

KIC 008396259

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})
008396259-01	OBS	No	0.502742	131.535118	175.3	1.562	10.9	11.2	3.85	7575	6.01	0.00
008396259-02	OBS	No	0.502751	131.701719	189.8	1.673	11.4	11.8	3.85	7575	6.24	0.00
008396259-03	OBS	No	54.642071	138.737967	2757.5	1.553	10.8	6.9	3.85	7575	20.35	345.64
008396259-04	OBS	No	43.900371	167.007346	3364.8	3.967	9.2	8.9	3.85	7575	40.96	462.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008396259-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008396259-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008396259-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT
008396259-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

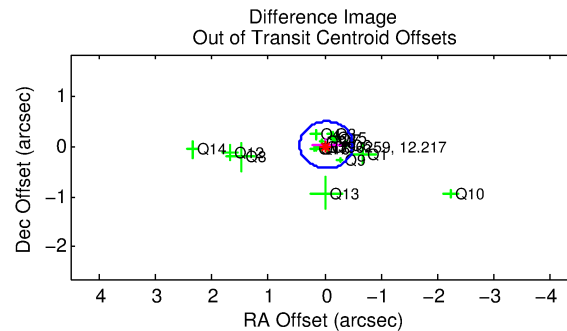
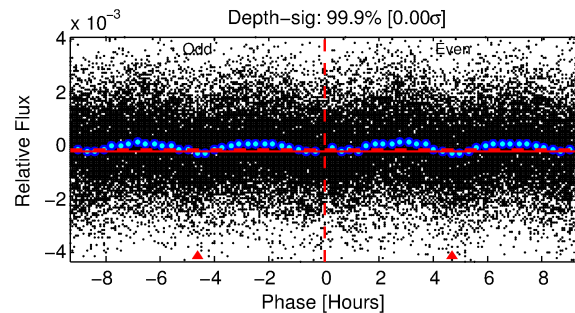
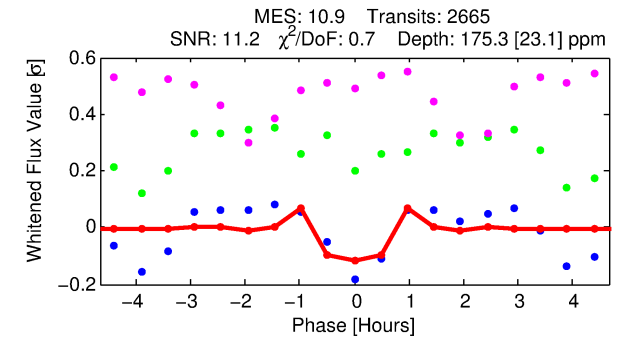
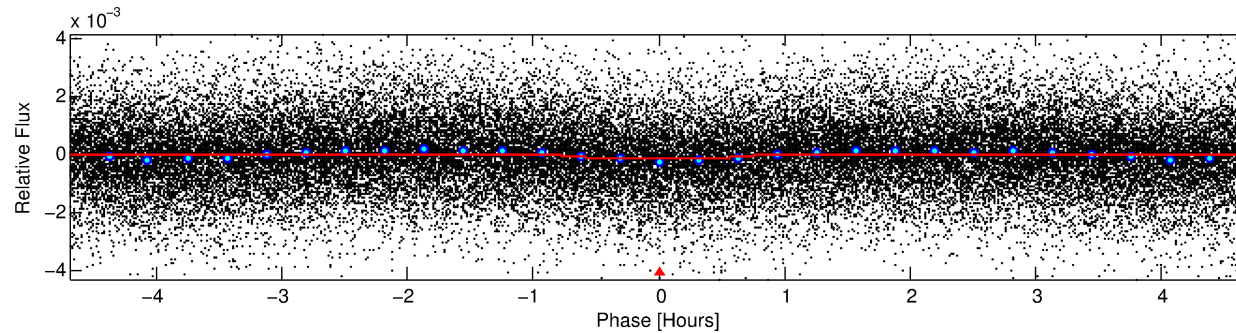
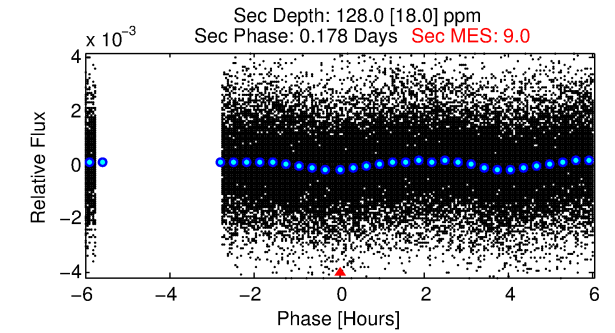
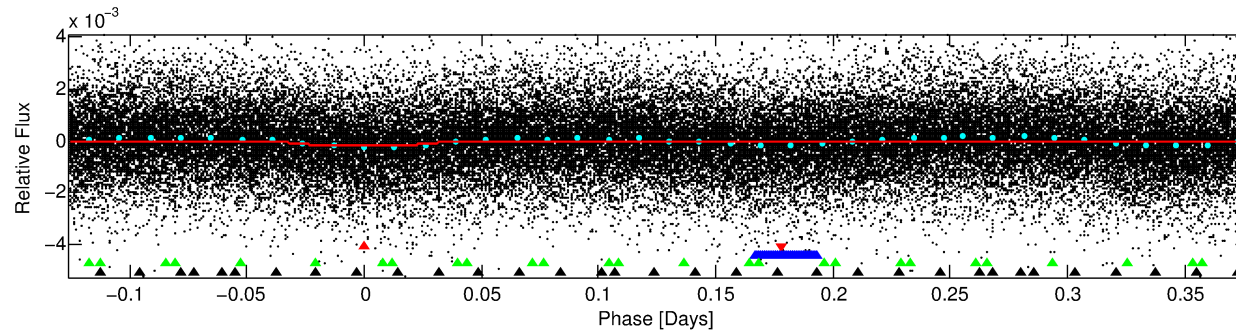
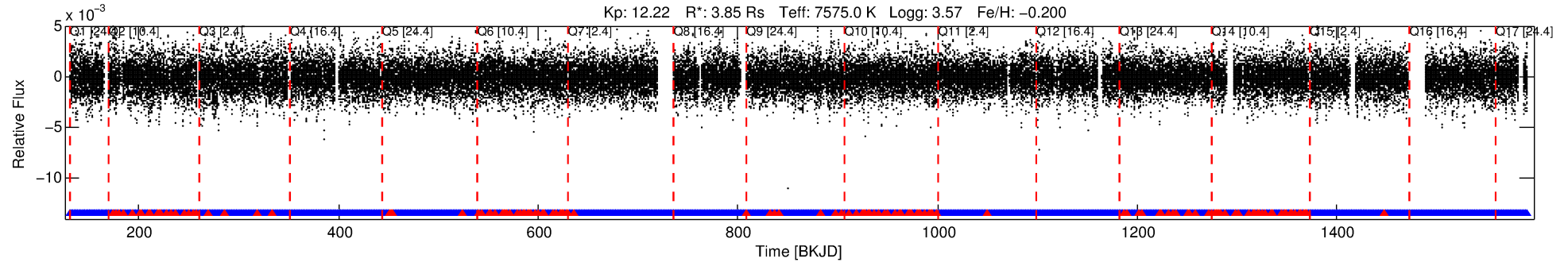
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008396259-01

No Significant Match Found

DV One-Page Summary

KIC: 8396259 Candidate: 1 of 4 Period: 0.503 d



DV Fit Results:

Period = 0.50274 [0.00001] d
Epoch = 131.5351 [0.0010] BKJD
Rp/R* = 0.0143 [0.0039]
a/R* = 1.49 [1.16]
b = 0.90 [0.31]
Seff = N/A
Teq = N/A
Rp = 6.01 [3.57] Re
a = N/A
Ag = N/A
Teffp = N/A

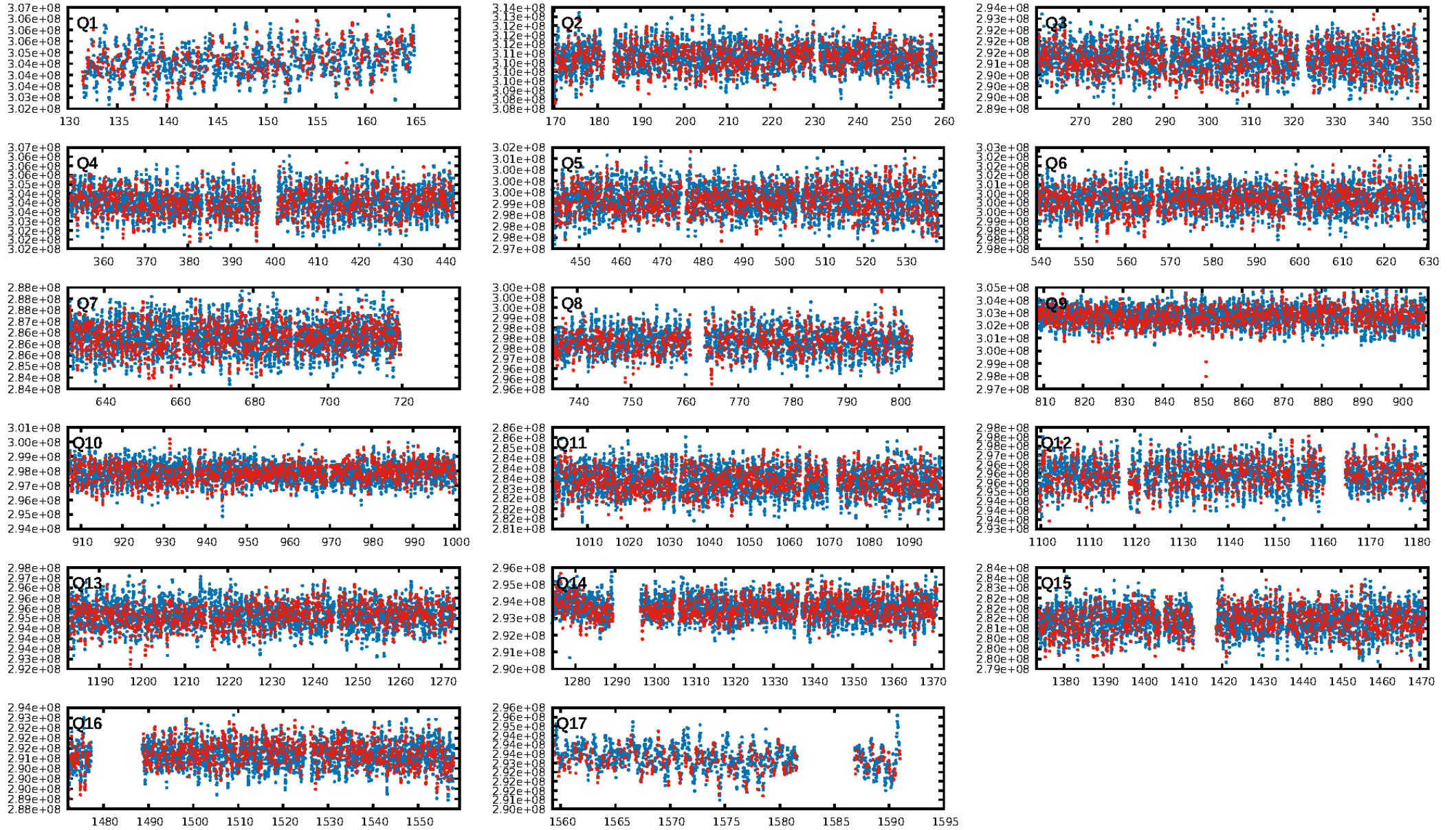
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [2390/2544]
GhostDiagnostic-chr: 1.664
Centroid-sig: 0.1%
Centroid-so: 0.294 arcsec [2.49σ]
OotOffset-rm: 0.044 arcsec [0.28σ]
KicOffset-rm: 0.178 arcsec [0.90σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.82 [14/17]
DiffImageOverlap-fno: 0.00 [0/17]

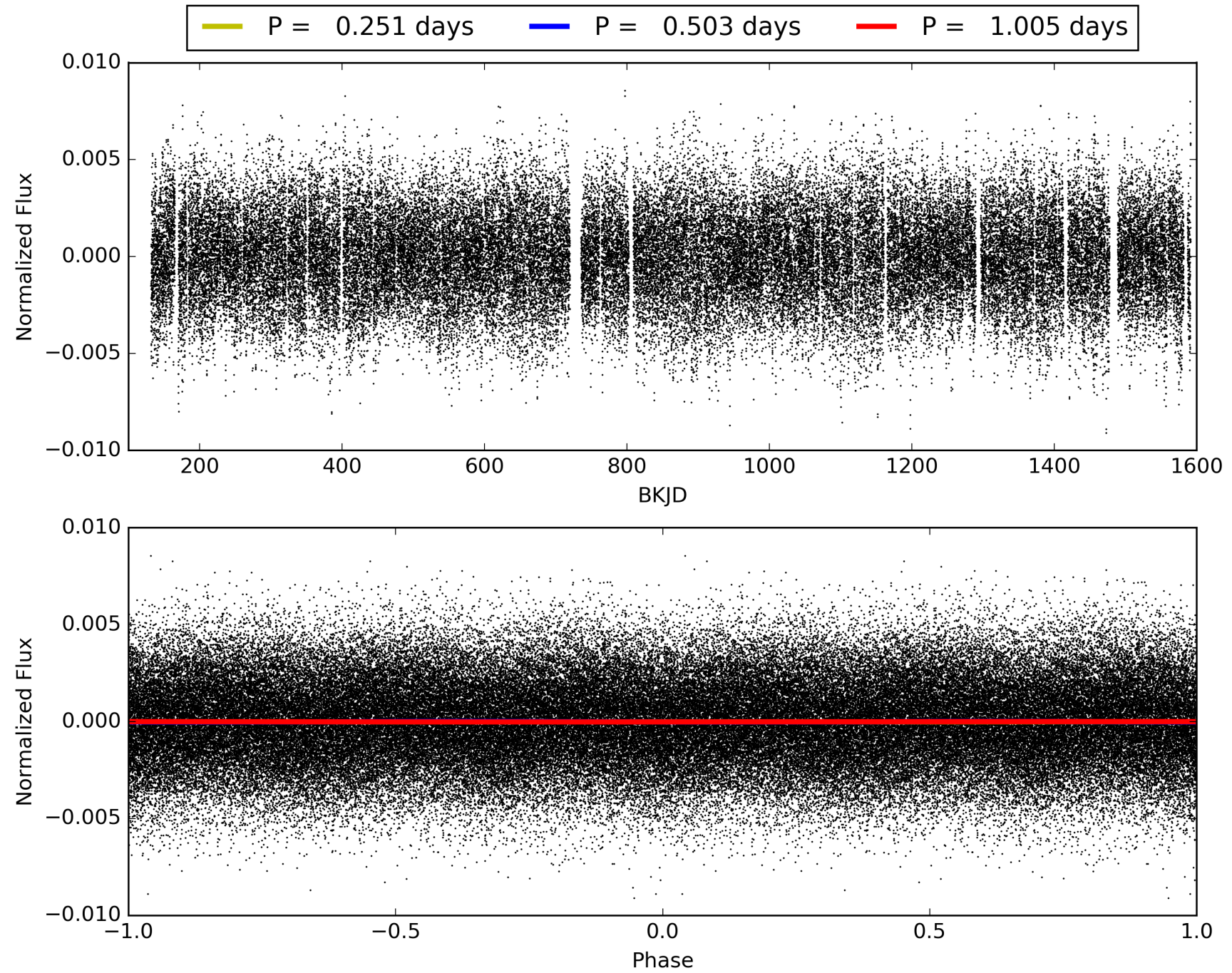
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:58 Z

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

TCE 008396259-01, PDC Light Curves

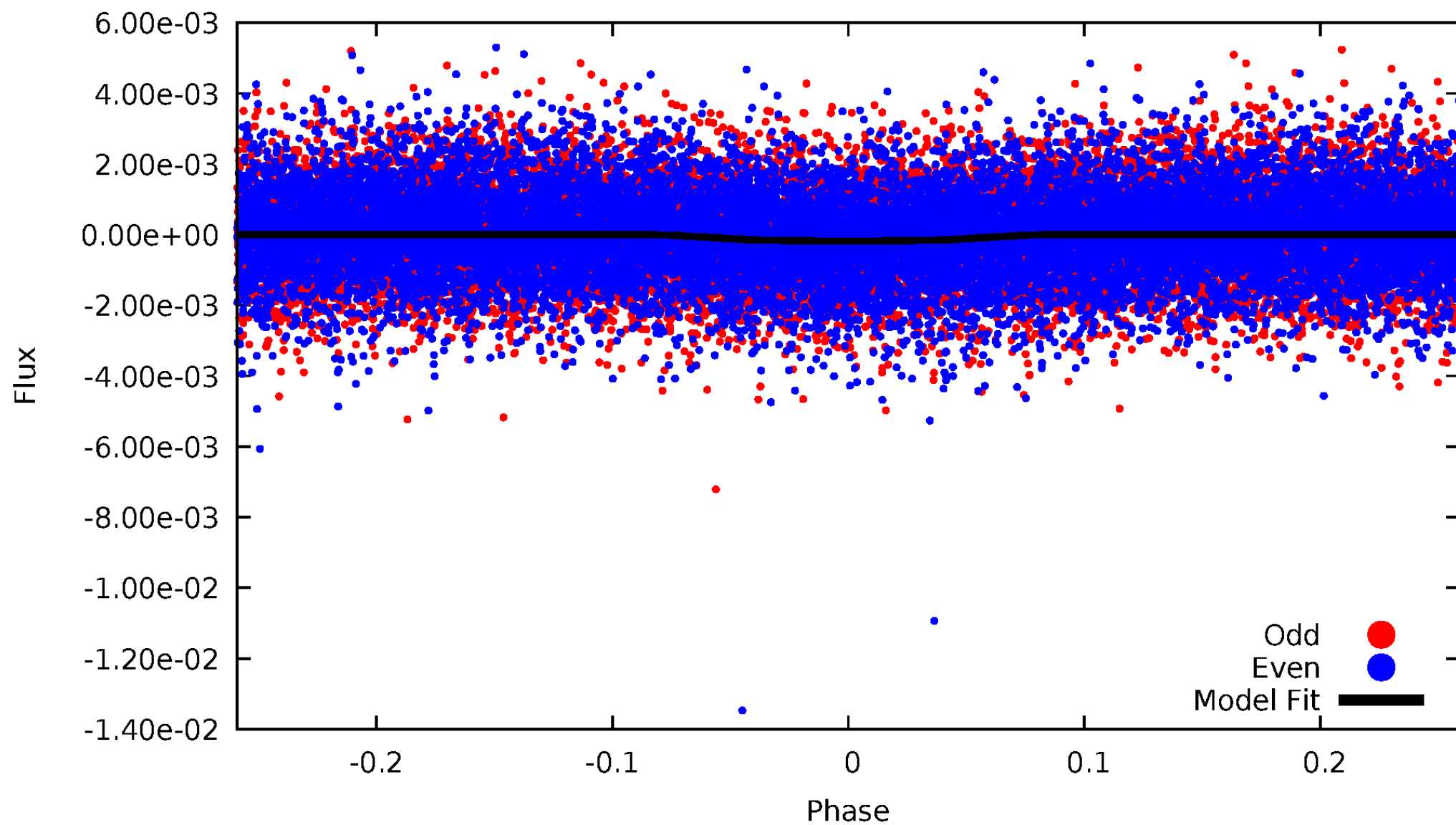


TCE 008396259-01



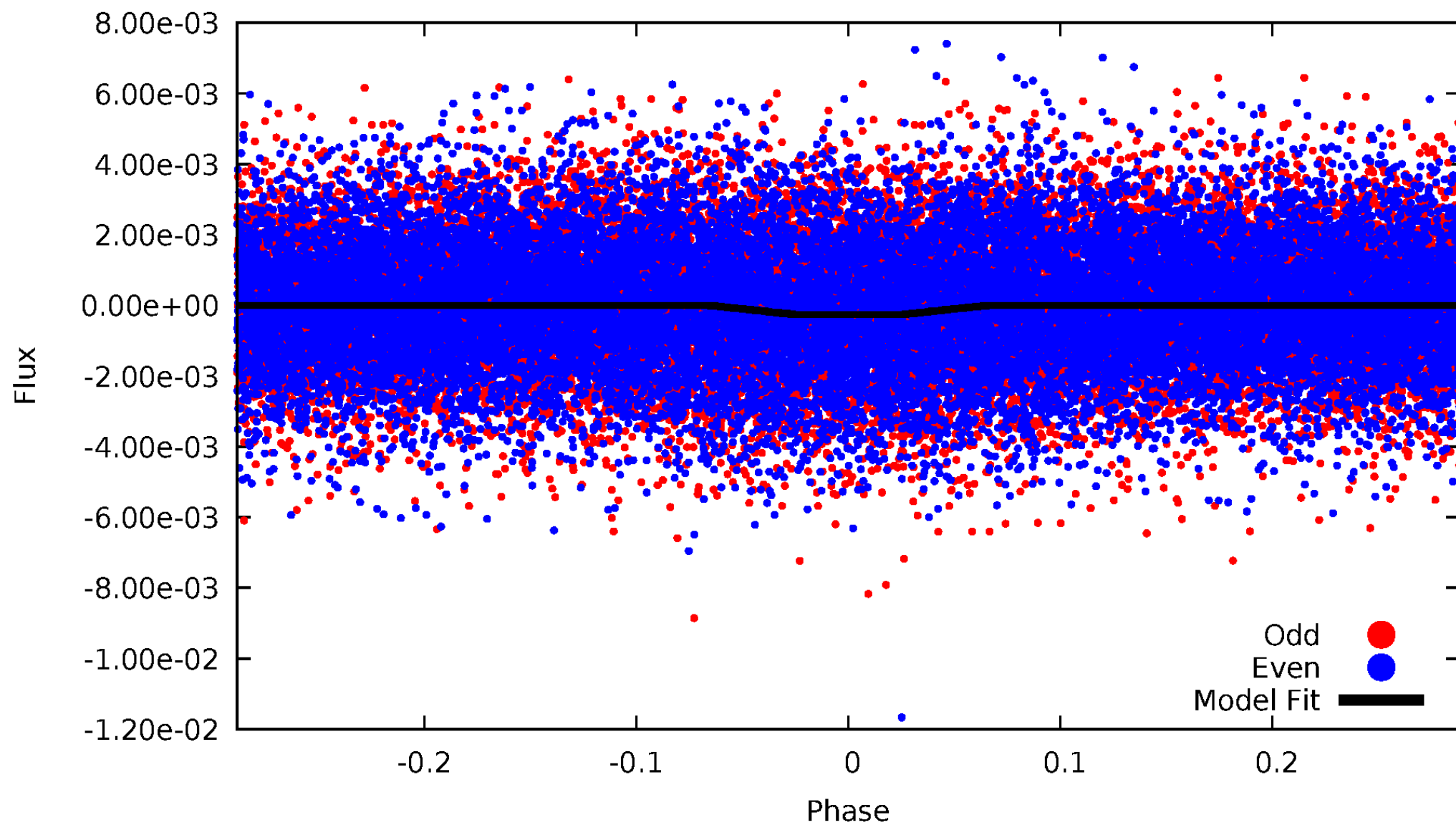
DV Odd/Even

TCE 008396259-01



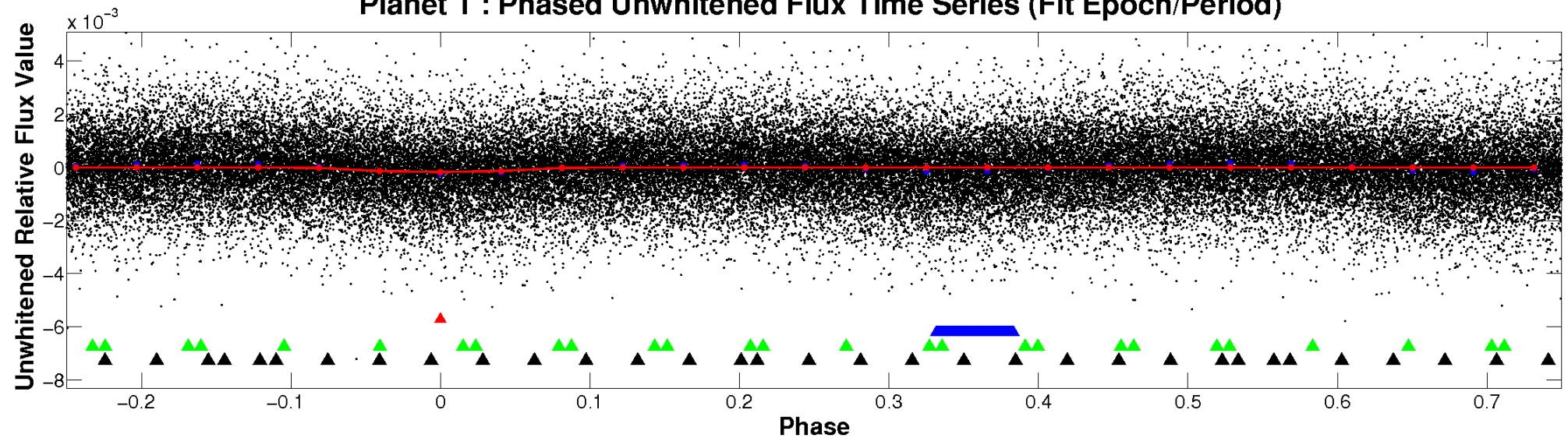
ALT Odd/Even

TCE 008396259-01

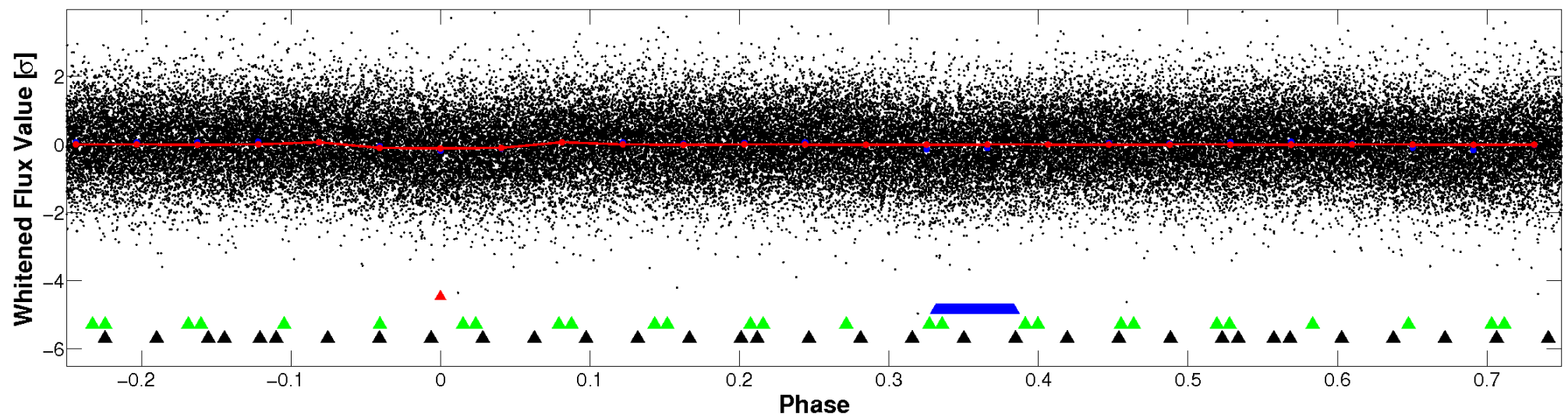


Non-Whitened Vs. Whitened Light Curve

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

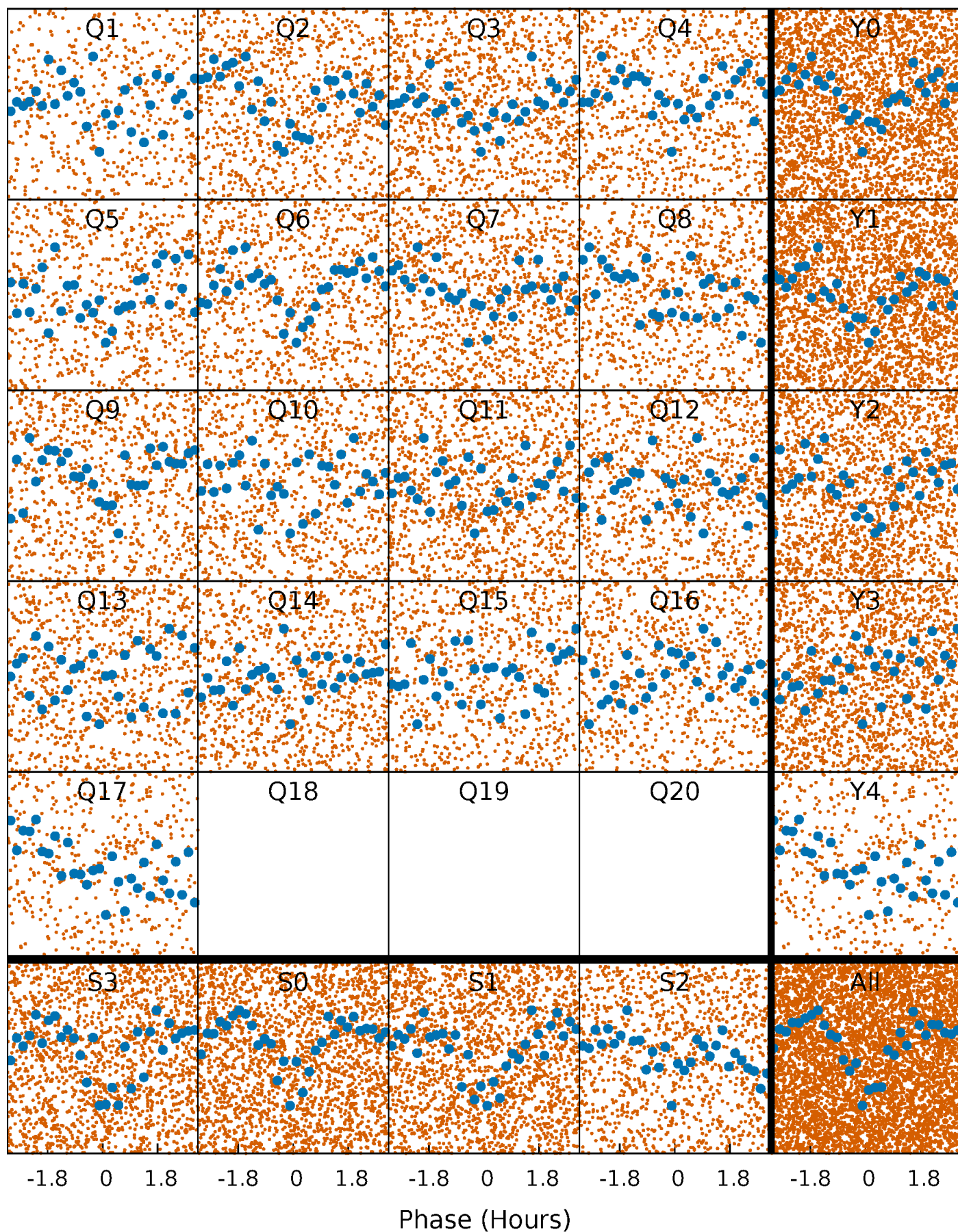


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



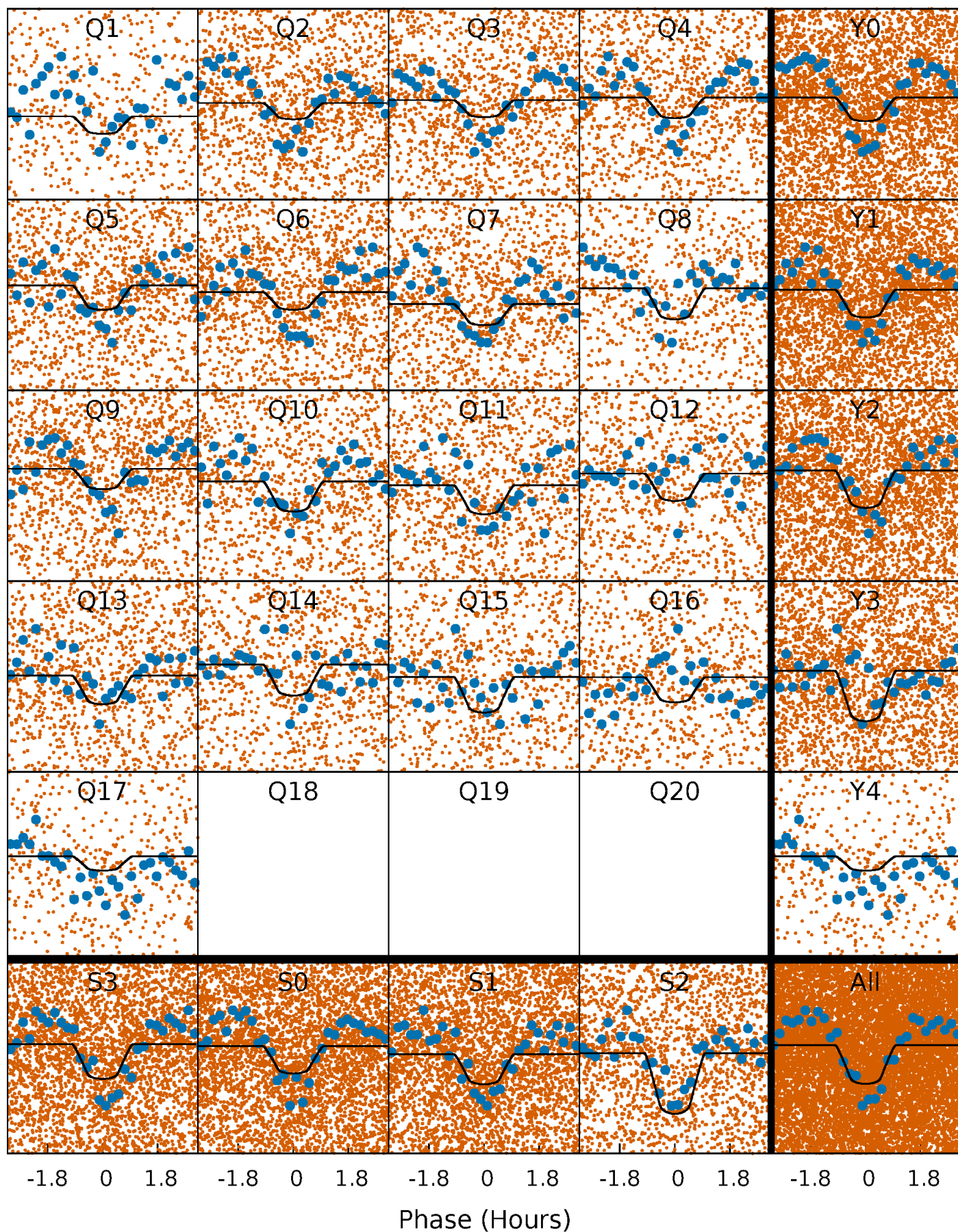
PDC Quarter-Phased Transit Curves

TCE 008396259-01 P= 0.502742 Days $T_0=131.535118$ (BKJD)



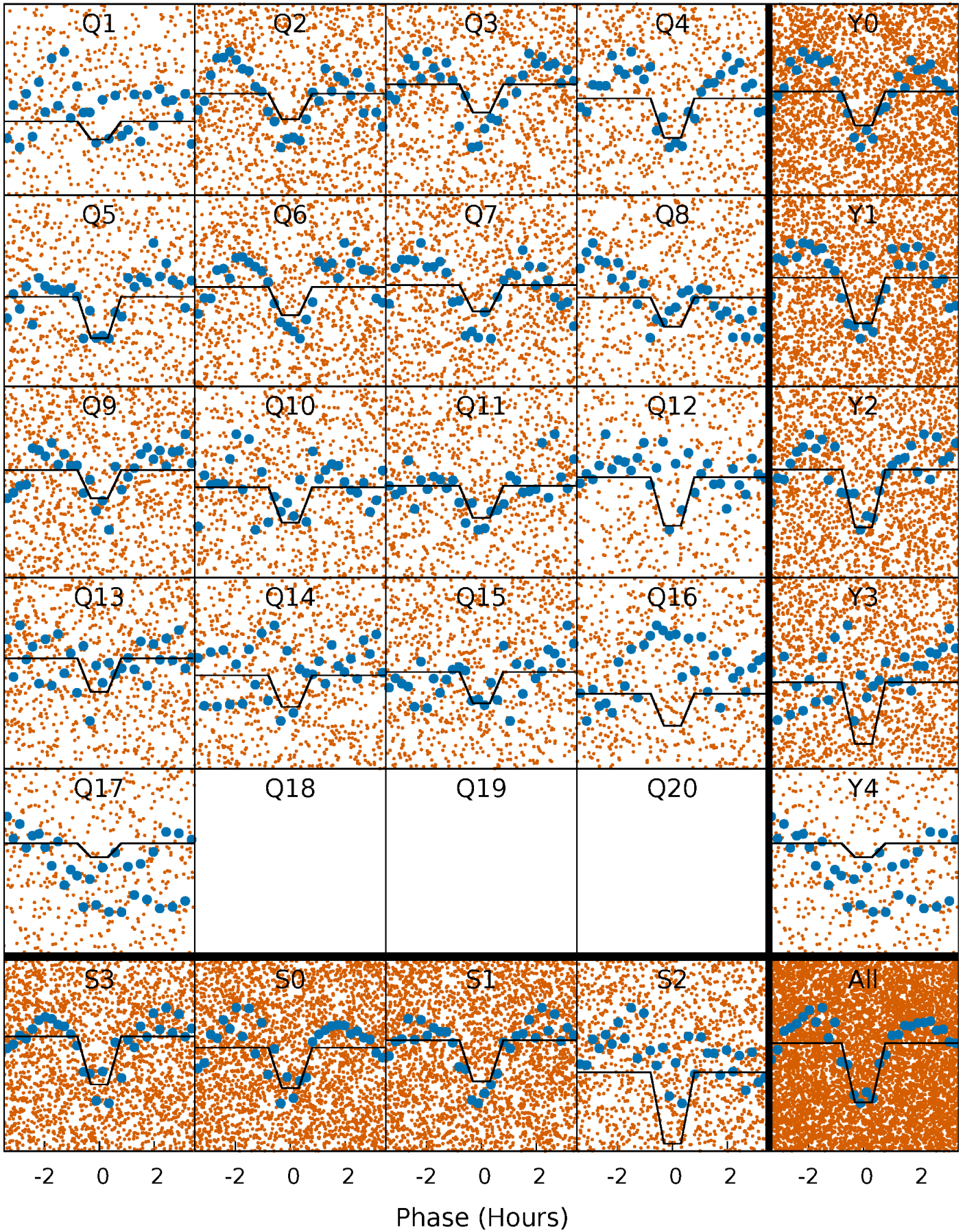
DV Quarter-Phased Transit Curves

TCE 008396259-01 P= 0.502742 Days $T_0=131.535118$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

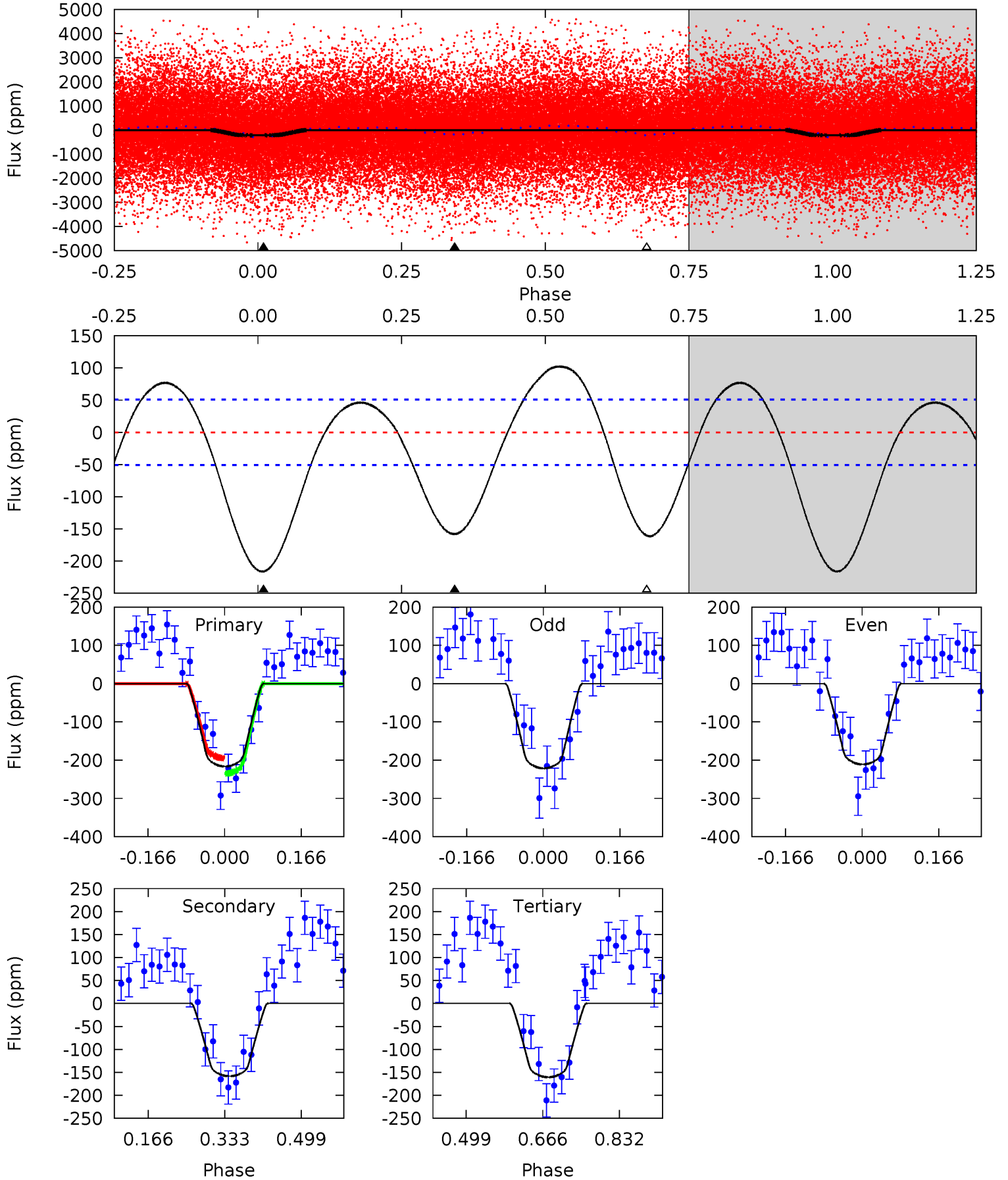
TCE 008396259-01 P= 0.502748 Days $T_0=131.533055$ (BKJD)



DV Model-Shift Uniqueness Test

008396259-01, P = 0.502742 Days, E = 131.032376 Days

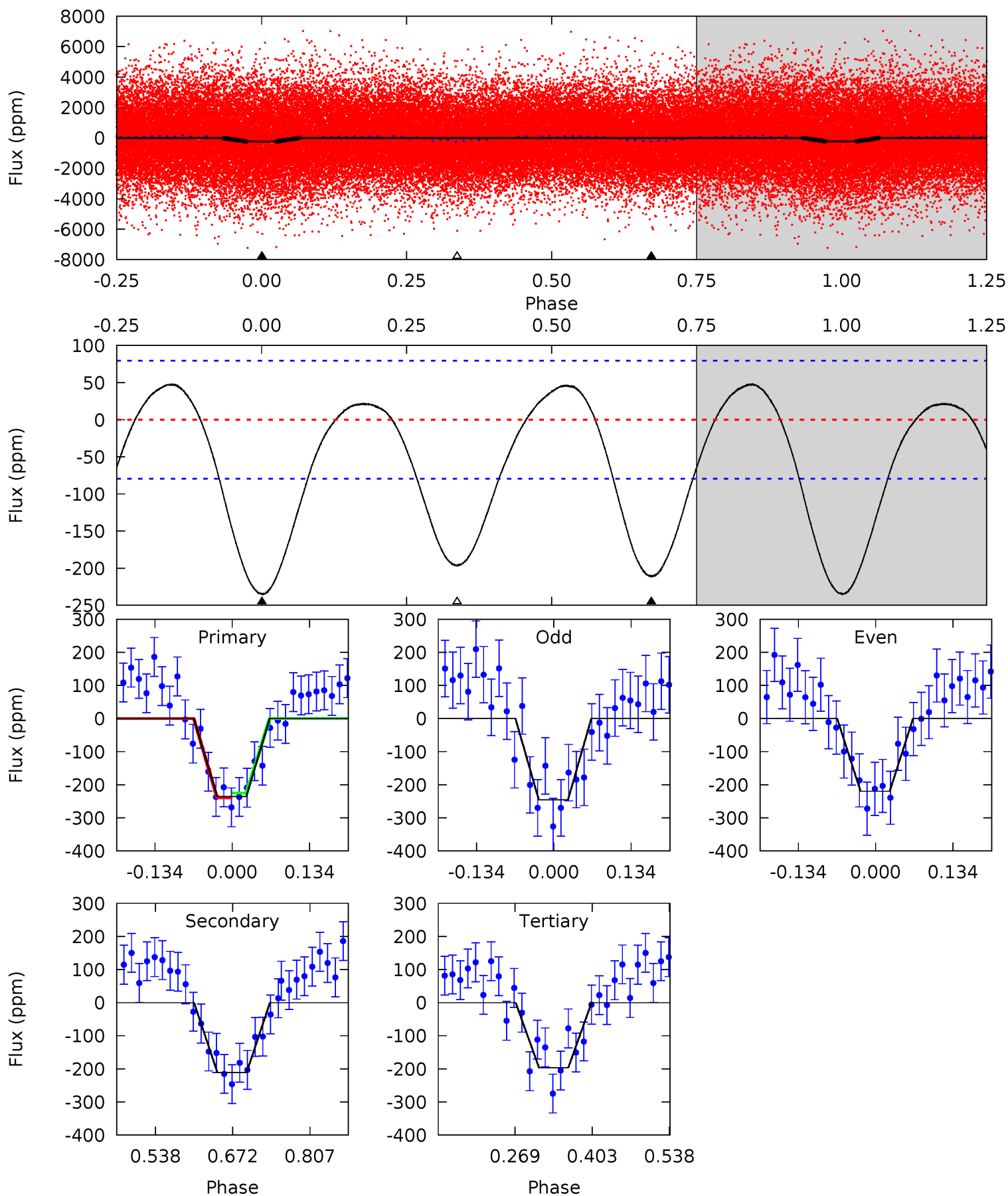
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	13.9	14.1	0	4.46	1.38	8.03	4.89	18.9	-0.20	13.9	0.45	1.24	0.32	1.80



Alt Model-Shift Uniqueness Test

008396259-01, P = 0.502748 Days, E = 131.030307 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	12.0	11.1	0	4.50	1.50	4.67	2.19	13.3	0.83	12.0	0.73	0.98	0.17	0.41



Stellar Parameters For KIC 008396259

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7575^{+211}_{-317}	$3.570^{+0.540}_{-0.060}$	$-0.200^{+0.250}_{-0.300}$	$3.849^{+0.509}_{-2.037}$	$2.010^{+0.139}_{-0.557}$	$0.050^{+0.332}_{-0.010}$
	+3%/-4%	+15%/-2%	+125%/-150%	+13%/-53%	+7%/-28%	+668%/-20%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008396259-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-158 ± 11	$5.20^{+2.00}_{-1.75}$	6988^{+504}_{-932}	6086^{+1724}_{-1402}	$0.771^{+0.982}_{-0.354}$
Alt.	-211 ± 18	$5.84^{+2.12}_{-1.96}$	6999^{+534}_{-902}	6332^{+1450}_{-1345}	$0.816^{+0.981}_{-0.362}$

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 $A_{obs} \gg 1.0$

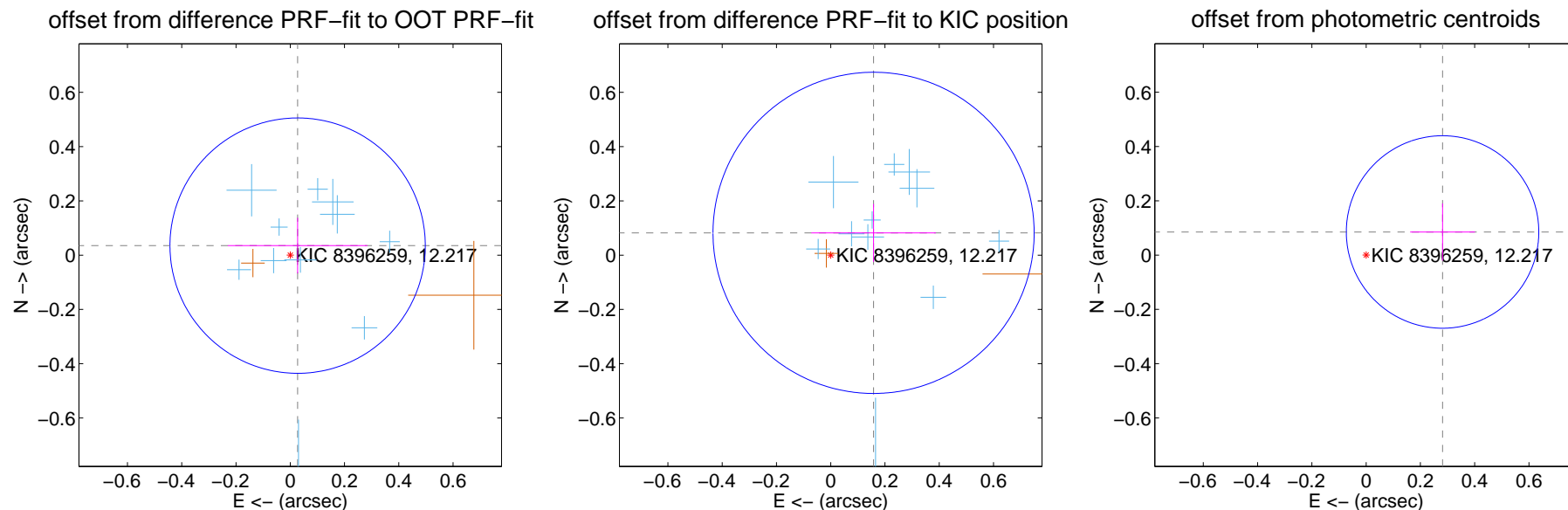
DV Centroid Data

Supplemental centroid analysis for 008396259-01. Kepler magnitude: 12.22. Transit SNR 11.20

There are 14 quarters with good PRF difference image offsets

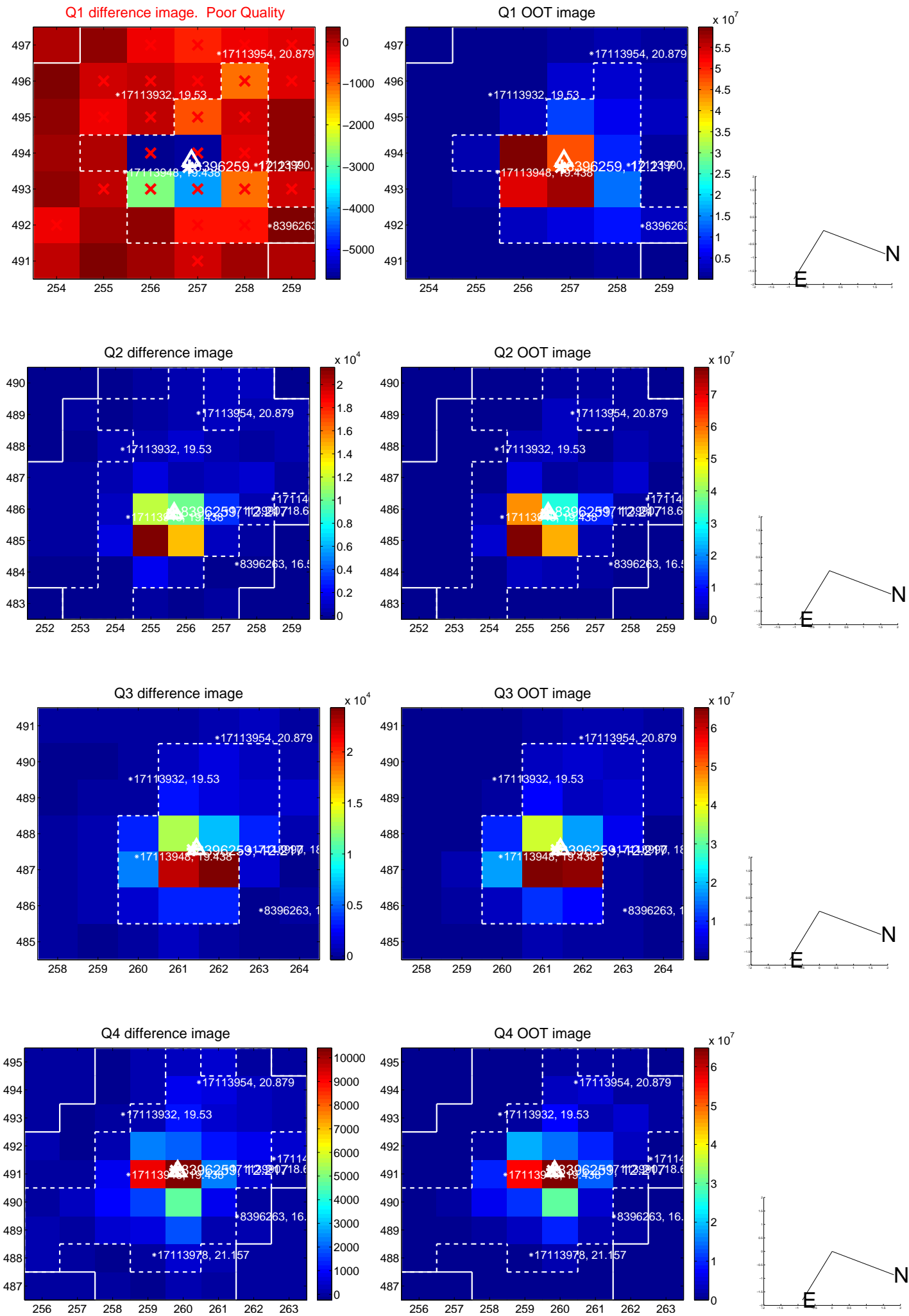
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.044 ± 0.157	0.28	-0.027 ± 0.257	0.035 ± 0.102
PRF-fit source offset from KIC position	0.178 ± 0.197	0.90	-0.158 ± 0.229	0.082 ± 0.107
photometric centroid source offset	0.29 ± 0.12	2.49	-0.28 ± 0.12	0.09 ± 0.11

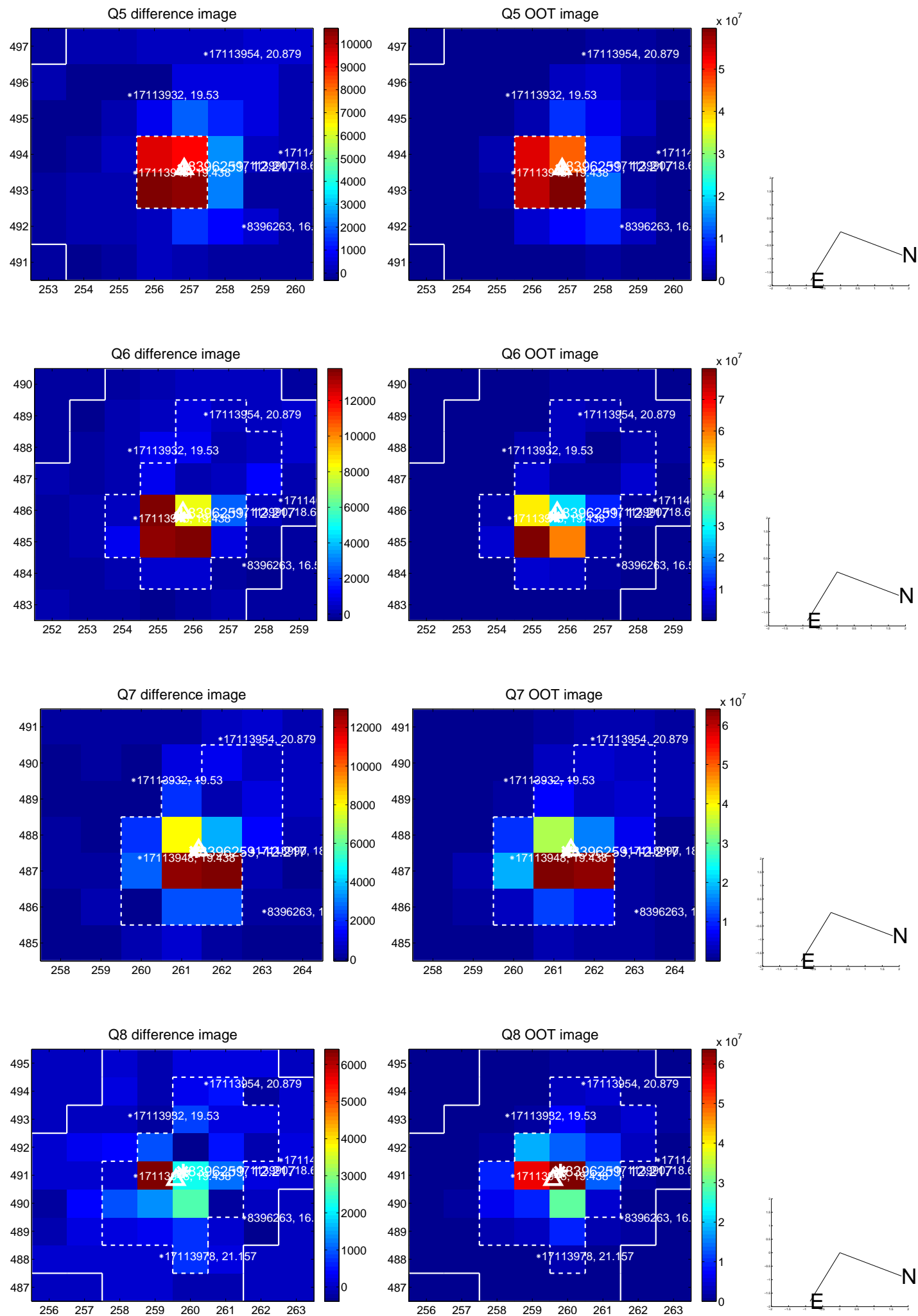


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

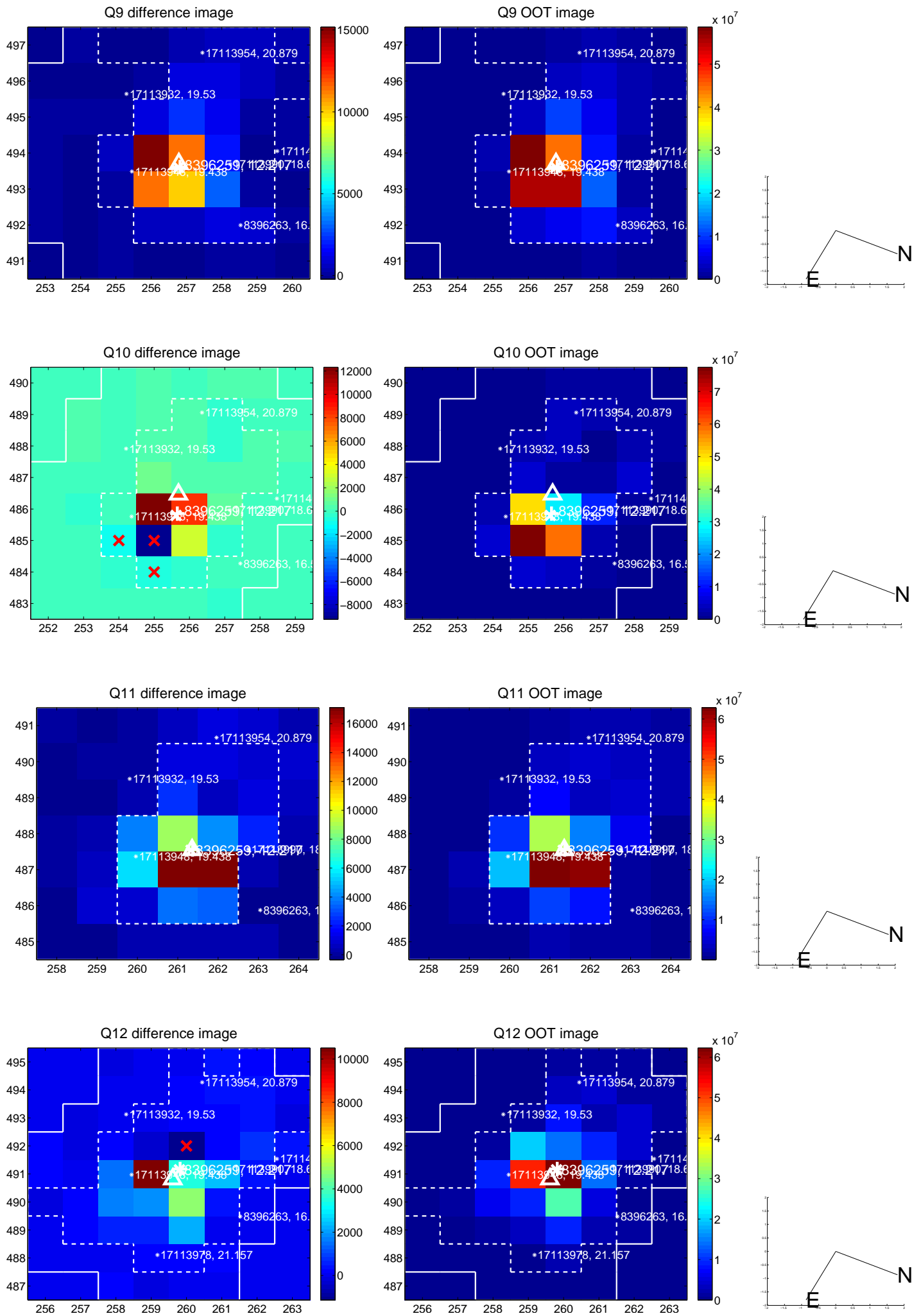
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



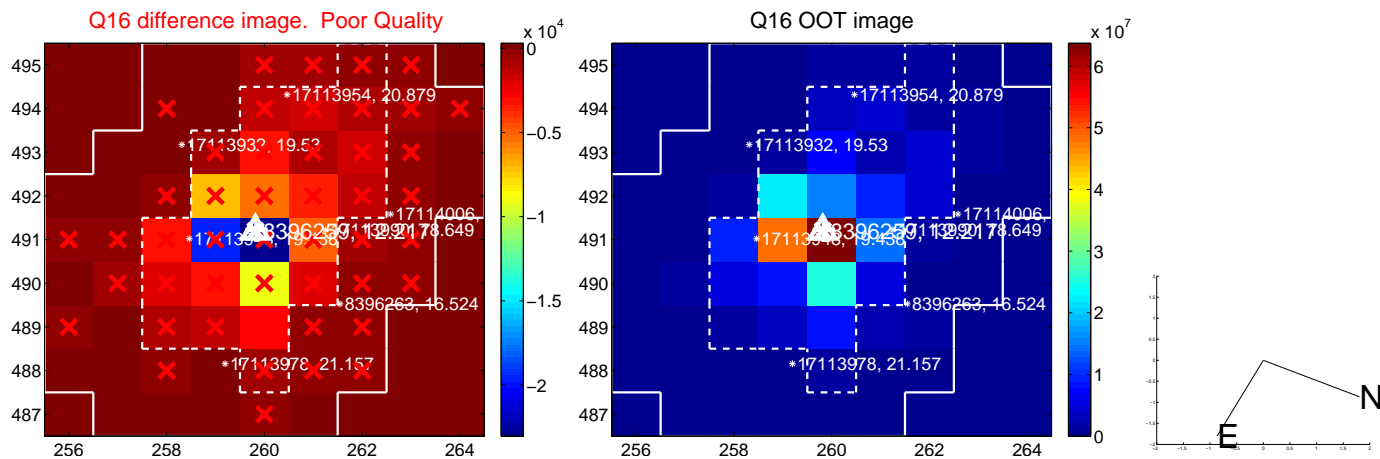
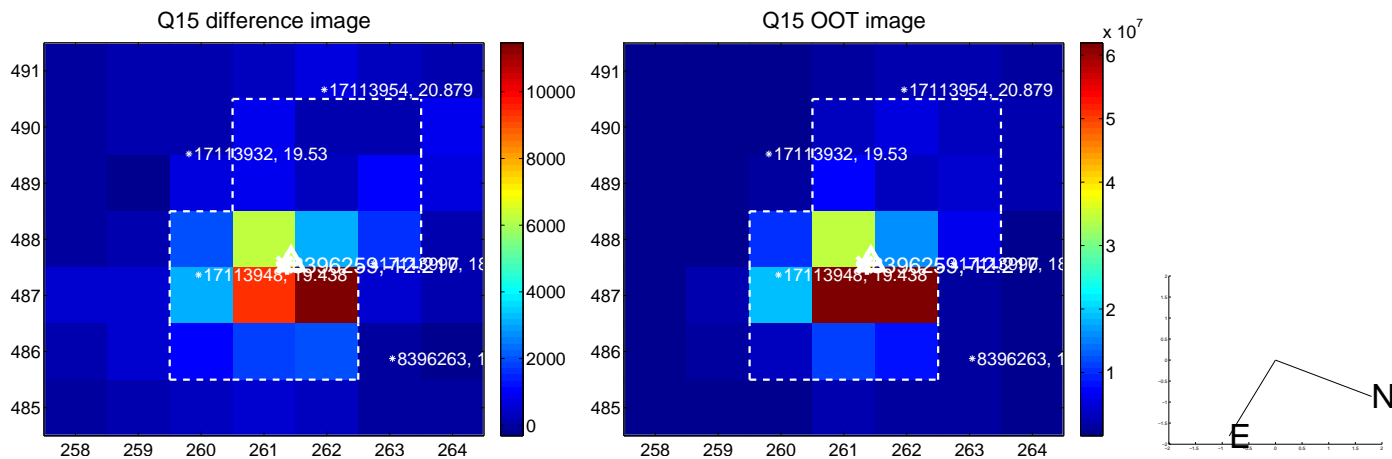
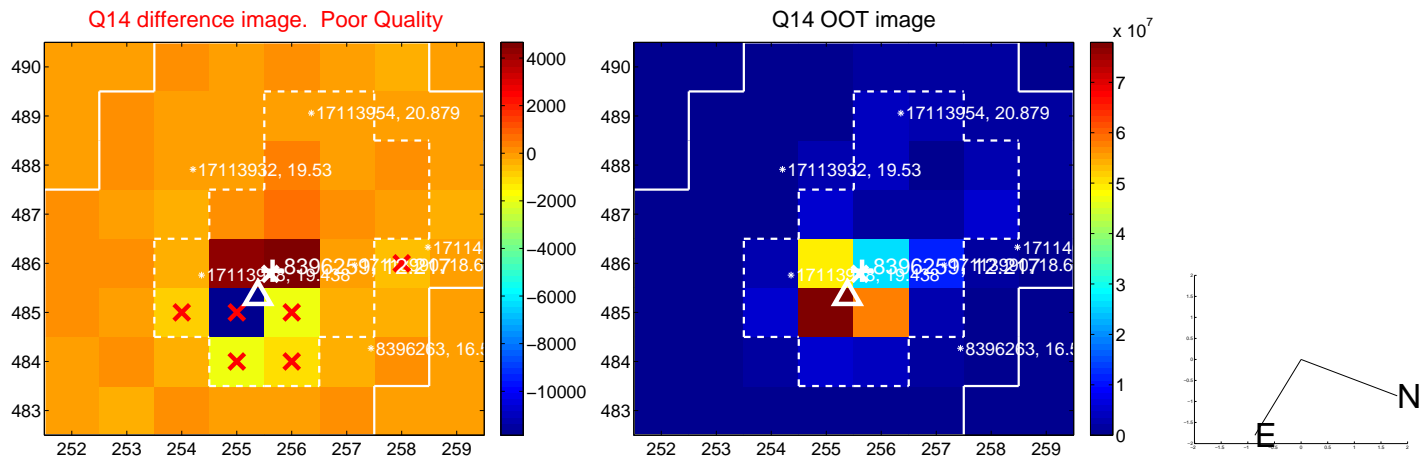
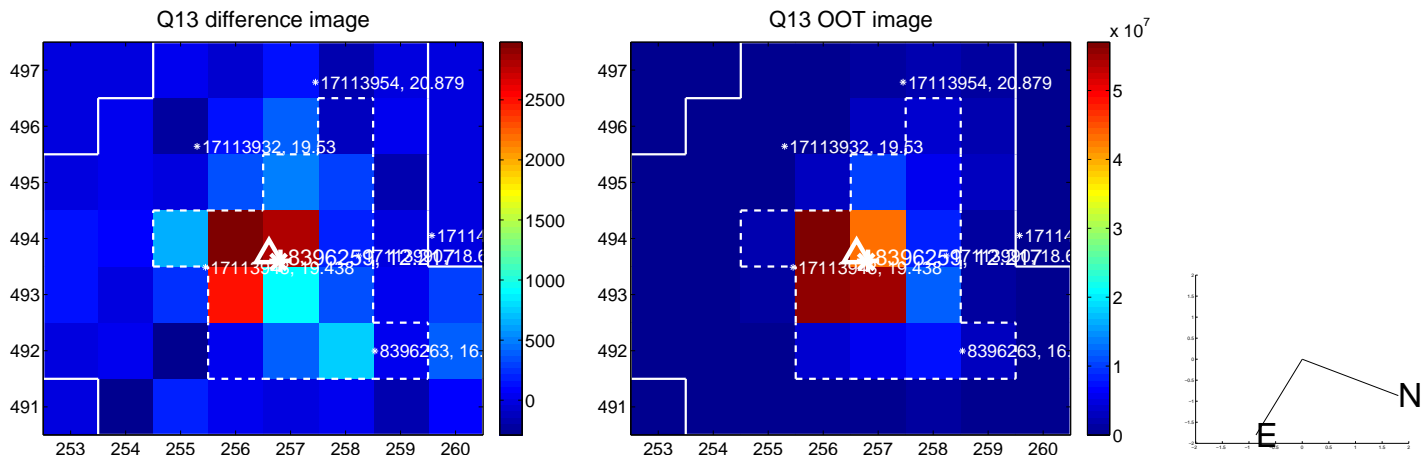
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



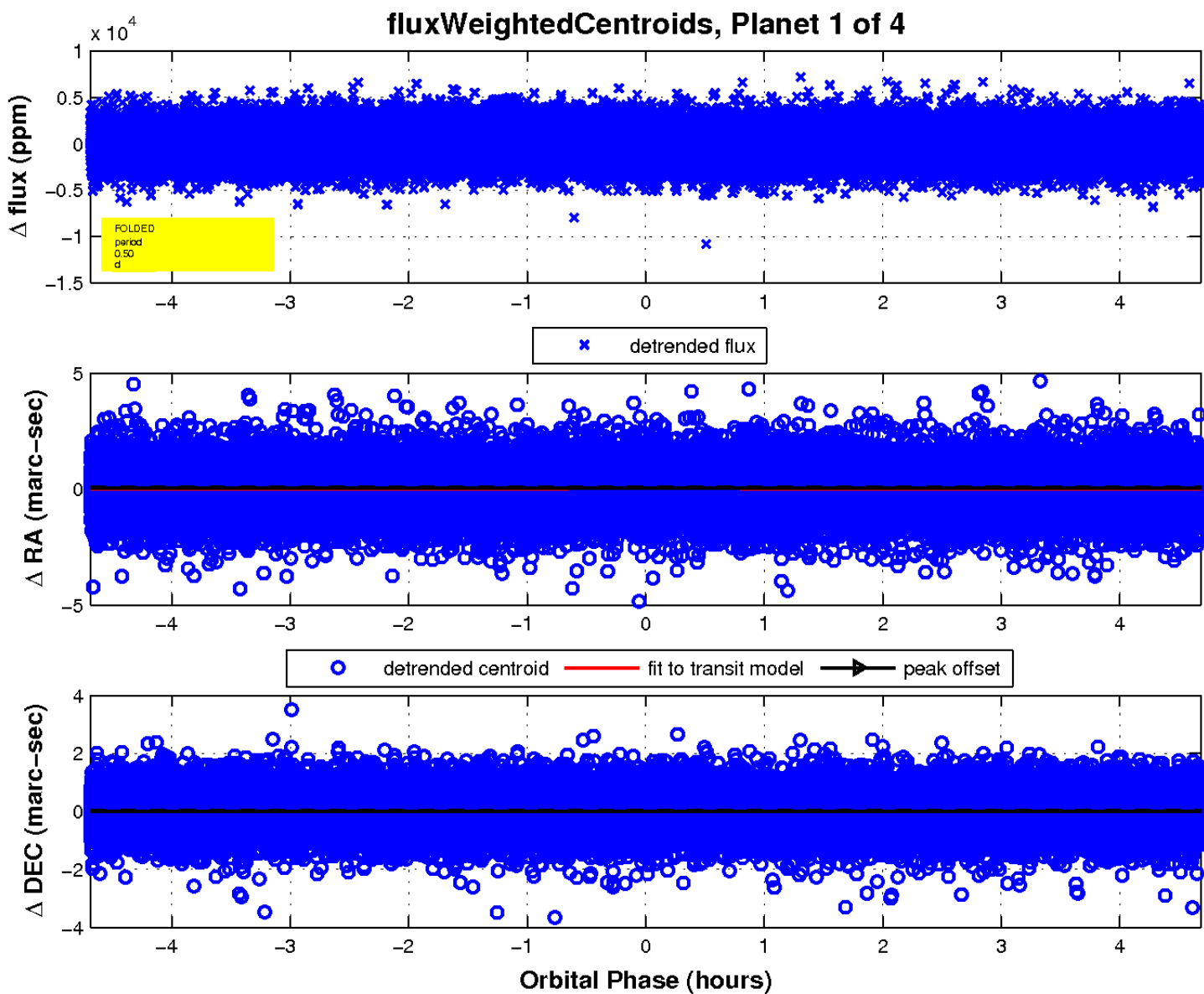
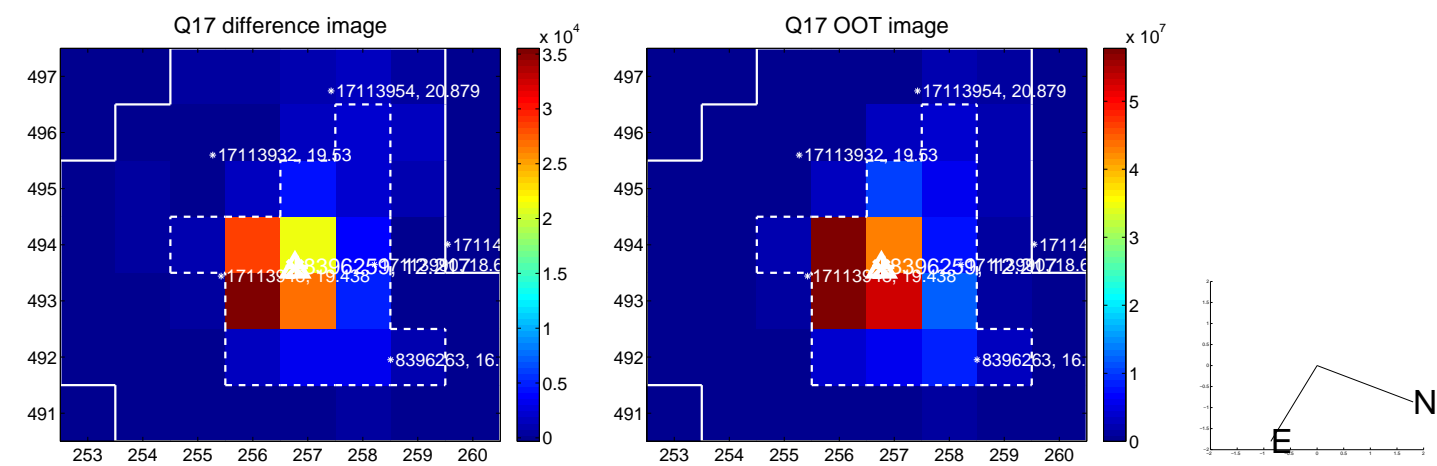
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

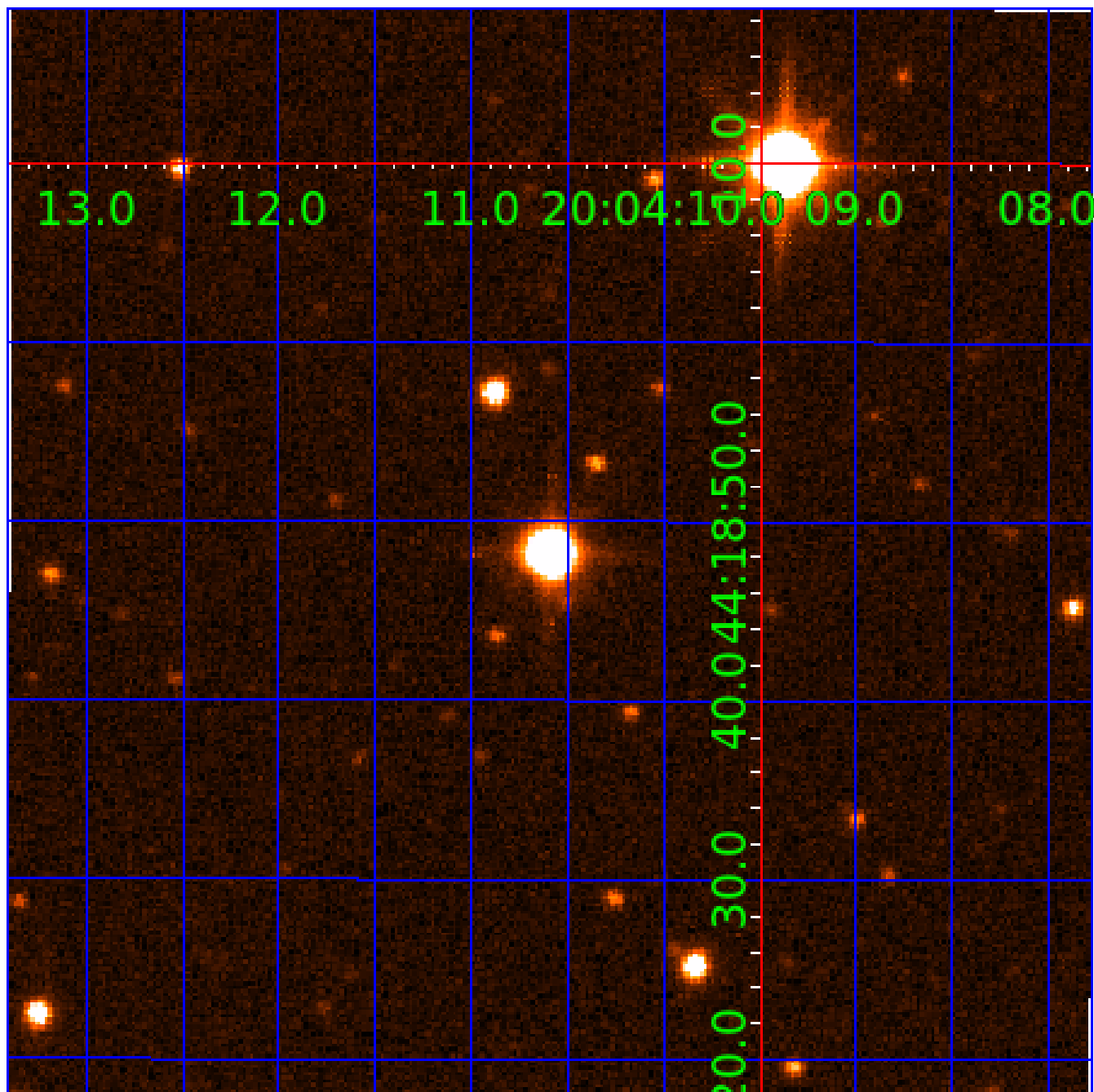


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008396259

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})
008396259-01	OBS	No	0.502742	131.535118	175.3	1.562	10.9	11.2	3.85	7575	6.01	0.00
008396259-02	OBS	No	0.502751	131.701719	189.8	1.673	11.4	11.8	3.85	7575	6.24	0.00
008396259-03	OBS	No	54.642071	138.737967	2757.5	1.553	10.8	6.9	3.85	7575	20.35	345.64
008396259-04	OBS	No	43.900371	167.007346	3364.8	3.967	9.2	8.9	3.85	7575	40.96	462.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008396259-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008396259-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008396259-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT
008396259-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

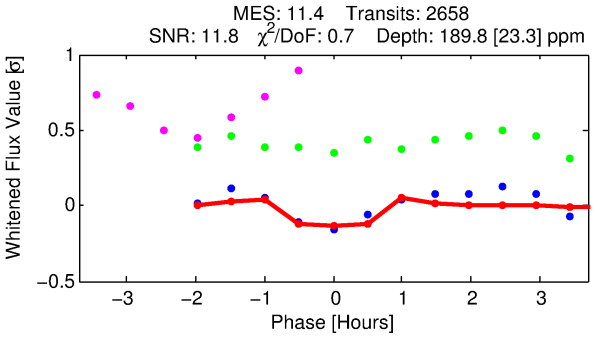
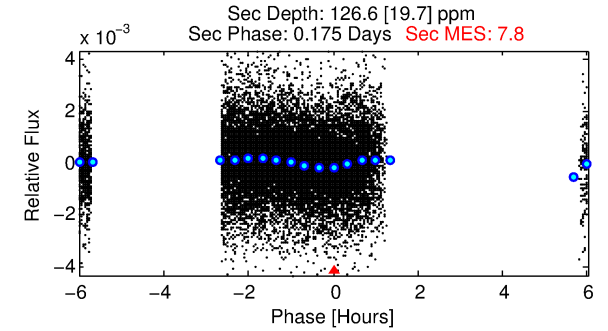
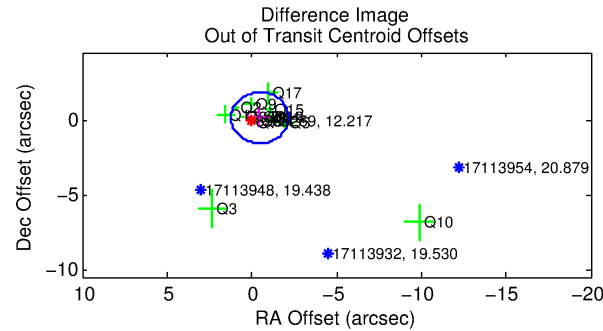
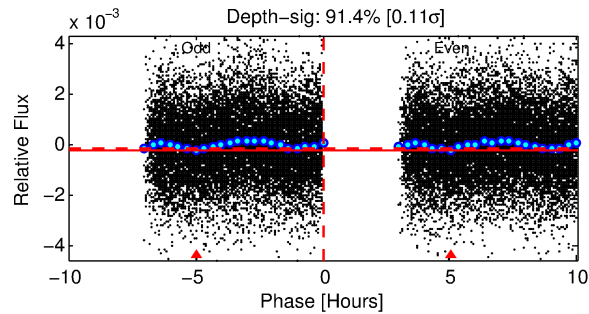
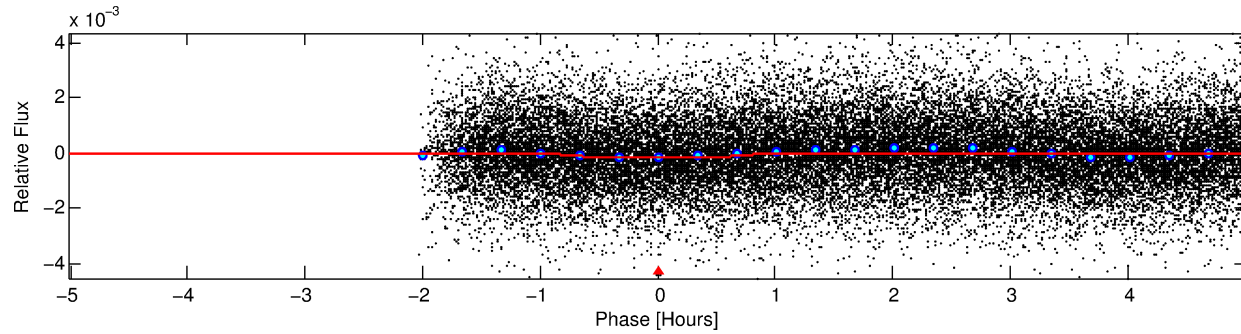
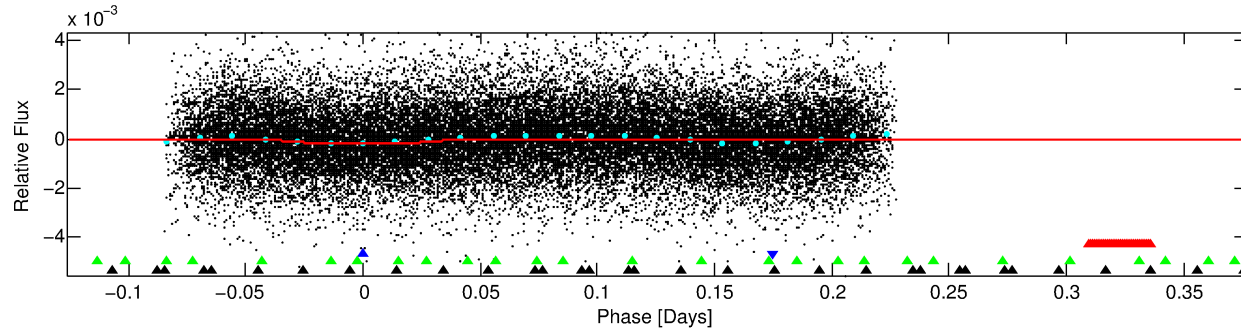
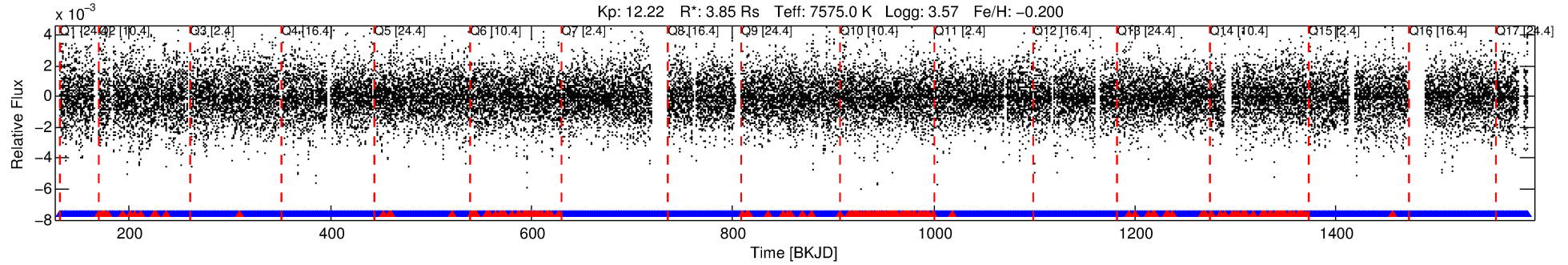
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008396259-02

No Significant Match Found

DV One-Page Summary

KIC: 8396259 Candidate: 2 of 4 Period: 0.503 d



DV Fit Results:

Period = 0.50275 [0.00001] d
Epoch = 131.7017 [0.0012] BKJD
Rp/R* = 0.0149 [0.0041]
a/R* = 1.43 [1.09]
b = 0.90 [0.32]
Seff = N/A
Teq = N/A
Rp = 6.24 [3.73] Re
a = N/A
Ag = N/A
Teffp = N/A

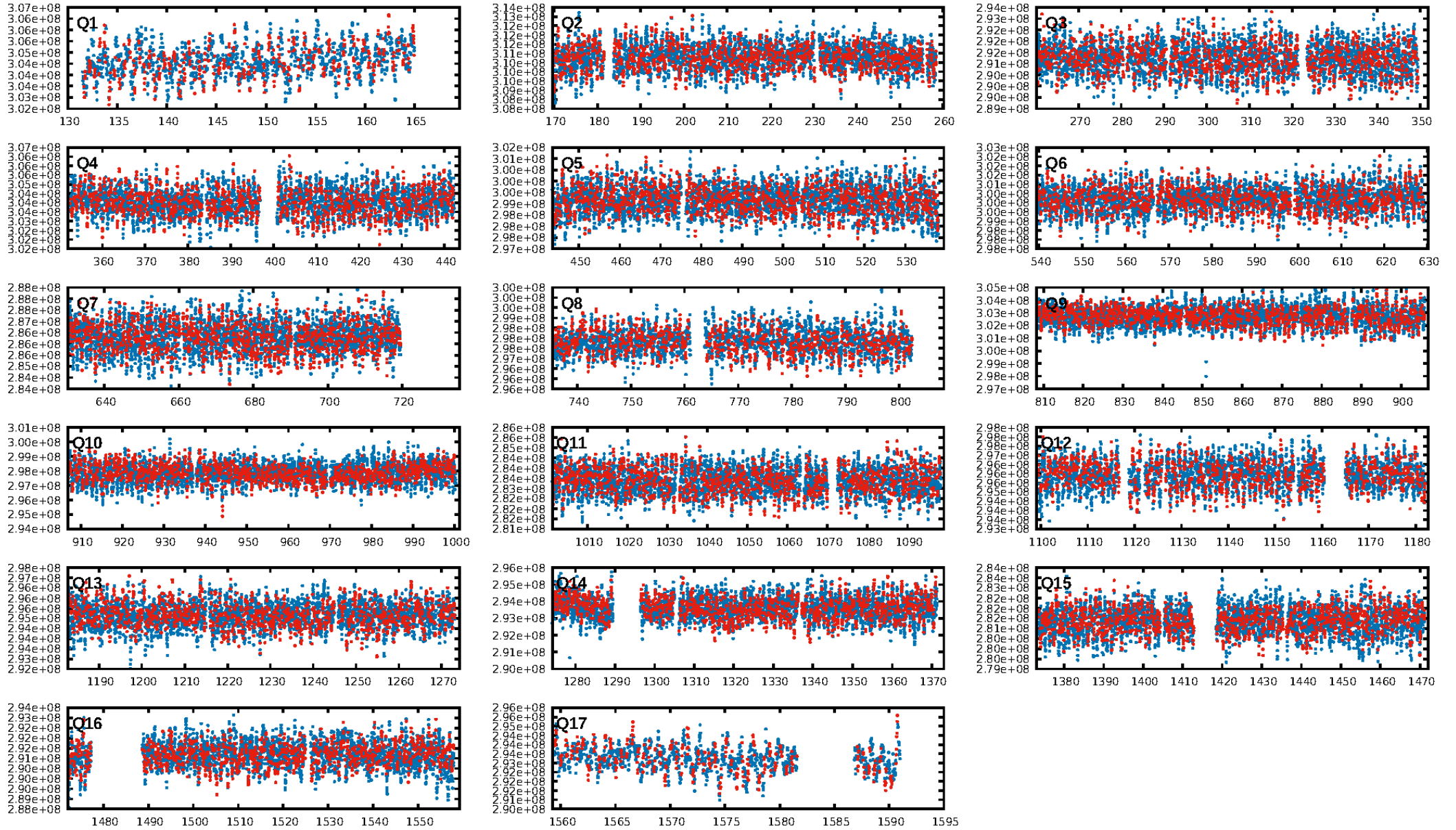
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [241.89 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [2378/2539]
GhostDiagnostic-chr: 0.9897
Centroid-sig: 0.0%
Centroid-so: 0.158 arcsec [1.50 σ]
OotOffset-rm: 0.481 arcsec [0.85 σ]
KicOffset-rm: 0.578 arcsec [1.00 σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.00 [0/17]

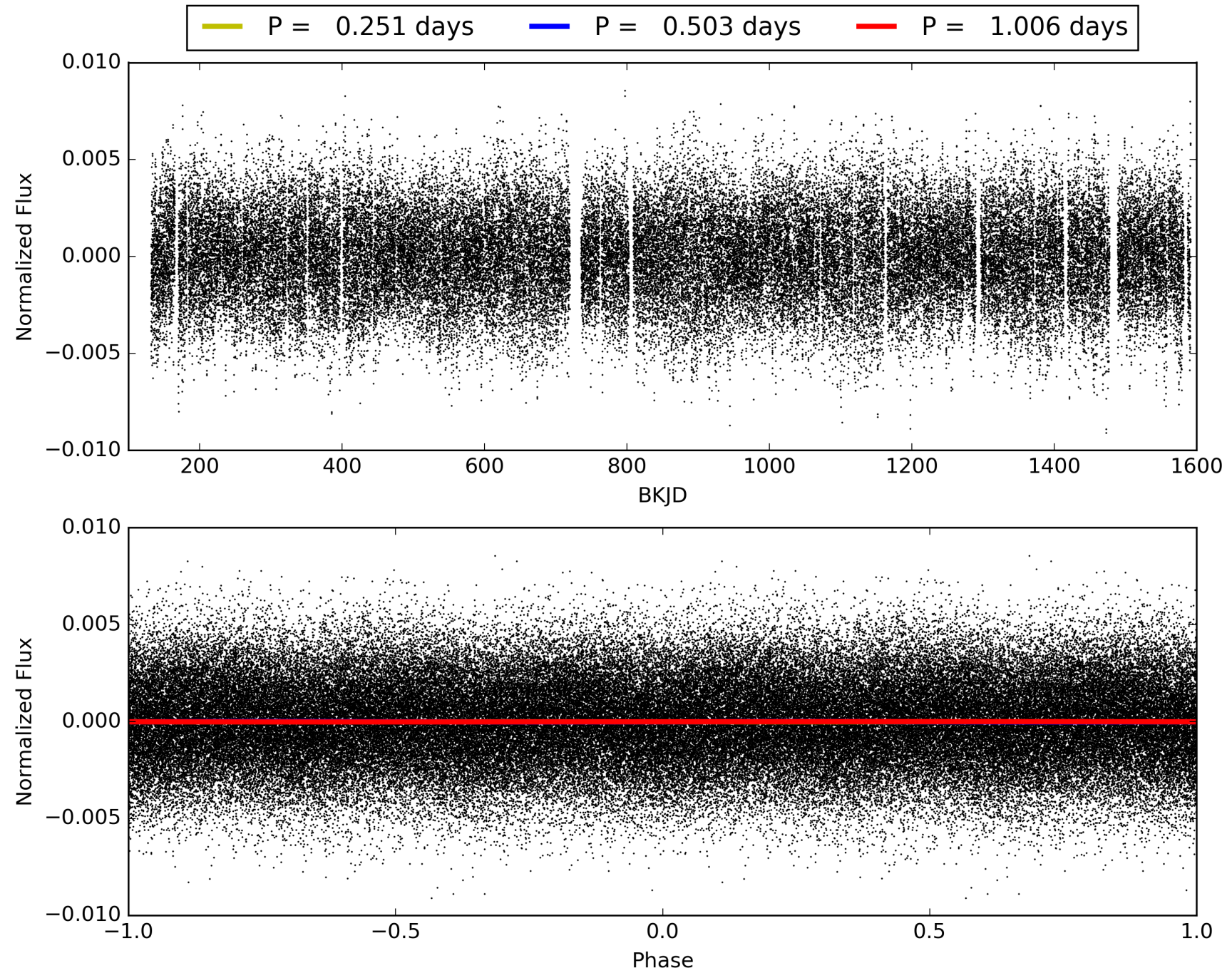
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:10 Z

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

TCE 008396259-02, PDC Light Curves

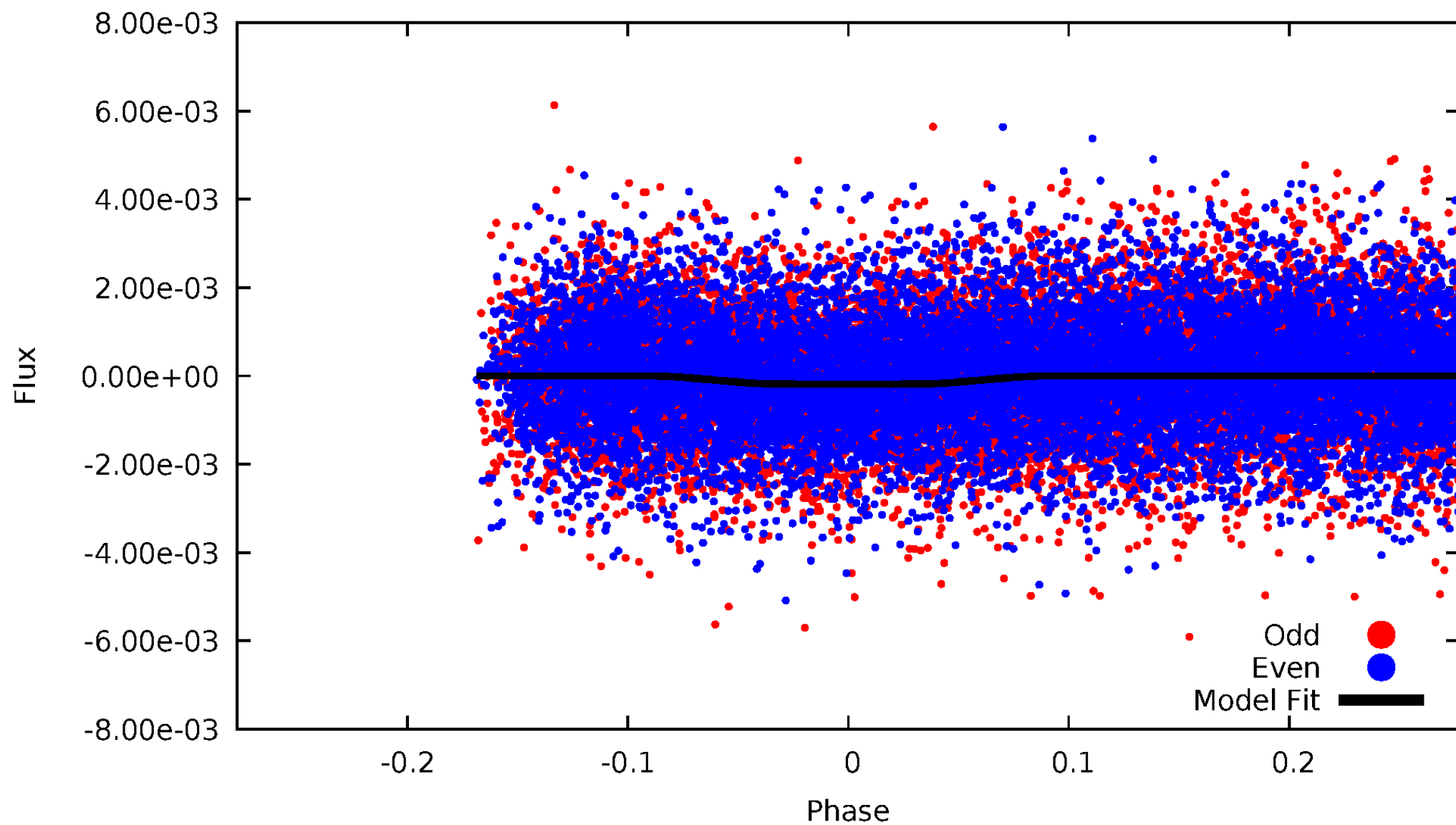


TCE 008396259-02



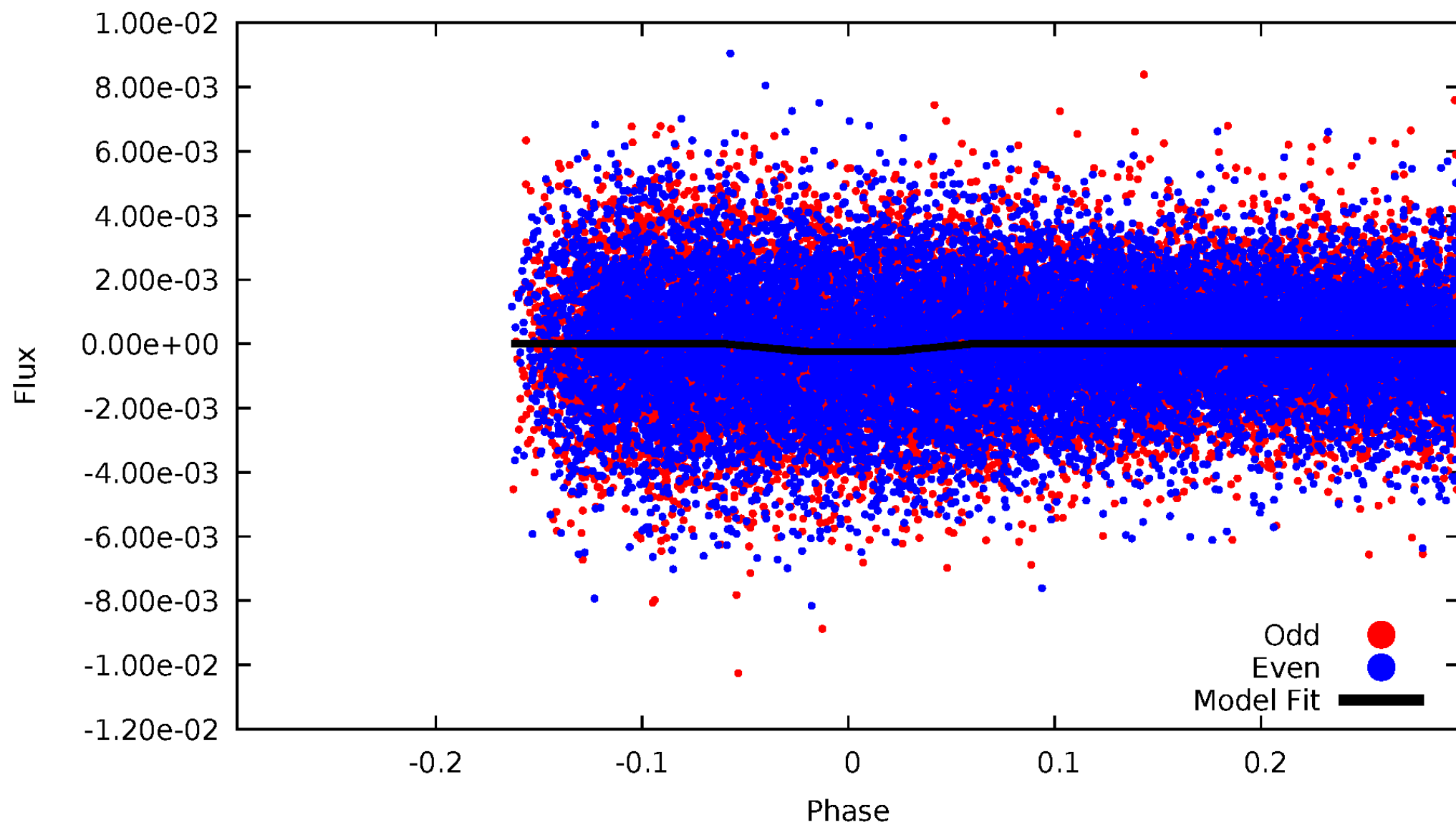
DV Odd/Even

TCE 008396259-02



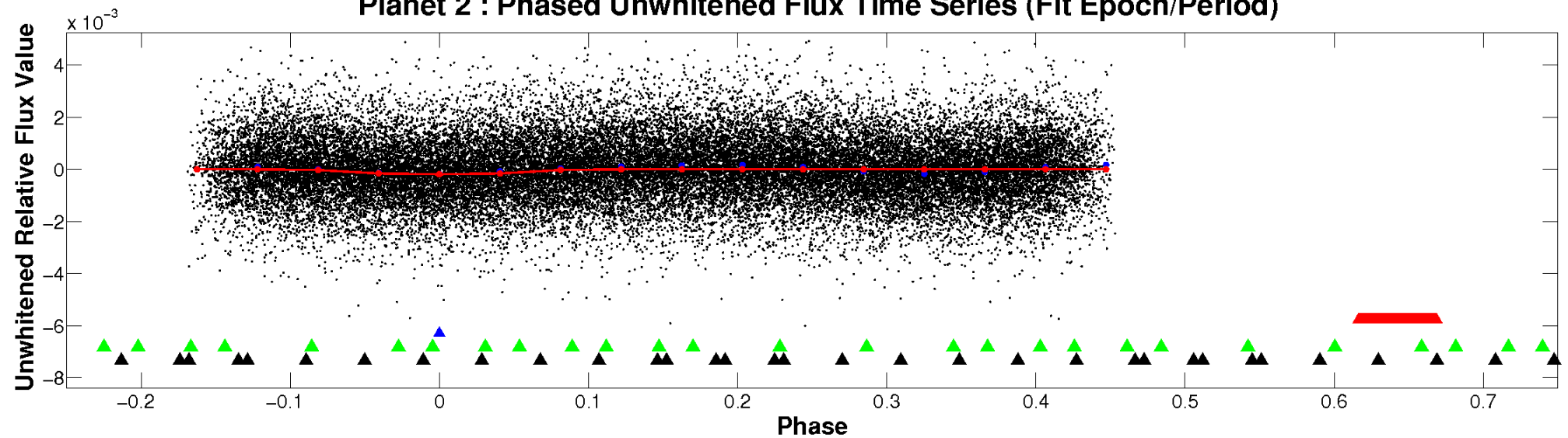
ALT Odd/Even

TCE 008396259-02

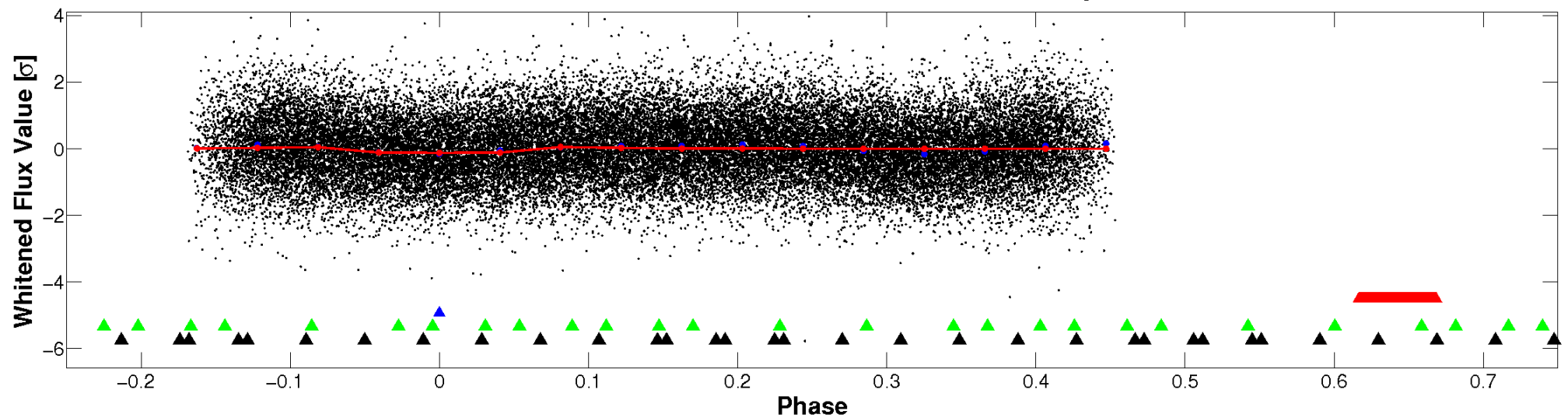


Non-Whitened Vs. Whitened Light Curve

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

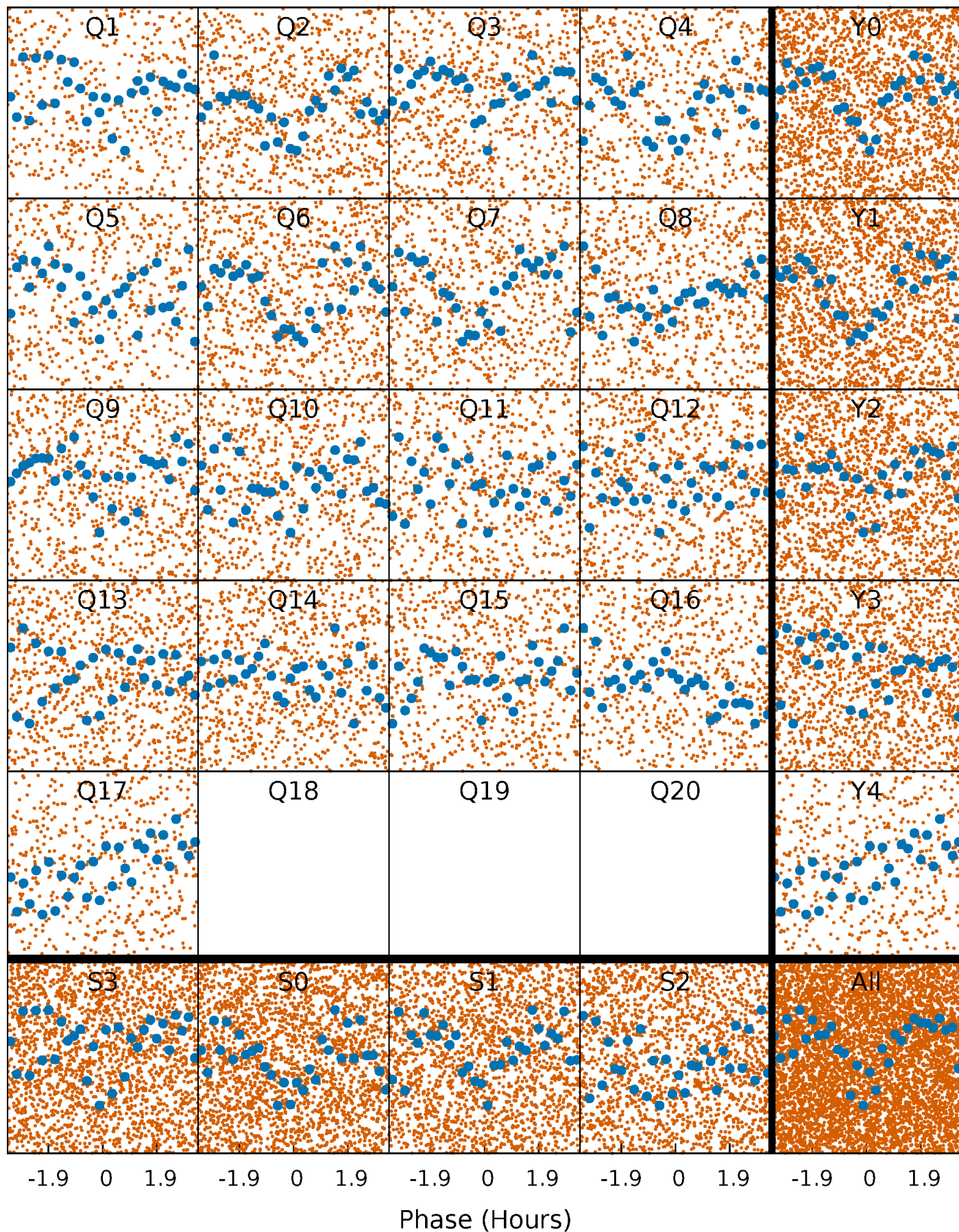


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



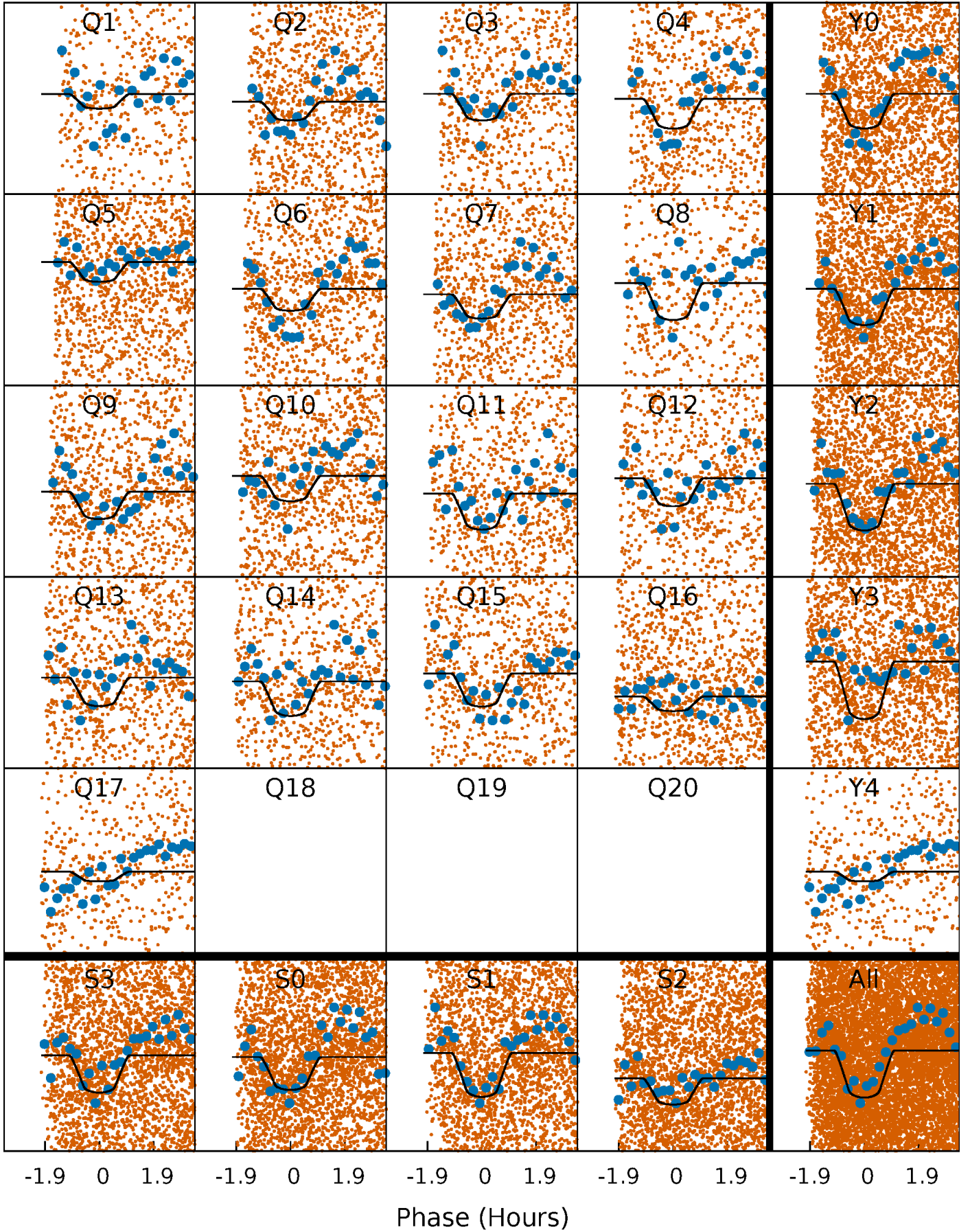
PDC Quarter-Phased Transit Curves

TCE 008396259-02 P= 0.502751 Days $T_0=131.701719$ (BKJD)



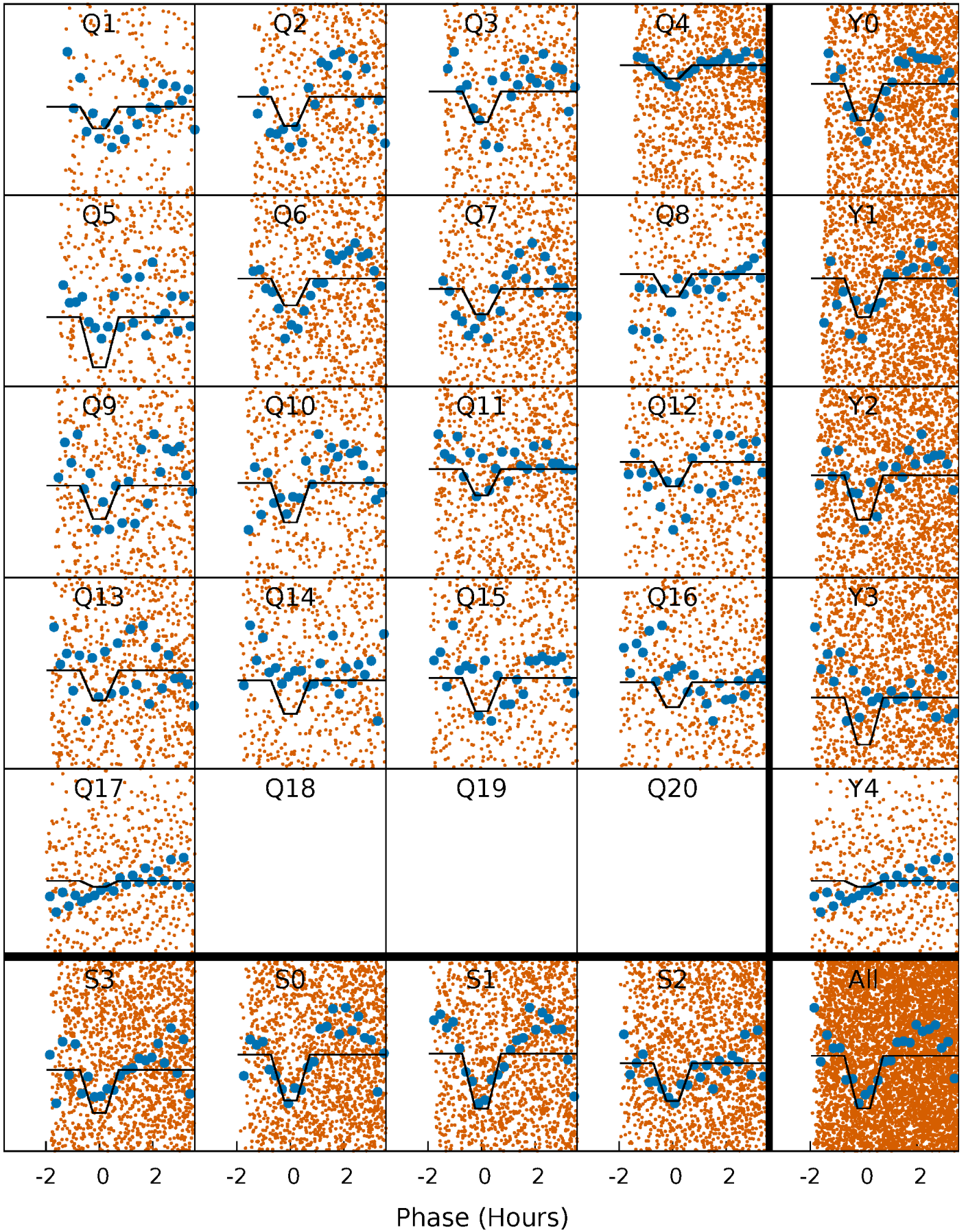
DV Quarter-Phased Transit Curves

TCE 008396259-02 $P = 0.502751$ Days $T_0 = 131.701719$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

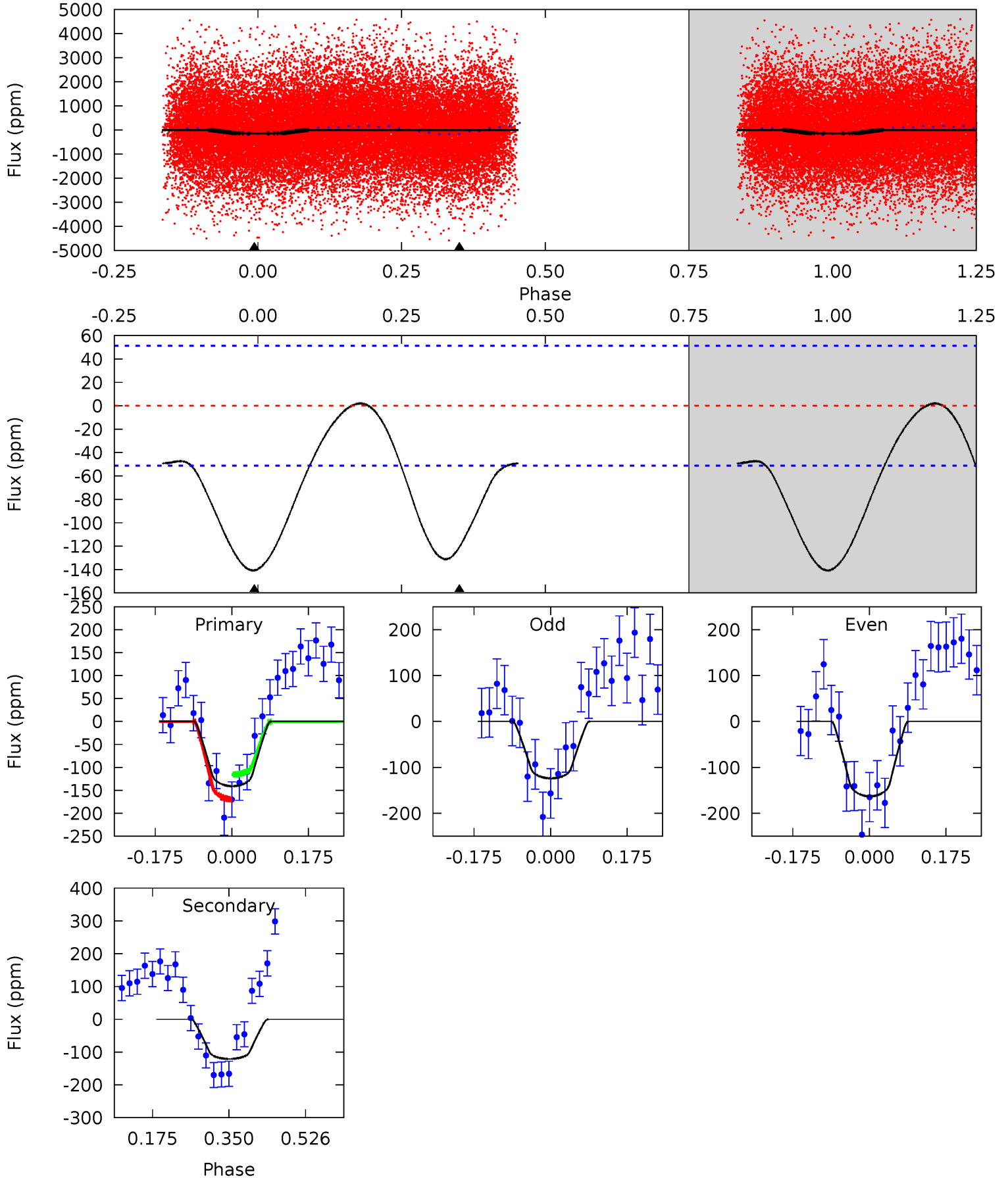
TCE 008396259-02 $P = 0.502752$ Days $T_0 = 131.697110$ (BKJD)



DV Model-Shift Uniqueness Test

008396259-02, P = 0.502751 Days, E = 131.198968 Days

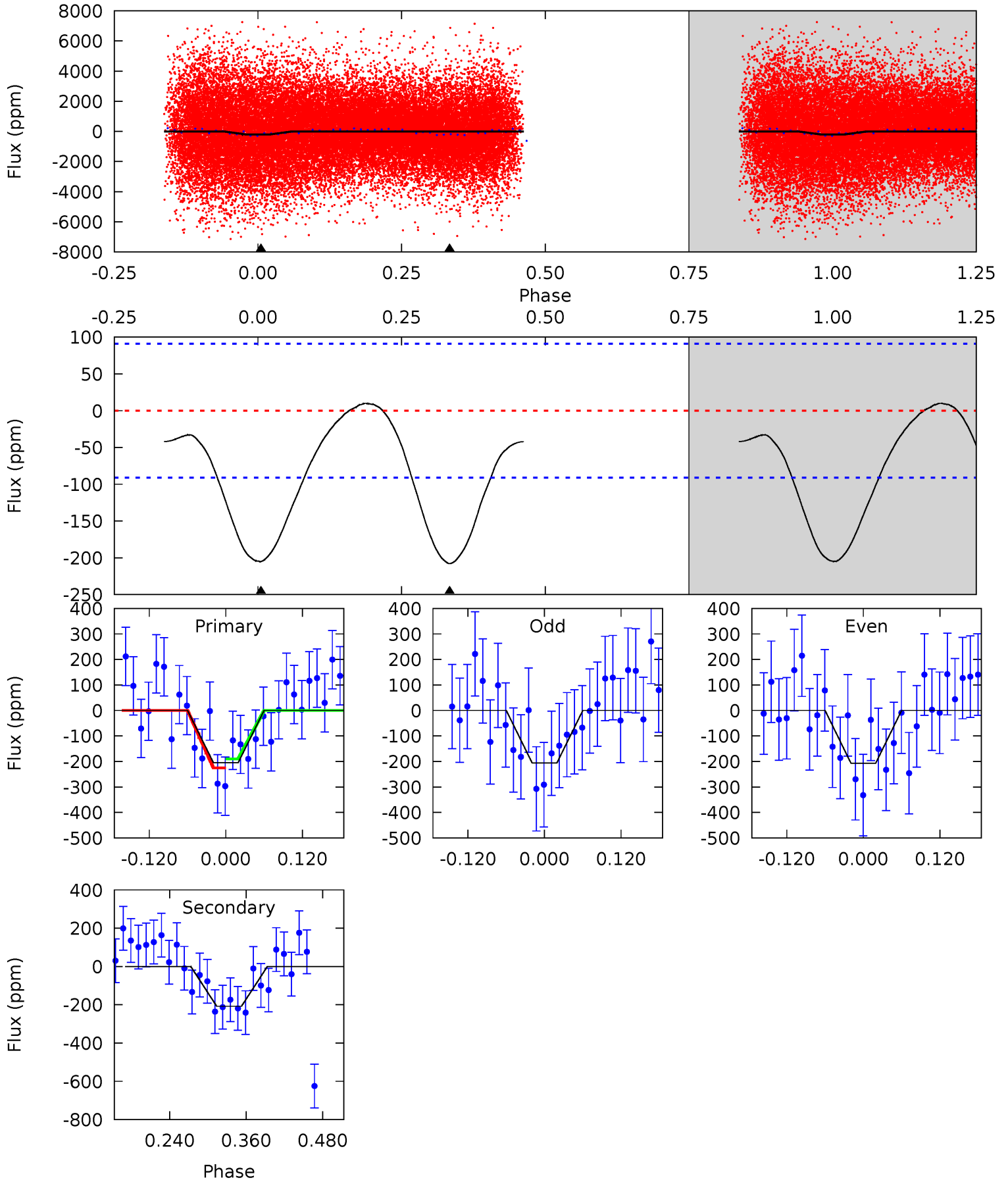
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	10.5	0	0	4.45	1.36	0.61	12.2	12.2	10.5	10.5	1.71	0.89	0.02	2.41



Alt Model-Shift Uniqueness Test

008396259-02, P = 0.502752 Days, E = 131.194358 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	10.3	0	0	4.53	1.55	0.84	10.2	10.2	10.3	10.3	0.02	1.29	0.05	0.80



Stellar Parameters For KIC 008396259

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7575^{+211}_{-317}	$3.570^{+0.540}_{-0.060}$	$-0.200^{+0.250}_{-0.300}$	$3.849^{+0.509}_{-2.037}$	$2.010^{+0.139}_{-0.557}$	$0.050^{+0.332}_{-0.010}$
	+3%/-4%	+15%/-2%	+125%/-150%	+13%/-53%	+7%/-28%	+668%/-20%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008396259-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-121 ± 12	$5.23^{+2.02}_{-1.80}$	6965^{+531}_{-974}	5322^{+1737}_{-2604}	$0.582^{+0.742}_{-0.278}$
Alt.	-208 ± 20	$5.75^{+2.16}_{-2.03}$	6983^{+561}_{-920}	6299^{+1954}_{-1390}	$0.827^{+1.148}_{-0.376}$

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 $A_{obs} \gg 1.0$

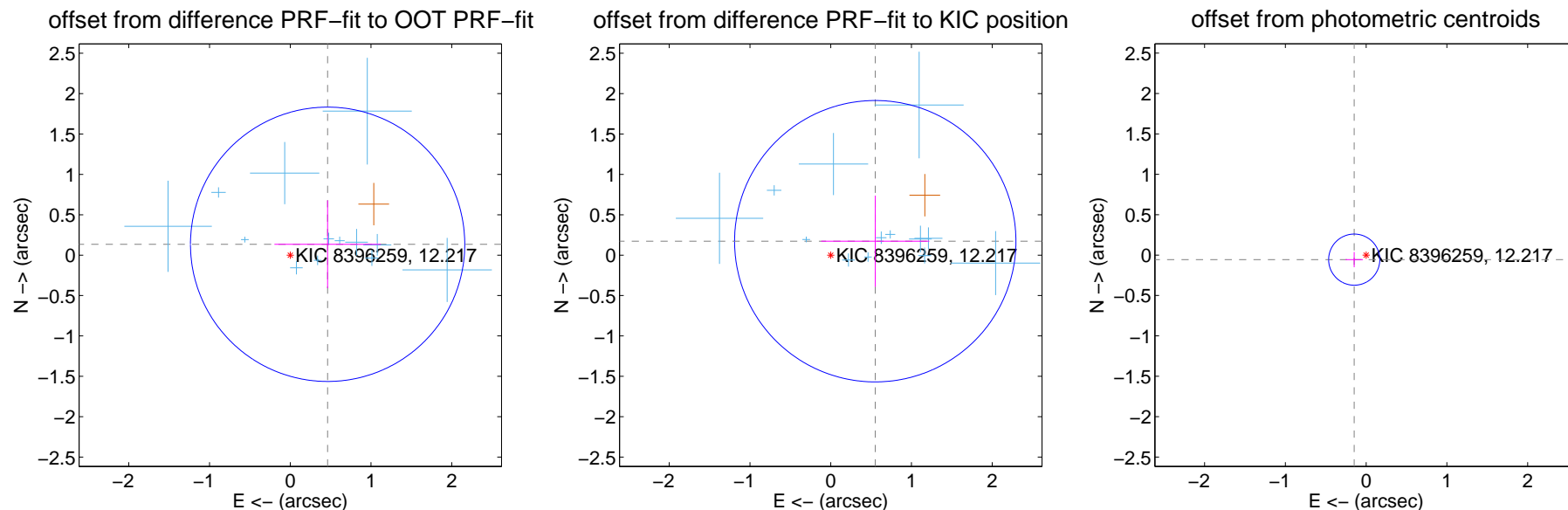
DV Centroid Data

Supplemental centroid analysis for 008396259-02. Kepler magnitude: 12.22. Transit SNR 11.82

There are 13 quarters with good PRF difference image offsets

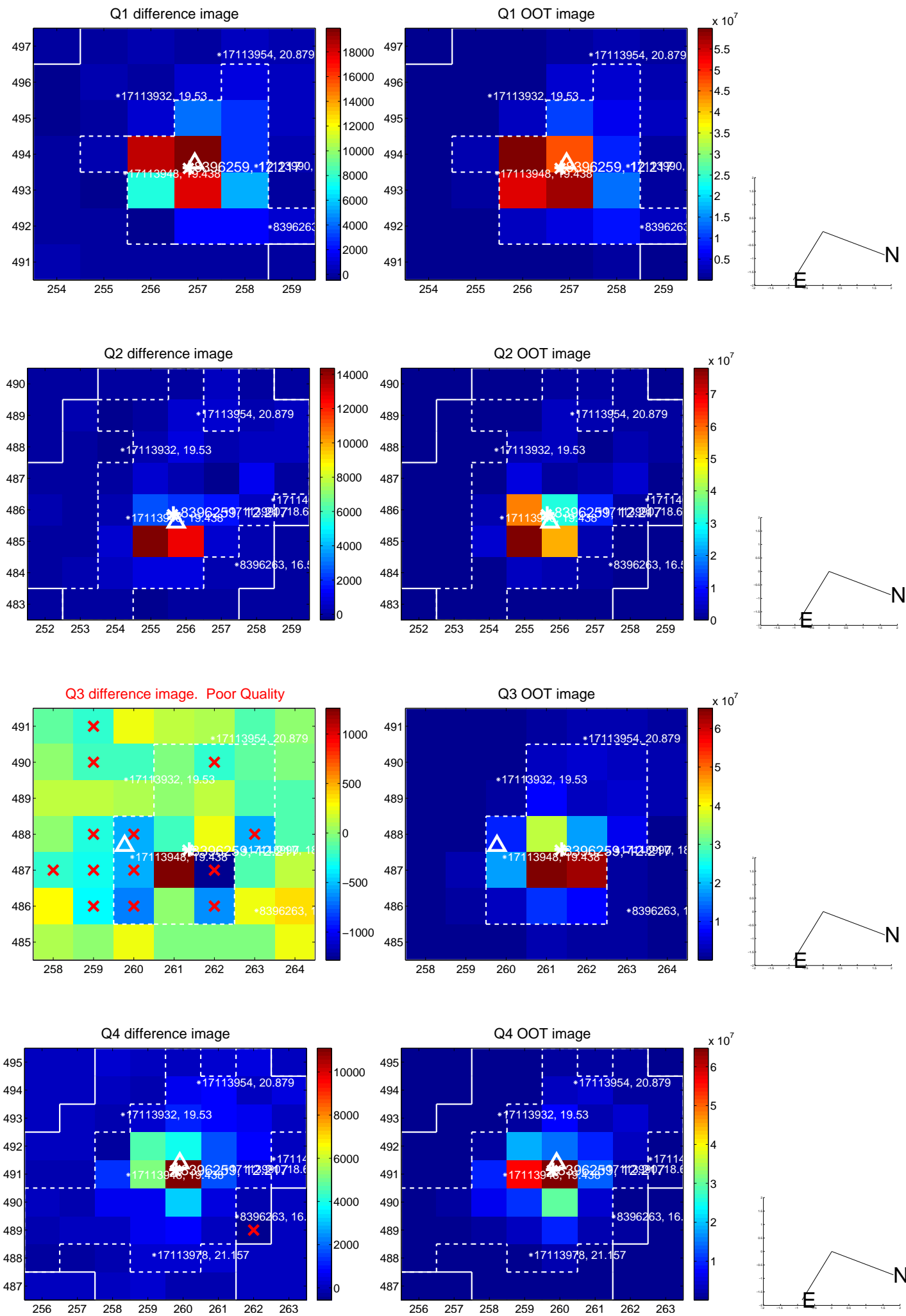
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.481 ± 0.566	0.85	-0.462 ± 0.659	0.134 ± 0.544
PRF-fit source offset from KIC position	0.578 ± 0.581	1.00	-0.551 ± 0.670	0.173 ± 0.564
photometric centroid source offset	0.16 ± 0.11	1.50	0.15 ± 0.11	-0.06 ± 0.09

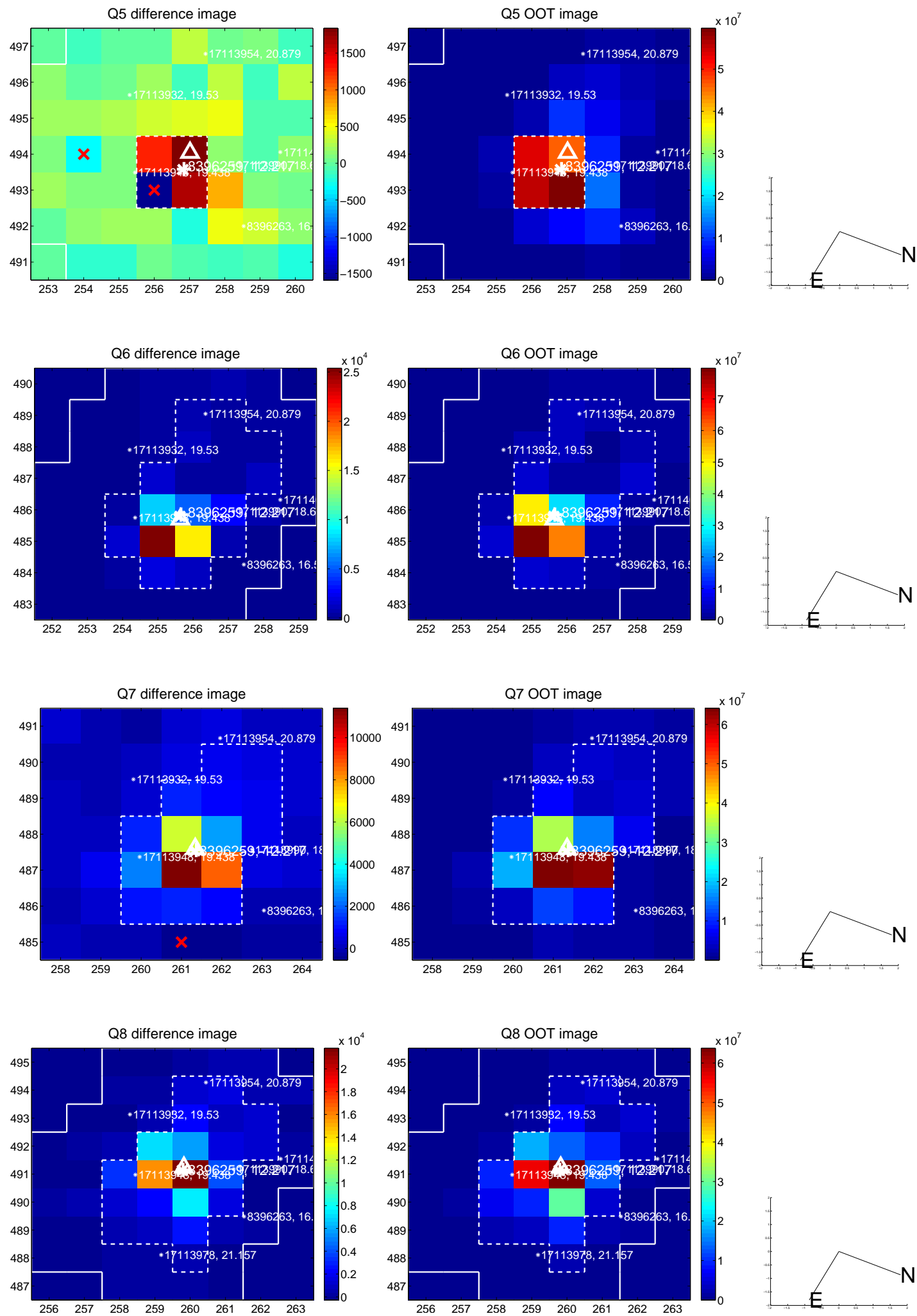


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

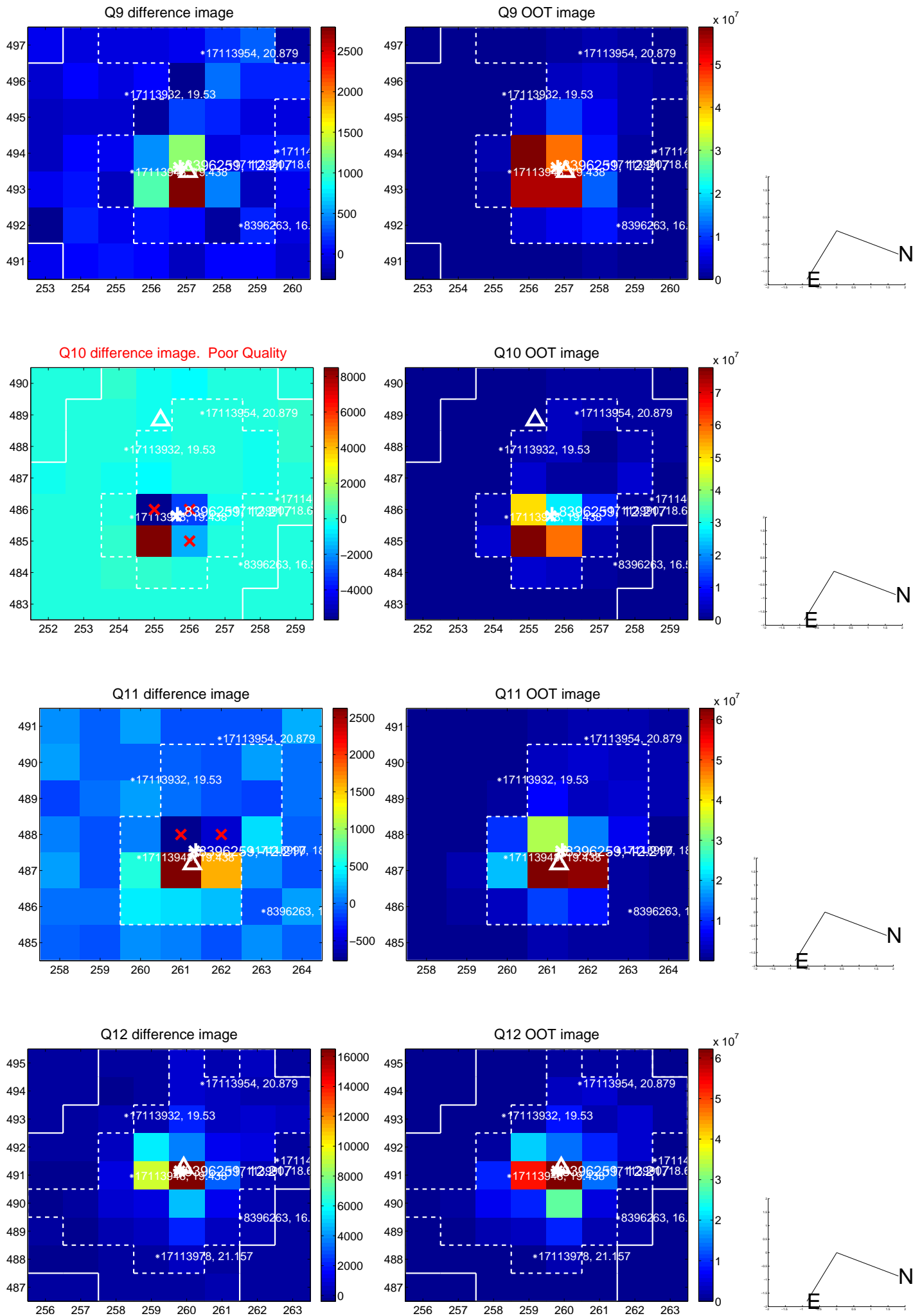
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



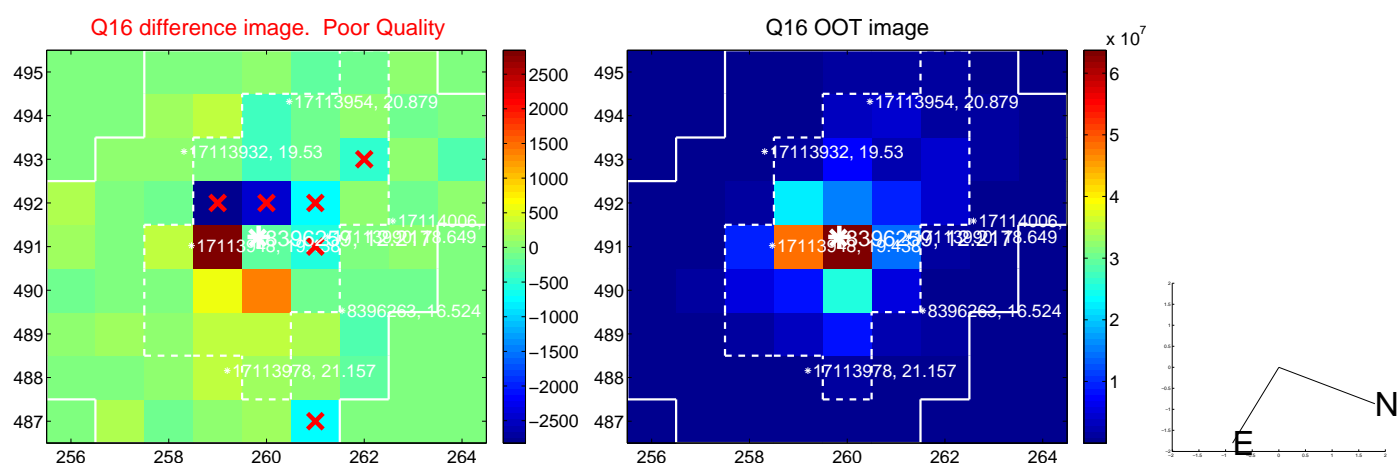
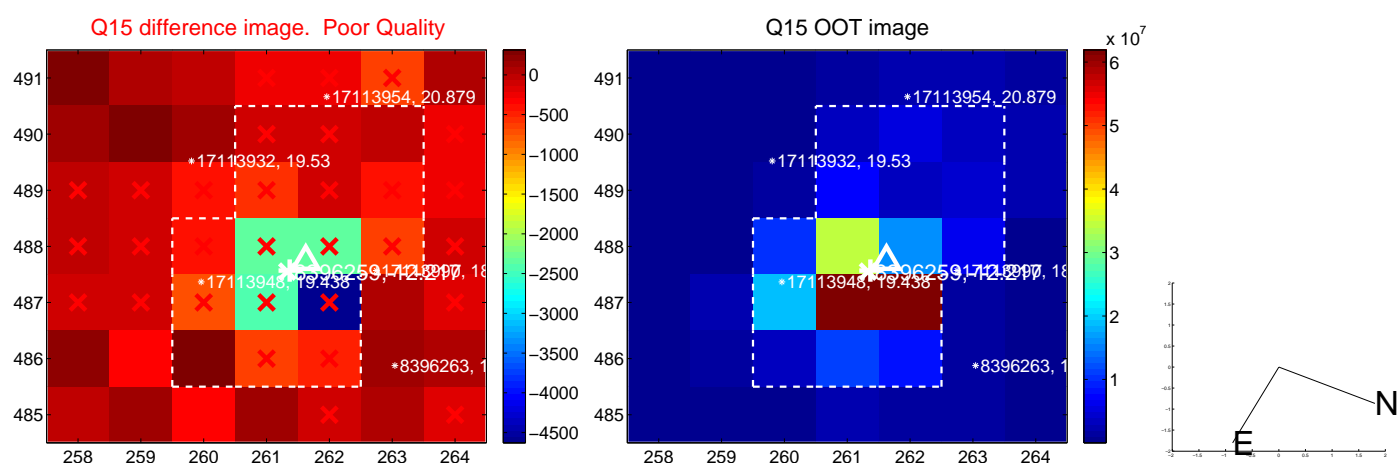
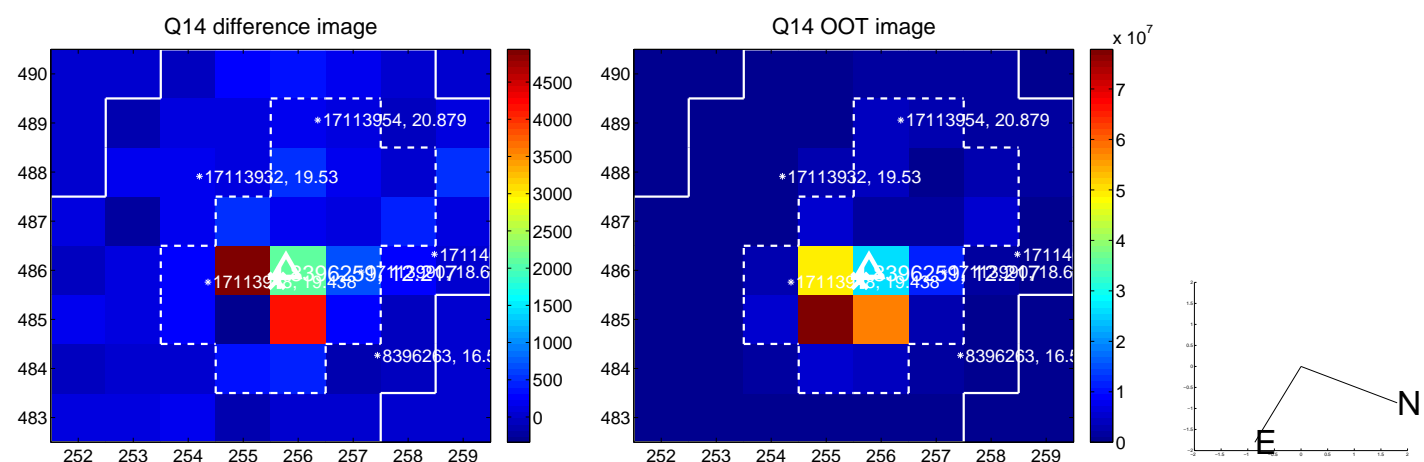
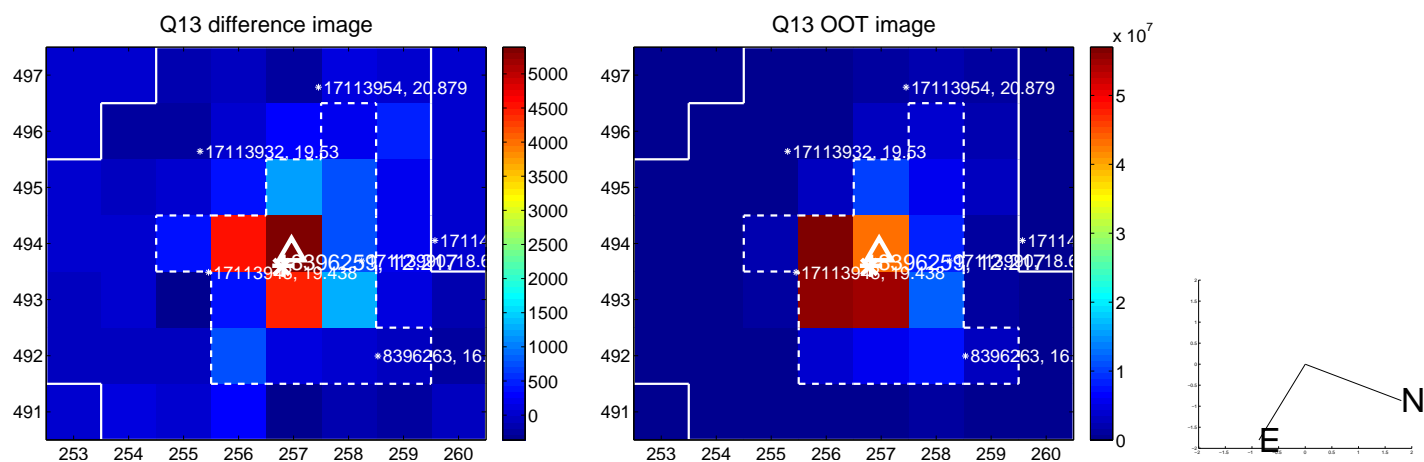
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



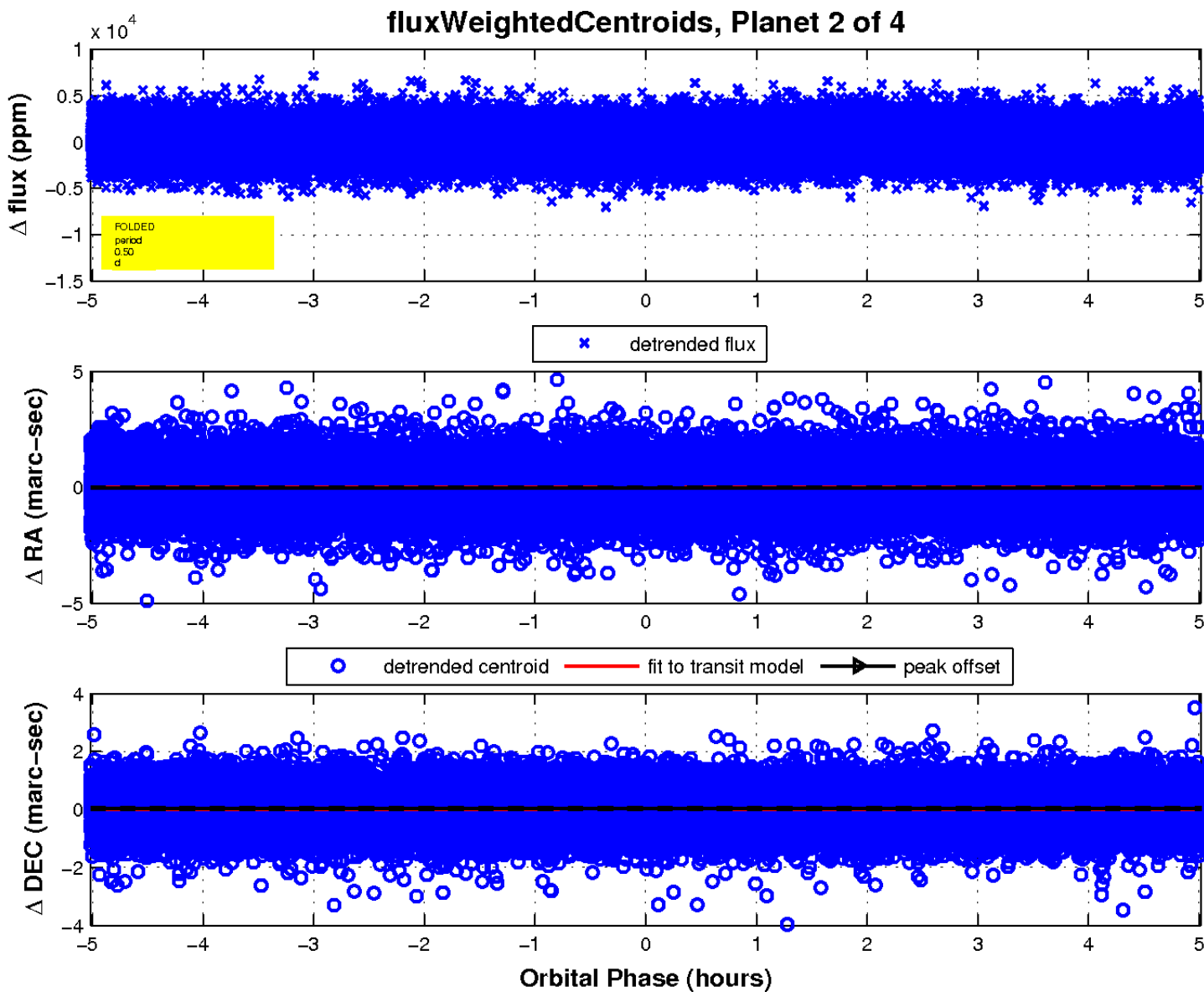
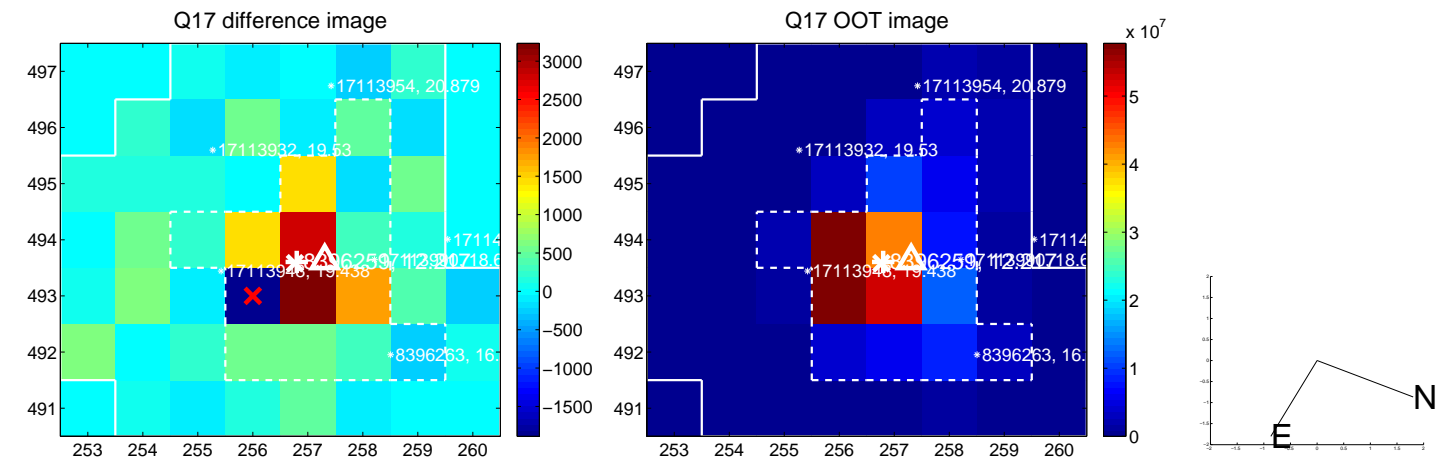
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

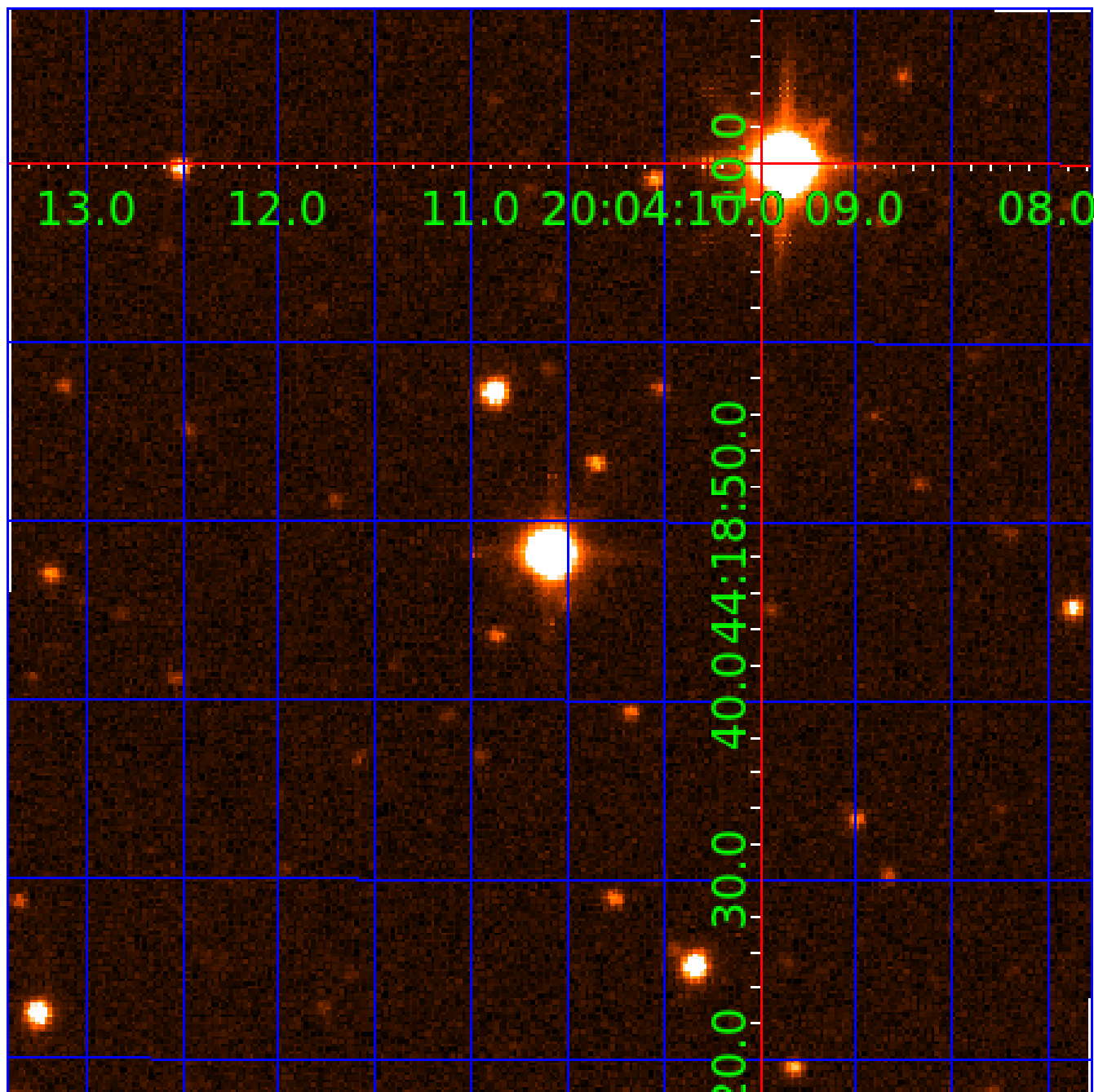


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008396259

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})
008396259-01	OBS	No	0.502742	131.535118	175.3	1.562	10.9	11.2	3.85	7575	6.01	0.00
008396259-02	OBS	No	0.502751	131.701719	189.8	1.673	11.4	11.8	3.85	7575	6.24	0.00
008396259-03	OBS	No	54.642071	138.737967	2757.5	1.553	10.8	6.9	3.85	7575	20.35	345.64
008396259-04	OBS	No	43.900371	167.007346	3364.8	3.967	9.2	8.9	3.85	7575	40.96	462.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008396259-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008396259-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008396259-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT
008396259-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

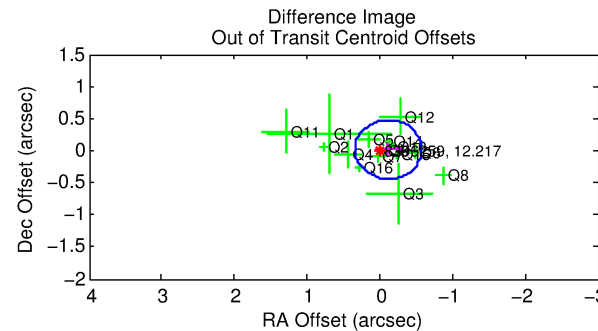
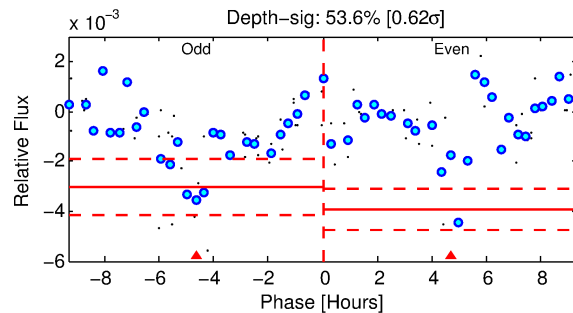
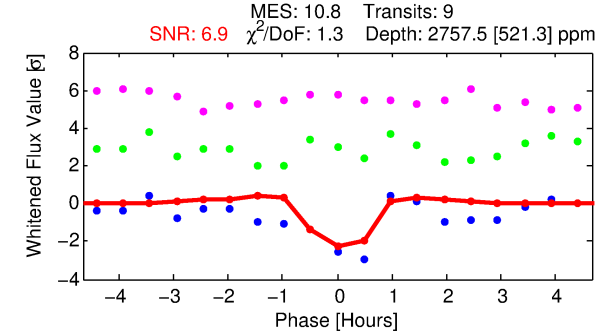
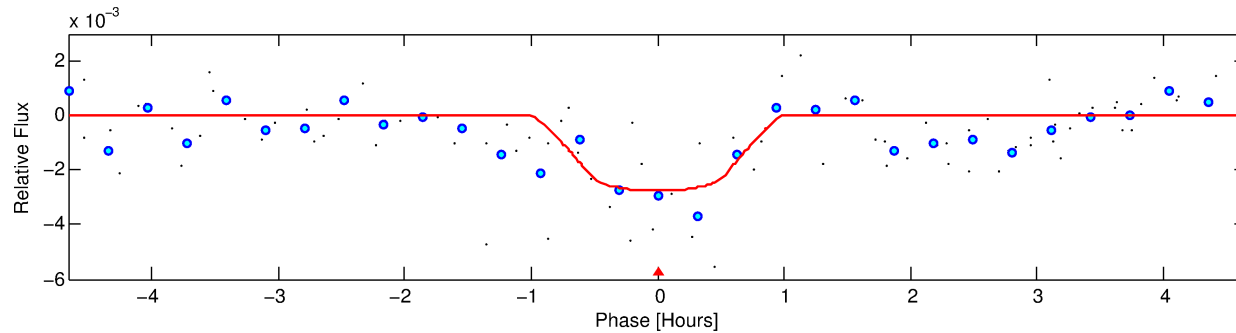
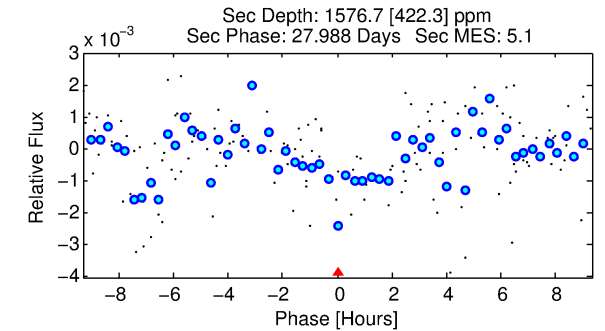
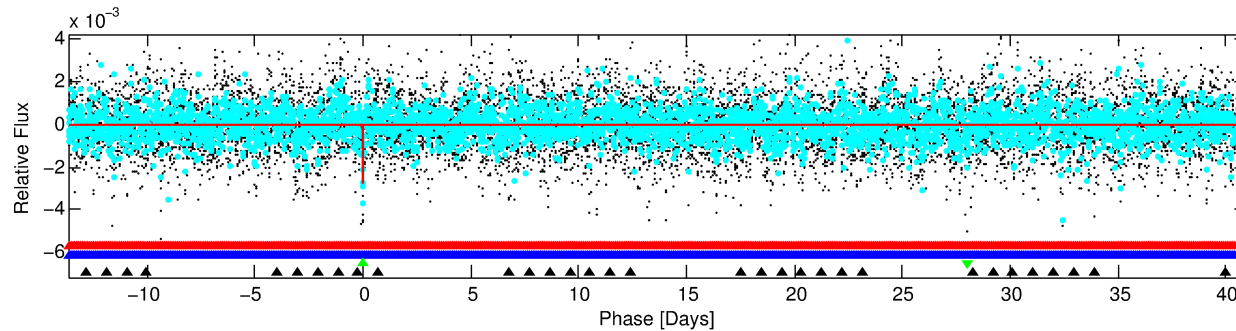
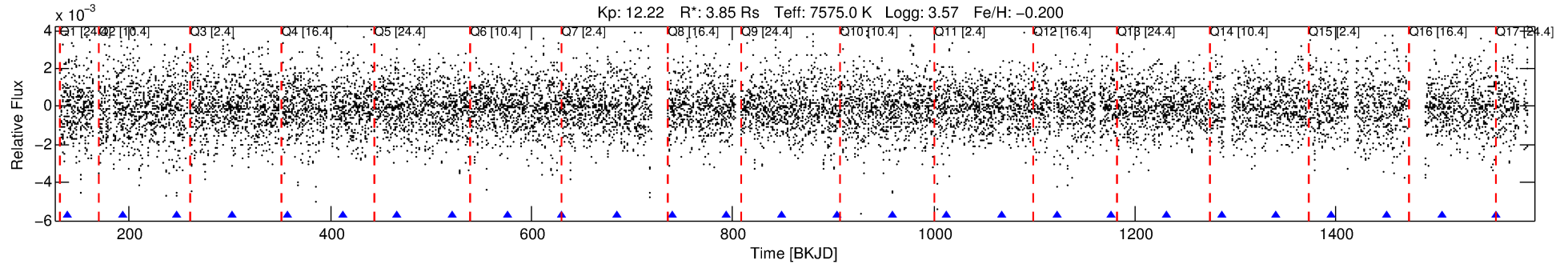
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008396259-03

No Significant Match Found

DV One-Page Summary

KIC: 8396259 Candidate: 3 of 4 Period: 54.642 d



DV Fit Results:

Period = 54.64207 [0.00047] d
Epoch = 138.7380 [0.0070] BKJD
Rp/R* = 0.0484 [0.1111]
a/R* = 279.62 [3300.15]
b = 0.13 [90.55]
Seff = 345.64 [316.71]
Teff = 1099 [252] K
Rp = 20.35 [47.91] Re
a = 0.3556 [0.1935] AU
Ag = 264.85 [1240.45] [0.21σ]
Teffp = 6858 [7885] K [0.73σ]

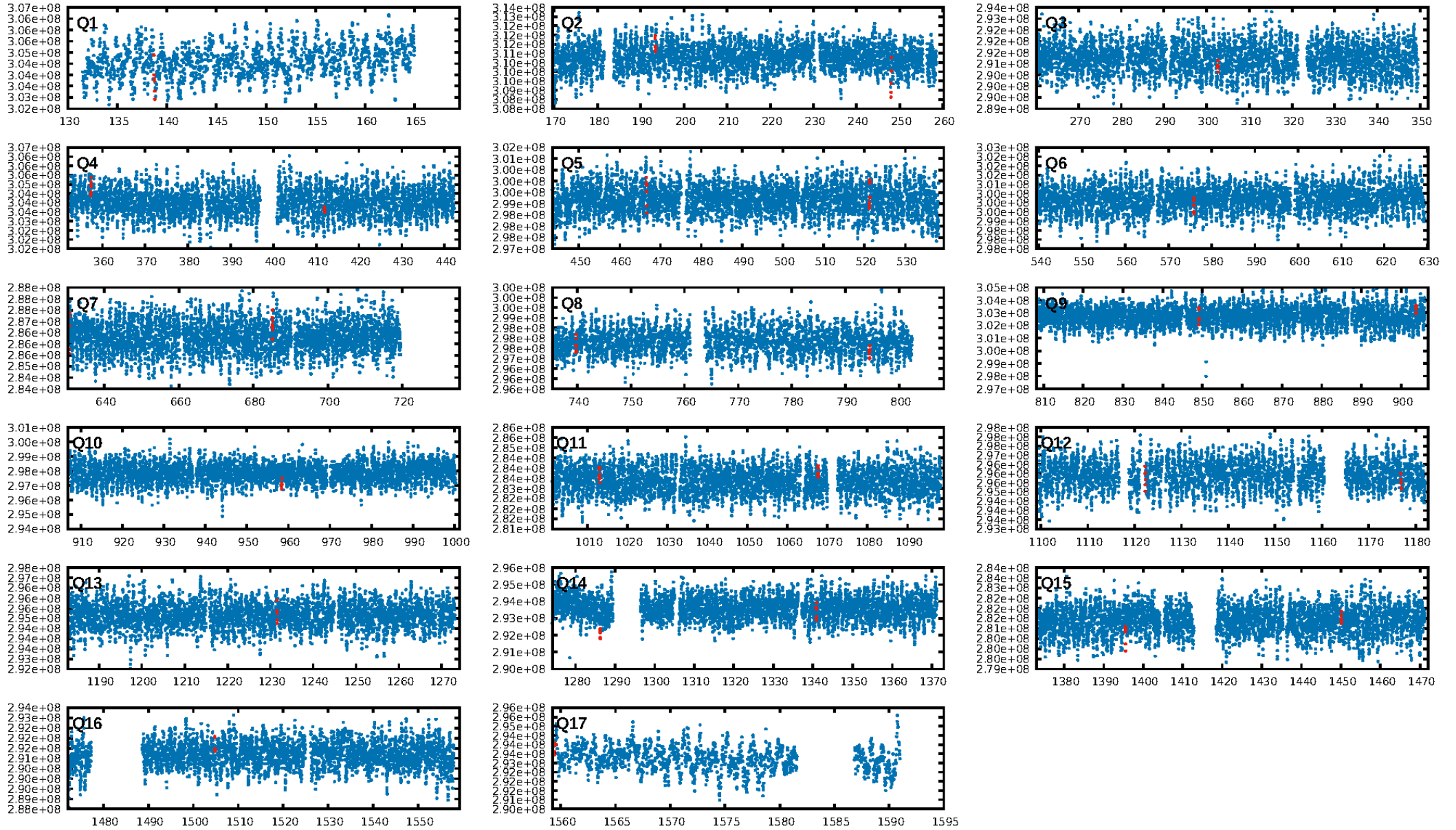
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.51σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 8.4%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 4.846
Centroid-sig: 18.6%
Centroid-so: 0.152 arcsec [2.15σ]
OotOffset-rm: 0.117 arcsec [0.76σ]
KicOffset-rm: 0.284 arcsec [2.19σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.60 [9/15]
DiffImageOverlap-fno: 0.00 [0/15]

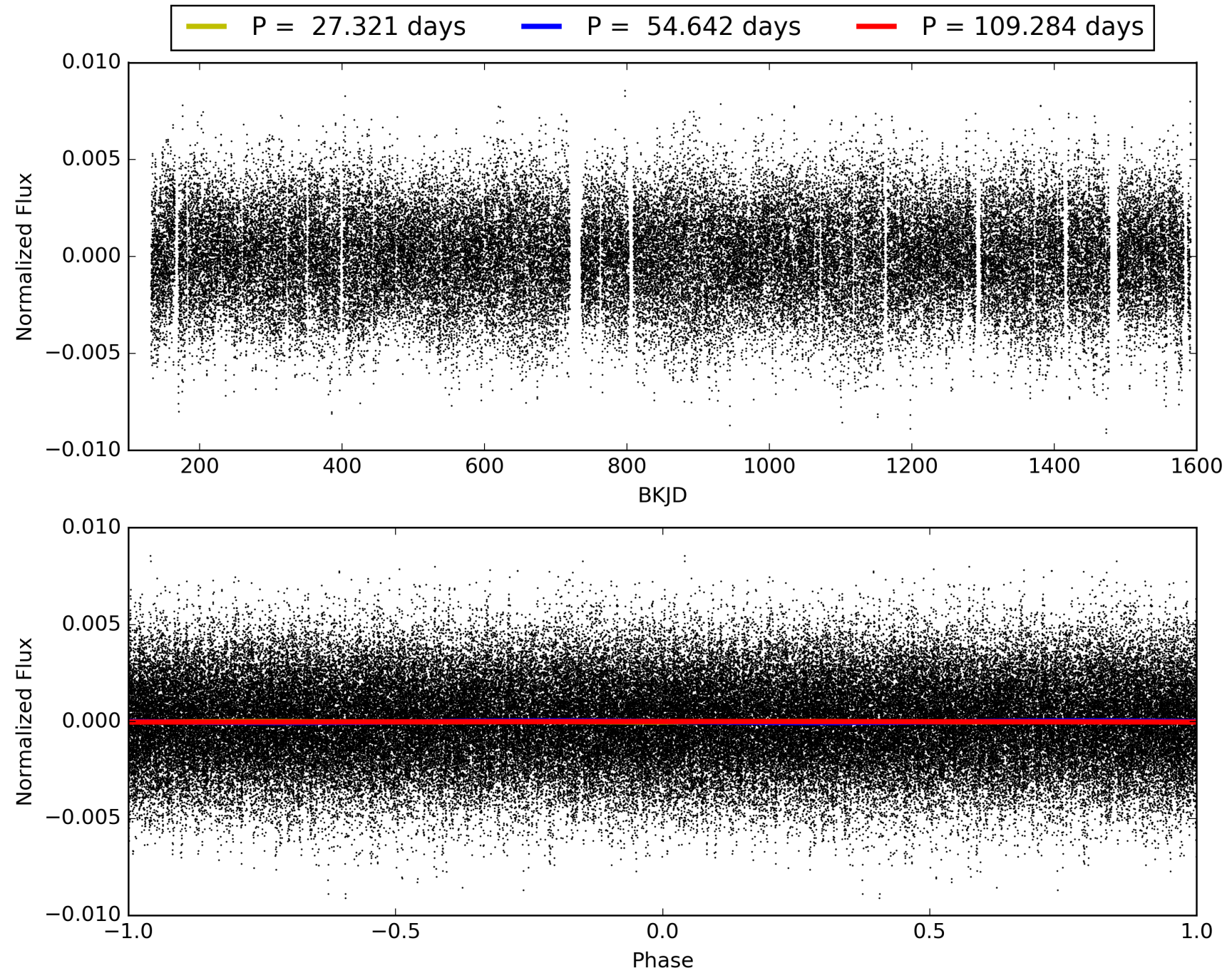
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:18 Z

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

TCE 008396259-03, PDC Light Curves

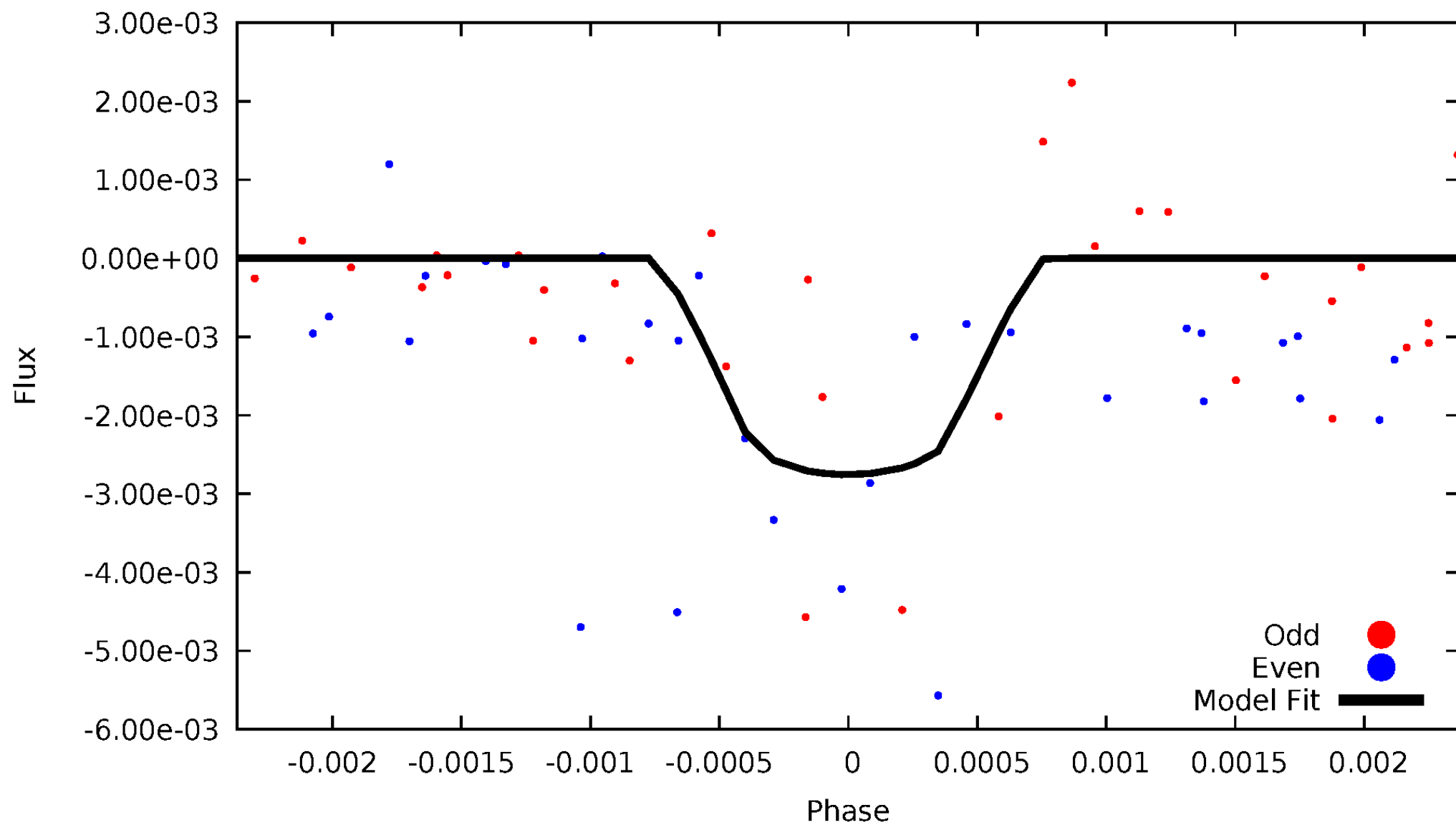


TCE 008396259-03



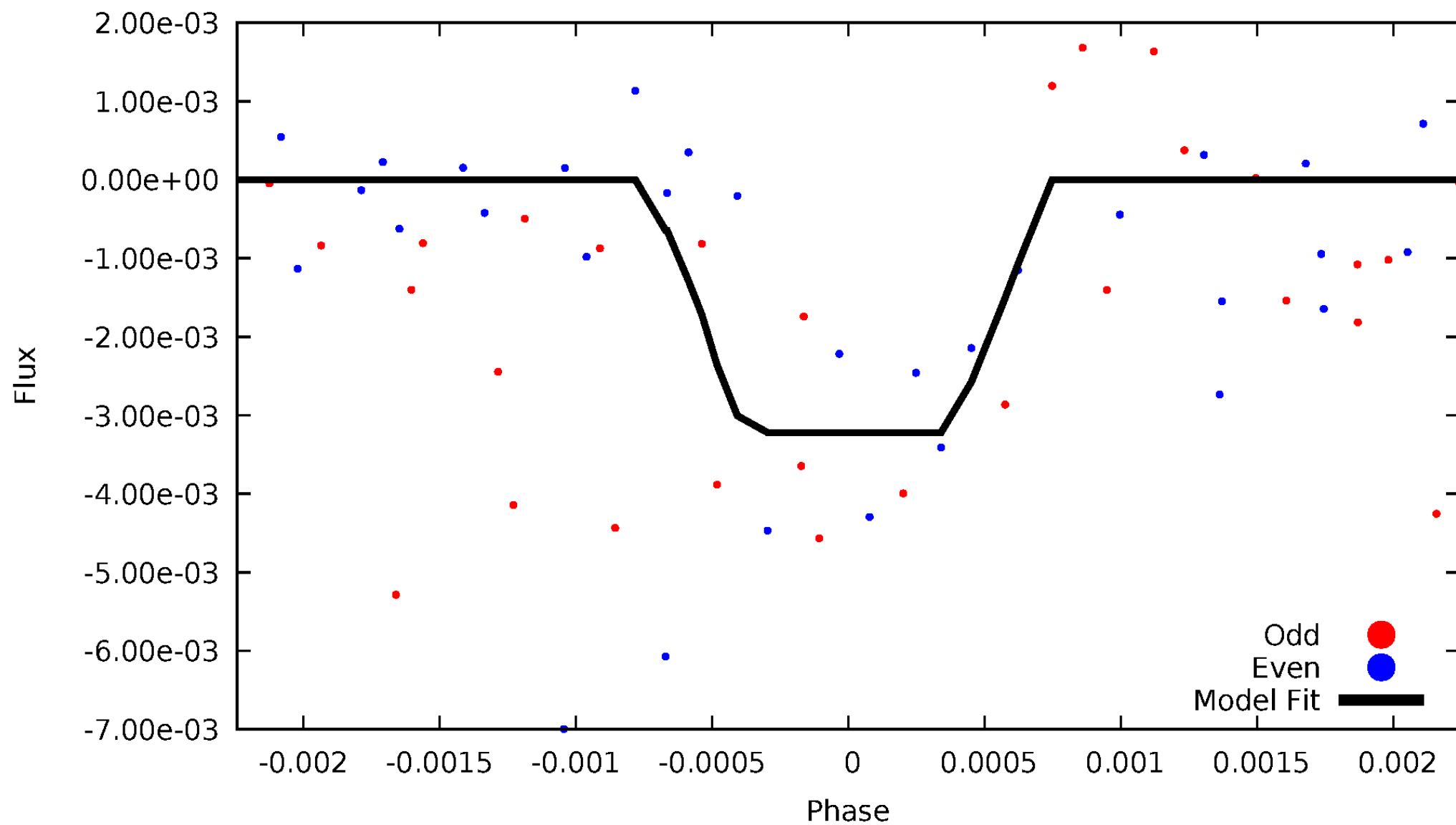
DV Odd/Even

TCE 008396259-03



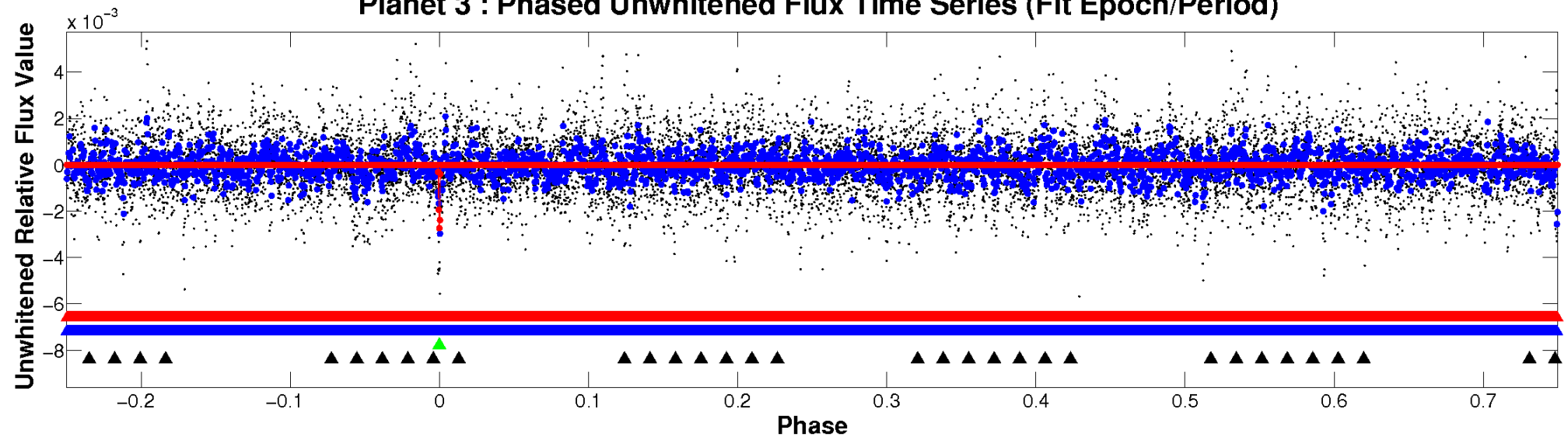
ALT Odd/Even

TCE 008396259-03

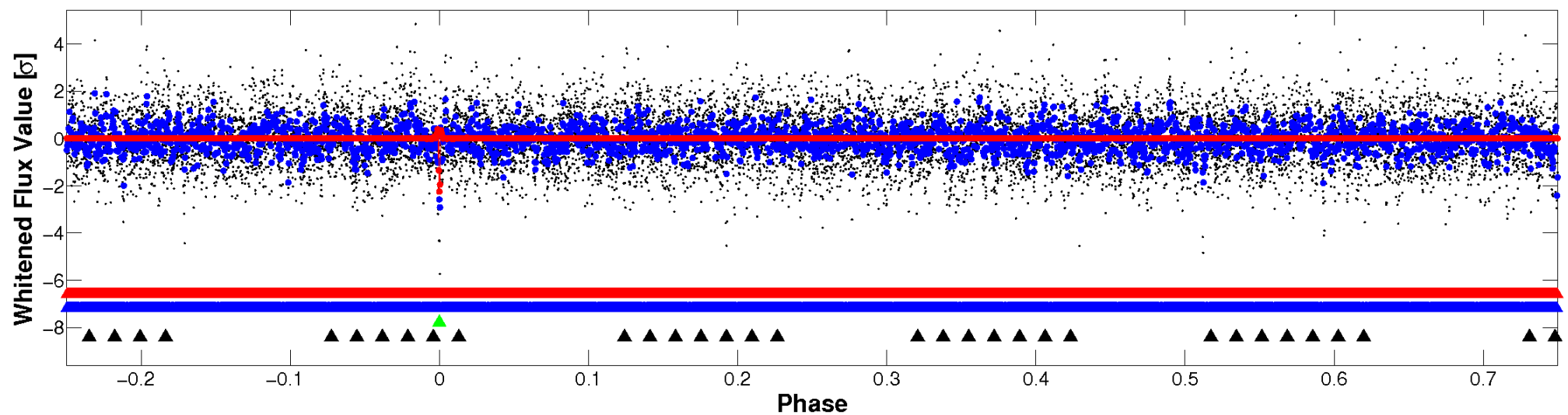


Non-Whitened Vs. Whitened Light Curve

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

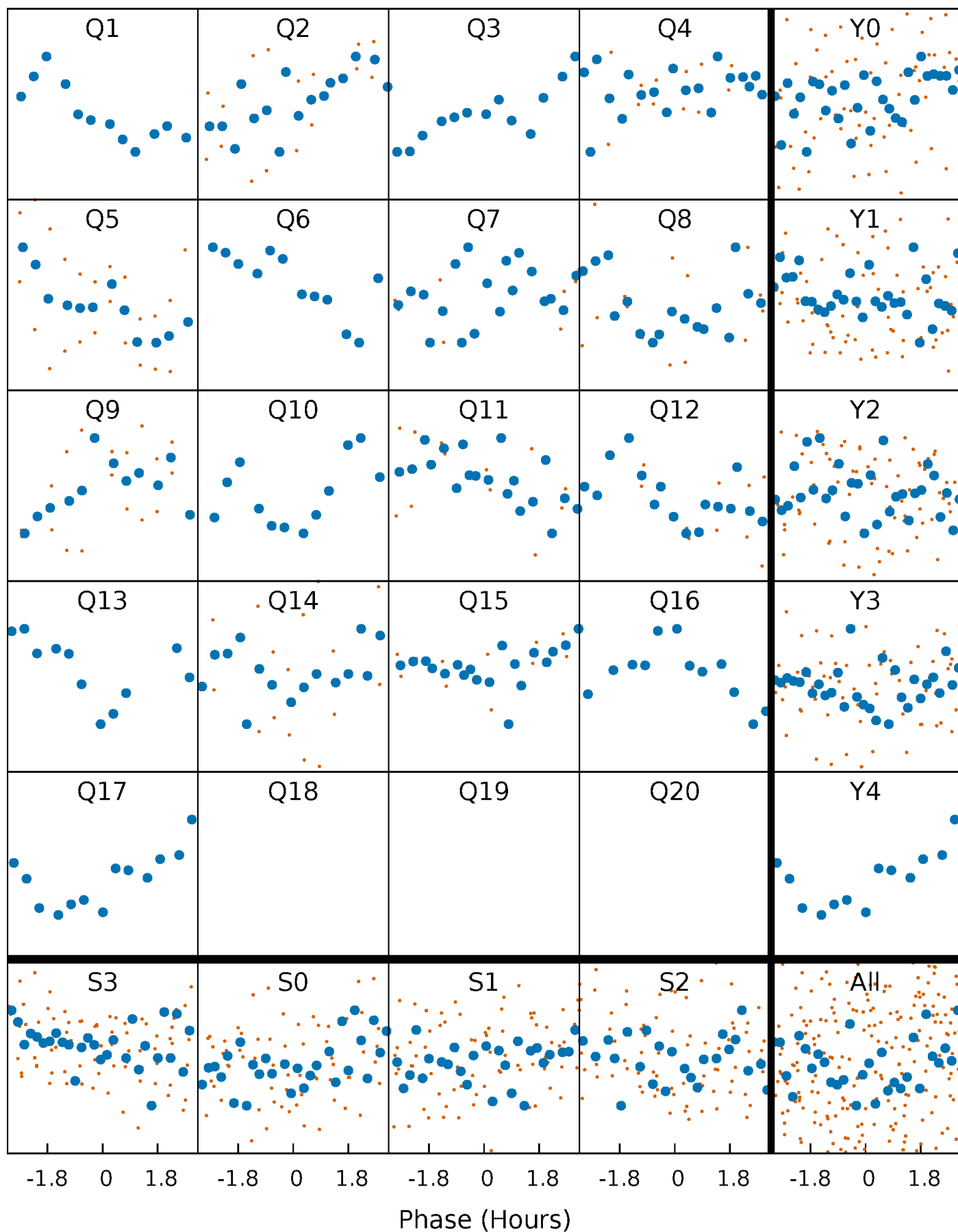


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



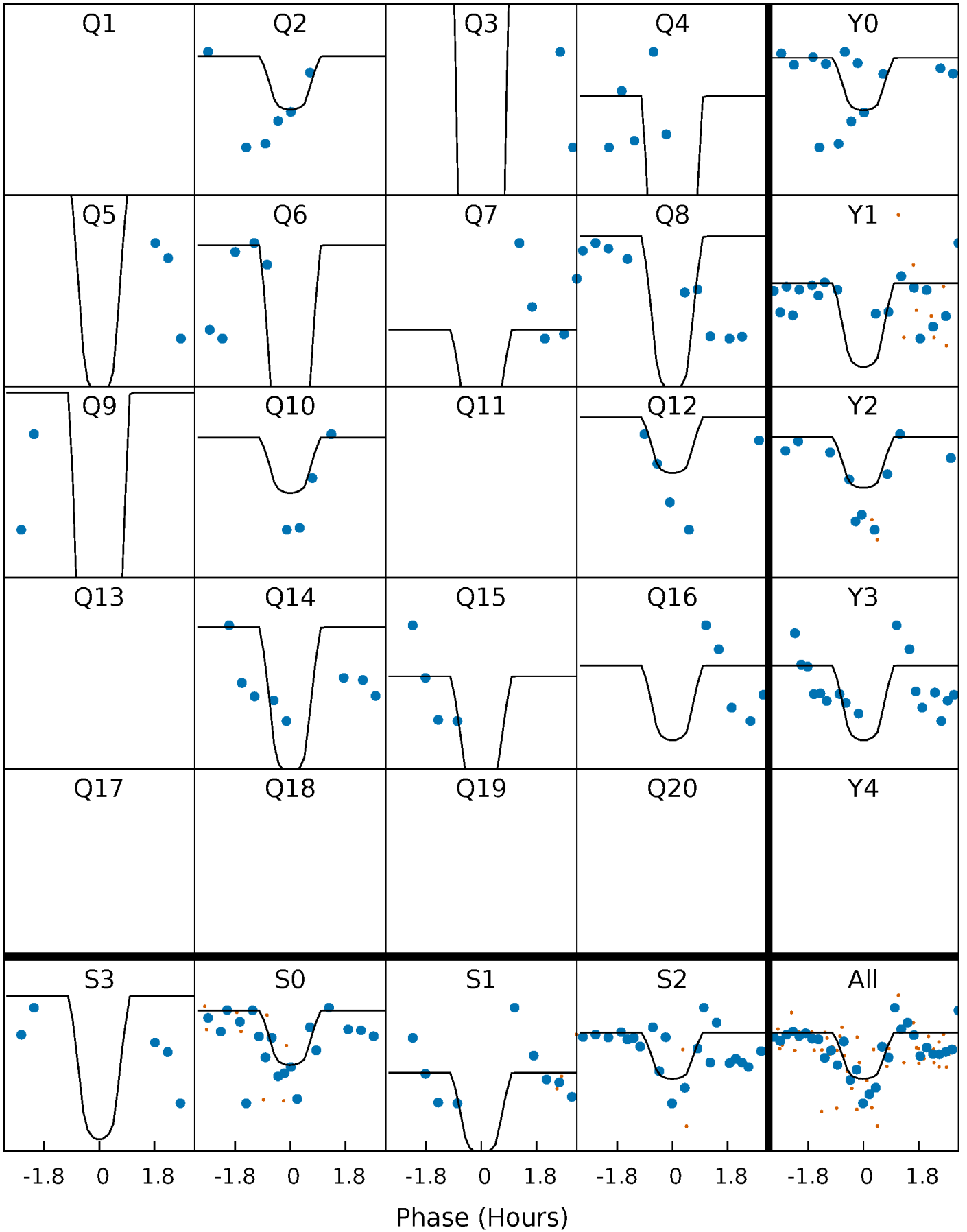
PDC Quarter-Phased Transit Curves

TCE 008396259-03 P= 54.642071 Days $T_0=138.737967$ (BKJD)



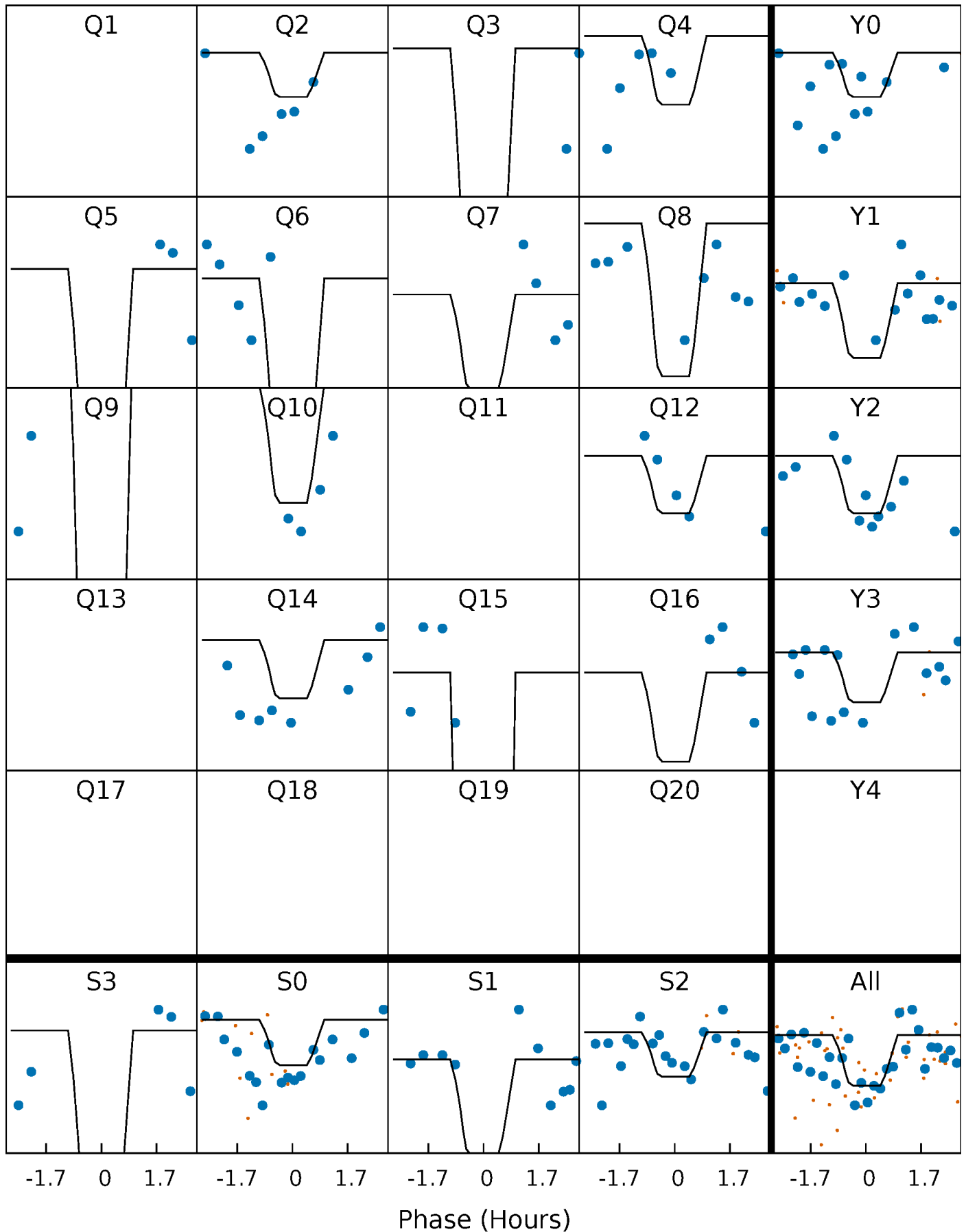
DV Quarter-Phased Transit Curves

TCE 008396259-03 P= 54.642071 Days $T_0=138.737967$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

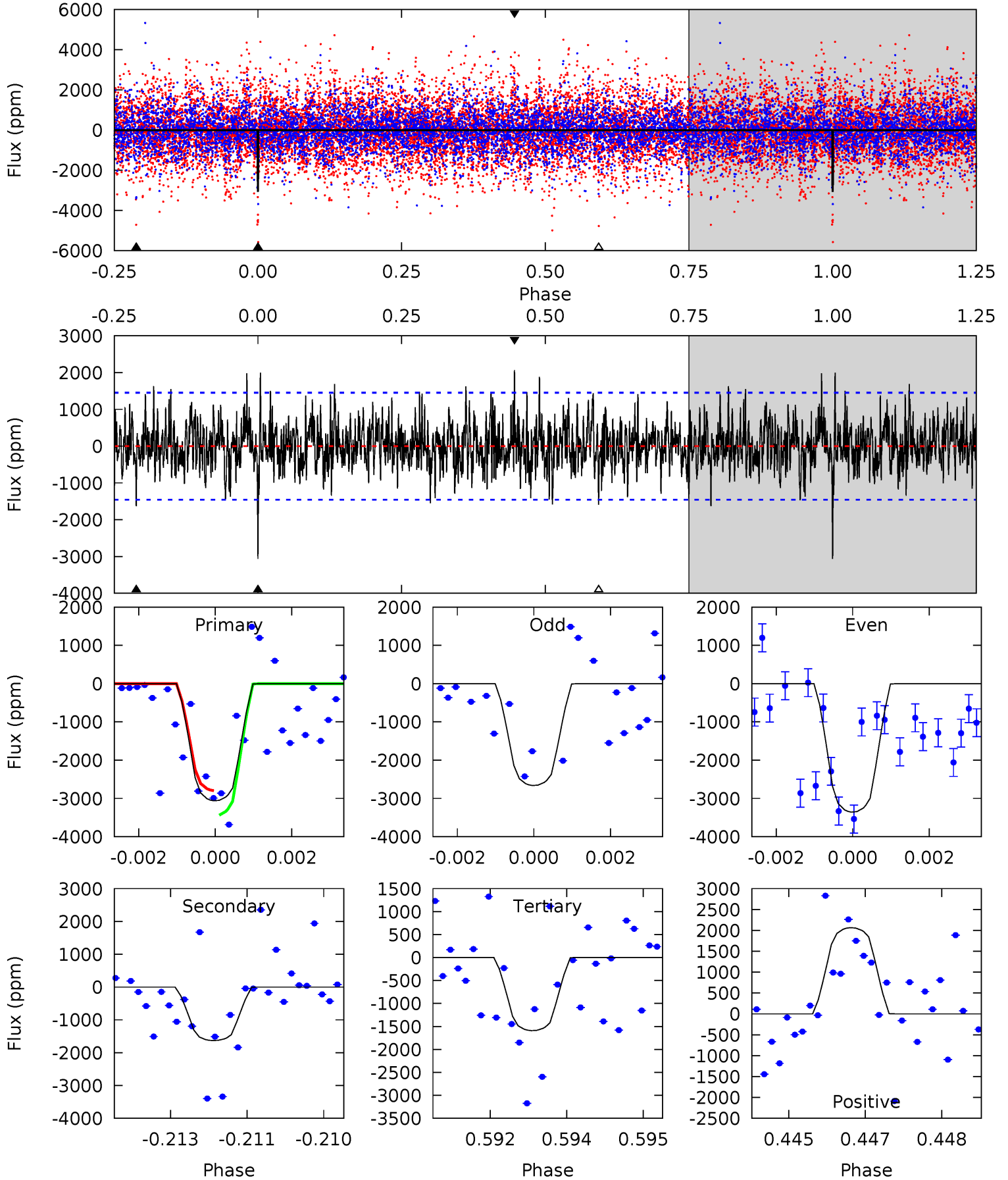
TCE 008396259-03 P= 54.642072 Days $T_0=138.738337$ (BKJD)



DV Model-Shift Uniqueness Test

008396259-03, P = 54.642071 Days, E = 84.095896 Days

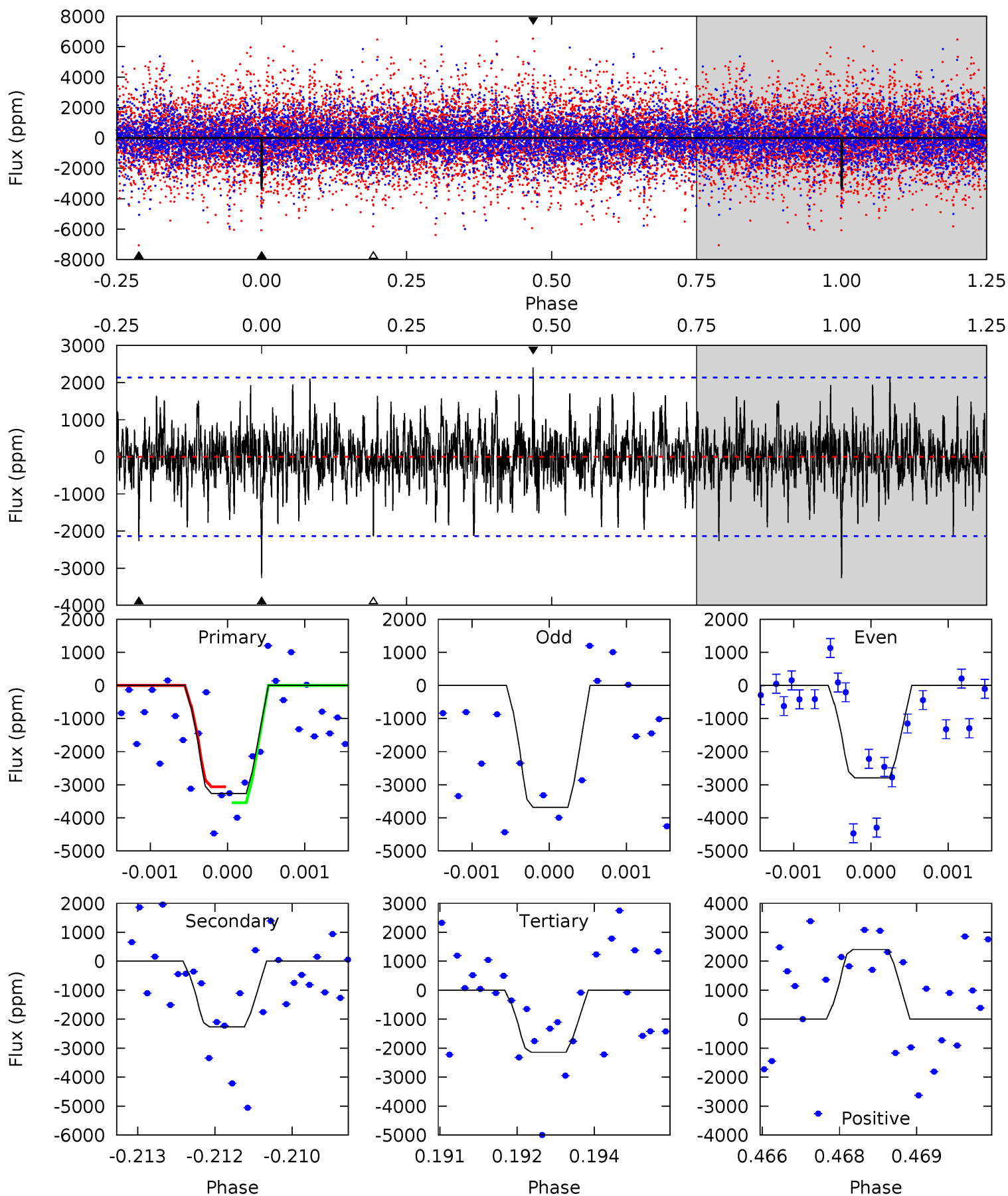
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	6.03	5.88	7.63	5.38	3.17	1.93	5.43	3.68	0.14	-1.60	1.31	1.03	0.40	1.17



Alt Model-Shift Uniqueness Test

008396259-03, P = 54.642072 Days, E = 84.096265 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.23	5.72	5.40	6.07	5.39	3.19	1.47	2.83	2.16	0.31	-0.35	1.11	0.98	0.42	0.60



Stellar Parameters For KIC 008396259

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7575^{+211}_{-317}	$3.570^{+0.540}_{-0.060}$	$-0.200^{+0.250}_{-0.300}$	$3.849^{+0.509}_{-2.037}$	$2.010^{+0.139}_{-0.557}$	$0.050^{+0.332}_{-0.010}$
	+3%/-4%	+15%/-2%	+125%/-150%	+13%/-53%	+7%/-28%	+668%/-20%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008396259-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1631 ± 271	$35.10^{+37.25}_{-24.93}$	1462^{+114}_{-193}	4873^{+4452}_{-1083}	87^{+972}_{-66}
Alt.	-2266 ± 396	$34.76^{+34.64}_{-23.23}$	1461^{+113}_{-189}	5228^{+4320}_{-1244}	125^{+1122}_{-94}

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 $A_{obs} \gg 1.0$

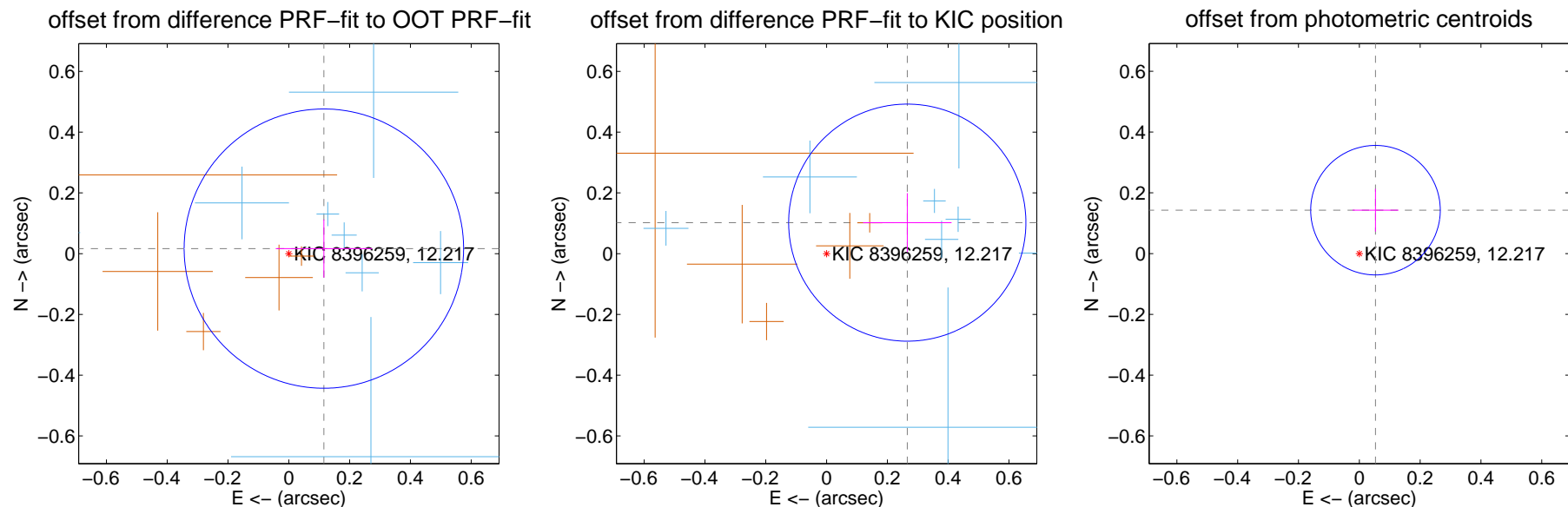
DV Centroid Data

Supplemental centroid analysis for 008396259-03. Kepler magnitude: 12.22. Transit SNR 6.87

There are 9 quarters with good PRF difference image offsets

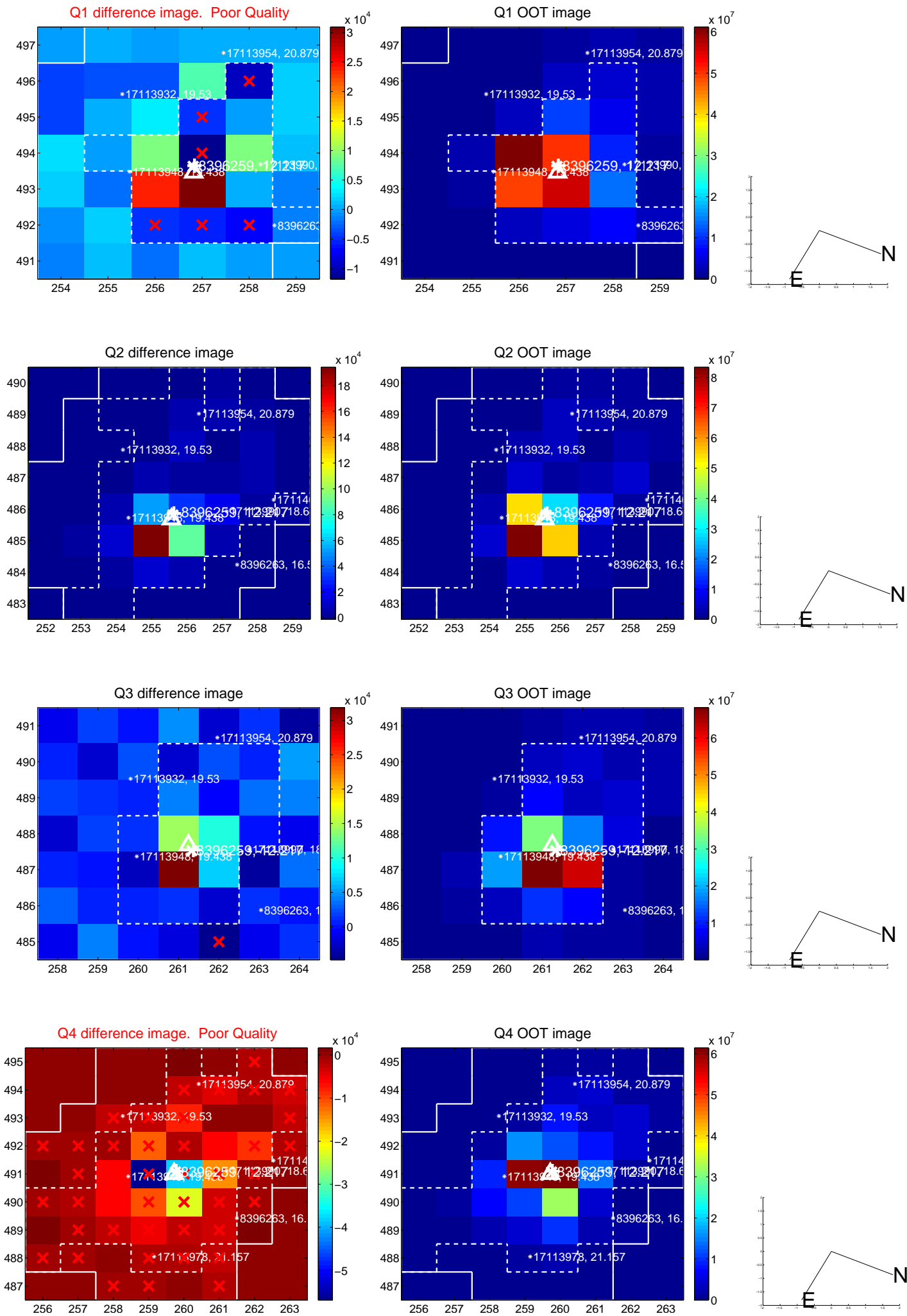
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.117 ± 0.153	0.76	-0.115 ± 0.158	0.017 ± 0.096
PRF-fit source offset from KIC position	0.284 ± 0.130	2.19	-0.265 ± 0.146	0.102 ± 0.097
photometric centroid source offset	0.15 ± 0.07	2.15	-0.05 ± 0.08	0.14 ± 0.07

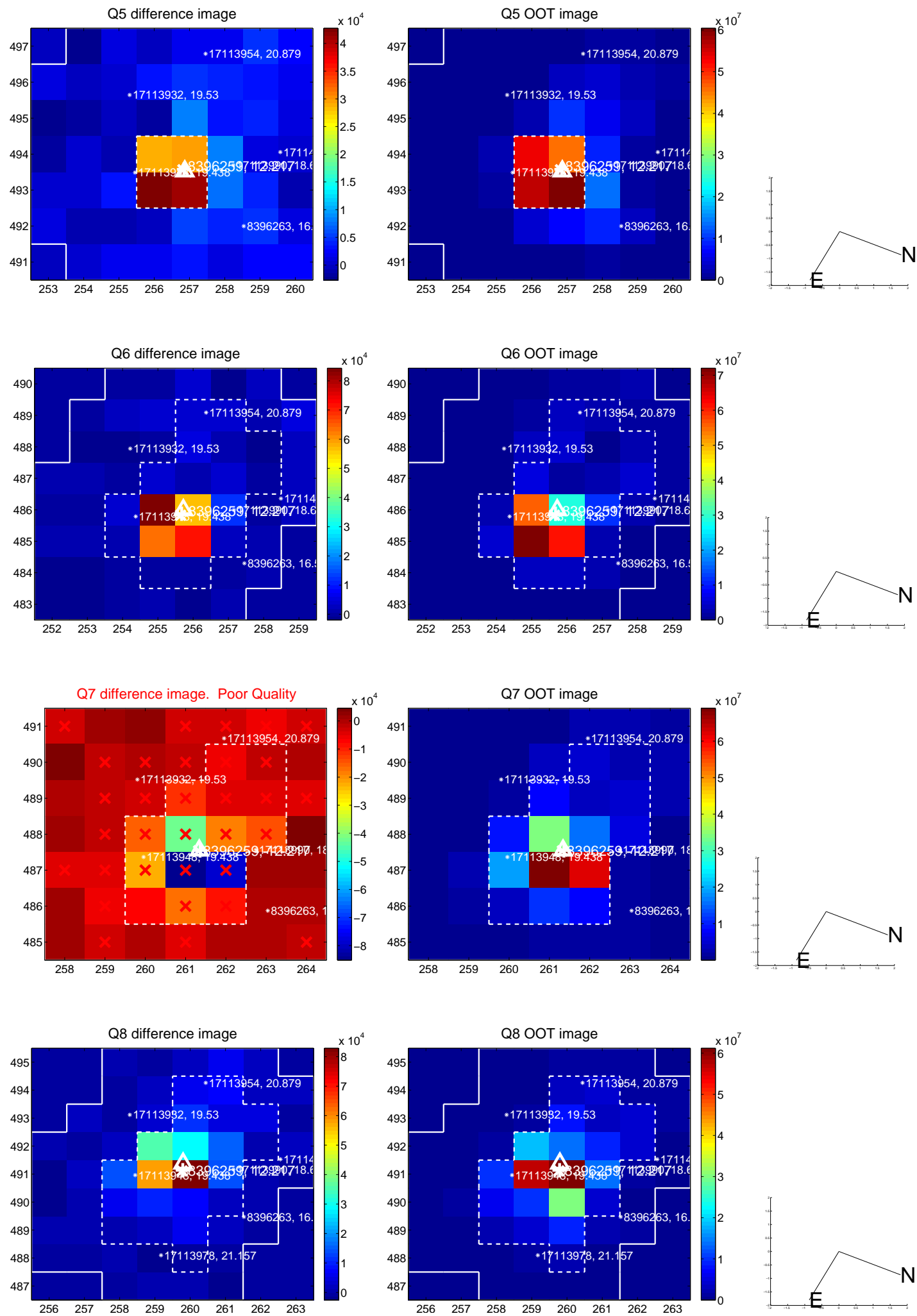


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

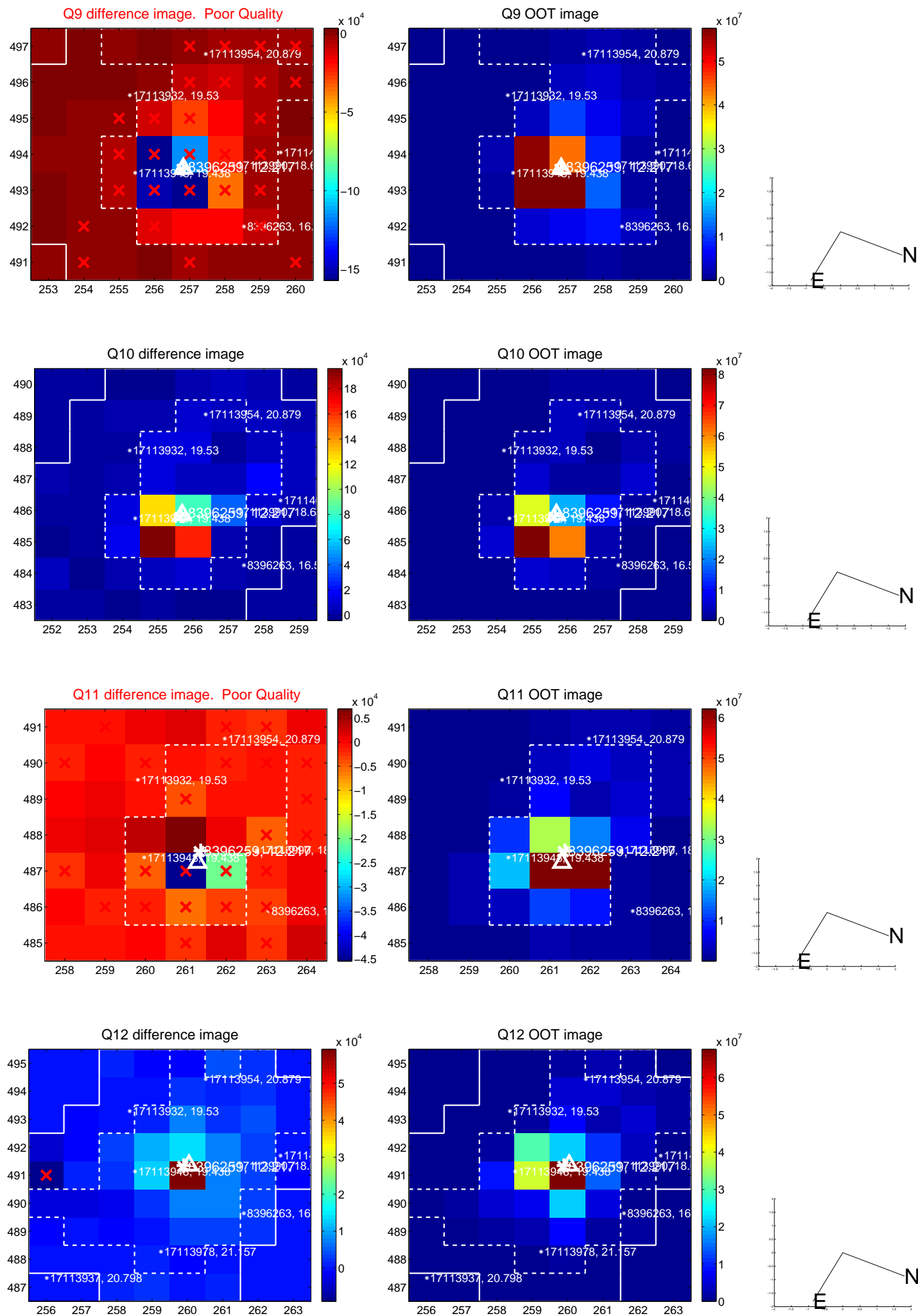
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



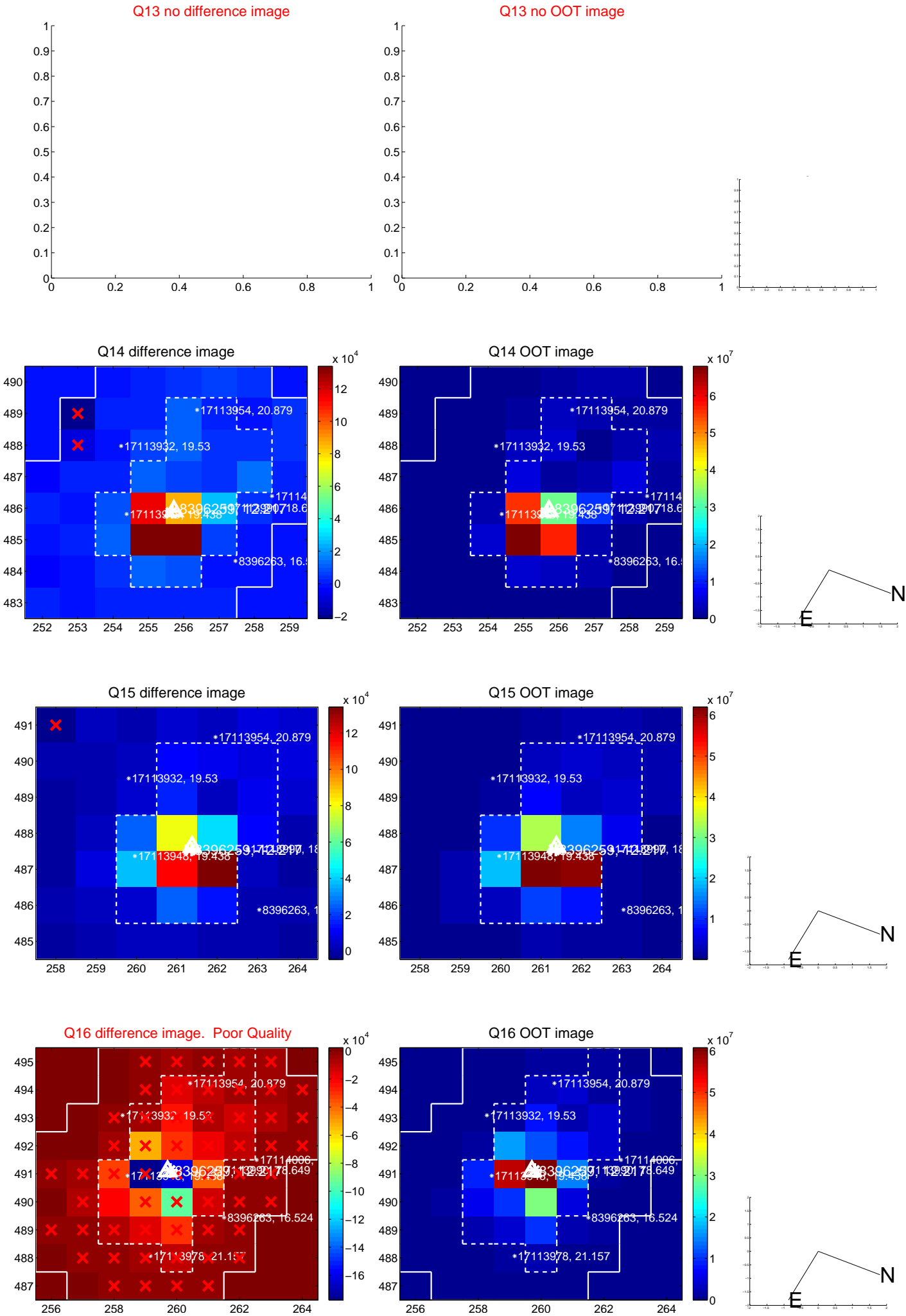
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



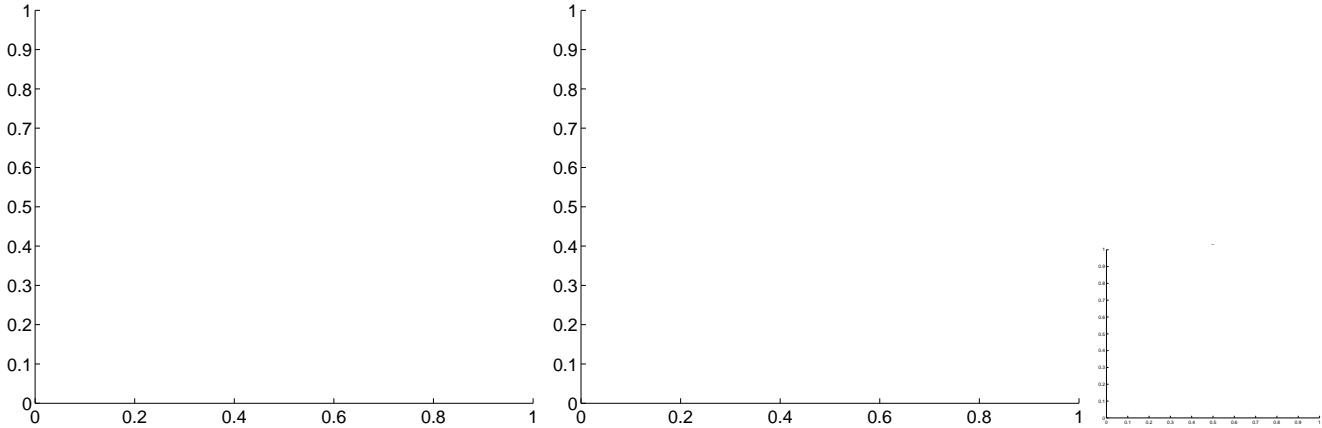
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



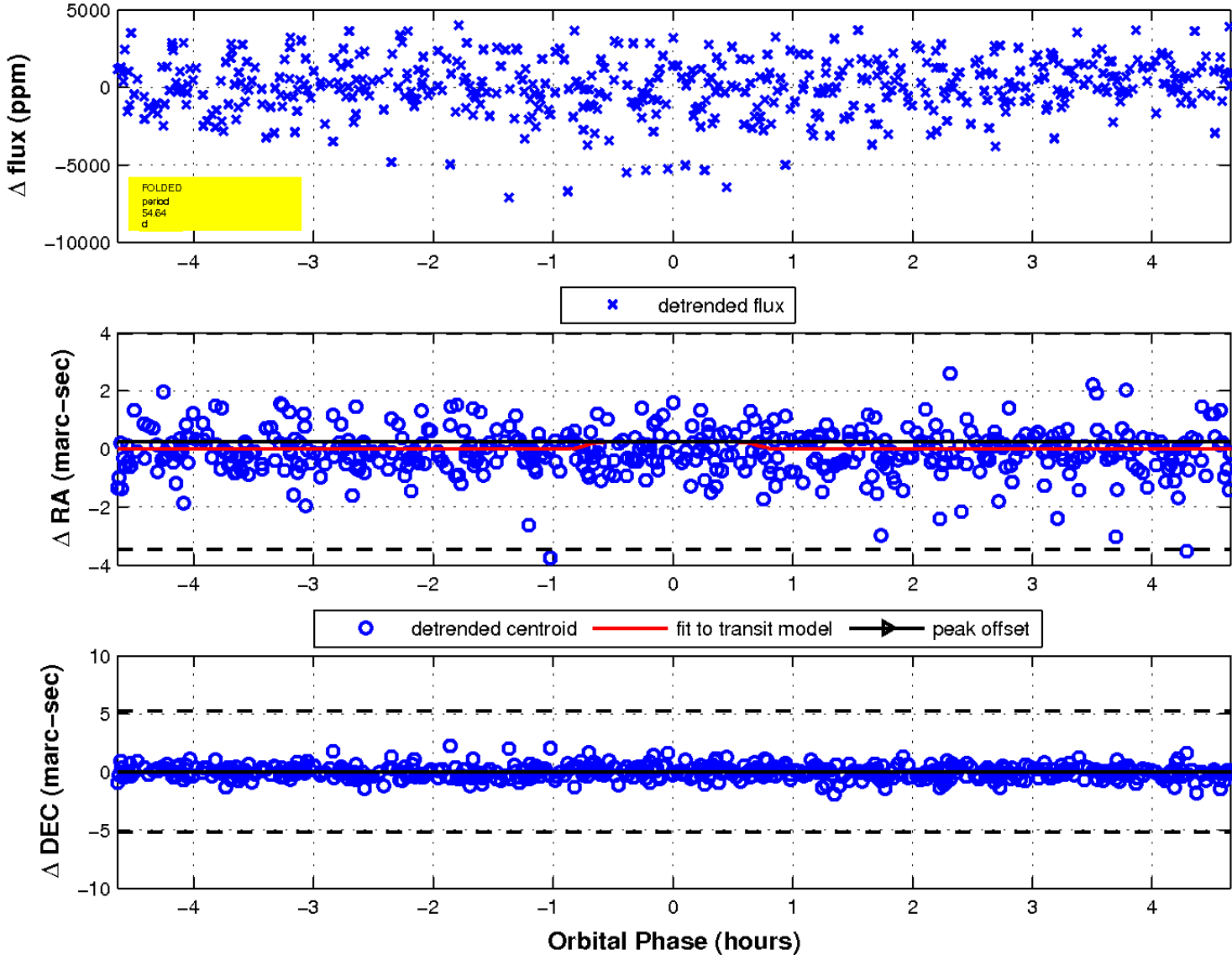
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

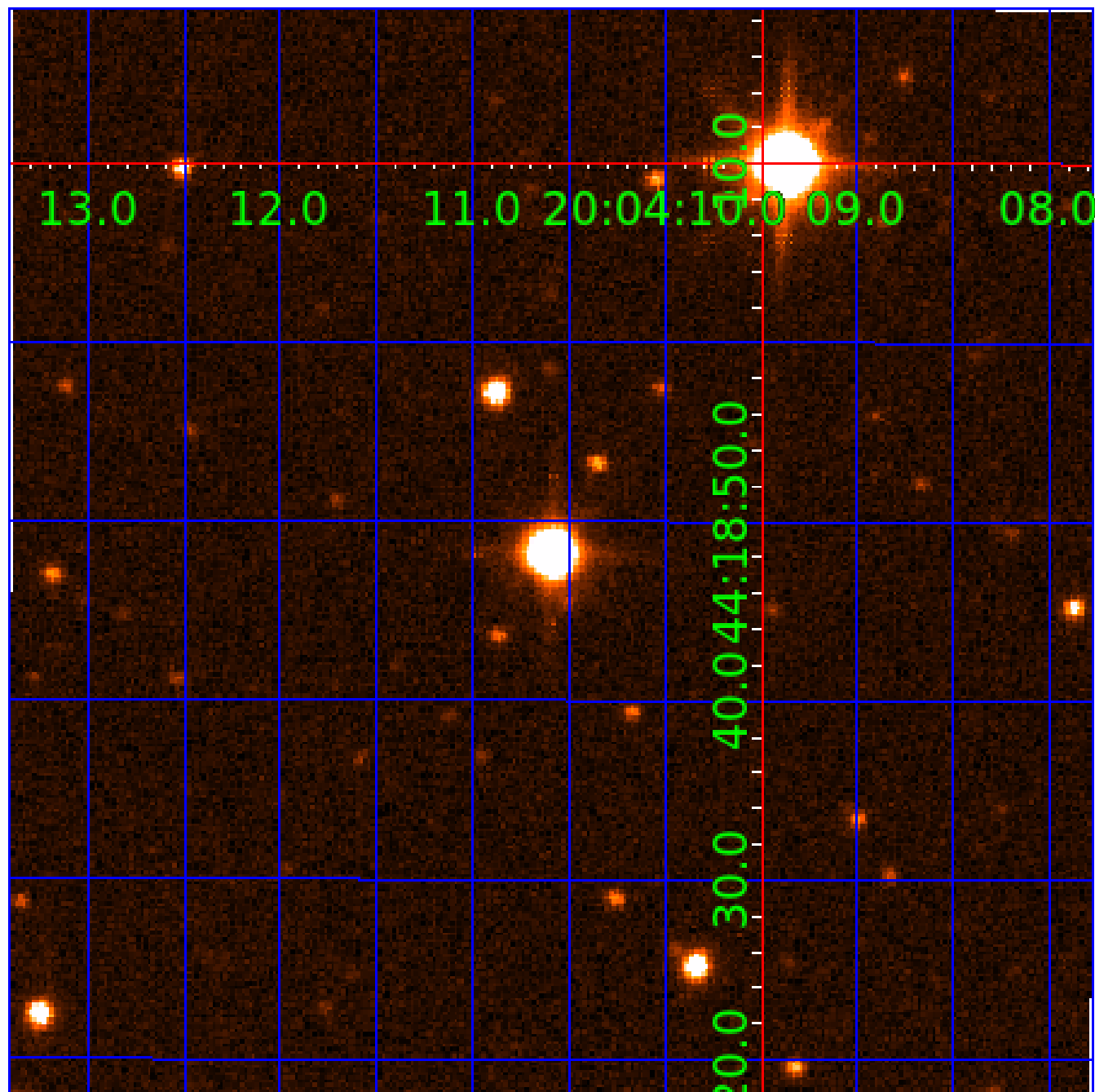


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 008396259

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})
008396259-01	OBS	No	0.502742	131.535118	175.3	1.562	10.9	11.2	3.85	7575	6.01	0.00
008396259-02	OBS	No	0.502751	131.701719	189.8	1.673	11.4	11.8	3.85	7575	6.24	0.00
008396259-03	OBS	No	54.642071	138.737967	2757.5	1.553	10.8	6.9	3.85	7575	20.35	345.64
008396259-04	OBS	No	43.900371	167.007346	3364.8	3.967	9.2	8.9	3.85	7575	40.96	462.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008396259-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008396259-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008396259-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT
008396259-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

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

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

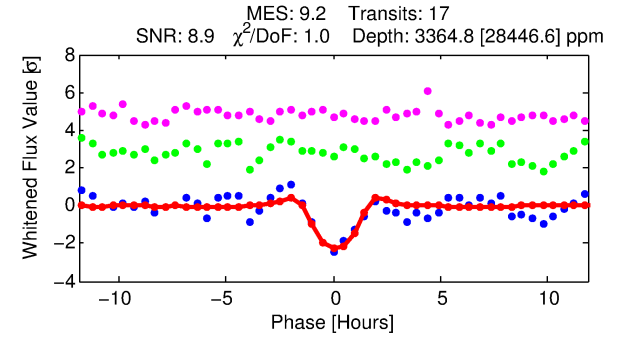
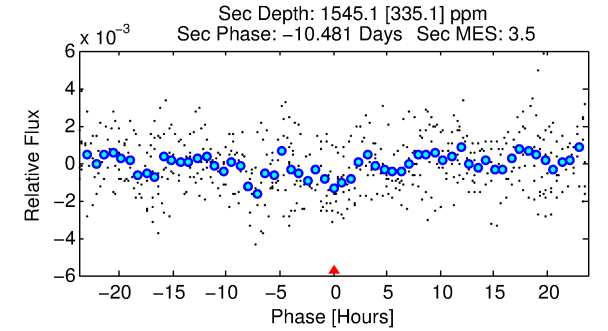
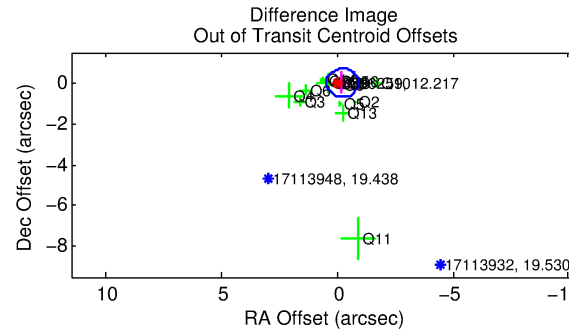
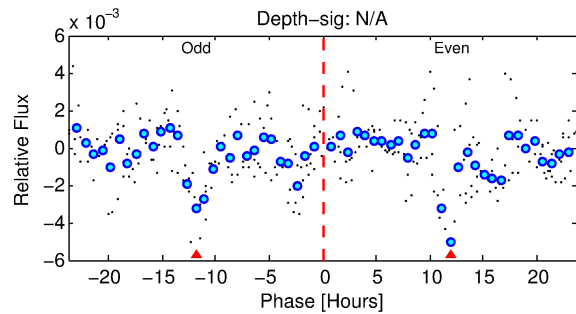
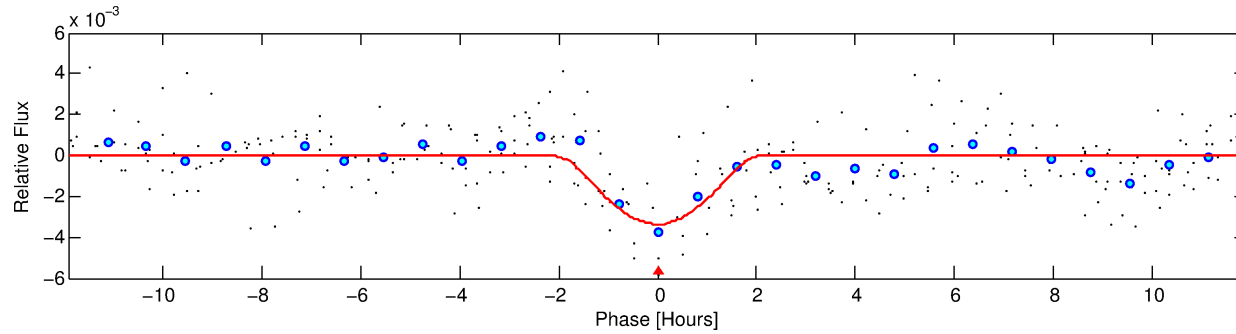
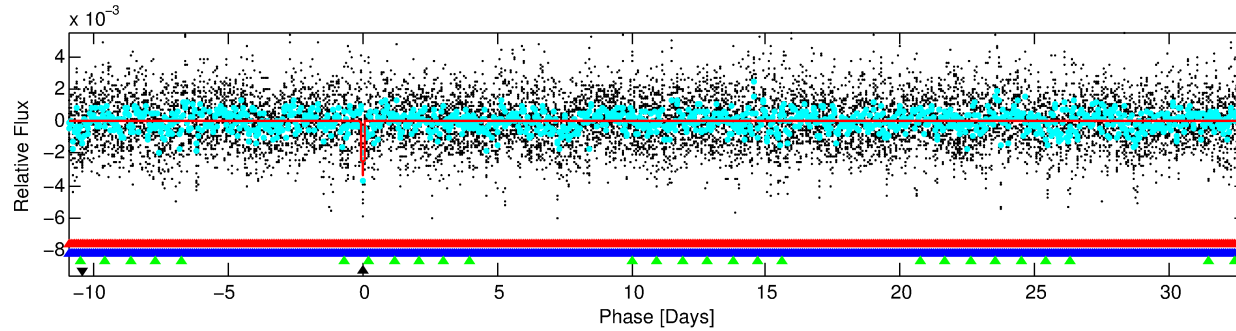
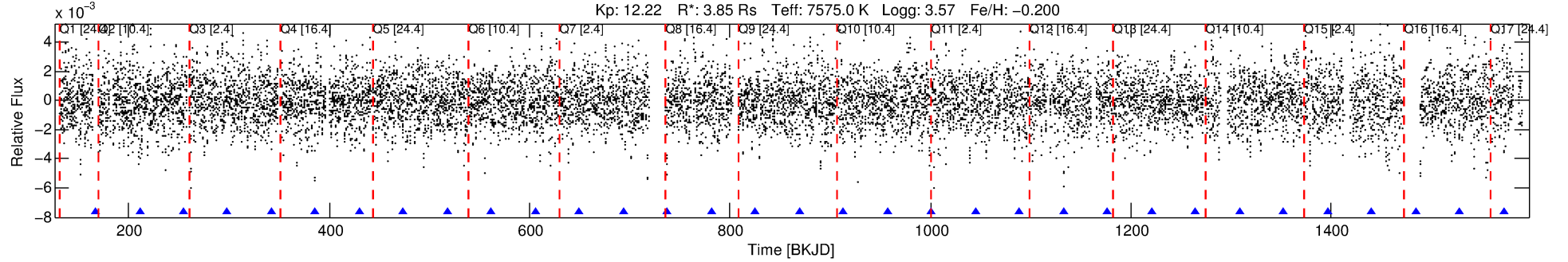
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008396259-04

No Significant Match Found

DV One-Page Summary

KIC: 8396259 Candidate: 4 of 4 Period: 43.900 d



DV Fit Results:

Period = 43.90037 [0.00042] d
Epoch = 167.0073 [0.0078] BKJD
Rp/R* = 0.0975 [0.3061]
a/R* = 38.24 [24.27]
b = 1.00 [0.12]
Seff = 462.77 [424.04]
Teq = 1183 [271] K
Rp = 40.96 [130.39] Re
a = 0.3073 [0.1673] AU
Ag = 47.86 [303.74] [0.15σ]
Teffp = 4809 [7557] K [0.48σ]

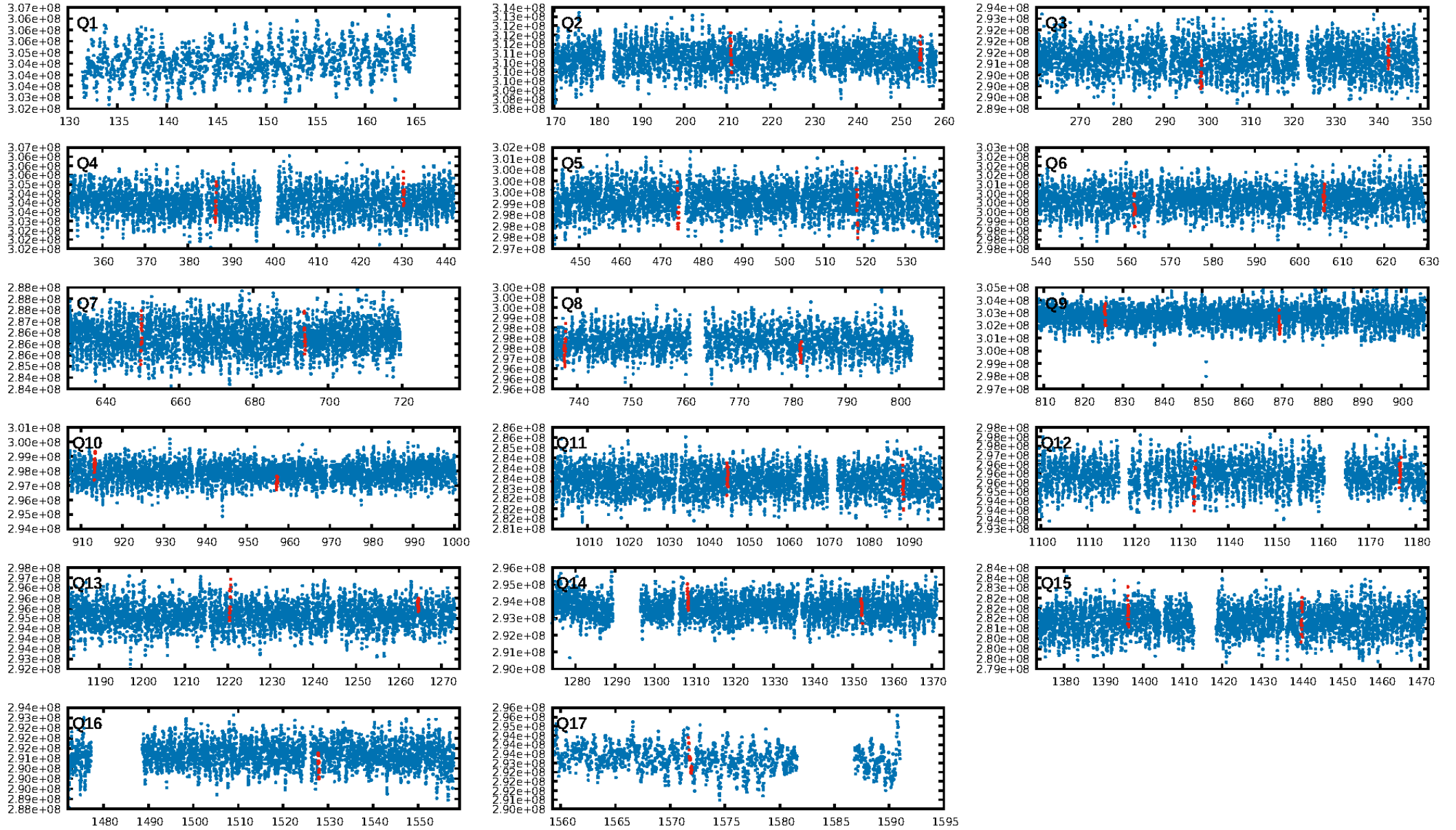
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [241.89σ]
LongPeriod-sig: 100.0% [60.51σ]
ModelChiSquare2-sig: 4.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: -1.692
Centroid-sig: 18.0%
Centroid-so: 0.206 arcsec [4.15σ]
OotOffset-rm: 0.220 arcsec [0.95σ]
KicOffset-rm: 0.264 arcsec [1.17σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 0.00 [0/16]

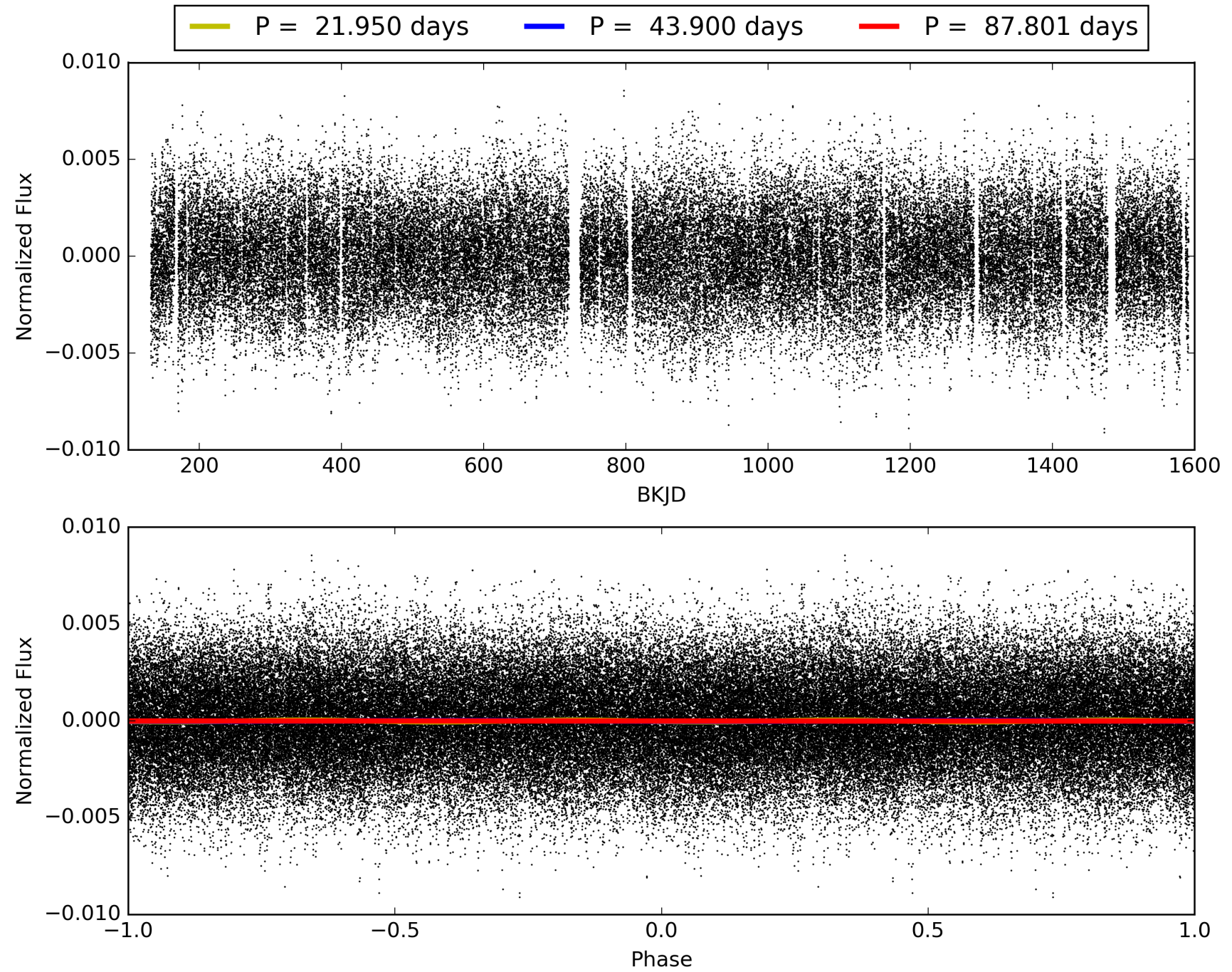
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:22 Z

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

TCE 008396259-04, PDC Light Curves

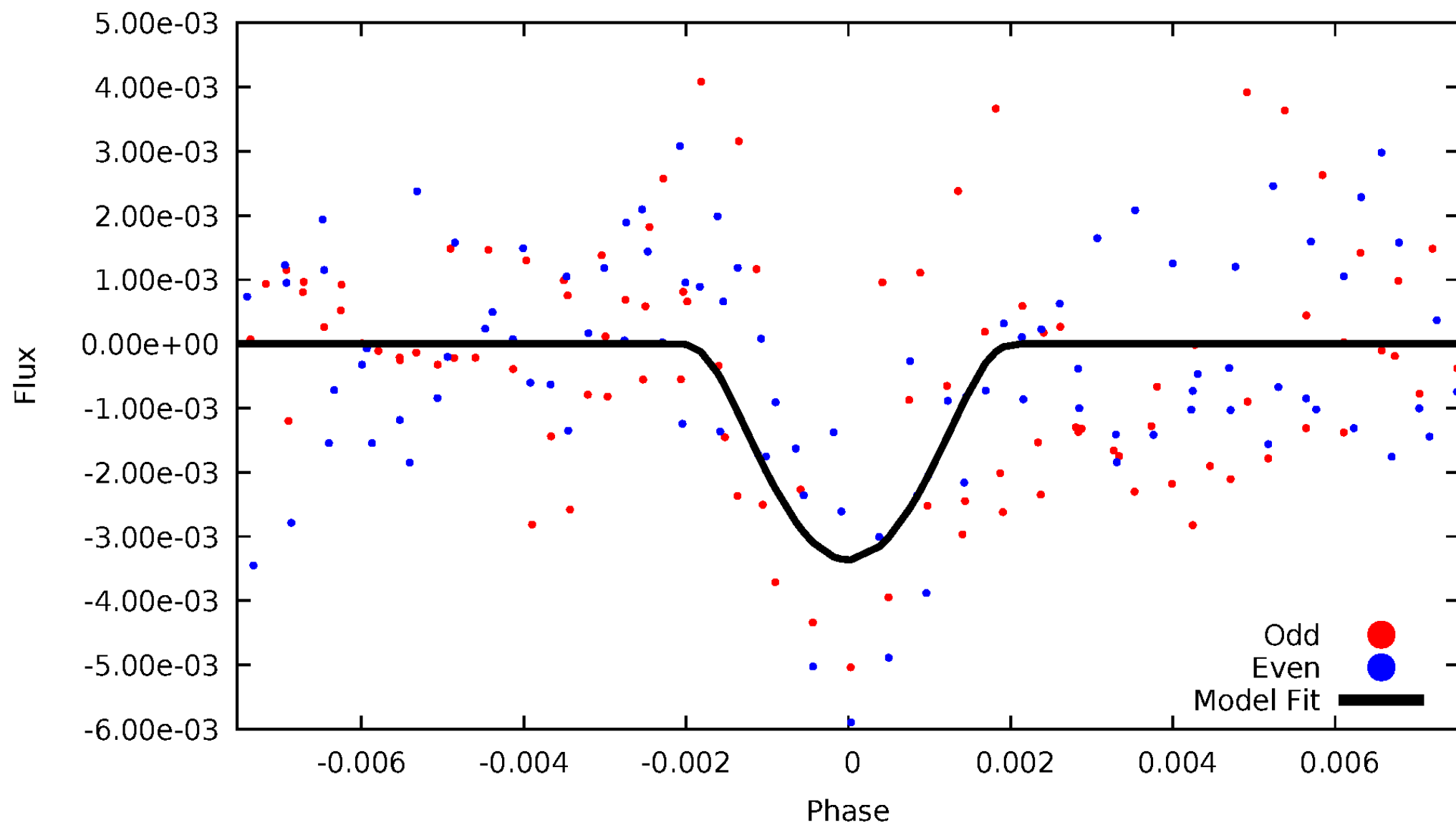


TCE 008396259-04



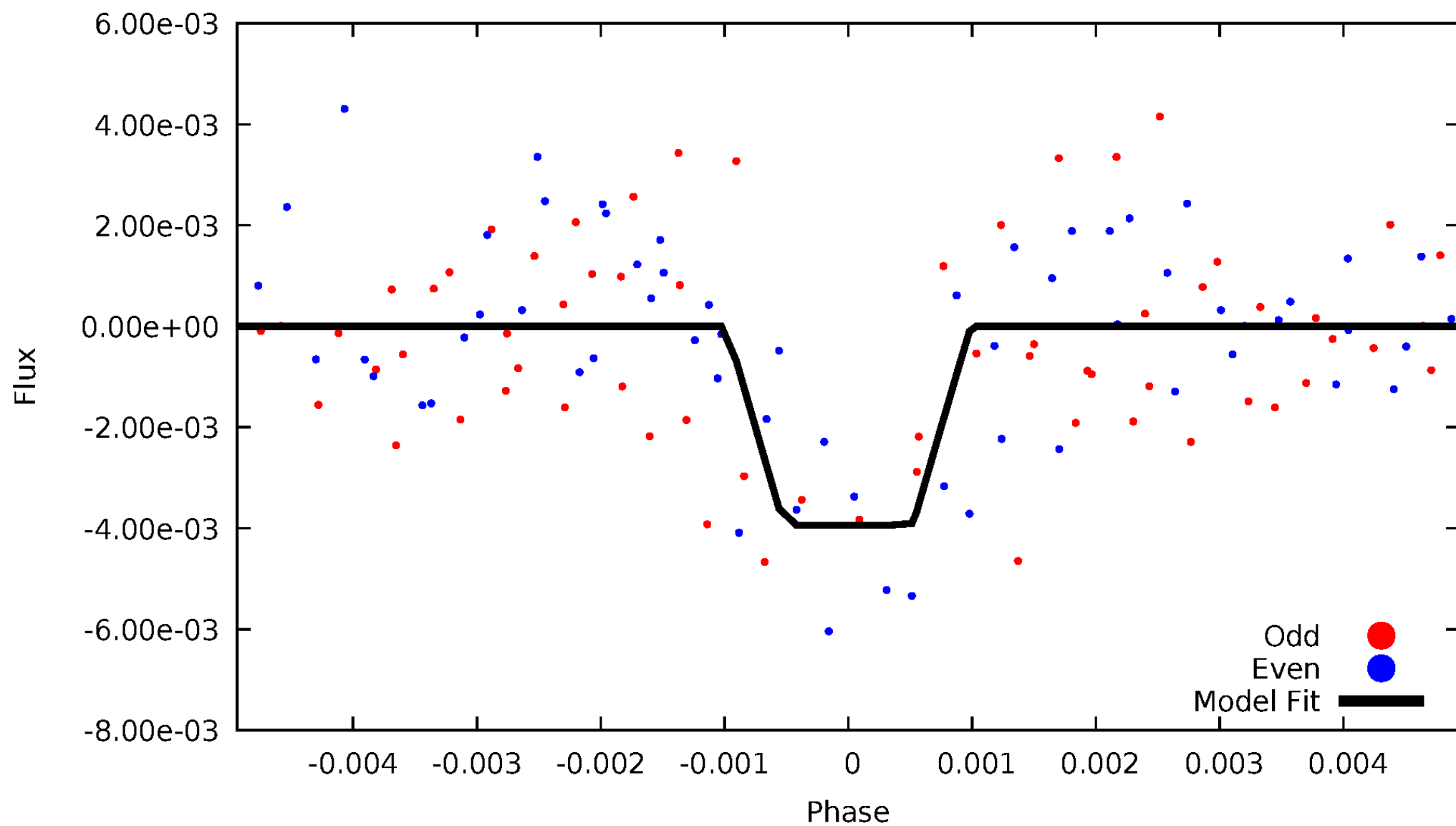
DV Odd/Even

TCE 008396259-04



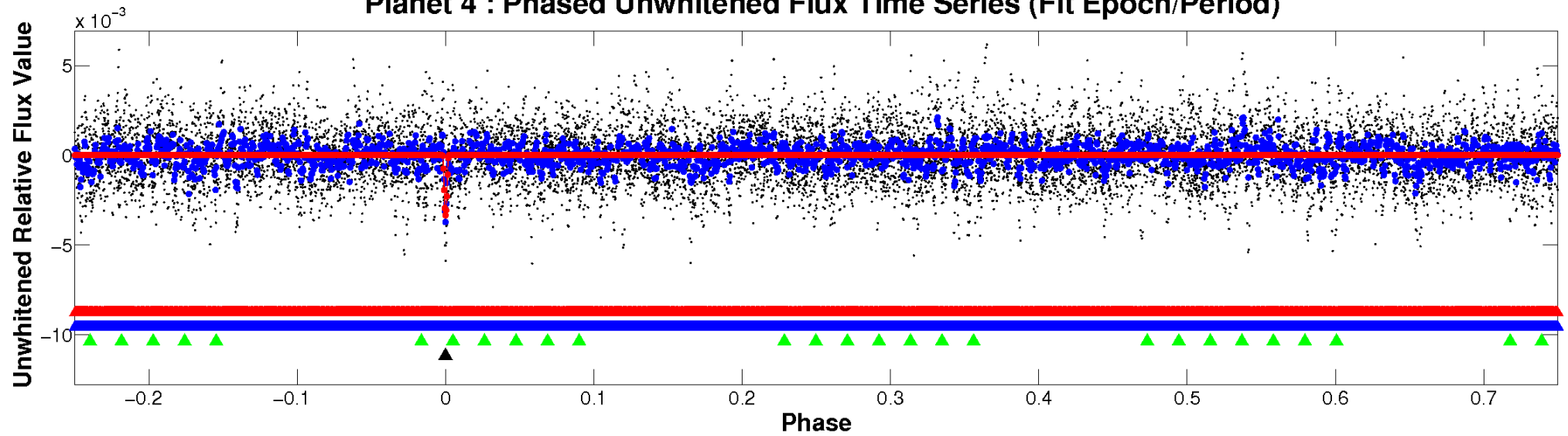
ALT Odd/Even

TCE 008396259-04

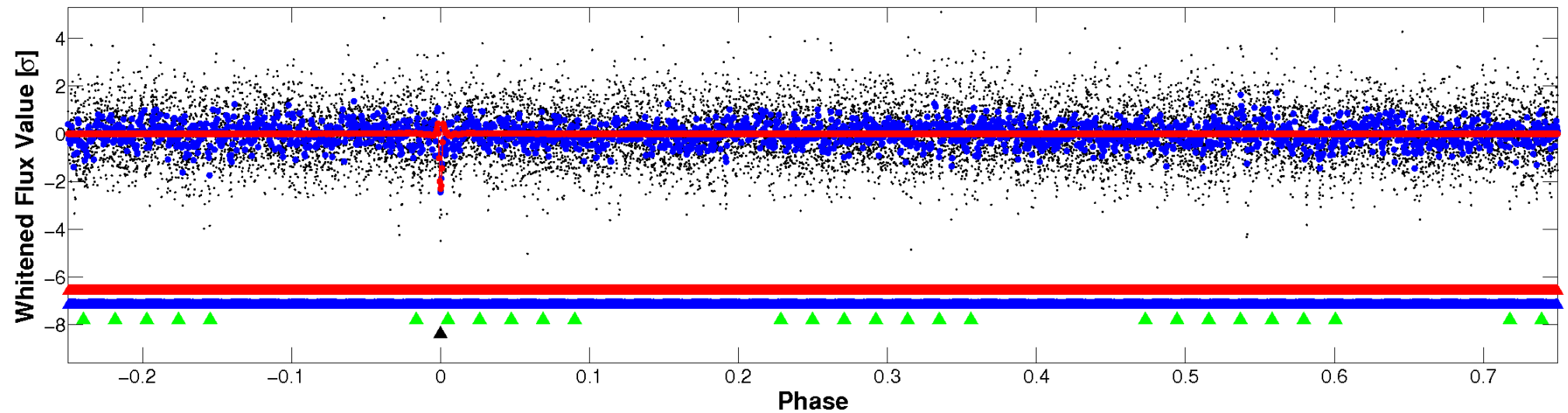


Non-Whitened Vs. Whitened Light Curve

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

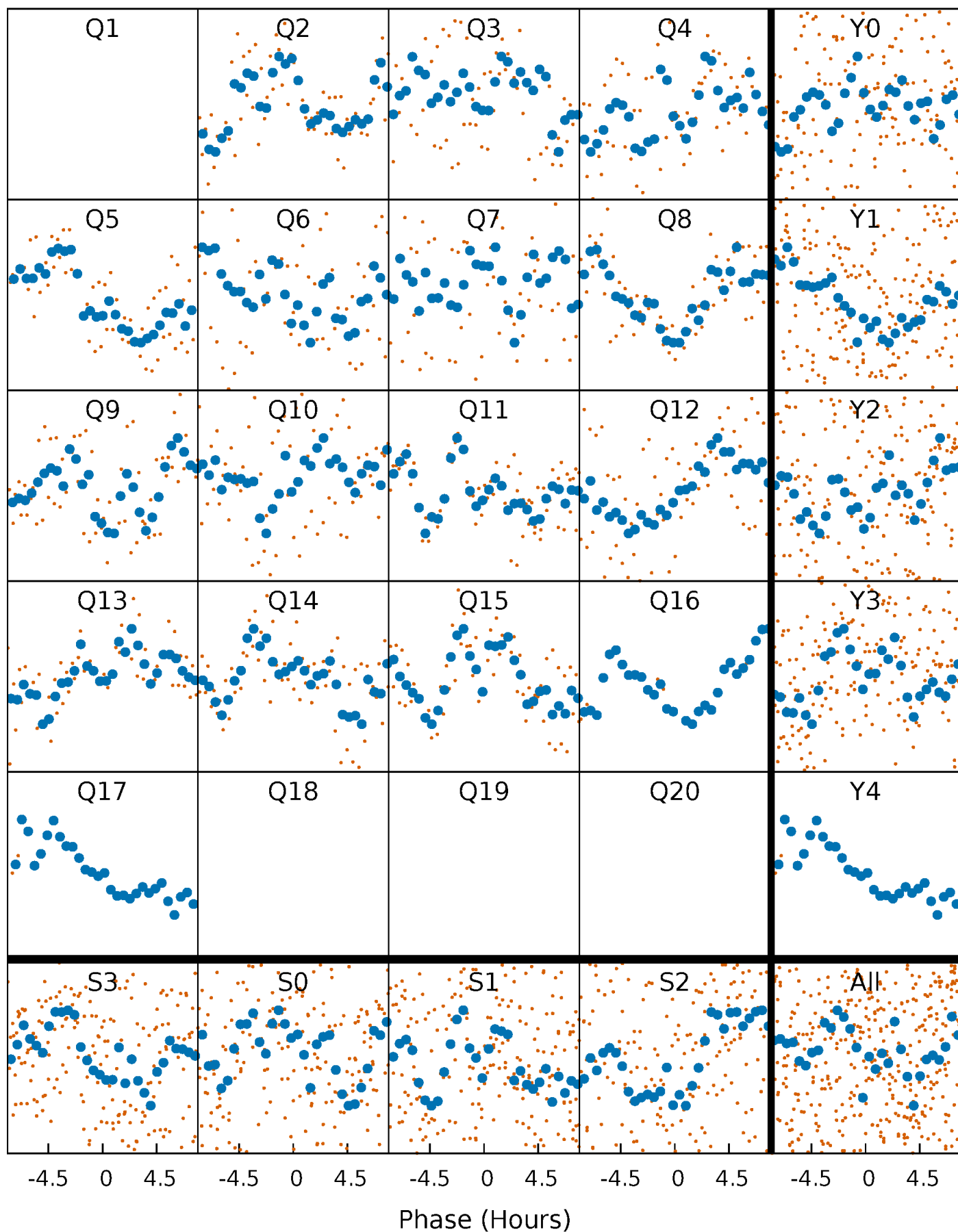


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



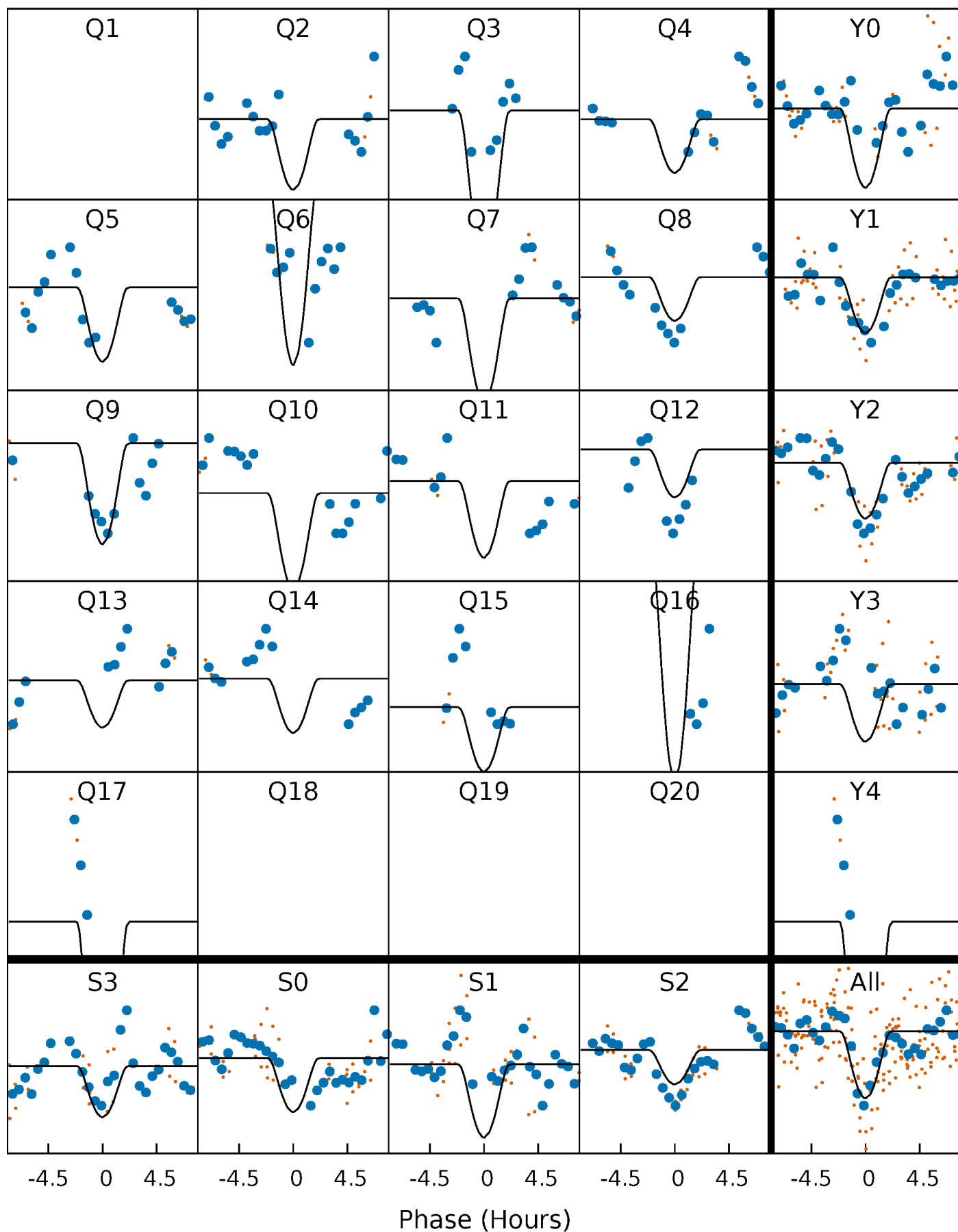
PDC Quarter-Phased Transit Curves

TCE 008396259-04 P= 43.900371 Days $T_0=167.007346$ (BKJD)



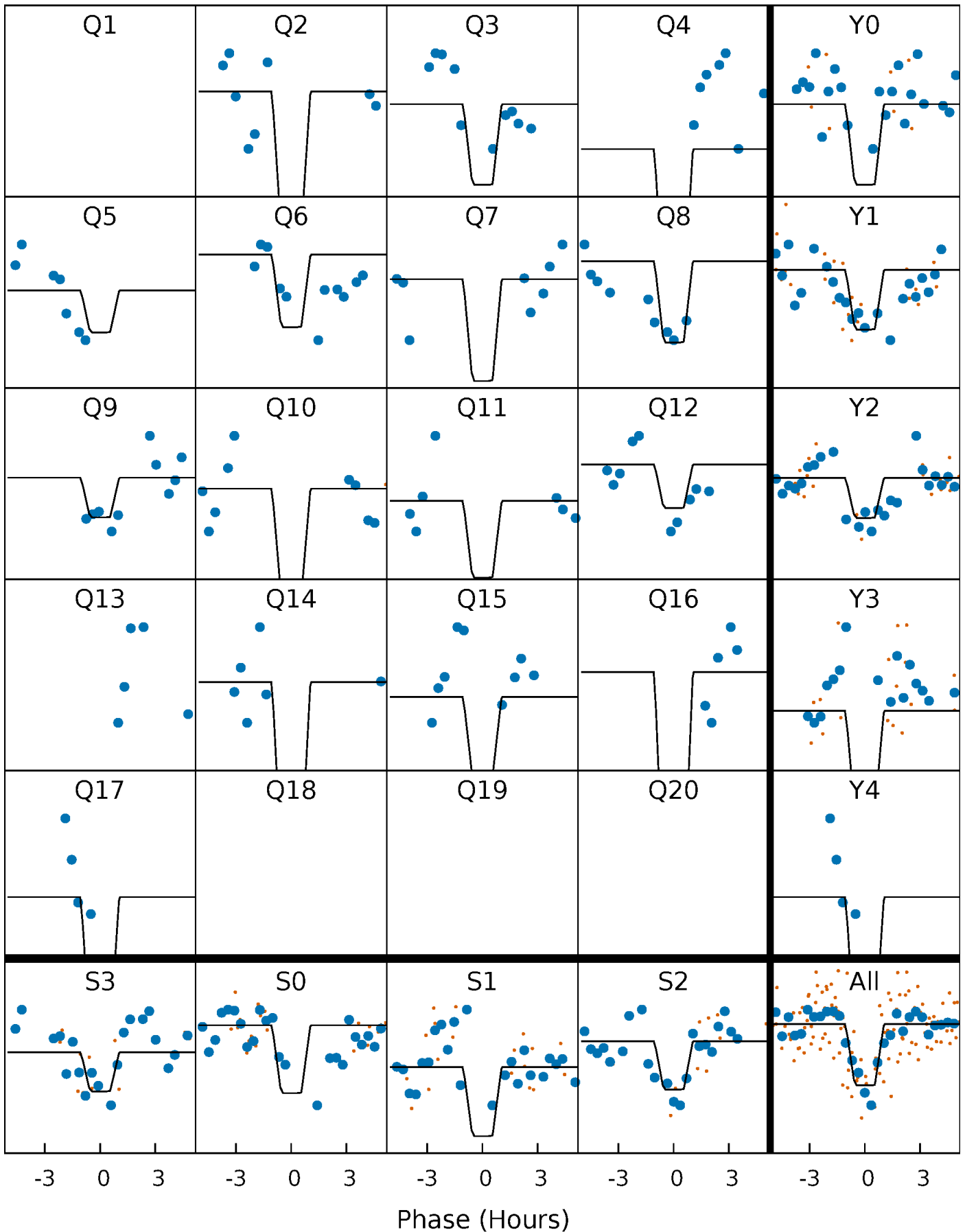
DV Quarter-Phased Transit Curves

TCE 008396259-04 P= 43.900371 Days $T_0=167.007346$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

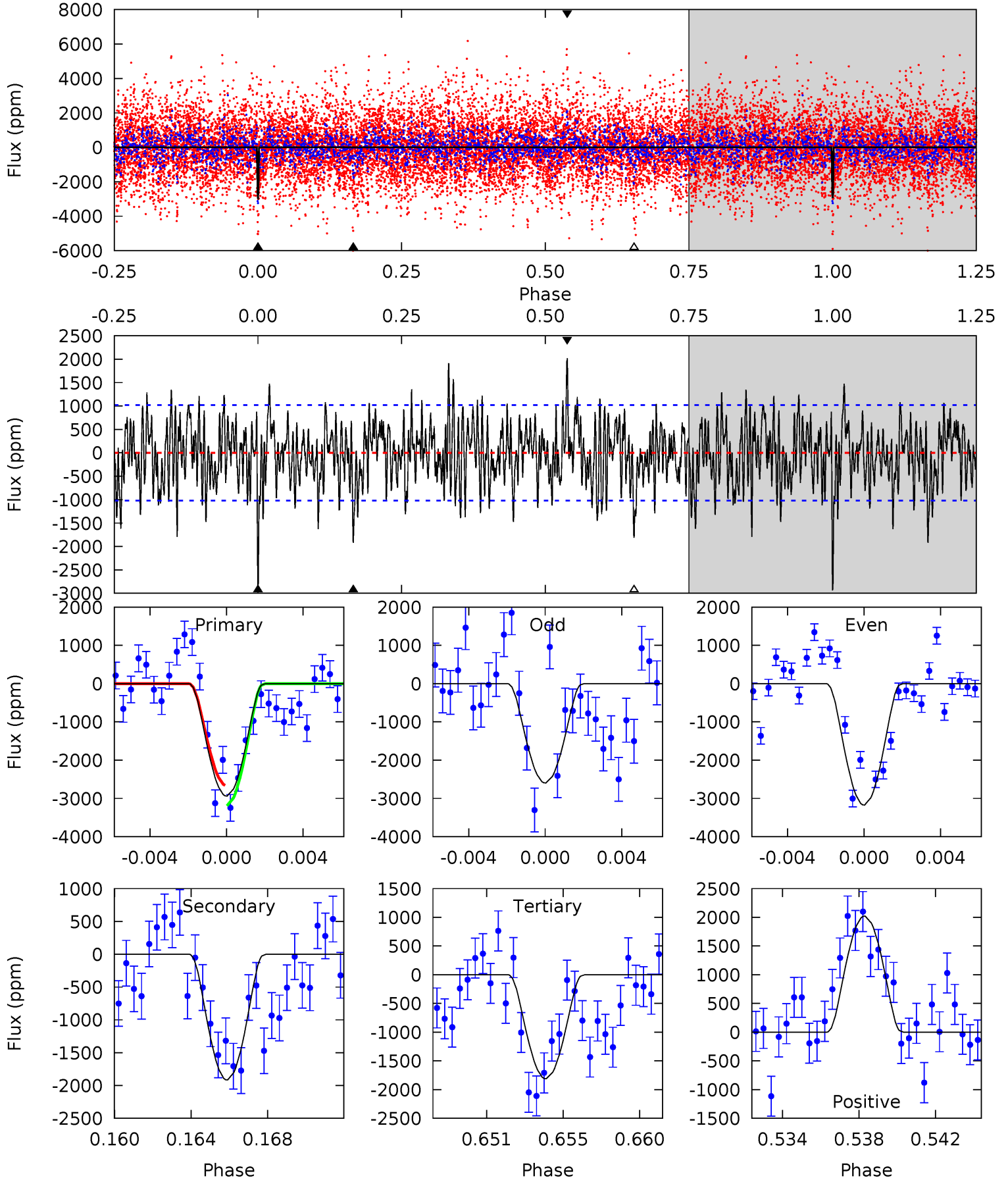
TCE 008396259-04 P= 43.899316 Days $T_0=167.018449$ (BKJD)



DV Model-Shift Uniqueness Test

008396259-04, P = 43.900371 Days, E = 123.106975 Days

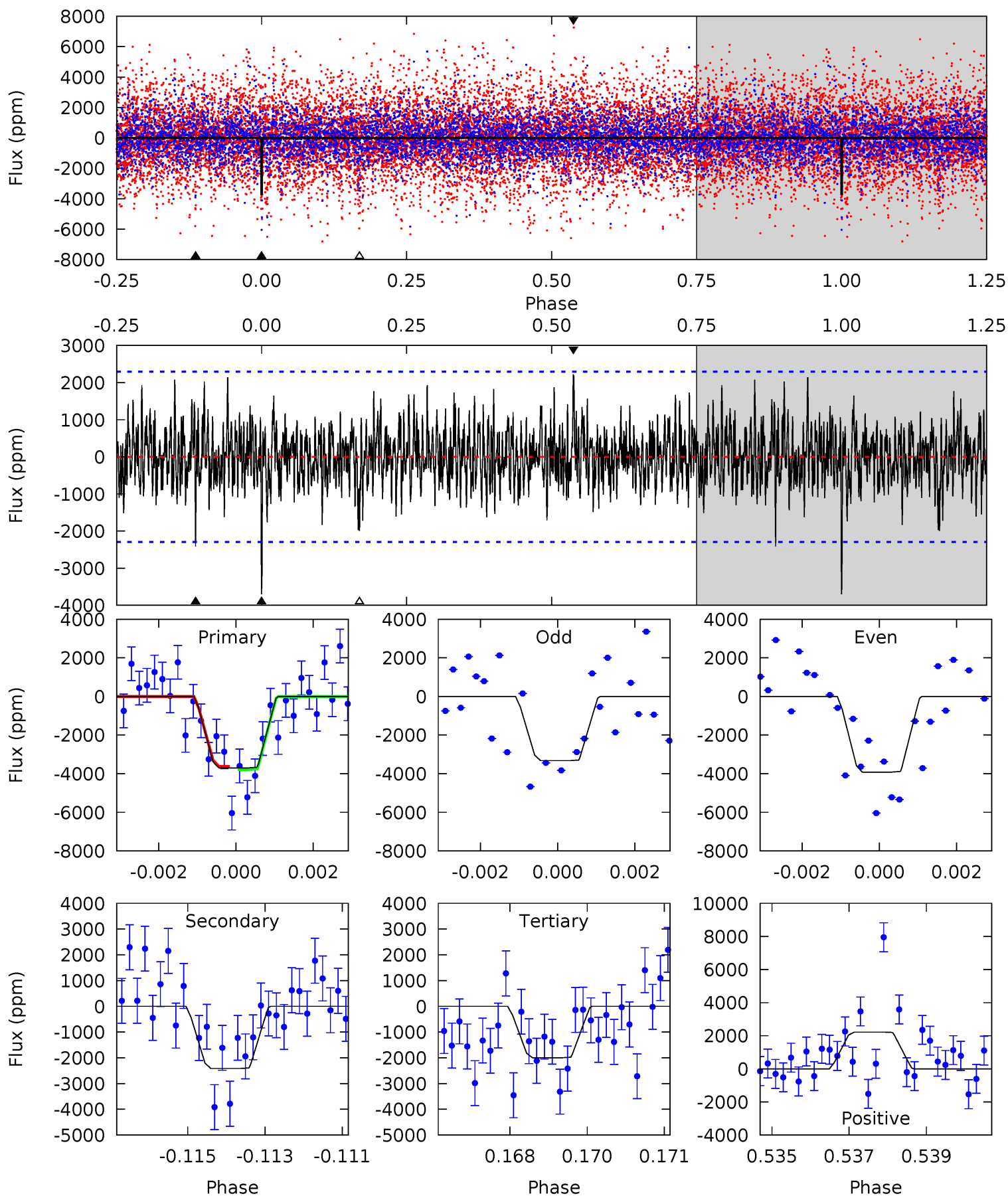
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	9.76	9.22	10.3	5.19	2.86	2.90	5.73	4.66	0.53	-0.54	1.47	0.42	0.41	1.35



Alt Model-Shift Uniqueness Test

008396259-04, P = 43.899316 Days, E = 123.119133 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.61	5.62	4.65	5.17	5.34	3.11	1.47	3.96	3.44	0.97	0.45	0.68	1.01	0.38	0.19



Stellar Parameters For KIC 008396259

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7575^{+211}_{-317}	$3.570^{+0.540}_{-0.060}$	$-0.200^{+0.250}_{-0.300}$	$3.849^{+0.509}_{-2.037}$	$2.010^{+0.139}_{-0.557}$	$0.050^{+0.332}_{-0.010}$
	+3%/-4%	+15%/-2%	+125%/-150%	+13%/-53%	+7%/-28%	+668%/-20%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008396259-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1917 ± 197	$83.24^{+90.83}_{-58.11}$	1571^{+119}_{-220}	3573^{+2142}_{-669}	13^{+137}_{-10}
Alt.	-2414 ± 430	$76.49^{+91.87}_{-52.66}$	1563^{+121}_{-212}	3828^{+2308}_{-764}	22^{+188}_{-17}

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 $A_{obs} \gg 1.0$

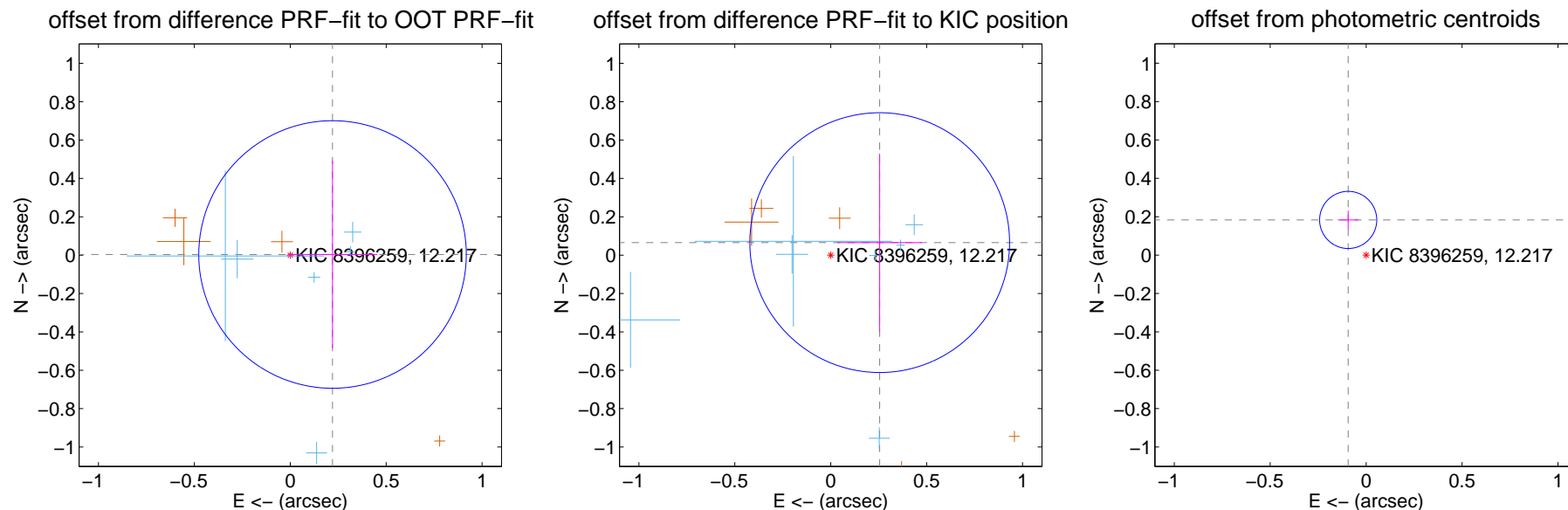
DV Centroid Data

Supplemental centroid analysis for 008396259-04. Kepler magnitude: 12.22. Transit SNR 8.87

There are 8 quarters with good PRF difference image offsets

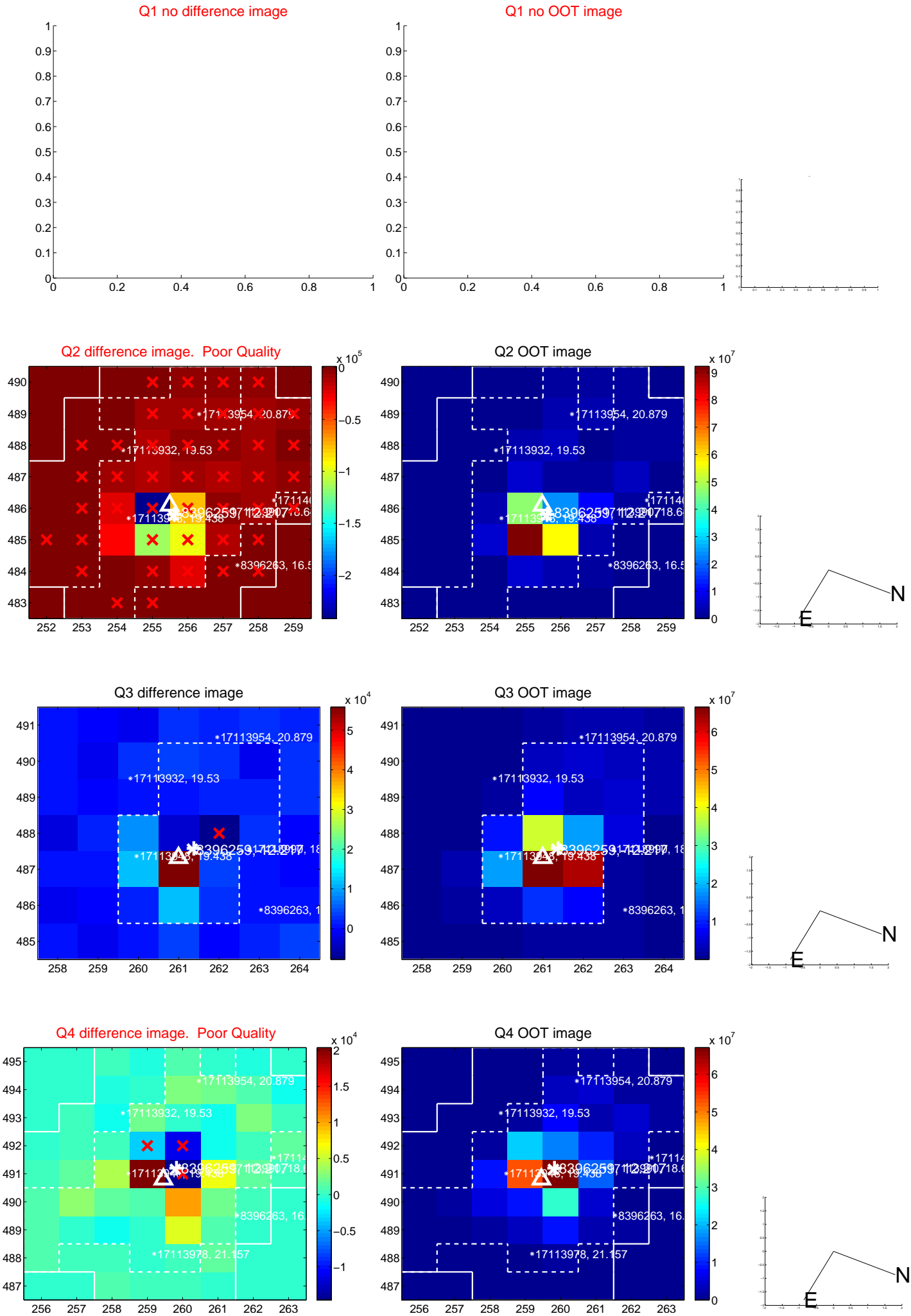
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.220 ± 0.232	0.95	-0.220 ± 0.234	0.003 ± 0.489
PRF-fit source offset from KIC position	0.264 ± 0.226	1.17	-0.255 ± 0.221	0.065 ± 0.463
photometric centroid source offset	0.21 ± 0.05	4.15	0.09 ± 0.05	0.18 ± 0.05

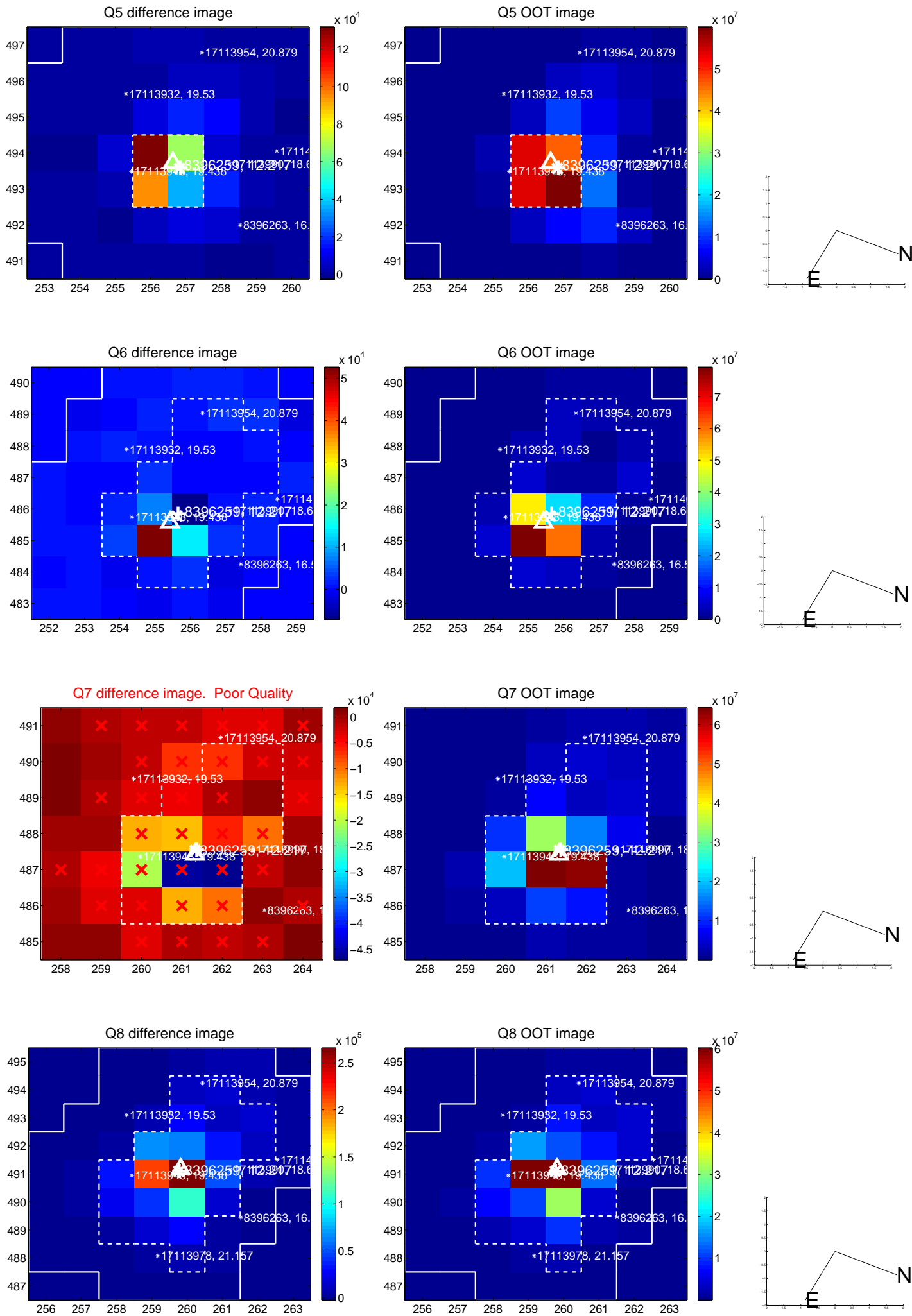


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

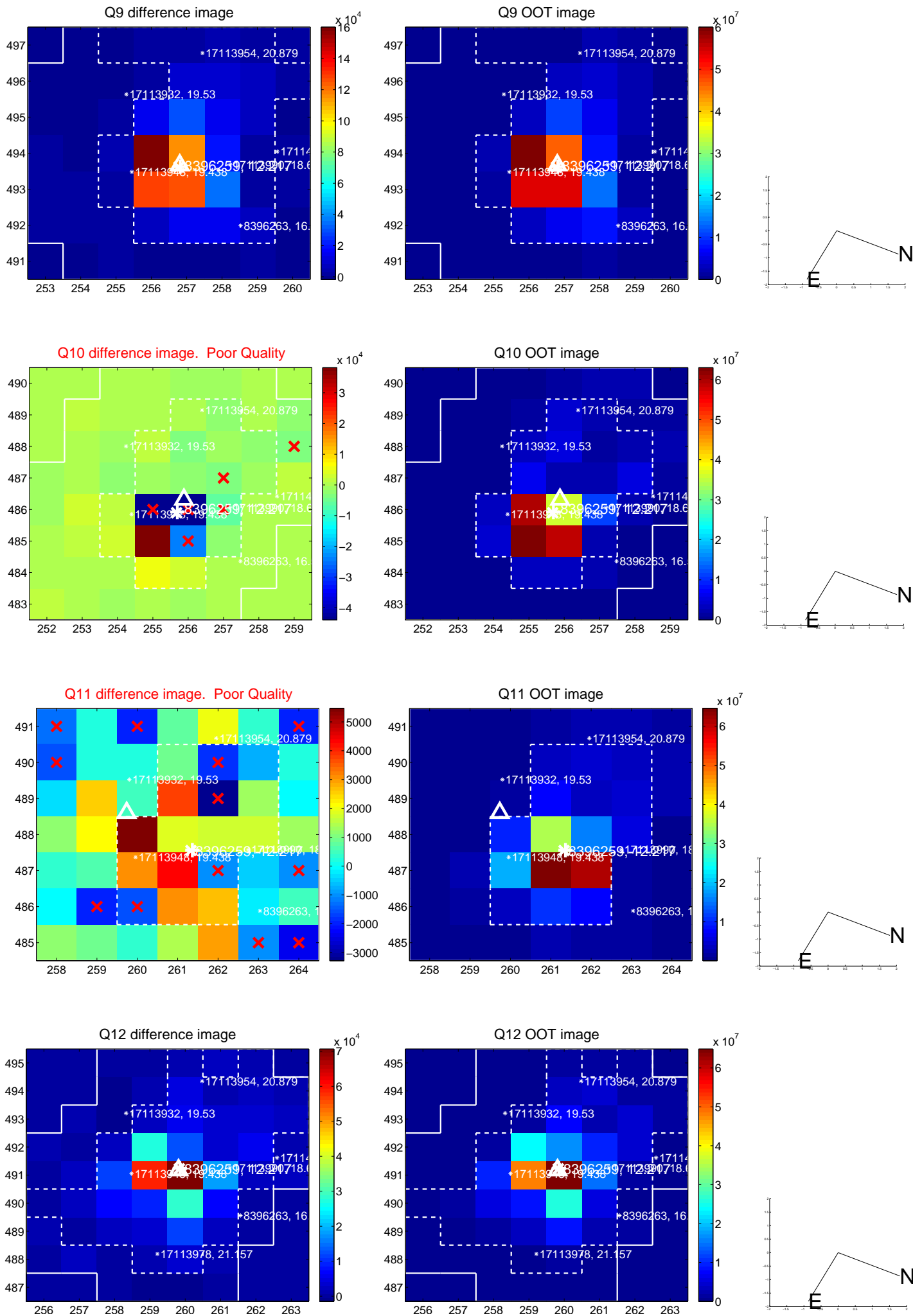
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



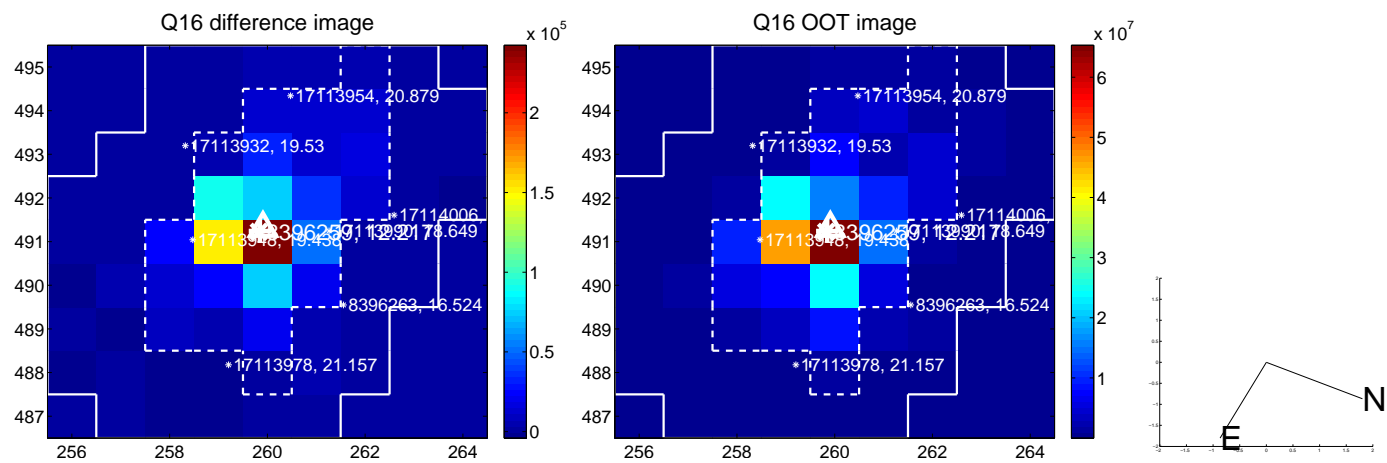
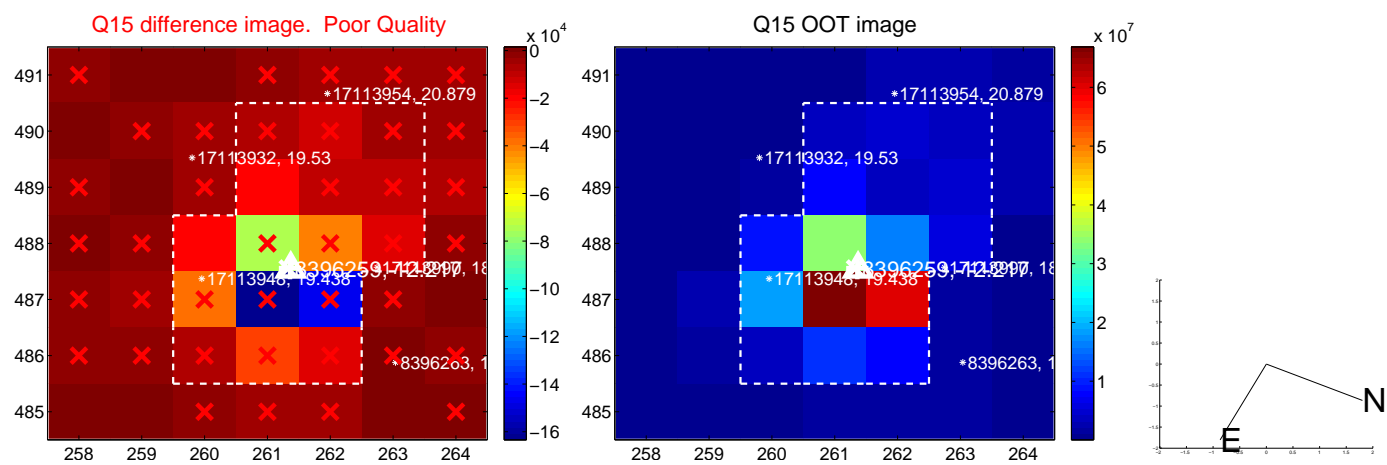
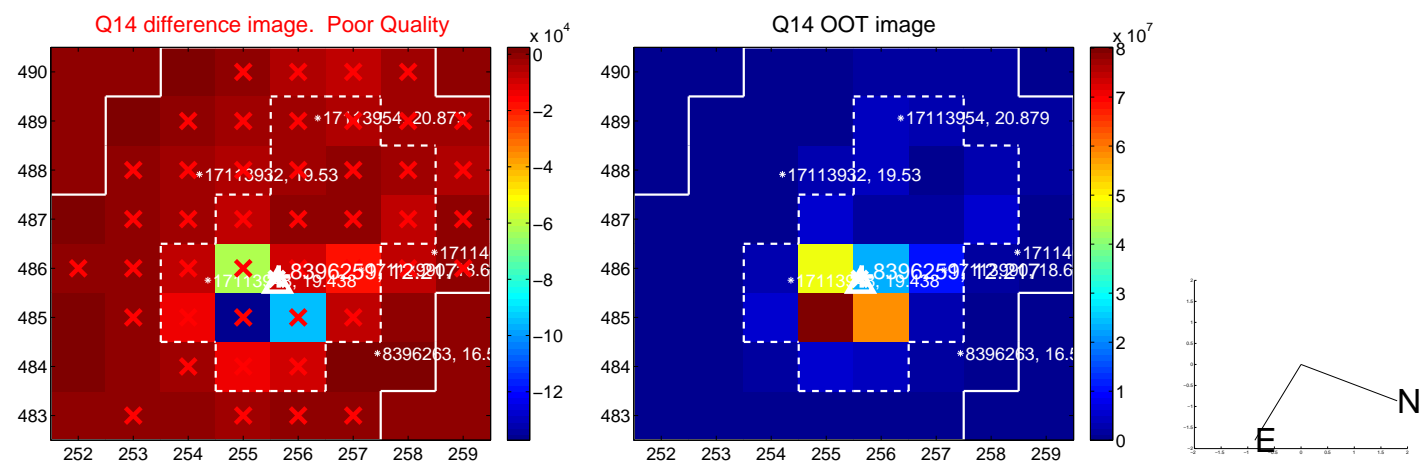
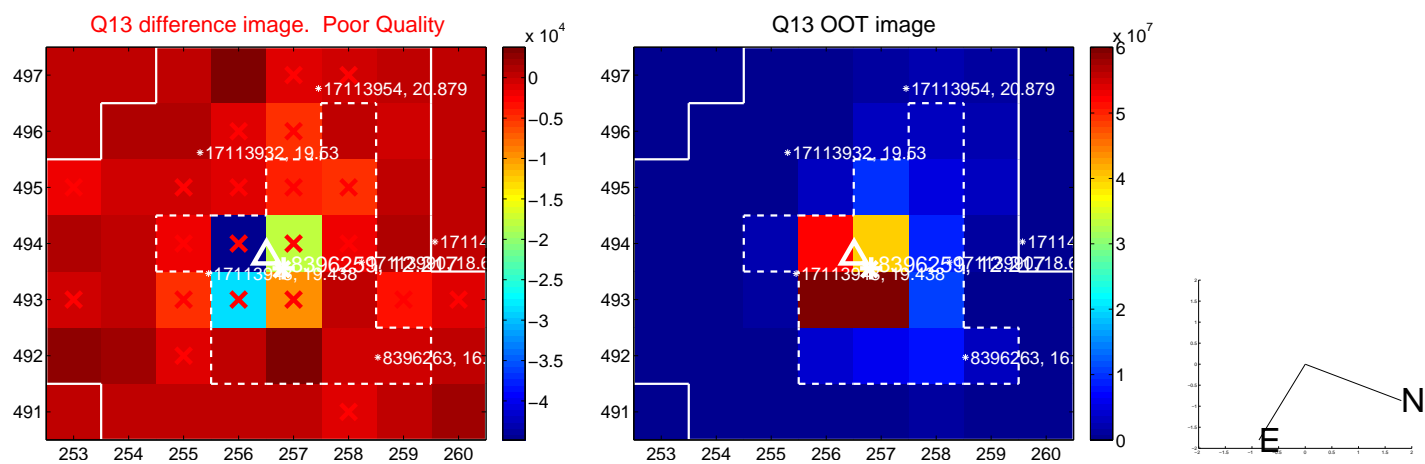
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



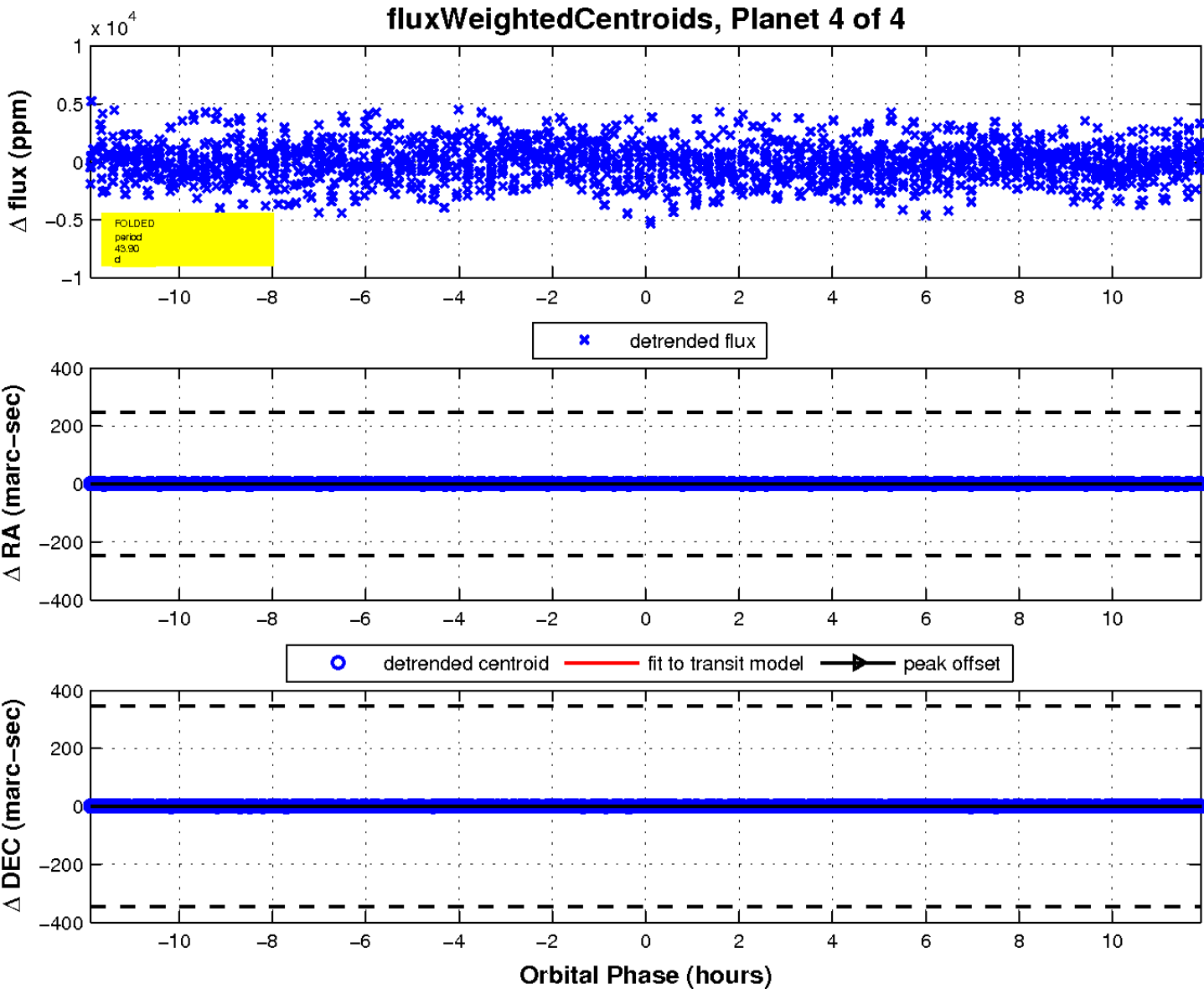
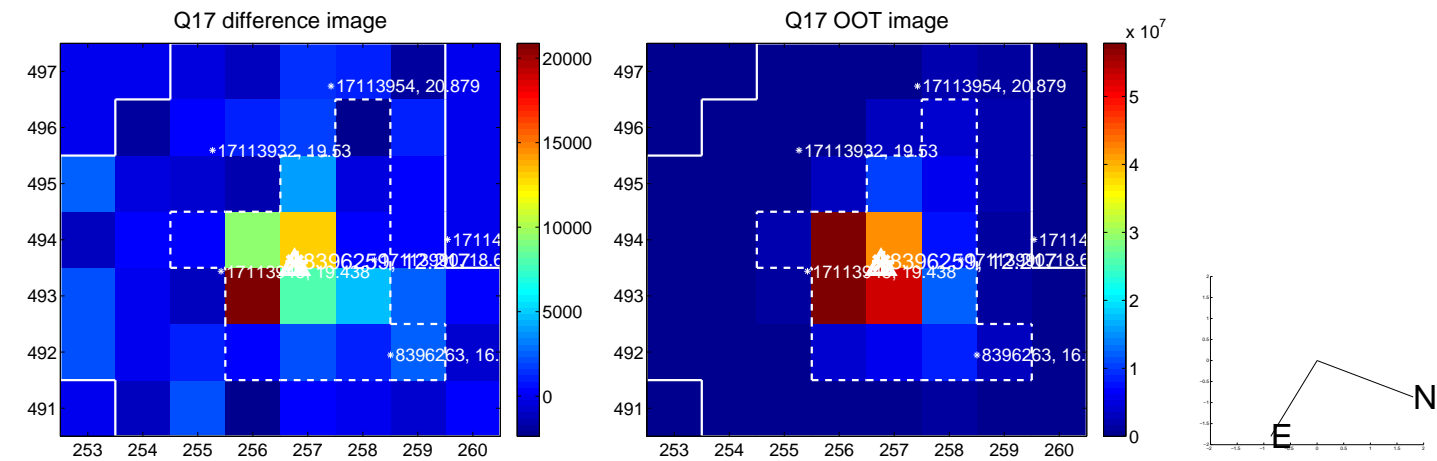
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

