

KIC 005972334

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})
005972334-01	OBS	0191.01	15.358765	132.385271	14642.6	4.176	695.0	659.9	0.89	5422	11.06	45.53
005972334-02	OBS	0191.02	2.418385	132.511565	632.7	2.237	52.9	59.9	0.89	5422	2.70	535.53
005972334-03	OBS	0191.03	0.708624	131.944863	138.1	1.639	21.1	20.7	0.89	5422	1.26	2751.65
005972334-04	OBS	0191.04	38.652403	164.032235	532.6	5.857	13.8	16.1	0.89	5422	2.36	13.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005972334-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED

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

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

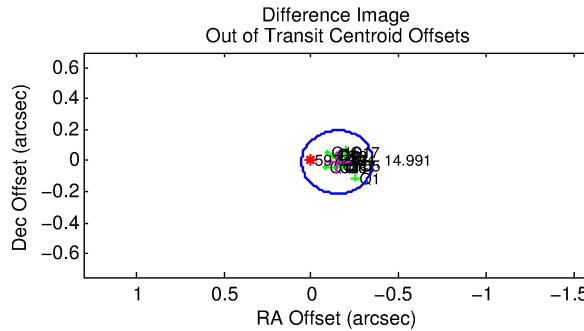
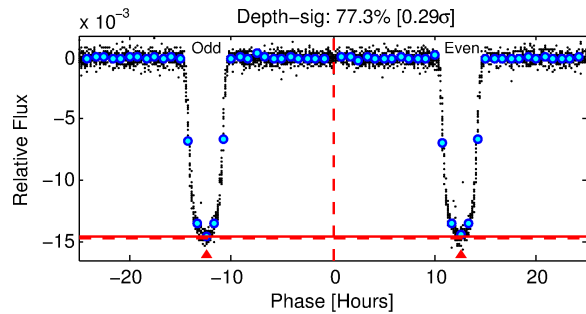
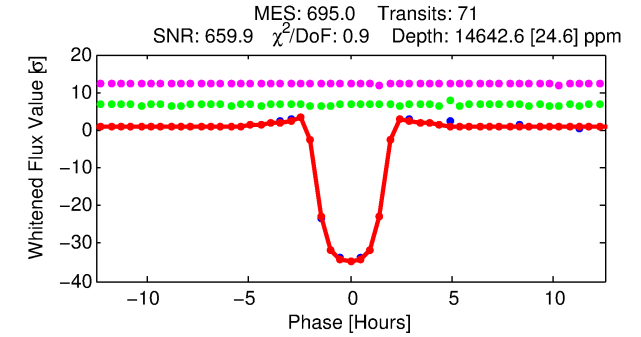
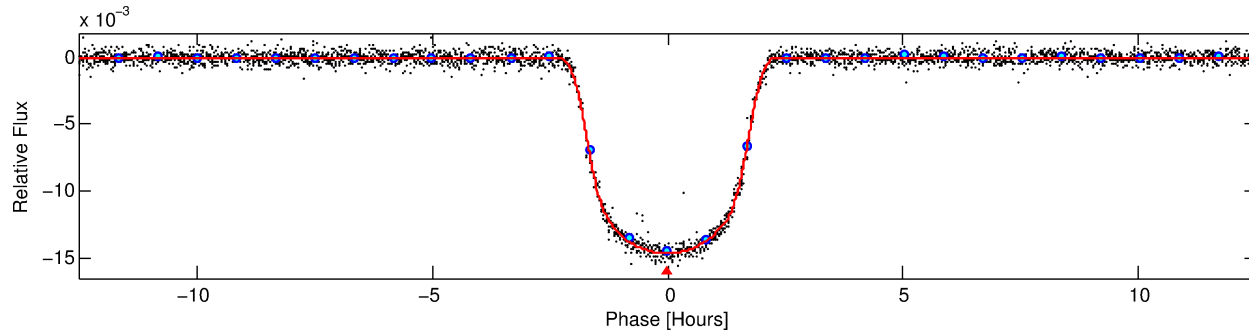
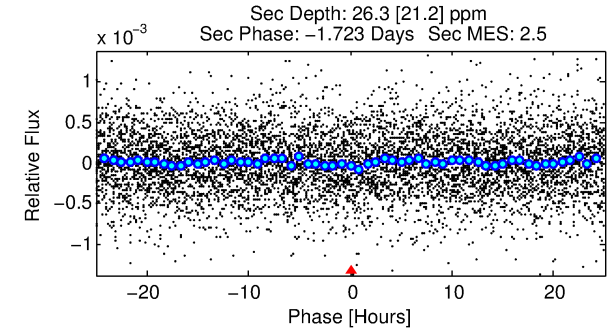
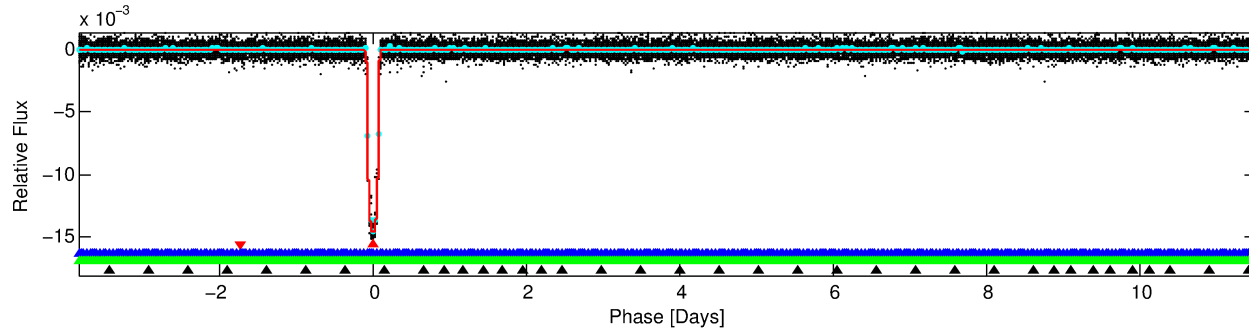
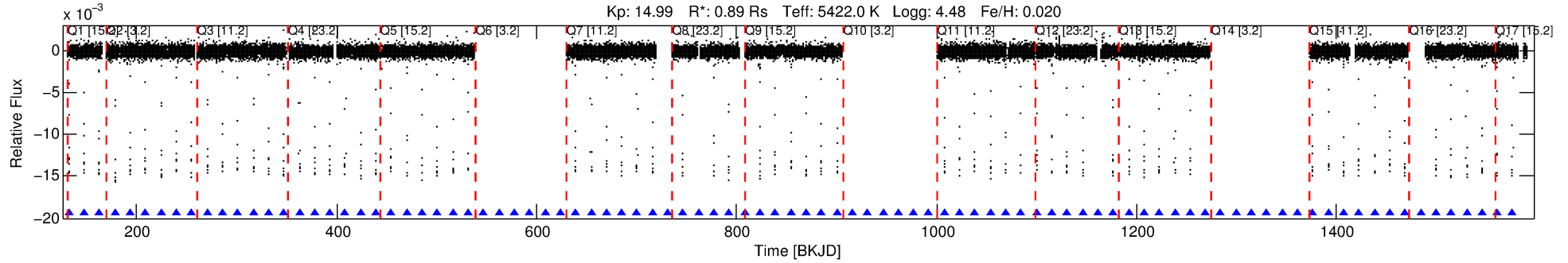
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005972334-01

No Significant Match Found

DV One-Page Summary

KIC: 5972334 Candidate: 1 of 4 Period: 15.359 d
KOI: K00191.01 Corr: 0.996



DV Fit Results:

Period = 15.35877 [0.00000] d
Epoch = 132.3853 [0.0001] BKJD
Rp/R* = 0.1143 [0.0004]
a/R* = 26.97 [0.32]
b = 0.57 [0.01]
Seff = 45.53 [7.18]
Teq = 662 [26] K
Rp = 11.06 [1.12] Re
a = 0.1157 [0.0104] AU
Ag = 1.58 [1.29] [0.45 σ]
Teffp = 1149 [232] K [2.08 σ]

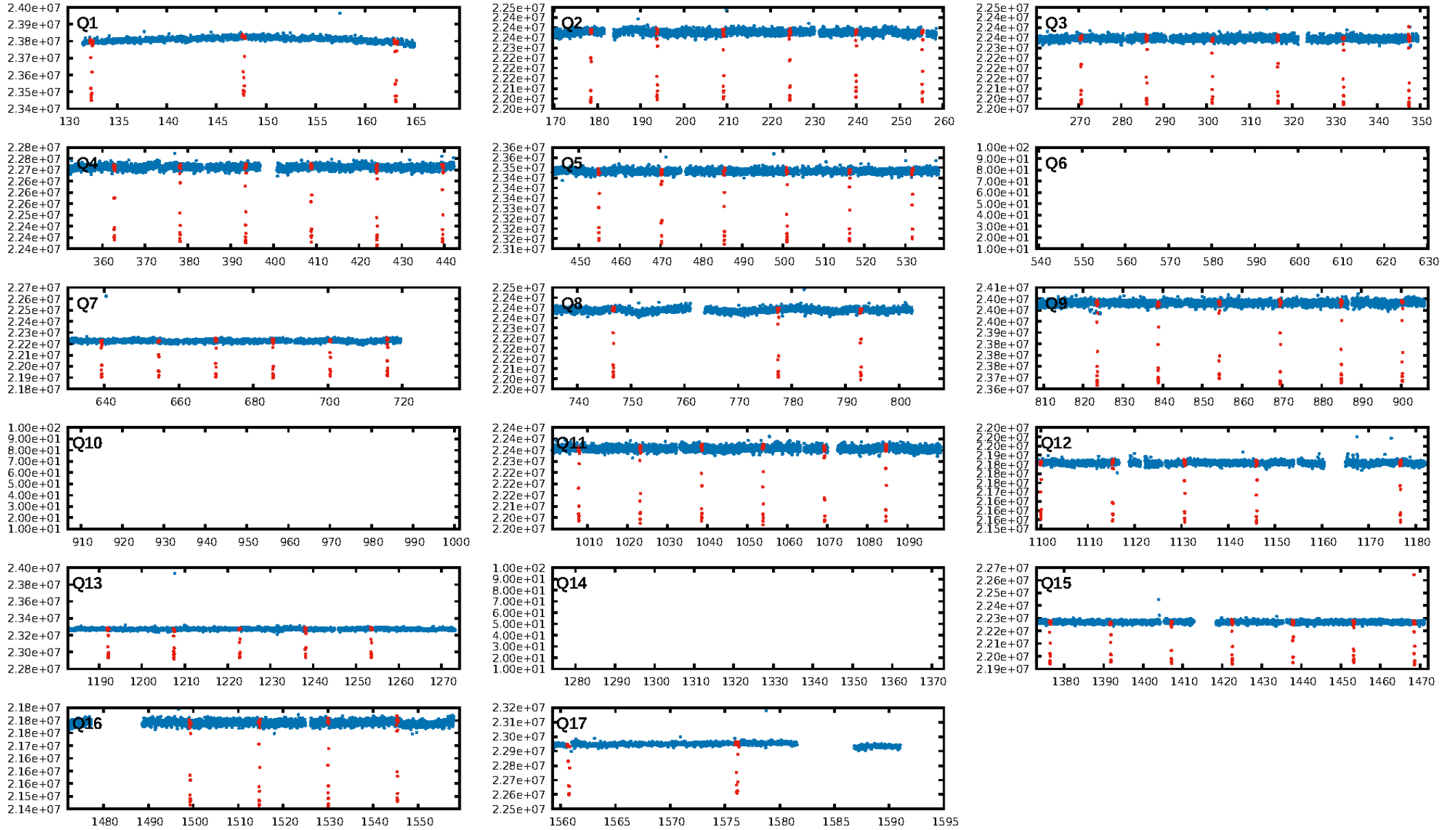
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.55 σ]
LongPeriod-sig: 100.0% [77.72 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [66/66]
GhostDiagnostic-chr: 4.302
Centroid-sig: 0.0%
Centroid-so: 0.209 arcsec [12.14 σ]
OotOffset-rm: 0.148 arcsec [2.18 σ]
KicOffset-rm: 0.118 arcsec [1.50 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

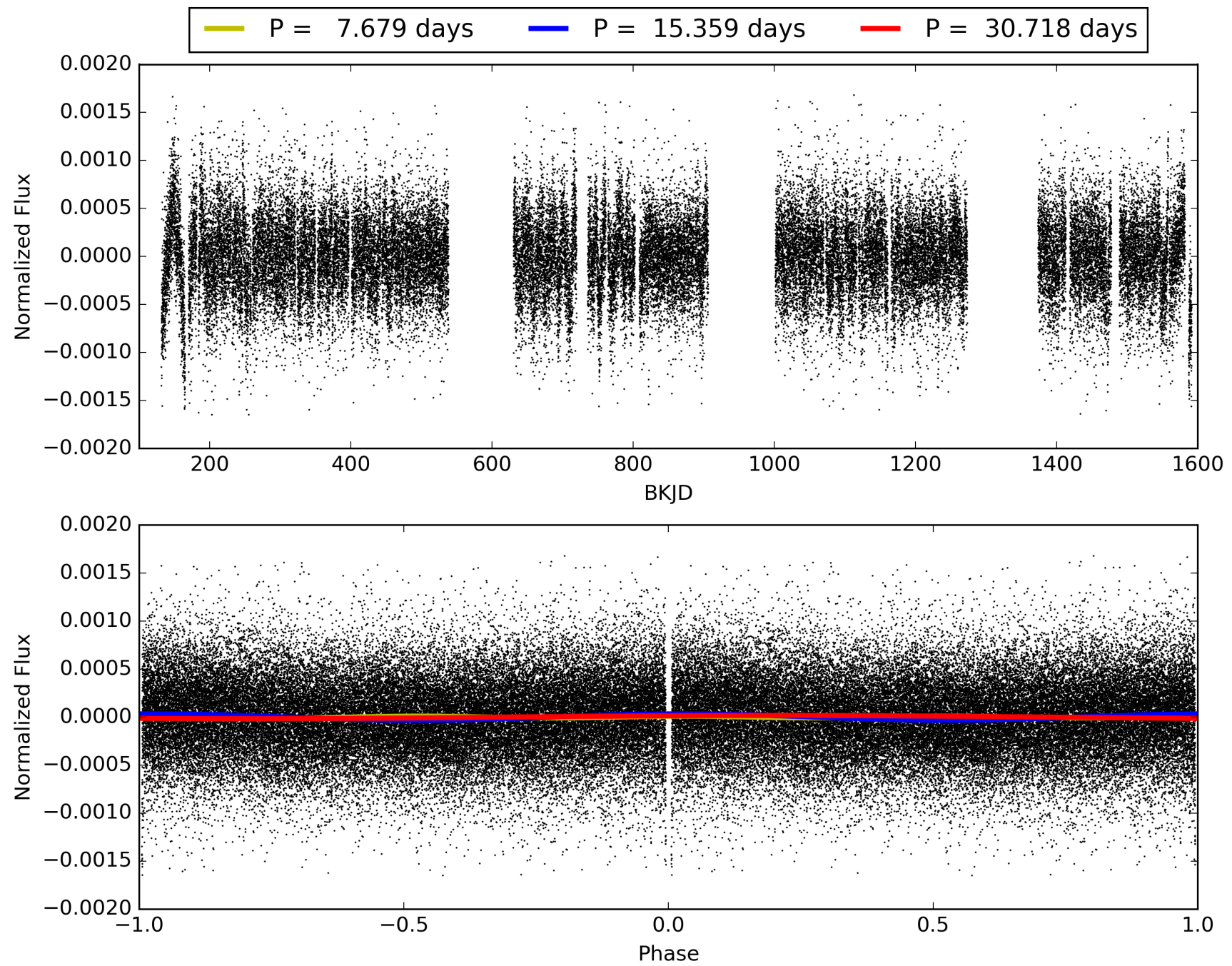
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:13:22 Z

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

TCE 005972334-01, PDC Light Curves

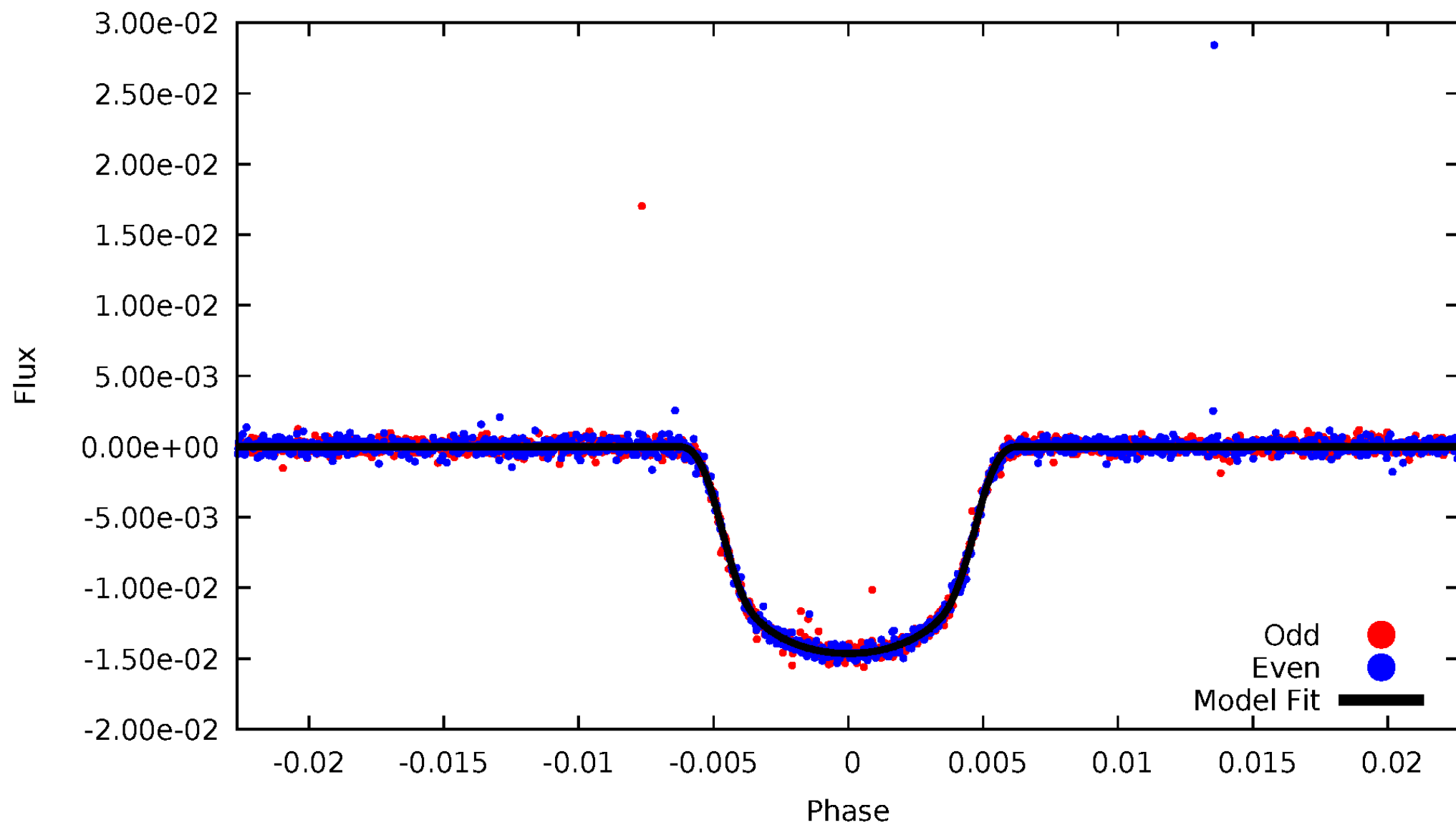


TCE 005972334-01



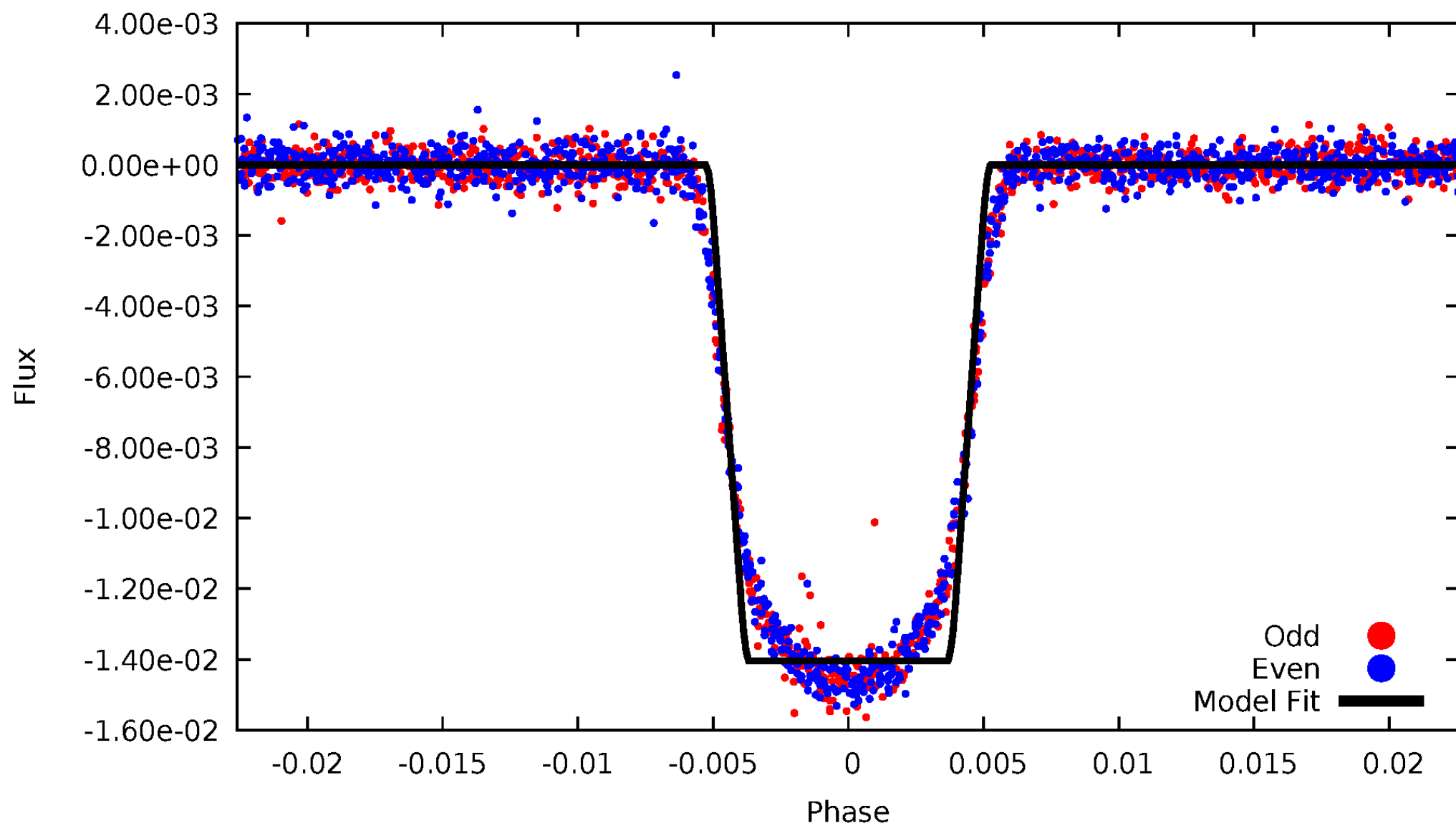
DV Odd/Even

TCE 005972334-01



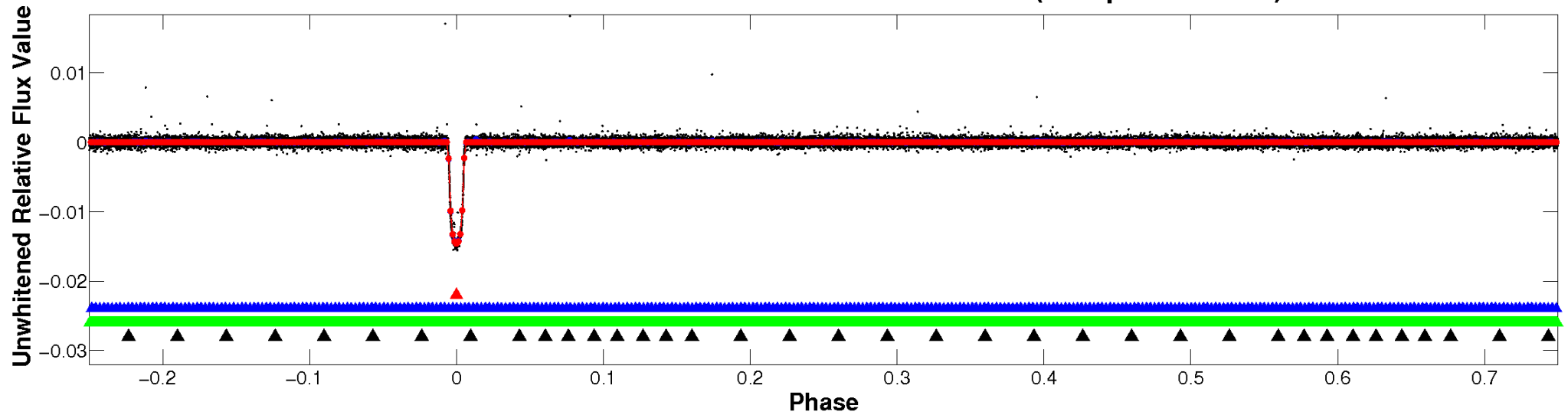
ALT Odd/Even

TCE 005972334-01

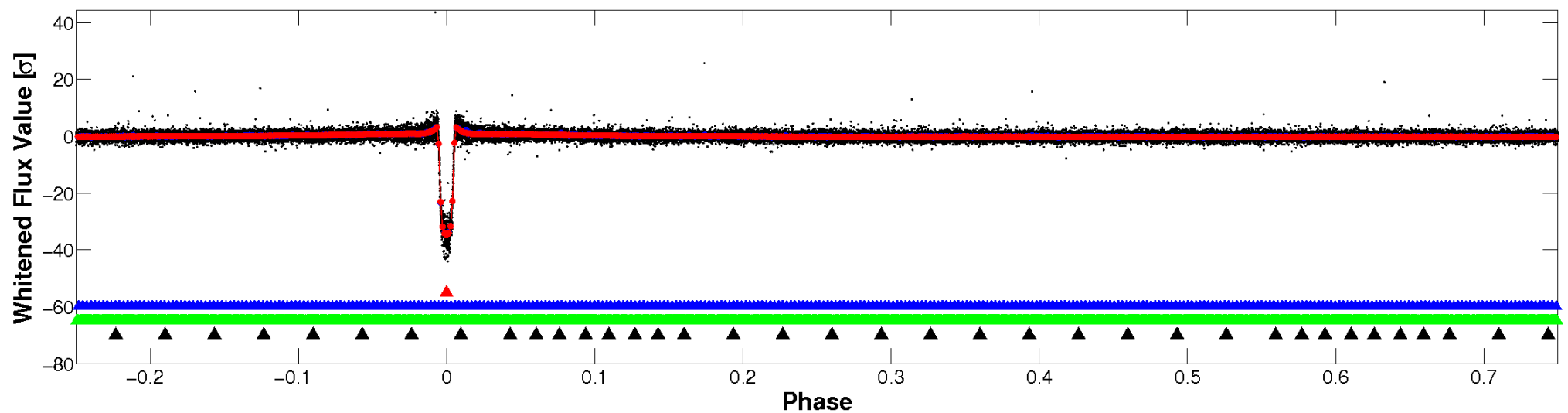


Non-Whitened Vs. Whitened Light Curve

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

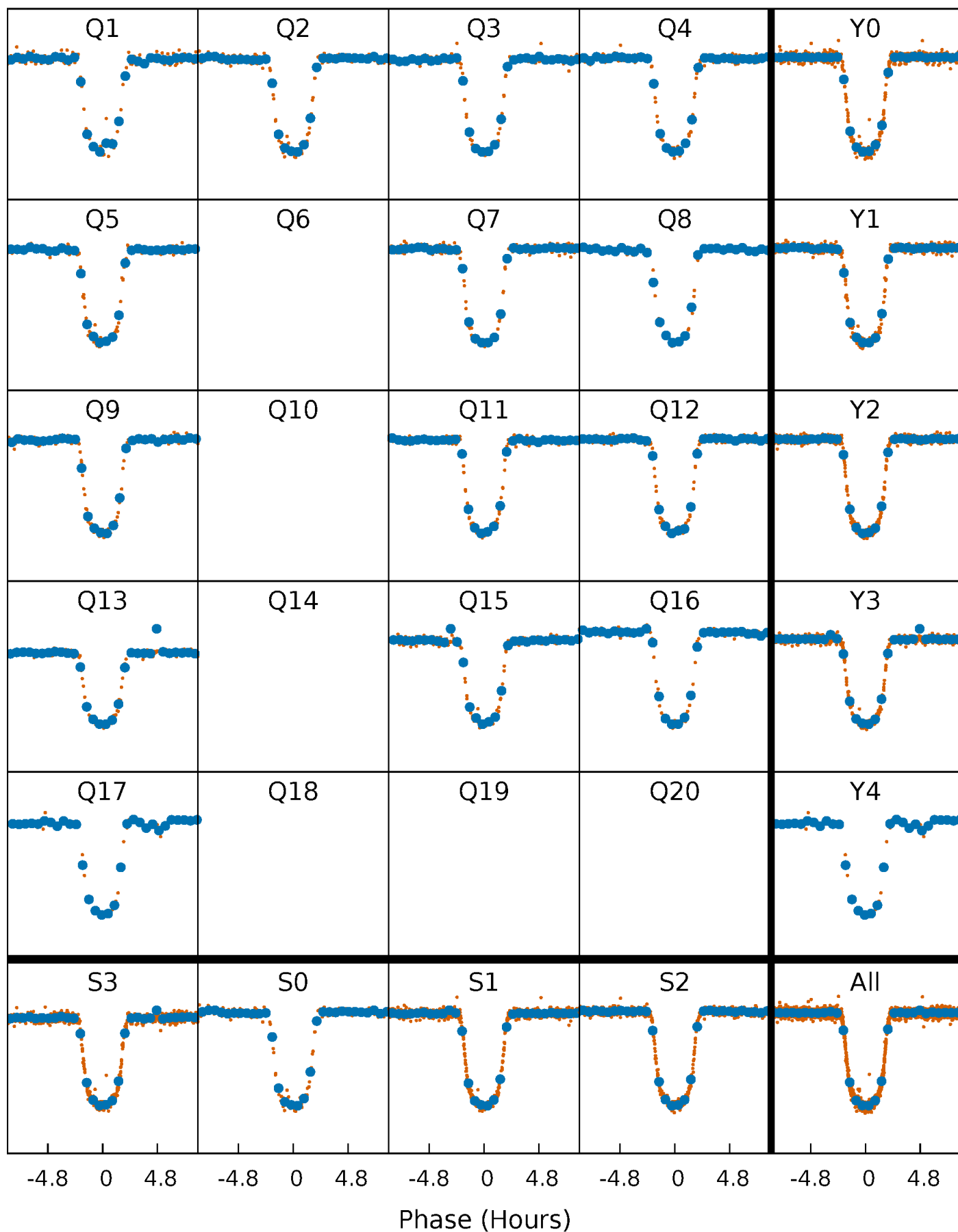


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



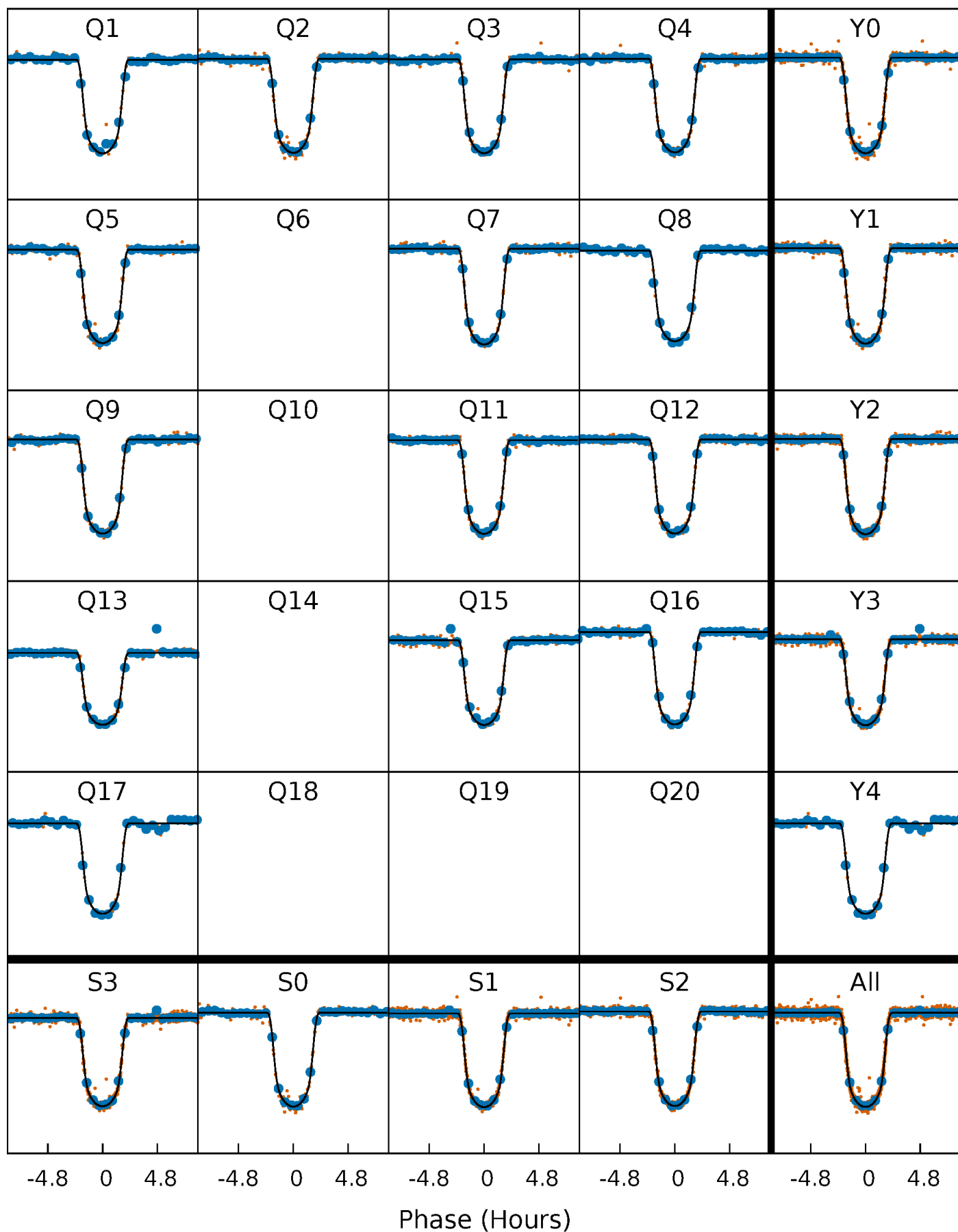
PDC Quarter-Phased Transit Curves

TCE 005972334-01 P= 15.358765 Days $T_0=132.385271$ (BKJD)



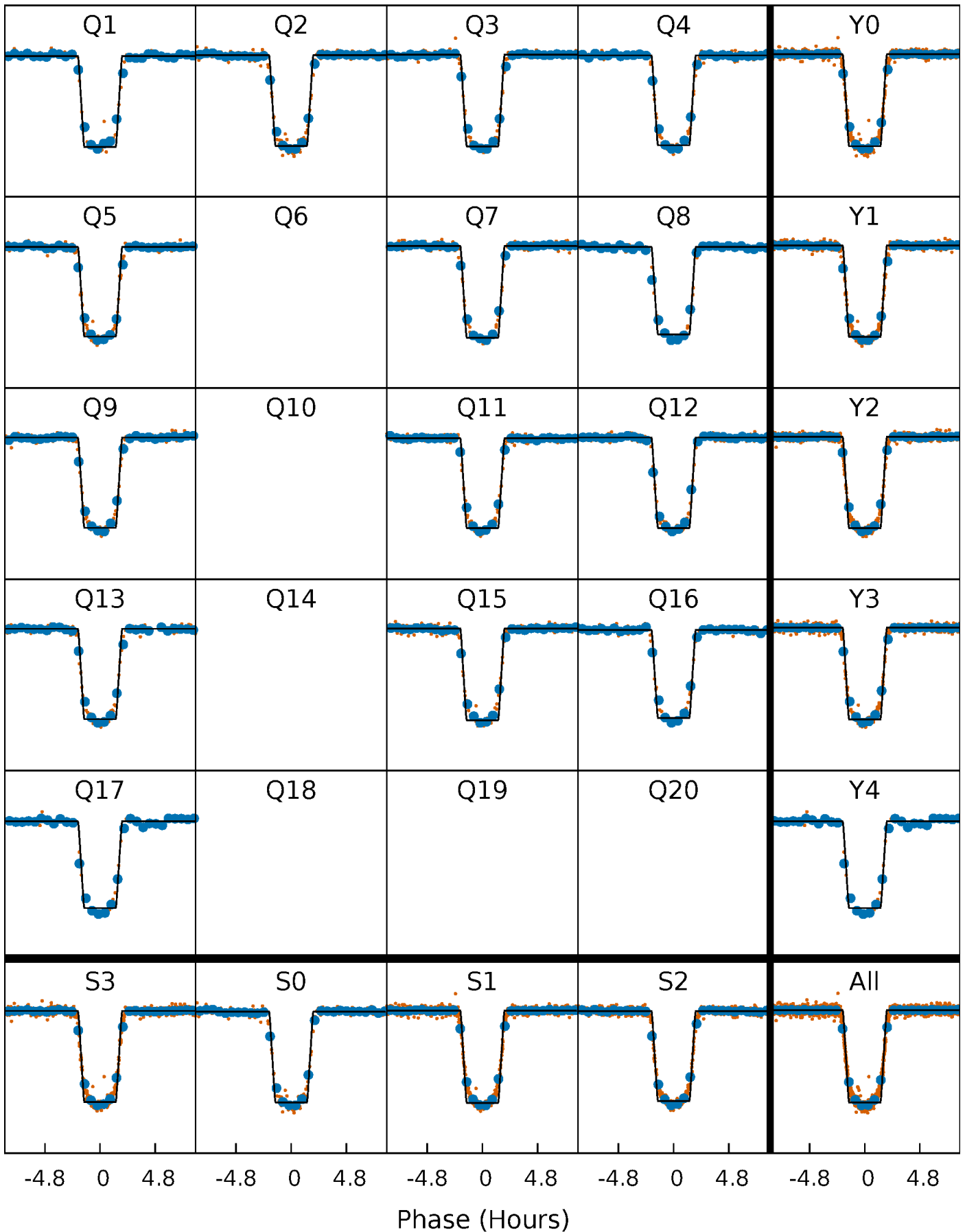
DV Quarter-Phased Transit Curves

TCE 005972334-01 P= 15.358765 Days $T_0=132.385271$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

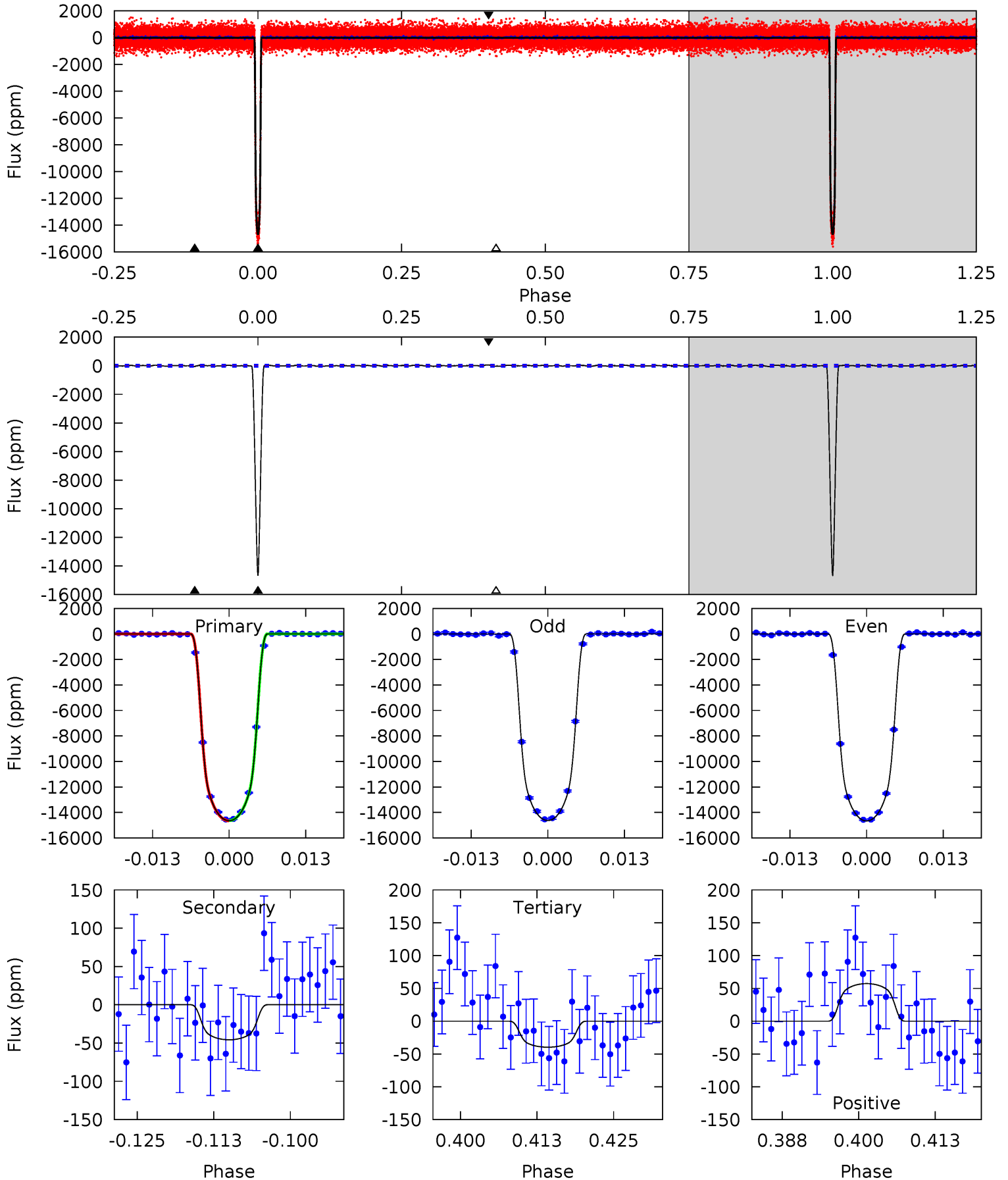
TCE 005972334-01 P= 15.358794 Days $T_0=132.383913$ (BKJD)



DV Model-Shift Uniqueness Test

005972334-01, P = 15.358765 Days, E = 117.026506 Days

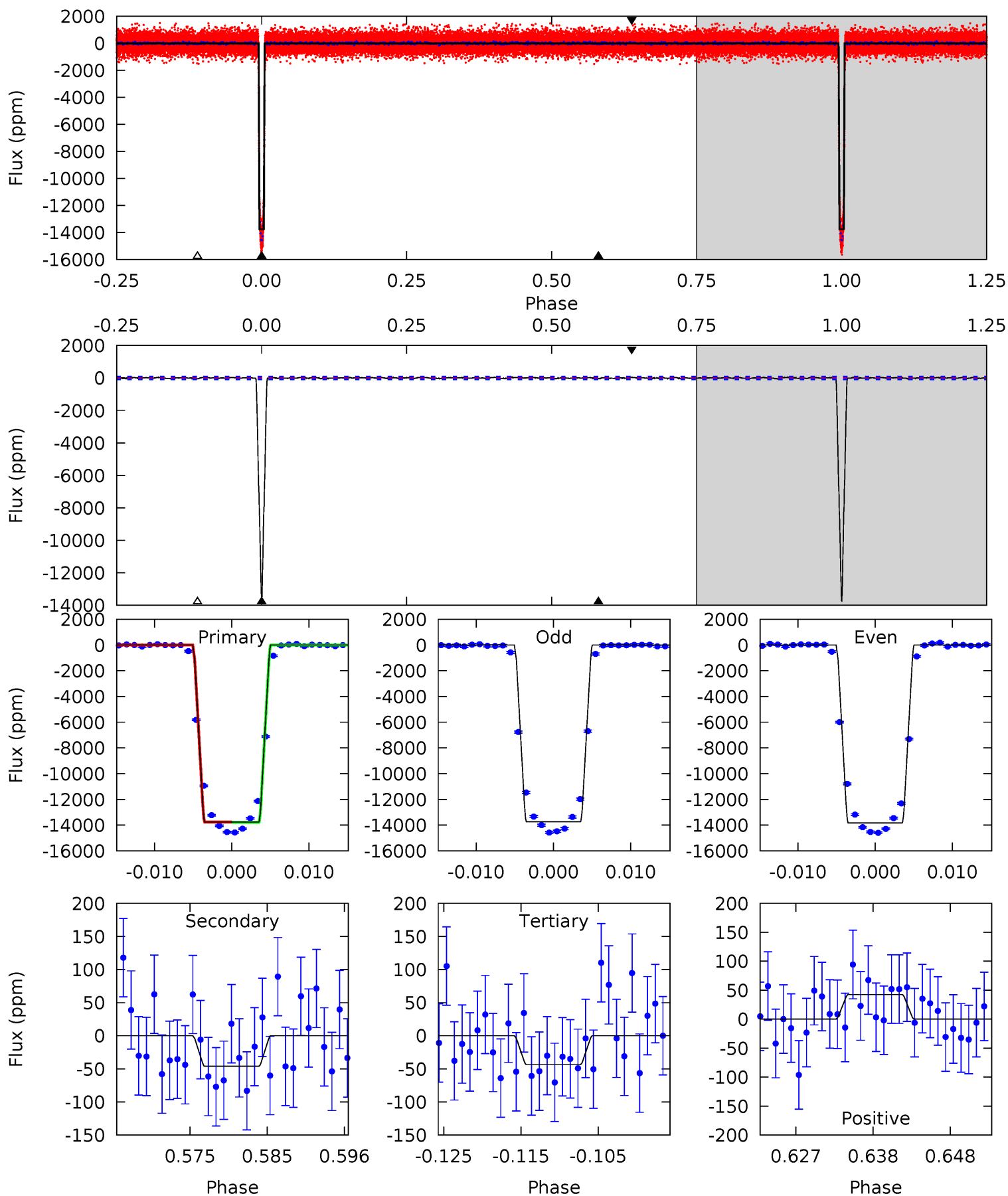
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1028	3.21	2.78	4.02	4.98	2.50	1.20	1025	1024	0.43	-0.81	1.25	1.00	0.00	0.73



Alt Model-Shift Uniqueness Test

005972334-01, P = 15.358794 Days, E = 117.025119 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
829.9	2.78	2.63	2.57	5.02	2.56	0.99	827.3	827.3	0.16	0.22	2.53	1.00	0.00	0.79



Stellar Parameters For KIC 005972334

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5422^{+108}_{-108}	$4.484^{+0.063}_{-0.077}$	$0.020^{+0.150}_{-0.150}$	$0.887^{+0.090}_{-0.067}$	$0.874^{+0.055}_{-0.046}$	$1.766^{+0.454}_{-0.431}$
	+2%/-2%	+1%/-2%	+750%/-750%	+10%/-8%	+6%/-5%	+26%/-24%
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 005972334-01 / KOI 0191.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 14	$11.11^{+0.65}_{-0.55}$	927^{+31}_{-30}	2221^{+75}_{-104}	$2.738^{+0.927}_{-0.897}$
Alt.	-46 ± 17	$11.49^{+0.74}_{-0.49}$	928^{+32}_{-29}	2206^{+90}_{-118}	$2.565^{+0.940}_{-0.918}$

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 $A_{obs} \gg 1.0$

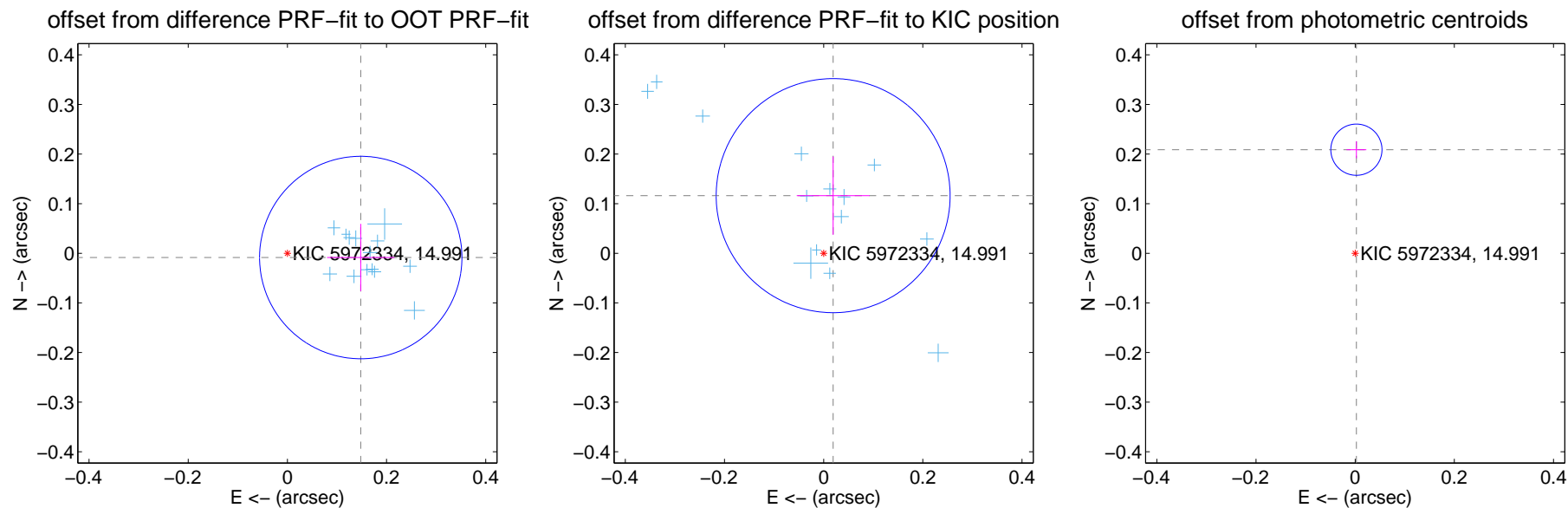
DV Centroid Data

Supplemental centroid analysis for 005972334-01. Kepler magnitude: 14.99. Transit SNR 659.90

There are 14 quarters with good PRF difference image offsets

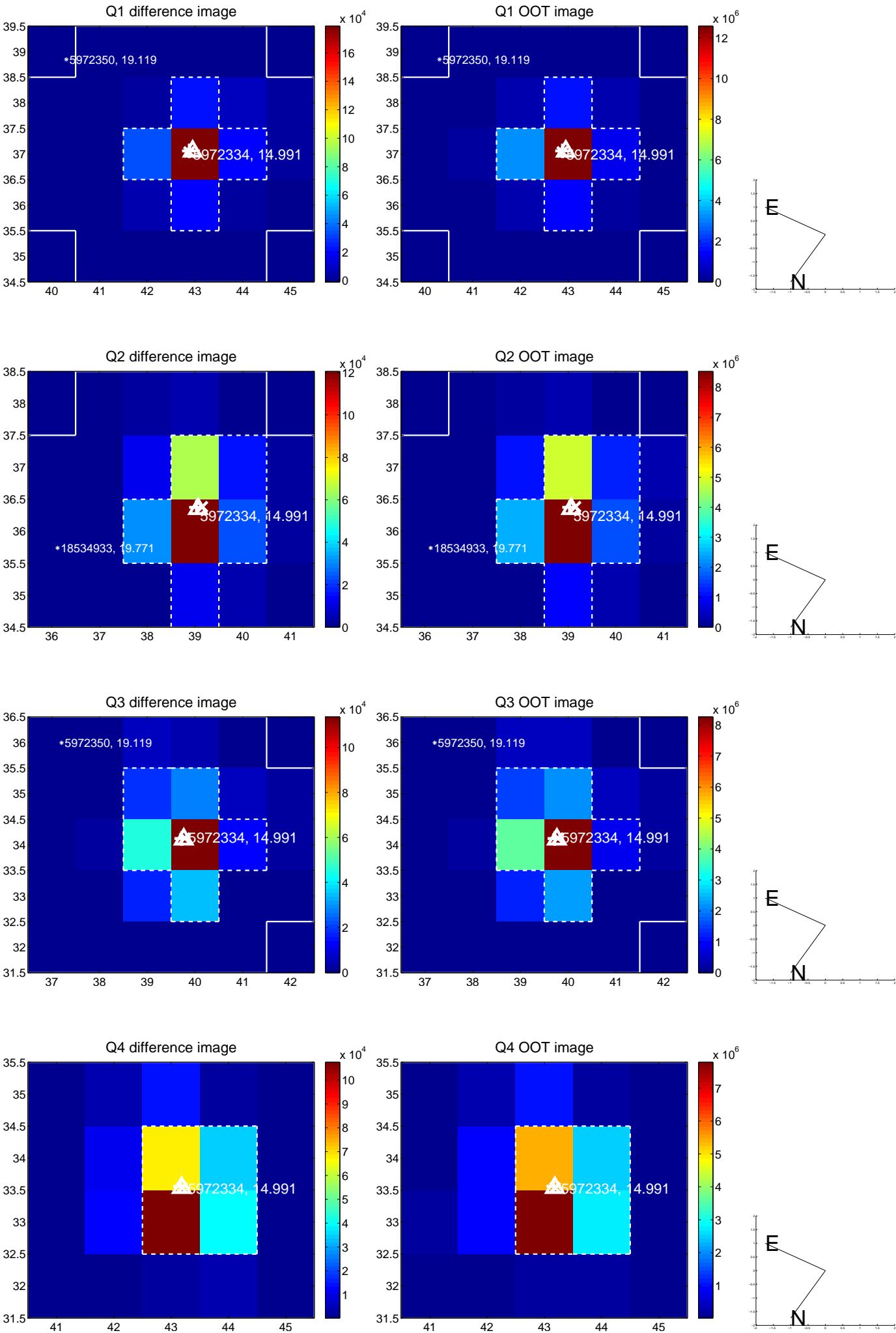
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.148 ± 0.068	2.18	-0.148 ± 0.068	-0.009 ± 0.068
PRF-fit source offset from KIC position	0.118 ± 0.079	1.50	-0.019 ± 0.074	0.116 ± 0.079
photometric centroid source offset	0.21 ± 0.02	12.14	-0.00 ± 0.02	0.21 ± 0.02

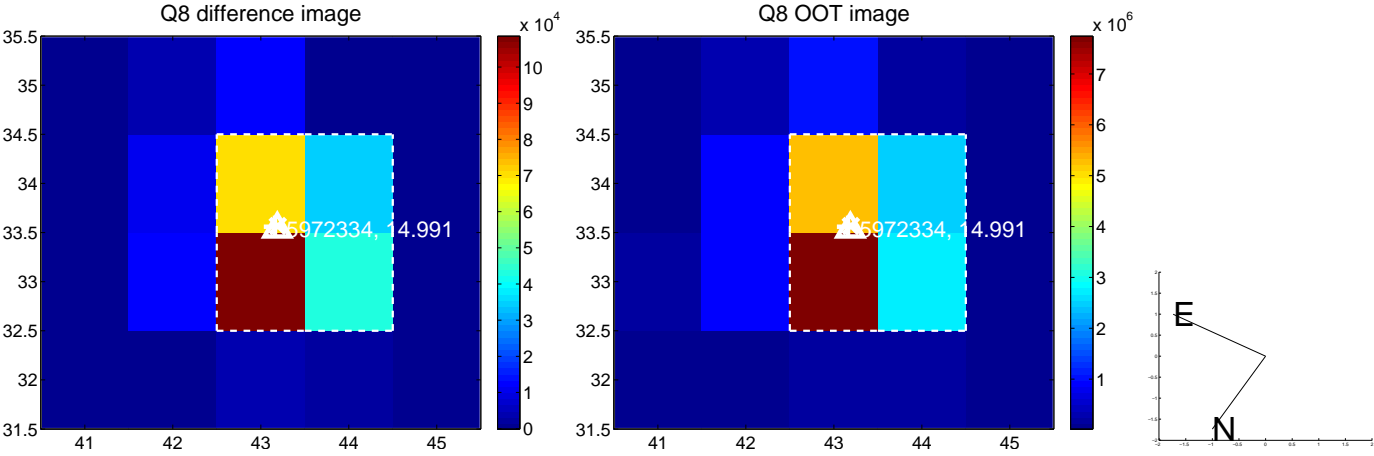
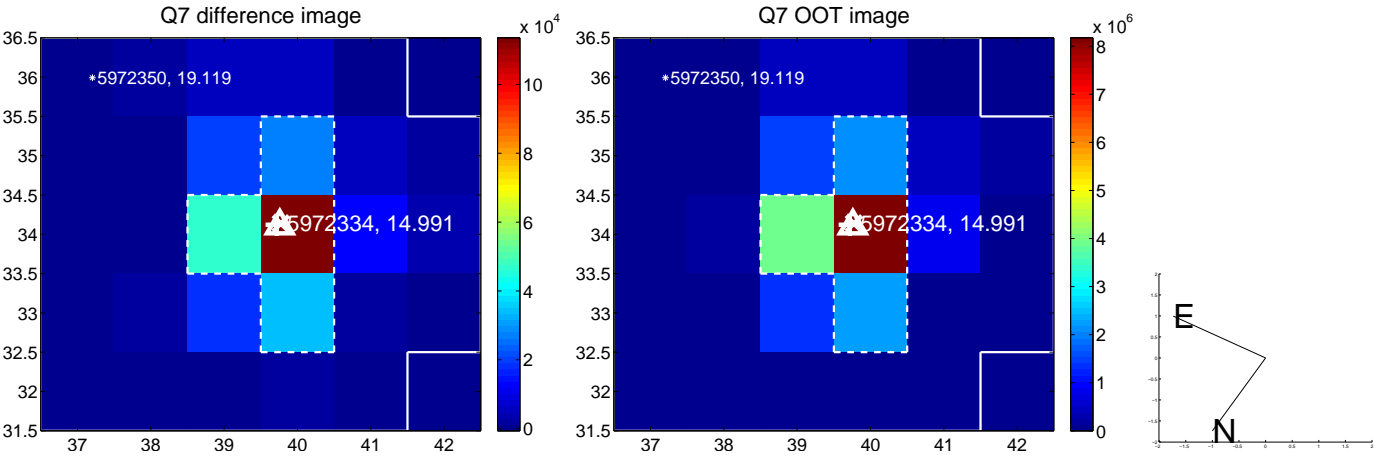
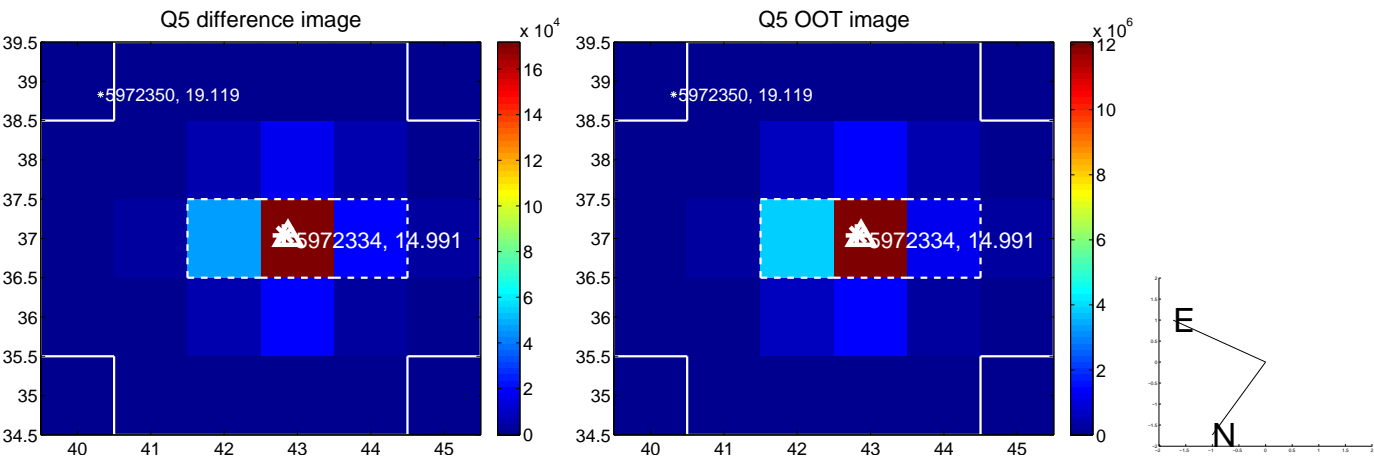


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

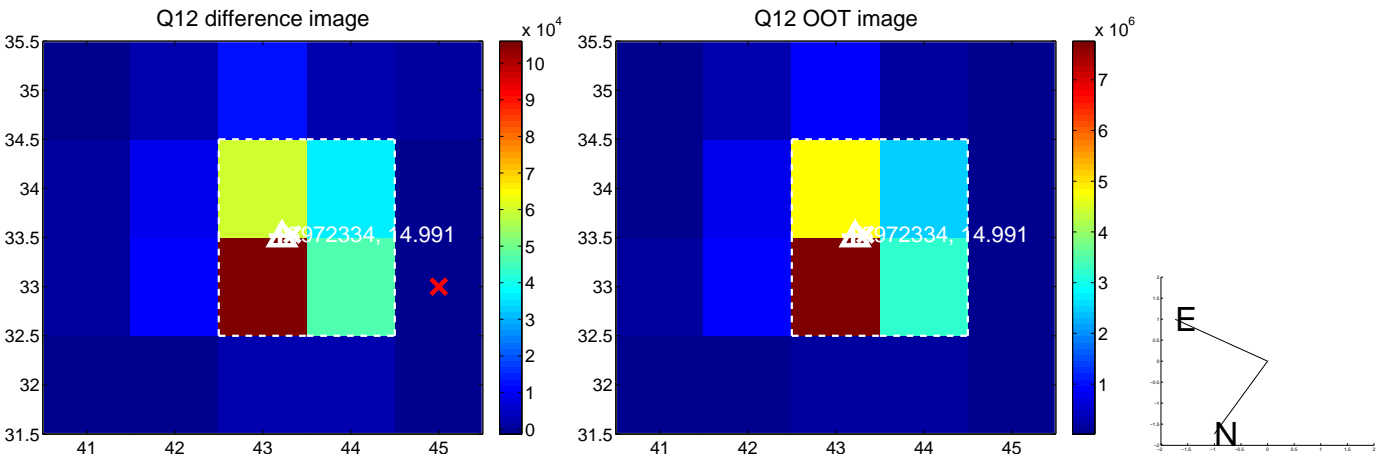
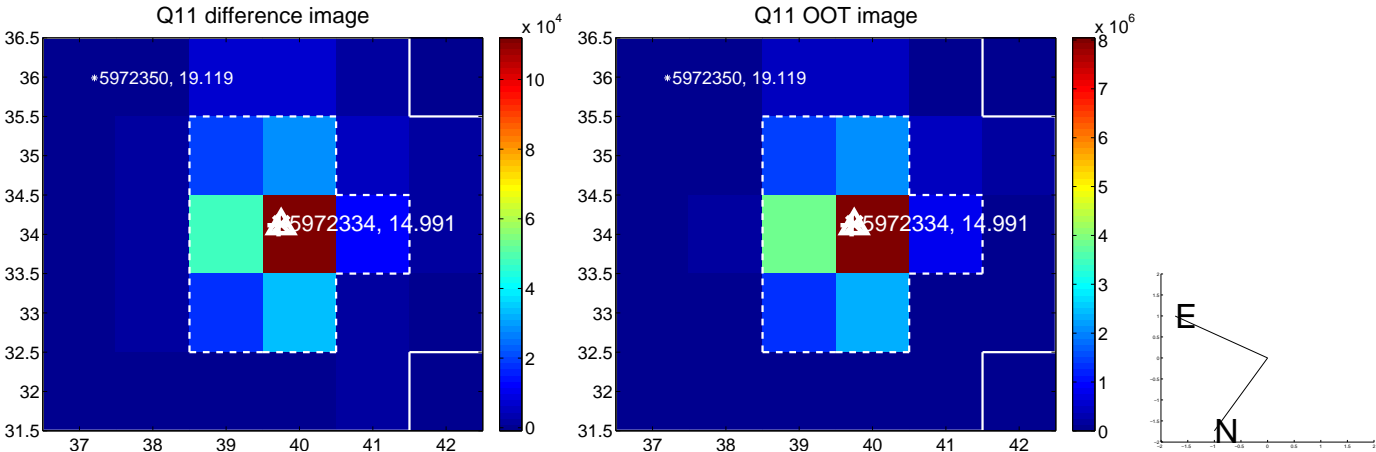
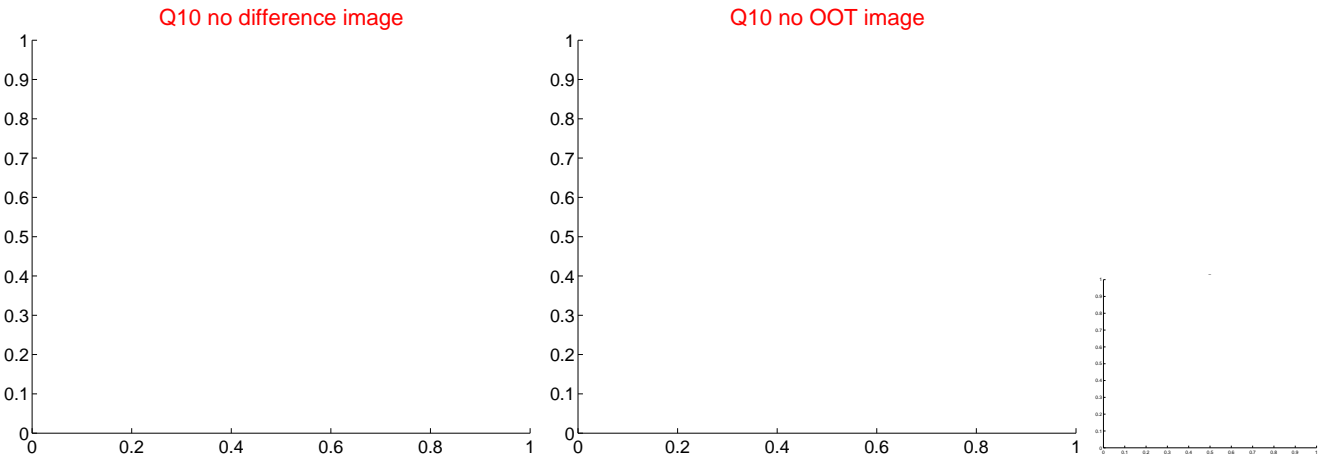
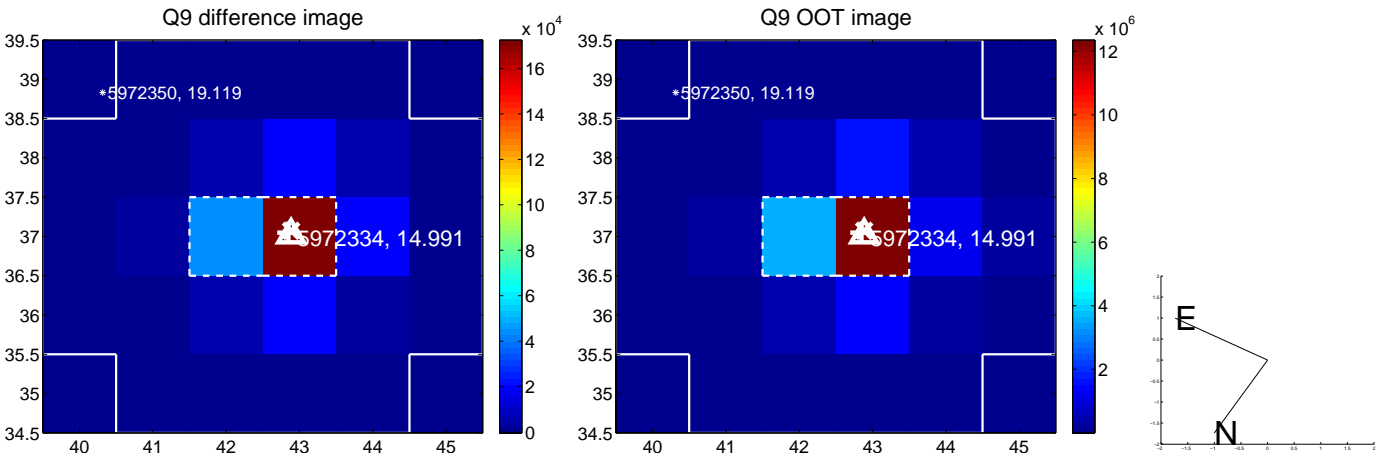
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



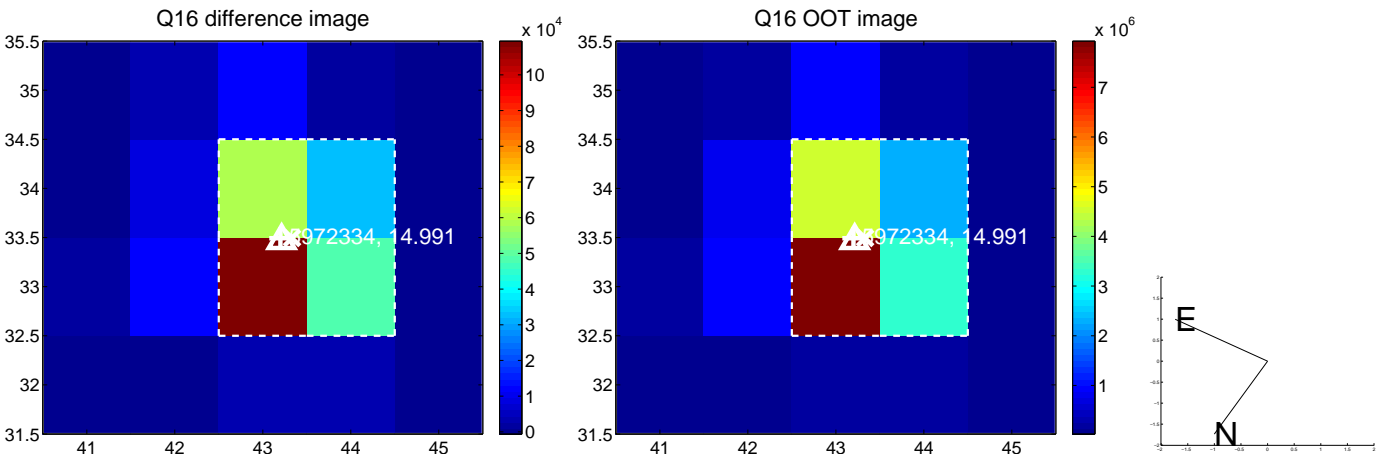
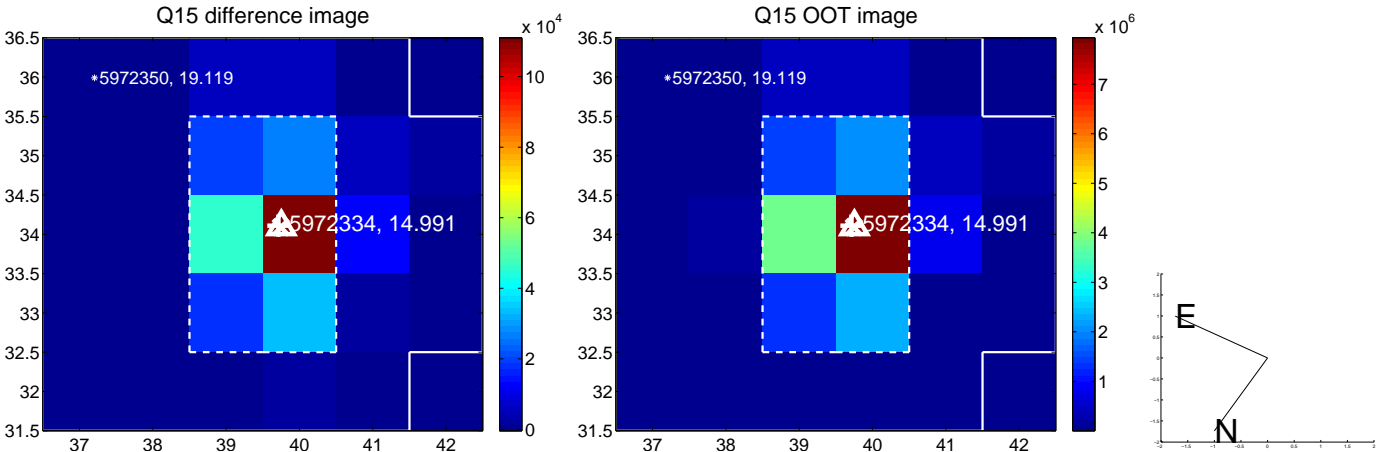
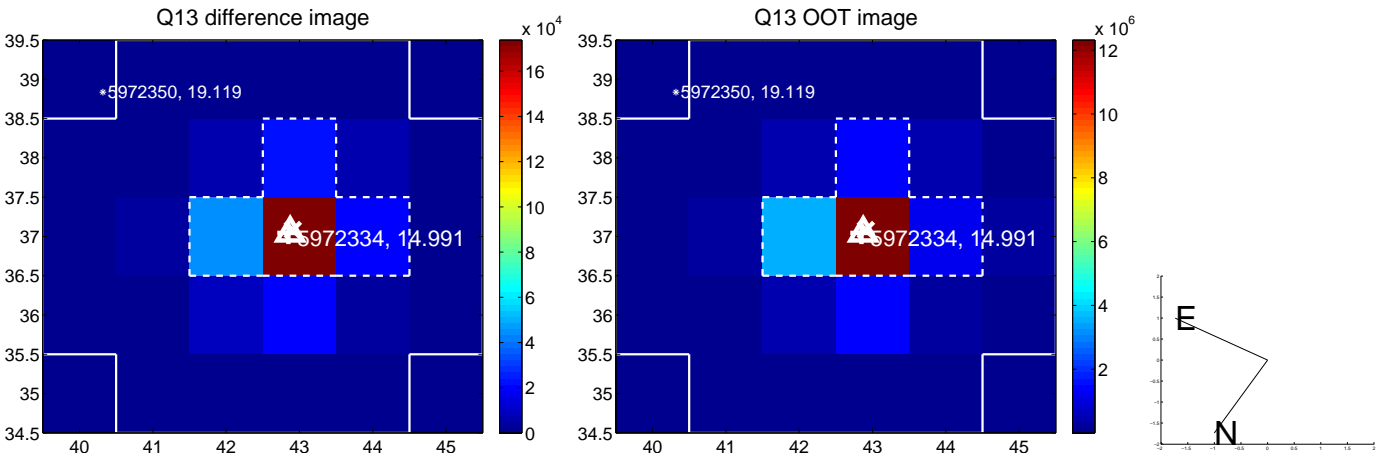
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



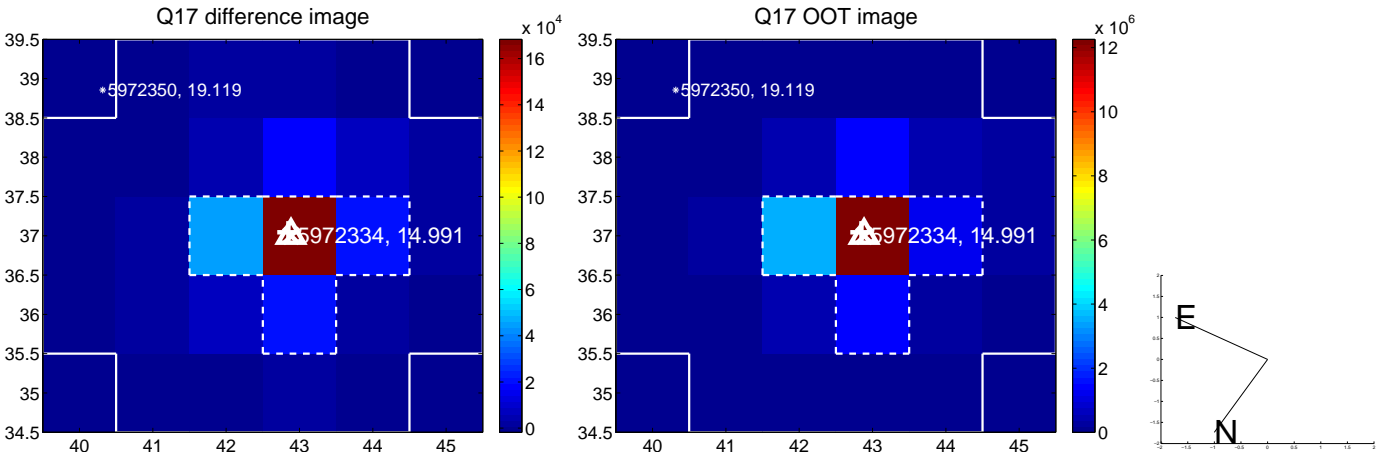
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



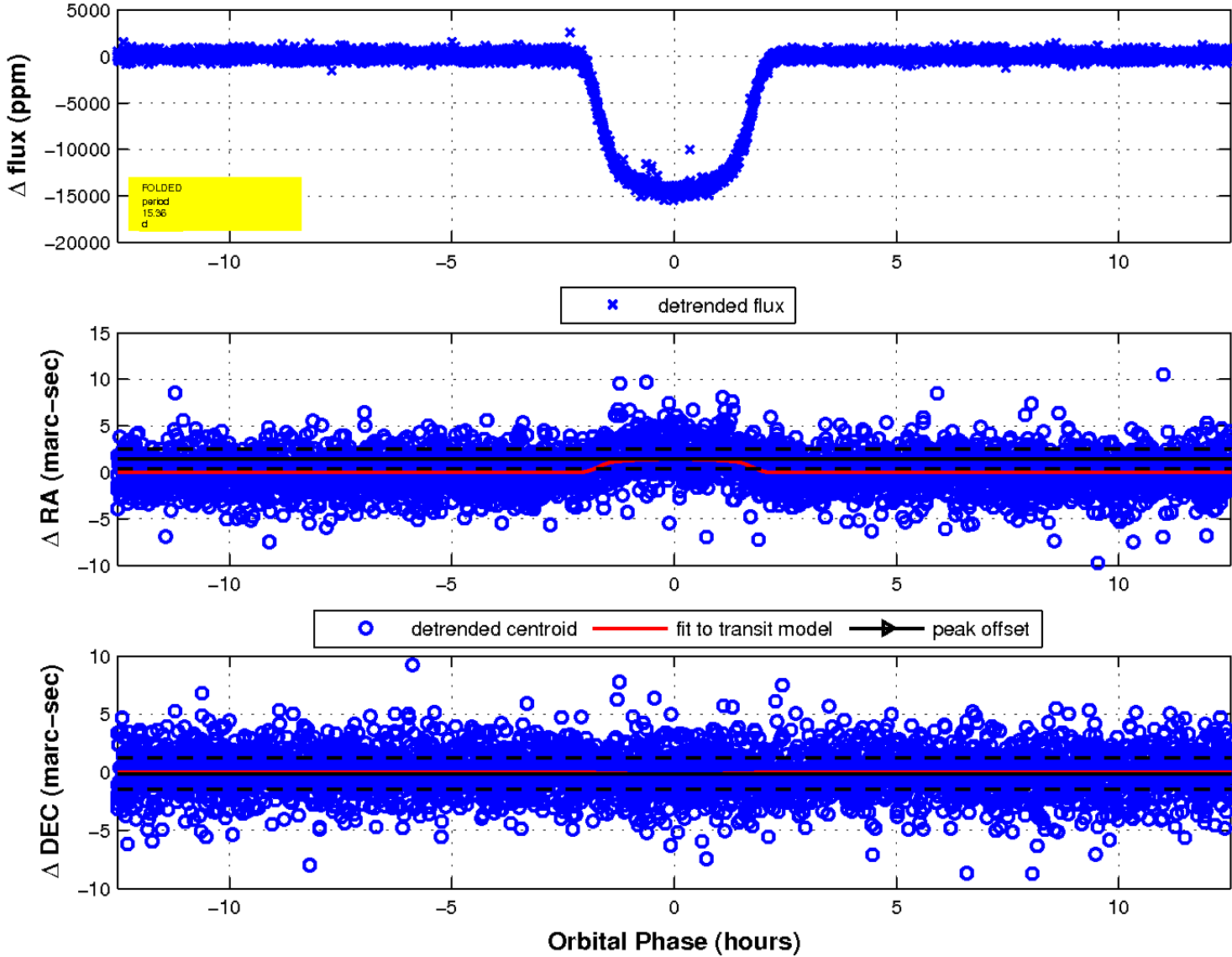
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

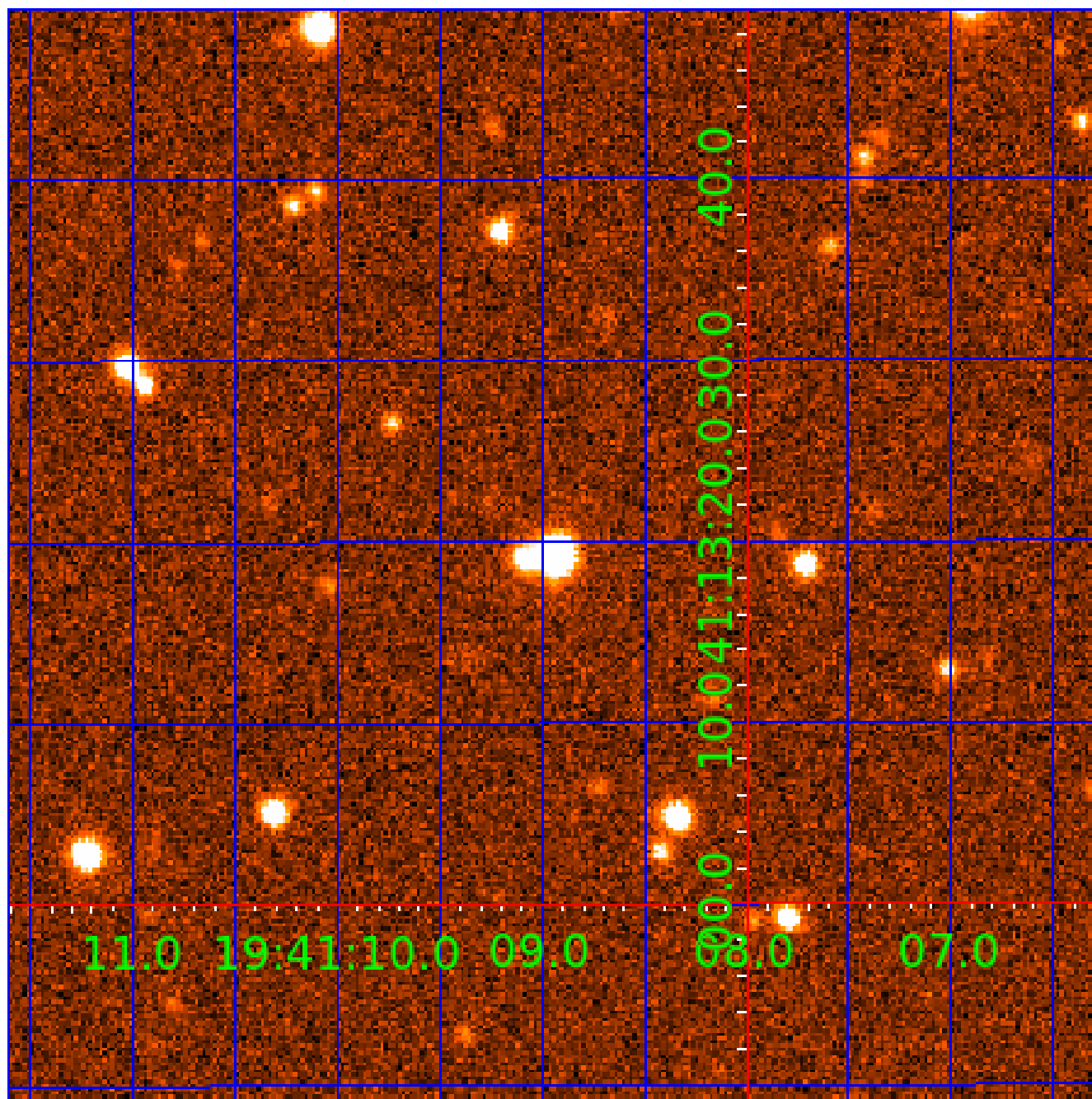


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 005972334

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})
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005972334-04	OBS	0191.04	38.652403	164.032235	532.6	5.857	13.8	16.1	0.89	5422	2.36	13.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005972334-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED

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.

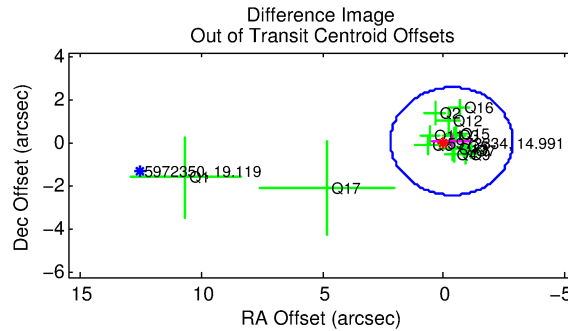
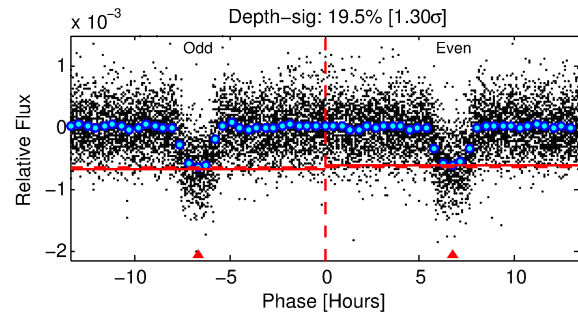
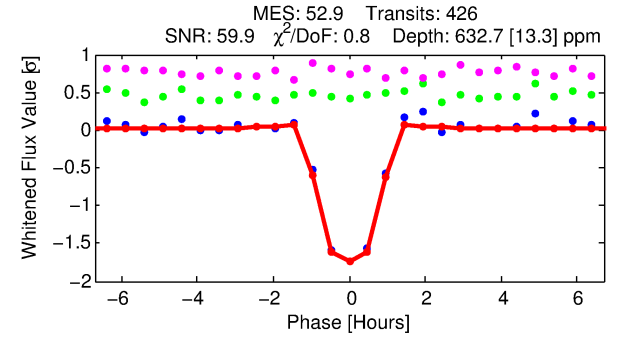
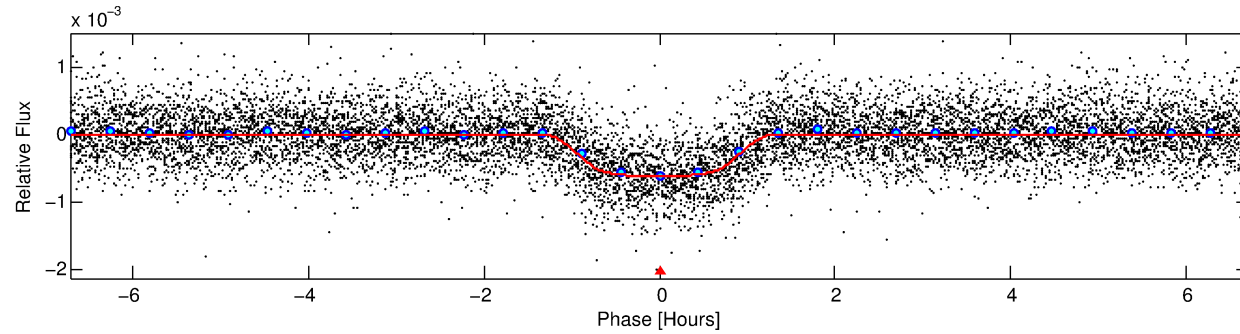
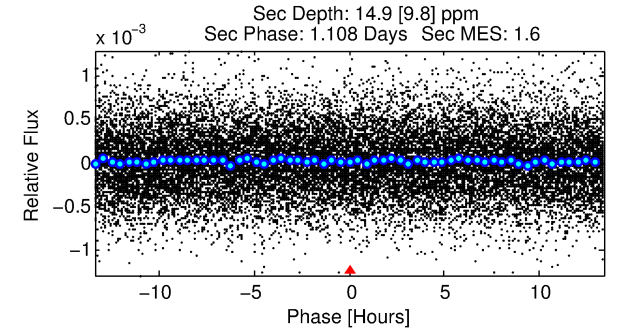
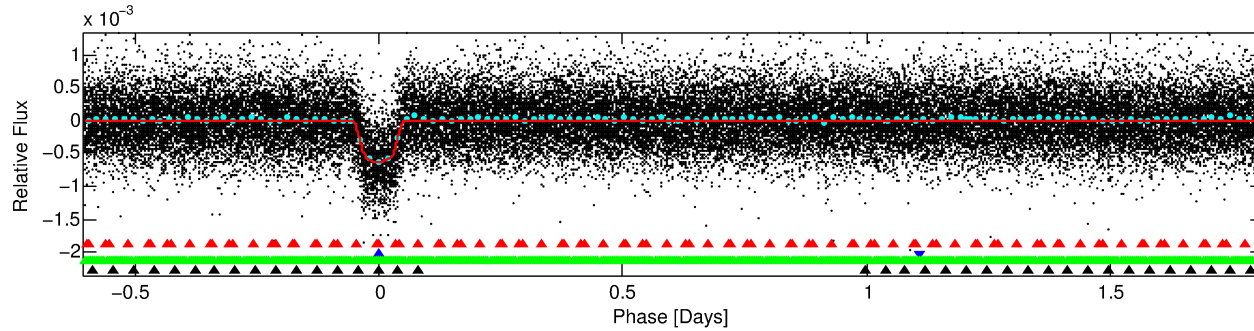
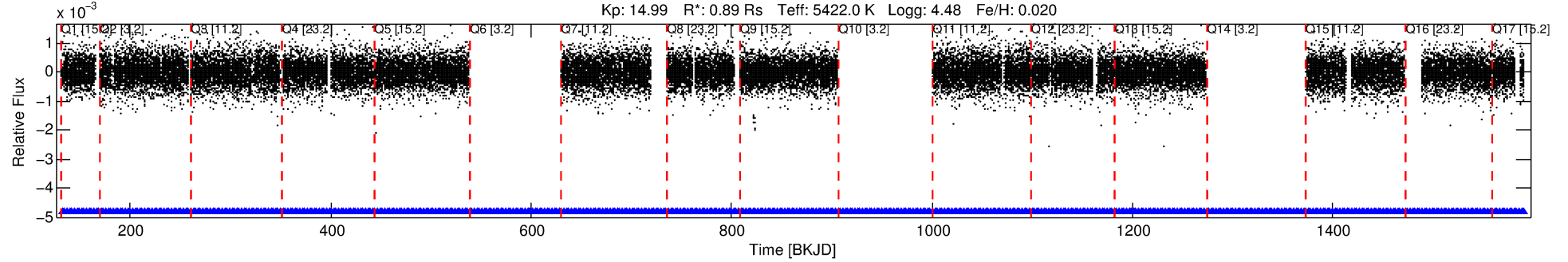
Ephemeris Match Information For 005972334-02

No Significant Match Found

DV One-Page Summary

KIC: 5972334 Candidate: 2 of 4 Period: 2.418 d

KOI: K00191.02 Corr: 0.967



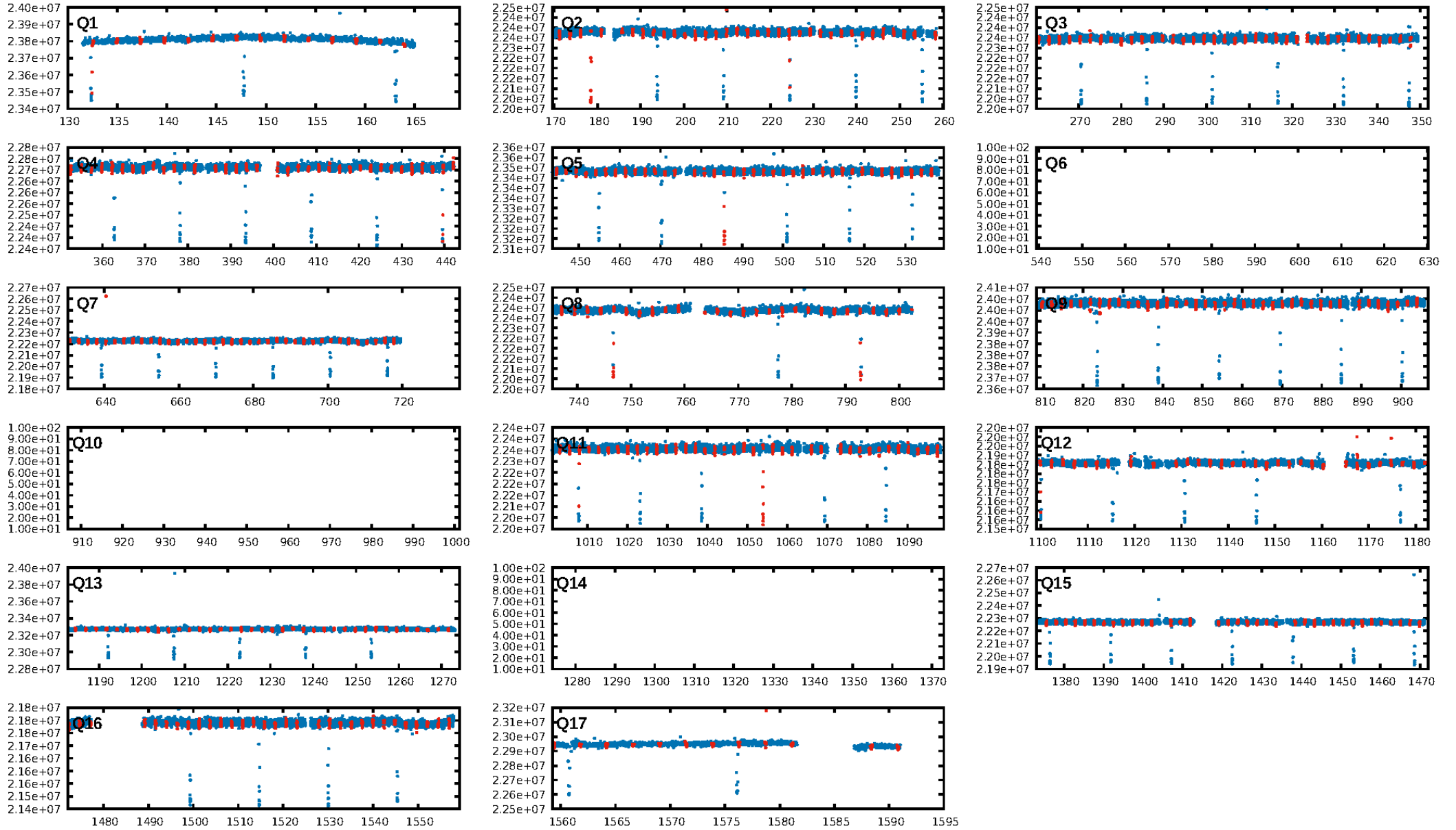
DV Fit Results:

Period = 2.41839 [0.00000] d
Epoch = 132.5116 [0.0006] BKJD
Rp/R* = 0.0279 [0.0018]
a/R* = 4.16 [1.03]
b = 0.90 [0.06]
Seff = 535.53 [84.50]
Teff = 1227 [48] K
Rp = 2.70 [0.32] Re
a = 0.0337 [0.0030] AU
Ag = 1.28 [0.87] [0.33σ]
Teffp = 2019 [338] K [2.32σ]

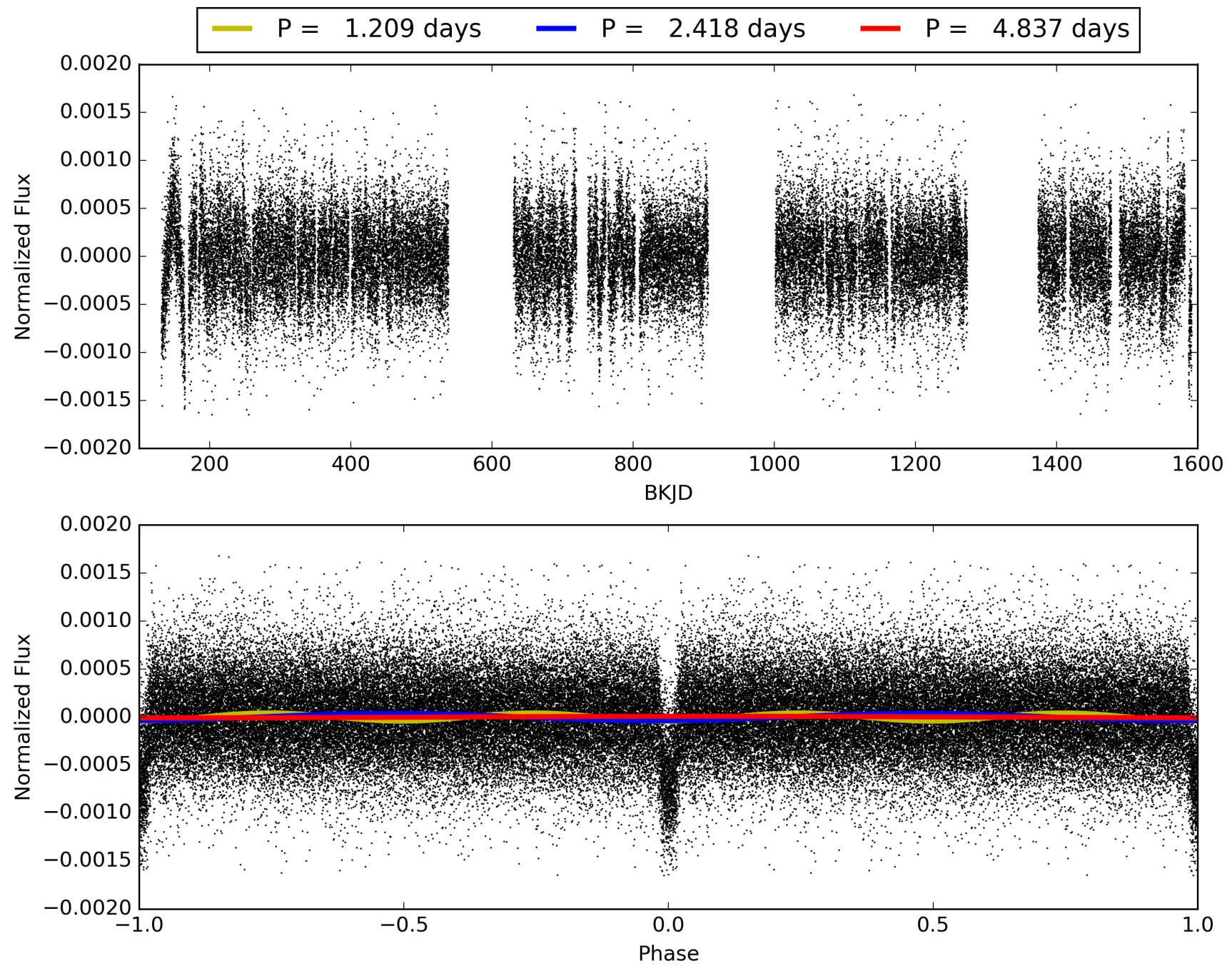
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.80σ]
LongPeriod-sig: 100.0% [65.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [402/402]
GhostDiagnostic-chr: 6.066
Centroid-sig: 6.3%
Centroid-so: 0.357 arcsec [1.49σ]
OotOffset-rm: 0.344 arcsec [0.41σ]
KicOffset-rm: 0.208 arcsec [0.34σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 0.93 [13/14]

TCE 005972334-02, PDC Light Curves

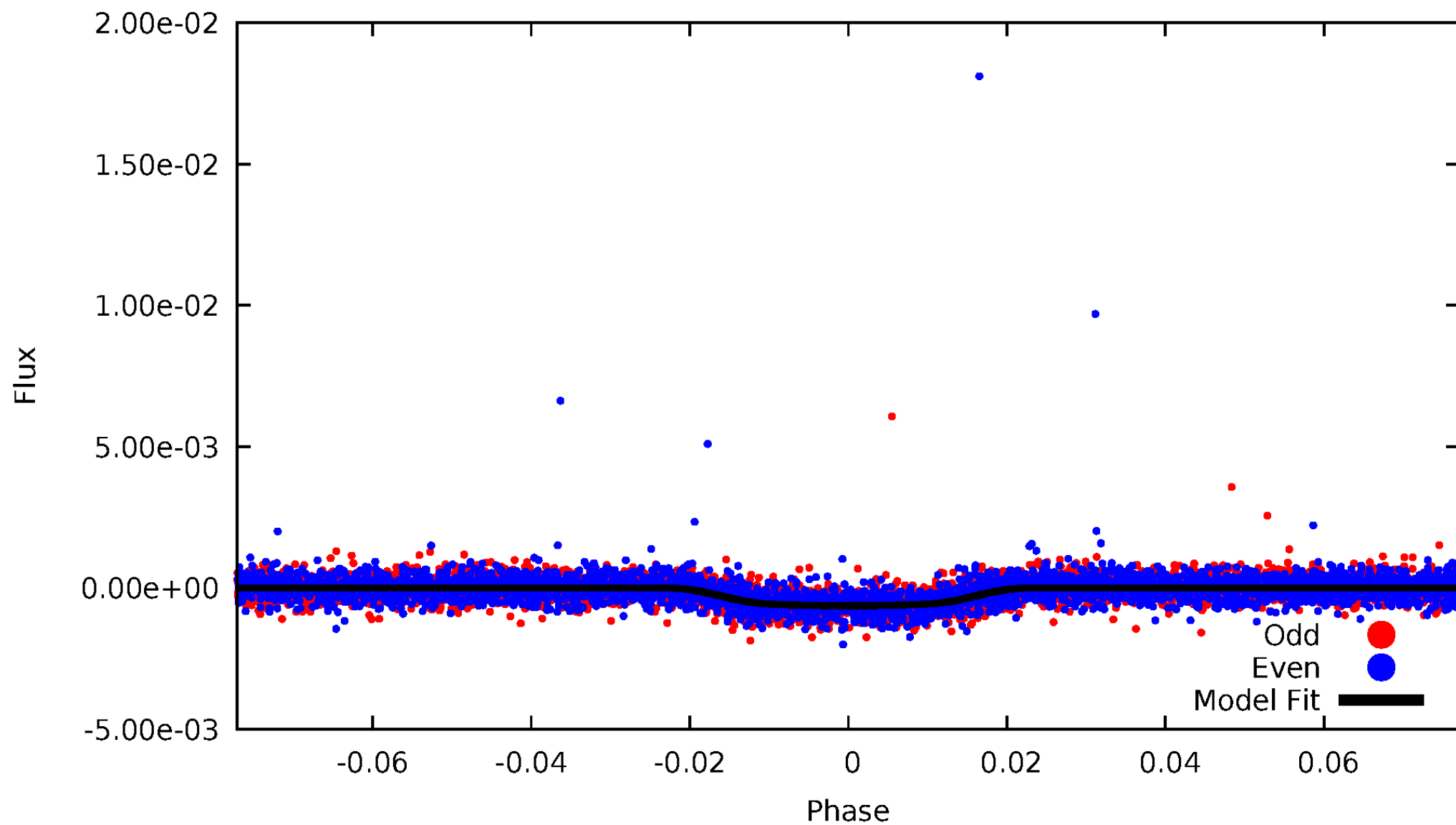


TCE 005972334-02



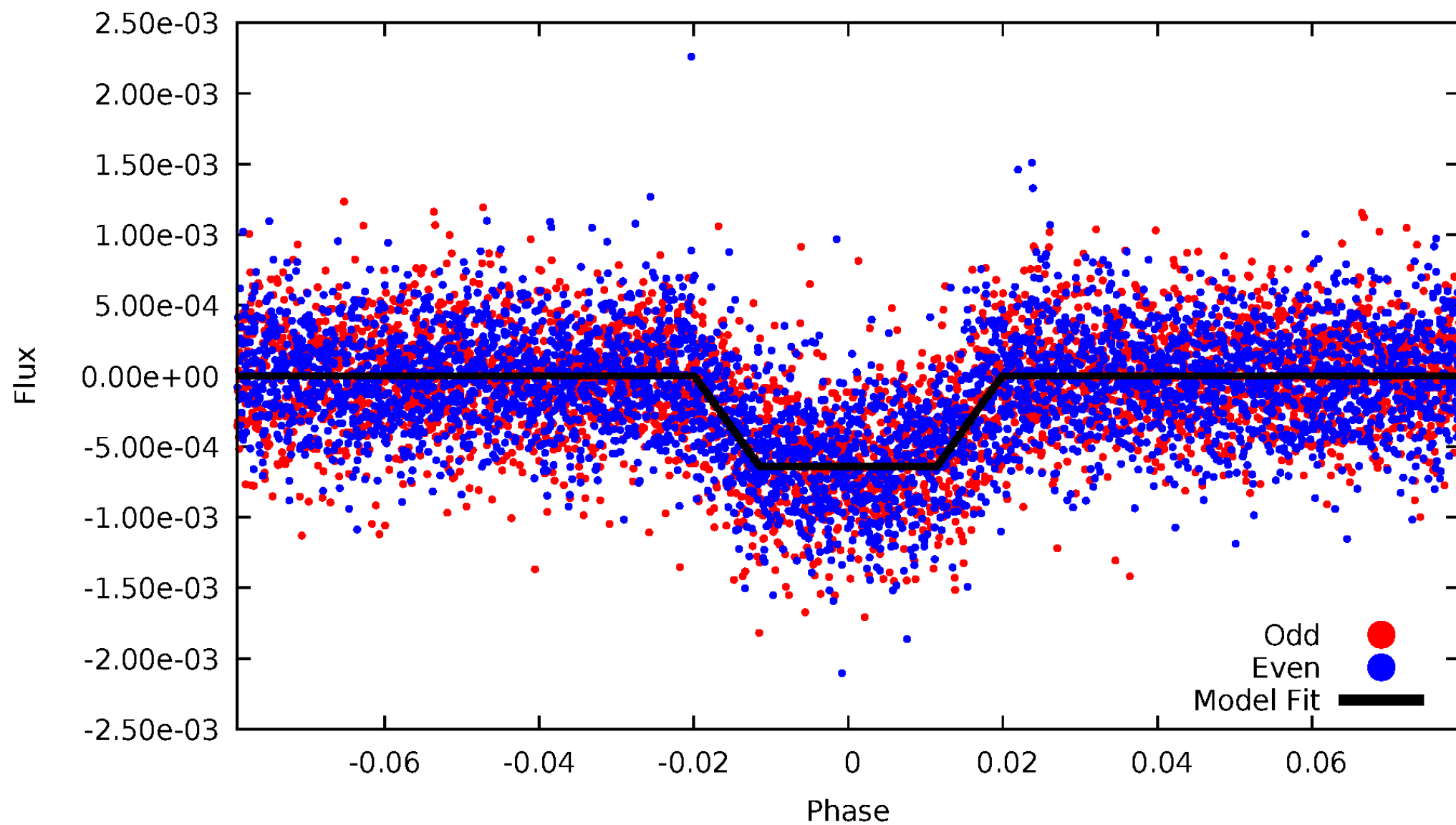
DV Odd/Even

TCE 005972334-02



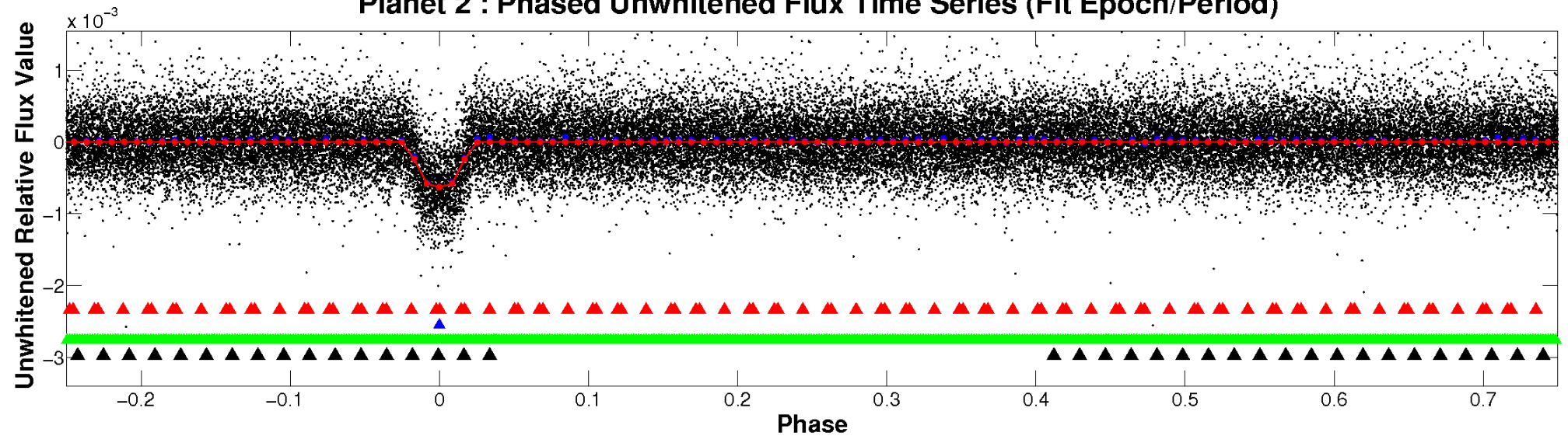
ALT Odd/Even

TCE 005972334-02

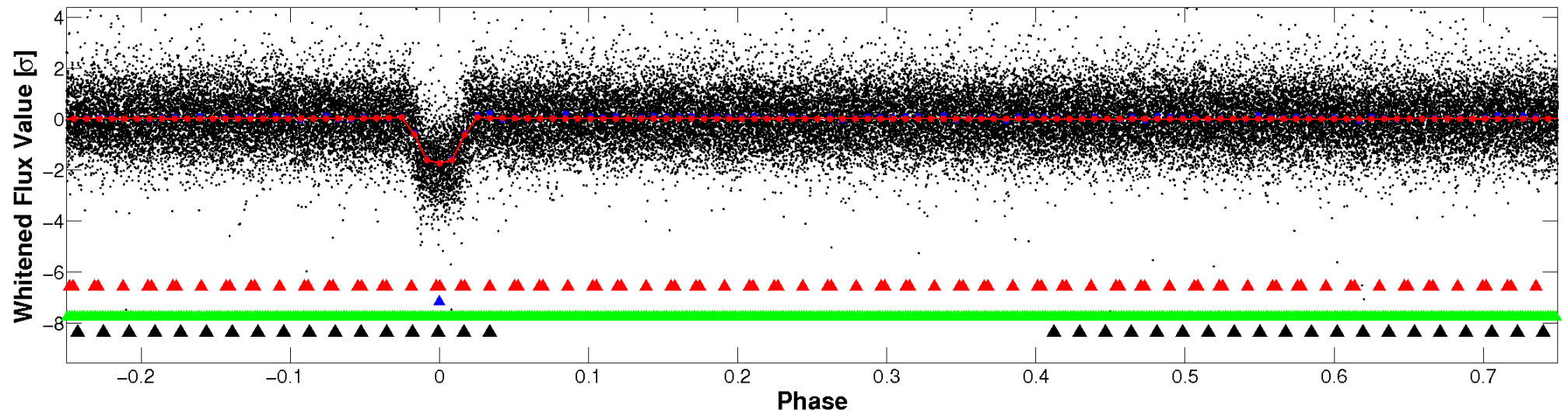


Non-Whitened Vs. Whitened Light Curve

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

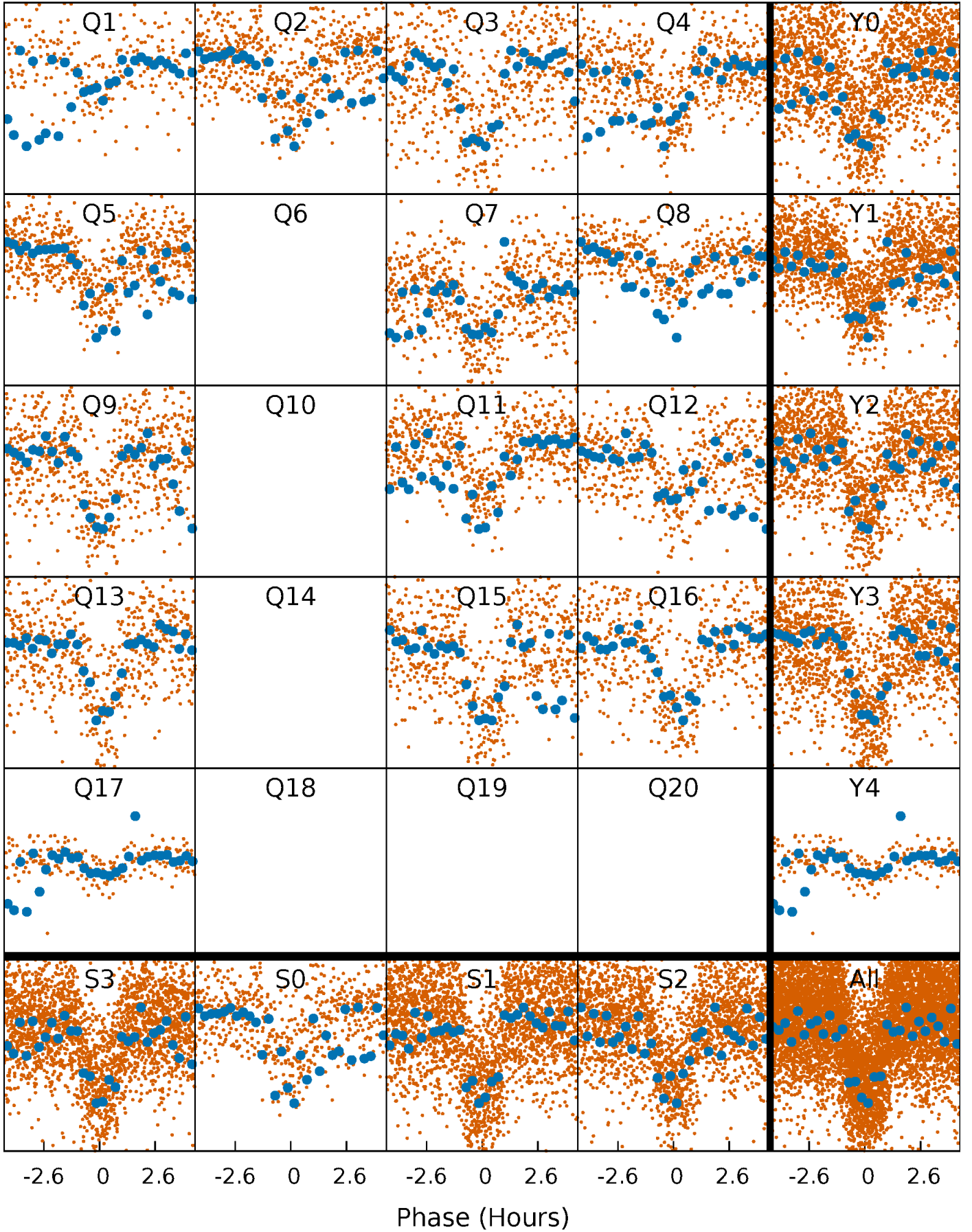


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



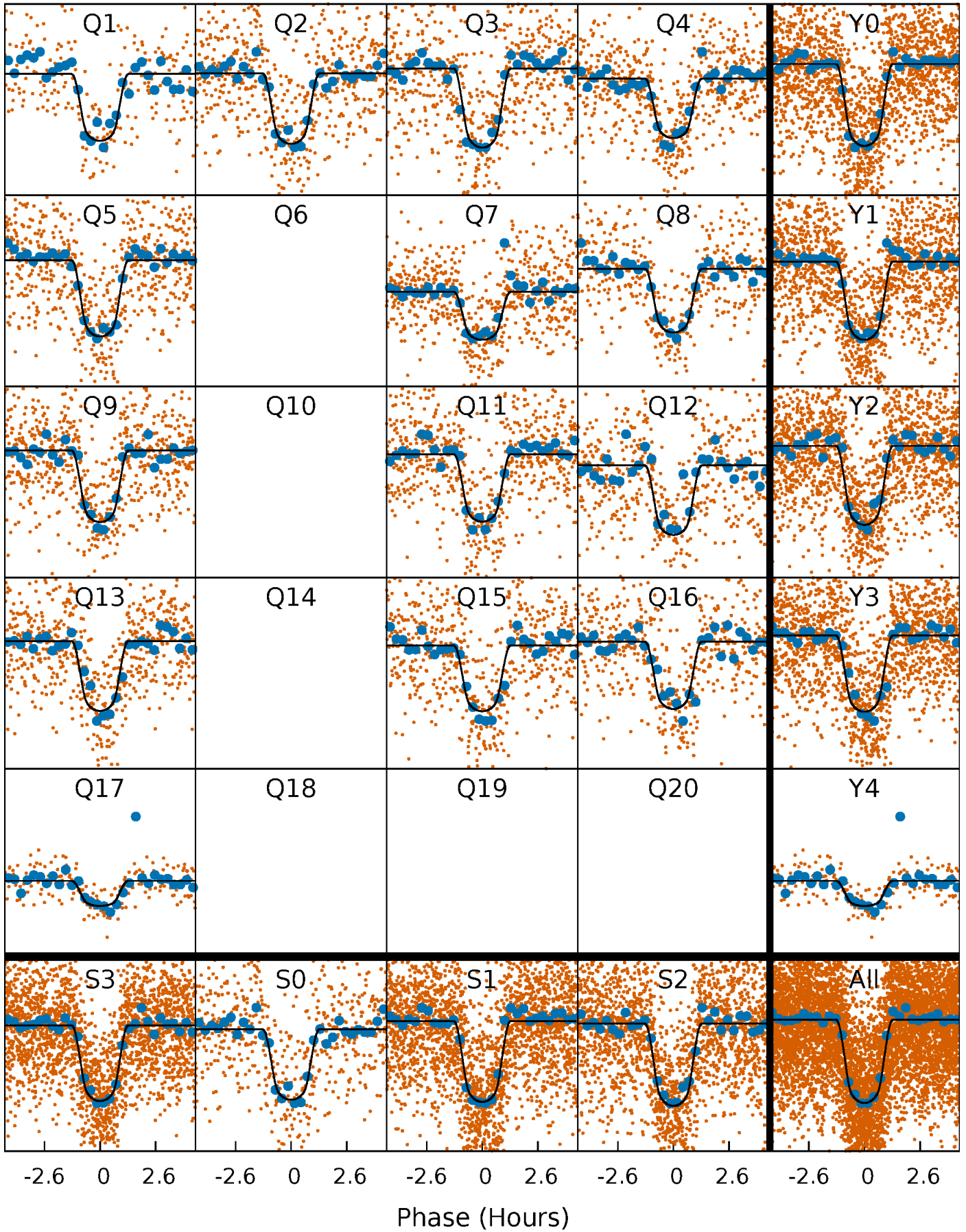
PDC Quarter-Phased Transit Curves

TCE 005972334-02 P= 2.418385 Days $T_0=132.511565$ (BKJD)



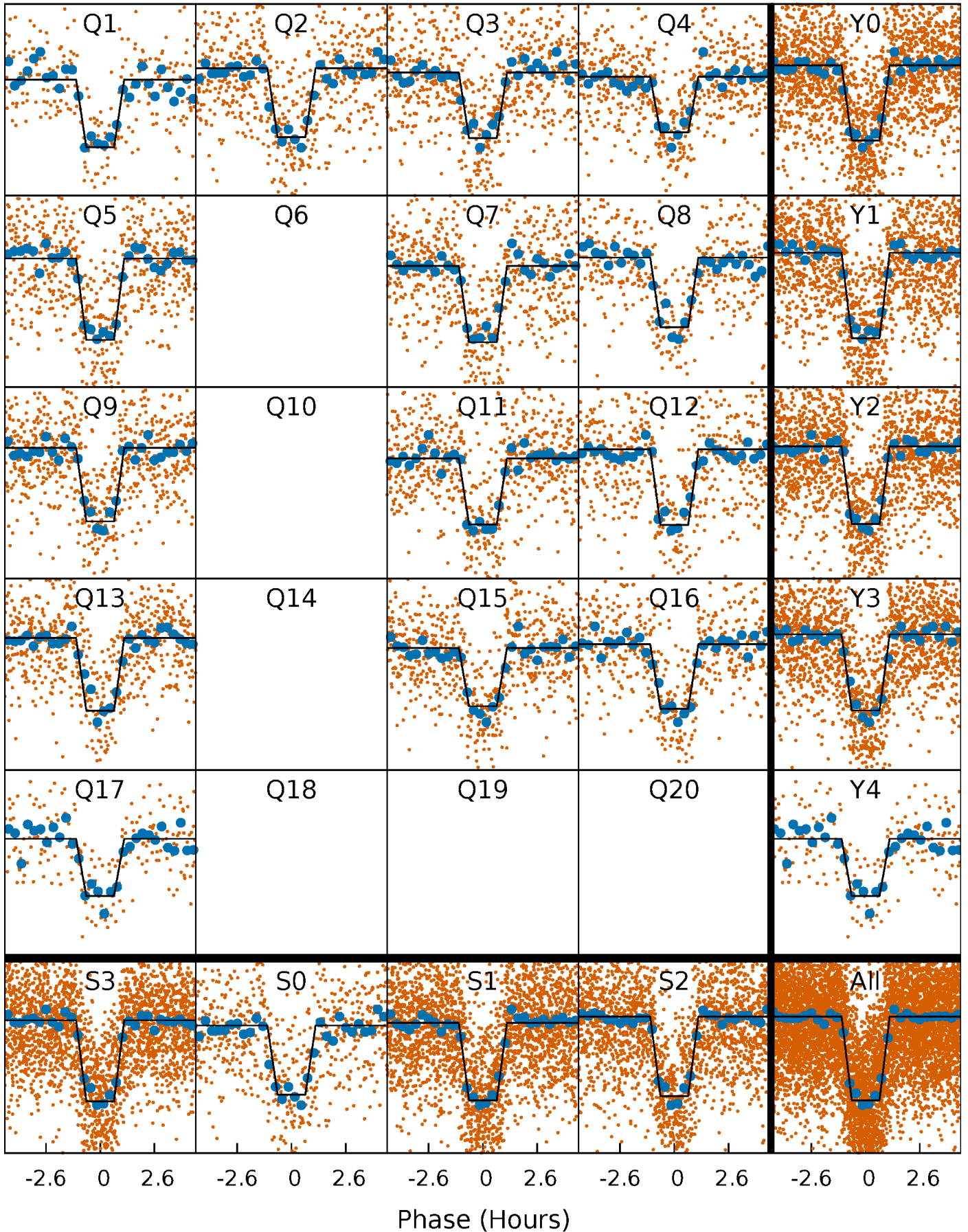
DV Quarter-Phased Transit Curves

TCE 005972334-02 P= 2.418385 Days $T_0=132.511565$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

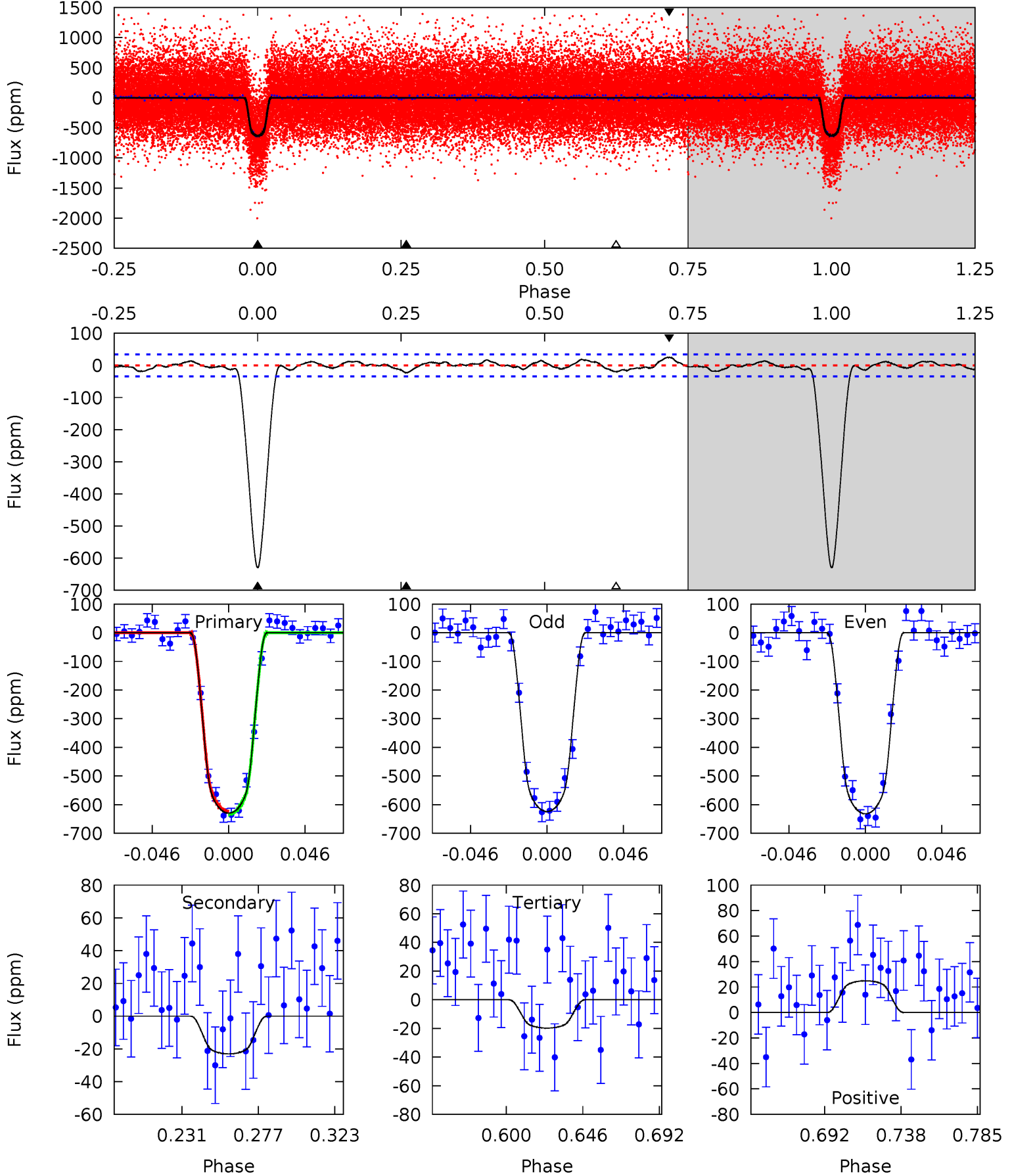
TCE 005972334-02 $P = 2.418397$ Days $T_0 = 132.508504$ (BKJD)



DV Model-Shift Uniqueness Test

005972334-02, P = 2.418385 Days, E = 130.093180 Days

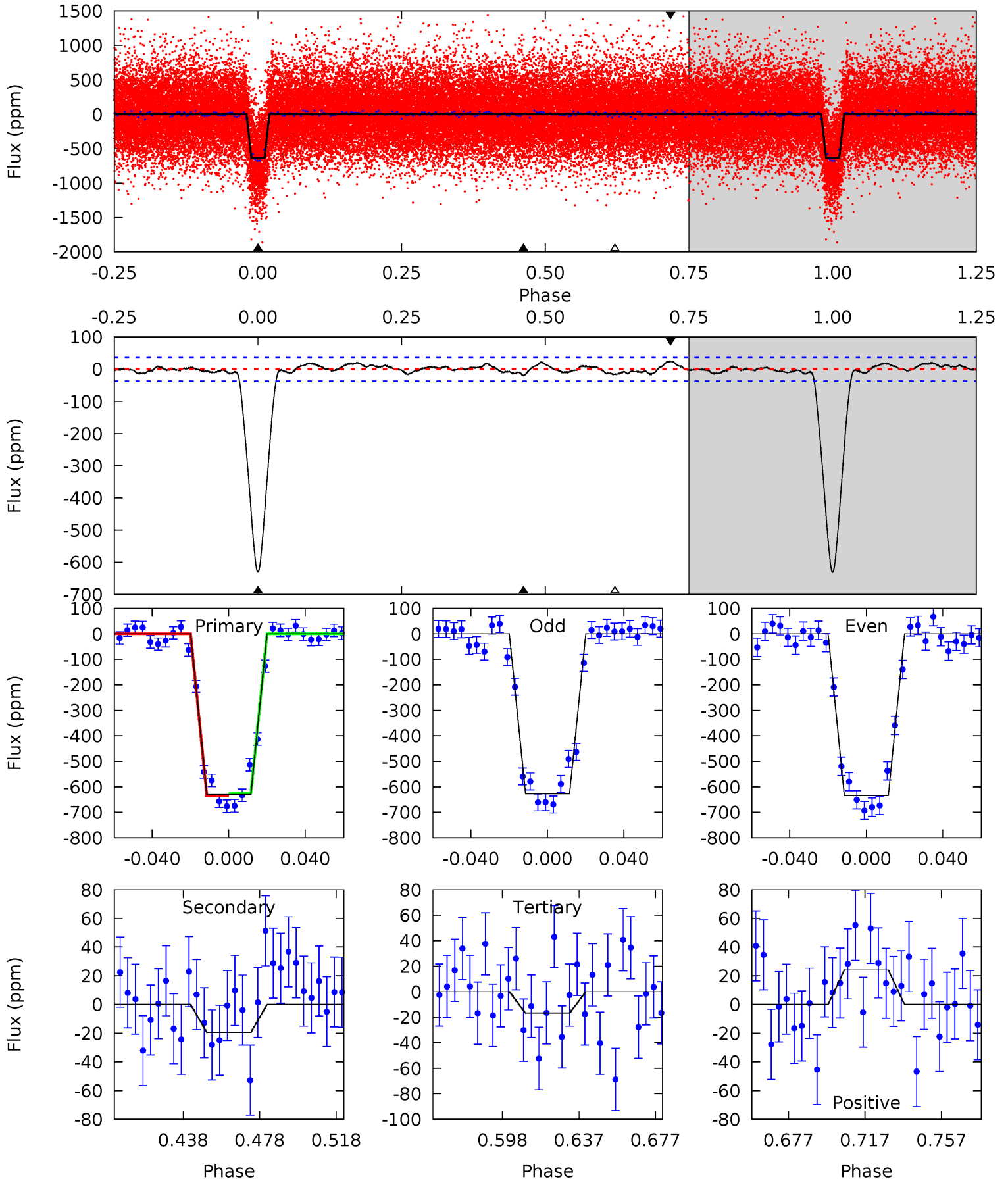
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.6	3.17	2.72	3.42	4.72	1.99	1.29	83.9	83.2	0.45	-0.25	0.56	1.00	0.04	0.64



Alt Model-Shift Uniqueness Test

005972334-02, P = 2.418397 Days, E = 130.090107 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.2	2.48	2.13	3.05	4.75	2.06	1.15	78.1	77.2	0.34	-0.58	0.44	1.01	0.04	0.46



Stellar Parameters For KIC 005972334

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5422^{+108}_{-108}	$4.484^{+0.063}_{-0.077}$	$0.020^{+0.150}_{-0.150}$	$0.887^{+0.090}_{-0.067}$	$0.874^{+0.055}_{-0.046}$	$1.766^{+0.454}_{-0.431}$
	+2%/-2%	+1%/-2%	+750%/-750%	+10%/-8%	+6%/-5%	+26%/-24%
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 005972334-02 / KOI 0191.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-23 ± 7	$2.70^{+0.25}_{-0.21}$	1720^{+55}_{-54}	2863^{+158}_{-189}	$1.943^{+0.745}_{-0.670}$
Alt.	-19 ± 8	$2.45^{+0.24}_{-0.20}$	1711^{+59}_{-52}	2879^{+176}_{-216}	$2.022^{+0.982}_{-0.786}$

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 $A_{\text{obs}} \gg 1.0$

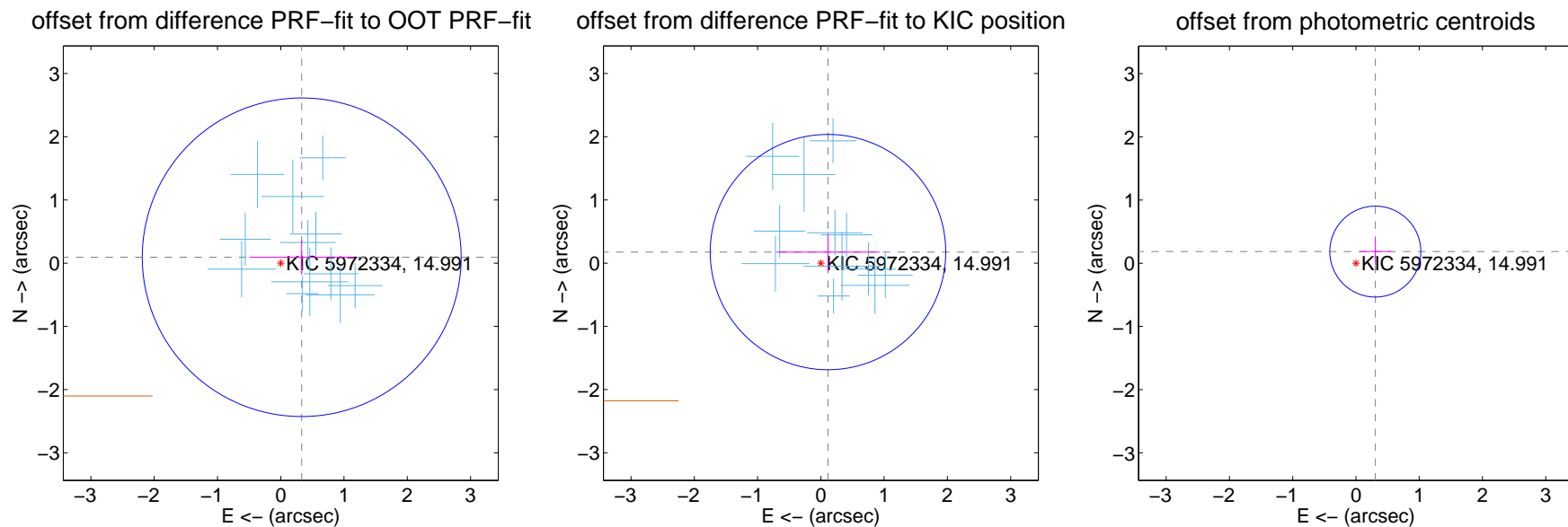
DV Centroid Data

Supplemental centroid analysis for 005972334-02. Kepler magnitude: 14.99. Transit SNR 59.93

There are 12 quarters with good PRF difference image offsets

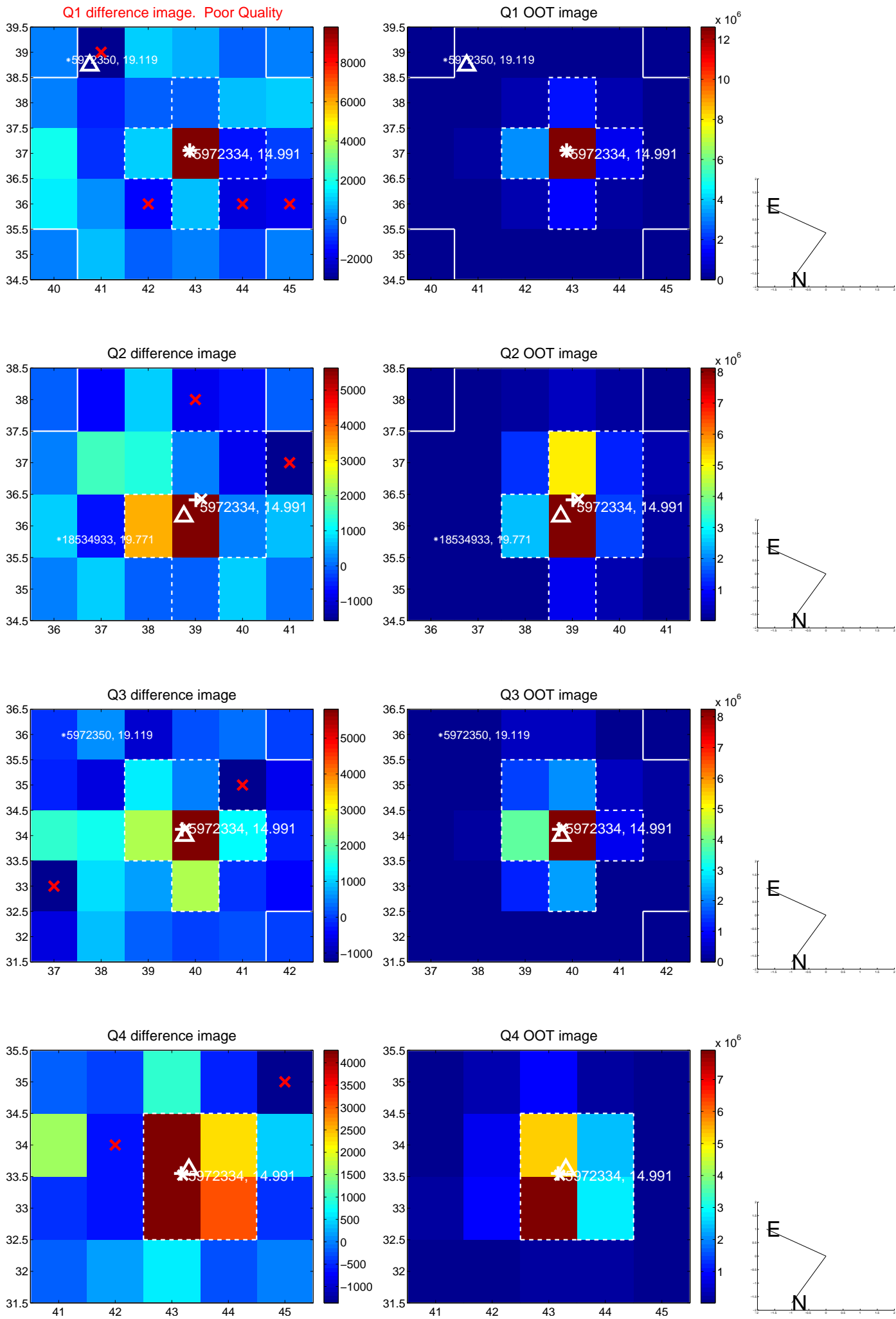
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.344 ± 0.840	0.41	-0.331 ± 0.826	0.093 ± 0.278
PRF-fit source offset from KIC position	0.208 ± 0.620	0.34	-0.112 ± 0.815	0.175 ± 0.301
photometric centroid source offset	0.36 ± 0.24	1.49	-0.31 ± 0.25	0.18 ± 0.21

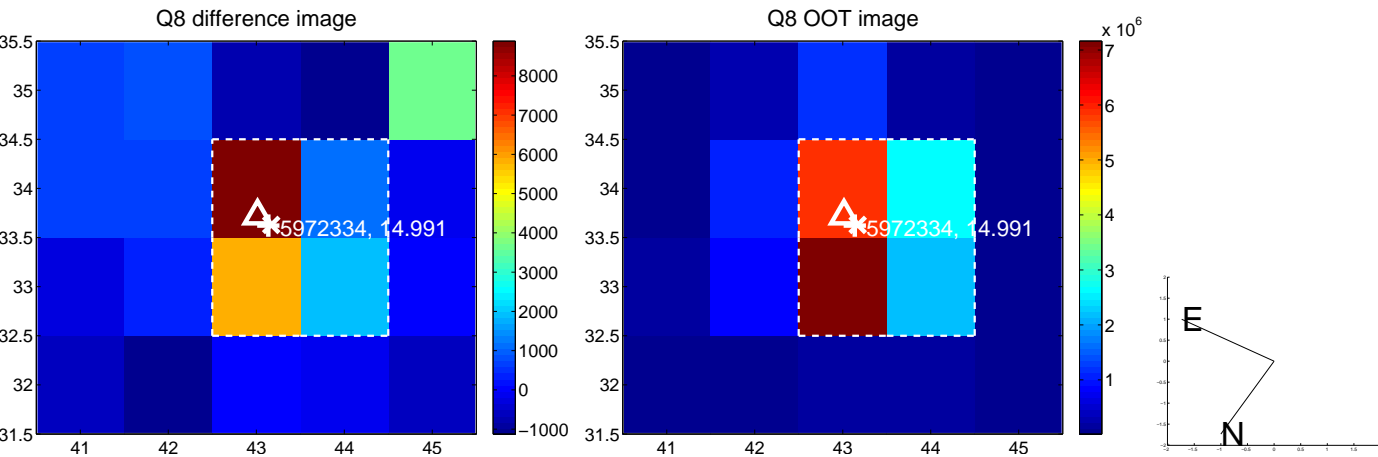
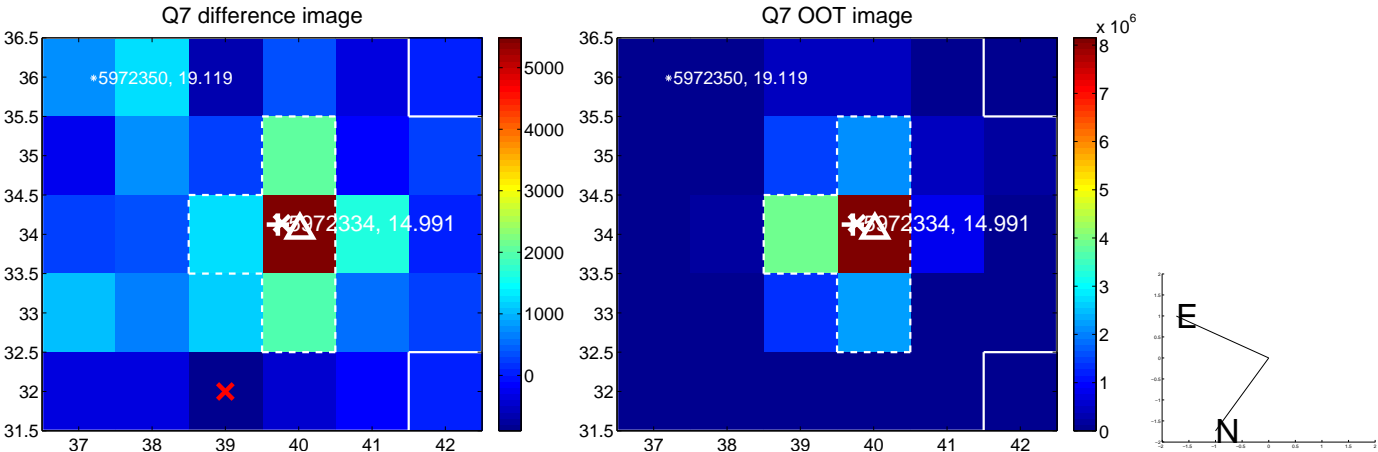
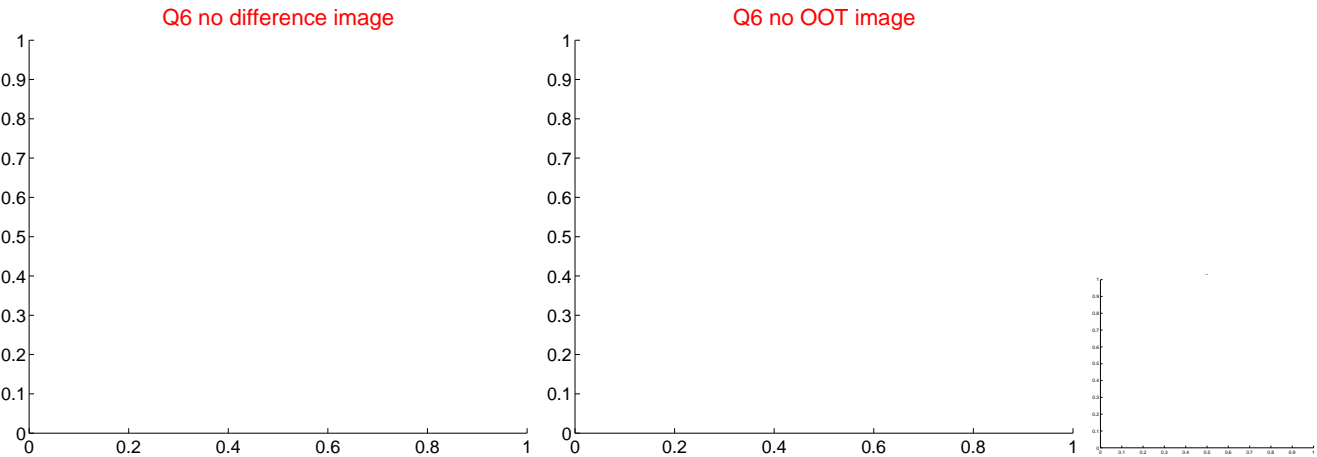
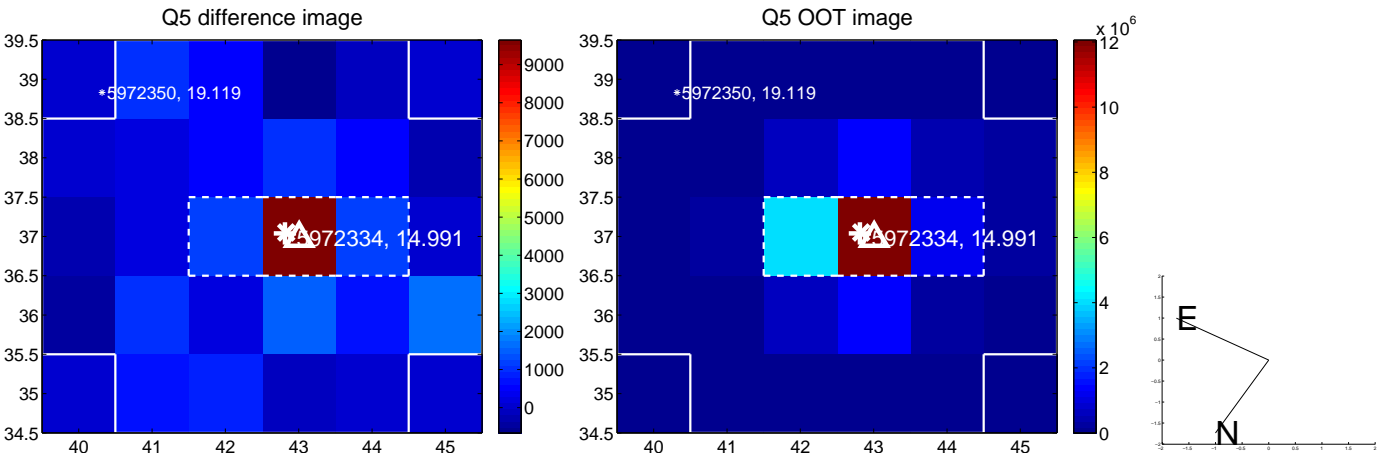


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

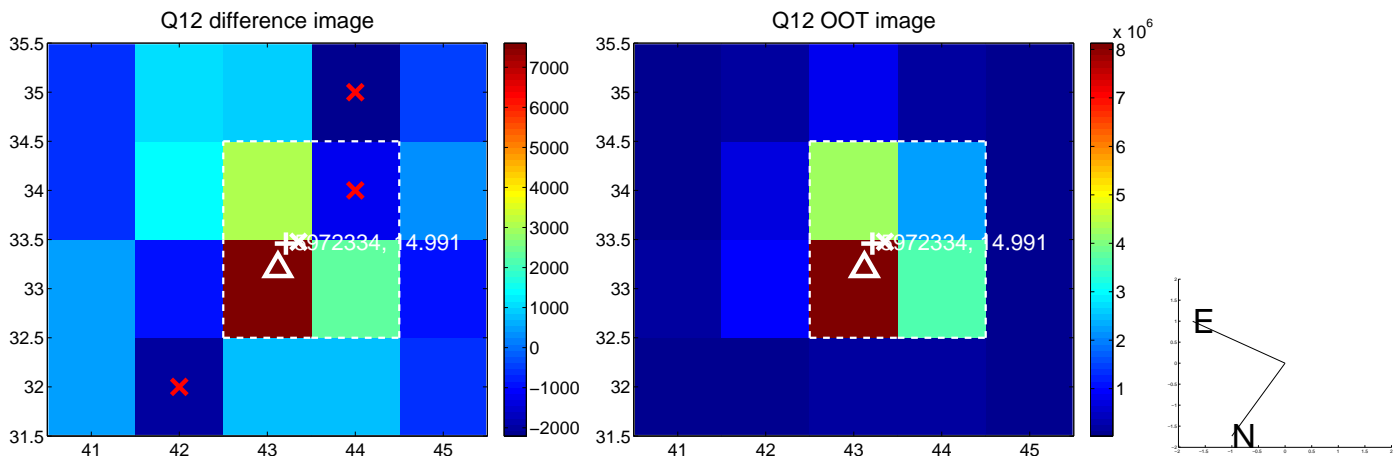
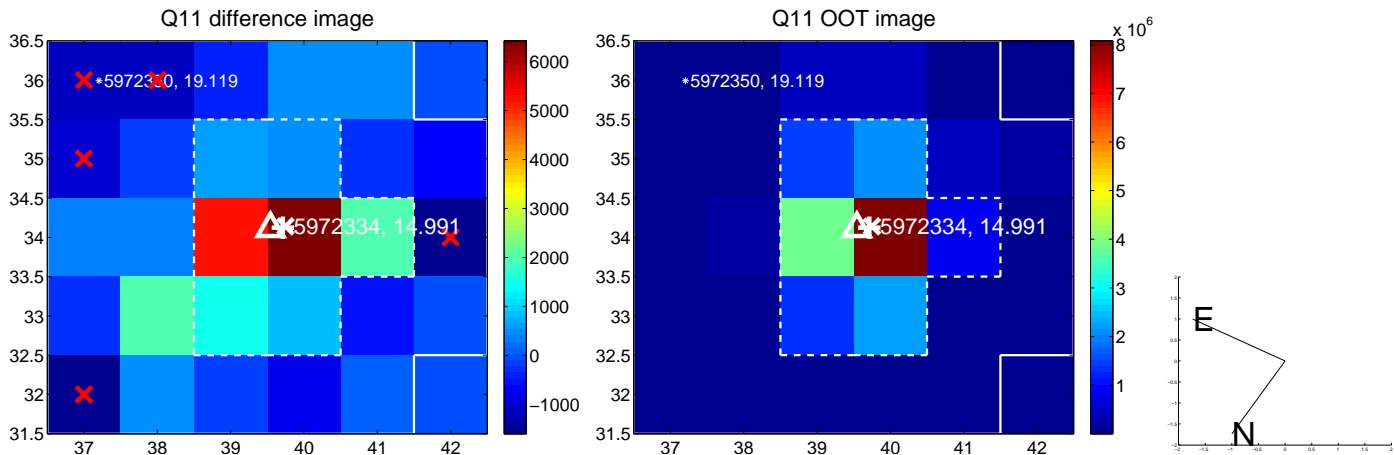
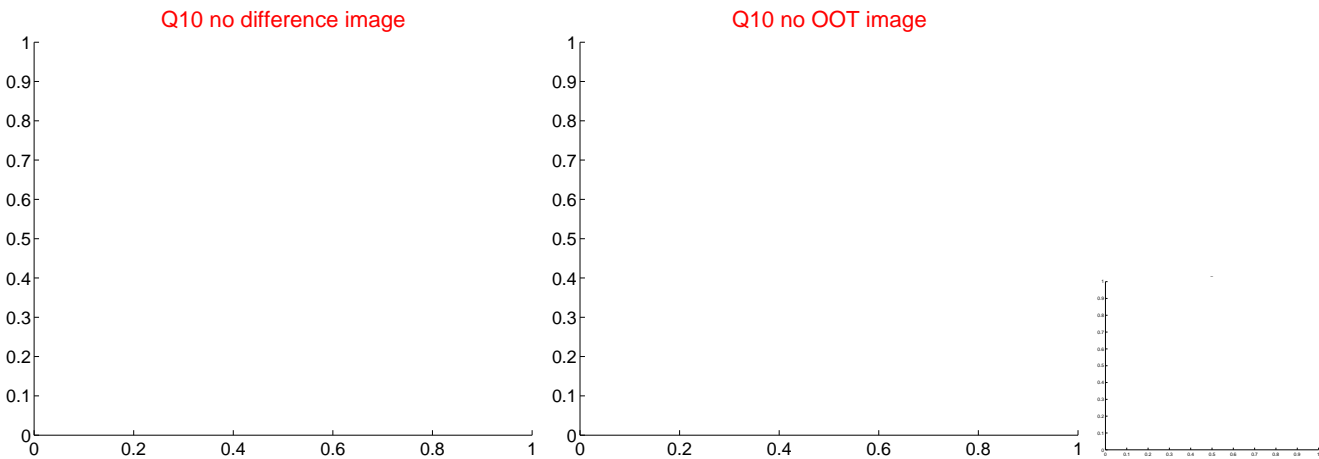
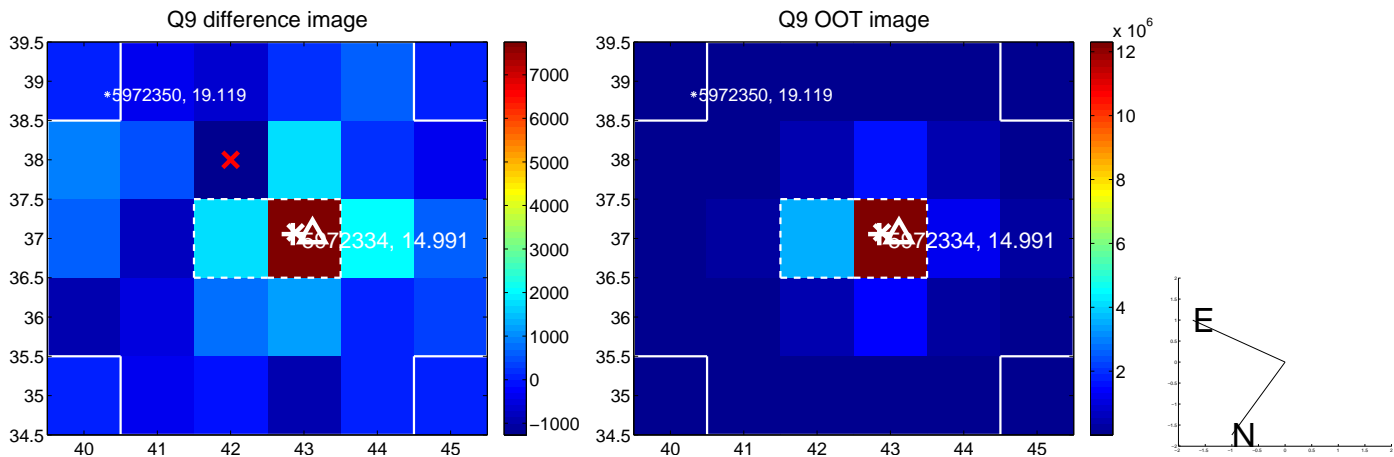
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



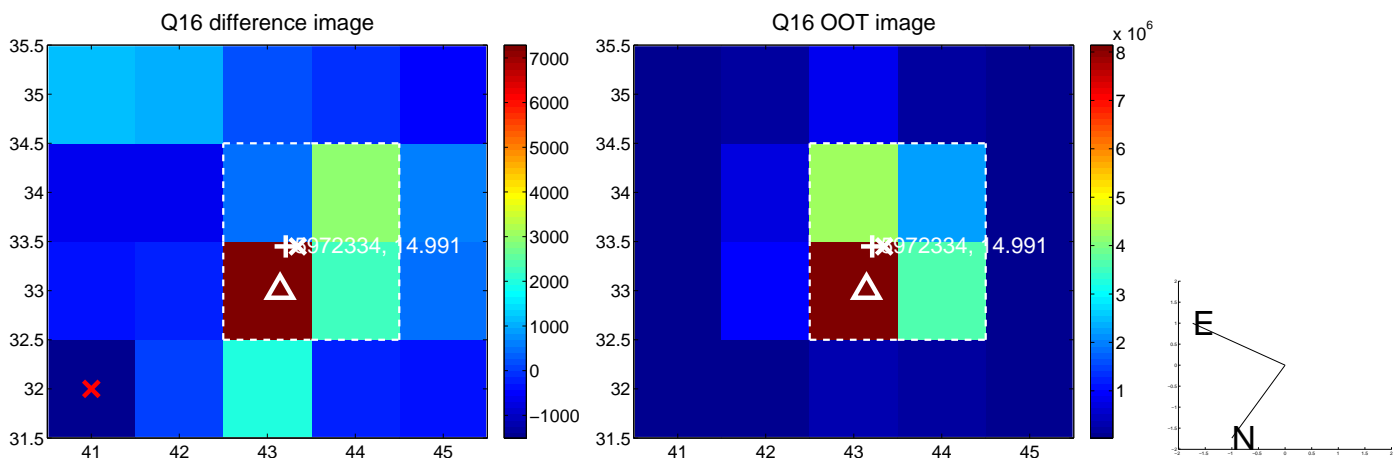
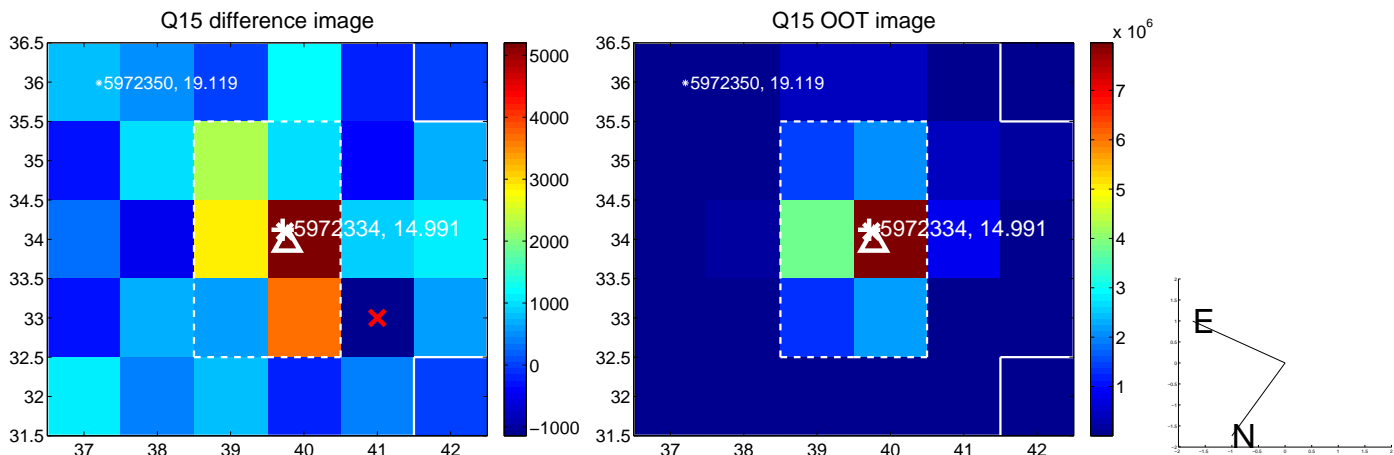
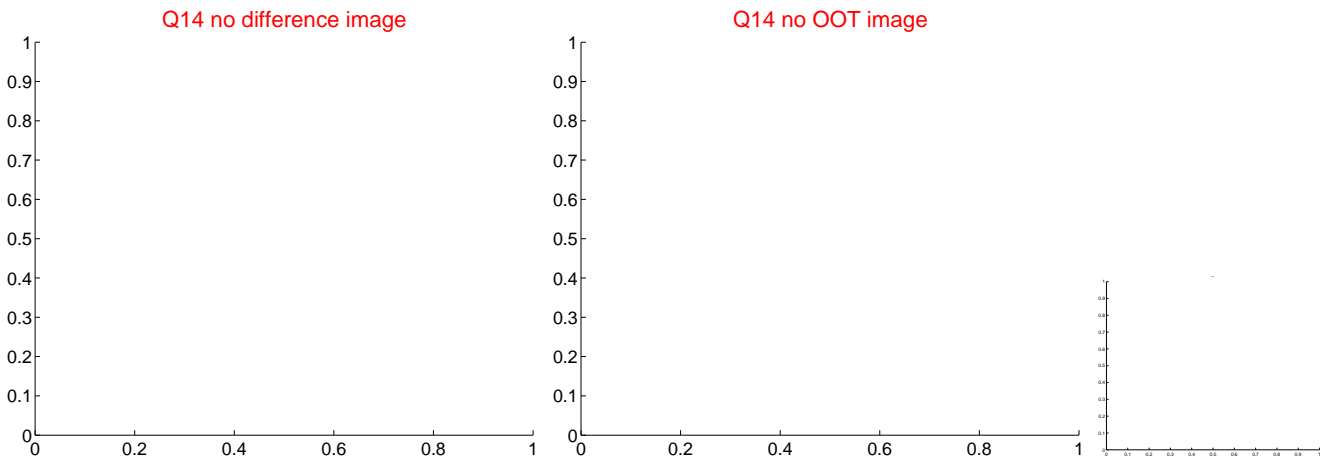
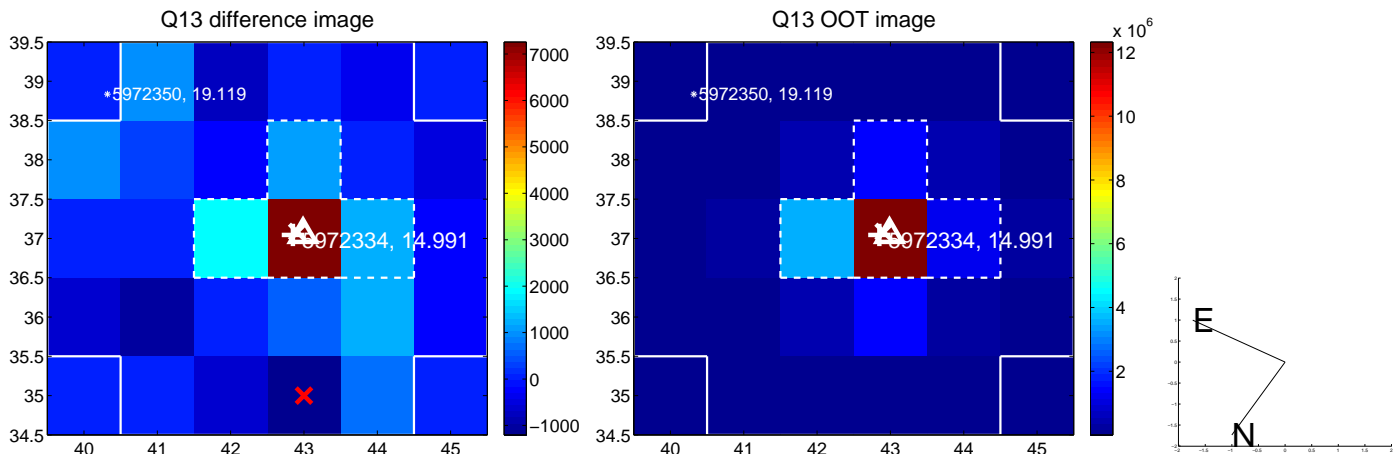
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



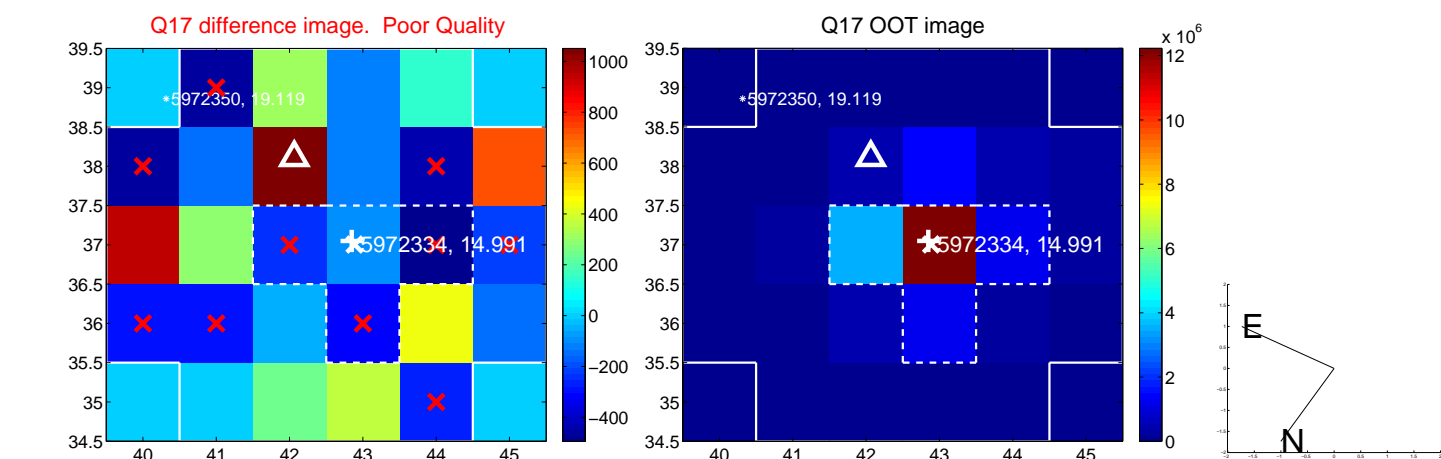
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



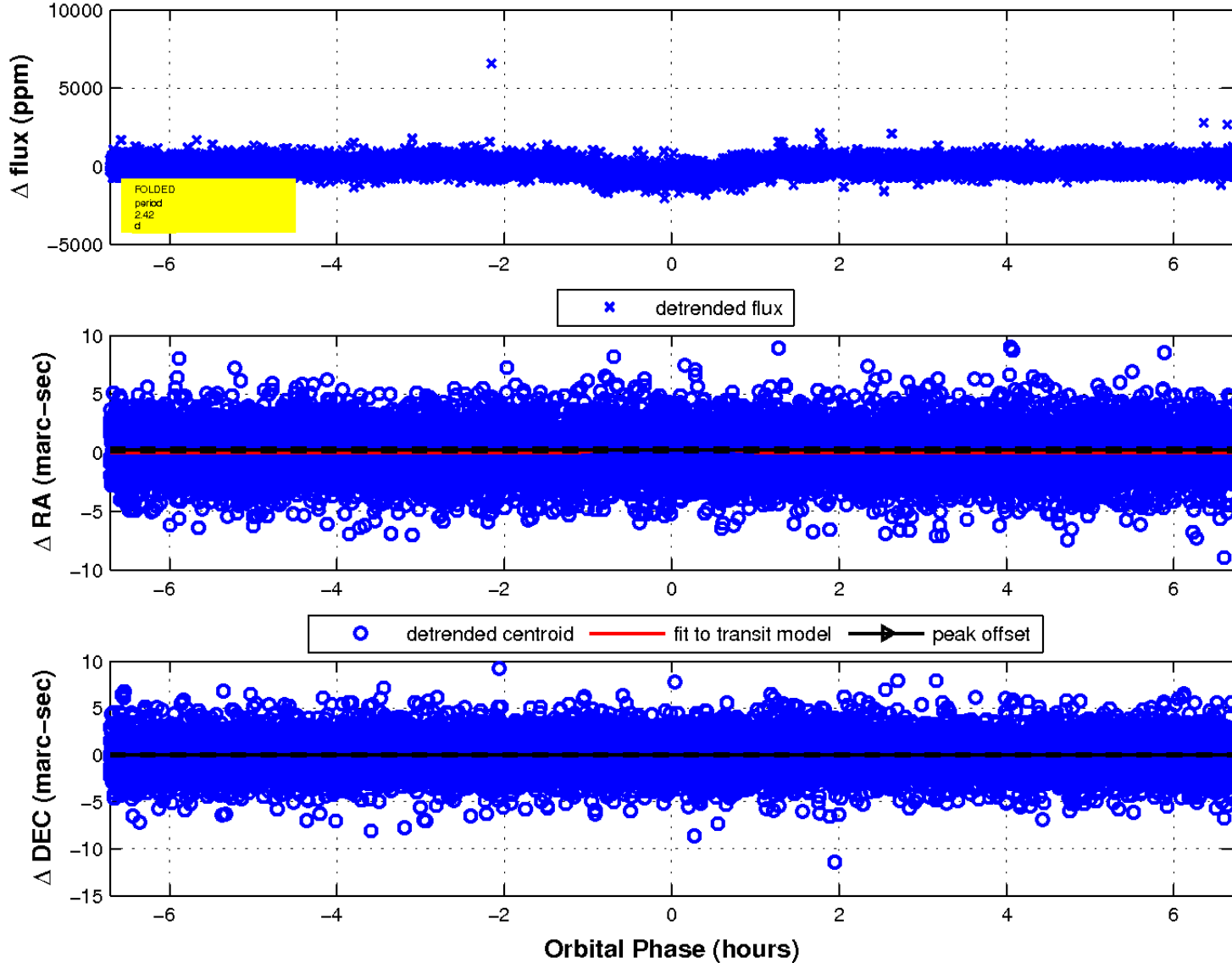
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

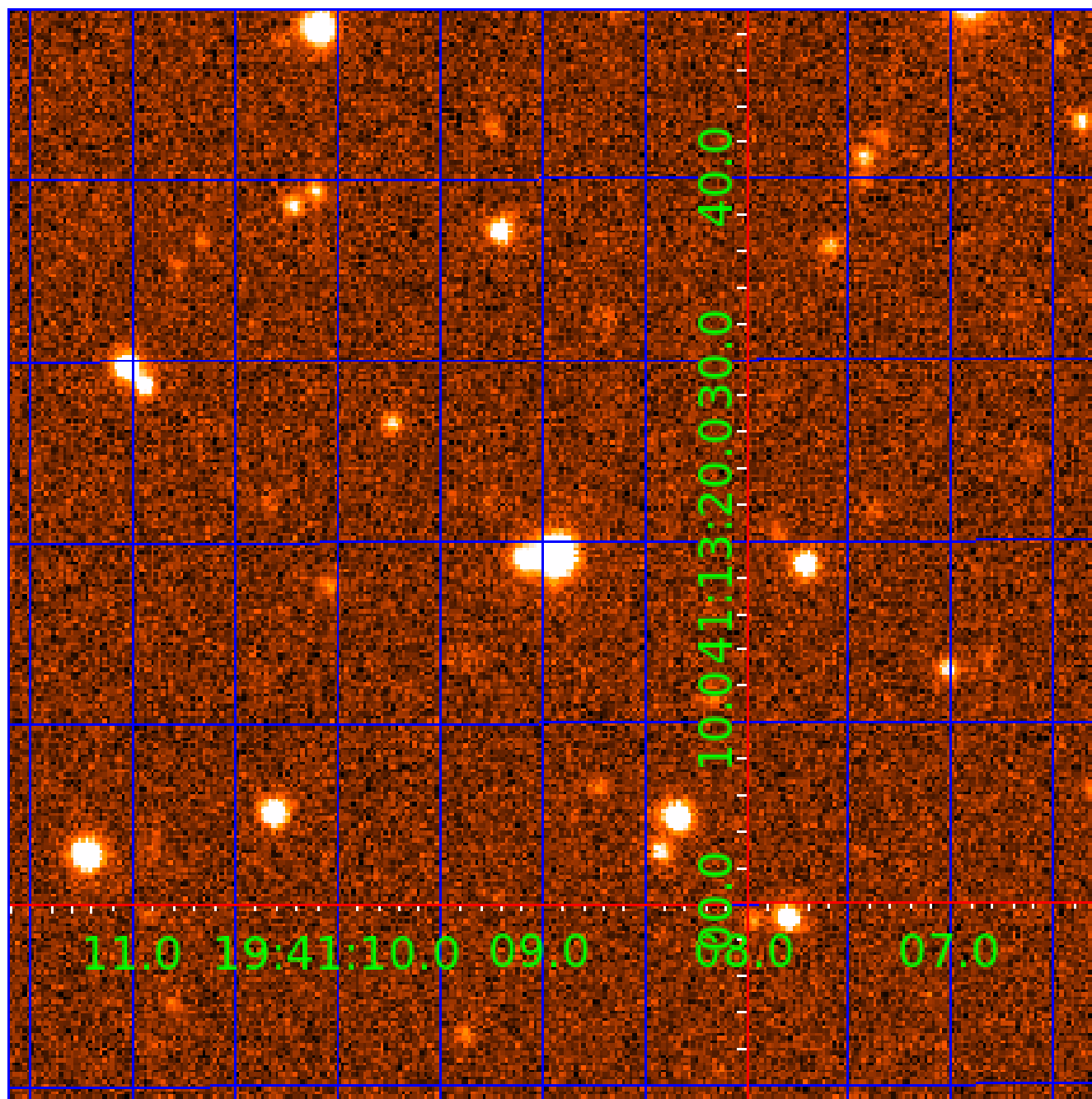


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 005972334

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})
005972334-01	OBS	0191.01	15.358765	132.385271	14642.6	4.176	695.0	659.9	0.89	5422	11.06	45.53
005972334-02	OBS	0191.02	2.418385	132.511565	632.7	2.237	52.9	59.9	0.89	5422	2.70	535.53
005972334-03	OBS	0191.03	0.708624	131.944863	138.1	1.639	21.1	20.7	0.89	5422	1.26	2751.65
005972334-04	OBS	0191.04	38.652403	164.032235	532.6	5.857	13.8	16.1	0.89	5422	2.36	13.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005972334-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED

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

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

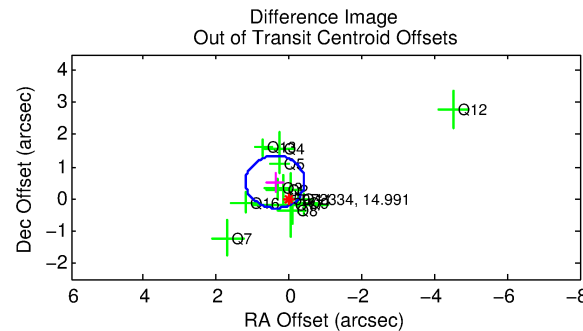
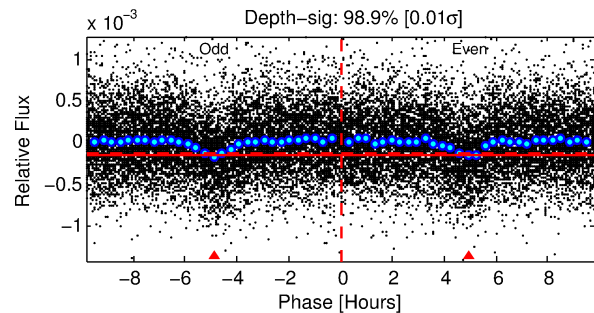
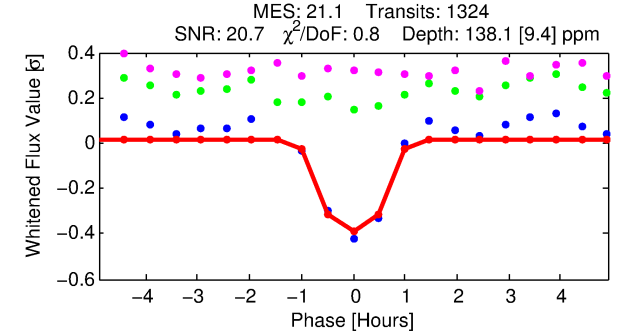
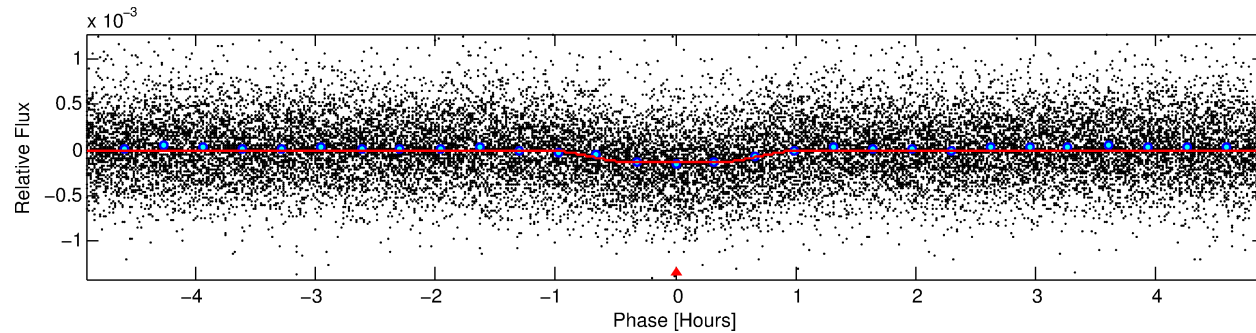
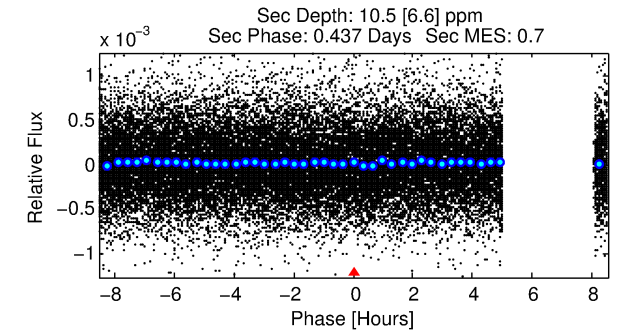
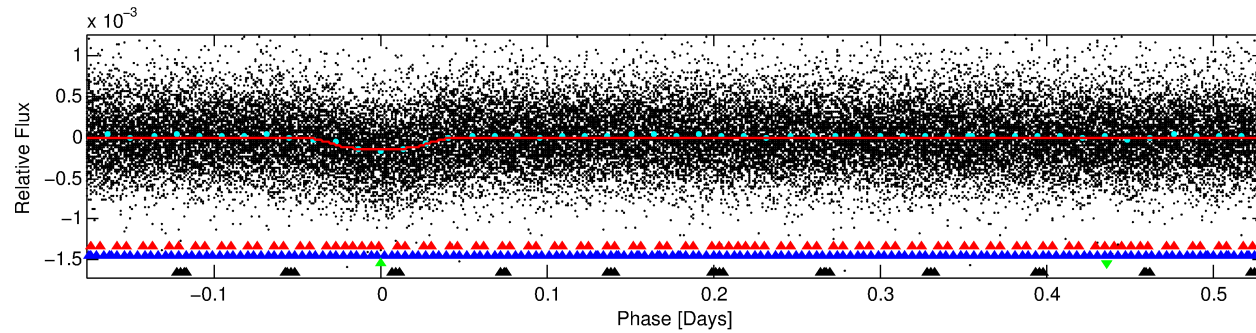
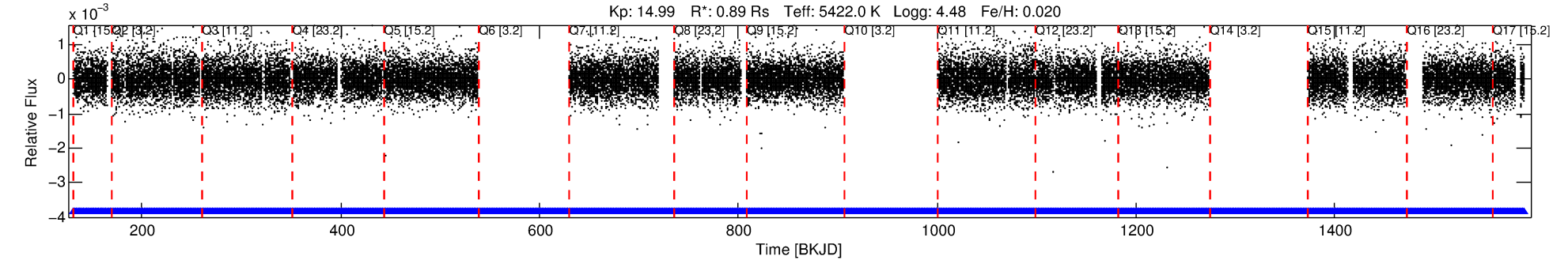
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005972334-03

No Significant Match Found

DV One-Page Summary

KIC: 5972334 Candidate: 3 of 4 Period: 0.709 d
KOI: K00191.03 Corr: 0.953



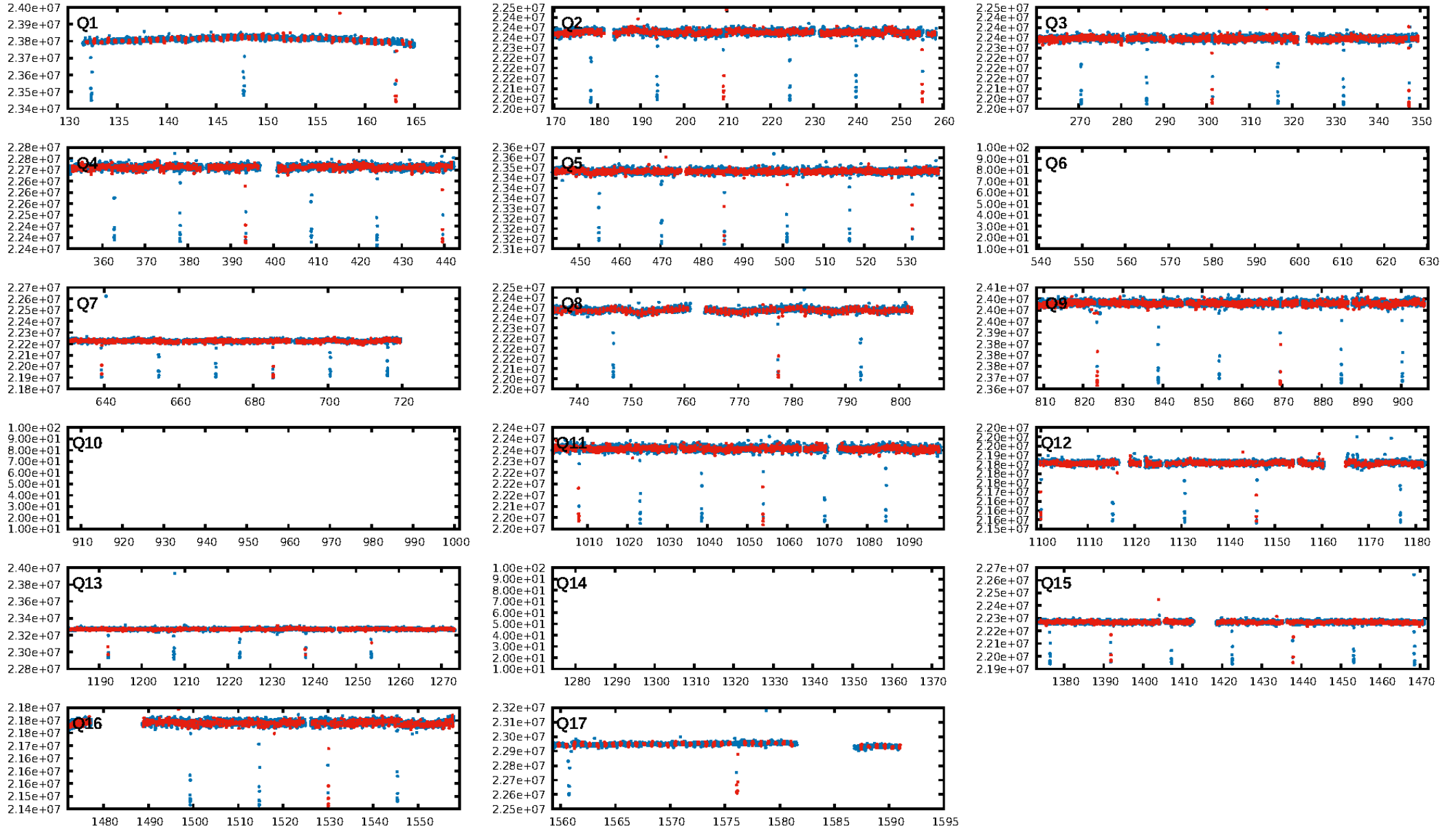
DV Fit Results:

Period = 0.70862 [0.00001] d
Epoch = 131.9449 [0.0011] BKJD
Rp/R* = 0.0130 [0.0064]
a/R* = 1.80 [2.67]
b = 0.90 [0.47]
Seff = 2751.65 [434.16]
Teff = 1847 [73] K
Rp = 1.26 [0.63] Re
a = 0.0149 [0.0013] AU
Ag = 0.81 [0.95] [-0.20 σ]
Teffp = 2711 [790] K [1.09 σ]

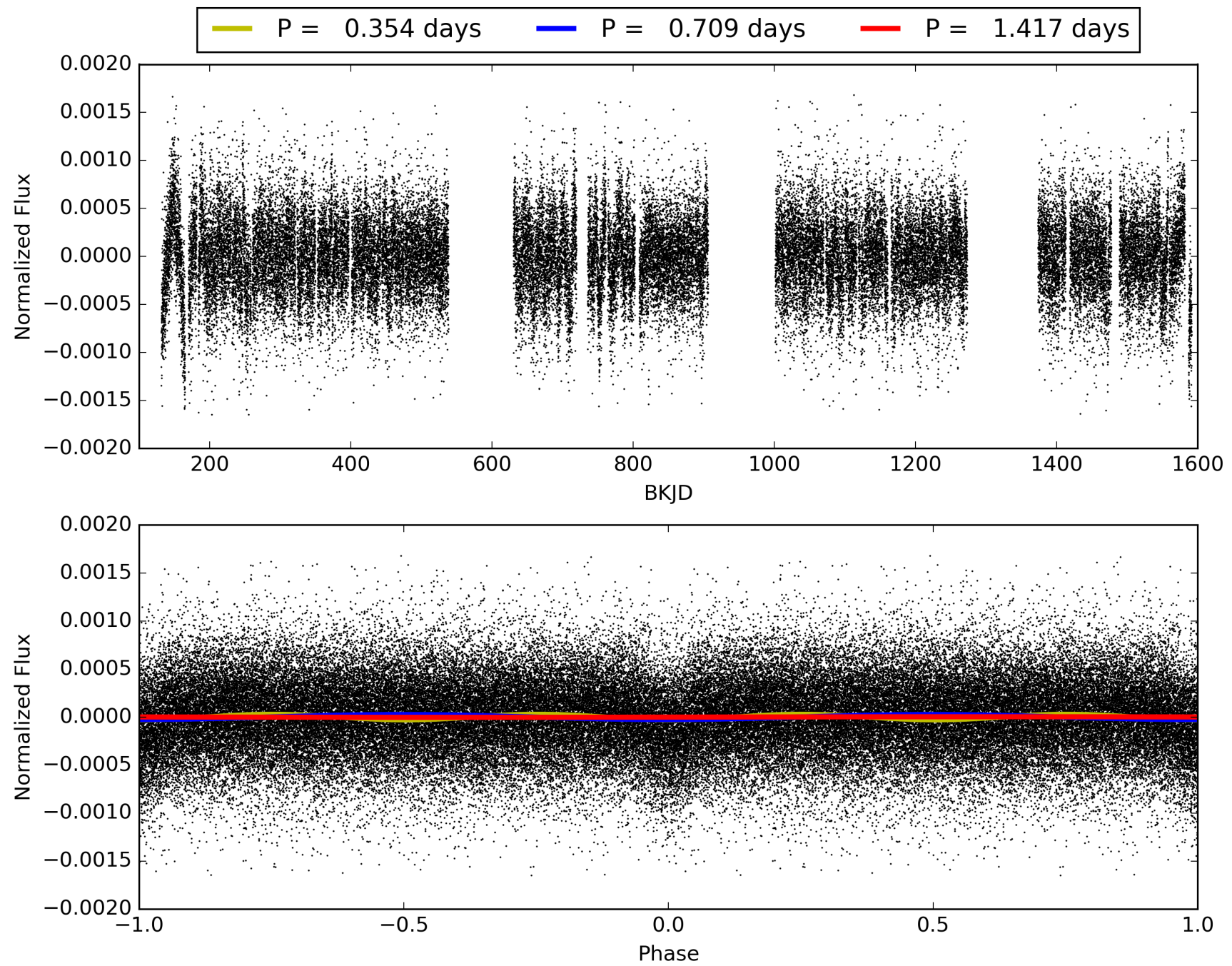
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [14.80 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.53e-97
RollingBand-fgt: 1.00 [1251/1251]
GhostDiagnostic-chr: 9.397
Centroid-sig: 35.5%
Centroid-so: 0.606 arcsec [0.88 σ]
OotOffset-rm: 0.649 arcsec [2.39 σ]
KicOffset-rm: 0.837 arcsec [3.01 σ]
OotOffset-st: 1/3/4/4 [12]
KicOffset-st: 1/3/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 005972334-03, PDC Light Curves

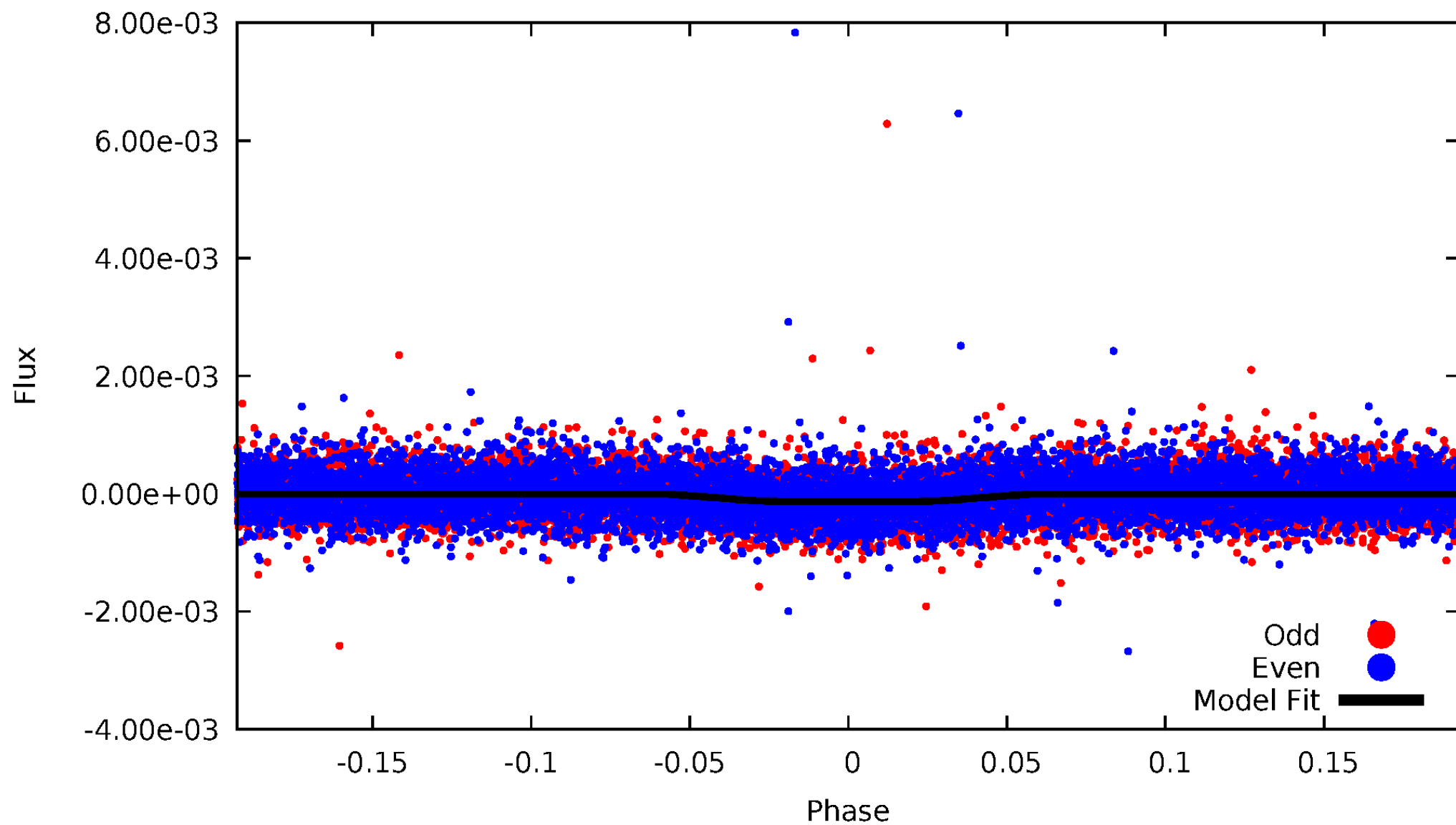


TCE 005972334-03



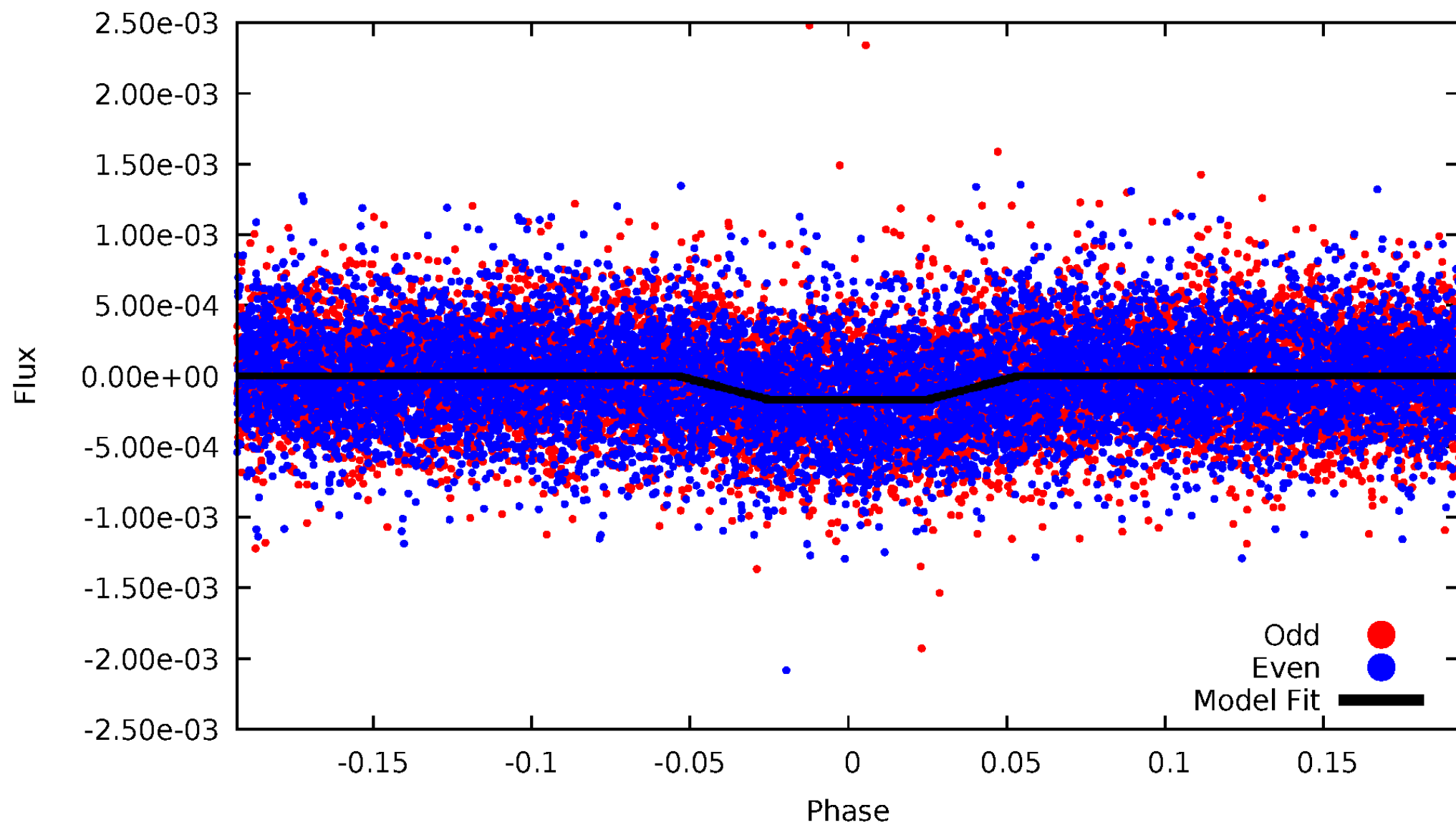
DV Odd/Even

TCE 005972334-03

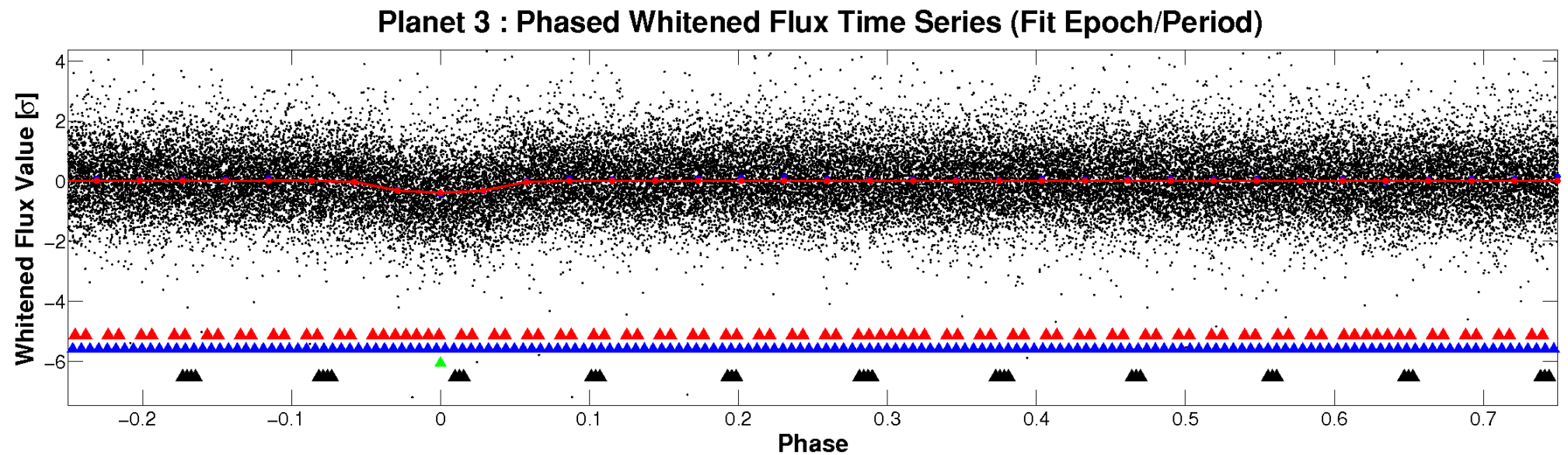
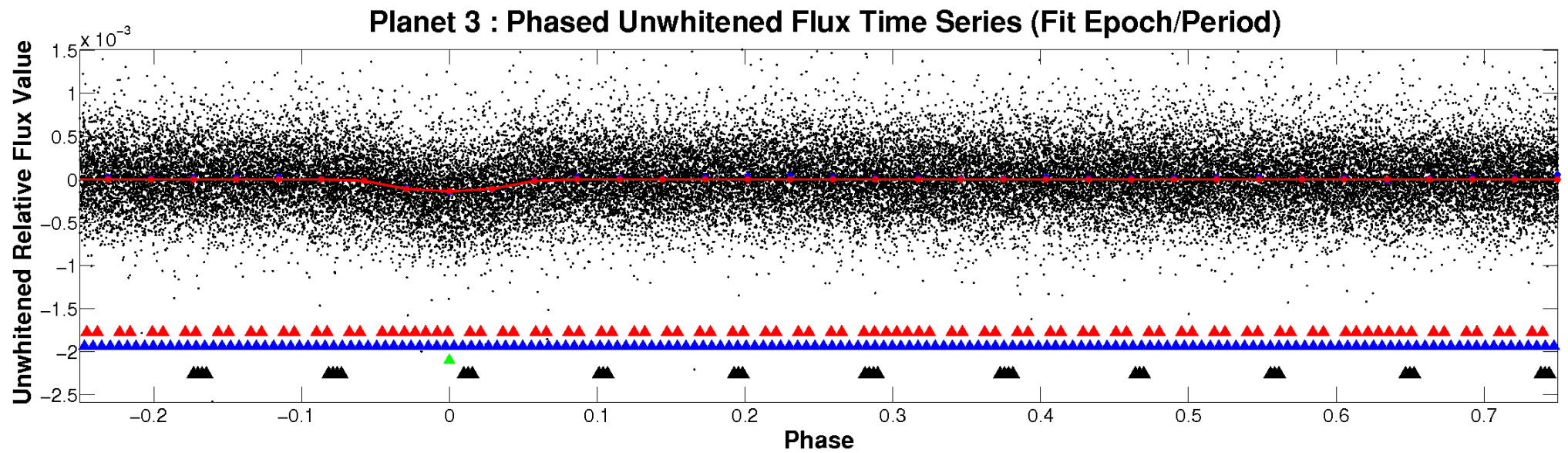


ALT Odd/Even

TCE 005972334-03

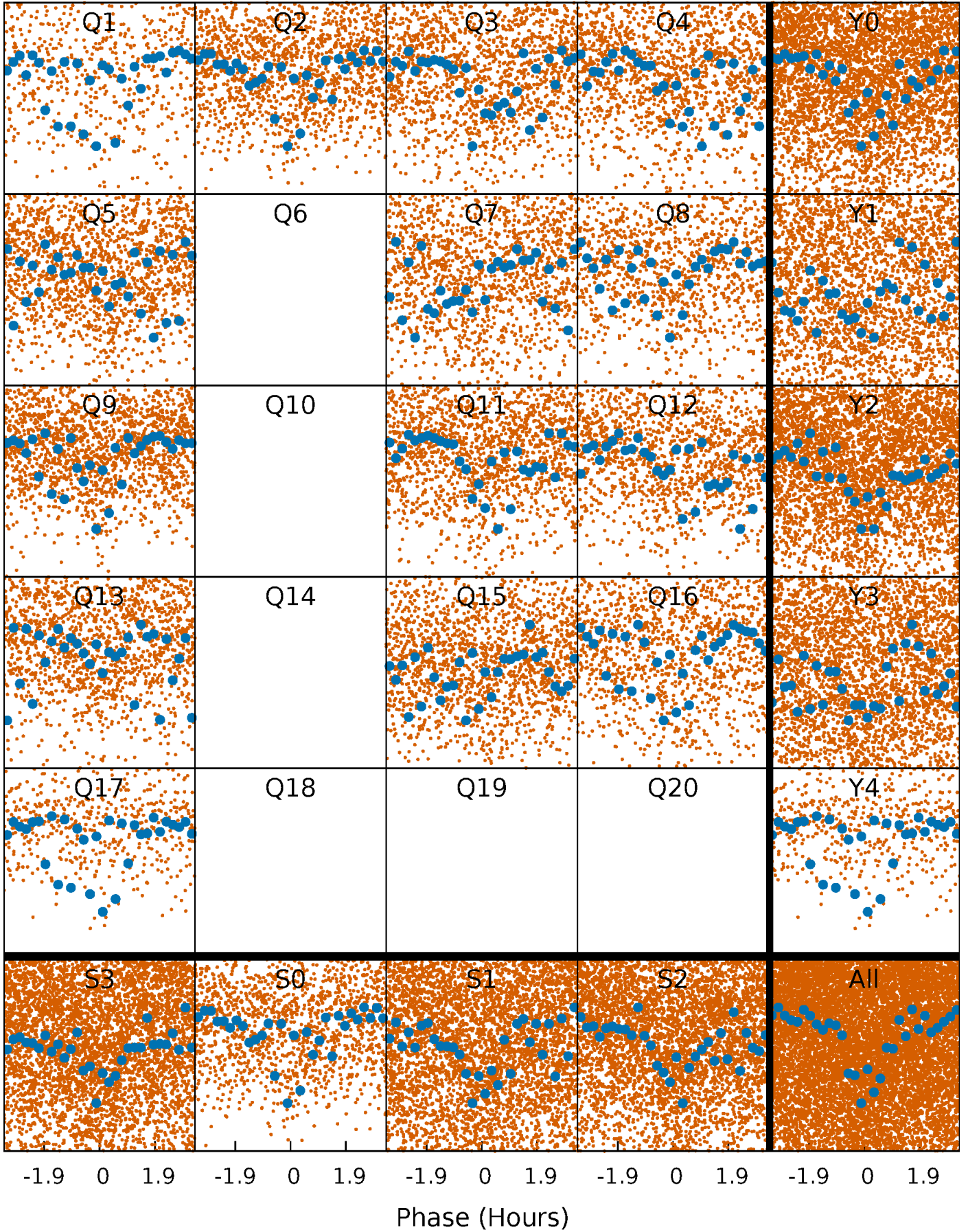


Non-Whitened Vs. Whitened Light Curve



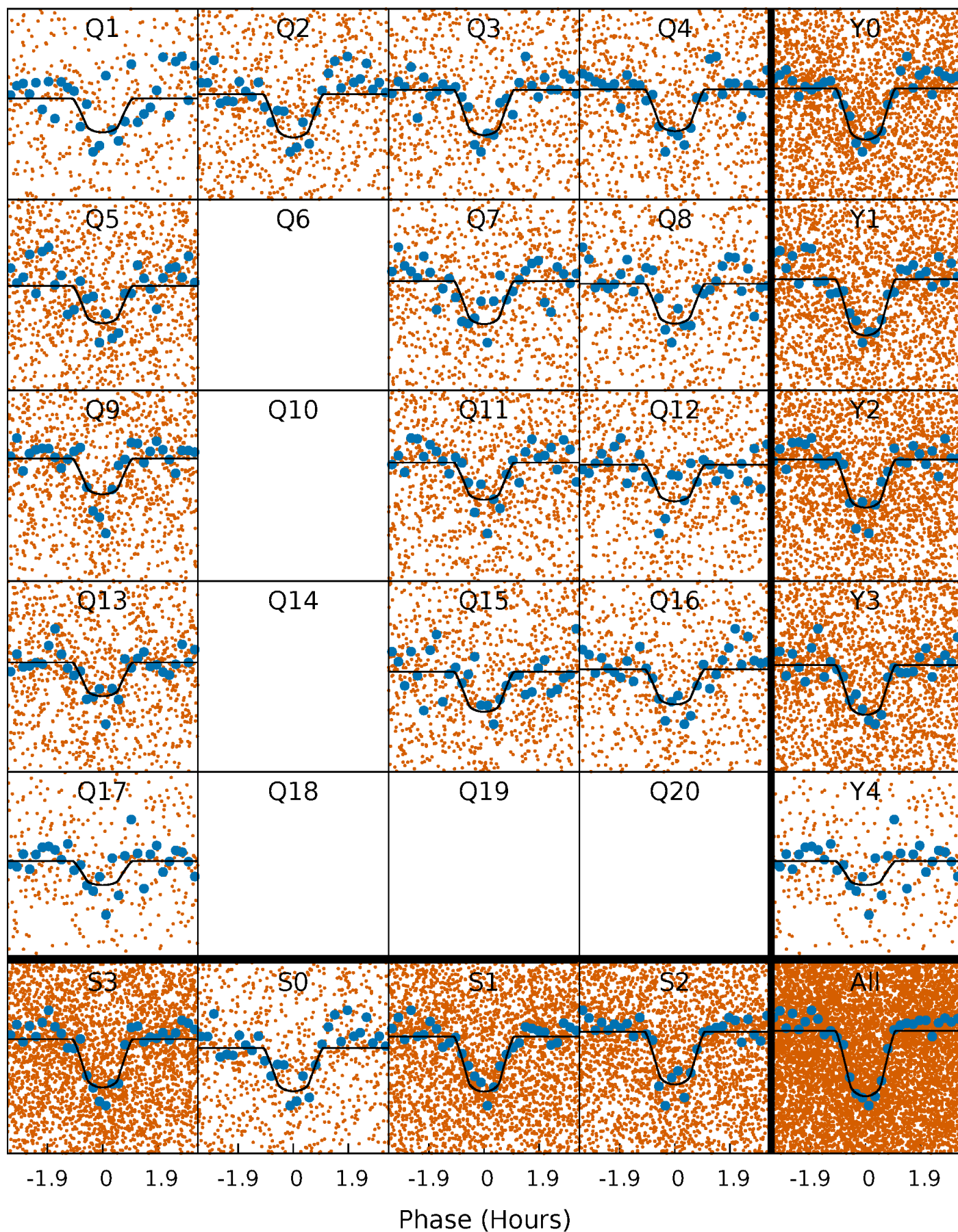
PDC Quarter-Phased Transit Curves

TCE 005972334-03 P= 0.708624 Days $T_0=131.944863$ (BKJD)



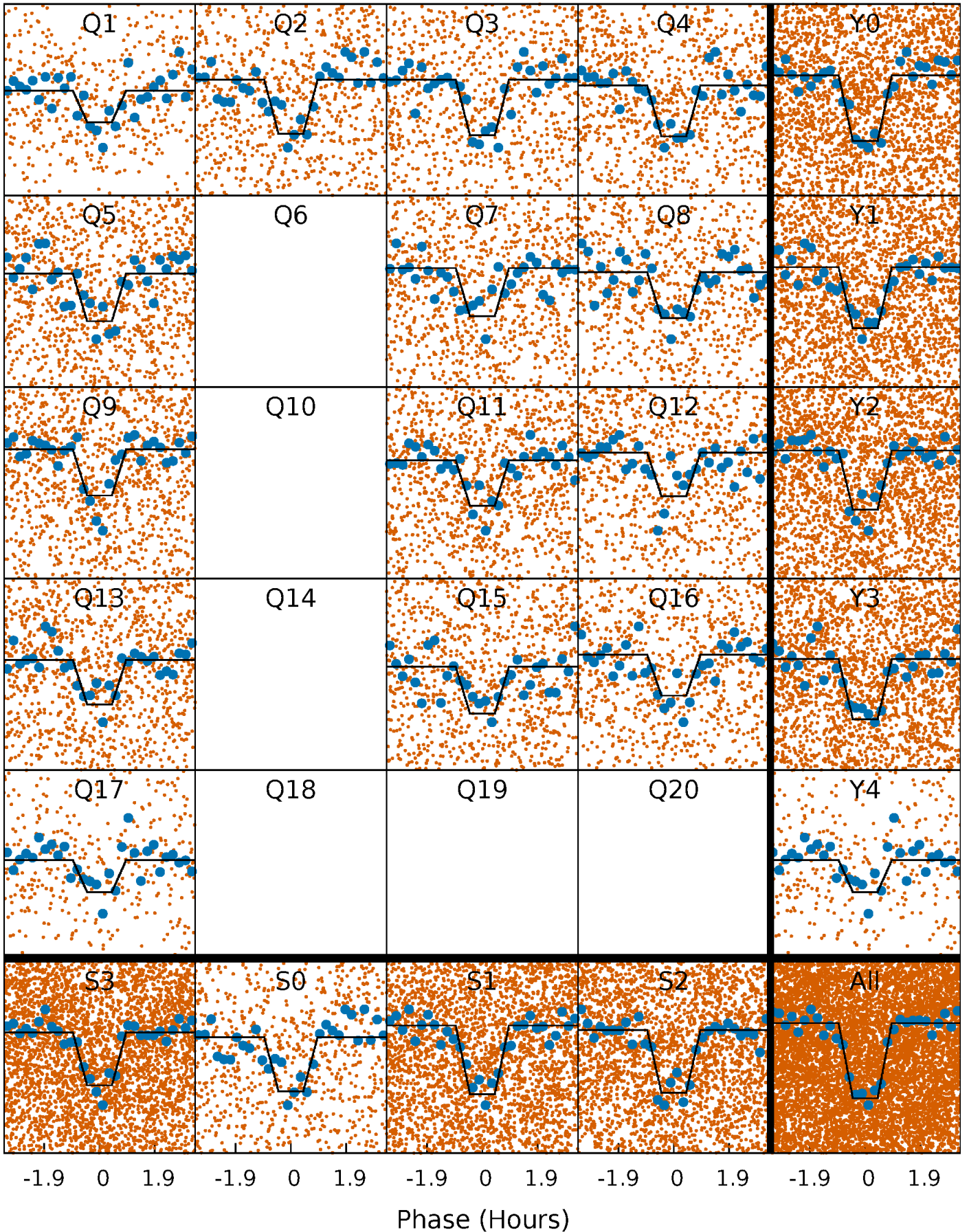
DV Quarter-Phased Transit Curves

TCE 005972334-03 $P = 0.708624$ Days $T_0 = 131.944863$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

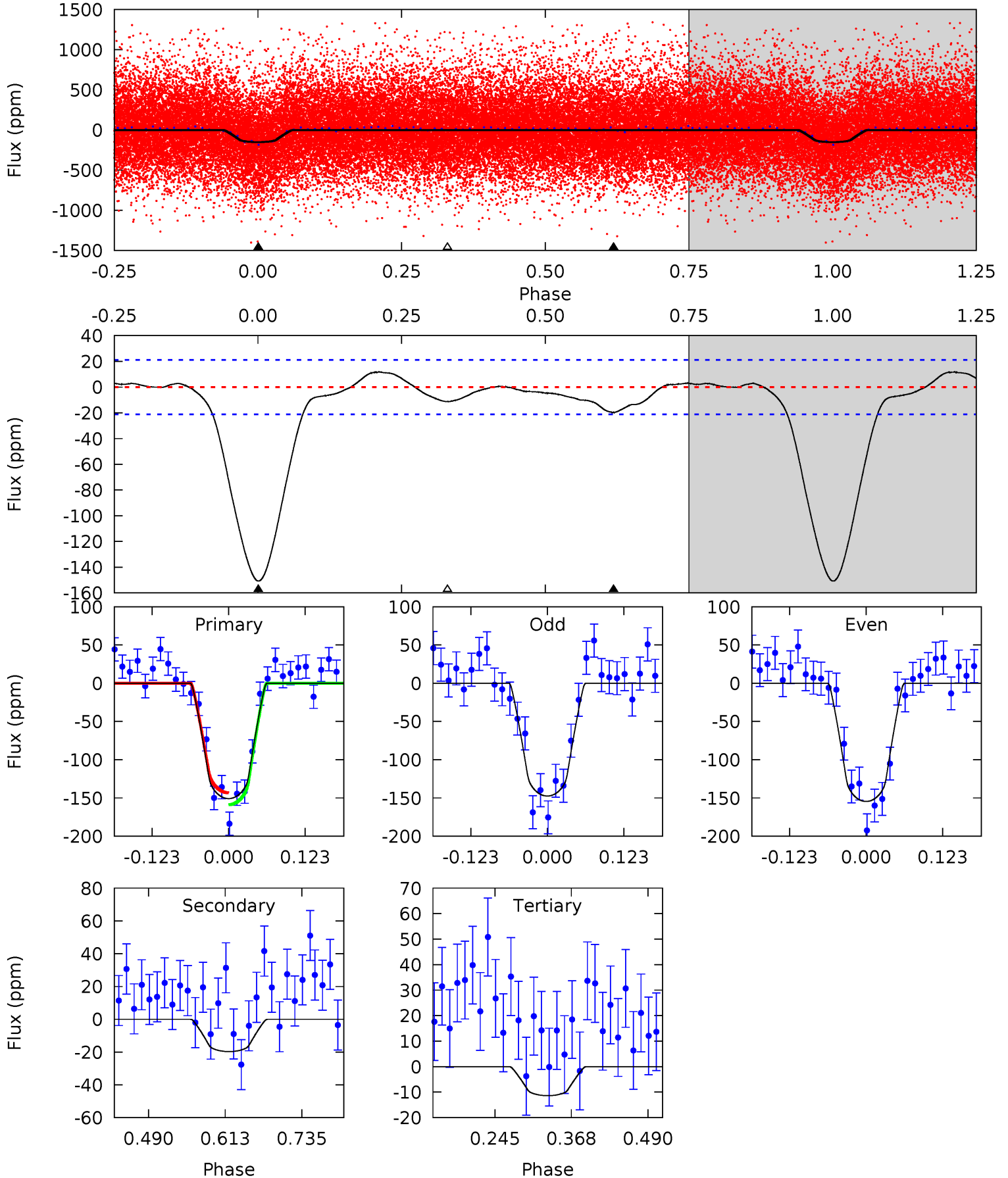
TCE 005972334-03 P= 0.708624 Days $T_0=131.944882$ (BKJD)



DV Model-Shift Uniqueness Test

005972334-03, P = 0.708624 Days, E = 131.236239 Days

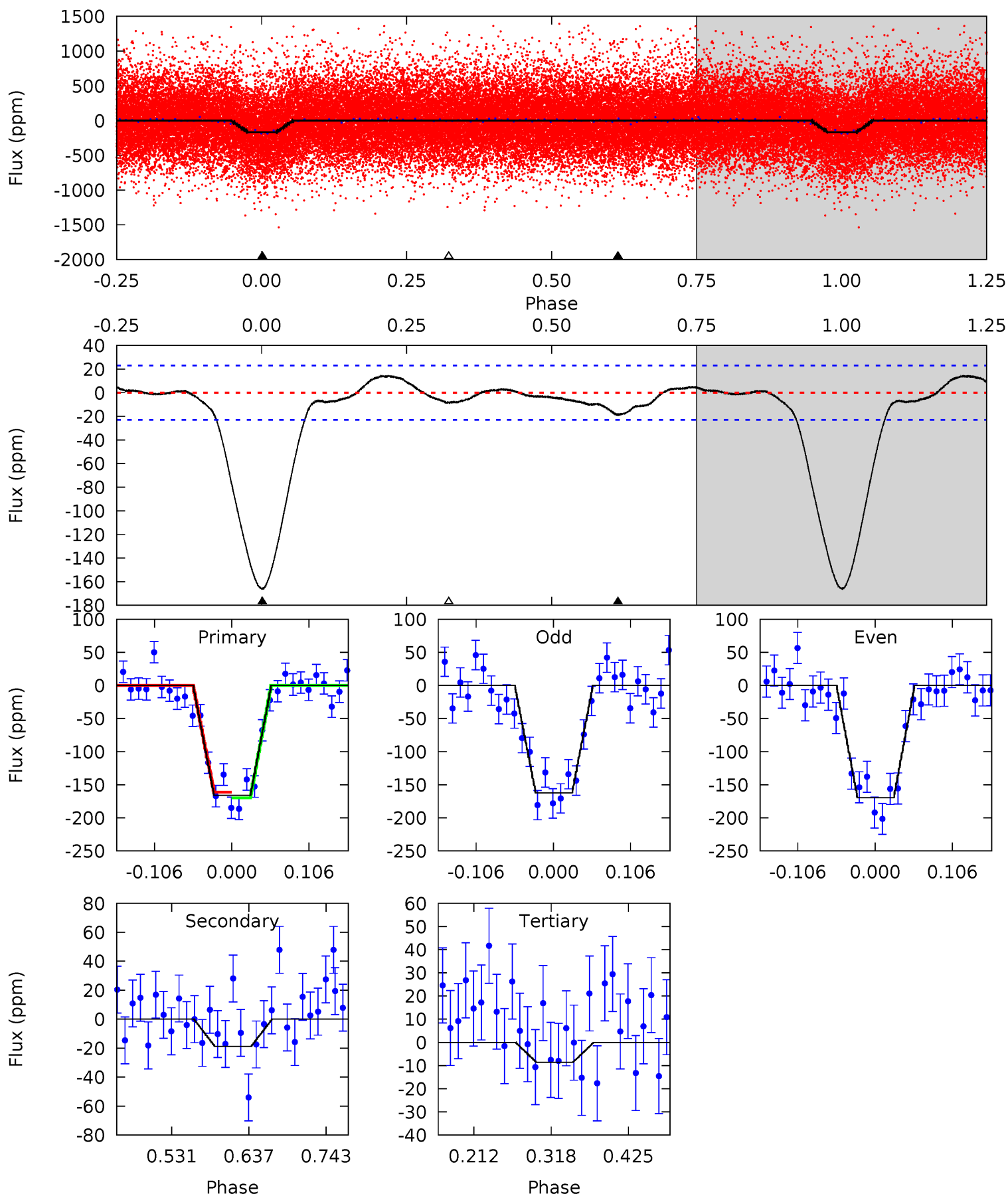
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.3	4.22	2.44	0	4.52	1.54	1.22	29.9	32.3	1.79	4.22	0.76	0.97	0.07	1.68



Alt Model-Shift Uniqueness Test

005972334-03, P = 0.708624 Days, E = 131.236258 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.8	3.71	1.71	0	4.55	1.62	1.13	31.1	32.8	2.00	3.71	0.70	0.97	0.08	0.82



Stellar Parameters For KIC 005972334

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5422^{+108}_{-108}	$4.484^{+0.063}_{-0.077}$	$0.020^{+0.150}_{-0.150}$	$0.887^{+0.090}_{-0.067}$	$0.874^{+0.055}_{-0.046}$	$1.766^{+0.454}_{-0.431}$
	+2%/-2%	+1%/-2%	+750%/-750%	+10%/-8%	+6%/-5%	+26%/-24%
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 005972334-03 / KOI 0191.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20 ± 5	$1.33^{+0.58}_{-0.60}$	2584^{+90}_{-75}	3399^{+930}_{-546}	$1.344^{+3.396}_{-0.730}$
Alt.	-19 ± 5	$1.25^{+0.60}_{-0.56}$	2582^{+85}_{-78}	3446^{+990}_{-588}	$1.451^{+3.908}_{-0.843}$

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 $A_{\text{obs}} \gg 1.0$

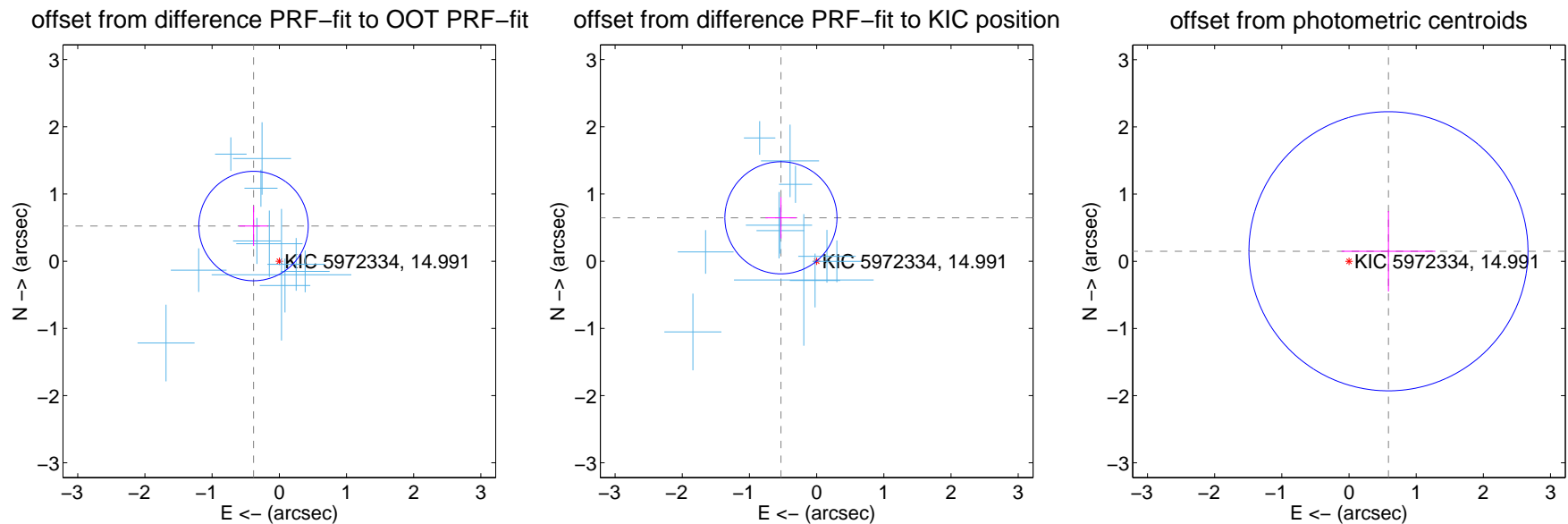
DV Centroid Data

Supplemental centroid analysis for 005972334-03. Kepler magnitude: 14.99. Transit SNR 20.71

There are 12 quarters with good PRF difference image offsets

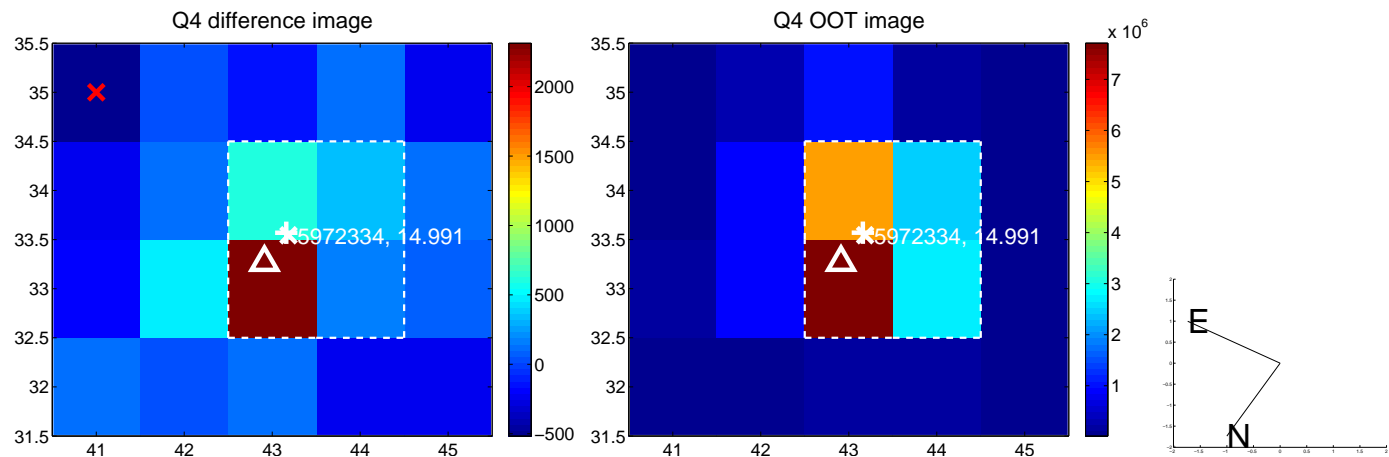
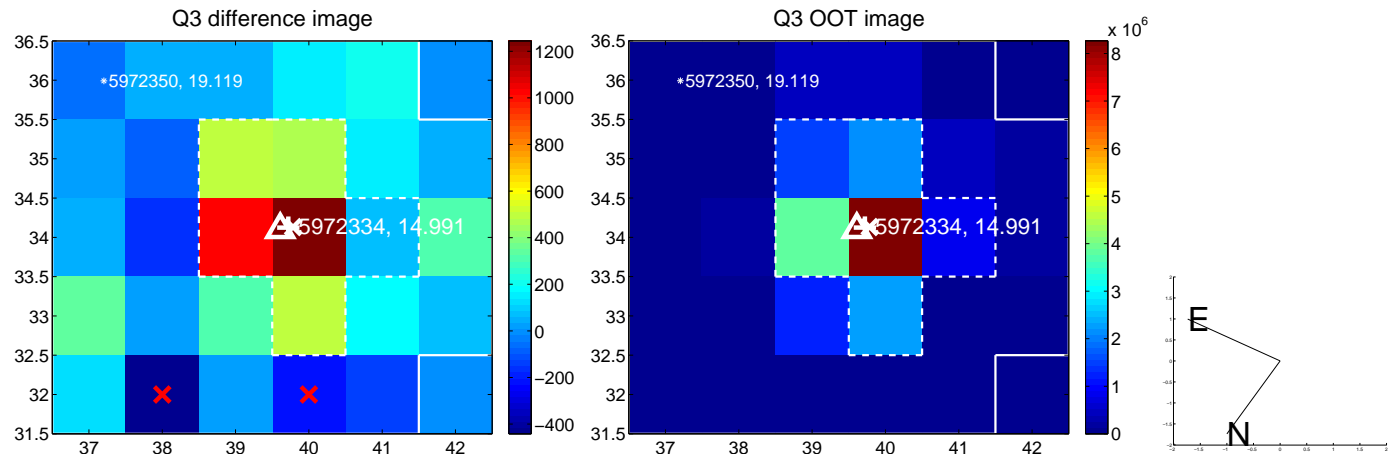
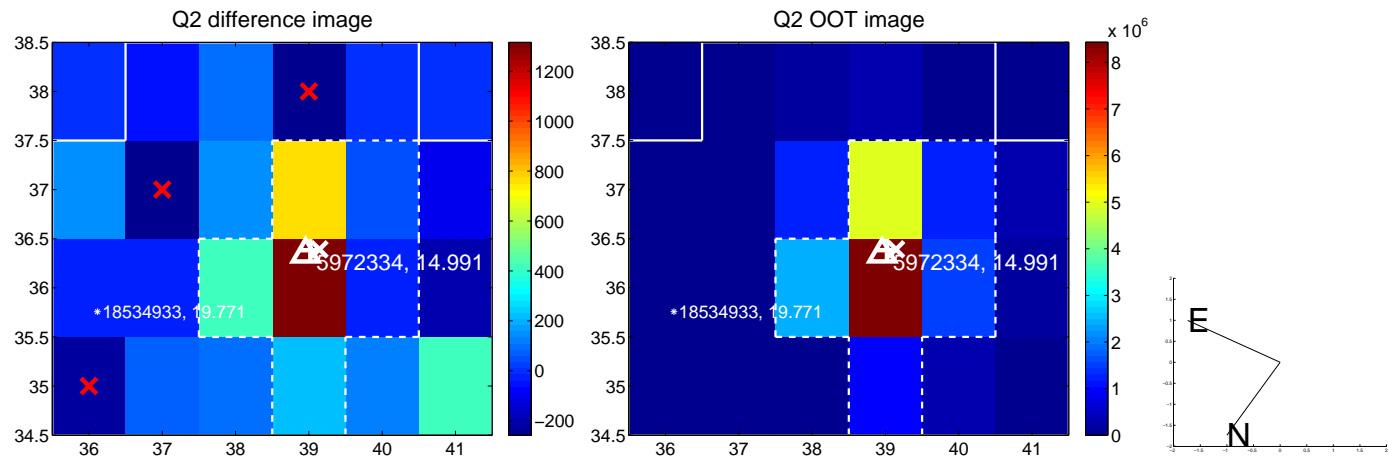
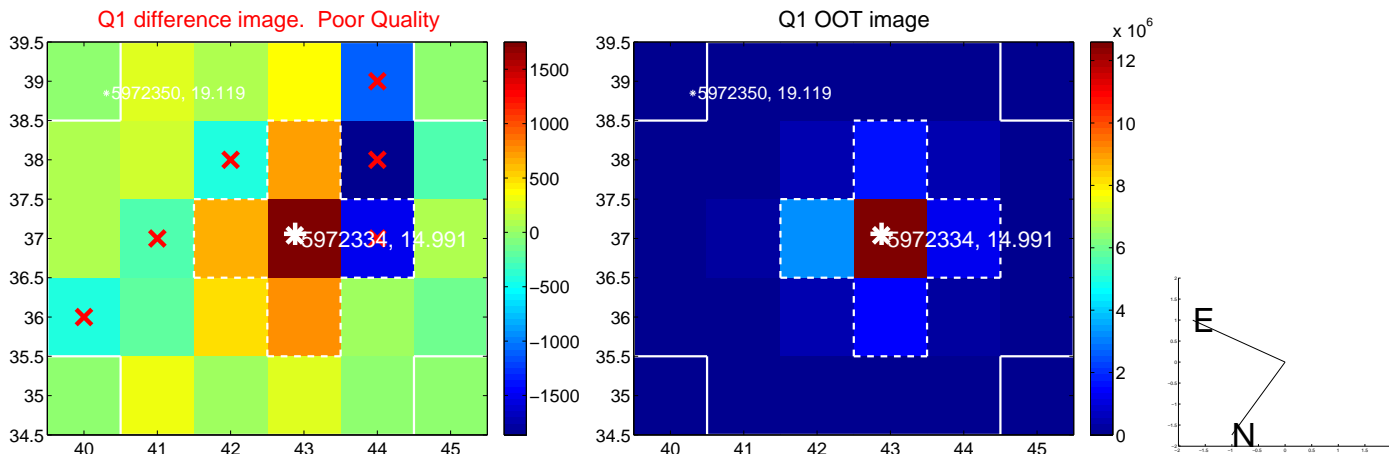
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.649 ± 0.272	2.39	0.384 ± 0.215	0.523 ± 0.297
PRF-fit source offset from KIC position	0.837 ± 0.278	3.01	0.532 ± 0.229	0.646 ± 0.307
photometric centroid source offset	0.61 ± 0.69	0.88	-0.59 ± 0.70	0.15 ± 0.60

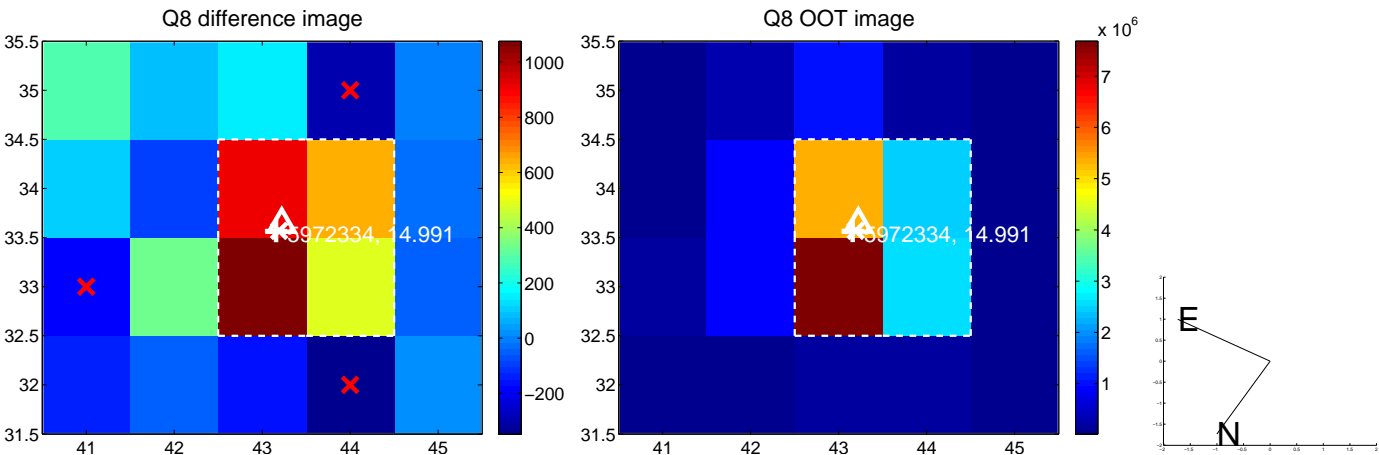
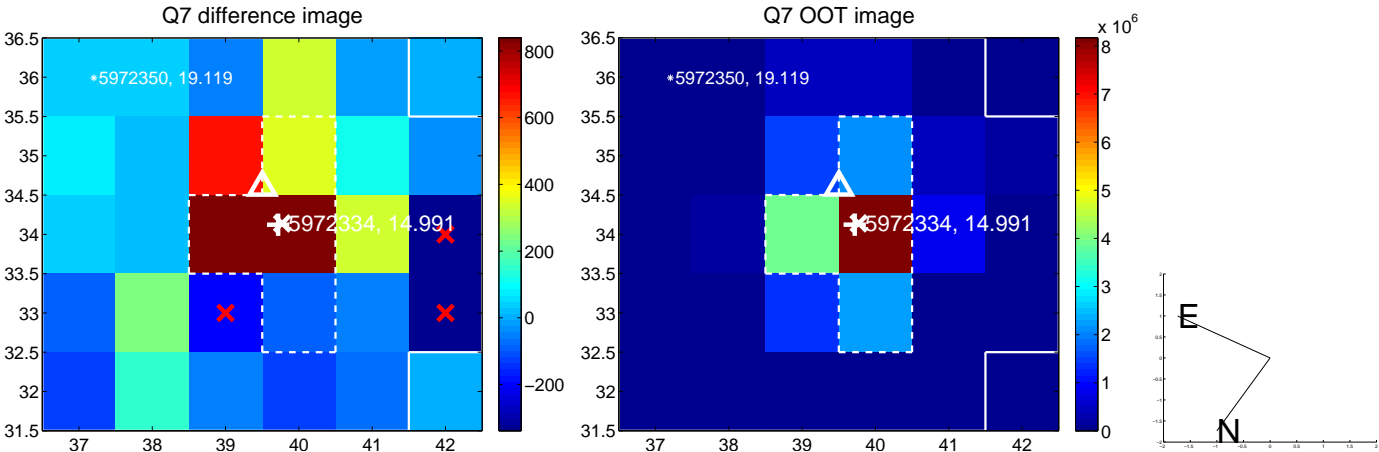
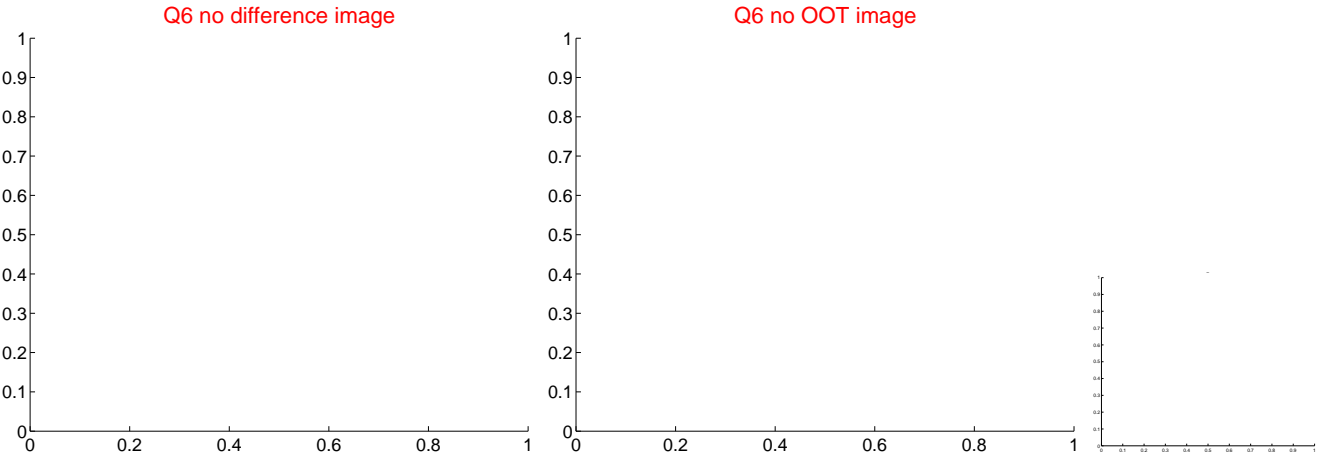
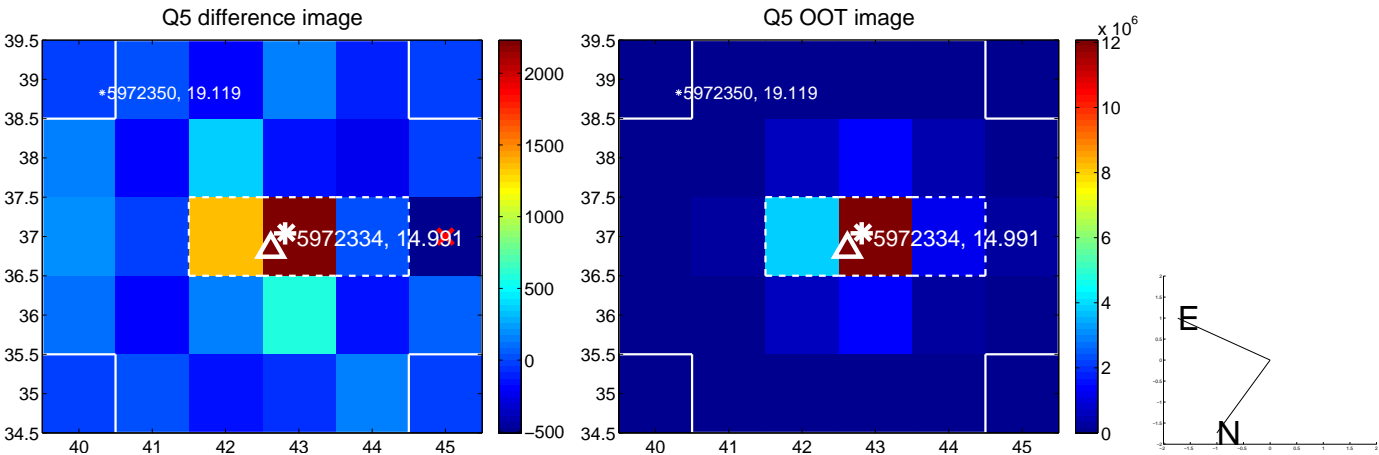


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

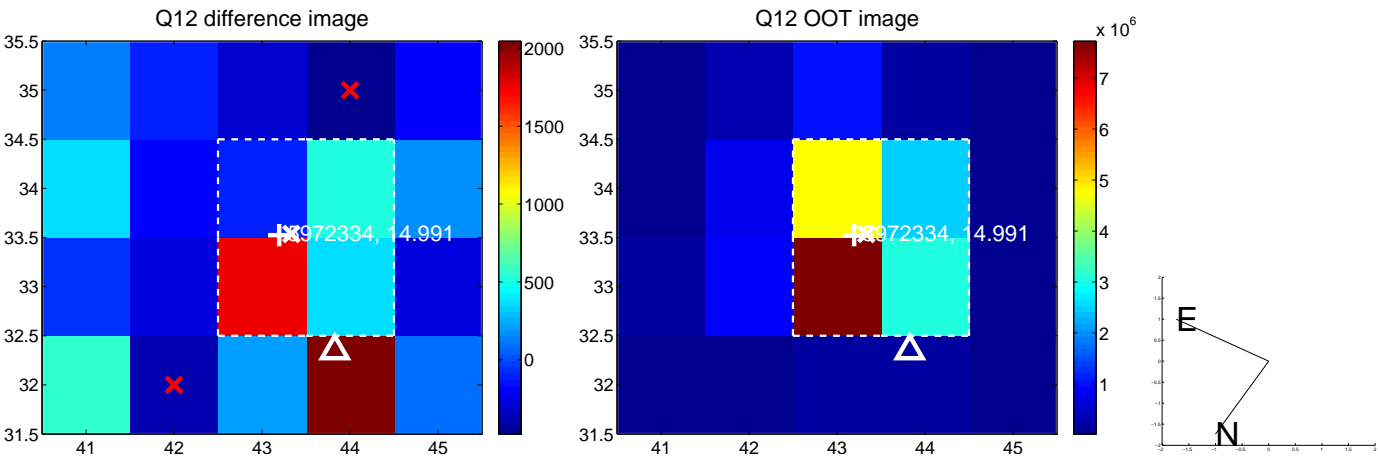
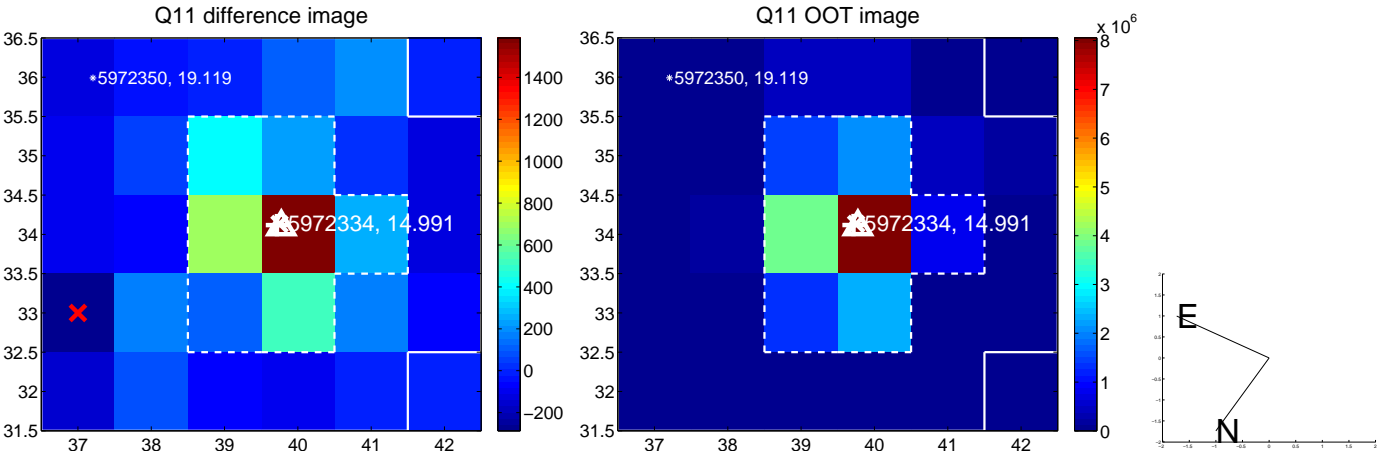
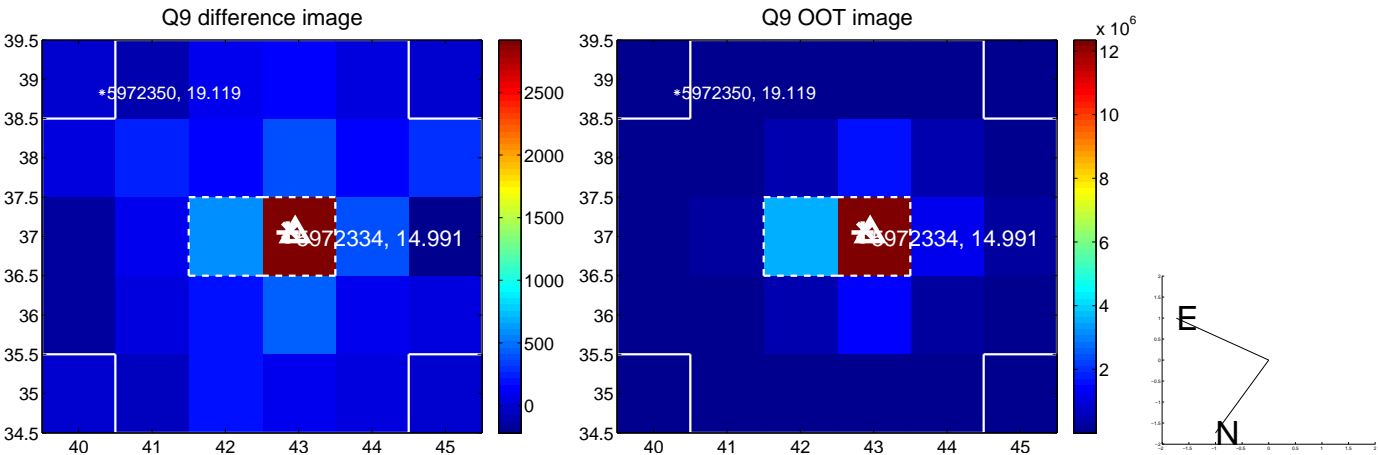
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



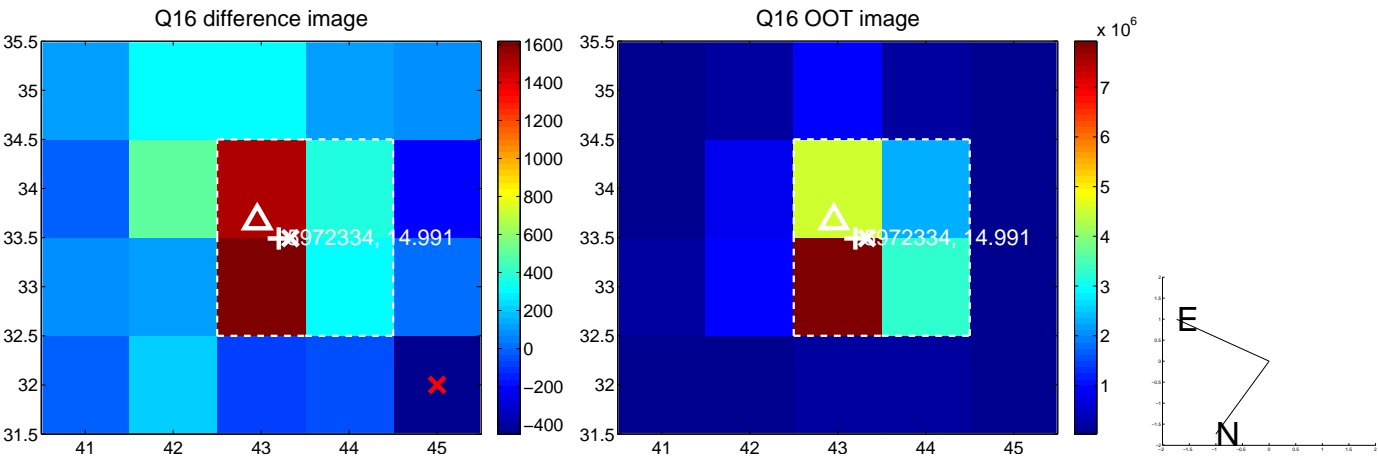
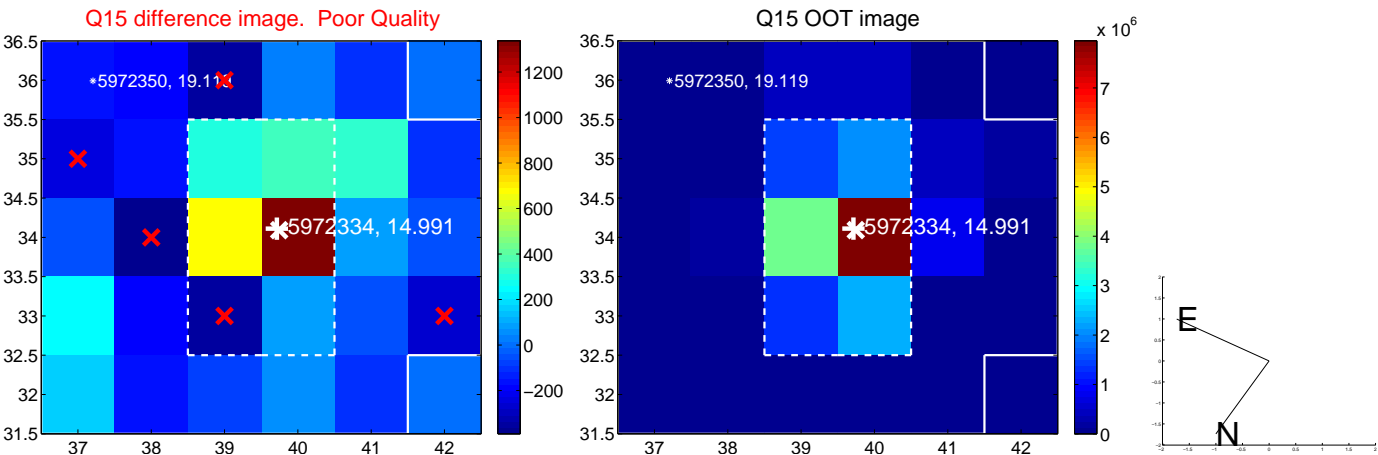
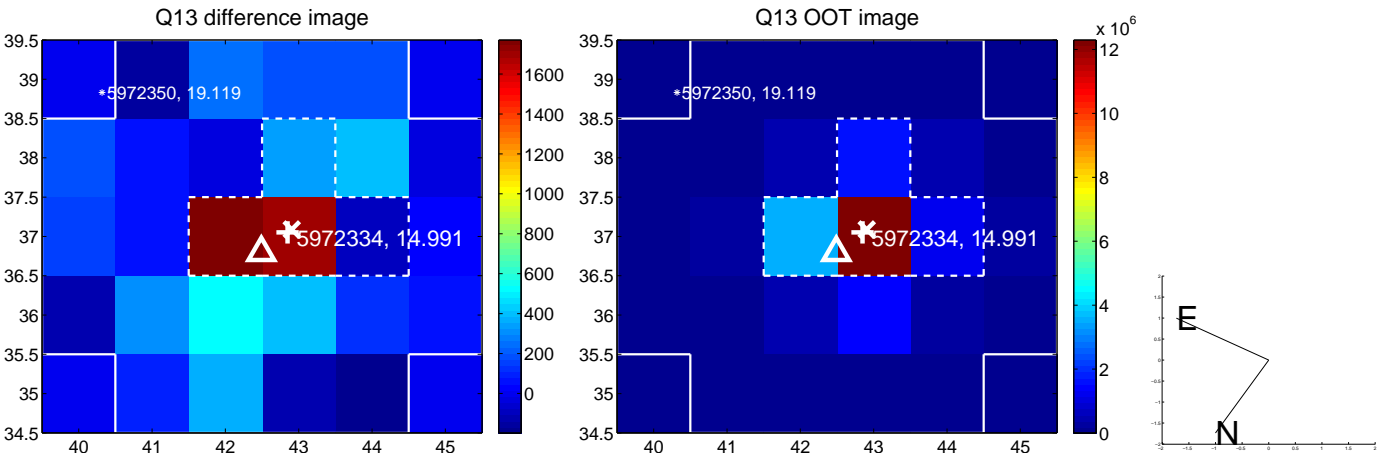
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



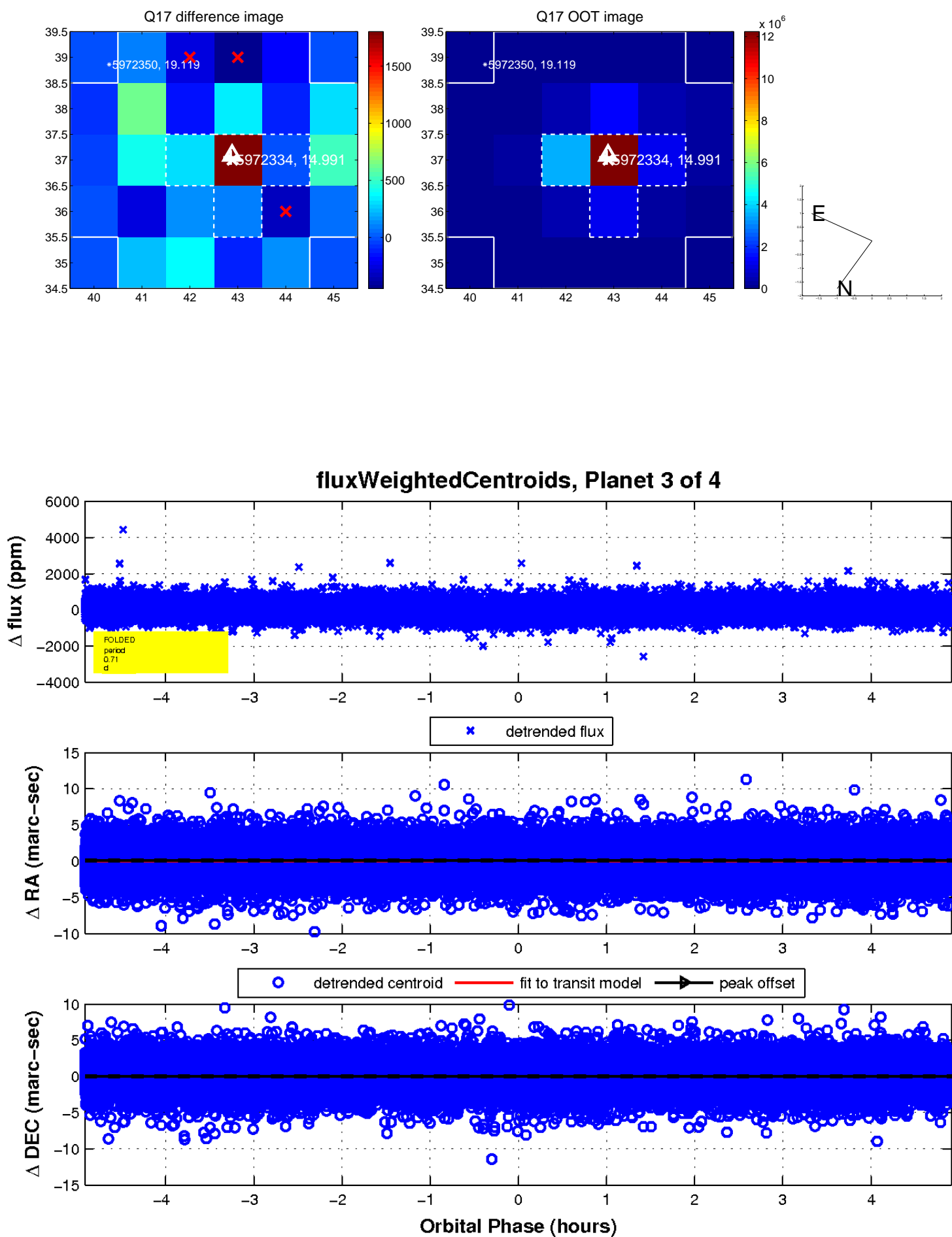
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

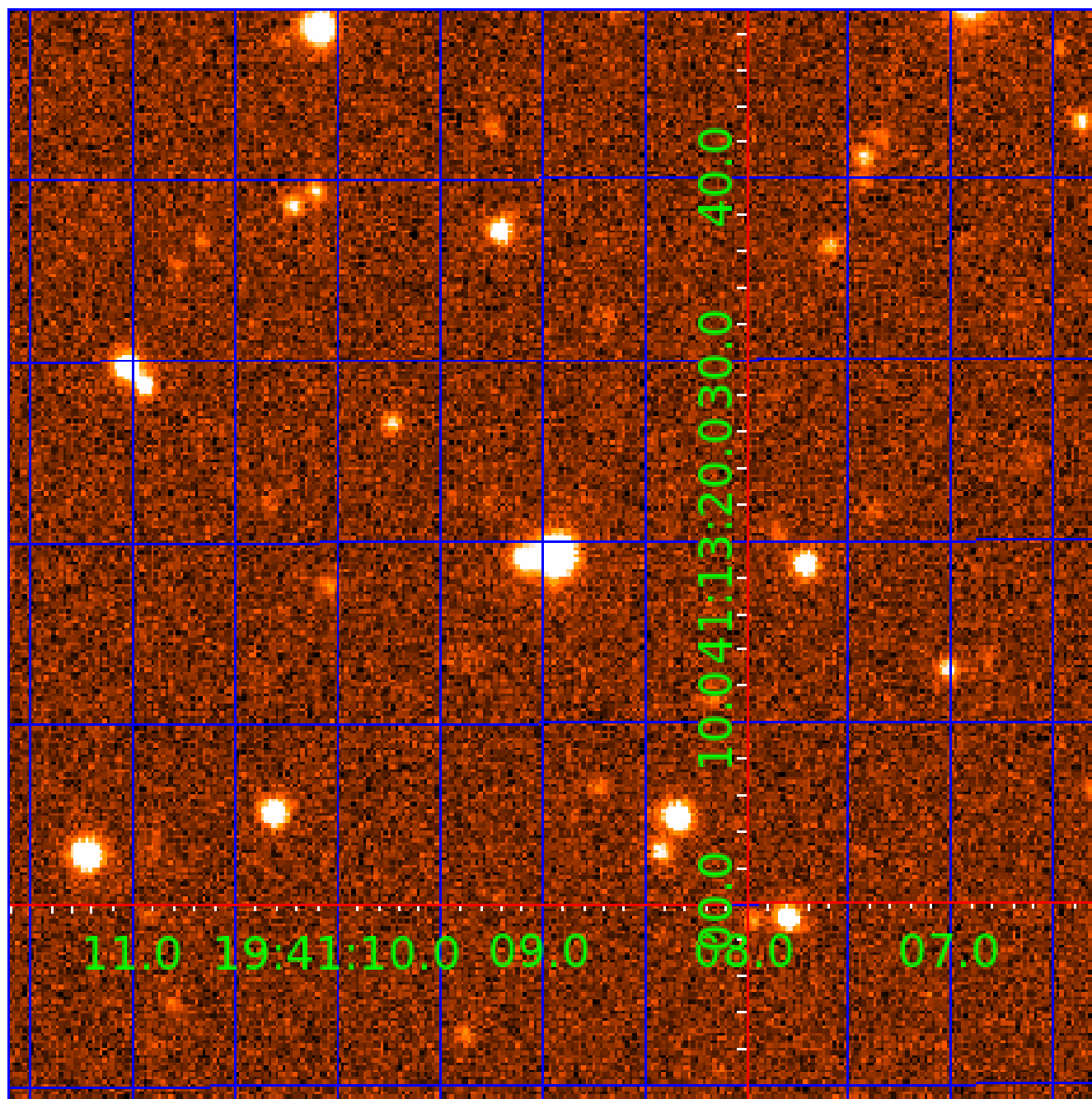


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005972334

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})
005972334-01	OBS	0191.01	15.358765	132.385271	14642.6	4.176	695.0	659.9	0.89	5422	11.06	45.53
005972334-02	OBS	0191.02	2.418385	132.511565	632.7	2.237	52.9	59.9	0.89	5422	2.70	535.53
005972334-03	OBS	0191.03	0.708624	131.944863	138.1	1.639	21.1	20.7	0.89	5422	1.26	2751.65
005972334-04	OBS	0191.04	38.652403	164.032235	532.6	5.857	13.8	16.1	0.89	5422	2.36	13.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005972334-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005972334-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED

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 005972334-04

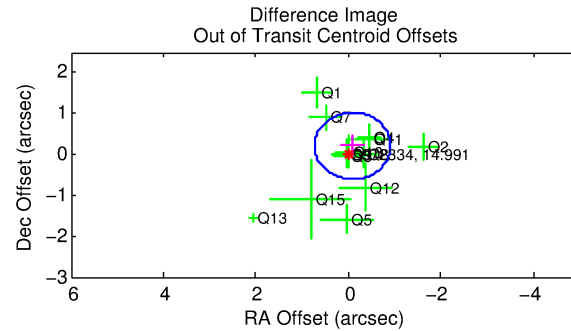
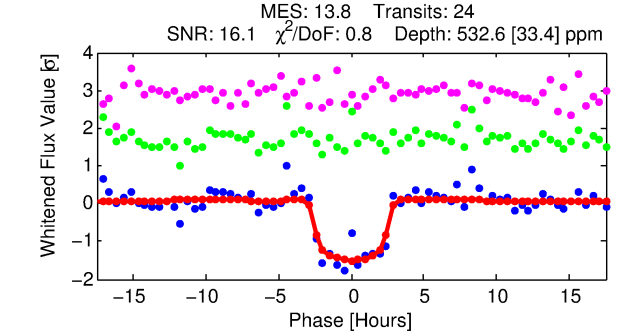
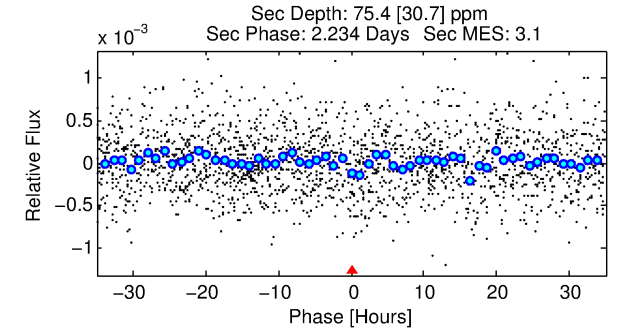
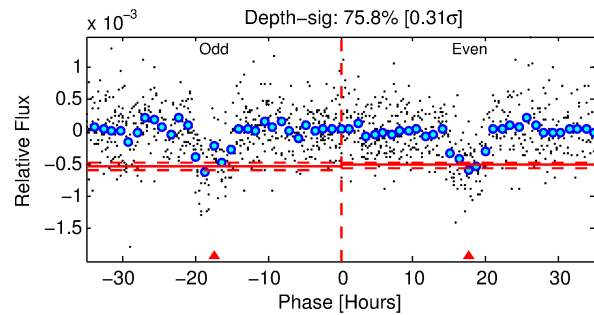
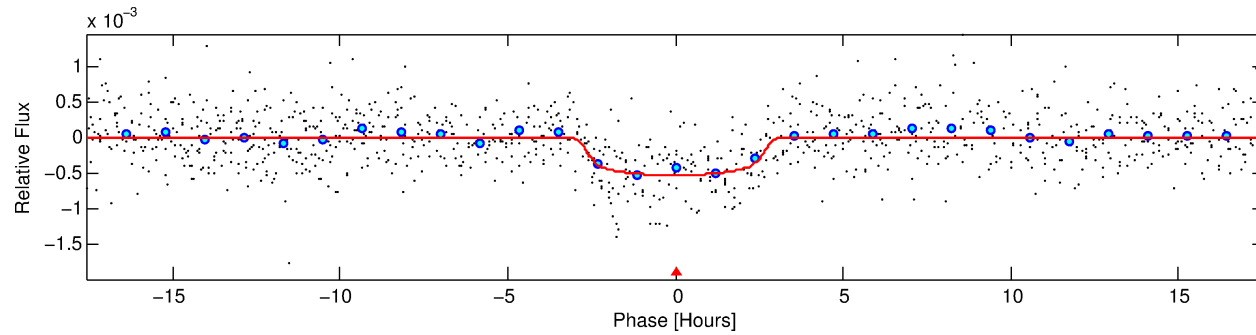
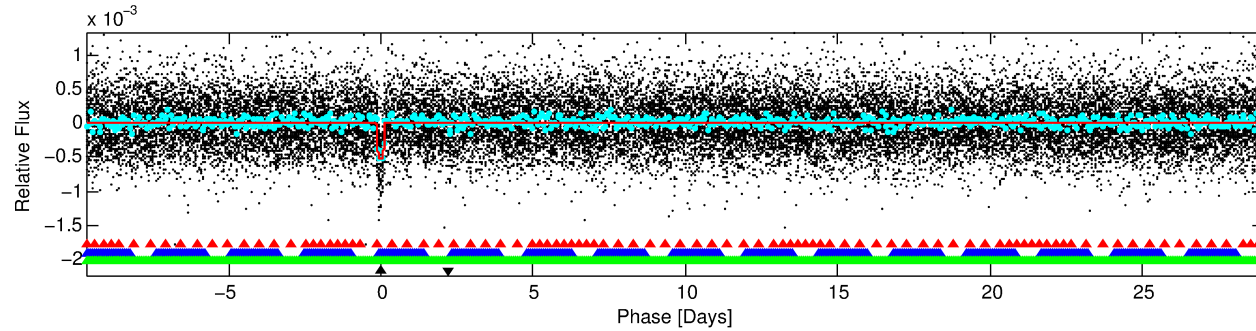
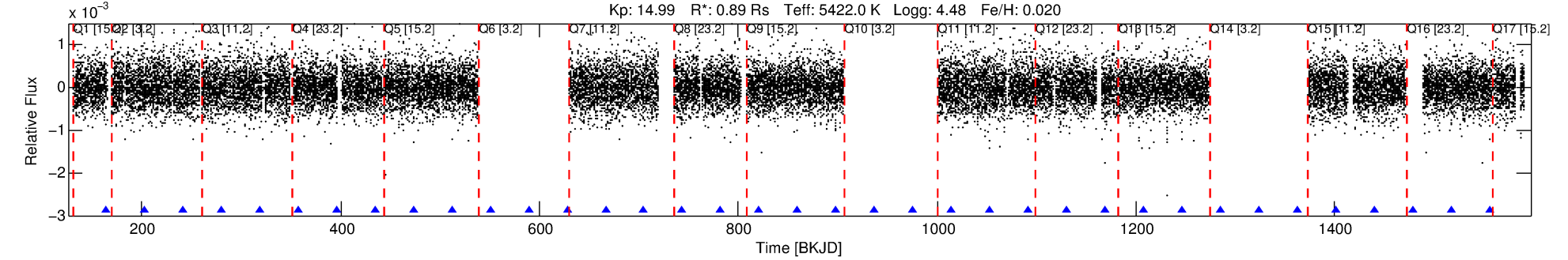
No Significant Match Found

DV One-Page Summary

KIC: 5972334 Candidate: 4 of 4 Period: 38.652 d

KOI: K00191.04 Corr: 0.955

Kp: 14.99 R*: 0.89 Rs Teff: 5422.0 K Logg: 4.48 Fe/H: 0.020



DV Fit Results:

Period = 38.65240 [0.00038] d
Epoch = 164.0322 [0.0082] BKJD
Rp/R* = 0.0244 [0.0052]
a/R* = 28.60 [25.14]
b = 0.85 [0.29]
Seff = 13.30 [2.10]
Teff = 487 [19] K
Rp = 2.36 [0.56] Re
a = 0.2140 [0.0192] AU
Ag = 341.21 [207.42] [1.64σ]
Teffp = 3236 [484] K [5.68σ]

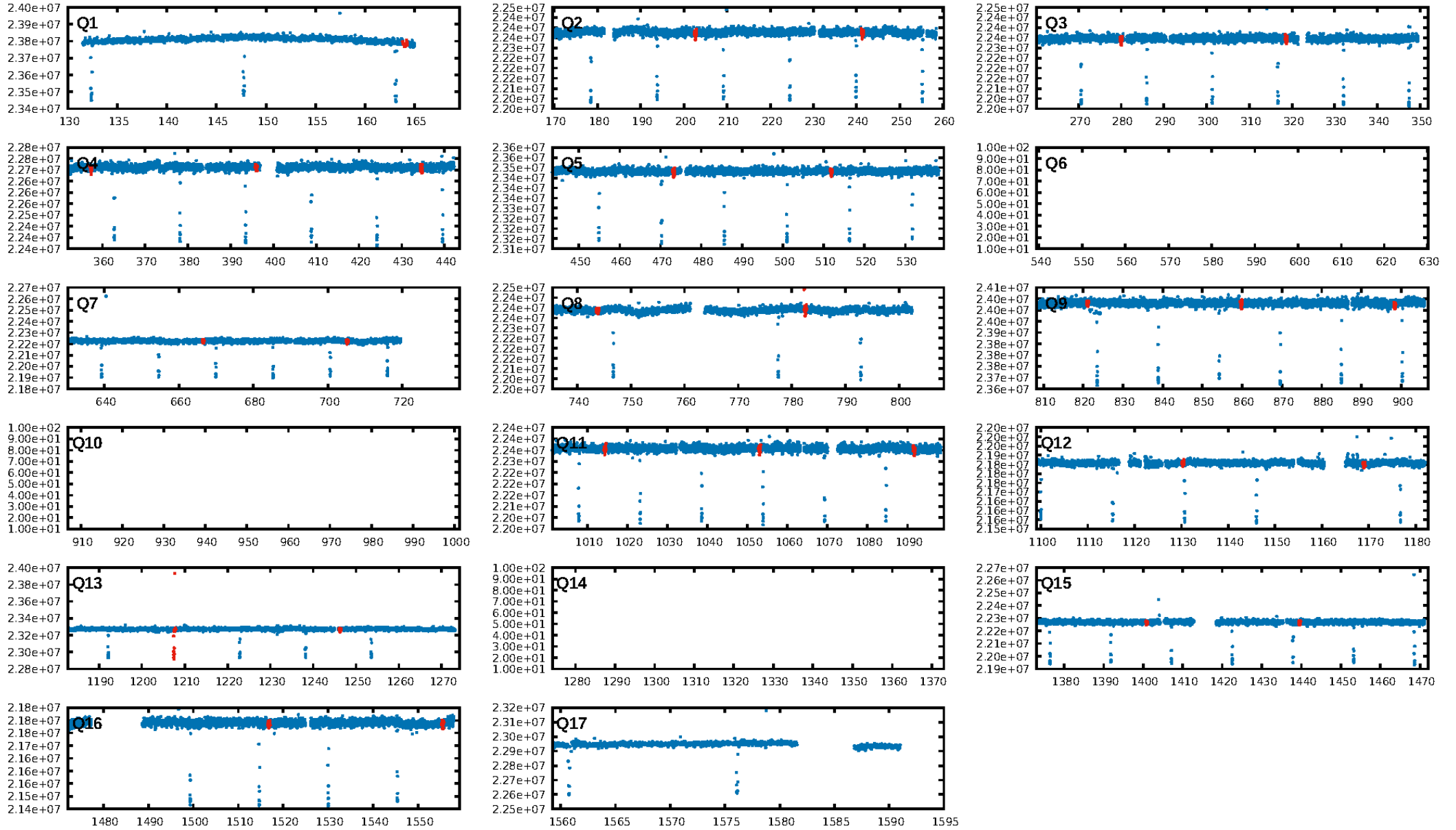
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [77.72σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 86.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.73e-36
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 3.556
Centroid-sig: 4.6%
Centroid-so: 0.646 arcsec [1.06σ]
OotOffset-rm: 0.225 arcsec [0.82σ]
KicOffset-rm: 0.367 arcsec [1.46σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 0.00 [0/13]

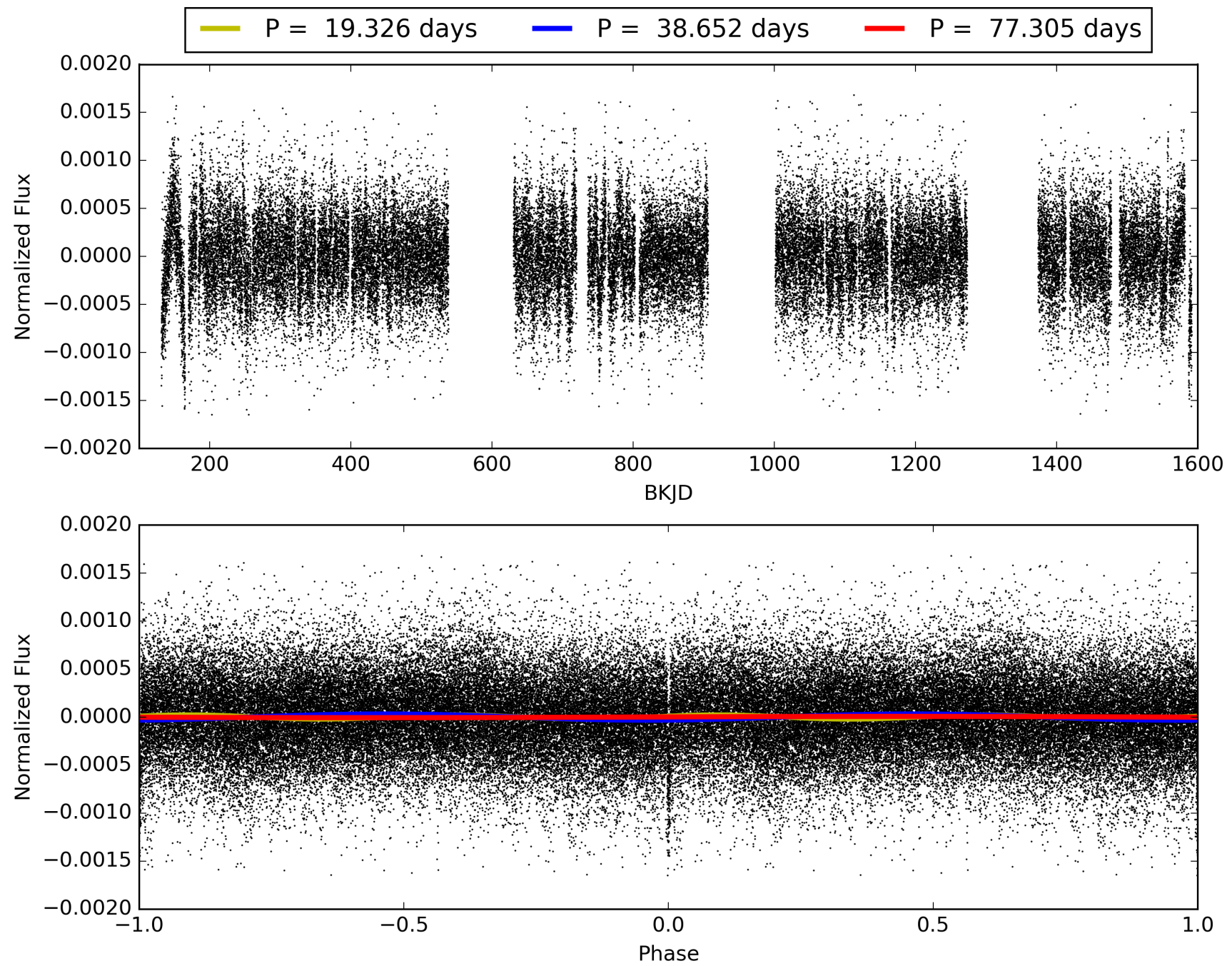
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:13:44 Z

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

TCE 005972334-04, PDC Light Curves

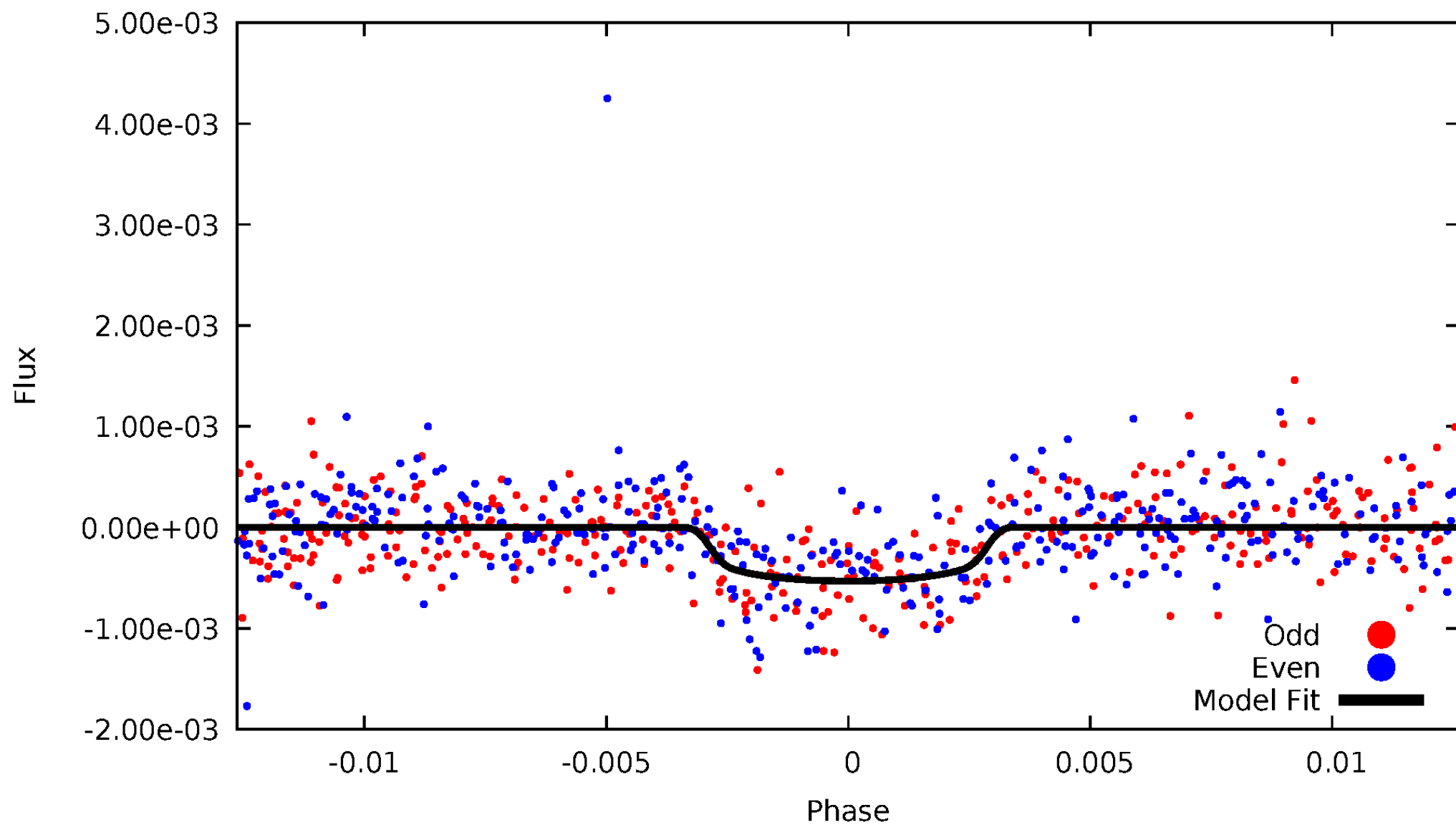


TCE 005972334-04



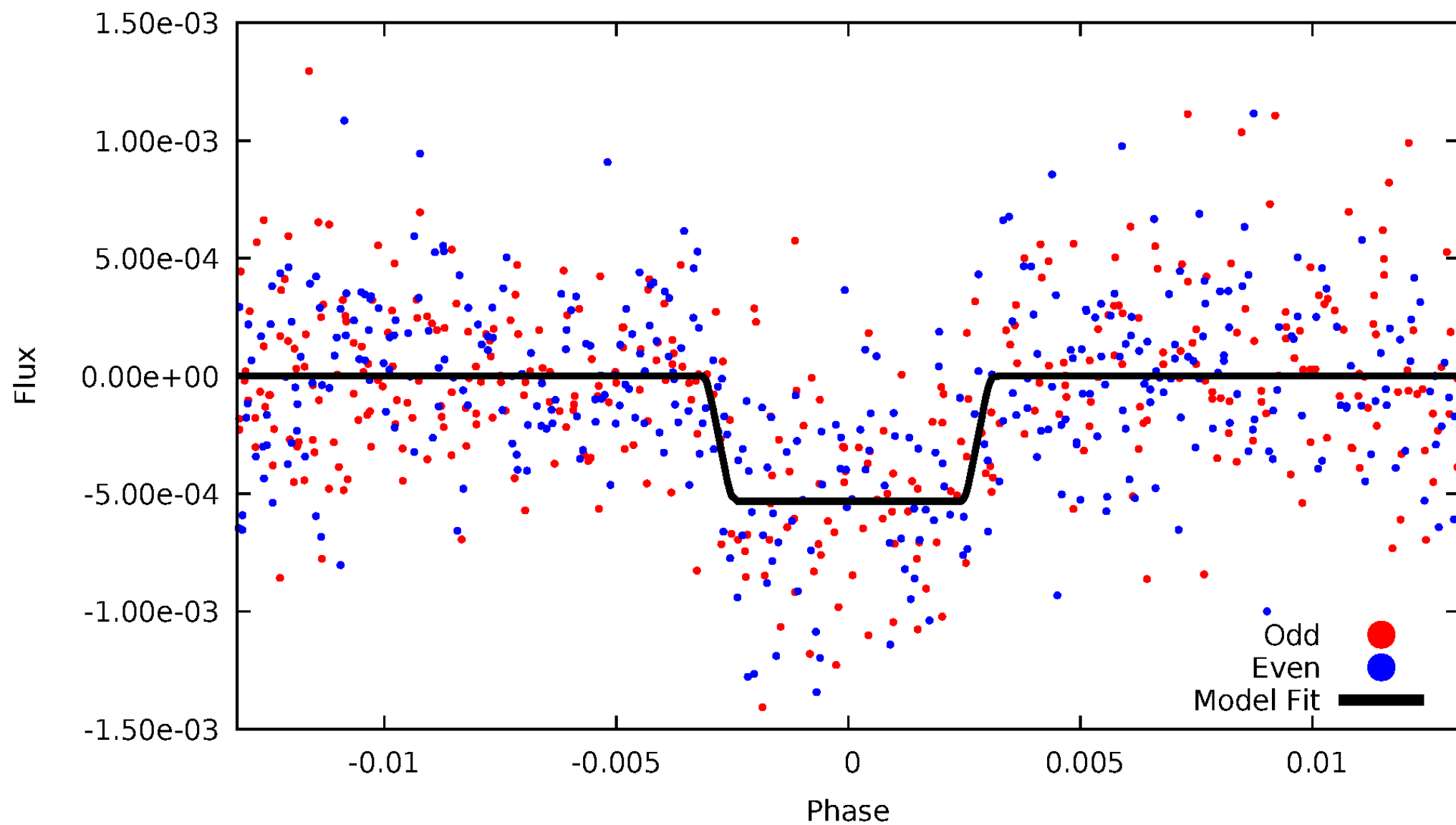
DV Odd/Even

TCE 005972334-04



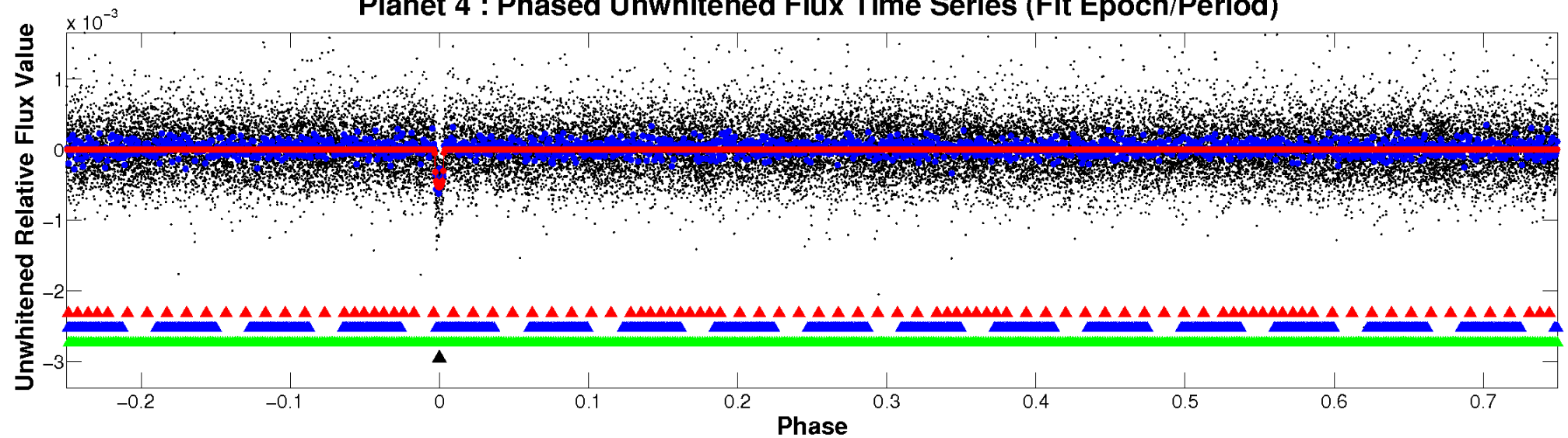
ALT Odd/Even

TCE 005972334-04

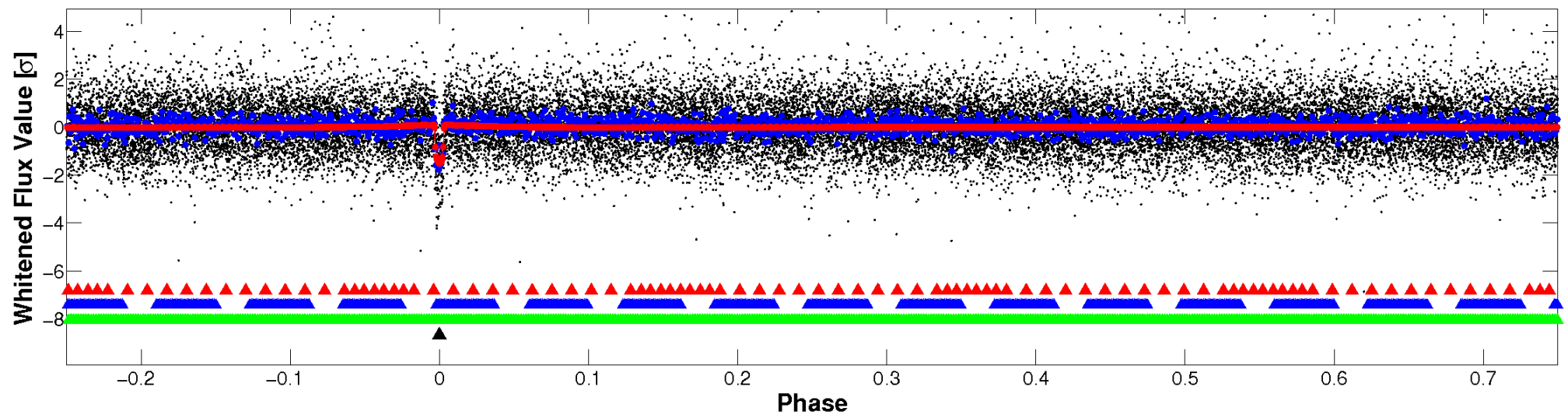


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

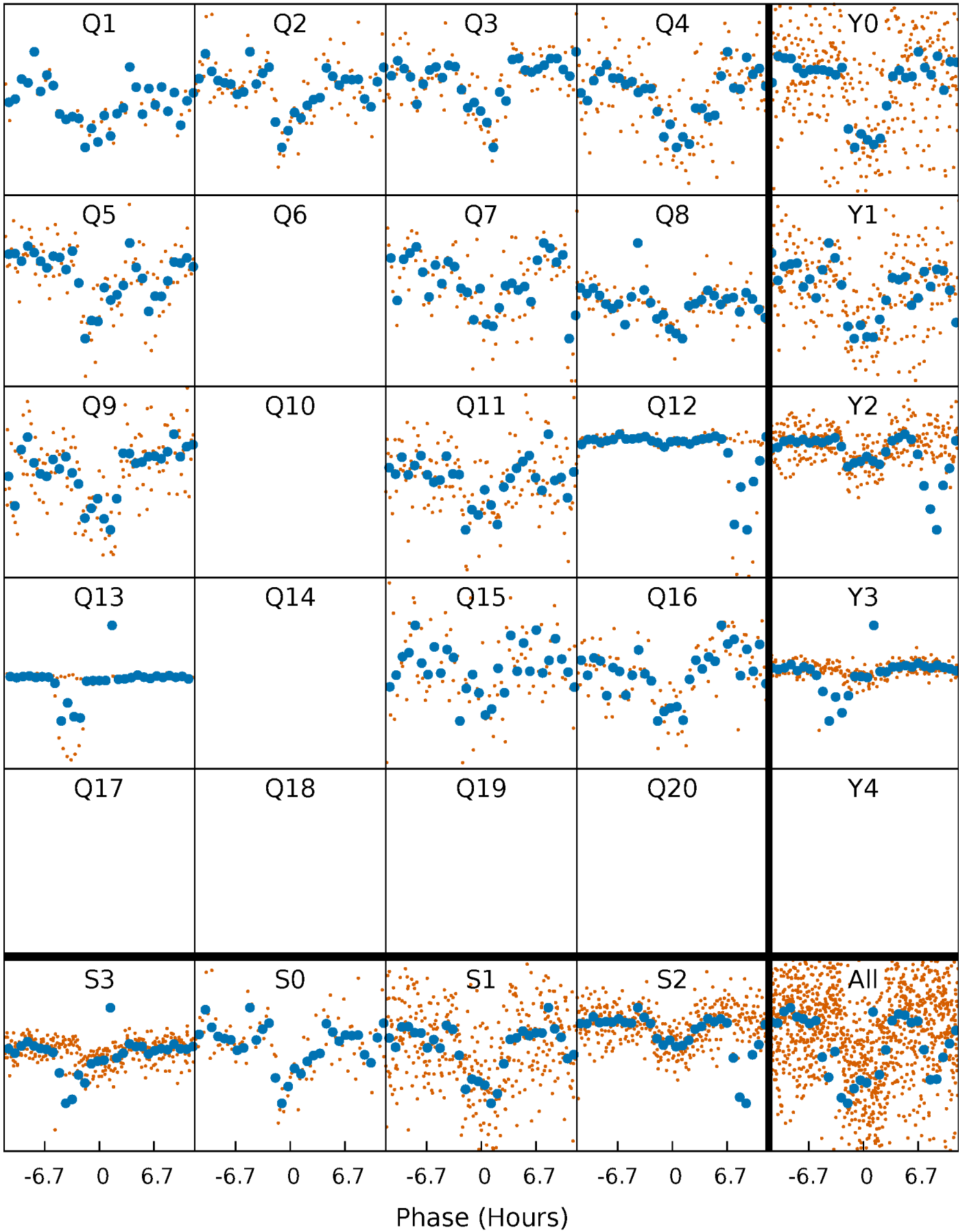


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



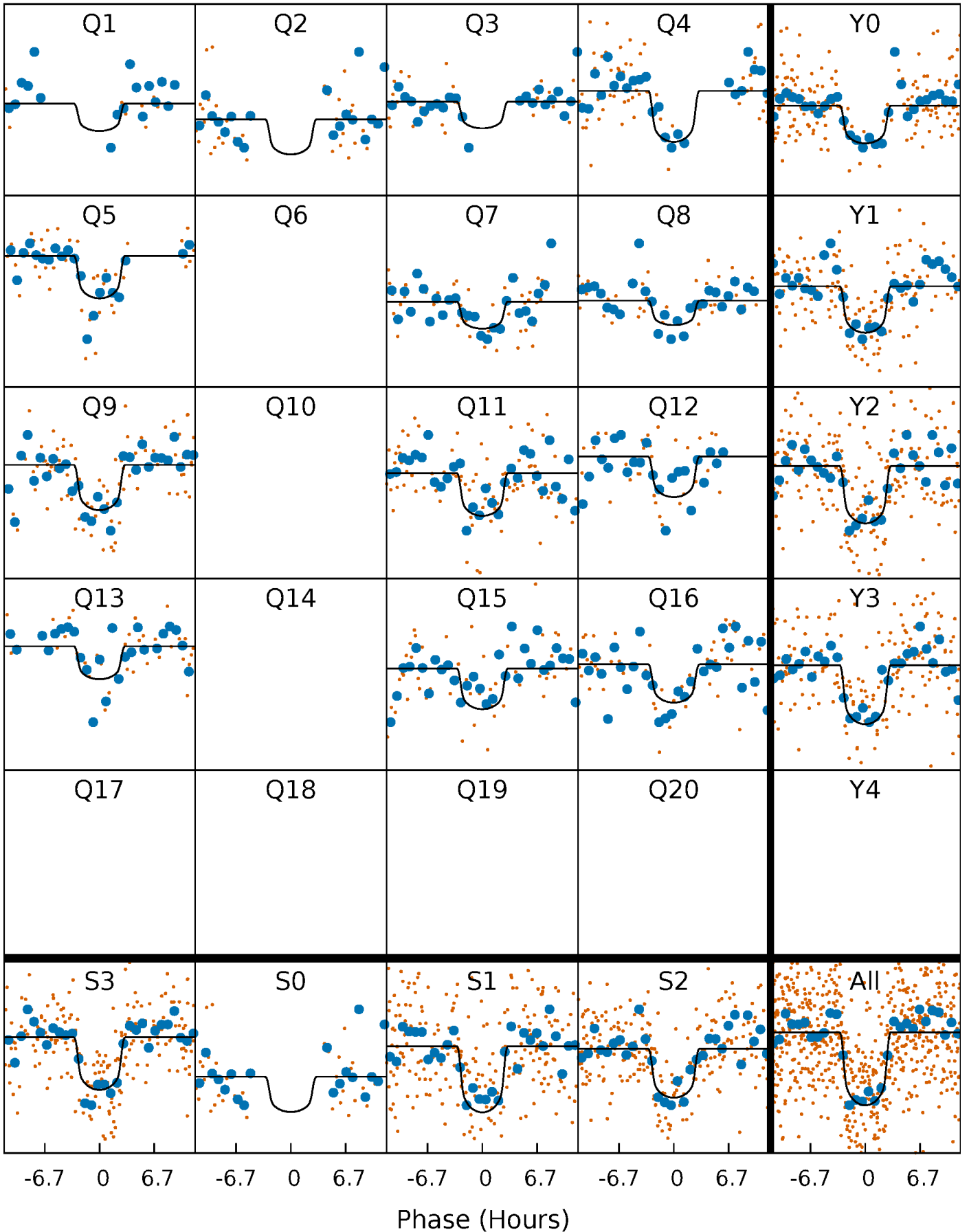
PDC Quarter-Phased Transit Curves

TCE 005972334-04 P= 38.652403 Days $T_0=164.032235$ (BKJD)



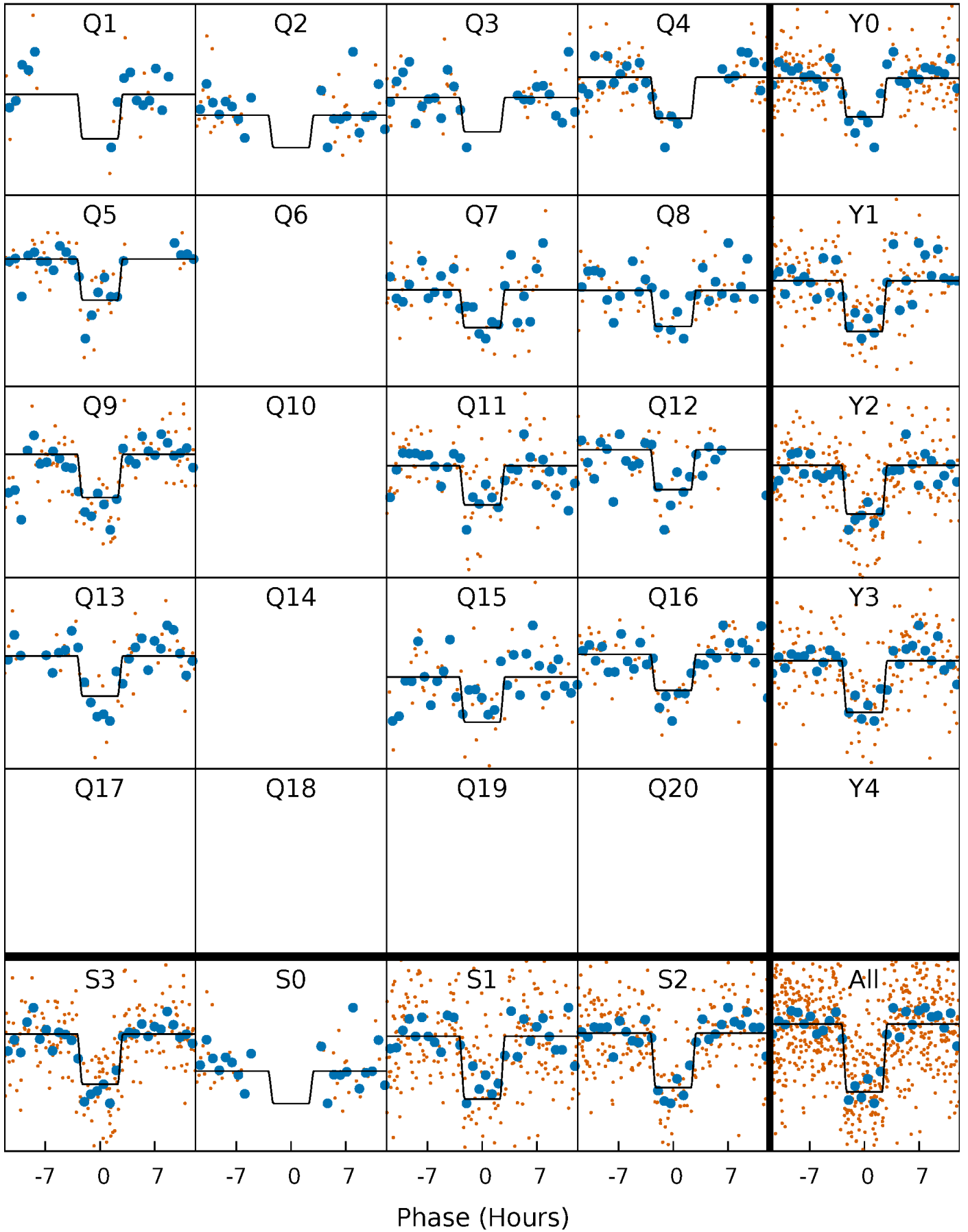
DV Quarter-Phased Transit Curves

TCE 005972334-04 P= 38.652403 Days $T_0=164.032235$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

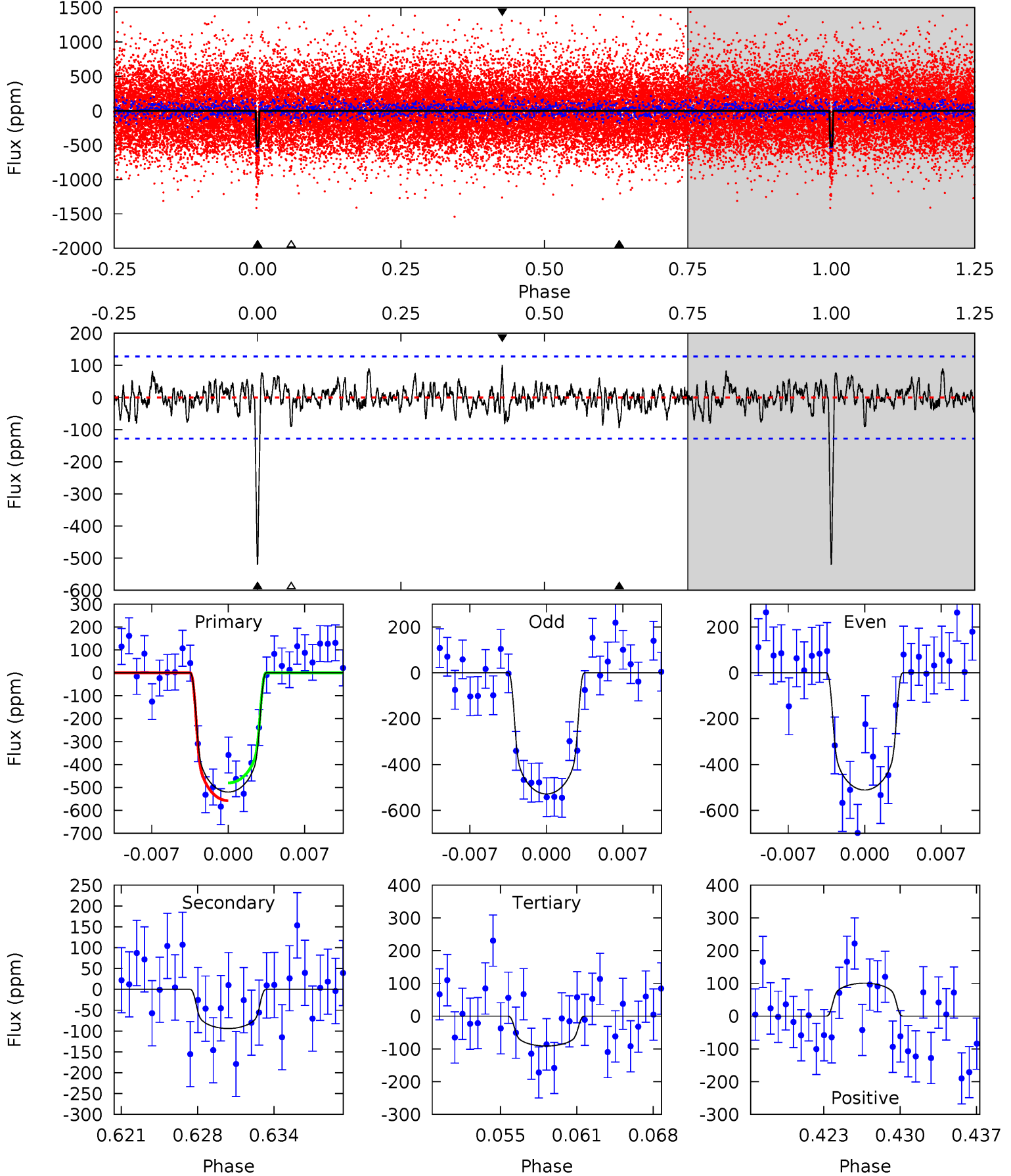
TCE 005972334-04 P= 38.651450 Days $T_0=164.053114$ (BKJD)



DV Model-Shift Uniqueness Test

005972334-04, P = 38.652403 Days, E = 125.379832 Days

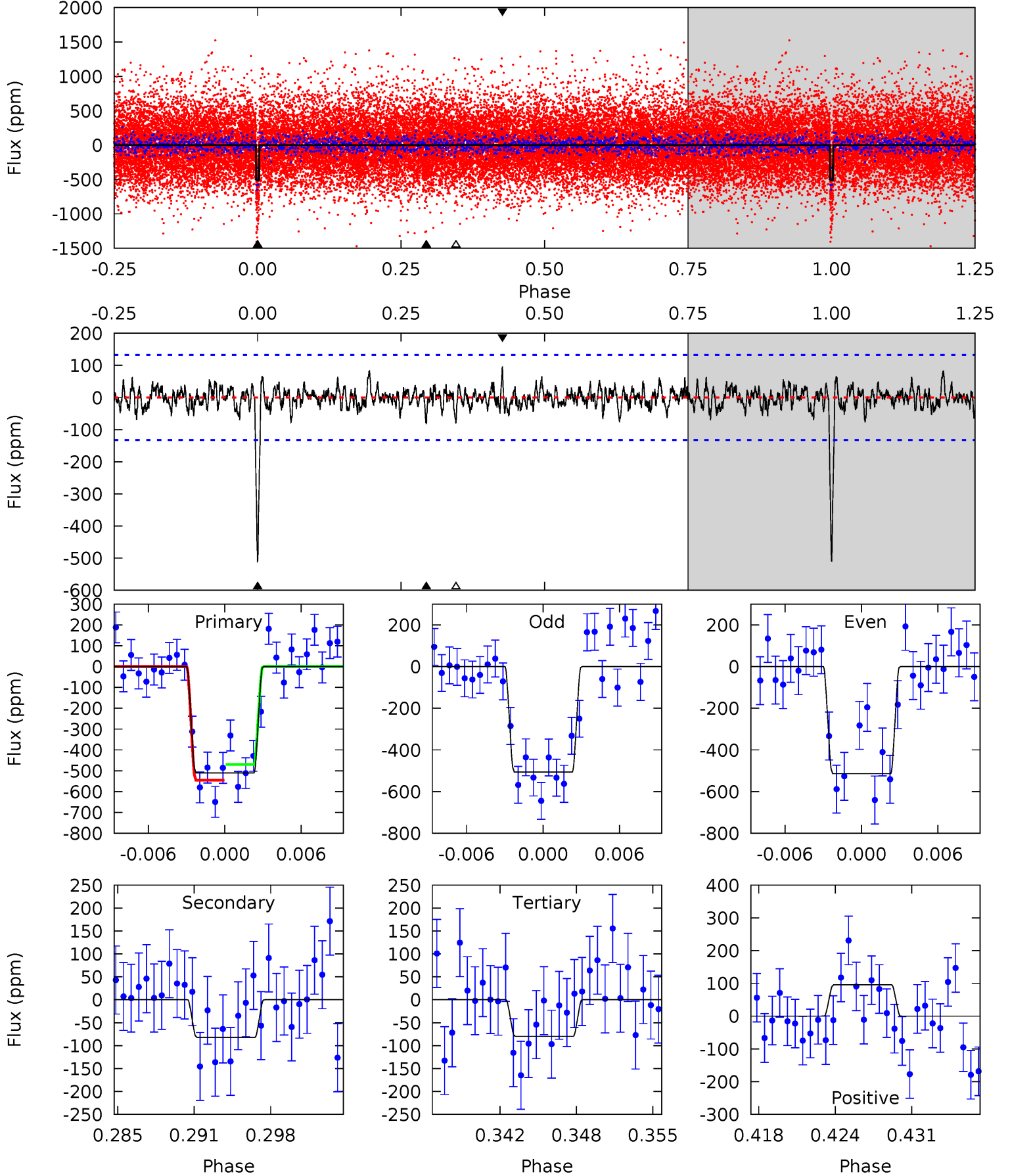
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	3.75	3.64	4.01	5.10	2.71	1.13	17.1	16.7	0.11	-0.26	0.34	0.93	0.16	1.54



Alt Model-Shift Uniqueness Test

005972334-04, P = 38.651450 Days, E = 125.401664 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.7	3.17	3.08	3.68	5.11	2.73	0.95	16.6	16.0	0.09	-0.51	0.15	1.02	0.16	1.44



Stellar Parameters For KIC 005972334

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5422^{+108}_{-108}	$4.484^{+0.063}_{-0.077}$	$0.020^{+0.150}_{-0.150}$	$0.887^{+0.090}_{-0.067}$	$0.874^{+0.055}_{-0.046}$	$1.766^{+0.454}_{-0.431}$
	+2%/-2%	+1%/-2%	+750%/-750%	+10%/-8%	+6%/-5%	+26%/-24%
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 005972334-04 / KOI 0191.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-94 ± 25	$2.36^{+0.54}_{-0.52}$	681^{+23}_{-20}	3783^{+395}_{-311}	420^{+311}_{-175}
Alt.	-82 ± 26	$2.25^{+0.53}_{-0.52}$	681^{+25}_{-20}	3744^{+426}_{-305}	385^{+354}_{-151}

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

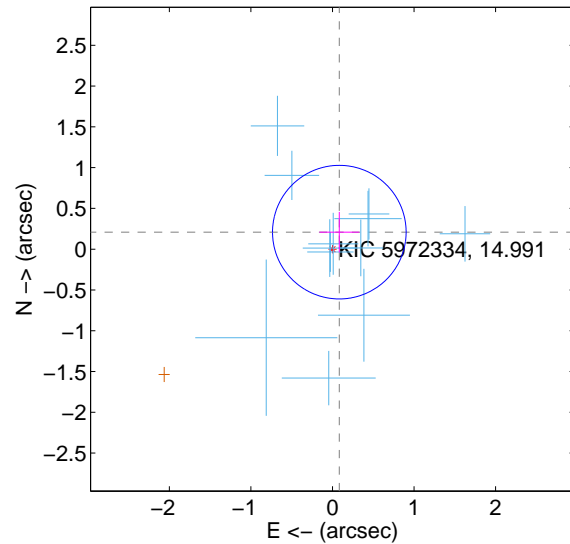
Supplemental centroid analysis for 005972334-04. Kepler magnitude: 14.99. Transit SNR 16.14

There are 12 quarters with good PRF difference image offsets

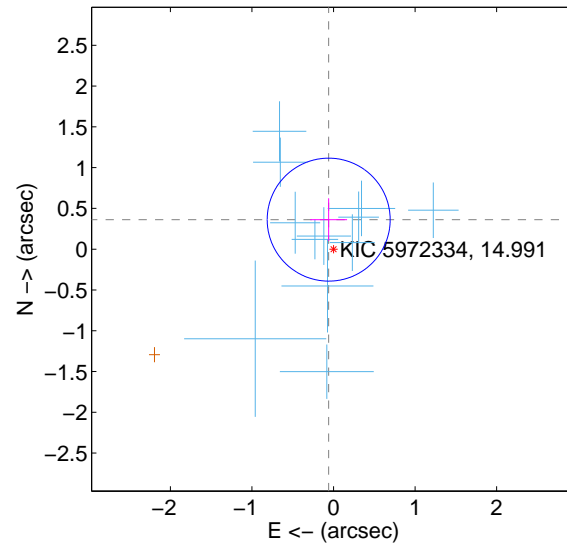
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.225 ± 0.273	0.82	-0.084 ± 0.245	0.209 ± 0.248
PRF-fit source offset from KIC position	0.367 ± 0.251	1.46	0.059 ± 0.225	0.362 ± 0.262
photometric centroid source offset	0.65 ± 0.61	1.06	0.16 ± 0.68	-0.62 ± 0.60

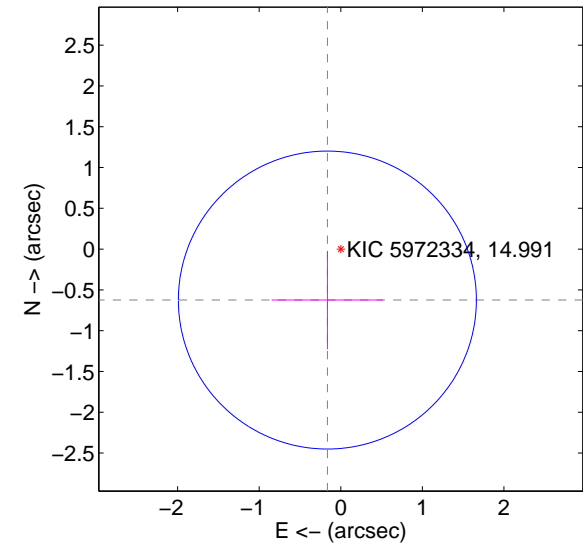
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

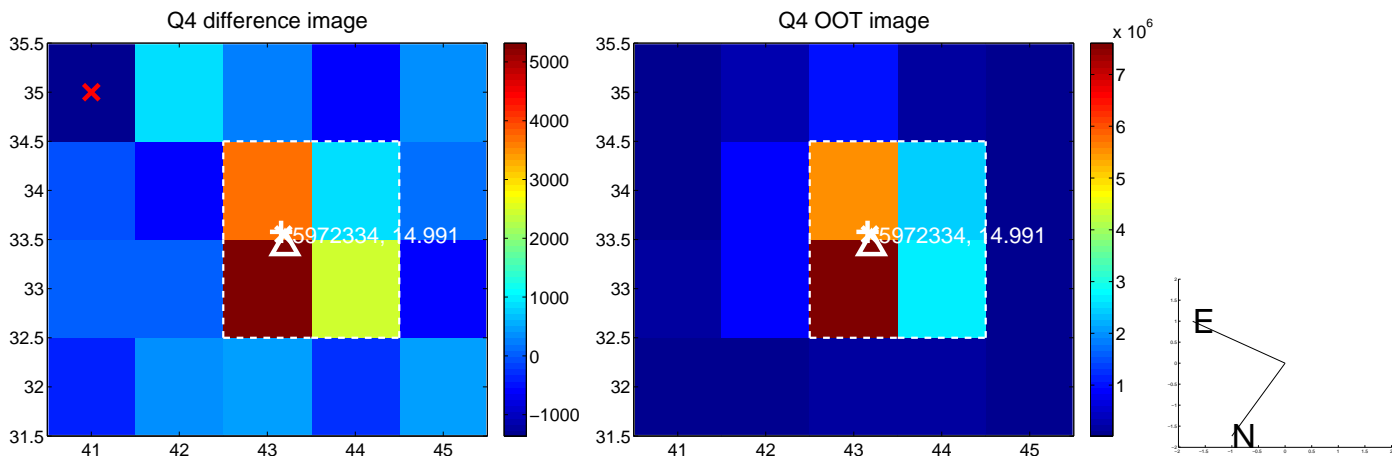
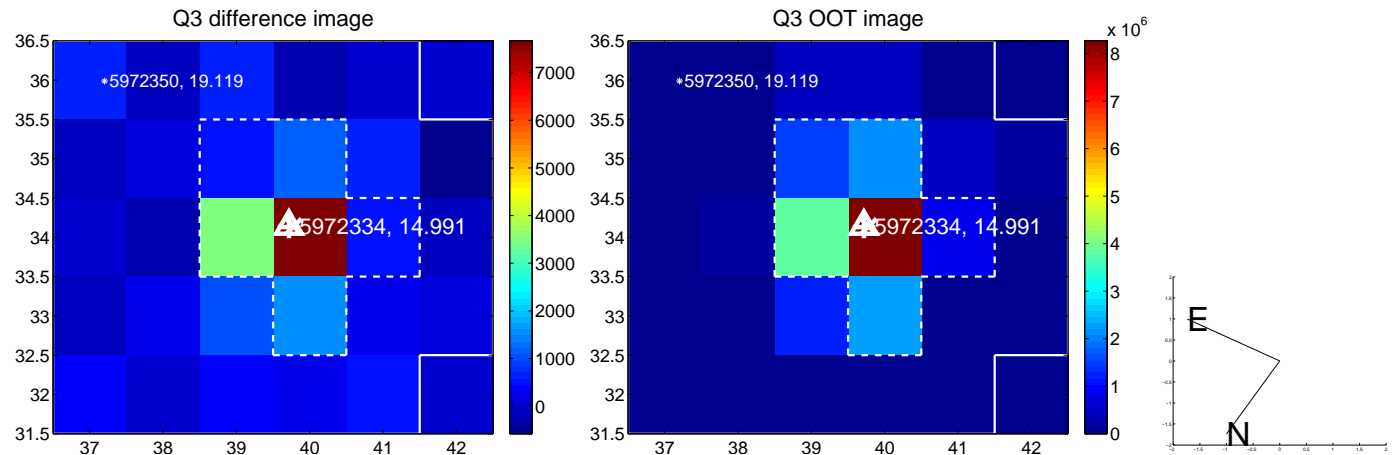
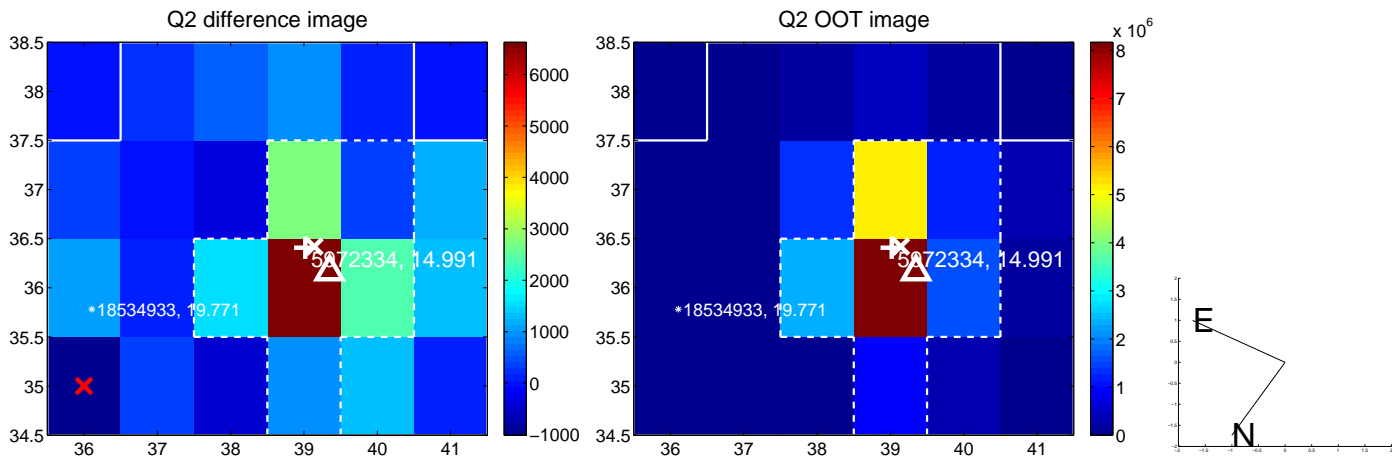
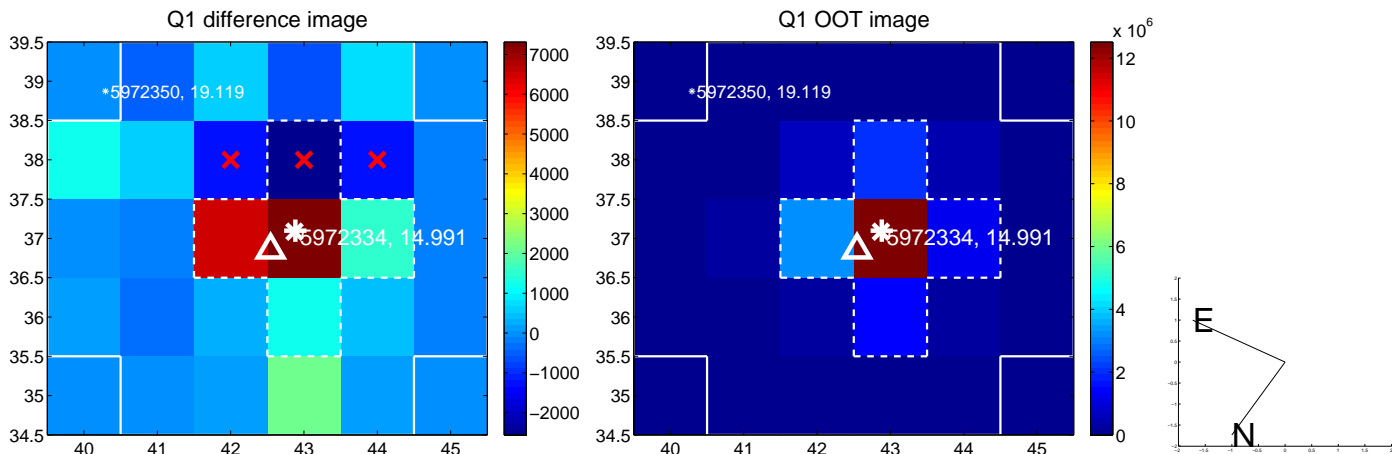


offset from photometric centroids

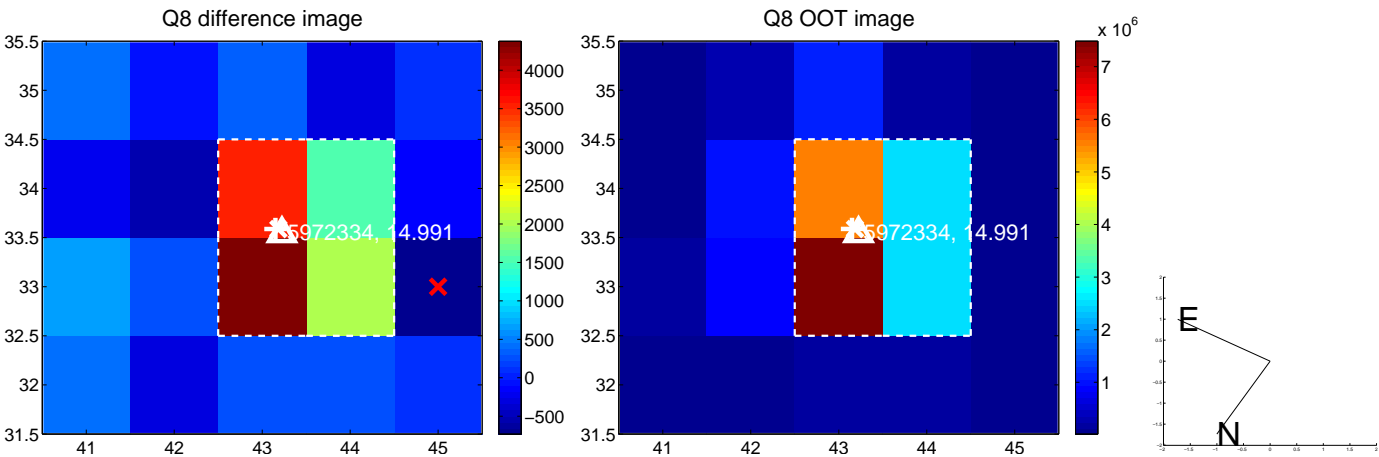
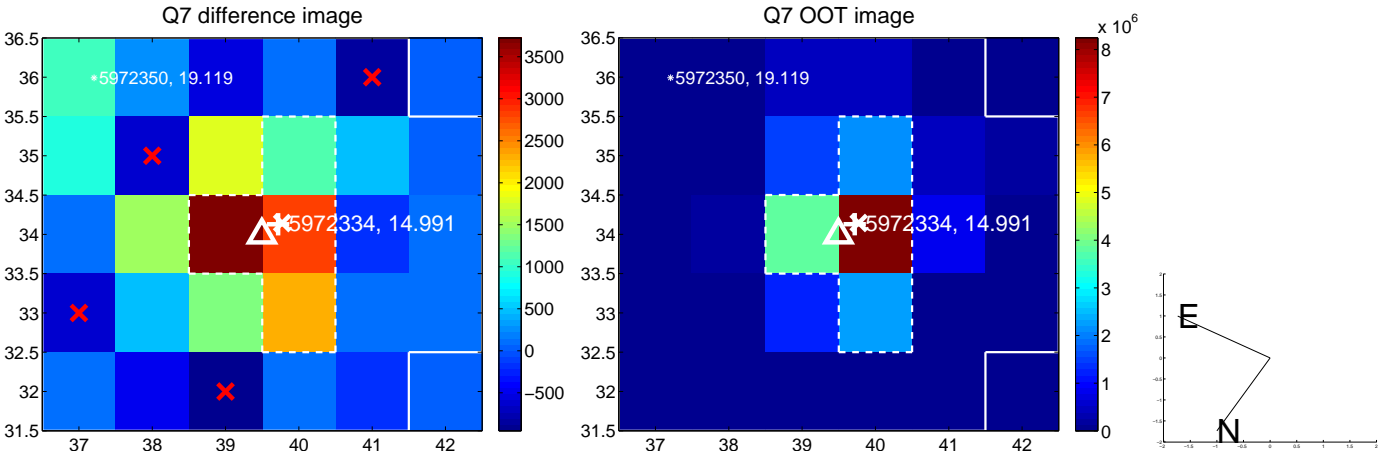
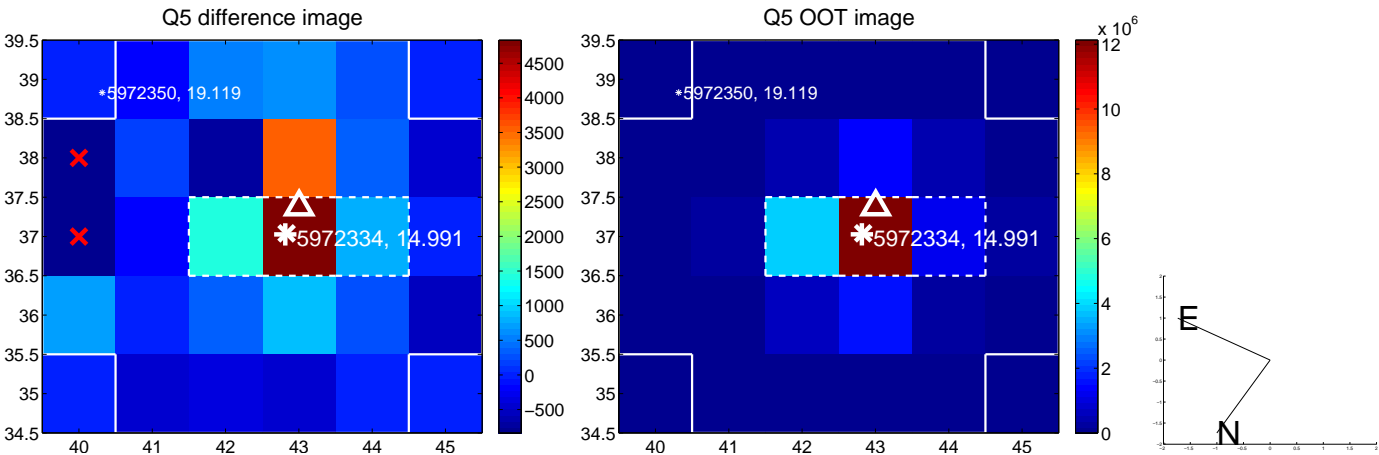


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

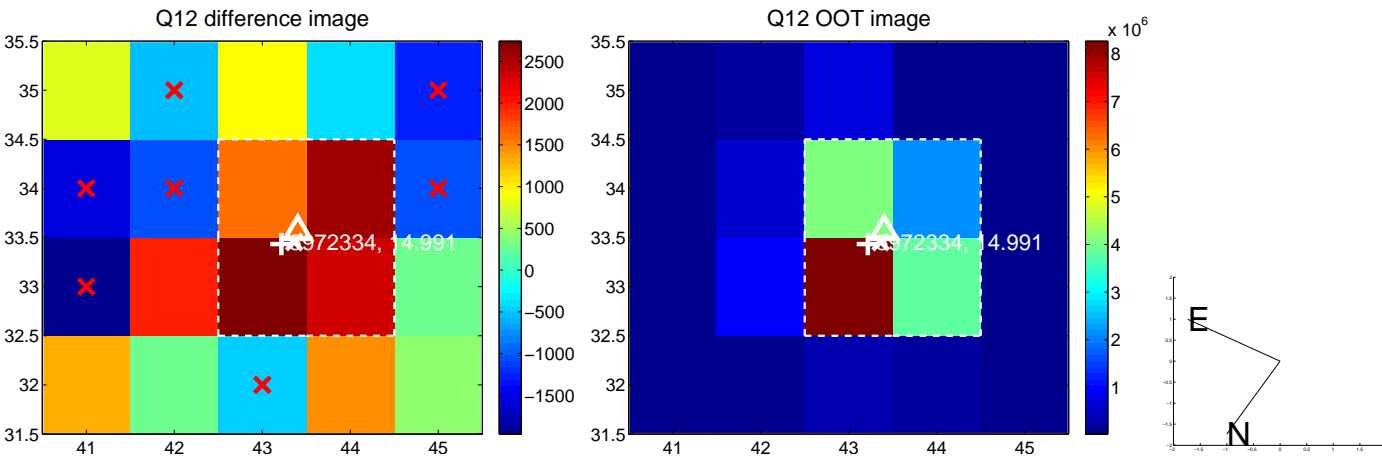
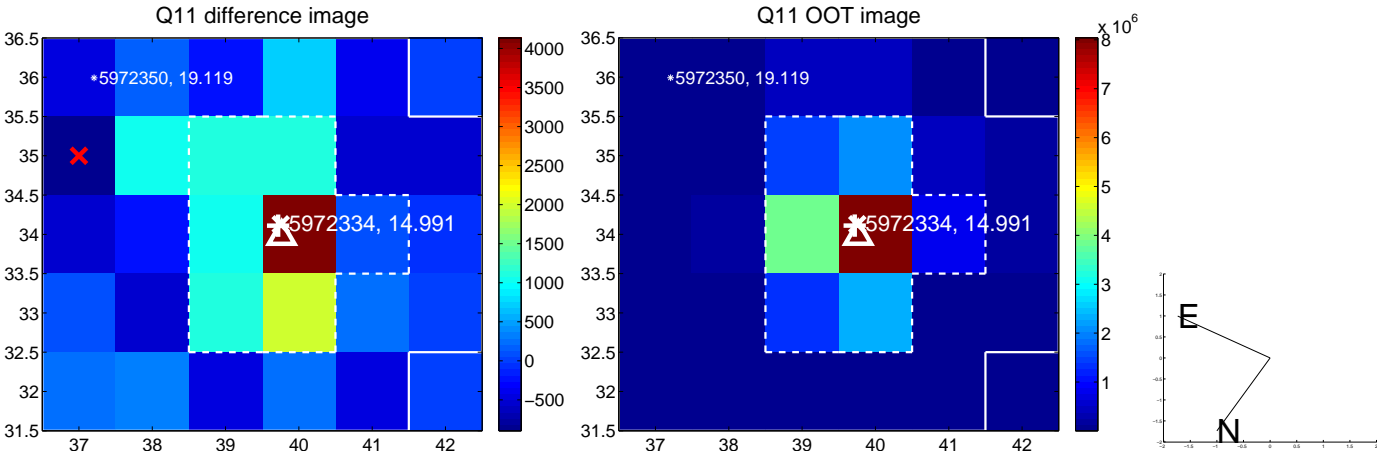
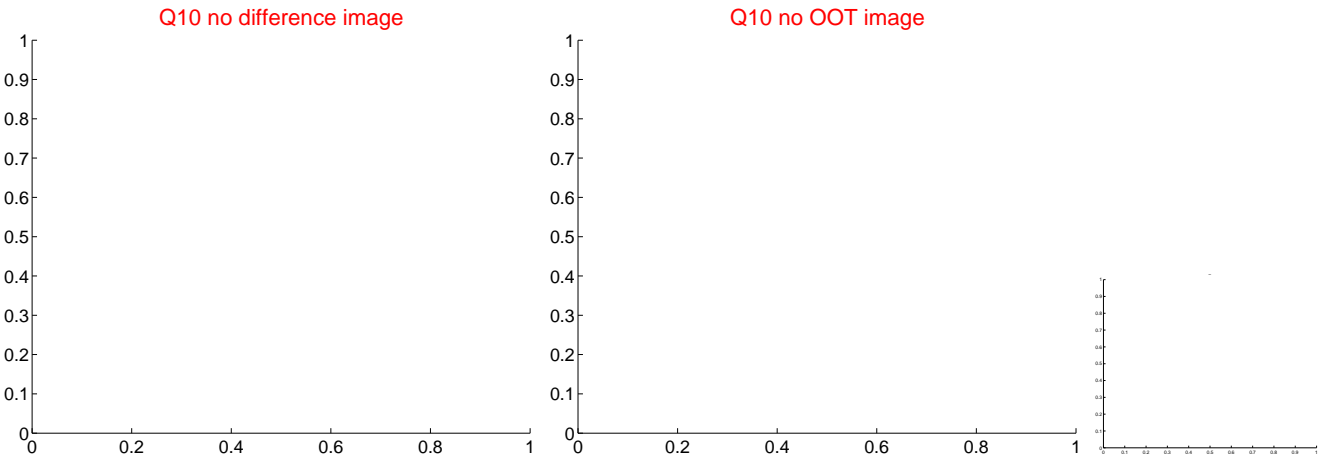
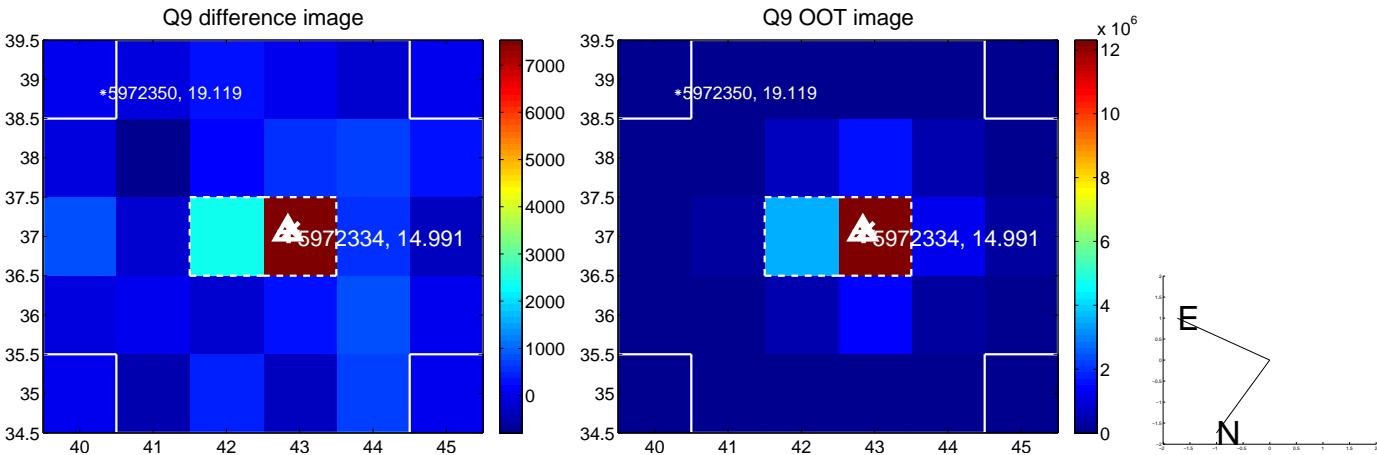
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



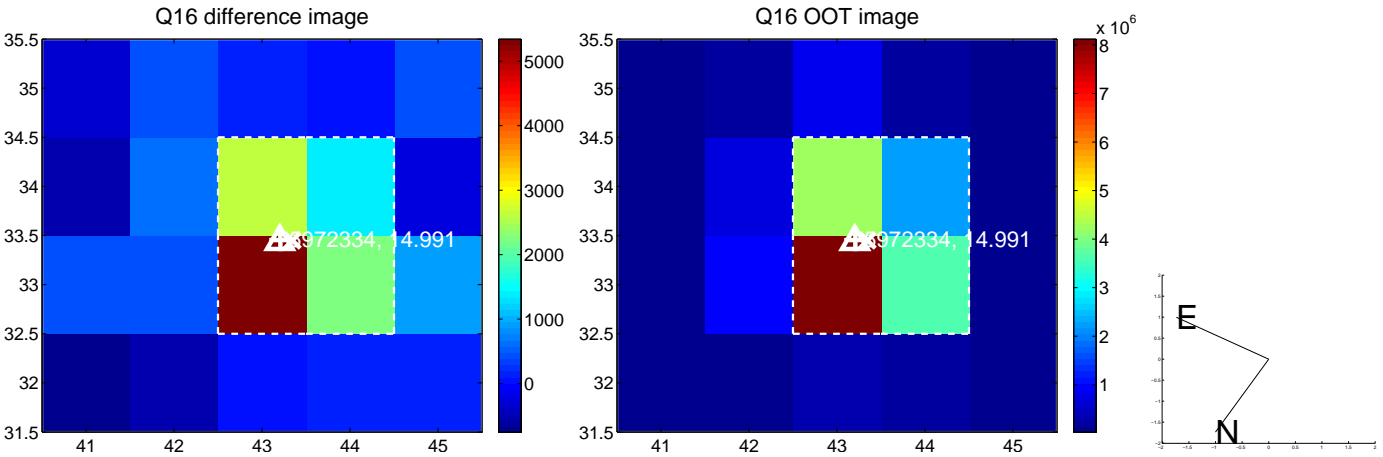
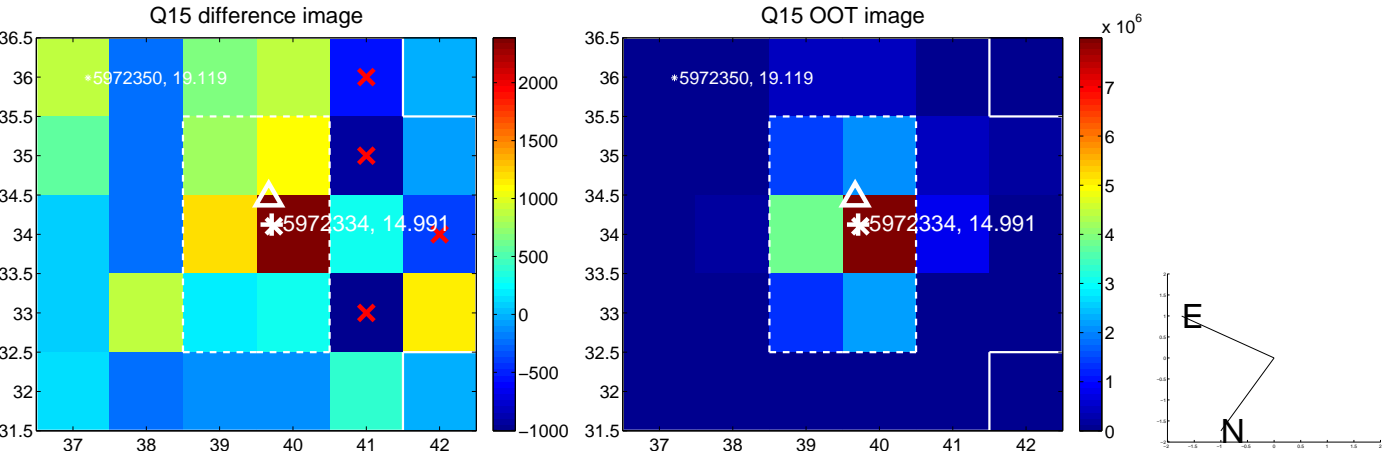
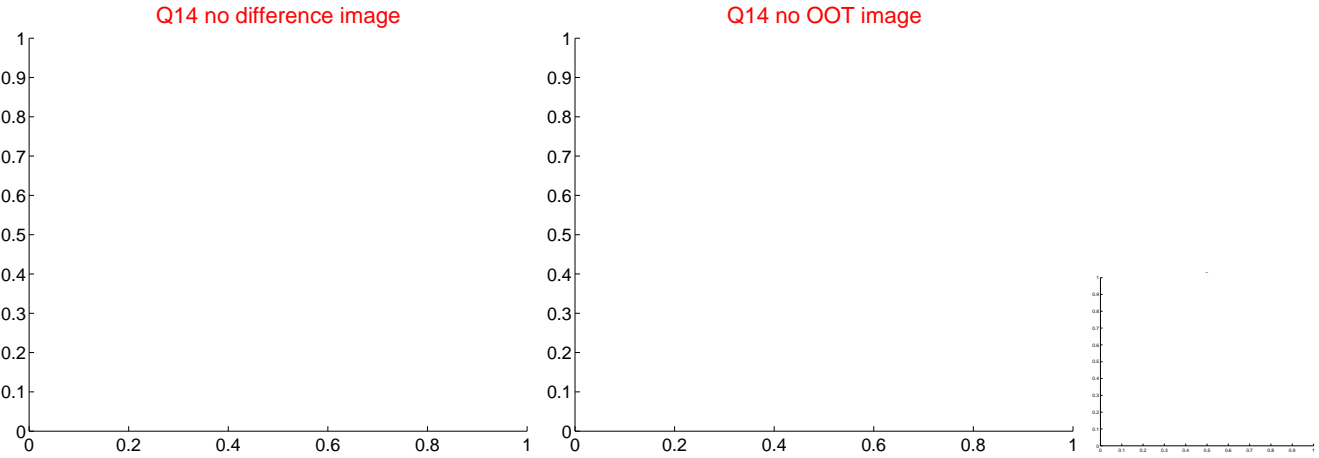
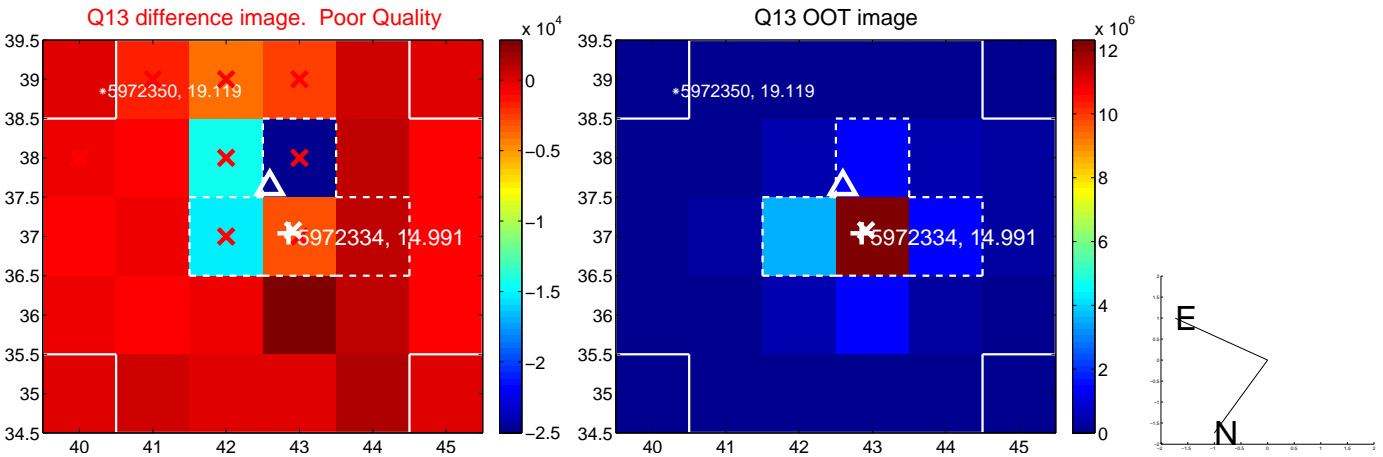
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



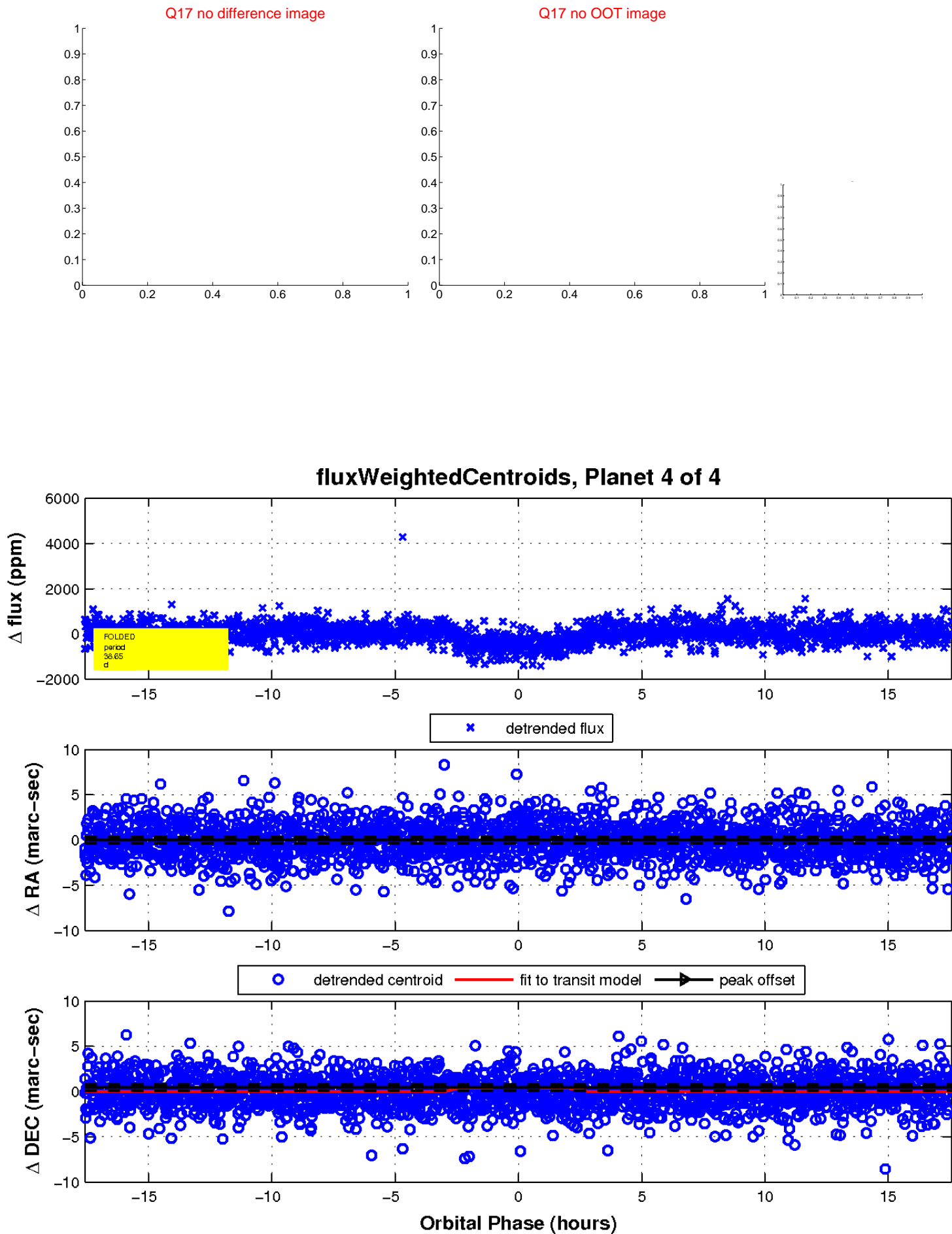
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

