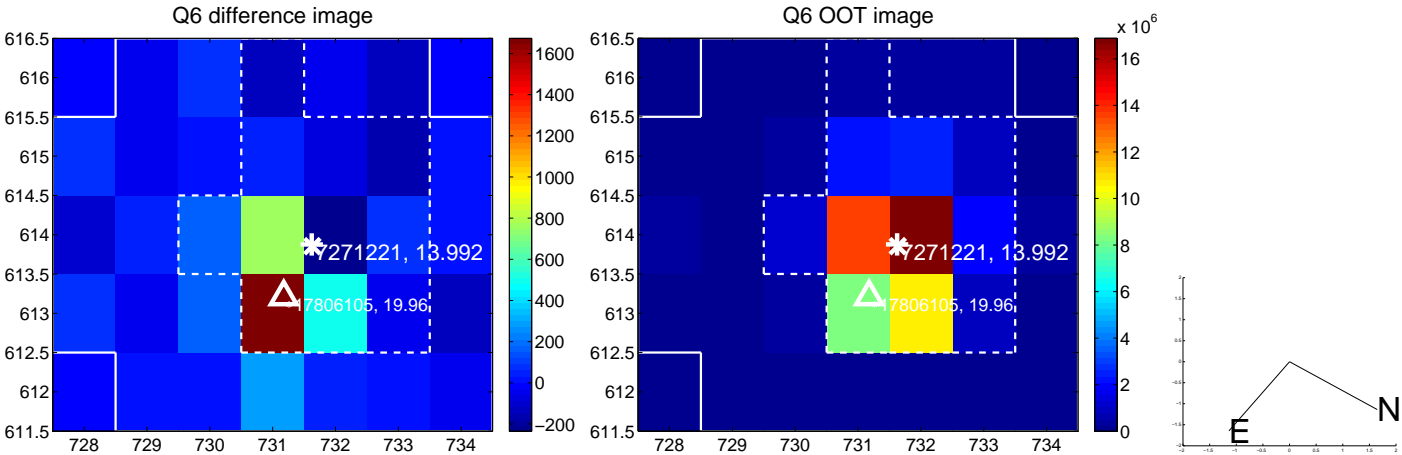
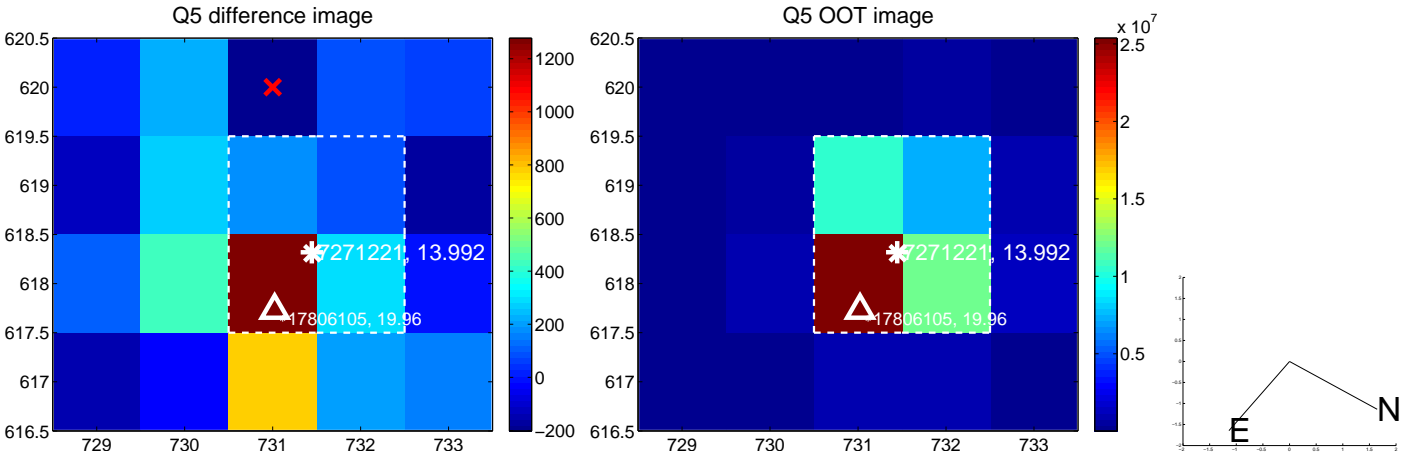


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

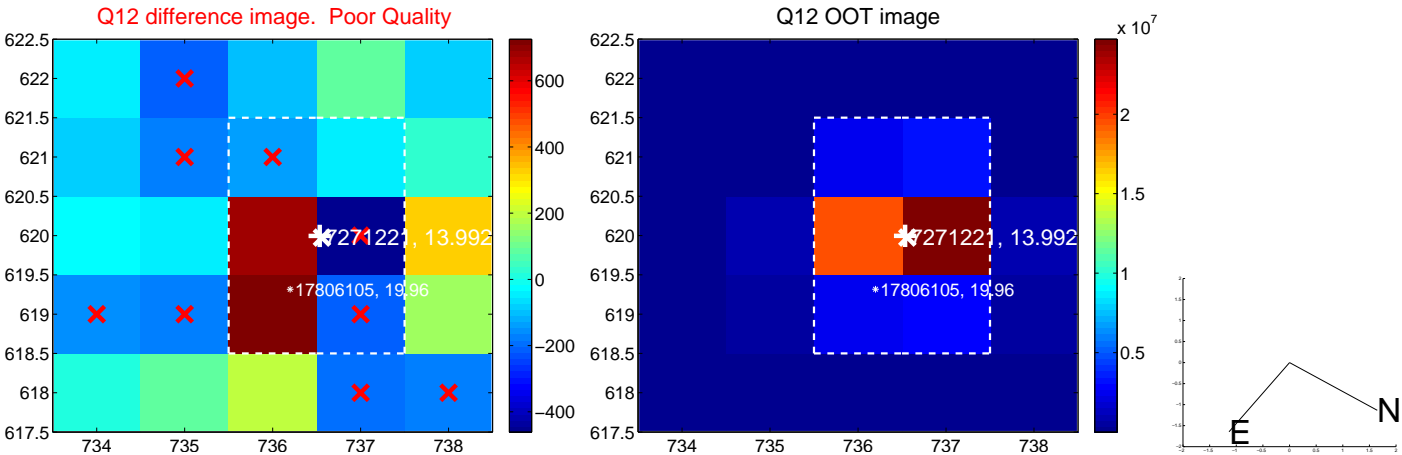
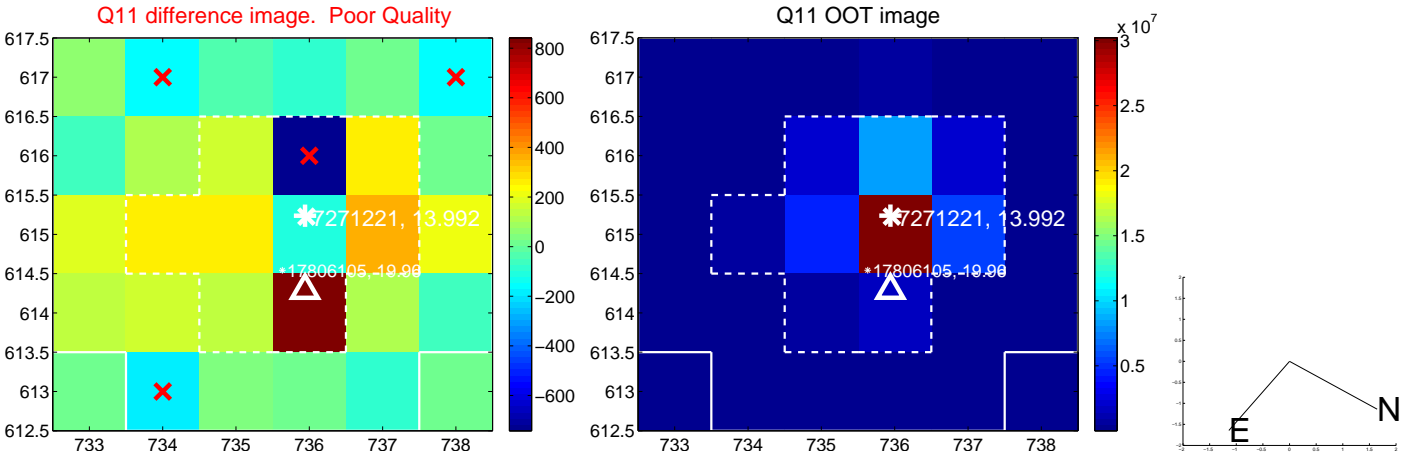
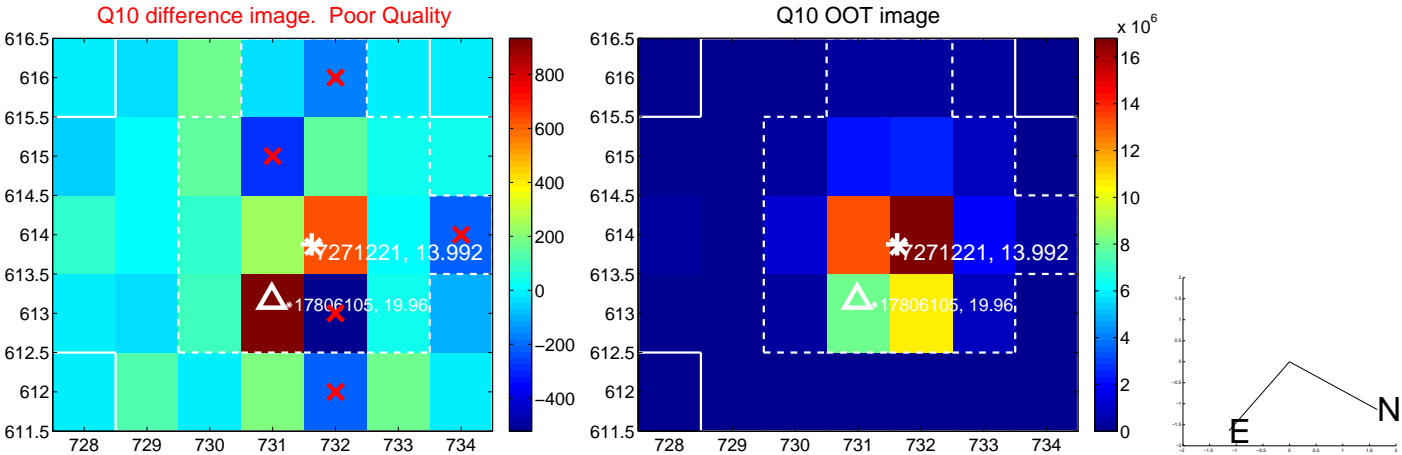
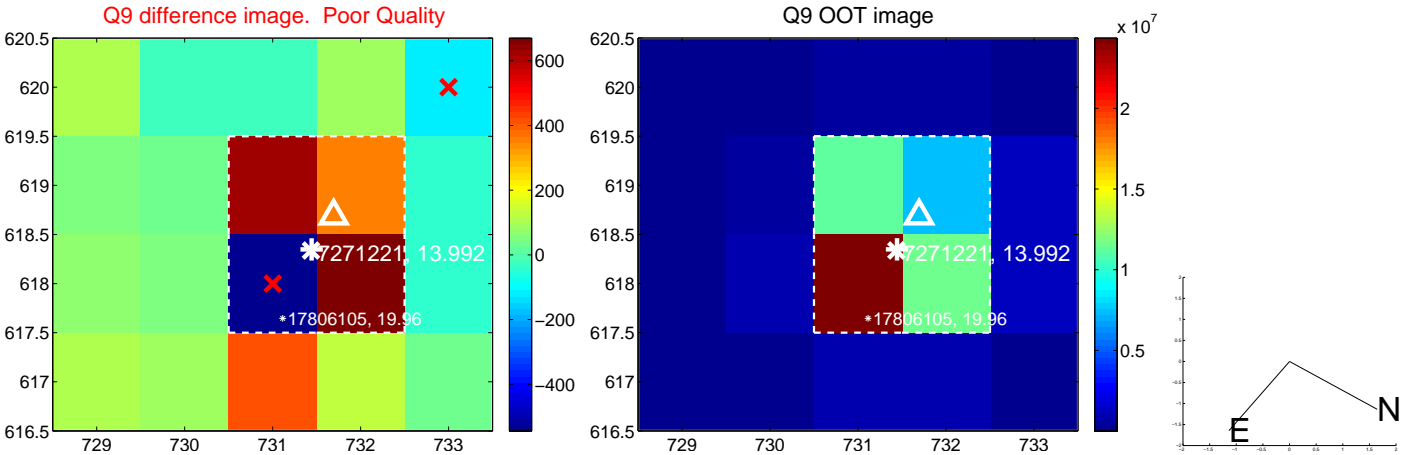


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



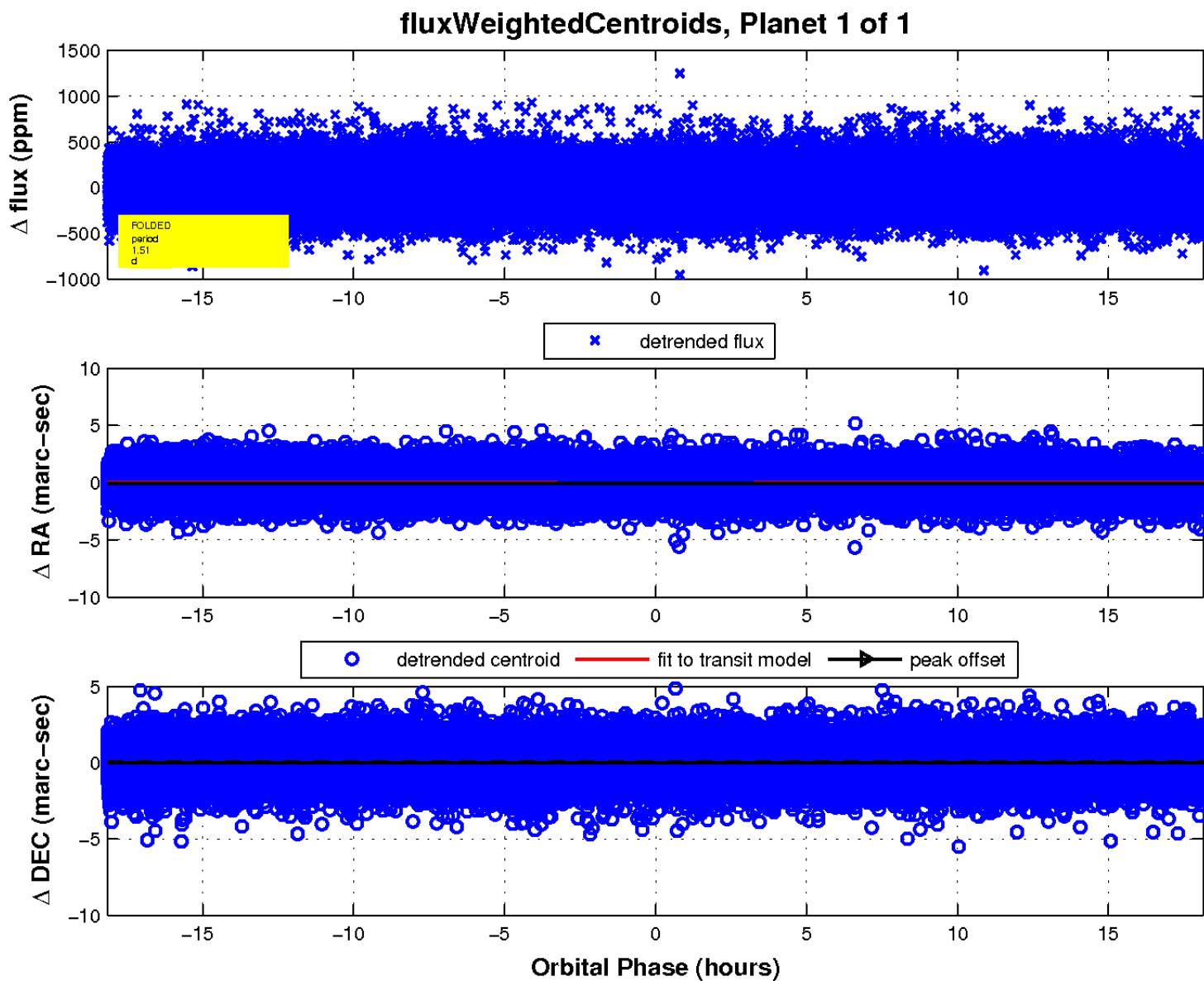
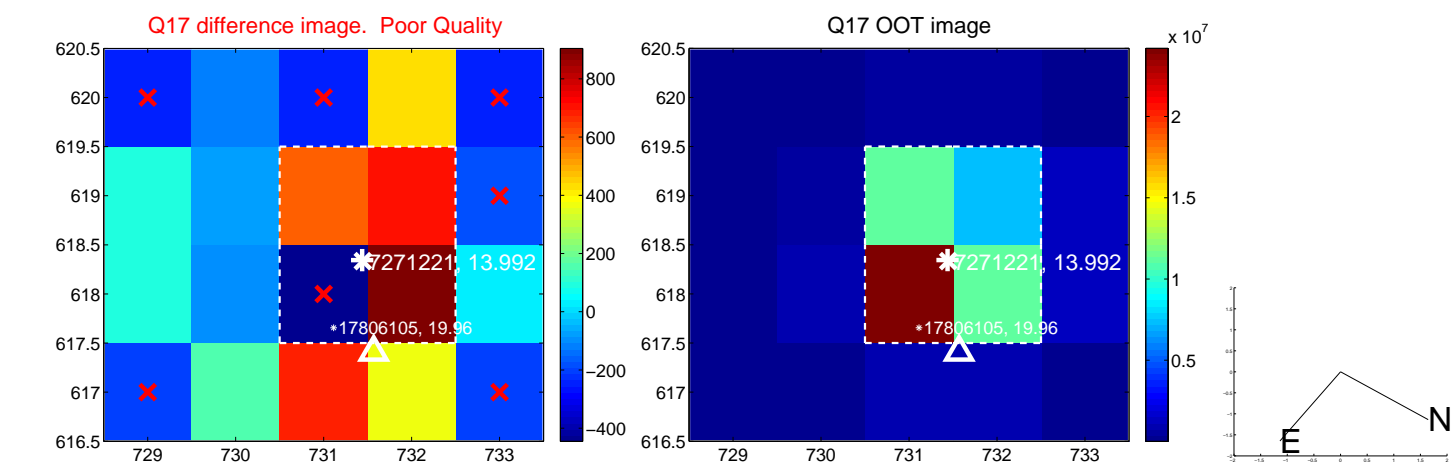


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



# UKIRT Image

Declination

