

# KIC 003447722

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003447722-01	OBS	1198.01	16.088240	139.494339	590.4	6.198	26.2	27.4	1.33	6157	3.87	138.97
003447722-02	OBS	1198.03	35.675718	145.009464	481.6	7.260	15.5	16.4	1.33	6157	3.06	48.06
003447722-03	OBS	1198.02	10.300749	132.435188	272.3	5.434	13.8	14.8	1.33	6157	2.69	251.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003447722-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
003447722-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003447722-03	OBS	PC	0.99	0	0	0	0	NO_COMMENT

**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.

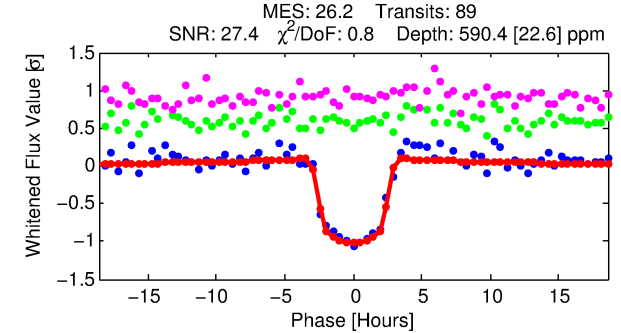
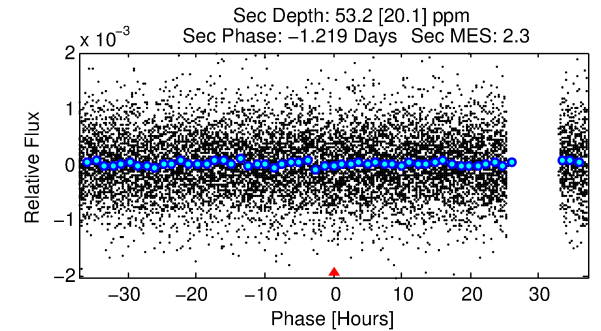
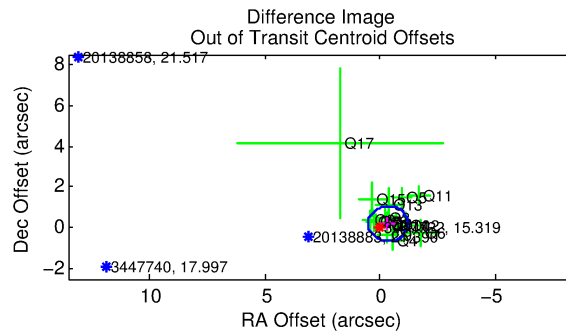
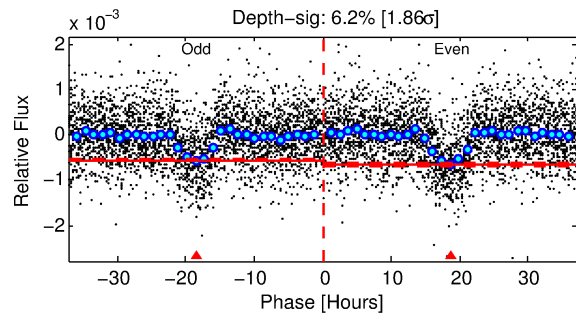
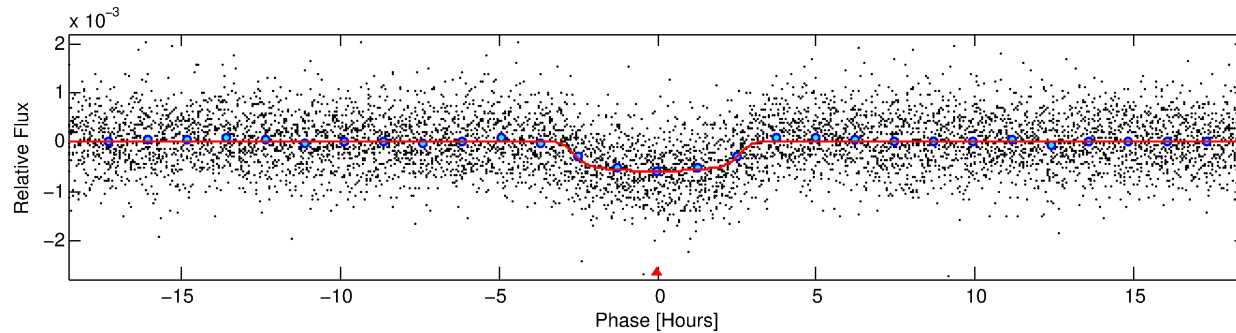
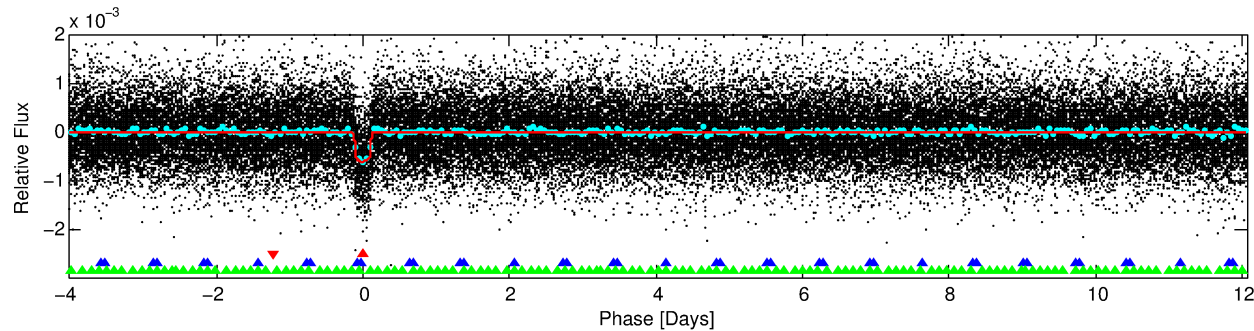
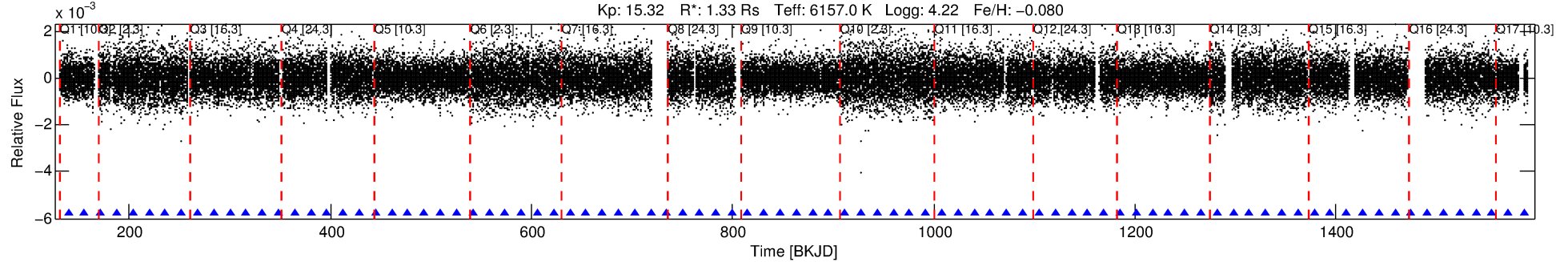
Ephemeris Match Information For 003447722-01

No Significant Match Found

# DV One-Page Summary

KIC: 3447722 Candidate: 1 of 3 Period: 16.088 d  
 KOI: K01198.01 Name: Kepler-275c Corr: 0.956

Kp: 15.32 R\*: 1.33 Rs Teff: 6157.0 K Logg: 4.22 Fe/H: -0.080



## DV Fit Results:

Period = 16.08824 [0.00009] d  
 Epoch = 139.4943 [0.0046] BKJD  
 Rp/R\* = 0.0267 [0.0011]  
 a/R\* = 9.12 [1.63]  
 b = 0.92 [0.03]  
 Seff = 138.97 [37.14]  
 Teq = 876 [58] K  
 Rp = 3.87 [0.68] Re  
 a = 0.1280 [0.0206] AU  
 Ag = 32.00 [14.81] [2.09σ]  
 Teffp = 3220 [317] K [7.26σ]

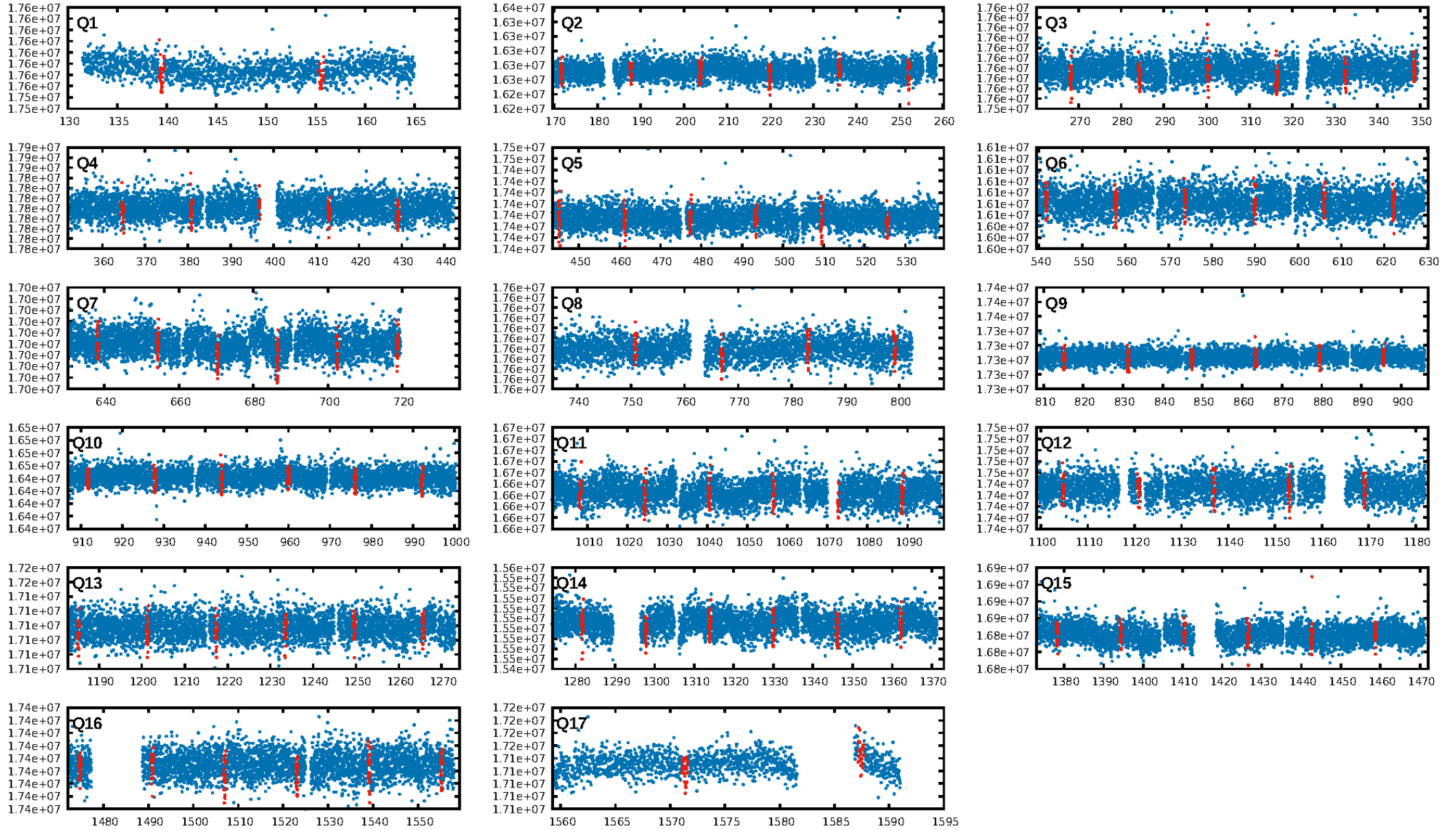
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.85σ]  
 LongPeriod-sig: 100.0% [49.25σ]  
 ModelChiSquare2-sig: 83.2%  
 ModelChiSquareGof-sig: 100.0%  
 Bootstrap-pfa: 5.83e-148  
 RollingBand-fgt: 1.00 [85/85]  
 GhostDiagnostic-chr: 1.343  
 Centroid-sig: 66.9%  
 Centroid-so: 0.466 arcsec [0.97σ]  
 OotOffset-rm: 0.375 arcsec [1.31σ]  
 KicOffset-rm: 0.389 arcsec [1.37σ]  
 OotOffset-st: 4/4/4/5 [17]  
 KicOffset-st: 4/4/4/5 [17]  
 DiffImageQuality-fgm: 0.88 [15/17]  
 DiffImageOverlap-fno: 1.00 [17/17]

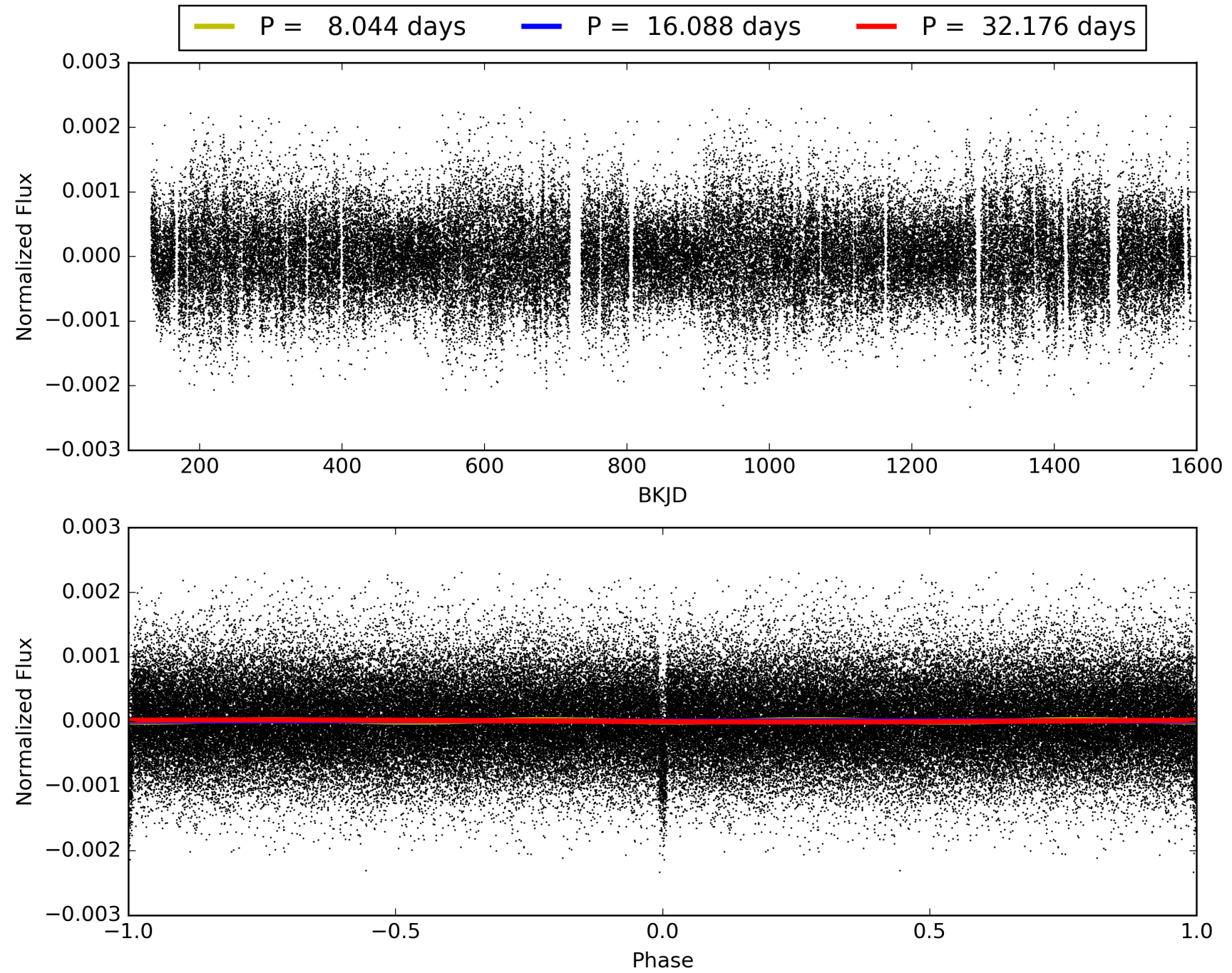
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:05:36 Z

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

# TCE 003447722-01, PDC Light Curves



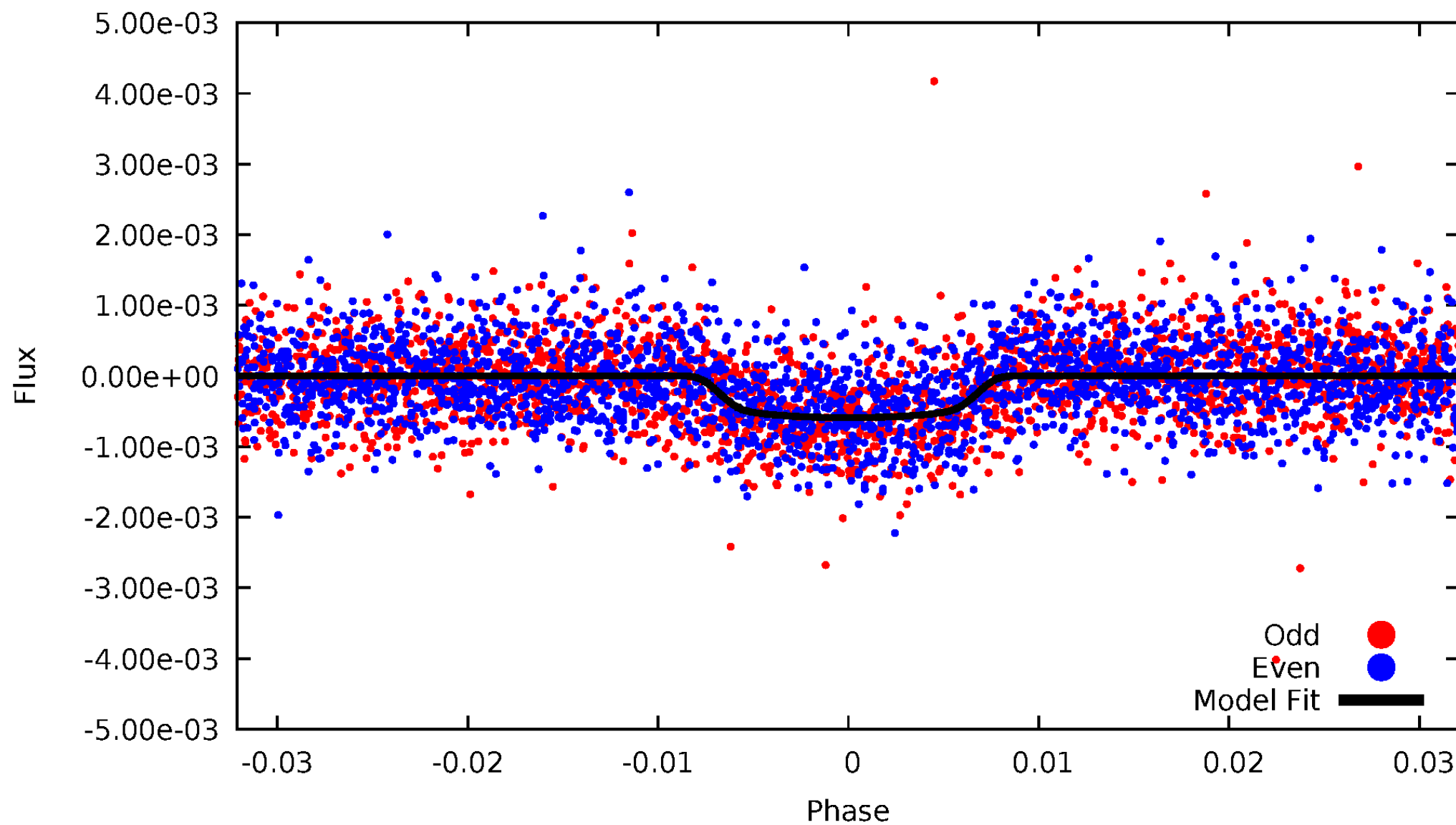
TCE 003447722-01





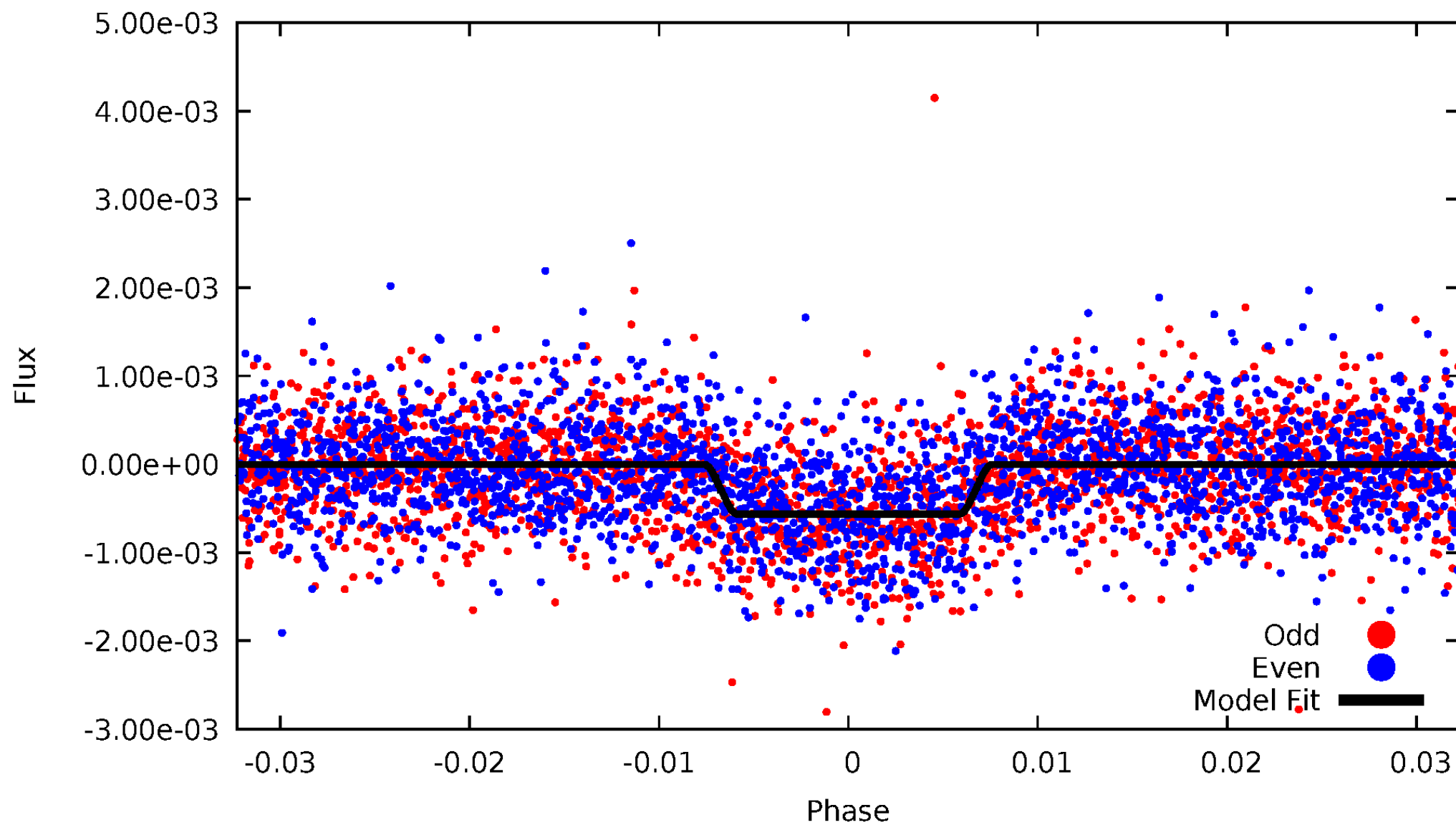
# DV Odd/Even

TCE 003447722-01

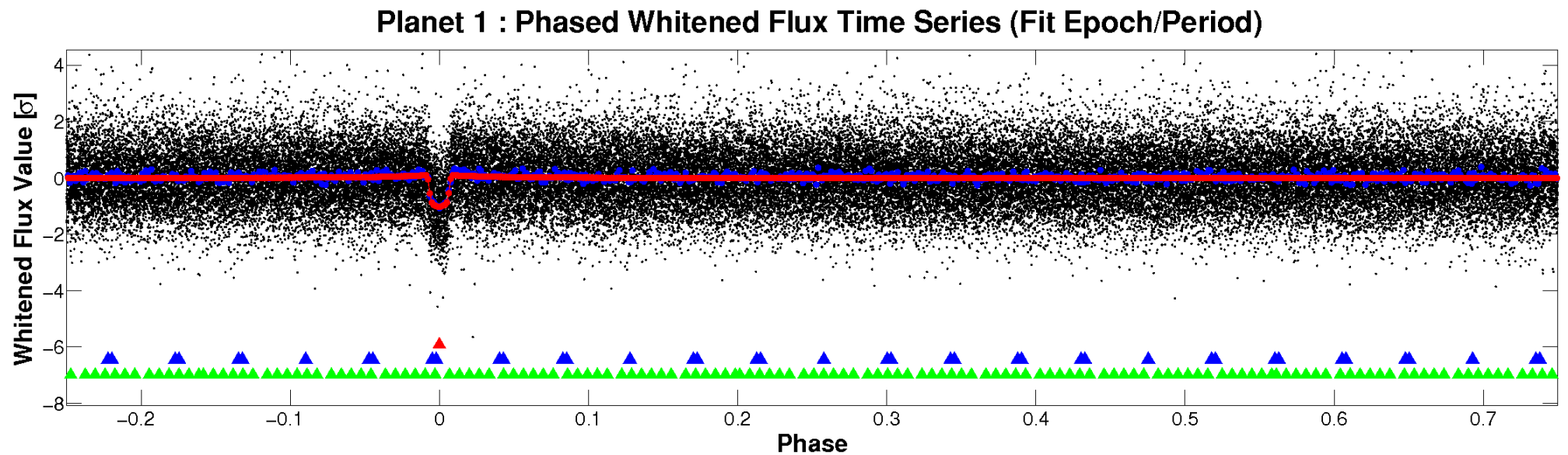
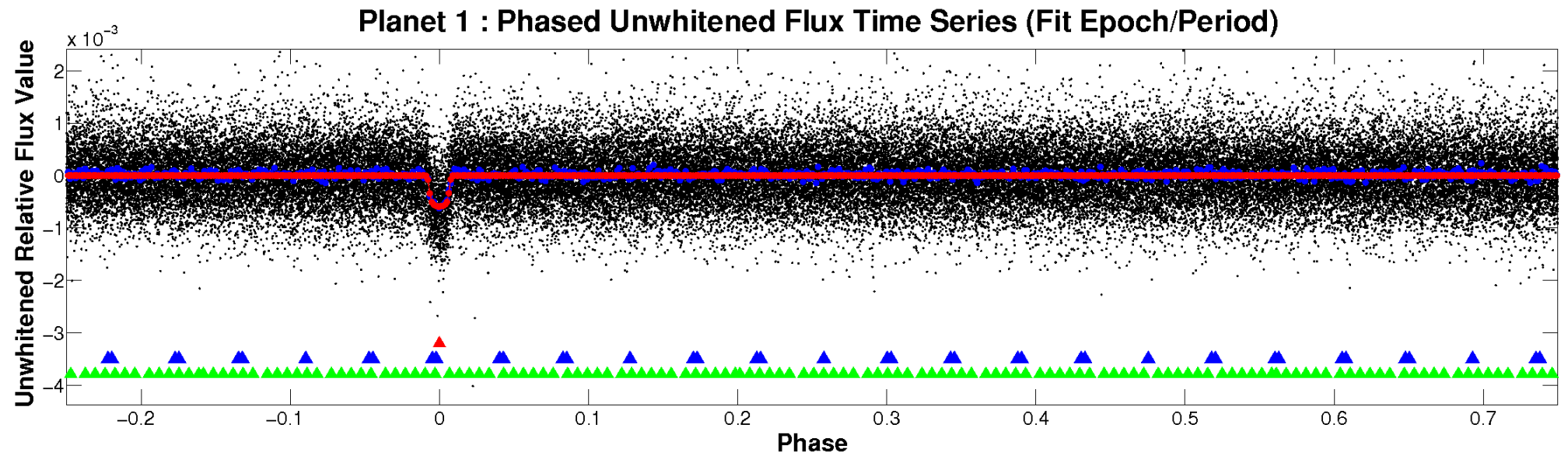


# ALT Odd/Even

TCE 003447722-01

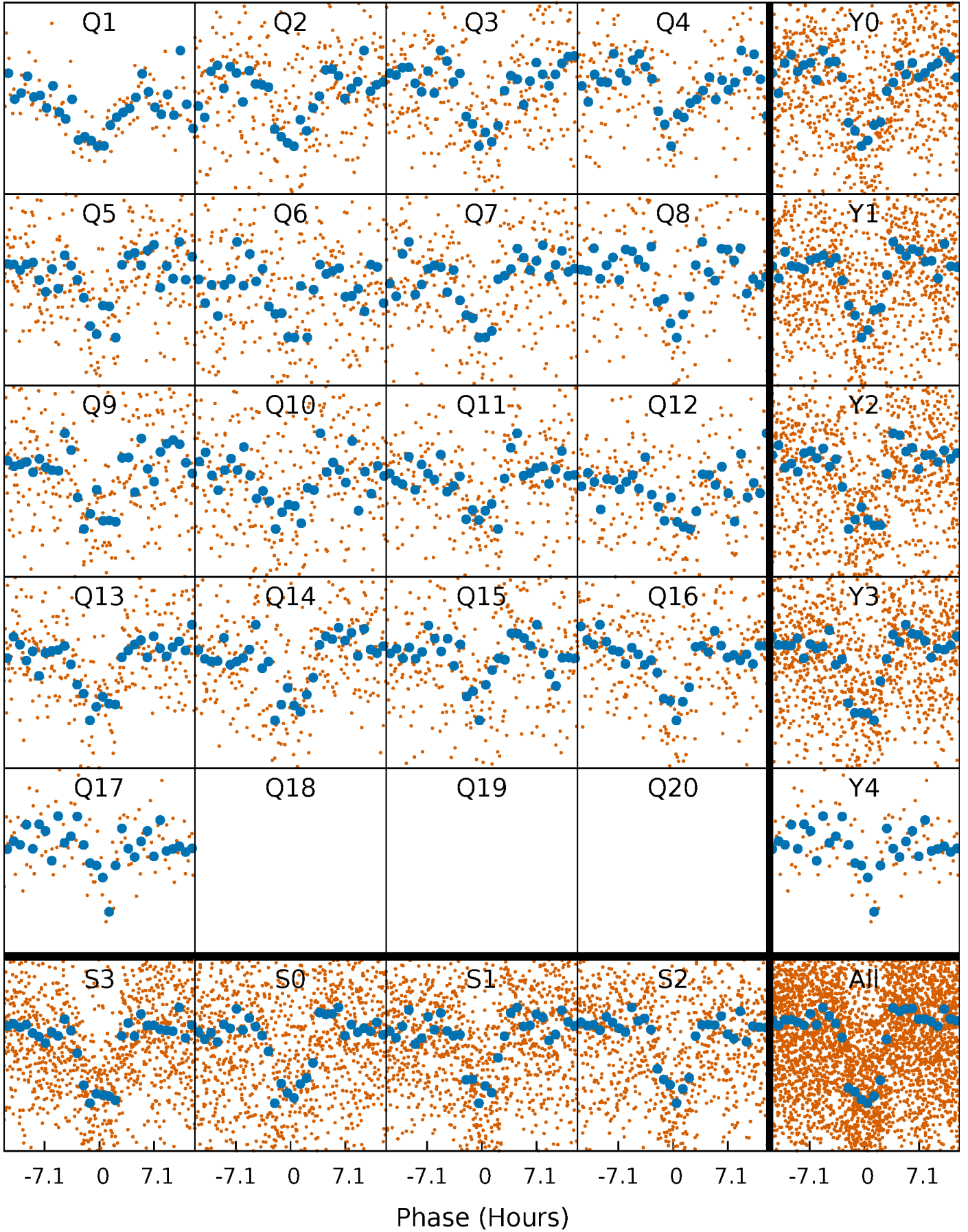


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

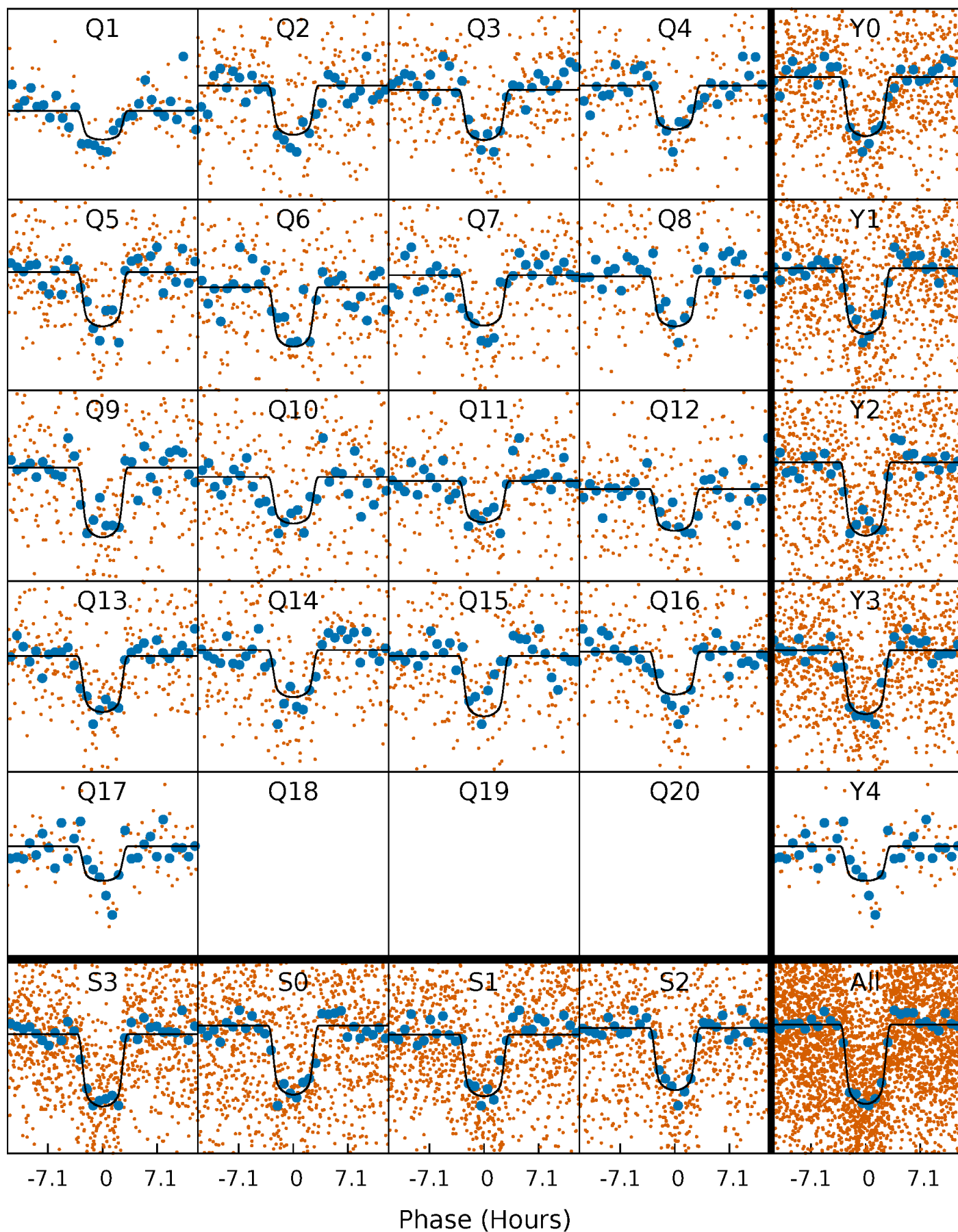
TCE 003447722-01 P= 16.088240 Days  $T_0=139.494338$  (BKJD)





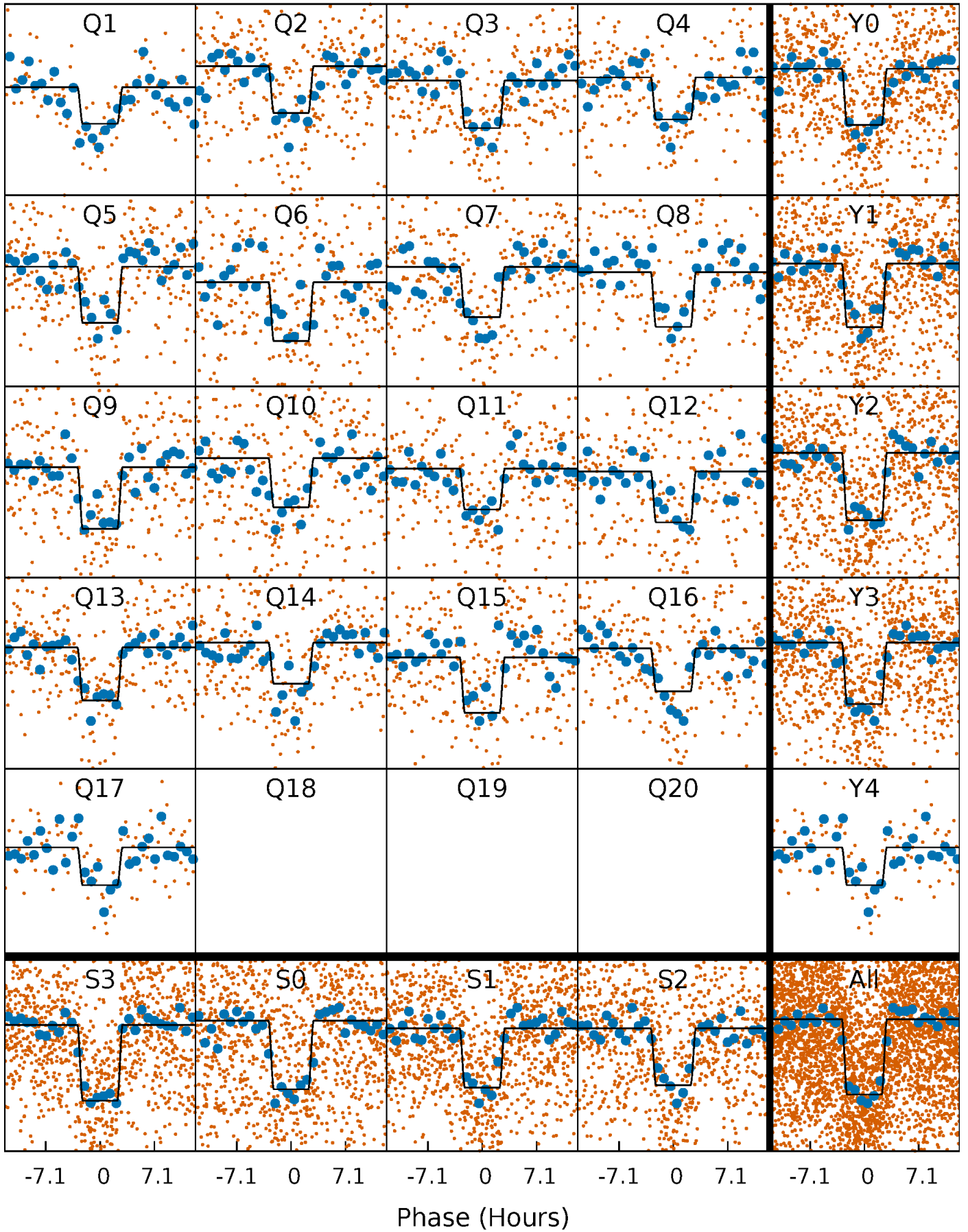
# DV Quarter-Phased Transit Curves

TCE 003447722-01 P= 16.088240 Days  $T_0=139.494338$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

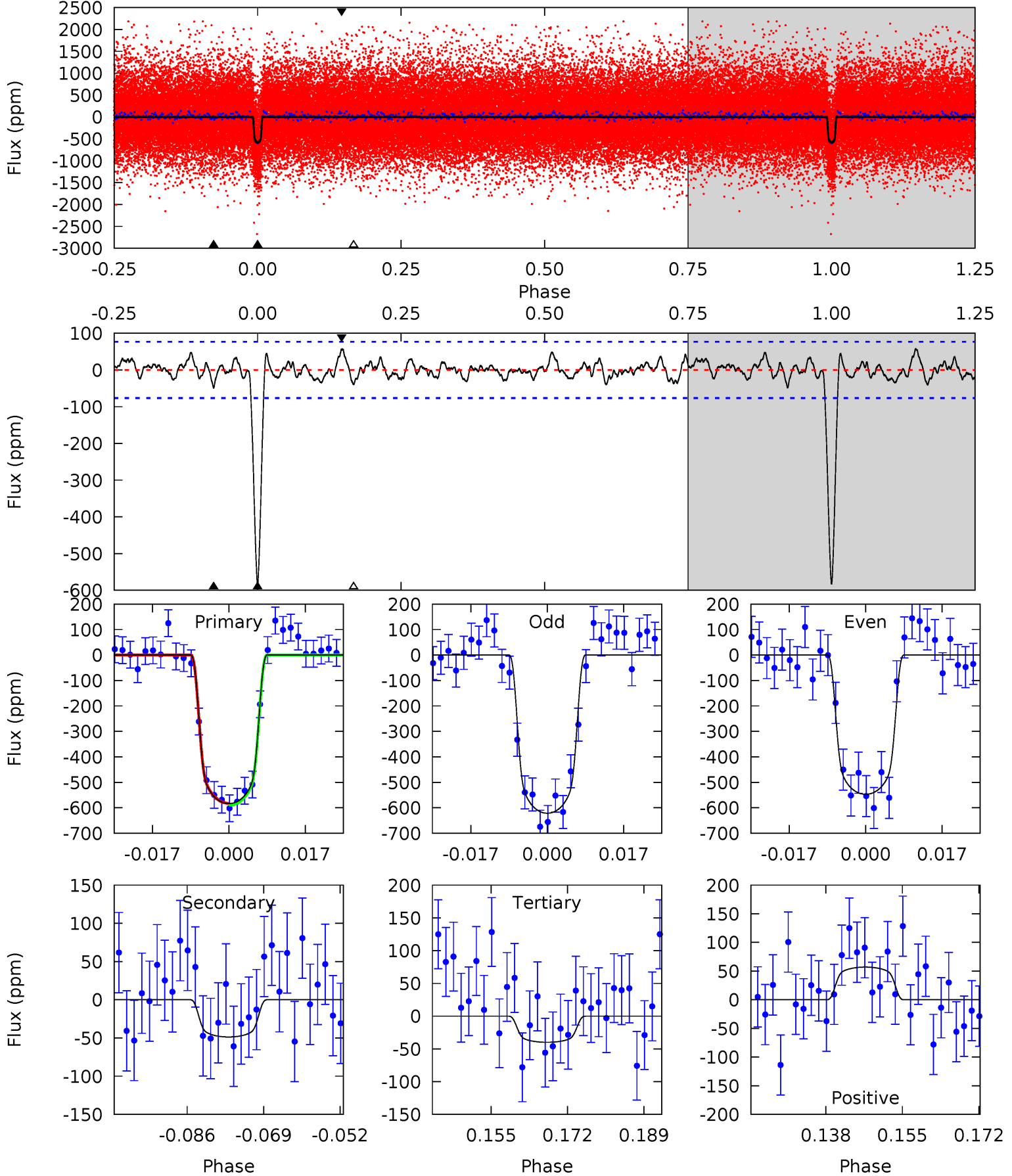
TCE 003447722-01 P= 16.088240 Days  $T_0=139.493651$  (BKJD)



# DV Model-Shift Uniqueness Test

003447722-01, P = 16.088240 Days, E = 123.406098 Days

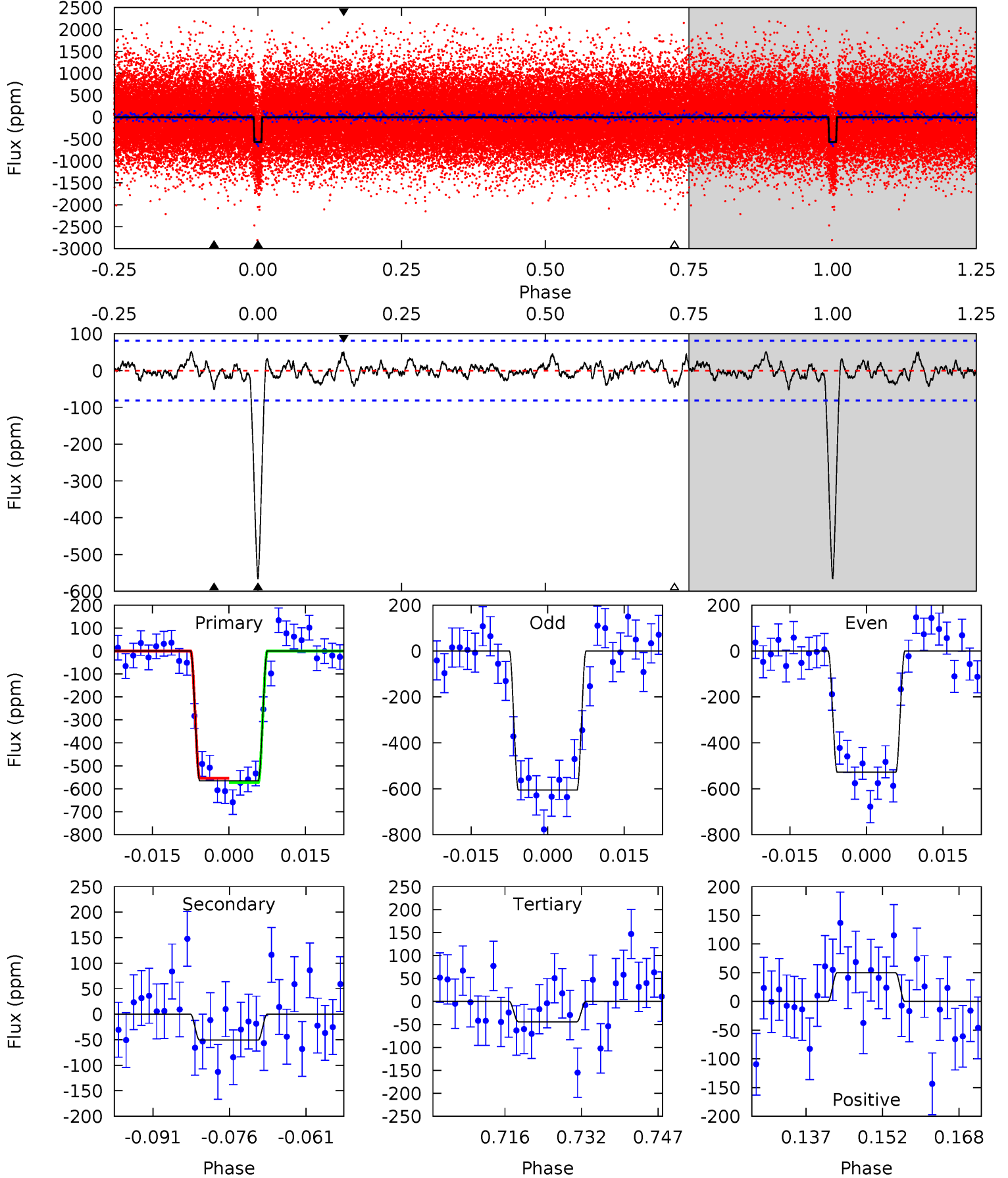
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.4	3.13	2.56	3.66	4.92	2.38	1.14	34.9	33.8	0.57	-0.53	2.39	1.02	0.09	0.23



# Alt Model-Shift Uniqueness Test

003447722-01, P = 16.088240 Days, E = 123.405411 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
34.4	3.08	2.69	3.04	4.94	2.43	0.99	31.7	31.3	0.39	0.04	2.38	1.00	0.08	0.55





### Stellar Parameters For KIC 003447722

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6157^{+123}_{-123}$	$4.224^{+0.149}_{-0.108}$	$-0.080^{+0.150}_{-0.150}$	$1.330^{+0.225}_{-0.225}$	$1.080^{+0.109}_{-0.081}$	$0.647^{+0.440}_{-0.224}$
	+2%/-2%	+4%/-3%	+188%/-188%	+17%/-17%	+10%/-8%	+68%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003447722-01 / KOI 1198.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-49 \pm 16$	$3.85^{+0.41}_{-0.41}$	$1216^{+59}_{-61}$	$3592^{+180}_{-225}$	$30^{+13}_{-10}$
Alt.	$-51 \pm 16$	$3.45^{+0.38}_{-0.42}$	$1221^{+62}_{-71}$	$3758^{+208}_{-263}$	$39^{+16}_{-15}$

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

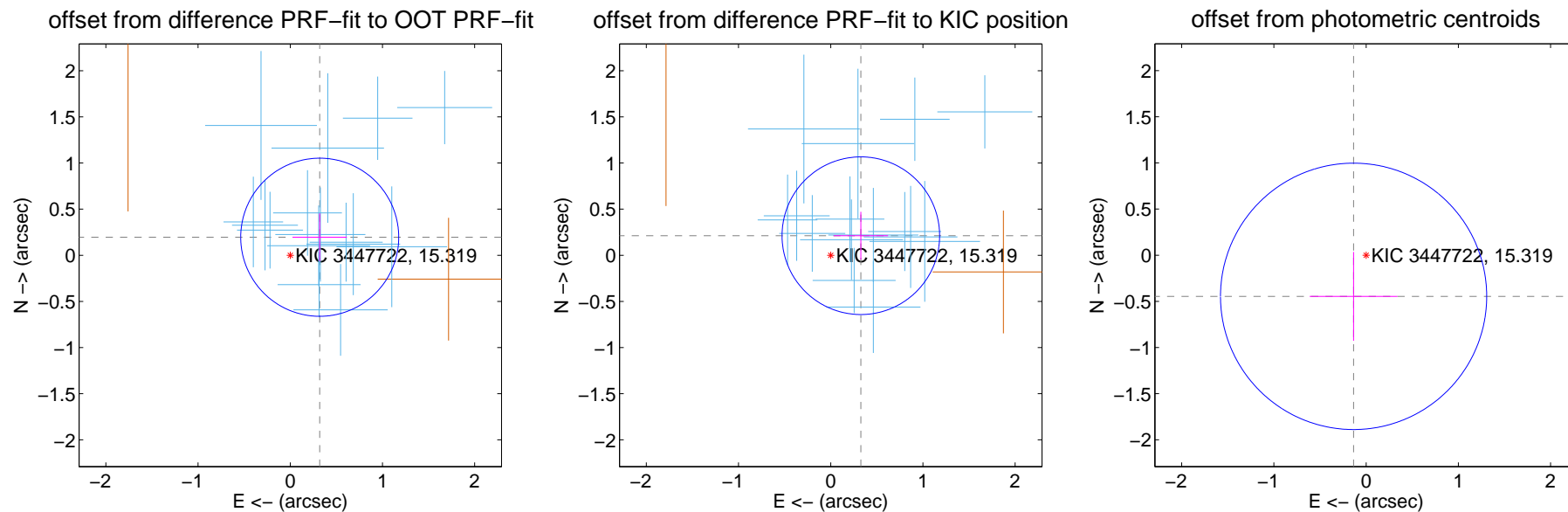
## DV Centroid Data

Supplemental centroid analysis for 003447722-01. Kepler magnitude: 15.32. Transit SNR 27.39

There are 15 quarters with good PRF difference image offsets

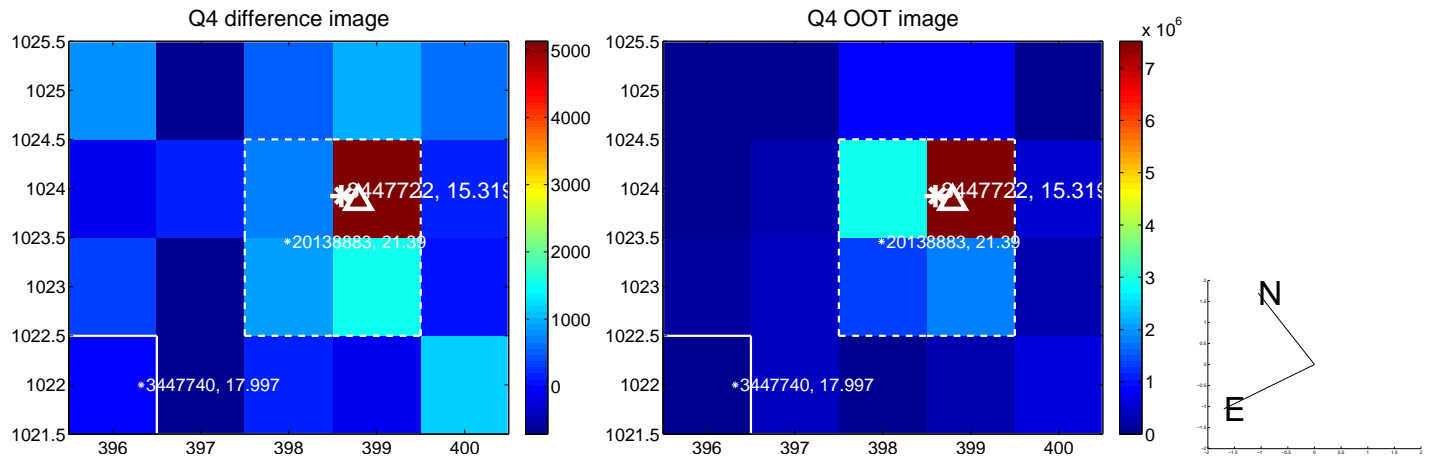
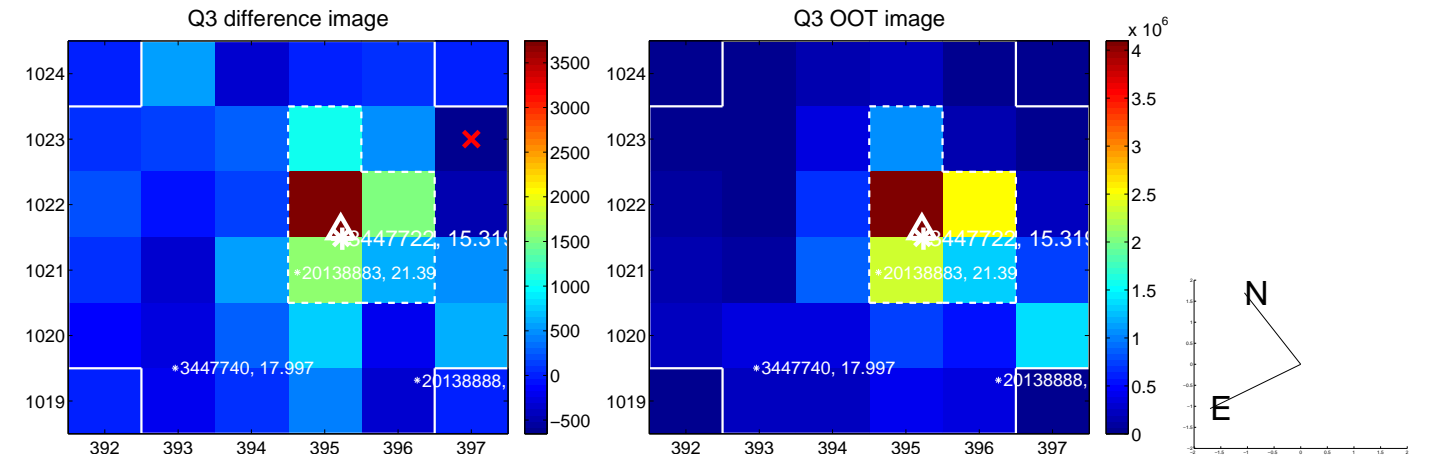
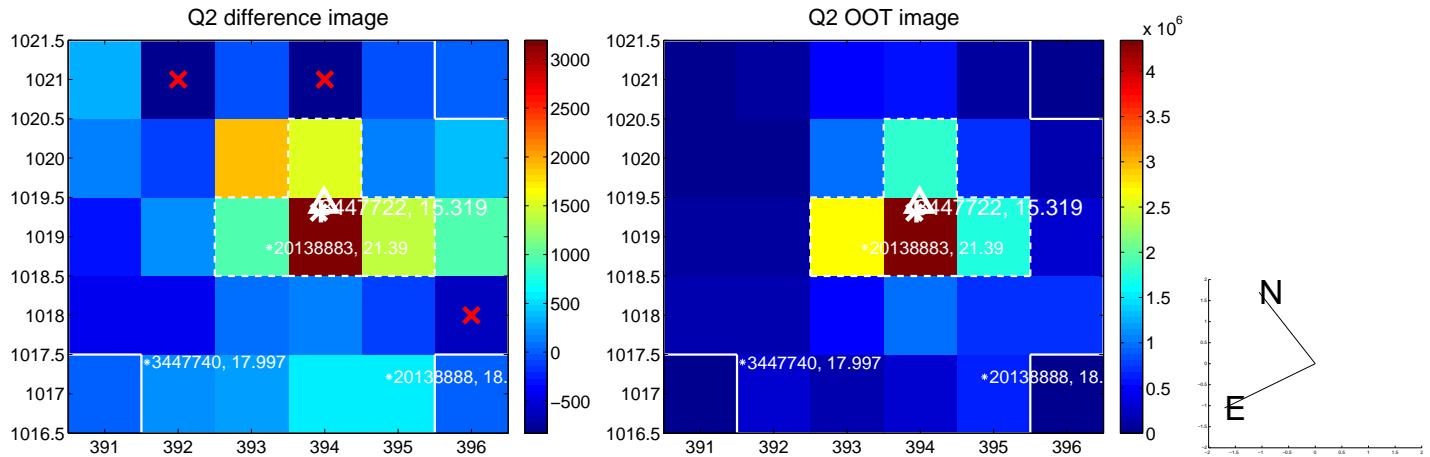
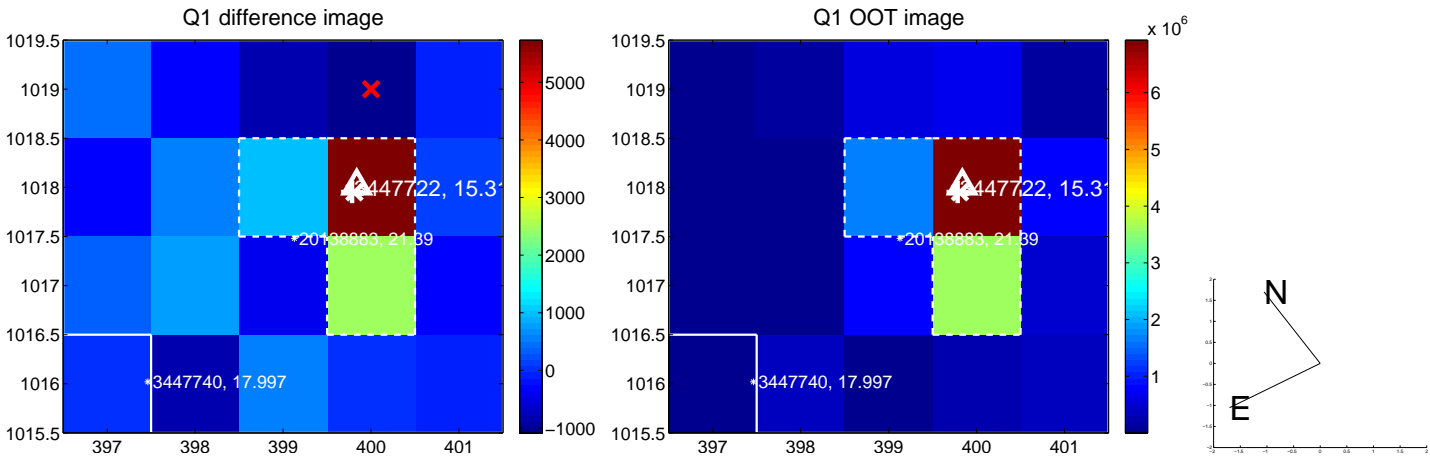
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.375 \pm 0.286$	1.31	$-0.319 \pm 0.295$	$0.196 \pm 0.259$
PRF-fit source offset from KIC position	$0.389 \pm 0.285$	1.37	$-0.327 \pm 0.295$	$0.212 \pm 0.259$
photometric centroid source offset	$0.47 \pm 0.48$	0.97	$0.14 \pm 0.48$	$-0.45 \pm 0.48$

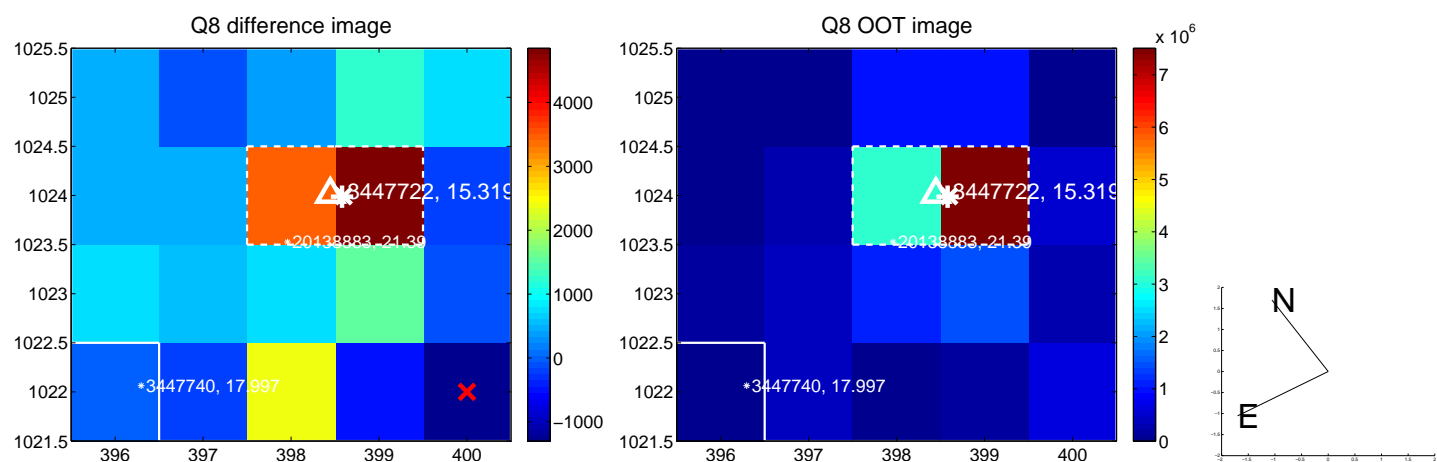
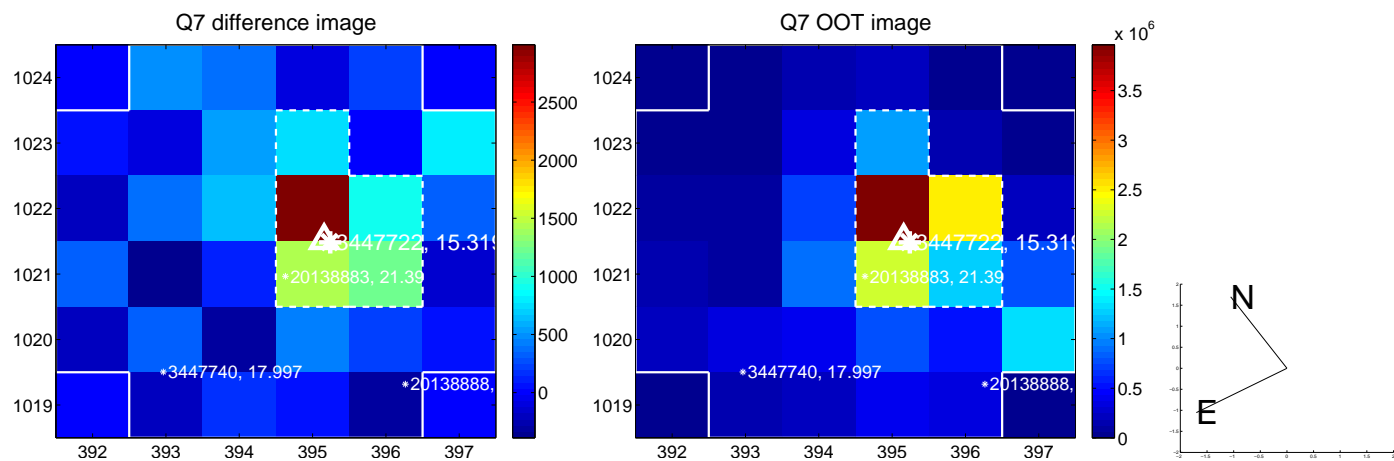
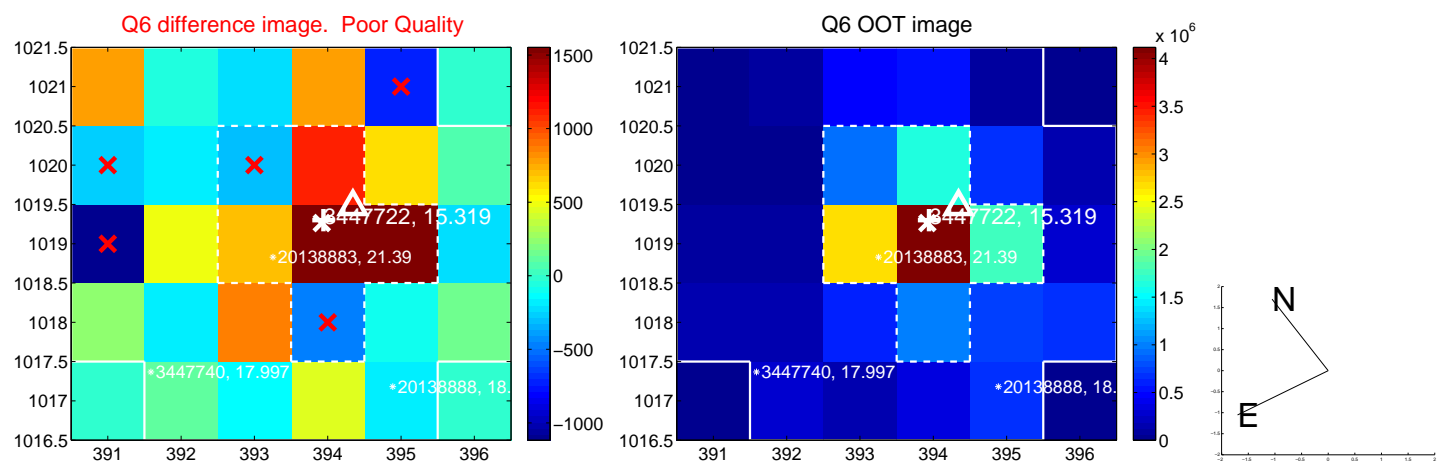
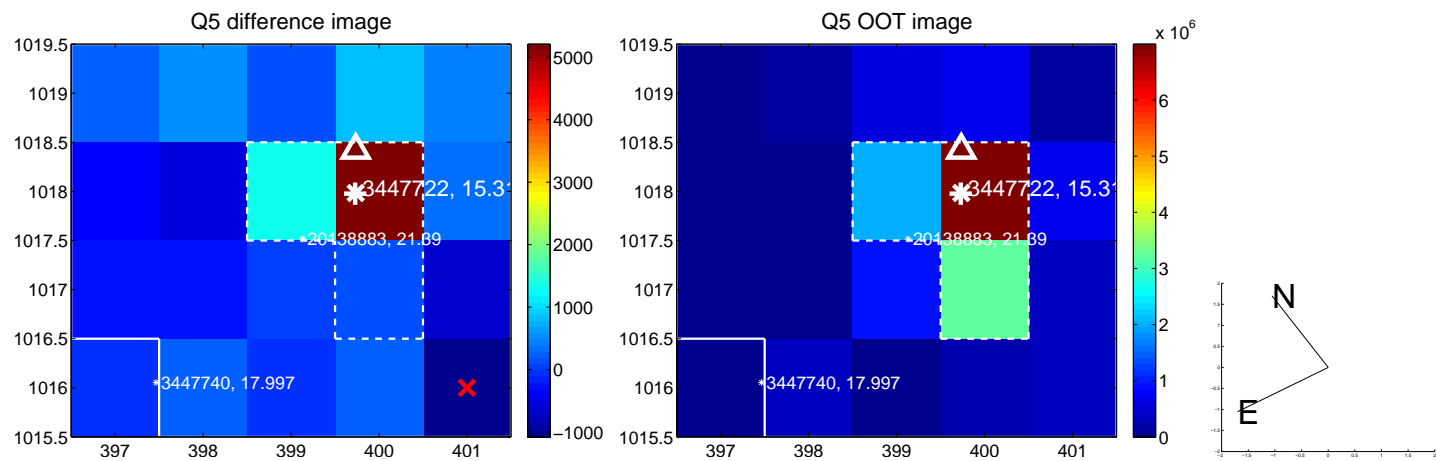


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

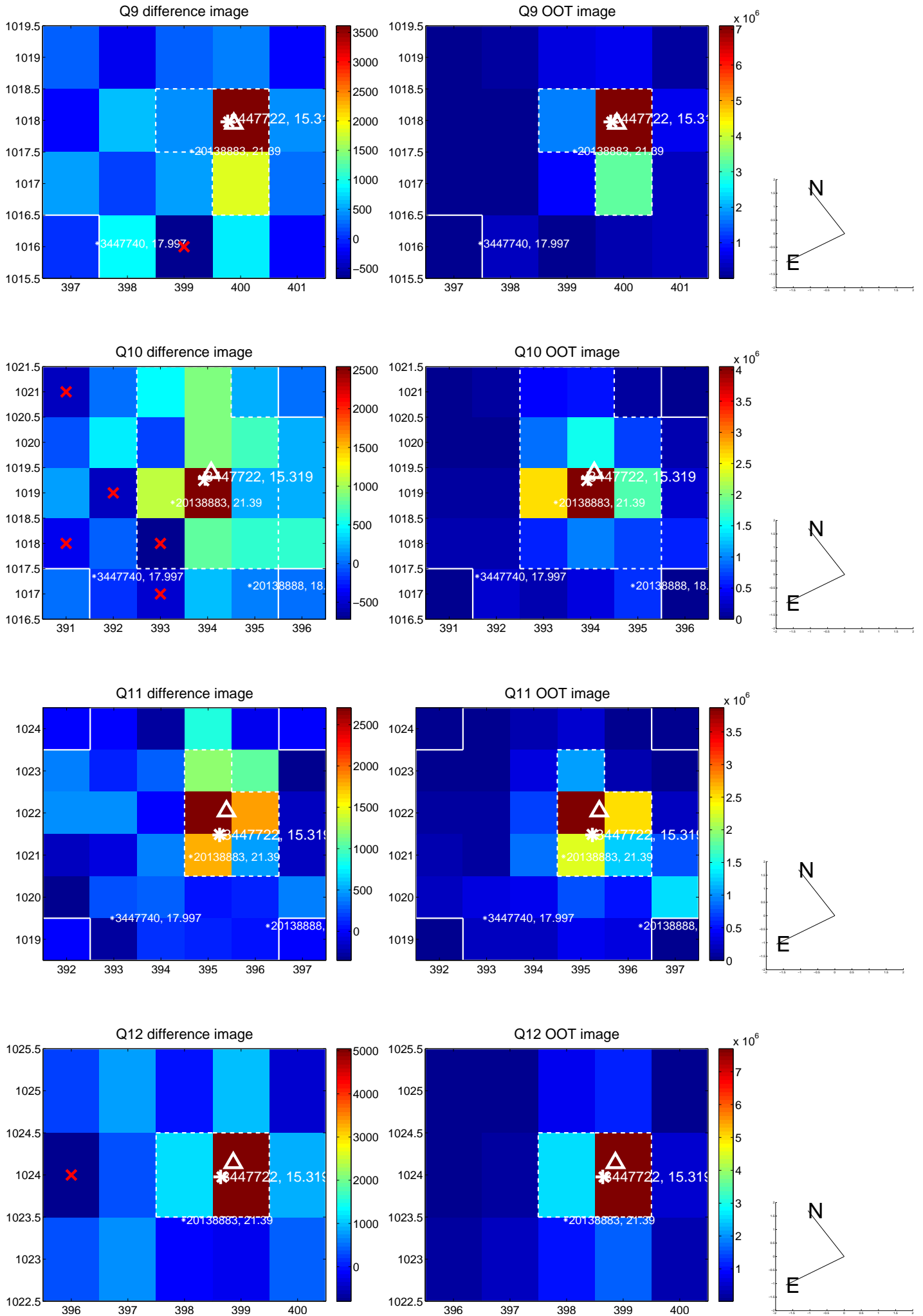


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

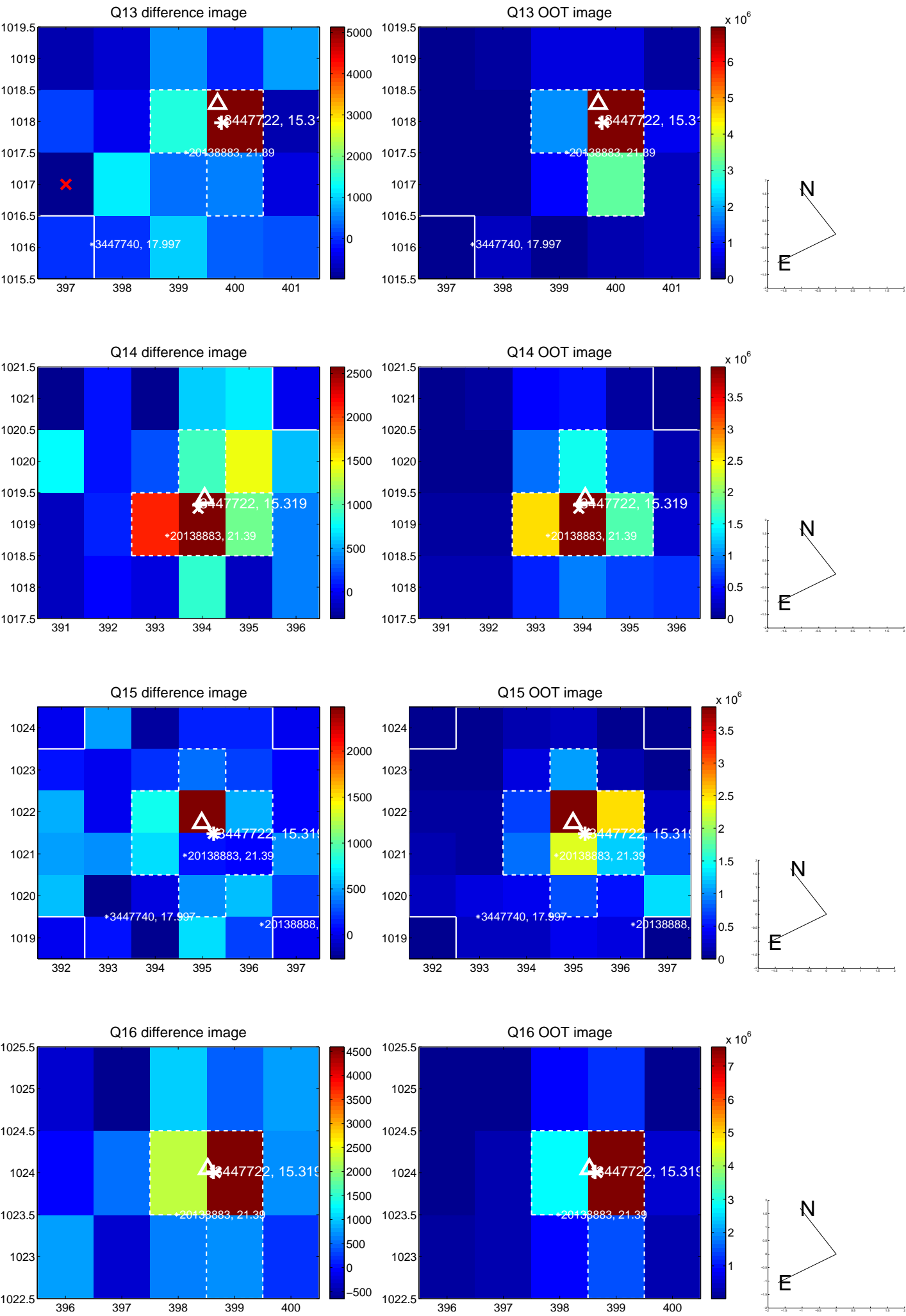




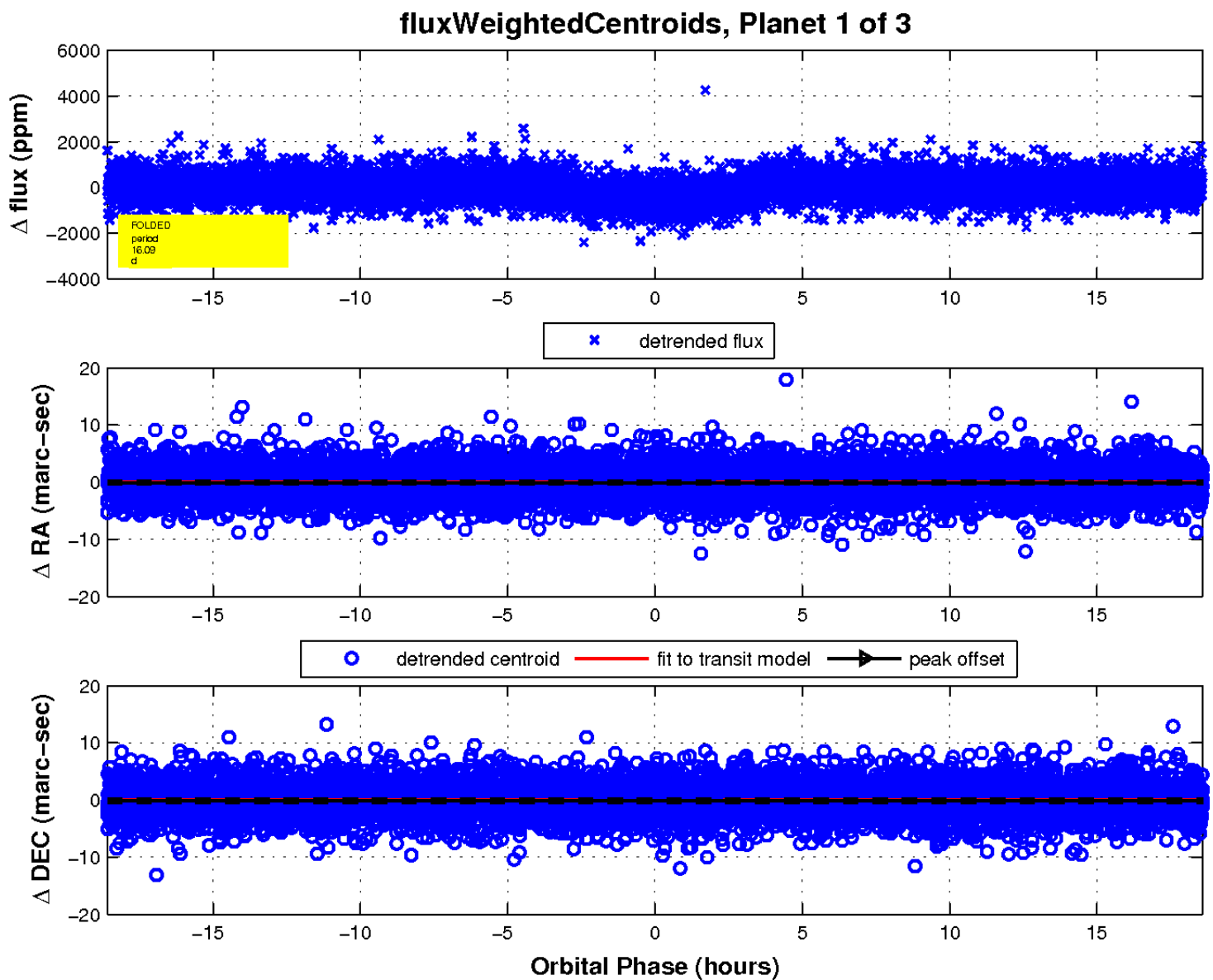
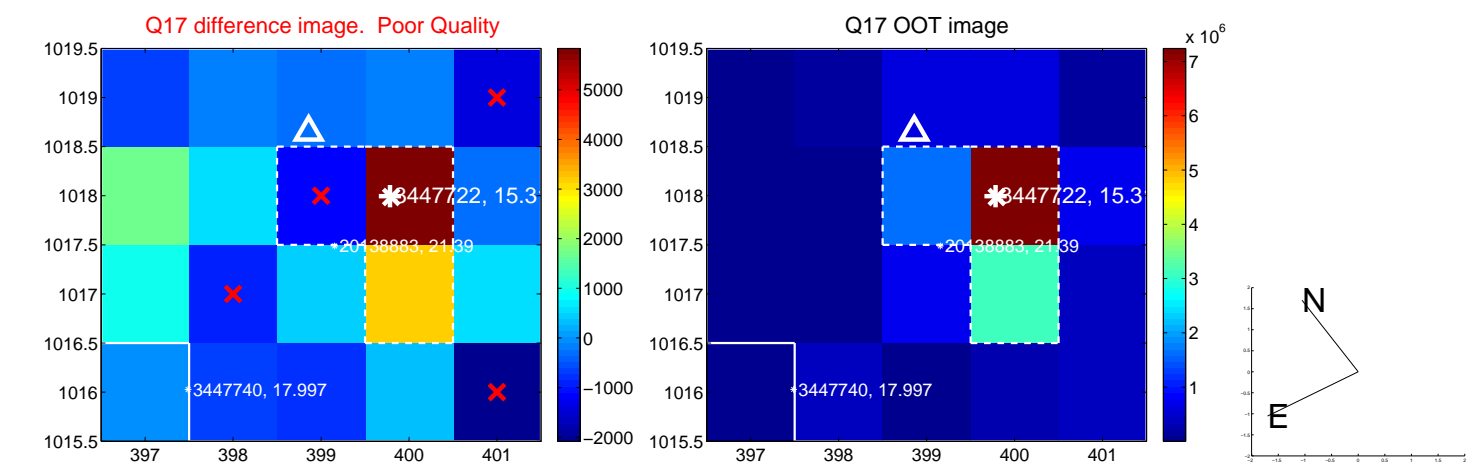
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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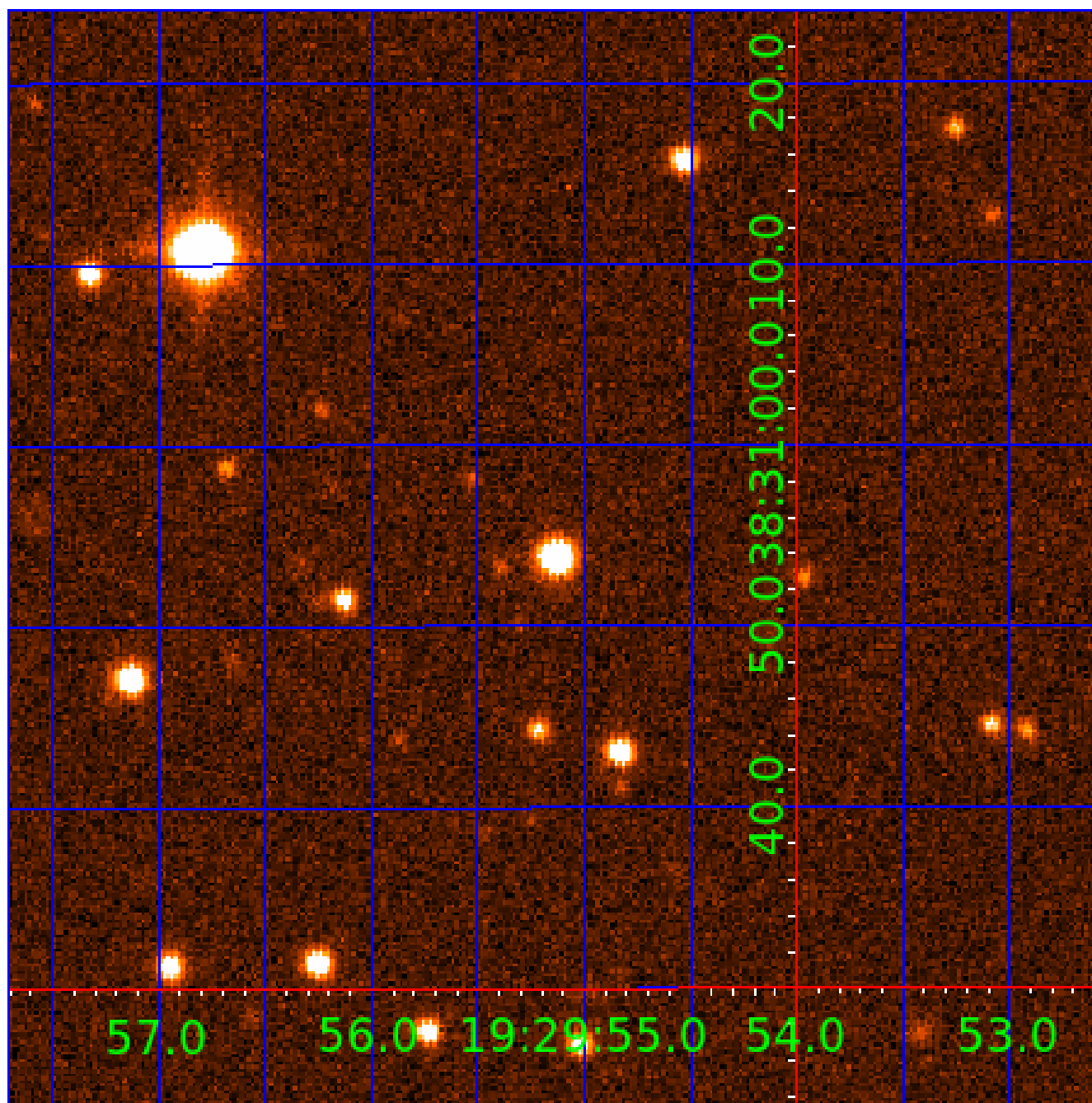


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003447722

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003447722-01	OBS	1198.01	16.088240	139.494339	590.4	6.198	26.2	27.4	1.33	6157	3.87	138.97
003447722-02	OBS	1198.03	35.675718	145.009464	481.6	7.260	15.5	16.4	1.33	6157	3.06	48.06
003447722-03	OBS	1198.02	10.300749	132.435188	272.3	5.434	13.8	14.8	1.33	6157	2.69	251.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003447722-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
003447722-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003447722-03	OBS	PC	0.99	0	0	0	0	NO_COMMENT

**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.

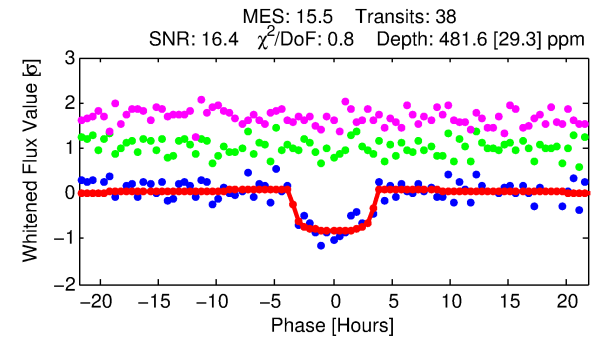
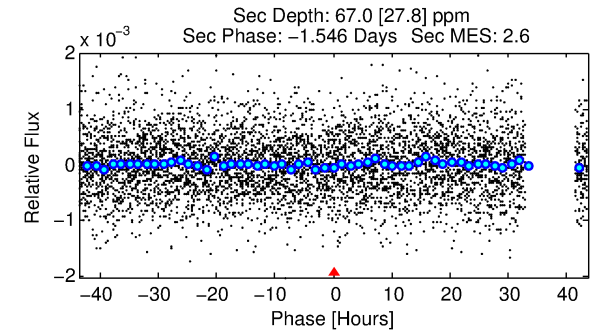
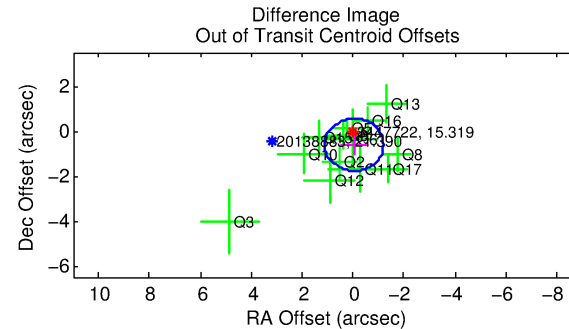
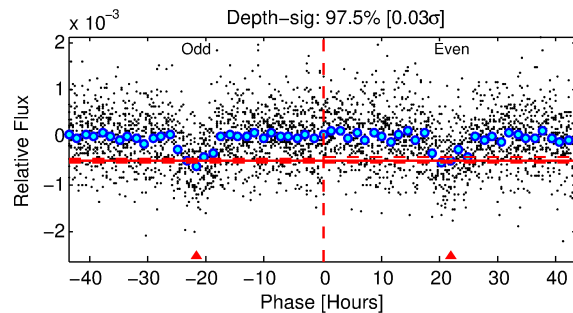
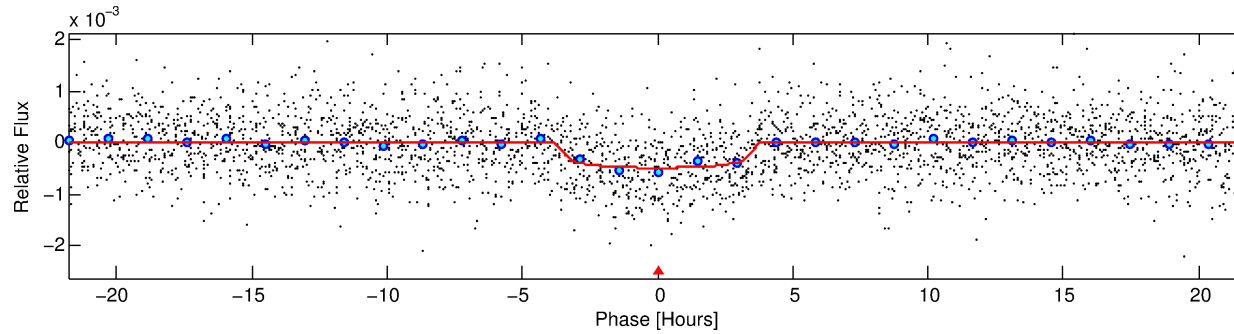
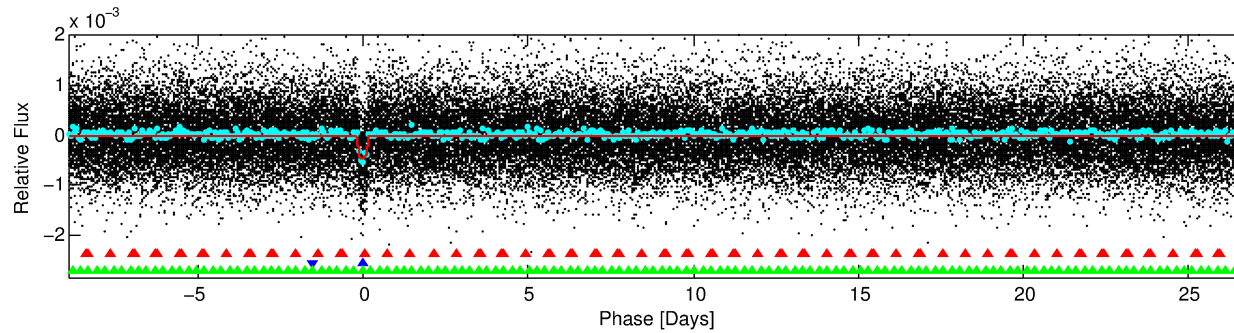
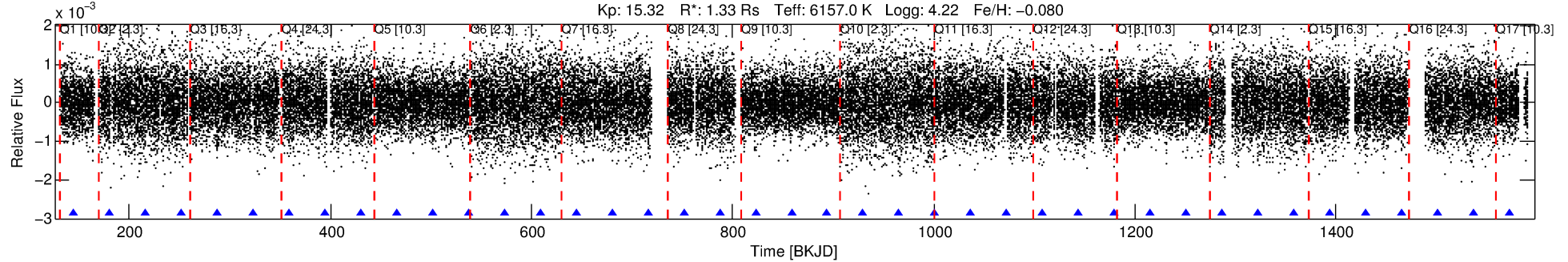
## Ephemeris Match Information For 003447722-02

No Significant Match Found

# DV One-Page Summary

KIC: 3447722 Candidate: 2 of 3 Period: 35.676 d  
KOI: K01198.03 Name: Kepler-275d Corr: 0.990

Kp: 15.32 R\*: 1.33 Rs Teff: 6157.0 K Logg: 4.22 Fe/H: -0.080



## DV Fit Results:

Period = 35.67572 [0.00034] d  
Epoch = 145.0095 [0.0081] BKJD  
Rp/R\* = 0.0211 [0.0112]  
a/R\* = 30.64 [80.94]  
b = 0.61 [2.71]  
Seff = 48.06 [12.84]  
Teq = 671 [45] K  
Rp = 3.06 [1.71] Re  
a = 0.2177 [0.0350] AU  
Ag = 186.75 [218.80] [0.85σ]  
Teffp = 3837 [1100] K [2.88σ]

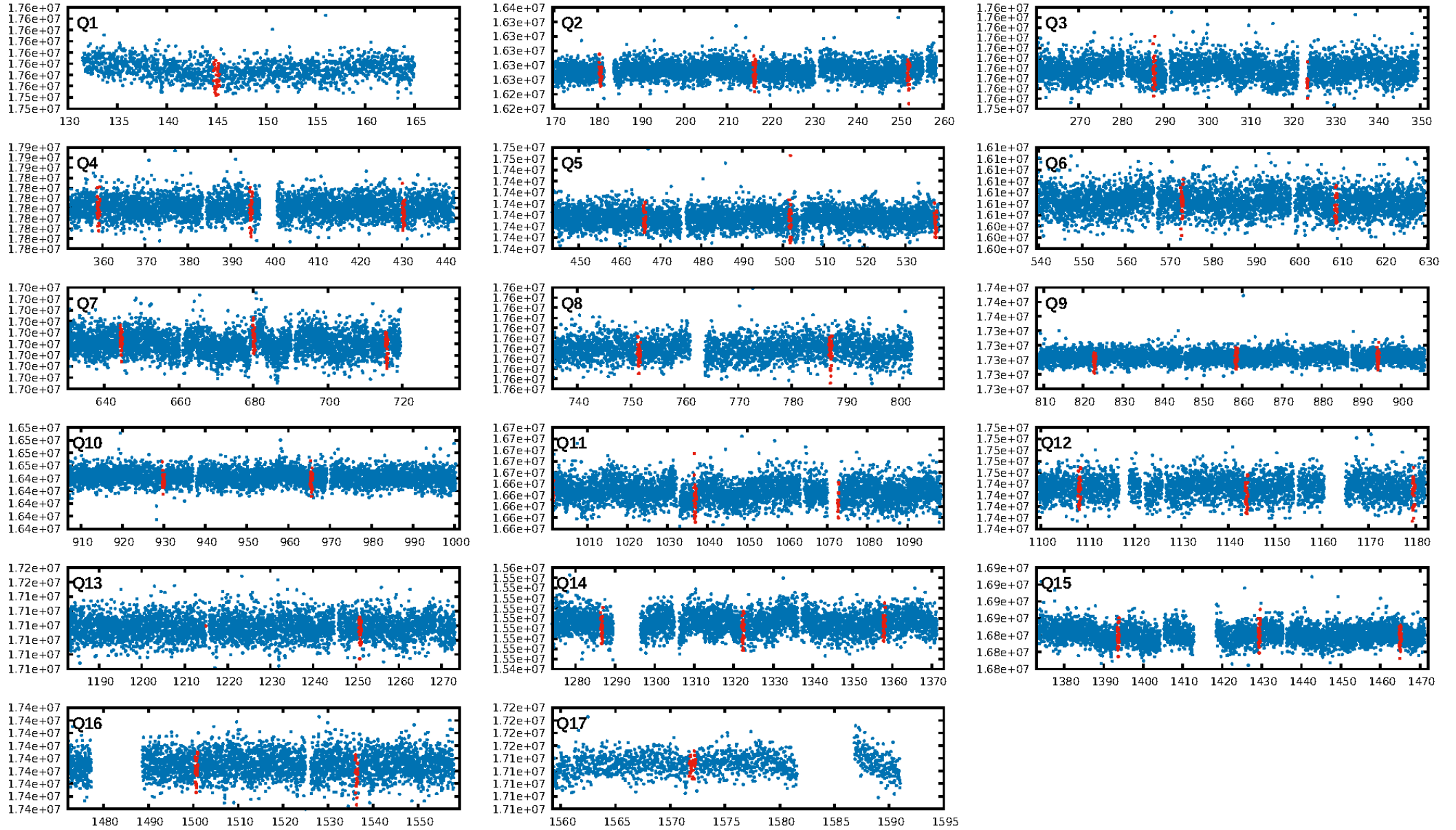
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.25σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 93.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.44e-52  
RollingBand-fgt: 1.00 [36/36]  
GhostDiagnostic-chr: 3.123  
Centroid-sig: 81.1%  
Centroid-so: 0.905 arcsec [1.16σ]  
OotOffset-rm: 0.617 arcsec [1.59σ]  
KicOffset-rm: 0.599 arcsec [1.75σ]  
OotOffset-st: 3/3/3/4 [13]  
KicOffset-st: 3/3/3/4 [13]  
DiffImageQuality-fgm: 0.46 [6/13]  
DiffImageOverlap-fno: 0.94 [16/17]

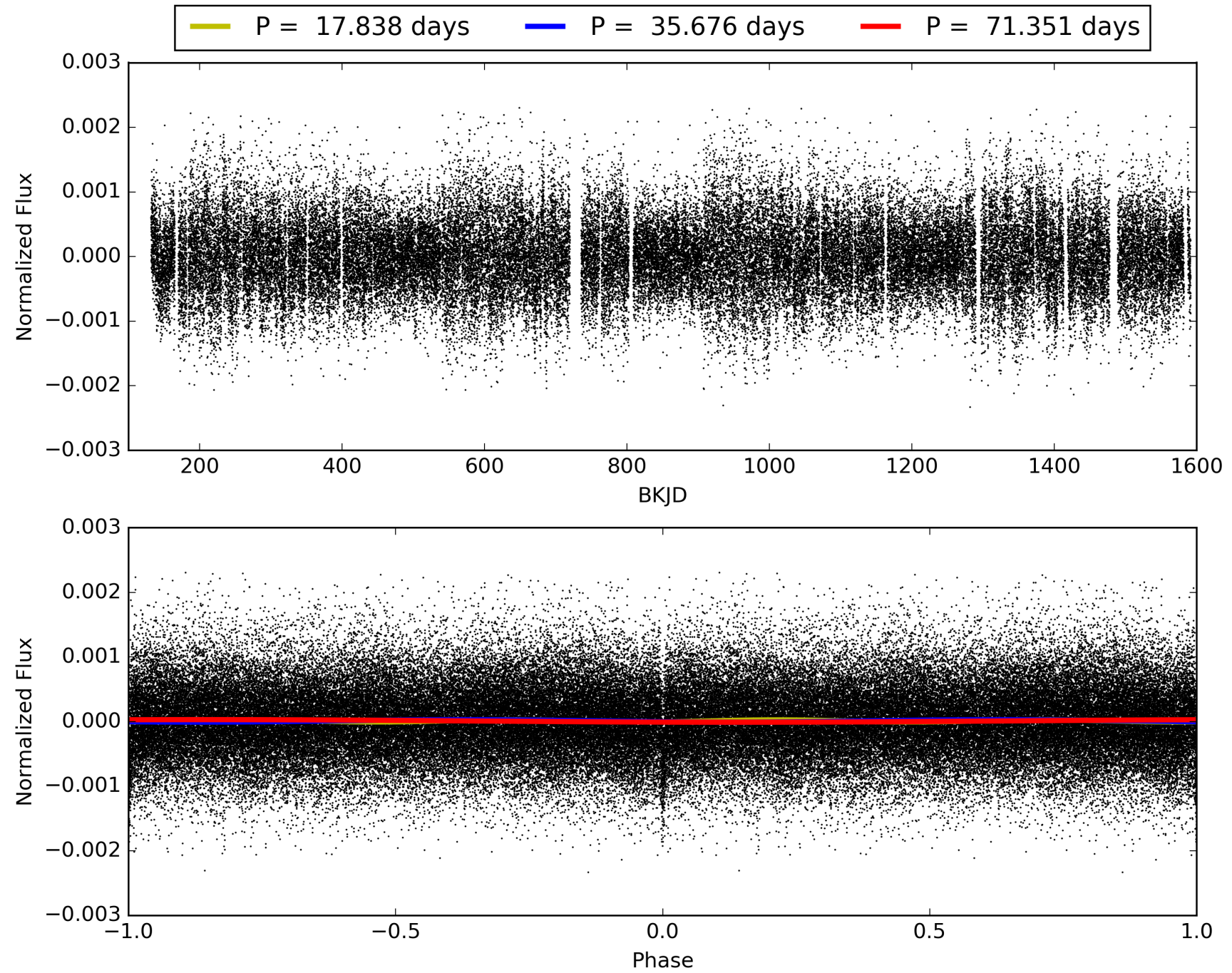
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:05:43 Z

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

# TCE 003447722-02, PDC Light Curves

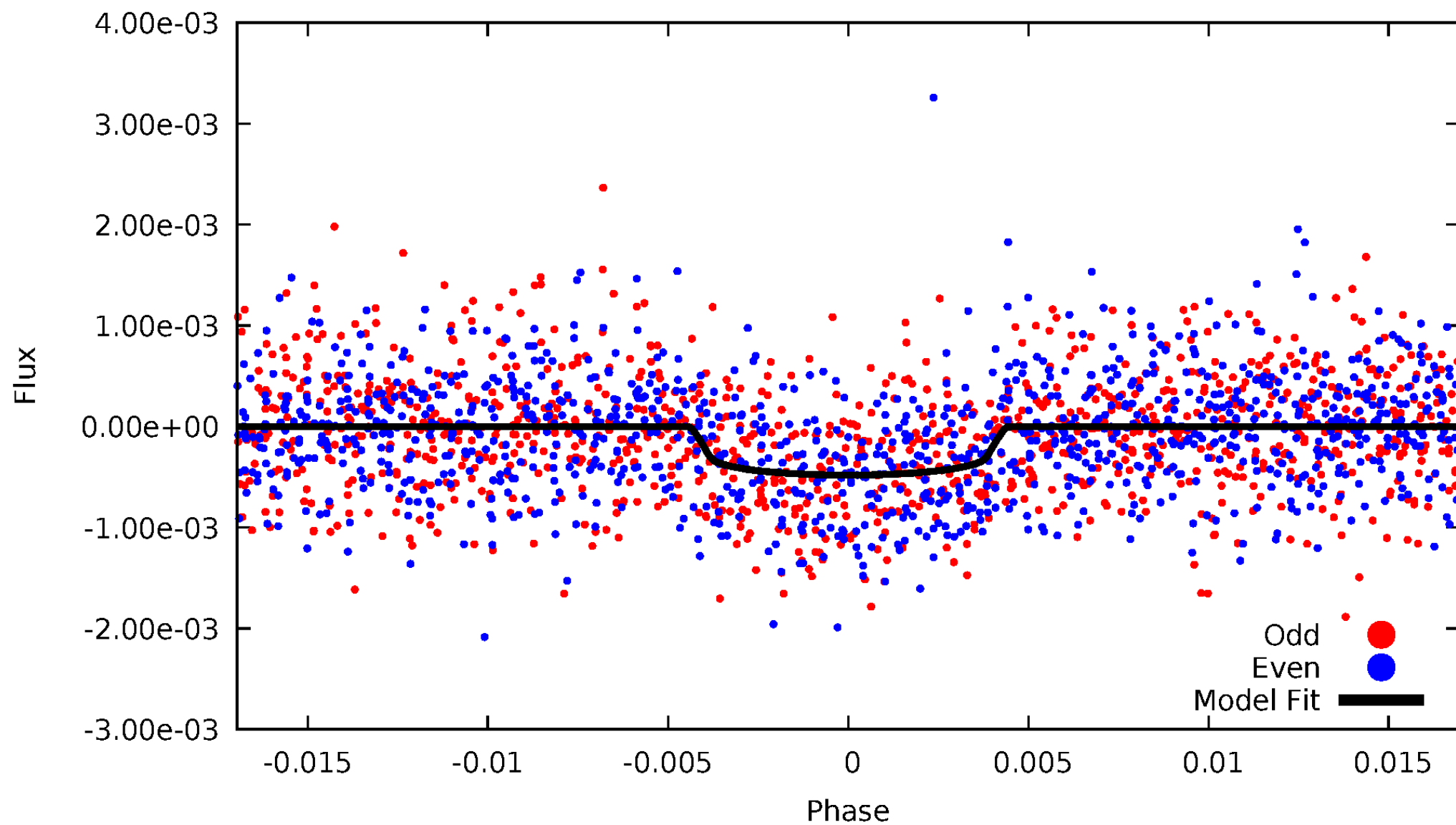


TCE 003447722-02



# DV Odd/Even

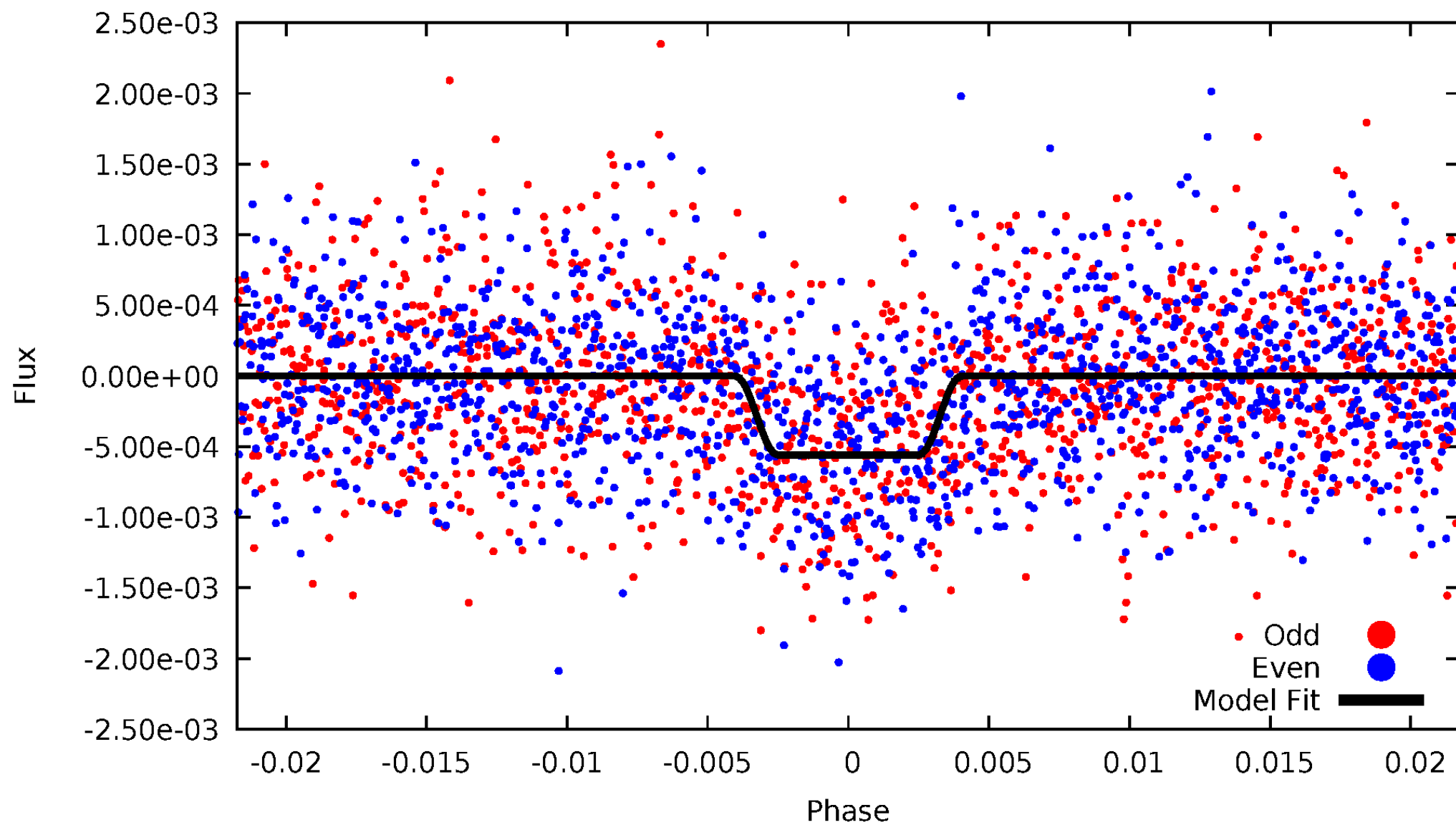
TCE 003447722-02





# ALT Odd/Even

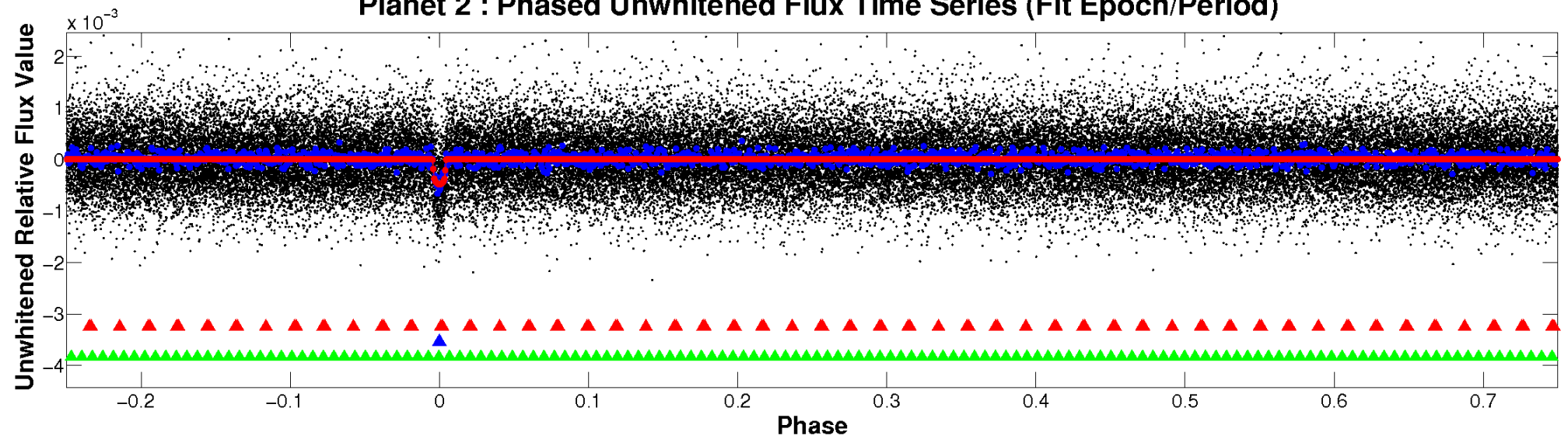
TCE 003447722-02



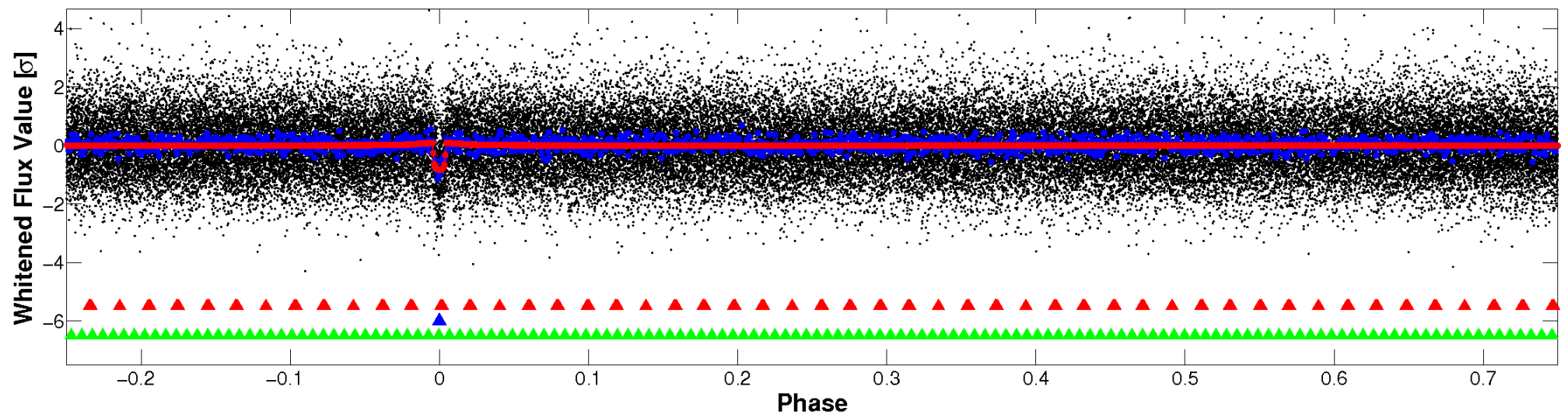


# Non-Whitened Vs. Whitened Light Curve

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

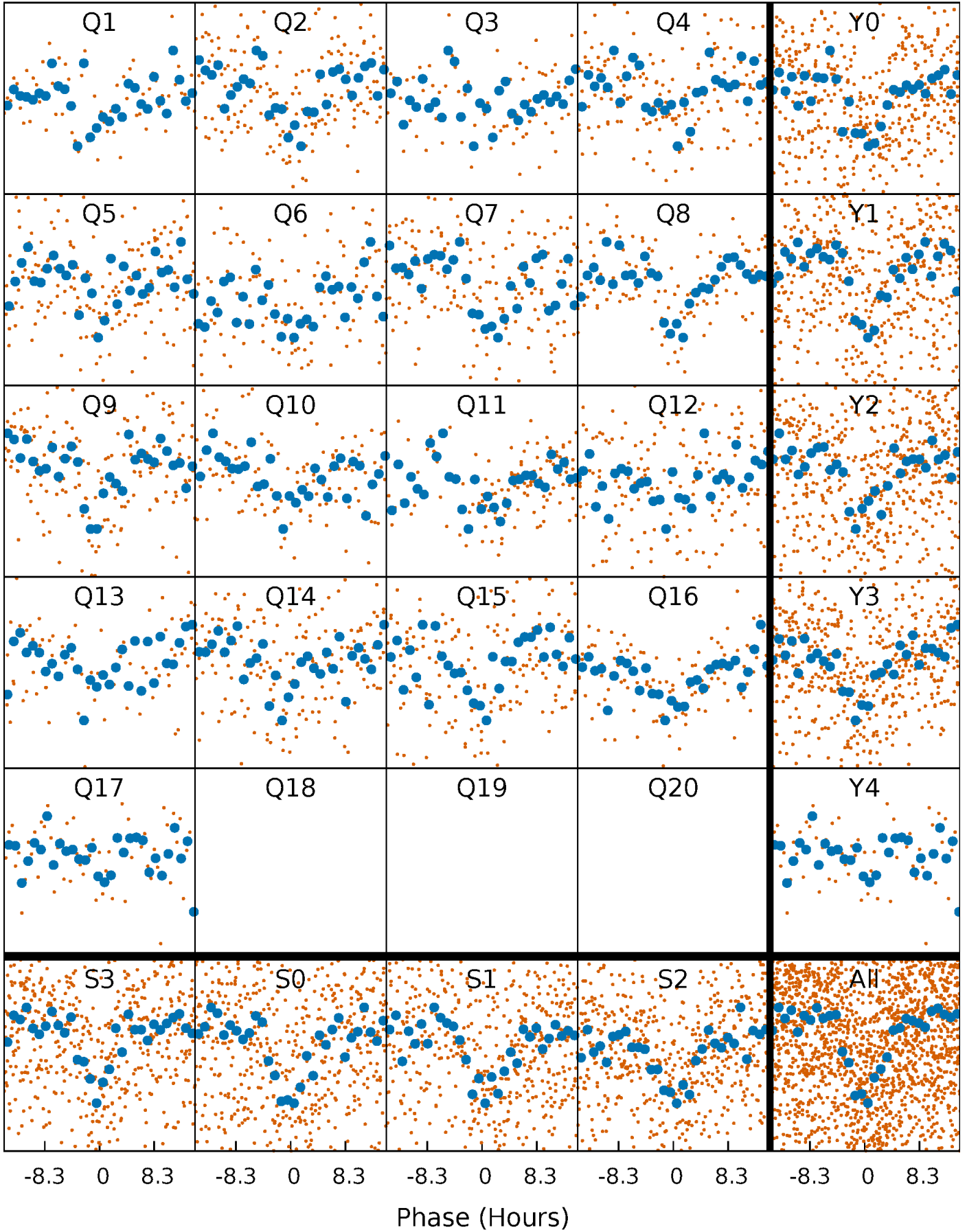


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



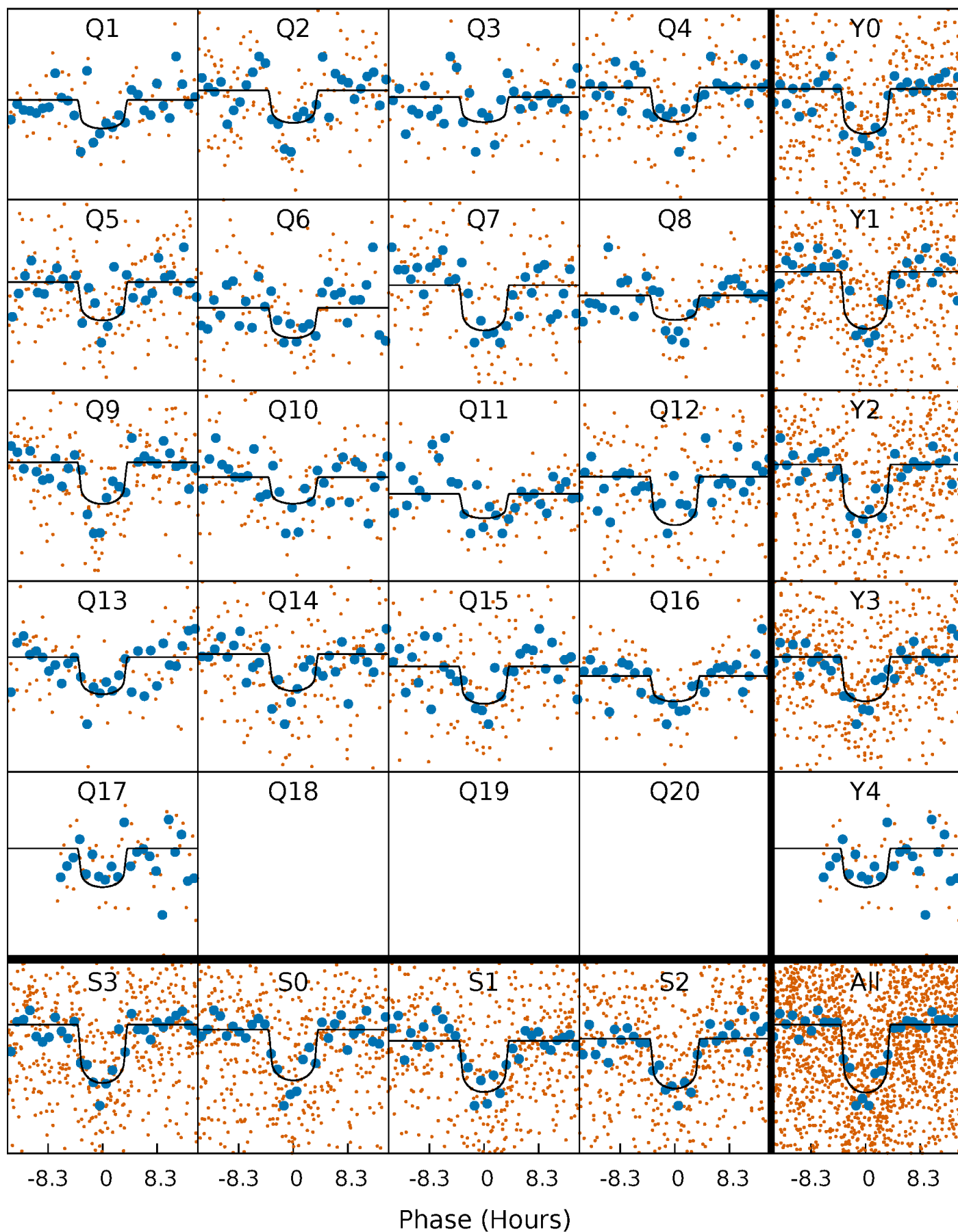
# PDC Quarter-Phased Transit Curves

TCE 003447722-02   P= 35.675718 Days    $T_0=145.009464$  (BKJD)



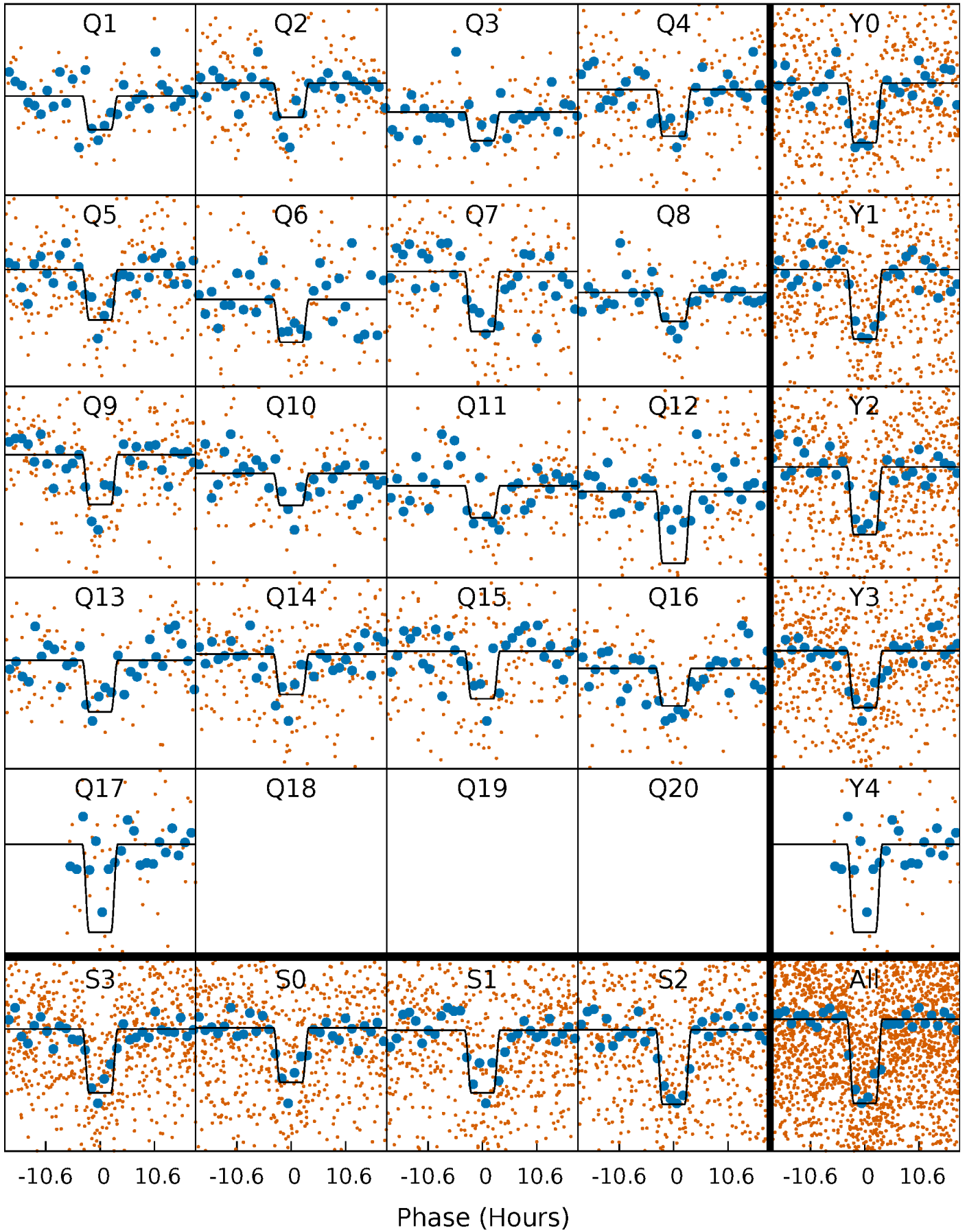
# DV Quarter-Phased Transit Curves

TCE 003447722-02 P= 35.675718 Days  $T_0=145.009464$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

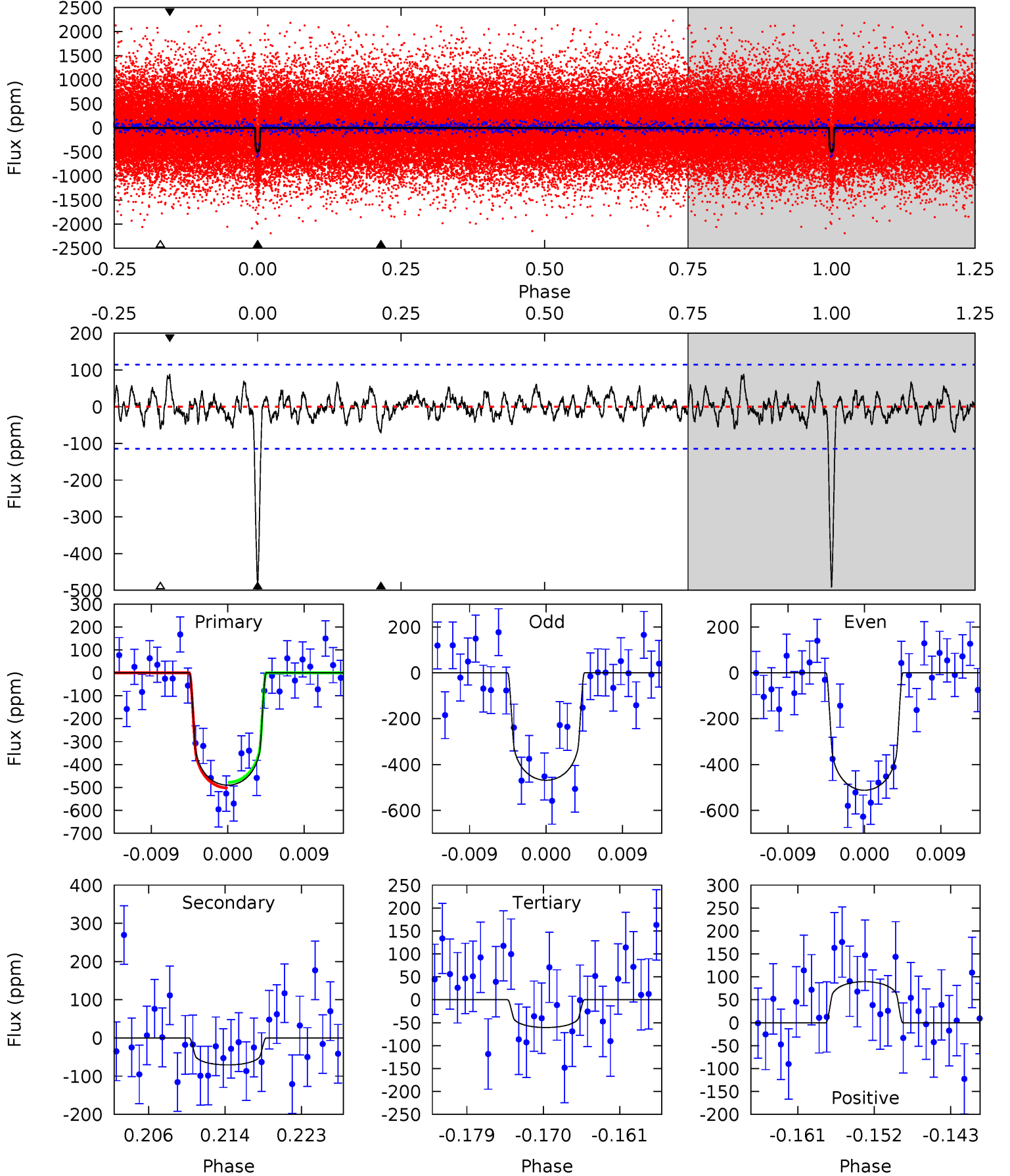
TCE 003447722-02 P= 35.674764 Days  $T_0=145.028434$  (BKJD)



# DV Model-Shift Uniqueness Test

003447722-02,  $P = 35.675718$  Days,  $E = 109.333746$  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
21.6	3.10	2.67	3.94	5.05	2.61	1.08	18.9	17.6	0.44	-0.84	0.96	0.94	0.15	0.53

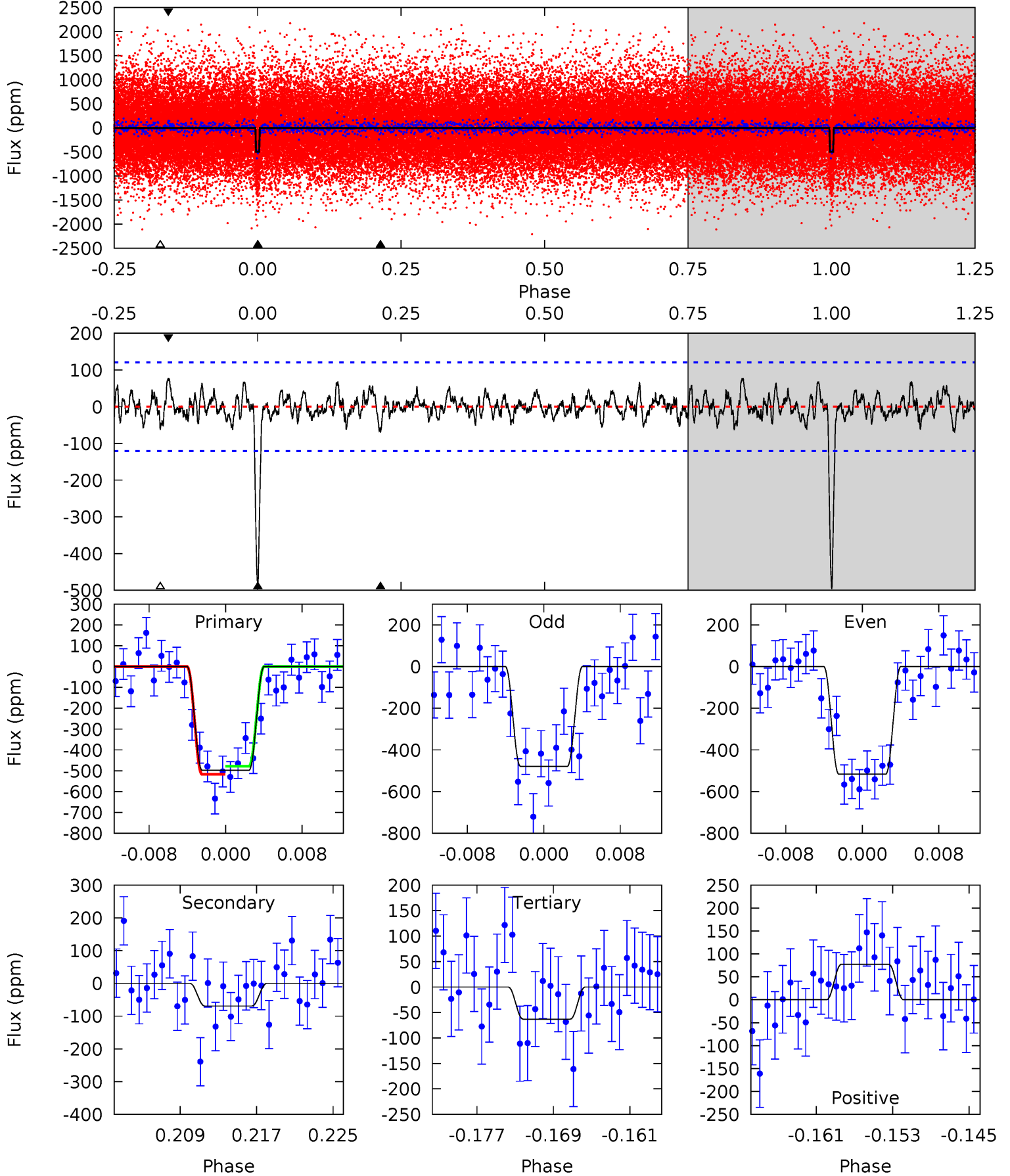




# Alt Model-Shift Uniqueness Test

003447722-02, P = 35.674764 Days, E = 109.353670 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
20.9	2.91	2.65	3.26	5.07	2.65	1.01	18.2	17.6	0.26	-0.35	0.79	1.01	0.14	0.82



### Stellar Parameters For KIC 003447722

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6157^{+123}_{-123}$	$4.224^{+0.149}_{-0.108}$	$-0.080^{+0.150}_{-0.150}$	$1.330^{+0.225}_{-0.225}$	$1.080^{+0.109}_{-0.081}$	$0.647^{+0.440}_{-0.224}$
	+2%/-2%	+4%/-3%	+188%/-188%	+17%/-17%	+10%/-8%	+68%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003447722-02 / KOI 1198.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-70 \pm 23$	$3.13^{+1.66}_{-1.60}$	$932^{+50}_{-49}$	$4126^{+1340}_{-648}$	$192^{+568}_{-127}$
Alt.	$-69 \pm 24$	$3.32^{+1.70}_{-1.54}$	$935^{+44}_{-47}$	$3966^{+1168}_{-517}$	$157^{+431}_{-92}$

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



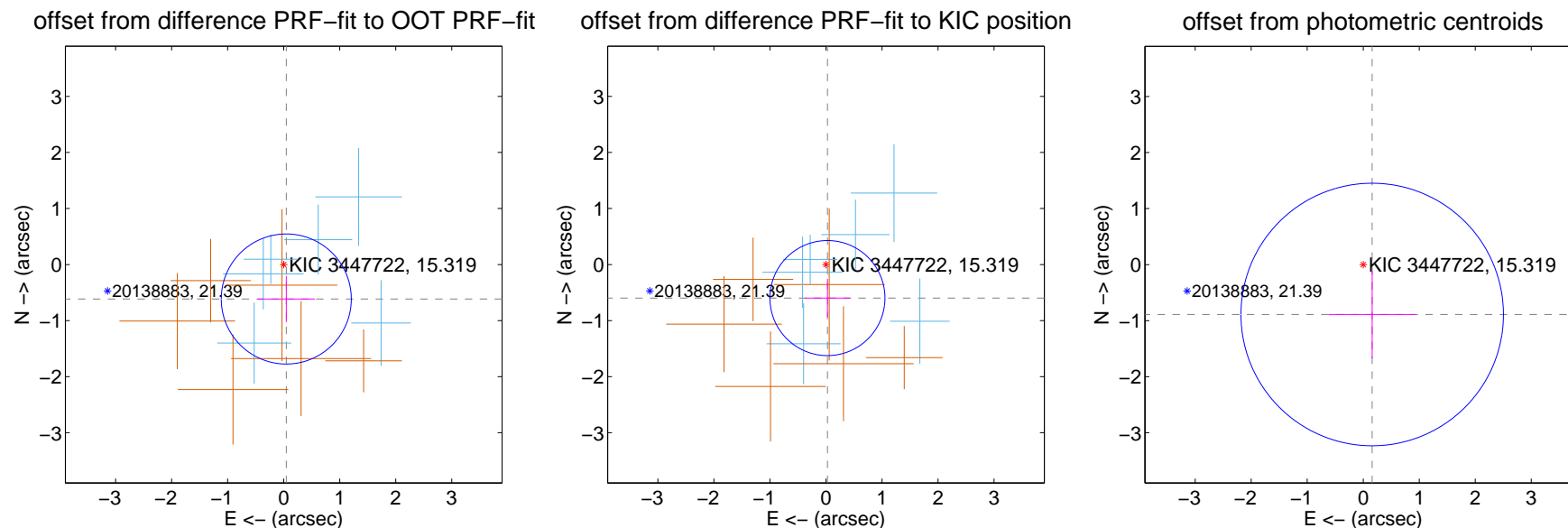
## DV Centroid Data

Supplemental centroid analysis for 003447722-02. Kepler magnitude: 15.32. Transit SNR 16.44

There are 6 quarters with good PRF difference image offsets

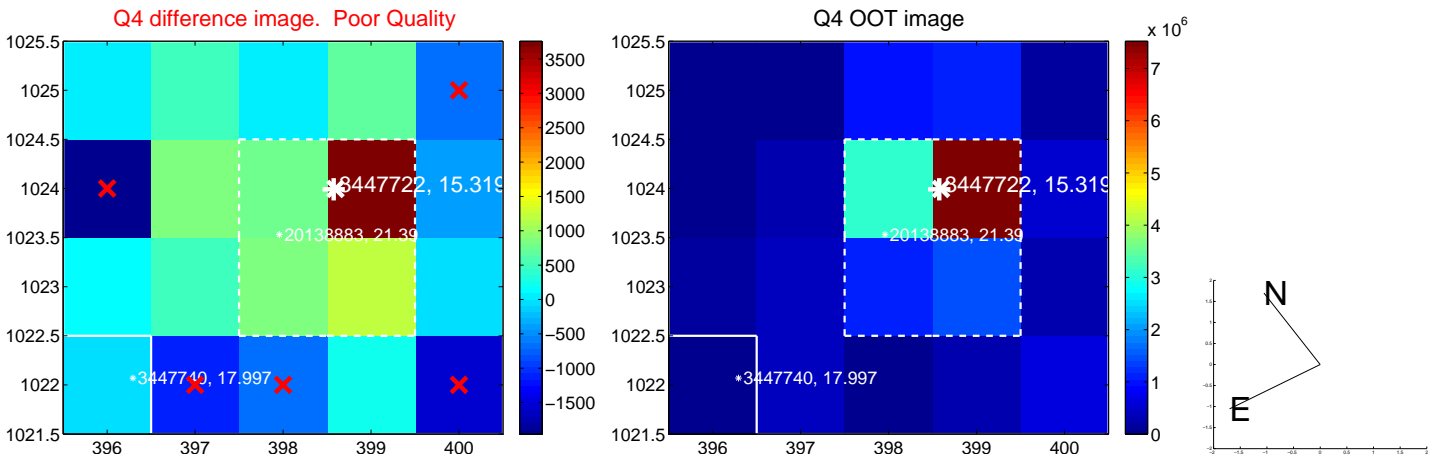
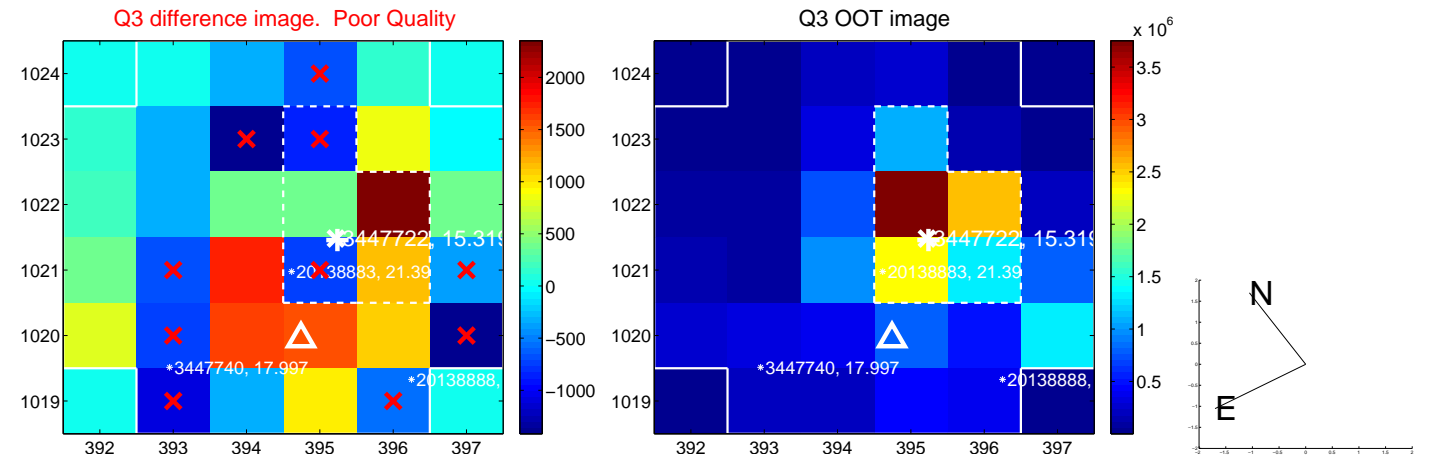
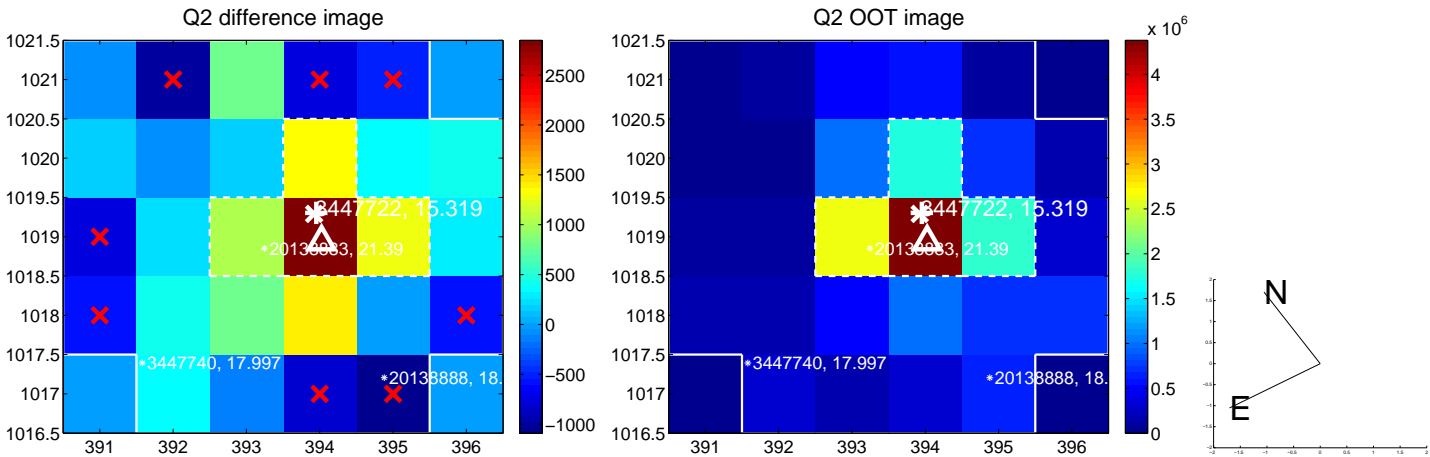
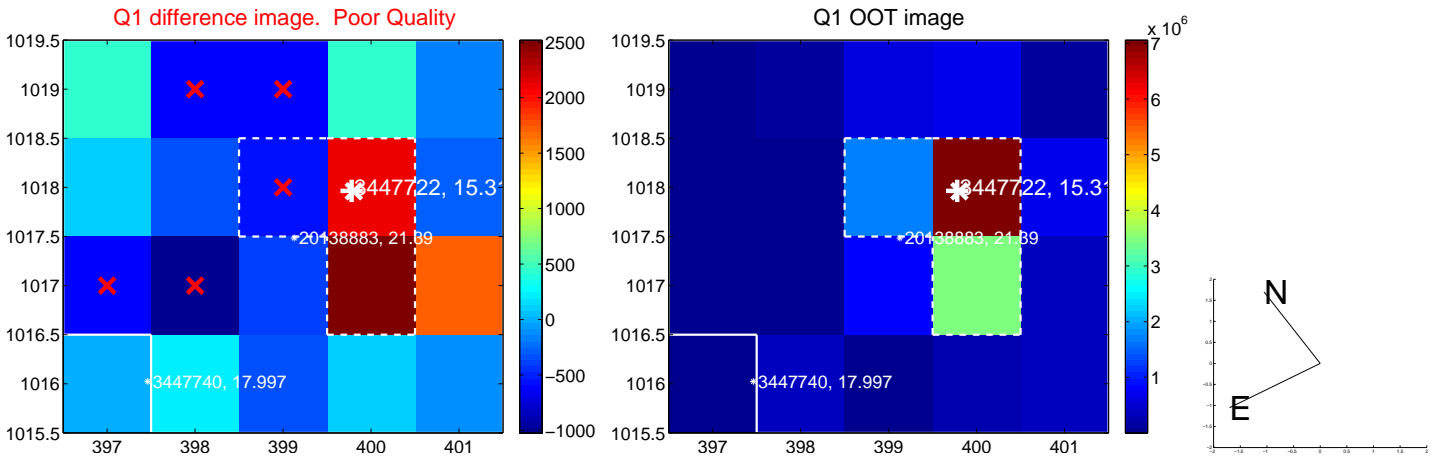
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.617 \pm 0.387$	1.59	$-0.046 \pm 0.511$	$-0.615 \pm 0.412$
PRF-fit source offset from KIC position	$0.599 \pm 0.342$	1.75	$-0.026 \pm 0.407$	$-0.598 \pm 0.342$
photometric centroid source offset	$0.90 \pm 0.78$	1.16	$-0.16 \pm 0.78$	$-0.89 \pm 0.78$

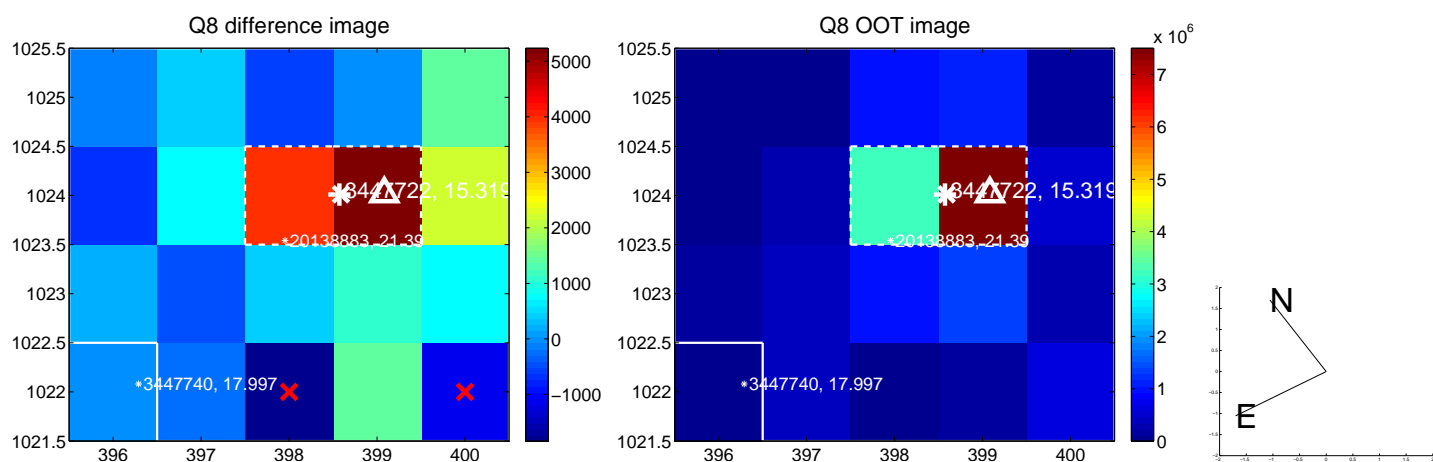
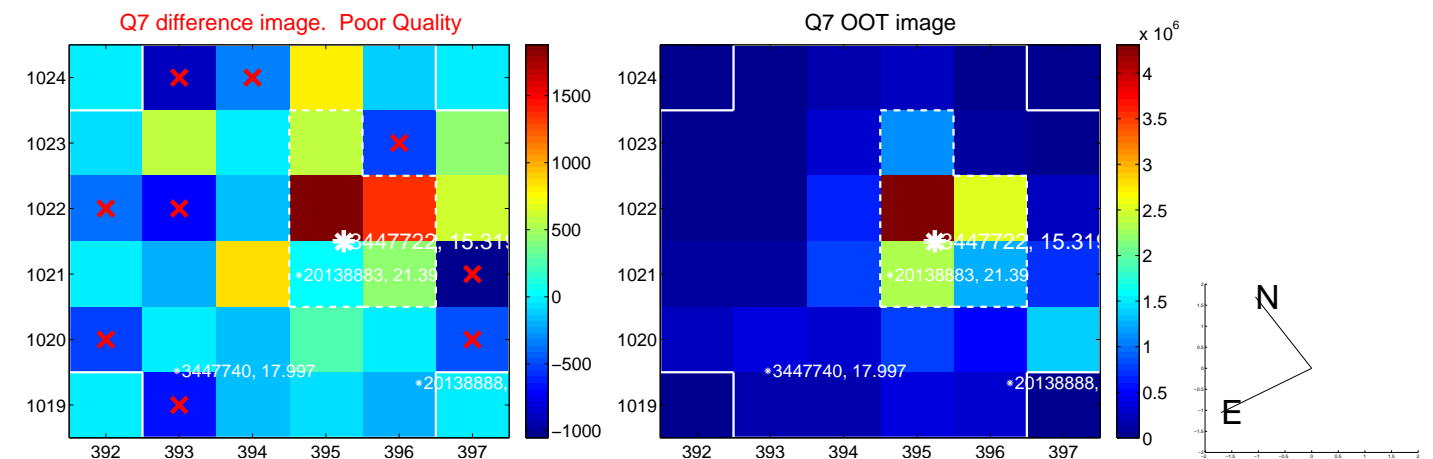
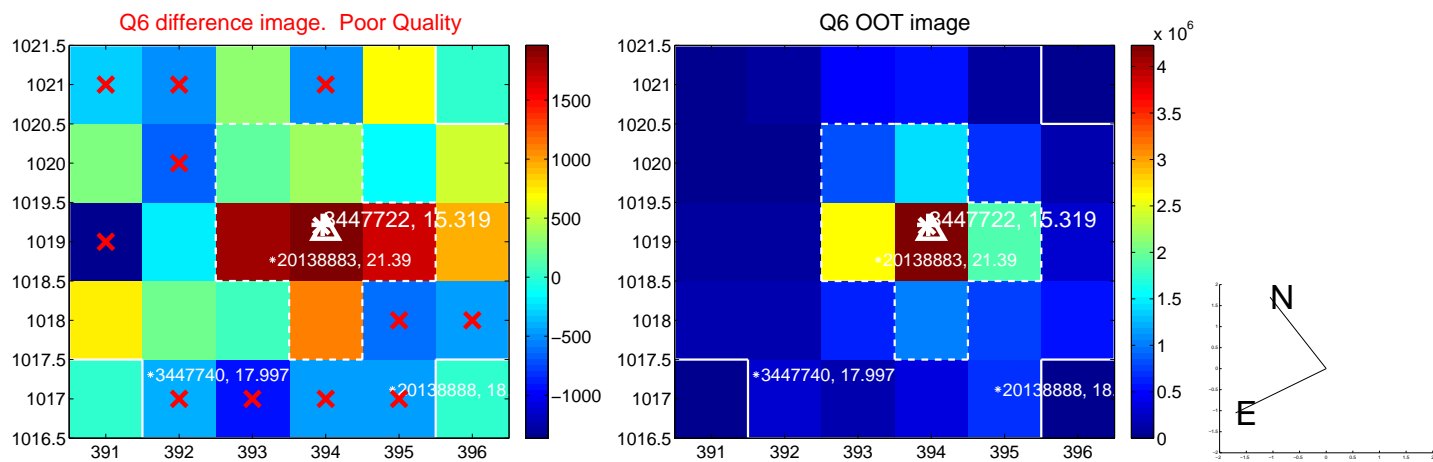
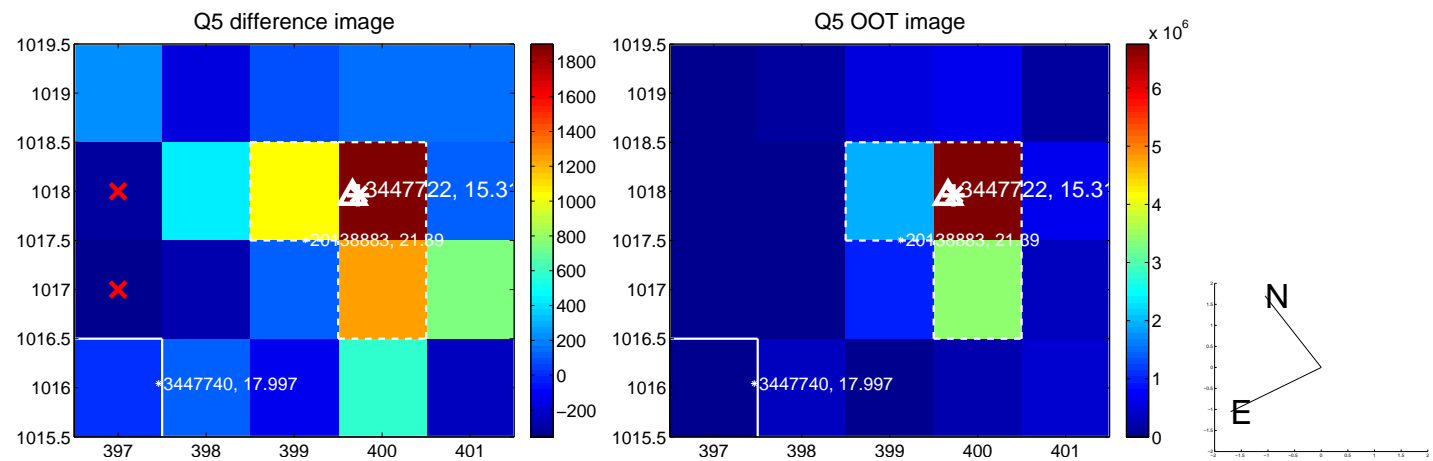


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

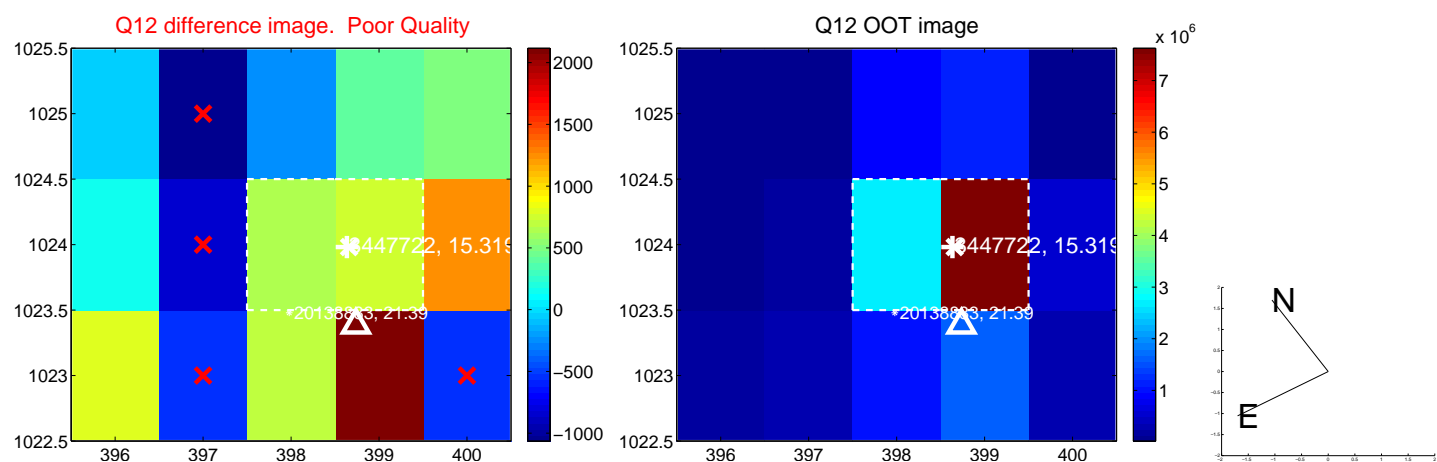
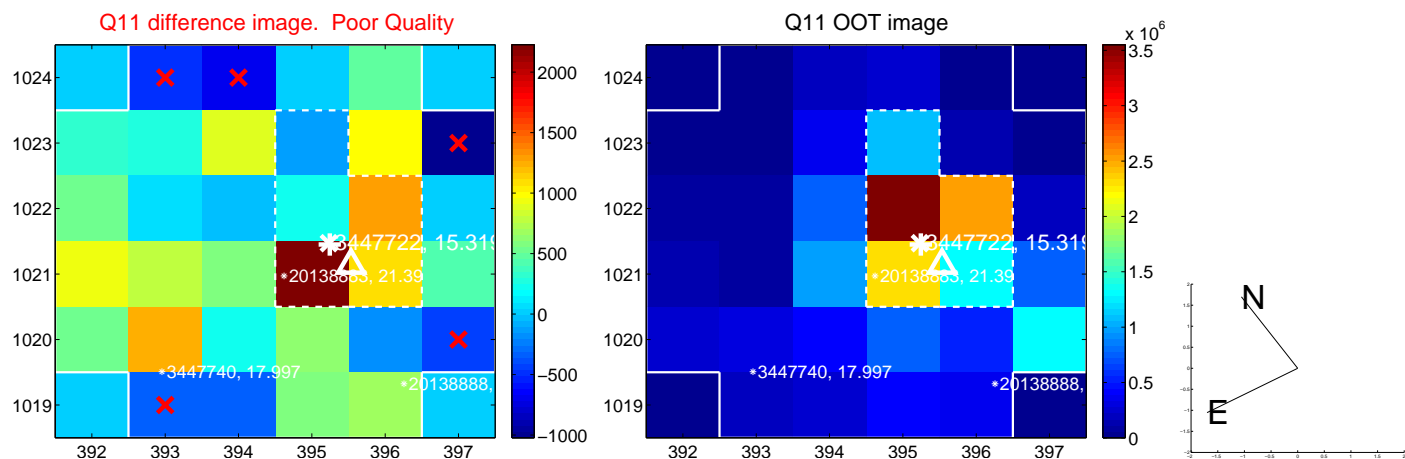
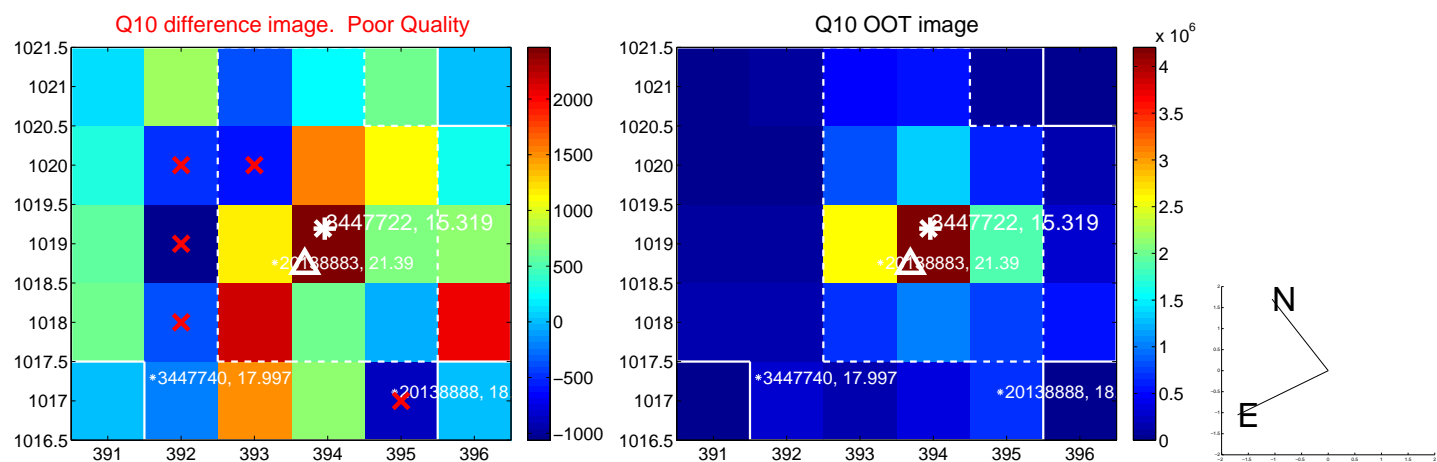
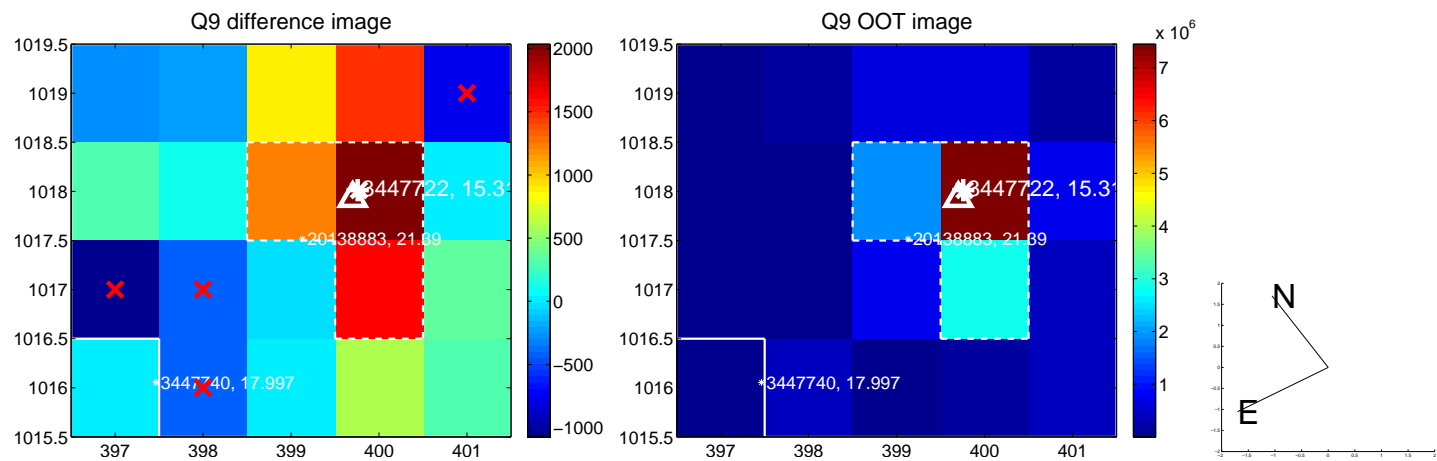
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



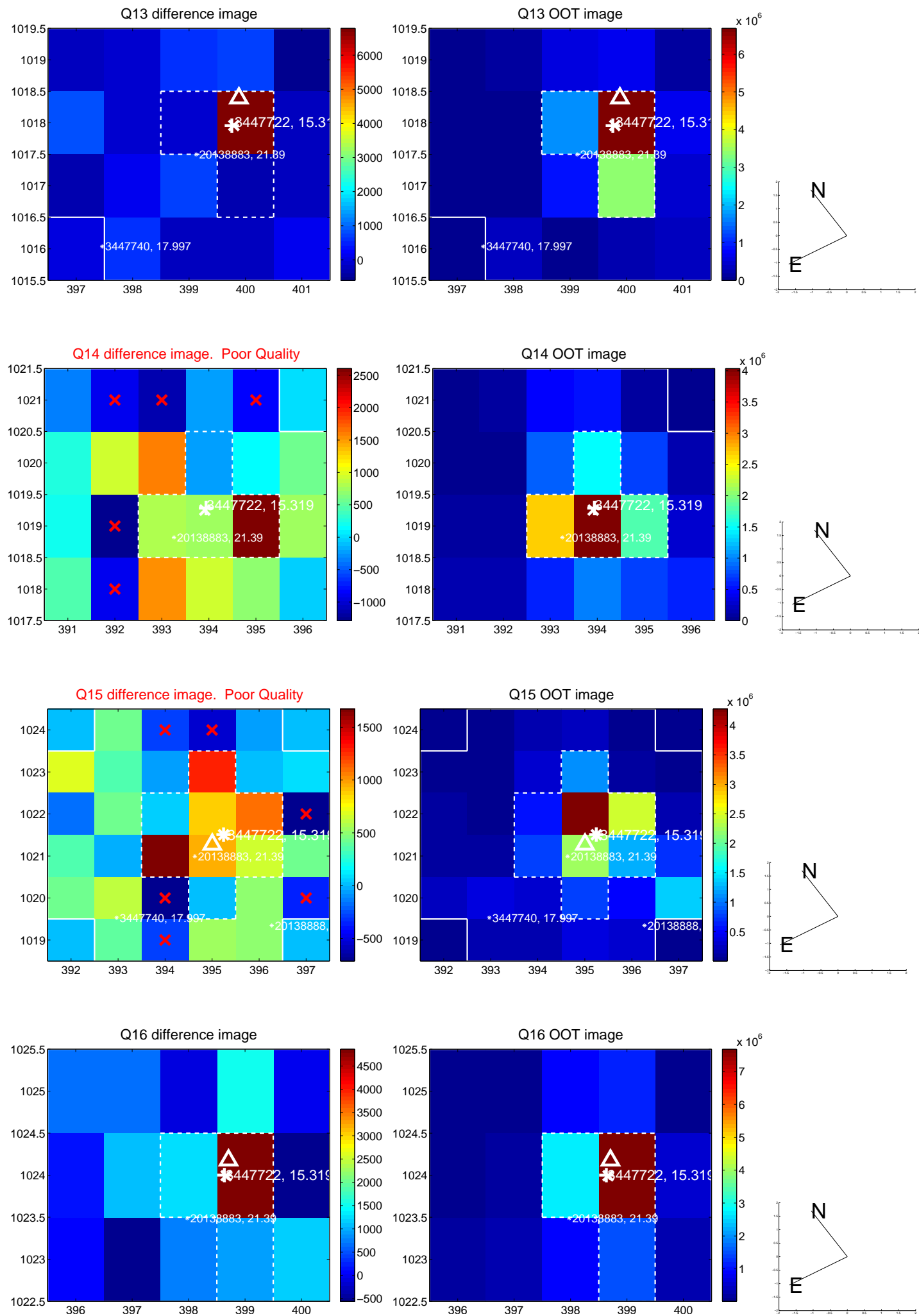
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



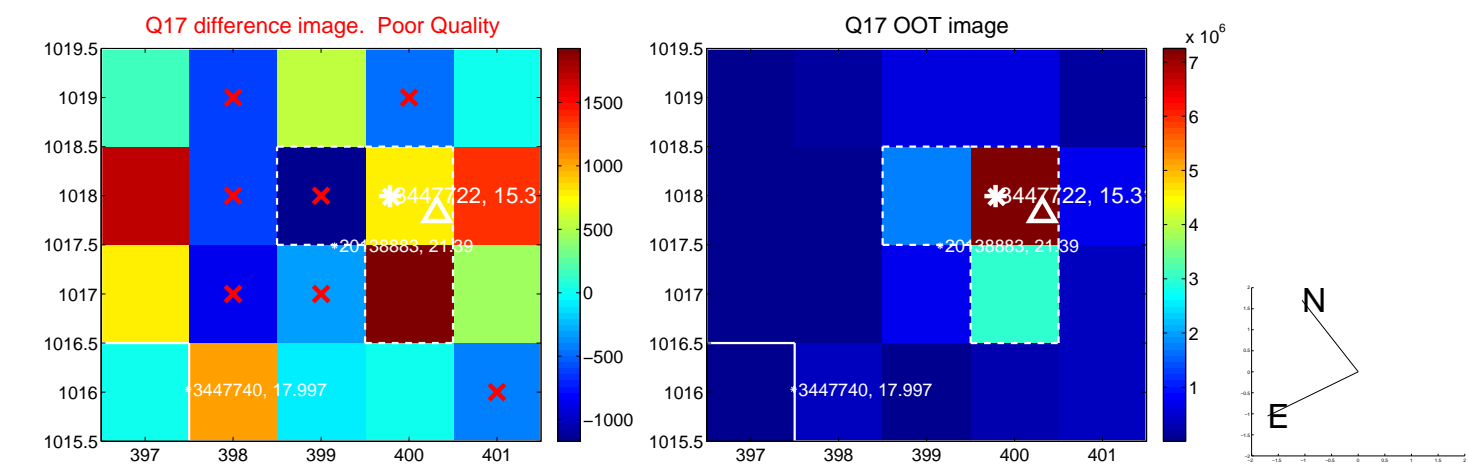
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



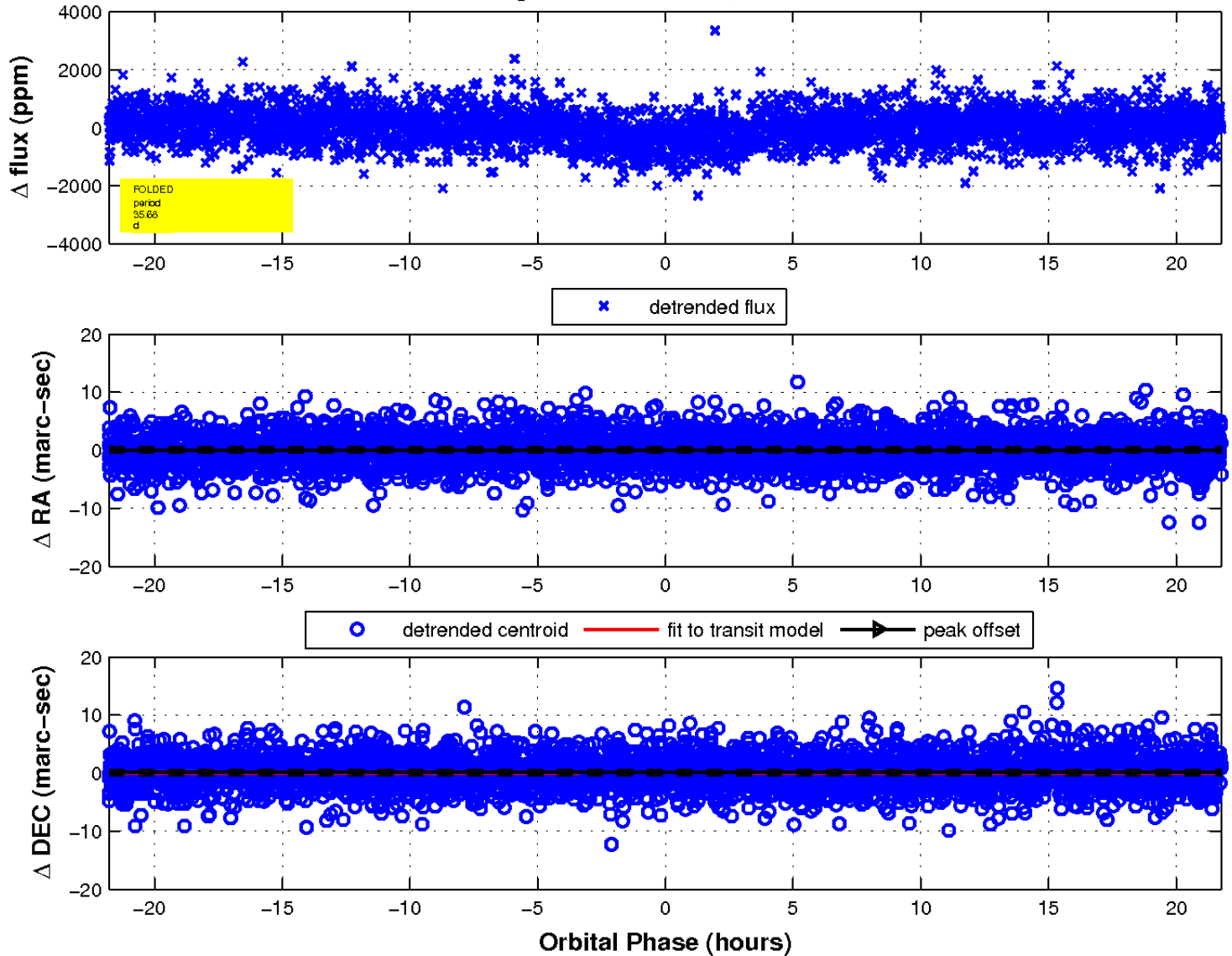
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



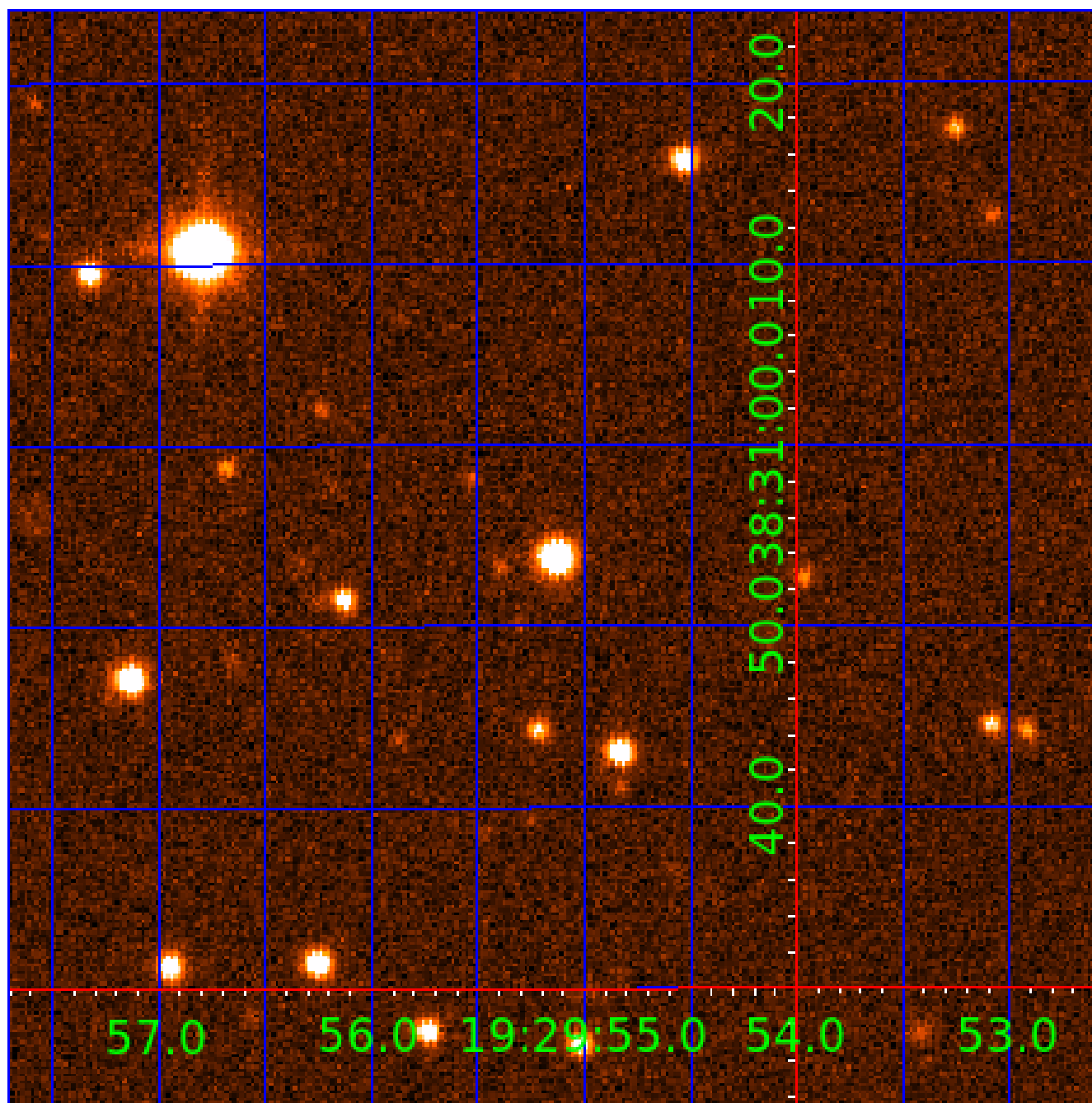
fluxWeightedCentroids, Planet 2 of 3





UKIRT Image

Declination



# KIC 003447722

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003447722-01	OBS	1198.01	16.088240	139.494339	590.4	6.198	26.2	27.4	1.33	6157	3.87	138.97
003447722-02	OBS	1198.03	35.675718	145.009464	481.6	7.260	15.5	16.4	1.33	6157	3.06	48.06
003447722-03	OBS	1198.02	10.300749	132.435188	272.3	5.434	13.8	14.8	1.33	6157	2.69	251.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003447722-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
003447722-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003447722-03	OBS	PC	0.99	0	0	0	0	NO_COMMENT

**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.

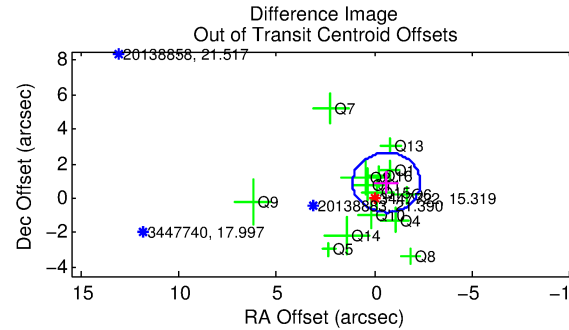
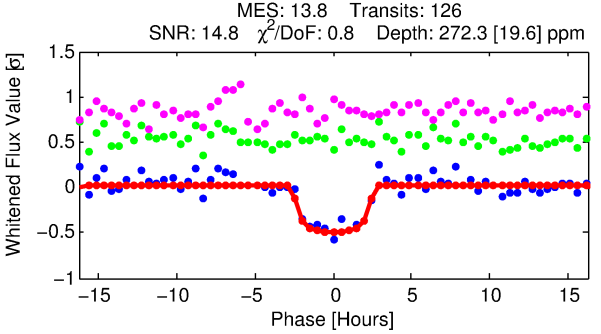
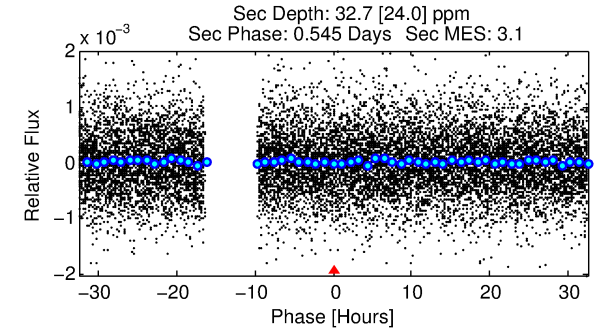
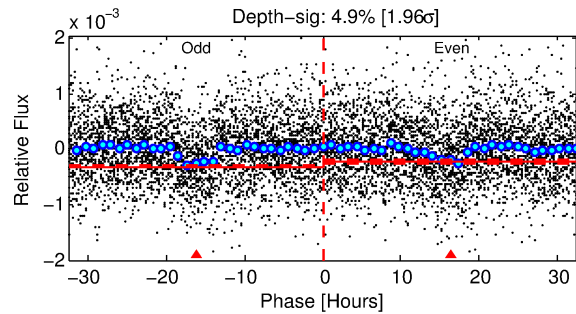
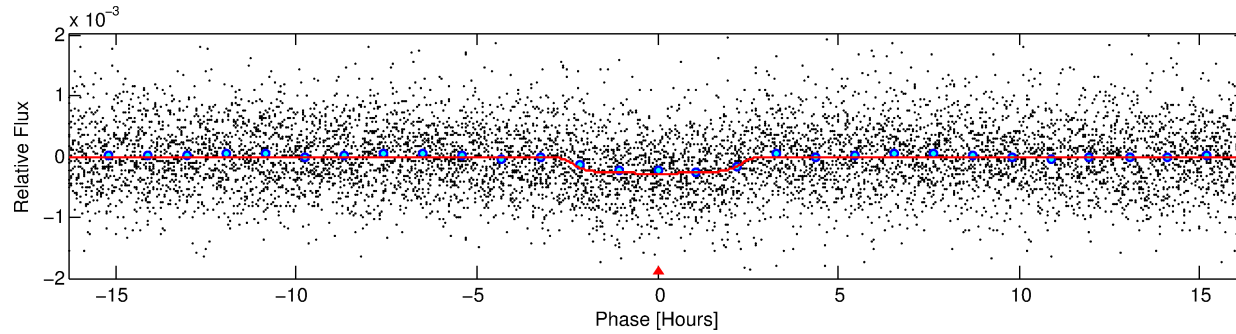
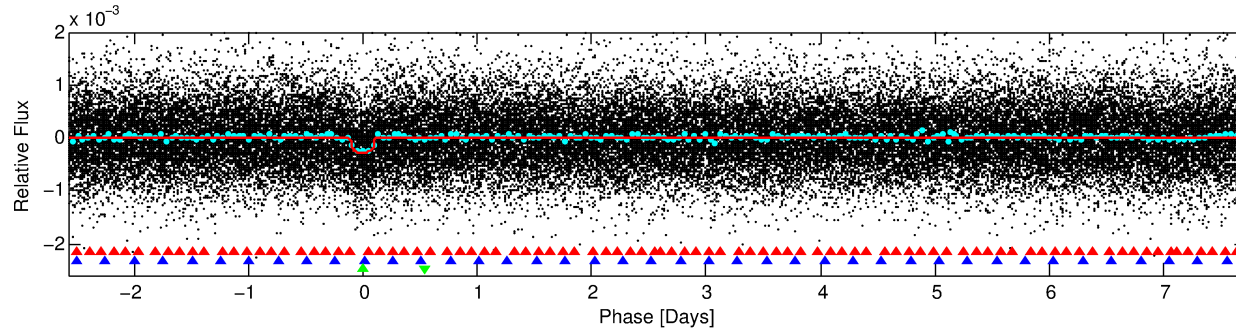
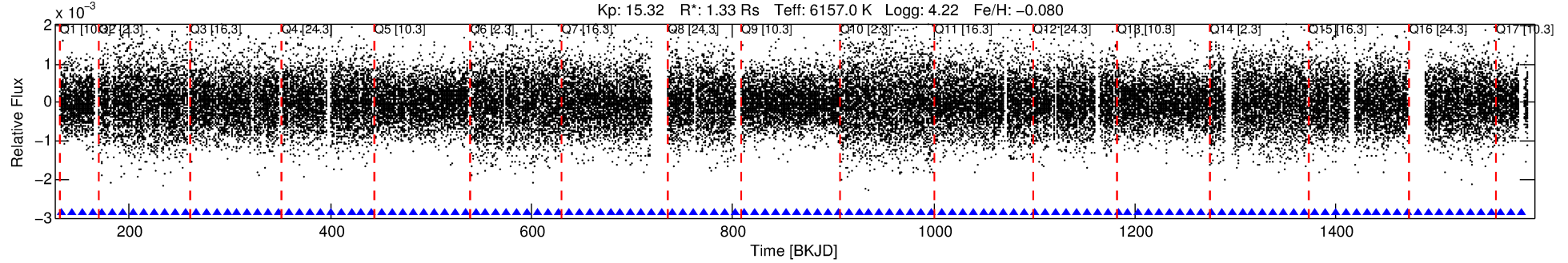
## Ephemeris Match Information For 003447722-03

No Significant Match Found

# DV One-Page Summary

KIC: 3447722 Candidate: 3 of 3 Period: 10.301 d  
KOI: K01198.02 Name: Kepler-275b Corr: 0.954

Kp: 15.32 R\*: 1.33 Rs Teff: 6157.0 K Logg: 4.22 Fe/H: -0.080



## DV Fit Results:

Period = 10.30075 [0.00010] d  
Epoch = 132.4352 [0.0074] BKJD  
Rp/R\* = 0.0185 [0.0017]  
a/R\* = 5.83 [2.44]  
b = 0.94 [0.06]  
Seff = 251.83 [67.30]  
Teq = 1016 [68] K  
Rp = 2.69 [0.52] Re  
a = 0.0951 [0.0153] AU  
Ag = 22.45 [17.92] [1.20σ]  
Teffp = 3419 [650] K [3.68σ]

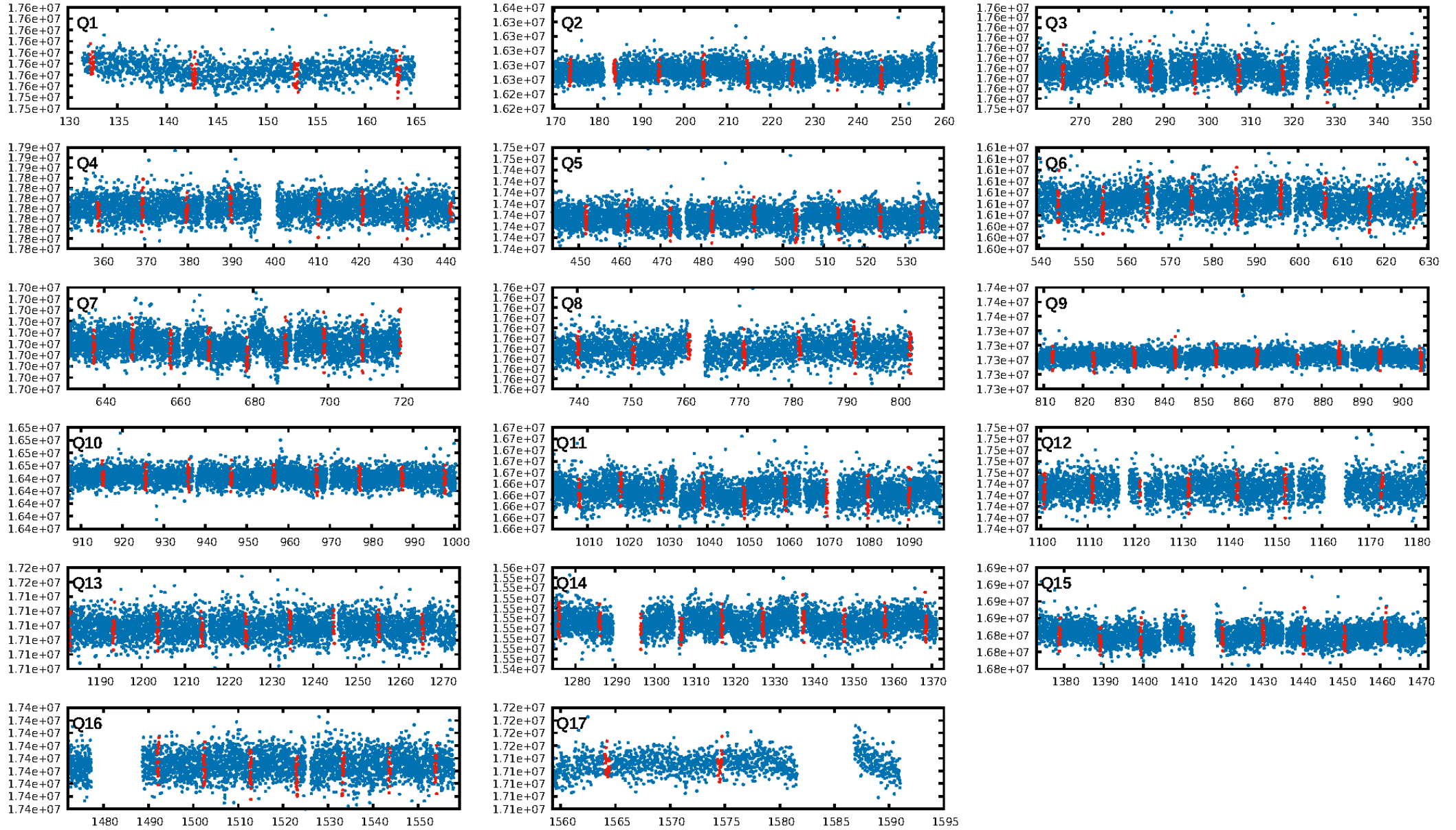
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [16.85σ]  
ModelChiSquare2-sig: 99.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.42e-42  
RollingBand-fgt: 1.00 [120/120]  
GhostDiagnostic-chr: 2.485  
Centroid-sig: 0.1%  
Centroid-so: 2.380 arcsec [2.66σ]  
OotOffset-rm: 1.090 arcsec [1.90σ]  
KicOffset-rm: 1.154 arcsec [2.04σ]  
OotOffset-st: 4/3/3/4 [14]  
KicOffset-st: 4/3/3/4 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:05:50 Z

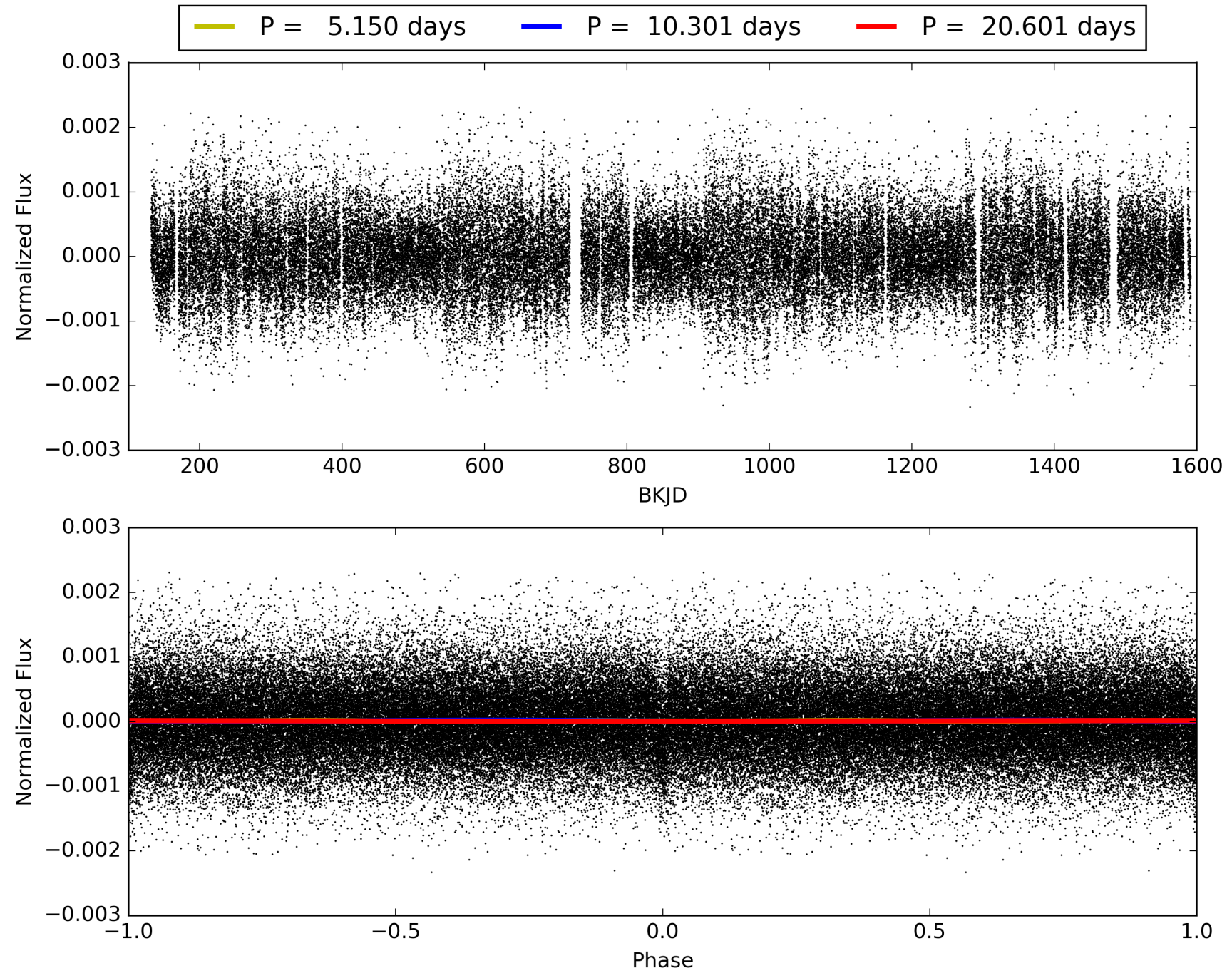
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003447722-03, PDC Light Curves



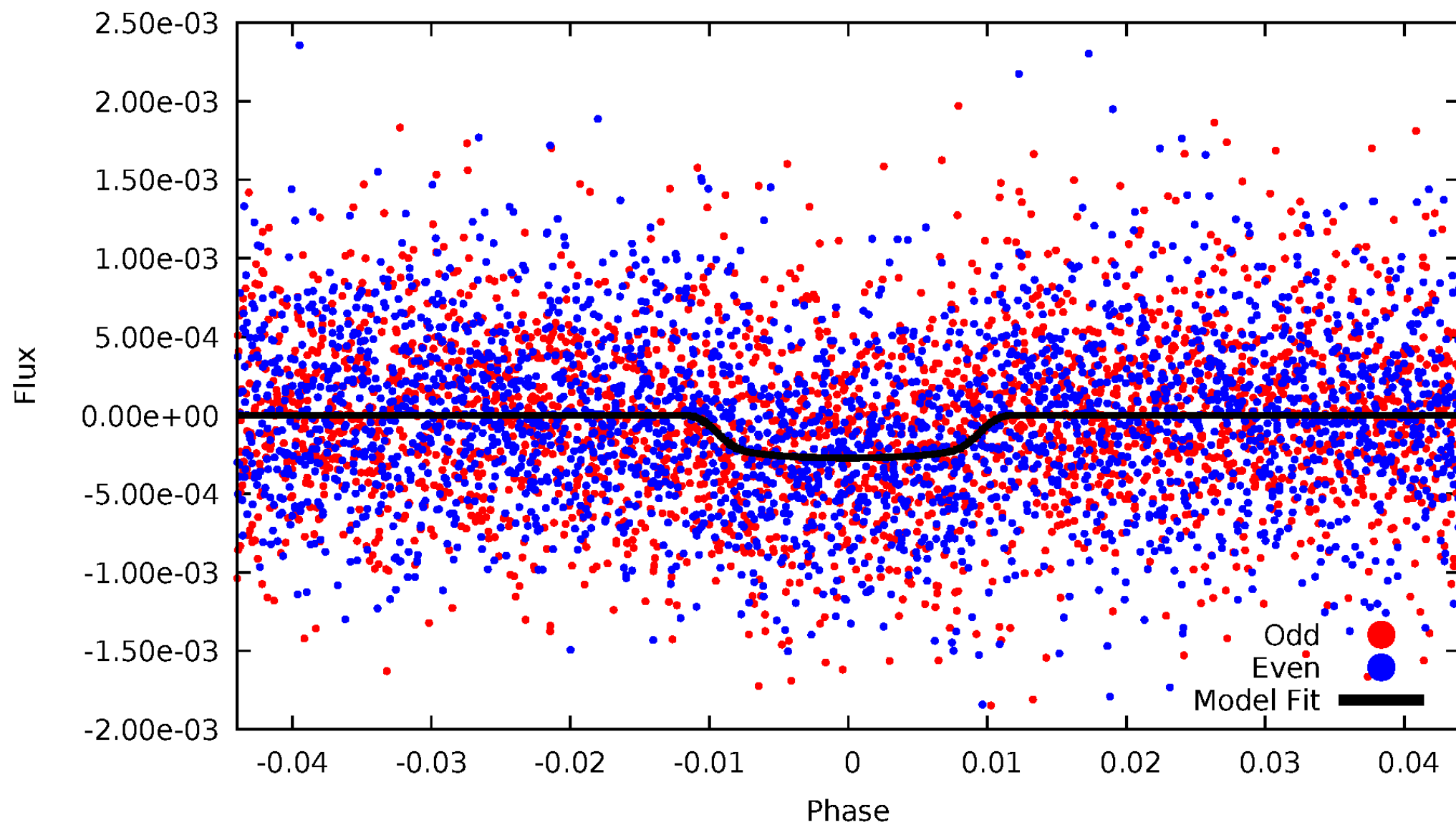


TCE 003447722-03



# DV Odd/Even

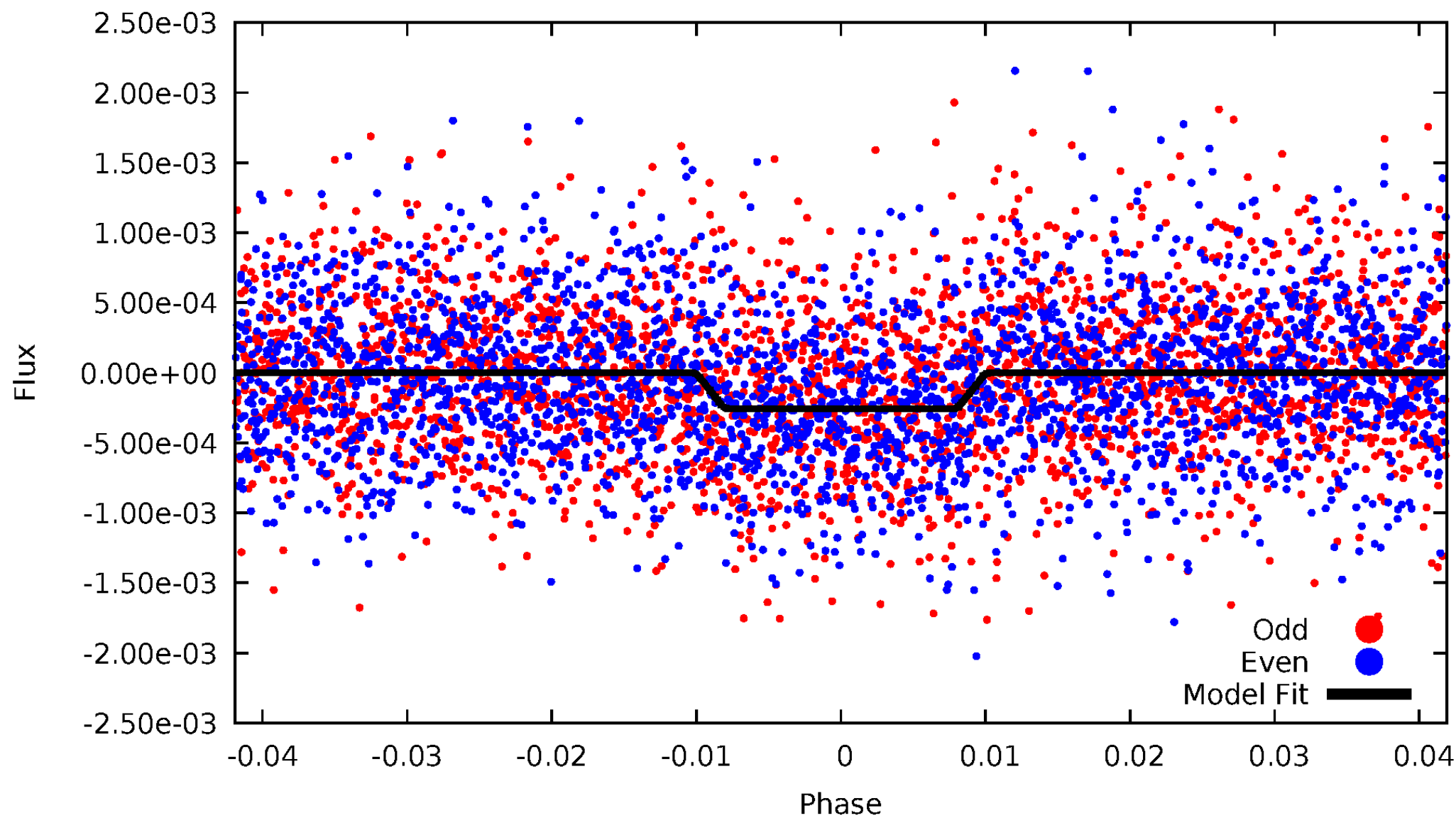
TCE 003447722-03



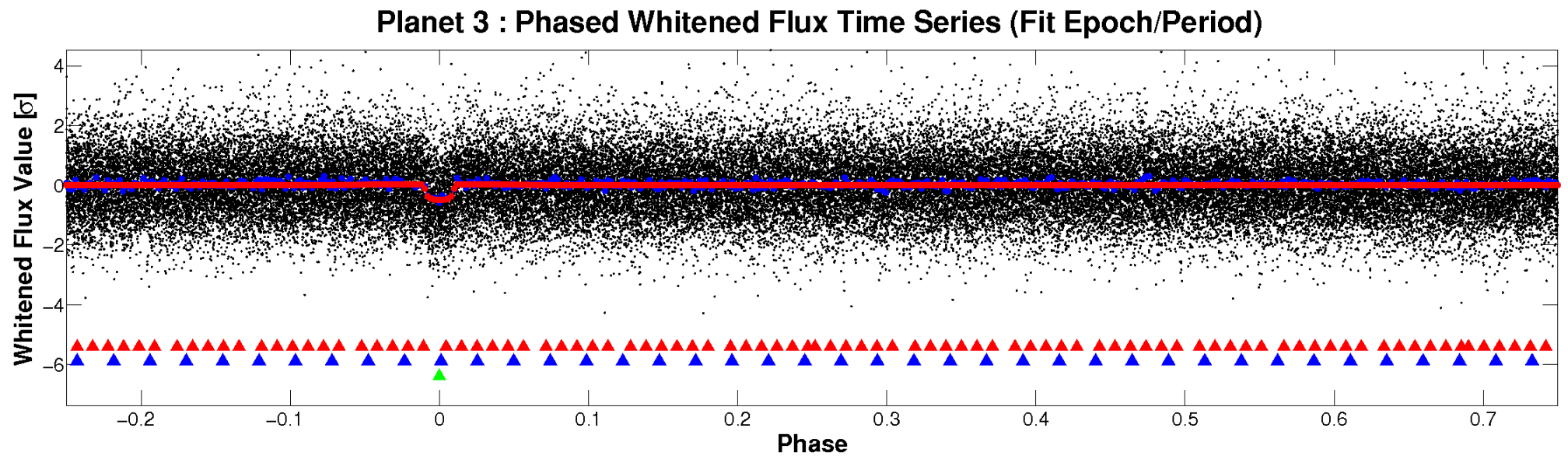
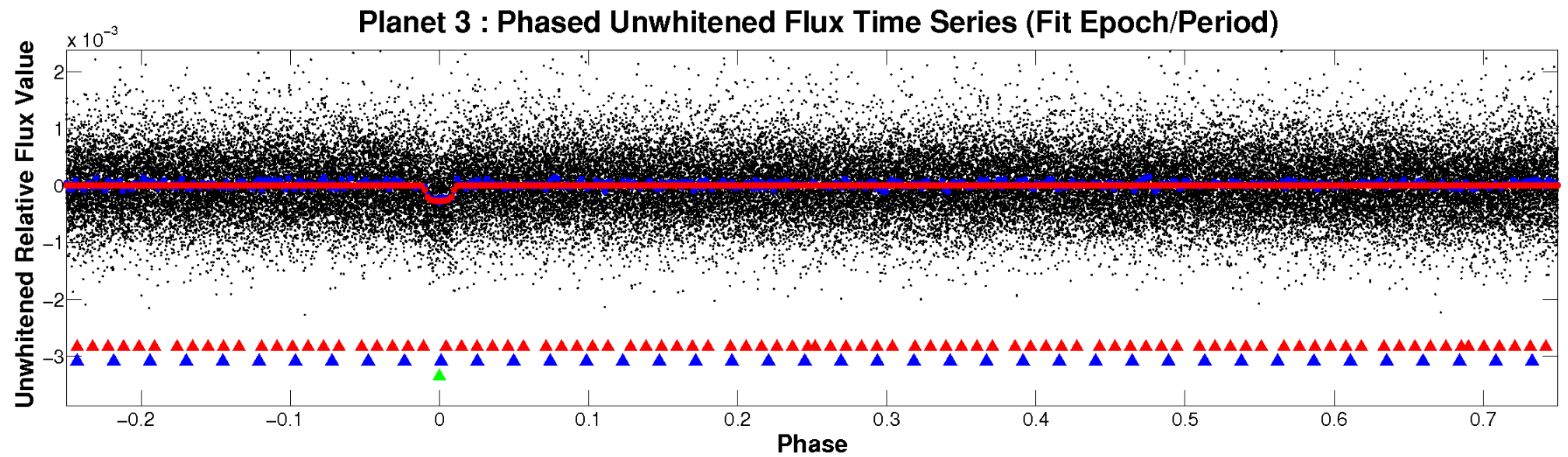


# ALT Odd/Even

TCE 003447722-03

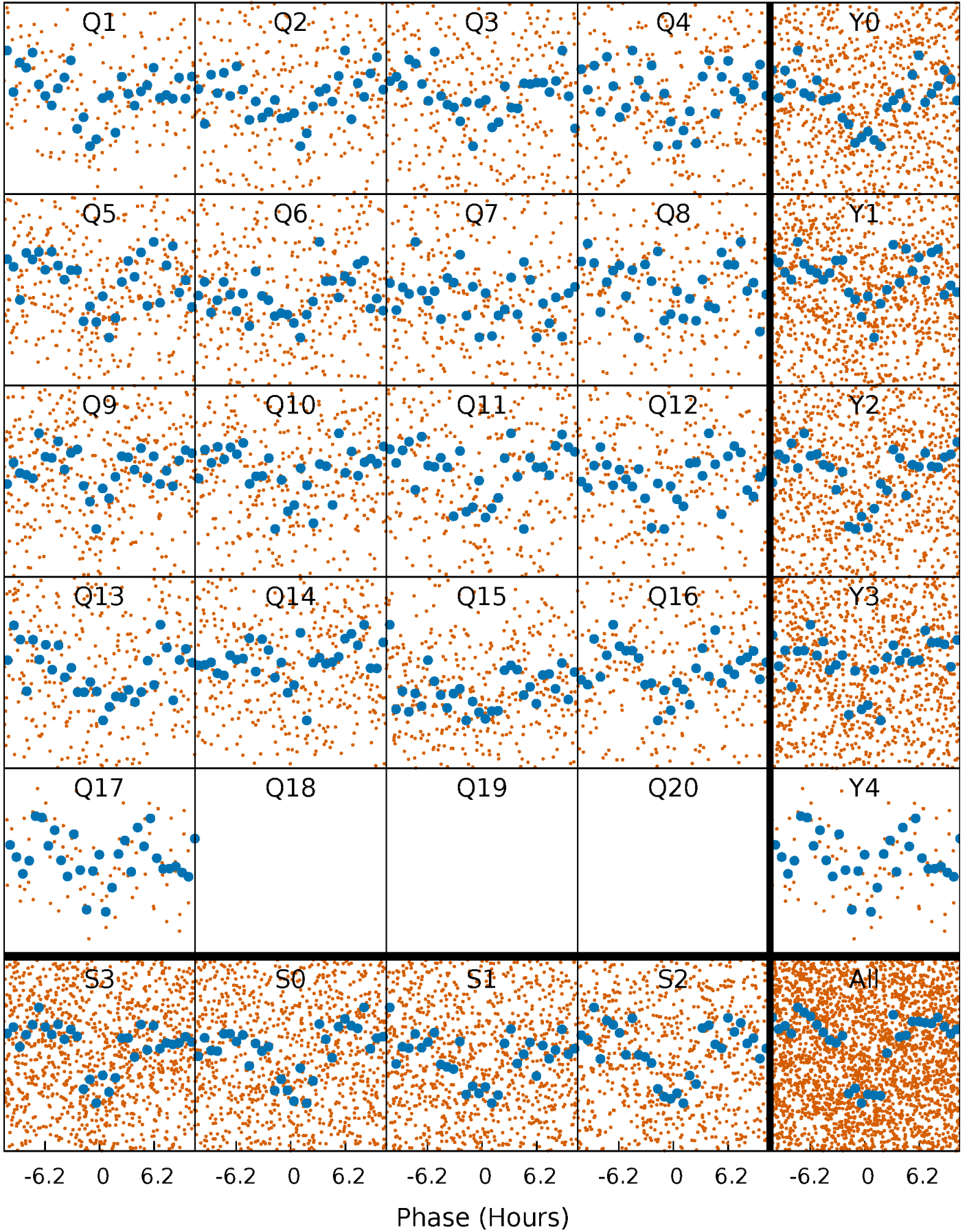


# Non-Whitened Vs. Whitened Light Curve



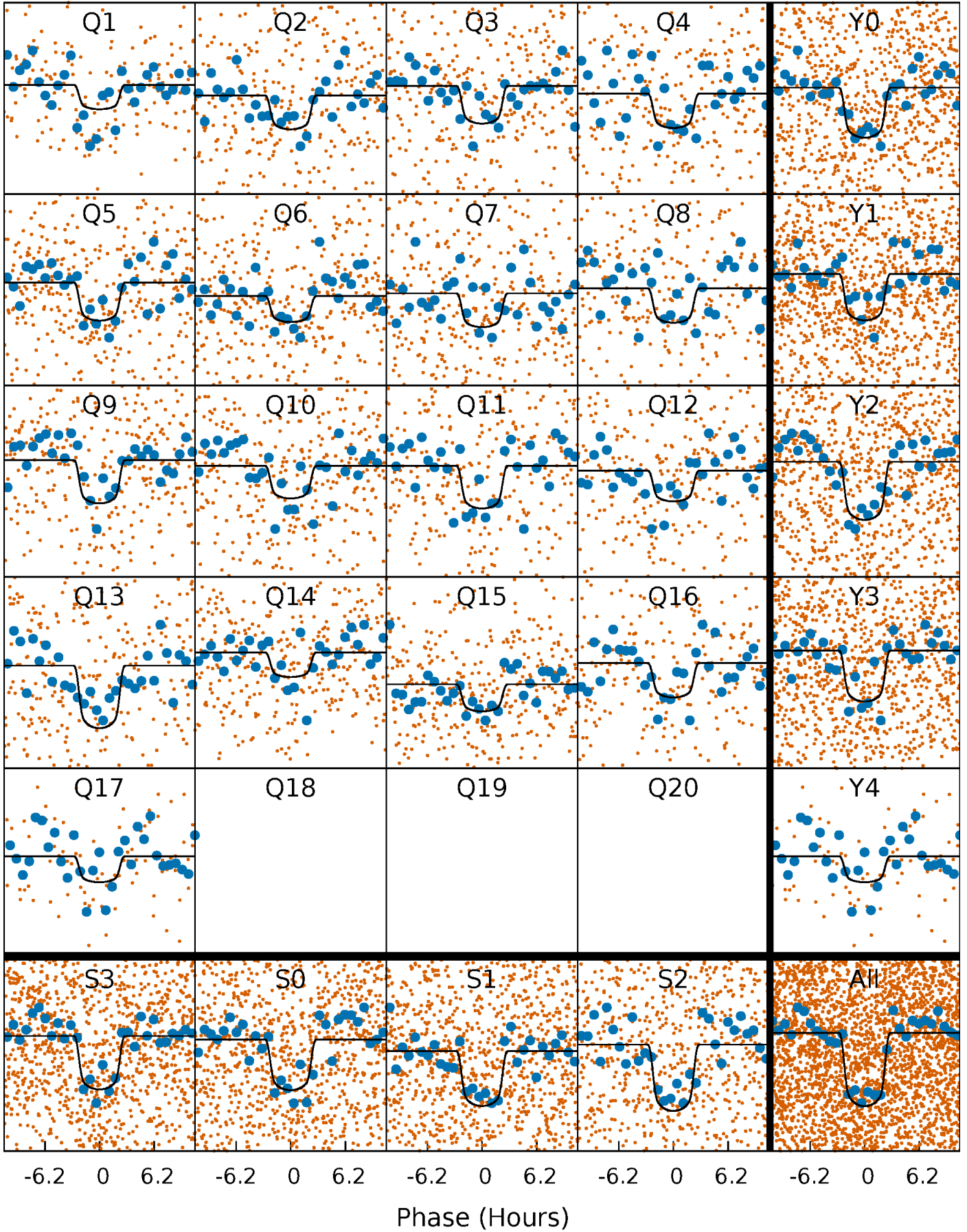
# PDC Quarter-Phased Transit Curves

TCE 003447722-03 P= 10.300749 Days  $T_0=132.435188$  (BKJD)



# DV Quarter-Phased Transit Curves

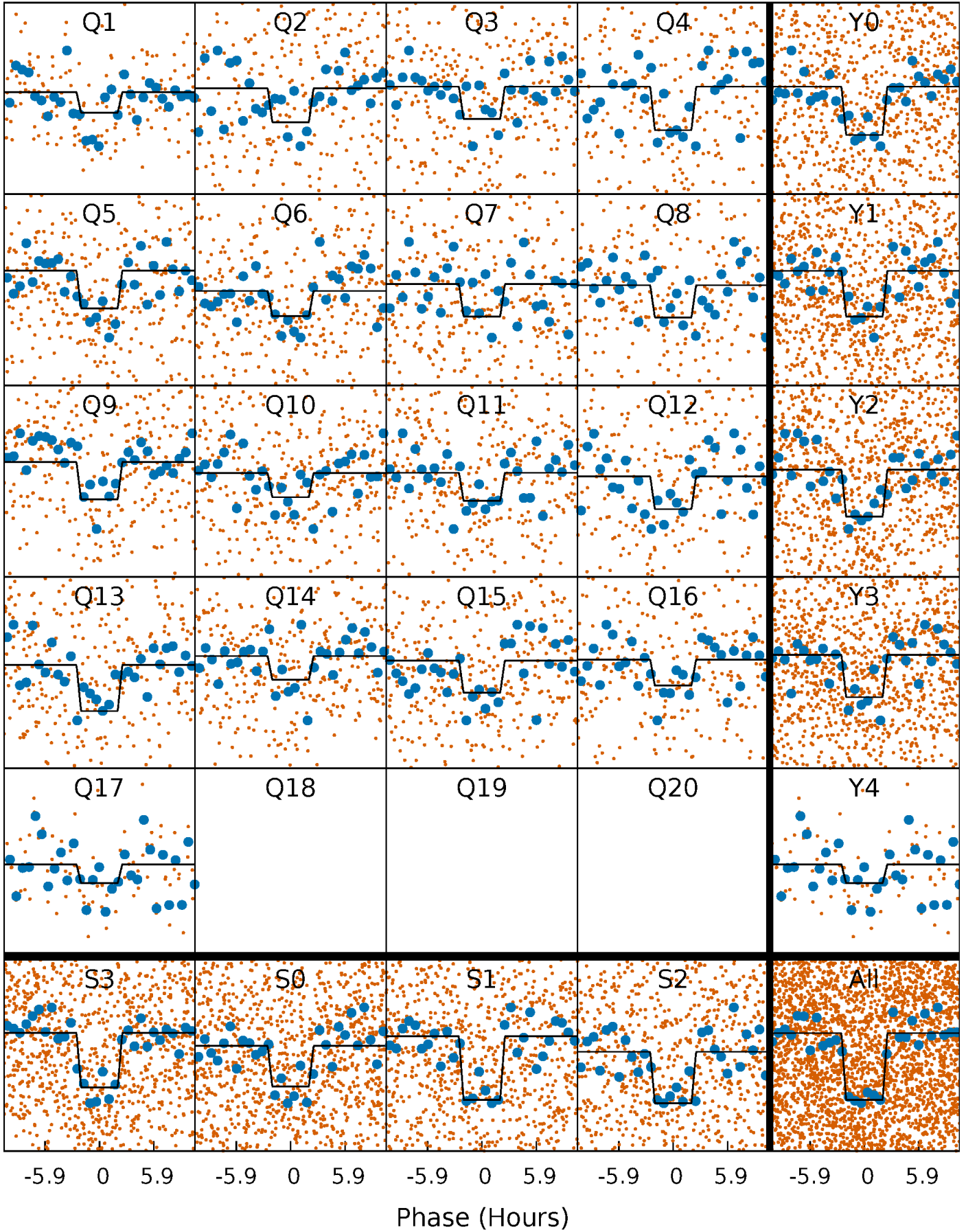
TCE 003447722-03 P= 10.300749 Days  $T_0=132.435188$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

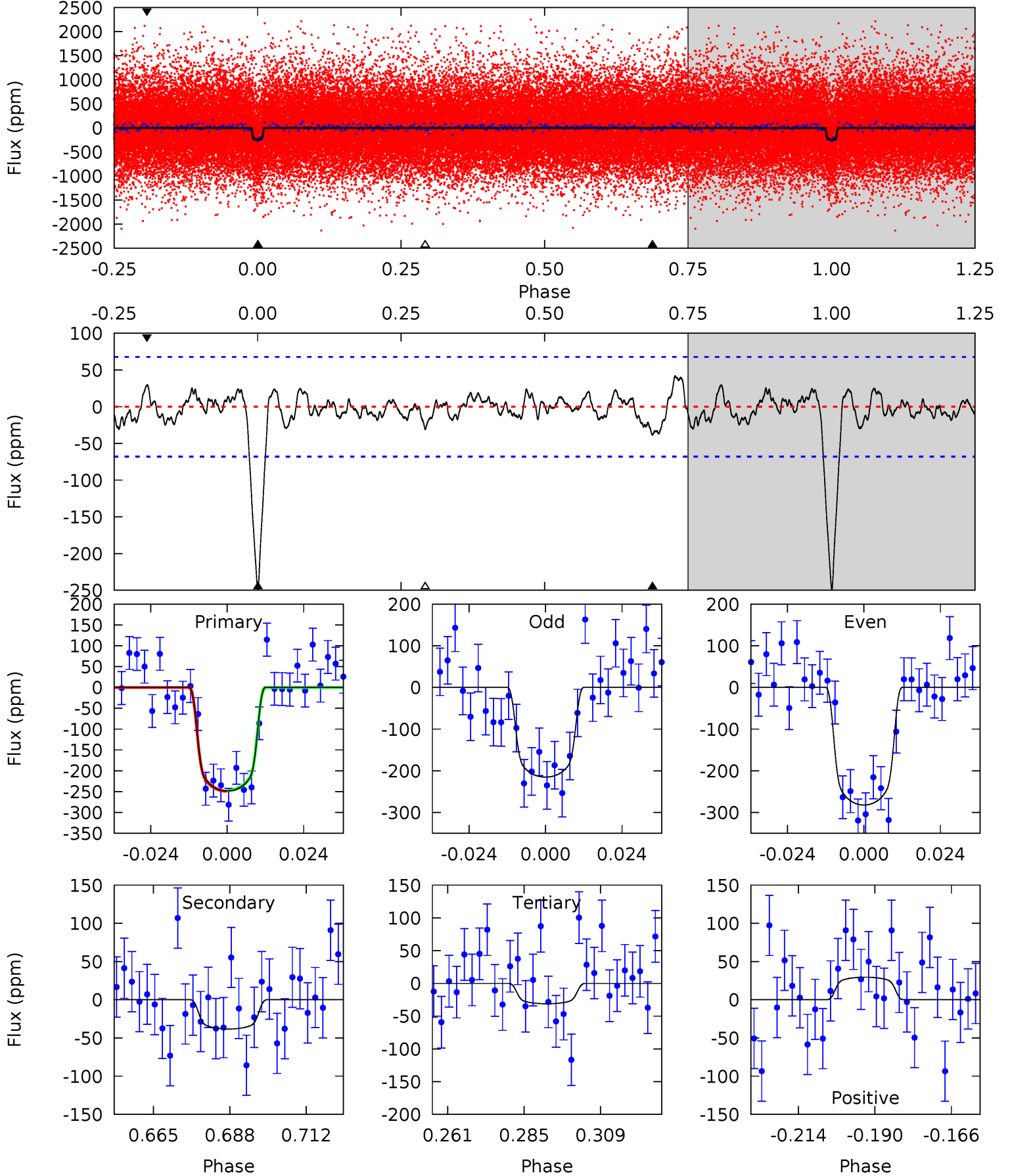
TCE 003447722-03     $P = 10.300731$  Days     $T_0 = 132.438245$  (BKJD)



# DV Model-Shift Uniqueness Test

003447722-03, P = 10.300749 Days, E = 122.134439 Days

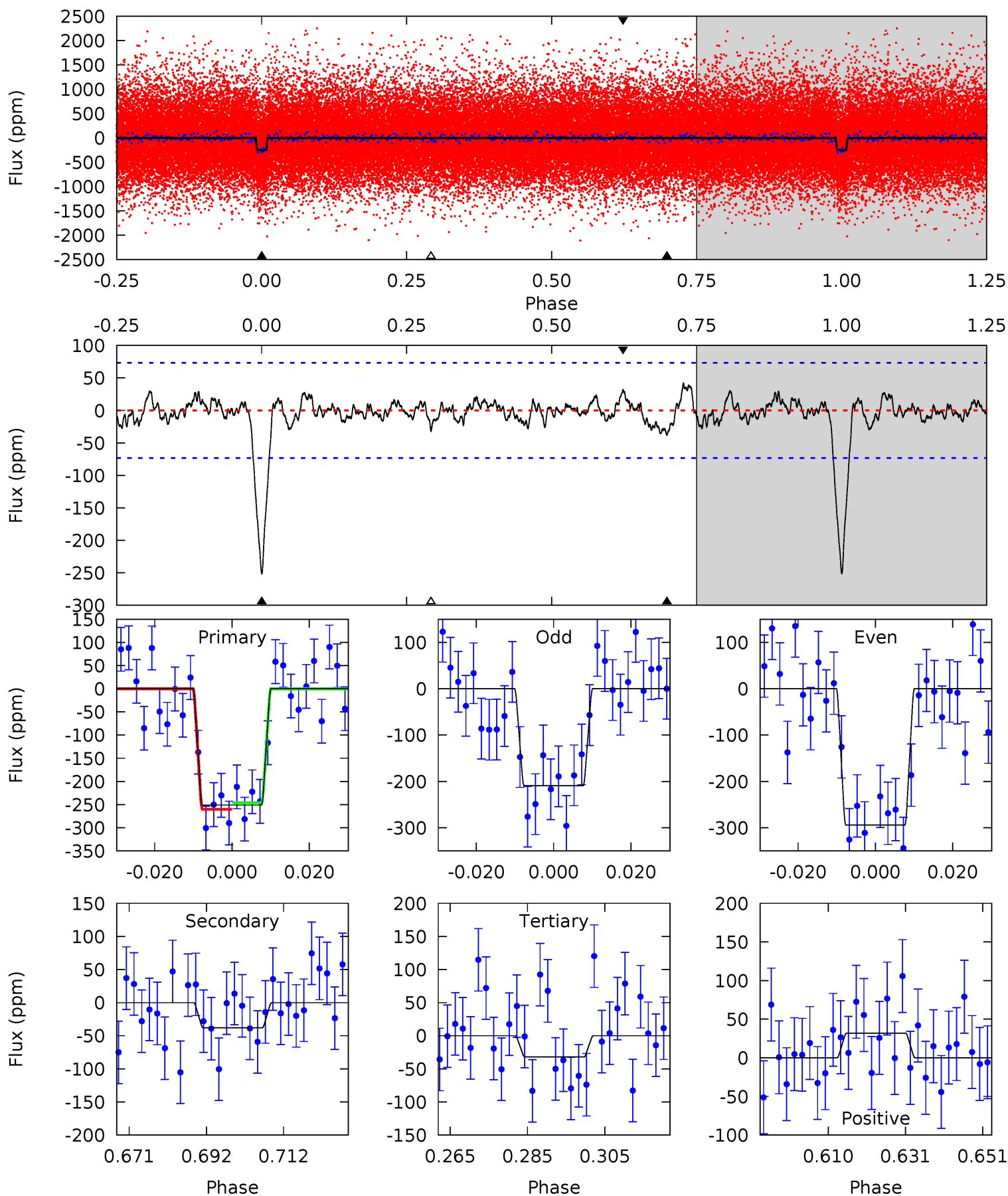
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	2.74	2.23	2.11	4.86	2.26	0.96	15.5	15.7	0.51	0.63	2.40	0.99	0.14	0.06



# Alt Model-Shift Uniqueness Test

003447722-03, P = 10.300731 Days, E = 122.137514 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
16.8	2.54	2.14	2.13	4.89	2.32	0.87	14.6	14.6	0.40	0.41	2.84	1.04	0.14	0.46





### Stellar Parameters For KIC 003447722

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6157^{+123}_{-123}$	$4.224^{+0.149}_{-0.108}$	$-0.080^{+0.150}_{-0.150}$	$1.330^{+0.225}_{-0.225}$	$1.080^{+0.109}_{-0.081}$	$0.647^{+0.440}_{-0.224}$
	+2%/-2%	+4%/-3%	+188%/-188%	+17%/-17%	+10%/-8%	+68%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003447722-03 / KOI 1198.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-38 \pm 14$	$2.68^{+0.37}_{-0.32}$	$1413^{+70}_{-65}$	$3884^{+264}_{-327}$	$26^{+14}_{-11}$
Alt.	$-38 \pm 15$	$2.31^{+0.35}_{-0.32}$	$1413^{+71}_{-70}$	$4105^{+355}_{-374}$	$36^{+22}_{-15}$

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

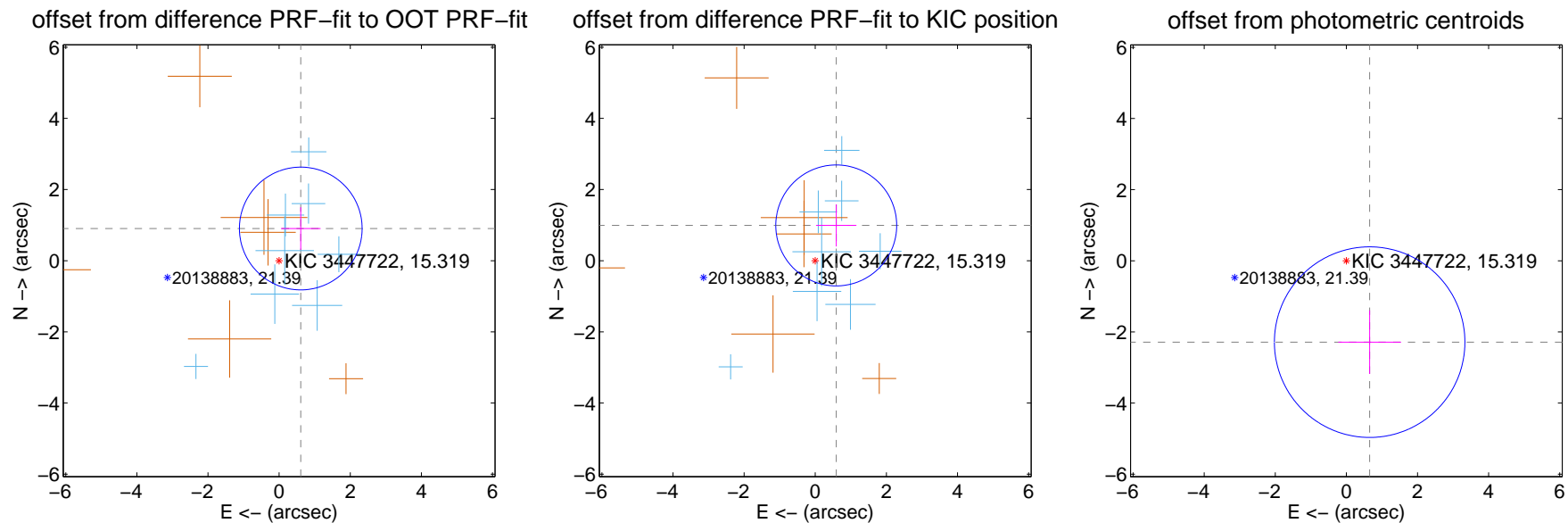
## DV Centroid Data

Supplemental centroid analysis for 003447722-03. Kepler magnitude: 15.32. Transit SNR 14.80

There are 8 quarters with good PRF difference image offsets

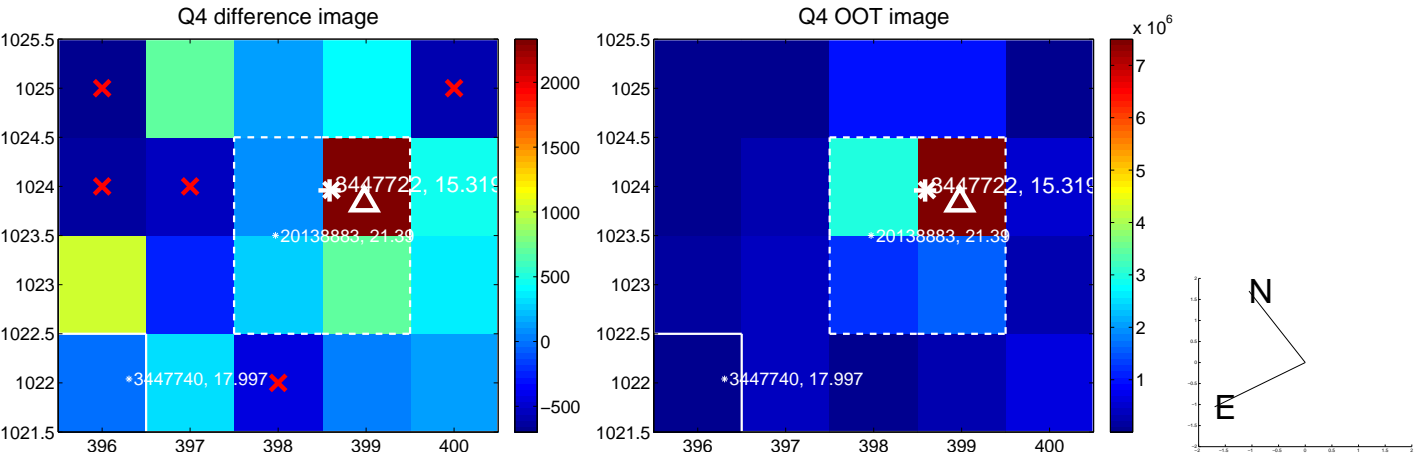
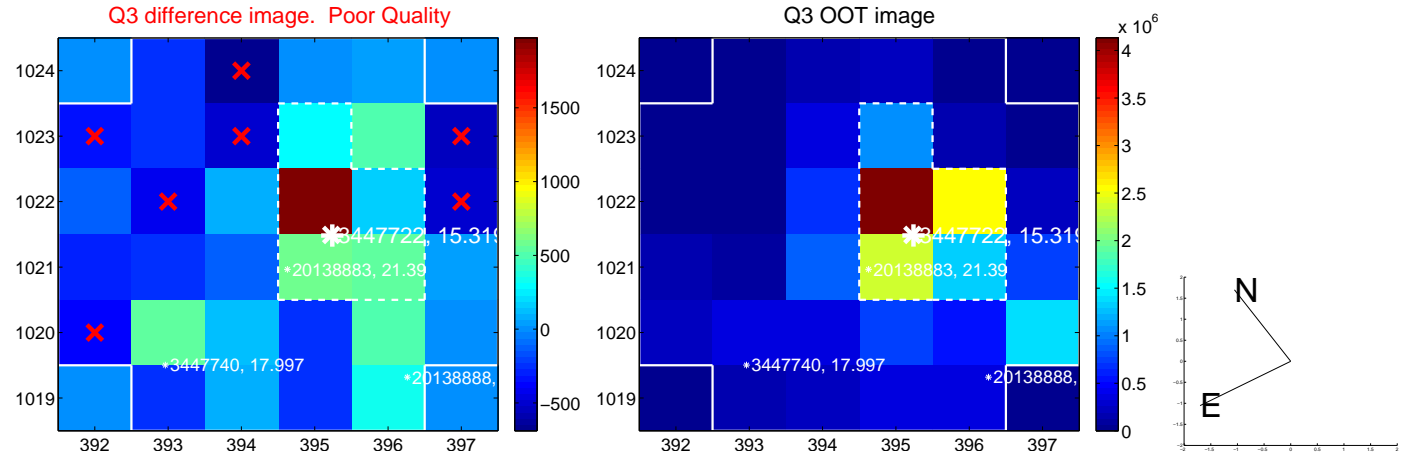
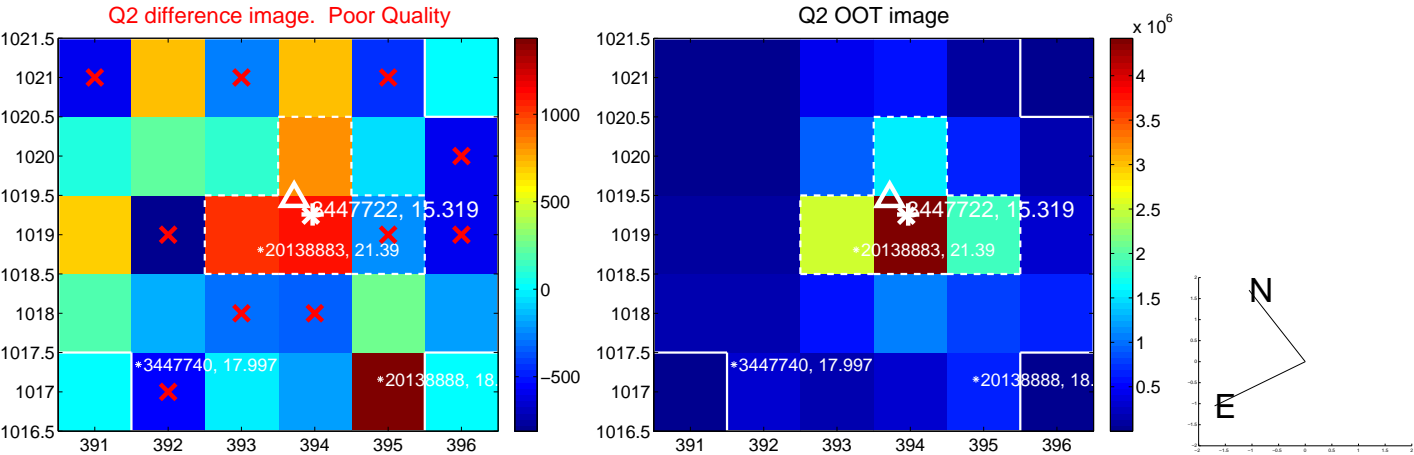
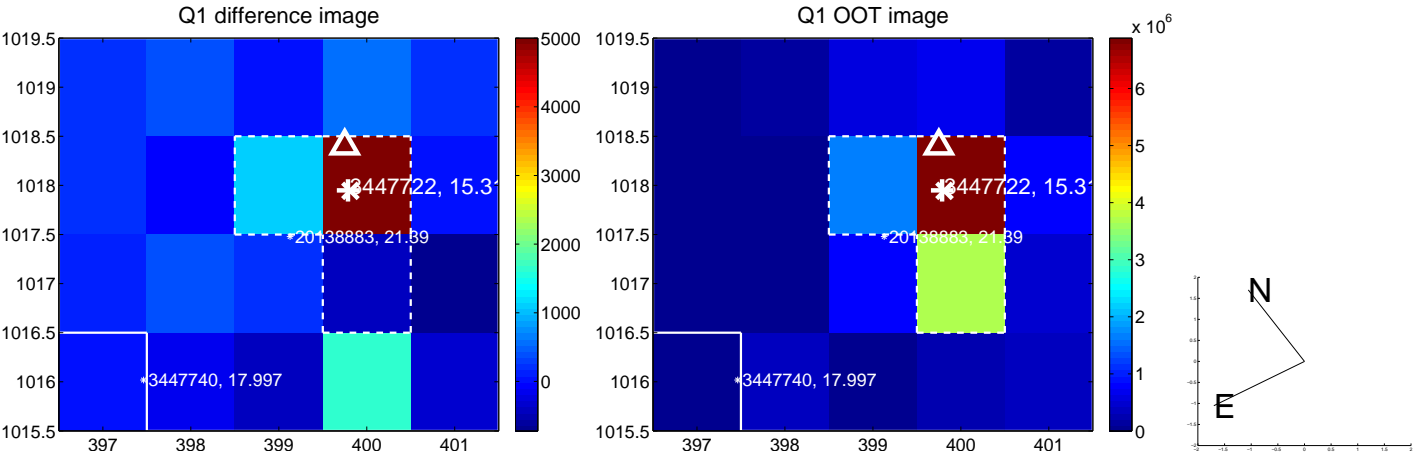
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.090 \pm 0.575$	1.90	$-0.608 \pm 0.557$	$0.905 \pm 0.600$
PRF-fit source offset from KIC position	$1.154 \pm 0.567$	2.04	$-0.590 \pm 0.567$	$0.991 \pm 0.591$
photometric centroid source offset	$2.38 \pm 0.89$	2.66	$-0.65 \pm 0.88$	$-2.29 \pm 0.89$

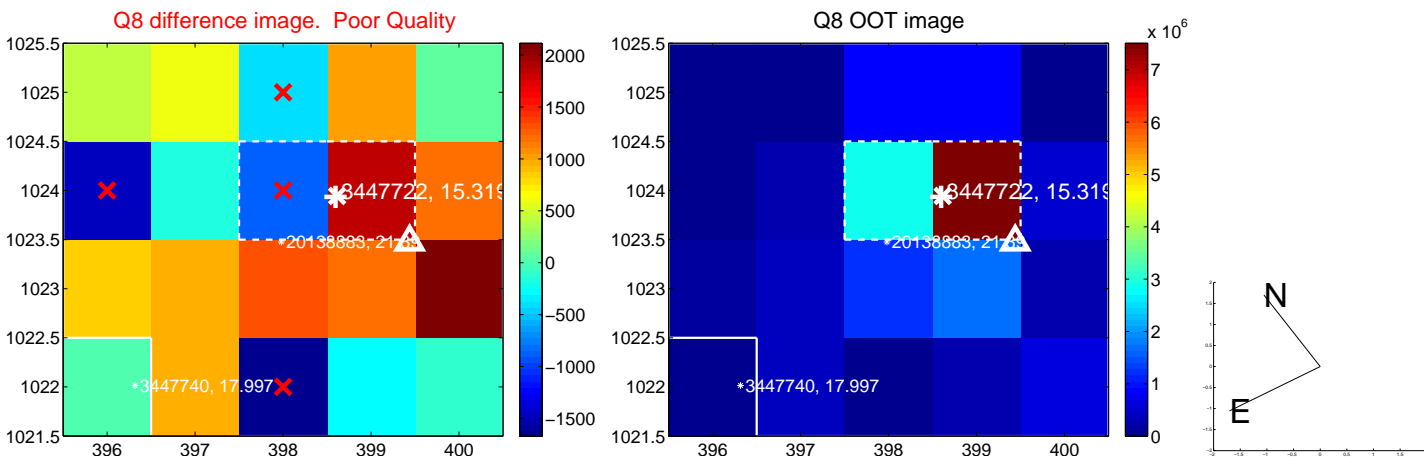
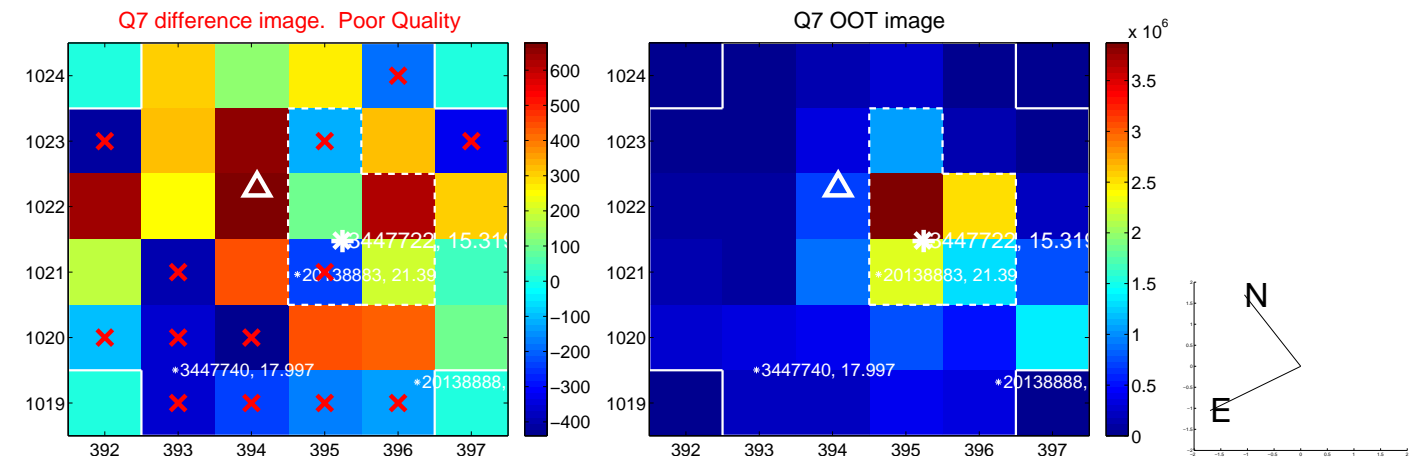
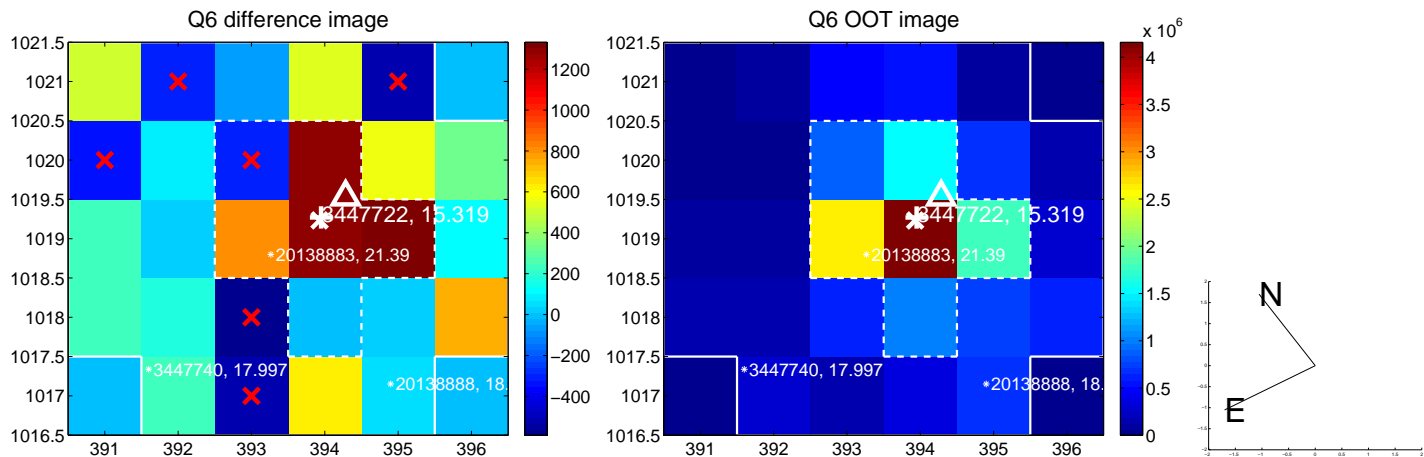
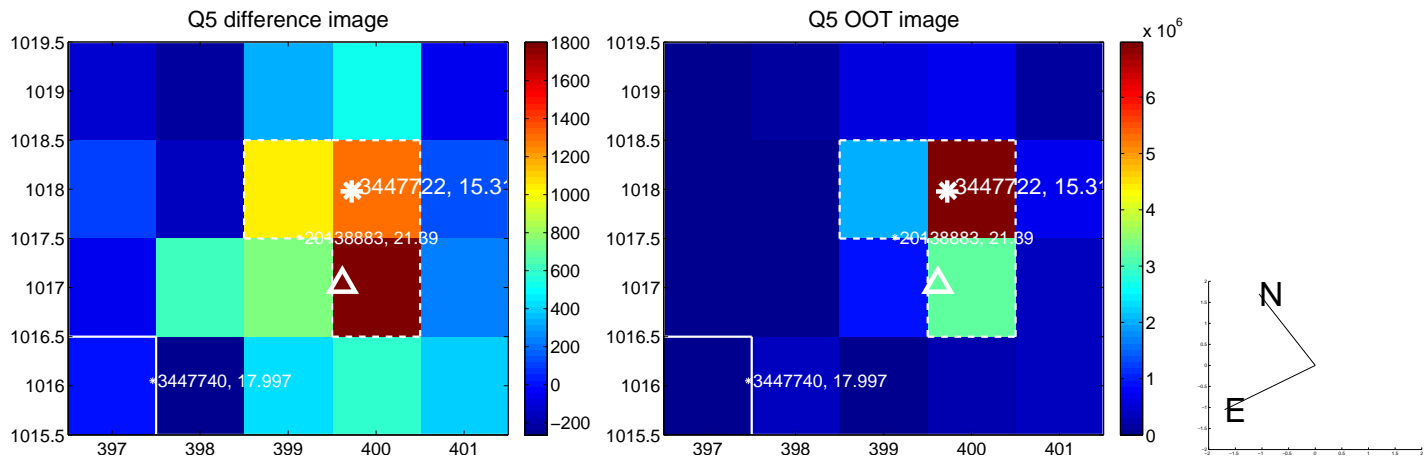


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

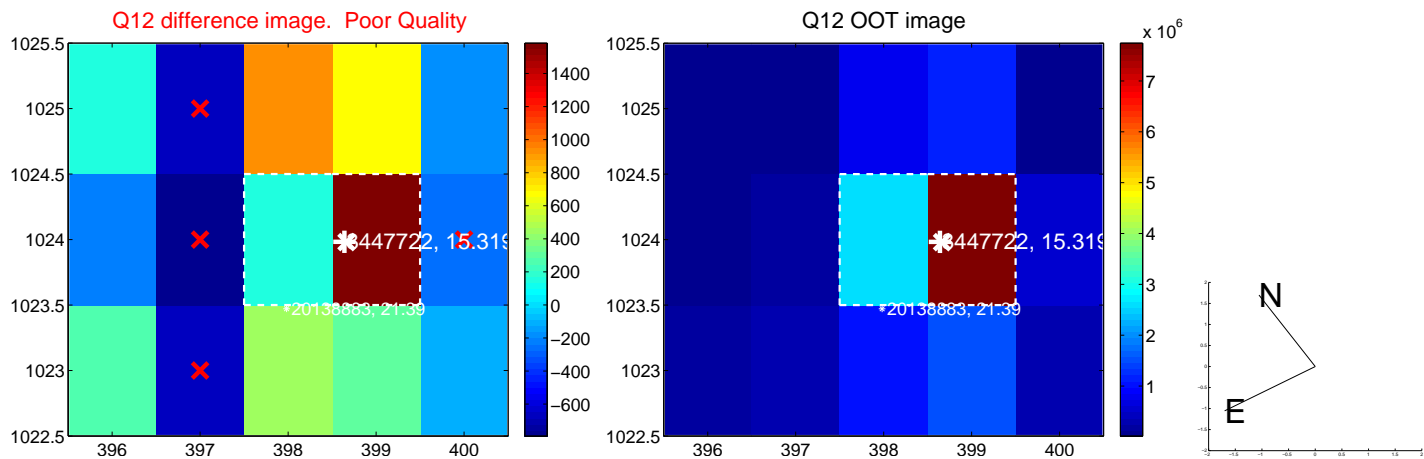
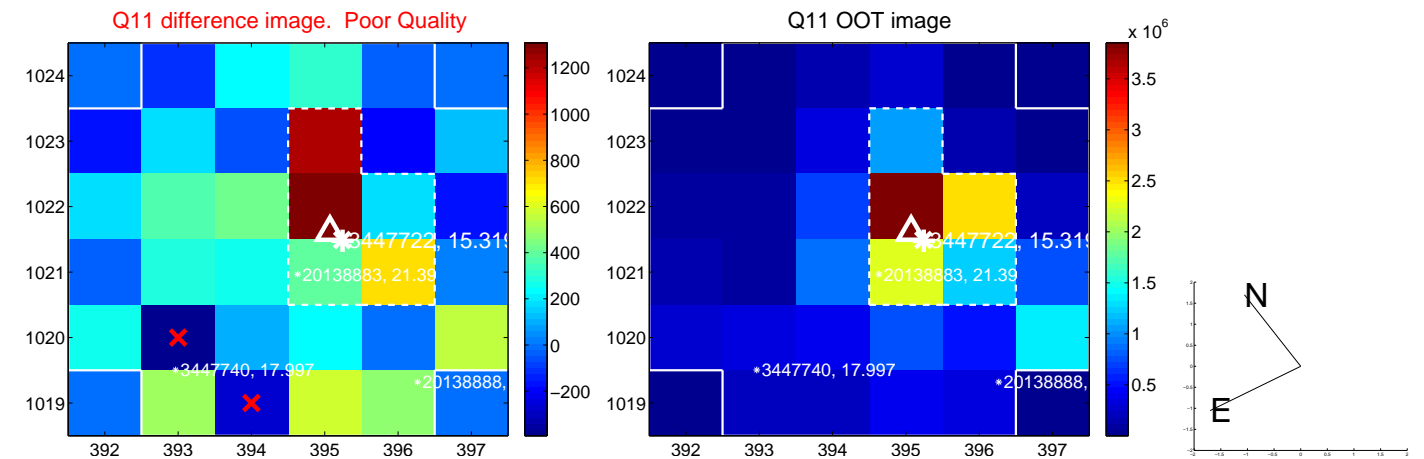
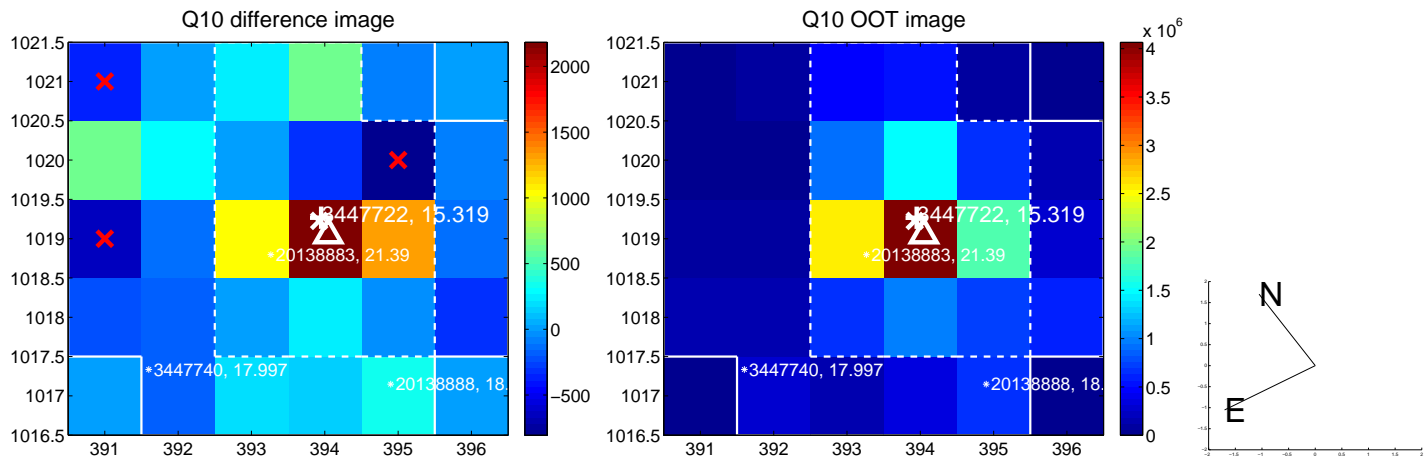
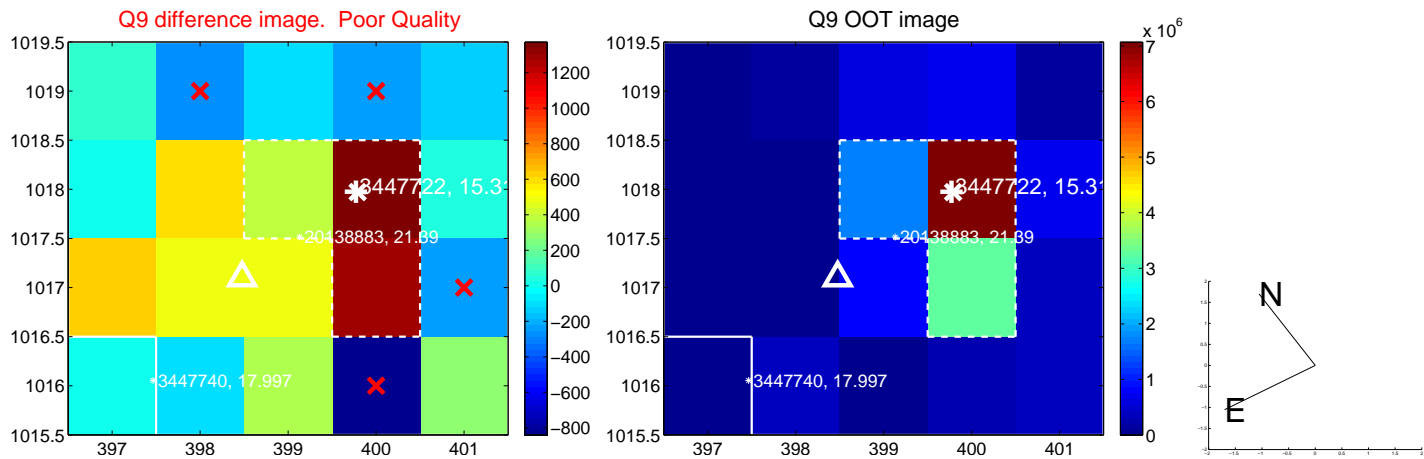
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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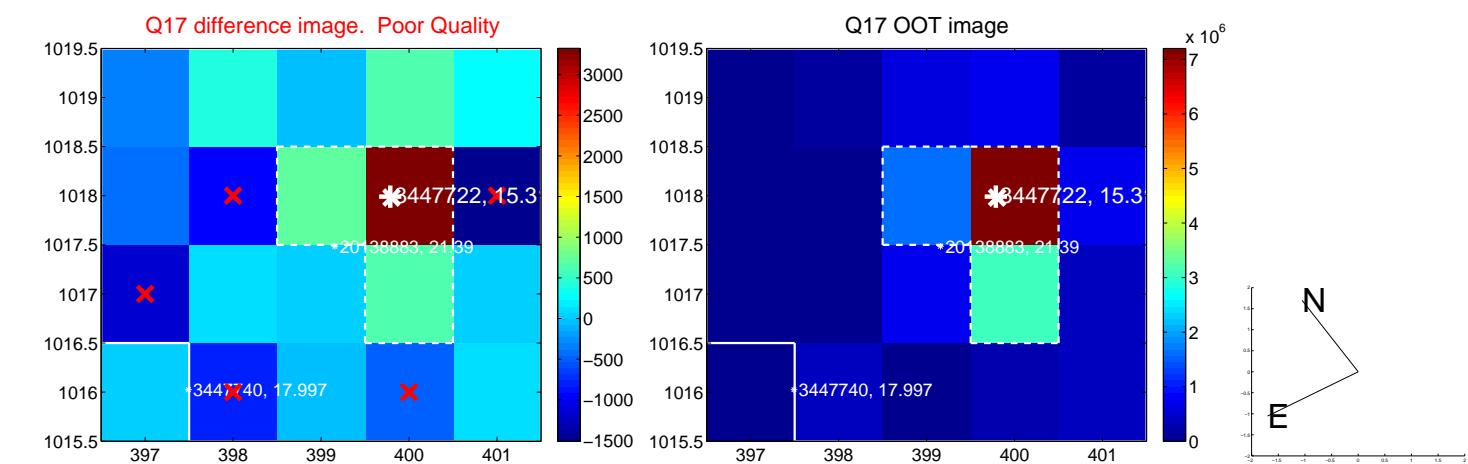
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



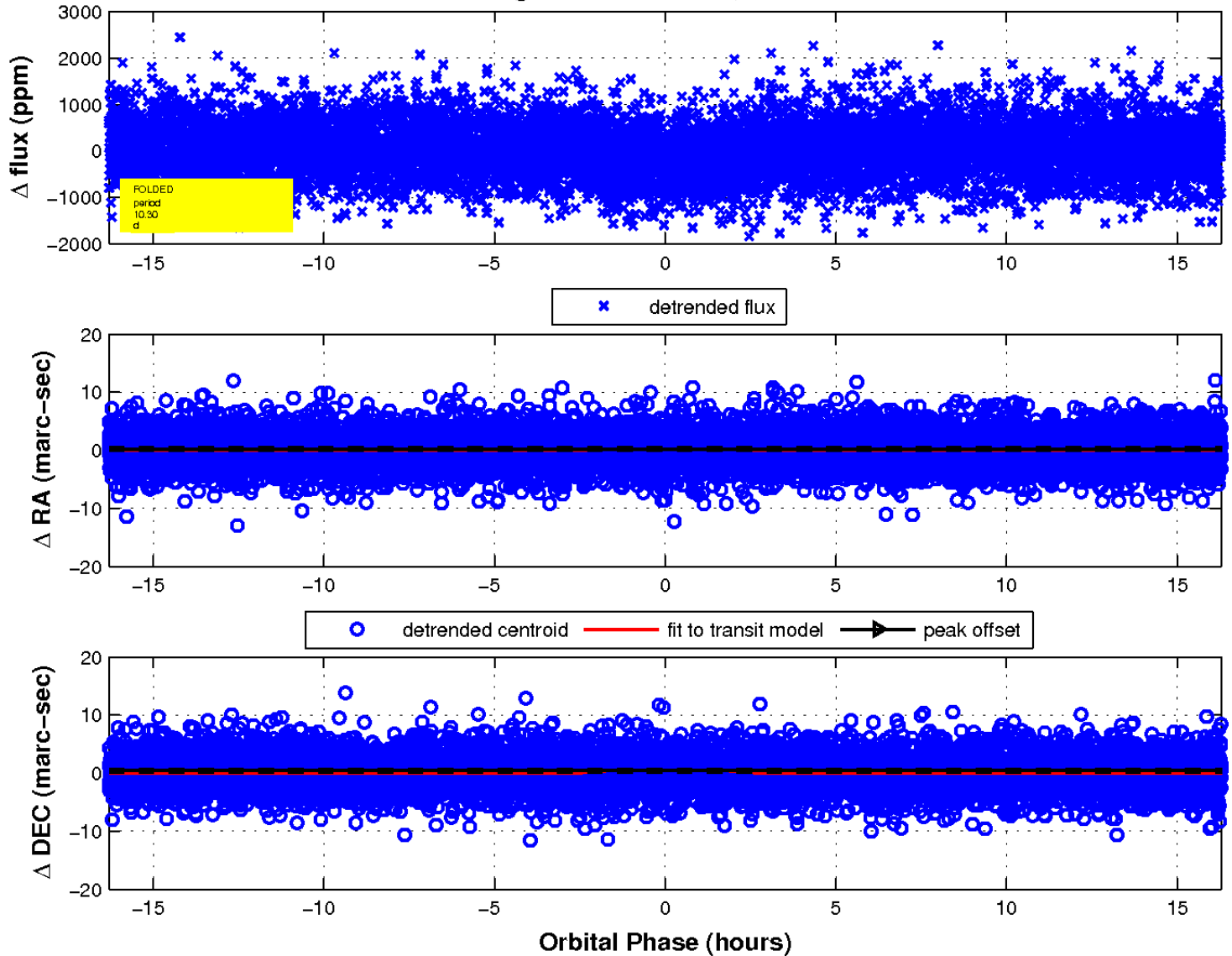




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

