

# KIC 004861821

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004861821-01	OBS	No	0.787717	132.015467	5.4	6.056	8.2	3.1	1.56	7253	0.39	17947.22

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004861821-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

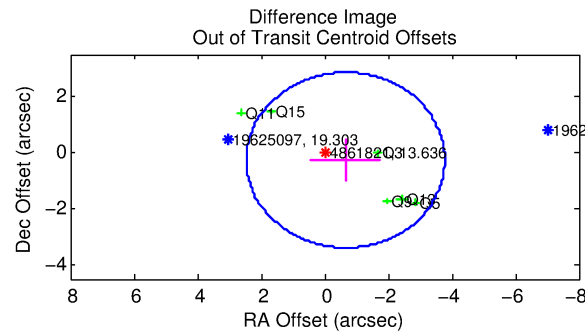
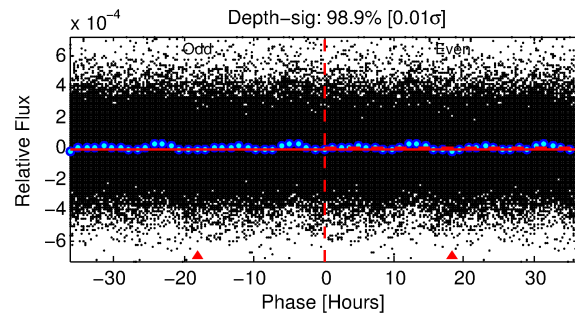
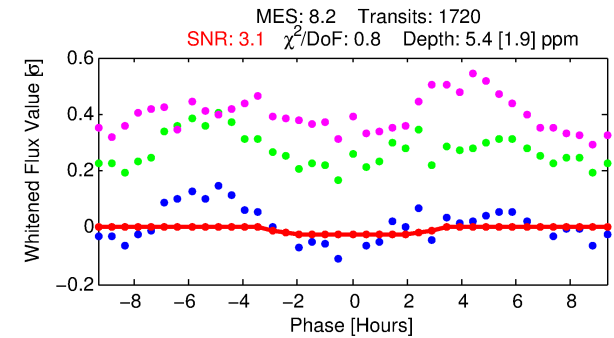
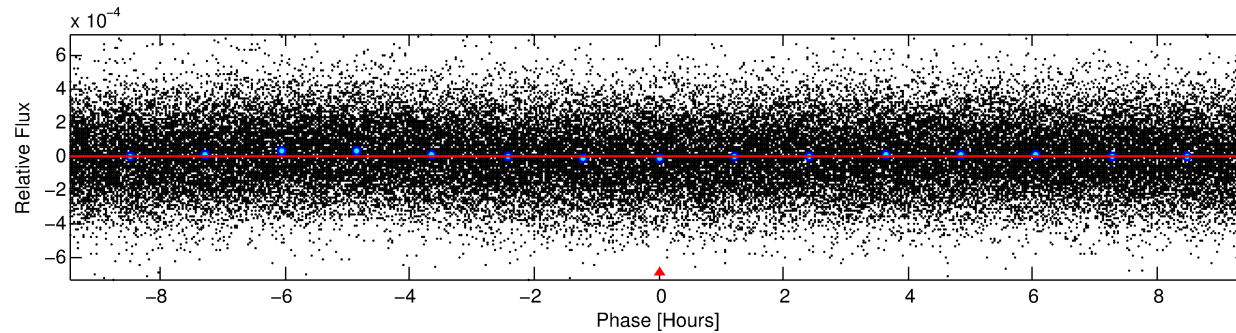
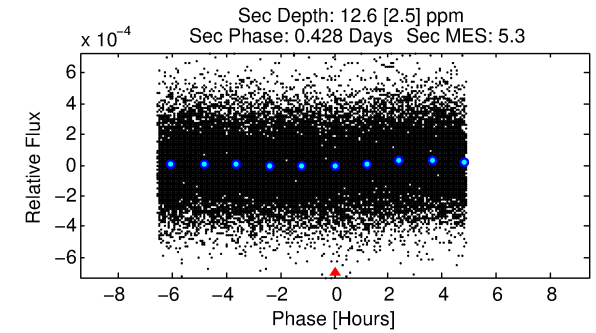
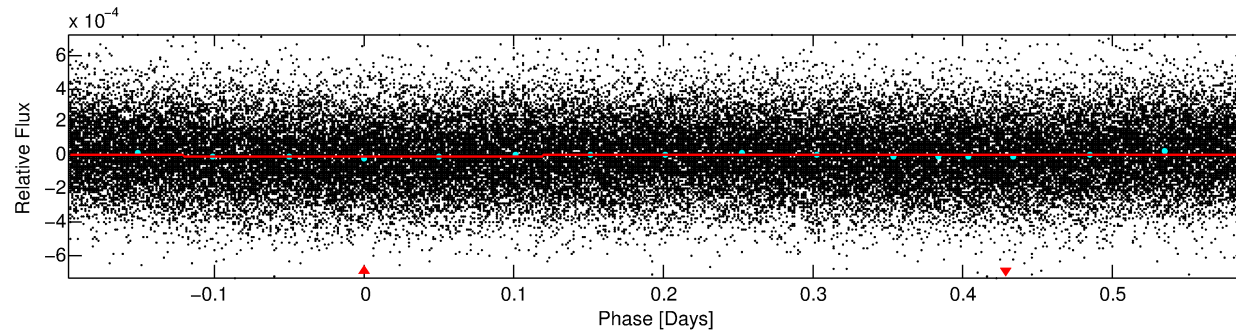
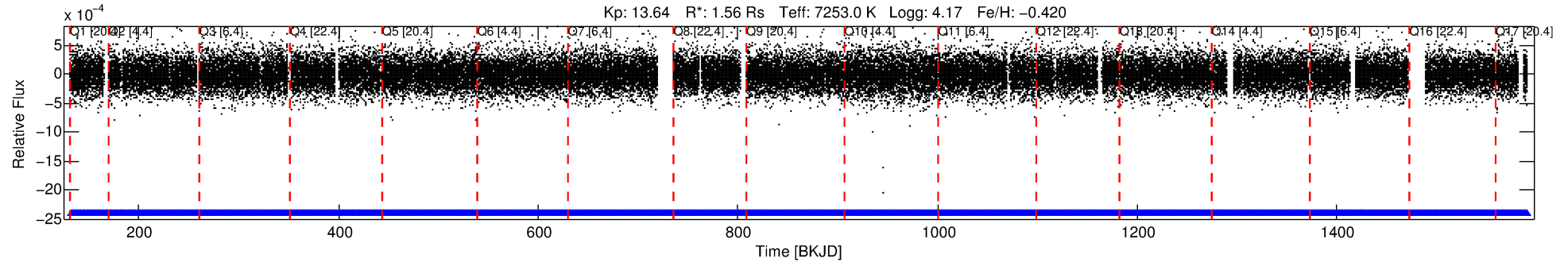
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004861821-01

No Significant Match Found

# DV One-Page Summary

KIC: 4861821 Candidate: 1 of 1 Period: 0.788 d



## DV Fit Results:

Period = 0.78772 [0.00004] d  
Epoch = 132.0155 [0.0186] BKJD  
Rp/R\* = 0.0023 [0.0029]  
a/R\* = 1.10 [1.57]  
b = 0.69 [6.20]  
Seff = 17947.21 [6575.19]  
Teq = 2951 [270] K  
Rp = 0.38 [0.51] Re  
a = 0.0183 [0.0042] AU  
Ag = 15.62 [40.63] [0.36σ]  
Teffp = 9072 [5867] K [1.04σ]

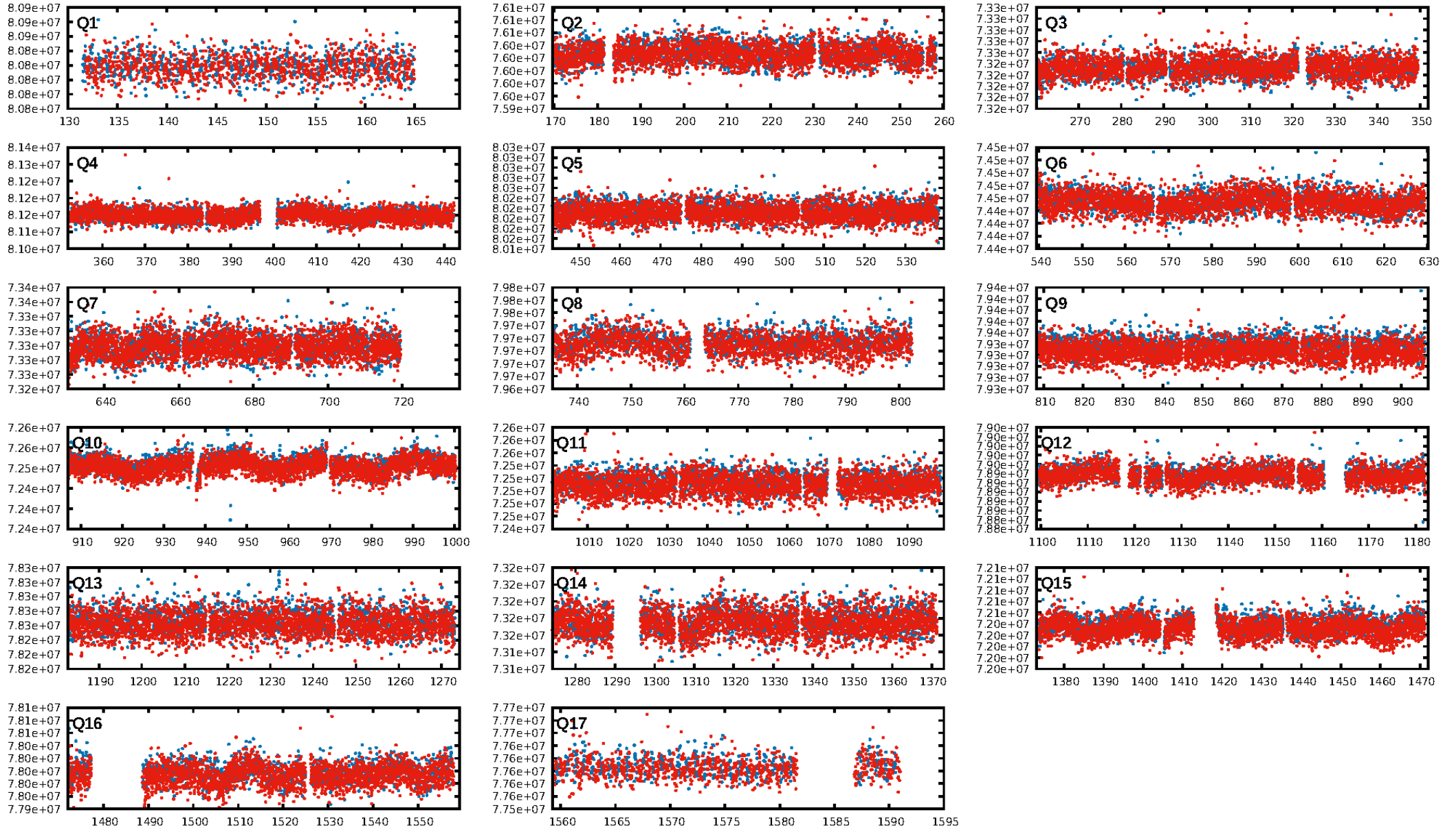
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 1.14e-02**  
RollingBand-fgt: 1.00 [1642/1642]  
**GhostDiagnostic-chr: 0.3438**  
Centroid-sig: 1.3%  
Centroid-so: 7.055 arcsec [1.94σ]  
OotOffset-rm: 0.709 arcsec [0.68σ]  
KicOffset-rm: 0.642 arcsec [0.59σ]  
OotOffset-st: 0/3/0/3 [6]  
KicOffset-st: 0/3/0/3 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 1.00 [17/17]

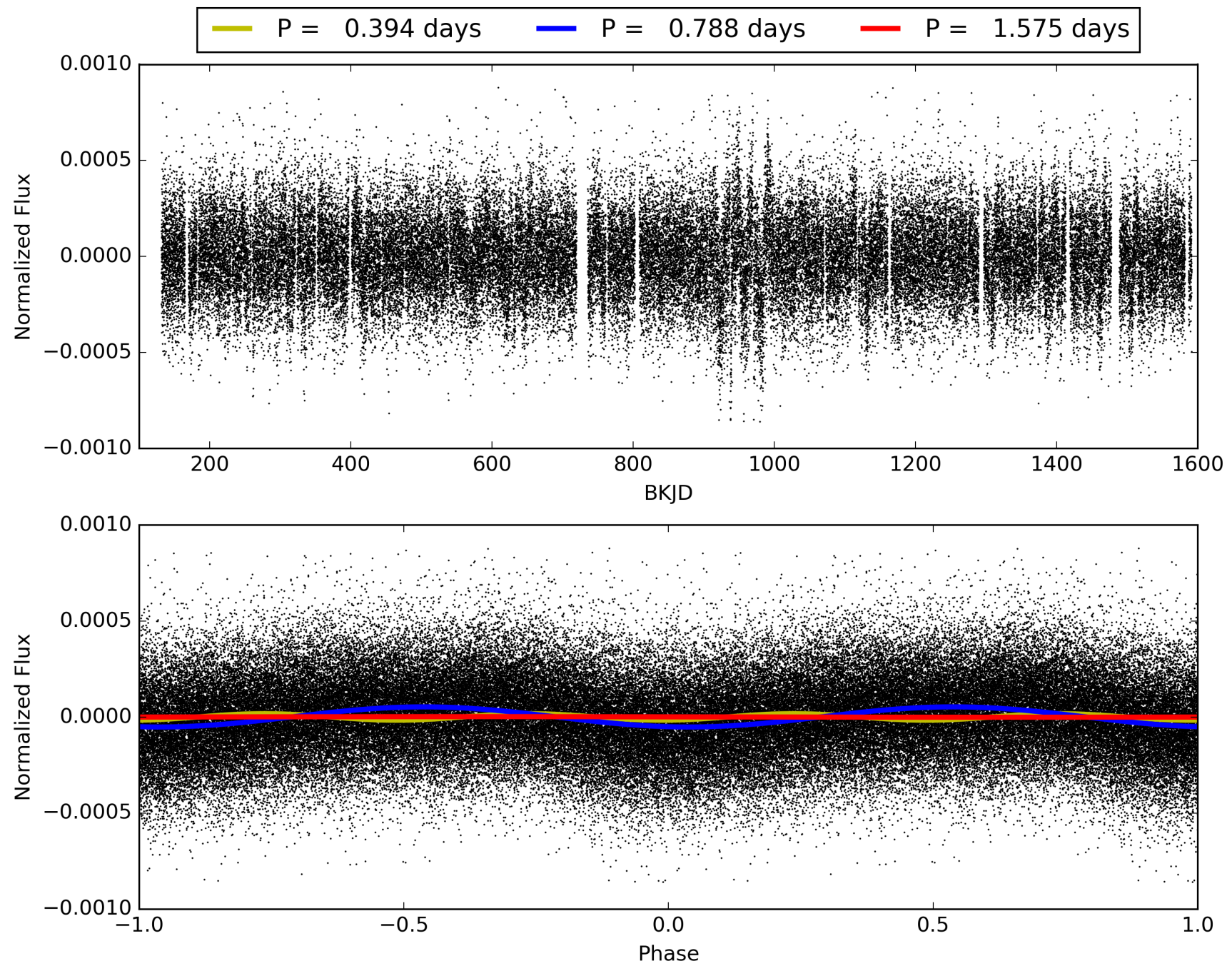
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:49:08 Z

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

# TCE 004861821-01, PDC Light Curves



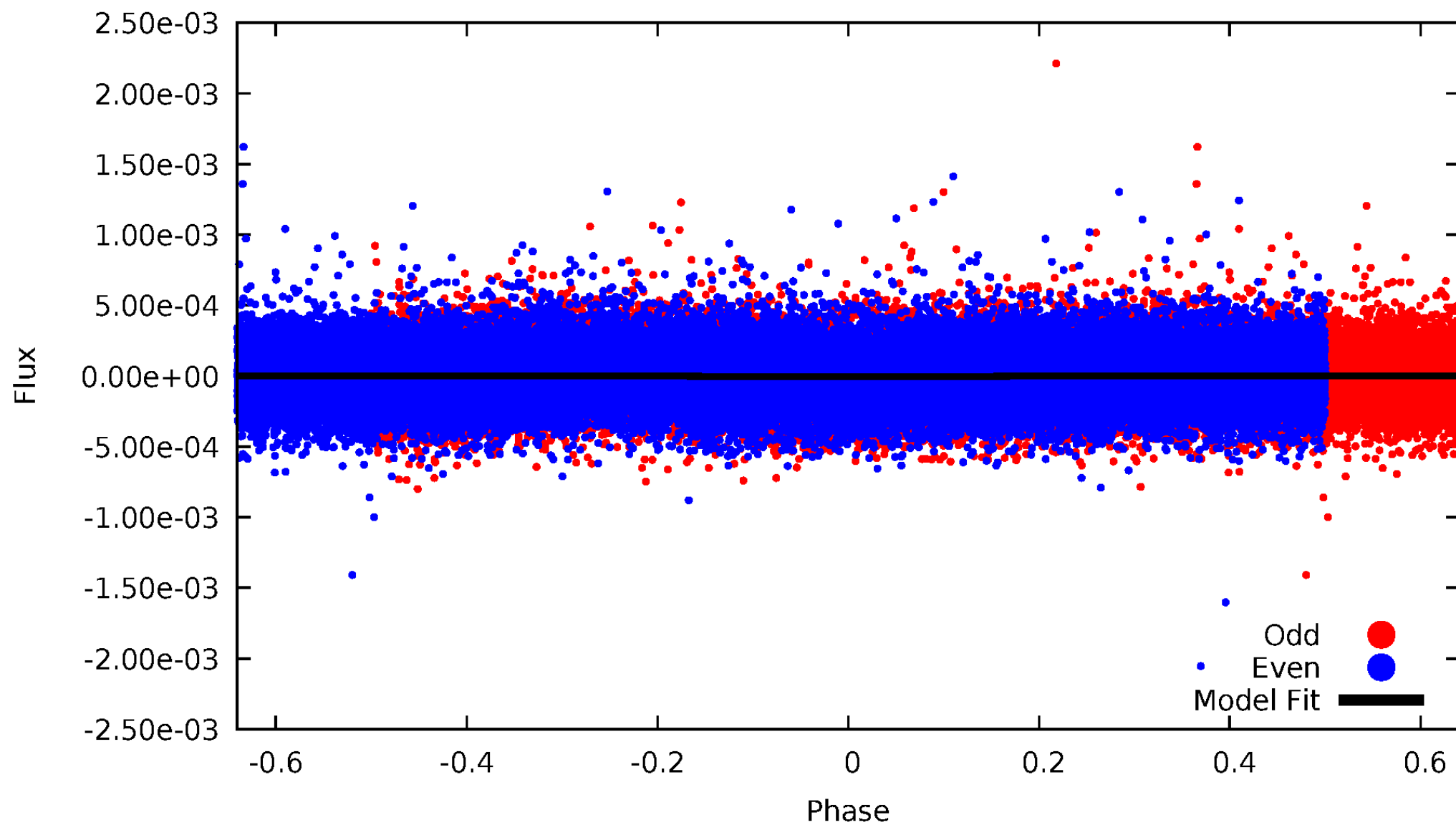
TCE 004861821-01





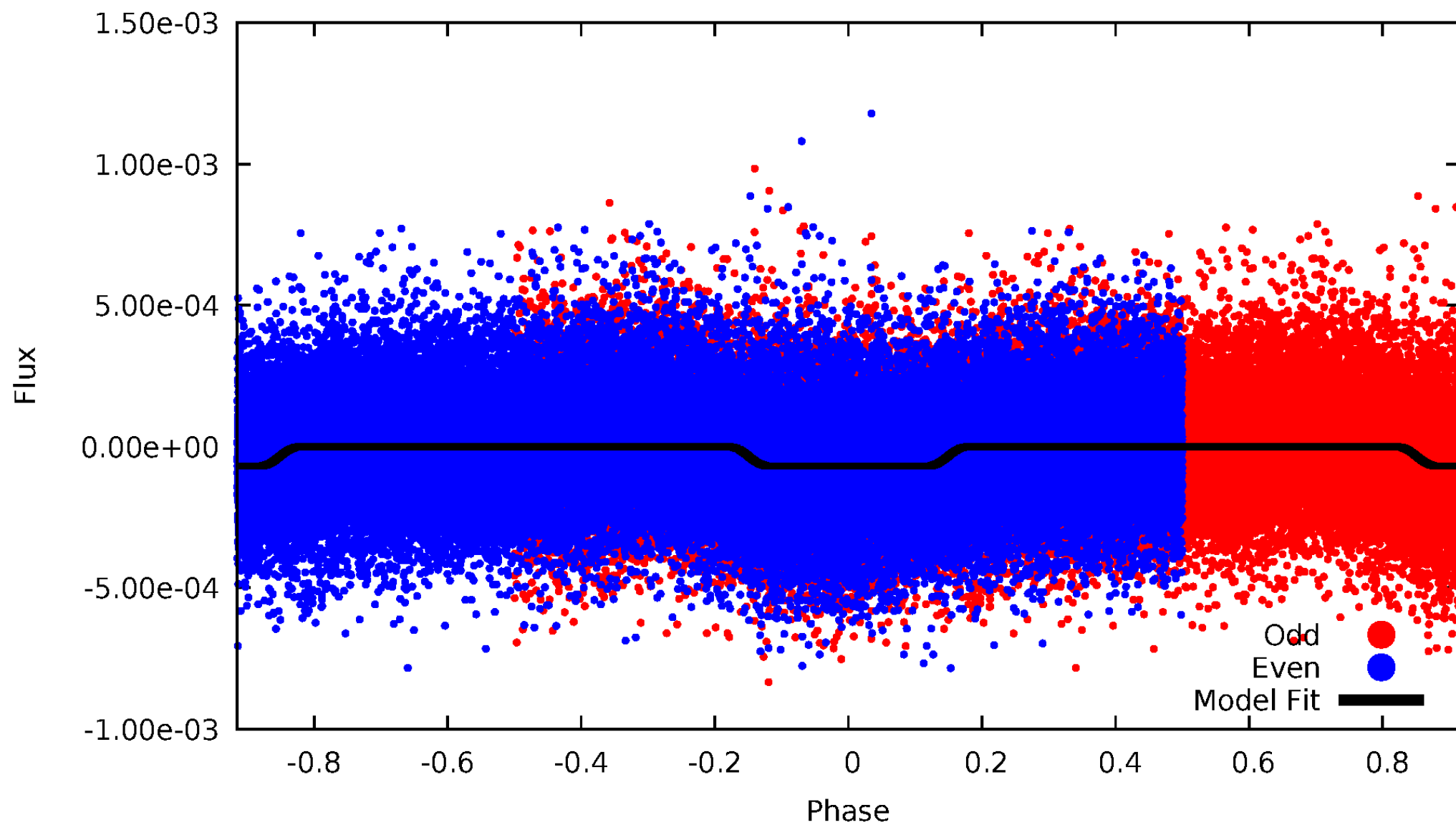
# DV Odd/Even

TCE 004861821-01

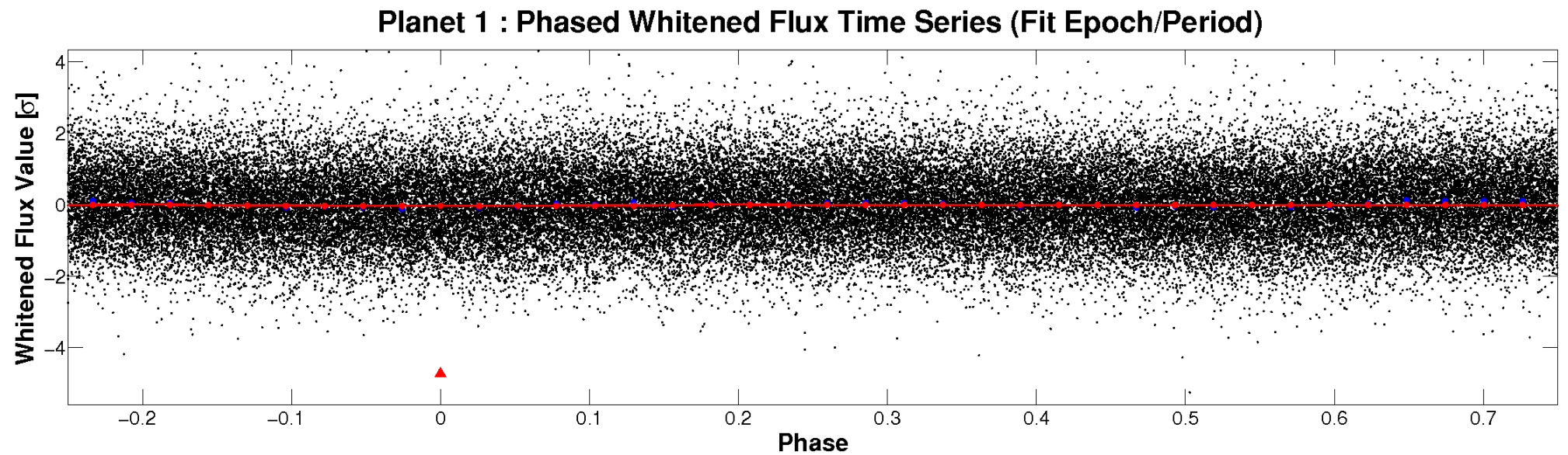
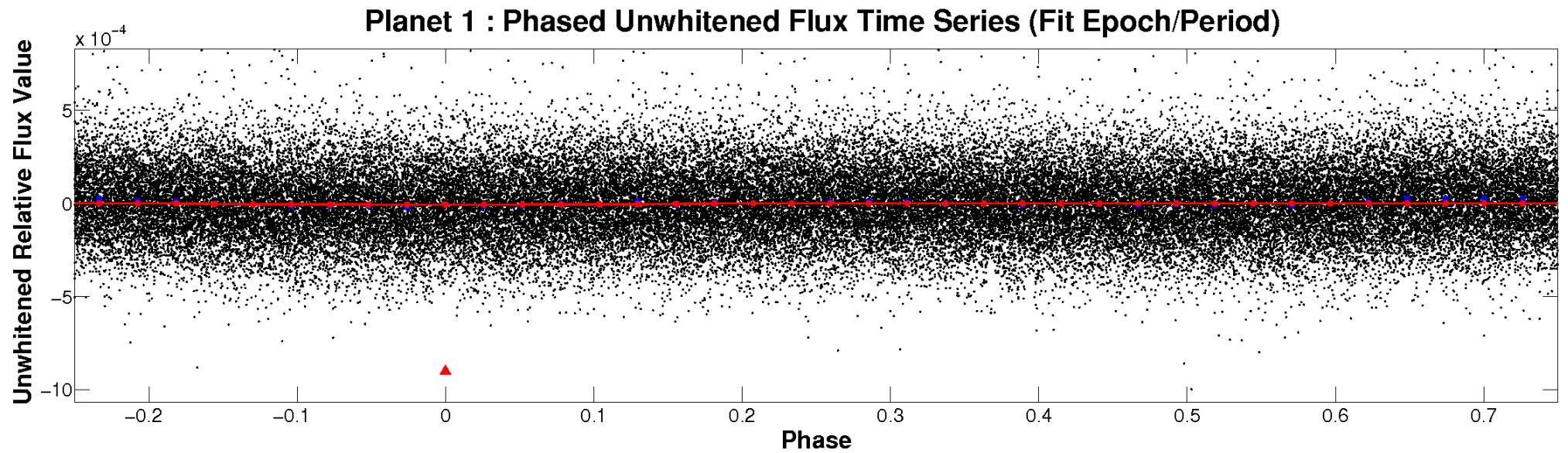


# ALT Odd/Even

TCE 004861821-01

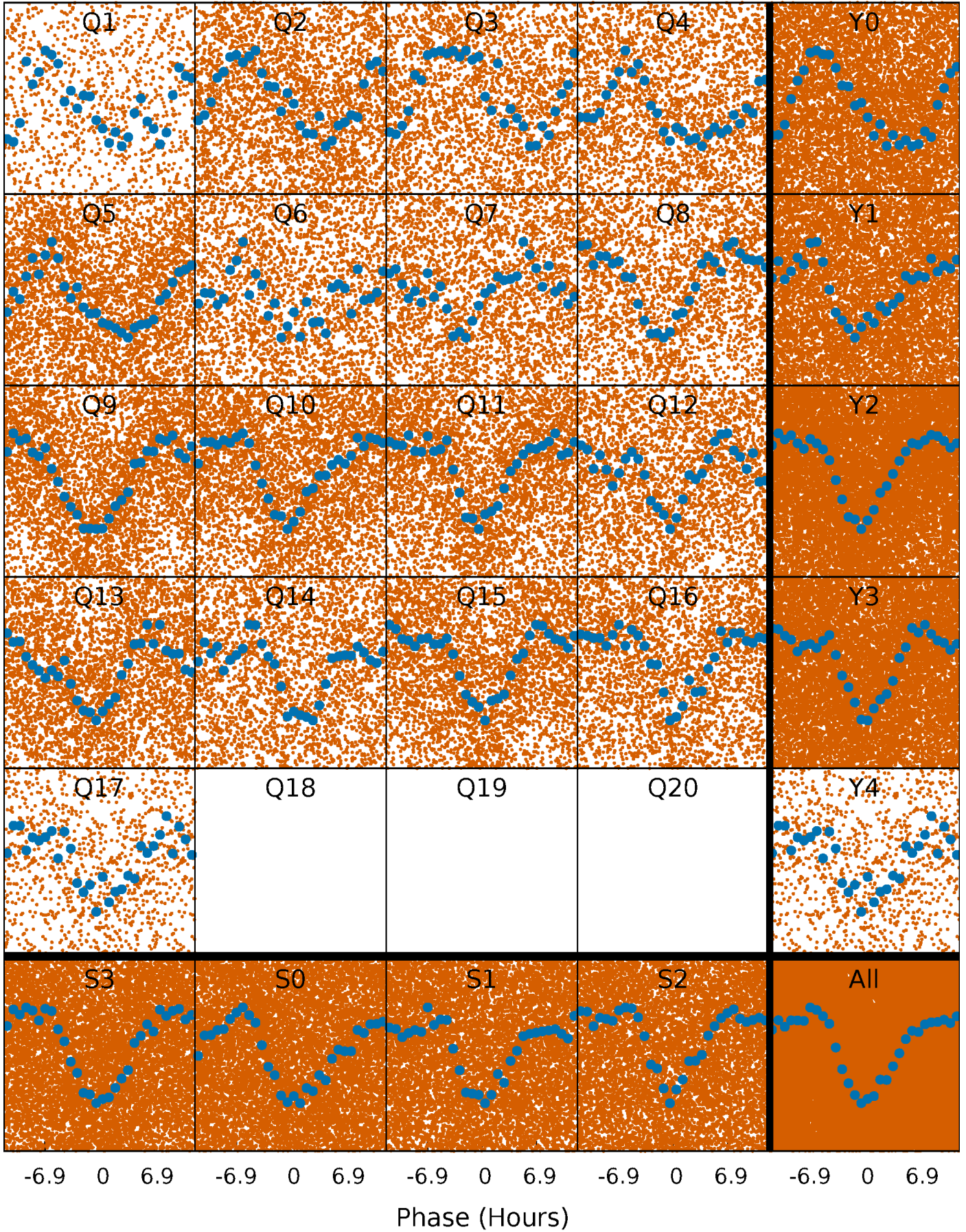


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

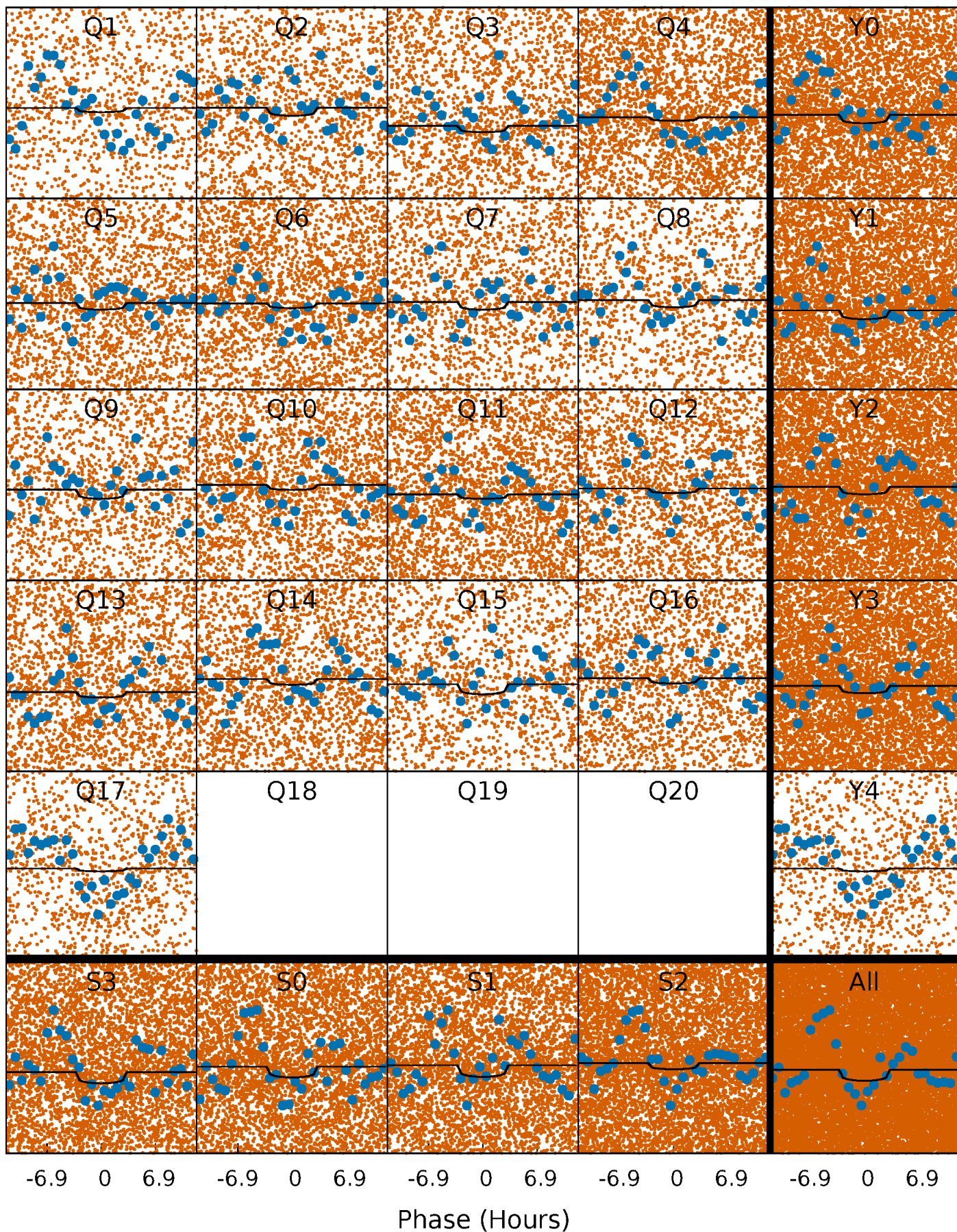
TCE 004861821-01 P= 0.787717 Days  $T_0=132.015467$  (BKJD)





# DV Quarter-Phased Transit Curves

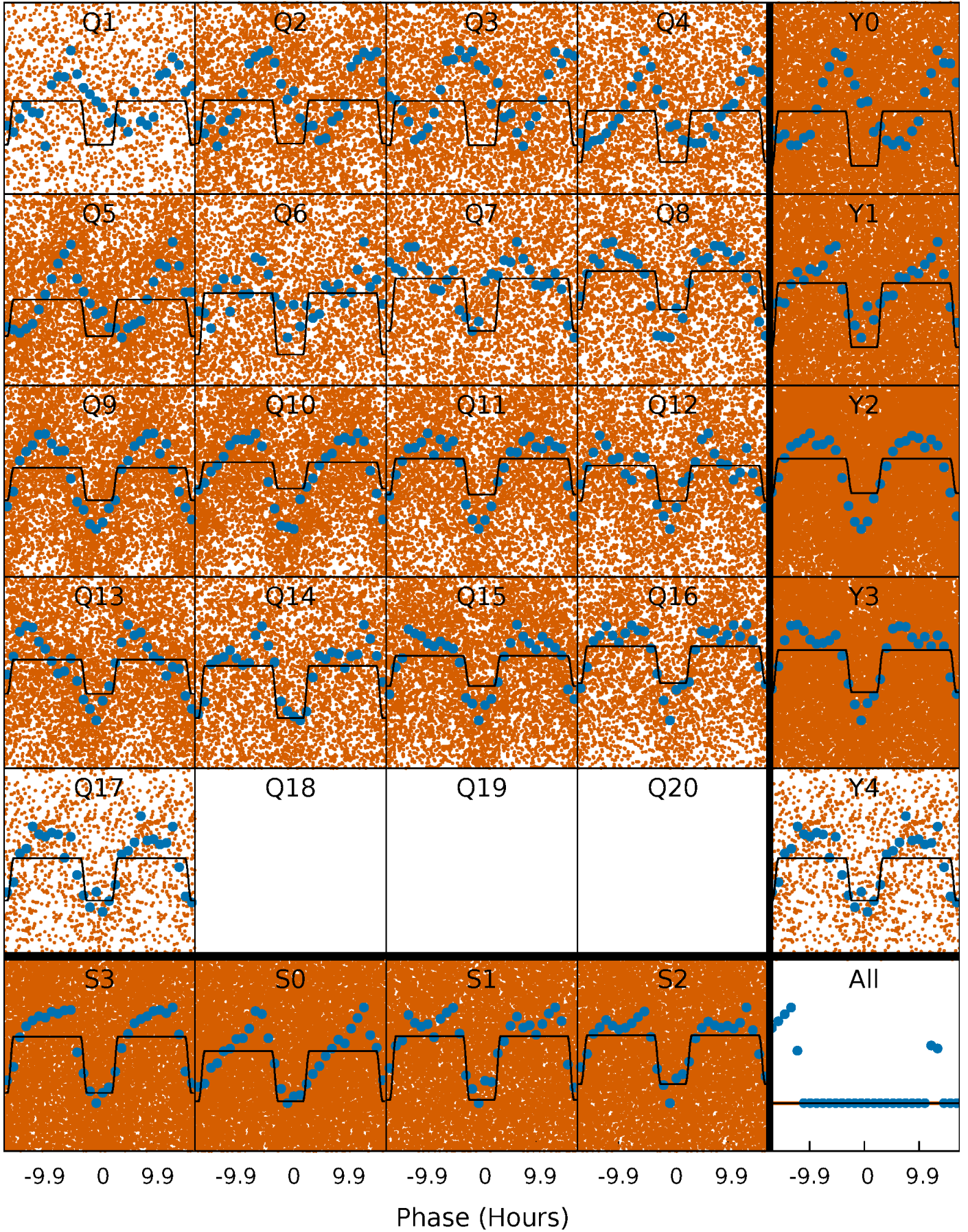
TCE 004861821-01   P= 0.787717 Days    $T_0=132.015467$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

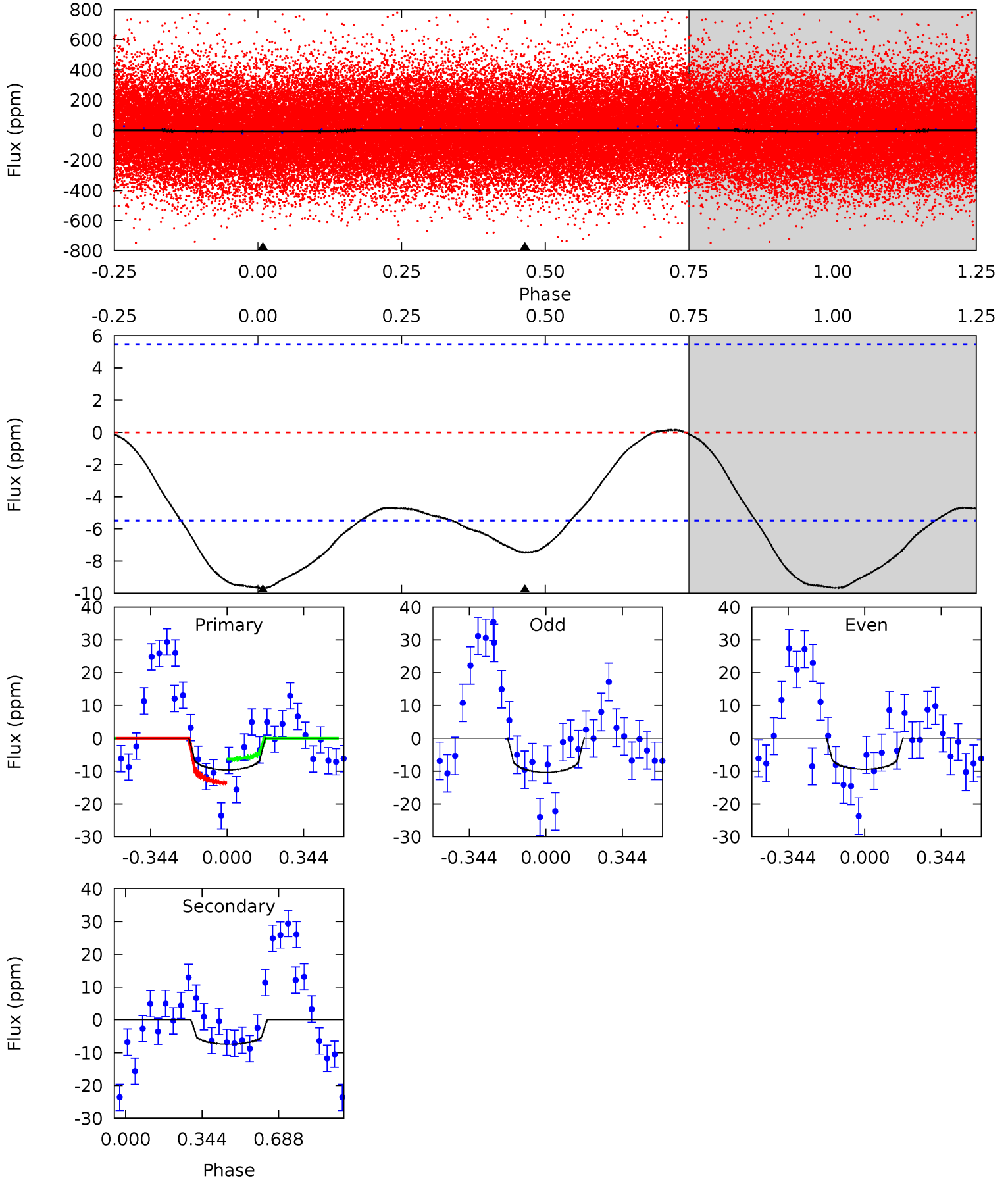
TCE 004861821-01 P= 0.787766 Days  $T_0=131.968817$  (BKJD)



# DV Model-Shift Uniqueness Test

004861821-01, P = 0.787717 Days, E = 131.227750 Days

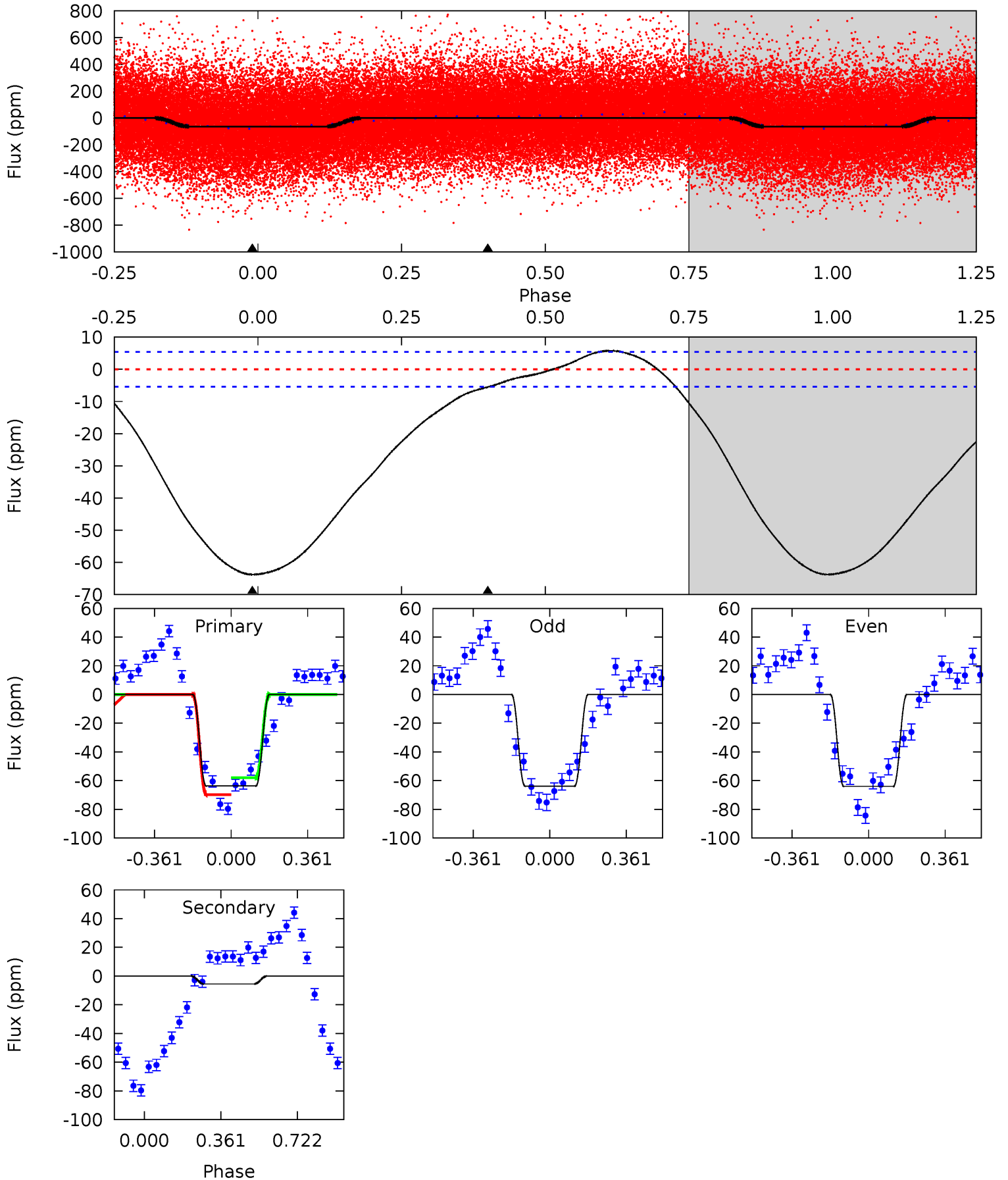
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.57	5.84	0	0	4.30	0.95	1.03	7.57	7.57	5.84	5.84	0.37	1.04	0.02	2.81



# Alt Model-Shift Uniqueness Test

004861821-01, P = 0.787766 Days, E = 131.181051 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
50.4	4.36	0	0	4.29	0.91	3.39	50.4	50.4	4.36	4.36	0.07	1.00	0.08	4.69





### Stellar Parameters For KIC 004861821

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7253^{+232}_{-319}$	$4.173^{+0.153}_{-0.170}$	$-0.420^{+0.250}_{-0.350}$	$1.557^{+0.438}_{-0.319}$	$1.321^{+0.198}_{-0.198}$	$0.493^{+0.386}_{-0.235}$
	+3%/-4%	+4%/-4%	+60%/-83%	+28%/-20%	+15%/-15%	+78%/-48%
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 004861821-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-7 \pm 1$	$0.50^{+0.45}_{-0.33}$	$4134^{+321}_{-287}$	$6842^{+7999}_{-1977}$	$5.473^{+40.293}_{-3.968}$
Alt.	$-6 \pm 1$	$1.41^{+0.59}_{-0.49}$	$4133^{+321}_{-312}$	$3464^{+1041}_{-6421}$	$0.500^{+0.695}_{-0.261}$

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

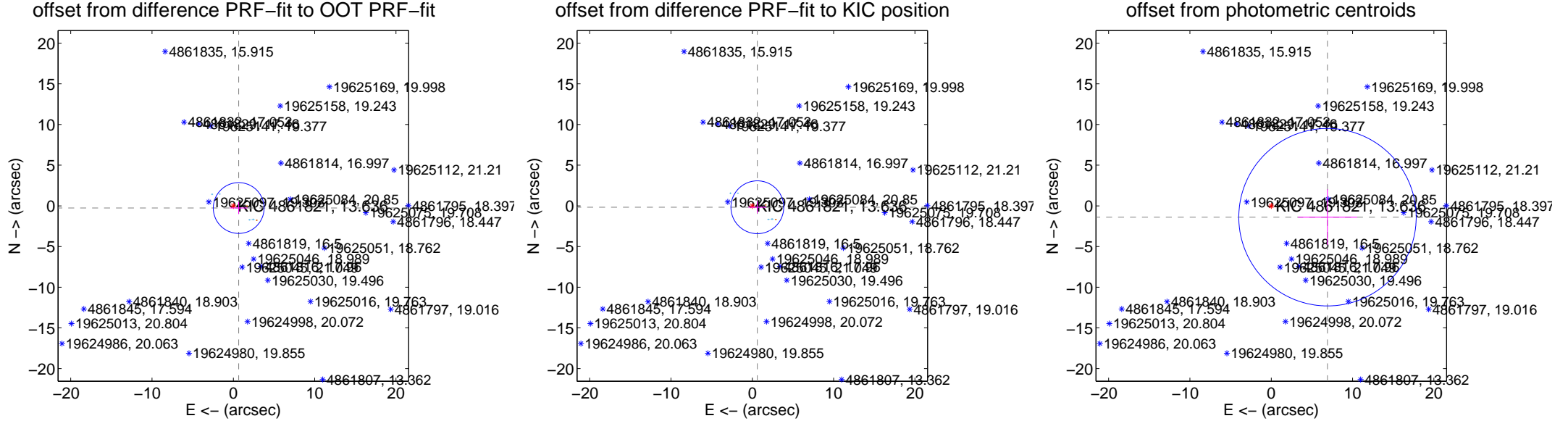
## DV Centroid Data

Supplemental centroid analysis for 004861821-01. Kepler magnitude: 13.64. Transit SNR 3.11

There are 4 quarters with good PRF difference image offsets

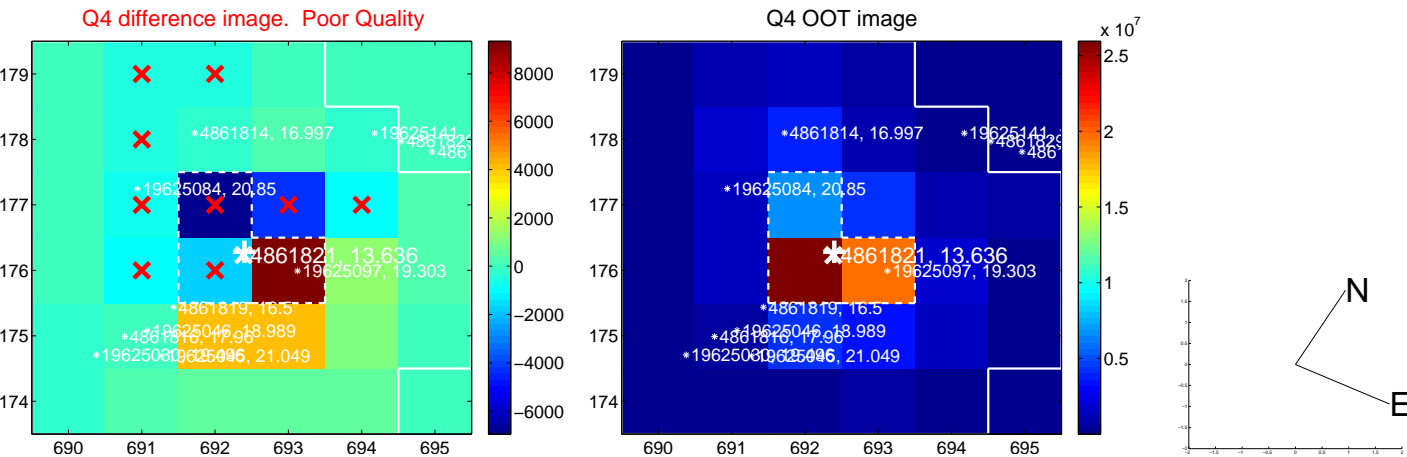
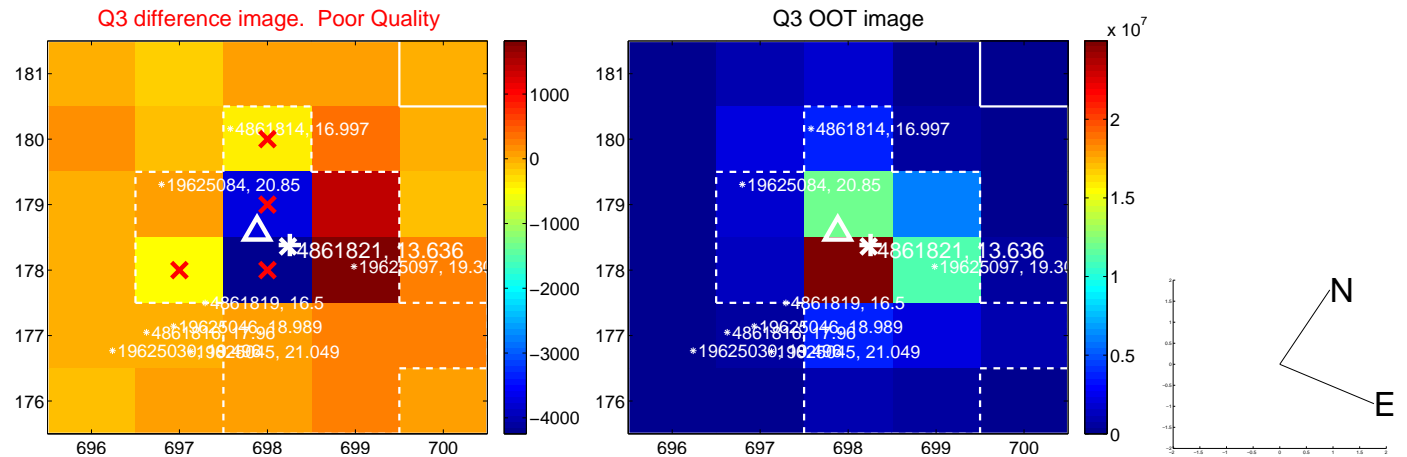
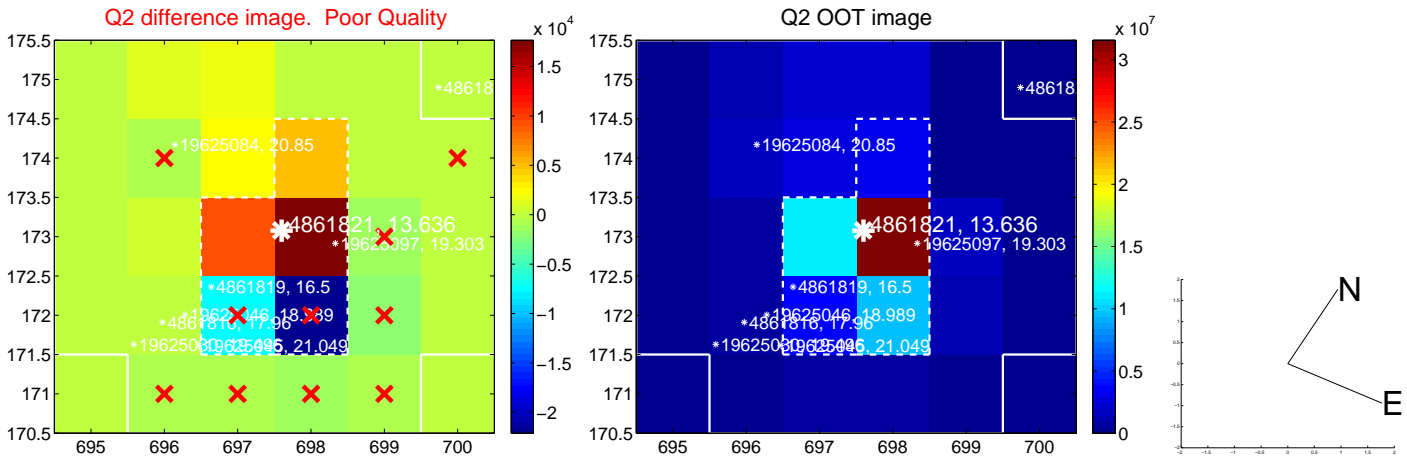
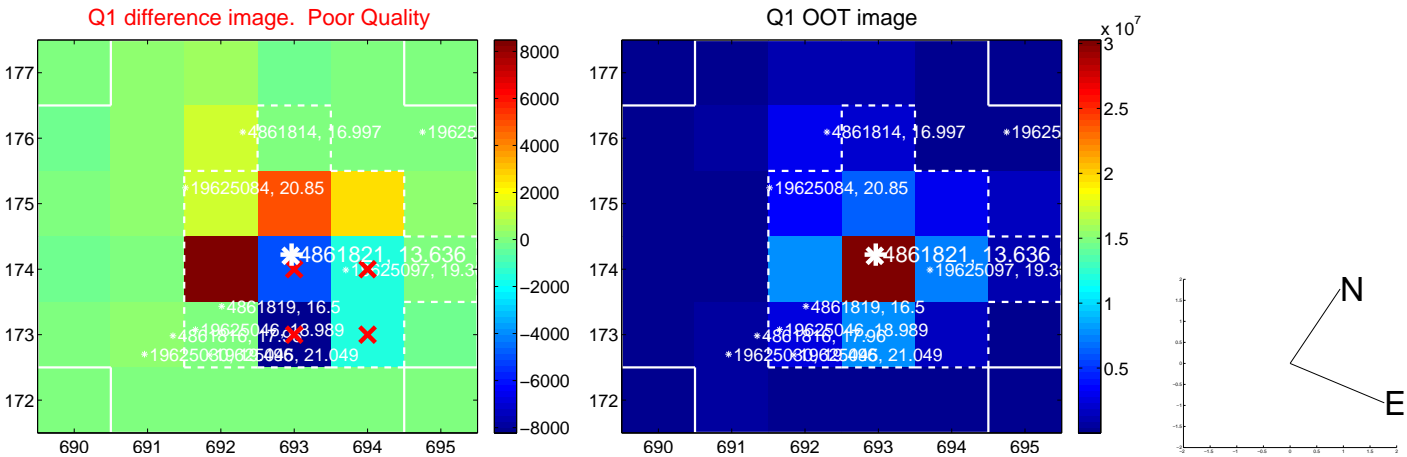
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.709 \pm 1.041$	0.68	$-0.657 \pm 1.083$	$-0.265 \pm 0.732$
PRF-fit source offset from KIC position	$0.642 \pm 1.082$	0.59	$-0.619 \pm 1.104$	$-0.170 \pm 0.741$
photometric centroid source offset	$7.05 \pm 3.64$	1.94	$-6.92 \pm 3.64$	$-1.39 \pm 3.41$



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.

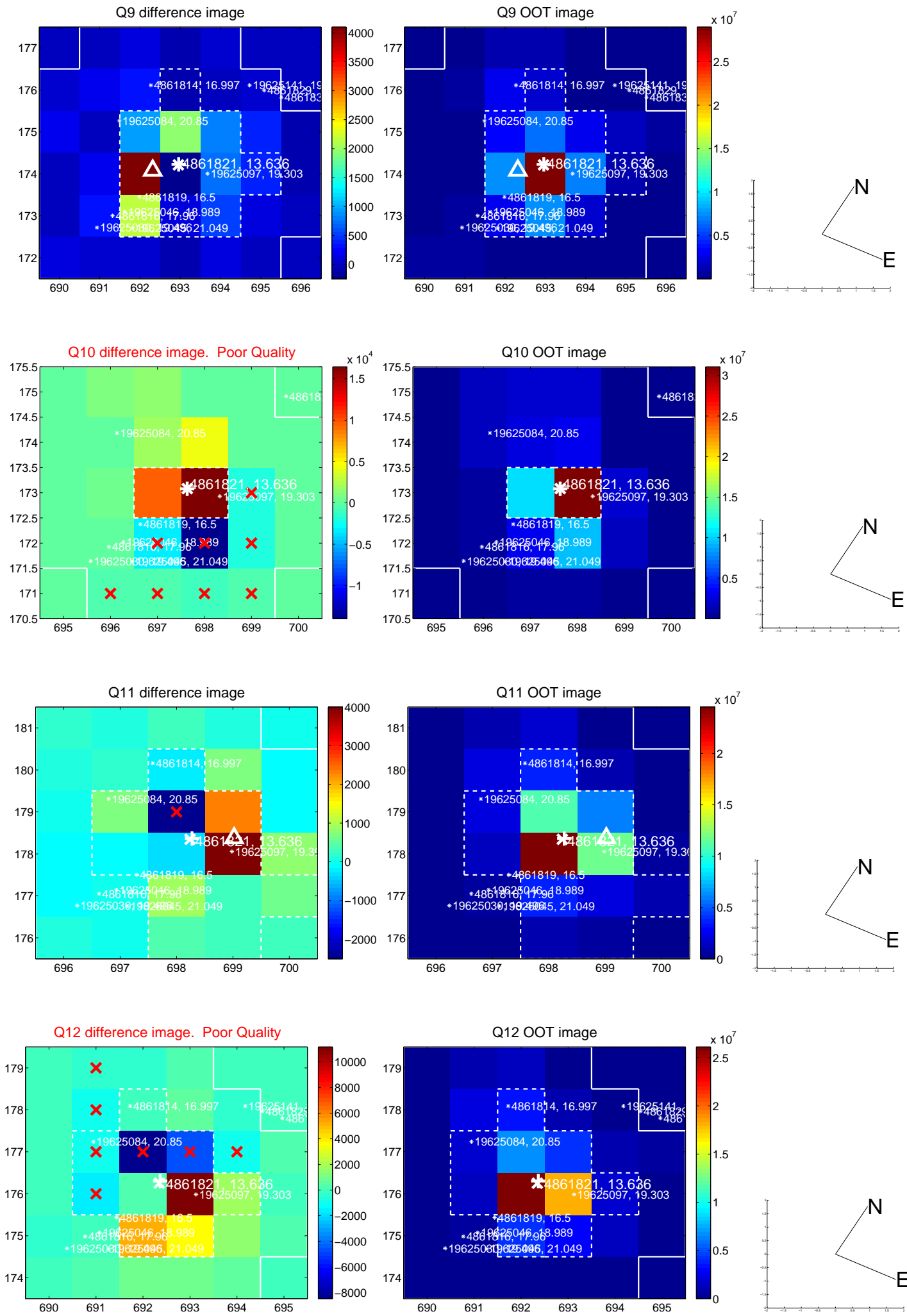
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



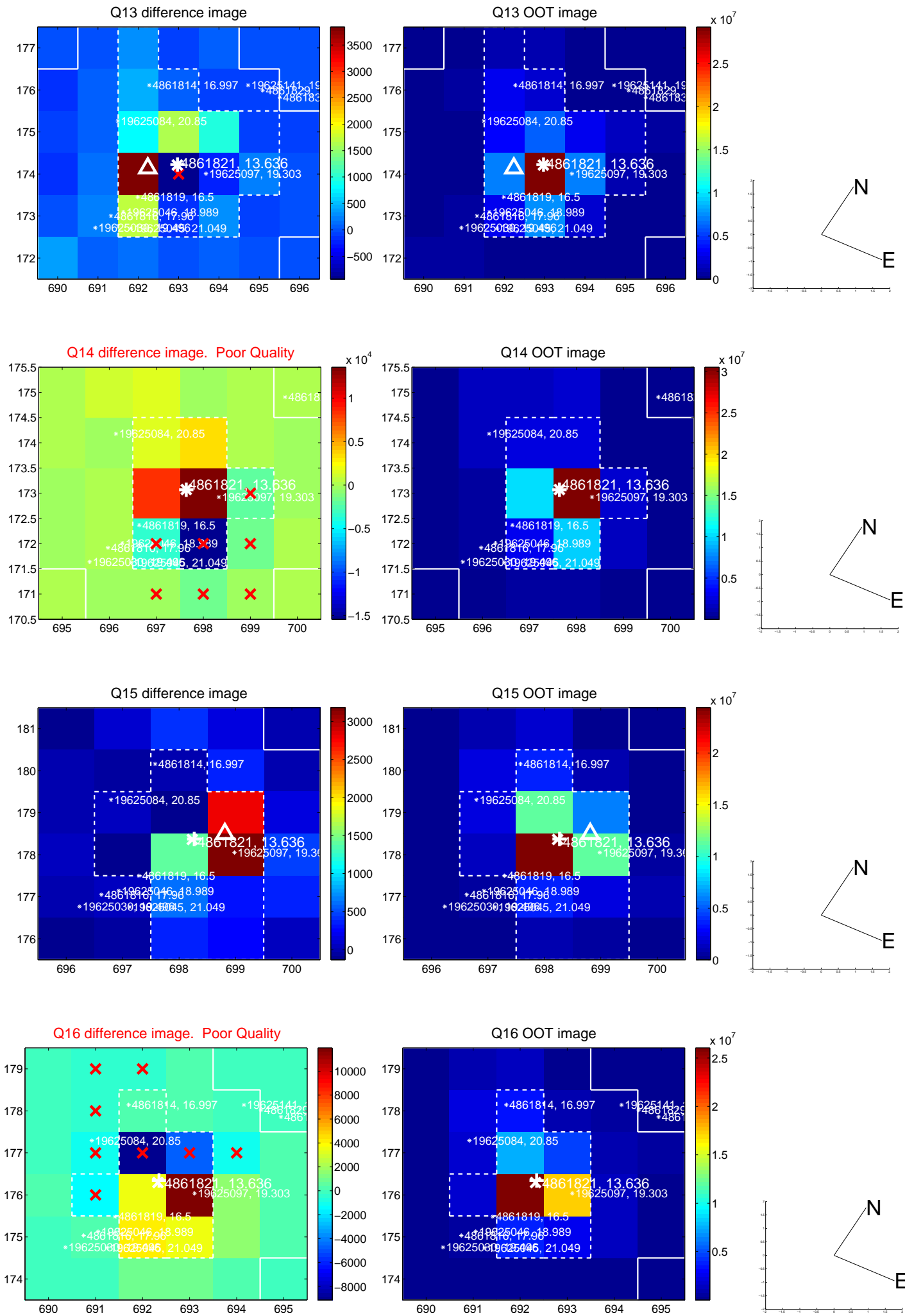




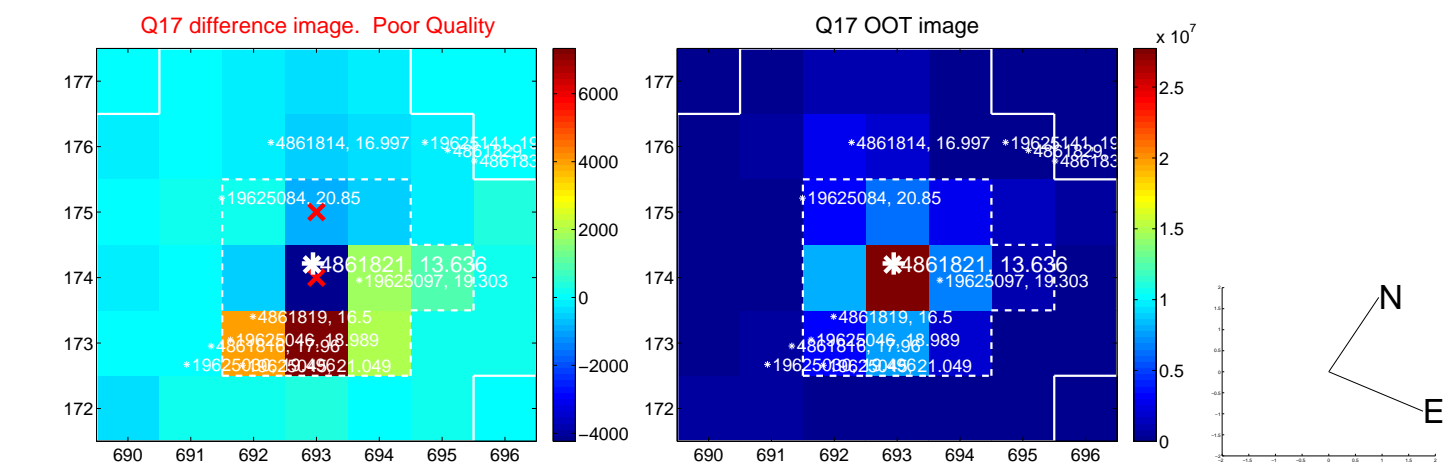
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



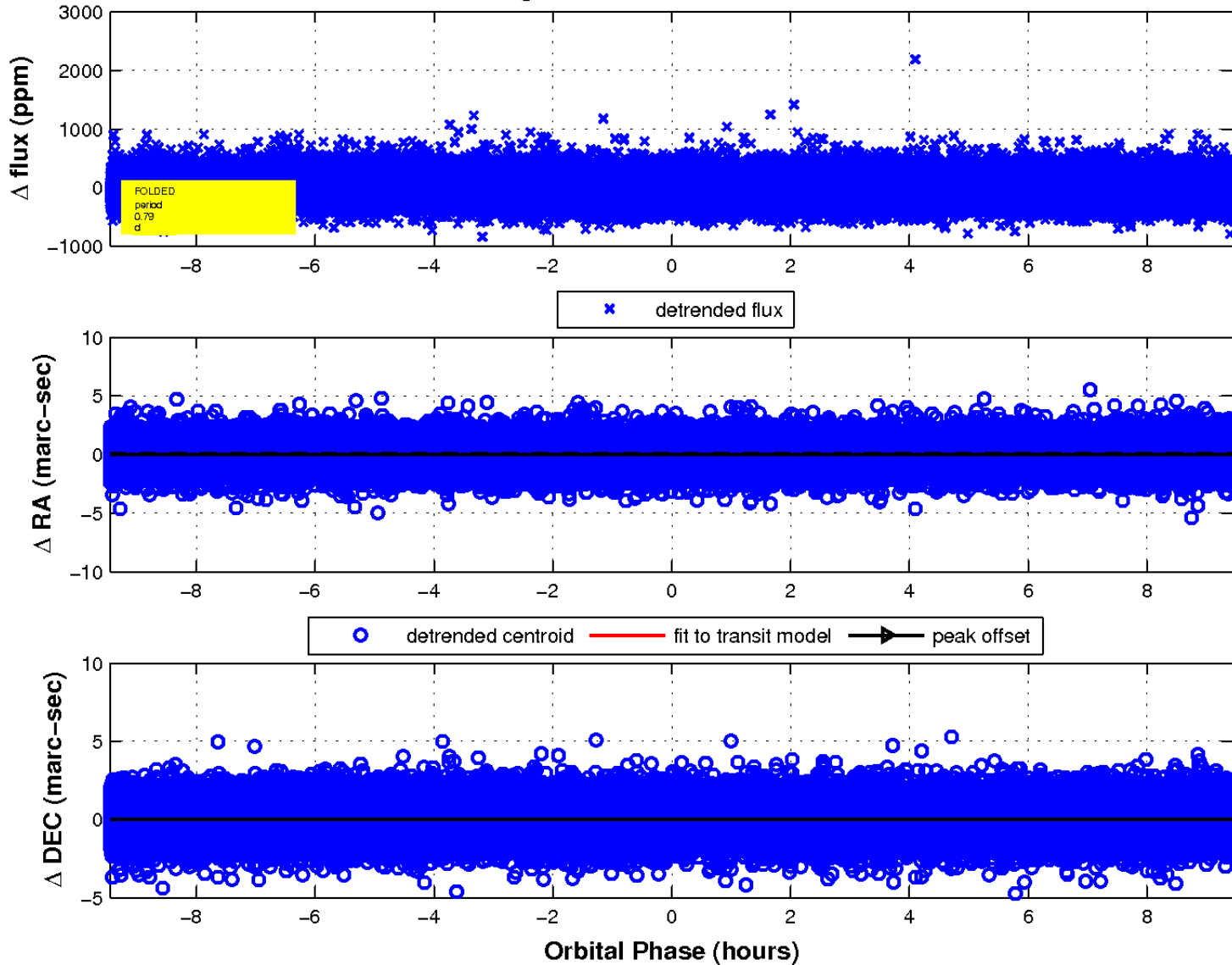
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



### fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

