

KIC 003342794

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})
003342794-01	OBS	2278.01	14.172211	142.602678	240.9	2.662	21.6	23.5	1.31	5845	2.37	137.57
003342794-02	OBS	2278.02	4.920275	135.408847	67.7	4.138	14.9	14.1	1.31	5845	1.28	563.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003342794-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003342794-02	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.

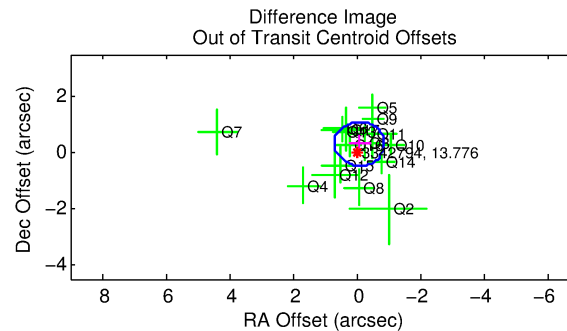
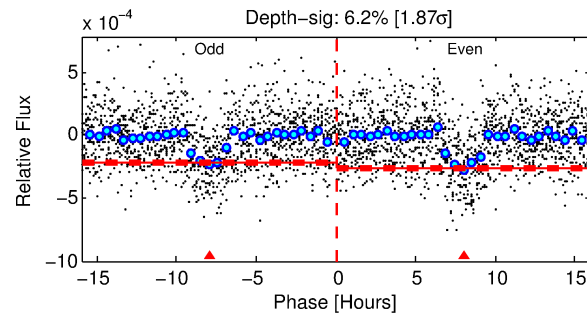
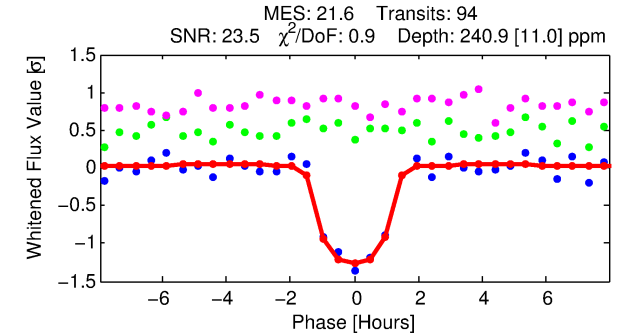
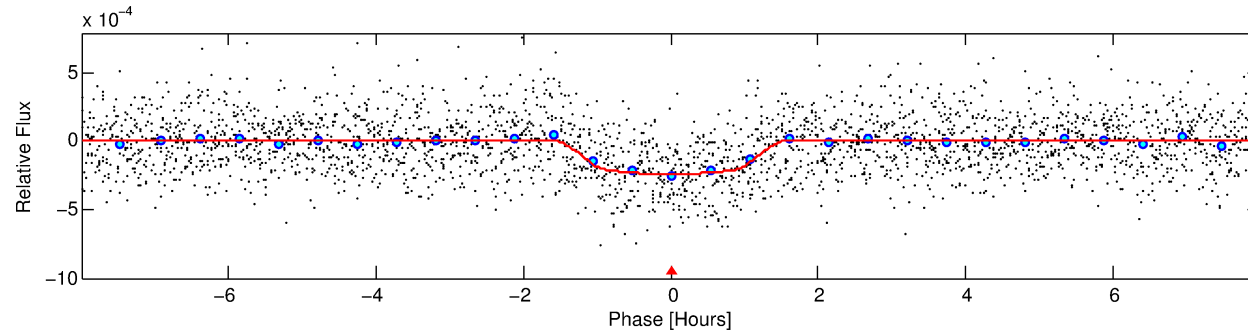
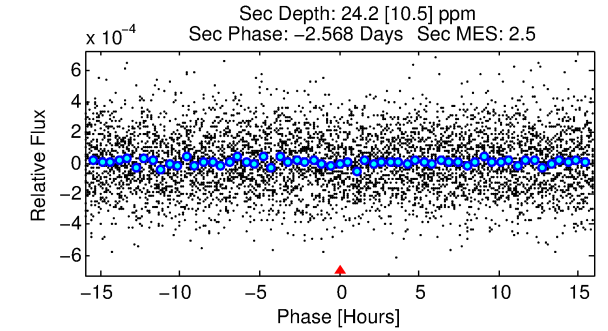
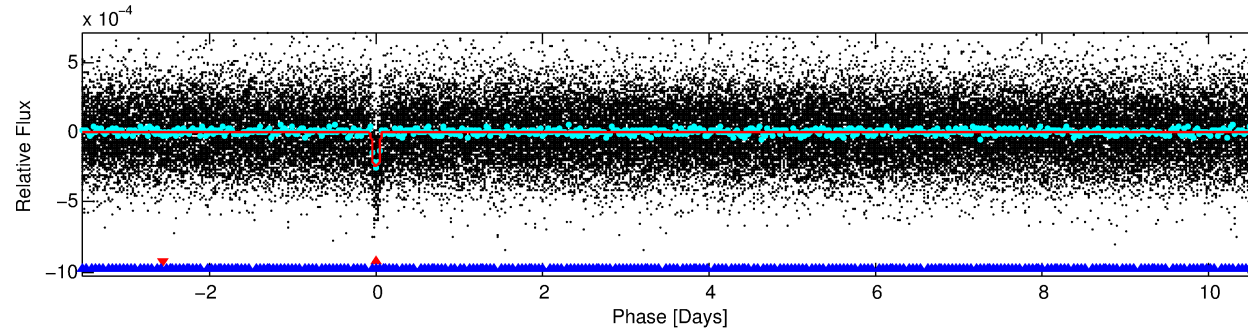
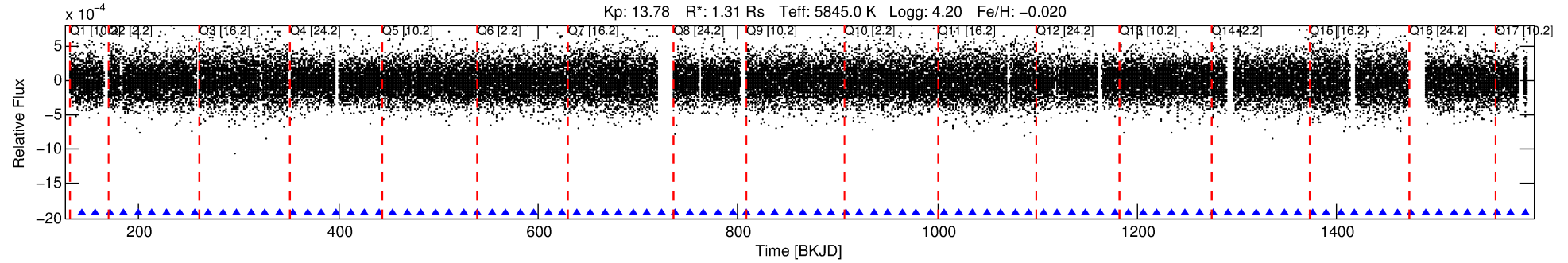
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003342794-01

No Significant Match Found

DV One-Page Summary

KIC: 3342794 Candidate: 1 of 2 Period: 14.172 d
KOI: K02278.01 Name: Kepler-376c Corr: 0.975



DV Fit Results:

Period = 14.17221 [0.00005] d
Epoch = 142.6027 [0.0028] BKJD
Rp/R* = 0.0165 [0.0052]
a/R* = 21.18 [31.69]
b = 0.87 [0.42]
Seff = 137.57 [42.68]
Teq = 873 [68] K
Rp = 2.37 [0.87] Re
a = 0.1146 [0.0215] AU
Ag = 31.22 [25.58] [1.18σ]
Teffp = 3191 [612] K [3.77σ]

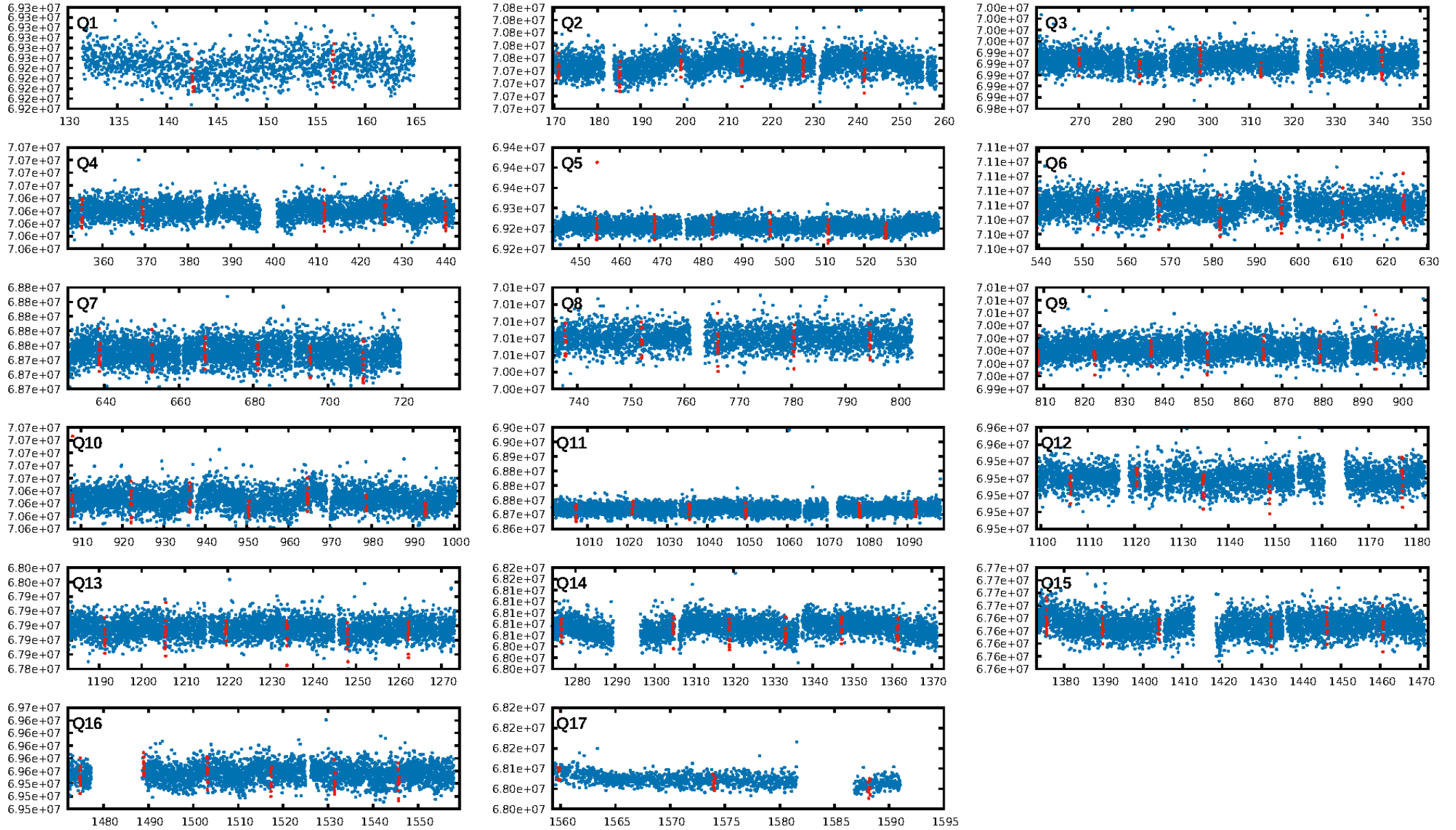
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.13σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.27e-99
RollingBand-fgt: 1.00 [89/89]
GhostDiagnostic-chr: 2.387
Centroid-sig: 5.5%
Centroid-so: 0.785 arcsec [1.22σ]
OotOffset-rm: 0.330 arcsec [1.27σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.163 arcsec [0.63σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

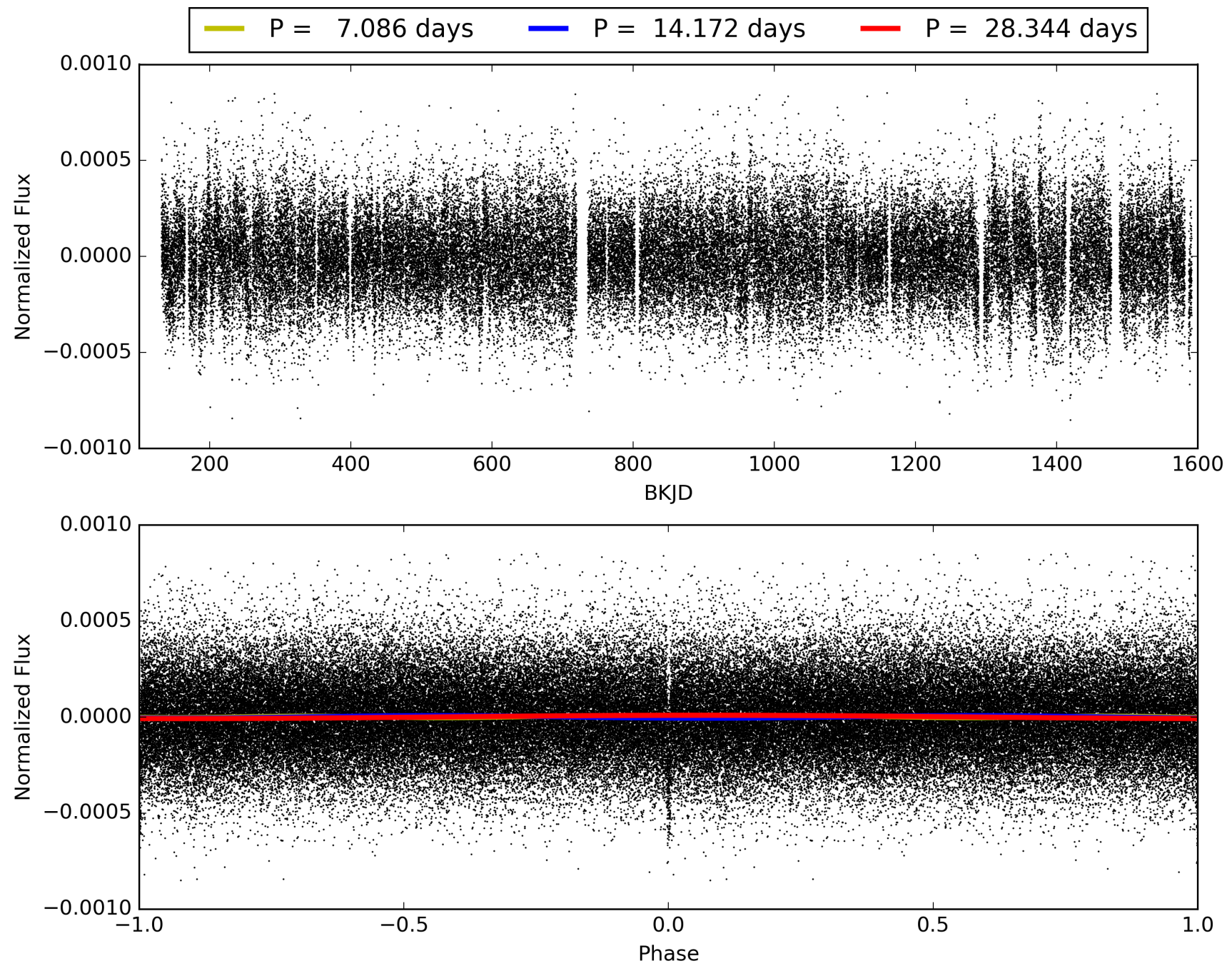
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:08:56 Z

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

TCE 003342794-01, PDC Light Curves

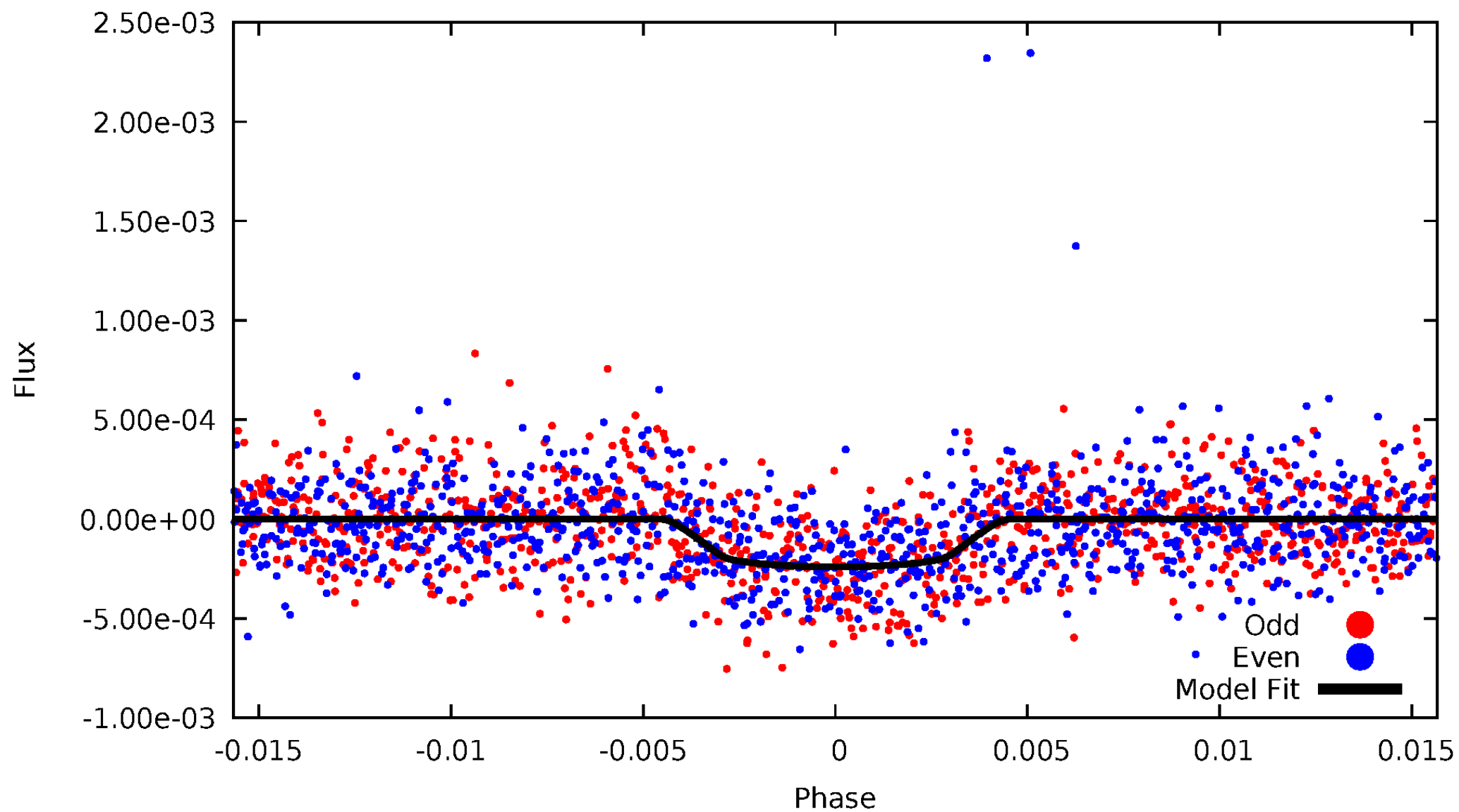


TCE 003342794-01



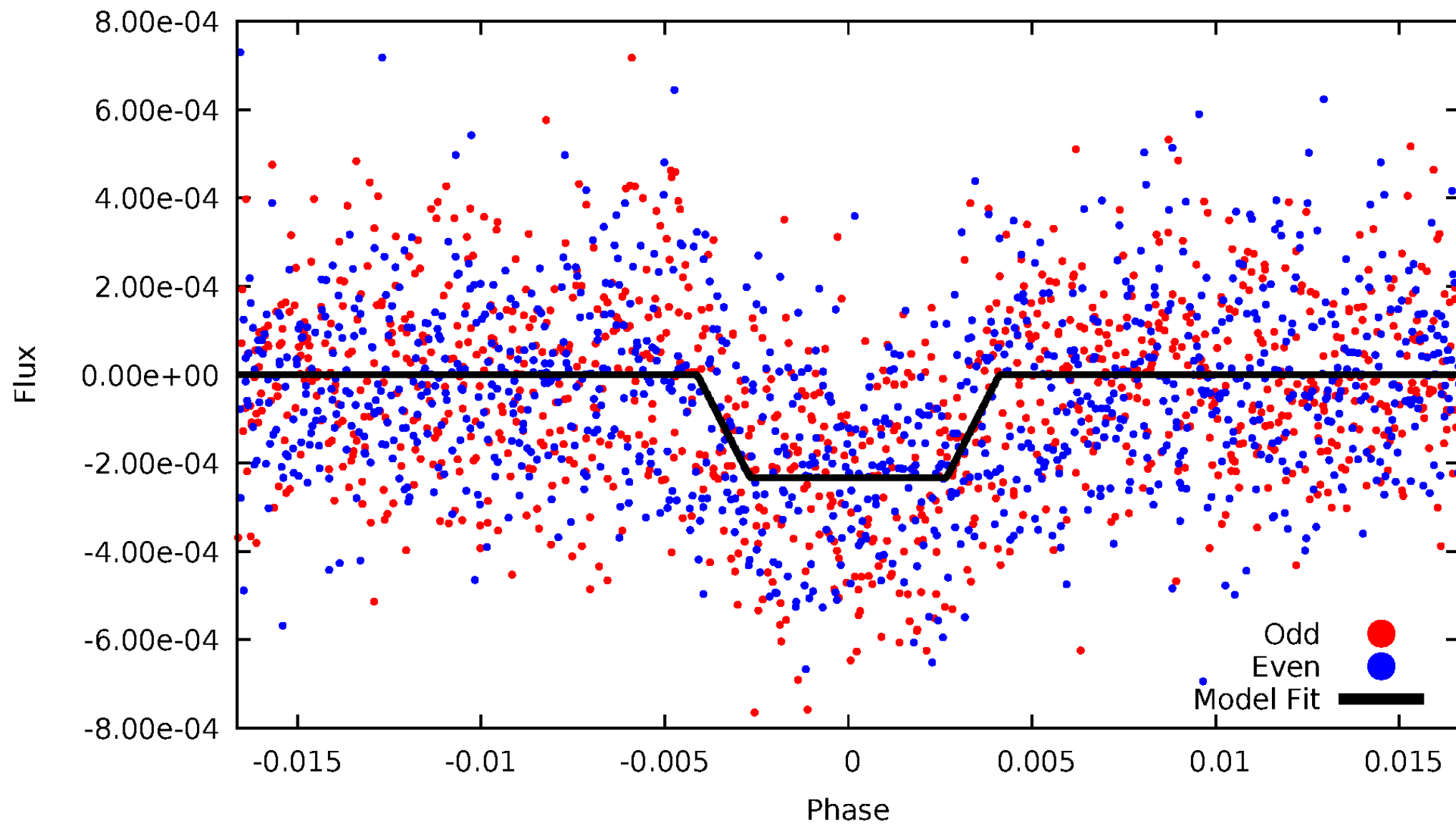
DV Odd/Even

TCE 003342794-01

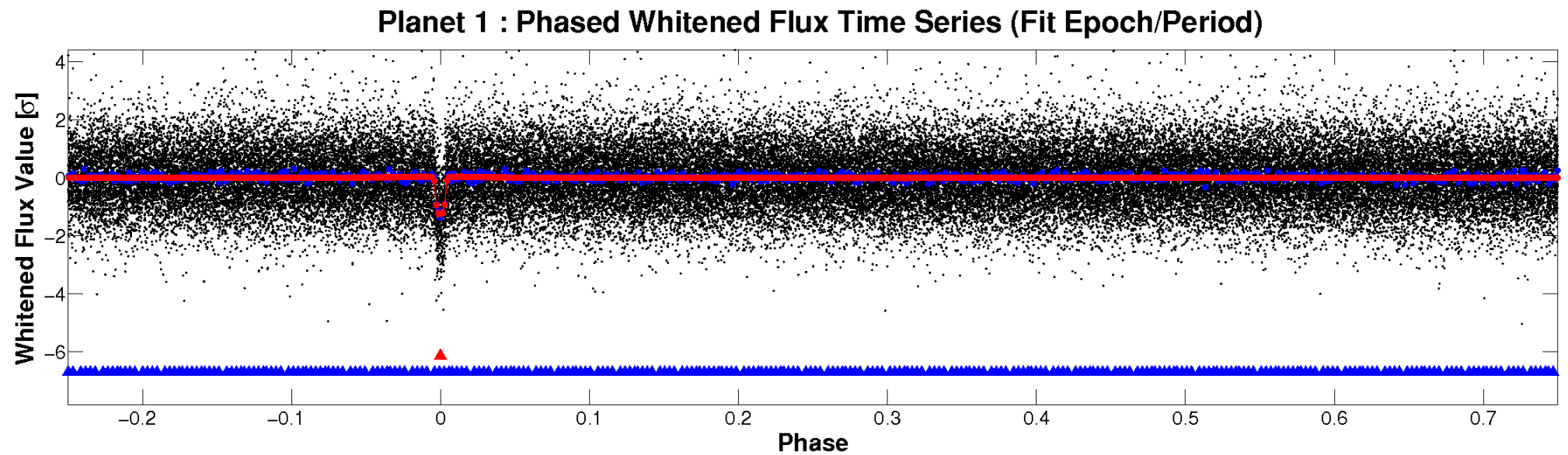
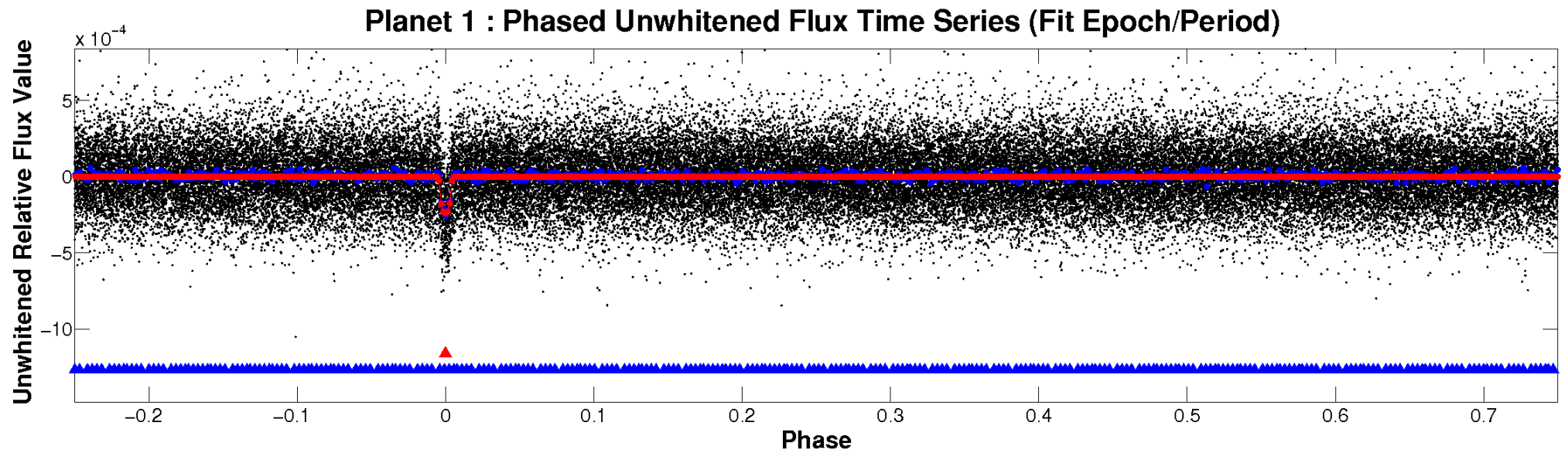


ALT Odd/Even

TCE 003342794-01

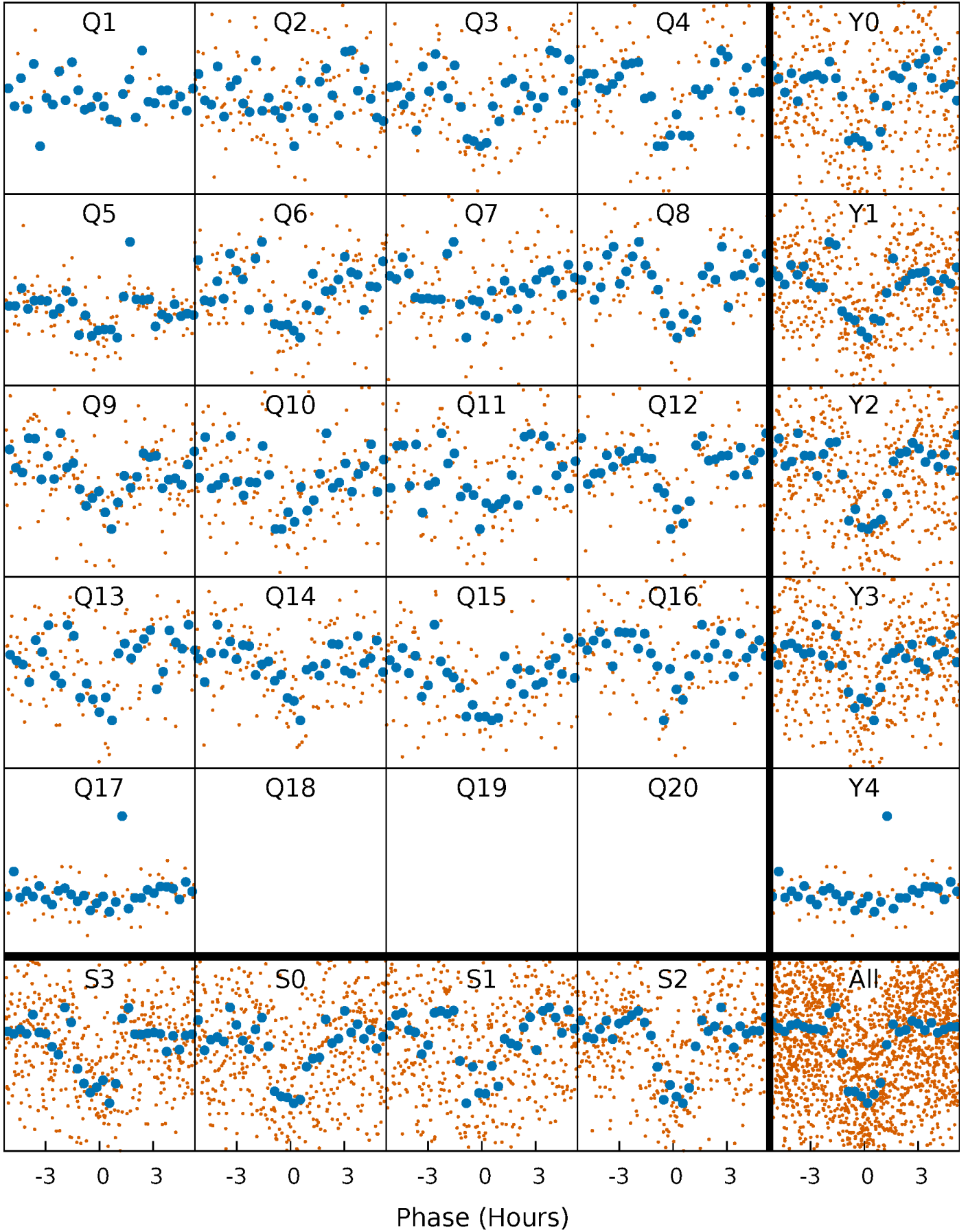


Non-Whitened Vs. Whitened Light Curve



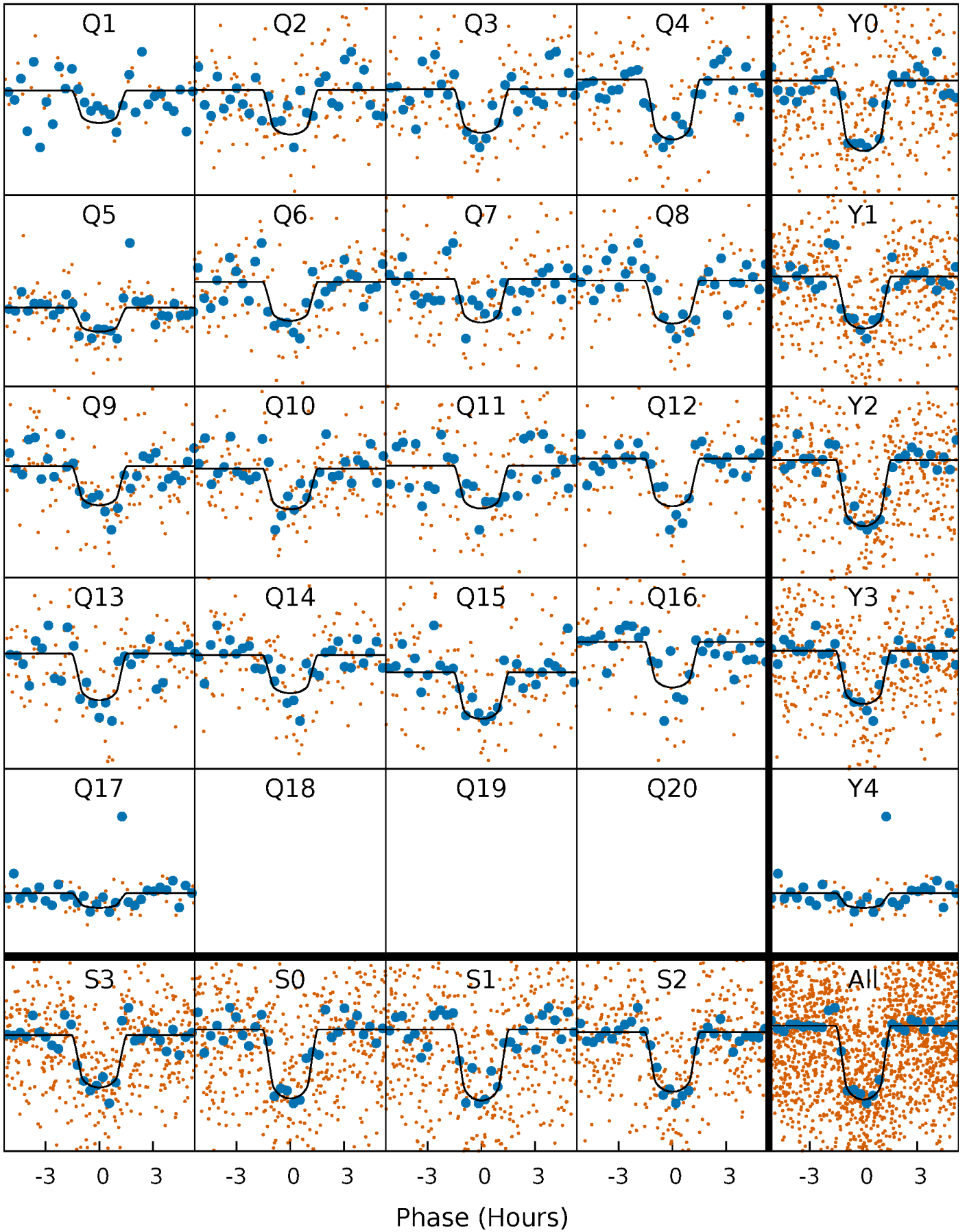
PDC Quarter-Phased Transit Curves

TCE 003342794-01 P= 14.172211 Days $T_0=142.602678$ (BKJD)



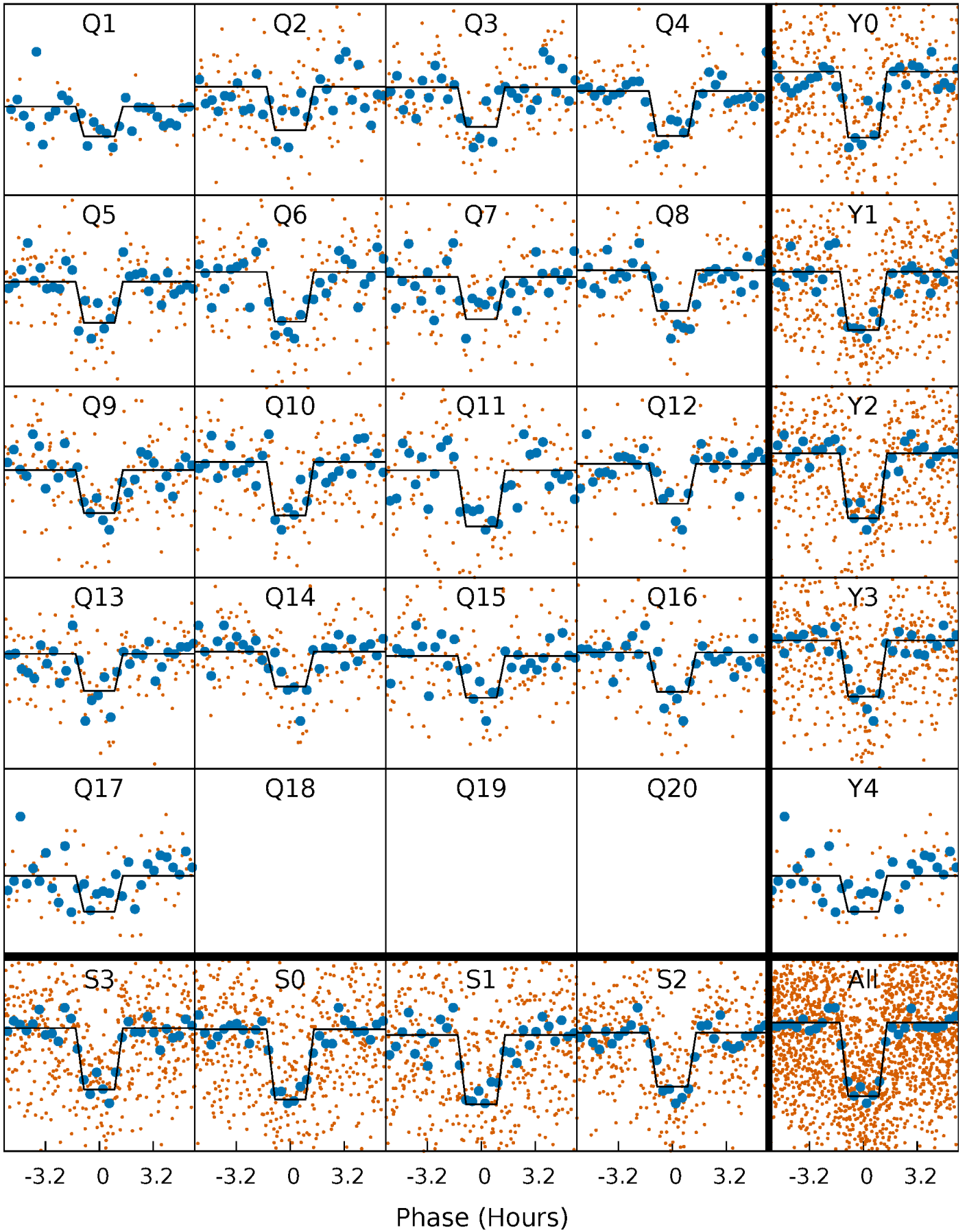
DV Quarter-Phased Transit Curves

TCE 003342794-01 P= 14.172211 Days $T_0=142.602678$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

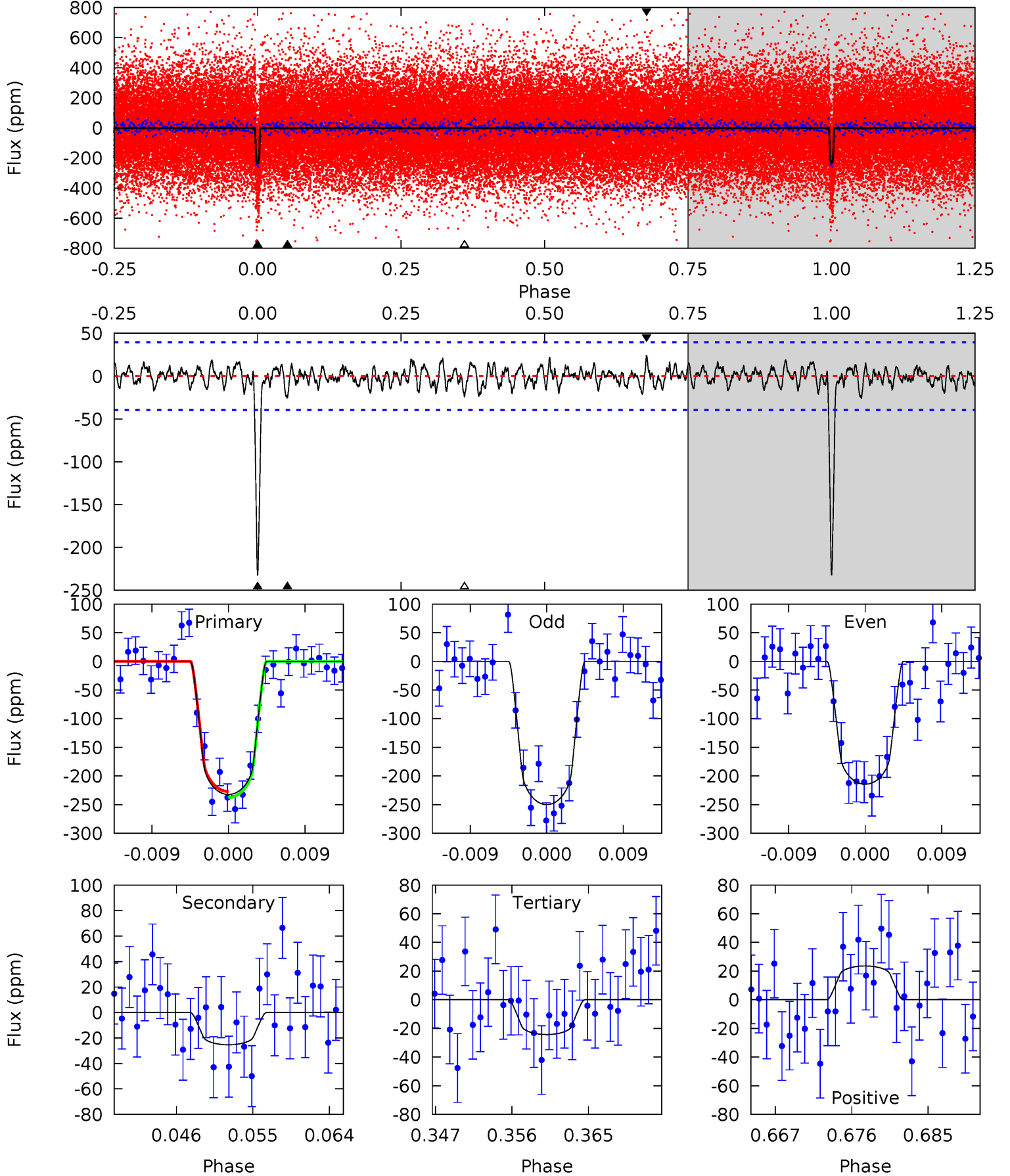
TCE 003342794-01 P= 14.172071 Days $T_0=142.609618$ (BKJD)



DV Model-Shift Uniqueness Test

003342794-01, $P = 14.172211$ Days, $E = 128.430467$ Days

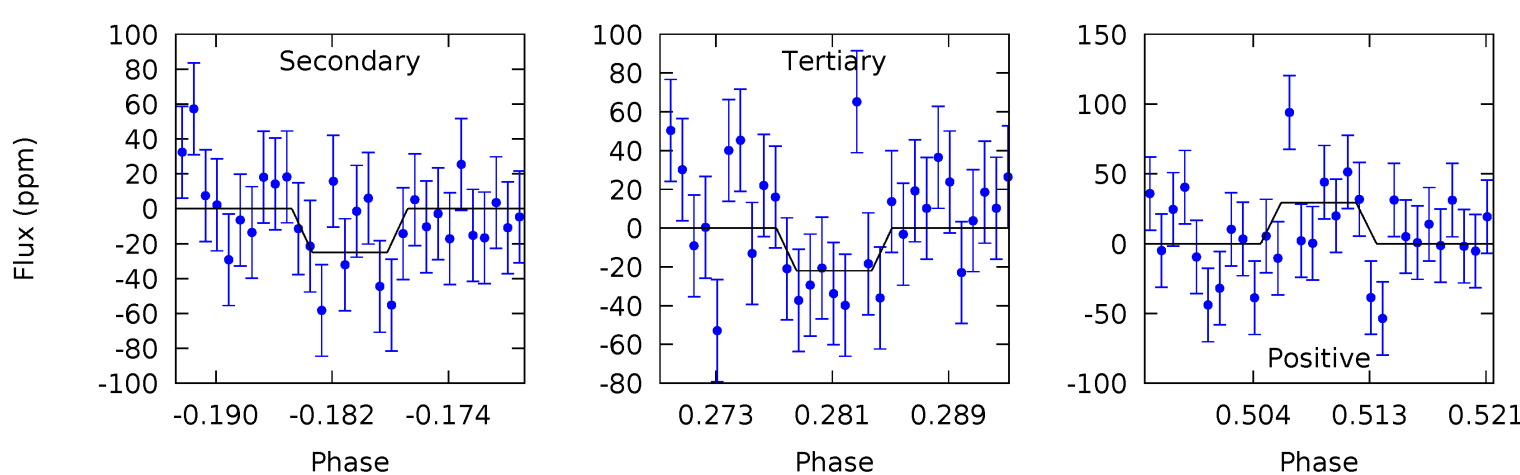
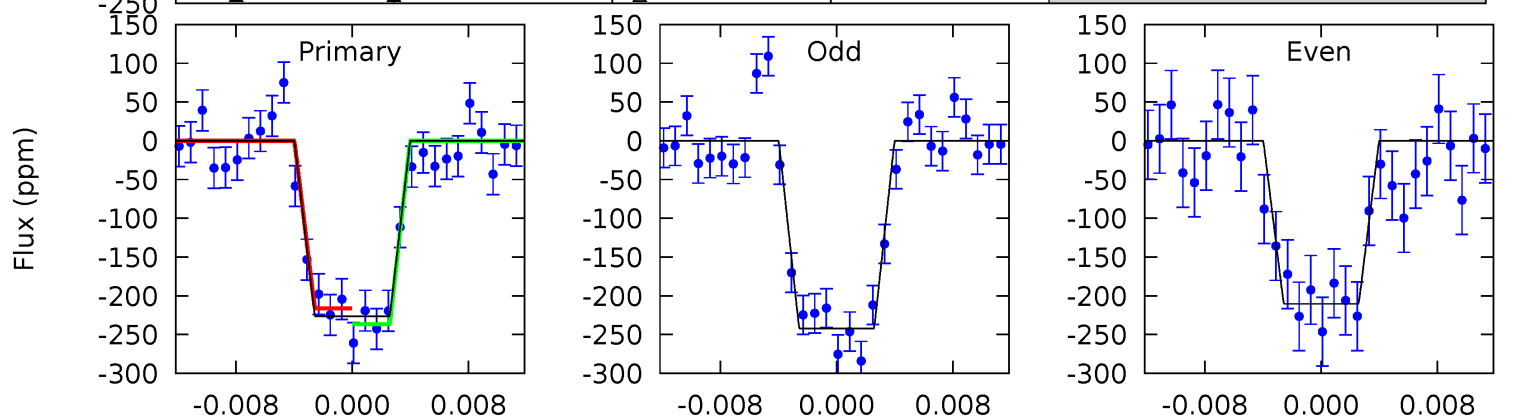
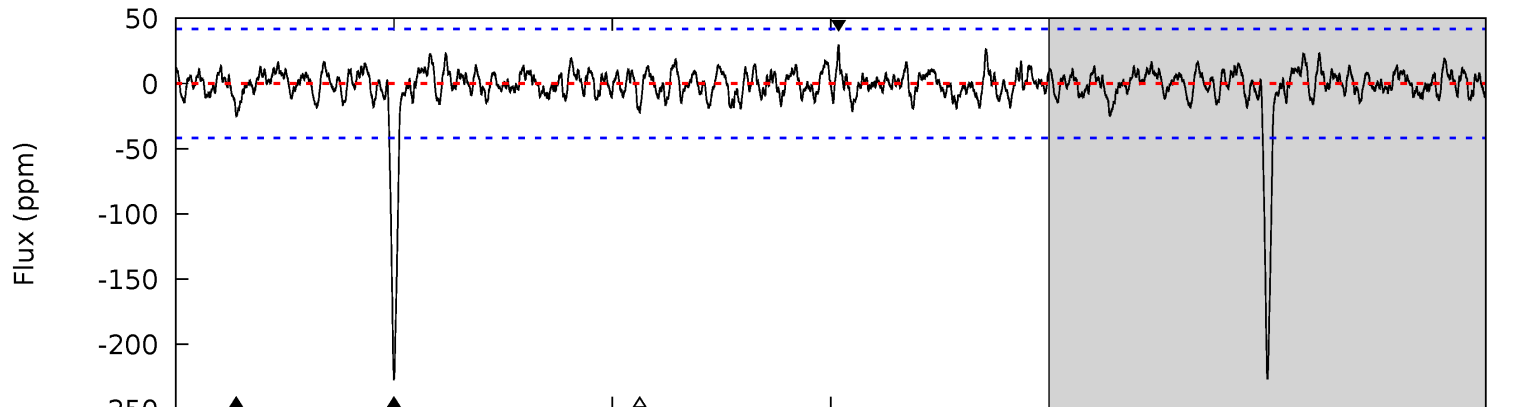
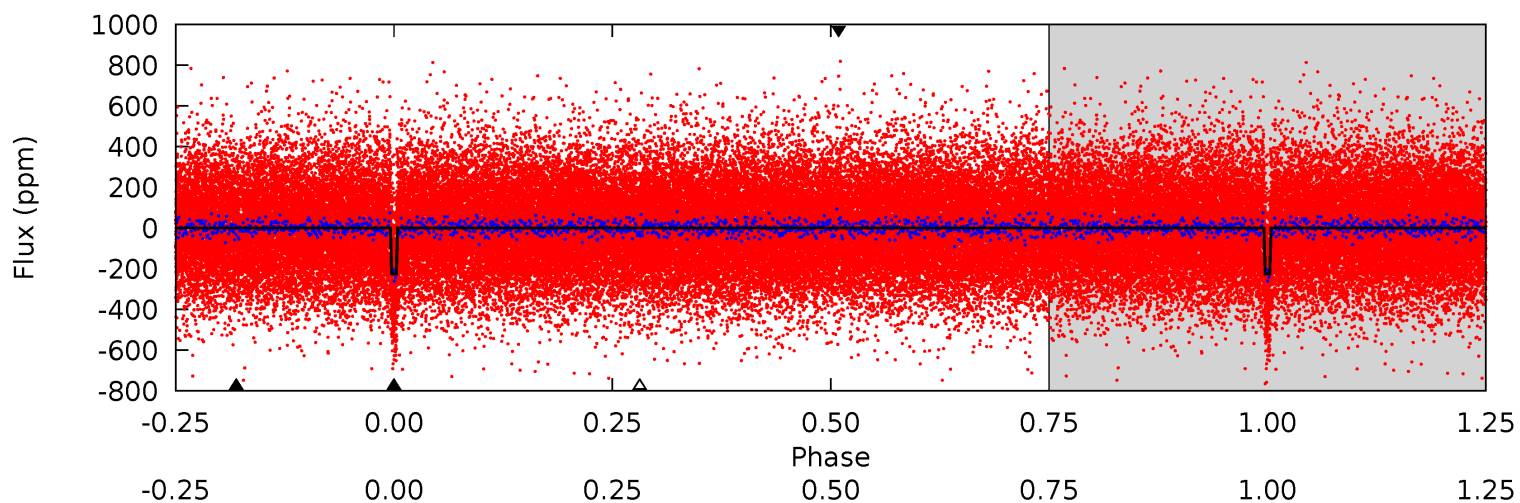
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.7	3.24	3.10	3.01	5.04	2.61	1.09	26.6	26.7	0.14	0.22	2.28	0.99	0.09	0.67



Alt Model-Shift Uniqueness Test

003342794-01, P = 14.172071 Days, E = 128.437547 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	3.04	2.67	3.56	5.06	2.64	1.01	24.8	23.9	0.36	-0.53	1.94	1.00	0.11	1.26



Stellar Parameters For KIC 003342794

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5845^{+105}_{-117}	$4.200^{+0.176}_{-0.108}$	$-0.020^{+0.150}_{-0.150}$	$1.314^{+0.209}_{-0.256}$	$0.998^{+0.089}_{-0.073}$	$0.619^{+0.529}_{-0.211}$
	+2%/-2%	+4%/-3%	+750%/-750%	+16%/-19%	+9%/-7%	+85%/-34%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 003342794-01 / KOI 2278.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-25 ± 8	$2.34^{+0.81}_{-0.77}$	1214^{+56}_{-66}	3612^{+565}_{-344}	33^{+43}_{-16}
Alt.	-25 ± 8	$2.09^{+0.82}_{-0.69}$	1211^{+59}_{-69}	3762^{+662}_{-442}	41^{+59}_{-23}

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 $A_{obs} \gg 1.0$

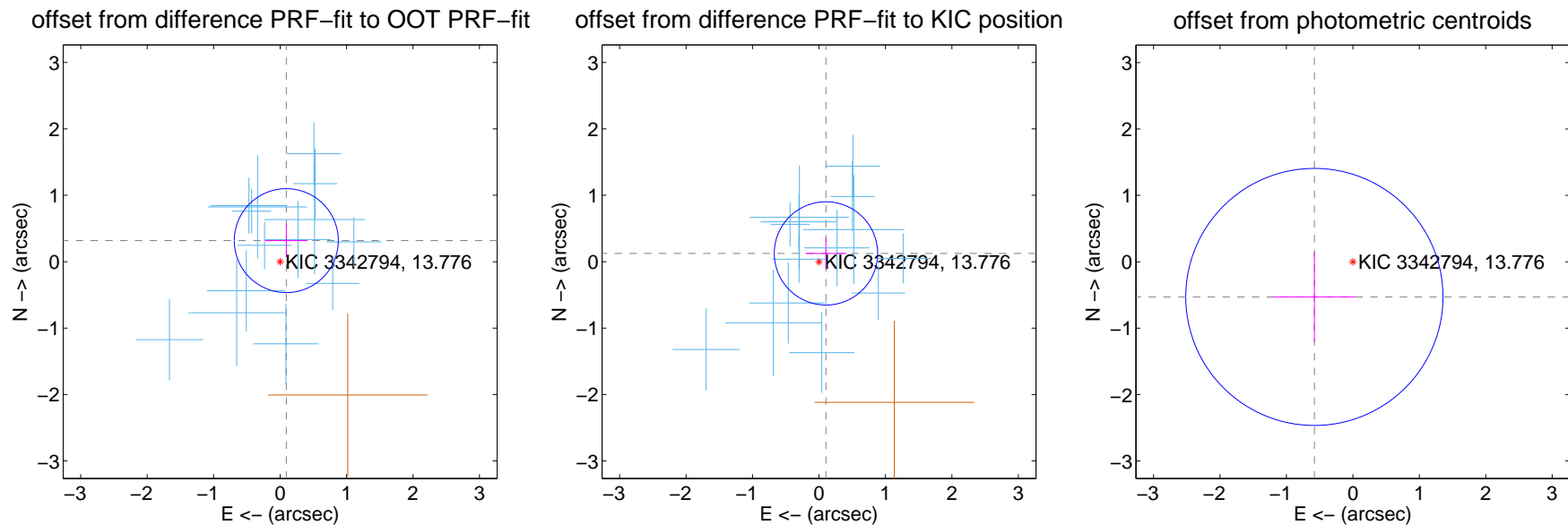
DV Centroid Data

Supplemental centroid analysis for 003342794-01. Kepler magnitude: 13.78. Transit SNR 23.52

There are 14 quarters with good PRF difference image offsets

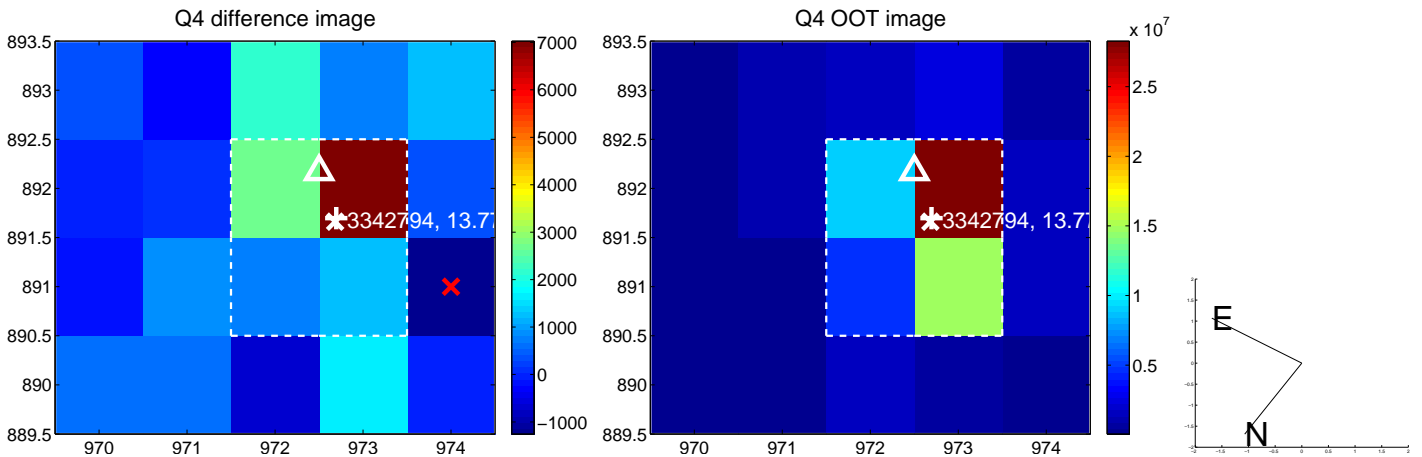
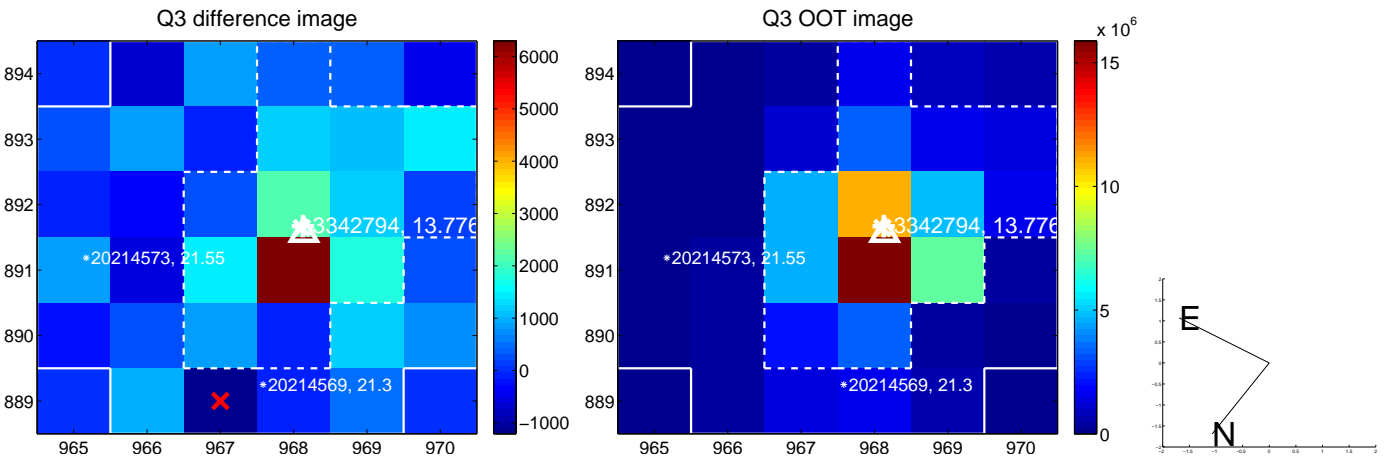
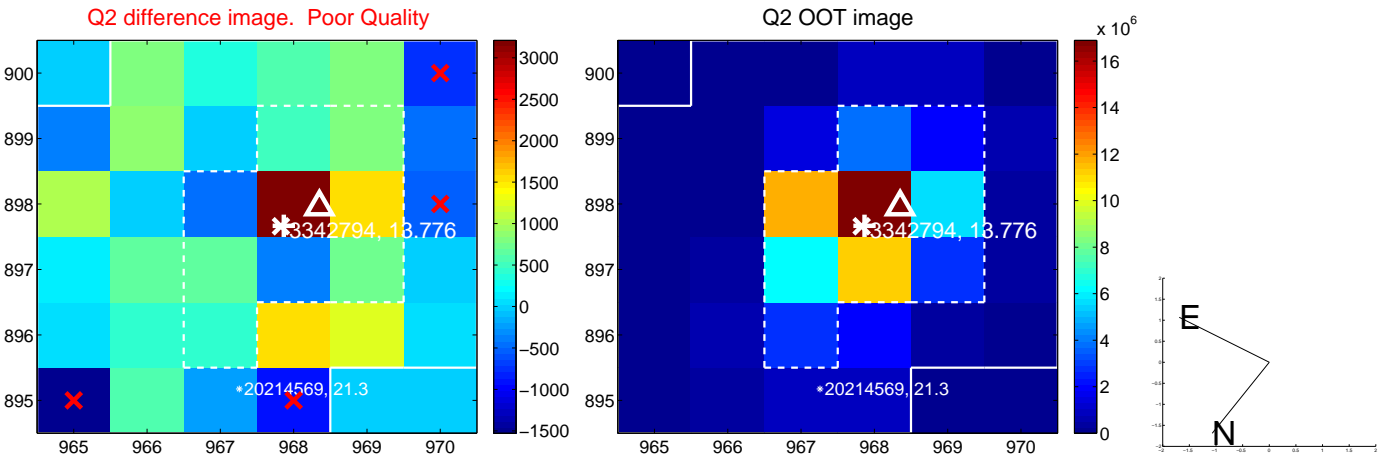
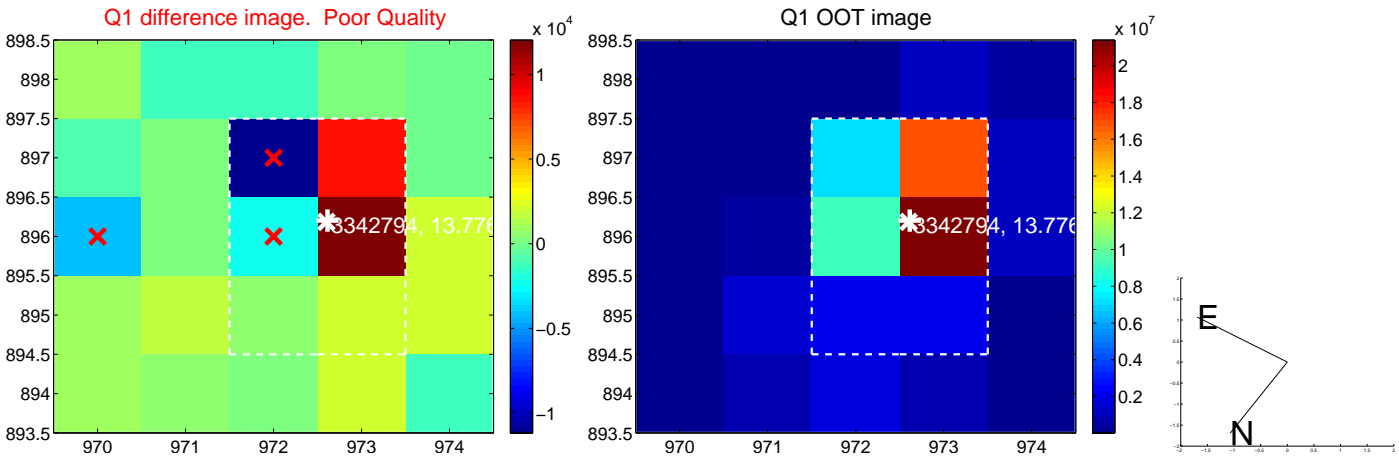
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.330 ± 0.261	1.27	-0.093 ± 0.319	0.317 ± 0.253
PRF-fit source offset from KIC position	0.163 ± 0.259	0.63	-0.105 ± 0.309	0.125 ± 0.239
photometric centroid source offset	0.78 ± 0.65	1.22	0.58 ± 0.62	-0.53 ± 0.68

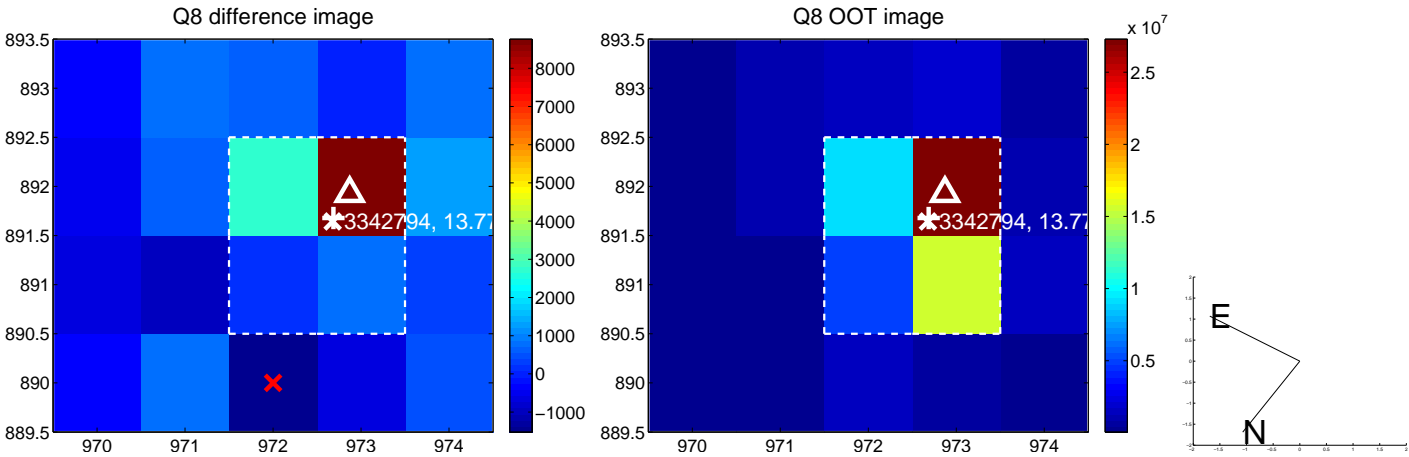
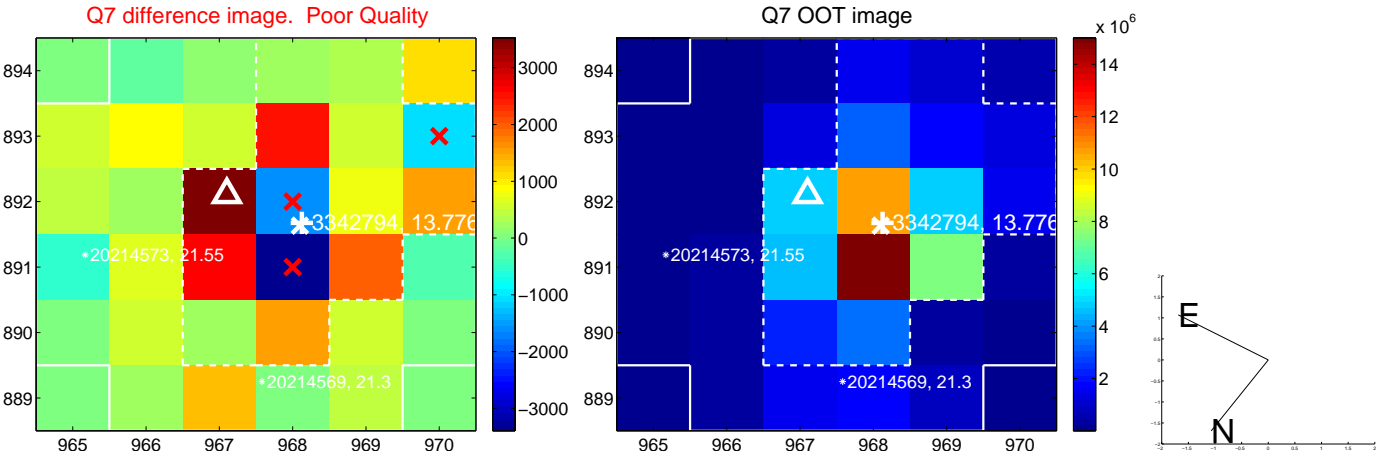
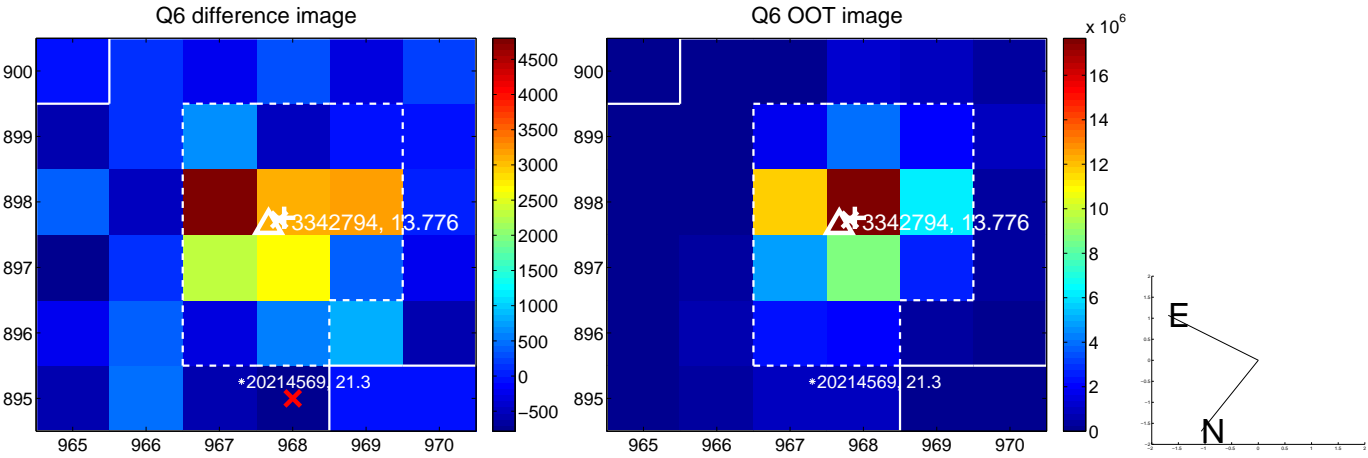
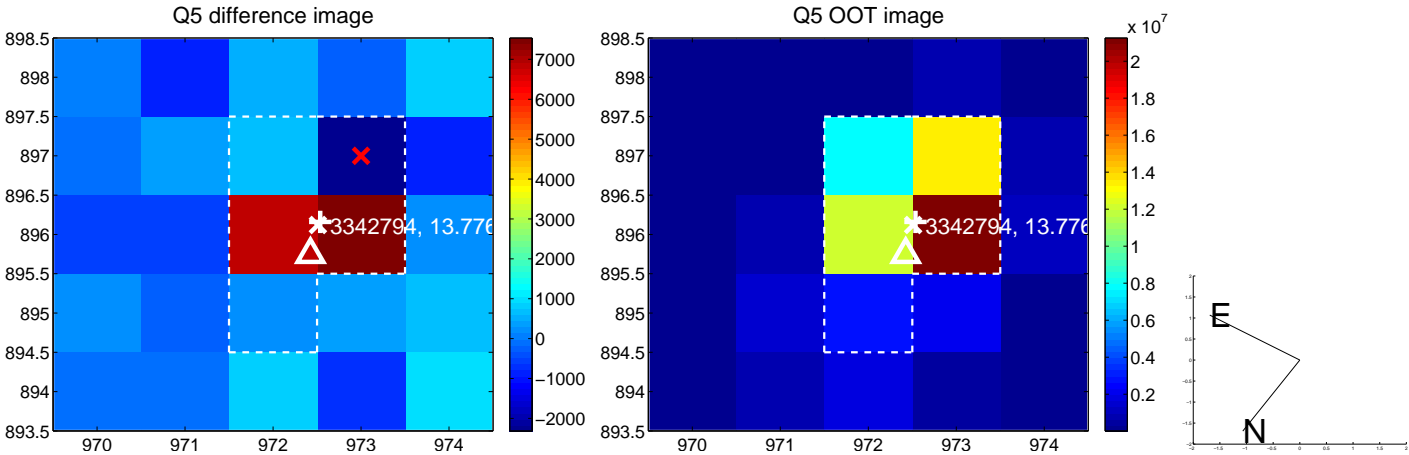


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

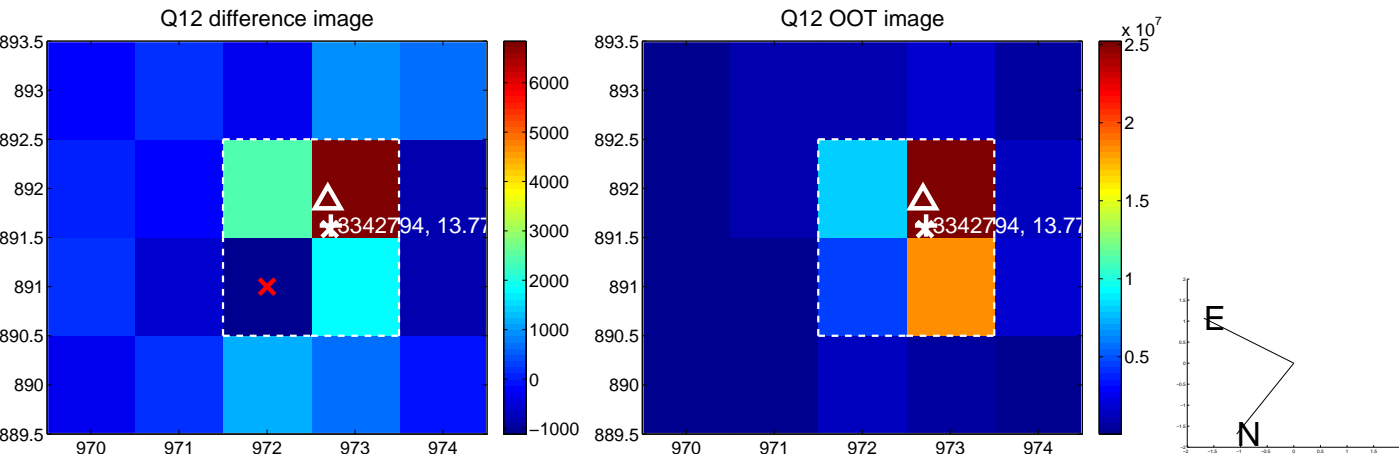
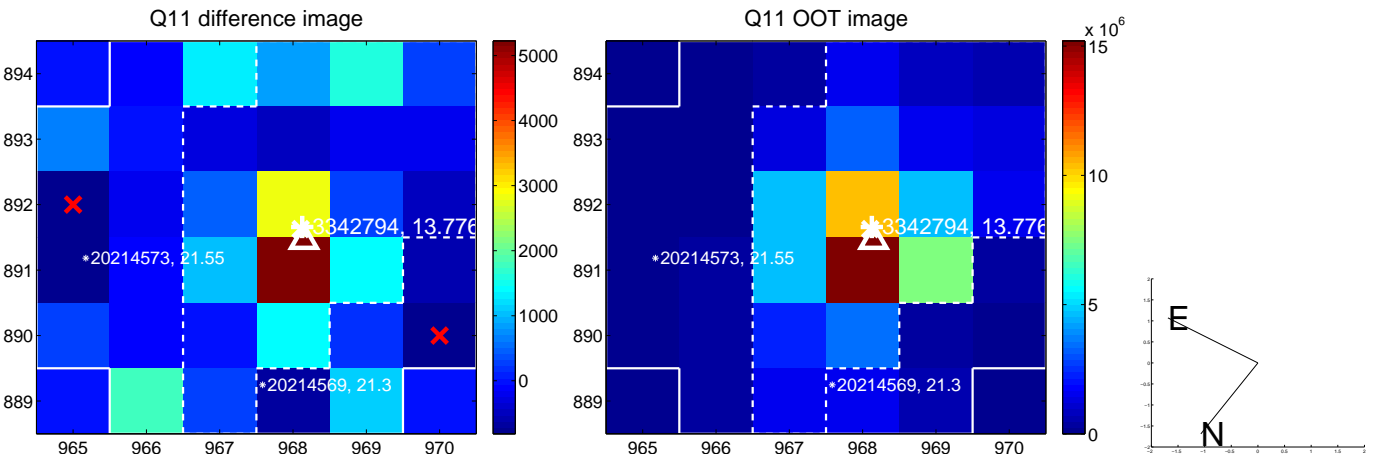
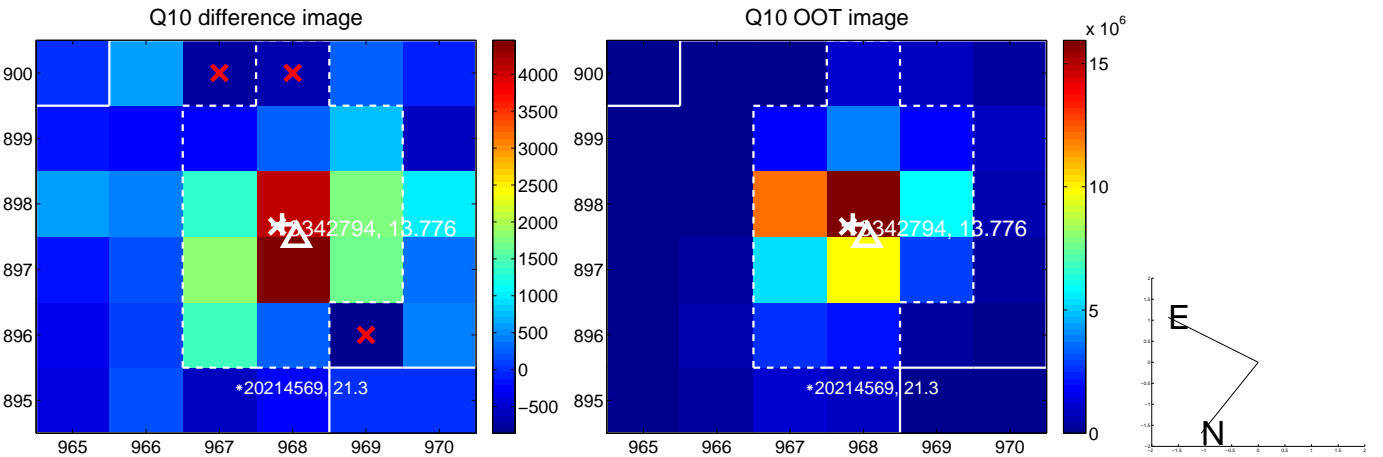
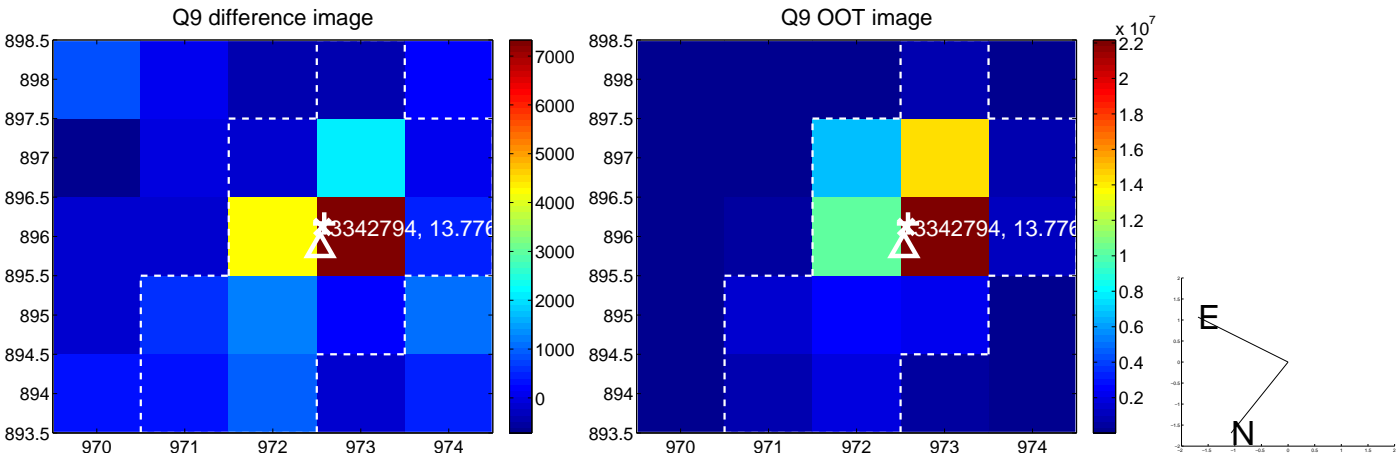
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



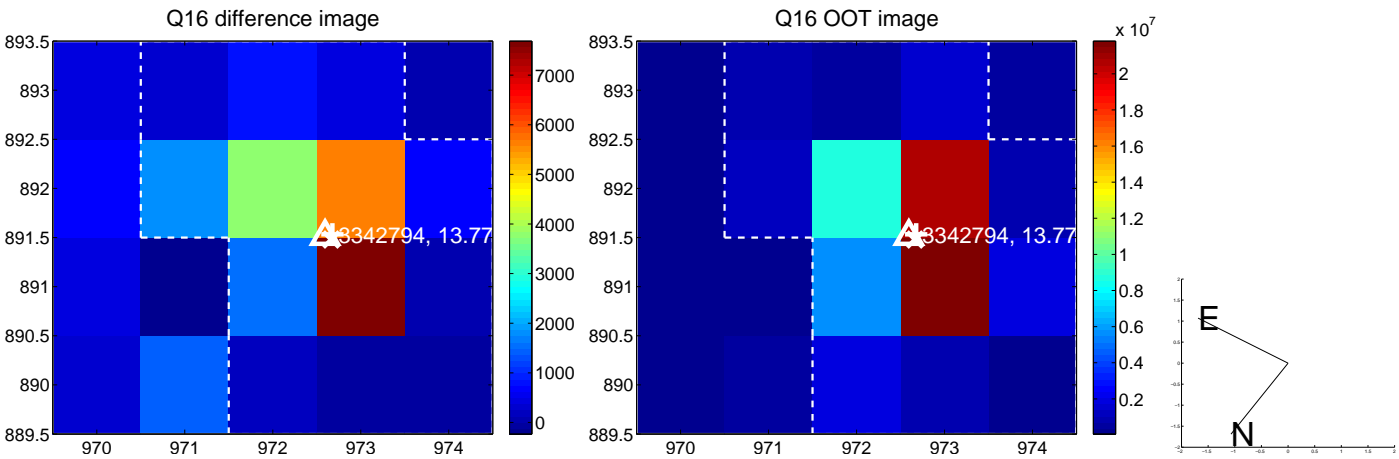
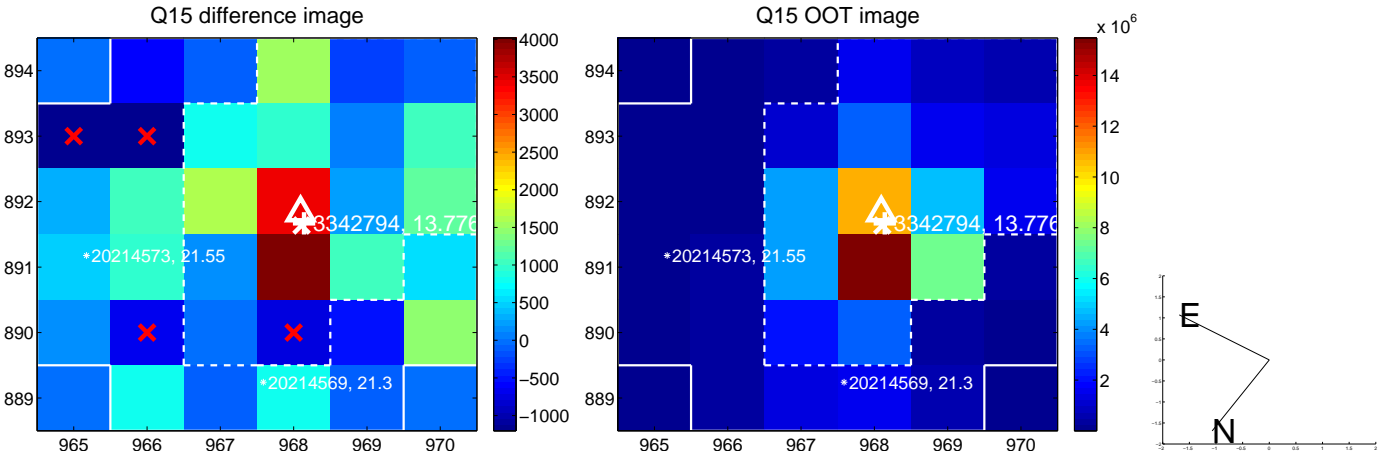
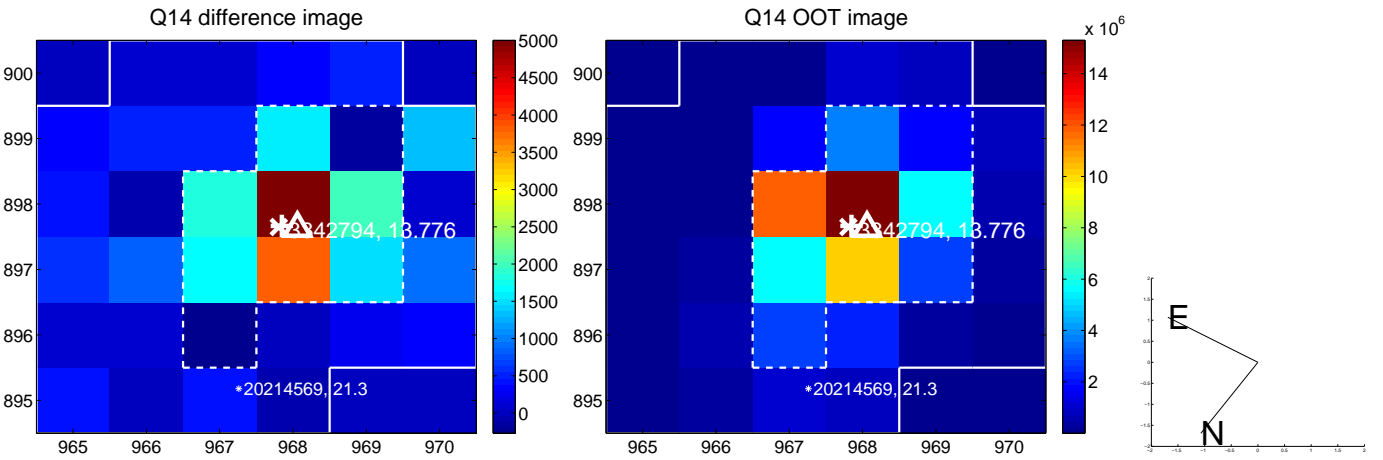
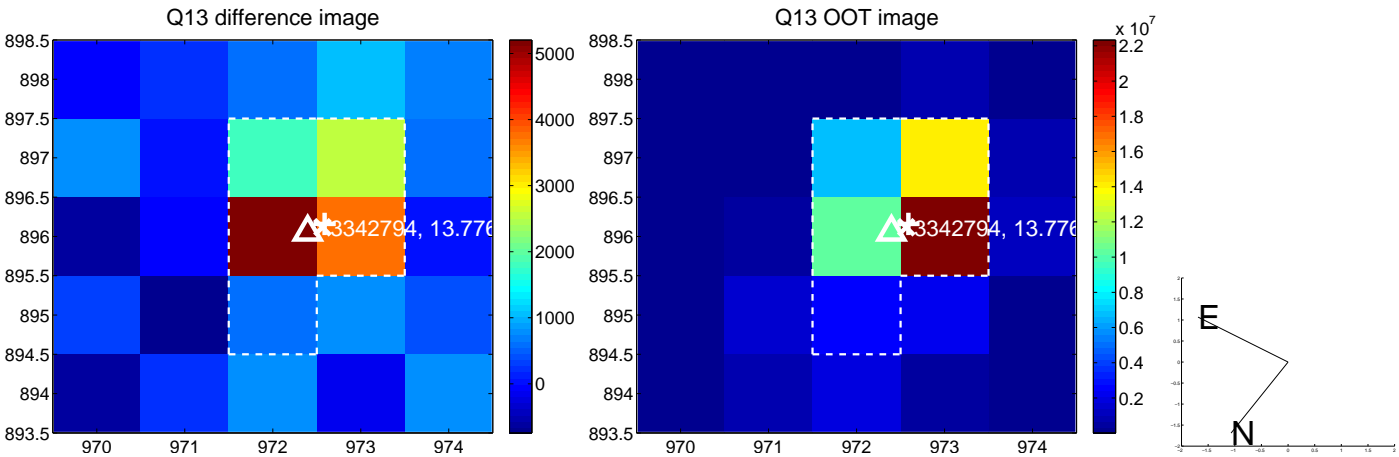
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



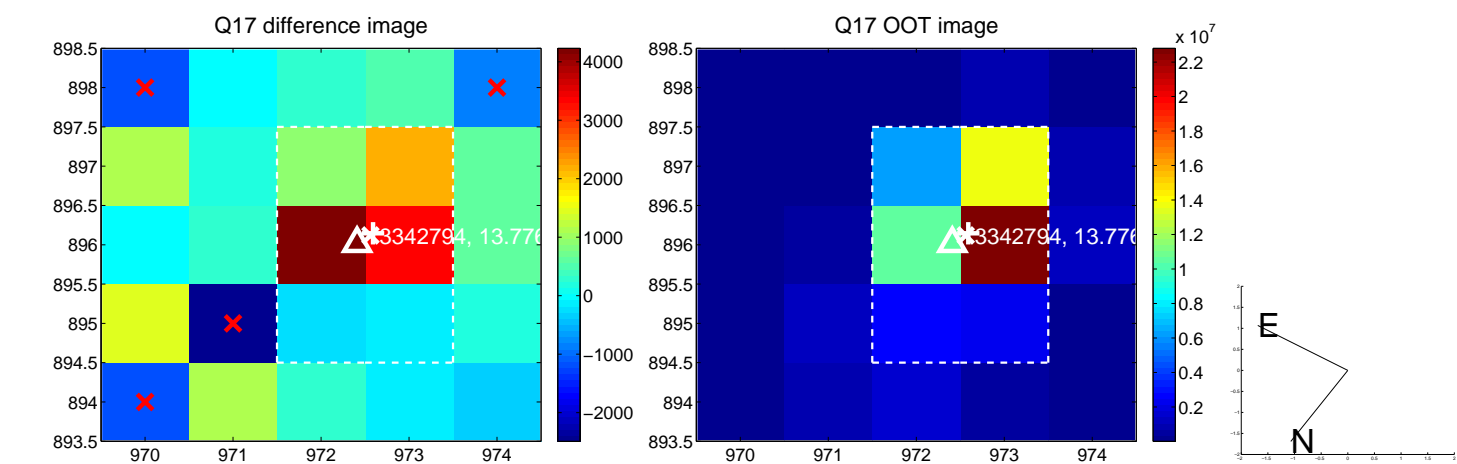
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



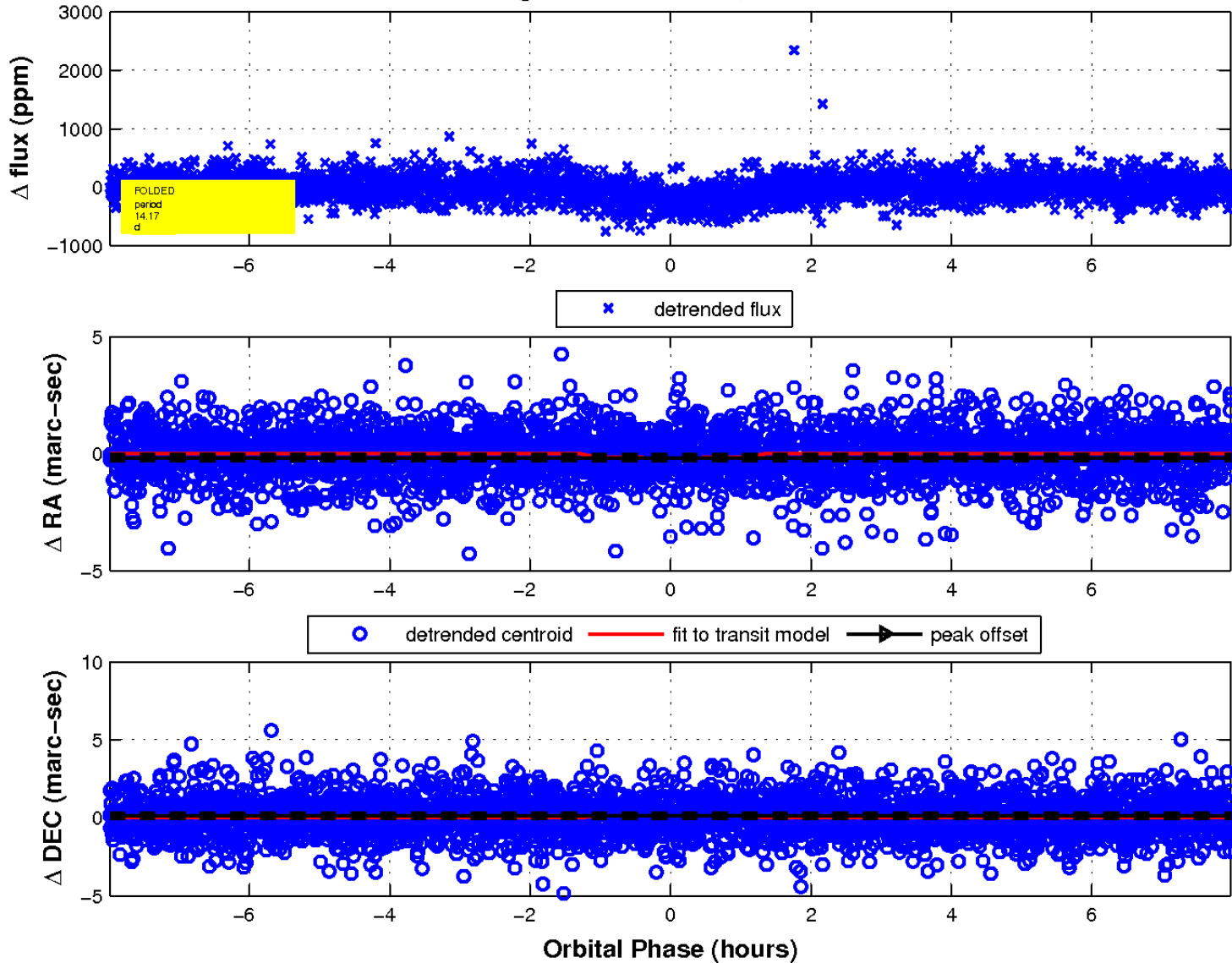
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

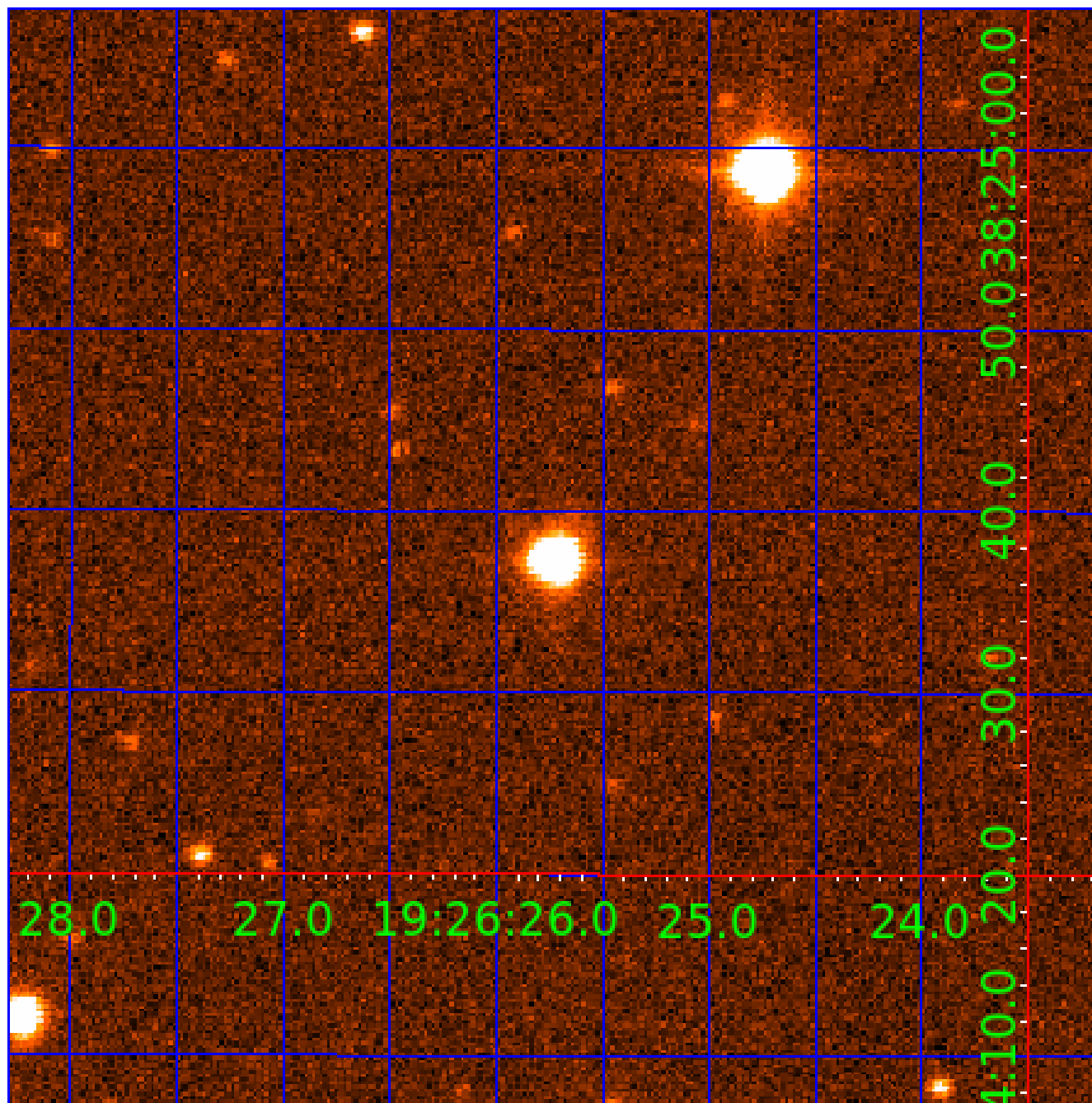


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003342794

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})
003342794-01	OBS	2278.01	14.172211	142.602678	240.9	2.662	21.6	23.5	1.31	5845	2.37	137.57
003342794-02	OBS	2278.02	4.920275	135.408847	67.7	4.138	14.9	14.1	1.31	5845	1.28	563.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003342794-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003342794-02	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.

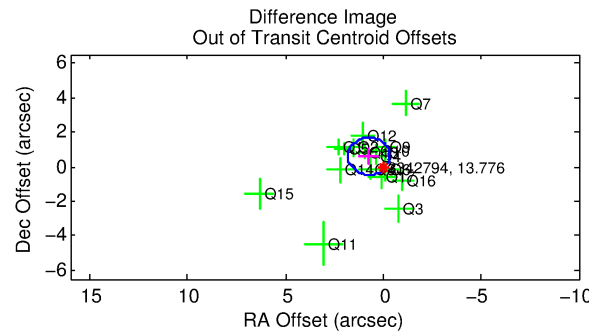
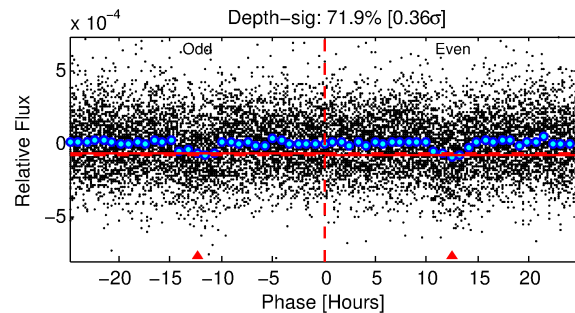
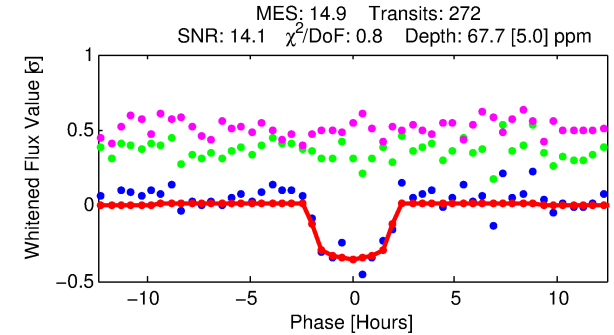
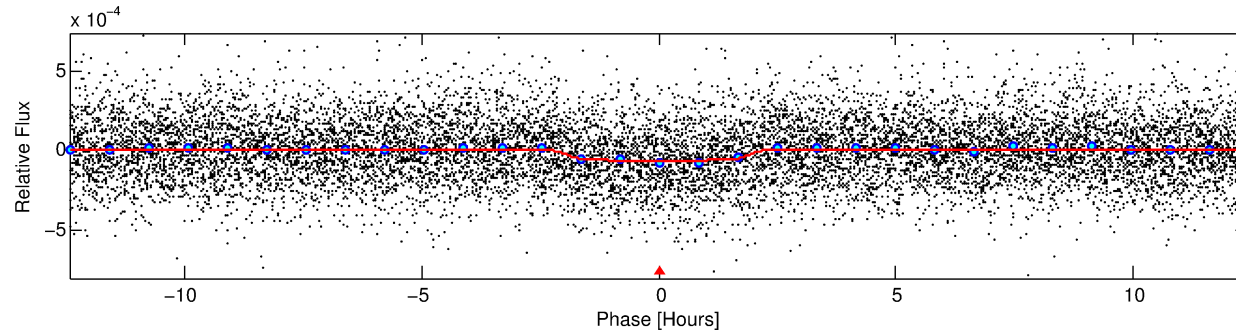
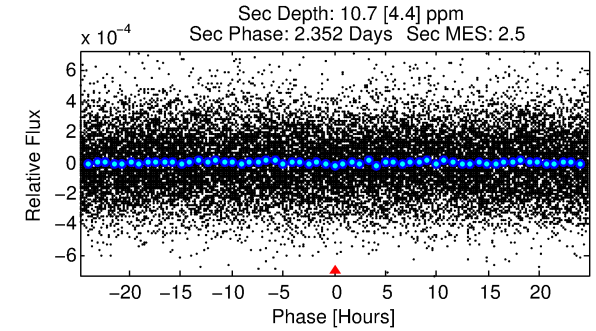
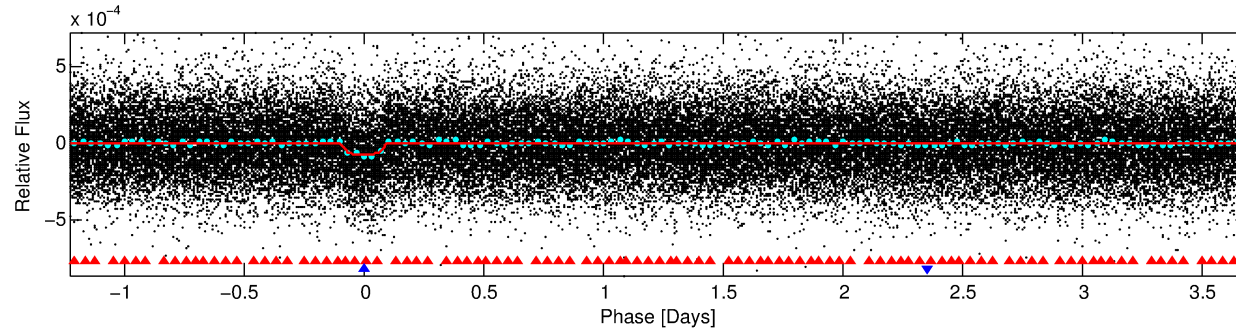
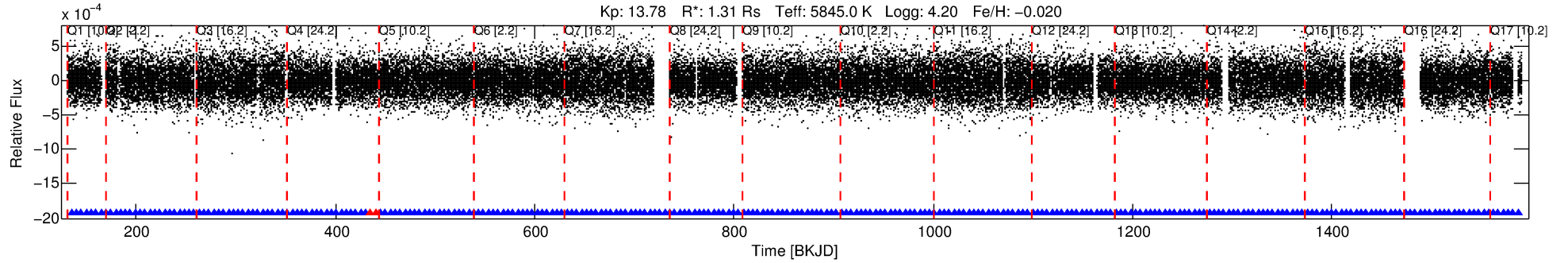
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003342794-02

No Significant Match Found

DV One-Page Summary

KIC: 3342794 Candidate: 2 of 2 Period: 4.920 d
KOI: K02278.02 Name: Kepler-376b Corr: 0.978



DV Fit Results:

Period = 4.92028 [0.00003] d
Epoch = 135.4088 [0.0048] BKJD
Rp/R* = 0.0089 [0.0036]
a/R* = 4.25 [7.99]
b = 0.90 [0.43]
Seff = 563.78 [174.93]
Teq = 1243 [96] K
Rp = 1.28 [0.57] Re
a = 0.0566 [0.0106] AU
Ag = 11.44 [10.89] [0.96σ]
Teffp = 3533 [801] K [2.84σ]

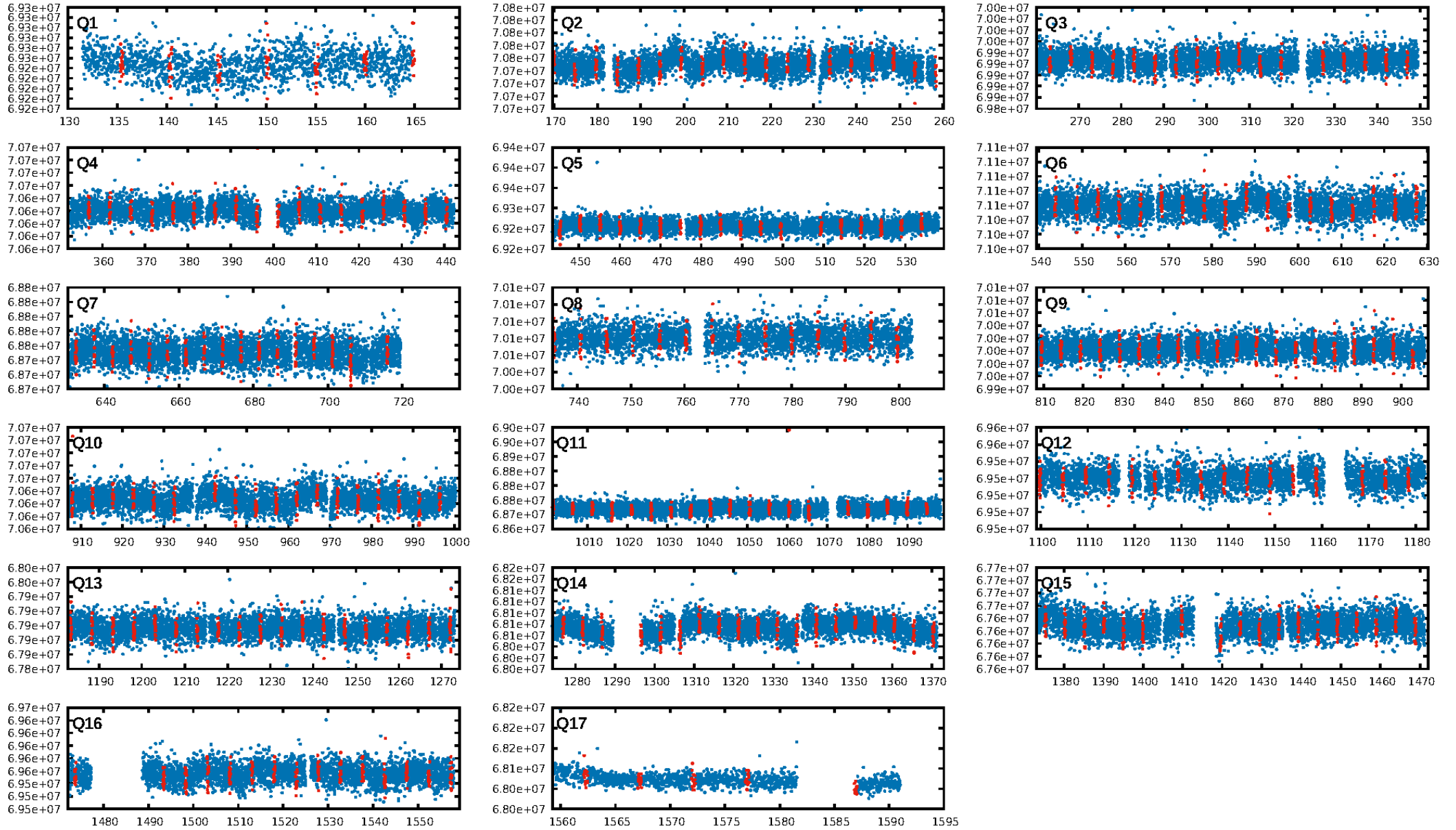
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [45.13σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.69e-48
RollingBand-fgt: 0.99 [258/260]
GhostDiagnostic-chr: 2.603
Centroid-sig: 50.5%
Centroid-so: 0.617 arcsec [0.61σ]
OotOffset-rm: 0.968 arcsec [2.71σ]
KicOffset-rm: 0.846 arcsec [2.38σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
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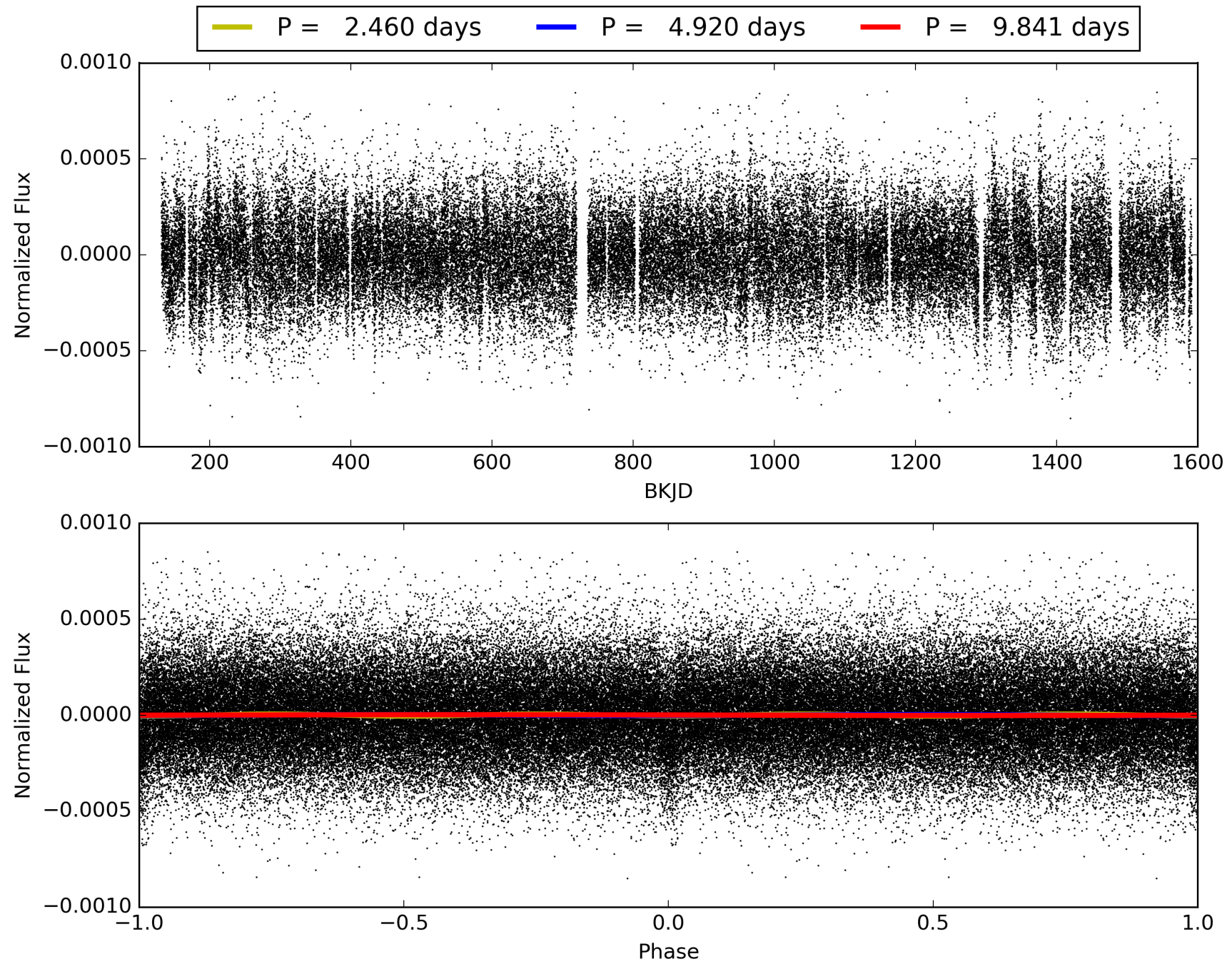
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:09:03 Z

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

TCE 003342794-02, PDC Light Curves

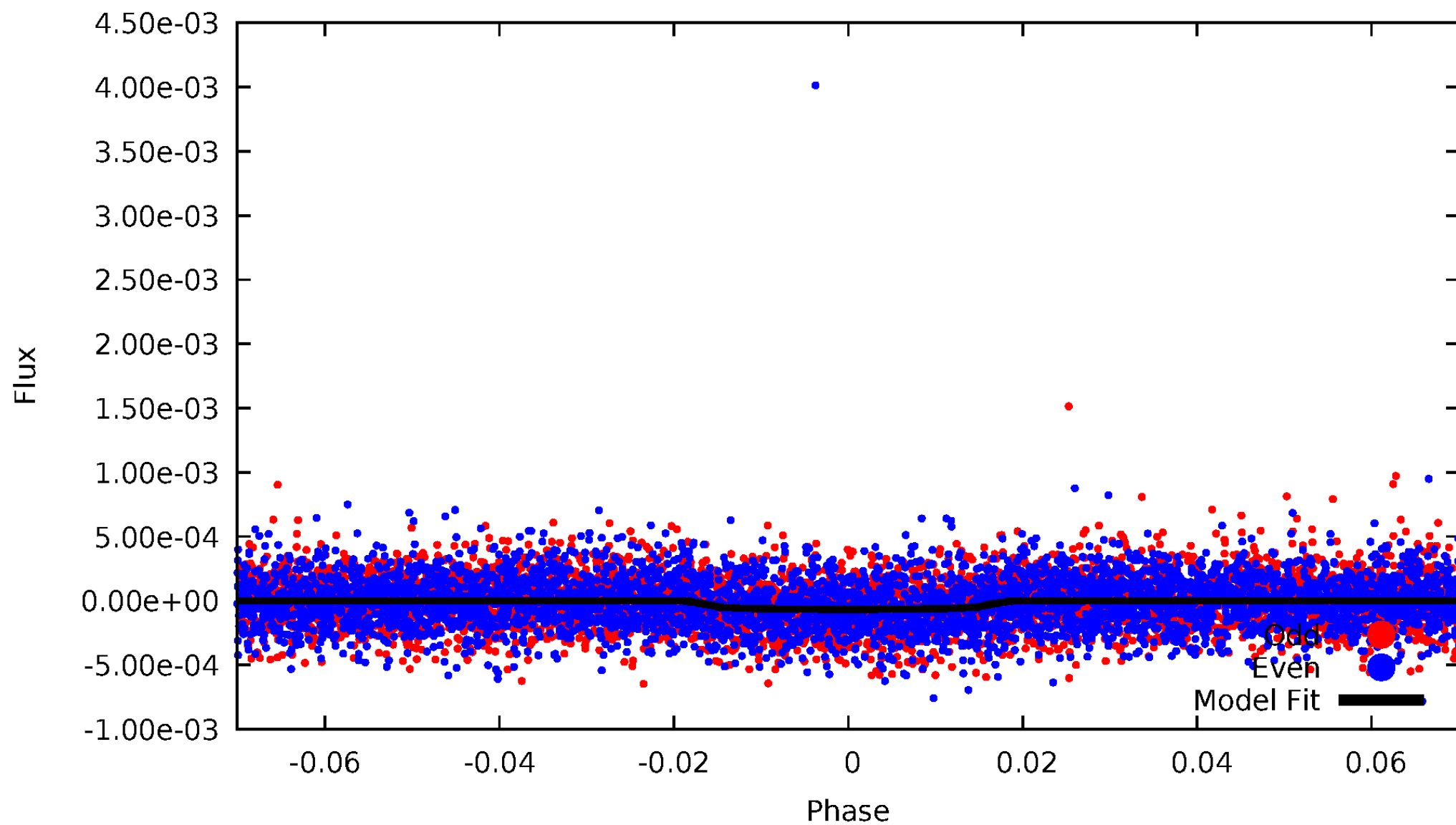


TCE 003342794-02



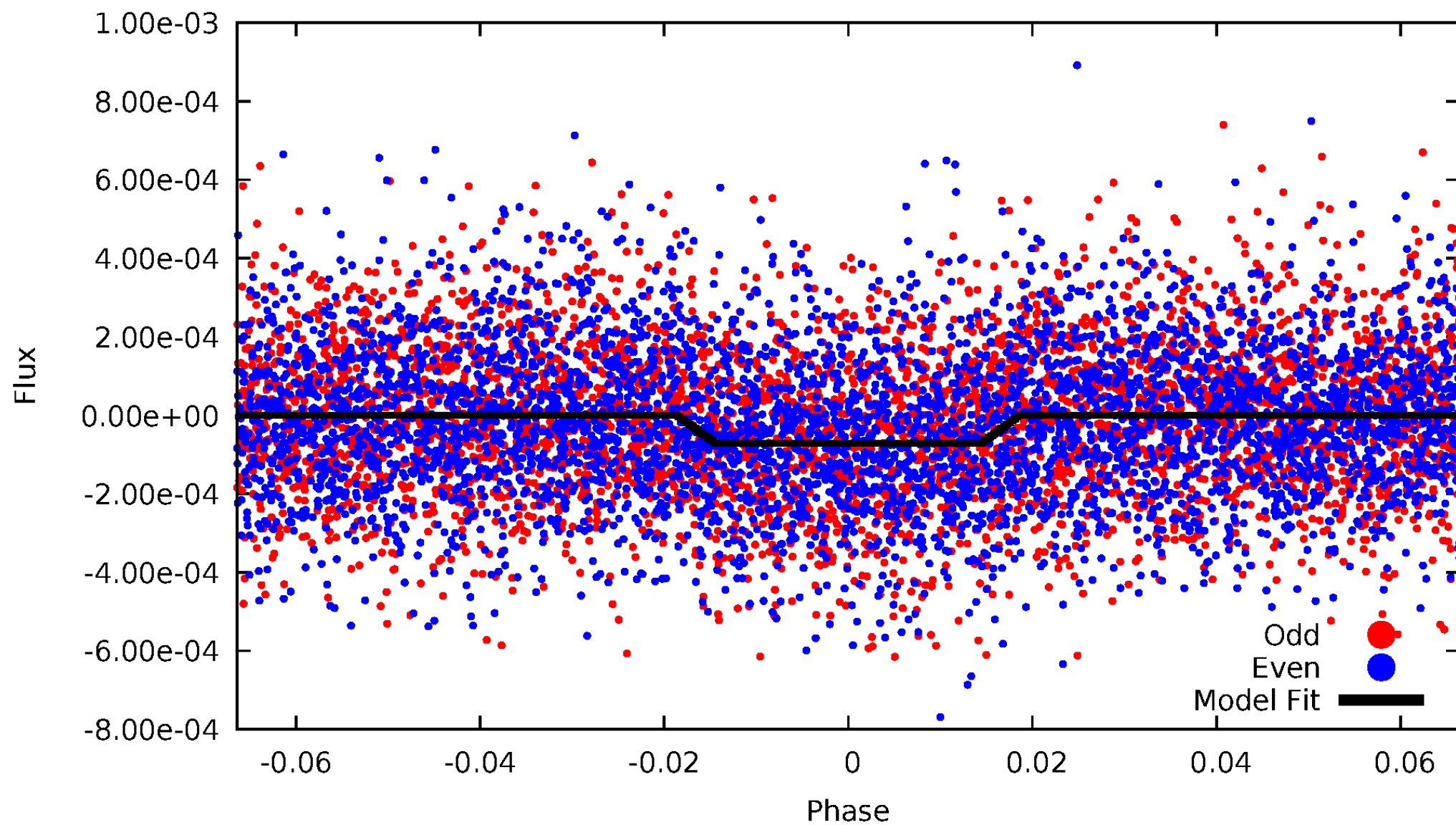
DV Odd/Even

TCE 003342794-02



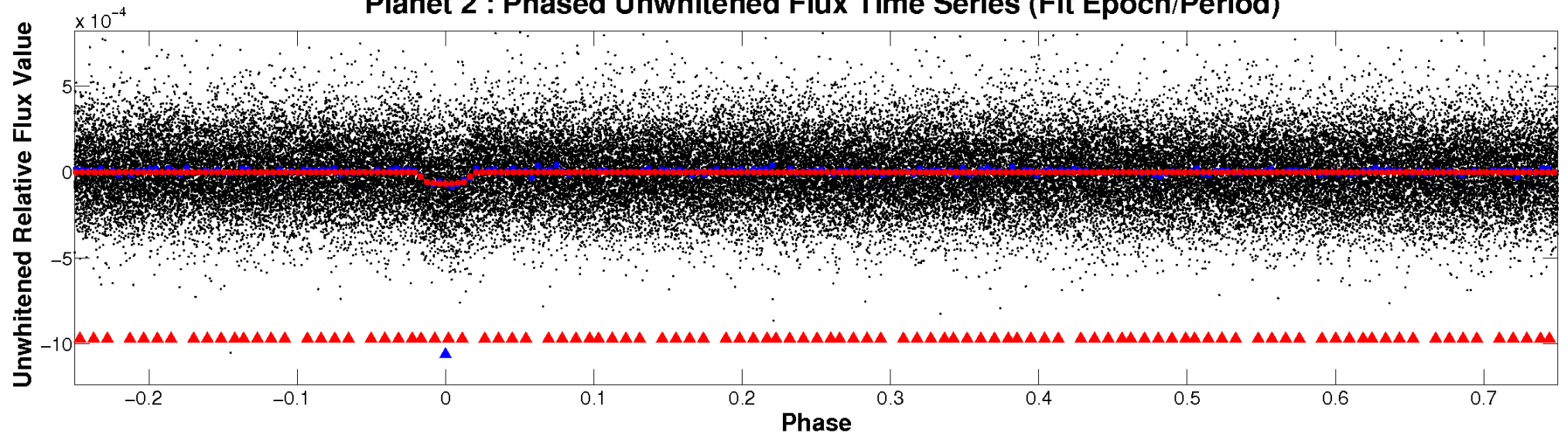
ALT Odd/Even

TCE 003342794-02

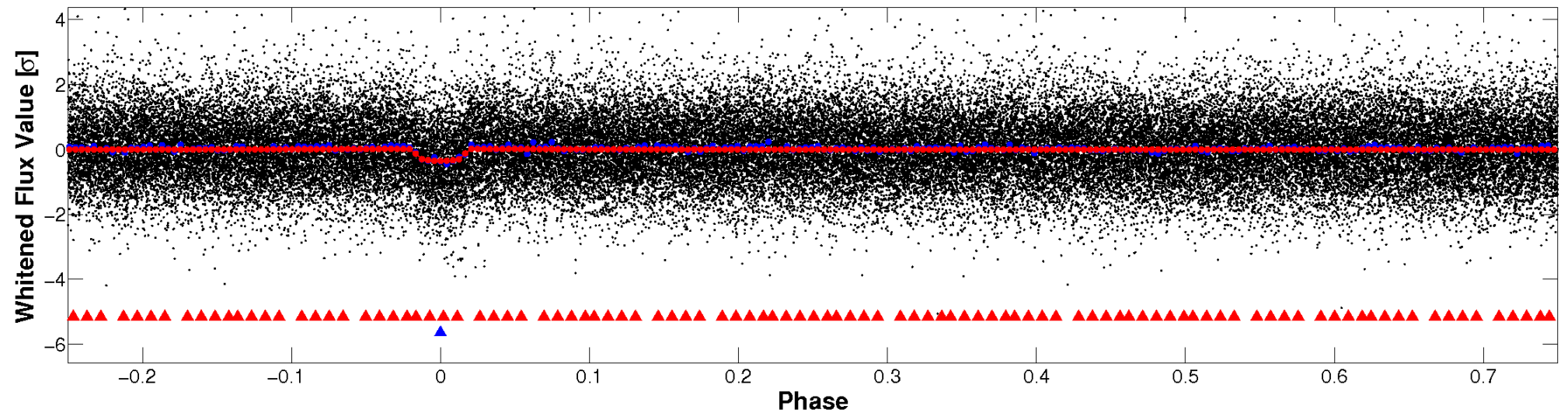


Non-Whitened Vs. Whitened Light Curve

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

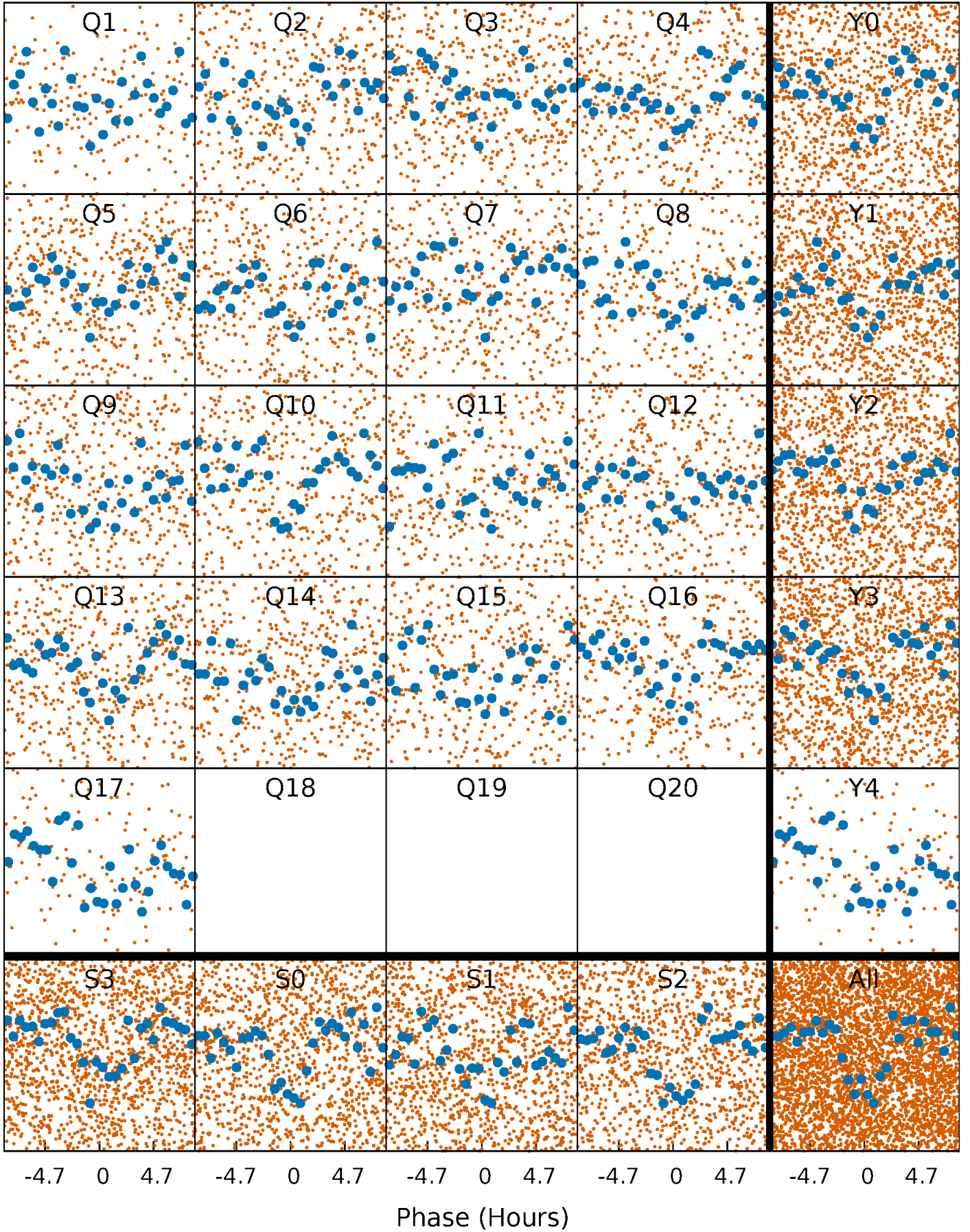


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



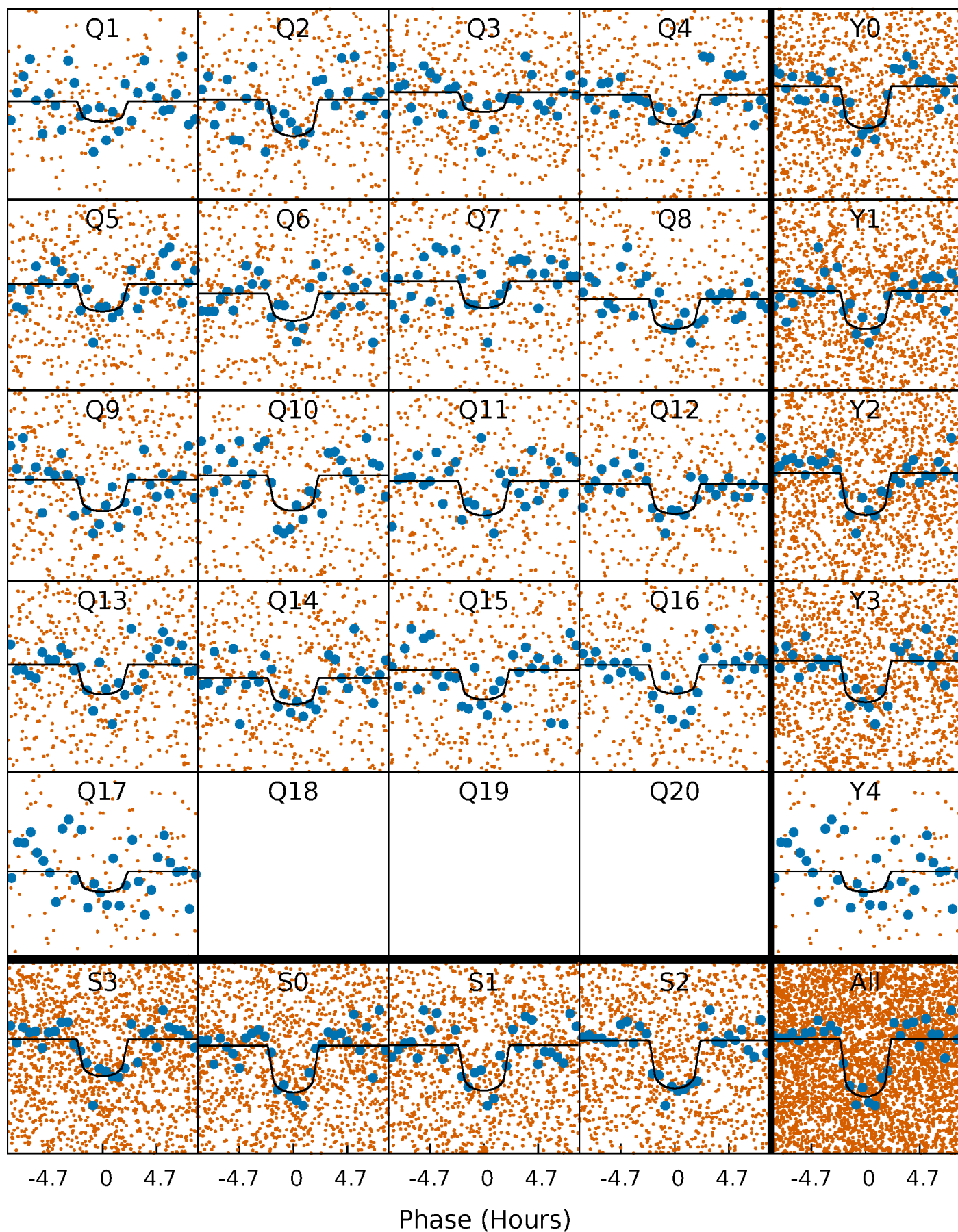
PDC Quarter-Phased Transit Curves

TCE 003342794-02 P= 4.920275 Days $T_0=135.408847$ (BKJD)



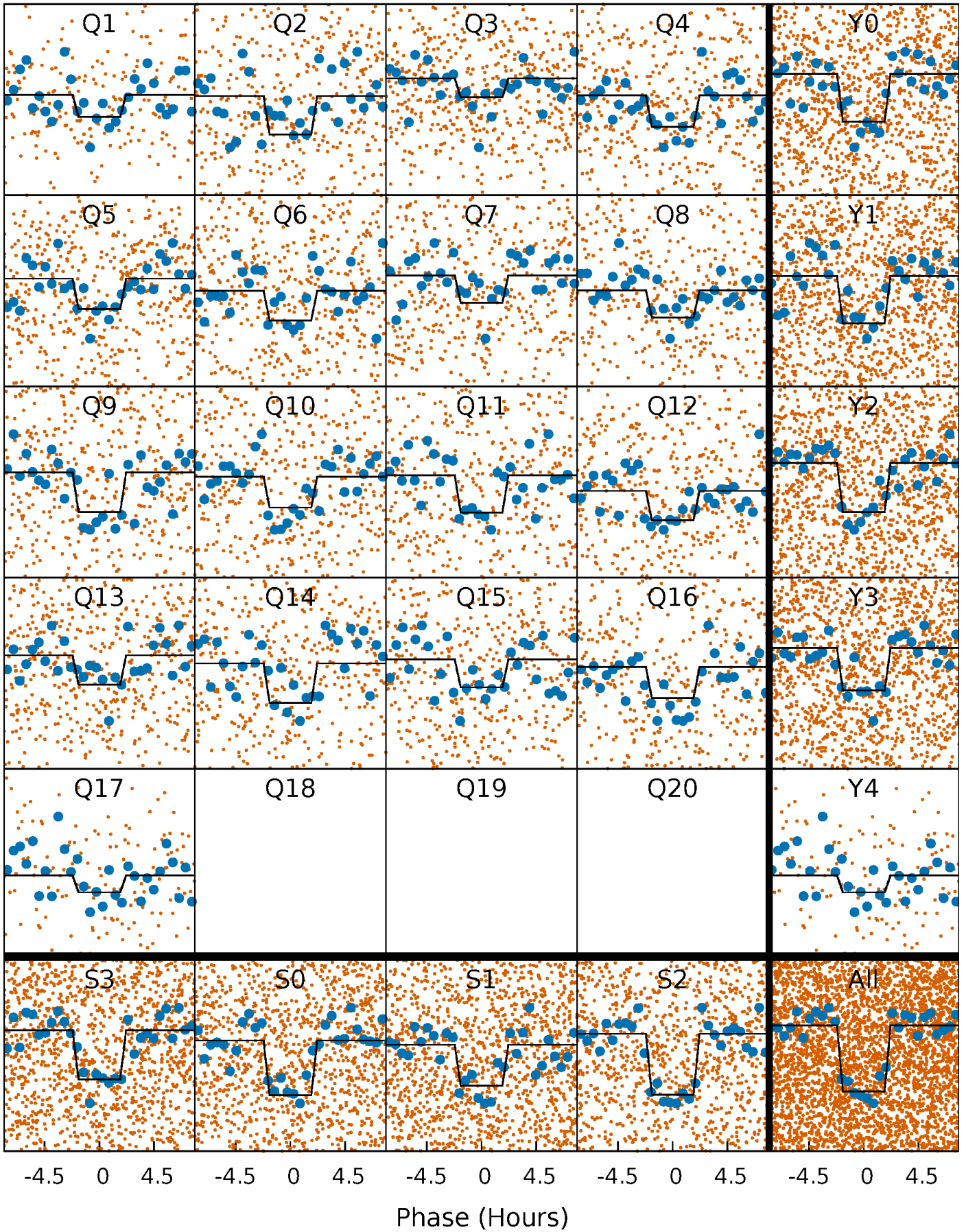
DV Quarter-Phased Transit Curves

TCE 003342794-02 P= 4.920275 Days $T_0=135.408847$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

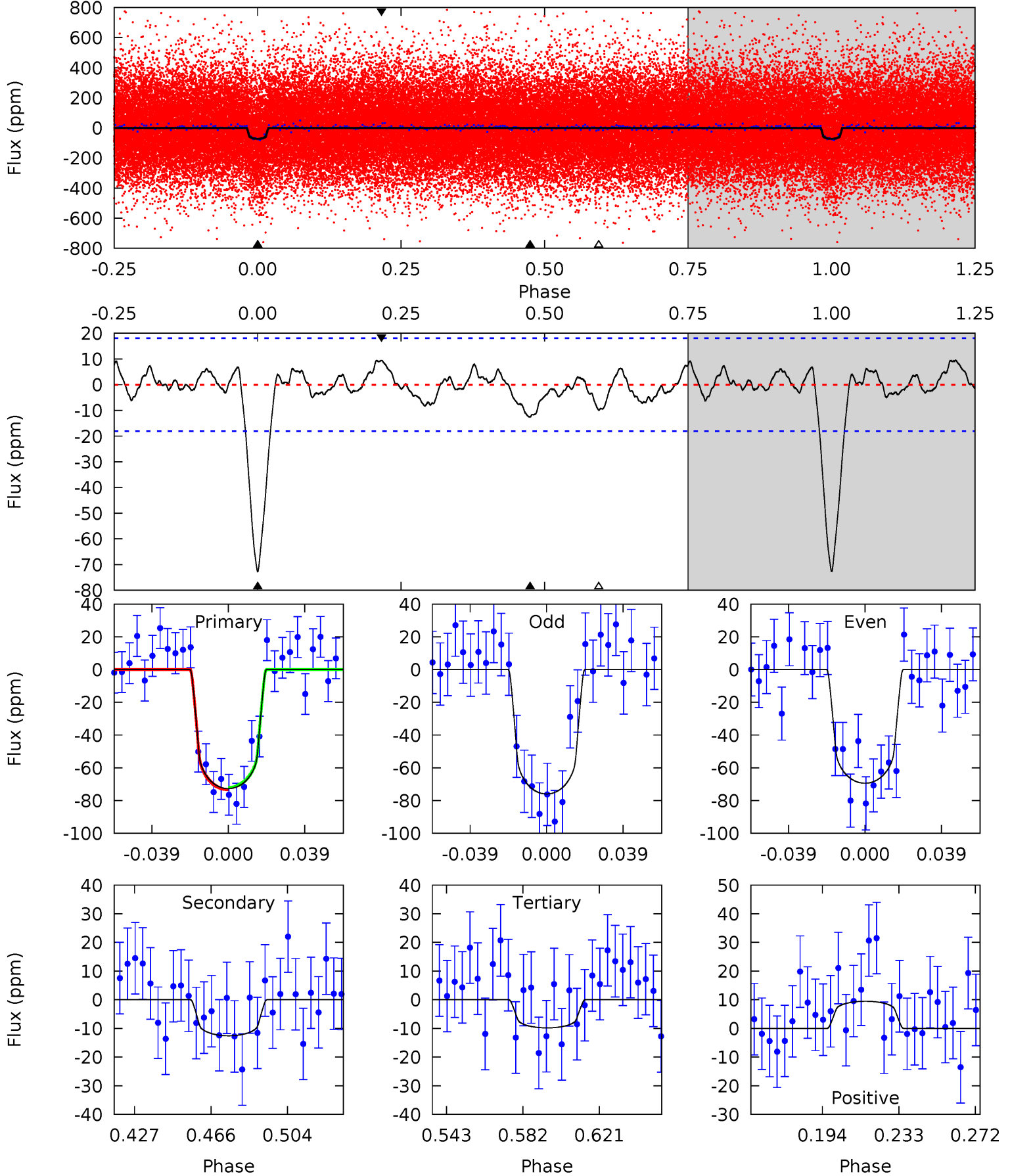
TCE 003342794-02 $P = 4.920300$ Days $T_0 = 135.407102$ (BKJD)



DV Model-Shift Uniqueness Test

003342794-02, P = 4.920275 Days, E = 130.488572 Days

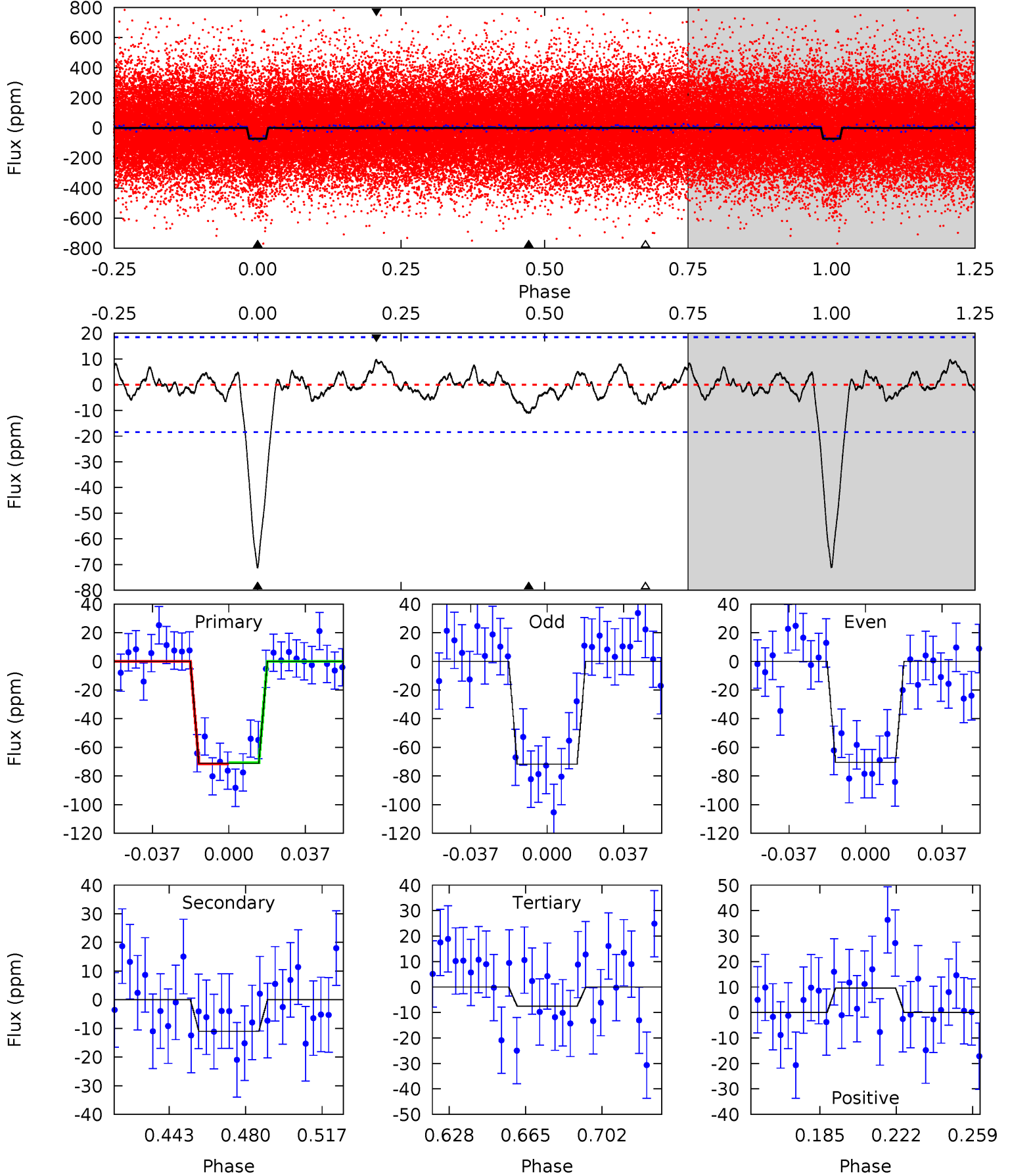
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	3.31	2.59	2.49	4.76	2.07	1.08	16.6	16.6	0.72	0.82	0.87	0.97	0.12	0.17



Alt Model-Shift Uniqueness Test

003342794-02, P = 4.920300 Days, E = 130.486802 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	2.84	1.94	2.49	4.77	2.09	0.92	16.4	15.9	0.90	0.35	0.17	1.02	0.12	0.10



Stellar Parameters For KIC 003342794

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5845^{+105}_{-117}	$4.200^{+0.176}_{-0.108}$	$-0.020^{+0.150}_{-0.150}$	$1.314^{+0.209}_{-0.256}$	$0.998^{+0.089}_{-0.073}$	$0.619^{+0.529}_{-0.211}$
	+2%/-2%	+4%/-3%	+750%/-750%	+16%/-19%	+9%/-7%	+85%/-34%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 003342794-02 / KOI 2278.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13 ± 4	$1.26^{+0.54}_{-0.52}$	1732^{+78}_{-100}	3952^{+977}_{-494}	14^{+28}_{-8}
Alt.	-11 ± 4	$1.17^{+0.54}_{-0.50}$	1728^{+83}_{-99}	3955^{+1009}_{-535}	13^{+32}_{-8}

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

DV Centroid Data

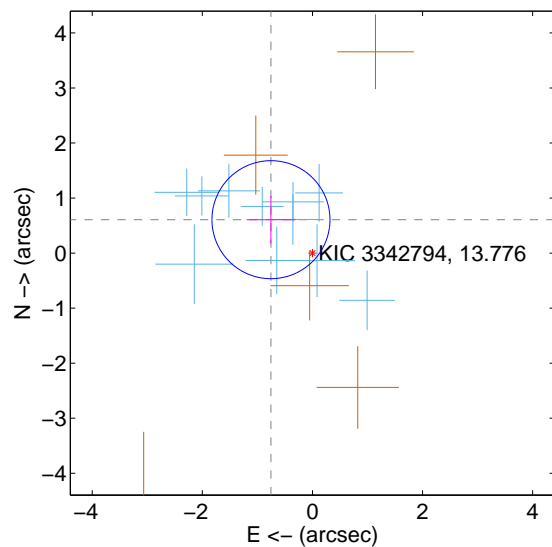
Supplemental centroid analysis for 003342794-02. Kepler magnitude: 13.78. Transit SNR 14.10

There are 11 quarters with good PRF difference image offsets

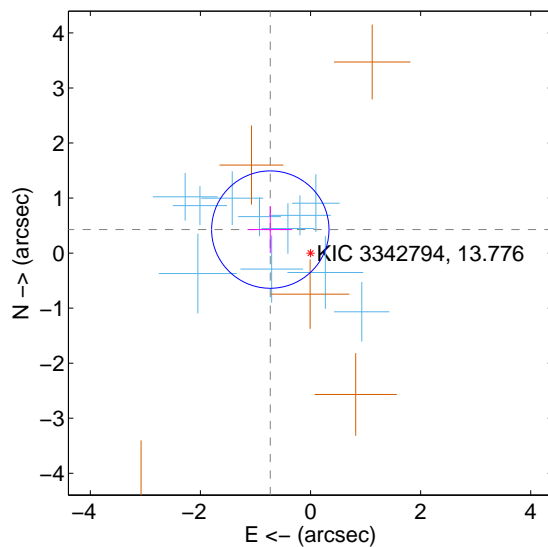
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.968 ± 0.357	2.71	0.753 ± 0.444	0.607 ± 0.434
PRF-fit source offset from KIC position	0.846 ± 0.355	2.38	0.731 ± 0.397	0.427 ± 0.425
photometric centroid source offset	0.62 ± 1.02	0.61	0.62 ± 1.02	-0.01 ± 1.12

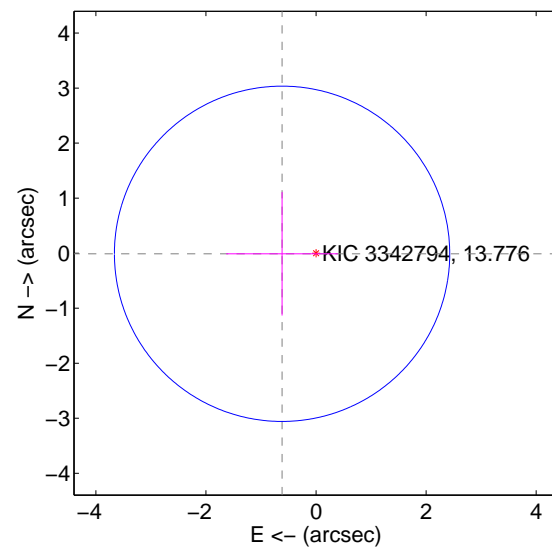
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

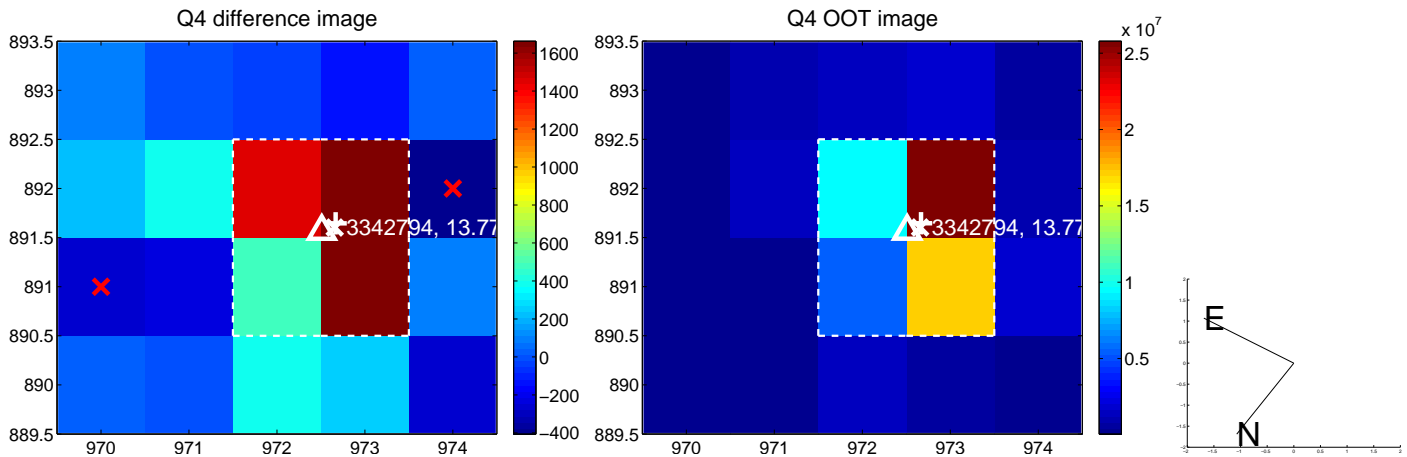
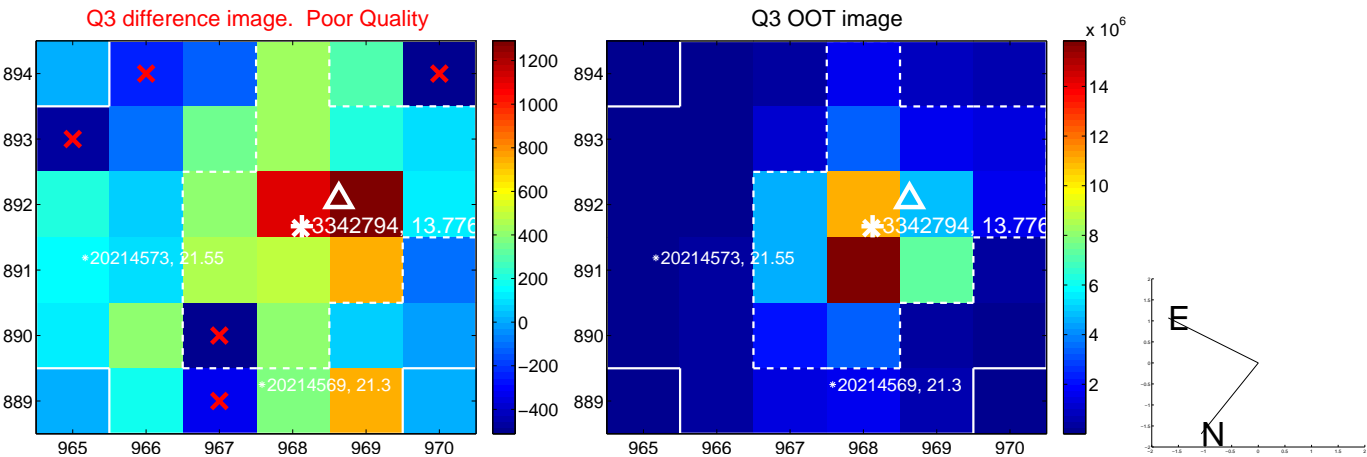
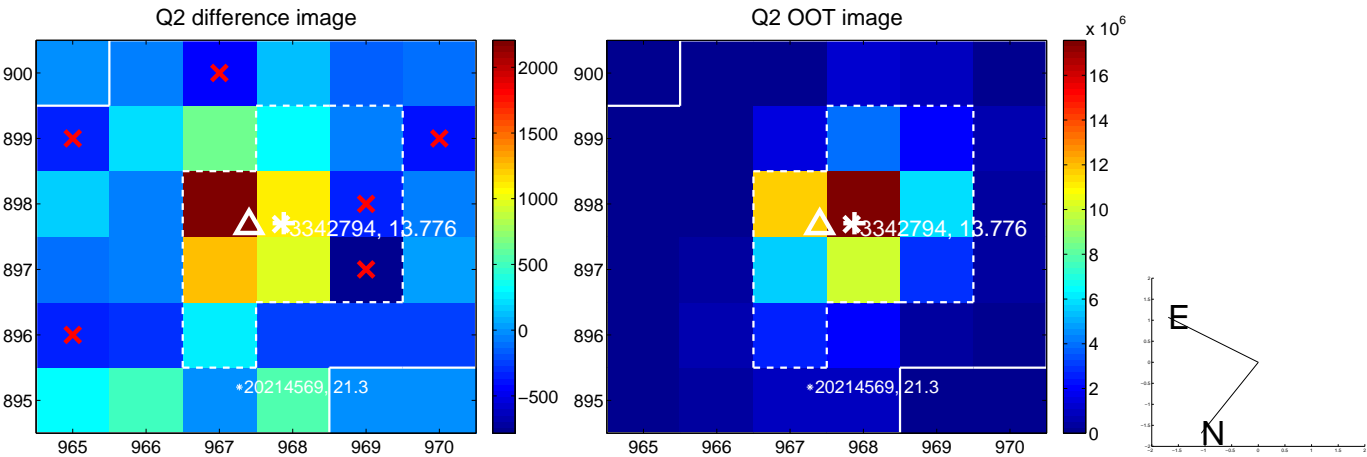
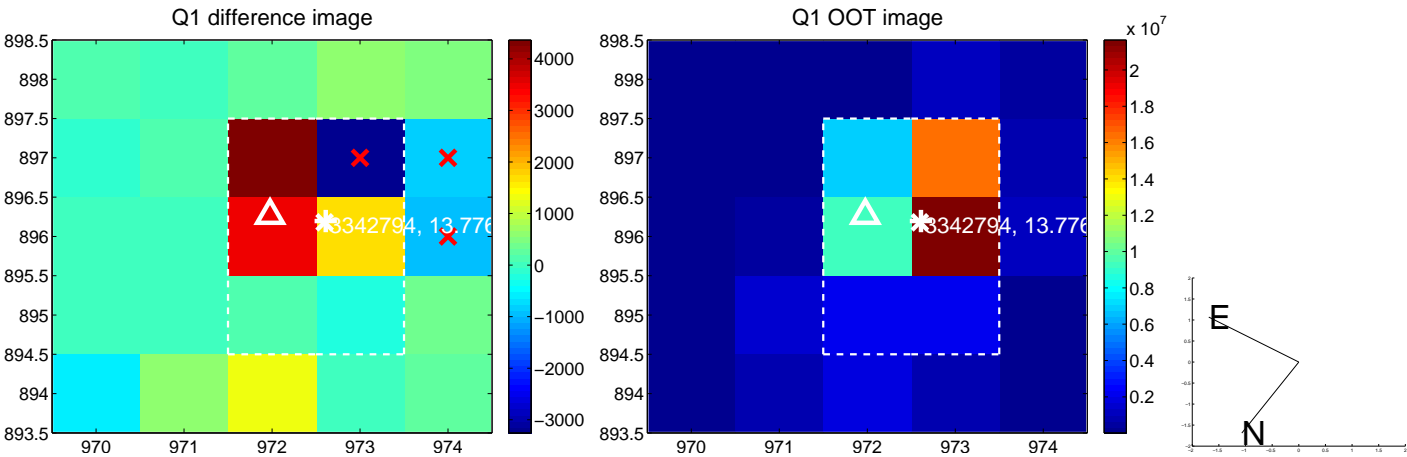


offset from photometric centroids

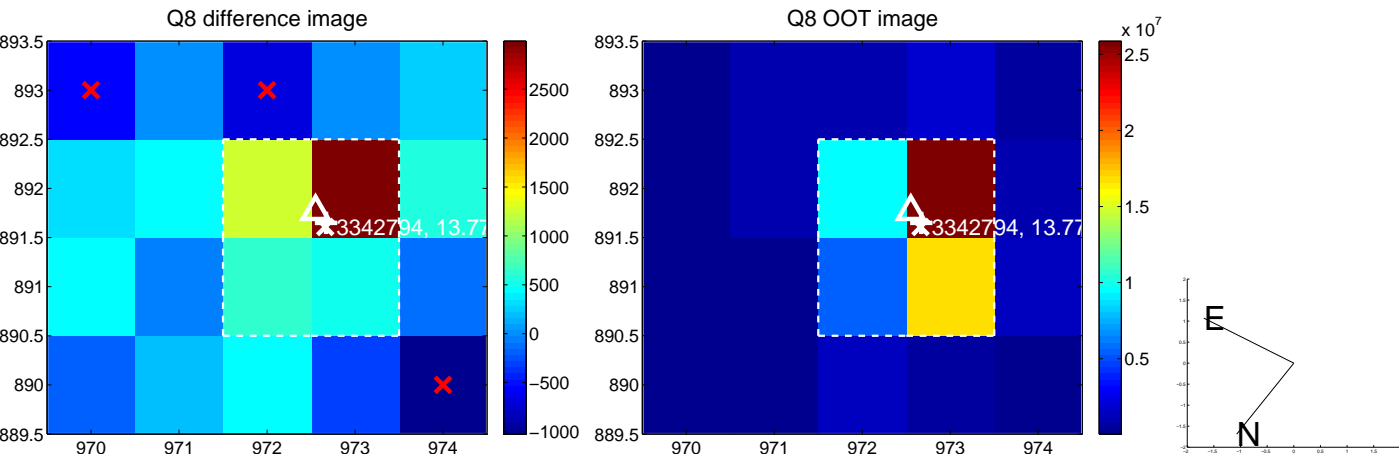
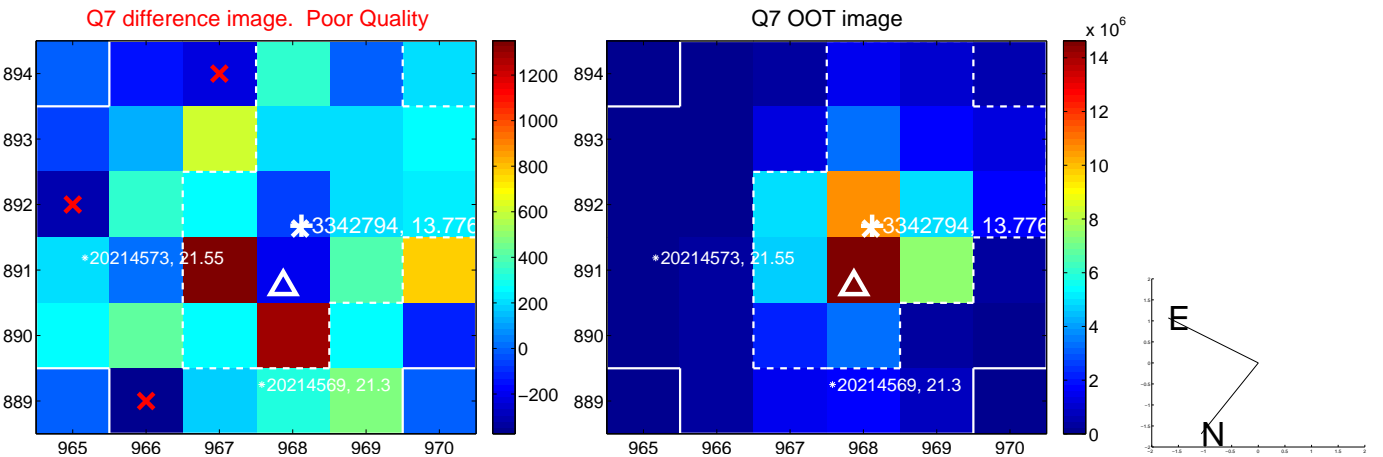
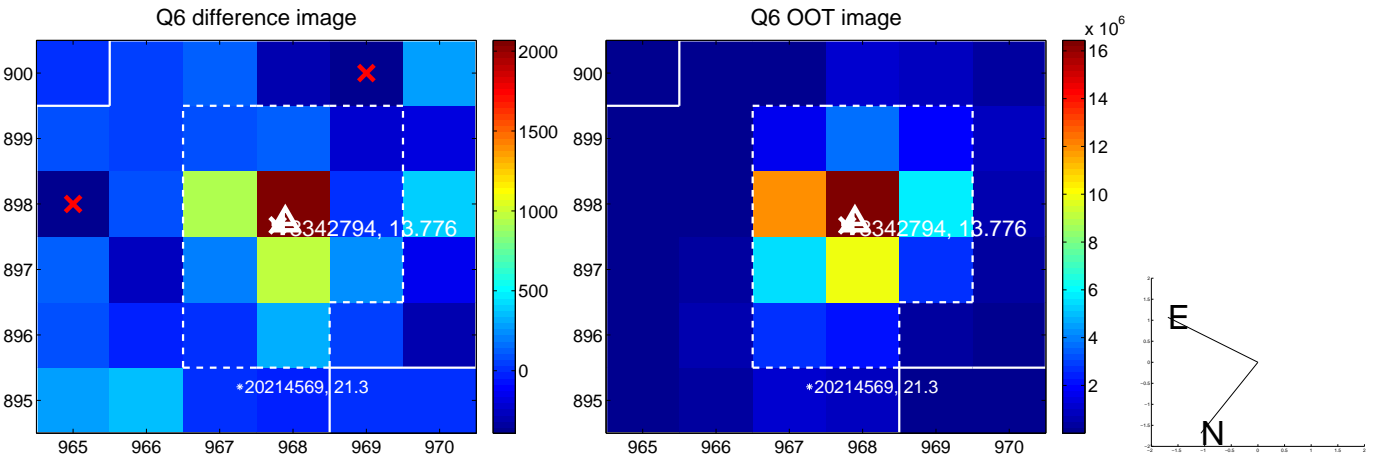
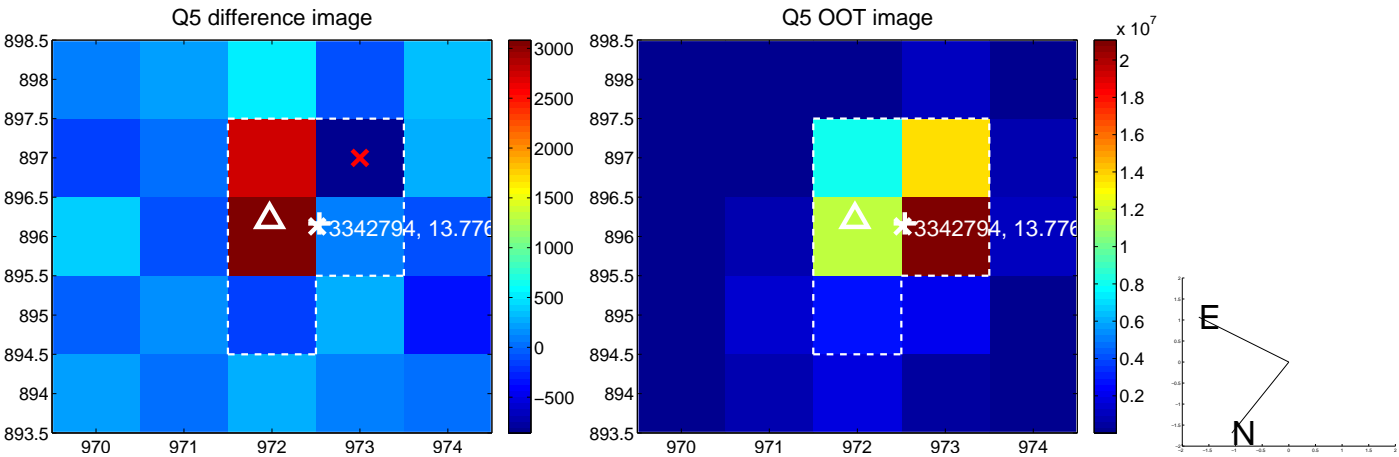


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

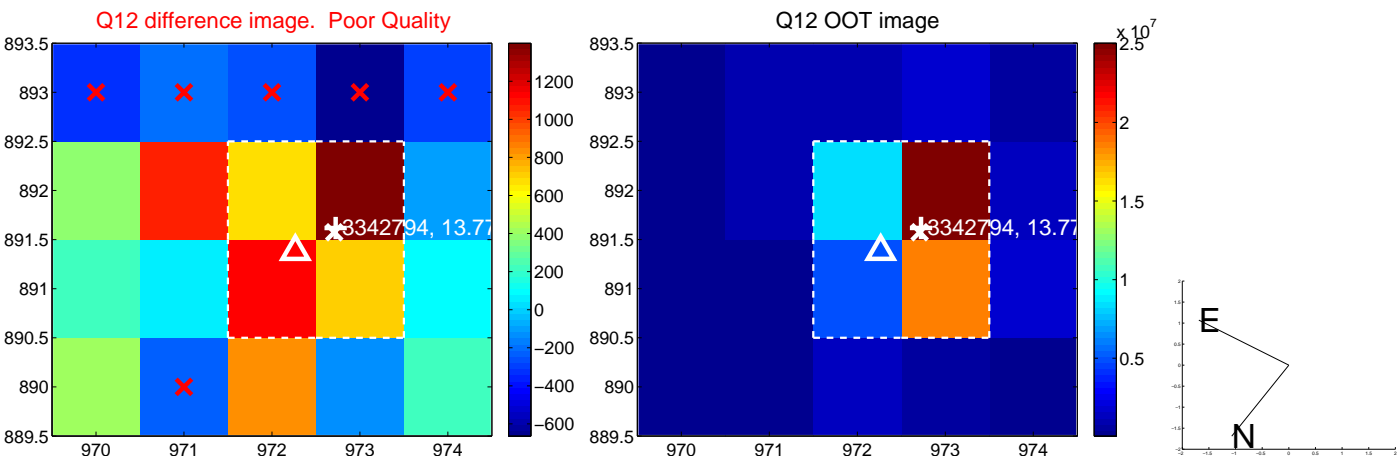
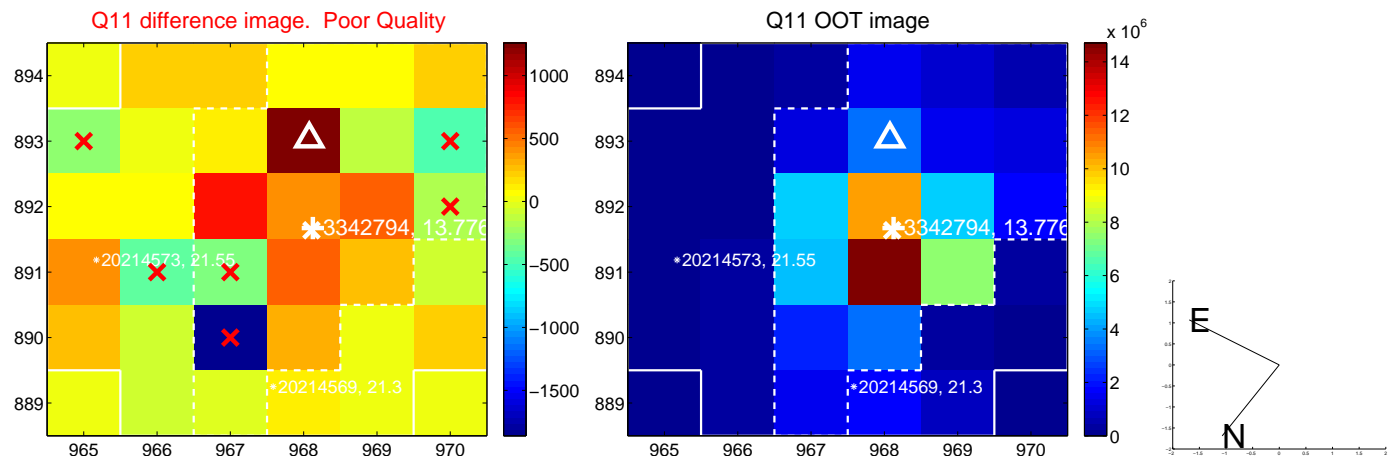
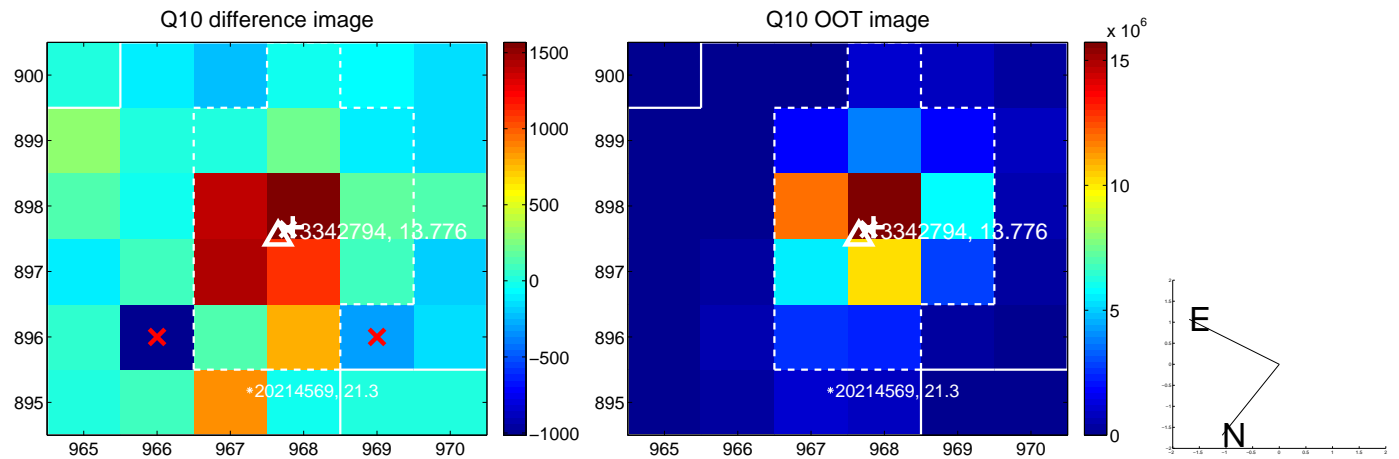
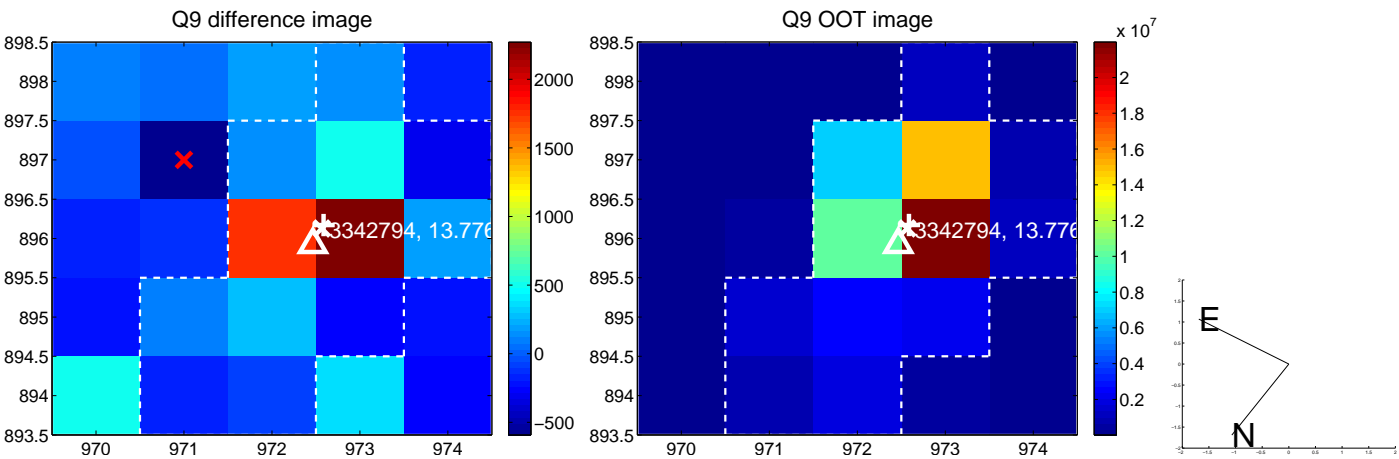
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



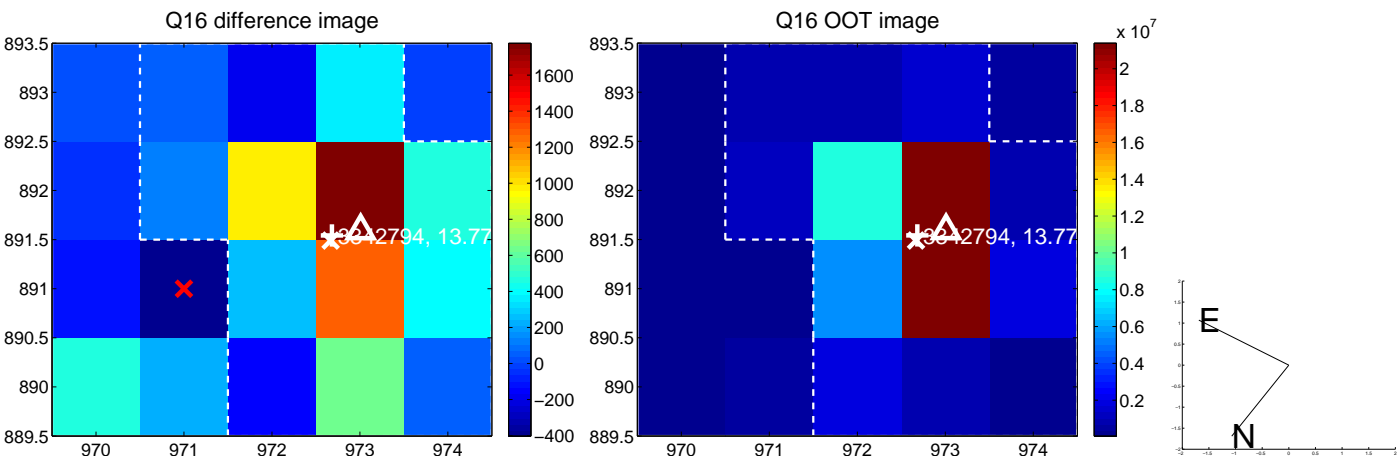
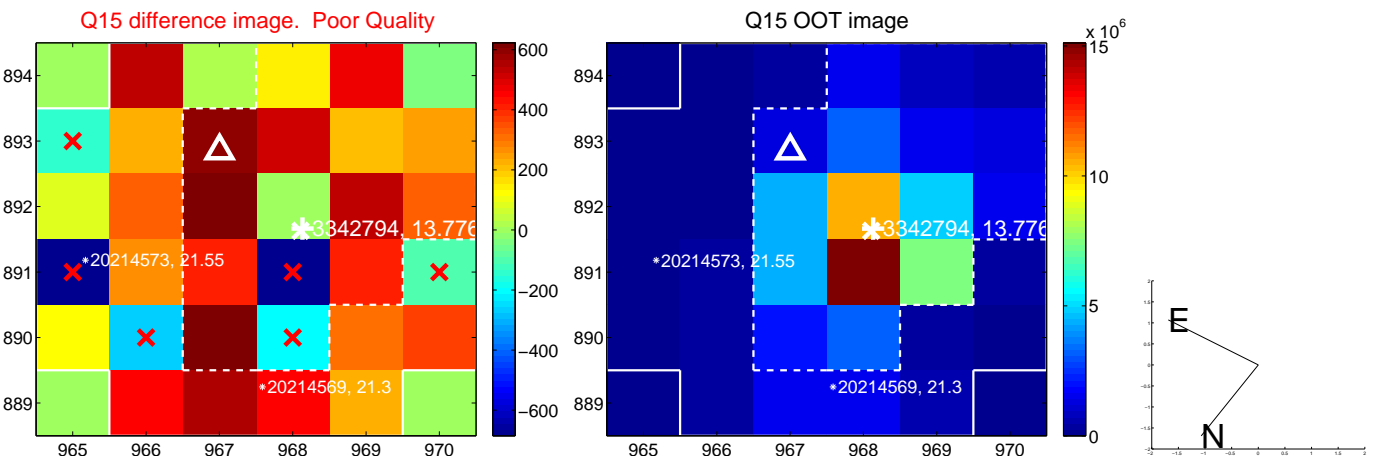
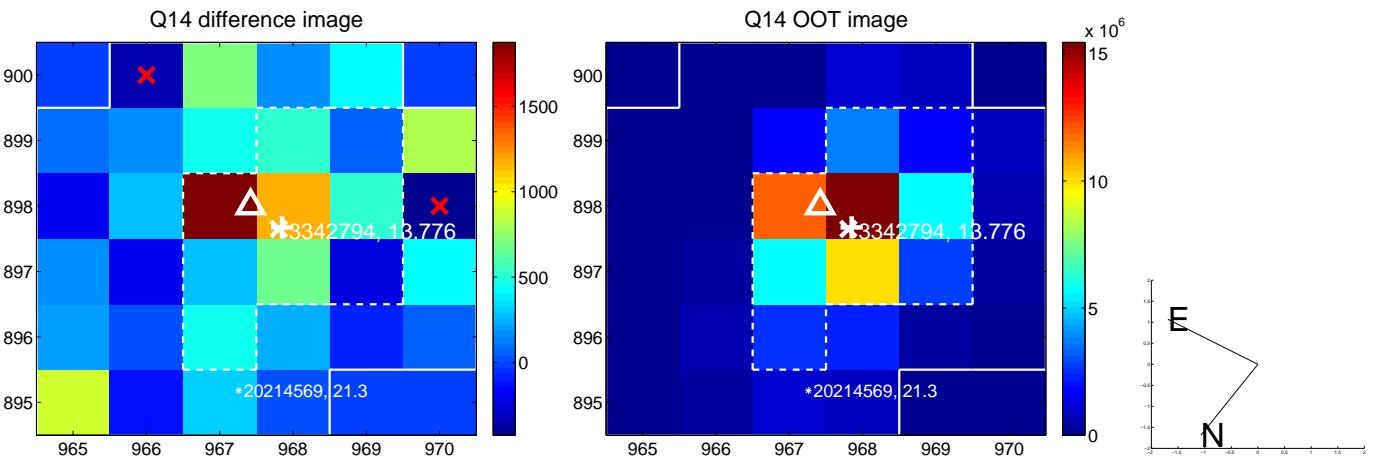
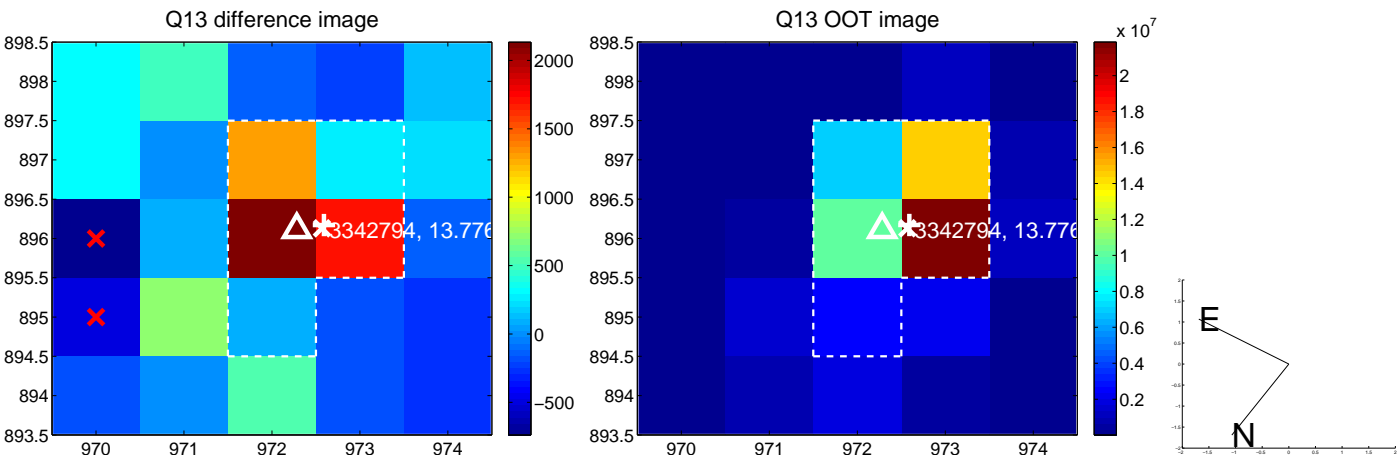
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



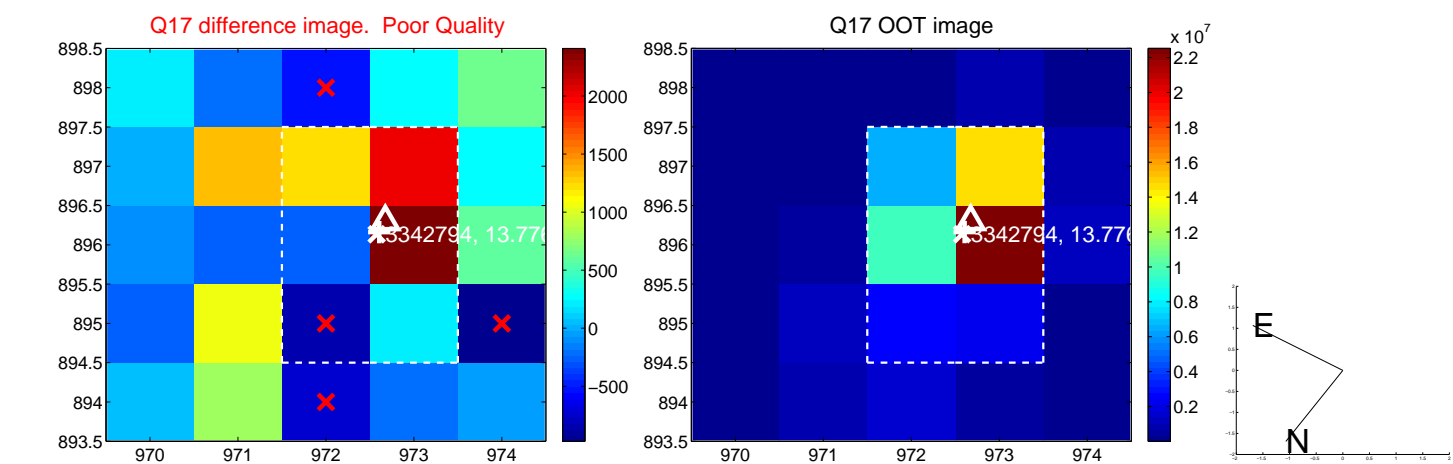
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



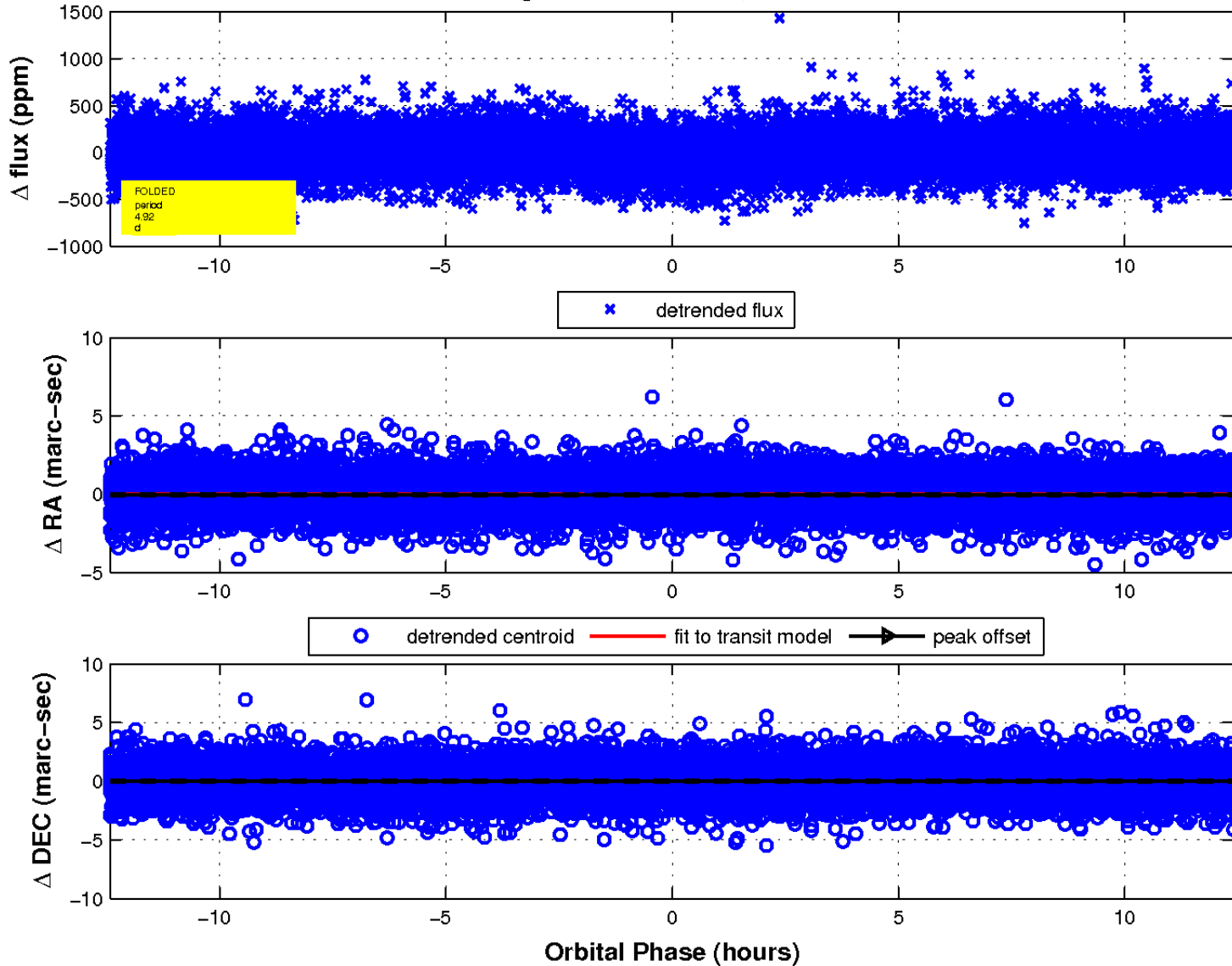
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

