

# KIC 012004886

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012004886-01	OBS	No	325.785076	270.688868	2081.6	5.152	9.6	6.5	0.69	4321	4.01	0.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012004886-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—INCONSISTENT_TRANS—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.

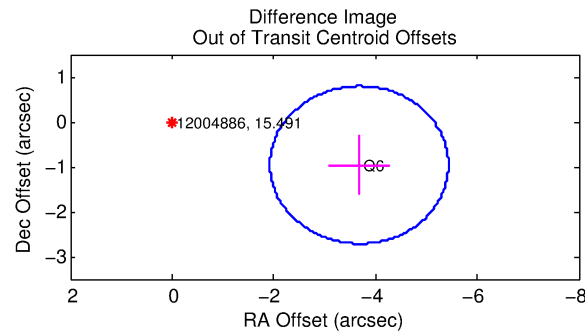
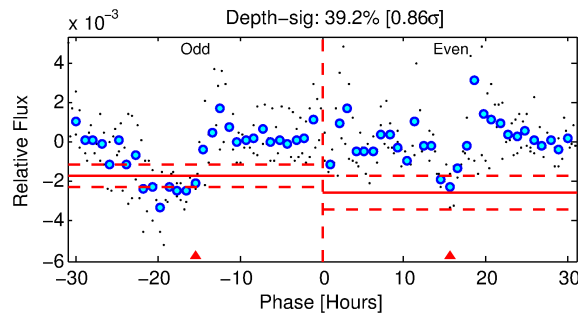
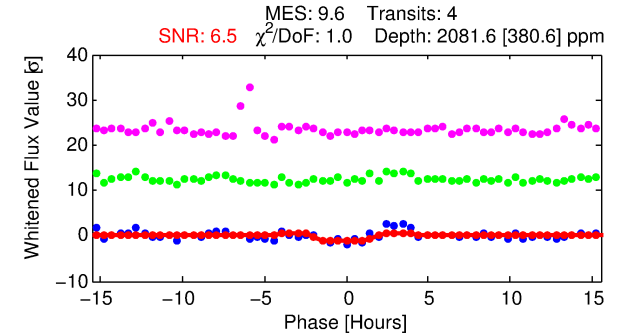
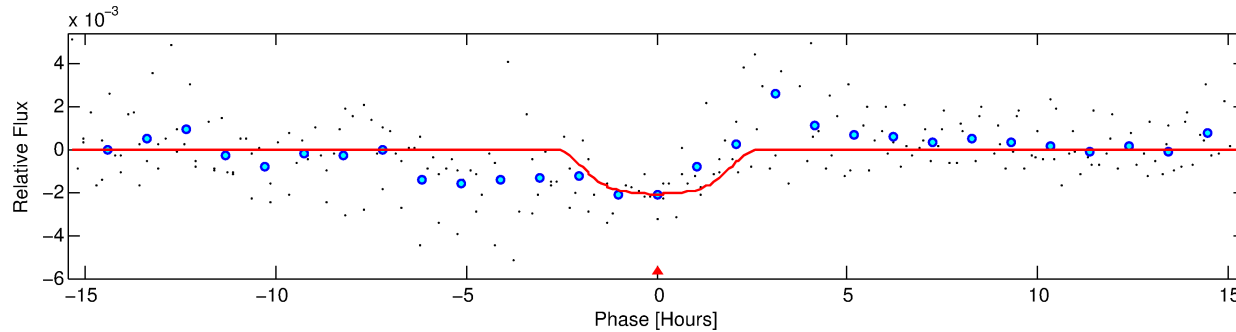
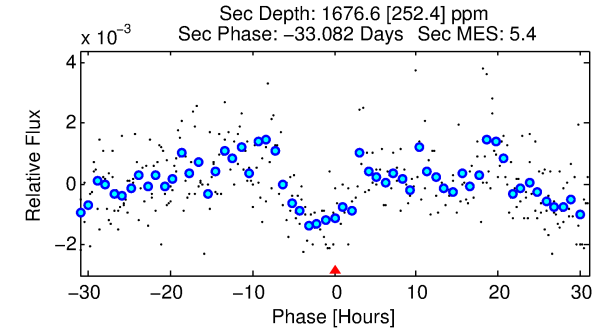
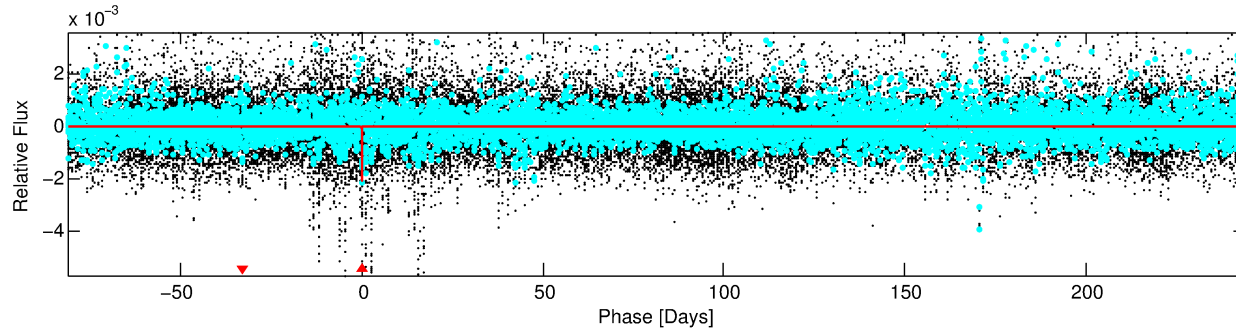
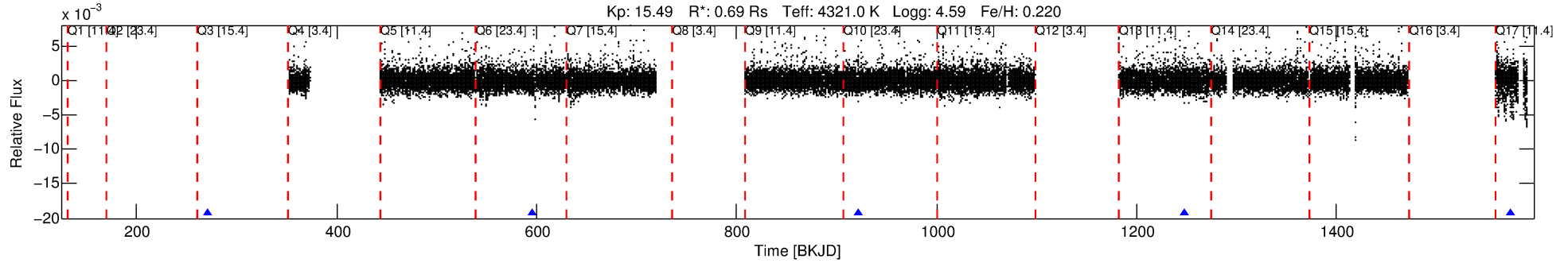
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012004886-01

No Significant Match Found

# DV One-Page Summary

KIC: 12004886 Candidate: 1 of 1 Period: 325.785 d



## DV Fit Results:

Period = 325.78508 [0.00659] d  
Epoch = 270.6889 [0.0172] BKJD  
Rp/R\* = 0.0530 [0.0079]  
a/R\* = 253.61 [80.42]  
b = 0.91 [0.06]  
Seff = 0.22 [0.04]  
Teq = 176 [8] K  
Rp = 4.01 [0.70] Re  
a = 0.8183 [0.0595] AU  
Ag = 38314.94 [13416.08] [2.86 $\sigma$ ]  
Teffp = 3798 [344] K [10.54 $\sigma$ ]

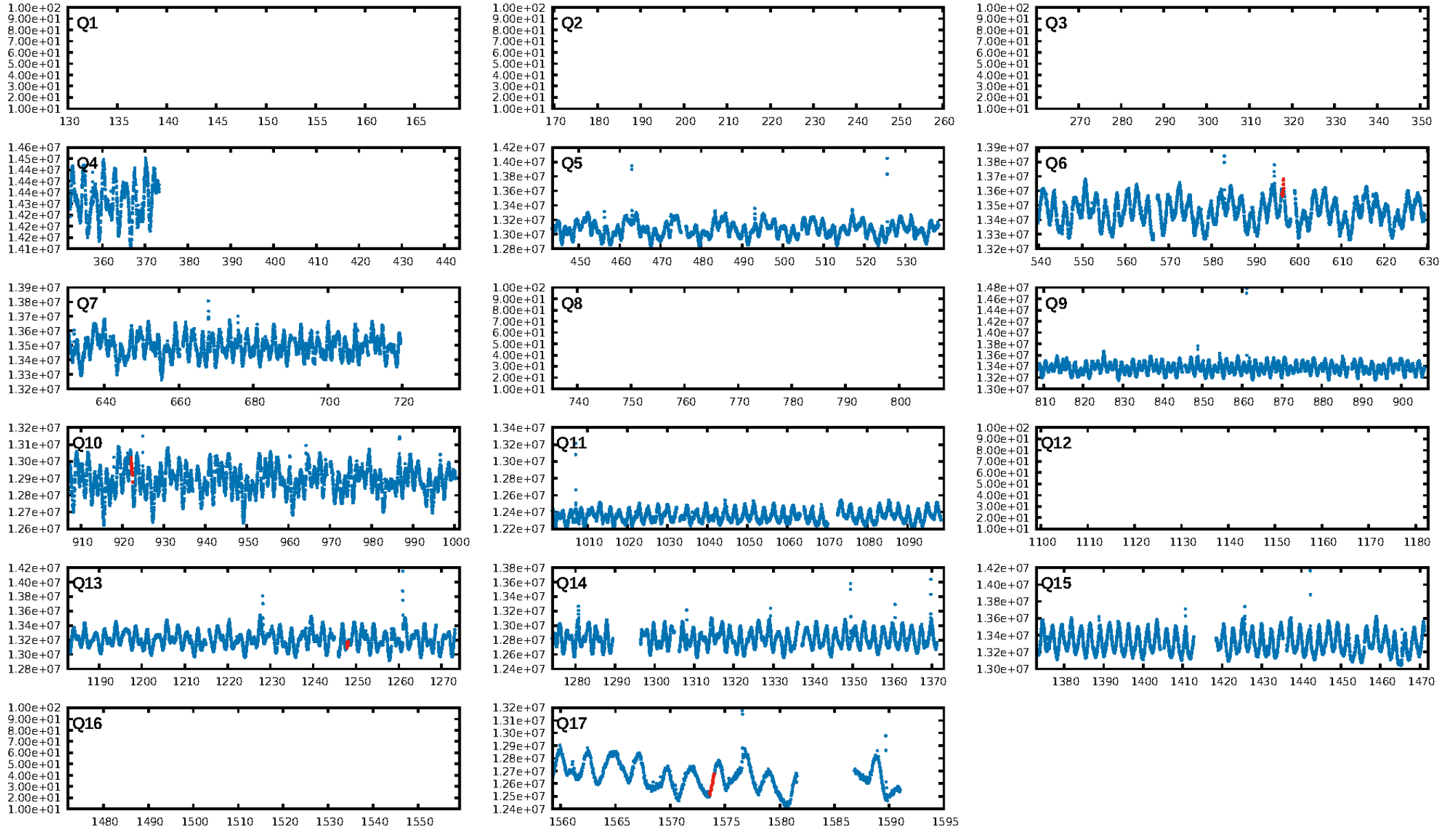
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.9%  
ModelChiSquareGof-sig: 99.8%  
**Bootstrap-pfa: 2.26e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 7.418  
Centroid-sig: 42.6%  
Centroid-so: 1.292 arcsec [1.89 $\sigma$ ]  
**OotOffset-rm: 3.803 arcsec [6.51 $\sigma$ ]**  
KicOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [4/4]

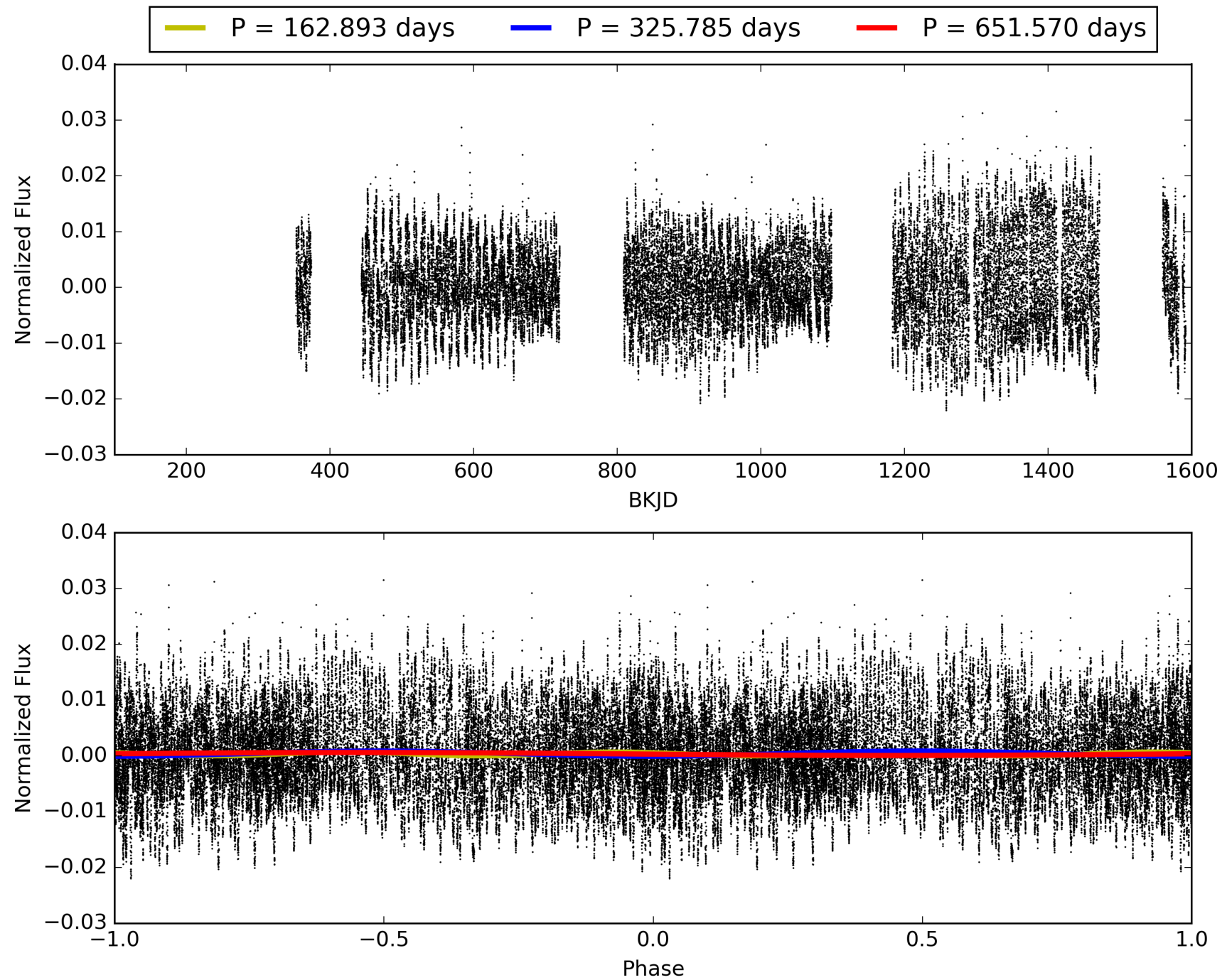
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:52:31 Z

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

# TCE 012004886-01, PDC Light Curves

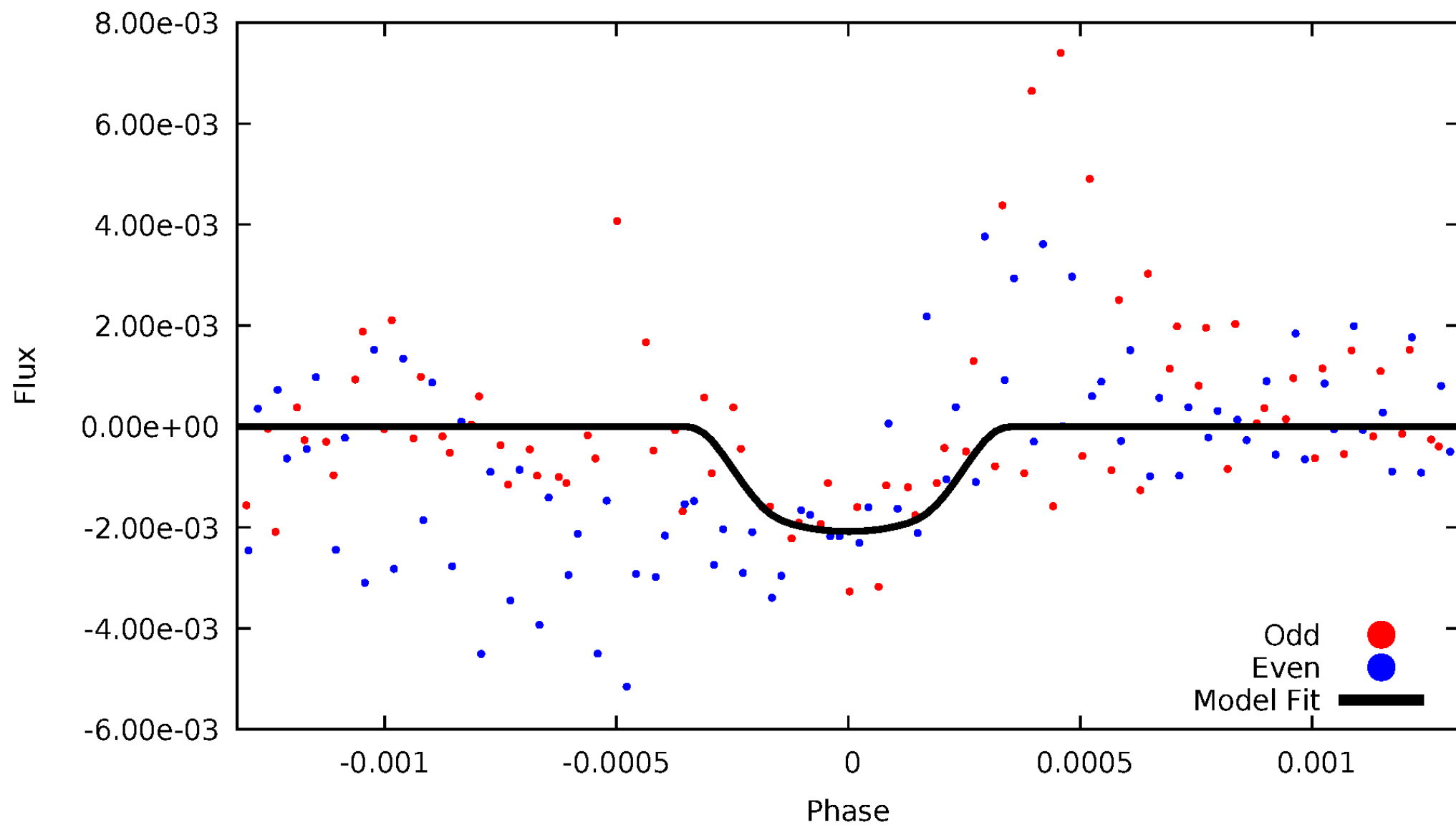


# TCE 012004886-01



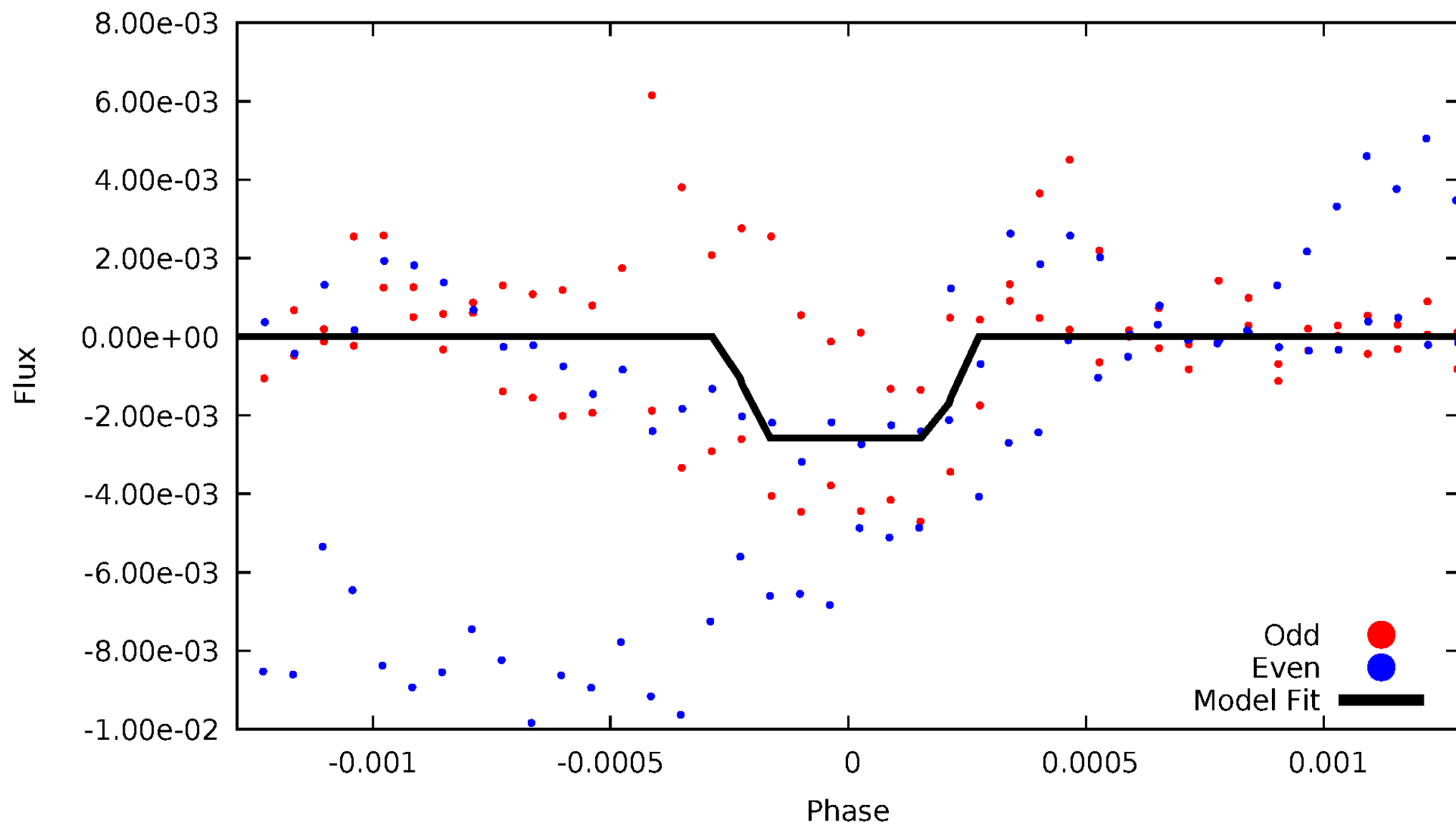
# DV Odd/Even

TCE 012004886-01

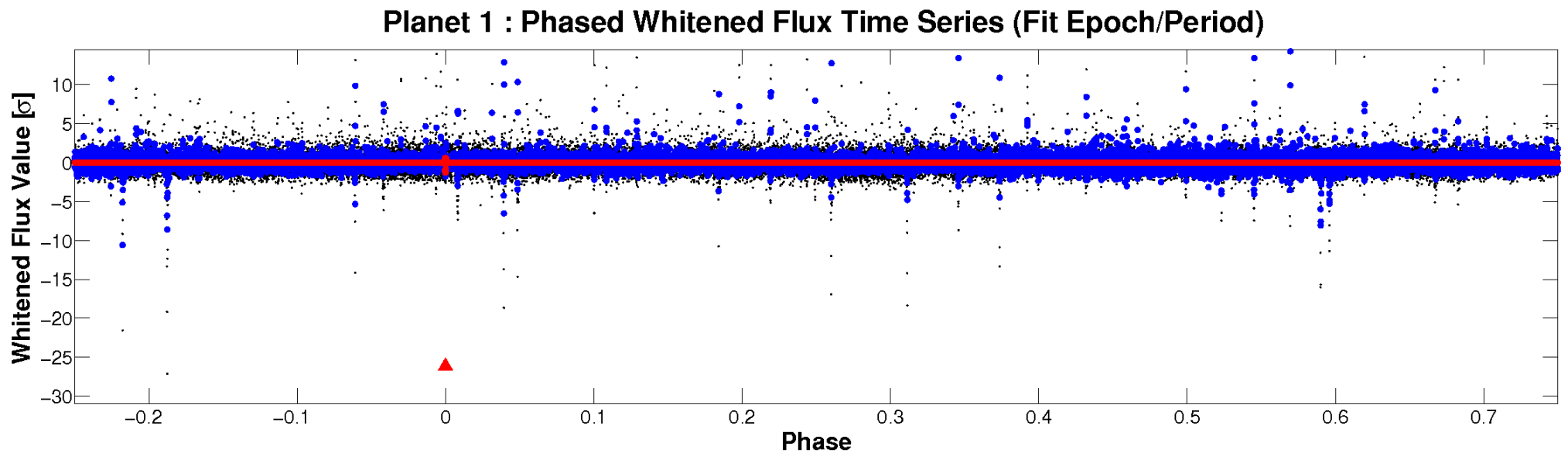
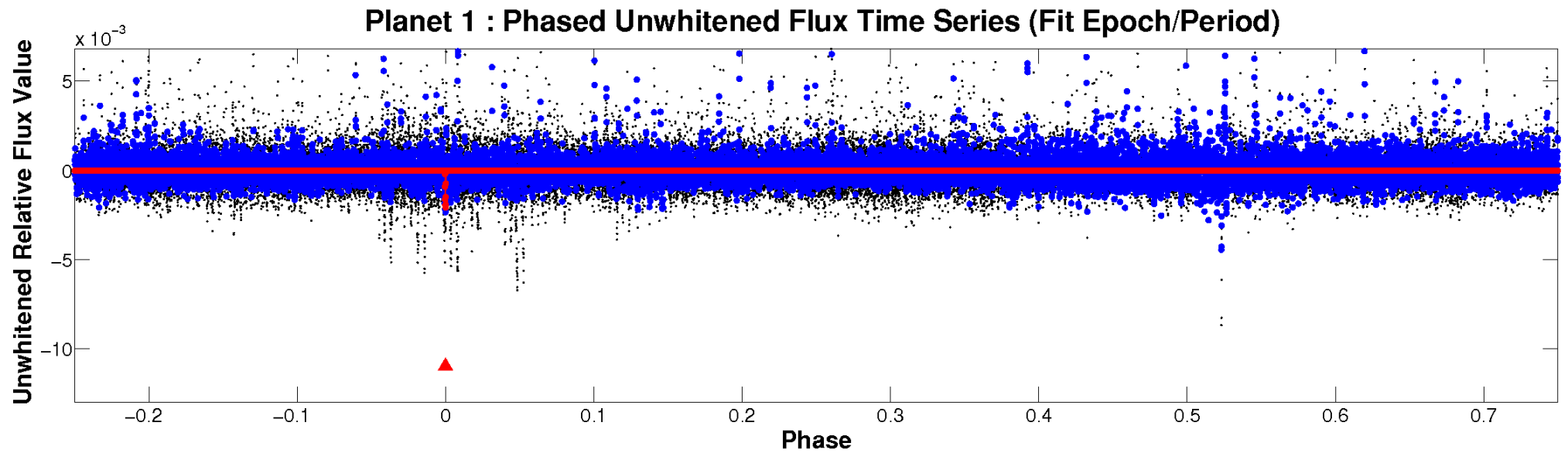


# ALT Odd/Even

TCE 012004886-01

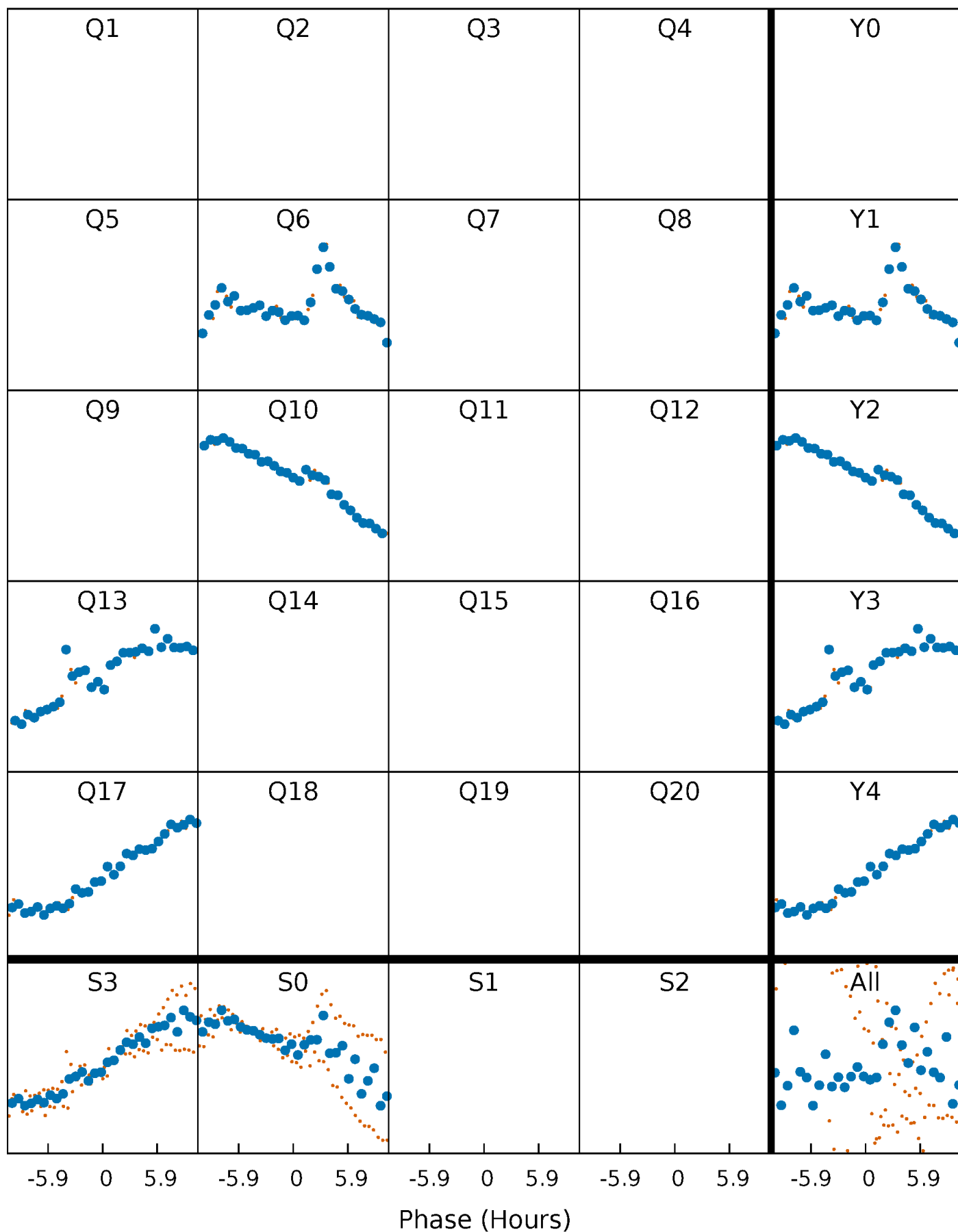


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

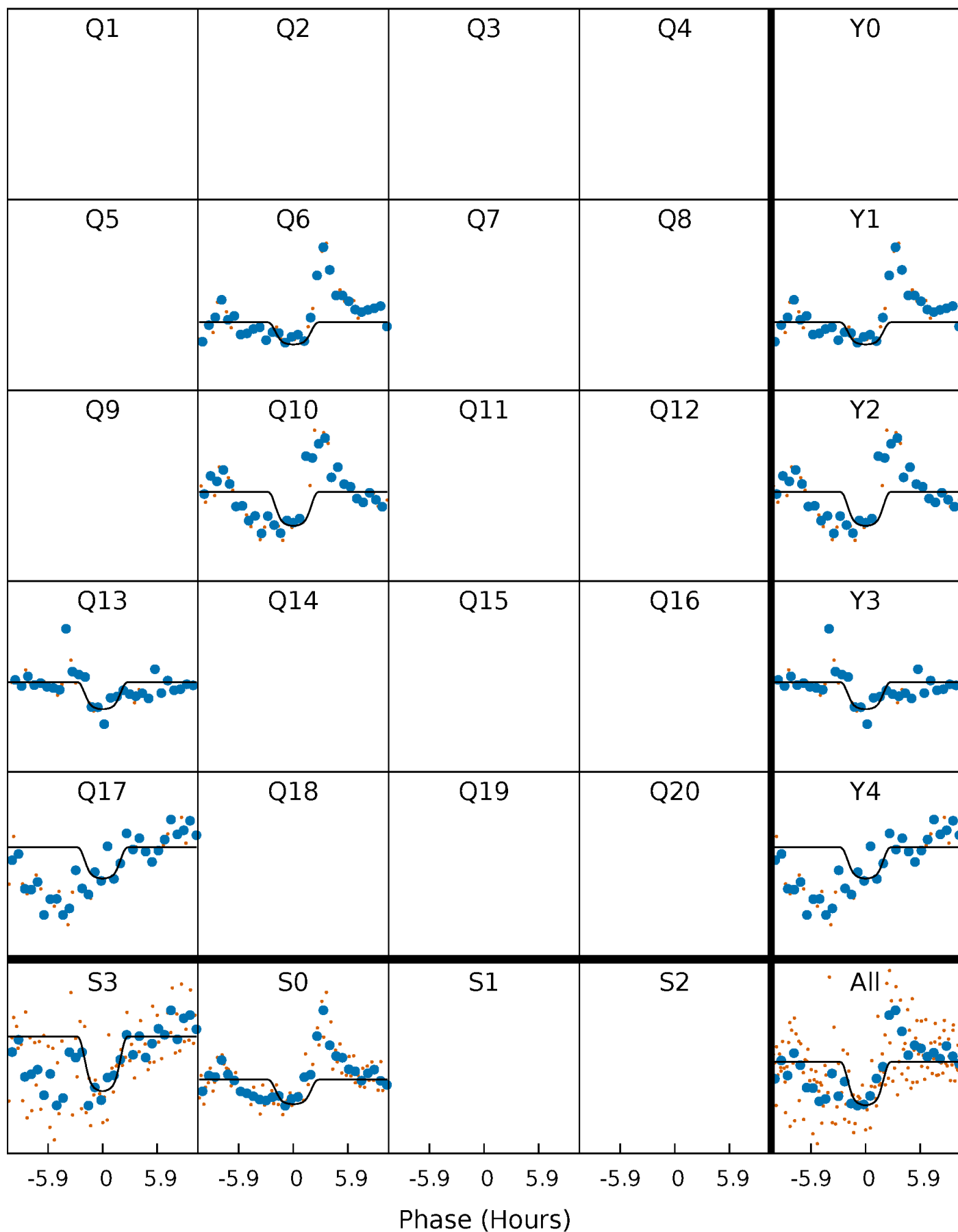
TCE 012004886-01 P=325.785076 Days  $T_0=270.688868$  (BKJD)





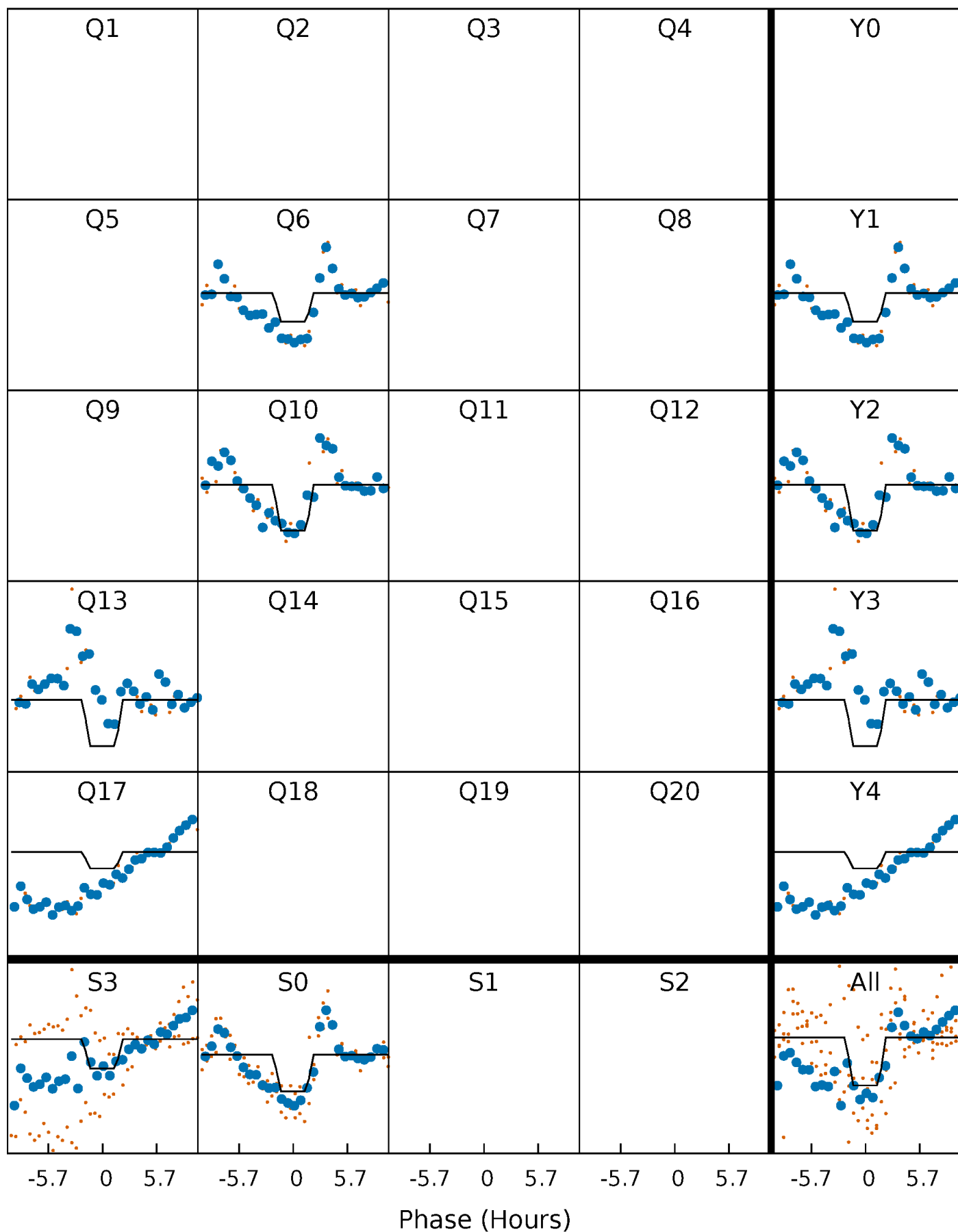
# DV Quarter-Phased Transit Curves

TCE 012004886-01 P=325.785076 Days  $T_0=270.688868$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

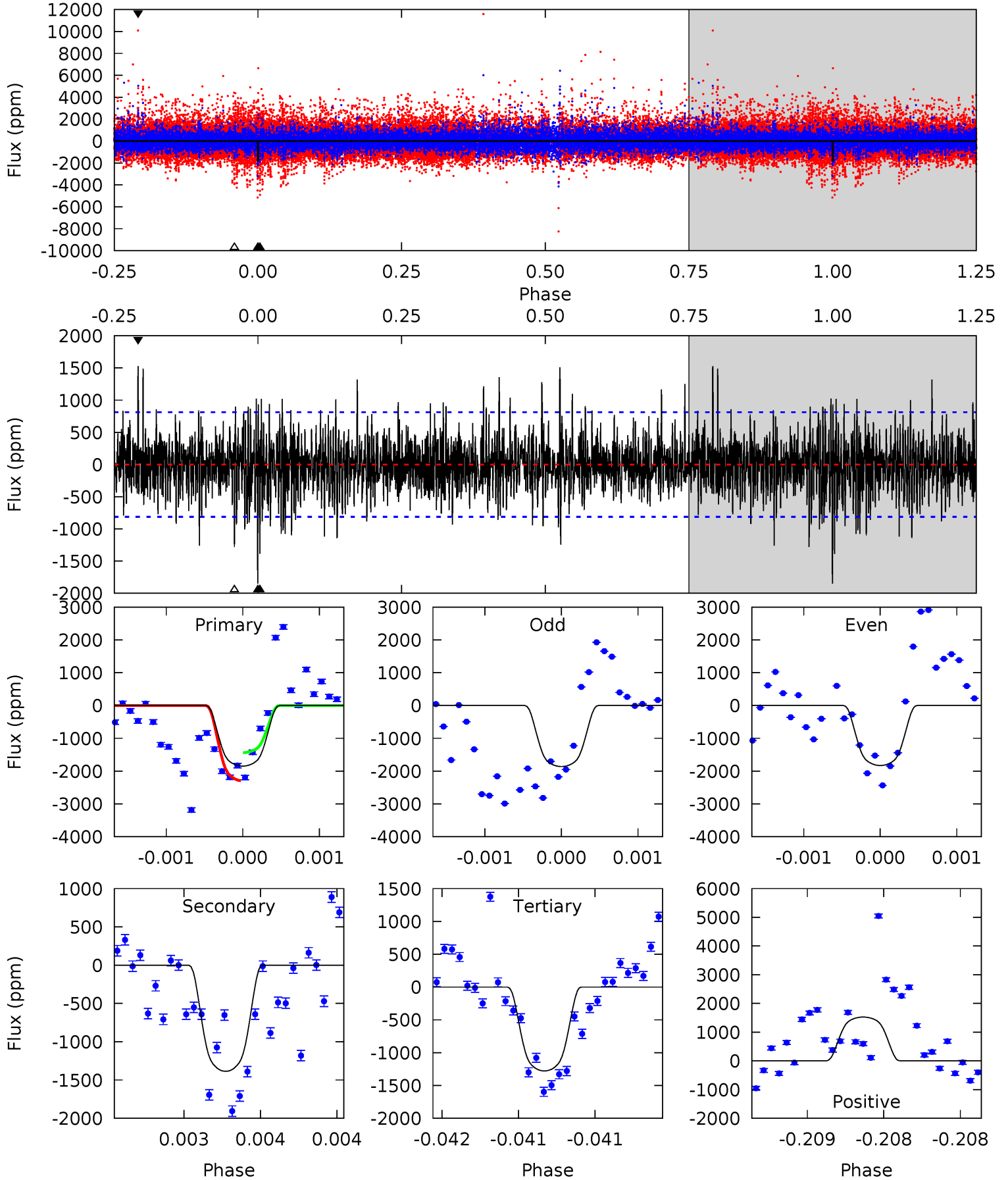
TCE 012004886-01 P=325.772247 Days  $T_0=270.699344$  (BKJD)



# DV Model-Shift Uniqueness Test

012004886-01, P = 325.785076 Days, E = 270.688868 Days

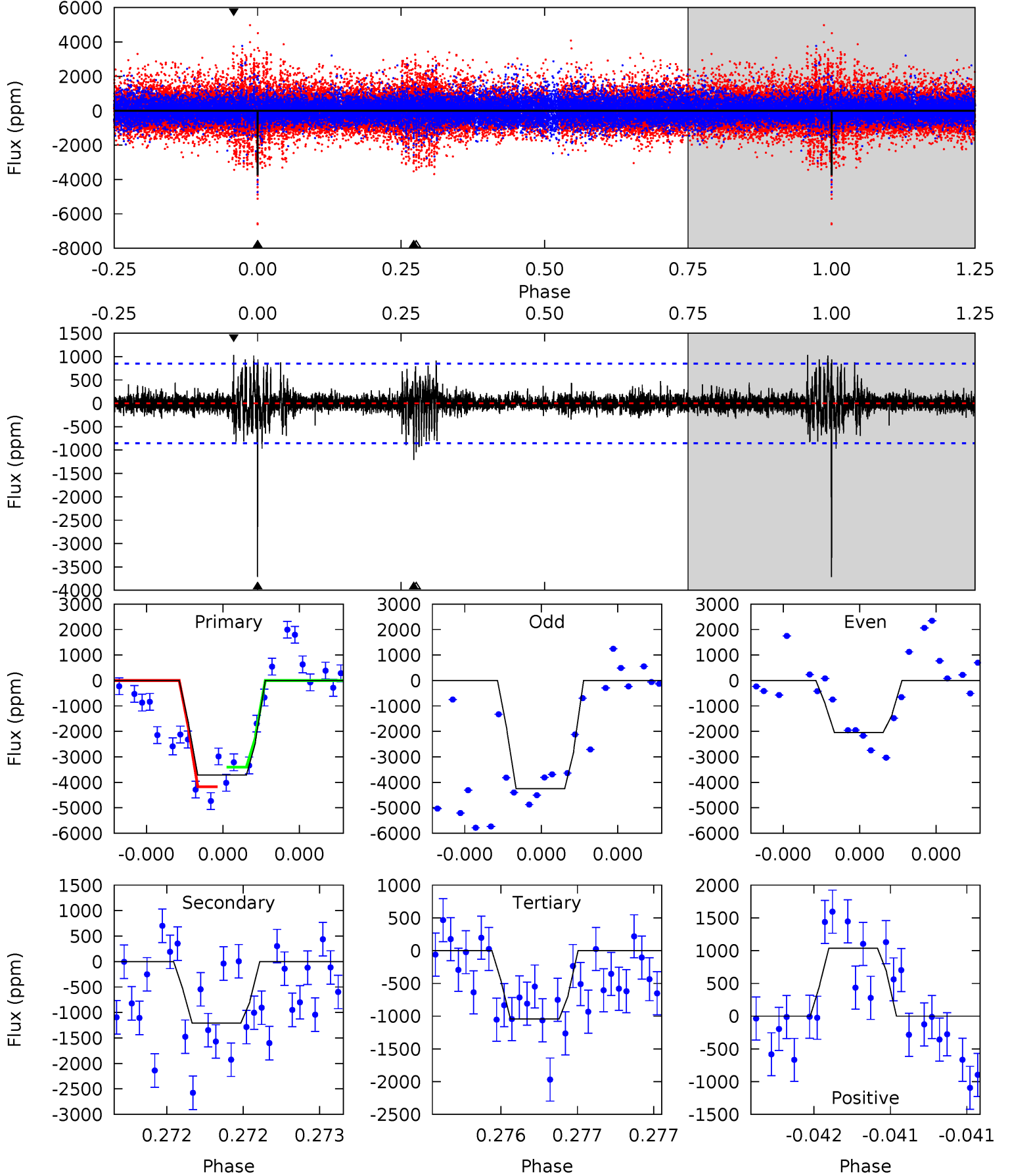
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	9.39	8.66	10.3	5.51	3.38	2.32	3.85	2.18	0.73	-0.94	0.09	0.99	0.45	2.91



# Alt Model-Shift Uniqueness Test

012004886-01, P = 325.772247 Days, E = 270.699344 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
24.3	7.91	6.83	6.77	5.57	3.48	1.17	17.5	17.5	1.08	1.14	5.97	0.91	0.22	2.50



### Stellar Parameters For KIC 012004886

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4321^{+150}_{-150}$	$4.593^{+0.056}_{-0.018}$	$0.220^{+0.200}_{-0.300}$	$0.694^{+0.028}_{-0.061}$	$0.688^{+0.047}_{-0.057}$	$2.904^{+0.733}_{-0.210}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-9%	+7%/-8%	+25%/-7%
Source	KIC0	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 012004886-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1387 \pm 148$	$3.96^{+0.66}_{-0.66}$	$243^{+9}_{-9}$	$3810^{+284}_{-223}$	$32616^{+14460}_{-8902}$
Alt.	$-1209 \pm 153$	$3.80^{+0.67}_{-0.61}$	$243^{+10}_{-9}$	$3764^{+269}_{-216}$	$30879^{+13102}_{-8969}$

$T_{\text{max}}$  = 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

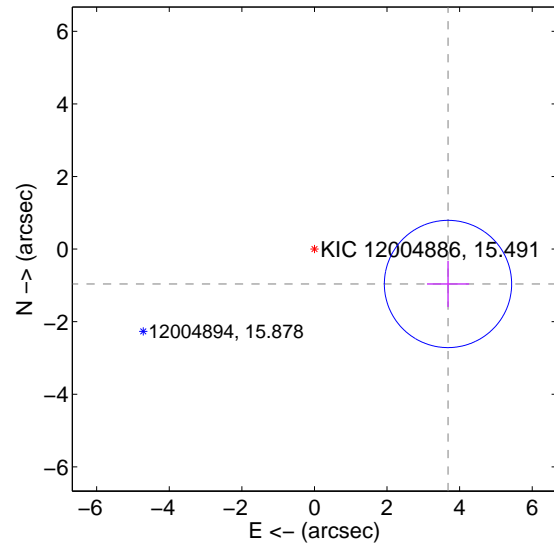
Supplemental centroid analysis for 012004886-01. Kepler magnitude: 15.49. Transit SNR 6.49

There are 1 quarters with good PRF difference image offsets

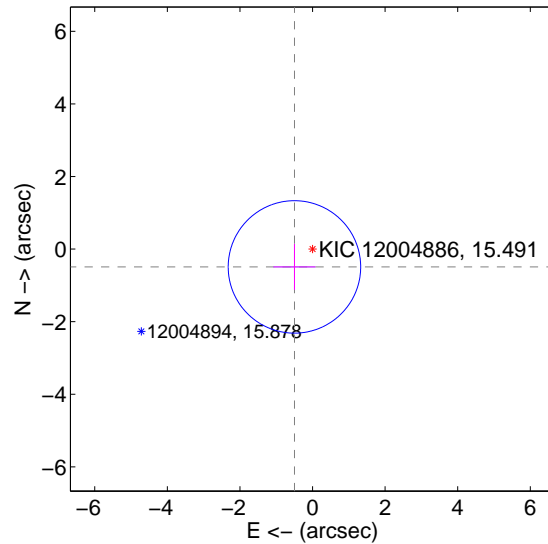
The OOT PRF centroid is offset from the target star catalog position by about 4.20 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.803 \pm 0.584$	6.51	$-3.680 \pm 0.581$	$-0.961 \pm 0.635$
PRF-fit source offset from KIC position	$0.700 \pm 0.608$	1.15	$0.498 \pm 0.581$	$-0.491 \pm 0.635$
photometric centroid source offset	$1.29 \pm 0.69$	1.89	$-0.15 \pm 0.53$	$-1.28 \pm 0.69$

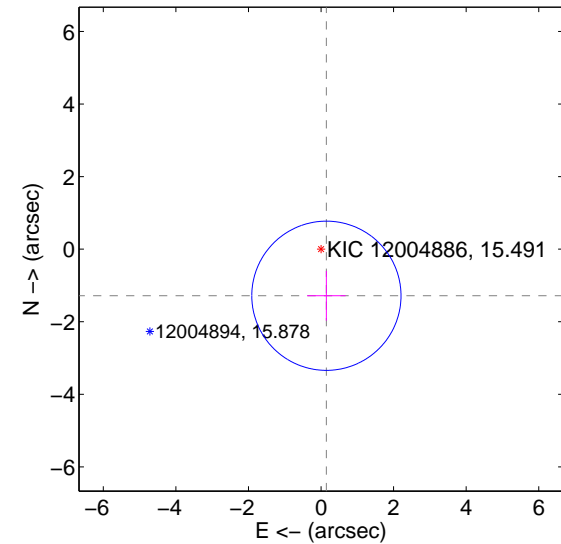
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

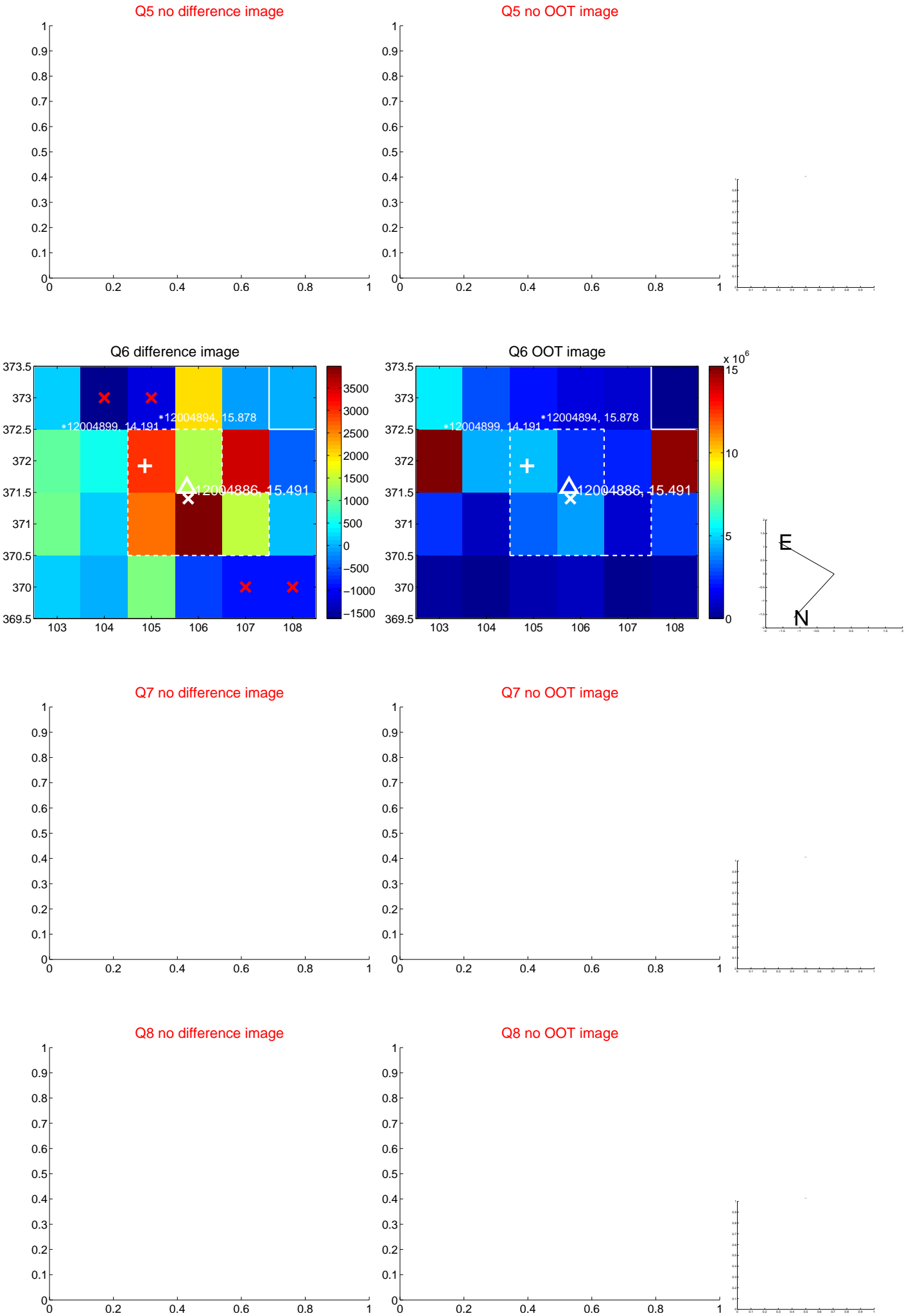


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

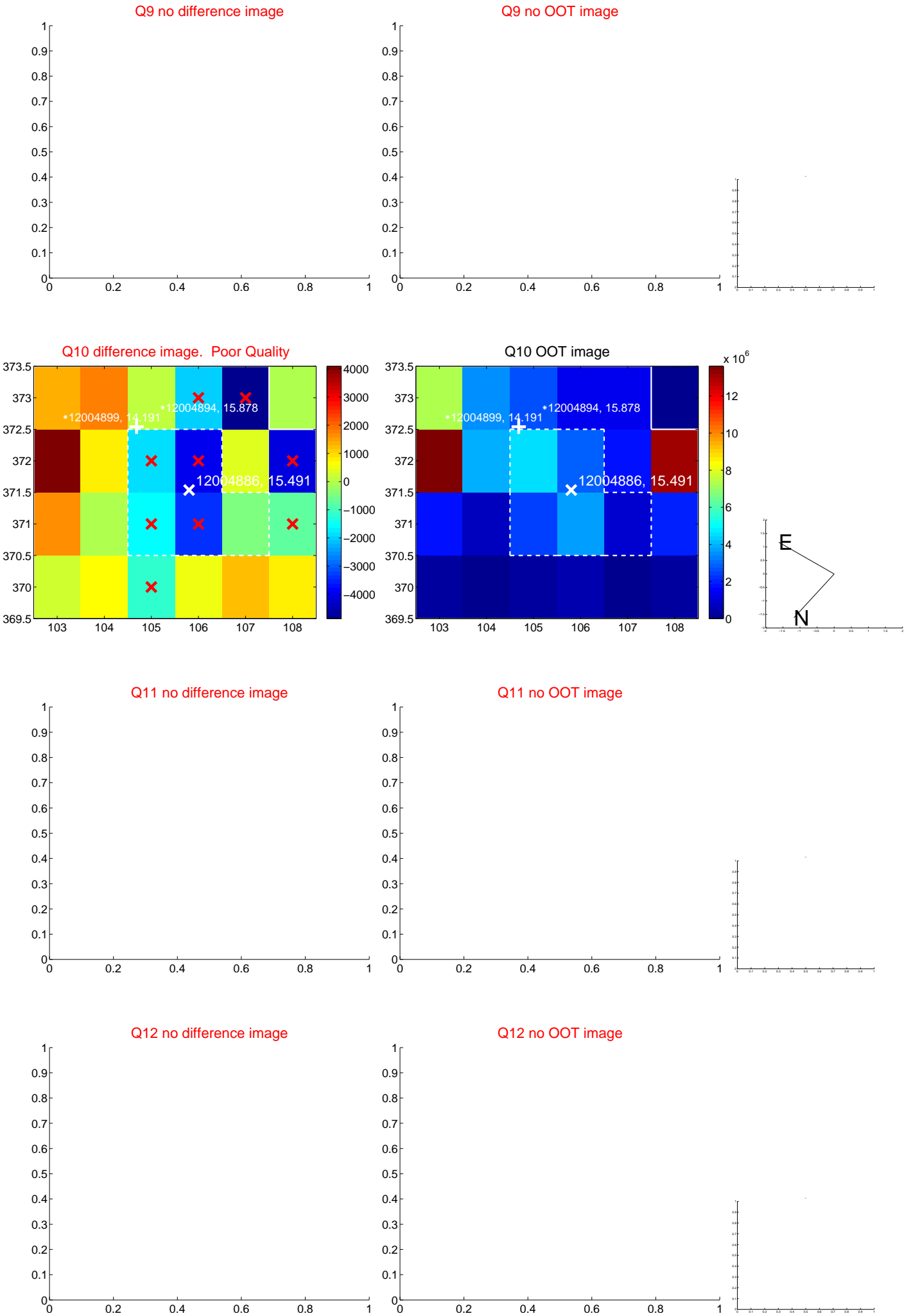


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

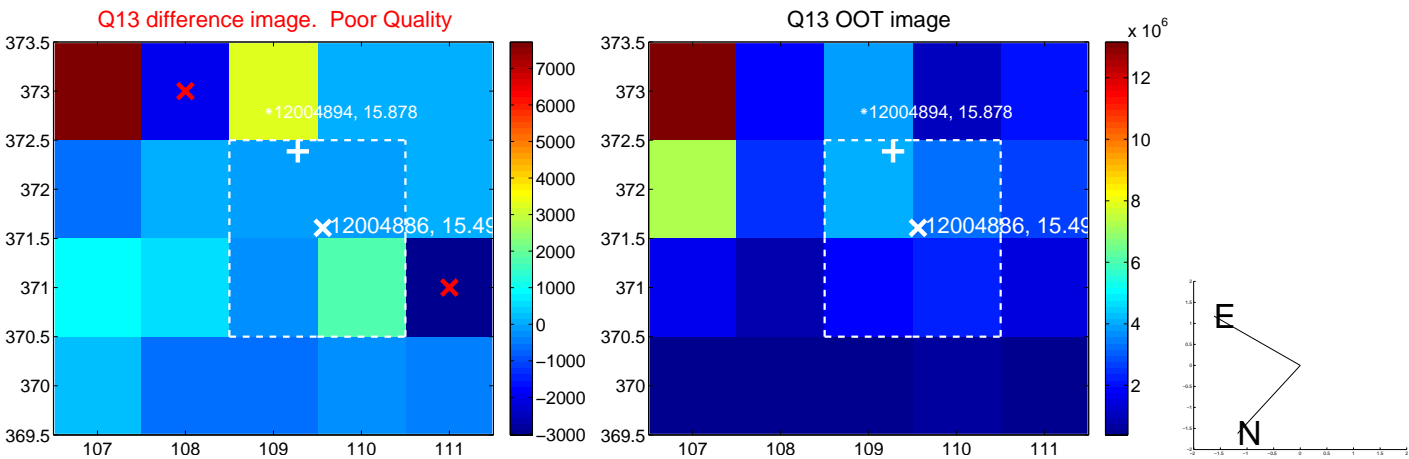




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image

