

# KIC 009305574

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009305574-01	OBS	No	0.500505	131.752794	22.1	1.313	8.4	8.5	2.59	7903	1.42	99857.90

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009305574-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

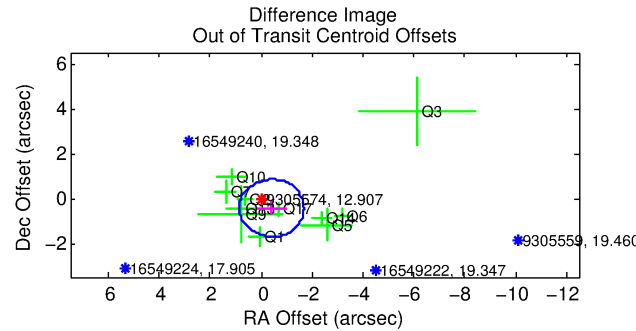
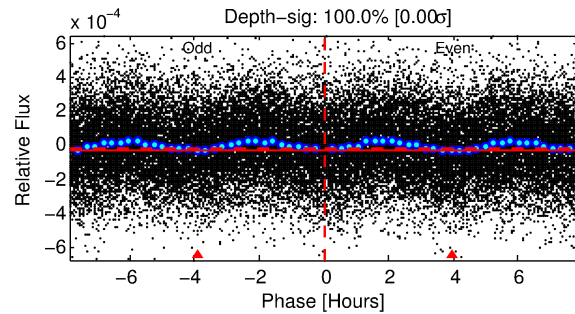
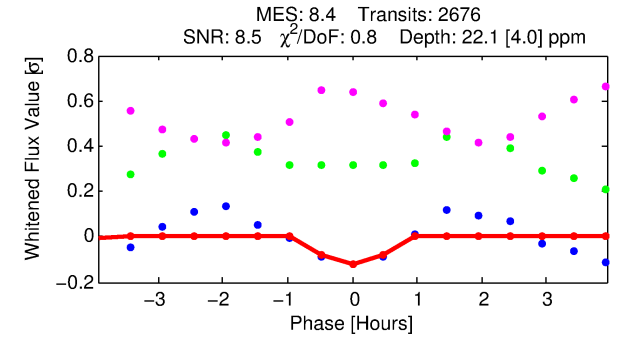
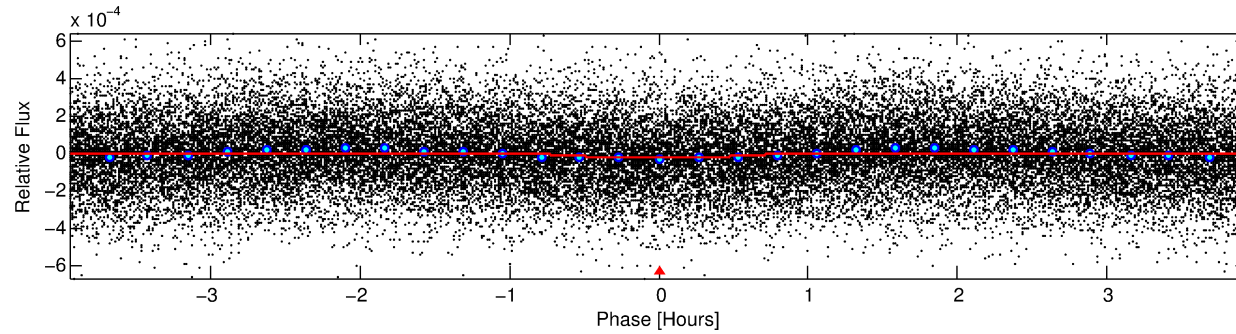
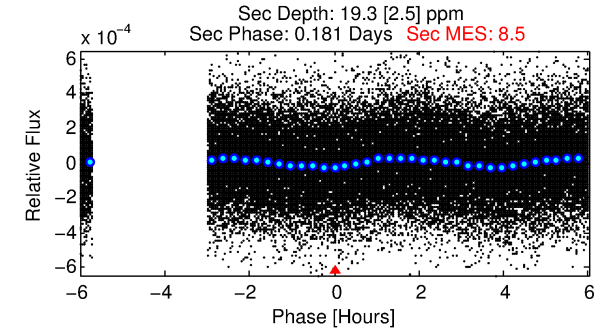
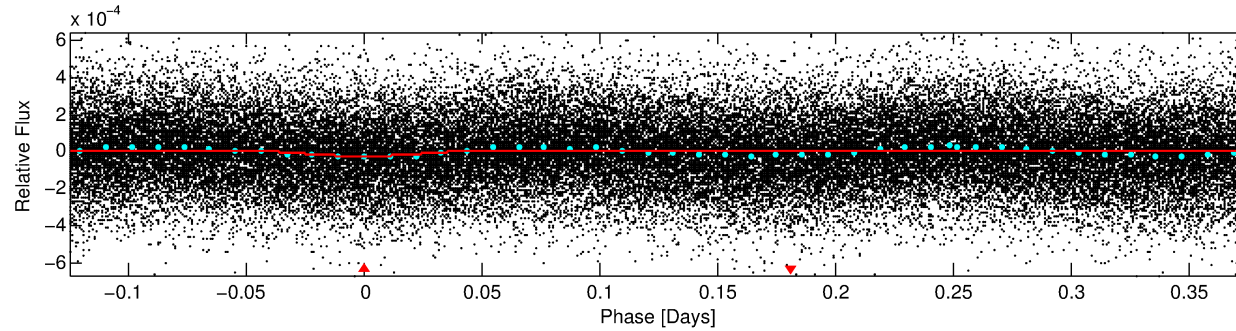
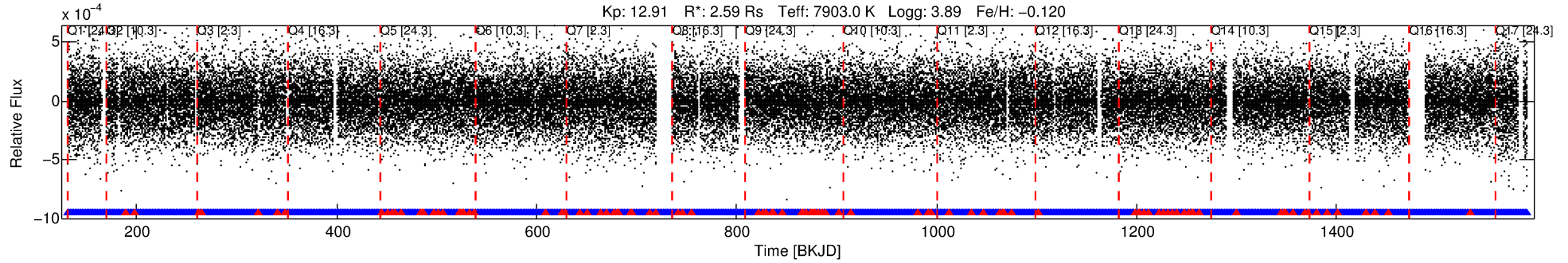
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009305574-01

No Significant Match Found

# DV One-Page Summary

KIC: 9305574 Candidate: 1 of 1 Period: 0.501 d



## DV Fit Results:

Period = 0.50050 [0.00001] d  
Epoch = 131.7528 [0.0024] BKJD  
Rp/R\* = 0.0050 [0.0012]  
a/R\* = 1.60 [1.37]  
b = 0.90 [0.30]  
Seff = 99857.90 [53085.55]  
Teq = 4533 [602] K  
Rp = 1.42 [0.63] Re  
a = 0.0153 [0.0051] AU  
Ag = 1.24 [0.88] [0.27σ]  
Teffp = 7395 [961] K [2.52σ]

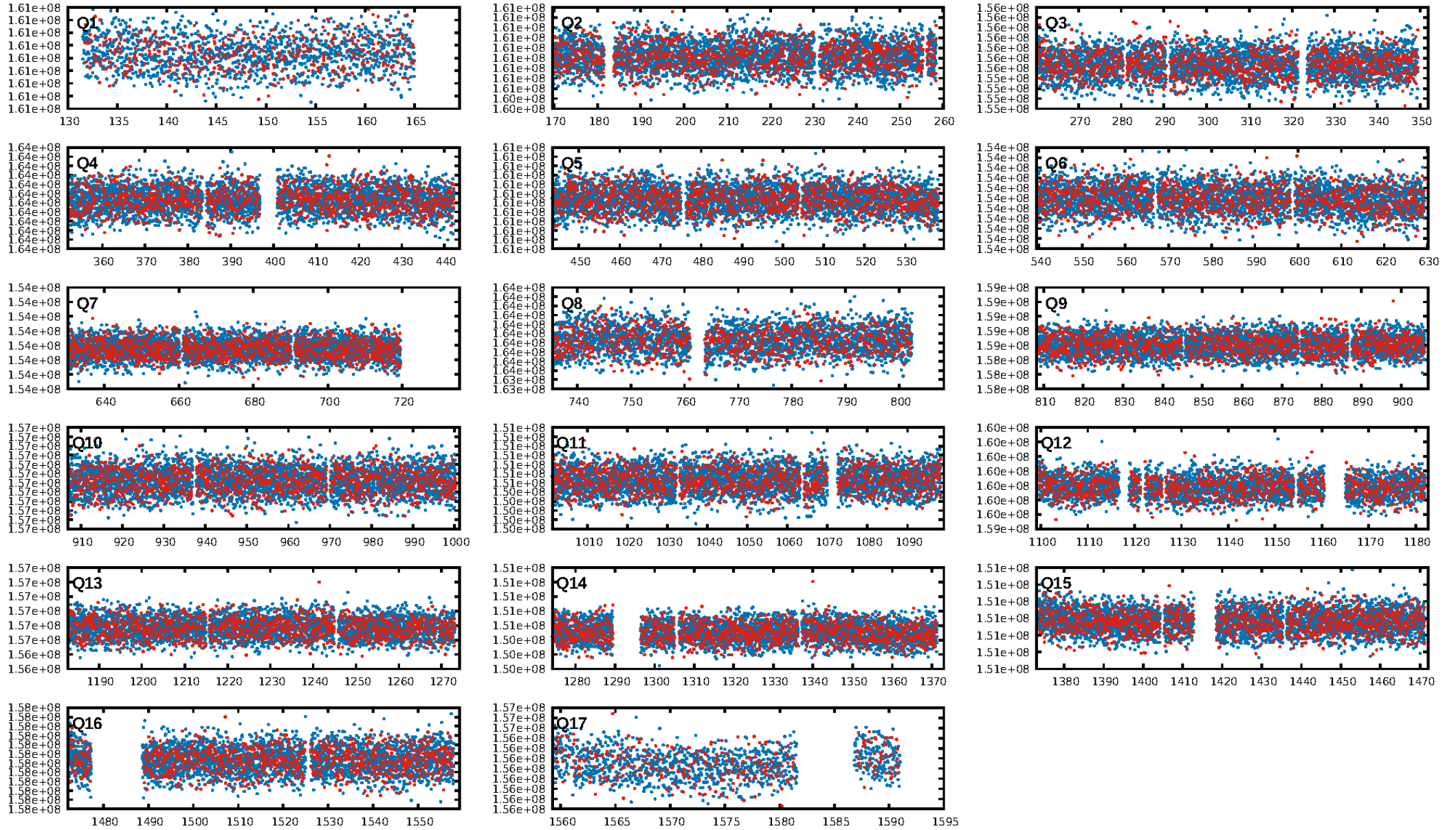
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.68e-14  
RollingBand-fgt: 0.96 [2446/2557]  
GhostDiagnostic-chr: -4.448  
Centroid-sig: 30.8%  
Centroid-so: 1.600 arcsec [1.17σ]  
OotOffset-rm: 0.600 arcsec [1.41σ]  
KicOffset-rm: 0.762 arcsec [1.57σ]  
OotOffset-st: 4/2/0/5 [11]  
KicOffset-st: 4/2/0/5 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:37:39 Z

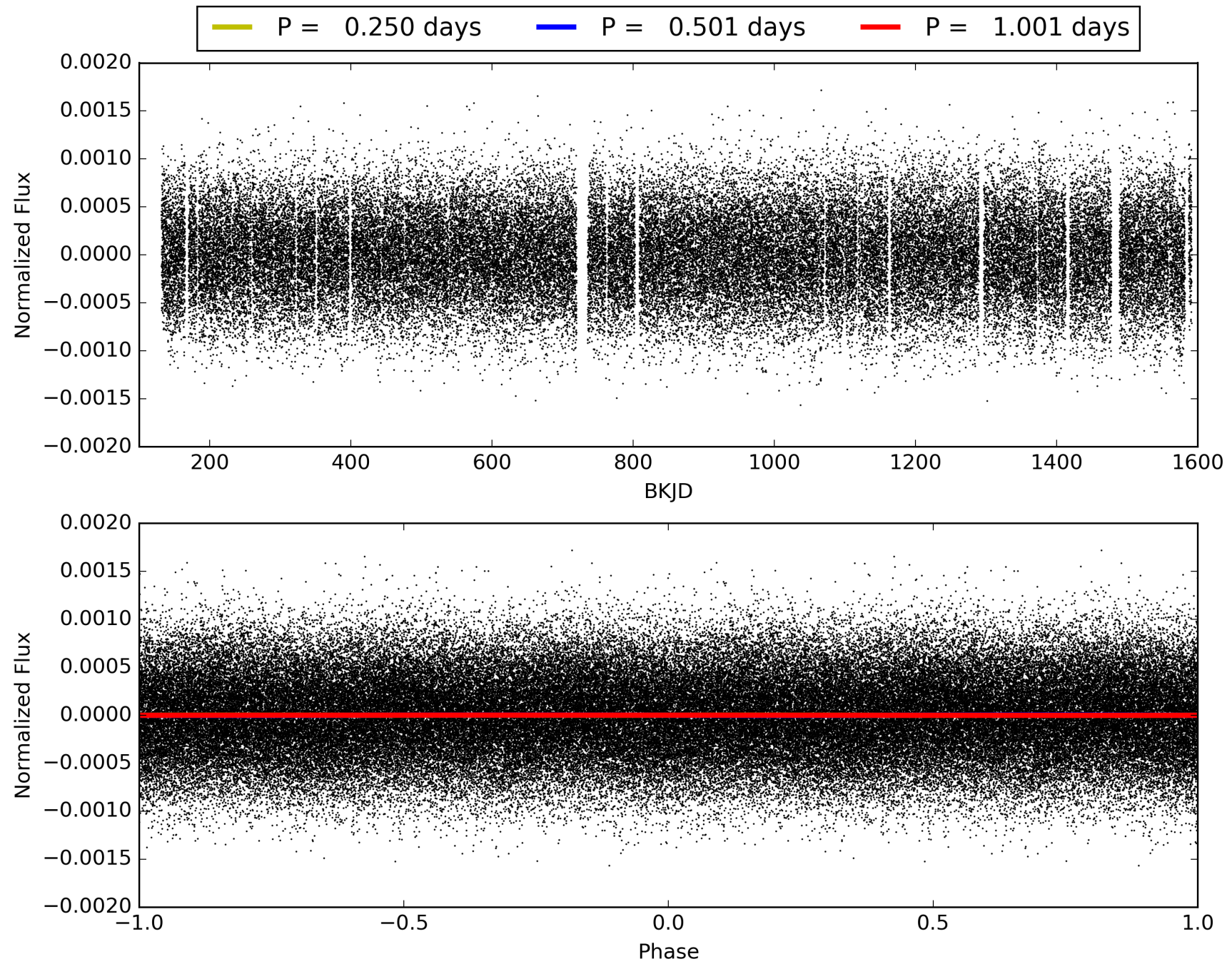
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009305574-01, PDC Light Curves



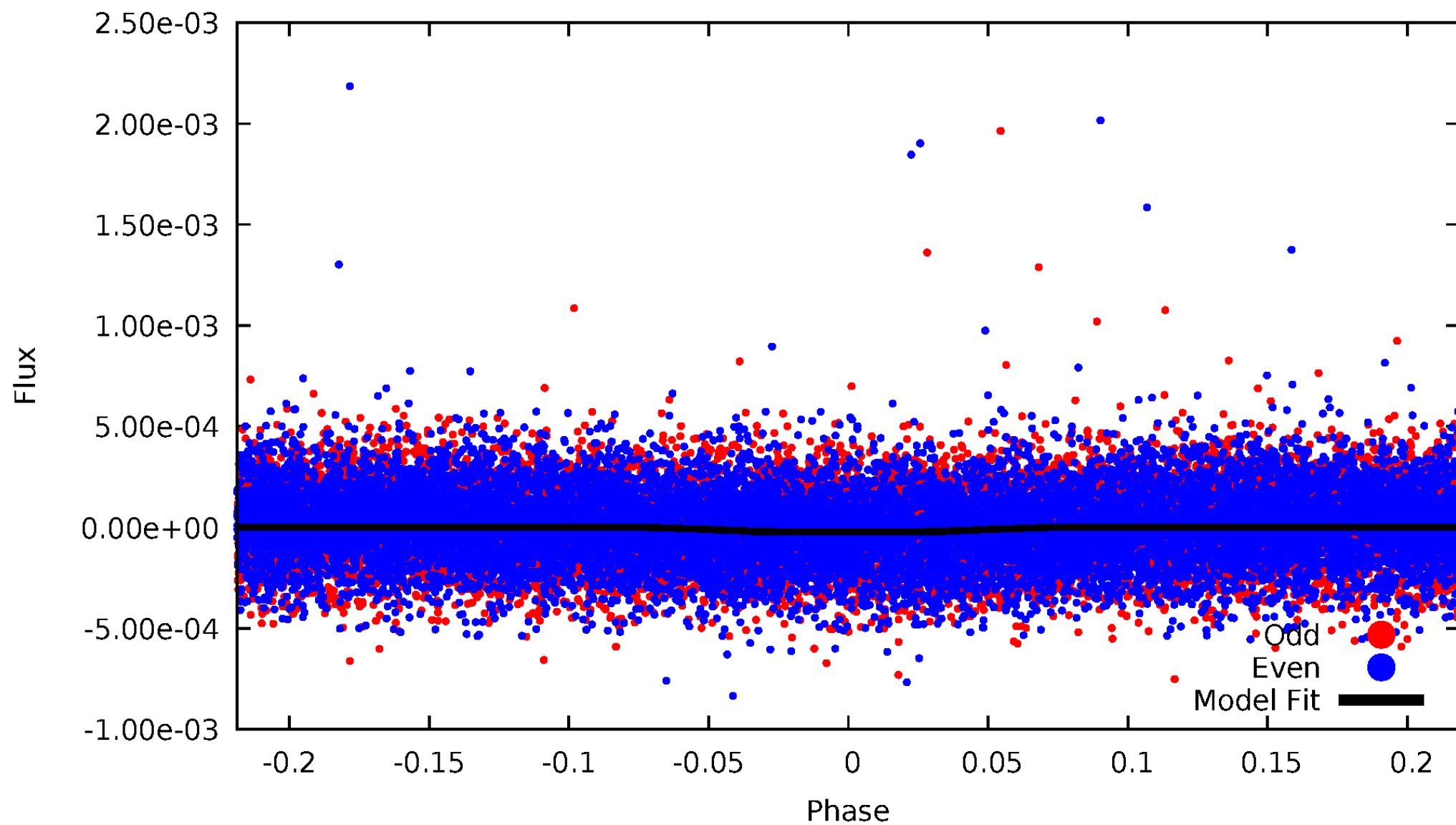


TCE 009305574-01



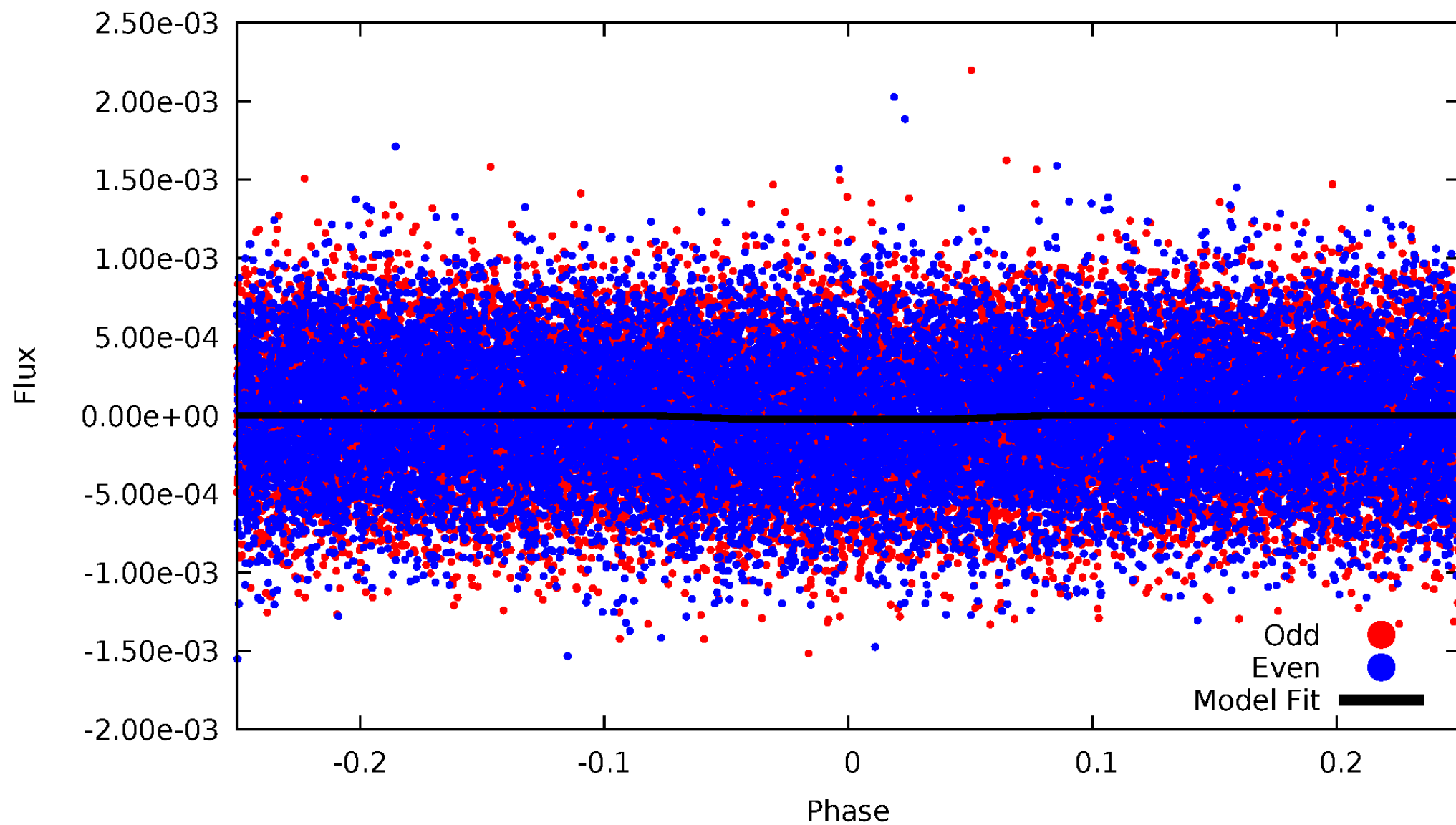
# DV Odd/Even

TCE 009305574-01

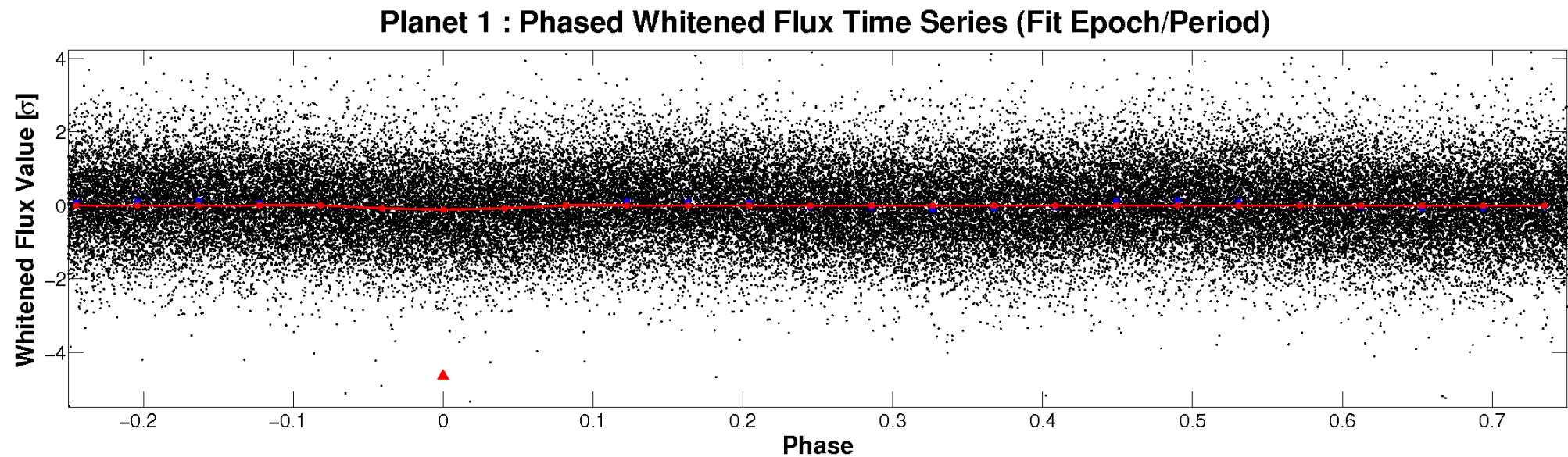
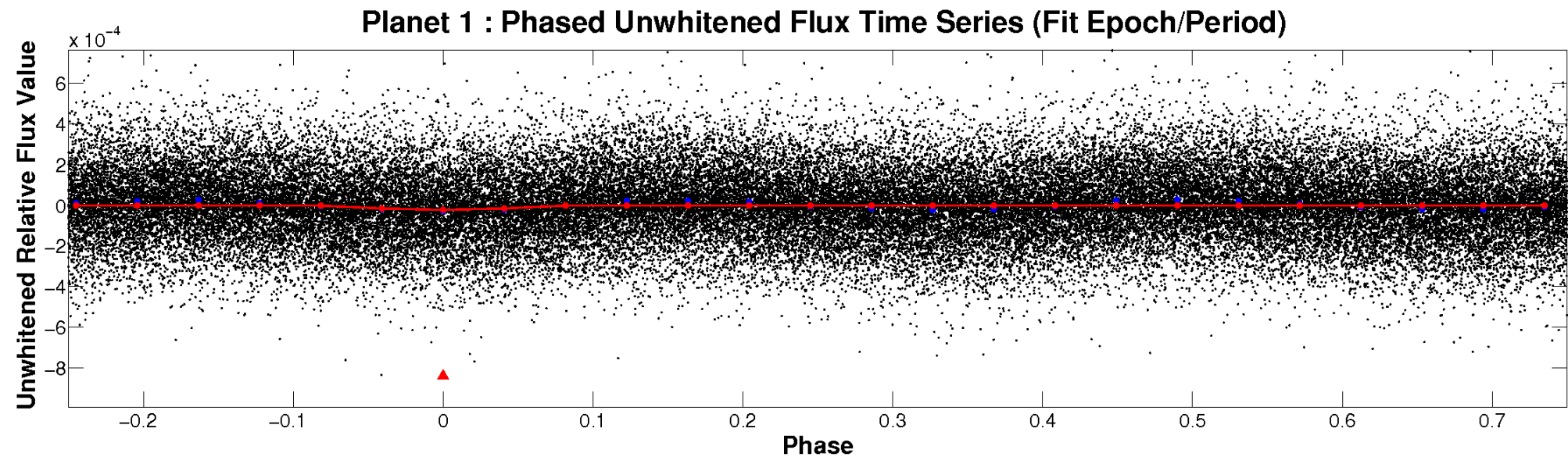


# ALT Odd/Even

TCE 009305574-01



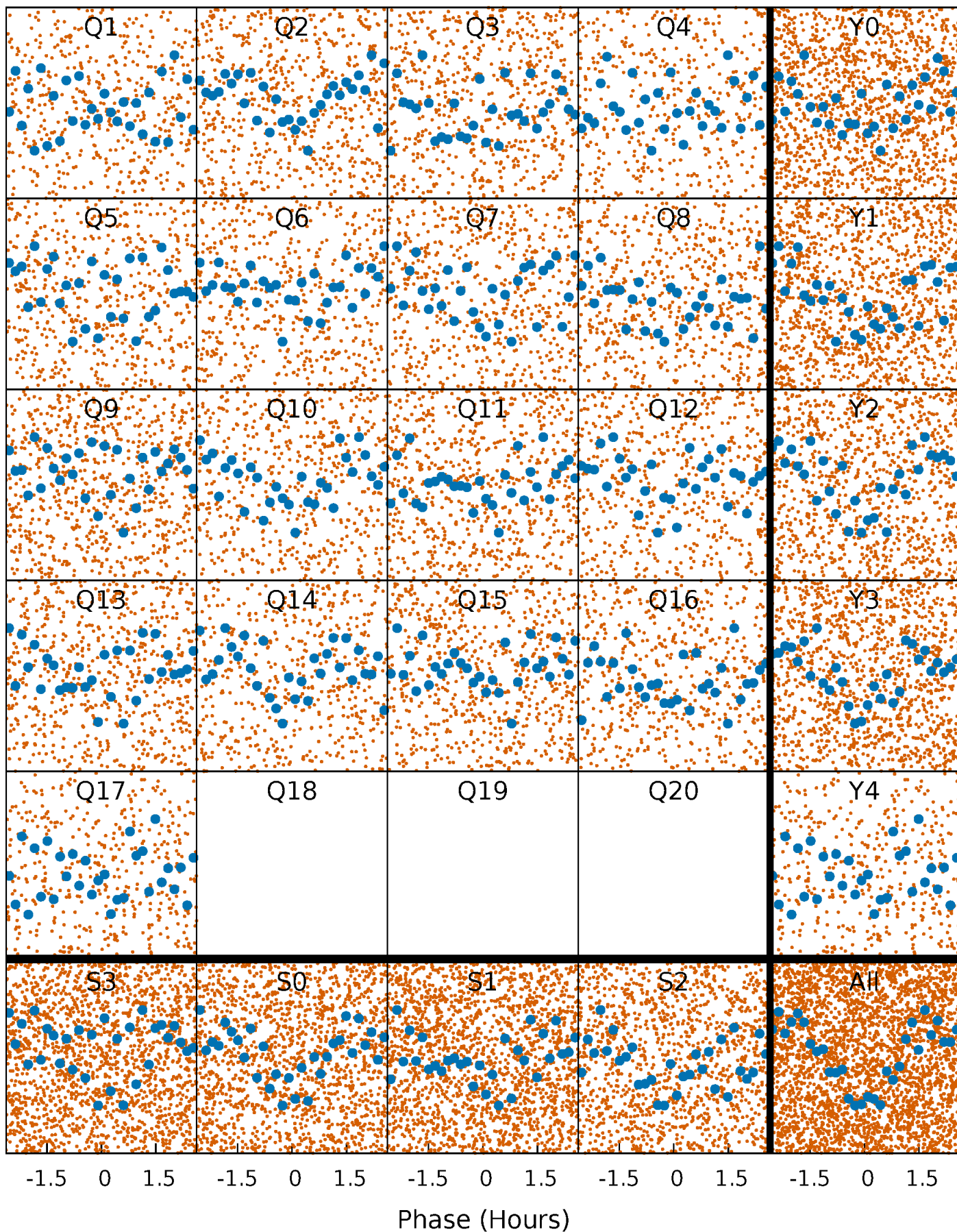
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

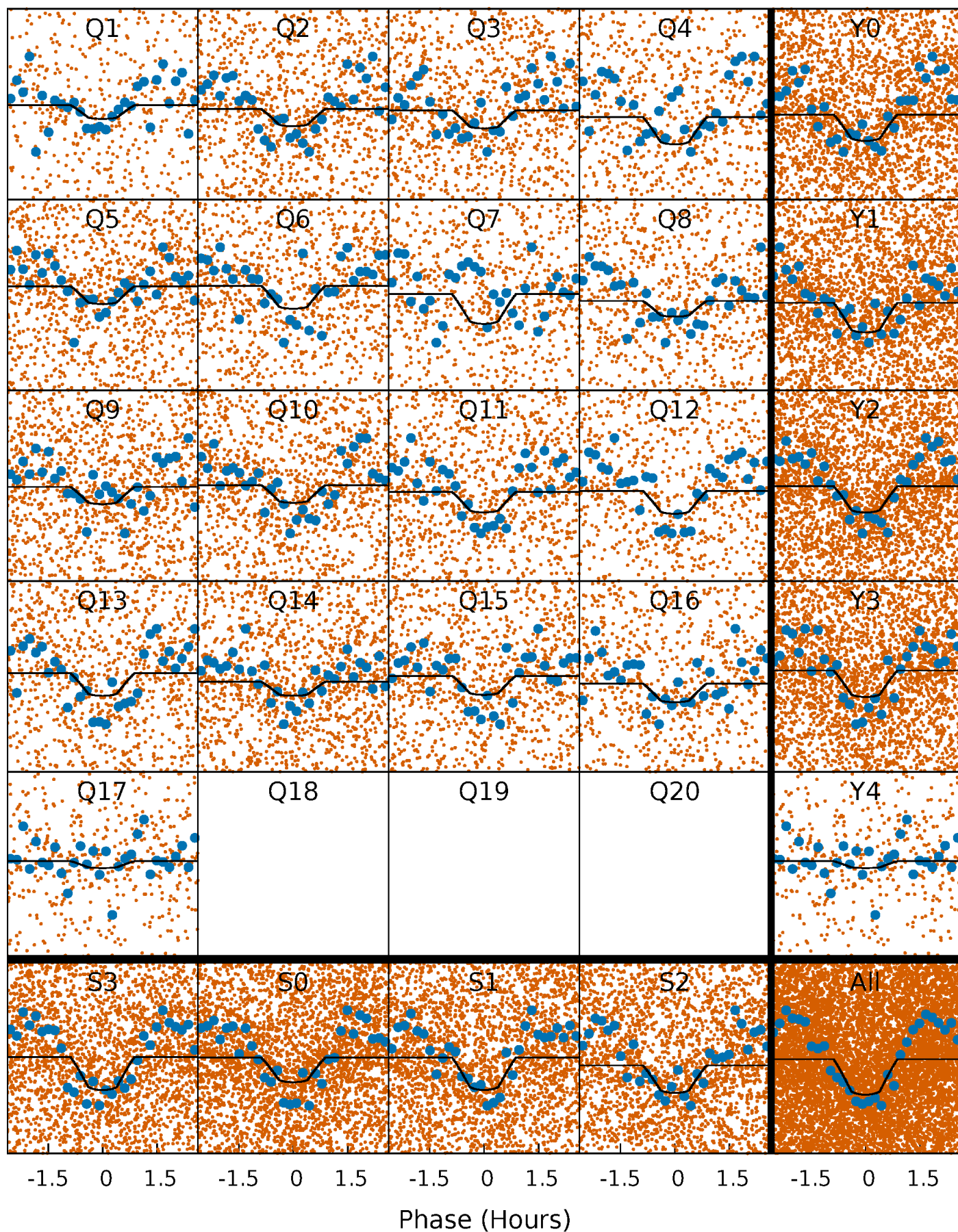
TCE 009305574-01 P= 0.500505 Days  $T_0=131.752794$  (BKJD)





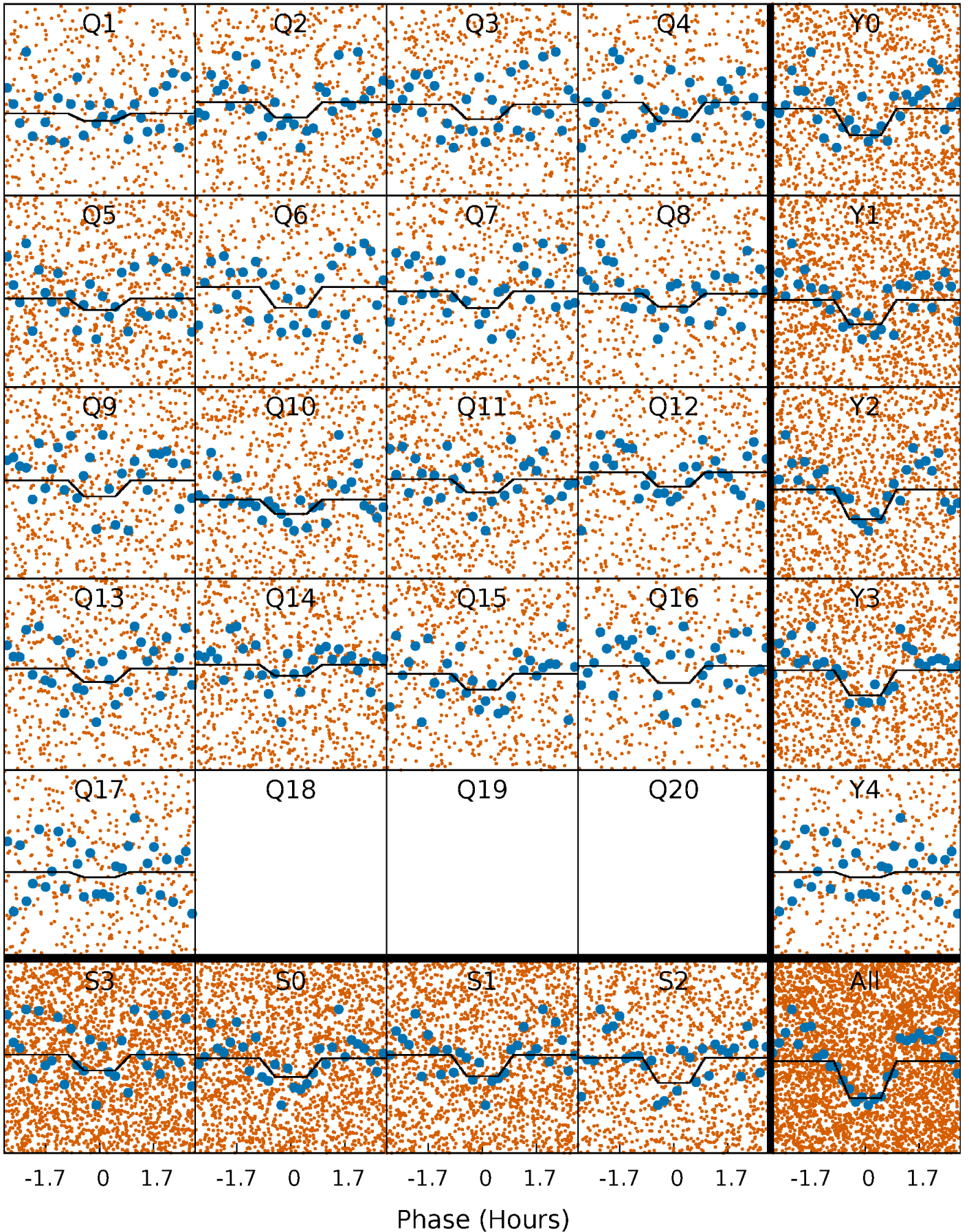
# DV Quarter-Phased Transit Curves

TCE 009305574-01 P= 0.500505 Days  $T_0=131.752794$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

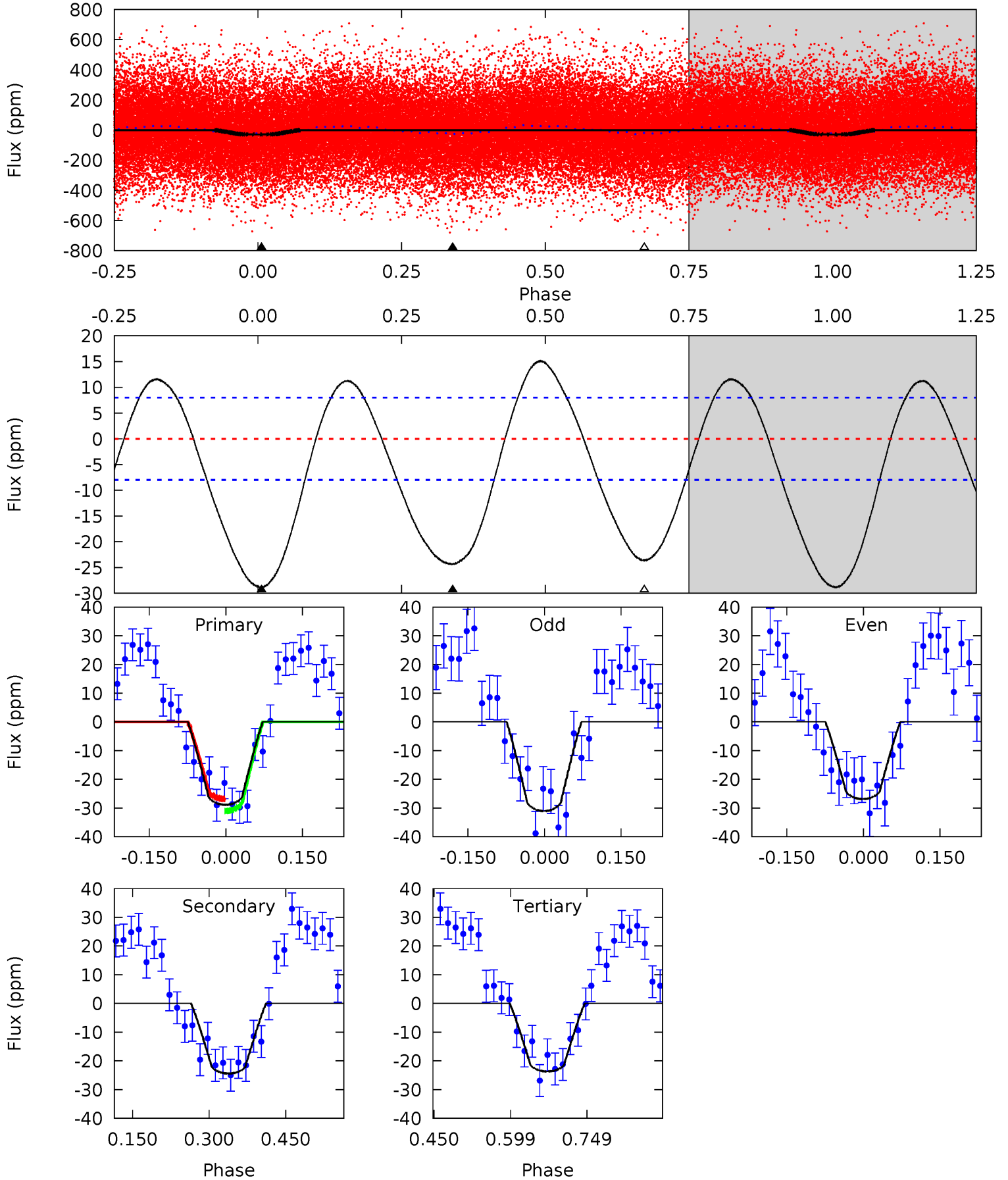
TCE 009305574-01 P= 0.500505 Days  $T_0=131.752780$  (BKJD)



# DV Model-Shift Uniqueness Test

009305574-01, P = 0.500505 Days, E = 131.252289 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
16.2	13.7	13.2	0	4.48	1.44	7.35	2.92	16.2	0.41	13.7	1.18	0.86	0.34	1.19

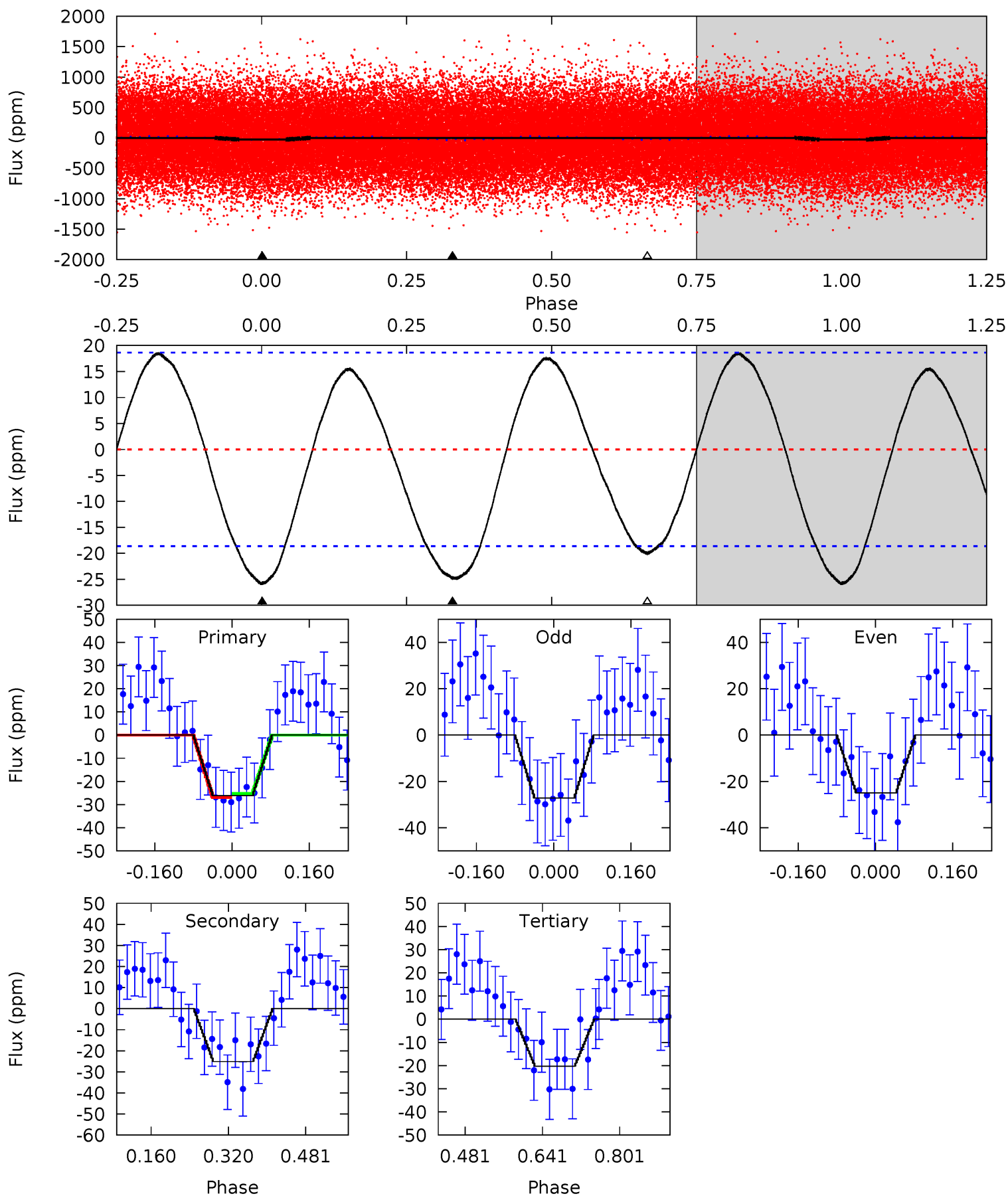




# Alt Model-Shift Uniqueness Test

009305574-01, P = 0.500505 Days, E = 131.252275 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
6.25	6.02	4.88	0	4.46	1.40	3.25	1.38	6.25	1.15	6.02	0.27	1.06	0.42	0.21





### Stellar Parameters For KIC 009305574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7903^{+216}_{-325}$	$3.893^{+0.287}_{-0.102}$	$-0.120^{+0.200}_{-0.350}$	$2.587^{+0.412}_{-0.962}$	$1.907^{+0.078}_{-0.442}$	$0.155^{+0.333}_{-0.049}$
	+3%/-4%	+7%/-3%	+167%/-292%	+16%/-37%	+4%/-23%	+215%/-31%
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 009305574-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-24 \pm 2$	$1.34^{+0.36}_{-0.36}$	$6177^{+423}_{-517}$	$7248^{+1533}_{-929}$	$1.679^{+1.448}_{-0.629}$
Alt.	$-25 \pm 4$	$1.34^{+0.42}_{-0.38}$	$6229^{+394}_{-576}$	$7304^{+1898}_{-1167}$	$1.766^{+1.709}_{-0.784}$

$T_{max}$  = 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

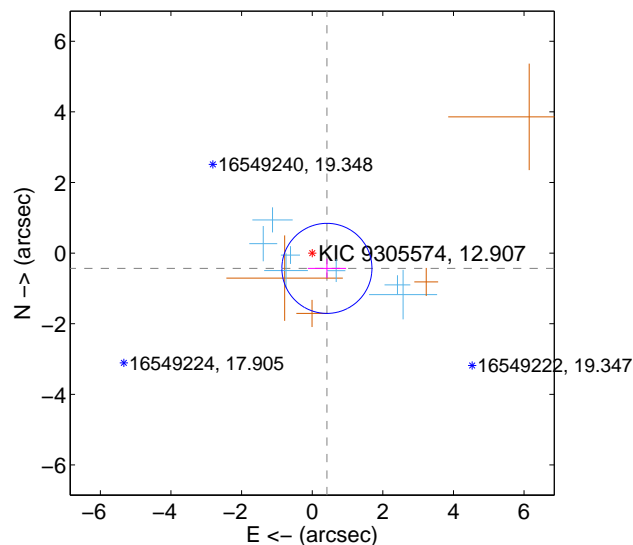
Supplemental centroid analysis for 009305574-01. Kepler magnitude: 12.91. Transit SNR 8.46

There are 7 quarters with good PRF difference image offsets

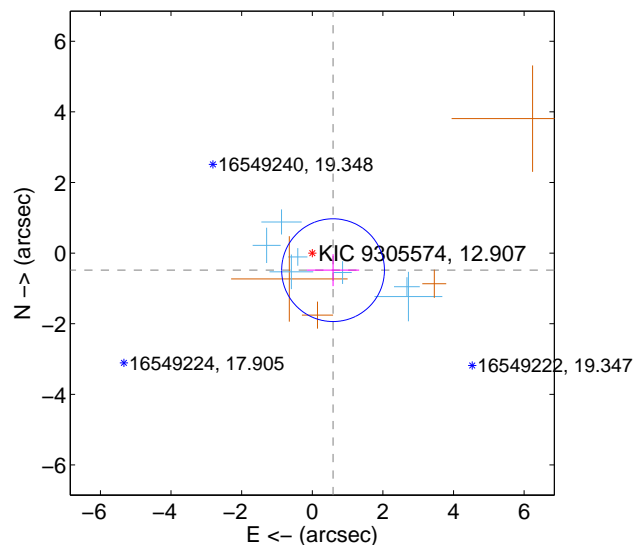
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.600 \pm 0.425$	1.41	$-0.416 \pm 0.542$	$-0.433 \pm 0.275$
PRF-fit source offset from KIC position	$0.762 \pm 0.485$	1.57	$-0.589 \pm 0.740$	$-0.483 \pm 0.454$
photometric centroid source offset	$1.60 \pm 1.37$	1.17	$-1.57 \pm 1.38$	$-0.29 \pm 1.02$

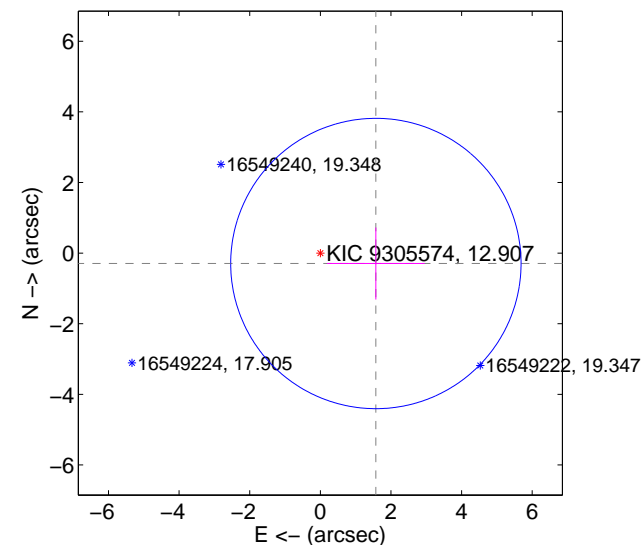
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

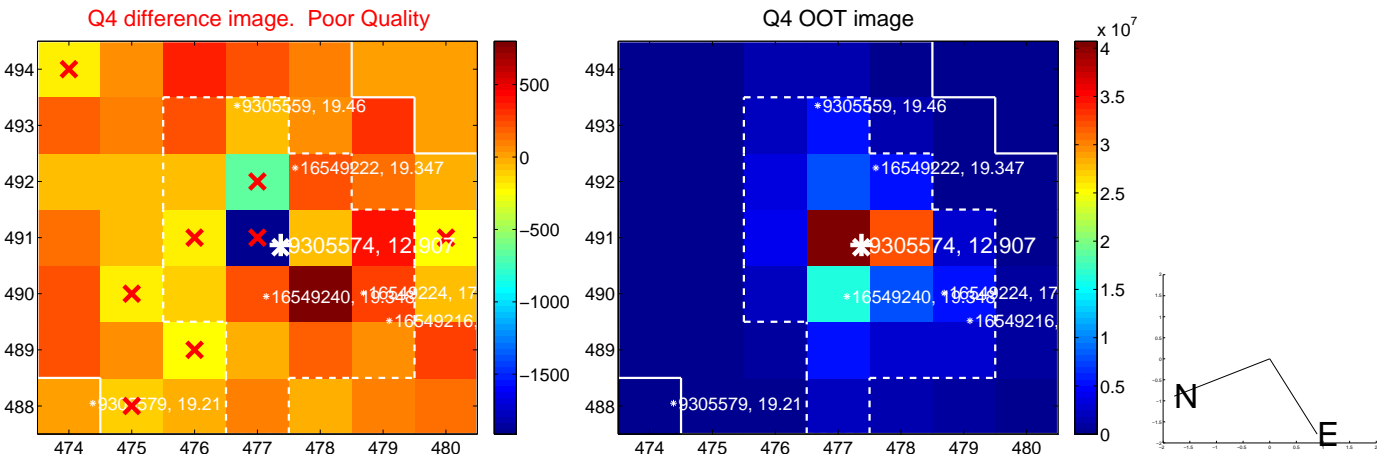
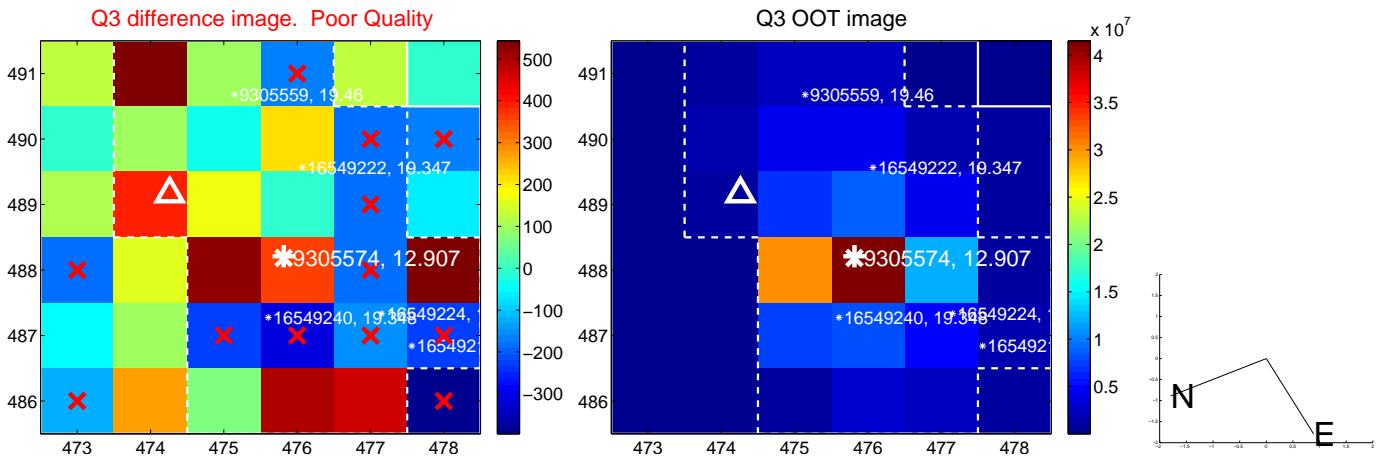
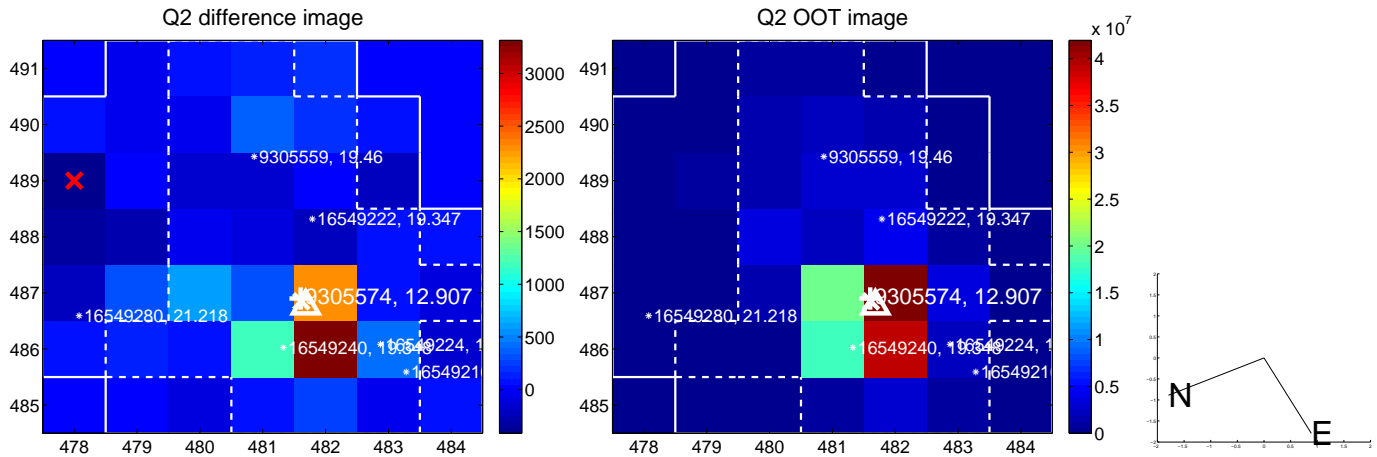
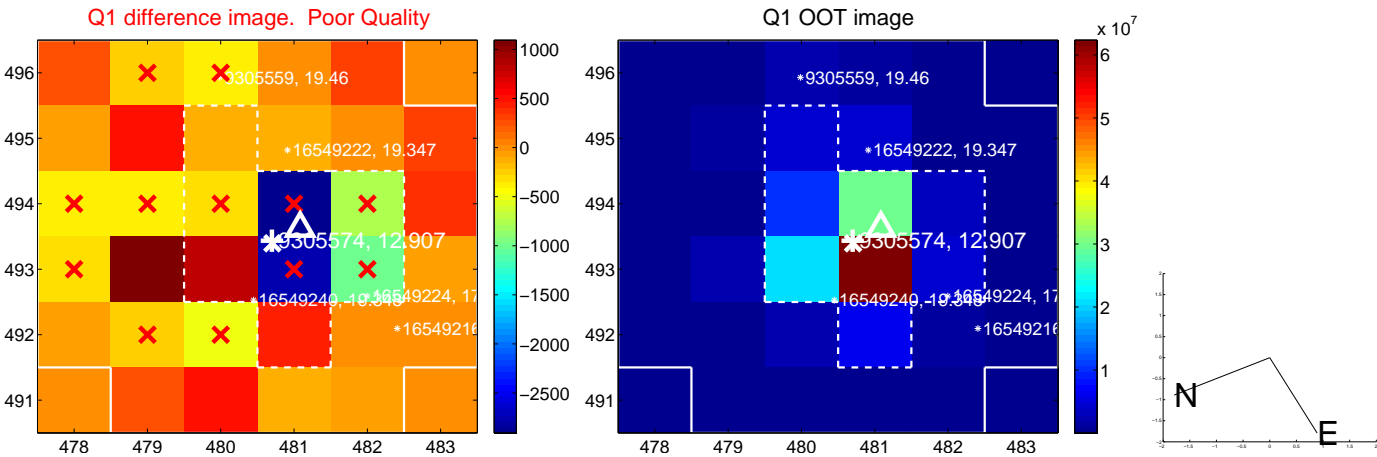


offset from photometric centroids

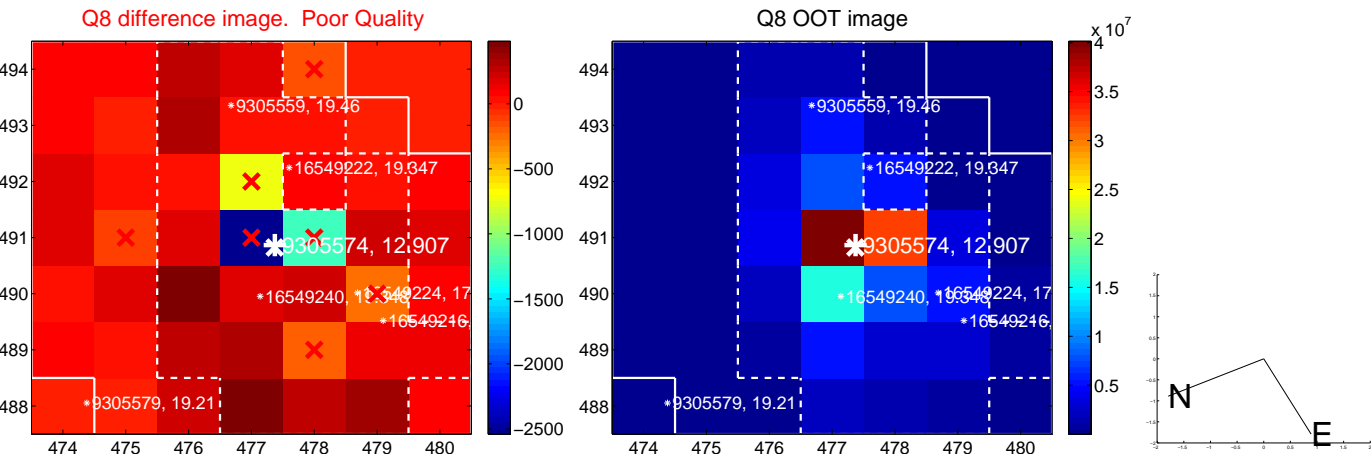
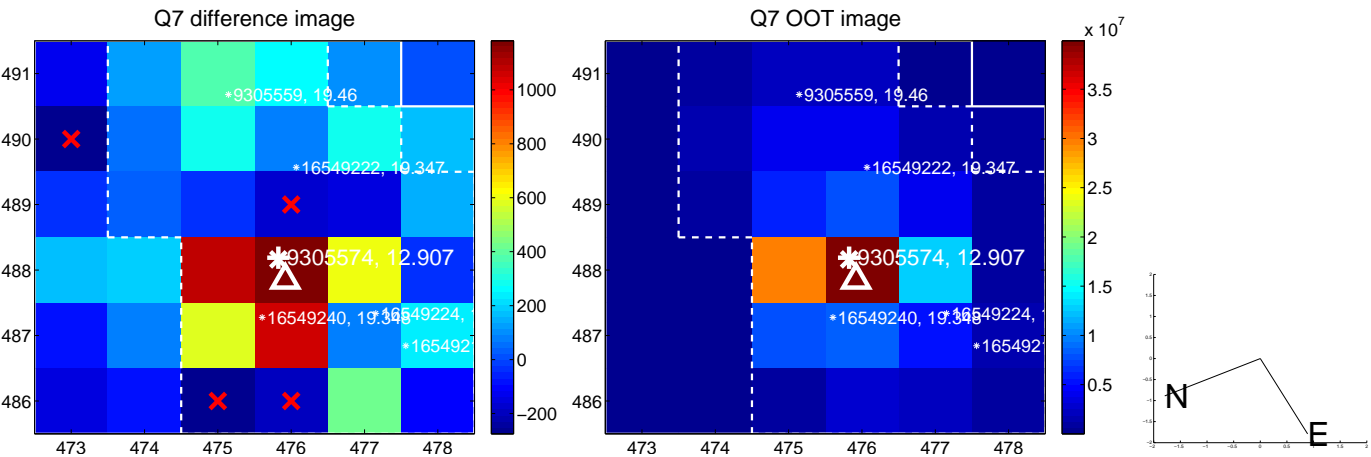
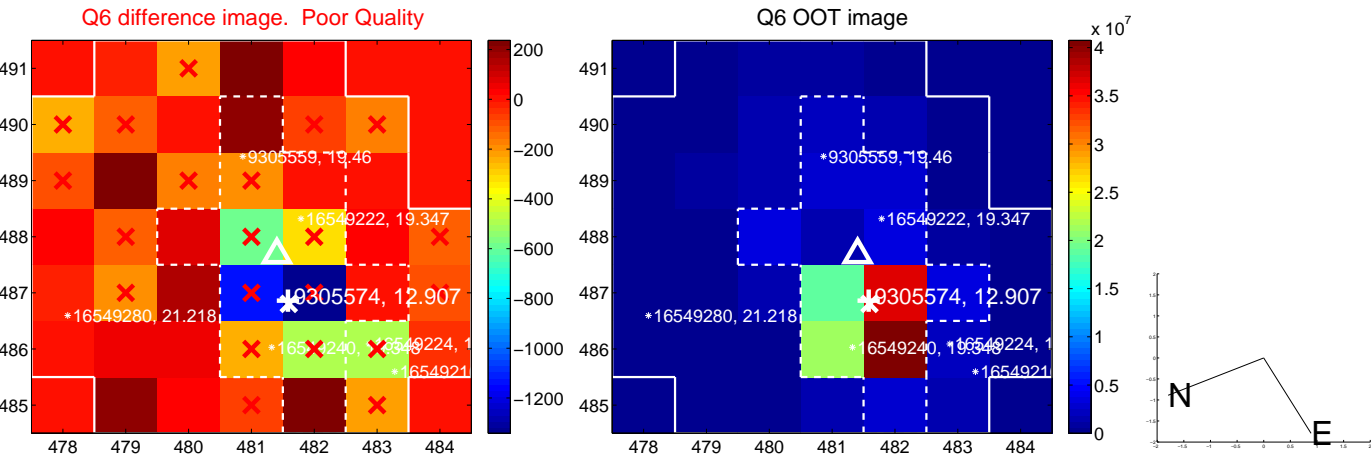
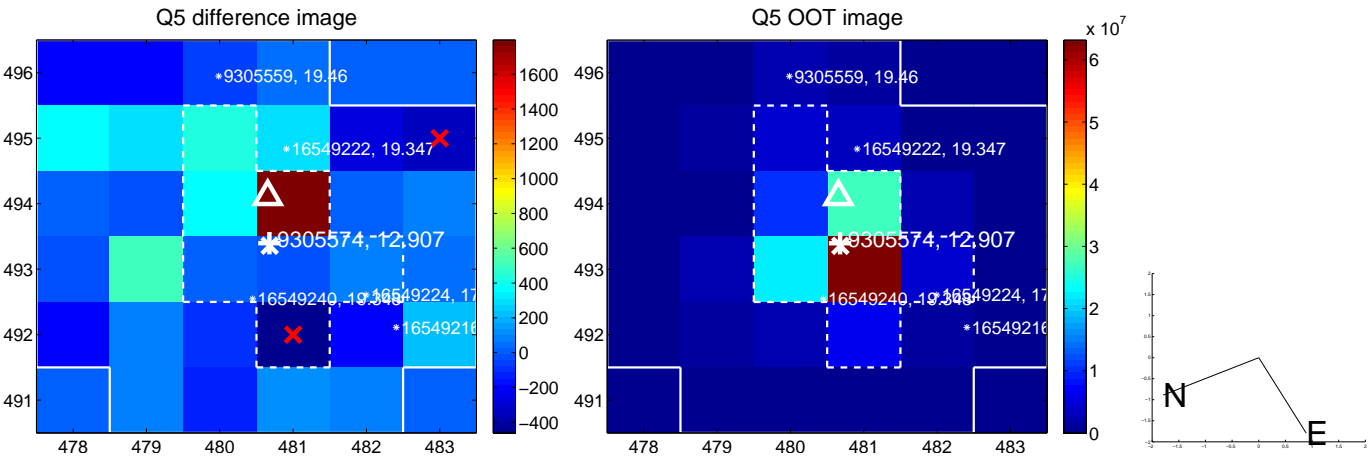


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

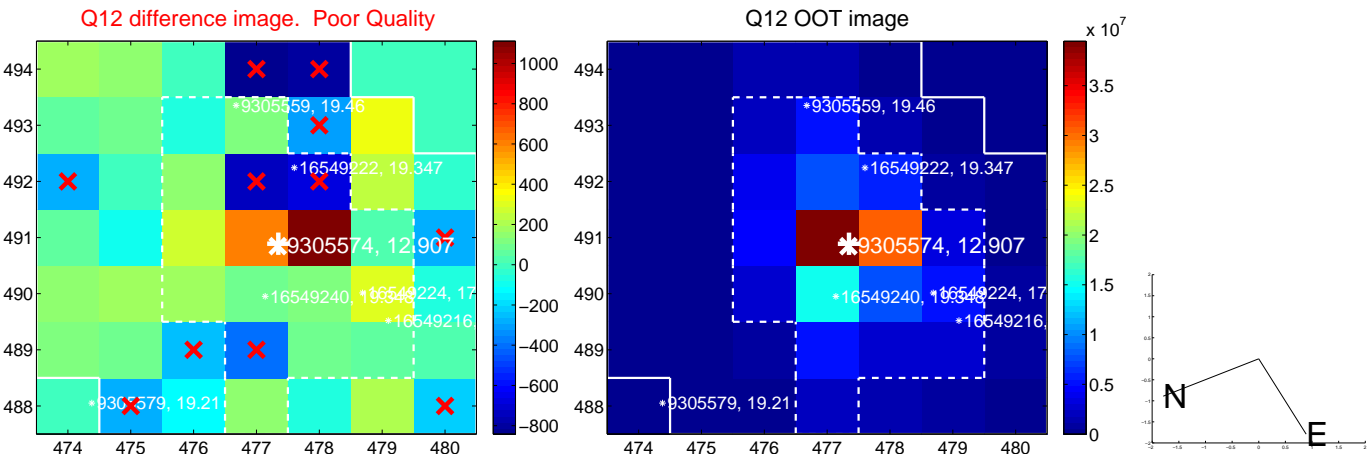
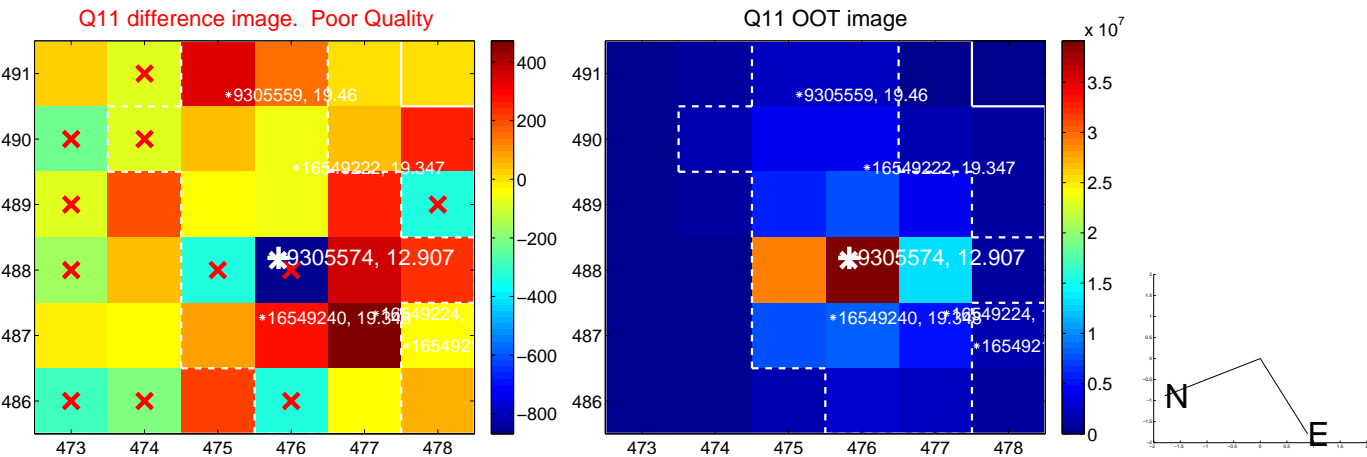
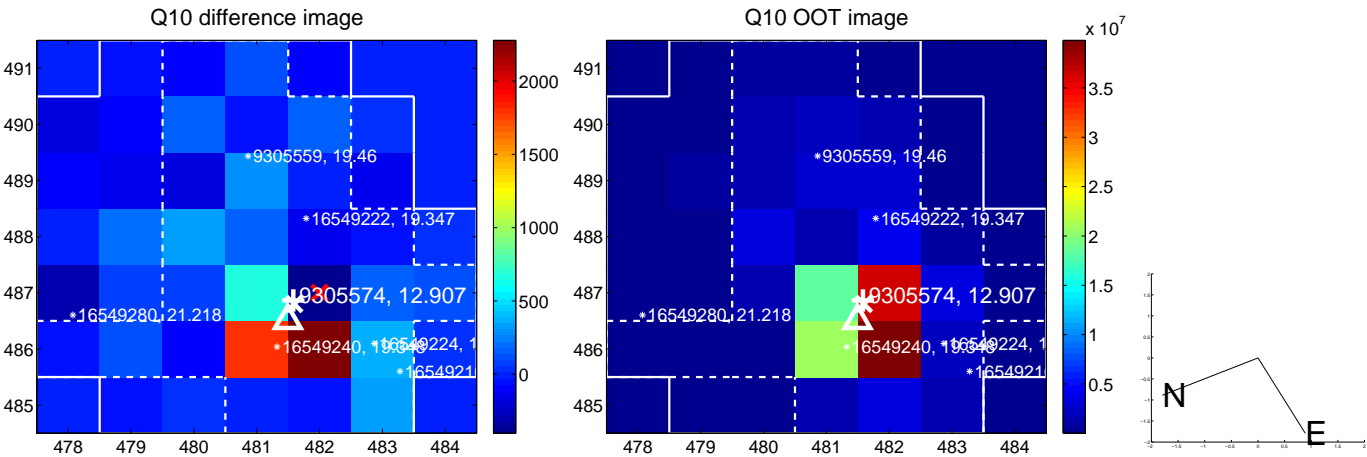
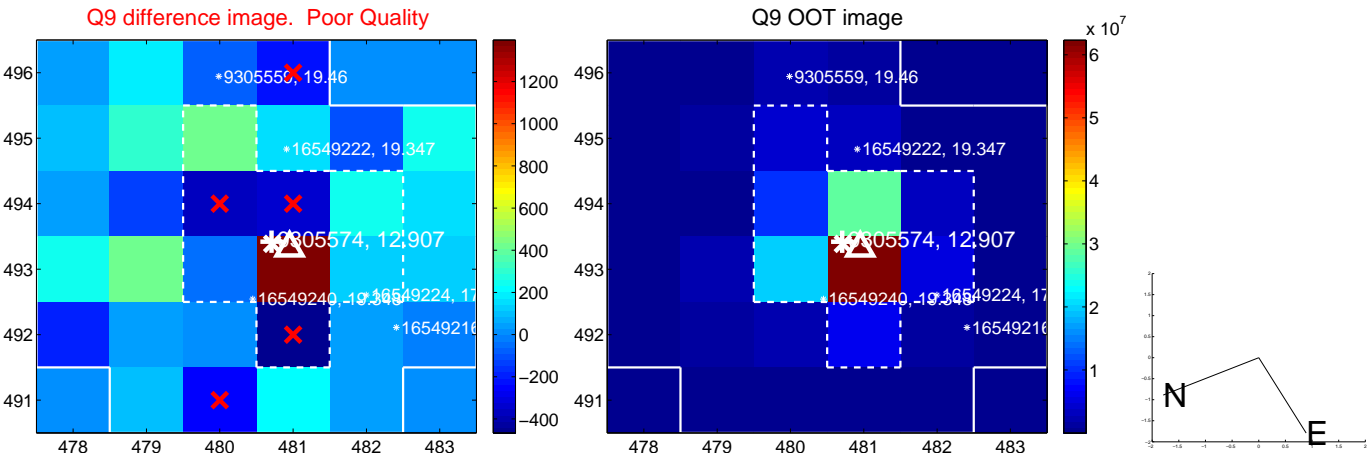


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

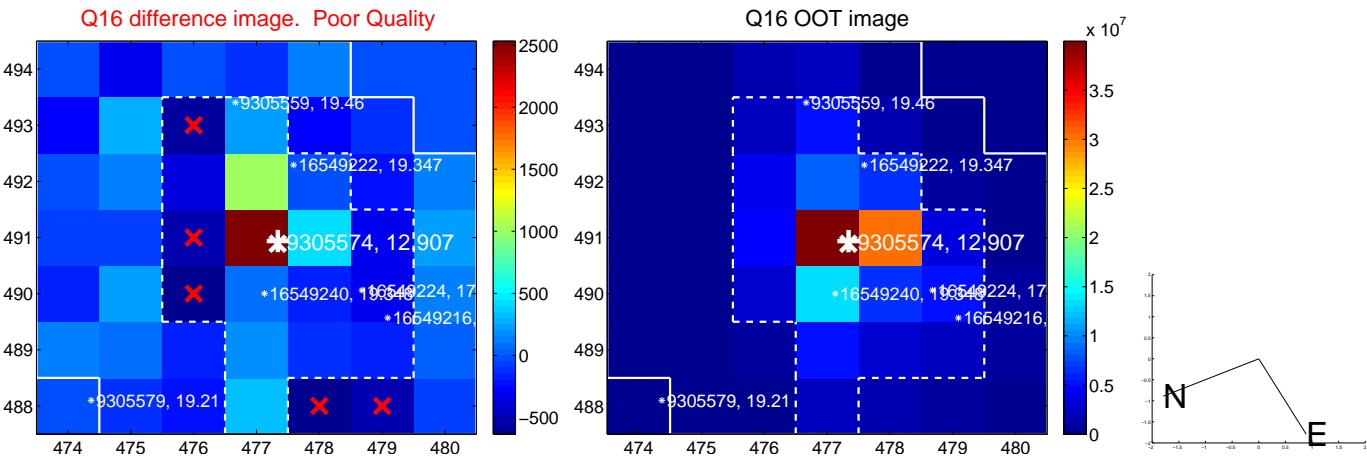
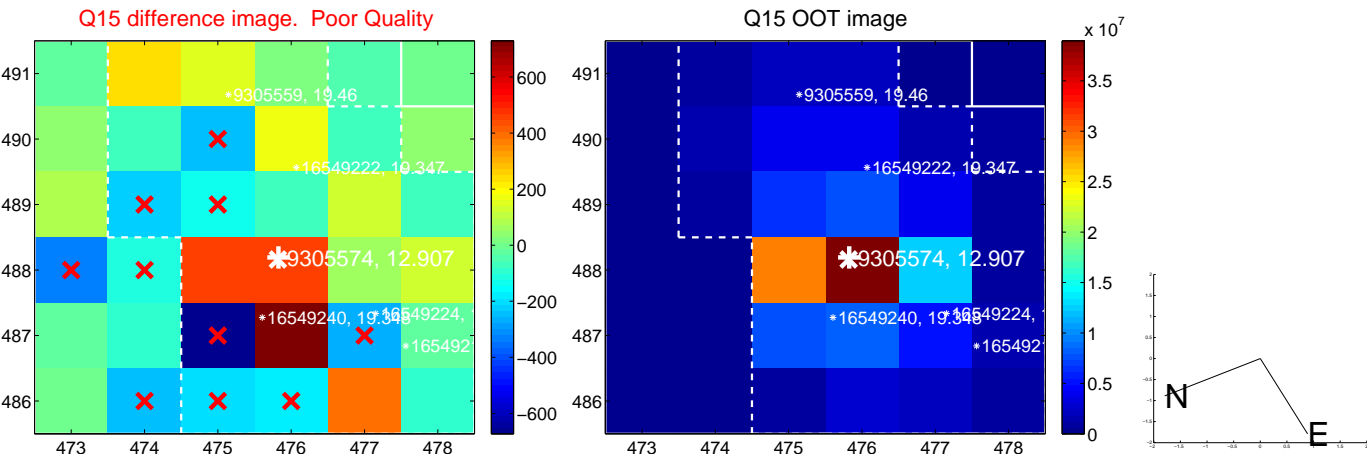
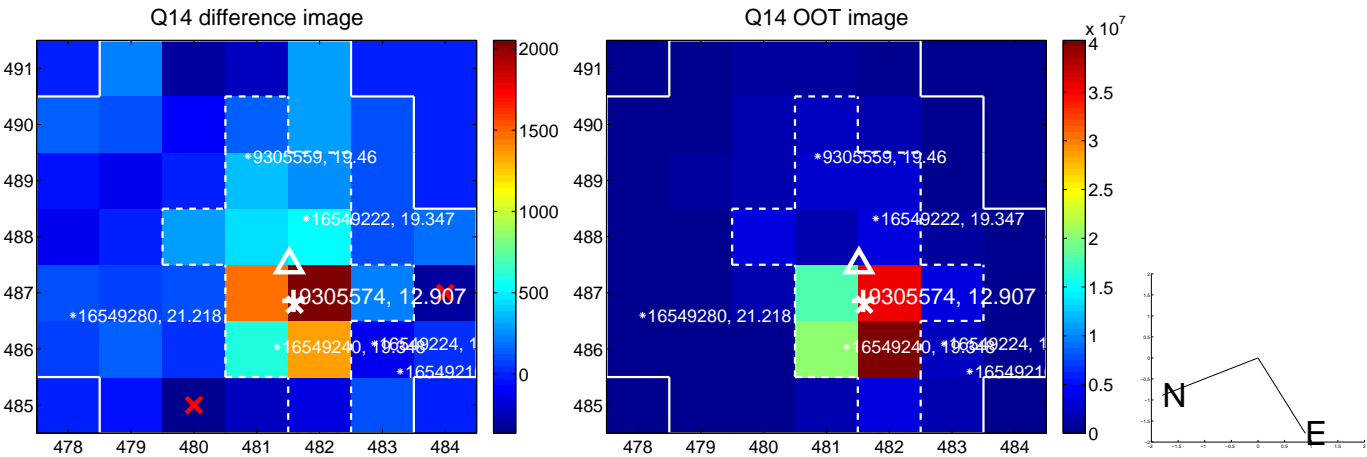
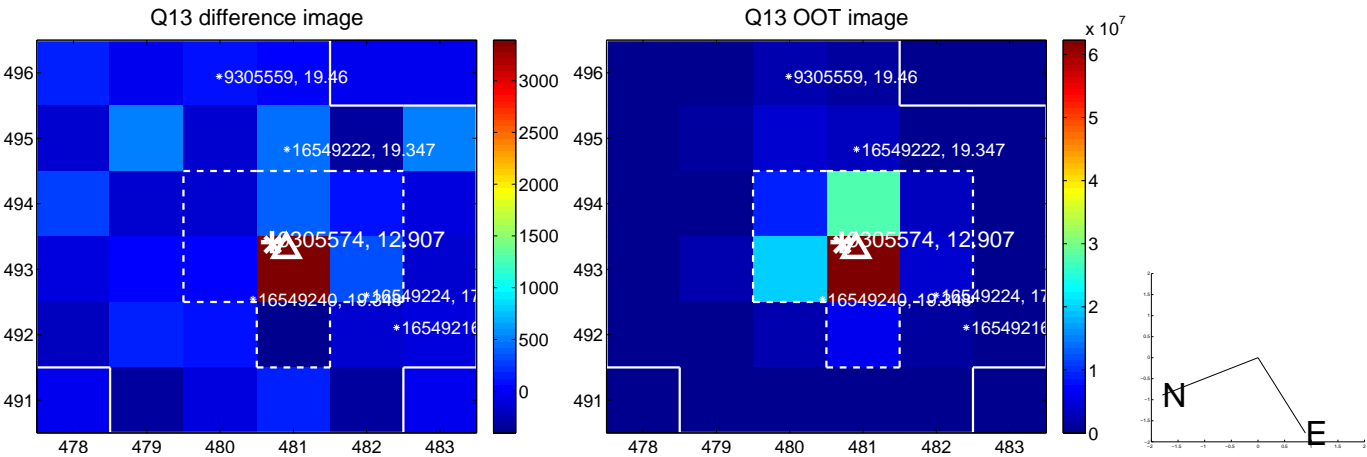




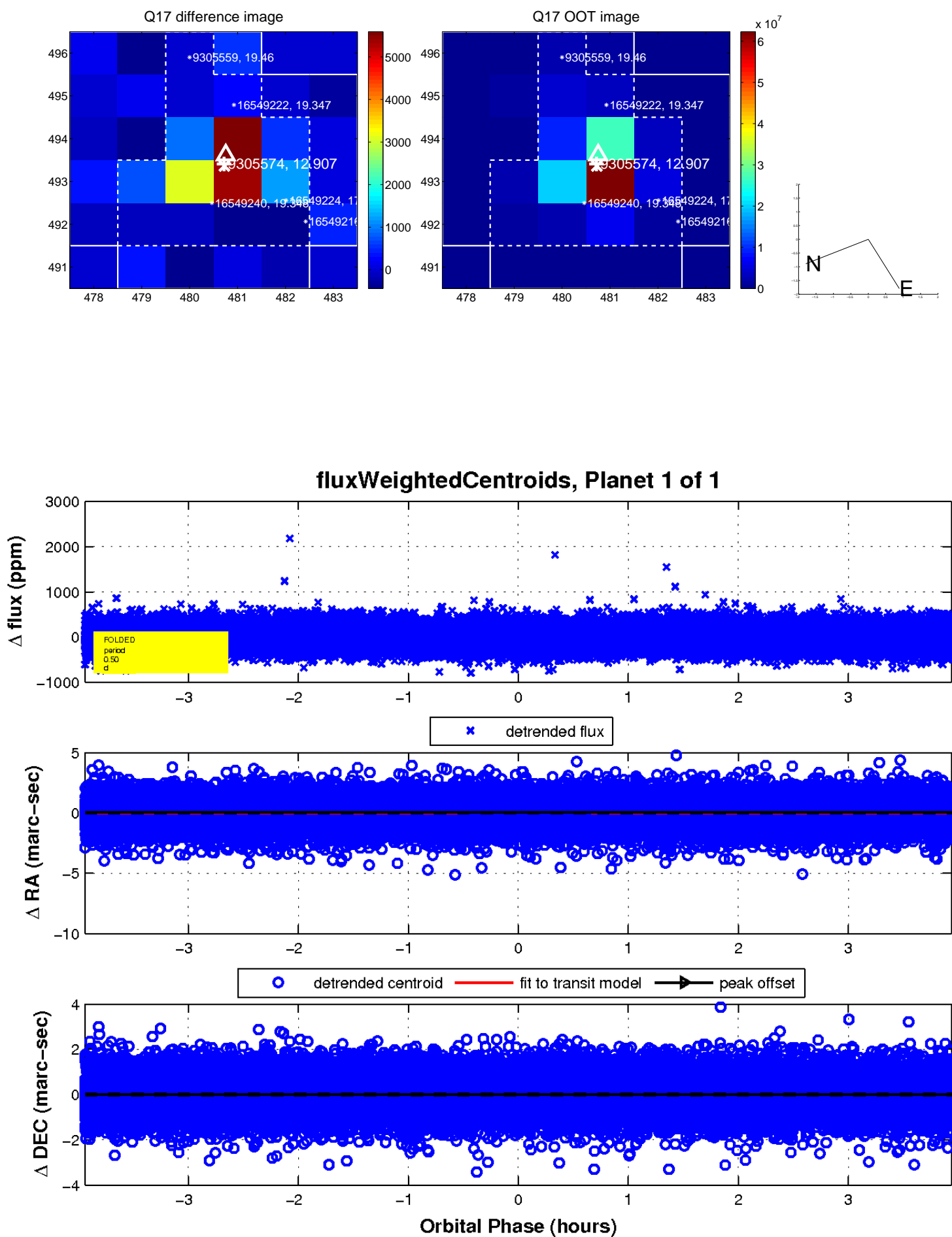
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

