

# KIC 007668791

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007668791-01	OBS	No	0.613326	131.516021	11.1	2.432	15.1	17.9	3.02	8394	1.17	128021.28
007668791-02	OBS	No	0.756548	131.605082	9.4	7.847	7.9	11.6	3.02	8394	0.94	96773.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007668791-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007668791-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

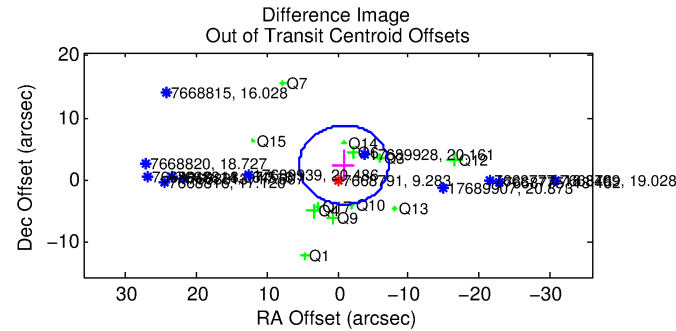
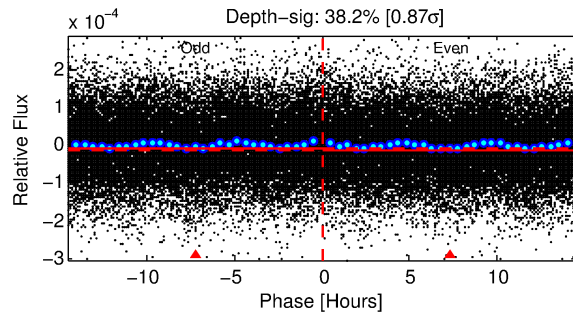
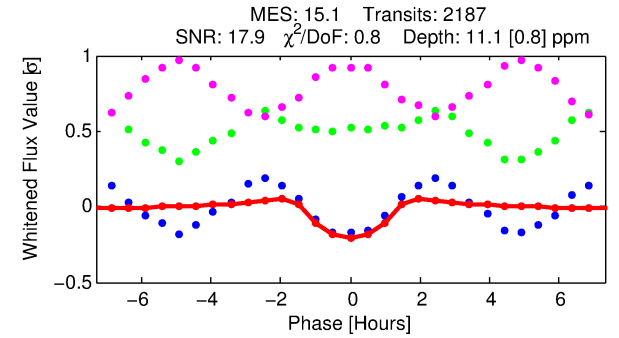
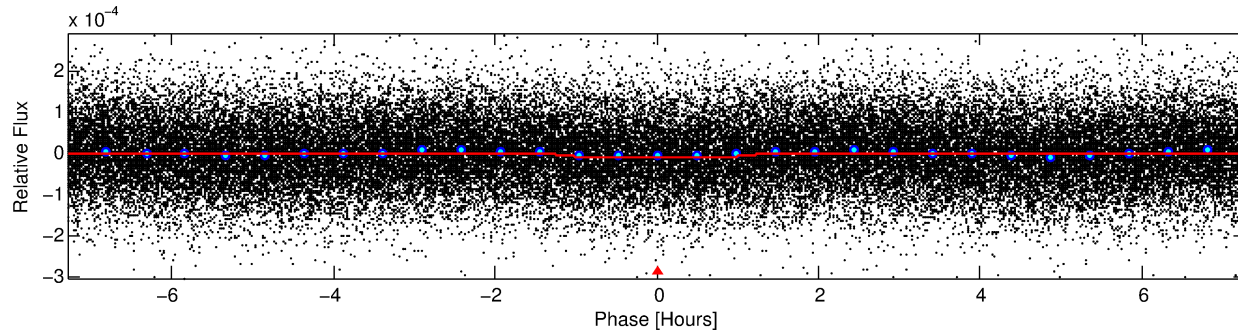
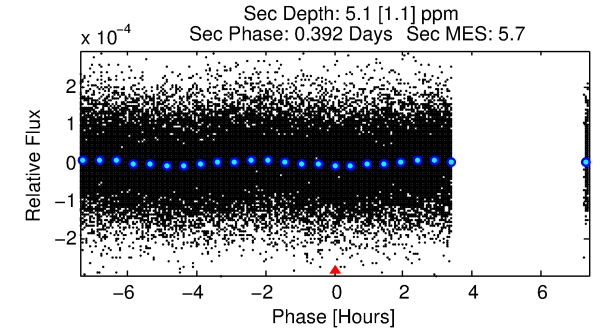
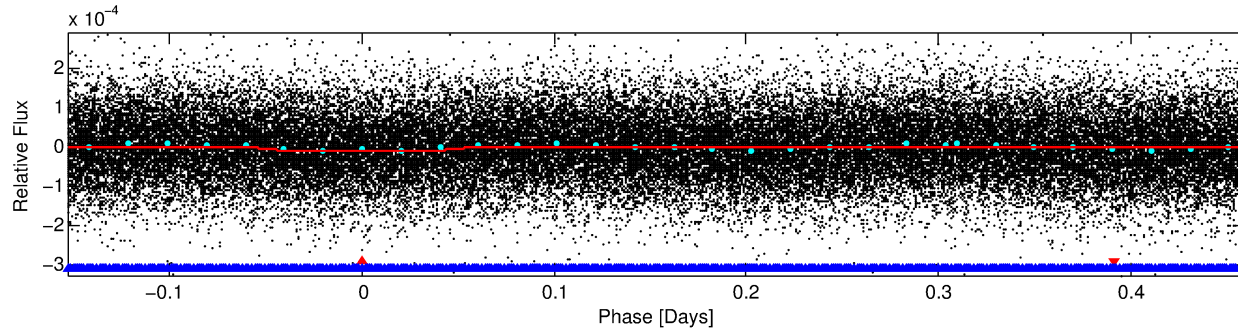
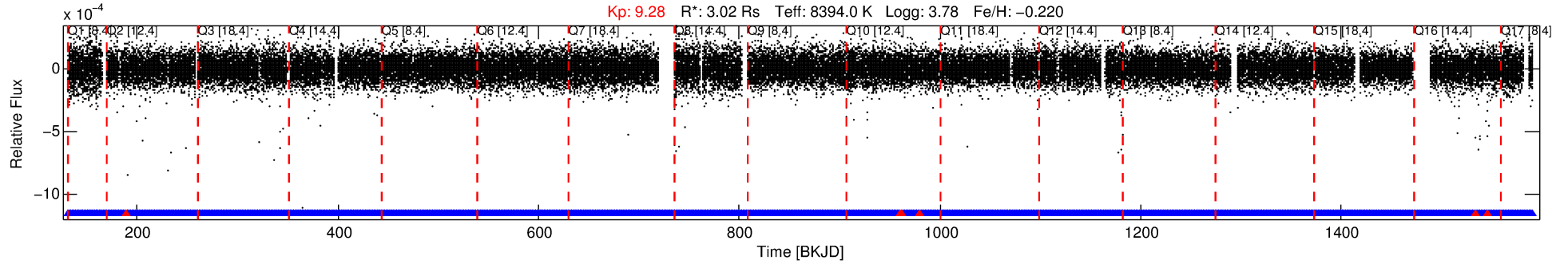
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007668791-01

No Significant Match Found

# DV One-Page Summary

KIC: 7668791 Candidate: 1 of 2 Period: 0.613 d



## DV Fit Results:

Period = 0.61333 [0.00001] d  
Epoch = 131.5160 [0.0017] BKJD  
Rp/R\* = 0.0036 [0.0006]  
a/R\* = 1.26 [0.54]  
b = 0.90 [0.24]  
Seff = 128021.28 [90278.51]  
Teq = 4823 [850] K  
Rp = 1.17 [0.57] Re  
a = 0.0178 [0.0077] AU  
Ag = 0.65 [0.52] [-0.69σ]  
Teffp = 6684 [750] K [1.64σ]

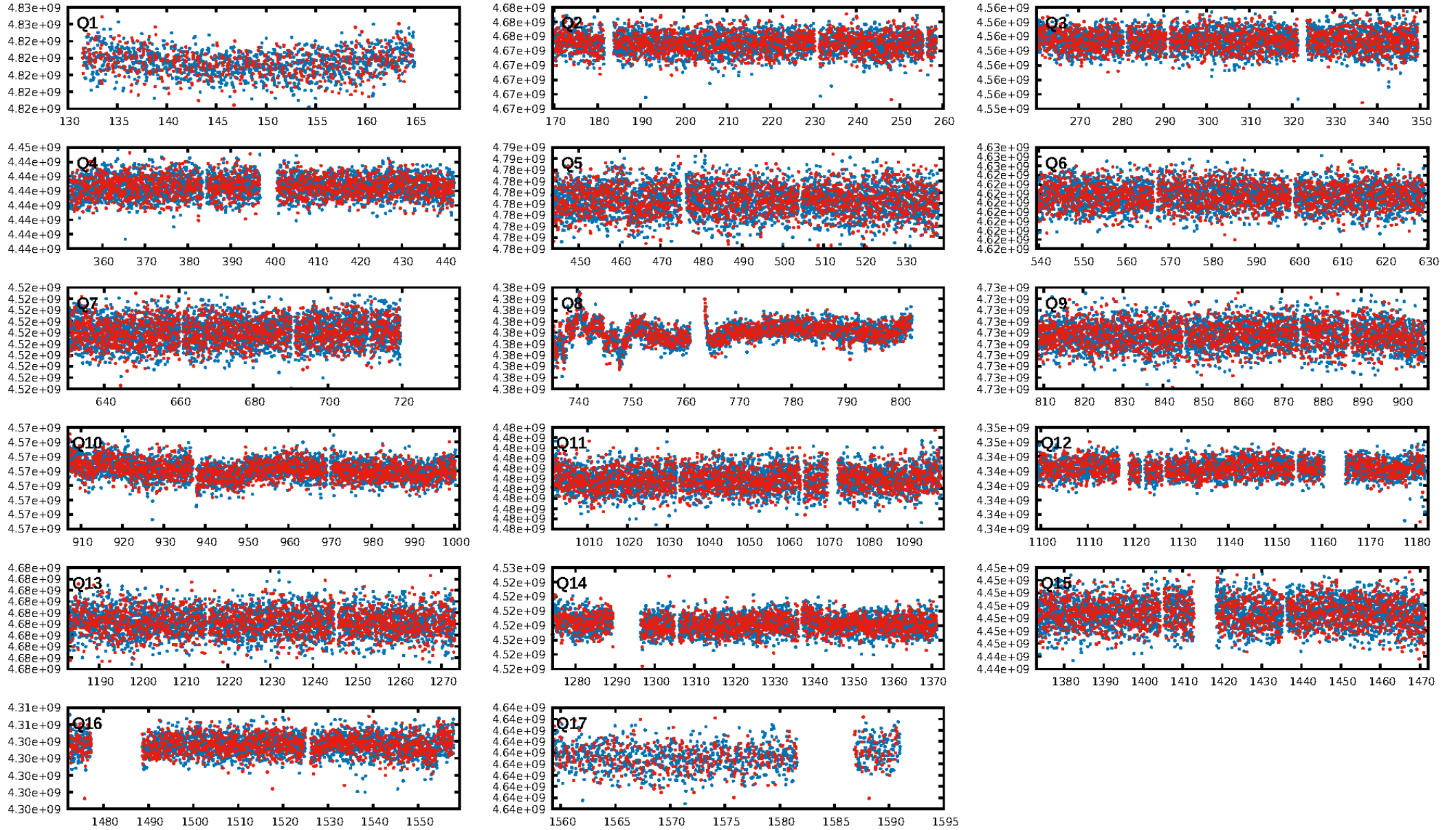
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 32.4% [0.42σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2082/2088]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.3%  
Centroid-so: 1.026 arcsec [1.56σ]  
OotOffset-rm: 2.608 arcsec [1.24σ]  
KicOffset-rm: 2.650 arcsec [1.30σ]  
OotOffset-st: 3/3/2/4 [12]  
KicOffset-st: 3/3/2/4 [12]  
DiffImageQuality-fgm: 0.08 [1/12]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:18:25 Z

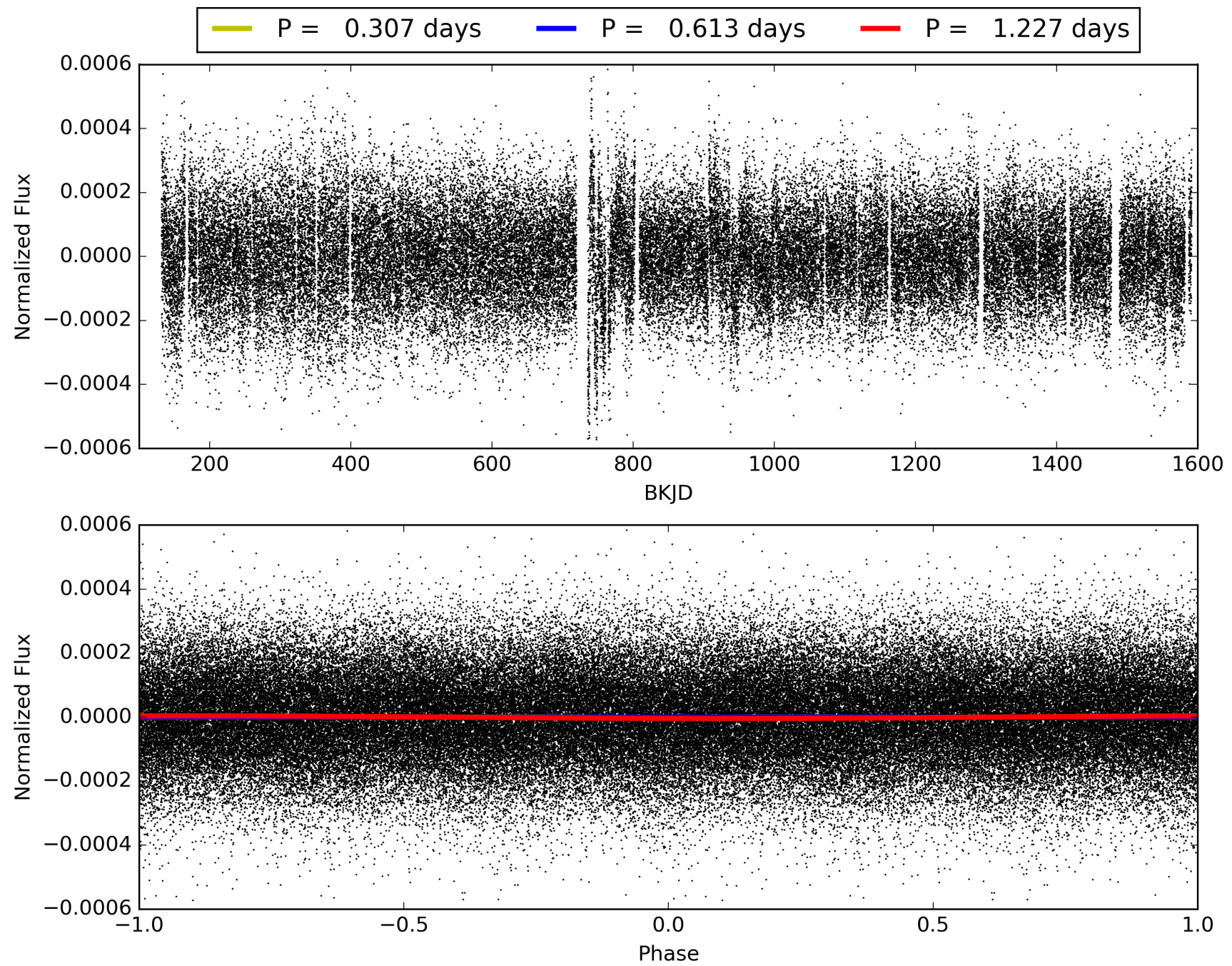
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007668791-01, PDC Light Curves



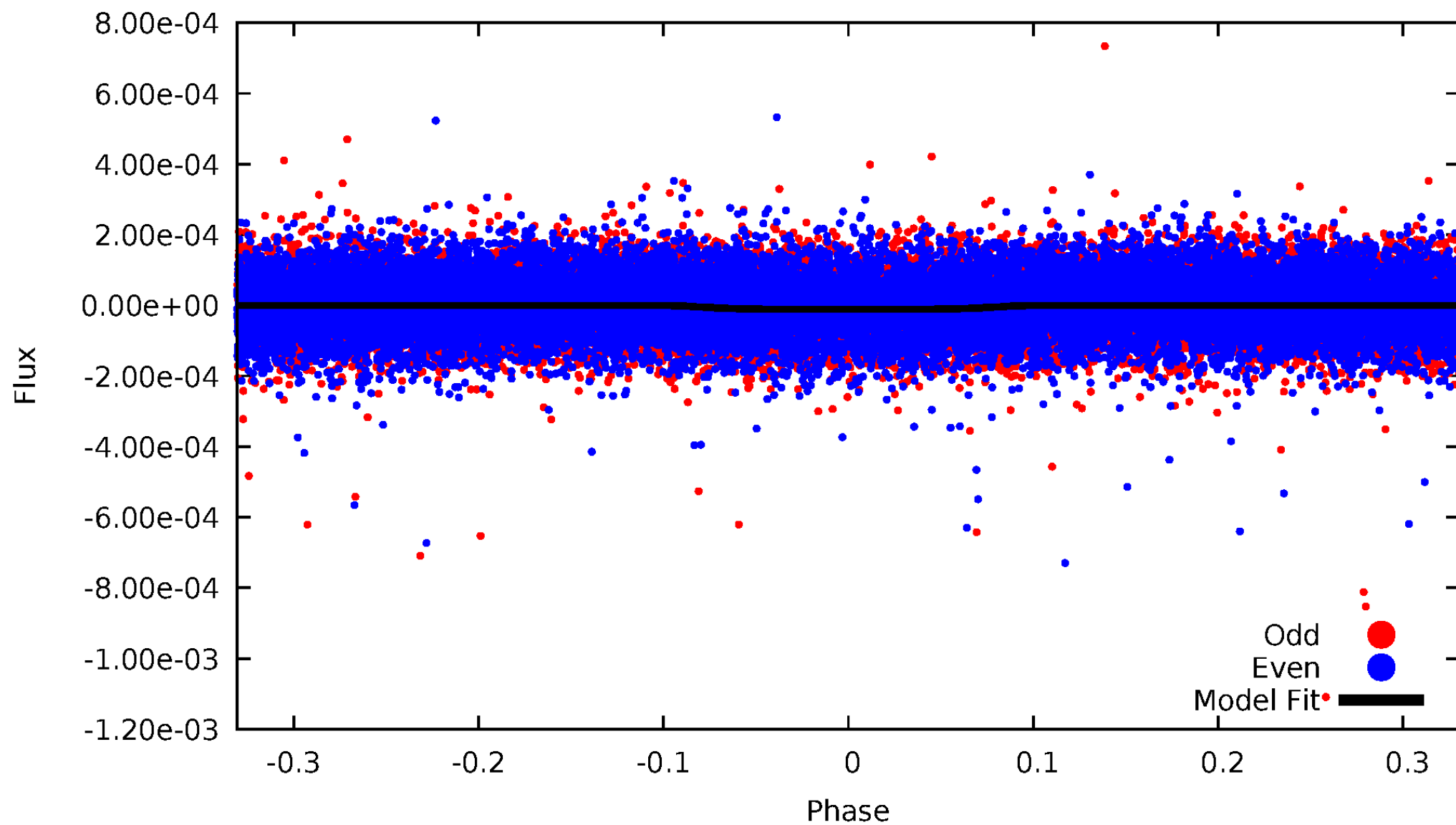


TCE 007668791-01



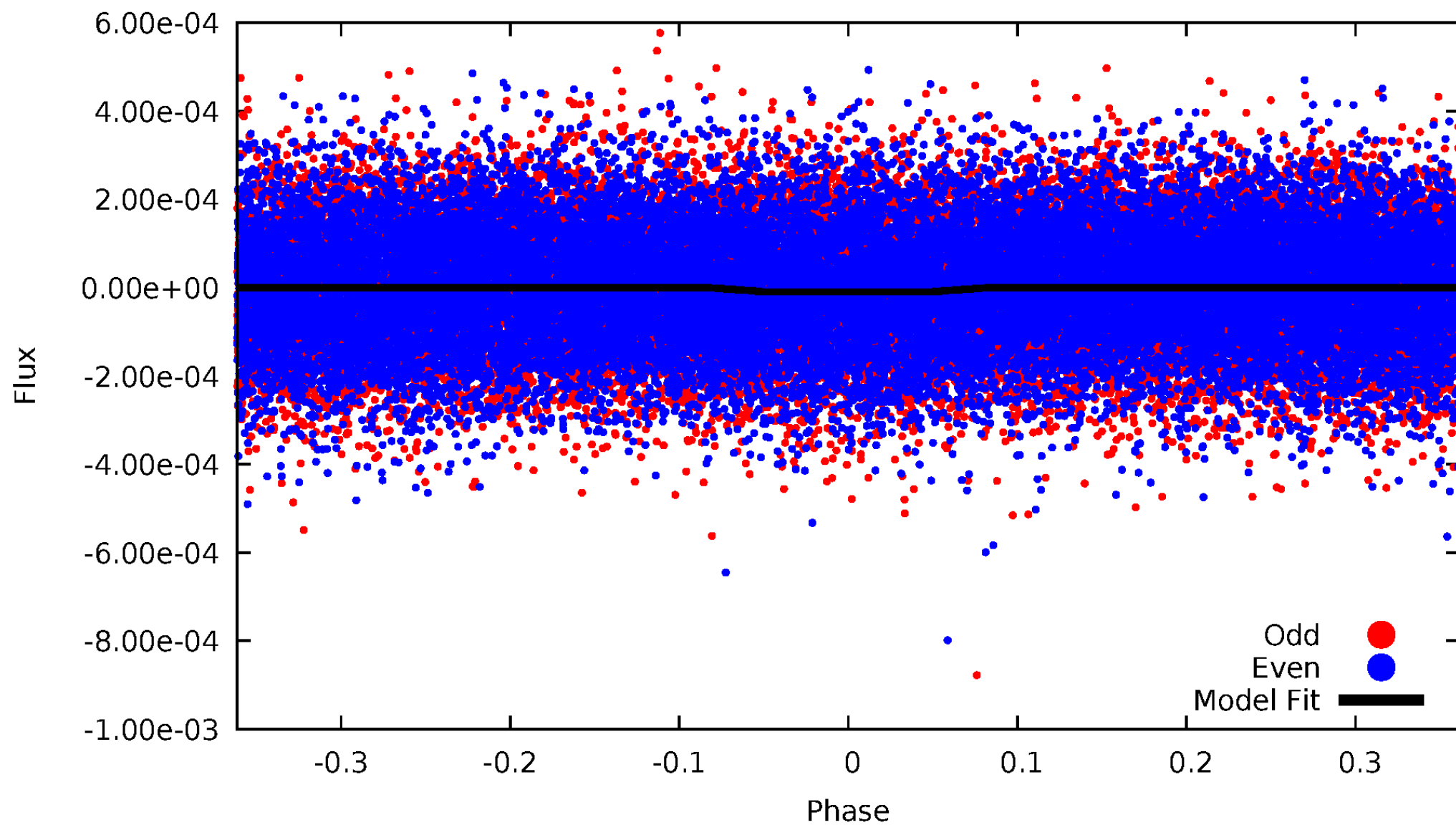
# DV Odd/Even

TCE 007668791-01



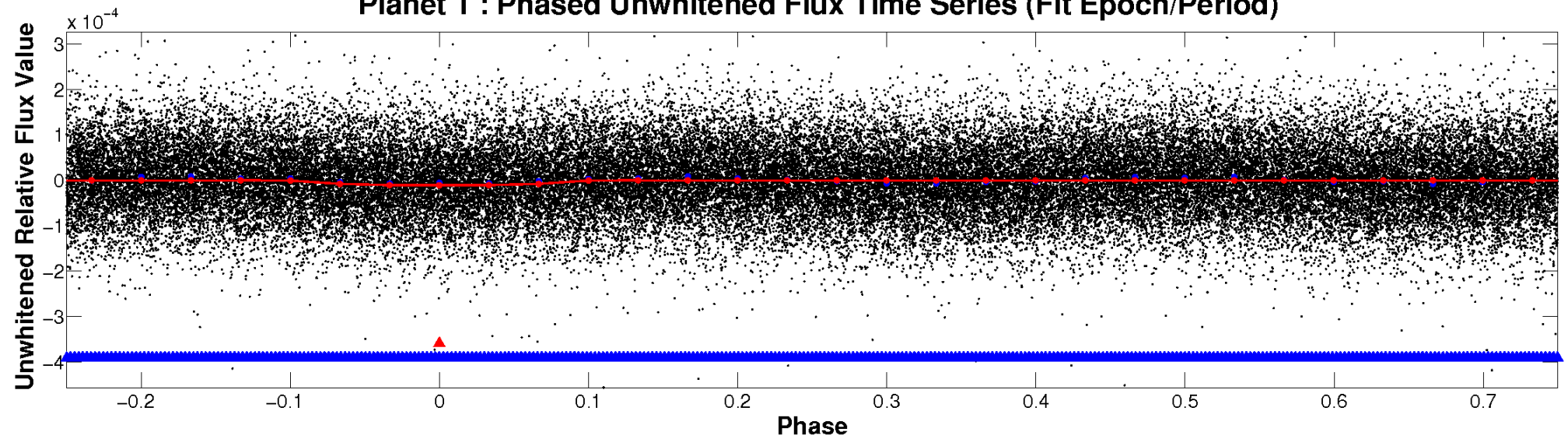
# ALT Odd/Even

TCE 007668791-01

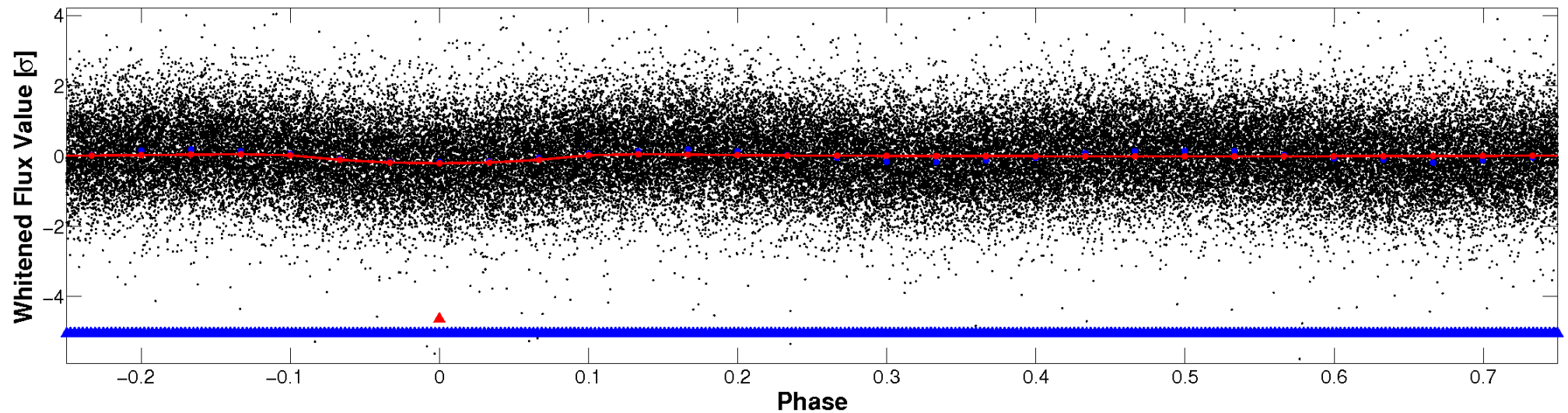


# Non-Whitened Vs. Whitened Light Curve

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



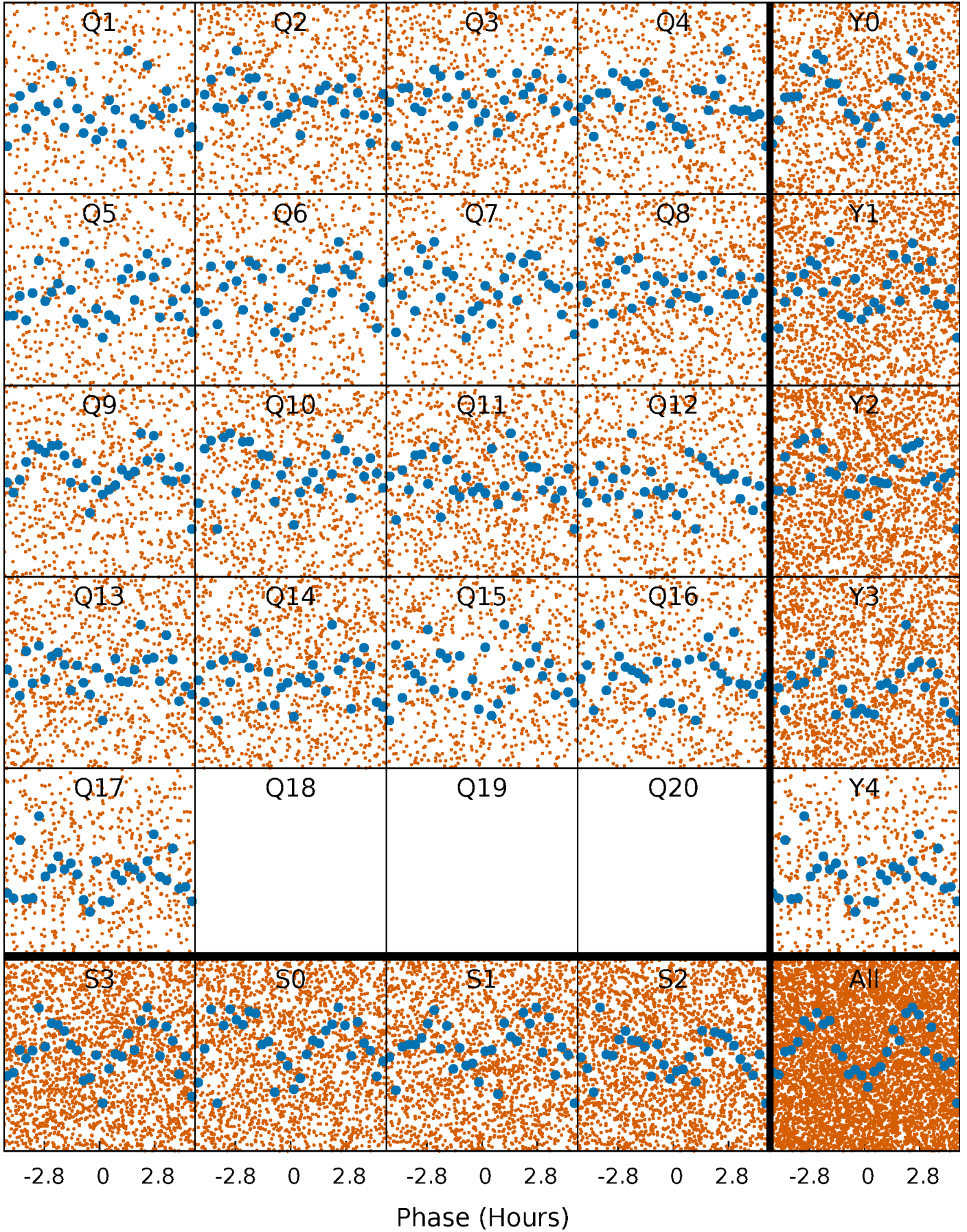
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

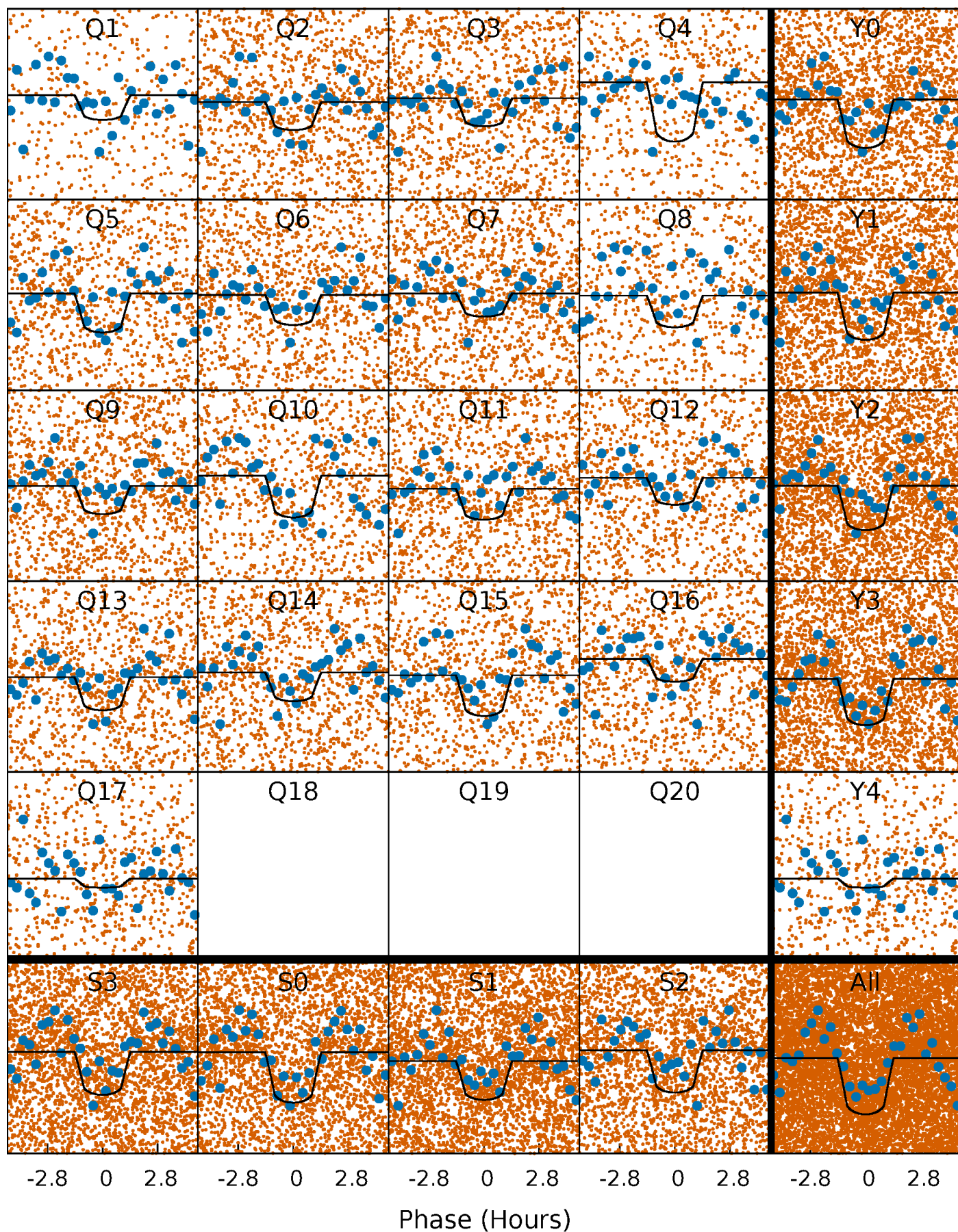
TCE 007668791-01 P= 0.613326 Days  $T_0=131.516021$  (BKJD)





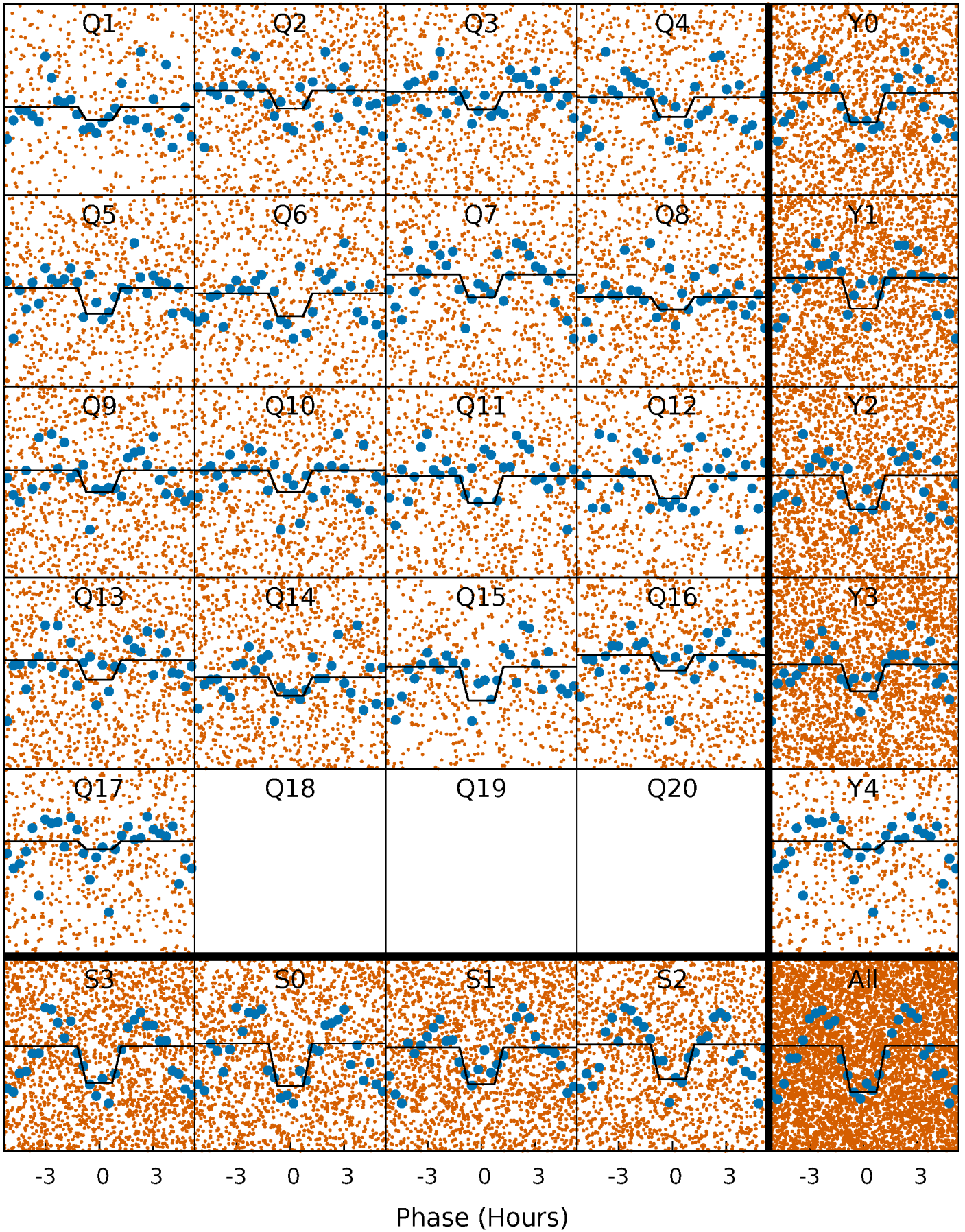
# DV Quarter-Phased Transit Curves

TCE 007668791-01 P= 0.613326 Days  $T_0=131.516021$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007668791-01 P= 0.613321 Days  $T_0=131.520281$  (BKJD)

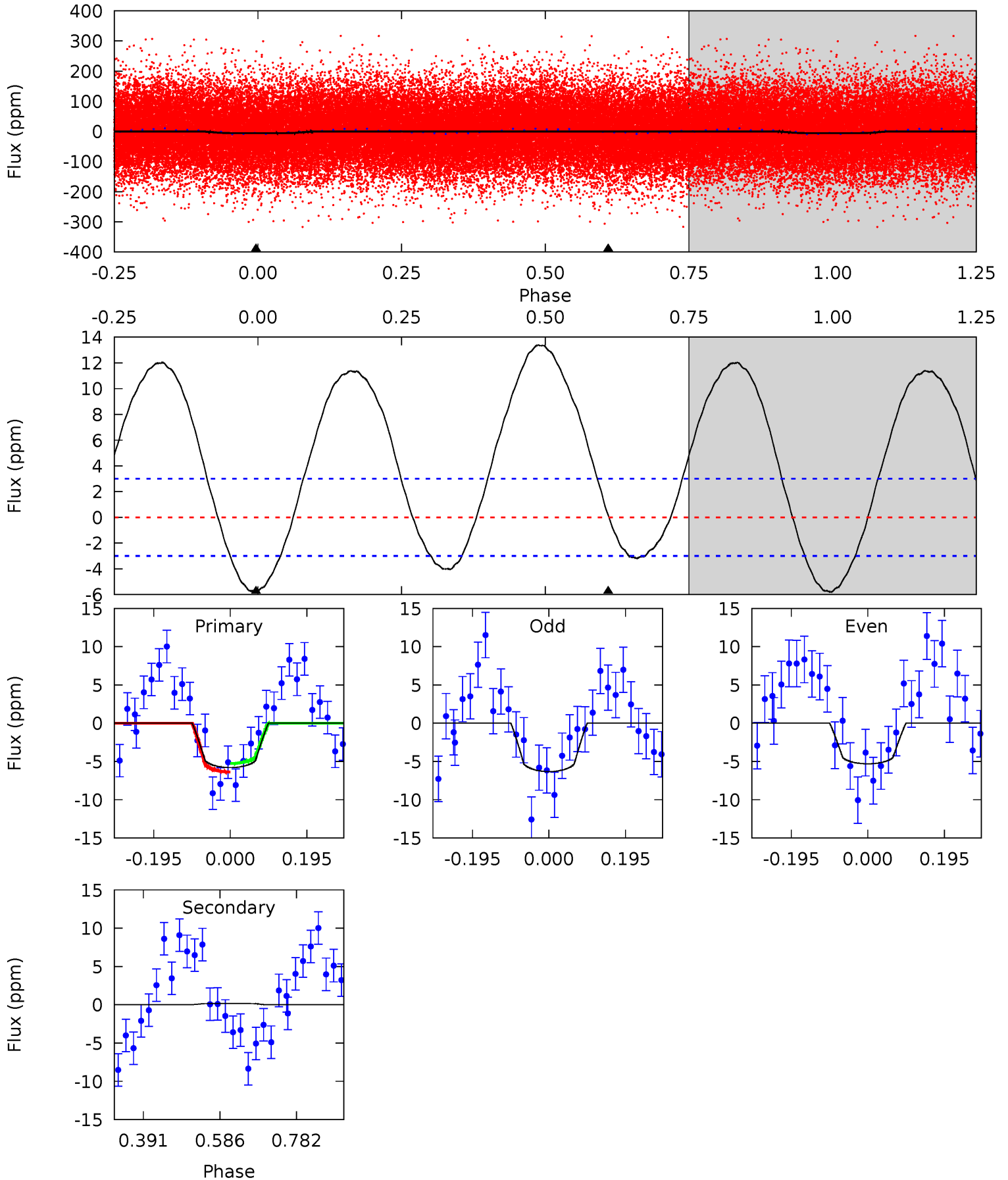




# DV Model-Shift Uniqueness Test

007668791-01, P = 0.613326 Days, E = 130.902695 Days

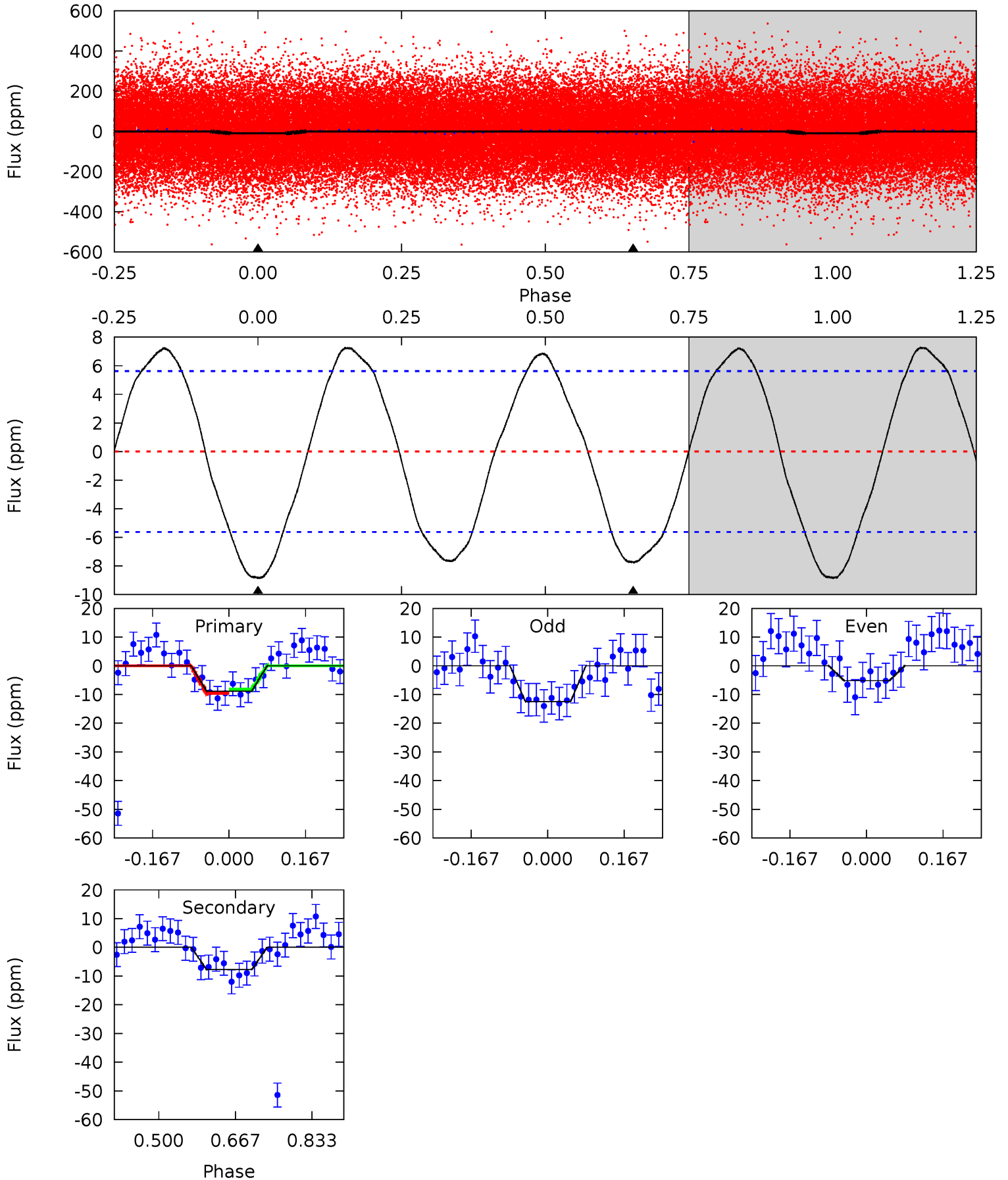
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.55	-0.26	0	0	4.42	1.29	6.54	8.55	8.55	-0.26	-0.26	0.75	0.90	0.70	0.82



# Alt Model-Shift Uniqueness Test

007668791-01, P = 0.613321 Days, E = 130.906960 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
7.01	6.15	0	0	4.46	1.38	4.12	7.01	7.01	6.15	6.15	2.90	0.90	0.45	0.57





### Stellar Parameters For KIC 007668791

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8394^{+206}_{-354}$	$3.779^{+0.400}_{-0.075}$	$-0.220^{+0.250}_{-0.350}$	$3.021^{+0.490}_{-1.373}$	$2.002^{+0.317}_{-0.515}$	$0.102^{+0.392}_{-0.027}$
	+2%/-4%	+11%/-2%	+114%/-159%	+16%/-45%	+16%/-26%	+383%/-26%
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 007668791-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1$	$1.08^{+0.29}_{-0.31}$	$6487^{+422}_{-724}$	$-5266^{+602}_{-455}$	$-0.024^{+0.106}_{-0.118}$
Alt.	$-8 \pm 1$	$0.94^{+0.28}_{-0.25}$	$6529^{+403}_{-704}$	$7360^{+1400}_{-1043}$	$1.541^{+1.243}_{-0.612}$

$T_{\text{max}}$  = 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

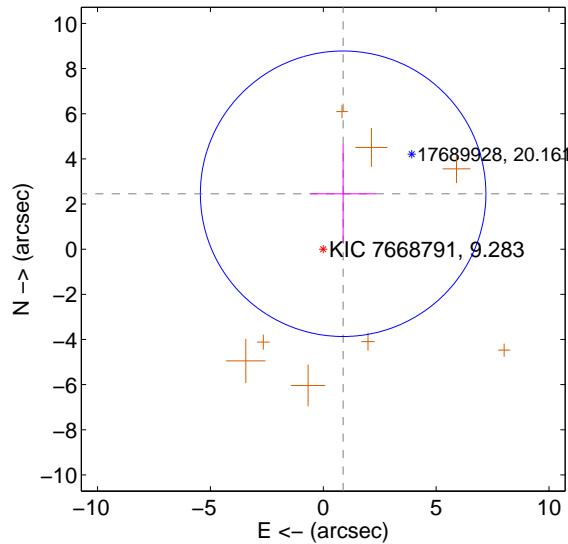
Supplemental centroid analysis for 007668791-01. **Kepler magnitude: 9.28.** Transit SNR 17.88

**There are 1 quarters with good PRF difference image offsets**

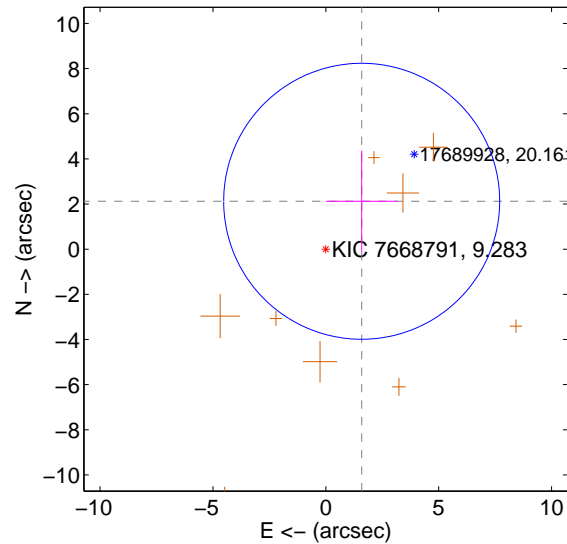
The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.608 \pm 2.108$	1.24	$-0.880 \pm 1.456$	$2.455 \pm 2.177$
PRF-fit source offset from KIC position	$2.650 \pm 2.037$	1.30	$-1.588 \pm 1.587$	$2.121 \pm 2.251$
photometric centroid source offset	$1.03 \pm 0.66$	1.56	$0.26 \pm 0.72$	$-0.99 \pm 0.65$

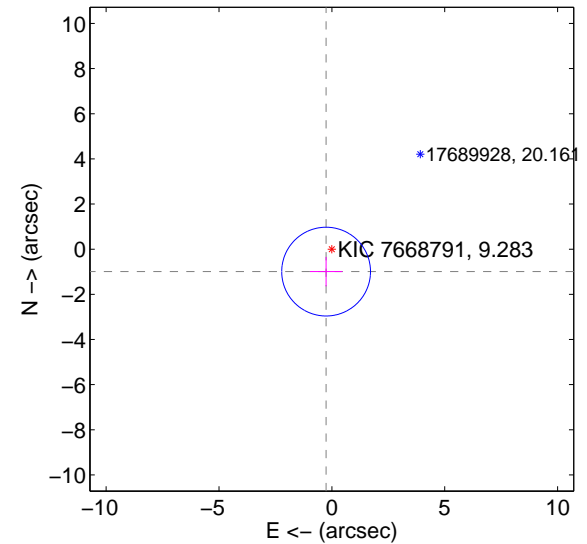
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

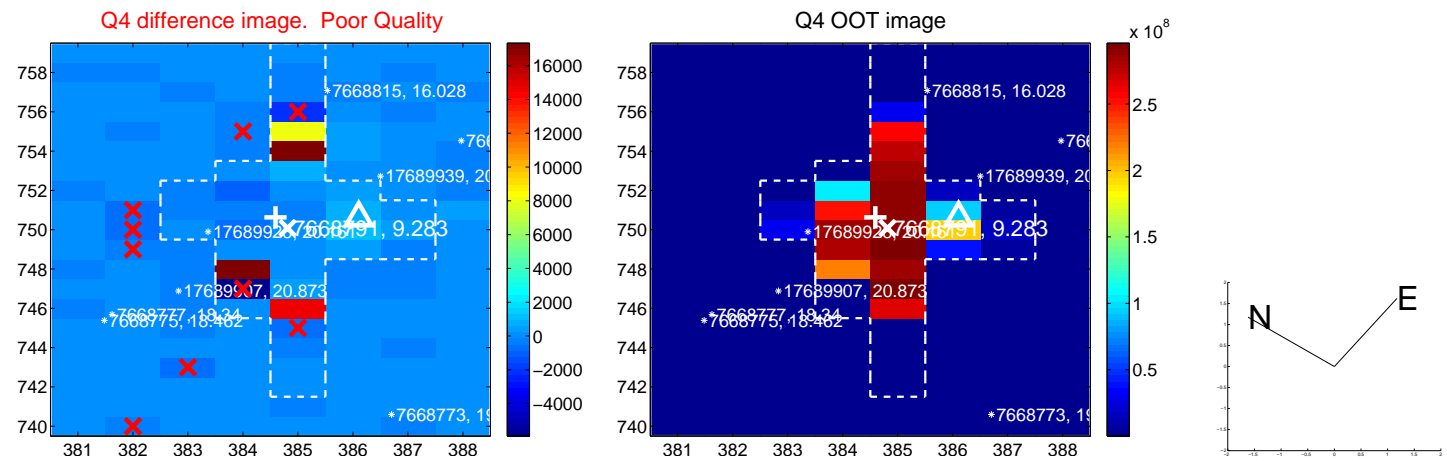
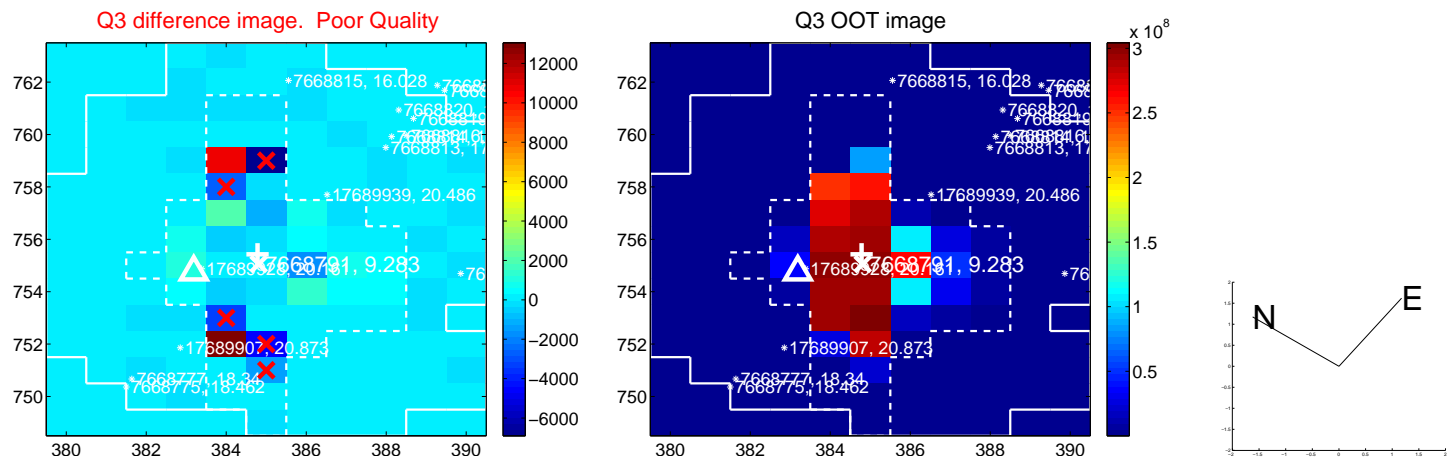
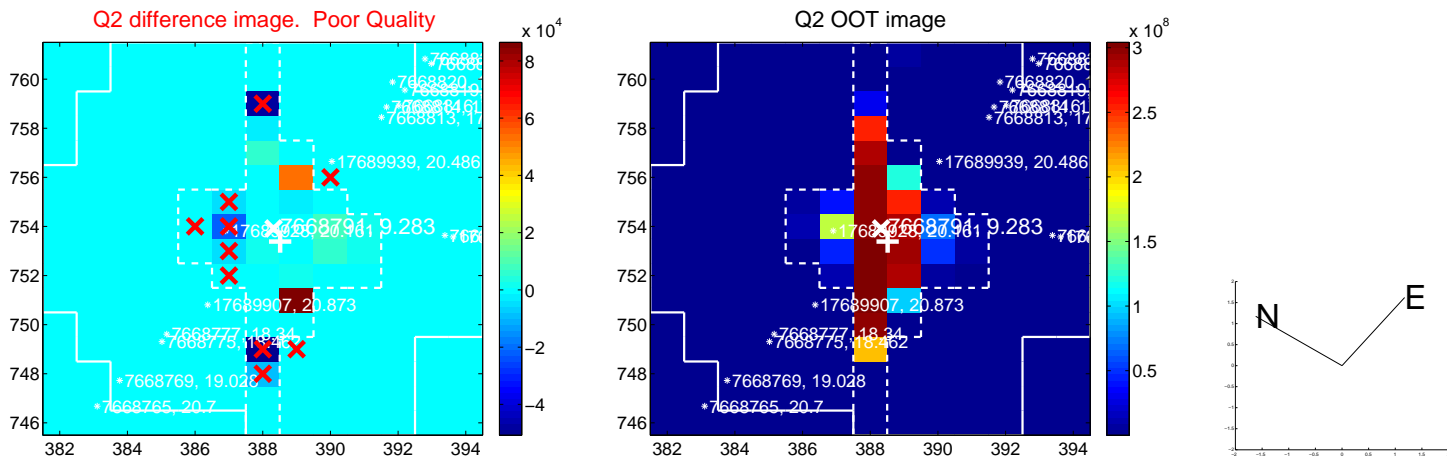
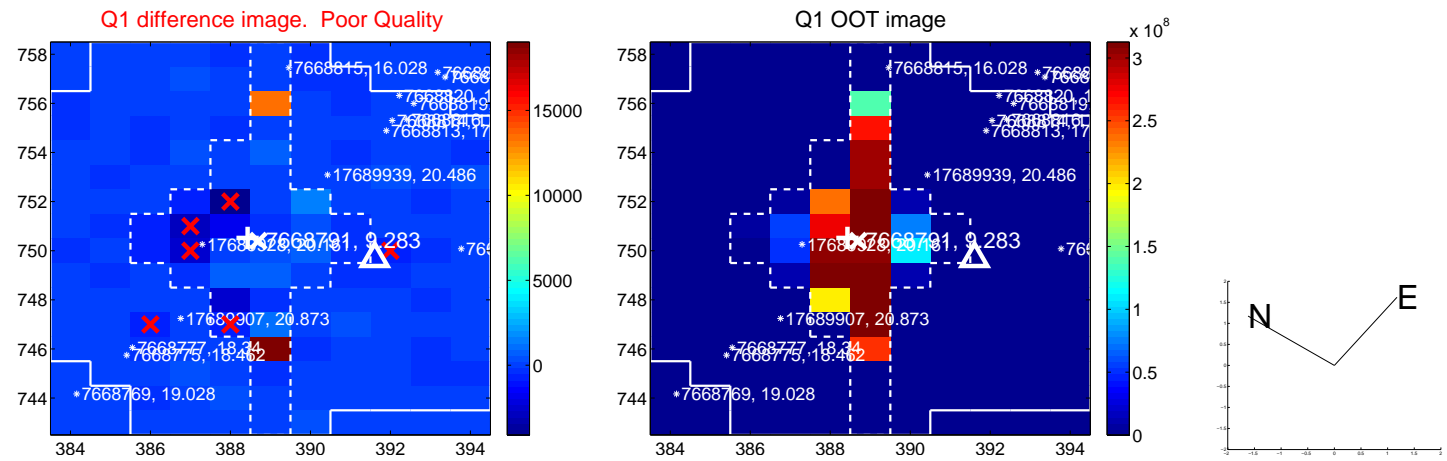


offset from photometric centroids

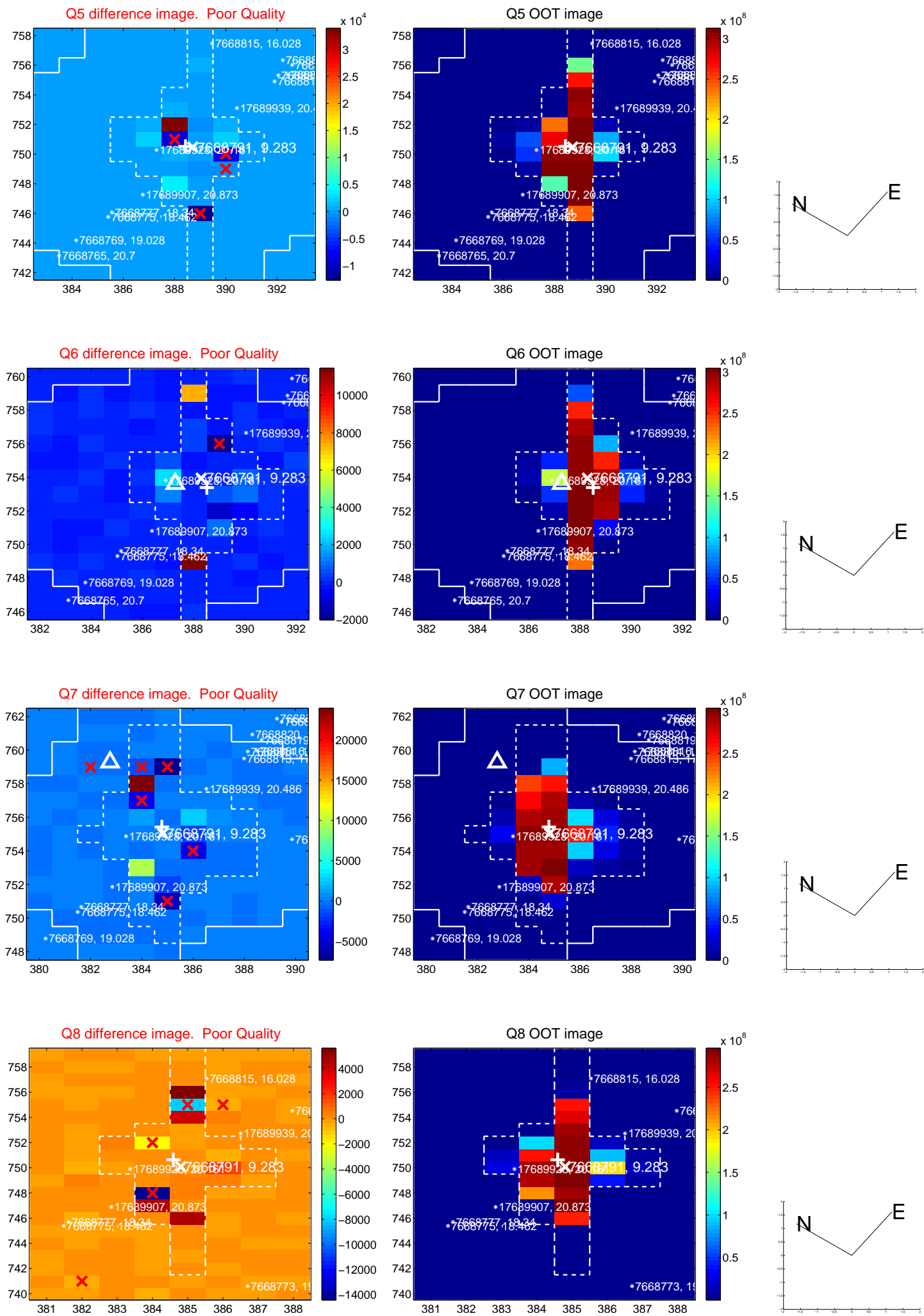


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

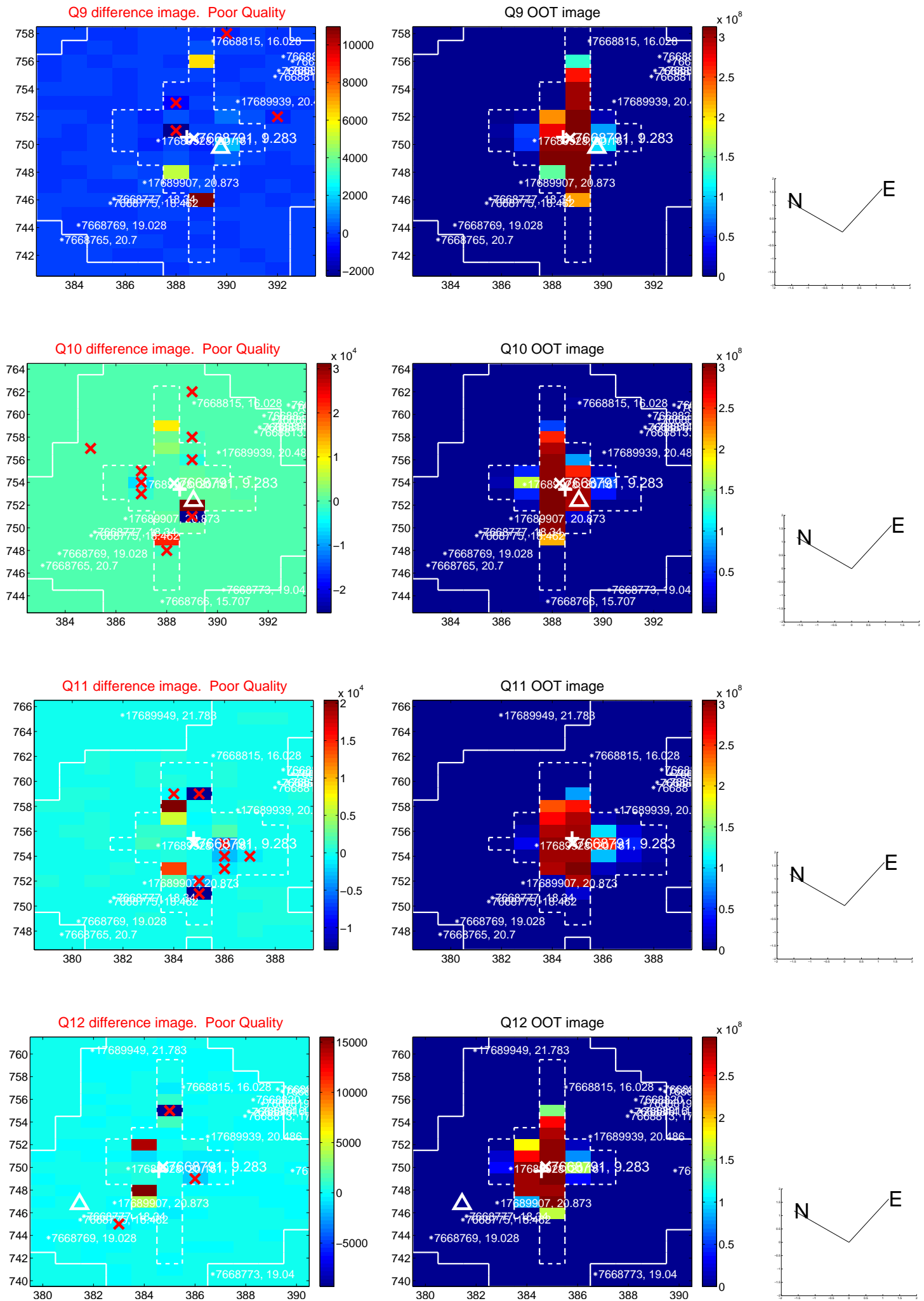


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

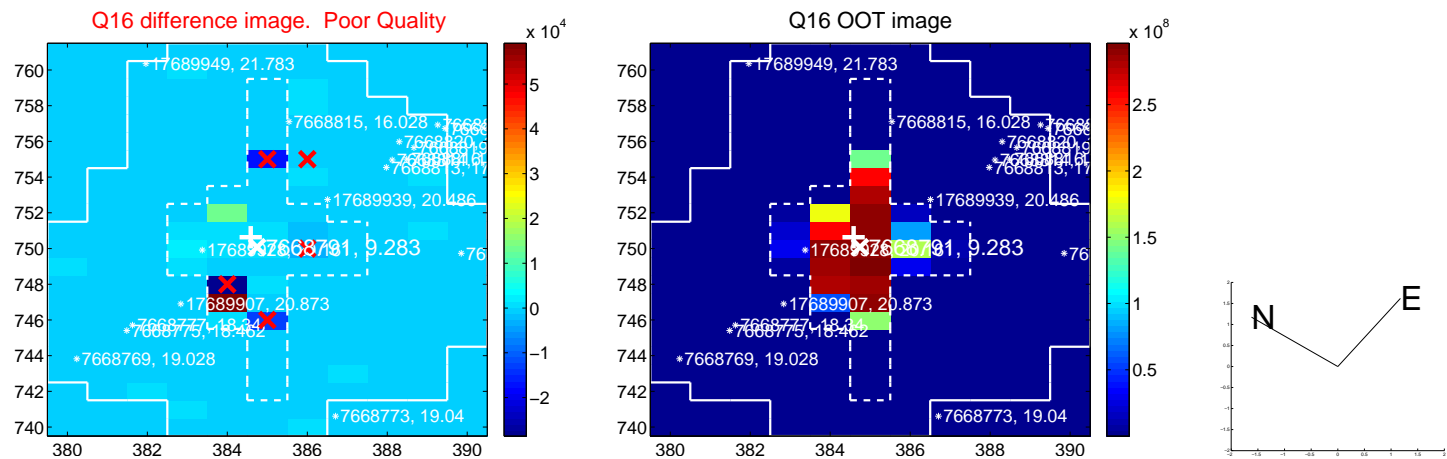
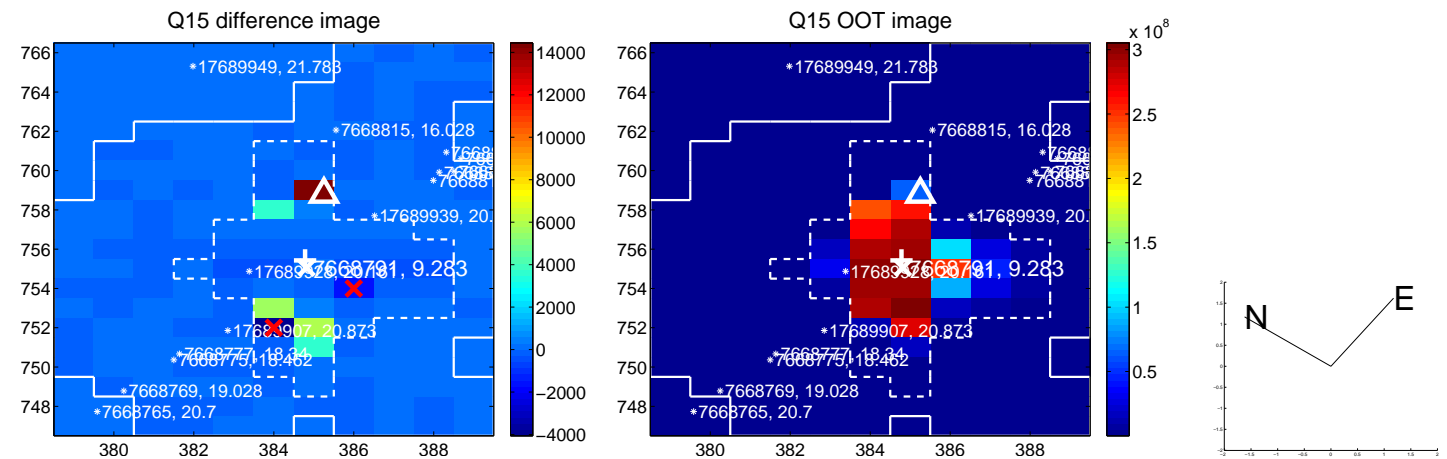
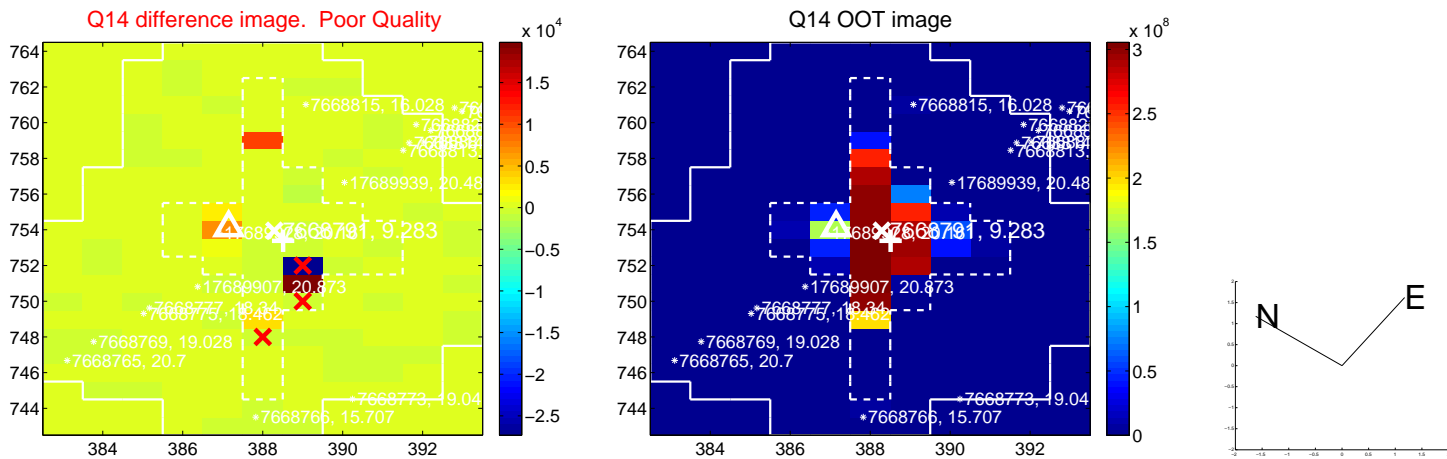
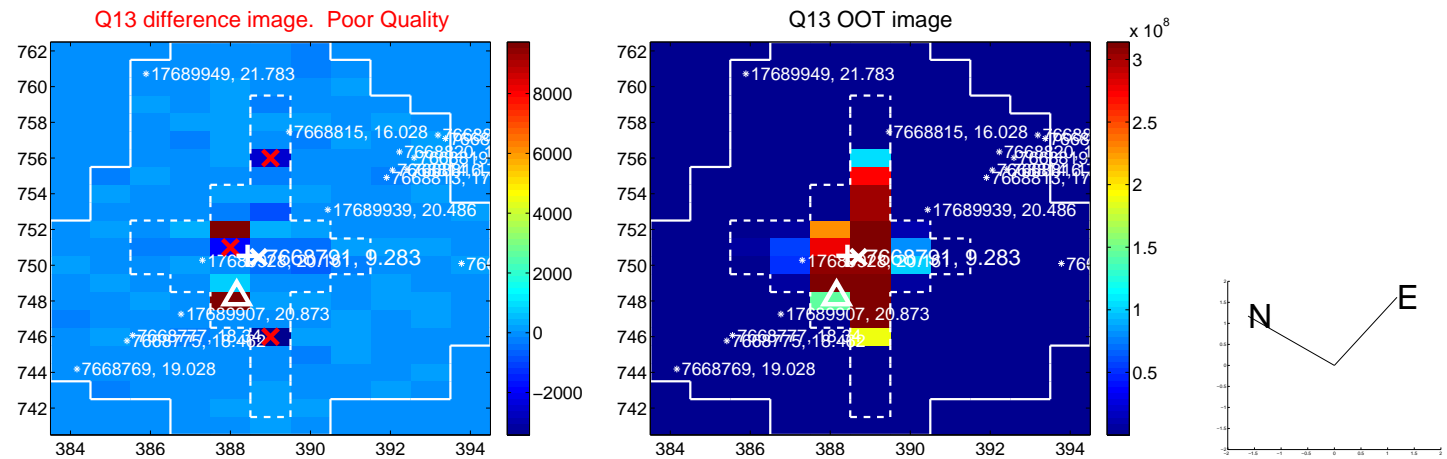




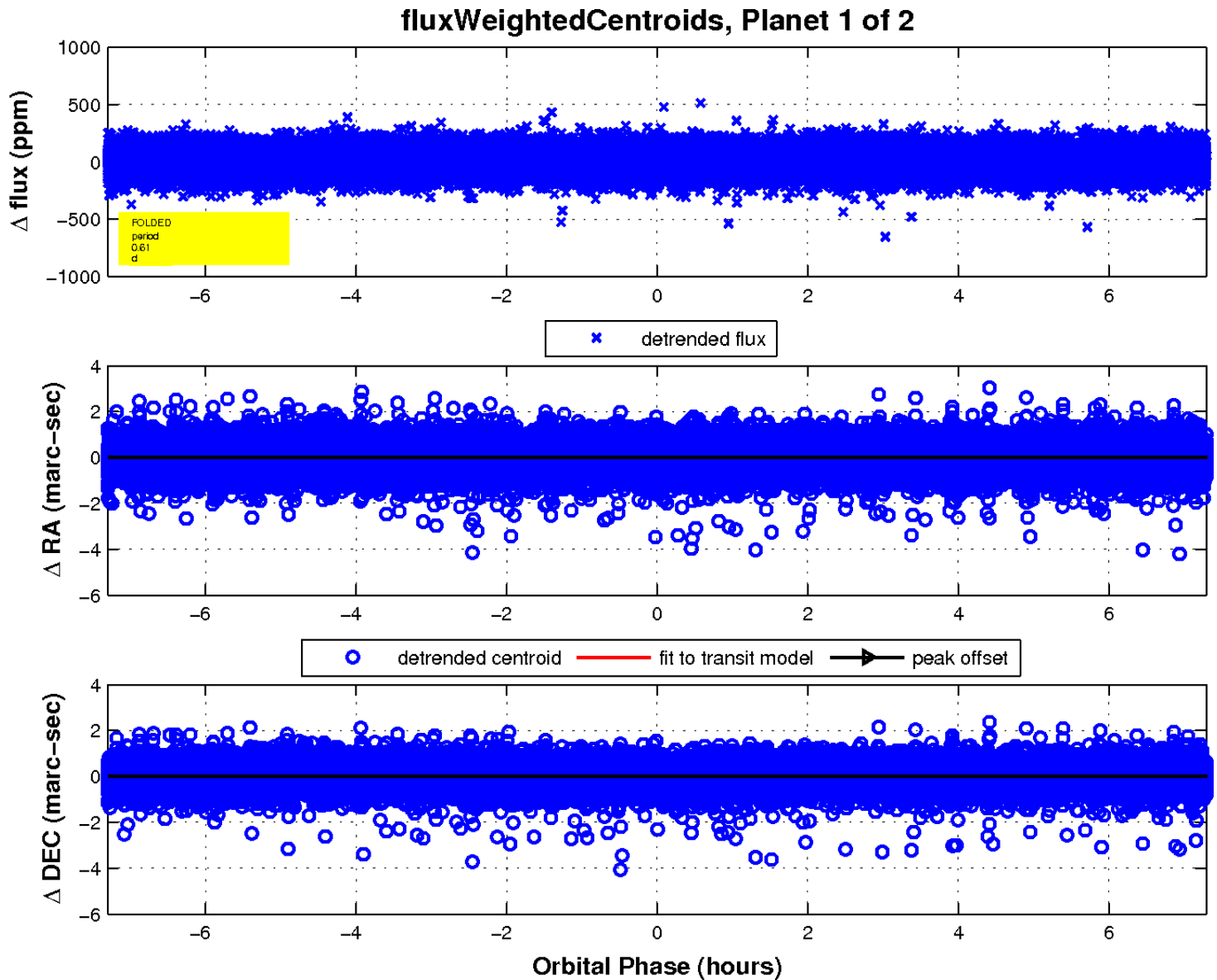
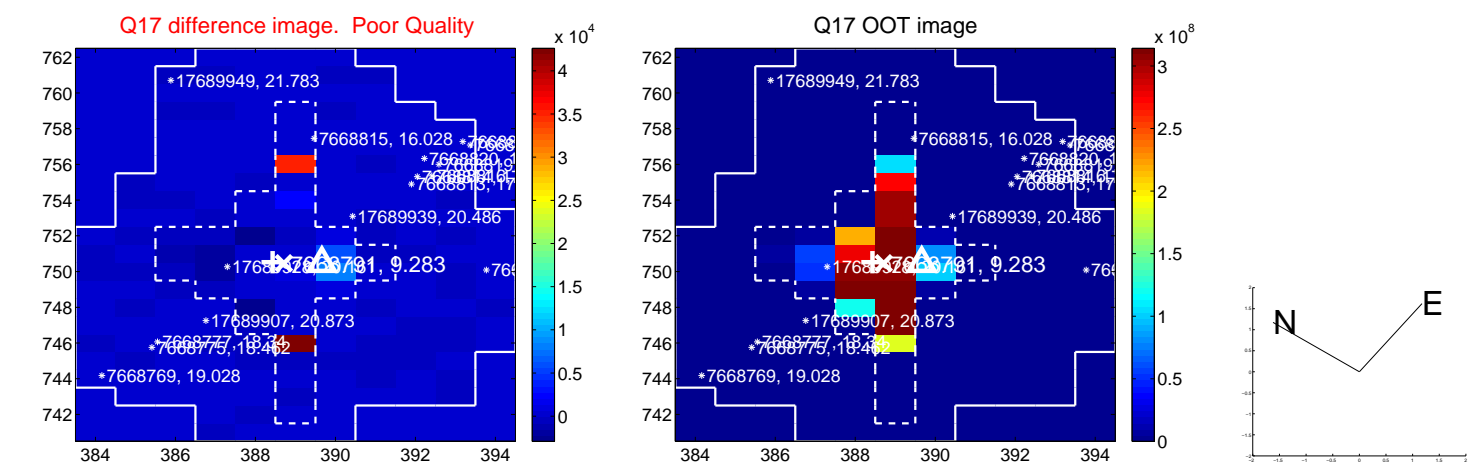
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



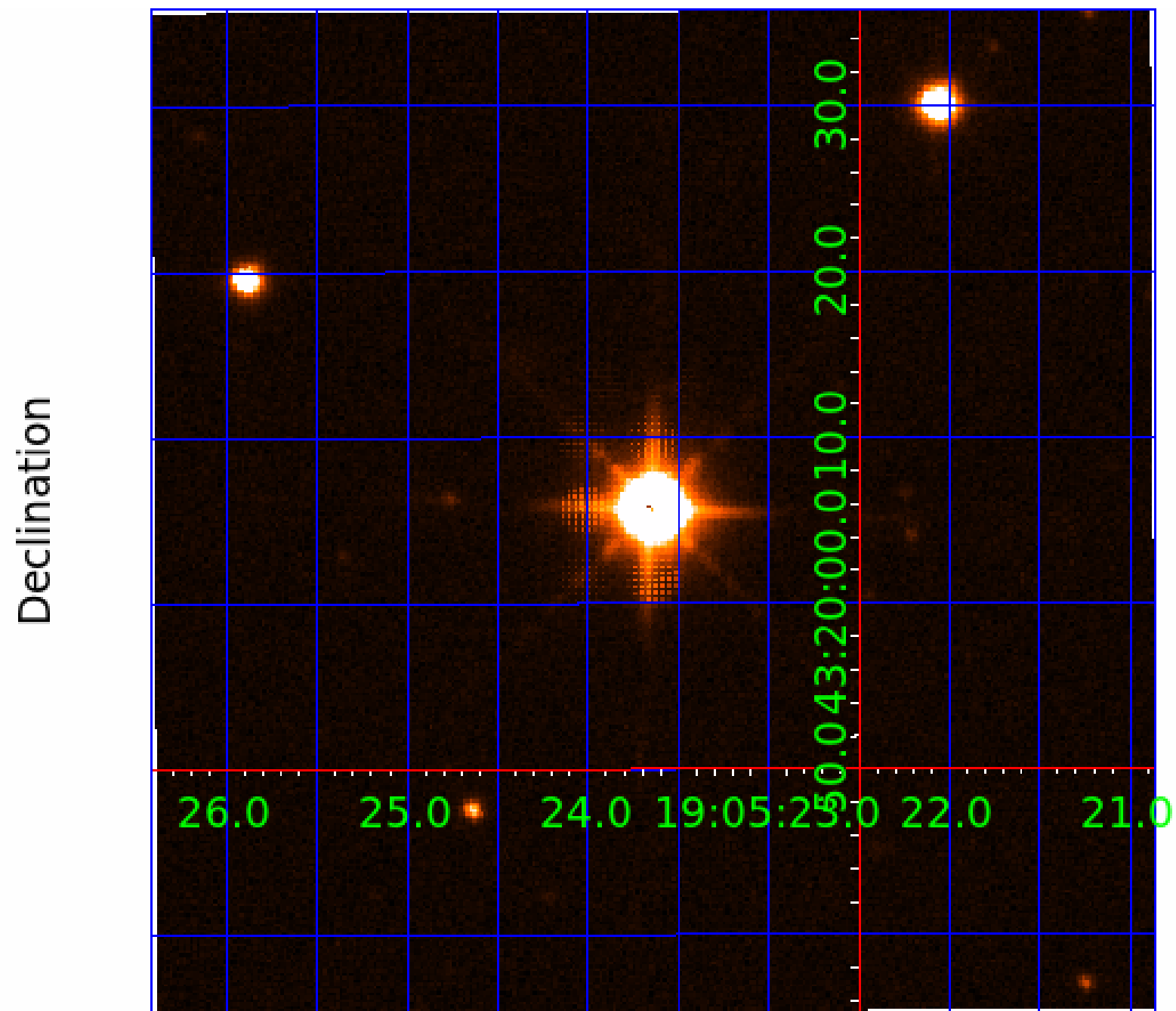
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 007668791

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007668791-01	OBS	No	0.613326	131.516021	11.1	2.432	15.1	17.9	3.02	8394	1.17	128021.28
007668791-02	OBS	No	0.756548	131.605082	9.4	7.847	7.9	11.6	3.02	8394	0.94	96773.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007668791-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
007668791-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

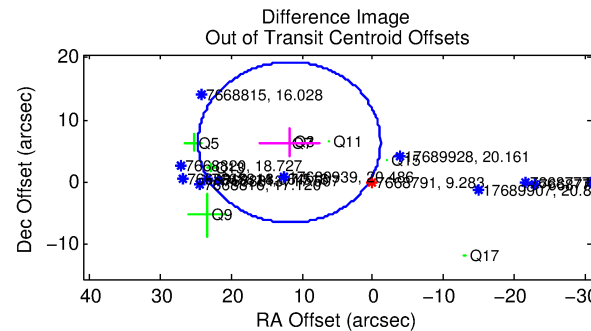
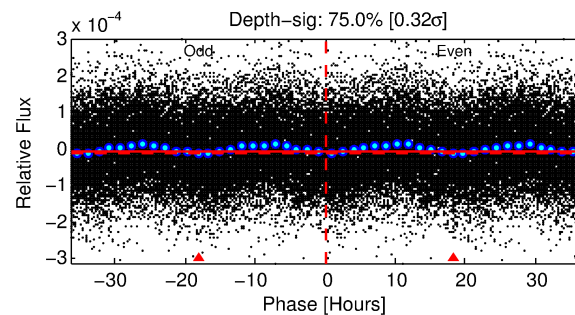
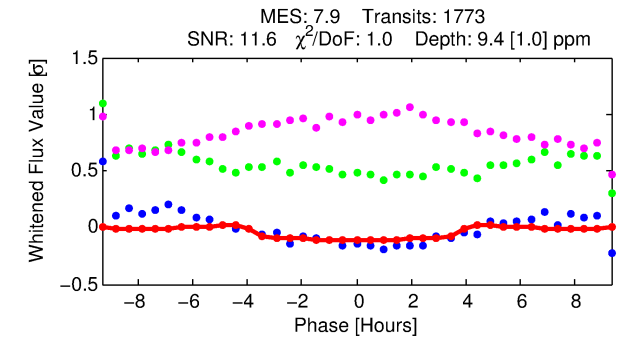
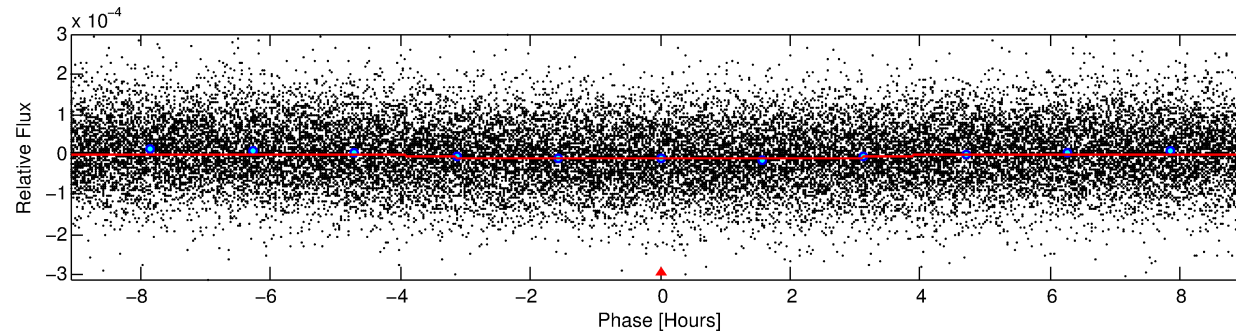
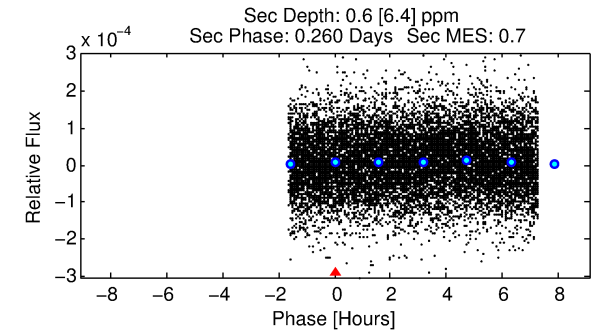
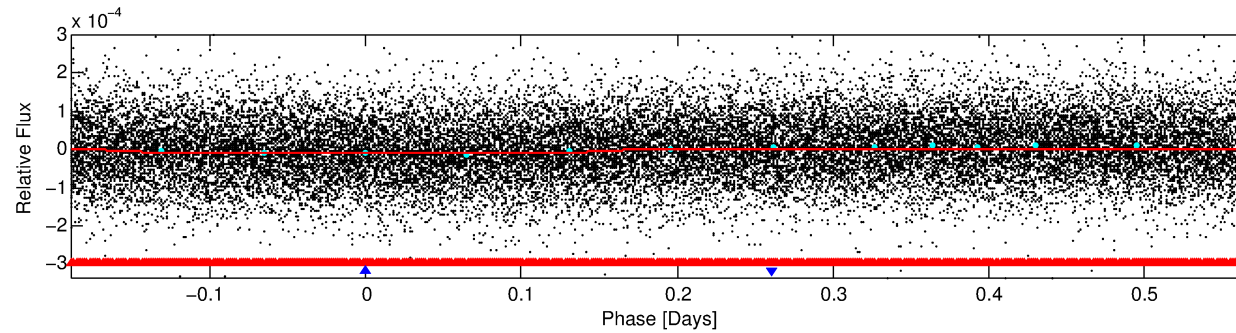
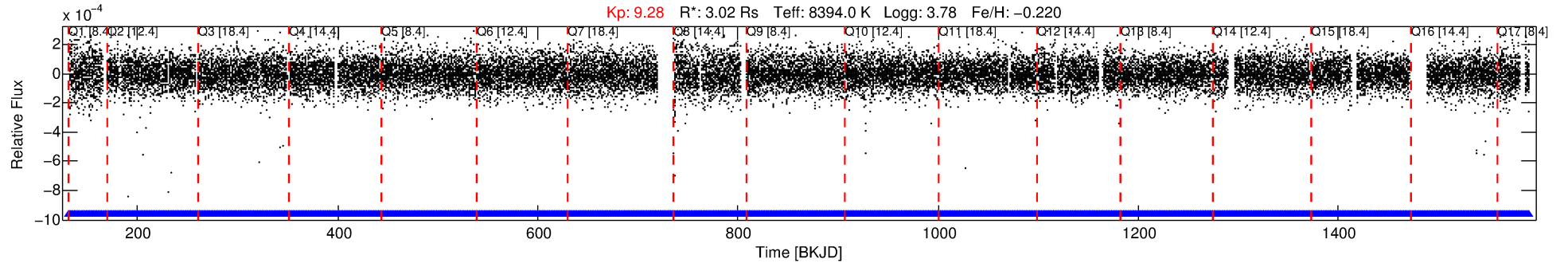
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007668791-02

No Significant Match Found

# DV One-Page Summary

KIC: 7668791 Candidate: 2 of 2 Period: 0.757 d



## DV Fit Results:

Period = 0.75655 [0.00001] d  
Epoch = 131.6051 [0.0061] BKJD  
 $R_p/R^* = 0.0028$  [0.0017]  
 $a/R^* = 1.03$  [0.17]  
 $b = 0.01$  [309.38]  
 $\text{Seff} = 96773.27$  [68242.92]  
 $T_{\text{eq}} = 4497$  [793] K  
 $R_p = 0.94$  [0.71]  $R_e$   
 $a = 0.0205$  [0.0088] AU  
 $A_g = 0.16$  [1.69] [-0.50σ]  
 $T_{\text{eff}} = 4405$  [11533] K [-0.01σ]

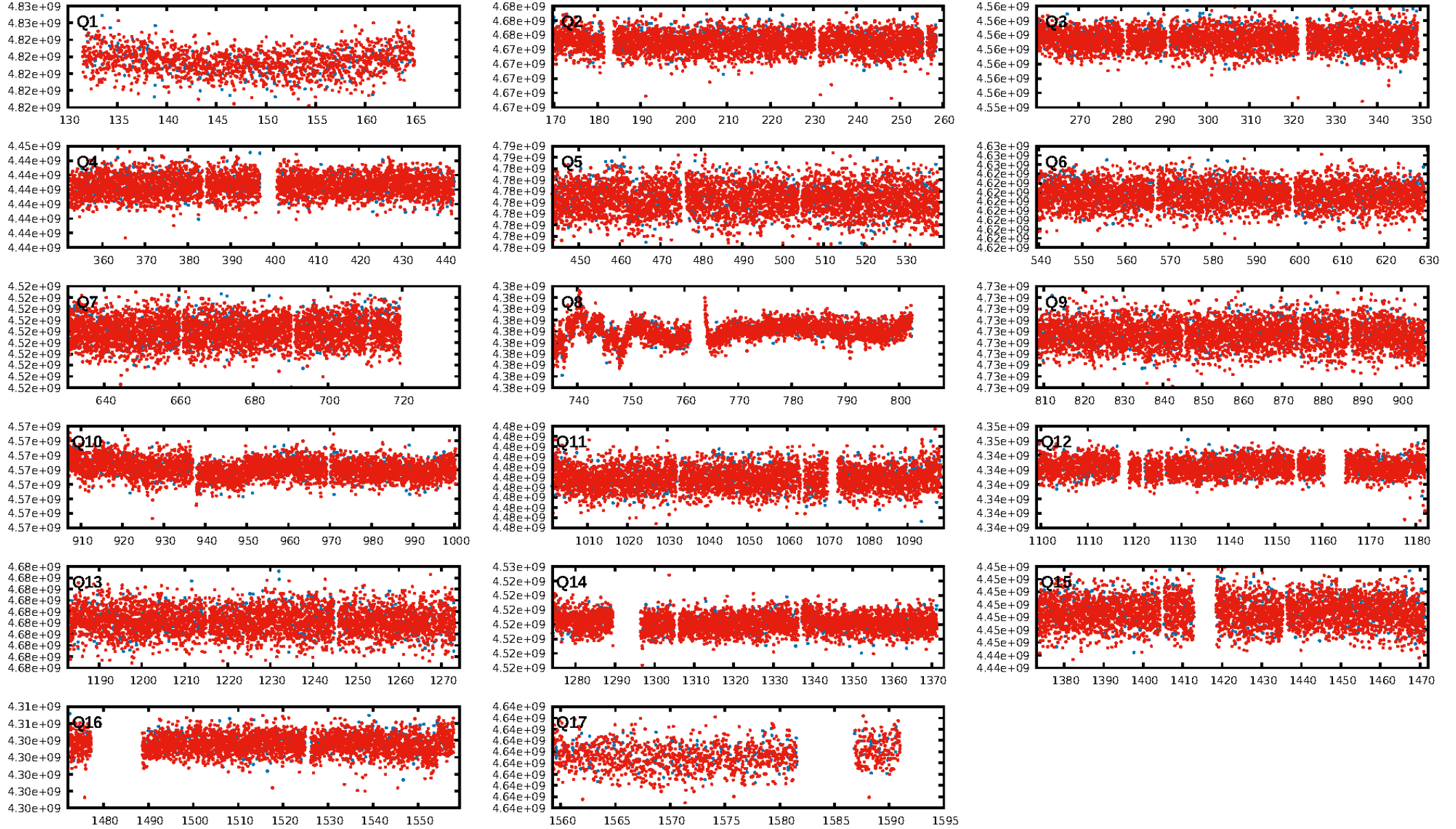
## DV Diagnostic Results:

ShortPeriod-sig: 32.4% [0.42σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1693/1693]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 1.6%  
Centroid-so: 1.566 arcsec [1.99σ]  
**OotOffset-rm: 13.405 arcsec [3.12σ]**  
KicOffset-rm: 14.880 arcsec [2.84σ]  
OotOffset-st: 0/4/0/4 [8]  
KicOffset-st: 0/4/0/4 [8]  
DiffImageQuality-fgm: 0.25 [2/8]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:18:40 Z

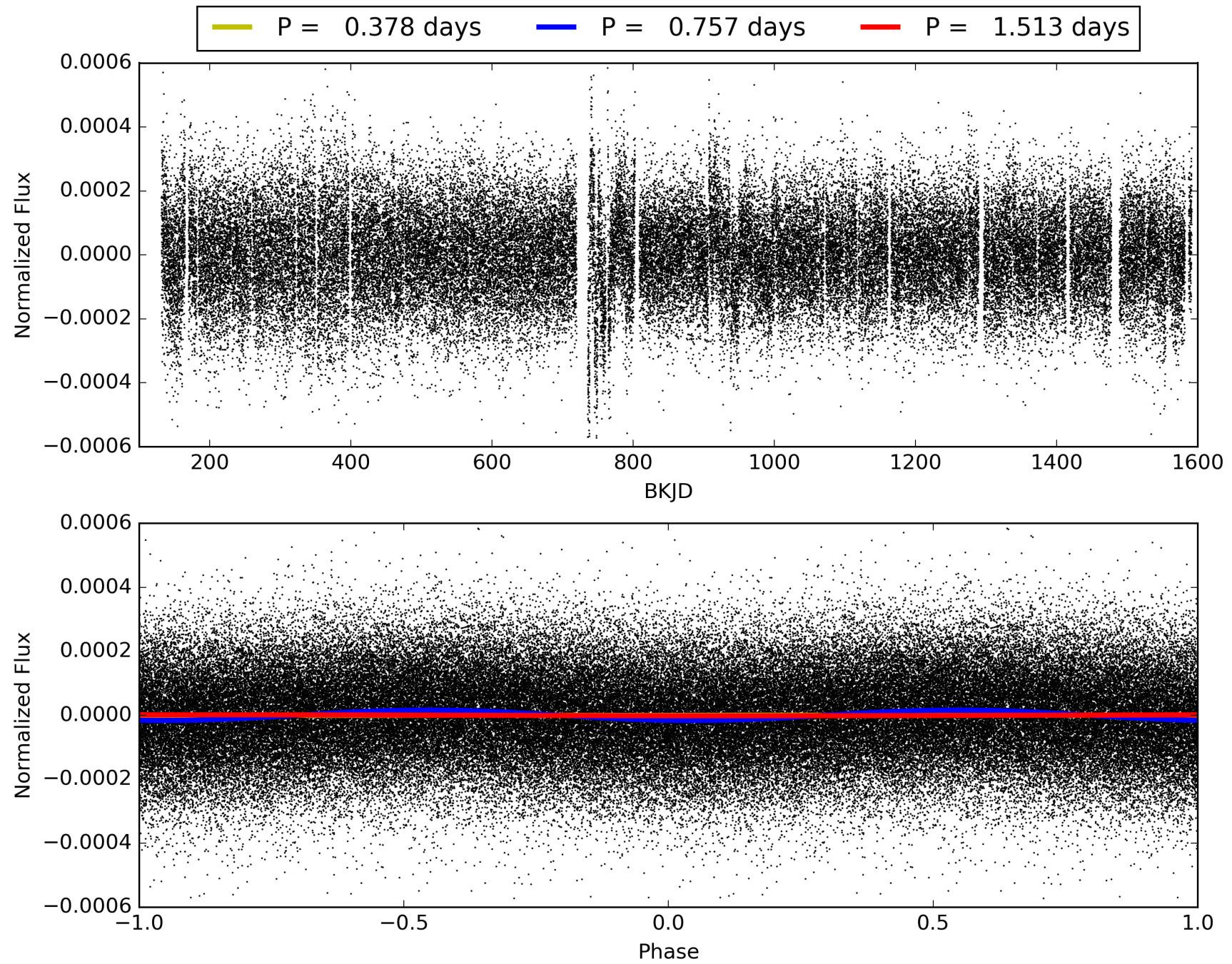
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007668791-02, PDC Light Curves





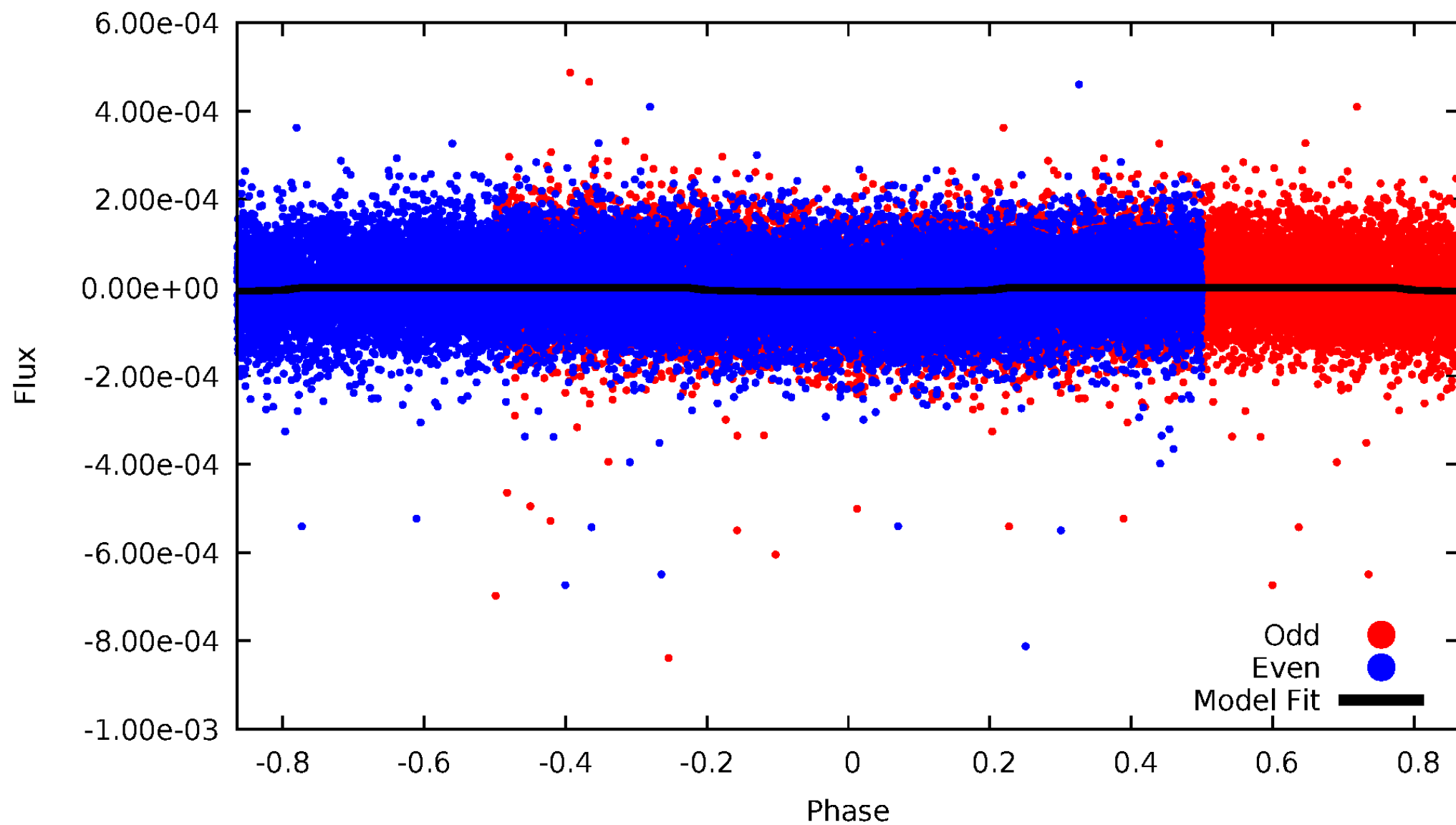
TCE 007668791-02





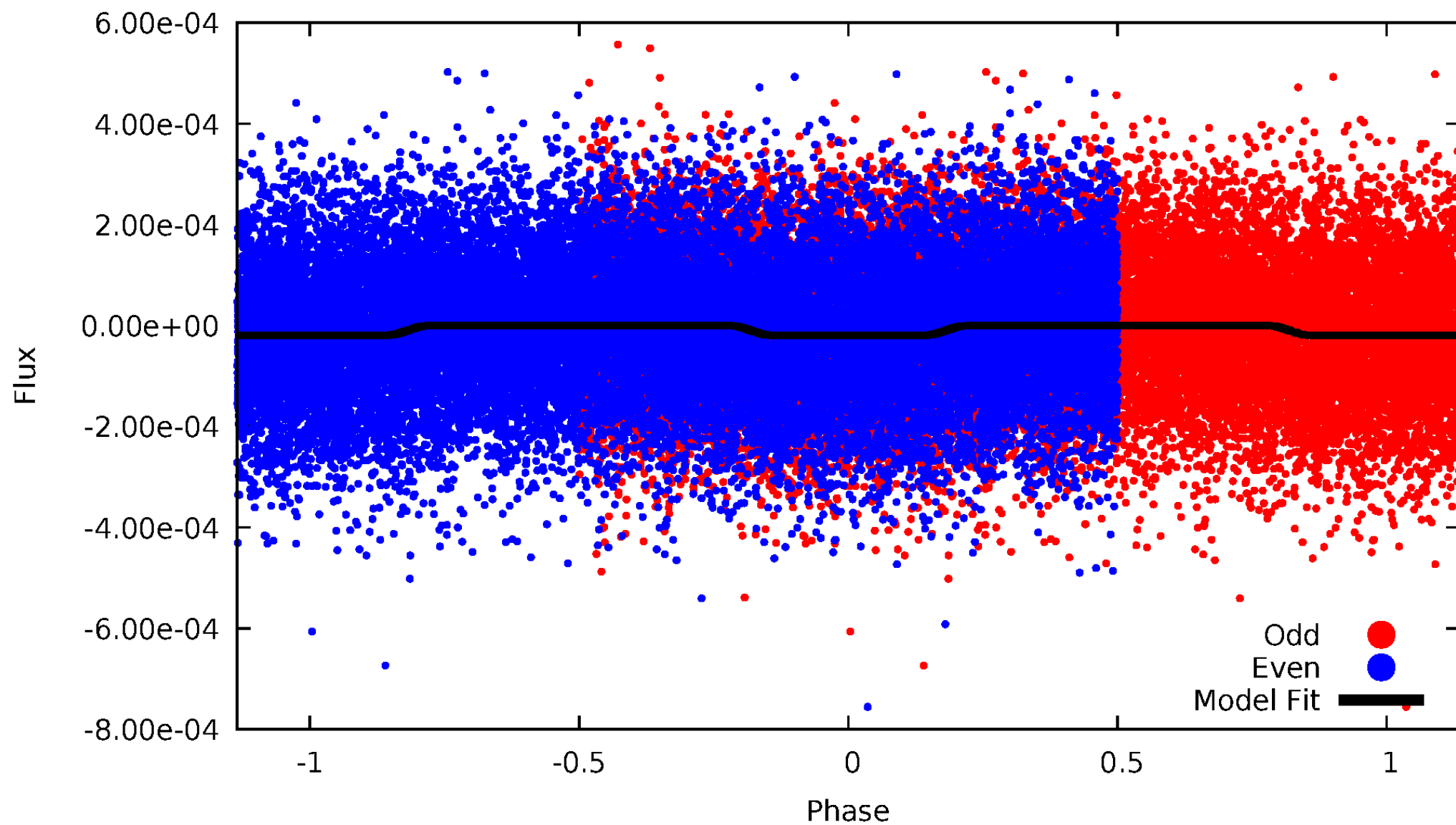
# DV Odd/Even

TCE 007668791-02



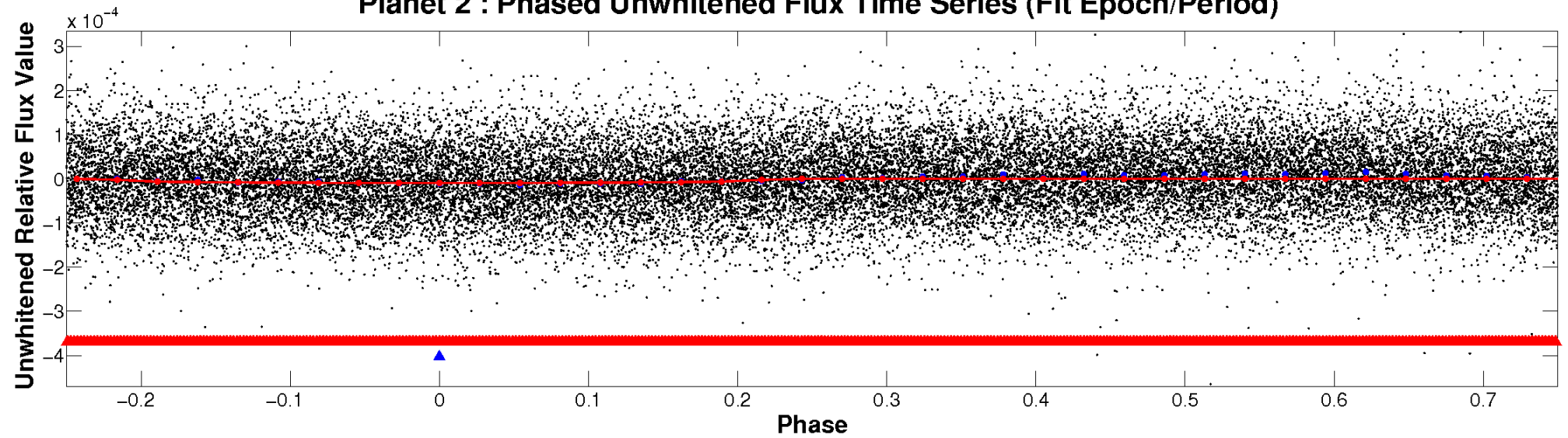
# ALT Odd/Even

TCE 007668791-02

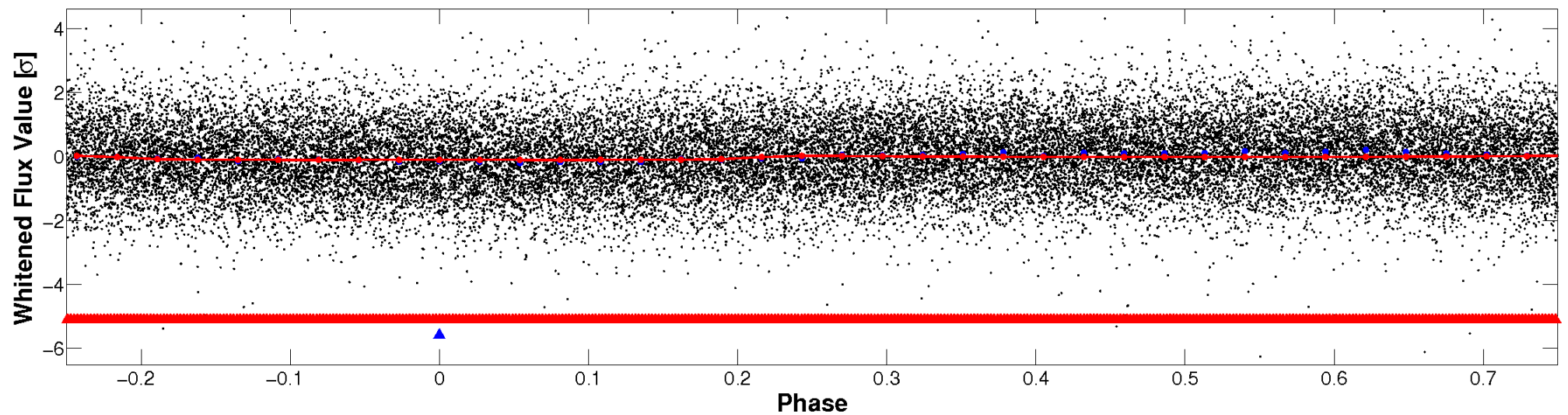


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

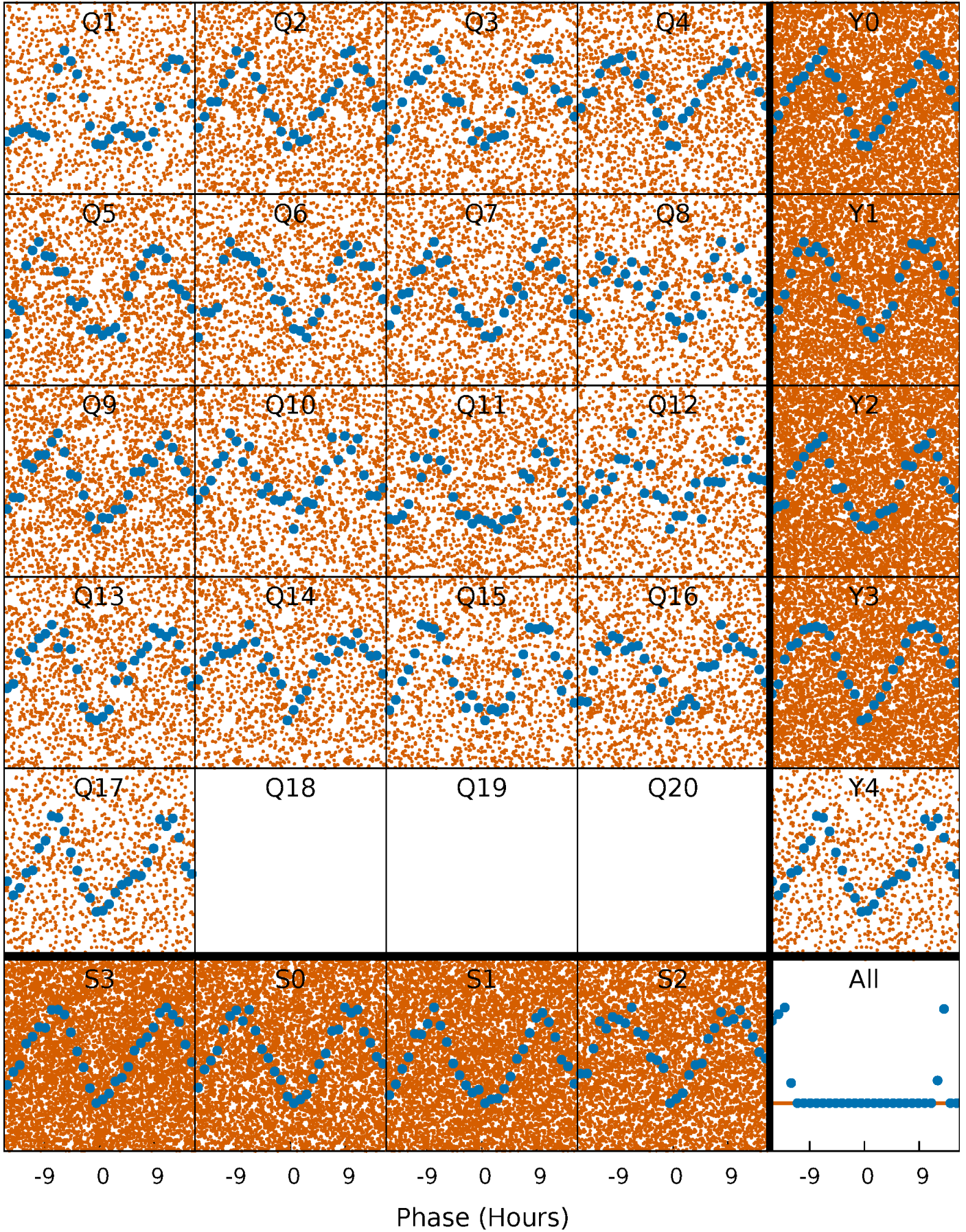


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

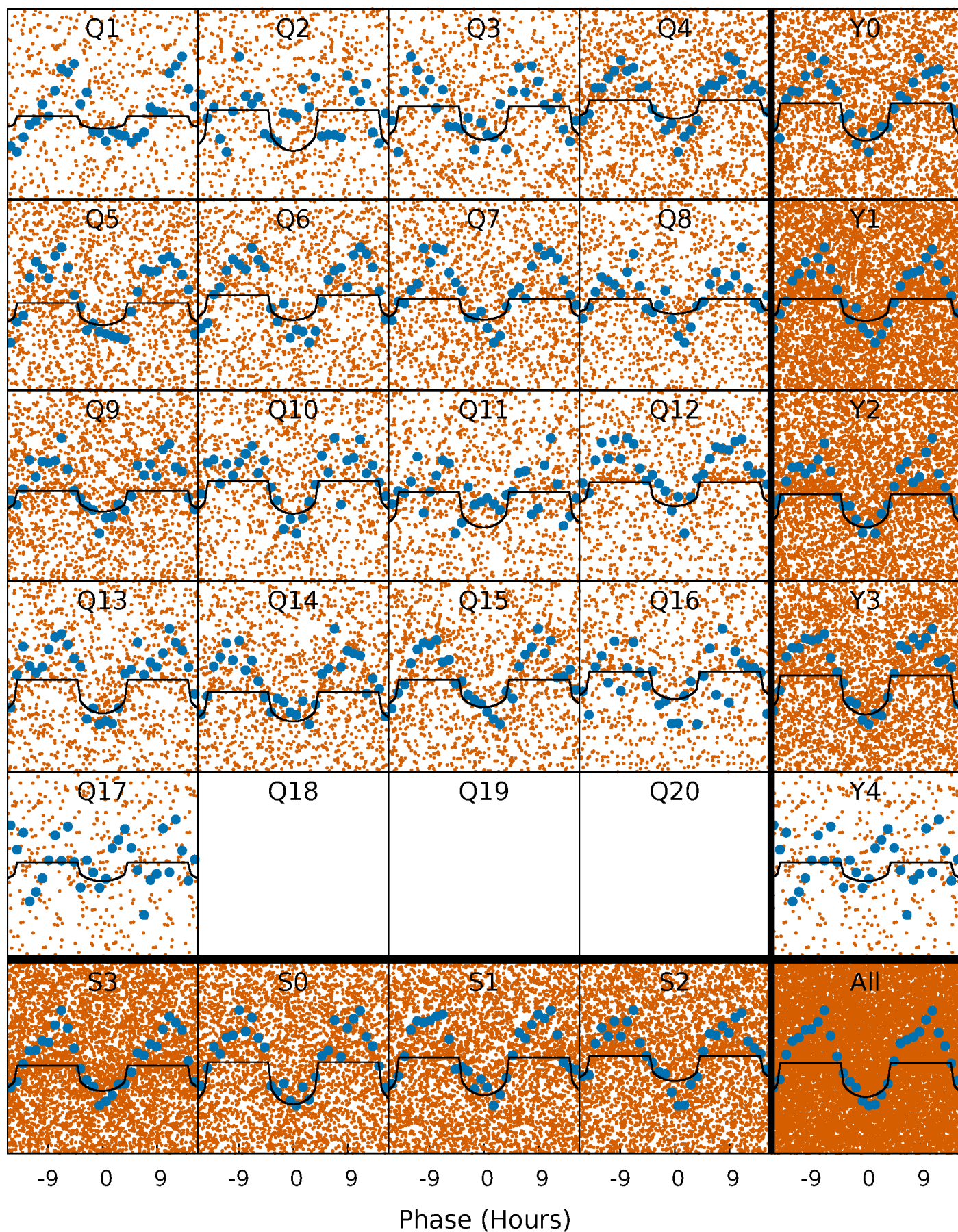
TCE 007668791-02   P= 0.756548 Days    $T_0=131.605082$  (BKJD)





# DV Quarter-Phased Transit Curves

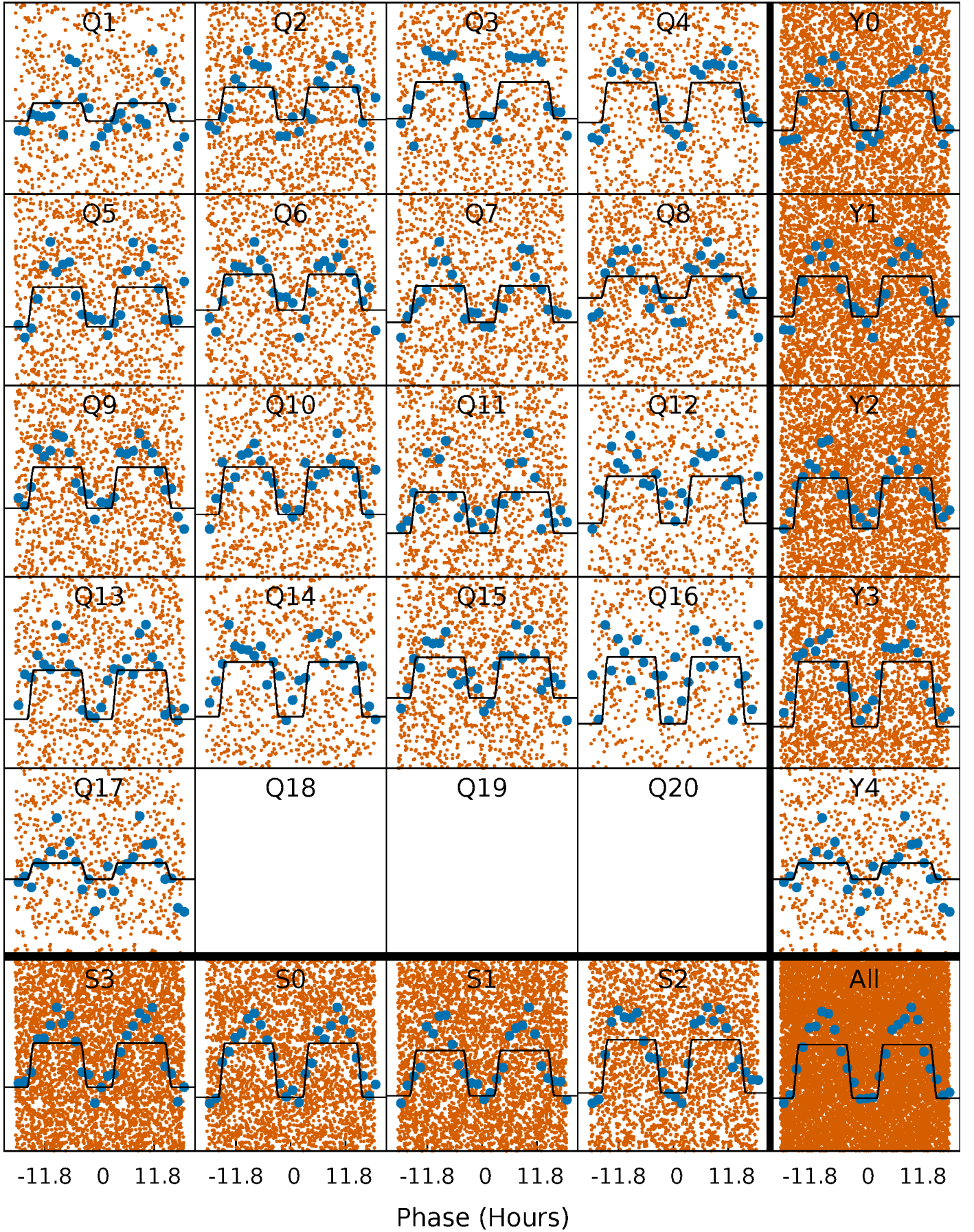
TCE 007668791-02   P= 0.756548 Days    $T_0=131.605082$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

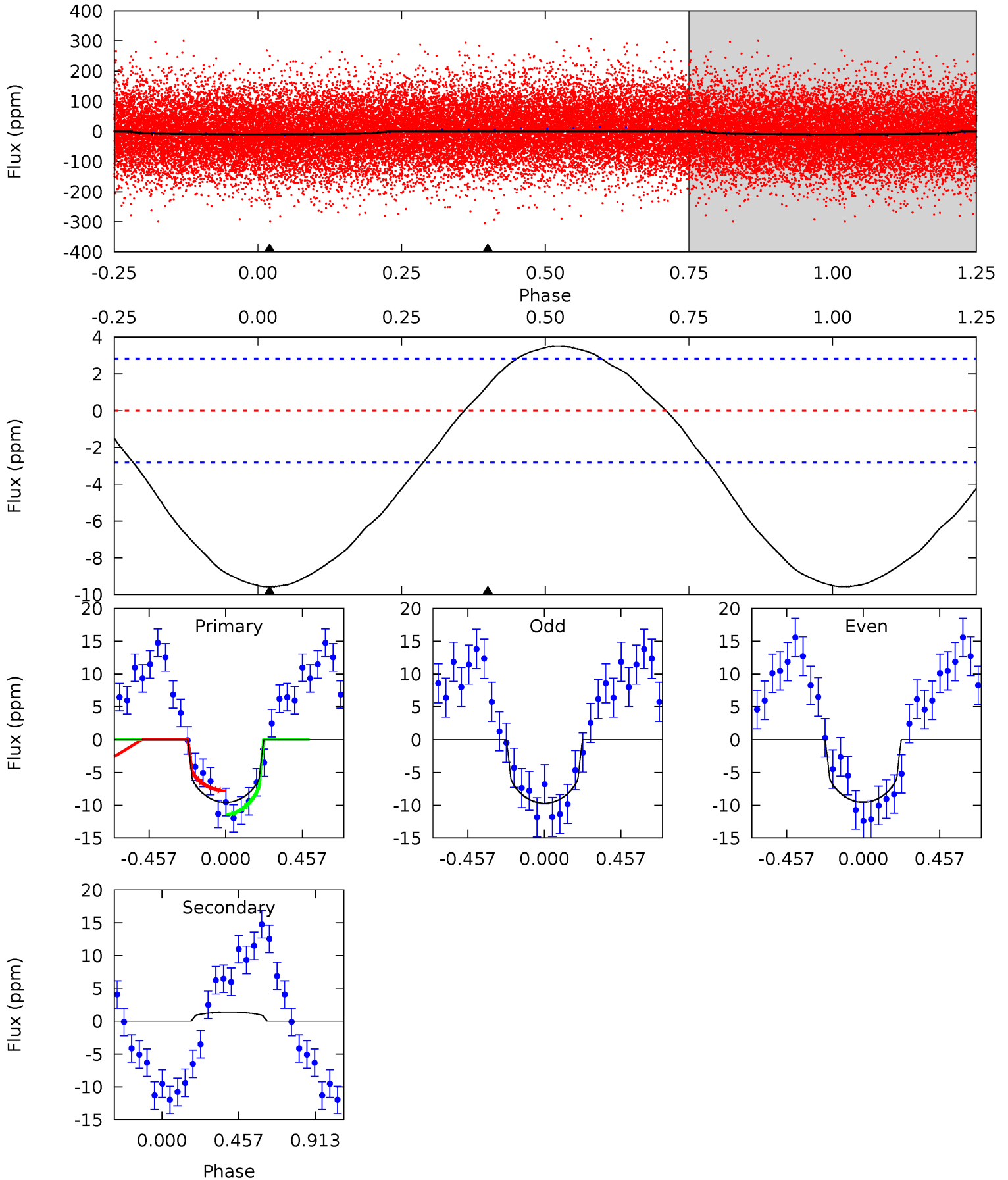
TCE 007668791-02     $P = 0.756585$  Days     $T_0 = 131.601200$  (BKJD)



# DV Model-Shift Uniqueness Test

007668791-02, P = 0.756548 Days, E = 131.605082 Days

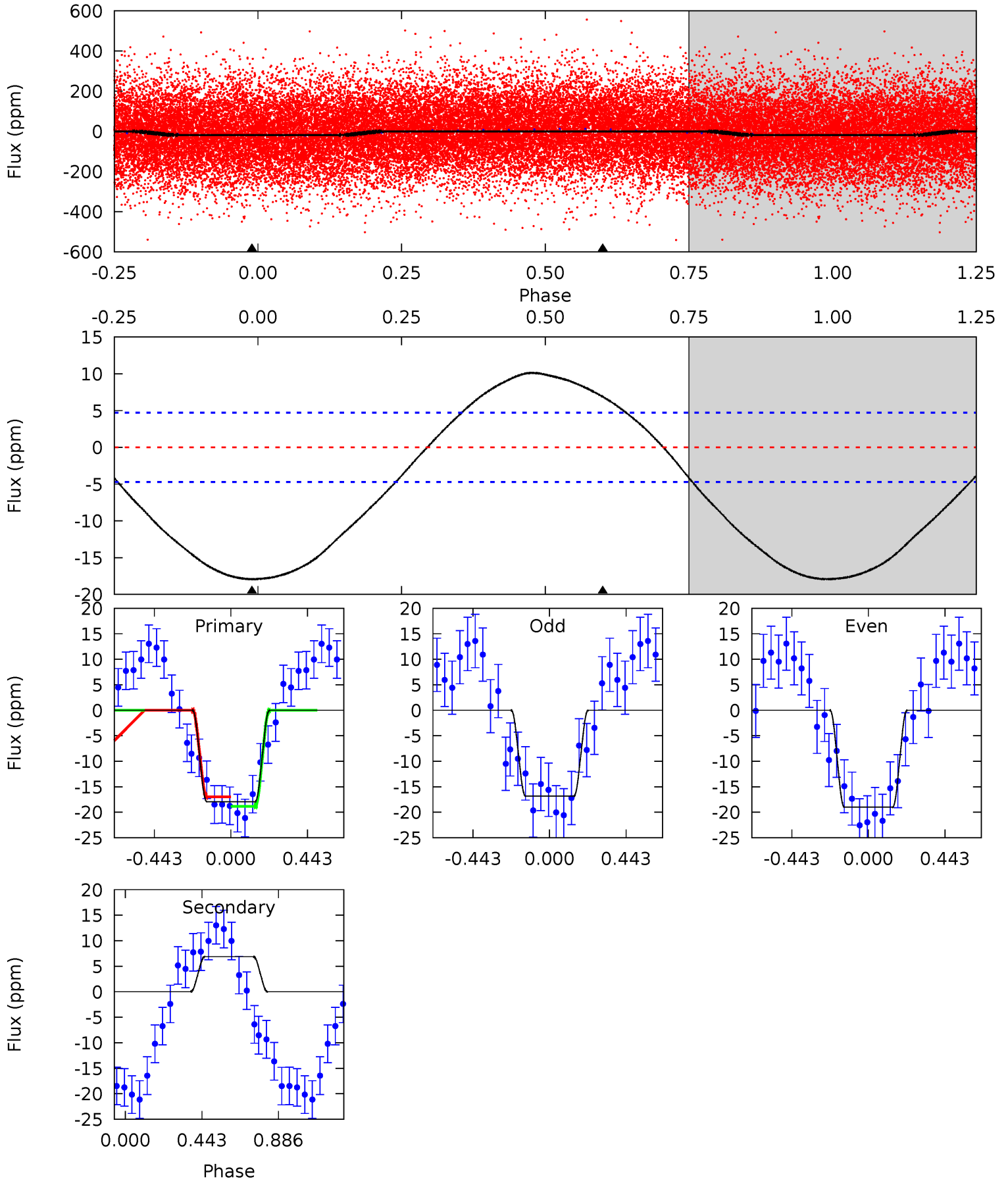
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	-2.08	0	0	4.24	0.74	1.51	14.4	14.4	-2.08	-2.08	0.11	1.15	0.27	2.67



# Alt Model-Shift Uniqueness Test

007668791-02, P = 0.756585 Days, E = 131.601200 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
16.1	-6.20	0	0	4.24	0.77	2.18	16.1	16.1	-6.20	-6.20	0.97	0.89	0.36	0.82



### Stellar Parameters For KIC 007668791

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8394^{+206}_{-354}$	$3.779^{+0.400}_{-0.075}$	$-0.220^{+0.250}_{-0.350}$	$3.021^{+0.490}_{-1.373}$	$2.002^{+0.317}_{-0.515}$	$0.102^{+0.392}_{-0.027}$
	+2%/-4%	+11%/-2%	+114%/-159%	+16%/-45%	+16%/-26%	+383%/-26%
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 007668791-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$1\pm 1$	$0.88^{+0.59}_{-0.50}$	$6080^{+395}_{-625}$	$-5823^{+631}_{-2261}$	$-0.361^{+0.246}_{-1.702}$
Alt.	$7\pm 1$	$1.29^{+0.66}_{-0.58}$	$6002^{+440}_{-644}$	$-6671^{+738}_{-2029}$	$-0.951^{+0.529}_{-2.159}$

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

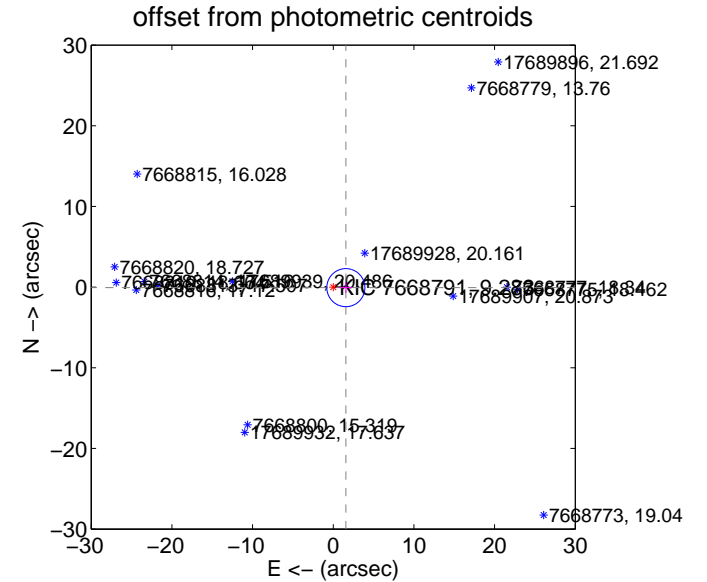
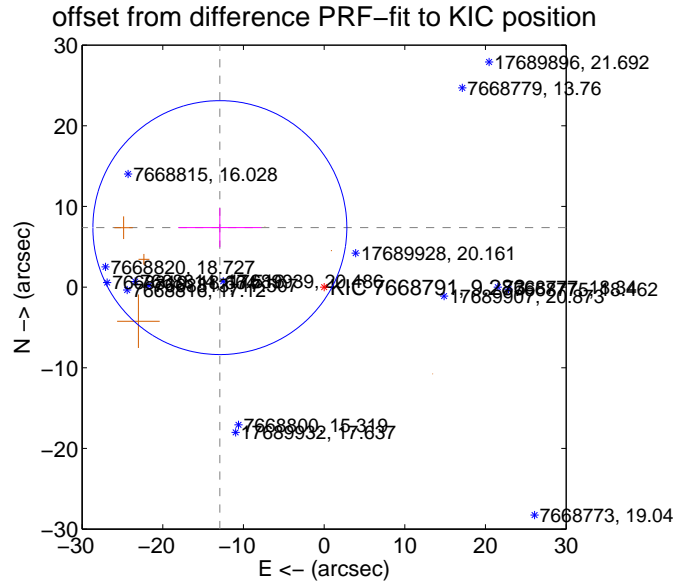
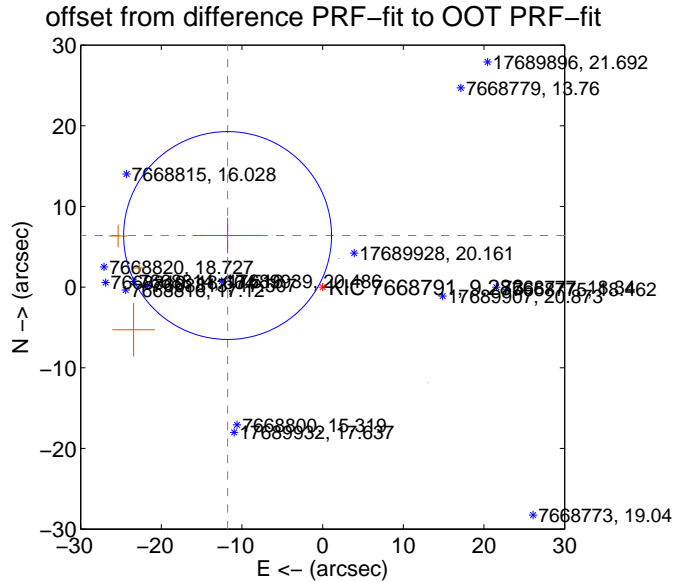
## DV Centroid Data

Supplemental centroid analysis for 007668791-02. **Kepler magnitude: 9.28.** Transit SNR 11.58

**There are 2 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

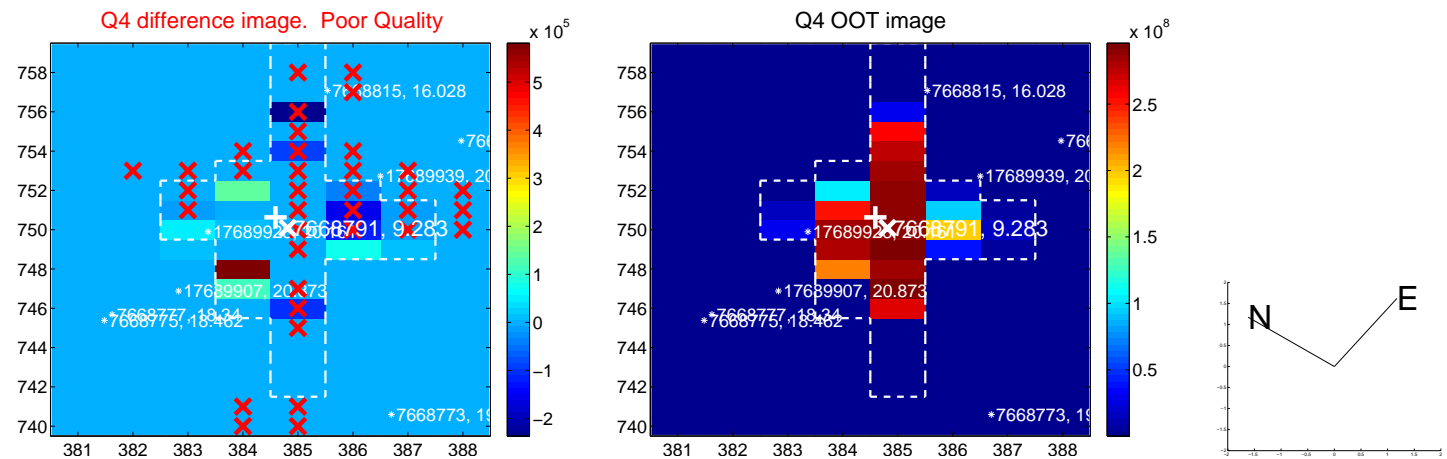
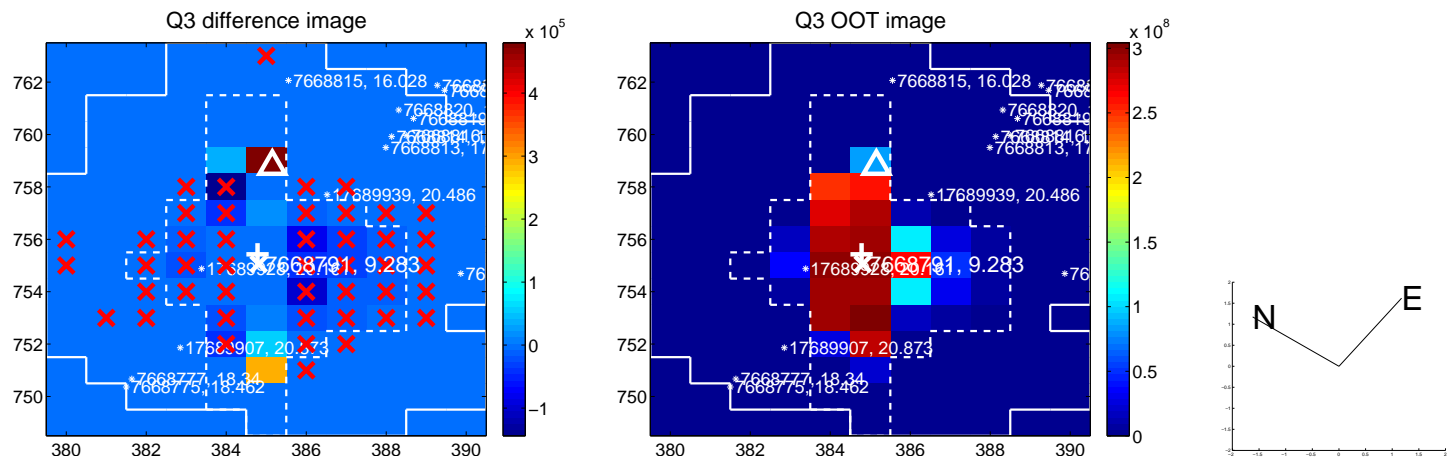
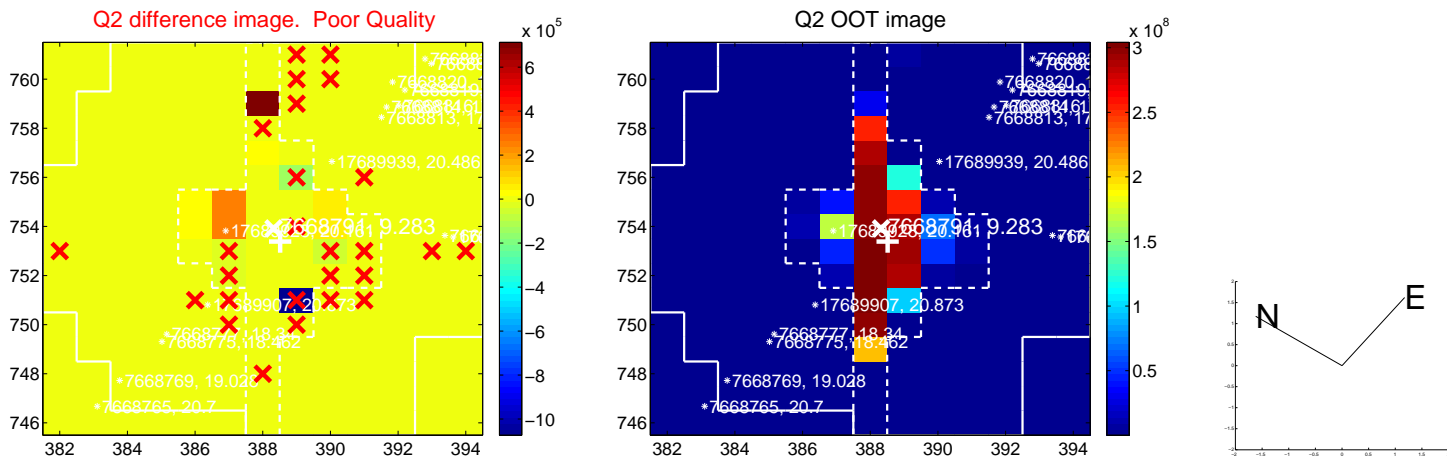
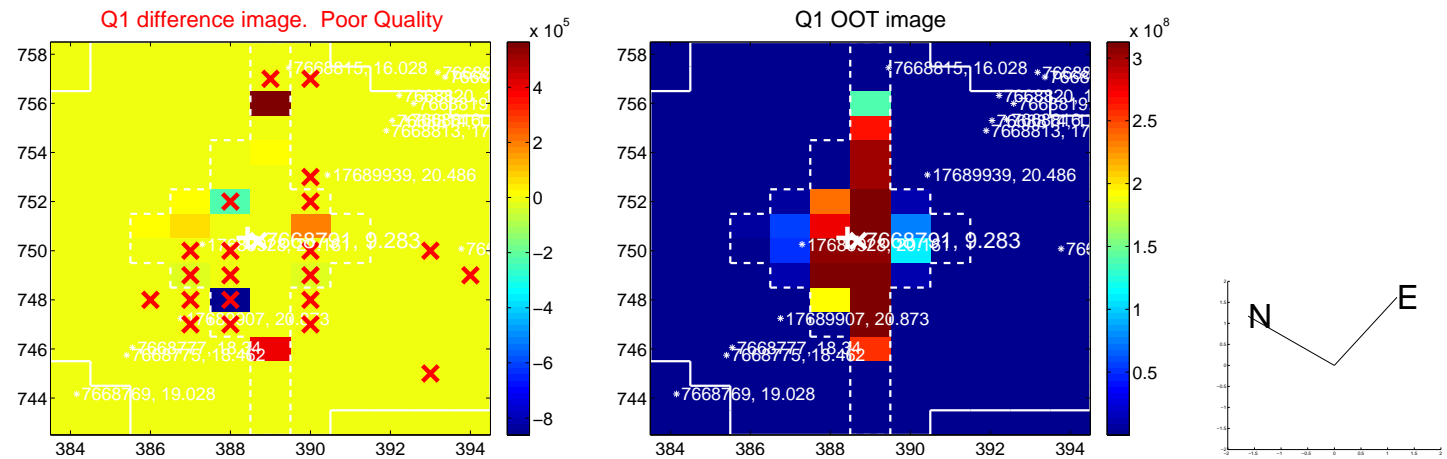
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>13.405 <math>\pm</math> 4.294</b>	<b>3.12</b>	11.782 $\pm$ 4.326	6.393 $\pm$ 2.213
PRF-fit source offset from KIC position	14.880 $\pm$ 5.246	2.84	12.925 $\pm$ 5.145	7.374 $\pm$ 2.411
photometric centroid source offset	1.57 $\pm$ 0.79	1.99	-1.56 $\pm$ 0.79	-0.07 $\pm$ 0.66



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.

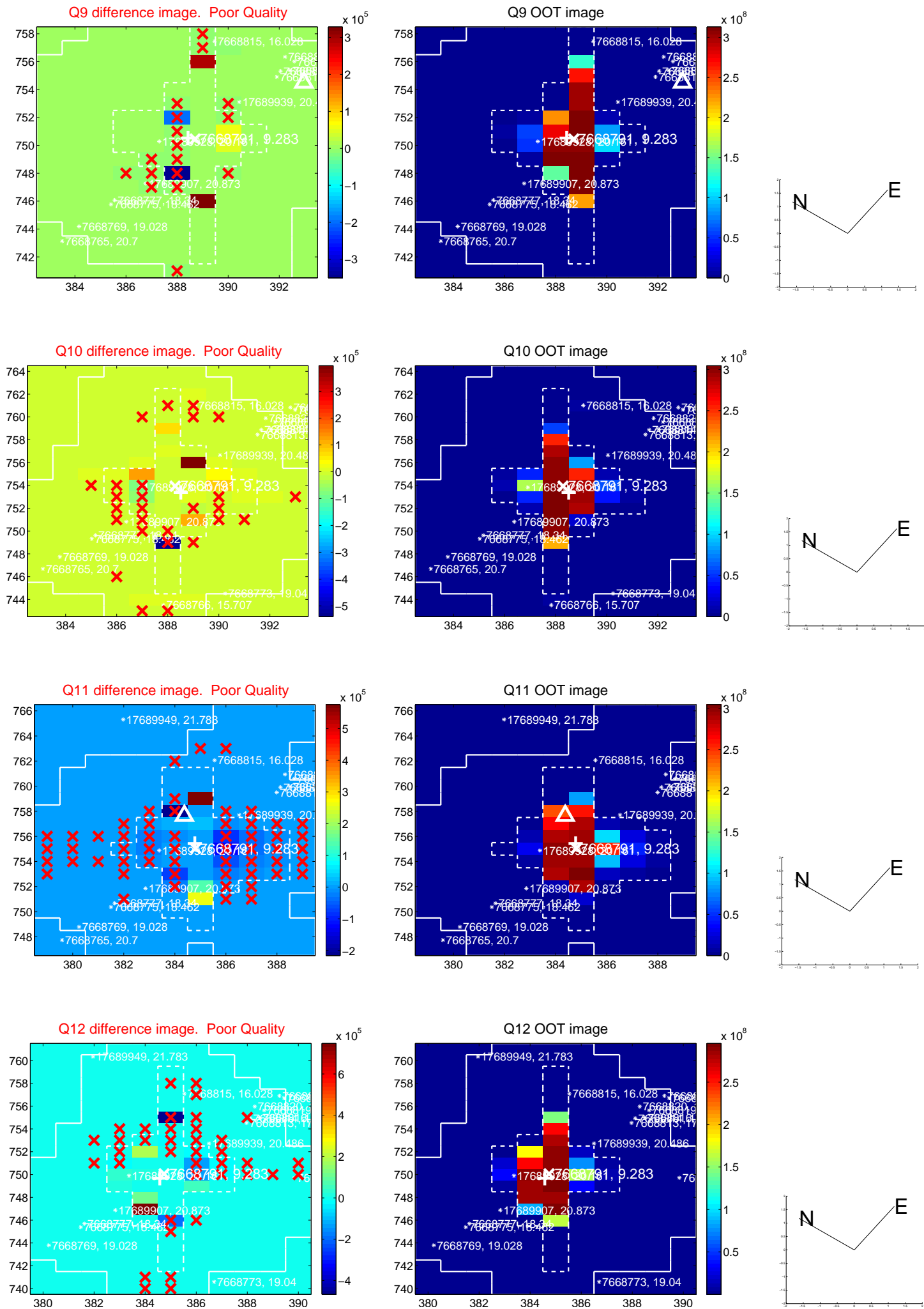


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

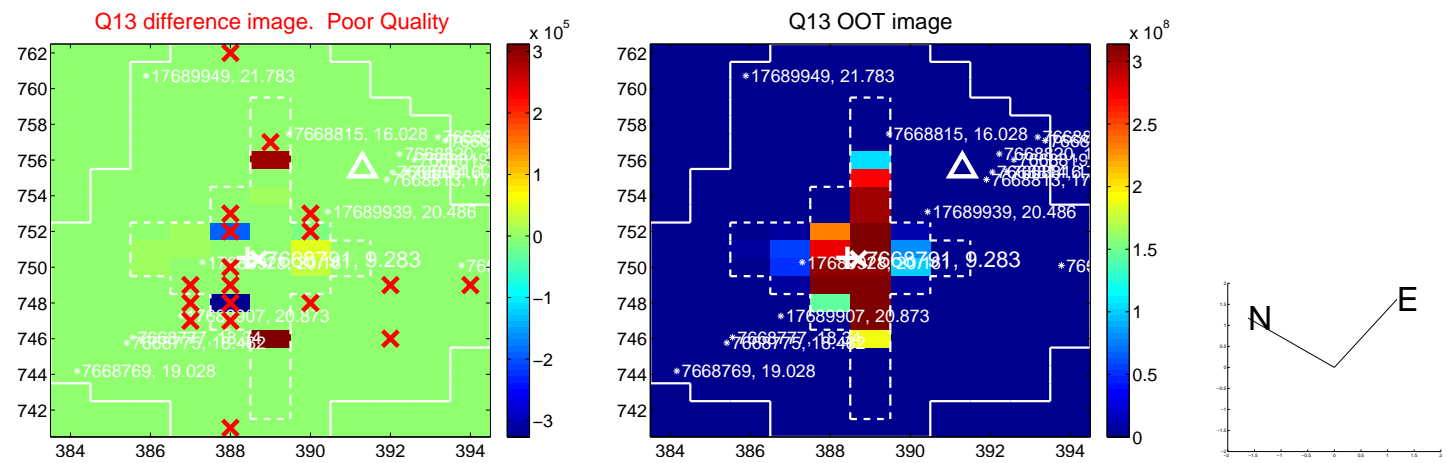




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

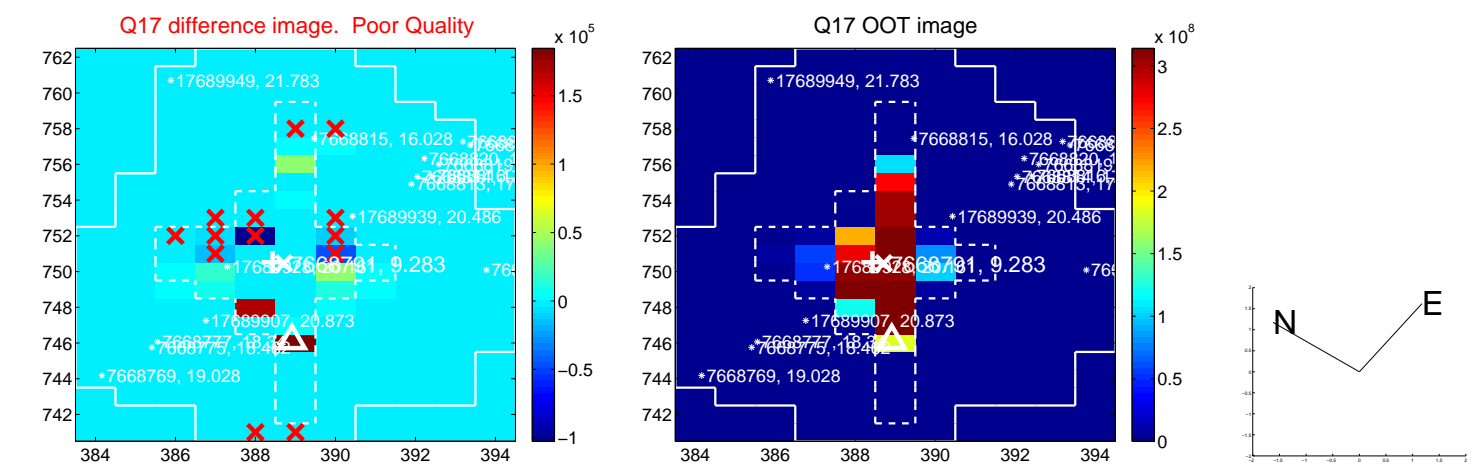


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

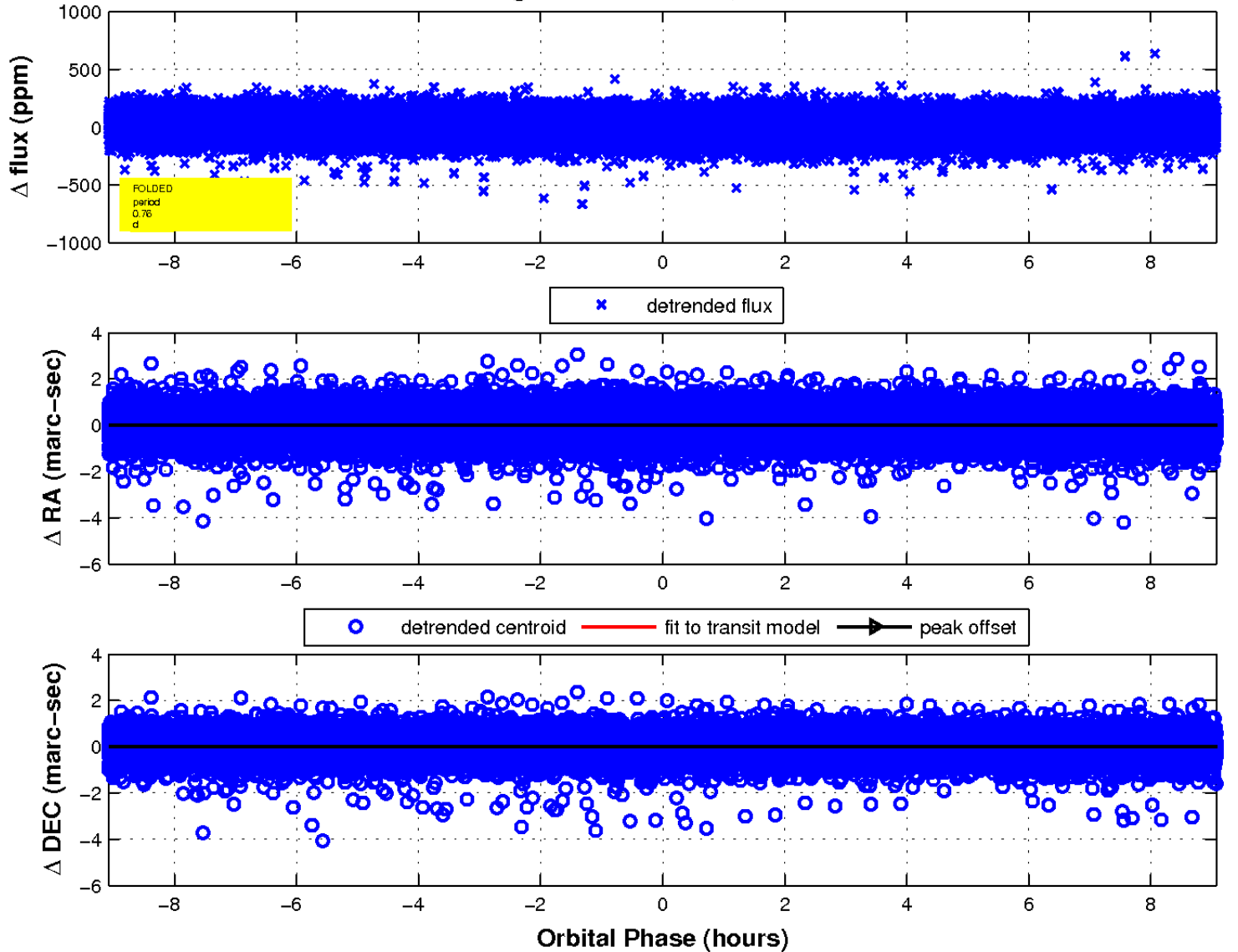




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

