

# KIC 002711123

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002711123-01	OBS	4953.01	1.429448	132.750191	238.8	1.914	22.5	35.8	16.27	4893	30.82	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002711123-01	OBS	FP	0.00	0	1	1	1	PLANET_IN_STAR—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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 002711123-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
002711123-01	2711123	6290.01	2711114	1:1	7.6	2	0	12.34	12.53	14.91	Direct-PRF	0	0.48	0.23

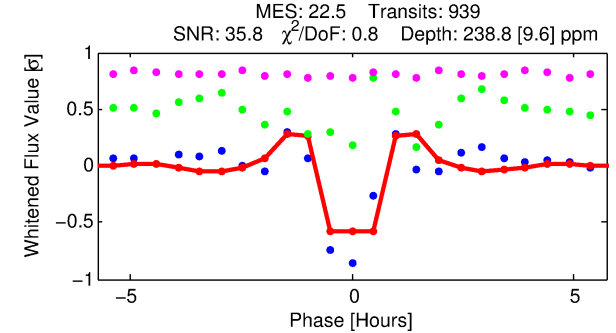
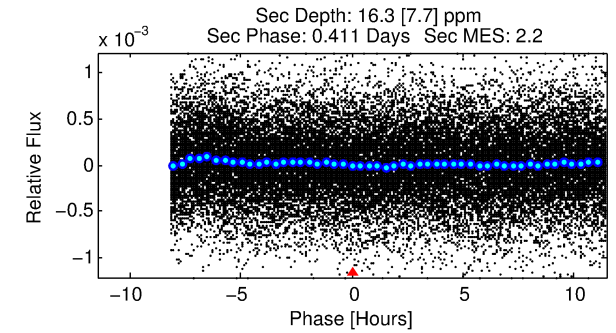
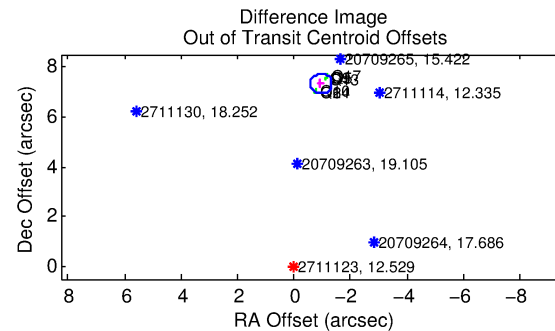
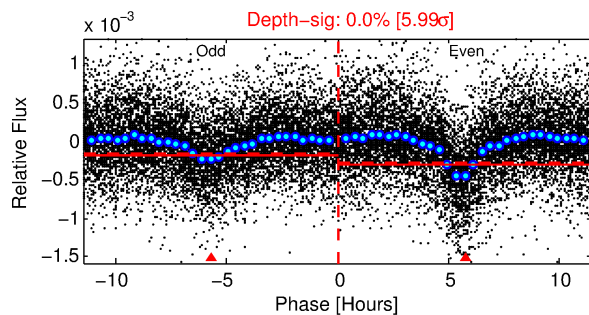
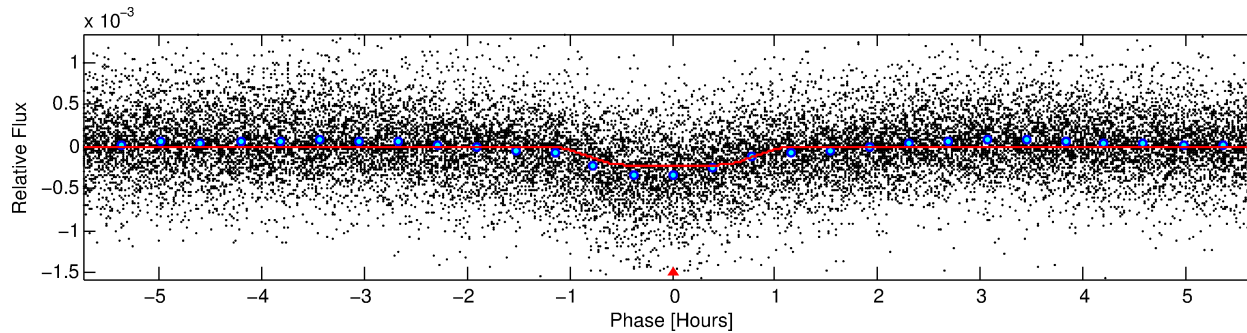
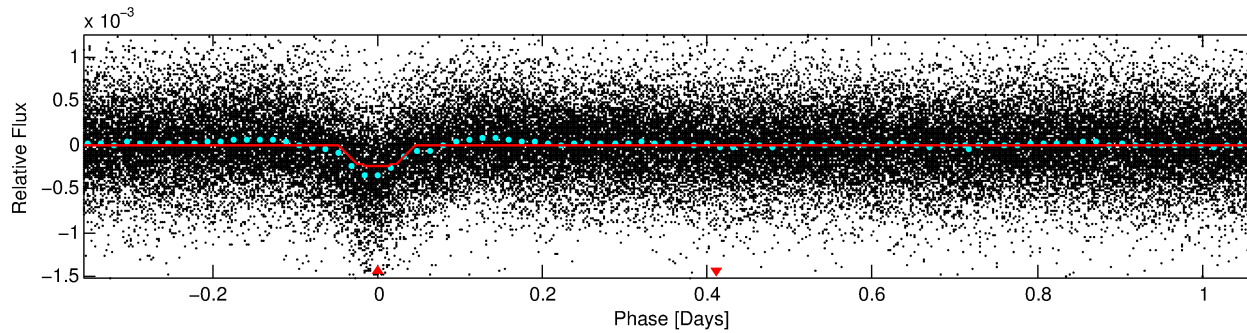
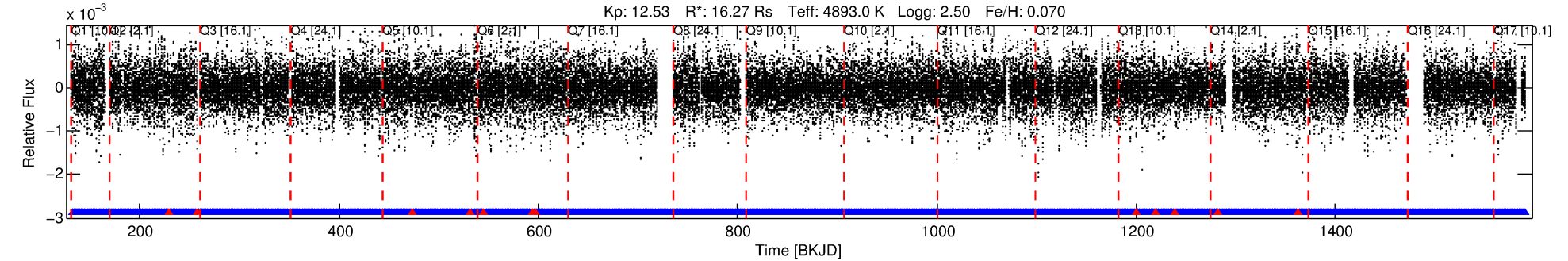
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 2711123 Candidate: 1 of 1 Period: 1.429 d

KOI: K04953 Corr: No Ephemeris Match

Kp: 12.53 R\*: 16.27 Rs Teff: 4893.0 K Logg: 2.50 Fe/H: 0.070



## DV Fit Results:

Period = 1.42945 [0.00000] d  
Epoch = 132.7502 [0.0004] BKJD  
Rp/R\* = 0.0174 [0.0020]  
a/R\* = 2.85 [1.08]  
b = 0.90 [0.09]  
Seff = N/A  
Teq = N/A  
Rp = 30.82 [12.61] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

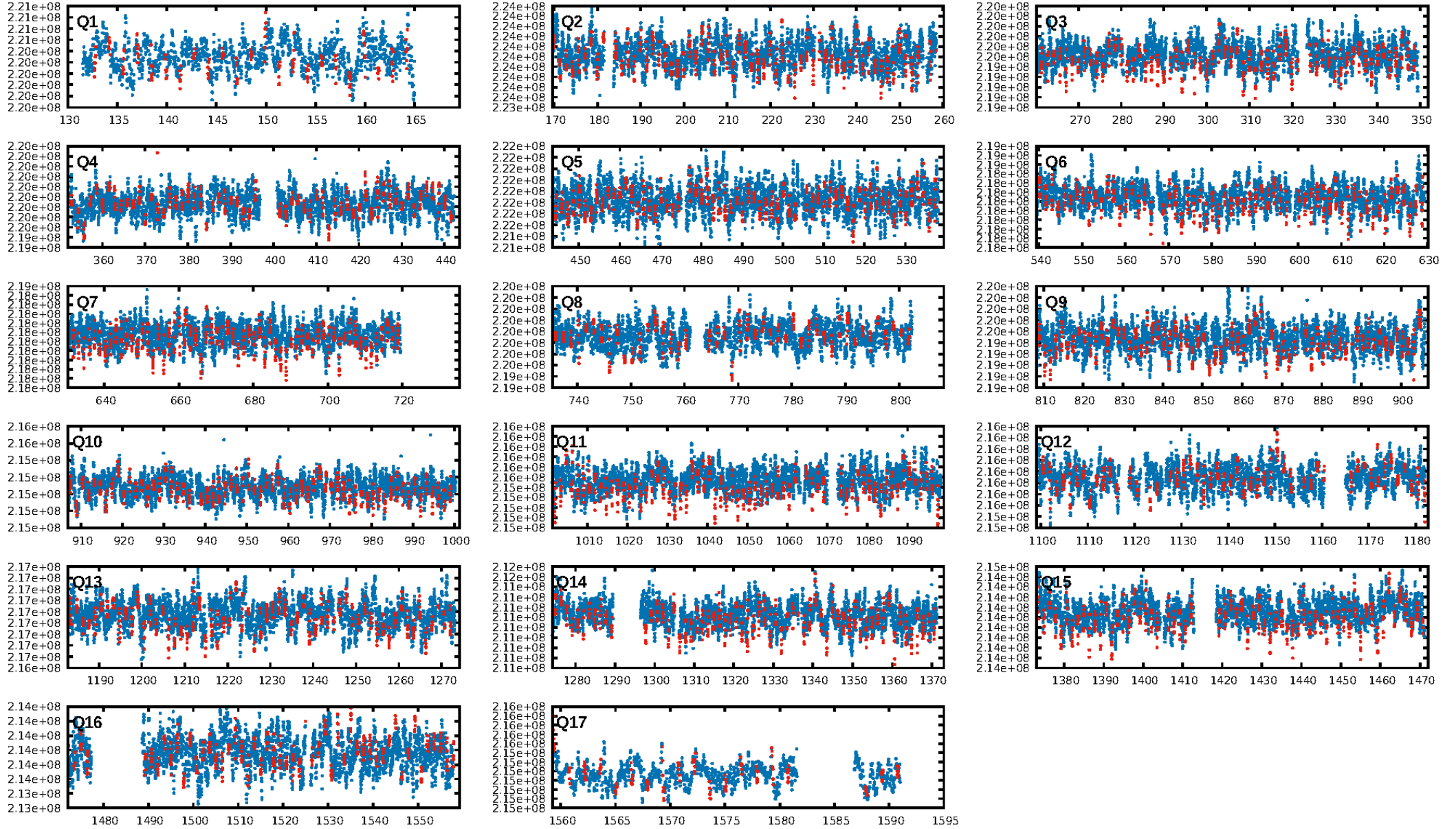
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.76e-100  
RollingBand-fgt: 0.99 [885/897]  
GhostDiagnostic-chr: -0.1043  
Centroid-sig: N/A  
Centroid-so: 11.763 arcsec [63.82σ]  
OotOffset-rm: 7.389 arcsec [56.66σ]  
KicOffset-rm: 8.186 arcsec [79.62σ]  
OotOffset-st: 4/0/0/4 [8]  
KicOffset-st: 4/0/0/4 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:51:40 Z

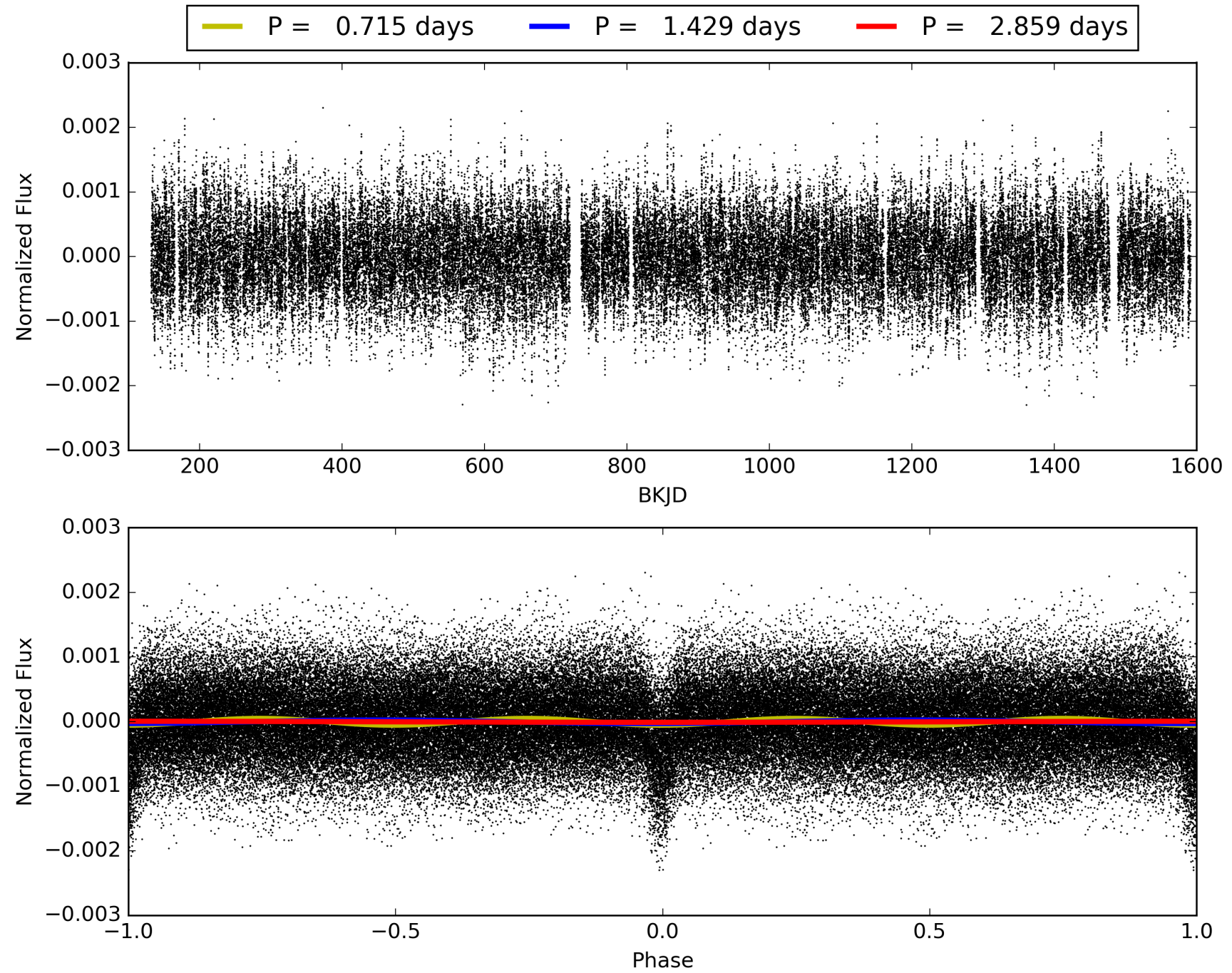
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002711123-01, PDC Light Curves



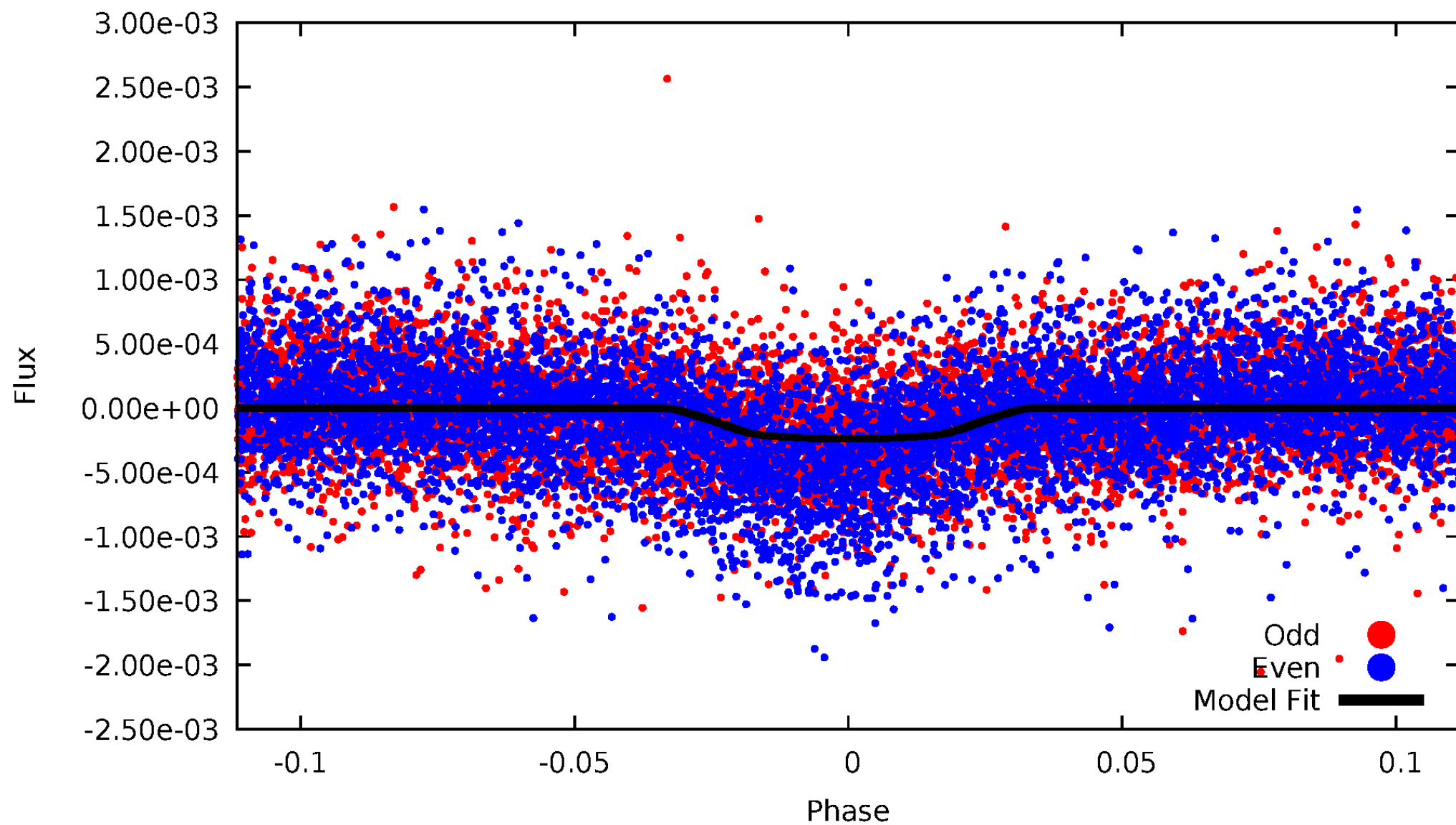


TCE 002711123-01



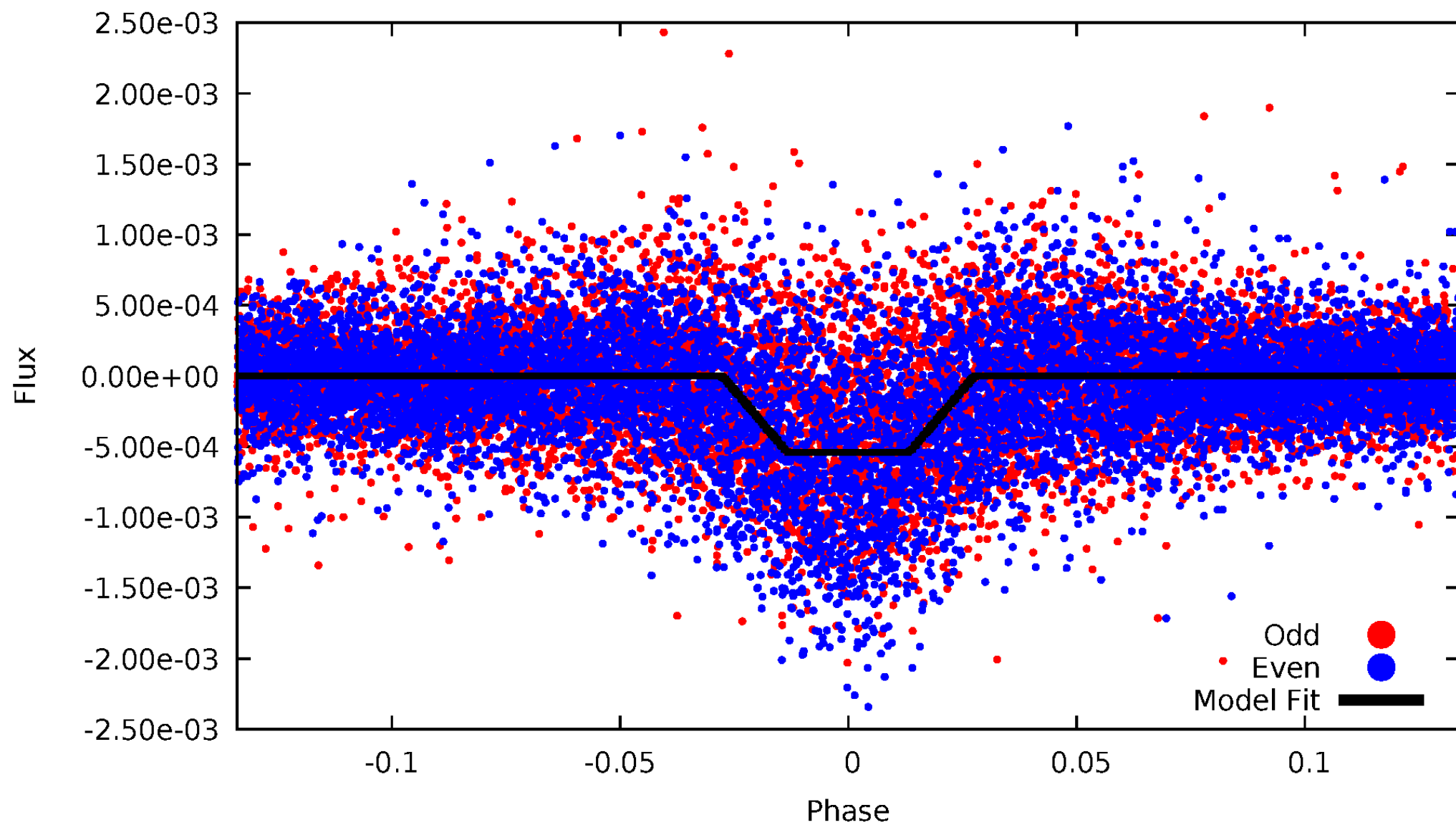
# DV Odd/Even

TCE 002711123-01



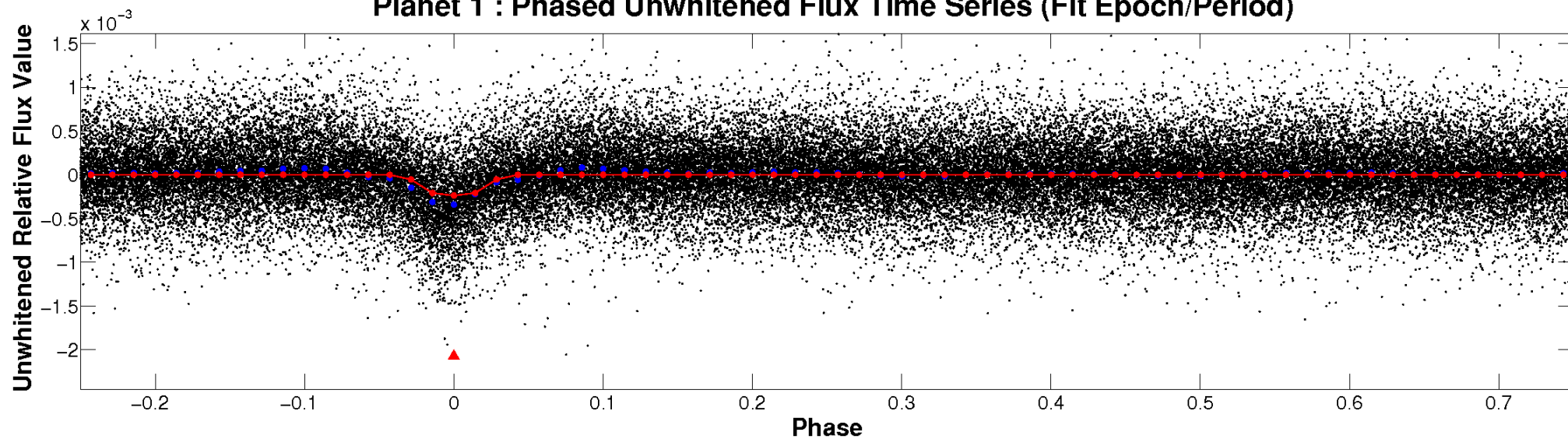
# ALT Odd/Even

TCE 002711123-01

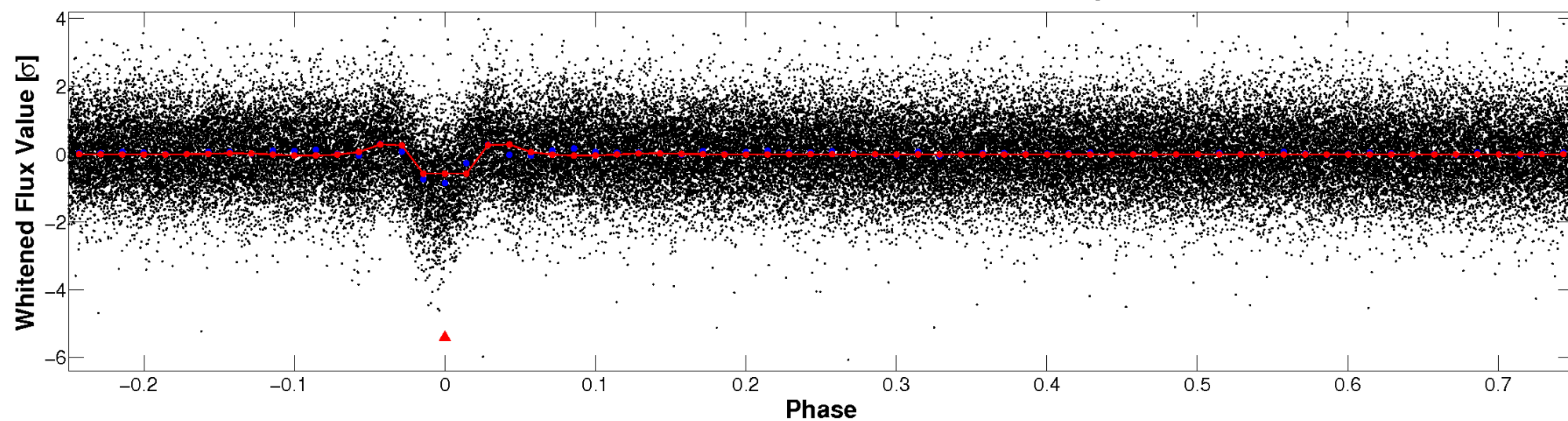


# Non-Whitened Vs. Whitened Light Curve

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



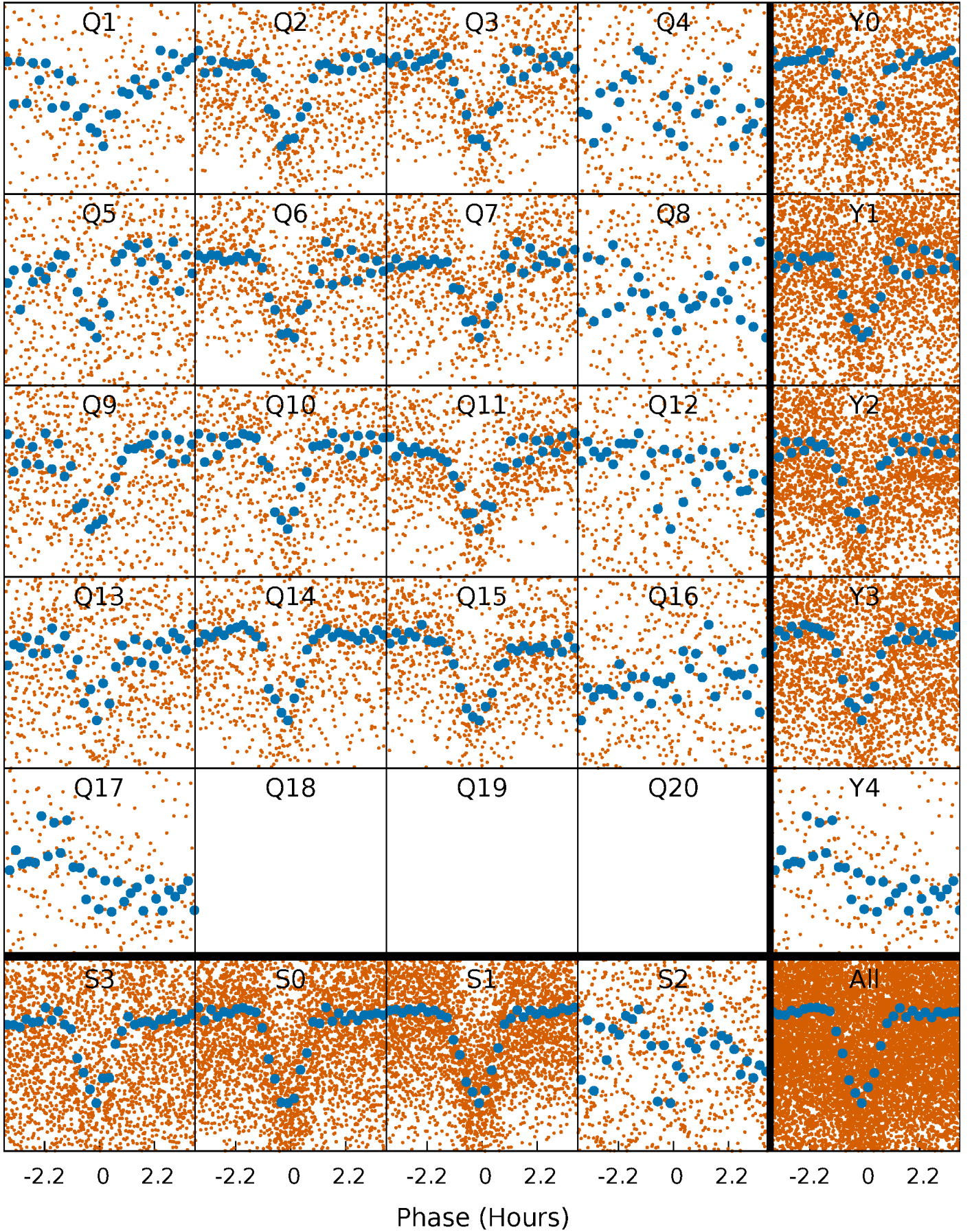
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

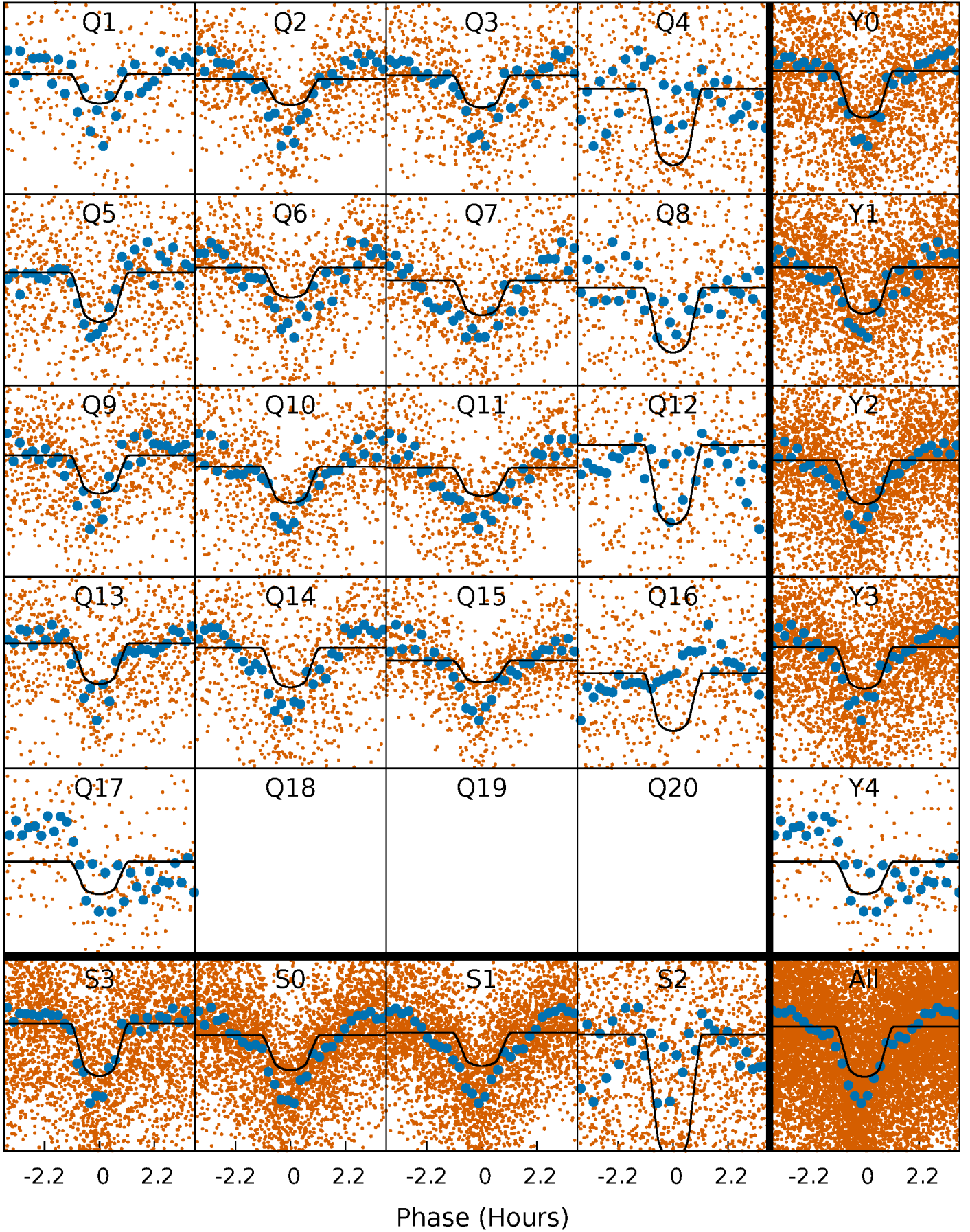
TCE 002711123-01 P= 1.429448 Days  $T_0=132.750191$  (BKJD)





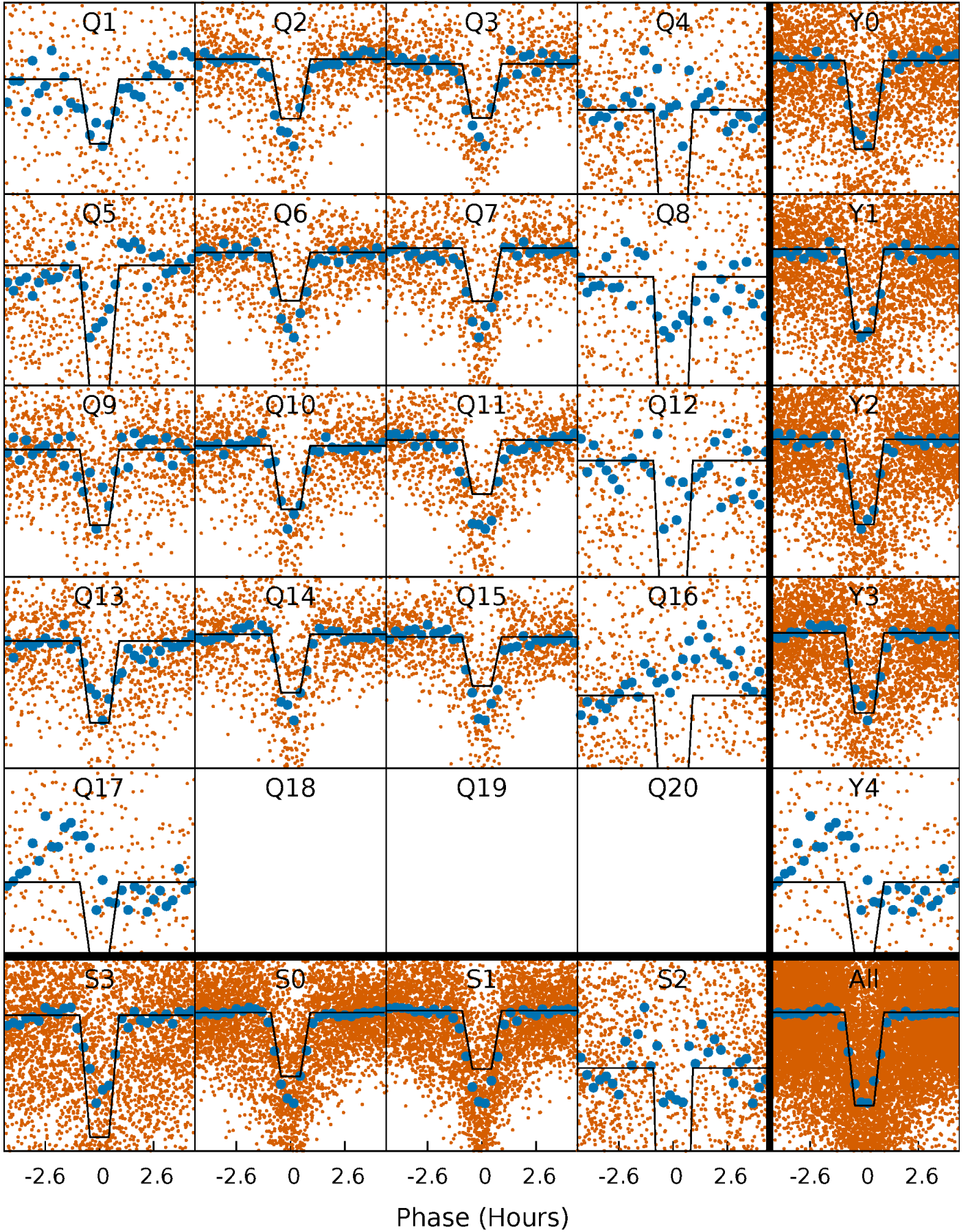
# DV Quarter-Phased Transit Curves

TCE 002711123-01 P= 1.429448 Days  $T_0=132.750191$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

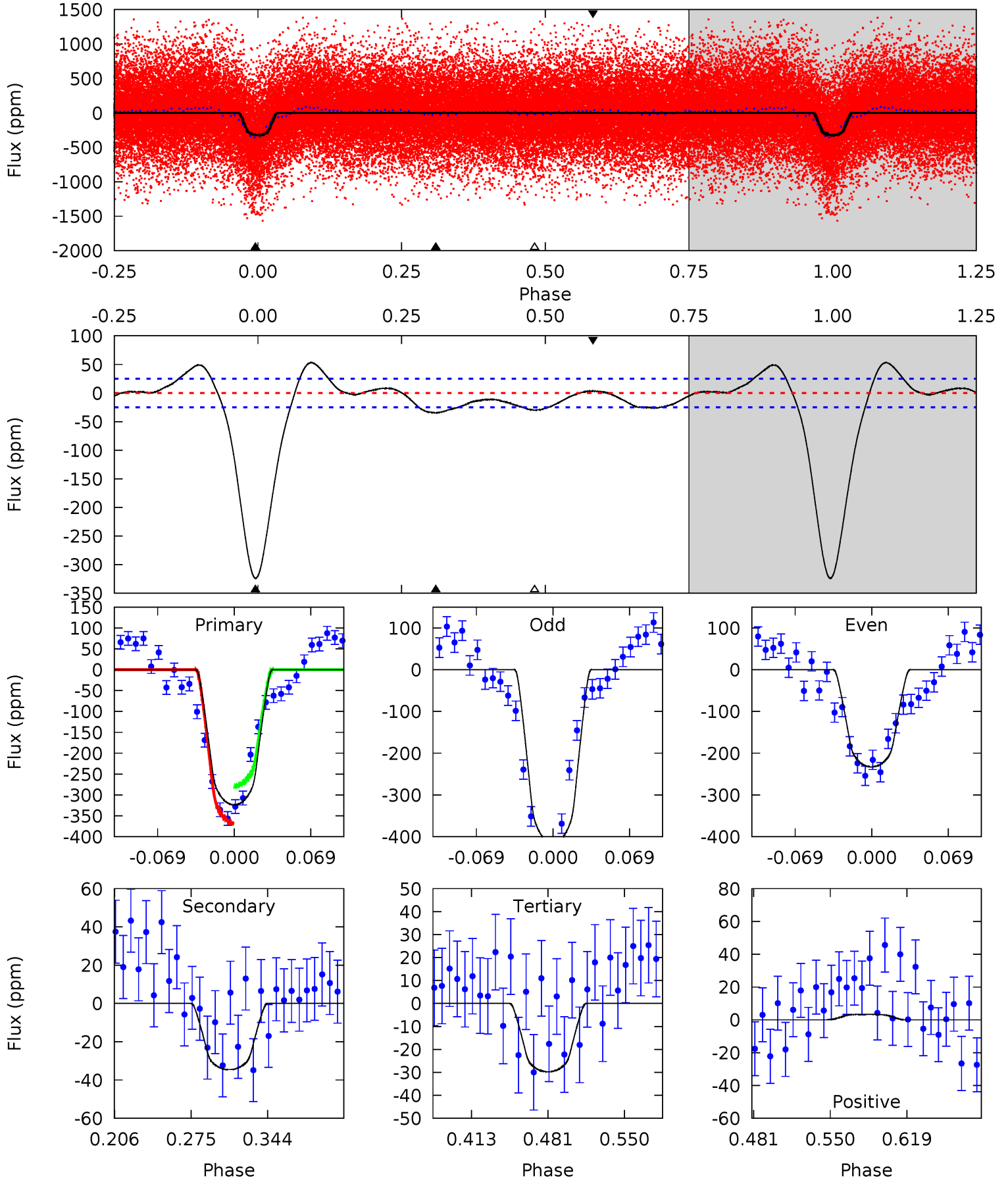
TCE 002711123-01 P= 1.429432 Days  $T_0=132.751020$  (BKJD)



# DV Model-Shift Uniqueness Test

002711123-01, P = 1.429448 Days, E = 131.320743 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
60.0	6.41	5.52	0.63	4.64	1.82	3.93	54.5	59.4	0.89	5.78	17.0	1.05	0.14	8.25

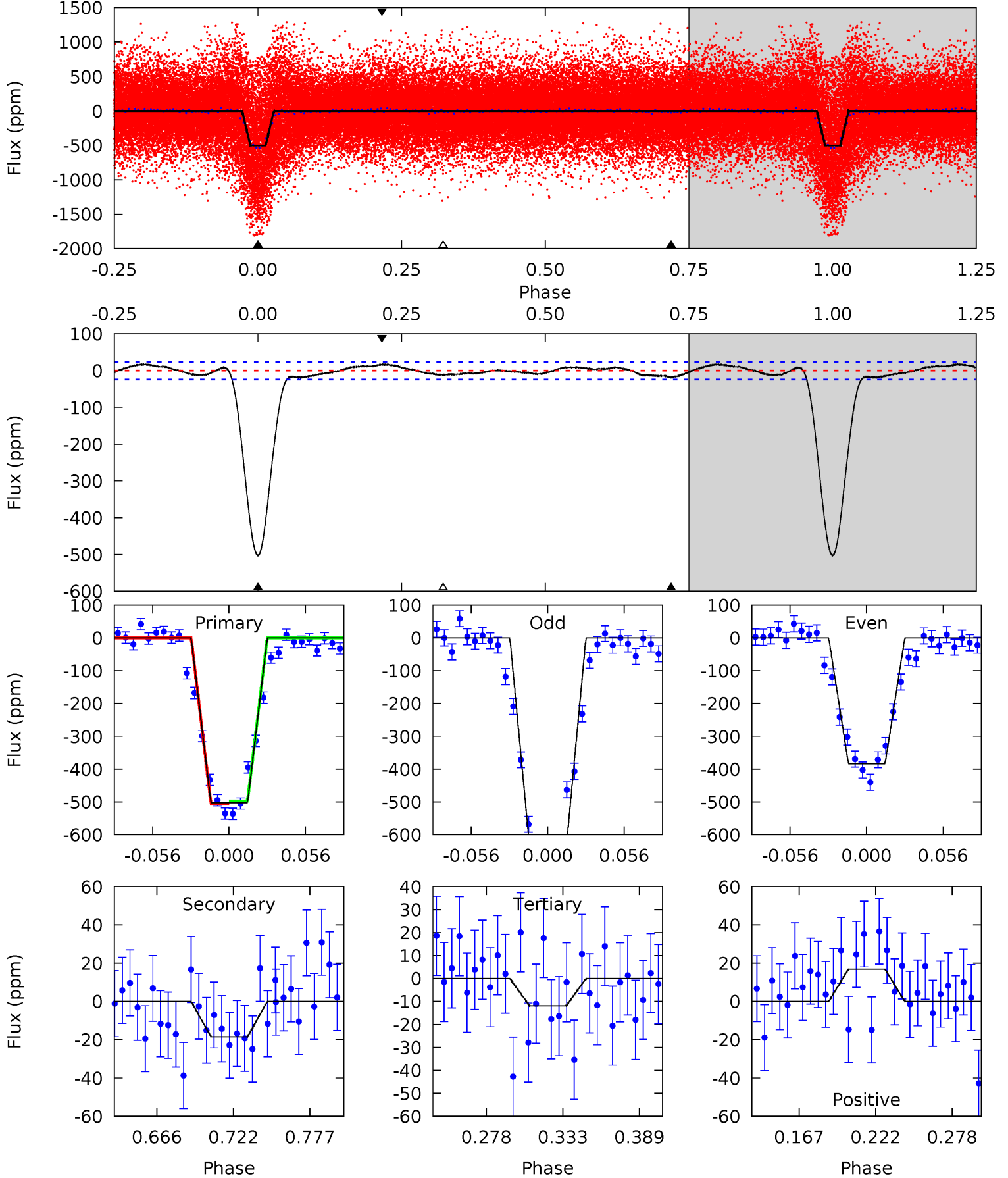




# Alt Model-Shift Uniqueness Test

002711123-01, P = 1.429432 Days, E = 131.321588 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
97.1	3.55	2.30	3.26	4.69	1.91	1.80	94.8	93.8	1.25	0.29	24.5	1.00	0.03	0





### Stellar Parameters For KIC 002711123

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4893^{+71}_{-229}$	$2.501^{+0.030}_{-0.027}$	$0.070^{+0.150}_{-0.450}$	$16.274^{+1.065}_{-6.391}$	$3.063^{+0.323}_{-1.829}$	$0.001^{+0.001}_{-0.000}$
	+1%/-5%	+1%/-1%	+214%/-643%	+7%/-39%	+11%/-60%	+65%/-12%
Source	PHO1	AST9	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 002711123-01 / KOI 4953.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-35 \pm 5$	$31.41^{+4.14}_{-4.27}$	$6384^{+151}_{-322}$	$-5062^{+248}_{-132}$	$0.026^{+0.009}_{-0.006}$
Alt.	$-18 \pm 5$	$42.28^{+3.78}_{-4.64}$	$6362^{+175}_{-290}$	$-5128^{+248}_{-136}$	$0.008^{+0.003}_{-0.002}$

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

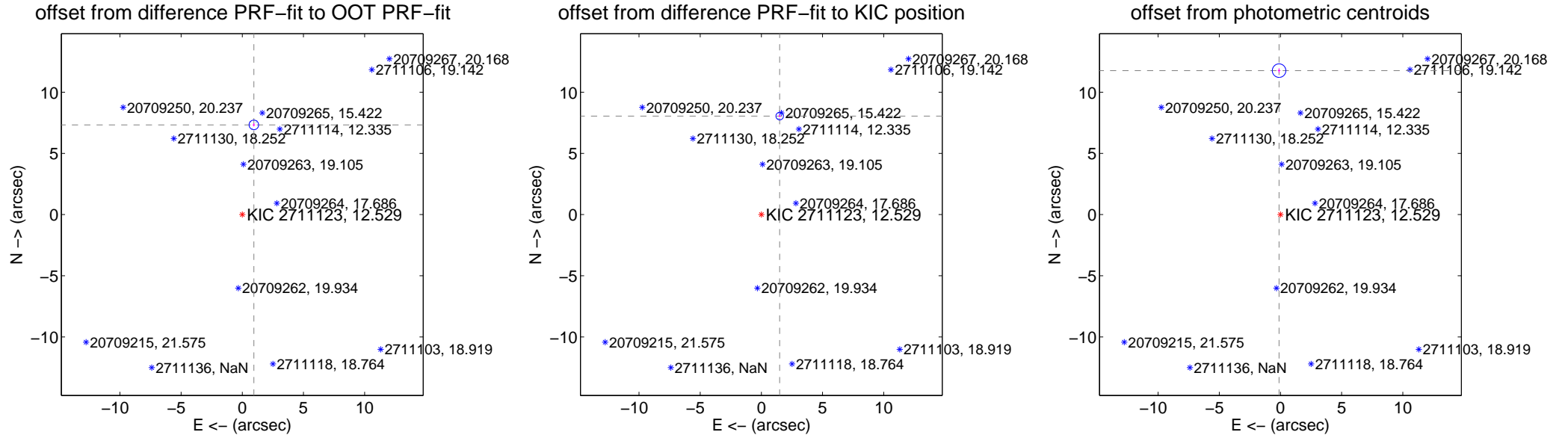
## DV Centroid Data

Supplemental centroid analysis for 002711123-01. Kepler magnitude: 12.53. Transit SNR 35.82

There are 8 quarters with good PRF difference image offsets

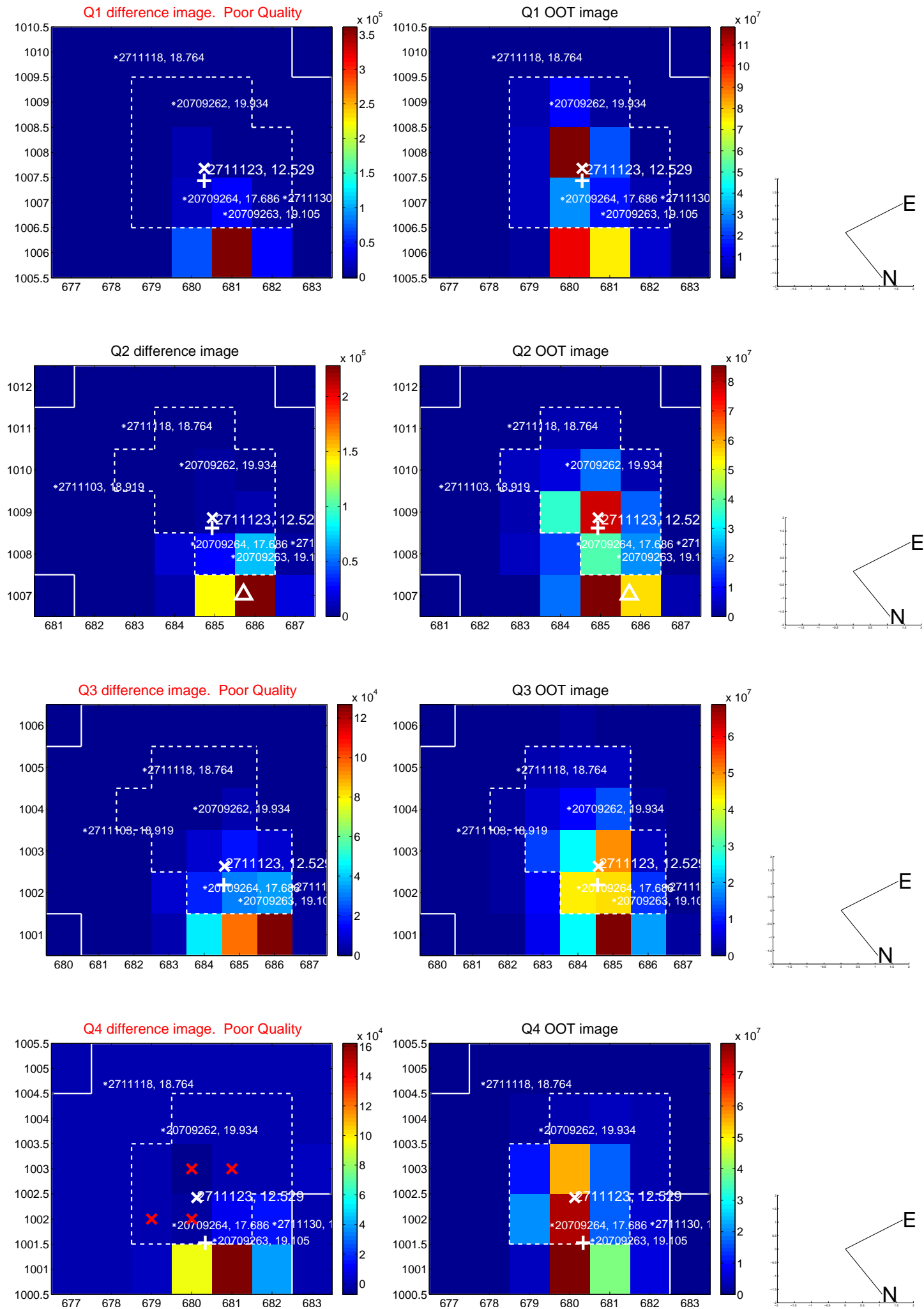
The direct PRF centroid is offset from the target star catalog position by about 0.75 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.389 \pm 0.130$	<b>56.66</b>	$-0.945 \pm 0.103$	$7.329 \pm 0.131$
PRF-fit source offset from KIC position	$8.186 \pm 0.103$	<b>79.62</b>	$-1.496 \pm 0.084$	$8.048 \pm 0.097$
photometric centroid source offset	$11.76 \pm 0.18$	<b>63.82</b>	$0.11 \pm 0.11$	$11.76 \pm 0.18$

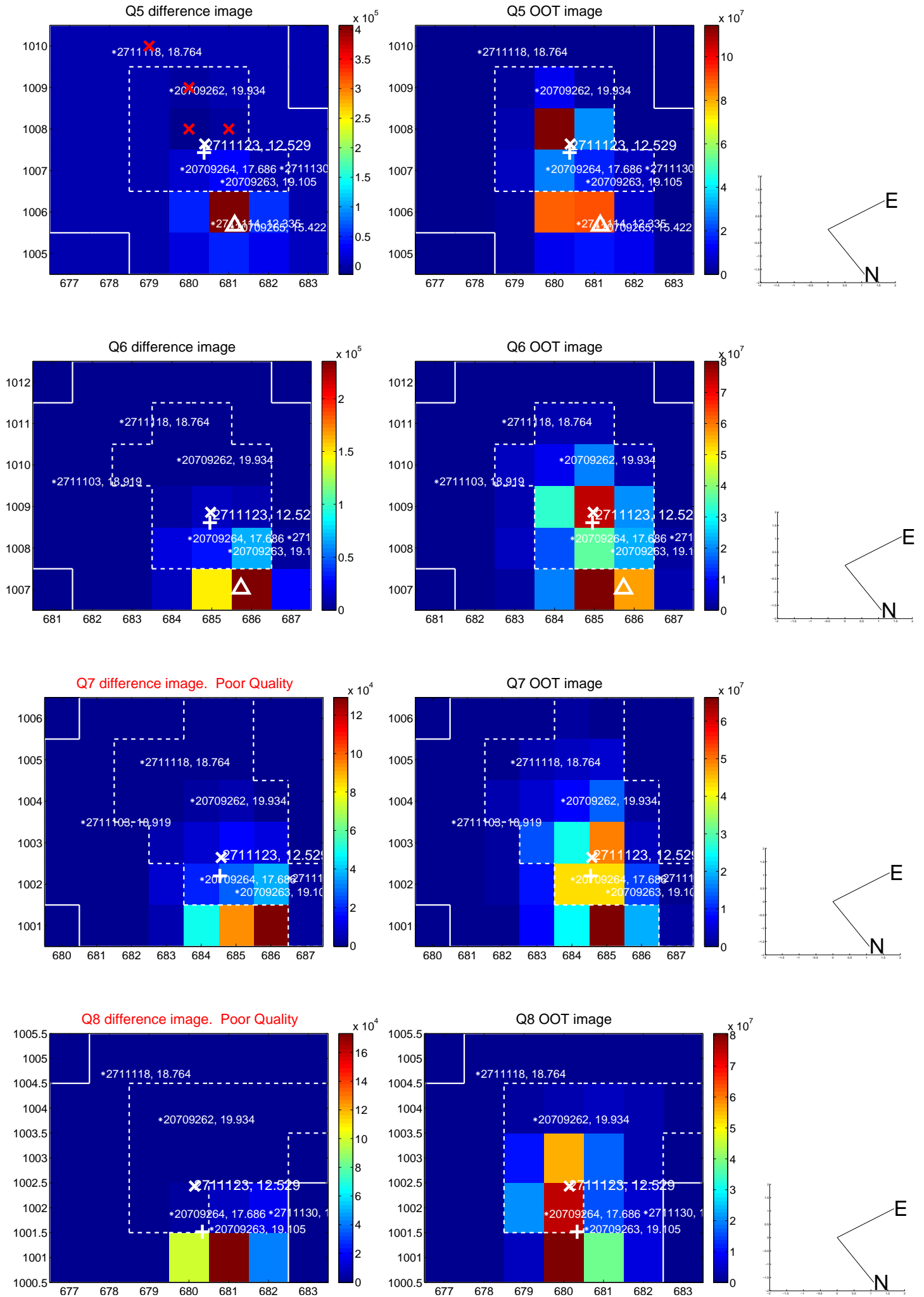


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

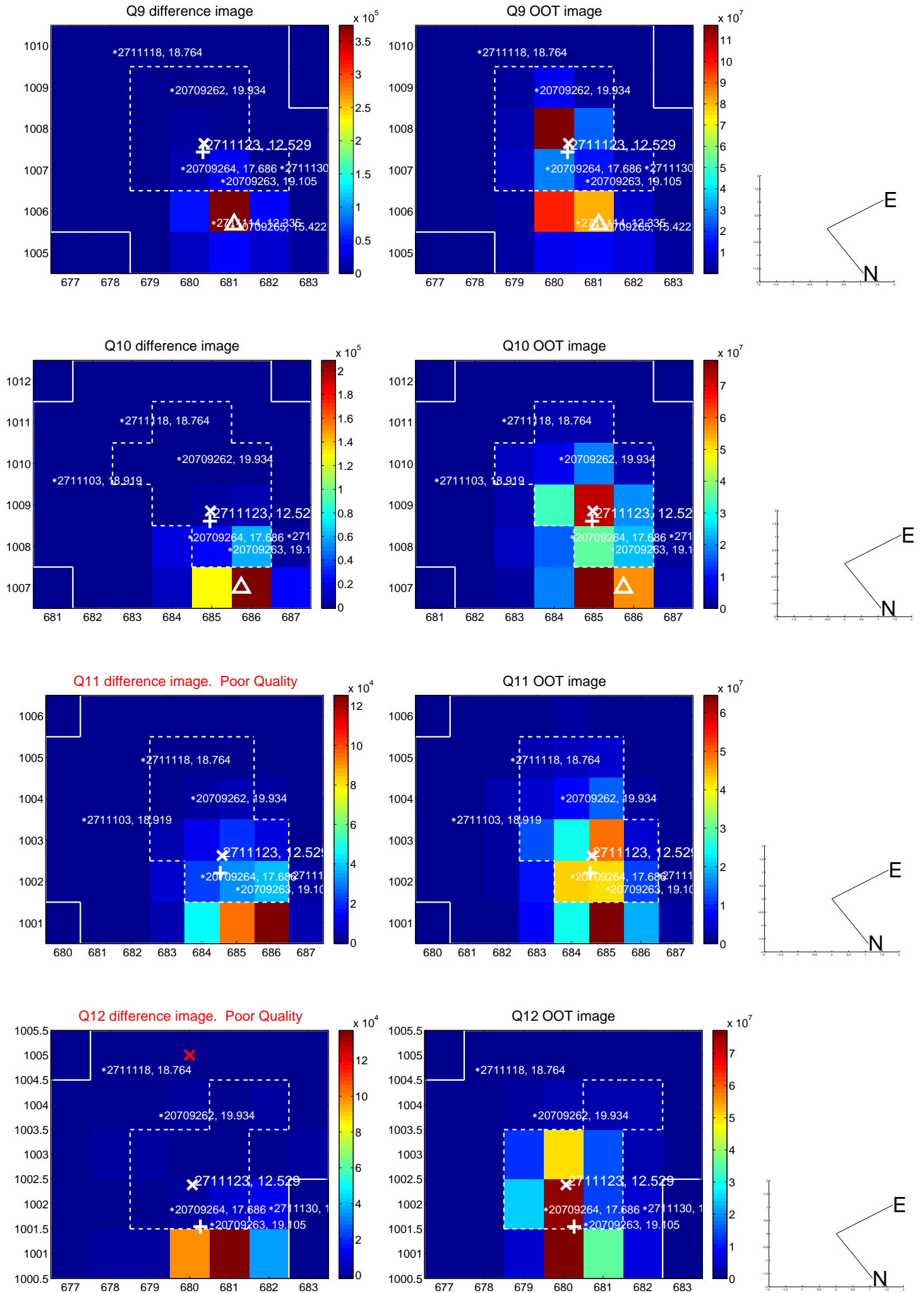


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

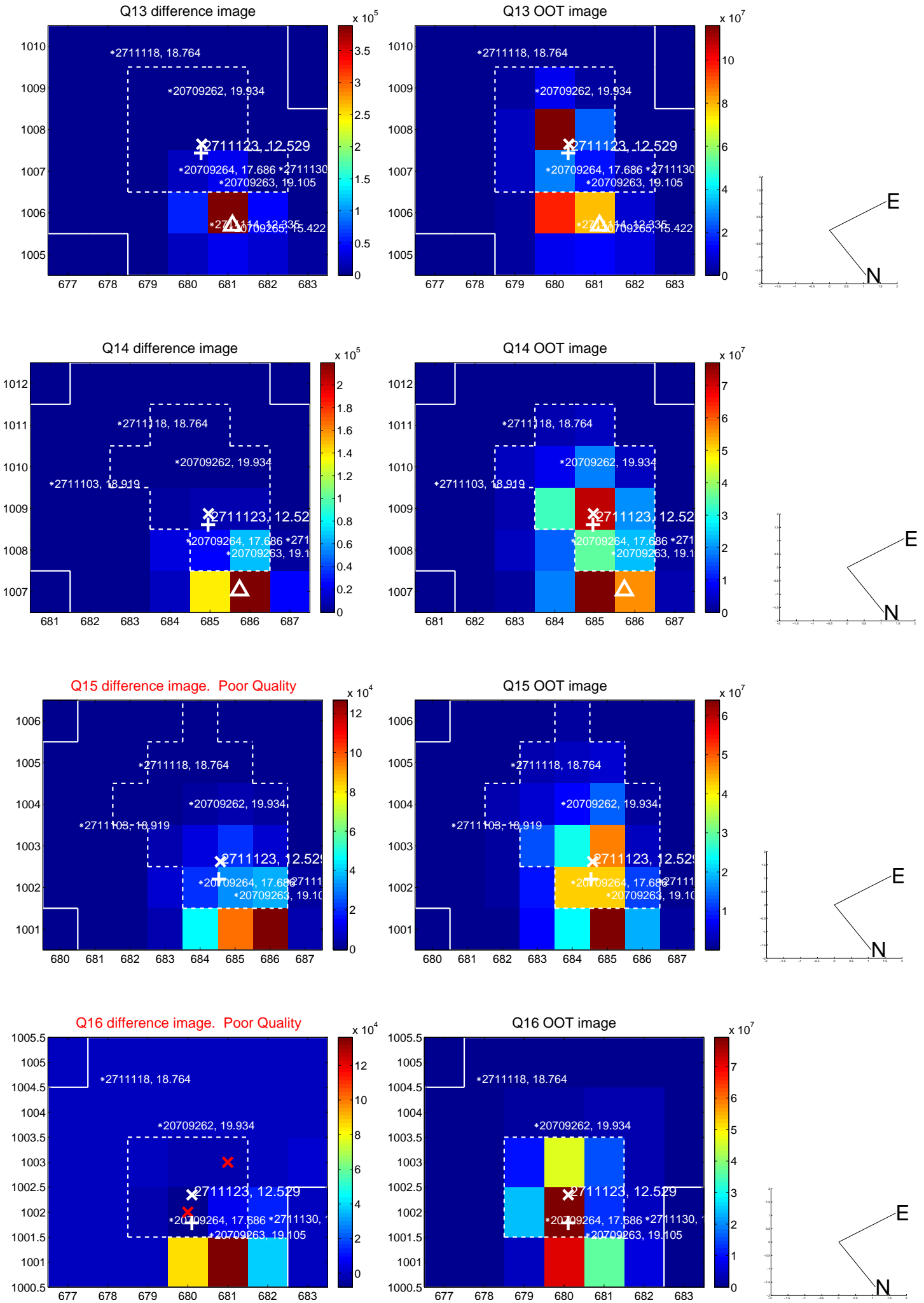




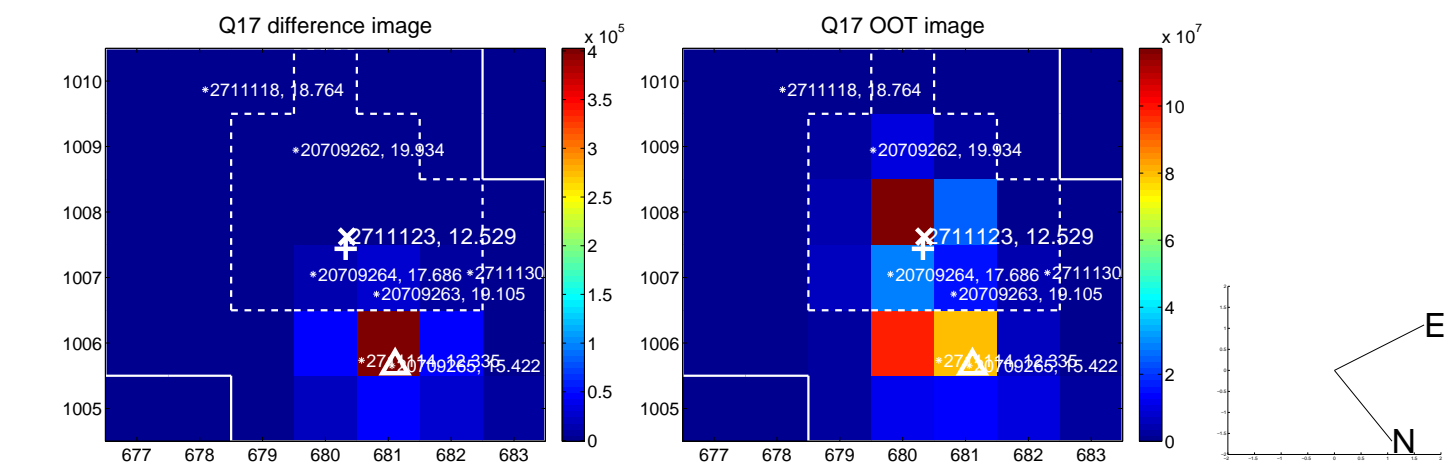
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



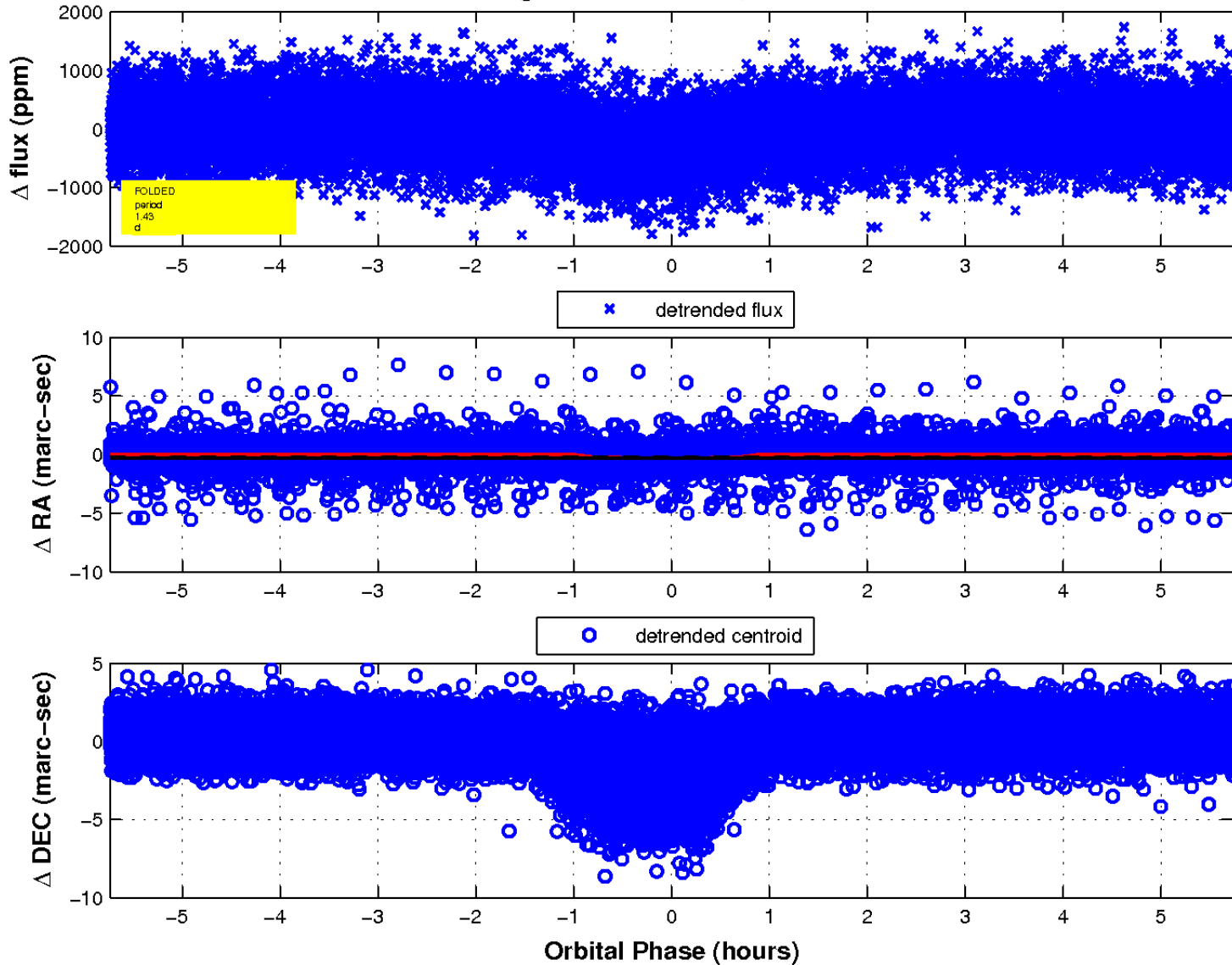
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

