

# KIC 010230120

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010230120-01	OBS	No	4.335721	133.453029	48.5	22.569	8.2	7.9	0.95	6263	0.67	455.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010230120-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET

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

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

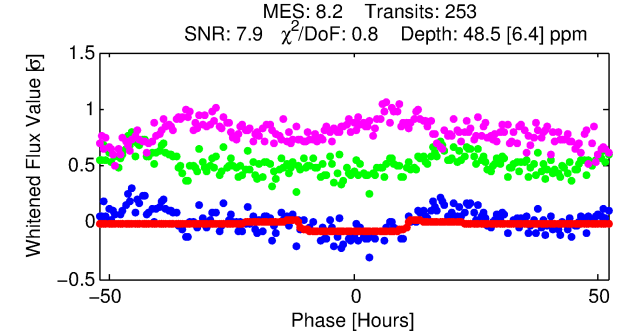
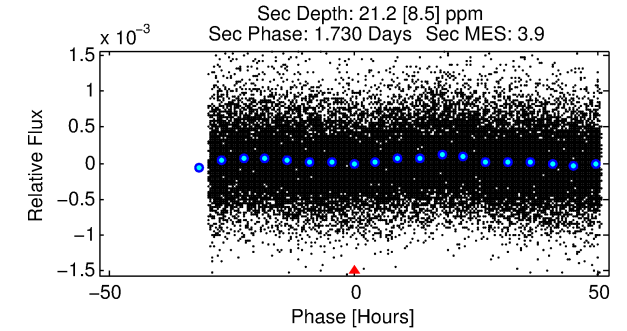
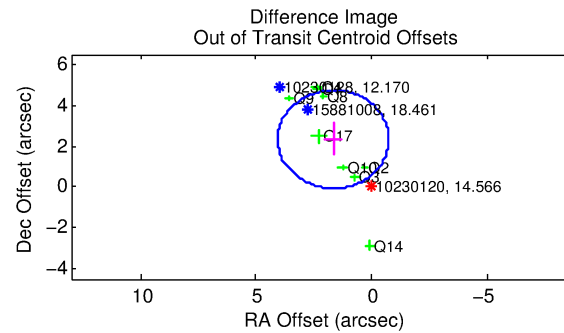
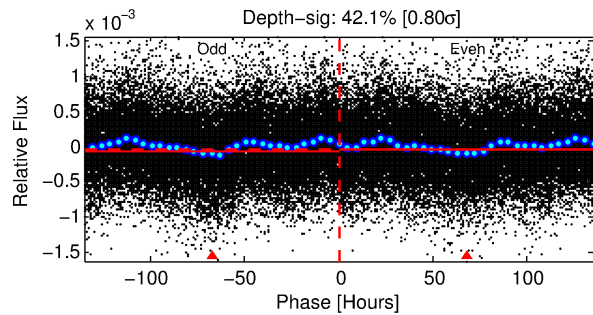
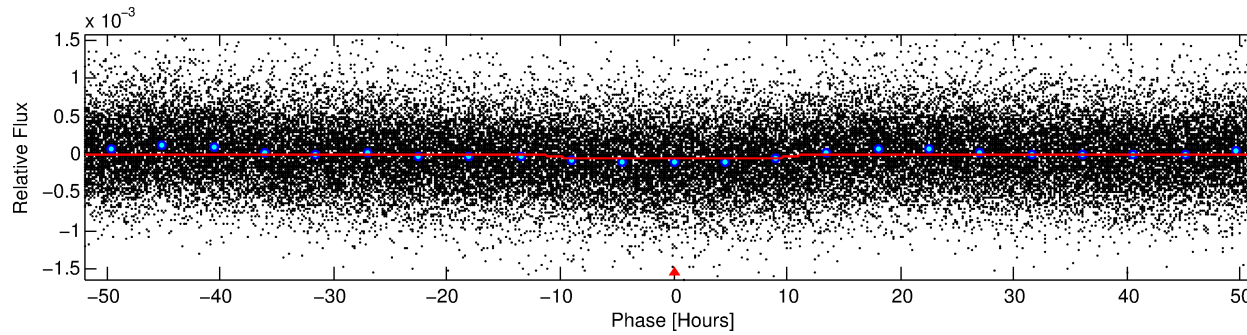
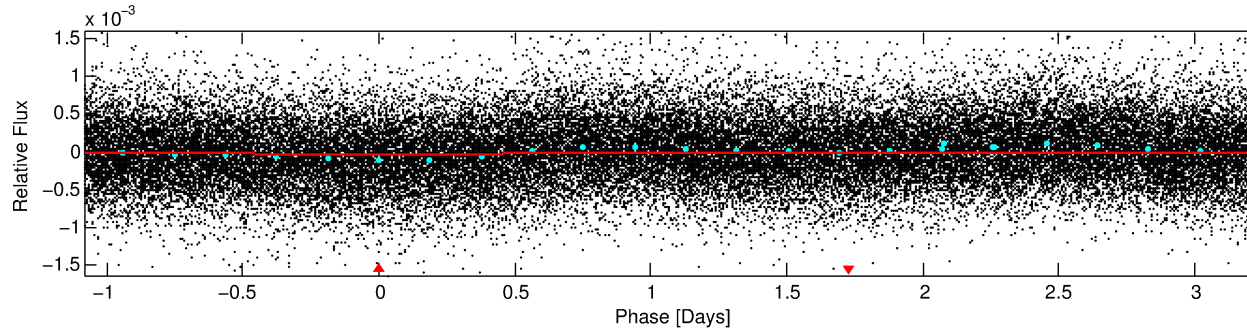
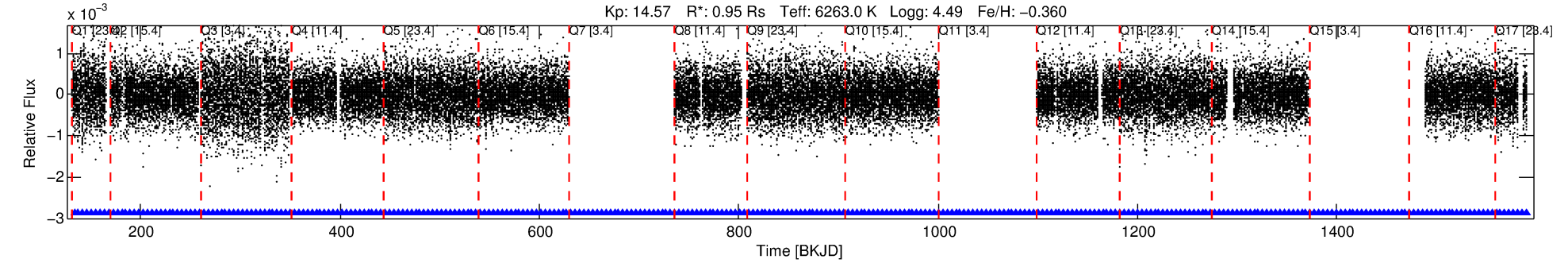
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010230120-01

No Significant Match Found

# DV One-Page Summary

KIC: 10230120 Candidate: 1 of 1 Period: 4.336 d



## DV Fit Results:

Period = 4.33572 [0.00012] d  
Epoch = 133.4530 [0.0192] BKJD  
Rp/R\* = 0.0065 [0.0070]  
a/R\* = 1.55 [5.10]  
b = 0.32 [15.79]  
Seff = 455.69 [189.50]  
Teq = 1178 [122] K  
Rp = 0.67 [0.76] Re  
a = 0.0524 [0.0142] AU  
Ag = 70.84 [157.79] [0.44 $\sigma$ ]  
Teffp = 5285 [2901] K [1.41 $\sigma$ ]

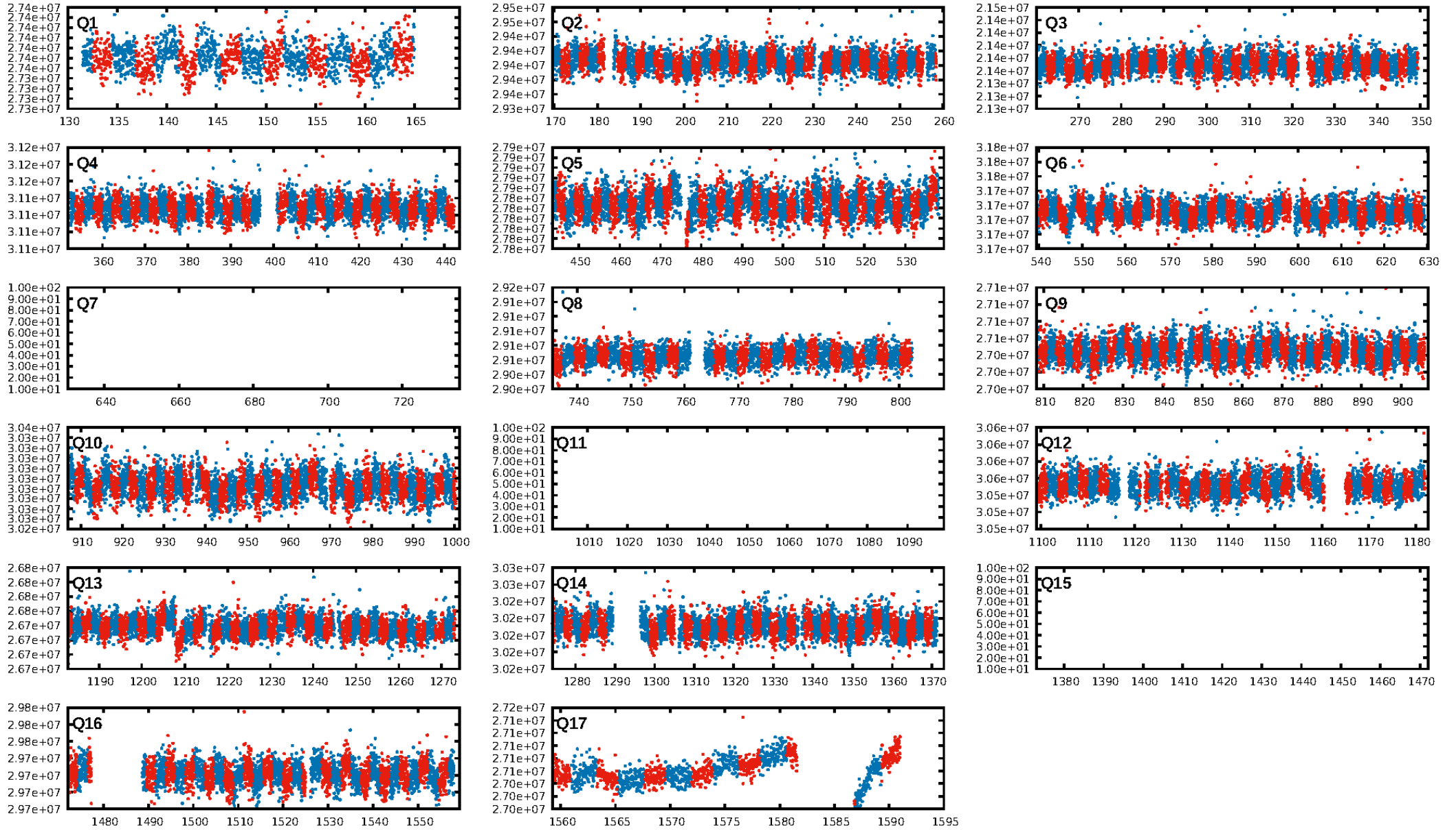
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.71e-18  
RollingBand-fgt: 1.00 [238/238]  
GhostDiagnostic-chr: -0.6682  
Centroid-sig: 0.0%  
Centroid-so: 9.839 arcsec [9.71 $\sigma$ ]  
OotOffset-rm: 2.874 arcsec [3.59 $\sigma$ ]  
KicOffset-rm: 6.630 arcsec [11.61 $\sigma$ ]  
OotOffset-st: 3/1/2/3 [9]  
KicOffset-st: 3/1/2/3 [9]  
DiffImageQuality-fgm: 0.78 [7/9]  
DiffImageOverlap-fno: 1.00 [14/14]

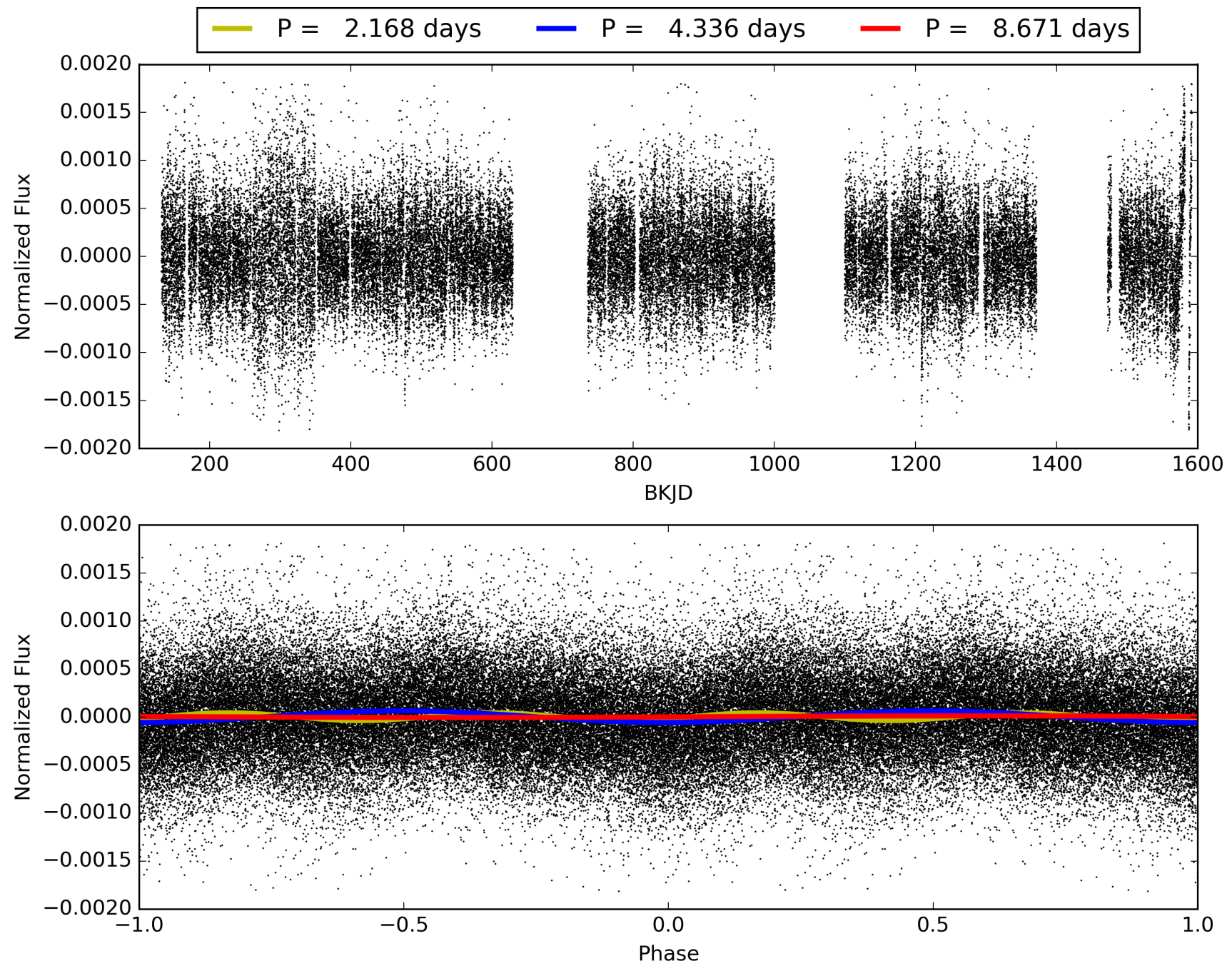
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:41:01 Z

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

# TCE 010230120-01, PDC Light Curves



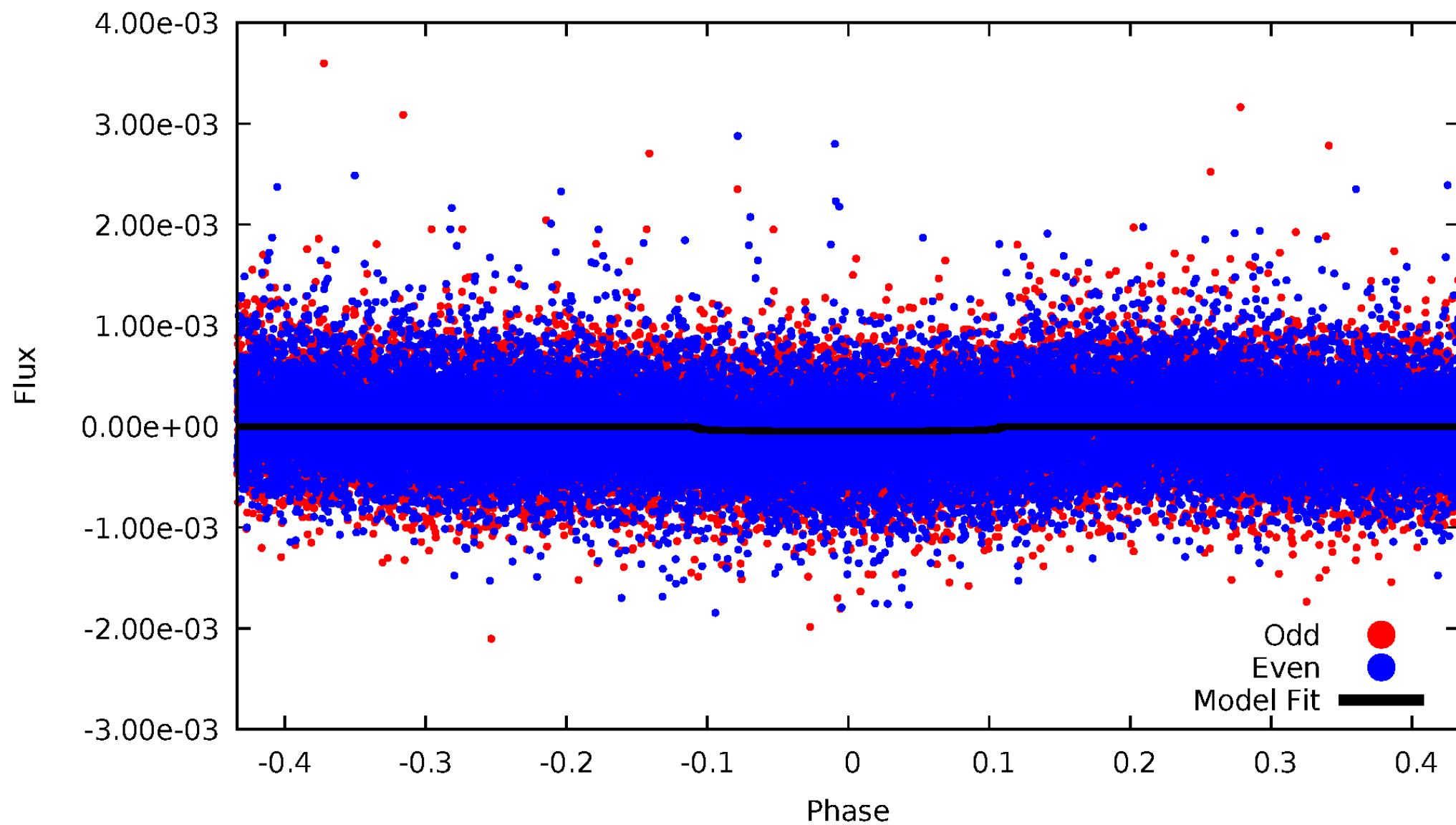
TCE 010230120-01





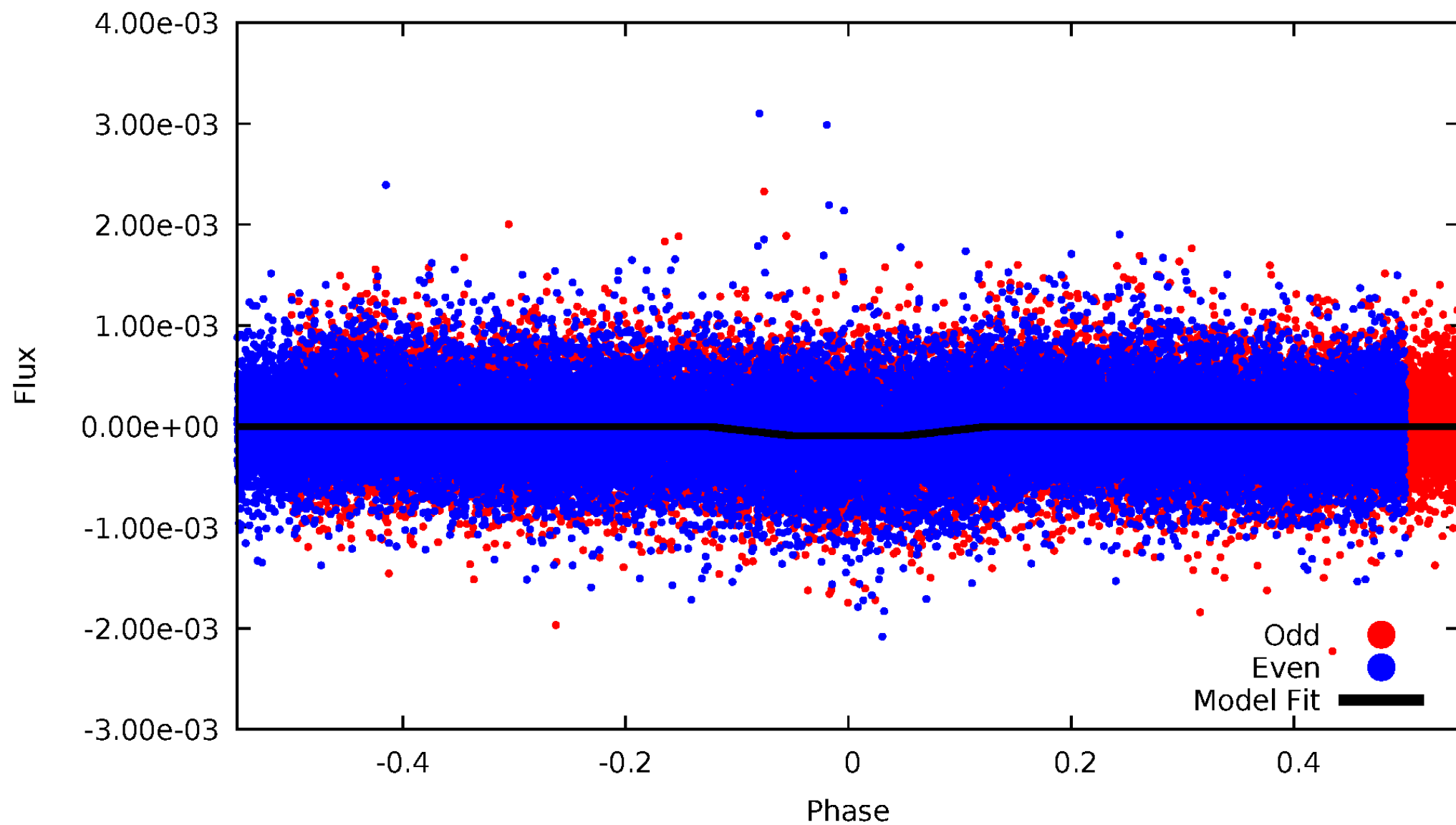
# DV Odd/Even

TCE 010230120-01



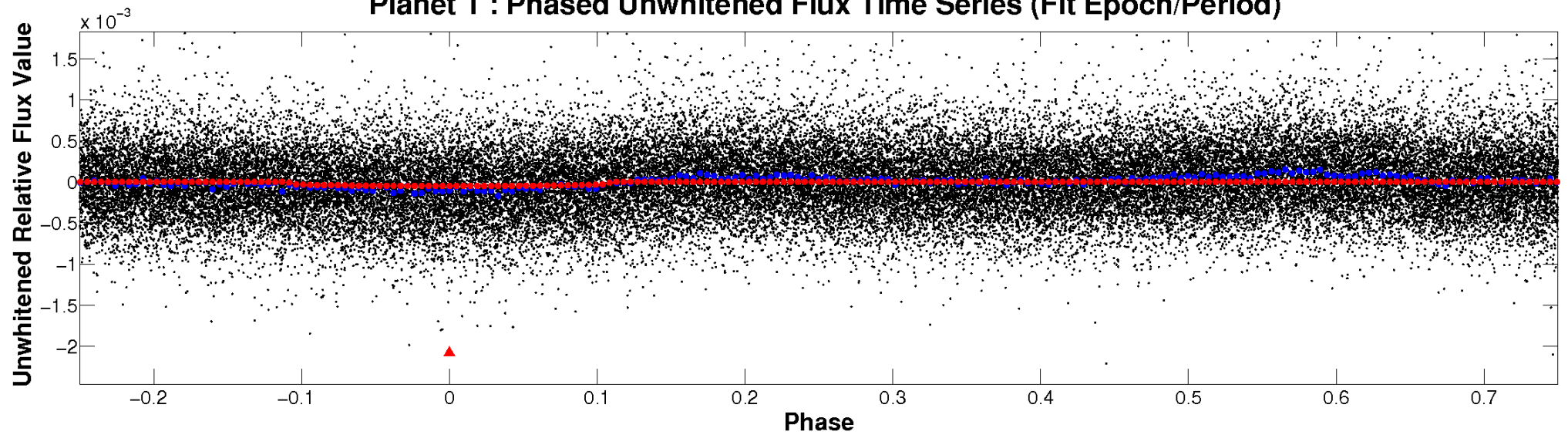
# ALT Odd/Even

TCE 010230120-01

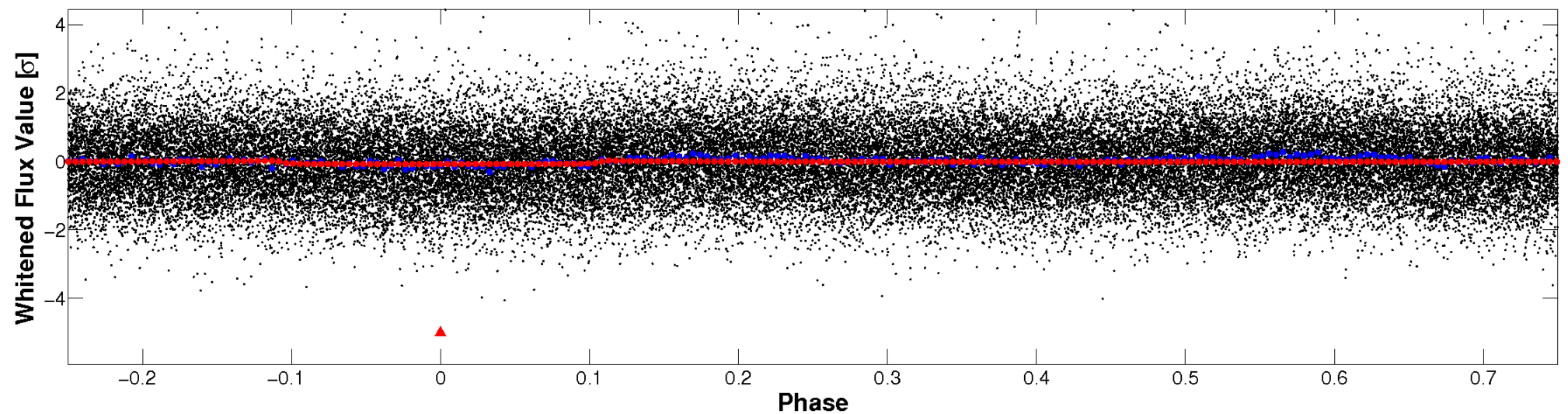


# Non-Whitened Vs. Whitened Light Curve

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

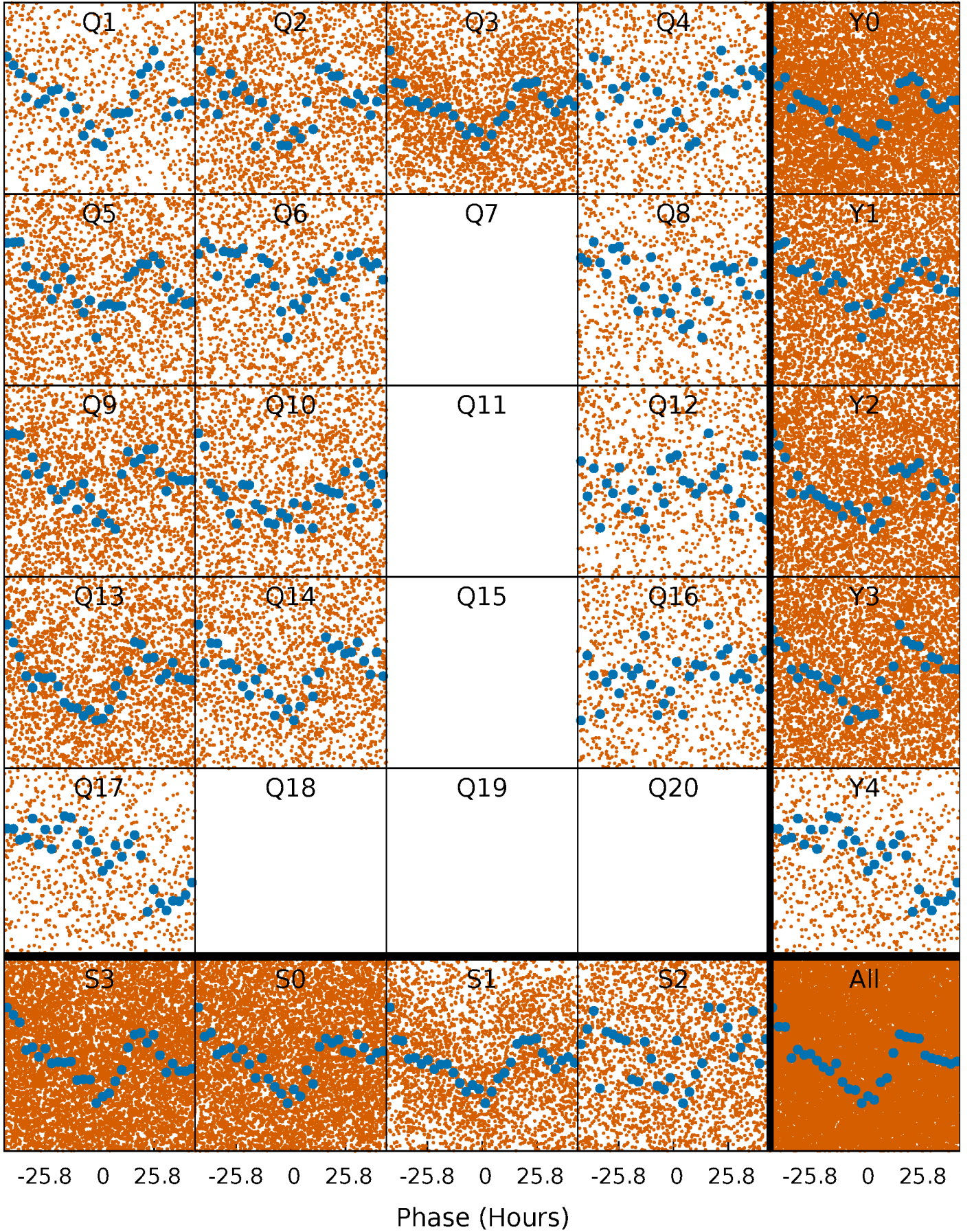


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

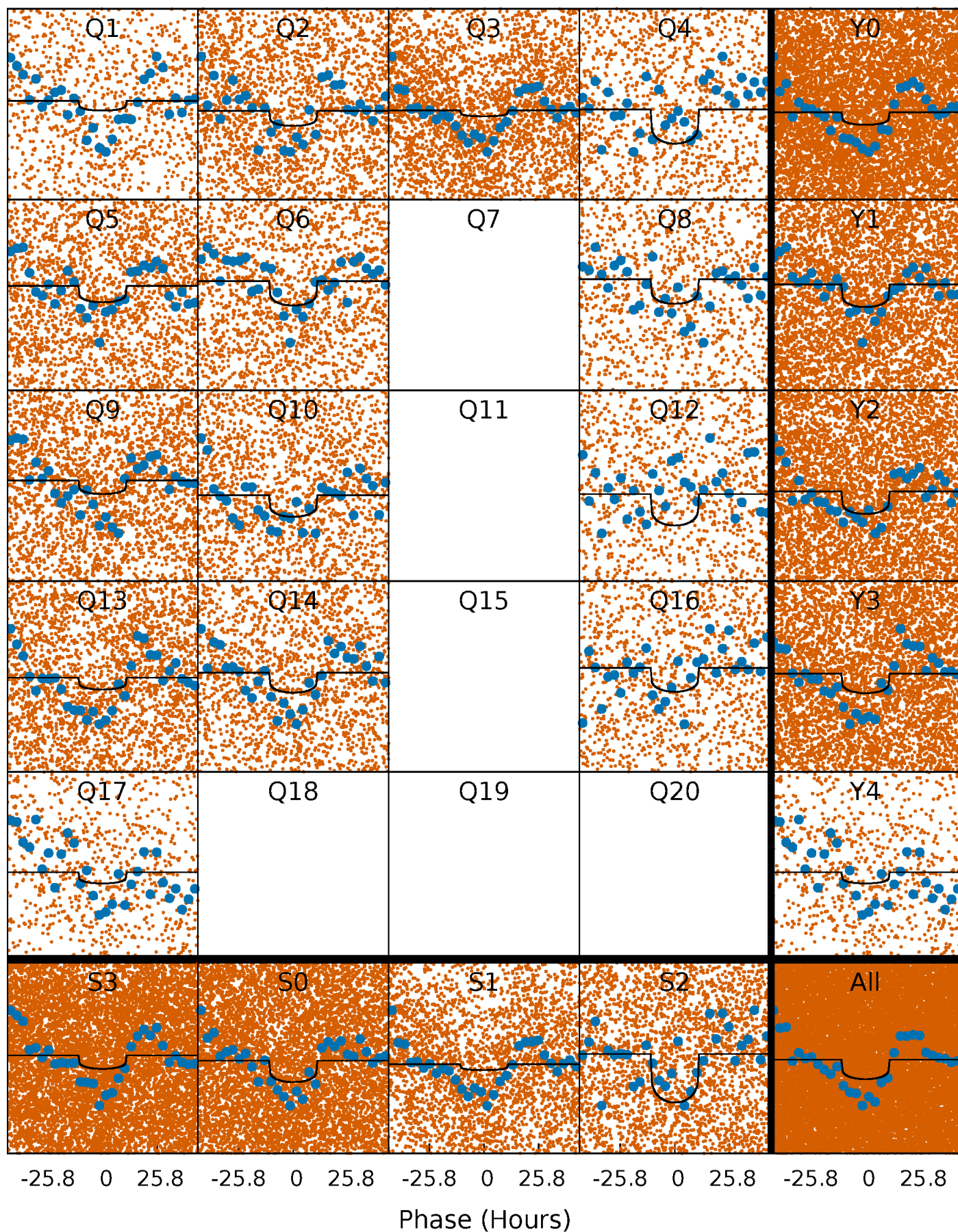
TCE 010230120-01   P= 4.335721 Days    $T_0=133.453029$  (BKJD)





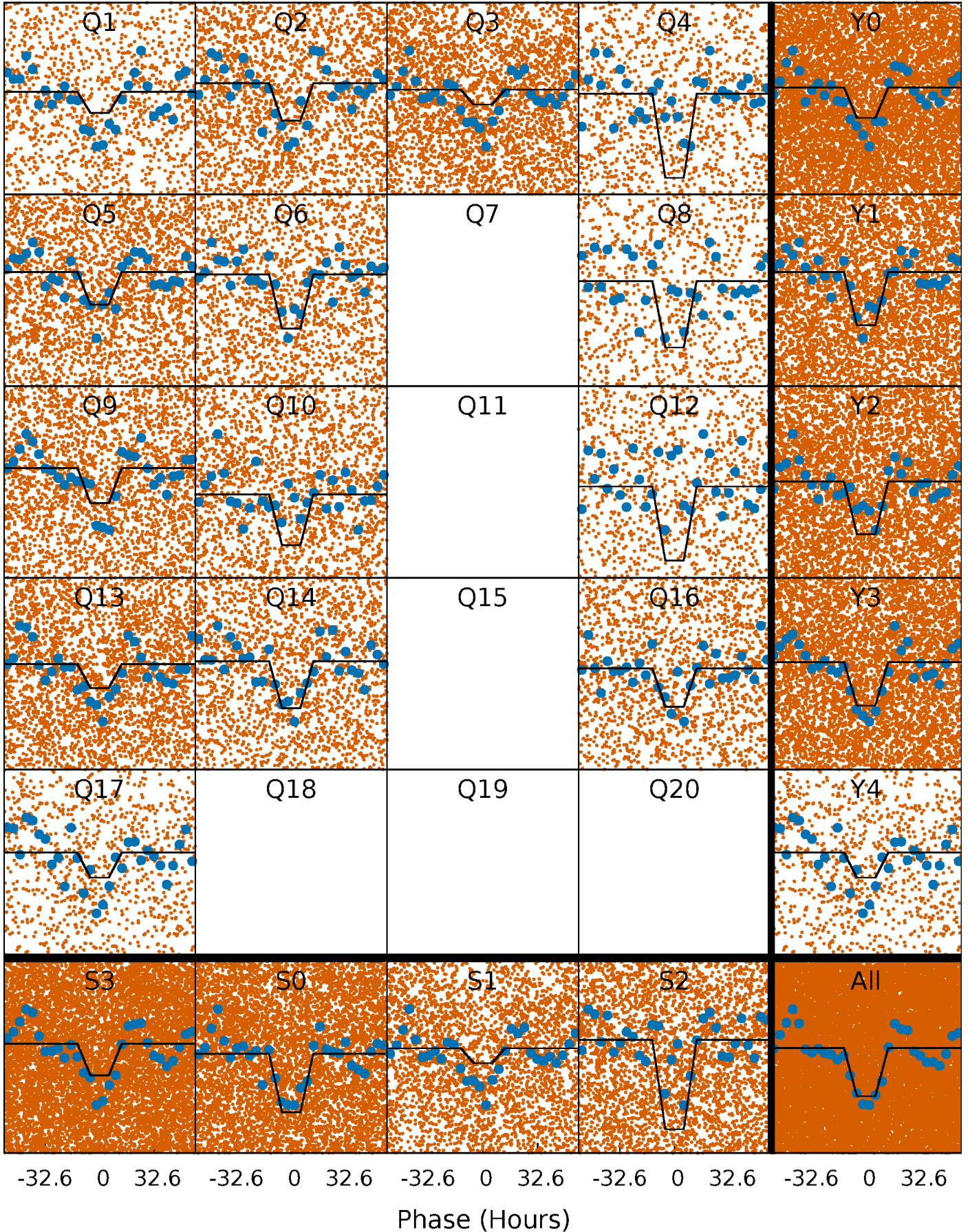
# DV Quarter-Phased Transit Curves

TCE 010230120-01 P= 4.335721 Days  $T_0=133.453029$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010230120-01 P= 4.335459 Days  $T_0=133.504775$  (BKJD)

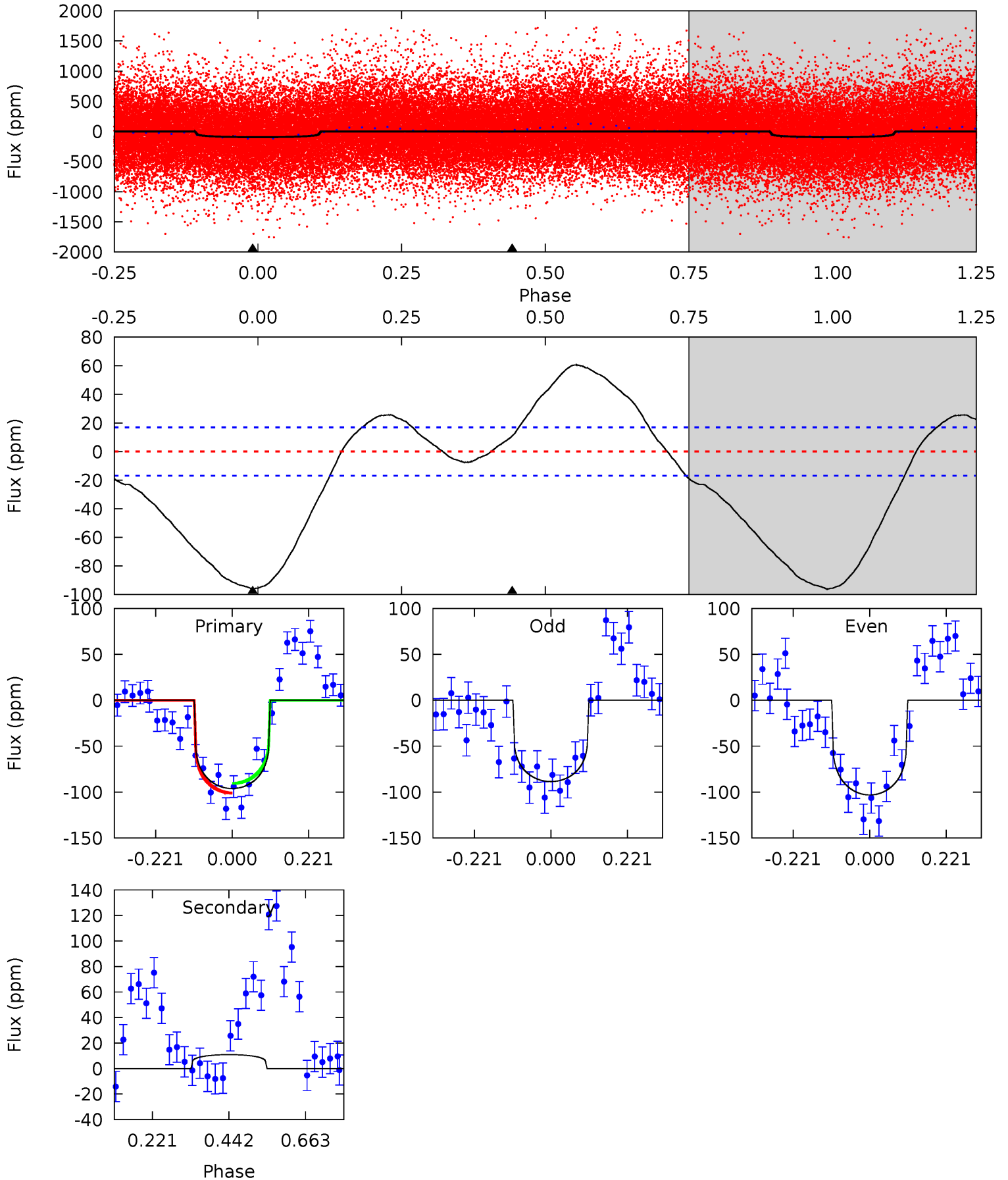




# DV Model-Shift Uniqueness Test

010230120-01, P = 4.335721 Days, E = 129.117308 Days

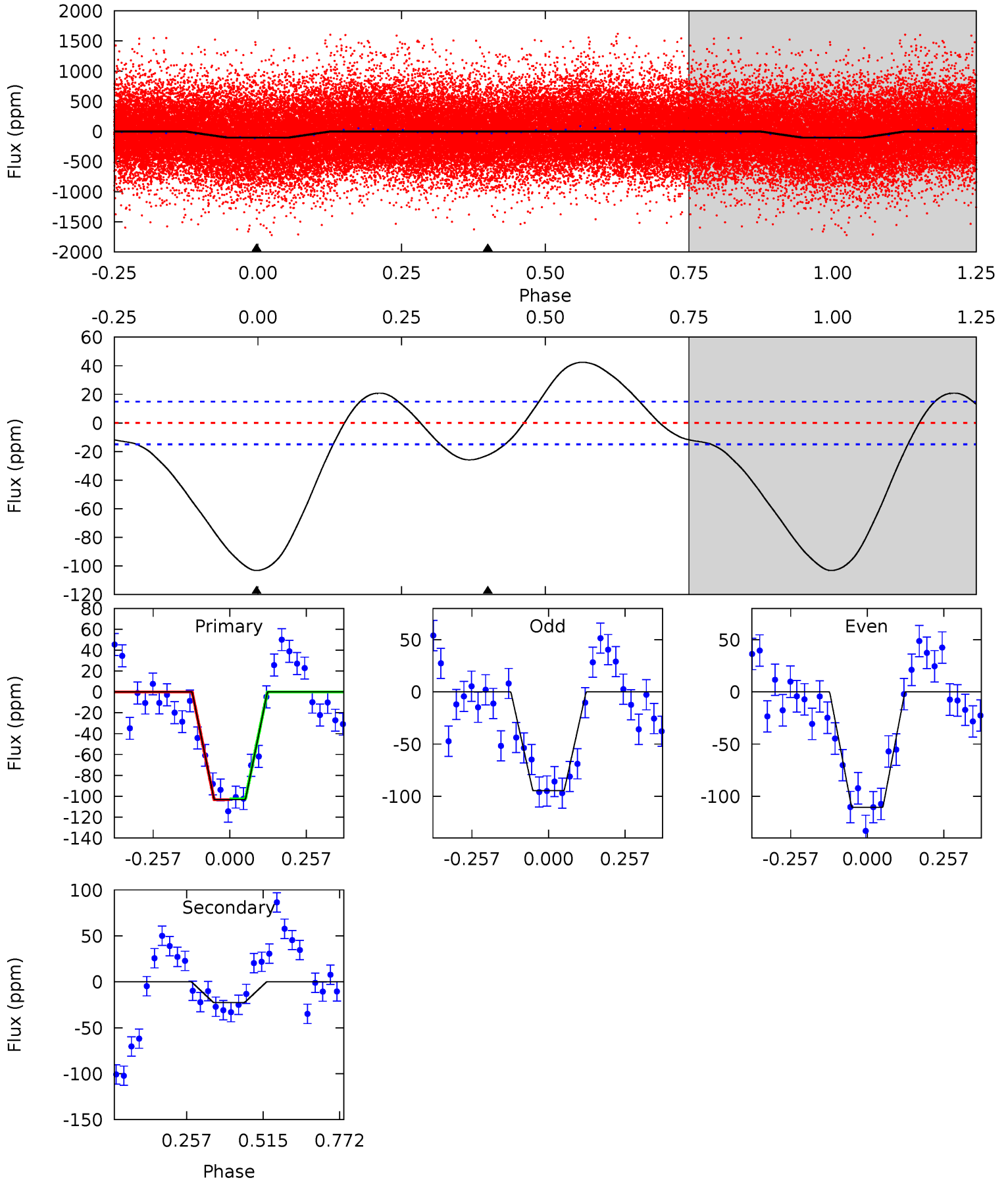
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	-2.84	0	0	4.40	1.22	4.27	25.0	25.0	-2.84	-2.84	1.89	1.27	0.39	1.34



# Alt Model-Shift Uniqueness Test

010230120-01, P = 4.335459 Days, E = 129.169316 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
30.2	6.59	0	0	4.36	1.13	2.92	30.2	30.2	6.59	6.59	2.32	1.34	0.29	0.13





### Stellar Parameters For KIC 010230120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6263^{+169}_{-207}$	$4.489^{+0.054}_{-0.216}$	$-0.360^{+0.300}_{-0.300}$	$0.953^{+0.305}_{-0.102}$	$1.020^{+0.133}_{-0.133}$	$1.660^{+0.369}_{-0.923}$
	+3%/-3%	+1%/-5%	+83%/-83%	+32%/-11%	+13%/-13%	+22%/-56%
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 010230120-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$11 \pm 4$	$0.85^{+0.70}_{-0.53}$	$1686^{+120}_{-86}$	$-4239^{+782}_{-2243}$	$-20.772^{+14.822}_{-124.525}$
Alt.	$-22 \pm 3$	$1.13^{+0.75}_{-0.63}$	$1683^{+115}_{-85}$	$4456^{+1908}_{-812}$	$26^{+109}_{-17}$

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

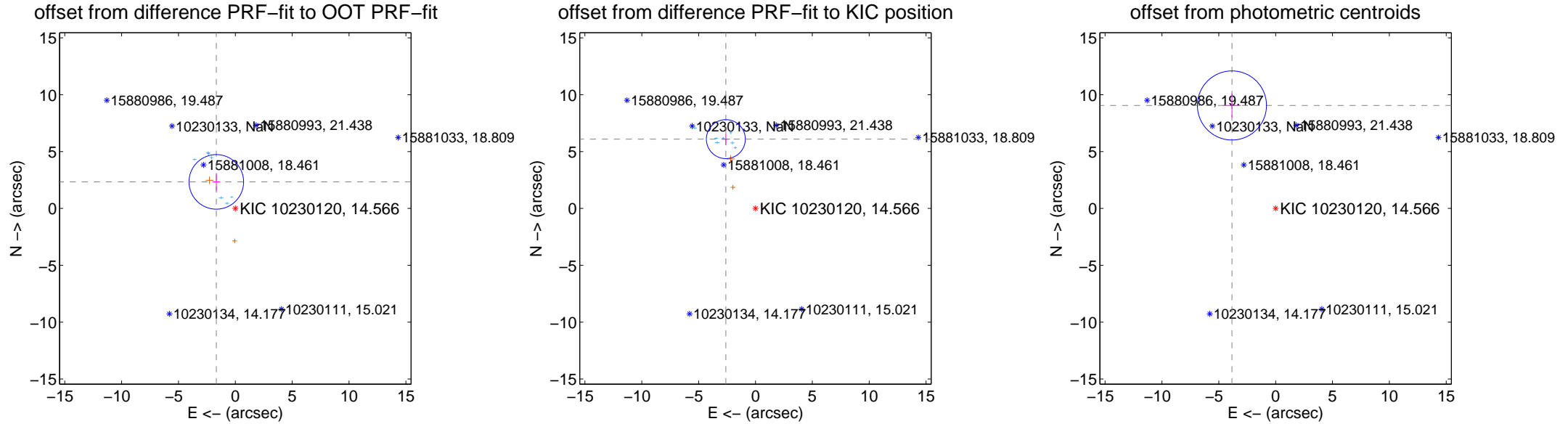
## DV Centroid Data

Supplemental centroid analysis for 010230120-01. Kepler magnitude: 14.57. Transit SNR 7.88

There are 7 quarters with good PRF difference image offsets

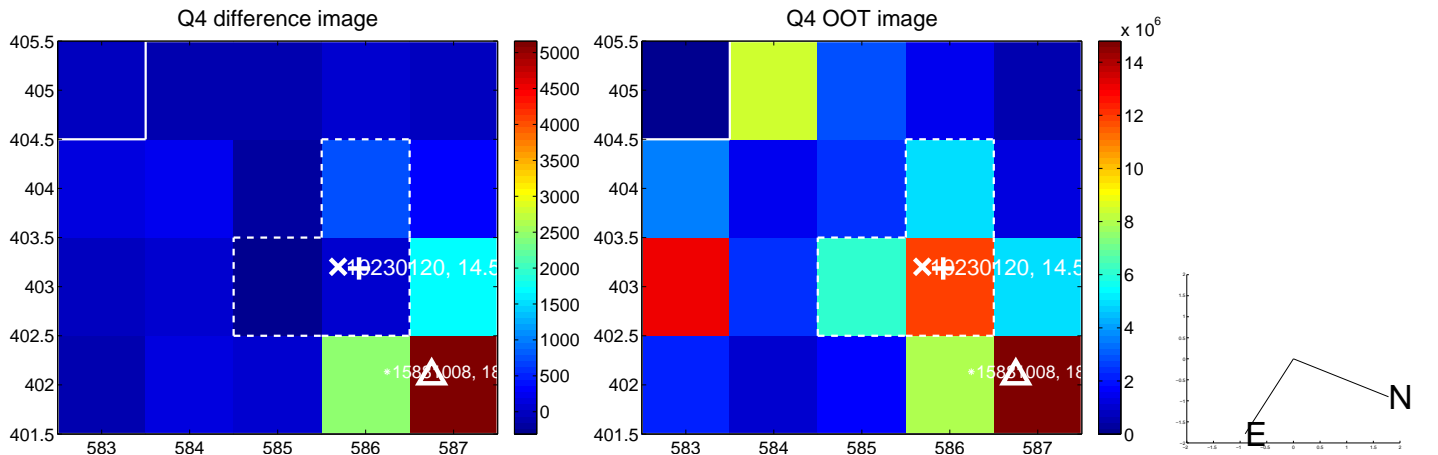
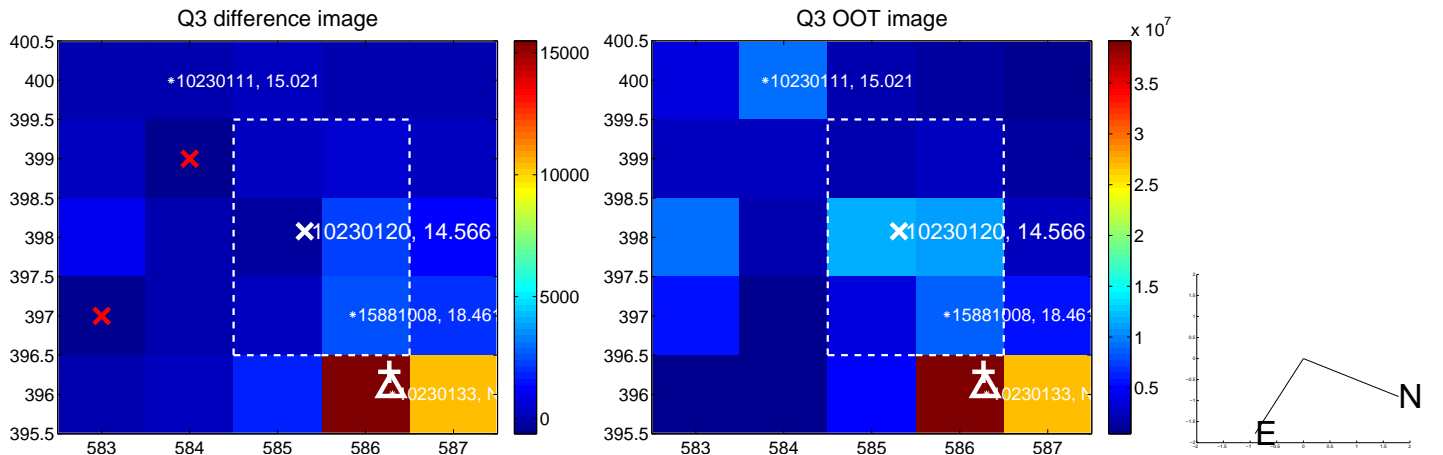
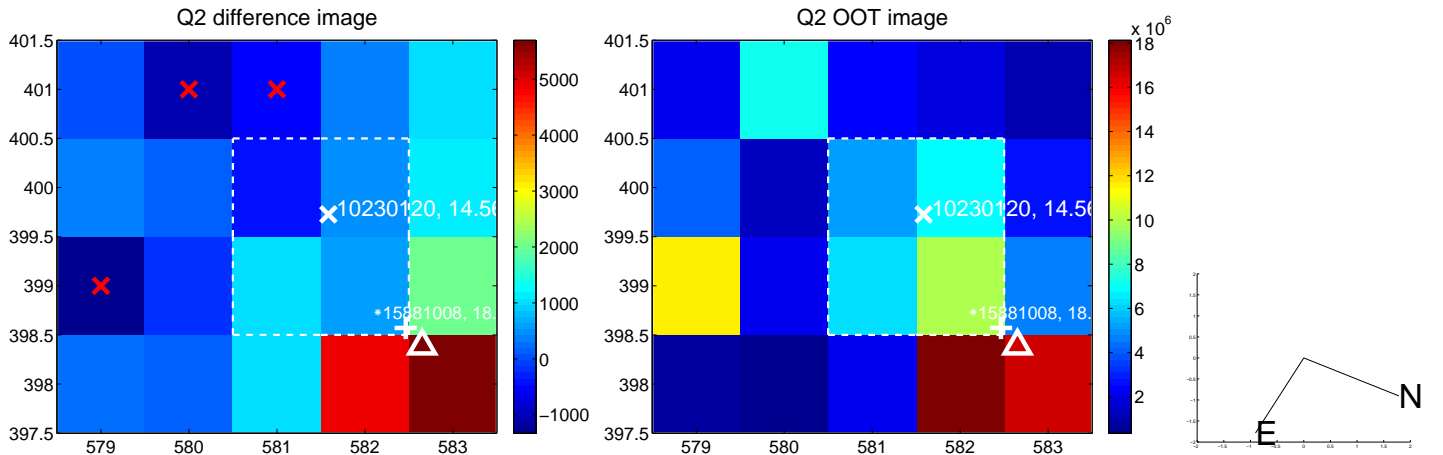
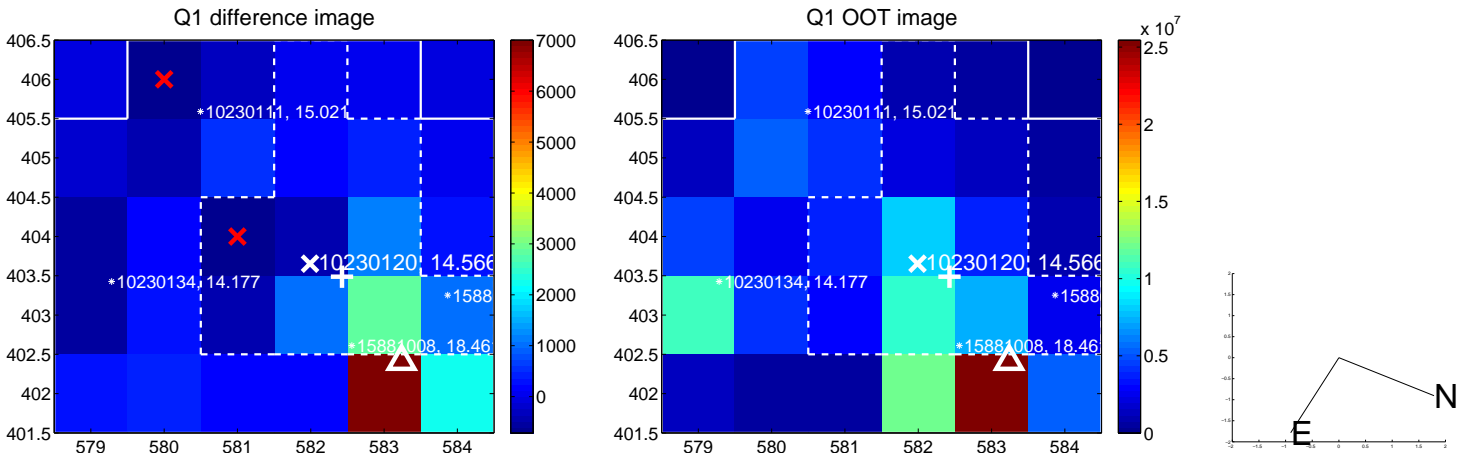
The direct PRF centroid is offset from the target star catalog position by about 1.88 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.874 \pm 0.800$	$3.59$	$1.674 \pm 0.336$	$2.336 \pm 0.773$
PRF-fit source offset from KIC position	$6.630 \pm 0.571$	$11.61$	$2.607 \pm 0.358$	$6.096 \pm 0.537$
photometric centroid source offset	$9.84 \pm 1.01$	$9.71$	$3.84 \pm 0.77$	$9.06 \pm 1.05$

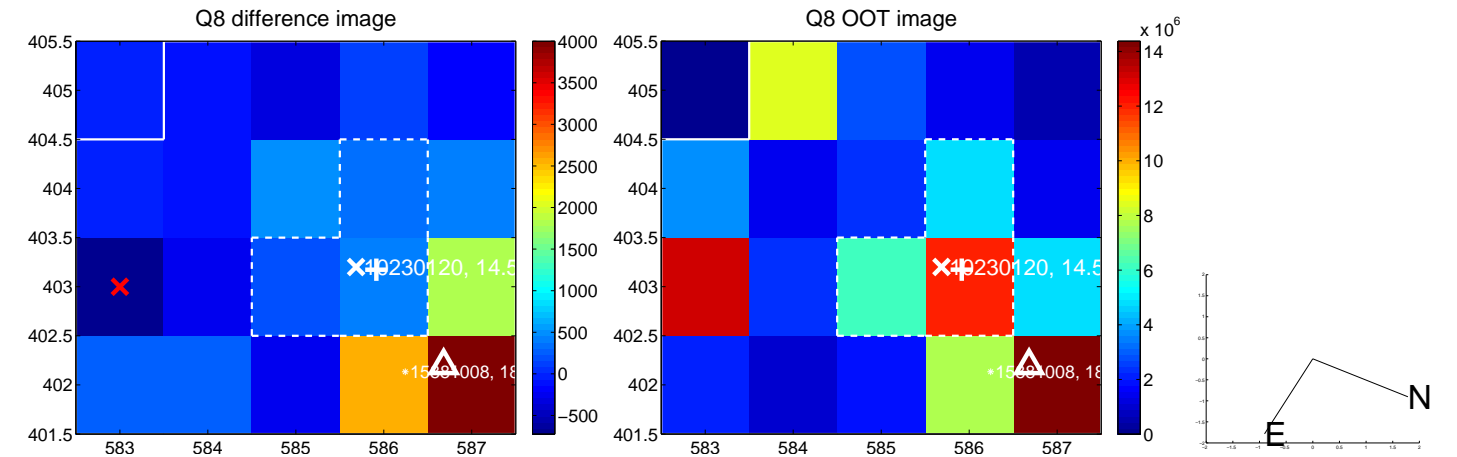
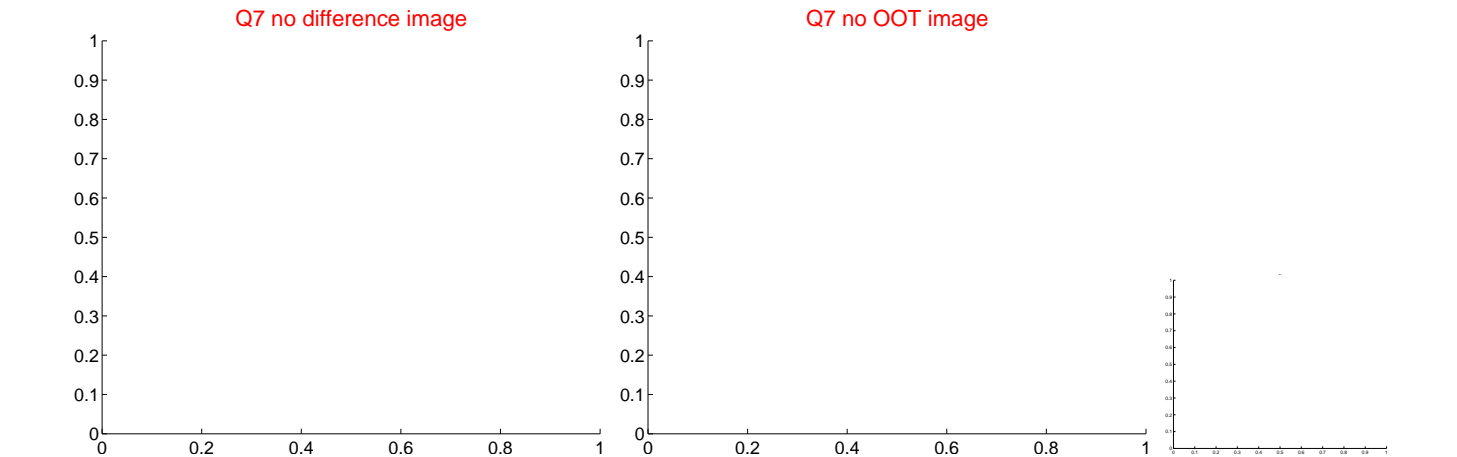
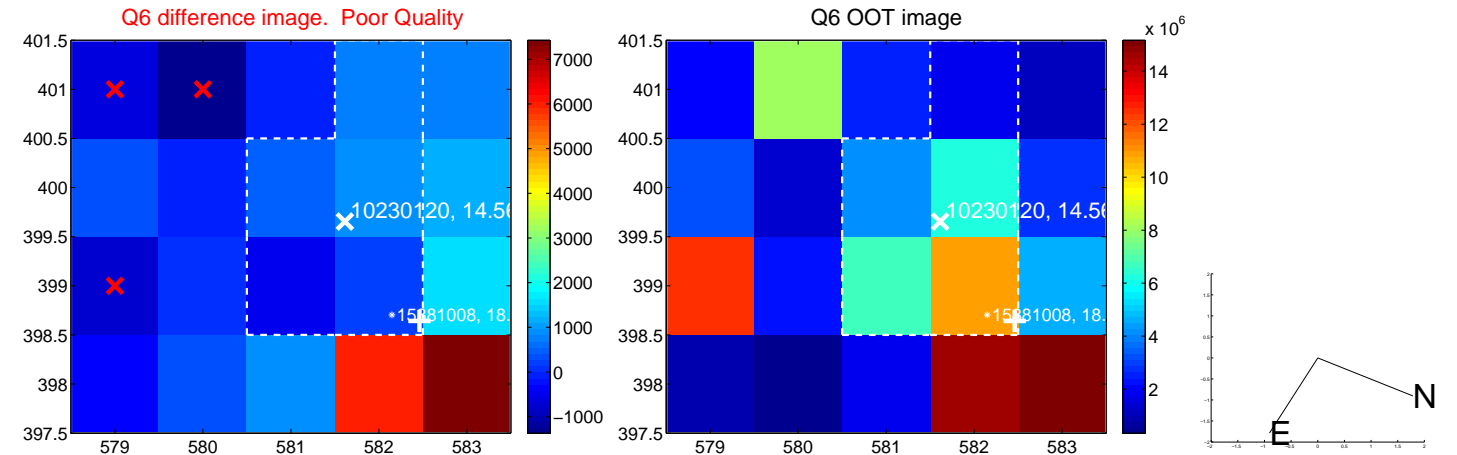
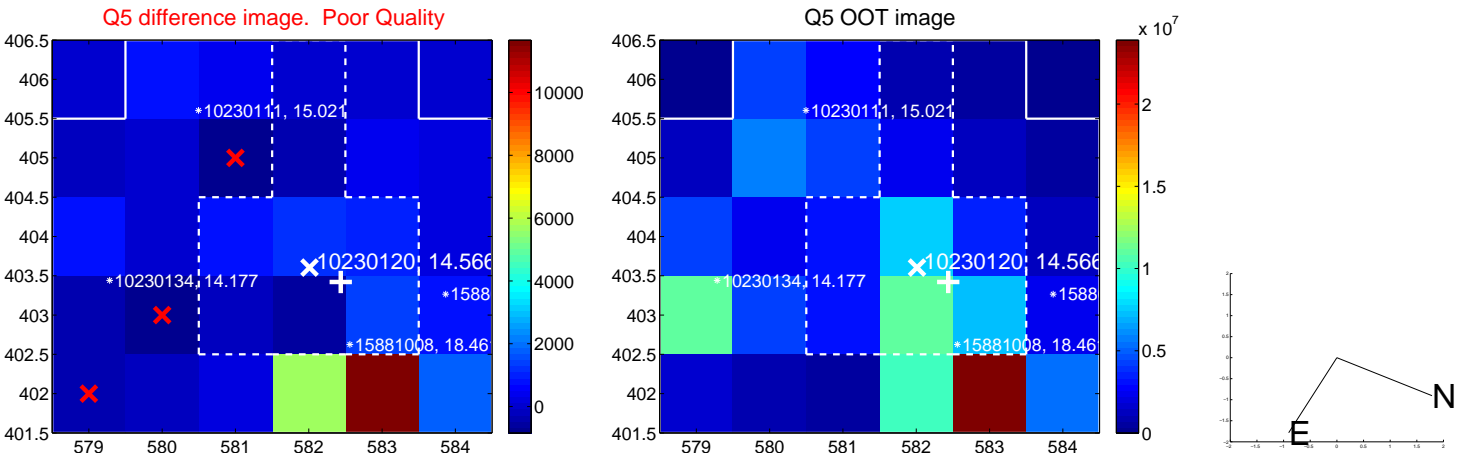


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

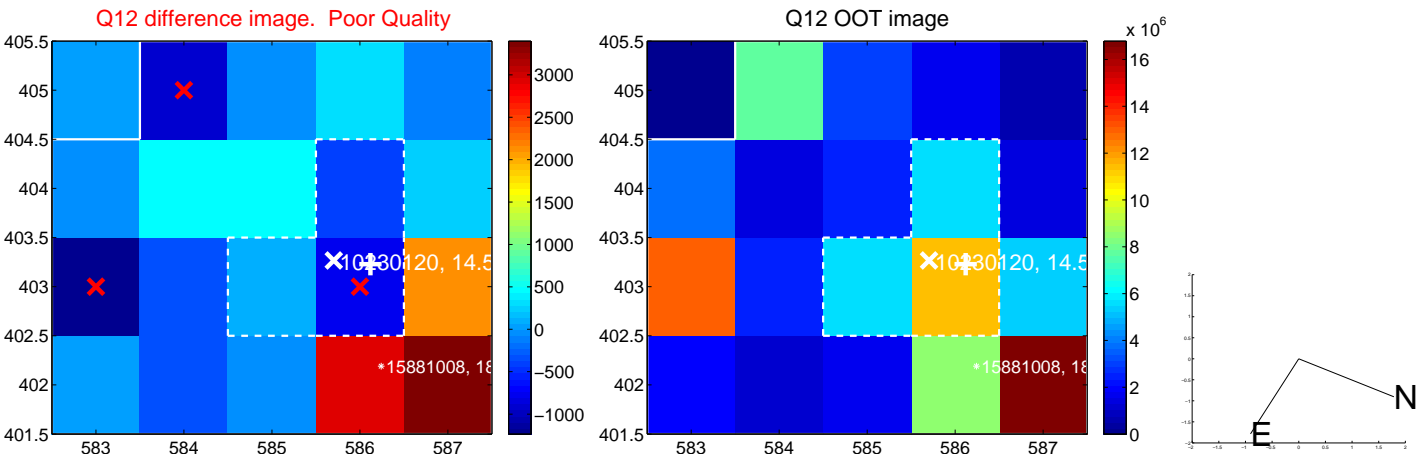
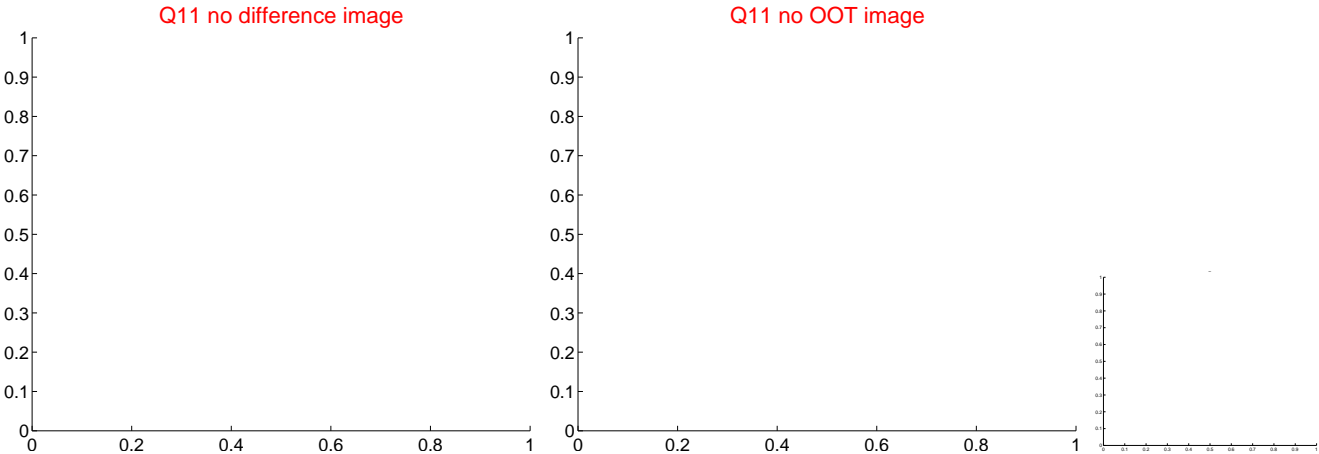
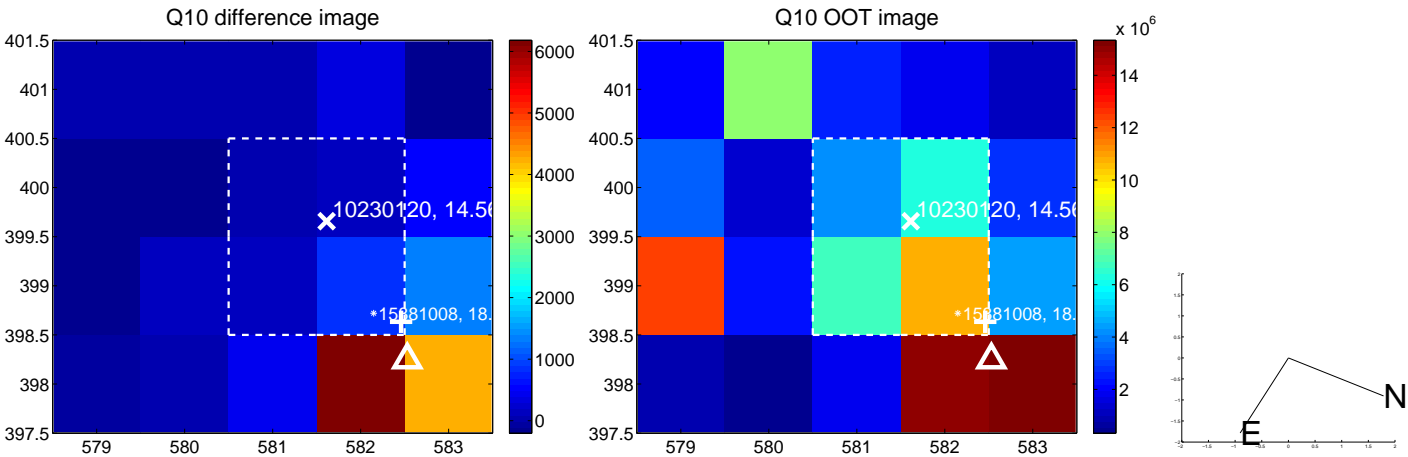
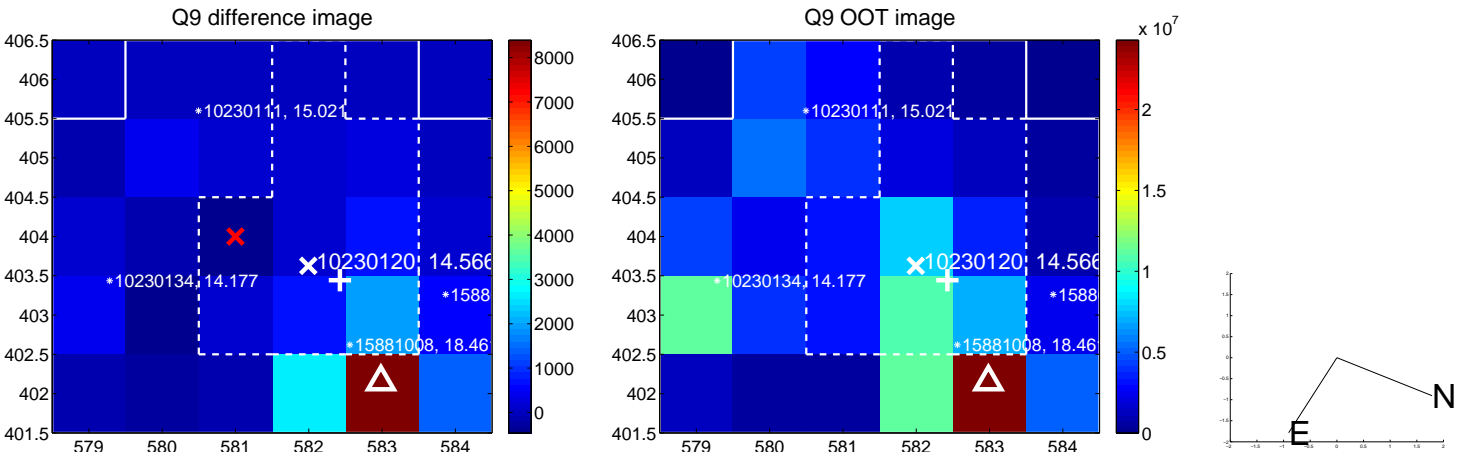


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

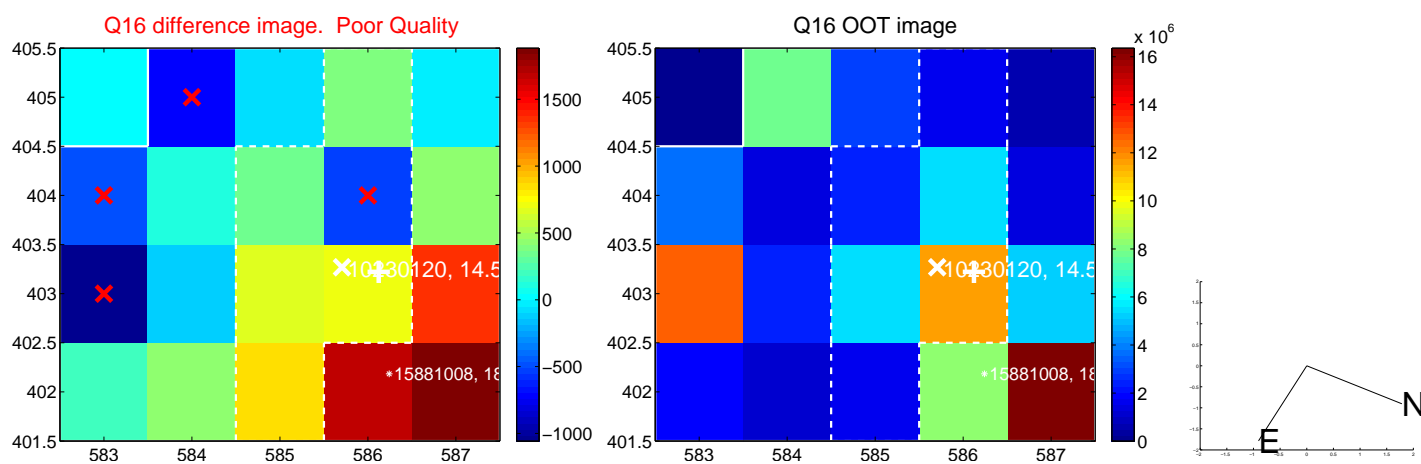
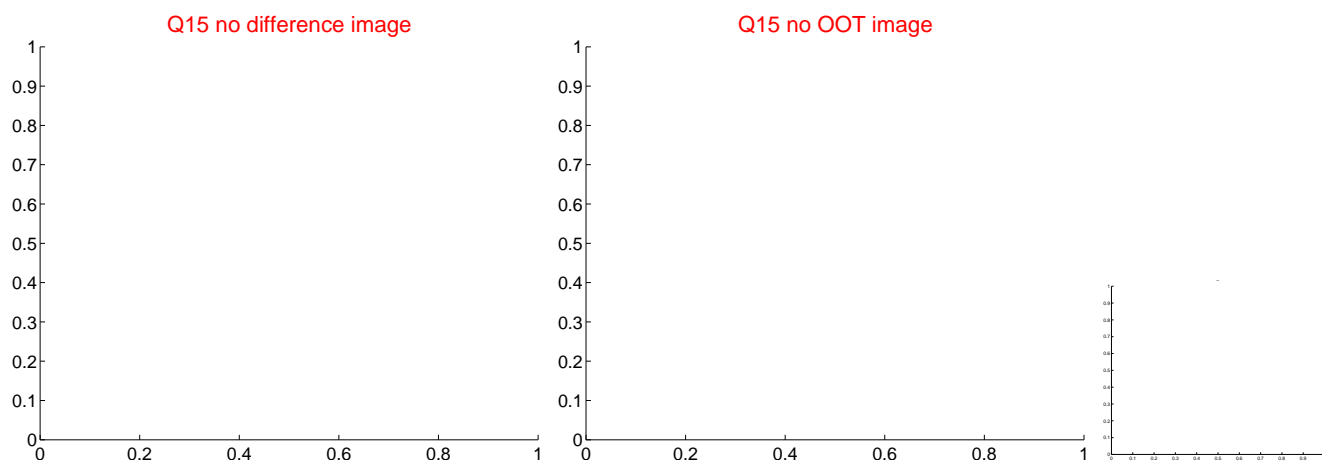
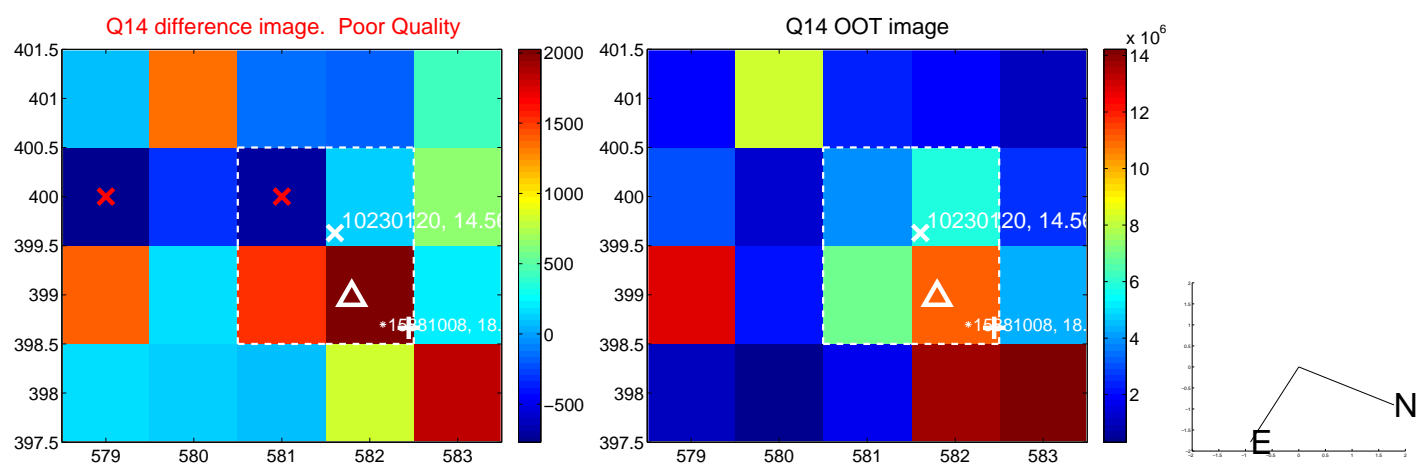
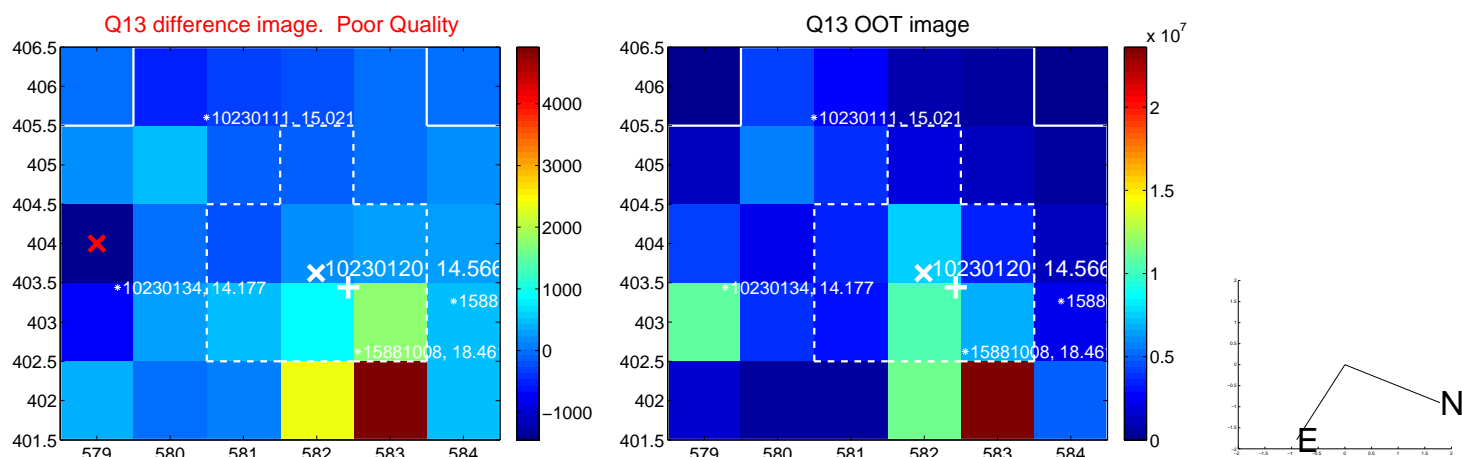




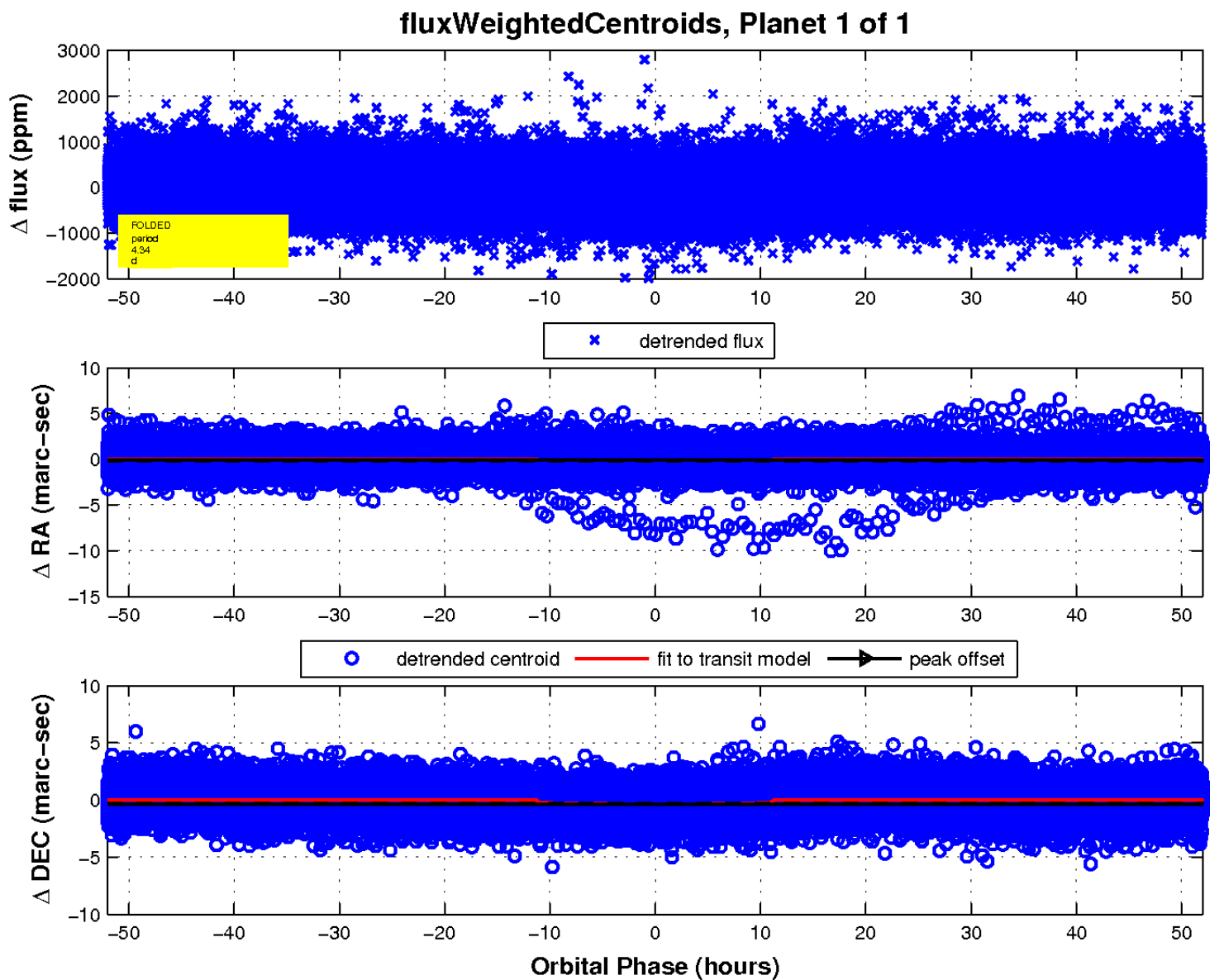
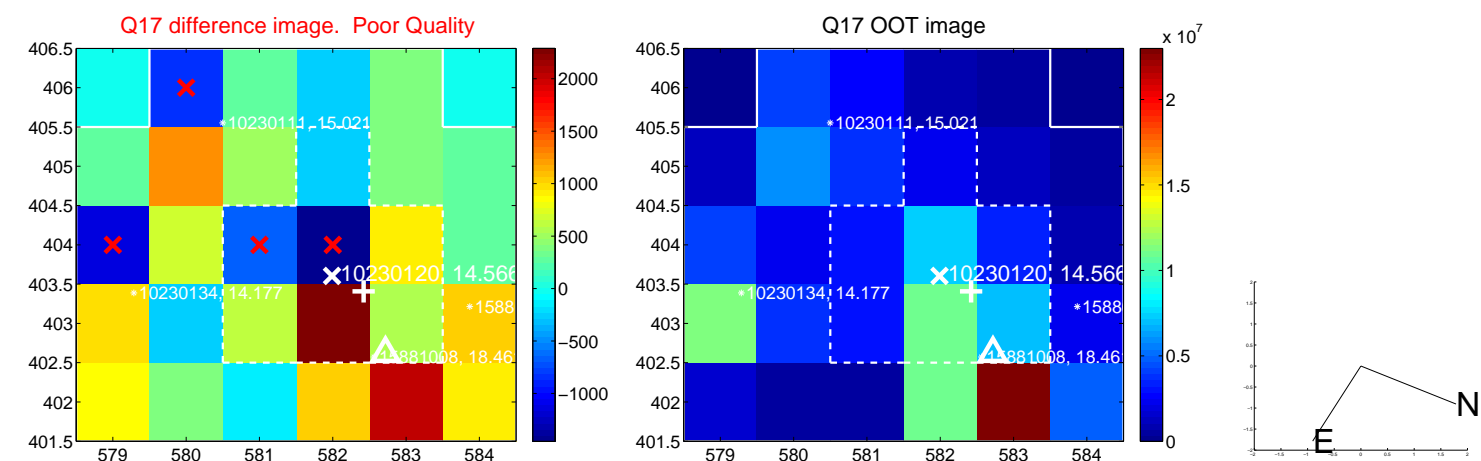
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

