

# KIC 010799735

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010799735-01	OBS	0193.01	37.590295	157.350405	19968.7	4.434	875.5	831.5	1.00	6147	14.54	25.57
010799735-02	OBS	No	37.589236	150.423070	229.4	4.168	10.0	10.3	1.00	6147	1.77	25.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010799735-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
010799735-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

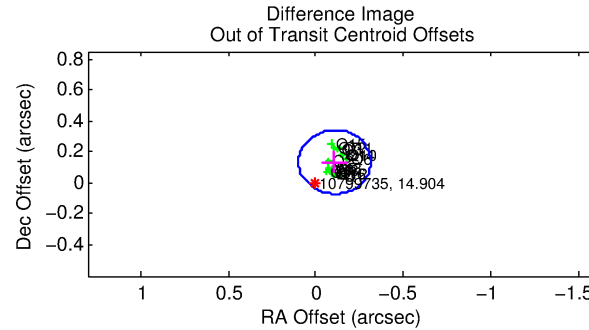
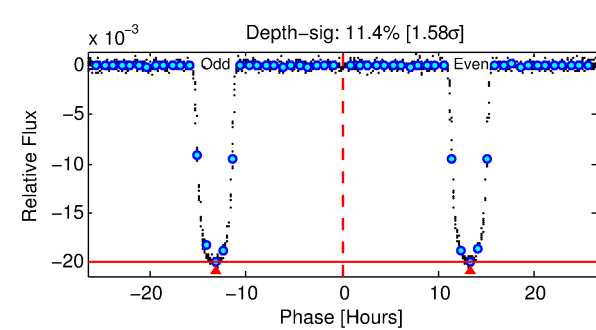
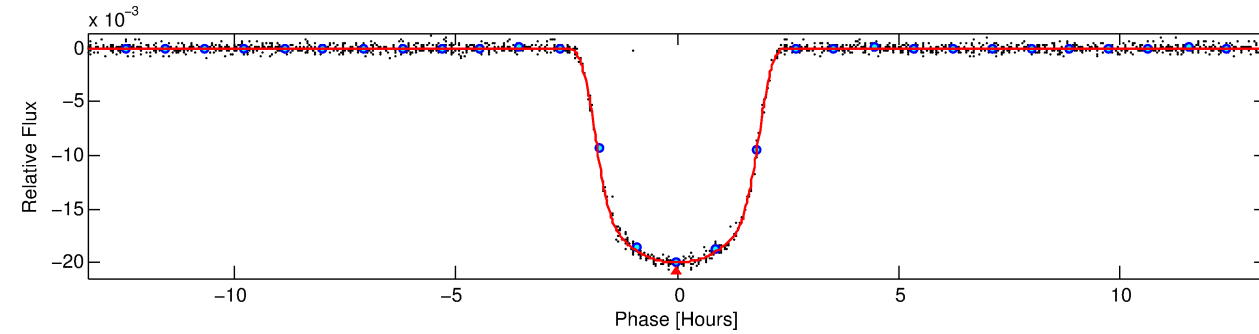
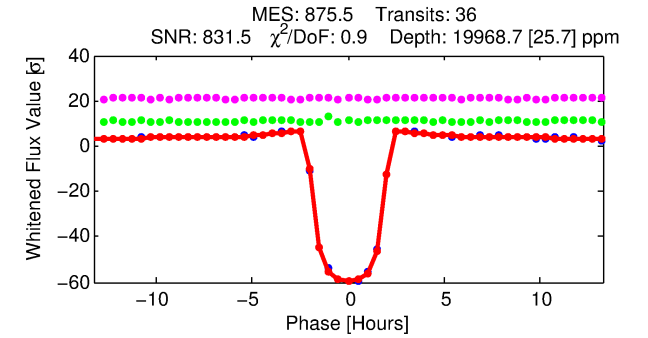
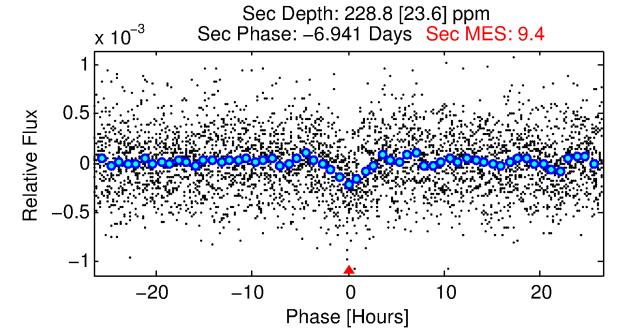
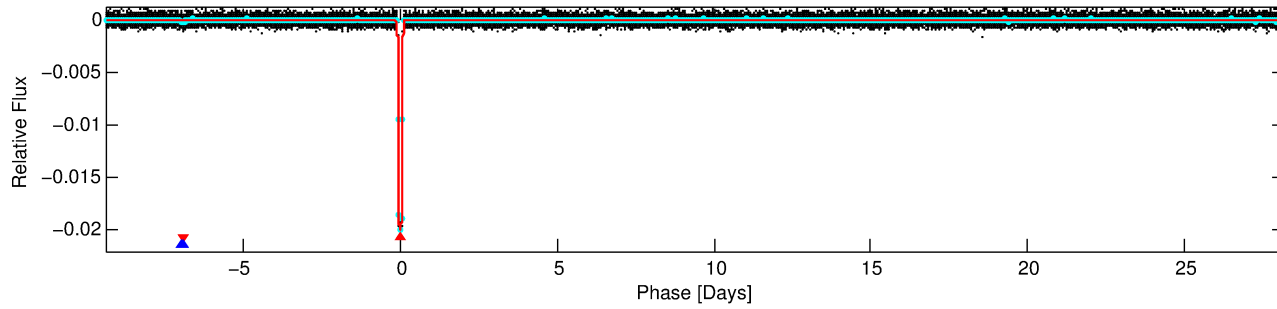
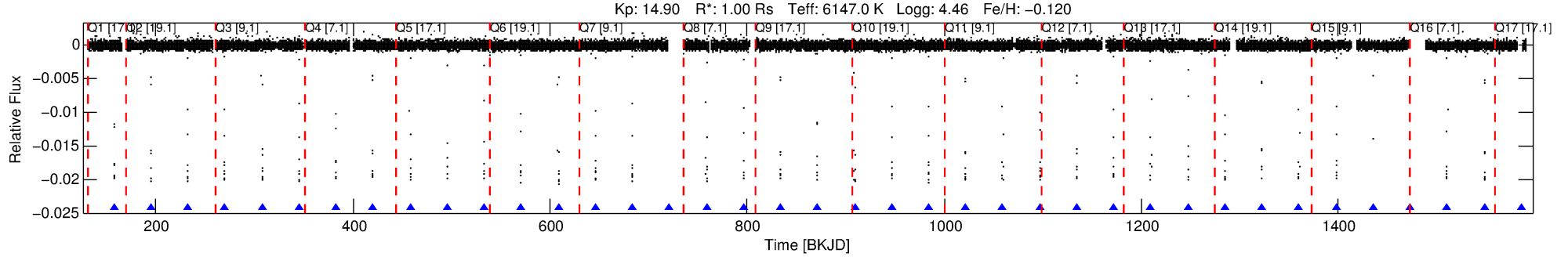
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010799735-01

No Significant Match Found

# DV One-Page Summary

KIC: 10799735 Candidate: 1 of 2 Period: 37.590 d  
KOI: K00193.01 Corr: 0.991



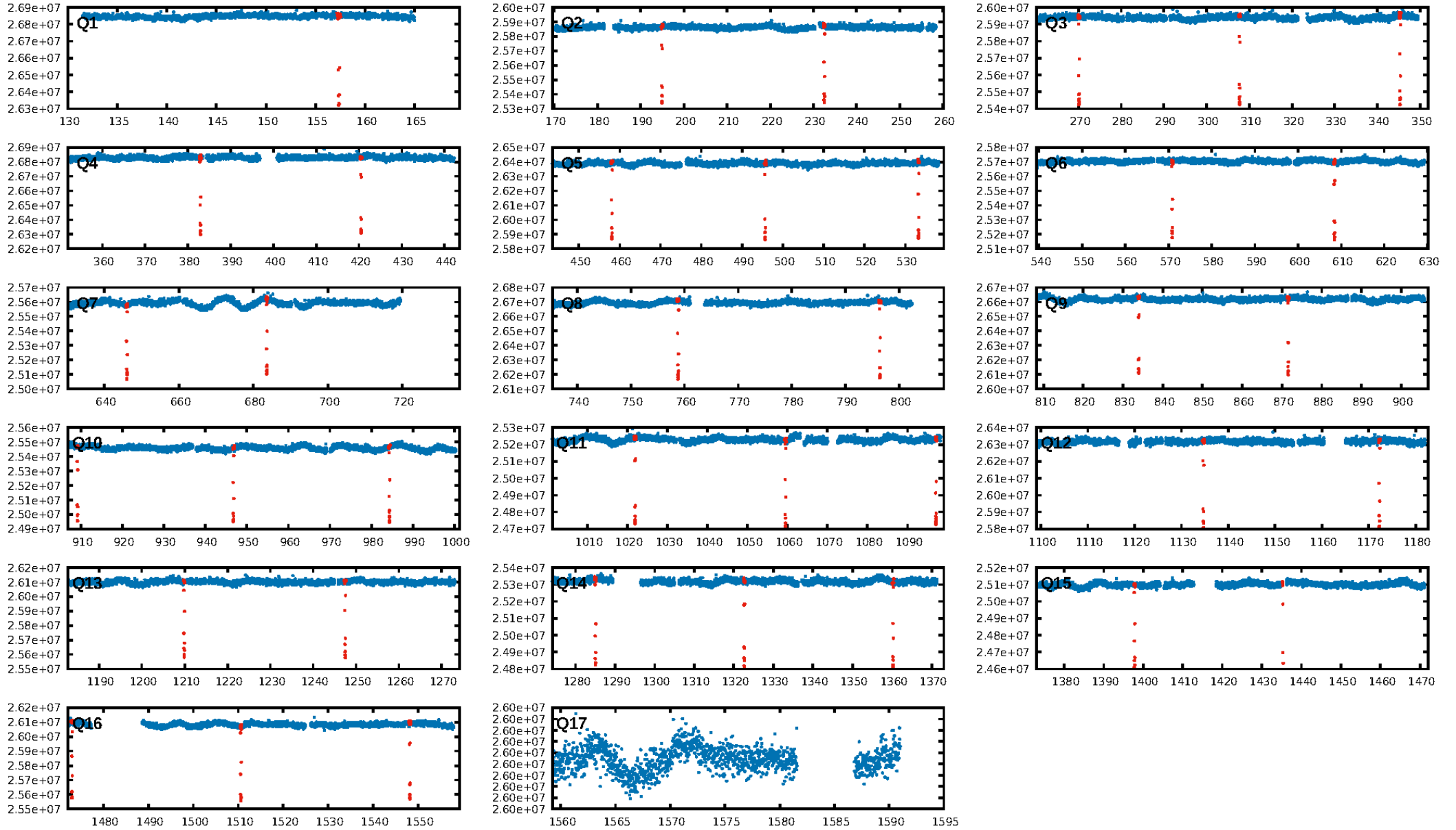
## DV Fit Results:

Period = 37.59030 [0.00001] d  
Epoch = 157.3504 [0.0001] BKJD  
Rp/R\* = 0.1329 [0.0003]  
a/R\* = 66.80 [0.54]  
b = 0.47 [0.01]  
Seff = 25.57 [10.93]  
Teq = 573 [61] K  
Rp = 14.54 [4.94] Re  
a = 0.2244 [0.0631] AU  
Ag = 29.97 [12.46] [2.32σ]  
Teff = 2074 [91] K [13.63σ]

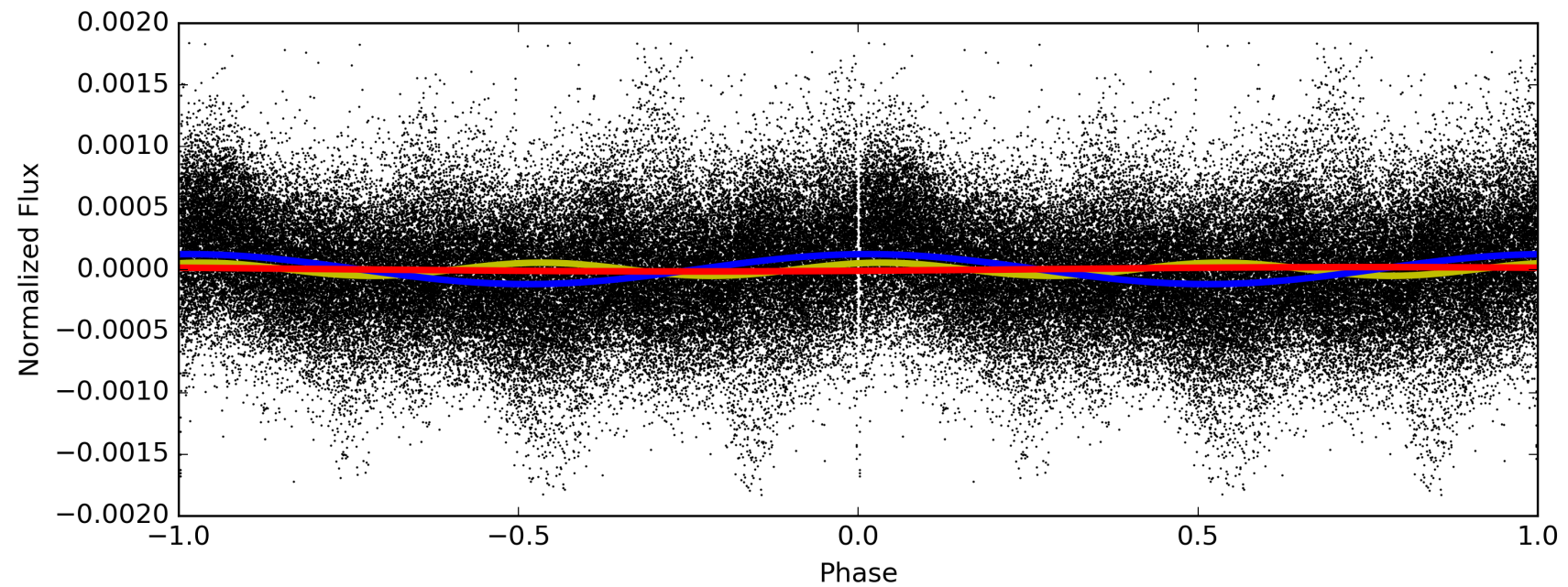
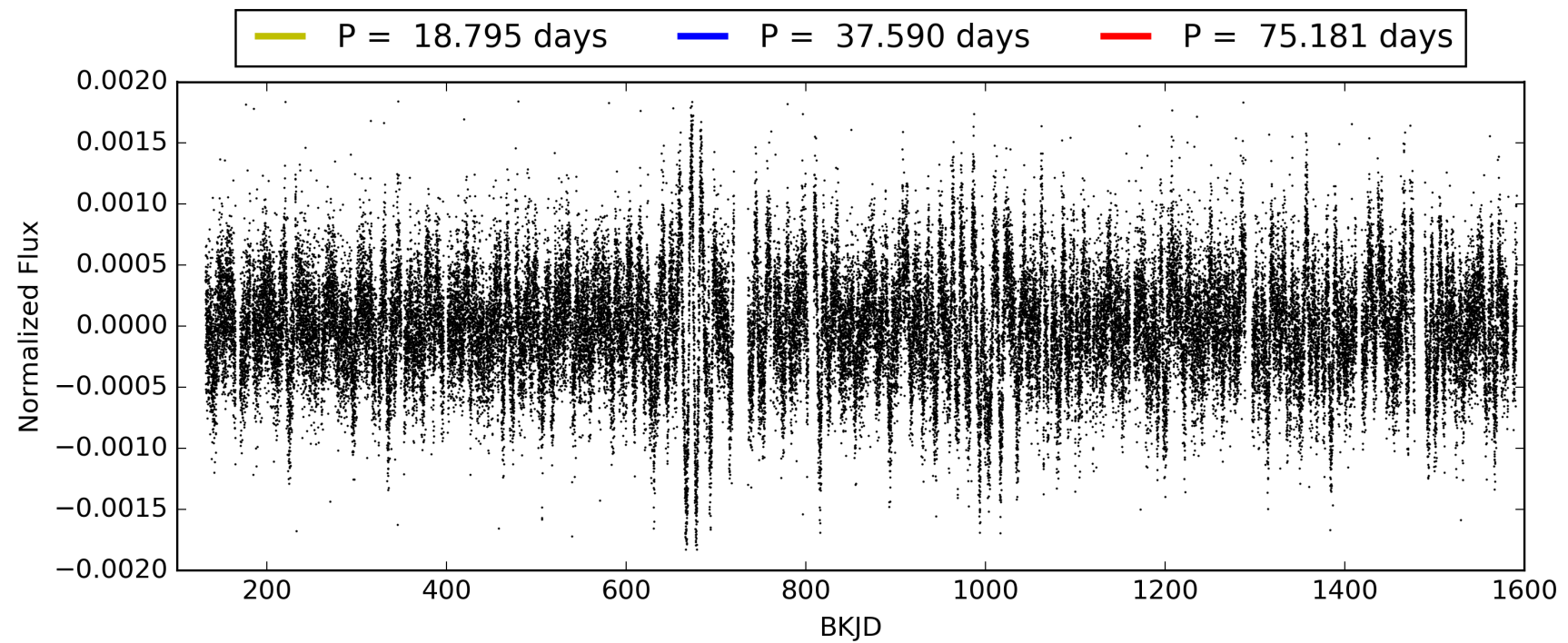
## DV Diagnostic Results:

ShortPeriod-sig: 0.3% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [35/35]  
GhostDiagnostic-chr: 5.283  
Centroid-sig: 0.0%  
Centroid-so: 0.092 arcsec [6.68σ]  
OotOffset-rm: 0.172 arcsec [2.52σ]  
KicOffset-rm: 0.161 arcsec [2.39σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 010799735-01, PDC Light Curves

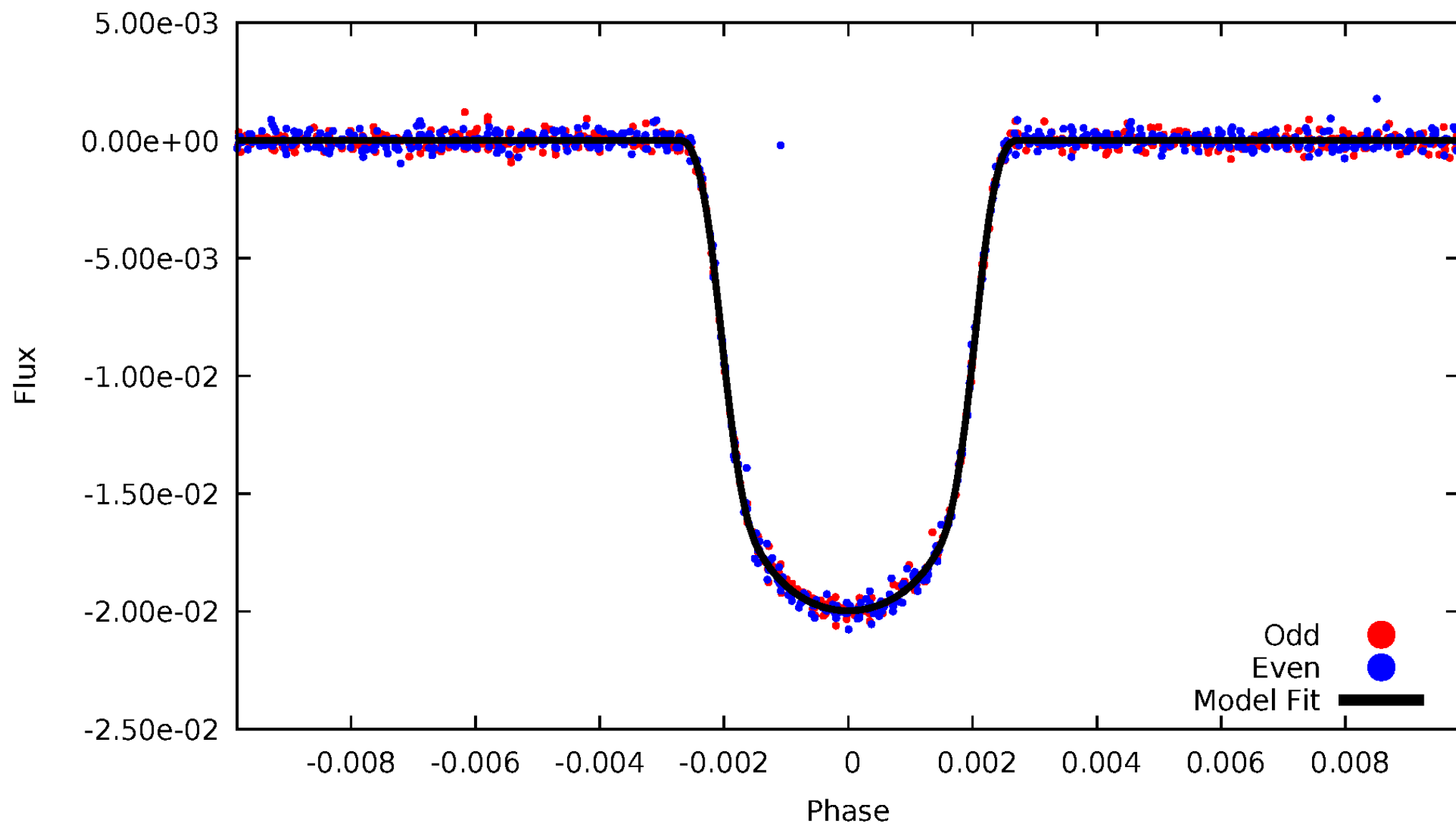


TCE 010799735-01



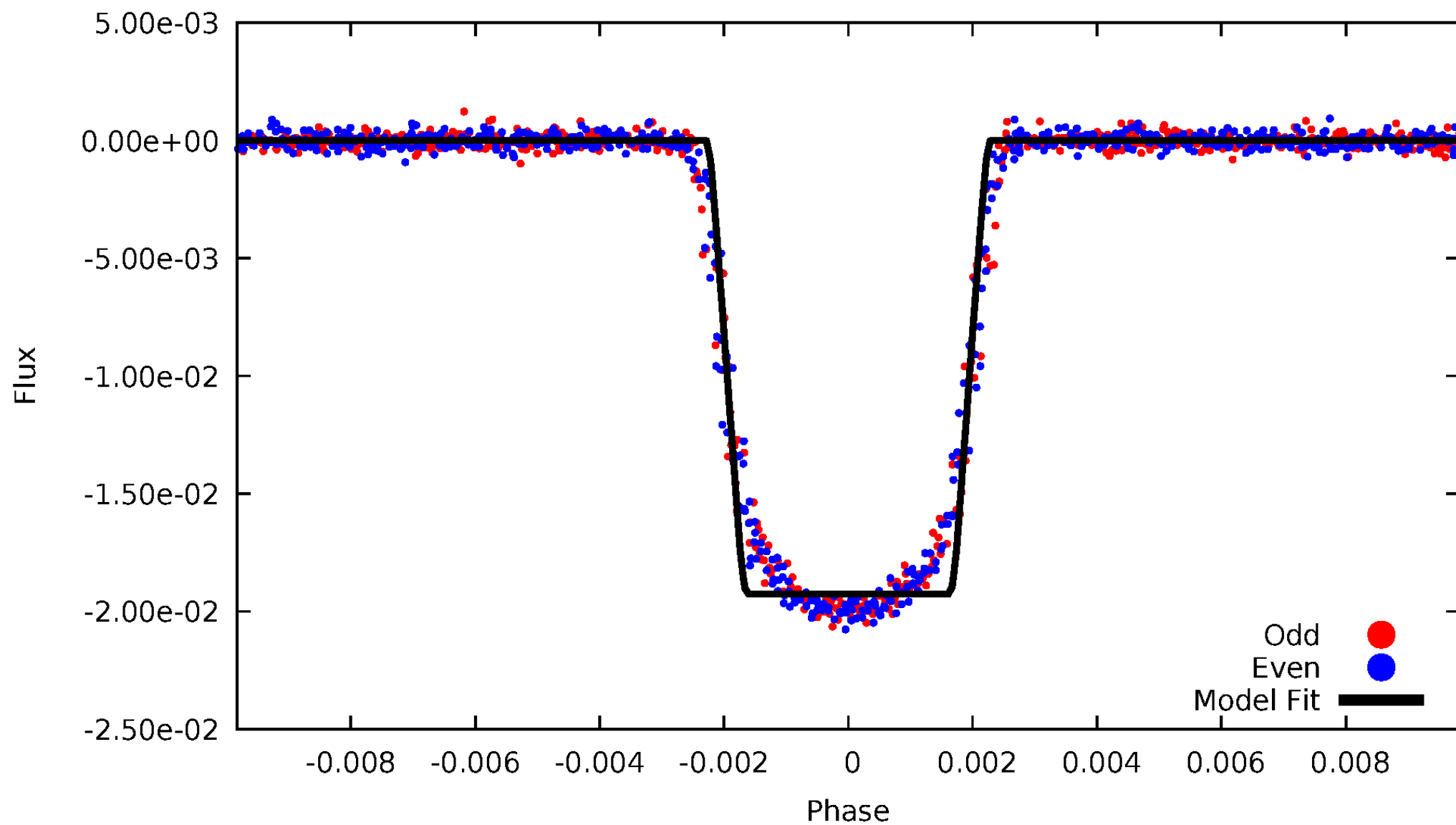
# DV Odd/Even

TCE 010799735-01



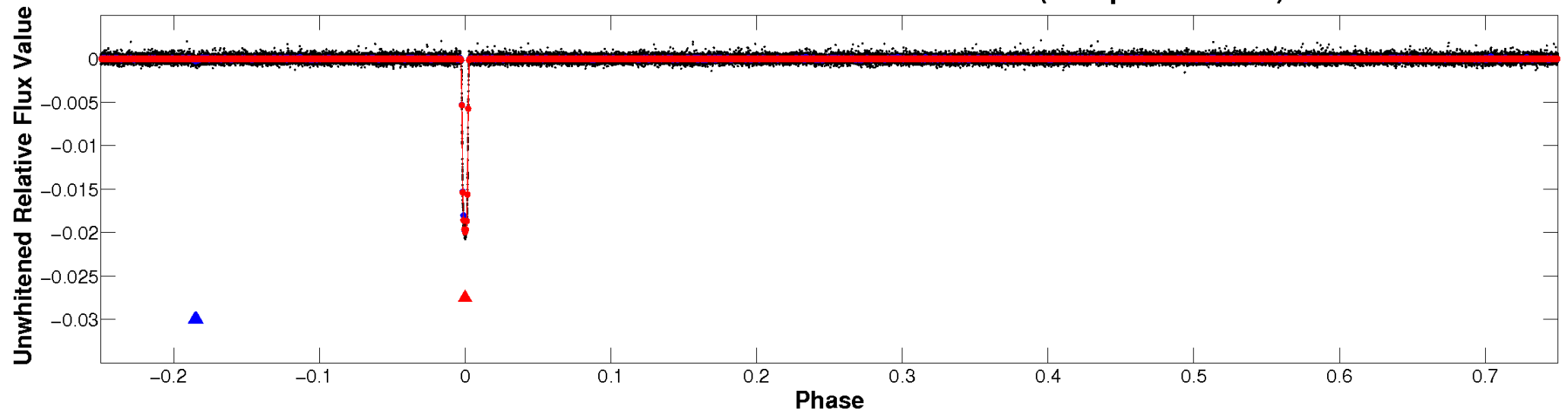
# ALT Odd/Even

TCE 010799735-01

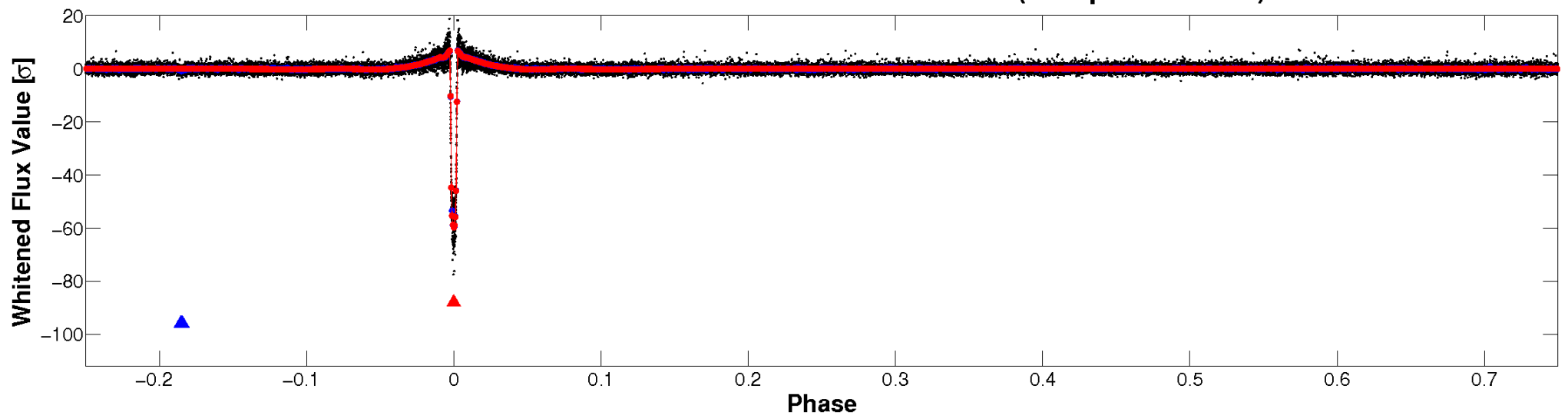


# Non-Whitened Vs. Whitened Light Curve

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

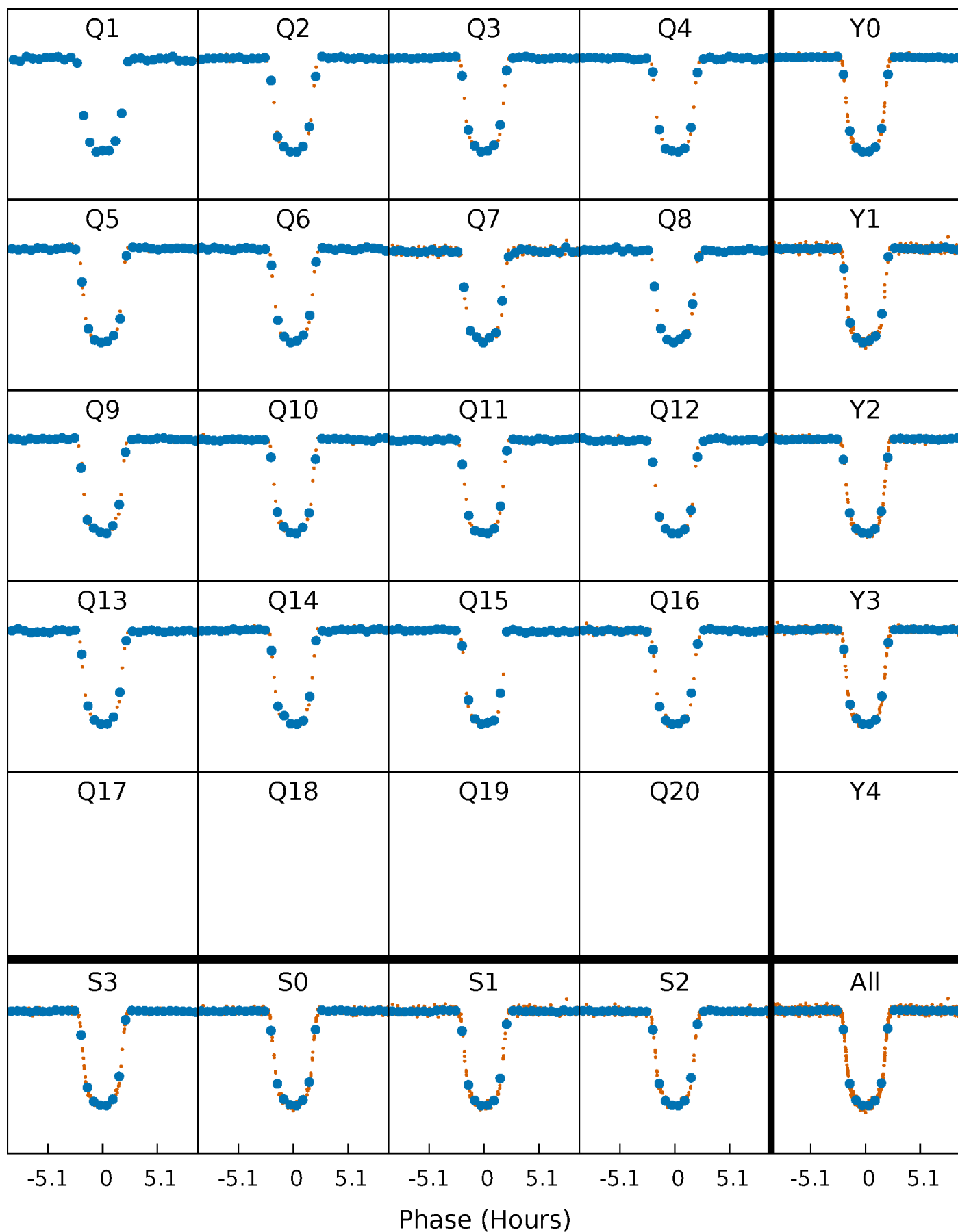


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

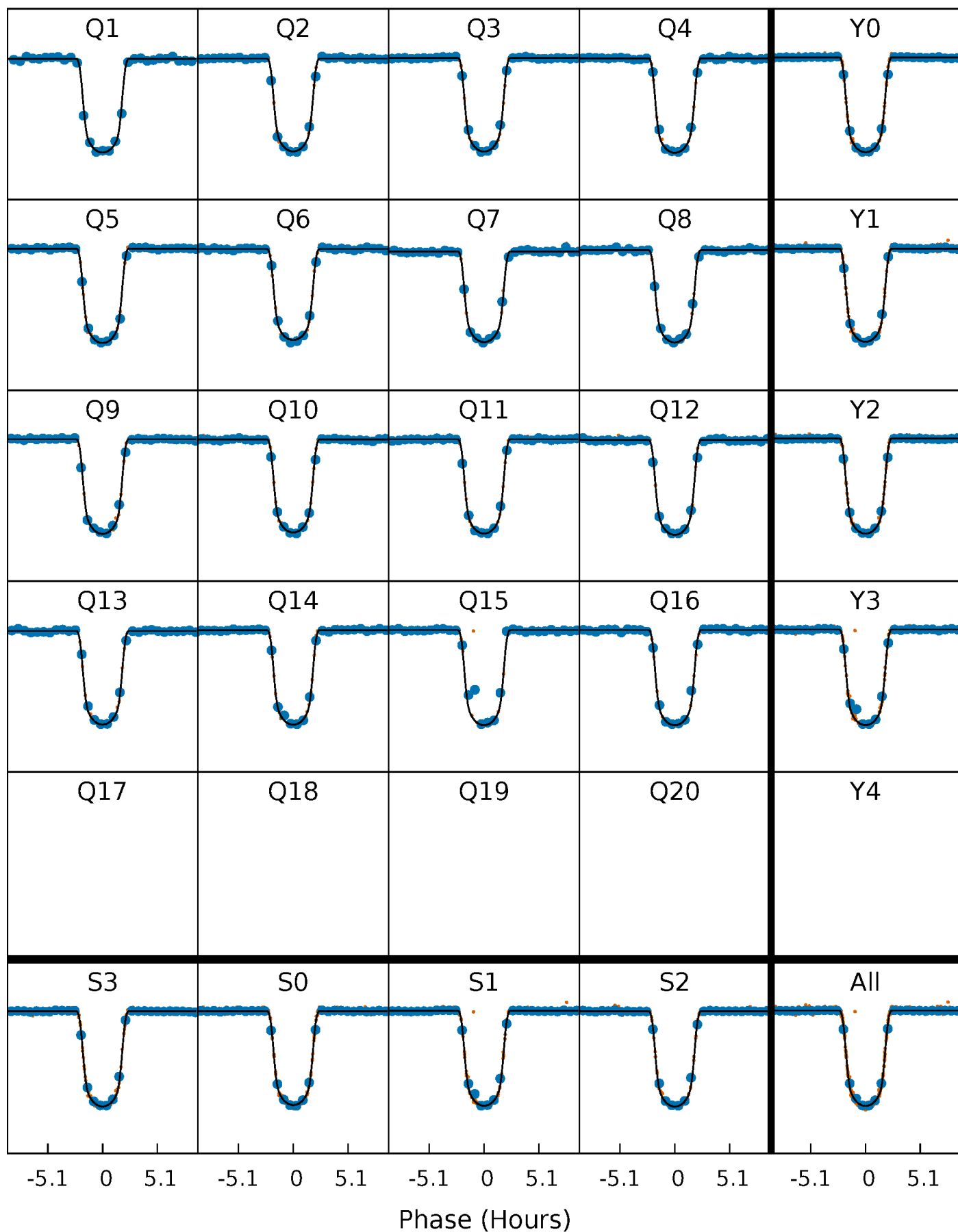
TCE 010799735-01 P= 37.590295 Days  $T_0=157.350405$  (BKJD)





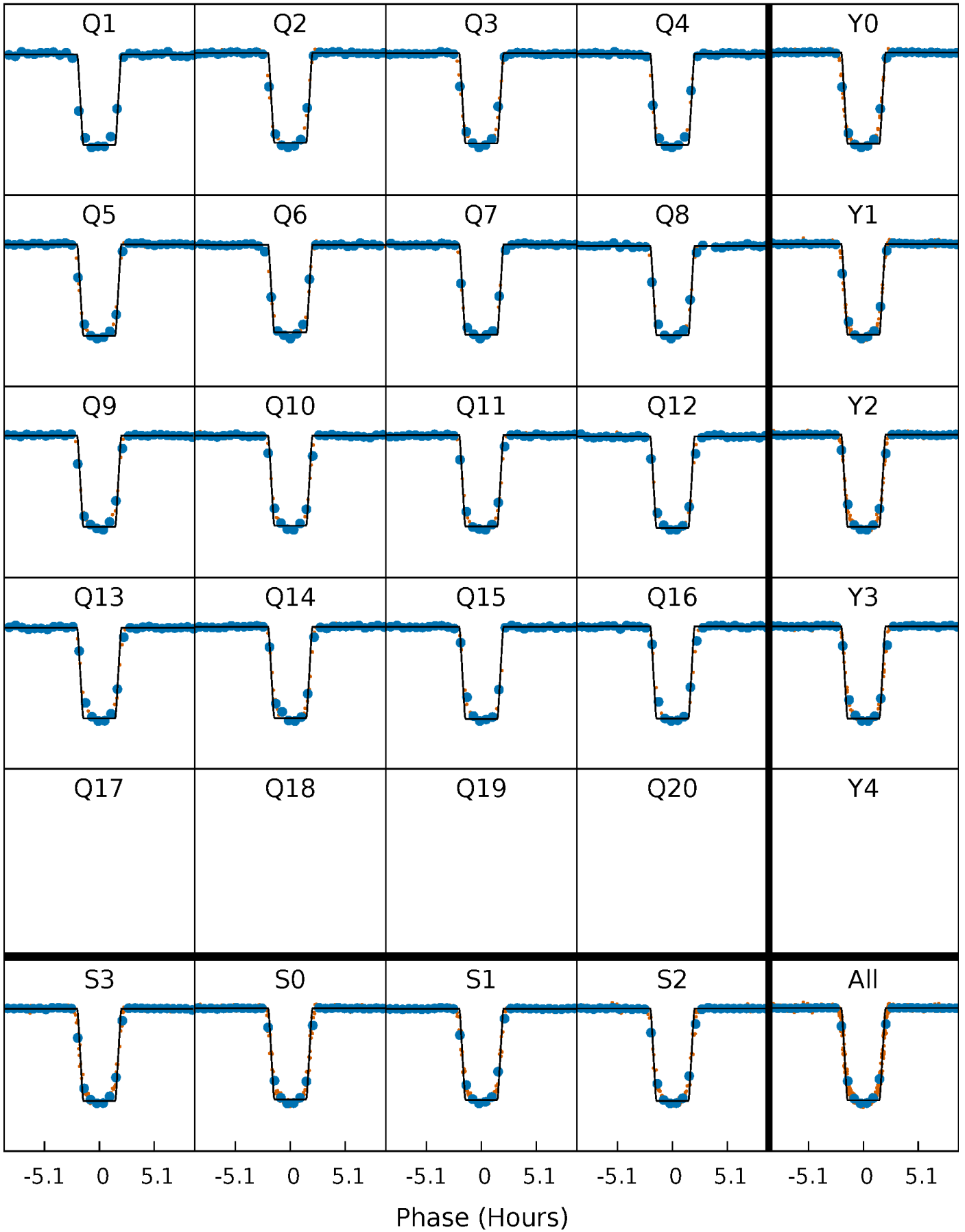
# DV Quarter-Phased Transit Curves

TCE 010799735-01 P= 37.590295 Days  $T_0=157.350405$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

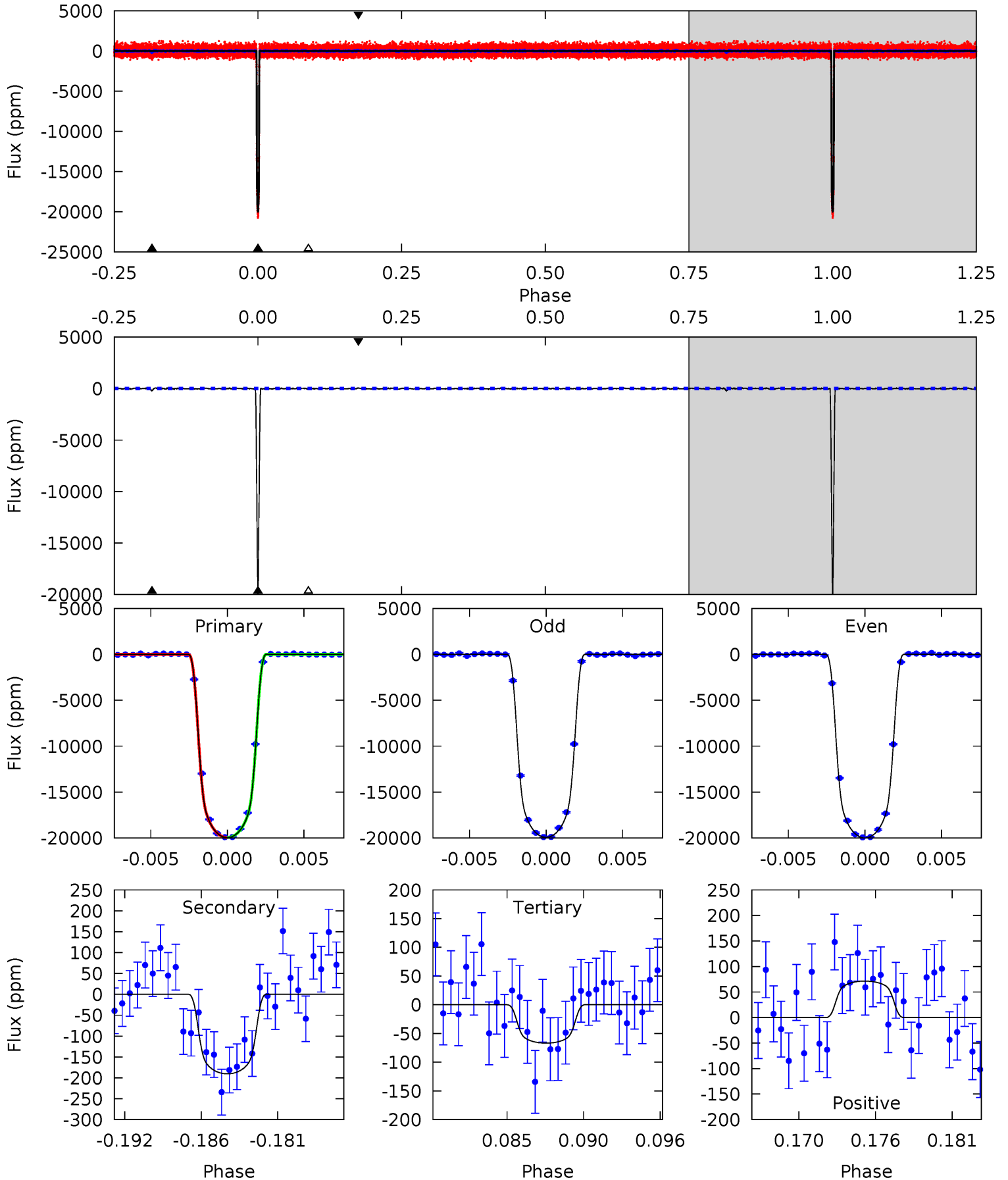
TCE 010799735-01 P= 37.589991 Days  $T_0=157.355822$  (BKJD)



# DV Model-Shift Uniqueness Test

010799735-01, P = 37.590295 Days, E = 119.760110 Days

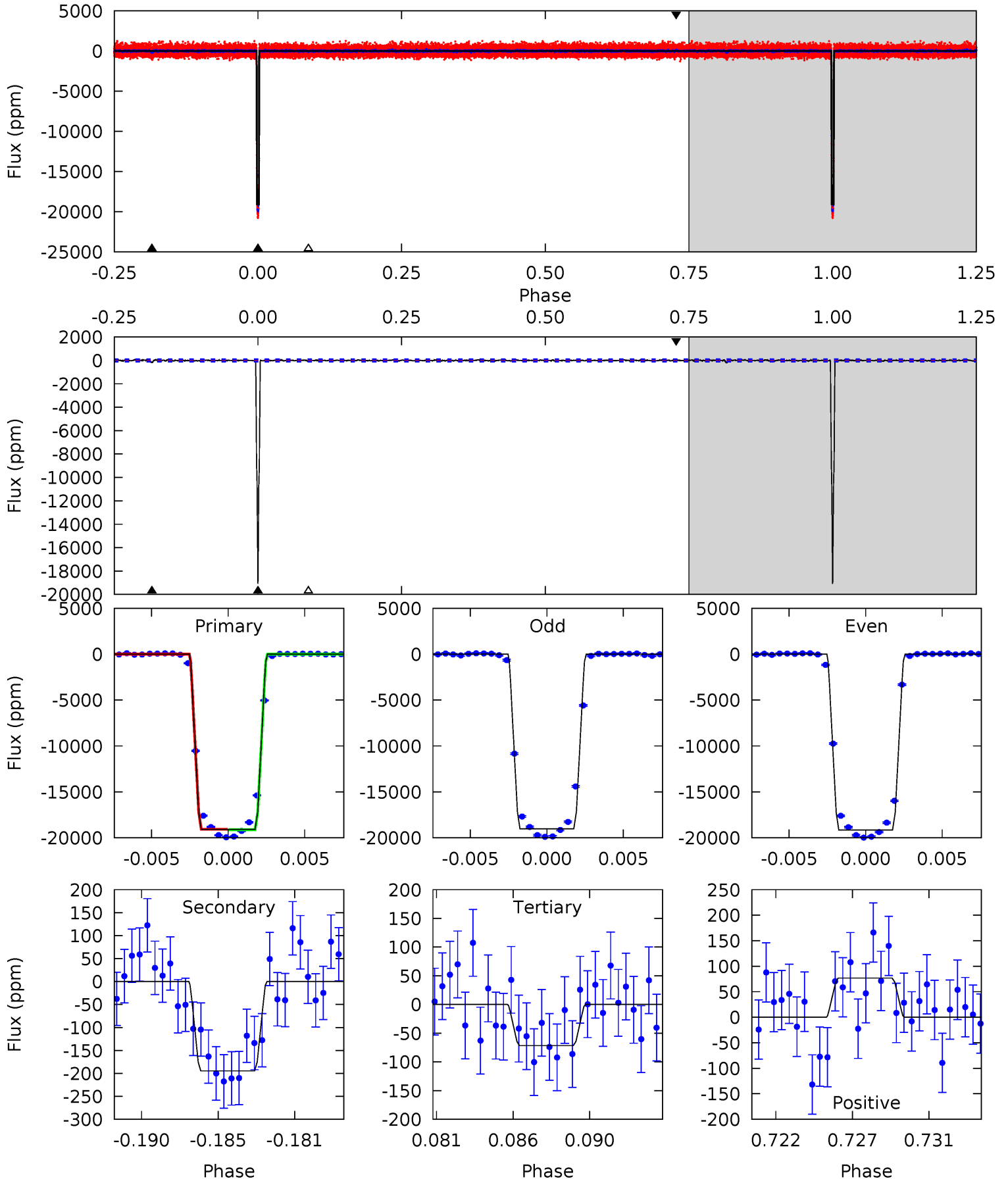
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1224	11.7	4.10	4.37	5.15	2.79	1.25	1219	1219	7.57	7.30	1.95	0.98	0.00	0.19



# Alt Model-Shift Uniqueness Test

010799735-01, P = 37.589991 Days, E = 119.765831 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
944.7	9.63	3.54	3.80	5.18	2.84	1.01	941.1	940.9	6.09	5.83	2.89	1.00	0.00	1.43



### Stellar Parameters For KIC 010799735

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6147^{+184}_{-220}$	$4.463^{+0.058}_{-0.217}$	$-0.120^{+0.250}_{-0.350}$	$1.003^{+0.341}_{-0.114}$	$1.064^{+0.151}_{-0.135}$	$1.485^{+0.454}_{-0.821}$
	+3%/-4%	+1%/-5%	+208%/-292%	+34%/-11%	+14%/-13%	+31%/-55%
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 010799735-01 / KOI 0193.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-190 \pm 16$	$14.86^{+2.49}_{-1.15}$	$816^{+62}_{-44}$	$2738^{+59}_{-62}$	$23^{+4}_{-6}$
Alt.	$-195 \pm 20$	$15.72^{+2.75}_{-1.38}$	$817^{+65}_{-42}$	$2716^{+57}_{-64}$	$21^{+5}_{-6}$

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

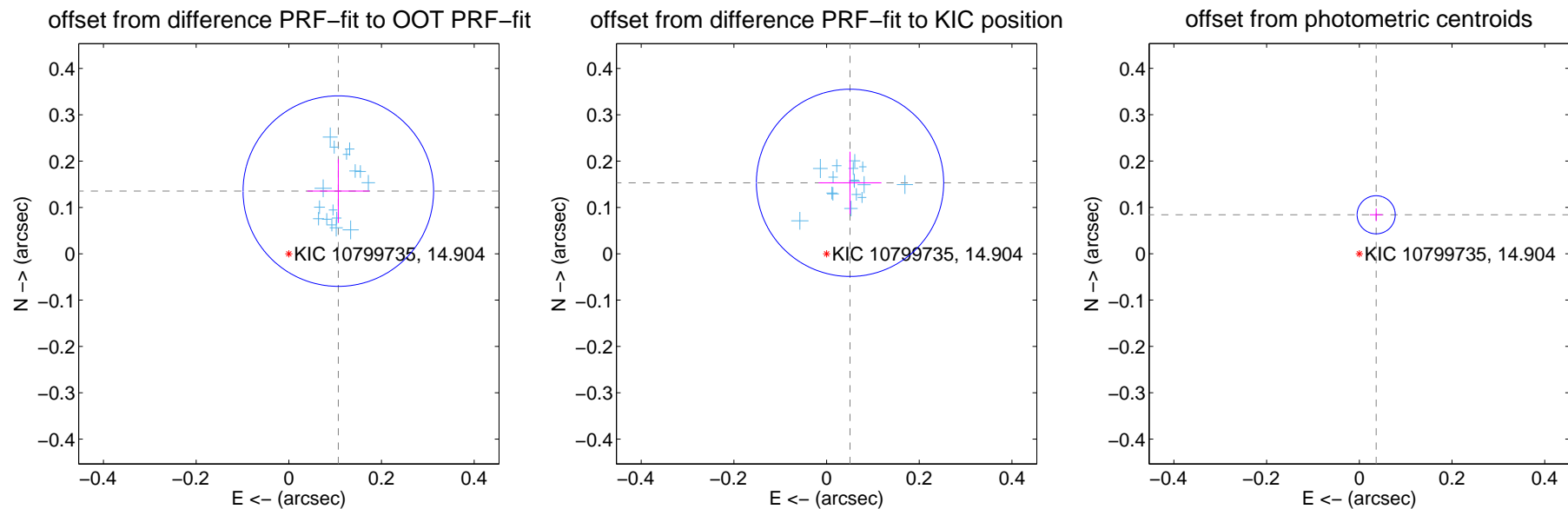
## DV Centroid Data

Supplemental centroid analysis for 010799735-01. Kepler magnitude: 14.90. Transit SNR 831.54

There are 16 quarters with good PRF difference image offsets

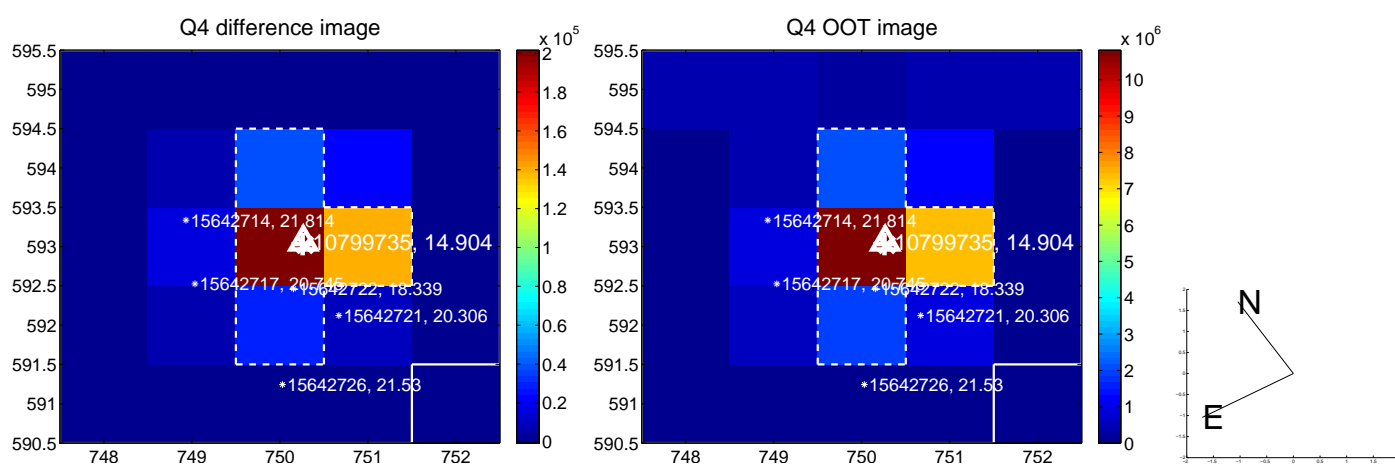
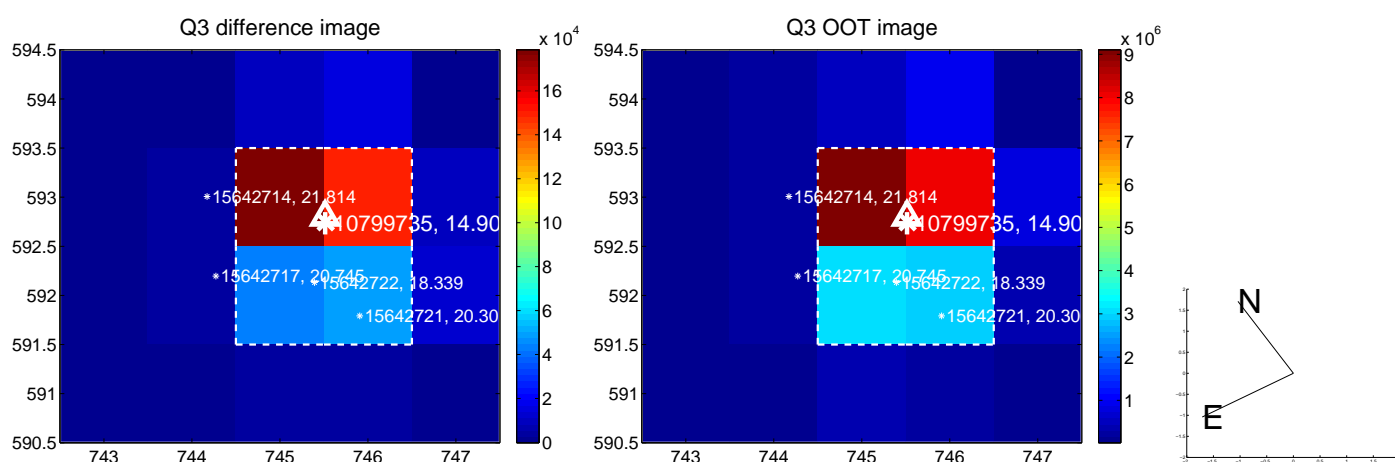
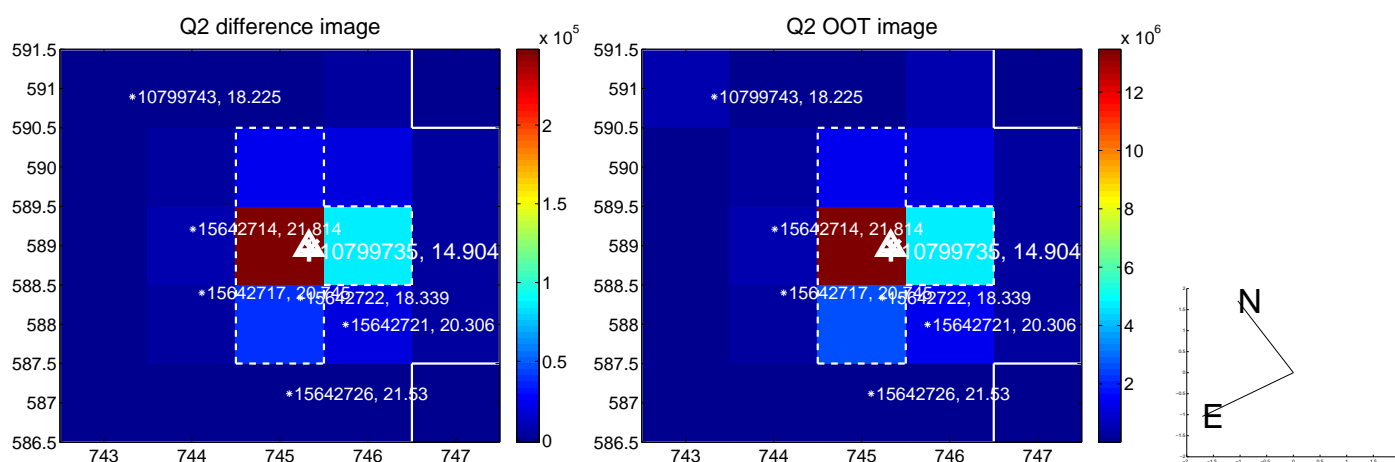
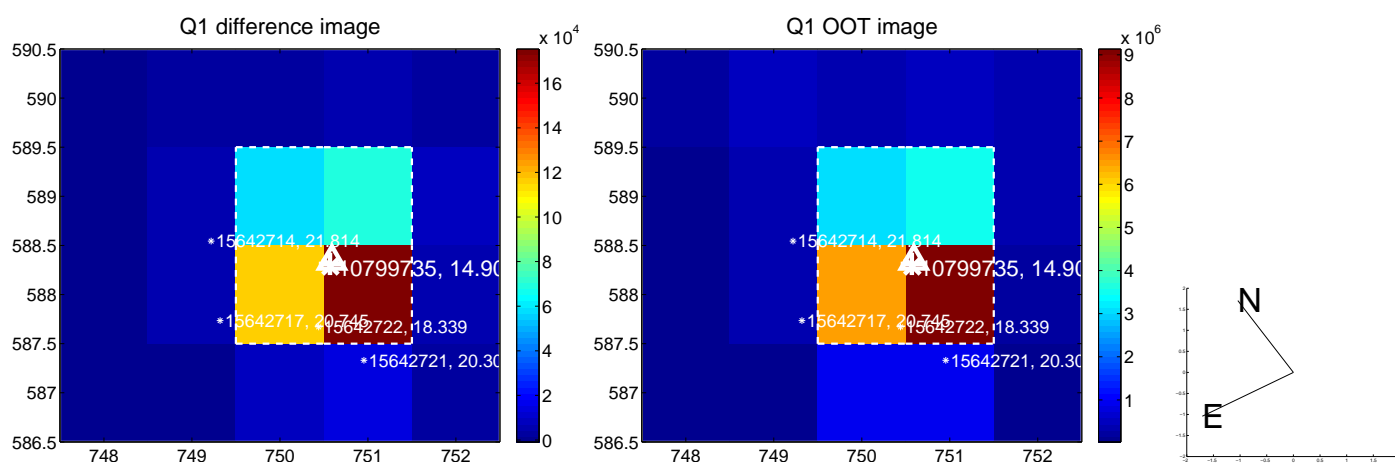
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.172 \pm 0.069$	2.52	$-0.107 \pm 0.067$	$0.135 \pm 0.069$
PRF-fit source offset from KIC position	$0.161 \pm 0.067$	2.39	$-0.051 \pm 0.068$	$0.153 \pm 0.067$
photometric centroid source offset	$0.09 \pm 0.01$	6.68	$-0.04 \pm 0.01$	$0.08 \pm 0.01$

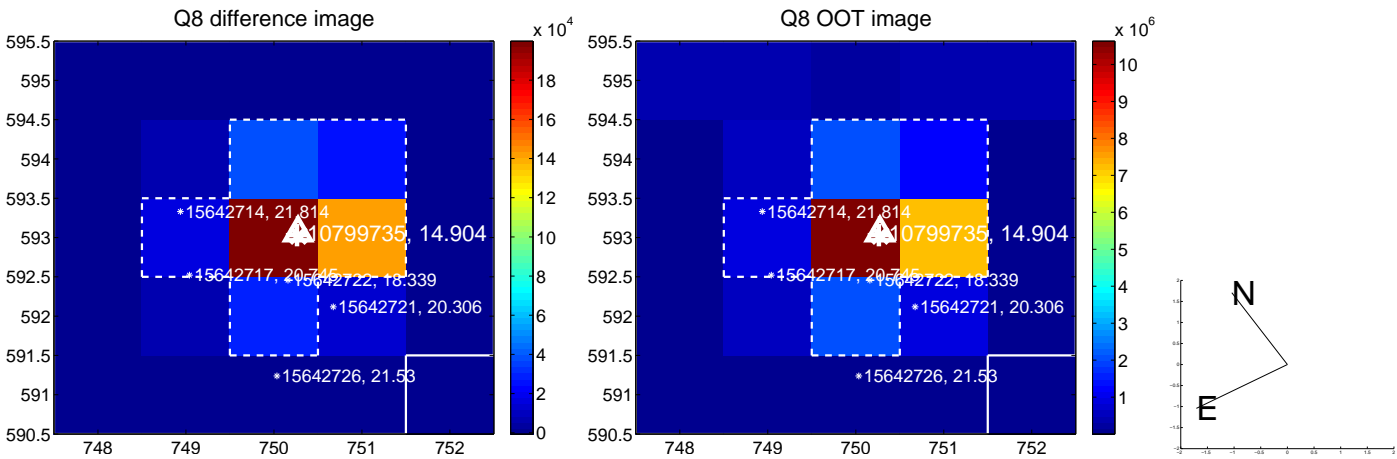
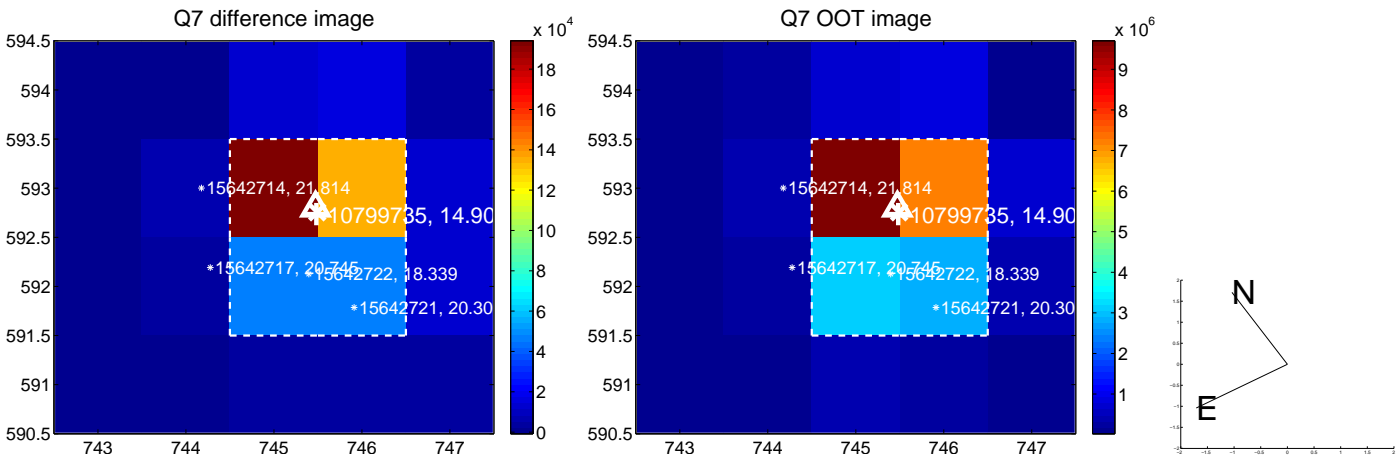
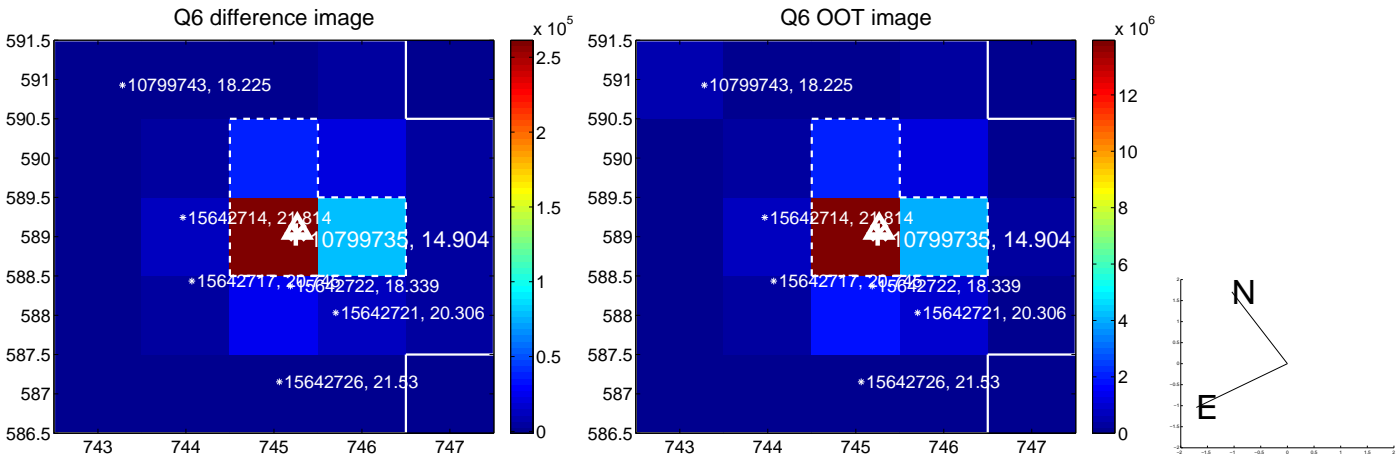
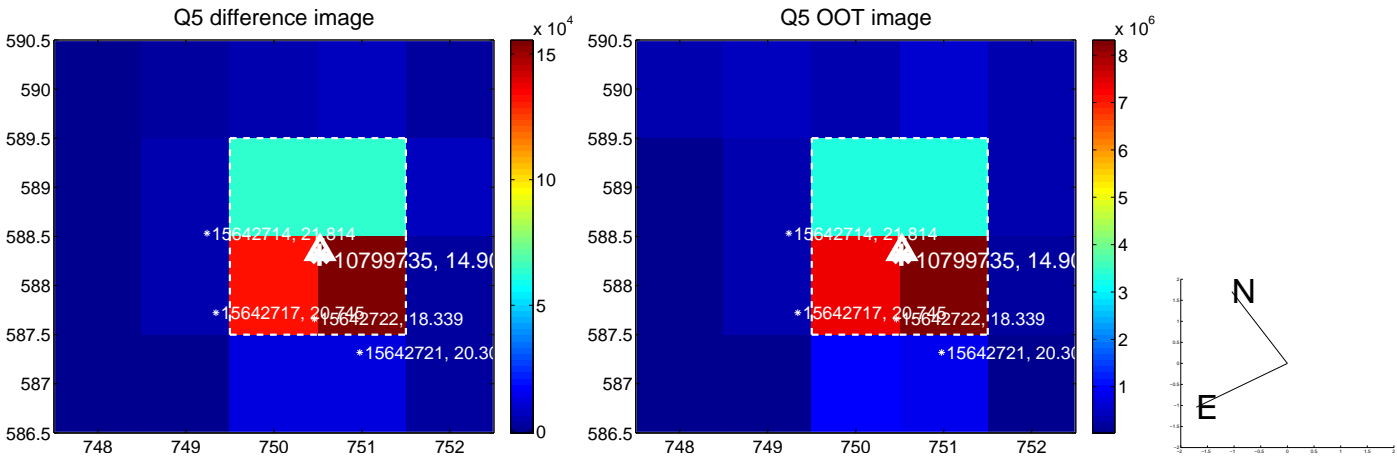


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

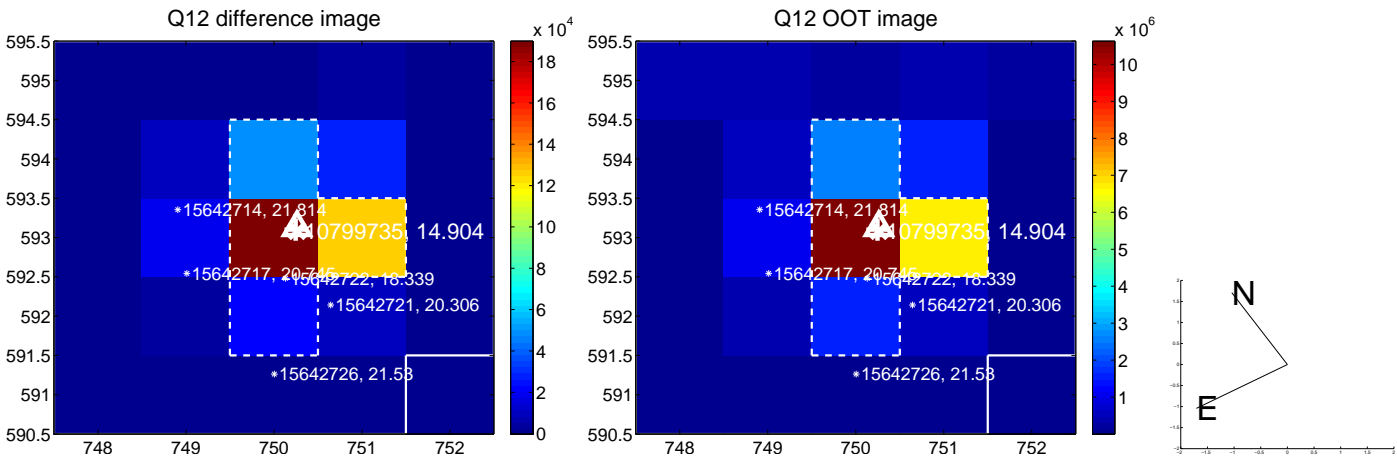
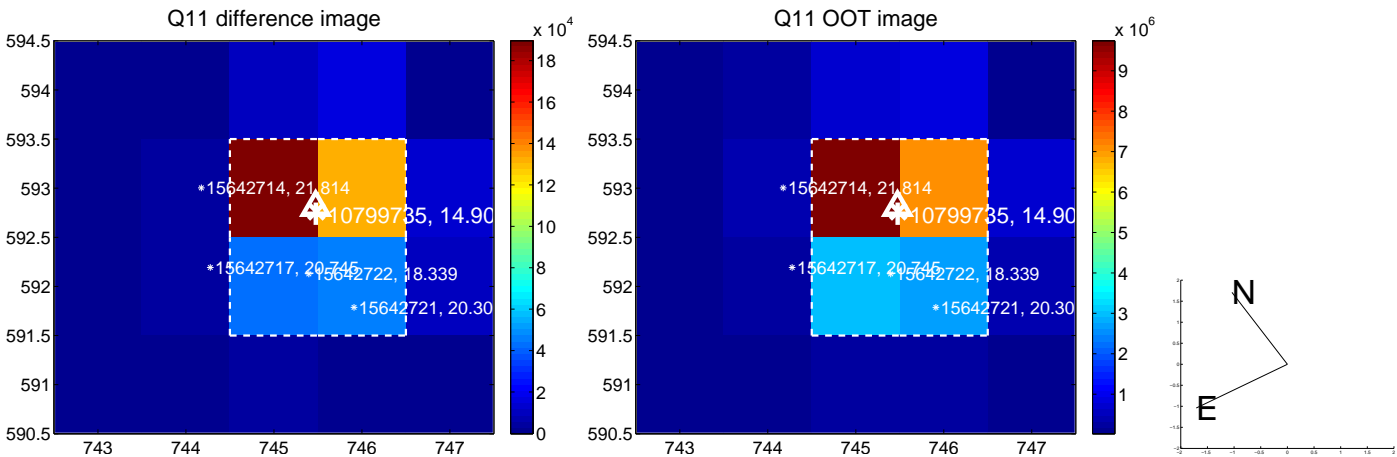
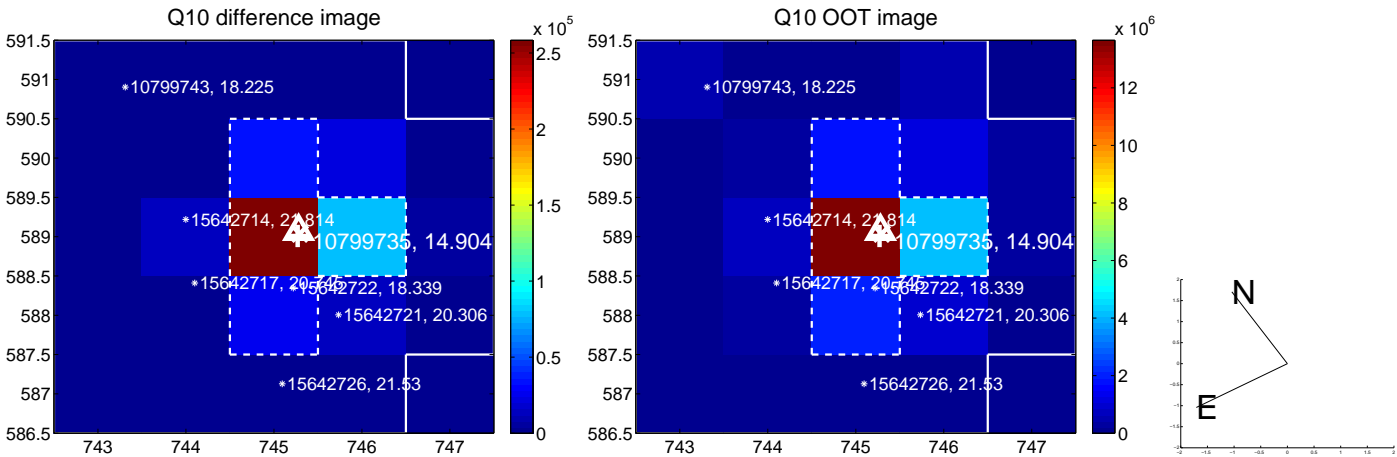
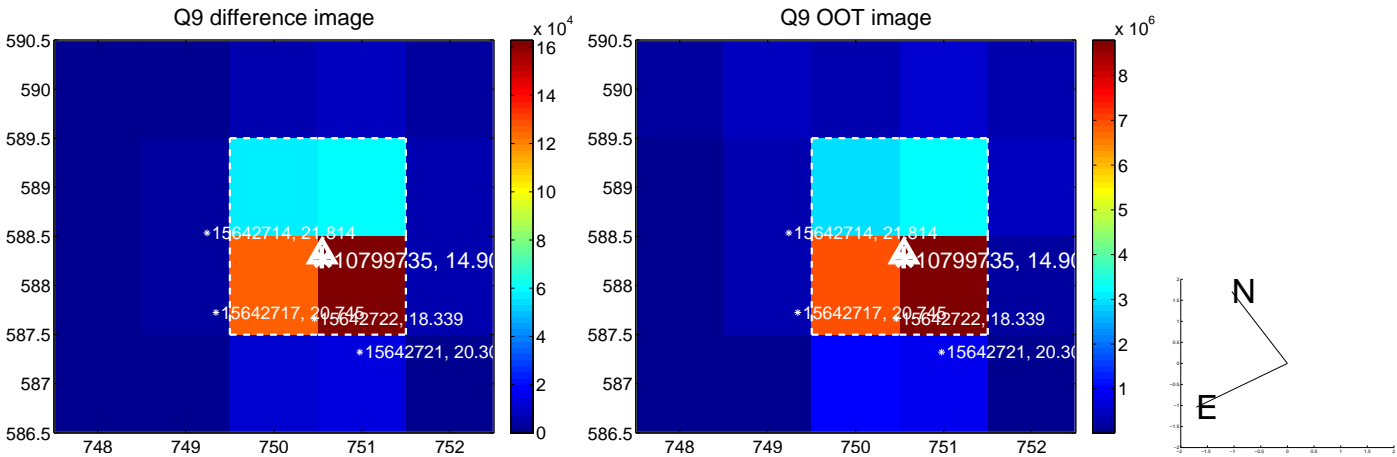


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

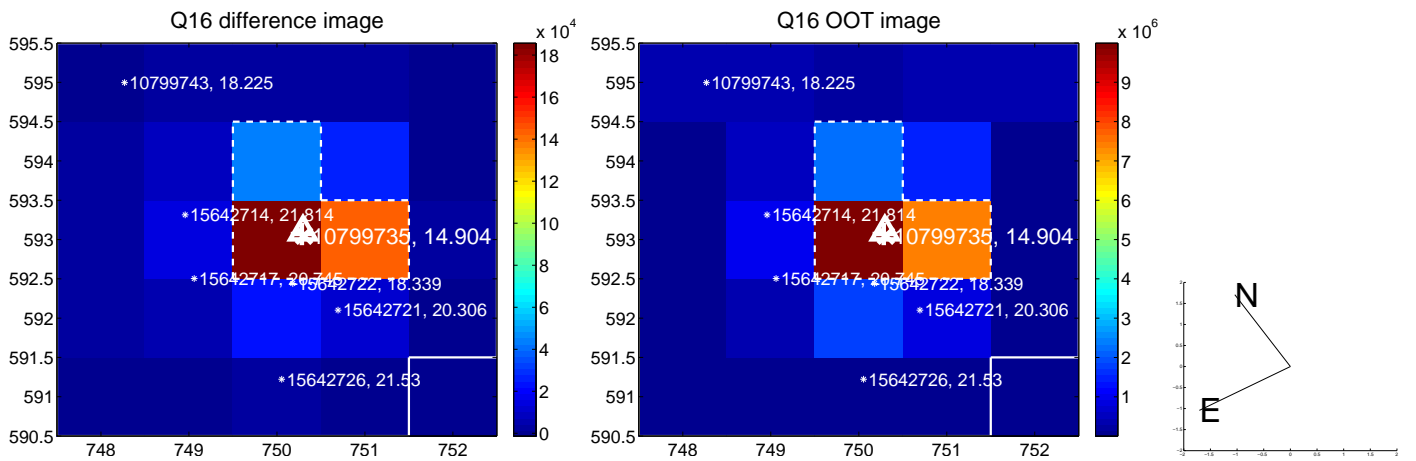
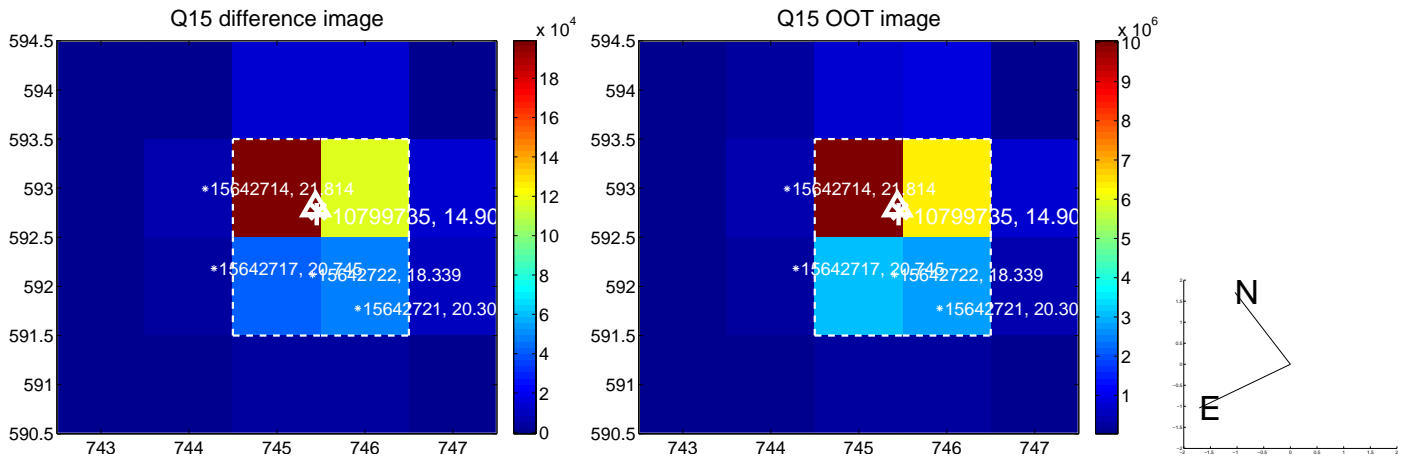
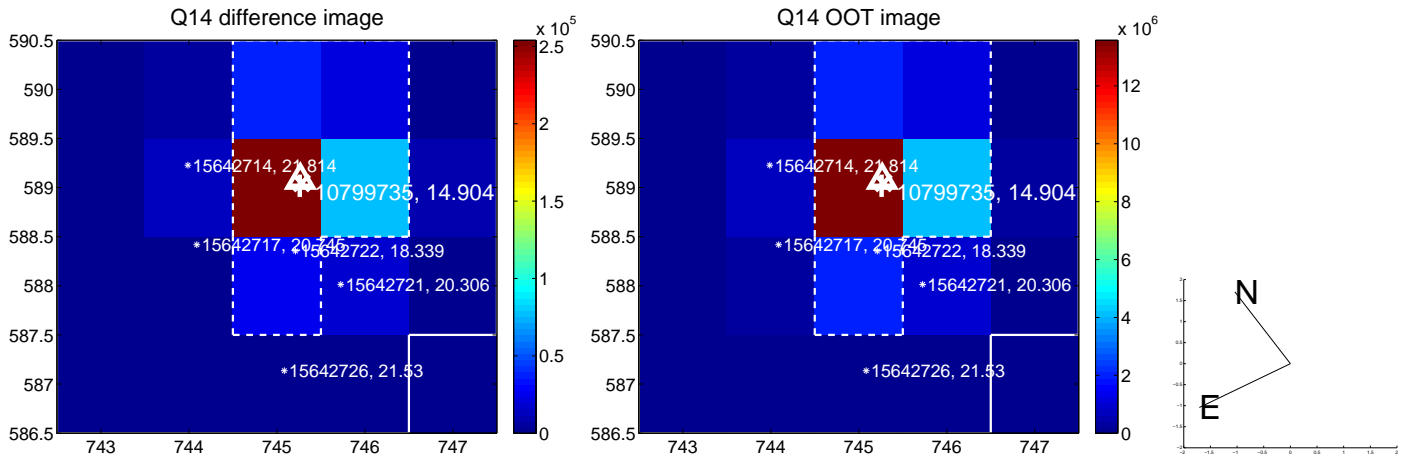
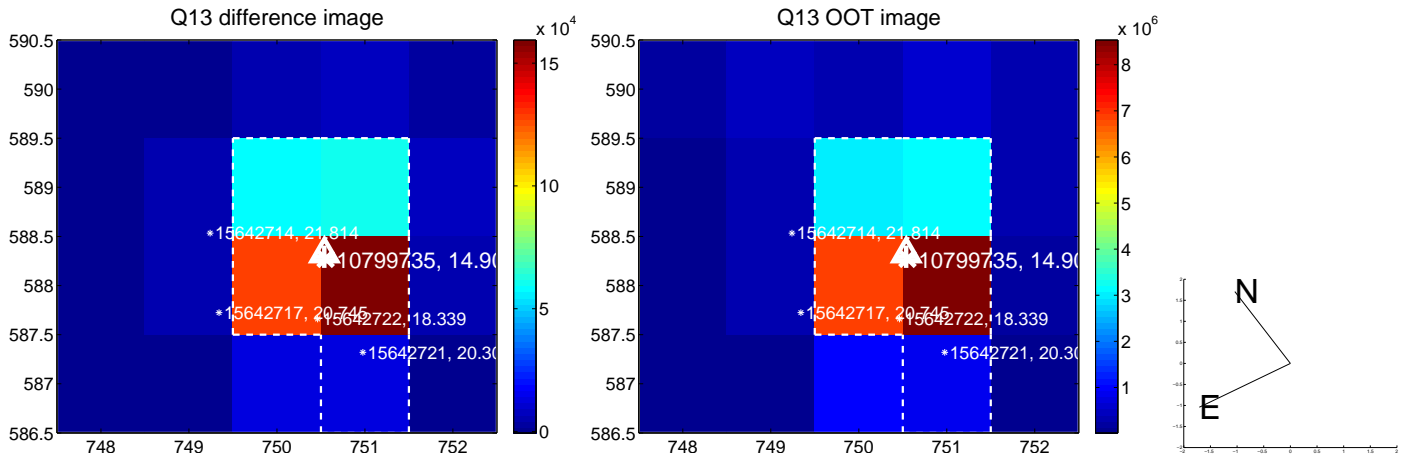




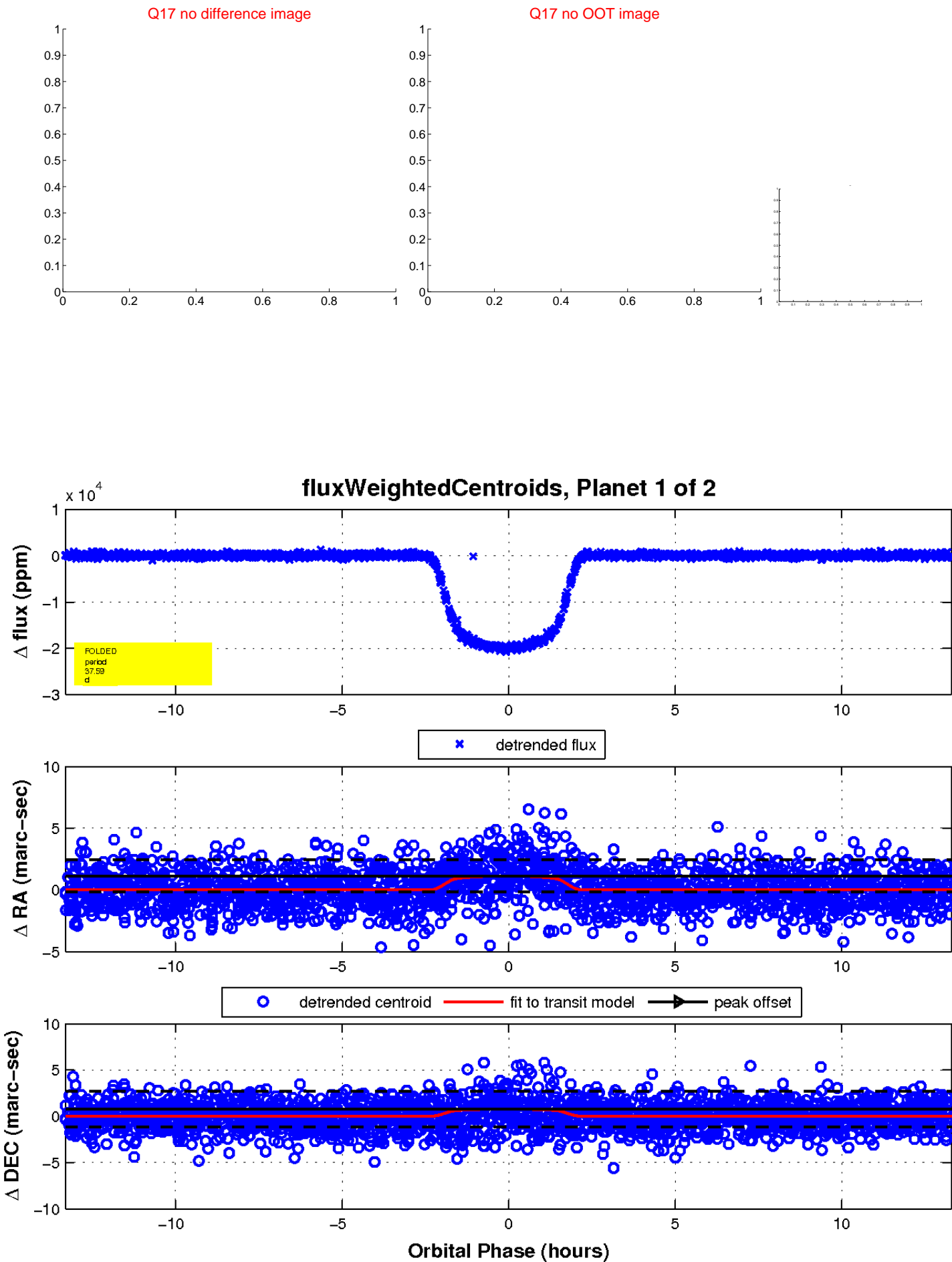
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

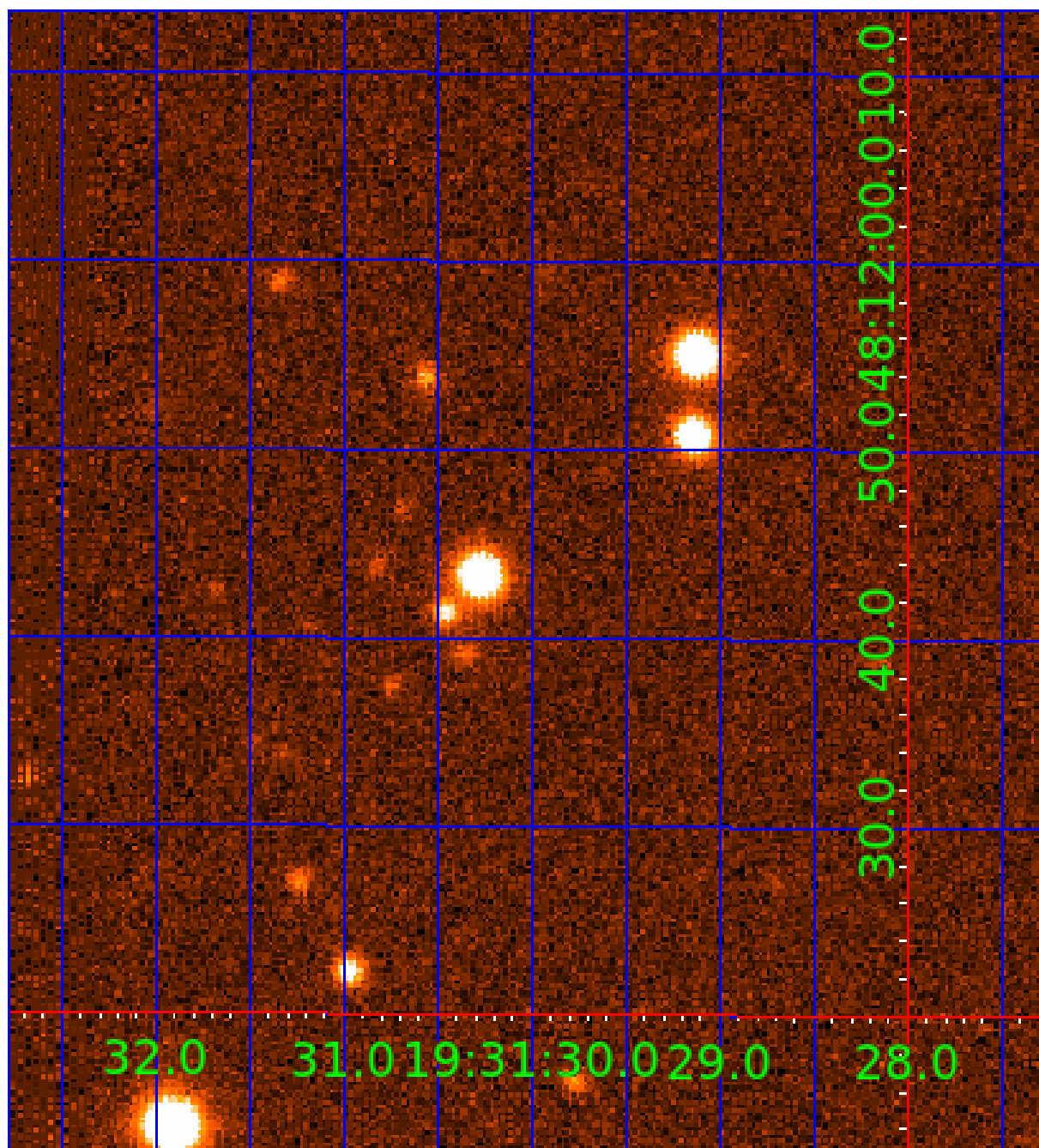


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010799735

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010799735-01	OBS	0193.01	37.590295	157.350405	19968.7	4.434	875.5	831.5	1.00	6147	14.54	25.57
010799735-02	OBS	No	37.589236	150.423070	229.4	4.168	10.0	10.3	1.00	6147	1.77	25.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010799735-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
010799735-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

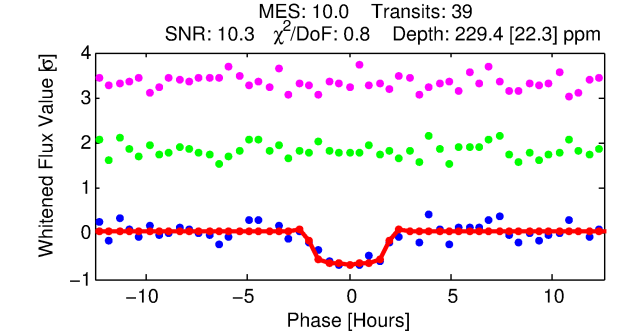
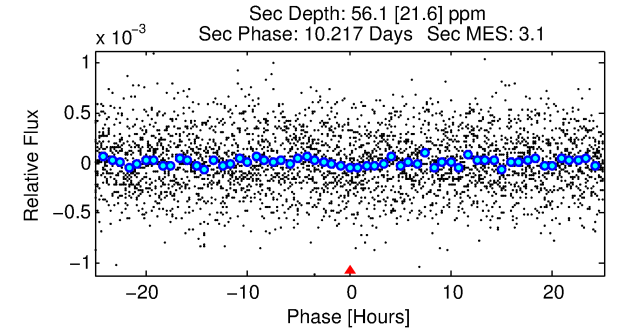
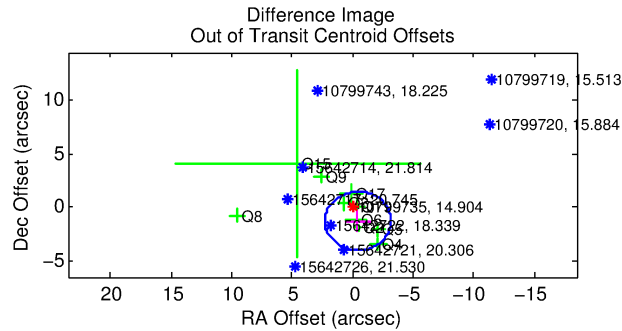
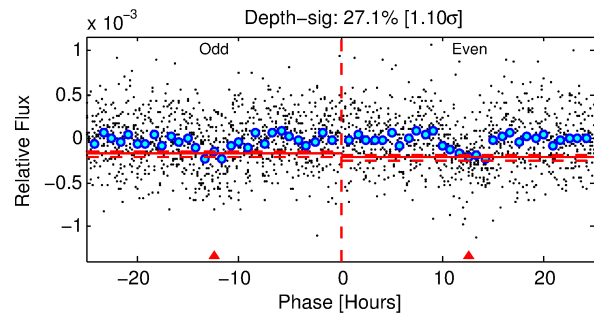
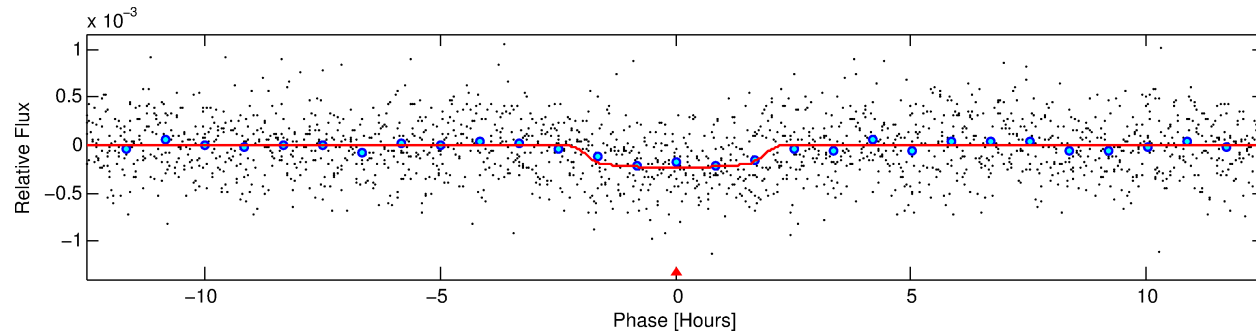
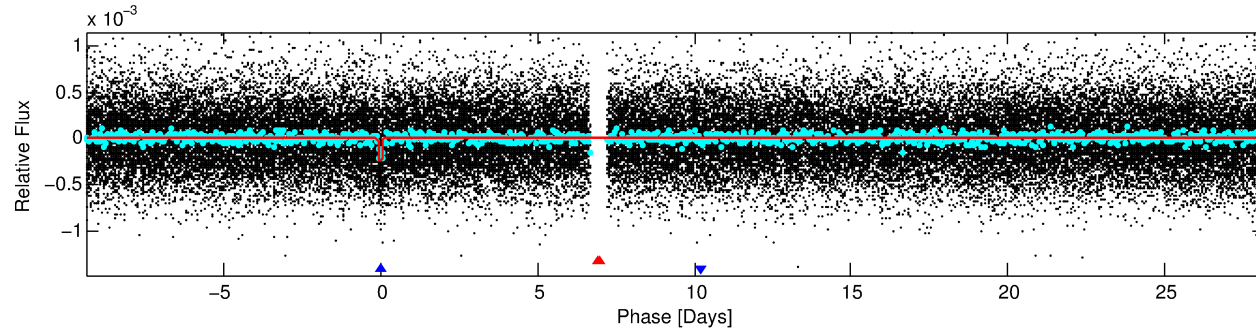
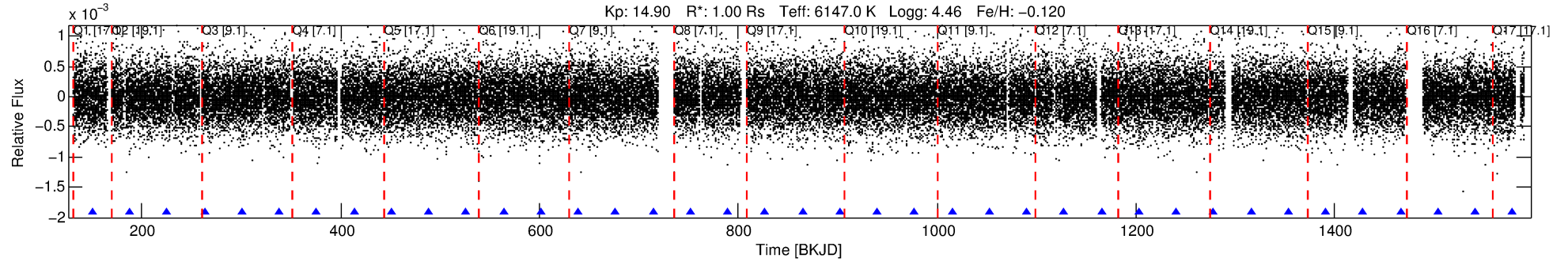
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010799735-02

No Significant Match Found

# DV One-Page Summary

KIC: 10799735 Candidate: 2 of 2 Period: 37.589 d  
KOI: K00193 Corr: No Ephemeris Match



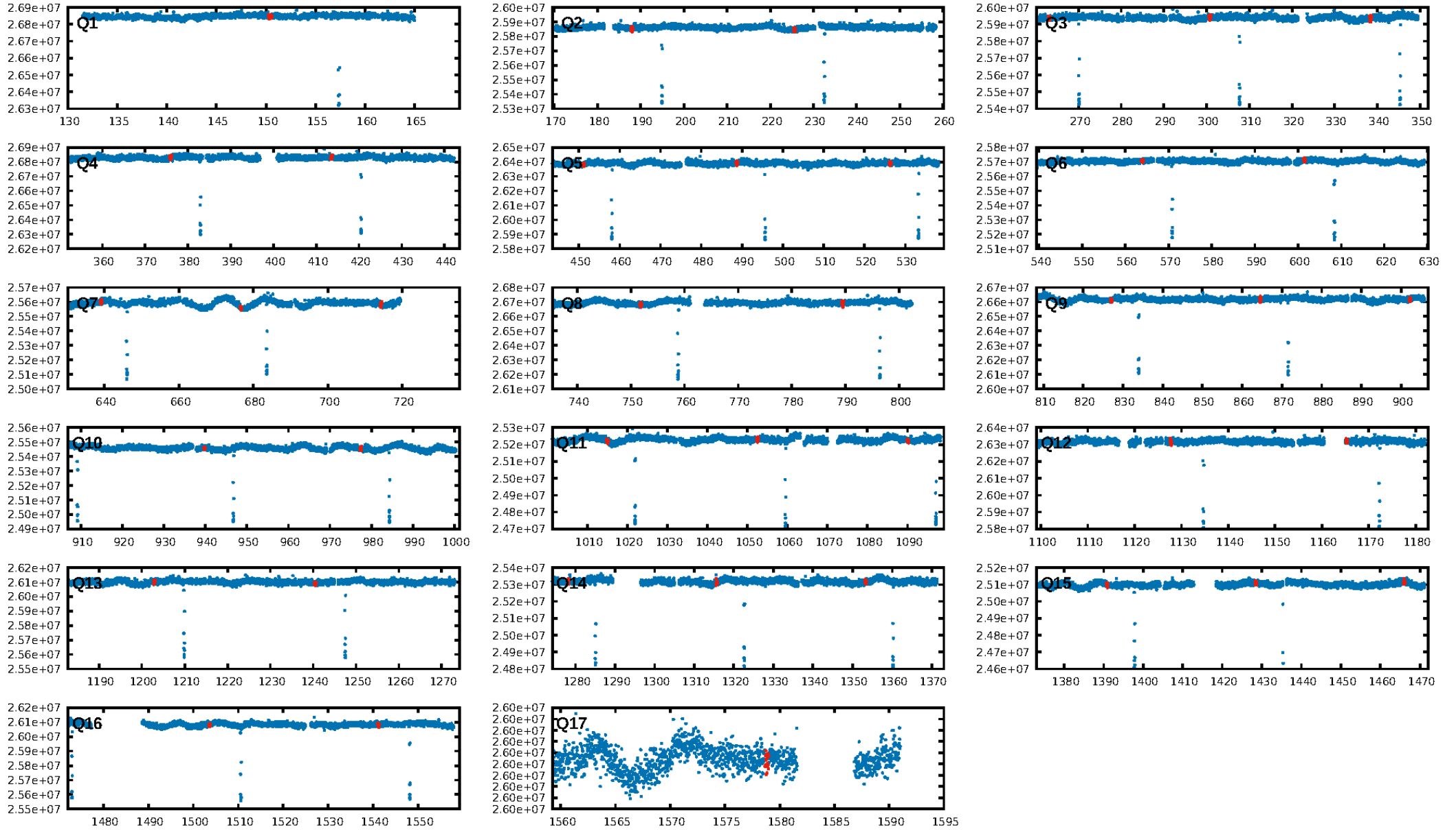
## DV Fit Results:

Period = 37.58924 [0.00036] d  
Epoch = 150.4231 [0.0081] BKJD  
Rp/R\* = 0.0162 [0.0055]  
a/R\* = 33.91 [60.21]  
b = 0.89 [0.42]  
Seff = 25.57 [10.93]  
Teq = 573 [61] K  
Rp = 1.77 [0.85] Re  
a = 0.2244 [0.0631] AU  
Ag = 495.24 [437.50] [1.13 $\sigma$ ]  
Teffp = 4182 [835] K [4.31 $\sigma$ ]

## DV Diagnostic Results:

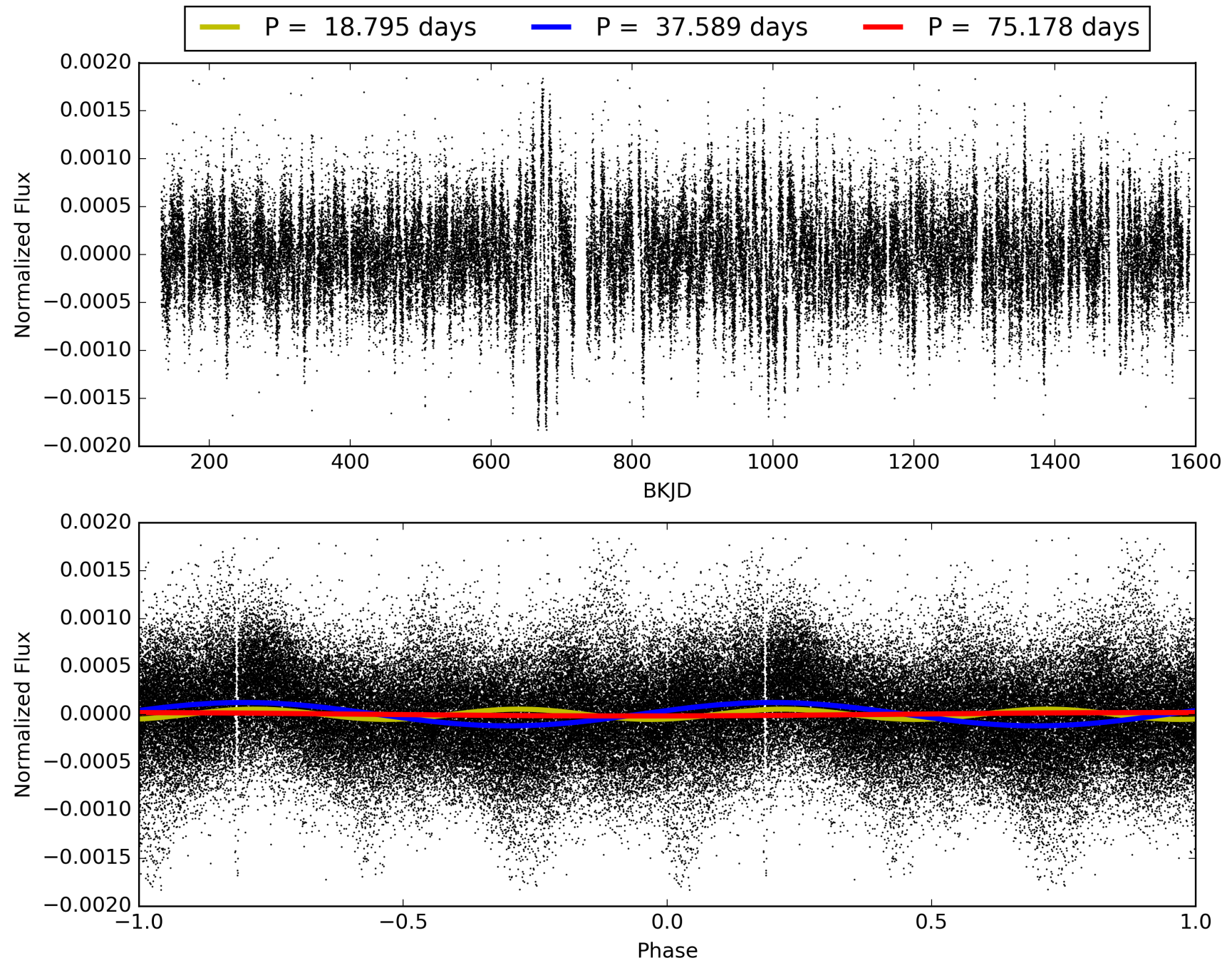
ShortPeriod-sig: N/A  
LongPeriod-sig: 0.3% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: 99.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.39e-23  
RollingBand-fgt: 1.00 [37/37]  
GhostDiagnostic-chr: 1.789  
Centroid-sig: 18.5%  
Centroid-so: 1.396 arcsec [1.27 $\sigma$ ]  
OotOffset-rm: 1.326 arcsec [1.45 $\sigma$ ]  
KicOffset-rm: 1.325 arcsec [1.43 $\sigma$ ]  
OotOffset-st: 2/3/2/3 [10]  
KicOffset-st: 2/3/2/3 [10]  
DiffImageQuality-fgm: 0.60 [6/10]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 010799735-02, PDC Light Curves





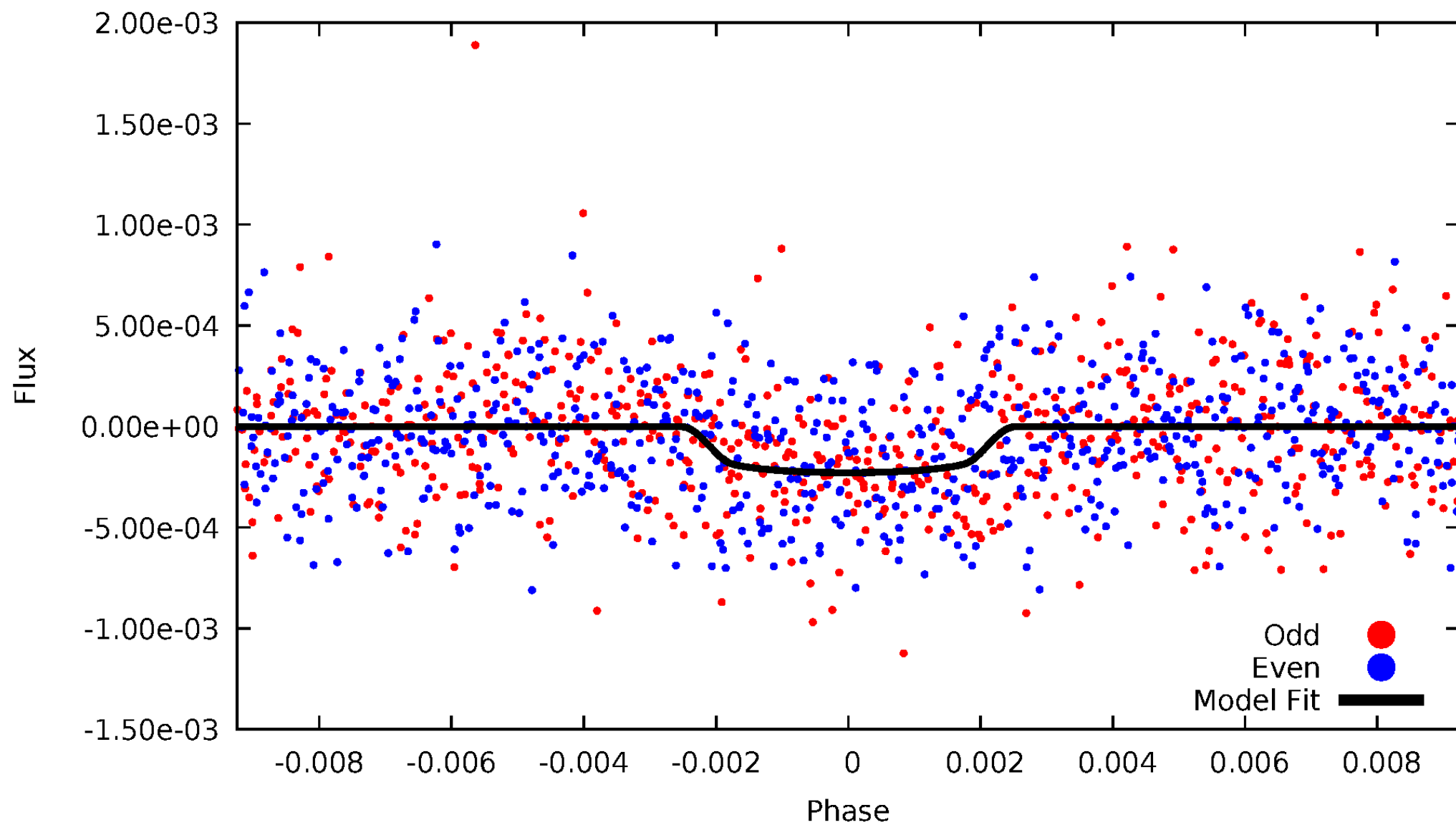
TCE 010799735-02





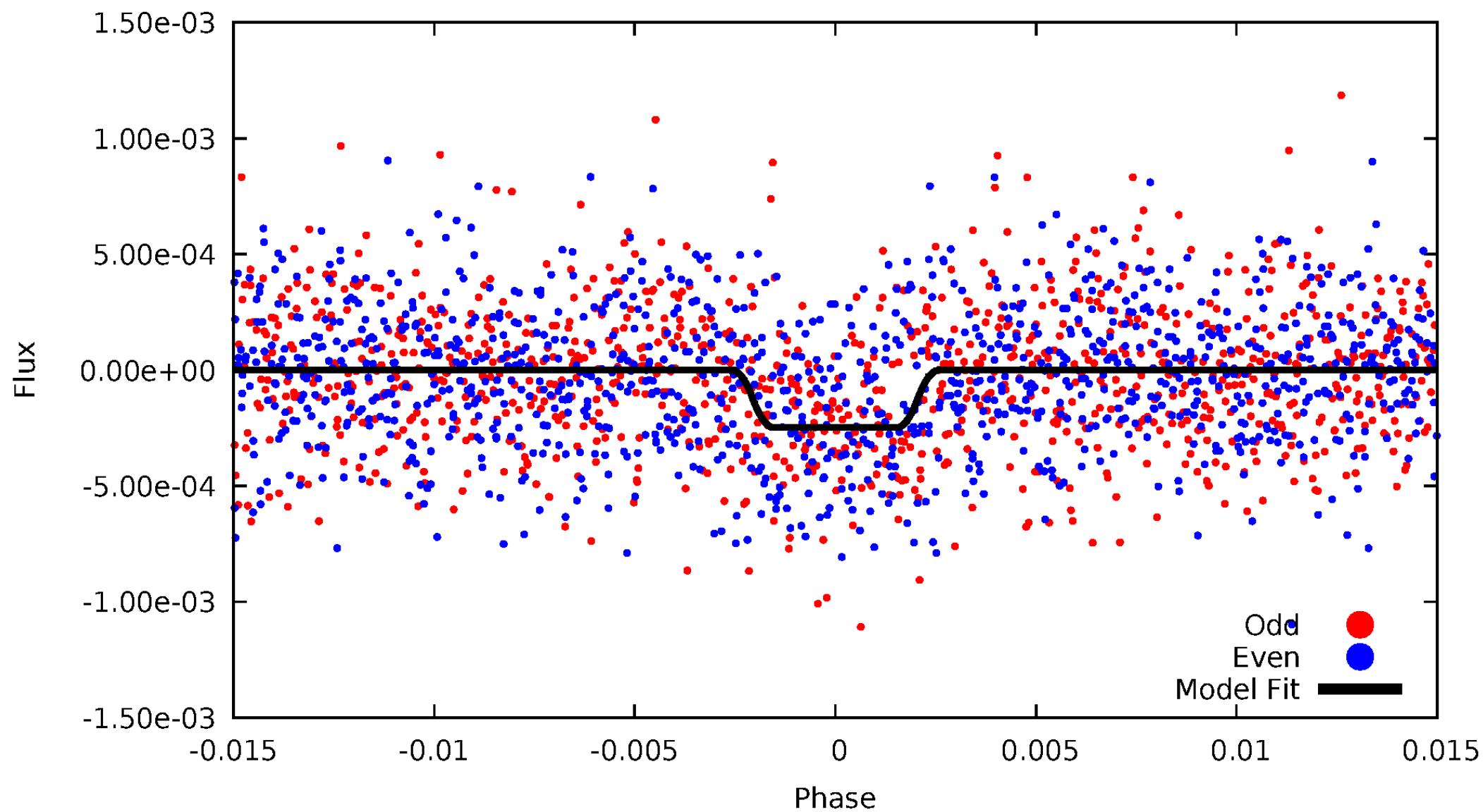
# DV Odd/Even

TCE 010799735-02



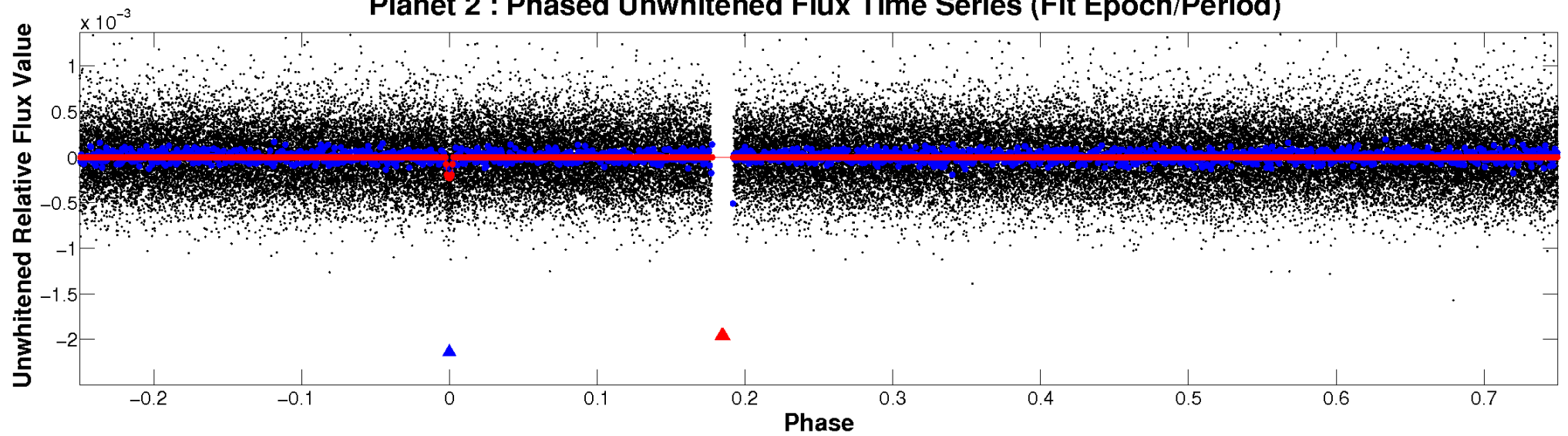
# ALT Odd/Even

TCE 010799735-02

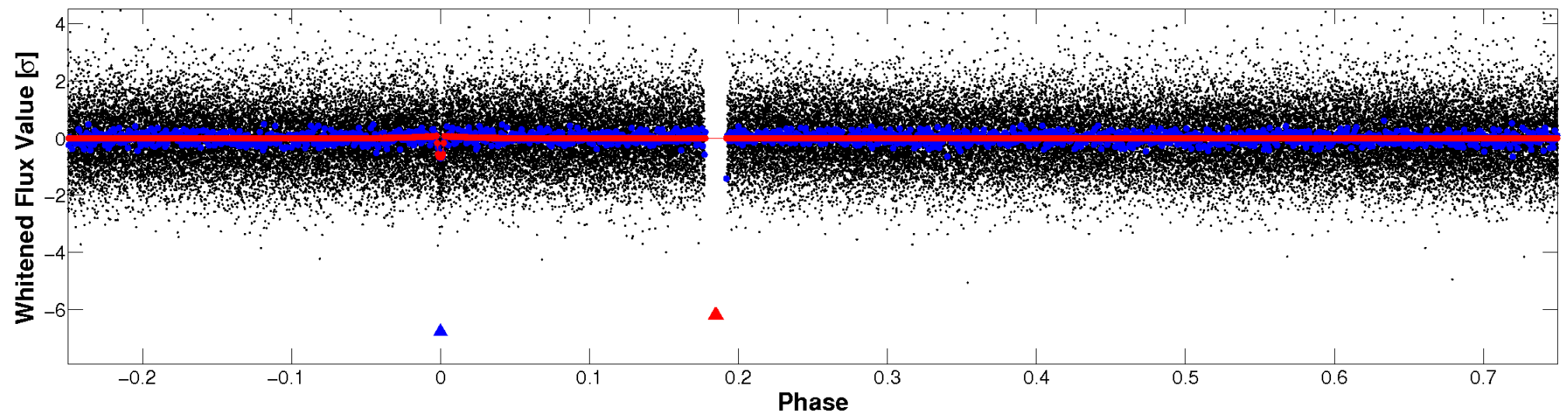


# Non-Whitened Vs. Whitened Light Curve

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

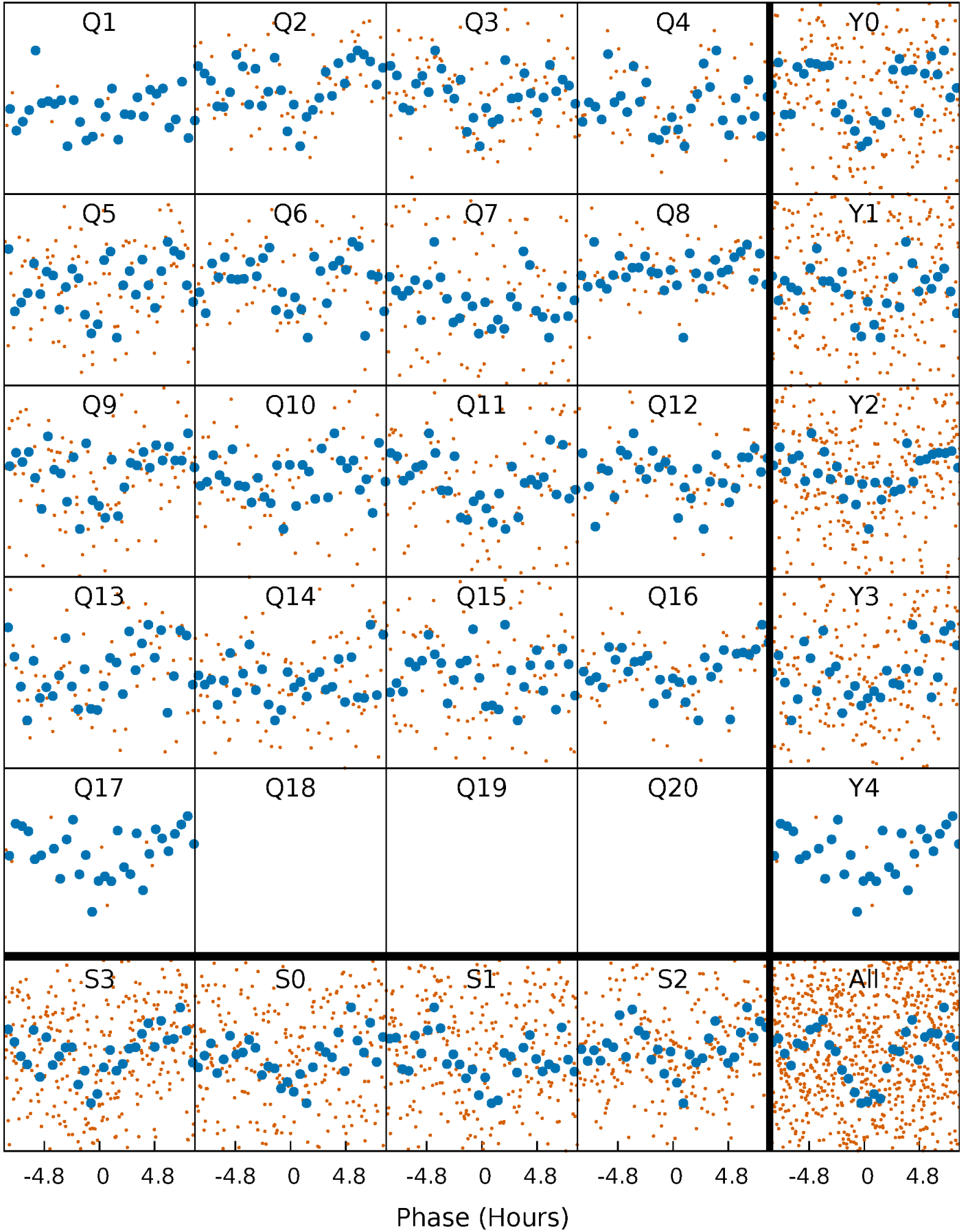


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



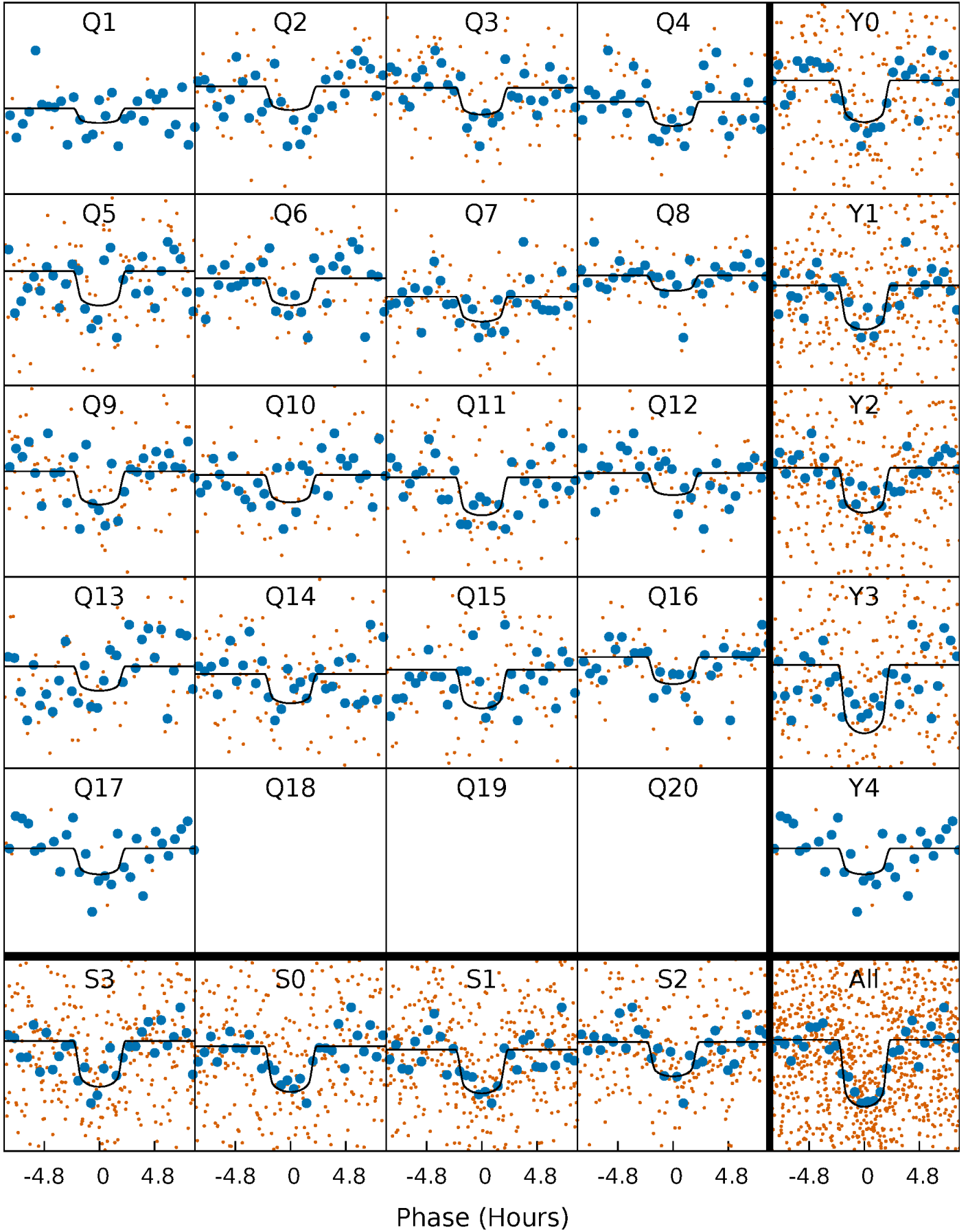
# PDC Quarter-Phased Transit Curves

TCE 010799735-02   P= 37.589236 Days    $T_0=150.423070$  (BKJD)



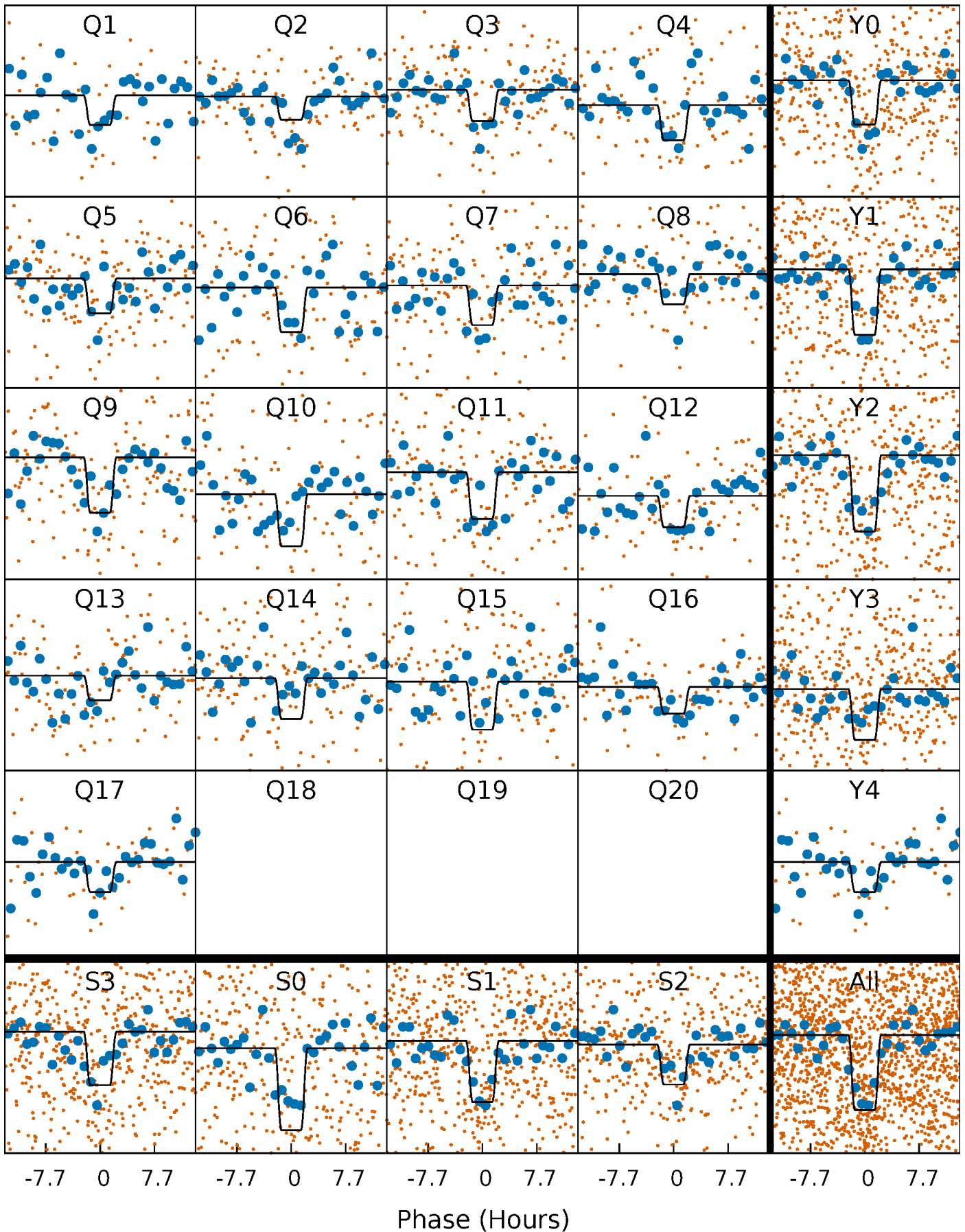
# DV Quarter-Phased Transit Curves

TCE 010799735-02 P= 37.589236 Days  $T_0=150.423070$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

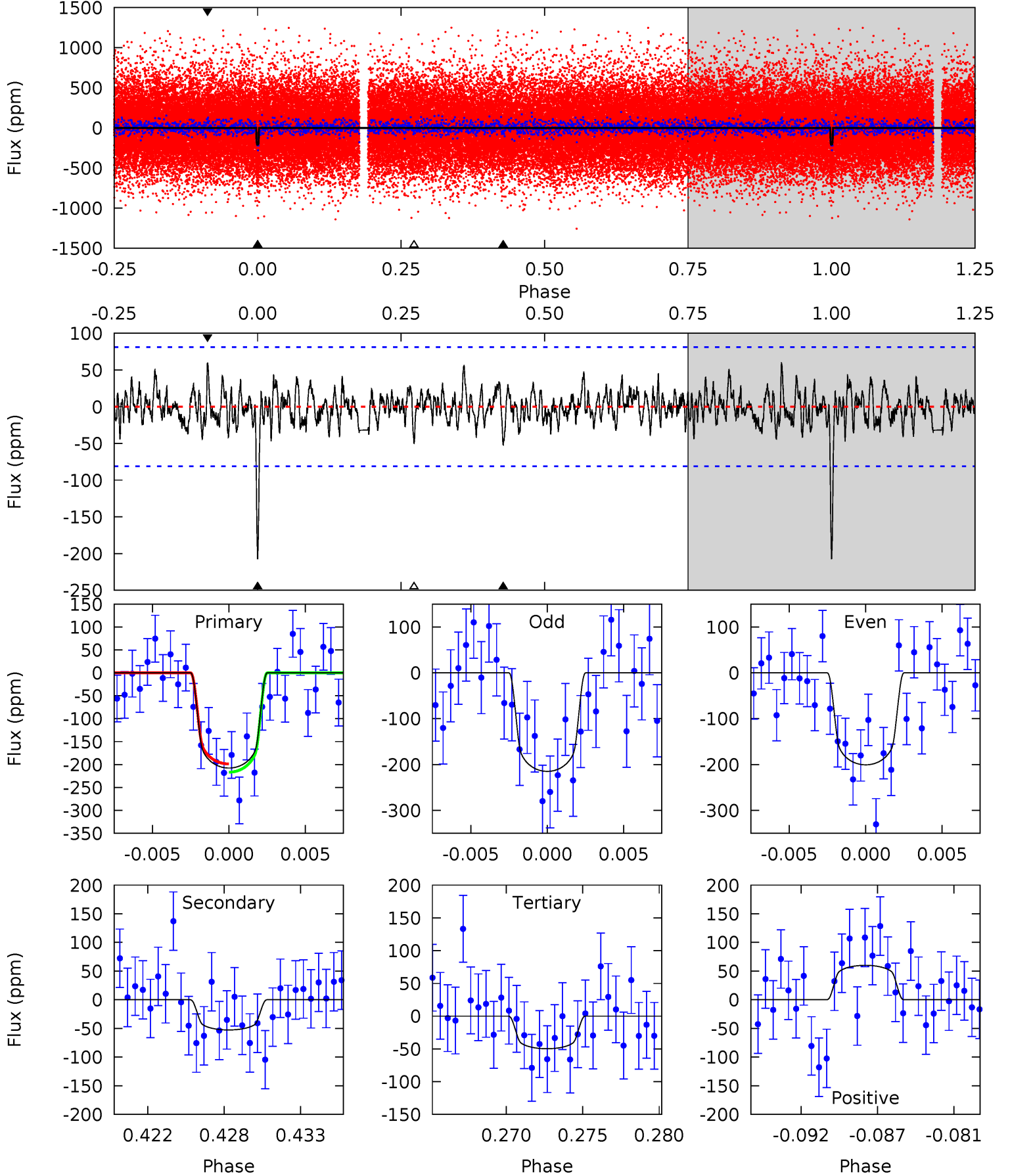
TCE 010799735-02   P= 37.589959 Days    $T_0=150.418364$  (BKJD)



# DV Model-Shift Uniqueness Test

010799735-02,  $P = 37.589236$  Days,  $E = 112.833834$  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
13.2	3.35	3.16	3.81	5.15	2.80	1.10	10.0	9.38	0.18	-0.47	0.45	1.05	0.22	0.57

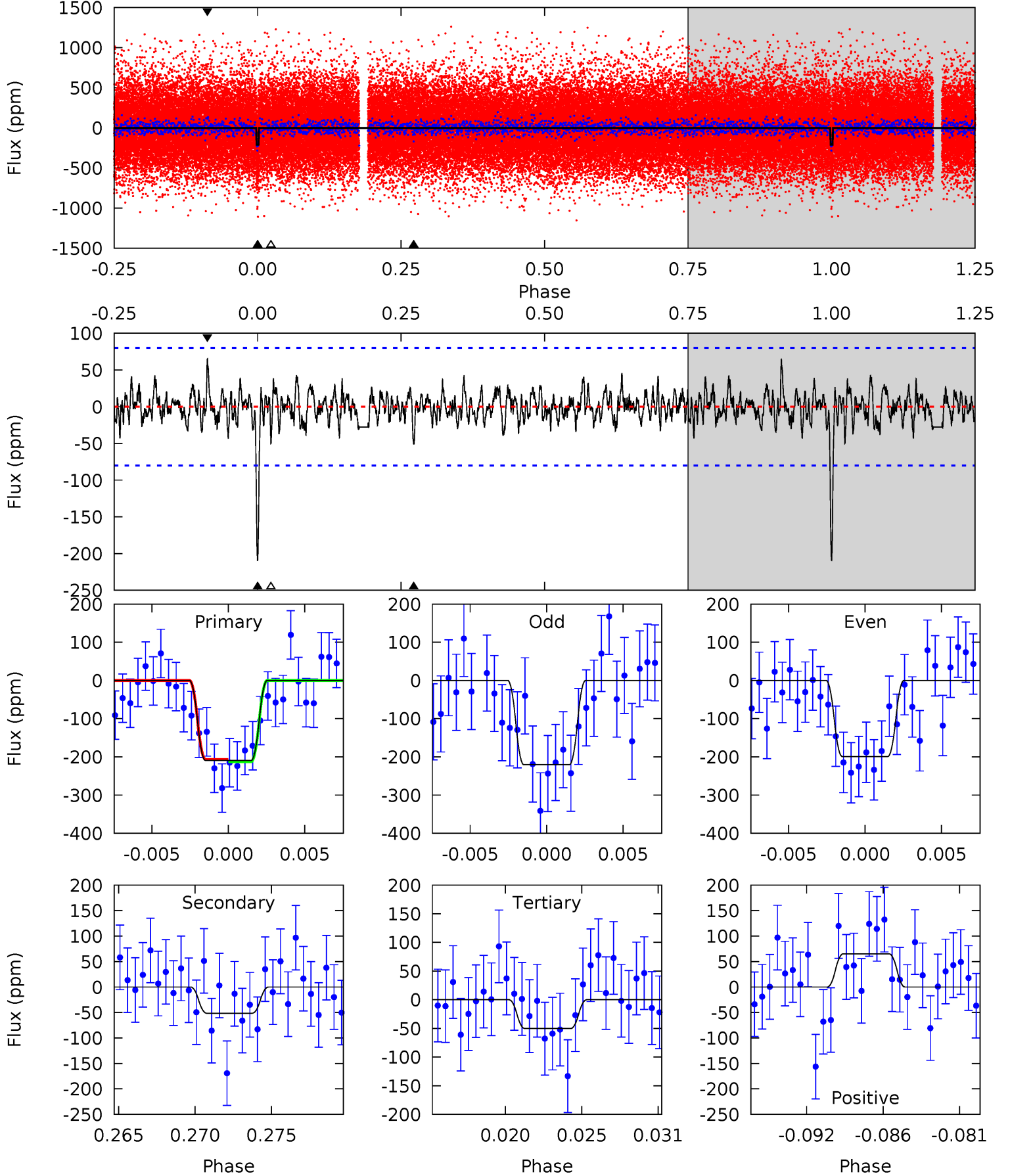




# Alt Model-Shift Uniqueness Test

010799735-02, P = 37.589959 Days, E = 112.828405 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
13.5	3.30	3.23	4.19	5.15	2.80	1.01	10.2	9.27	0.07	-0.89	0.69	0.94	0.24	0.19





### Stellar Parameters For KIC 010799735

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6147^{+184}_{-220}$	$4.463^{+0.058}_{-0.217}$	$-0.120^{+0.250}_{-0.350}$	$1.003^{+0.341}_{-0.114}$	$1.064^{+0.151}_{-0.135}$	$1.485^{+0.454}_{-0.821}$
	+3%/-4%	+1%/-5%	+208%/-292%	+34%/-11%	+14%/-13%	+31%/-55%
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 010799735-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-53 \pm 16$	$1.87^{+0.71}_{-0.65}$	$818^{+67}_{-43}$	$4298^{+828}_{-515}$	$397^{+558}_{-203}$
Alt.	$-51 \pm 16$	$1.80^{+0.71}_{-0.62}$	$821^{+59}_{-47}$	$4339^{+925}_{-512}$	$410^{+632}_{-208}$

$T_{max}$  = 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

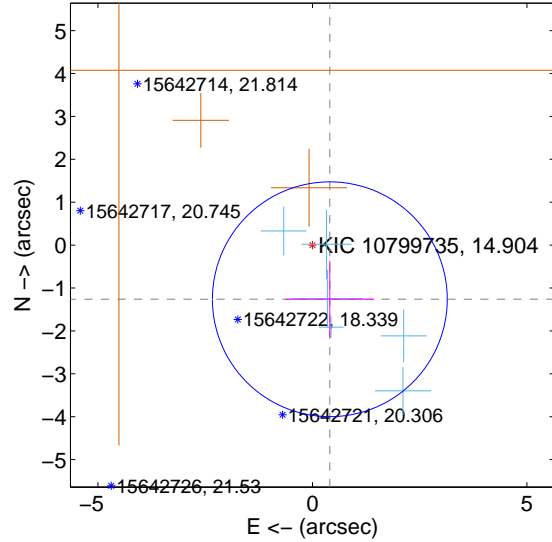
Supplemental centroid analysis for 010799735-02. Kepler magnitude: 14.90. Transit SNR 10.33

There are 6 quarters with good PRF difference image offsets

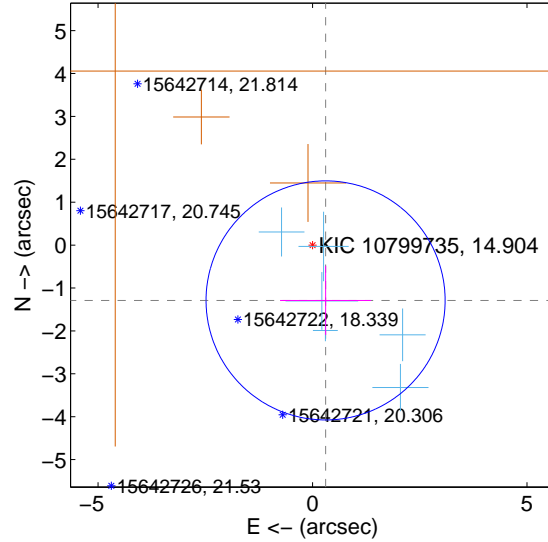
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.326 \pm 0.912$	1.45	$-0.406 \pm 1.032$	$-1.263 \pm 0.899$
PRF-fit source offset from KIC position	$1.325 \pm 0.929$	1.43	$-0.304 \pm 1.061$	$-1.290 \pm 0.805$
photometric centroid source offset	$1.40 \pm 1.10$	1.27	$-1.26 \pm 1.11$	$-0.61 \pm 1.08$

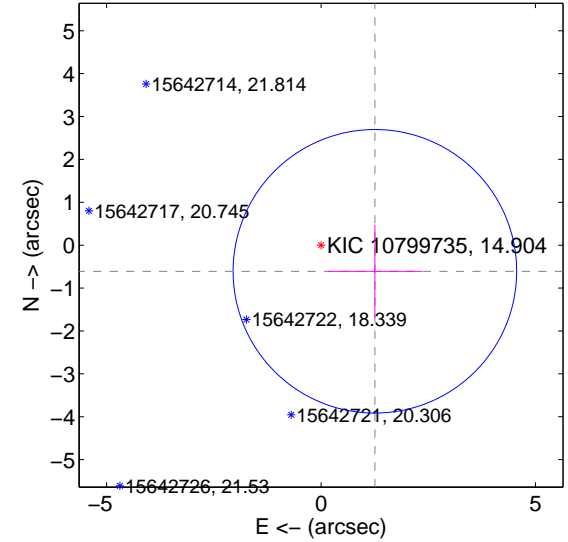
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

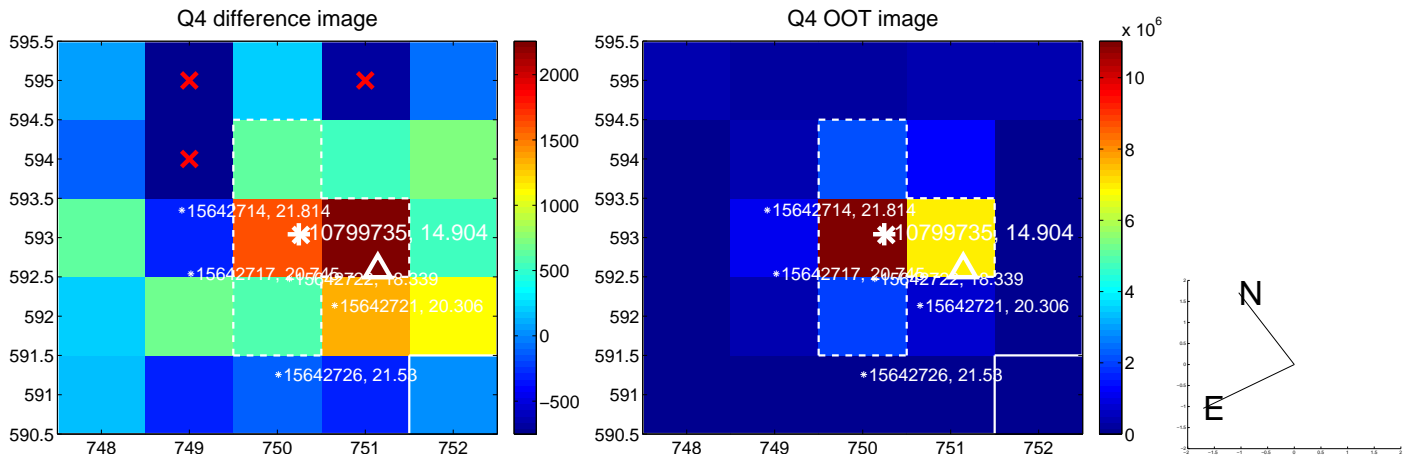
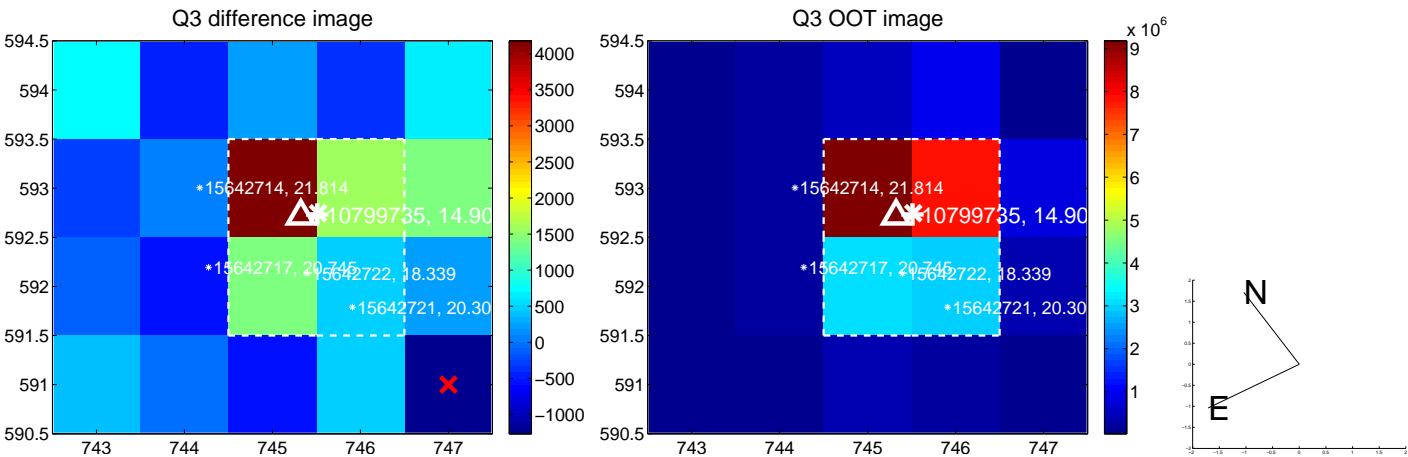
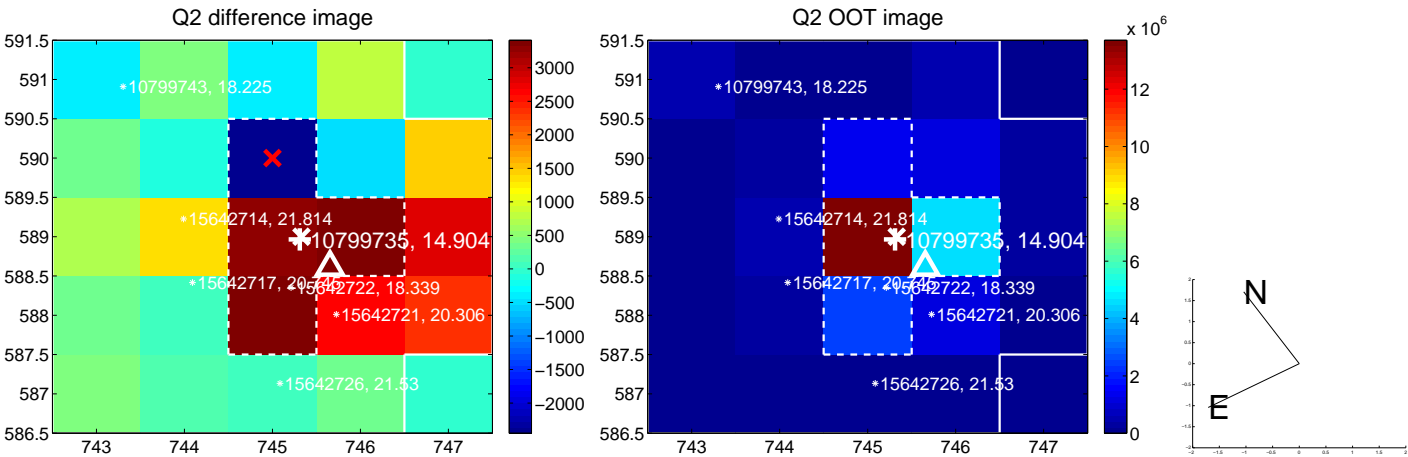
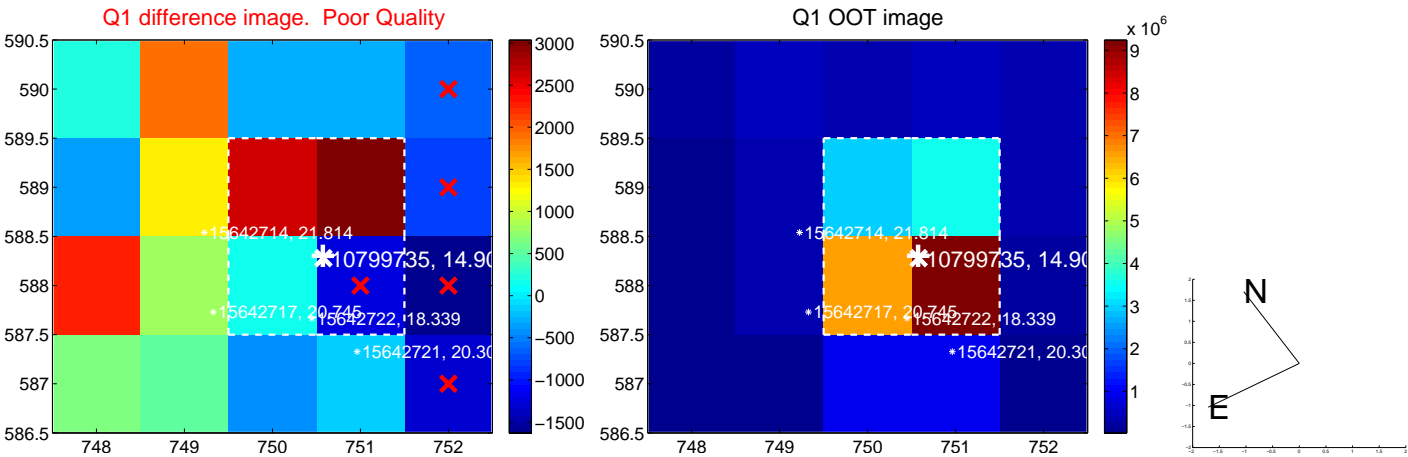


offset from photometric centroids

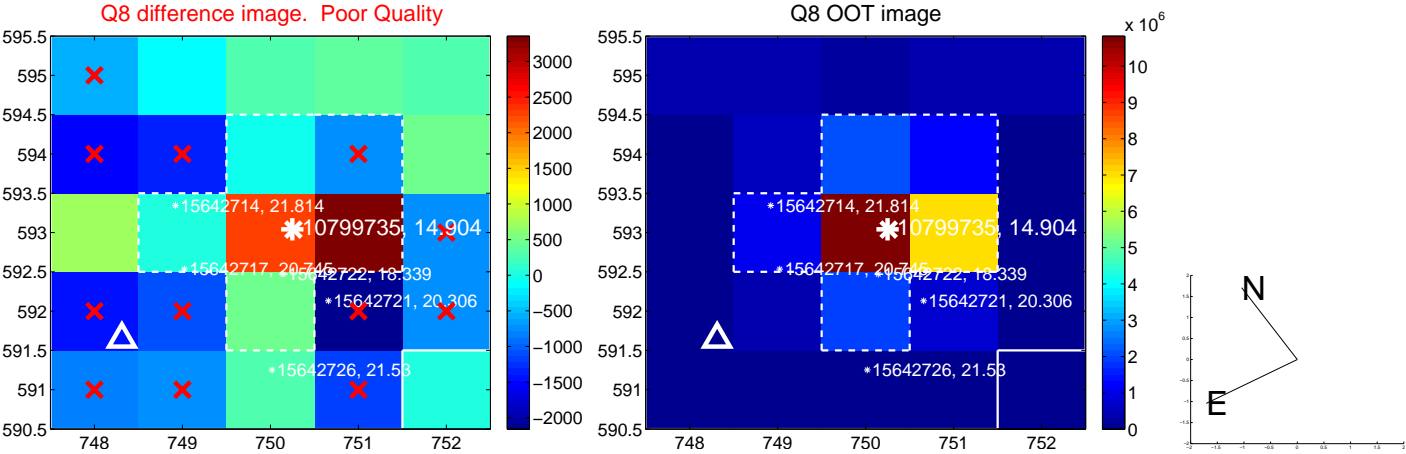
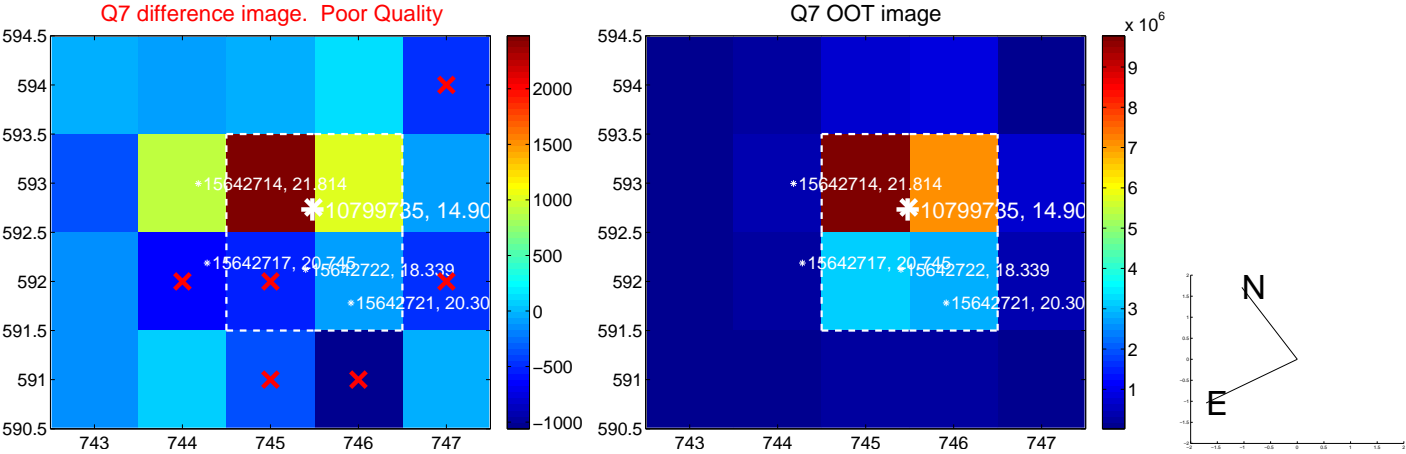
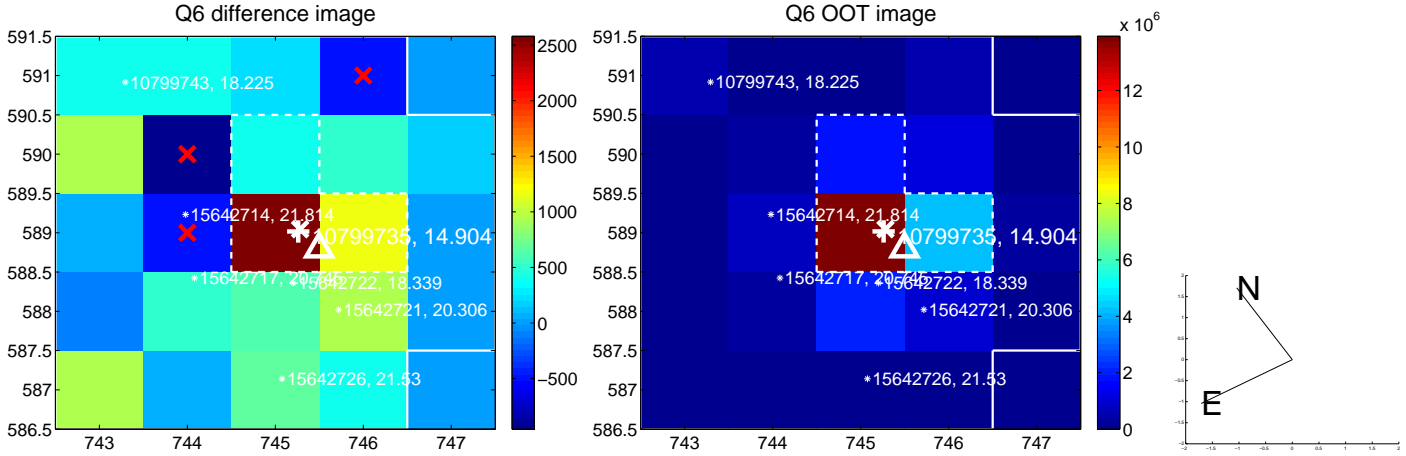
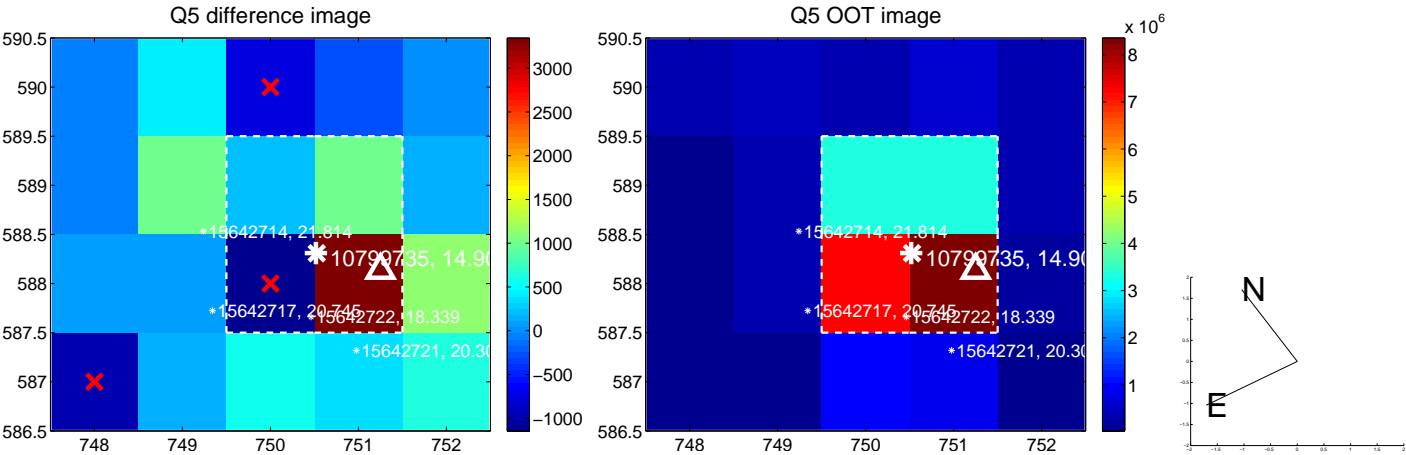


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

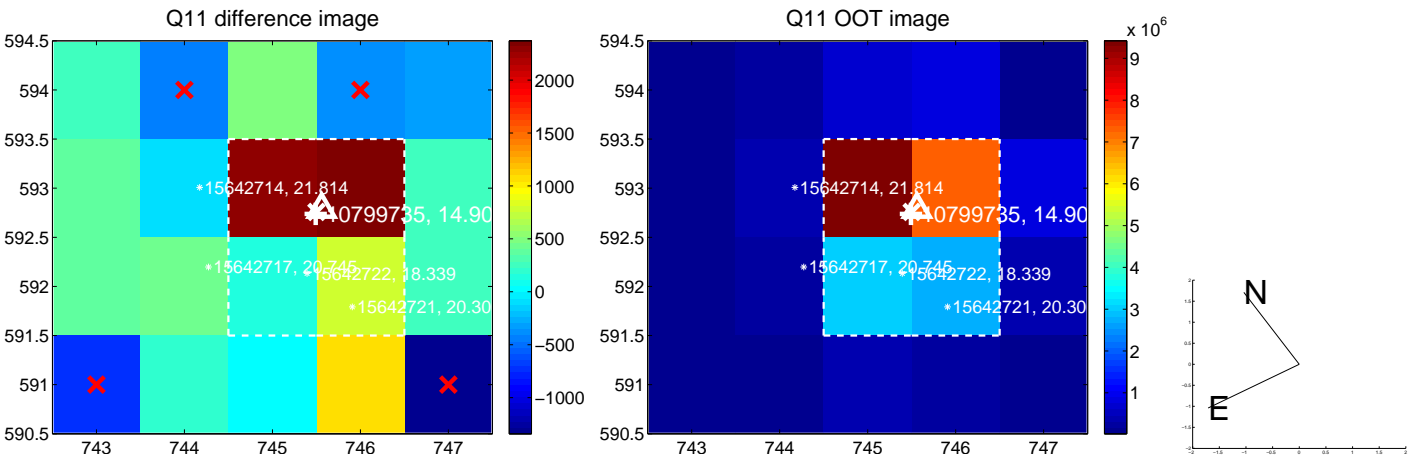
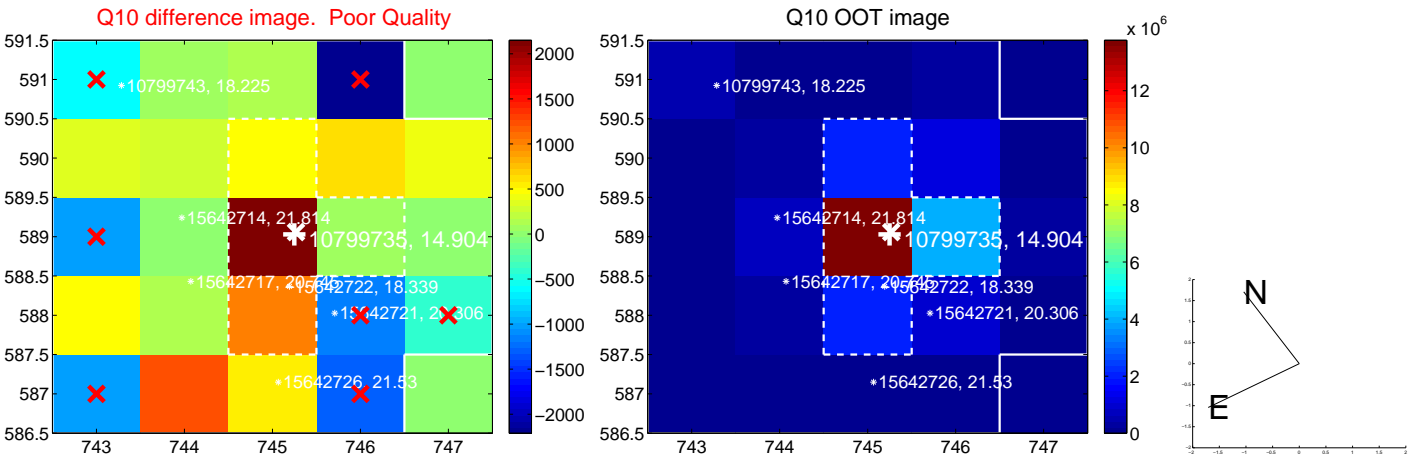
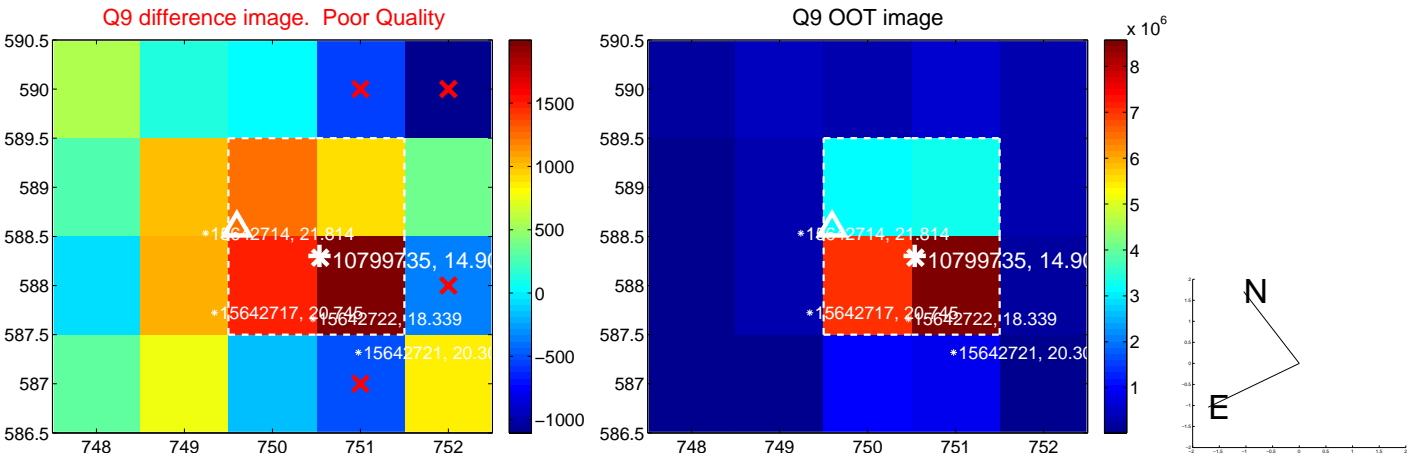
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



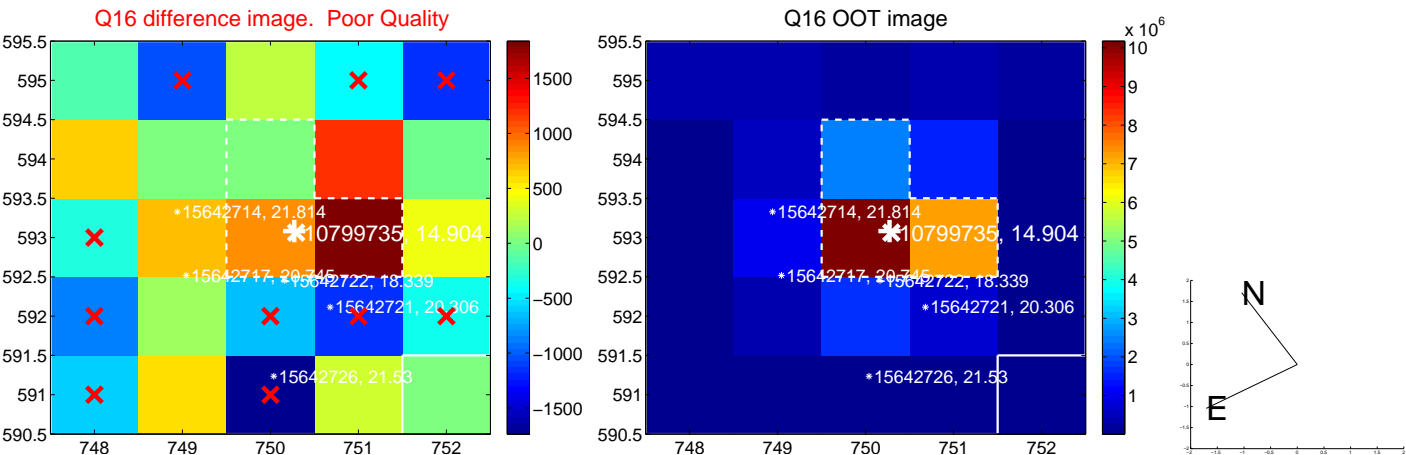
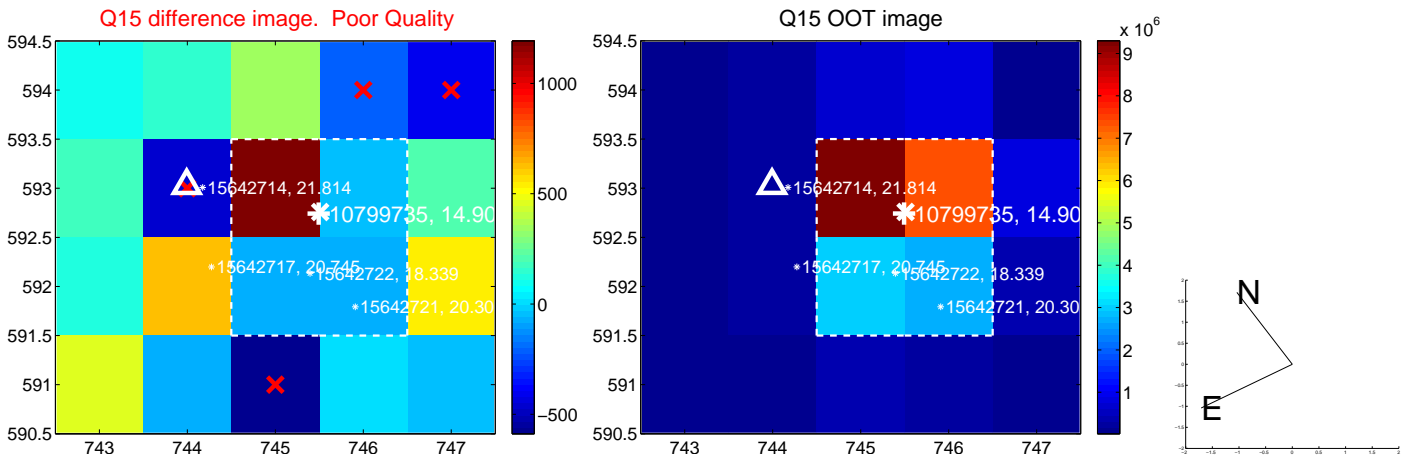
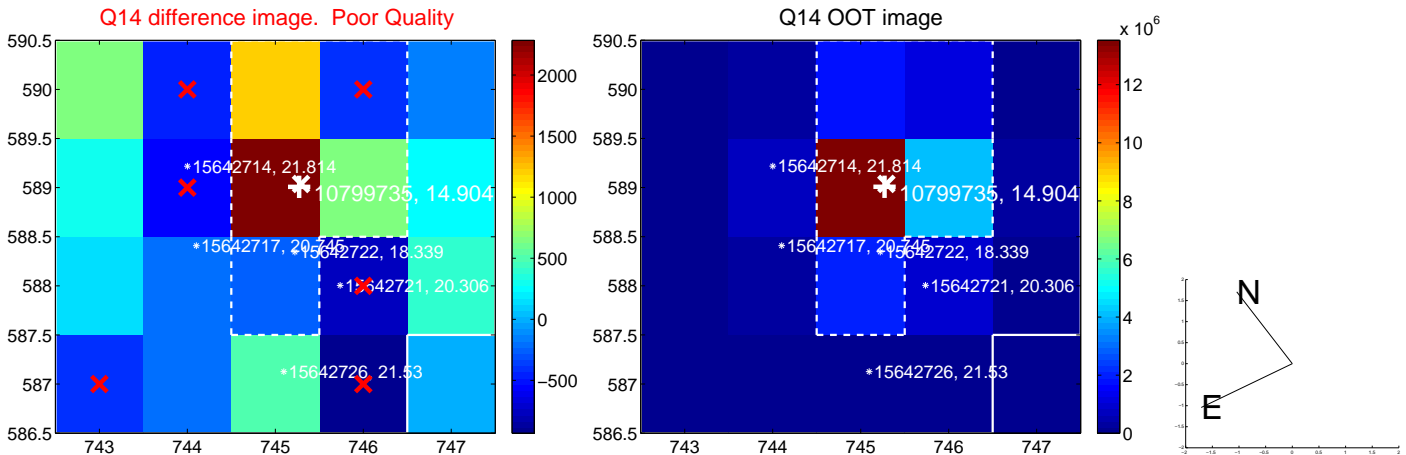
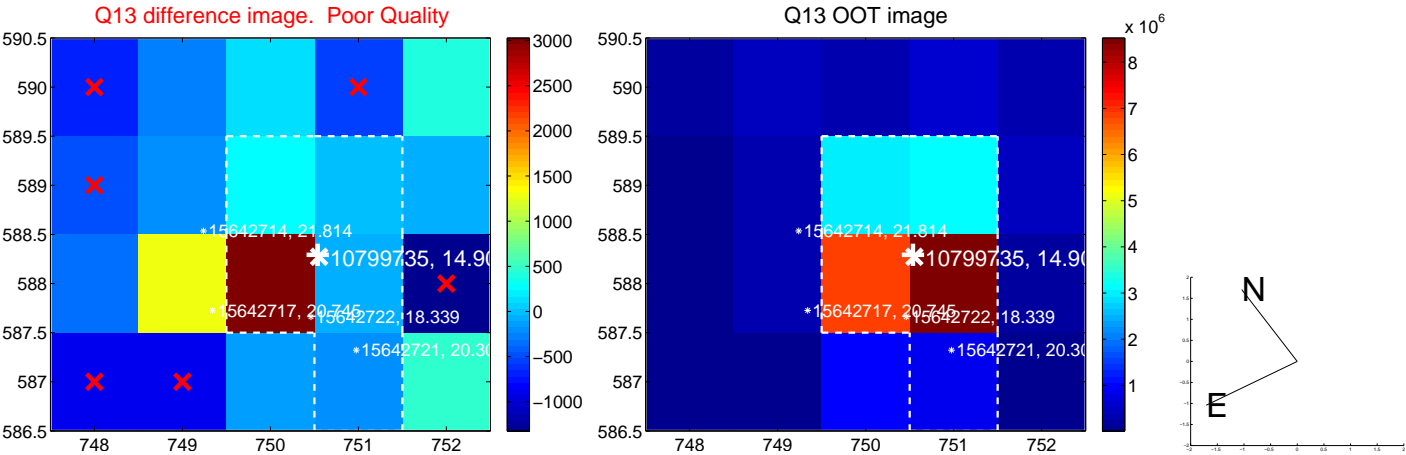
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.





UKIRT Image

Declination

