

# KIC 005563937

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005563937-01	OBS	4406.01	0.519436	131.788833	129.3	1.391	13.2	15.1	1.01	6181	1.35	7885.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005563937-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST

**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 005563937-01

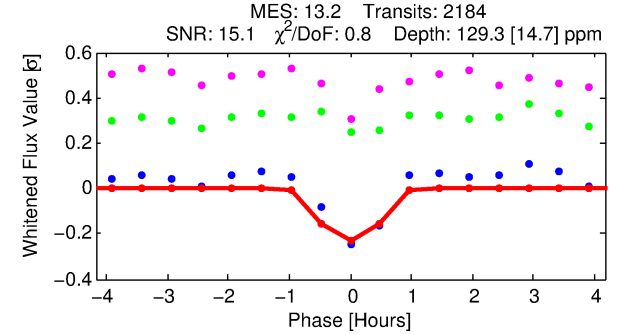
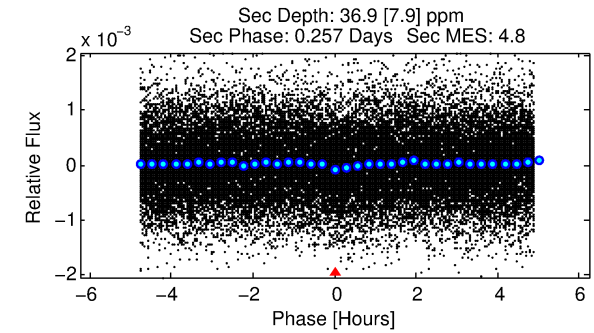
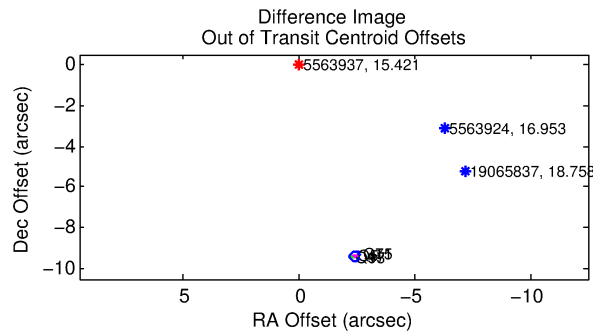
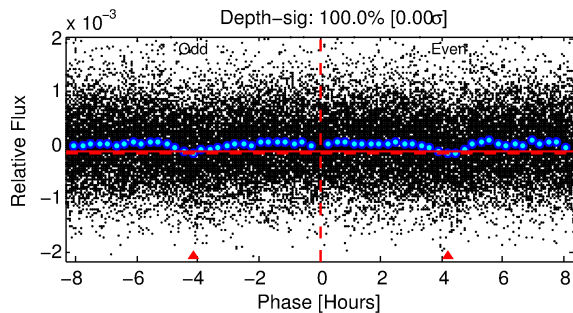
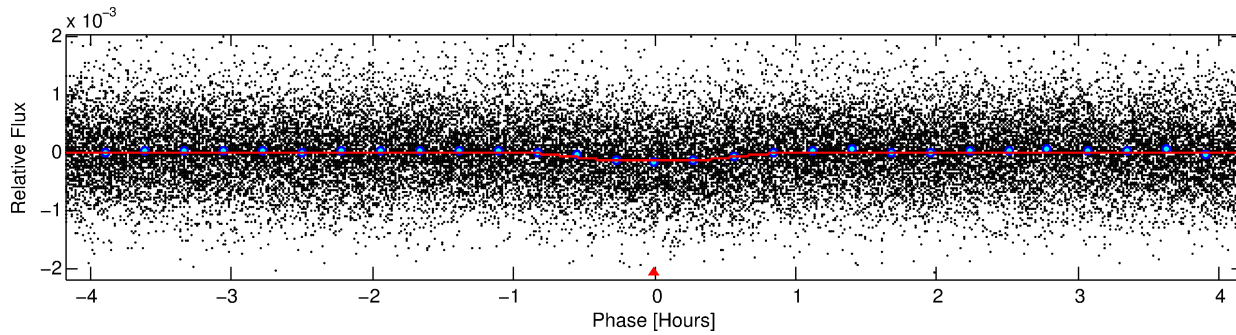
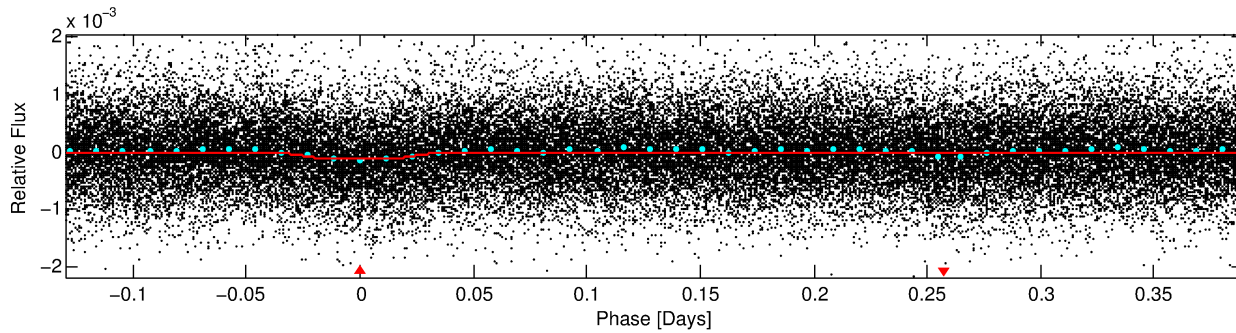
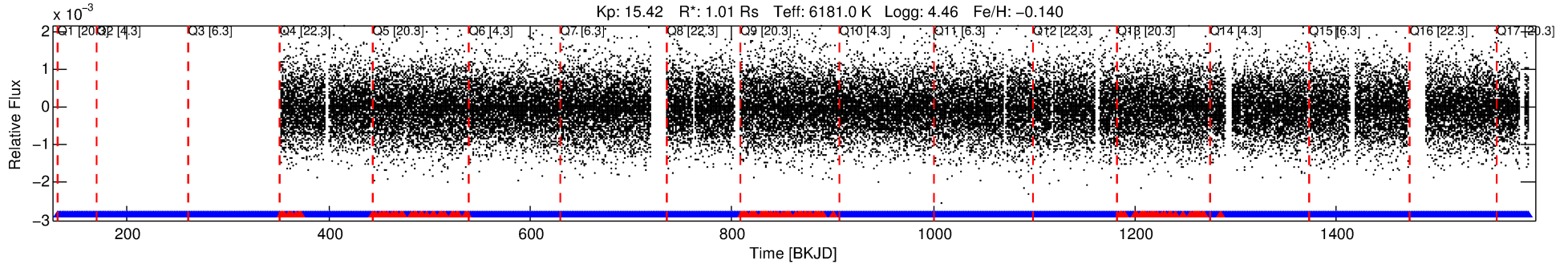
No Significant Match Found

# DV One-Page Summary

KIC: 5563937 Candidate: 1 of 1 Period: 0.519 d

KOI: K04406.01 Corr: 0.802

Kp: 15.42 R\*: 1.01 Rs Teff: 6181.0 K Logg: 4.46 Fe/H: -0.140



## DV Fit Results:

Period = 0.51944 [0.00001] d  
Epoch = 131.7888 [0.0014] BKJD  
Rp/R\* = 0.0123 [0.0052]  
a/R\* = 1.61 [2.23]  
b = 0.90 [0.47]  
Seff = 7885.30 [3379.68]  
Teq = 2403 [257] K  
Rp = 1.35 [0.72] Re  
a = 0.0130 [0.0035] AU  
Ag = 1.86 [1.78] [0.49σ]  
Teffp = 4340 [958] K [1.95σ]

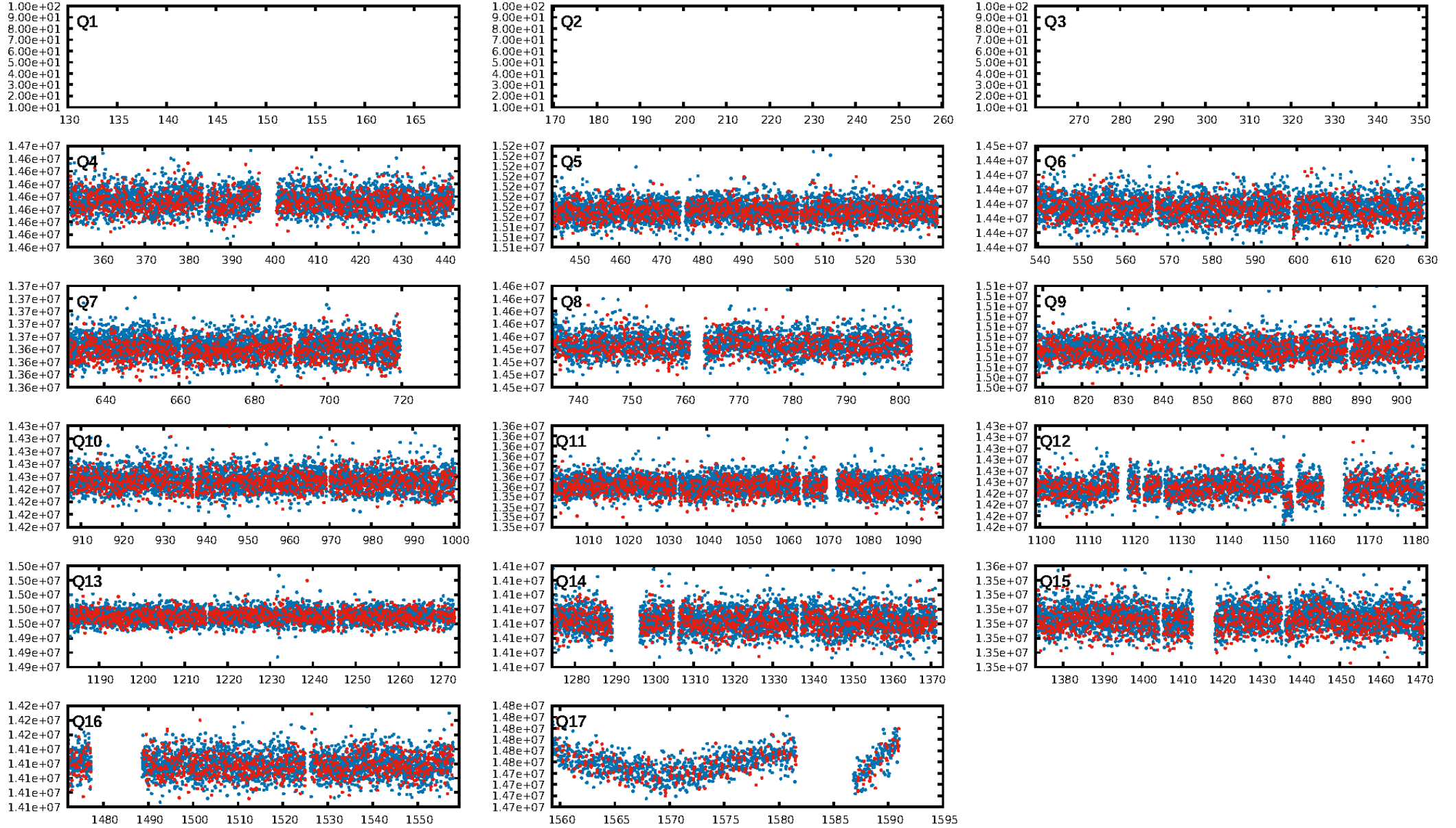
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.81e-38  
RollingBand-fgt: 0.94 [2008/2133]  
GhostDiagnostic-chr: -0.1202  
Centroid-sig: 0.0%  
Centroid-so: 160.534 arcsec [134.44σ]  
OotOffset-rm: 9.700 arcsec [128.67σ]  
KicOffset-rm: 9.993 arcsec [116.85σ]  
OotOffset-st: 0/3/0/4 [7]  
KicOffset-st: 0/3/0/4 [7]  
DiffImageQuality-fgm: 1.00 [7/7]  
DiffImageOverlap-fno: 1.00 [14/14]

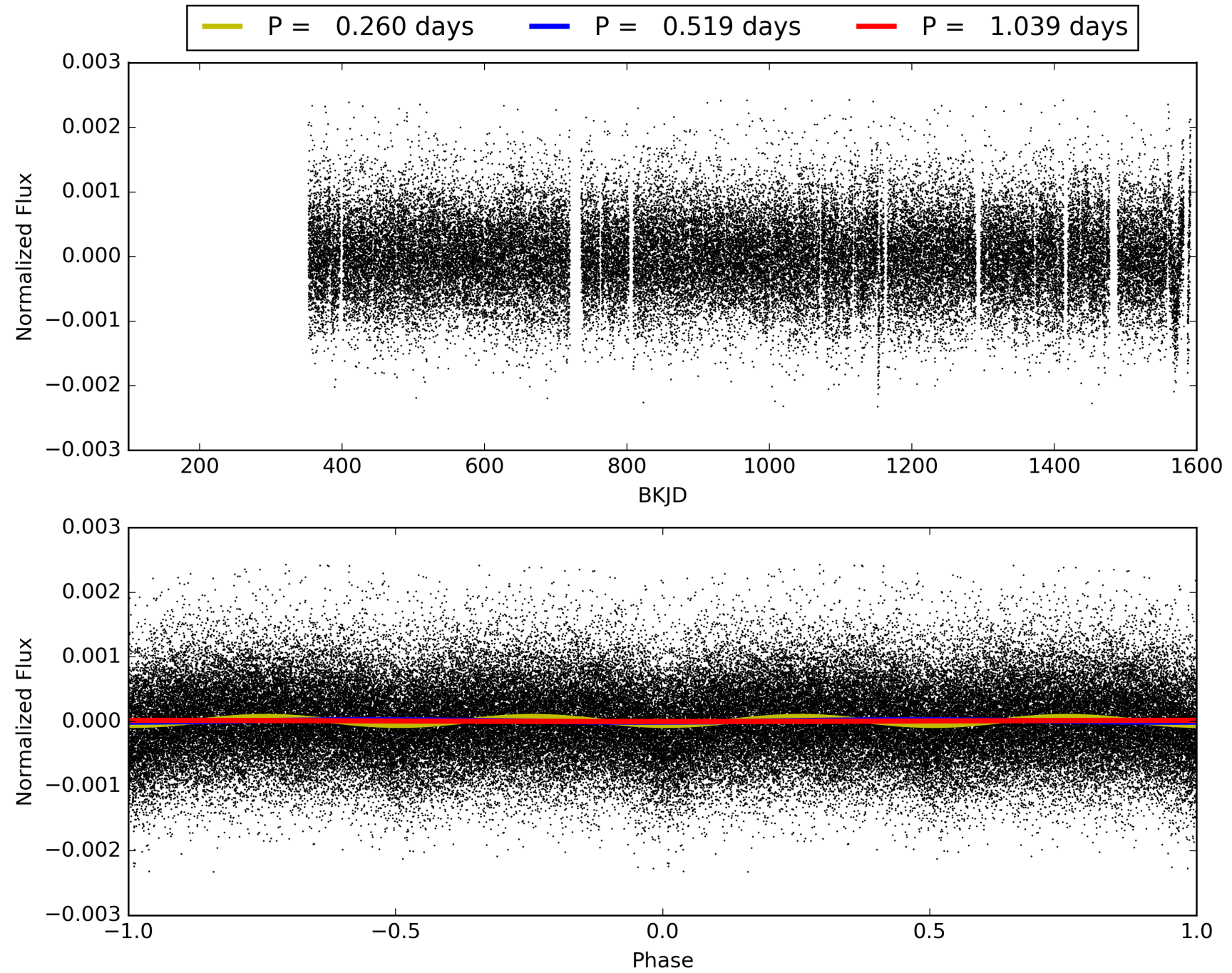
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:35:49 Z

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

# TCE 005563937-01, PDC Light Curves



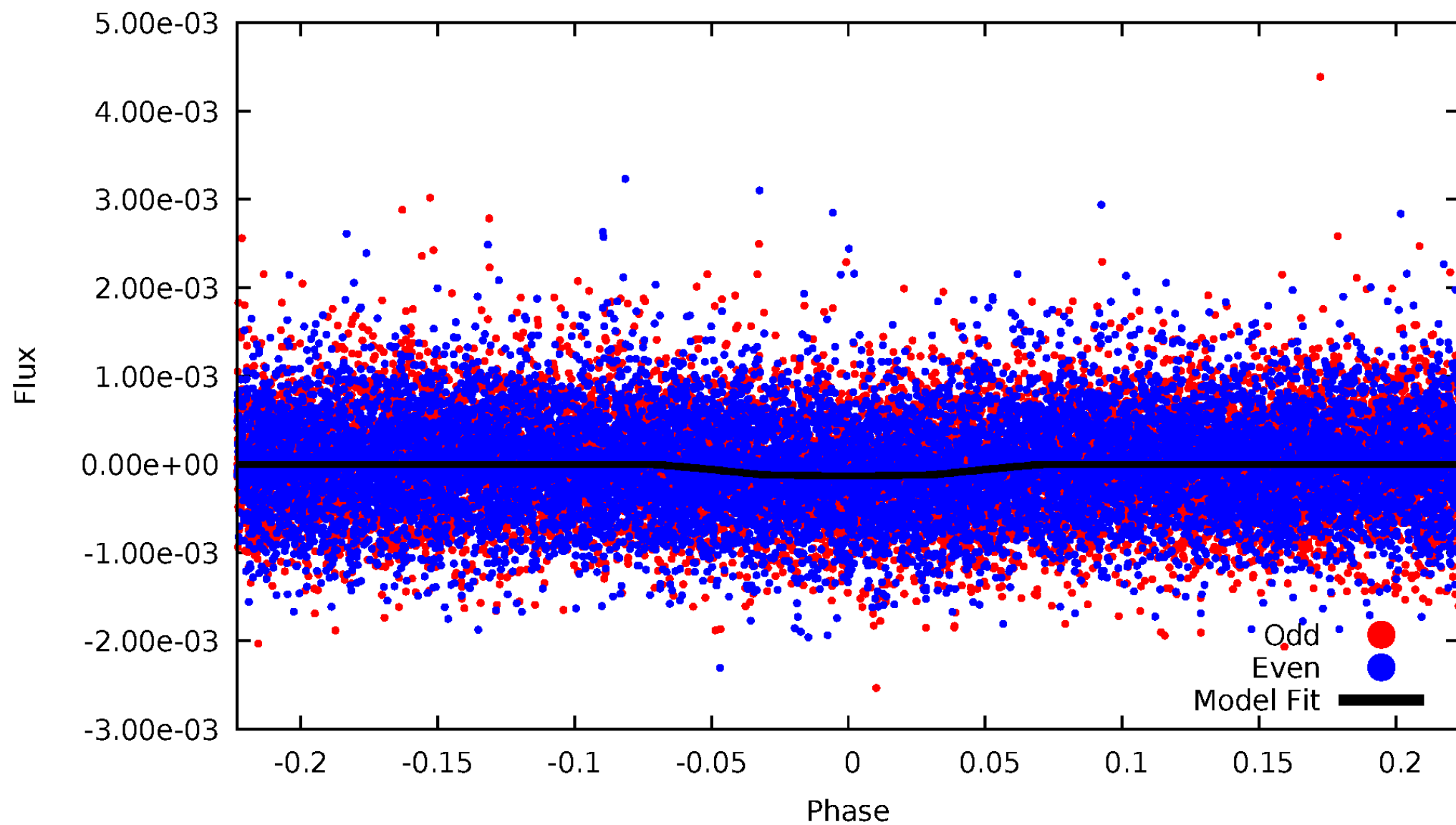
TCE 005563937-01





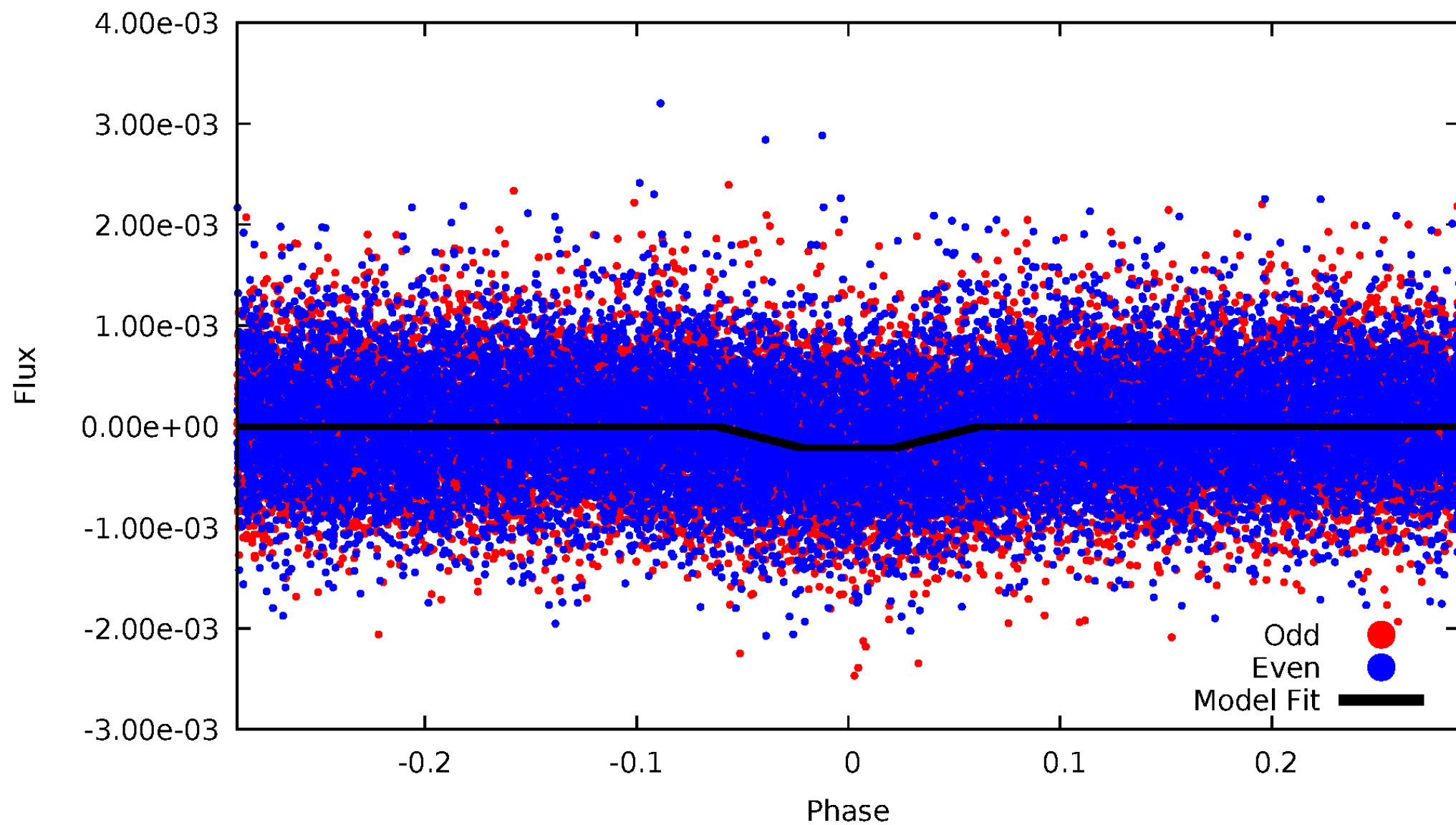
# DV Odd/Even

TCE 005563937-01



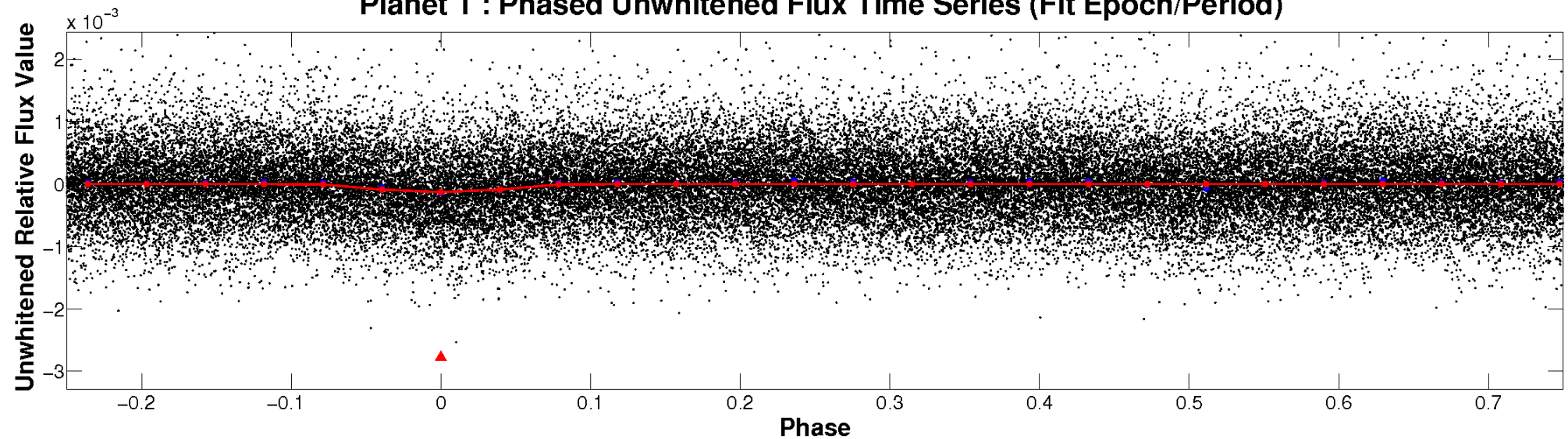
# ALT Odd/Even

TCE 005563937-01

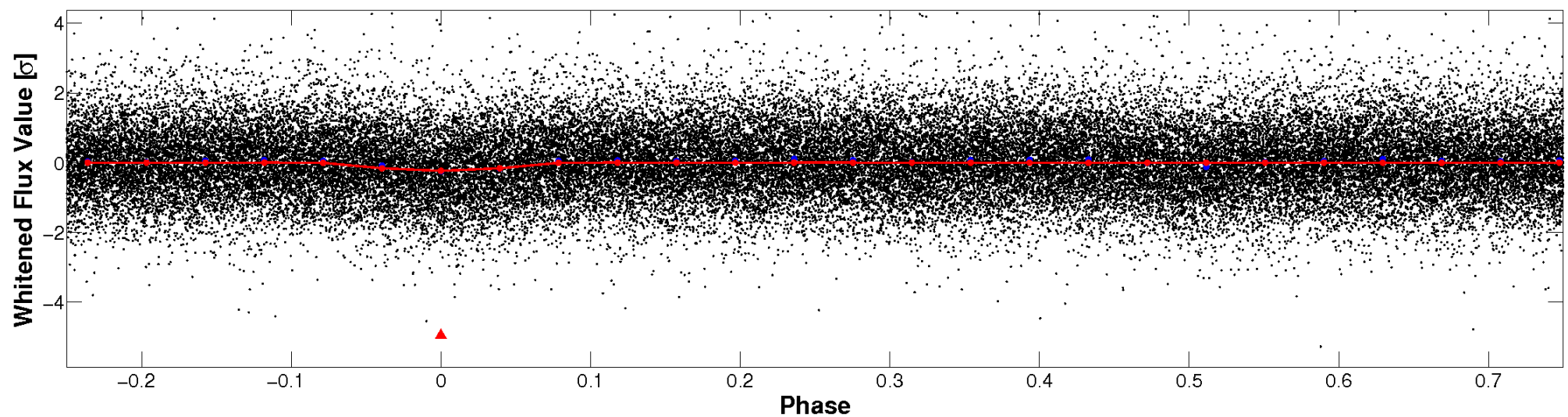


# Non-Whitened Vs. Whitened Light Curve

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

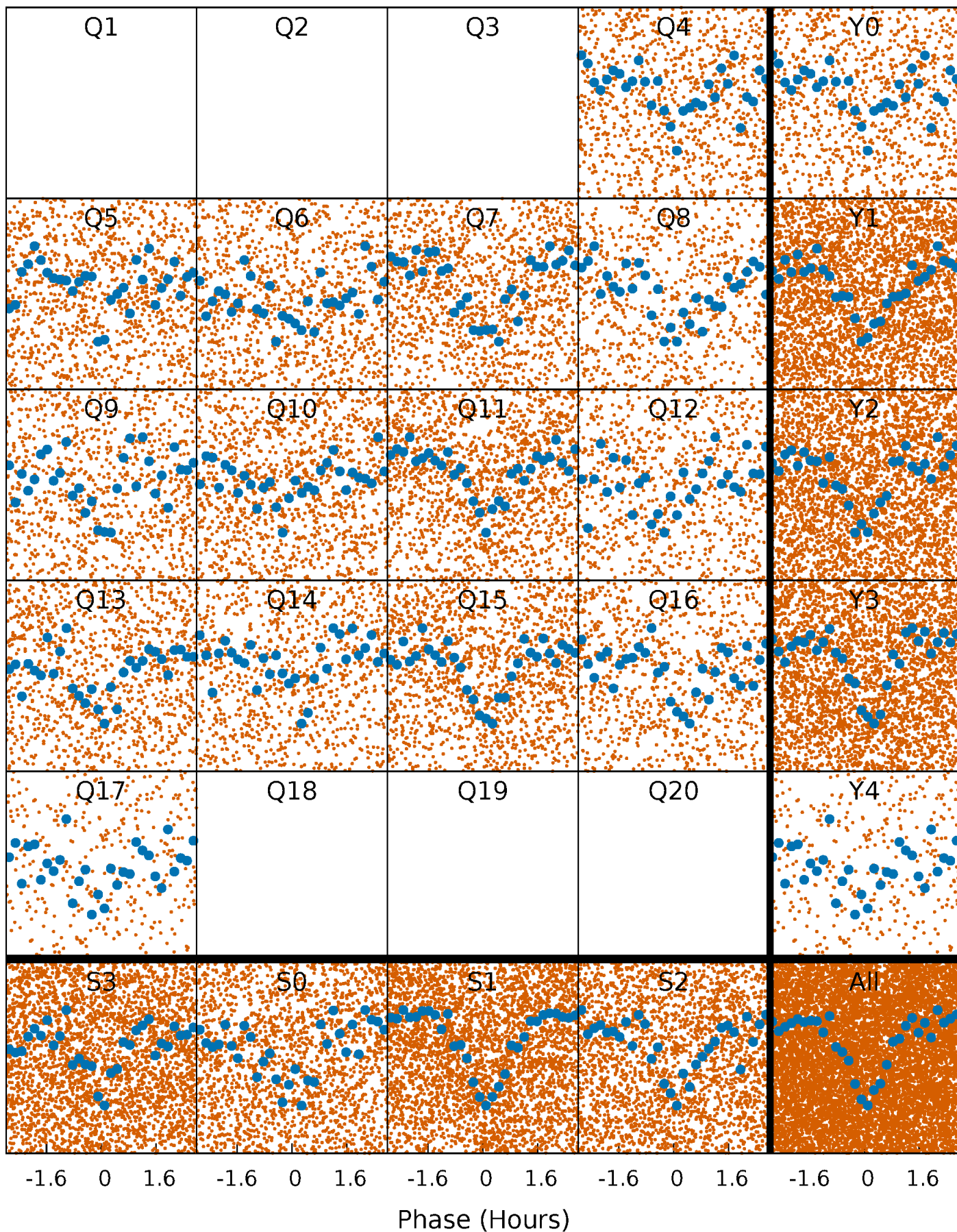


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

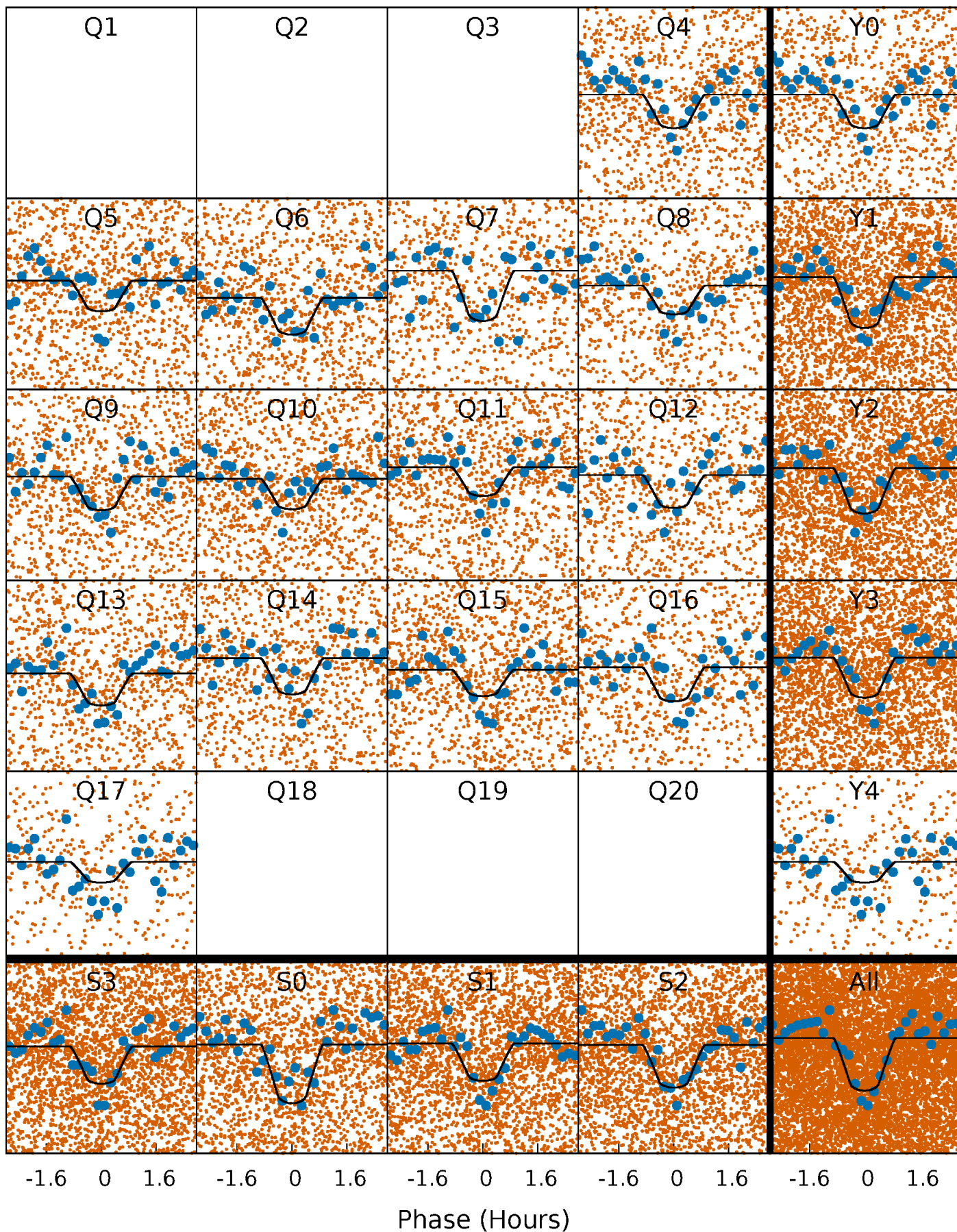
TCE 005563937-01 P= 0.519436 Days  $T_0=131.788833$  (BKJD)





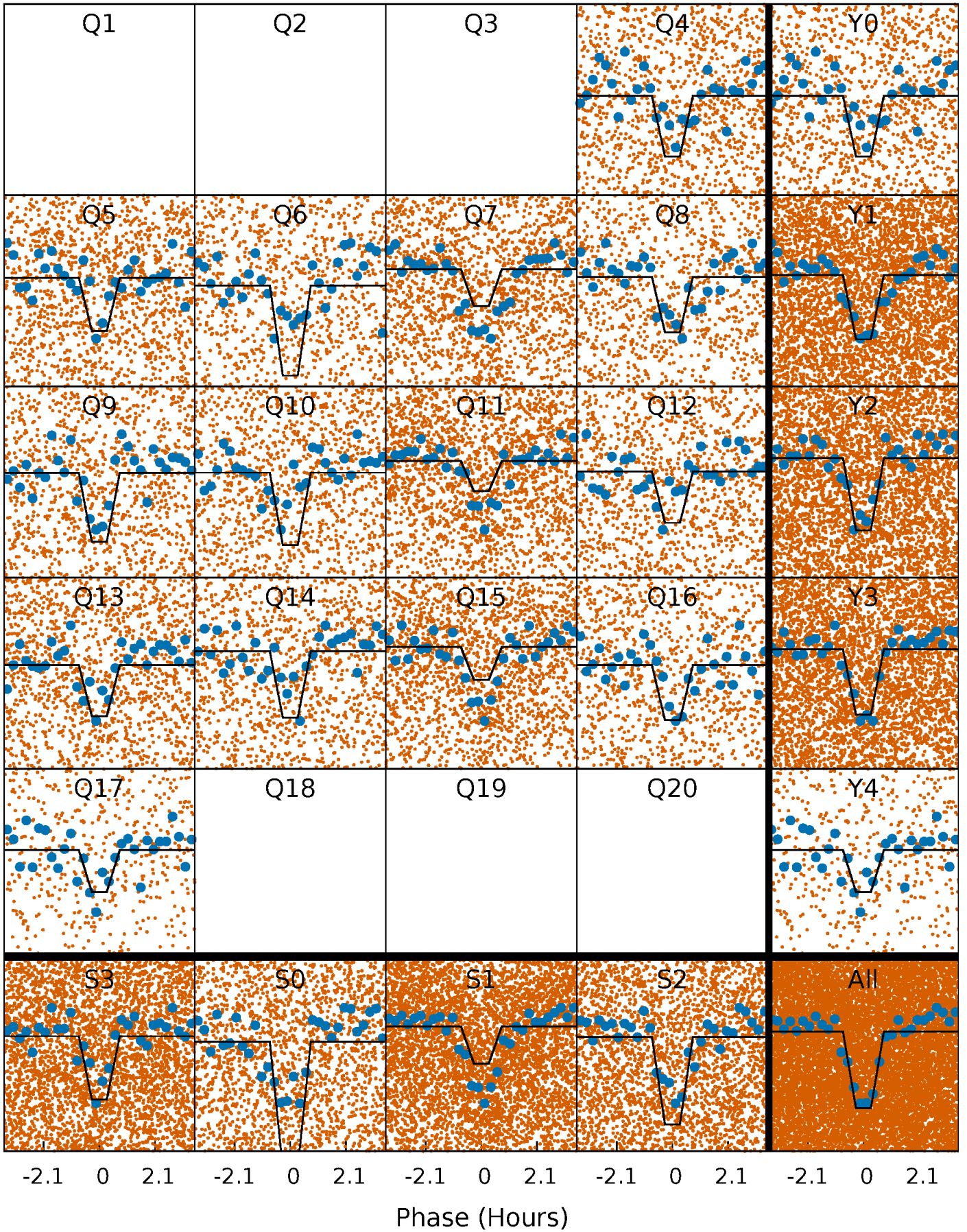
# DV Quarter-Phased Transit Curves

TCE 005563937-01 P= 0.519436 Days  $T_0=131.788833$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005563937-01 P= 0.519438 Days  $T_0=131.788649$  (BKJD)

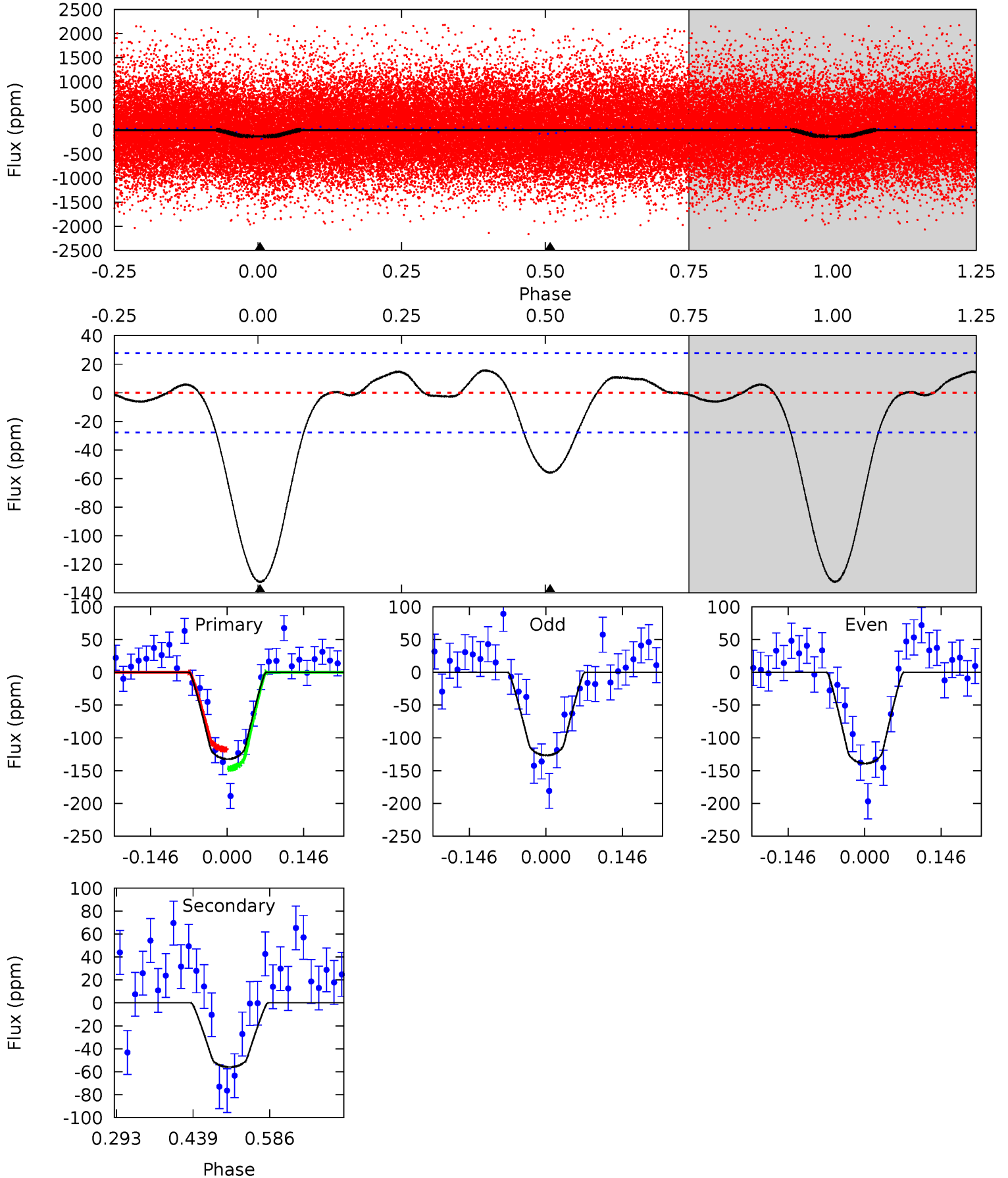




# DV Model-Shift Uniqueness Test

005563937-01, P = 0.519436 Days, E = 131.788833 Days

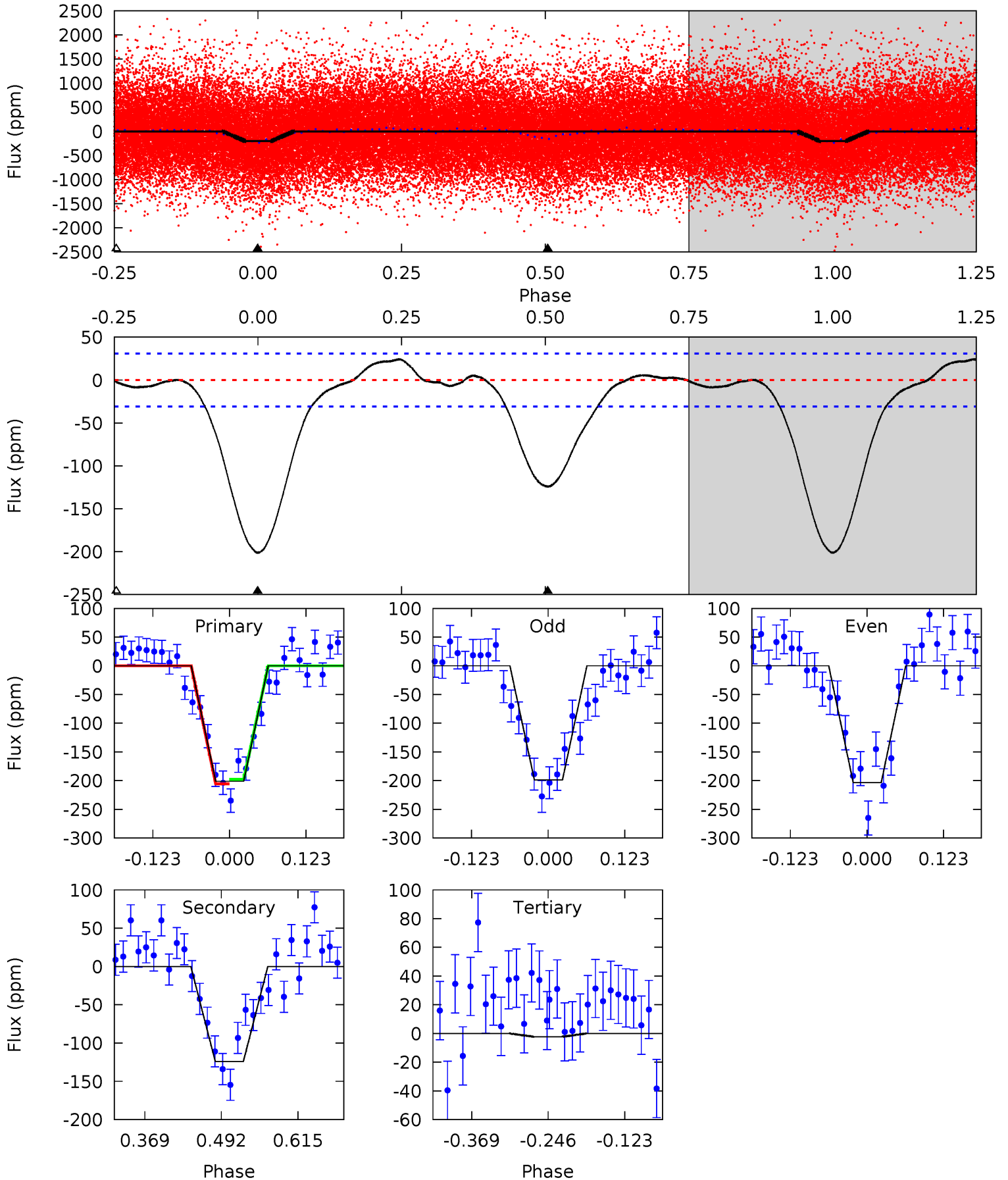
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	9.03	0	0	4.48	1.45	0.96	21.4	21.4	9.03	9.03	1.00	0.91	0.11	2.35



# Alt Model-Shift Uniqueness Test

005563937-01, P = 0.519438 Days, E = 131.788649 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
29.5	18.2	0.34	0	4.52	1.54	1.33	29.2	29.5	17.9	18.2	0.33	1.02	0.11	0.57





### Stellar Parameters For KIC 005563937

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6181^{+193}_{-257}$	$4.464^{+0.054}_{-0.216}$	$-0.140^{+0.250}_{-0.300}$	$1.006^{+0.324}_{-0.108}$	$1.074^{+0.151}_{-0.151}$	$1.488^{+0.437}_{-0.806}$
	+3%/-4%	+1%/-5%	+179%/-214%	+32%/-11%	+14%/-14%	+29%/-54%
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 005563937-01 / KOI 4406.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-56 \pm 6$	$1.39^{+0.64}_{-0.58}$	$3432^{+250}_{-198}$	$4807^{+1385}_{-769}$	$2.632^{+4.769}_{-1.402}$
Alt.	$-124 \pm 7$	$1.68^{+0.70}_{-0.64}$	$3426^{+249}_{-194}$	$5321^{+1428}_{-725}$	$4.044^{+6.432}_{-1.987}$

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

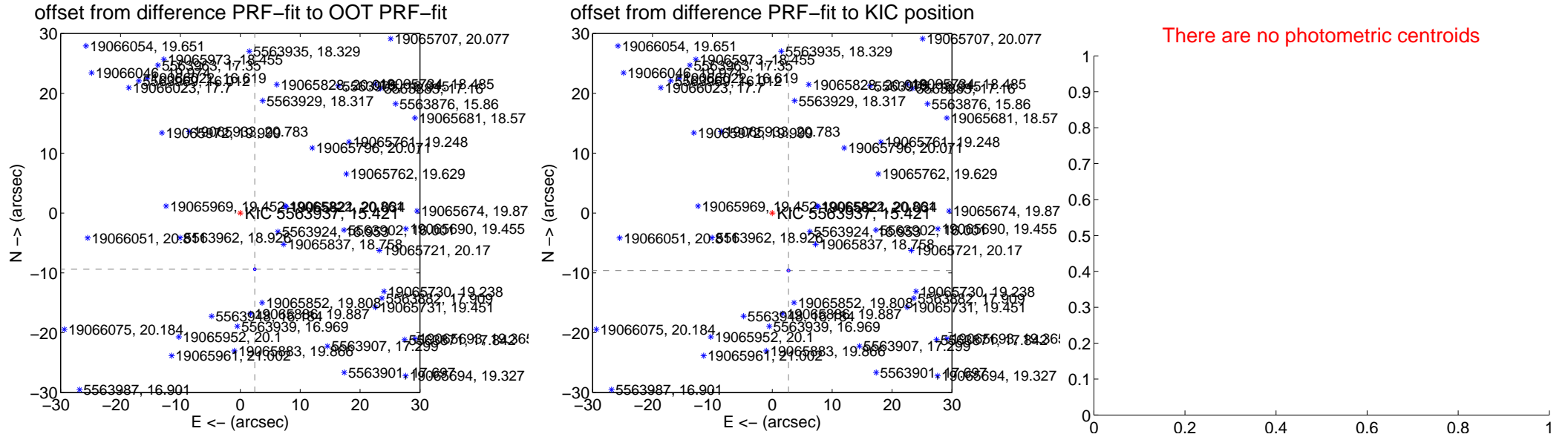
## DV Centroid Data

Supplemental centroid analysis for 005563937-01. Kepler magnitude: 15.42. Transit SNR 15.14

There are 7 quarters with good PRF difference image offsets

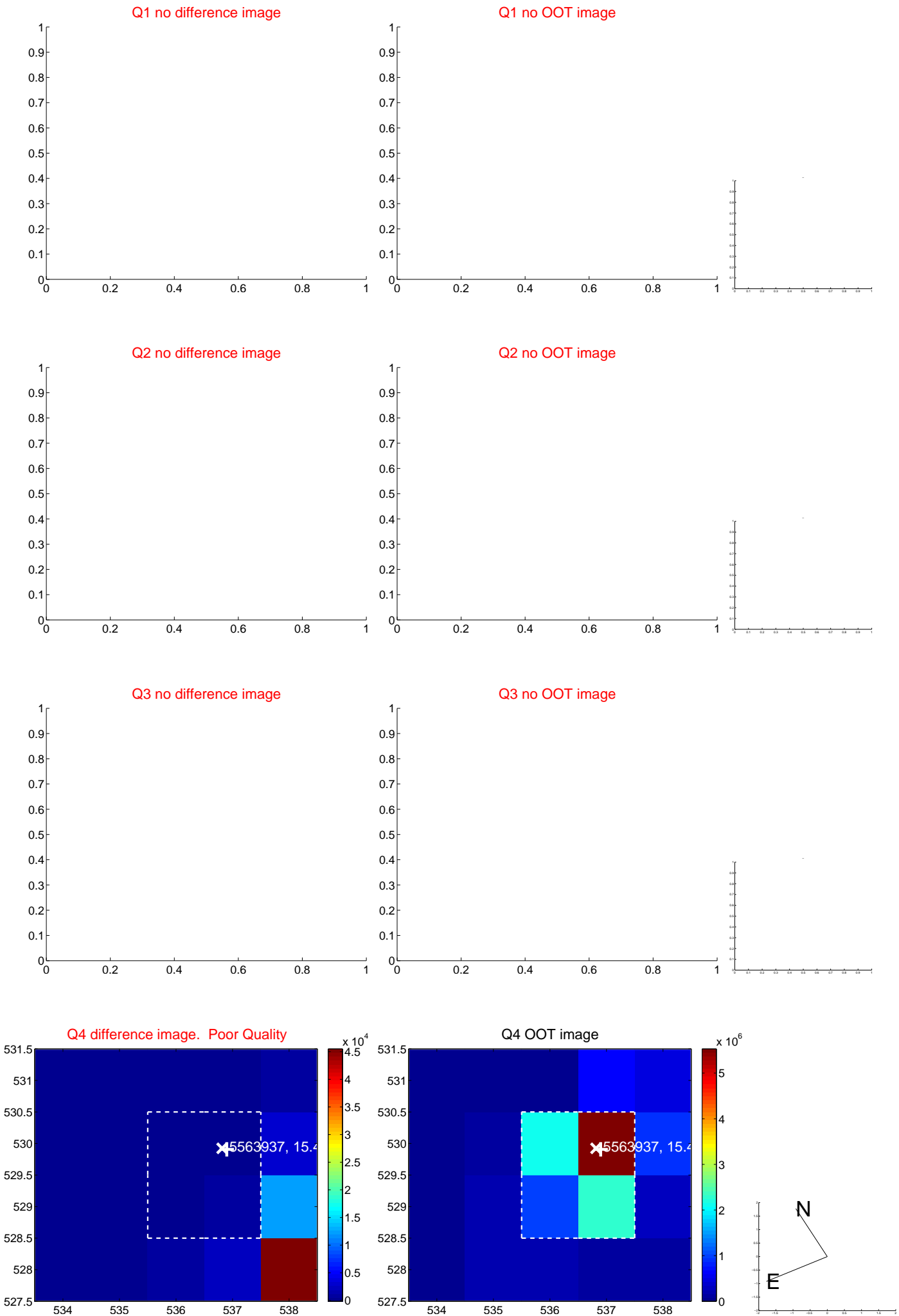
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>9.700 <math>\pm</math> 0.075</b>	<b>128.67</b>	-2.420 $\pm$ 0.092	-9.394 $\pm$ 0.074
PRF-fit source offset from KIC position	<b>9.993 <math>\pm</math> 0.086</b>	<b>116.85</b>	-2.708 $\pm$ 0.073	-9.619 $\pm$ 0.086
photometric centroid source offset	—	—	—	—

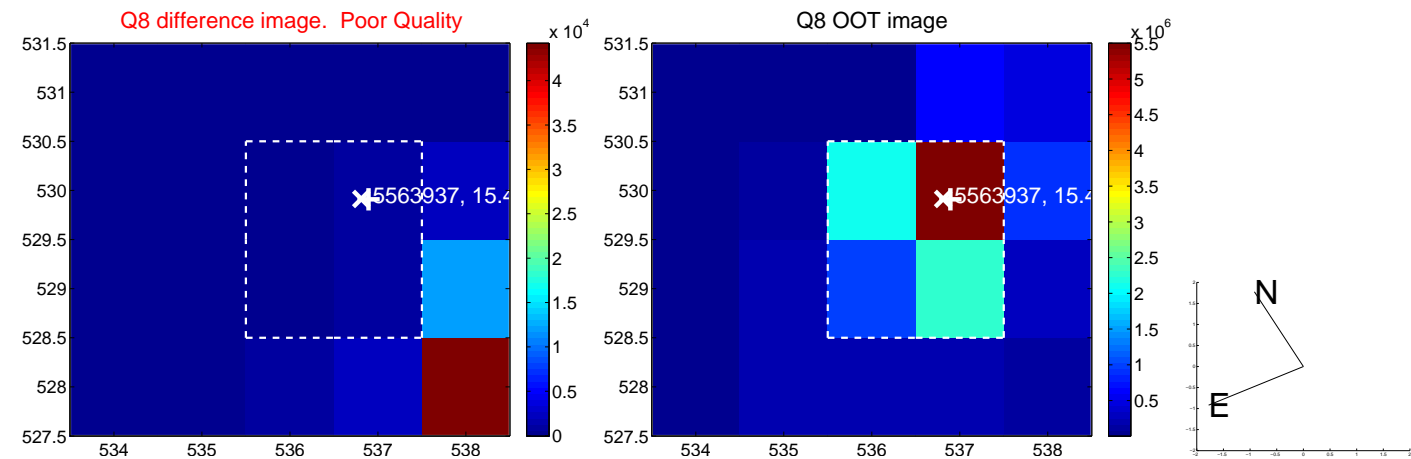
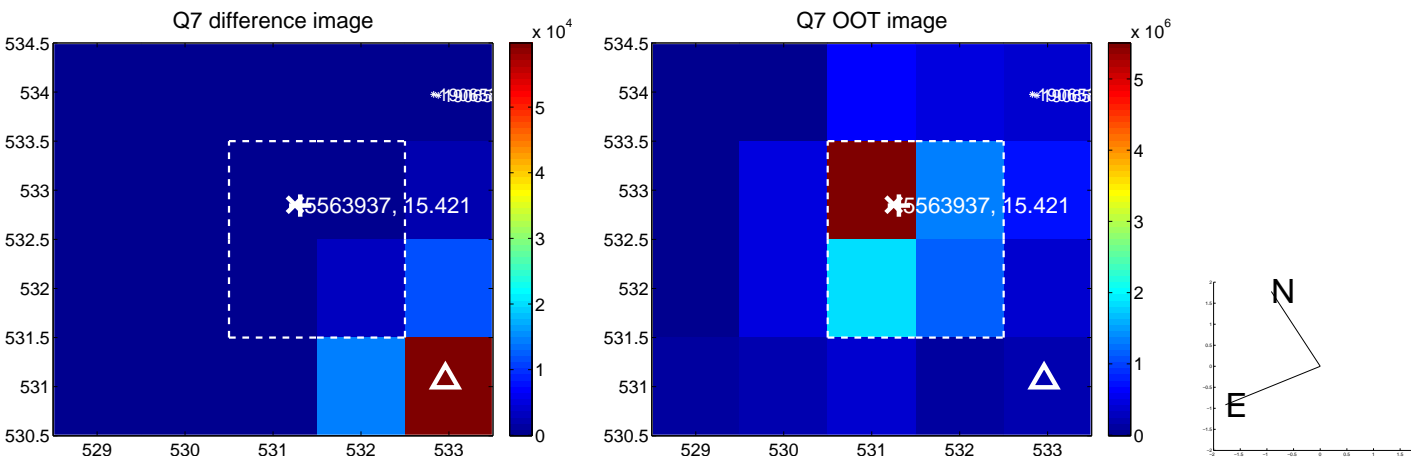
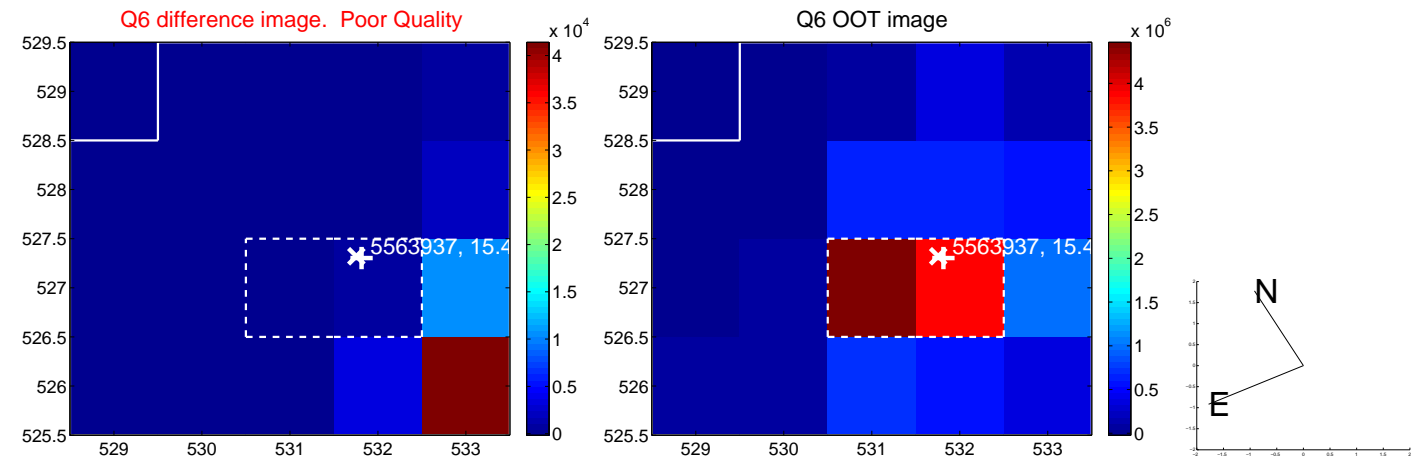
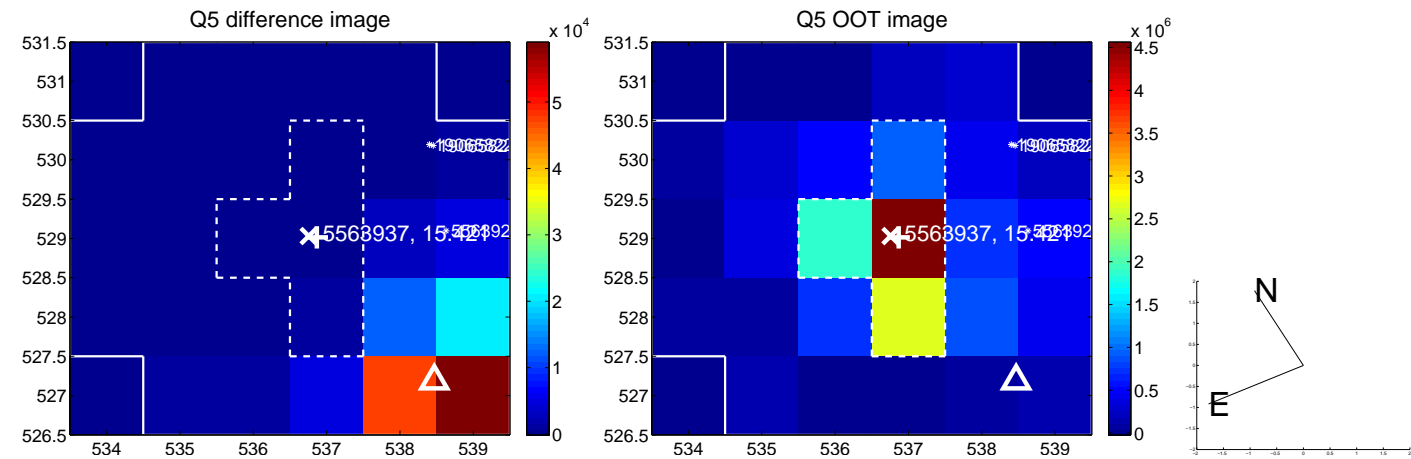


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

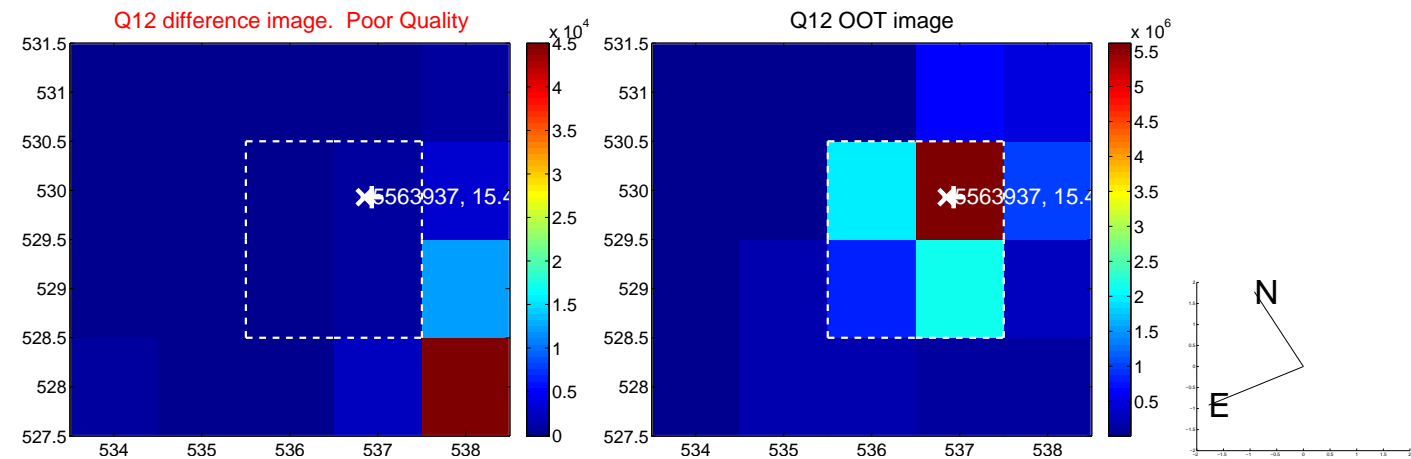
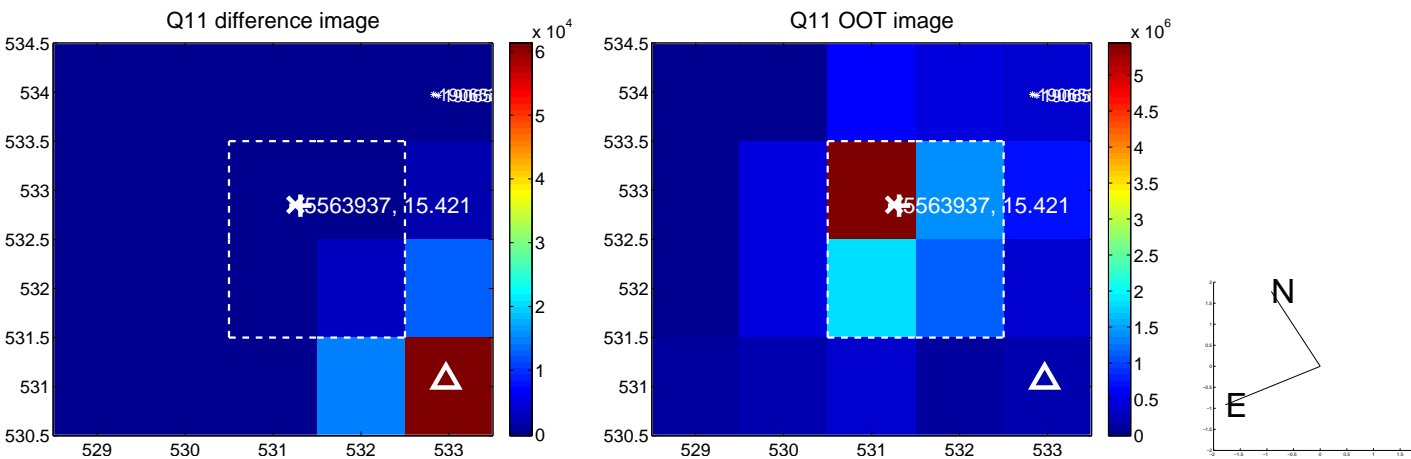
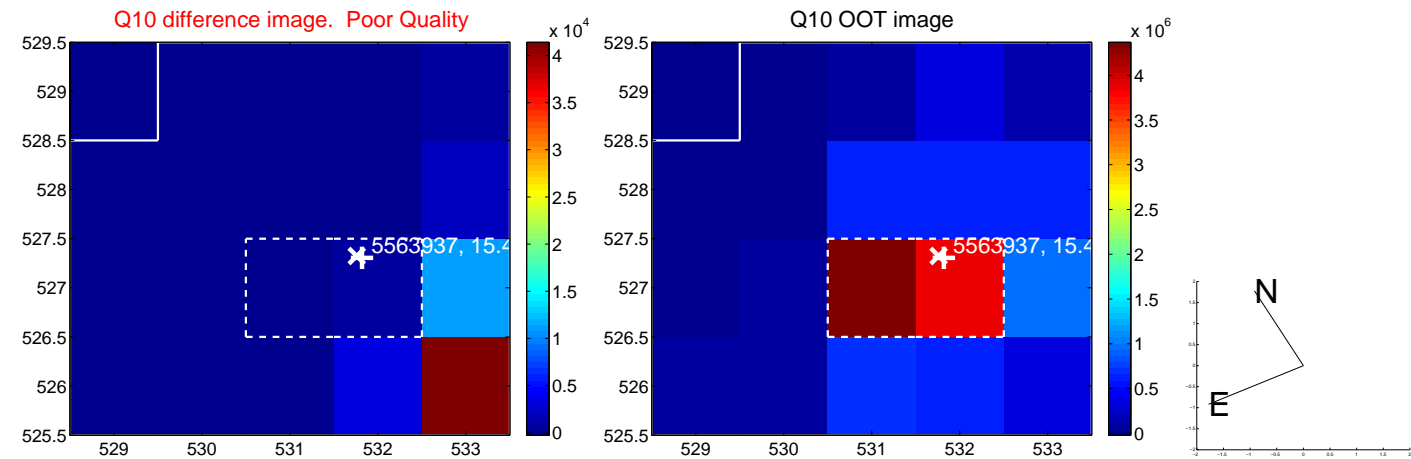
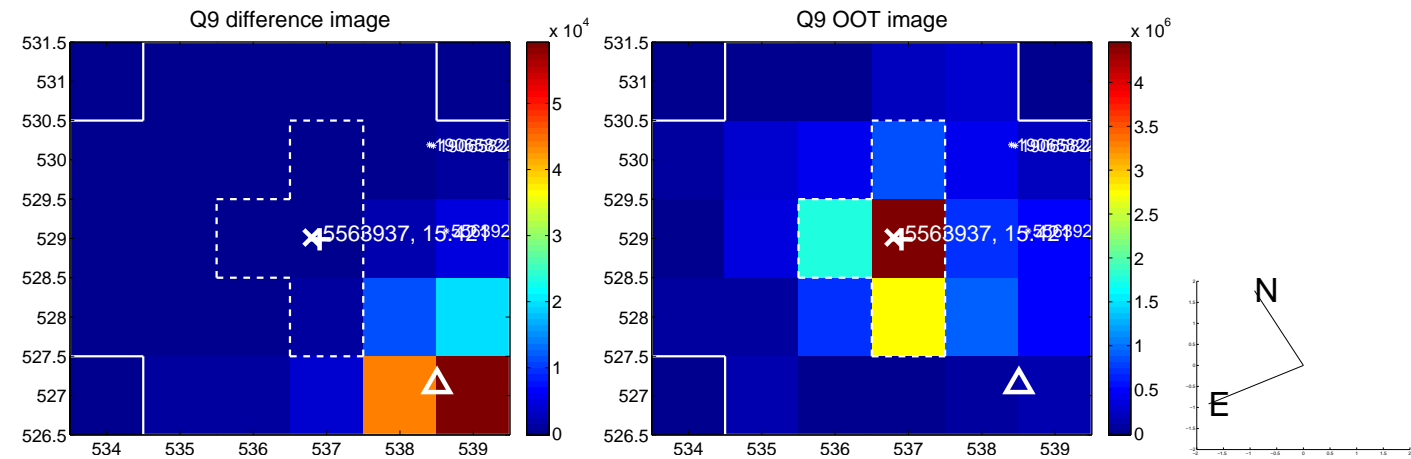


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

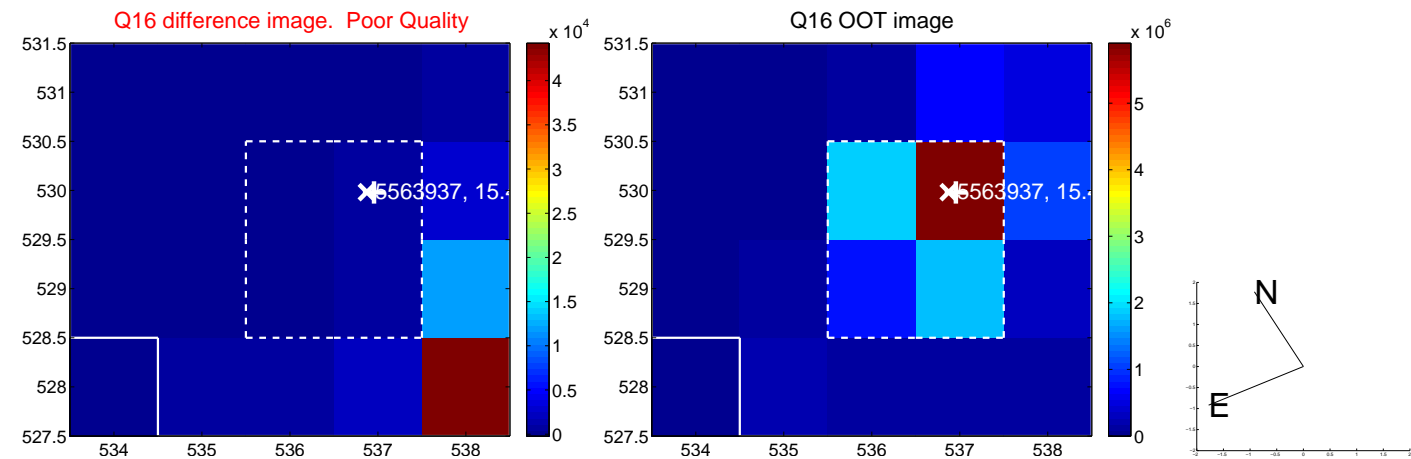
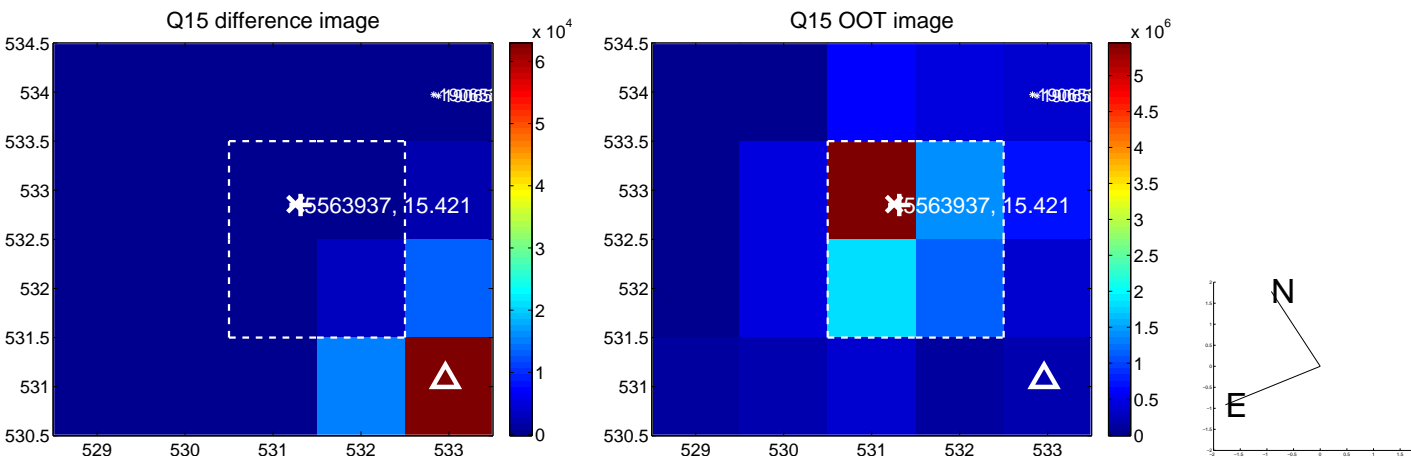
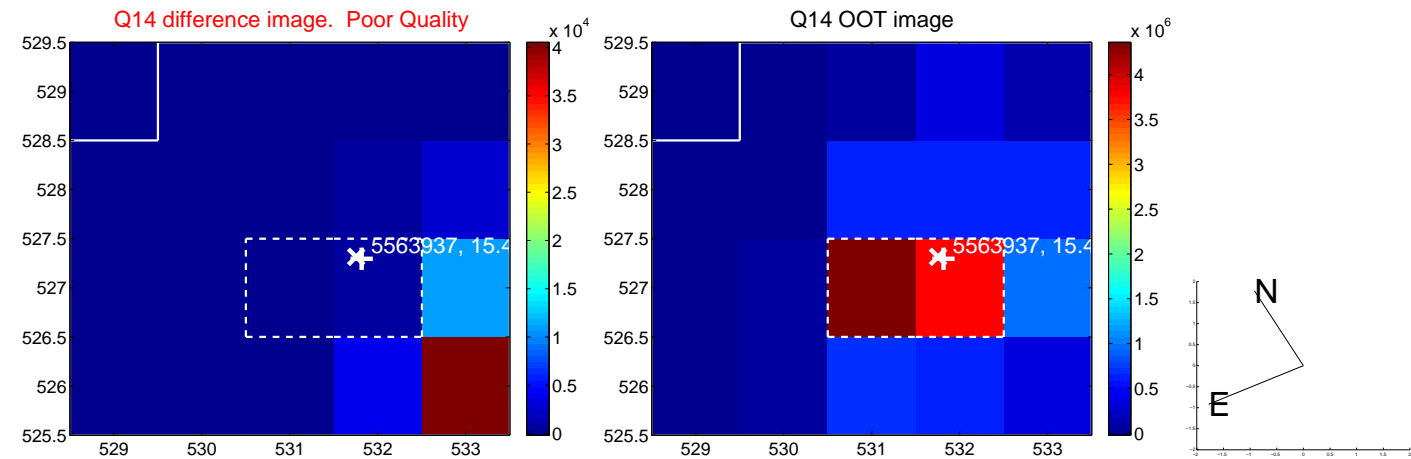
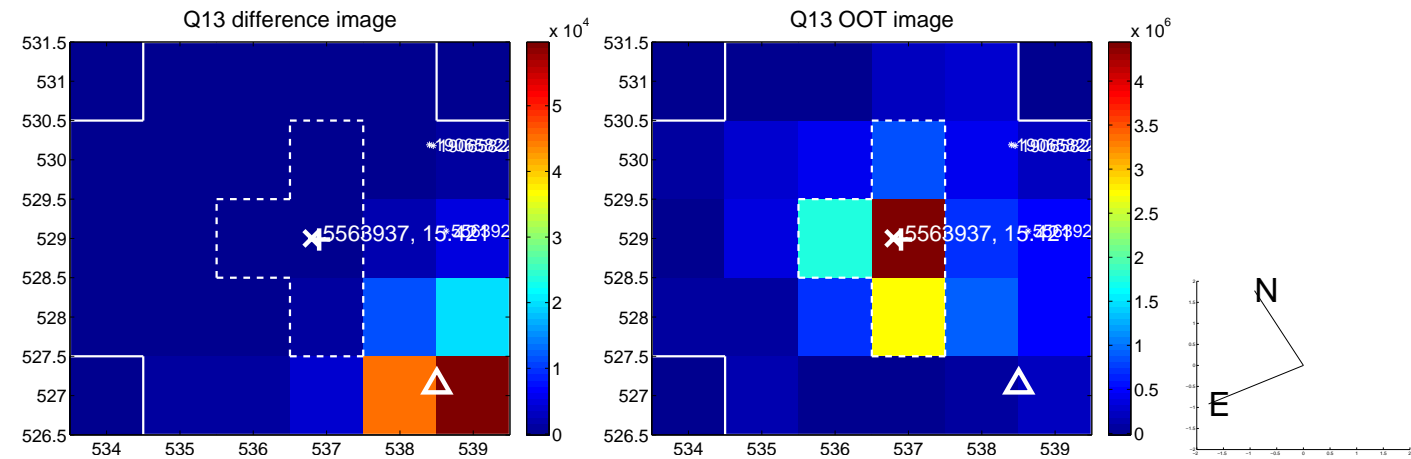




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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





UKIRT Image

