

# KIC 003866536

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003866536-01	OBS	4423.01	7.652063	134.197628	52.9	8.383	10.4	9.5	0.96	6328	0.82	226.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003866536-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

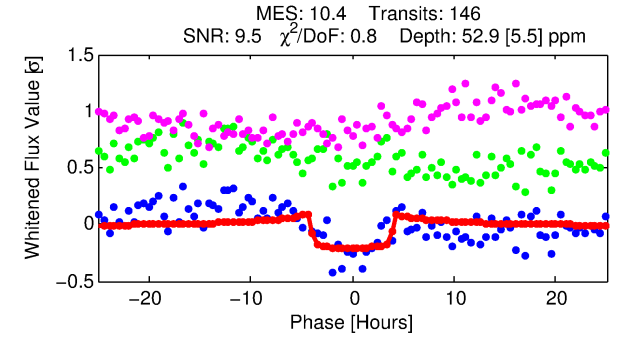
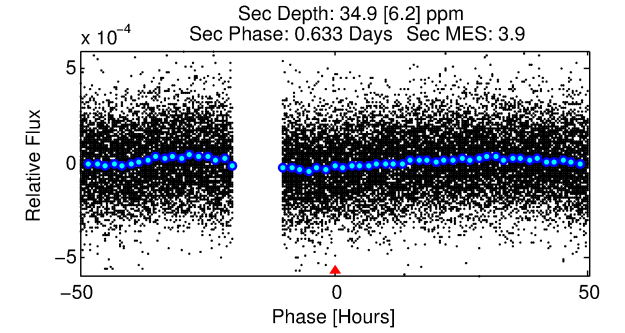
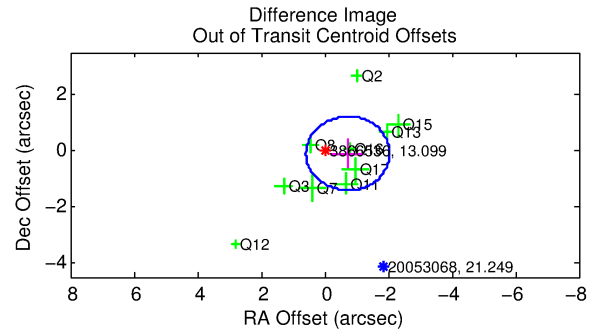
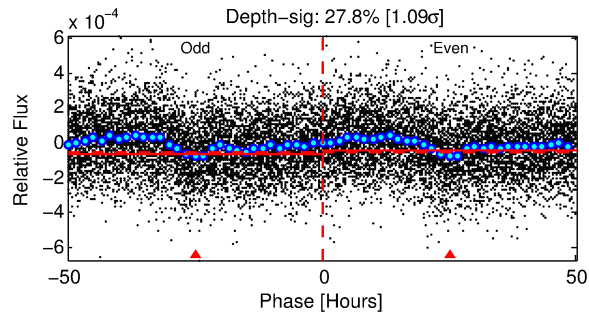
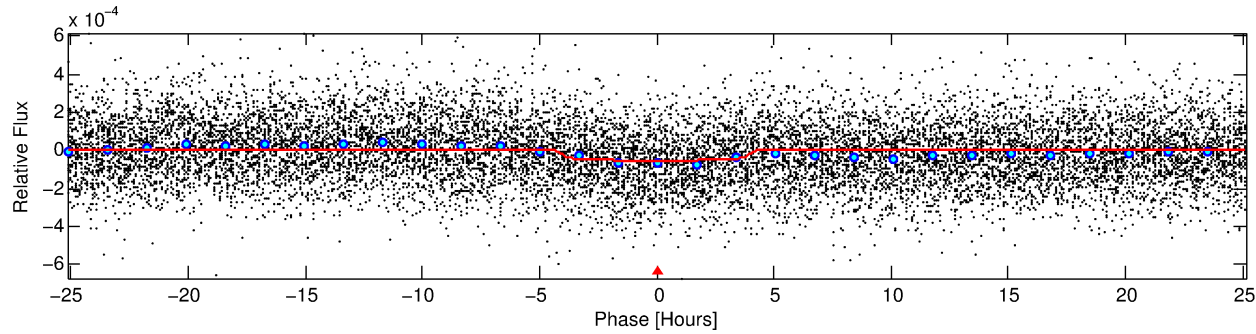
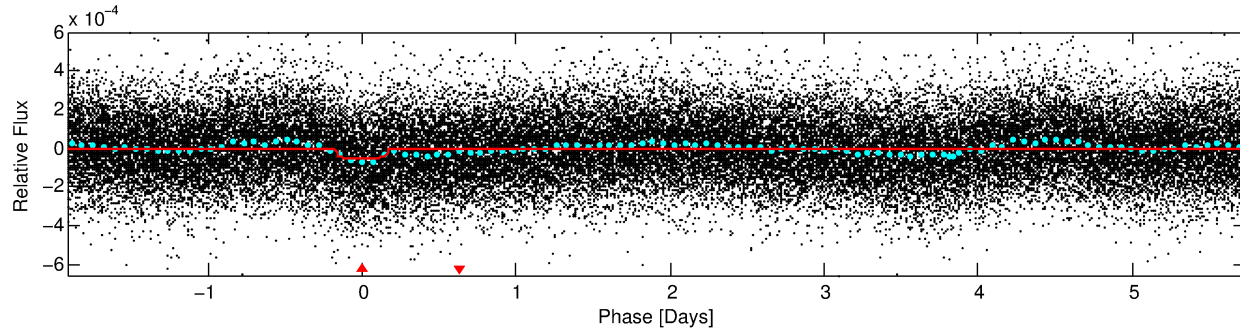
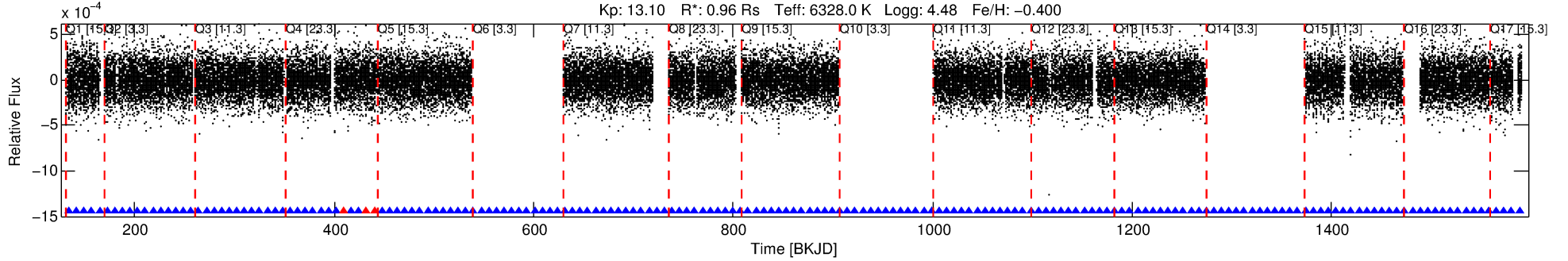
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003866536-01

No Significant Match Found

# DV One-Page Summary

KIC: 3866536 Candidate: 1 of 1 Period: 7.652 d  
KOI: K04423.01 Corr: 0.767



## DV Fit Results:

Period = 7.65206 [0.00009] d  
Epoch = 134.1976 [0.0088] BKJD  
Rp/R\* = 0.0078 [0.0016]  
a/R\* = 3.35 [3.45]  
b = 0.90 [0.25]  
Seff = 226.99 [87.57]  
Teq = 990 [95] K  
Rp = 0.82 [0.30] Re  
a = 0.0766 [0.0194] AU  
Ag = 169.14 [98.17] [1.71 $\sigma$ ]  
Teffp = 5519 [642] K [6.98 $\sigma$ ]

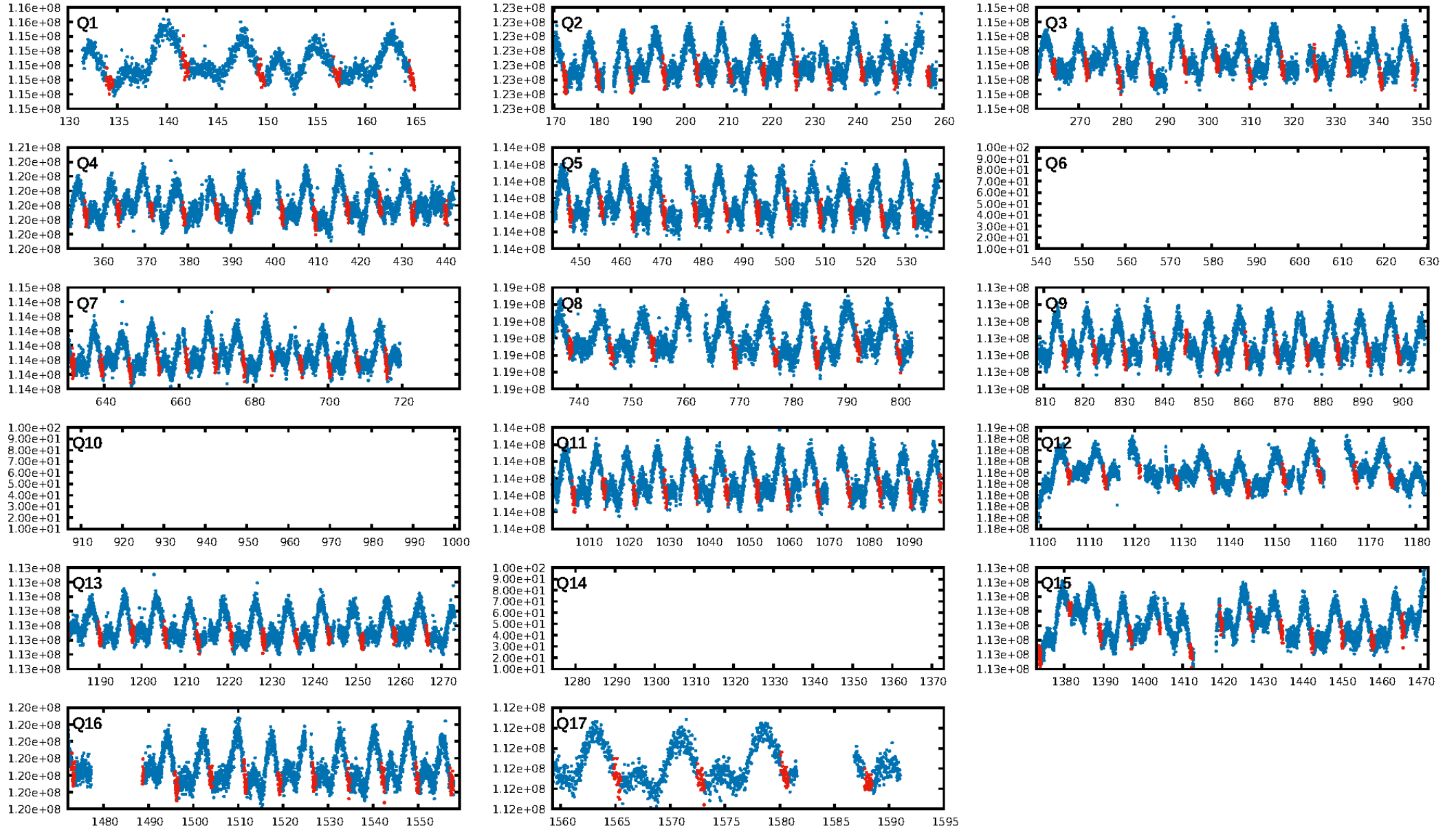
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.48e-23  
RollingBand-fgt: 0.98 [134/137]  
GhostDiagnostic-chr: 2.231  
Centroid-sig: 20.9%  
Centroid-so: 1.247 arcsec [0.87 $\sigma$ ]  
OotOffset-rm: 0.734 arcsec [1.67 $\sigma$ ]  
KicOffset-rm: 0.614 arcsec [1.86 $\sigma$ ]  
OotOffset-st: 1/4/3/2 [10]  
KicOffset-st: 1/4/3/2 [10]  
DiffImageQuality-fgm: 0.90 [9/10]  
DiffImageOverlap-fno: 1.00 [14/14]

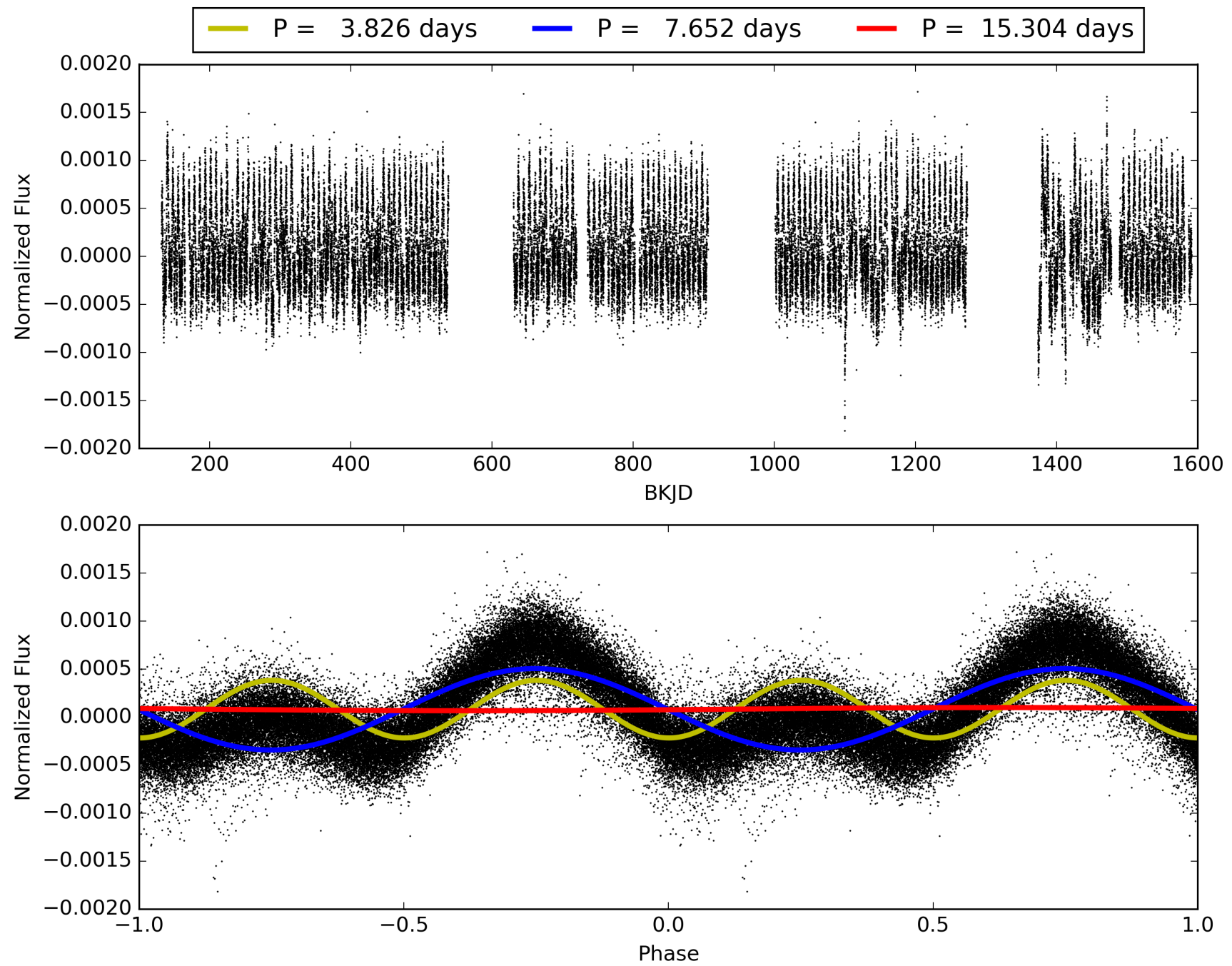
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:25:24 Z

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

# TCE 003866536-01, PDC Light Curves

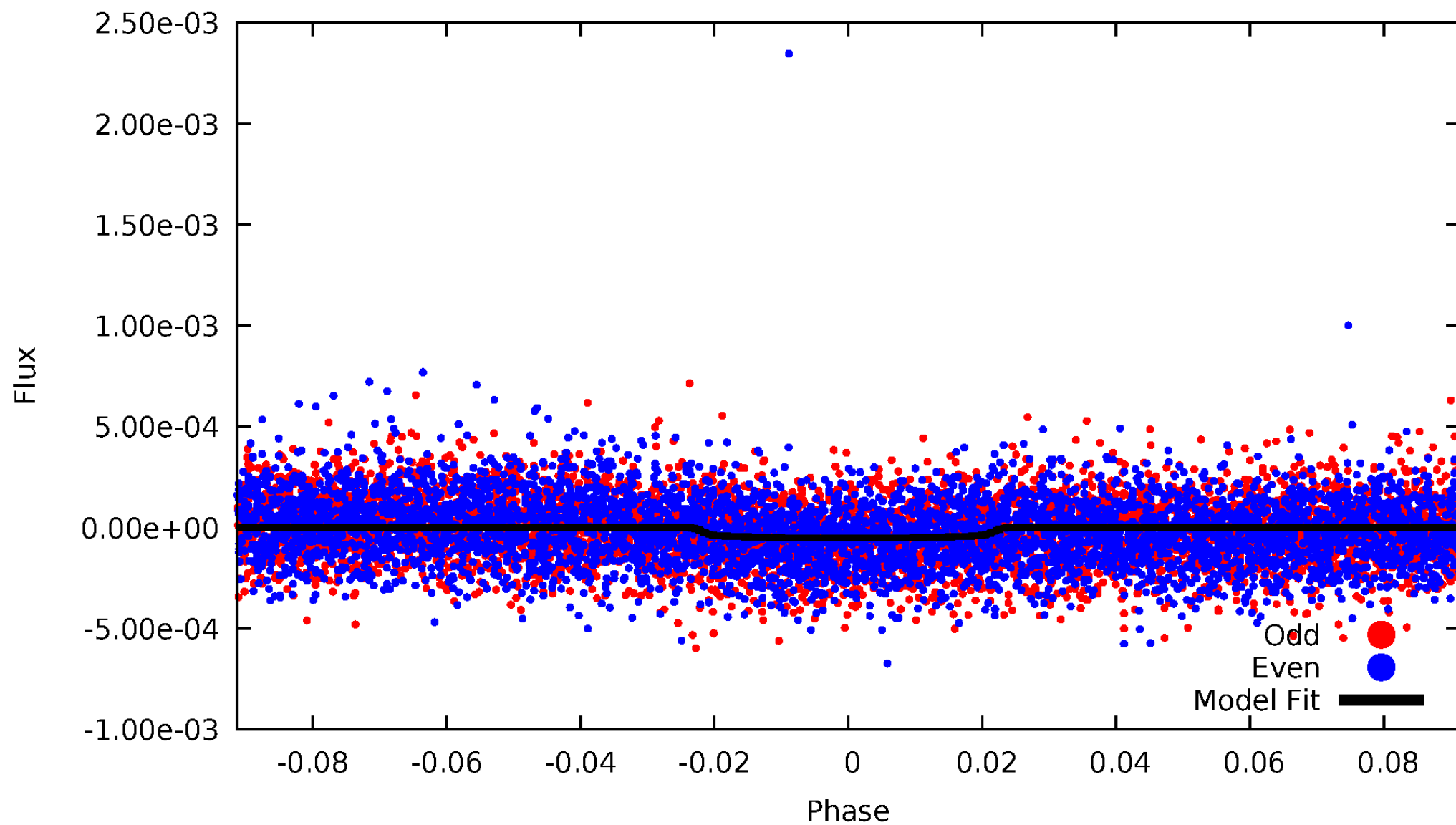


TCE 003866536-01



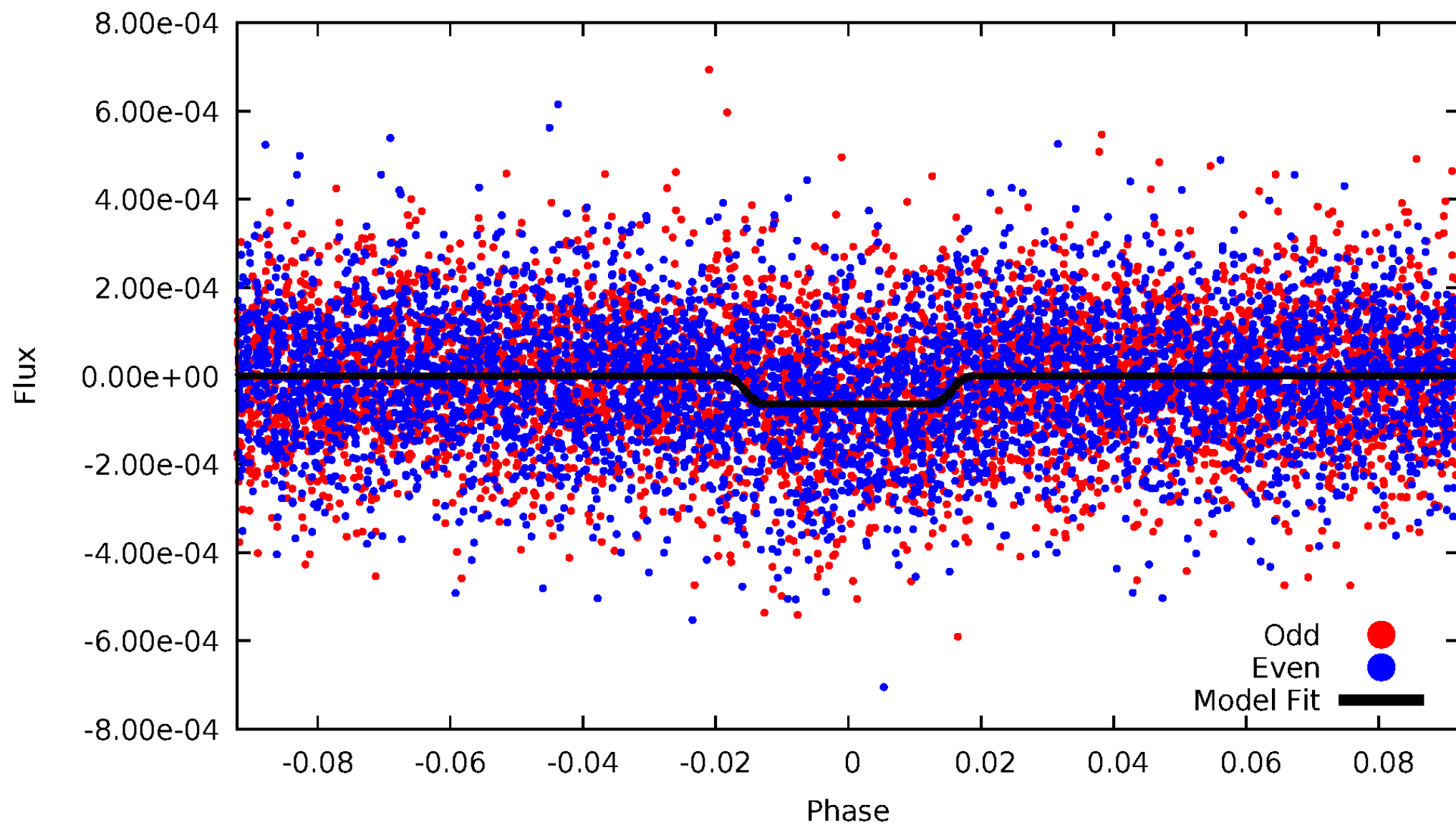
# DV Odd/Even

TCE 003866536-01



# ALT Odd/Even

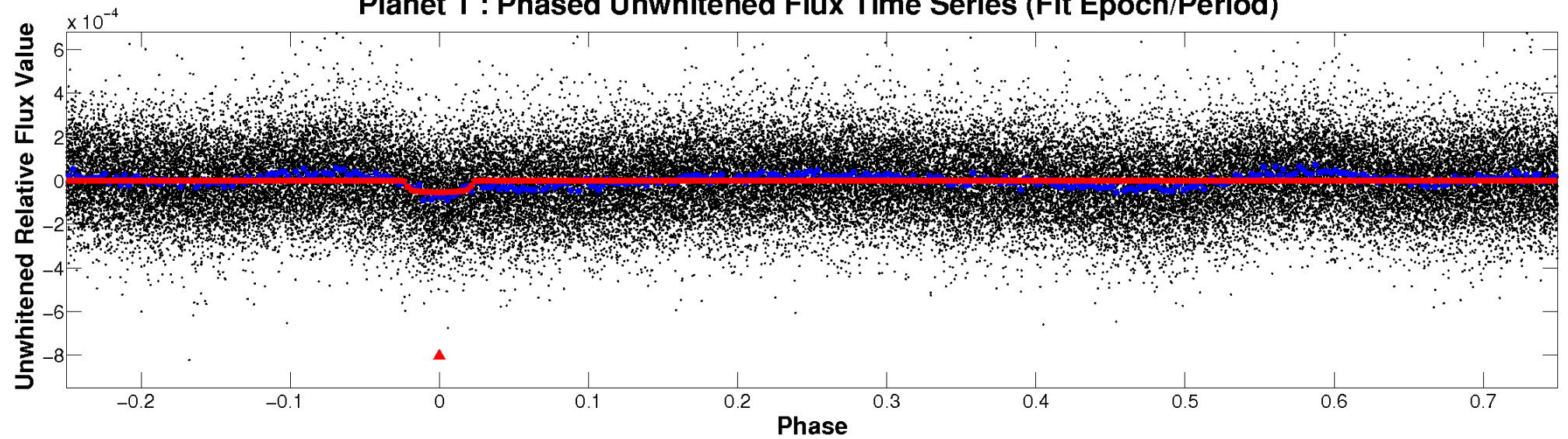
TCE 003866536-01



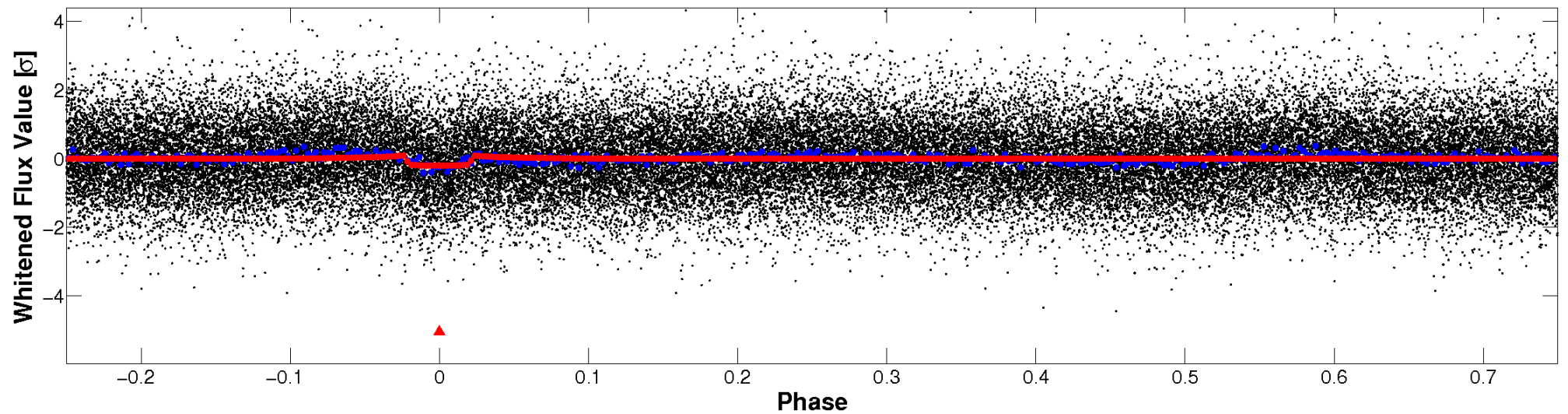


# Non-Whitened Vs. Whitened Light Curve

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

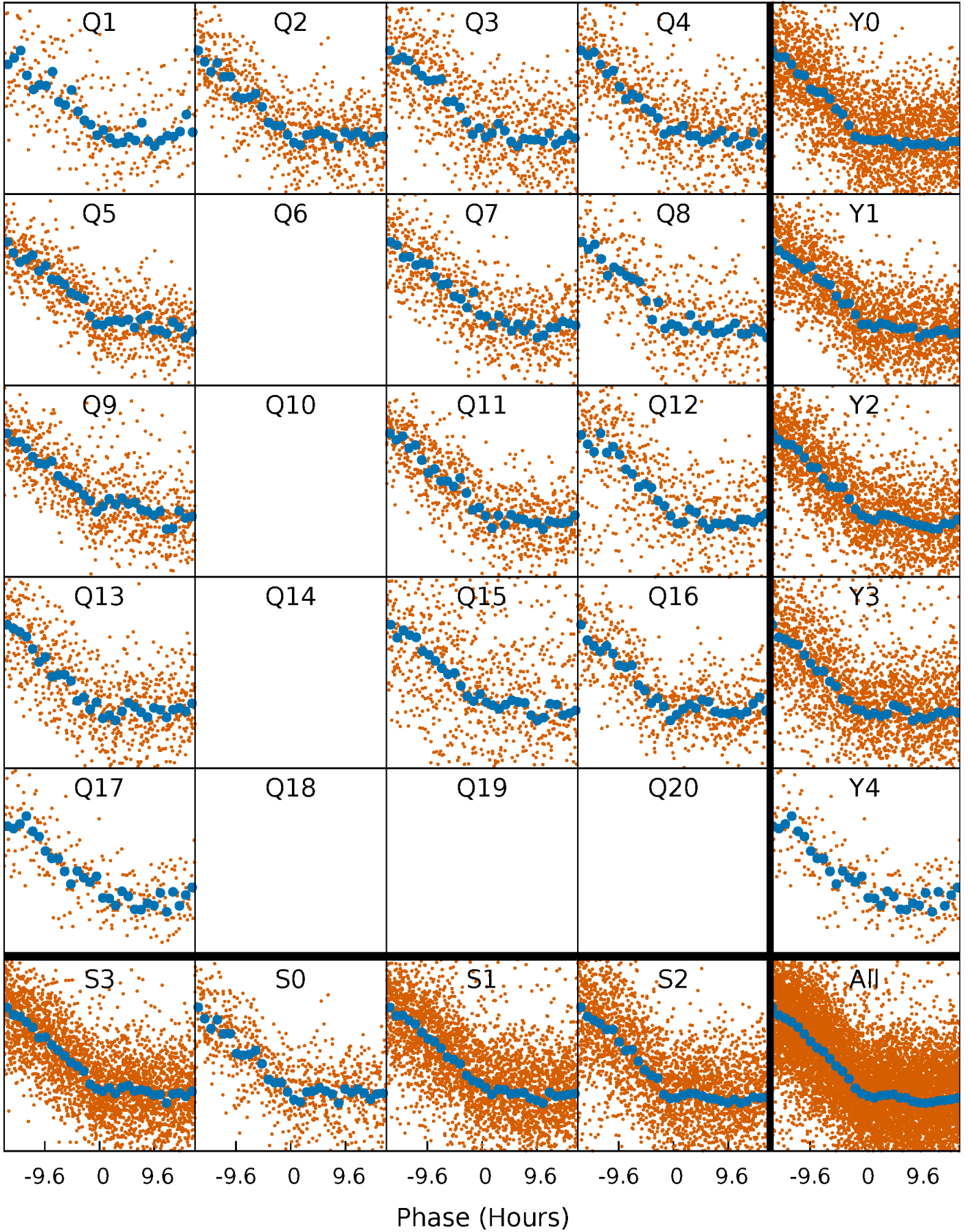


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

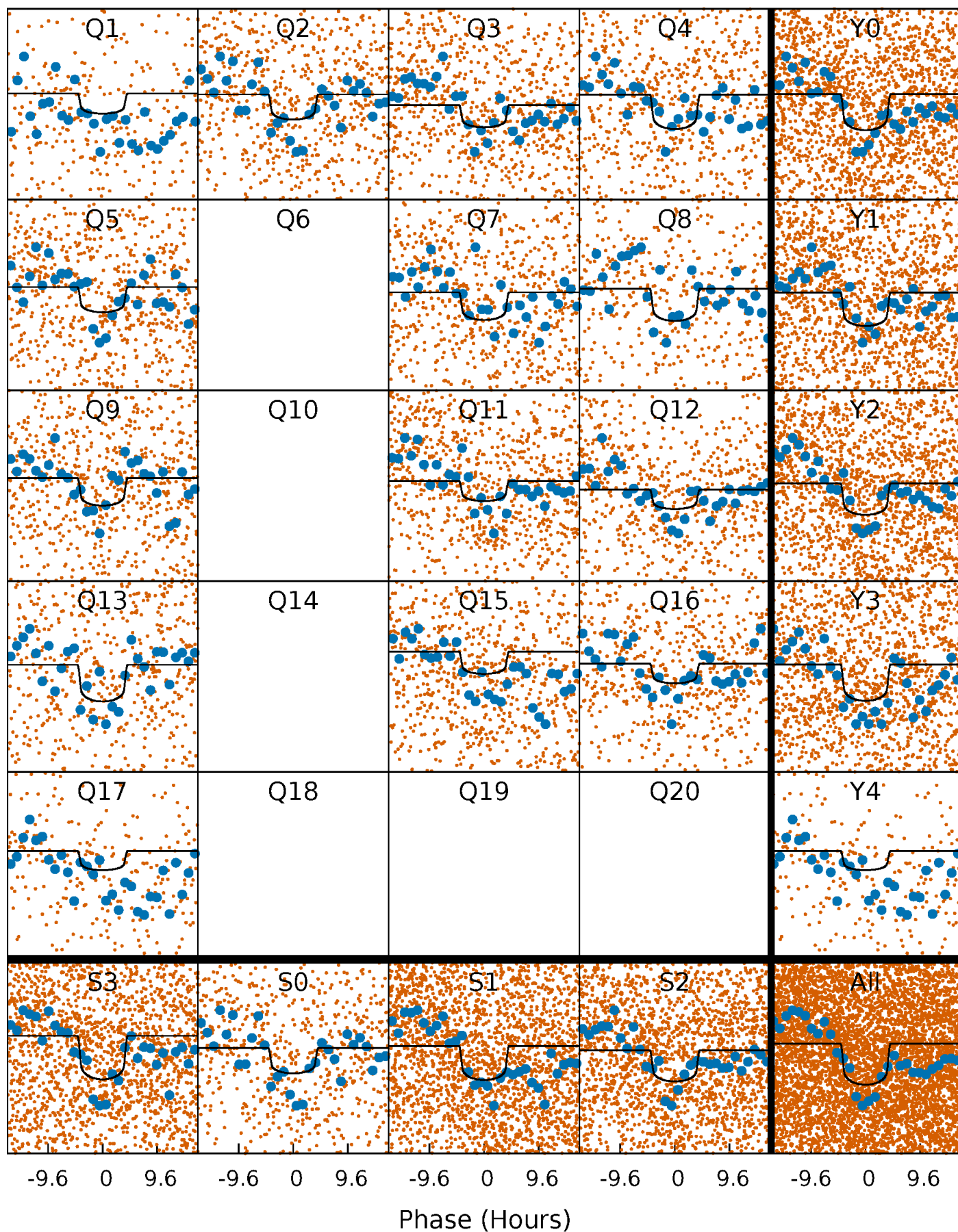
TCE 003866536-01   P= 7.652063 Days    $T_0=134.197628$  (BKJD)





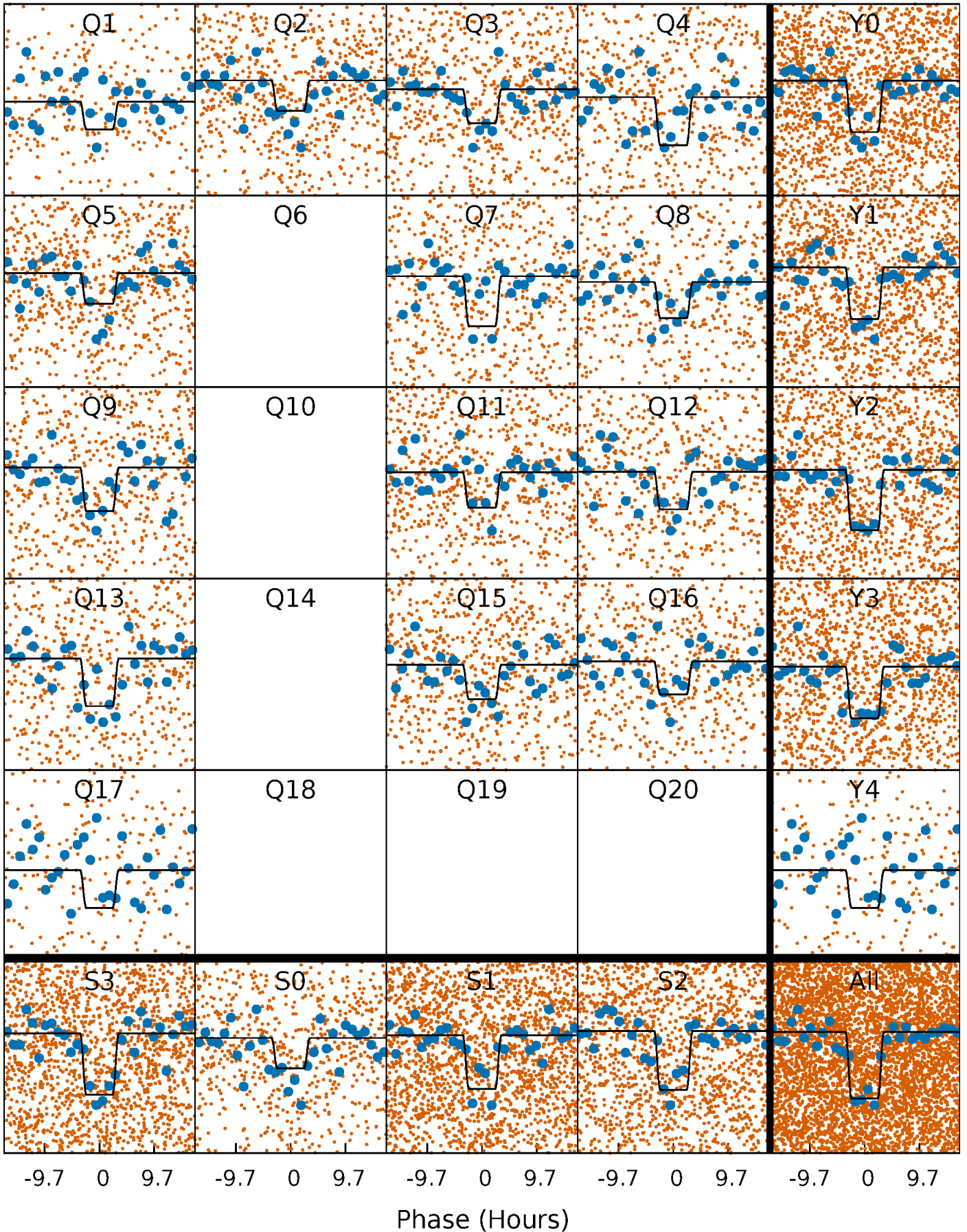
# DV Quarter-Phased Transit Curves

TCE 003866536-01 P= 7.652063 Days  $T_0=134.197628$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

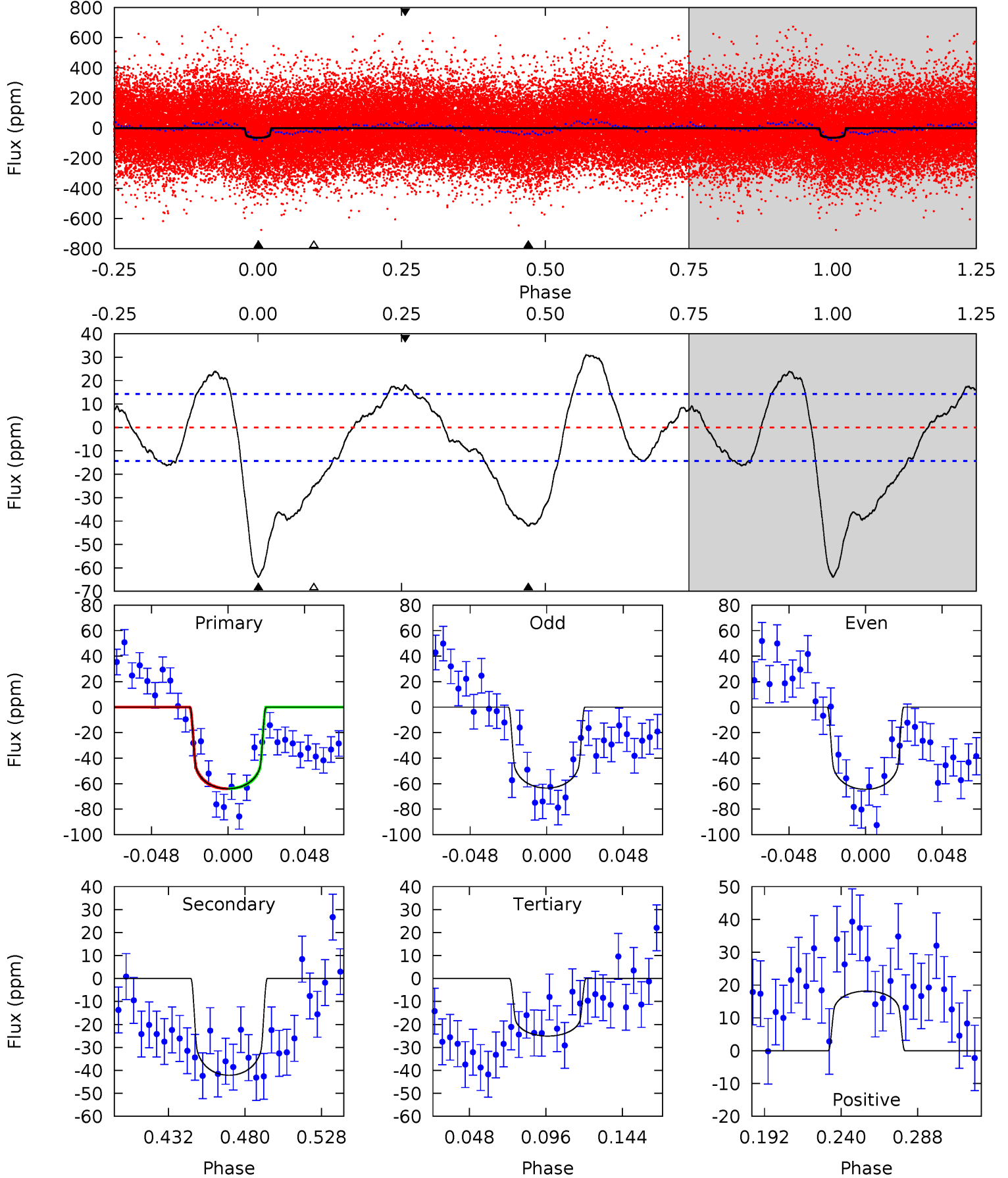
TCE 003866536-01 P= 7.652204 Days  $T_0=134.176633$  (BKJD)



# DV Model-Shift Uniqueness Test

003866536-01, P = 7.652063 Days, E = 126.545565 Days

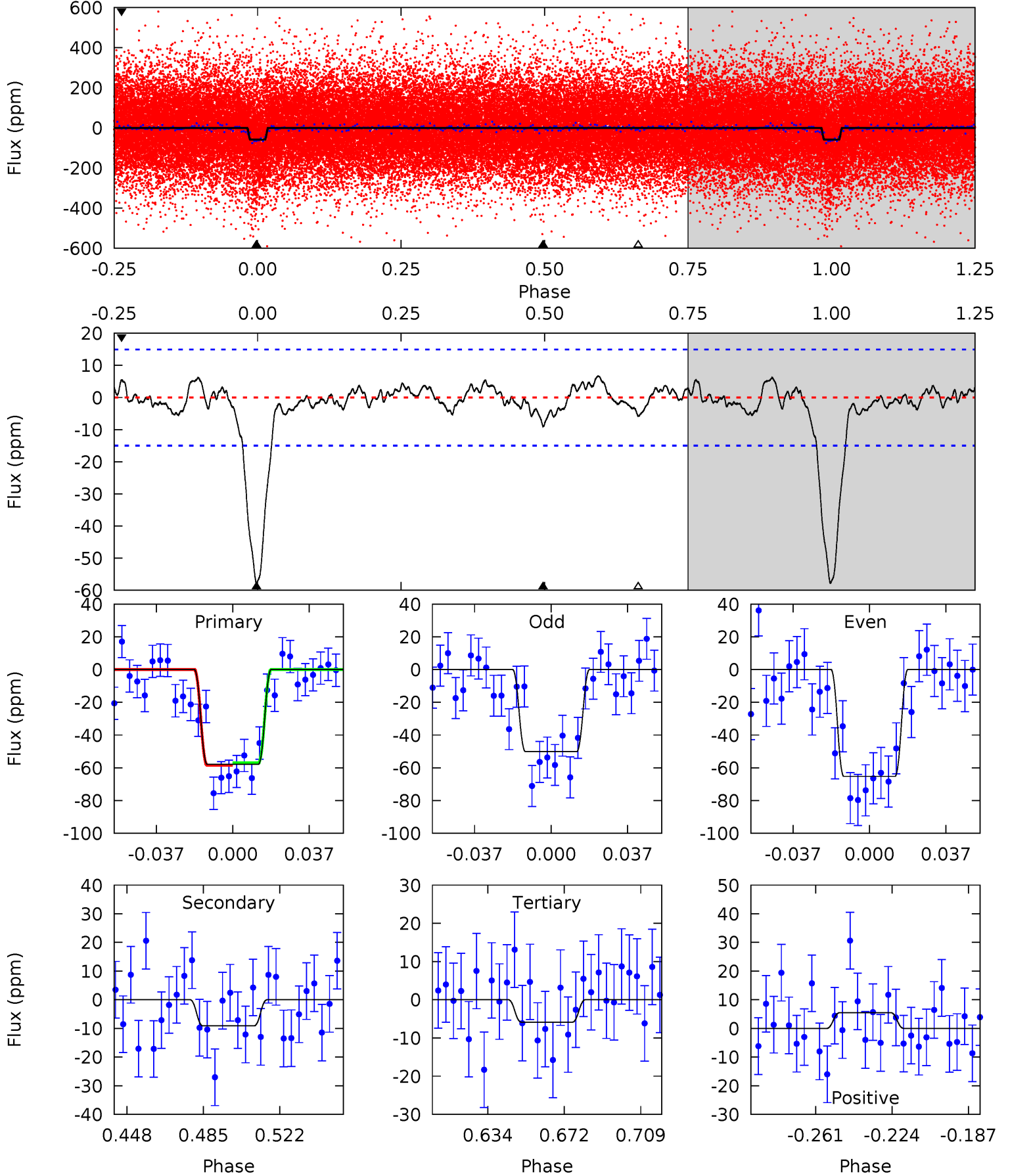
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	13.9	8.27	6.00	4.72	1.98	5.29	12.8	15.1	5.63	7.91	0.16	1.02	0.33	0.01



# Alt Model-Shift Uniqueness Test

003866536-01, P = 7.652204 Days, E = 126.524429 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
18.4	2.90	1.86	1.75	4.77	2.08	0.89	16.6	16.7	1.04	1.15	2.40	1.08	0.10	0.24





### Stellar Parameters For KIC 003866536

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6328^{+151}_{-189}$	$4.481^{+0.050}_{-0.200}$	$-0.400^{+0.300}_{-0.300}$	$0.963^{+0.290}_{-0.097}$	$1.026^{+0.123}_{-0.135}$	$1.616^{+0.414}_{-0.797}$
	+2%/-3%	+1%/-4%	+75%/-75%	+30%/-10%	+12%/-13%	+26%/-49%
Source	PHO1	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 003866536-01 / KOI 4423.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-42 \pm 3$	$0.86^{+0.20}_{-0.19}$	$1414^{+95}_{-70}$	$5774^{+729}_{-504}$	$182^{+110}_{-63}$
Alt.	$-9 \pm 3$	$0.87^{+0.21}_{-0.18}$	$1414^{+91}_{-68}$	$4129^{+487}_{-374}$	$36^{+30}_{-16}$

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



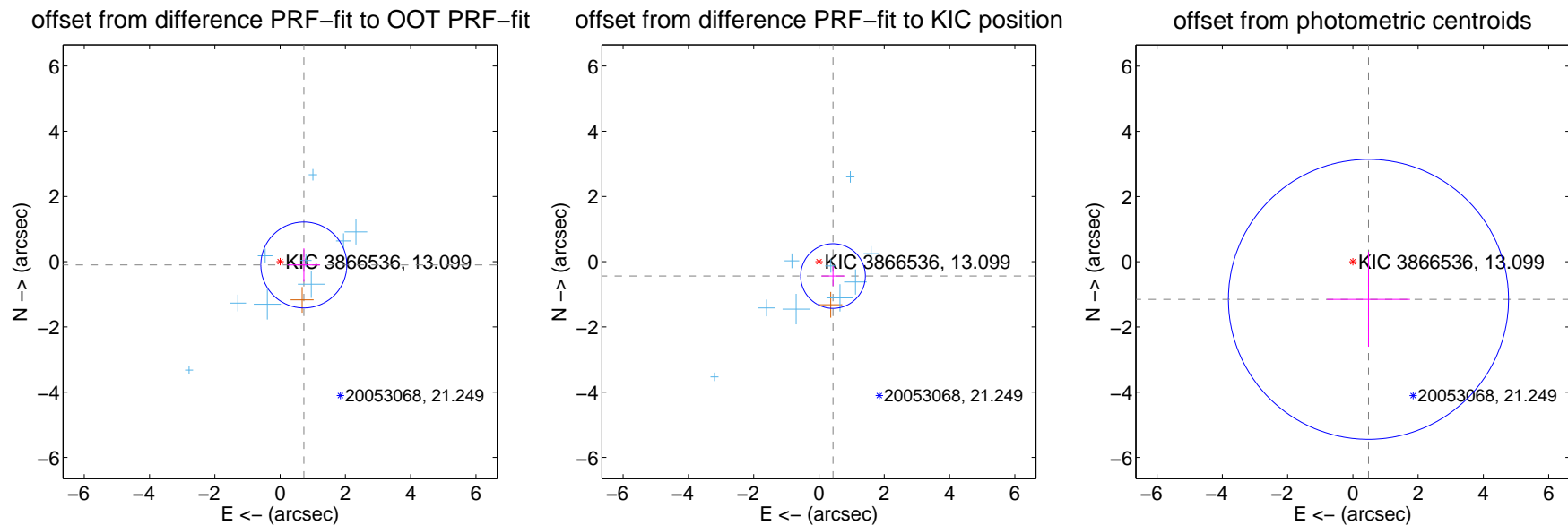
## DV Centroid Data

Supplemental centroid analysis for 003866536-01. Kepler magnitude: 13.10. Transit SNR 9.54

There are 9 quarters with good PRF difference image offsets

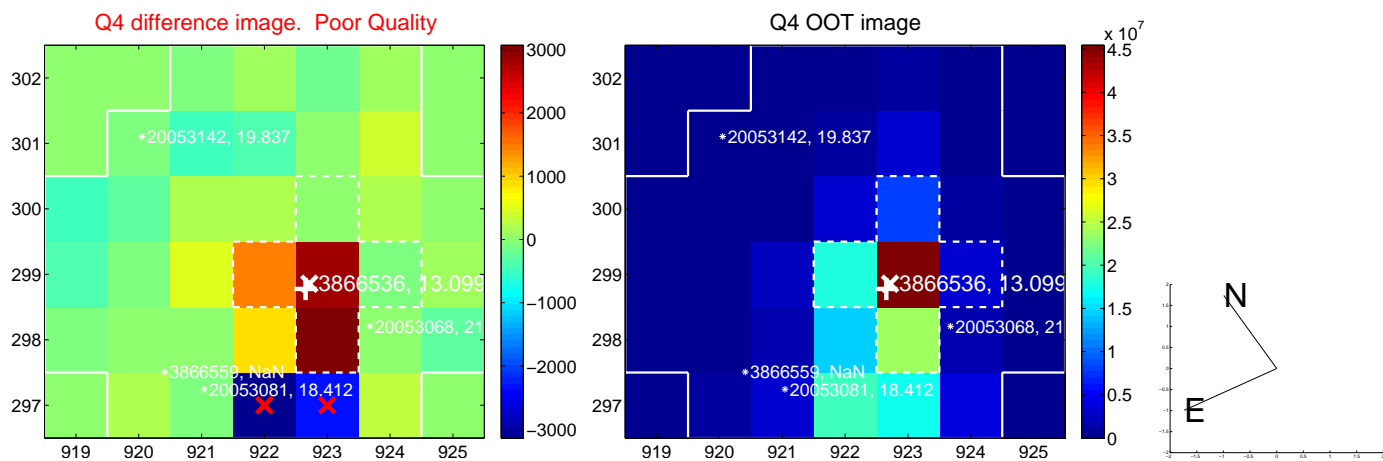
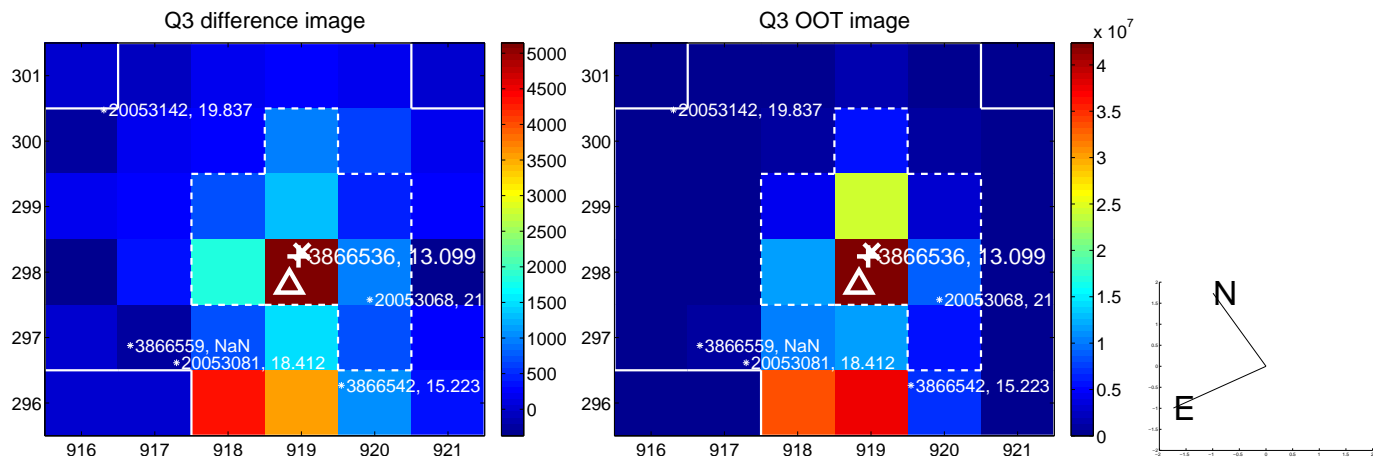
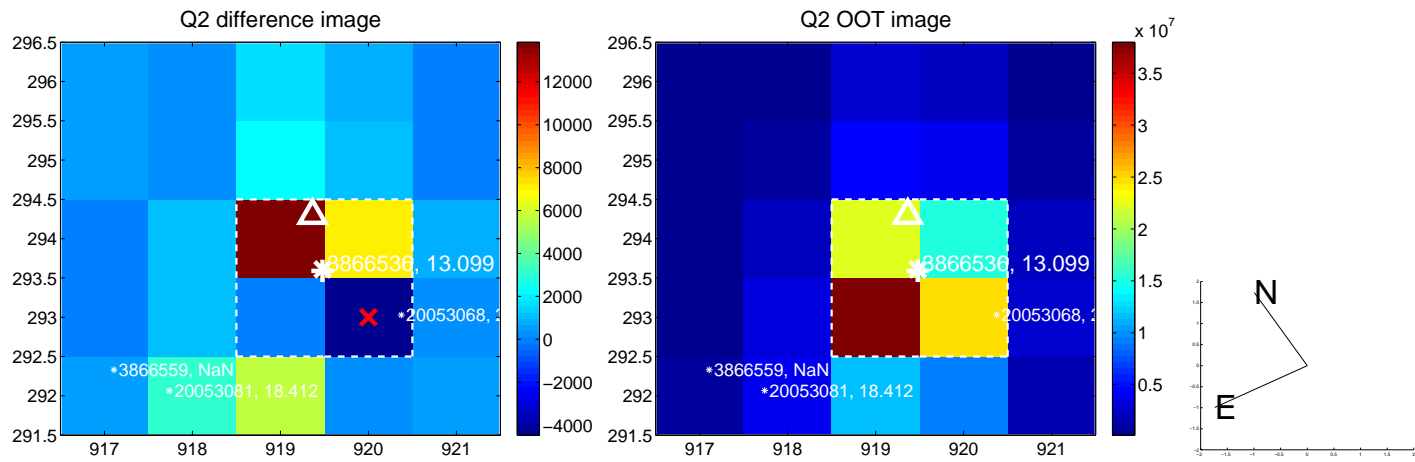
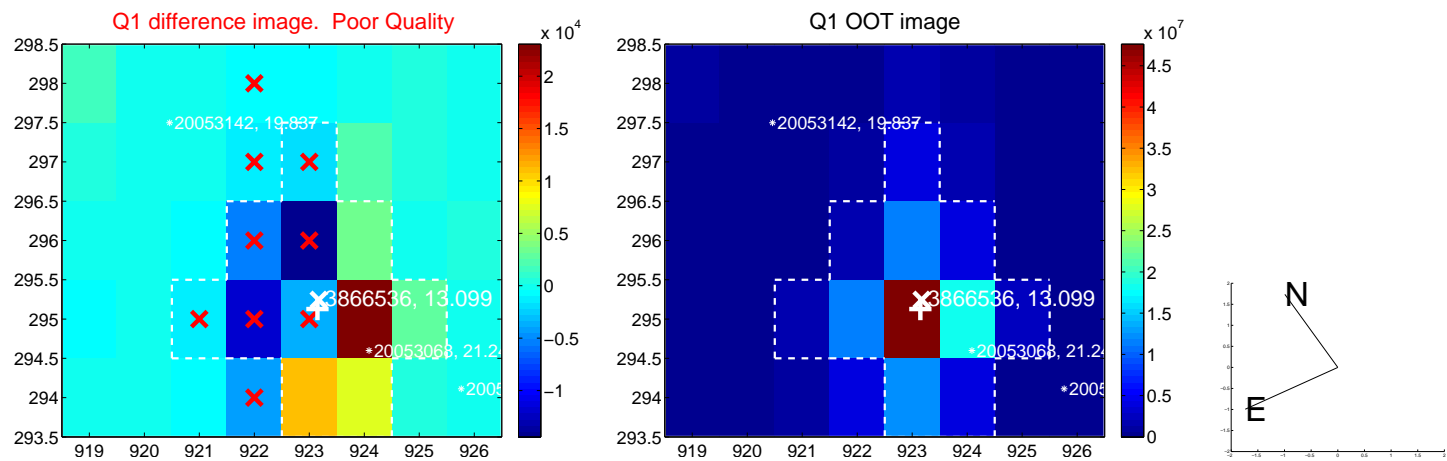
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.734 \pm 0.439$	1.67	$-0.727 \pm 0.499$	$-0.100 \pm 0.511$
PRF-fit source offset from KIC position	$0.614 \pm 0.330$	1.86	$-0.429 \pm 0.354$	$-0.439 \pm 0.306$
photometric centroid source offset	$1.25 \pm 1.43$	0.87	$-0.48 \pm 1.27$	$-1.15 \pm 1.46$

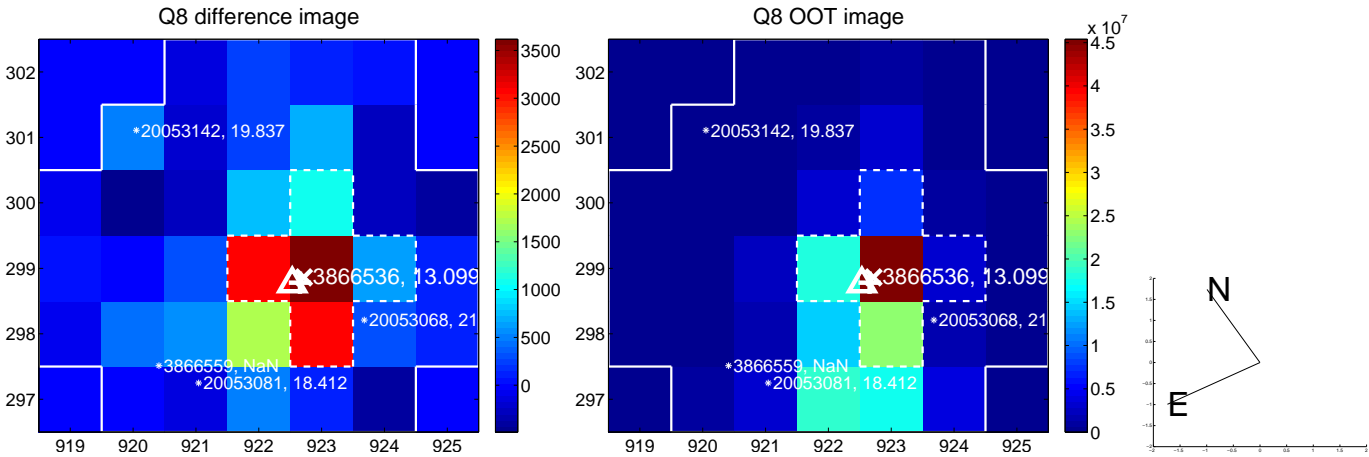
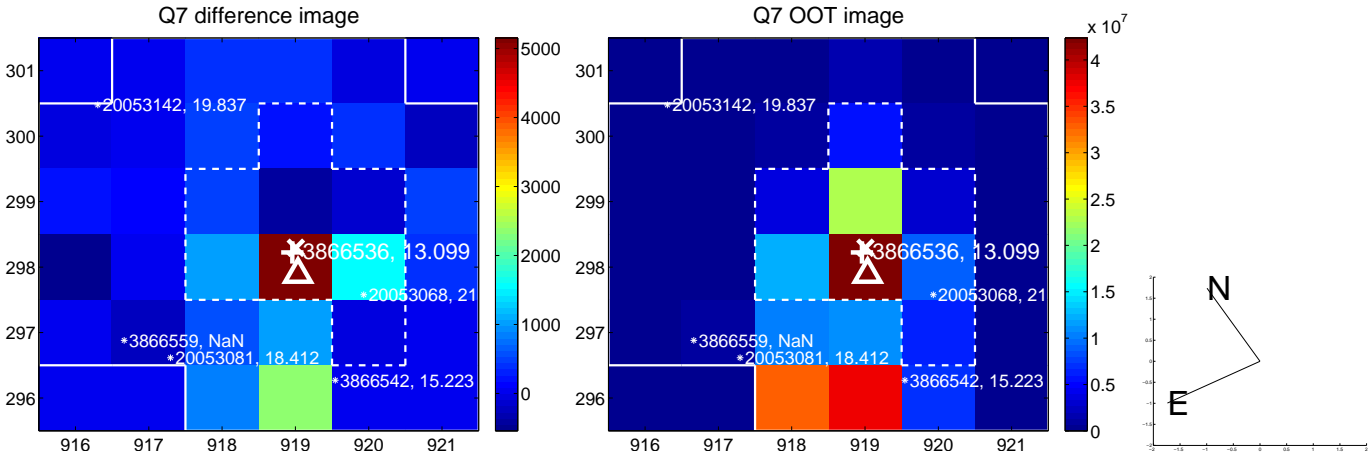
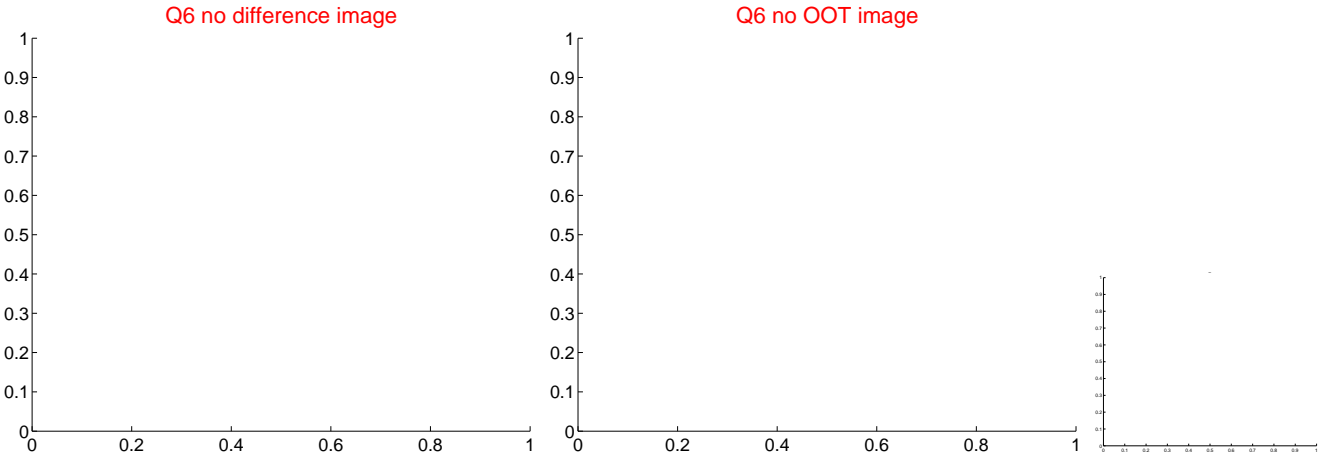
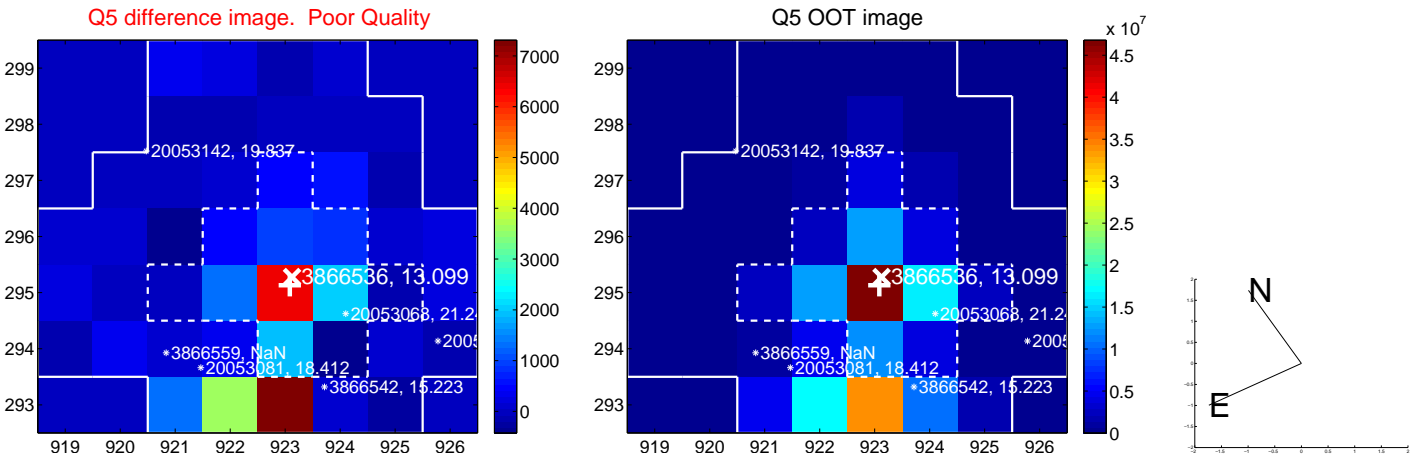


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

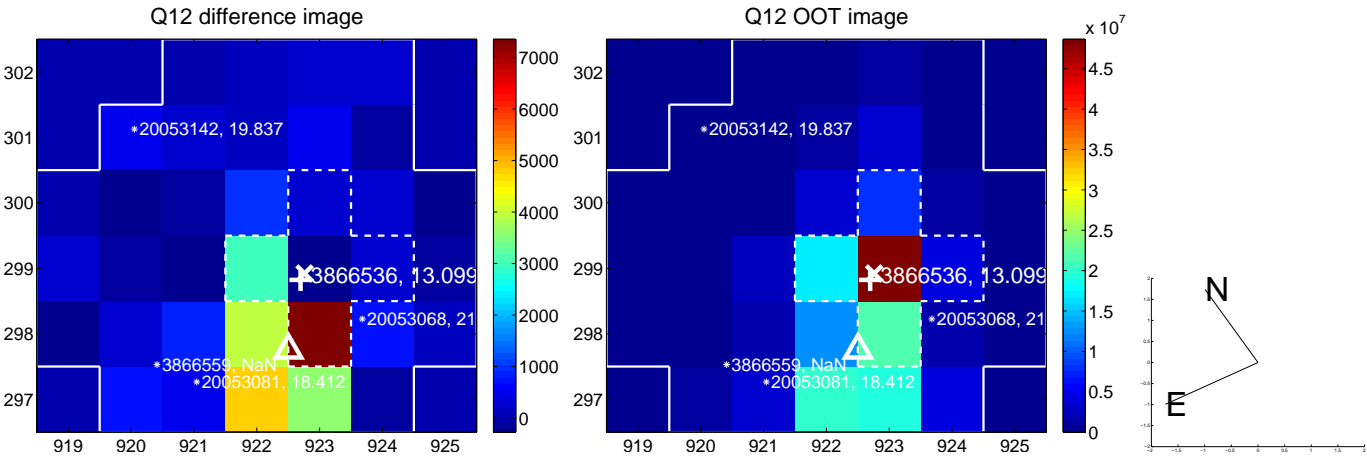
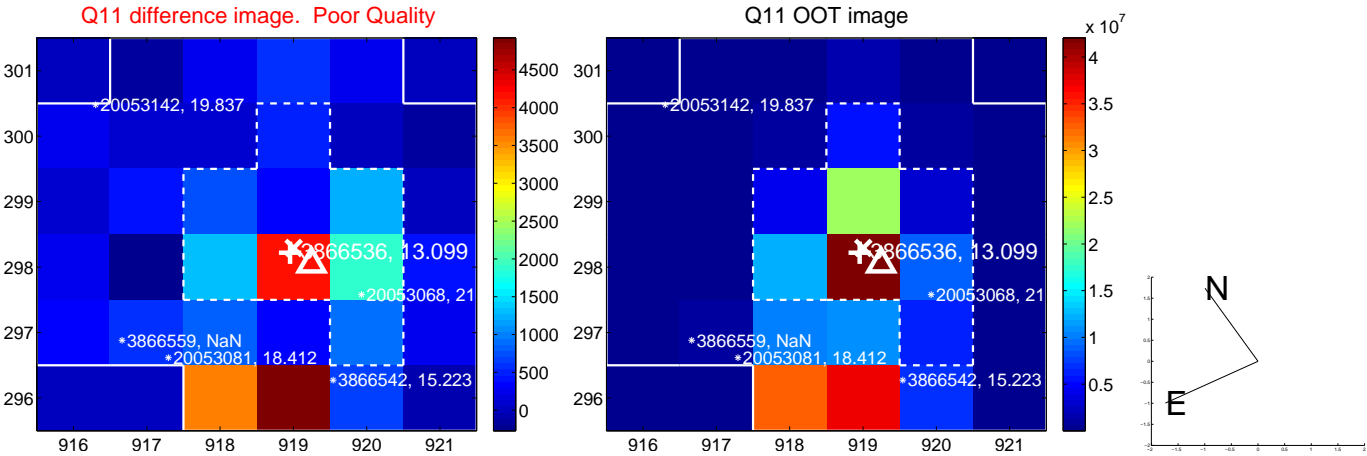
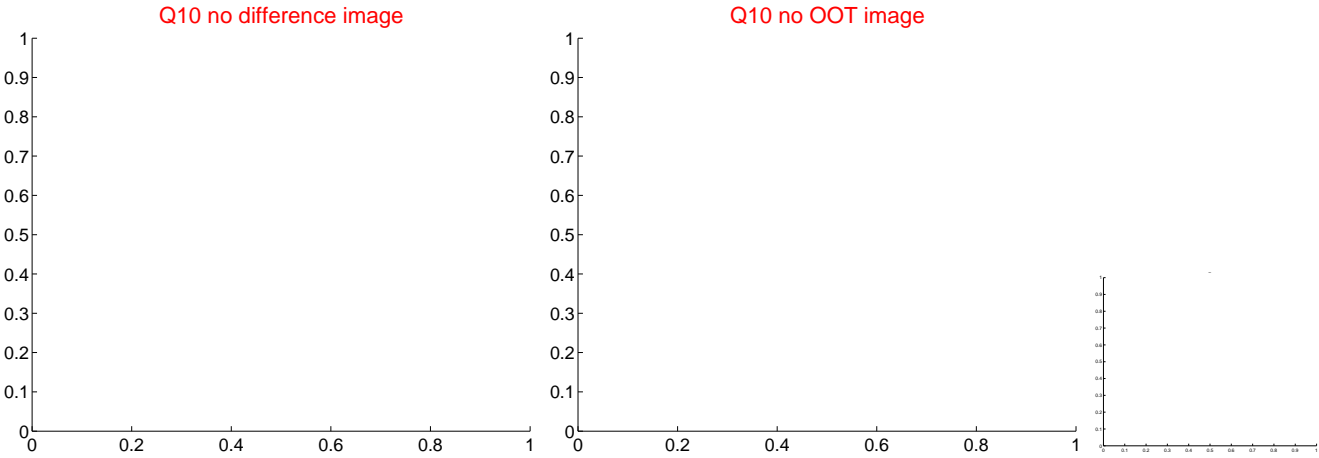
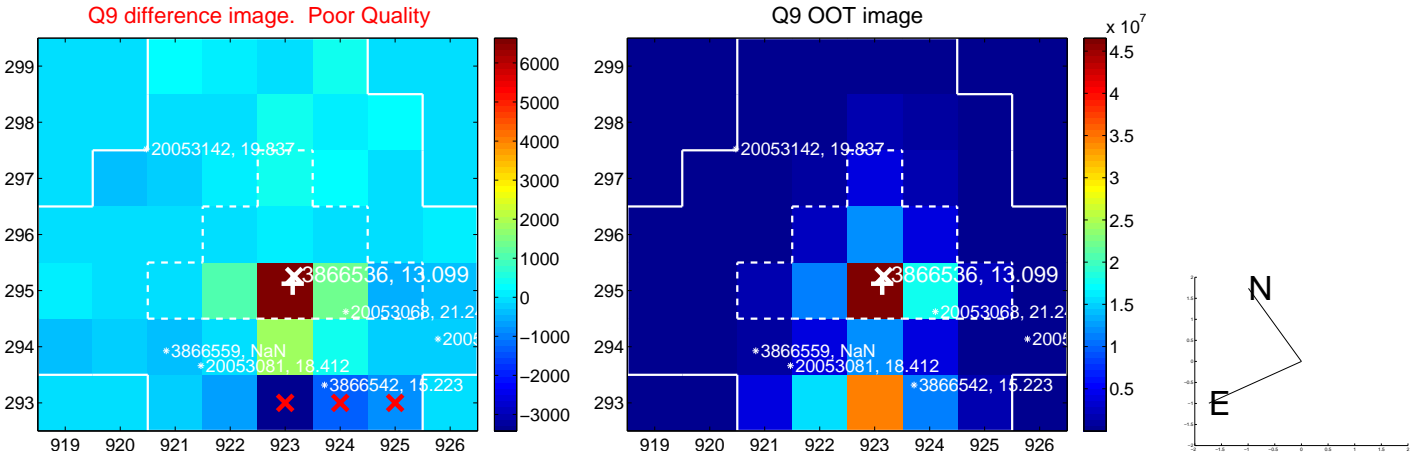
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



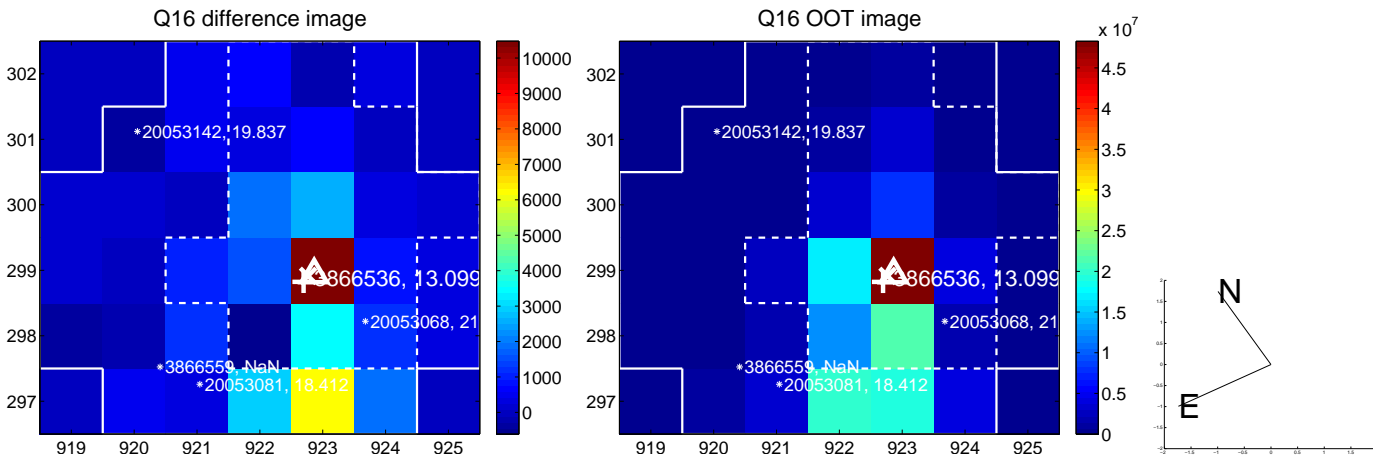
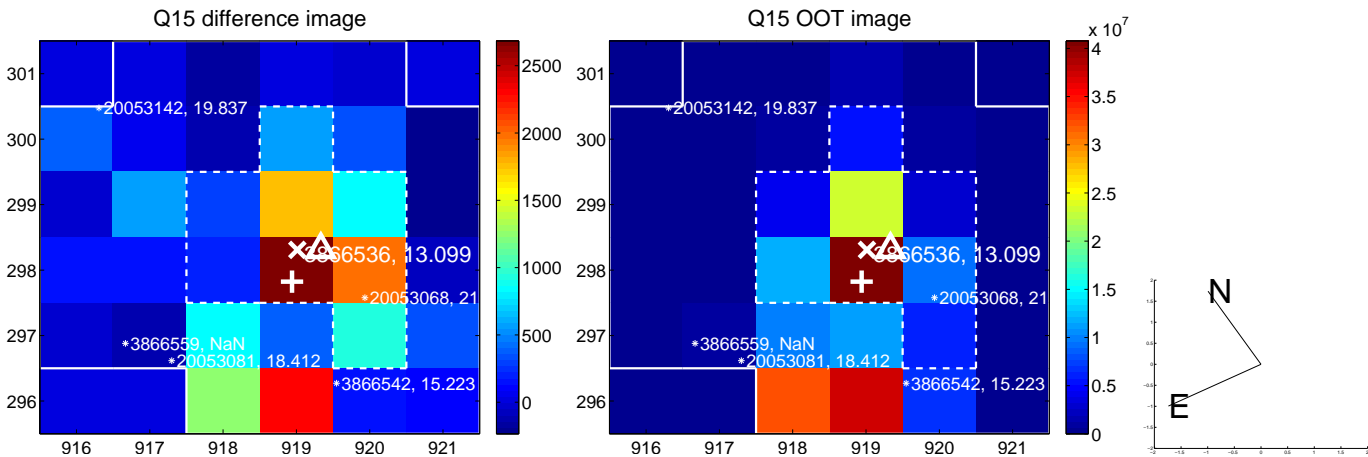
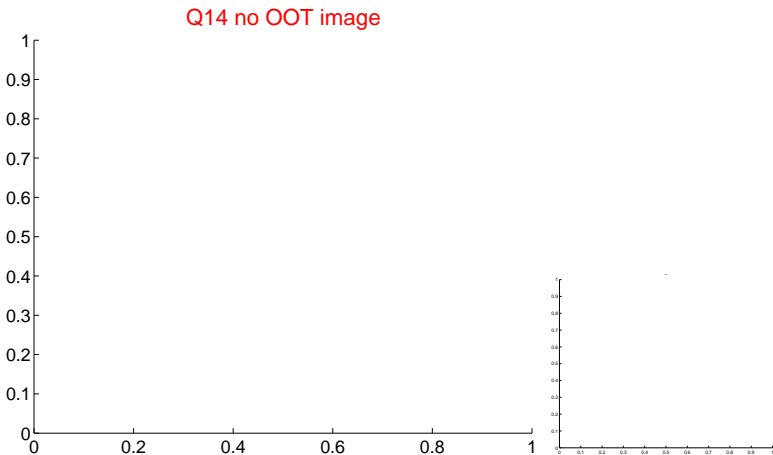
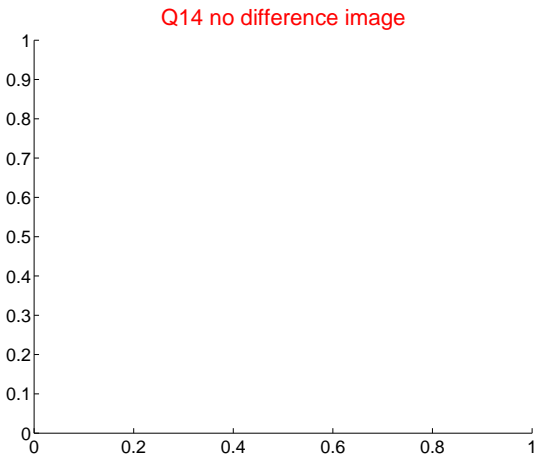
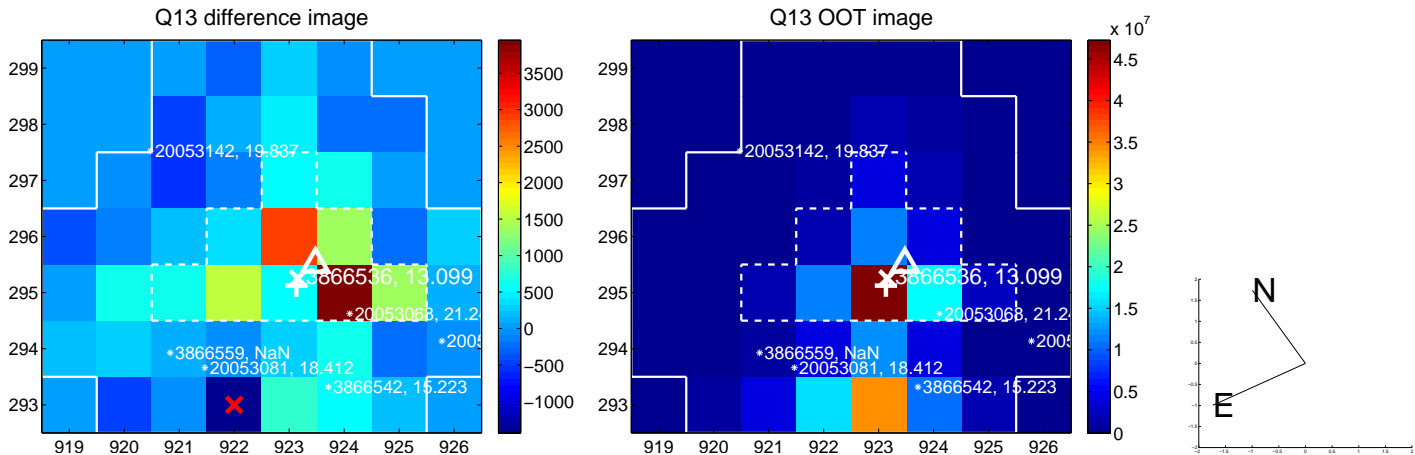
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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







UKIRT Image

Declination

