

# KIC 007532891

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007532891-01	OBS	No	0.718007	131.753505	23.0	1.450	10.5	11.7	3.35	7915	1.87	98222.38
007532891-02	OBS	No	1.736635	131.691954	22.7	6.963	9.6	10.1	3.35	7915	1.70	30253.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007532891-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007532891-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

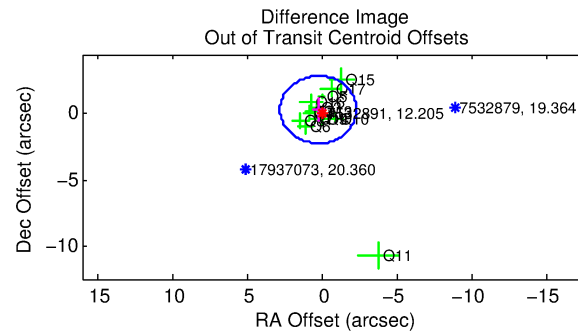
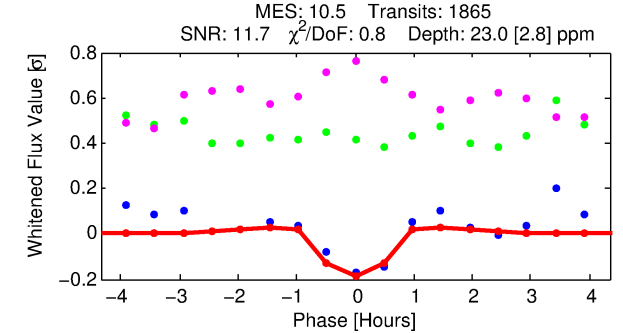
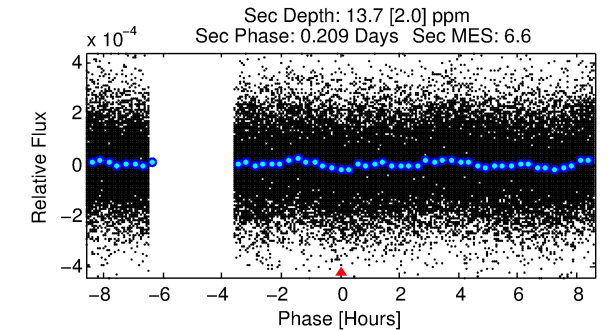
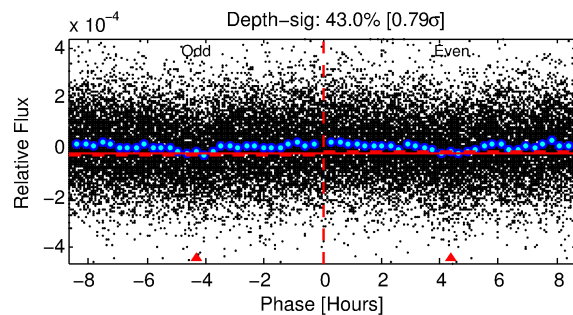
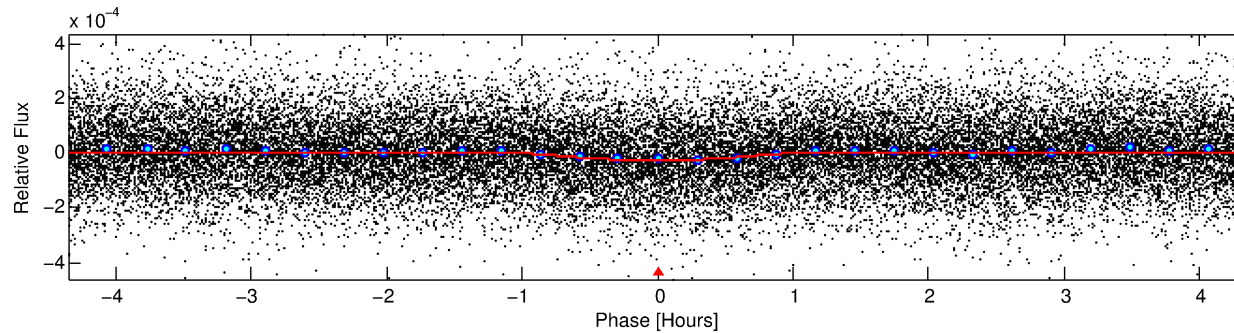
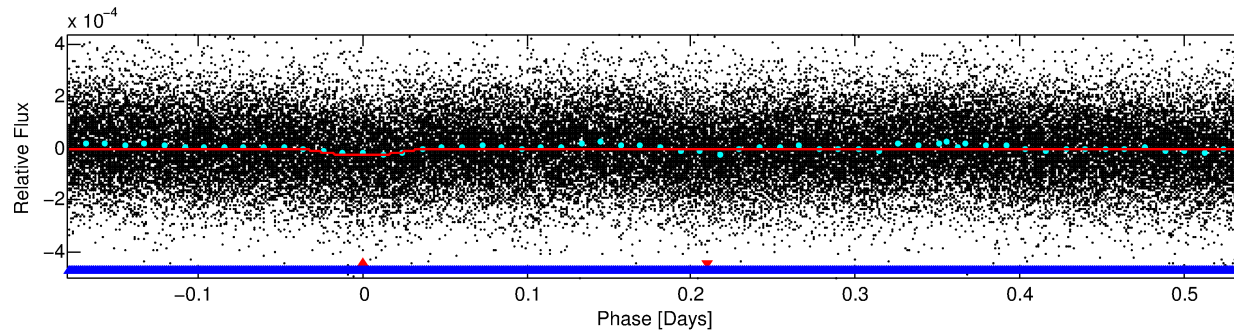
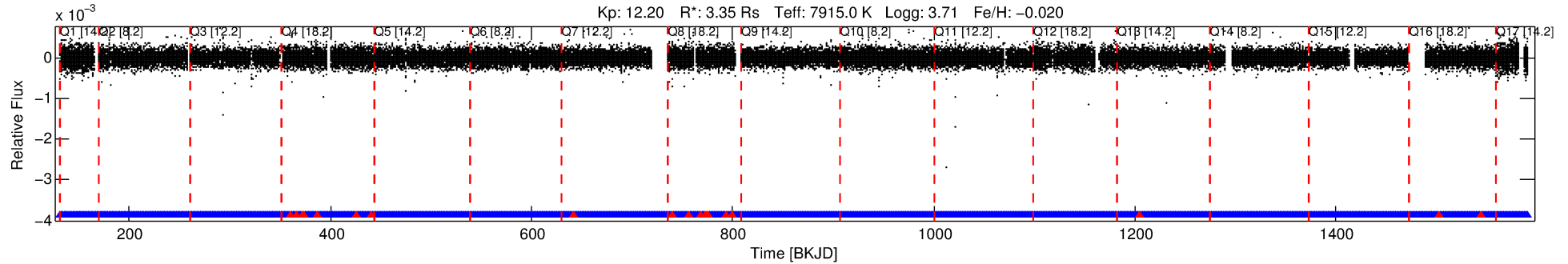
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007532891-01

No Significant Match Found

# DV One-Page Summary

KIC: 7532891 Candidate: 1 of 2 Period: 0.718 d



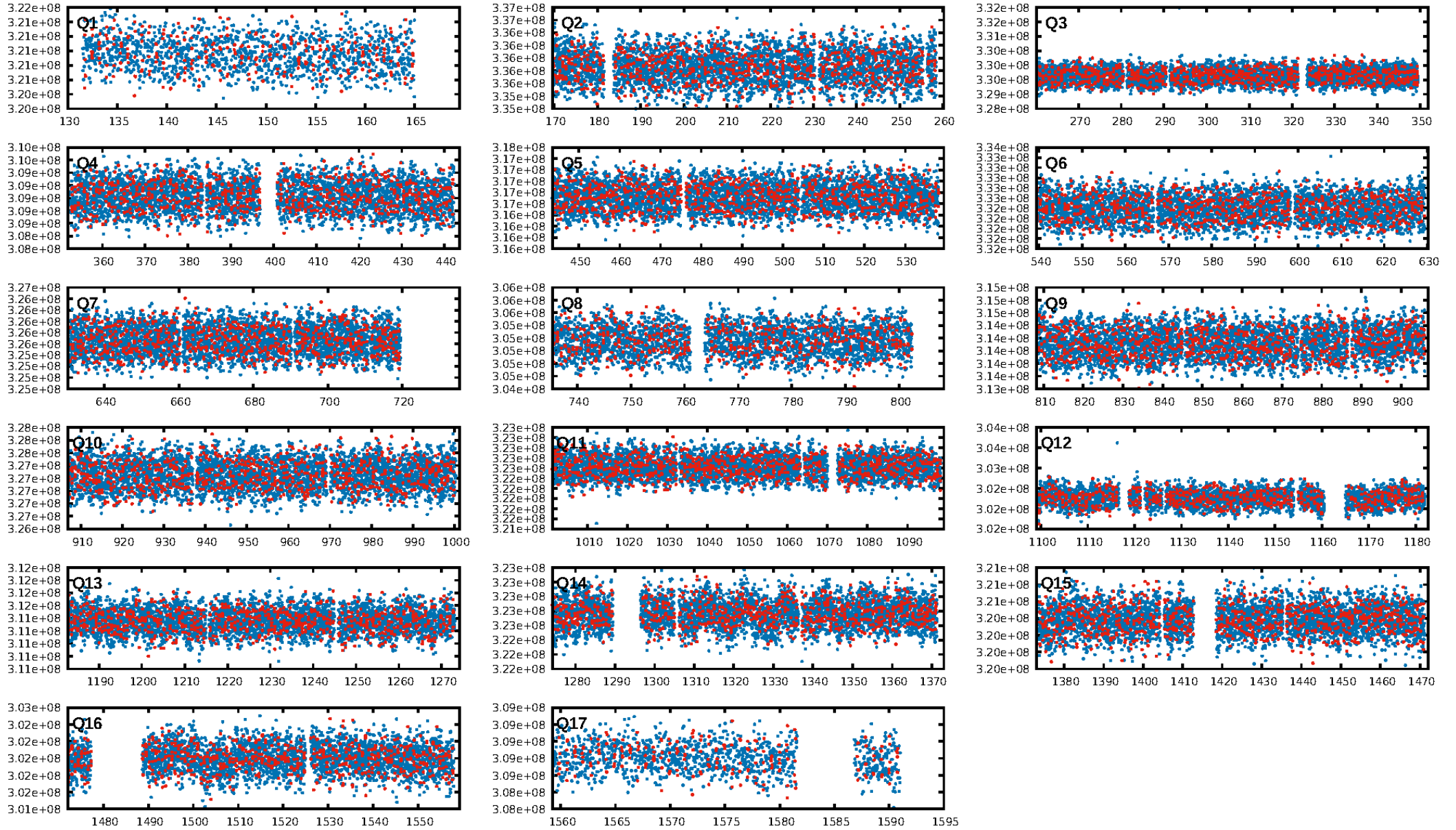
## DV Fit Results:

Period = 0.71801 [0.00001] d  
Epoch = 131.7535 [0.0017] BKJD  
Rp/R\* = 0.0051 [0.0009]  
a/R\* = 1.95 [1.44]  
b = 0.90 [0.22]  
Seff = 98222.38 [73093.29]  
Teq = 4514 [840] K  
Rp = 1.87 [0.93] Re  
a = 0.0200 [0.0090] AU  
Ag = 0.86 [0.70] [-0.20 $\sigma$ ]  
Teffp = 6722 [699] K [2.02 $\sigma$ ]

## DV Diagnostic Results:

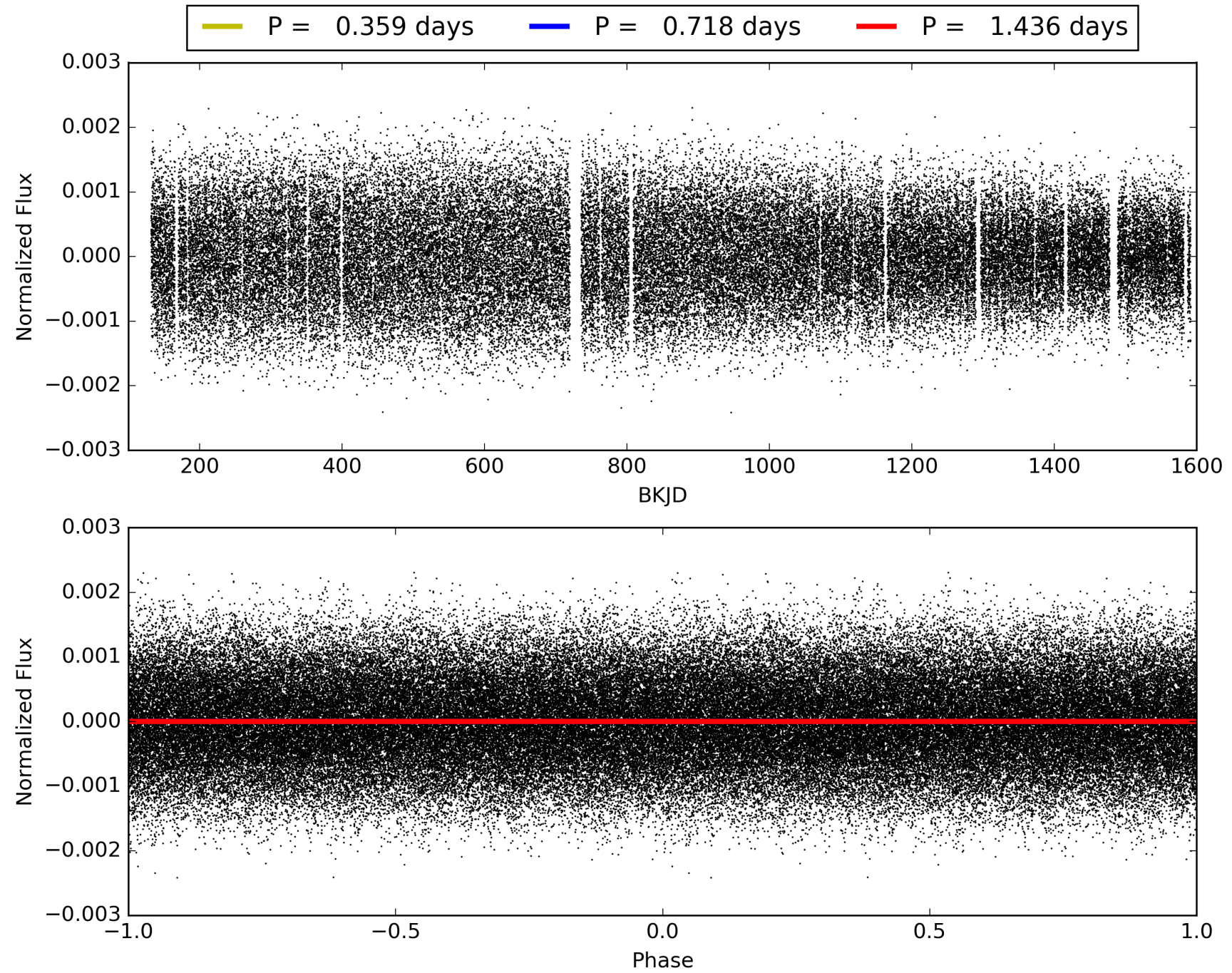
ShortPeriod-sig: N/A  
LongPeriod-sig: 99.9% [3.44 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.71e-21  
RollingBand-fgt: 0.99 [1762/1781]  
GhostDiagnostic-chr: 5.329  
Centroid-sig: 2.3%  
Centroid-so: 1.069 arcsec [1.67 $\sigma$ ]  
OotOffset-rm: 0.387 arcsec [0.45 $\sigma$ ]  
KicOffset-rm: 0.471 arcsec [0.57 $\sigma$ ]  
OotOffset-st: 3/4/3/4 [14]  
KicOffset-st: 3/4/3/4 [14]  
DiffImageQuality-fgm: 0.86 [12/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007532891-01, PDC Light Curves



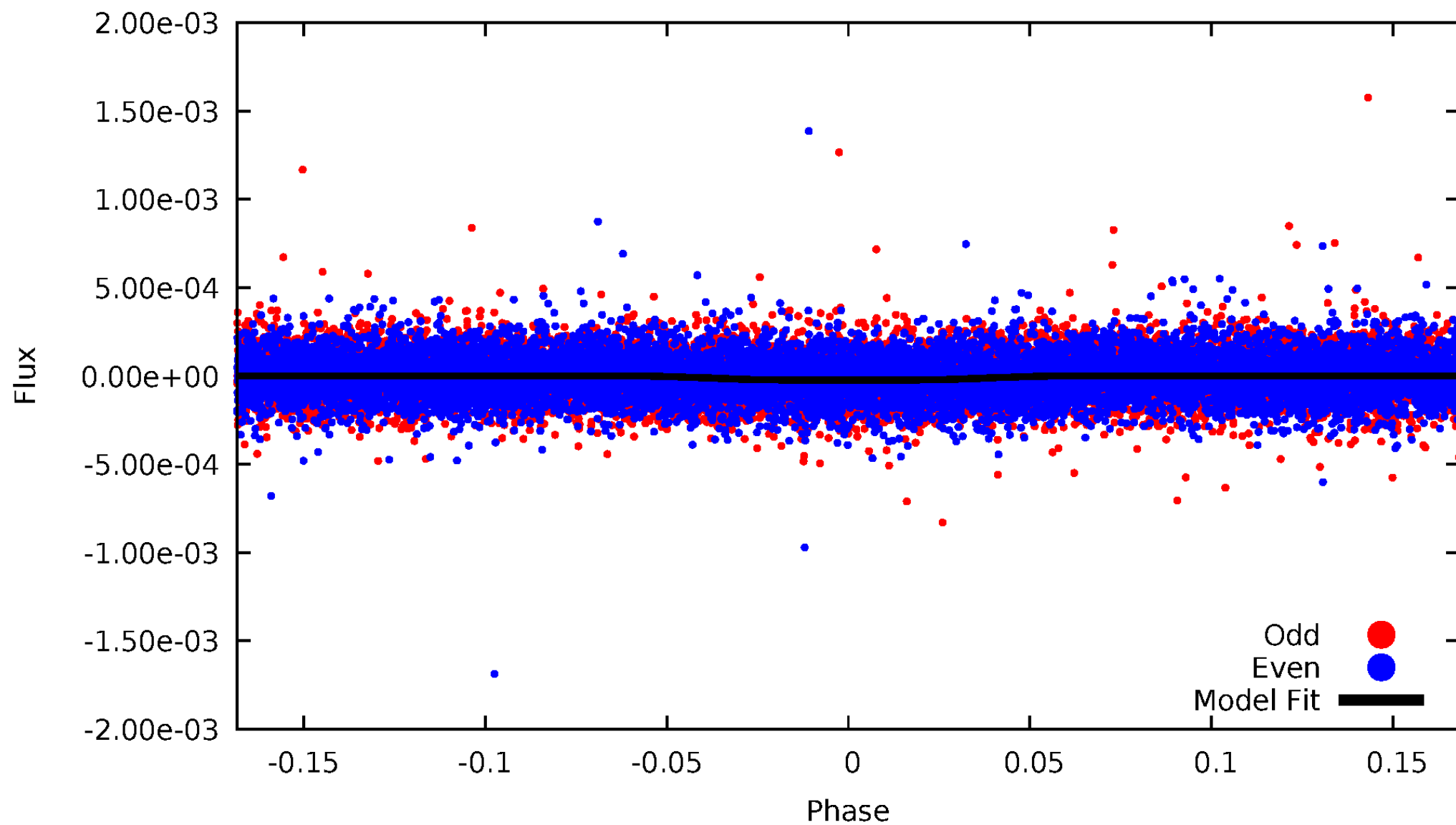


TCE 007532891-01



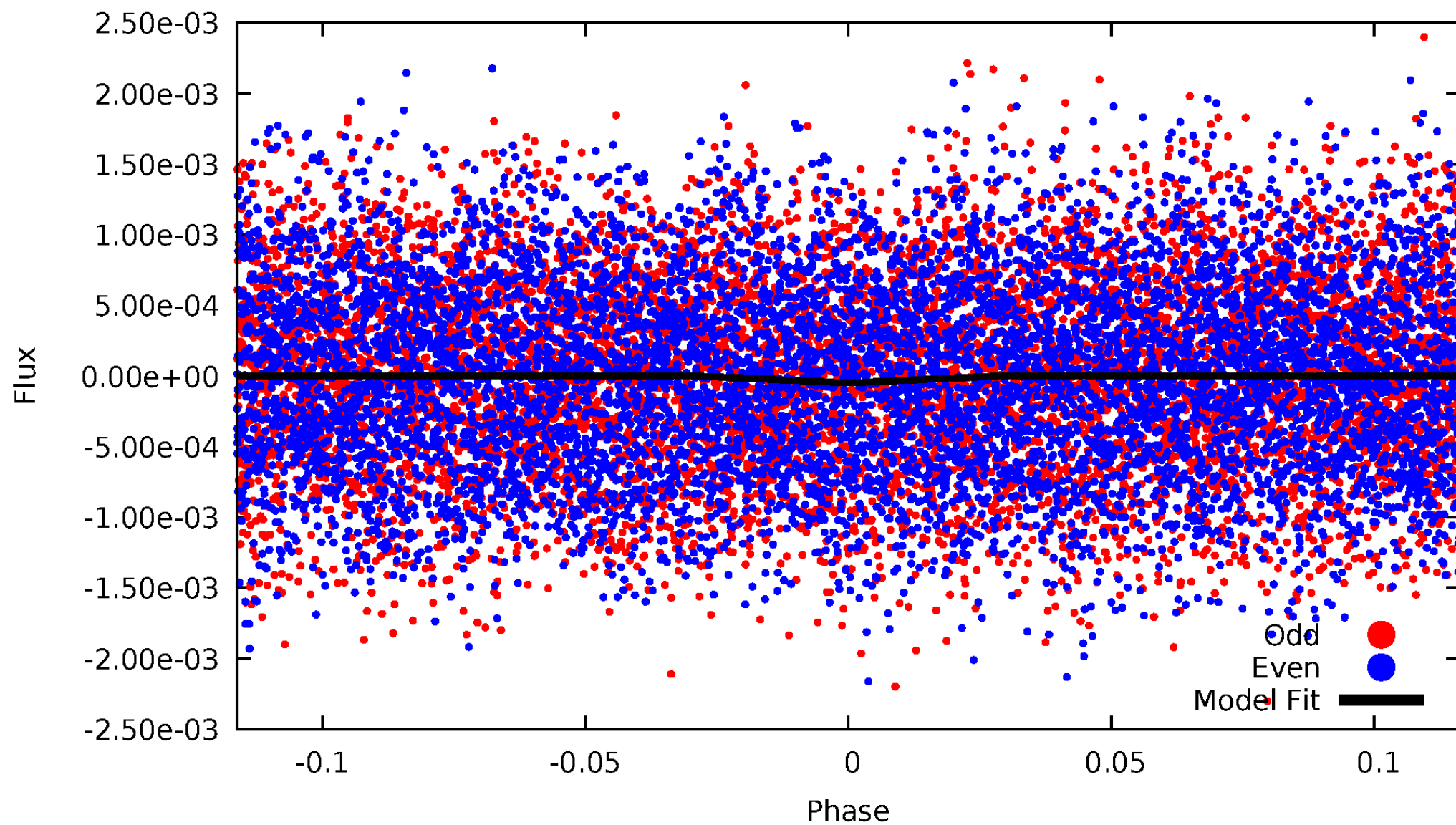
# DV Odd/Even

TCE 007532891-01



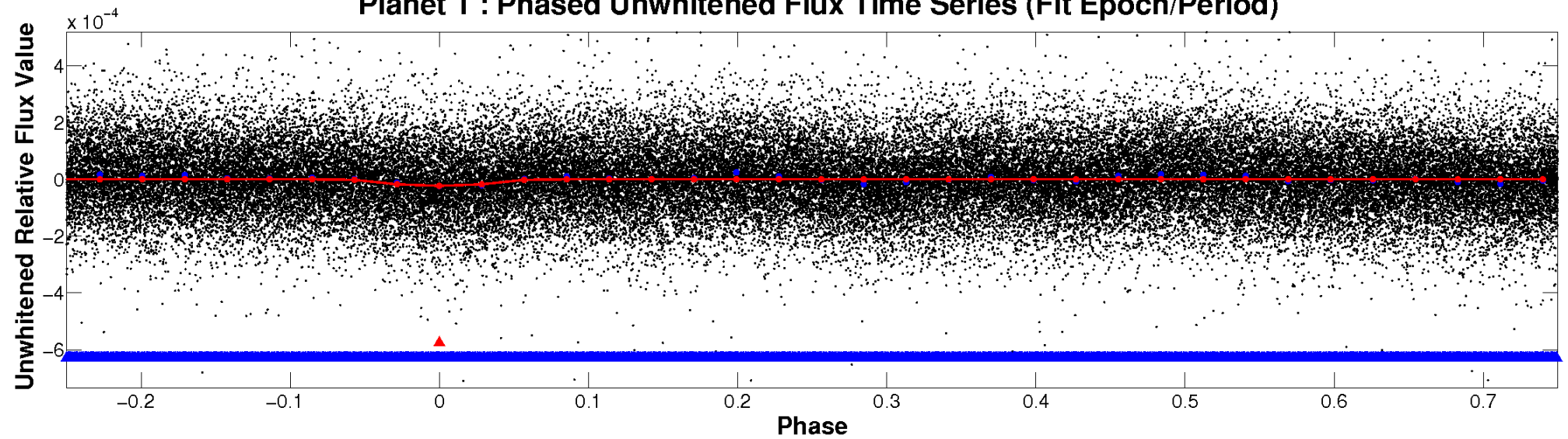
# ALT Odd/Even

TCE 007532891-01

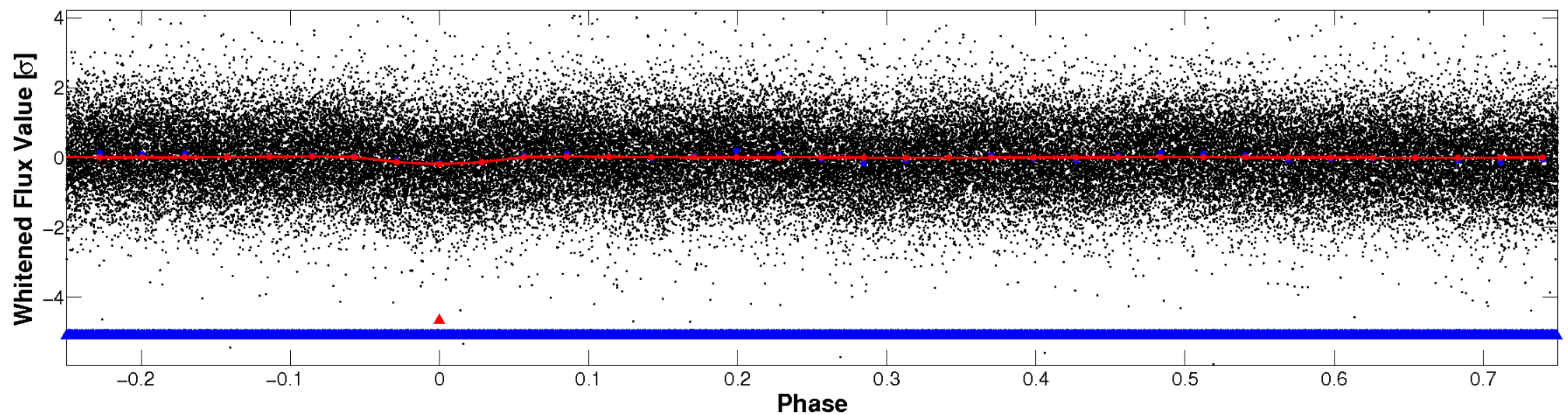


# Non-Whitened Vs. Whitened Light Curve

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



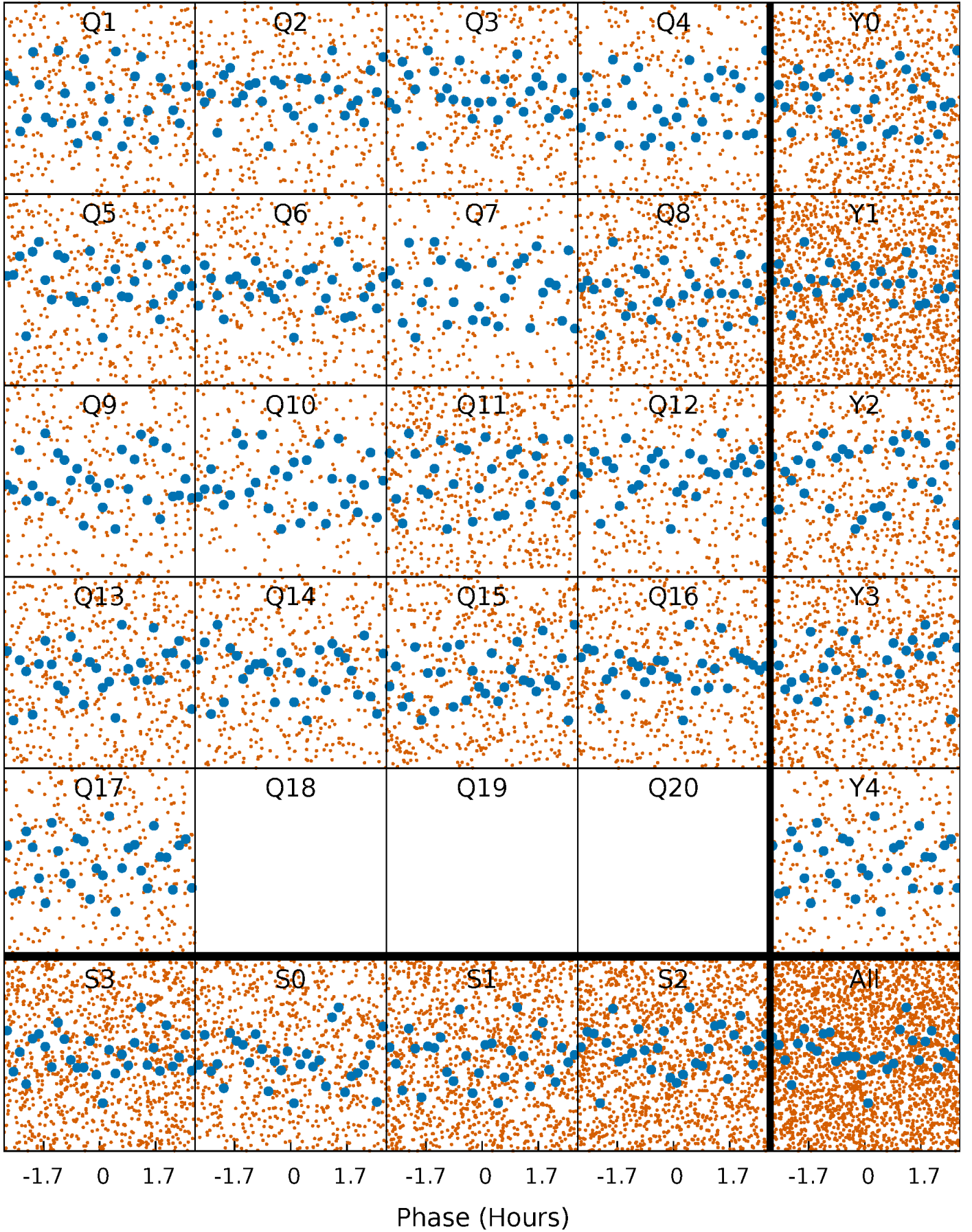
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

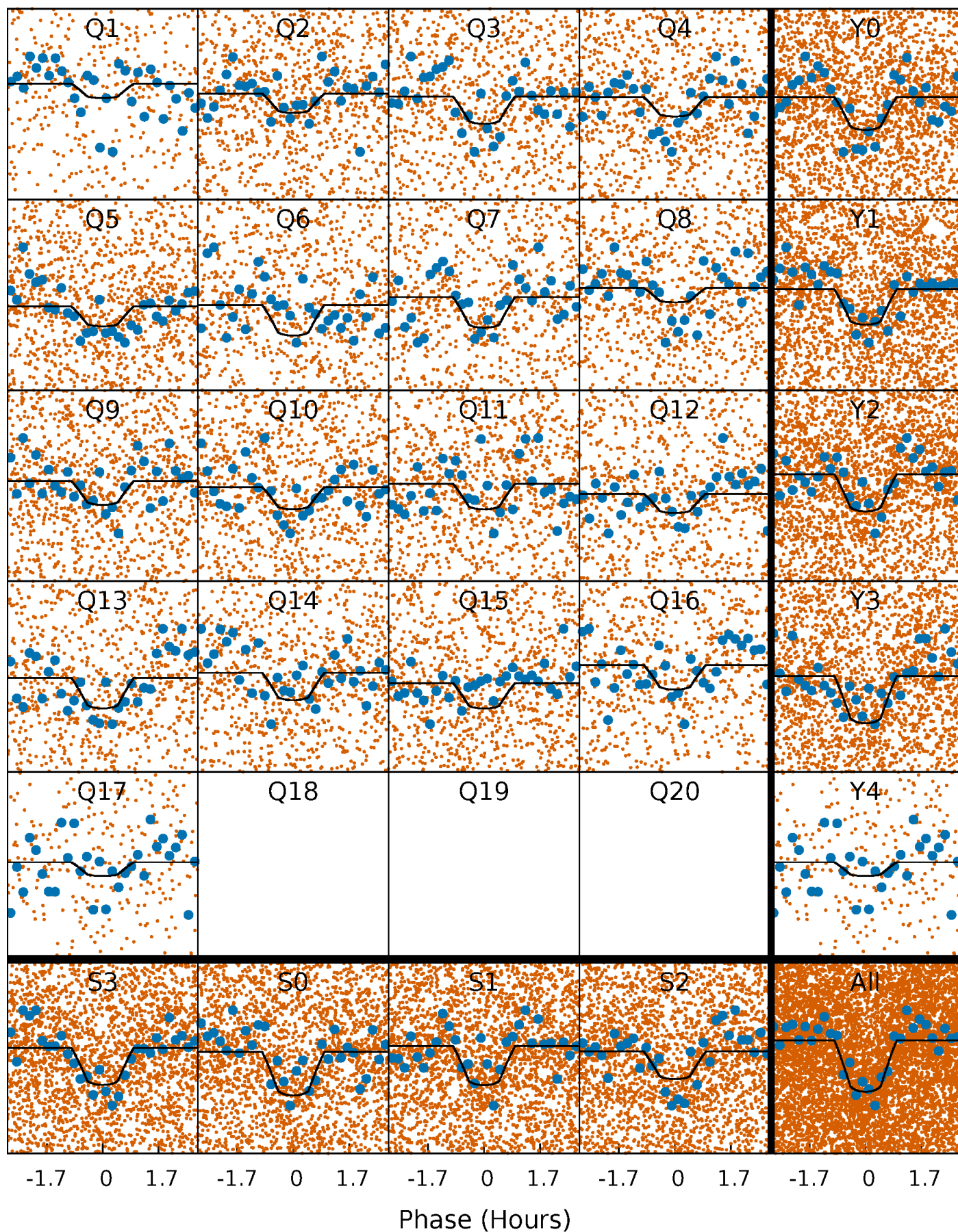
TCE 007532891-01   P= 0.718007 Days    $T_0=131.753505$  (BKJD)





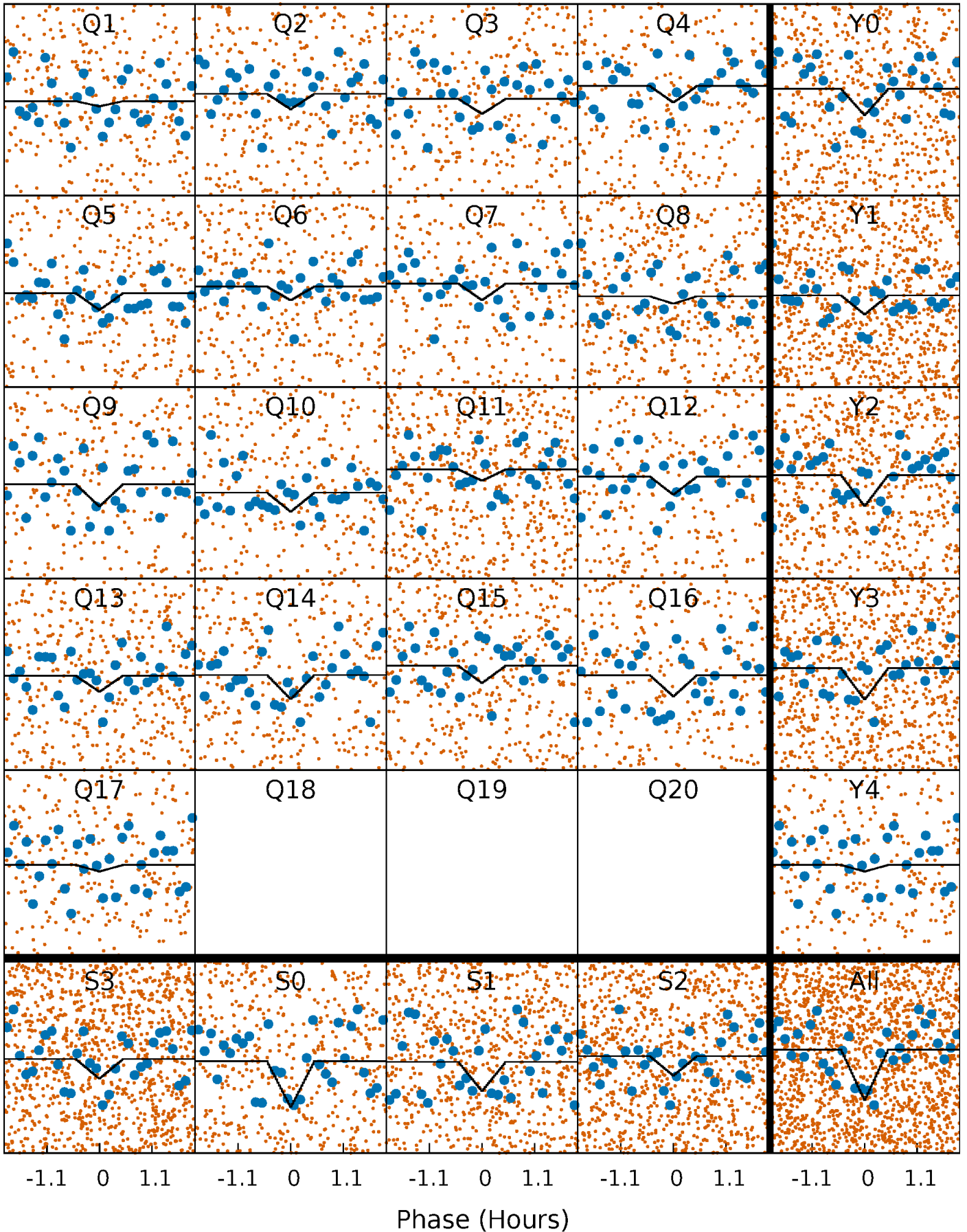
# DV Quarter-Phased Transit Curves

TCE 007532891-01   P= 0.718007 Days    $T_0=131.753505$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

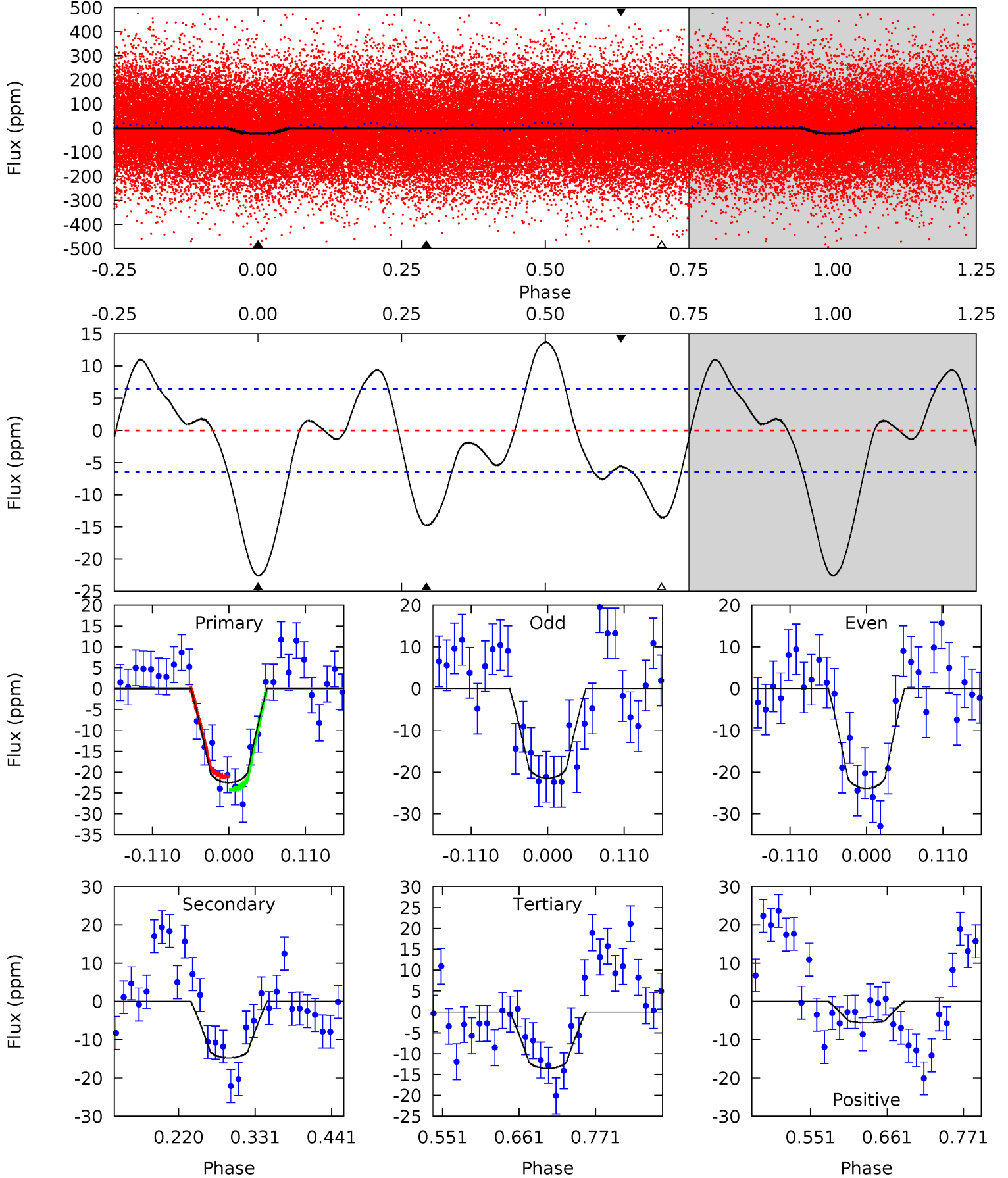
TCE 007532891-01 P= 0.718018 Days  $T_0=131.748745$  (BKJD)



# DV Model-Shift Uniqueness Test

007532891-01, P = 0.718007 Days, E = 131.035498 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
16.0	10.4	9.59	-3.94	4.54	1.60	5.23	6.39	19.9	0.85	14.4	0.89	0.95	0.38	1.14

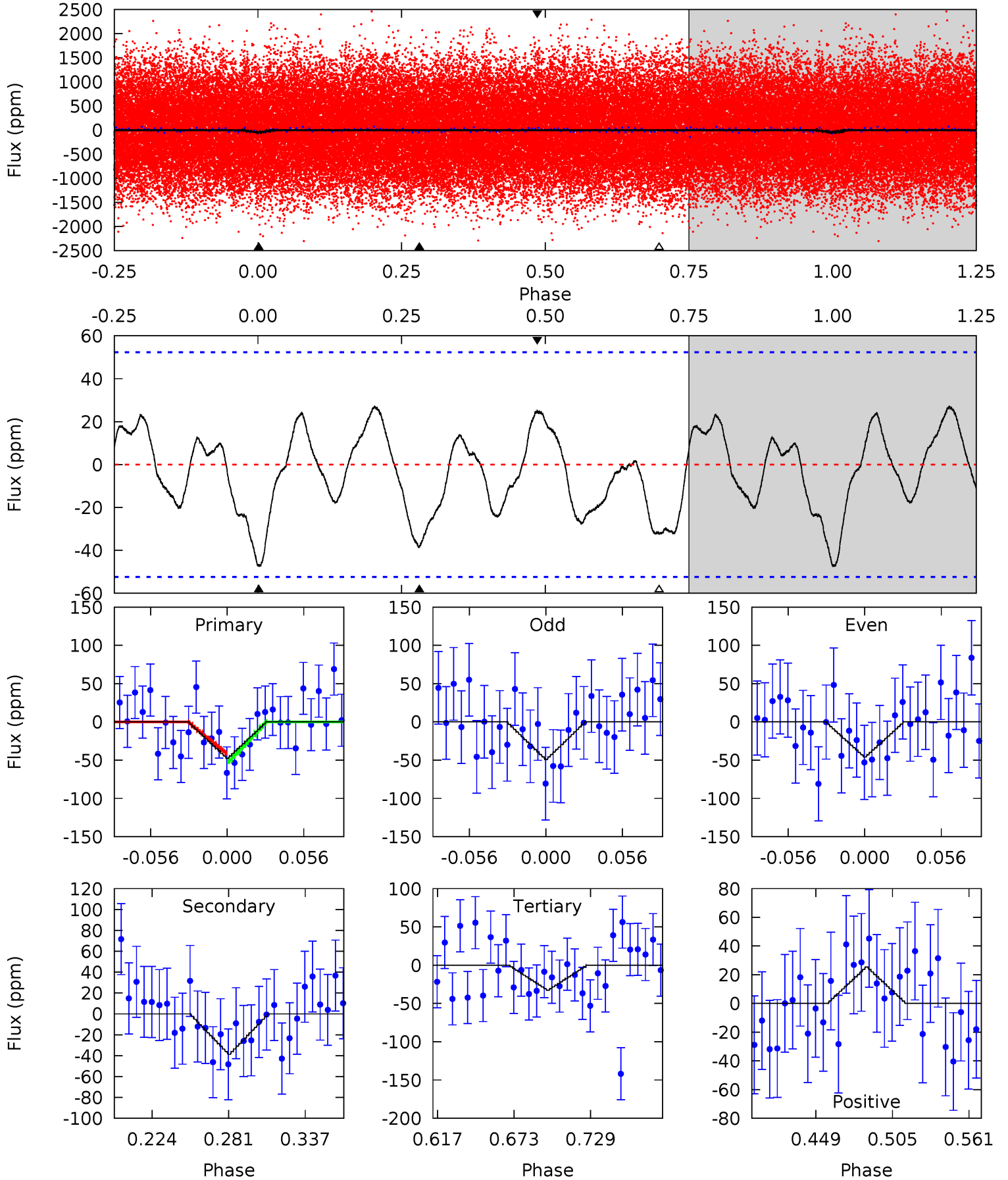




# Alt Model-Shift Uniqueness Test

007532891-01, P = 0.718018 Days, E = 131.030727 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
4.26	3.47	2.92	2.27	4.68	1.91	1.45	1.33	1.99	0.54	1.20	0.14	1.24	0.36	0.51





### Stellar Parameters For KIC 007532891

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7915^{+192}_{-357}$	$3.706^{+0.424}_{-0.106}$	$-0.020^{+0.200}_{-0.350}$	$3.346^{+0.672}_{-1.568}$	$2.075^{+0.282}_{-0.525}$	$0.078^{+0.329}_{-0.027}$
	+2%/-5%	+11%/-3%	+1000%/-1750%	+20%/-47%	+14%/-25%	+421%/-34%
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 007532891-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-15 \pm 1$	$1.74^{+0.46}_{-0.50}$	$6114^{+470}_{-727}$	$6146^{+886}_{-771}$	$1.069^{+0.937}_{-0.385}$
Alt.	$-39 \pm 11$	$2.41^{+0.49}_{-0.61}$	$6080^{+474}_{-688}$	$6824^{+1055}_{-914}$	$1.484^{+1.212}_{-0.591}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{obs}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

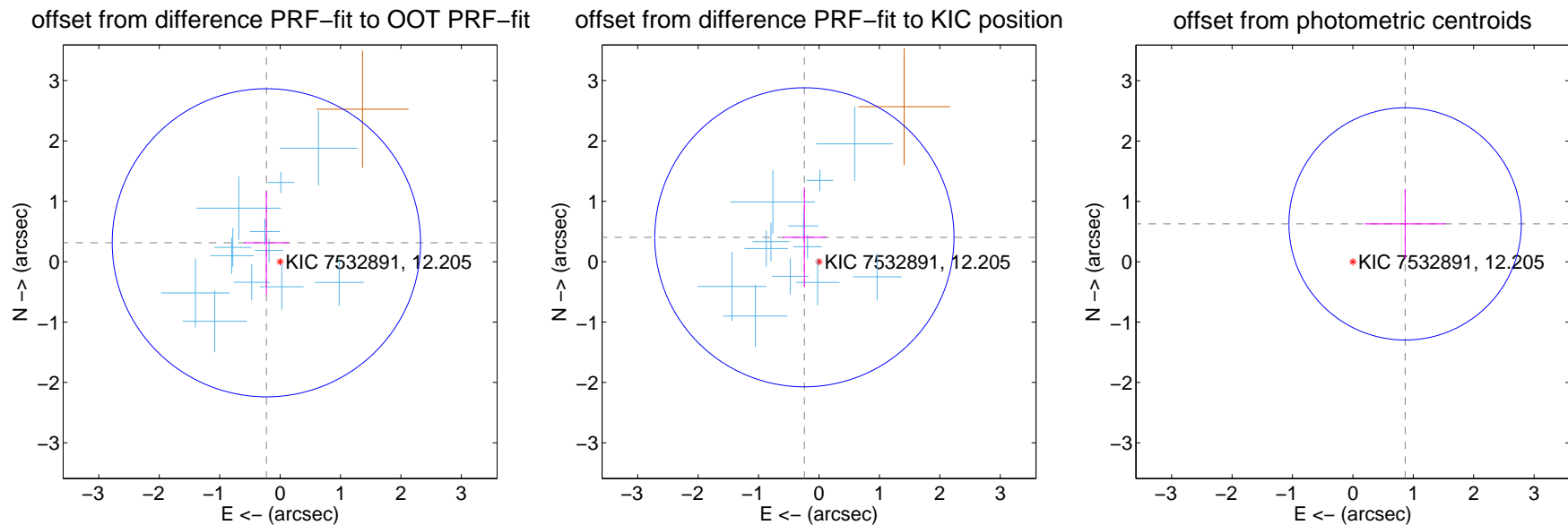
## DV Centroid Data

Supplemental centroid analysis for 007532891-01. Kepler magnitude: 12.21. Transit SNR 11.71

There are 12 quarters with good PRF difference image offsets

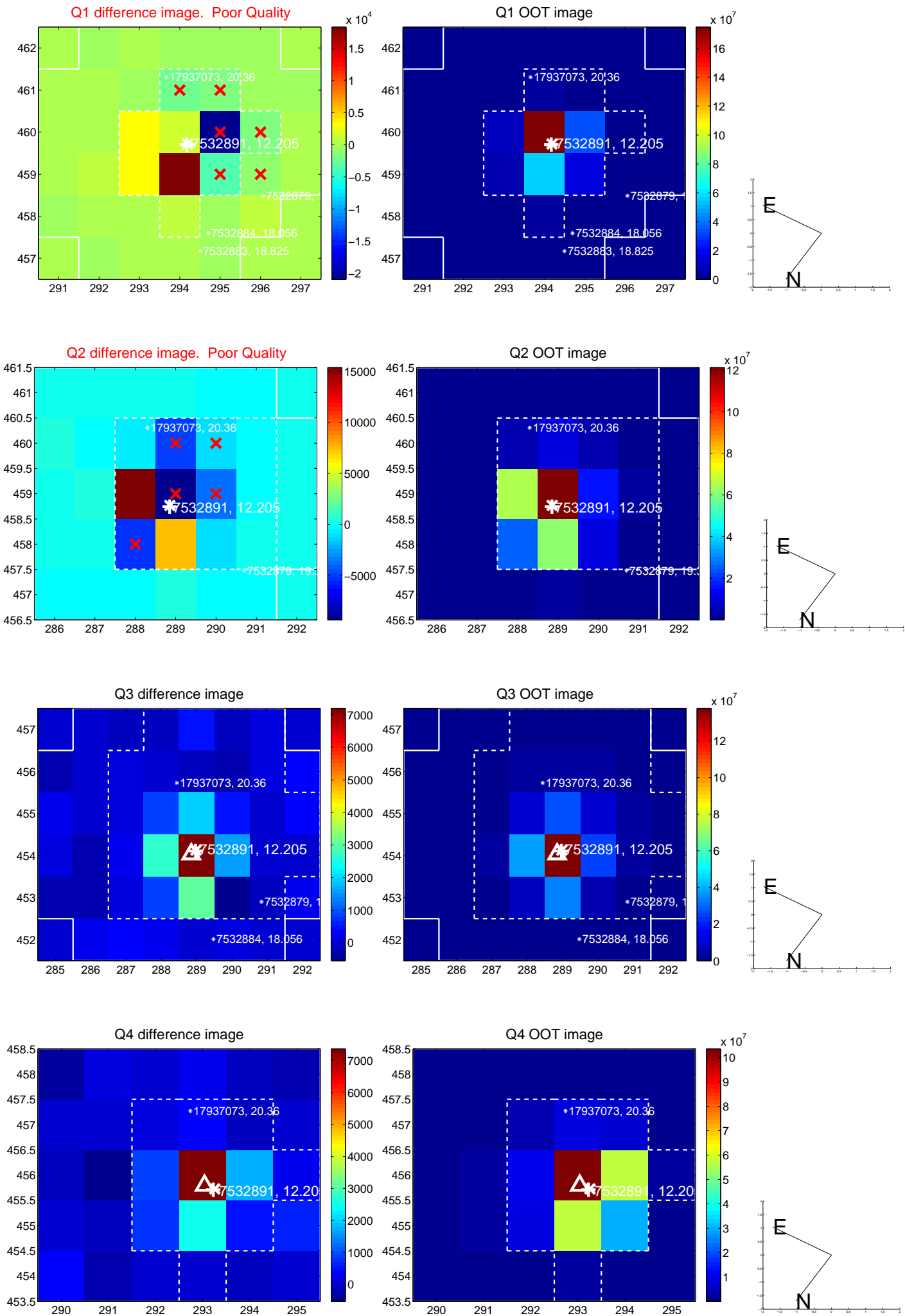
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.387 \pm 0.851$	0.45	$0.227 \pm 0.373$	$0.313 \pm 0.855$
PRF-fit source offset from KIC position	$0.471 \pm 0.826$	0.57	$0.242 \pm 0.357$	$0.404 \pm 0.829$
photometric centroid source offset	$1.07 \pm 0.64$	1.67	$-0.87 \pm 0.67$	$0.63 \pm 0.58$

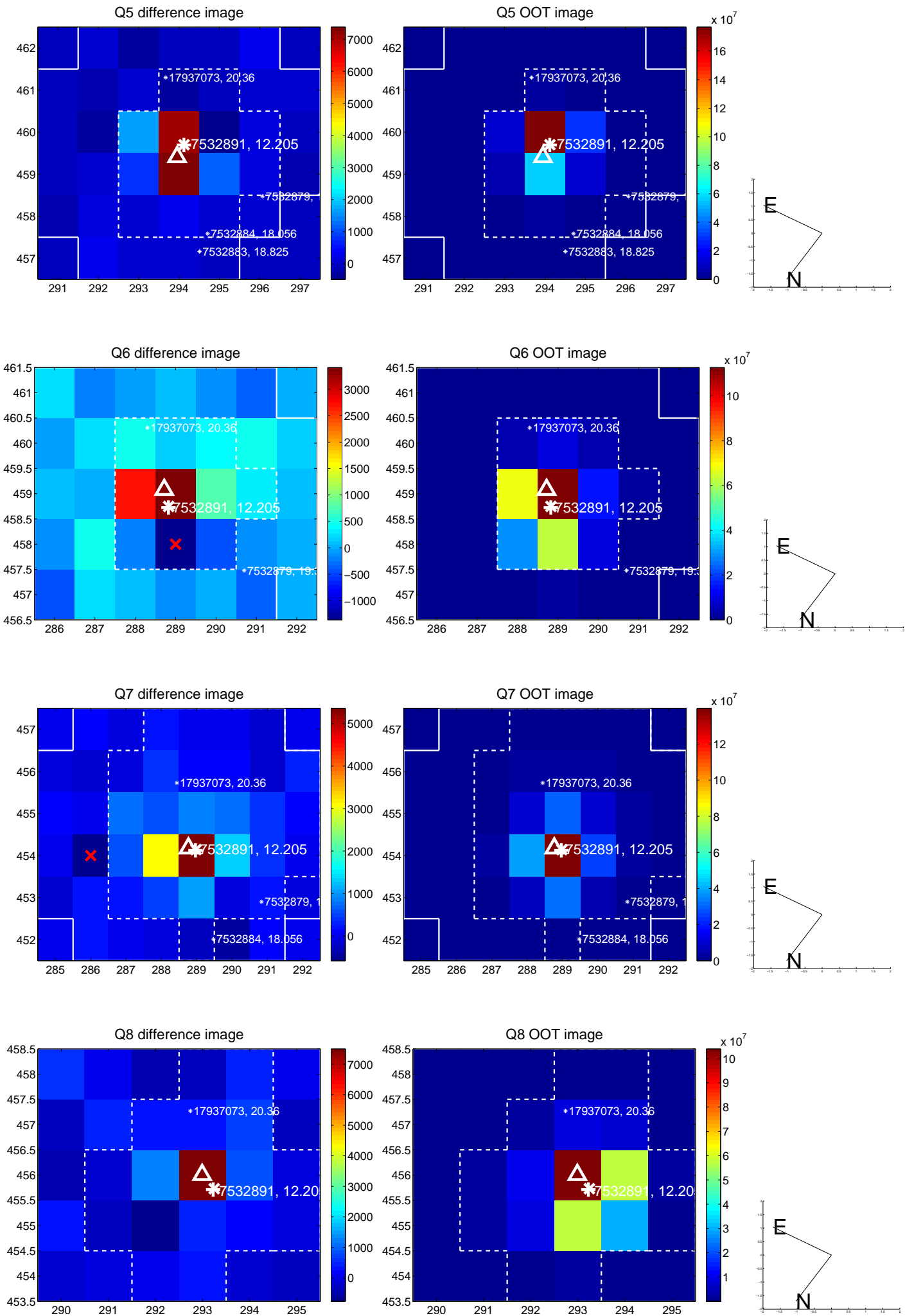


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

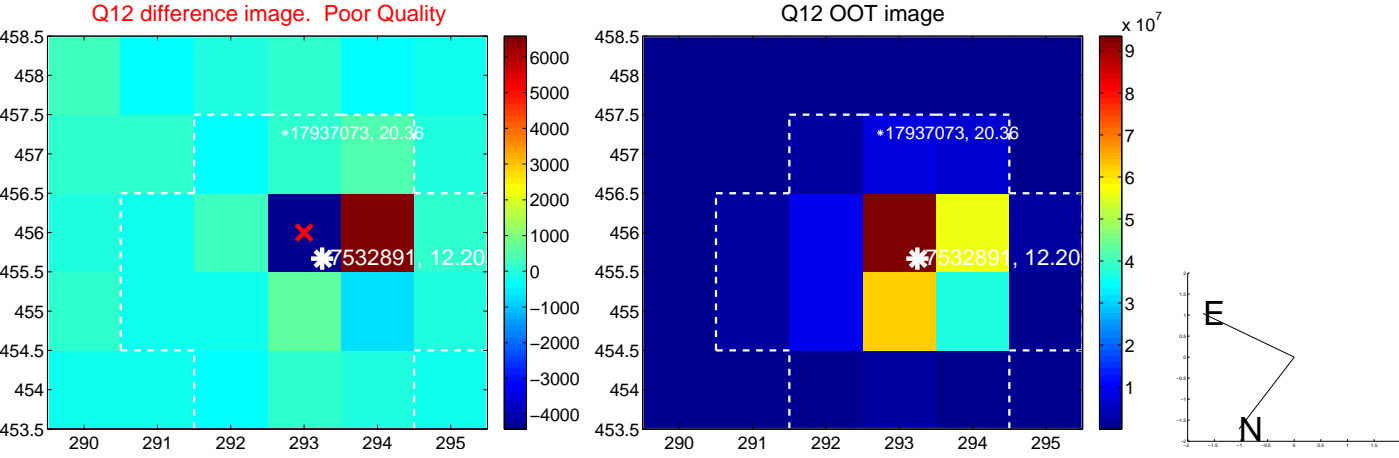
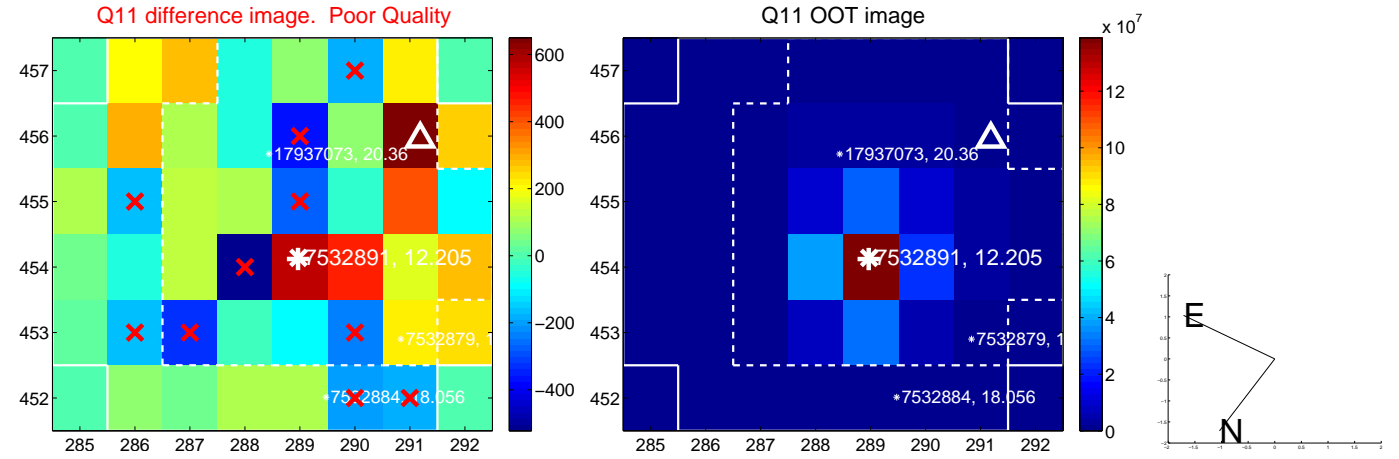
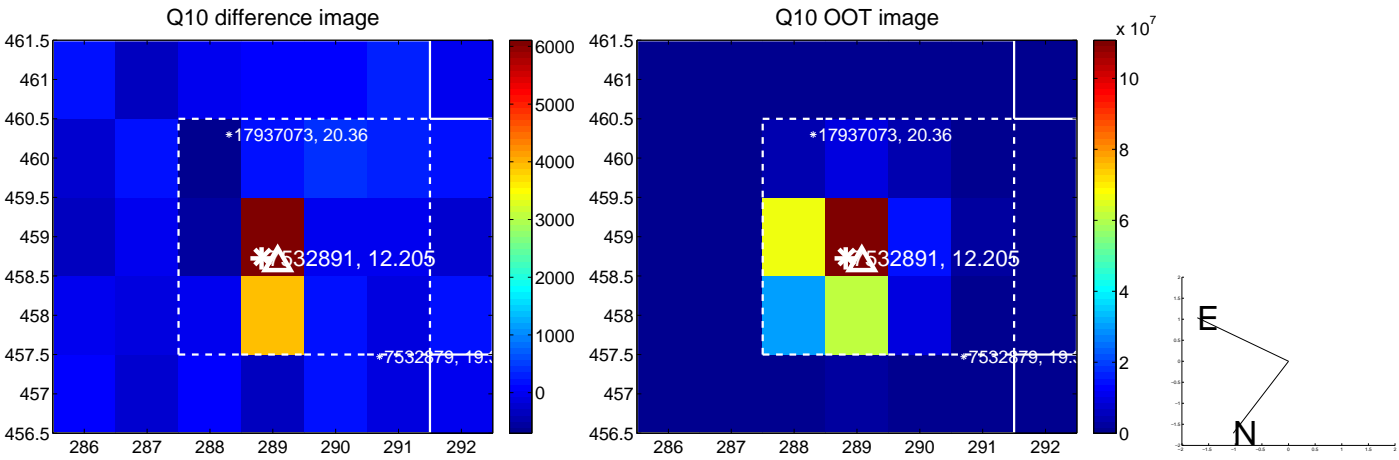
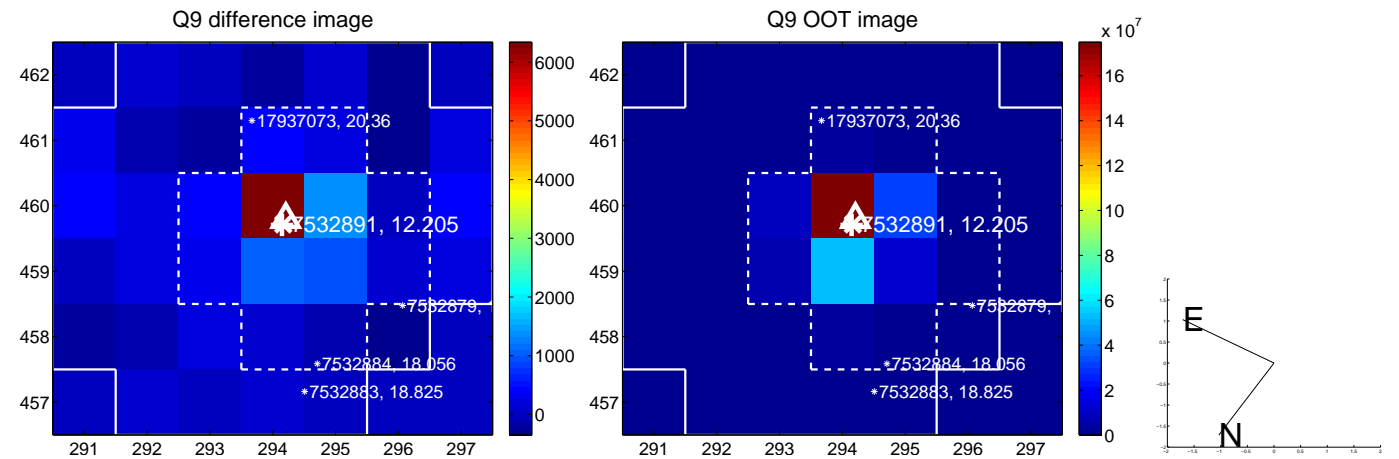


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

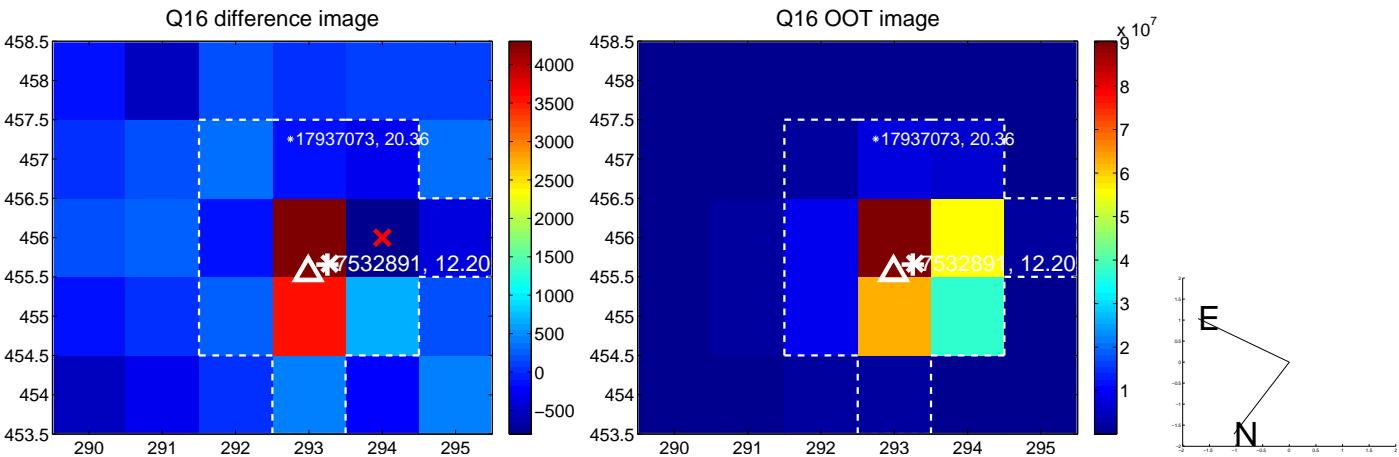
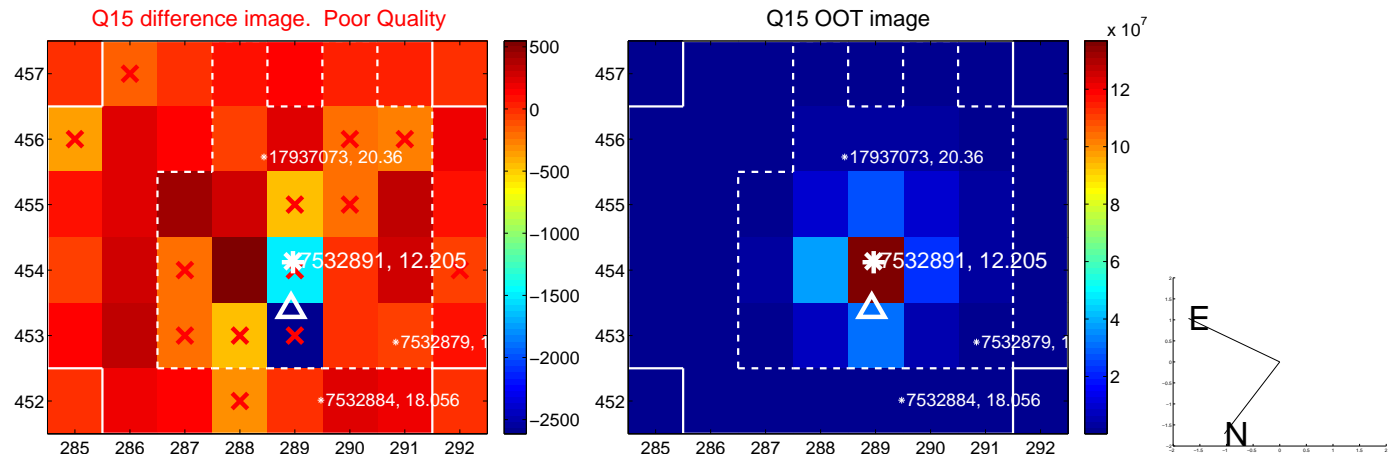
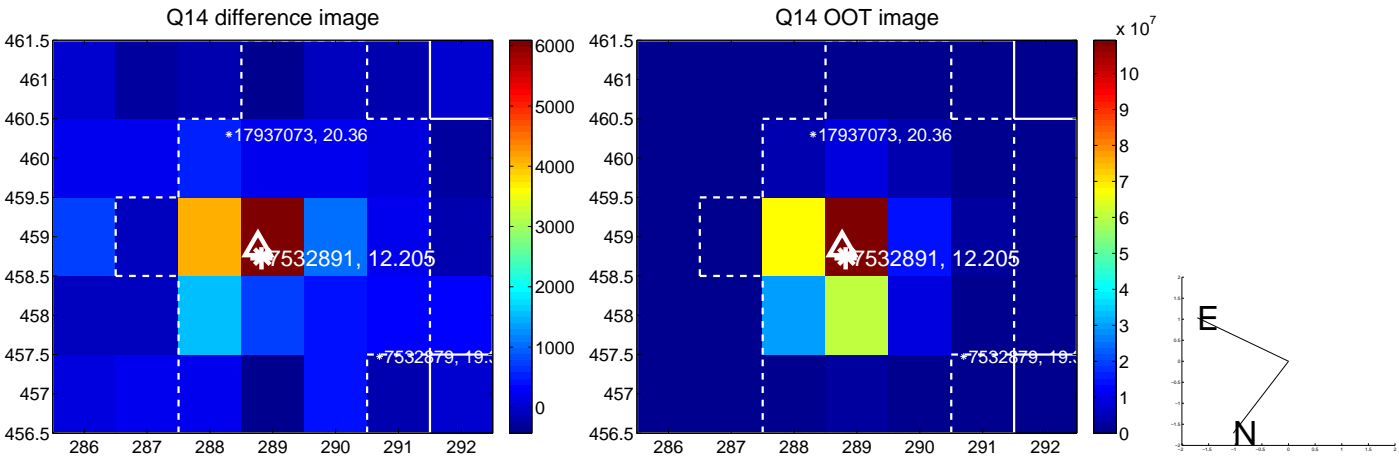
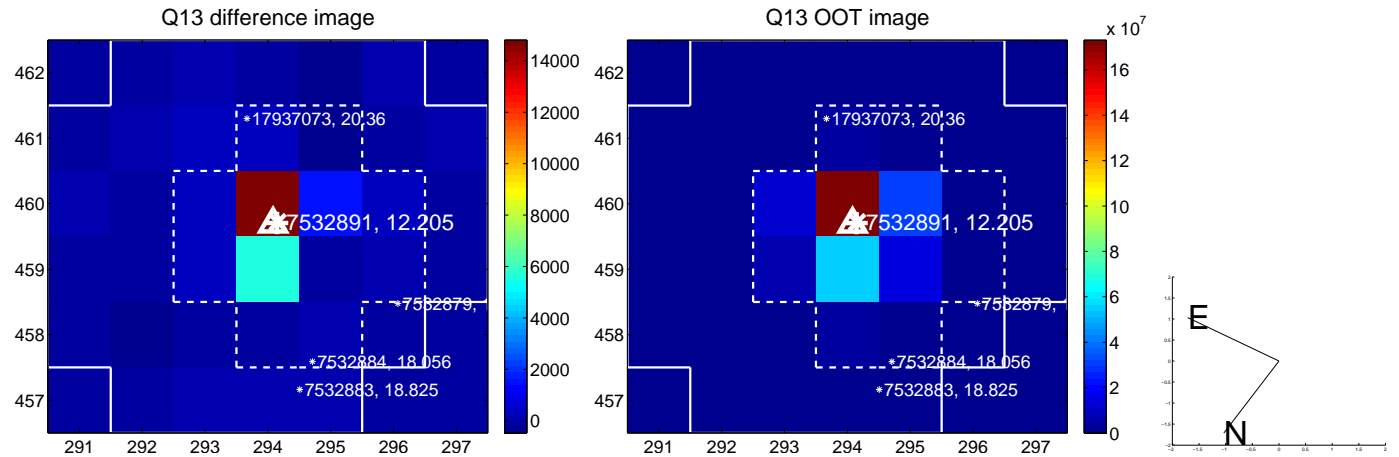




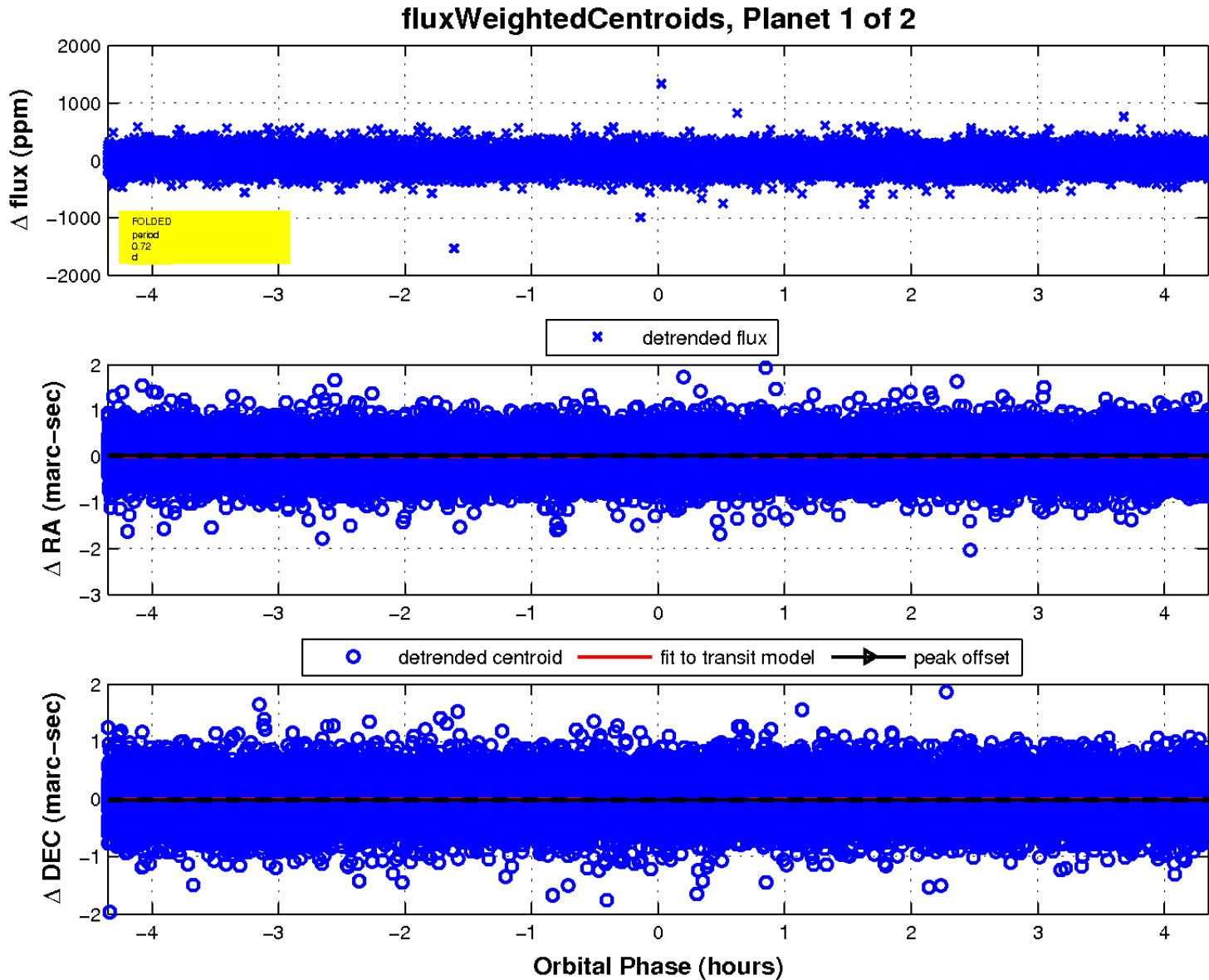
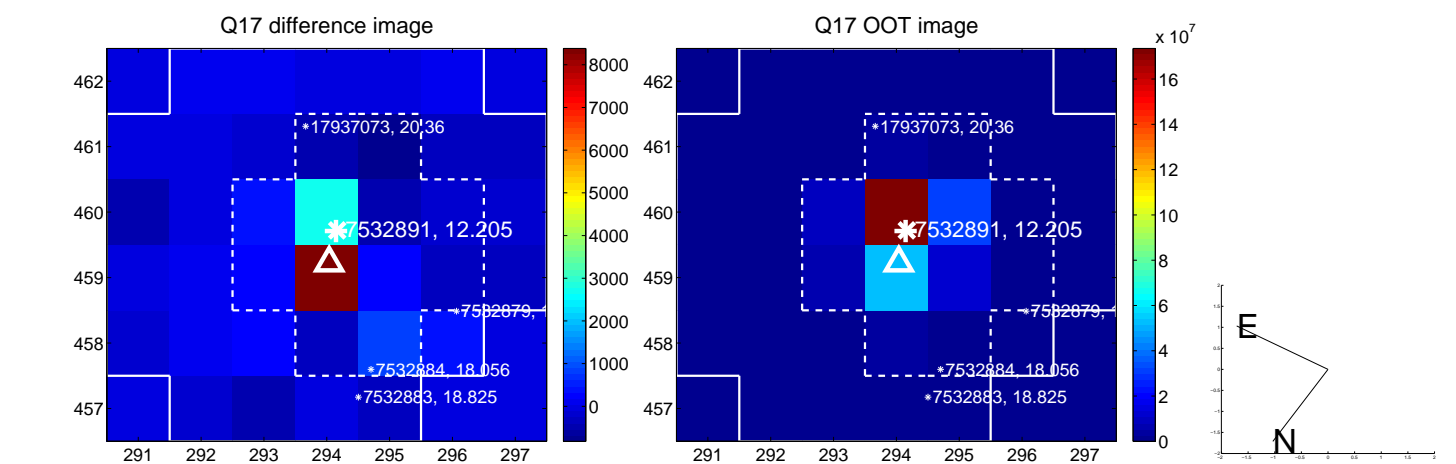
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

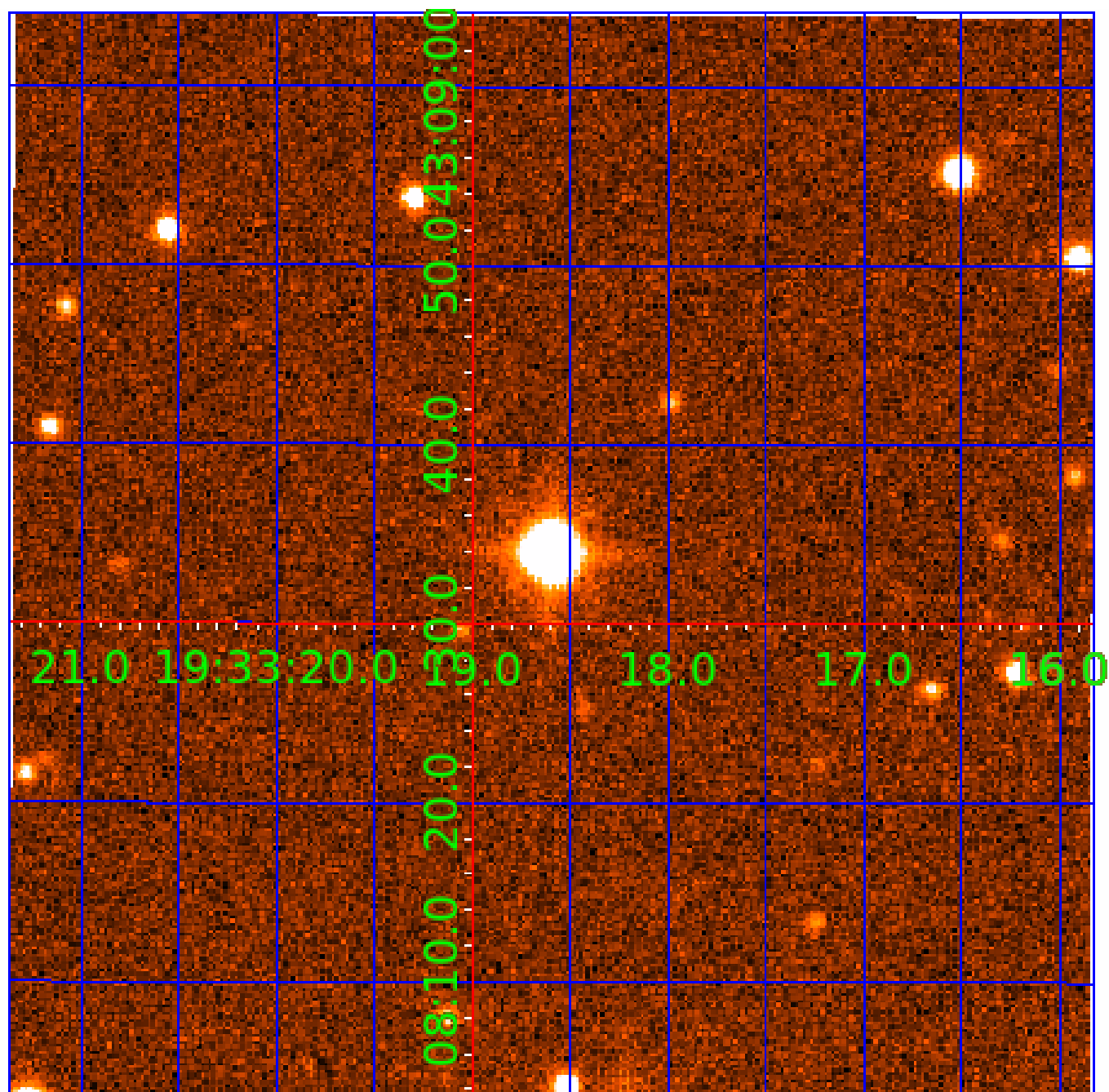


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007532891

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007532891-01	OBS	No	0.718007	131.753505	23.0	1.450	10.5	11.7	3.35	7915	1.87	98222.38
007532891-02	OBS	No	1.736635	131.691954	22.7	6.963	9.6	10.1	3.35	7915	1.70	30253.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007532891-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007532891-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

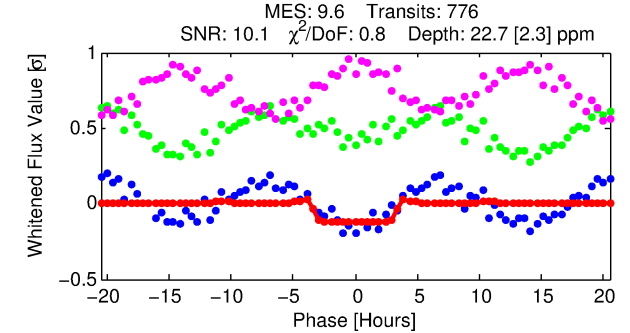
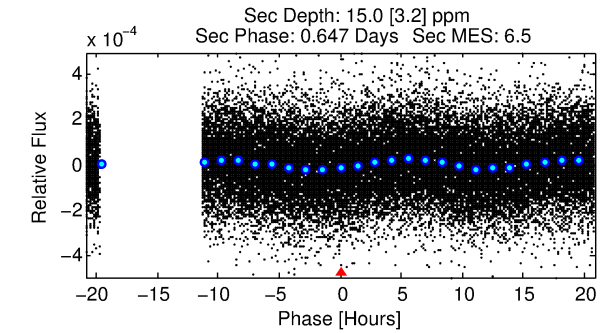
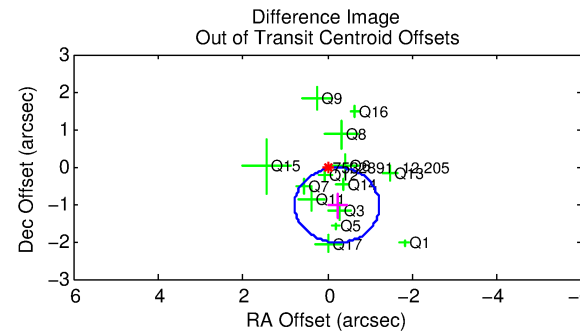
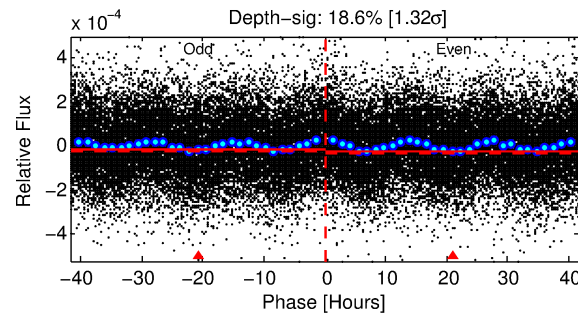
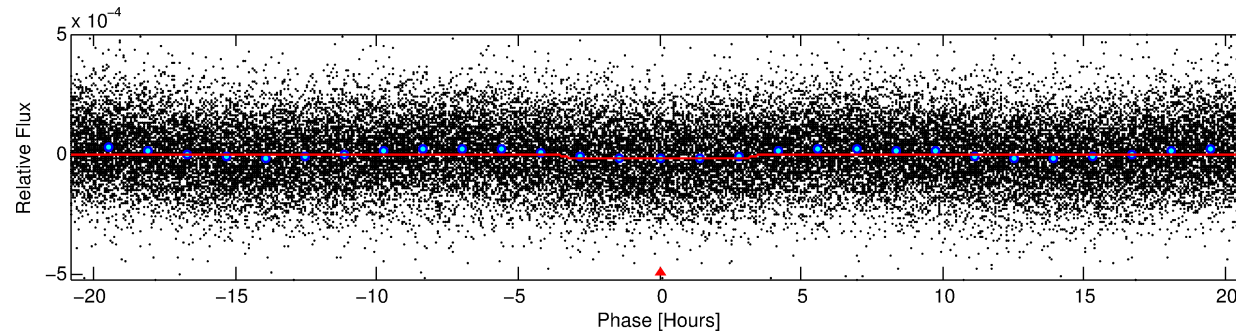
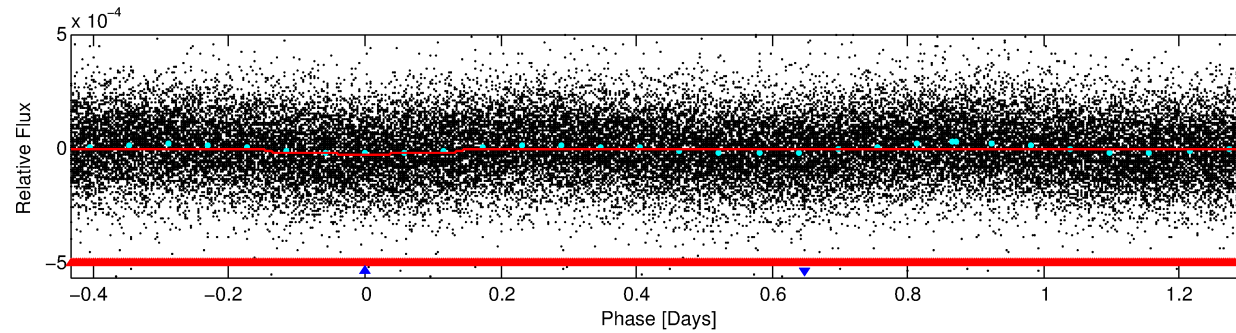
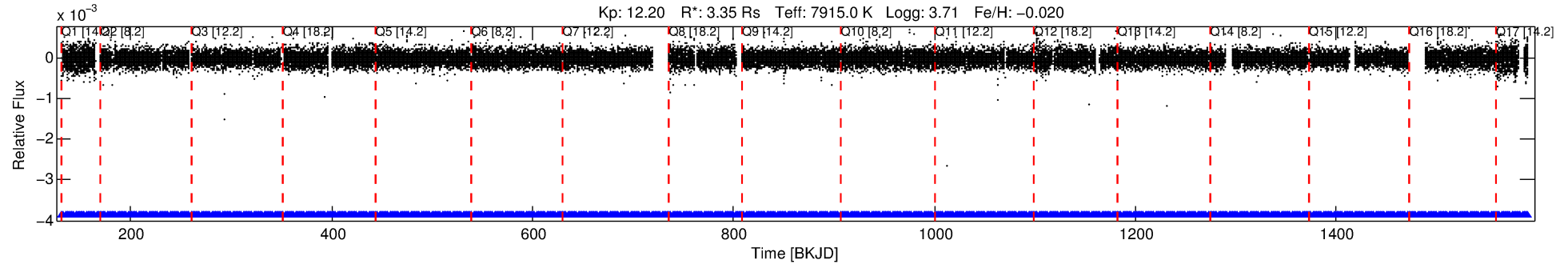
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007532891-02

No Significant Match Found

# DV One-Page Summary

KIC: 7532891 Candidate: 2 of 2 Period: 1.737 d



## DV Fit Results:

Period = 1.73664 [0.00002] d  
Epoch = 131.6920 [0.0053] BKJD  
Rp/R\* = 0.0046 [0.0013]  
a/R\* = 1.63 [1.63]  
b = 0.67 [1.31]  
Seff = 30253.14 [22513.22]  
Teff = 3363 [626] K  
Rp = 1.70 [0.93] Re  
a = 0.0361 [0.0163] AU  
Ag = 3.75 [3.52] [0.78 $\sigma$ ]  
Teffp = 7233 [1138] K [2.98 $\sigma$ ]

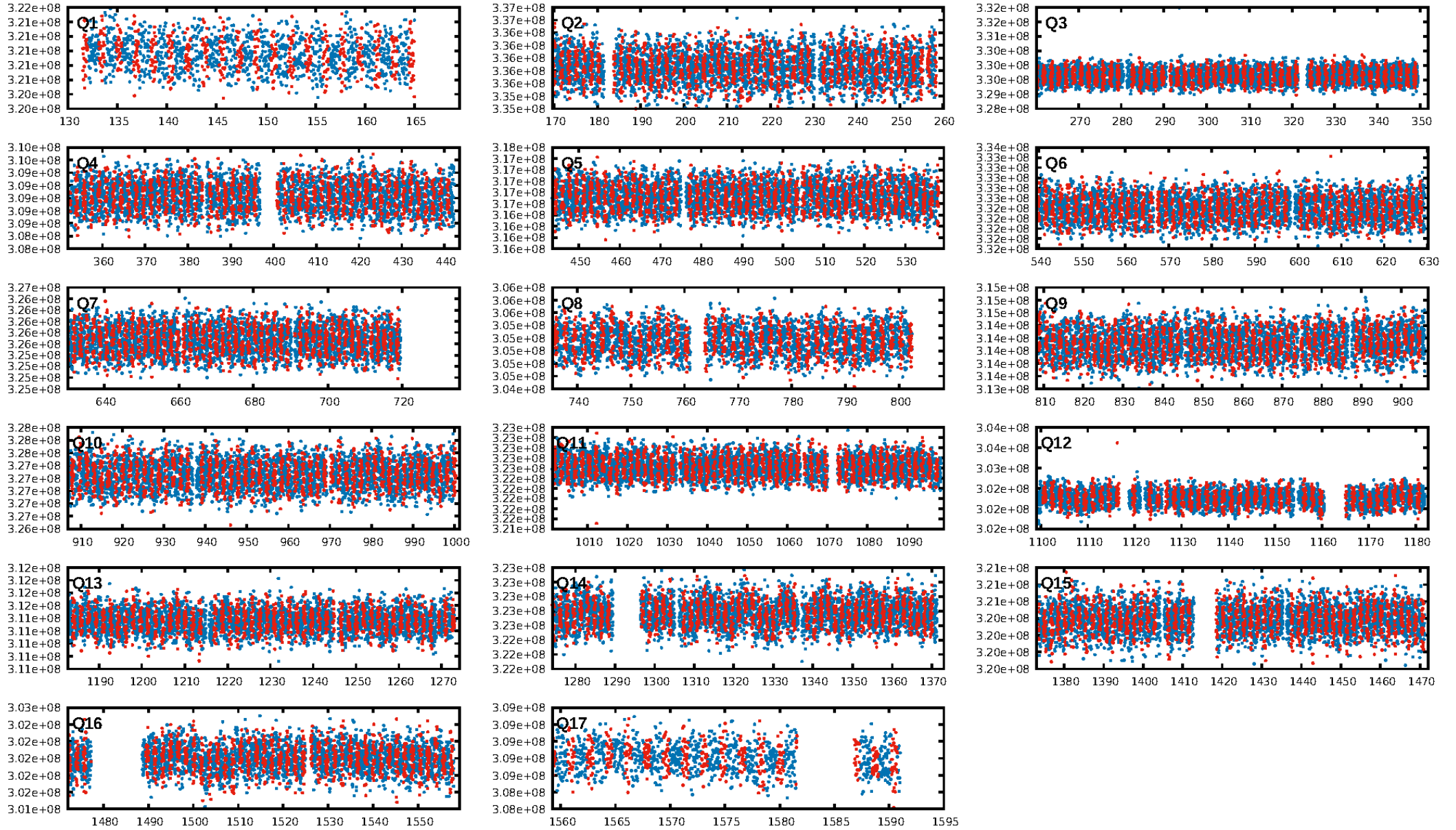
## DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.44 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.83e-14  
RollingBand-fgt: 1.00 [740/740]  
GhostDiagnostic-chr: 2.614  
Centroid-sig: 0.1%  
Centroid-so: 0.865 arcsec [1.89 $\sigma$ ]  
OotOffset-rm: 1.056 arcsec [3.17 $\sigma$ ]  
KicOffset-rm: 1.006 arcsec [3.08 $\sigma$ ]  
OotOffset-st: 2/4/3/5 [14]  
KicOffset-st: 2/4/3/5 [14]  
DiffImageQuality-fgm: 0.93 [13/14]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:45:19 Z

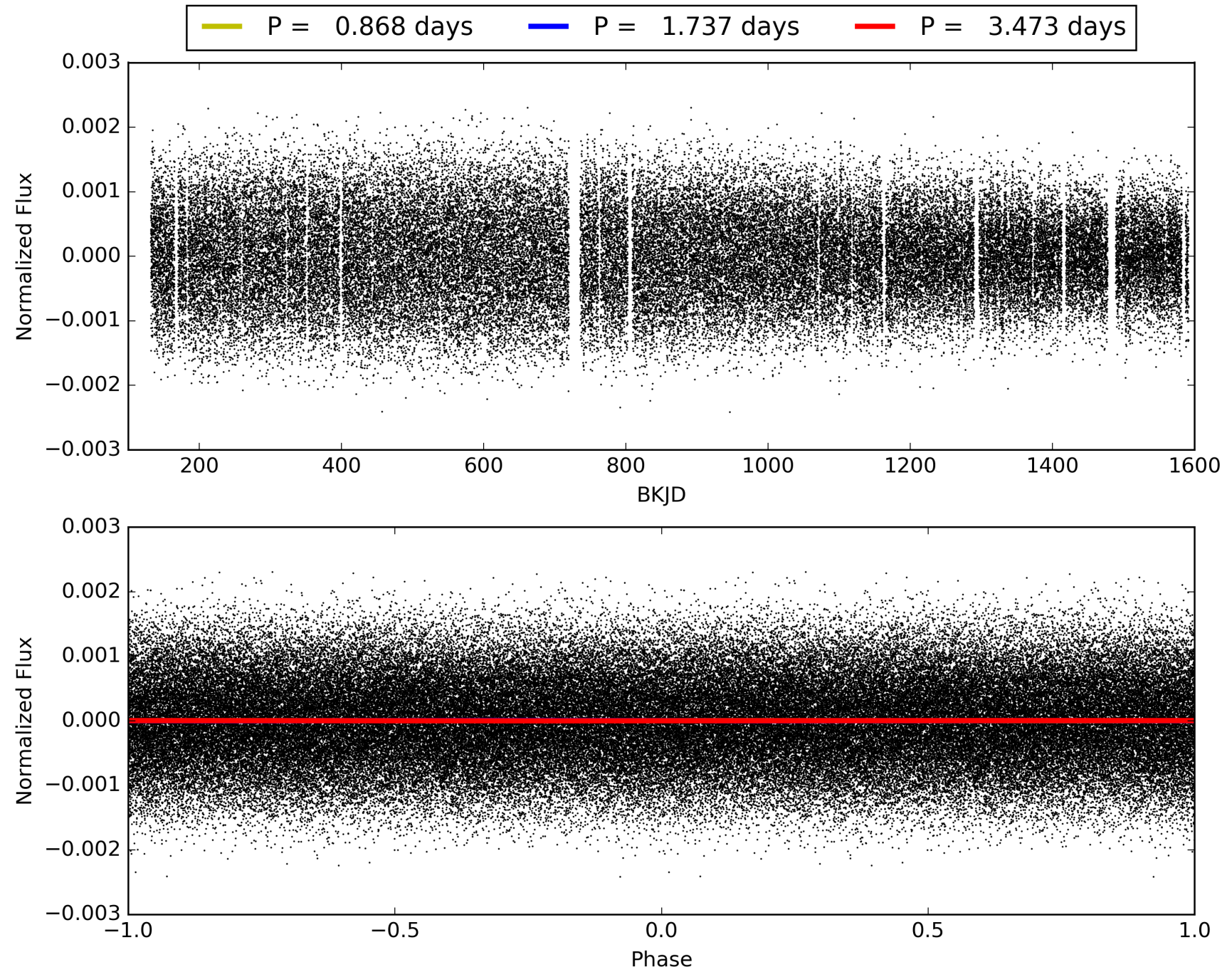
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007532891-02, PDC Light Curves





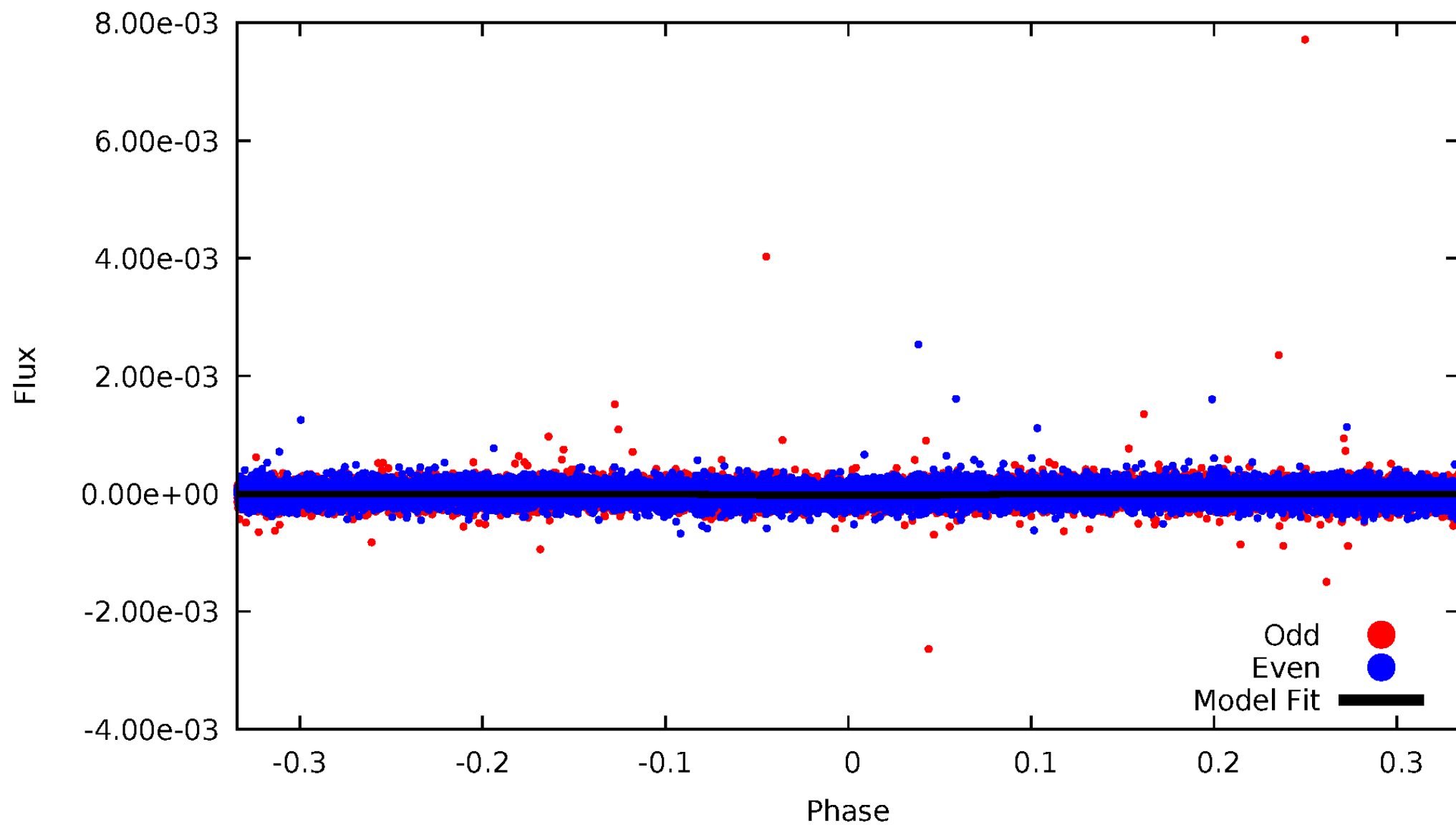
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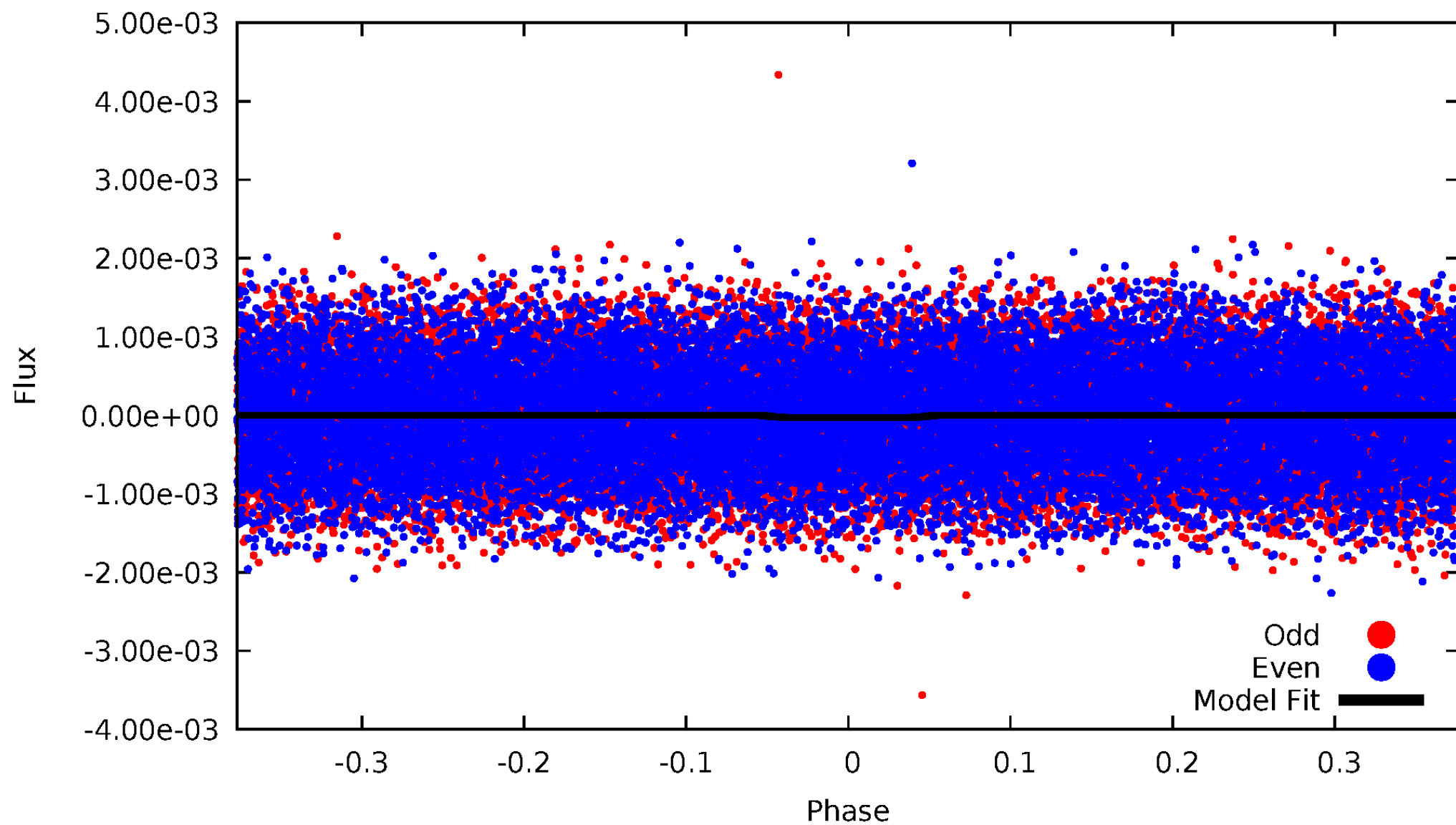
# DV Odd/Even

TCE 007532891-02



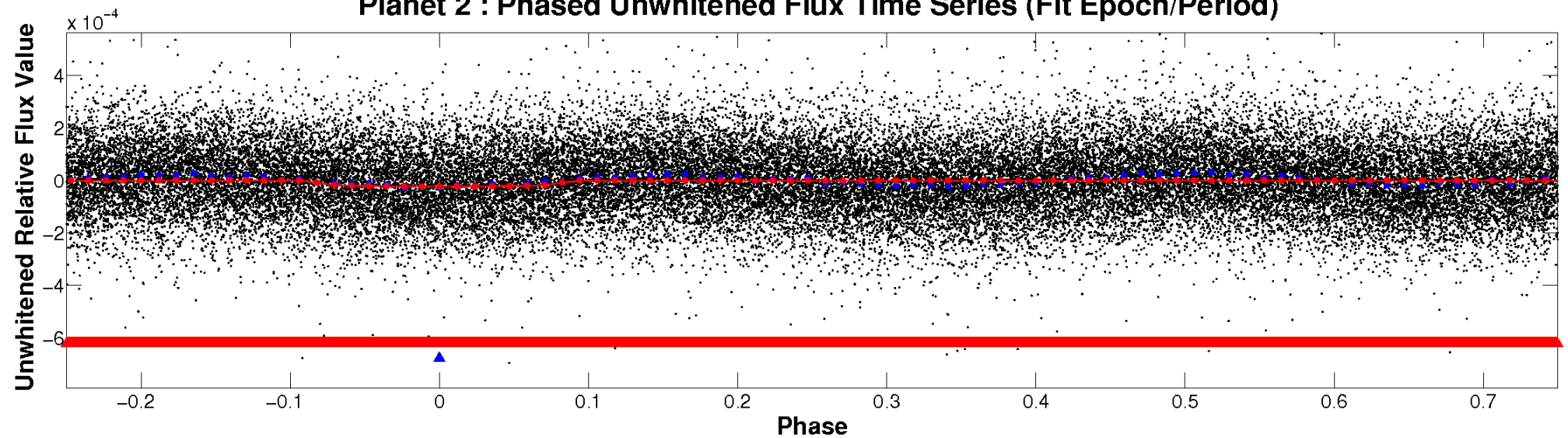
# ALT Odd/Even

TCE 007532891-02

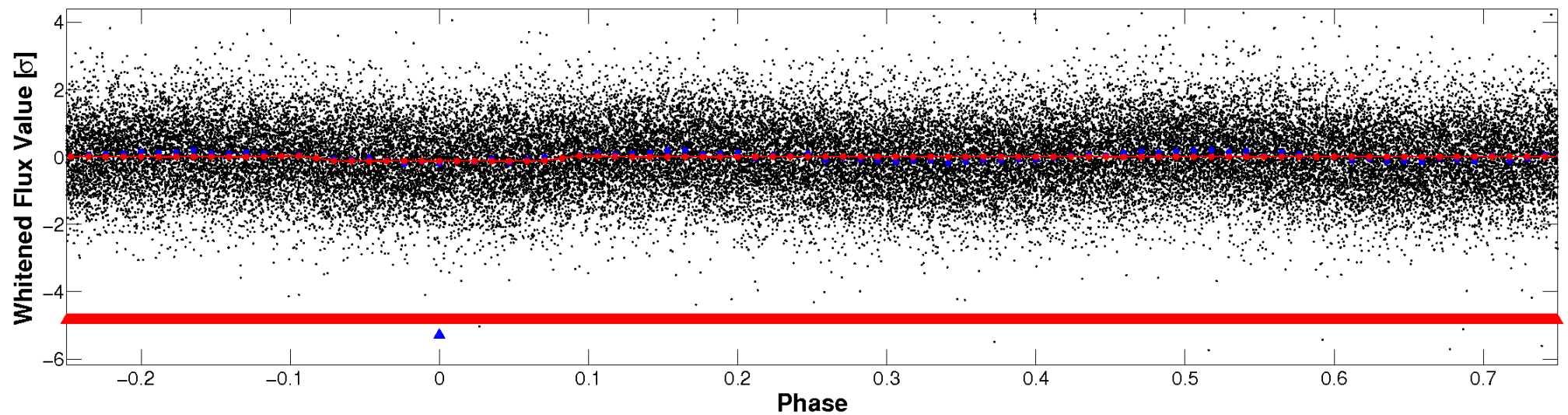


# Non-Whitened Vs. Whitened Light Curve

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

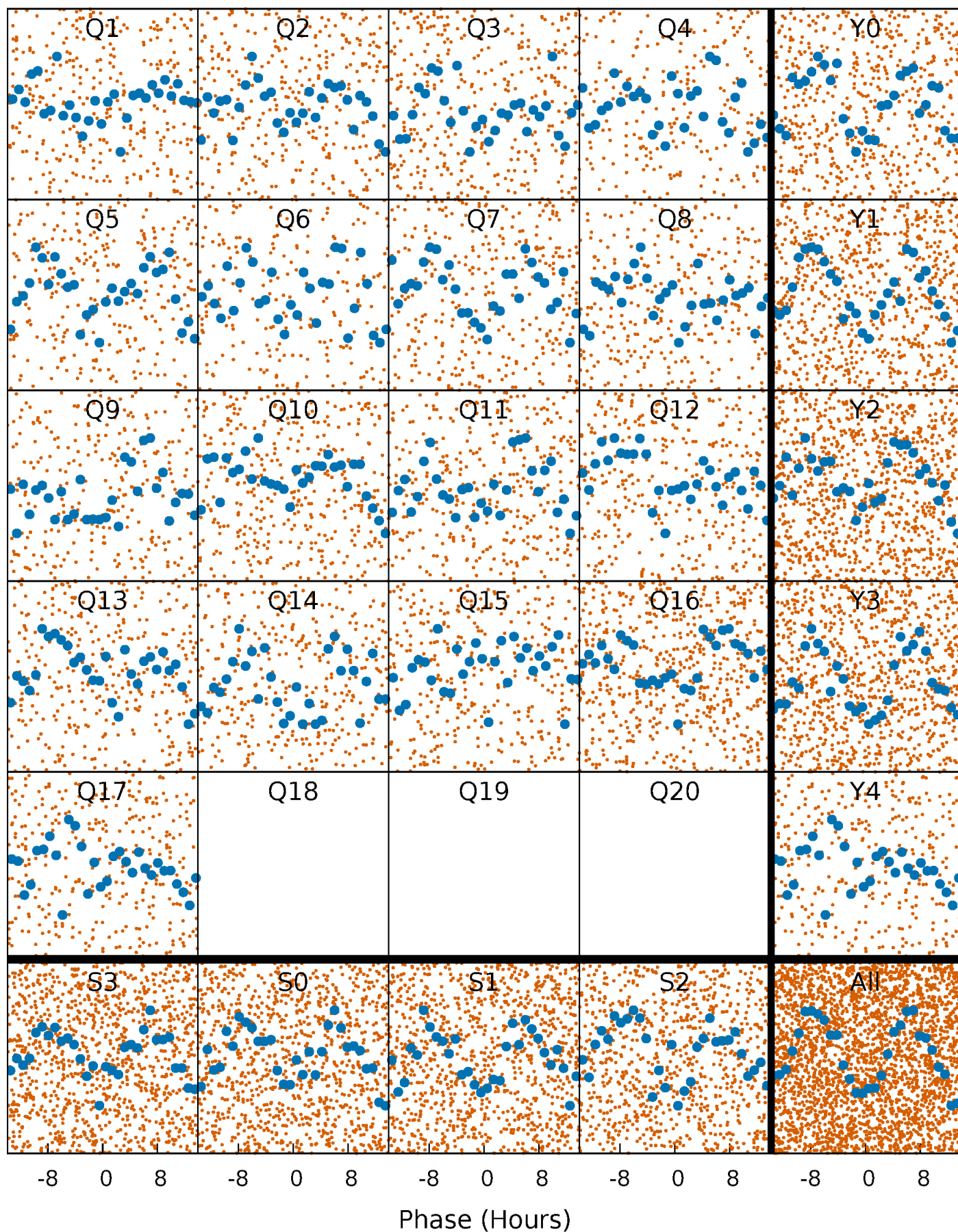


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

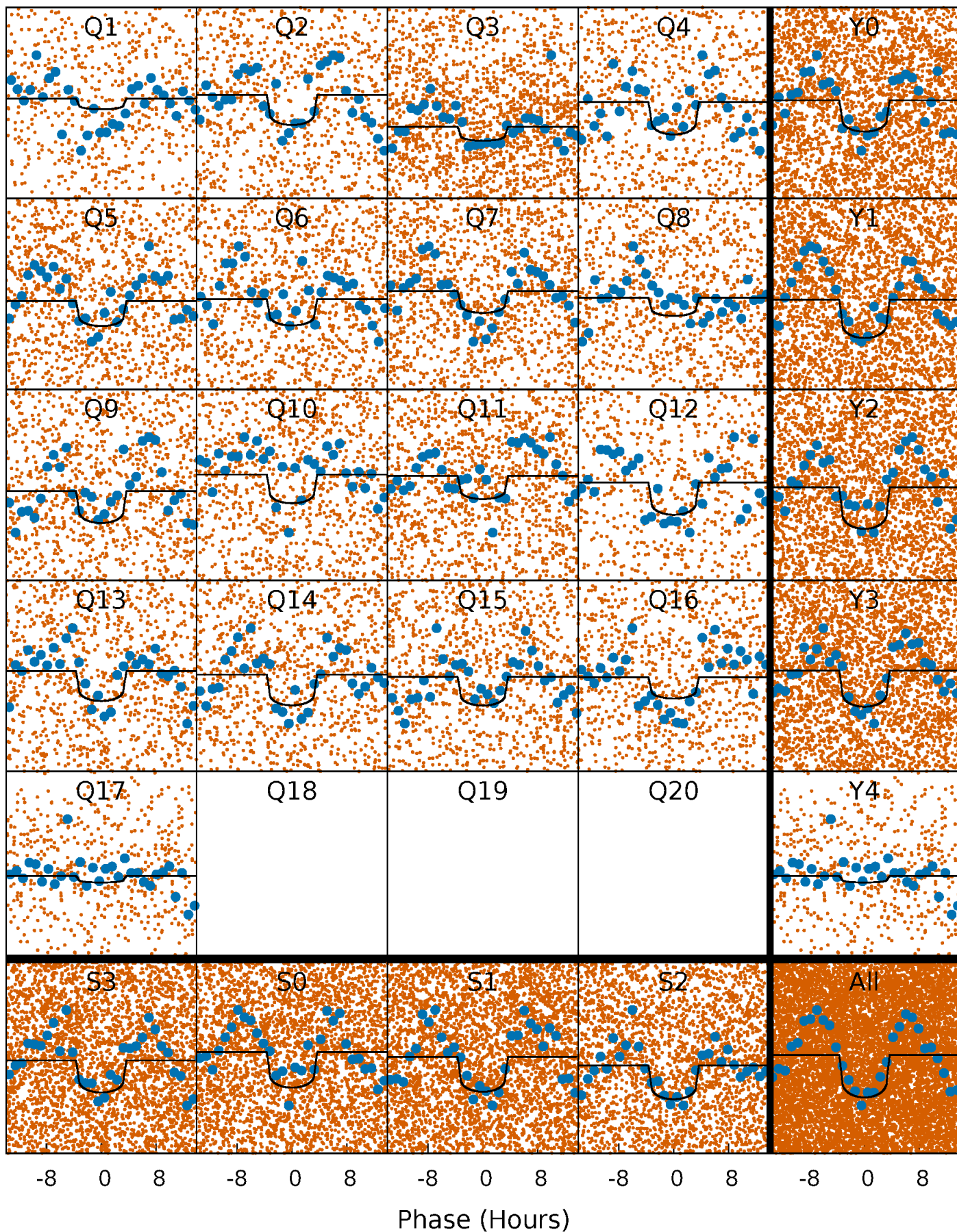
TCE 007532891-02     $P = 1.736635$  Days     $T_0 = 131.691954$  (BKJD)





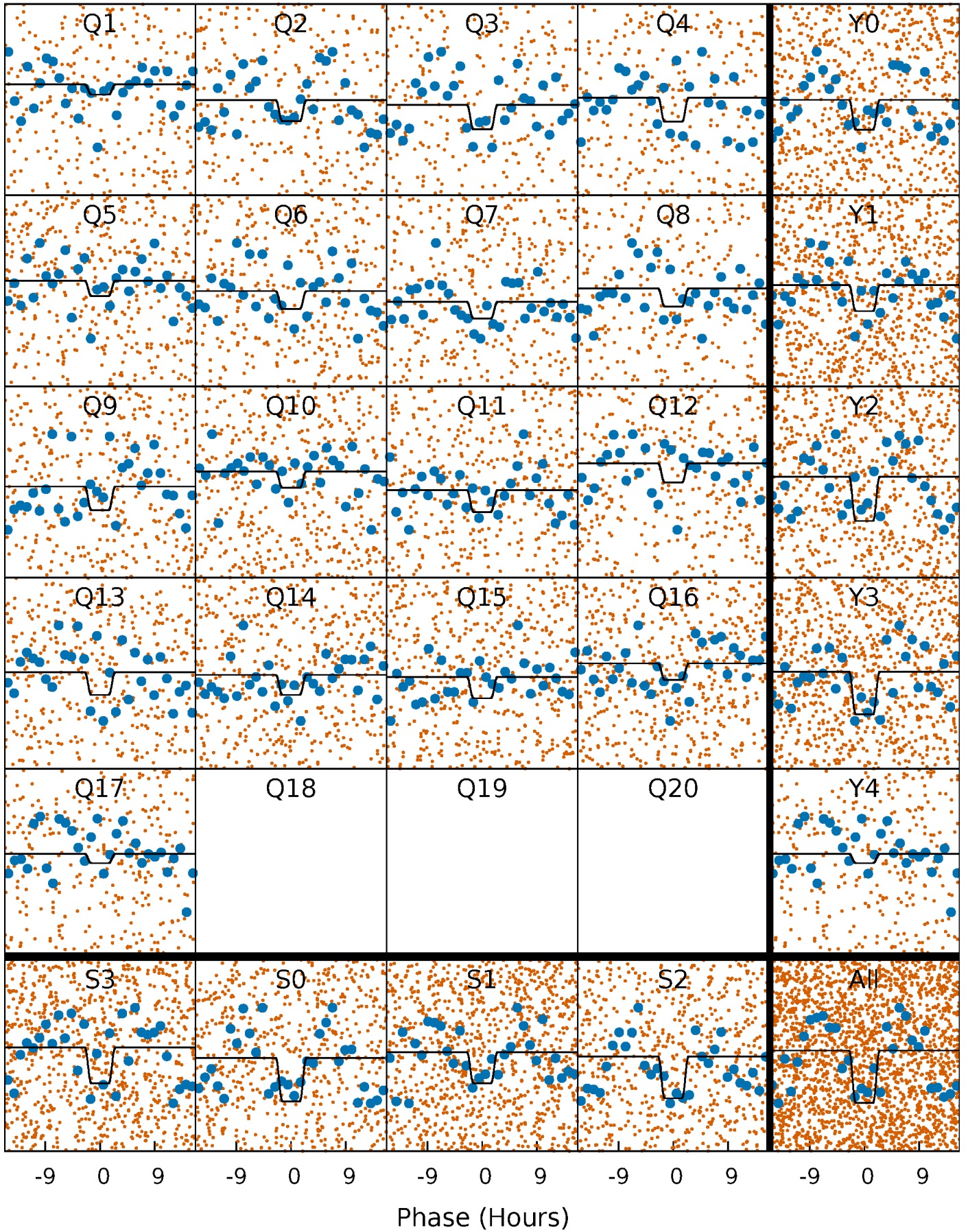
# DV Quarter-Phased Transit Curves

TCE 007532891-02 P= 1.736635 Days  $T_0=131.691954$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007532891-02 P= 1.736630 Days  $T_0=131.691931$  (BKJD)

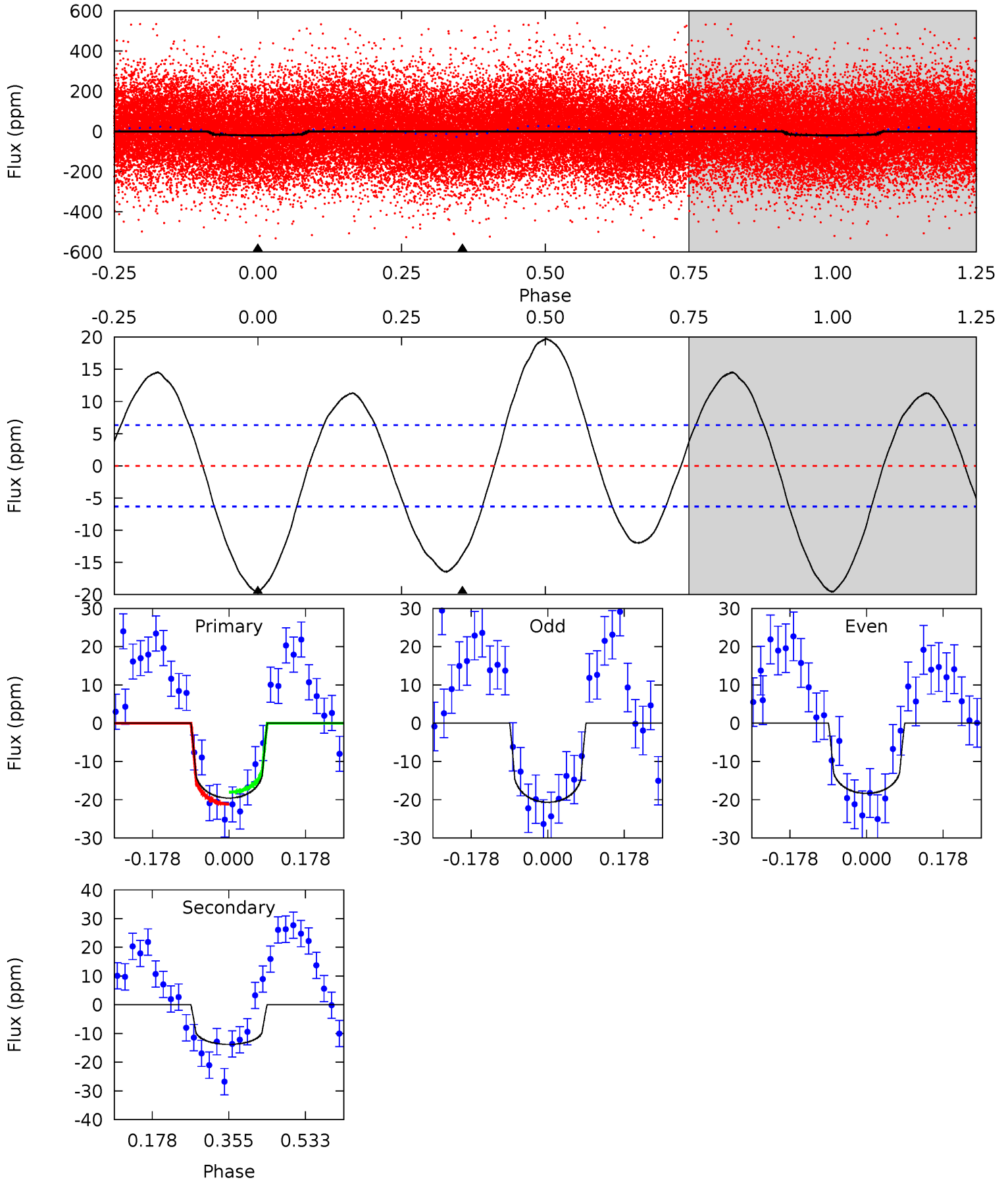




# DV Model-Shift Uniqueness Test

007532891-02, P = 1.736635 Days, E = 129.955319 Days

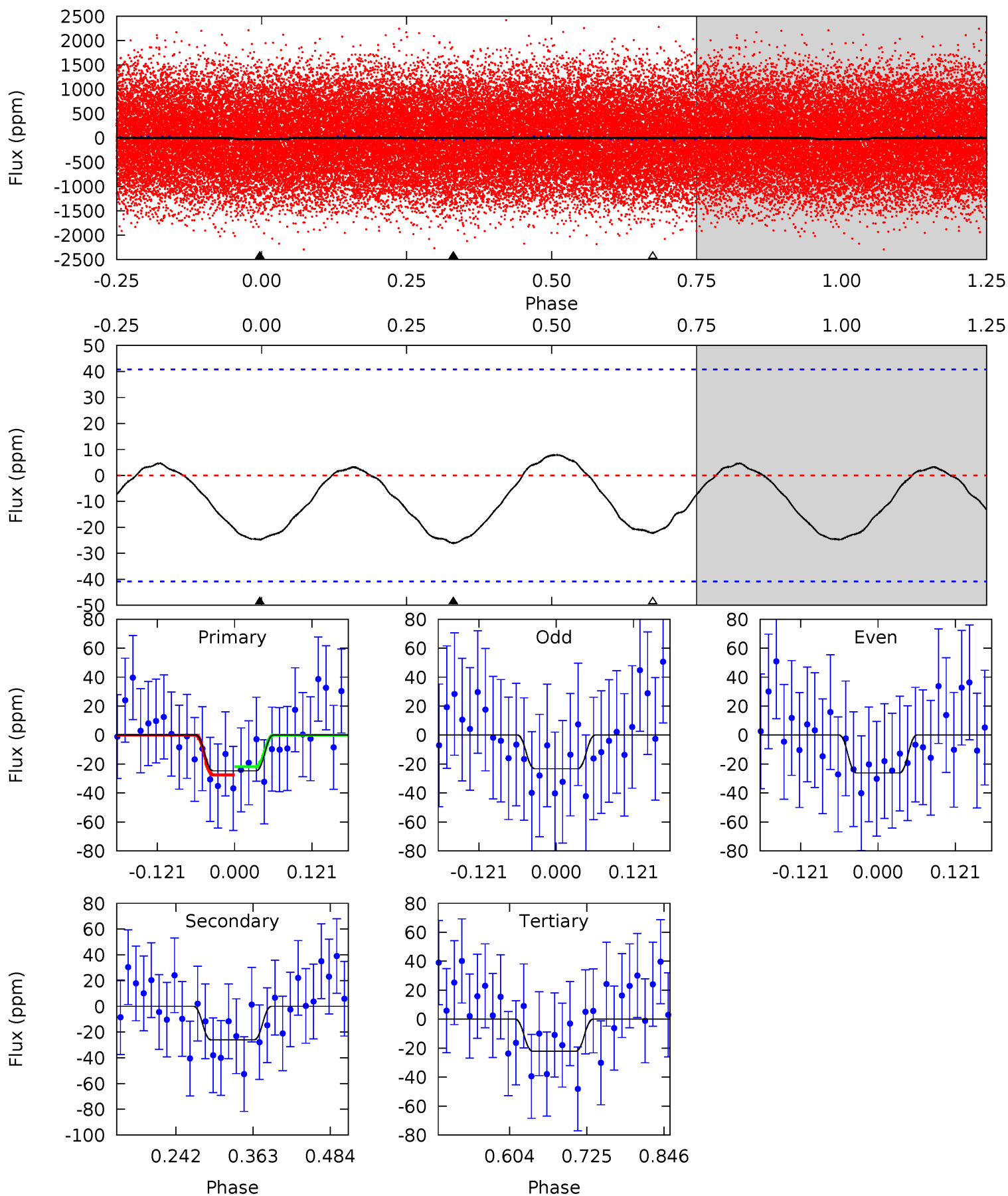
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	9.69	0	0	4.44	1.35	6.51	13.7	13.7	9.69	9.69	0.82	1.02	0.50	1.11



# Alt Model-Shift Uniqueness Test

007532891-02, P = 1.736630 Days, E = 129.955301 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
2.74	2.89	2.46	0	4.52	1.55	1.05	0.28	2.74	0.44	2.89	0.16	1.23	0.23	0.31



### Stellar Parameters For KIC 007532891

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7915^{+192}_{-357}$	$3.706^{+0.424}_{-0.106}$	$-0.020^{+0.200}_{-0.350}$	$3.346^{+0.672}_{-1.568}$	$2.075^{+0.282}_{-0.525}$	$0.078^{+0.329}_{-0.027}$
	+2%/-5%	+11%/-3%	+1000%/-1750%	+20%/-47%	+14%/-25%	+421%/-34%
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 007532891-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-14 \pm 1$	$1.54^{+0.56}_{-0.54}$	$4527^{+354}_{-535}$	$6731^{+1719}_{-912}$	$4.252^{+5.531}_{-2.017}$
Alt.	$-26 \pm 9$	$1.90^{+0.58}_{-0.58}$	$4568^{+311}_{-504}$	$7237^{+1581}_{-1077}$	$5.170^{+5.552}_{-2.566}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming A=0.3)  
 $A_{obs}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

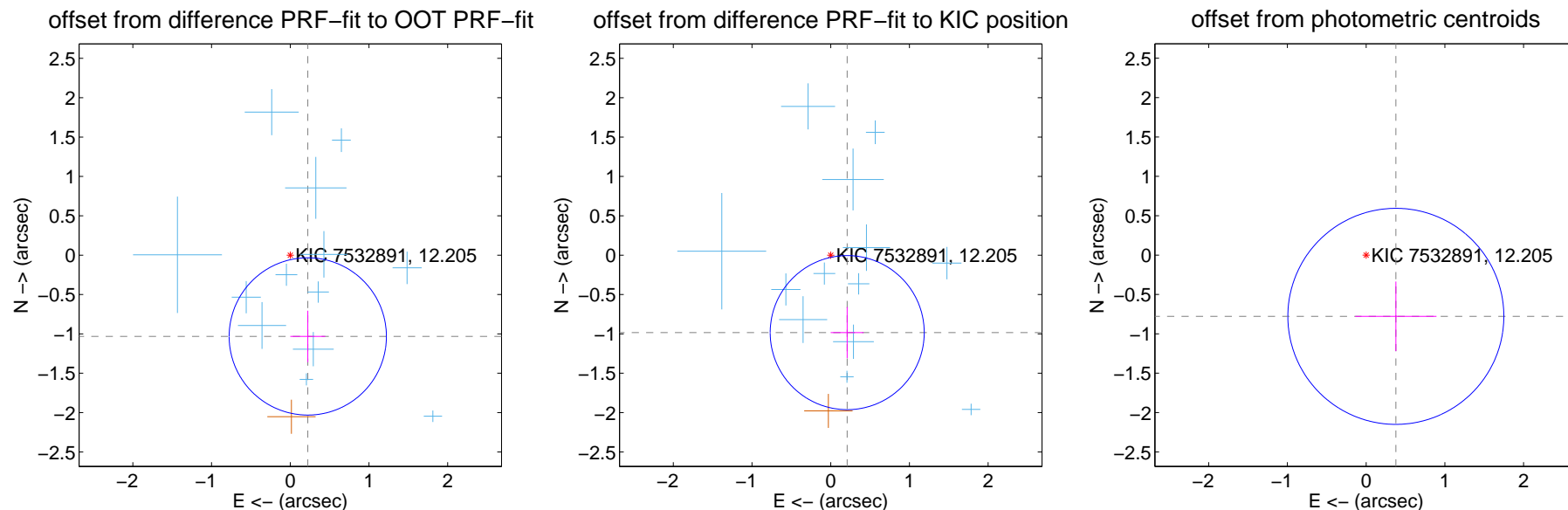
## DV Centroid Data

Supplemental centroid analysis for 007532891-02. Kepler magnitude: 12.21. Transit SNR 10.07

There are 13 quarters with good PRF difference image offsets

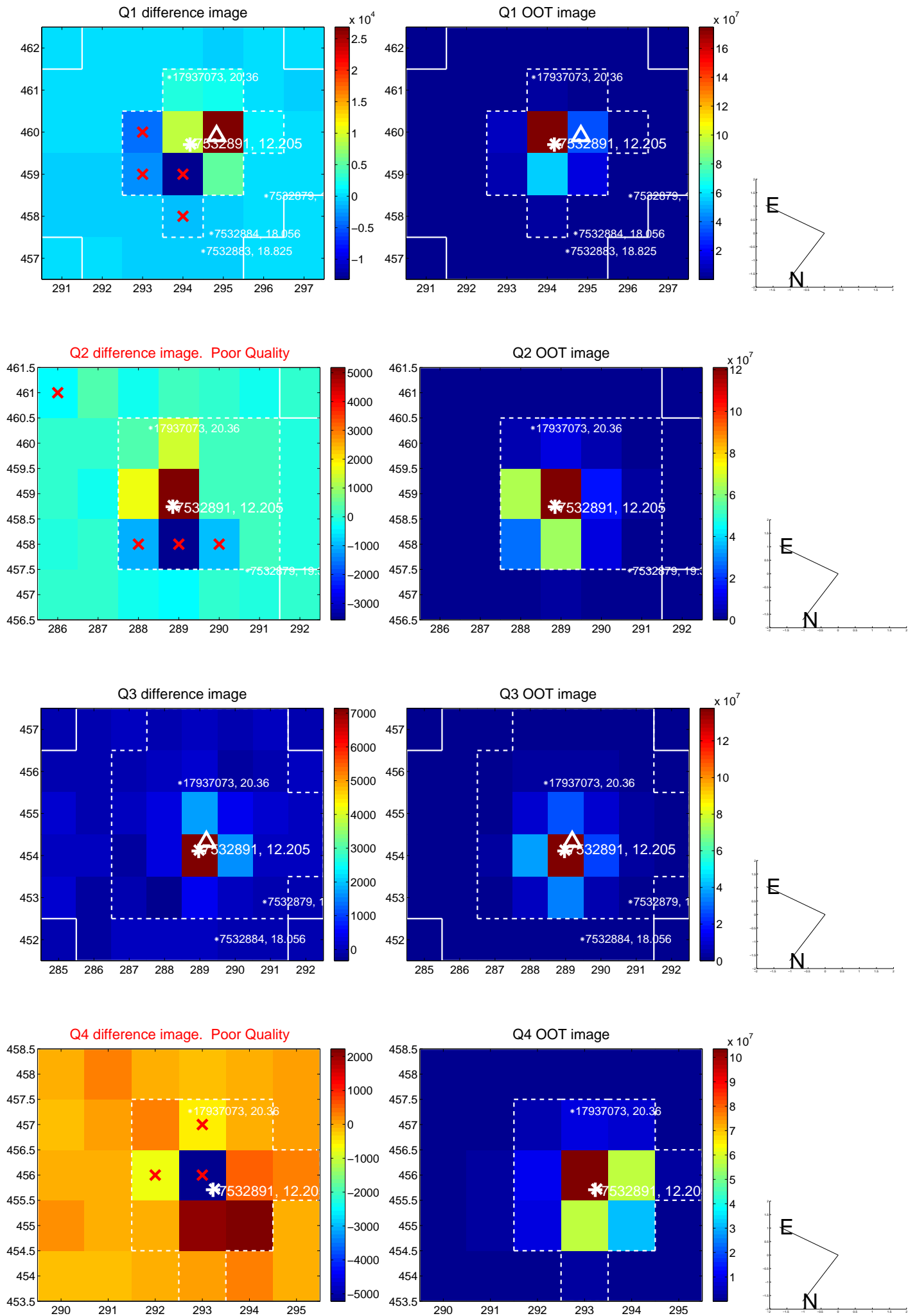
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.056 \pm 0.333$	$3.17$	$-0.223 \pm 0.223$	$-1.032 \pm 0.327$
PRF-fit source offset from KIC position	$1.006 \pm 0.326$	$3.08$	$-0.210 \pm 0.210$	$-0.984 \pm 0.325$
photometric centroid source offset	$0.86 \pm 0.46$	1.89	$-0.38 \pm 0.52$	$-0.78 \pm 0.44$

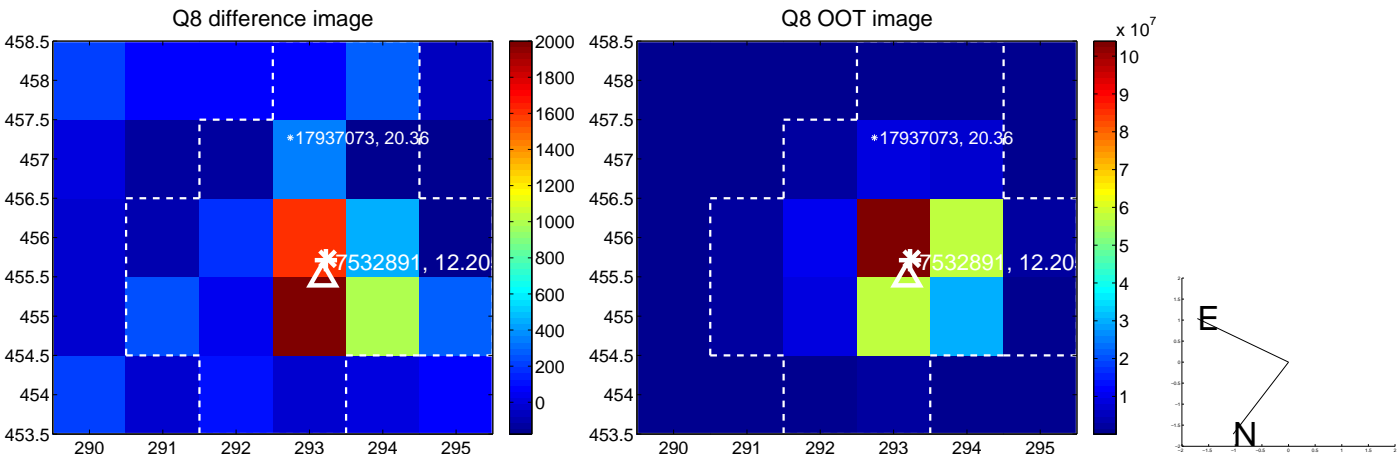
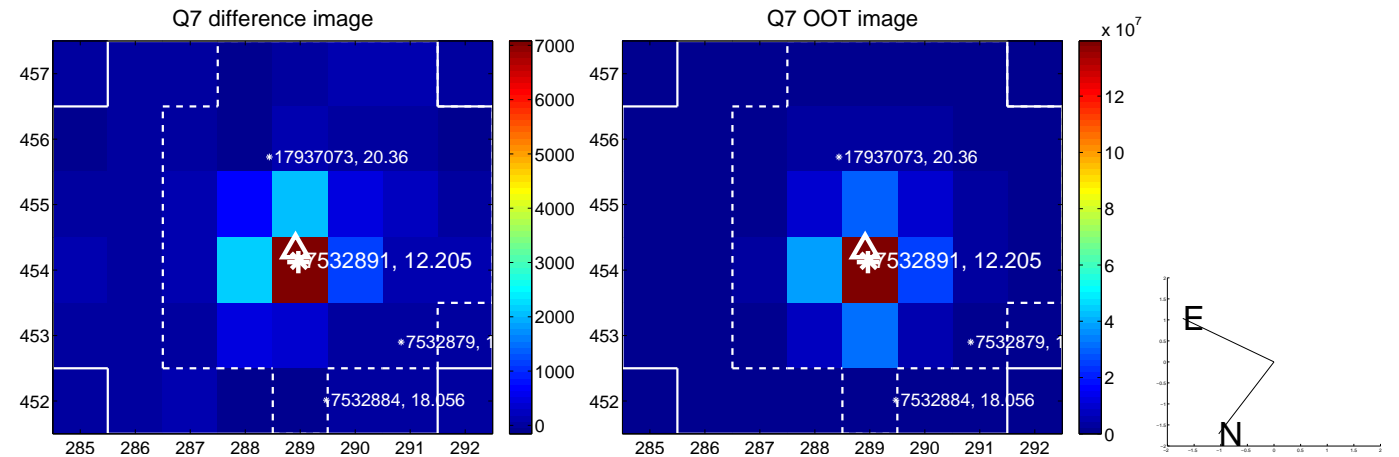
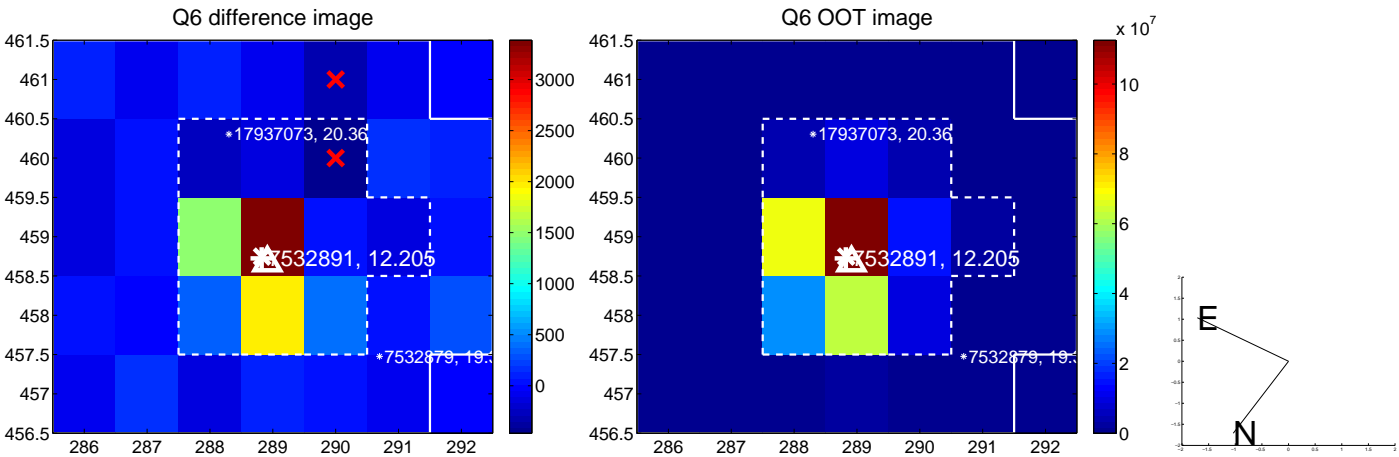
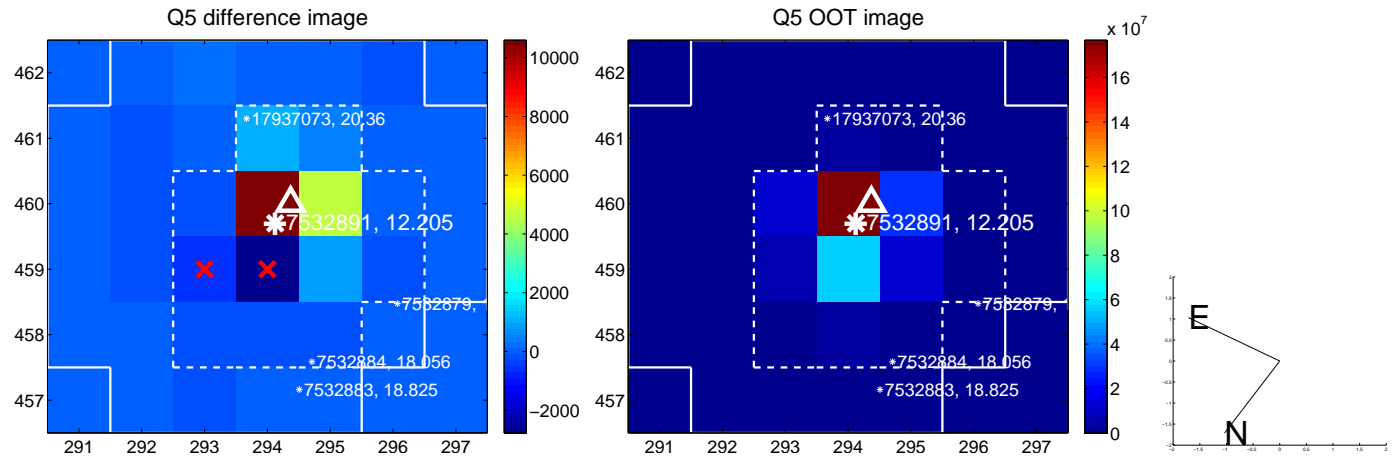


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

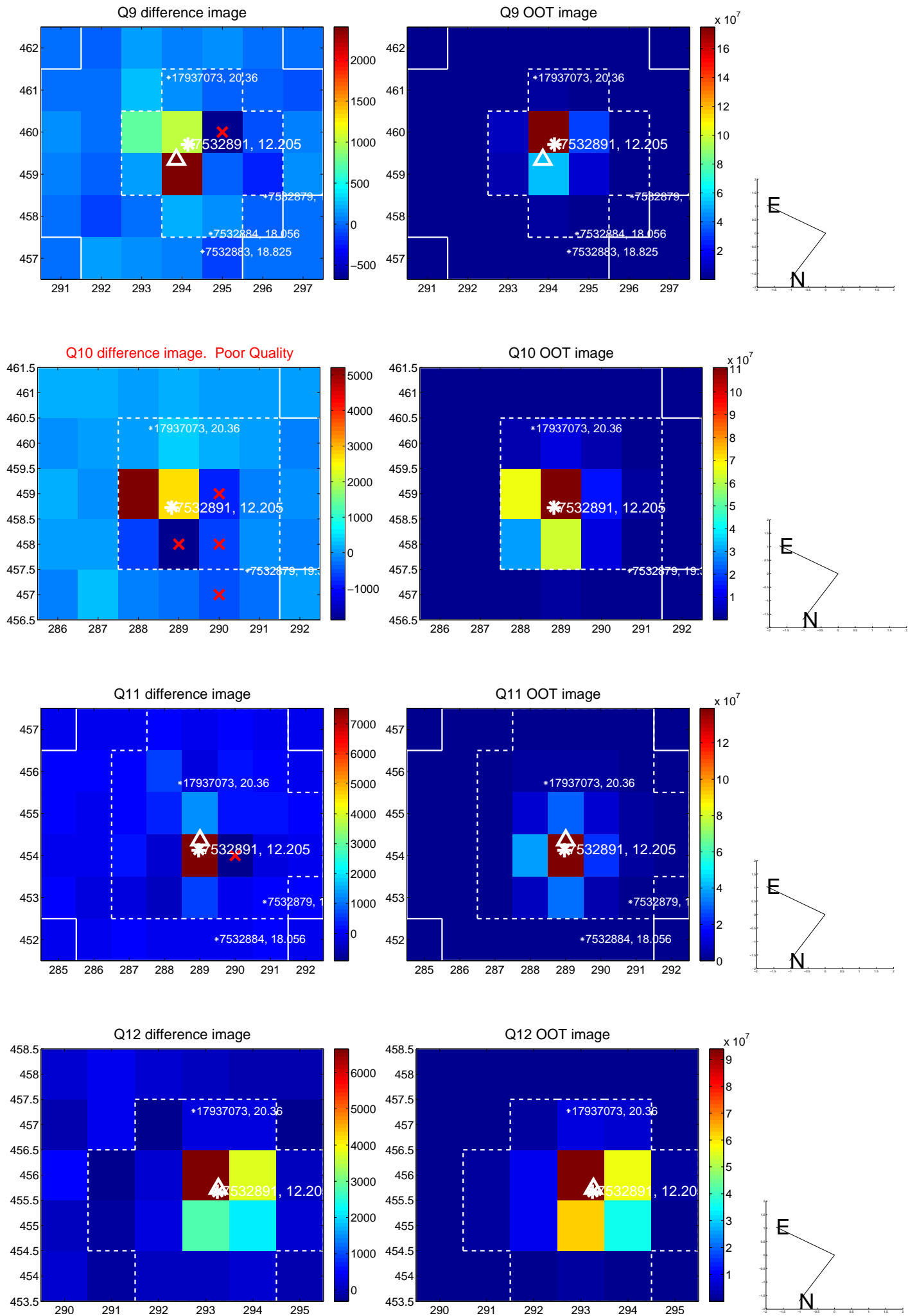


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

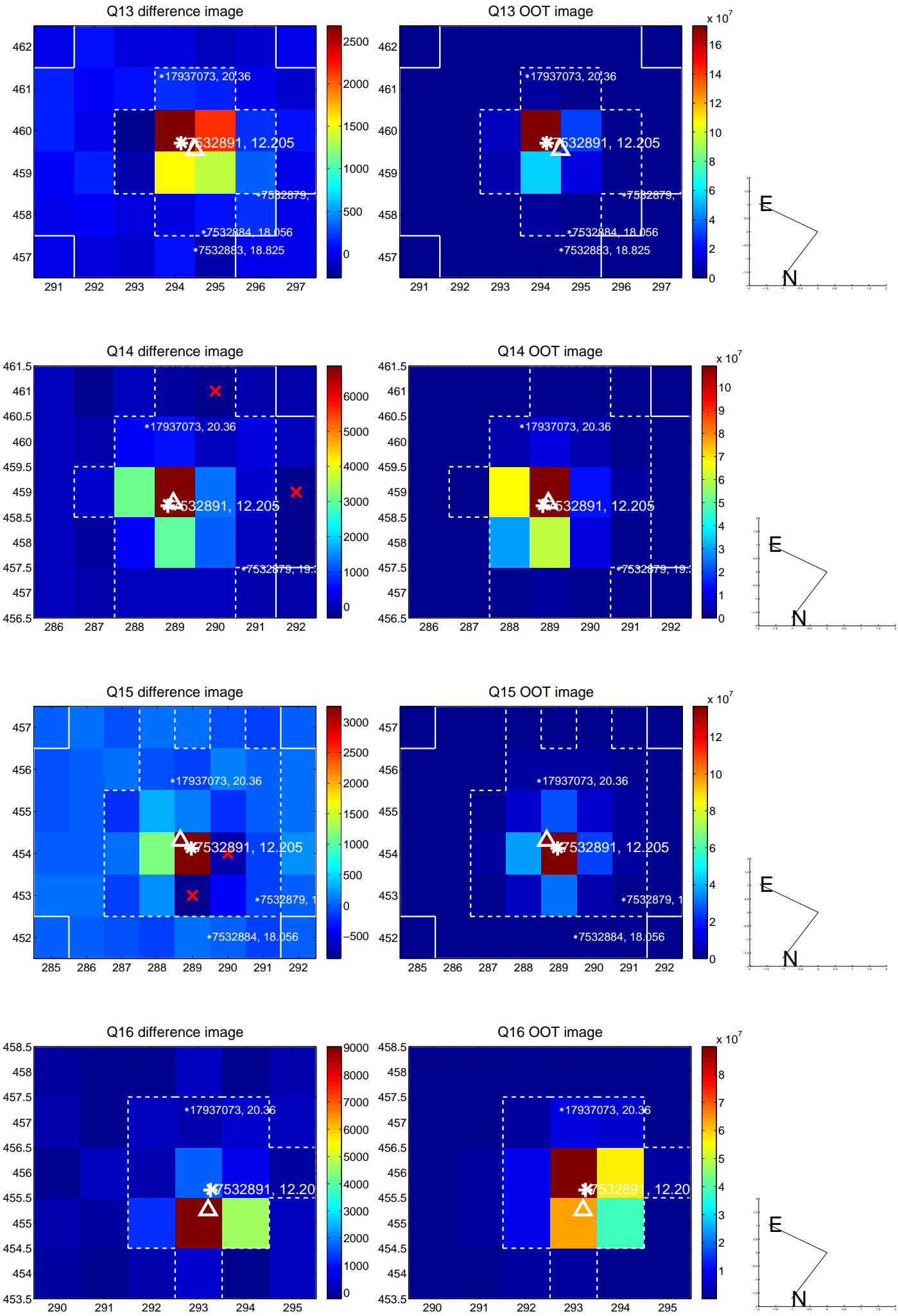




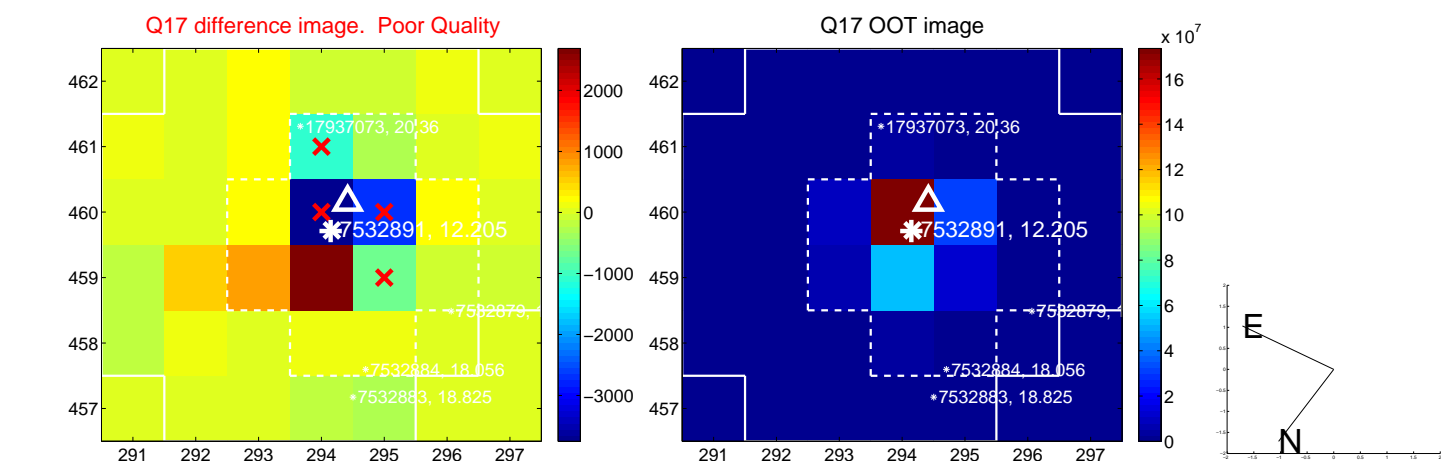
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



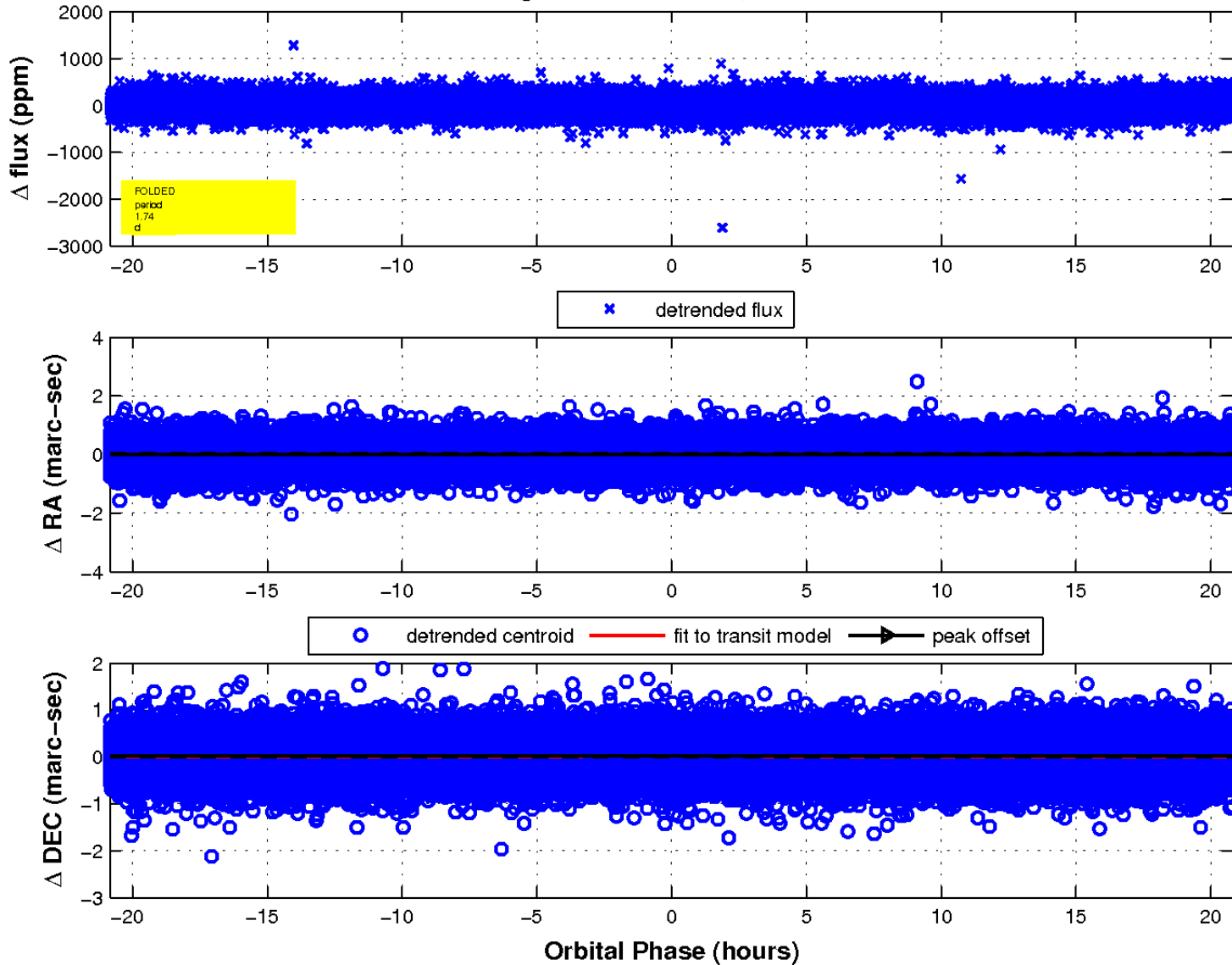
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

