

KIC 009655461

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})
009655461-01	OBS	No	0.977175	132.282264	11.9	6.626	11.4	13.4	1.71	7968	0.60	19640.44
009655461-02	OBS	No	82.226512	175.438170	161.5	2.043	8.5	9.4	1.71	7968	2.52	53.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655461-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009655461-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

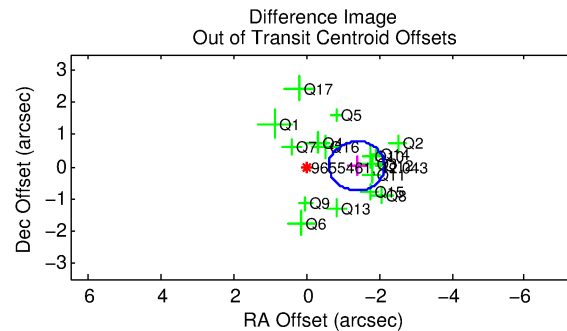
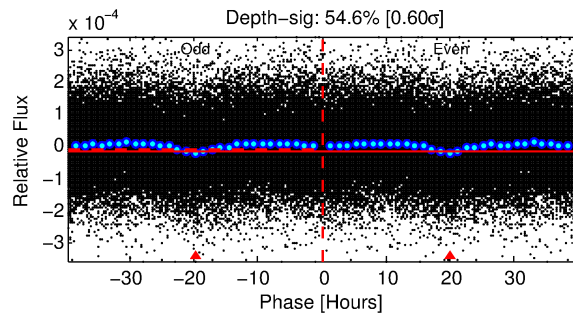
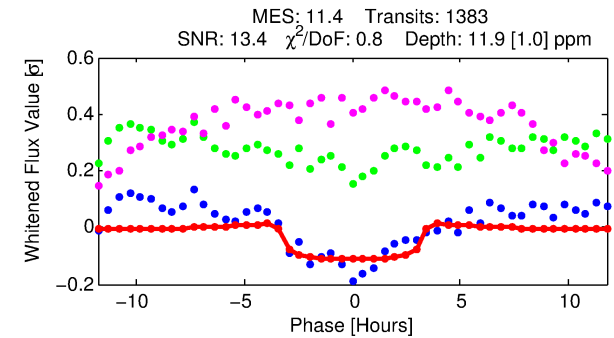
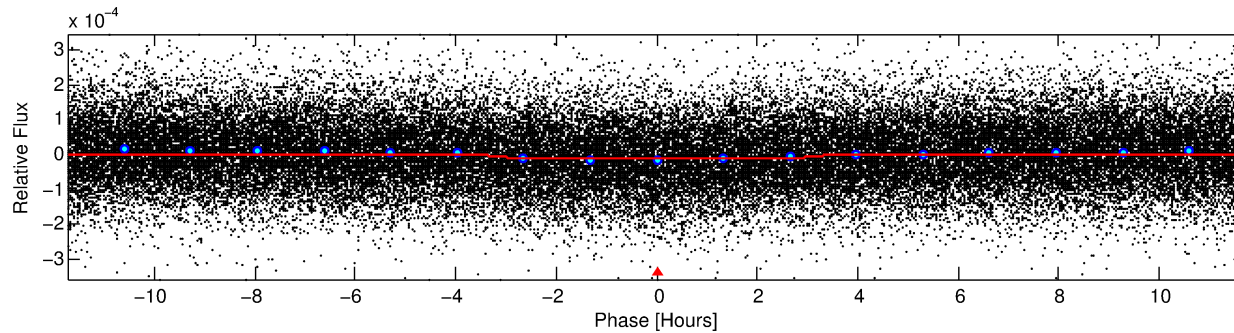
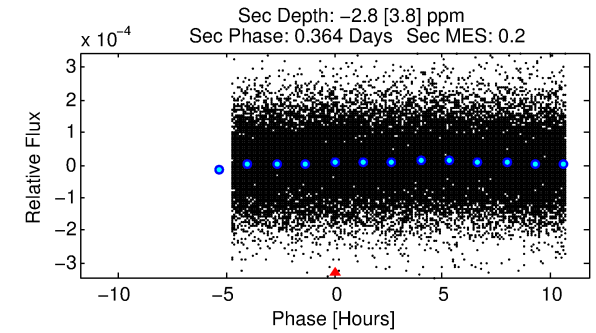
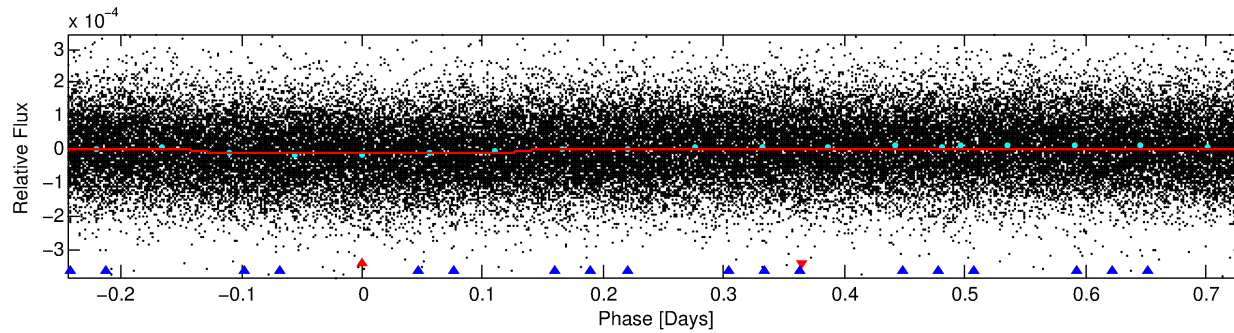
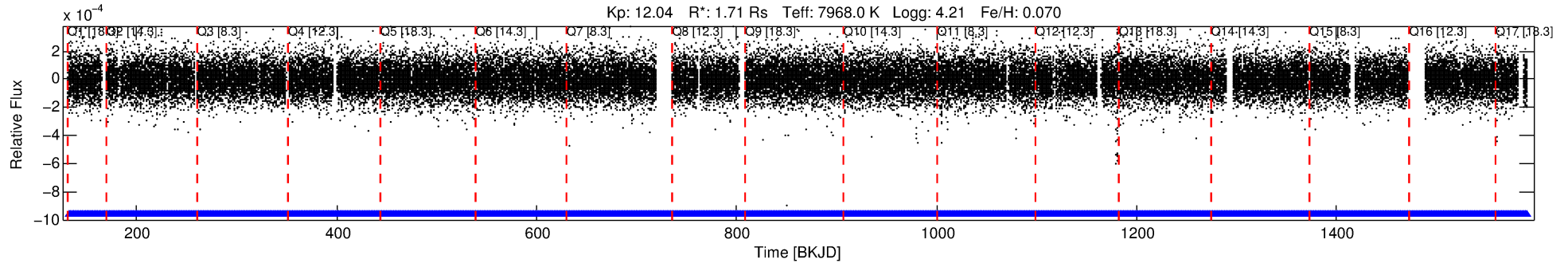
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655461-01

No Significant Match Found

DV One-Page Summary

KIC: 9655461 Candidate: 1 of 2 Period: 0.977 d



DV Fit Results:

Period = 0.97717 [0.00001] d
Epoch = 132.2823 [0.0045] BKJD
Rp/R* = 0.0032 [0.0022]
a/R* = 1.27 [2.02]
b = 0.28 [13.79]
Seff = 19640.44 [8030.22]
Teq = 3019 [309] K
Rp = 0.60 [0.45] Re
a = 0.0231 [0.0058] AU
Ag = N/A
Teffp = N/A

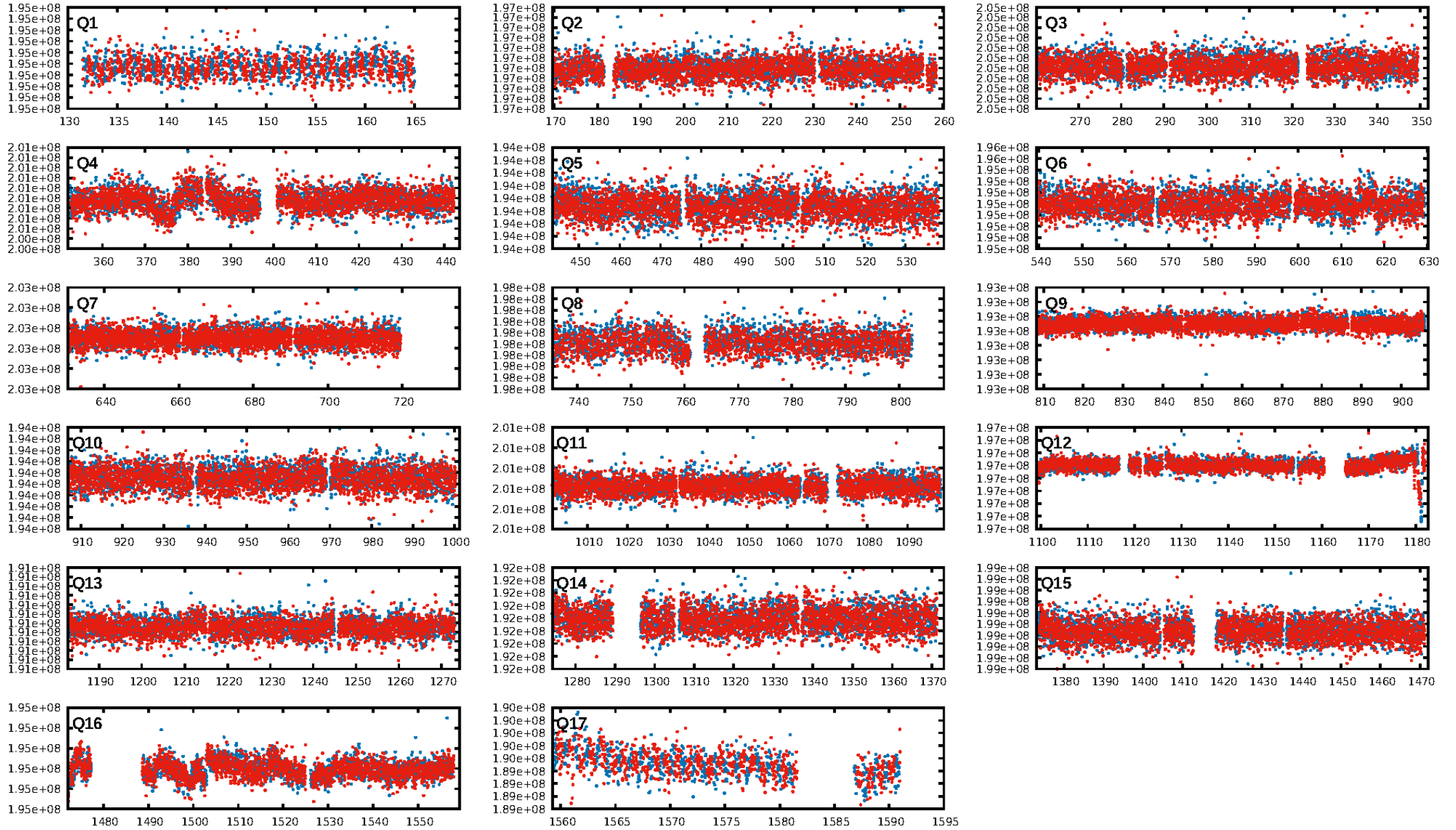
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [281.24σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.80e-18
RollingBand-fgt: 1.00 [1322/1322]
GhostDiagnostic-chr: 4.505
Centroid-sig: 11.5%
Centroid-so: 1.013 arcsec [1.03σ]
OotOffset-rm: 1.382 arcsec [5.41σ]
KicOffset-rm: 1.449 arcsec [5.68σ]
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]

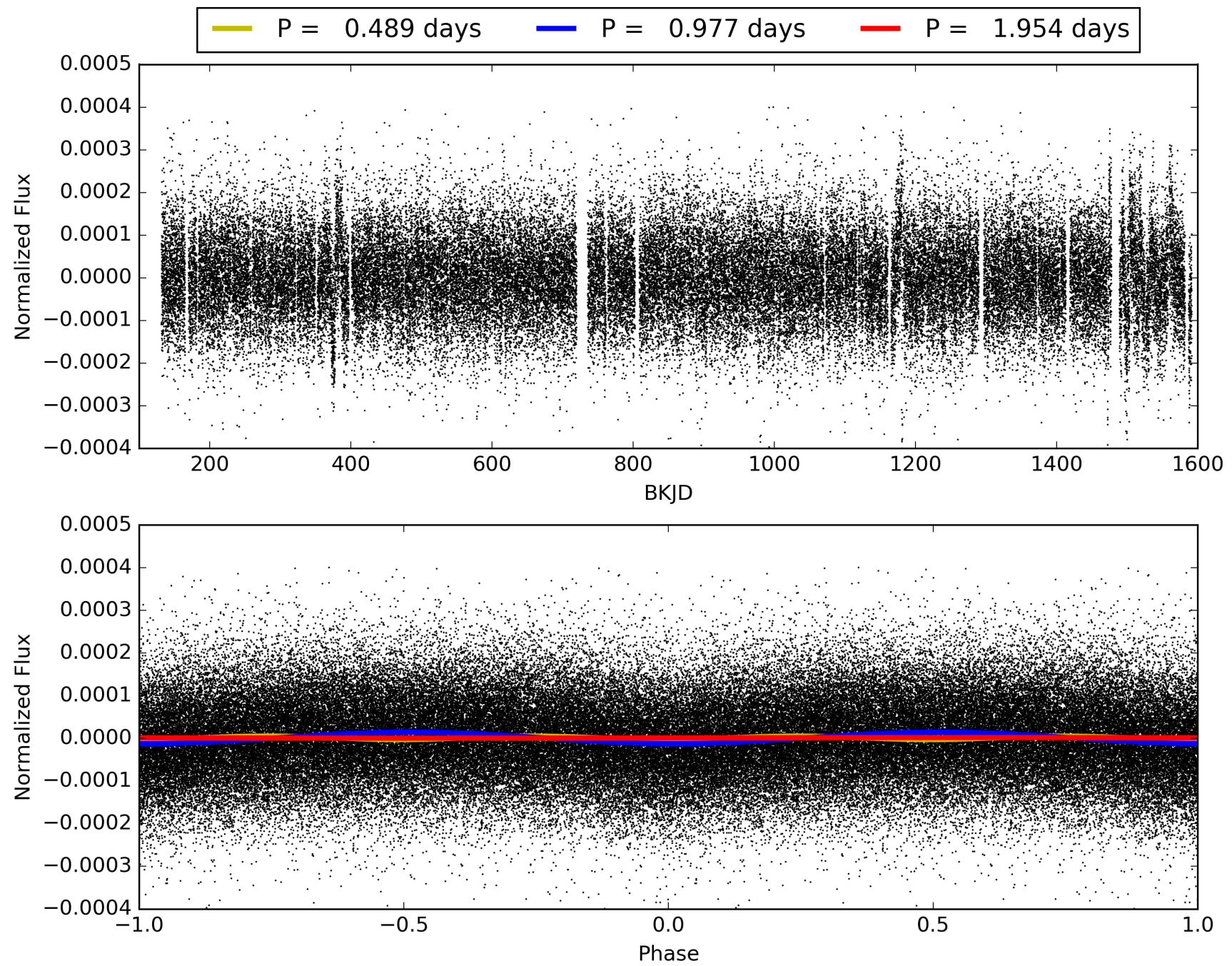
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:04:51 Z

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

TCE 009655461-01, PDC Light Curves

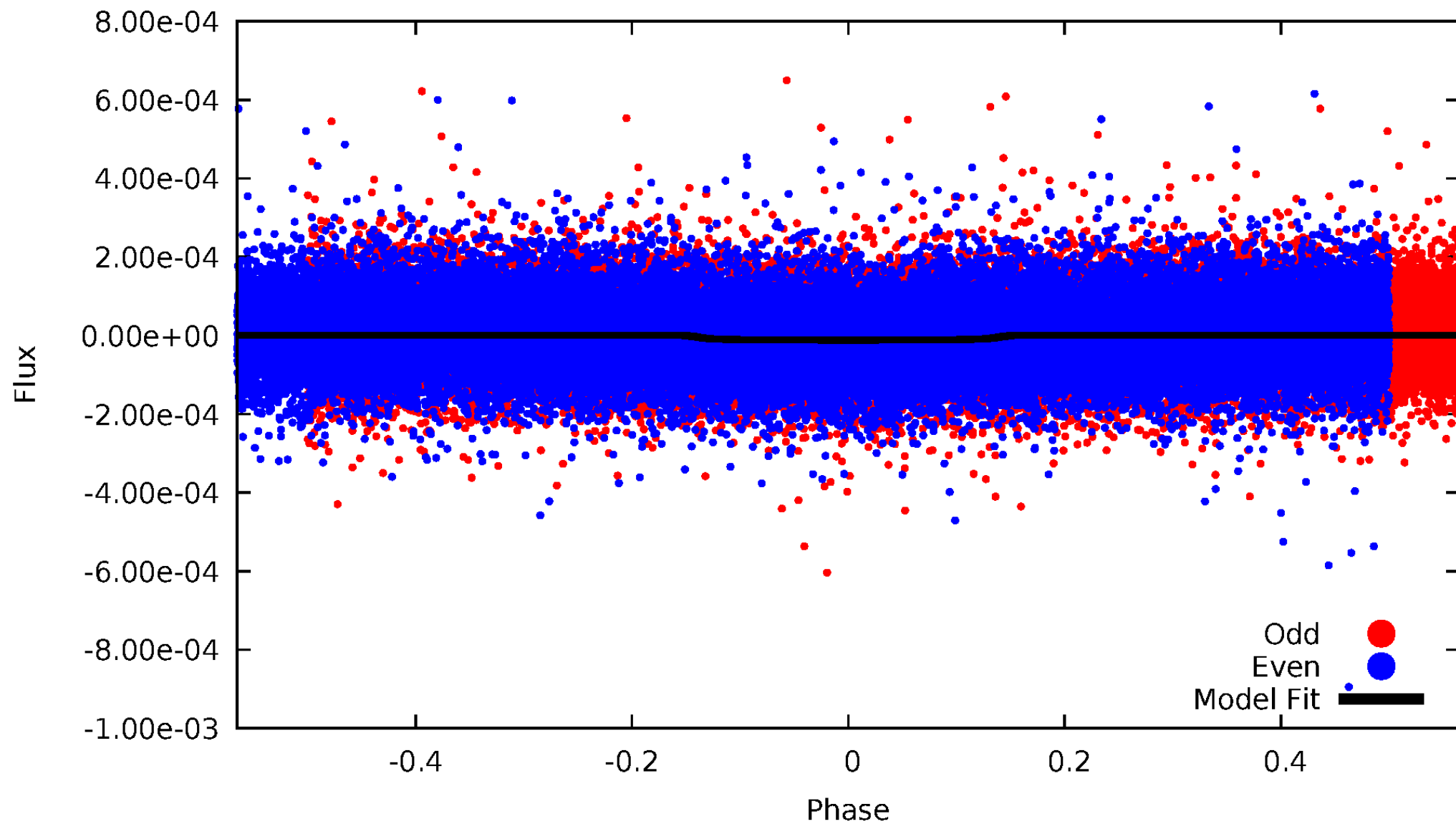


TCE 009655461-01



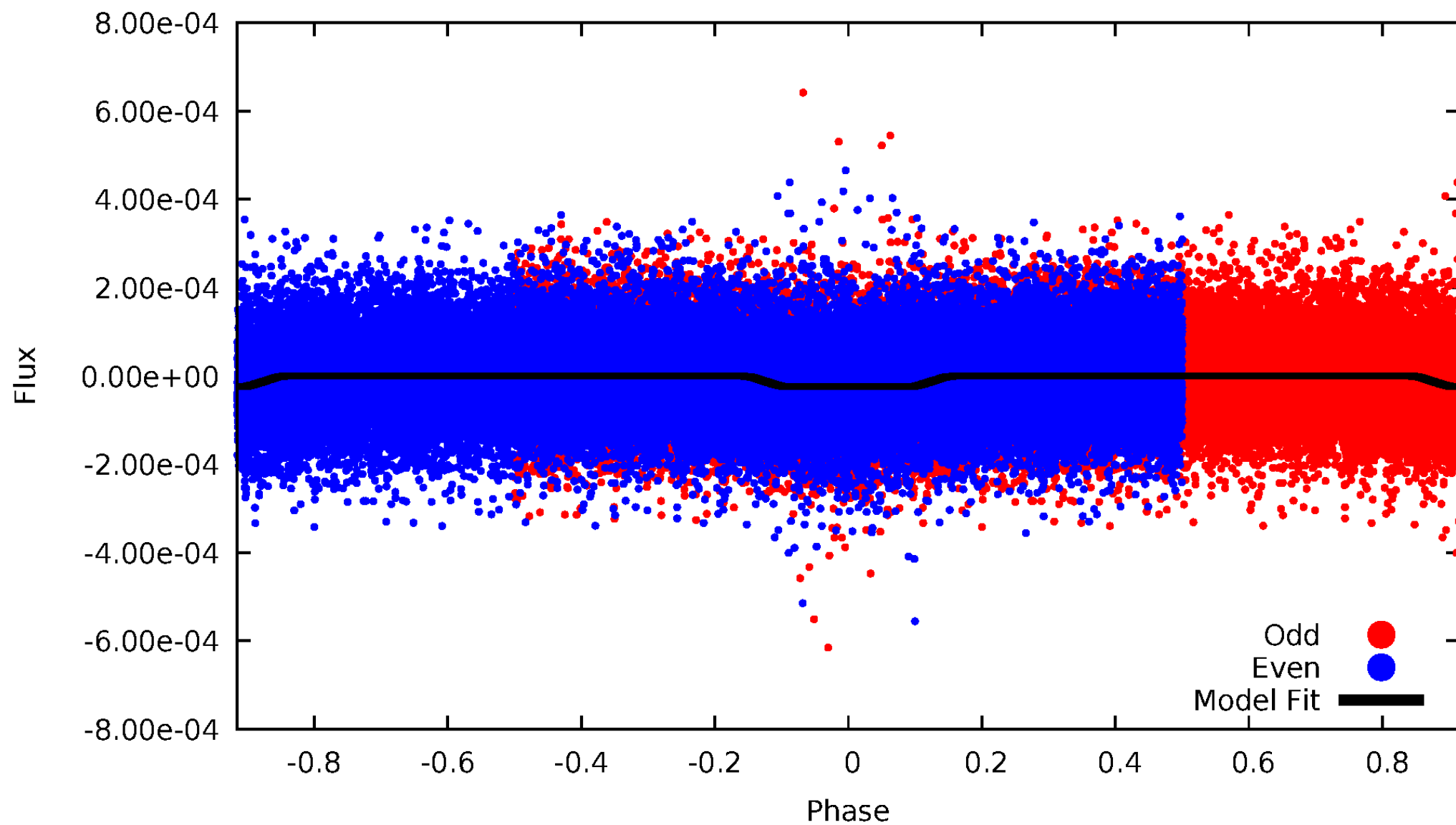
DV Odd/Even

TCE 009655461-01



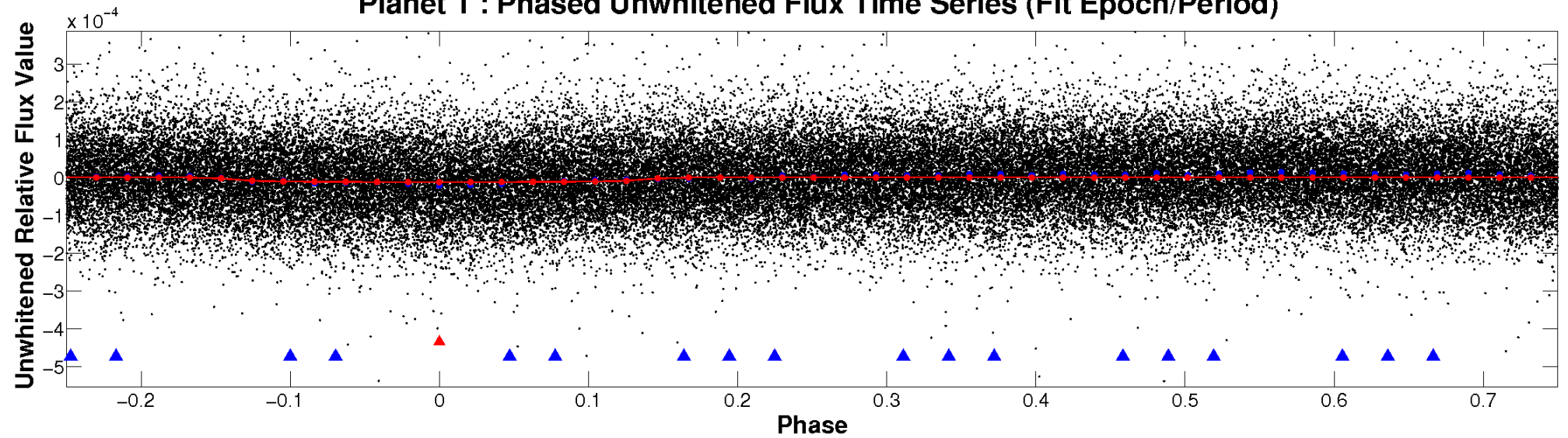
ALT Odd/Even

TCE 009655461-01

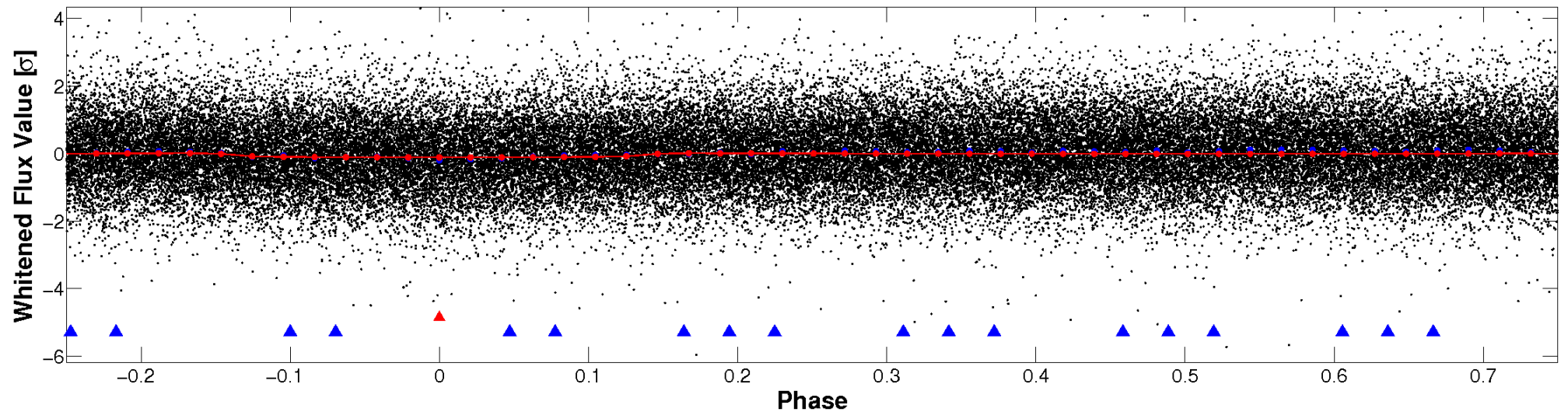


Non-Whitened Vs. Whitened Light Curve

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

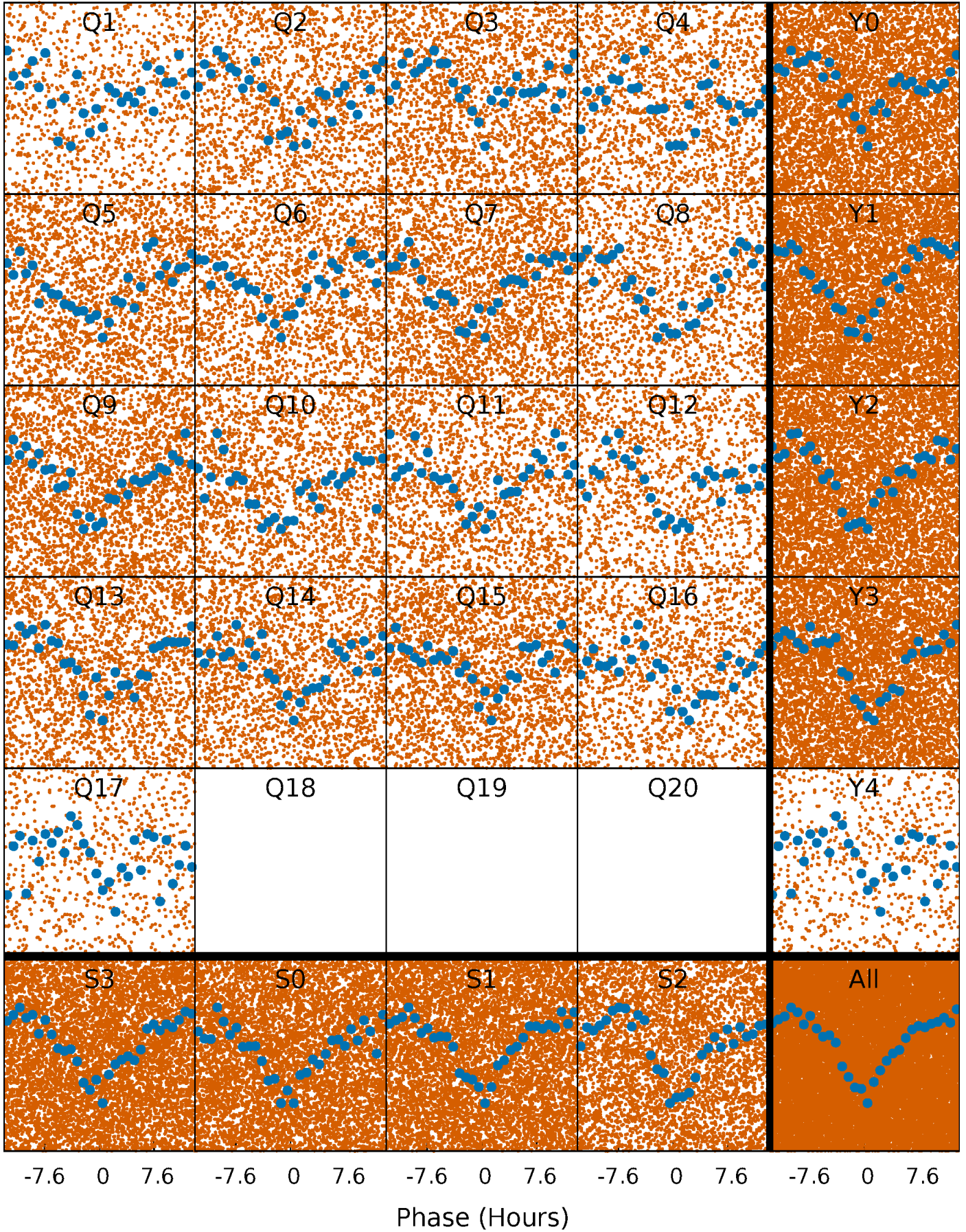


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



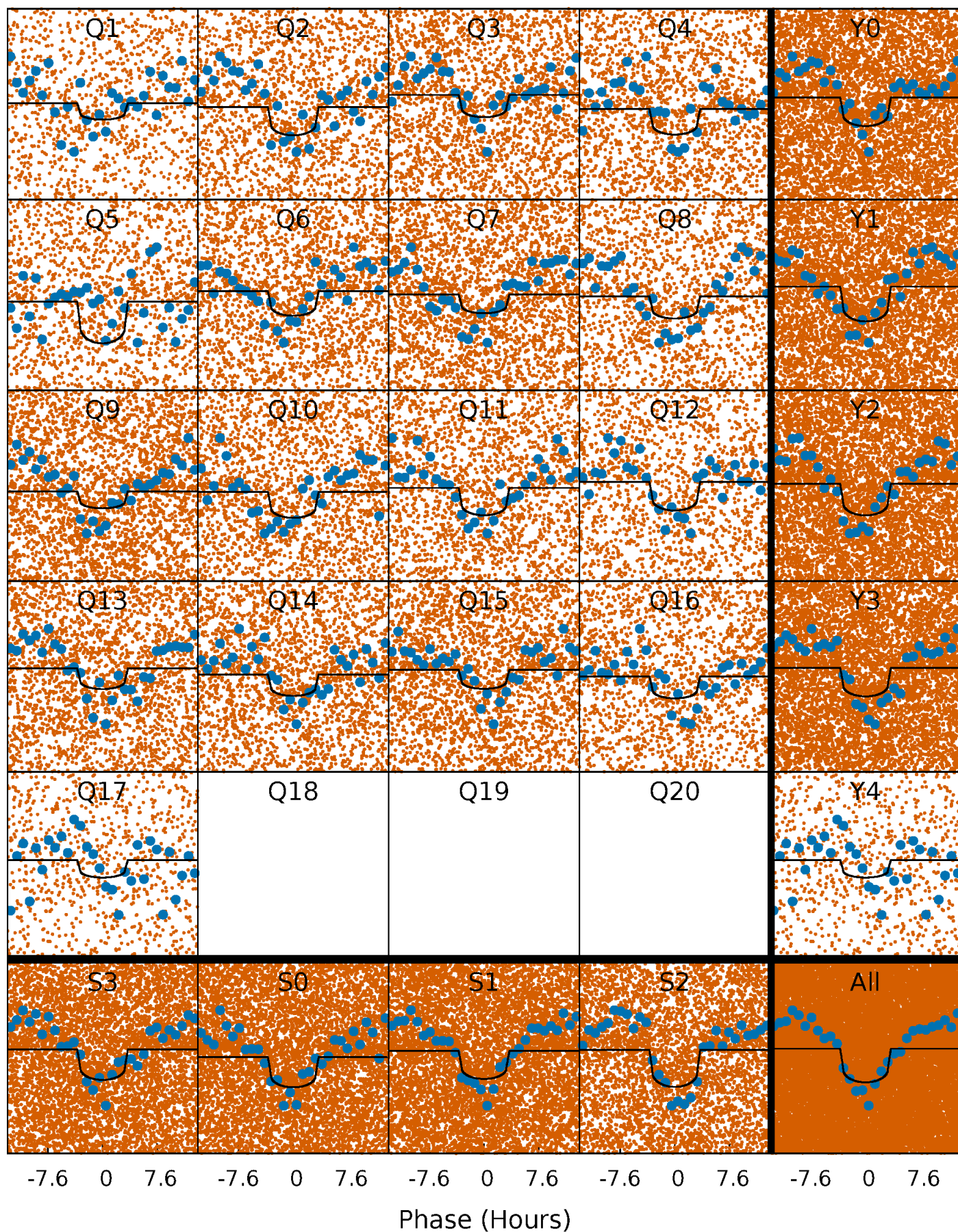
PDC Quarter-Phased Transit Curves

TCE 009655461-01 P= 0.977175 Days $T_0=132.282264$ (BKJD)



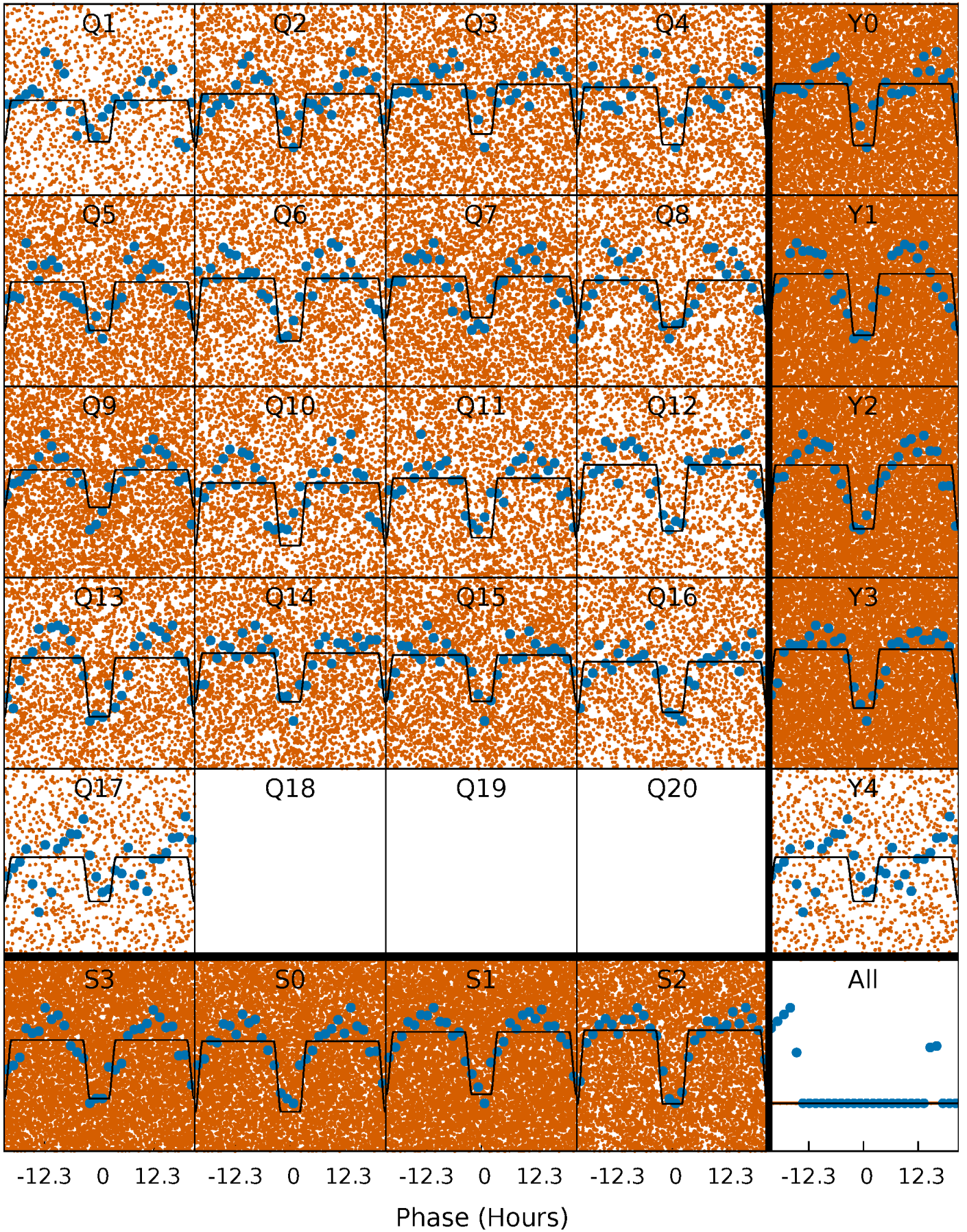
DV Quarter-Phased Transit Curves

TCE 009655461-01 P= 0.977175 Days $T_0=132.282264$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

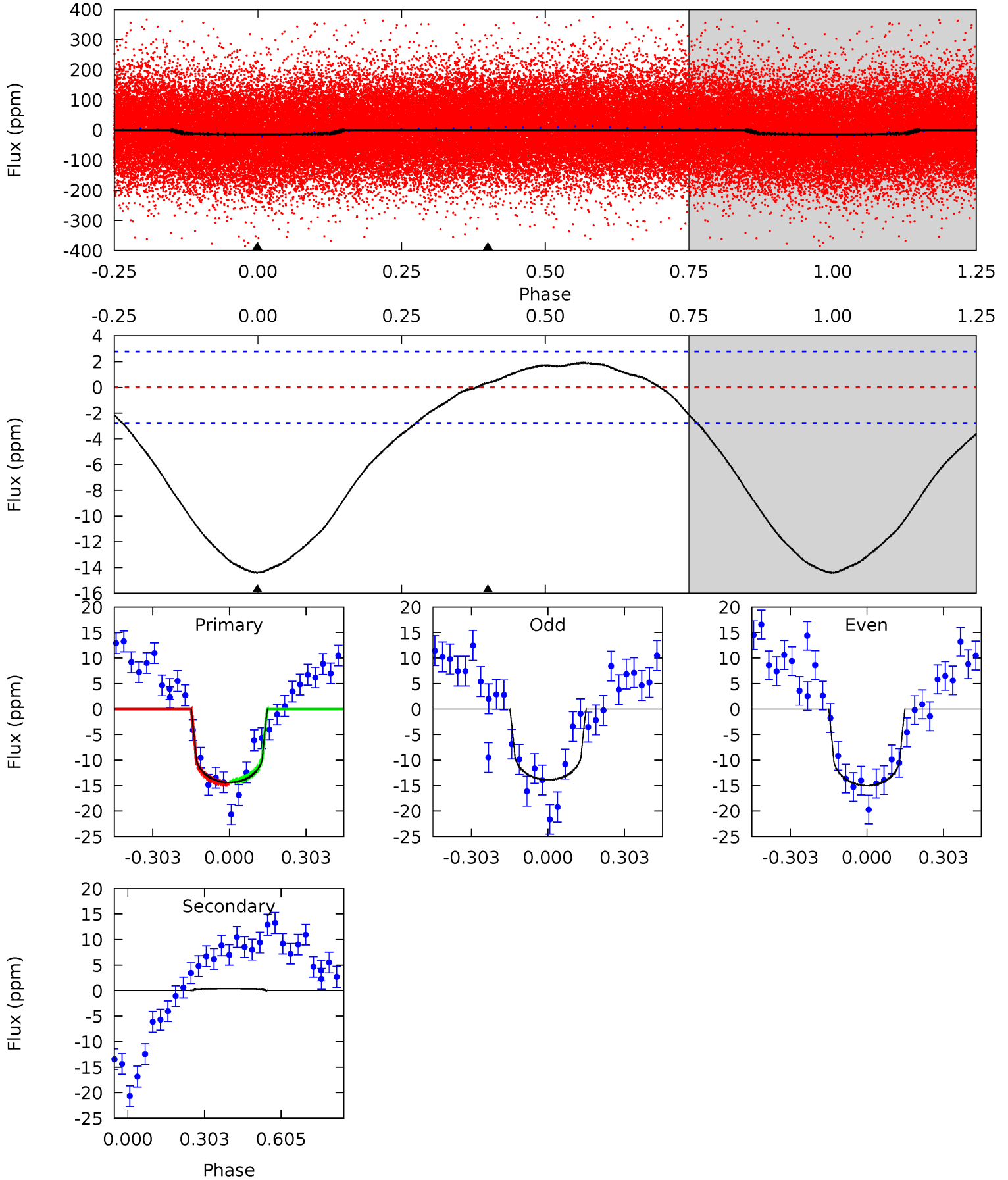
TCE 009655461-01 P= 0.977195 Days $T_0=132.270417$ (BKJD)



DV Model-Shift Uniqueness Test

009655461-01, P = 0.977175 Days, E = 131.305089 Days

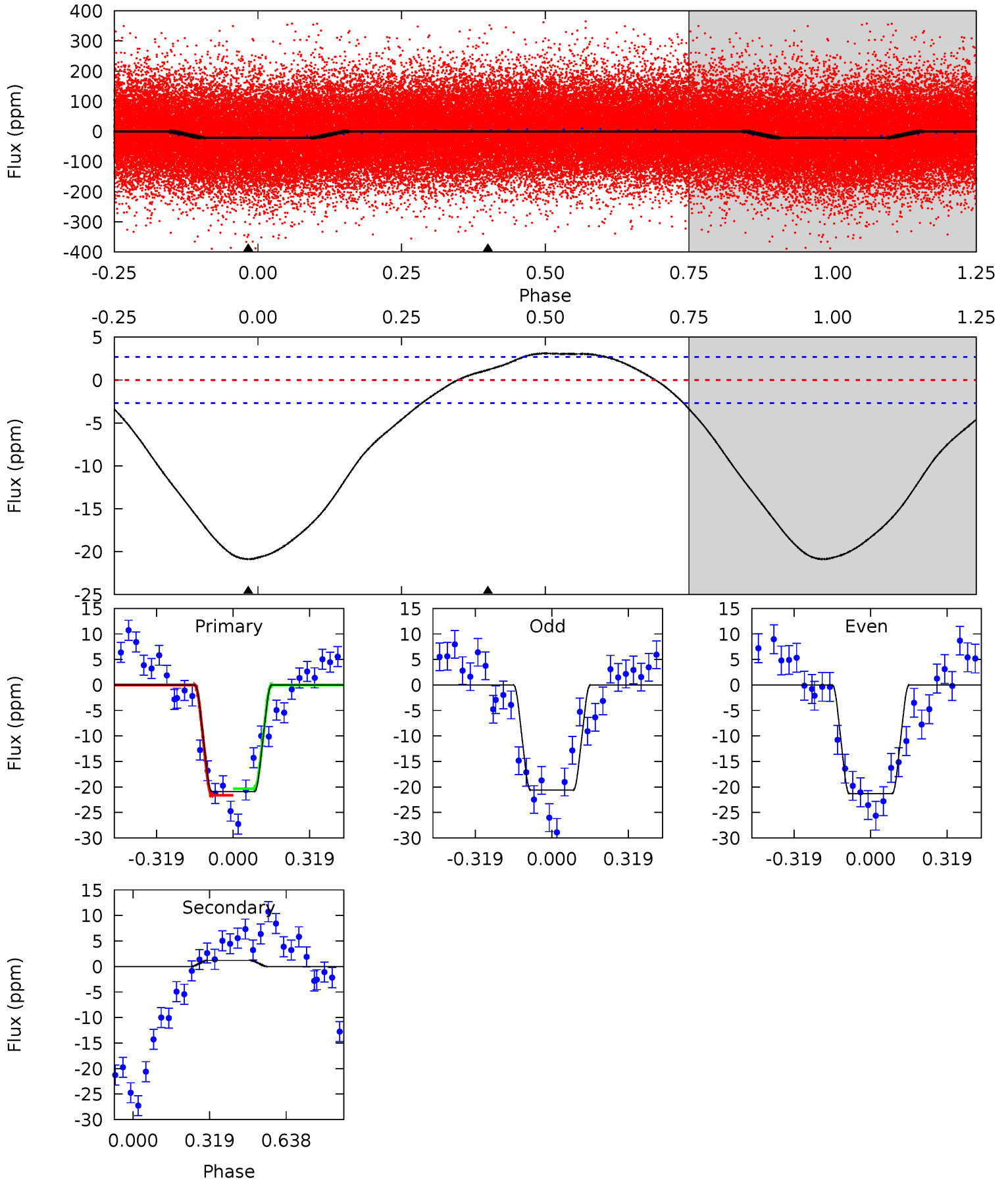
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	-0.55	0	0	4.33	1.03	1.45	22.4	22.4	-0.55	-0.55	0.87	1.04	0.12	0.40



Alt Model-Shift Uniqueness Test

009655461-01, P = 0.977195 Days, E = 131.293222 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.5	-1.89	0	0	4.32	1.00	2.11	33.5	33.5	-1.89	-1.89	0.55	1.04	0.13	1.01



Stellar Parameters For KIC 009655461

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7968^{+219}_{-357}	$4.212^{+0.067}_{-0.202}$	$0.070^{+0.250}_{-0.400}$	$1.707^{+0.505}_{-0.233}$	$1.731^{+0.202}_{-0.247}$	$0.490^{+0.176}_{-0.252}$
	+3%/-4%	+2%/-5%	+357%/-571%	+30%/-14%	+12%/-14%	+36%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009655461-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1	$0.65^{+0.44}_{-0.35}$	4278^{+334}_{-237}	-4187^{+909}_{-1077}	$-0.168^{+0.361}_{-1.194}$
Alt.	1 ± 1	$0.98^{+0.44}_{-0.44}$	4287^{+304}_{-252}	-4407^{+384}_{-732}	$-0.332^{+0.210}_{-0.734}$

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 $A_{obs} \gg 1.0$

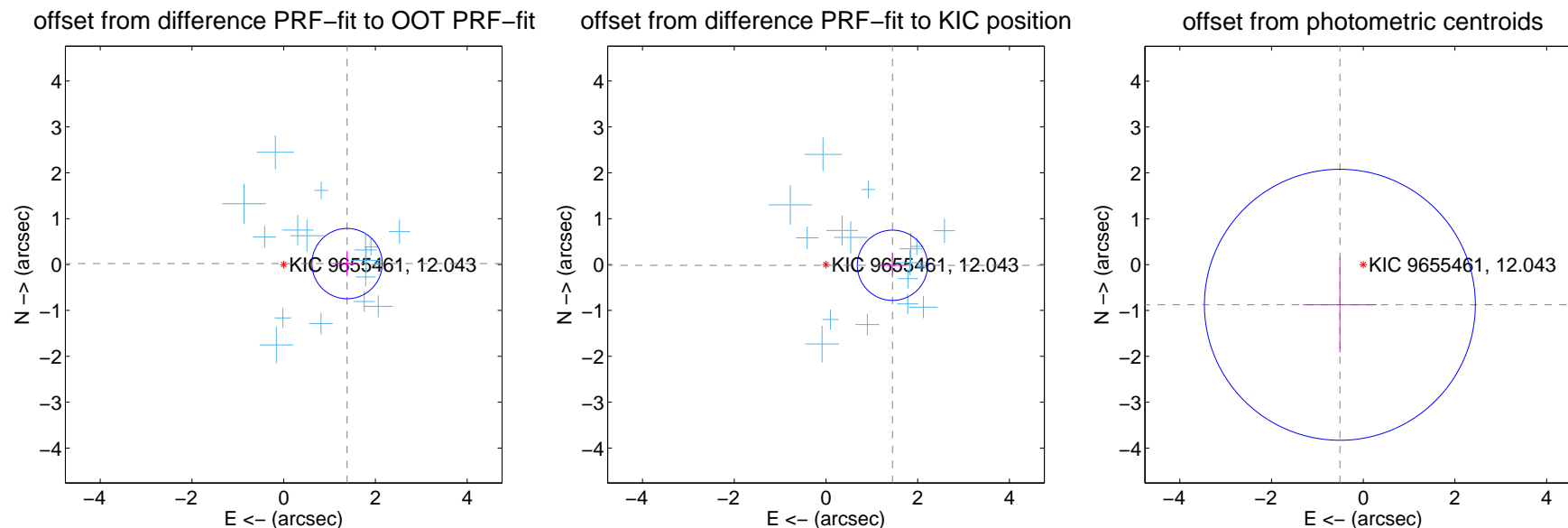
DV Centroid Data

Supplemental centroid analysis for 009655461-01. Kepler magnitude: 12.04. Transit SNR 13.39

There are 17 quarters with good PRF difference image offsets

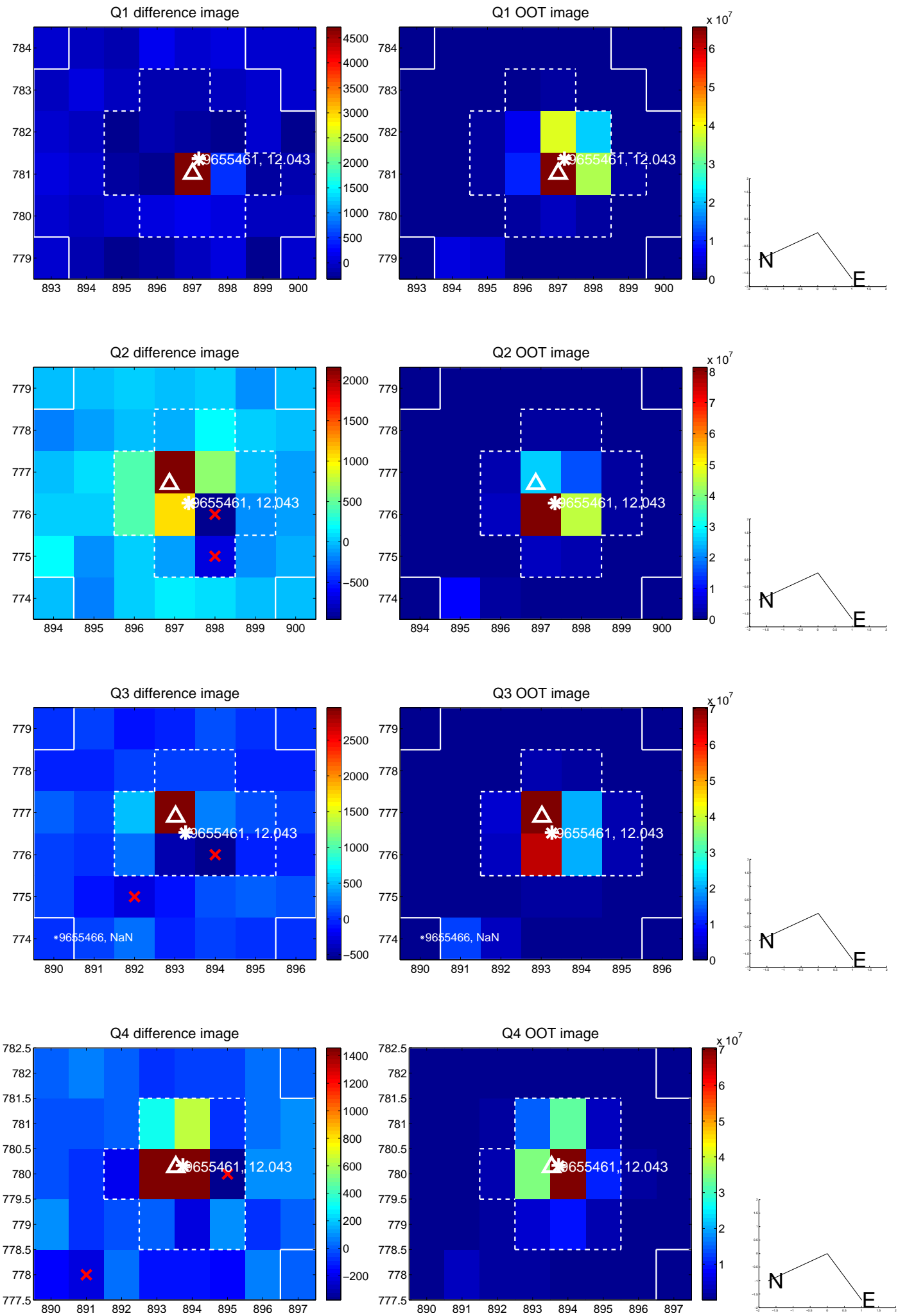
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.382 ± 0.255	5.41	-1.382 ± 0.256	0.021 ± 0.275
PRF-fit source offset from KIC position	1.449 ± 0.255	5.68	-1.449 ± 0.255	-0.016 ± 0.267
photometric centroid source offset	1.01 ± 0.98	1.03	0.51 ± 0.81	-0.88 ± 1.04

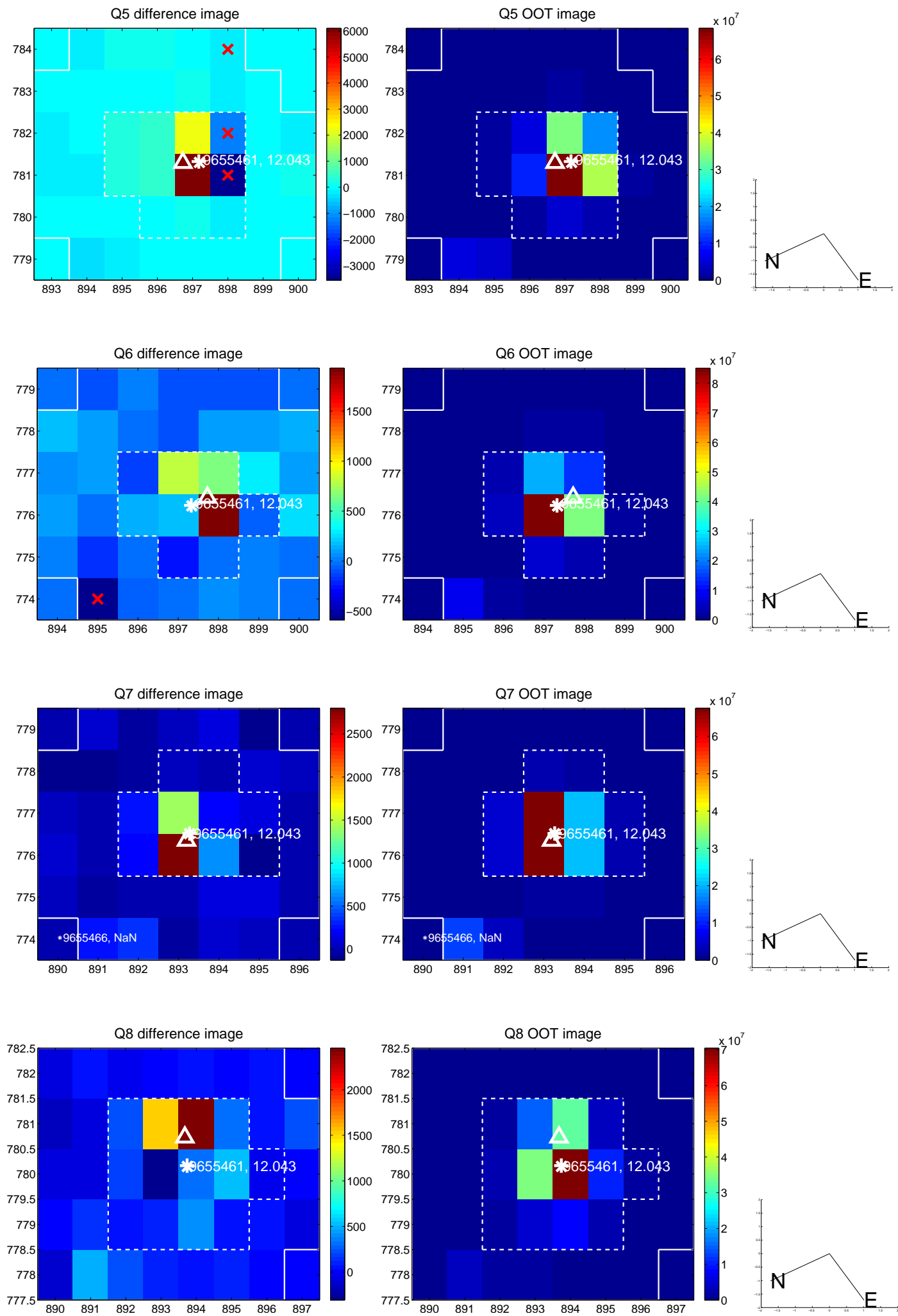


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

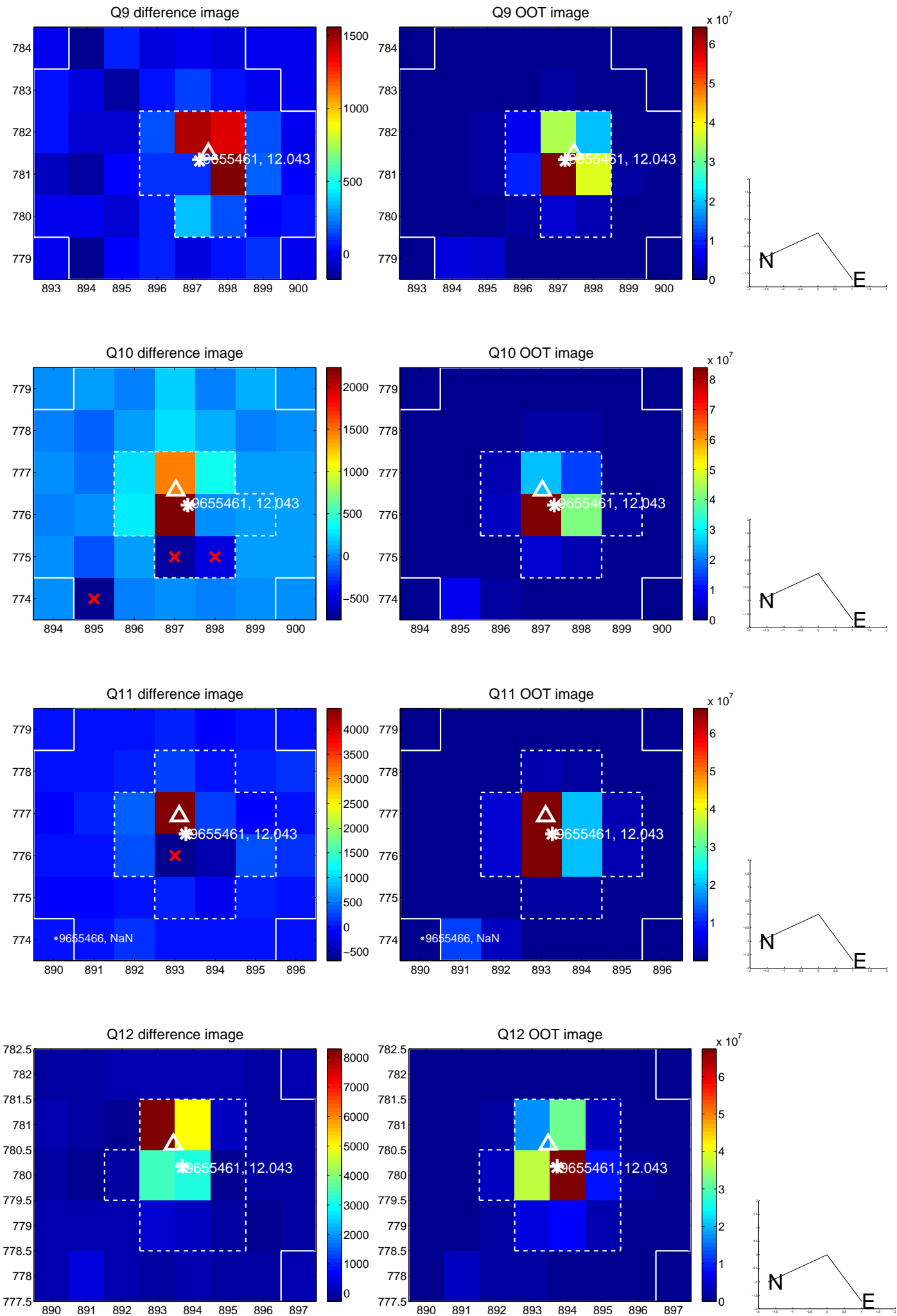
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



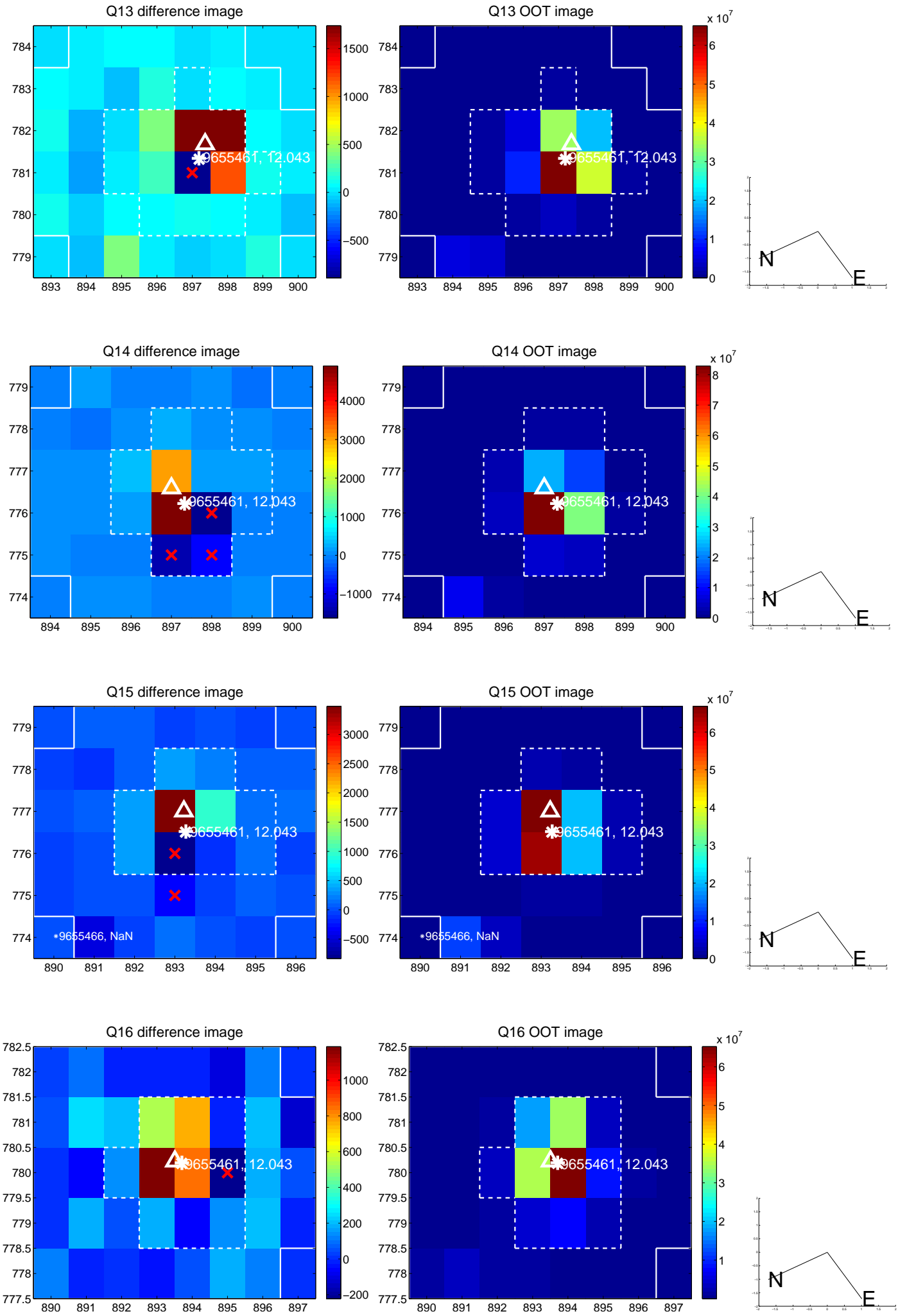
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



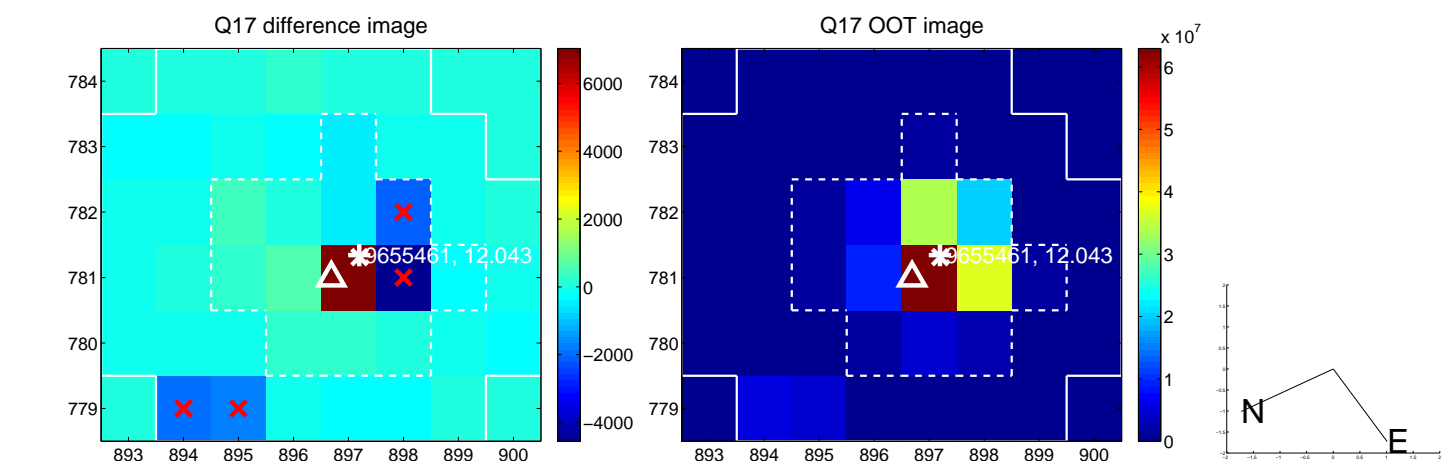
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



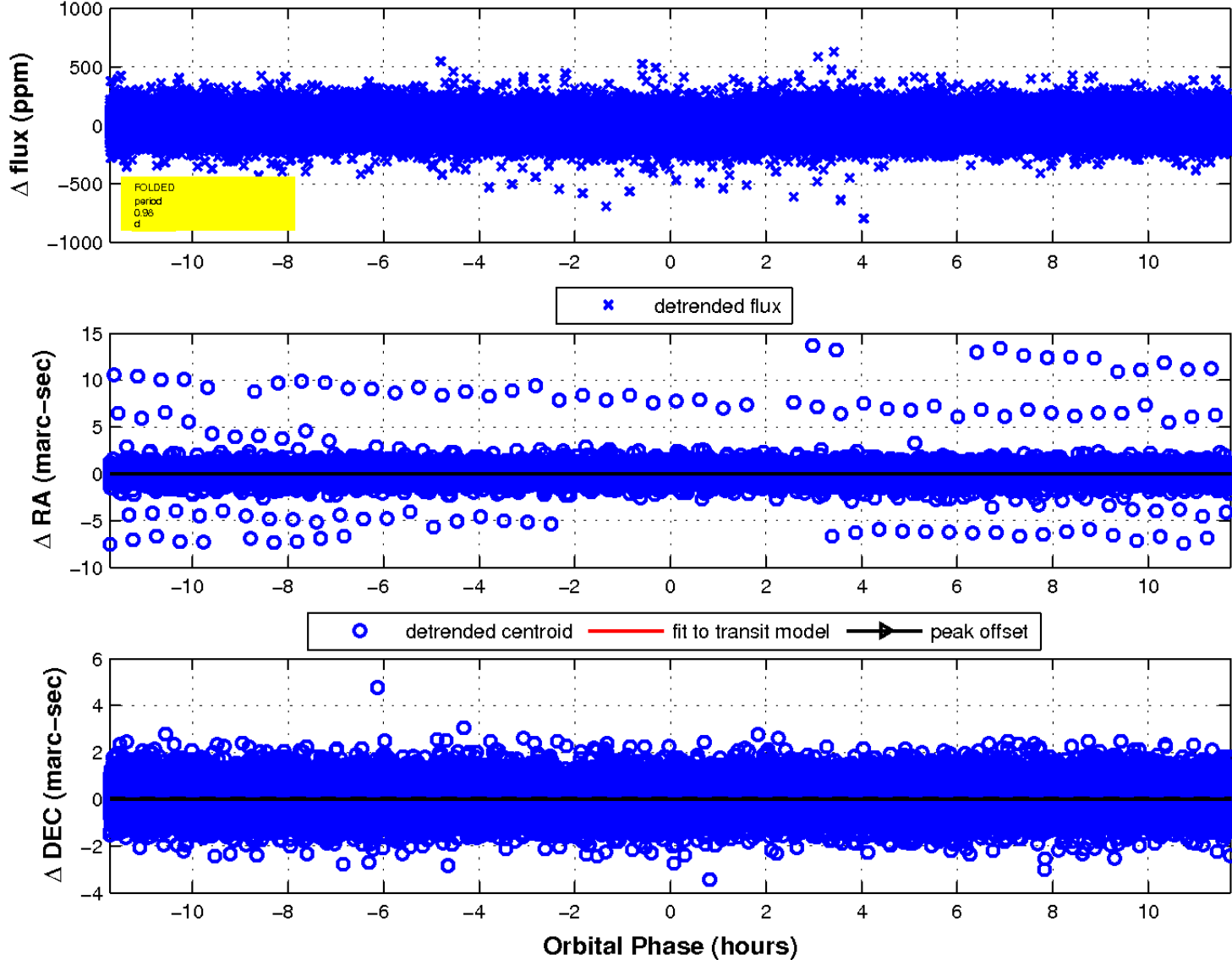
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

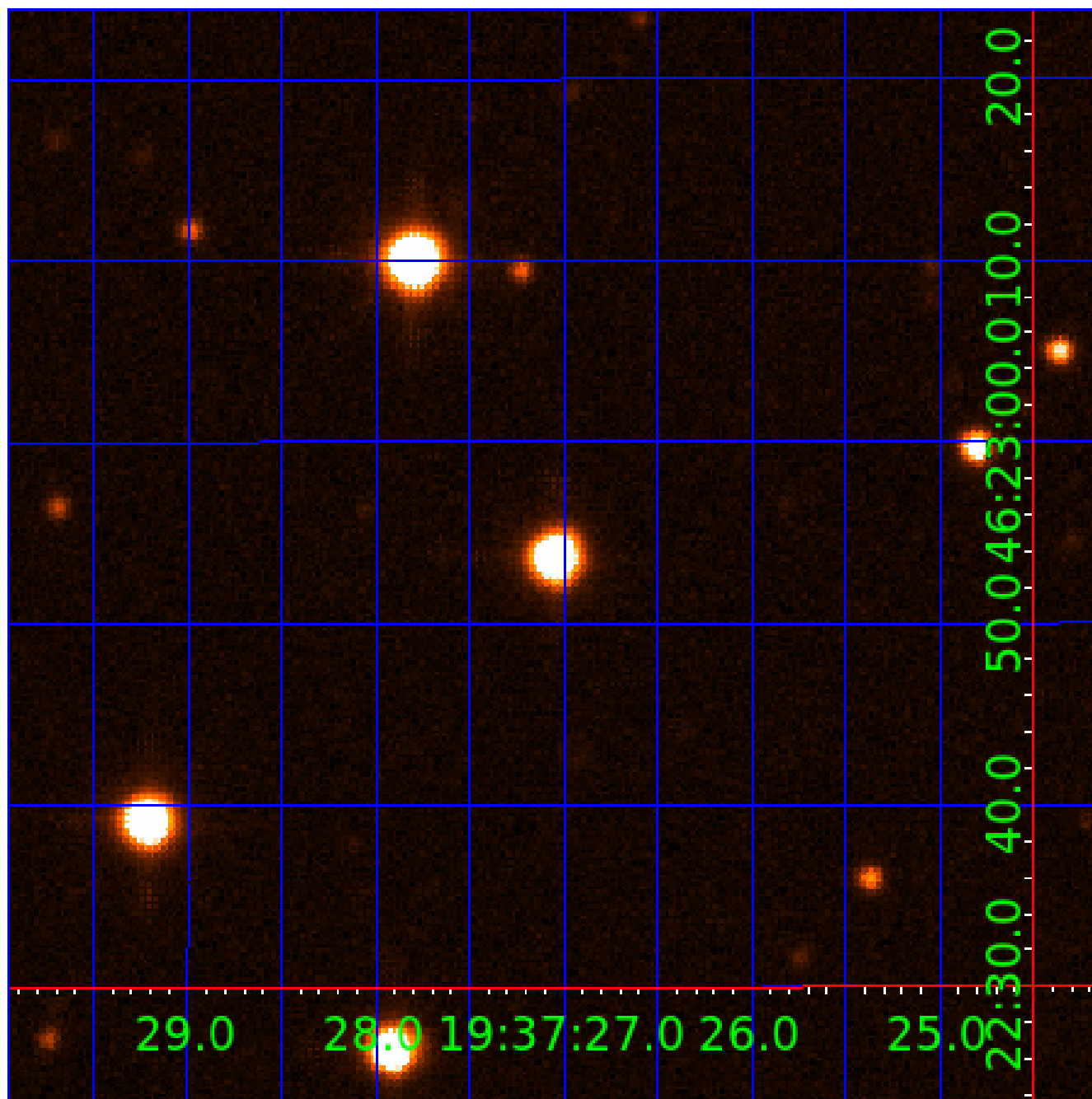


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009655461

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})
009655461-01	OBS	No	0.977175	132.282264	11.9	6.626	11.4	13.4	1.71	7968	0.60	19640.44
009655461-02	OBS	No	82.226512	175.438170	161.5	2.043	8.5	9.4	1.71	7968	2.52	53.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655461-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009655461-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

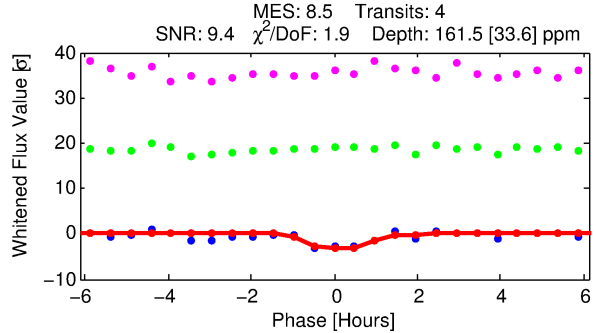
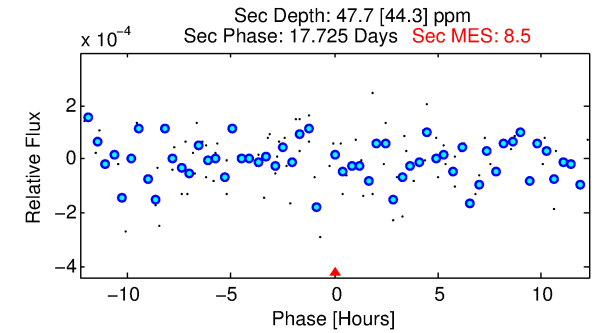
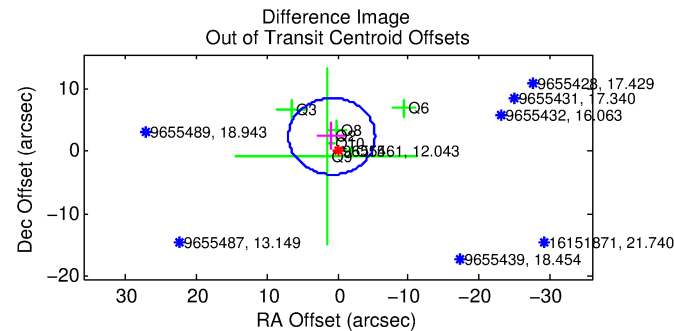
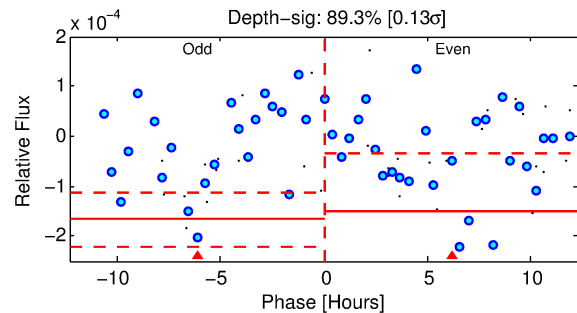
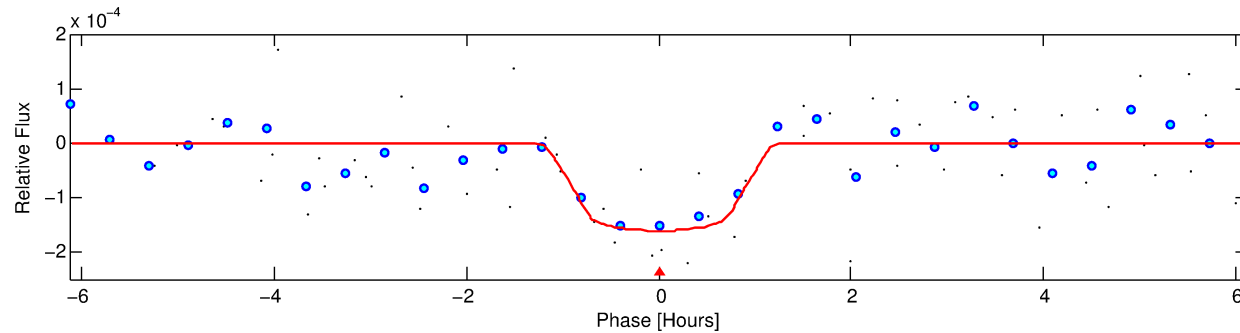
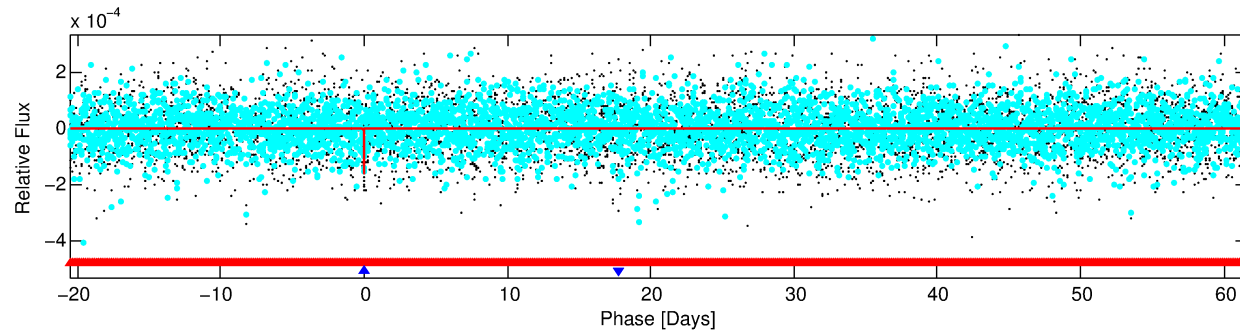
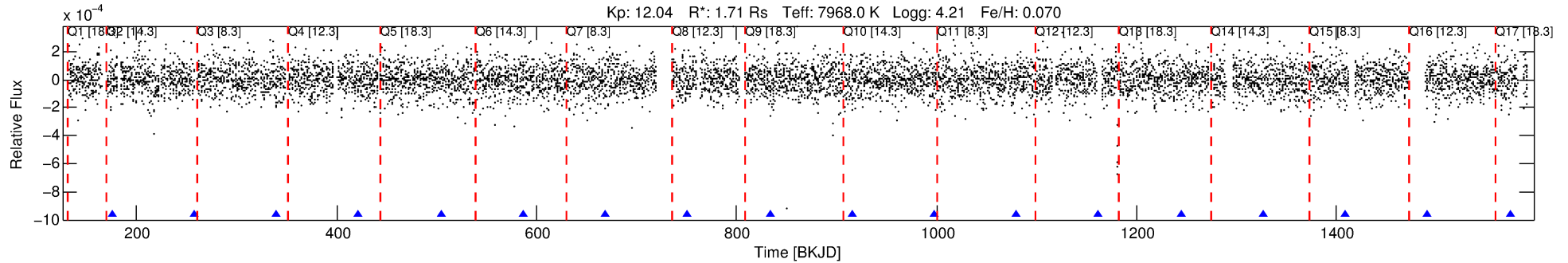
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655461-02

No Significant Match Found

DV One-Page Summary

KIC: 9655461 Candidate: 2 of 2 Period: 82.227 d



DV Fit Results:

Period = 82.22651 [0.00125] d
Epoch = 175.4382 [0.0148] BKJD
Rp/R* = 0.0135 [0.0219]
a/R* = 143.09 [1483.58]
b = 0.90 [2.22]
Seff = 53.26 [21.78]
Teq = 689 [70] K
Rp = 2.52 [4.15] Re
a = 0.4445 [0.1115] AU
Ag = 818.75 [2778.75] [0.29σ]
Teffp = 5697 [4812] K [1.04σ]

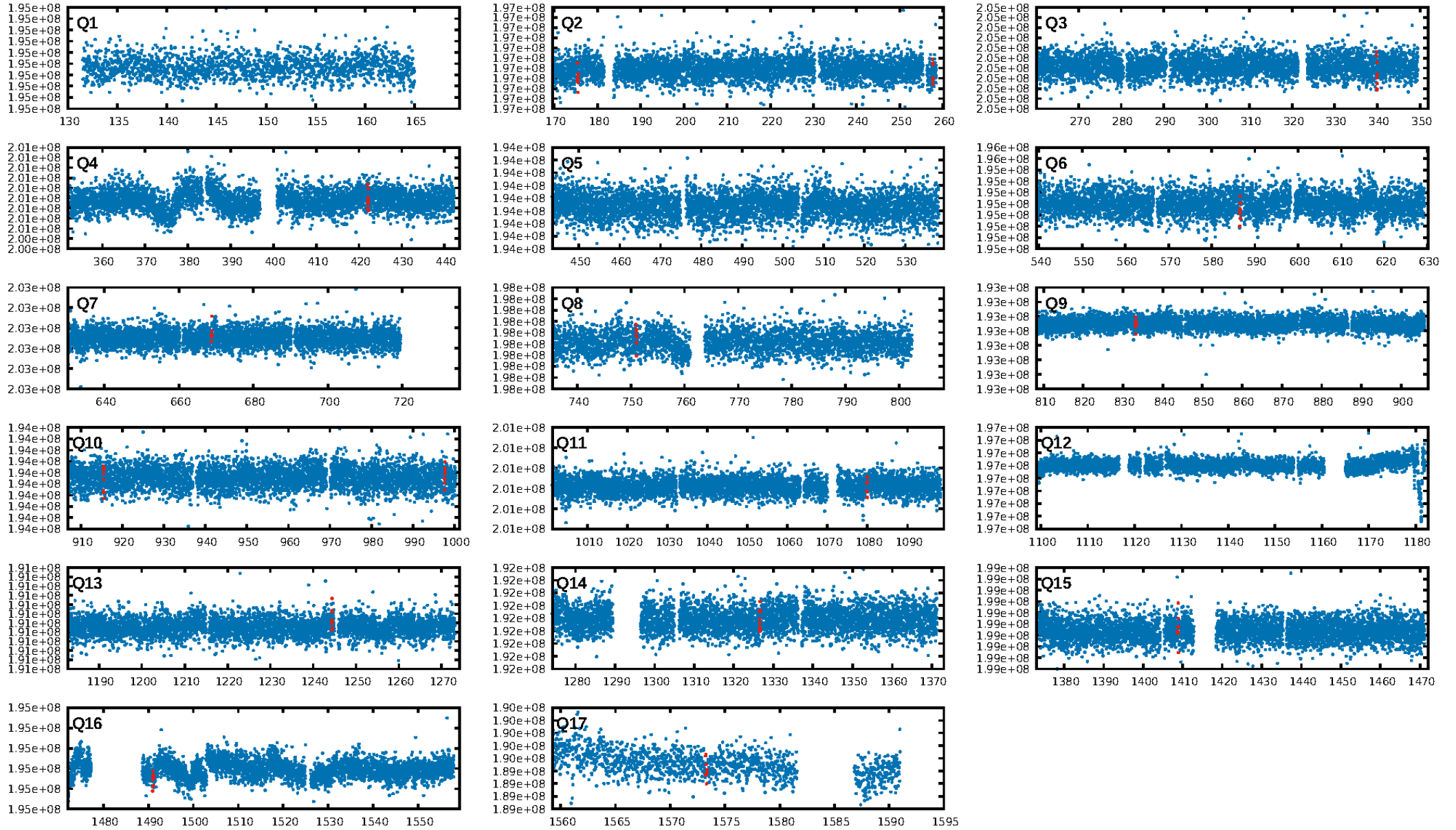
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [281.24σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 64.4%
ModelChiSquareGof-sig: 97.3%
Bootstrap-pfa: 1.55e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -4.828
Centroid-sig: 45.2%
Centroid-so: 0.851 arcsec [0.81σ]
OotOffset-rm: 2.500 arcsec [1.22σ]
KicOffset-rm: 2.493 arcsec [1.22σ]
OotOffset-st: 3/2/1/1 [7]
KicOffset-st: 3/2/1/1 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.21 [3/14]

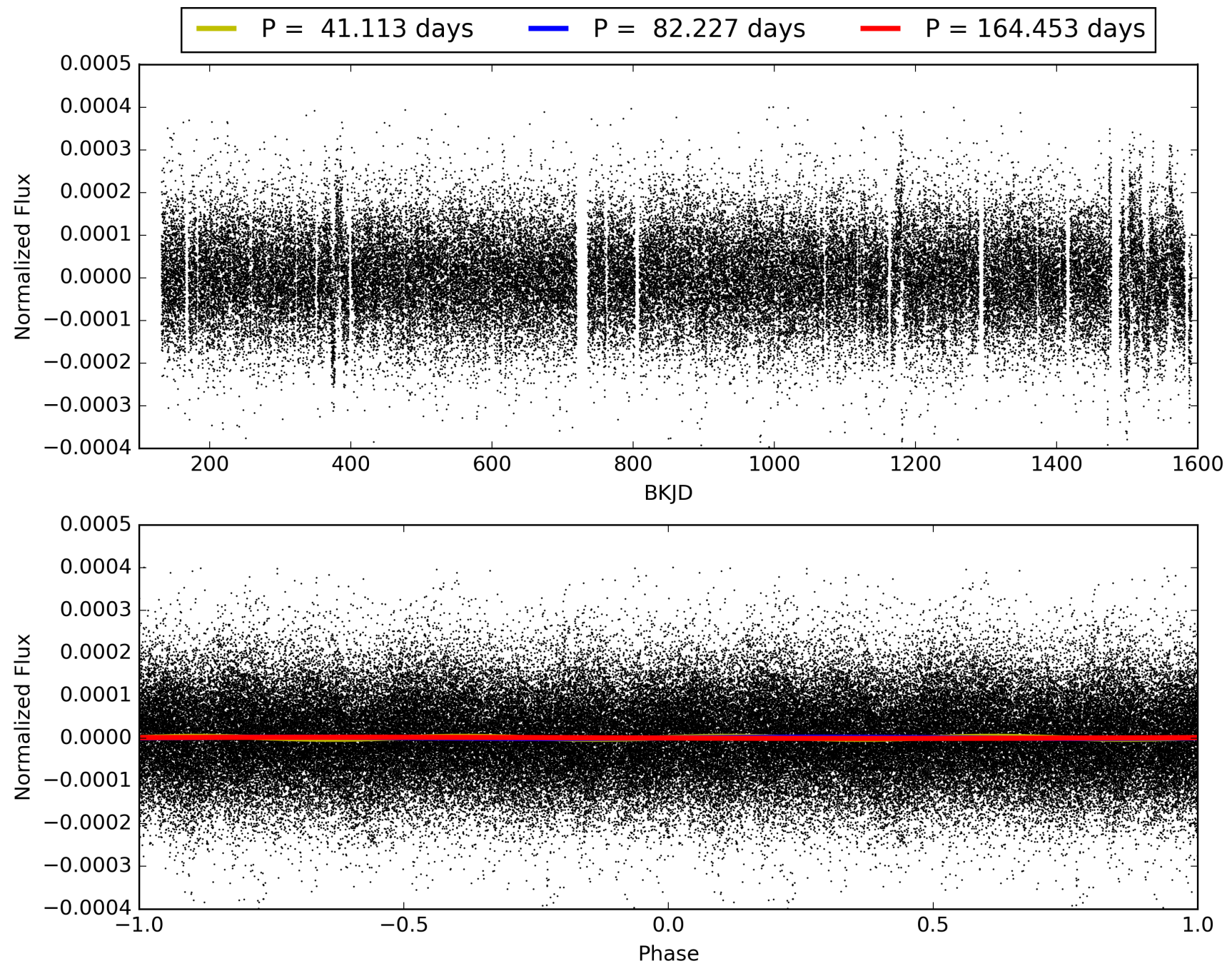
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:05:03 Z

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

TCE 009655461-02, PDC Light Curves

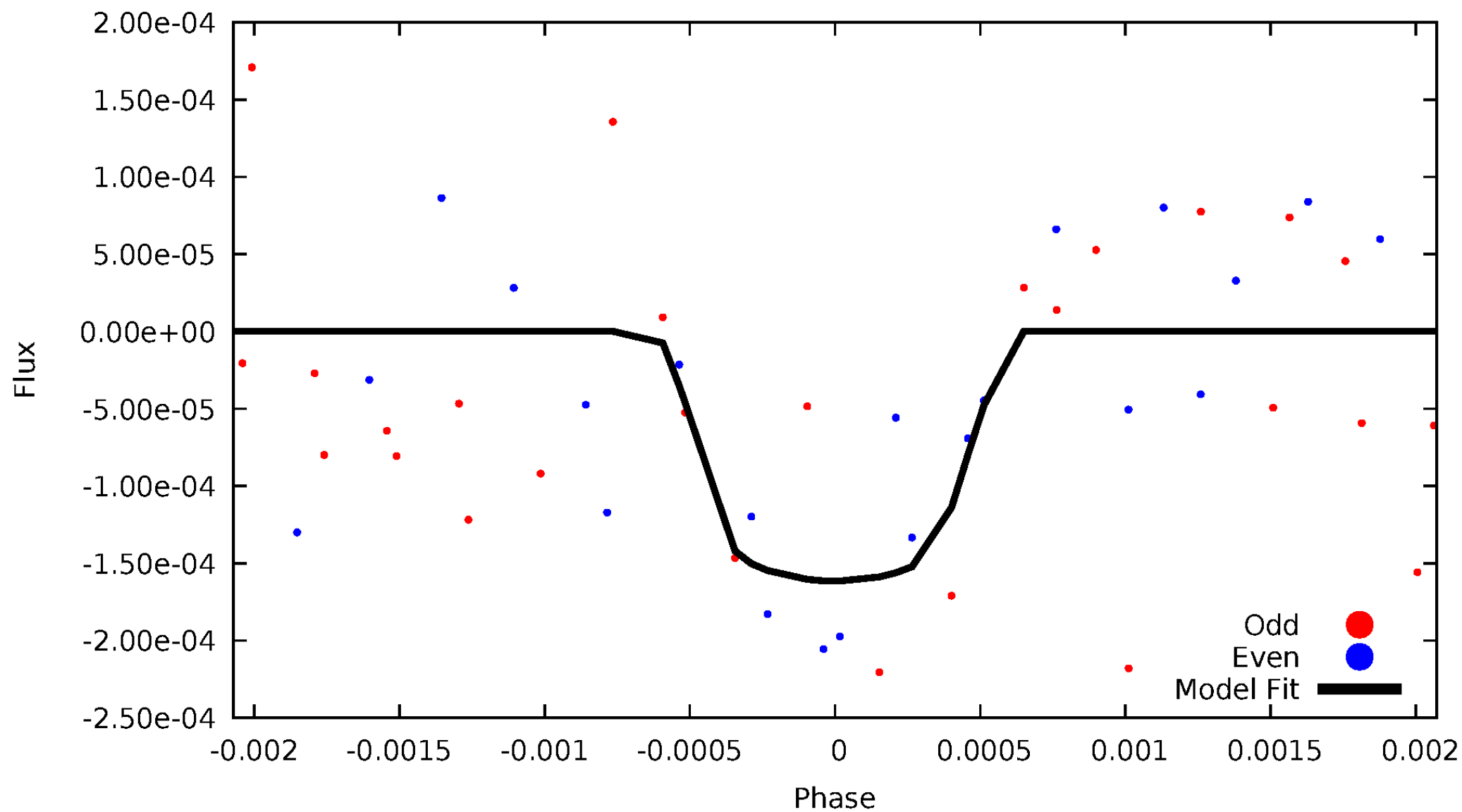


TCE 009655461-02



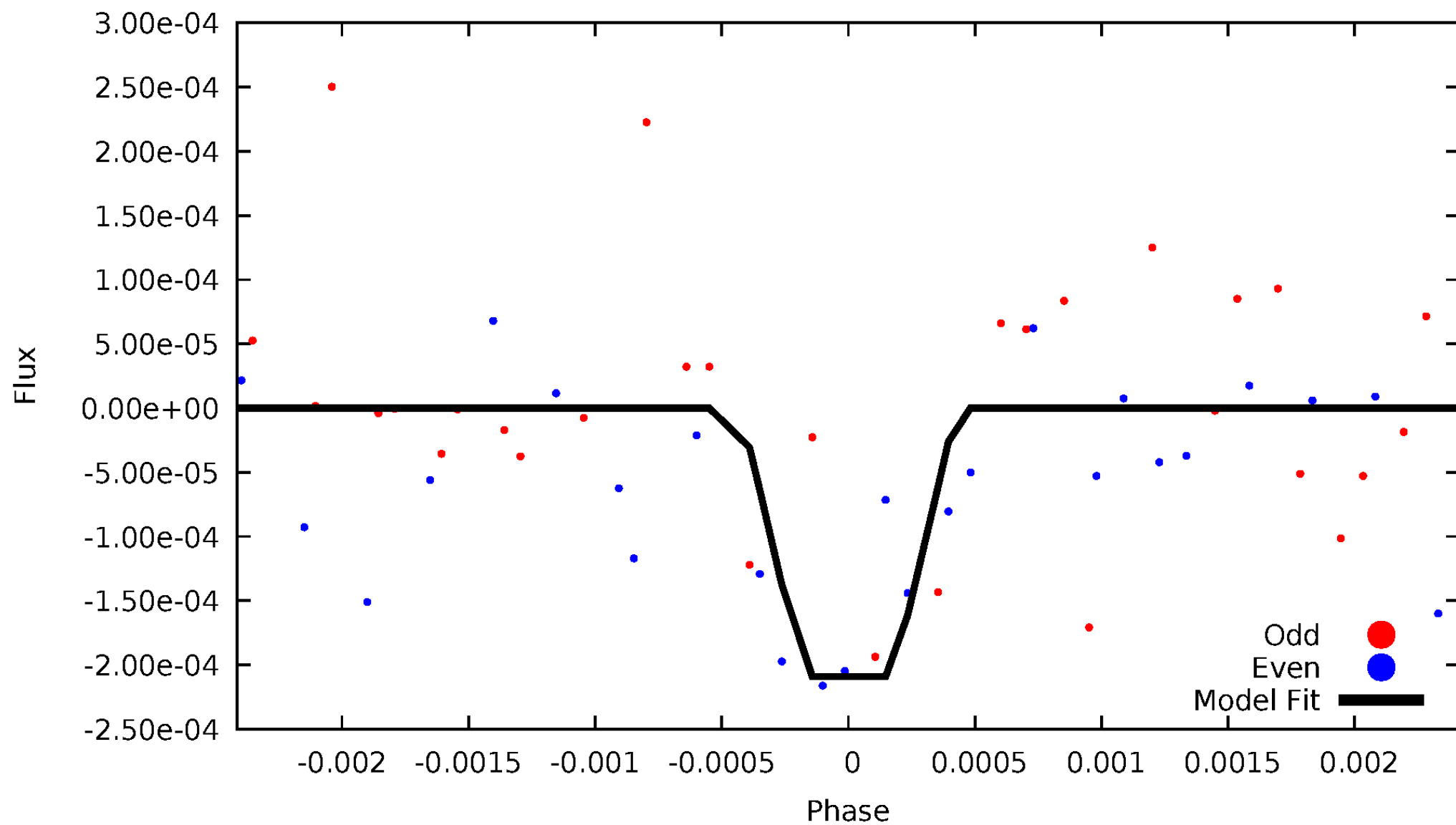
DV Odd/Even

TCE 009655461-02



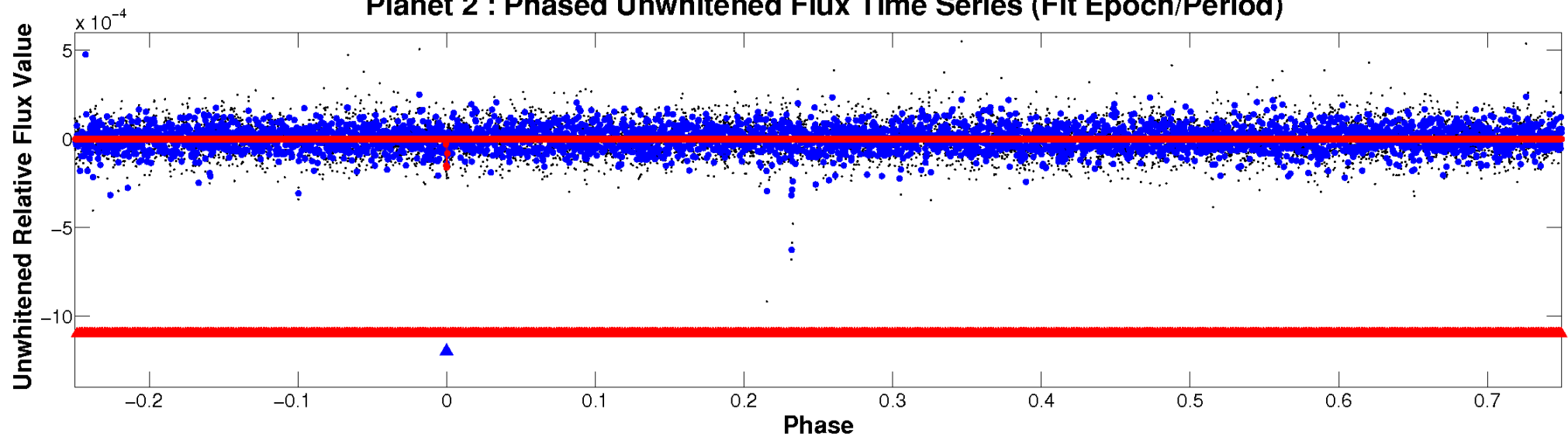
ALT Odd/Even

TCE 009655461-02

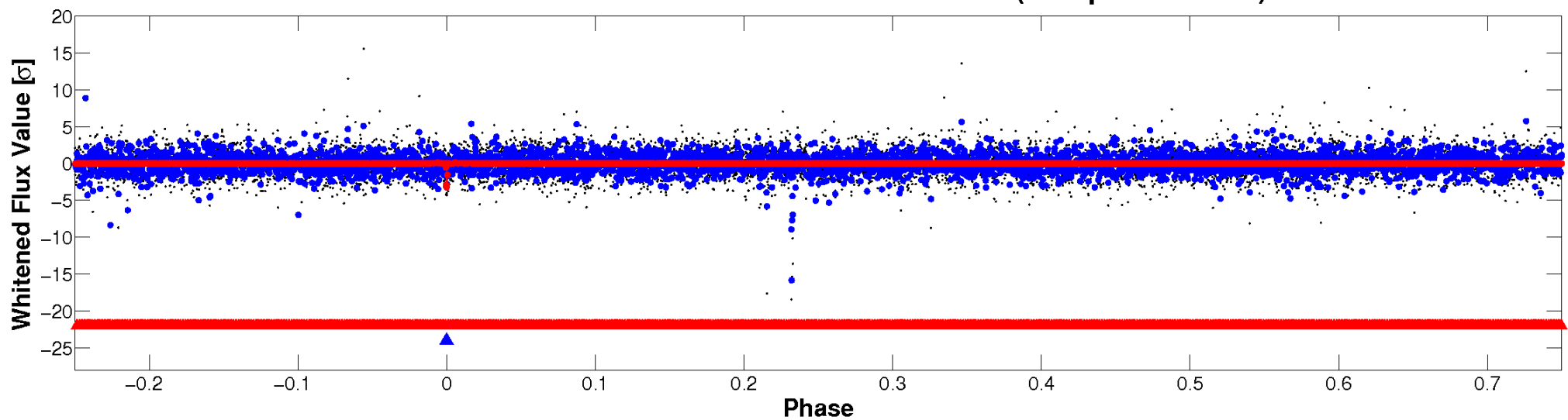


Non-Whitened Vs. Whitened Light Curve

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

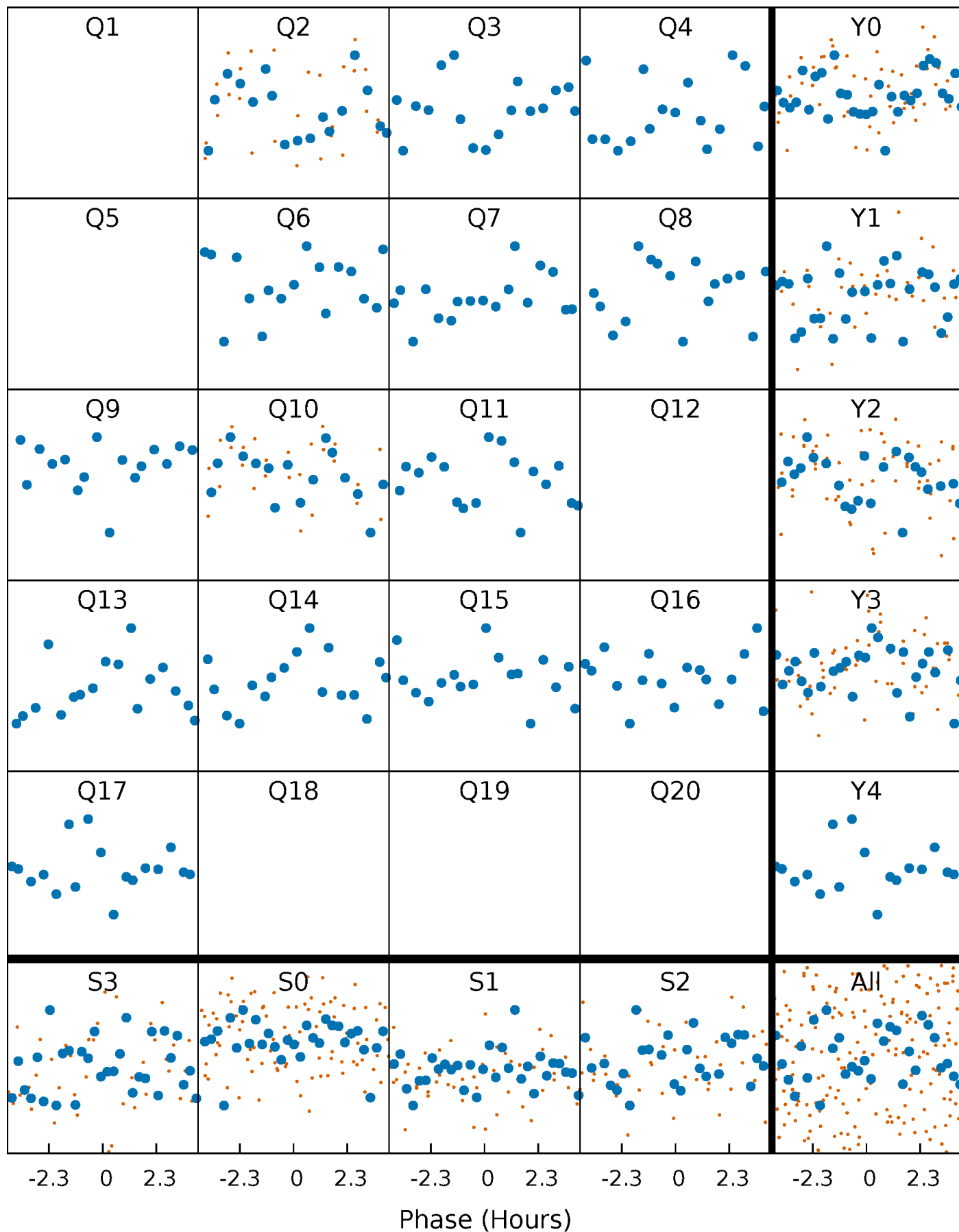


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



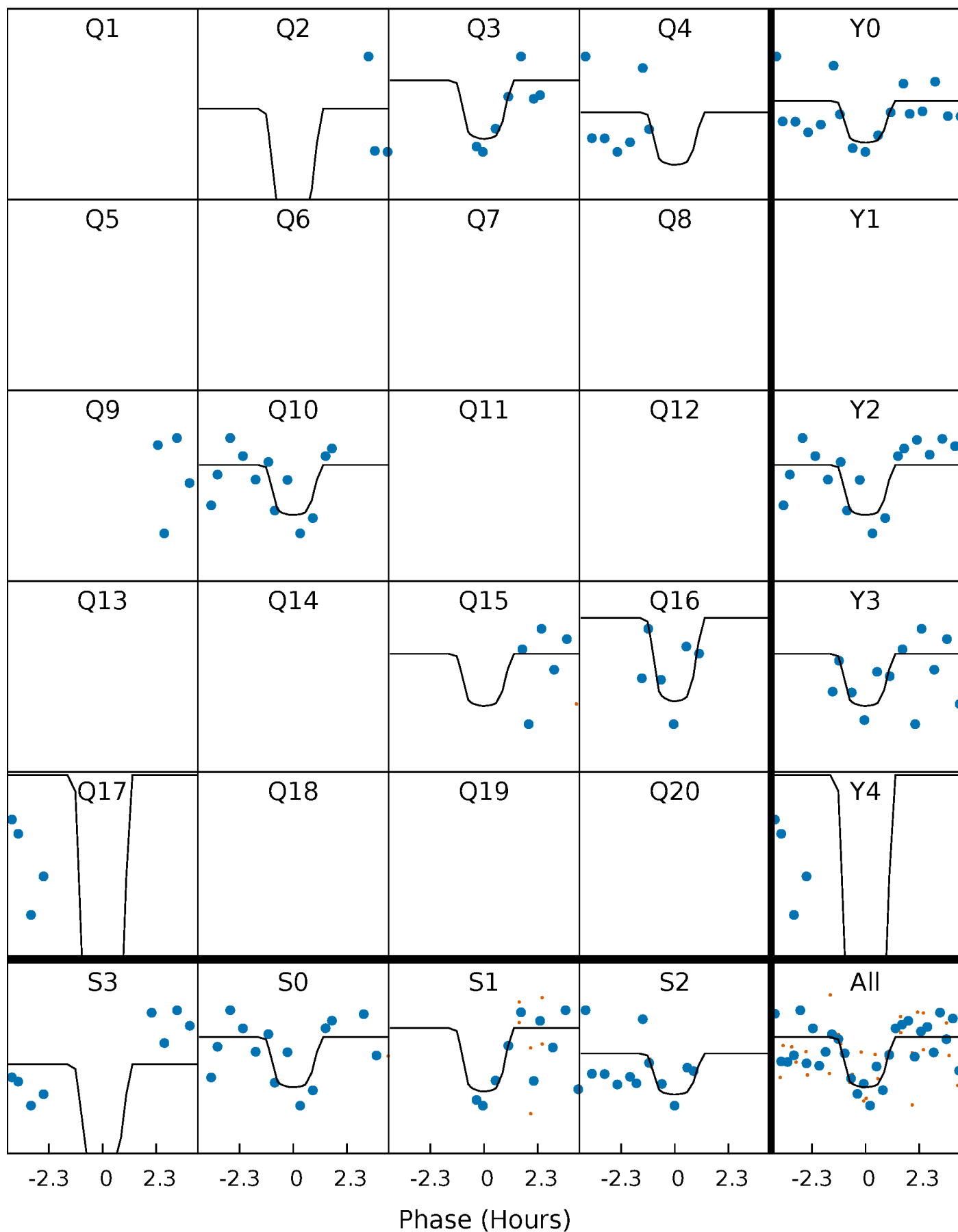
PDC Quarter-Phased Transit Curves

TCE 009655461-02 P= 82.226512 Days $T_0=175.438170$ (BKJD)



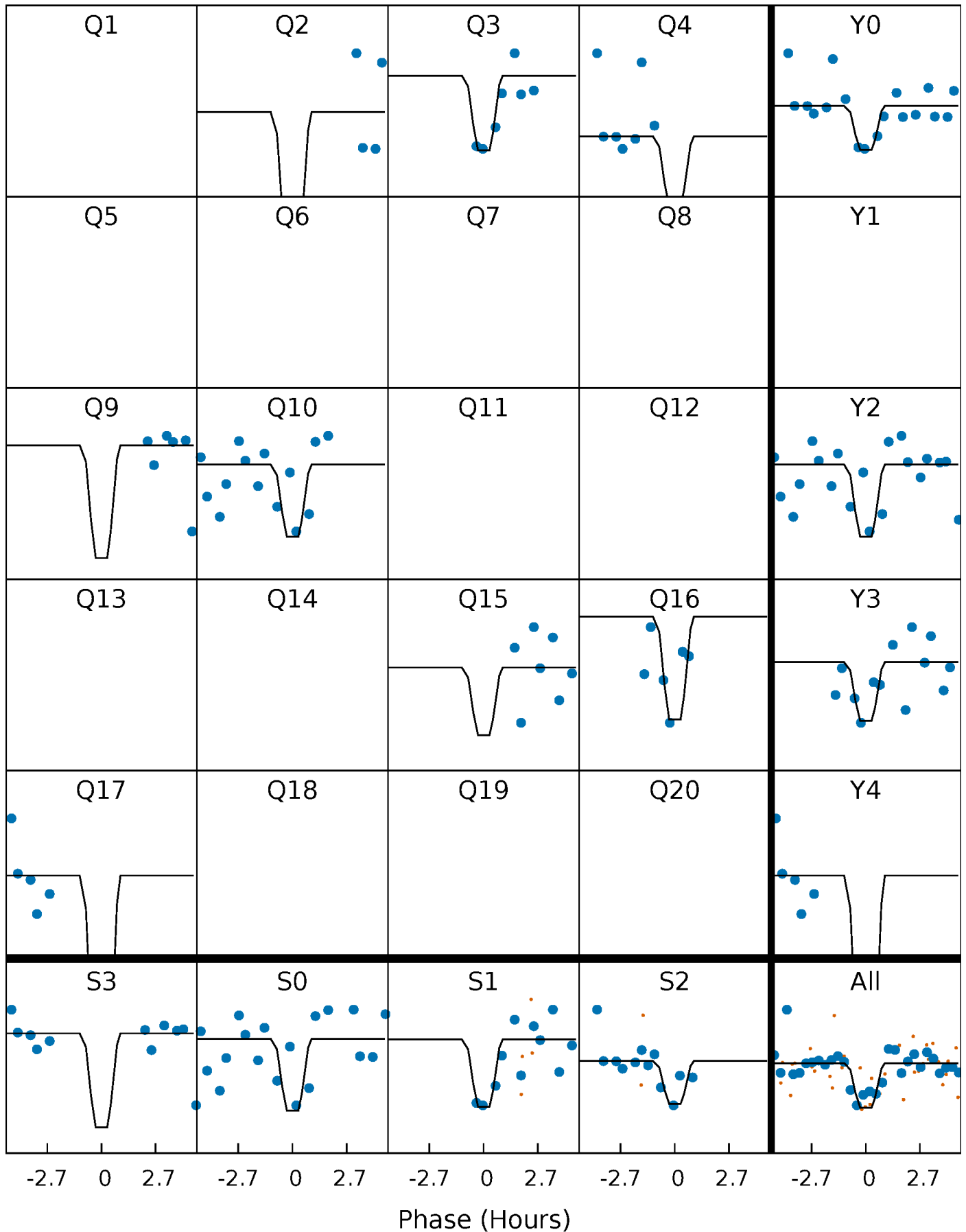
DV Quarter-Phased Transit Curves

TCE 009655461-02 P= 82.226512 Days $T_0=175.438170$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

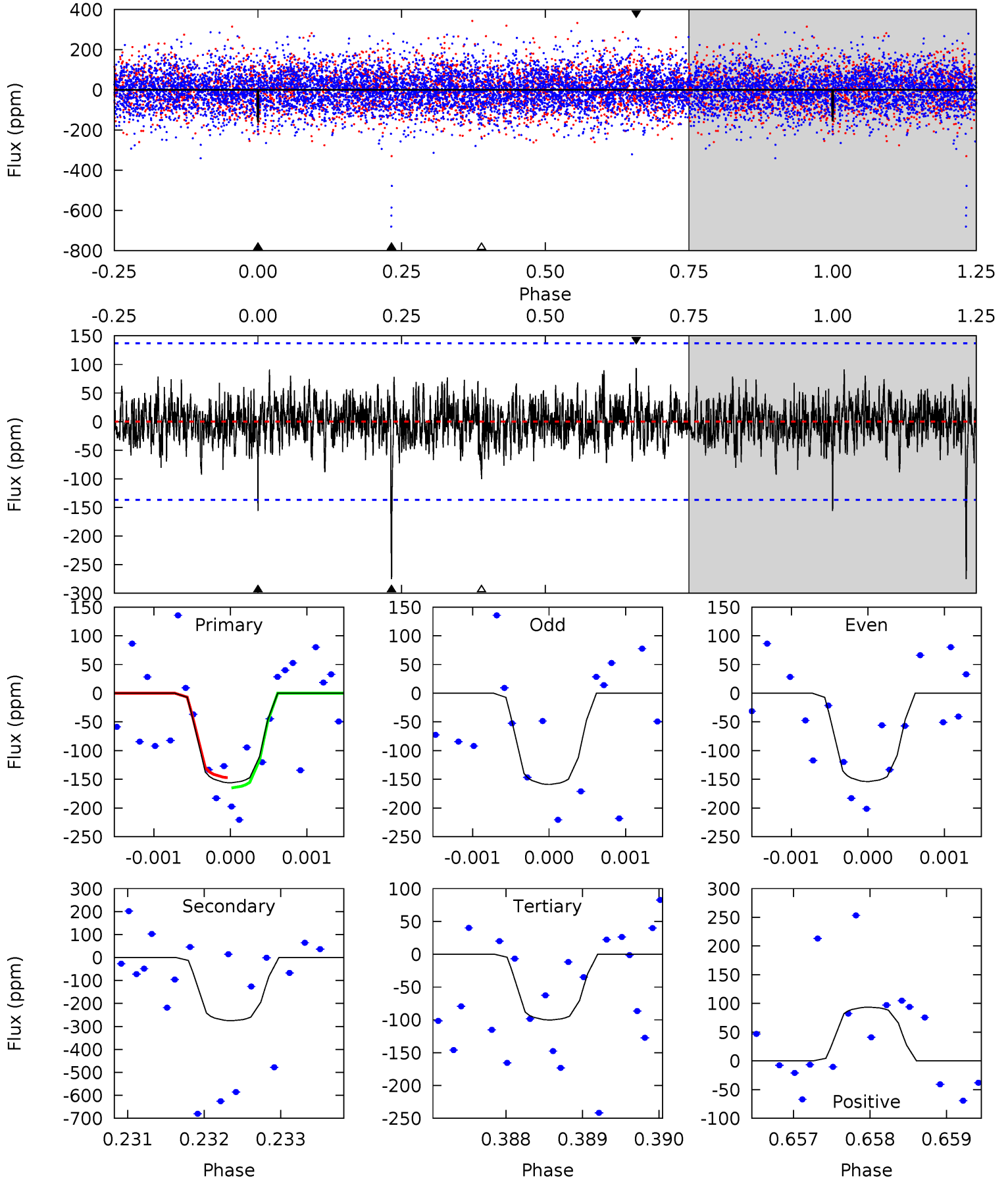
TCE 009655461-02 P= 82.226698 Days $T_0=175.440315$ (BKJD)



DV Model-Shift Uniqueness Test

009655461-02, P = 82.226512 Days, E = 93.211658 Days

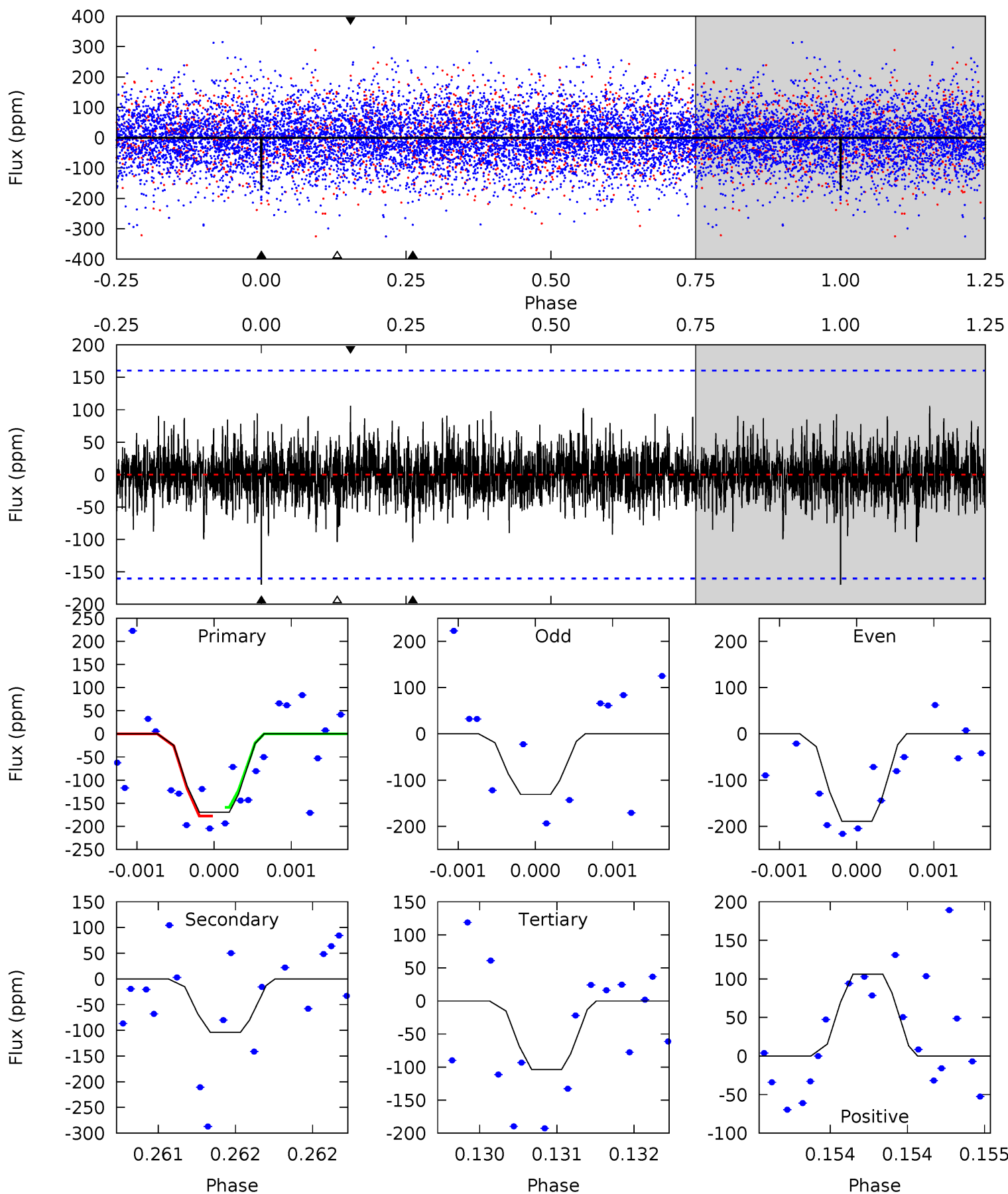
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.21	10.9	3.98	3.72	5.44	3.28	1.11	2.23	2.49	6.96	7.22	0.10	0.98	0.25	0.35



Alt Model-Shift Uniqueness Test

009655461-02, P = 82.226698 Days, E = 93.213617 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.82	3.58	3.56	3.64	5.50	3.37	1.00	2.26	2.18	0.01	-0.07	0.97	1.06	0.38	0.33



Stellar Parameters For KIC 009655461

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7968^{+219}_{-357}	$4.212^{+0.067}_{-0.202}$	$0.070^{+0.250}_{-0.400}$	$1.707^{+0.505}_{-0.233}$	$1.731^{+0.202}_{-0.247}$	$0.490^{+0.176}_{-0.252}$
	+3%/-4%	+2%/-5%	+357%/-571%	+30%/-14%	+12%/-14%	+36%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009655461-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-275 ± 25	$4.33^{+3.71}_{-2.87}$	977^{+66}_{-50}	6690^{+7403}_{-1693}	1534^{+11924}_{-1094}
Alt.	-104 ± 29	$4.30^{+3.92}_{-2.77}$	978^{+70}_{-57}	5269^{+3997}_{-1199}	588^{+3717}_{-433}

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 $A_{obs} \gg 1.0$

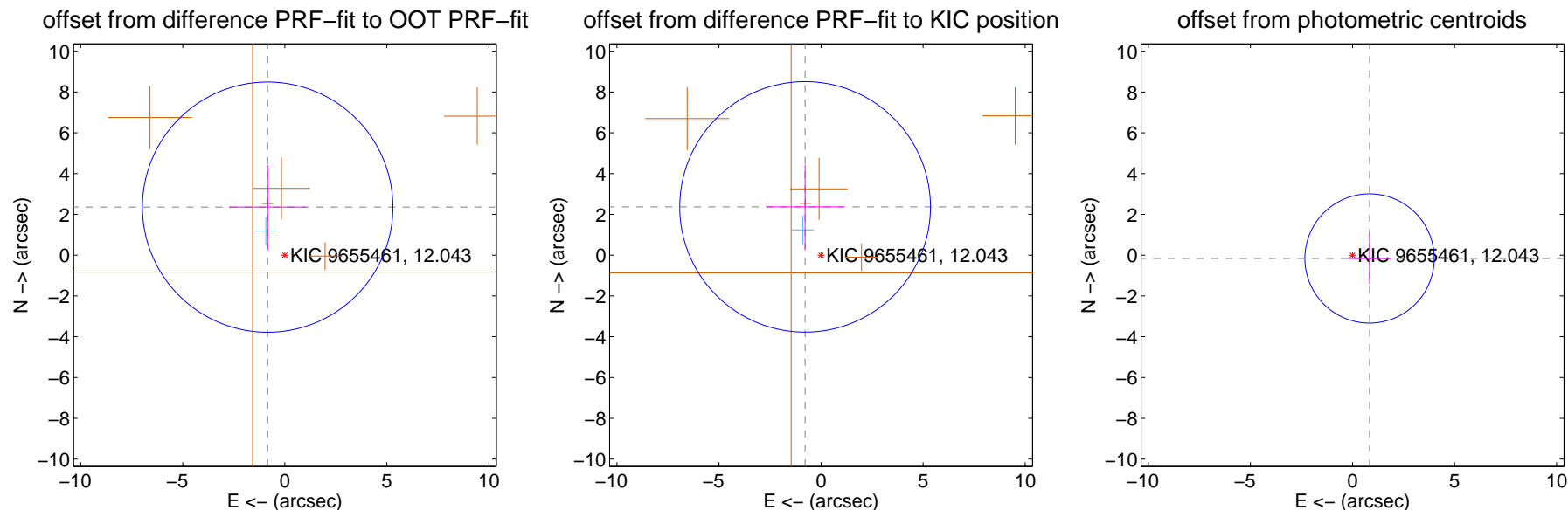
DV Centroid Data

Supplemental centroid analysis for 009655461-02. Kepler magnitude: 12.04. Transit SNR 9.42

There are 1 quarters with good PRF difference image offsets

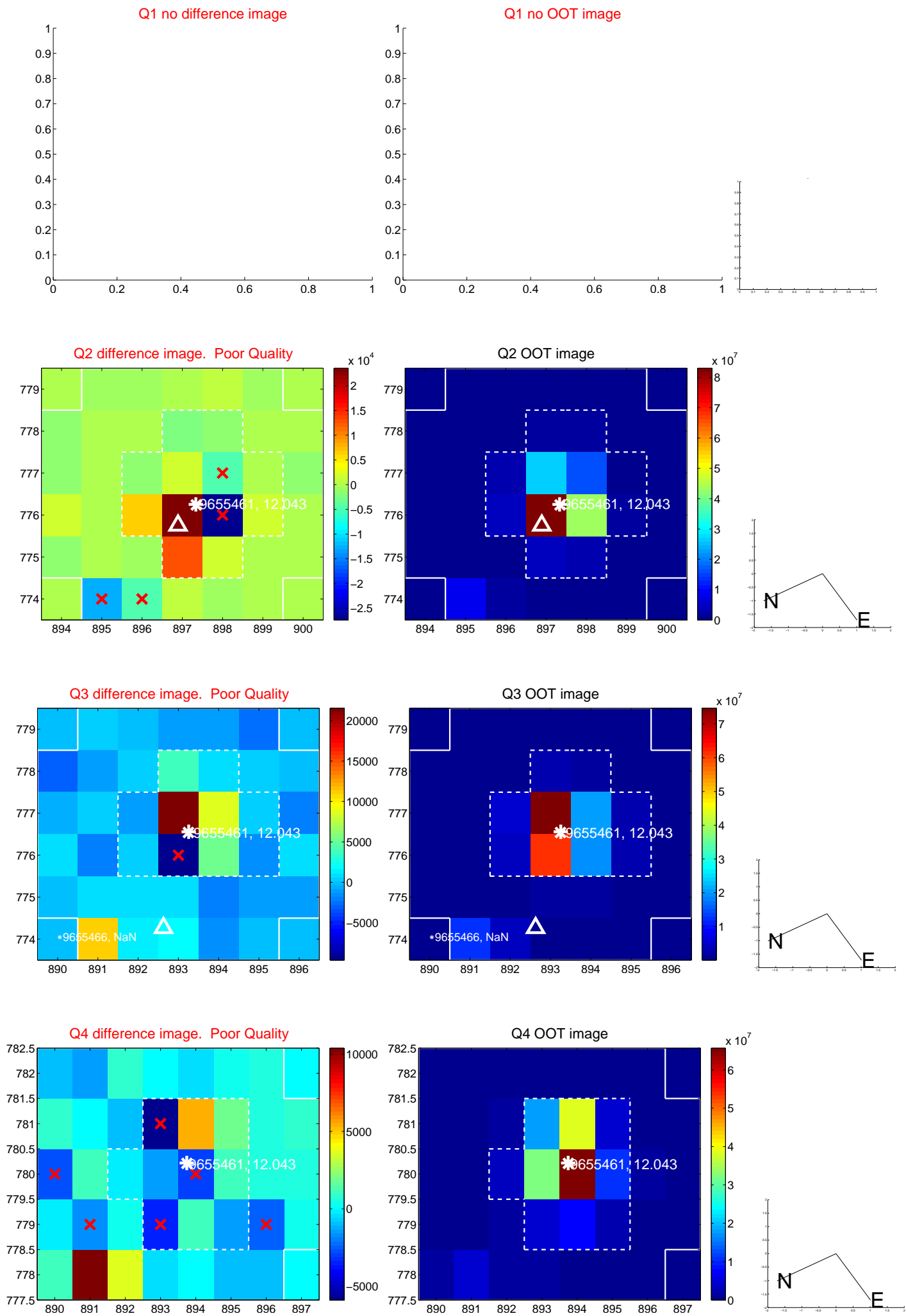
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.500 ± 2.045	1.22	0.839 ± 1.887	2.354 ± 2.064
PRF-fit source offset from KIC position	2.493 ± 2.048	1.22	0.782 ± 1.887	2.367 ± 2.064
photometric centroid source offset	0.85 ± 1.06	0.81	-0.84 ± 1.05	-0.16 ± 1.26

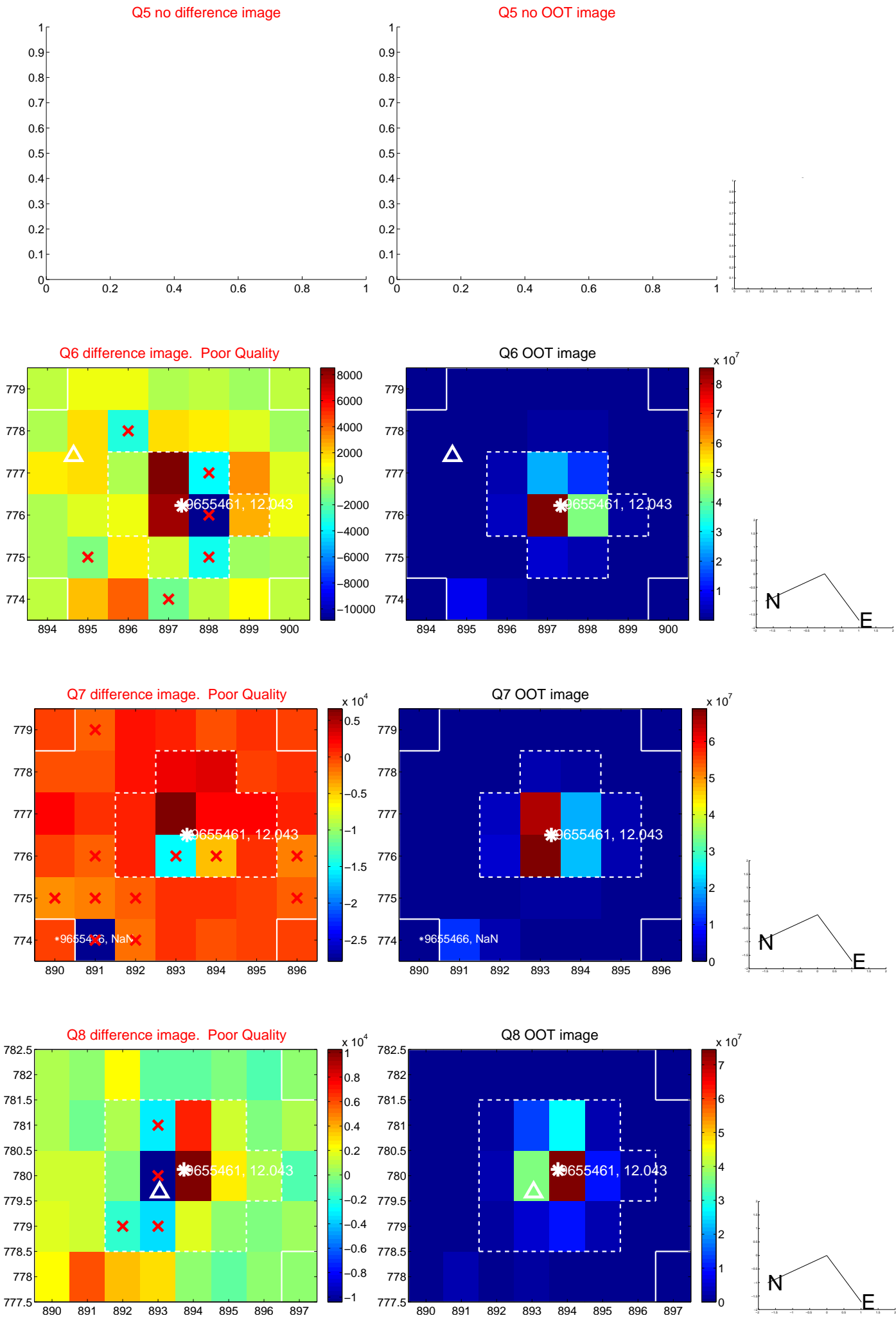


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

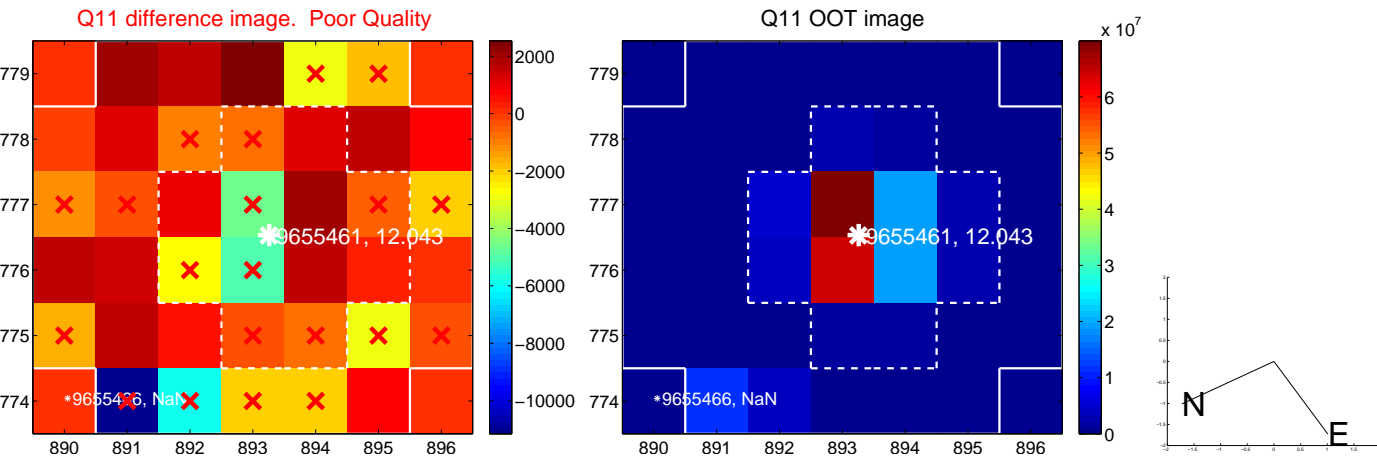
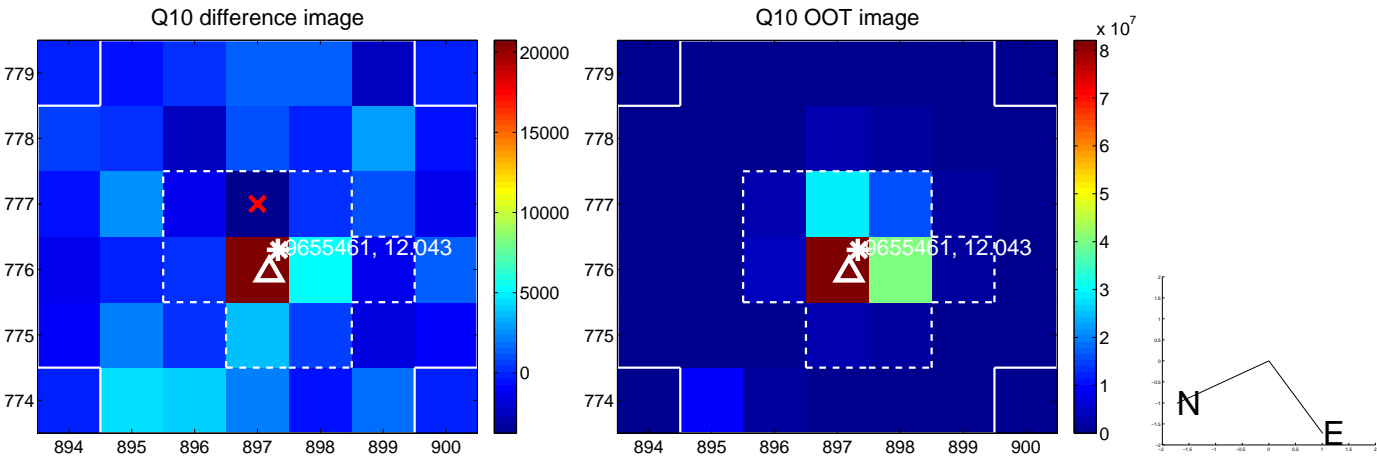
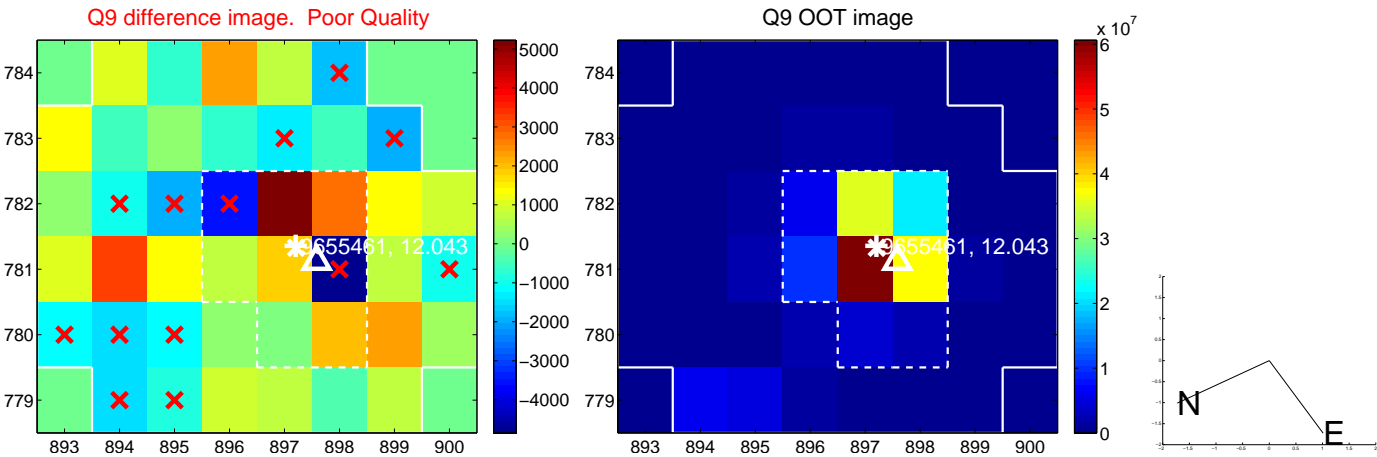
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



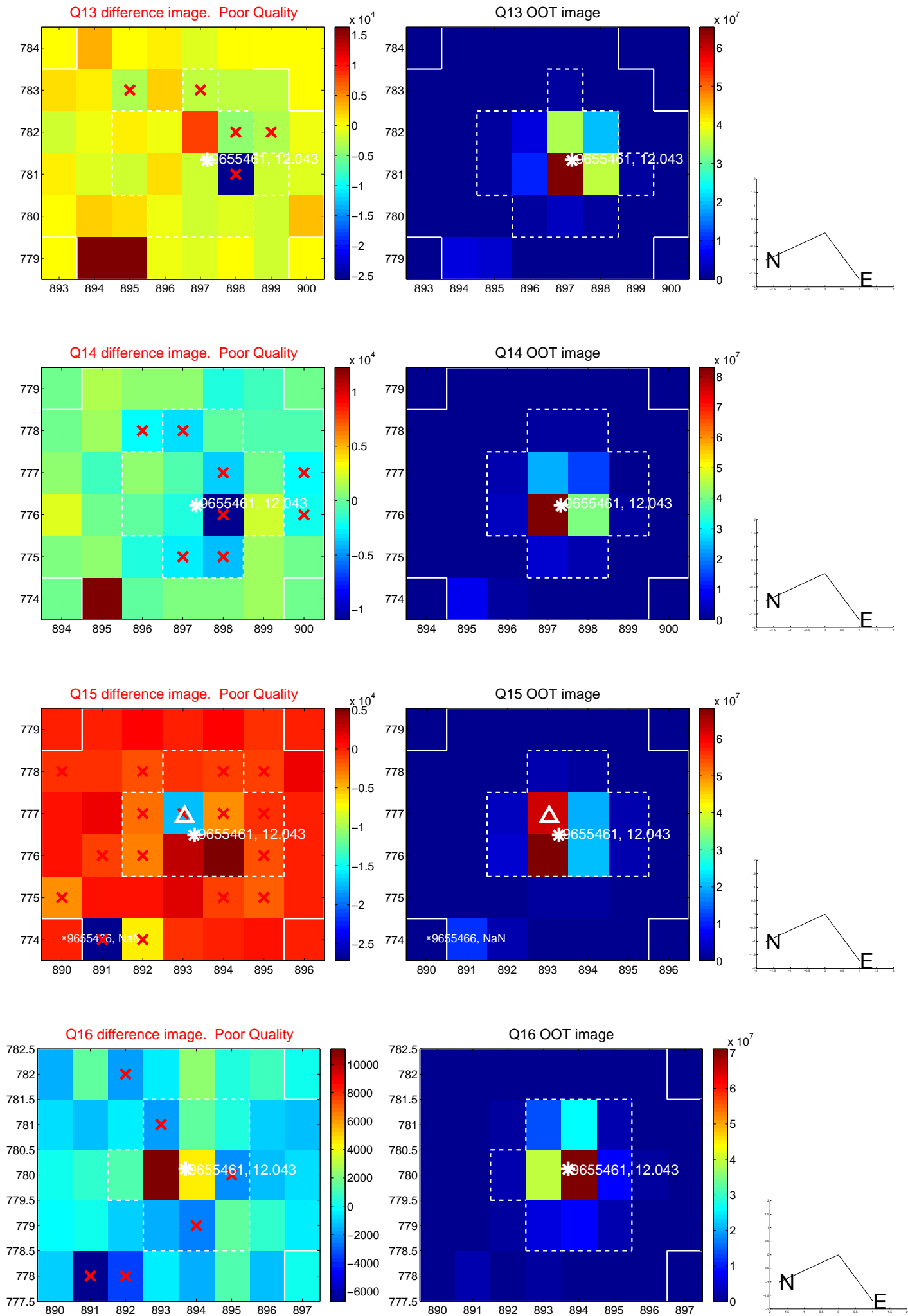
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



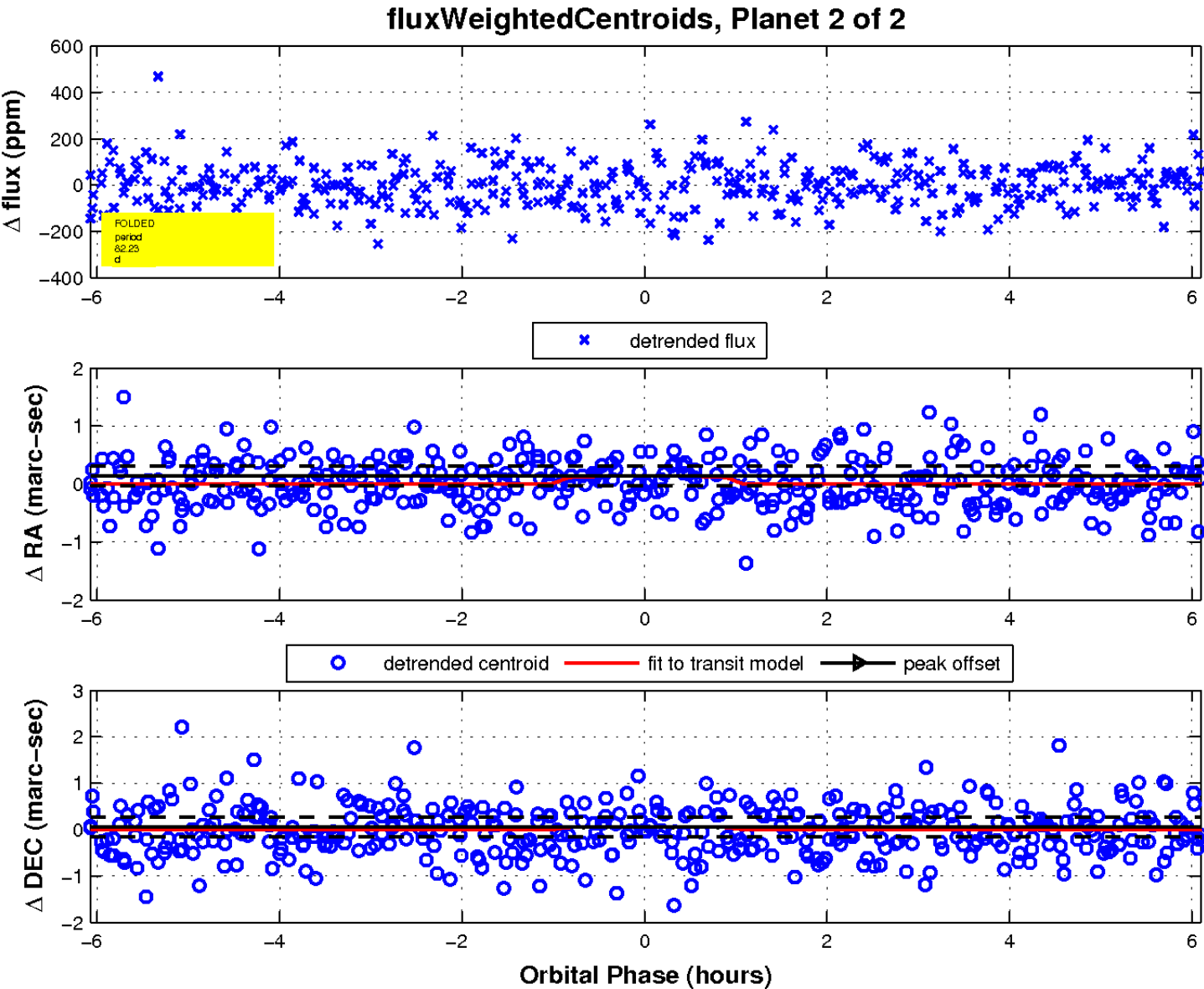
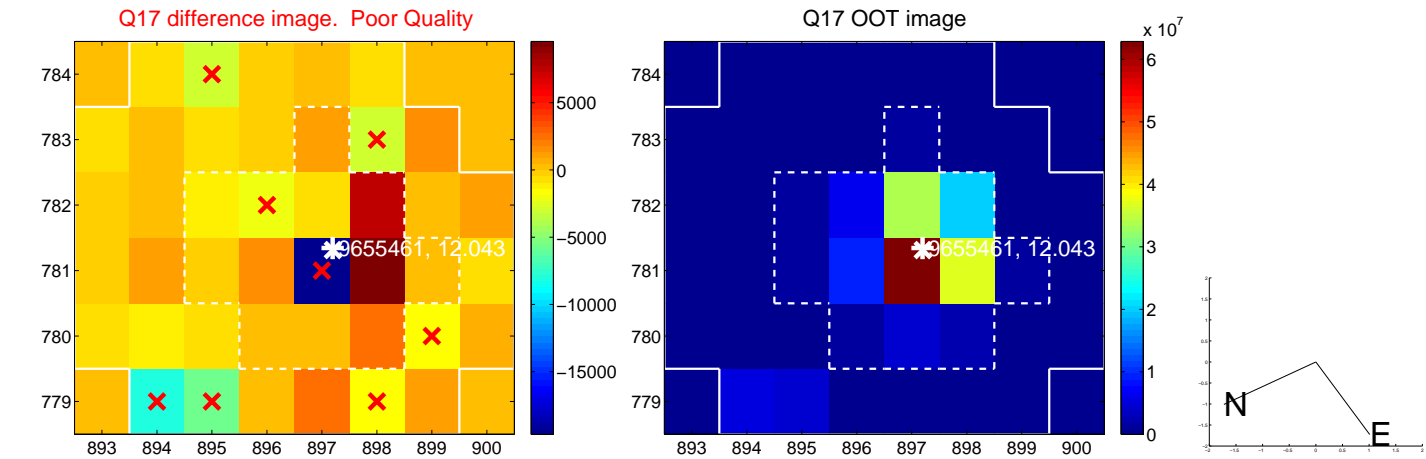
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

