

# KIC 010489391

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010489391-01	OBS	No	0.735175	132.241035	647.5	3.190	7.6	8.8	0.75	5183	2.30	1621.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010489391-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

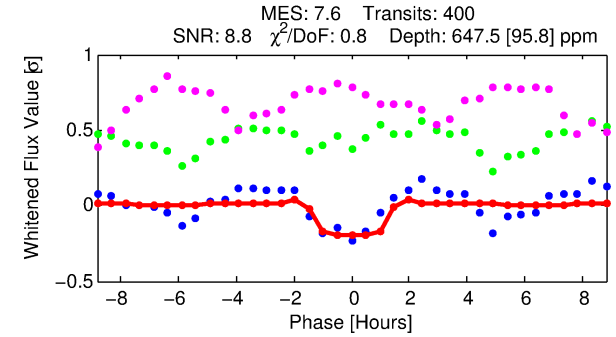
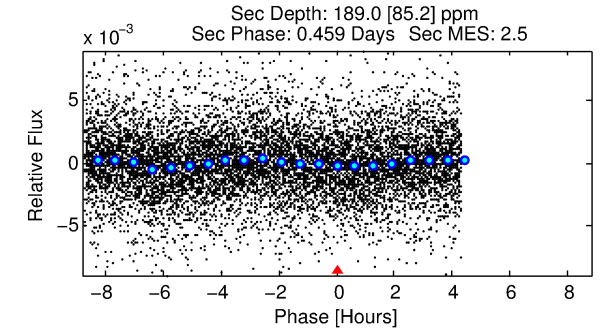
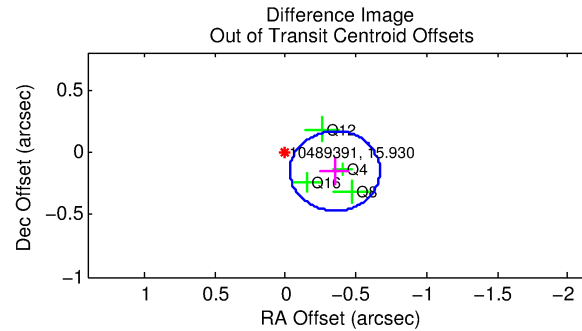
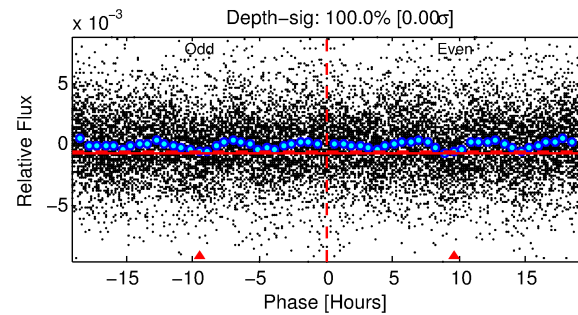
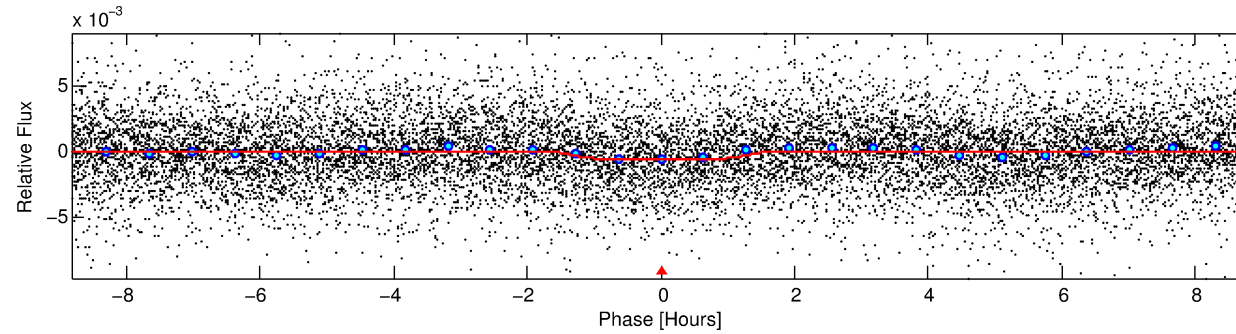
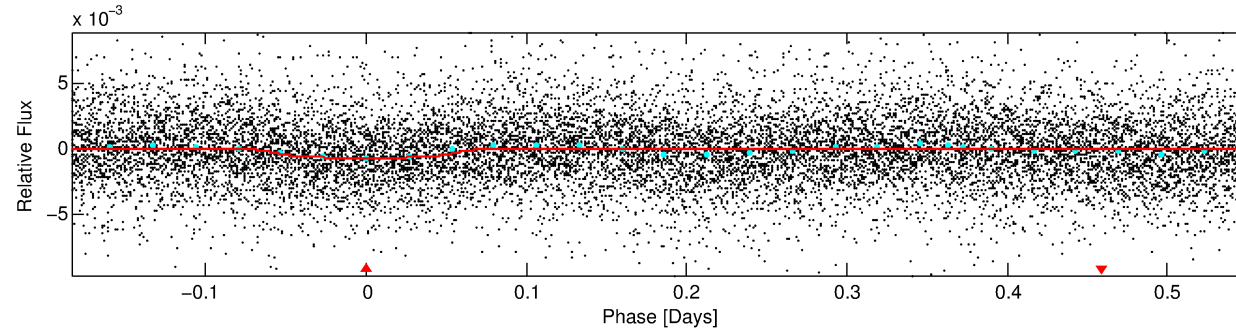
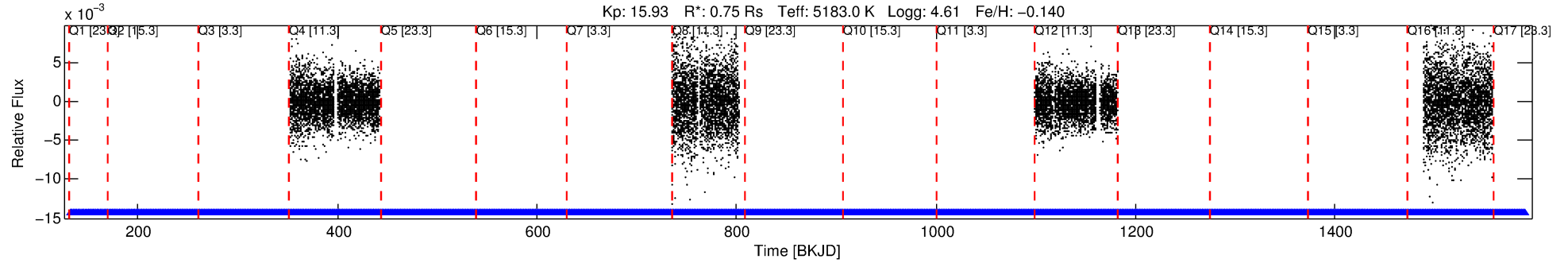
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010489391-01

No Significant Match Found

# DV One-Page Summary

KIC: 10489391 Candidate: 1 of 1 Period: 0.735 d



## DV Fit Results:

Period = 0.73518 [0.00001] d  
Epoch = 132.2410 [0.0034] BKJD  
Rp/R\* = 0.0282 [0.0062]  
a/R\* = 1.29 [0.41]  
b = 0.90 [0.18]  
Seff = 1621.68 [356.27]  
Teq = 1618 [89] K  
Rp = 2.30 [0.60] Re  
a = 0.0149 [0.0017] AU  
Ag = 4.37 [2.83] [1.19 $\sigma$ ]  
Teffp = 3618 [583] K [3.39 $\sigma$ ]

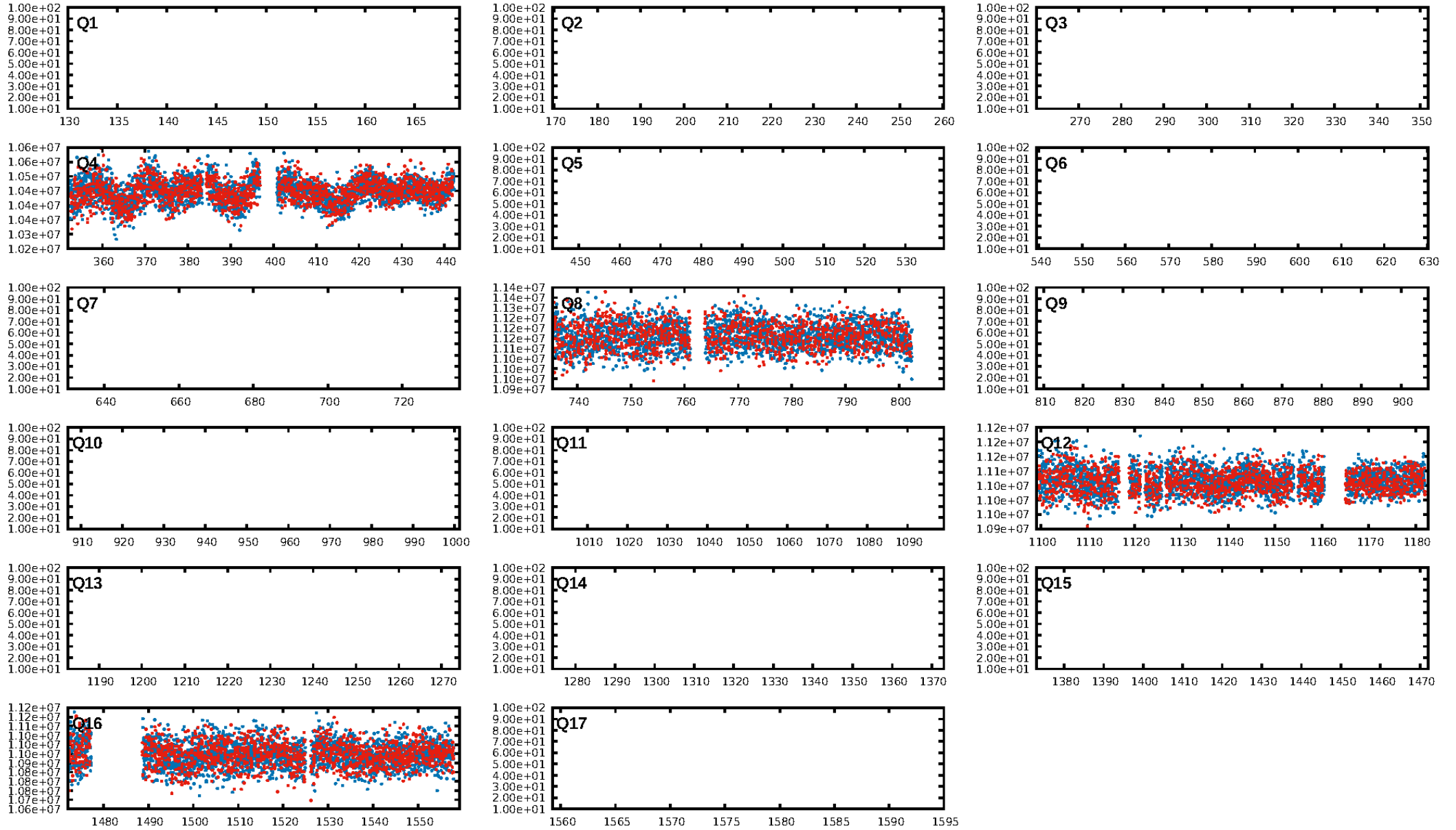
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.14e-14  
RollingBand-fgt: 1.00 [400/400]  
GhostDiagnostic-chr: -0.0145  
Centroid-sig: 0.9%  
Centroid-so: 3.638 arcsec [26.04 $\sigma$ ]  
OotOffset-rm: 0.382 arcsec [3.59 $\sigma$ ]  
KicOffset-rm: 6.587 arcsec [39.62 $\sigma$ ]  
OotOffset-st: 0/0/4/0 [4]  
KicOffset-st: 0/0/4/0 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

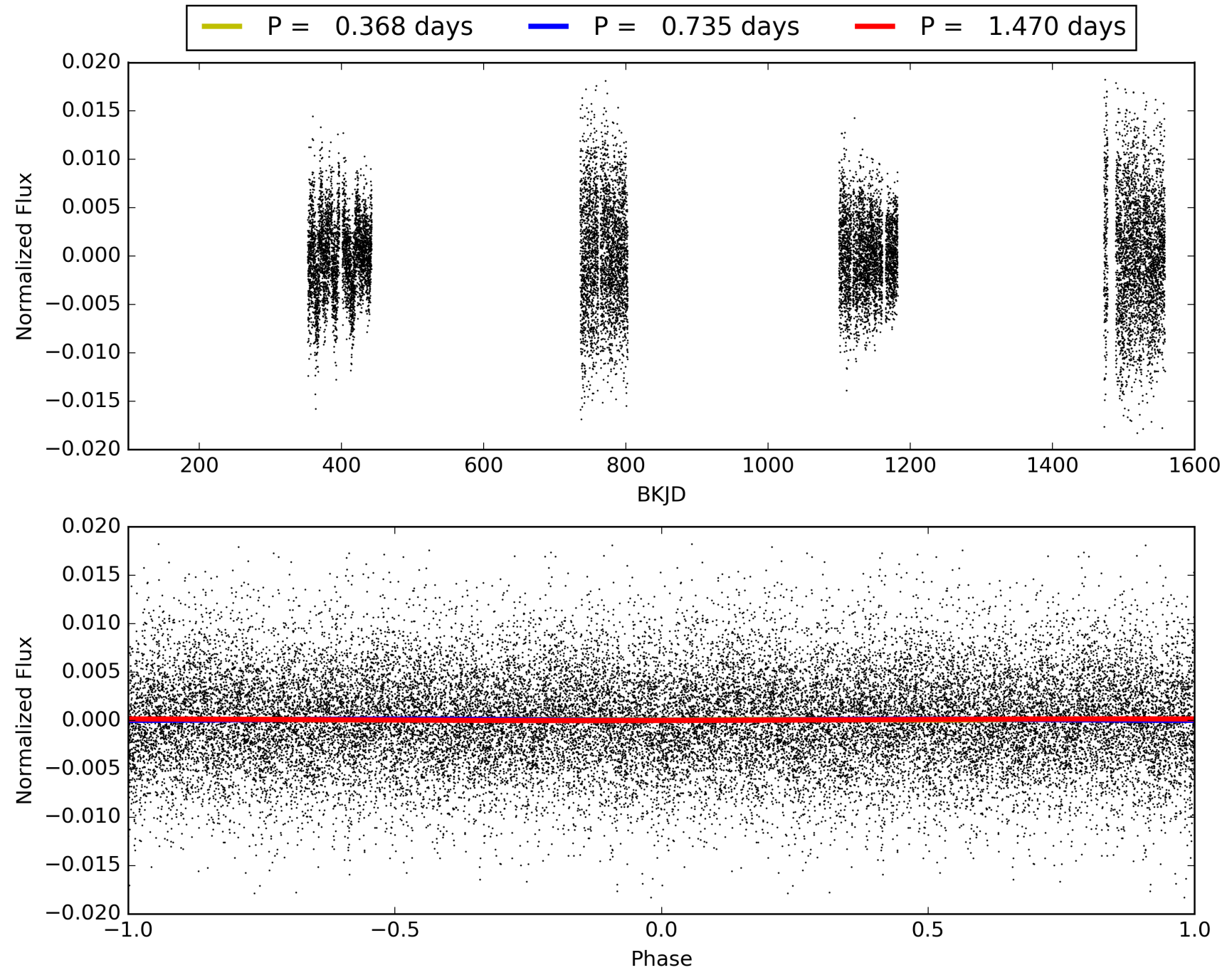
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:43:53 Z

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

# TCE 010489391-01, PDC Light Curves

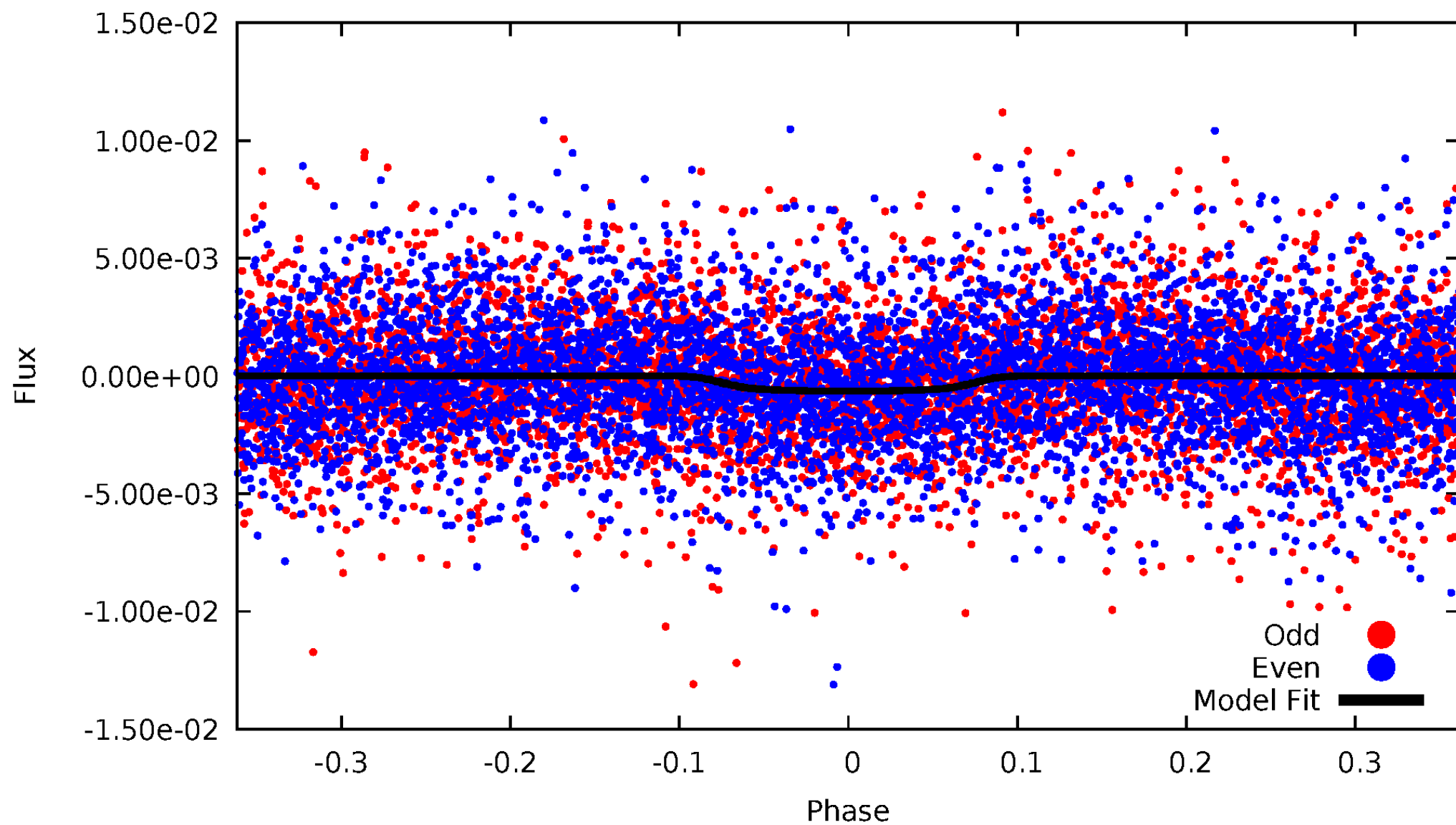


# TCE 010489391-01



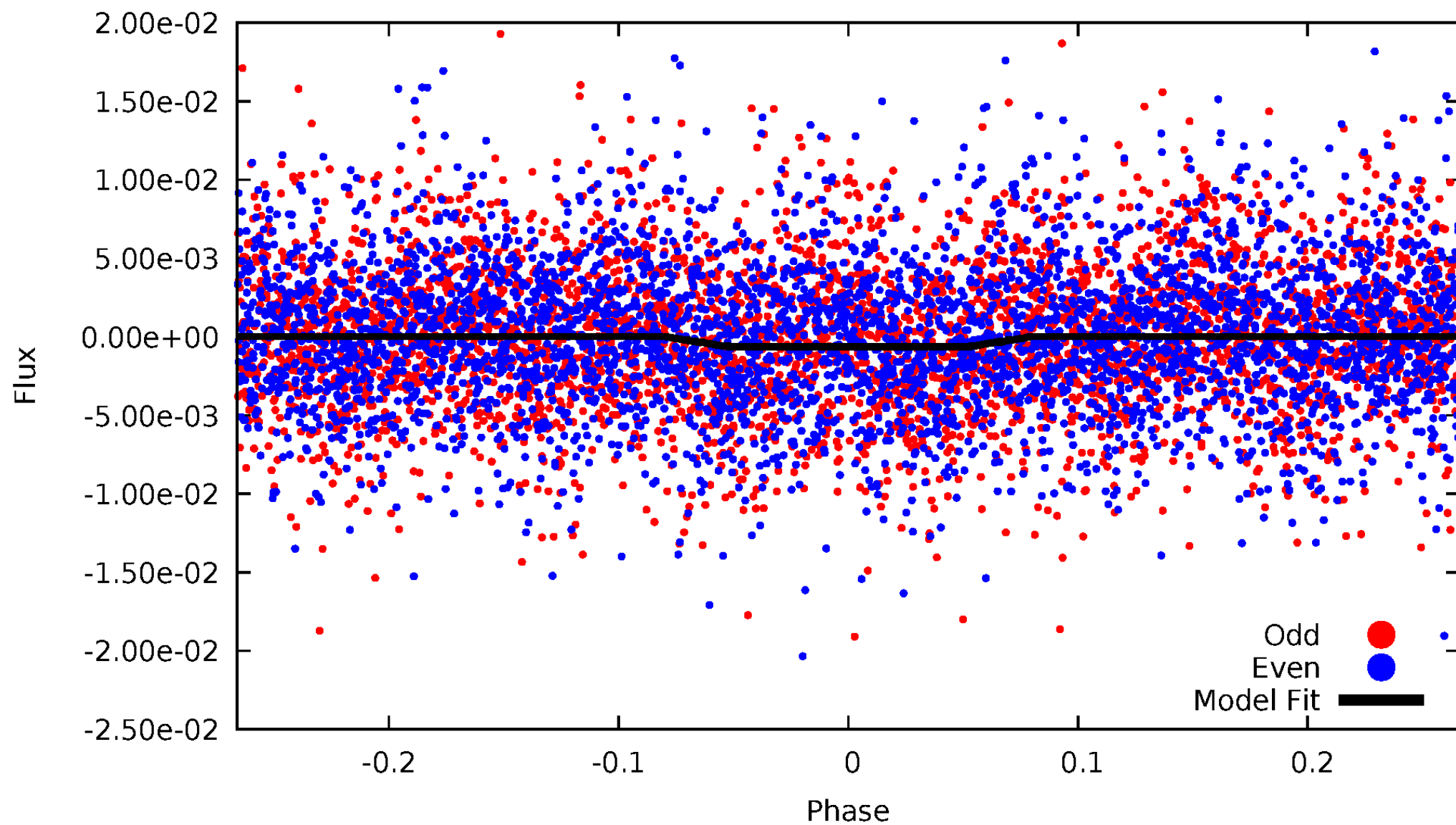
# DV Odd/Even

TCE 010489391-01



# ALT Odd/Even

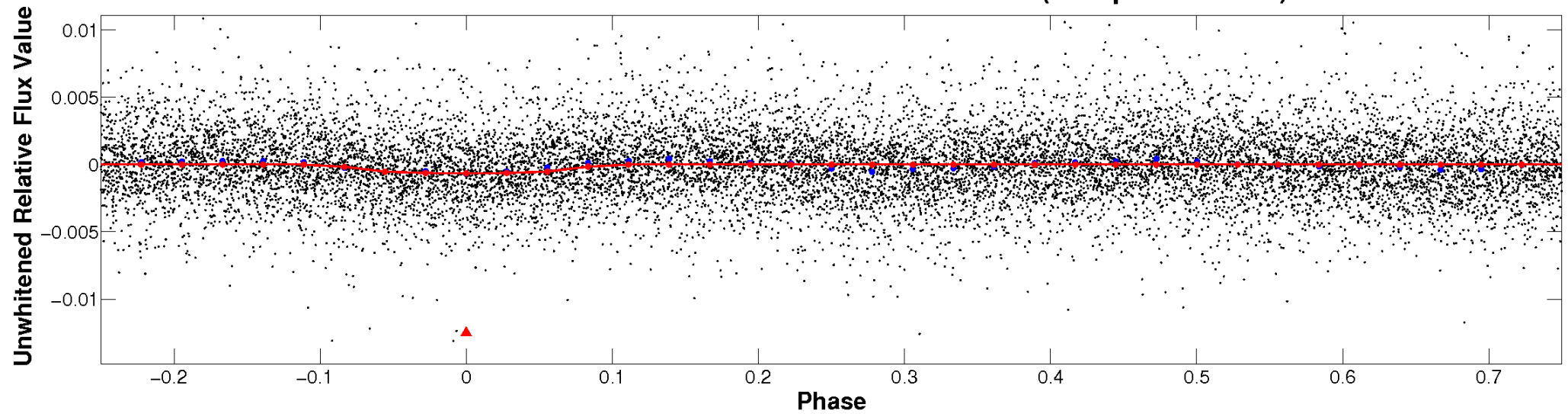
TCE 010489391-01



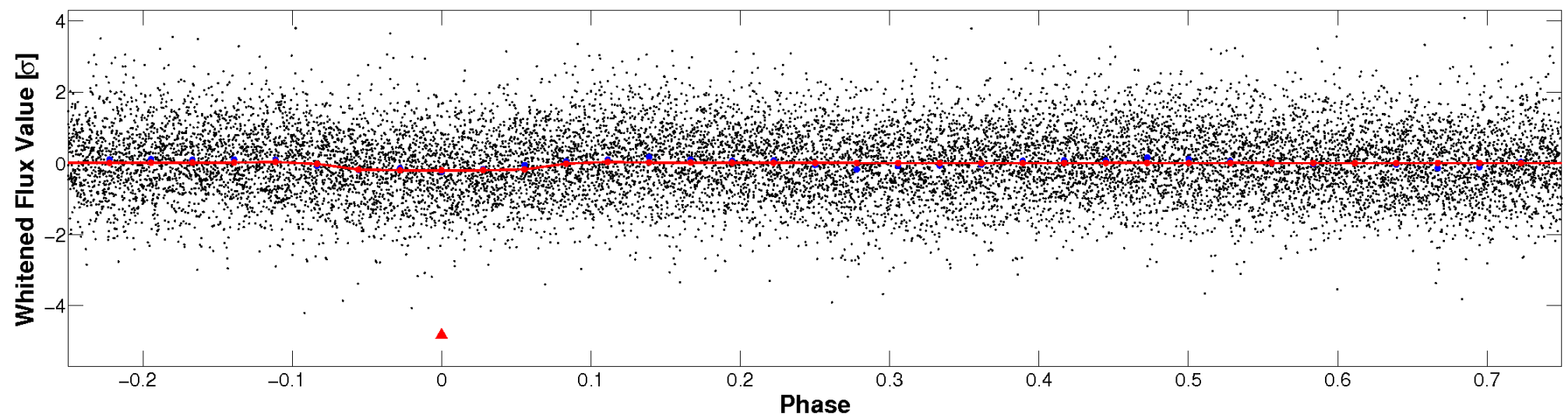


# Non-Whitened Vs. Whitened Light Curve

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

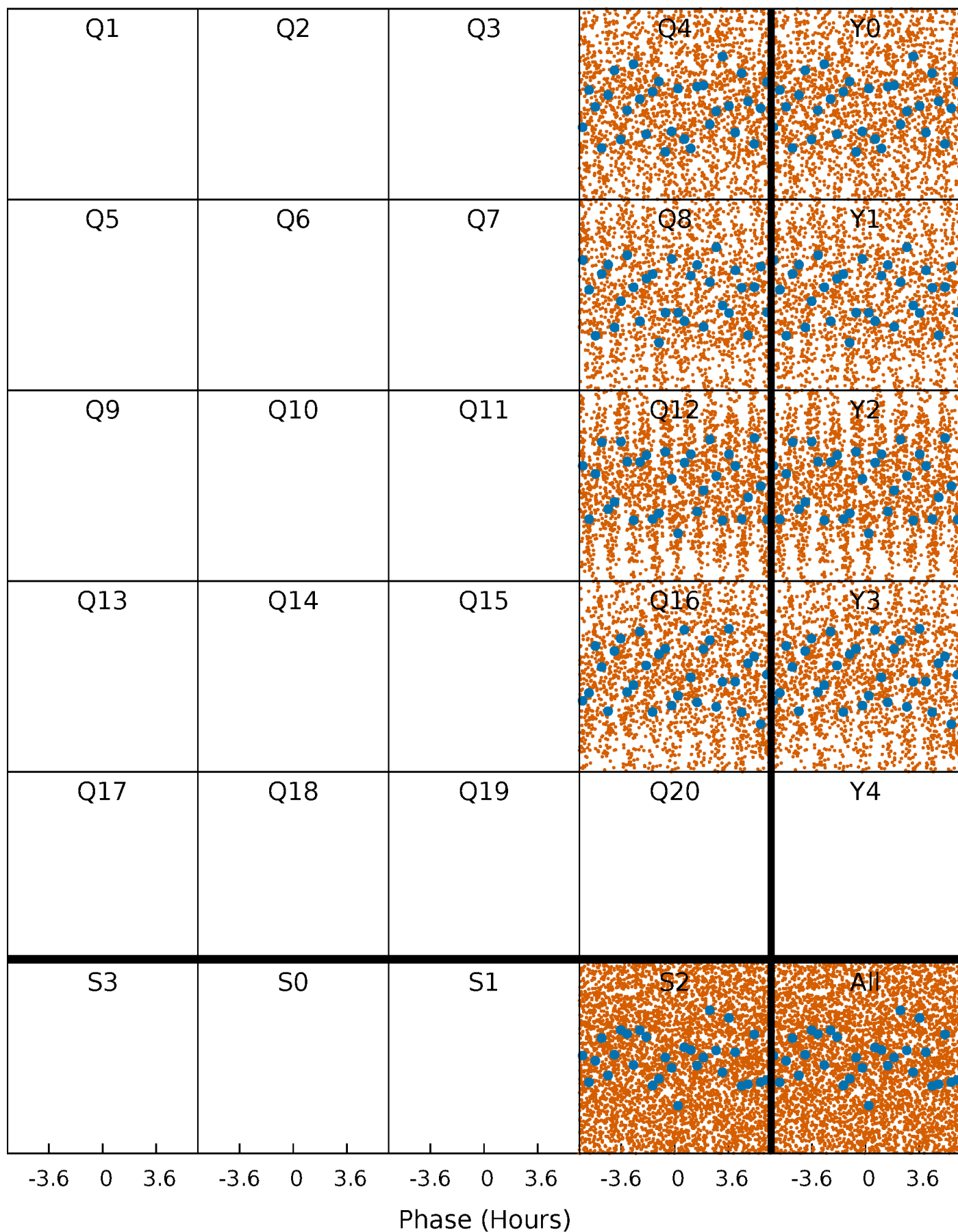


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

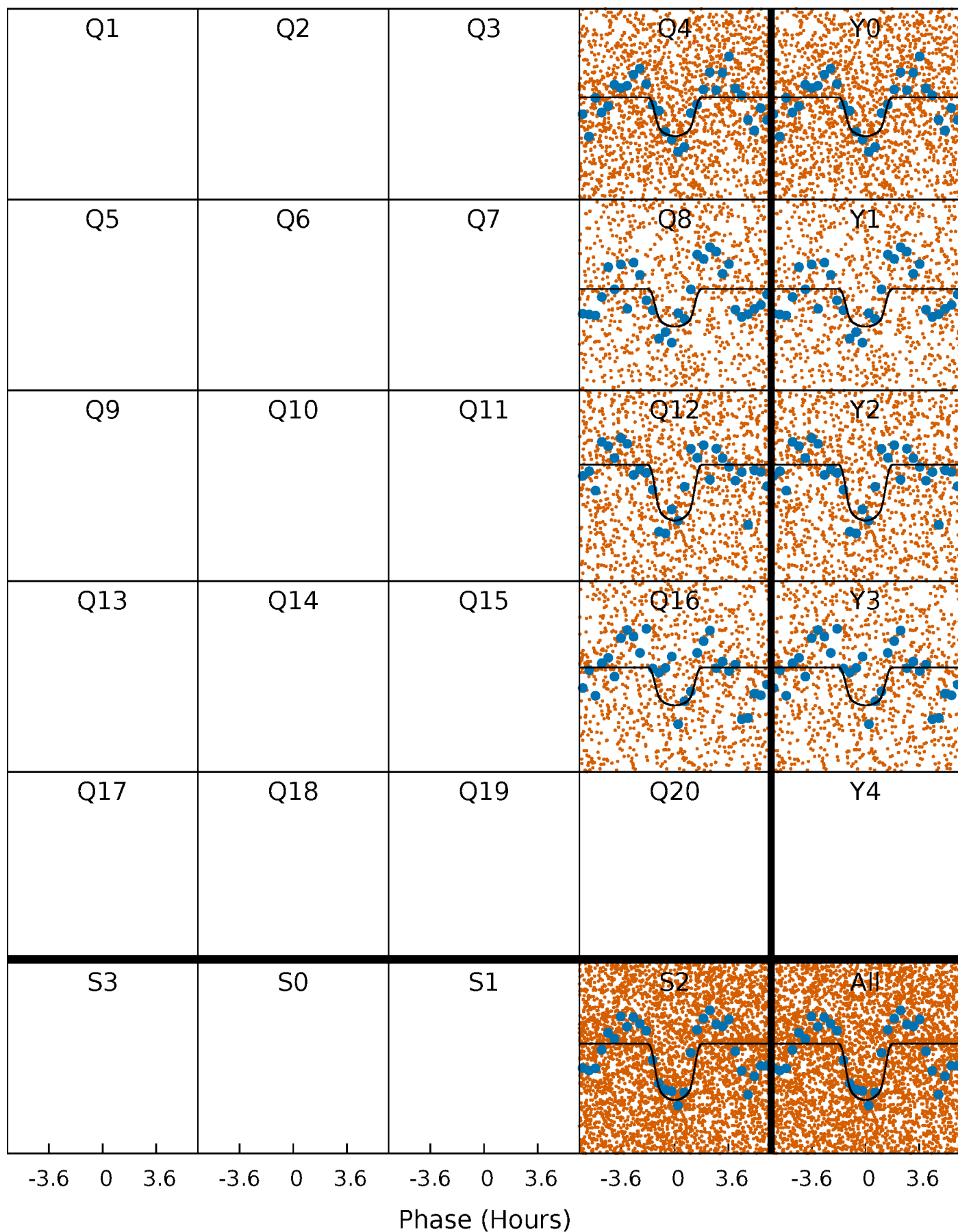
TCE 010489391-01   P= 0.735175 Days    $T_0=132.241035$  (BKJD)





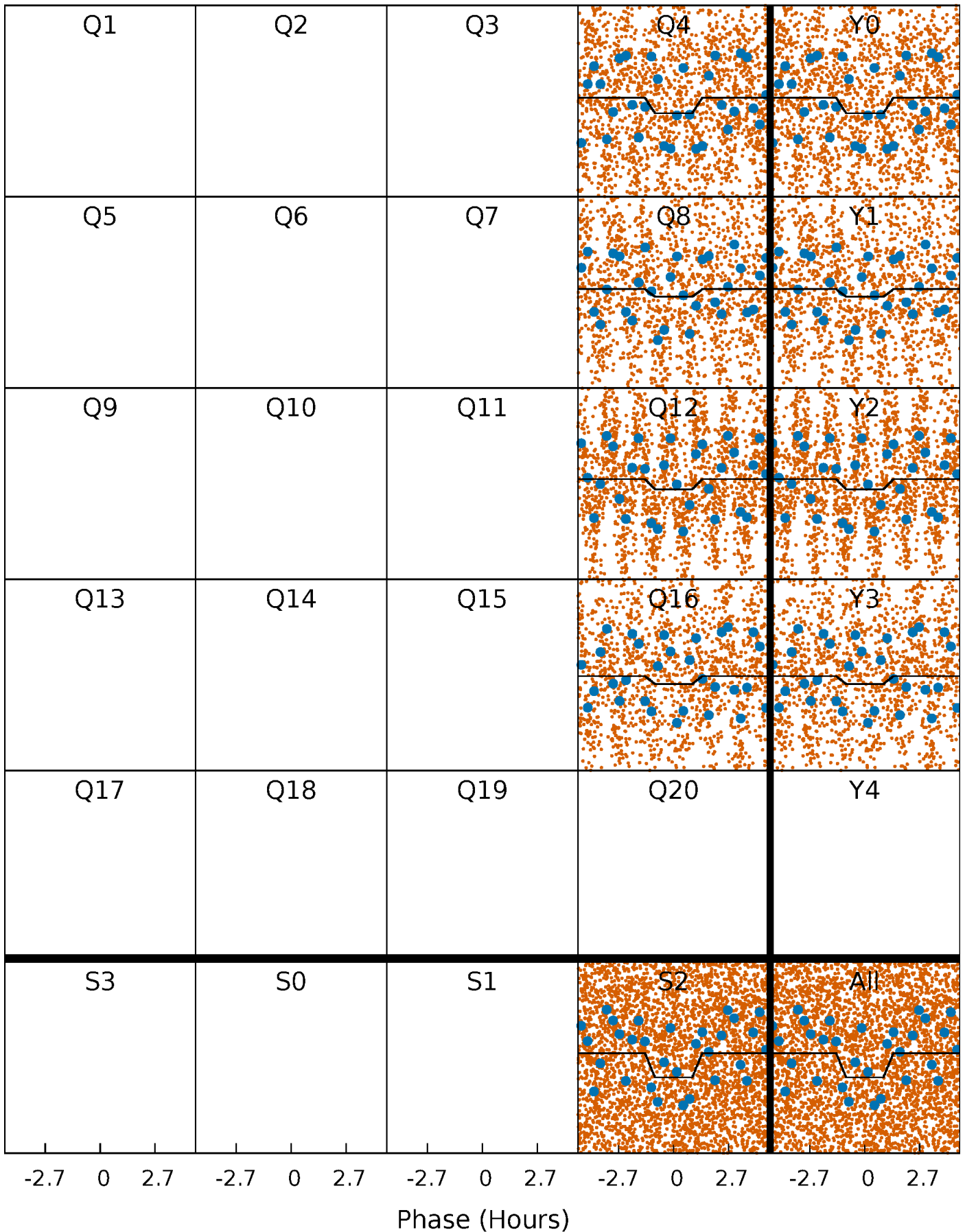
# DV Quarter-Phased Transit Curves

TCE 010489391-01   P= 0.735175 Days    $T_0=132.241035$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

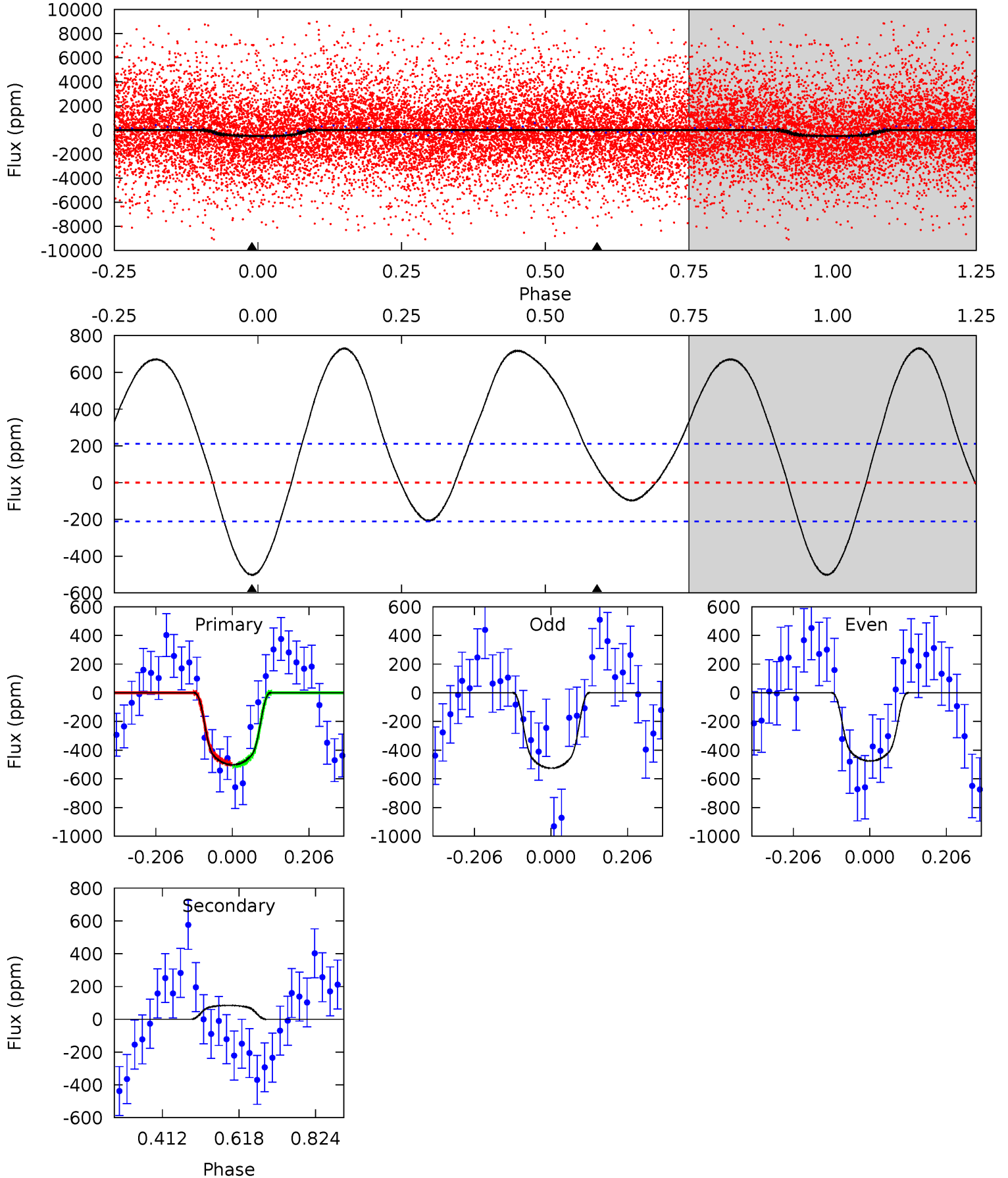
TCE 010489391-01 P= 0.735171 Days  $T_0=132.232085$  (BKJD)



# DV Model-Shift Uniqueness Test

010489391-01, P = 0.735175 Days, E = 132.241035 Days

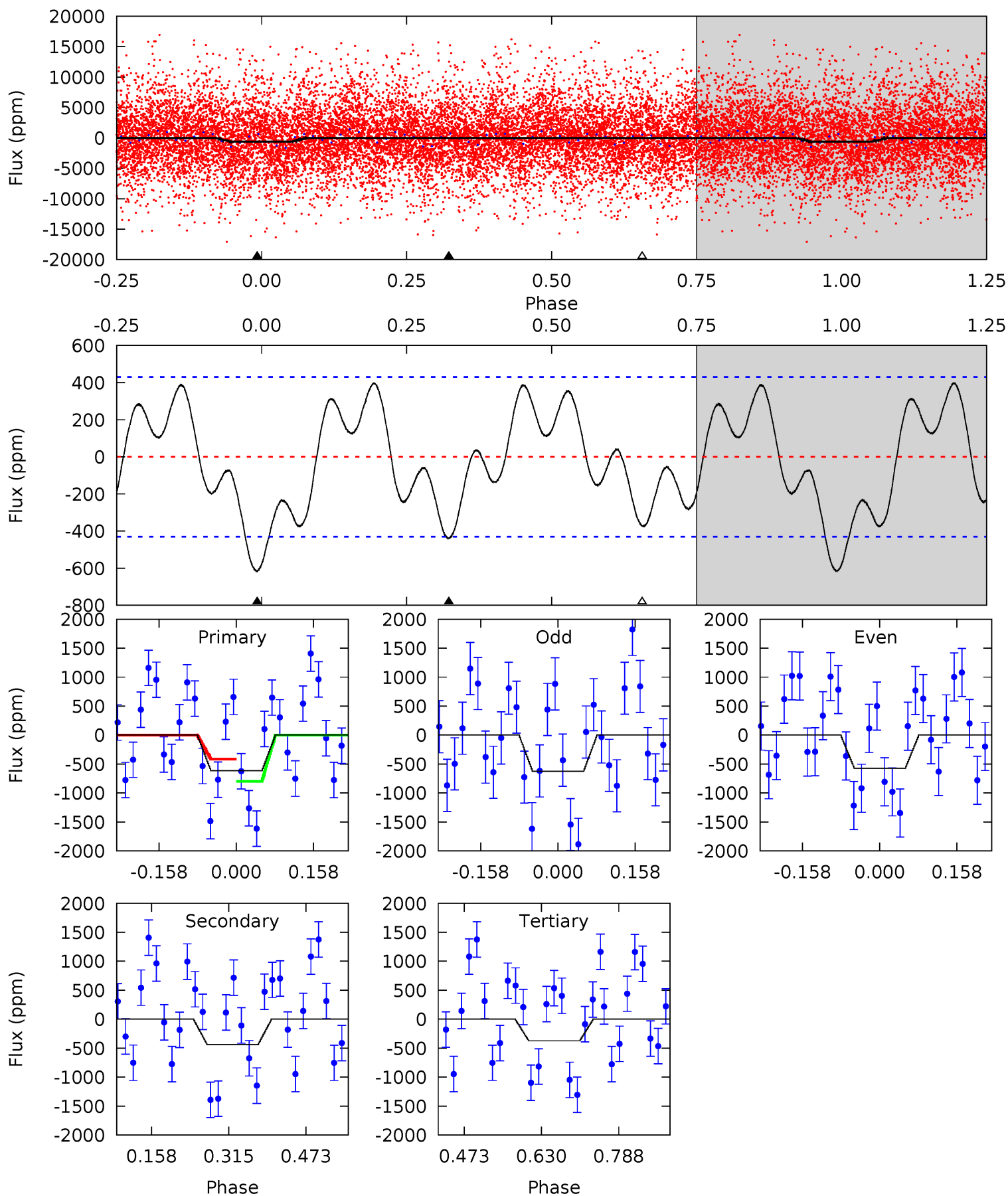
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	-1.77	0	0	4.41	1.26	4.03	10.5	10.5	-1.77	-1.77	0.53	1.00	0.59	0.16



# Alt Model-Shift Uniqueness Test

010489391-01, P = 0.735171 Days, E = 132.232085 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
6.39	4.56	3.88	0	4.47	1.41	2.07	2.51	6.39	0.68	4.56	0.27	0.90	0.39	1.98



### Stellar Parameters For KIC 010489391

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5183^{+196}_{-179}$	$4.605^{+0.036}_{-0.084}$	$-0.140^{+0.300}_{-0.300}$	$0.748^{+0.105}_{-0.065}$	$0.831^{+0.065}_{-0.098}$	$2.799^{+0.465}_{-0.846}$
	+4%/-3%	+1%/-2%	+214%/-214%	+14%/-9%	+8%/-12%	+17%/-30%
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 010489391-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$85 \pm 48$	$2.38^{+0.50}_{-0.56}$	$2287^{+101}_{-97}$	$-3490^{+348}_{-387}$	$-1.764^{+1.034}_{-1.983}$
Alt.	$-440 \pm 96$	$2.12^{+0.55}_{-0.55}$	$2285^{+106}_{-95}$	$4745^{+715}_{-468}$	$12^{+11}_{-5}$

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



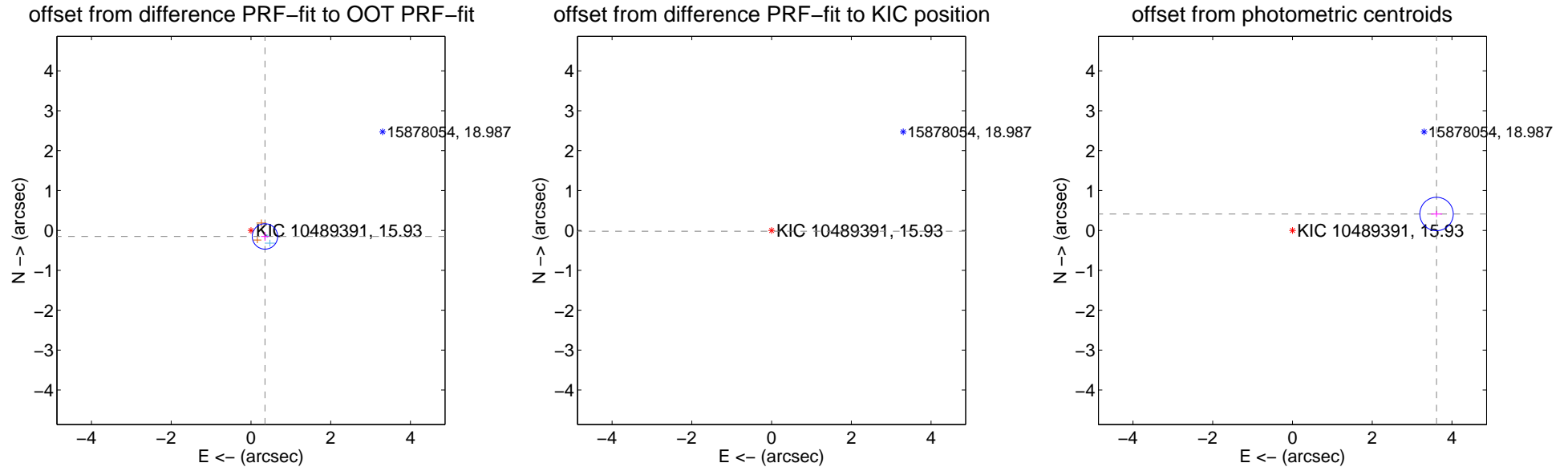
## DV Centroid Data

Supplemental centroid analysis for 010489391-01. Kepler magnitude: 15.93. Transit SNR 8.80

There are 2 quarters with good PRF difference image offsets

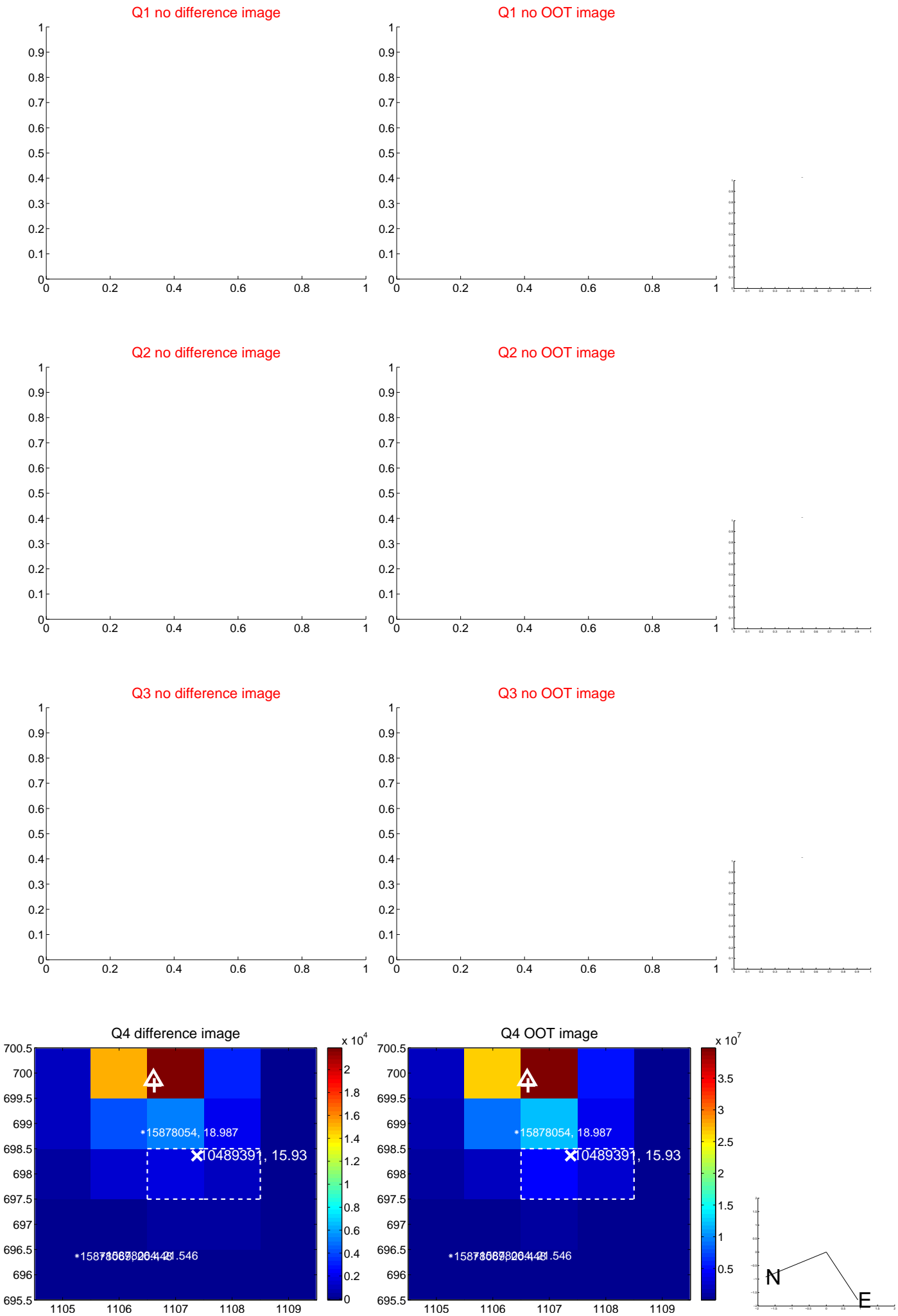
The OOT PRF centroid is offset from the target star catalog position by about 5.99 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.382 \pm 0.106$	3.59	$-0.351 \pm 0.098$	$-0.150 \pm 0.109$
PRF-fit source offset from KIC position	$6.587 \pm 0.166$	39.62	$-6.587 \pm 0.166$	$-0.020 \pm 0.120$
photometric centroid source offset	$3.64 \pm 0.14$	26.04	$-3.61 \pm 0.14$	$0.41 \pm 0.08$

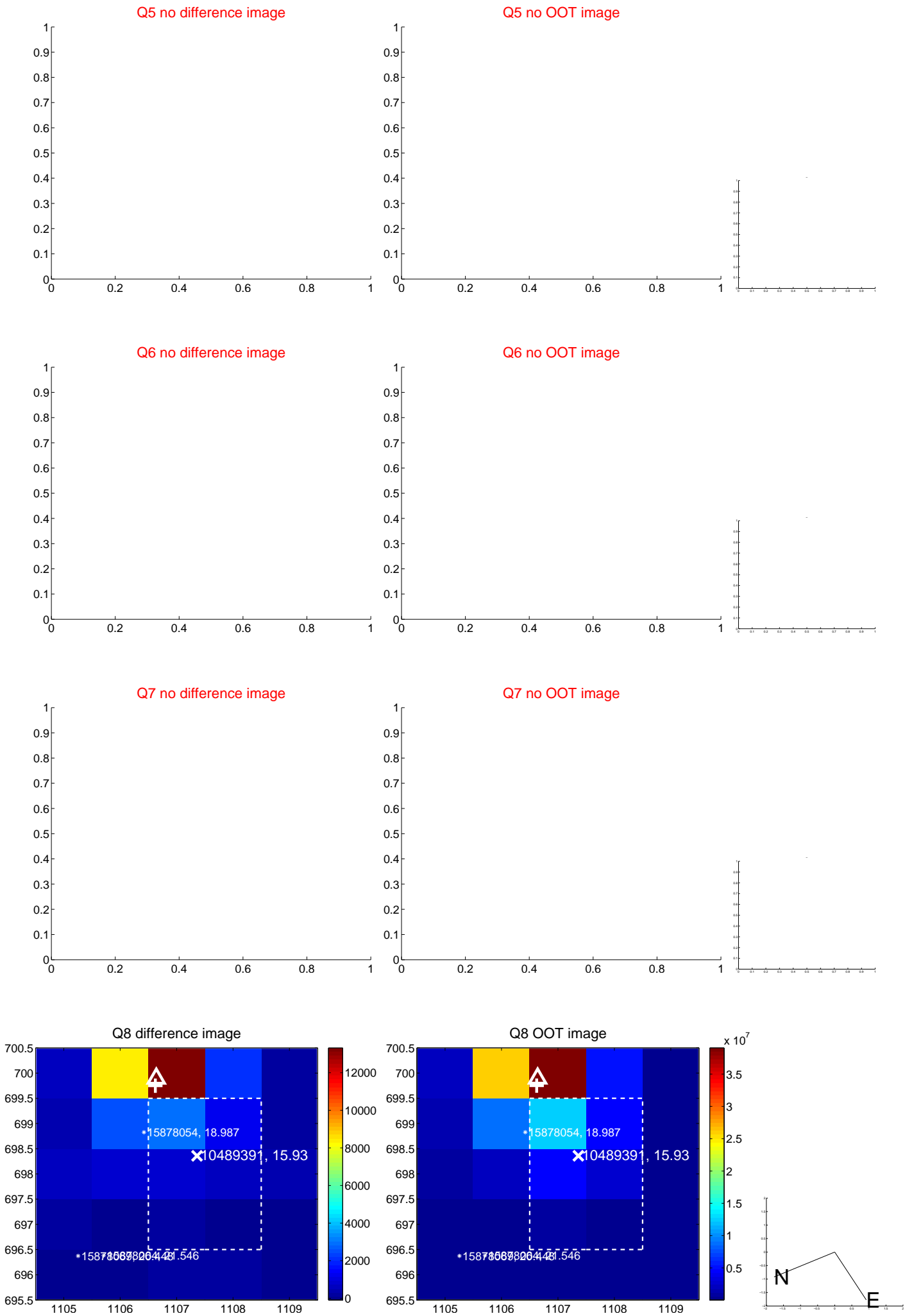


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

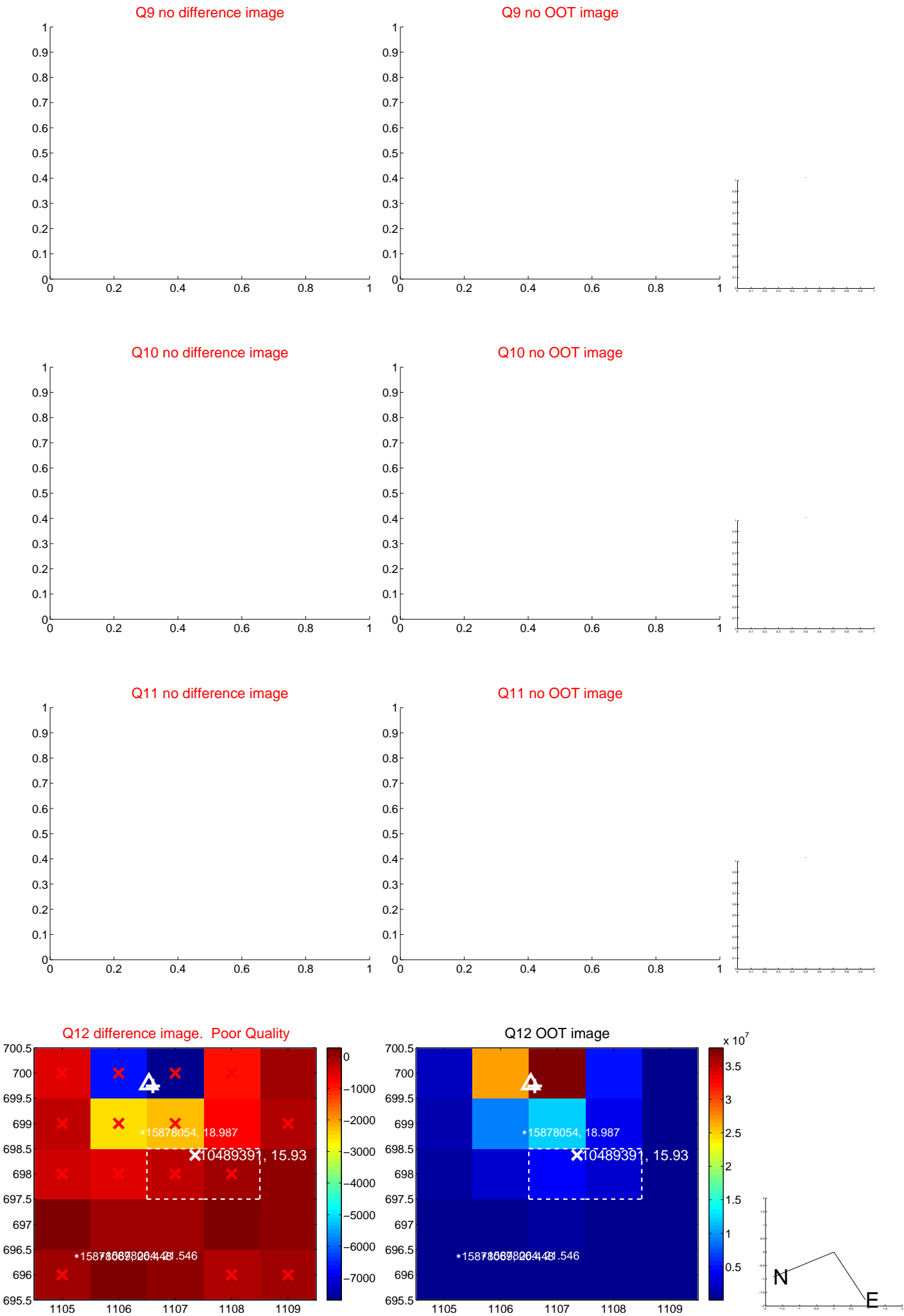
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



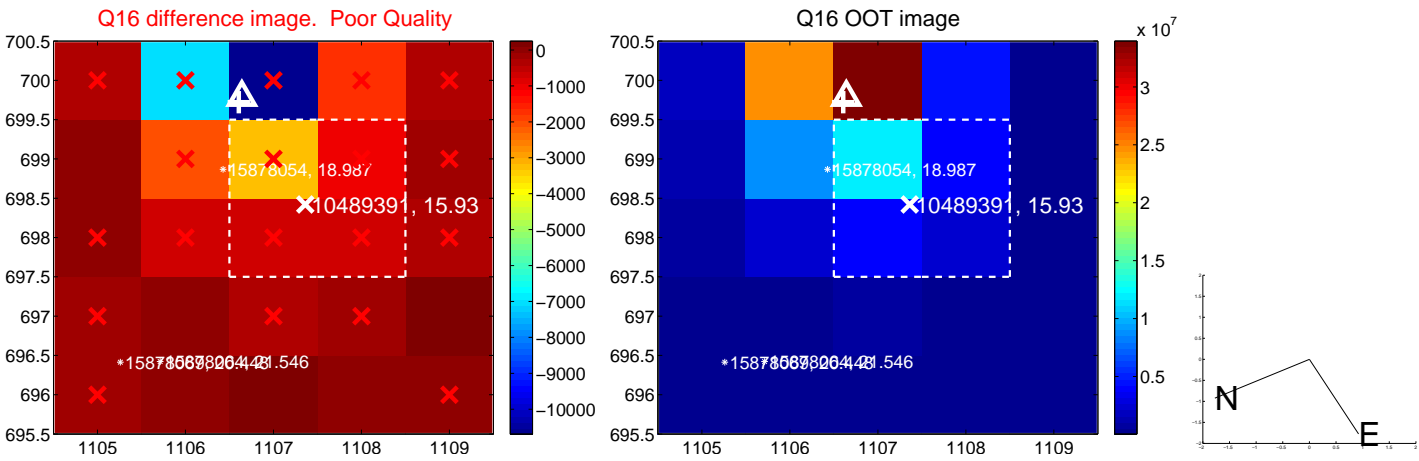
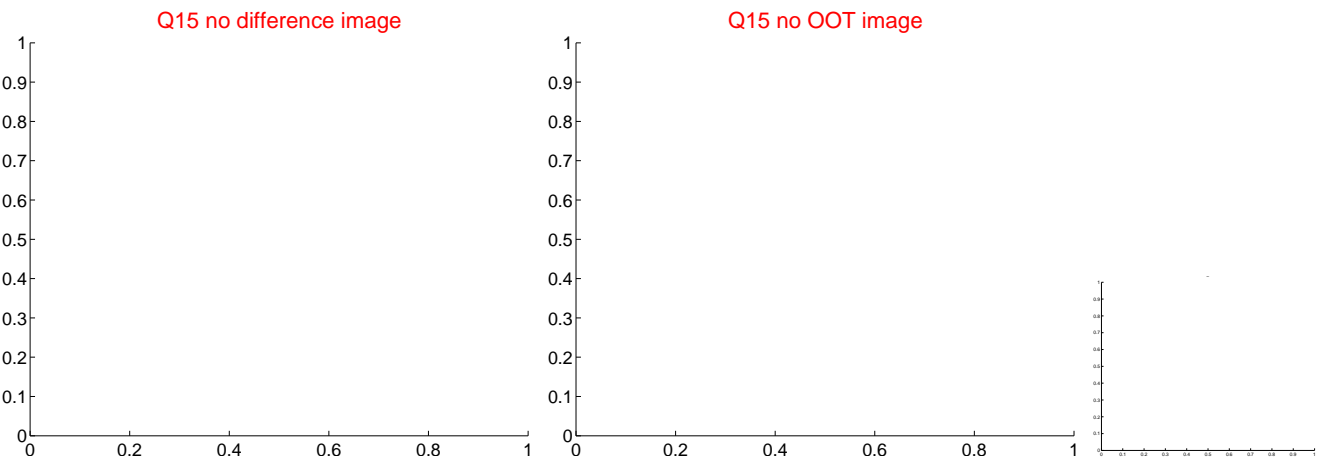
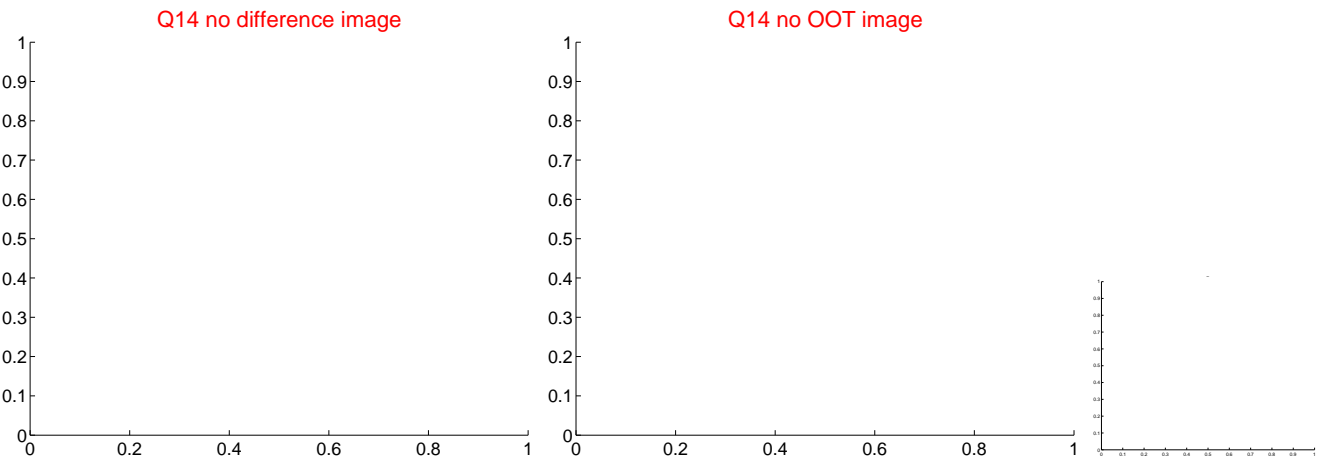
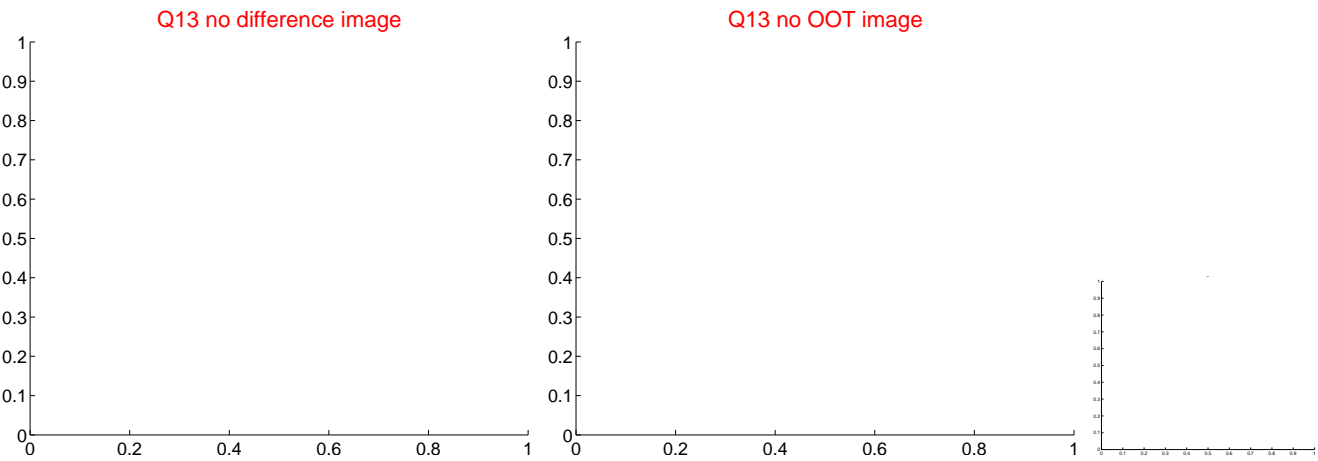
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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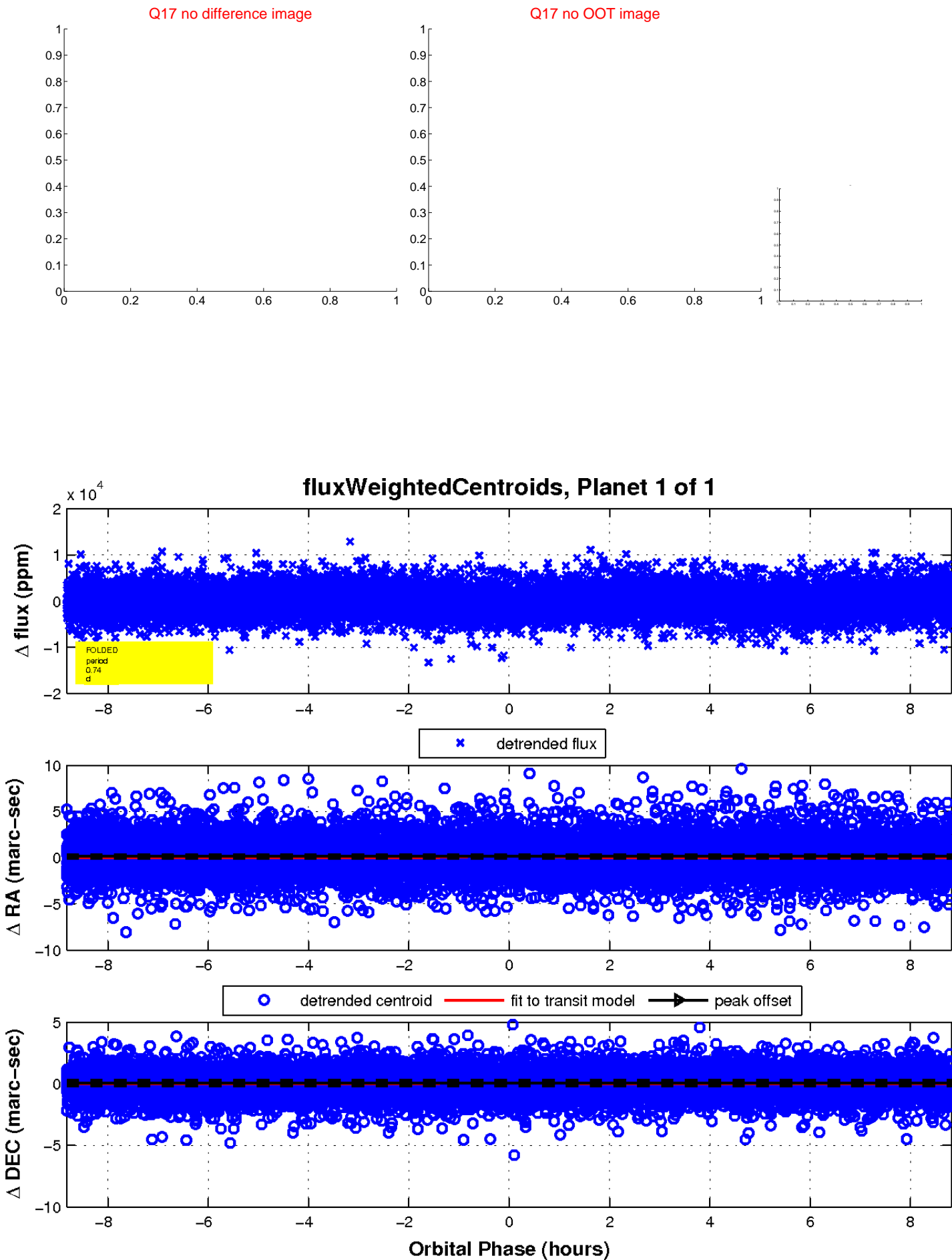


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

