

# KIC 009140519

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009140519-01	OBS	No	3.305167	132.110144	50.2	13.482	7.3	7.5	0.71	4944	0.62	184.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009140519-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

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

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

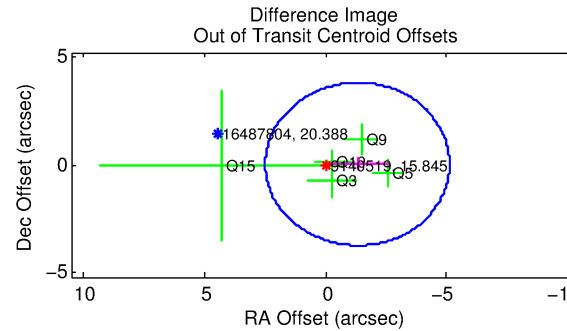
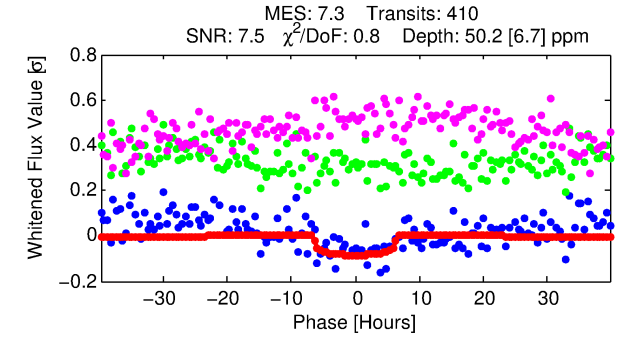
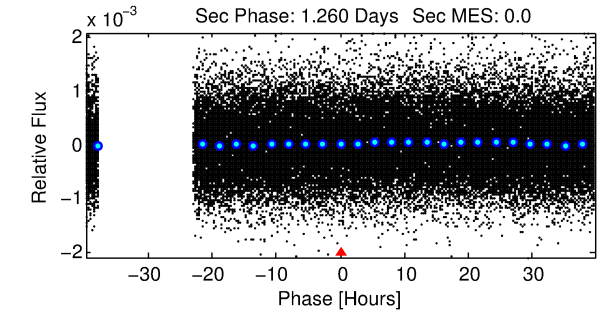
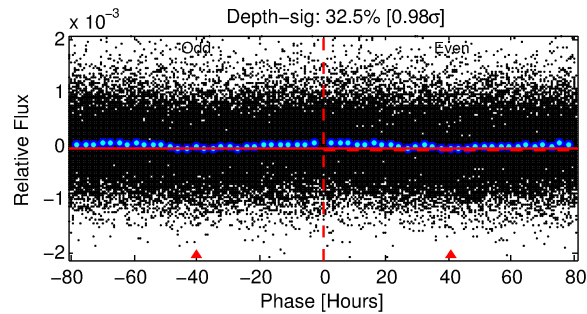
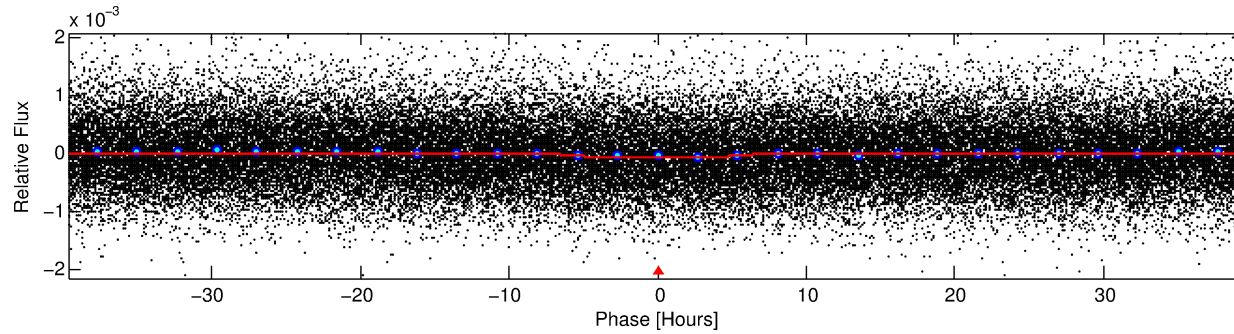
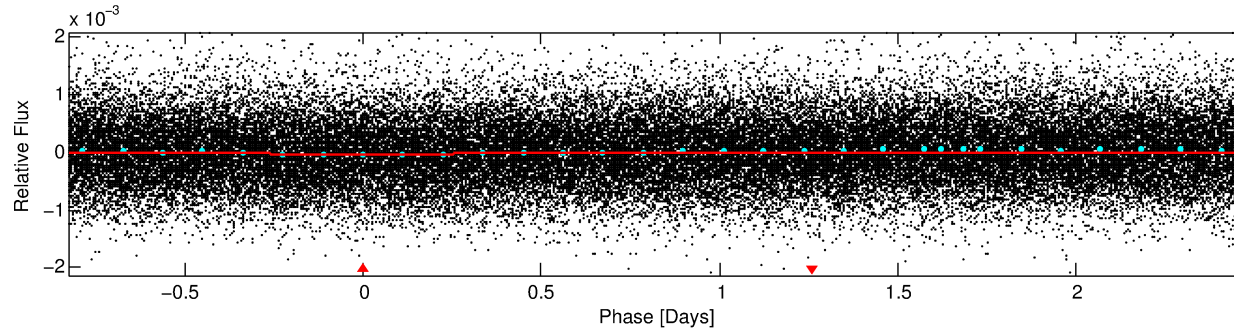
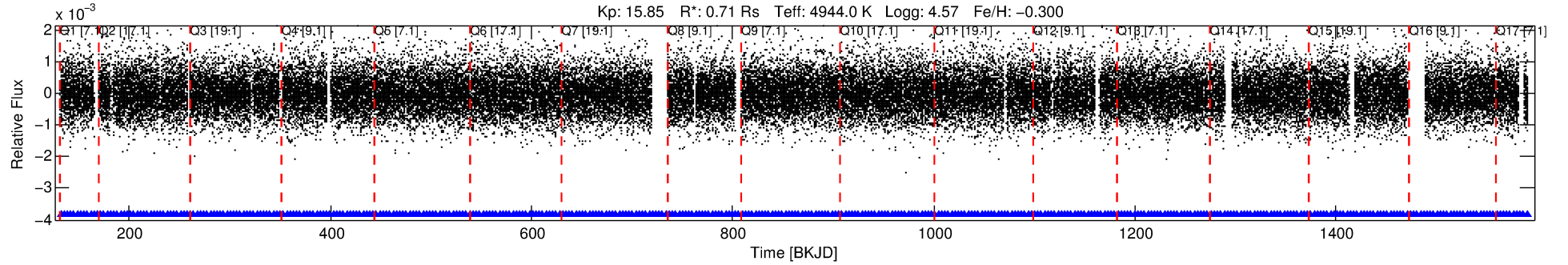
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009140519-01

No Significant Match Found

# DV One-Page Summary

KIC: 9140519 Candidate: 1 of 1 Period: 3.305 d



## DV Fit Results:

Period = 3.30517 [0.00010] d  
Epoch = 132.1101 [0.0208] BKJD  
Rp/R\* = 0.0080 [0.0029]  
a/R\* = 1.25 [0.68]  
b = 0.91 [0.30]  
Seff = 184.76 [32.85]  
Teff = 940 [42] K  
Rp = 0.62 [0.23] Re  
a = 0.0383 [0.0035] AU  
Ag = N/A  
Teffp = N/A

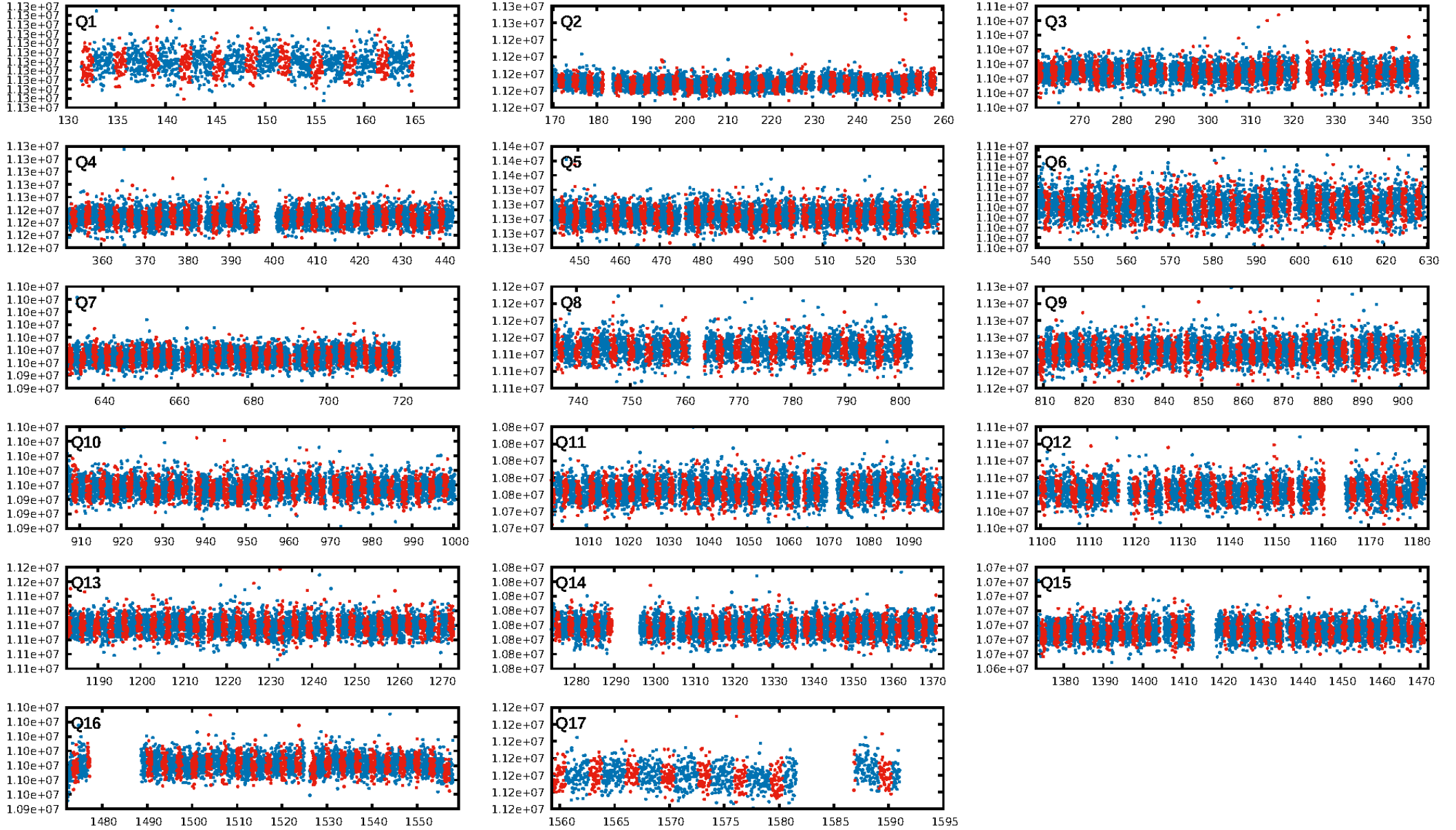
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.09e-15  
RollingBand-fgt: 1.00 [391/391]  
GhostDiagnostic-chr: 1.987  
Centroid-sig: N/A  
Centroid-so: 1.289 arcsec [0.74 $\sigma$ ]  
OotOffset-rm: 1.319 arcsec [1.04 $\sigma$ ]  
KicOffset-rm: 1.123 arcsec [1.07 $\sigma$ ]  
OotOffset-st: 1/2/0/2 [5]  
KicOffset-st: 1/2/0/2 [5]  
DiffImageQuality-fgm: 0.80 [4/5]  
DiffImageOverlap-fno: 1.00 [17/17]

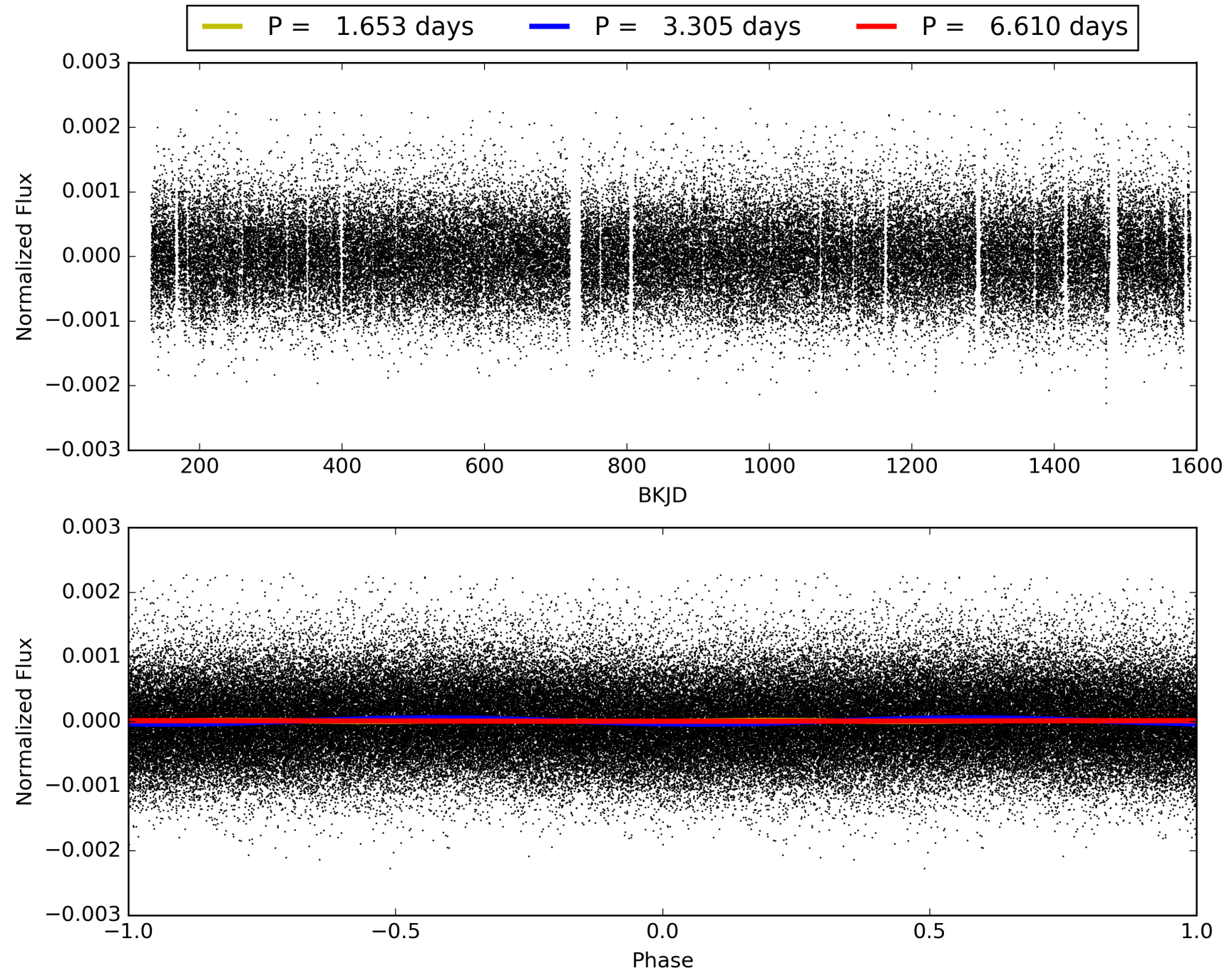
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:02:02 Z

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

# TCE 009140519-01, PDC Light Curves

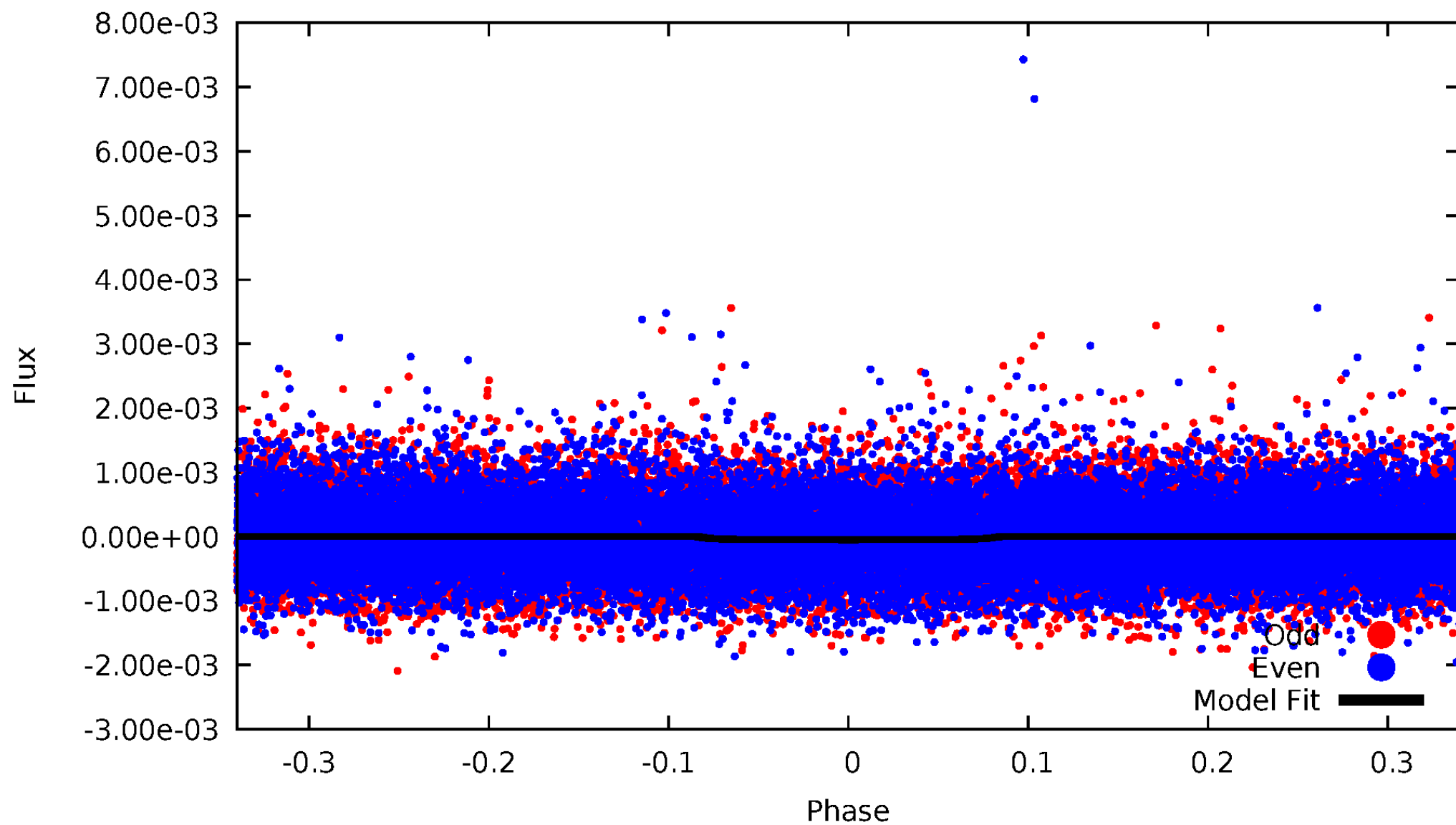


TCE 009140519-01



# DV Odd/Even

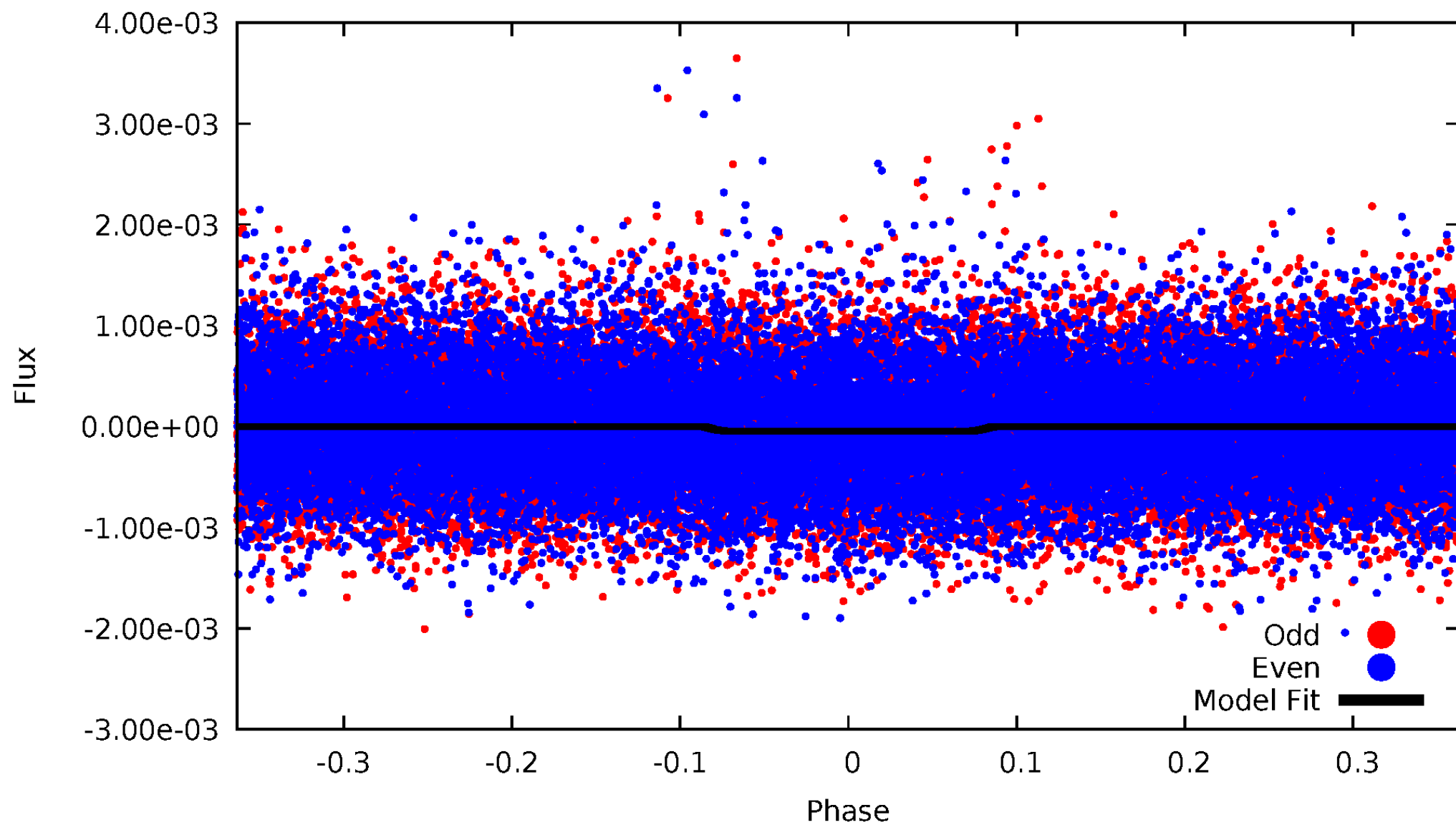
TCE 009140519-01





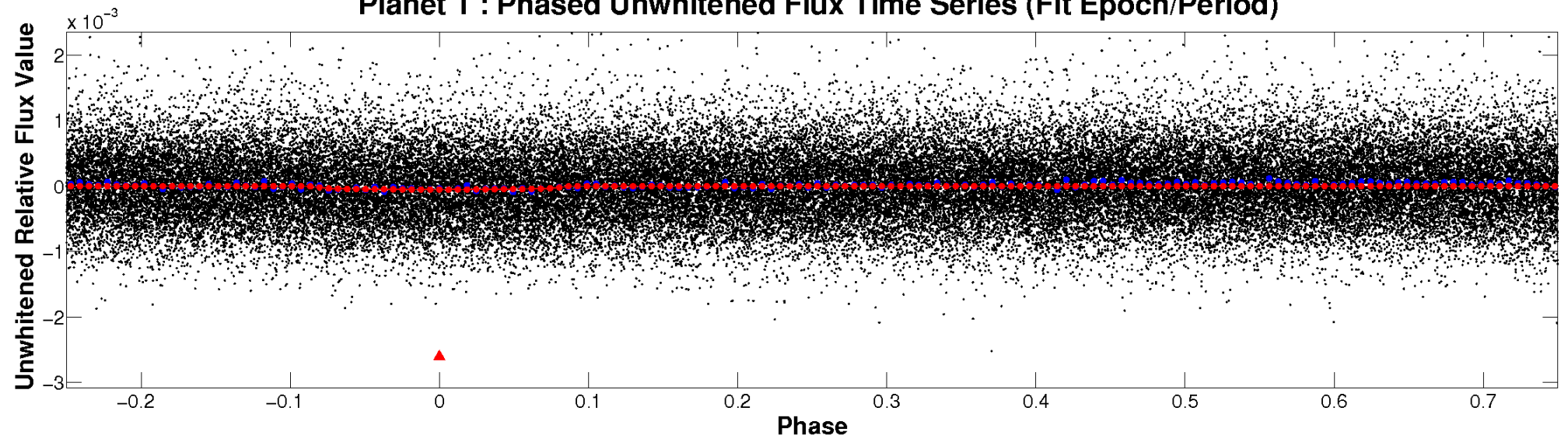
# ALT Odd/Even

TCE 009140519-01

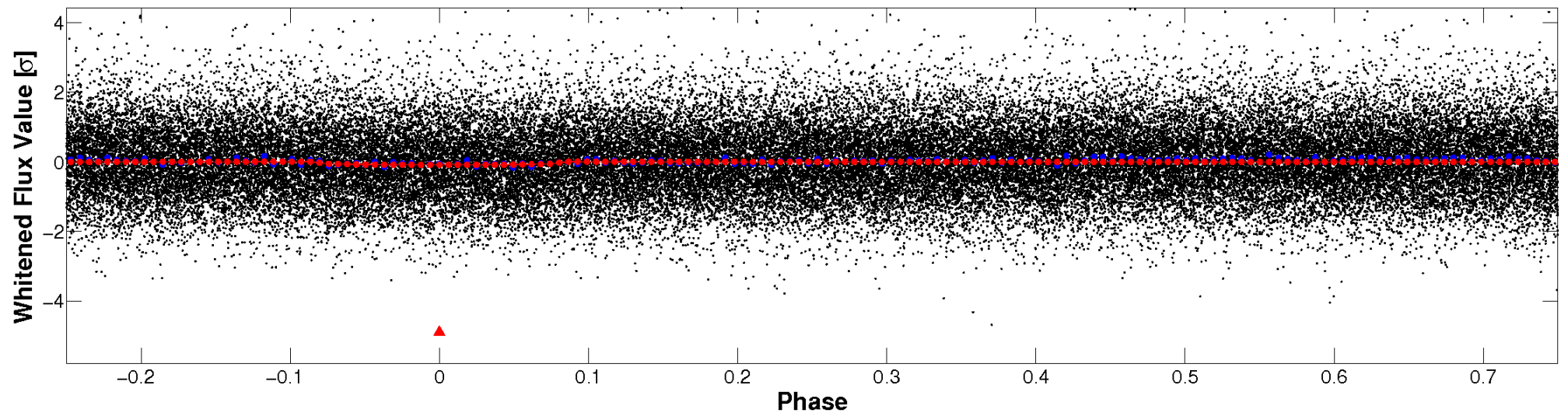


# Non-Whitened Vs. Whitened Light Curve

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

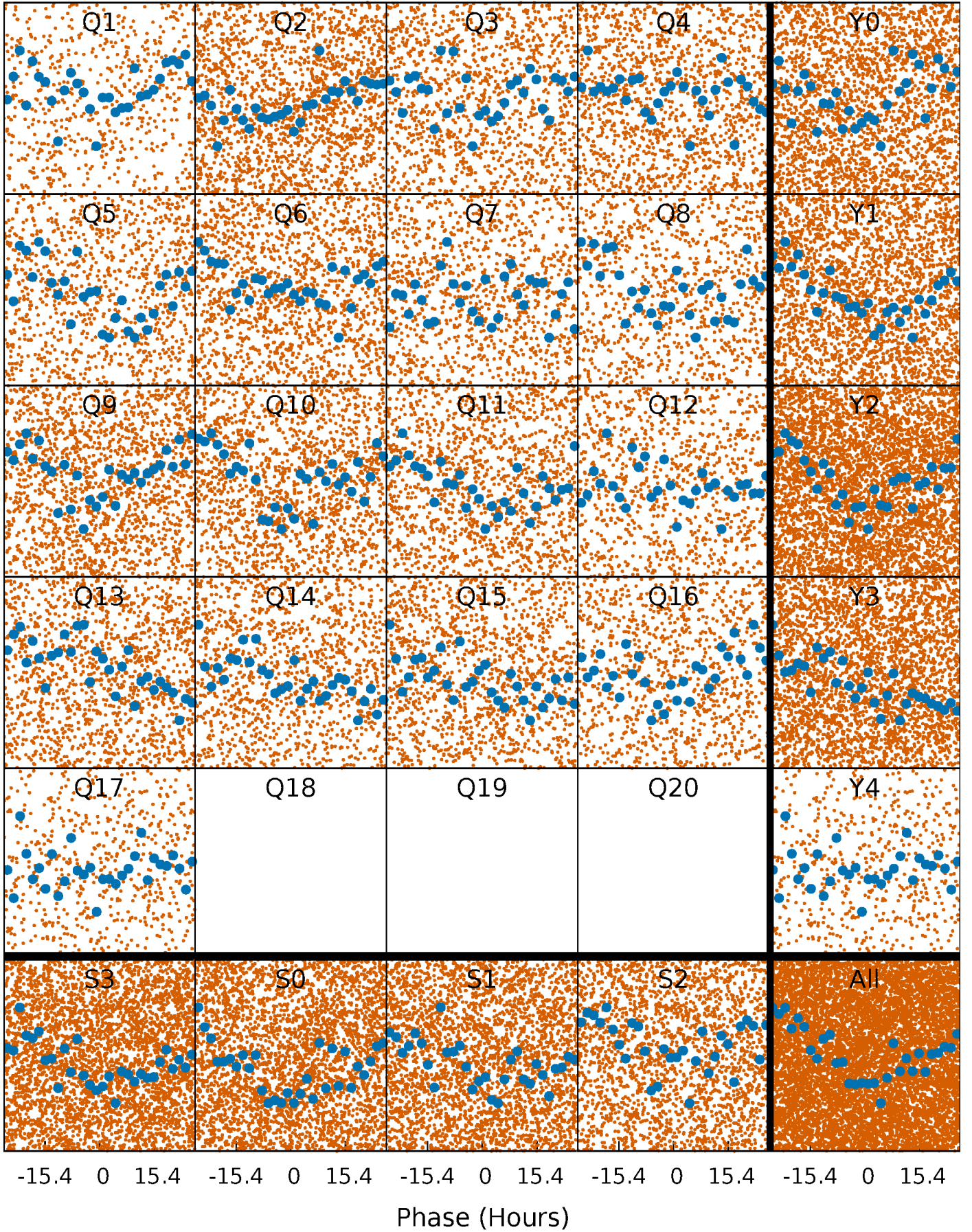


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

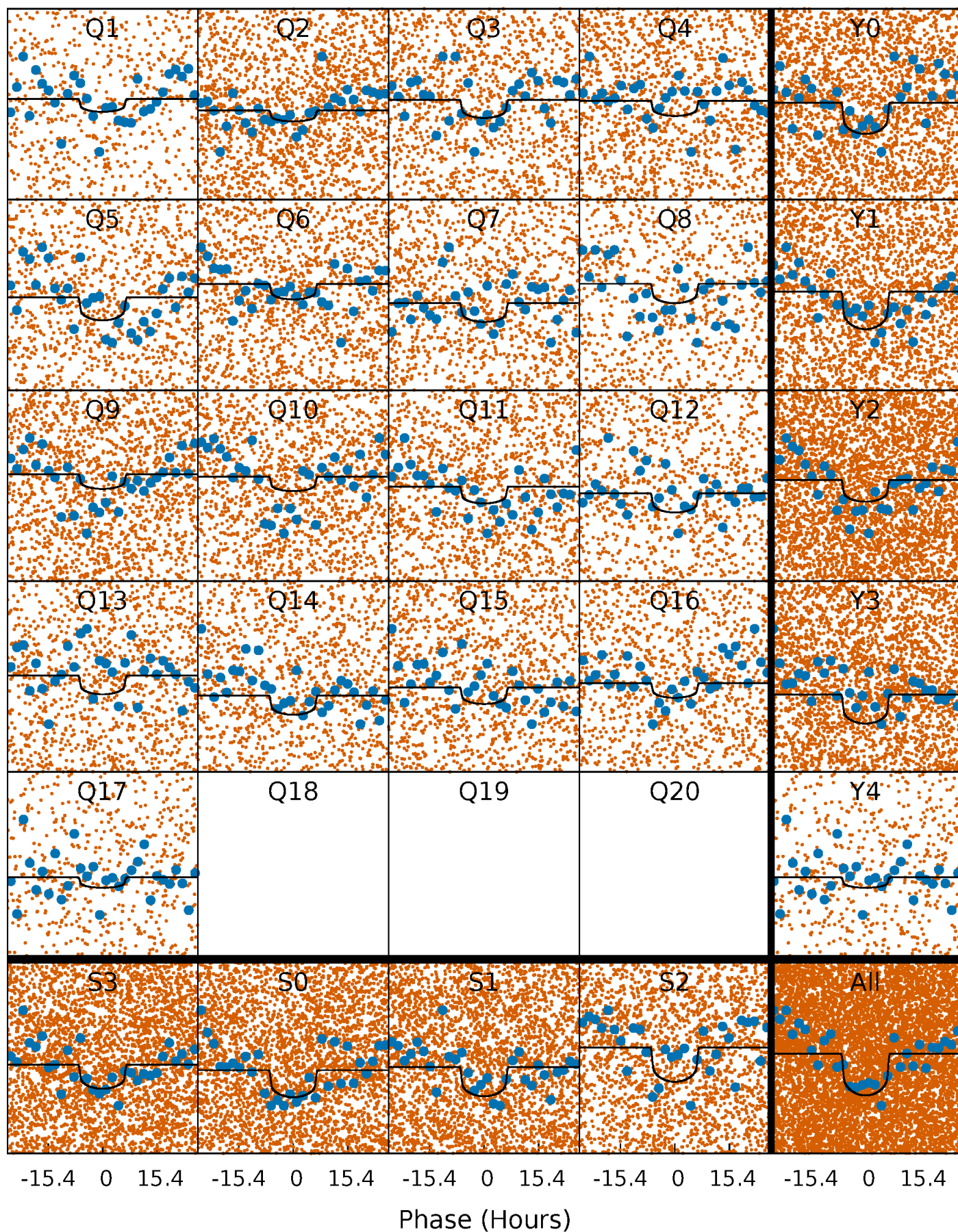
TCE 009140519-01 P= 3.305167 Days  $T_0=132.110144$  (BKJD)





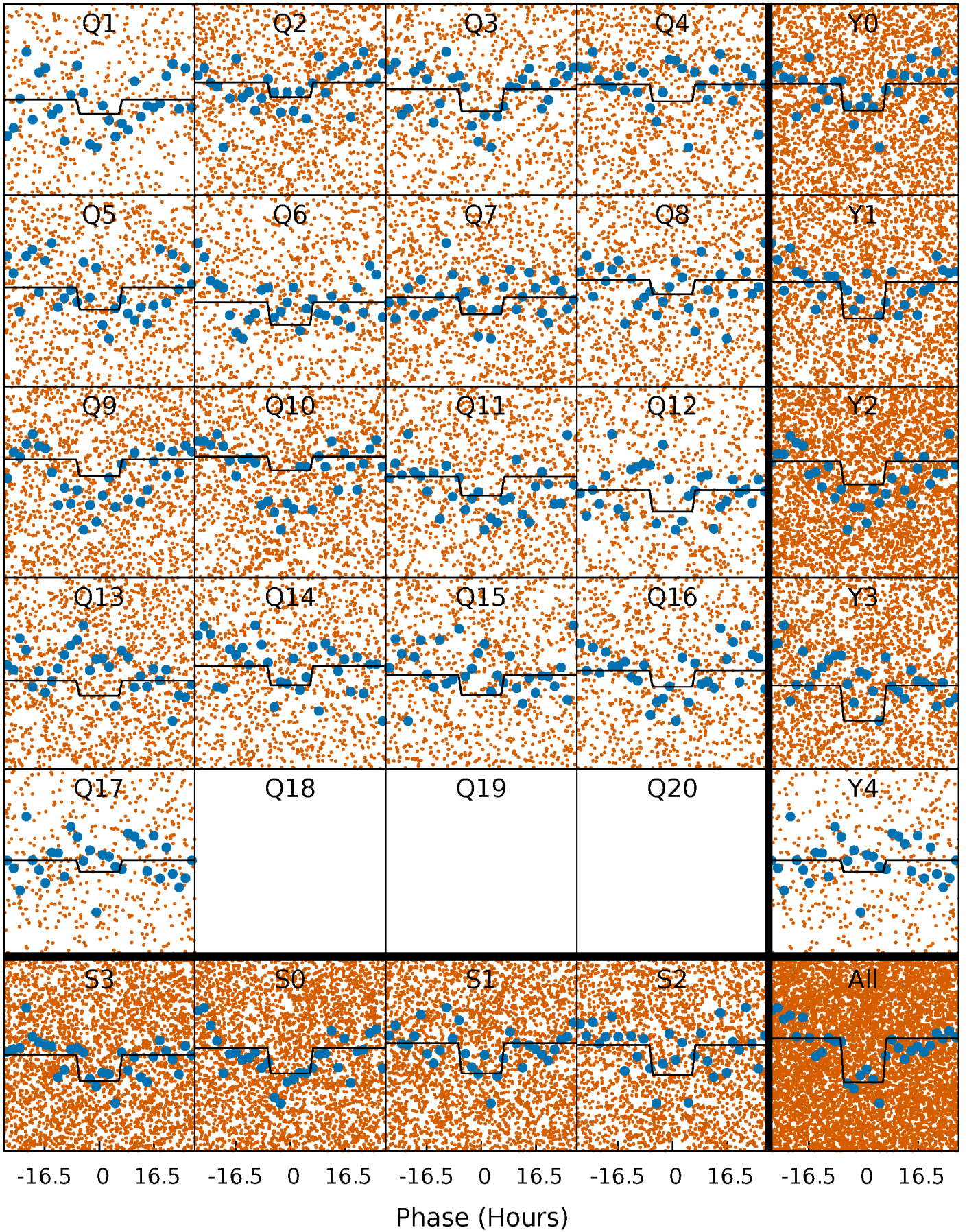
# DV Quarter-Phased Transit Curves

TCE 009140519-01 P= 3.305167 Days  $T_0=132.110144$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009140519-01 P= 3.305249 Days  $T_0=132.086438$  (BKJD)

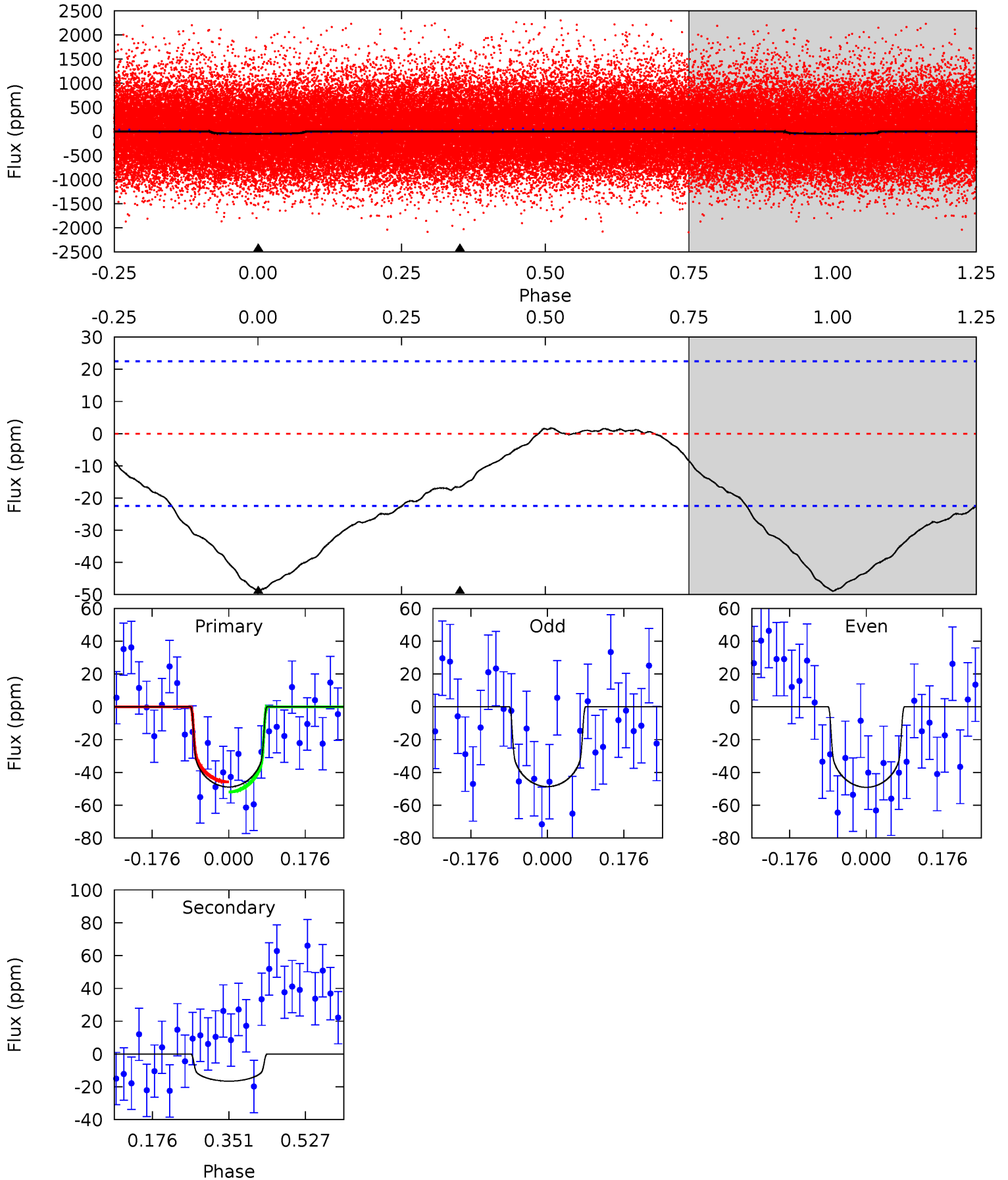




# DV Model-Shift Uniqueness Test

009140519-01, P = 3.305167 Days, E = 128.804977 Days

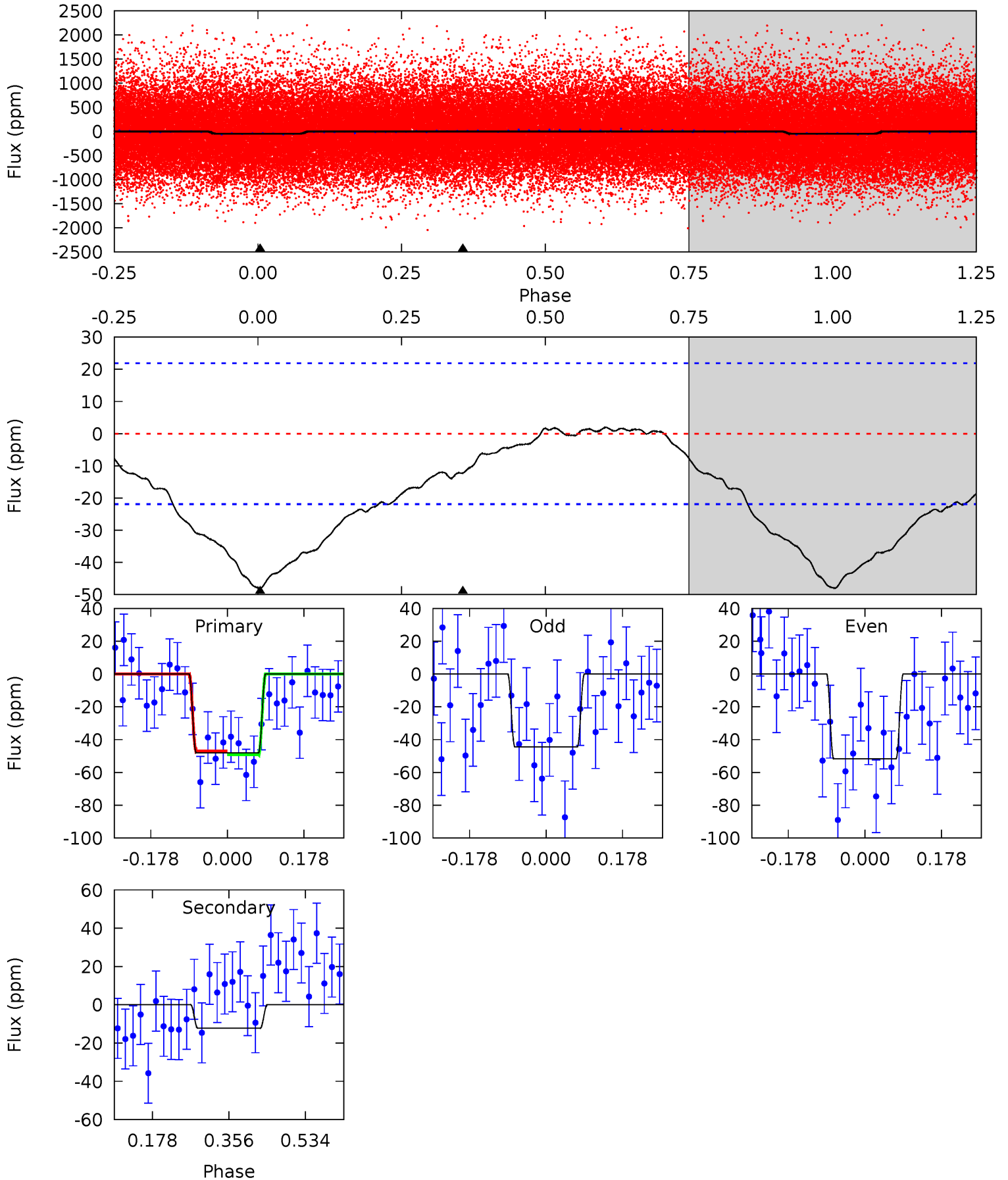
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.67	3.28	0	0	4.45	1.35	1.29	9.67	9.67	3.28	3.28	0.04	0.92	0.03	0.60



# Alt Model-Shift Uniqueness Test

009140519-01, P = 3.305249 Days, E = 128.781189 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
9.73	2.48	0	0	4.44	1.35	1.23	9.73	9.73	2.48	2.48	0.73	1.20	0.04	0.24





### Stellar Parameters For KIC 009140519

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4944^{+148}_{-148}$	$4.570^{+0.072}_{-0.044}$	$-0.300^{+0.350}_{-0.300}$	$0.712^{+0.062}_{-0.076}$	$0.688^{+0.095}_{-0.047}$	$2.683^{+0.848}_{-0.448}$
	+3%/-3%	+2%/-1%	+117%/-100%	+9%/-11%	+14%/-7%	+32%/-17%
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 009140519-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-17 \pm 5$	$0.62^{+0.22}_{-0.23}$	$1306^{+48}_{-49}$	$3804^{+755}_{-438}$	$36^{+52}_{-19}$
Alt.	$-12 \pm 5$	$0.53^{+0.22}_{-0.21}$	$1309^{+48}_{-49}$	$3827^{+834}_{-514}$	$35^{+62}_{-20}$

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

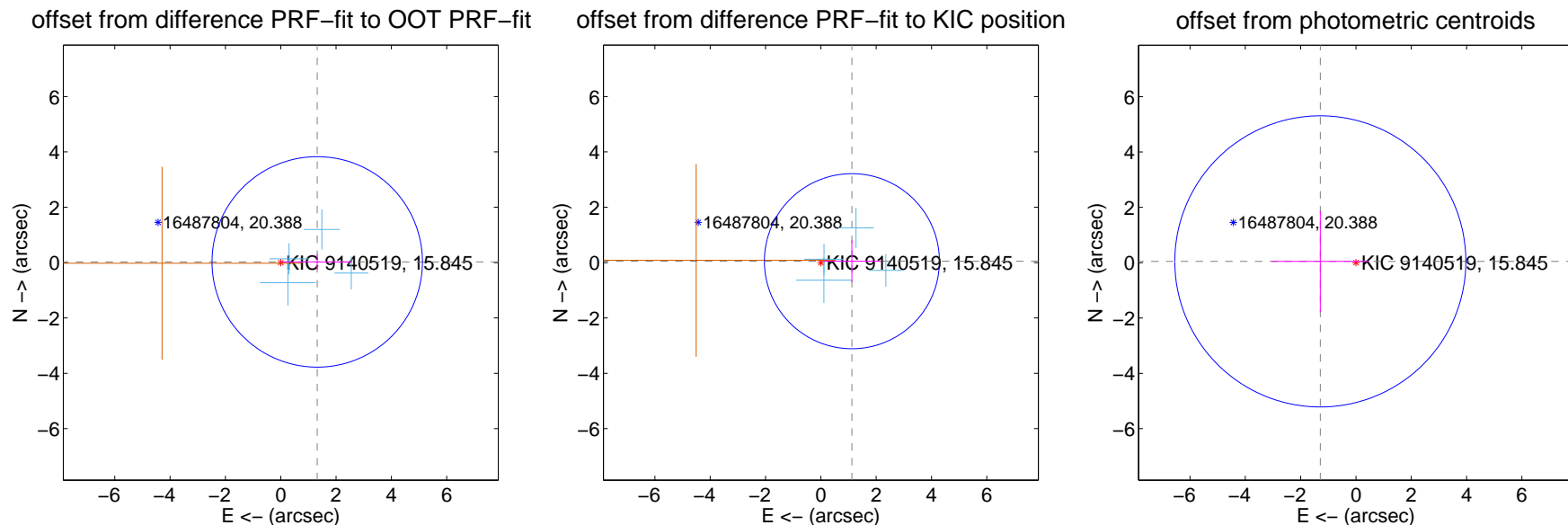
## DV Centroid Data

Supplemental centroid analysis for 009140519-01. Kepler magnitude: 15.85. Transit SNR 7.53

There are 4 quarters with good PRF difference image offsets

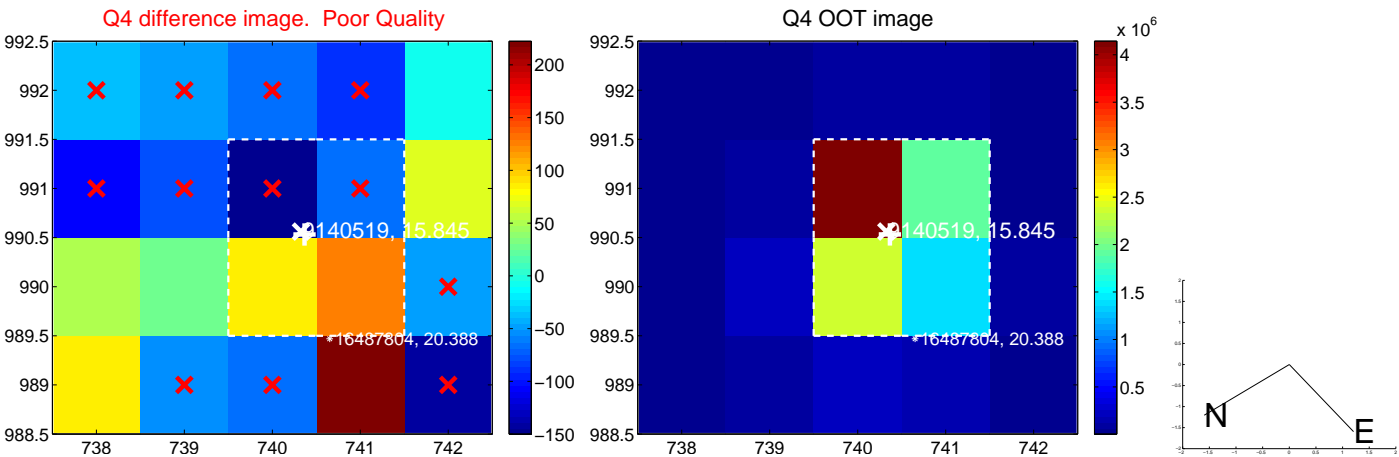
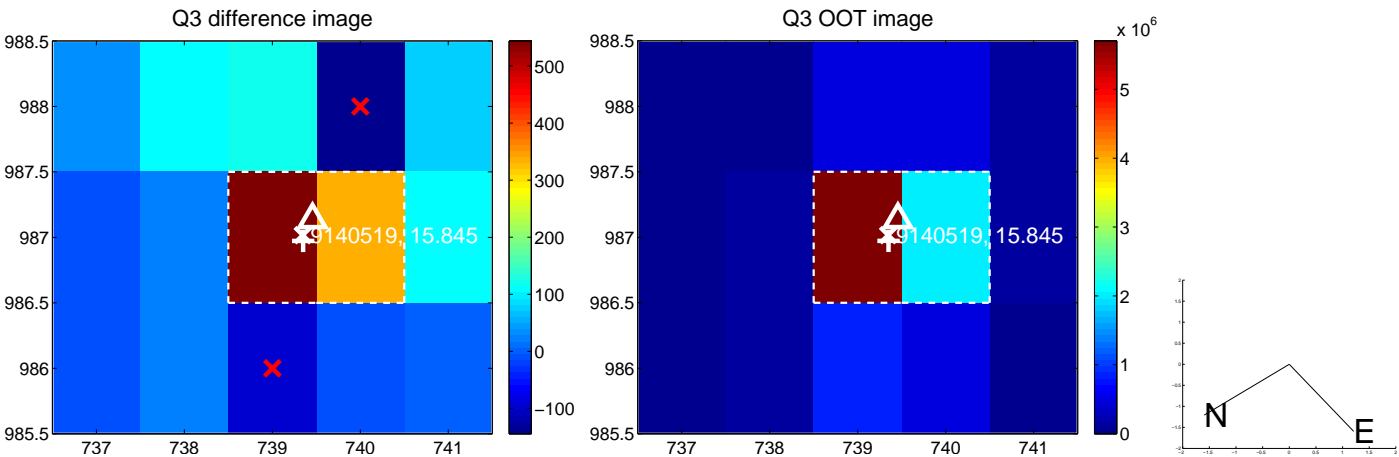
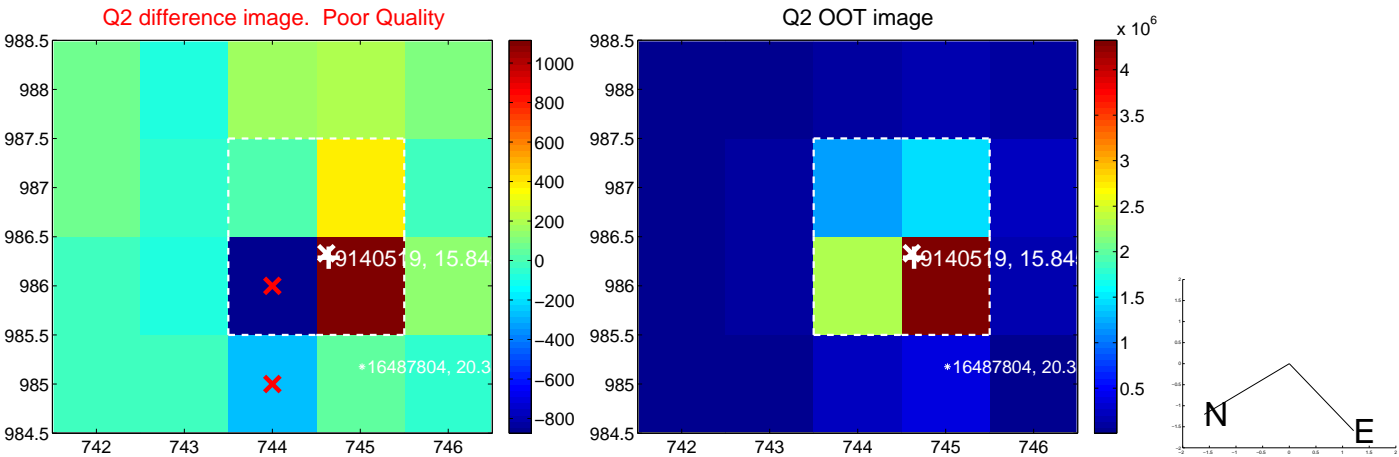
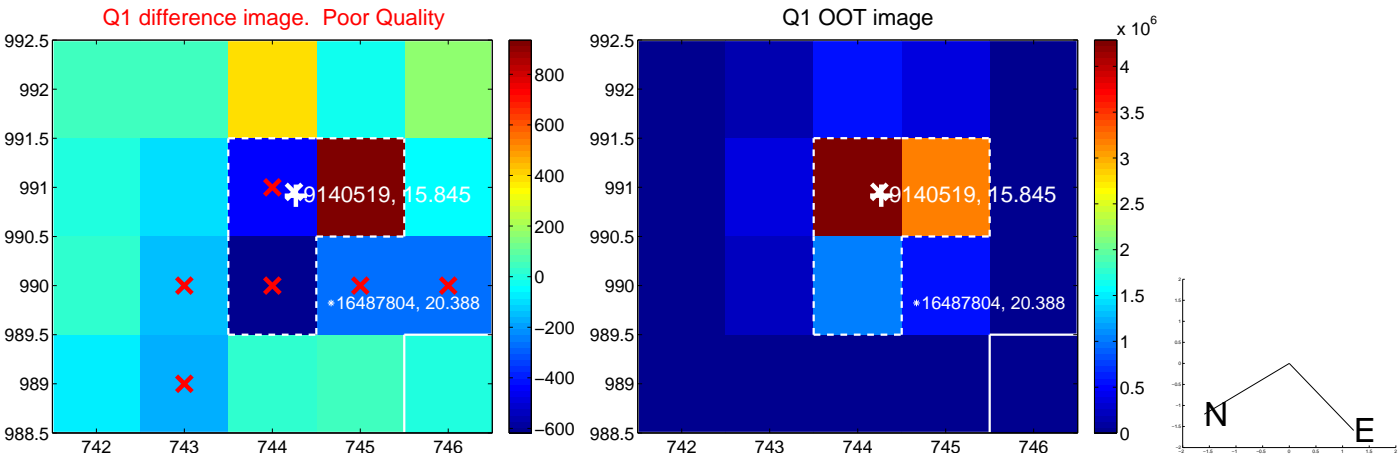
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.319 \pm 1.268$	1.04	$-1.319 \pm 1.268$	$0.025 \pm 0.285$
PRF-fit source offset from KIC position	$1.123 \pm 1.054$	1.07	$-1.122 \pm 1.055$	$0.050 \pm 0.751$
photometric centroid source offset	$1.29 \pm 1.75$	0.74	$1.29 \pm 1.75$	$0.05 \pm 1.82$

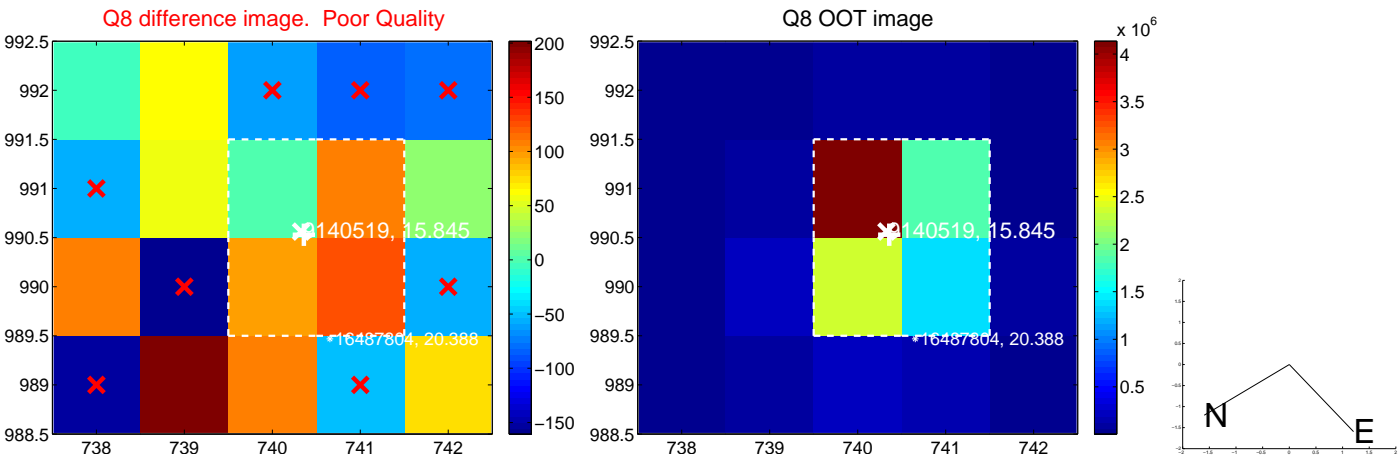
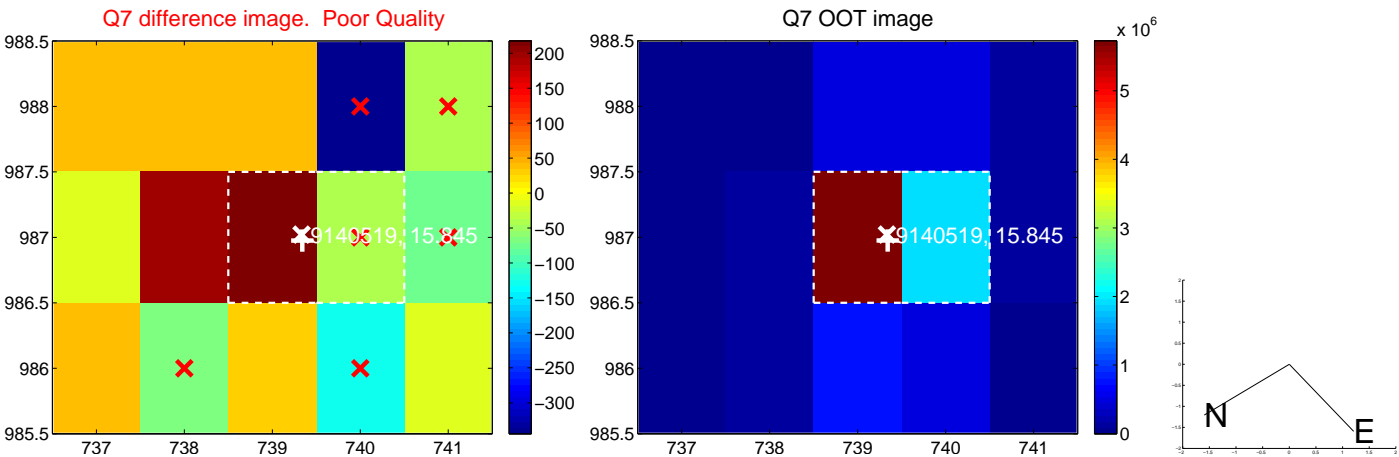
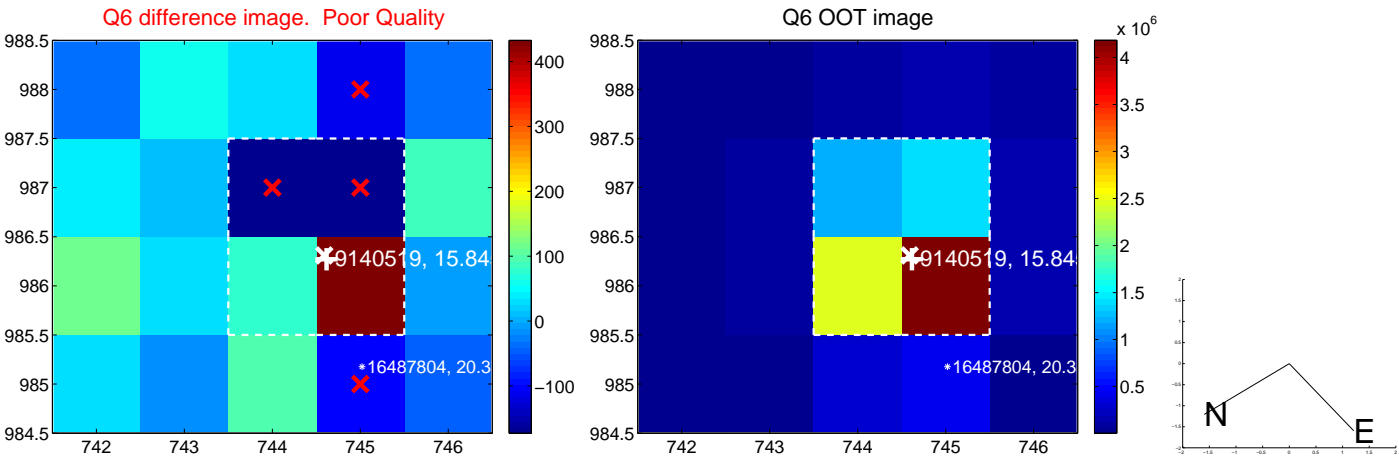
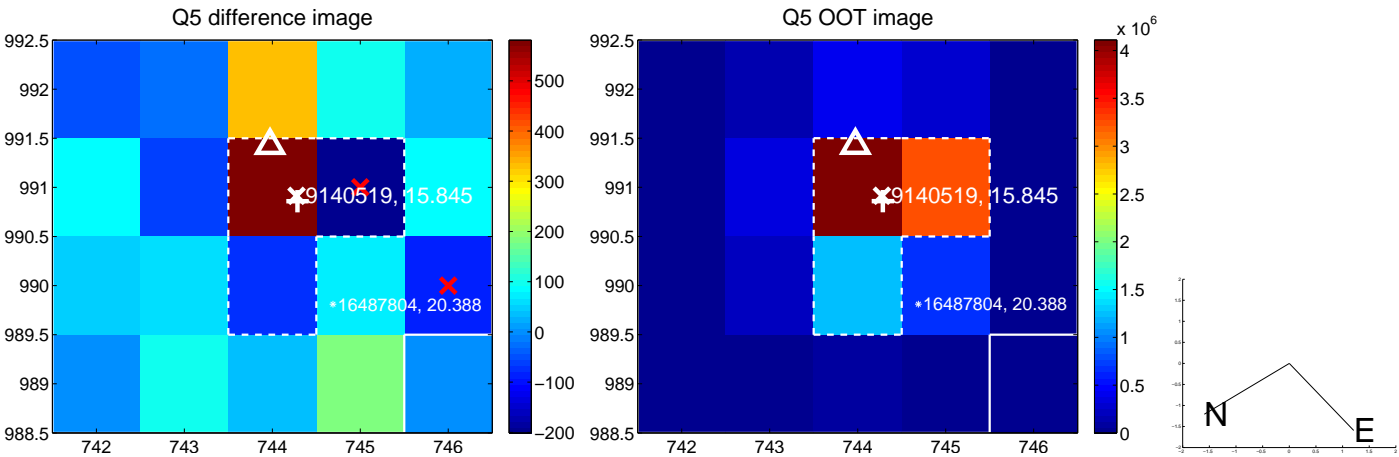


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

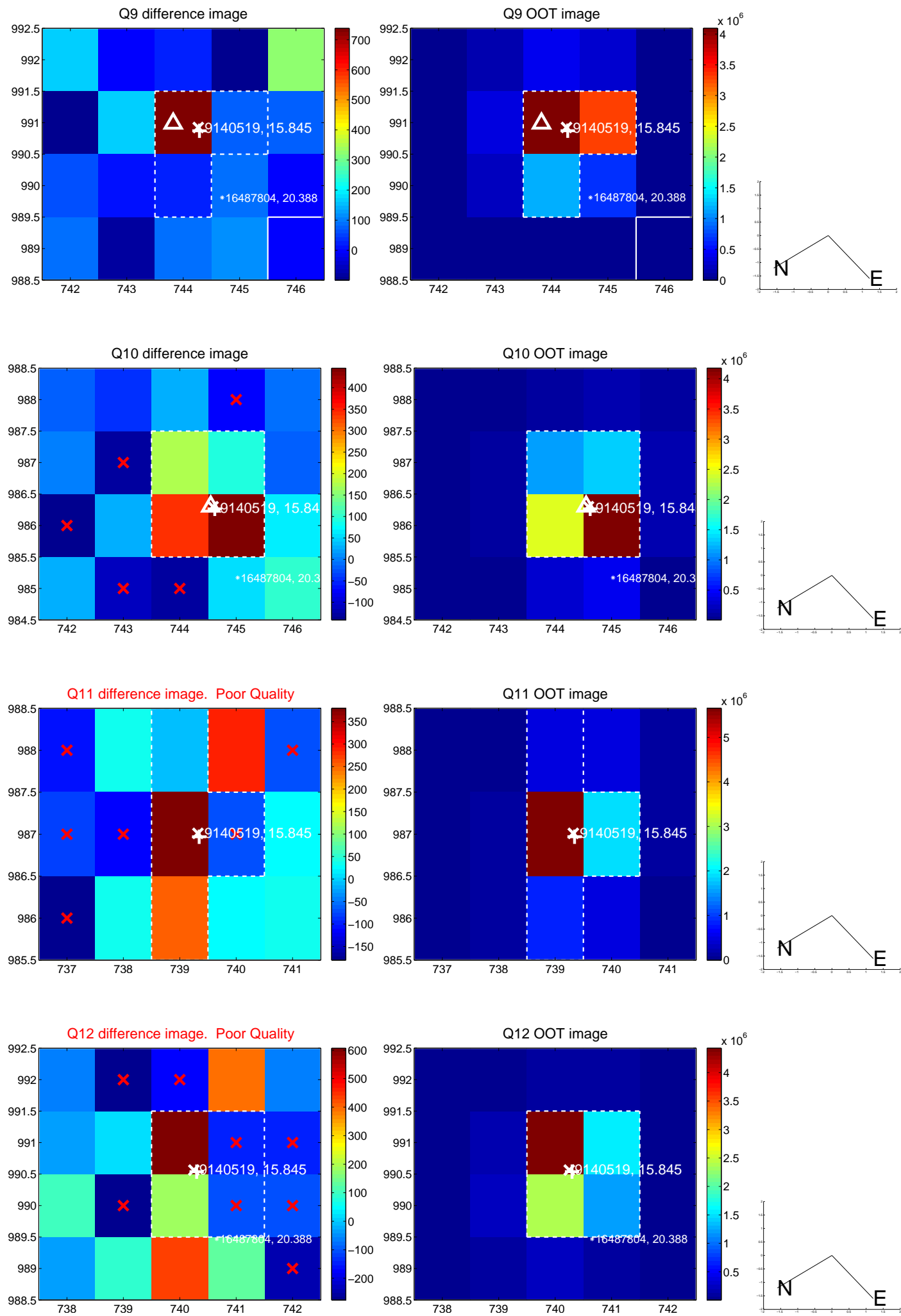


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

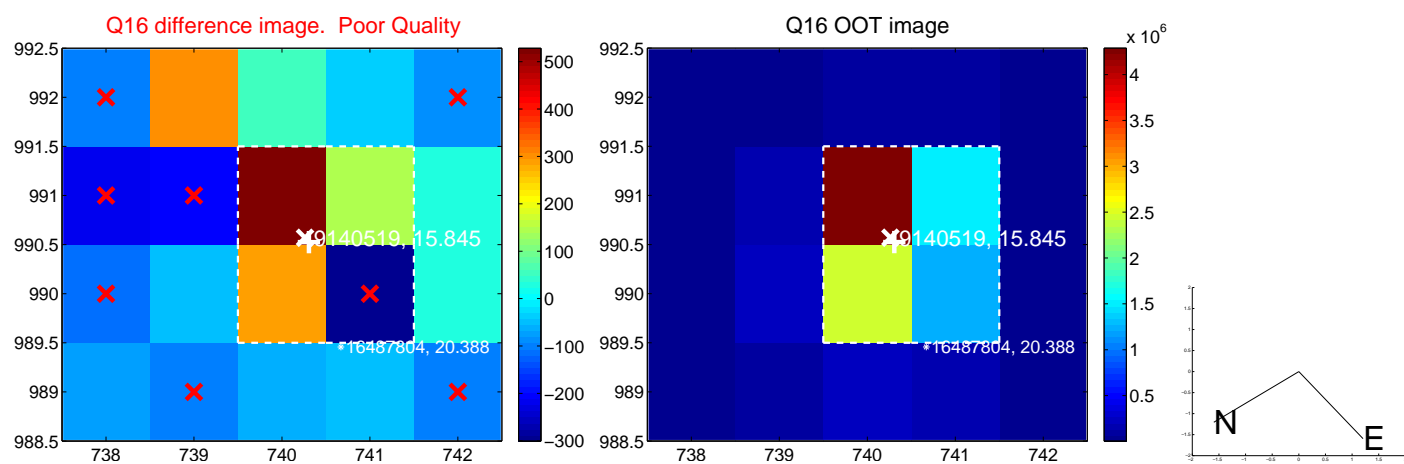
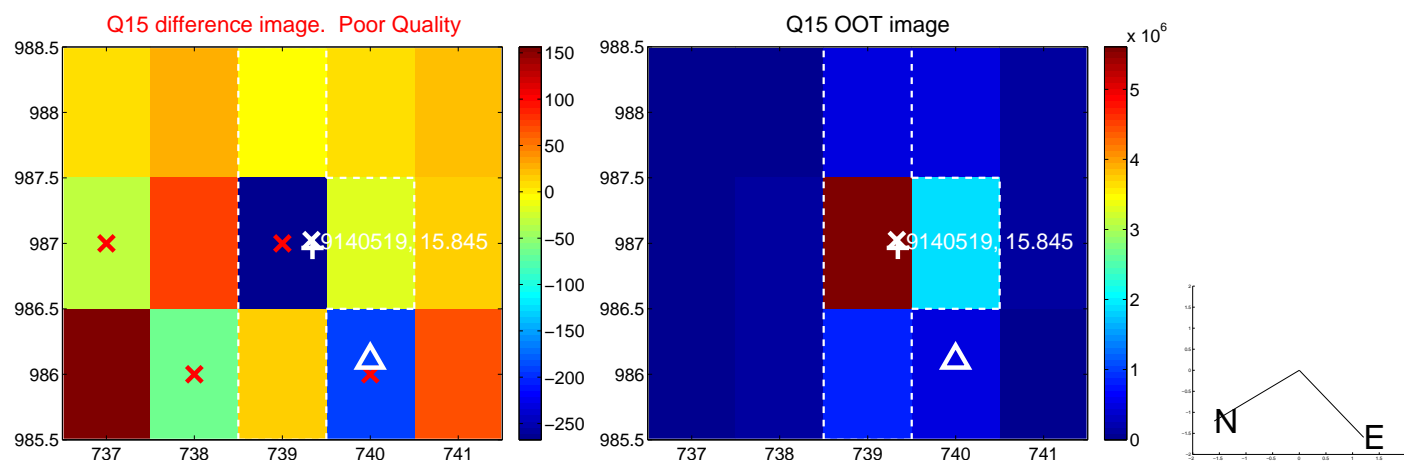
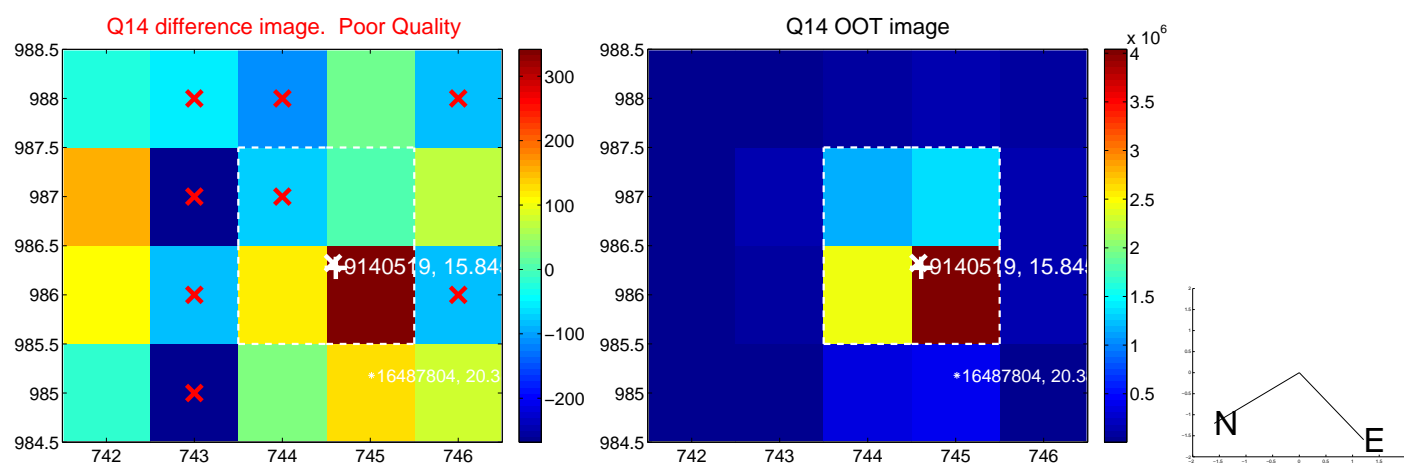
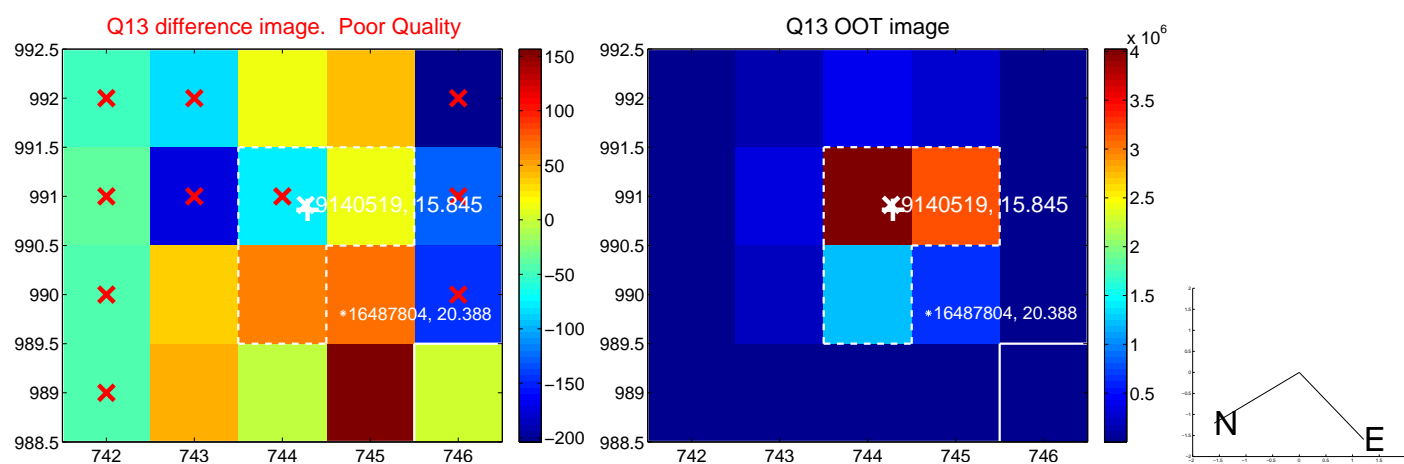




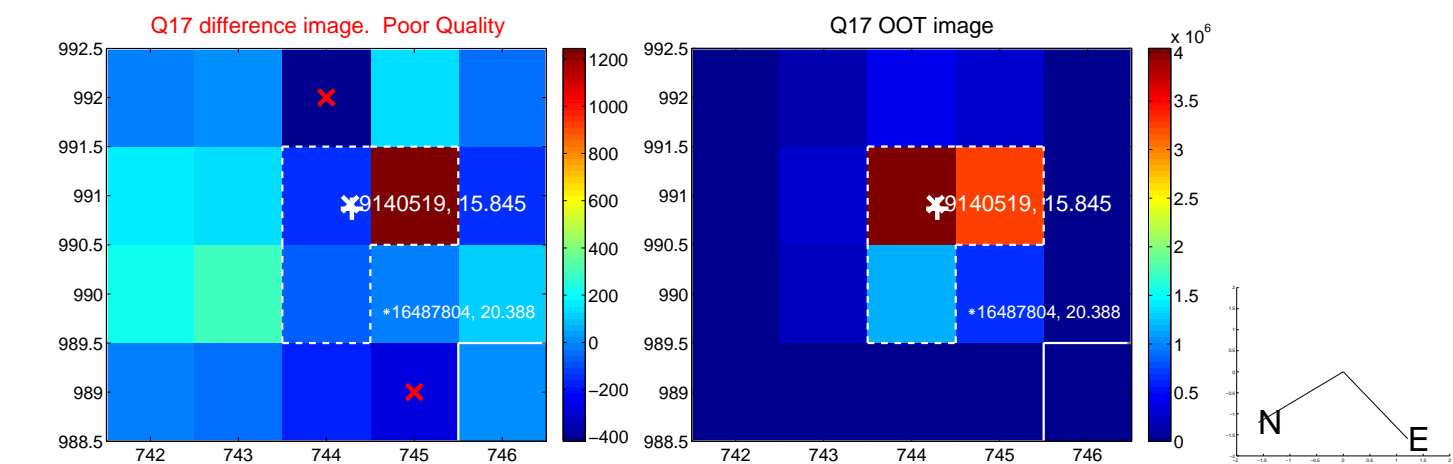
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



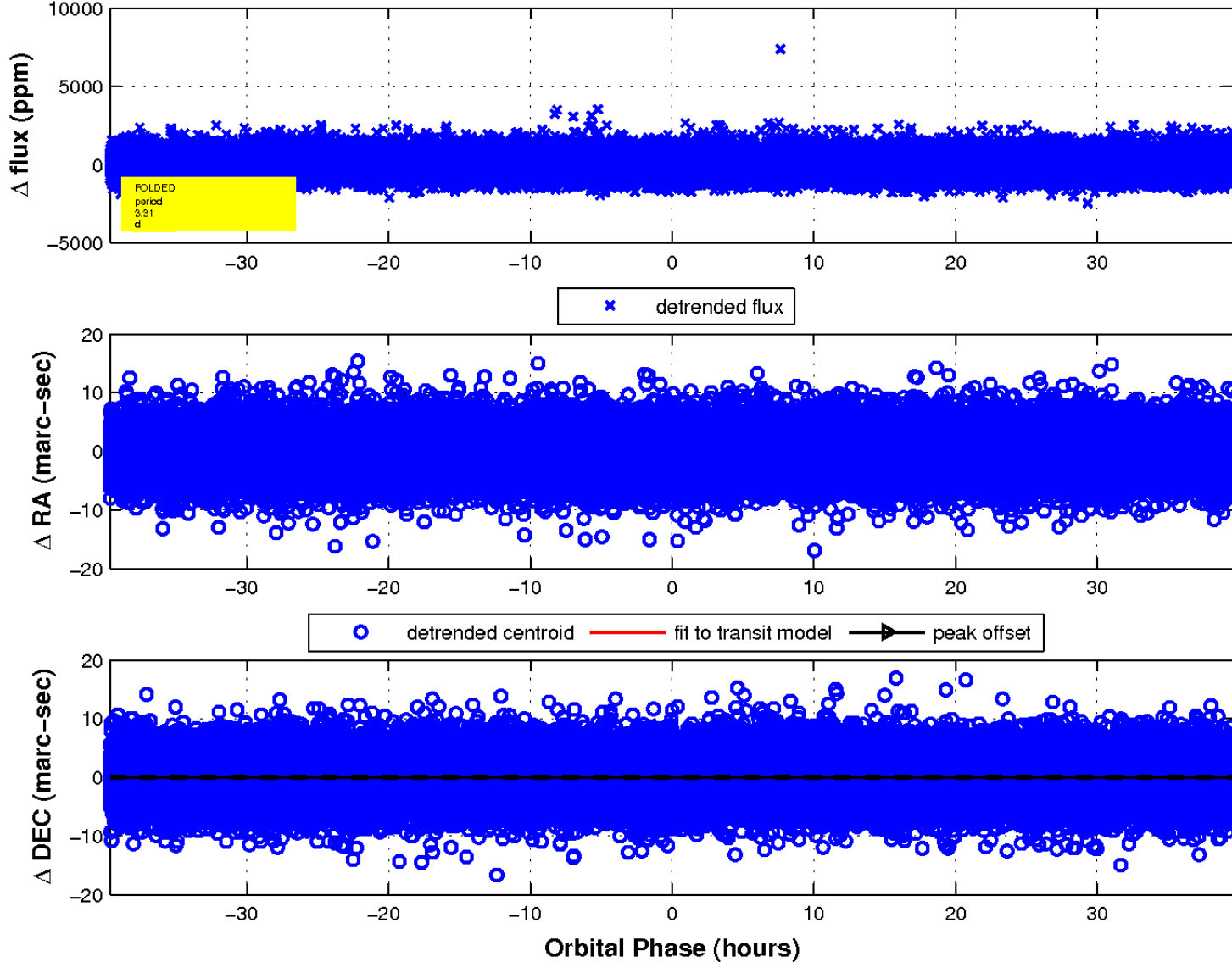
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



### fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

