

# KIC 009533354

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009533354-01	OBS	No	6.577542	132.953063	4.0	28.741	8.9	6.4	2.18	9711	0.50	4553.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009533354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_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.

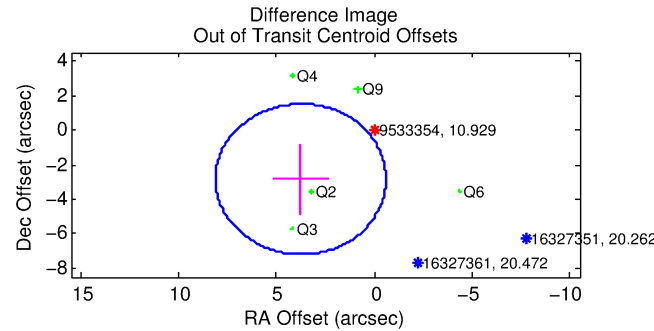
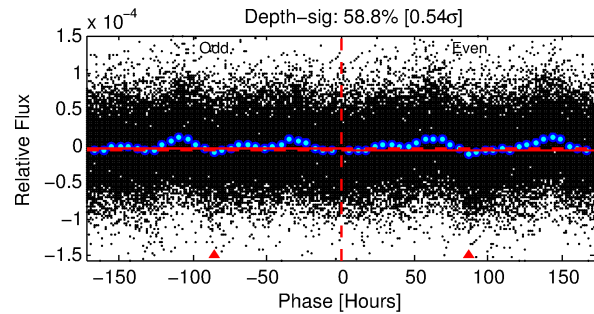
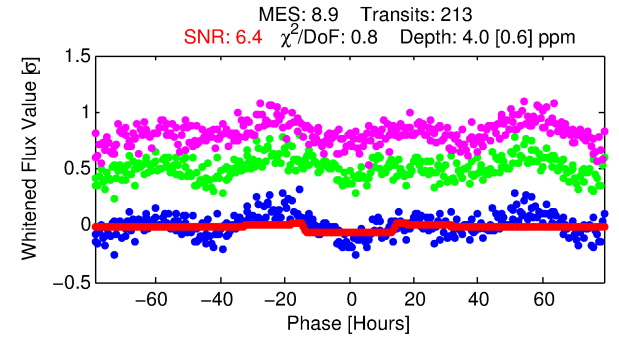
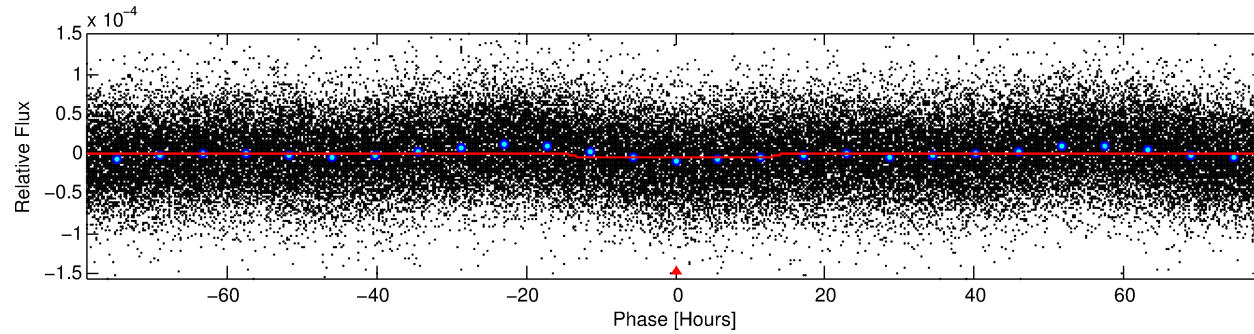
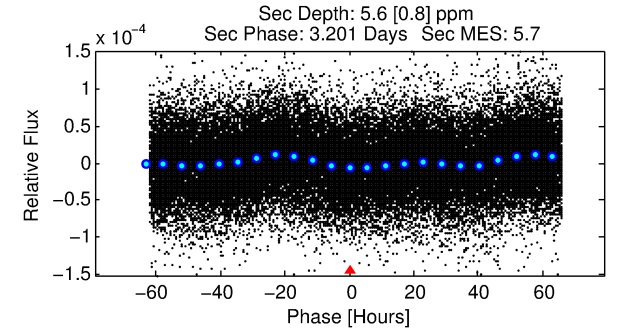
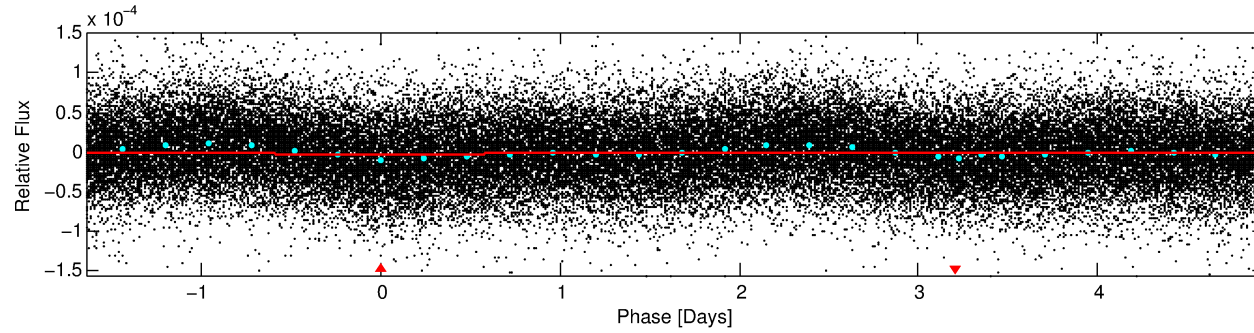
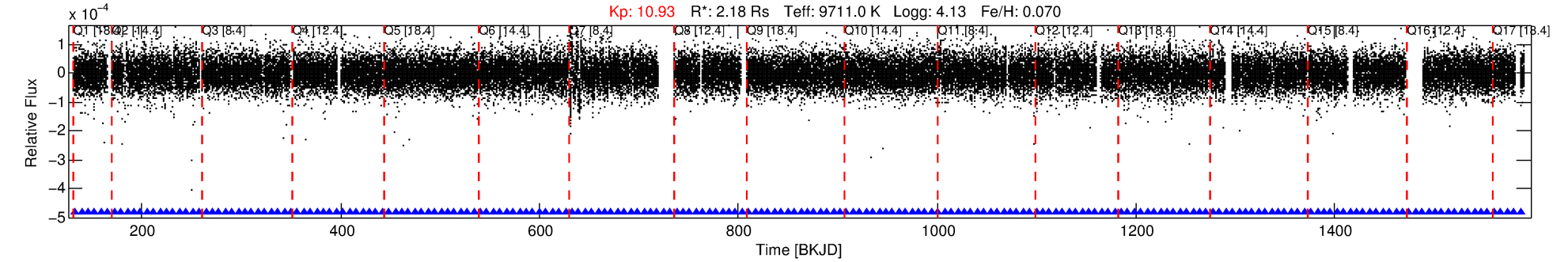
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009533354-01

No Significant Match Found

# DV One-Page Summary

KIC: 9533354 Candidate: 1 of 1 Period: 6.578 d



## DV Fit Results:

Period = 6.57754 [0.00022] d  
Epoch = 132.9531 [0.0247] BKJD  
 $R_p/R^* = 0.0021$  [0.0002]  
 $a/R^* = 1.20$  [0.23]  
 $b = 0.91$  [0.12]  
 $S_{\text{eff}} = 4553.05$  [2114.71]  
 $T_{\text{eq}} = 2095$  [243] K  
 $R_p = 0.50$  [0.21]  $R_e$   
 $a = 0.0912$  [0.0289] AU  
 $A_g = 101.66$  [51.65] [1.95 $\sigma$ ]  
 $T_{\text{eff}} = 10283$  [810] K [9.69 $\sigma$ ]

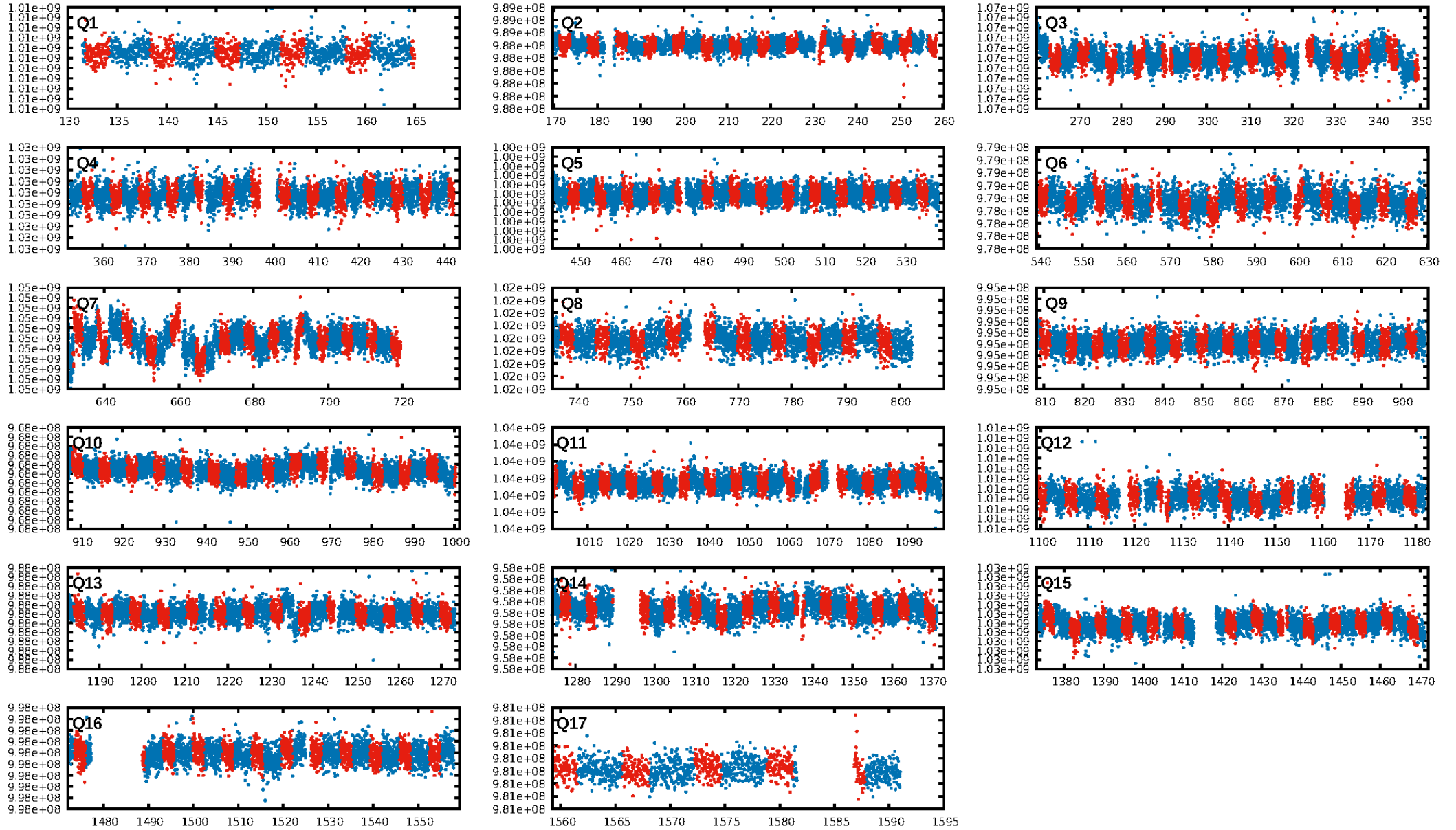
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.76e-20  
RollingBand-fgt: 1.00 [203/203]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 4.715 arcsec [3.25 $\sigma$ ]  
KicOffset-rm: 4.825 arcsec [3.63 $\sigma$ ]  
OotOffset-st: 2/1/1/1 [5]  
KicOffset-st: 2/1/1/1 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 1.00 [17/17]

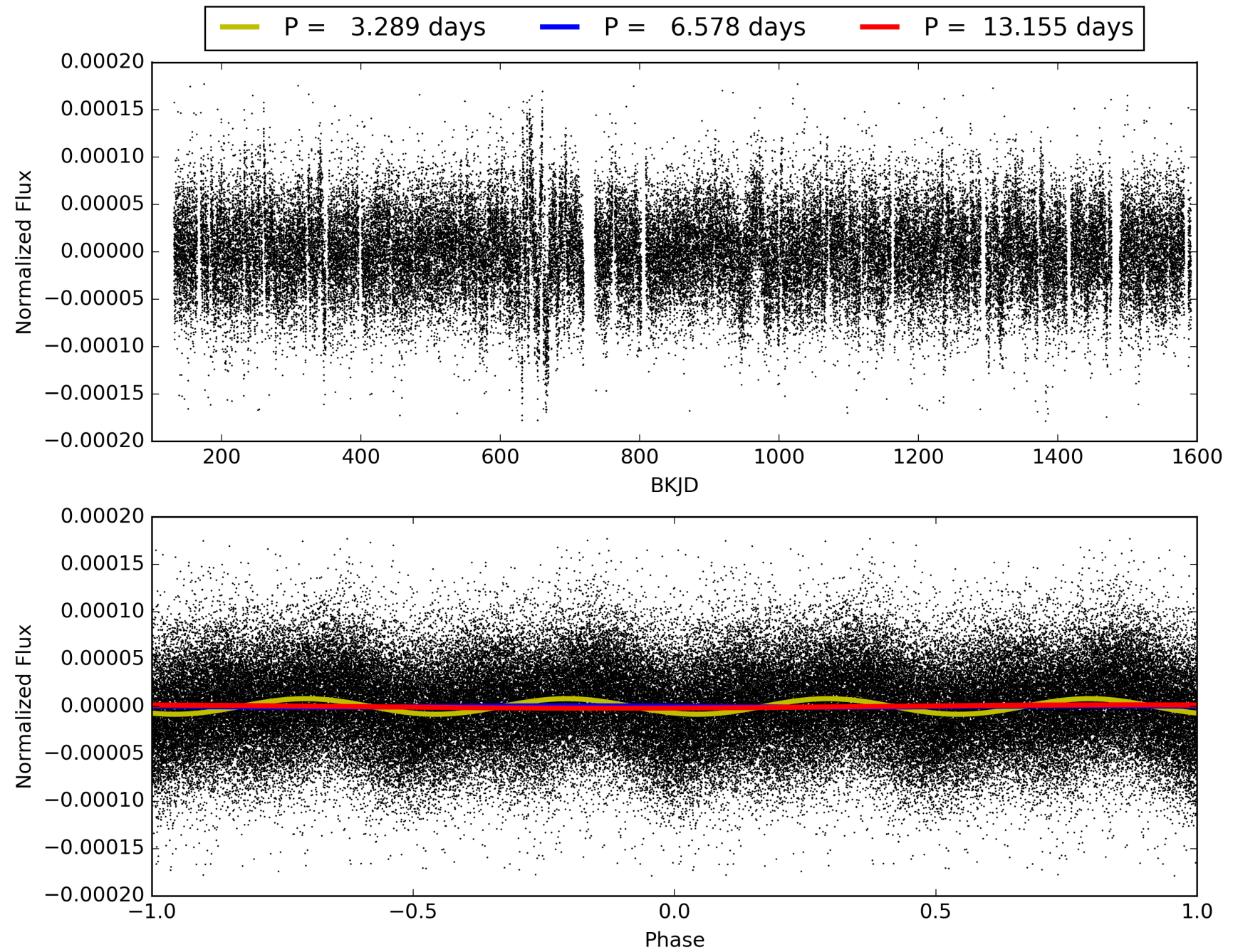
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:23:58 Z

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

# TCE 009533354-01, PDC Light Curves

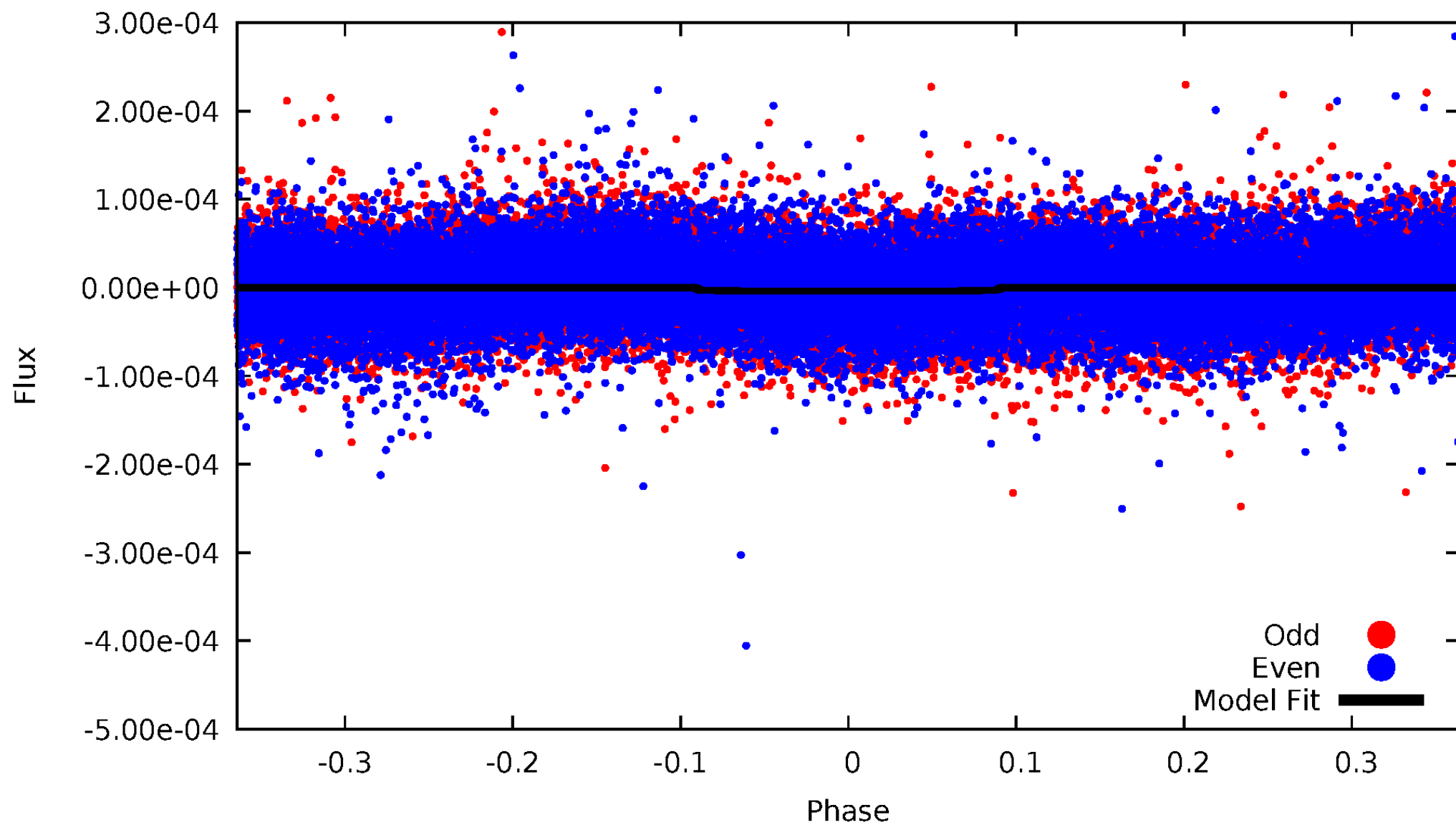


TCE 009533354-01



# DV Odd/Even

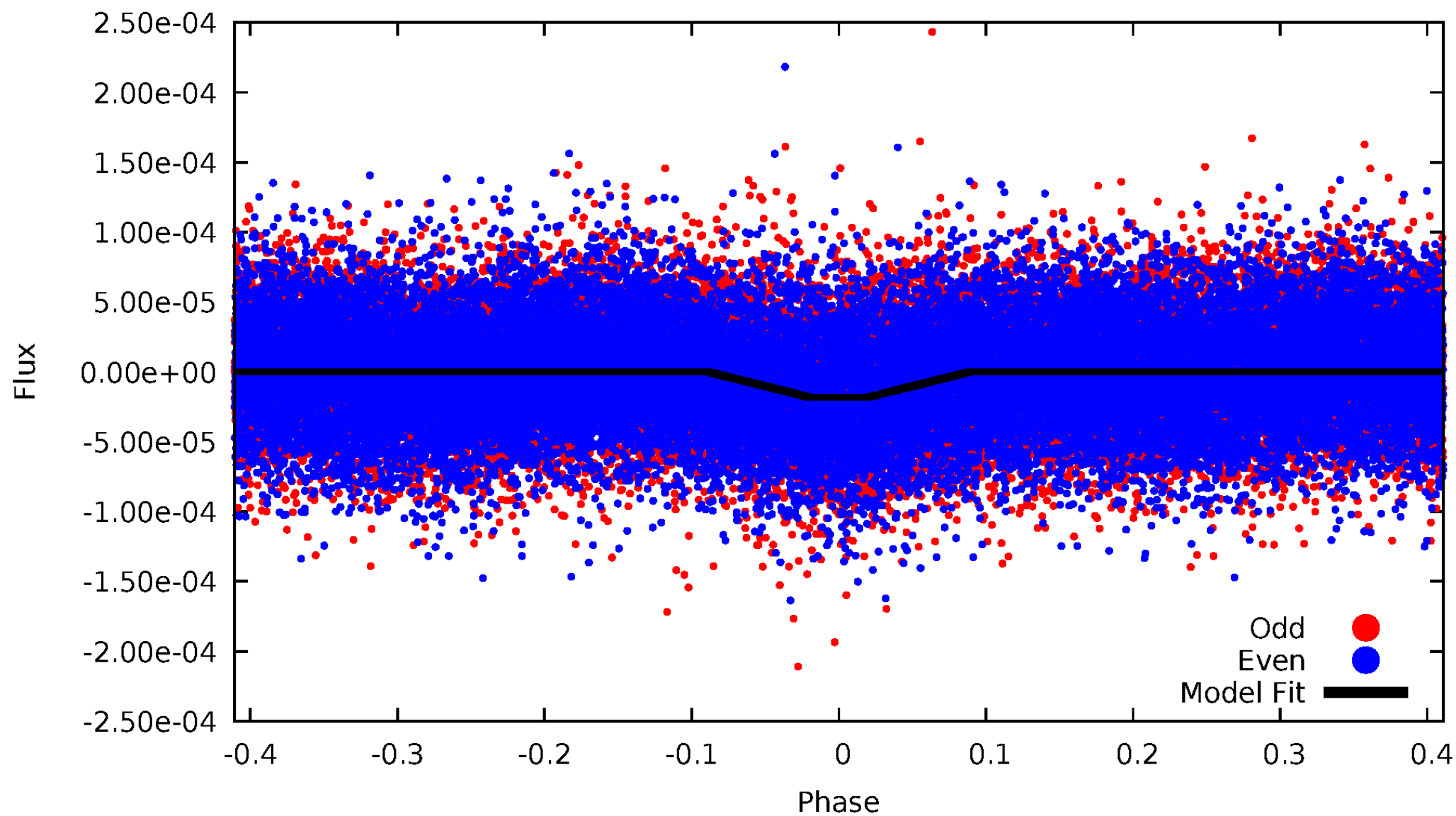
TCE 009533354-01





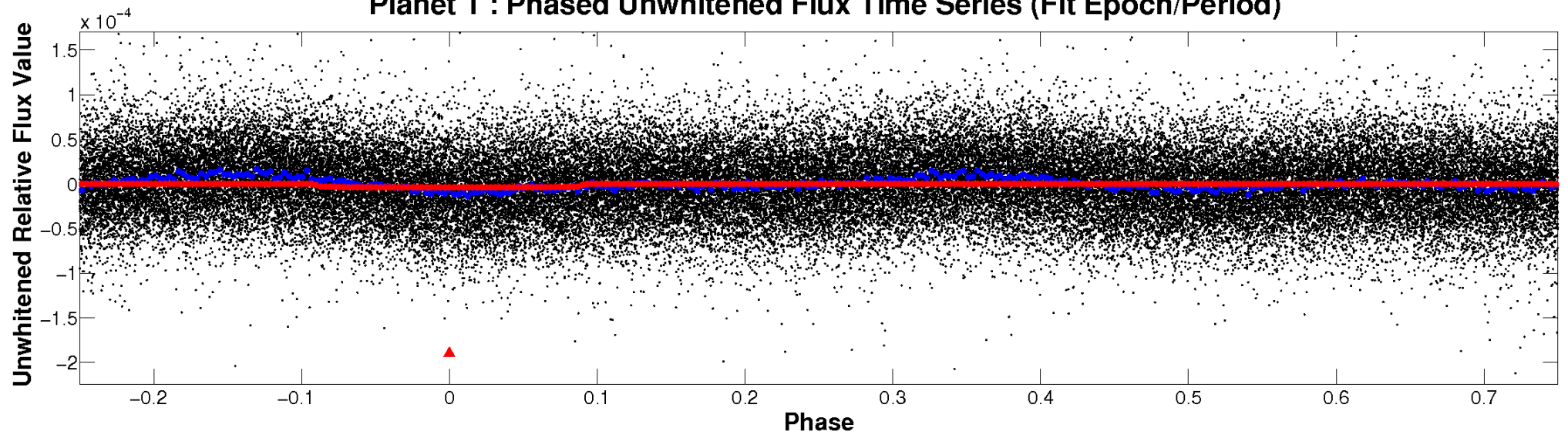
# ALT Odd/Even

TCE 009533354-01

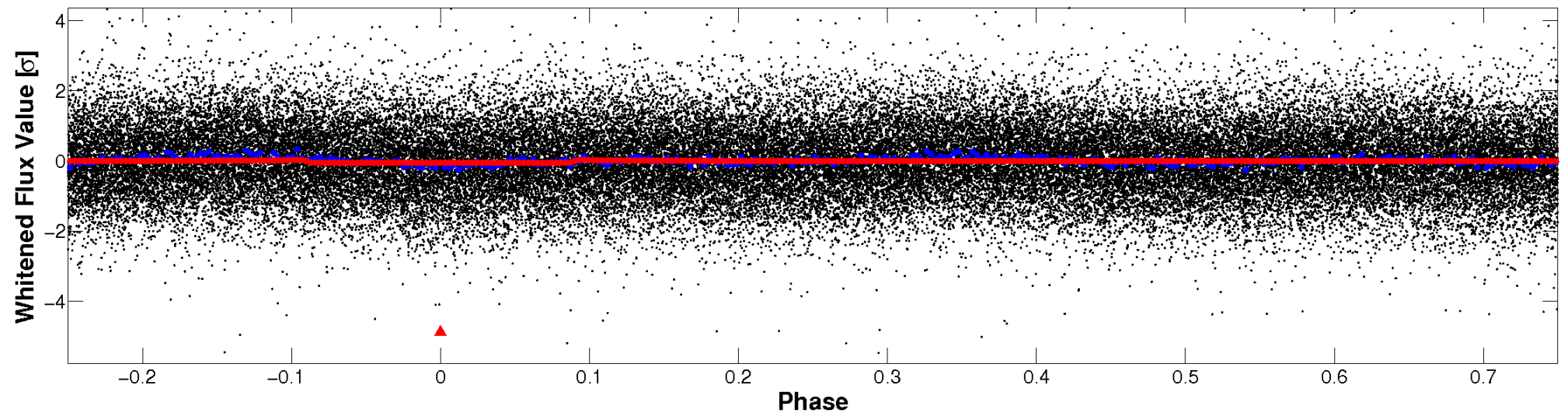


# Non-Whitened Vs. Whitened Light Curve

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

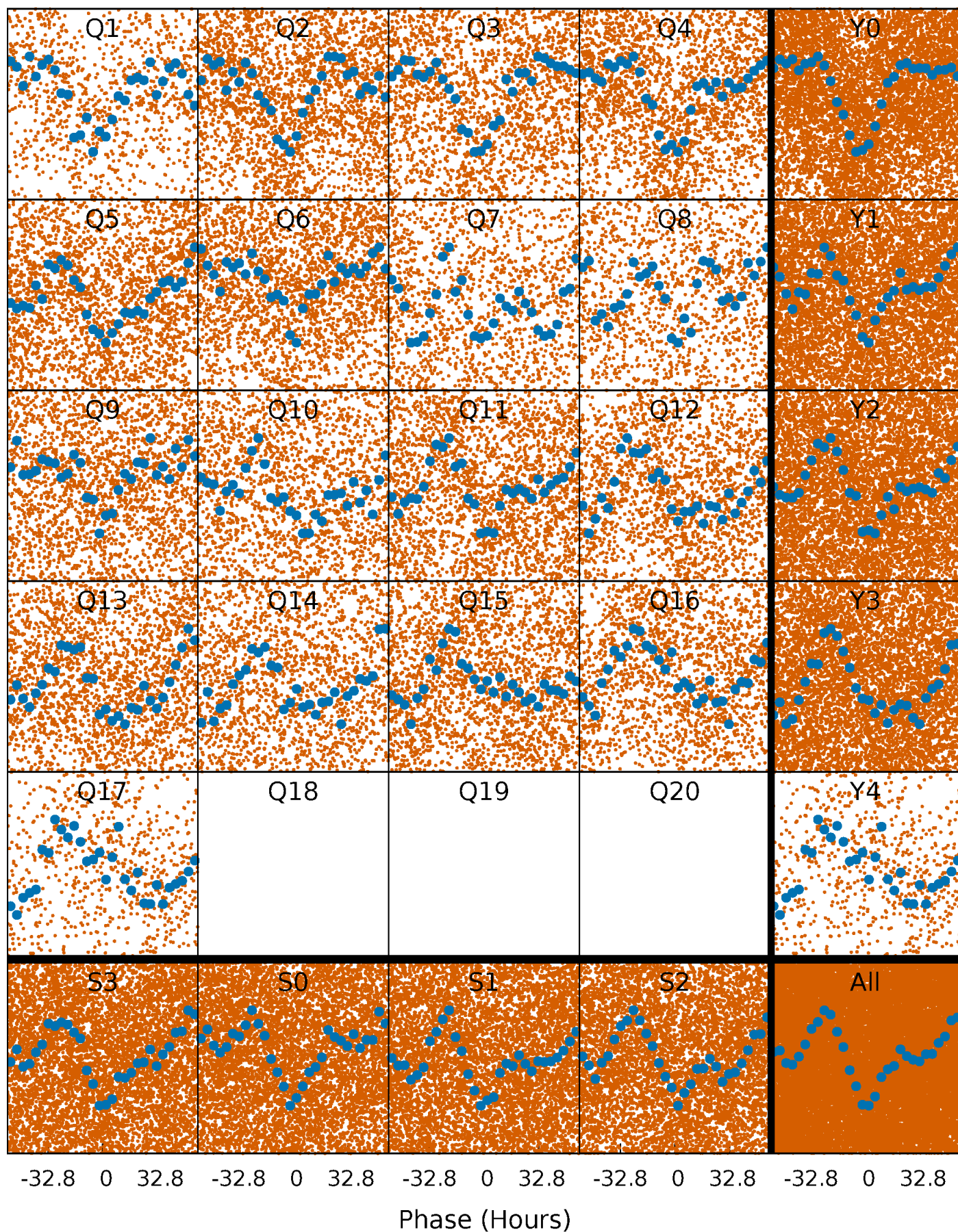


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

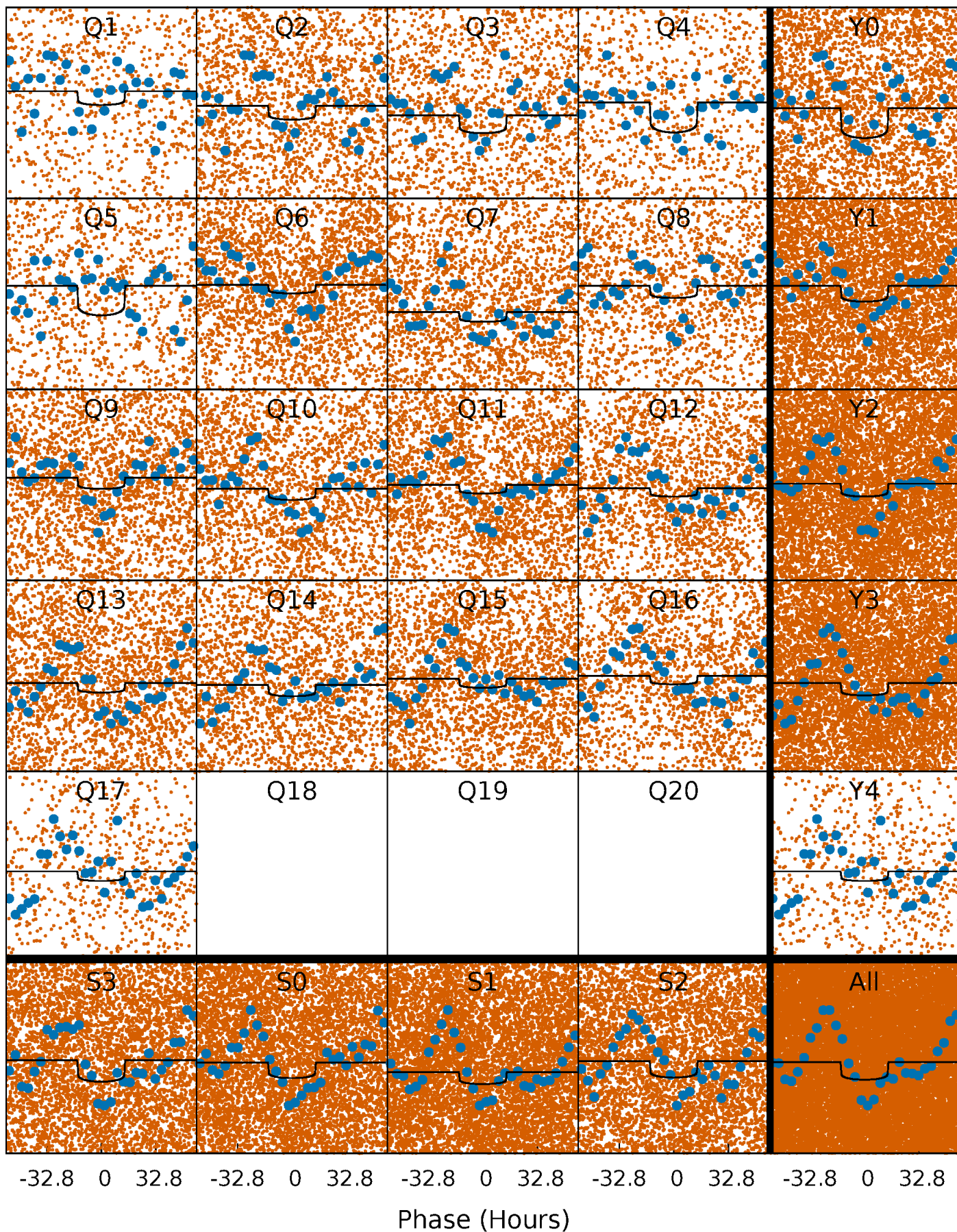
TCE 009533354-01 P= 6.577542 Days  $T_0=132.953063$  (BKJD)





# DV Quarter-Phased Transit Curves

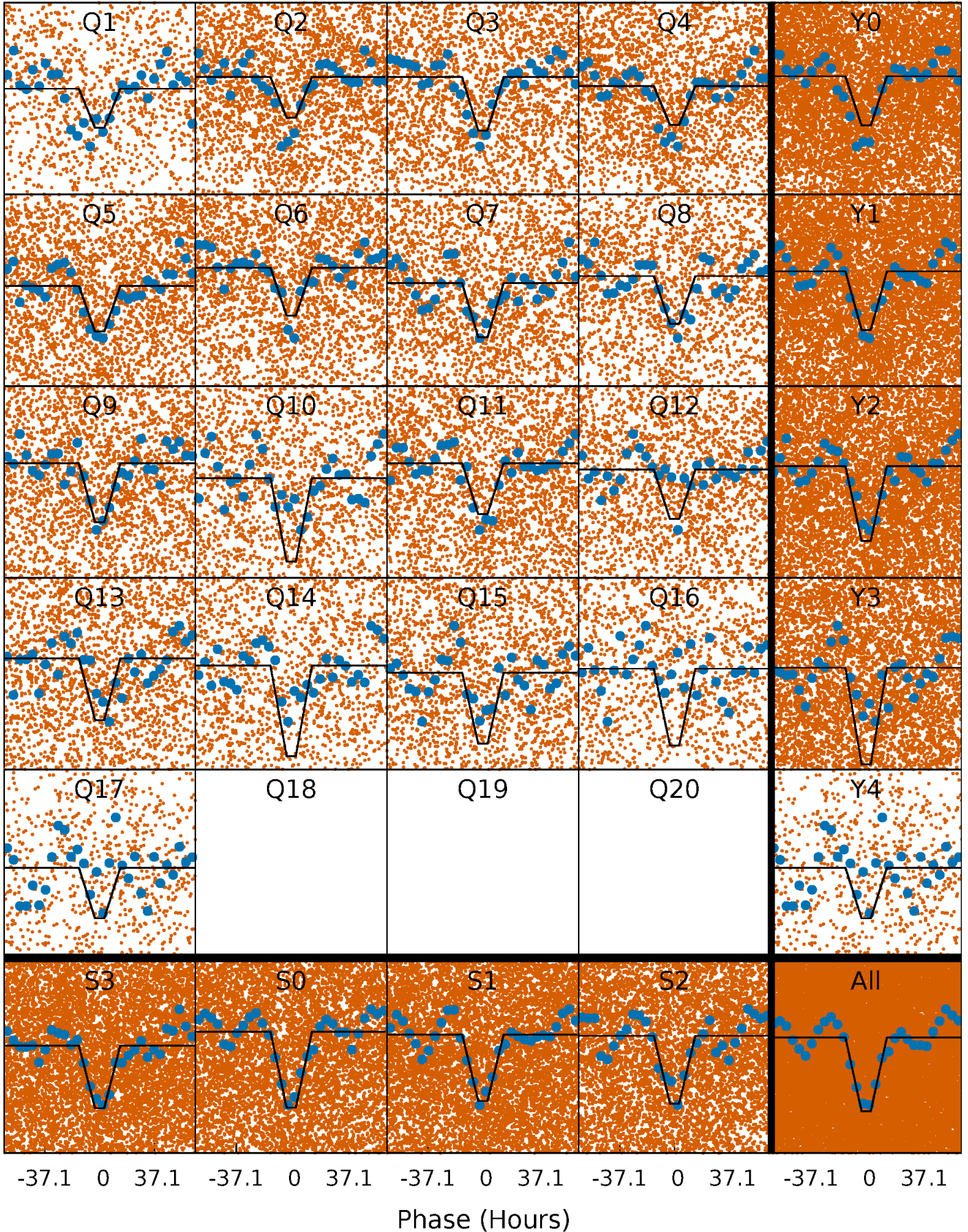
TCE 009533354-01 P= 6.577542 Days  $T_0=132.953063$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

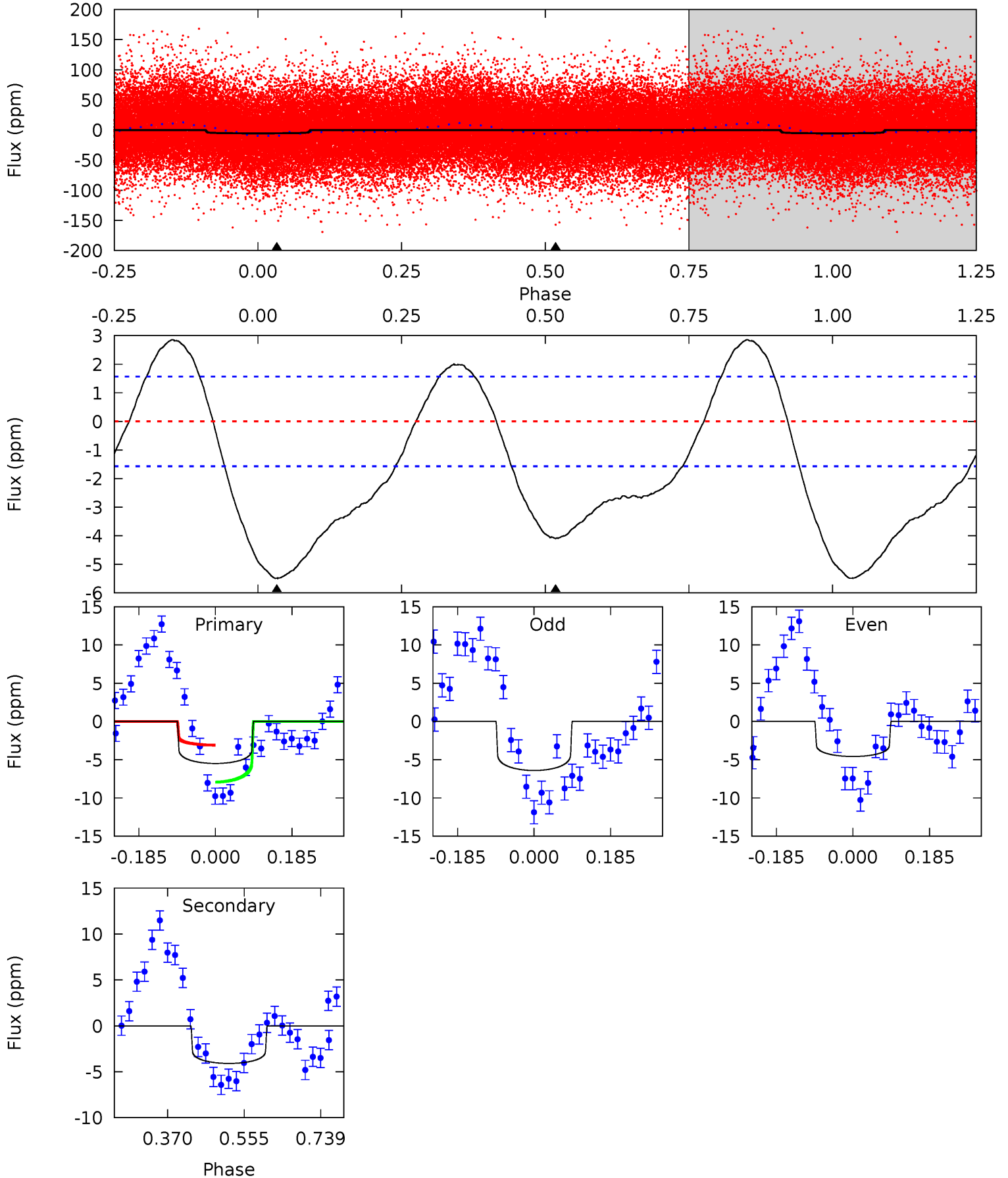
TCE 009533354-01 P= 6.576890 Days  $T_0=133.004254$  (BKJD)



# DV Model-Shift Uniqueness Test

009533354-01, P = 6.577542 Days, E = 126.375521 Days

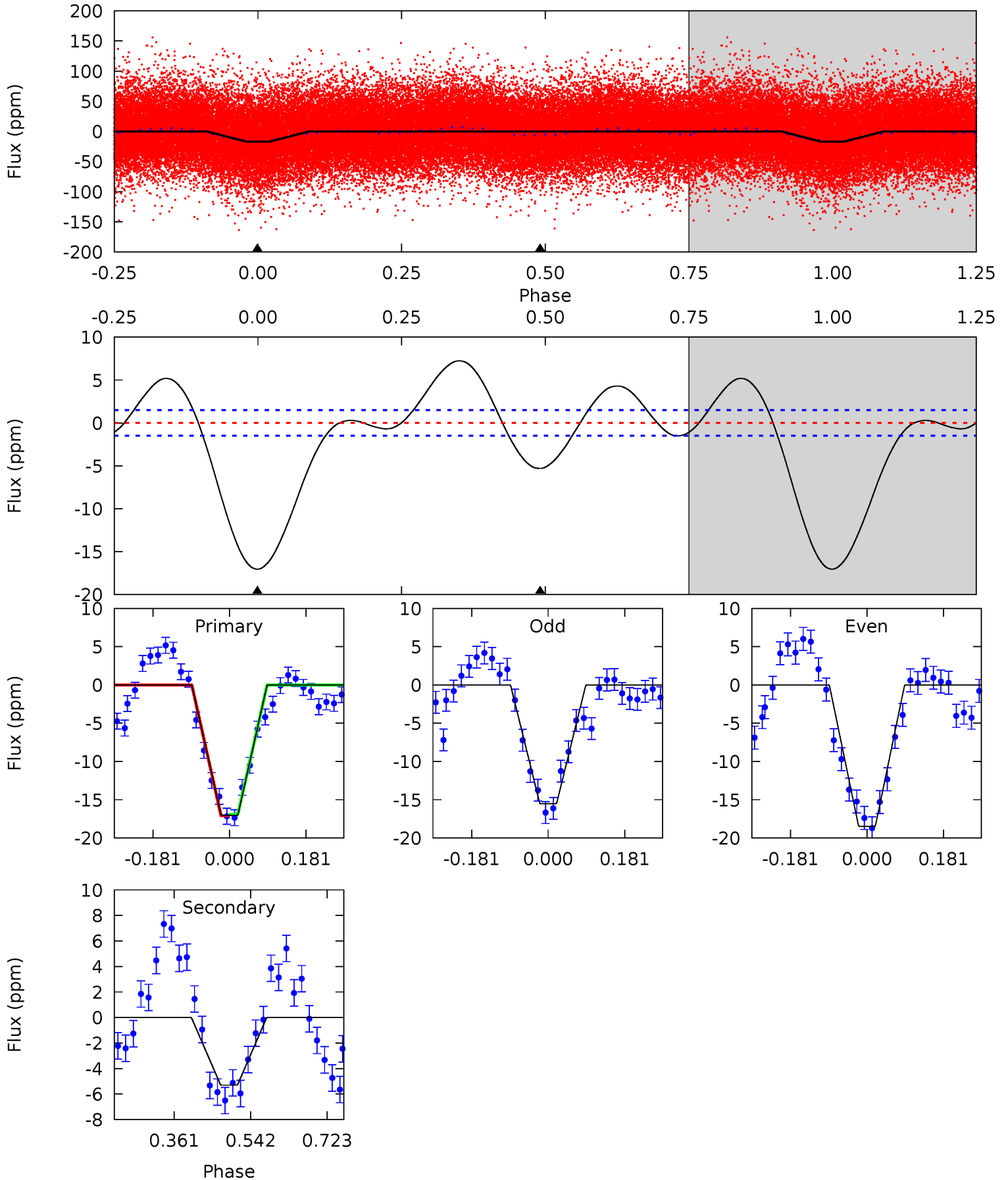
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	11.6	0	0	4.43	1.33	4.45	15.5	15.5	11.6	11.6	2.59	1.01	0.34	6.86



# Alt Model-Shift Uniqueness Test

009533354-01, P = 6.576890 Days, E = 126.427364 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
50.5	15.7	0	0	4.44	1.34	5.24	50.5	50.5	15.7	15.7	4.38	0.89	0.30	0.30





### Stellar Parameters For KIC 009533354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9711^{+272}_{-409}$	$4.130^{+0.148}_{-0.222}$	$0.070^{+0.150}_{-0.550}$	$2.181^{+0.873}_{-0.582}$	$2.338^{+0.445}_{-0.544}$	$0.318^{+0.269}_{-0.194}$
	+3%/-4%	+4%/-5%	+214%/-786%	+40%/-27%	+19%/-23%	+85%/-61%
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 009533354-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 0$	$0.52^{+0.12}_{-0.10}$	$2962^{+281}_{-233}$	$9345^{+952}_{-763}$	$68^{+36}_{-22}$
Alt.	$-5 \pm 0$	$1.04^{+0.22}_{-0.16}$	$2951^{+282}_{-212}$	$6575^{+308}_{-272}$	$22^{+7}_{-6}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

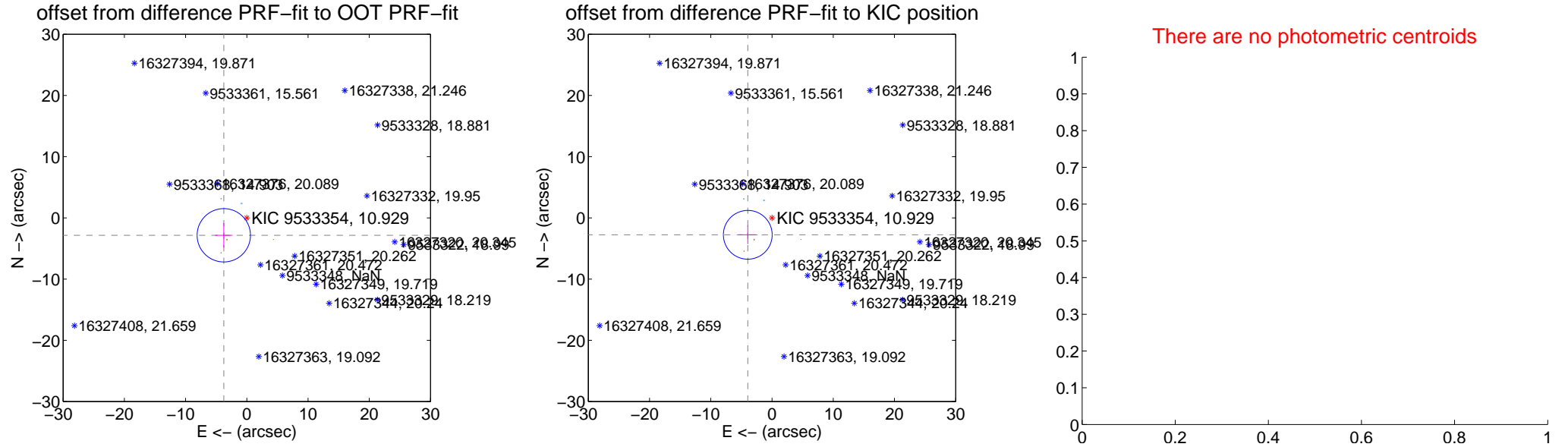
## DV Centroid Data

Supplemental centroid analysis for 009533354-01. **Kepler magnitude: 10.93.** Transit SNR 6.44

**There are 2 quarters with good PRF difference image offsets**

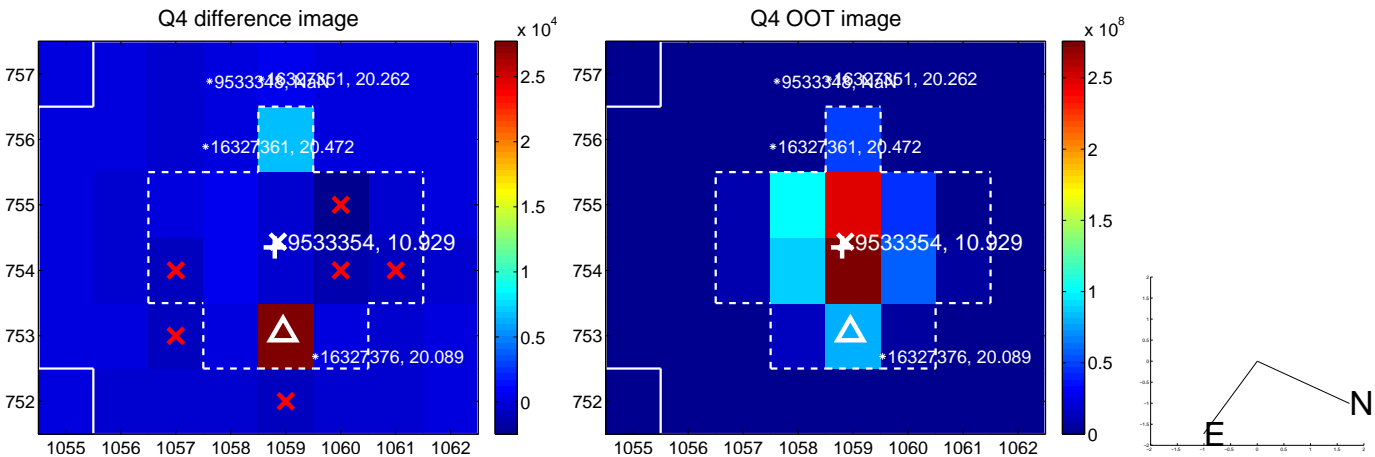
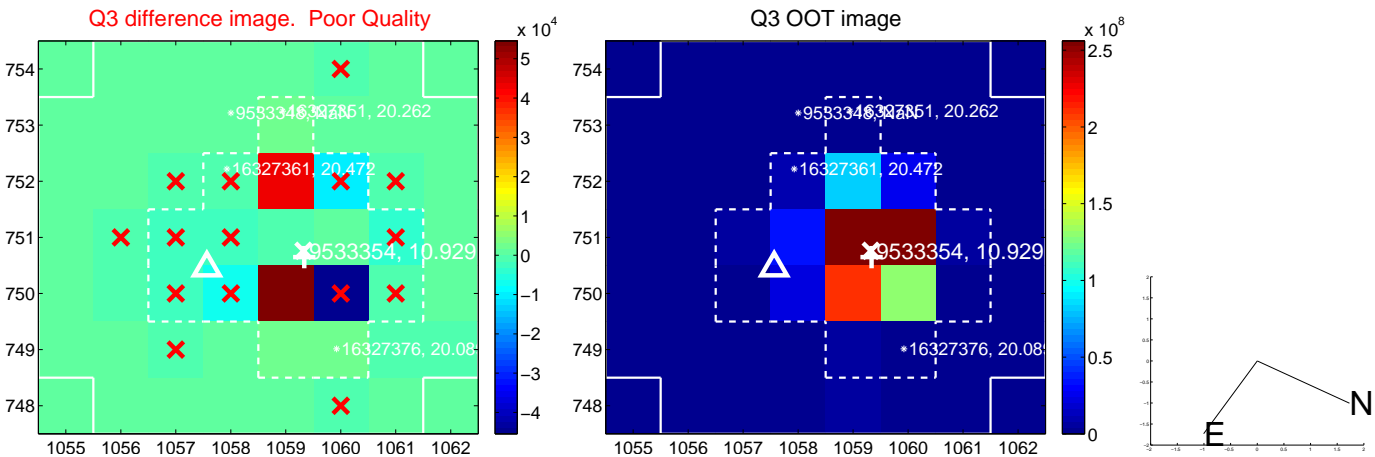
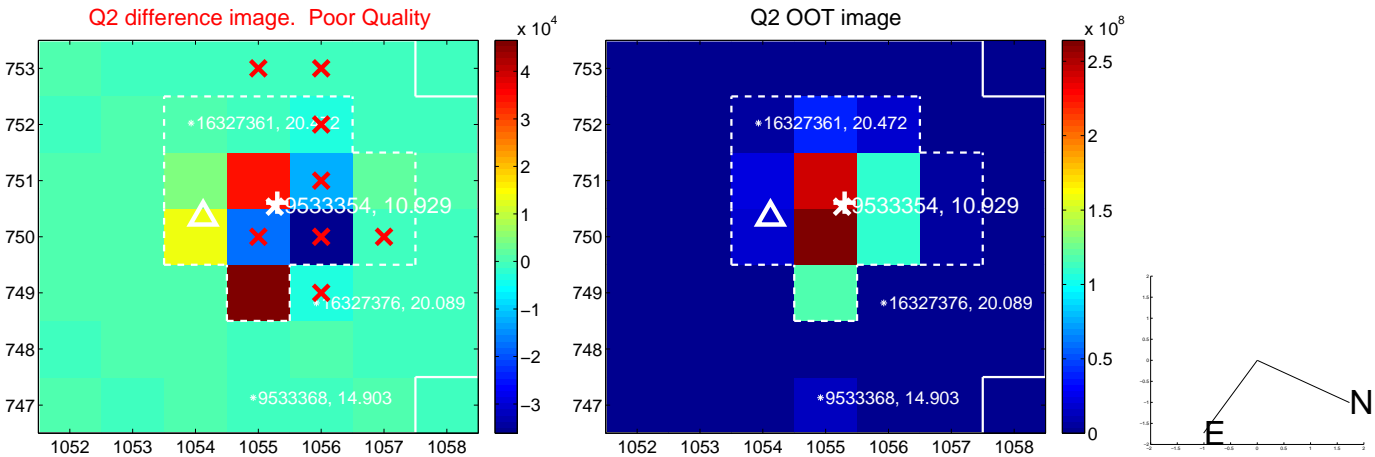
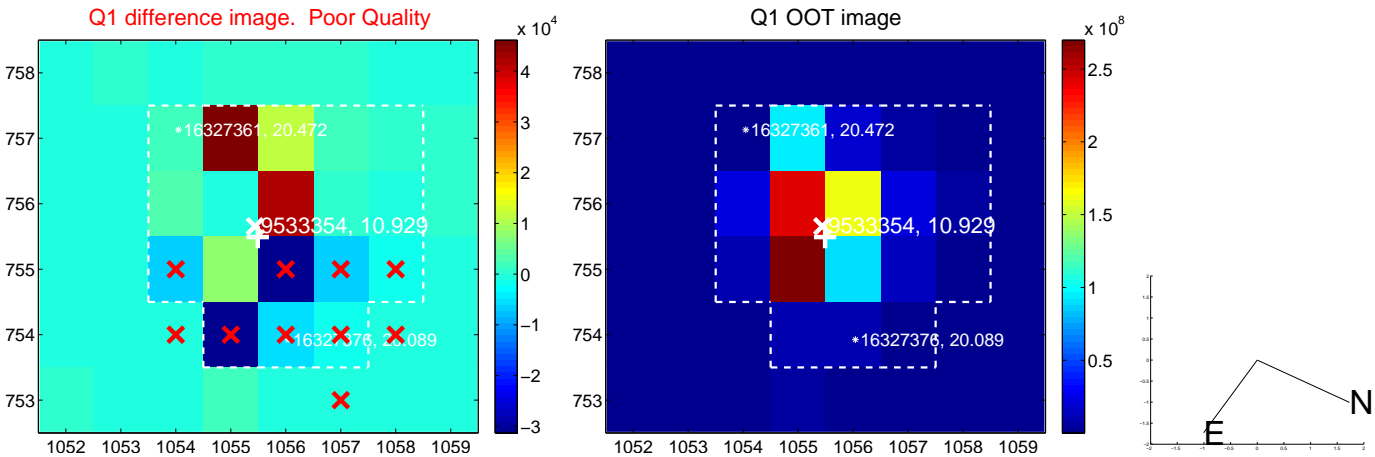
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>4.715 <math>\pm</math> 1.452</b>	<b>3.25</b>	3.762 $\pm$ 1.413	-2.843 $\pm$ 1.995
PRF-fit source offset from KIC position	<b>4.825 <math>\pm</math> 1.328</b>	<b>3.63</b>	3.955 $\pm$ 1.558	-2.763 $\pm$ 1.517
photometric centroid source offset	—	—	—	—

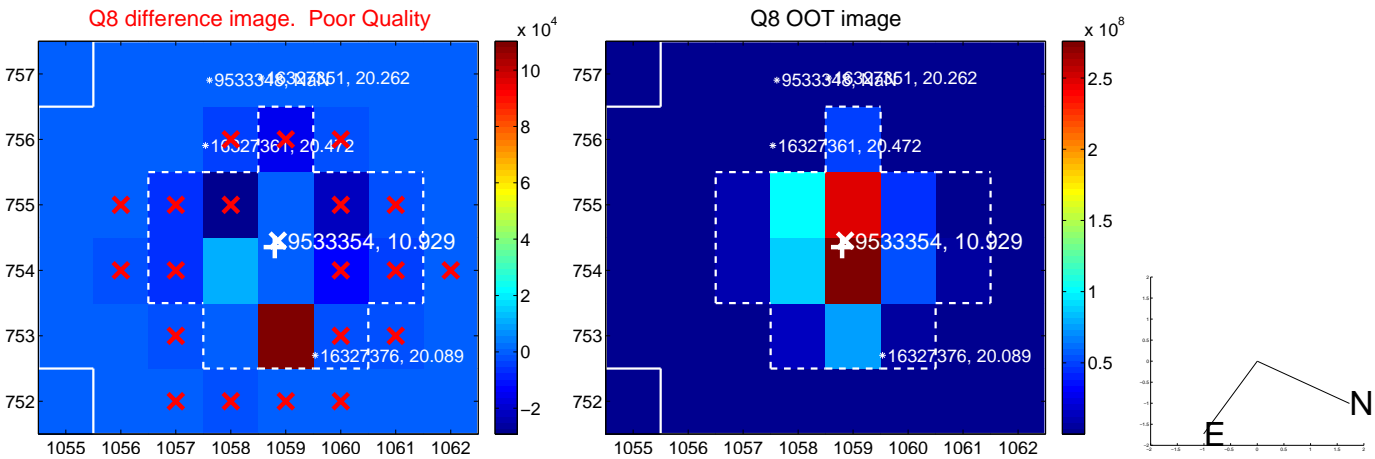
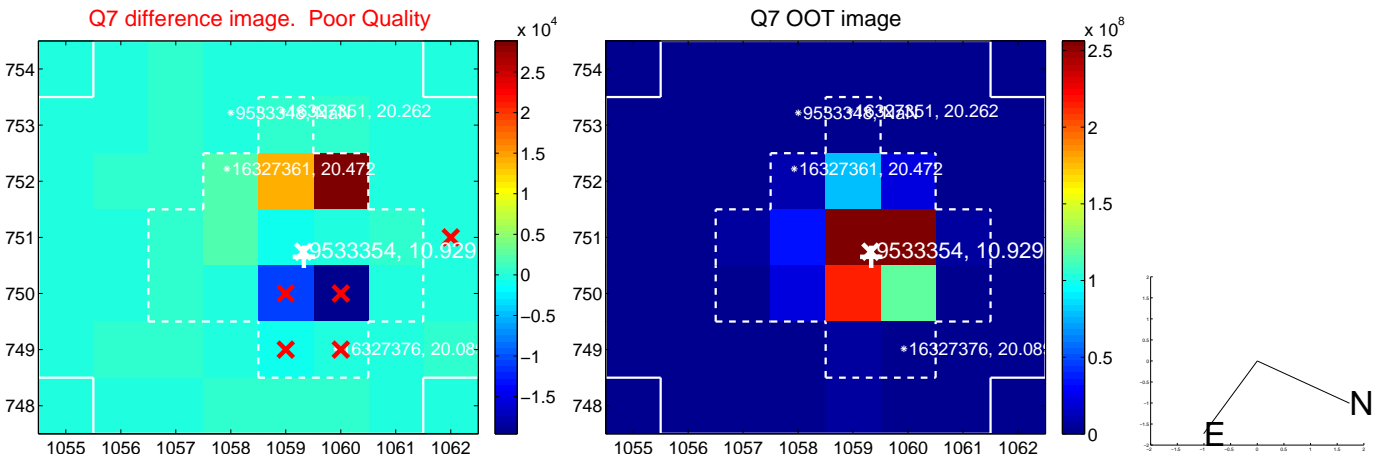
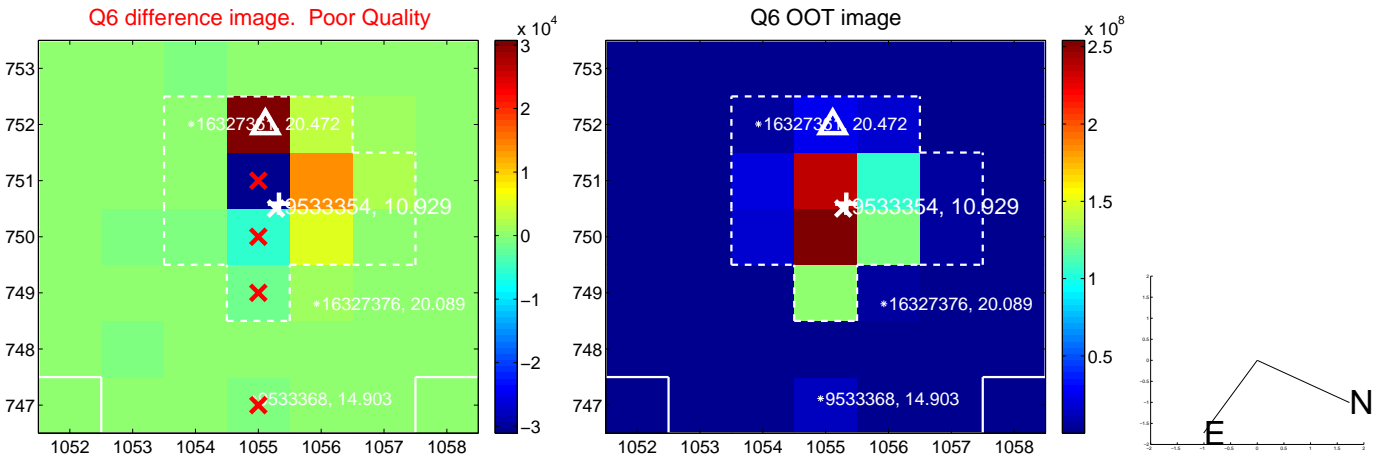
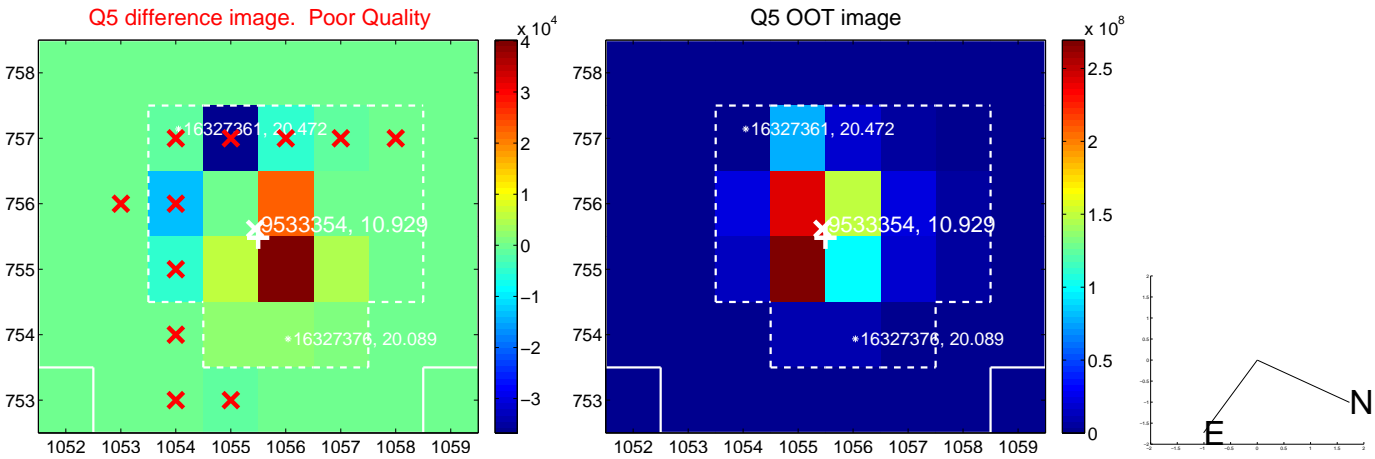


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

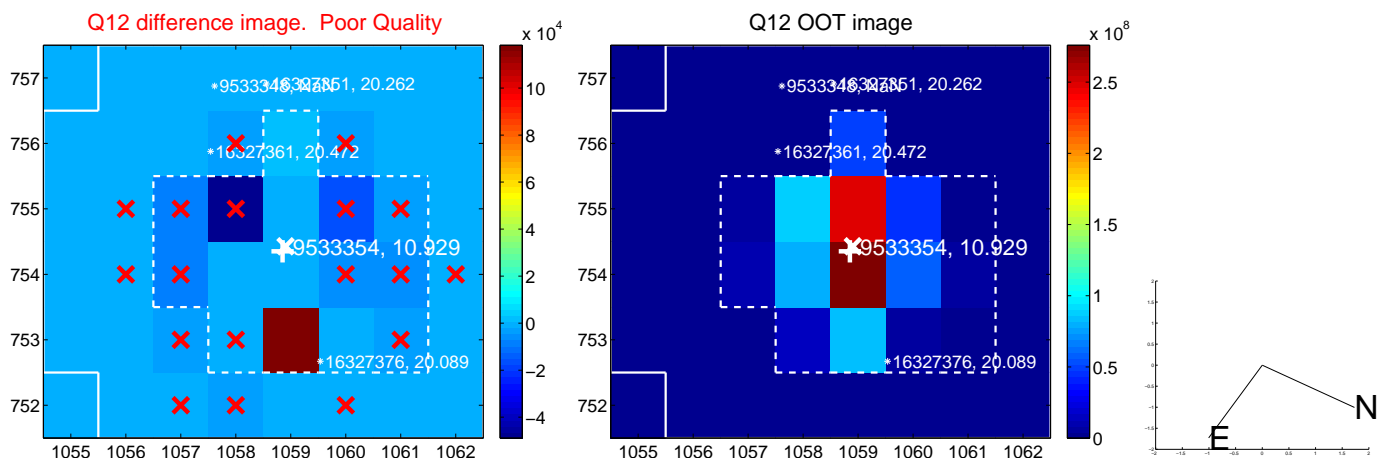
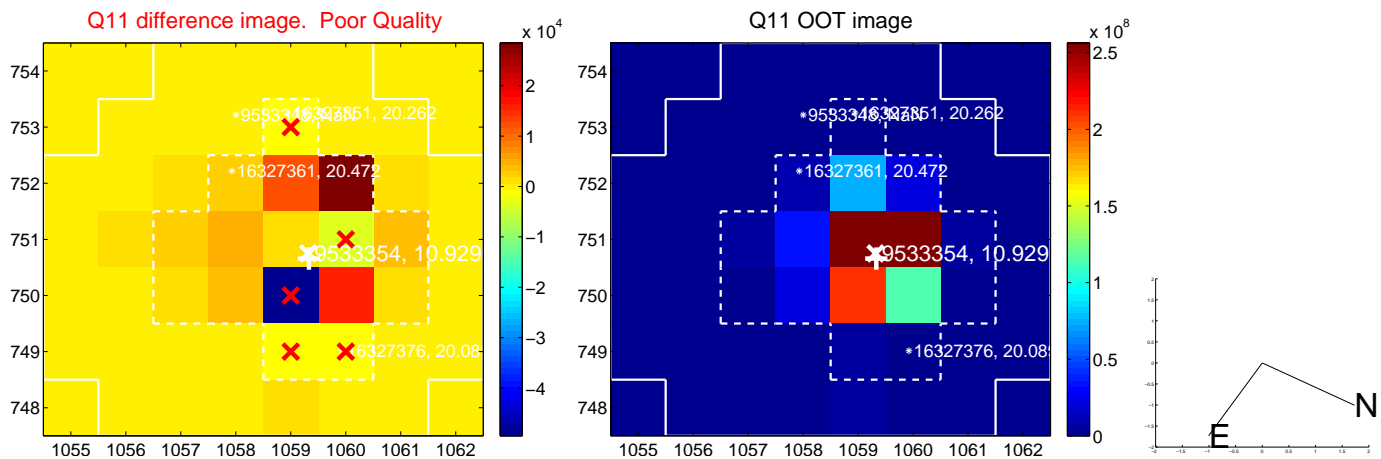
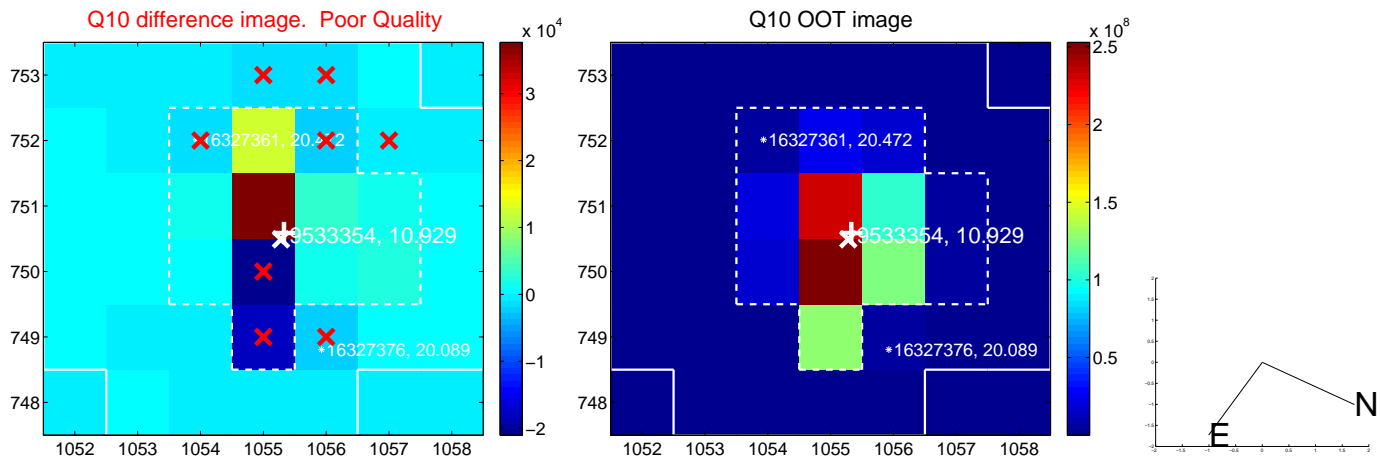
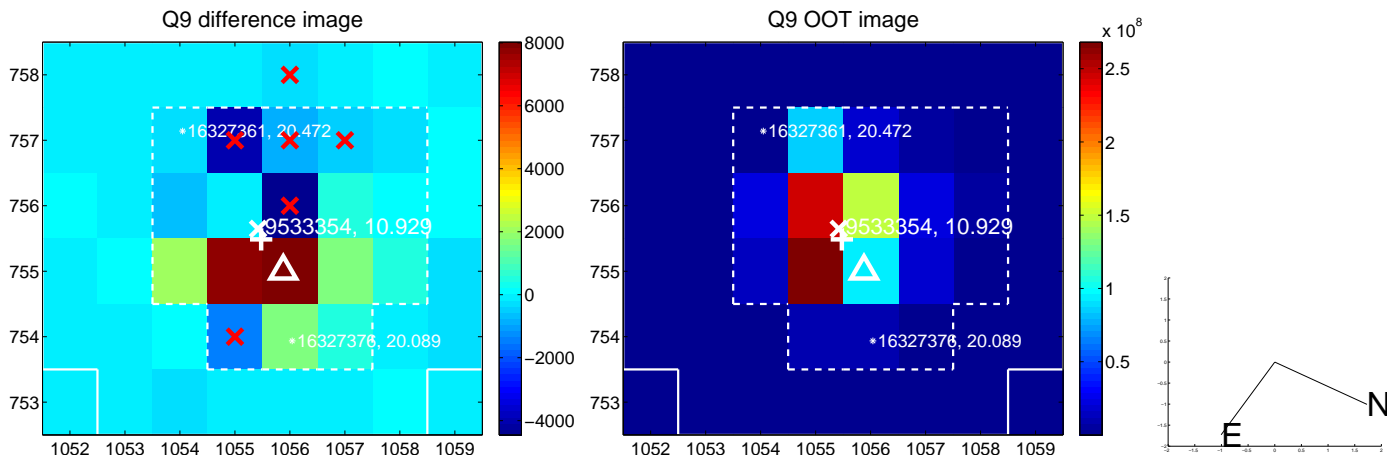


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

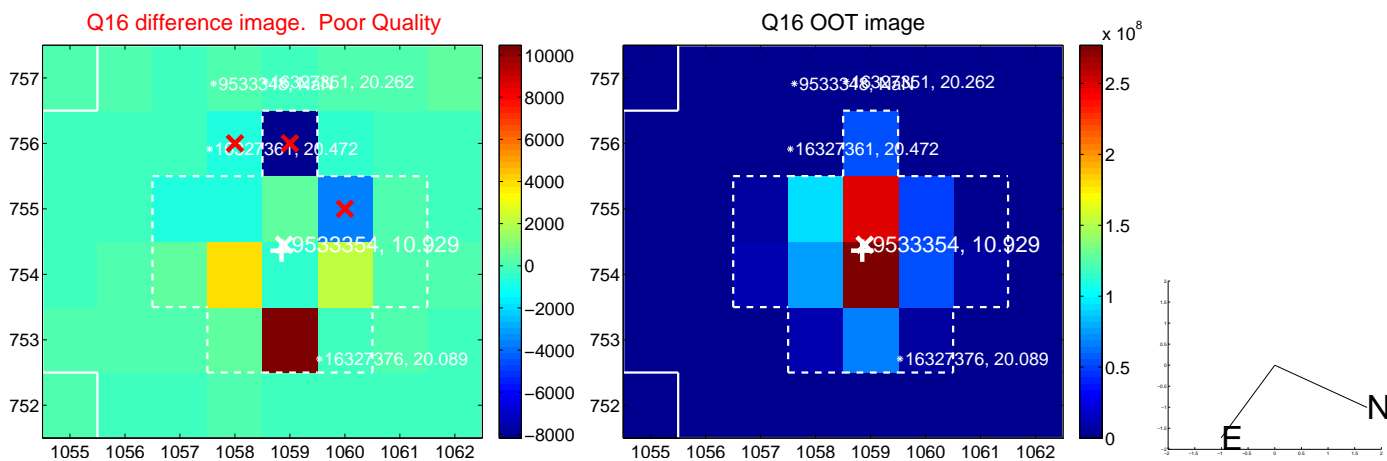
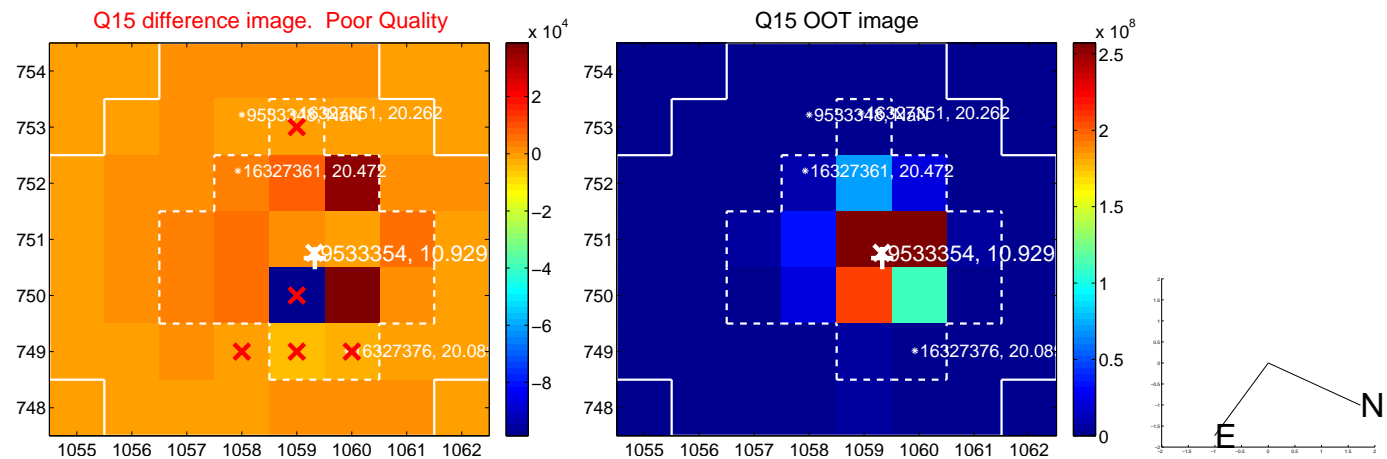
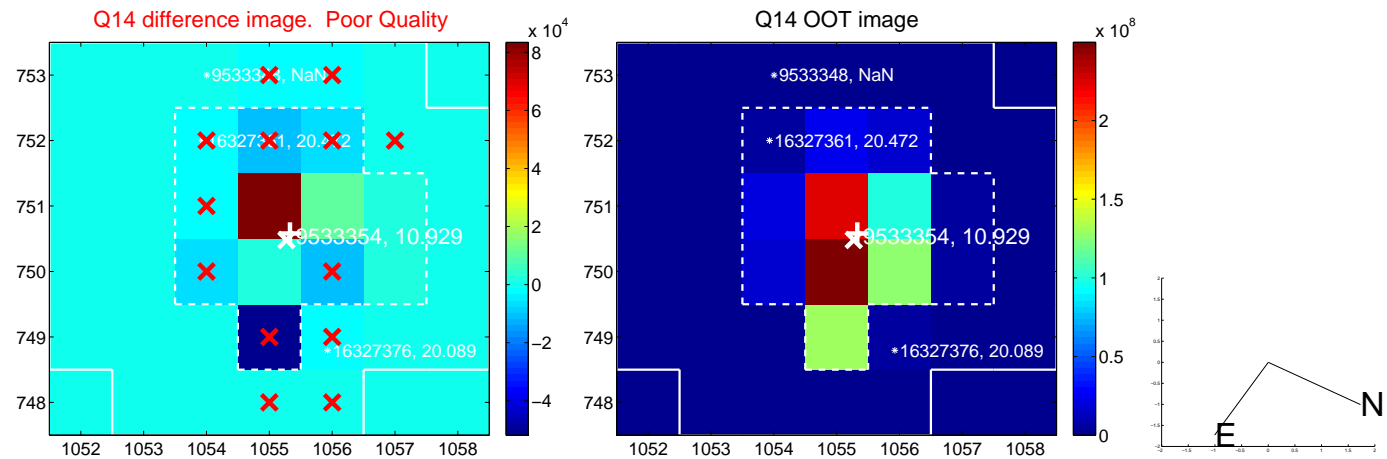
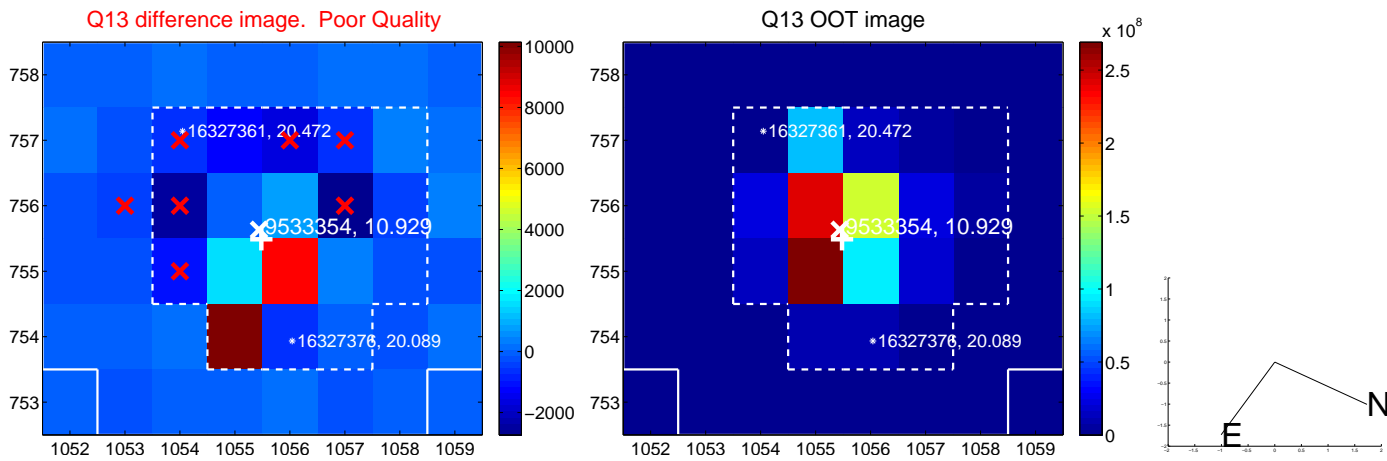




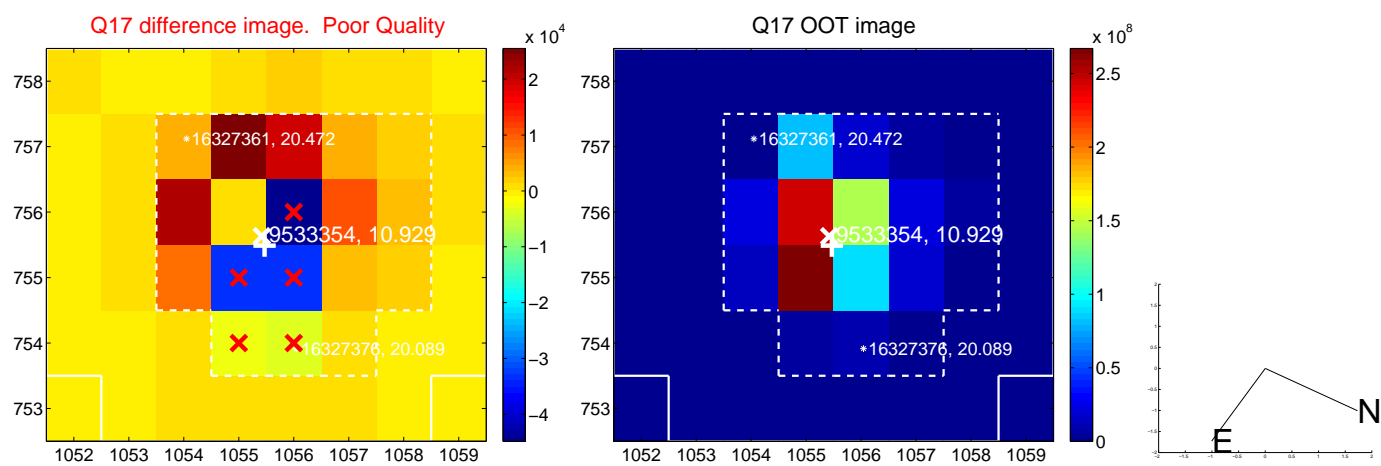
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

