

# KIC 004270312

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004270312-01	OBS	No	1.521426	132.350963	0.6	0.973	7.4	0.1	4.15	6700	0.32	30242.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004270312-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV

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

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

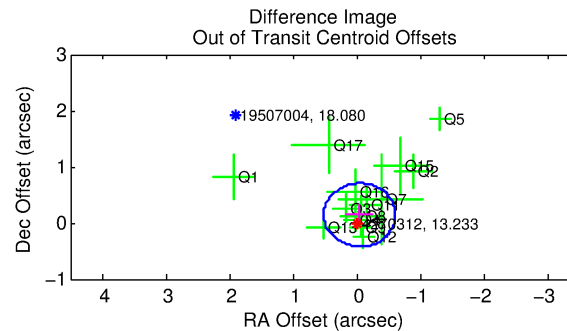
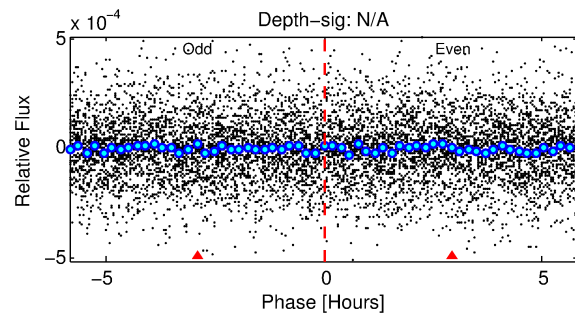
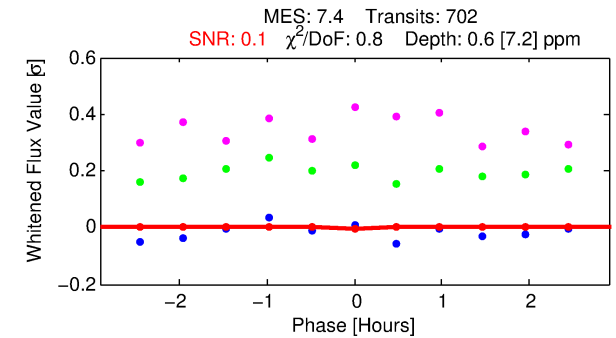
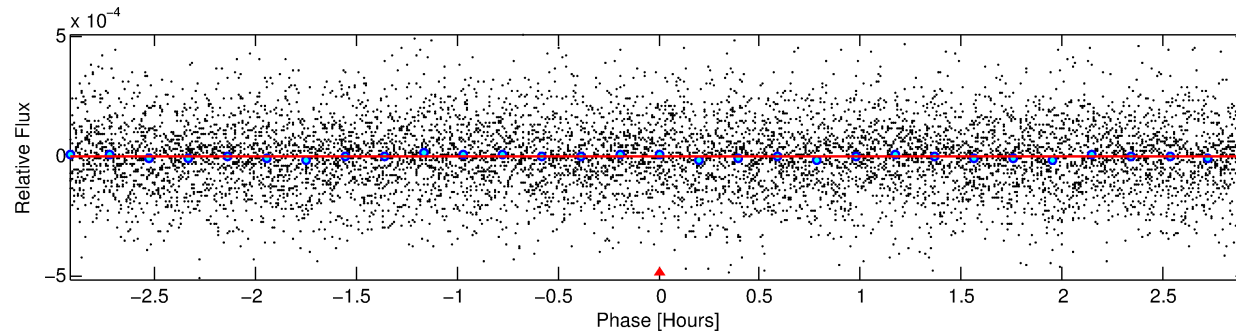
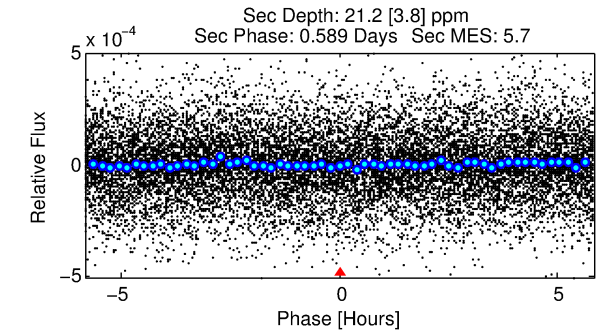
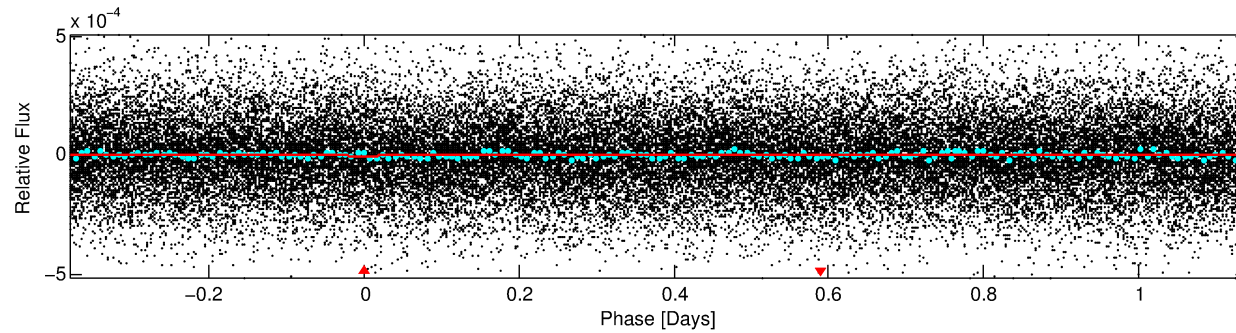
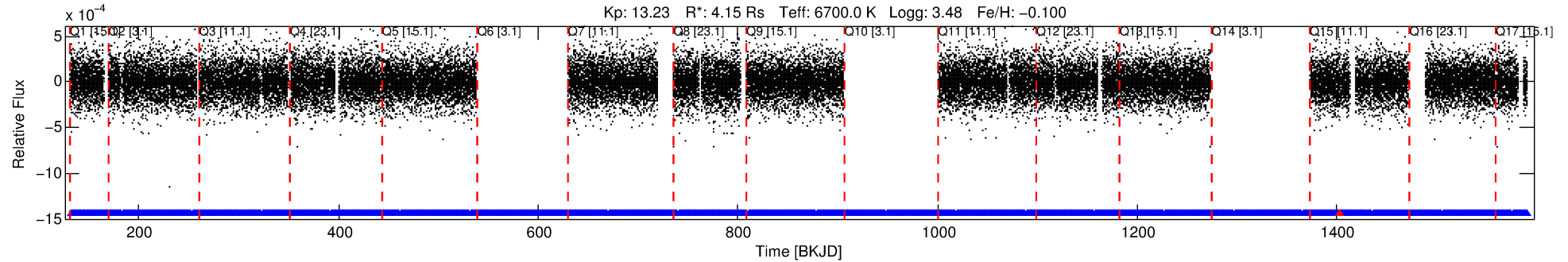
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004270312-01

No Significant Match Found

# DV One-Page Summary

KIC: 4270312 Candidate: 1 of 1 Period: 1.521 d



## DV Fit Results:

Period = 1.52143 [0.00093] d  
Epoch = 132.3510 [0.1460] BKJD  
Rp/R\* = 0.0007 [0.0462]  
a/R\* = 11.93 [4144.05]  
b = 0.08 [4264.03]  
Seff = 30242.12 [17955.97]  
Teq = 3363 [499] K  
Rp = 0.32 [20.91] Re  
a = 0.0320 [0.0115] AU  
Ag = 114.42 [14796.29] [0.01σ]  
Teffp = 17004 [549693] K [0.02σ]

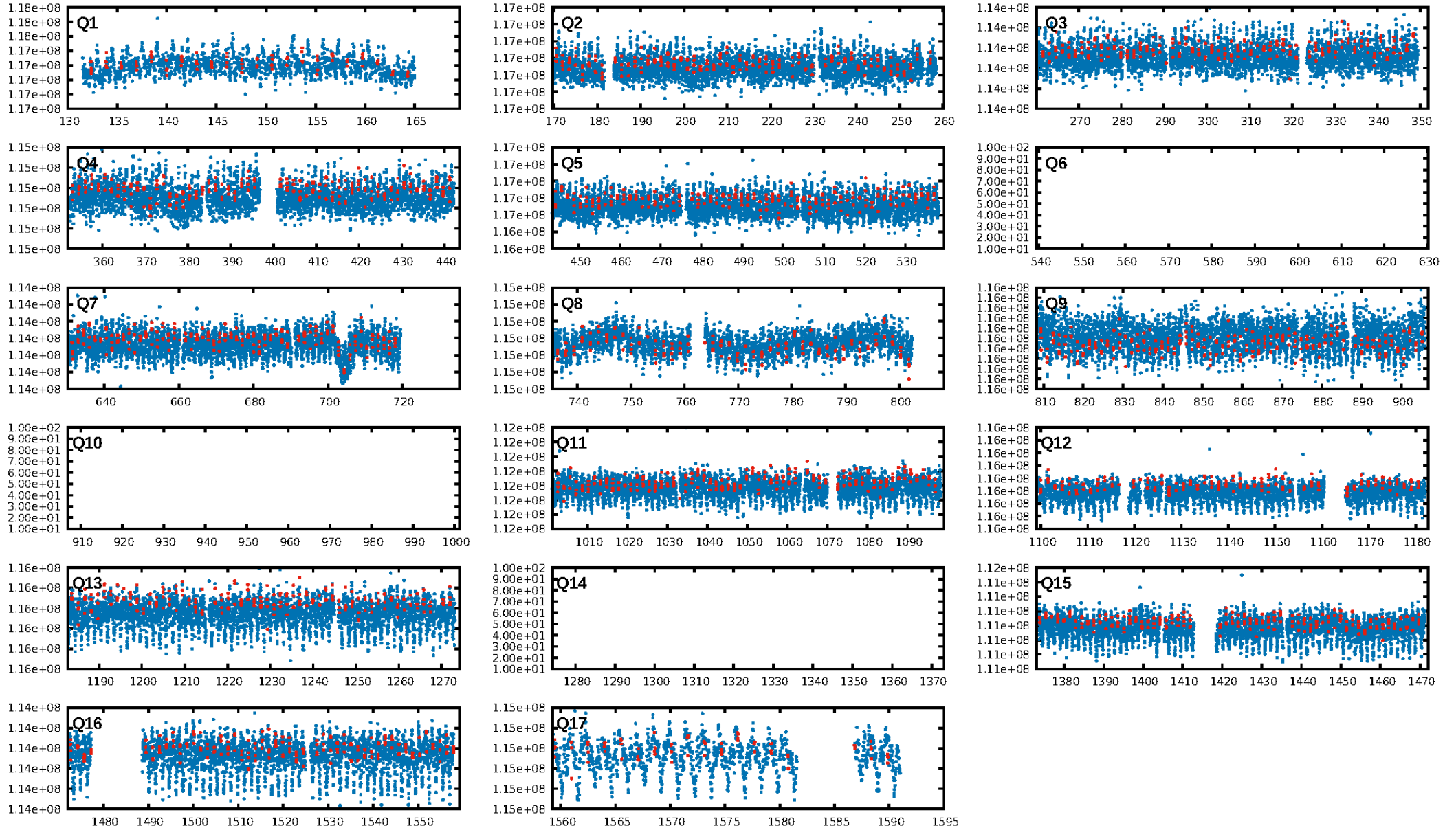
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.27e-13  
RollingBand-fgt: 1.00 [661/662]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.147 arcsec [0.78σ]  
KicOffset-rm: 0.117 arcsec [0.62σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.36 [5/14]  
DiffImageOverlap-fno: 1.00 [14/14]

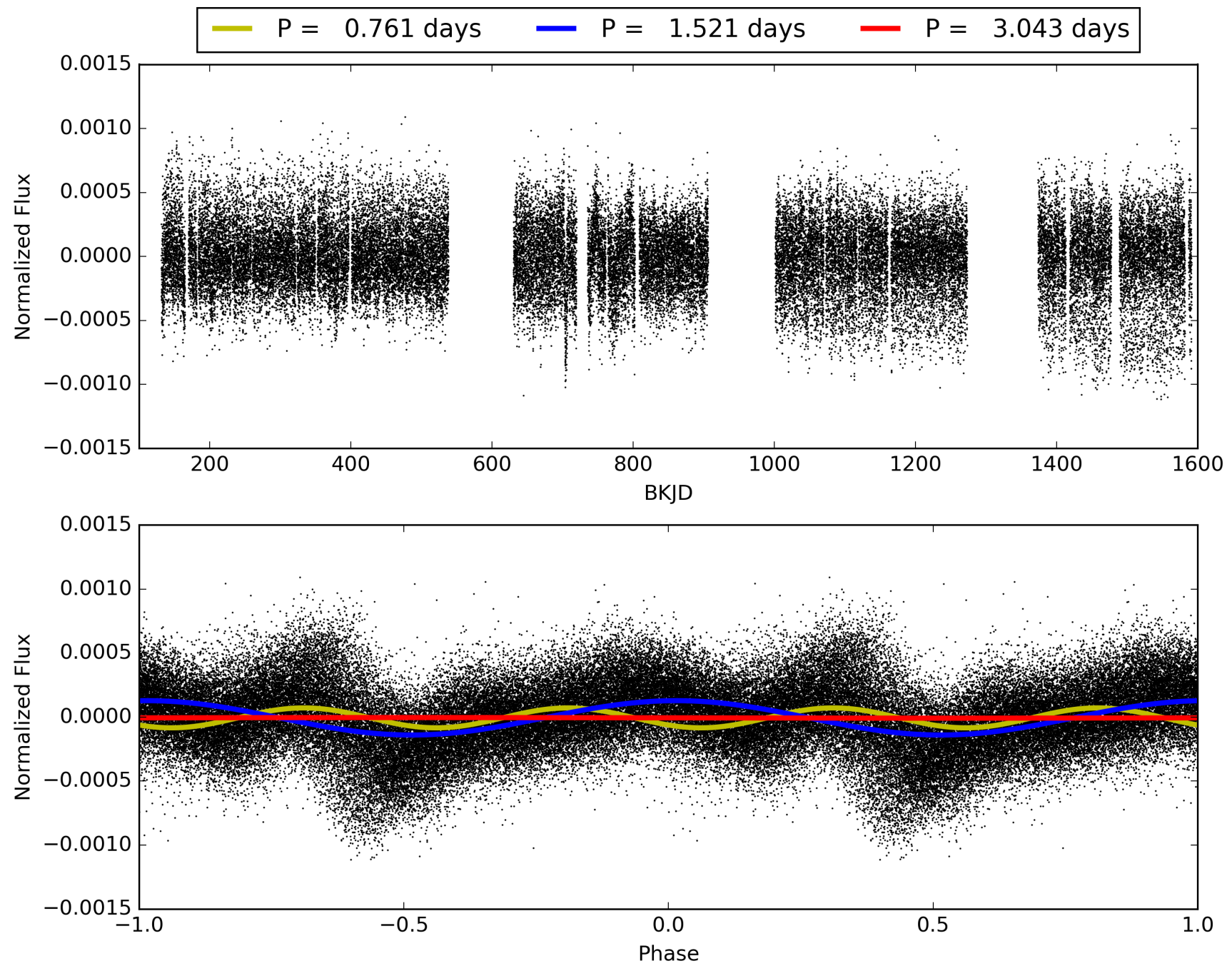
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:42:03 Z

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

# TCE 004270312-01, PDC Light Curves

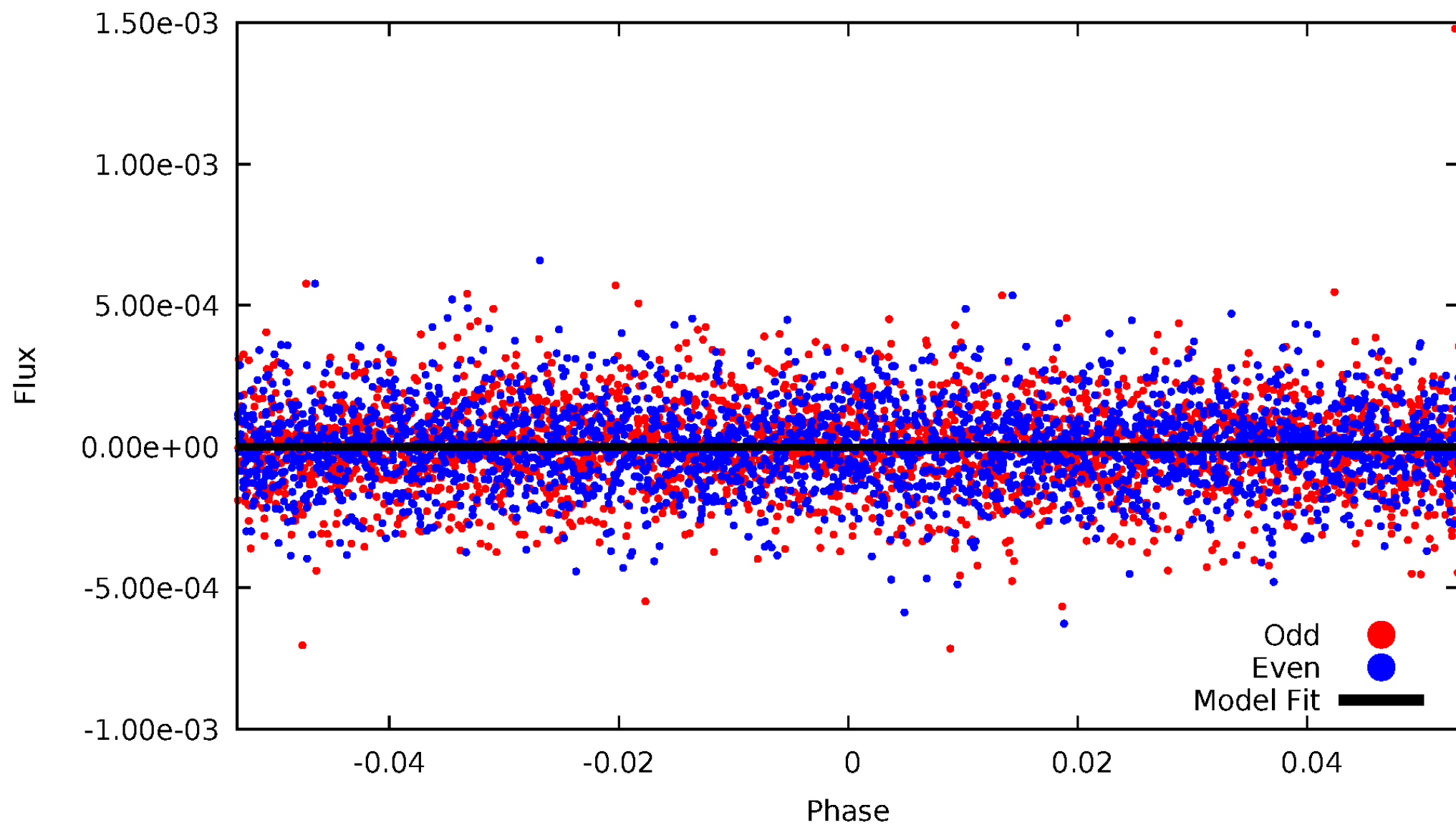


TCE 004270312-01



# DV Odd/Even

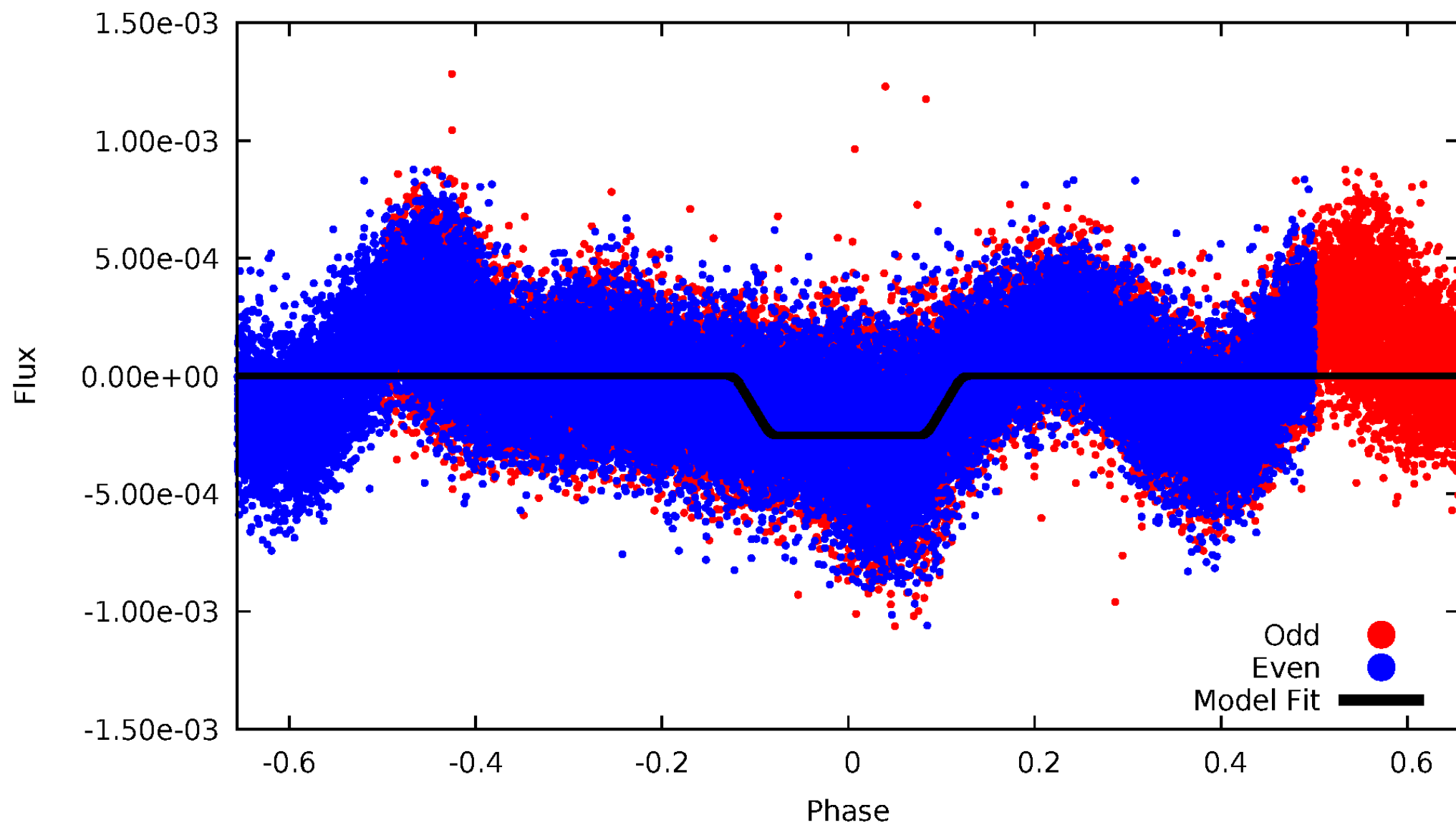
TCE 004270312-01





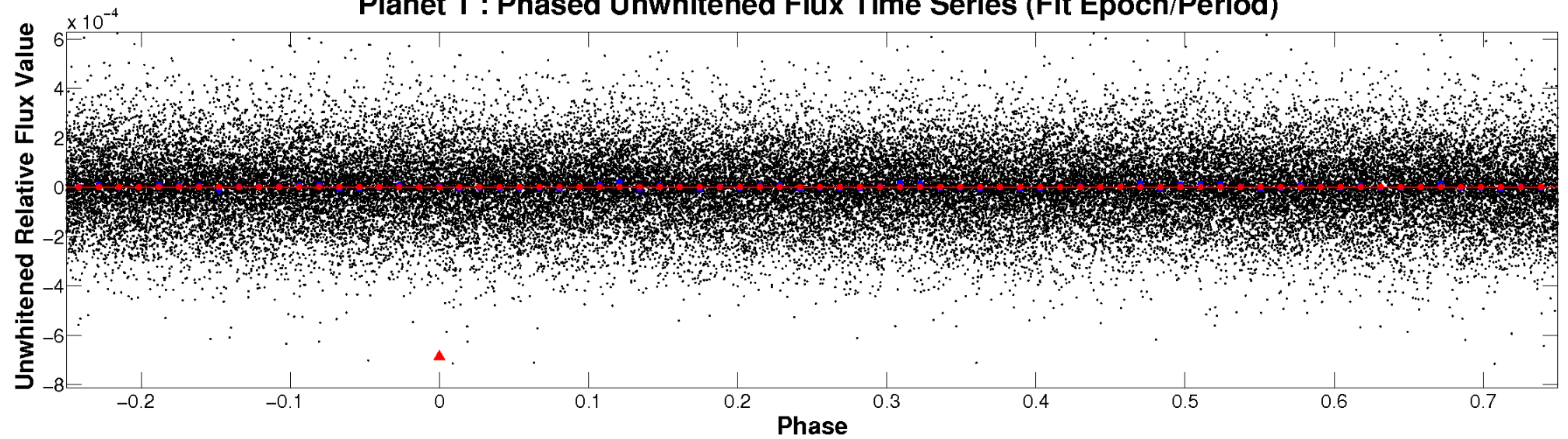
# ALT Odd/Even

TCE 004270312-01

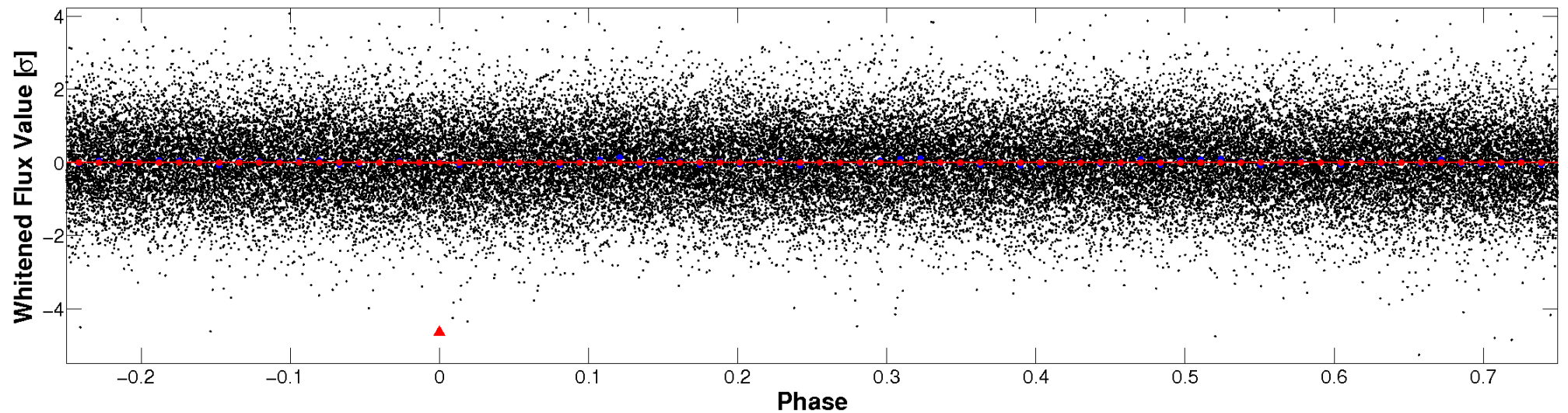


# Non-Whitened Vs. Whitened Light Curve

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

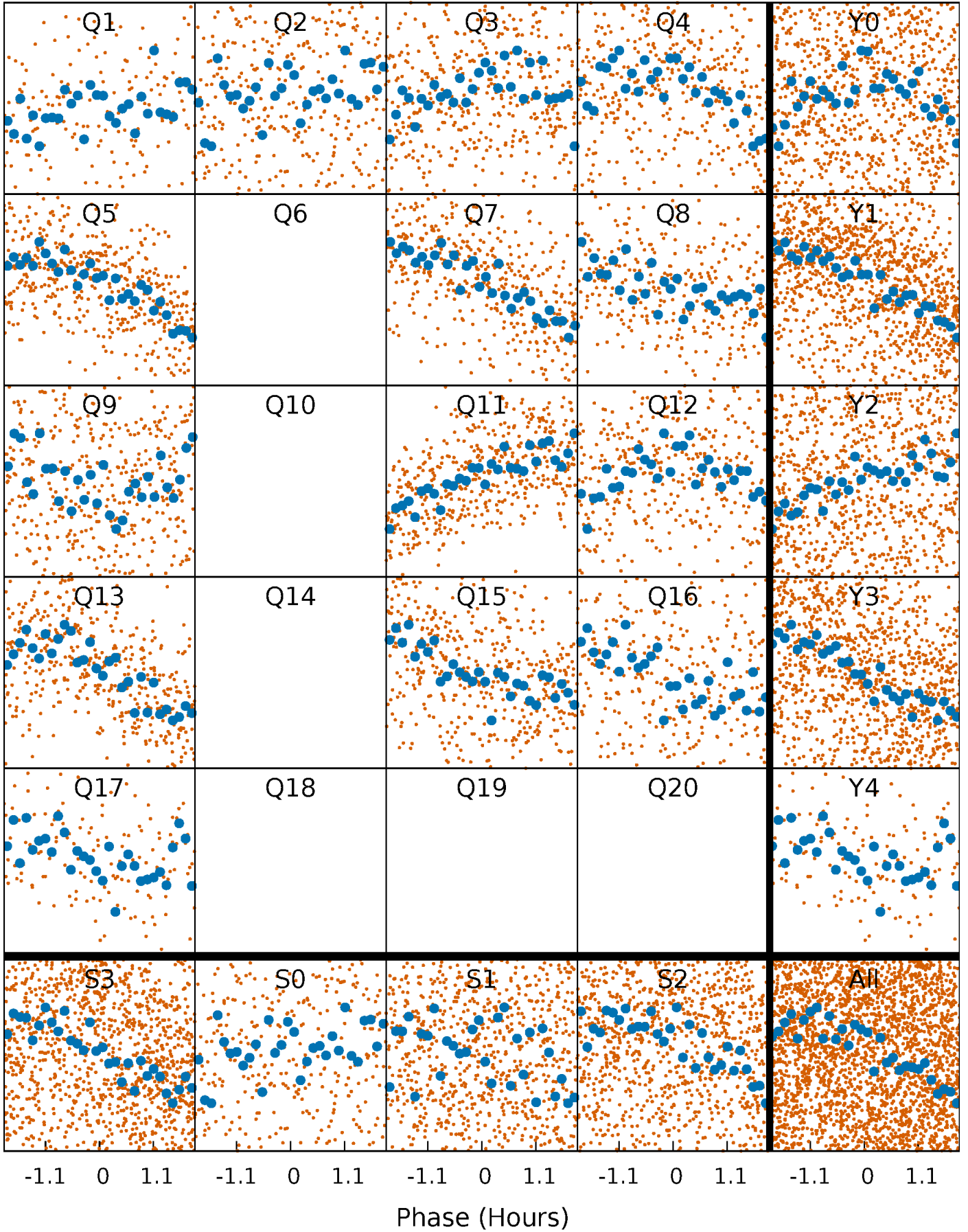


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

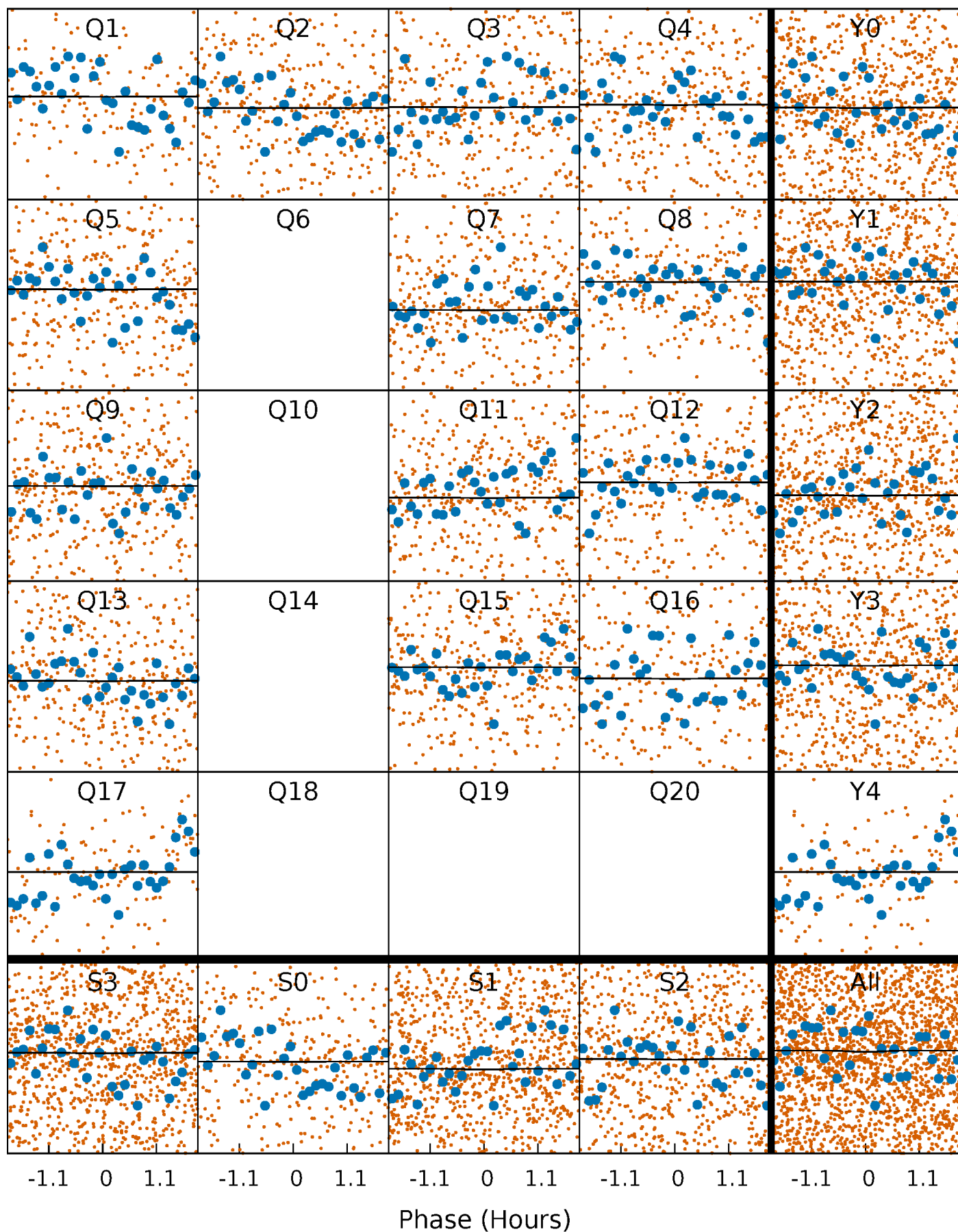
TCE 004270312-01   P= 1.521426 Days    $T_0=132.350963$  (BKJD)





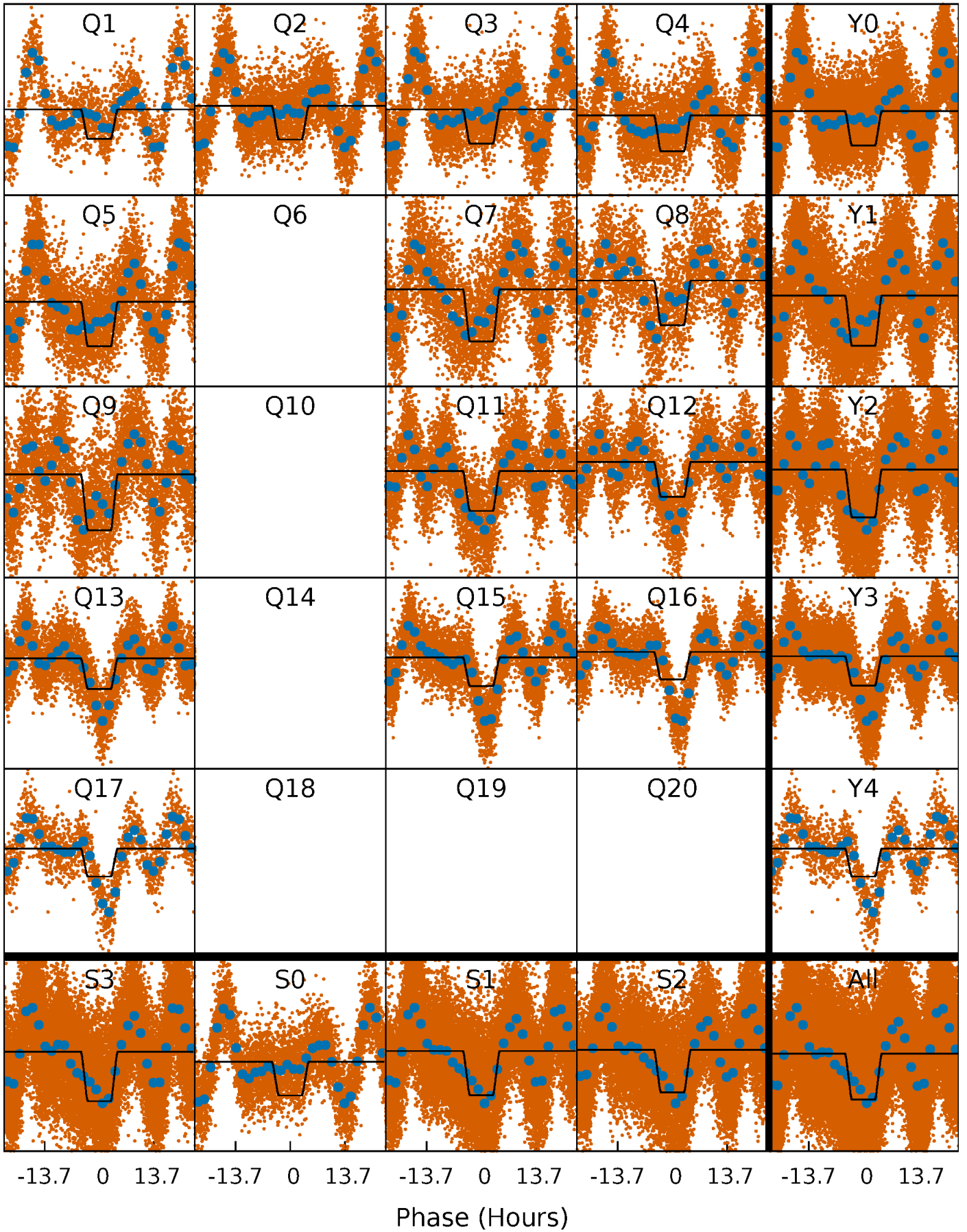
# DV Quarter-Phased Transit Curves

TCE 004270312-01 P= 1.521426 Days  $T_0=132.350963$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

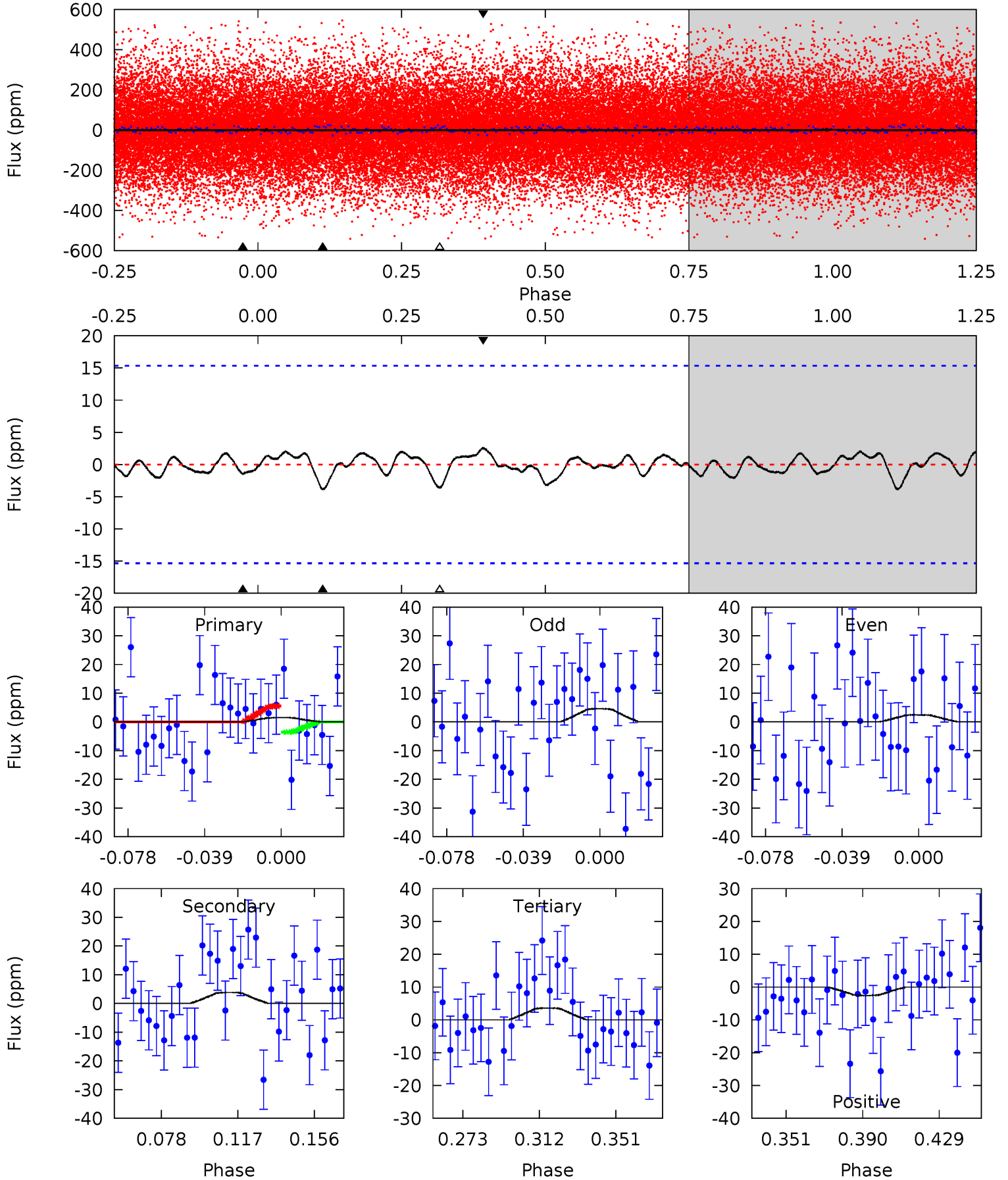
TCE 004270312-01 P= 1.520640 Days  $T_0=132.116772$  (BKJD)



# DV Model-Shift Uniqueness Test

004270312-01, P = 1.521426 Days, E = 130.829537 Days

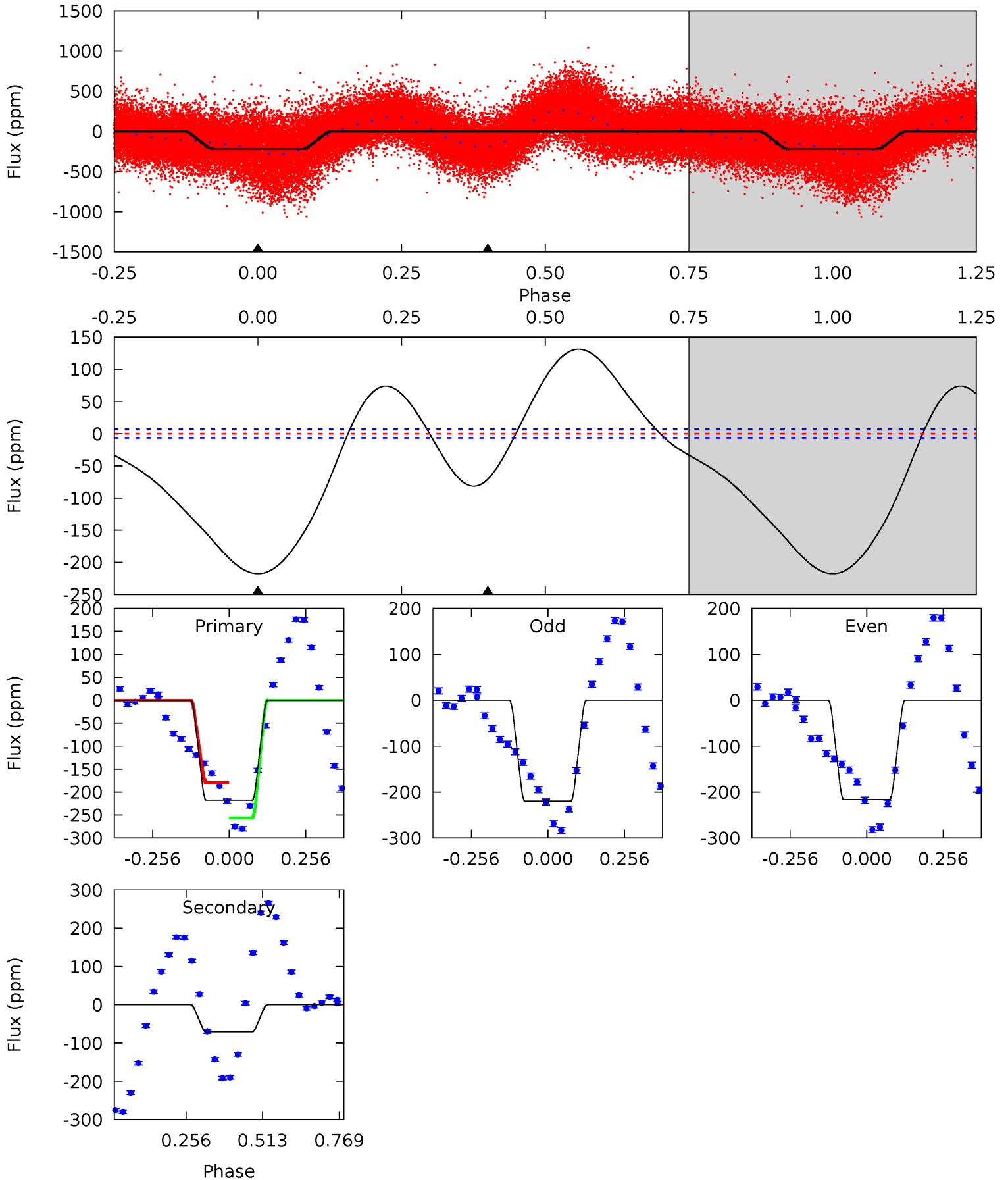
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.46	1.19	1.12	0.80	4.76	2.06	0.39	-0.66	-0.34	0.07	0.39	0.33	-0.89	0.40	0.30



# Alt Model-Shift Uniqueness Test

004270312-01, P = 1.520640 Days, E = 130.596132 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
142.8	46.3	0	0	4.36	1.14	17.0	142.8	142.8	46.3	46.3	1.20	1.17	0.38	21.0



### Stellar Parameters For KIC 004270312

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6700^{+180}_{-200}$	$3.480^{+0.344}_{-0.086}$	$-0.100^{+0.300}_{-0.250}$	$4.146^{+0.404}_{-1.516}$	$1.893^{+0.187}_{-0.347}$	$0.037^{+0.092}_{-0.010}$
	+3%/-3%	+10%/-2%	+300%/-250%	+10%/-37%	+10%/-18%	+246%/-27%
Source	PHO1	FLK73	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 004270312-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-4\pm3$	$12.82^{+14.80}_{-8.86}$	$4613^{+253}_{-441}$	$-3983^{+484}_{-204}$	$0.009^{+0.114}_{-0.009}$
Alt.	$-71\pm2$	$14.67^{+16.70}_{-10.48}$	$4635^{+257}_{-403}$	$-3369^{+9313}_{-650}$	$0.188^{+1.968}_{-0.146}$

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



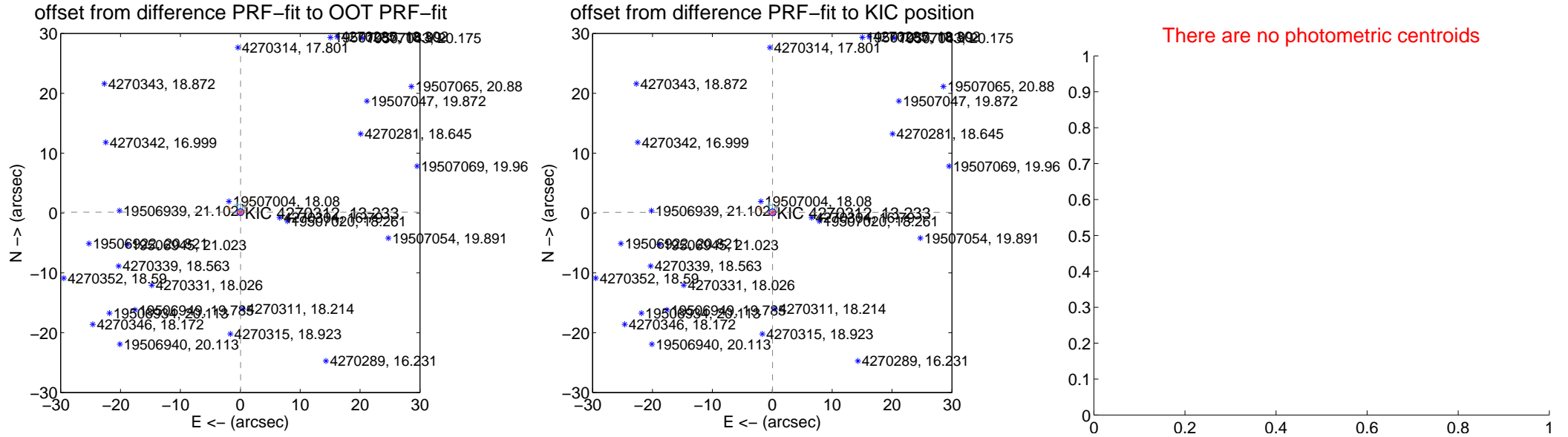
## DV Centroid Data

Supplemental centroid analysis for 004270312-01. Kepler magnitude: 13.23. Transit SNR 0.11

There are 5 quarters with good PRF difference image offsets

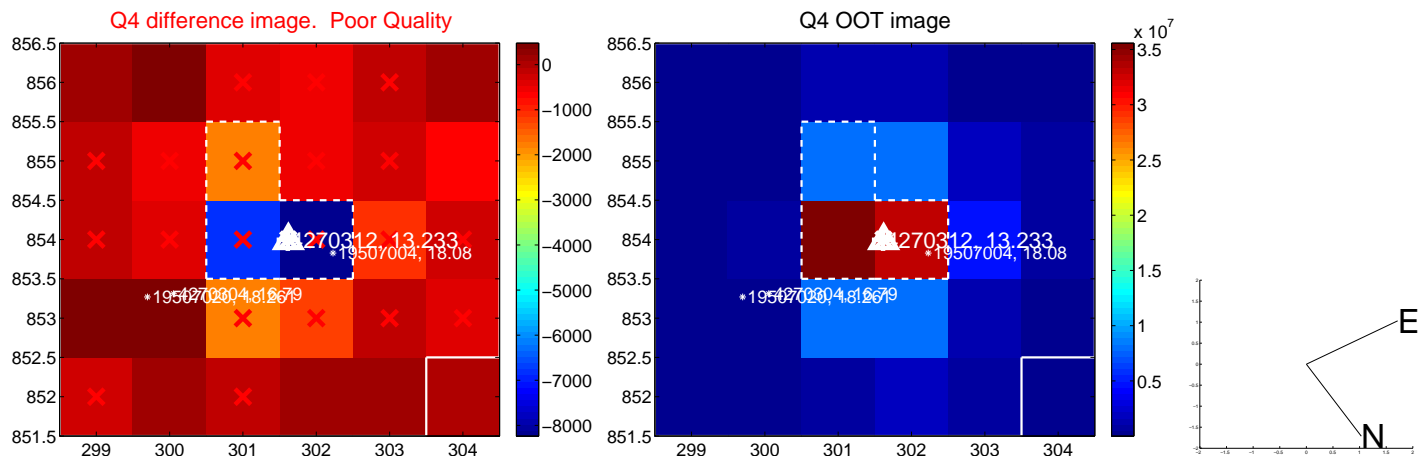
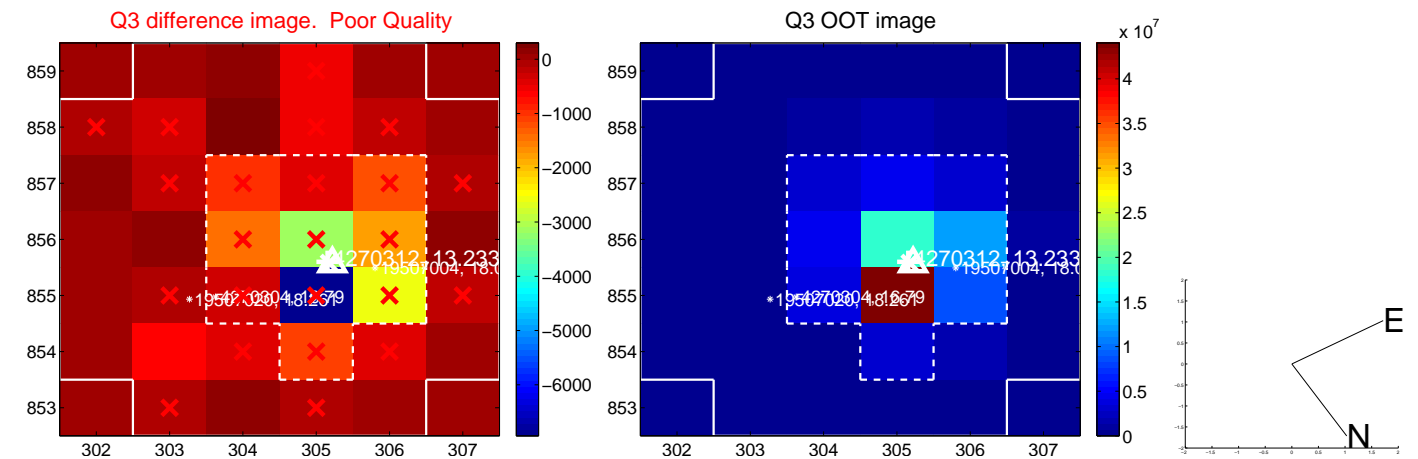
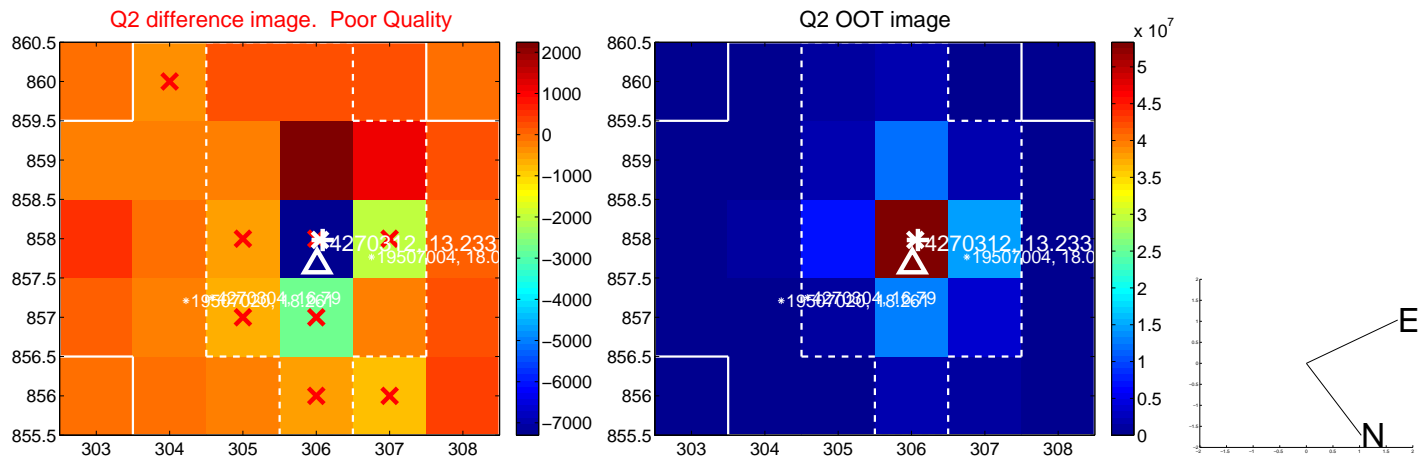
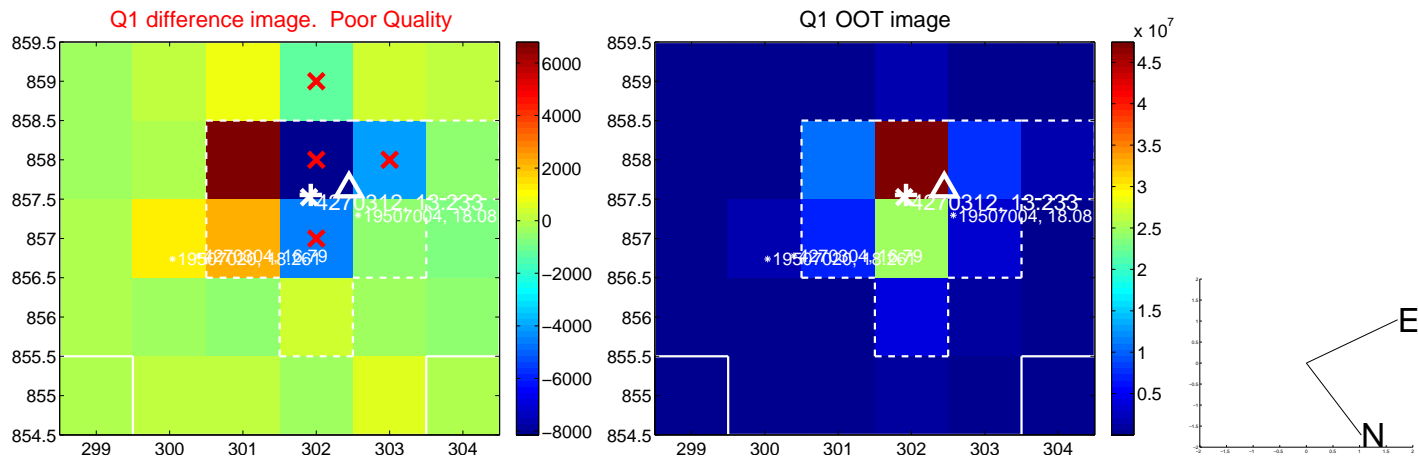
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.147 \pm 0.188$	0.78	$-0.048 \pm 0.206$	$0.139 \pm 0.171$
PRF-fit source offset from KIC position	$0.117 \pm 0.189$	0.62	$-0.045 \pm 0.197$	$0.107 \pm 0.172$
photometric centroid source offset	—	—	—	—

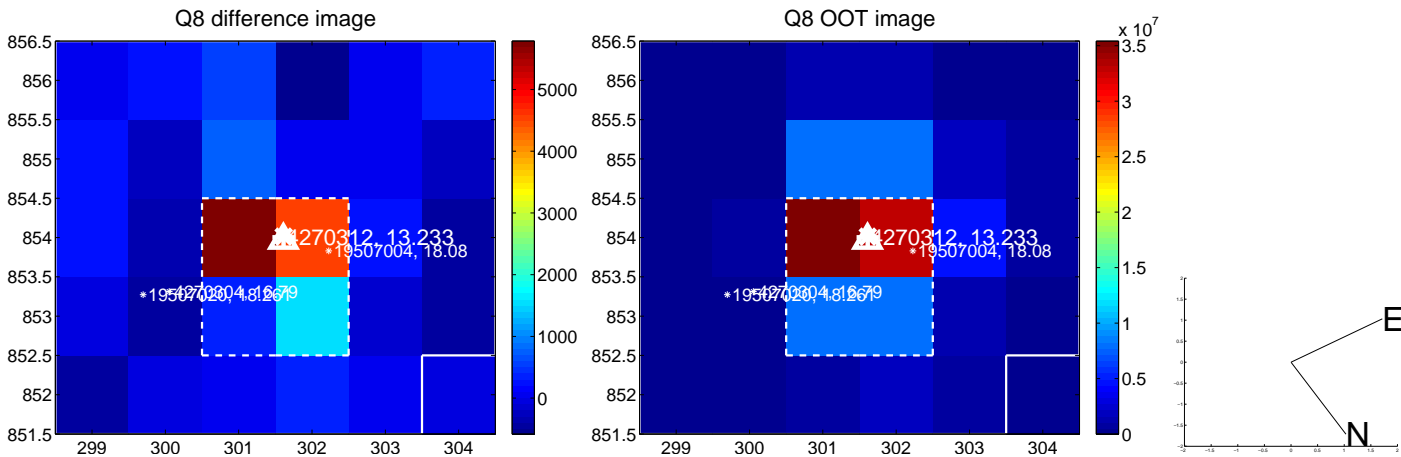
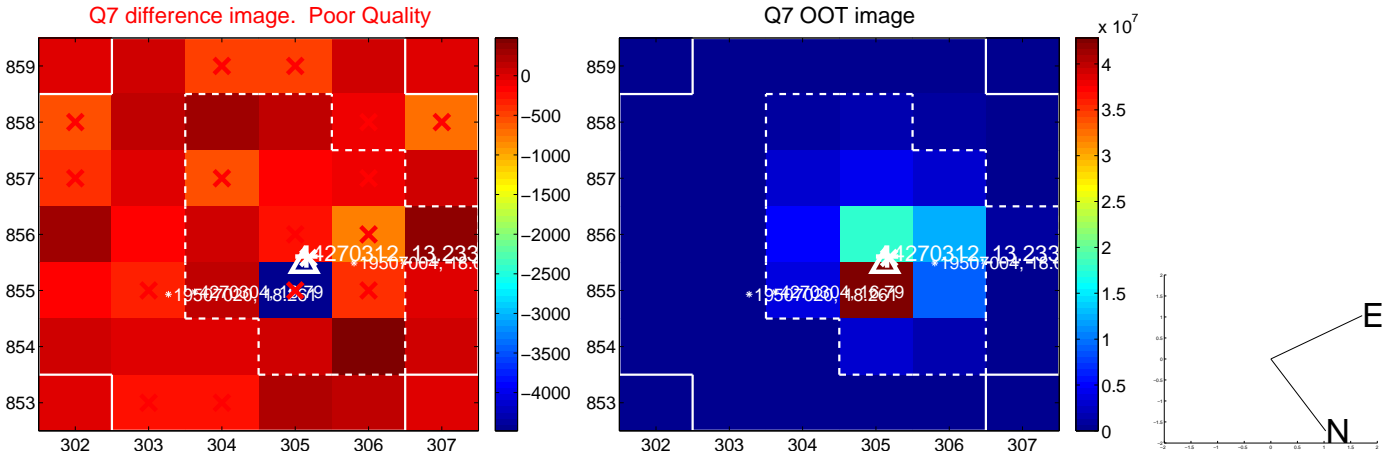
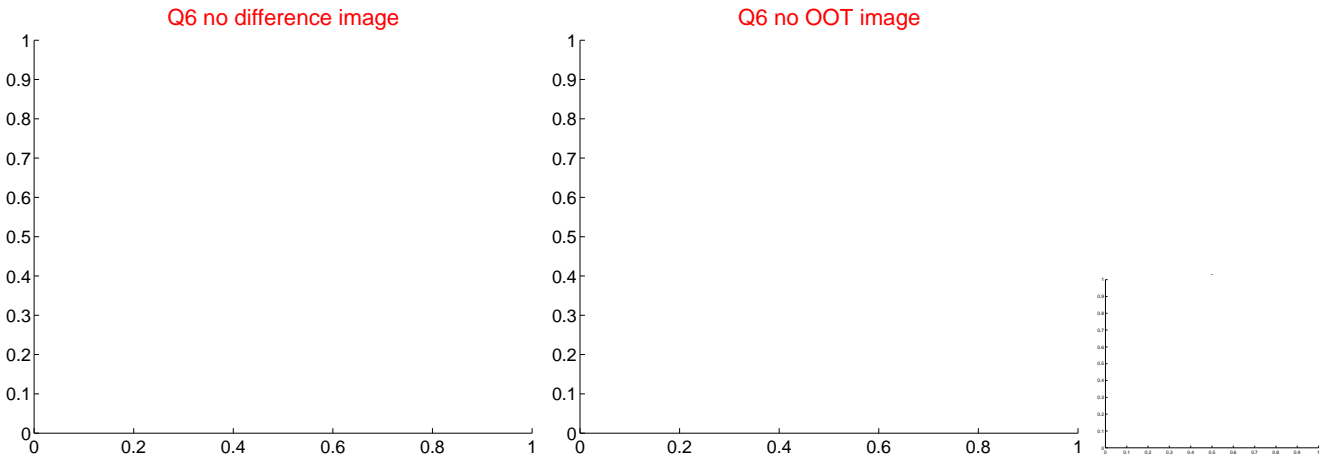
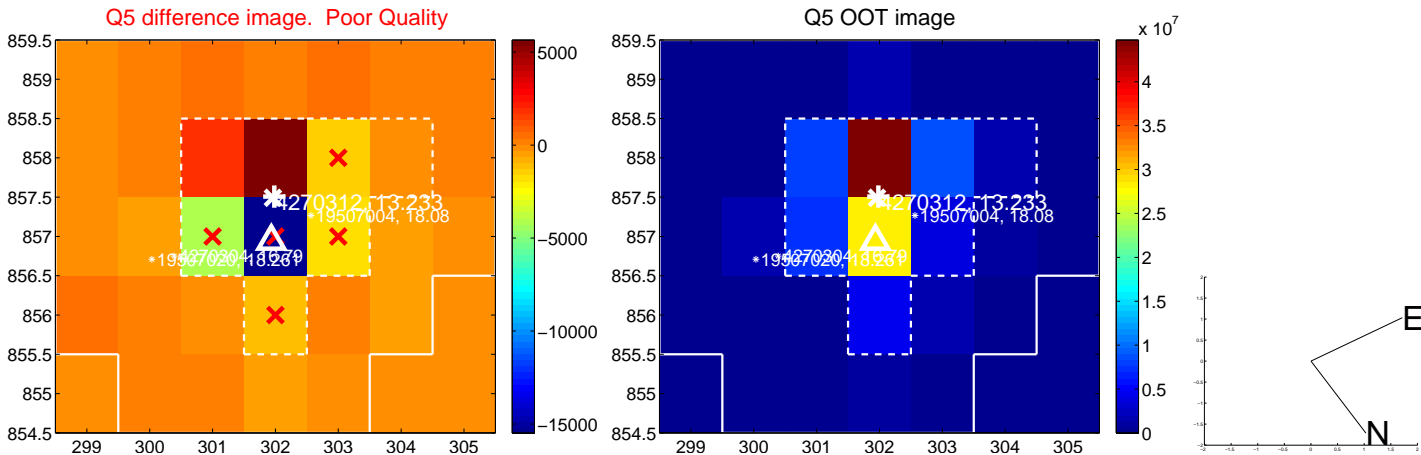


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

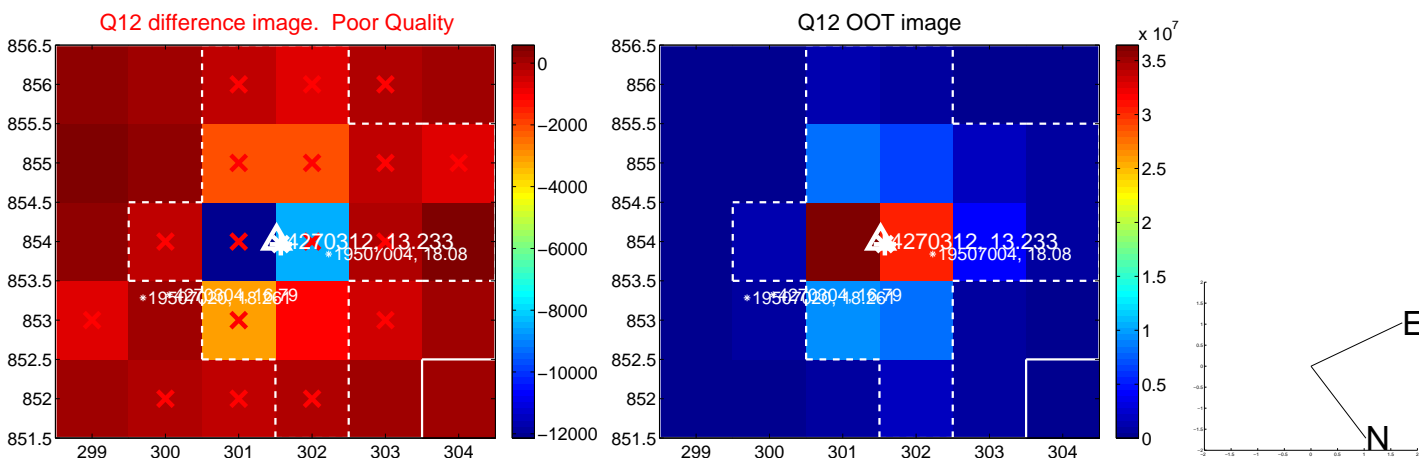
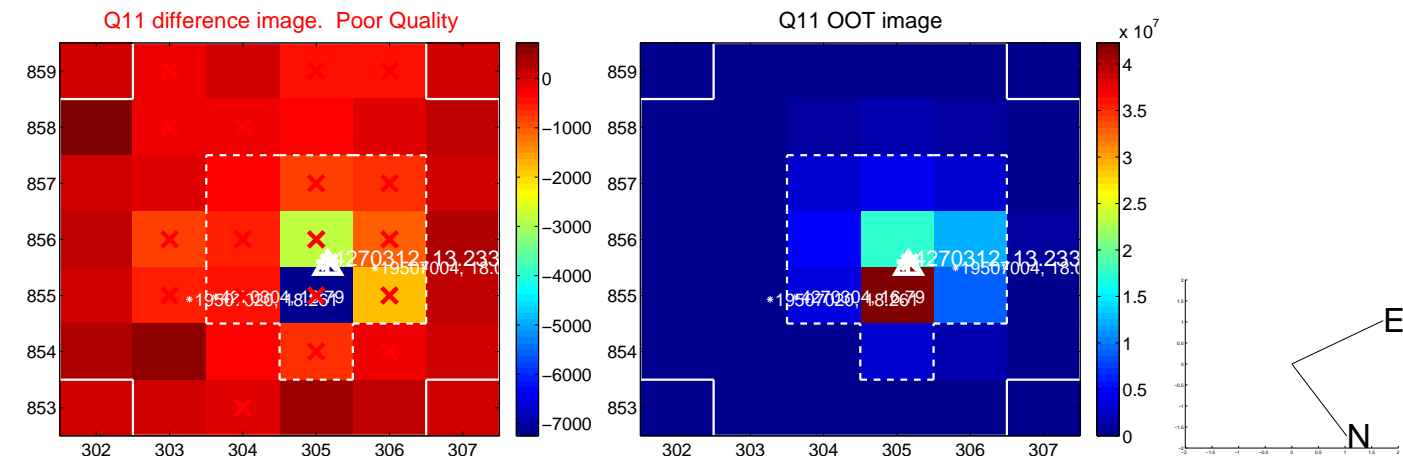
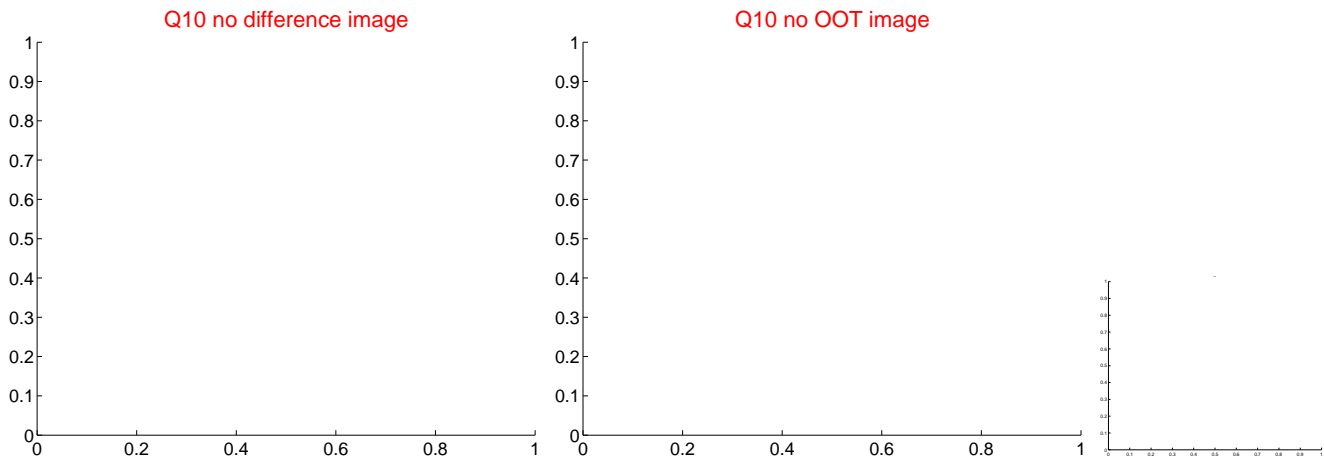
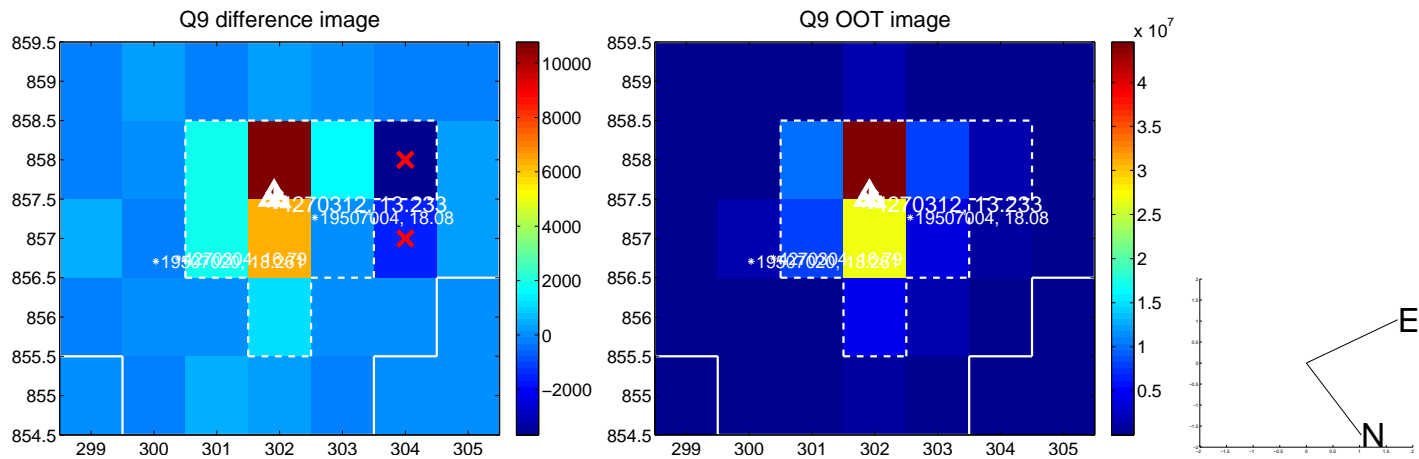
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



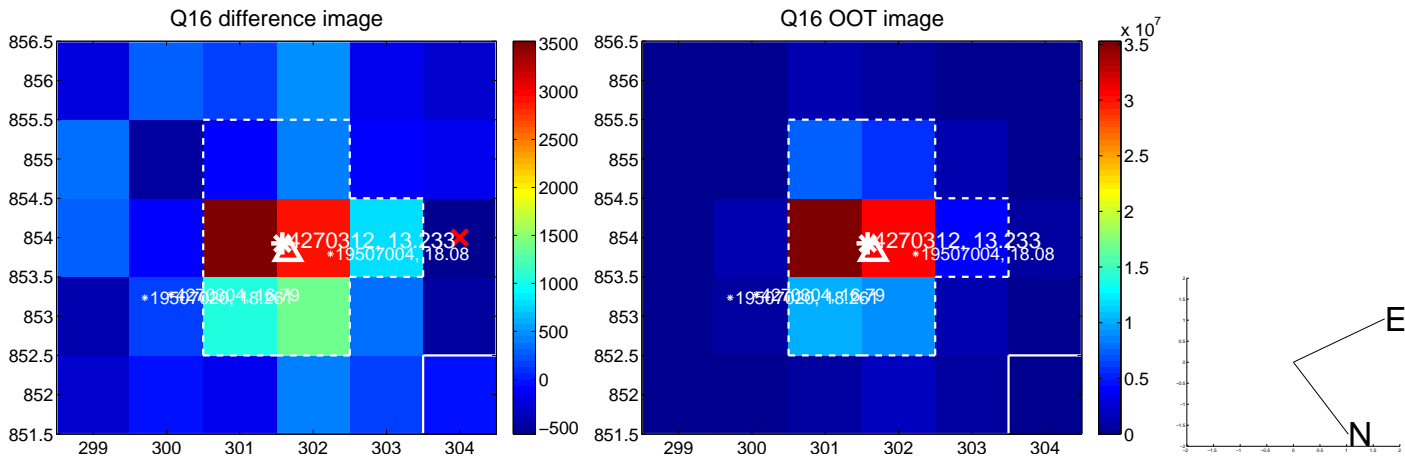
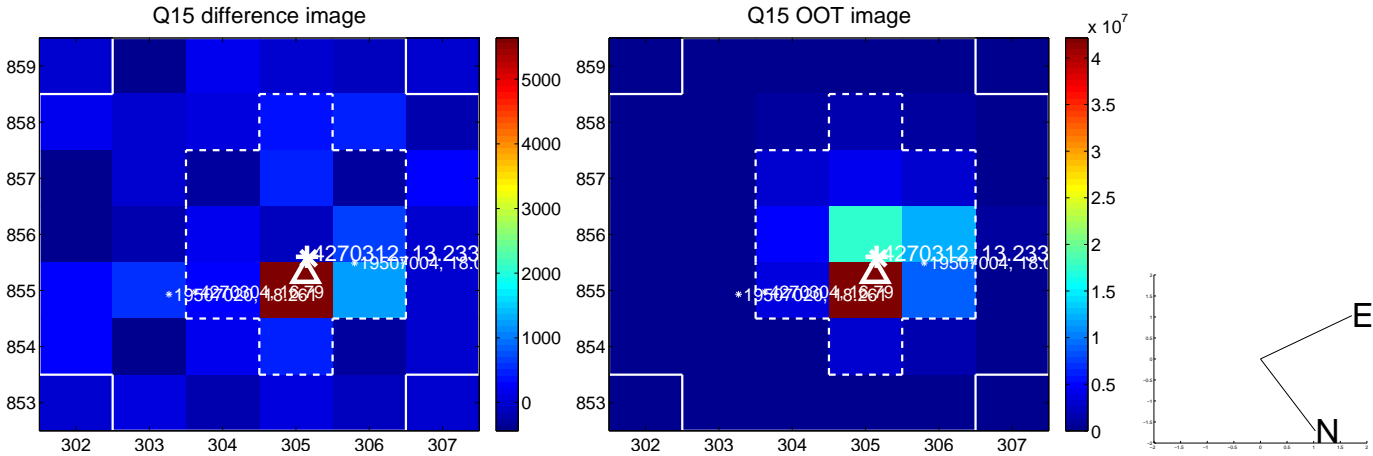
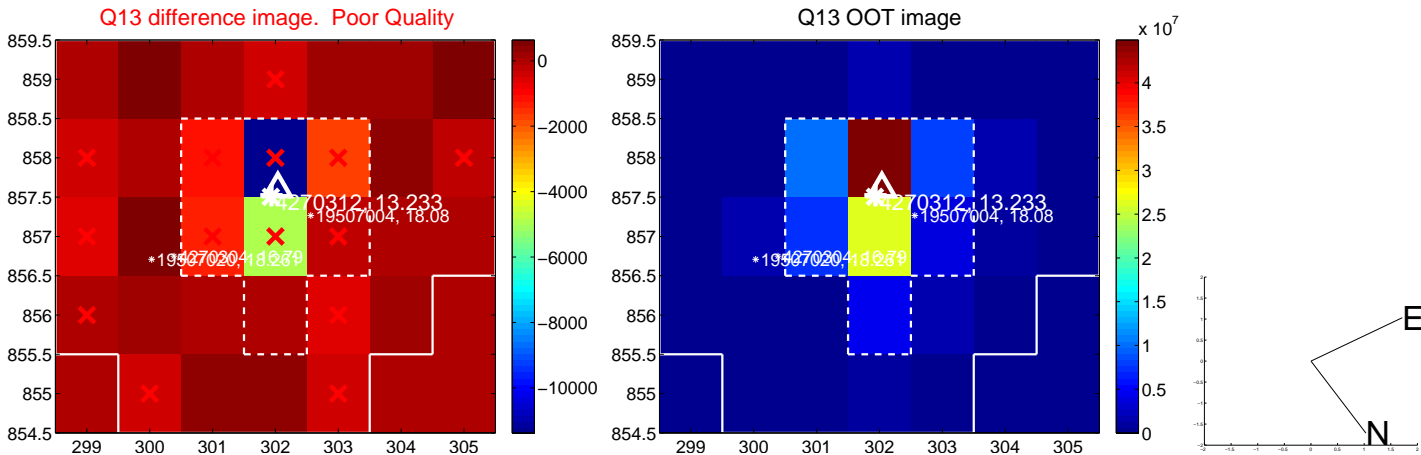
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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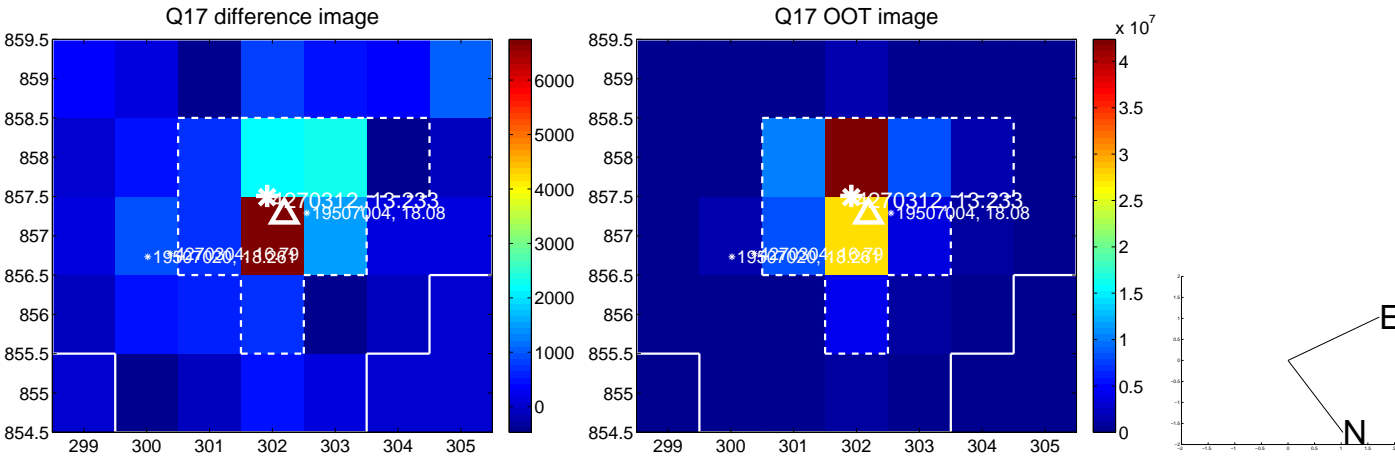


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



folded centroid time series figure for this object.

UKIRT Image

Declination

