

KIC 005990753

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})
005990753-01	OBS	6645.01	7.216460	133.885248	275.2	2.541	22.4	24.1	9.48	5029	19.26	5021.17
005990753-02	OBS	No	7.216481	137.980137	216.2	2.248	17.8	19.2	9.48	5029	17.05	5021.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005990753-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT SATURATED
005990753-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT SATURATED

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

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

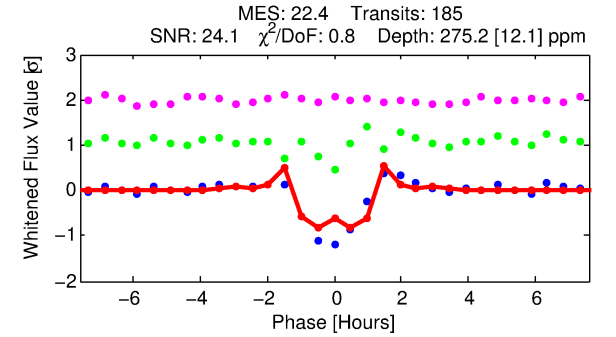
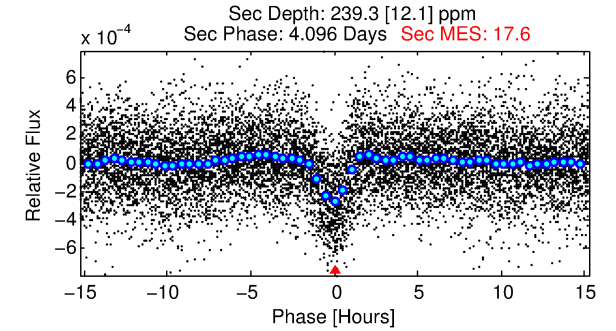
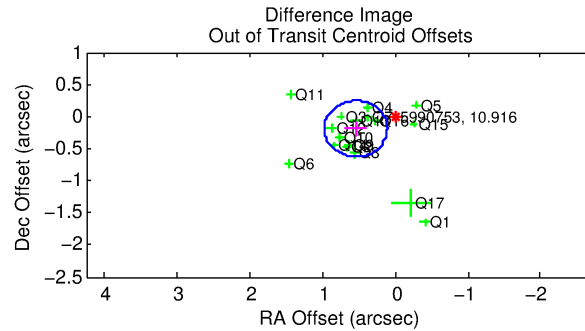
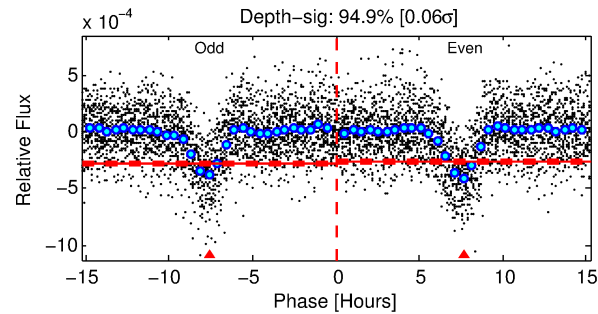
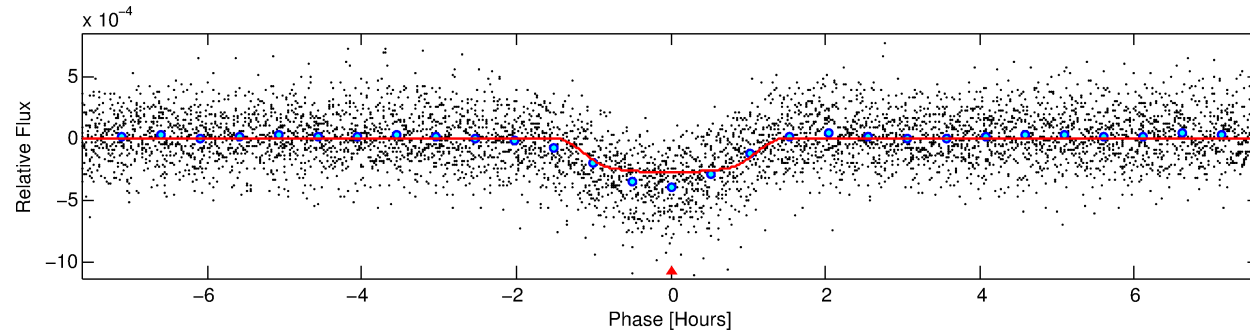
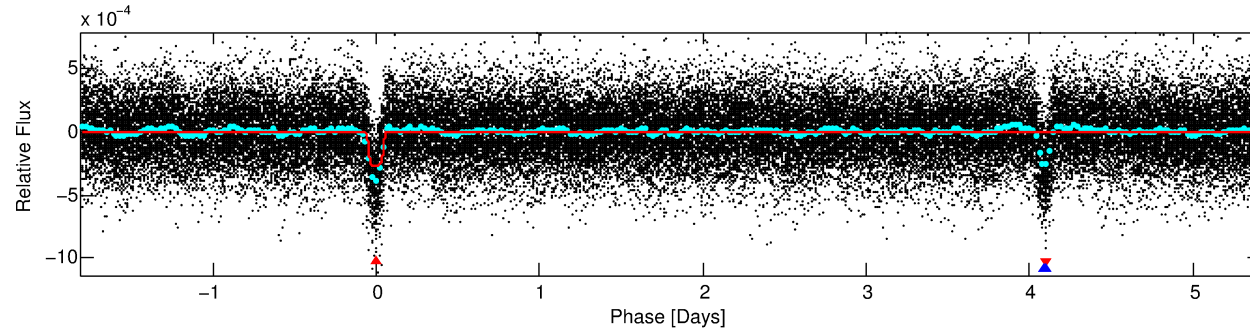
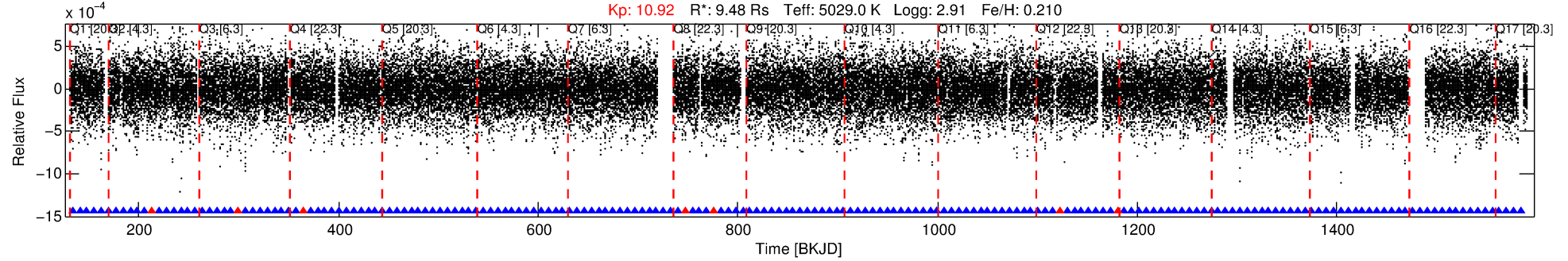
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005990753-01

No Significant Match Found

DV One-Page Summary

KIC: 5990753 Candidate: 1 of 2 Period: 7.216 d
KOI: K06645.01 Corr: 0.923



DV Fit Results:

Period = 7.21646 [0.00001] d
Epoch = 133.8852 [0.0009] BKJD
Rp/R* = 0.0186 [0.0018]
a/R* = 10.21 [3.64]
b = 0.90 [0.07]
Seff = 5021.17 [1031.51]
Teq = 2146 [110] K
Rp = 19.26 [4.72] Re
a = 0.1012 [0.0155] AU
Ag = 3.64 [0.93] [2.84 σ]
Teffp = 4584 [268] K [8.40 σ]

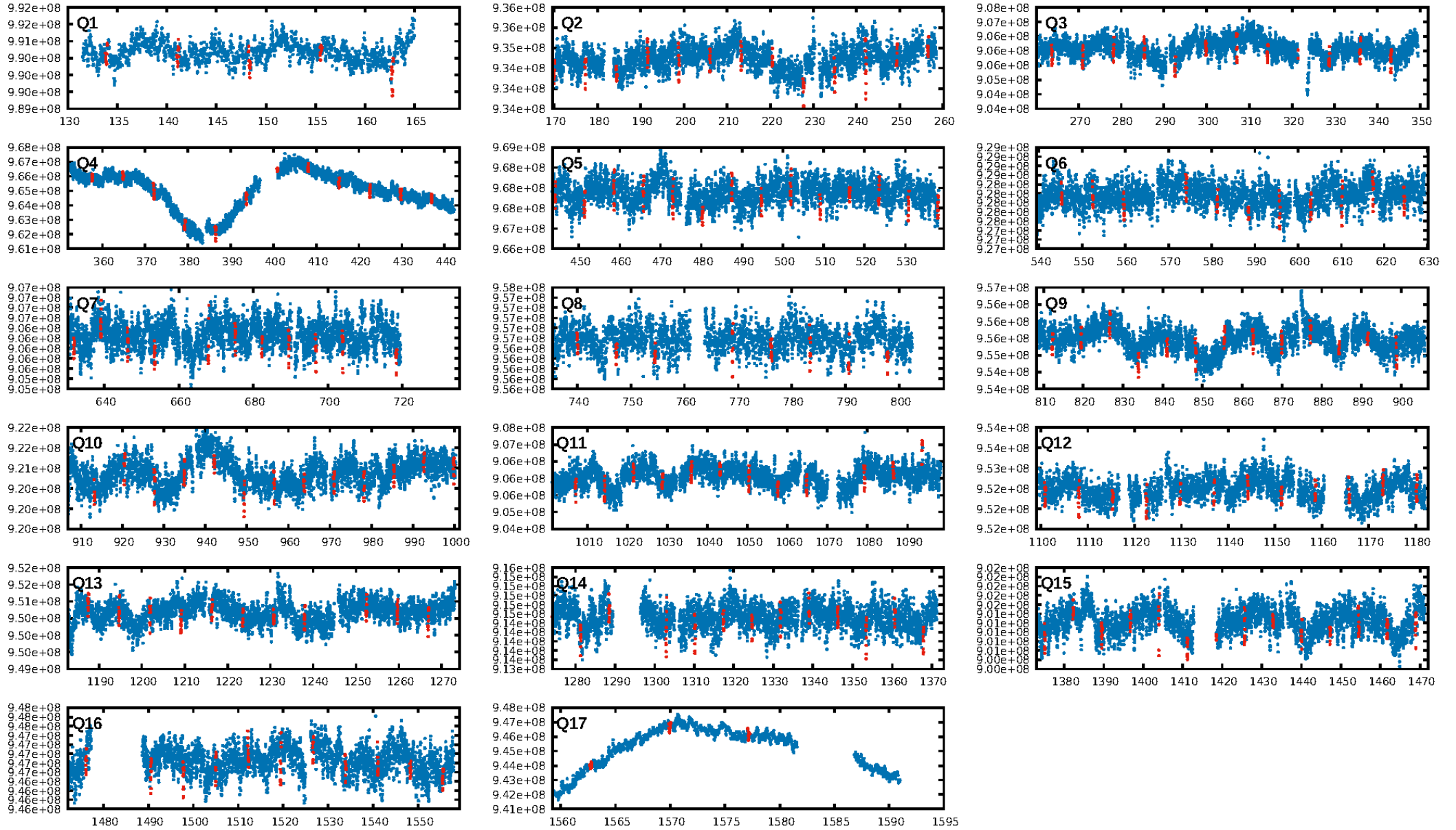
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.48e-97
RollingBand-fgt: 0.96 [170/177]
GhostDiagnostic-chr: 1.725
Centroid-sig: N/A
Centroid-so: 0.569 arcsec [4.77 σ]
OotOffset-rm: 0.575 arcsec [3.95 σ]
KicOffset-rm: 0.579 arcsec [3.66 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

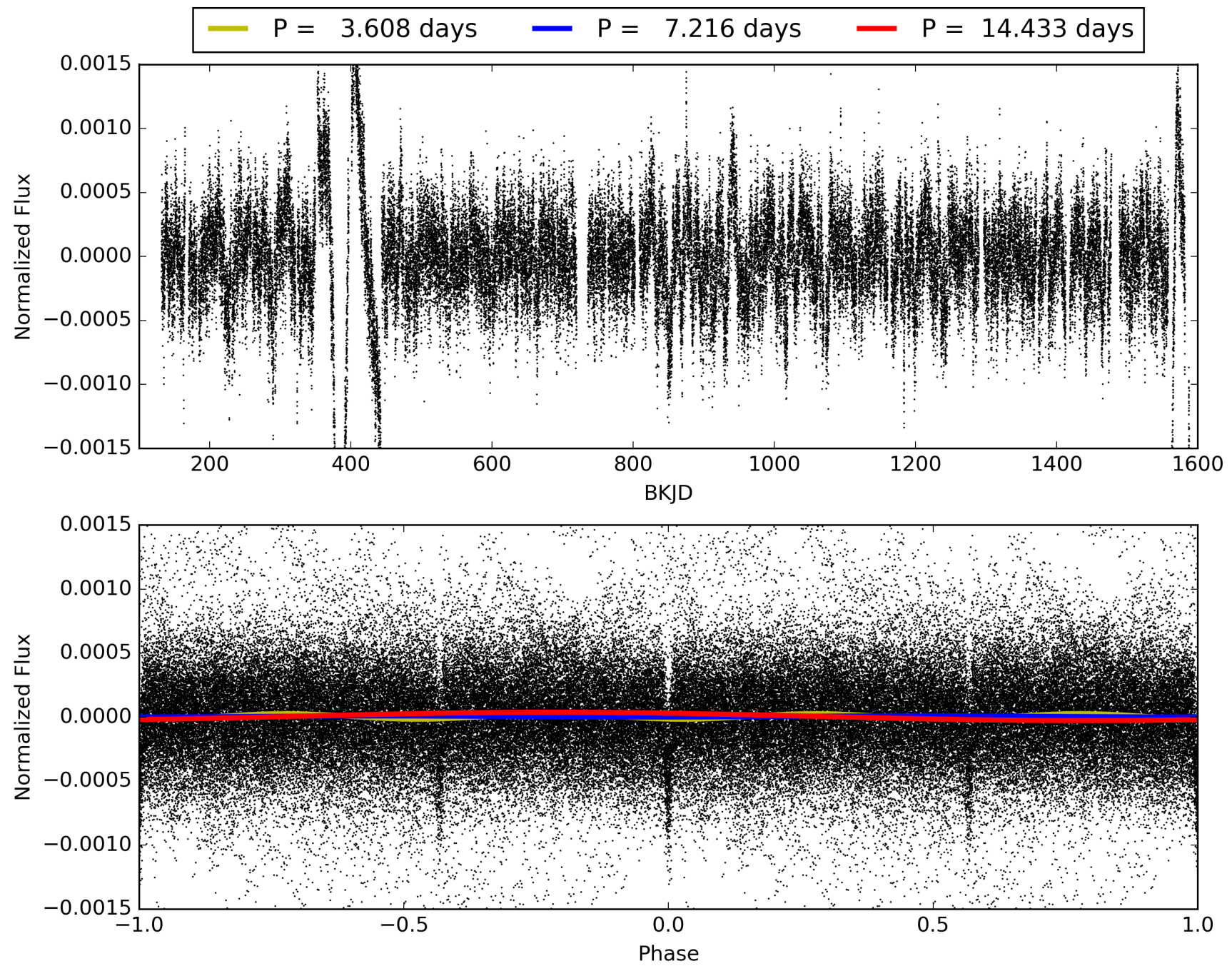
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:06:21 Z

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

TCE 005990753-01, PDC Light Curves

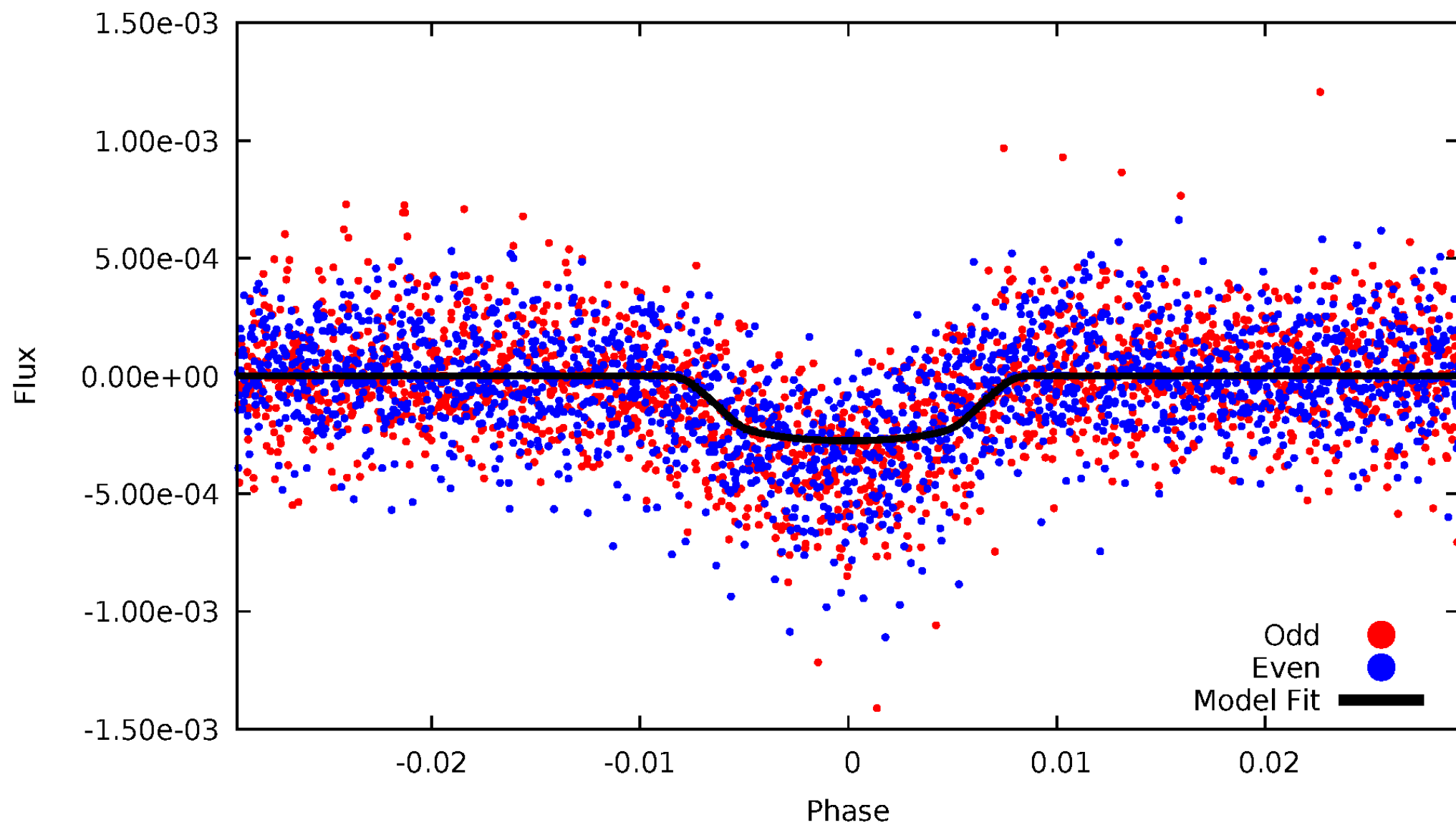


TCE 005990753-01



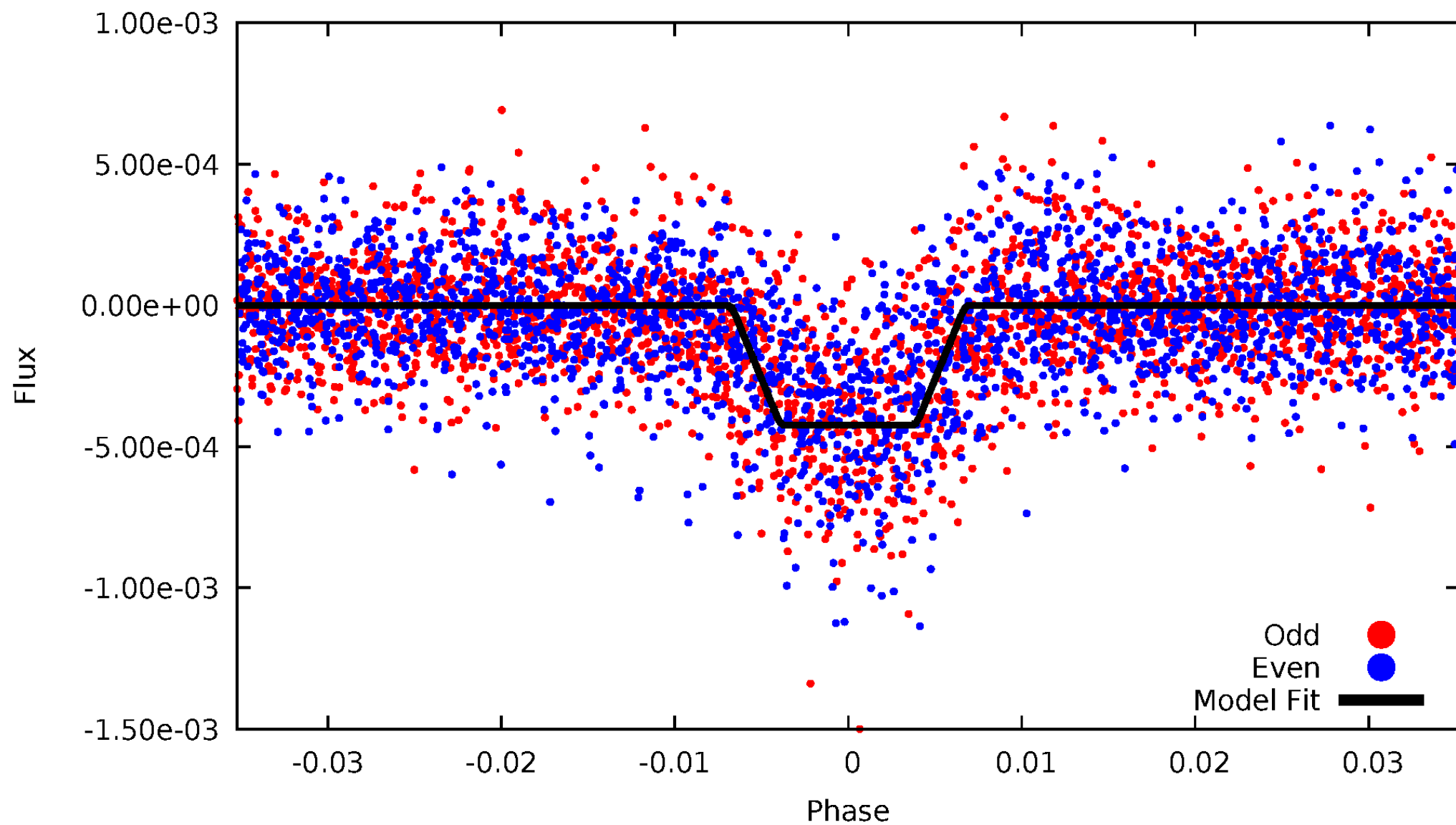
DV Odd/Even

TCE 005990753-01



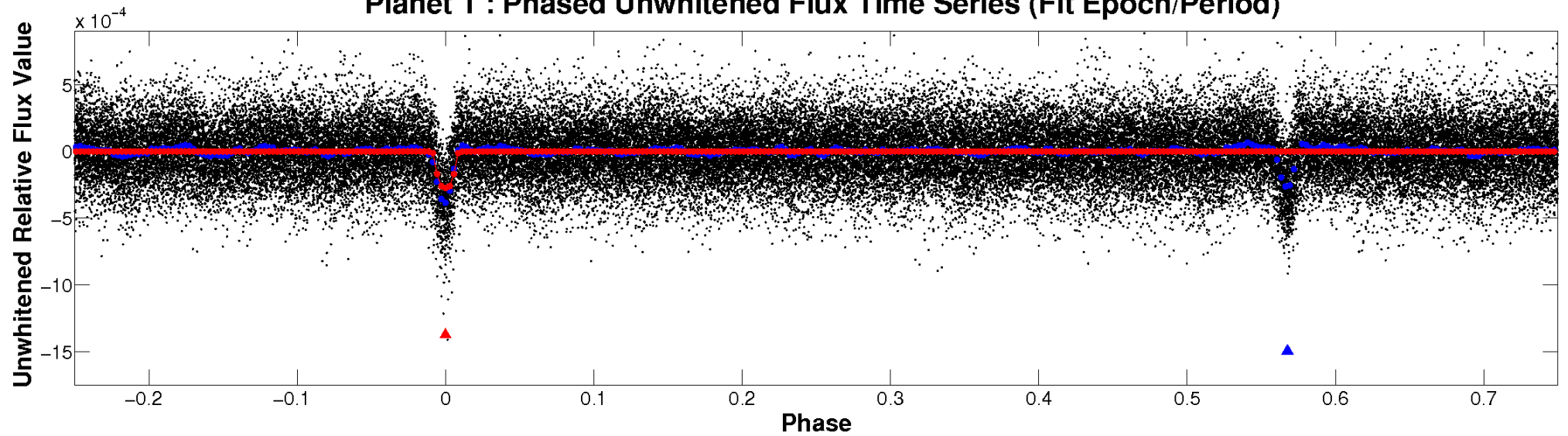
ALT Odd/Even

TCE 005990753-01

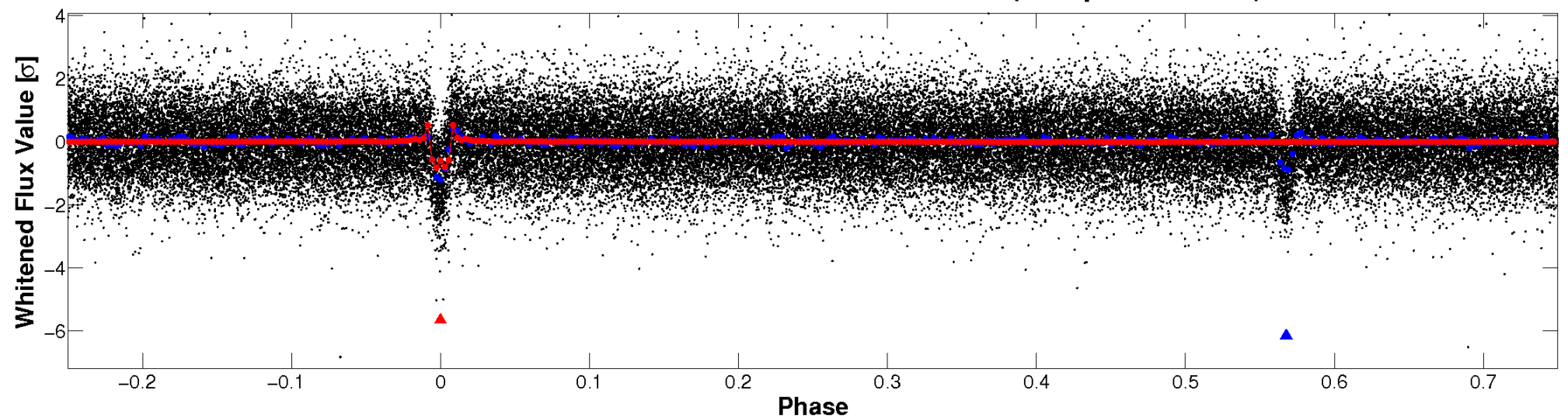


Non-Whitened Vs. Whitened Light Curve

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

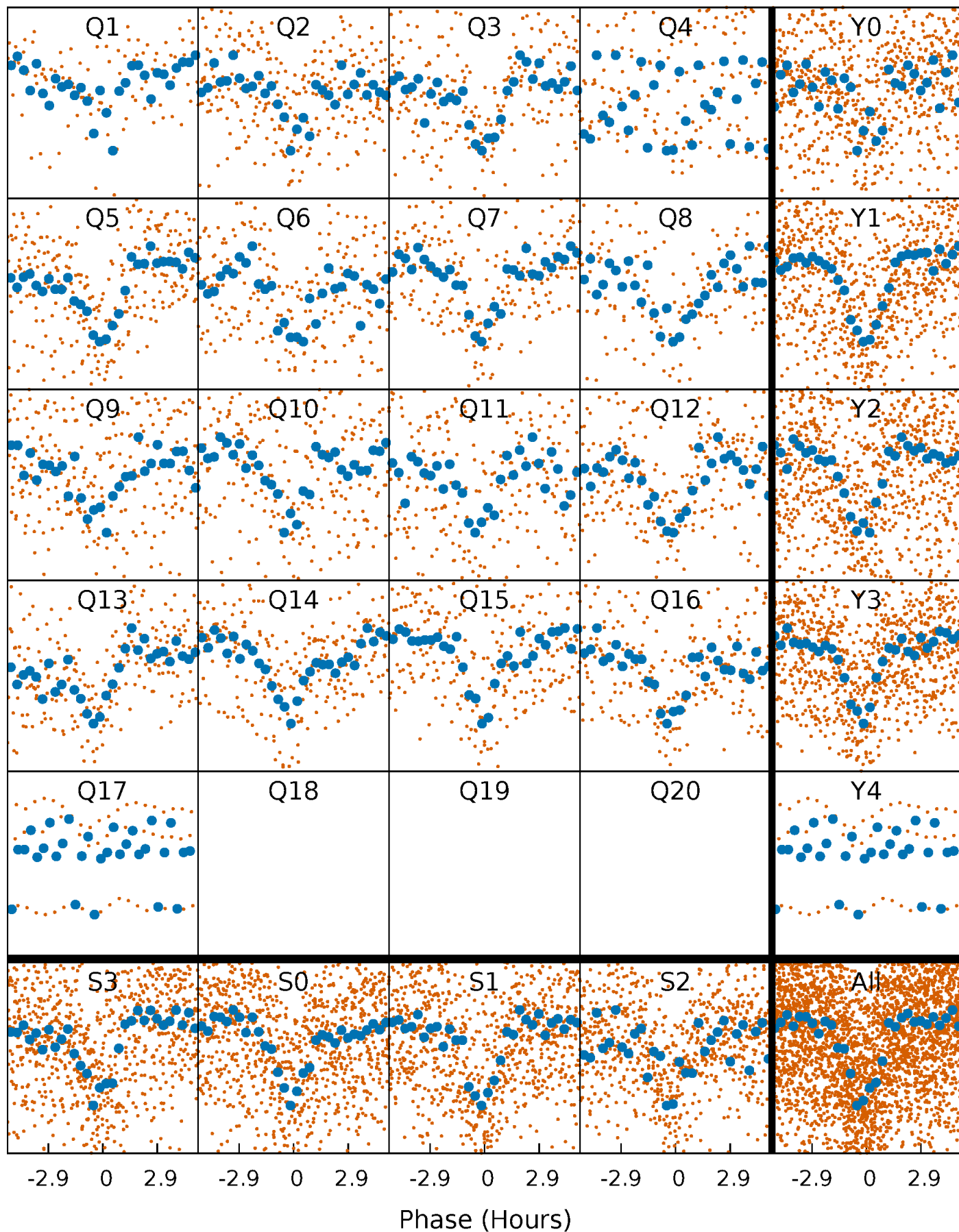


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



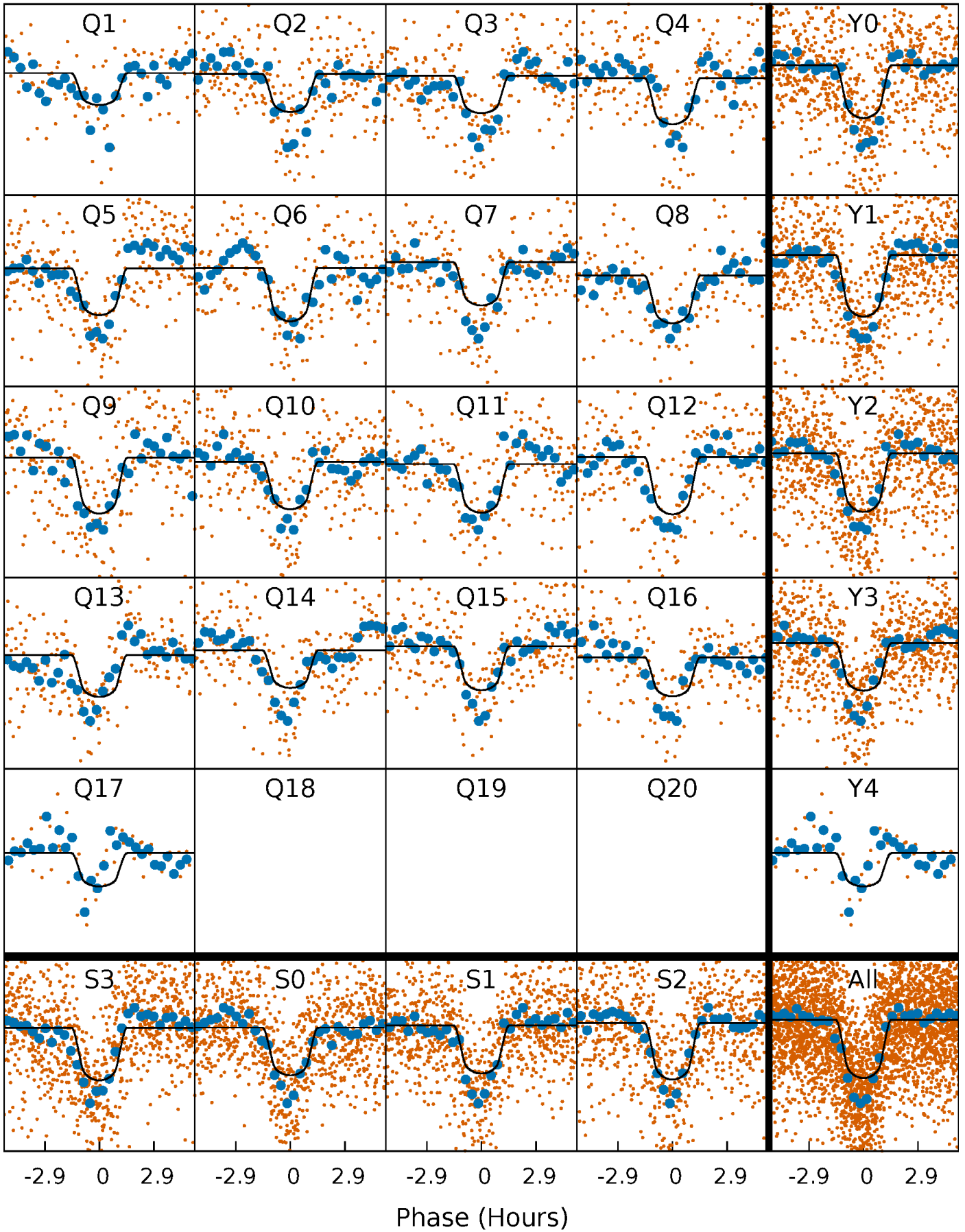
PDC Quarter-Phased Transit Curves

TCE 005990753-01 P= 7.216460 Days $T_0=133.885248$ (BKJD)



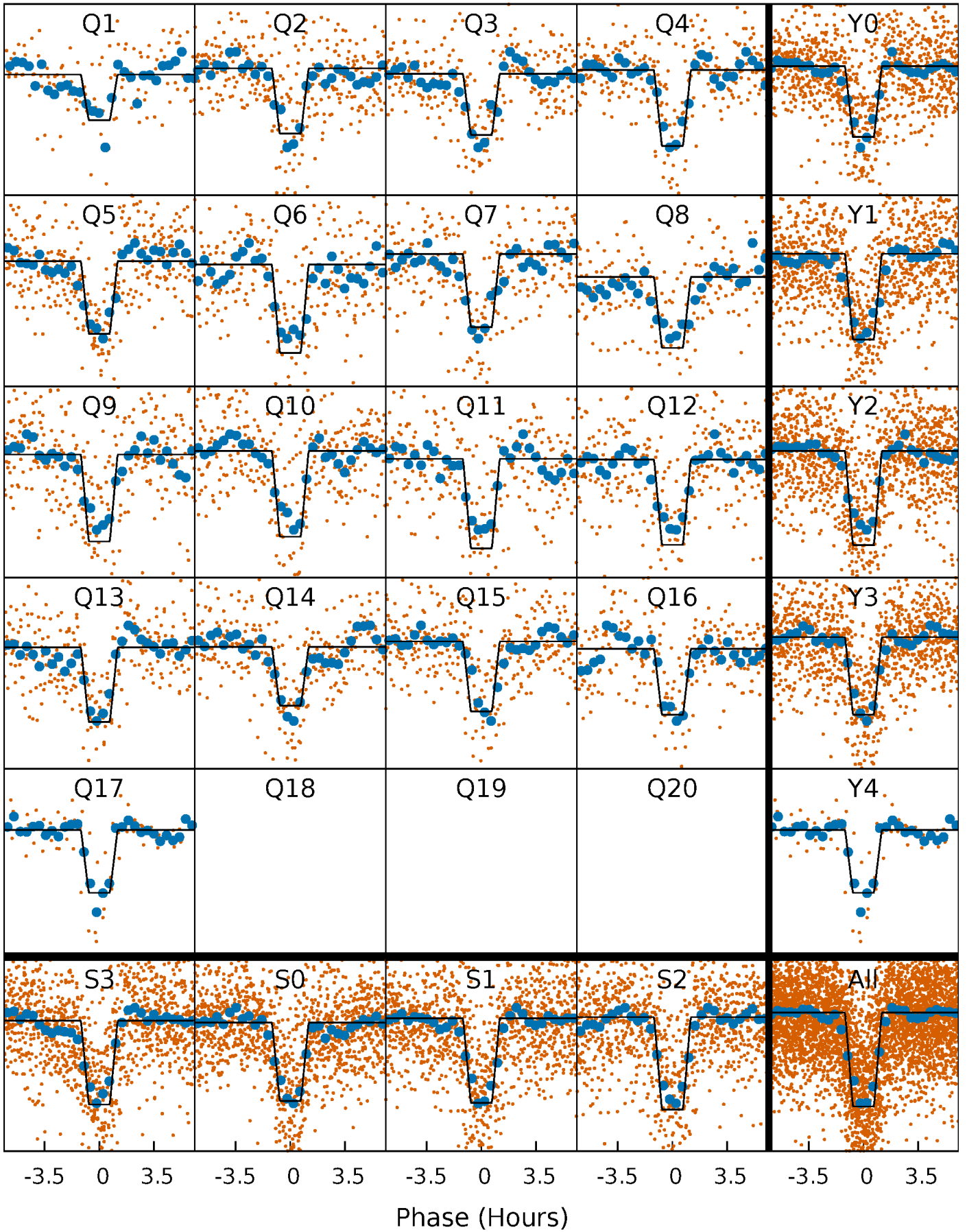
DV Quarter-Phased Transit Curves

TCE 005990753-01 P= 7.216460 Days $T_0=133.885248$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

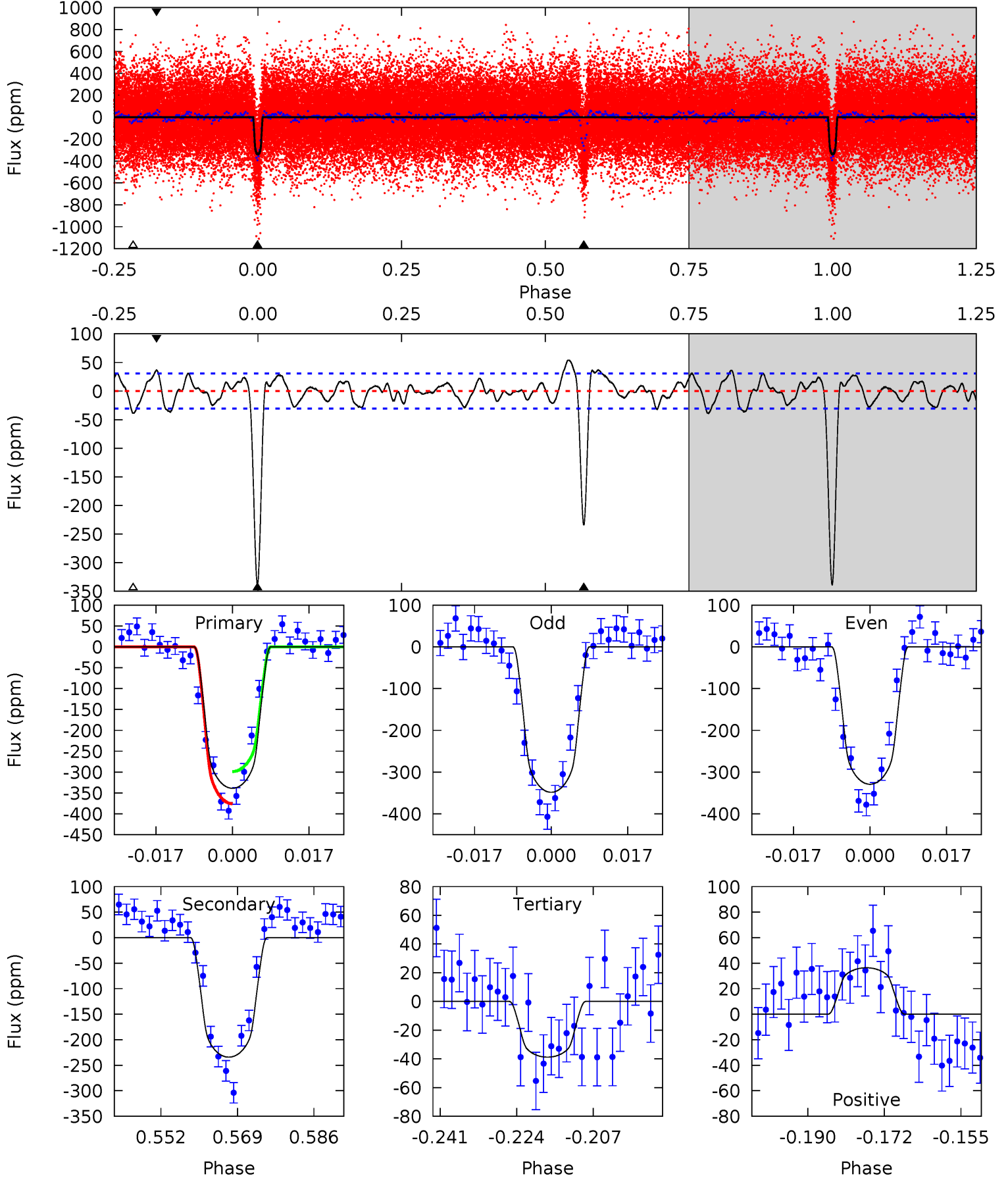
TCE 005990753-01 P= 7.216322 Days $T_0=133.892557$ (BKJD)



DV Model-Shift Uniqueness Test

005990753-01, P = 7.216460 Days, E = 126.668788 Days

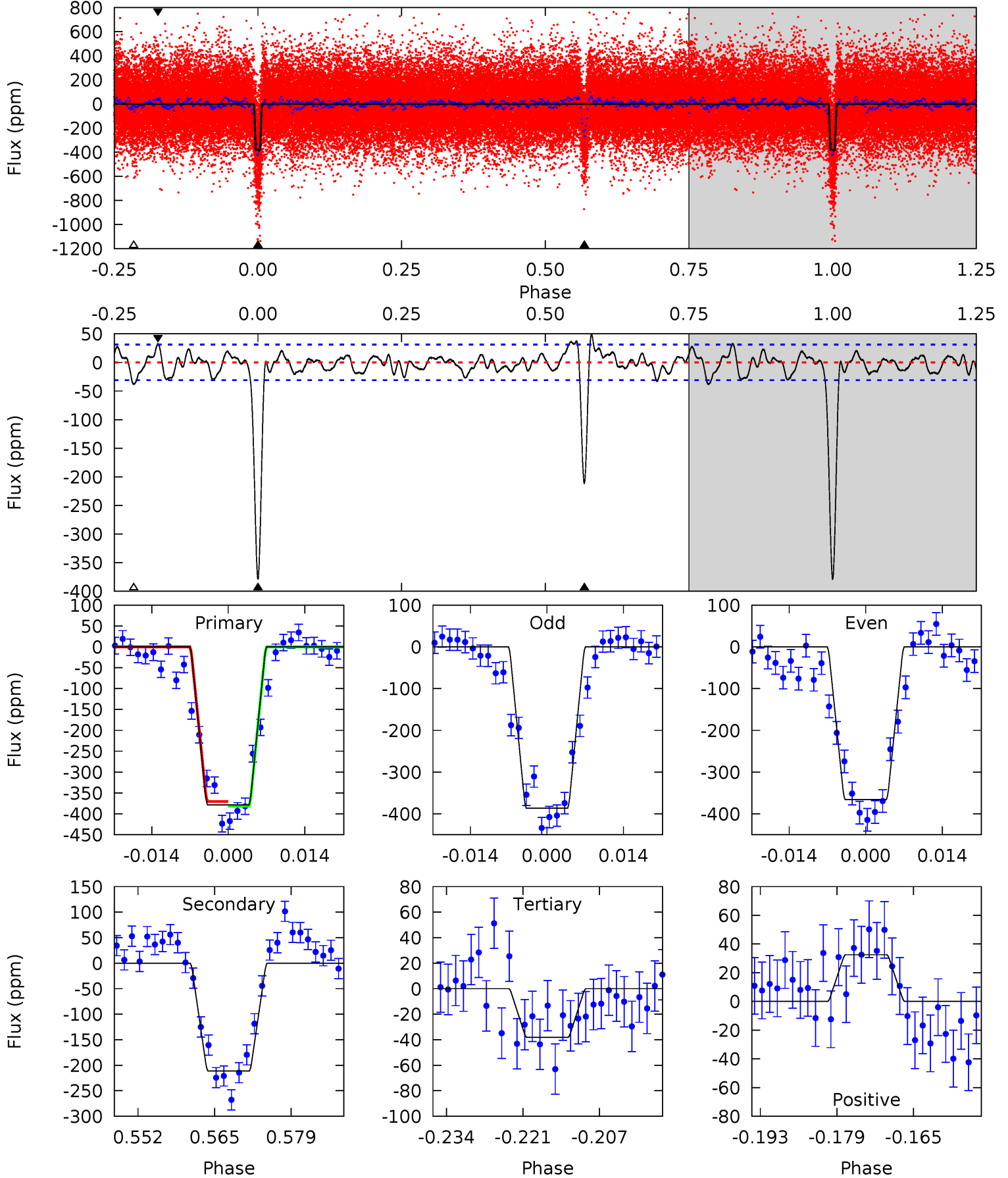
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.2	37.5	6.21	5.83	4.92	2.38	2.68	48.0	48.4	31.3	31.7	1.54	1.10	0.14	6.12



Alt Model-Shift Uniqueness Test

005990753-01, P = 7.216322 Days, E = 126.676235 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.5	33.8	6.09	5.21	4.96	2.46	2.18	54.4	55.3	27.7	28.6	1.68	1.09	0.12	0.89



Stellar Parameters For KIC 005990753

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5029^{+39}_{-159}	$2.909^{+0.035}_{-0.039}$	$0.210^{+0.100}_{-0.300}$	$9.476^{+0.503}_{-2.138}$	$2.653^{+0.174}_{-0.986}$	$0.004^{+0.001}_{-0.001}$
	+1%/-3%	+1%/-1%	+48%/-143%	+5%/-23%	+7%/-37%	+34%/-18%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 005990753-01 / KOI 6645.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-234 ± 6	$19.29^{+2.20}_{-2.38}$	2992^{+60}_{-99}	4539^{+214}_{-202}	$3.568^{+0.889}_{-0.637}$
Alt.	-211 ± 6	$21.49^{+2.06}_{-2.40}$	2991^{+57}_{-94}	4243^{+170}_{-180}	$2.600^{+0.519}_{-0.409}$

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 $A_{obs} \gg 1.0$

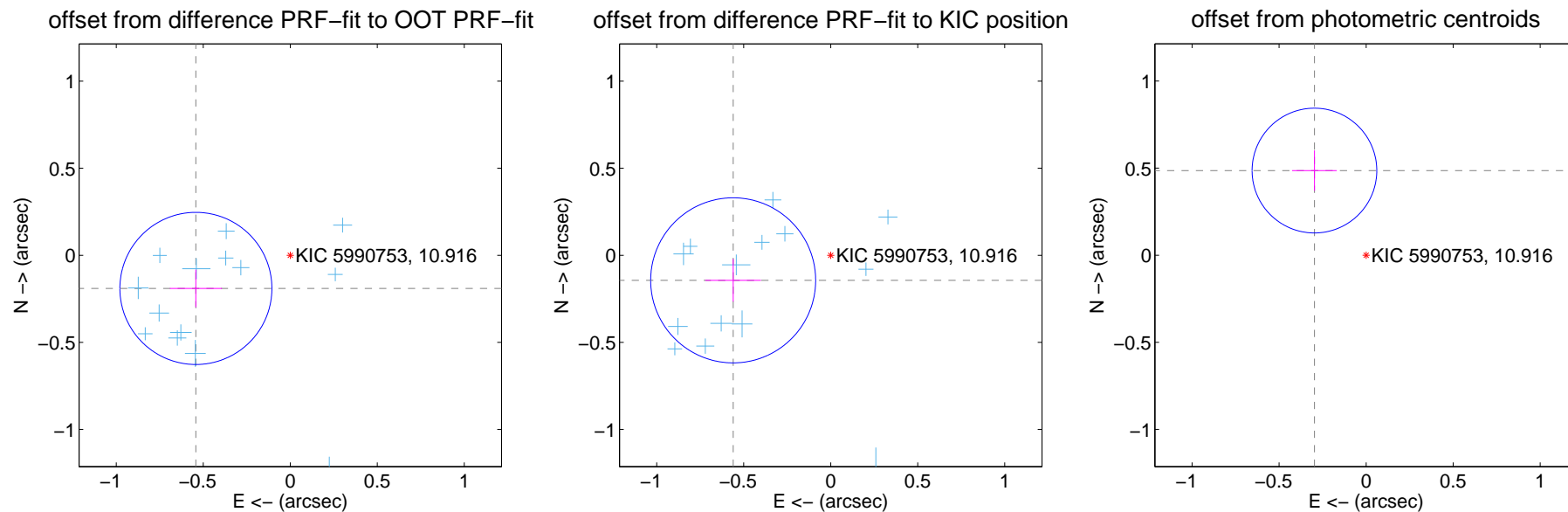
DV Centroid Data

Supplemental centroid analysis for 005990753-01. **Kepler magnitude: 10.92.** Transit SNR 24.13

There are 17 quarters with good PRF difference image offsets

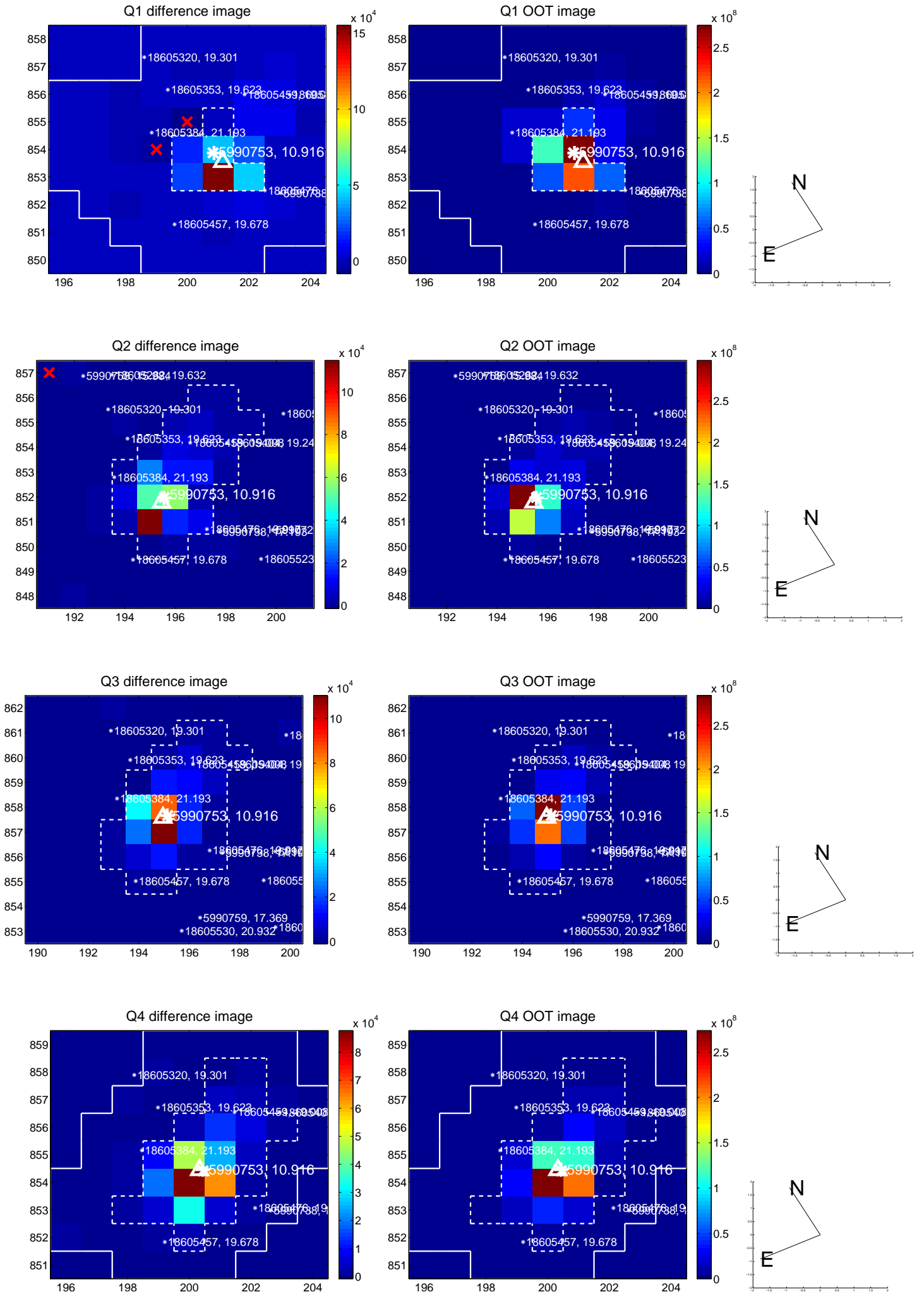
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.575 ± 0.146	3.95	0.542 ± 0.150	-0.190 ± 0.108
PRF-fit source offset from KIC position	0.579 ± 0.158	3.66	0.561 ± 0.160	-0.144 ± 0.123
photometric centroid source offset	0.57 ± 0.12	4.77	0.30 ± 0.13	0.49 ± 0.12

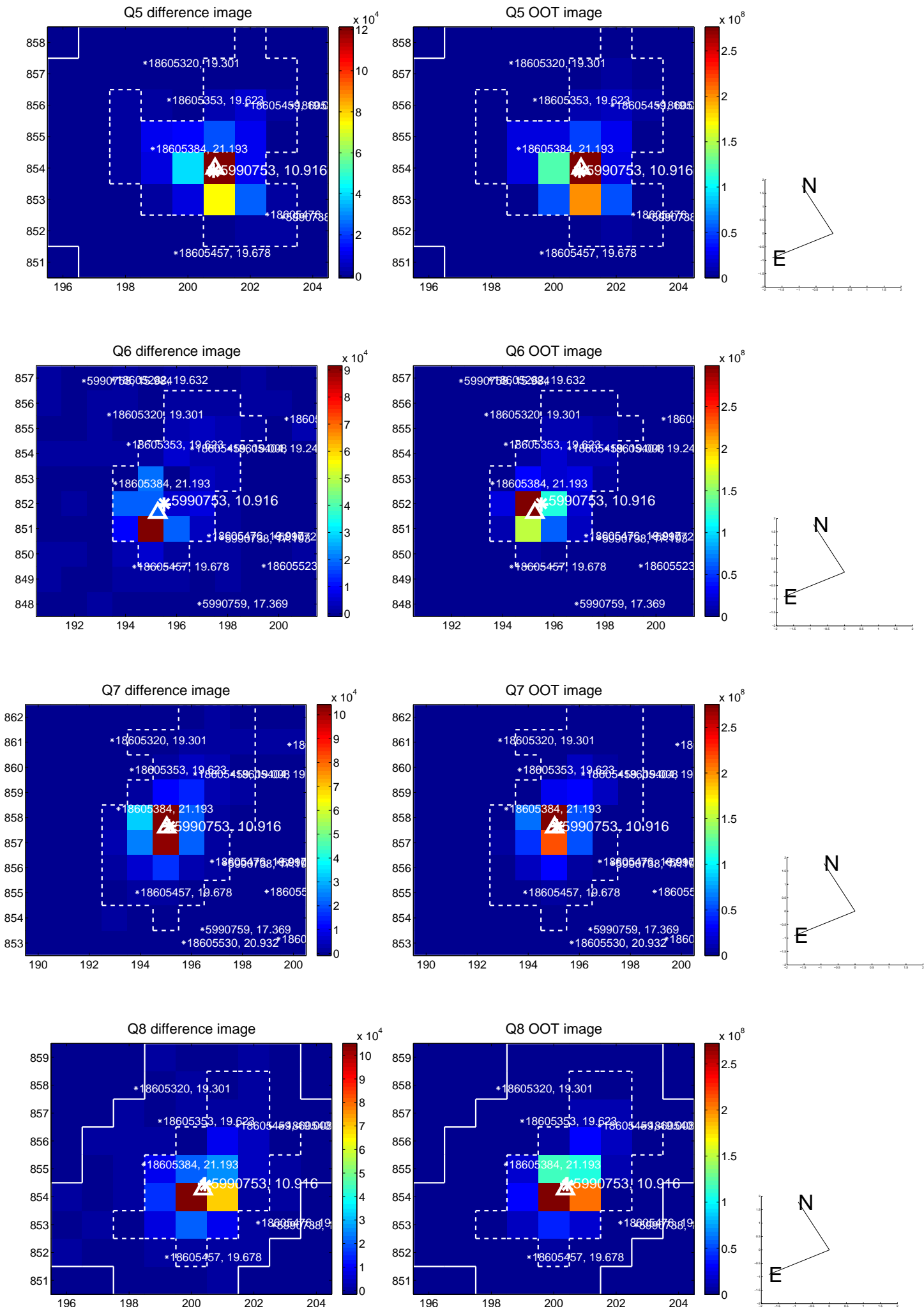


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

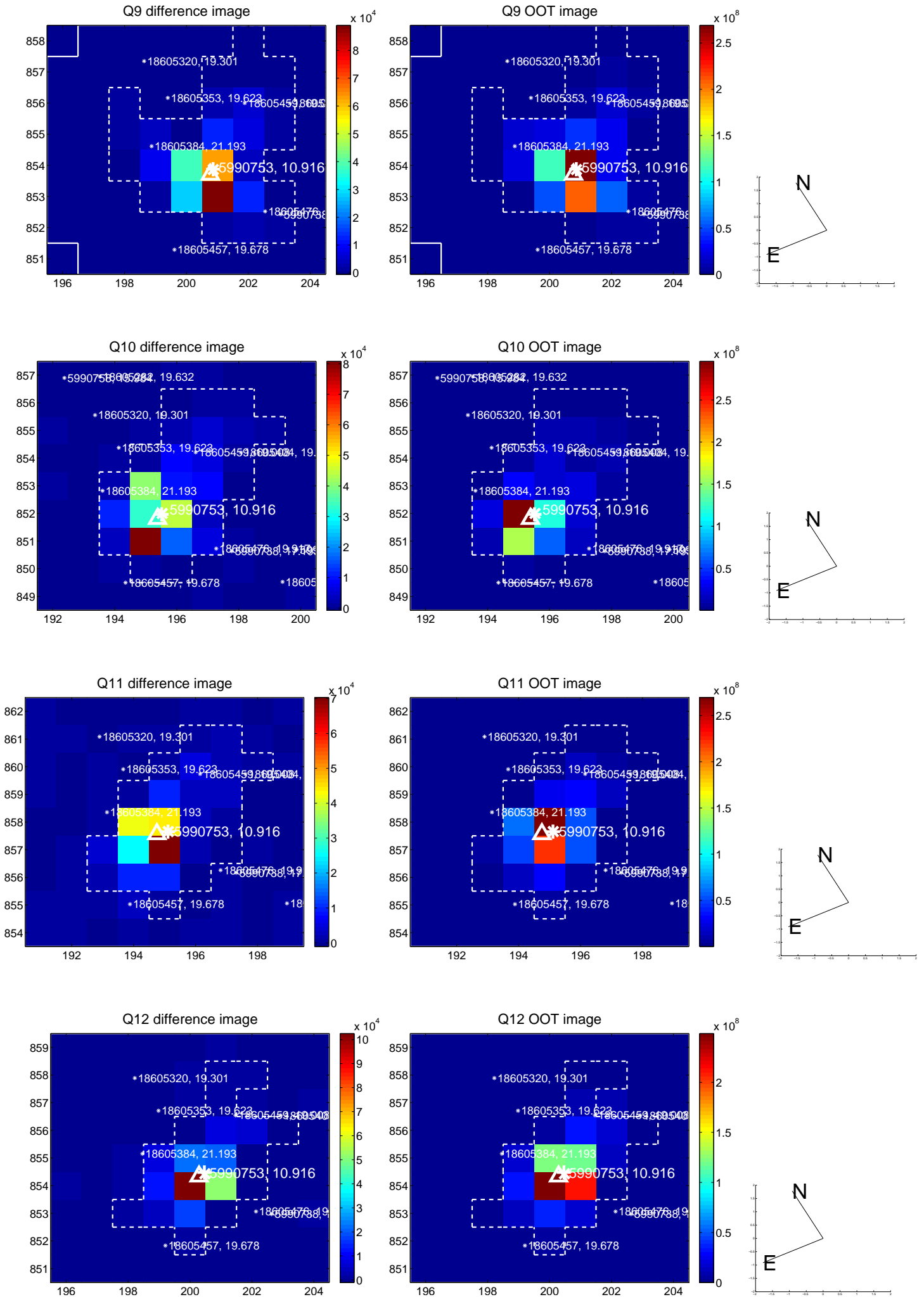
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



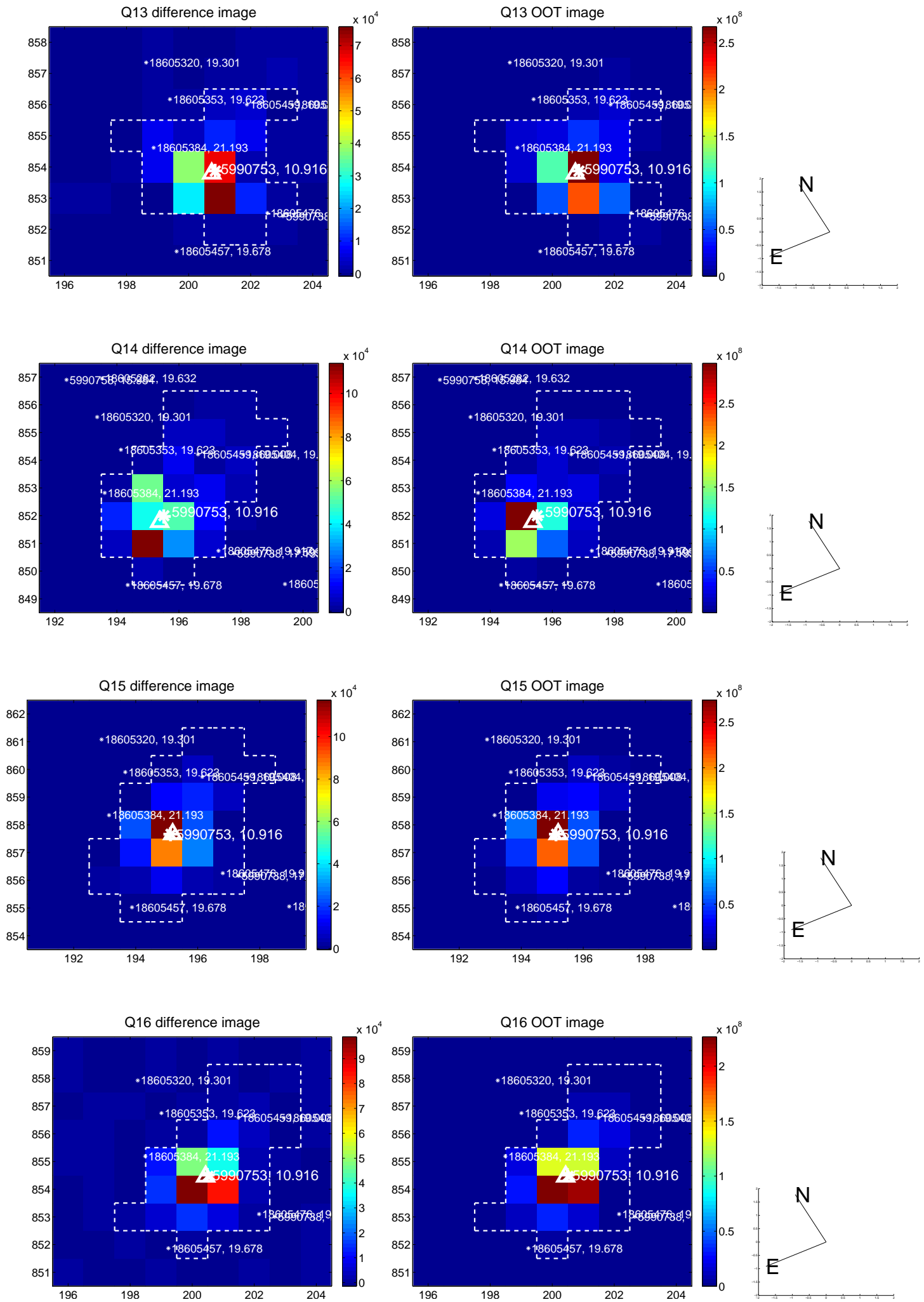
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



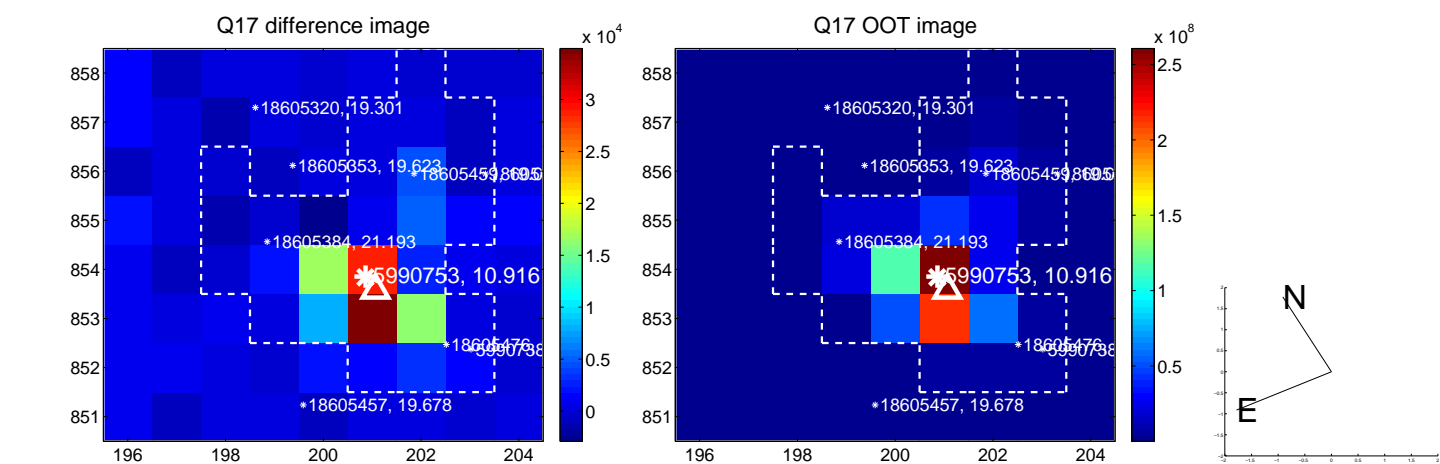
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



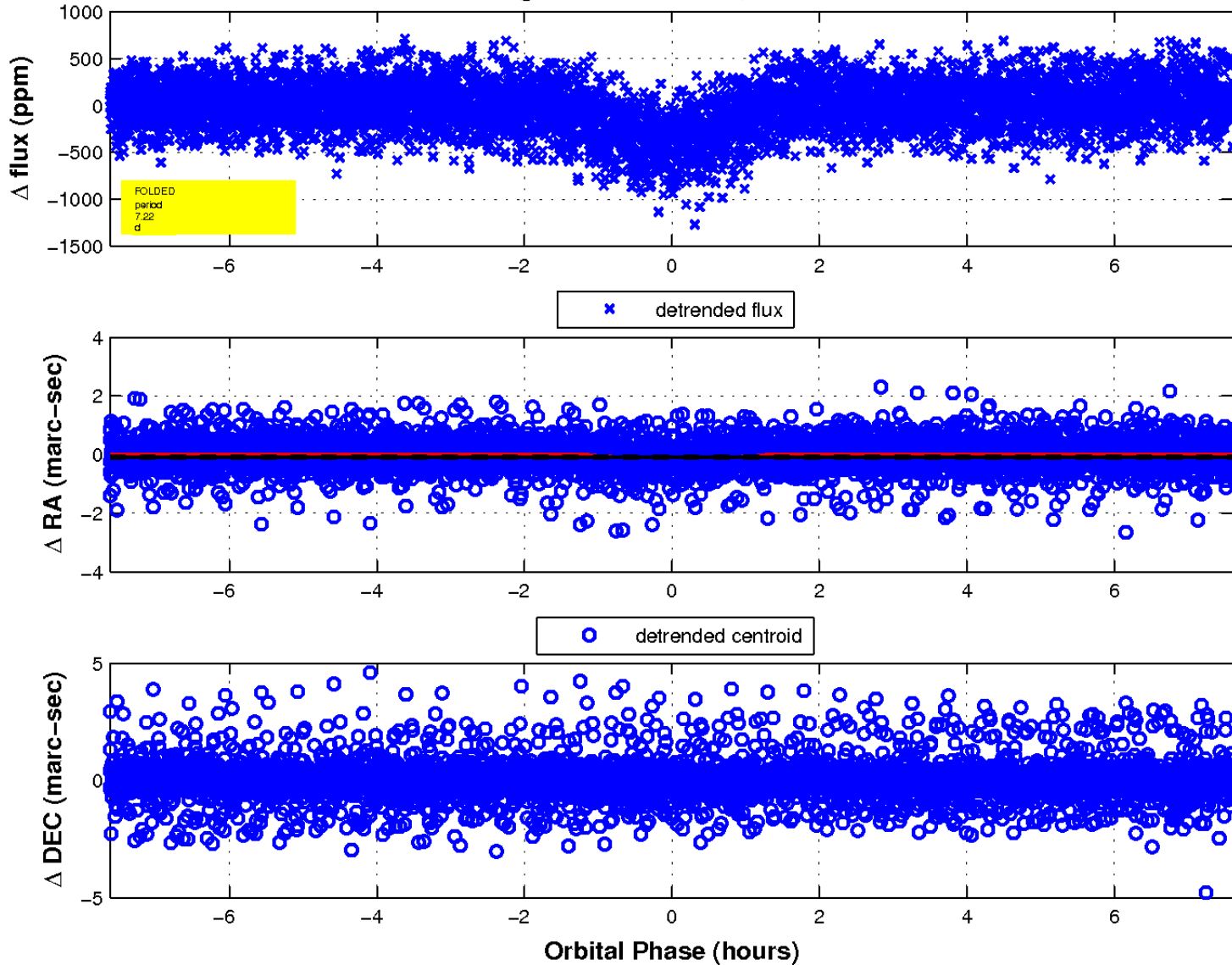
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

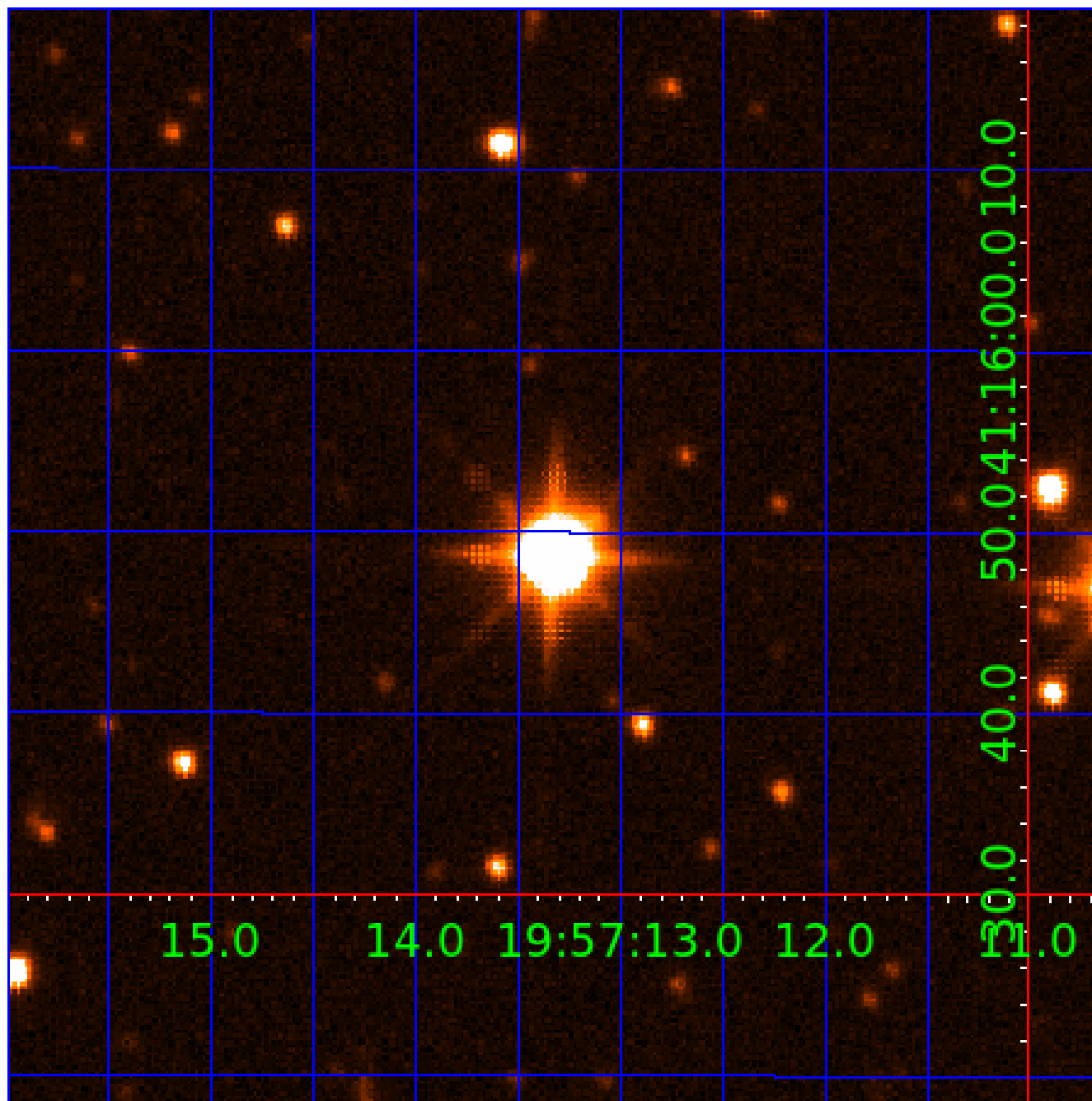


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005990753

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})
005990753-01	OBS	6645.01	7.216460	133.885248	275.2	2.541	22.4	24.1	9.48	5029	19.26	5021.17
005990753-02	OBS	No	7.216481	137.980137	216.2	2.248	17.8	19.2	9.48	5029	17.05	5021.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005990753-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
005990753-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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.

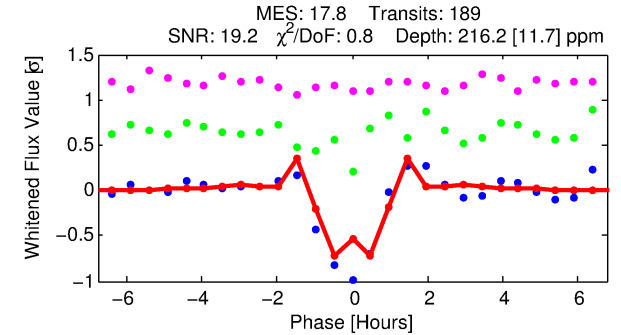
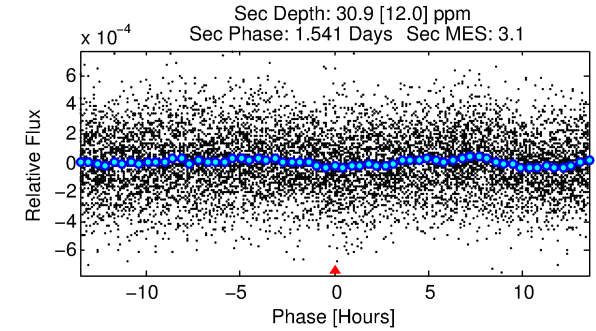
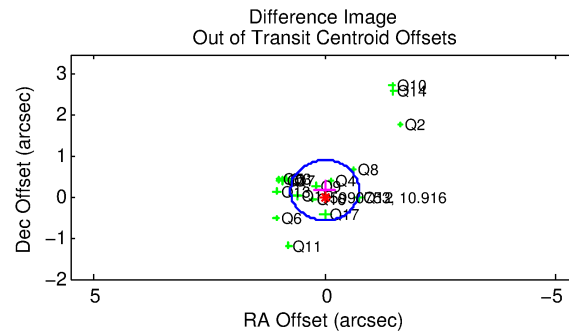
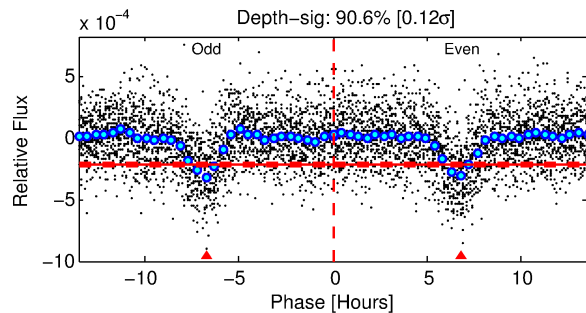
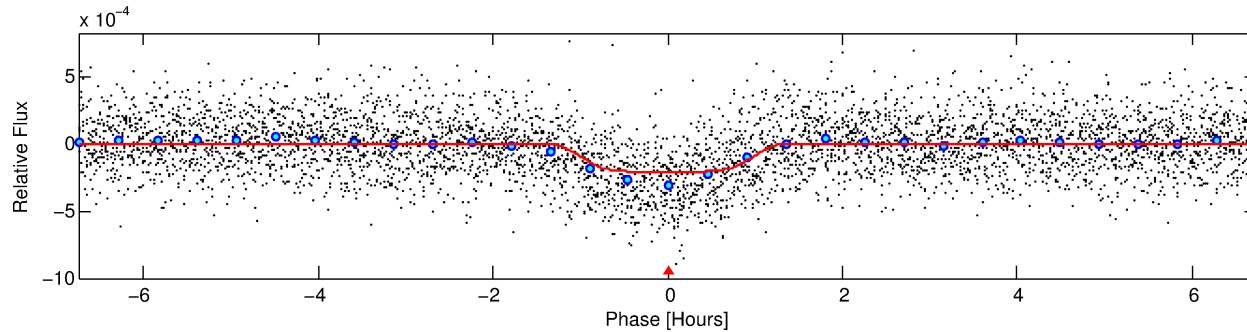
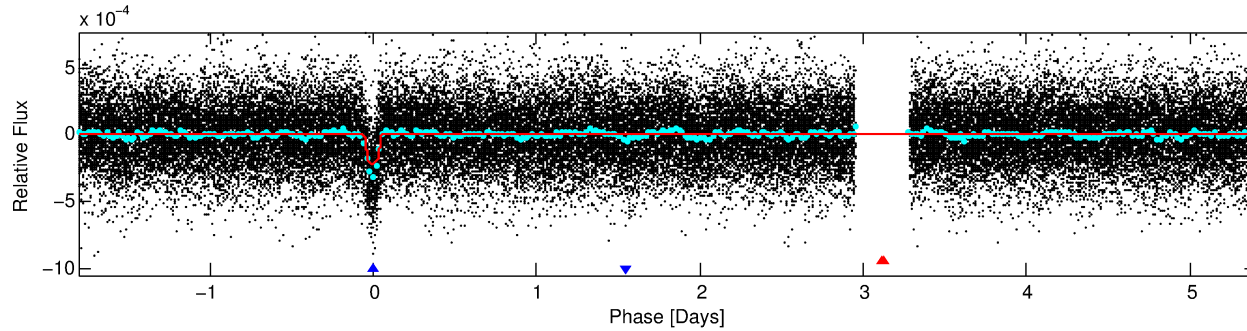
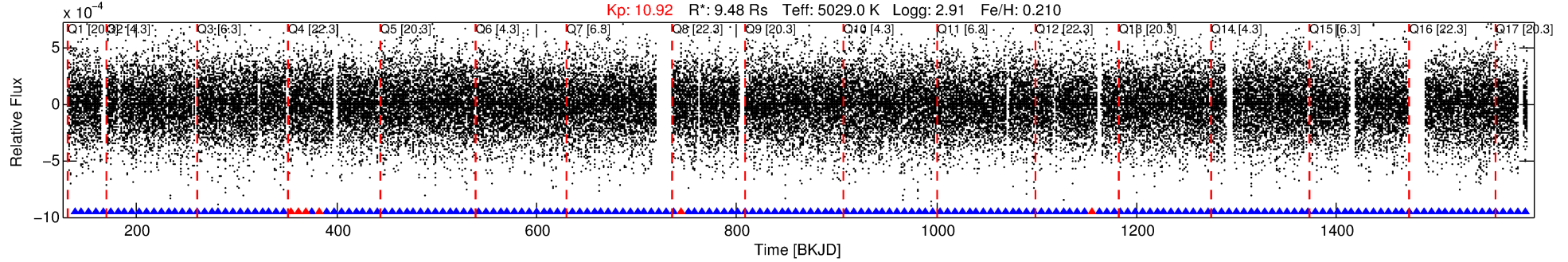
Ephemeris Match Information For 005990753-02

No Significant Match Found

DV One-Page Summary

KIC: 5990753 Candidate: 2 of 2 Period: 7.216 d
KOI: K06645 Corr: No Ephemeris Match

Kp: 10.92 R*: 9.48 Rs Teff: 5029.0 K Logg: 2.91 Fe/H: 0.210



DV Fit Results:

Period = 7.21648 [0.00001] d
Epoch = 137.9801 [0.0010] BKJD
Rp/R* = 0.0165 [0.0025]
a/R* = 11.47 [6.63]
b = 0.90 [0.12]
Seff = 5021.15 [1031.51]
Teq = 2146 [110] K
Rp = 17.05 [4.62] Re
a = 0.1012 [0.0155] AU
Ag = 0.60 [0.31] [-1.29σ]
Teffp = 2919 [371] K [2.00σ]

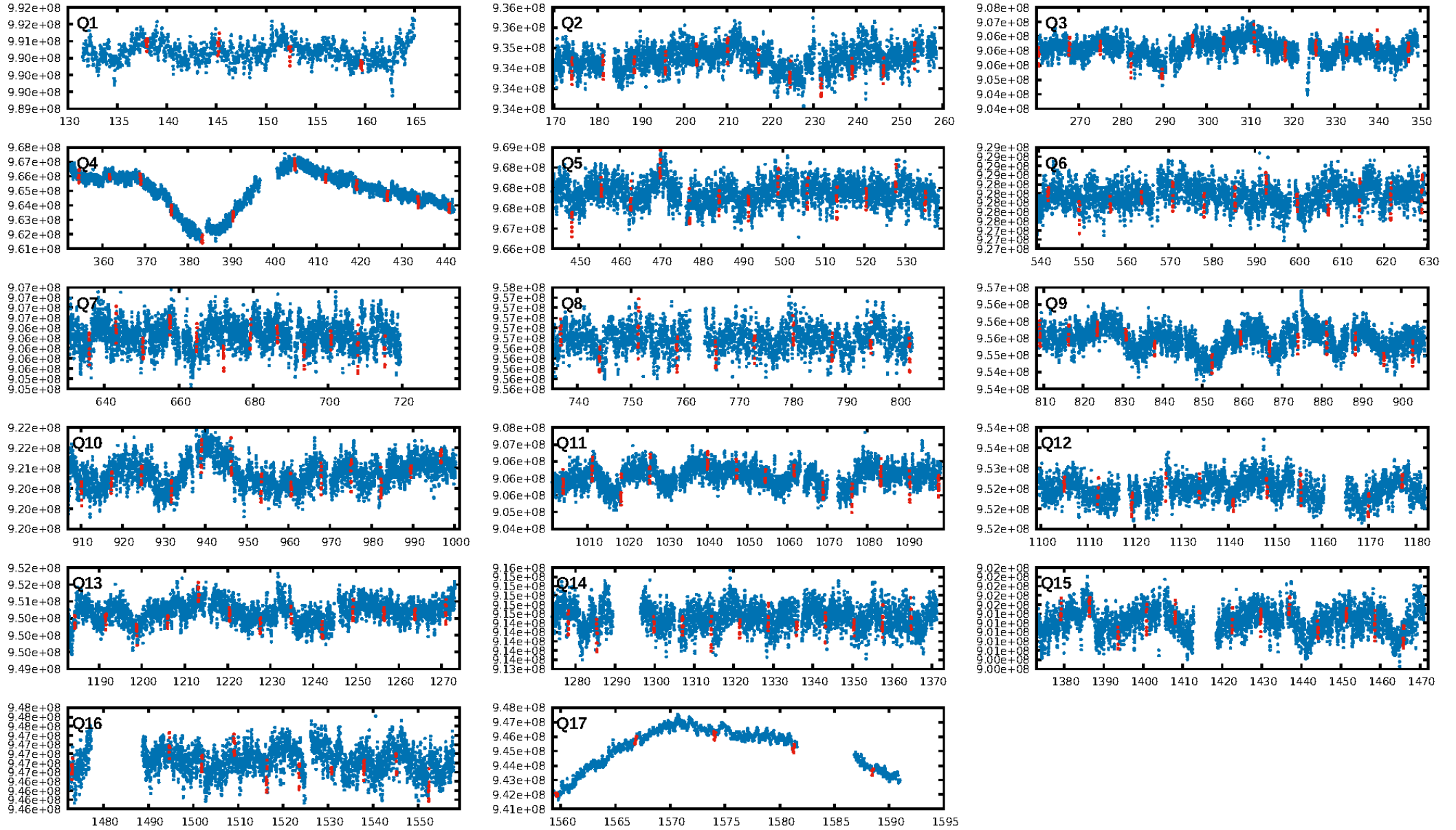
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.54e-62
RollingBand-fgt: 0.97 [174/180]
GhostDiagnostic-chr: 5.04
Centroid-sig: N/A
Centroid-so: 0.705 arcsec [4.14σ]
OotOffset-rm: 0.168 arcsec [0.68σ]
KicOffset-rm: 0.322 arcsec [1.47σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

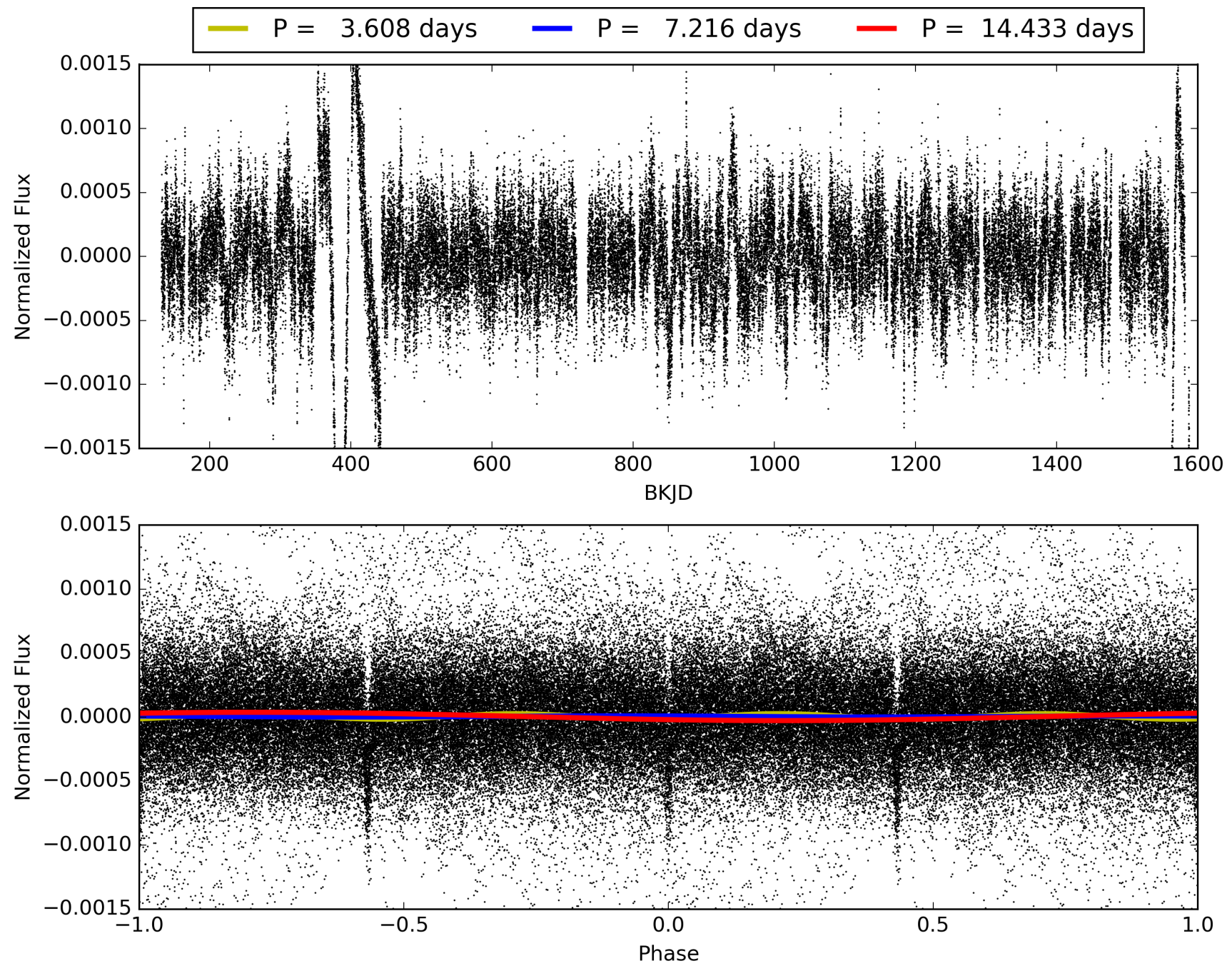
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:06:28 Z

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

TCE 005990753-02, PDC Light Curves

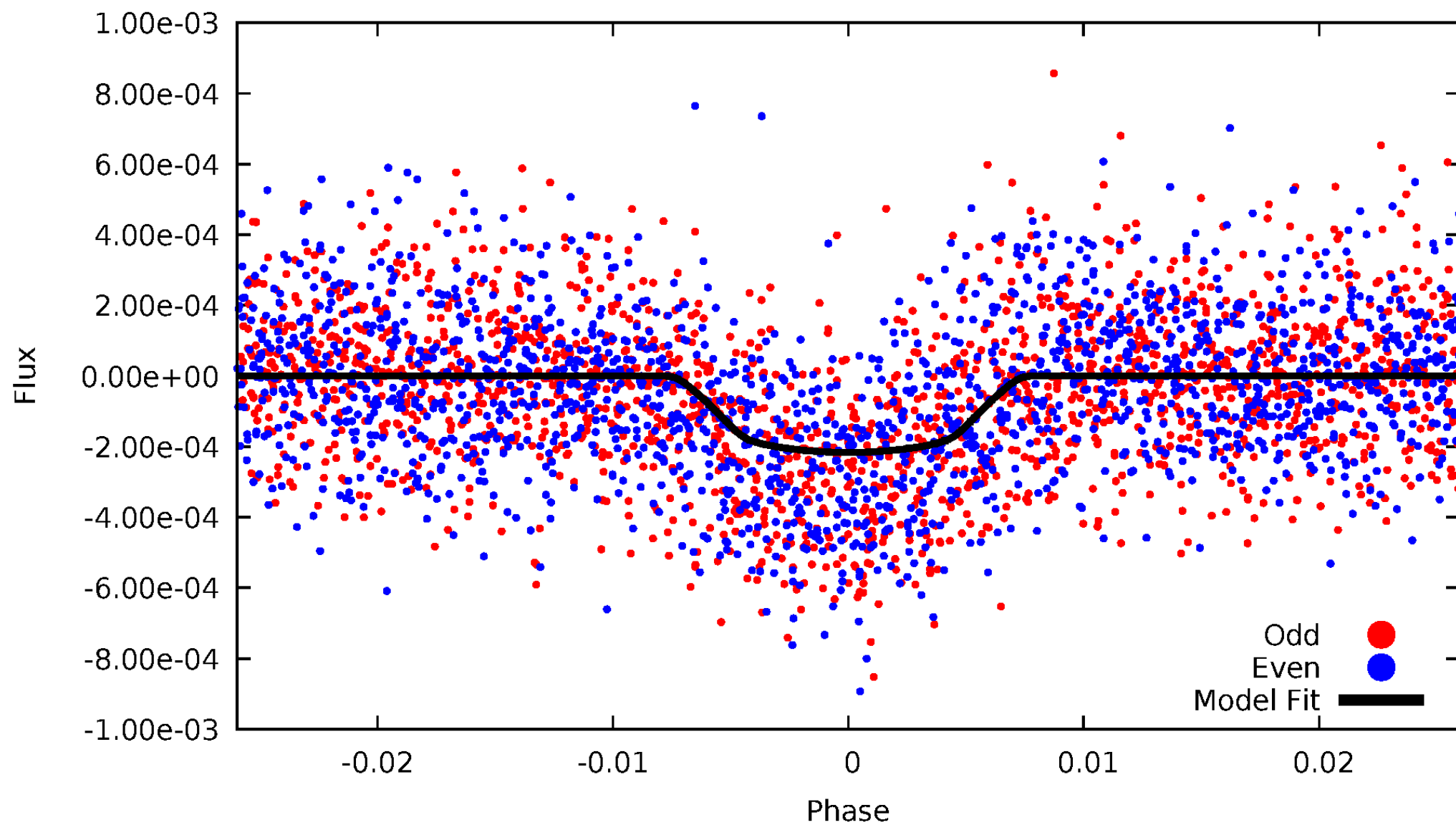


TCE 005990753-02



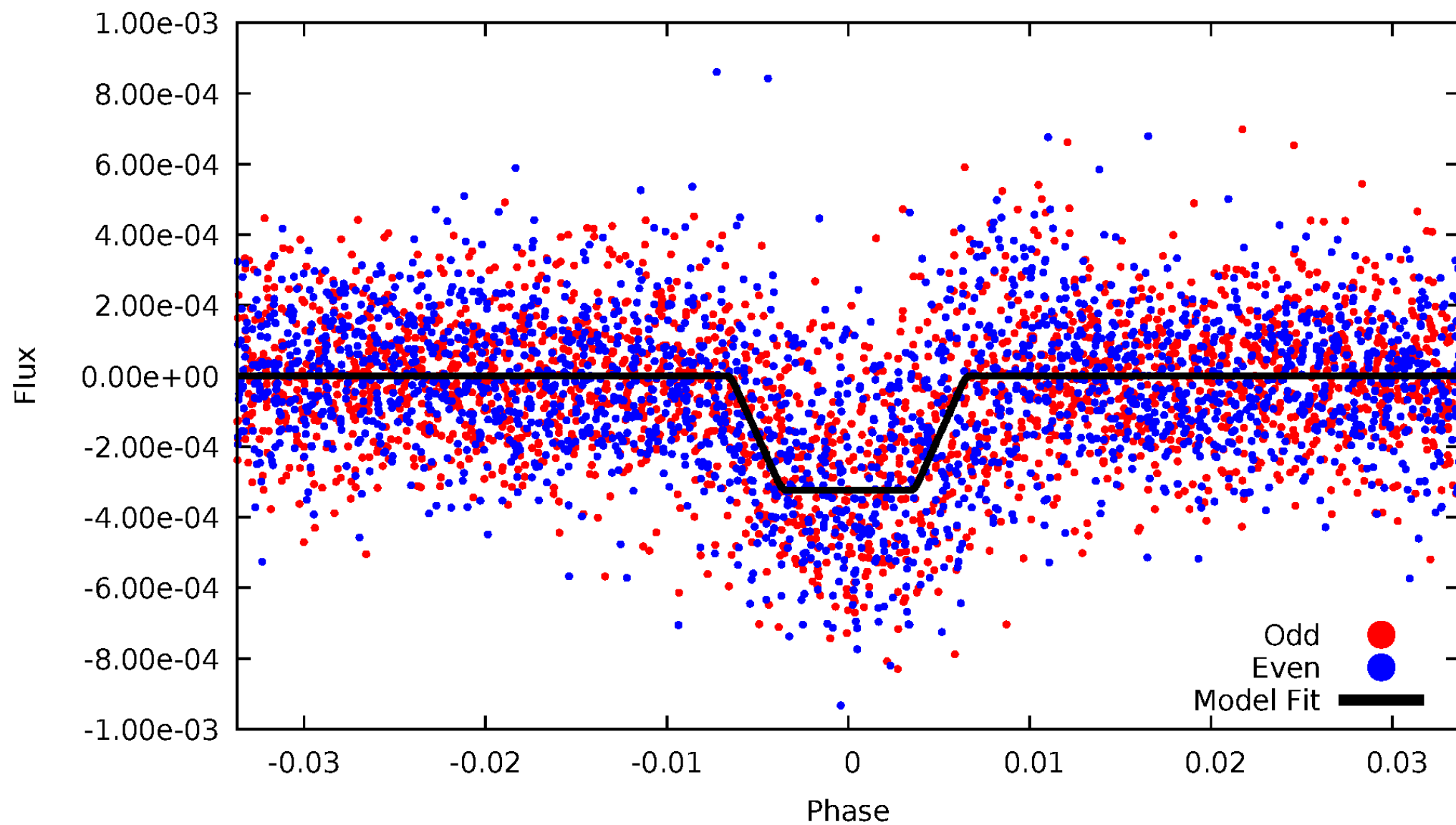
DV Odd/Even

TCE 005990753-02



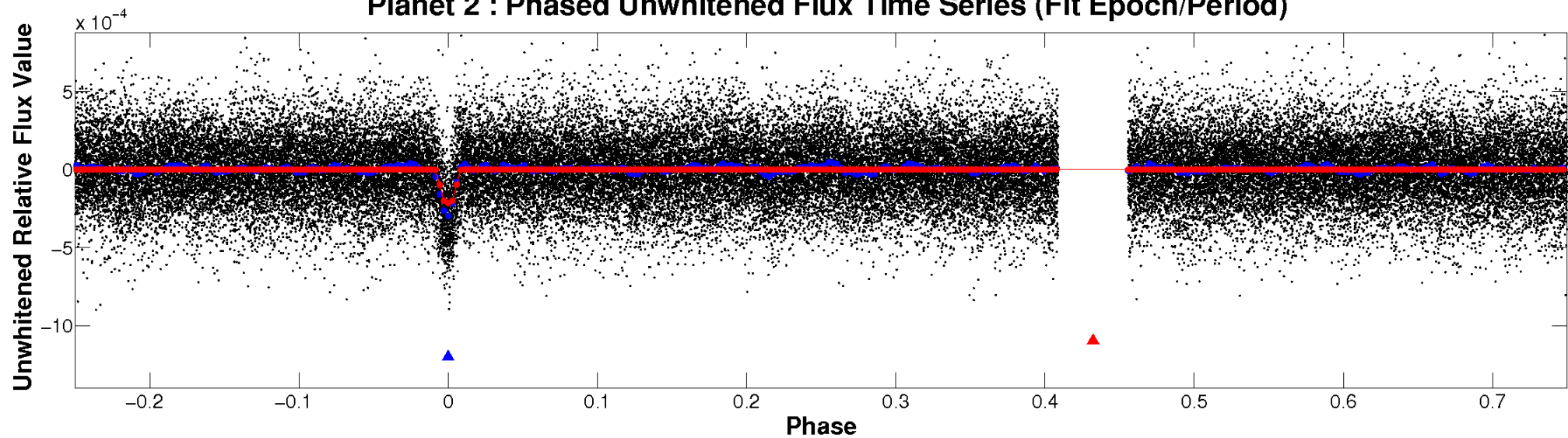
ALT Odd/Even

TCE 005990753-02

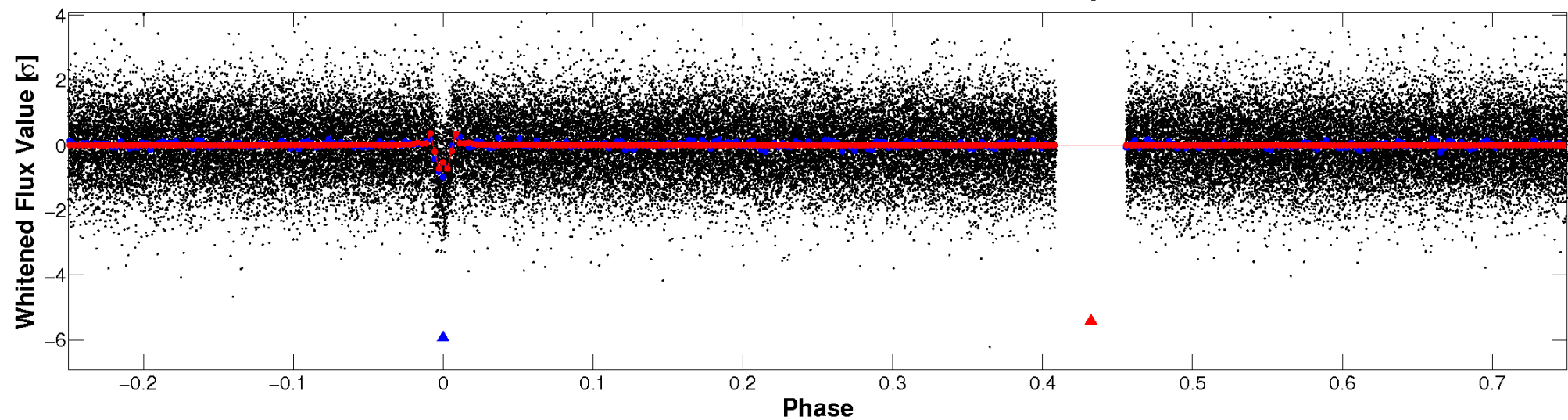


Non-Whitened Vs. Whitened Light Curve

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

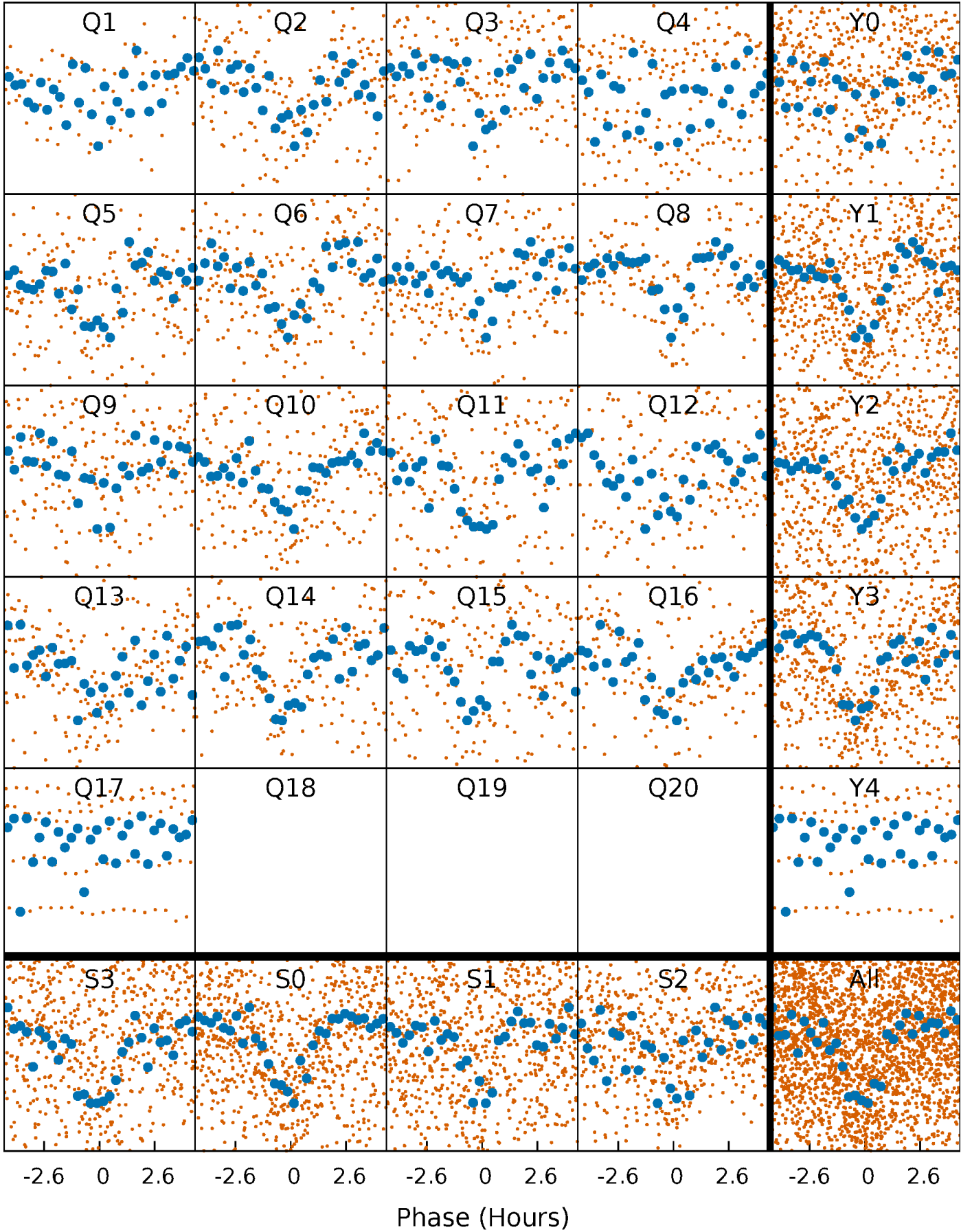


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



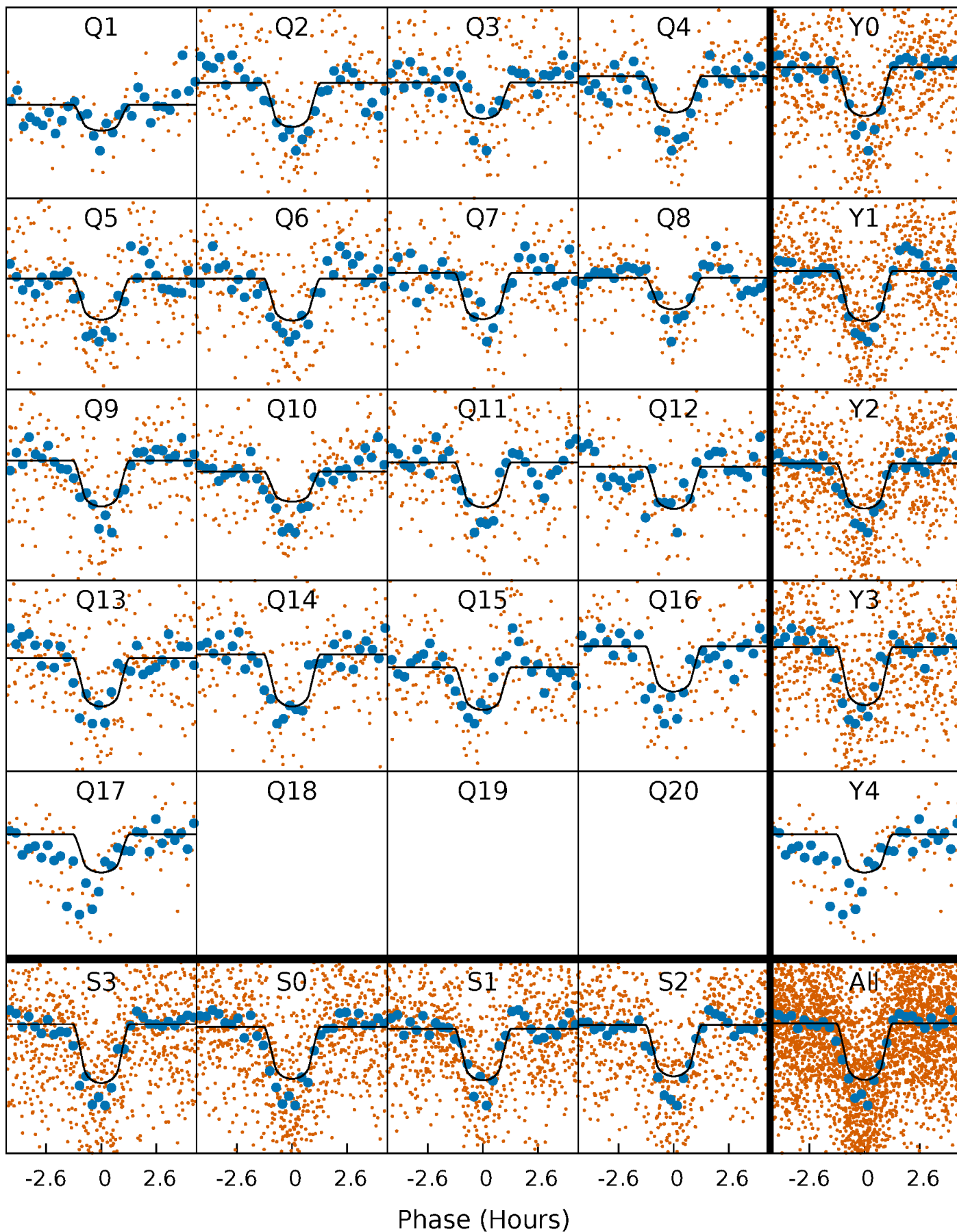
PDC Quarter-Phased Transit Curves

TCE 005990753-02 P= 7.216481 Days $T_0=137.980137$ (BKJD)



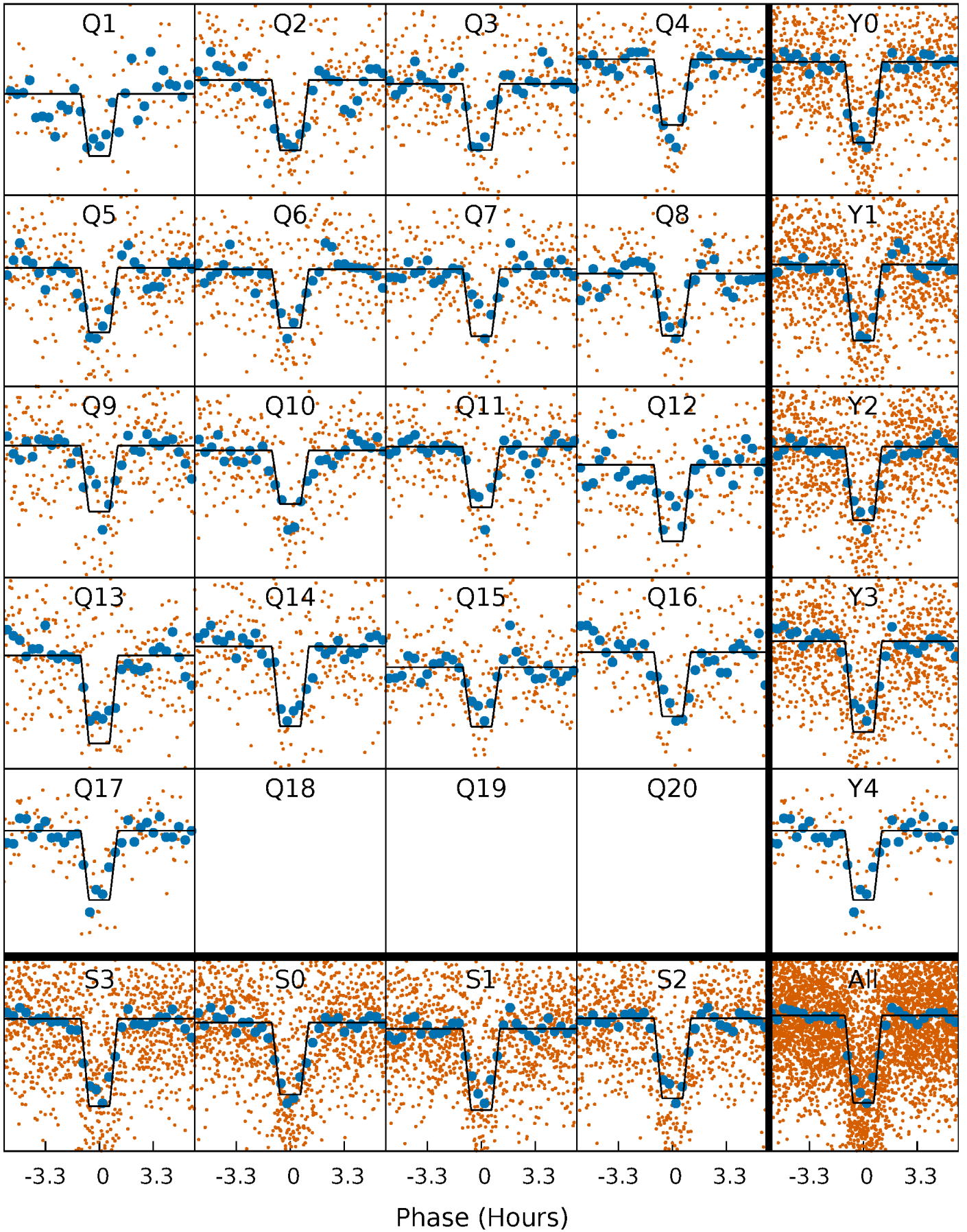
DV Quarter-Phased Transit Curves

TCE 005990753-02 P= 7.216481 Days $T_0=137.980137$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

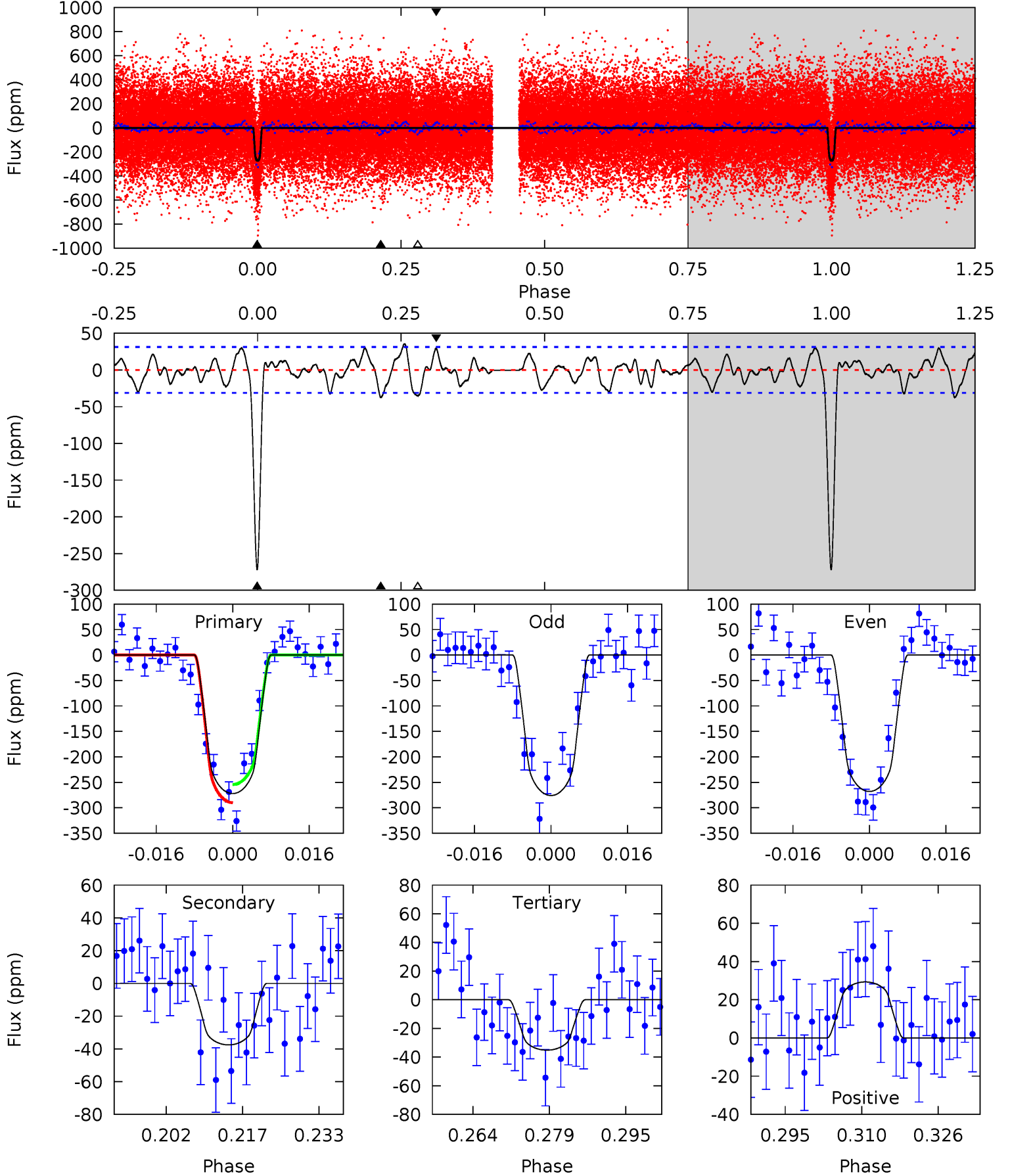
TCE 005990753-02 P= 7.216322 Days $T_0=137.989959$ (BKJD)



DV Model-Shift Uniqueness Test

005990753-02, P = 7.216481 Days, E = 130.763656 Days

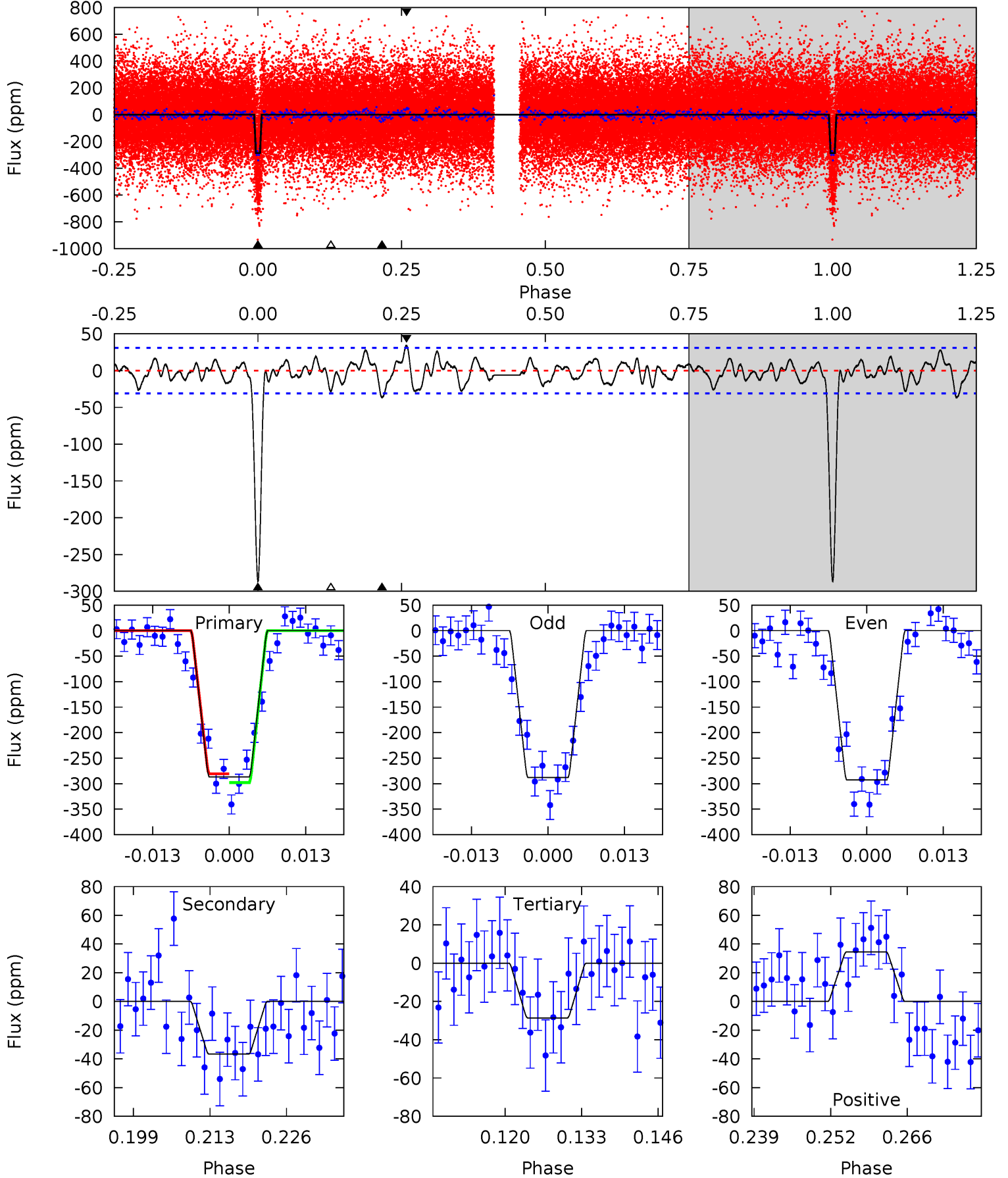
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.9	5.93	5.55	4.63	4.94	2.42	2.13	37.4	38.3	0.38	1.30	0.64	1.00	0.12	2.83



Alt Model-Shift Uniqueness Test

005990753-02, P = 7.216322 Days, E = 130.773637 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.1	5.91	4.60	5.55	4.97	2.48	1.84	41.5	40.6	1.31	0.36	0.36	0.97	0.11	1.38



Stellar Parameters For KIC 005990753

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5029^{+39}_{-159}	$2.909^{+0.035}_{-0.039}$	$0.210^{+0.100}_{-0.300}$	$9.476^{+0.503}_{-2.138}$	$2.653^{+0.174}_{-0.986}$	$0.004^{+0.001}_{-0.001}$
	+1%/-3%	+1%/-1%	+48%/-143%	+5%/-23%	+7%/-37%	+34%/-18%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 005990753-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-38 ± 6	$17.04^{+2.73}_{-2.71}$	2990^{+62}_{-98}	3212^{+291}_{-283}	$0.733^{+0.315}_{-0.209}$
Alt.	-37 ± 6	$18.75^{+2.86}_{-2.93}$	2991^{+59}_{-87}	3036^{+293}_{-323}	$0.594^{+0.246}_{-0.166}$

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 $A_{obs} \gg 1.0$

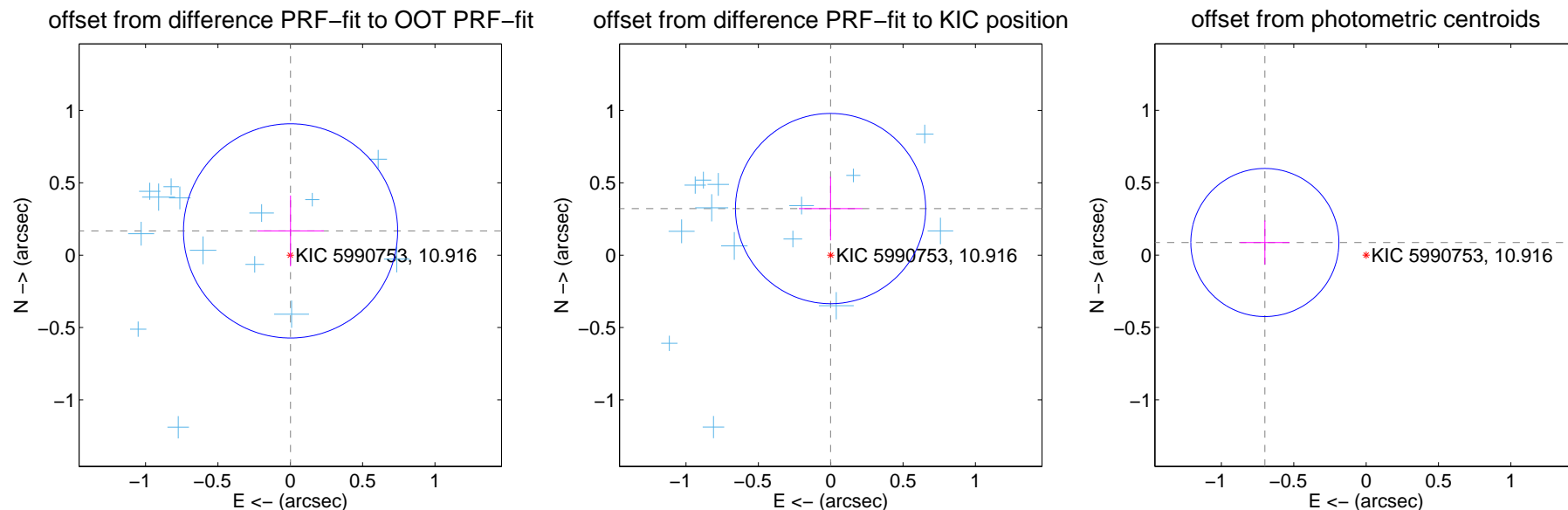
DV Centroid Data

Supplemental centroid analysis for 005990753-02. **Kepler magnitude: 10.92.** Transit SNR 19.21

There are 16 quarters with good PRF difference image offsets

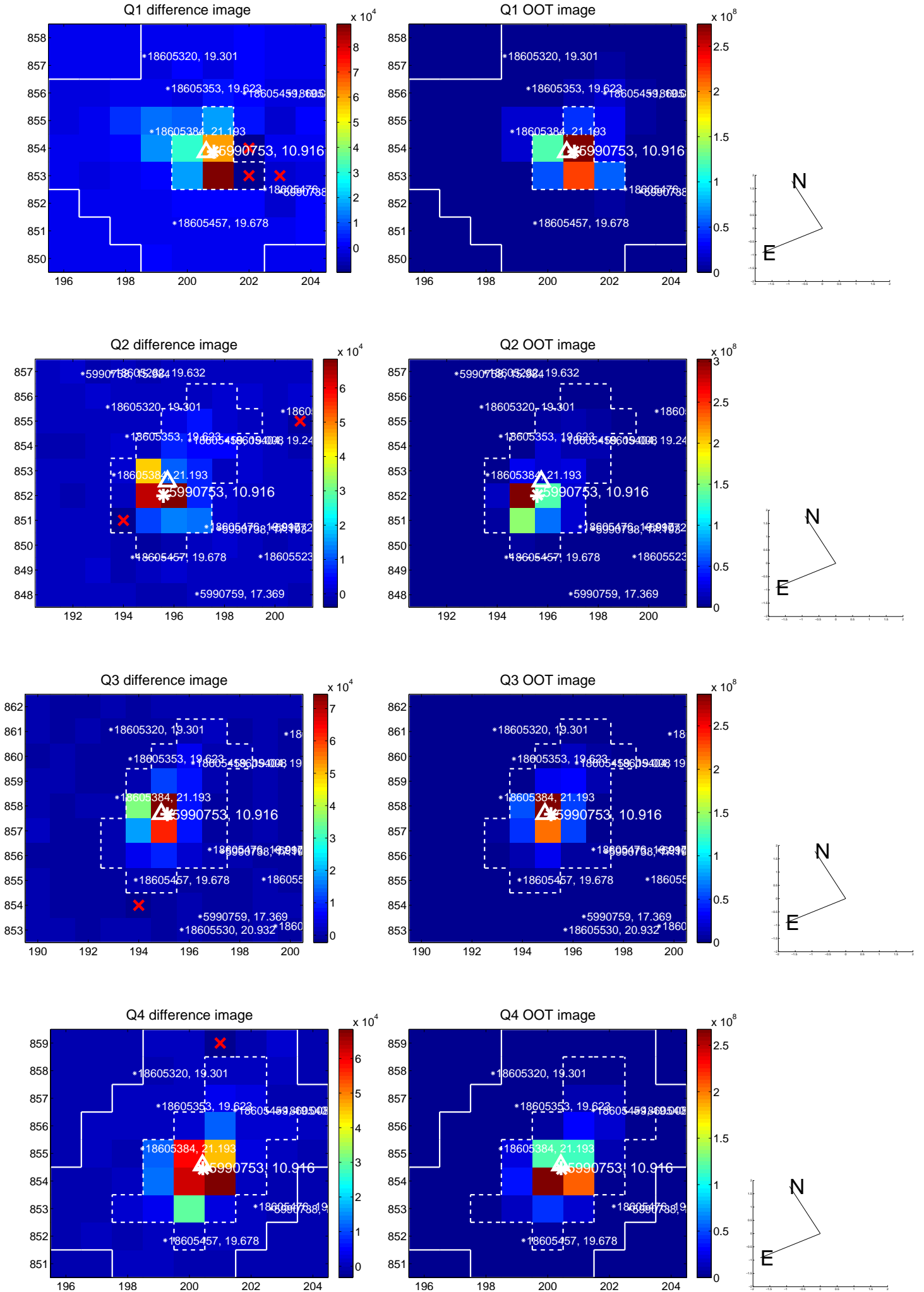
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.168 ± 0.247	0.68	-0.002 ± 0.230	0.168 ± 0.245
PRF-fit source offset from KIC position	0.322 ± 0.219	1.47	0.001 ± 0.219	0.322 ± 0.220
photometric centroid source offset	0.71 ± 0.17	4.14	0.70 ± 0.17	0.09 ± 0.15

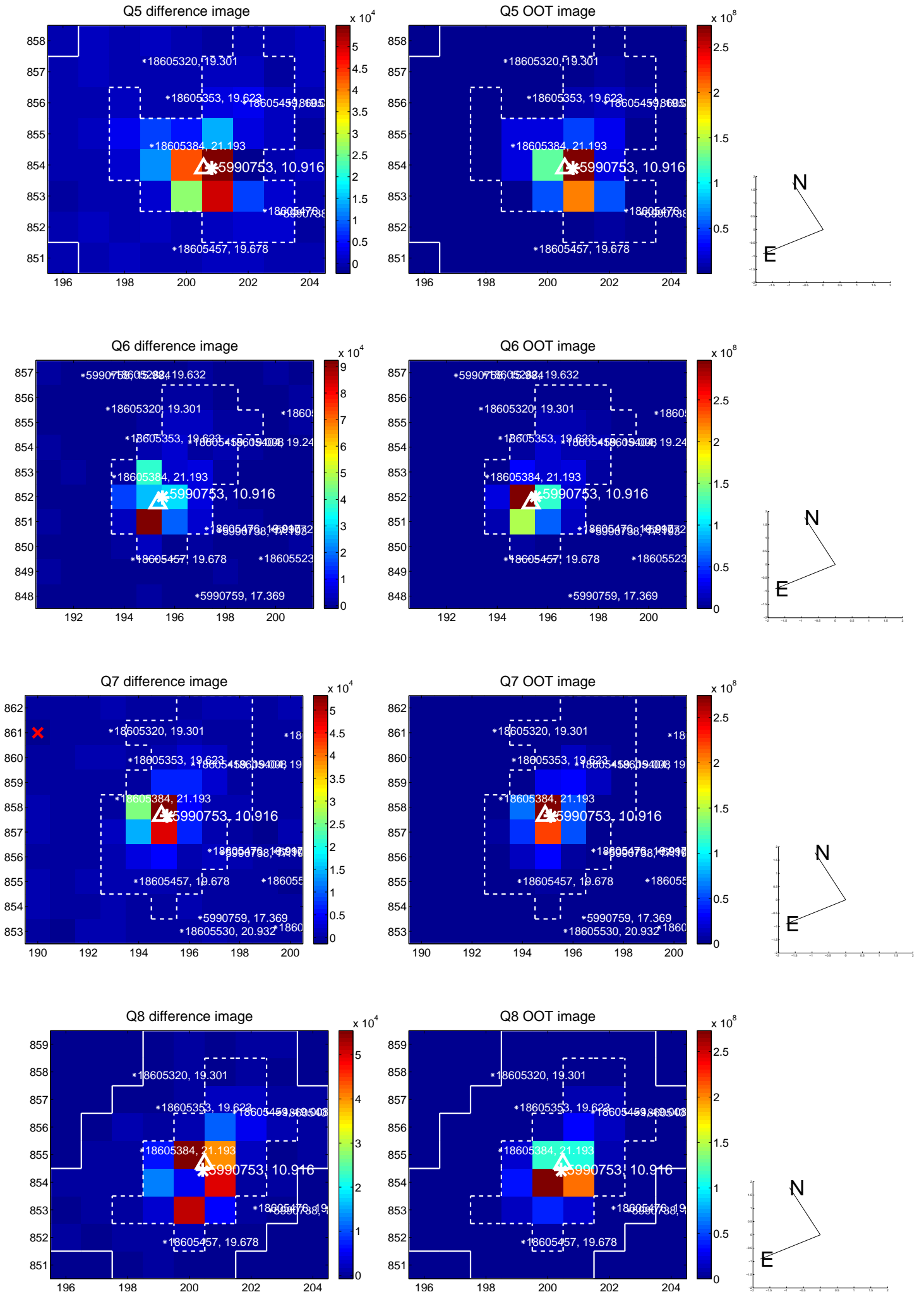


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

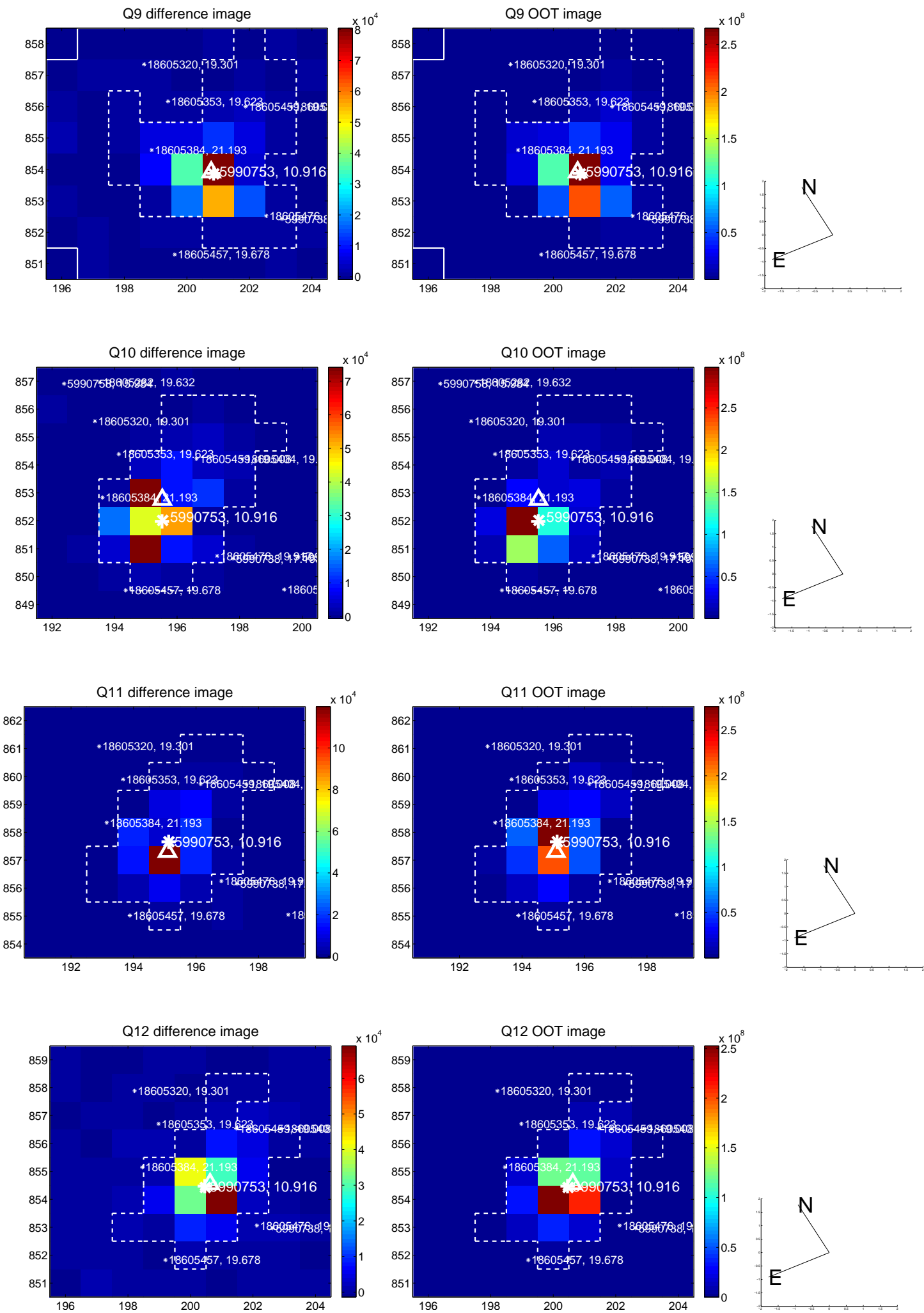
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



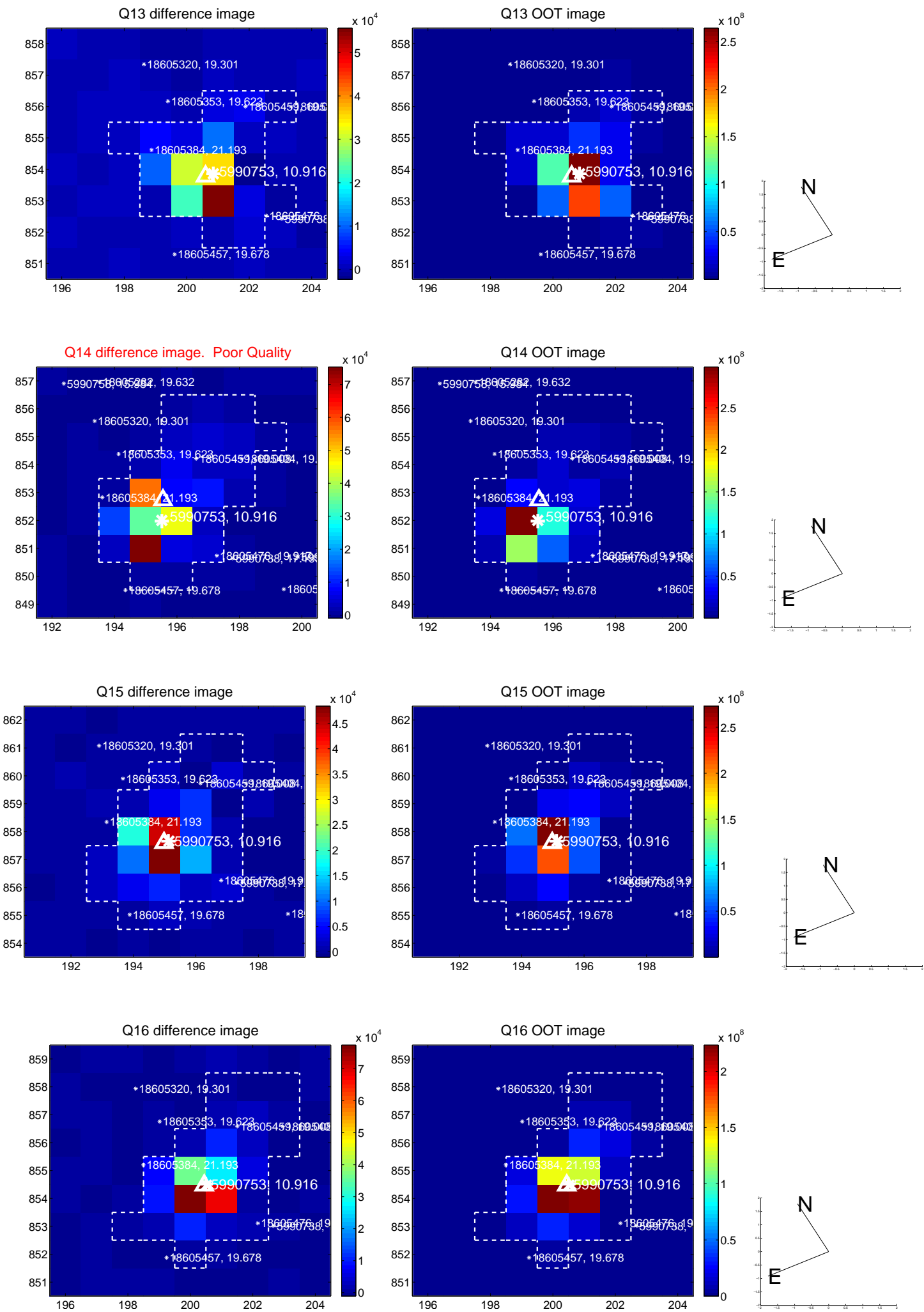
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



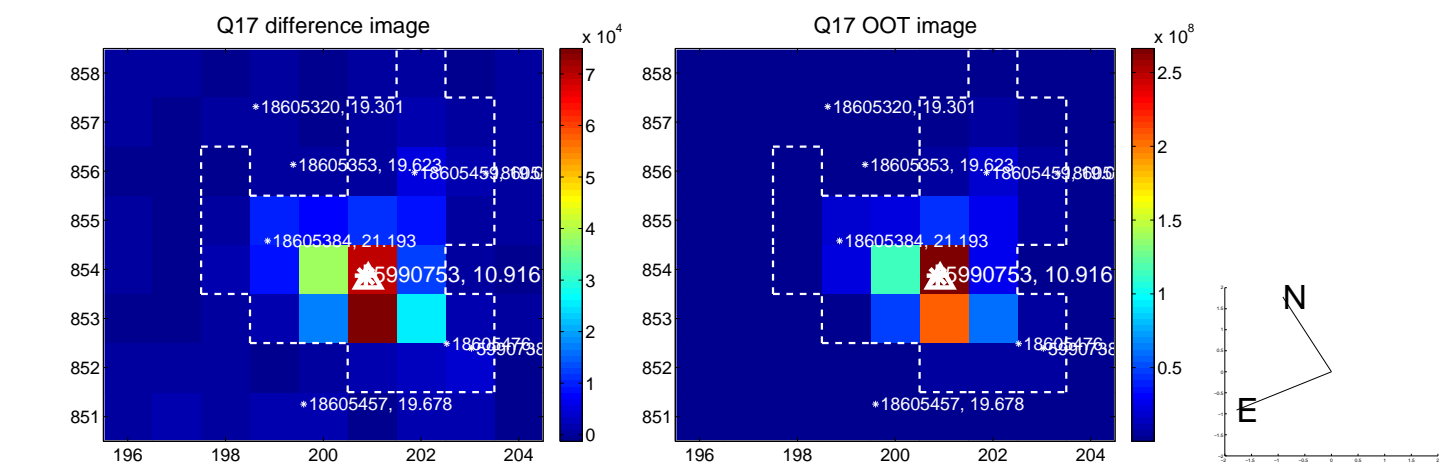
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



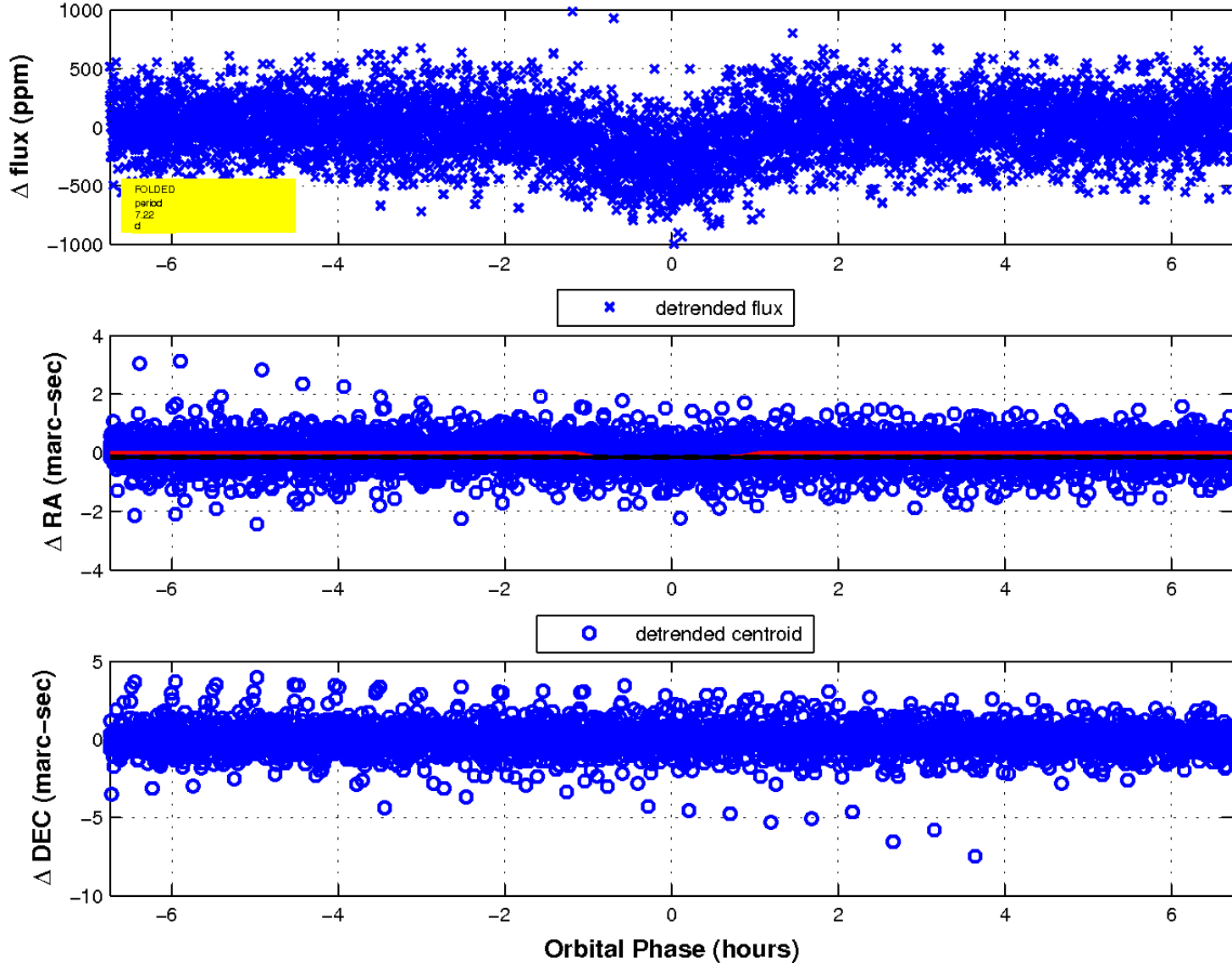
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

