

KIC 009655501

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})
009655501-01	OBS	No	1.194279	132.611445	45.4	3.418	11.2	11.8	2.50	7952	1.96	30071.51
009655501-02	OBS	No	0.597135	131.722223	25.9	2.817	9.8	9.2	2.50	7952	1.48	75776.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655501-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009655501-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

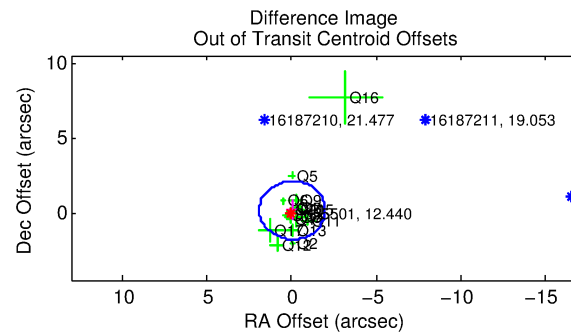
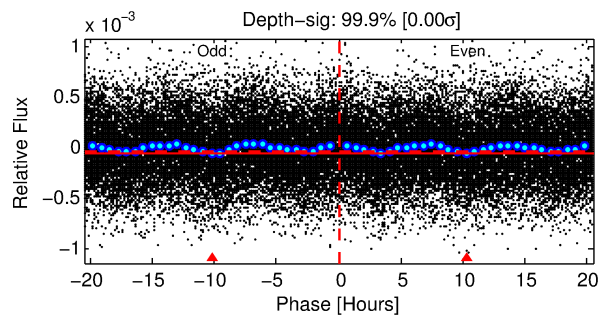
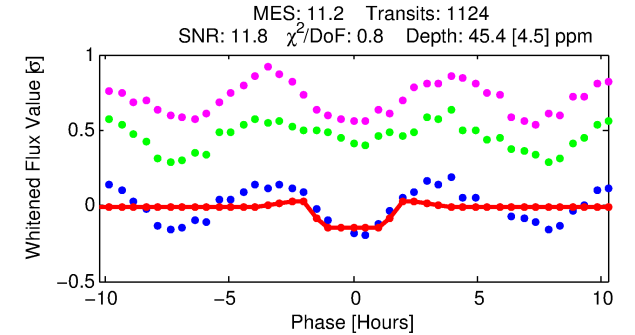
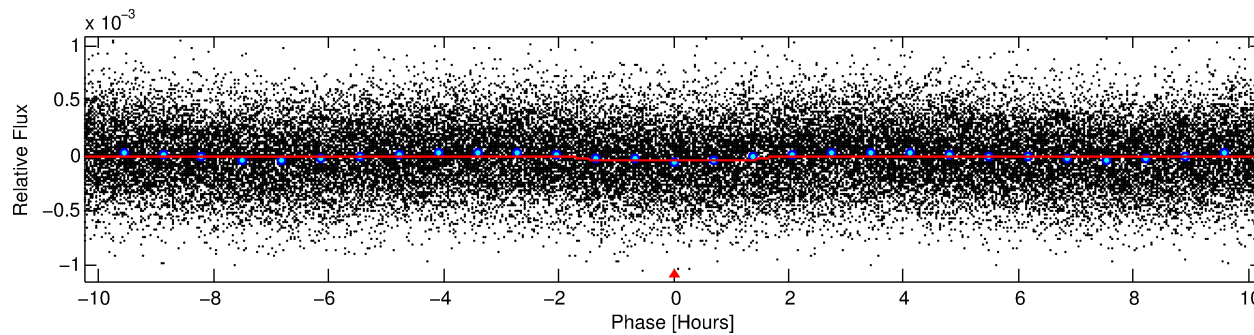
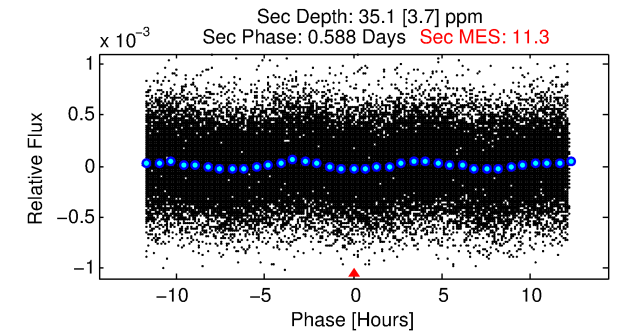
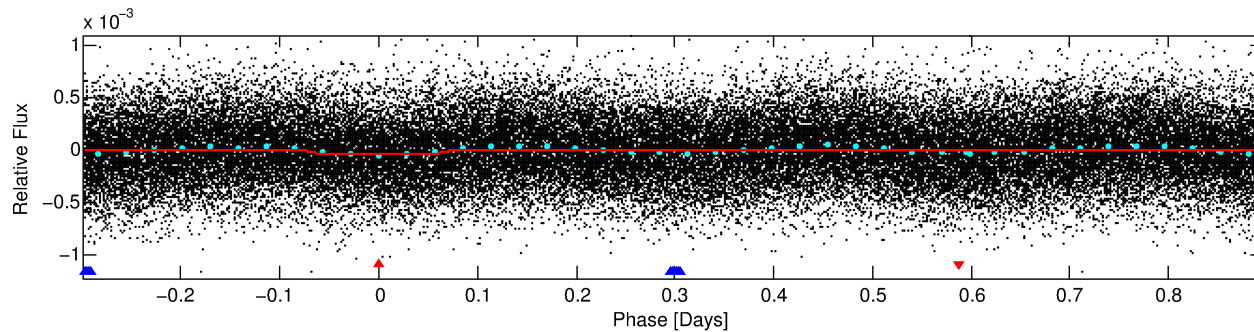
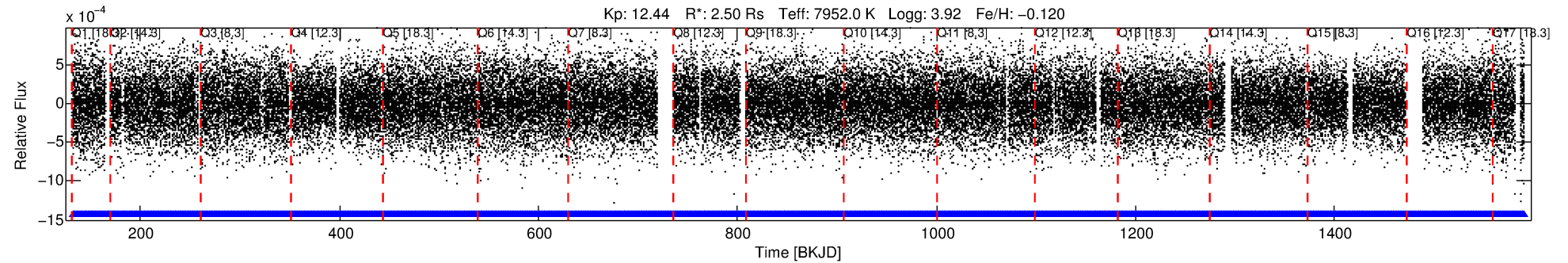
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655501-01

No Significant Match Found

DV One-Page Summary

KIC: 9655501 Candidate: 1 of 2 Period: 1.194 d



DV Fit Results:

Period = 1.19428 [0.00001] d
Epoch = 132.6114 [0.0031] BKJD
Rp/R* = 0.0072 [0.0023]
a/R* = 1.53 [1.77]
b = 0.90 [0.43]
Teff = 30071.51 [14816.79]
Teff = 3358 [414] K
Rp = 1.96 [0.91] Re
a = 0.0272 [0.0082] AU
Ag = 3.74 [3.02] [0.91σ]
Teffp = 7218 [1231] K [2.97σ]

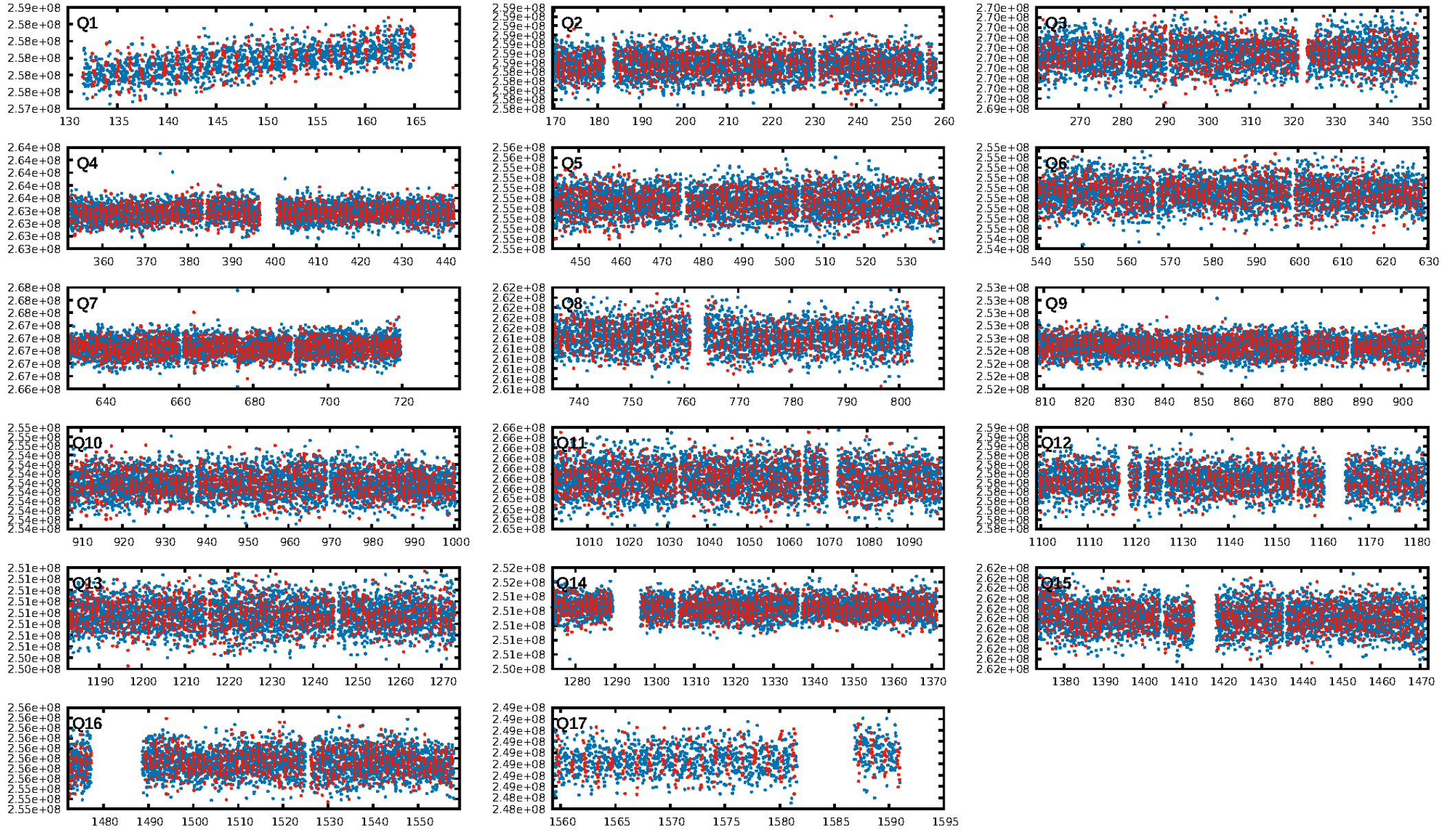
DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.24σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.07e-13
RollingBand-fgt: 1.00 [1073/1073]
GhostDiagnostic-chr: 15.58
Centroid-sig: 22.0%
Centroid-so: 0.342 arcsec [1.12σ]
OotOffset-rm: 0.157 arcsec [0.24σ]
KicOffset-rm: 0.141 arcsec [0.25σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.00 [0/17]

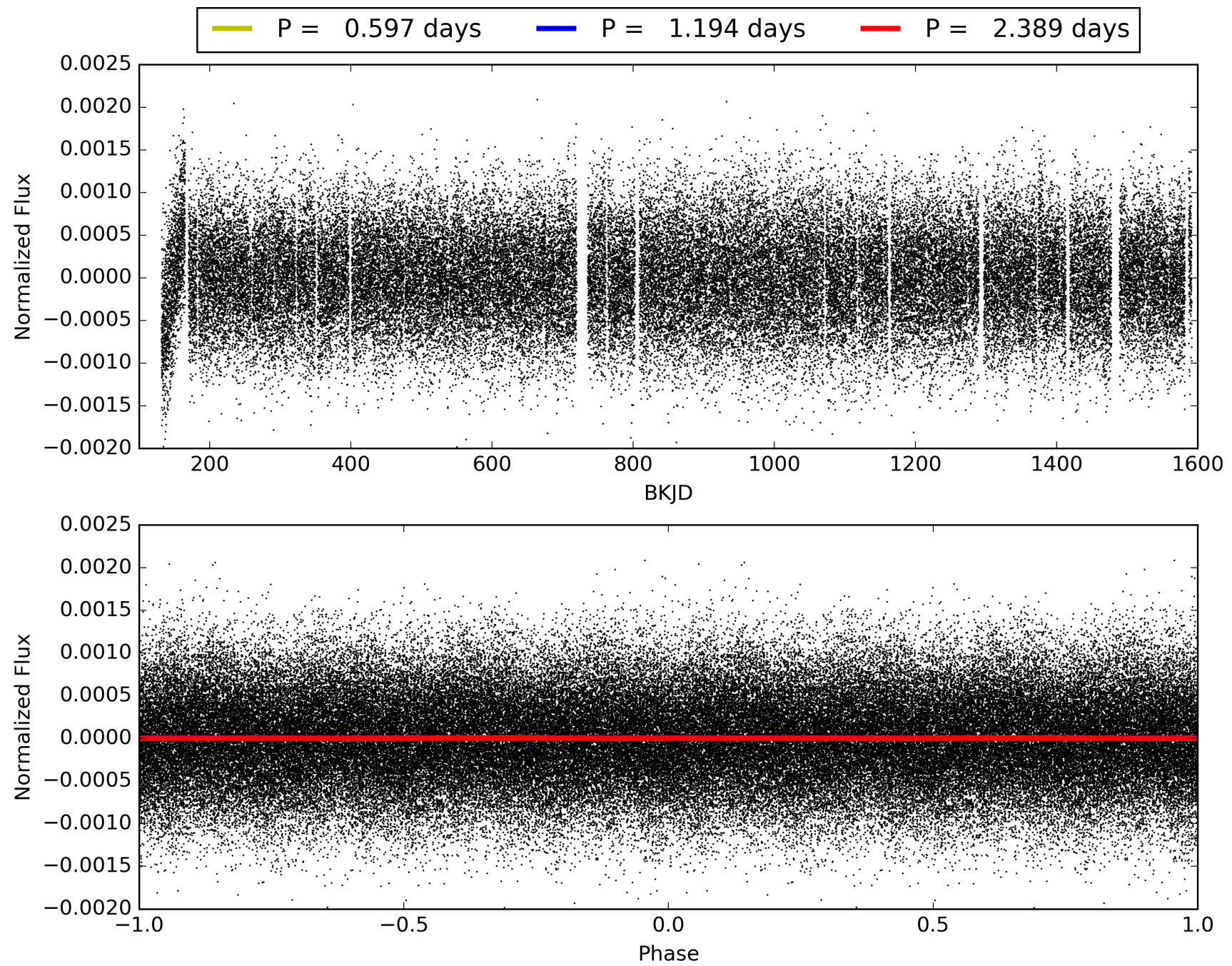
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:47:20 Z

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

TCE 009655501-01, PDC Light Curves

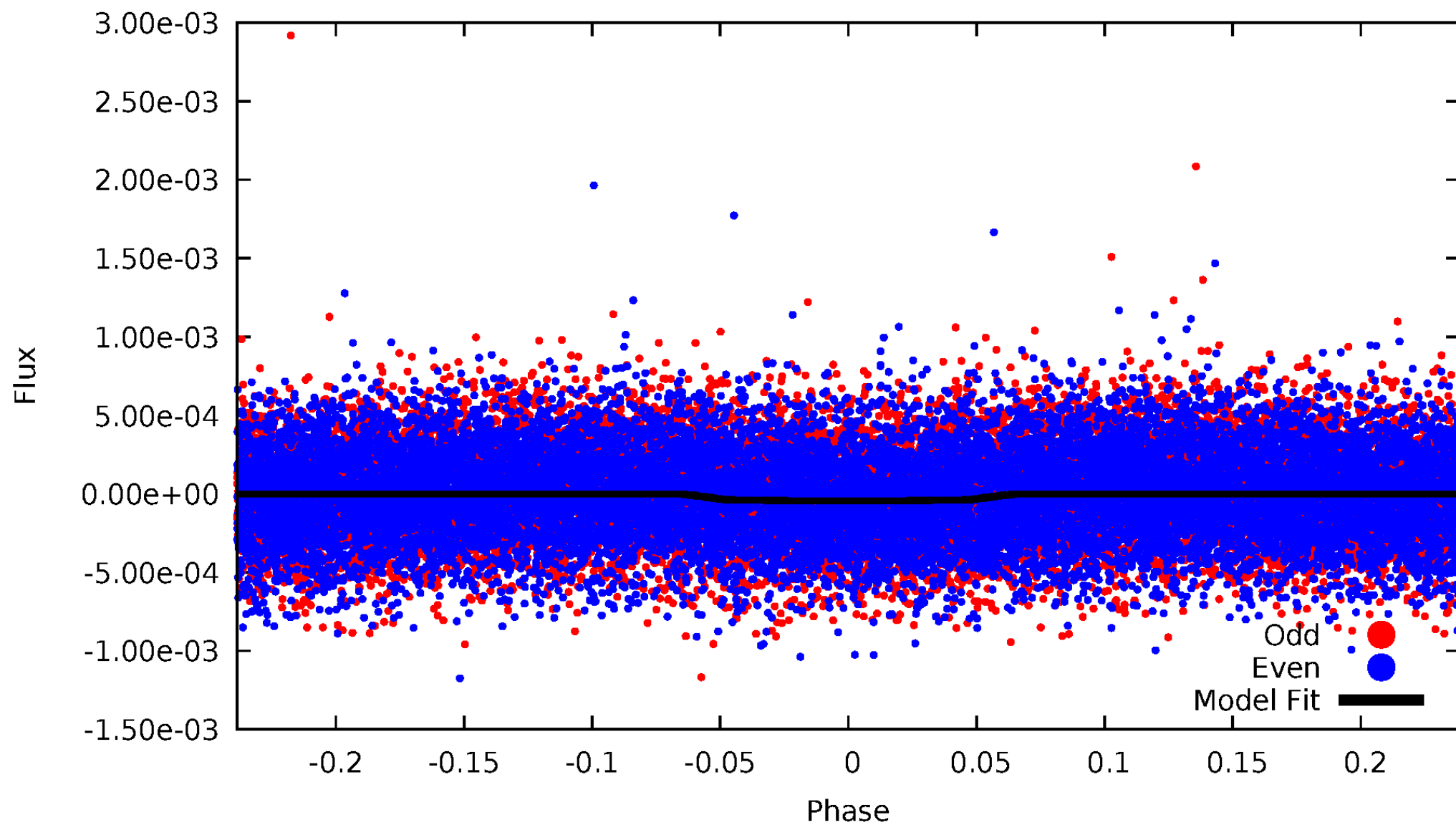


TCE 009655501-01



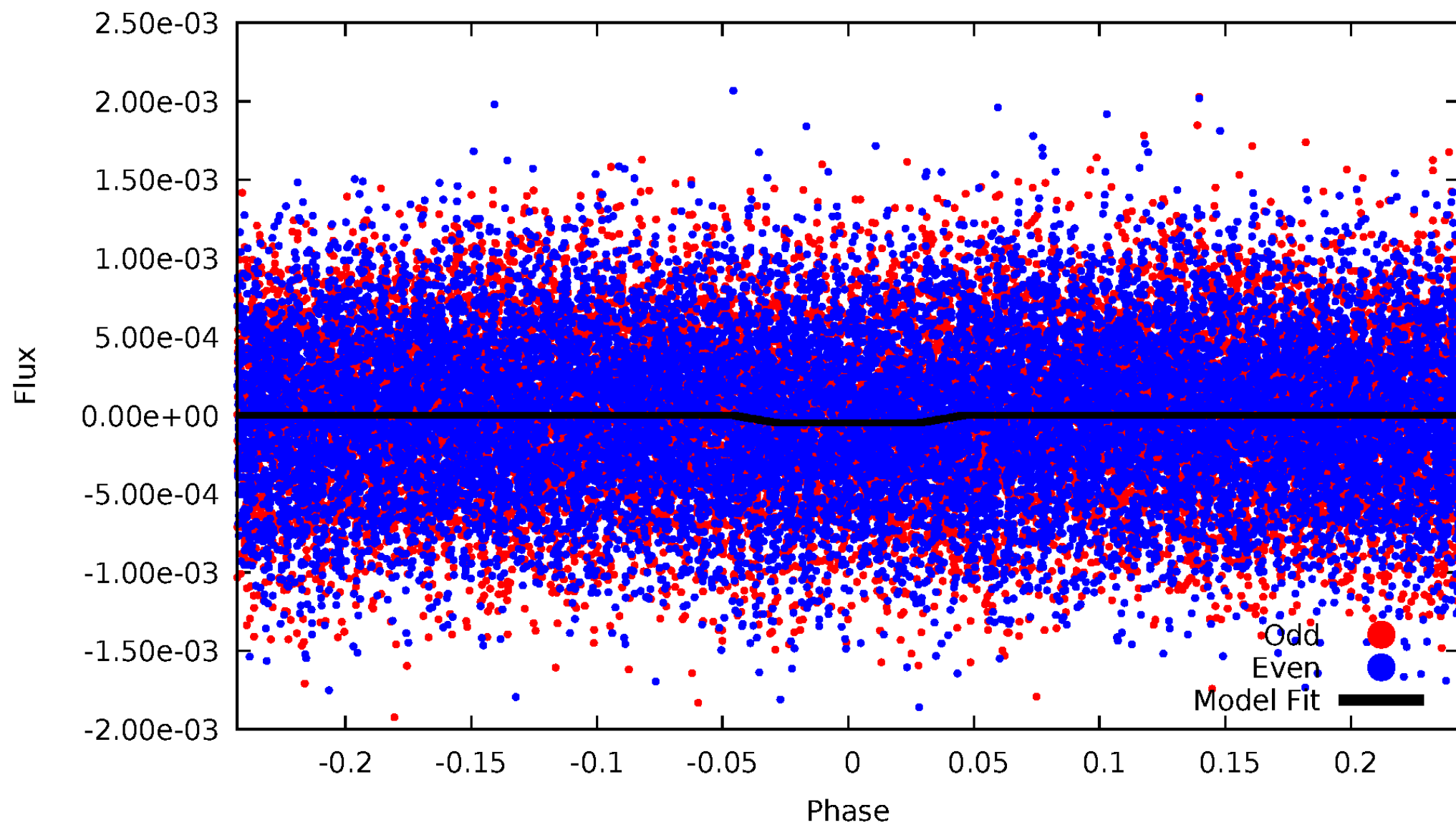
DV Odd/Even

TCE 009655501-01



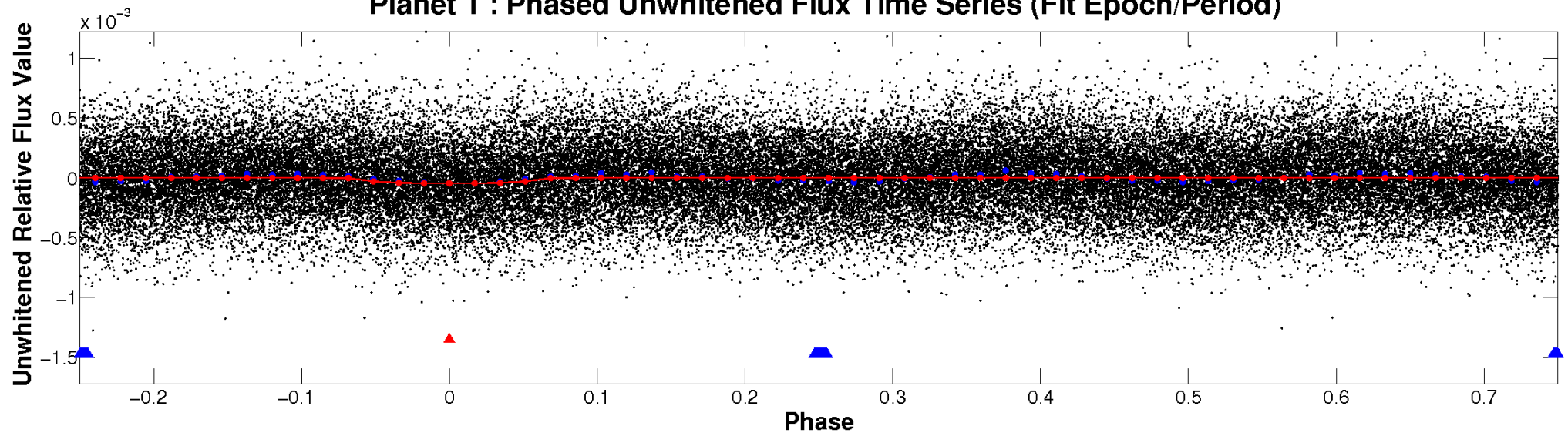
ALT Odd/Even

TCE 009655501-01

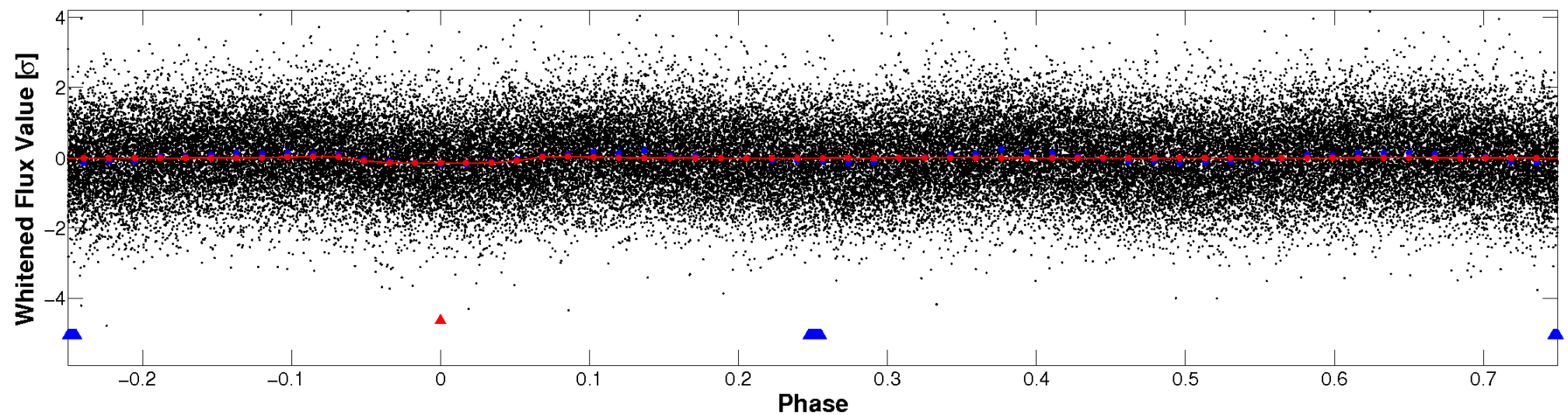


Non-Whitened Vs. Whitened Light Curve

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

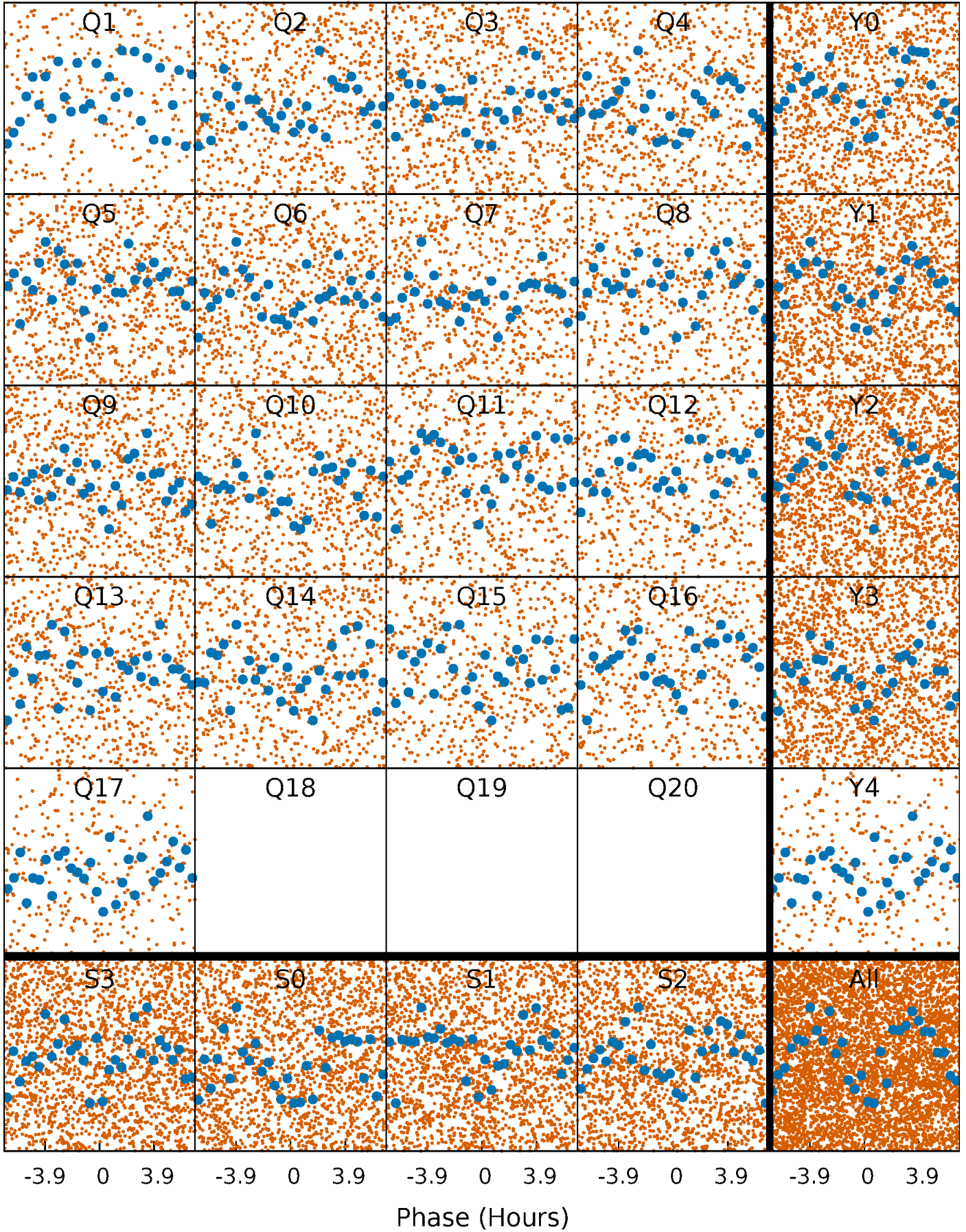


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



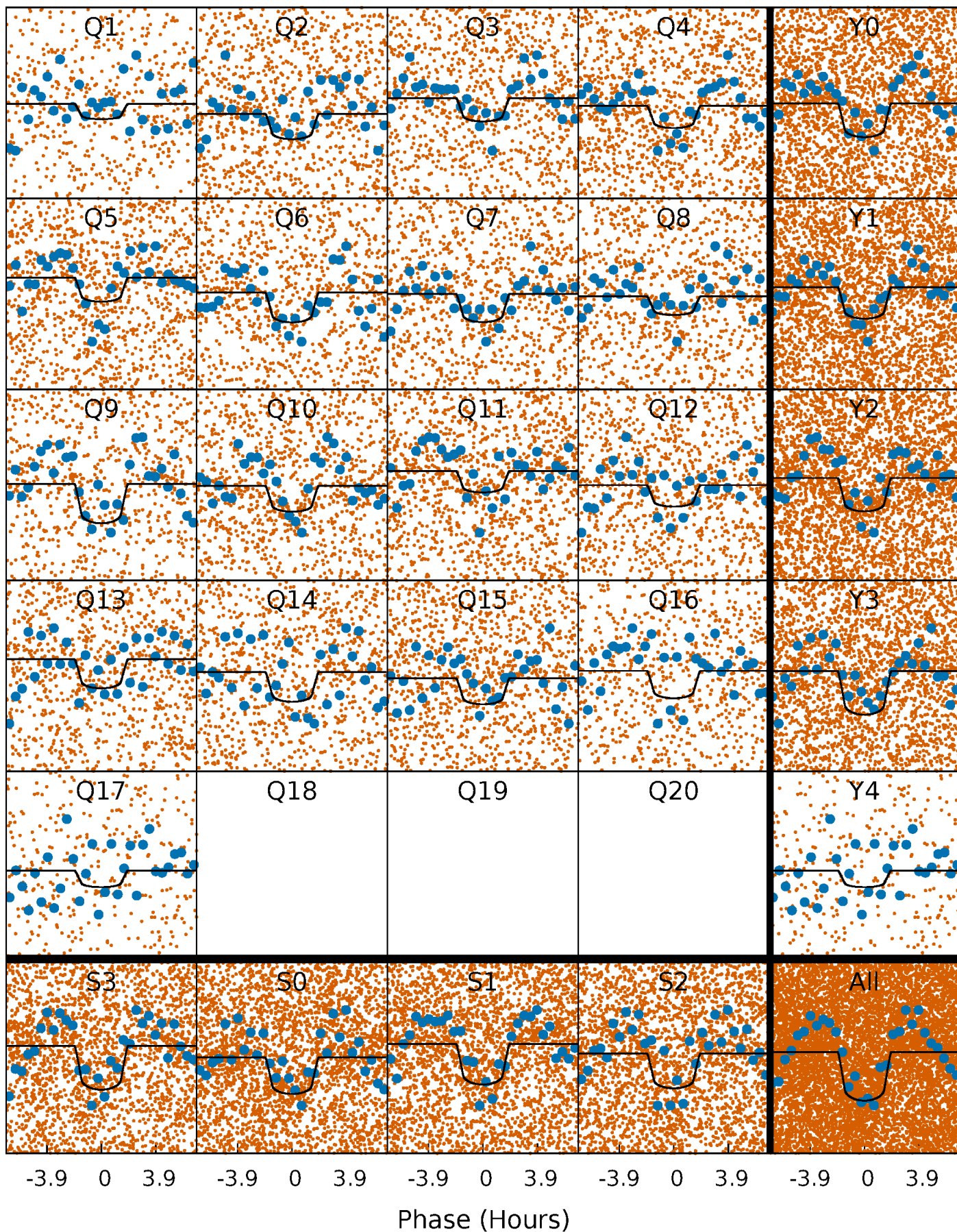
PDC Quarter-Phased Transit Curves

TCE 009655501-01 P= 1.194279 Days $T_0=132.611445$ (BKJD)



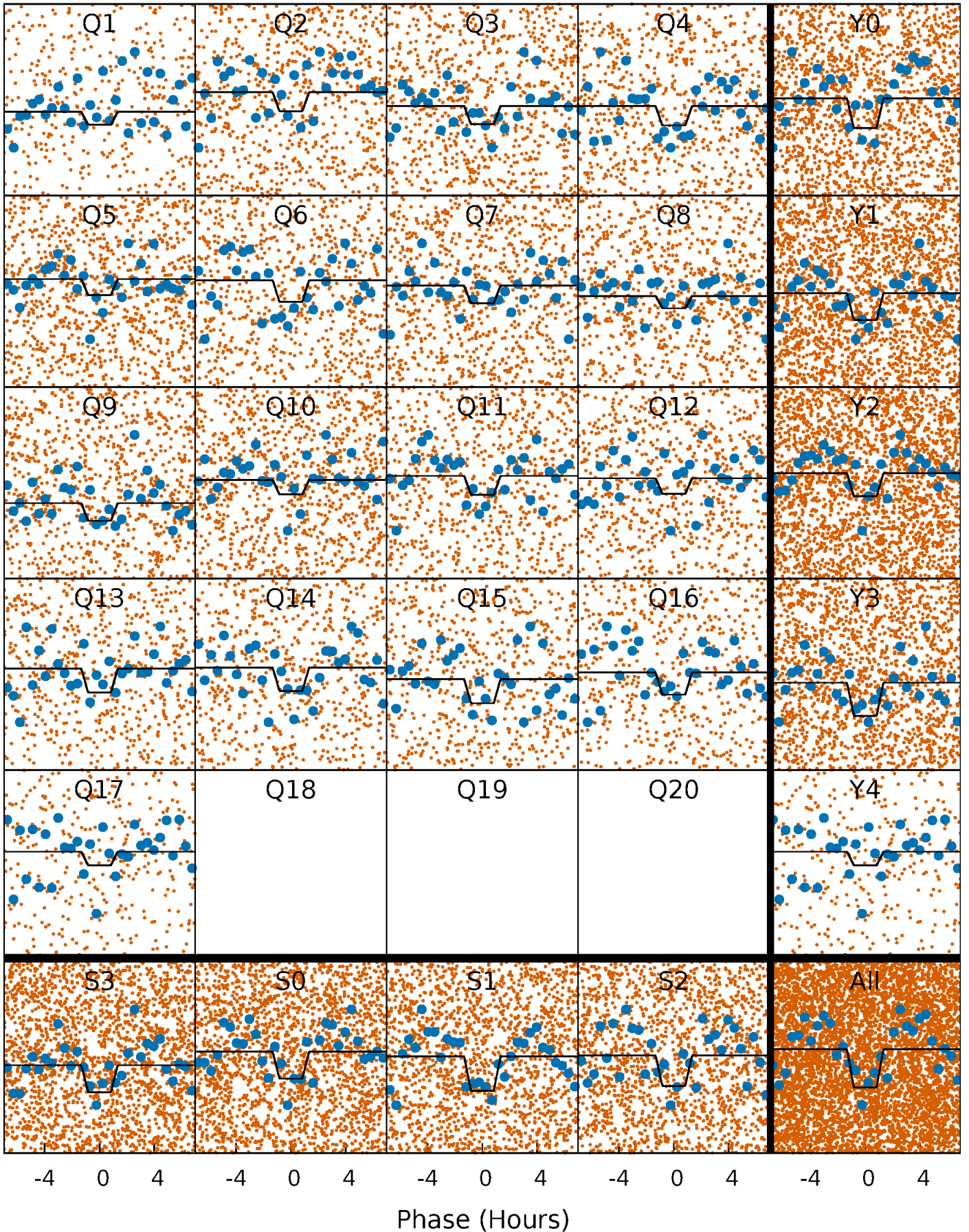
DV Quarter-Phased Transit Curves

TCE 009655501-01 P= 1.194279 Days $T_0=132.611445$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

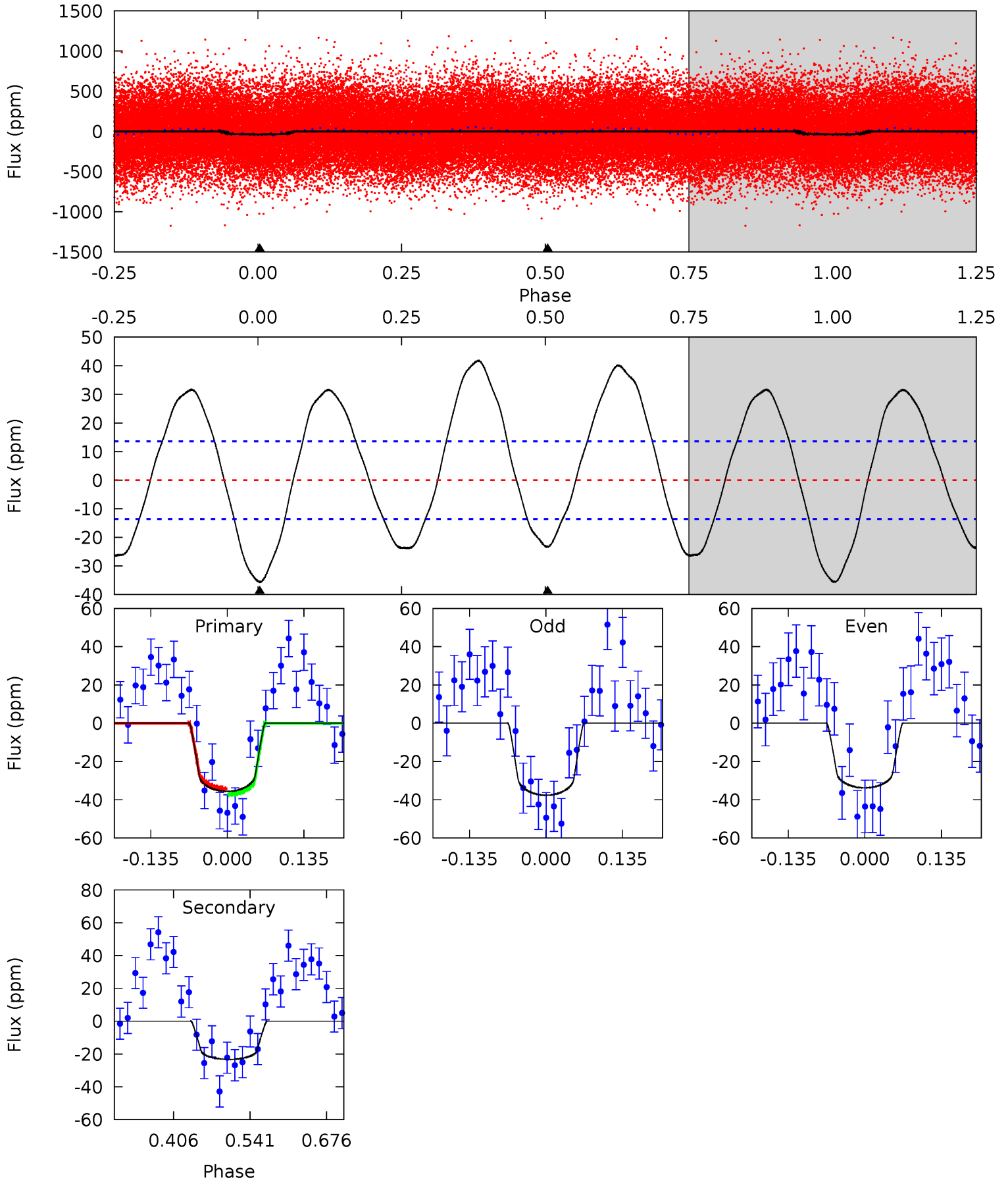
TCE 009655501-01 P= 1.194292 Days $T_0=132.607073$ (BKJD)



DV Model-Shift Uniqueness Test

009655501-01, P = 1.194279 Days, E = 131.417166 Days

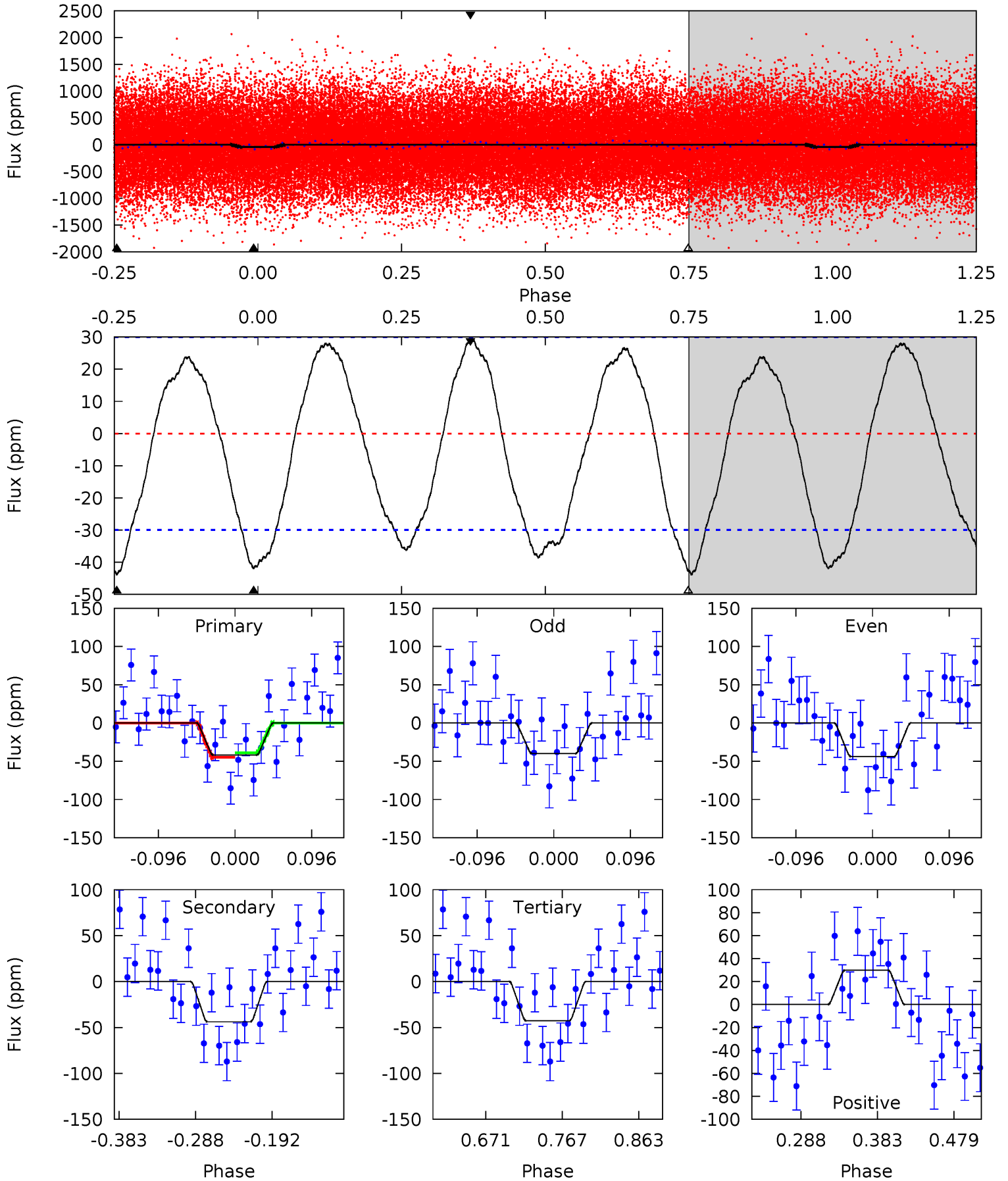
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	7.73	0	0	4.50	1.49	6.79	11.8	11.8	7.73	7.73	0.64	1.12	0.54	0.45



Alt Model-Shift Uniqueness Test

009655501-01, P = 1.194292 Days, E = 131.412781 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.40	6.69	6.51	4.56	4.57	1.67	3.53	-0.12	1.84	0.18	2.13	0.28	1.02	0.41	0.47



Stellar Parameters For KIC 009655501

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7952^{+220}_{-331}	$3.920^{+0.266}_{-0.114}$	$-0.120^{+0.200}_{-0.300}$	$2.496^{+0.443}_{-0.823}$	$1.890^{+0.103}_{-0.388}$	$0.171^{+0.293}_{-0.059}$
	+3%/-4%	+7%/-3%	+167%/-250%	+18%/-33%	+5%/-21%	+171%/-35%
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 009655501-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-23 ± 3	$1.86^{+0.69}_{-0.65}$	4644^{+302}_{-407}	6157^{+1728}_{-954}	$2.758^{+3.513}_{-1.381}$
Alt.	-44 ± 7	$1.78^{+0.69}_{-0.60}$	4611^{+298}_{-376}	7504^{+2392}_{-1194}	$5.468^{+6.517}_{-2.694}$

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 $A_{obs} \gg 1.0$

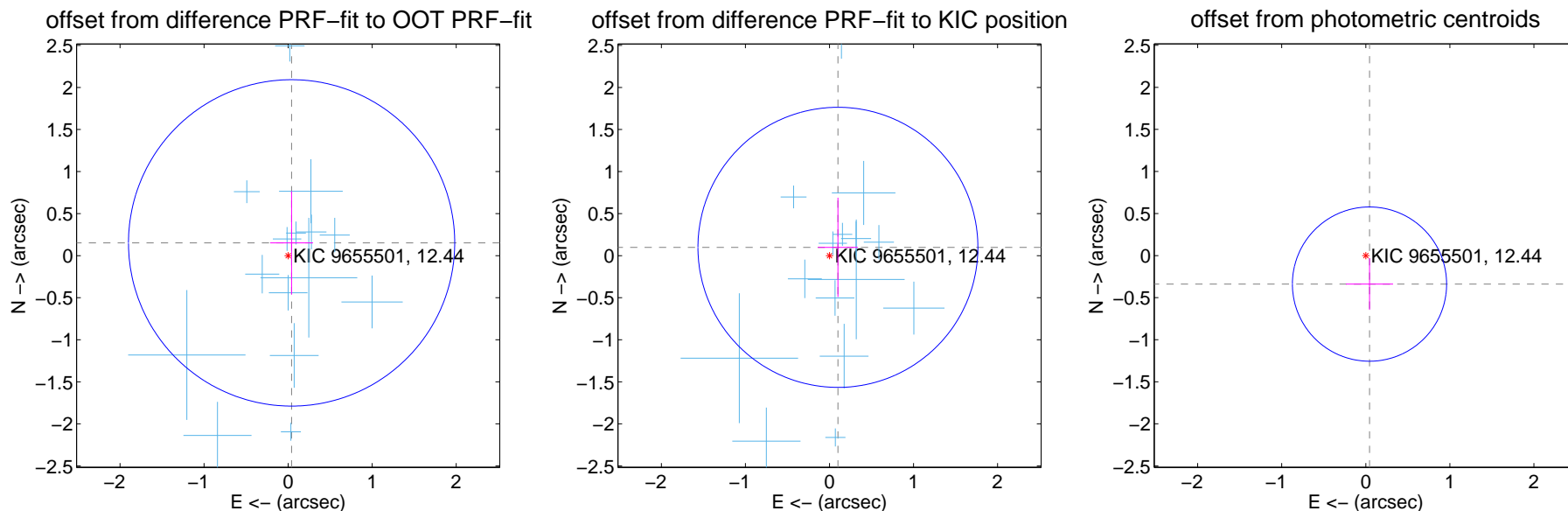
DV Centroid Data

Supplemental centroid analysis for 009655501-01. Kepler magnitude: 12.44. Transit SNR 11.76

There are 15 quarters with good PRF difference image offsets

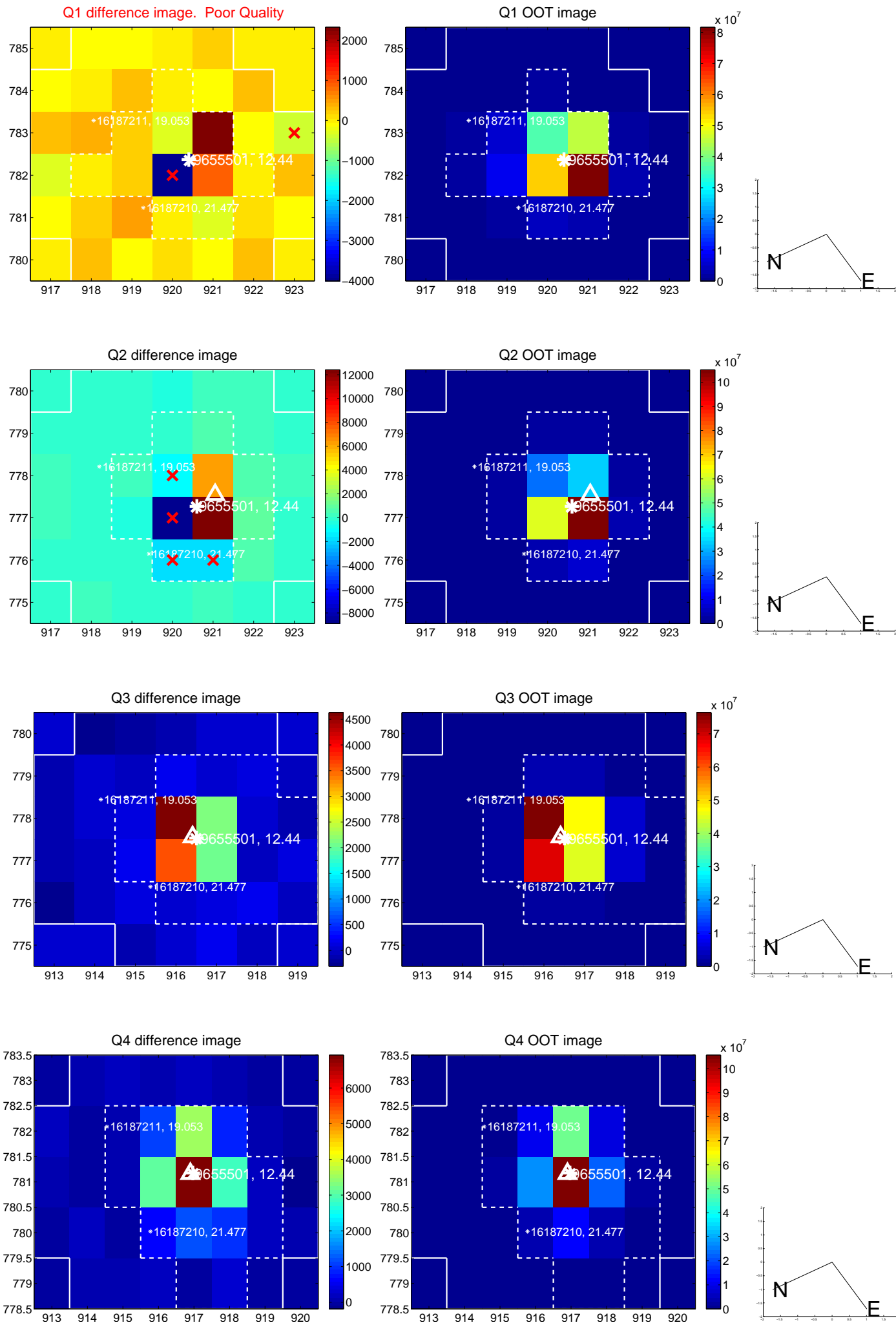
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.157 ± 0.647	0.24	-0.041 ± 0.255	0.152 ± 0.615
PRF-fit source offset from KIC position	0.141 ± 0.555	0.25	-0.100 ± 0.238	0.099 ± 0.590
photometric centroid source offset	0.34 ± 0.31	1.12	-0.04 ± 0.28	-0.34 ± 0.31

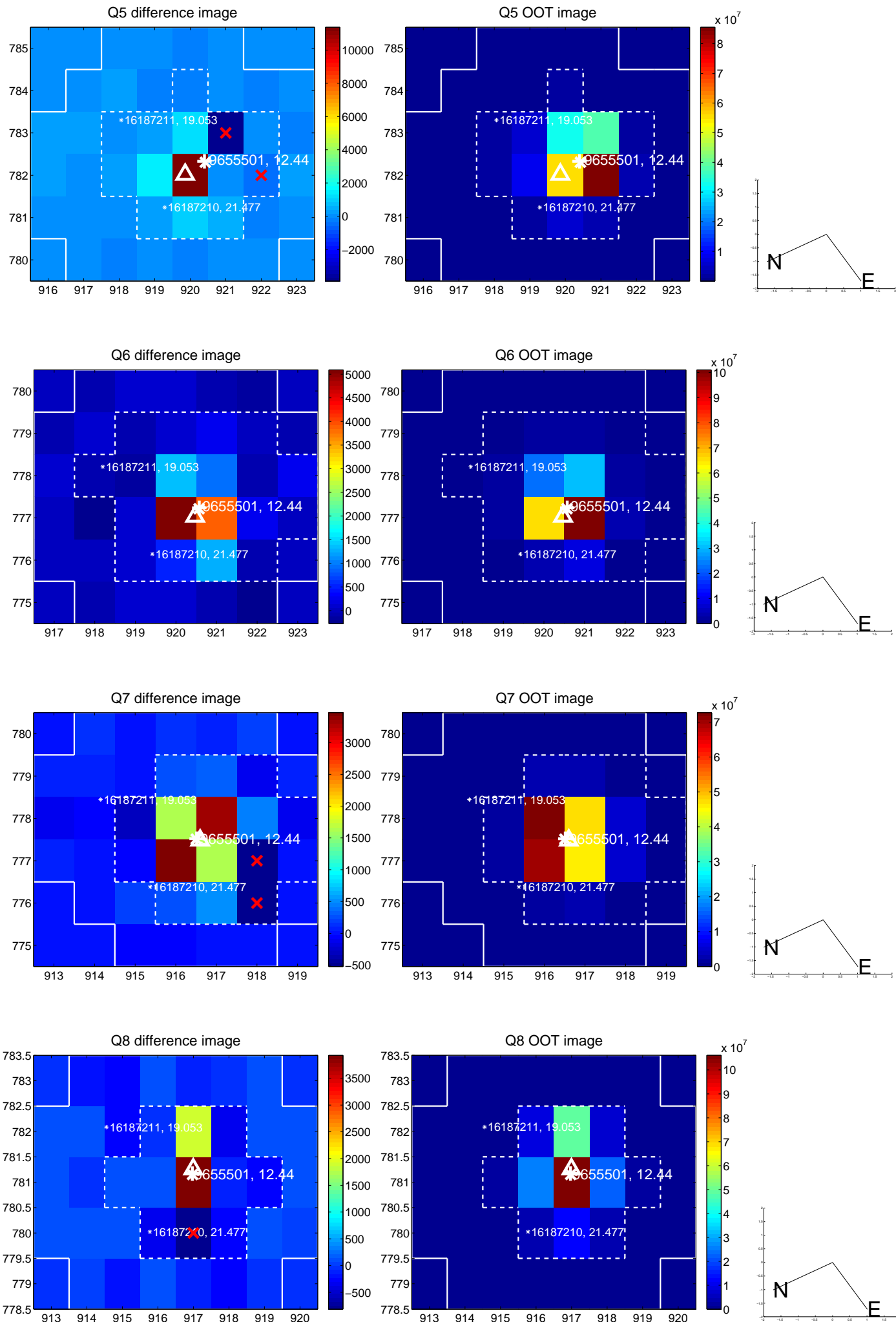


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

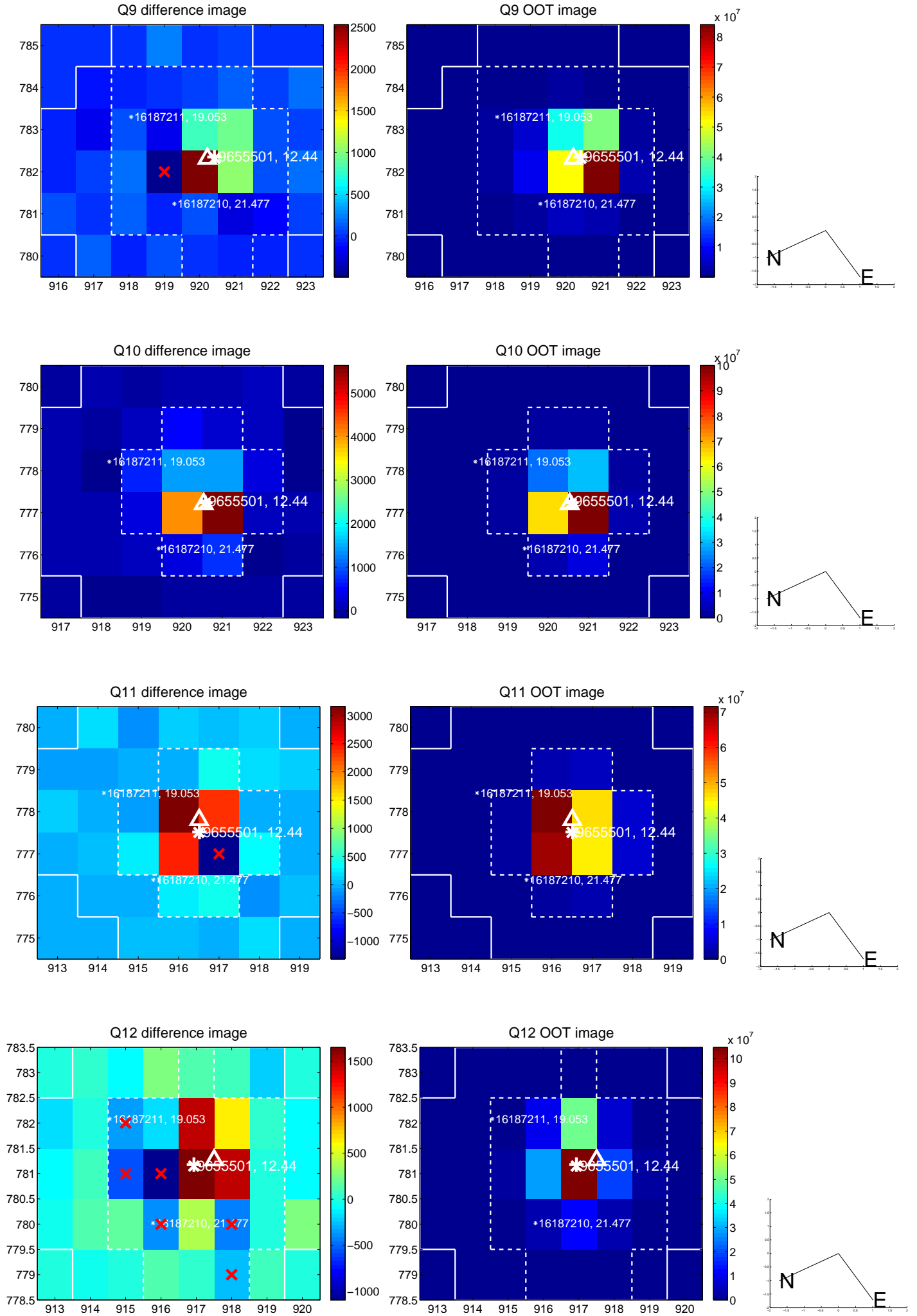
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



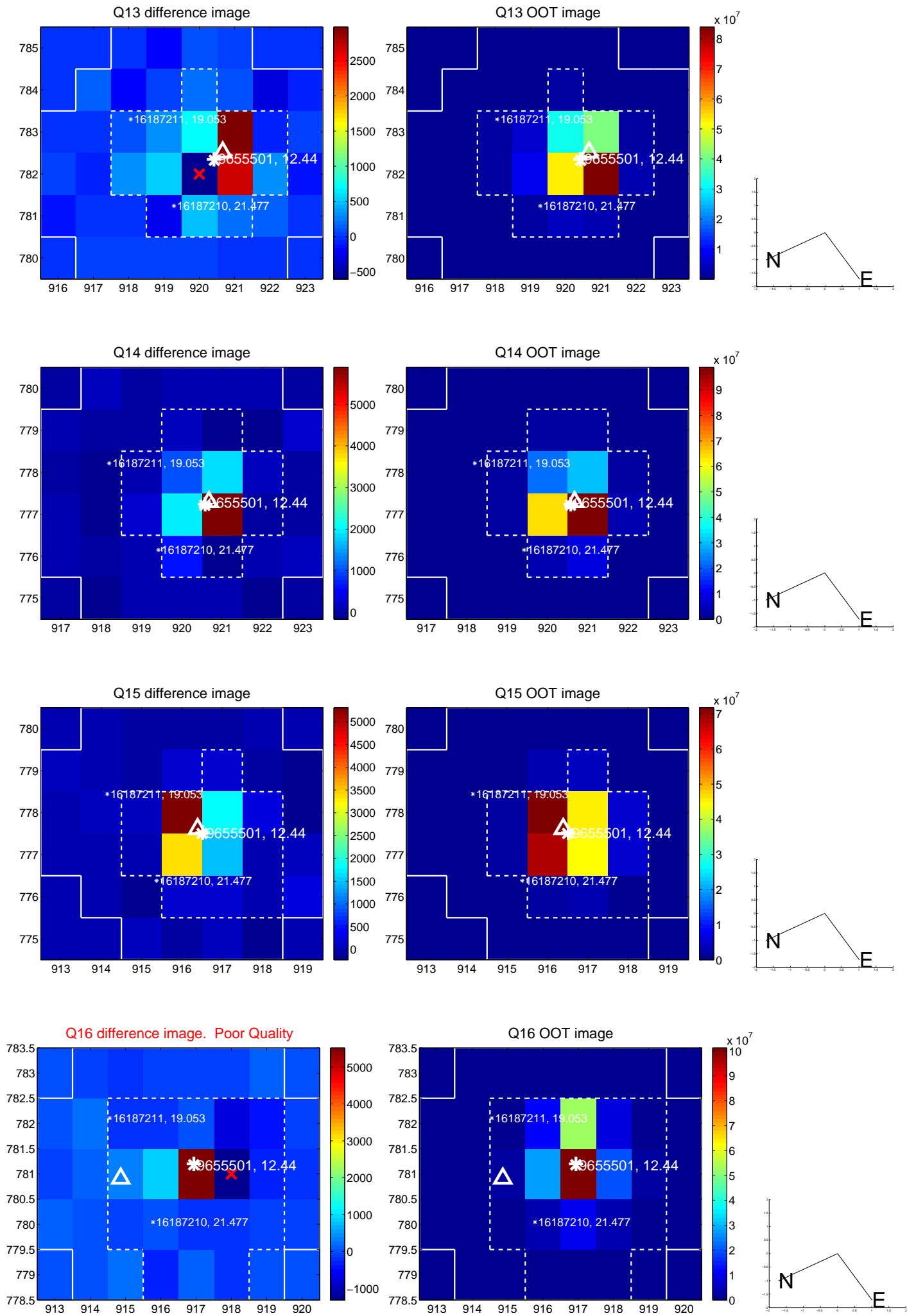
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



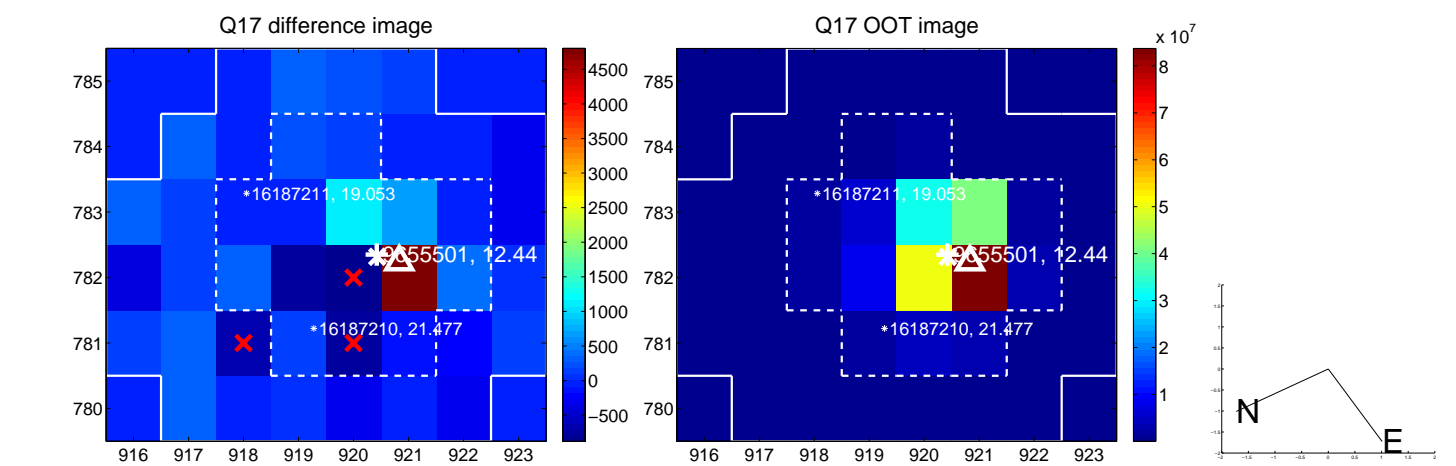
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



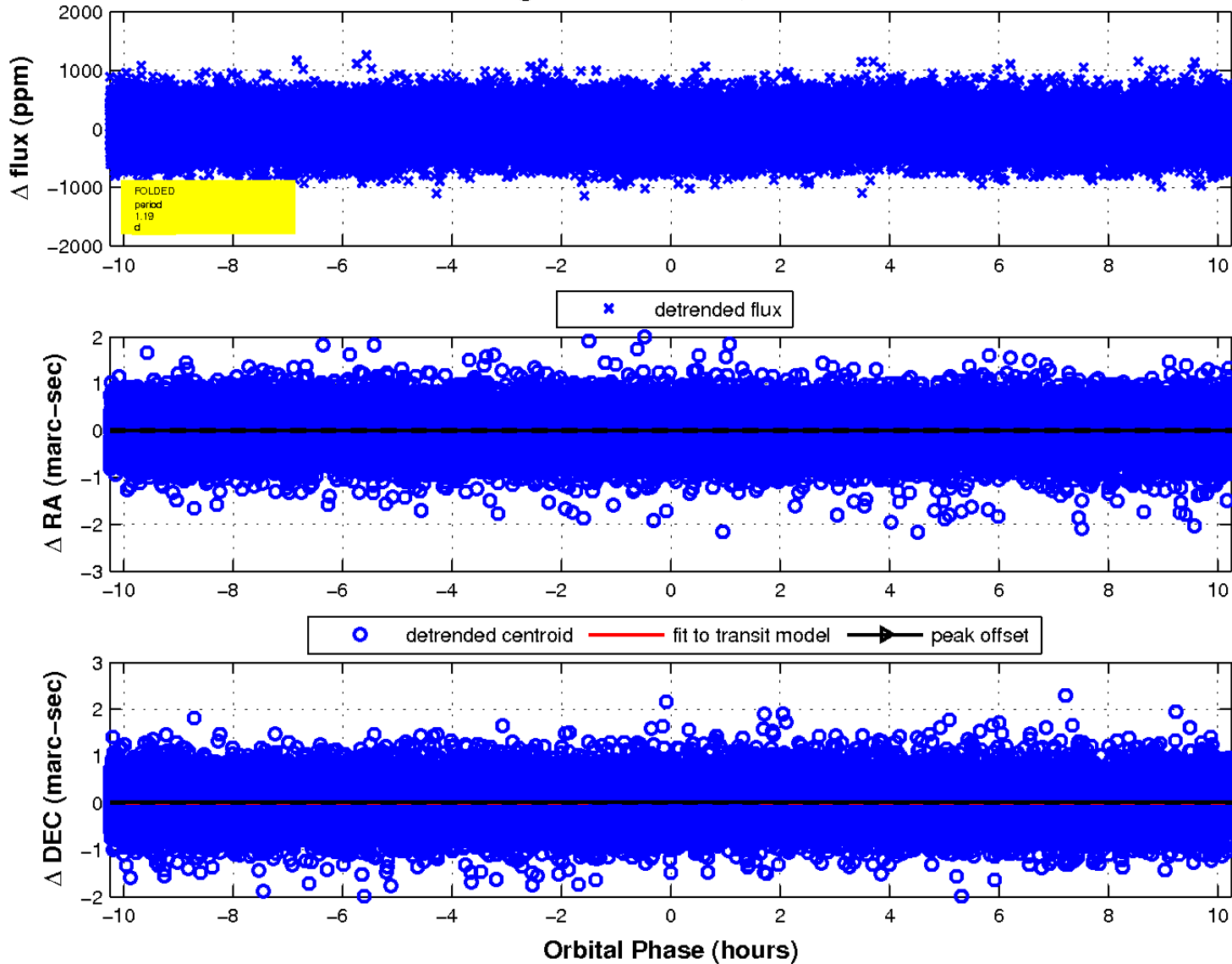
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

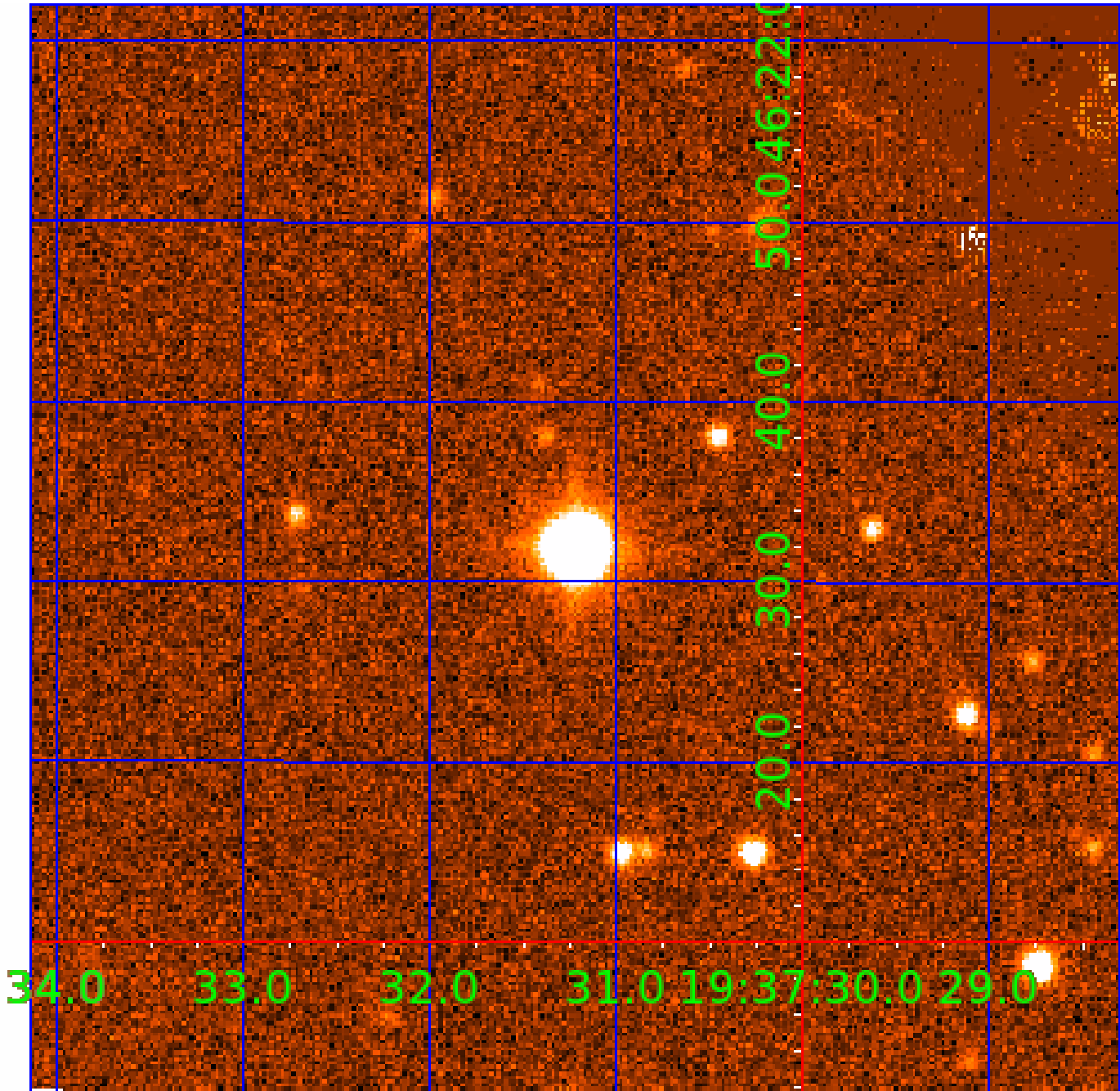


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009655501

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})
009655501-01	OBS	No	1.194279	132.611445	45.4	3.418	11.2	11.8	2.50	7952	1.96	30071.51
009655501-02	OBS	No	0.597135	131.722223	25.9	2.817	9.8	9.2	2.50	7952	1.48	75776.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655501-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009655501-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

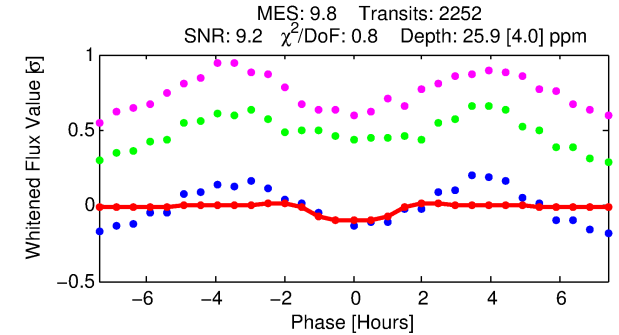
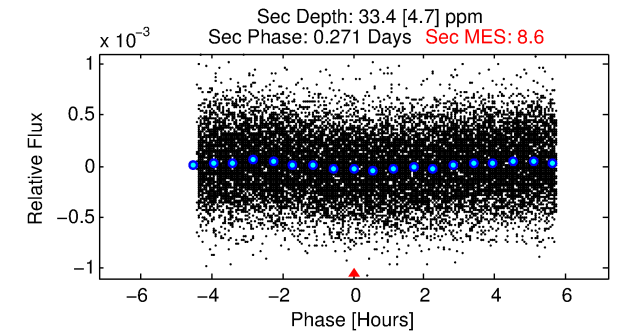
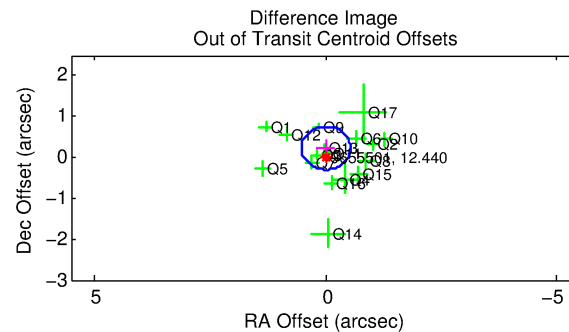
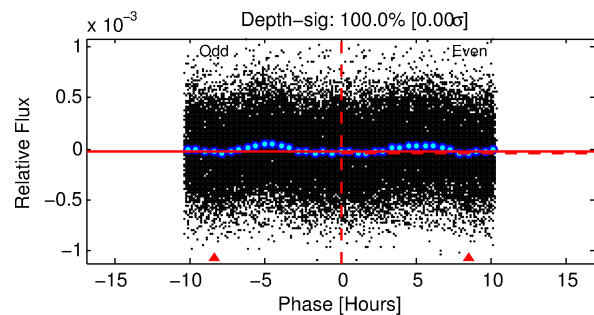
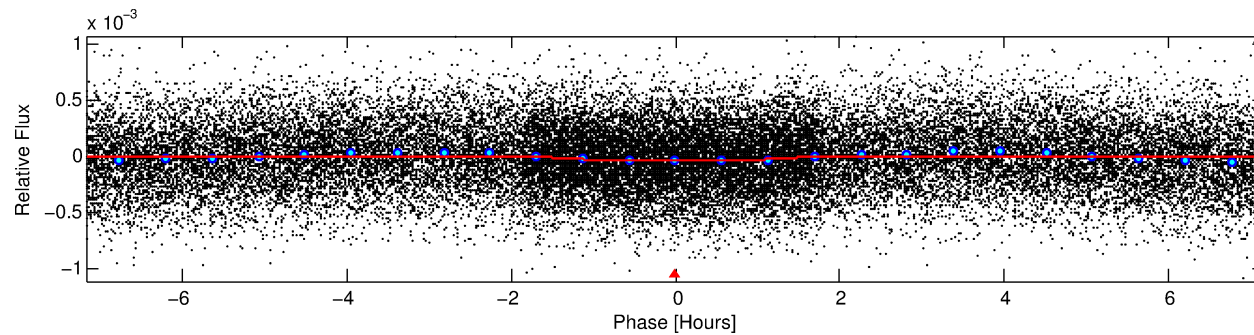
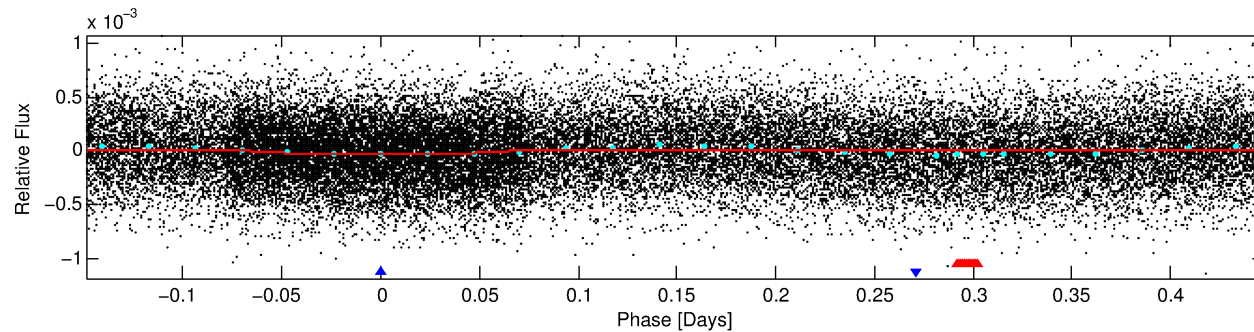
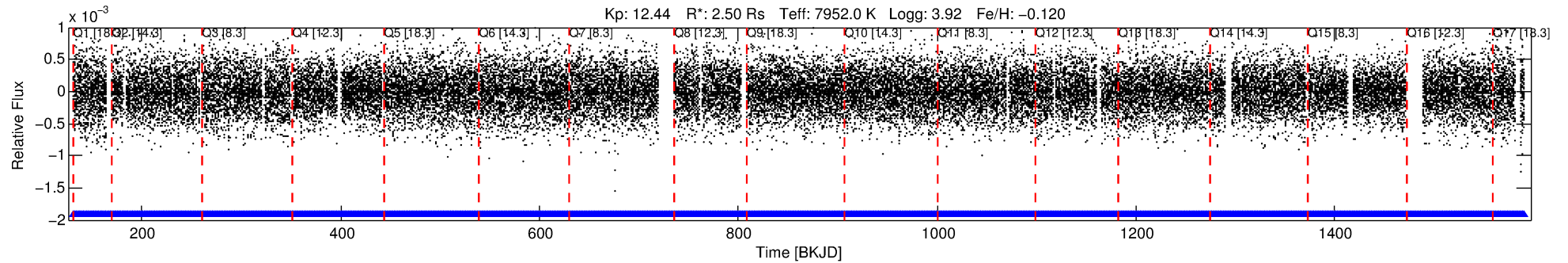
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655501-02

No Significant Match Found

DV One-Page Summary

KIC: 9655501 Candidate: 2 of 2 Period: 0.597 d



DV Fit Results:

Period = 0.59714 [0.00001] d
Epoch = 131.7222 [0.0035] BKJD
Rp/R* = 0.0054 [0.0024]
a/R* = 1.19 [0.93]
b = 0.90 [0.58]
Seff = 75776.16 [37336.31]
Teq = 4231 [521] K
Rp = 1.48 [0.80] Re
a = 0.0172 [0.0051] AU
Ag = 2.48 [2.46] [0.60σ]
Teffp = 8210 [1834] K [2.09σ]

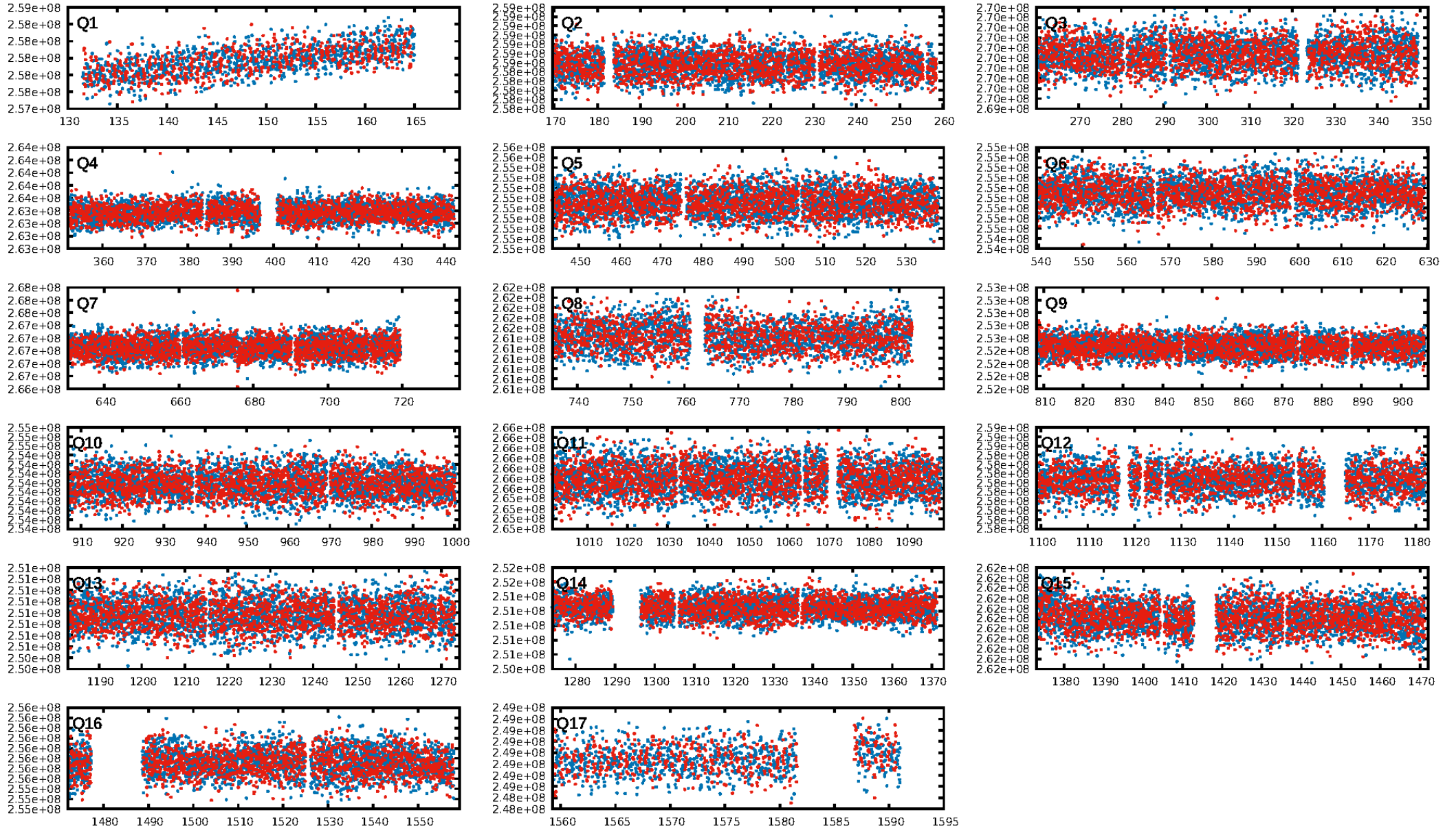
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.9% [3.24σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.19e-11
RollingBand-fgt: 1.00 [2151/2151]
GhostDiagnostic-chr: 1.565
Centroid-sig: 0.5%
Centroid-so: 0.843 arcsec [2.10σ]
OotOffset-rm: 0.228 arcsec [1.30σ]
KicOffset-rm: 0.198 arcsec [1.18σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

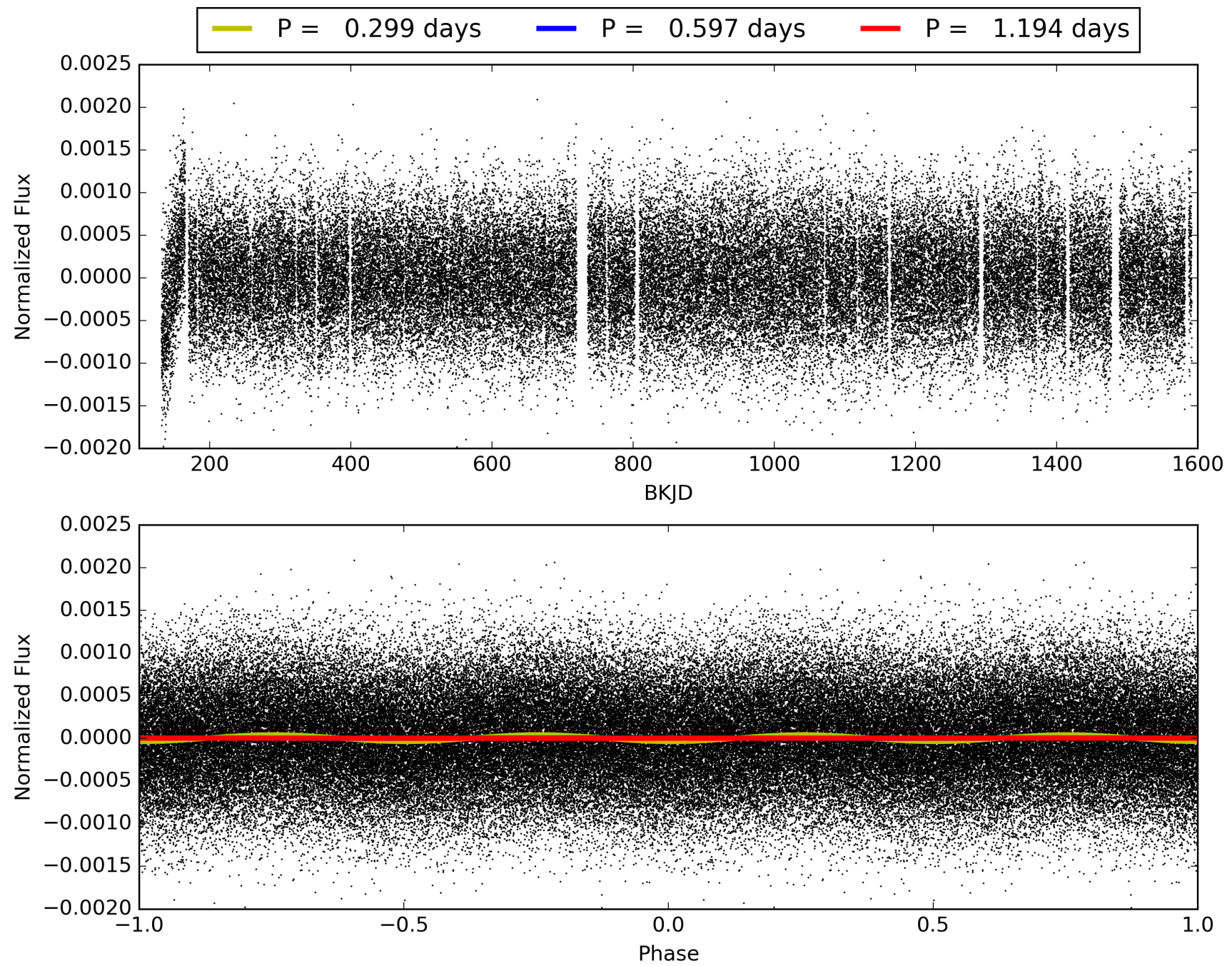
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 09:47:32 Z

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

TCE 009655501-02, PDC Light Curves

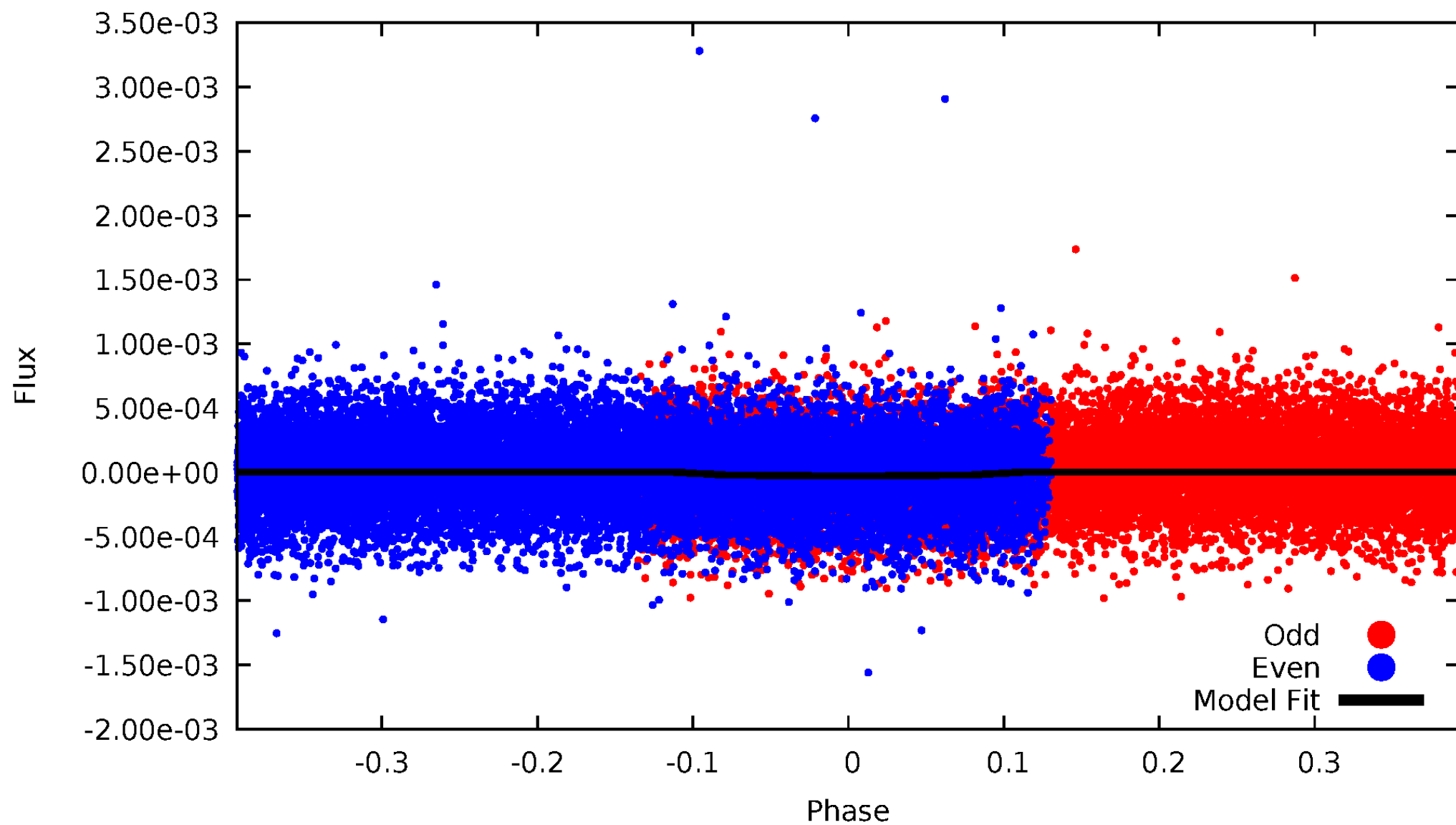


TCE 009655501-02



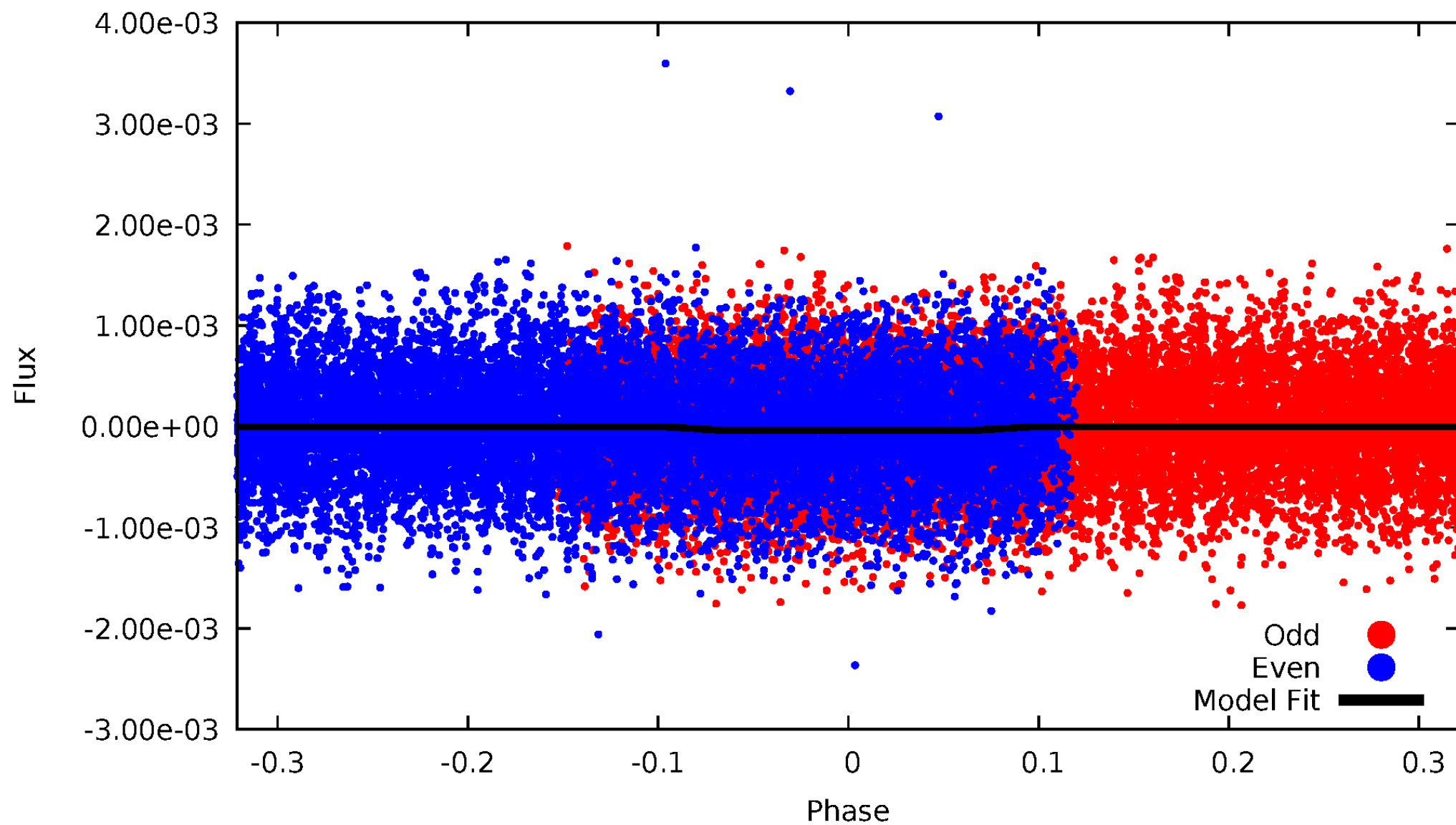
DV Odd/Even

TCE 009655501-02



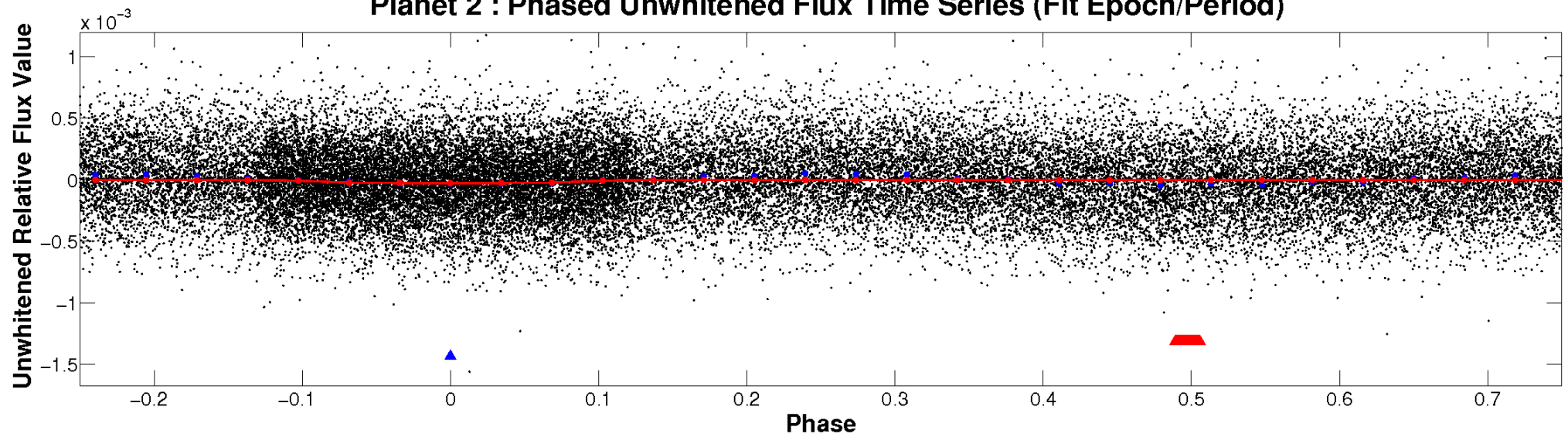
ALT Odd/Even

TCE 009655501-02

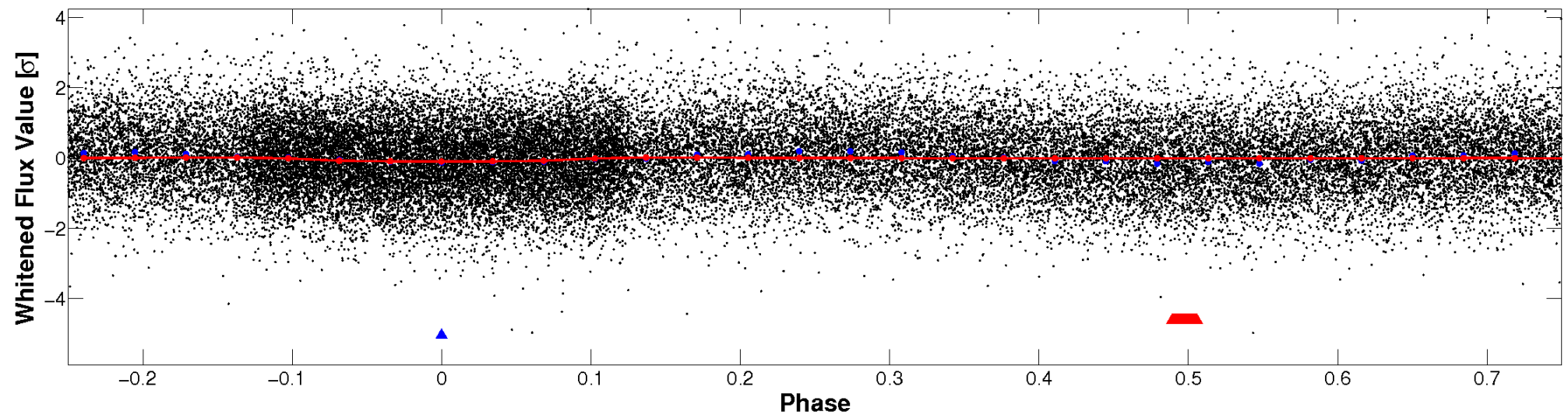


Non-Whitened Vs. Whitened Light Curve

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

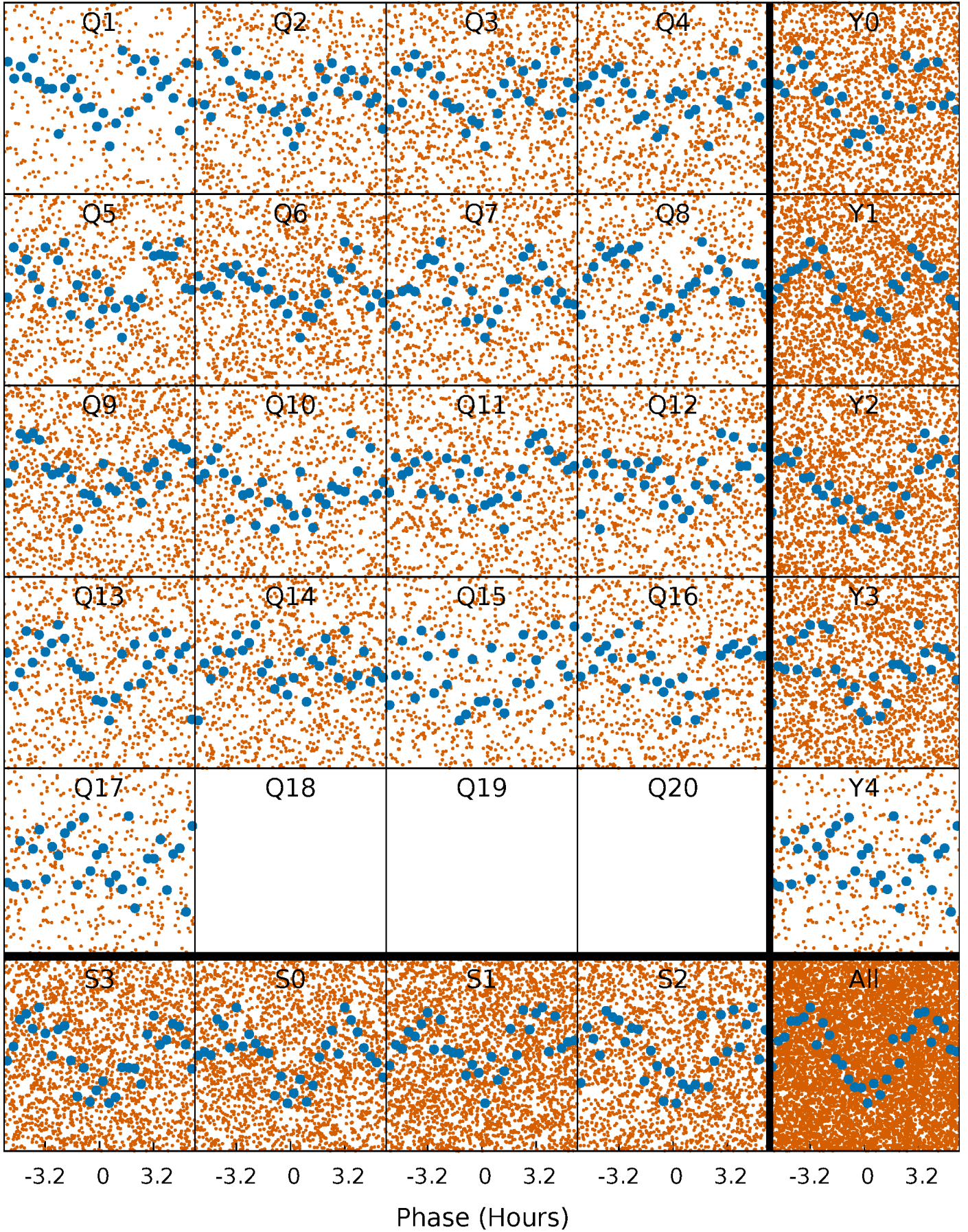


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



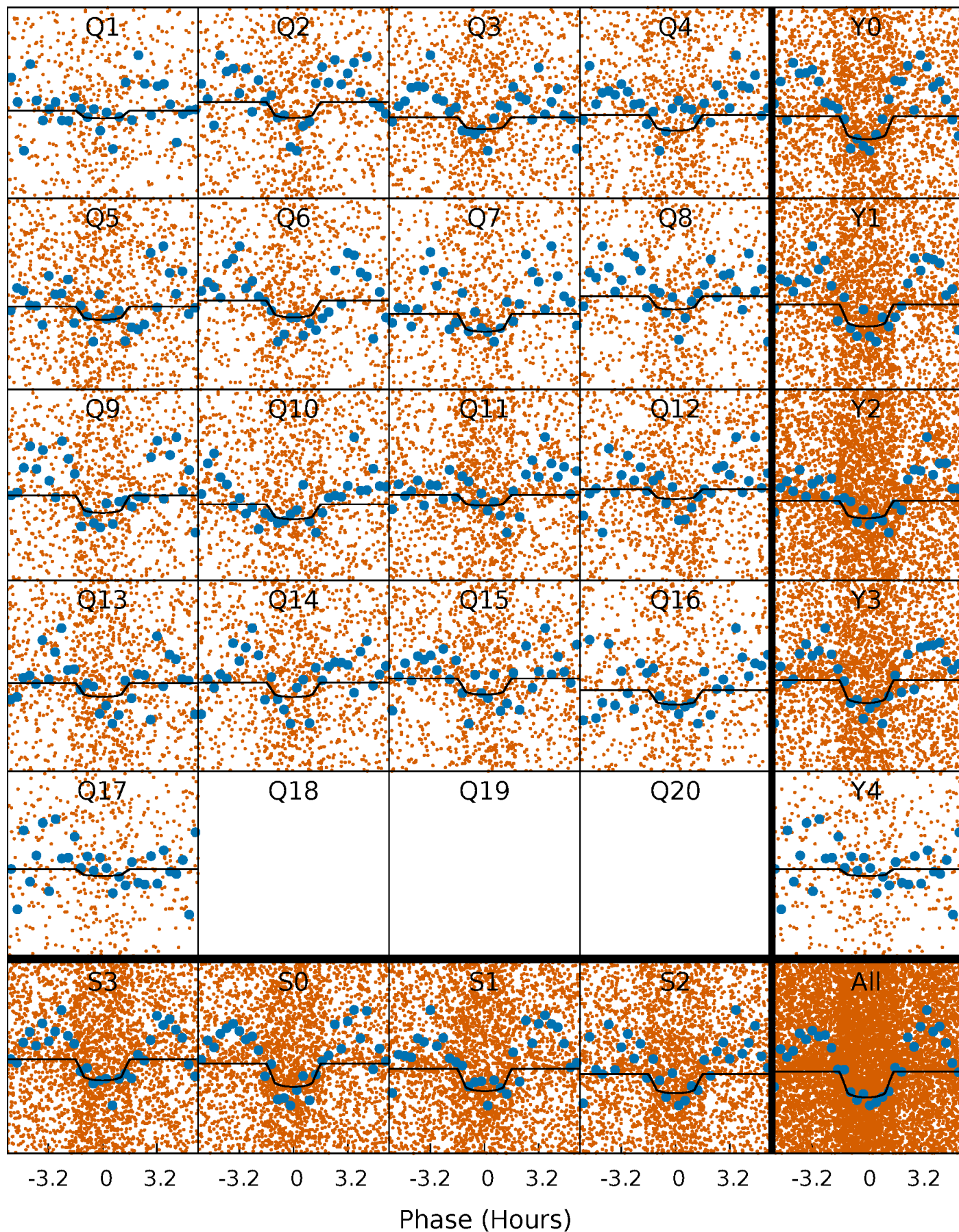
PDC Quarter-Phased Transit Curves

TCE 009655501-02 P= 0.597135 Days $T_0=131.722223$ (BKJD)



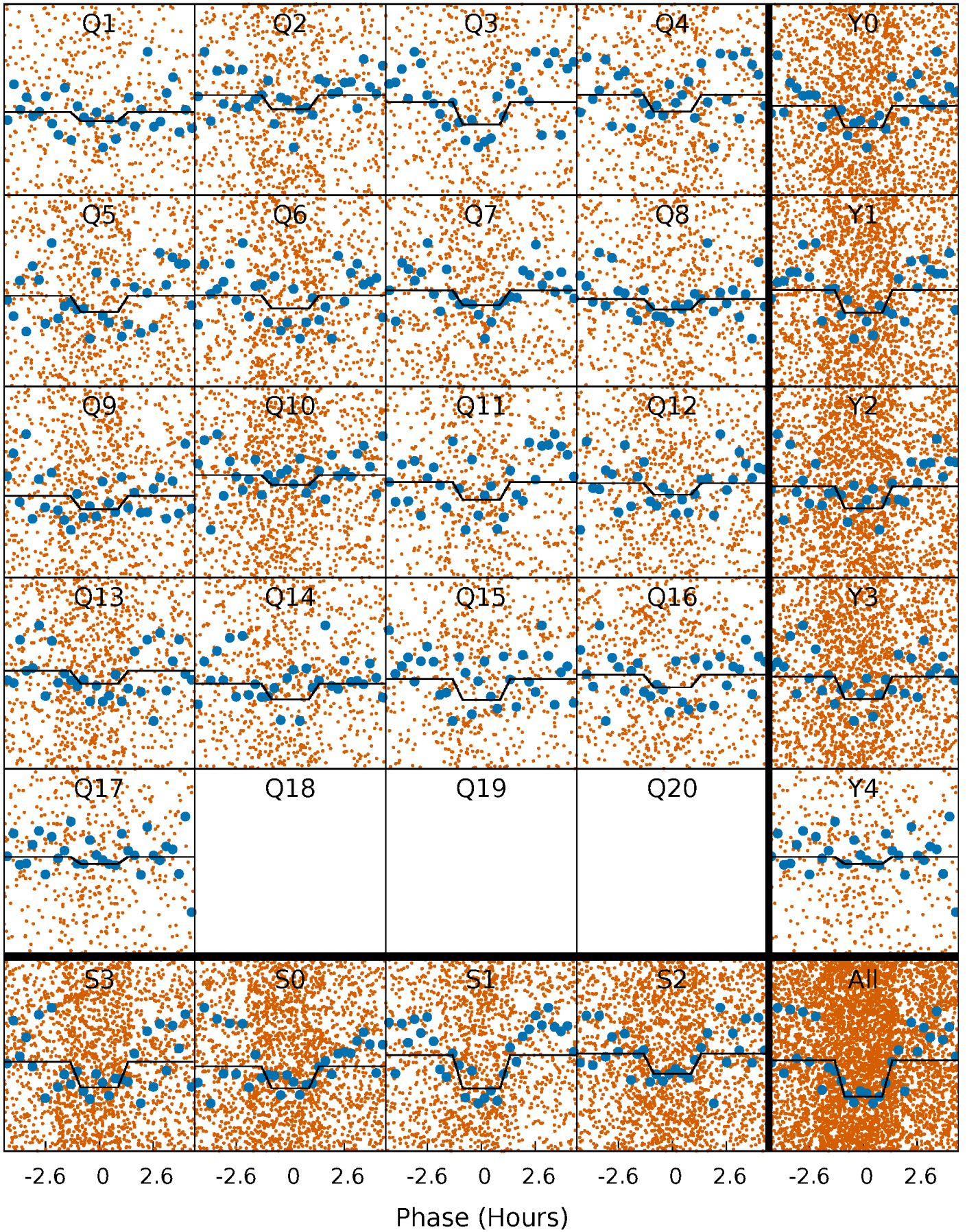
DV Quarter-Phased Transit Curves

TCE 009655501-02 P= 0.597135 Days $T_0=131.722223$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

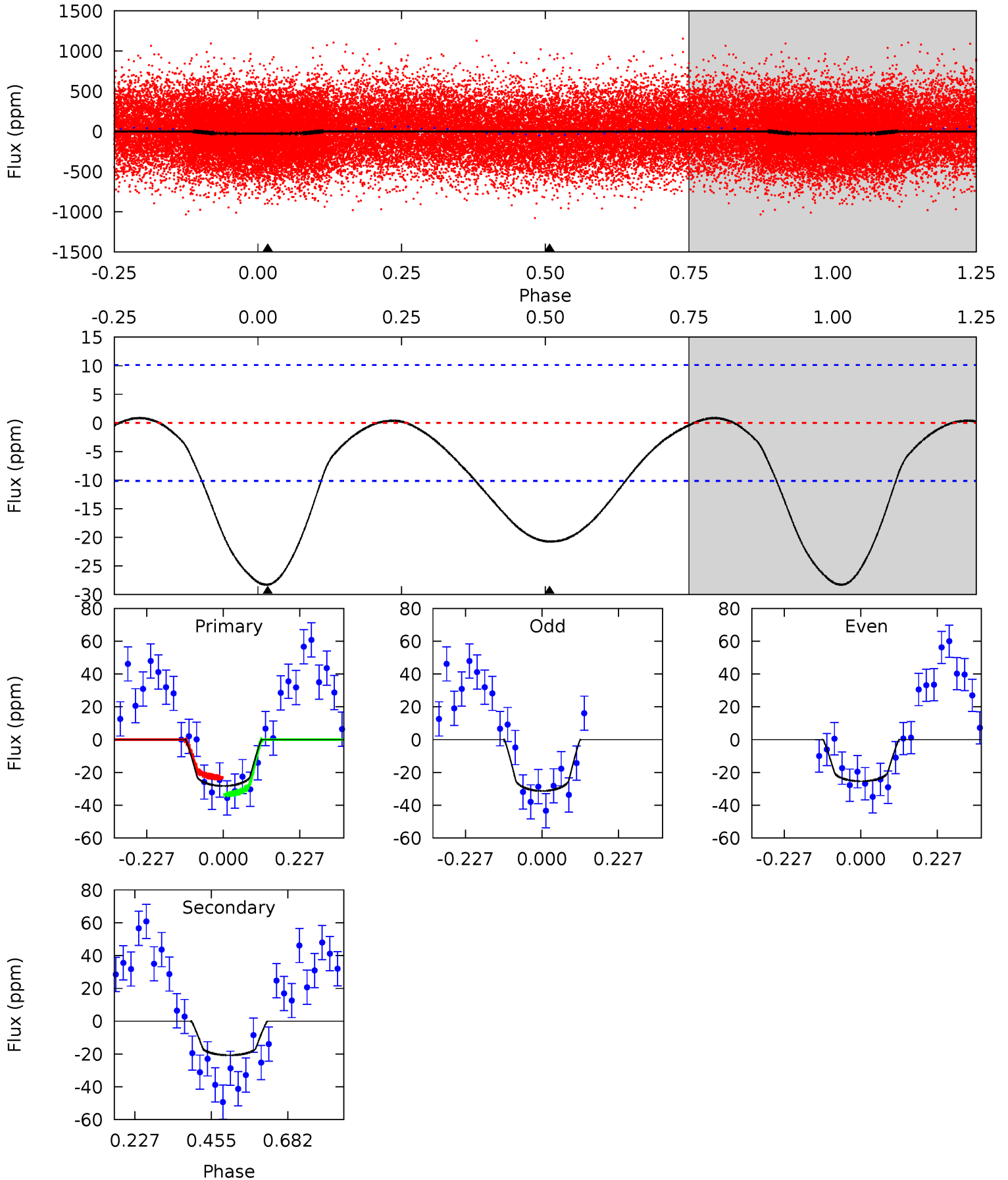
TCE 009655501-02 P= 0.597146 Days $T_0=131.718035$ (BKJD)



DV Model-Shift Uniqueness Test

009655501-02, P = 0.597135 Days, E = 131.125088 Days

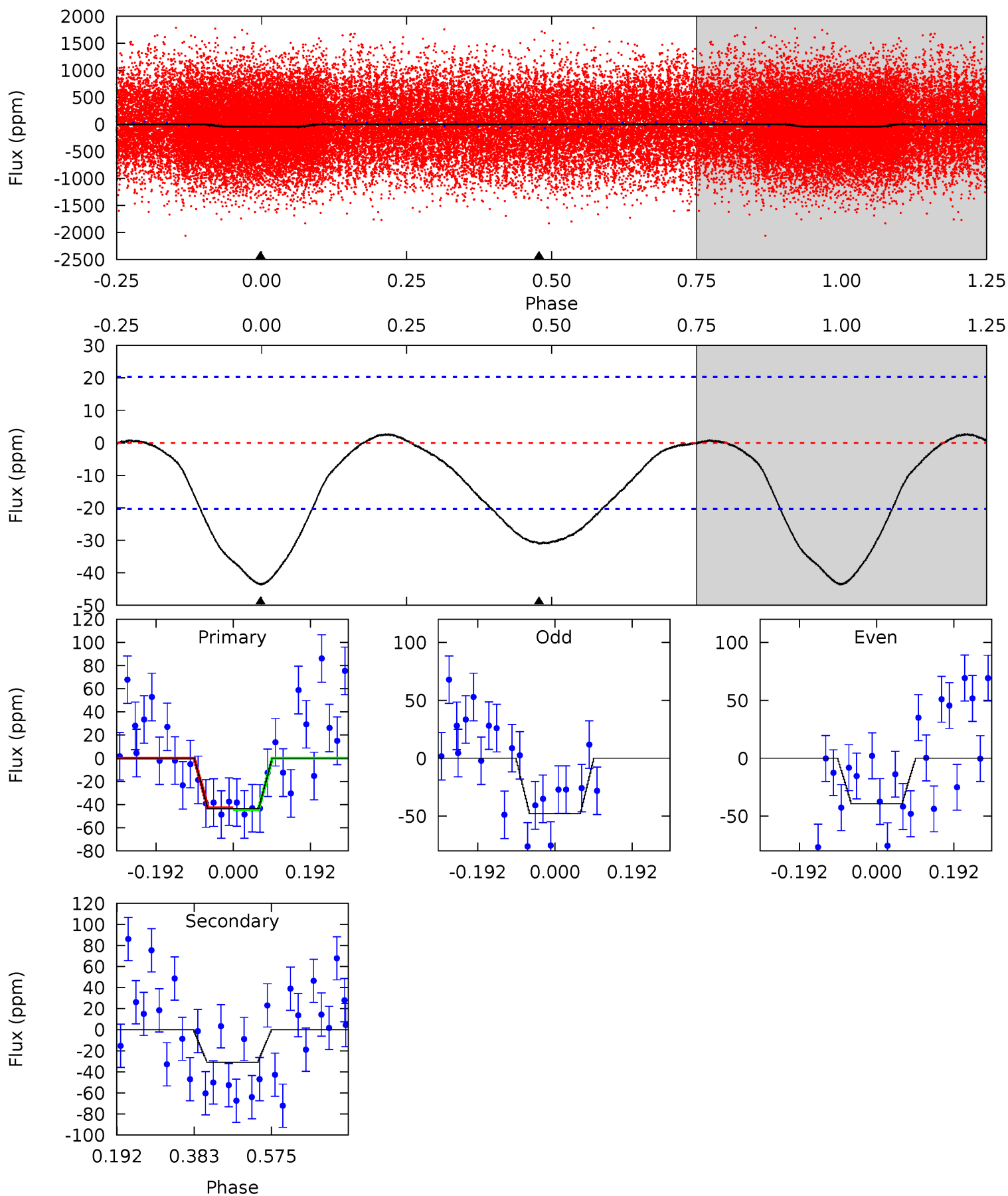
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	8.99	0	0	4.39	1.21	0.32	12.3	12.3	8.99	8.99	1.28	0.96	0.03	2.29



Alt Model-Shift Uniqueness Test

009655501-02, P = 0.597146 Days, E = 131.120889 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.47	6.73	0	0	4.43	1.31	0.39	9.47	9.47	6.73	6.73	0.95	0.97	0.06	0.15



Stellar Parameters For KIC 009655501

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7952^{+220}_{-331}	$3.920^{+0.266}_{-0.114}$	$-0.120^{+0.200}_{-0.300}$	$2.496^{+0.443}_{-0.823}$	$1.890^{+0.103}_{-0.388}$	$0.171^{+0.293}_{-0.059}$
	+3%/-4%	+7%/-3%	+167%/-250%	+18%/-33%	+5%/-21%	+171%/-35%
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 009655501-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-21 ± 2	$1.40^{+0.70}_{-0.62}$	5840^{+394}_{-493}	6646^{+3152}_{-1422}	$1.652^{+3.723}_{-0.910}$
Alt.	-31 ± 5	$1.65^{+0.74}_{-0.62}$	5819^{+365}_{-517}	6742^{+2756}_{-1240}	$1.726^{+2.979}_{-0.864}$

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 $A_{obs} \gg 1.0$

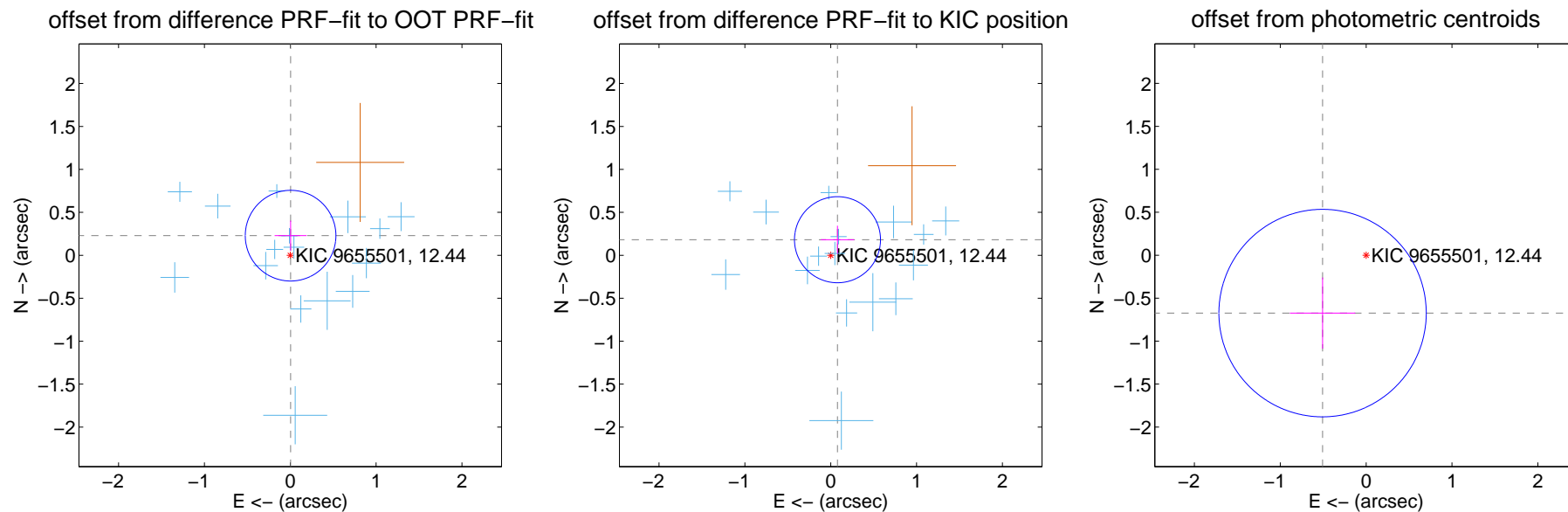
DV Centroid Data

Supplemental centroid analysis for 009655501-02. Kepler magnitude: 12.44. Transit SNR 9.17

There are 16 quarters with good PRF difference image offsets

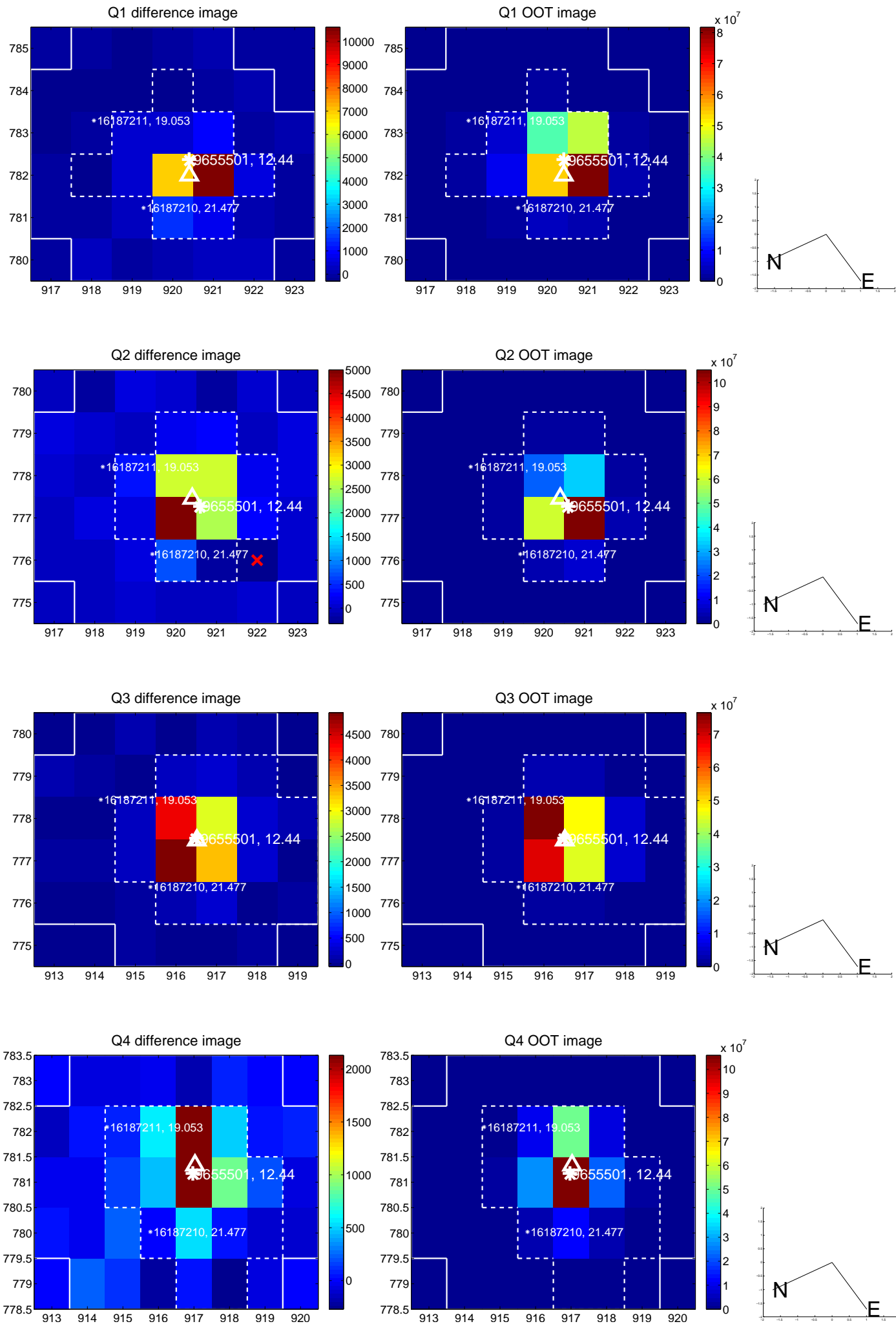
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.228 ± 0.176	1.30	-0.004 ± 0.186	0.228 ± 0.176
PRF-fit source offset from KIC position	0.198 ± 0.167	1.18	-0.079 ± 0.194	0.181 ± 0.163
photometric centroid source offset	0.84 ± 0.40	2.10	0.51 ± 0.38	-0.67 ± 0.41

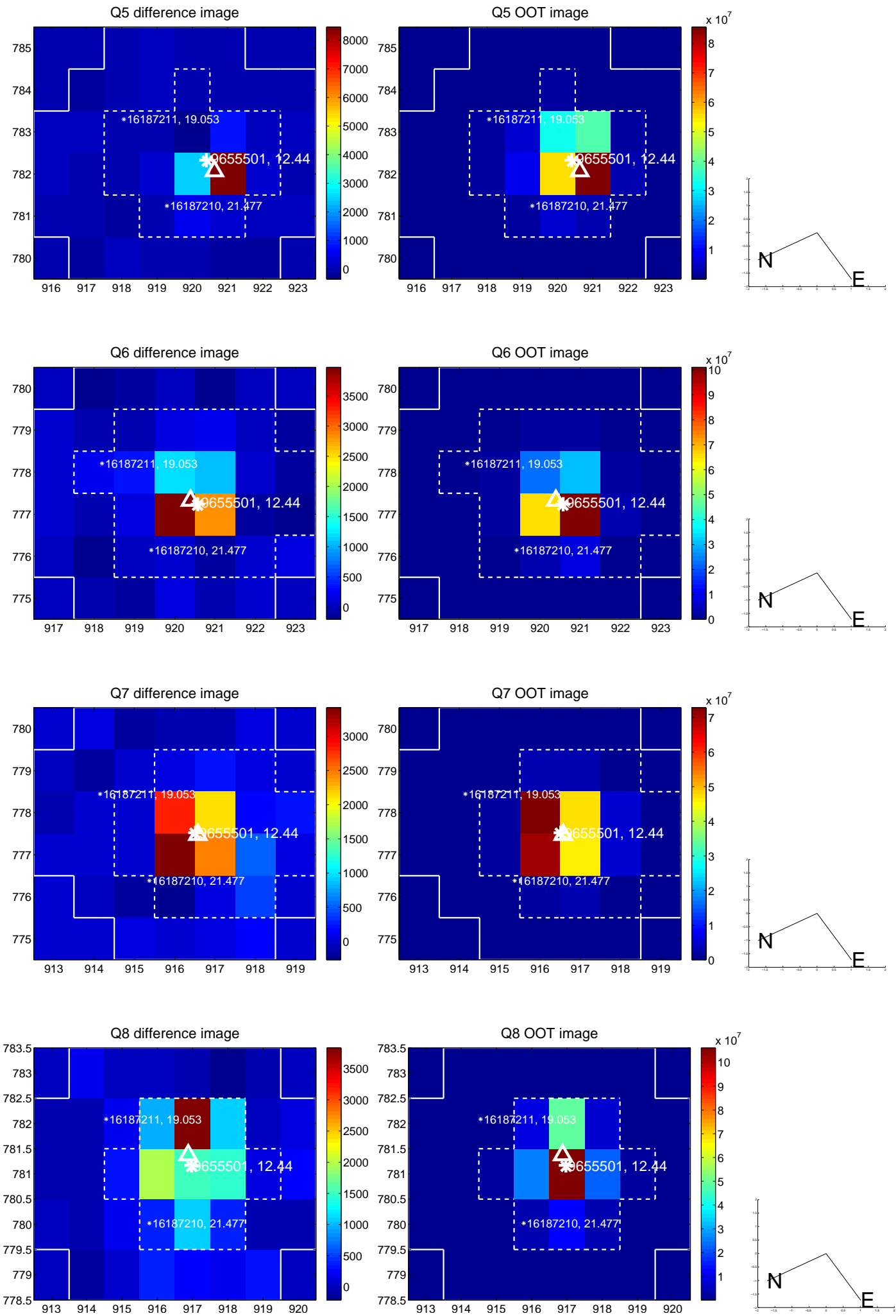


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

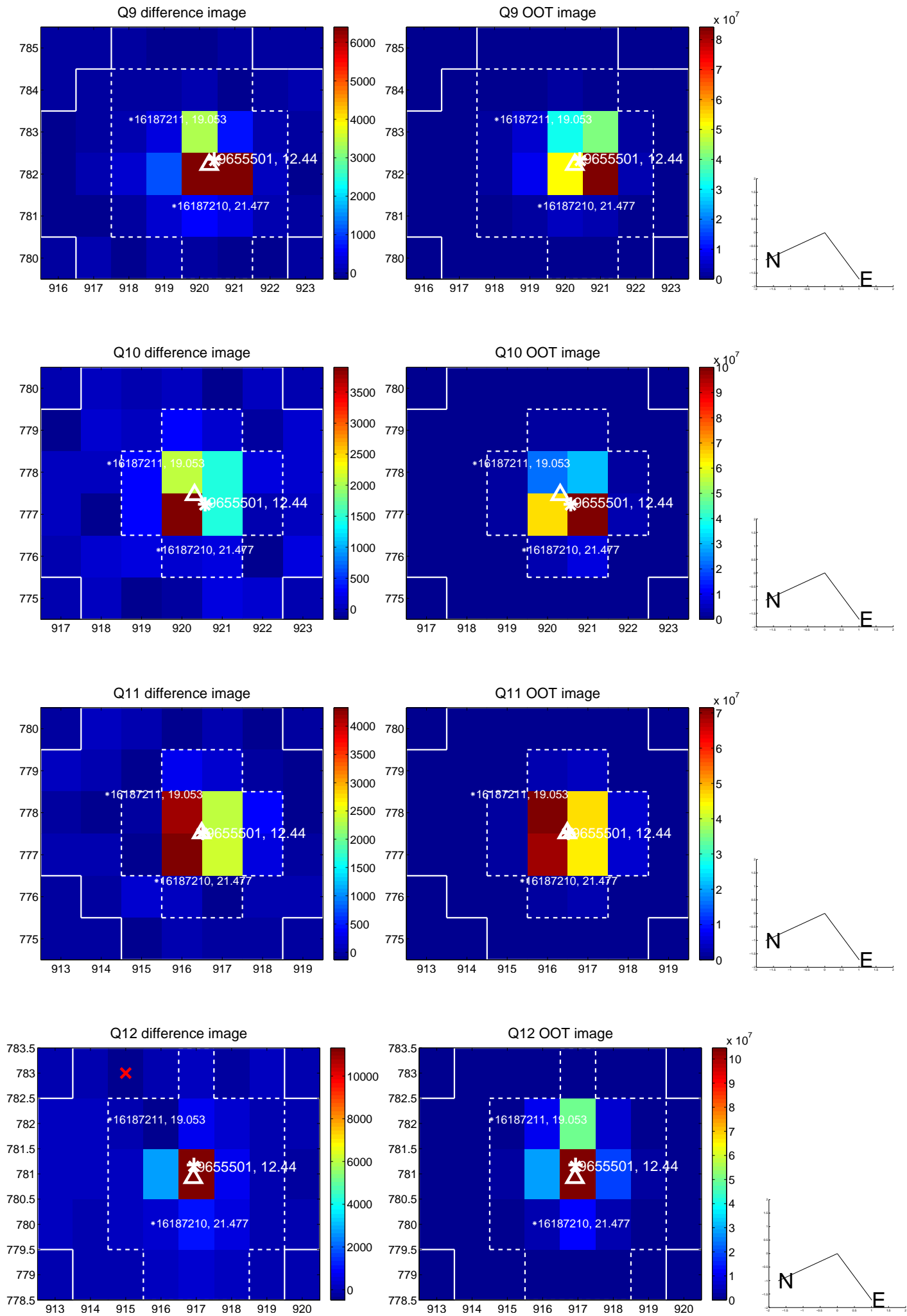
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



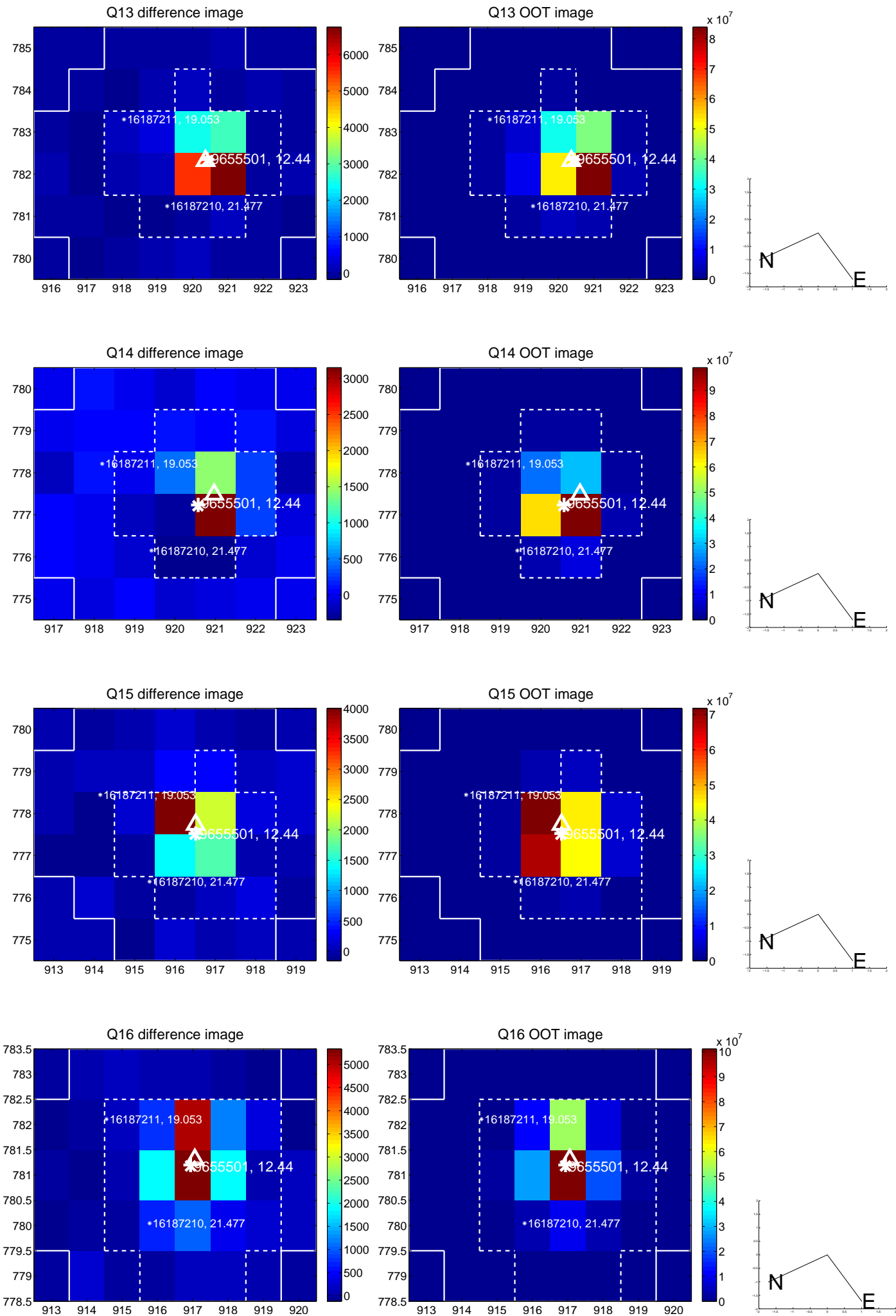
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



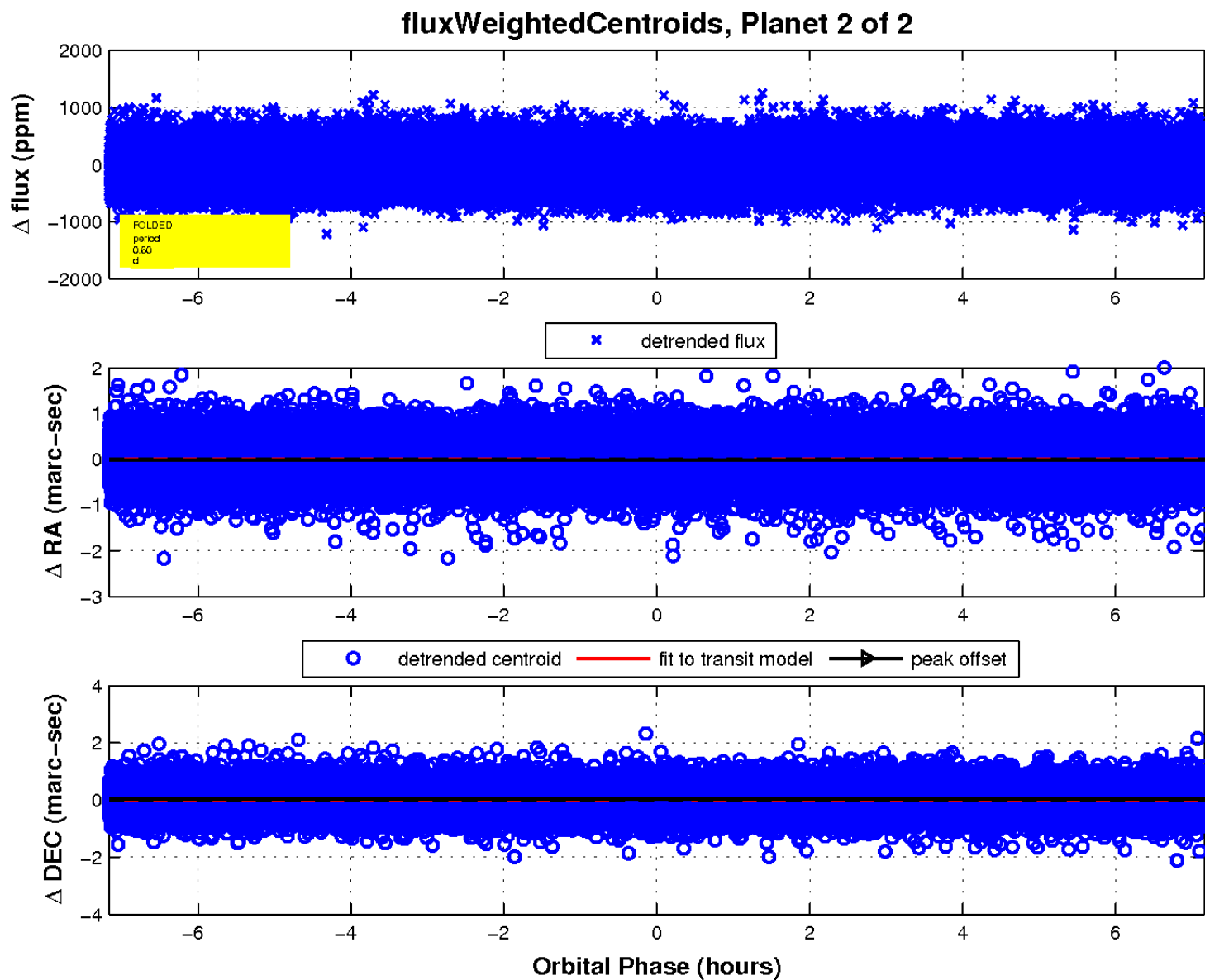
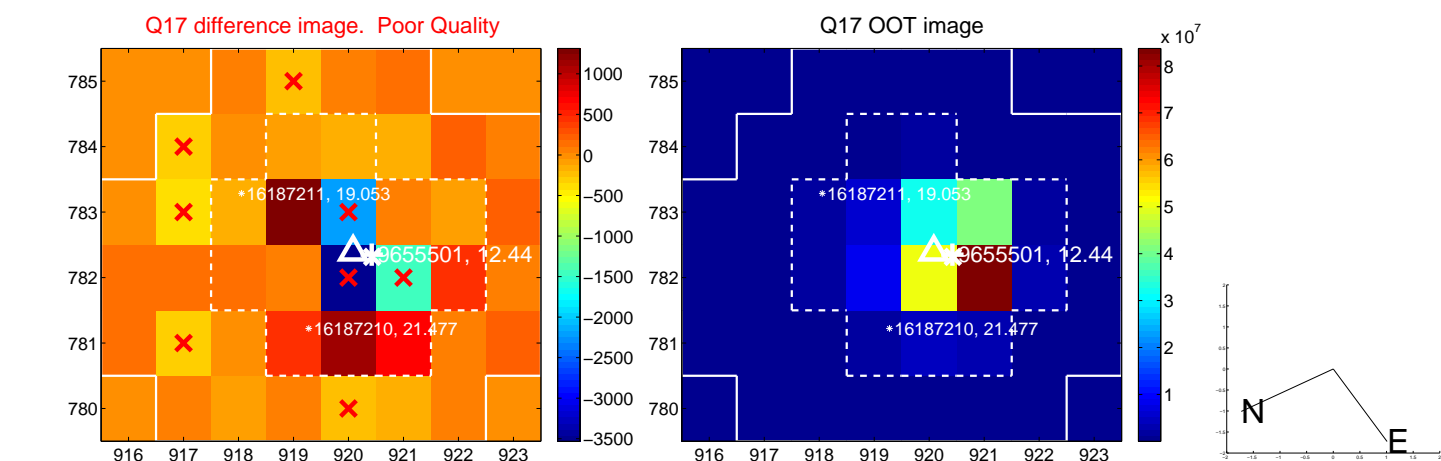
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

