

# KIC 005209669

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005209669-01	OBS	No	0.595290	131.772918	14.1	6.449	9.0	12.9	2.17	7780	0.94	54085.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005209669-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—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.

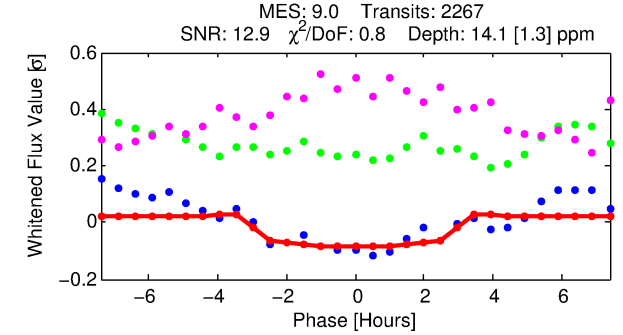
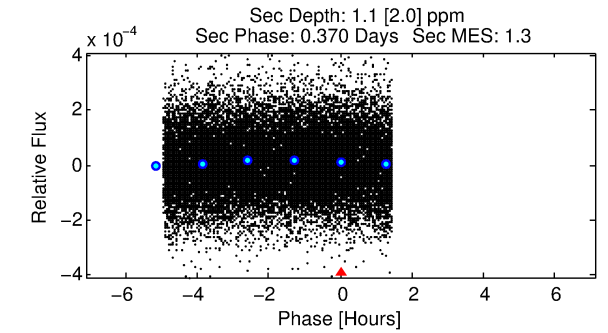
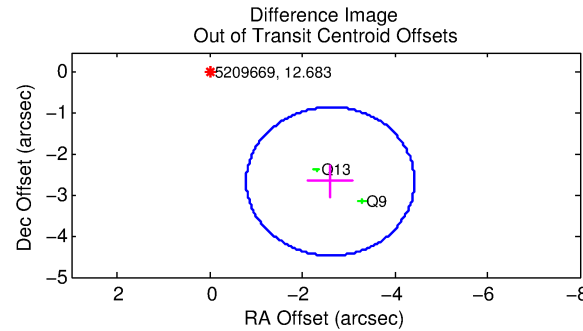
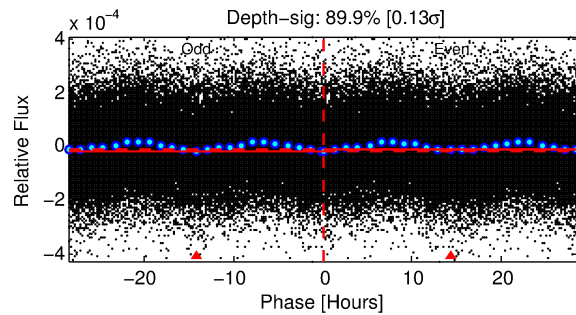
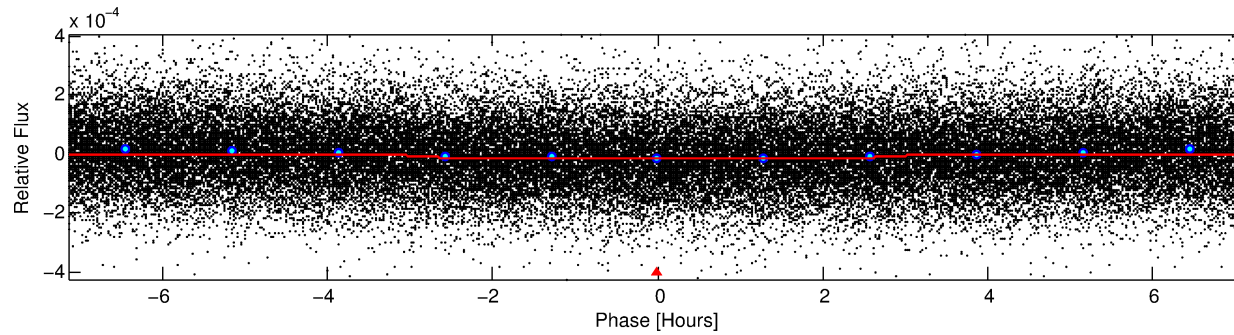
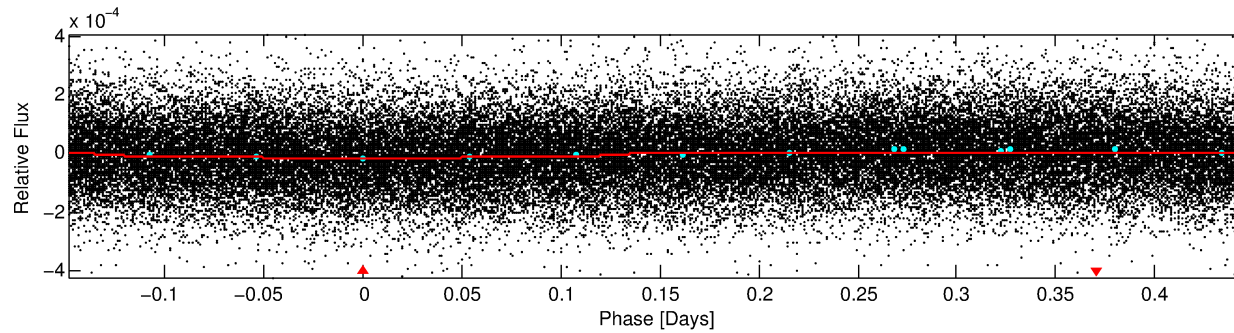
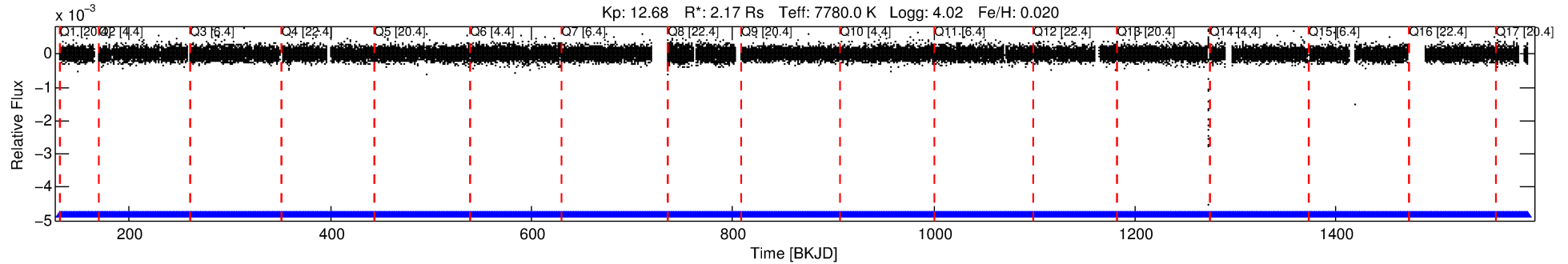
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005209669-01

No Significant Match Found

# DV One-Page Summary

KIC: 5209669 Candidate: 1 of 1 Period: 0.595 d



## DV Fit Results:

Period = 0.59529 [0.00001] d  
Epoch = 131.7729 [0.0038] BKJD  
Rp/R\* = 0.0040 [0.0008]  
a/R\* = 1.01 [0.01]  
b = 0.90 [0.27]  
Seff = 54085.52 [12382.80]  
Teq = 3889 [223] K  
Rp = 0.94 [0.25] Re  
a = 0.0169 [0.0025] AU  
Ag = 0.19 [0.36] [-2.26 $\sigma$ ]  
Teffp = 3972 [1853] K [0.04 $\sigma$ ]

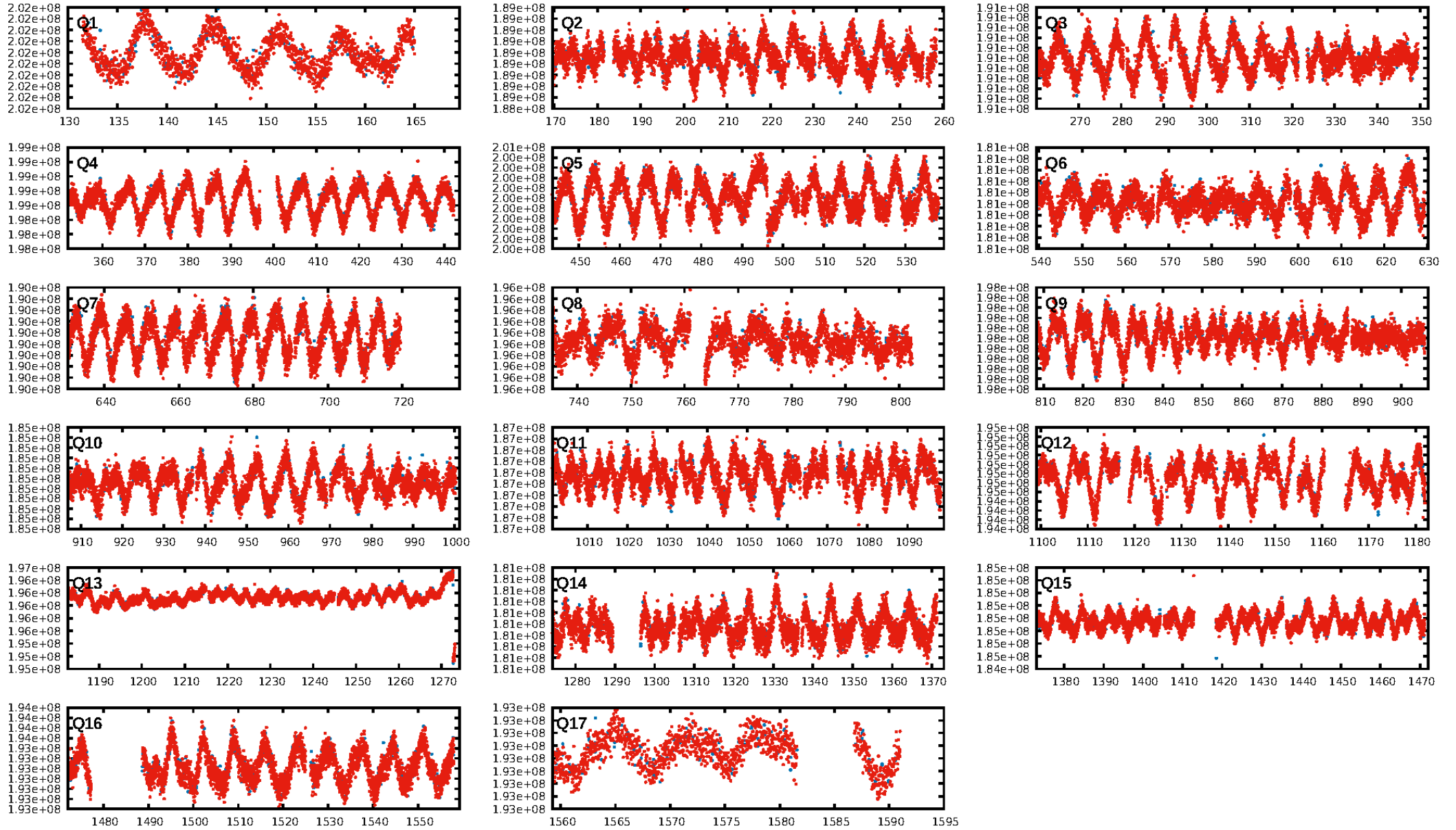
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2165/2165]  
GhostDiagnostic-chr: 1.74  
Centroid-sig: 0.1%  
Centroid-so: 1.917 arcsec [2.52 $\sigma$ ]  
OotOffset-rm: 3.724 arcsec [6.15 $\sigma$ ]  
KicOffset-rm: 3.639 arcsec [7.47 $\sigma$ ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [17/17]

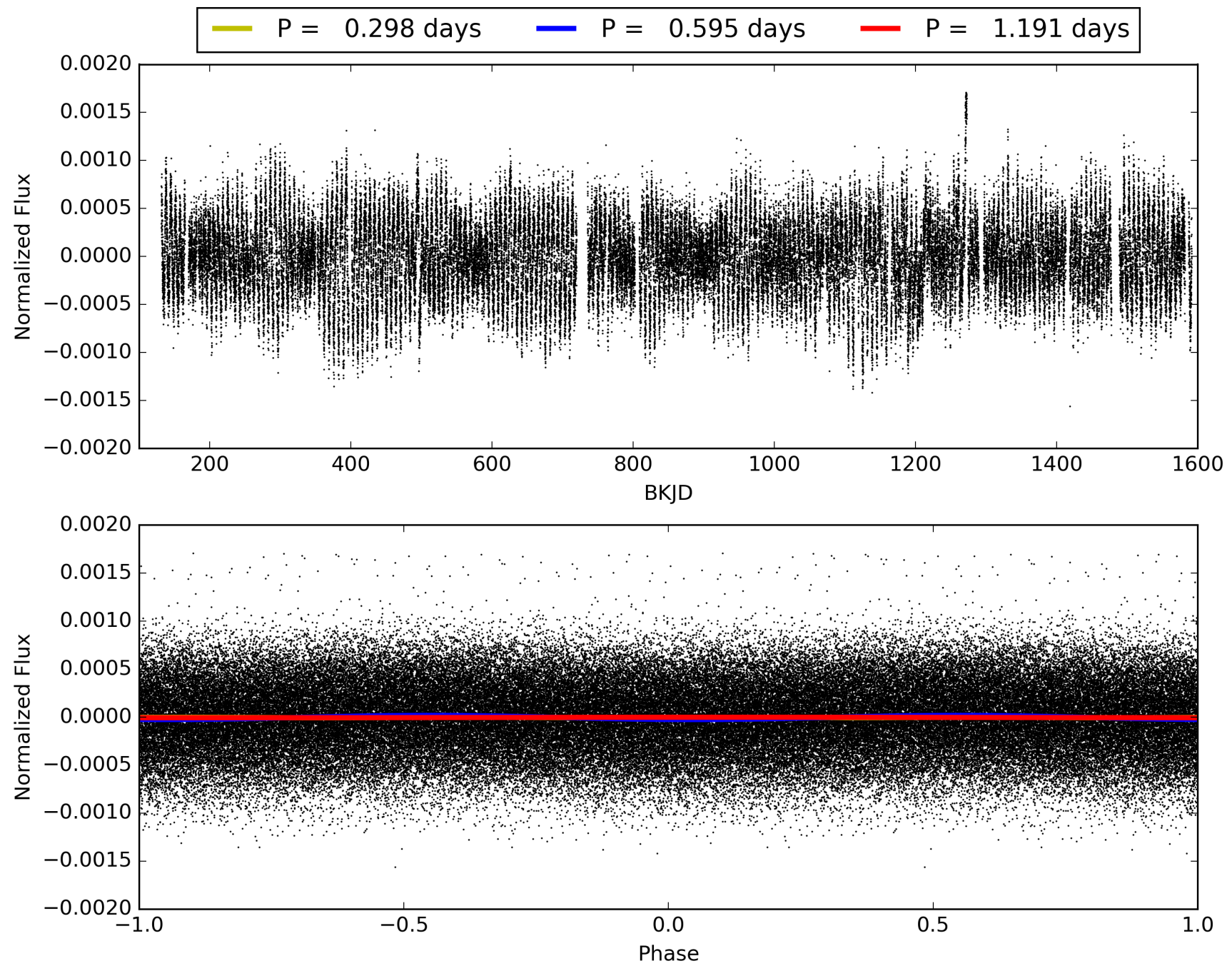
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:45:15 Z

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

# TCE 005209669-01, PDC Light Curves

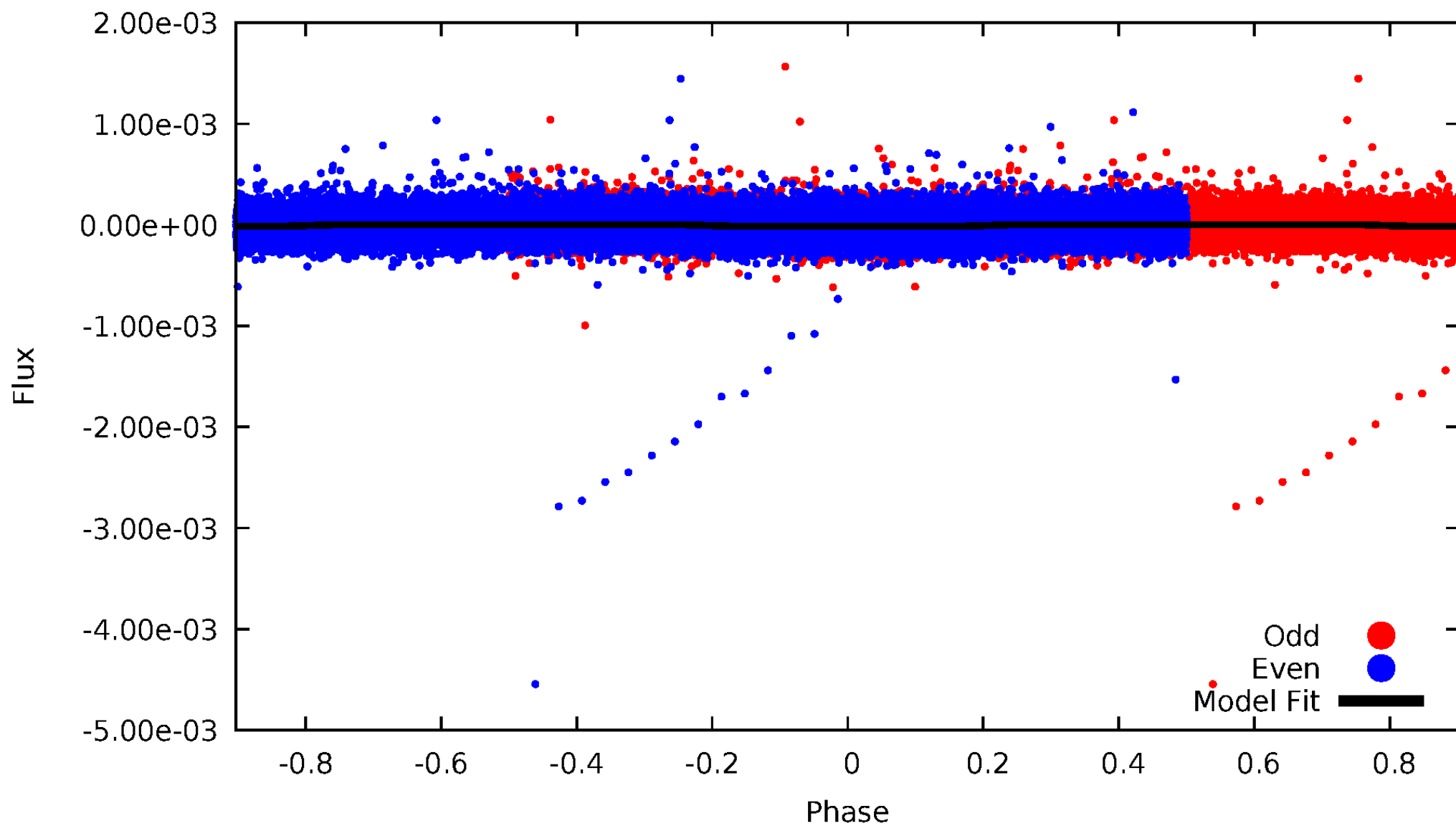


TCE 005209669-01



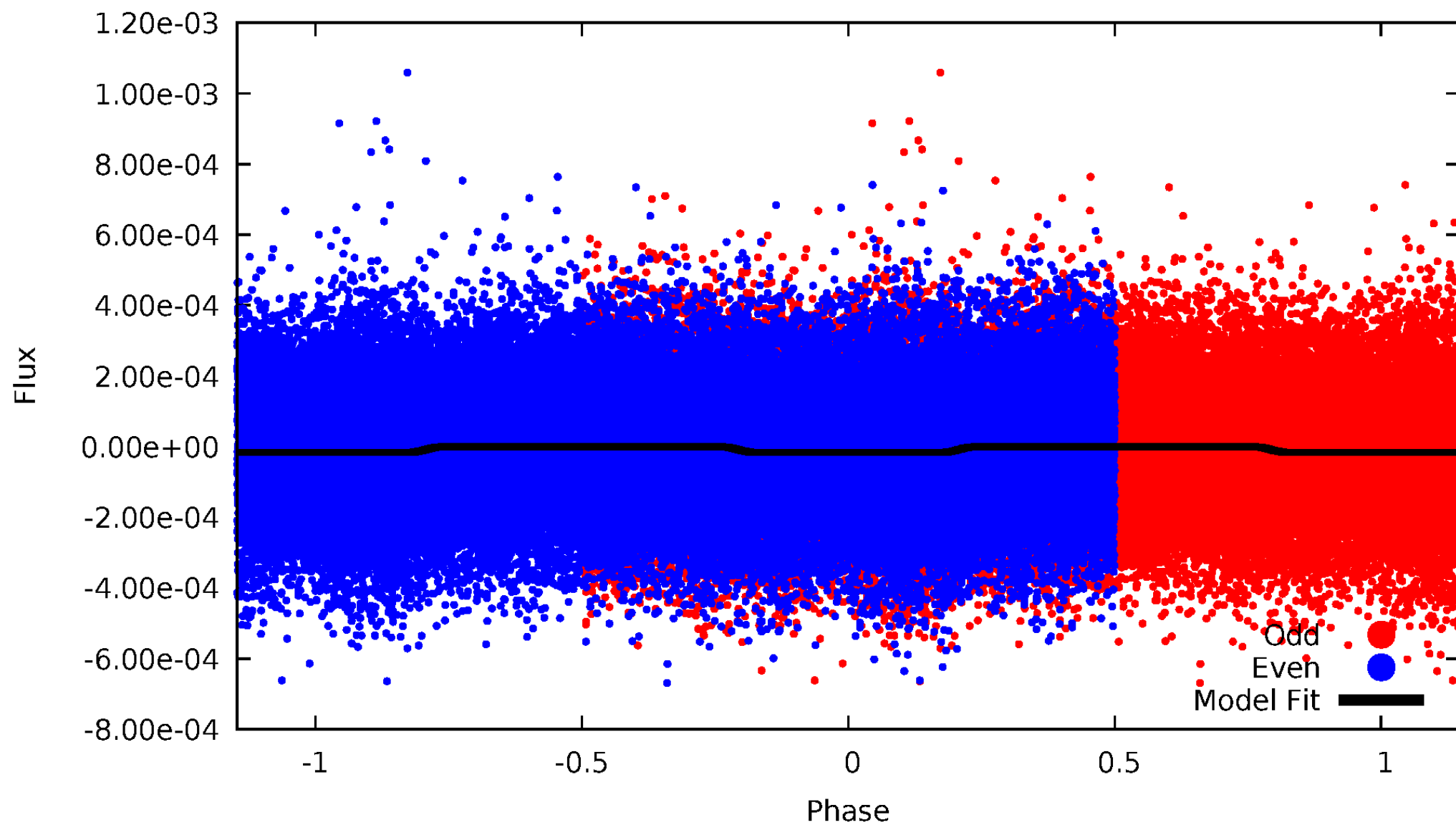
# DV Odd/Even

TCE 005209669-01



# ALT Odd/Even

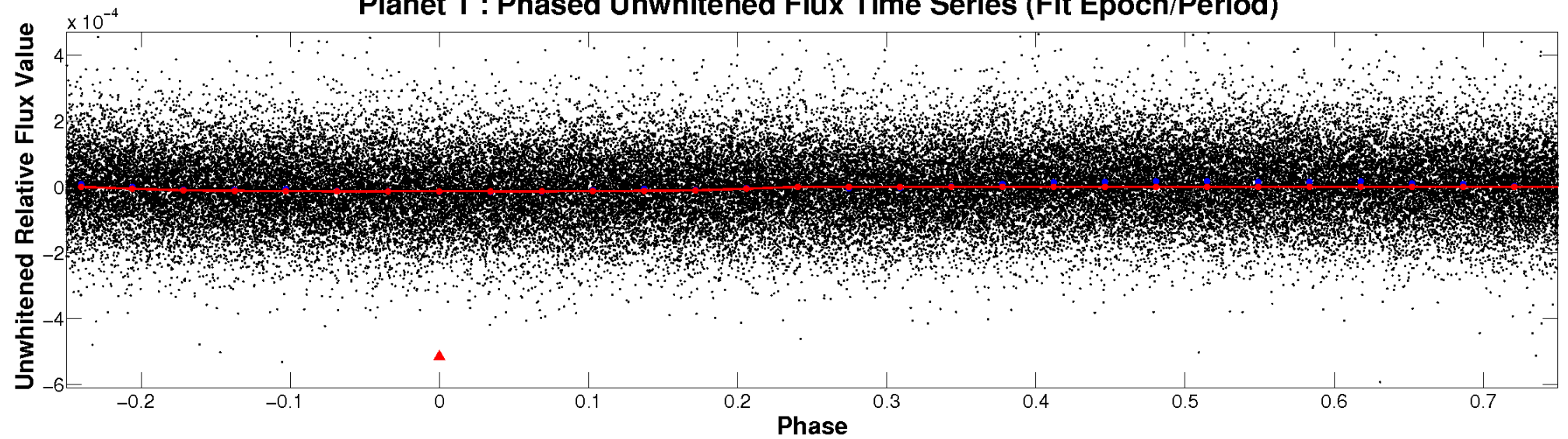
TCE 005209669-01



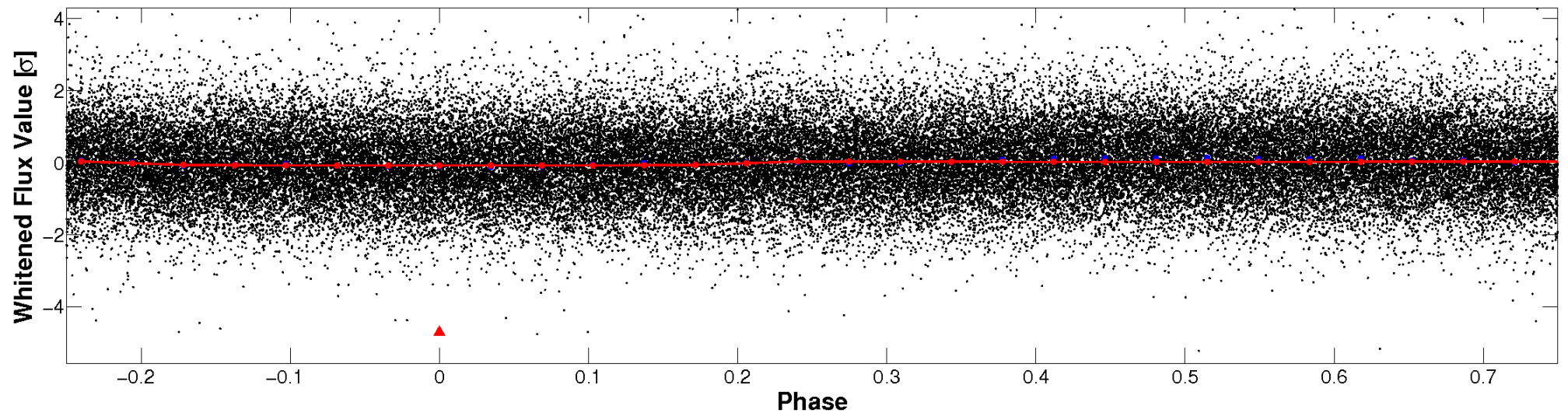


# Non-Whitened Vs. Whitened Light Curve

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

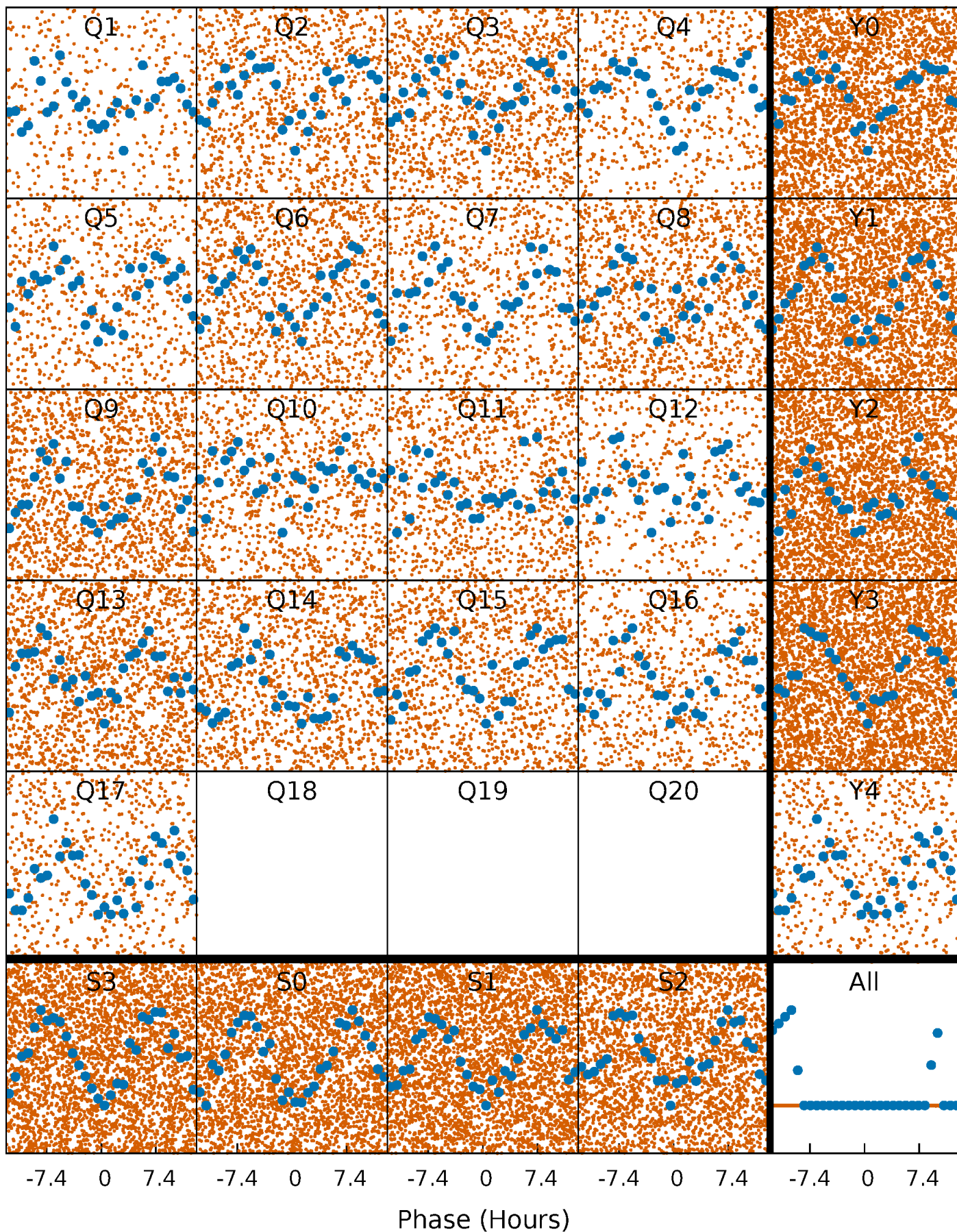


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

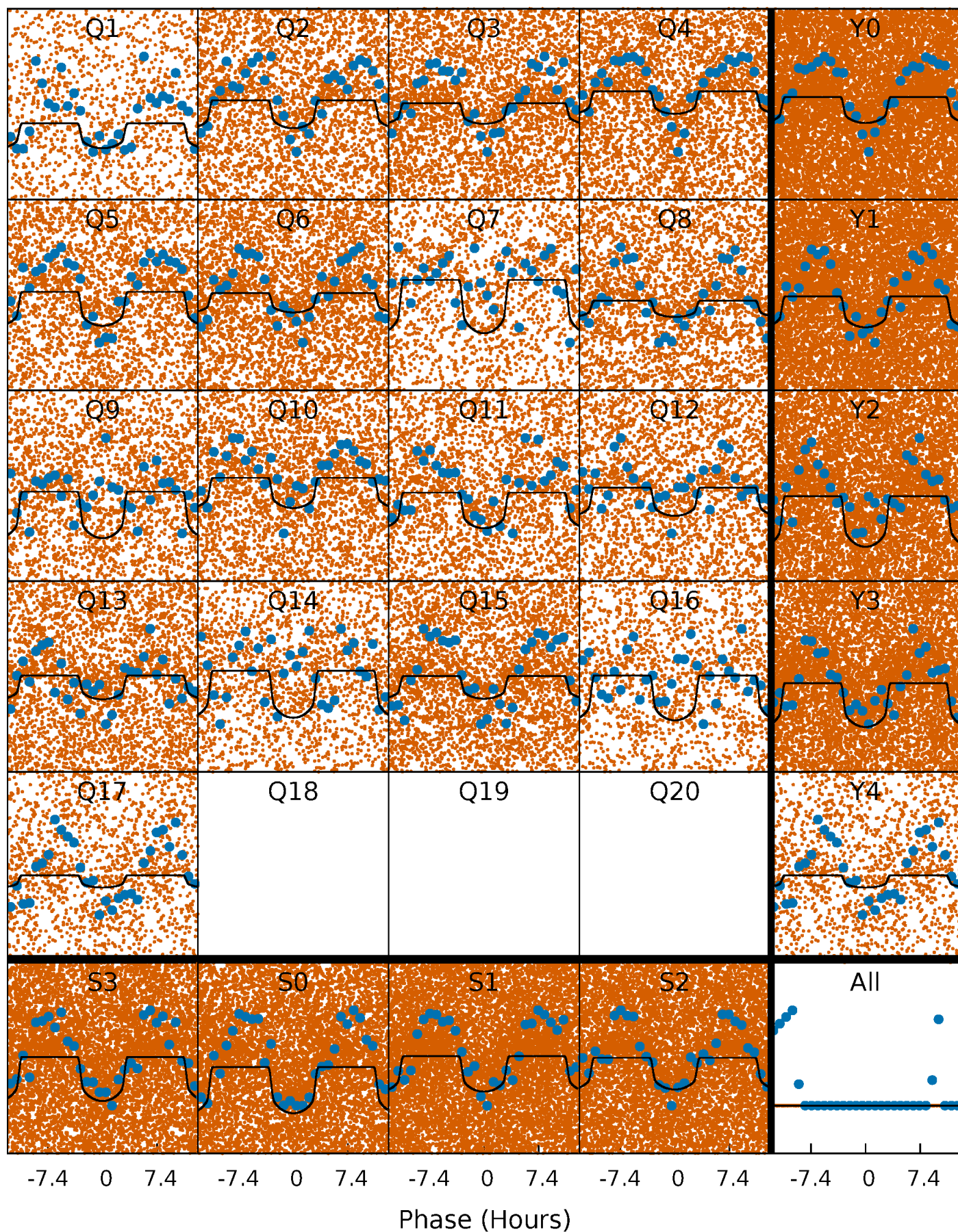
TCE 005209669-01 P= 0.595290 Days  $T_0=131.772918$  (BKJD)





# DV Quarter-Phased Transit Curves

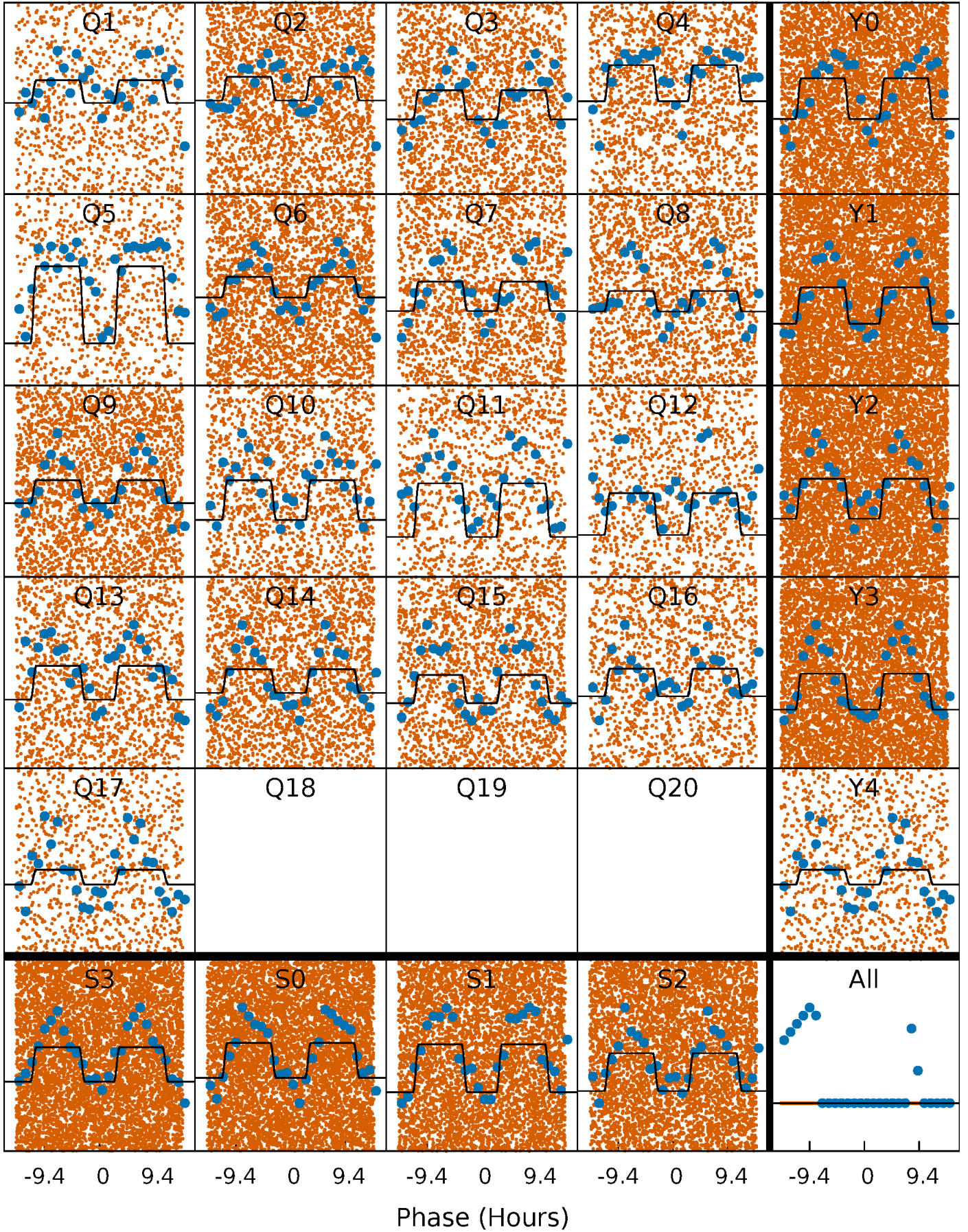
TCE 005209669-01 P= 0.595290 Days  $T_0=131.772918$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

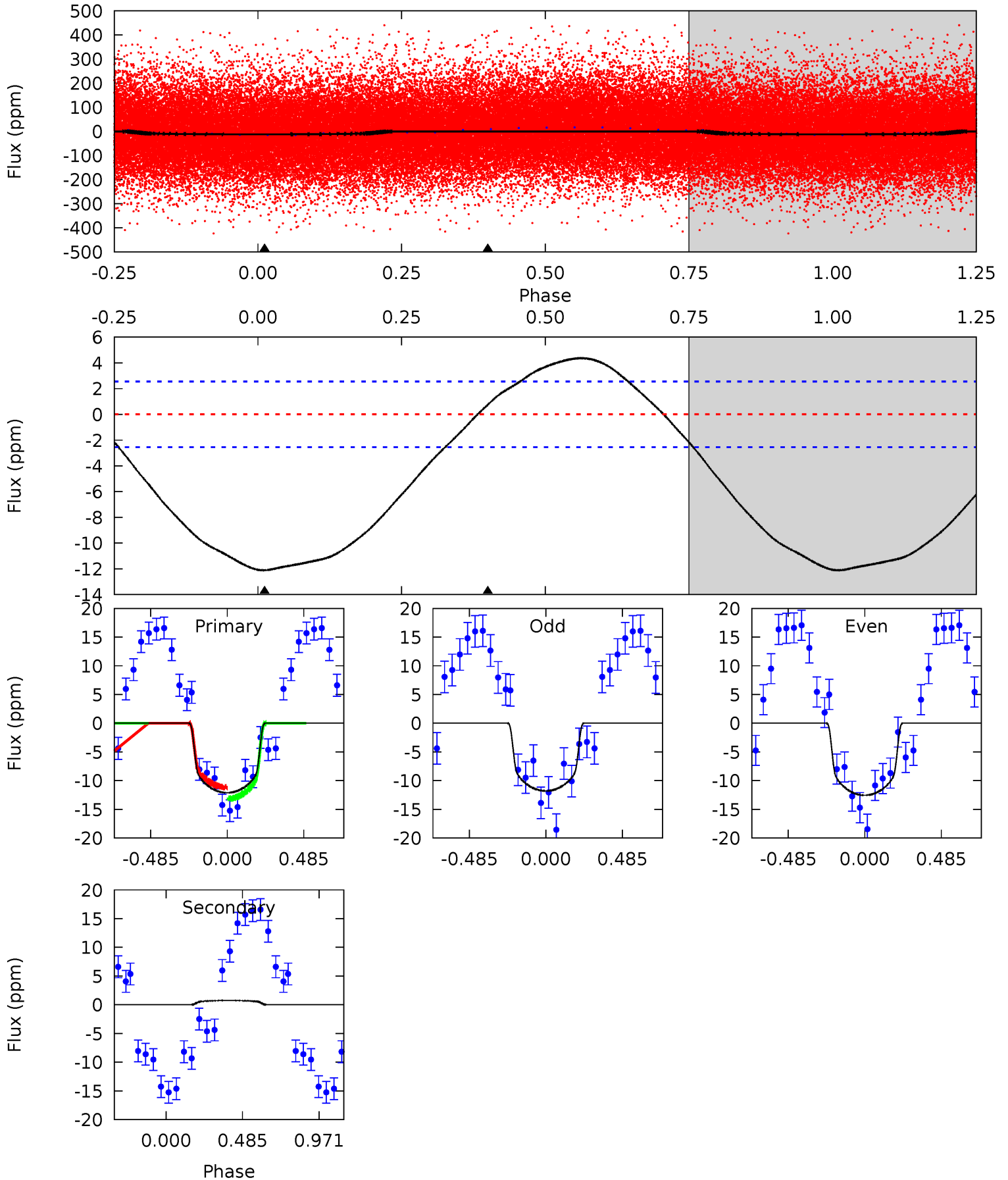
TCE 005209669-01 P= 0.595369 Days  $T_0=131.694935$  (BKJD)



# DV Model-Shift Uniqueness Test

005209669-01, P = 0.595290 Days, E = 131.177628 Days

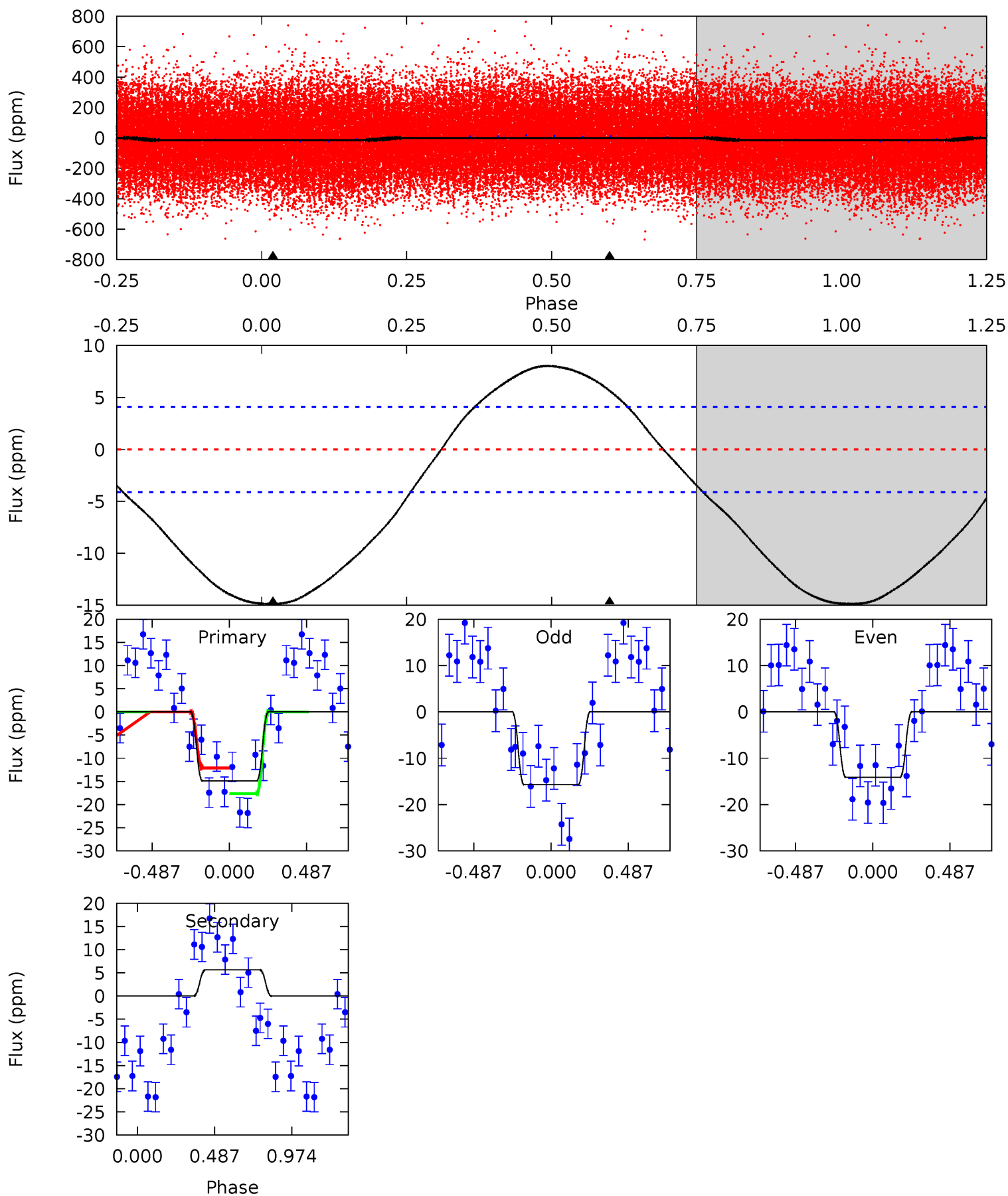
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	-1.24	0	0	4.22	0.70	2.23	20.1	20.1	-1.24	-1.24	0.63	1.07	0.27	1.64



# Alt Model-Shift Uniqueness Test

005209669-01, P = 0.595369 Days, E = 131.099566 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
15.3	-5.80	0	0	4.22	0.70	2.35	15.3	15.3	-5.80	-5.80	0.81	0.97	0.35	2.72





### Stellar Parameters For KIC 005209669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7780^{+77}_{-85}$	$4.024^{+0.126}_{-0.103}$	$0.020^{+0.050}_{-0.250}$	$2.167^{+0.335}_{-0.372}$	$1.808^{+0.104}_{-0.222}$	$0.250^{+0.154}_{-0.081}$
	+1%/-1%	+3%/-3%	+250%/-1250%	+15%/-17%	+6%/-12%	+62%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005209669-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$1\pm 1$	$0.92^{+0.23}_{-0.20}$	$5429^{+207}_{-221}$	$-4900^{+337}_{-359}$	$-0.133^{+0.109}_{-0.170}$
Alt.	$6\pm 1$	$0.94^{+0.22}_{-0.21}$	$5437^{+218}_{-251}$	$-6255^{+446}_{-648}$	$-0.963^{+0.340}_{-0.677}$

$T_{\text{max}}$  = 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

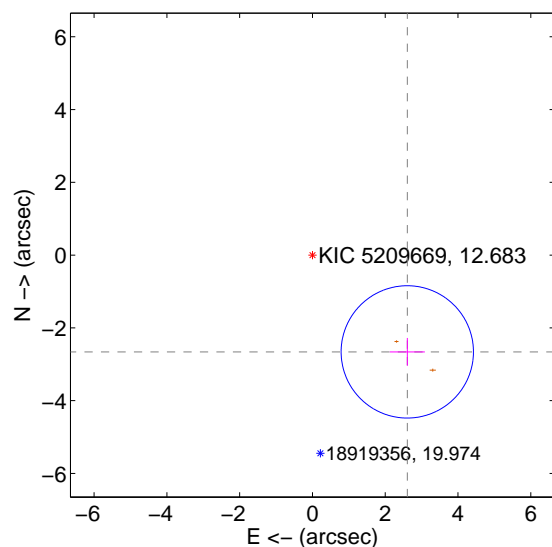
Supplemental centroid analysis for 005209669-01. Kepler magnitude: 12.68. Transit SNR 12.88

There are 0 quarters with good PRF difference image offsets

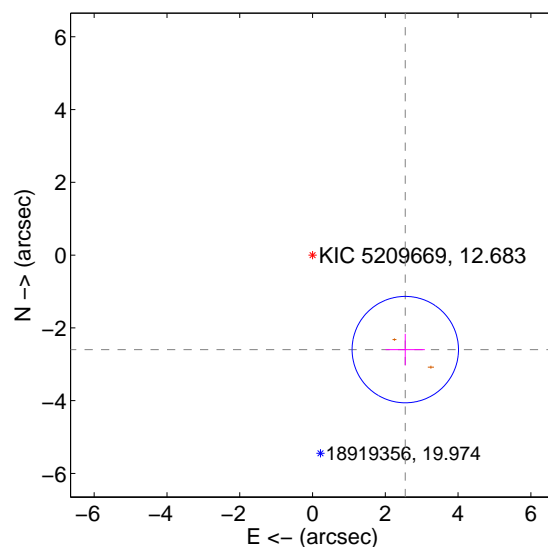
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.724 \pm 0.606$	6.15	$-2.606 \pm 0.481$	$-2.660 \pm 0.382$
PRF-fit source offset from KIC position	$3.639 \pm 0.487$	7.47	$-2.549 \pm 0.538$	$-2.597 \pm 0.432$
photometric centroid source offset	$1.92 \pm 0.76$	2.52	$1.26 \pm 0.77$	$1.44 \pm 0.75$

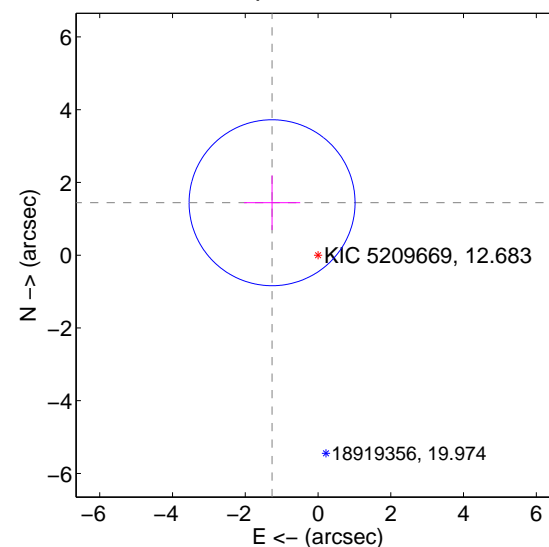
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

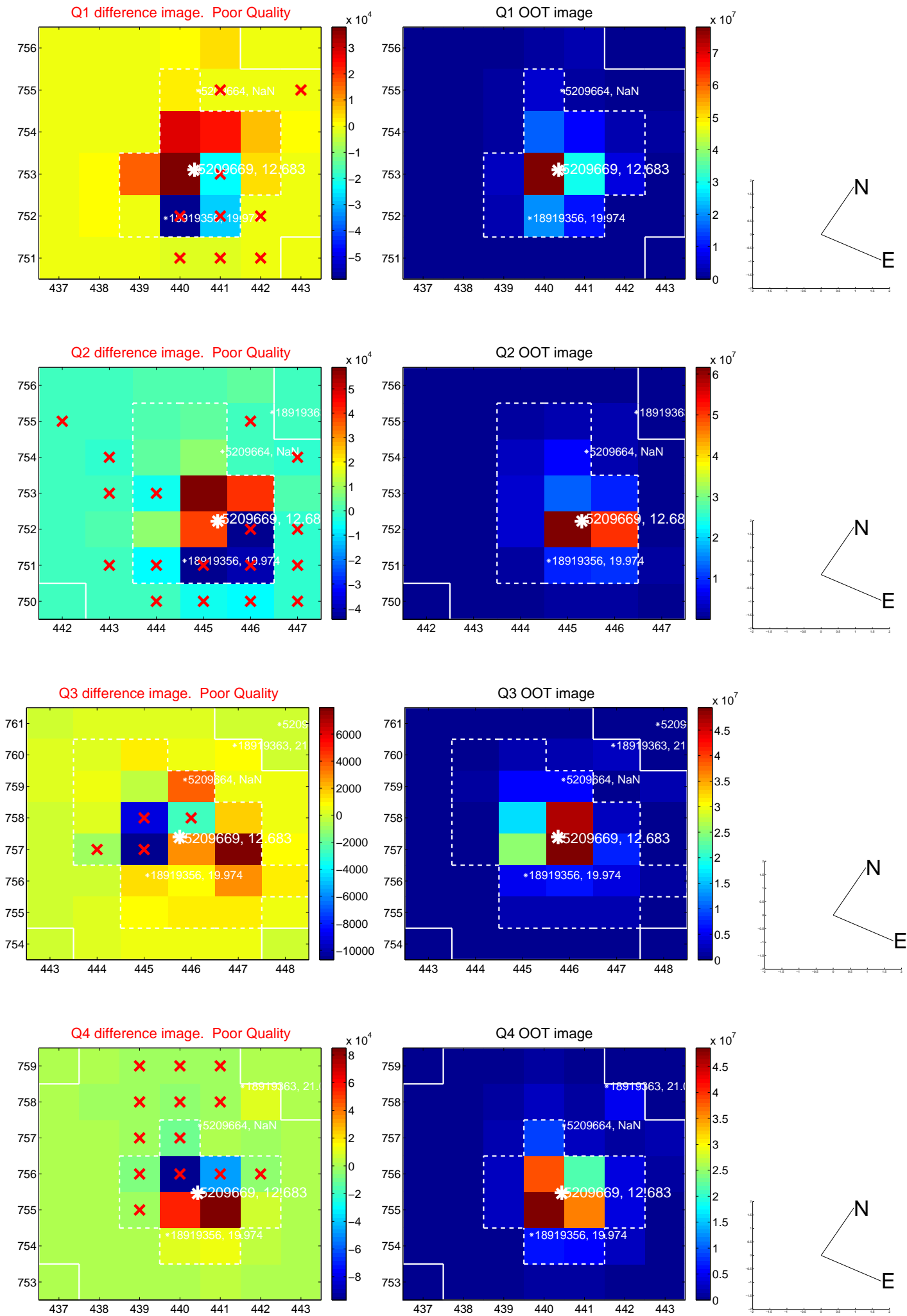


offset from photometric centroids

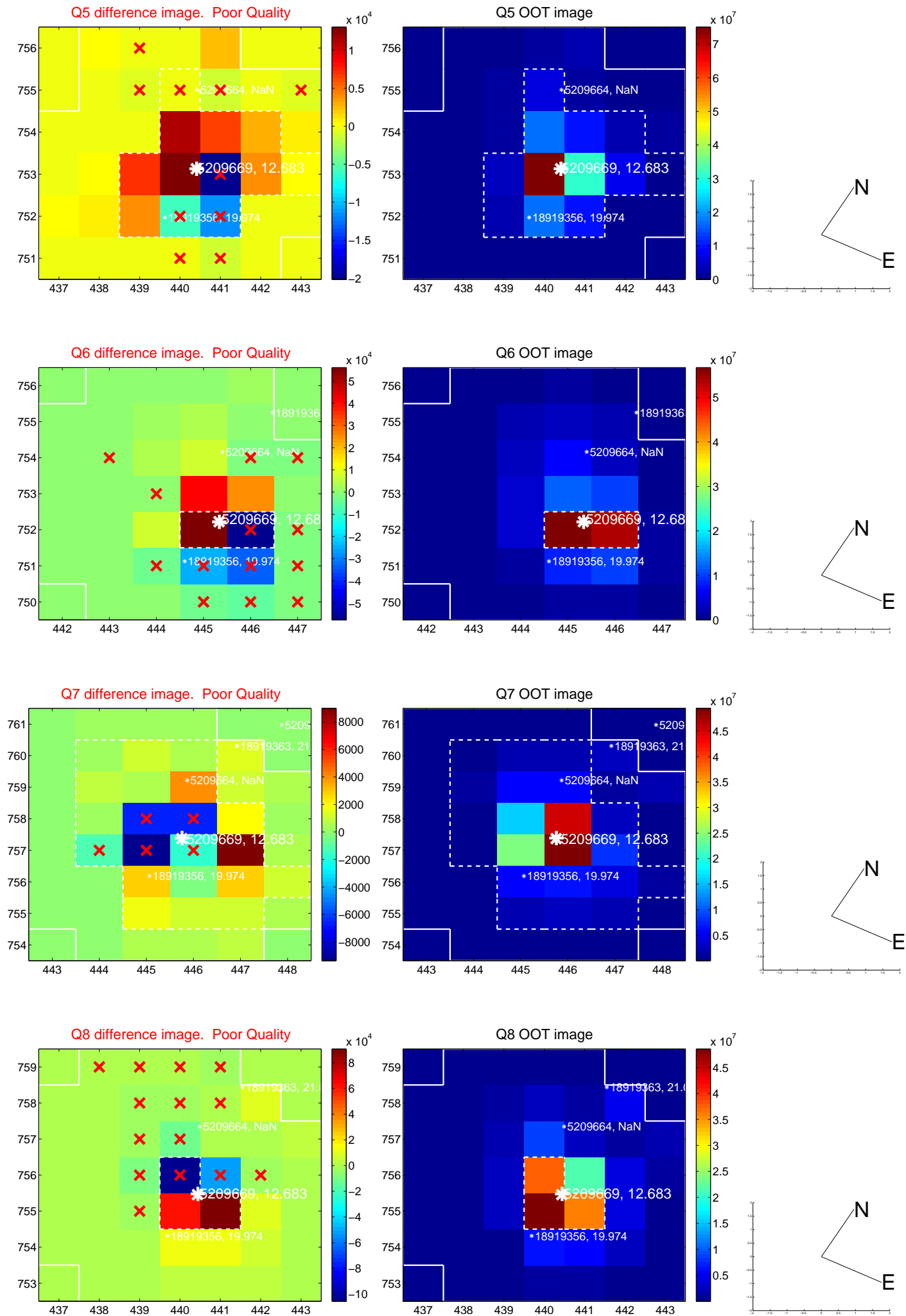


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

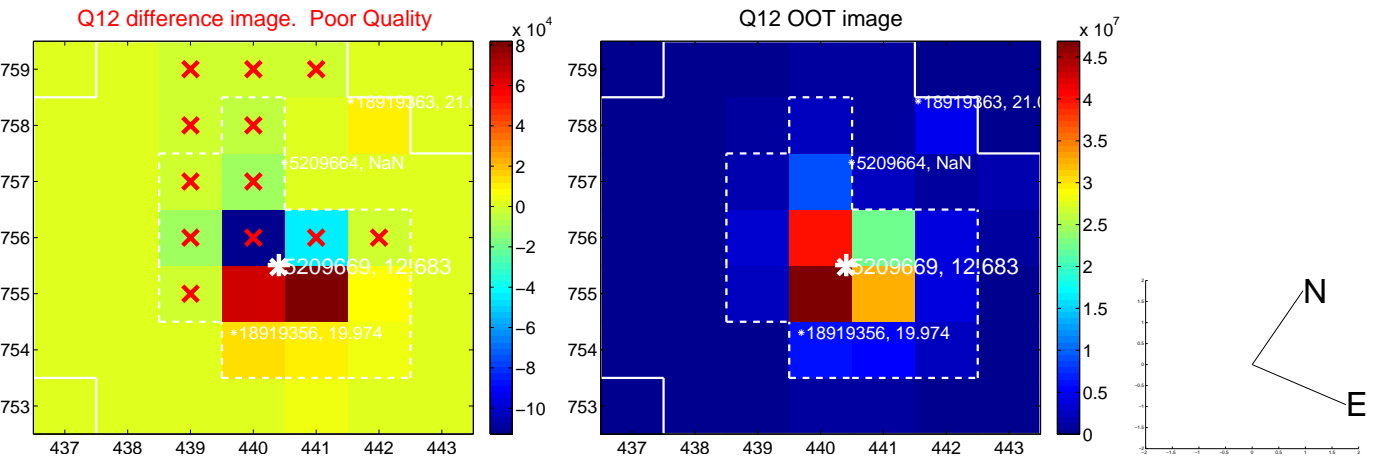
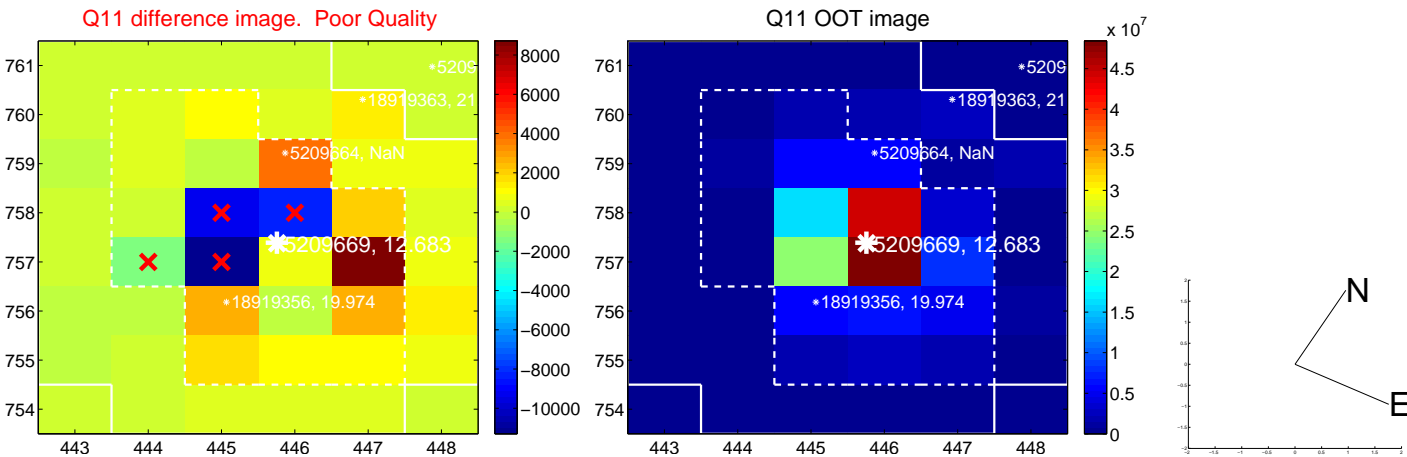
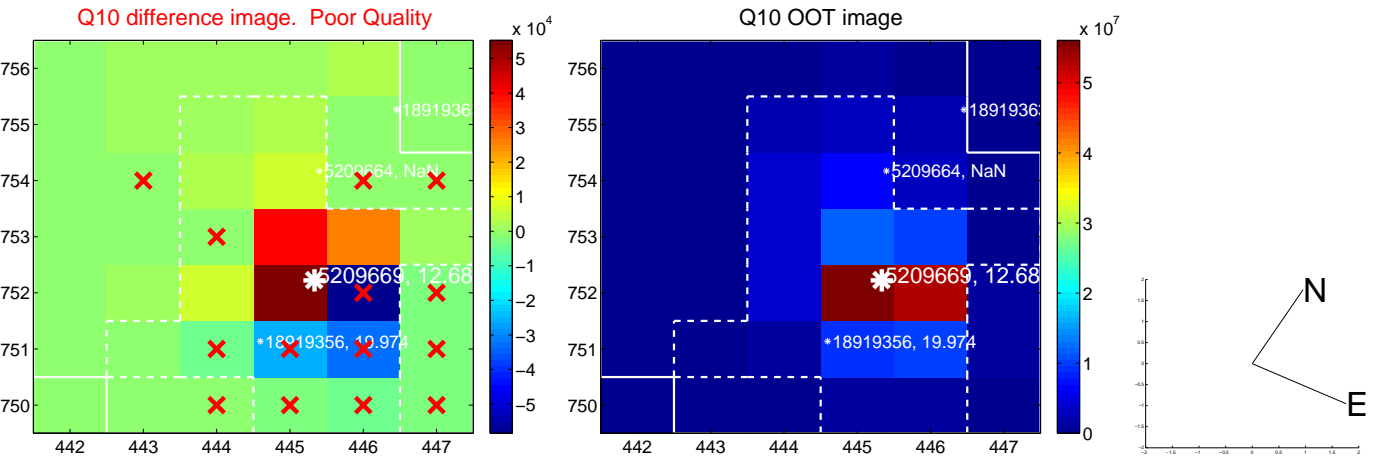
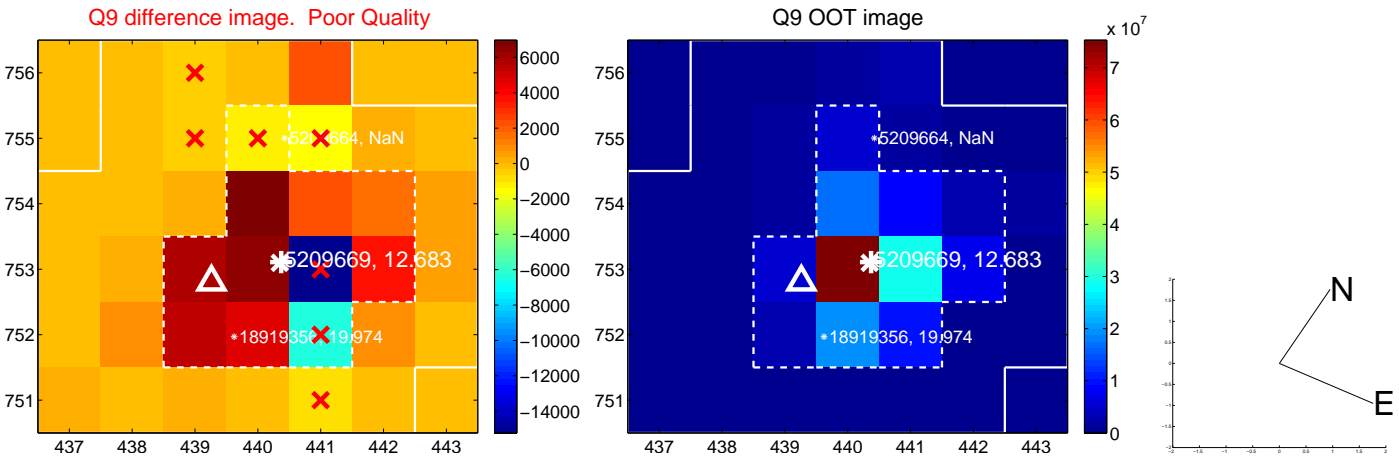


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

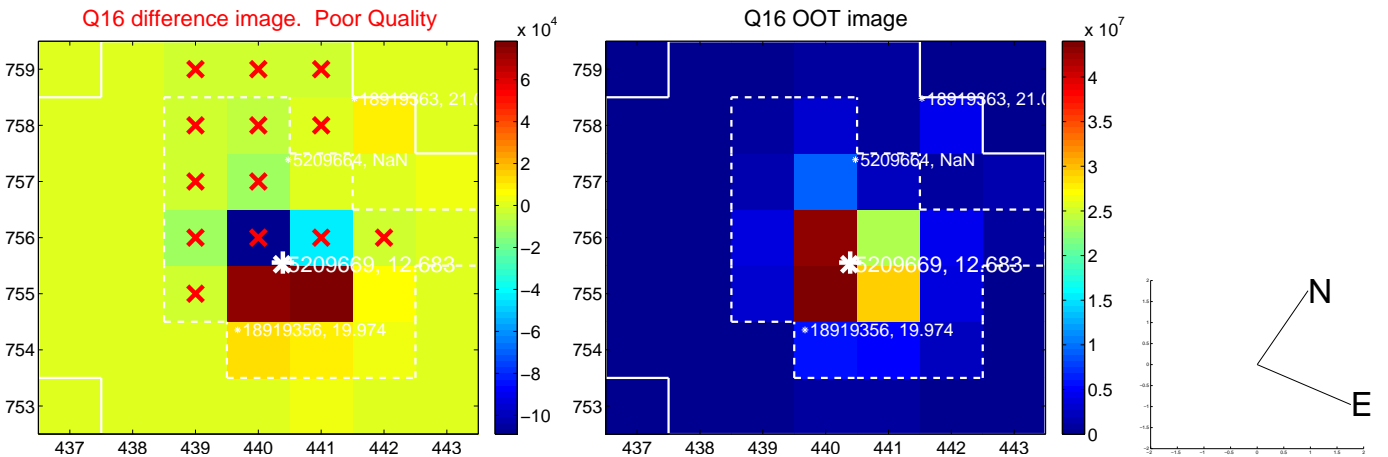
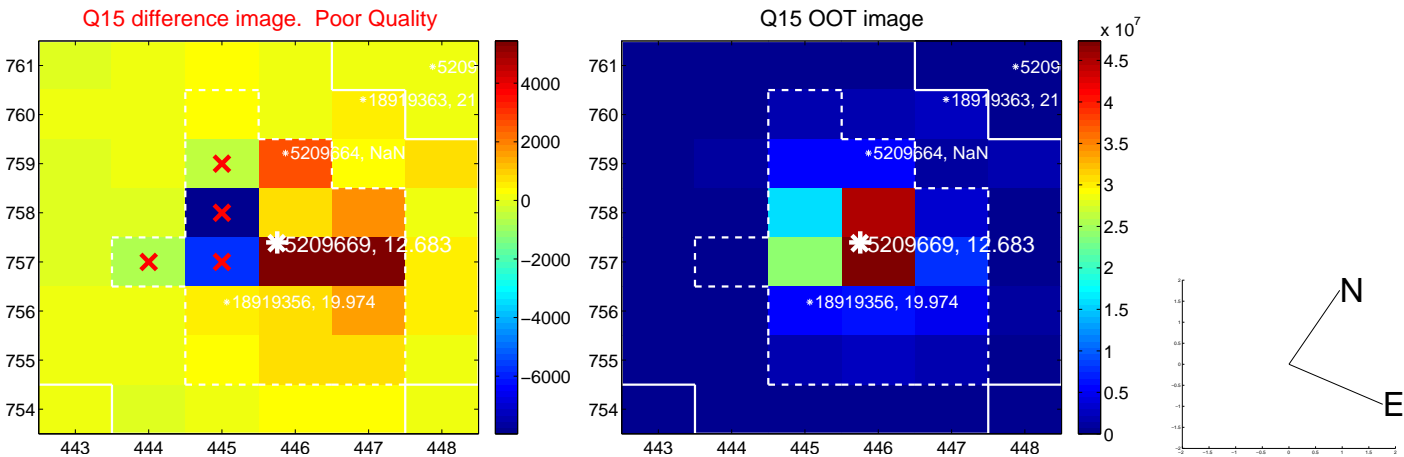
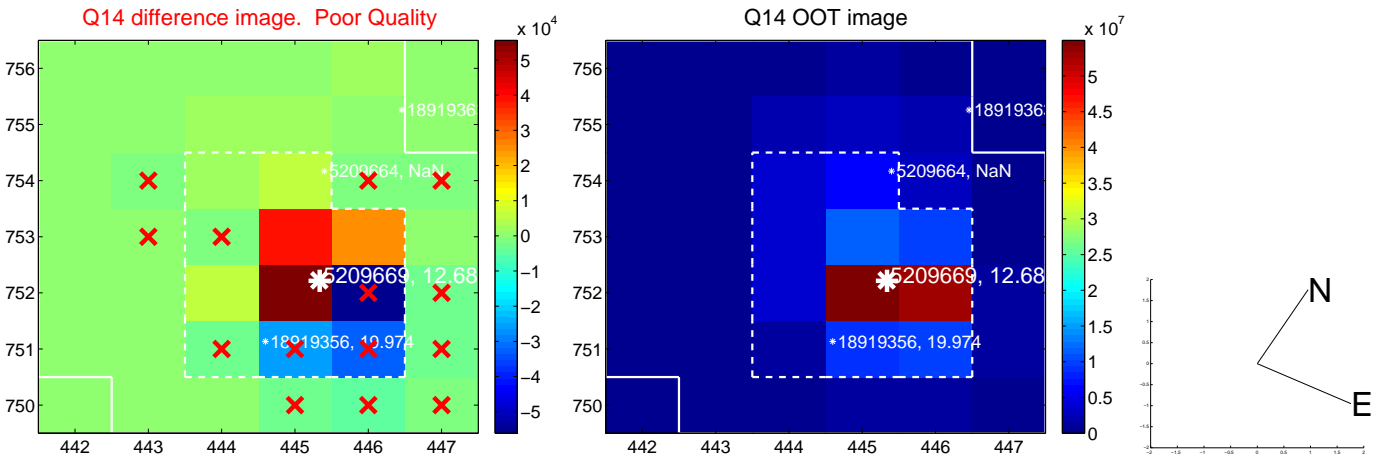
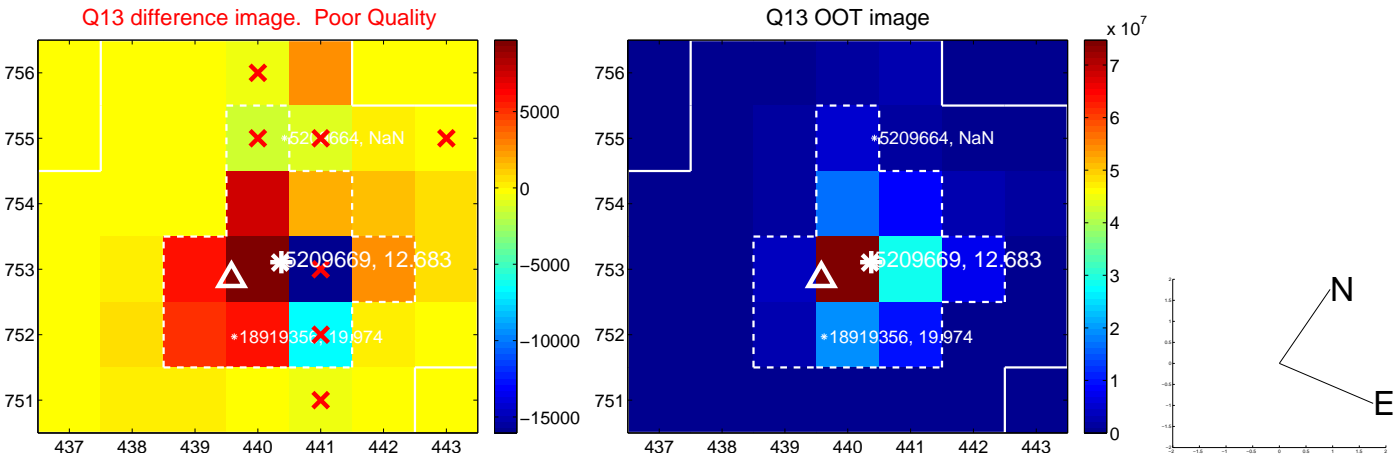




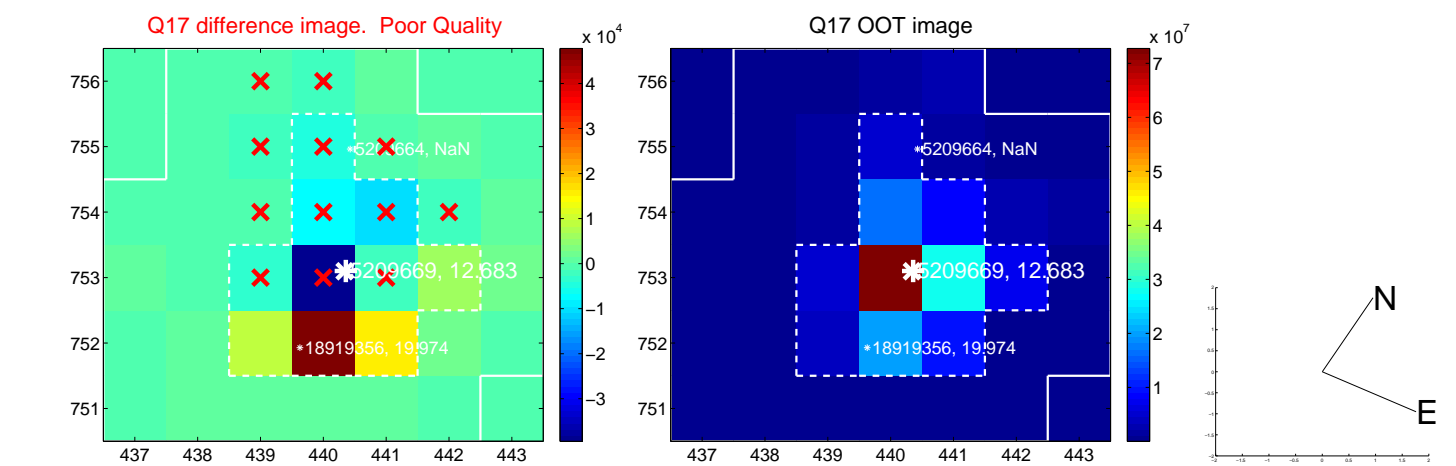
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



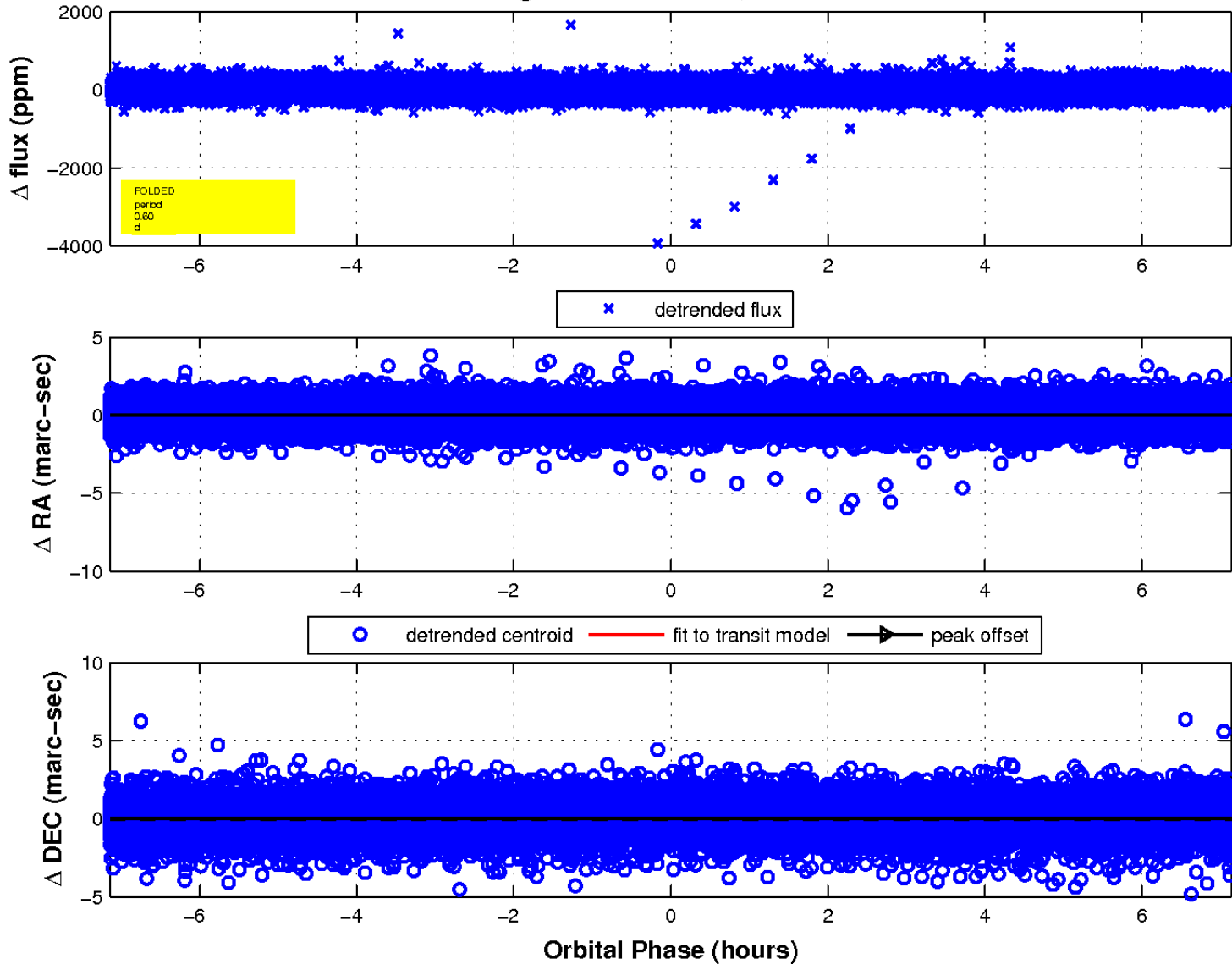
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

