

KIC 008120608

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})
008120608-01	OBS	0571.01	7.267295	137.977903	654.7	2.421	38.0	41.6	0.44	3751	1.29	10.96
008120608-02	OBS	0571.02	13.343020	136.873778	808.7	2.920	36.2	41.0	0.44	3751	1.42	4.88
008120608-03	OBS	0571.03	3.886806	133.326924	466.6	1.940	34.2	38.9	0.44	3751	1.12	25.25
008120608-04	OBS	0571.04	22.407747	153.798646	645.8	3.469	23.6	26.3	0.44	3751	1.26	2.44
008120608-05	OBS	0571.05	129.945688	176.829176	454.2	5.569	7.7	8.6	0.44	3751	1.02	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008120608-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-05	OBS	PC	0.68	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.

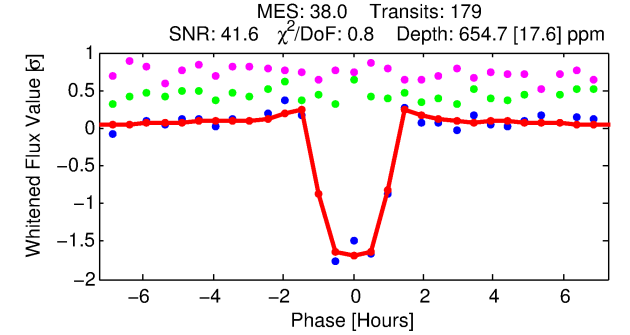
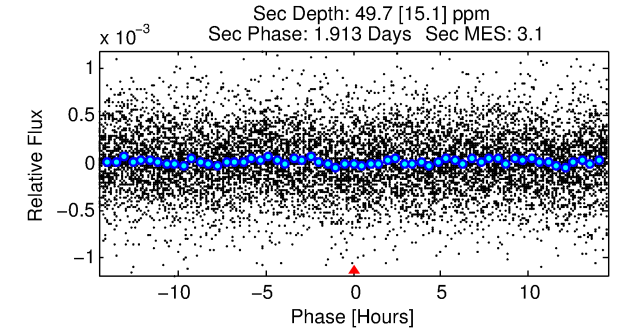
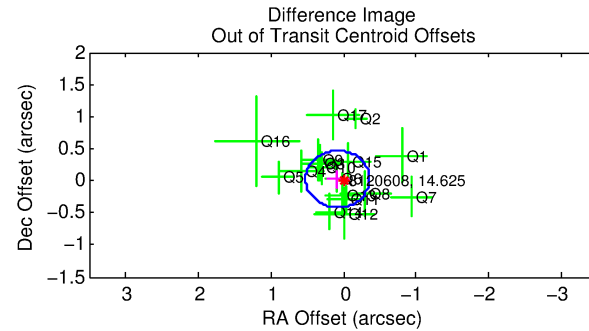
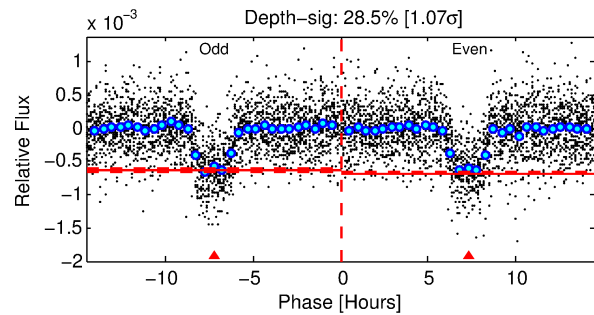
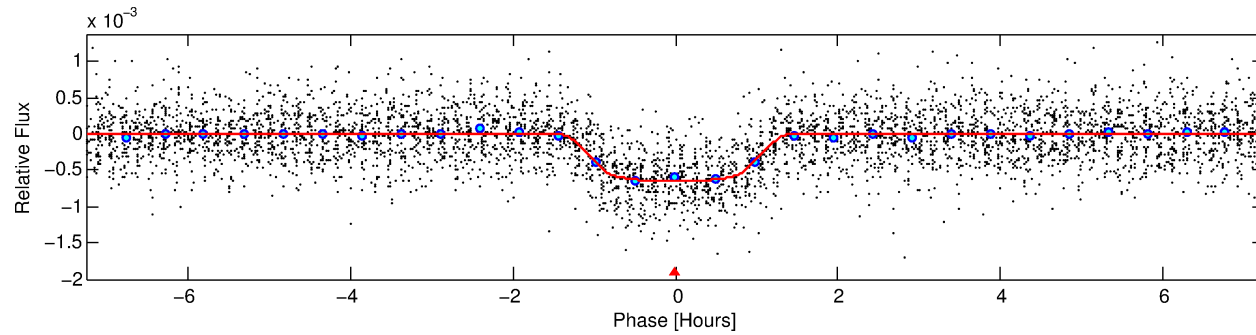
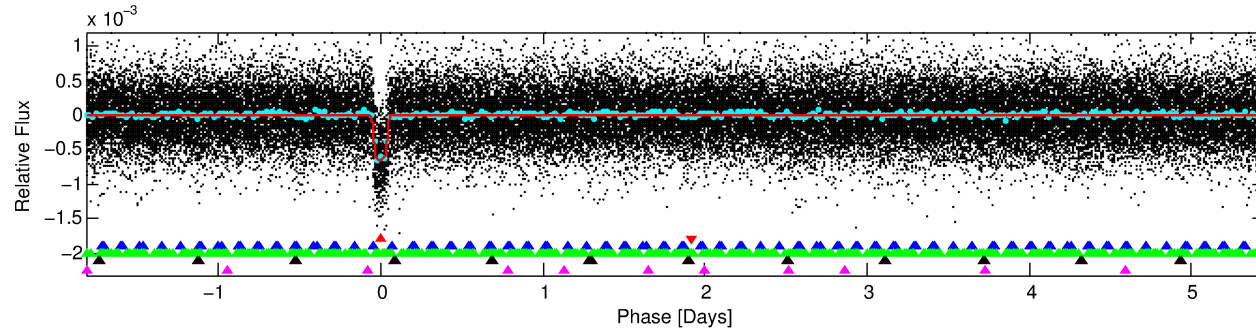
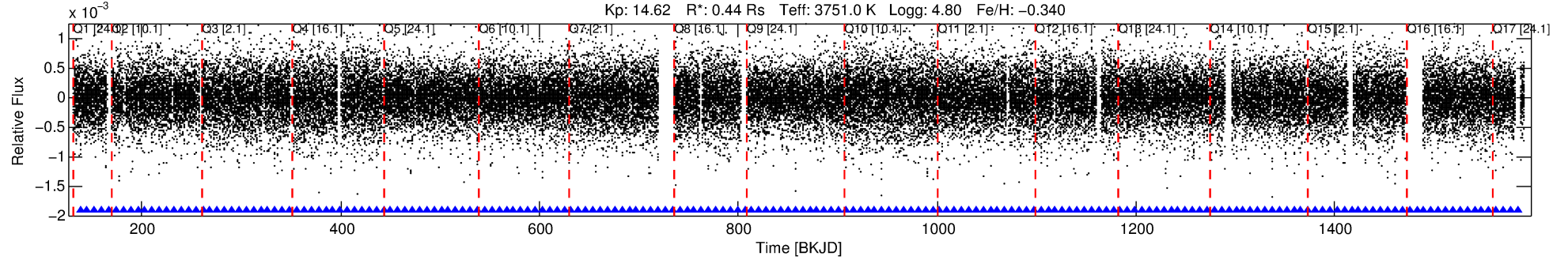
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008120608-01

No Significant Match Found

DV One-Page Summary

KIC: 8120608 Candidate: 1 of 5 Period: 7.267 d
KOI: K00571.01 Name: Kepler-186c Corr: 0.971



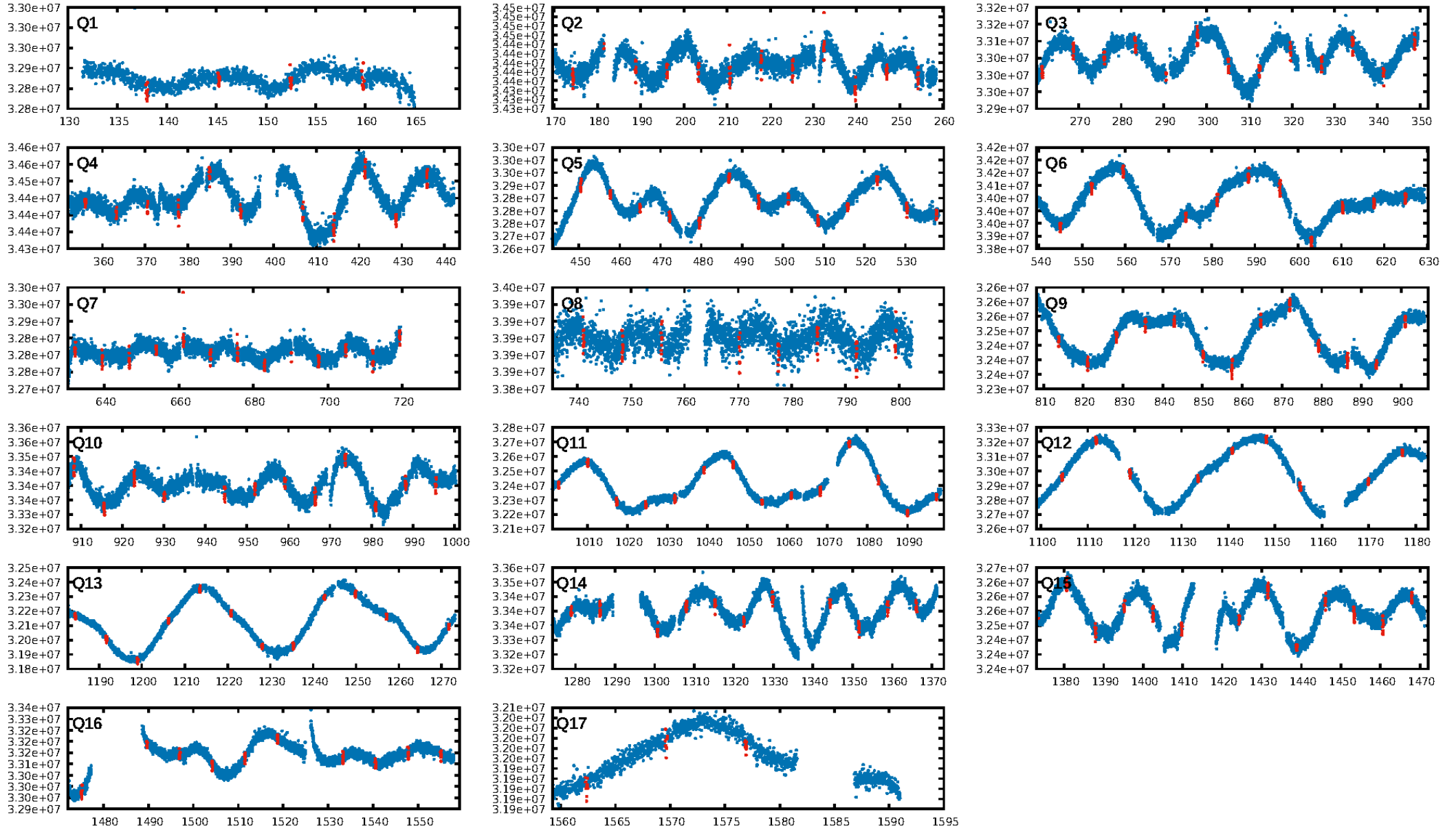
DV Fit Results:

Period = 7.26730 [0.00001] d
Epoch = 137.9779 [0.0011] BKJD
Rp/R* = 0.0267 [0.0027]
a/R* = 12.89 [6.27]
b = 0.86 [0.15]
Seff = 10.96 [1.71]
Teff = 464 [18] K
Rp = 1.29 [0.20] Re
a = 0.0563 [0.0053] AU
Ag = 51.89 [19.98] [2.55 σ]
Teffp = 1925 [180] K [8.07 σ]

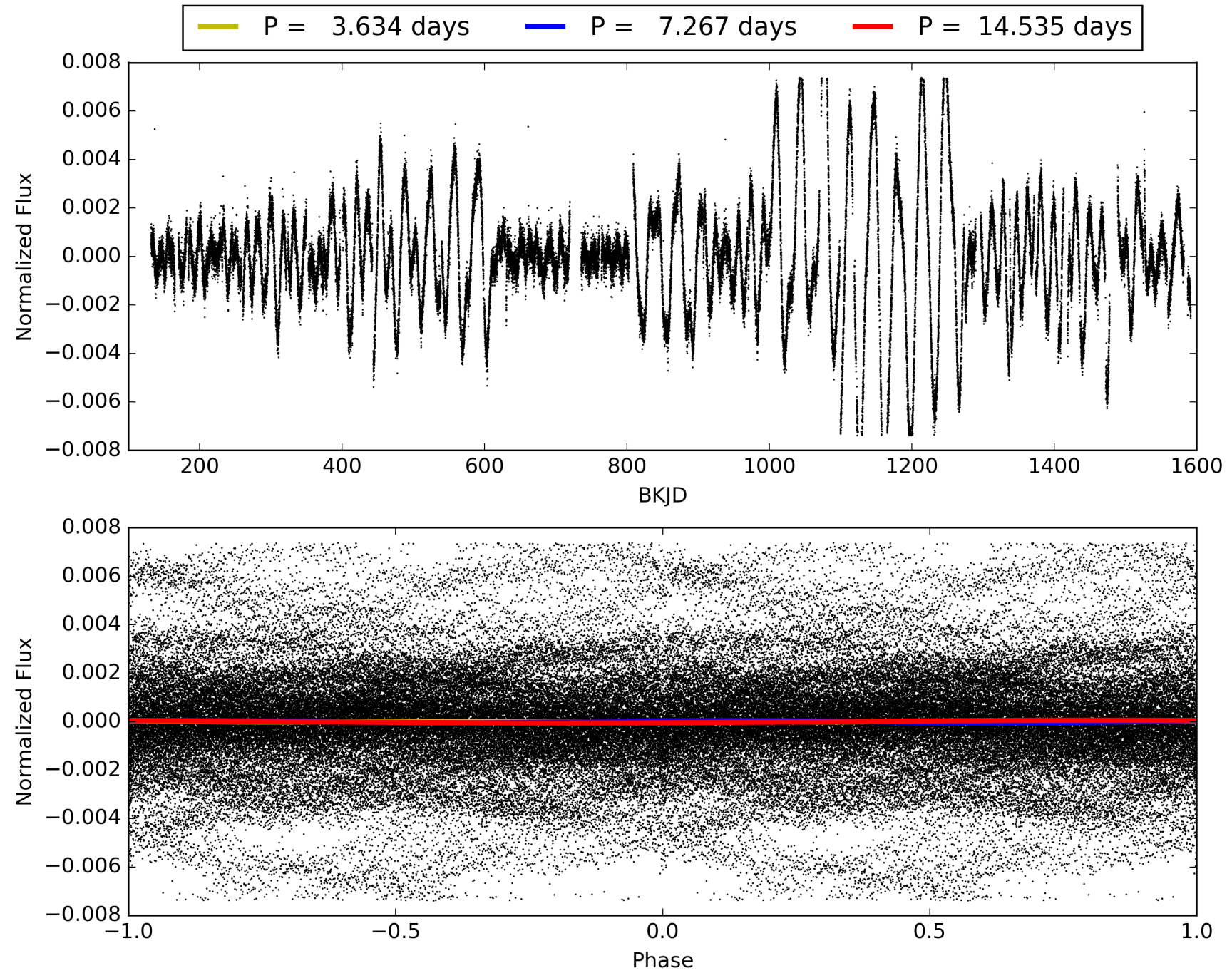
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.15 σ]
LongPeriod-sig: 100.0% [38.44 σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.78e-306
RollingBand-fgt: 1.00 [172/172]
GhostDiagnostic-chr: 3.465
Centroid-sig: 71.7%
Centroid-so: 0.366 arcsec [1.23 σ]
OotOffset-rm: 0.086 arcsec [0.58 σ]
KicOffset-rm: 0.215 arcsec [1.64 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008120608-01, PDC Light Curves

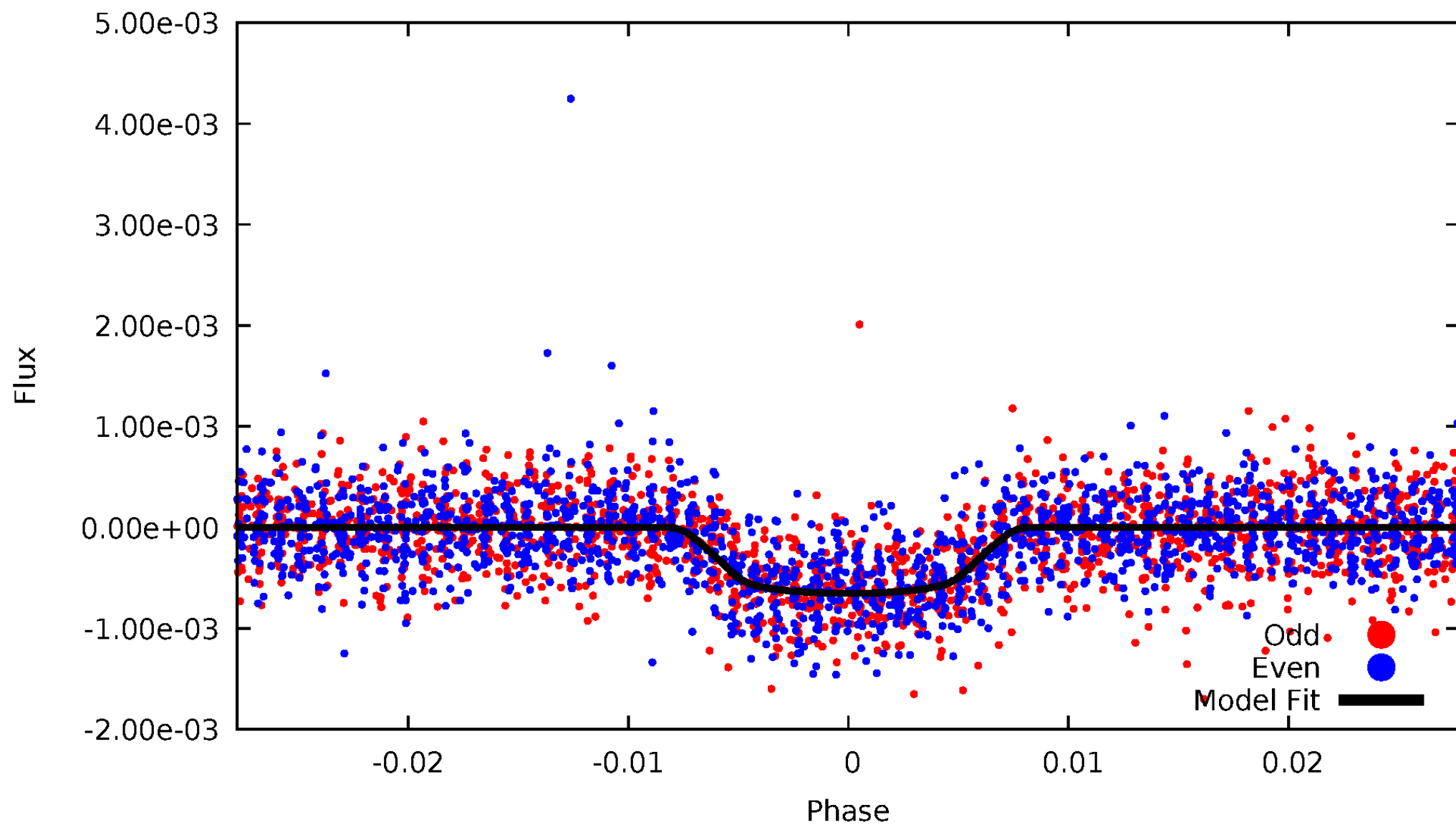


TCE 008120608-01



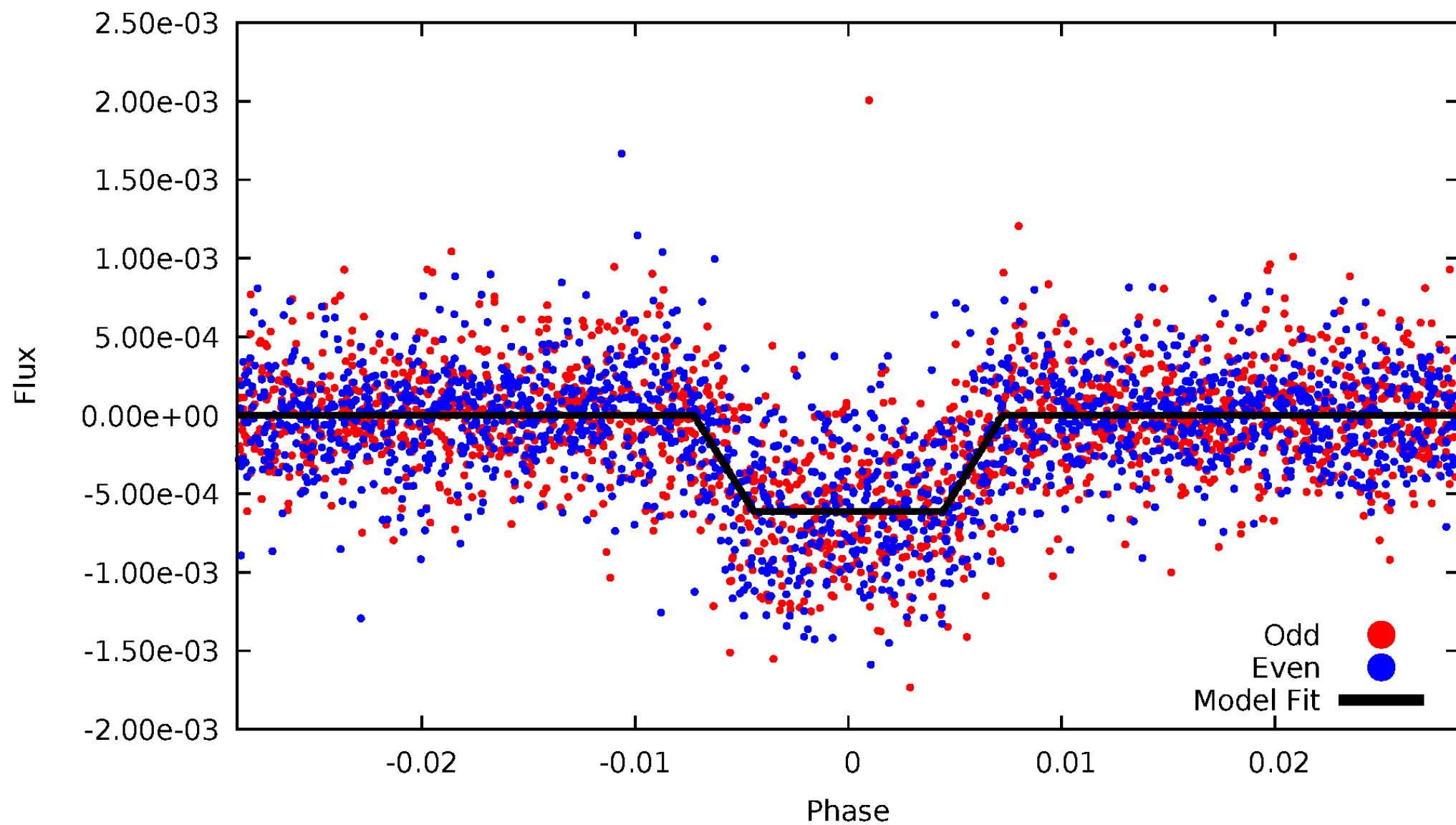
DV Odd/Even

TCE 008120608-01



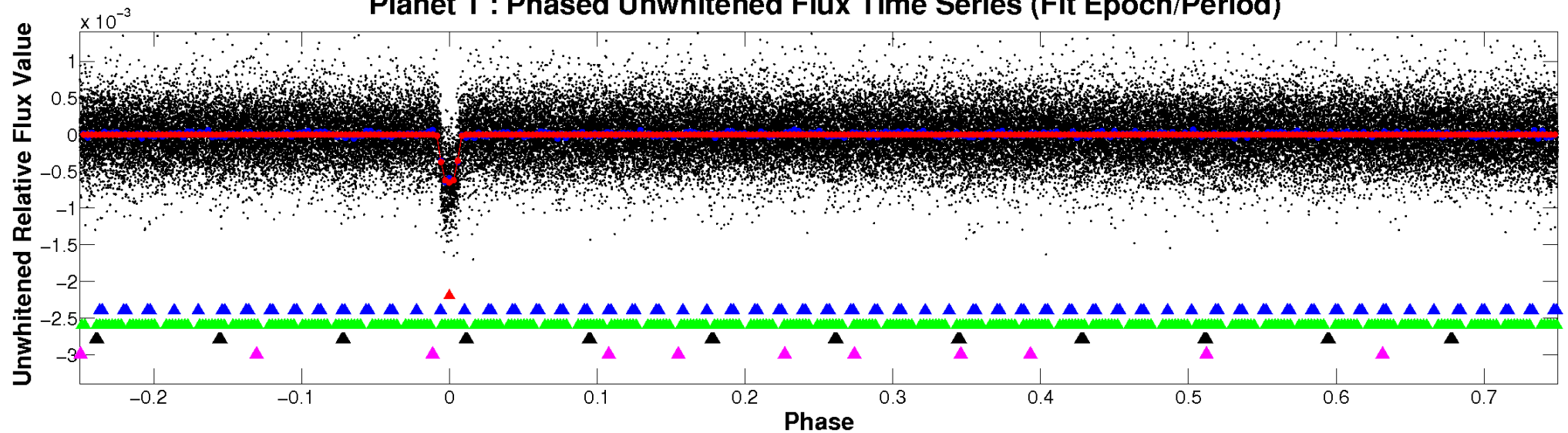
ALT Odd/Even

TCE 008120608-01

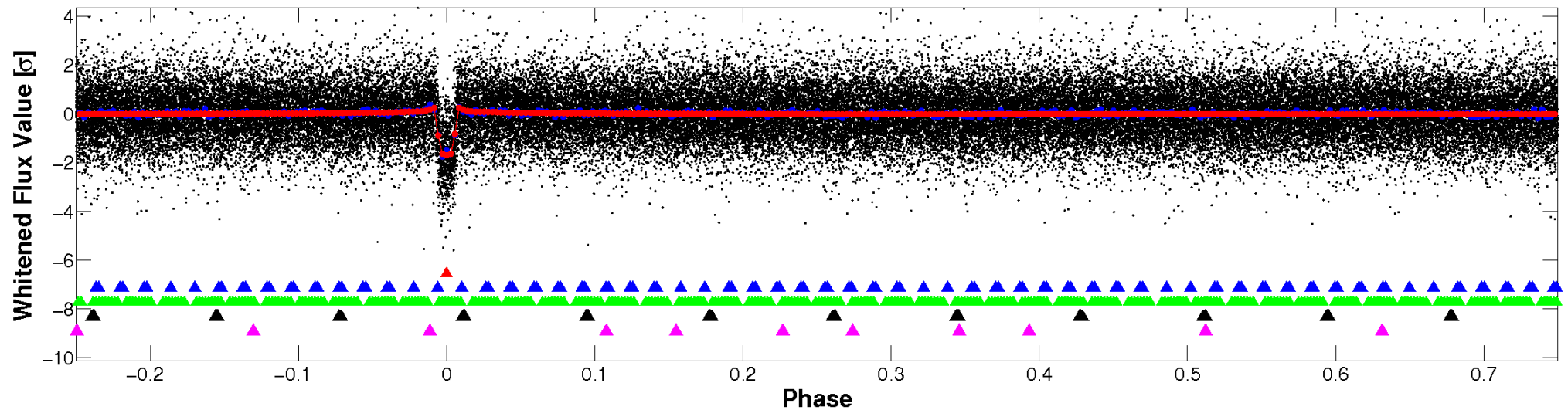


Non-Whitened Vs. Whitened Light Curve

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

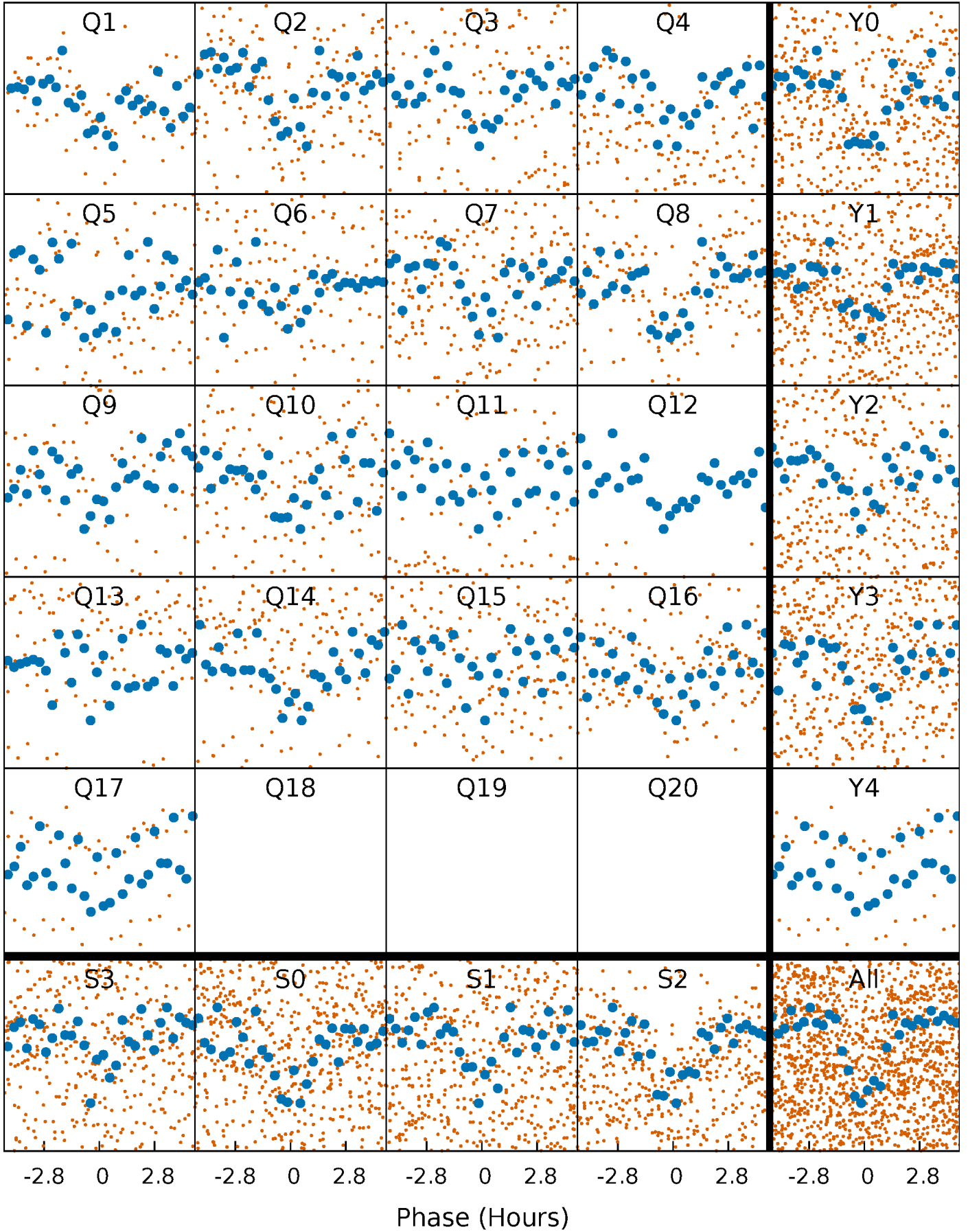


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



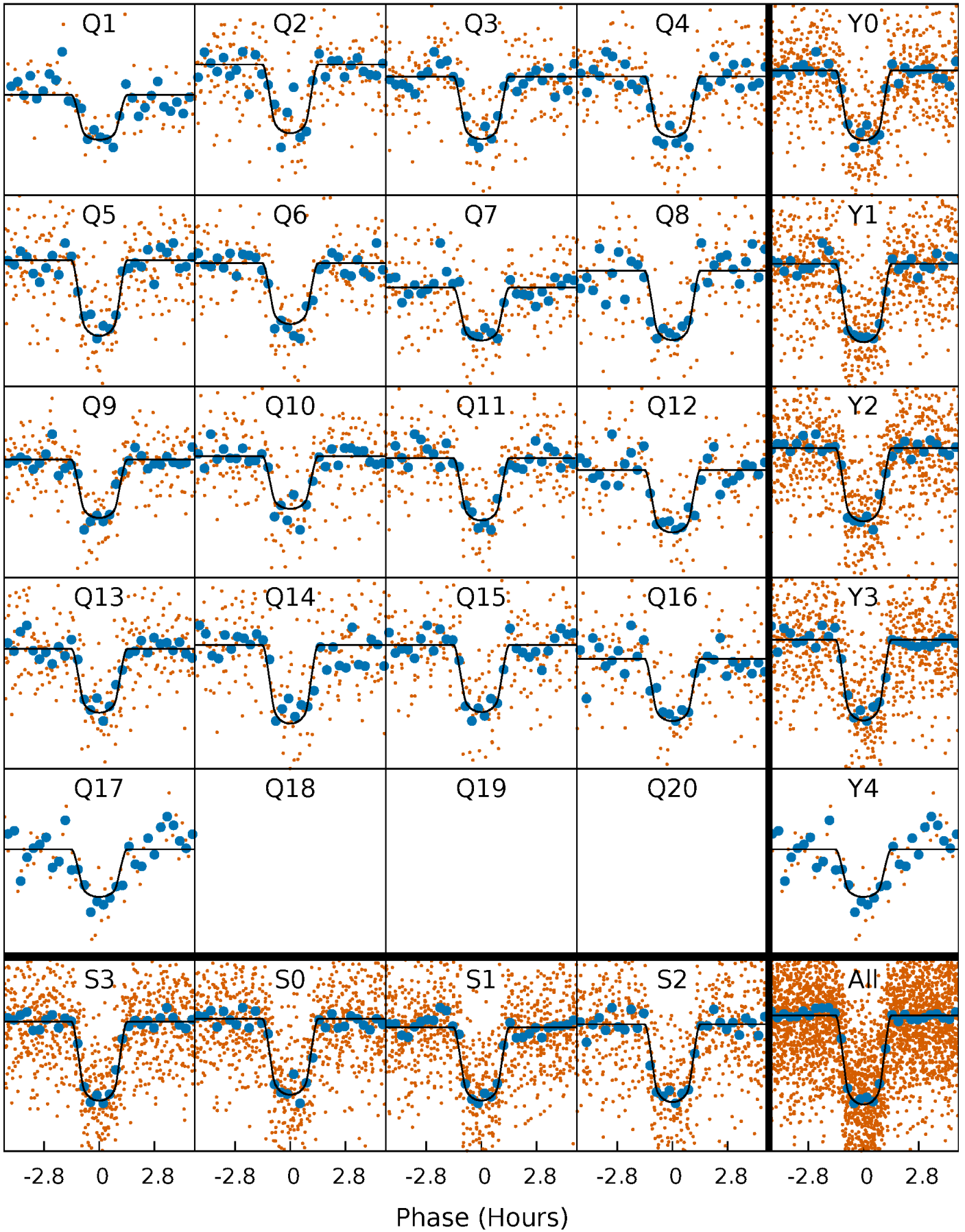
PDC Quarter-Phased Transit Curves

TCE 008120608-01 P= 7.267295 Days $T_0=137.977903$ (BKJD)



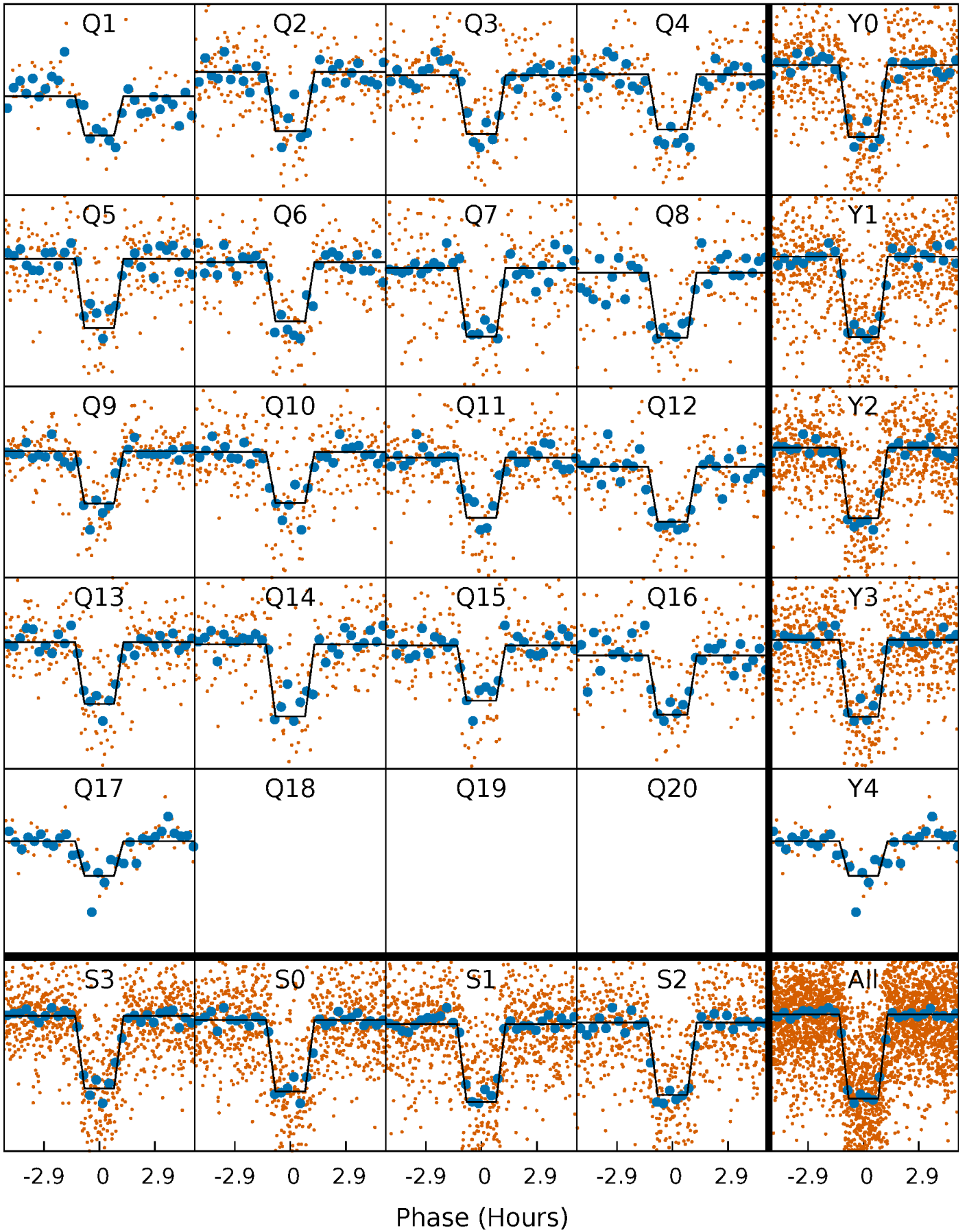
DV Quarter-Phased Transit Curves

TCE 008120608-01 P= 7.267295 Days $T_0=137.977903$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

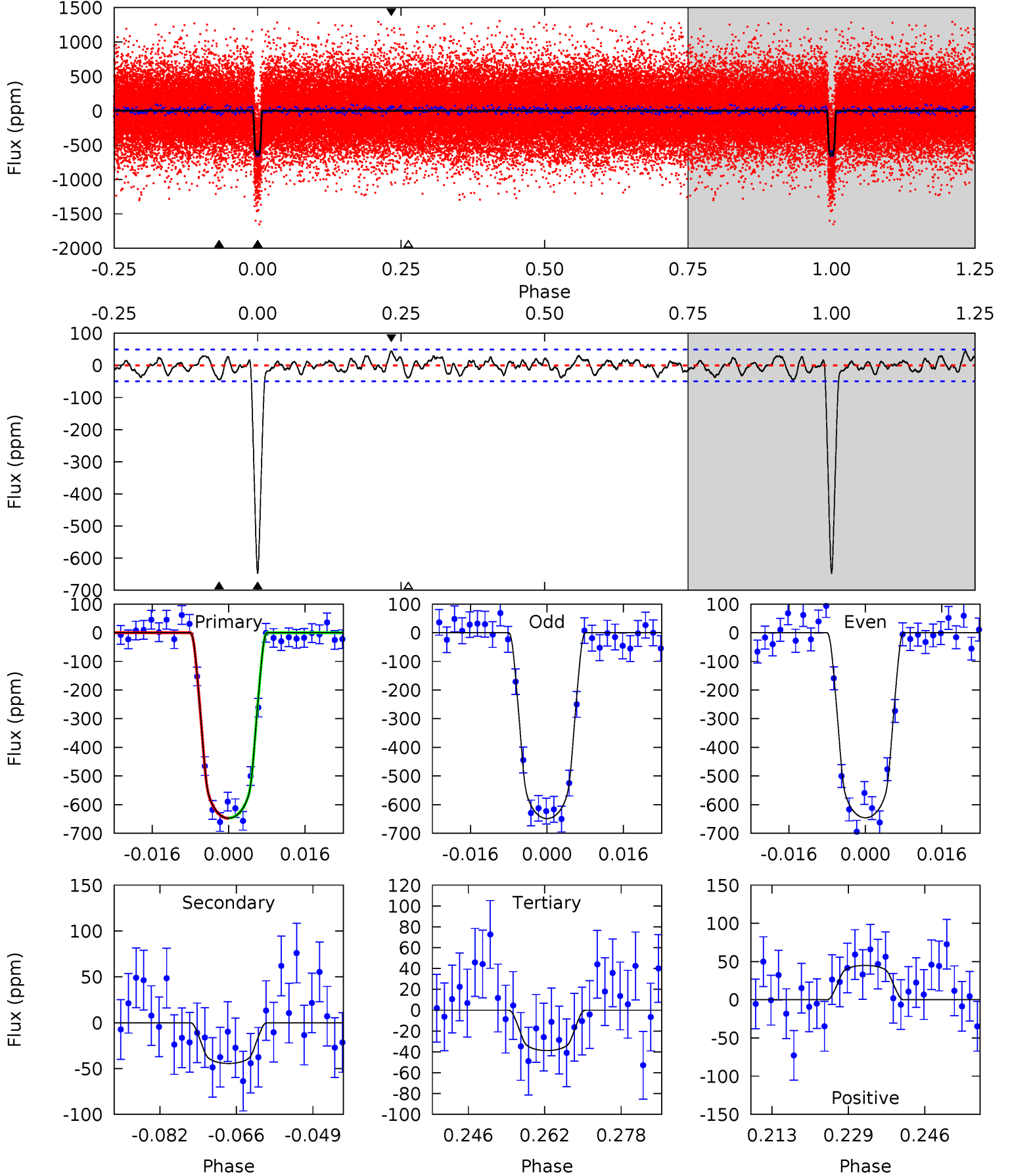
TCE 008120608-01 P= 7.267336 Days $T_0=137.973927$ (BKJD)



DV Model-Shift Uniqueness Test

008120608-01, P = 7.267295 Days, E = 130.710608 Days

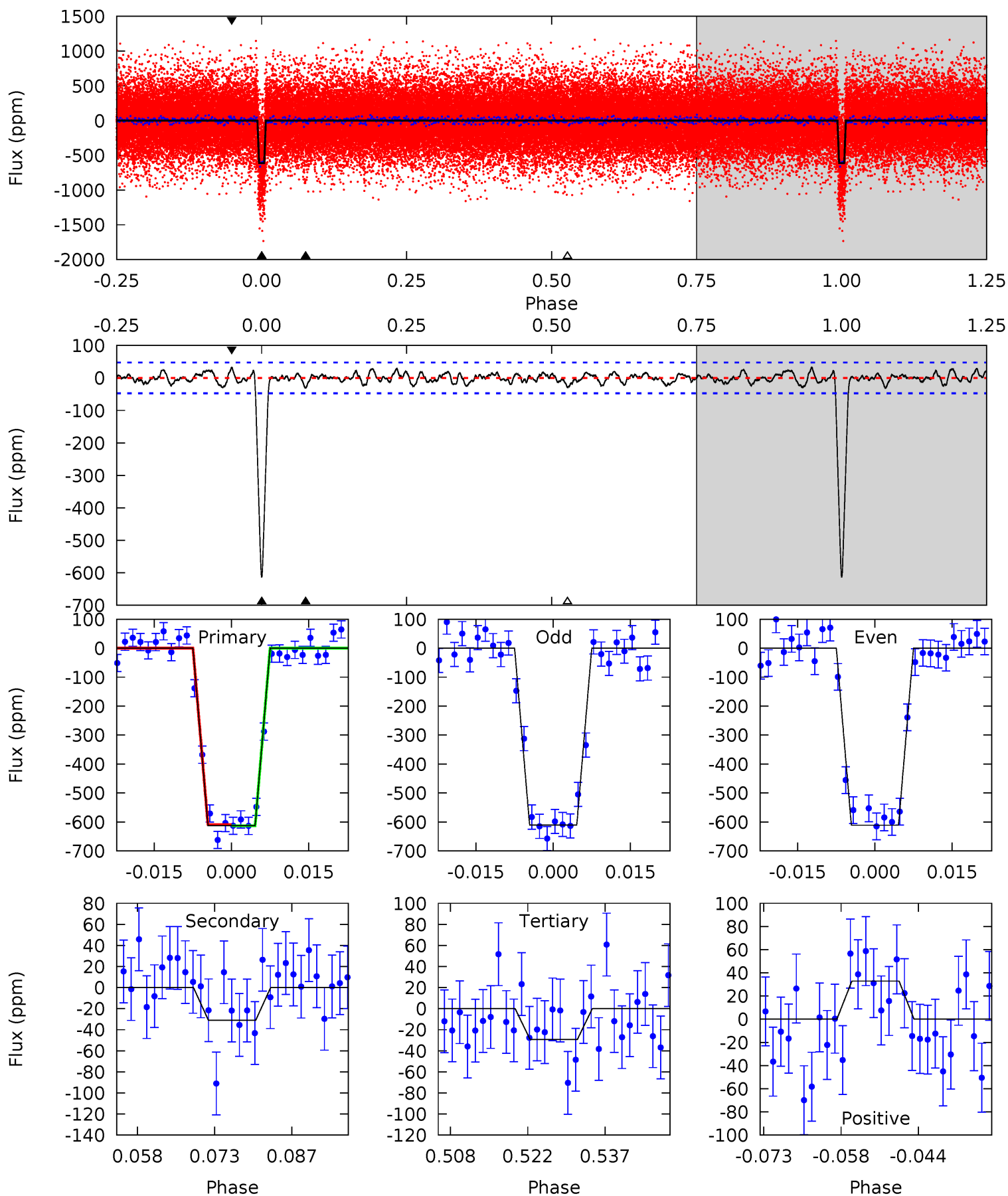
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.4	4.43	3.86	4.47	4.93	2.40	1.54	60.6	60.0	0.57	-0.05	0.14	1.01	0.06	0.06



Alt Model-Shift Uniqueness Test

008120608-01, P = 7.267336 Days, E = 130.706591 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.8	3.24	3.06	3.42	4.95	2.44	1.22	60.8	60.4	0.19	-0.18	0.01	1.00	0.05	0.21



Stellar Parameters For KIC 008120608

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3751^{+75}_{-84}	$4.800^{+0.065}_{-0.035}$	$-0.340^{+0.150}_{-0.150}$	$0.443^{+0.040}_{-0.053}$	$0.452^{+0.038}_{-0.050}$	$7.322^{+2.420}_{-1.181}$
	+2%/-2%	+1%/-1%	+44%/-44%	+9%/-12%	+8%/-11%	+33%/-16%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 008120608-01 / KOI 0571.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-44 ± 10	$1.28^{+0.14}_{-0.15}$	644^{+20}_{-20}	2515^{+96}_{-94}	48^{+16}_{-13}
Alt.	-31 ± 10	$1.18^{+0.15}_{-0.14}$	644^{+18}_{-18}	2452^{+128}_{-122}	38^{+19}_{-13}

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 $A_{obs} \gg 1.0$

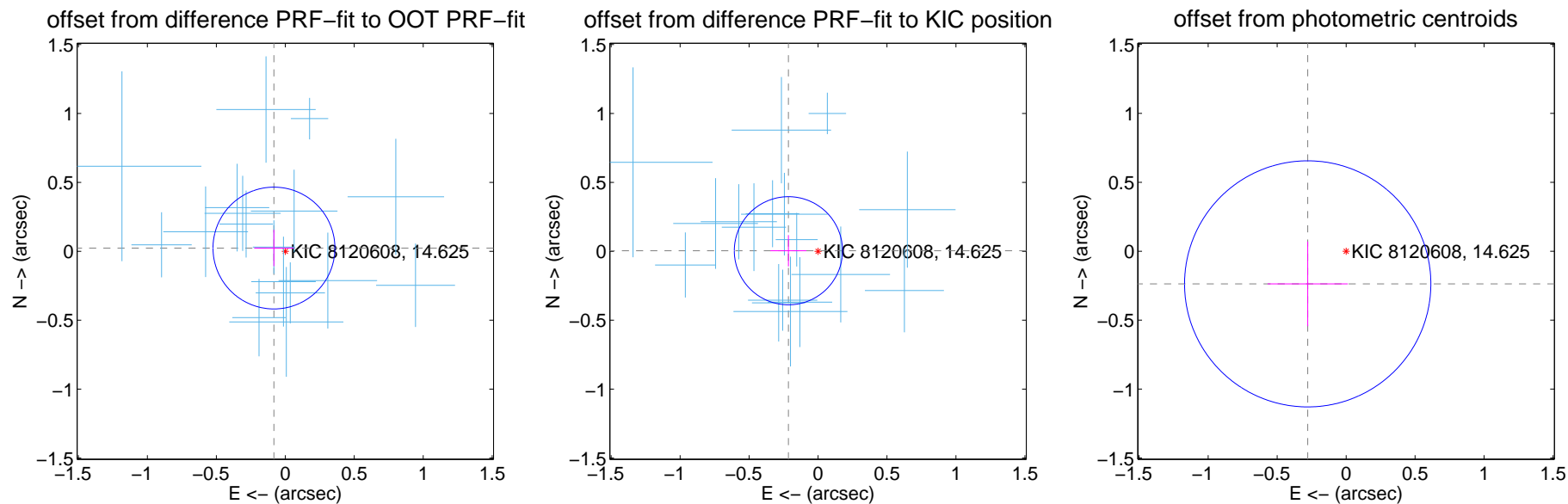
DV Centroid Data

Supplemental centroid analysis for 008120608-01. Kepler magnitude: 14.62. Transit SNR 41.60

There are 17 quarters with good PRF difference image offsets

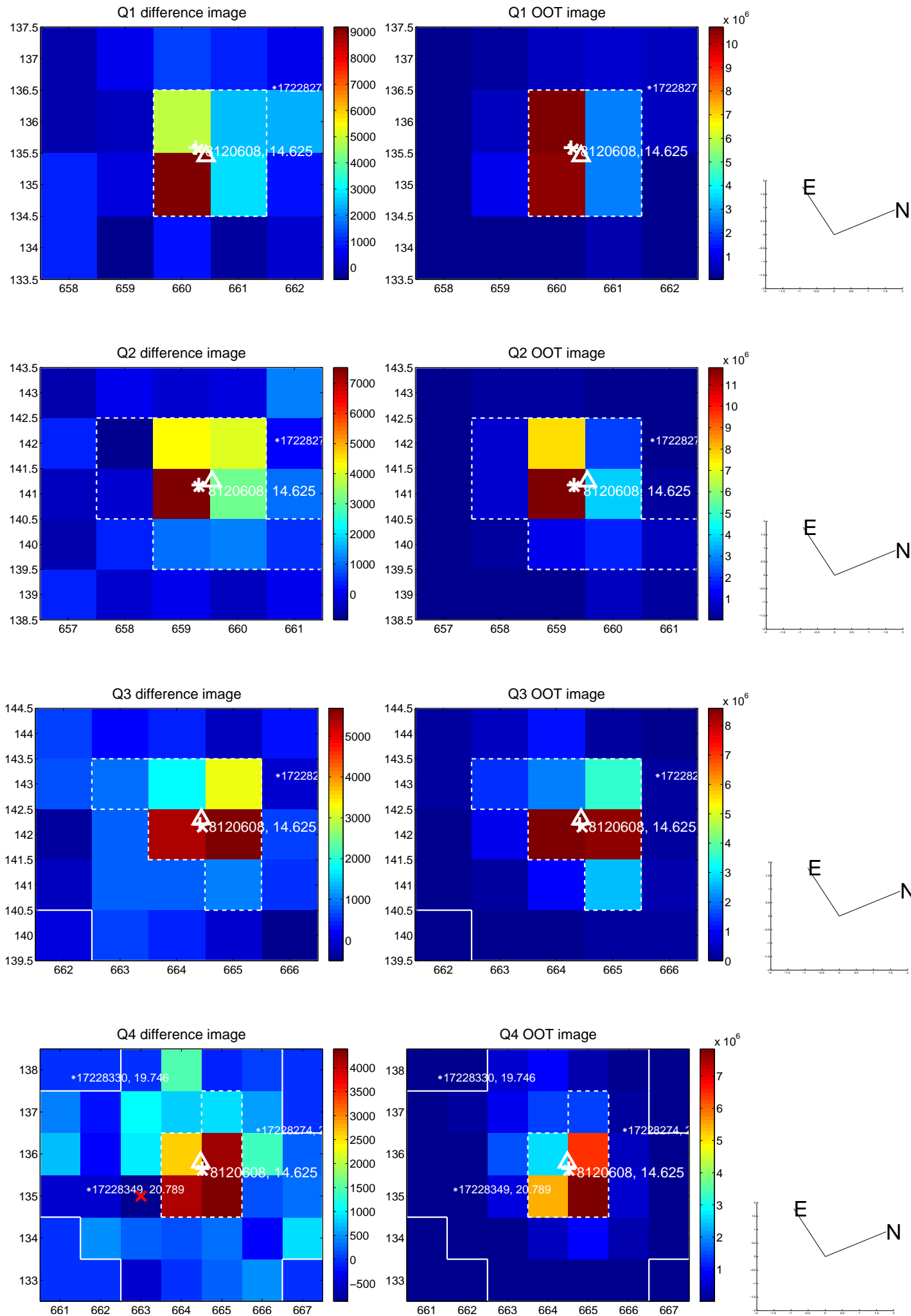
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.086 ± 0.147	0.58	0.082 ± 0.143	0.023 ± 0.132
PRF-fit source offset from KIC position	0.215 ± 0.131	1.64	0.215 ± 0.130	0.004 ± 0.114
photometric centroid source offset	0.37 ± 0.30	1.23	0.28 ± 0.29	-0.24 ± 0.31

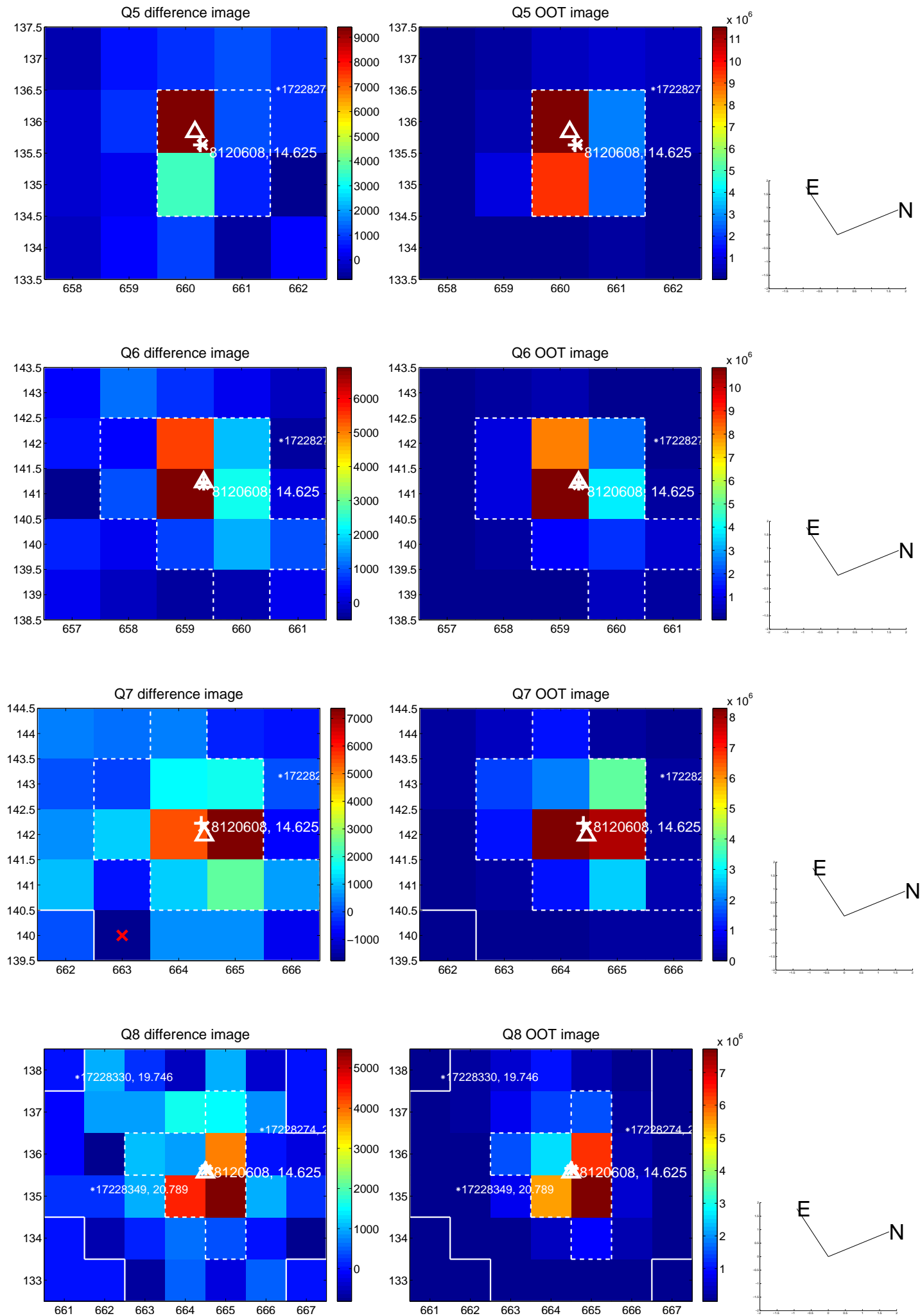


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

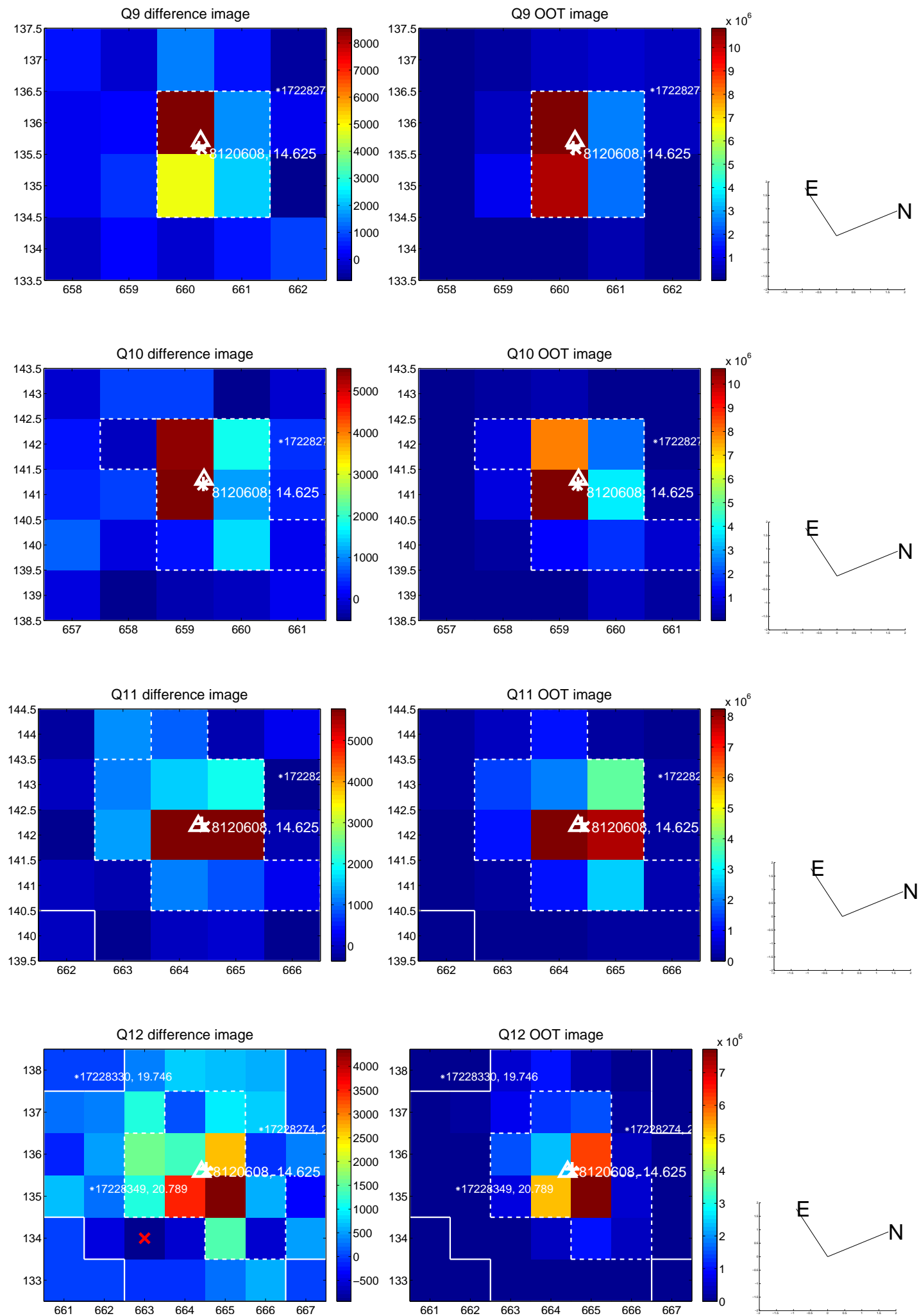
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



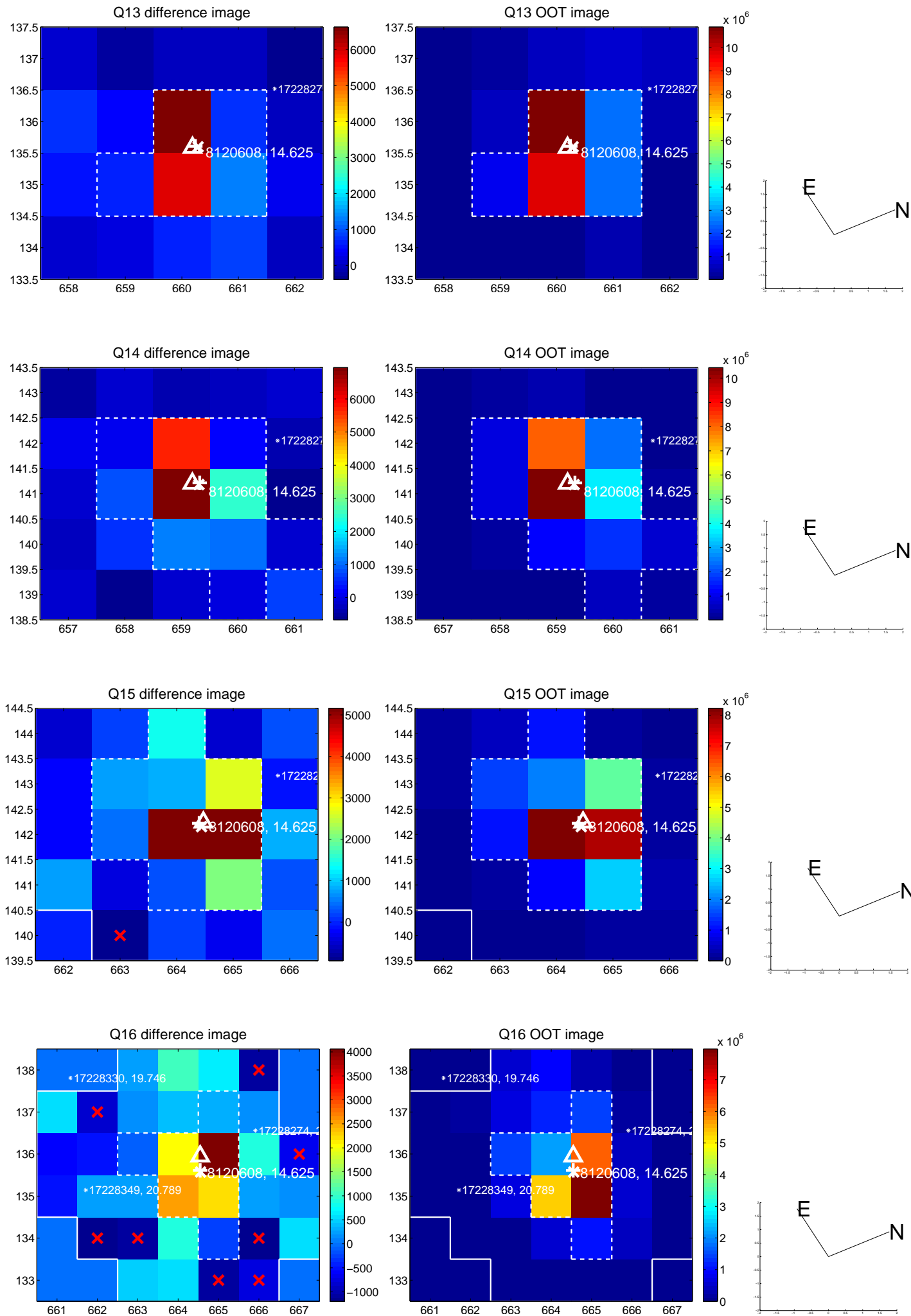
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



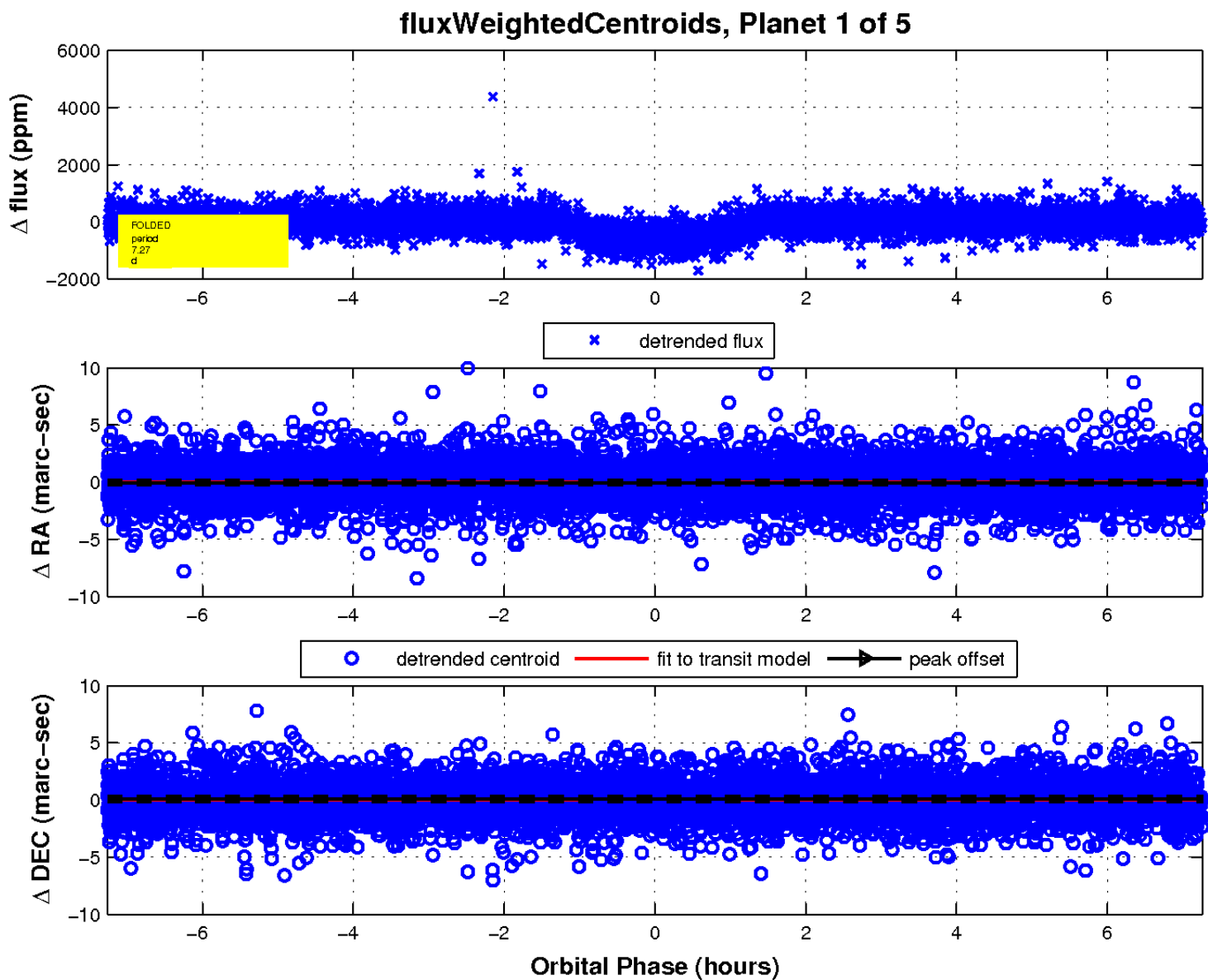
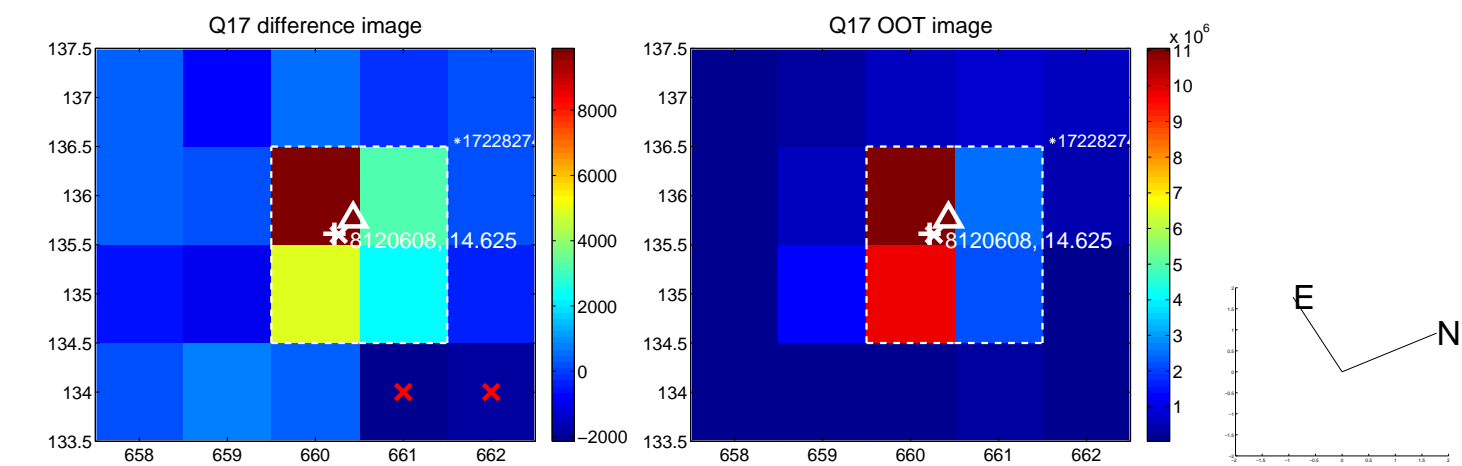
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

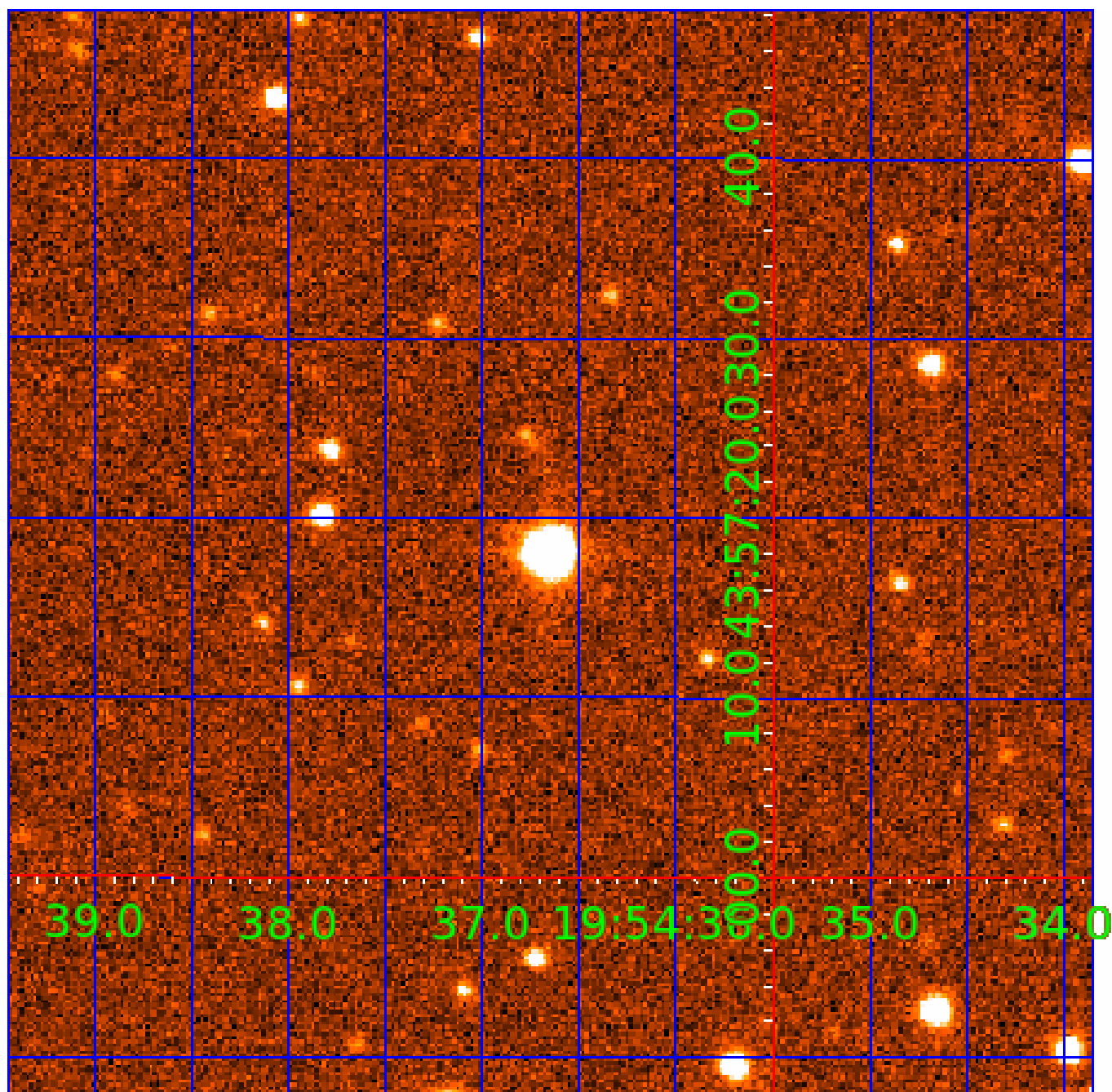


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008120608

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})
008120608-01	OBS	0571.01	7.267295	137.977903	654.7	2.421	38.0	41.6	0.44	3751	1.29	10.96
008120608-02	OBS	0571.02	13.343020	136.873778	808.7	2.920	36.2	41.0	0.44	3751	1.42	4.88
008120608-03	OBS	0571.03	3.886806	133.326924	466.6	1.940	34.2	38.9	0.44	3751	1.12	25.25
008120608-04	OBS	0571.04	22.407747	153.798646	645.8	3.469	23.6	26.3	0.44	3751	1.26	2.44
008120608-05	OBS	0571.05	129.945688	176.829176	454.2	5.569	7.7	8.6	0.44	3751	1.02	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008120608-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-05	OBS	PC	0.68	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.

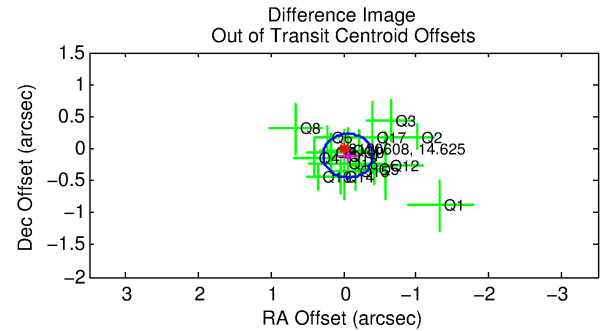
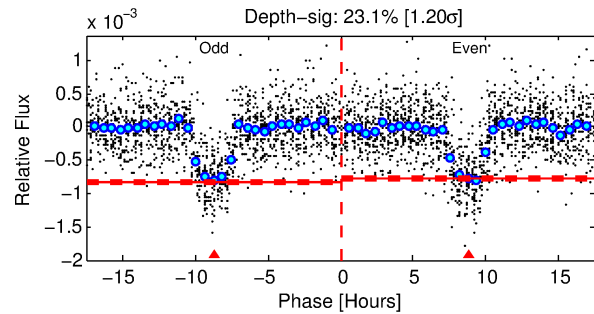
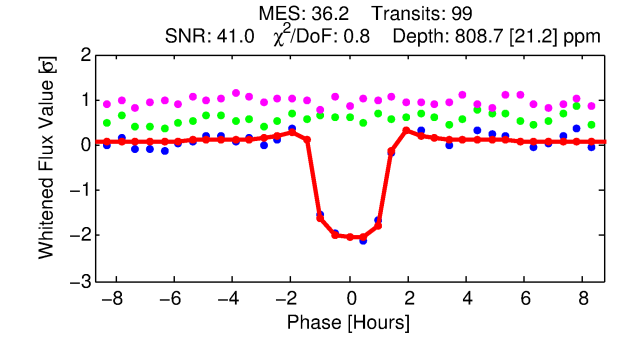
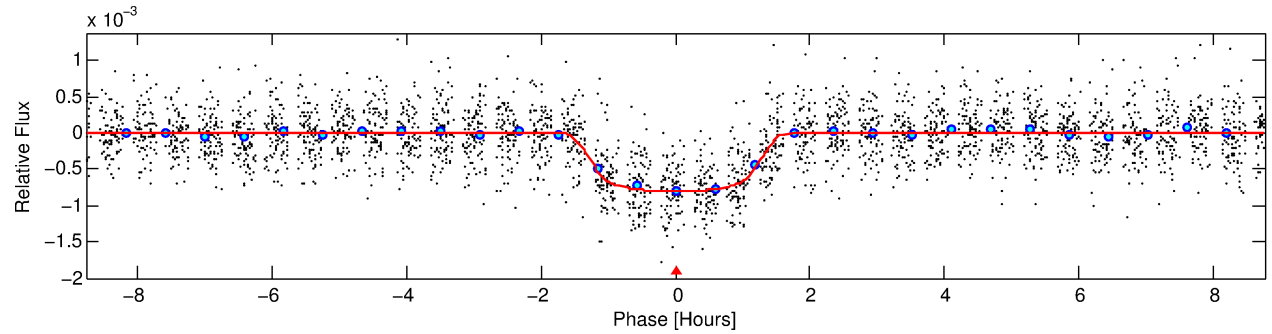
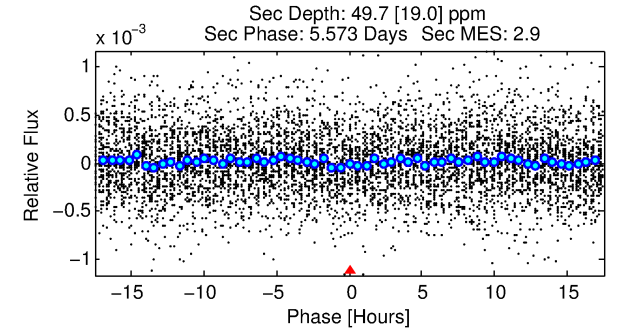
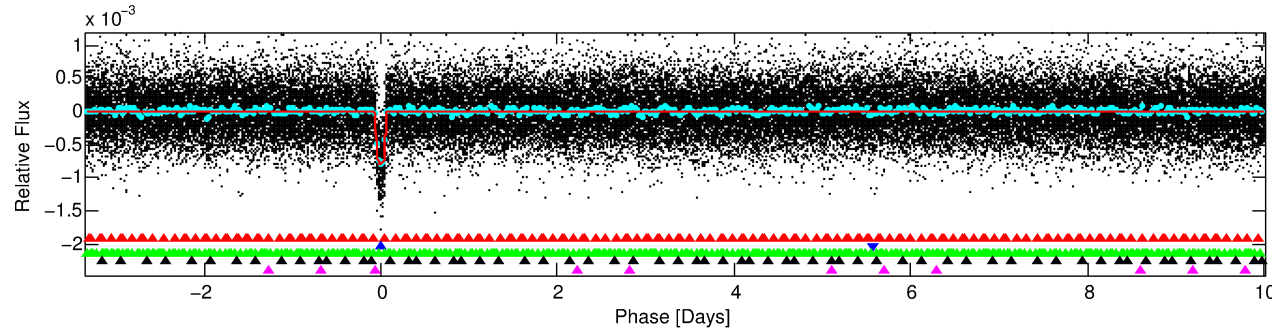
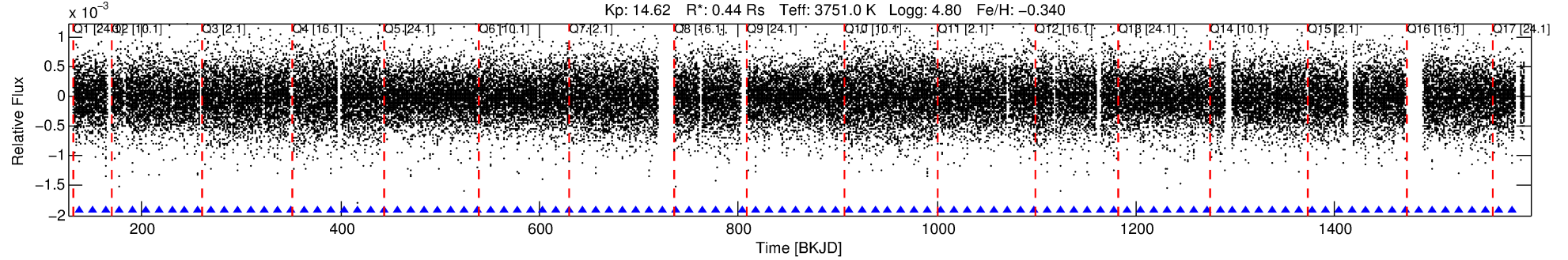
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008120608-02

No Significant Match Found

DV One-Page Summary

KIC: 8120608 Candidate: 2 of 5 Period: 13.343 d
KOI: K00571.02 Name: Kepler-186d Corr: 0.996



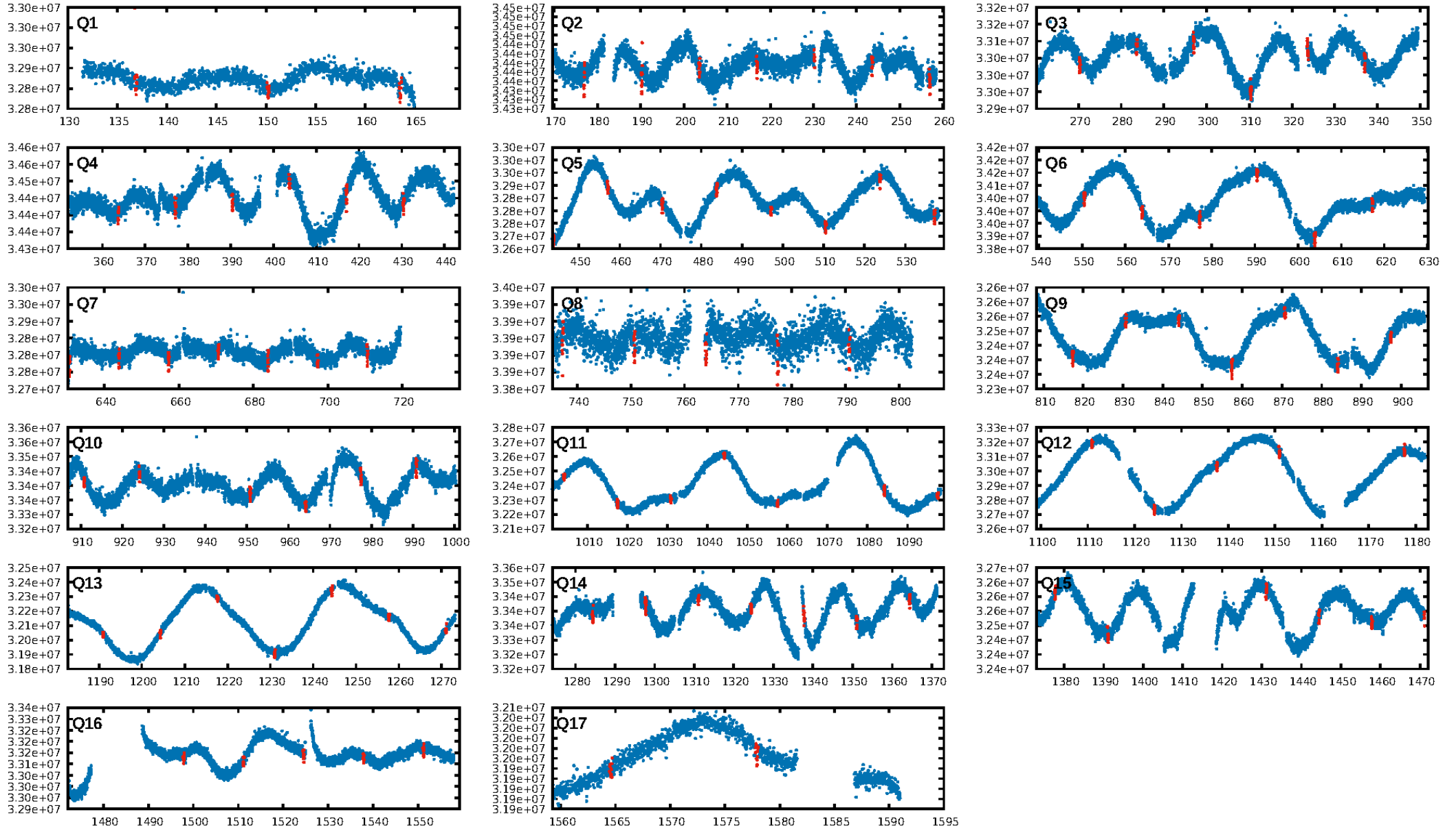
DV Fit Results:

Period = 13.34302 [0.00002] d
Epoch = 136.8738 [0.0013] BKJD
Rp/R* = 0.0294 [0.0022]
a/R* = 20.69 [7.52]
b = 0.84 [0.13]
Seff = 4.88 [0.76]
Teff = 379 [15] K
Rp = 1.42 [0.20] Re
a = 0.0845 [0.0079] AU
Ag = 96.73 [41.70] [2.30 σ]
Teffp = 1837 [194] K [7.51 σ]

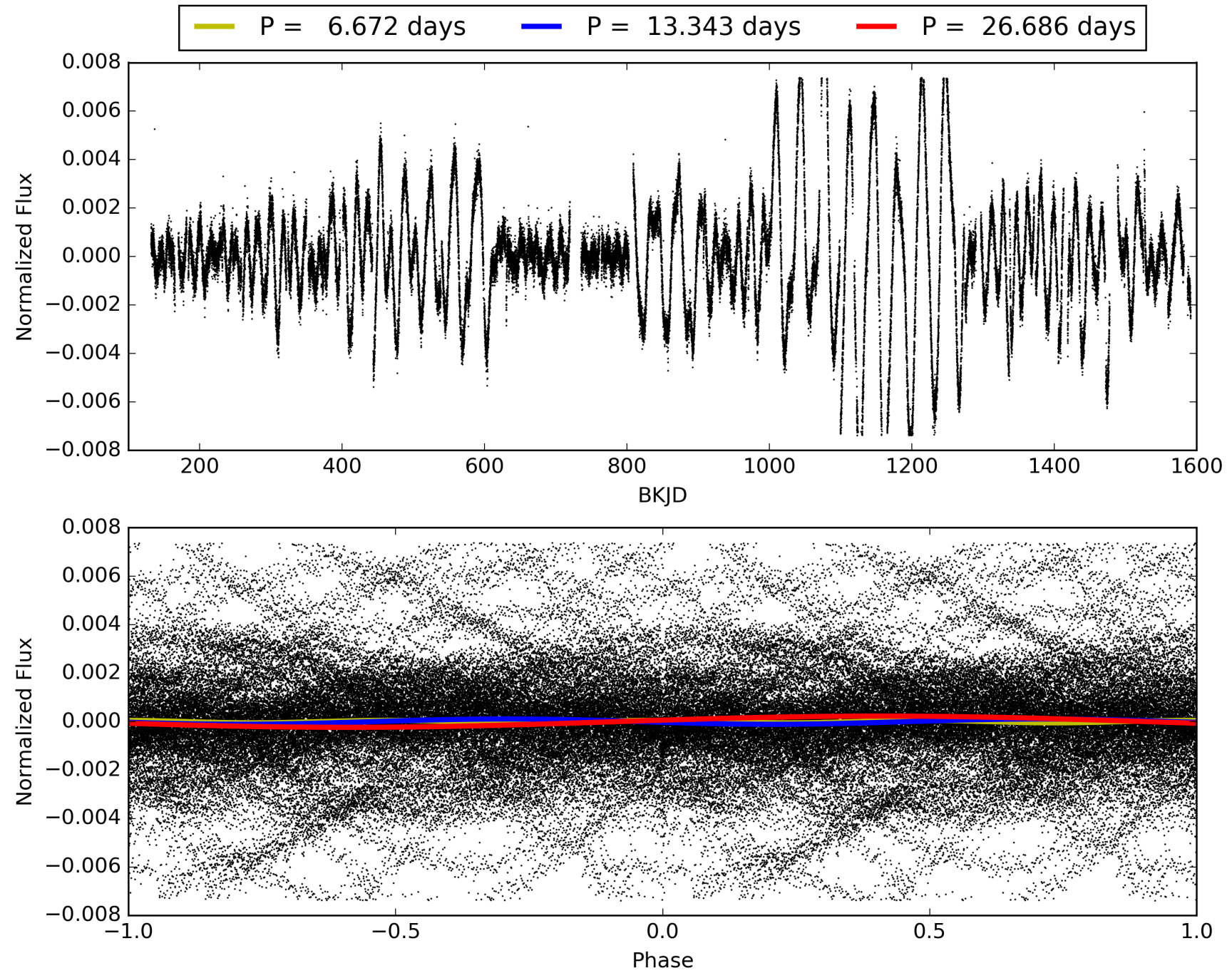
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.44 σ]
LongPeriod-sig: 100.0% [47.98 σ]
ModelChiSquare2-sig: 94.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.16e-276
RollingBand-fgt: 1.00 [94/94]
GhostDiagnostic-chr: 5.581
Centroid-sig: 67.2%
Centroid-so: 0.209 arcsec [0.69 σ]
OotOffset-rm: 0.128 arcsec [1.12 σ]
KicOffset-rm: 0.132 arcsec [1.13 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008120608-02, PDC Light Curves

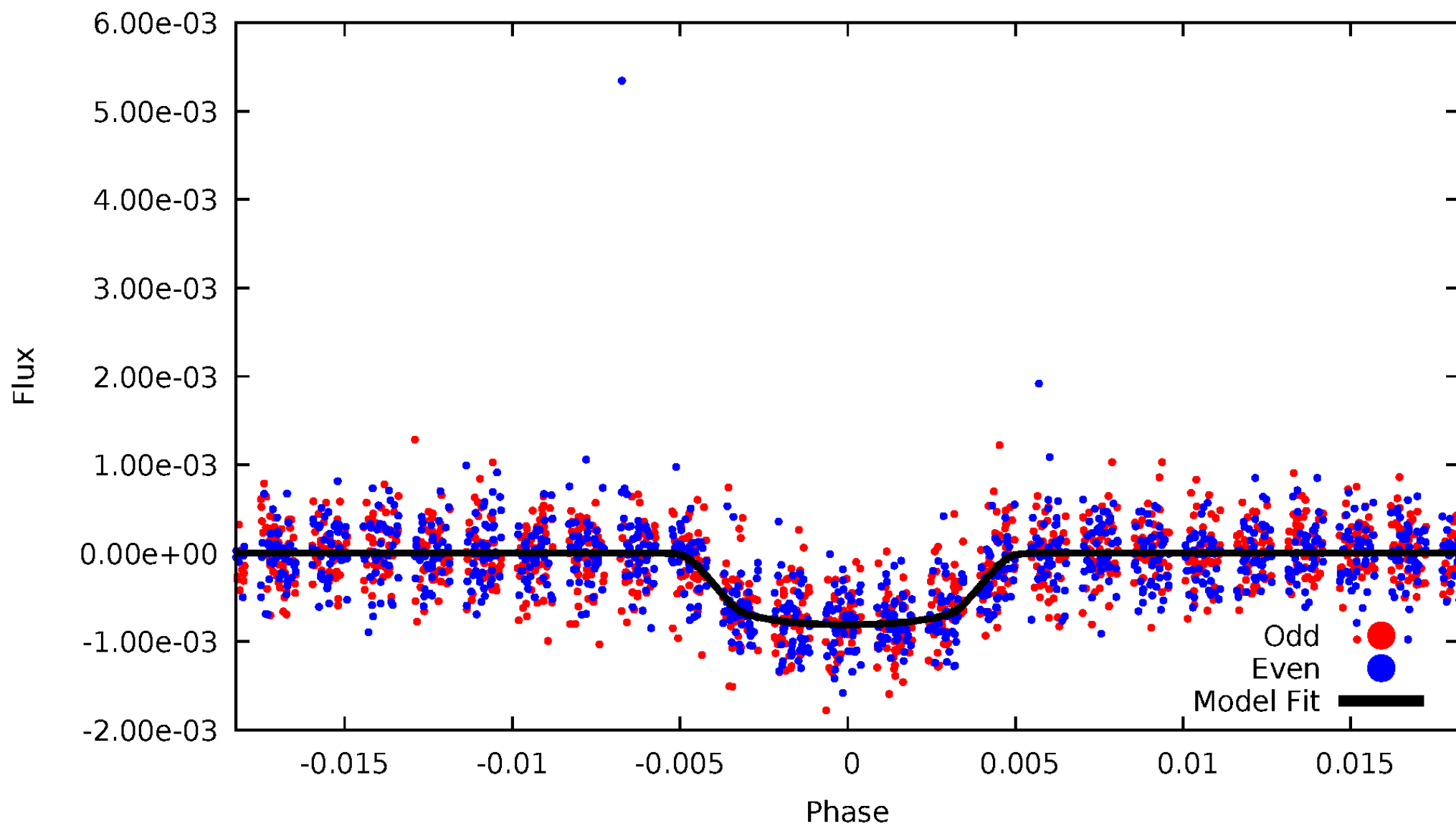


TCE 008120608-02



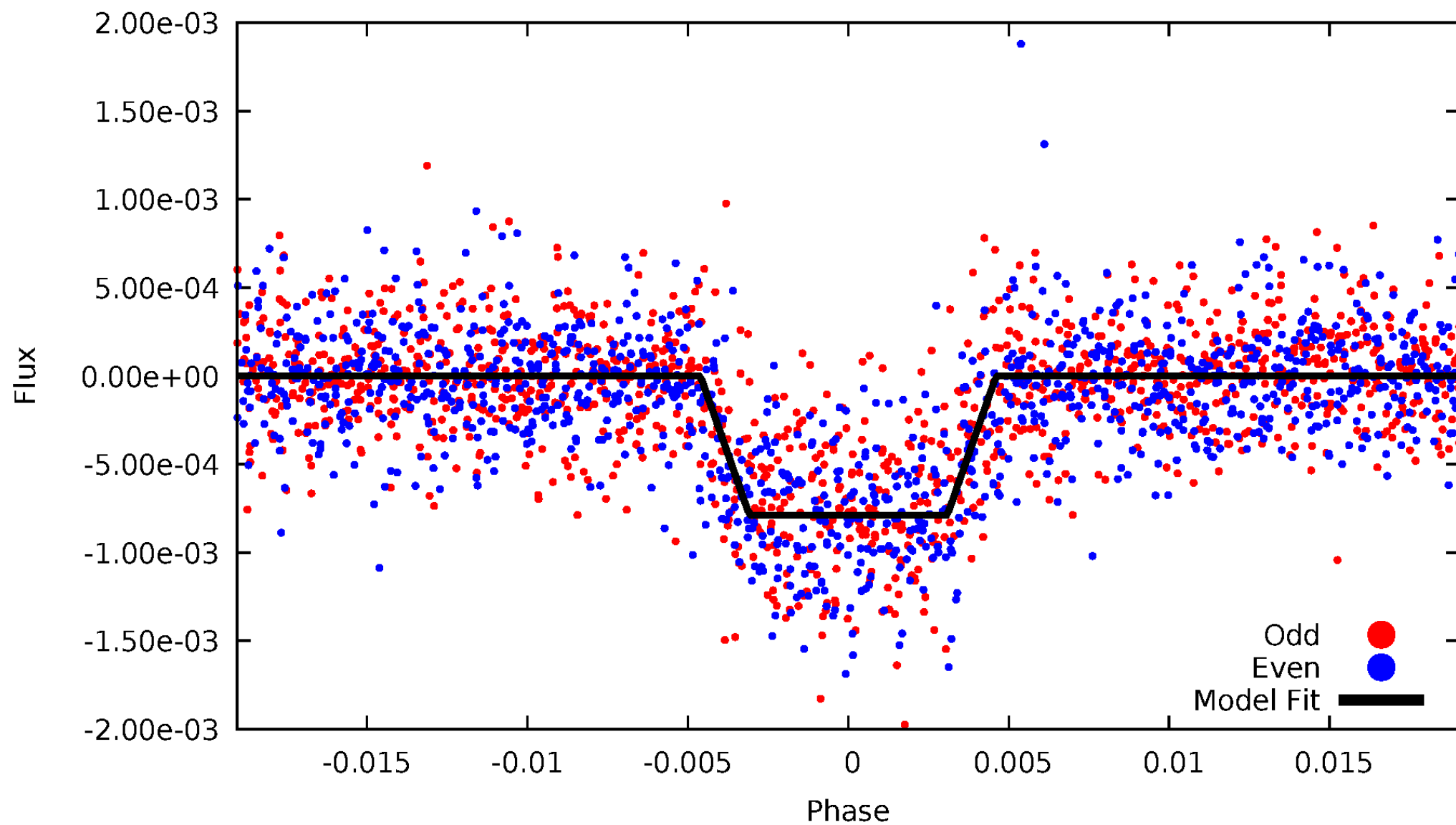
DV Odd/Even

TCE 008120608-02



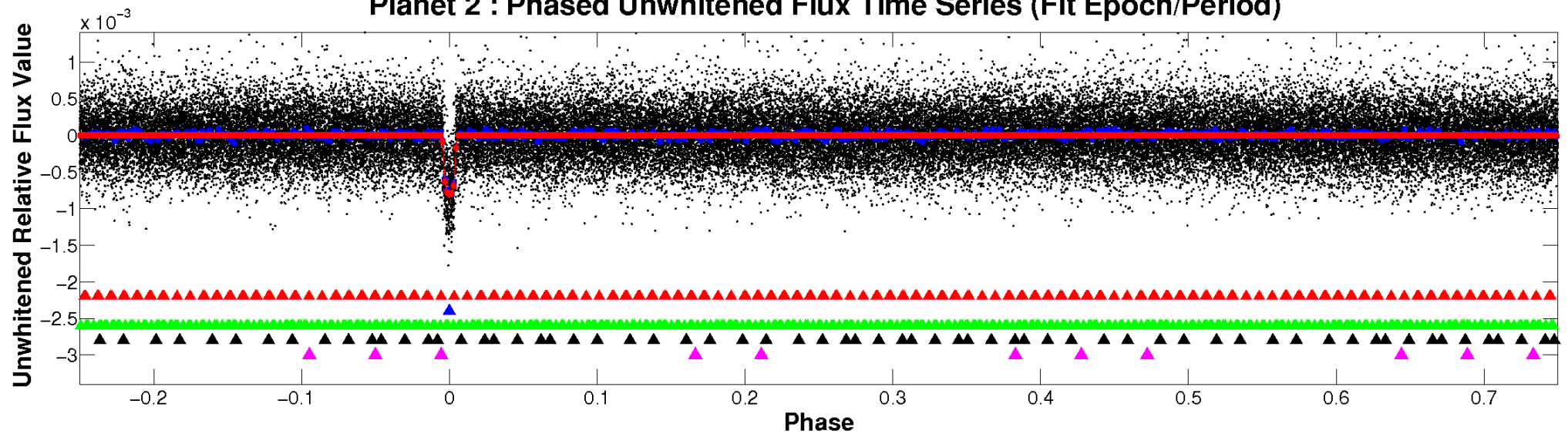
ALT Odd/Even

TCE 008120608-02

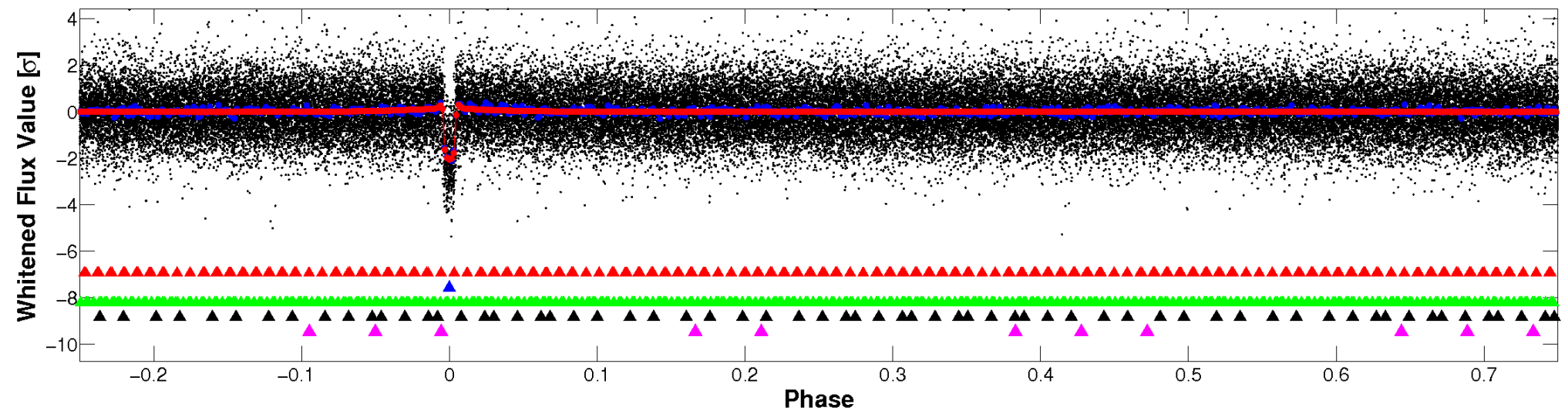


Non-Whitened Vs. Whitened Light Curve

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

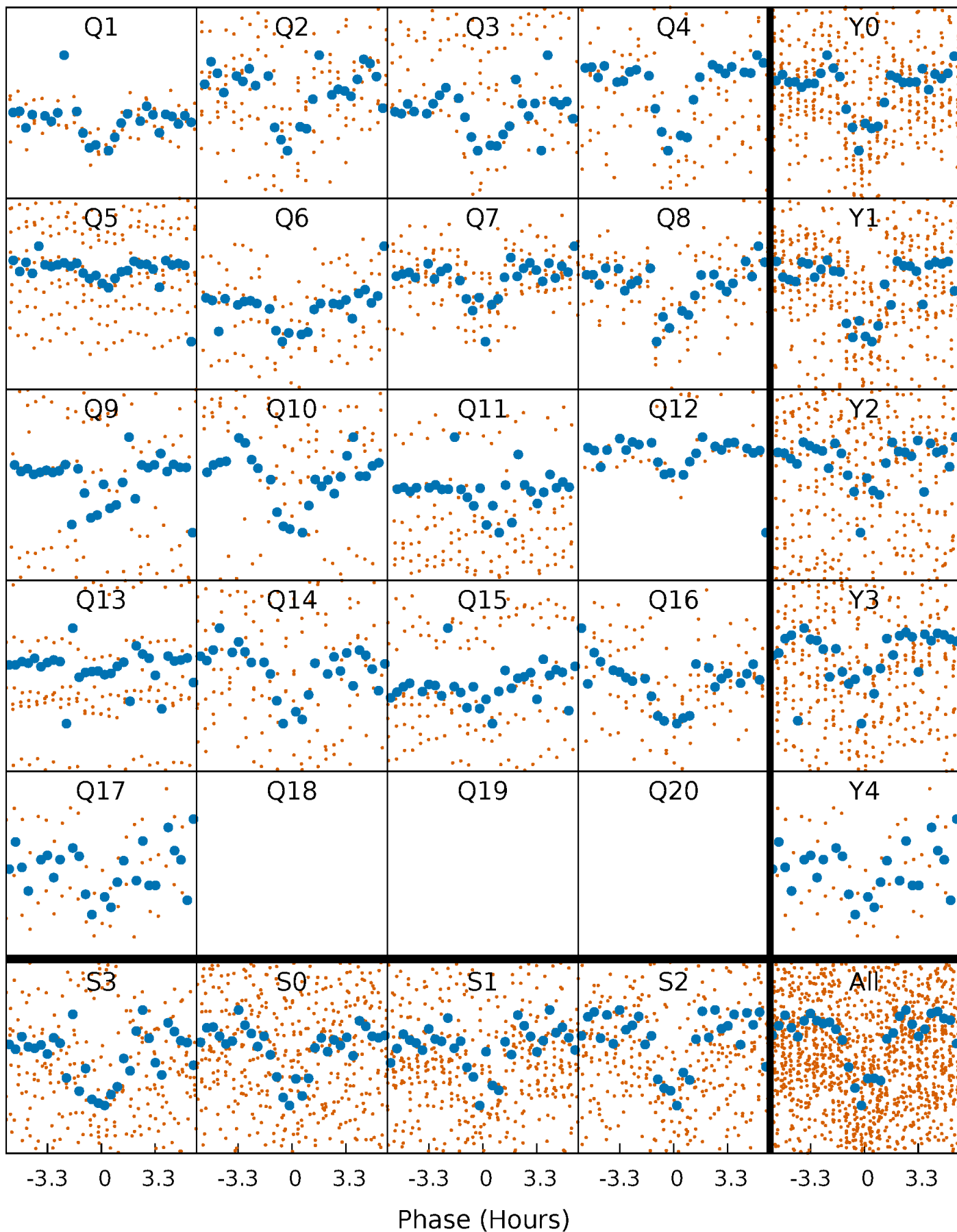


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



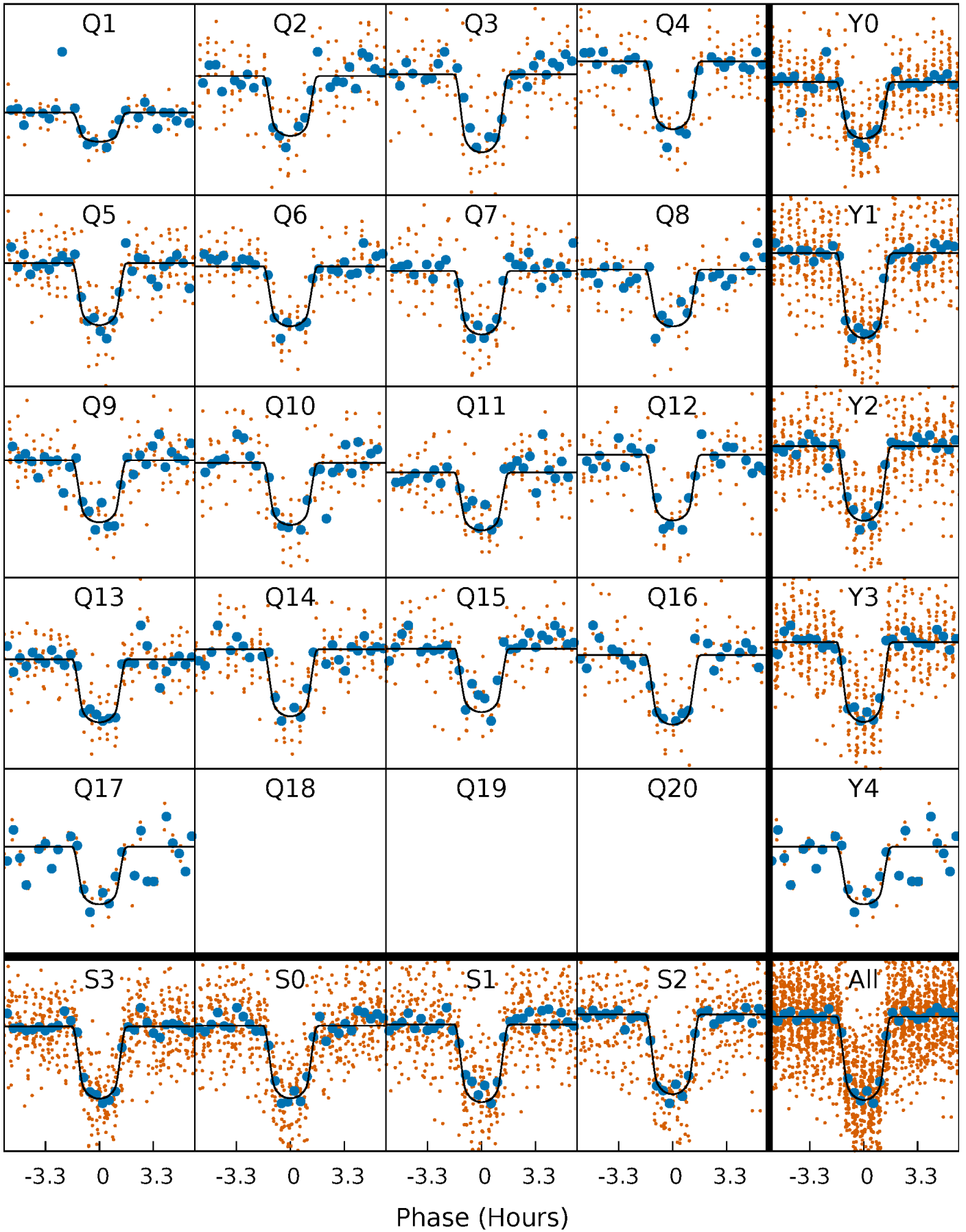
PDC Quarter-Phased Transit Curves

TCE 008120608-02 P= 13.343020 Days $T_0=136.873778$ (BKJD)



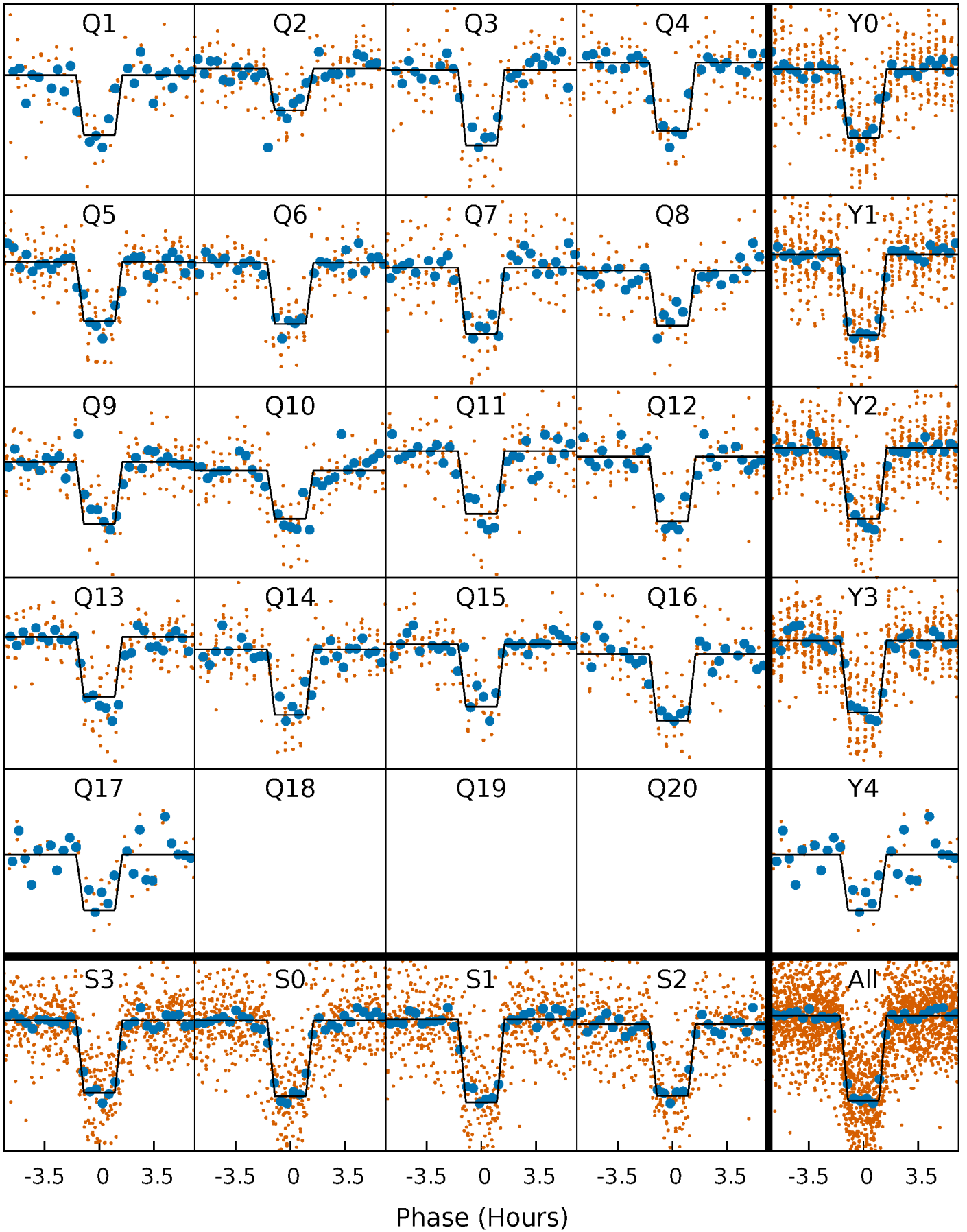
DV Quarter-Phased Transit Curves

TCE 008120608-02 P= 13.343020 Days $T_0=136.873778$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

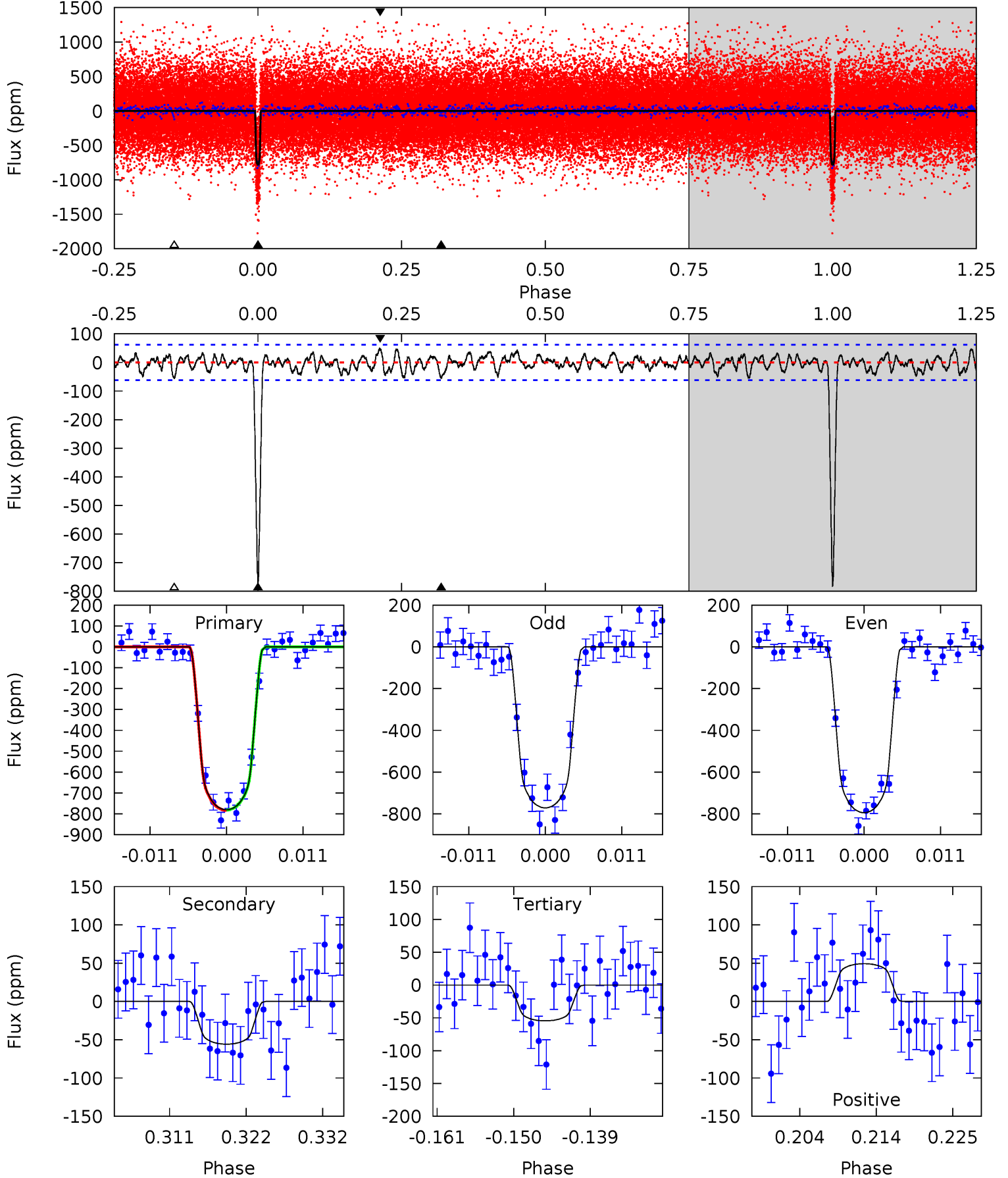
TCE 008120608-02 P= 13.342947 Days $T_0=136.878283$ (BKJD)



DV Model-Shift Uniqueness Test

008120608-02, $P = 13.343020$ Days, $E = 123.530758$ Days

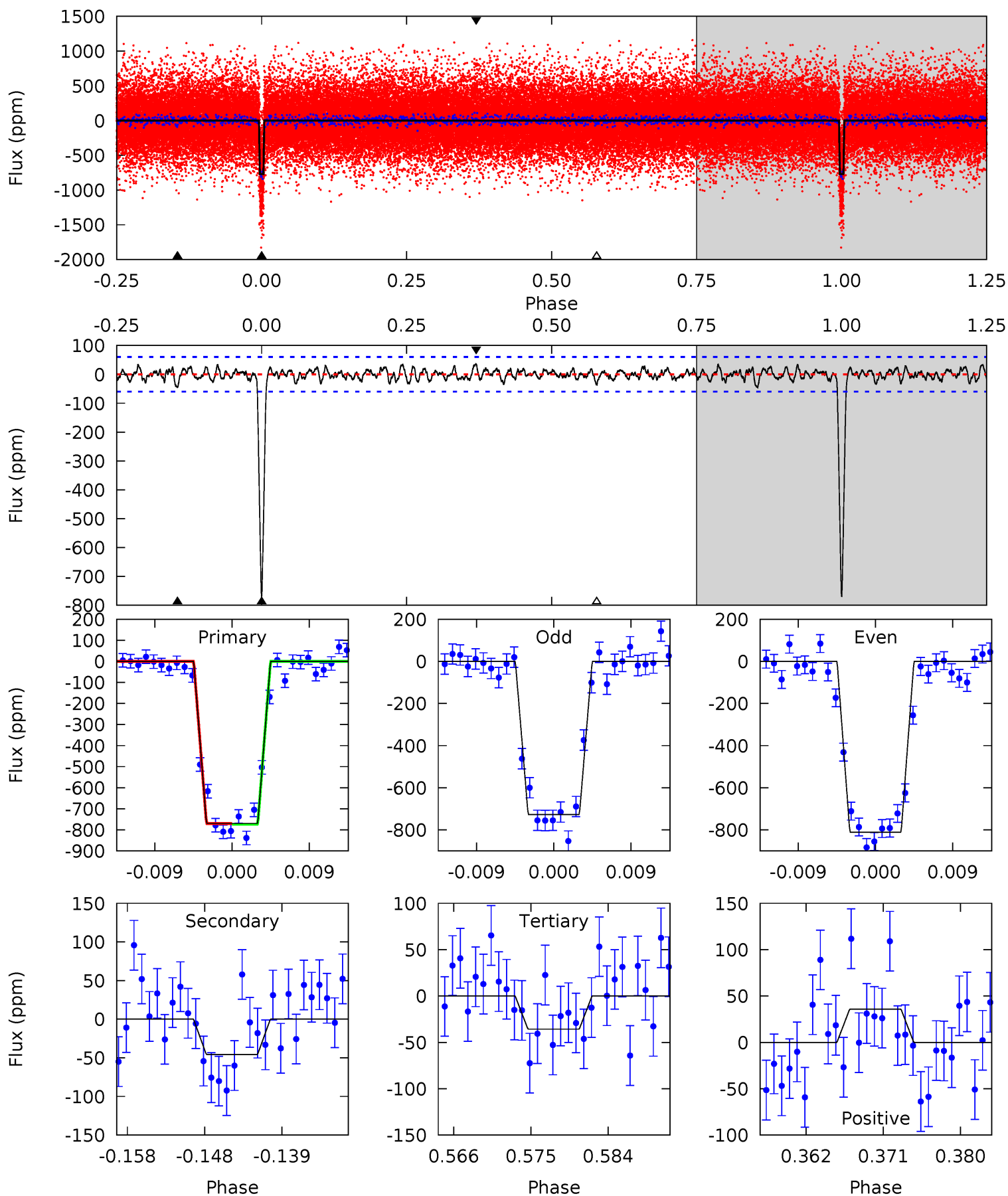
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.3	4.52	4.42	4.00	5.01	2.55	1.56	58.9	59.3	0.10	0.52	0.93	1.01	0.06	0.07



Alt Model-Shift Uniqueness Test

008120608-02, P = 13.342947 Days, E = 123.535336 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.6	3.83	3.00	3.01	5.04	2.60	1.13	61.6	61.6	0.83	0.82	3.55	1.02	0.04	0.13



Stellar Parameters For KIC 008120608

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3751^{+75}_{-84}	$4.800^{+0.065}_{-0.035}$	$-0.340^{+0.150}_{-0.150}$	$0.443^{+0.040}_{-0.053}$	$0.452^{+0.038}_{-0.050}$	$7.322^{+2.420}_{-1.181}$
	+2%/-2%	+1%/-1%	+44%/-44%	+9%/-12%	+8%/-11%	+33%/-16%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 008120608-02 / KOI 0571.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-56 ± 12	$1.40^{+0.14}_{-0.13}$	526^{+16}_{-17}	2533^{+94}_{-95}	112^{+35}_{-30}
Alt.	-46 ± 12	$1.34^{+0.14}_{-0.13}$	526^{+14}_{-16}	2498^{+88}_{-108}	99^{+34}_{-28}

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

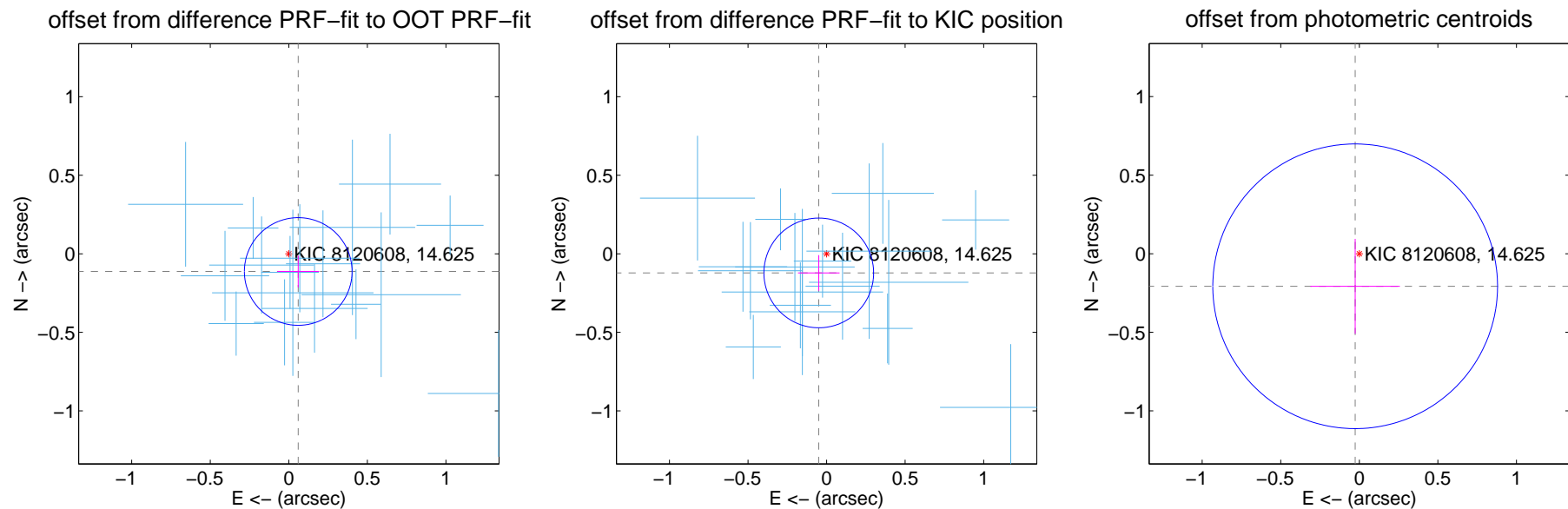
DV Centroid Data

Supplemental centroid analysis for 008120608-02. Kepler magnitude: 14.62. Transit SNR 41.01

There are 17 quarters with good PRF difference image offsets

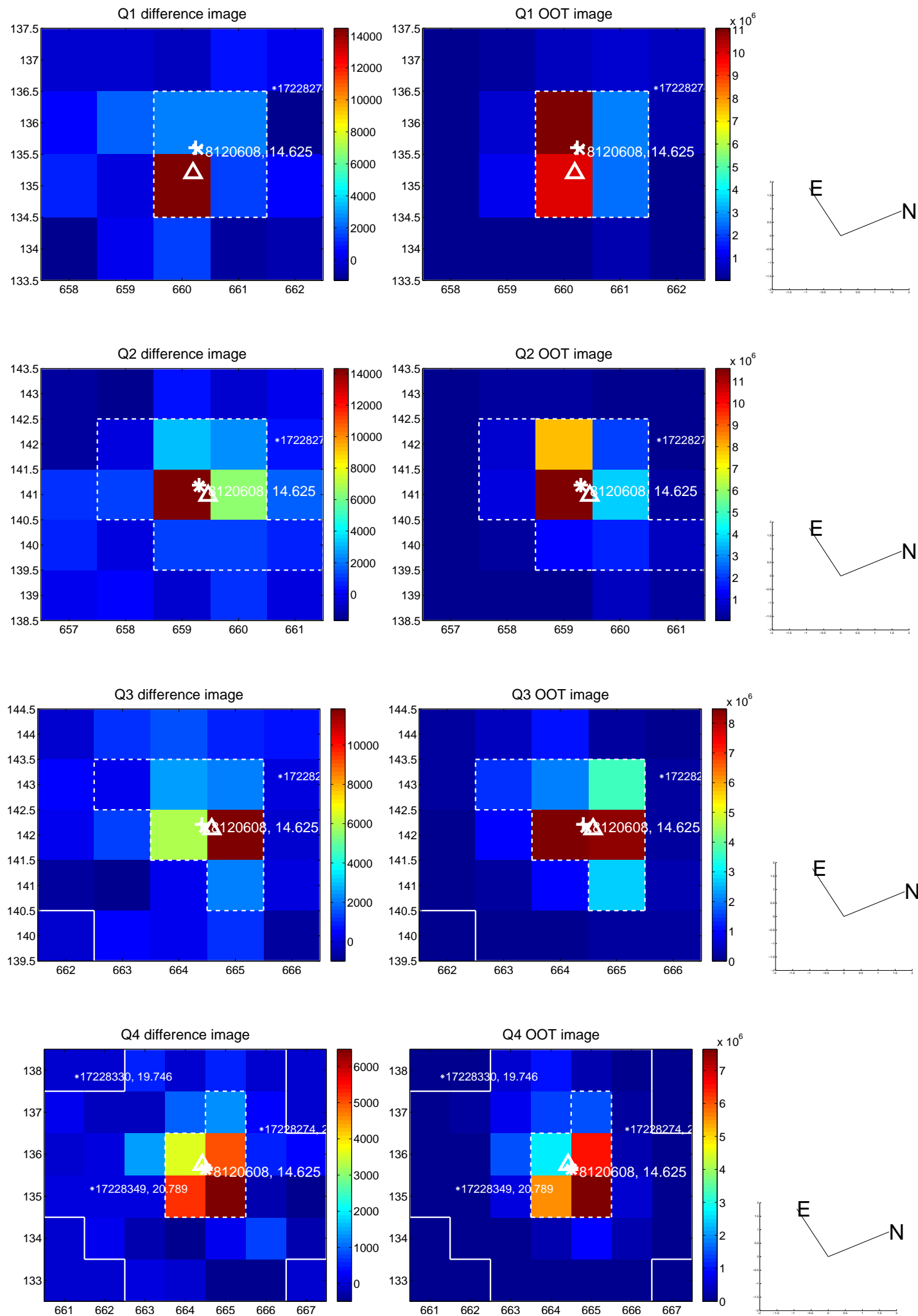
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.128 ± 0.114	1.12	-0.060 ± 0.133	-0.113 ± 0.101
PRF-fit source offset from KIC position	0.132 ± 0.116	1.13	0.050 ± 0.132	-0.122 ± 0.113
photometric centroid source offset	0.21 ± 0.30	0.69	0.03 ± 0.28	-0.21 ± 0.30

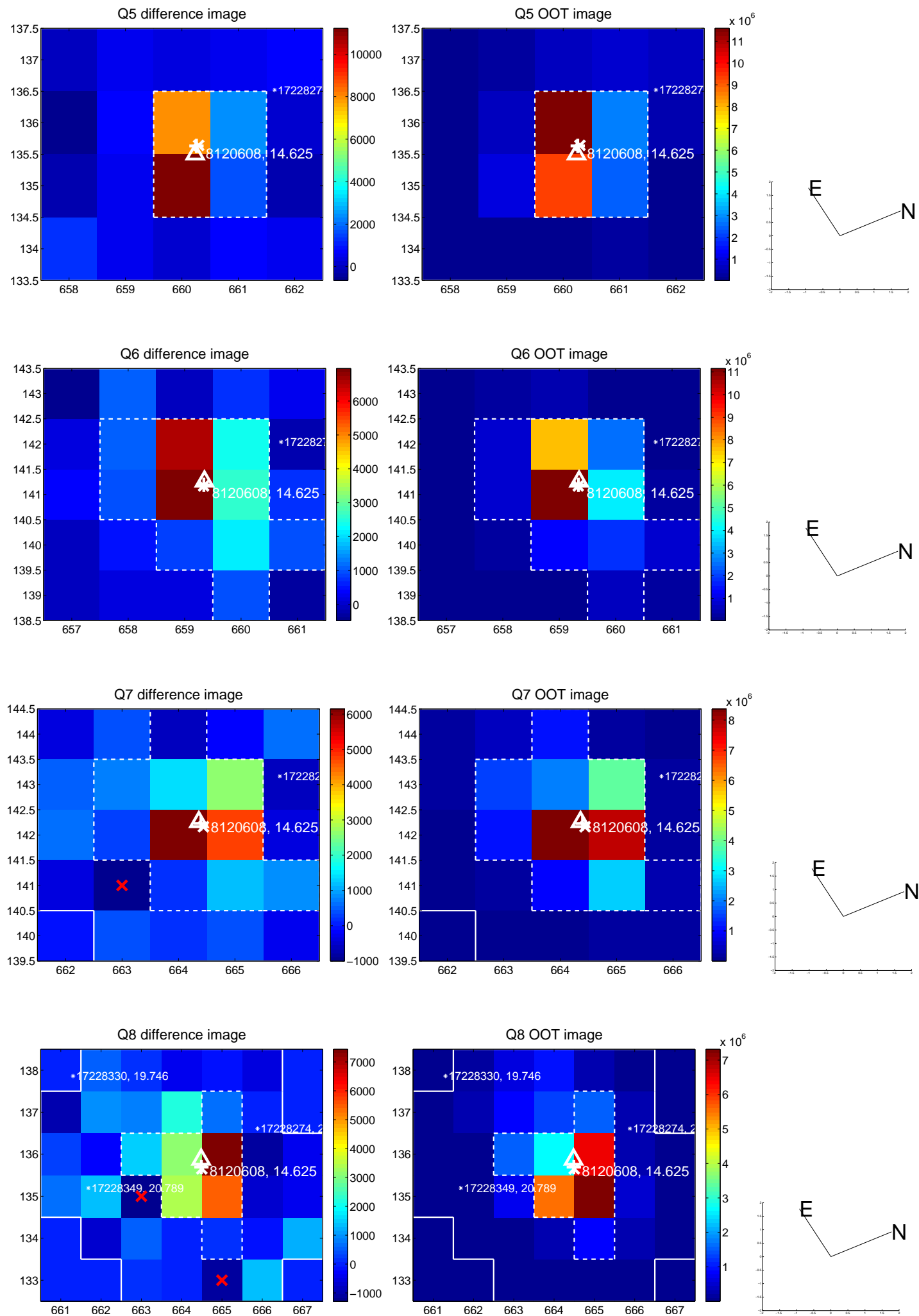


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

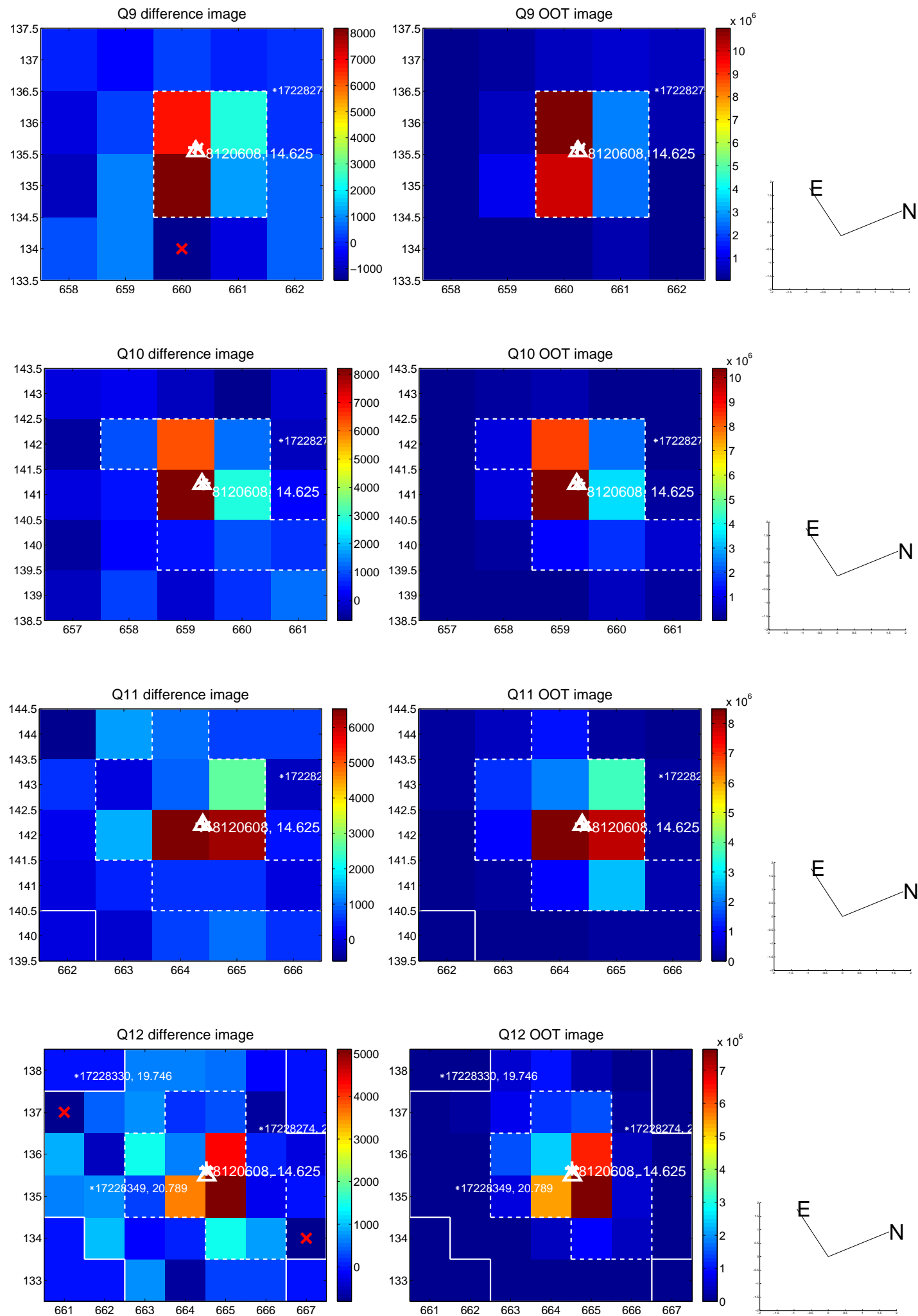
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



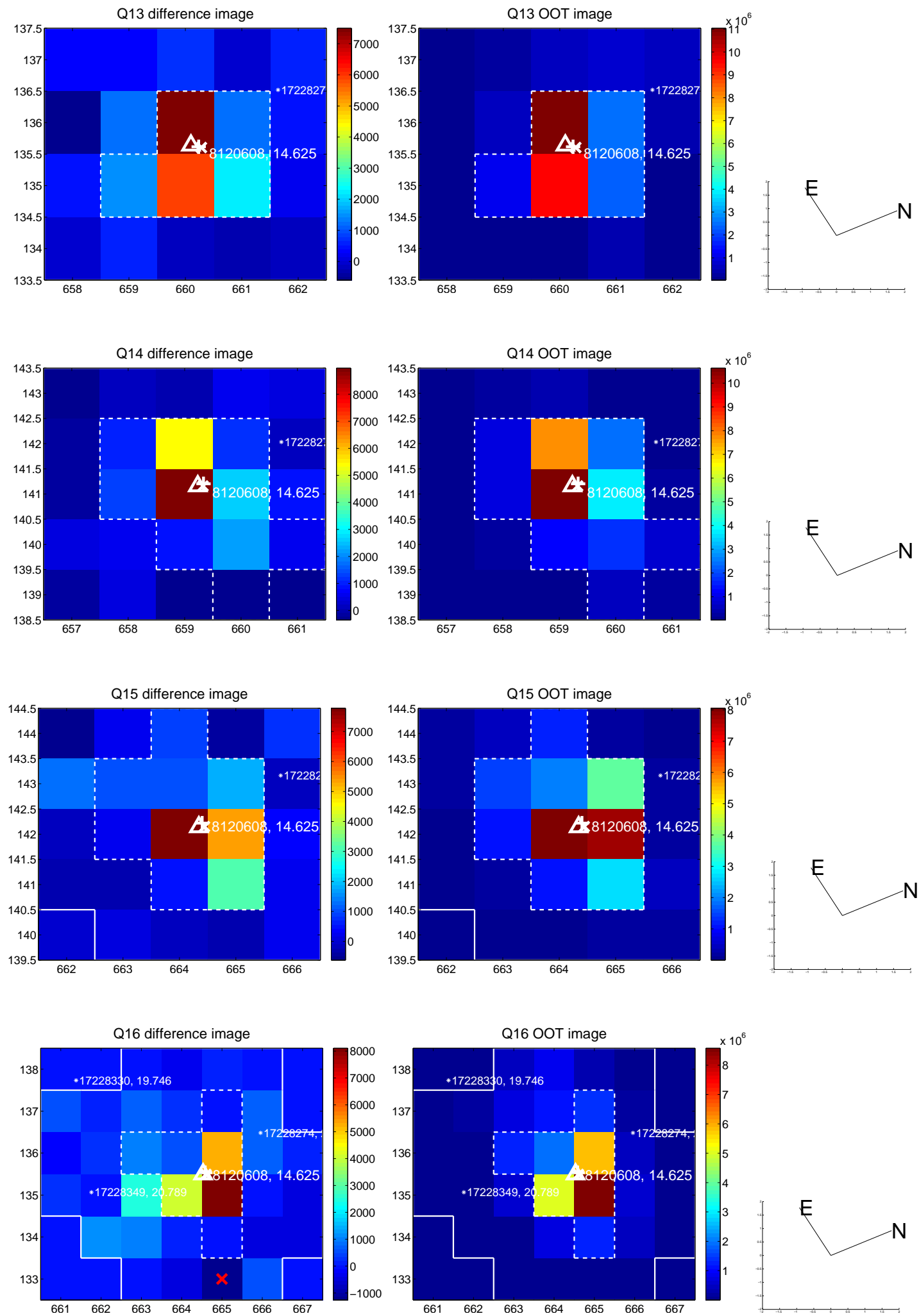
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



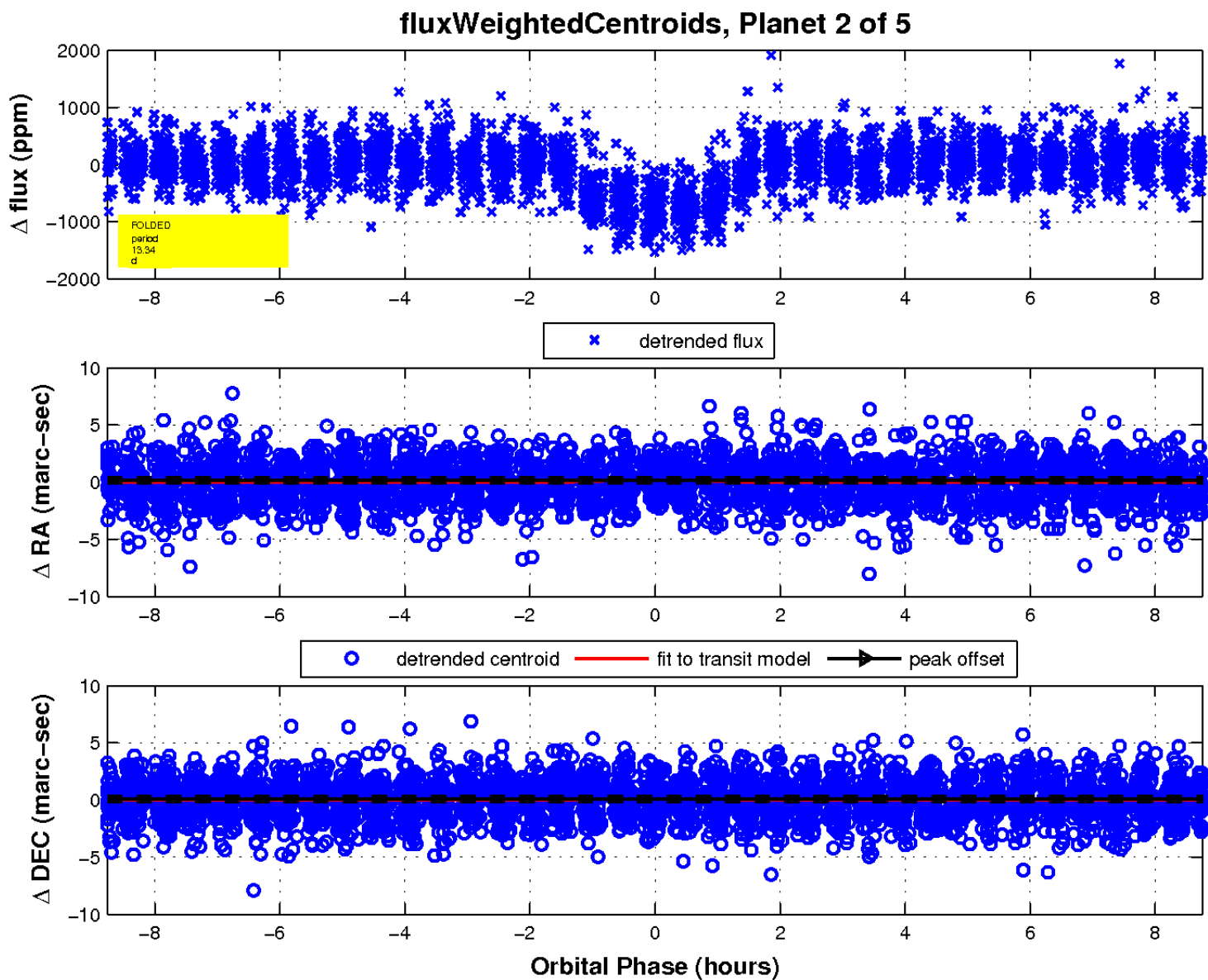
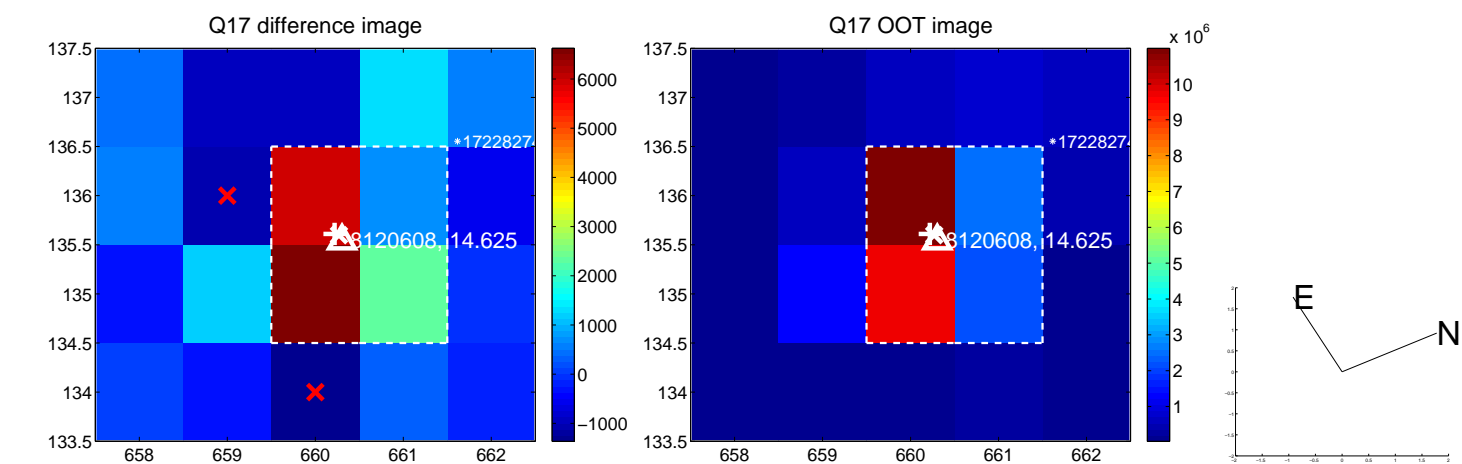
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

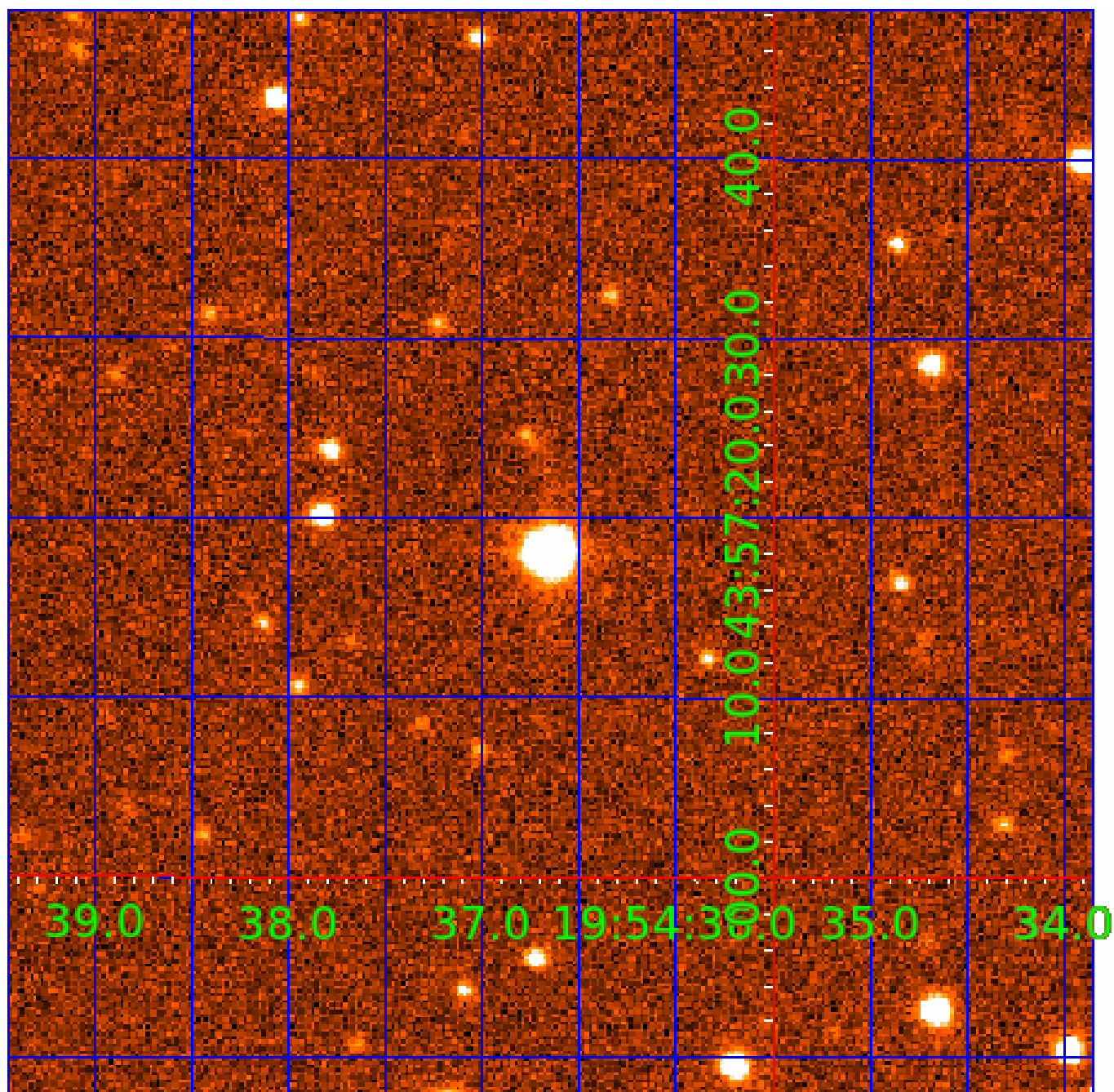


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008120608

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})
008120608-01	OBS	0571.01	7.267295	137.977903	654.7	2.421	38.0	41.6	0.44	3751	1.29	10.96
008120608-02	OBS	0571.02	13.343020	136.873778	808.7	2.920	36.2	41.0	0.44	3751	1.42	4.88
008120608-03	OBS	0571.03	3.886806	133.326924	466.6	1.940	34.2	38.9	0.44	3751	1.12	25.25
008120608-04	OBS	0571.04	22.407747	153.798646	645.8	3.469	23.6	26.3	0.44	3751	1.26	2.44
008120608-05	OBS	0571.05	129.945688	176.829176	454.2	5.569	7.7	8.6	0.44	3751	1.02	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008120608-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-05	OBS	PC	0.68	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.

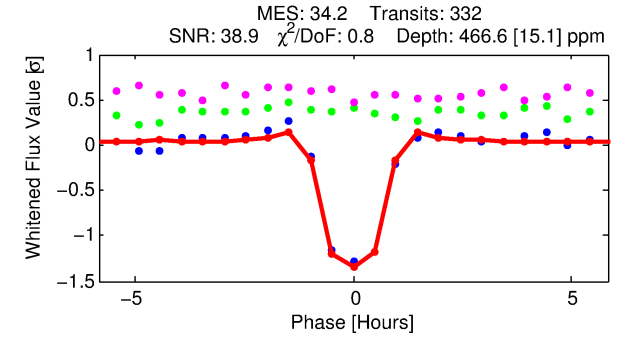
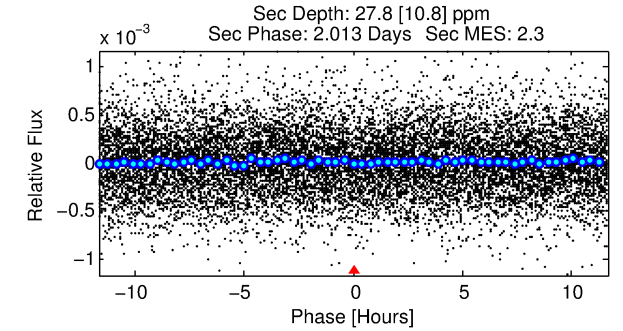
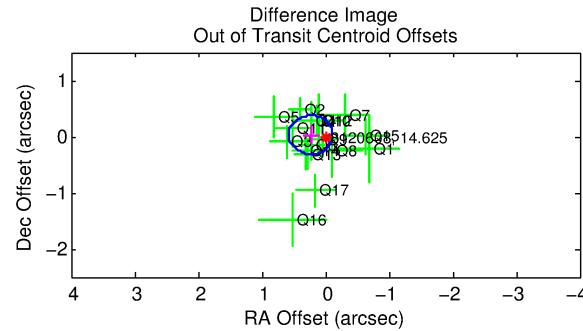
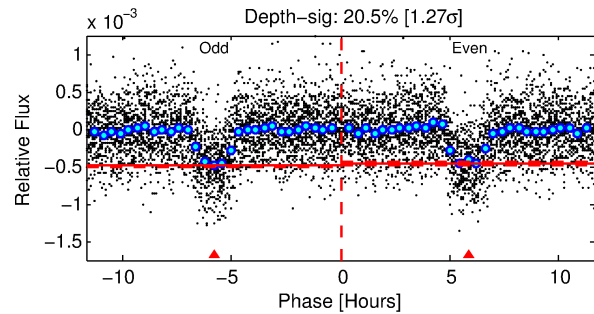
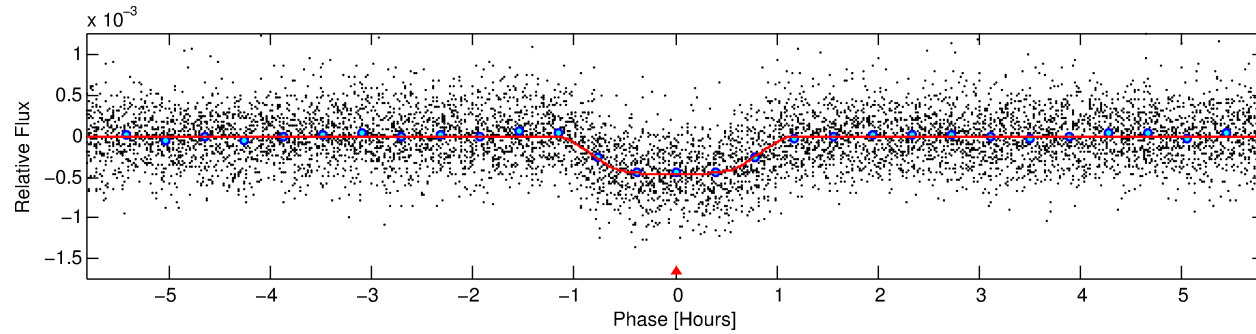
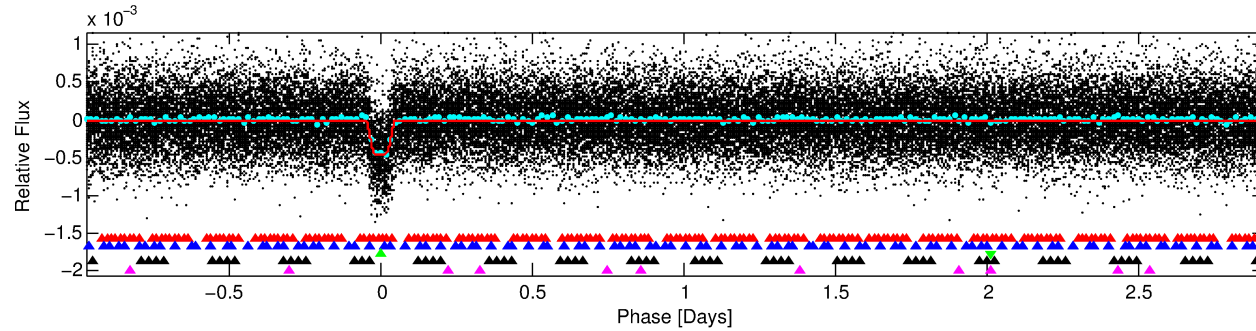
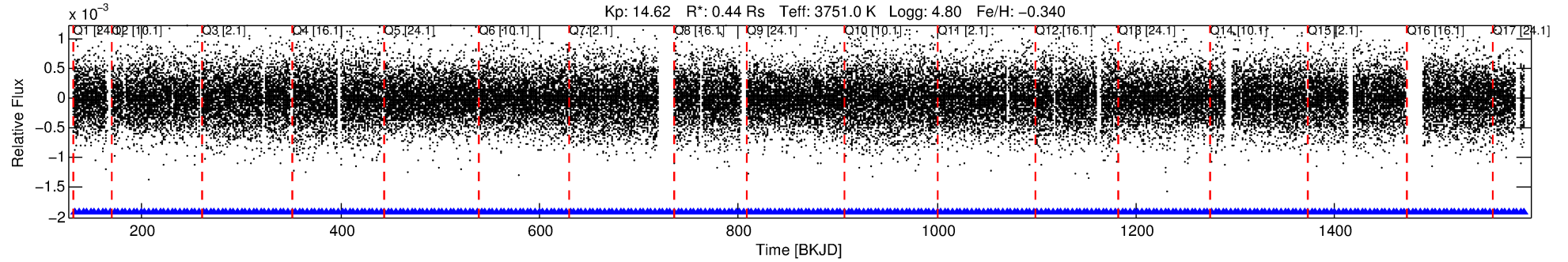
Ephemeris Match Information For 008120608-03

No Significant Match Found

DV One-Page Summary

KIC: 8120608 Candidate: 3 of 5 Period: 3.887 d
KOI: K00571.03 Name: Kepler-186b Corr: 0.965

Kp: 14.62 R*: 0.44 Rs Teff: 3751.0 K Logg: 4.80 Fe/H: -0.340



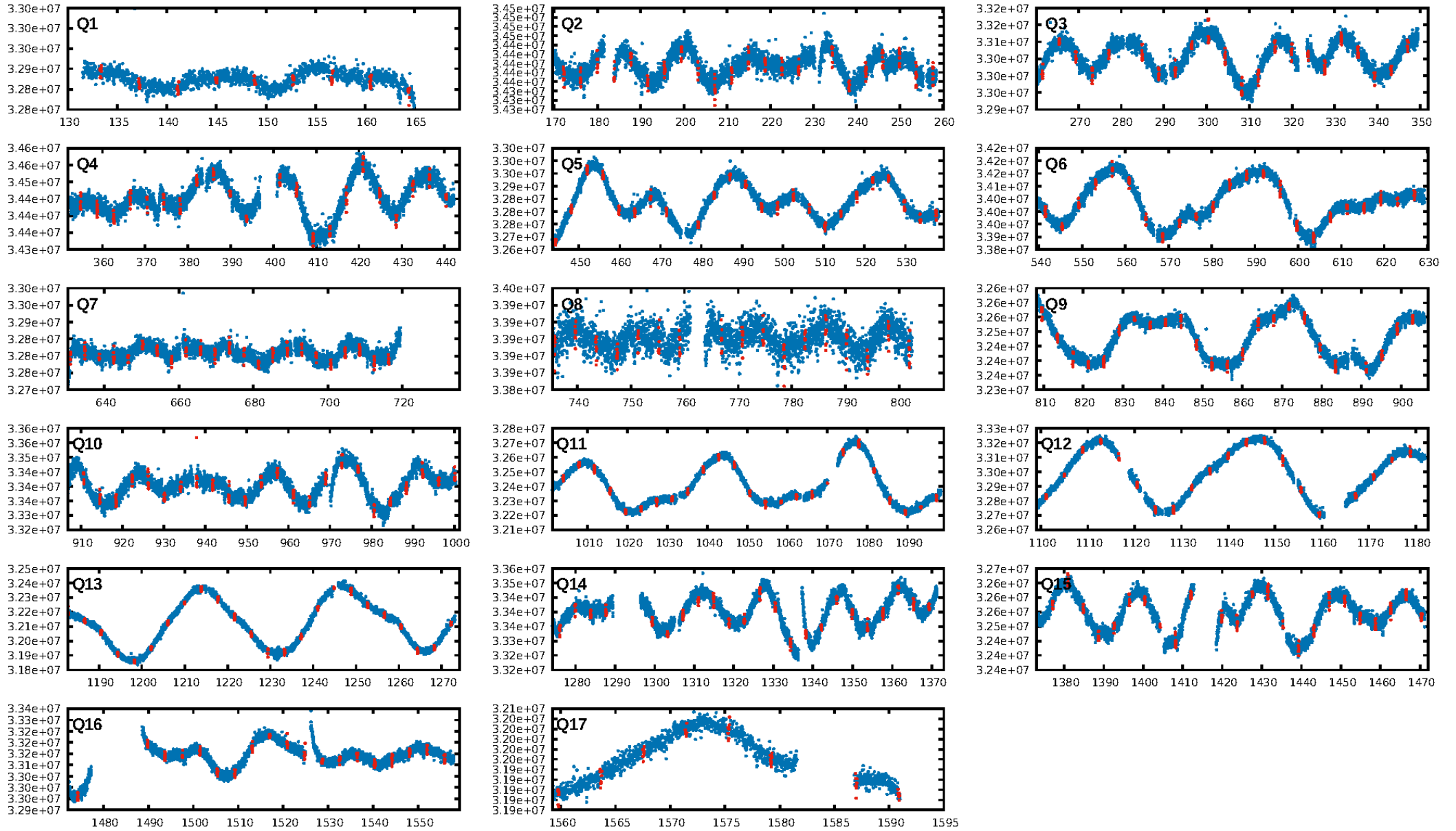
DV Fit Results:

Period = 3.88681 [0.00001] d
Epoch = 133.3269 [0.0008] BKJD
Rp/R* = 0.0232 [0.0026]
a/R* = 7.60 [4.00]
b = 0.90 [0.12]
Seff = 25.25 [3.94]
Teff = 572 [22] K
Rp = 1.12 [0.18] Re
a = 0.0371 [0.0035] AU
Ag = 16.69 [7.78] [2.02σ]
Teffp = 1786 [204] K [5.91σ]

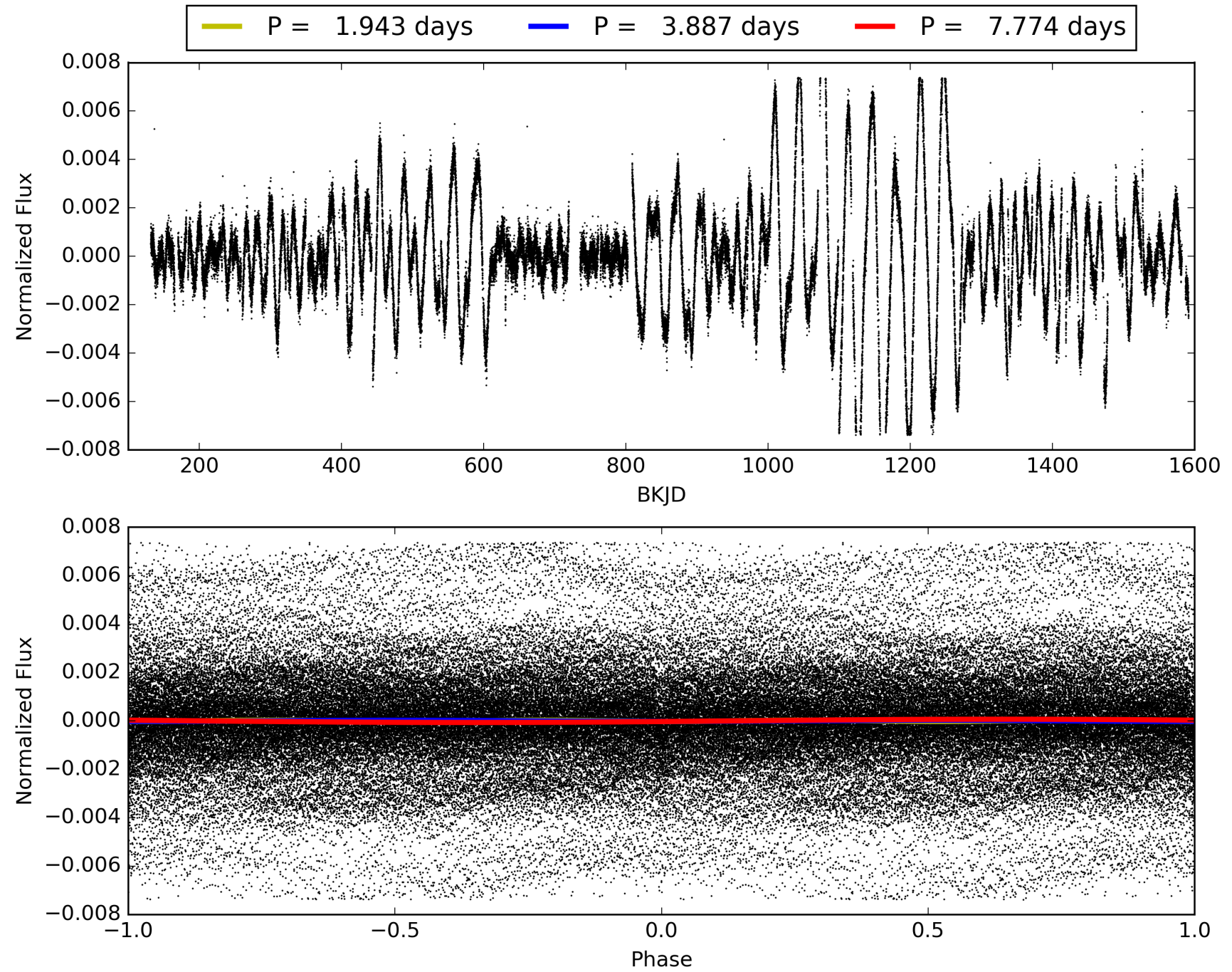
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [26.15σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.73e-250
RollingBand-fgt: 1.00 [315/315]
GhostDiagnostic-chr: 6.538
Centroid-sig: 16.4%
Centroid-so: 0.171 arcsec [0.50σ]
OotOffset-rm: 0.233 arcsec [2.03σ]
KicOffset-rm: 0.350 arcsec [3.16σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008120608-03, PDC Light Curves

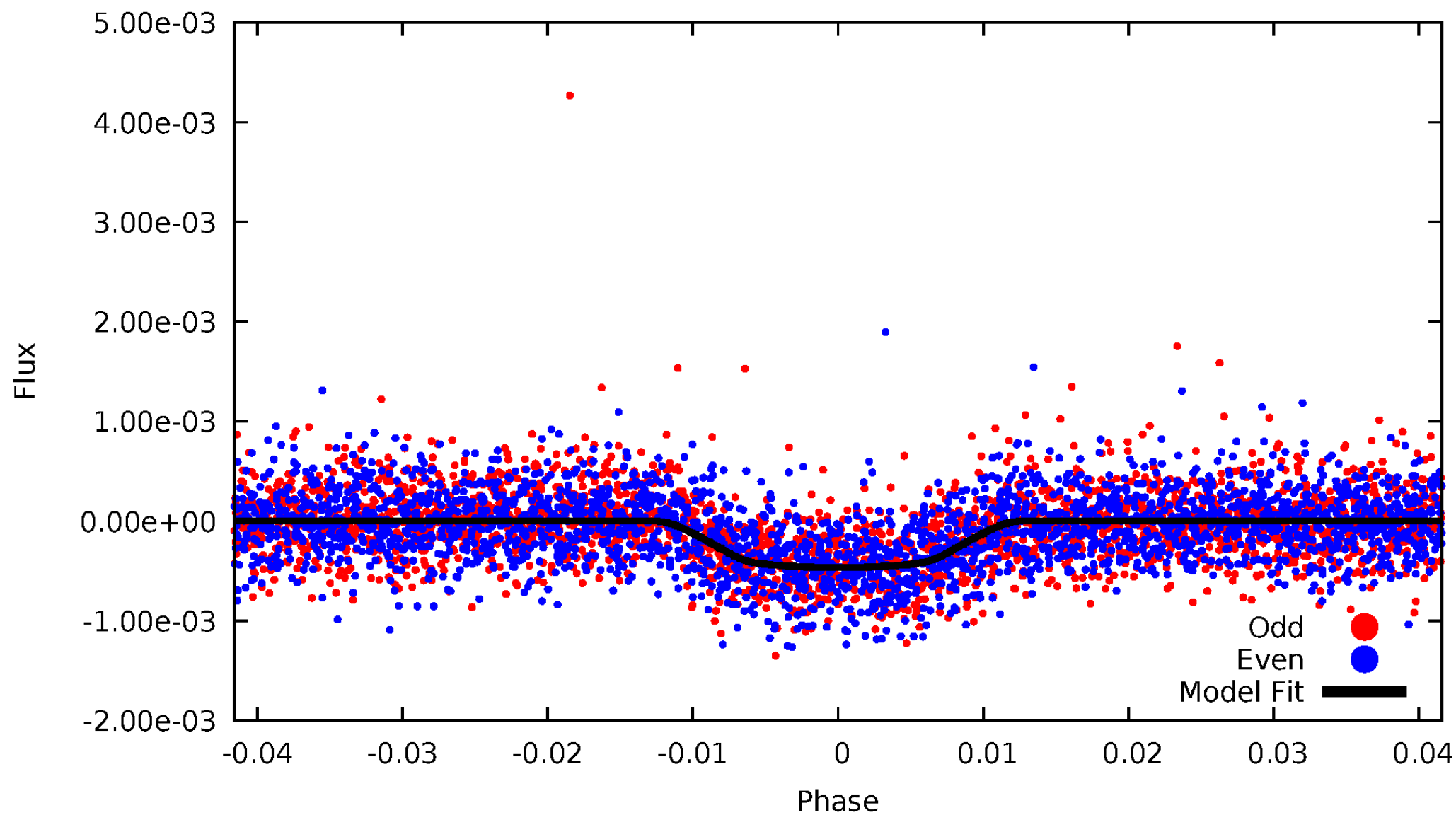


TCE 008120608-03



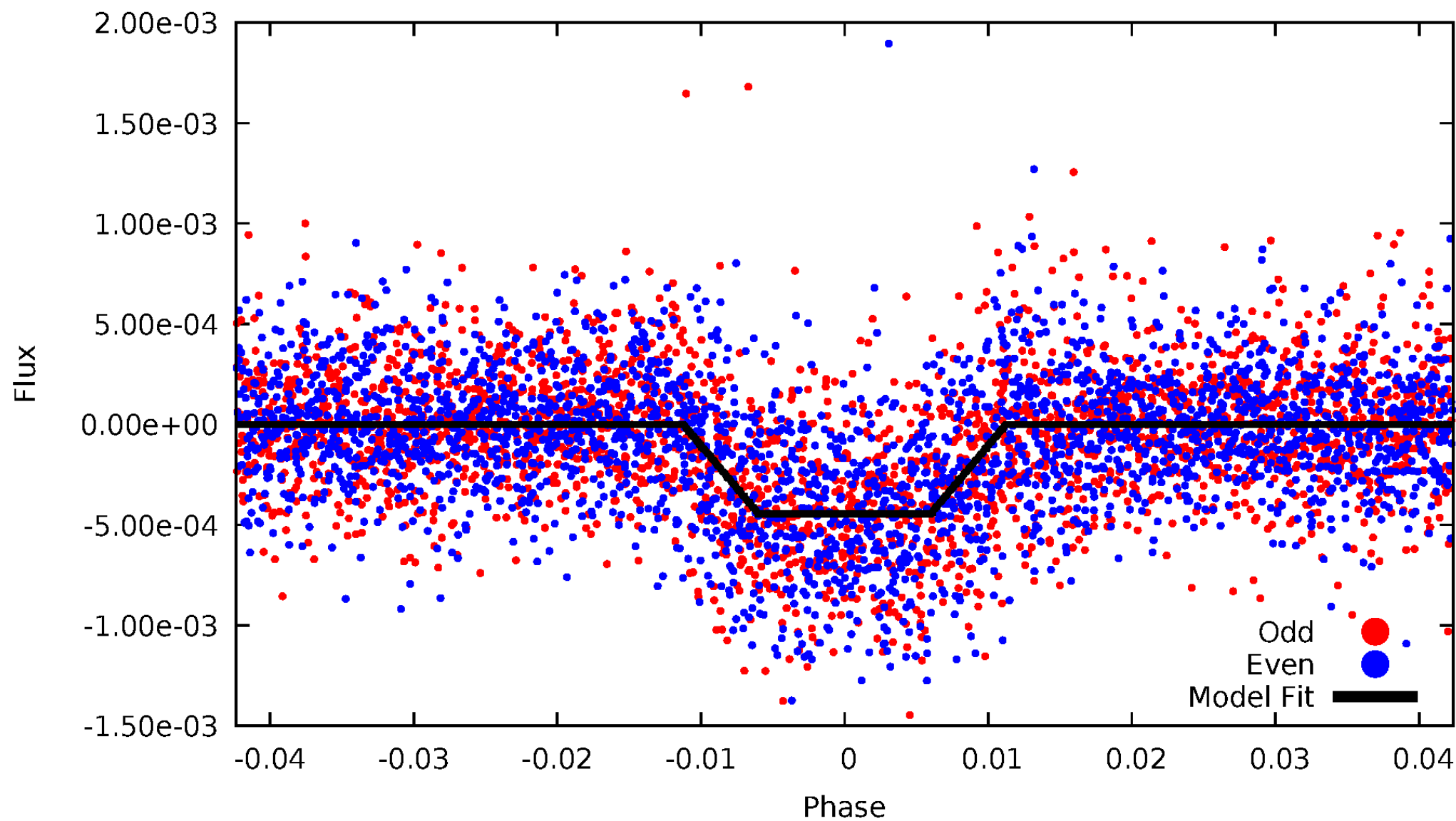
DV Odd/Even

TCE 008120608-03



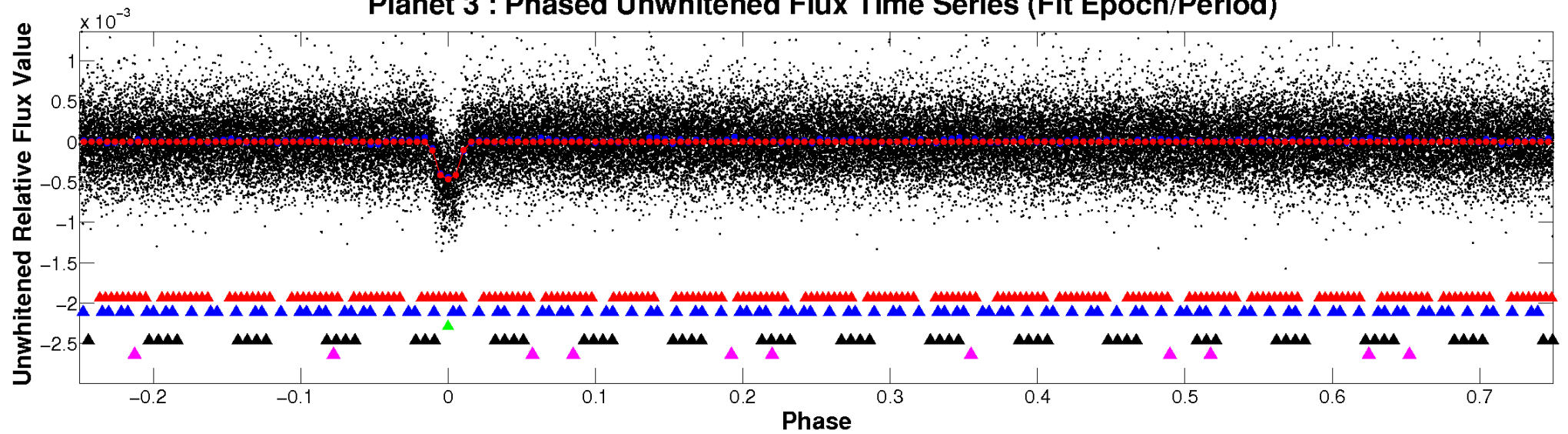
ALT Odd/Even

TCE 008120608-03

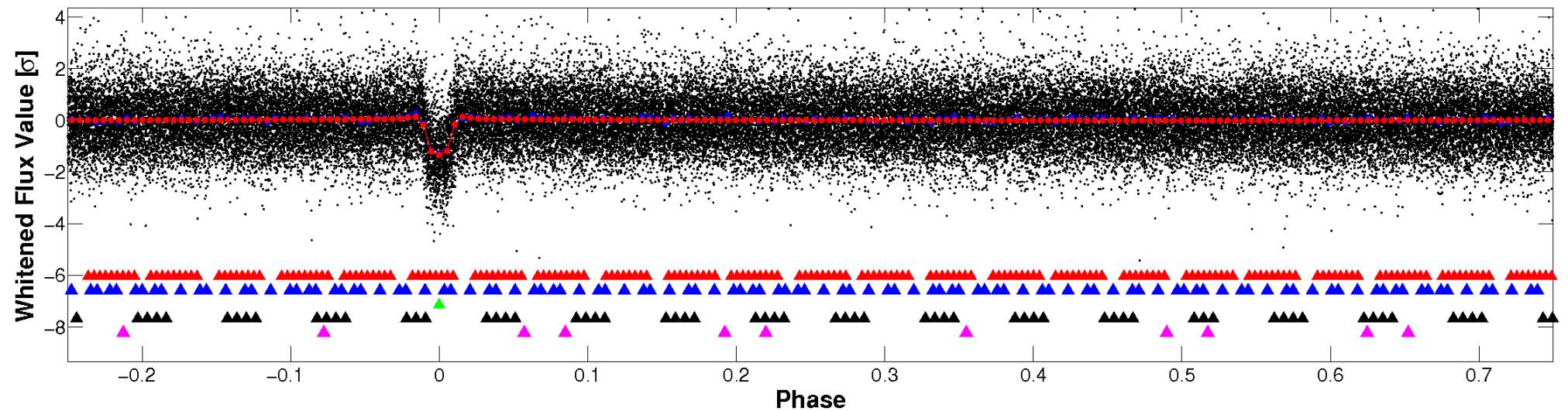


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

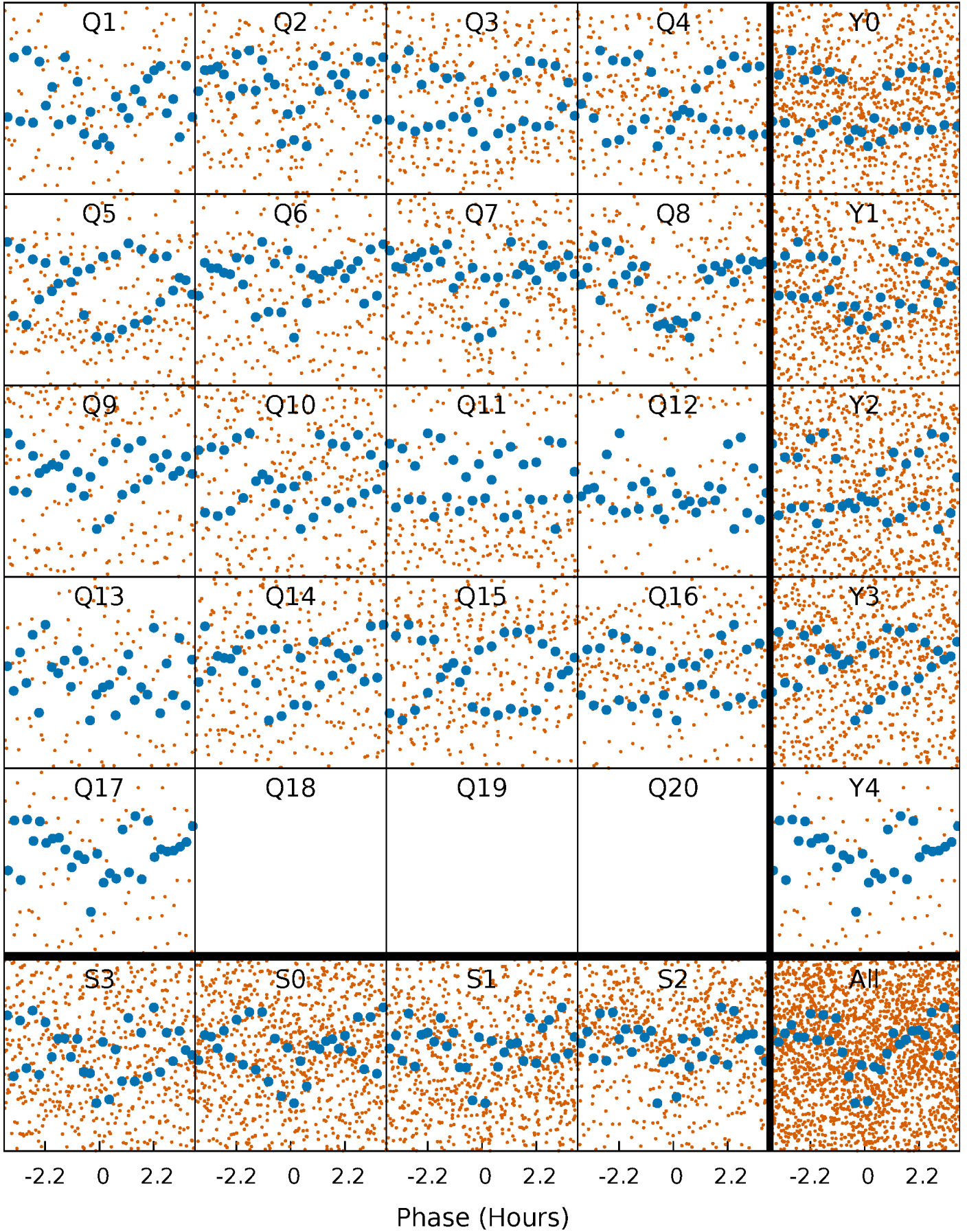


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



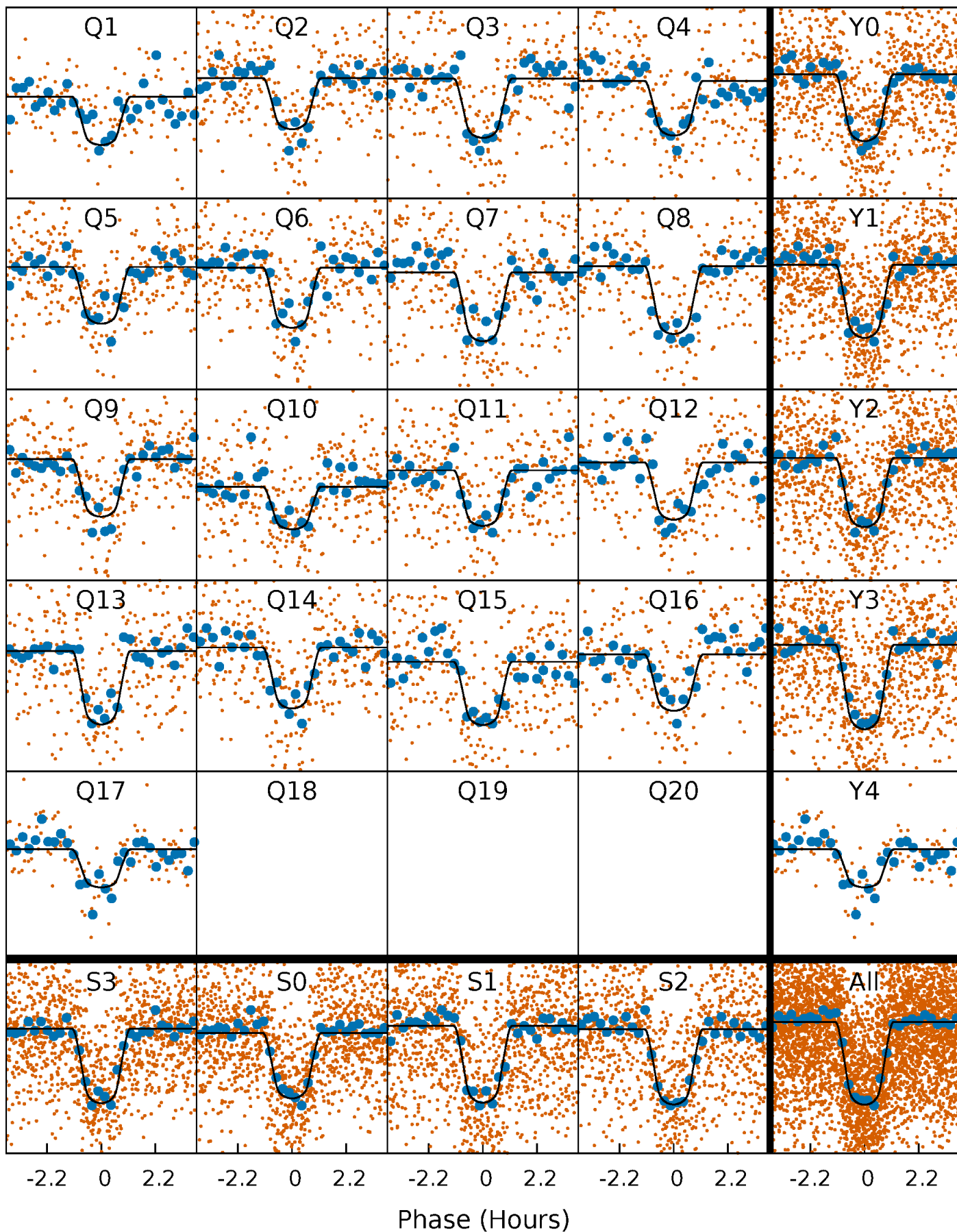
PDC Quarter-Phased Transit Curves

TCE 008120608-03 P= 3.886806 Days $T_0=133.326924$ (BKJD)



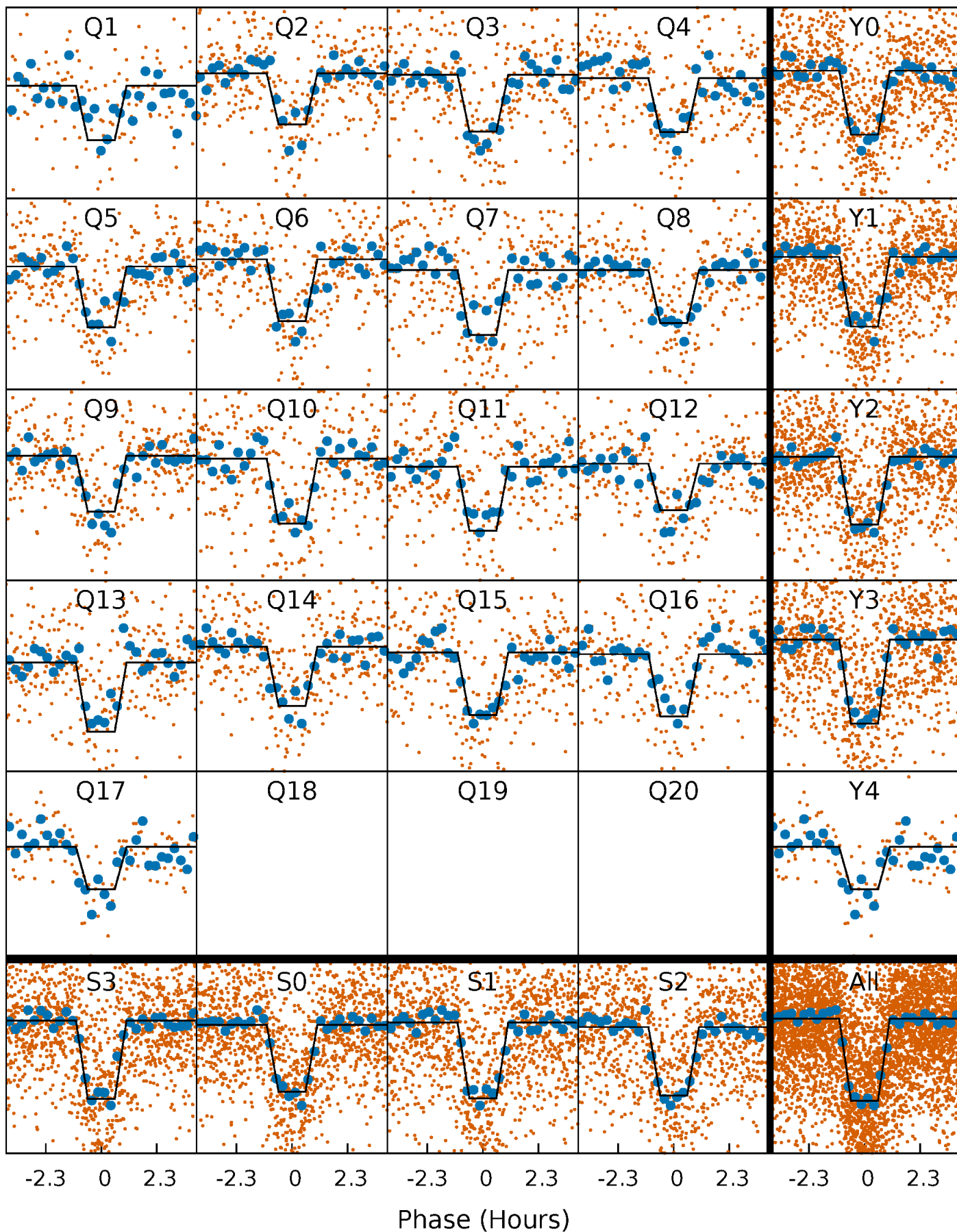
DV Quarter-Phased Transit Curves

TCE 008120608-03 P= 3.886806 Days $T_0=133.326924$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

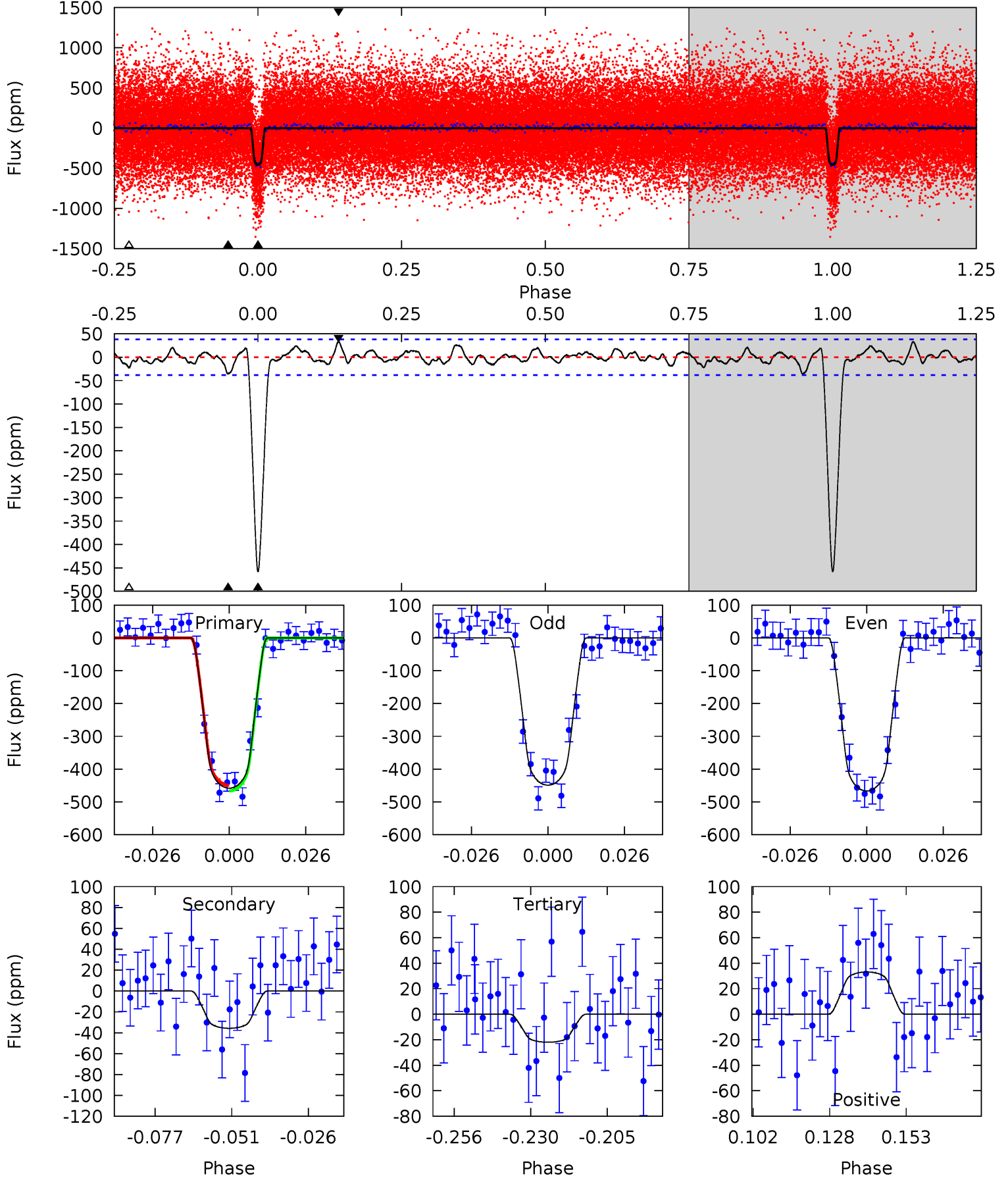
TCE 008120608-03 P= 3.886809 Days $T_0=133.326811$ (BKJD)



DV Model-Shift Uniqueness Test

008120608-03, P = 3.886806 Days, E = 129.440118 Days

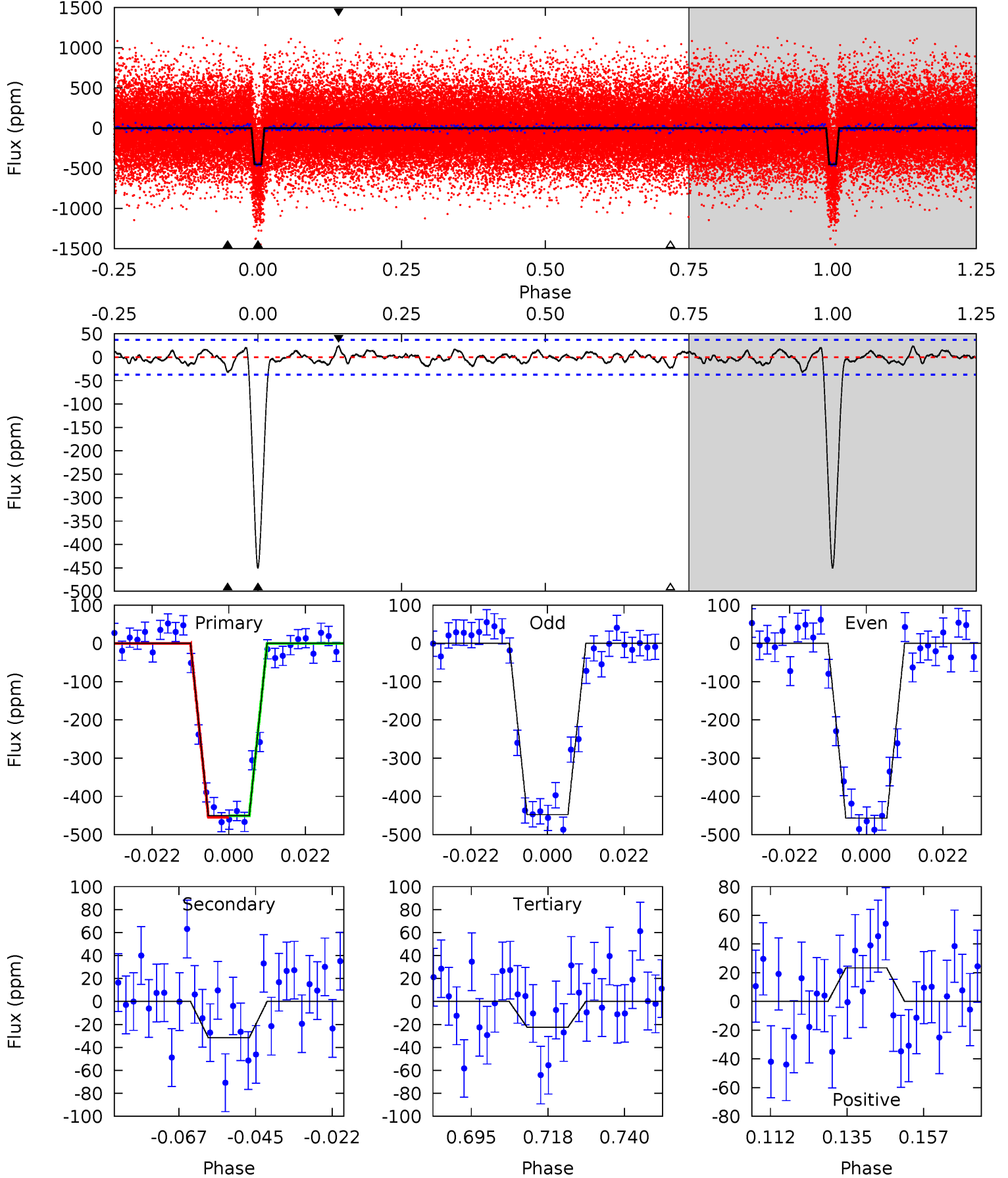
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.2	4.54	2.79	4.21	4.84	2.23	1.27	55.4	54.0	1.75	0.33	1.12	0.98	0.07	1.08



Alt Model-Shift Uniqueness Test

008120608-03, P = 3.886809 Days, E = 129.440002 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.8	4.13	2.94	3.05	4.87	2.28	1.10	55.9	55.8	1.19	1.08	0.61	0.97	0.05	0.22



Stellar Parameters For KIC 008120608

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3751^{+75}_{-84}	$4.800^{+0.065}_{-0.035}$	$-0.340^{+0.150}_{-0.150}$	$0.443^{+0.040}_{-0.053}$	$0.452^{+0.038}_{-0.050}$	$7.322^{+2.420}_{-1.181}$
	+2%/-2%	+1%/-1%	+44%/-44%	+9%/-12%	+8%/-11%	+33%/-16%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 008120608-03 / KOI 0571.03

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 8	$1.11^{+0.14}_{-0.13}$	793^{+23}_{-26}	2535^{+101}_{-100}	22^{+8}_{-6}
Alt.	-32 ± 8	$1.00^{+0.14}_{-0.12}$	793^{+25}_{-23}	2561^{+113}_{-122}	24^{+10}_{-7}

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 $A_{obs} \gg 1.0$

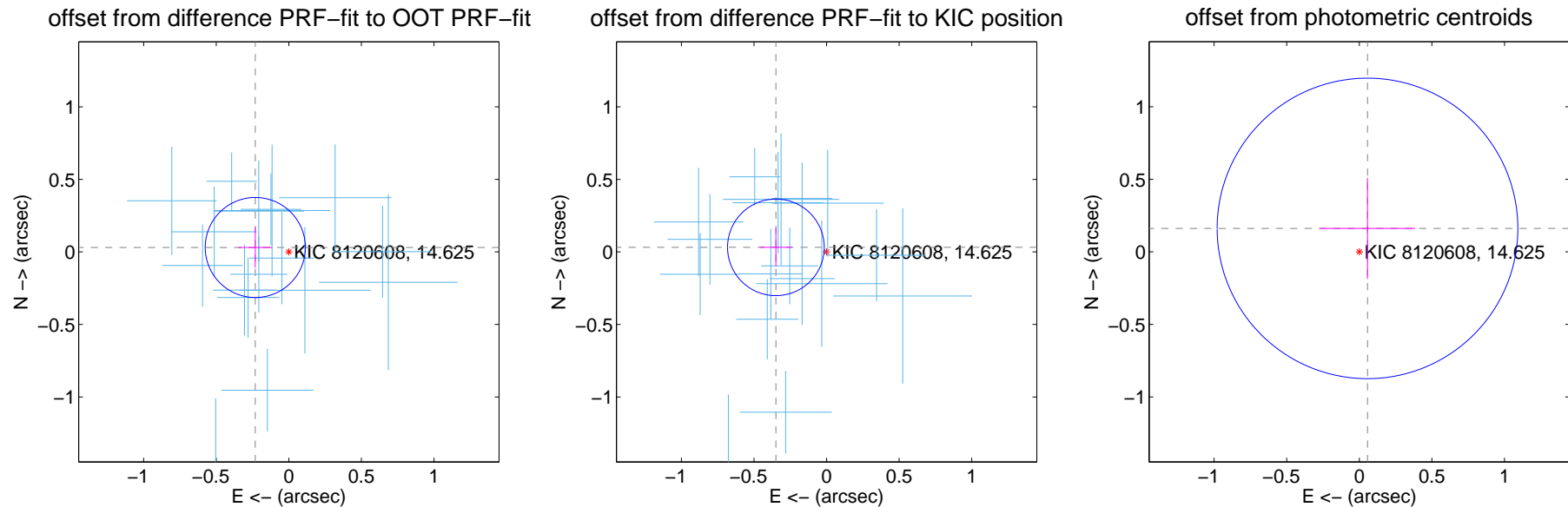
DV Centroid Data

Supplemental centroid analysis for 008120608-03. Kepler magnitude: 14.62. Transit SNR 38.92

There are 17 quarters with good PRF difference image offsets

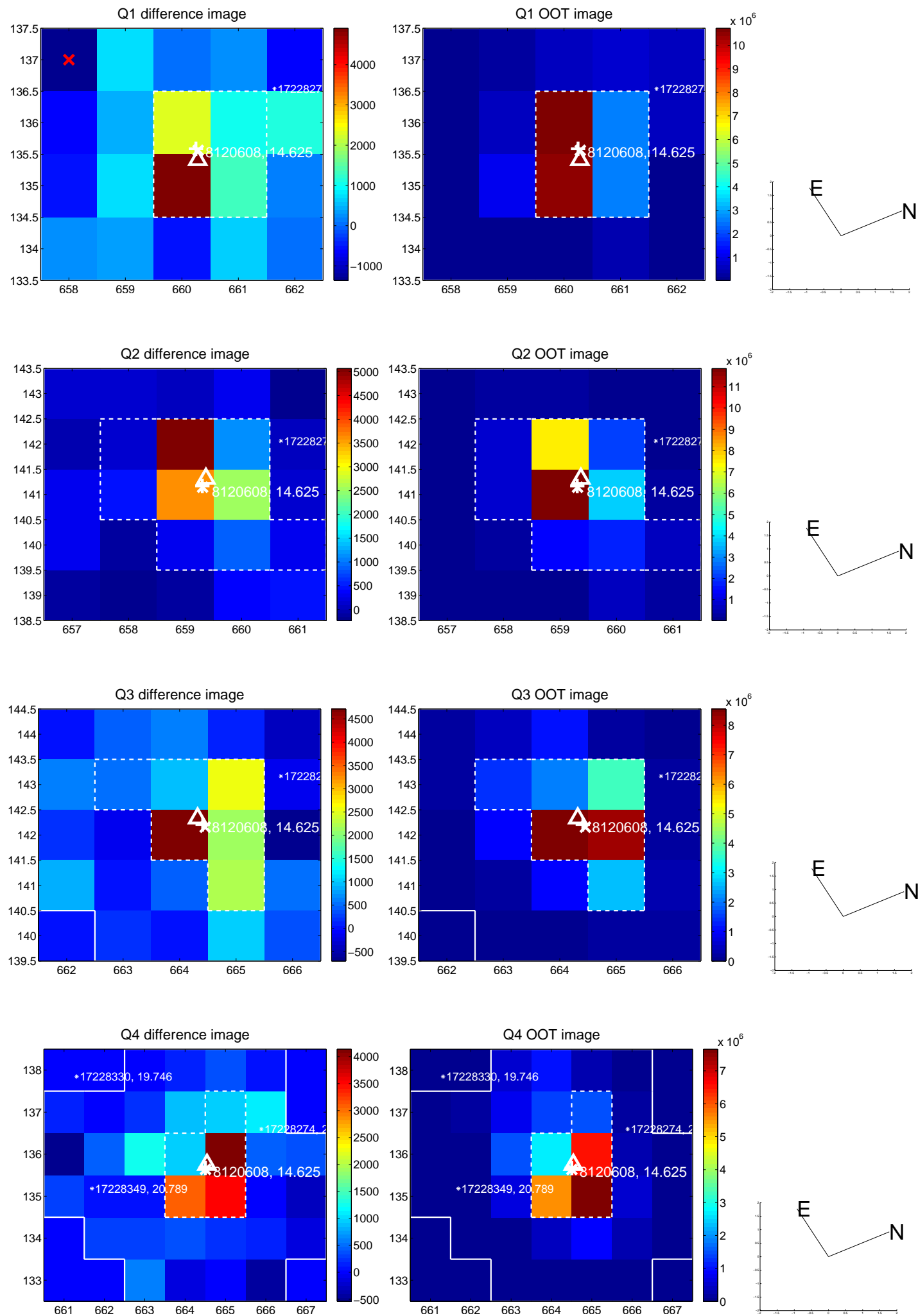
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.233 ± 0.115	2.03	0.231 ± 0.116	0.030 ± 0.139
PRF-fit source offset from KIC position	0.350 ± 0.111	3.16	0.349 ± 0.111	0.032 ± 0.132
photometric centroid source offset	0.17 ± 0.35	0.50	-0.06 ± 0.33	0.16 ± 0.35

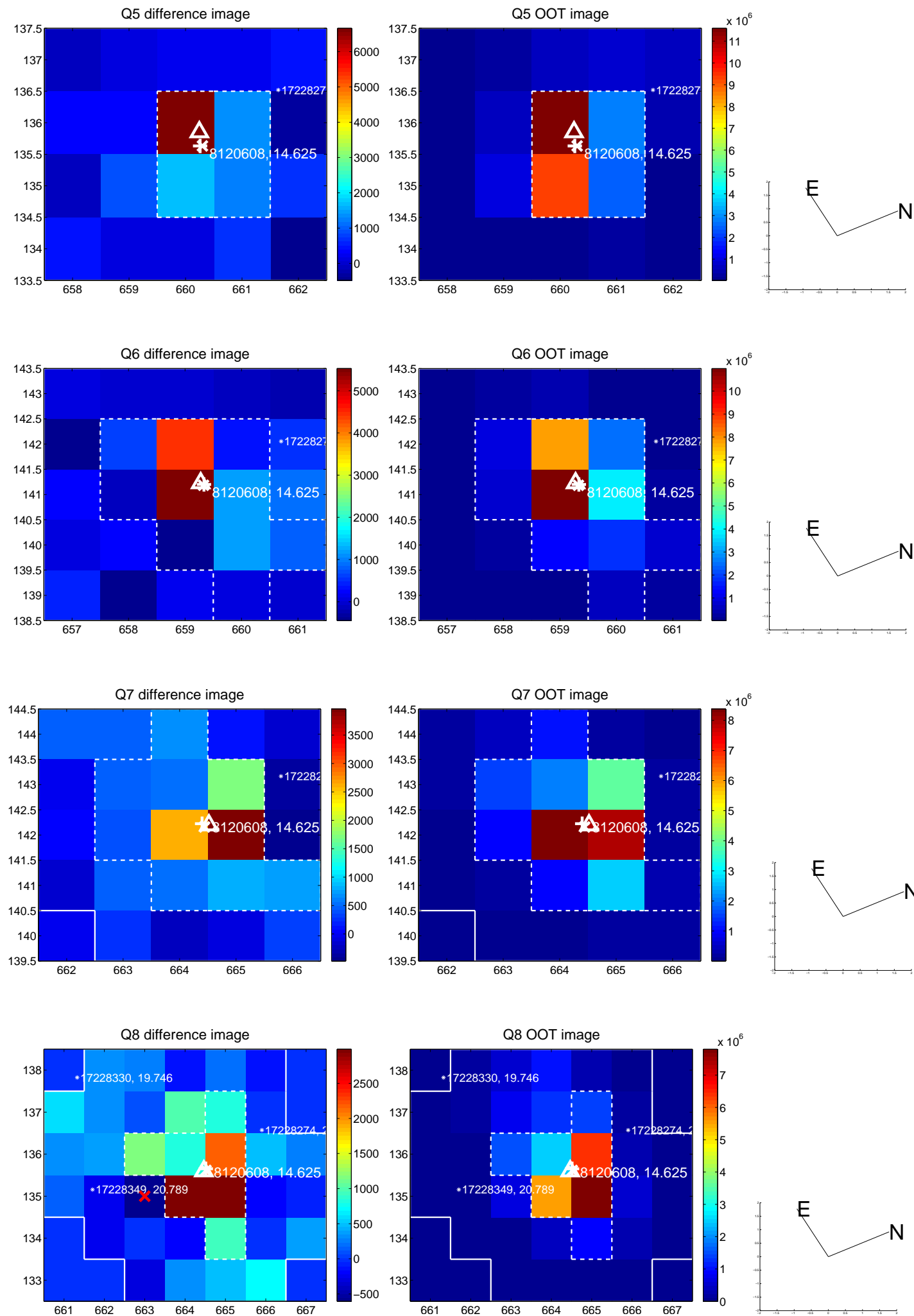


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

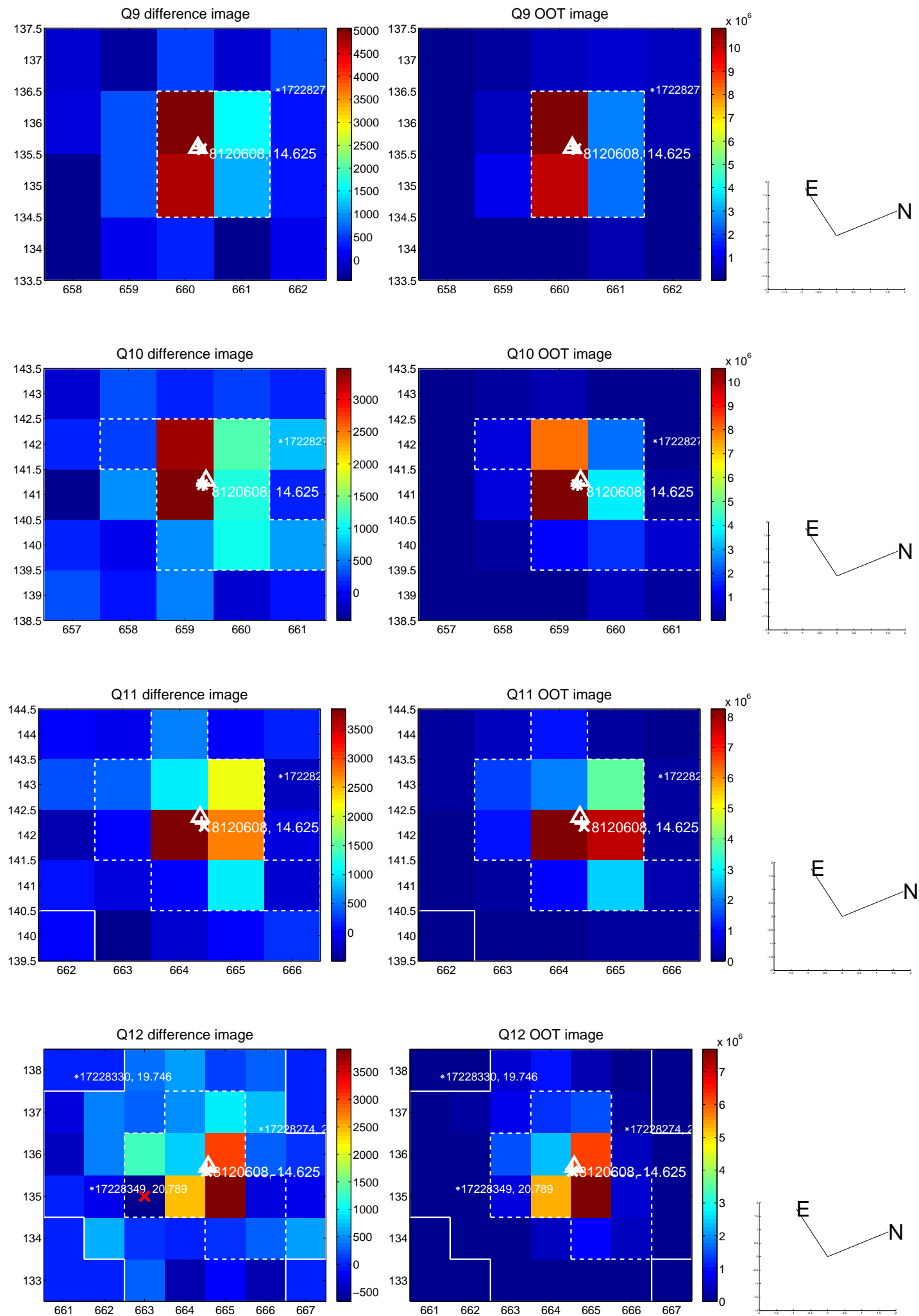
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



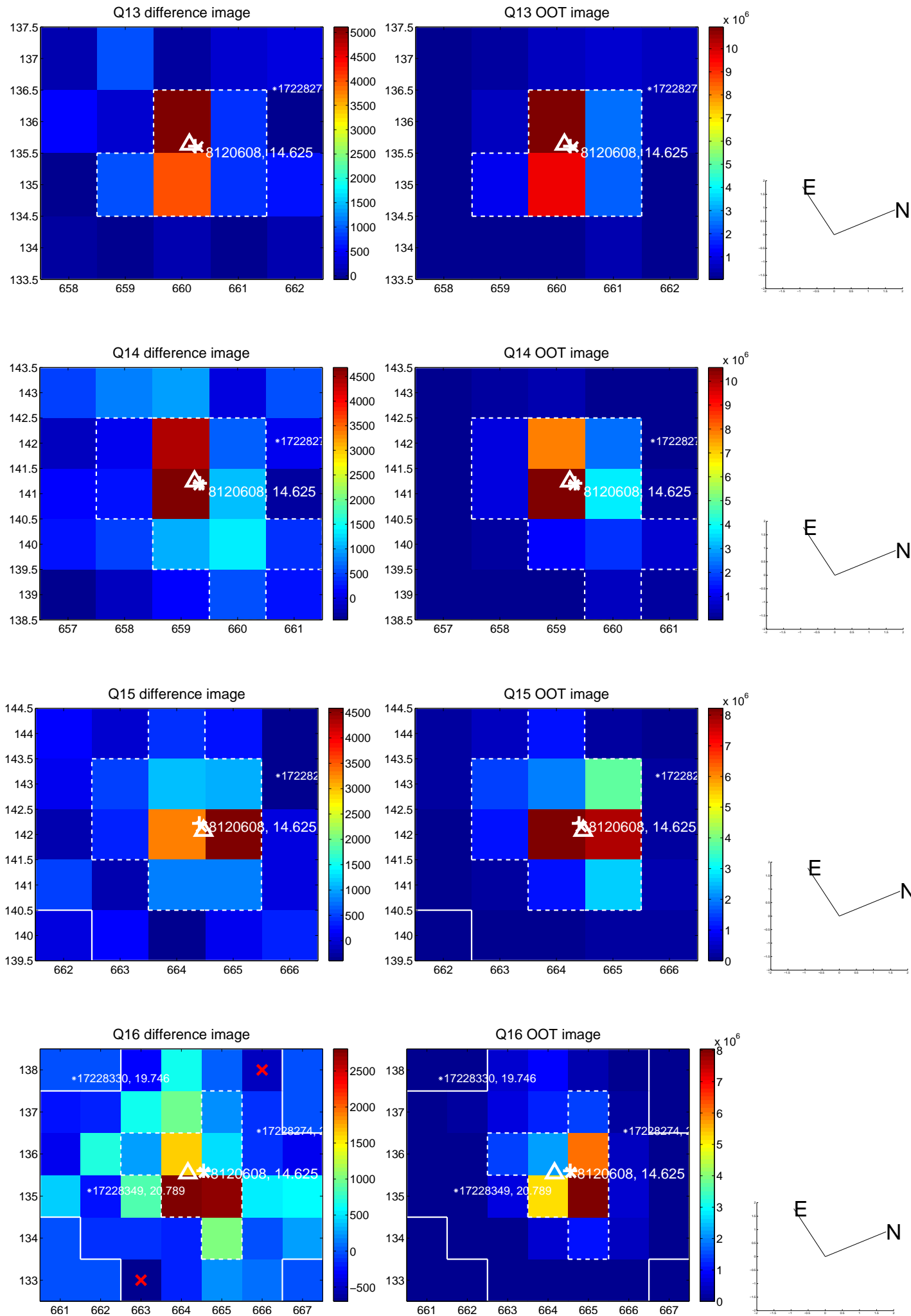
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



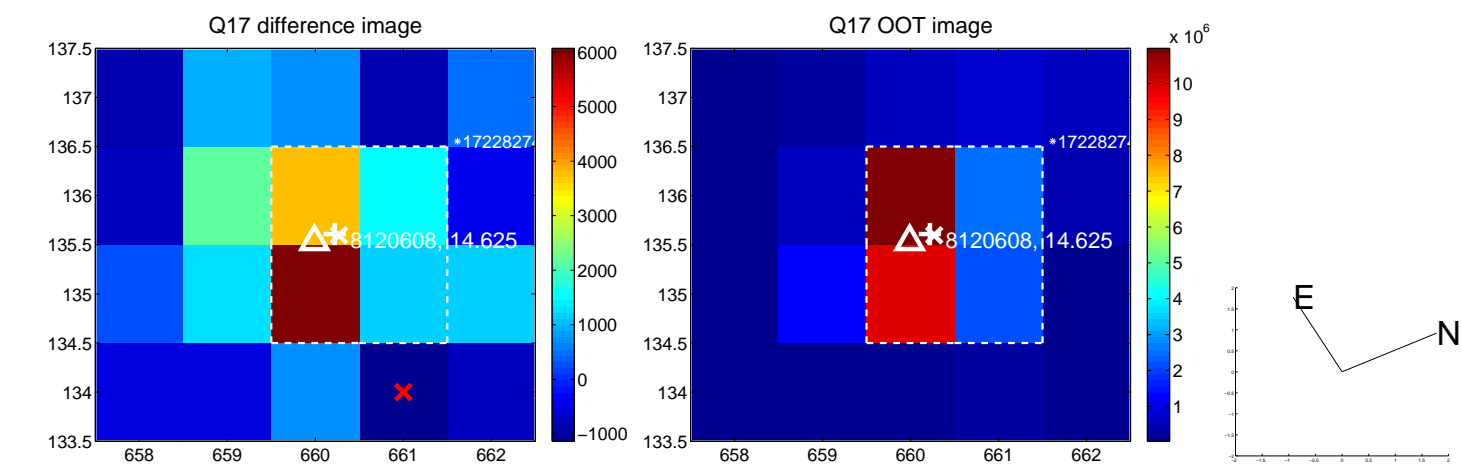
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



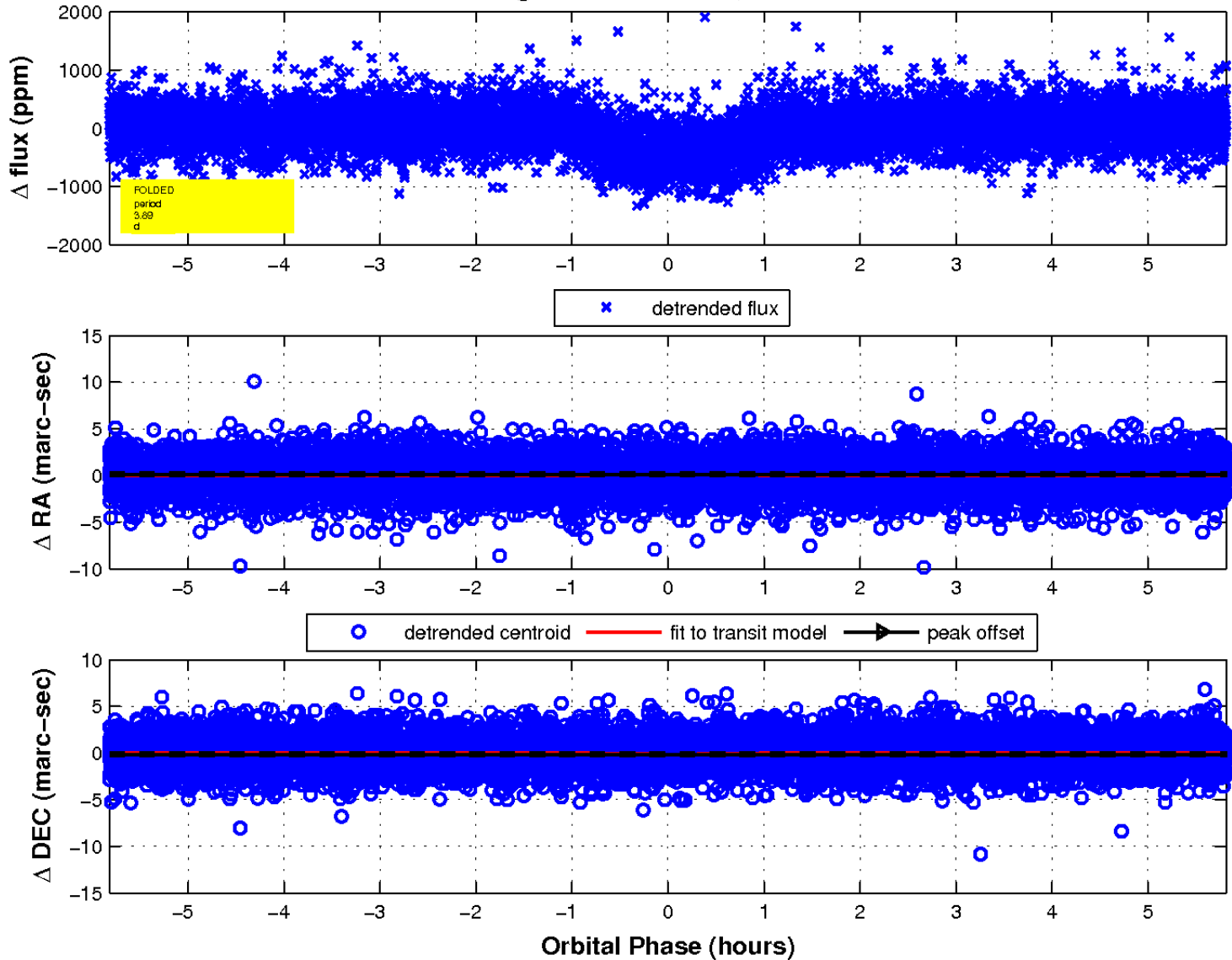
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

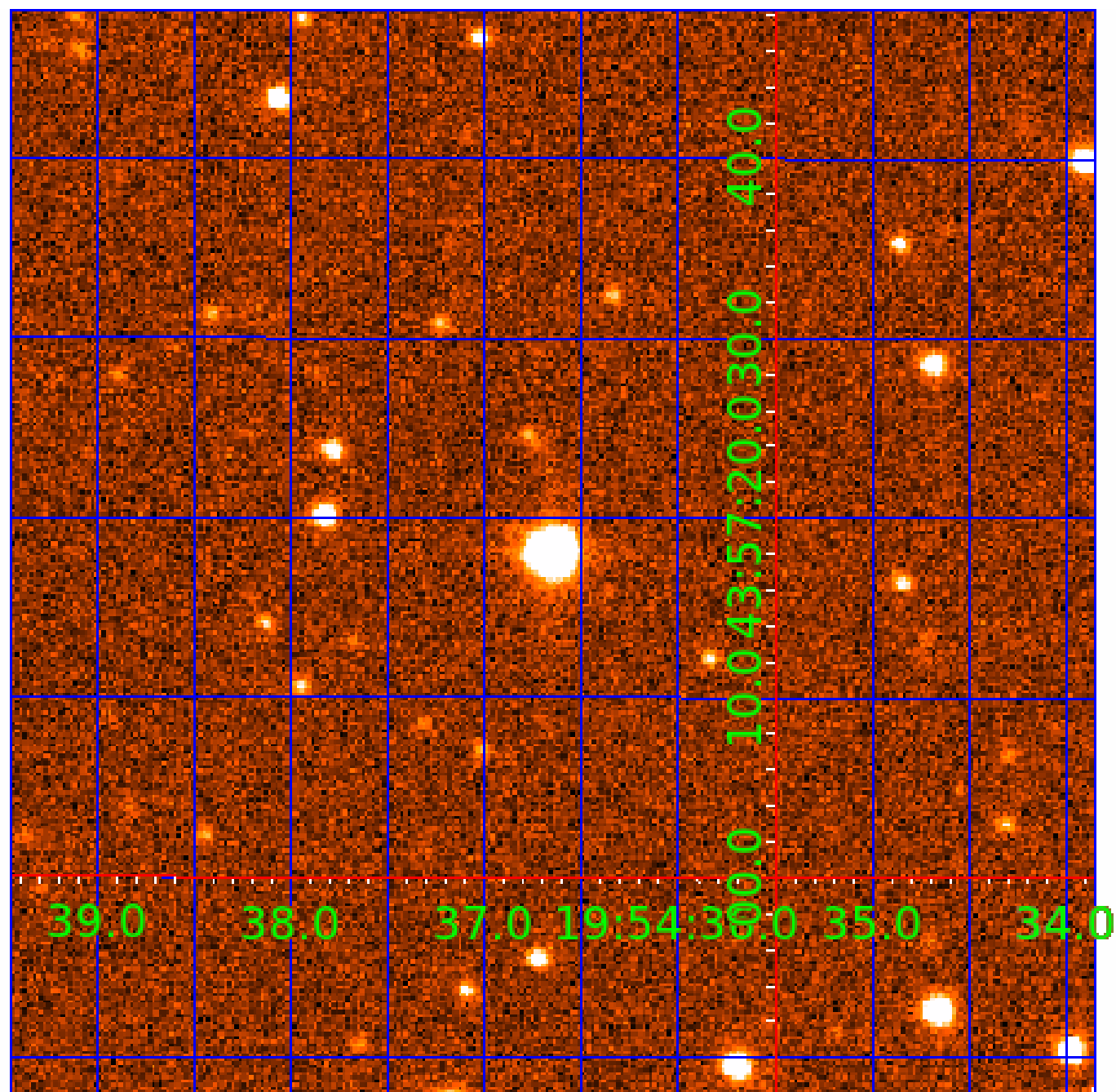


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 008120608

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})
008120608-01	OBS	0571.01	7.267295	137.977903	654.7	2.421	38.0	41.6	0.44	3751	1.29	10.96
008120608-02	OBS	0571.02	13.343020	136.873778	808.7	2.920	36.2	41.0	0.44	3751	1.42	4.88
008120608-03	OBS	0571.03	3.886806	133.326924	466.6	1.940	34.2	38.9	0.44	3751	1.12	25.25
008120608-04	OBS	0571.04	22.407747	153.798646	645.8	3.469	23.6	26.3	0.44	3751	1.26	2.44
008120608-05	OBS	0571.05	129.945688	176.829176	454.2	5.569	7.7	8.6	0.44	3751	1.02	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008120608-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-05	OBS	PC	0.68	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.

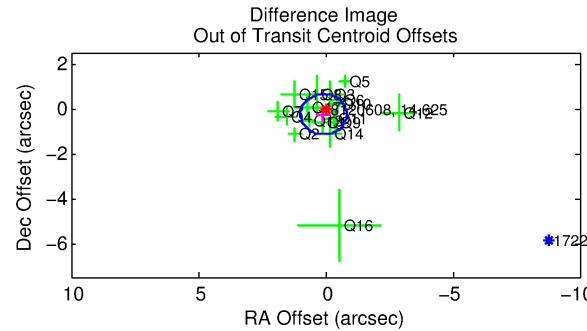
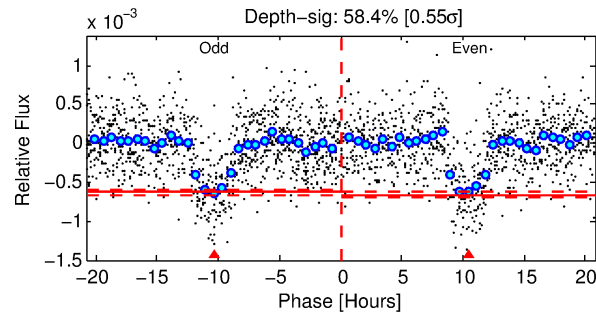
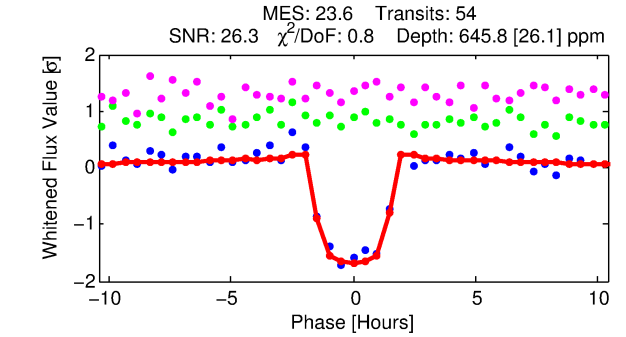
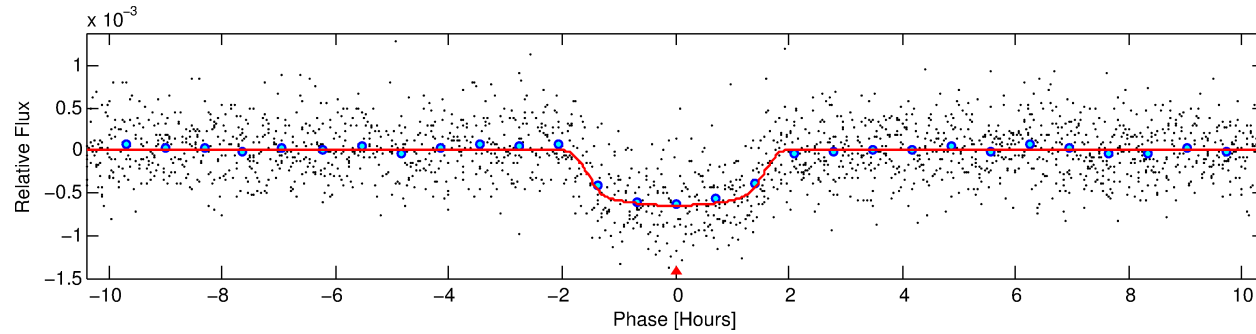
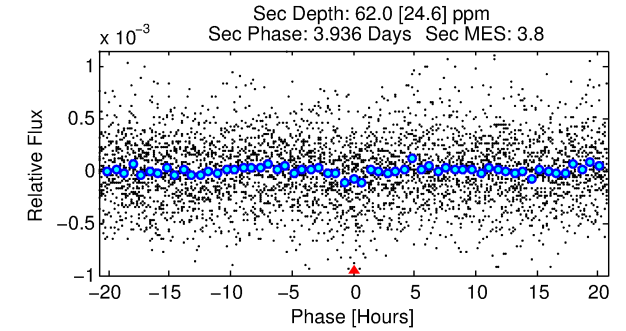
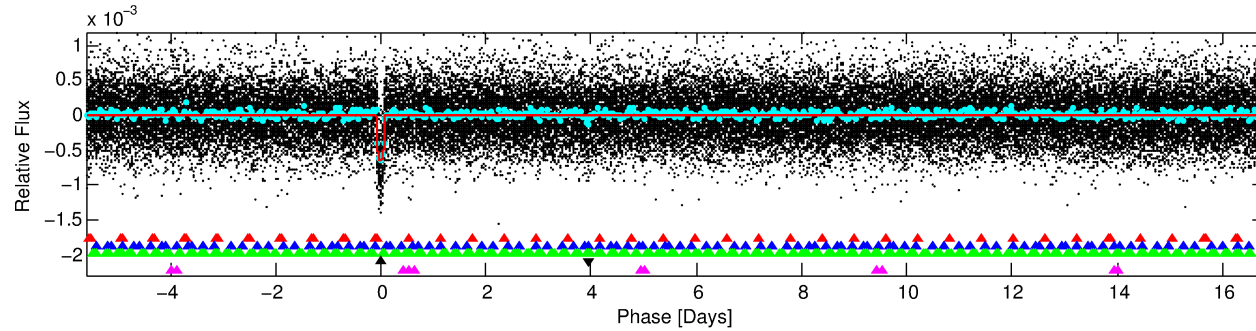
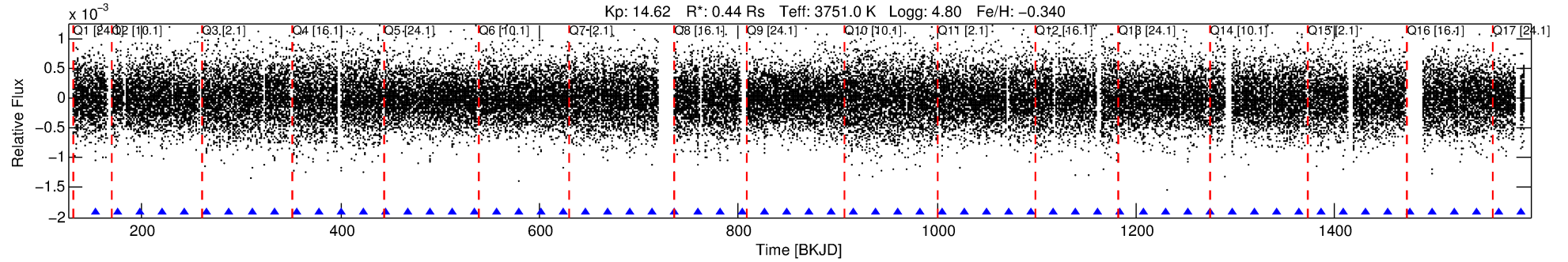
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008120608-04

No Significant Match Found

DV One-Page Summary

KIC: 8120608 Candidate: 4 of 5 Period: 22.408 d
KOI: K00571.04 Name: Kepler-186e Corr: 0.978



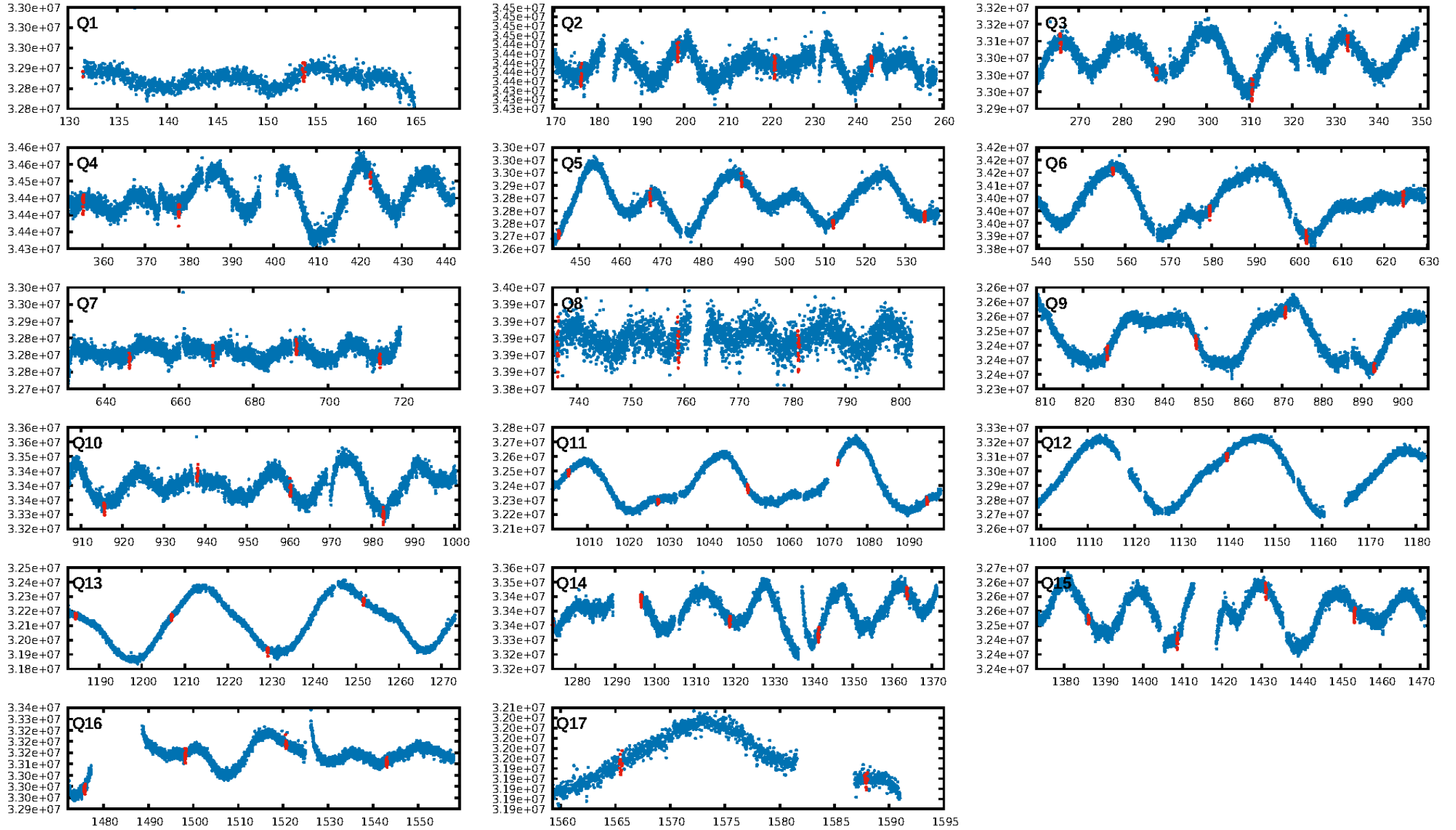
DV Fit Results:

Period = 22.40775 [0.00007] d
Epoch = 153.7986 [0.0026] BKJD
Rp/R* = 0.0260 [0.0038]
a/R* = 30.05 [21.70]
b = 0.83 [0.28]
Seff = 2.44 [0.38]
Teff = 319 [12] K
Rp = 1.26 [0.24] Re
a = 0.1194 [0.0112] AU
Ag = 307.04 [156.62] [1.95σ]
Teffp = 2063 [259] K [6.73σ]

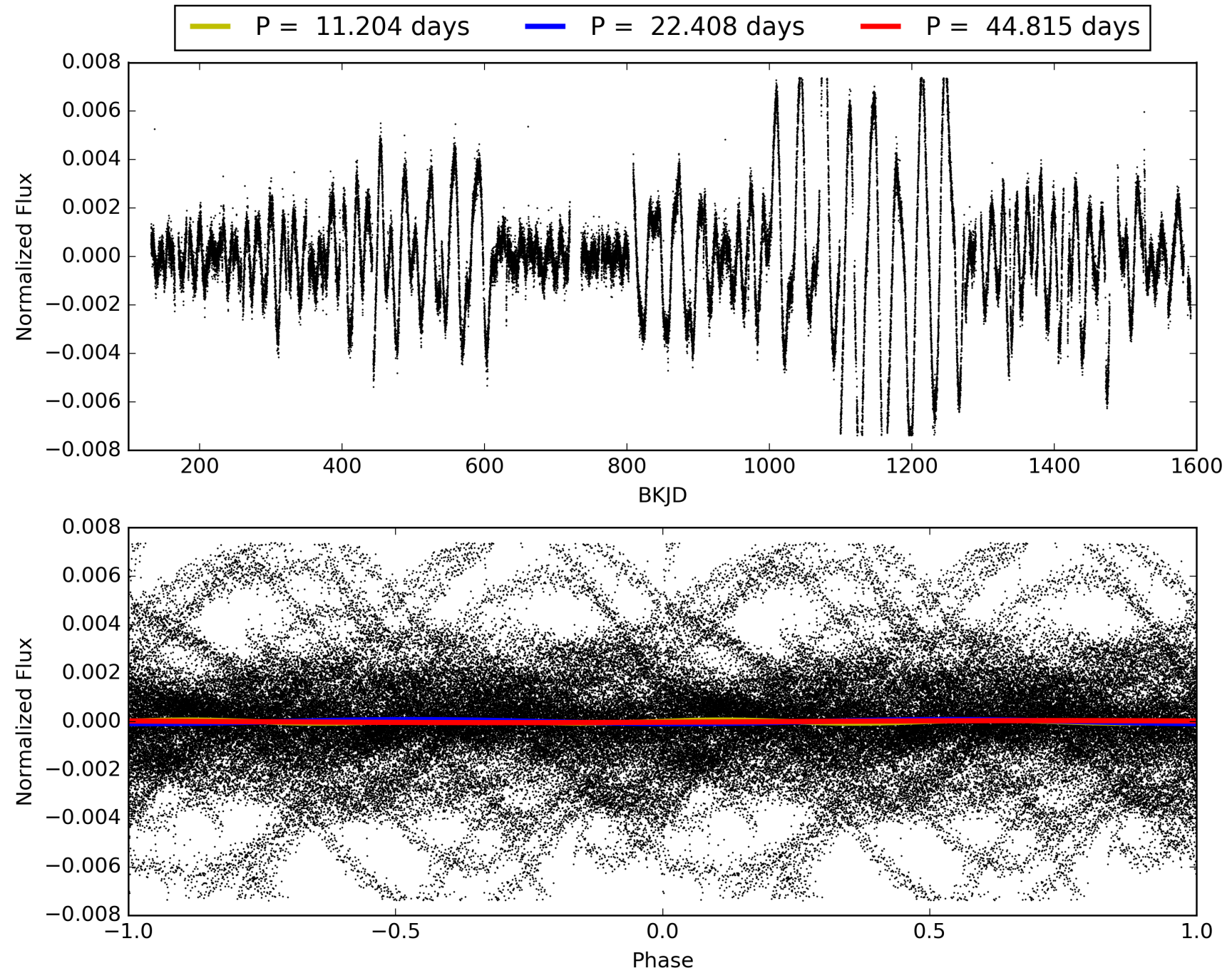
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.98σ]
LongPeriod-sig: 100.0% [393.38σ]
ModelChiSquare2-sig: 73.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.31e-116
RollingBand-fgt: 1.00 [51/51]
GhostDiagnostic-chr: 5.94
Centroid-sig: 22.7%
Centroid-so: 0.450 arcsec [1.04σ]
OotOffset-rm: 0.269 arcsec [0.89σ]
KicOffset-rm: 0.312 arcsec [1.06σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.94 [16/17]

TCE 008120608-04, PDC Light Curves

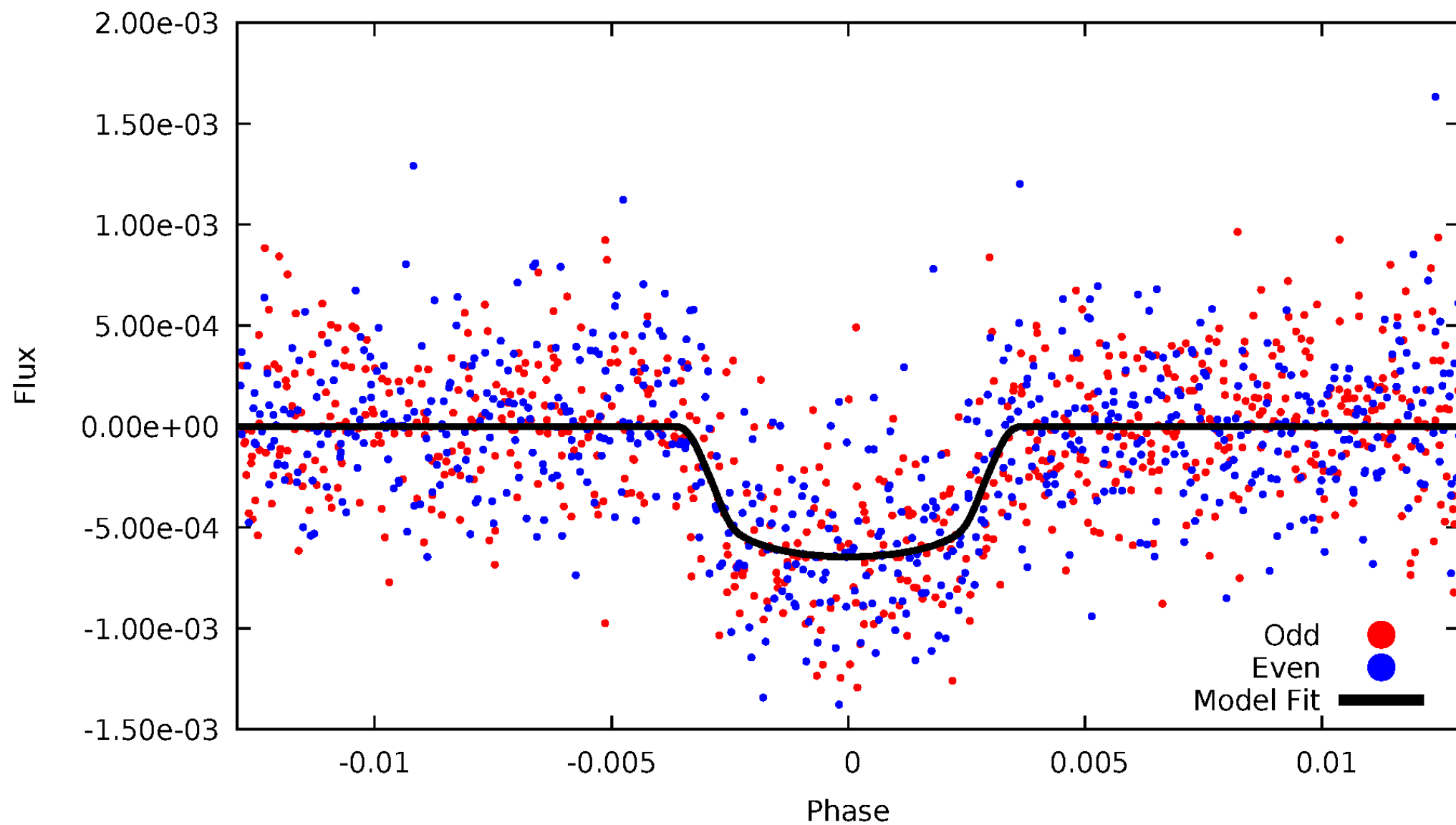


TCE 008120608-04



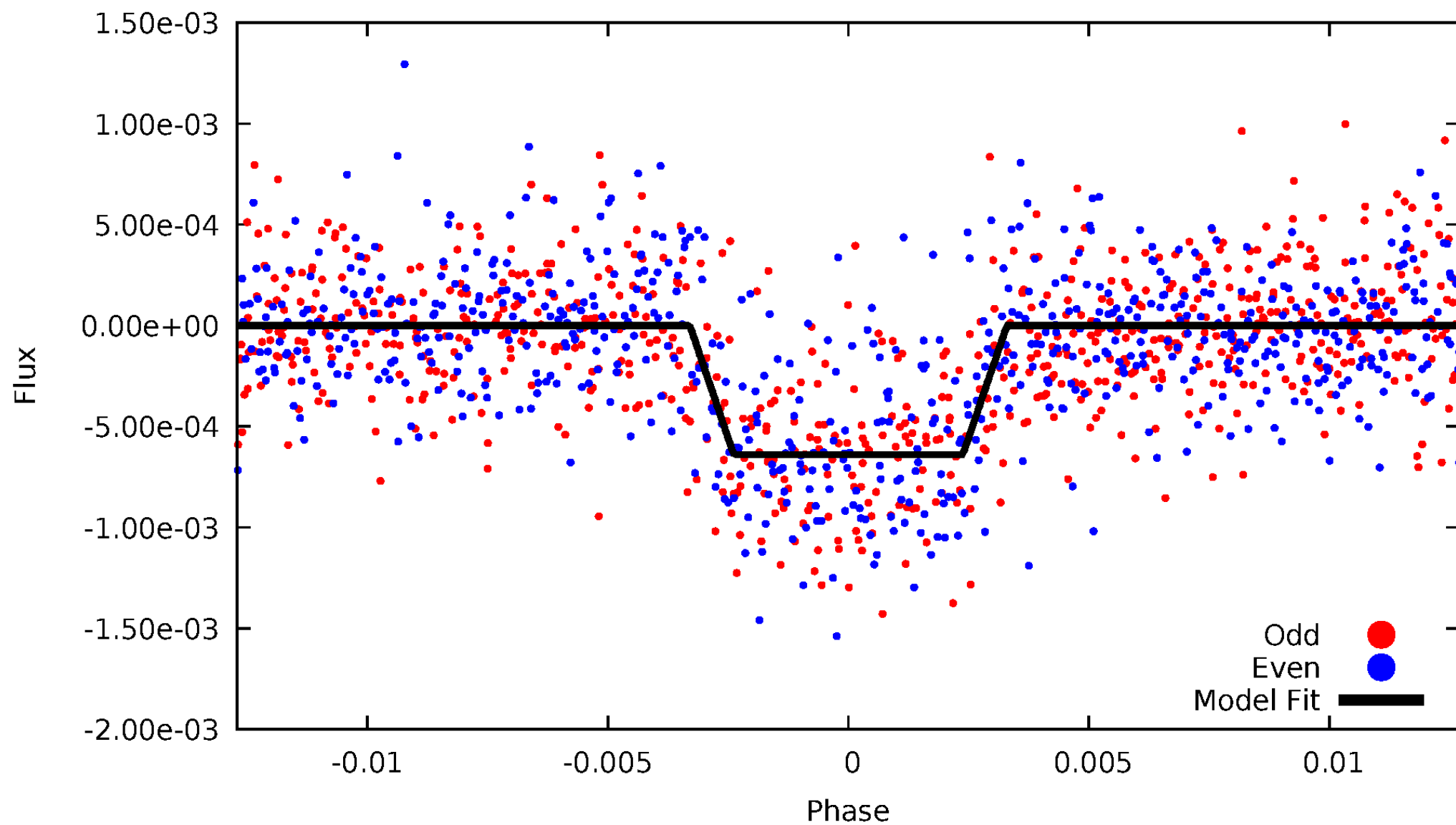
DV Odd/Even

TCE 008120608-04



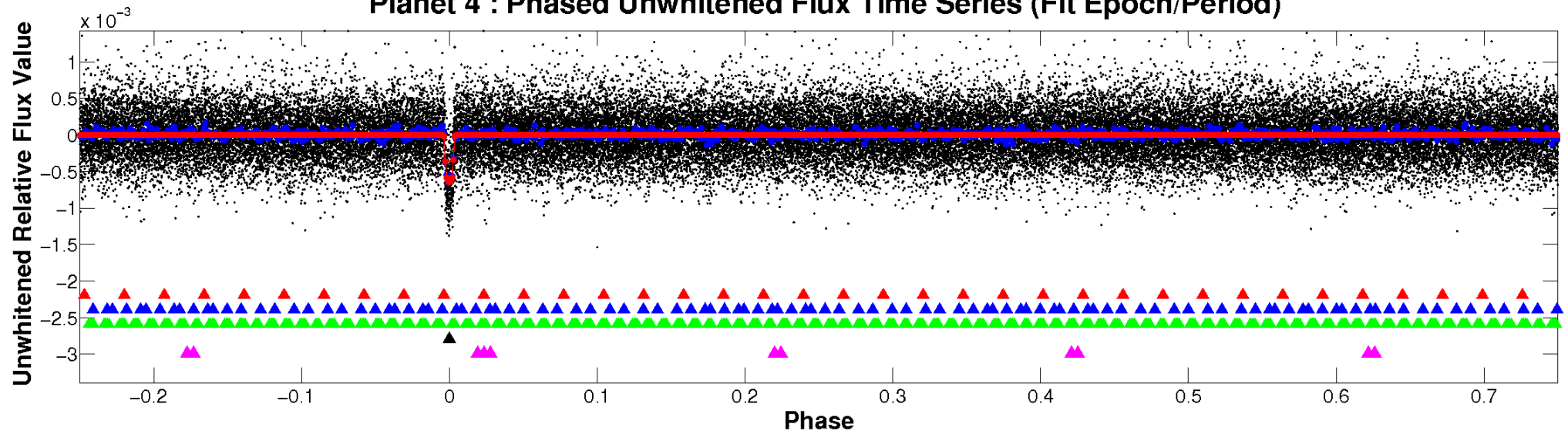
ALT Odd/Even

TCE 008120608-04

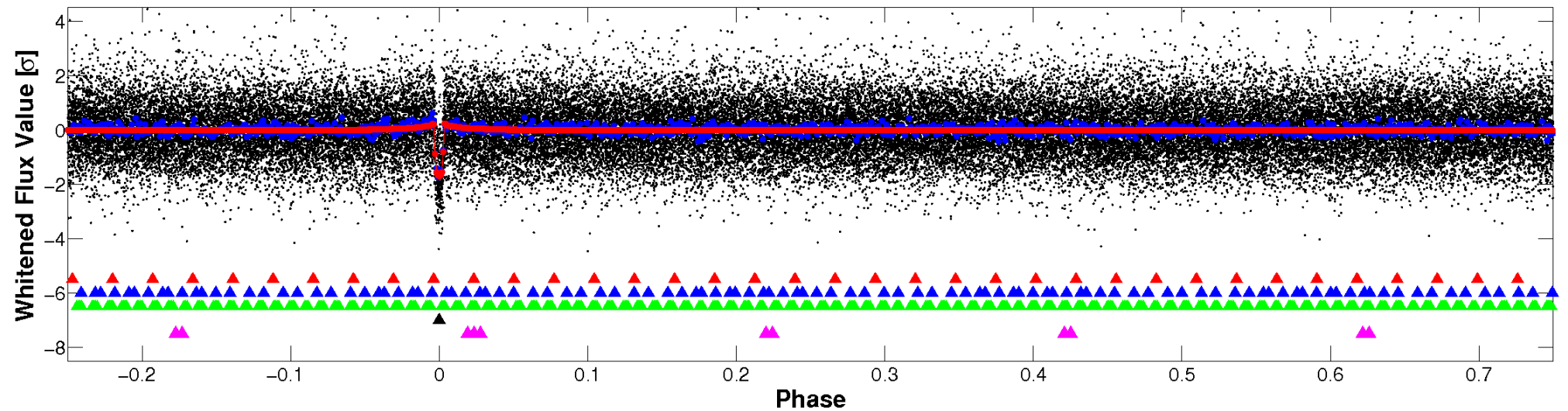


Non-Whitened Vs. Whitened Light Curve

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

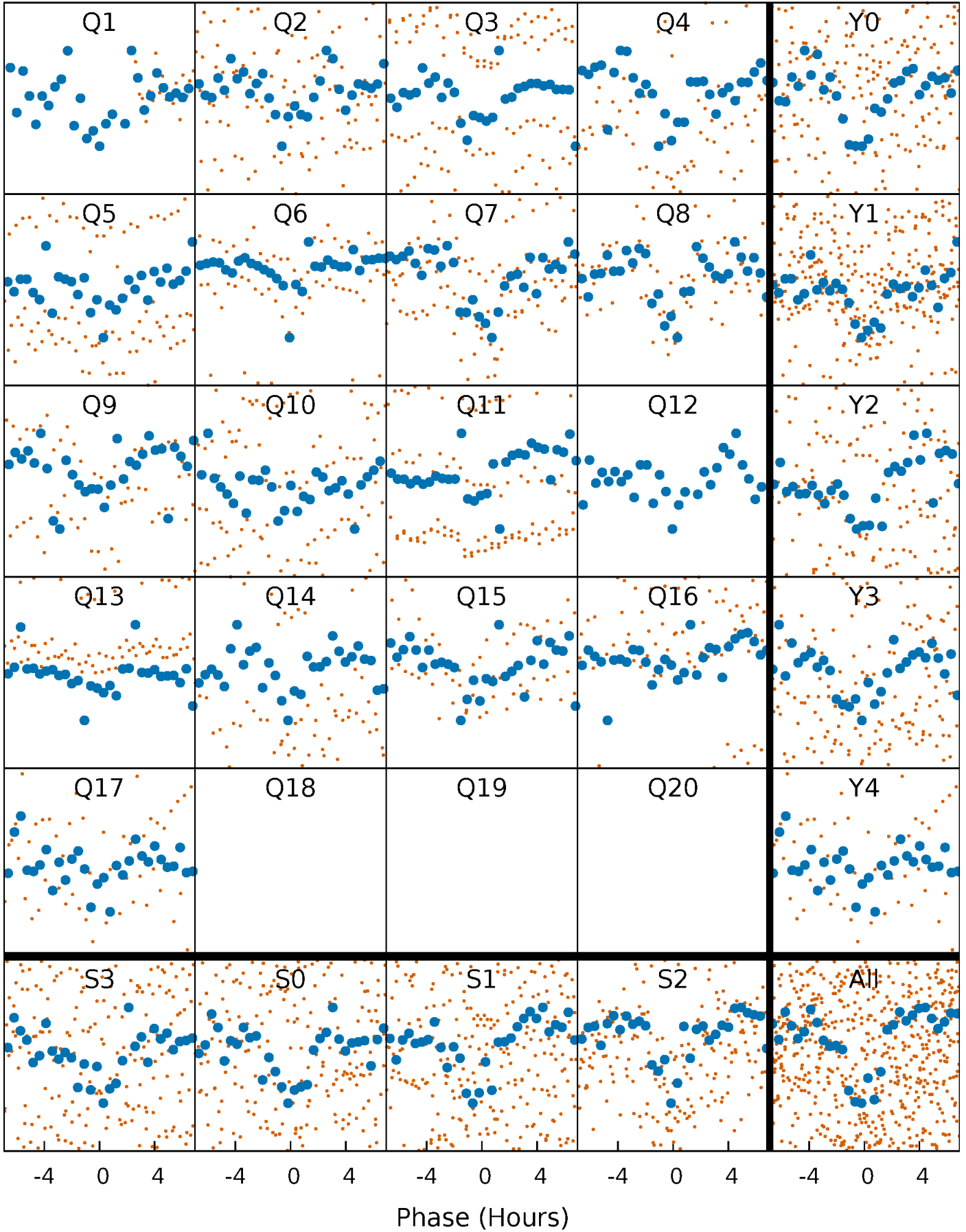


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



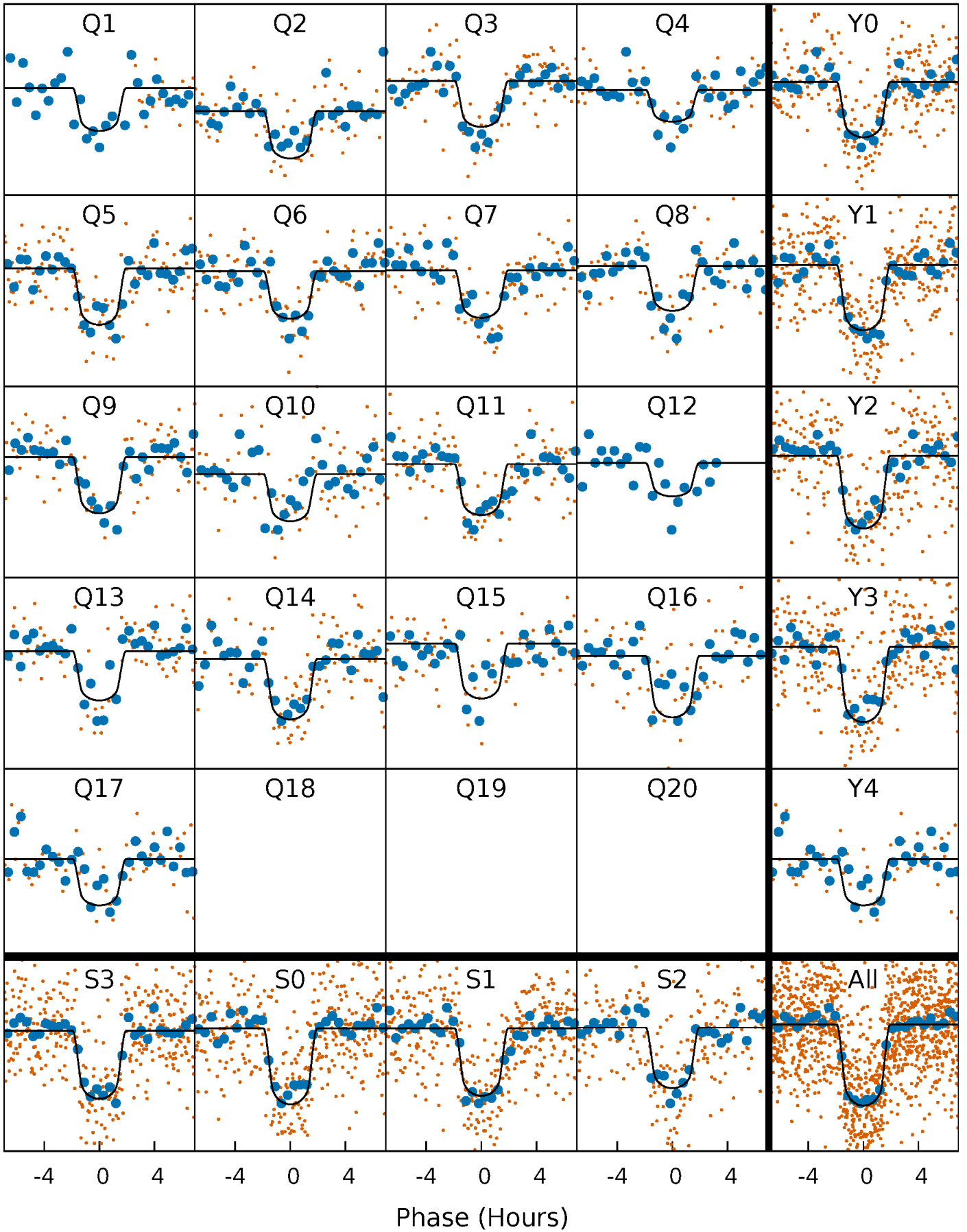
PDC Quarter-Phased Transit Curves

TCE 008120608-04 P= 22.407747 Days $T_0=153.798646$ (BKJD)



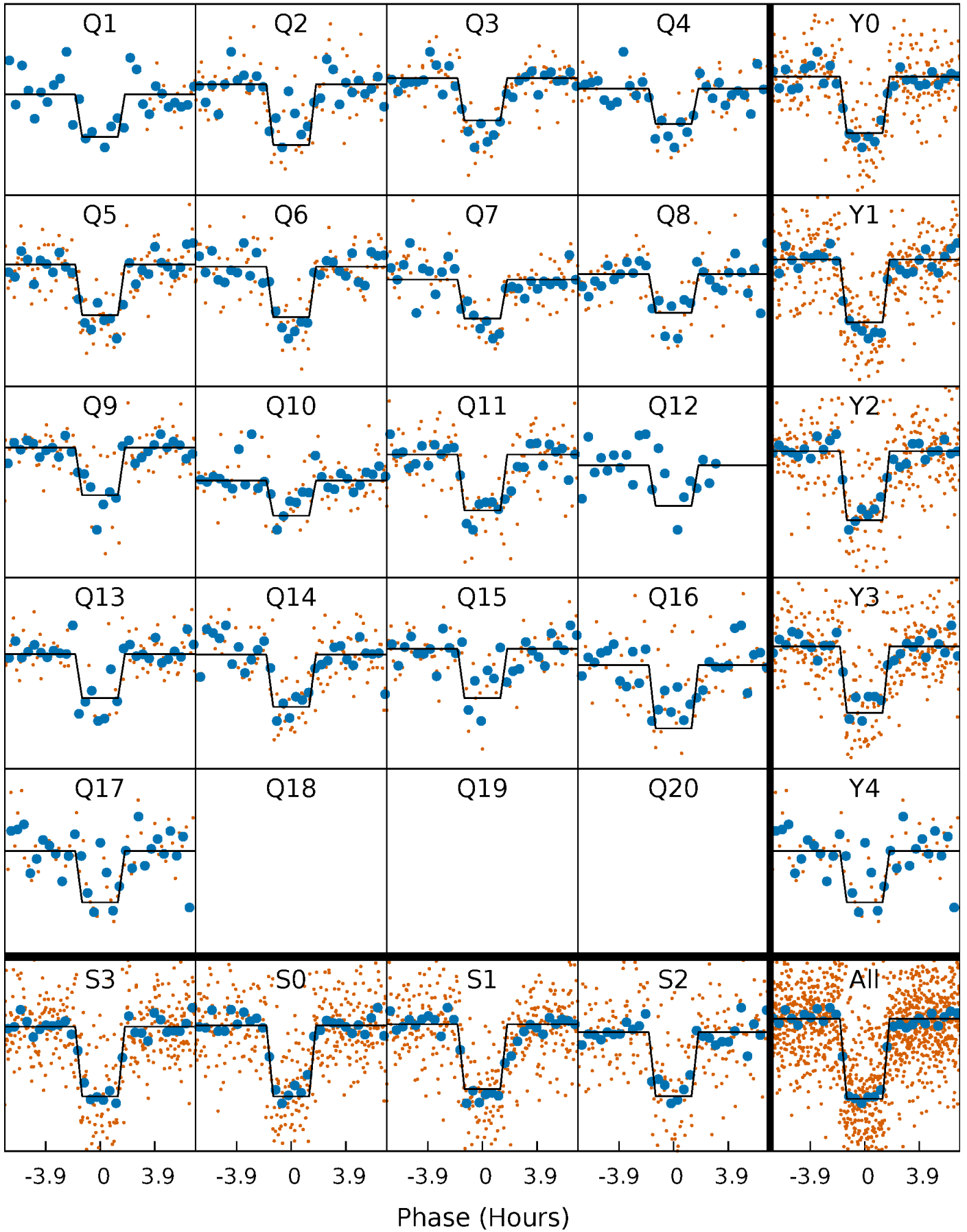
DV Quarter-Phased Transit Curves

TCE 008120608-04 P= 22.407747 Days $T_0=153.798646$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

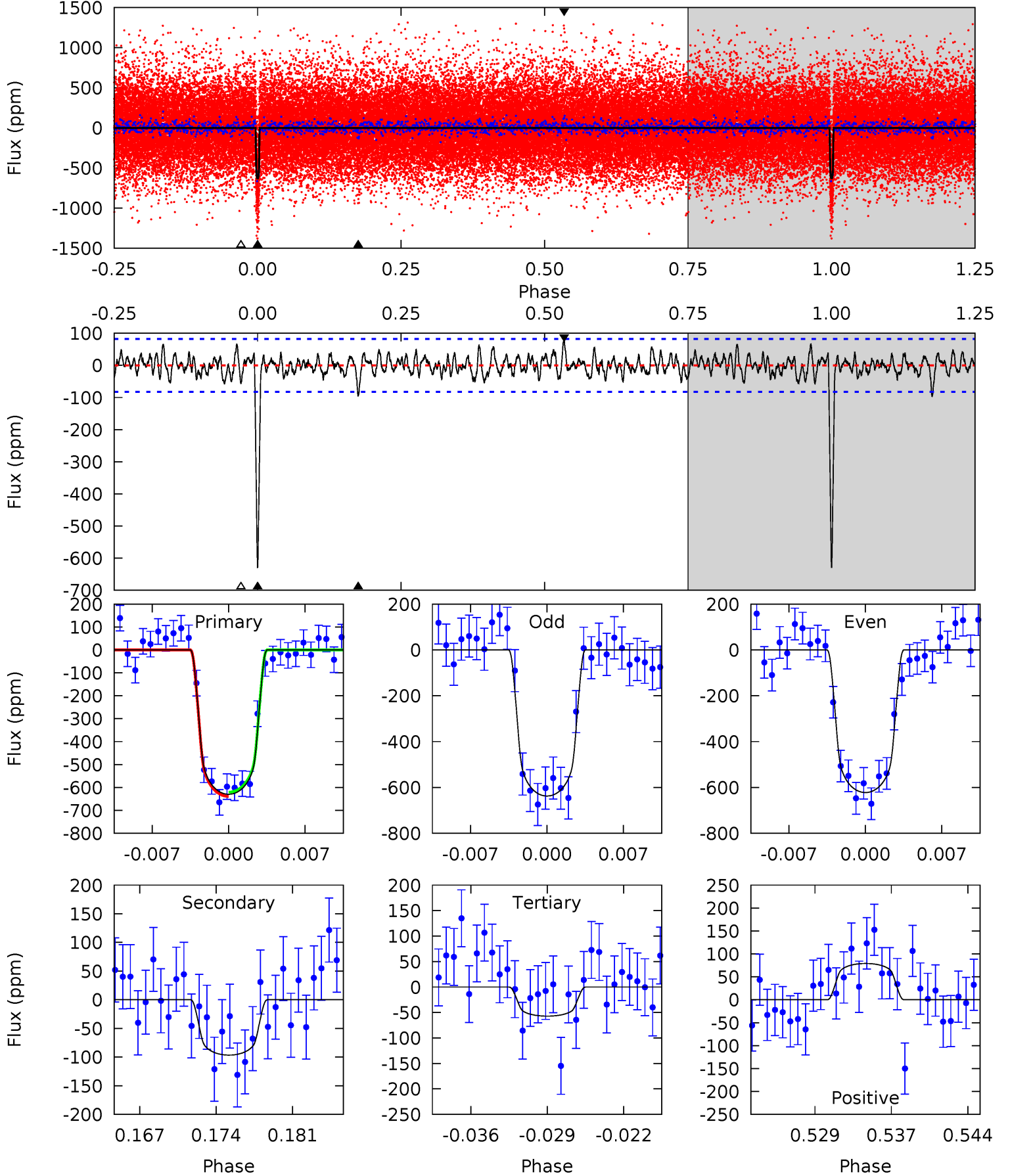
TCE 008120608-04 P= 22.407734 Days $T_0=153.799867$ (BKJD)



DV Model-Shift Uniqueness Test

008120608-04, P = 22.407747 Days, E = 131.390899 Days

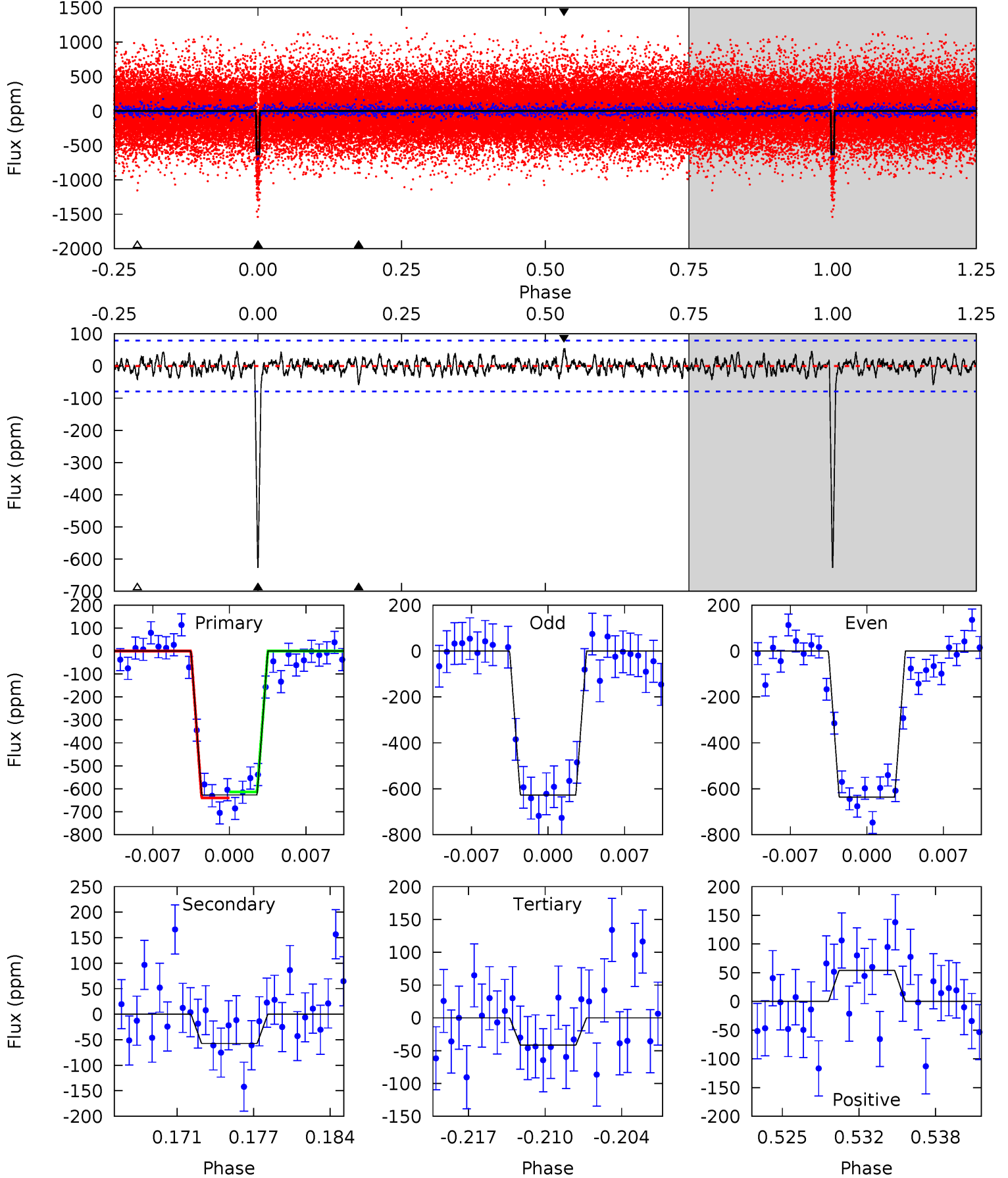
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.9	5.96	3.53	4.89	5.09	2.69	1.43	35.4	34.0	2.43	1.07	0.47	0.98	0.11	0.57



Alt Model-Shift Uniqueness Test

008120608-04, P = 22.407734 Days, E = 131.392133 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.5	3.71	2.69	3.50	5.11	2.72	1.03	37.8	37.0	1.01	0.21	0.29	1.01	0.08	0.84



Stellar Parameters For KIC 008120608

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3751^{+75}_{-84}	$4.800^{+0.065}_{-0.035}$	$-0.340^{+0.150}_{-0.150}$	$0.443^{+0.040}_{-0.053}$	$0.452^{+0.038}_{-0.050}$	$7.322^{+2.420}_{-1.181}$
	+2%/-2%	+1%/-1%	+44%/-44%	+9%/-12%	+8%/-11%	+33%/-16%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 008120608-04 / KOI 0571.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-97 ± 16	$1.23^{+0.20}_{-0.20}$	443^{+12}_{-14}	2808^{+144}_{-133}	505^{+218}_{-154}
Alt.	-57 ± 15	$1.21^{+0.19}_{-0.19}$	443^{+13}_{-14}	2634^{+150}_{-144}	303^{+162}_{-104}

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 $A_{obs} \gg 1.0$

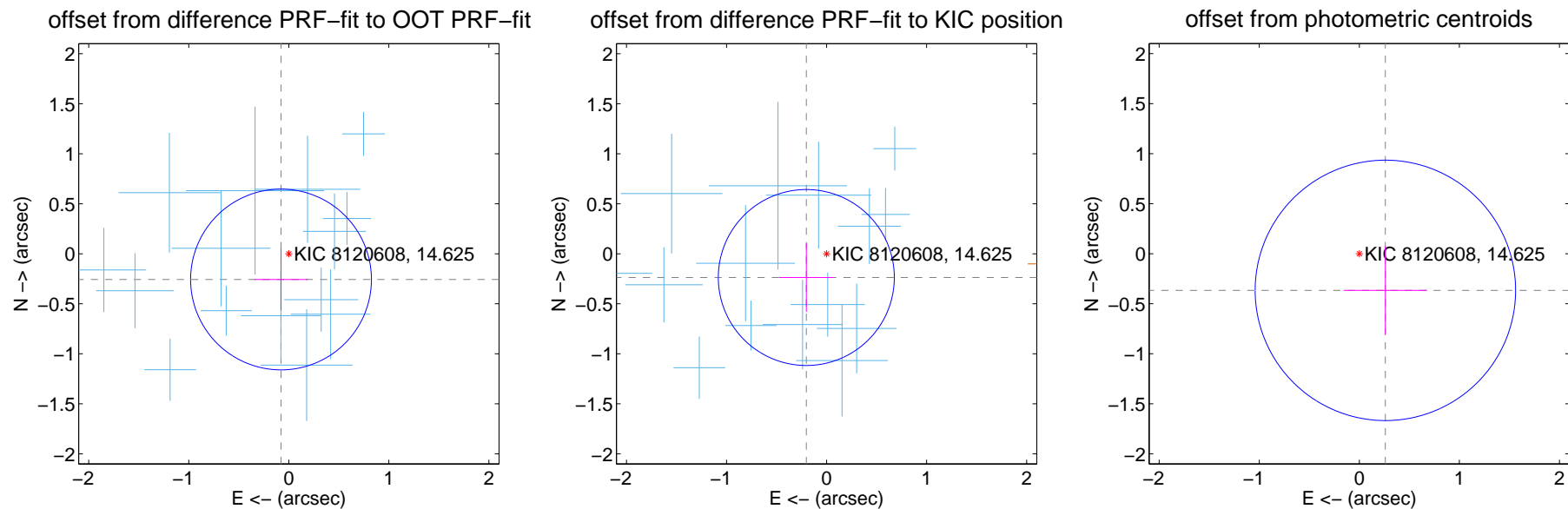
DV Centroid Data

Supplemental centroid analysis for 008120608-04. Kepler magnitude: 14.62. Transit SNR 26.29

There are 15 quarters with good PRF difference image offsets

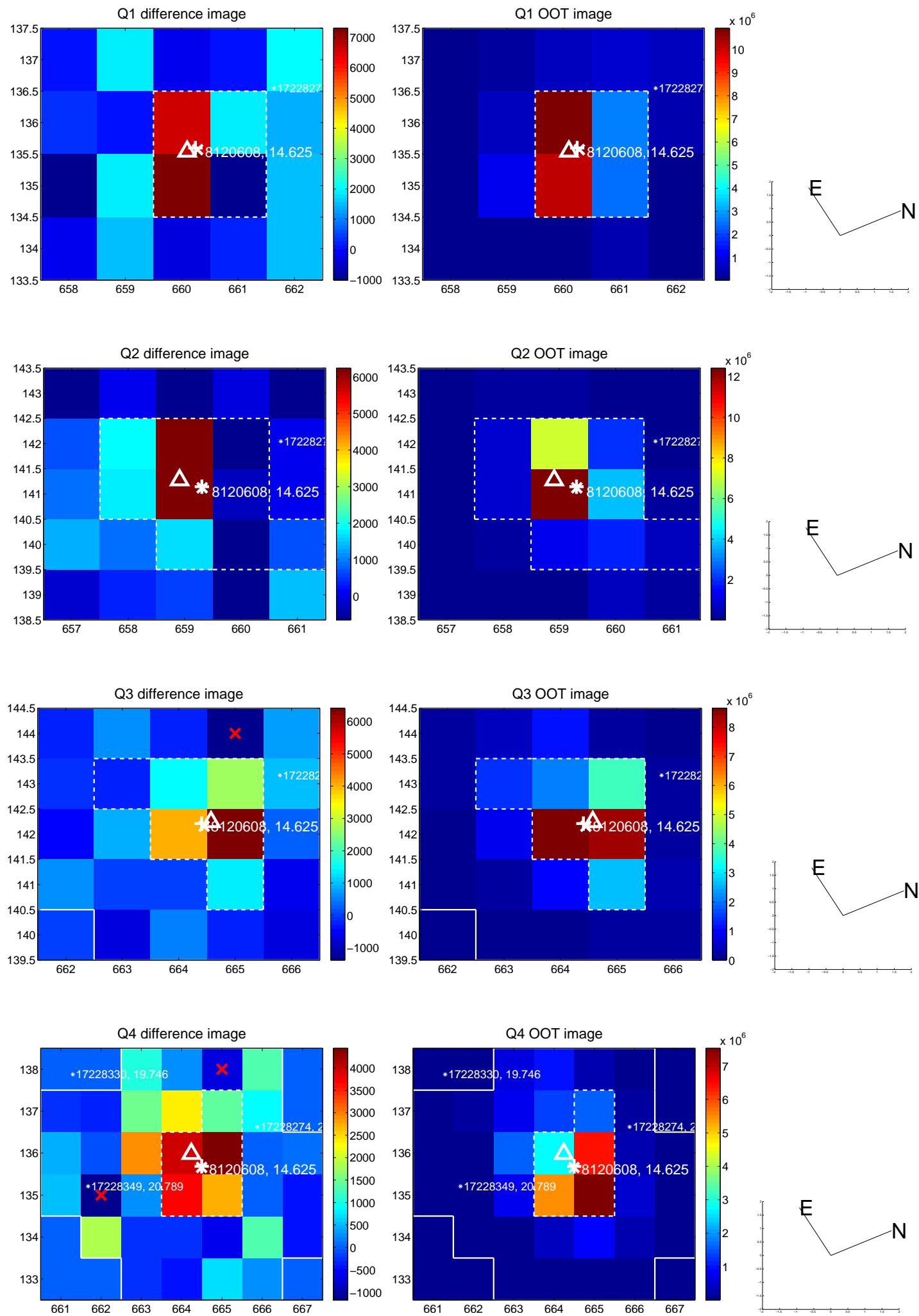
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.269 ± 0.301	0.89	0.078 ± 0.268	-0.257 ± 0.310
PRF-fit source offset from KIC position	0.312 ± 0.293	1.06	0.203 ± 0.270	-0.237 ± 0.343
photometric centroid source offset	0.45 ± 0.43	1.04	-0.26 ± 0.42	-0.37 ± 0.44

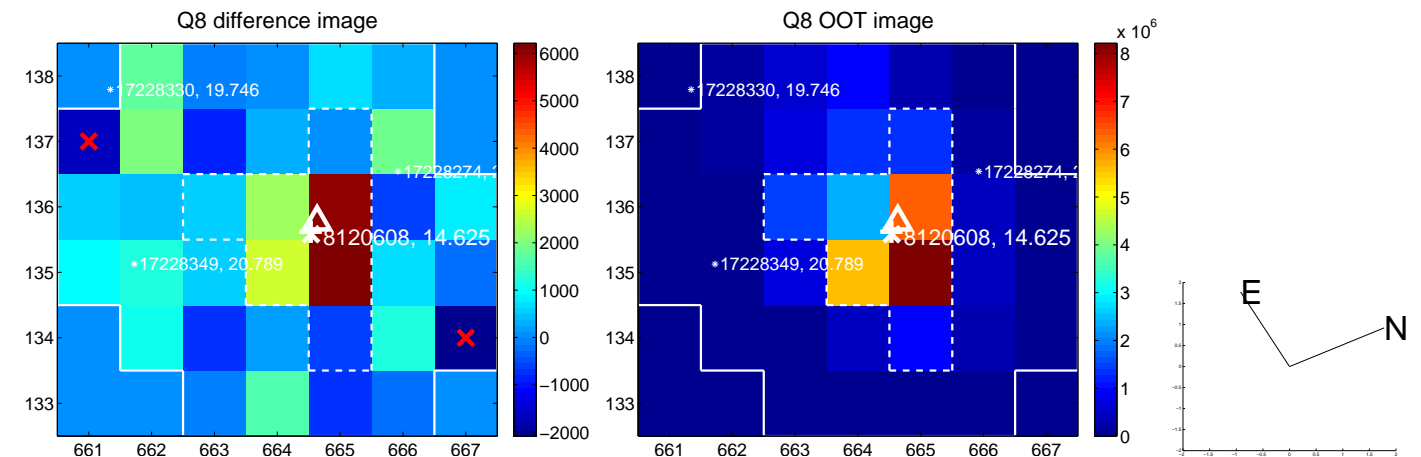
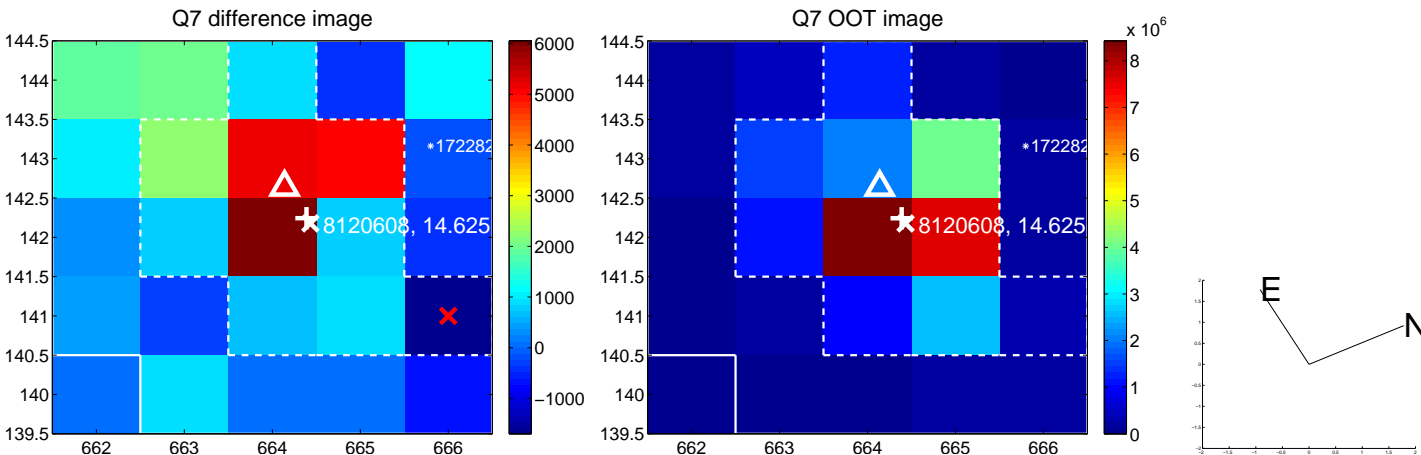
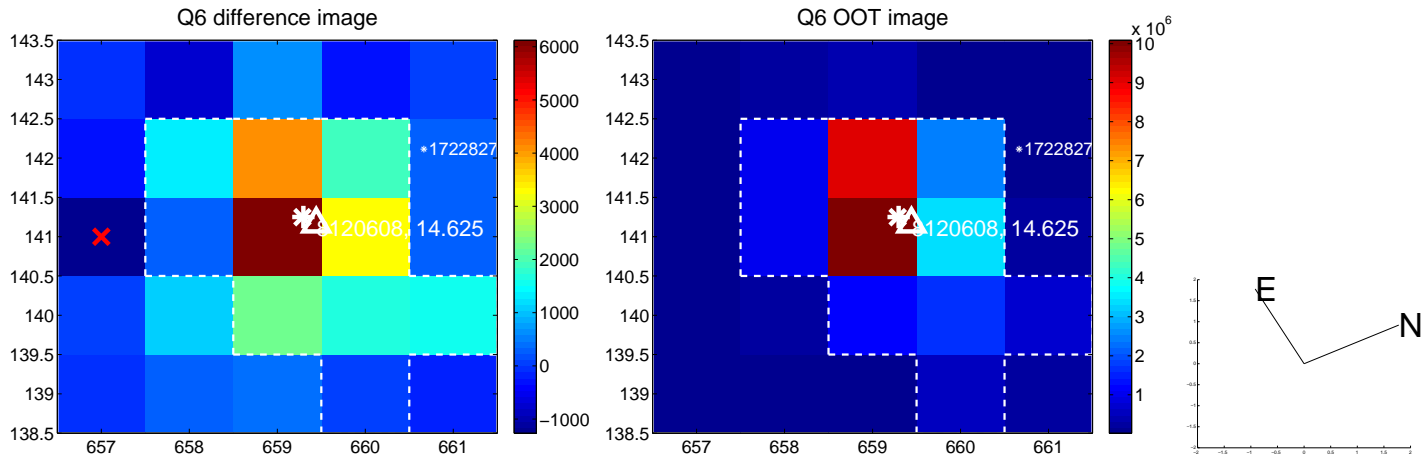
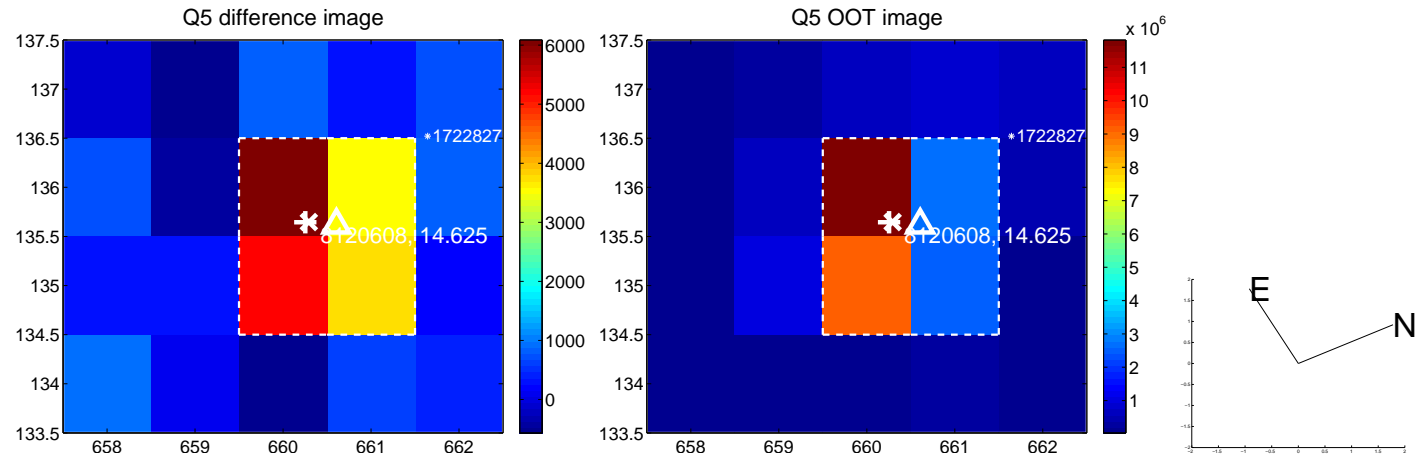


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

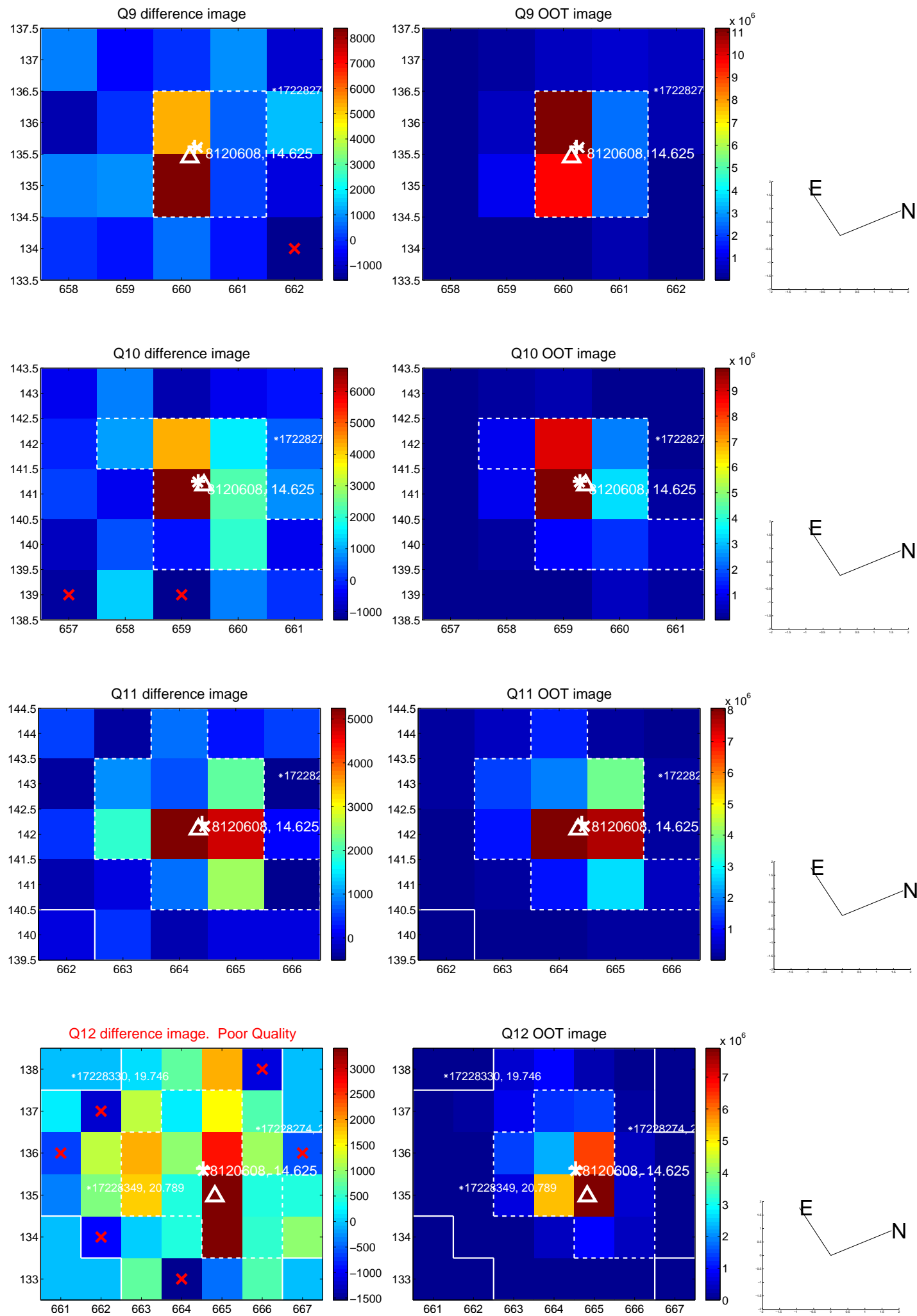
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



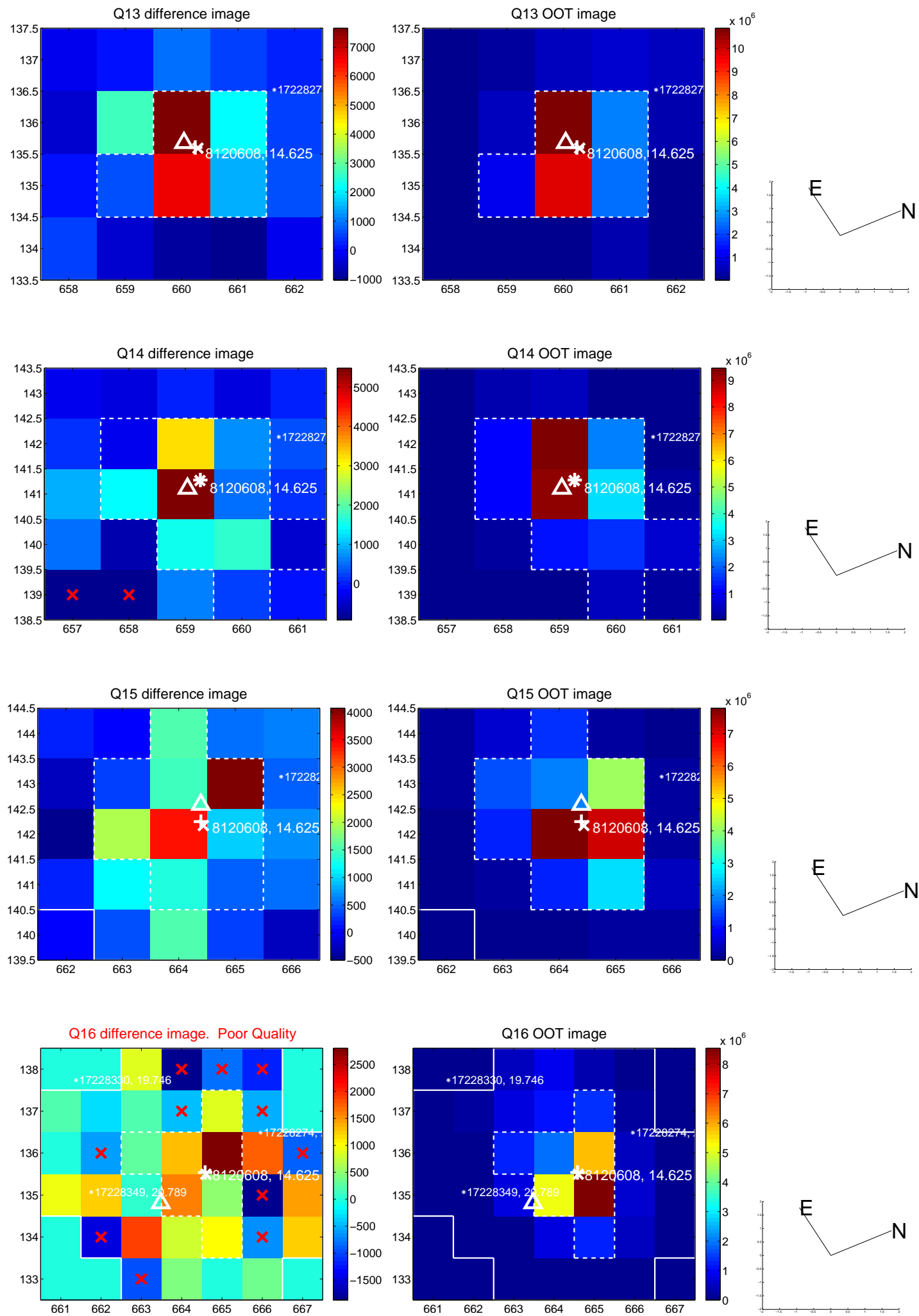
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



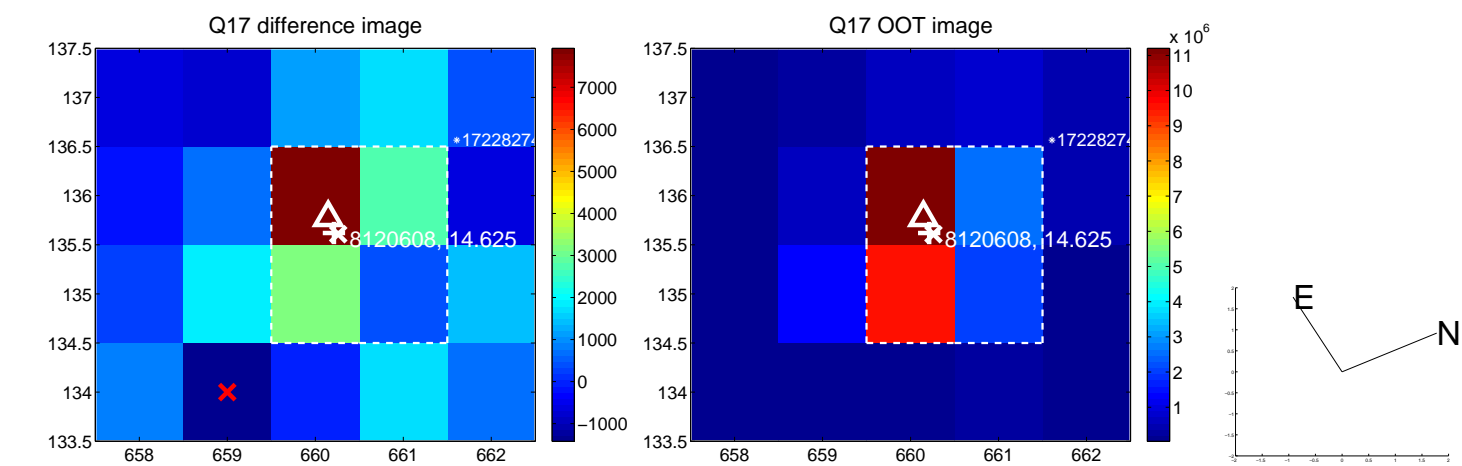
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



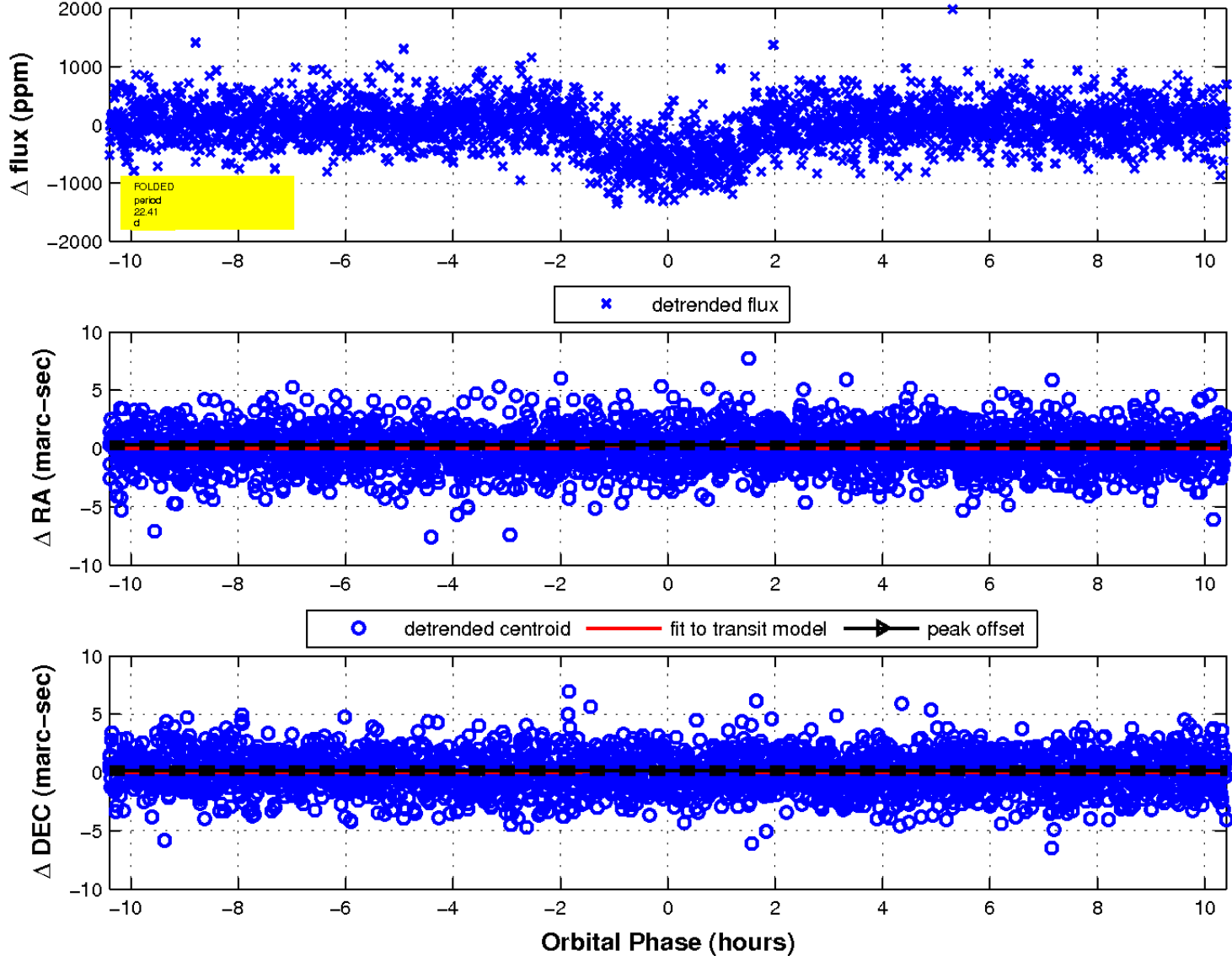
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

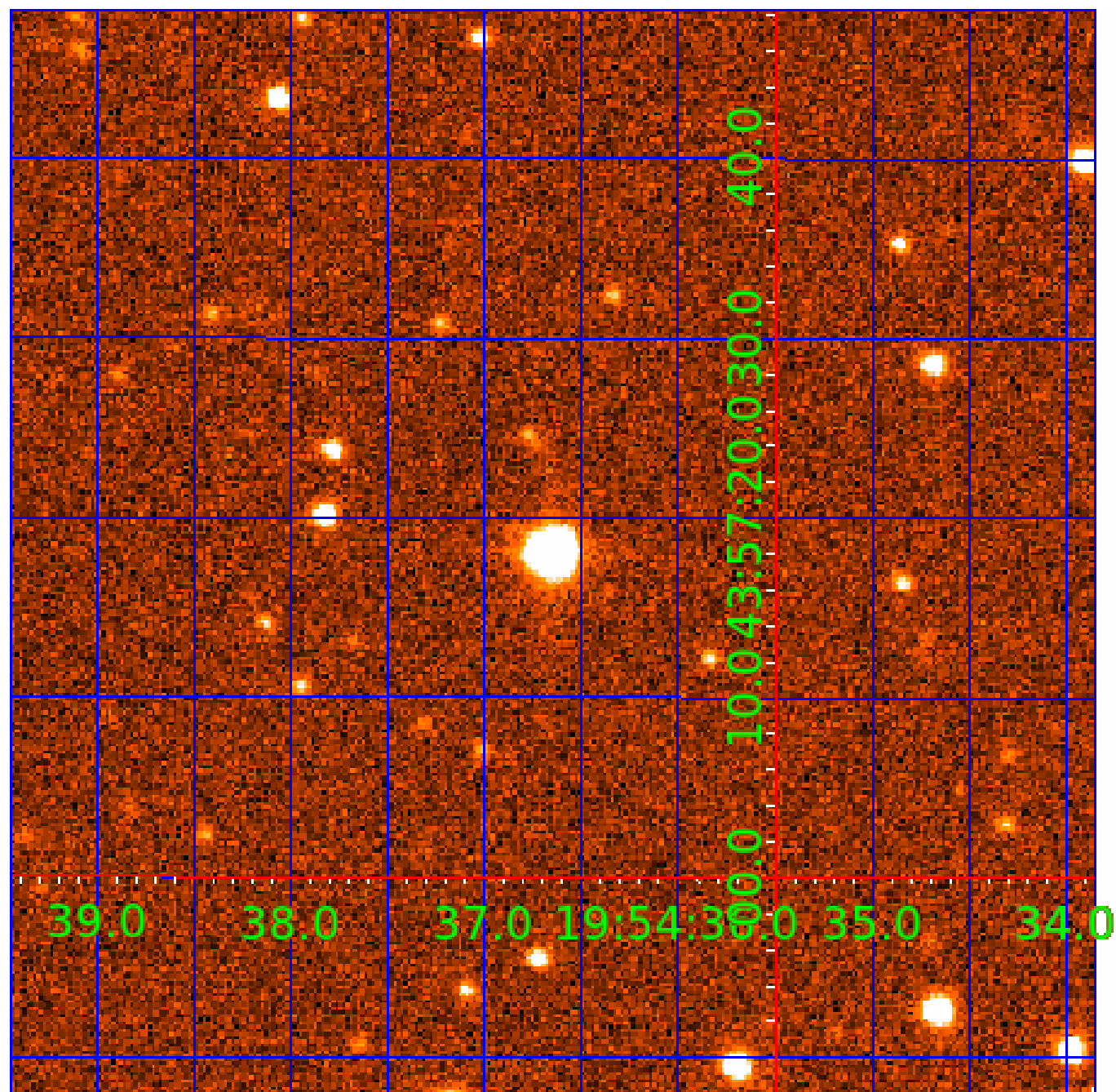


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 008120608

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})
008120608-01	OBS	0571.01	7.267295	137.977903	654.7	2.421	38.0	41.6	0.44	3751	1.29	10.96
008120608-02	OBS	0571.02	13.343020	136.873778	808.7	2.920	36.2	41.0	0.44	3751	1.42	4.88
008120608-03	OBS	0571.03	3.886806	133.326924	466.6	1.940	34.2	38.9	0.44	3751	1.12	25.25
008120608-04	OBS	0571.04	22.407747	153.798646	645.8	3.469	23.6	26.3	0.44	3751	1.26	2.44
008120608-05	OBS	0571.05	129.945688	176.829176	454.2	5.569	7.7	8.6	0.44	3751	1.02	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008120608-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008120608-05	OBS	PC	0.68	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.

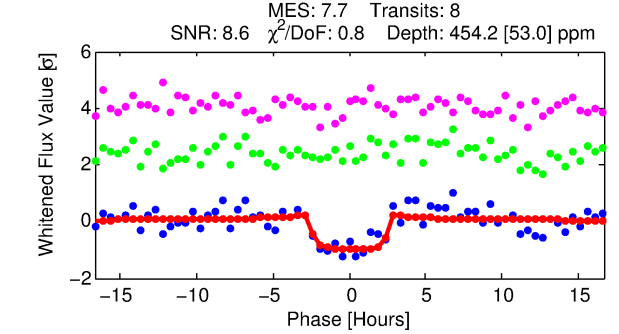
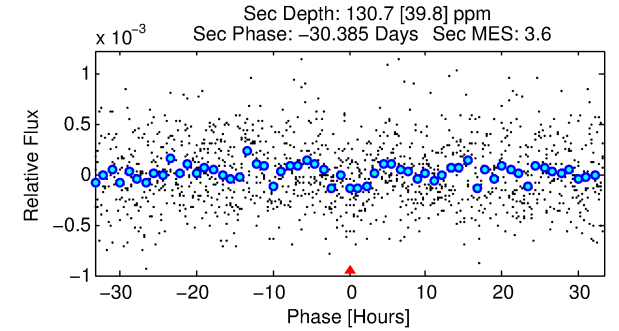
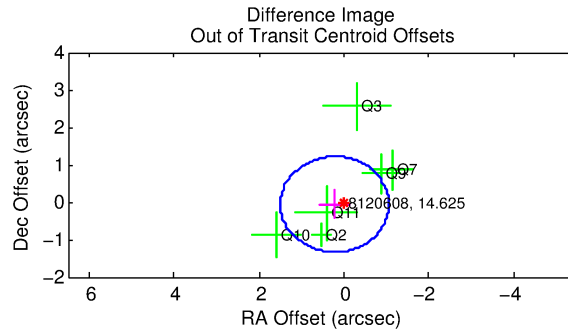
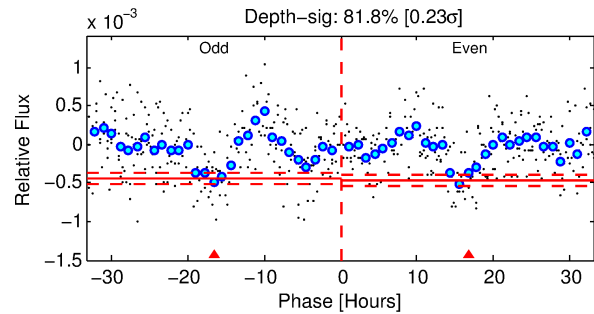
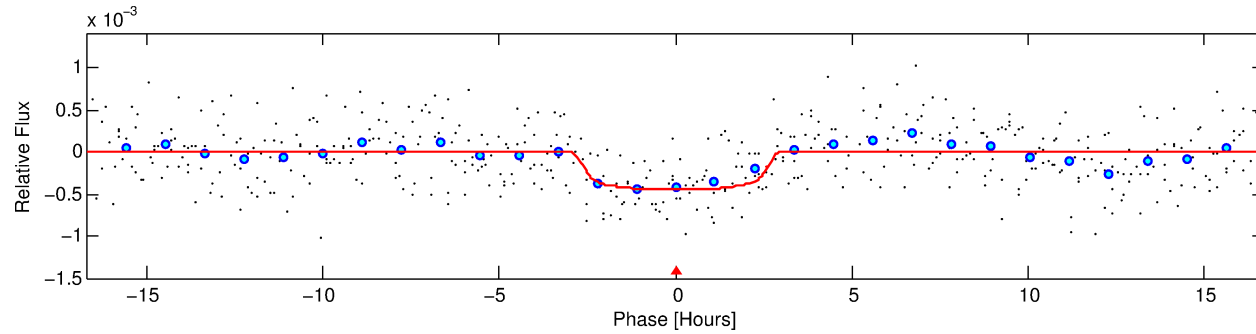
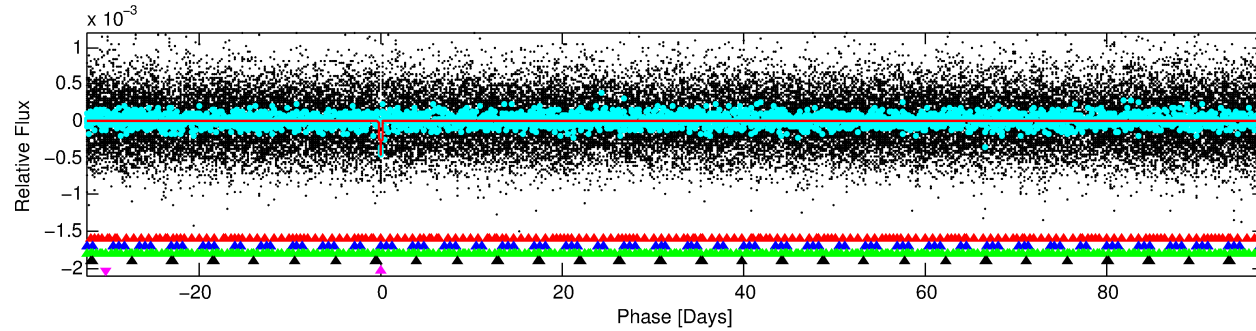
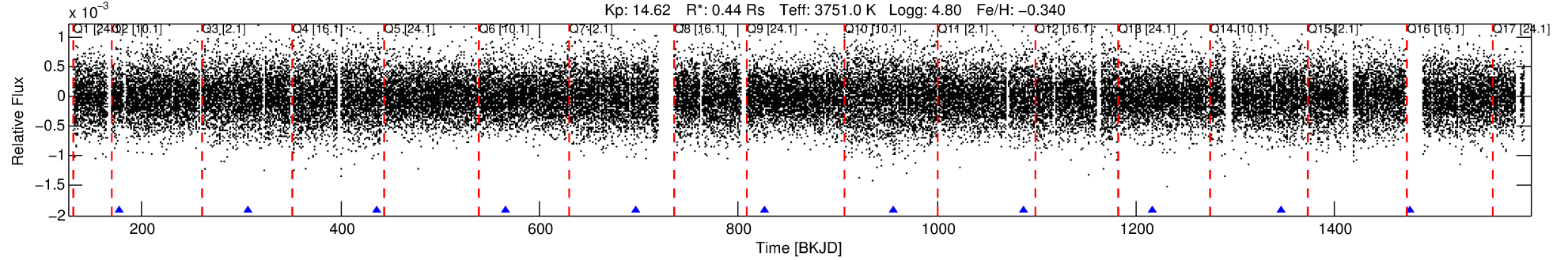
Ephemeris Match Information For 008120608-05

No Significant Match Found

DV One-Page Summary

KIC: 8120608 Candidate: 5 of 5 Period: 129.946 d
KOI: K00571.05 Name: Kepler-186f Corr: 0.960

Kp: 14.62 R*: 0.44 Rs Teff: 3751.0 K Logg: 4.80 Fe/H: -0.340



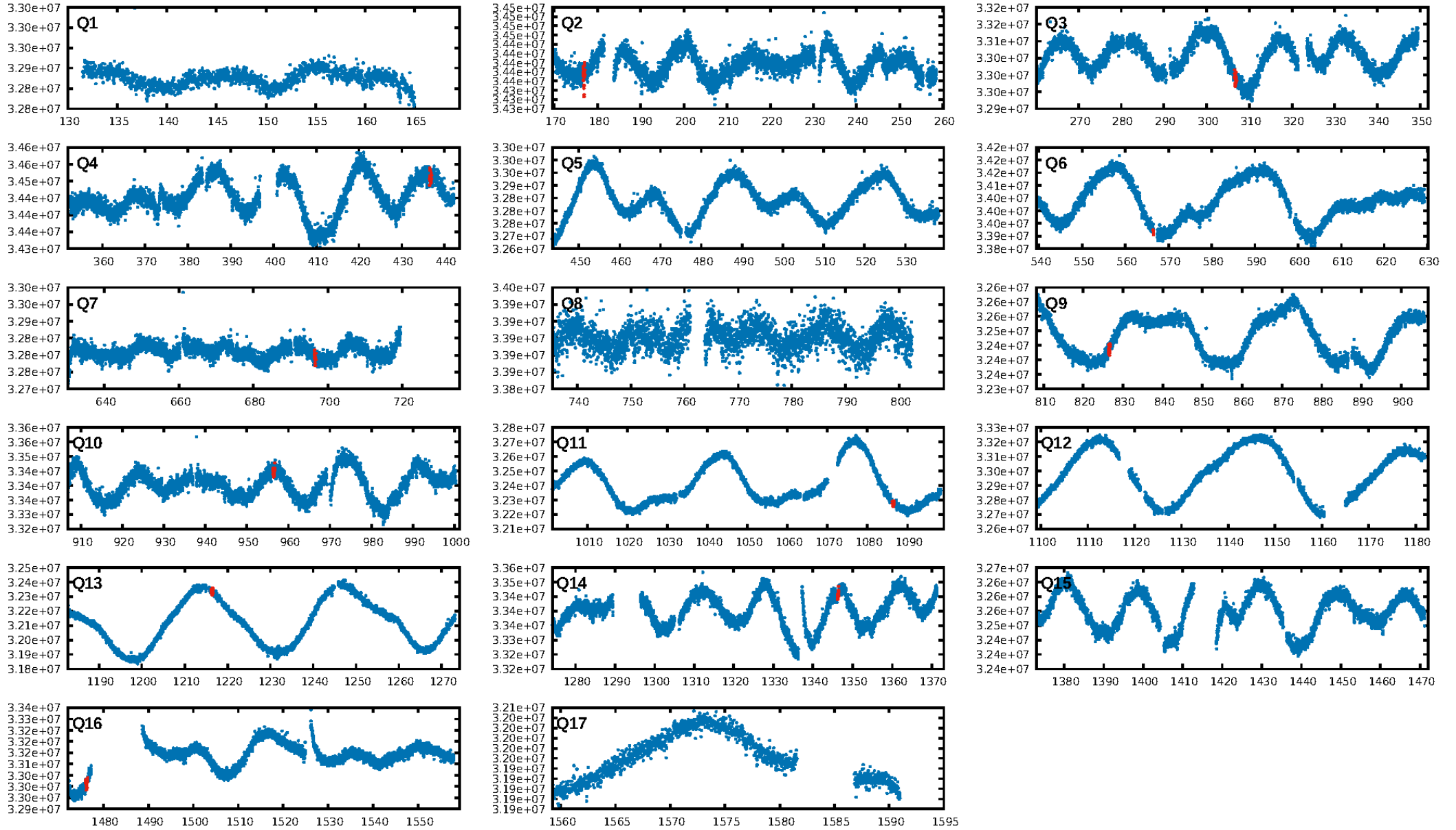
DV Fit Results:

Period = 129.94569 [0.00202] d
Epoch = 176.8292 [0.0126] BKJD
Rp/R* = 0.0212 [0.0110]
a/R* = 122.88 [319.39]
b = 0.75 [1.49]
Seff = 0.23 [0.04]
Teq = 177 [7] K
Rp = 1.02 [0.54] Re
a = 0.3853 [0.0362] AU
Ag = 10188.86 [11090.47] [0.92σ]
Teffp = 2756 [747] K [3.45σ]

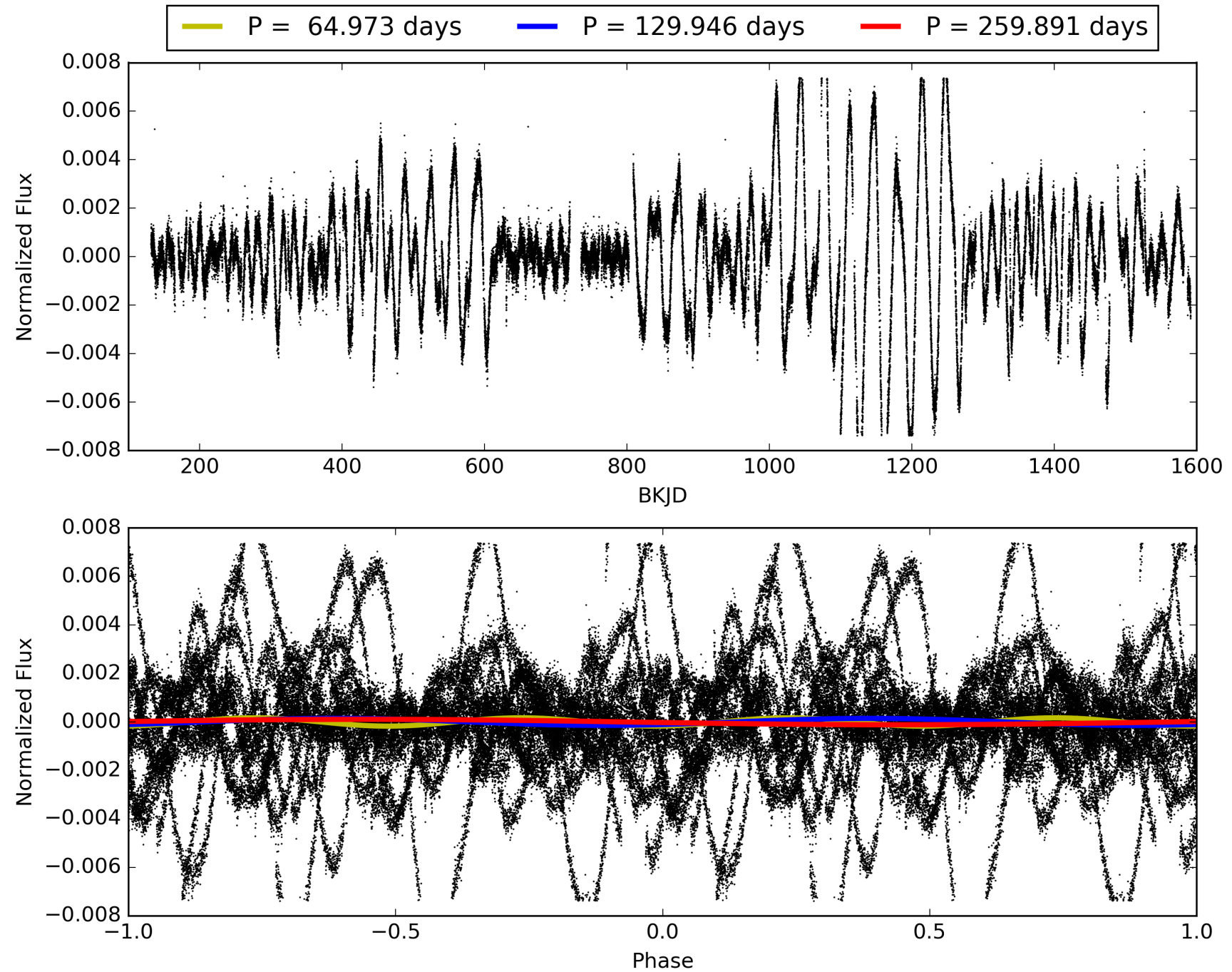
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [393.38σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.97e-13
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 2.317
Centroid-sig: 99.8%
Centroid-so: 0.275 arcsec [0.23σ]
OotOffset-rm: 0.224 arcsec [0.53σ]
KicOffset-rm: 0.368 arcsec [0.95σ]
OotOffset-st: 2/3/0/1 [6]
KicOffset-st: 2/3/0/1 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.43 [3/7]

TCE 008120608-05, PDC Light Curves

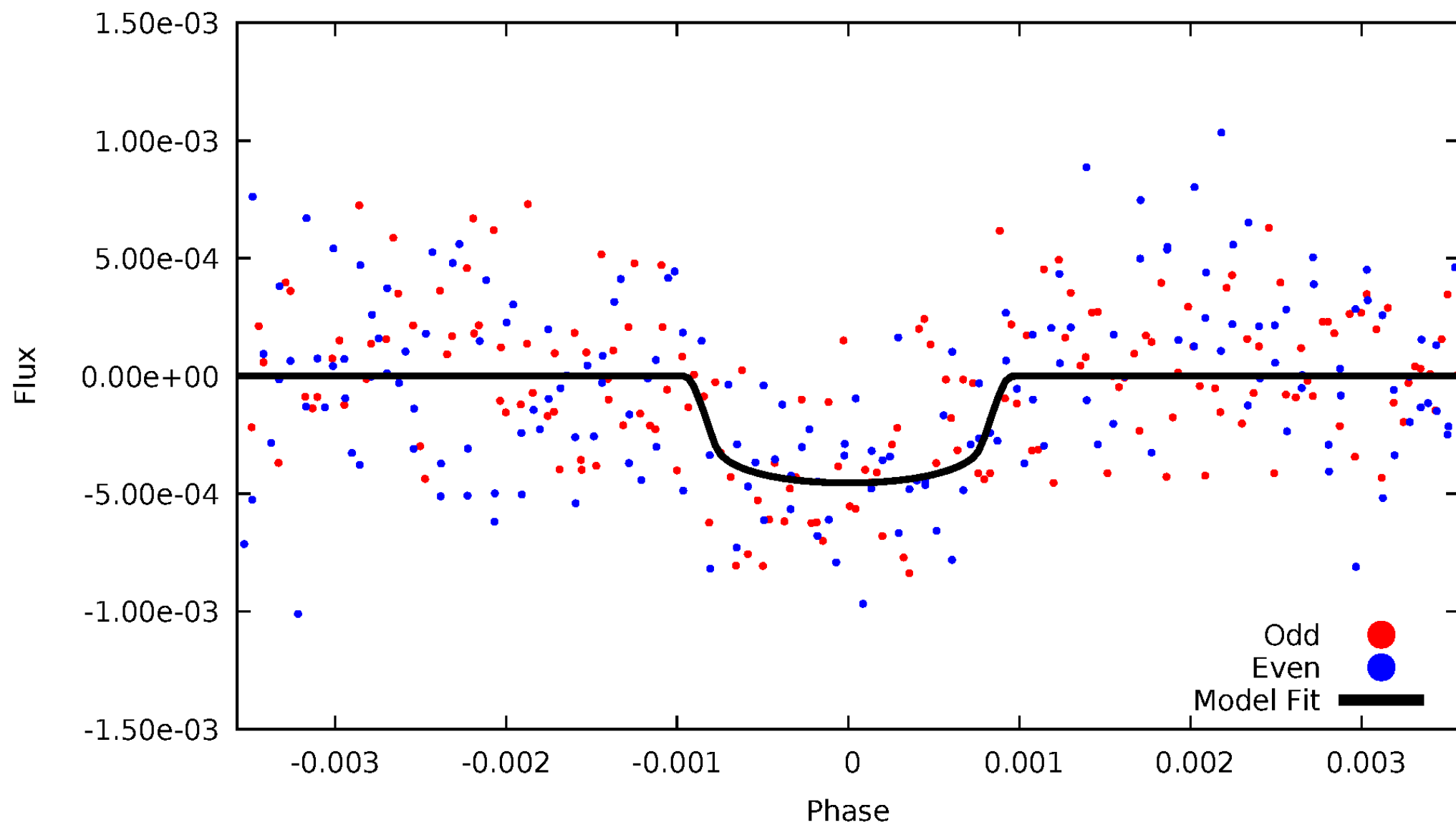


TCE 008120608-05



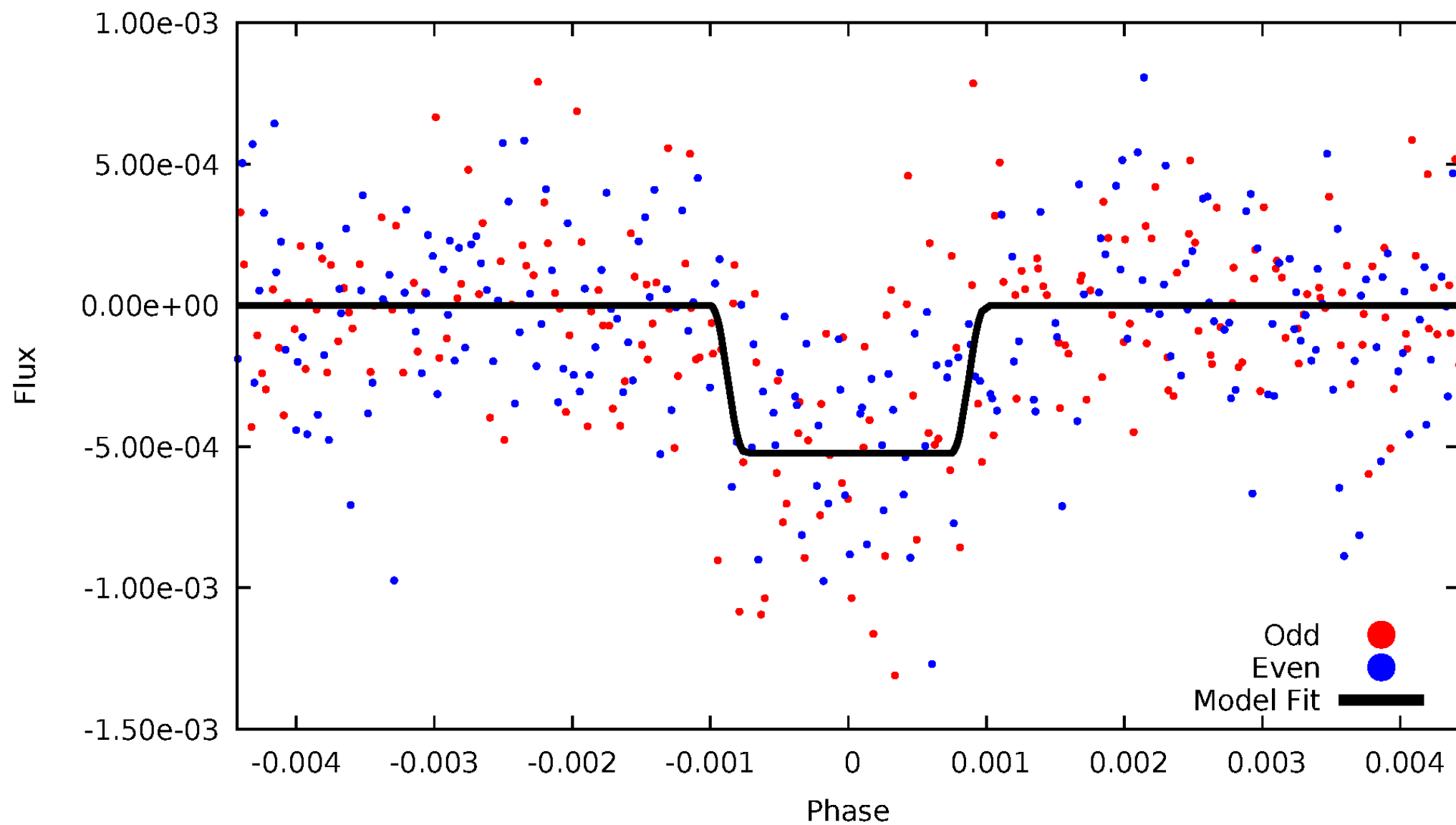
DV Odd/Even

TCE 008120608-05



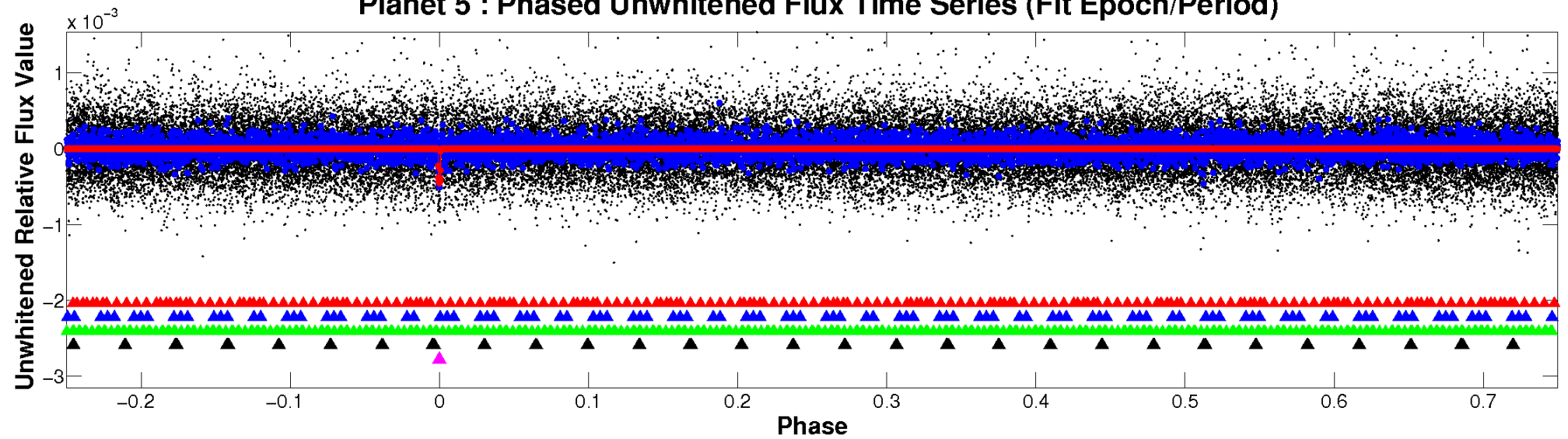
ALT Odd/Even

TCE 008120608-05

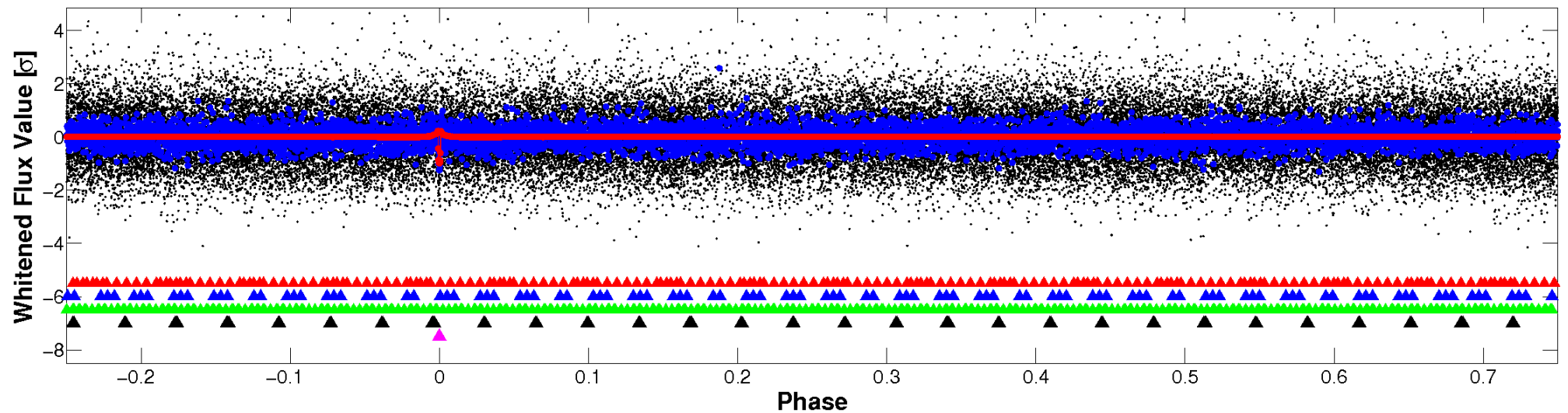


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

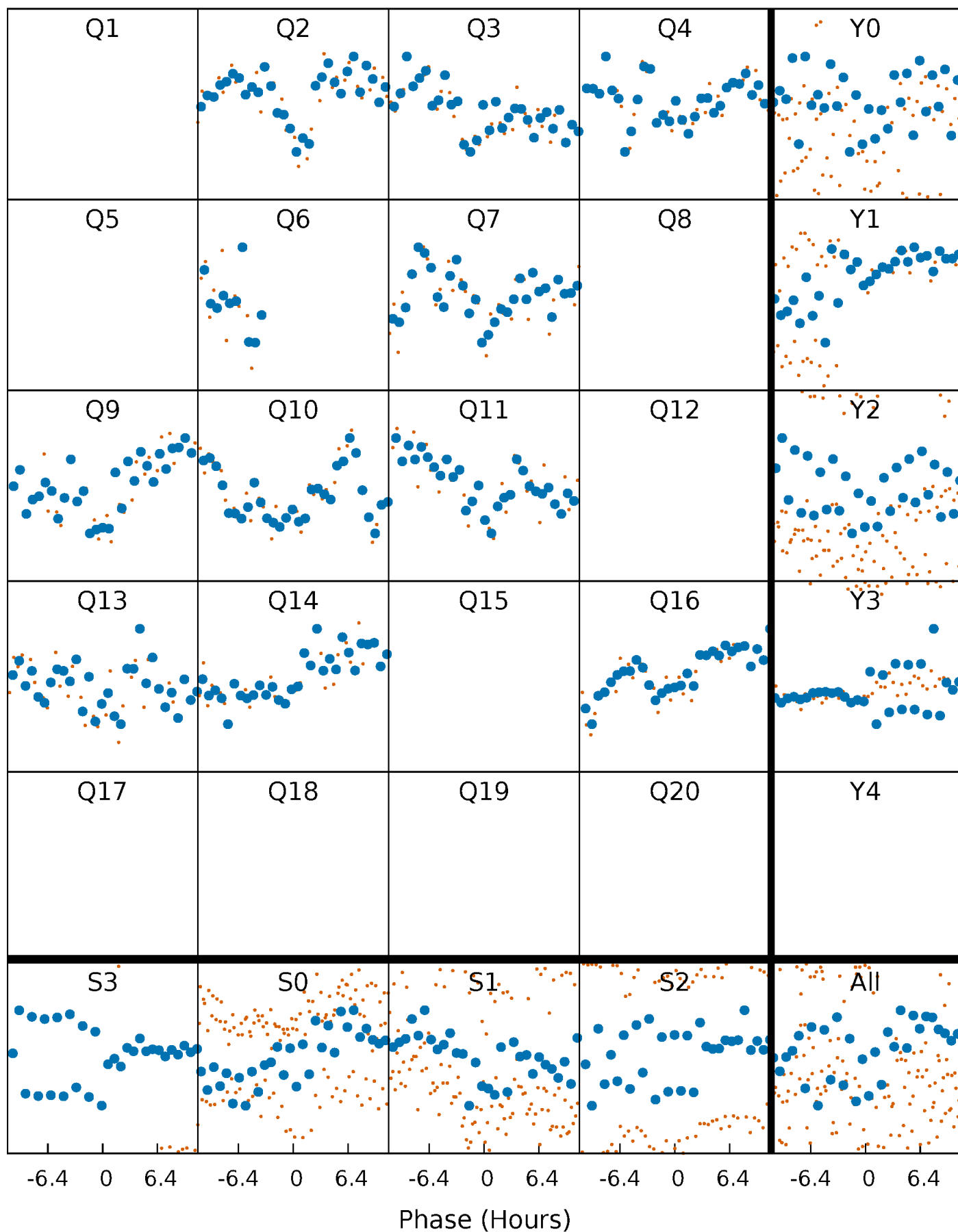


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



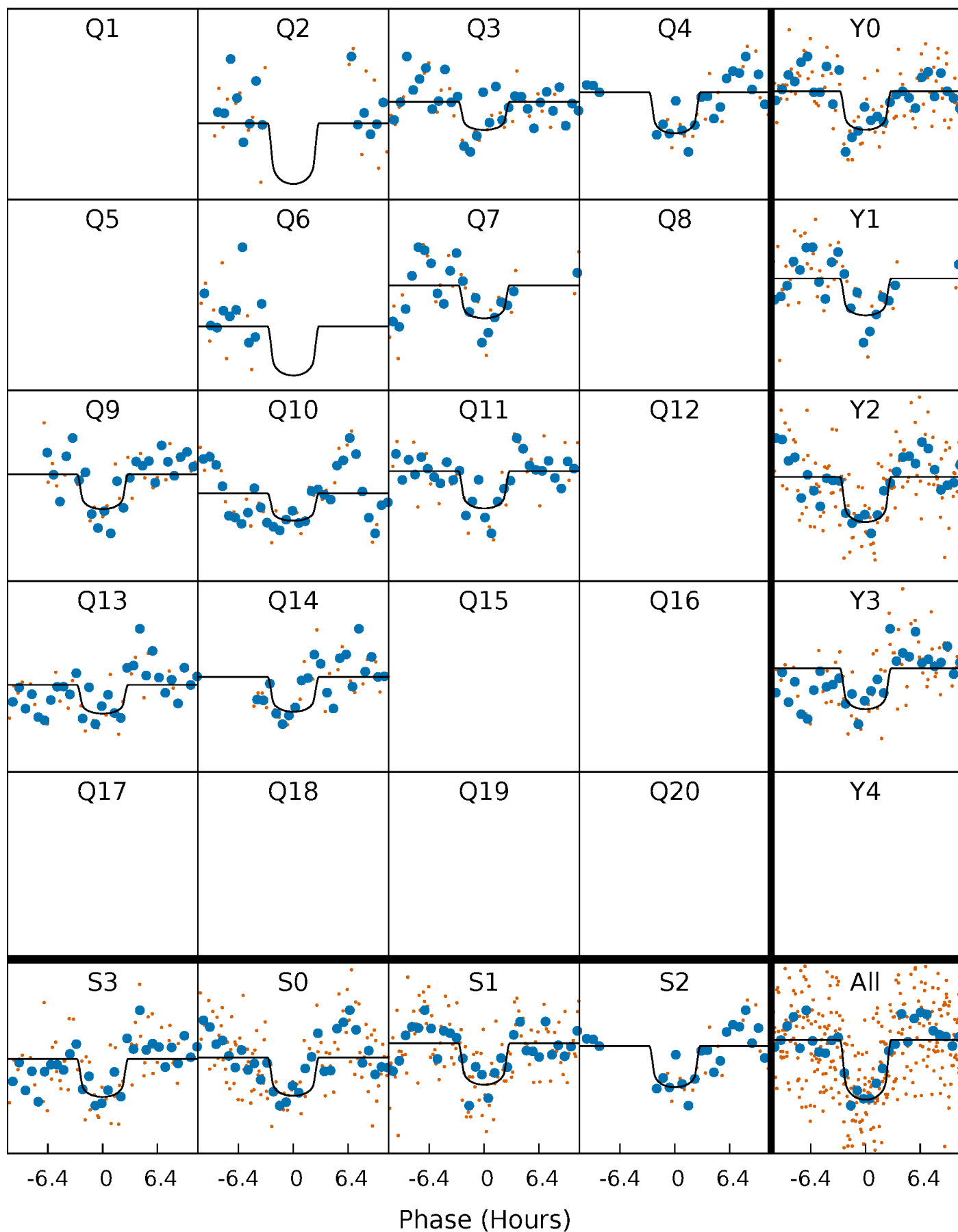
PDC Quarter-Phased Transit Curves

TCE 008120608-05 $P=129.945688$ Days $T_0=176.829176$ (BKJD)



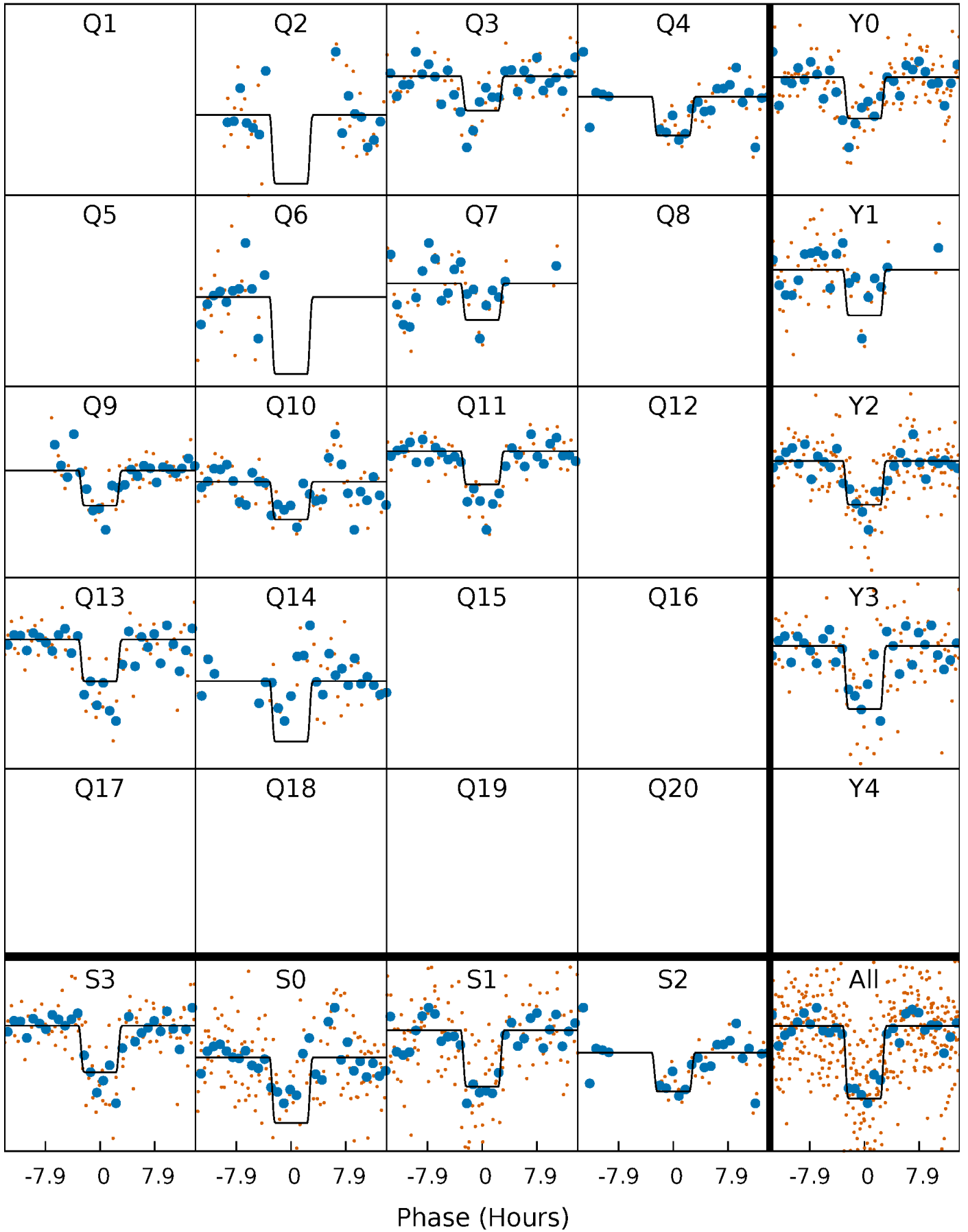
DV Quarter-Phased Transit Curves

TCE 008120608-05 P=129.945688 Days $T_0=176.829176$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

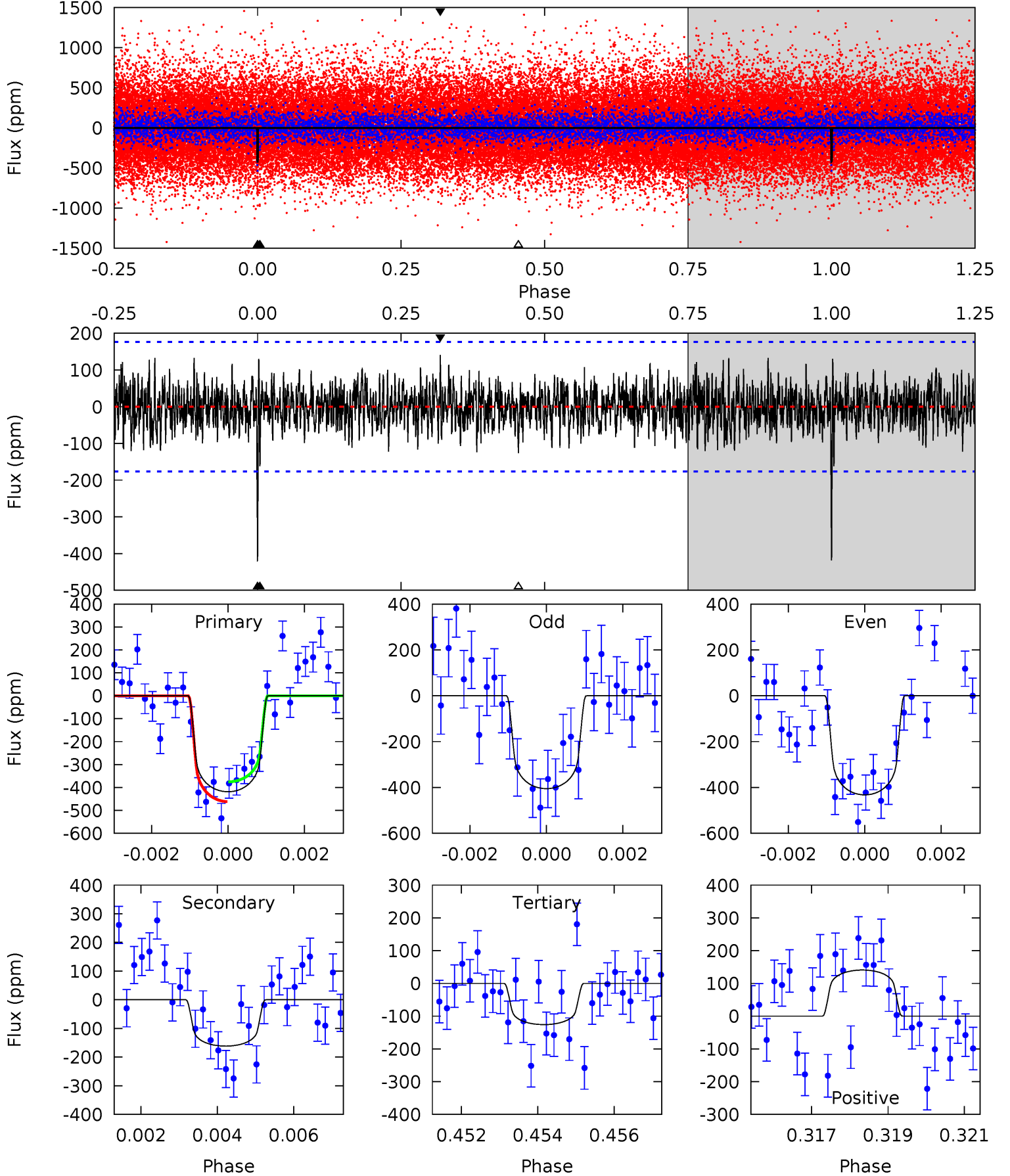
TCE 008120608-05 $P=129.943215$ Days $T_0=176.848853$ (BKJD)



DV Model-Shift Uniqueness Test

008120608-05, P = 129.945688 Days, E = 46.883488 Days

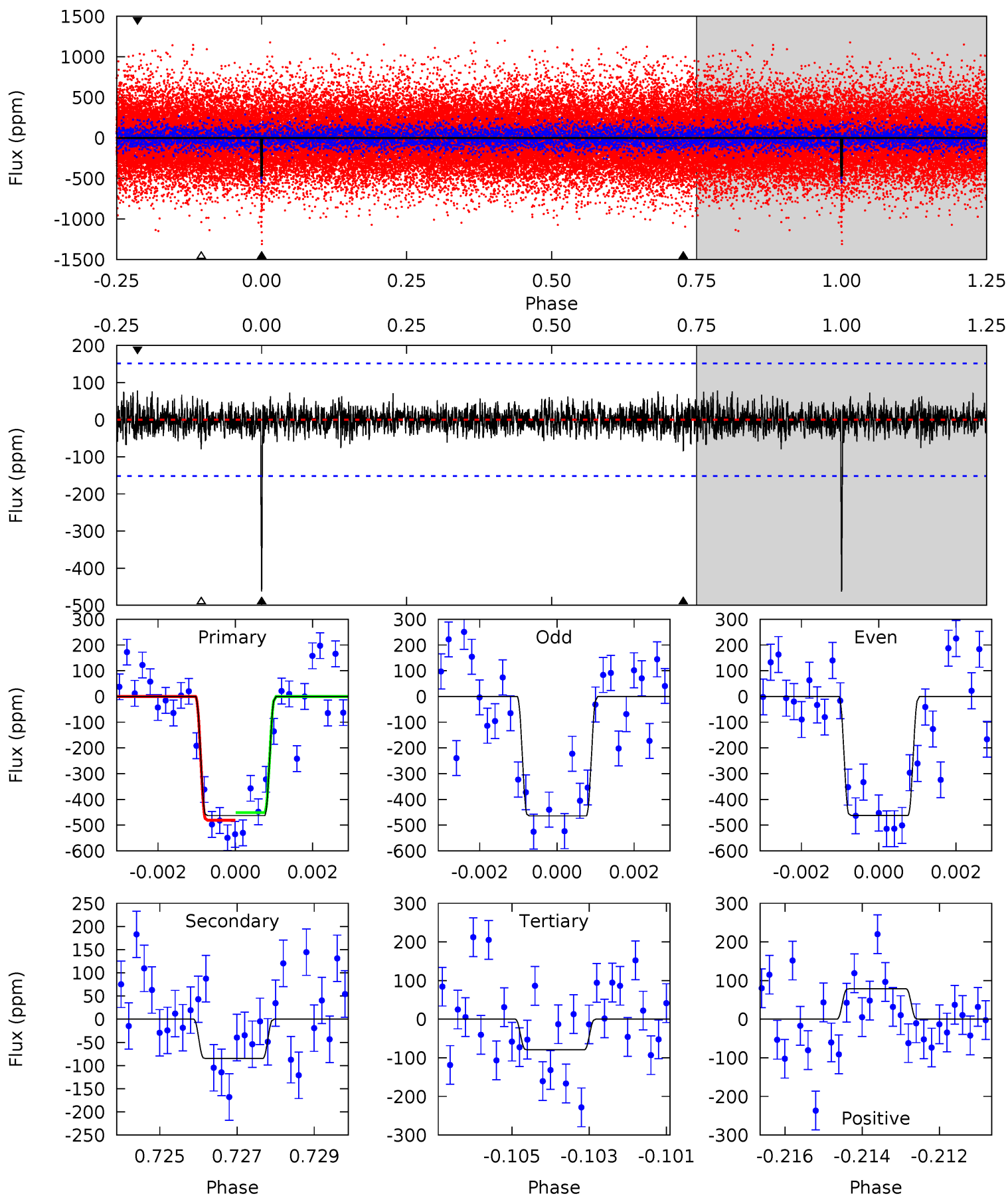
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	4.90	3.81	4.26	5.34	3.11	1.30	8.87	8.42	1.09	0.63	0.41	0.98	0.25	1.31



Alt Model-Shift Uniqueness Test

008120608-05, $P = 129.943215$ Days, $E = 46.905638$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	2.97	2.78	2.76	5.33	3.10	0.79	13.5	13.5	0.19	0.21	0.03	1.07	0.15	0.52



Stellar Parameters For KIC 008120608

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3751^{+75}_{-84}	$4.800^{+0.065}_{-0.035}$	$-0.340^{+0.150}_{-0.150}$	$0.443^{+0.040}_{-0.053}$	$0.452^{+0.038}_{-0.050}$	$7.322^{+2.420}_{-1.181}$
	+2%/-2%	+1%/-1%	+44%/-44%	+9%/-12%	+8%/-11%	+33%/-16%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 008120608-05 / KOI 0571.05

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-162 ± 33	$1.06^{+0.55}_{-0.54}$	247^{+7}_{-8}	3151^{+777}_{-347}	11853^{+34726}_{-6676}
Alt.	-85 ± 28	$1.10^{+0.53}_{-0.49}$	246^{+8}_{-8}	2838^{+560}_{-312}	5562^{+13785}_{-3371}

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 $A_{obs} \gg 1.0$

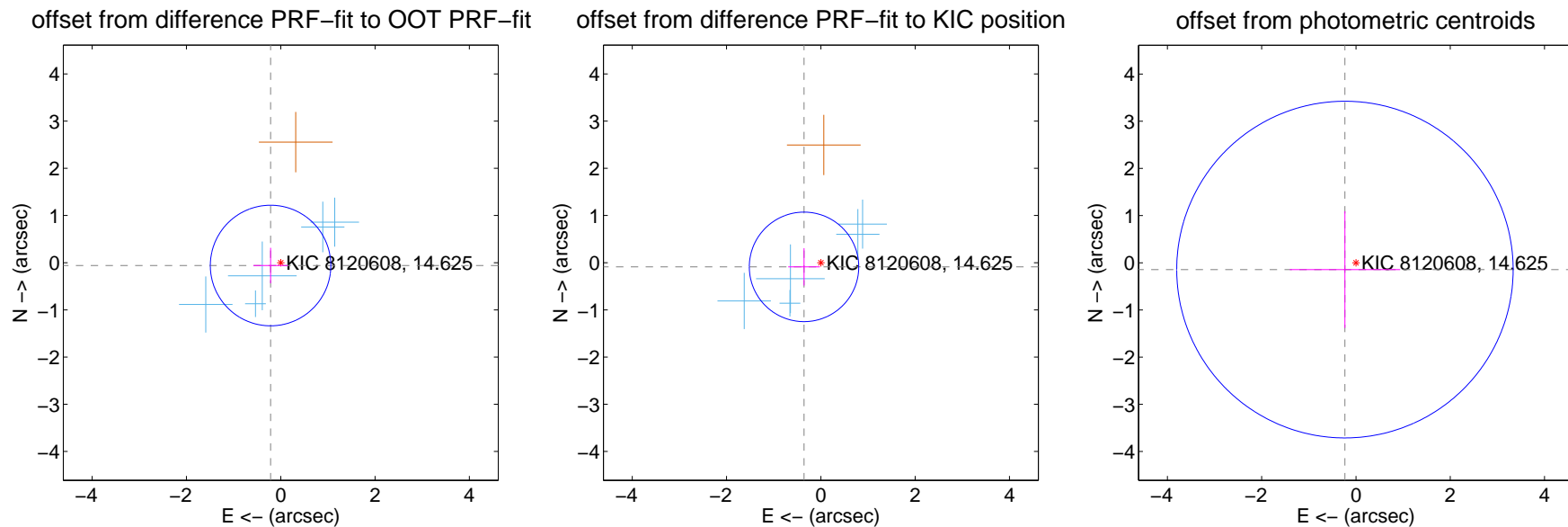
DV Centroid Data

Supplemental centroid analysis for 008120608-05. Kepler magnitude: 14.62. Transit SNR 8.57

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.224 ± 0.426	0.53	0.216 ± 0.367	-0.060 ± 0.376
PRF-fit source offset from KIC position	0.368 ± 0.387	0.95	0.357 ± 0.336	-0.089 ± 0.395
photometric centroid source offset	0.27 ± 1.19	0.23	0.23 ± 1.17	-0.14 ± 1.24



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.

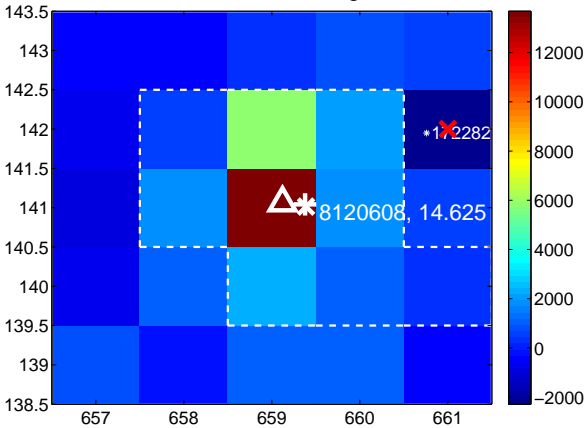
Q1 no difference image



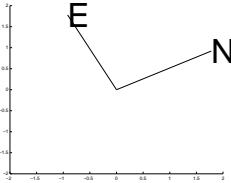
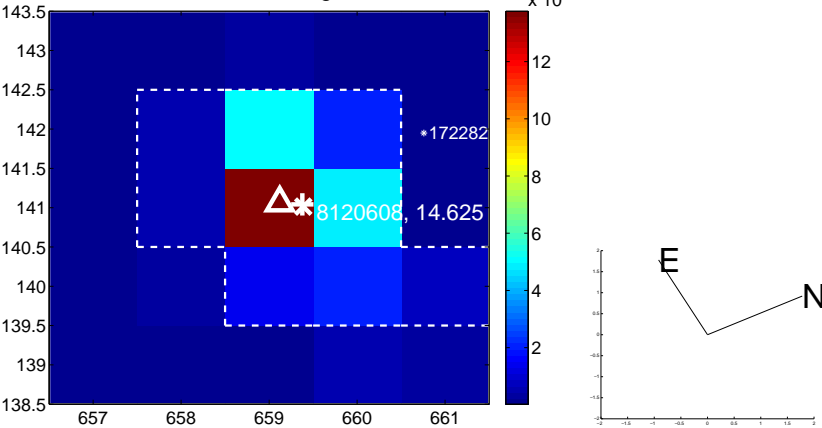
Q1 no OOT image



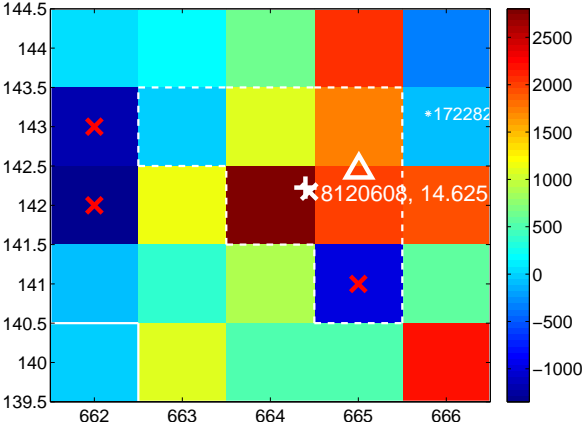
Q2 difference image



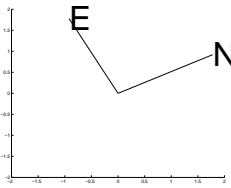
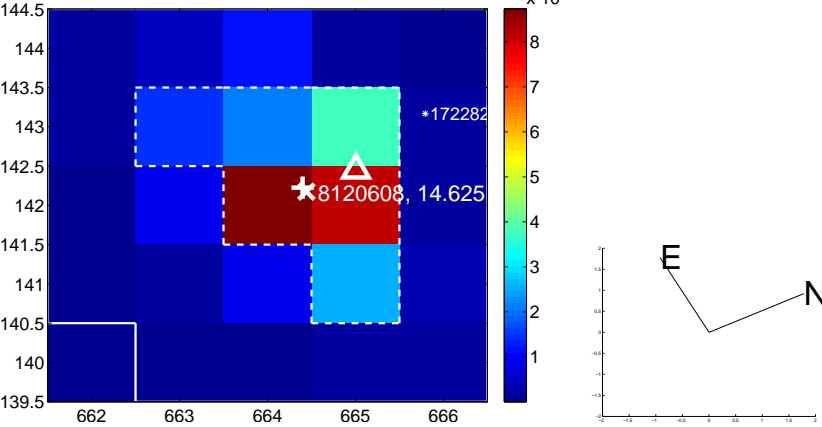
Q2 OOT image



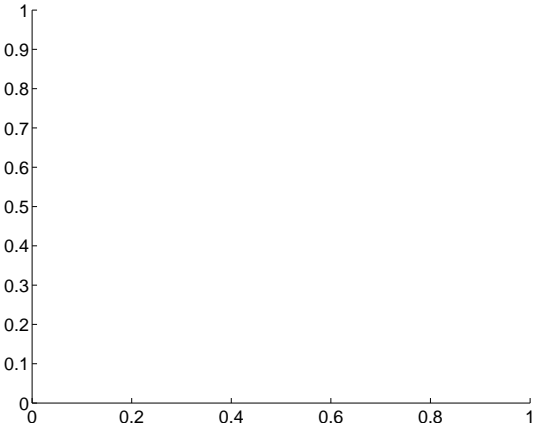
Q3 difference image. Poor Quality



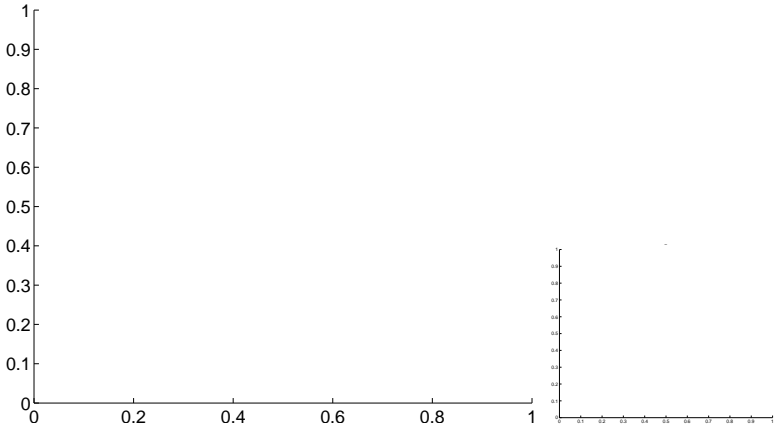
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



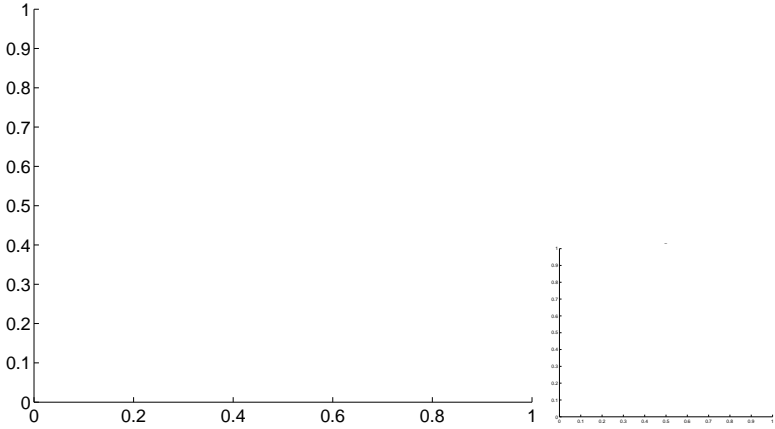
Q5 no OOT image



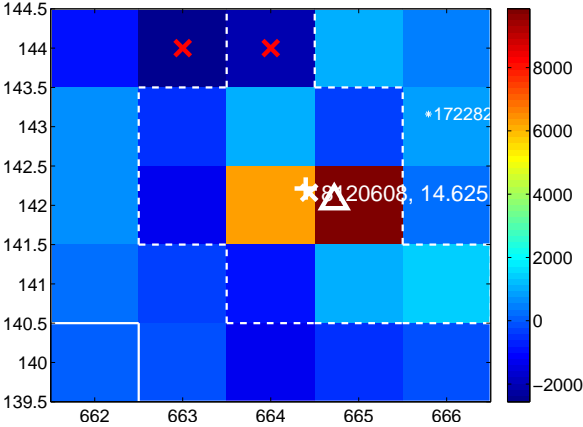
Q6 no difference image



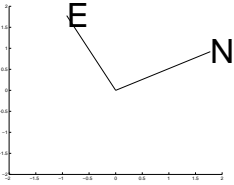
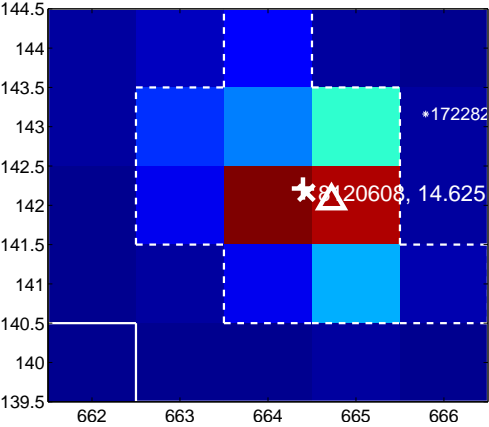
Q6 no OOT image



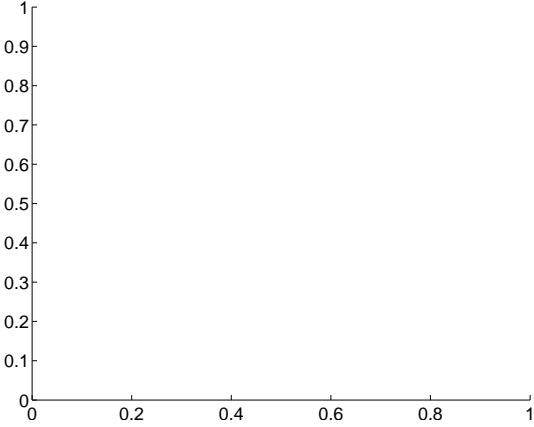
Q7 difference image



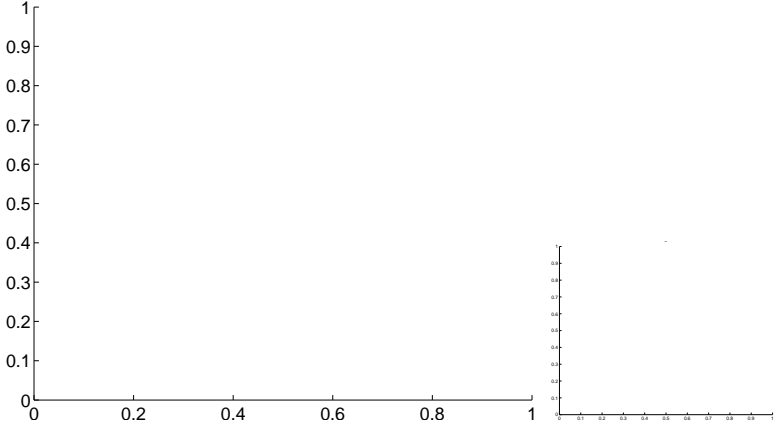
Q7 OOT image



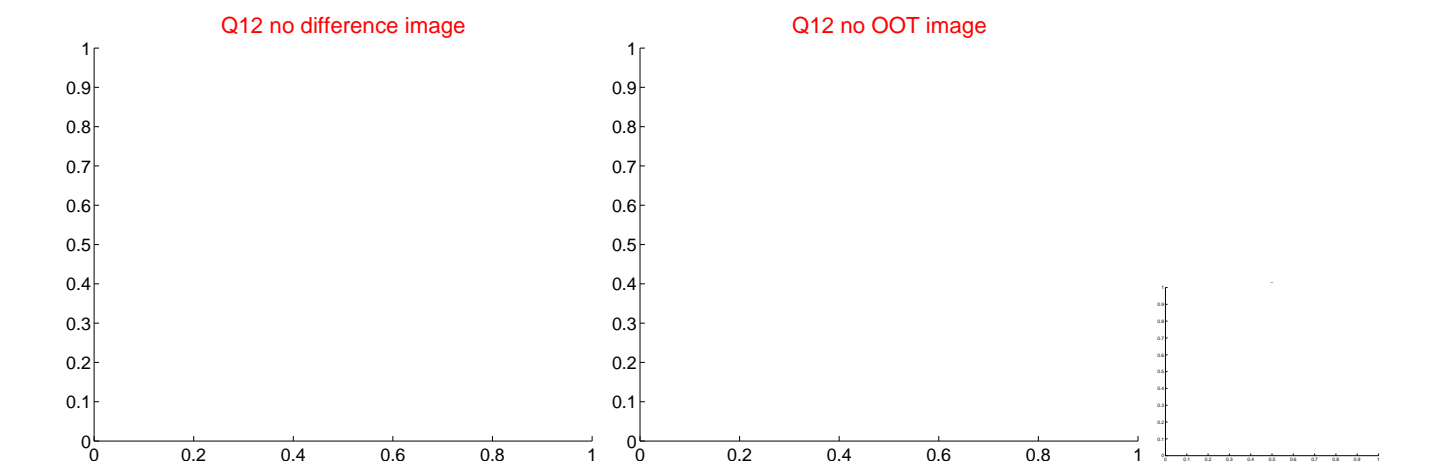
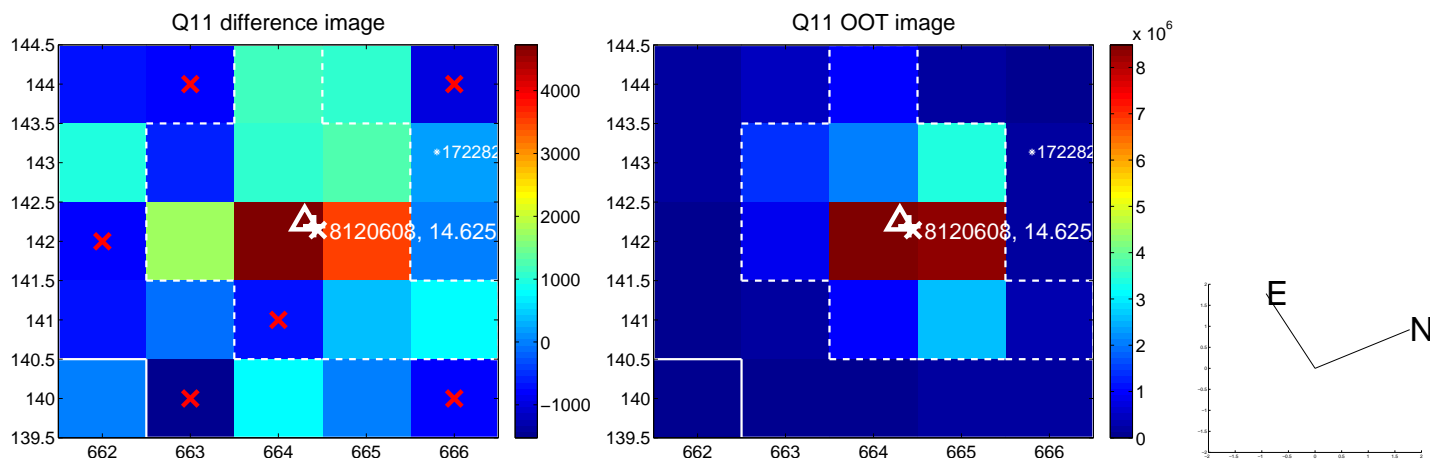
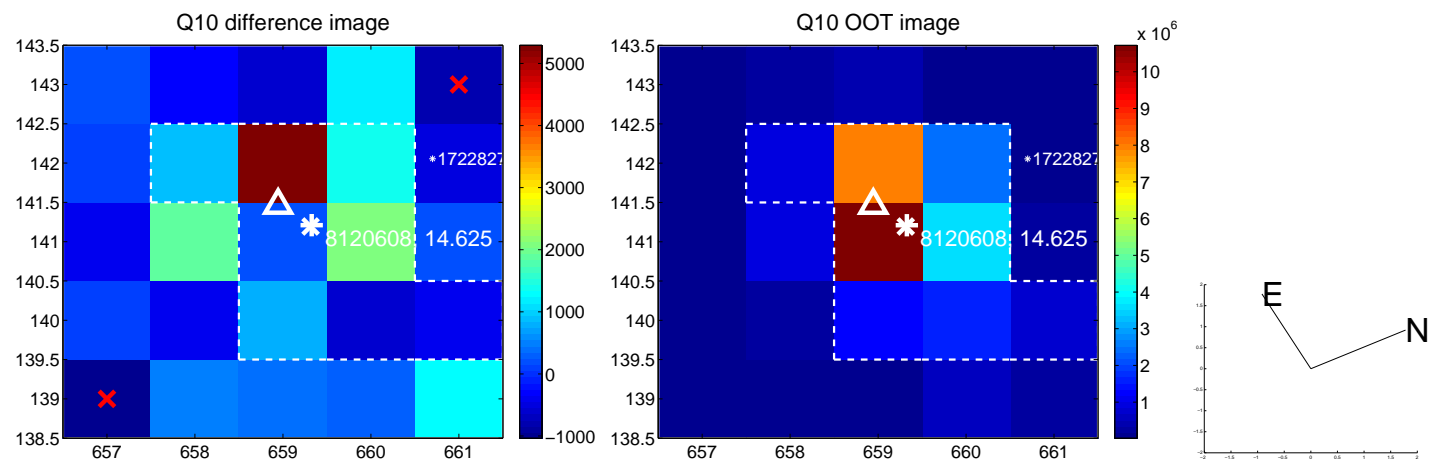
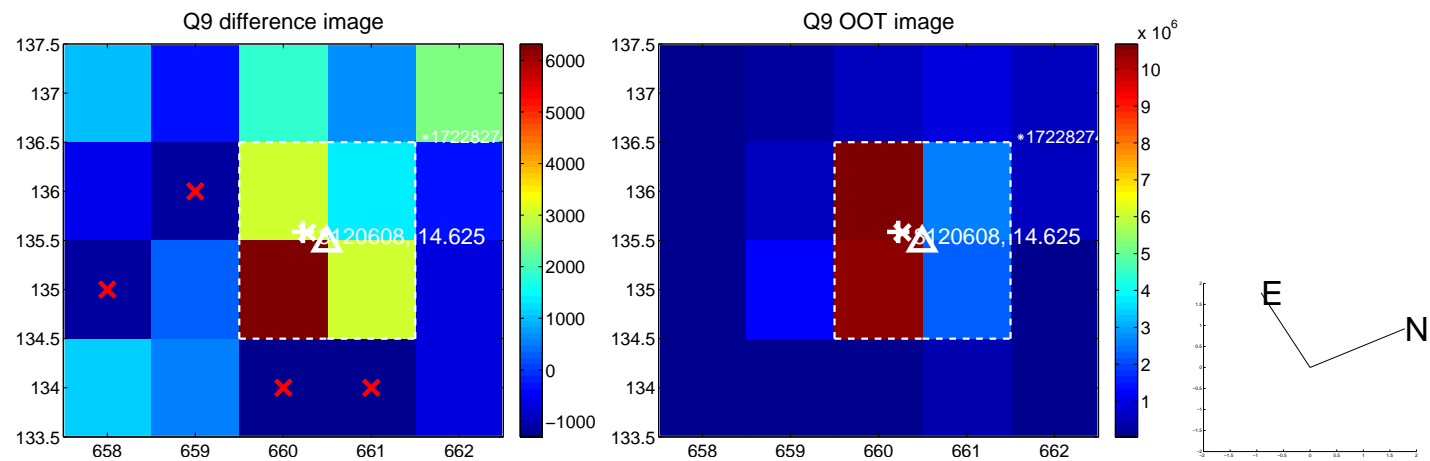
Q8 no difference image



Q8 no OOT image



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.

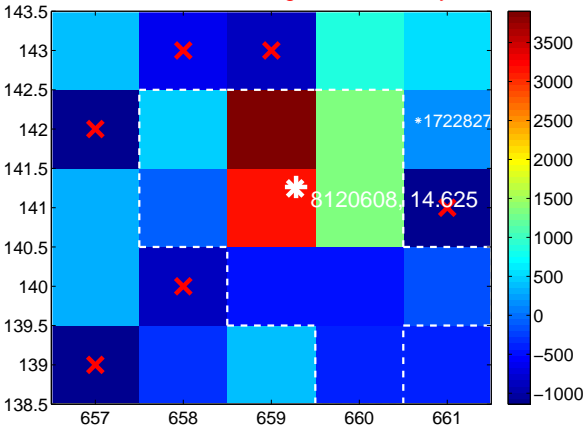
Q13 no difference image



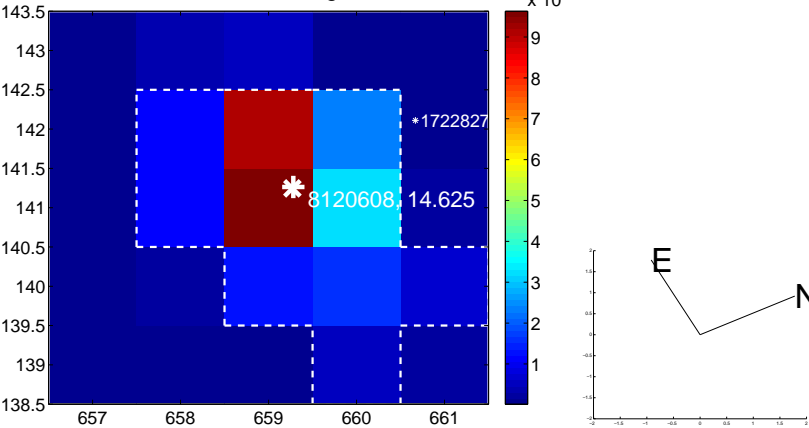
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



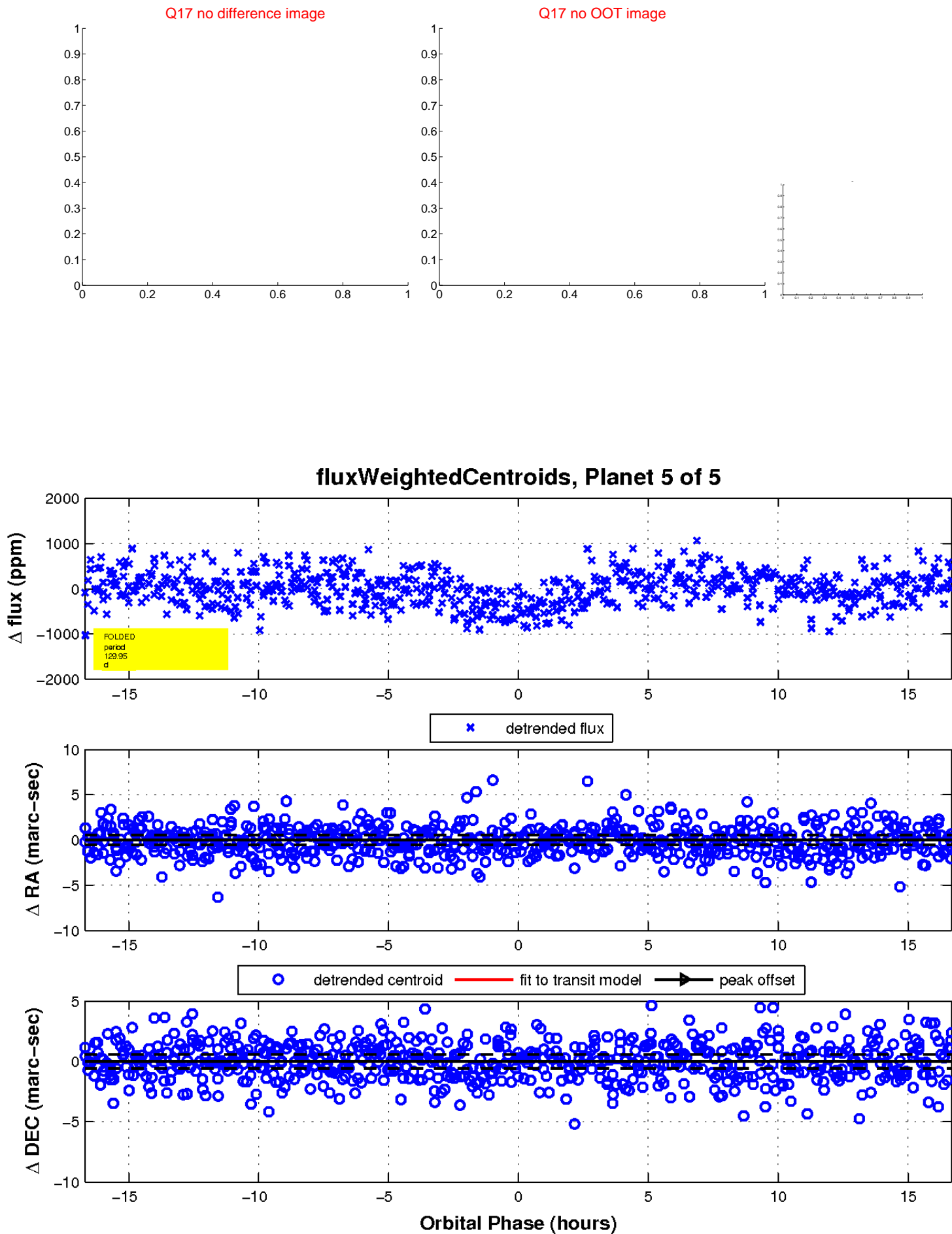
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

