

# KIC 009021052

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009021052-01	OBS	No	1.226462	131.711950	0.0	11.463	9.6	0.0	2.73	6115	0.00	15033.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009021052-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT

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

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

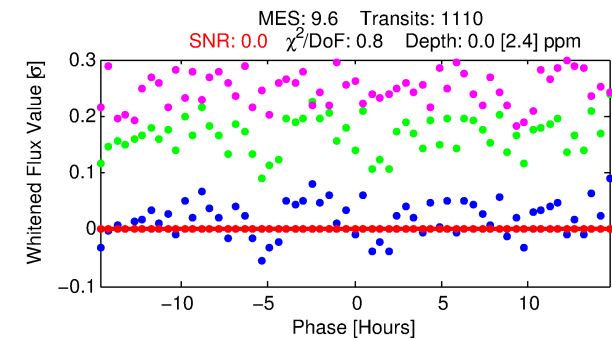
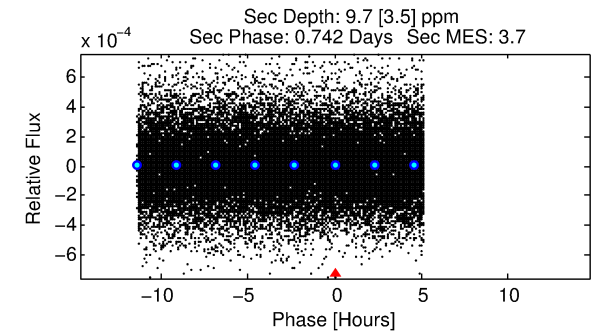
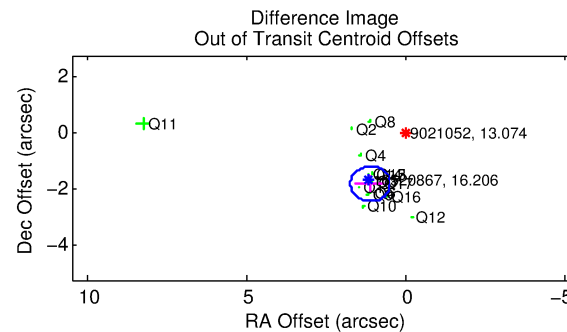
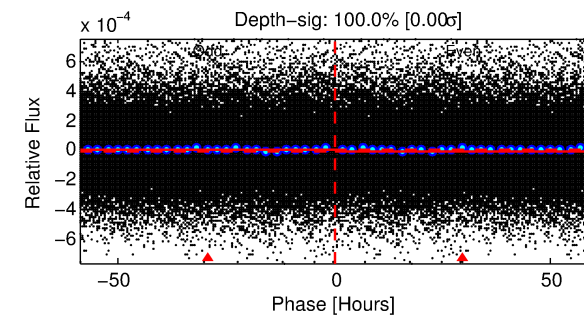
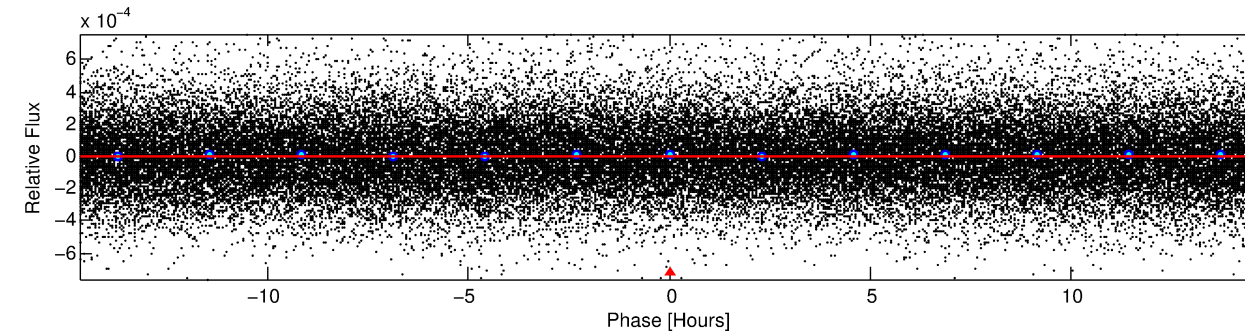
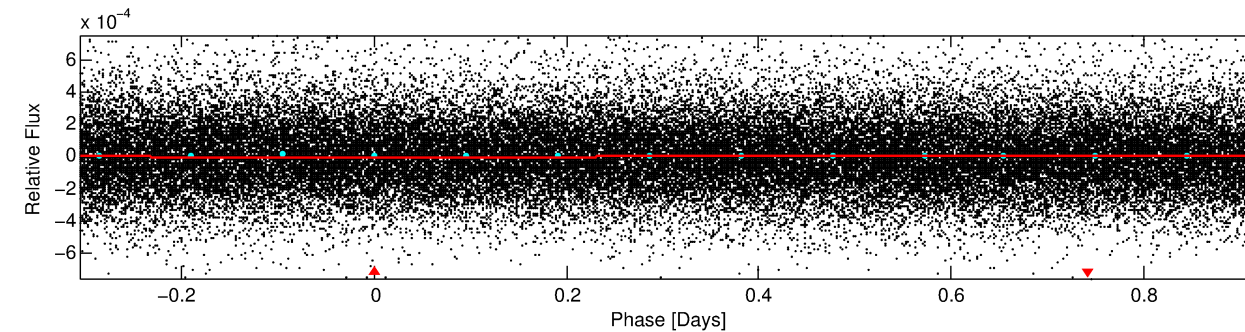
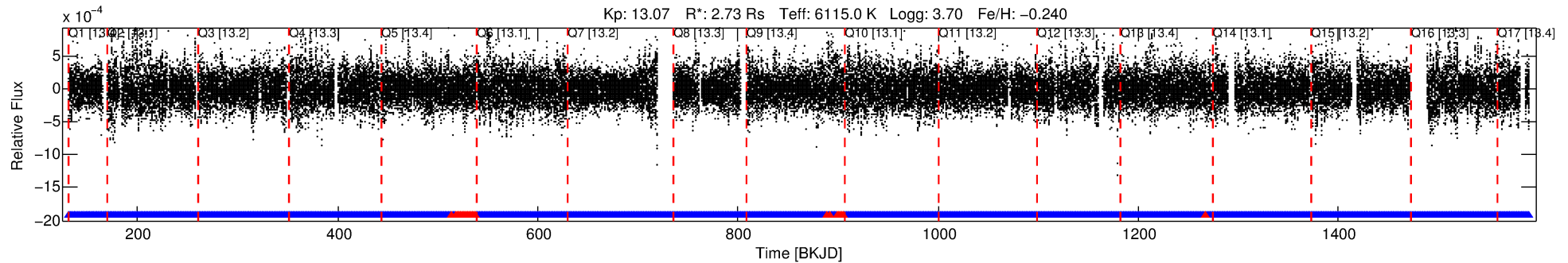
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009021052-01

No Significant Match Found

# DV One-Page Summary

KIC: 9021052 Candidate: 1 of 1 Period: 1.226 d



## DV Fit Results:

Period = 1.22646 [45.15053] d  
Epoch = 131.7120 [12369.5990] BKJD  
Rp/R\* = 0.0000 [0.4278]  
a/R\* = 1.02 [1165.43]  
b = 0.81 [26158.69]  
Seff = 15033.14 [737953.32]  
Teq = 2824 [34650] K  
Rp = 0.00 [127.44] Re  
a = 0.0249 [0.6117] AU  
Ag = 4314941.15 [1256629061772.08] K  
Teffp = 198963 [14486700358] K

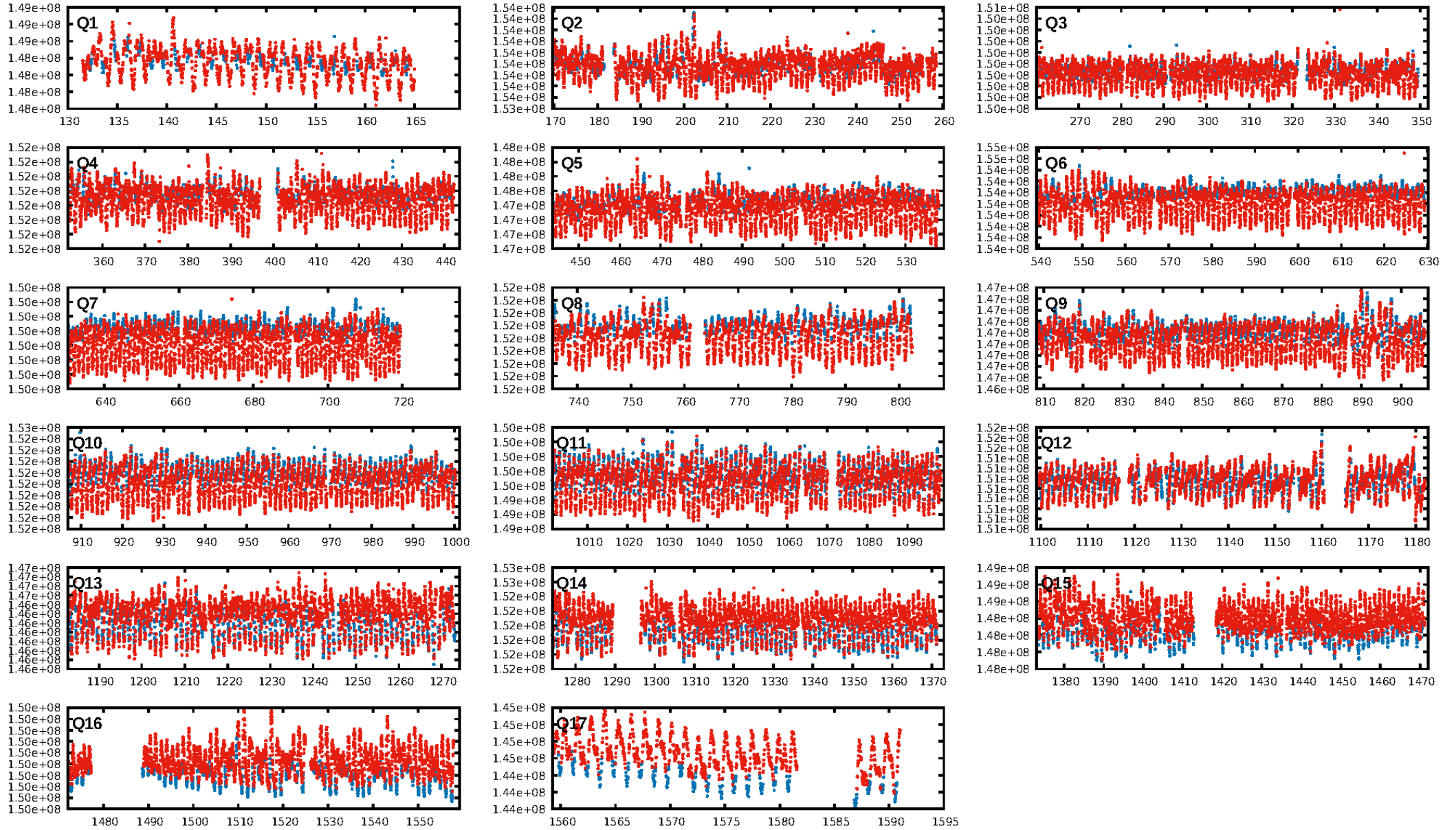
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1033/1059]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OutOffset-rm: 2.144 arcsec [10.33σ]  
InOffset-rm: 2.110 arcsec [9.41σ]  
OutOffset-st: 4/4/4/5 [17]  
InOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.59 [10/17]  
DiffImageOverlap-fno: 1.00 [17/17]

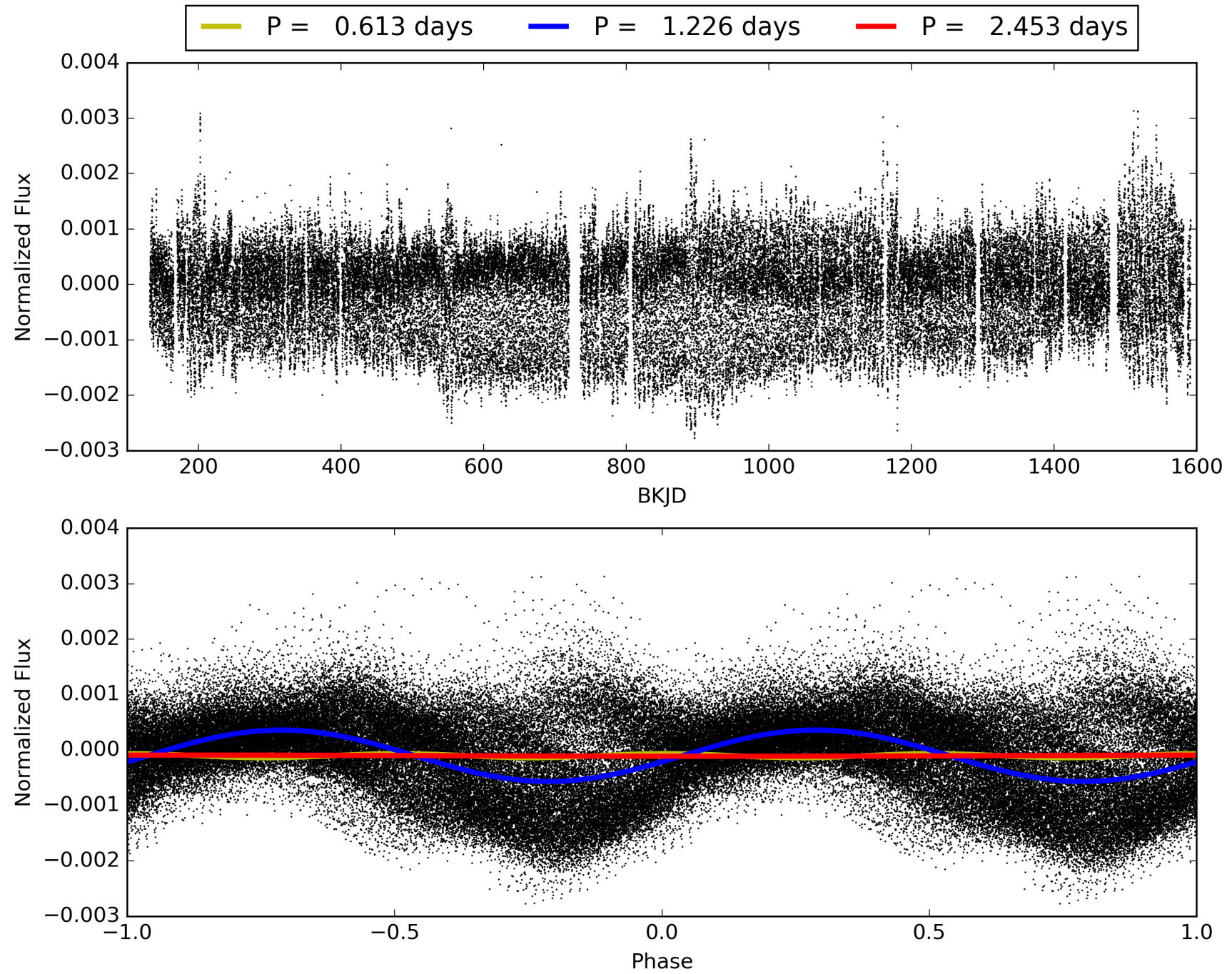
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:53:47 Z

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

# TCE 009021052-01, PDC Light Curves

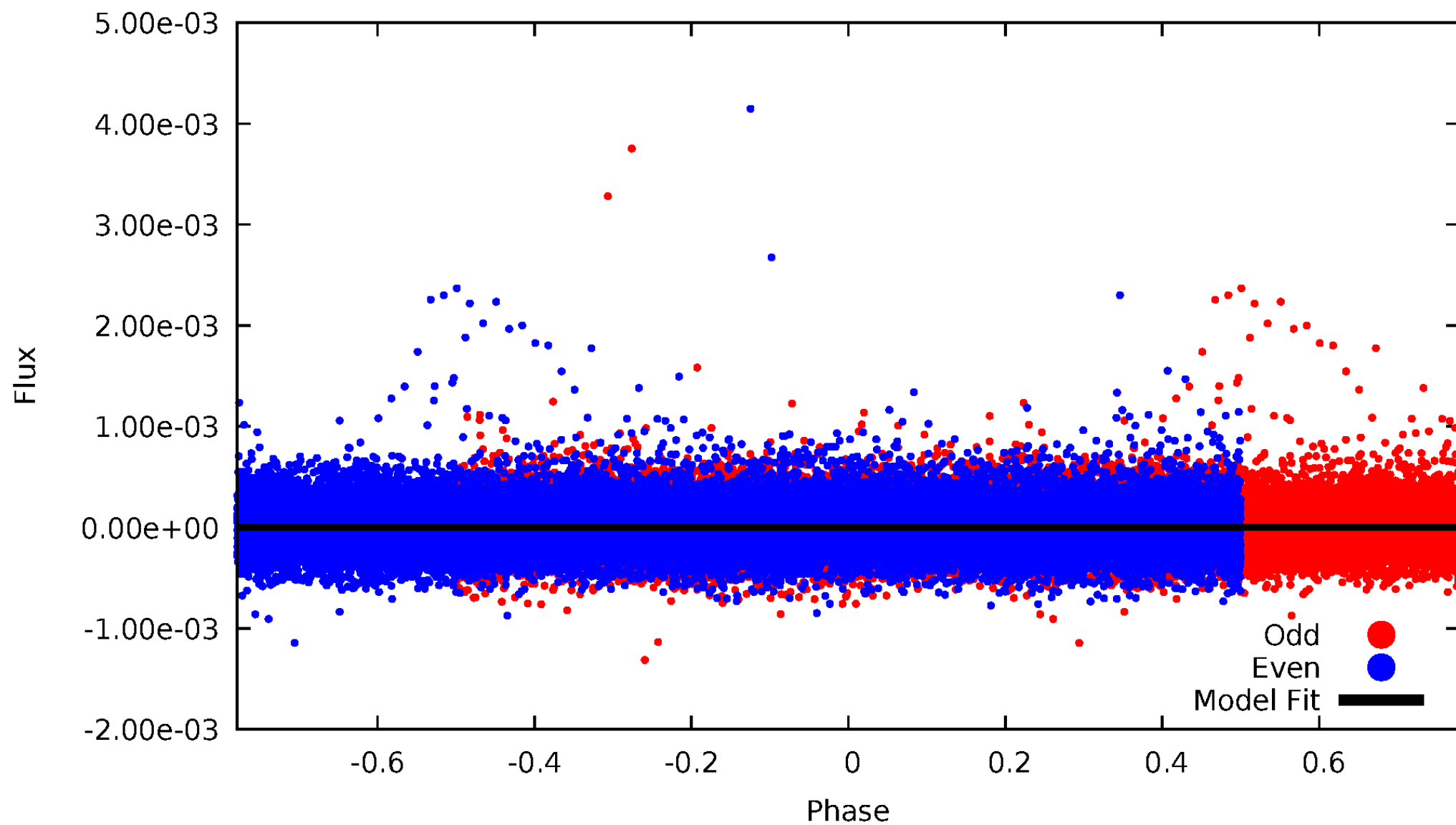


TCE 009021052-01



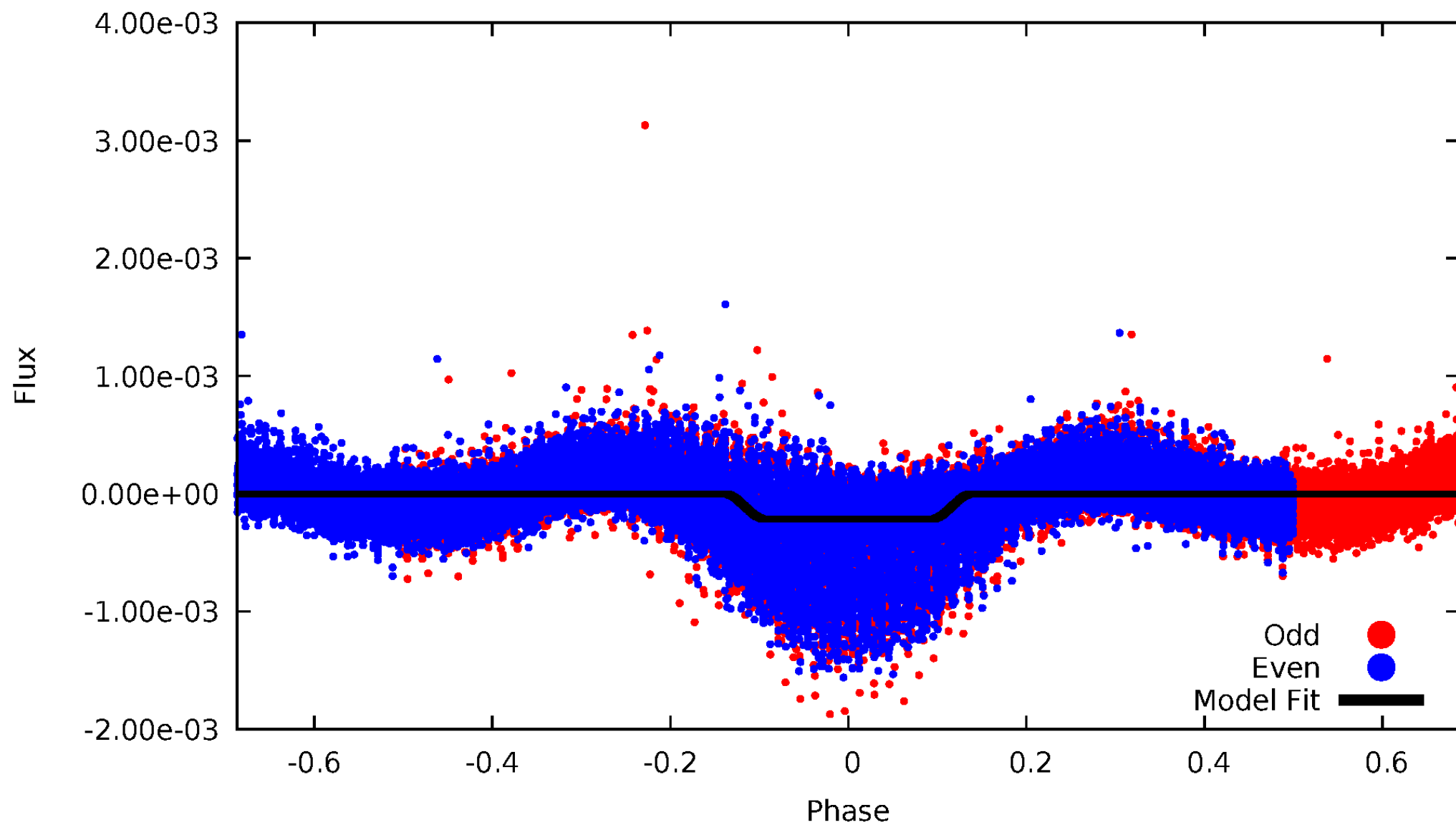
# DV Odd/Even

TCE 009021052-01

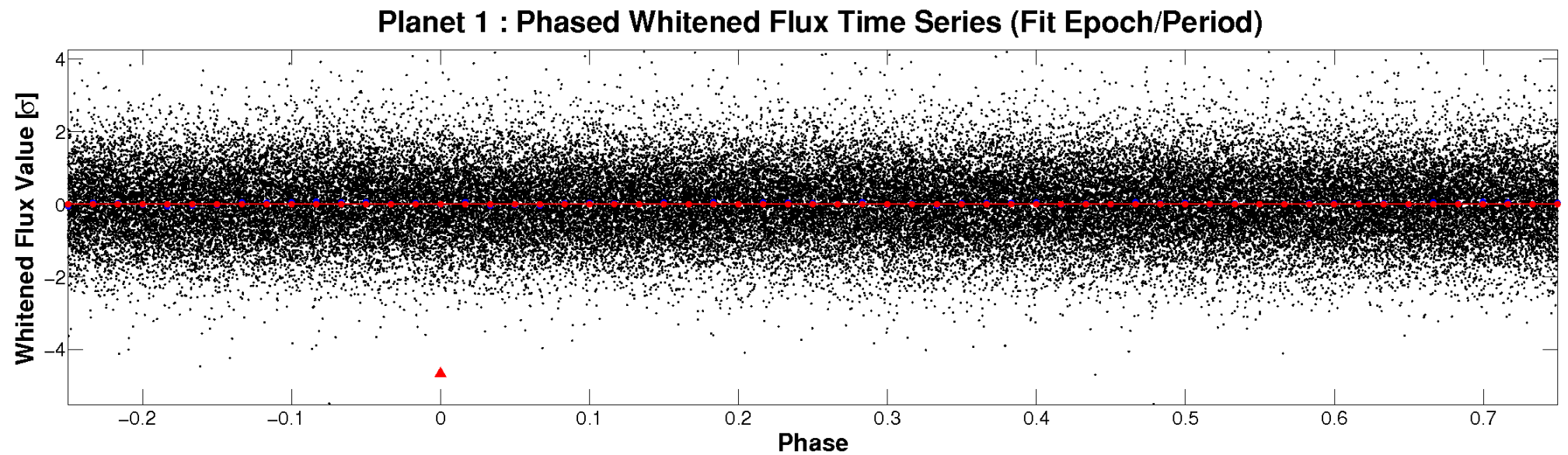
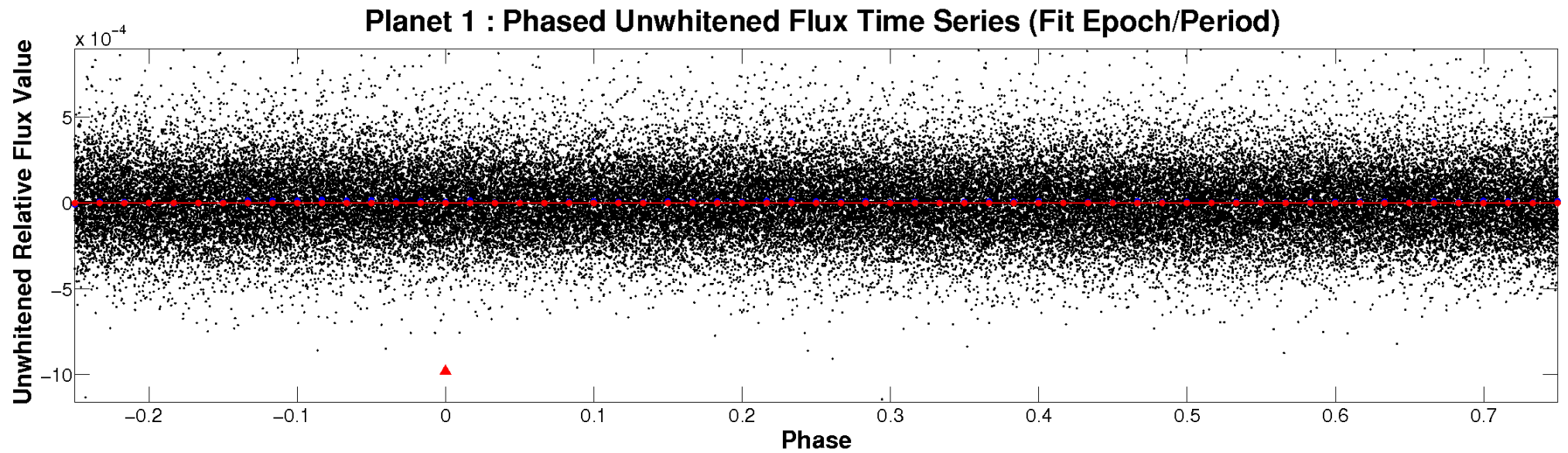


# ALT Odd/Even

TCE 009021052-01

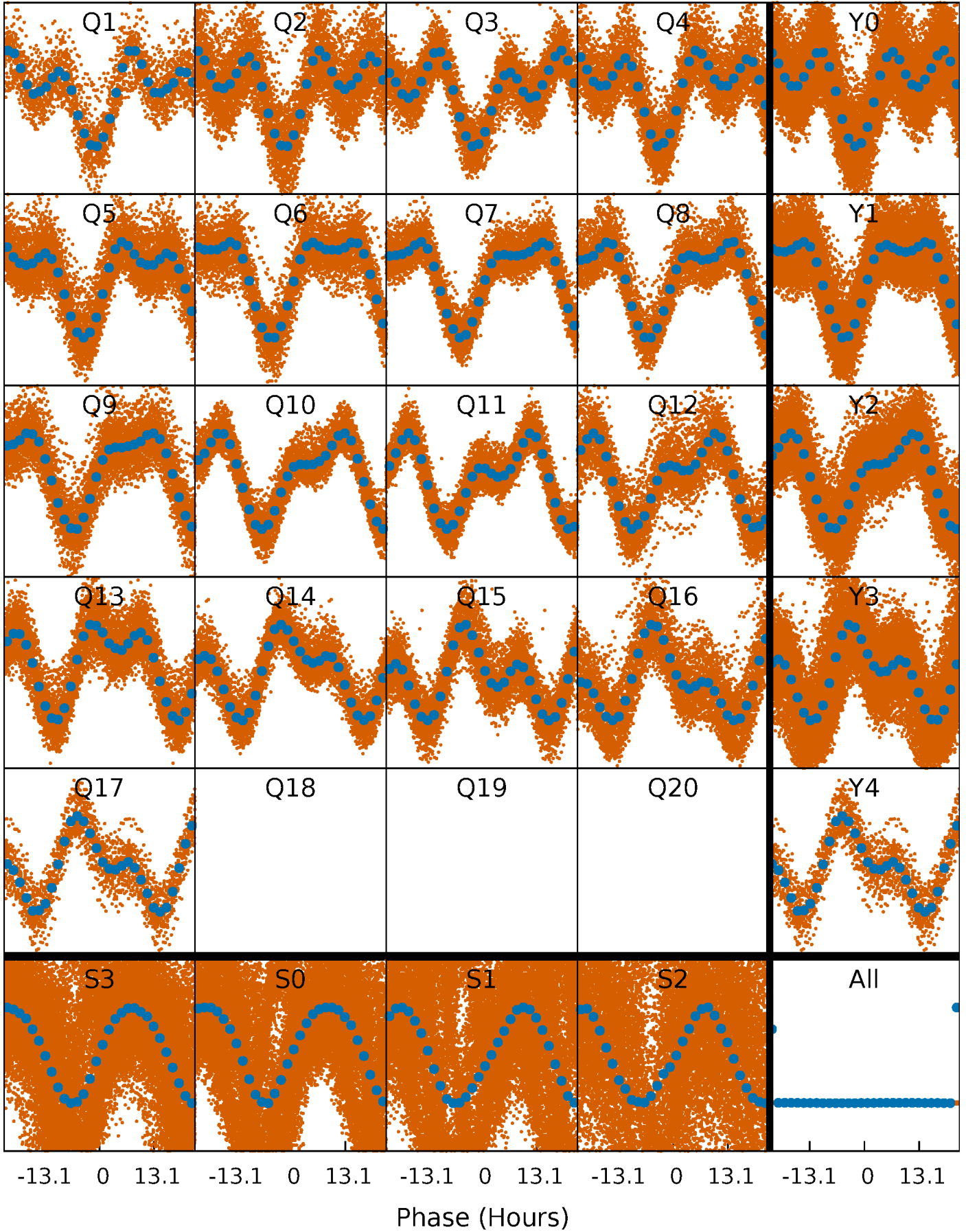


# Non-Whitened Vs. Whitened Light Curve



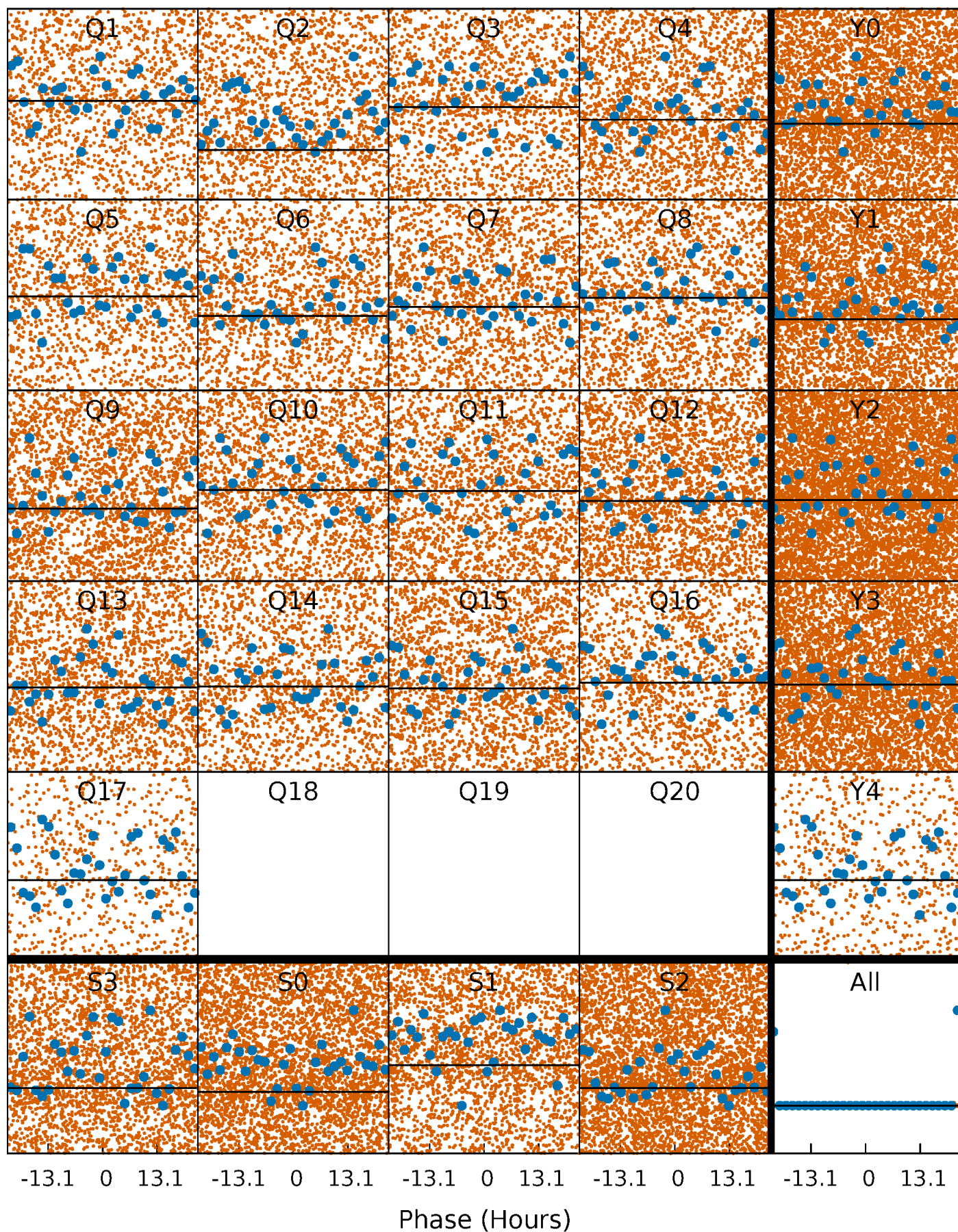
# PDC Quarter-Phased Transit Curves

TCE 009021052-01   P= 1.226462 Days    $T_0=131.711950$  (BKJD)



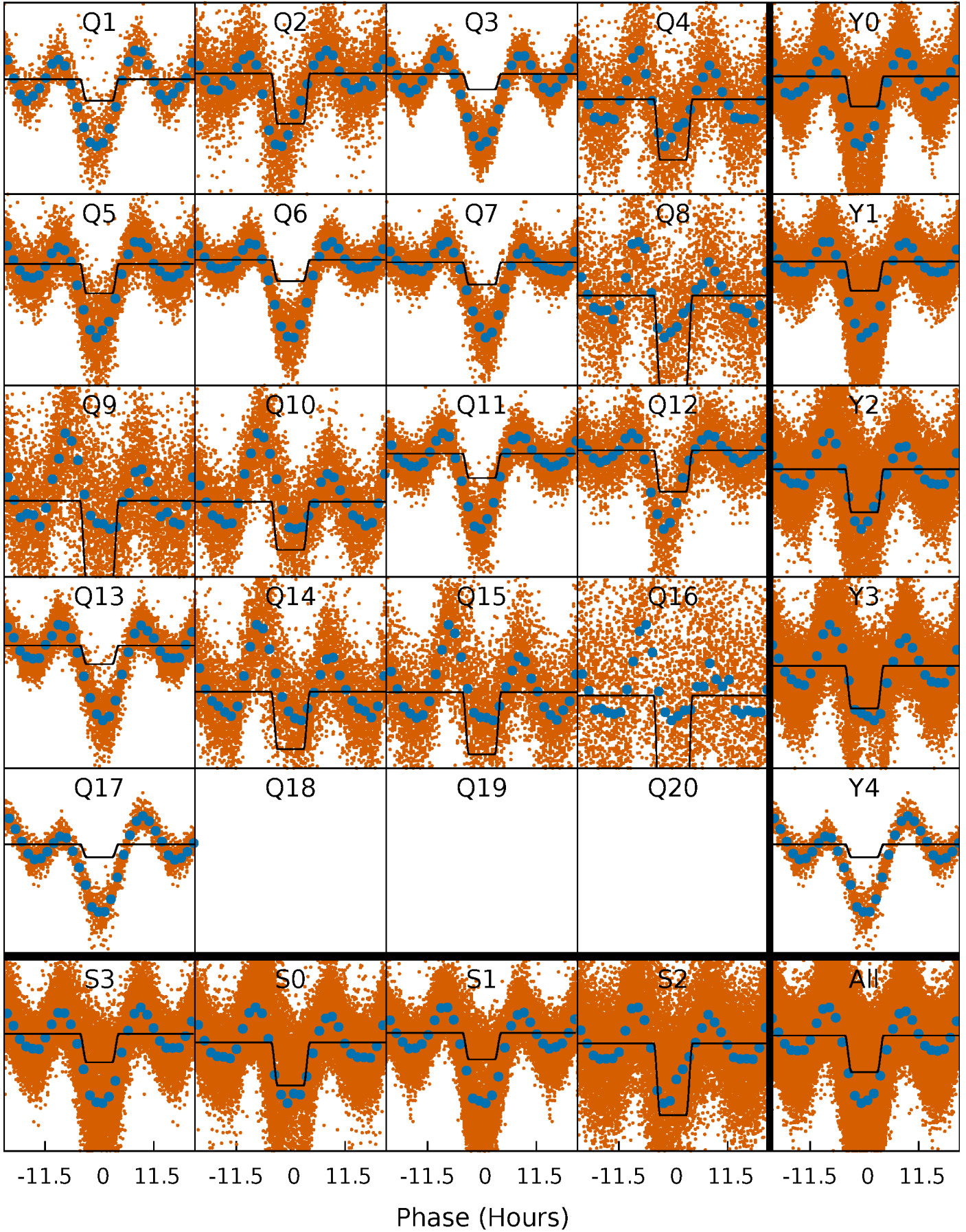
# DV Quarter-Phased Transit Curves

TCE 009021052-01   P= 1.226462 Days    $T_0=131.711950$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

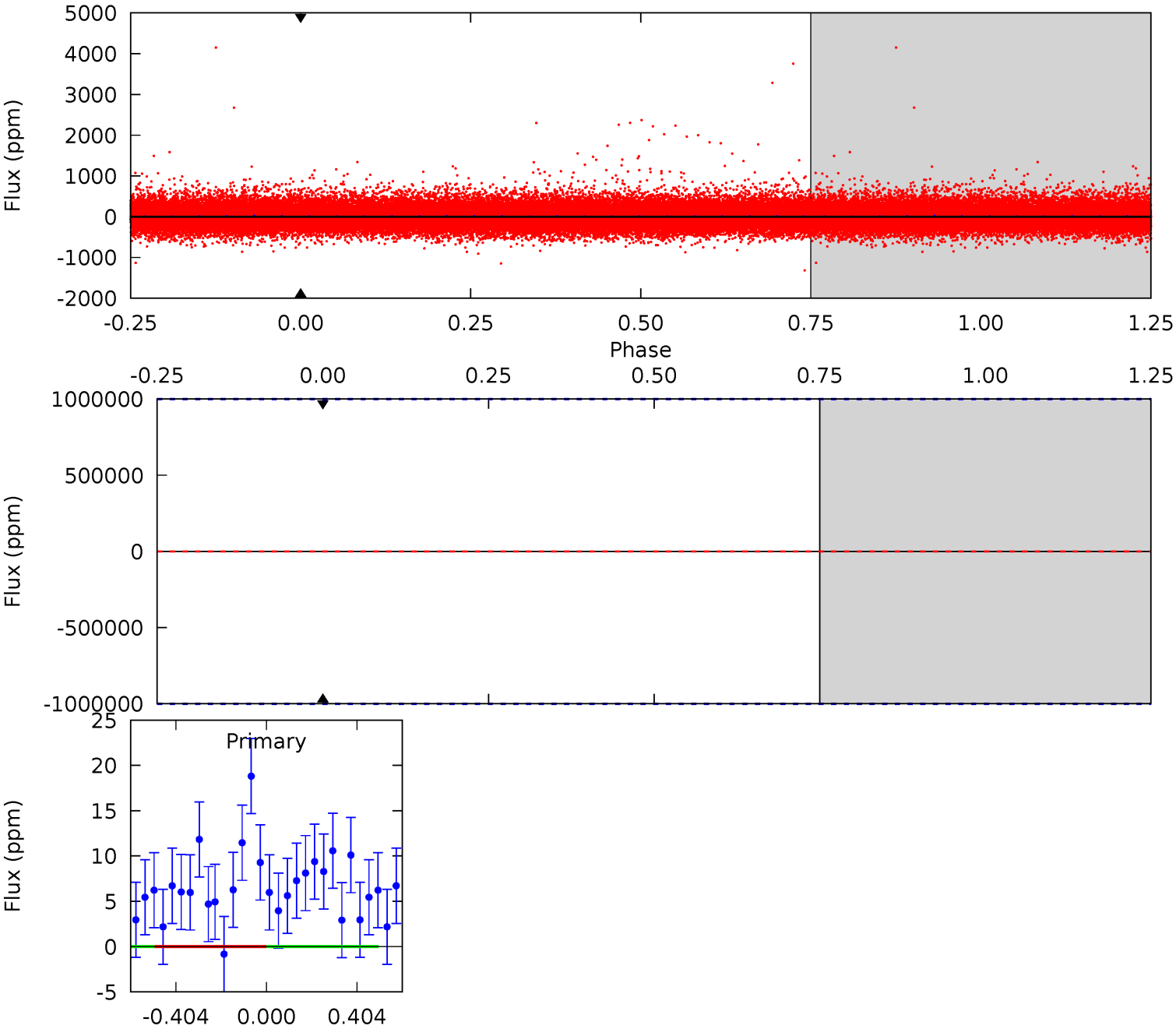
TCE 009021052-01 P= 1.225967 Days  $T_0=131.696933$  (BKJD)



DV Model-Shift Uniqueness Test

009021052-01, P = 1.226462 Days, E = 130.485488 Days

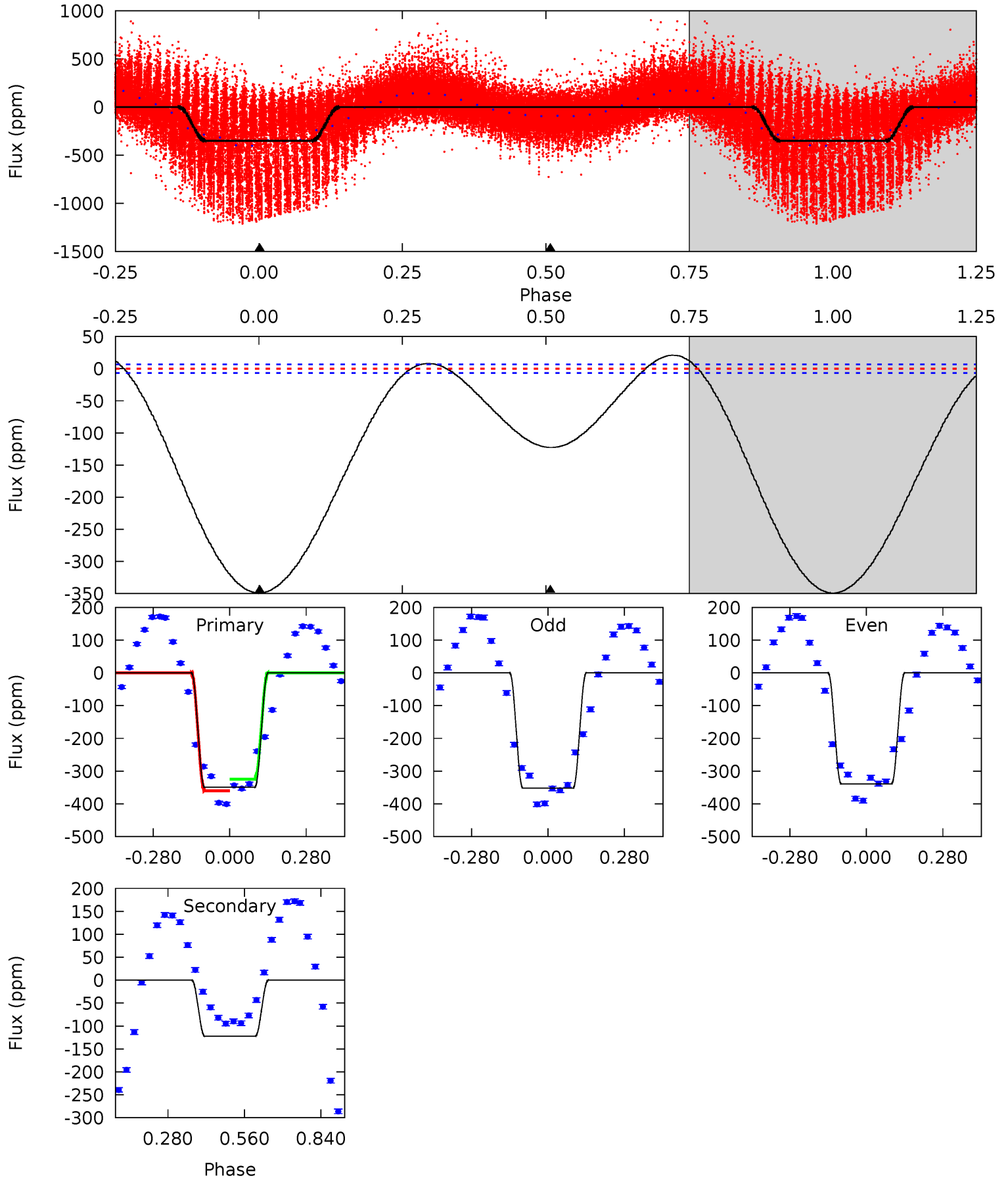
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

009021052-01, P = 1.225967 Days, E = 130.470966 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
225.3	79.1	0	0	4.34	1.08	9.08	225.3	225.3	79.1	79.1	4.18	1.36	0.06	8.39



### Stellar Parameters For KIC 009021052

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6115^{+182}_{-164}$	$3.703^{+0.336}_{-0.105}$	$-0.240^{+0.350}_{-0.300}$	$2.730^{+0.442}_{-1.105}$	$1.370^{+0.215}_{-0.323}$	$0.095^{+0.237}_{-0.030}$
	+3%/-3%	+9%/-3%	+146%/-125%	+16%/-40%	+16%/-24%	+250%/-32%
Source	PHO1	FLK73	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 009021052-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$83.16^{+96.74}_{-57.07}$	$1315^{+679}_{-307}$	$-3112^{+10519}_{-4092}$	$-0.728^{+748.509}_{-510.488}$
Alt.	$-123 \pm 2$	$82.75^{+97.52}_{-56.91}$	$1313^{+693}_{-291}$	$1720^{+1004}_{-4023}$	$0.374^{+3.920}_{-0.323}$

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

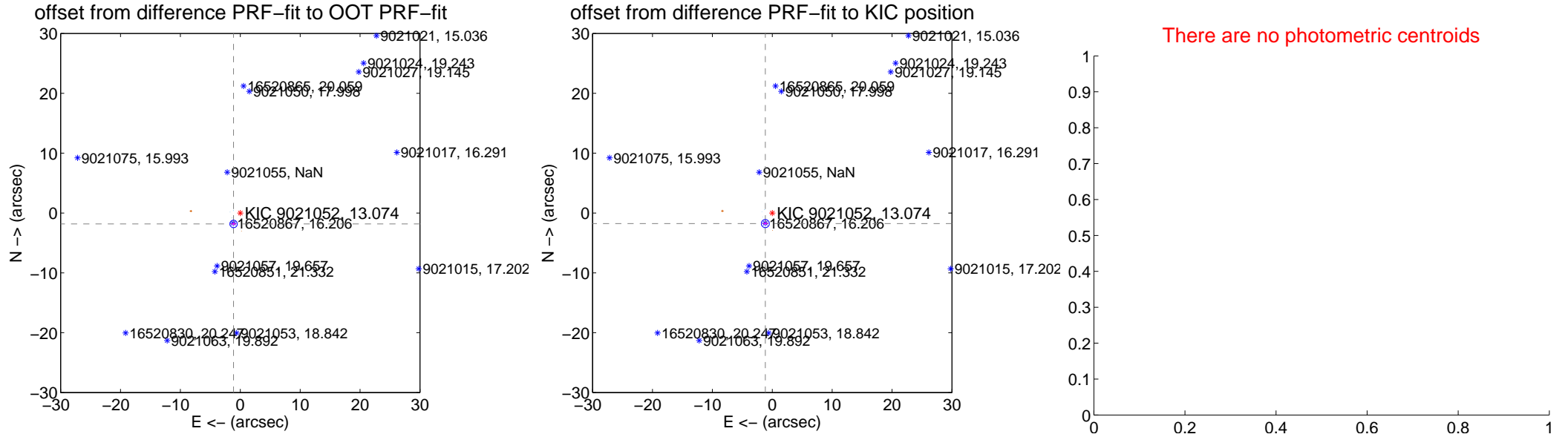
## DV Centroid Data

Supplemental centroid analysis for 009021052-01. Kepler magnitude: 13.07. Transit SNR 0.00

There are 10 quarters with good PRF difference image offsets

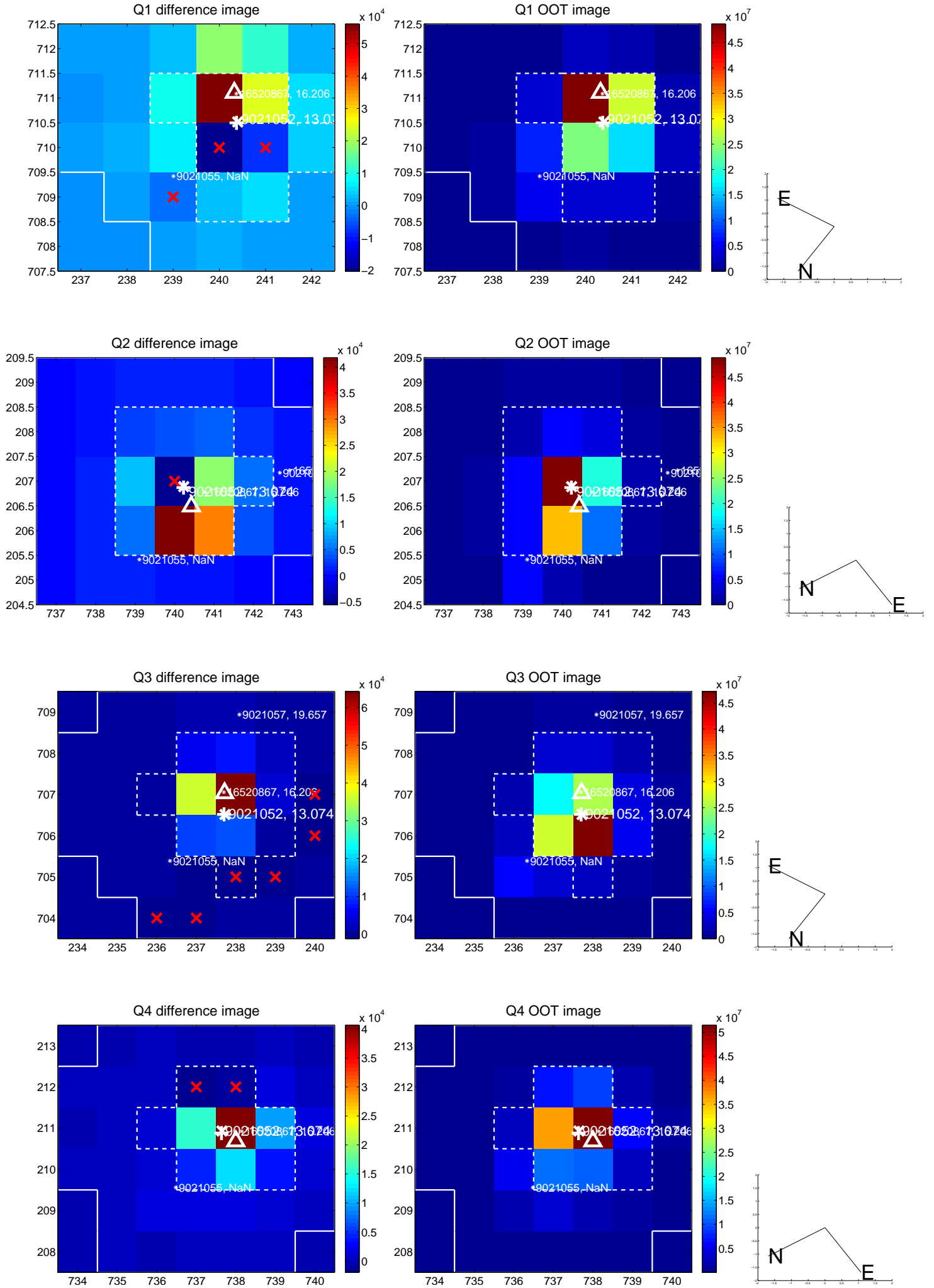
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	2.144 $\pm$ 0.208	10.33	1.124 $\pm$ 0.441	-1.826 $\pm$ 0.255
PRF-fit source offset from KIC position	2.110 $\pm$ 0.224	9.41	1.158 $\pm$ 0.440	-1.764 $\pm$ 0.249
photometric centroid source offset	—	—	—	—

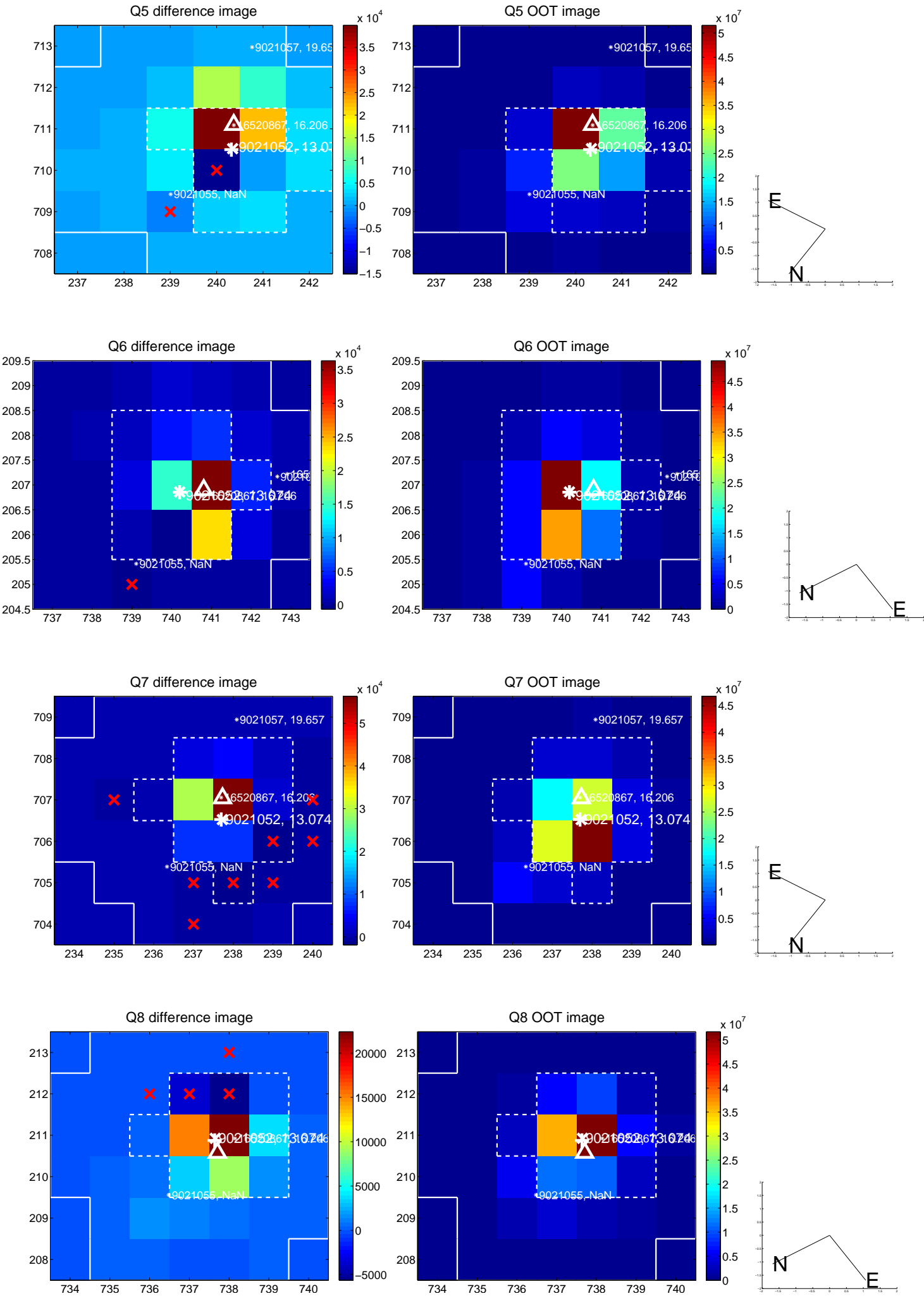


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

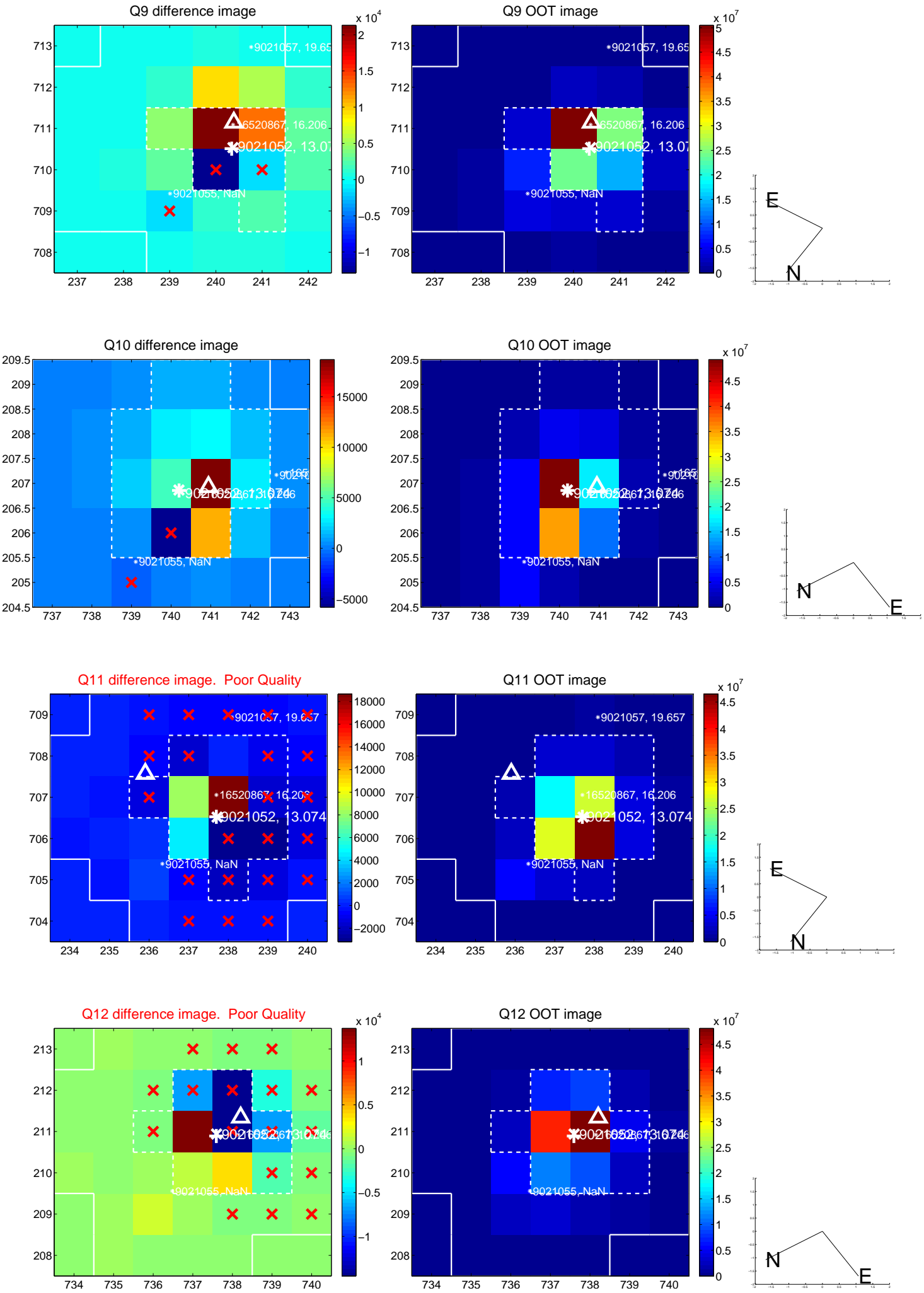
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



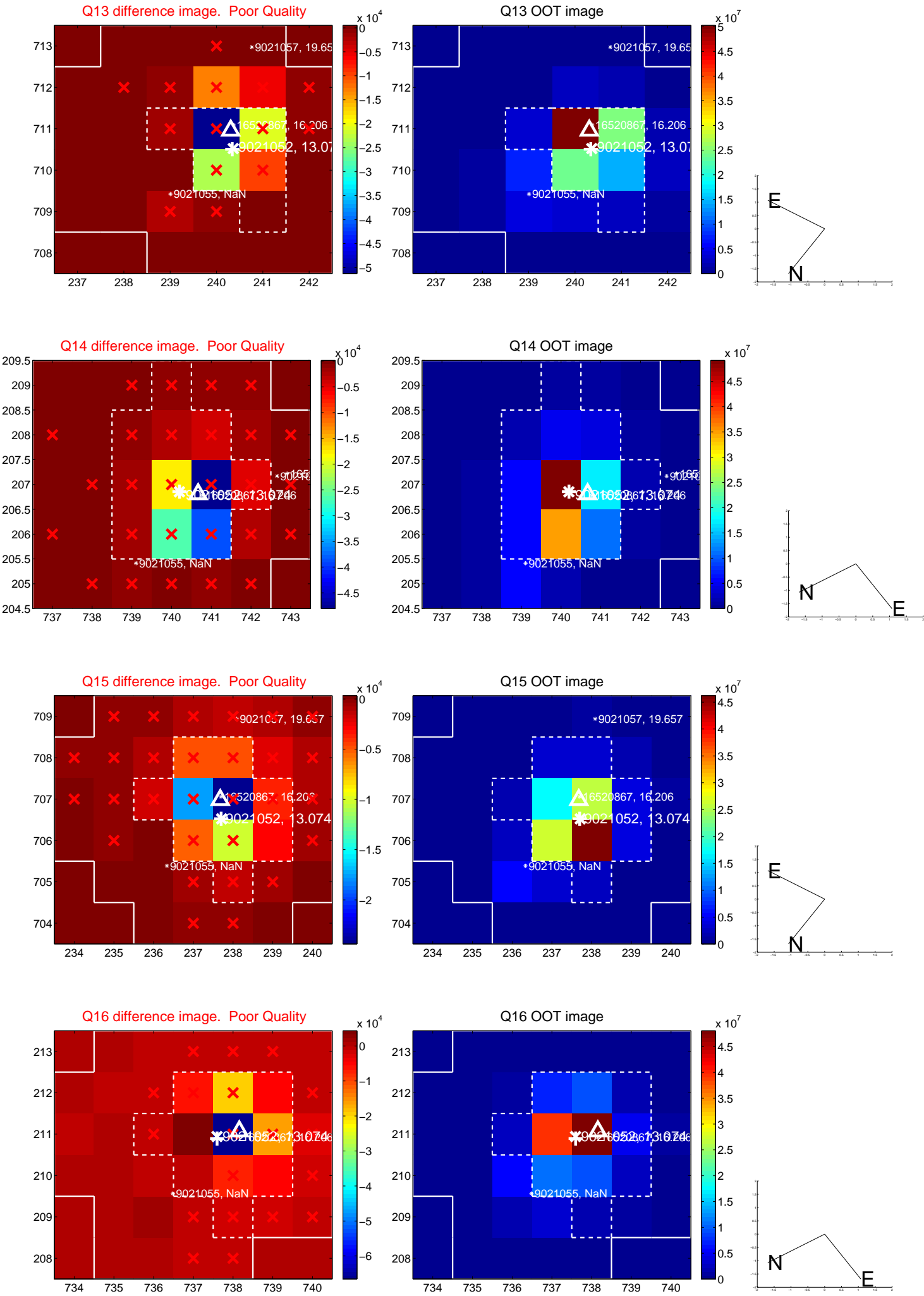
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



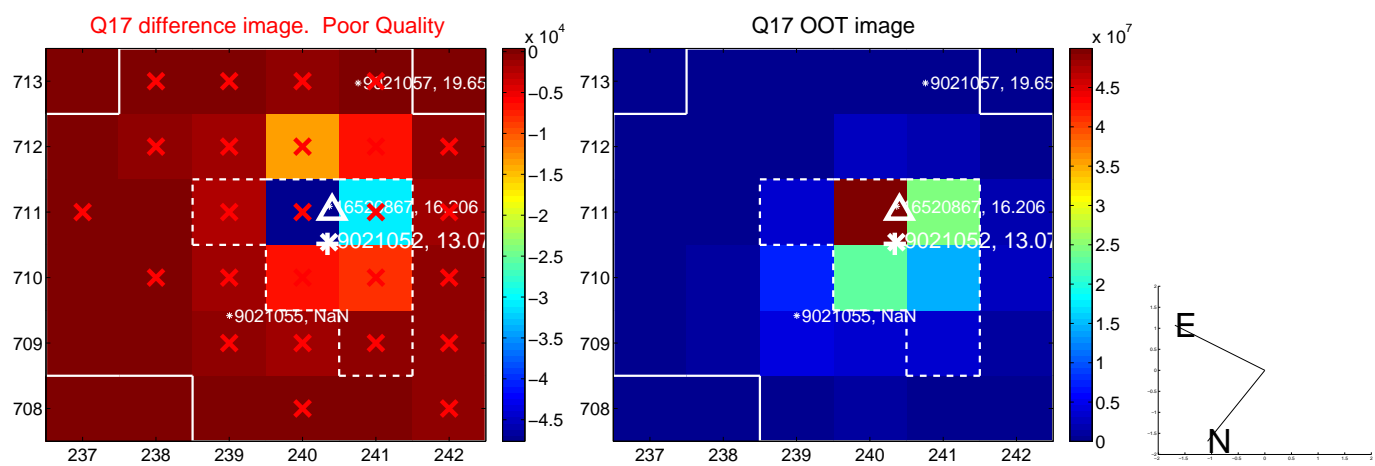
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

