

KIC 007977996

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})
007977996-01	OBS	No	0.655621	131.739656	61.9	4.328	16.4	12.0	2.93	7350	2.41	69997.91
007977996-02	OBS	No	0.881987	131.900801	206.5	3.126	11.9	16.4	2.93	7350	4.88	47134.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007977996-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
007977996-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

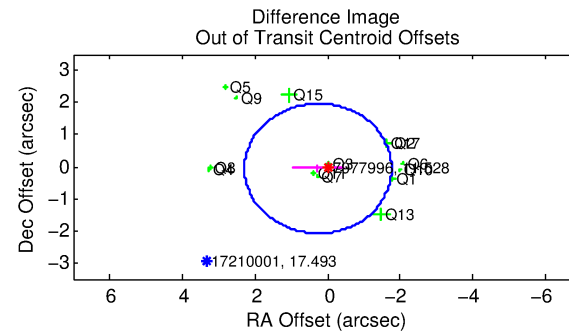
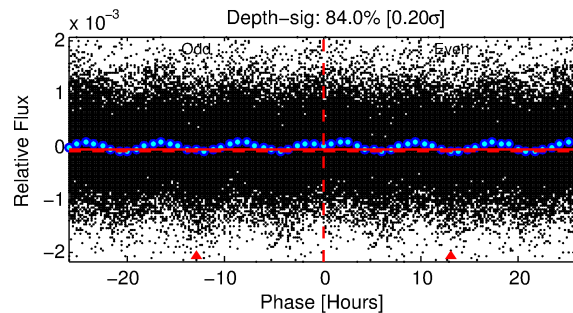
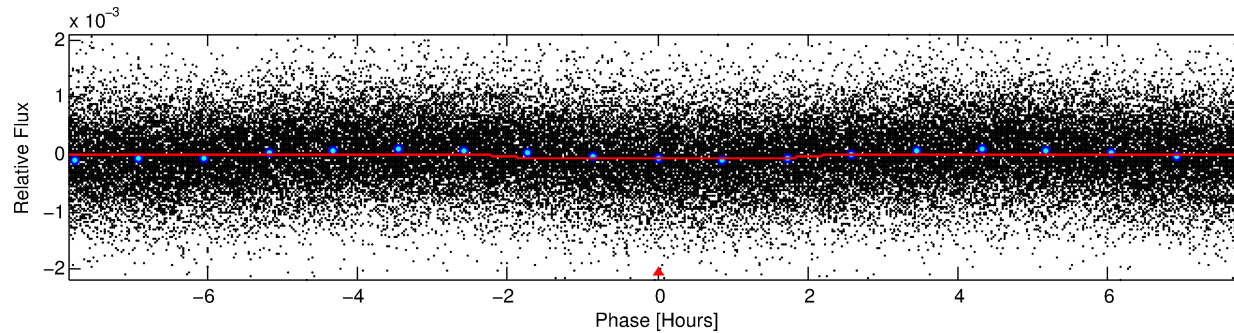
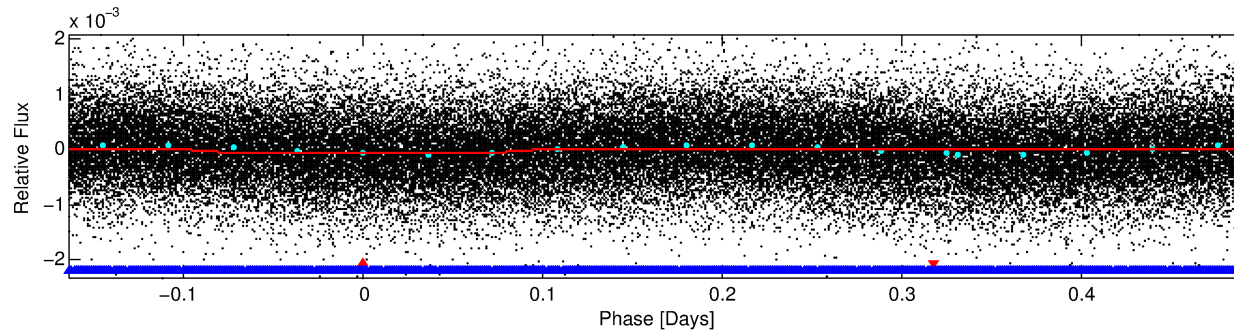
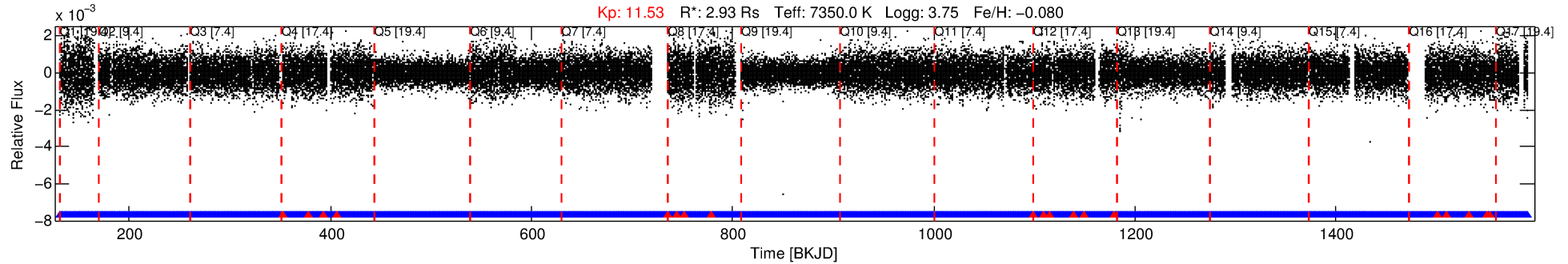
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007977996-01

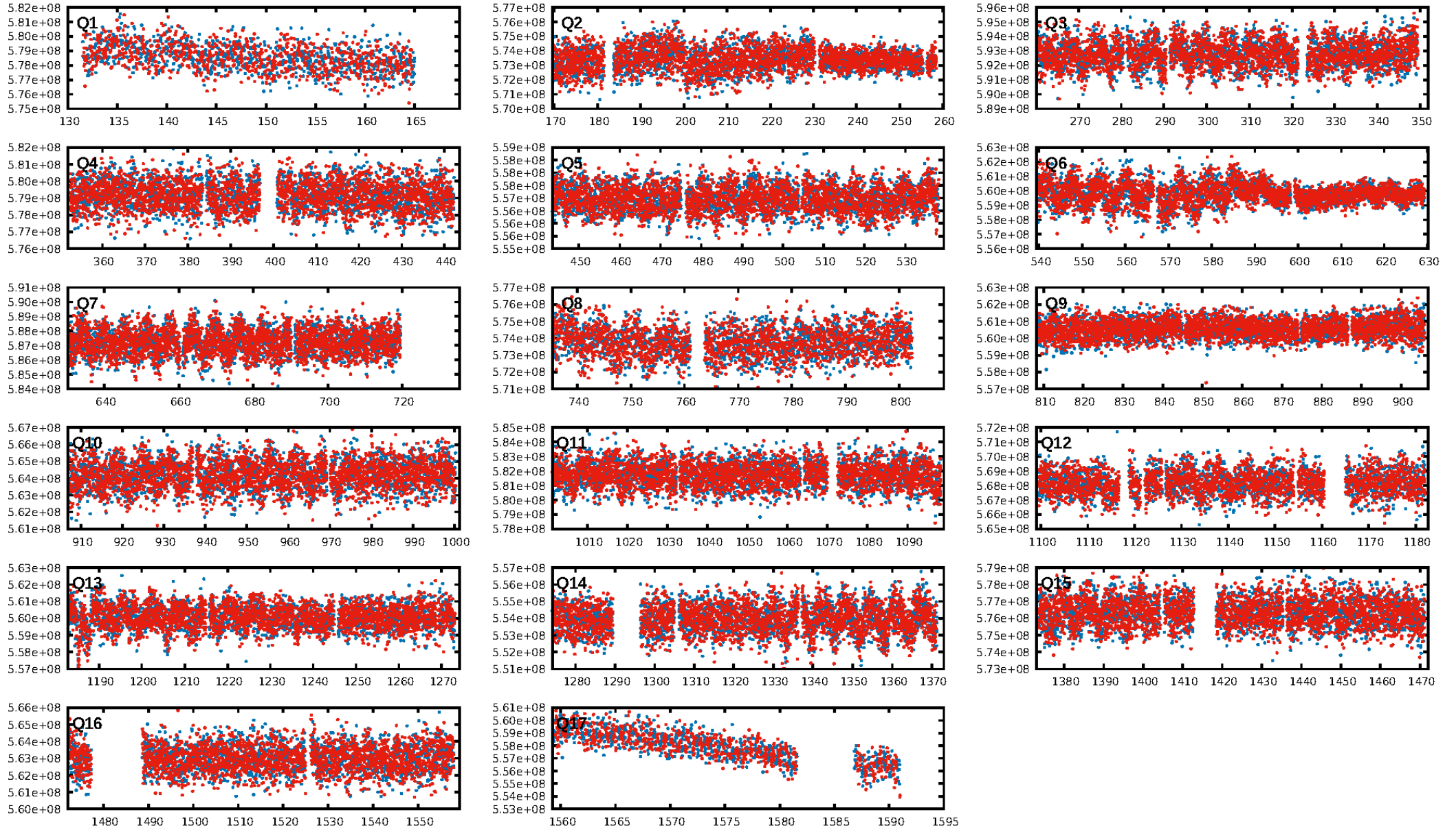
No Significant Match Found

DV One-Page Summary

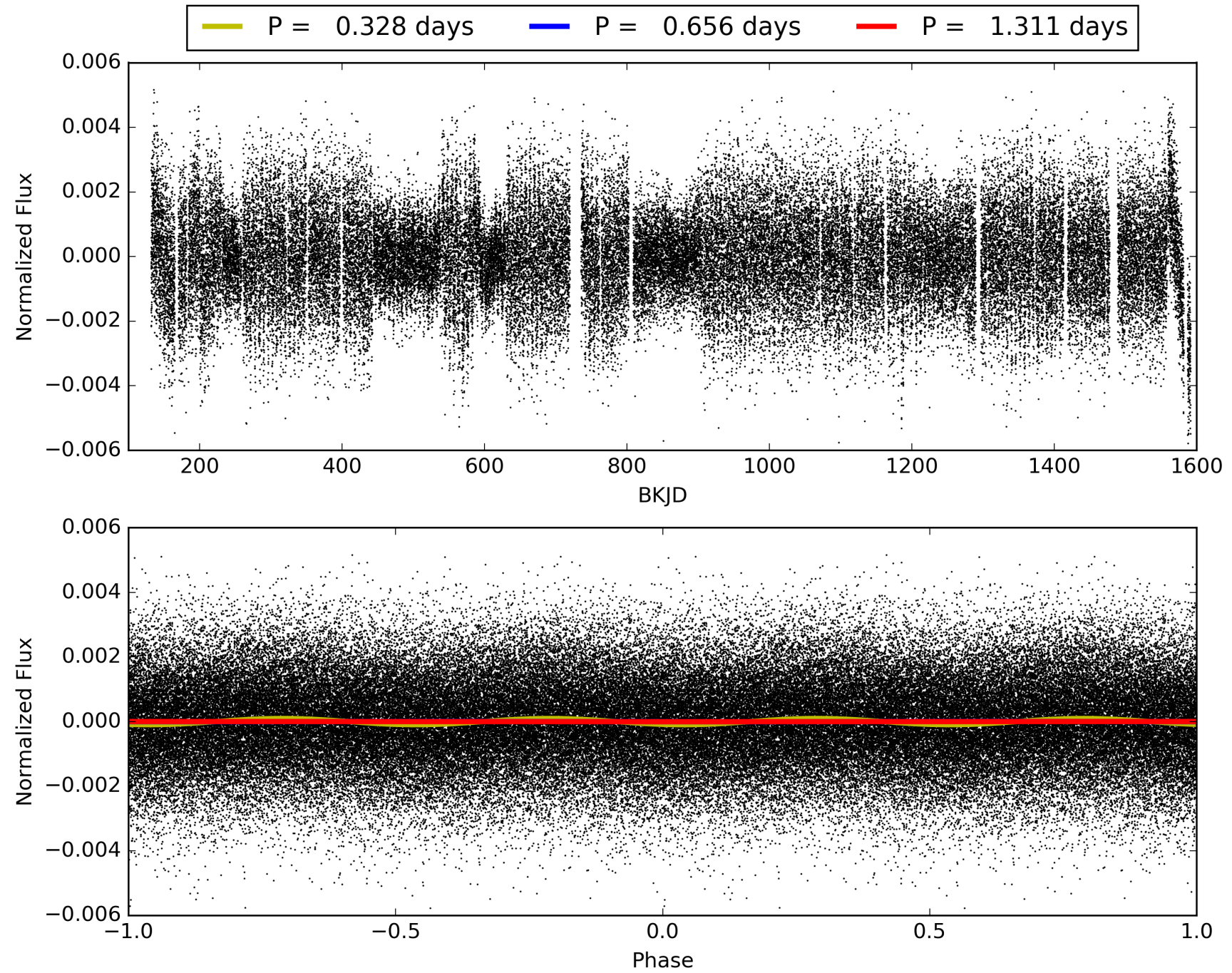
KIC: 7977996 Candidate: 1 of 2 Period: 0.656 d



TCE 007977996-01, PDC Light Curves

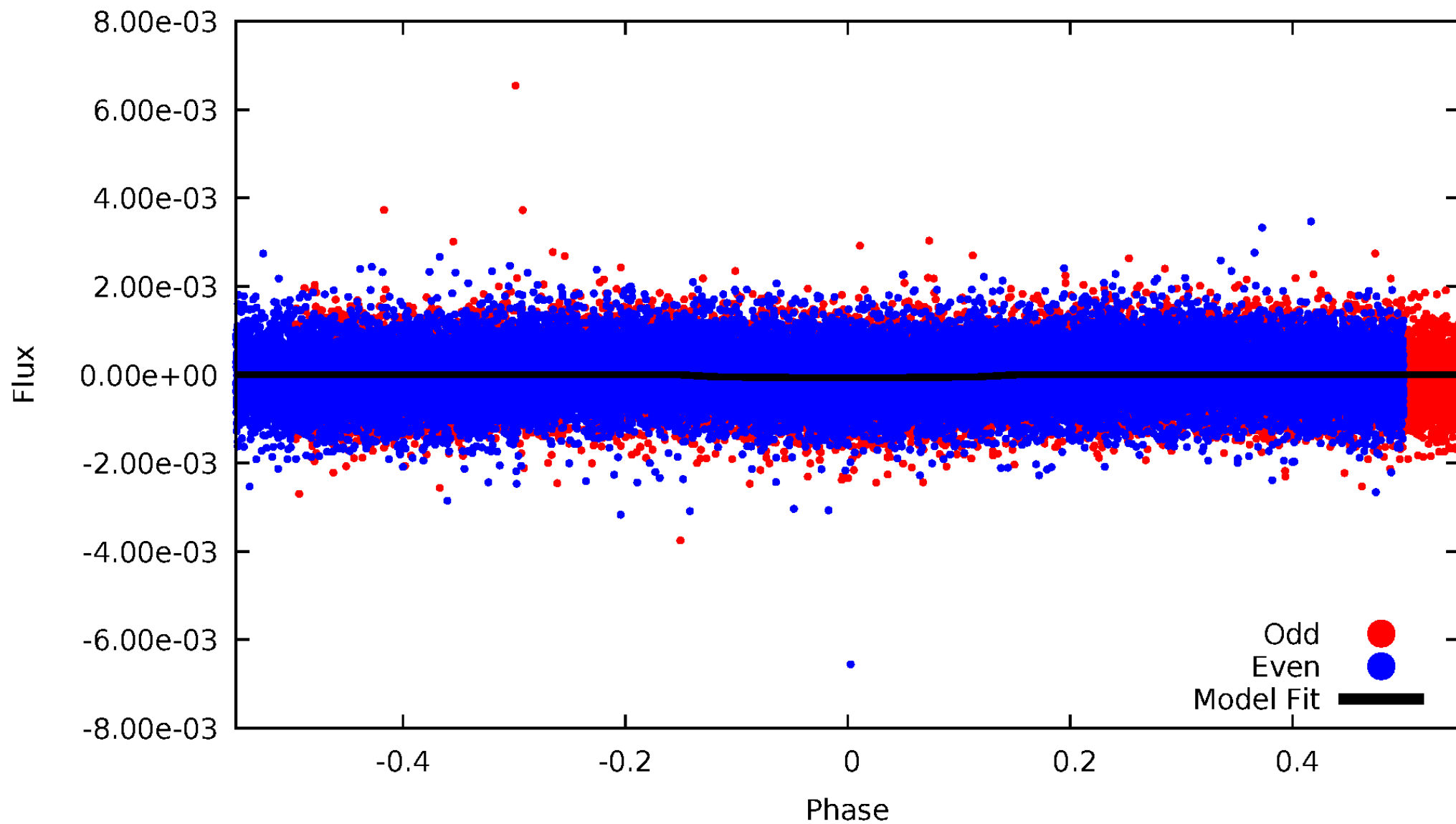


TCE 007977996-01



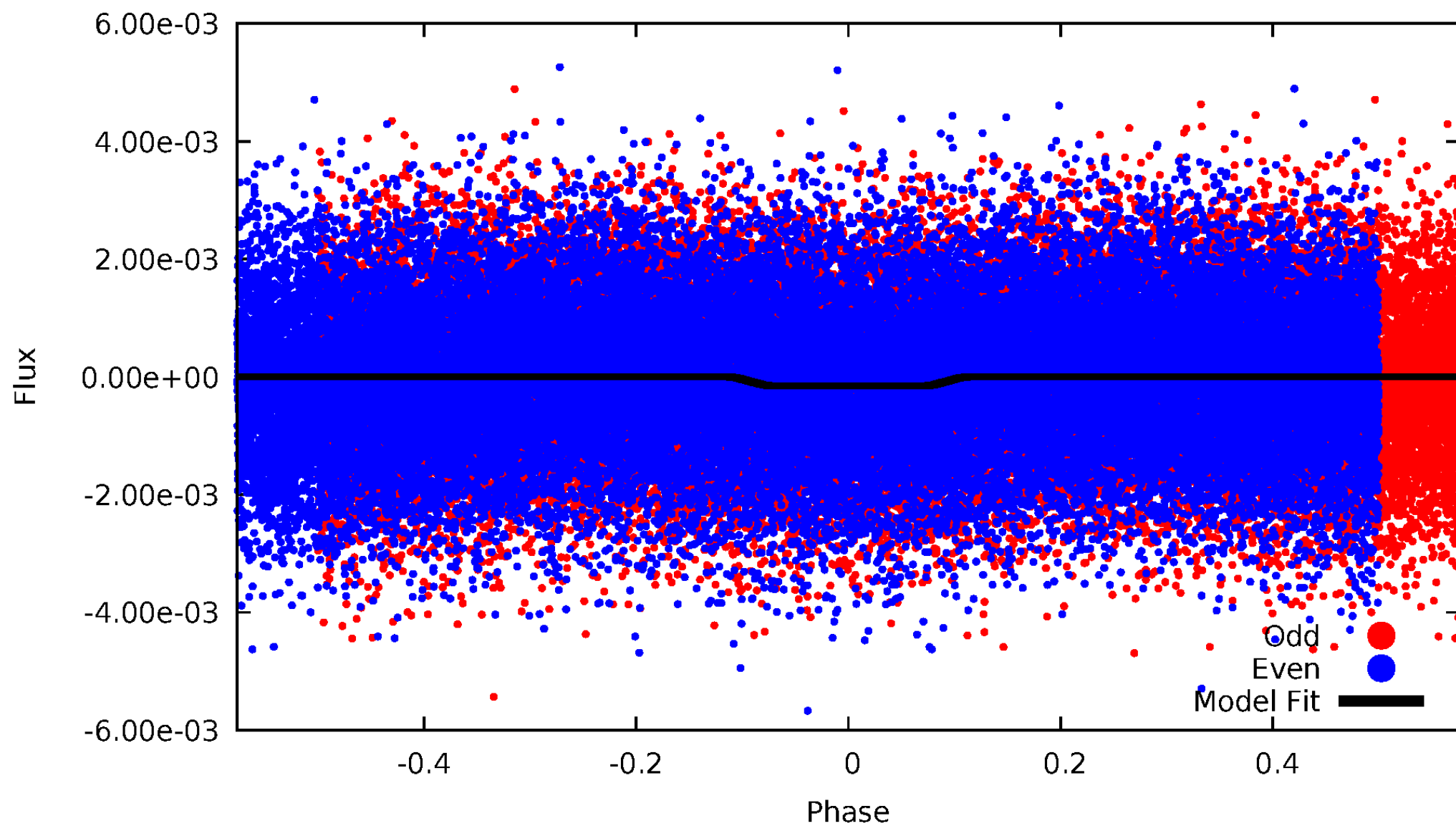
DV Odd/Even

TCE 007977996-01



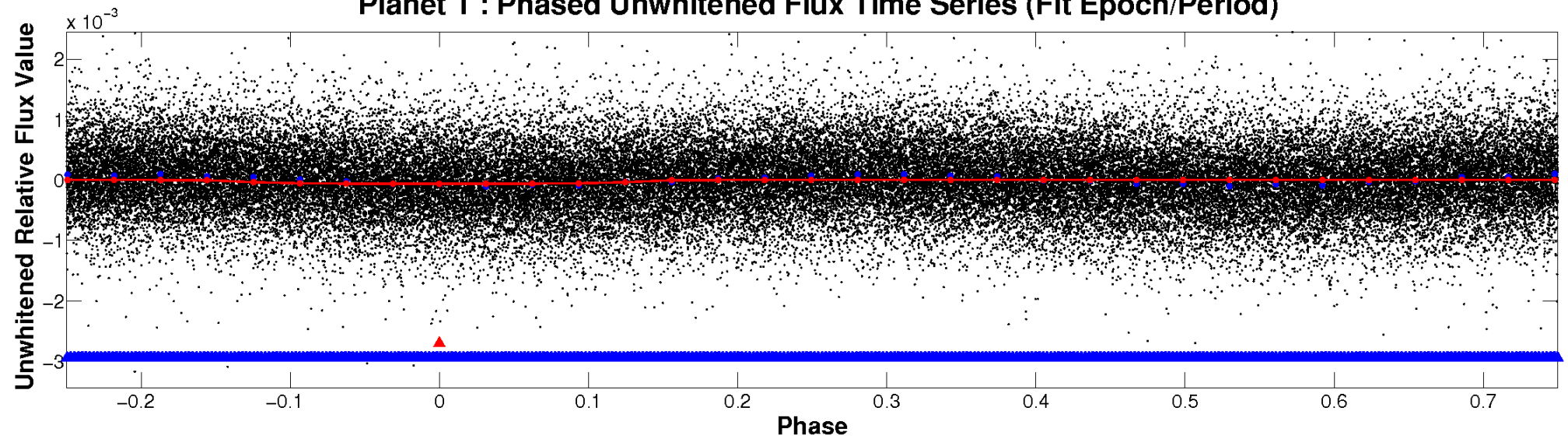
ALT Odd/Even

TCE 007977996-01

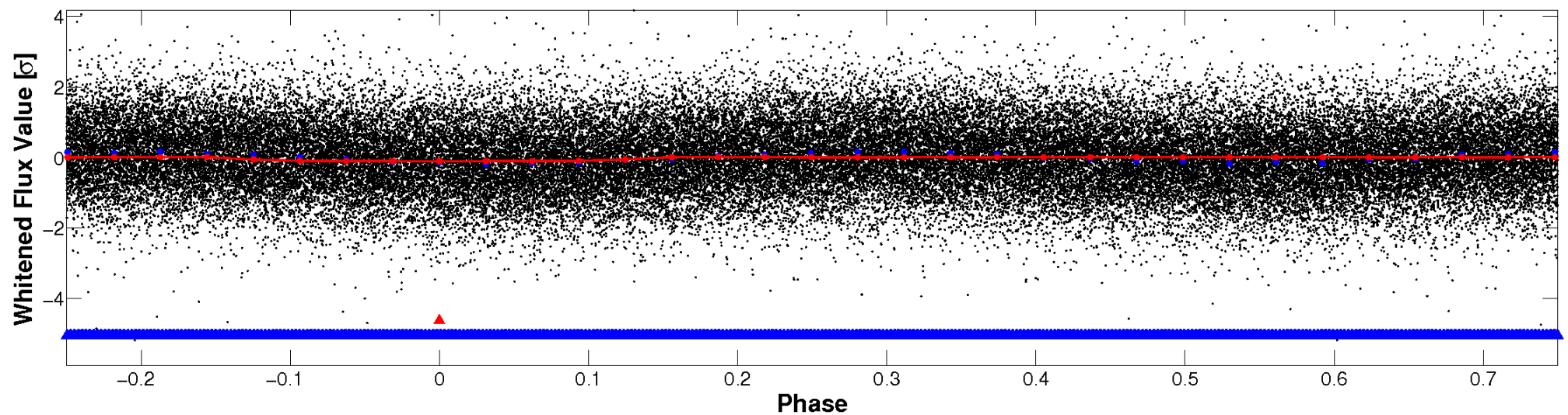


Non-Whitened Vs. Whitened Light Curve

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

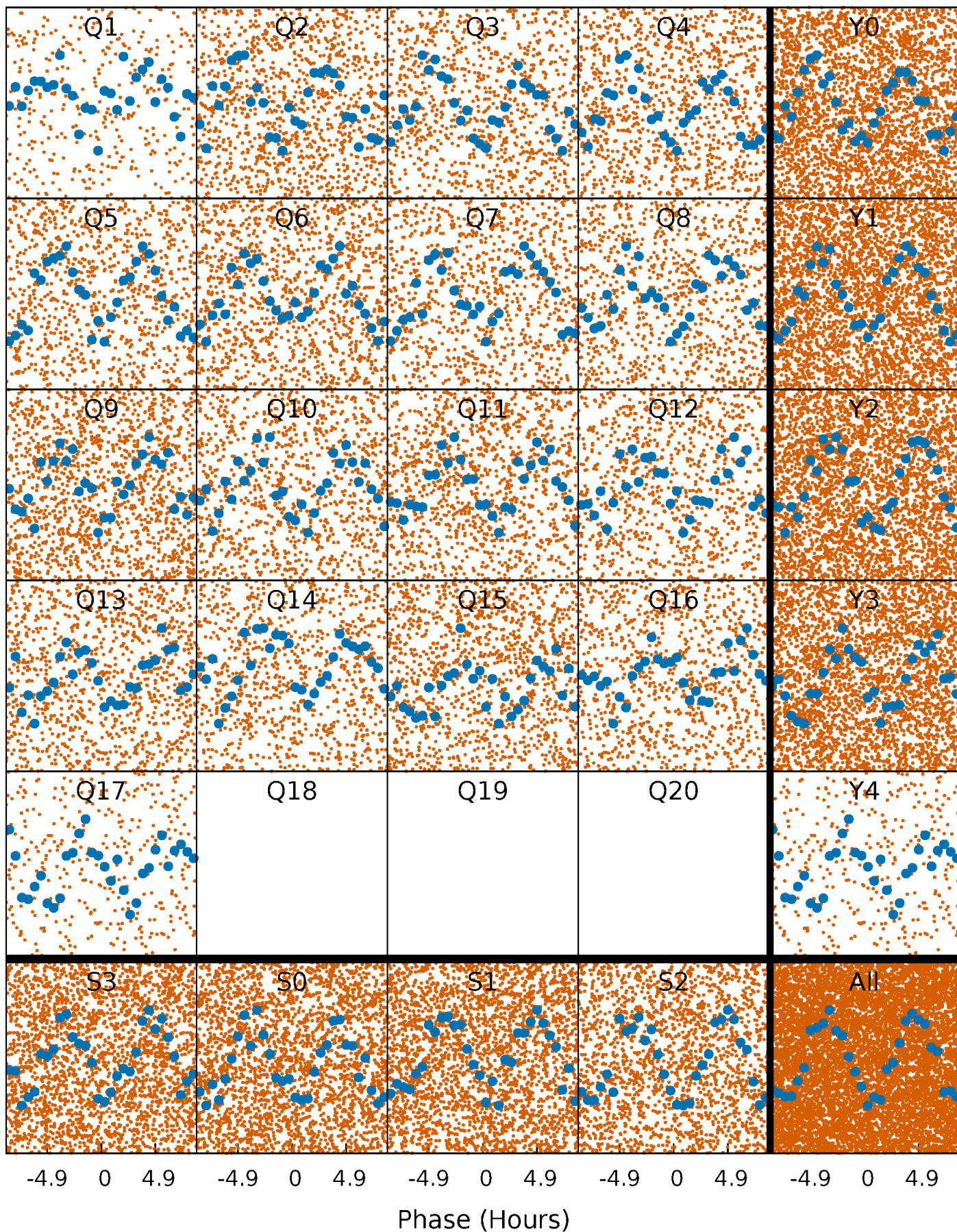


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



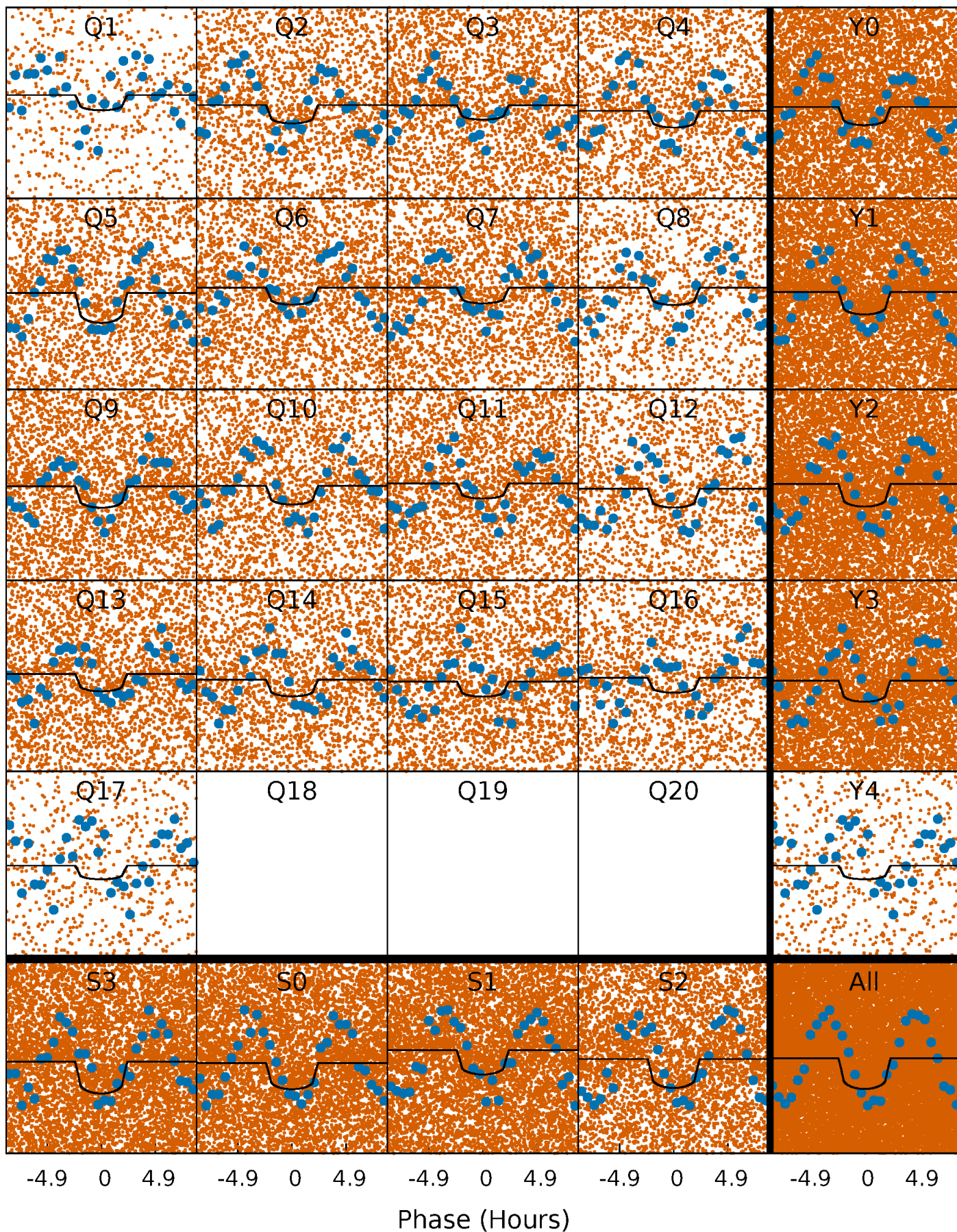
PDC Quarter-Phased Transit Curves

TCE 007977996-01 P= 0.655621 Days $T_0=131.739656$ (BKJD)



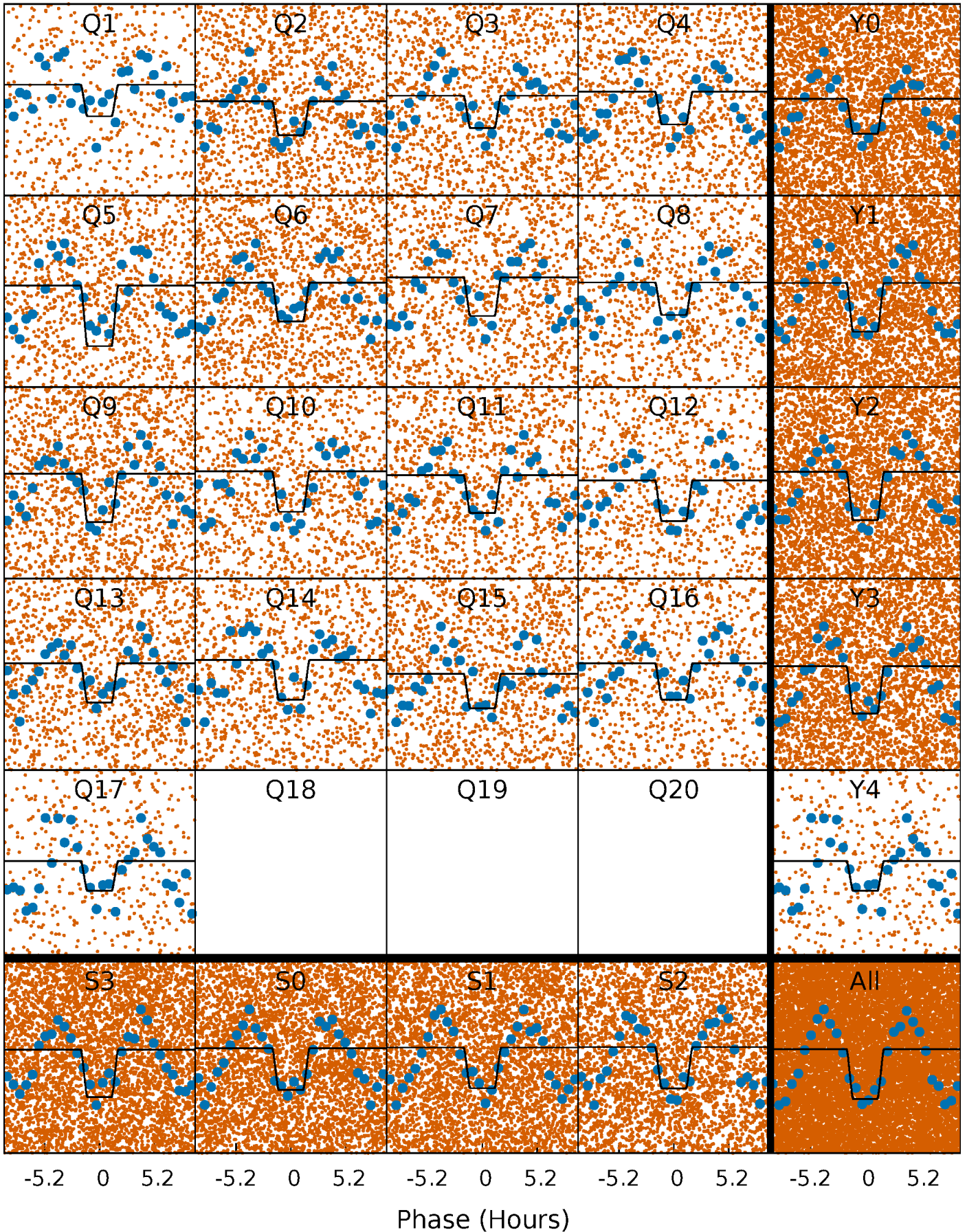
DV Quarter-Phased Transit Curves

TCE 007977996-01 P= 0.655621 Days $T_0=131.739656$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

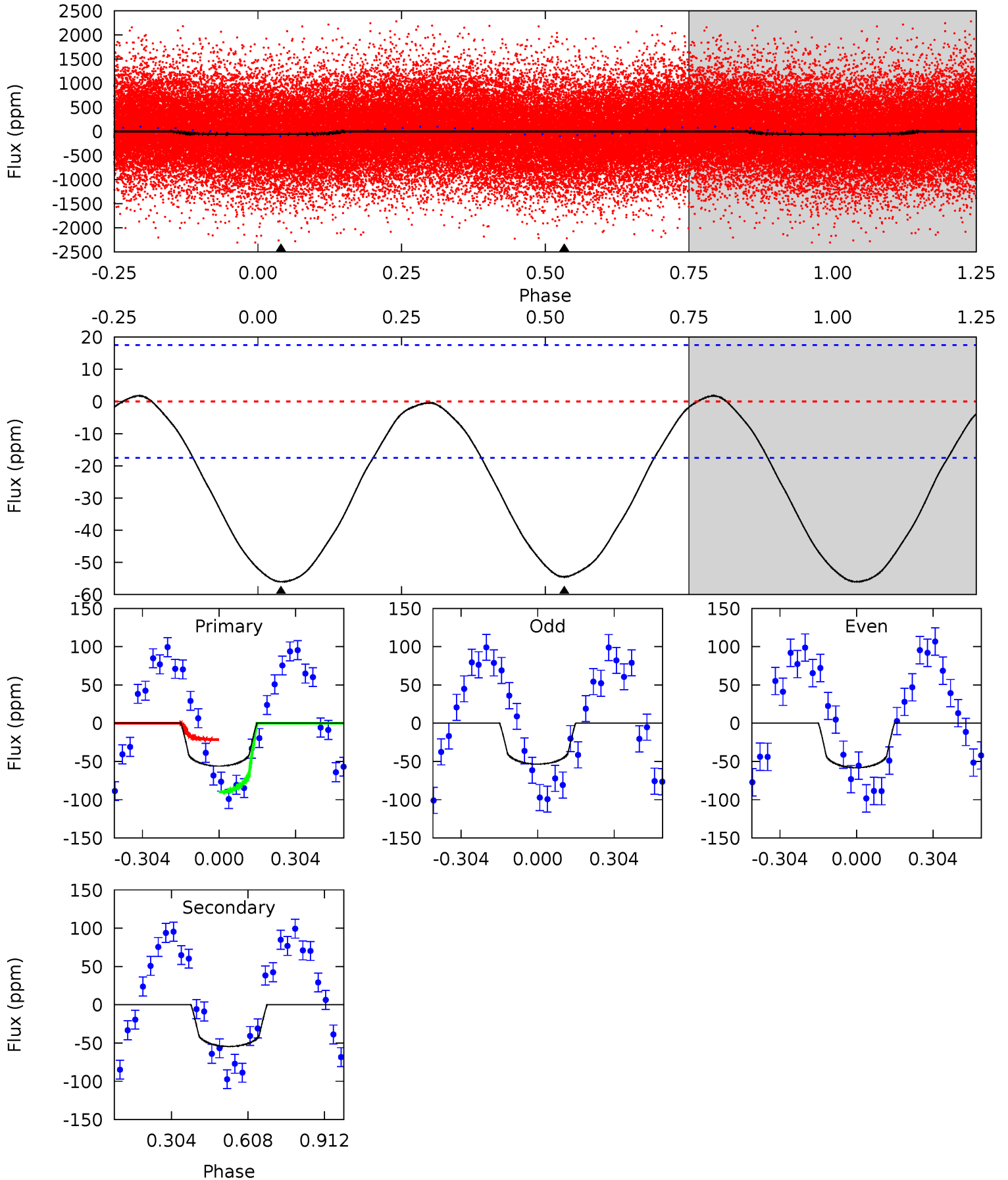
TCE 007977996-01 P= 0.655676 Days $T_0=131.706313$ (BKJD)



DV Model-Shift Uniqueness Test

007977996-01, P = 0.655621 Days, E = 131.084035 Days

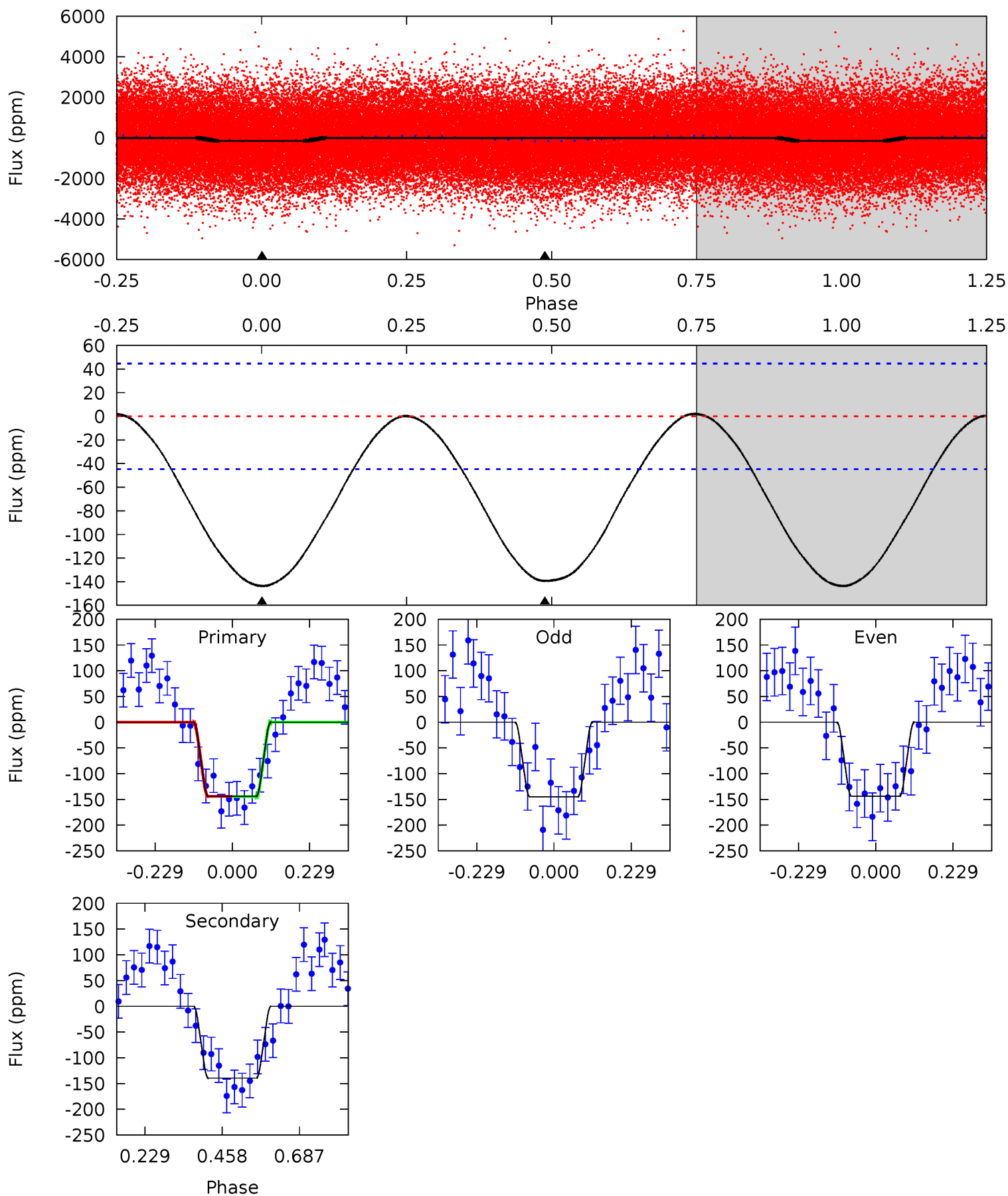
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	13.4	0	0	4.33	1.03	0.28	13.8	13.8	13.4	13.4	0.59	0.96	0.03	8.49



Alt Model-Shift Uniqueness Test

007977996-01, P = 0.655676 Days, E = 131.050637 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	13.7	0	0	4.39	1.20	0.16	14.1	14.1	13.7	13.7	0.05	1.15	0.01	0.03



Stellar Parameters For KIC 007977996

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7350^{+203}_{-330}	$3.755^{+0.392}_{-0.098}$	$-0.080^{+0.200}_{-0.350}$	$2.930^{+0.435}_{-1.306}$	$1.780^{+0.205}_{-0.380}$	$0.100^{+0.342}_{-0.031}$
	+3%/-4%	+10%/-3%	+250%/-438%	+15%/-45%	+12%/-21%	+343%/-31%
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 007977996-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-54 ± 4	$2.36^{+1.82}_{-1.42}$	5655^{+368}_{-664}	6521^{+5968}_{-1970}	$1.672^{+8.803}_{-1.114}$
Alt.	-139 ± 10	$3.62^{+1.96}_{-1.66}$	5638^{+381}_{-665}	6762^{+3323}_{-1607}	$1.864^{+4.343}_{-1.056}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

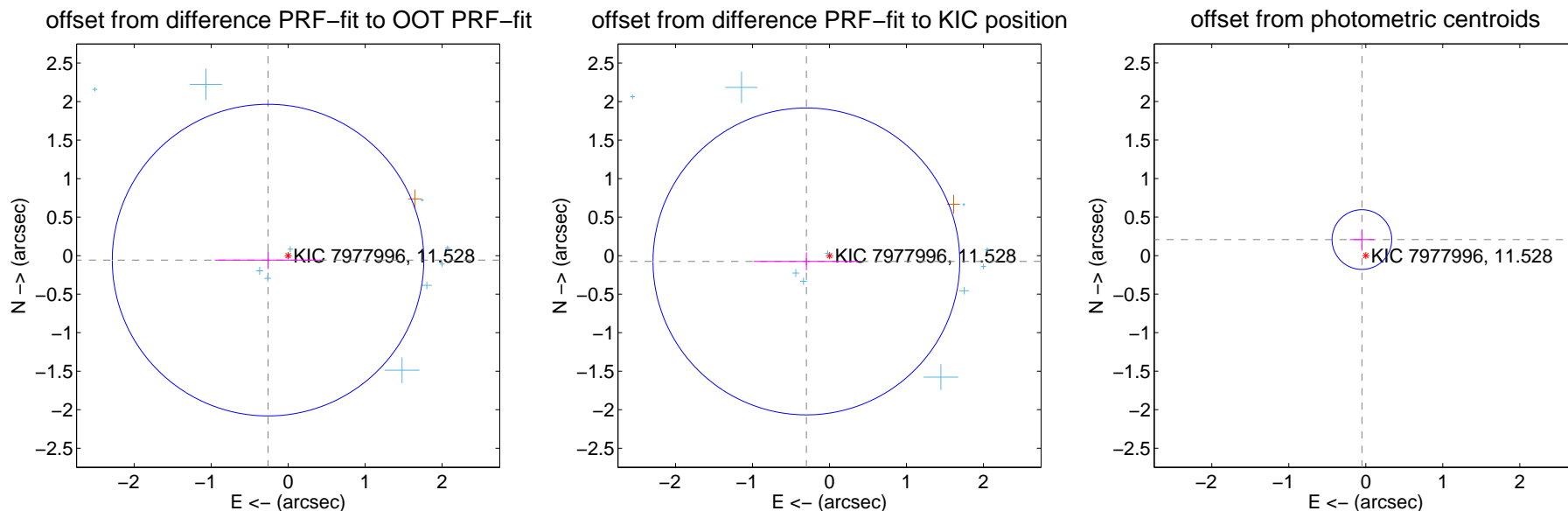
DV Centroid Data

Supplemental centroid analysis for 007977996-01. **Kepler magnitude: 11.53.** Transit SNR 12.04

There are 11 quarters with good PRF difference image offsets

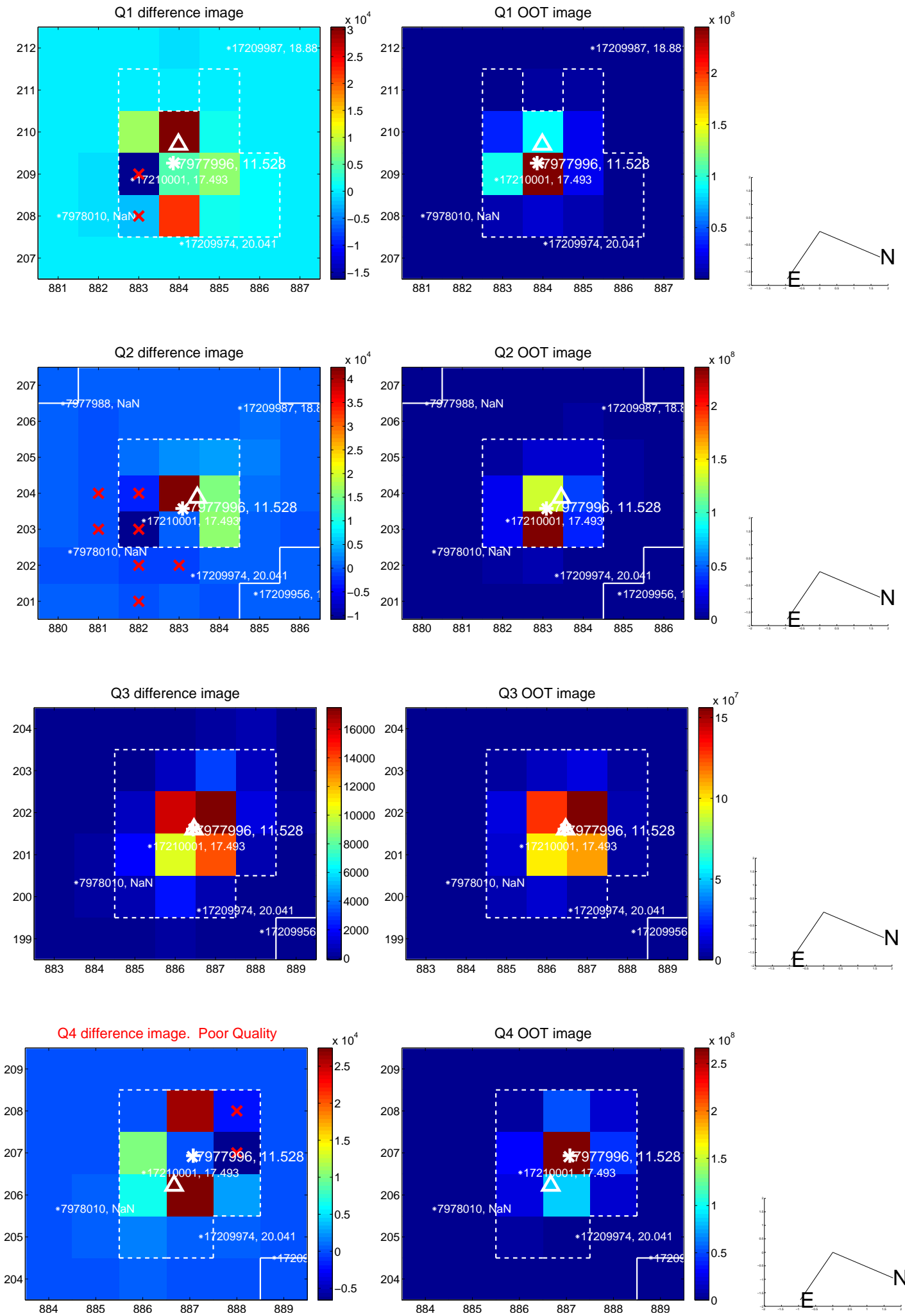
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.267 ± 0.674	0.40	0.261 ± 0.690	-0.058 ± 0.115
PRF-fit source offset from KIC position	0.309 ± 0.664	0.47	0.300 ± 0.684	-0.075 ± 0.115
photometric centroid source offset	0.21 ± 0.13	1.66	0.05 ± 0.16	0.21 ± 0.13

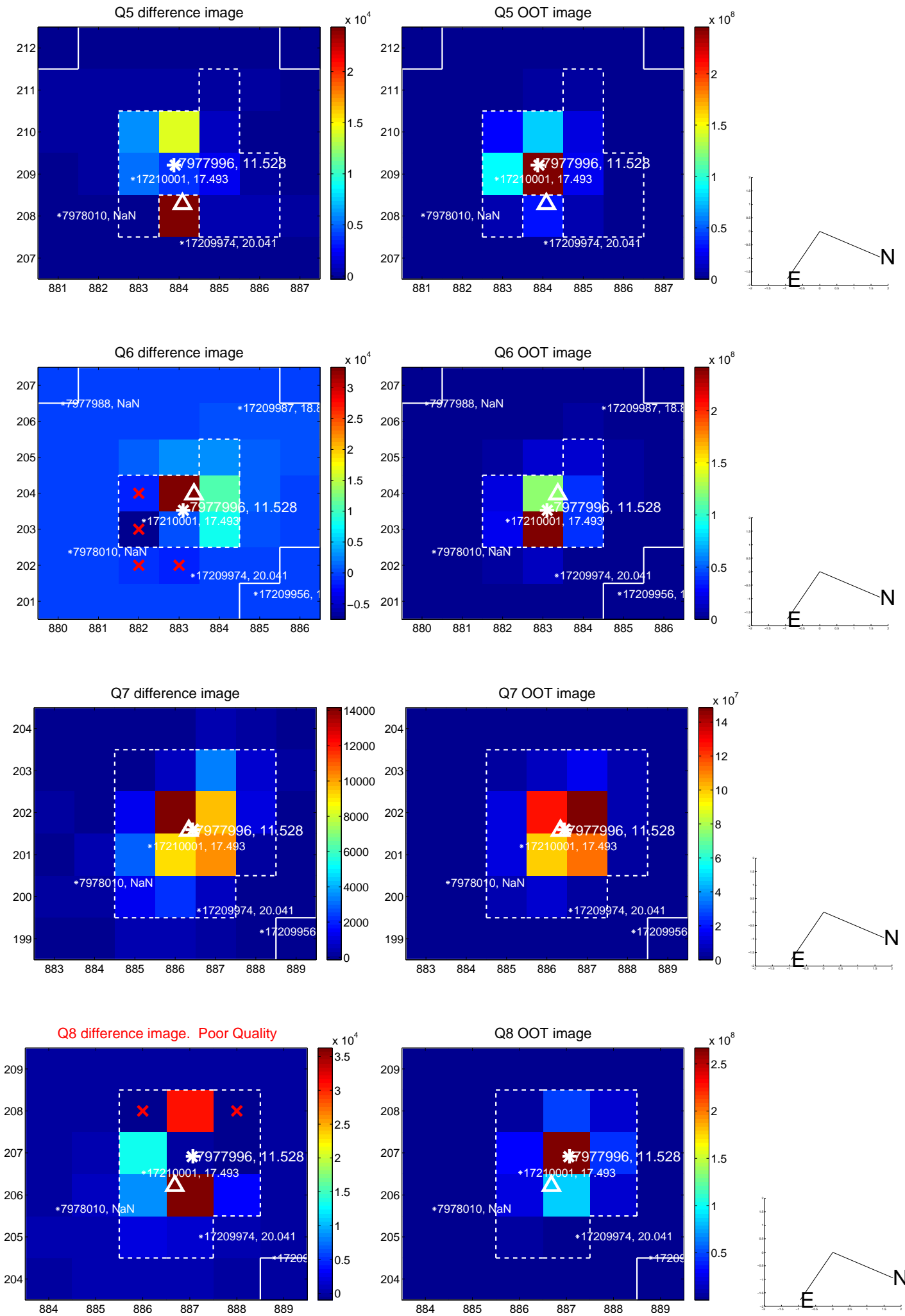


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

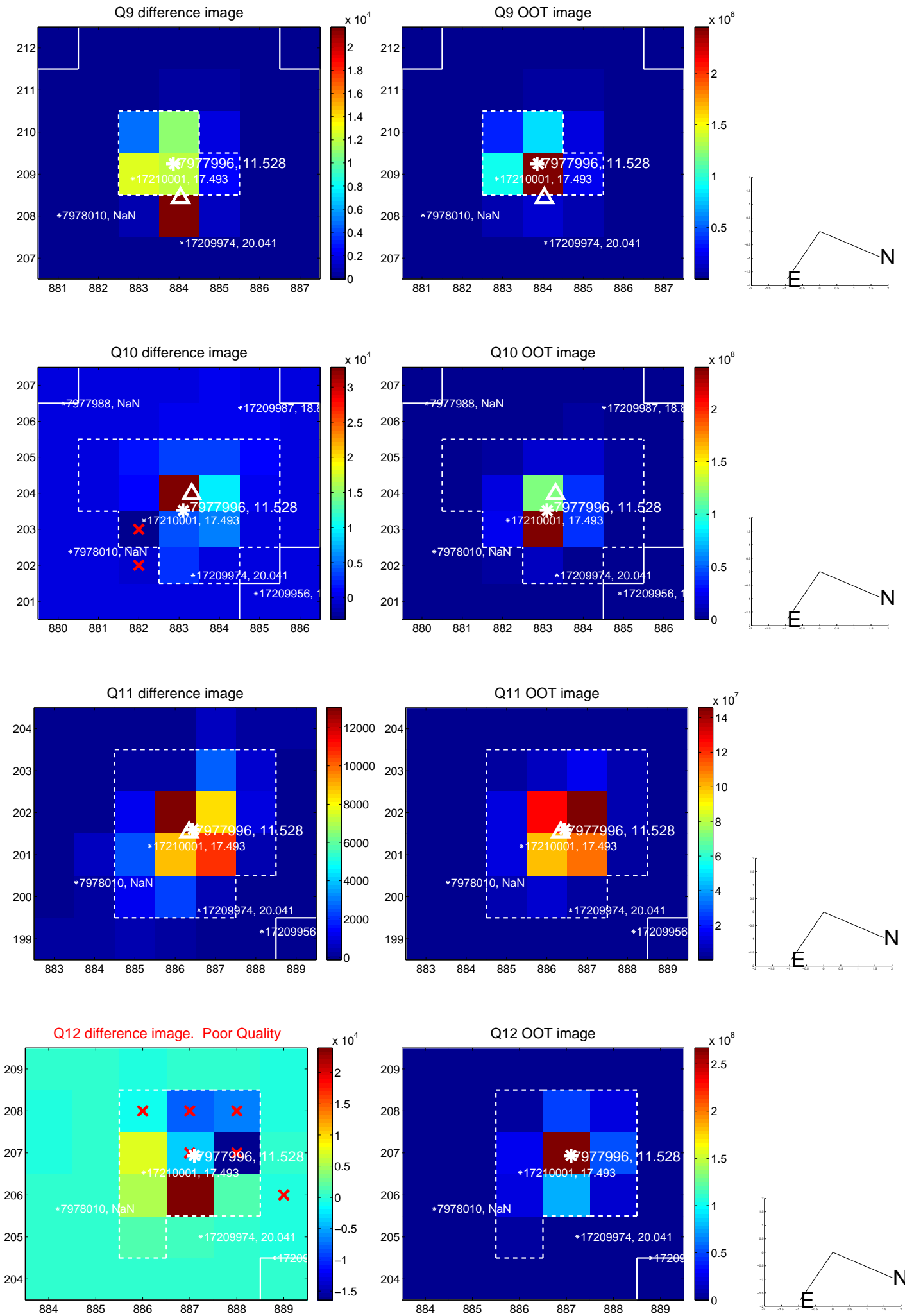
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



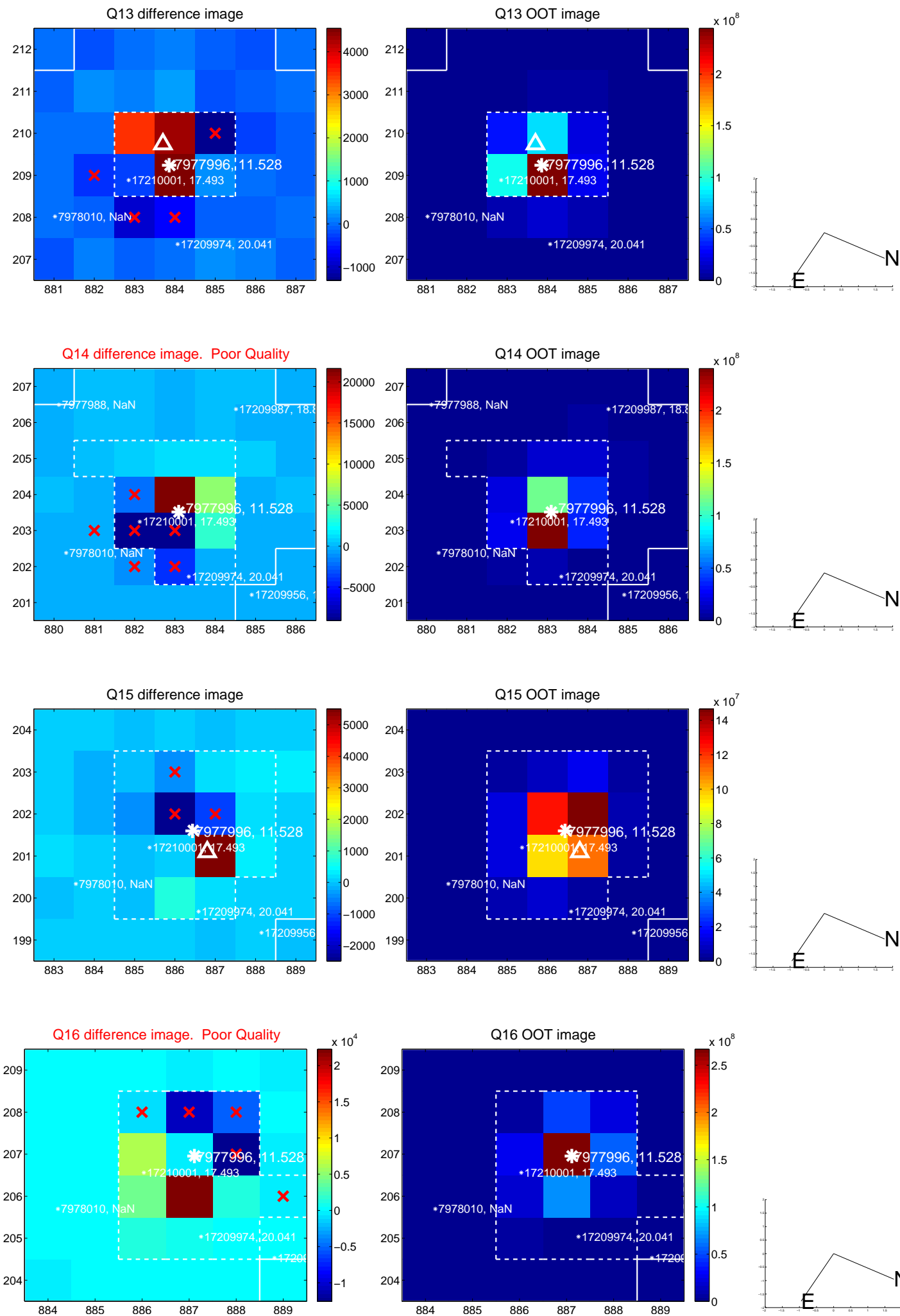
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



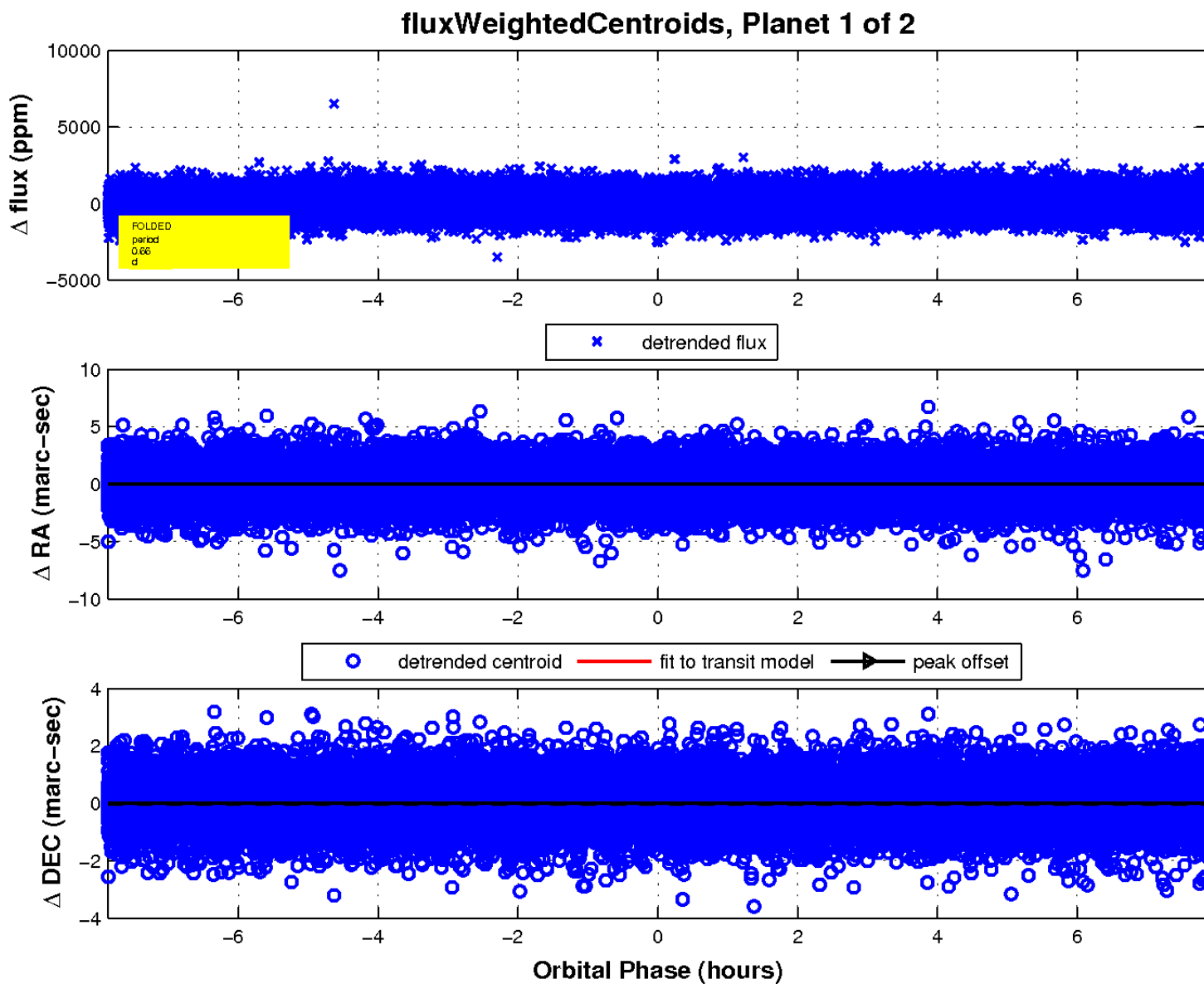
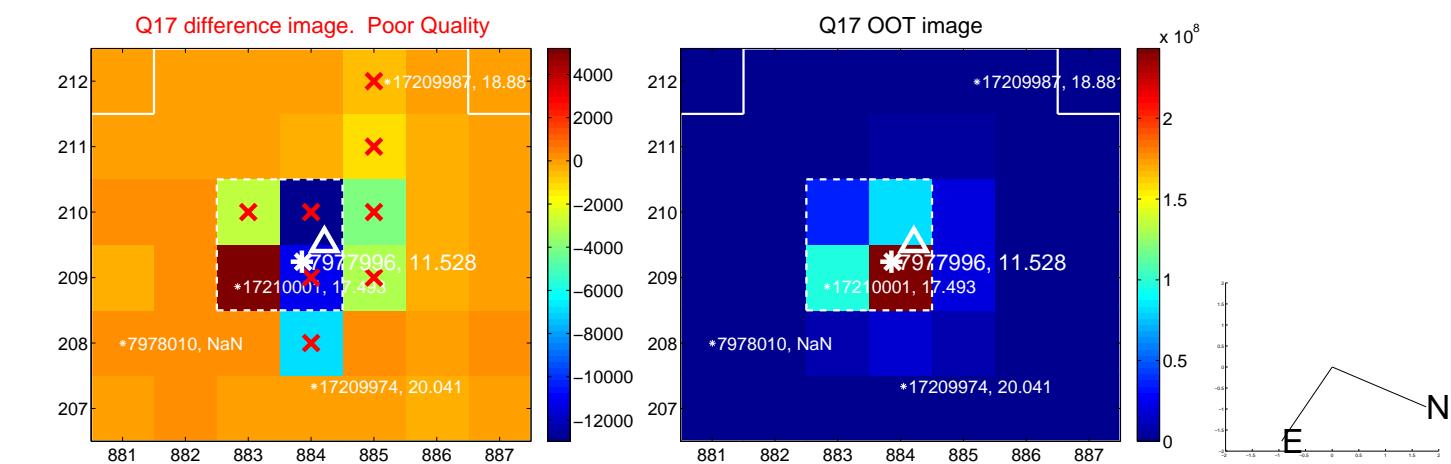
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

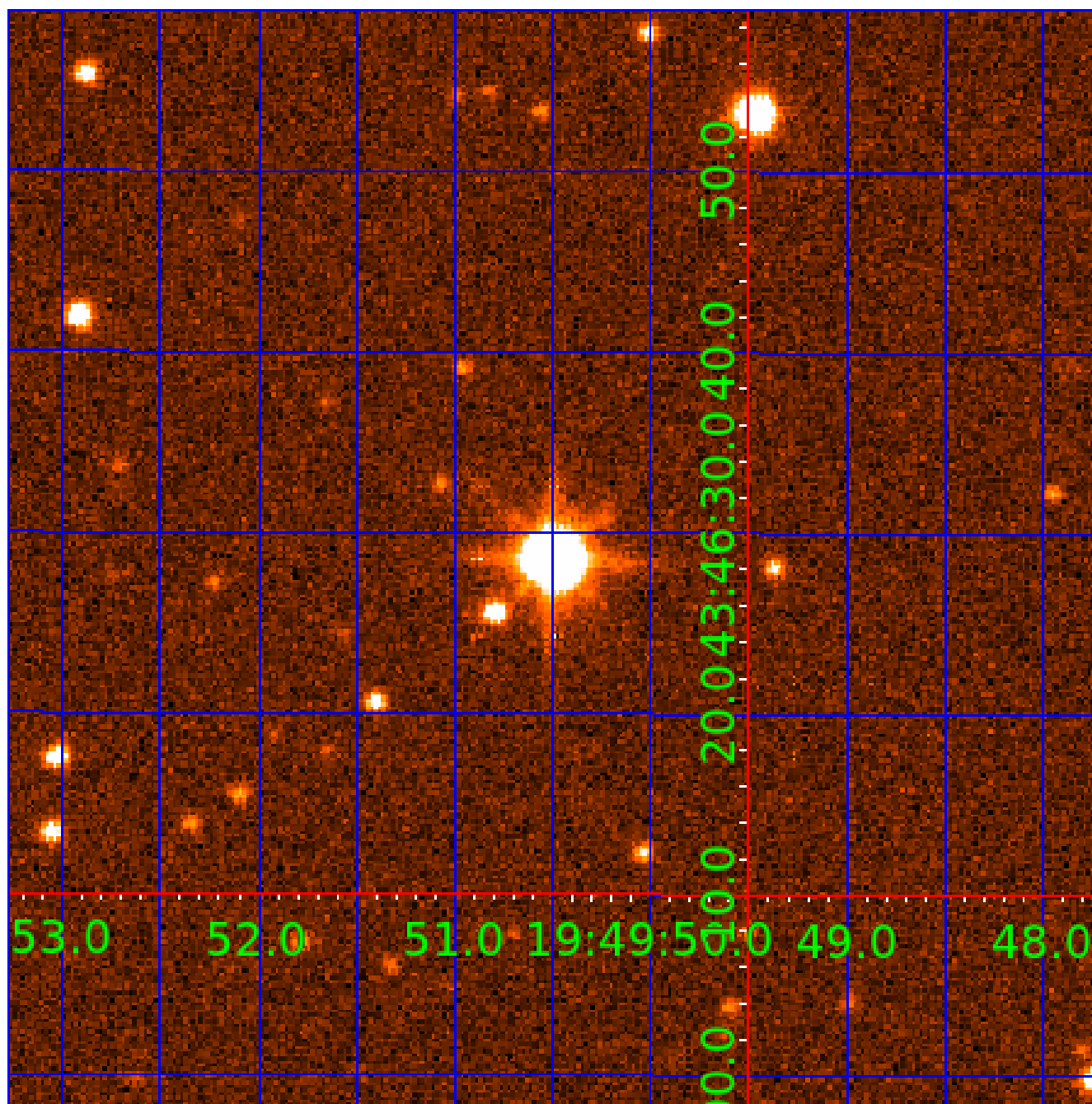


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007977996

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})
007977996-01	OBS	No	0.655621	131.739656	61.9	4.328	16.4	12.0	2.93	7350	2.41	69997.91
007977996-02	OBS	No	0.881987	131.900801	206.5	3.126	11.9	16.4	2.93	7350	4.88	47134.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007977996-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
007977996-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

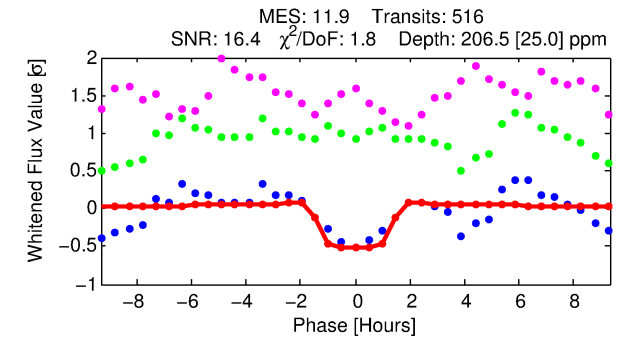
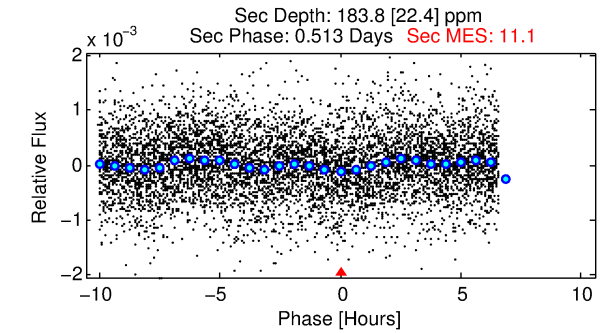
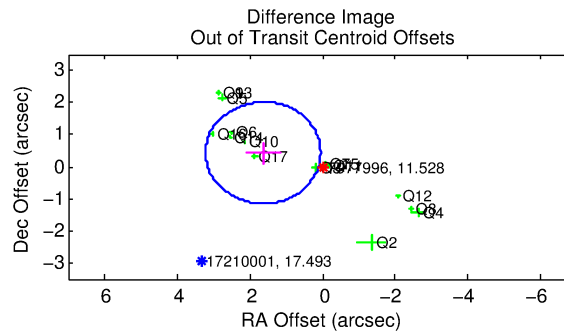
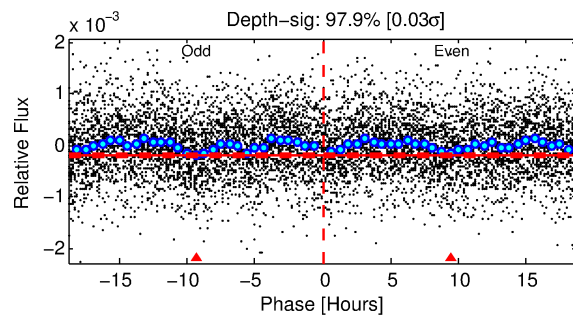
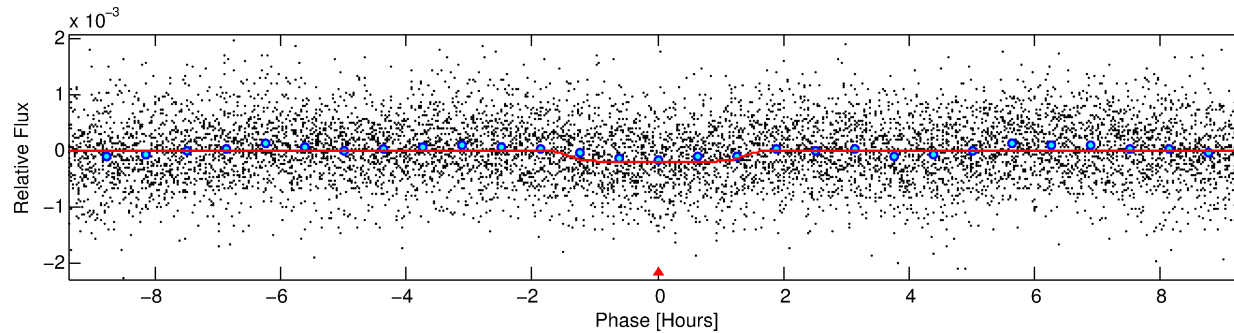
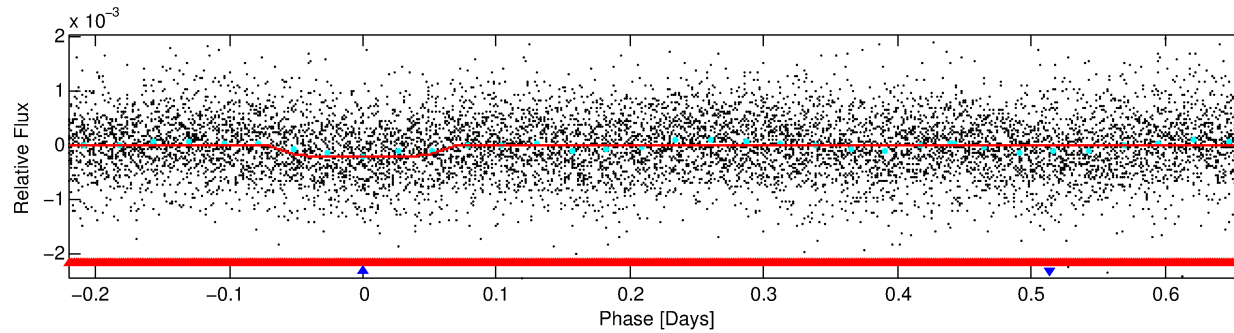
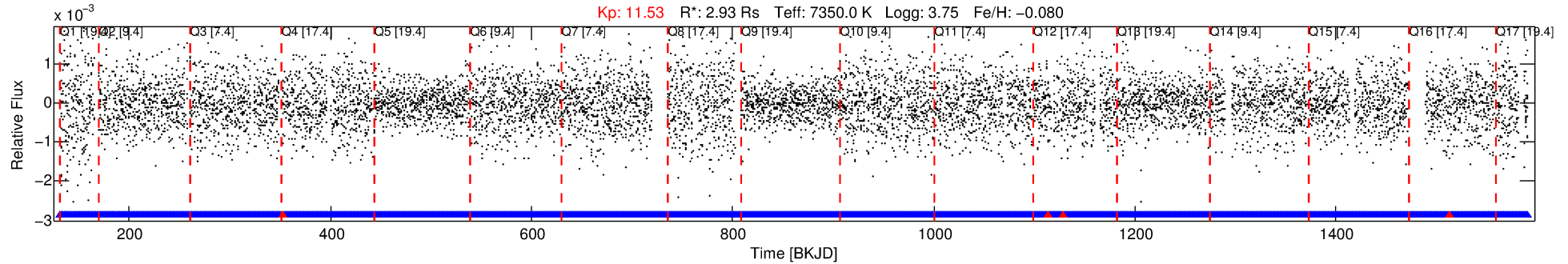
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007977996-02

No Significant Match Found

DV One-Page Summary

KIC: 7977996 Candidate: 2 of 2 Period: 0.882 d



DV Fit Results:

Period = 0.88199 [0.00001] d
Epoch = 131.9008 [0.0032] BKJD
Rp/R* = 0.0153 [0.0049]
a/R* = 1.38 [1.31]
b = 0.90 [0.42]
Seff = 47134.56 [32745.75]
Teq = 3757 [653] K
Rp = 4.88 [2.67] Re
a = 0.0218 [0.0092] AU
Ag = 2.02 [1.89] [0.54 σ]
Teffp = 6928 [1164] K [2.38 σ]

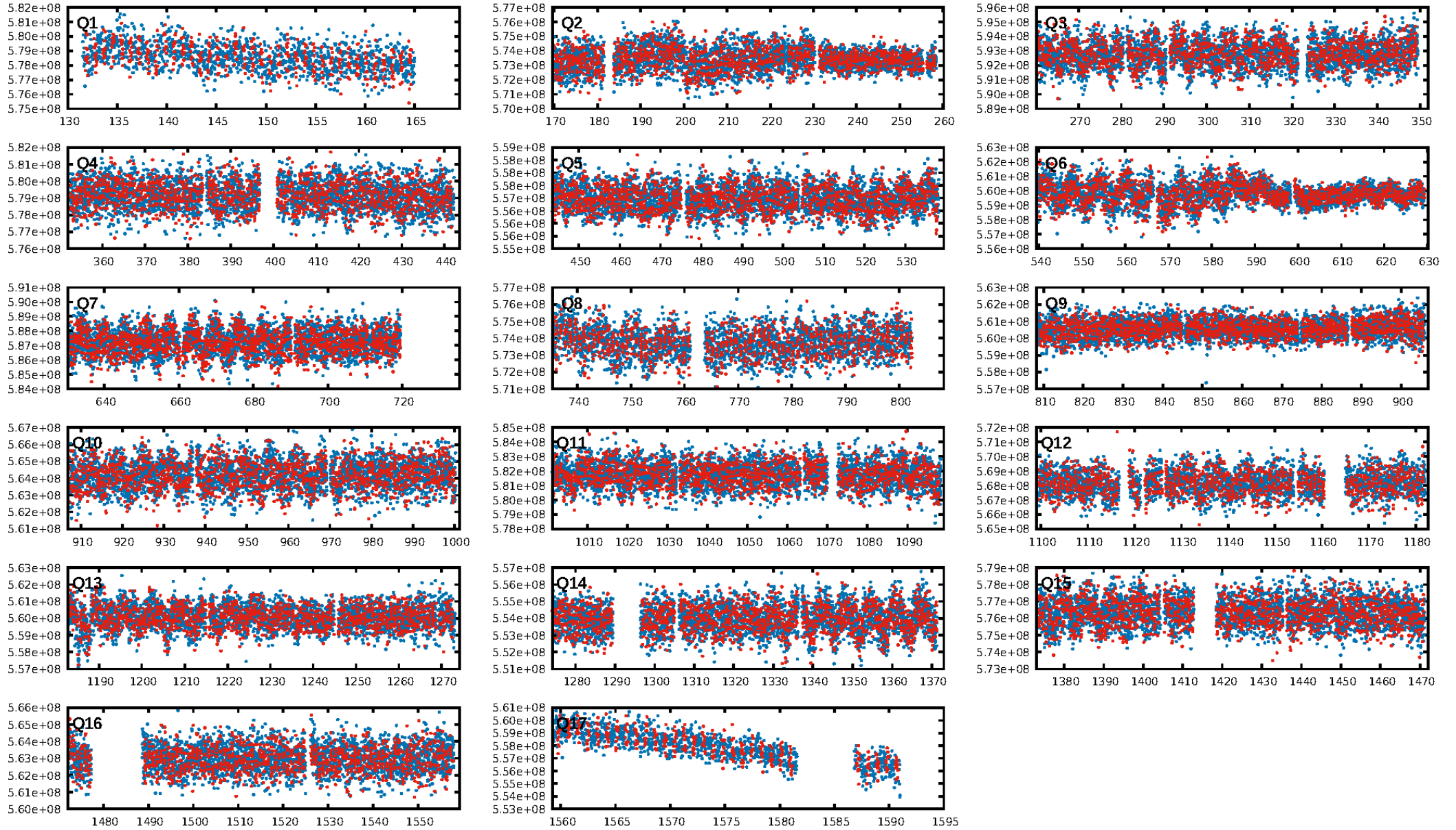
DV Diagnostic Results:

ShortPeriod-sig: 69.1% [1.02 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.02e-35
RollingBand-fgt: 0.99 [489/493]
GhostDiagnostic-chr: 1.522
Centroid-sig: 0.0%
Centroid-so: 0.232 arcsec [3.85 σ]
OotOffset-rm: 1.691 arcsec [3.20 σ]
KicOffset-rm: 1.709 arcsec [2.86 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.00 [0/17]

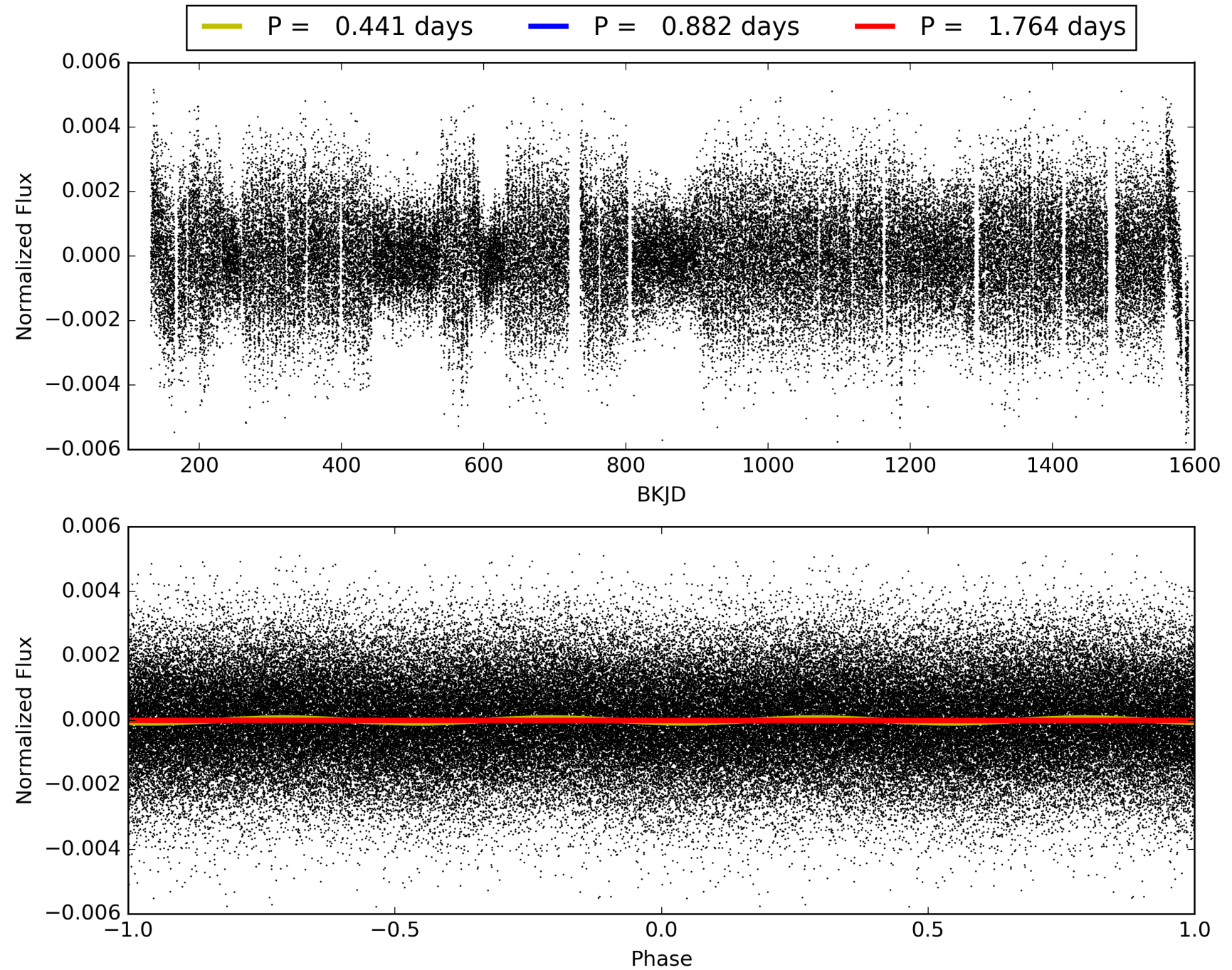
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:57:59 Z

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

TCE 007977996-02, PDC Light Curves

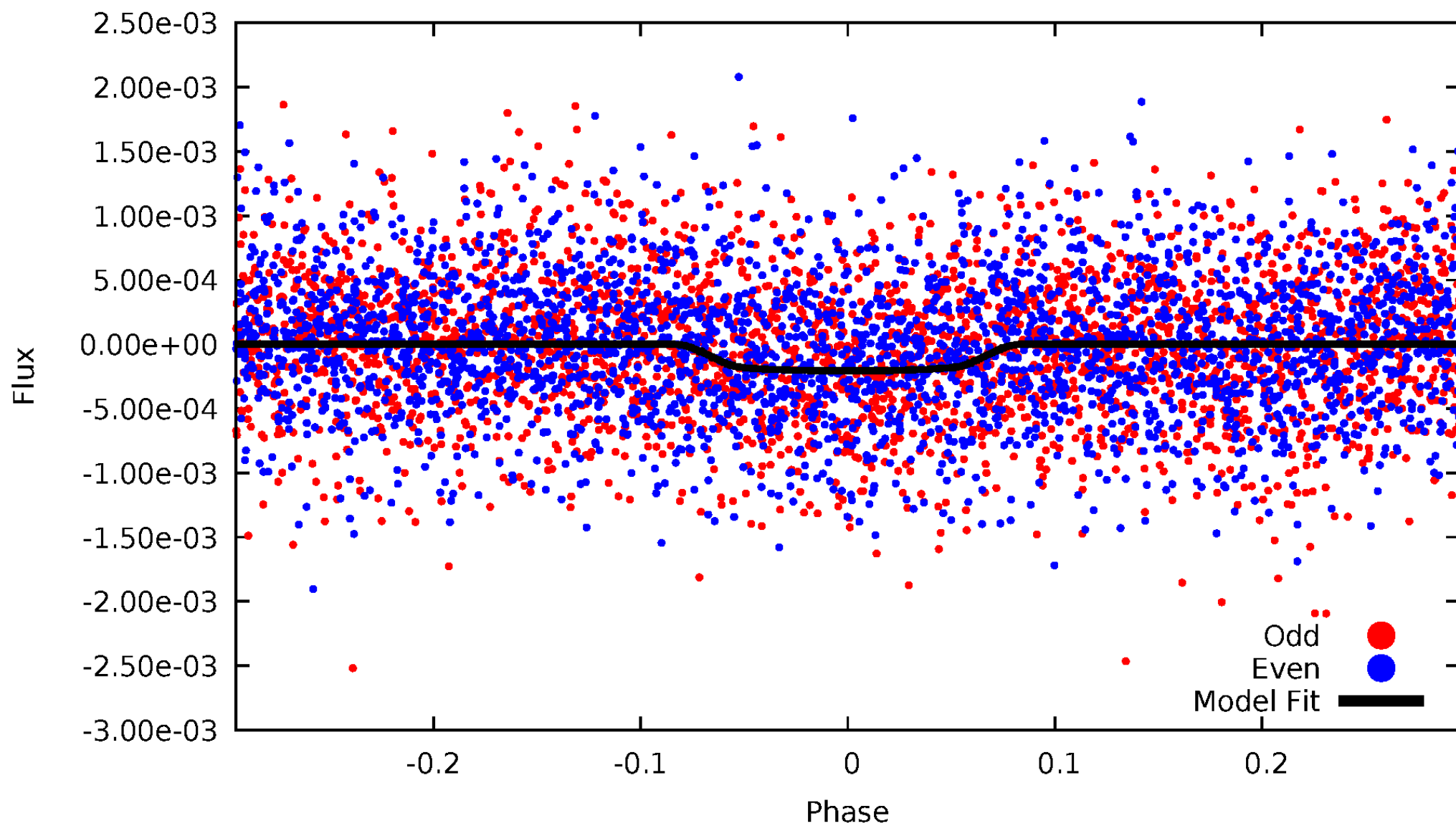


TCE 007977996-02



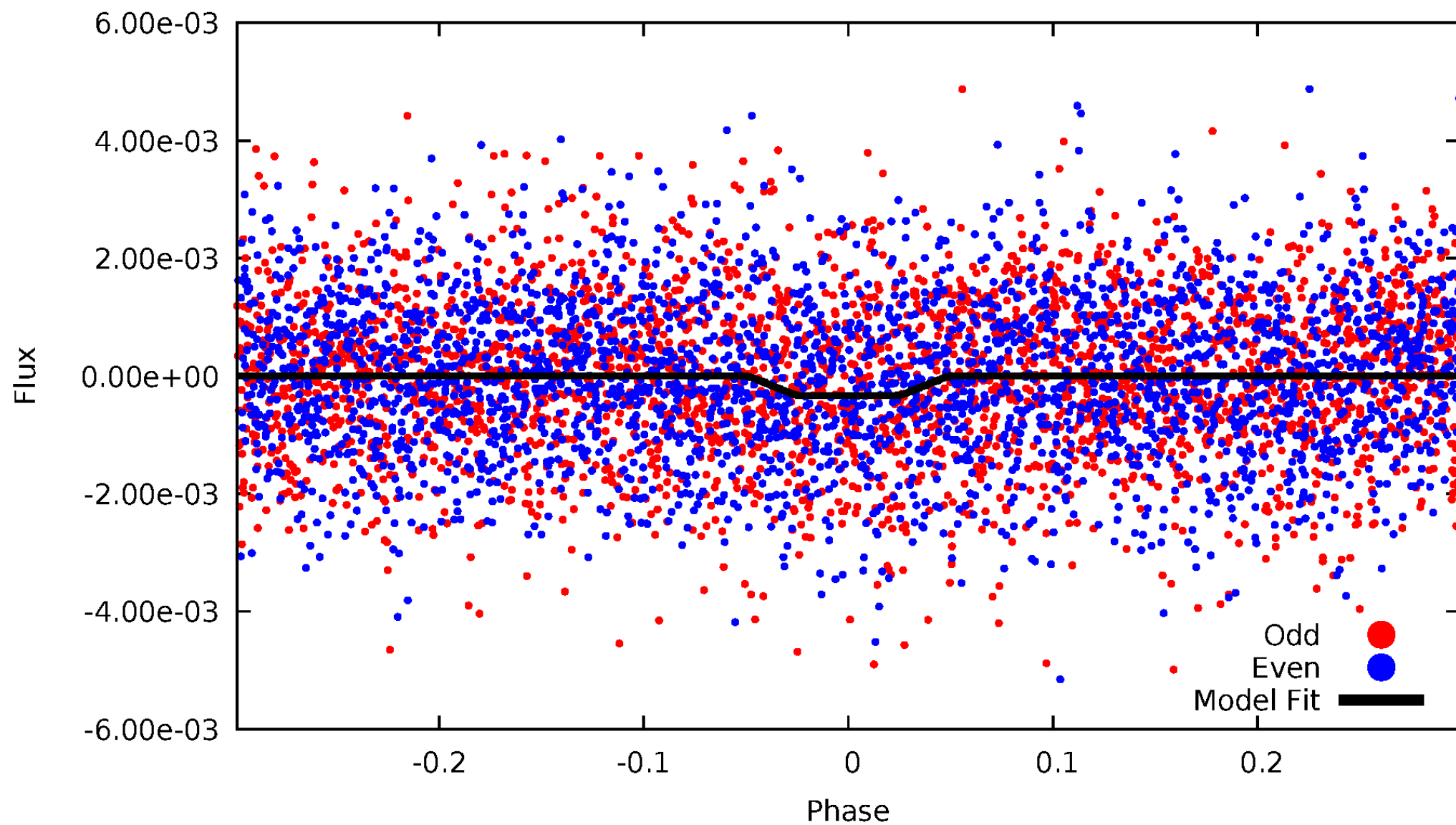
DV Odd/Even

TCE 007977996-02



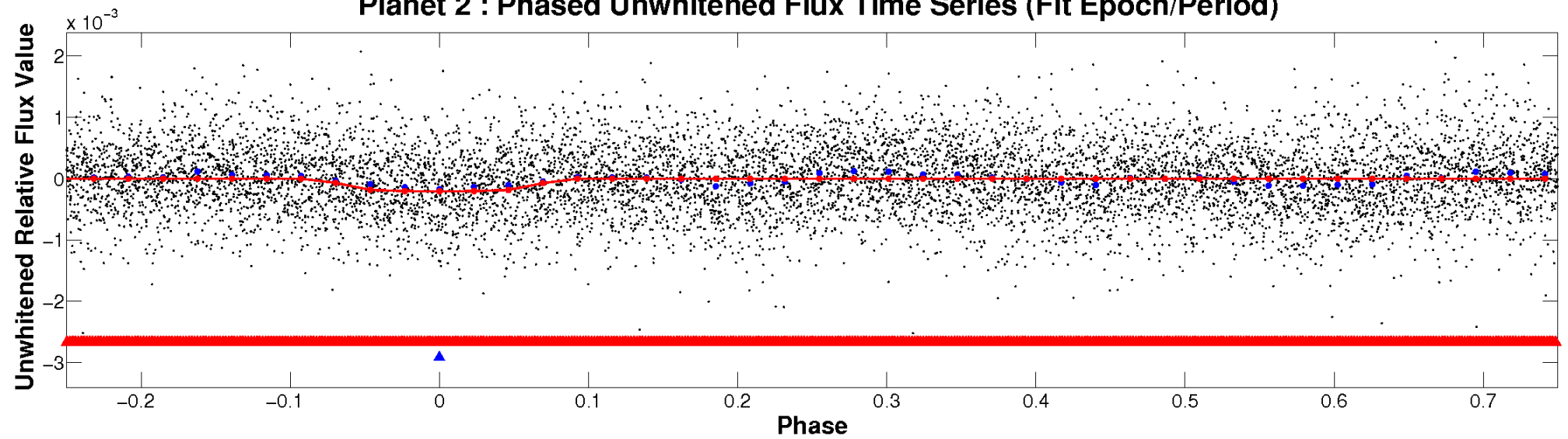
ALT Odd/Even

TCE 007977996-02

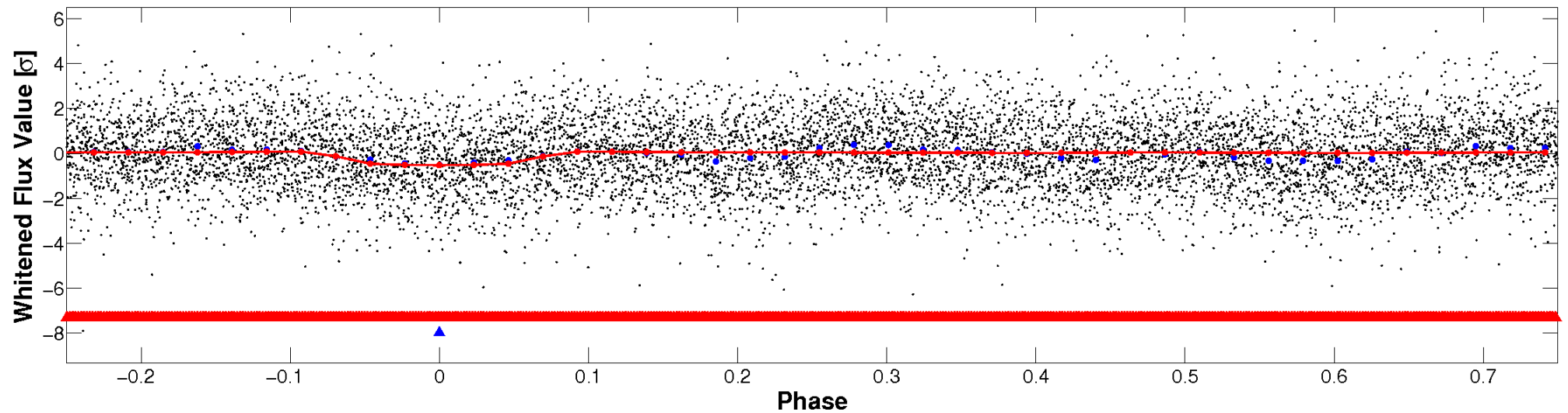


Non-Whitened Vs. Whitened Light Curve

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

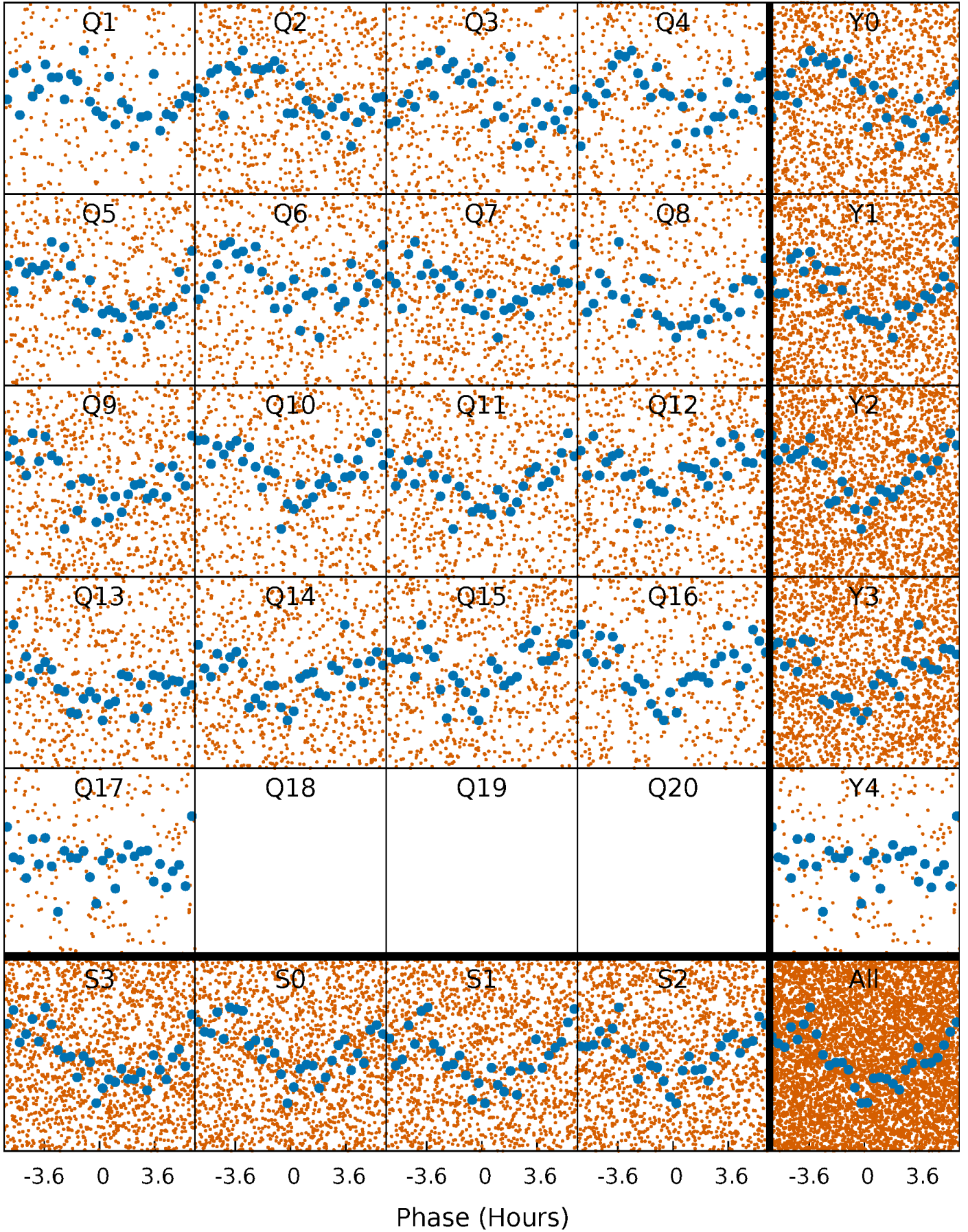


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



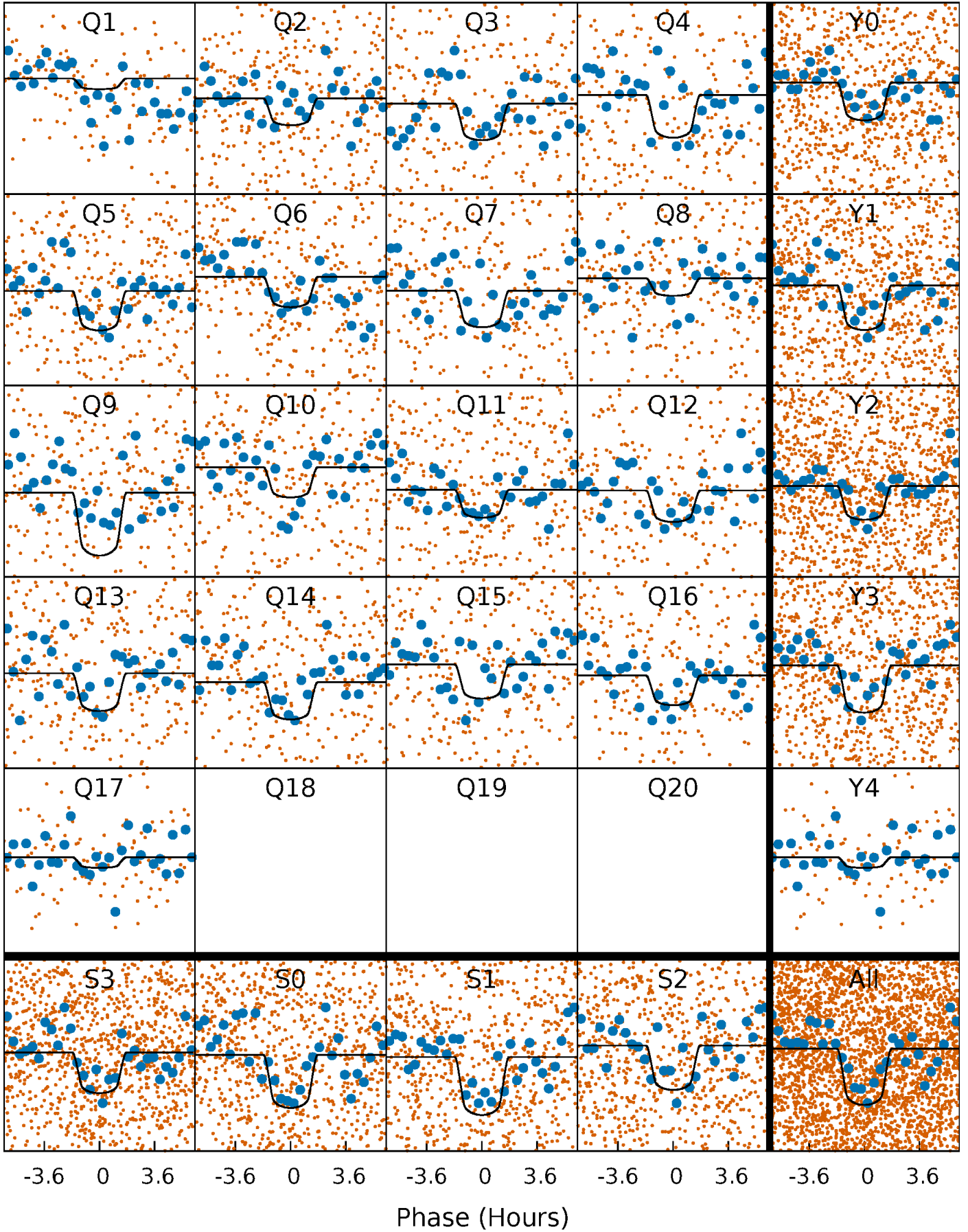
PDC Quarter-Phased Transit Curves

TCE 007977996-02 $P = 0.881987$ Days $T_0 = 131.900801$ (BKJD)



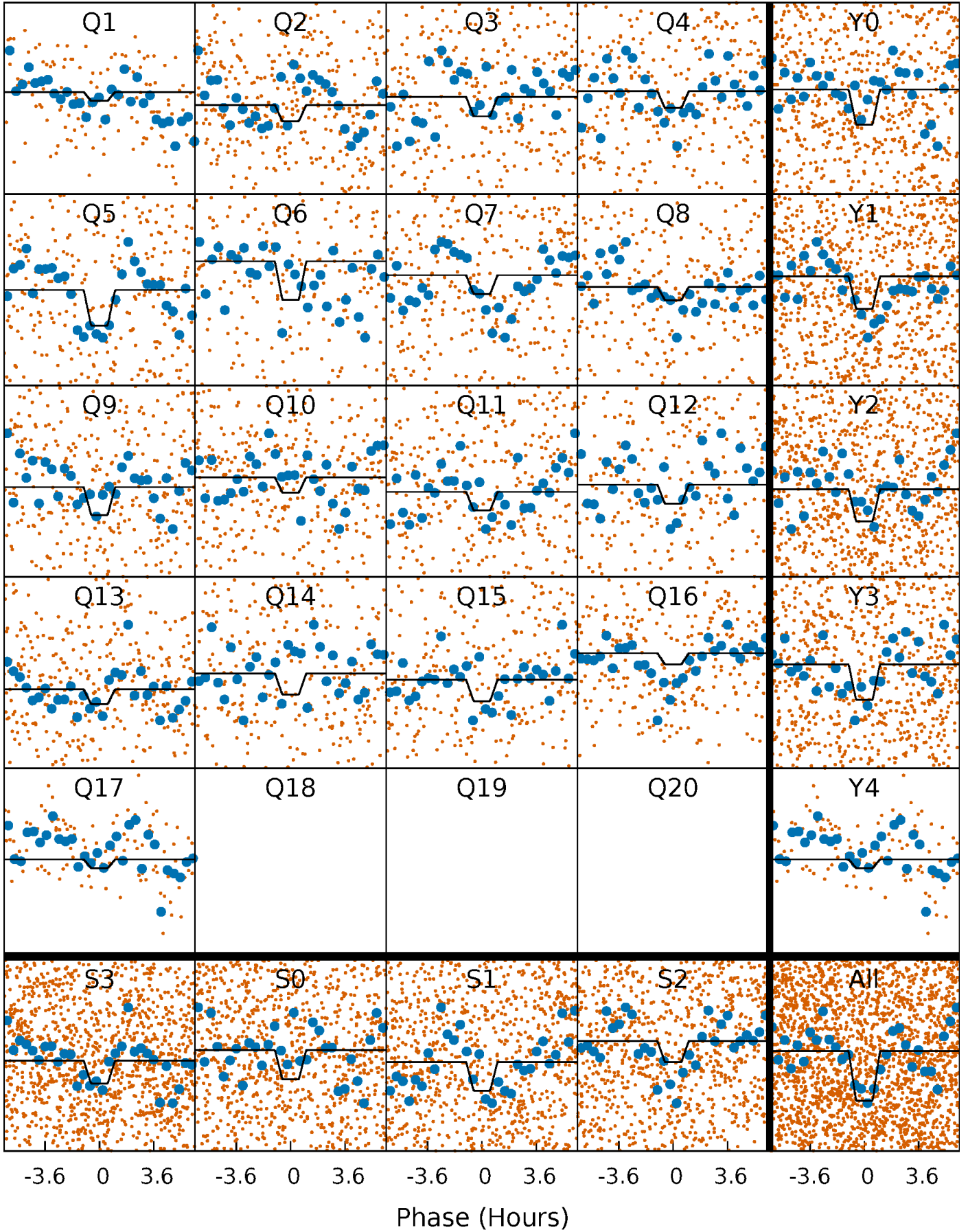
DV Quarter-Phased Transit Curves

TCE 007977996-02 P= 0.881987 Days $T_0=131.900801$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

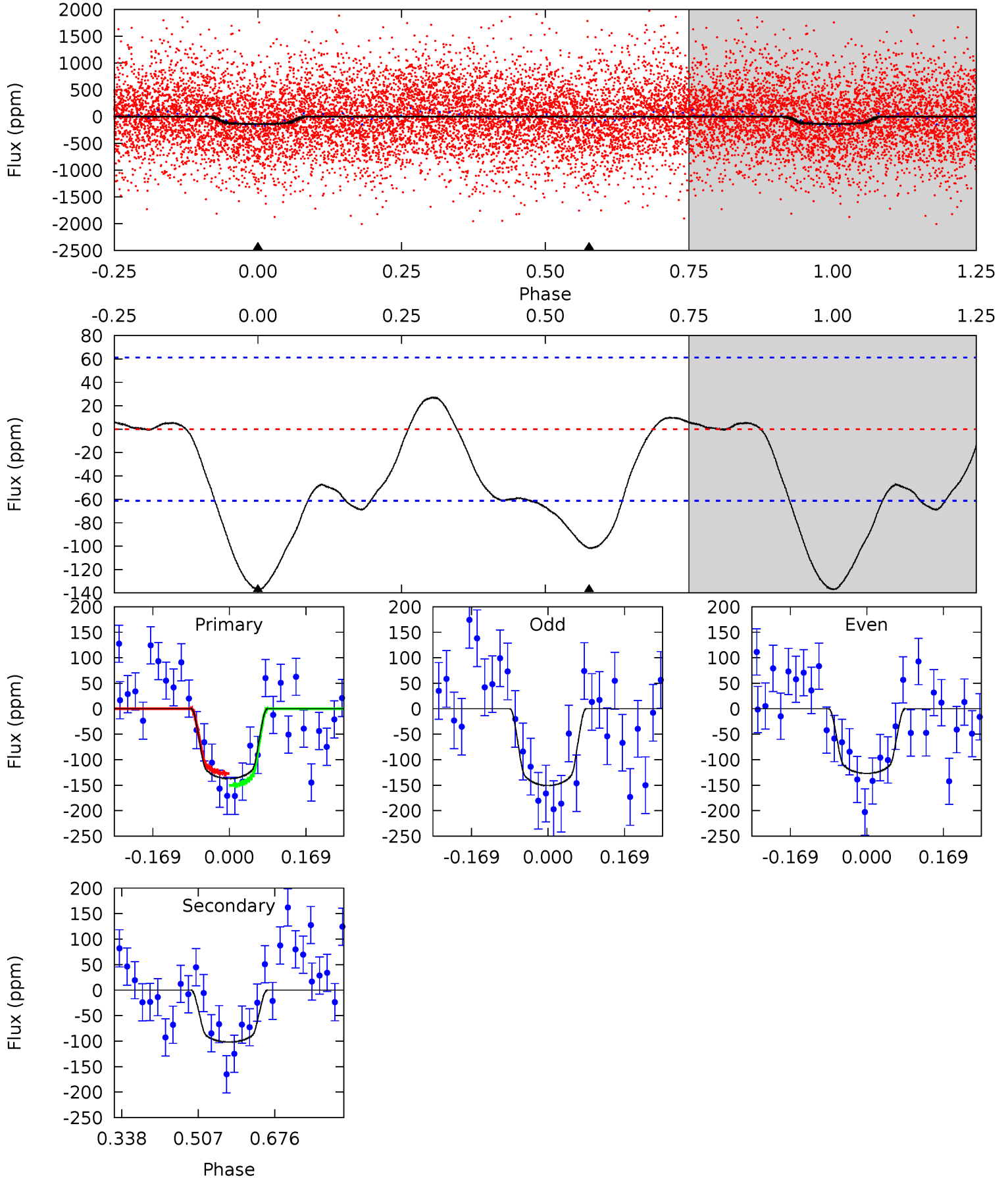
TCE 007977996-02 P= 0.881979 Days $T_0=131.899819$ (BKJD)



DV Model-Shift Uniqueness Test

007977996-02, P = 0.881987 Days, E = 131.900801 Days

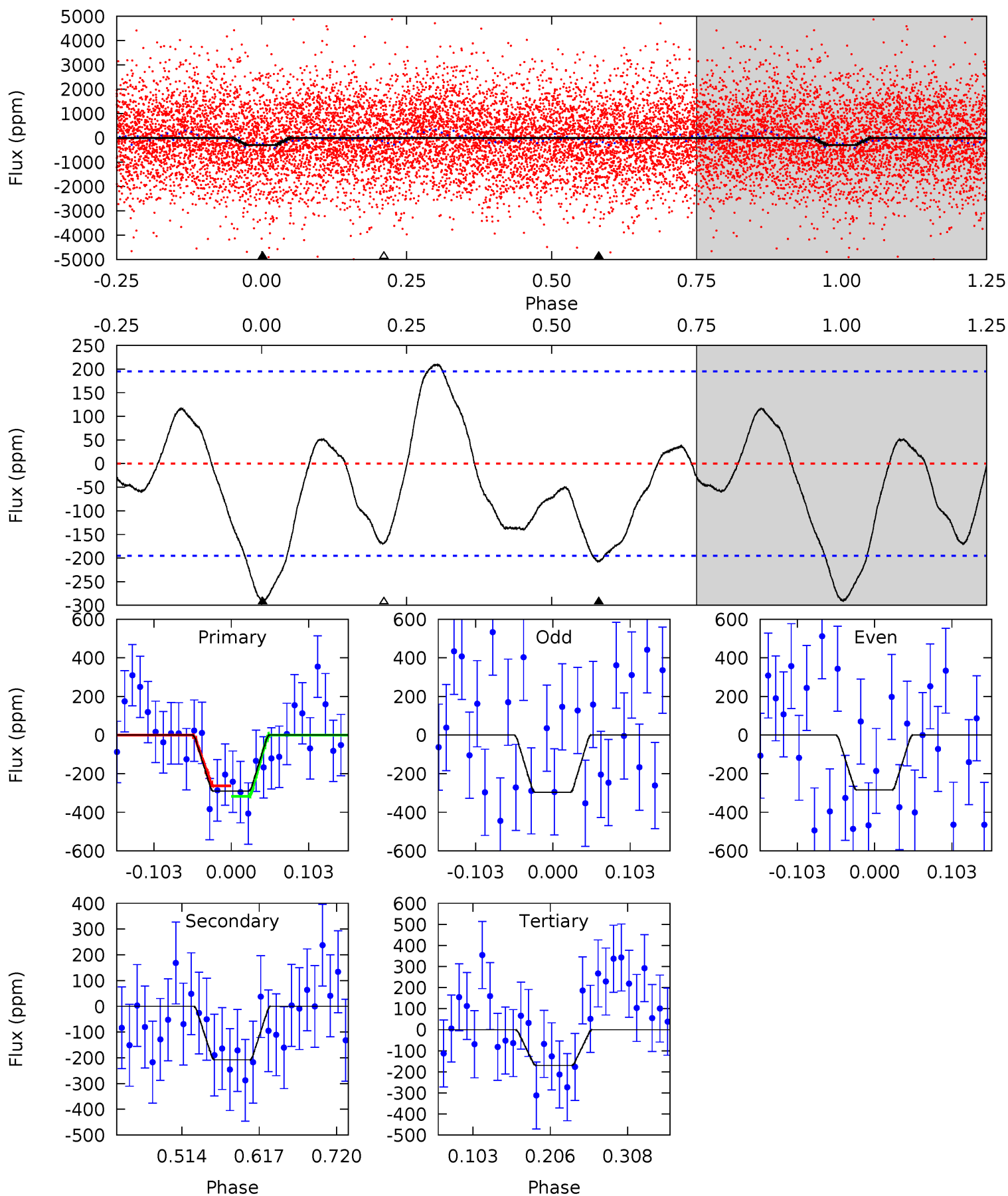
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.96	7.40	0	0	4.45	1.38	2.12	9.96	9.96	7.40	7.40	0.86	0.82	0.17	0.88



Alt Model-Shift Uniqueness Test

007977996-02, P = 0.881979 Days, E = 131.899819 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.79	4.84	3.97	0	4.56	1.63	2.38	2.82	6.79	0.88	4.84	0.13	1.37	0.42	0.64



Stellar Parameters For KIC 007977996

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7350^{+203}_{-330}	$3.755^{+0.392}_{-0.098}$	$-0.080^{+0.200}_{-0.350}$	$2.930^{+0.435}_{-1.306}$	$1.780^{+0.205}_{-0.380}$	$0.100^{+0.342}_{-0.031}$
	+3%/-4%	+10%/-3%	+250%/-438%	+15%/-45%	+12%/-21%	+343%/-31%
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 007977996-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-102 ± 14	$4.39^{+1.82}_{-1.53}$	5081^{+371}_{-555}	5584^{+1434}_{-966}	$1.375^{+1.905}_{-0.667}$
Alt.	-207 ± 43	$5.49^{+1.82}_{-1.81}$	5135^{+337}_{-560}	6072^{+1486}_{-903}	$1.799^{+2.314}_{-0.811}$

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 $A_{obs} \gg 1.0$

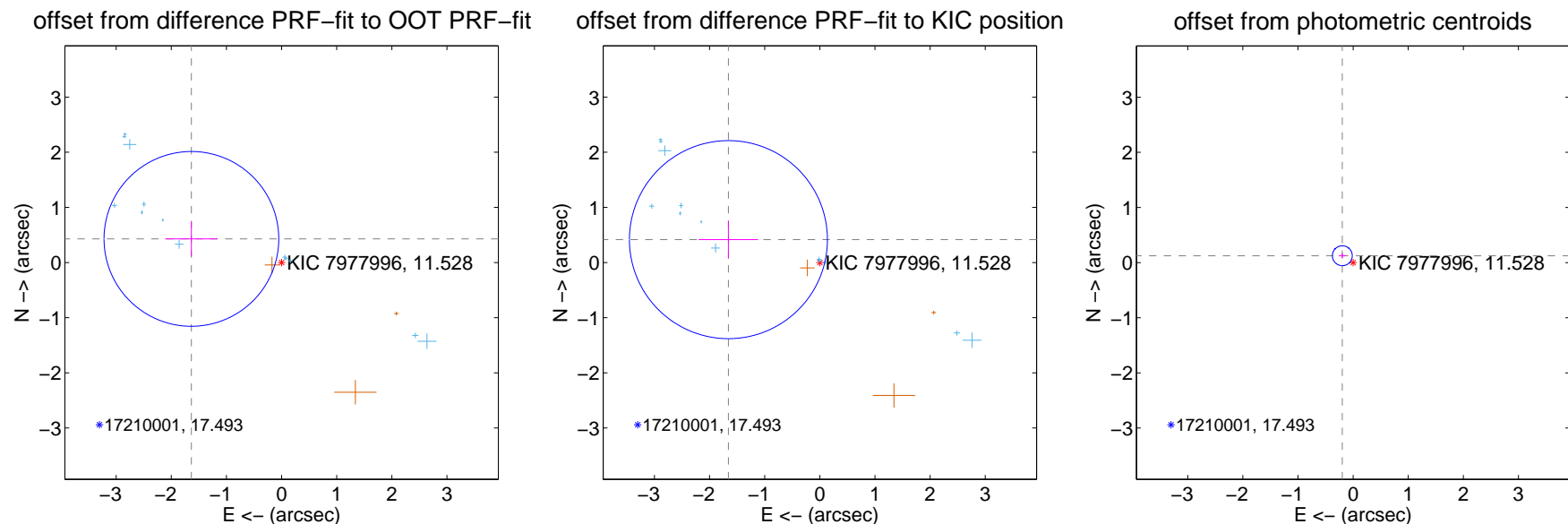
DV Centroid Data

Supplemental centroid analysis for 007977996-02. **Kepler magnitude: 11.53.** Transit SNR 16.37

There are 13 quarters with good PRF difference image offsets

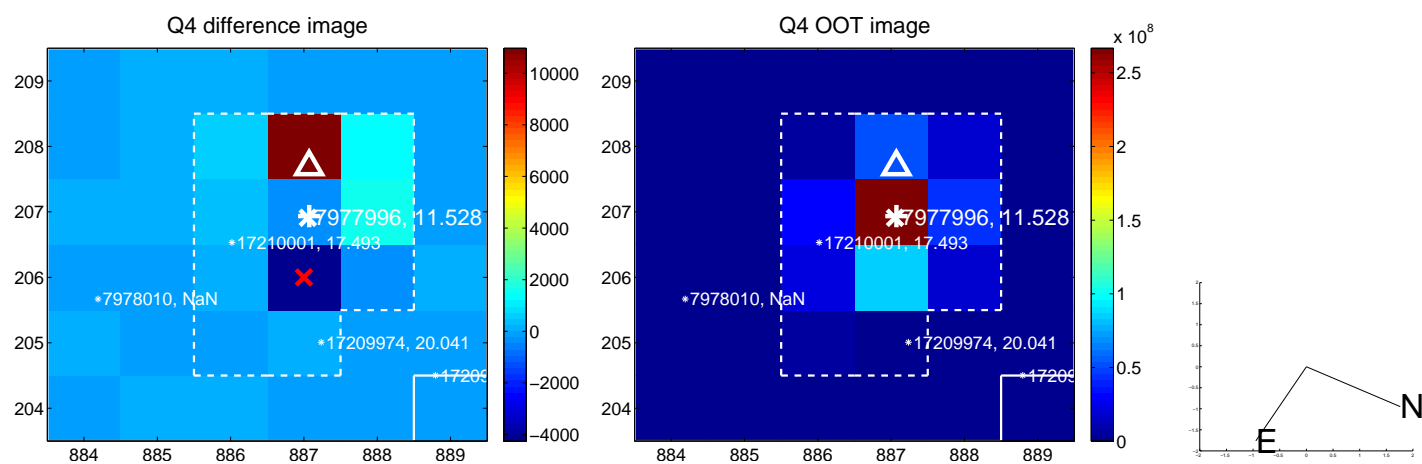
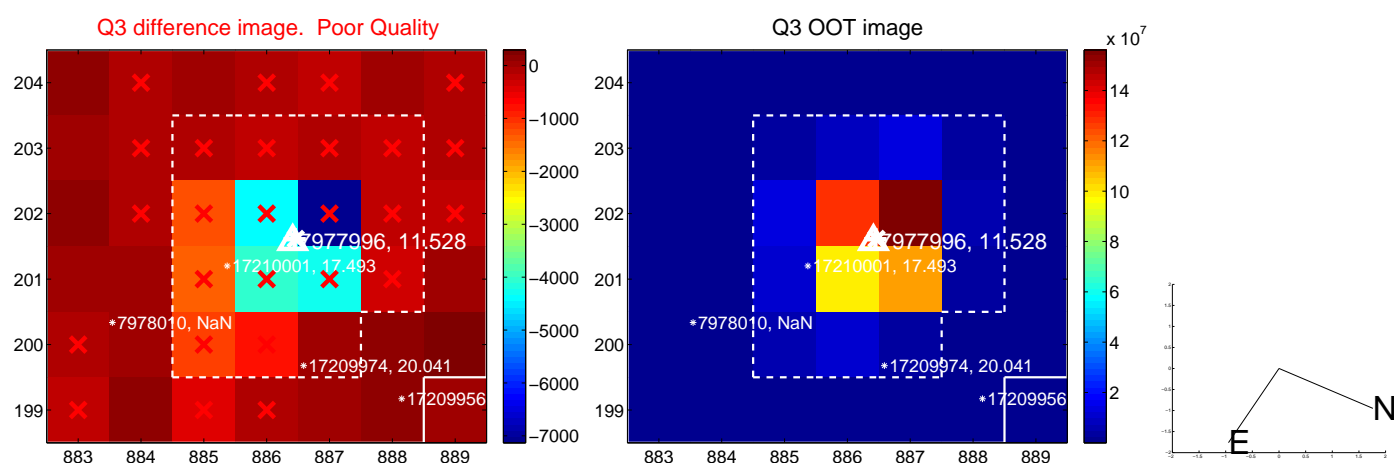
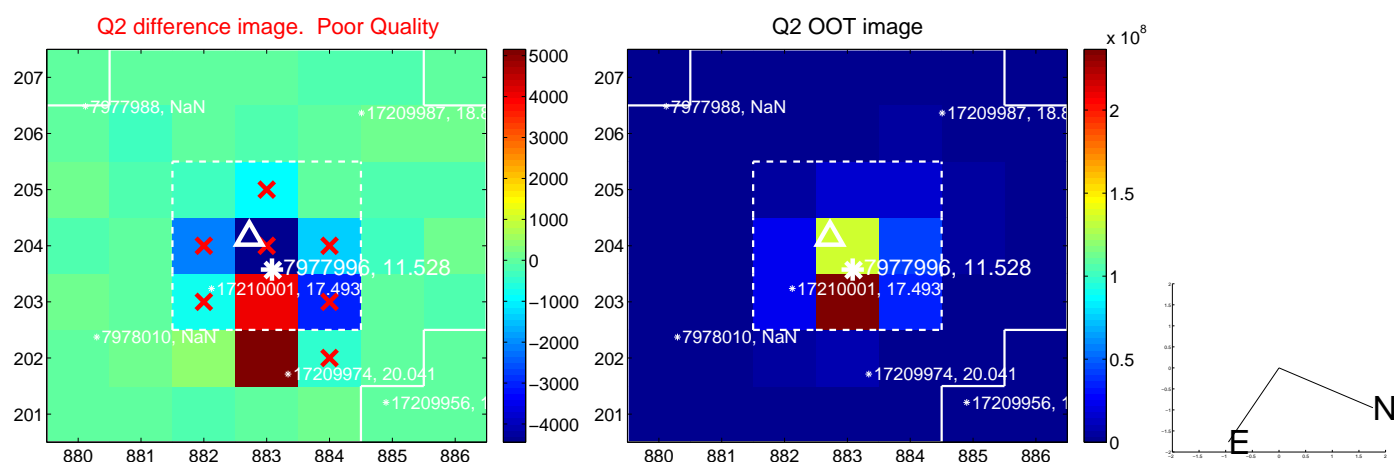
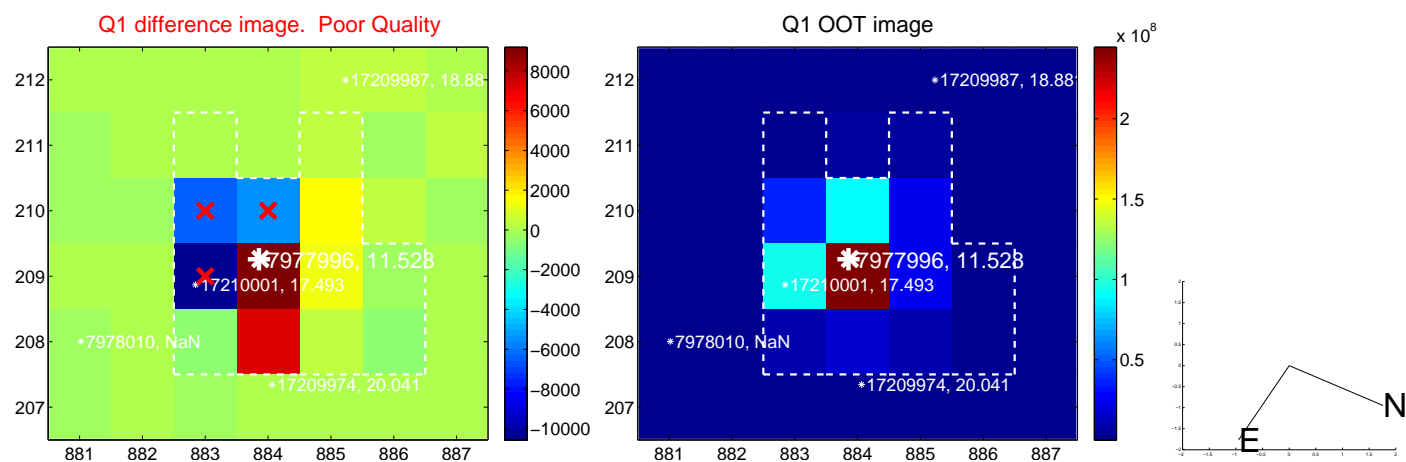
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.691 ± 0.528	3.20	1.636 ± 0.474	0.429 ± 0.314
PRF-fit source offset from KIC position	1.709 ± 0.598	2.86	1.658 ± 0.539	0.415 ± 0.345
photometric centroid source offset	0.23 ± 0.06	3.85	0.20 ± 0.06	0.12 ± 0.05

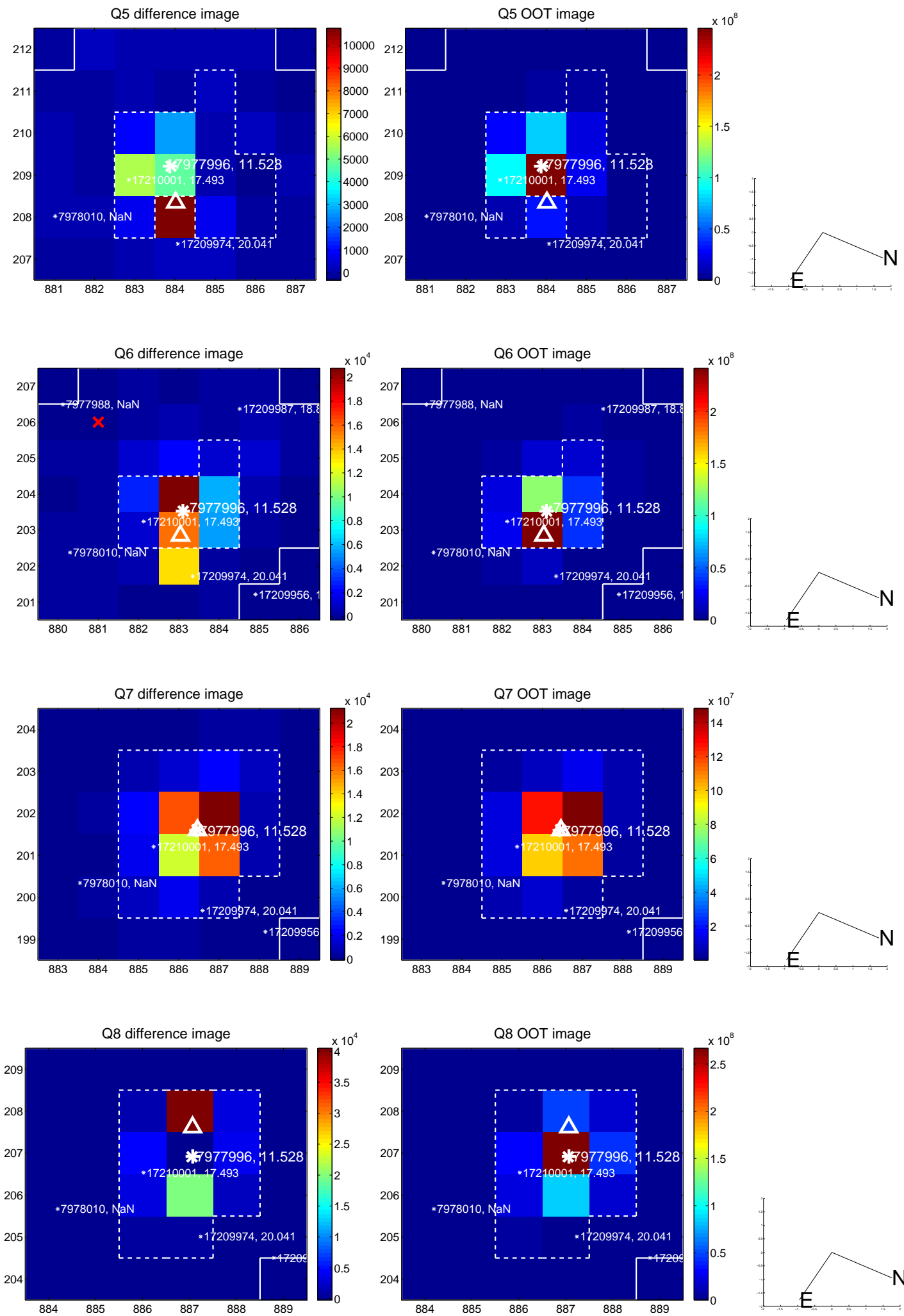


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

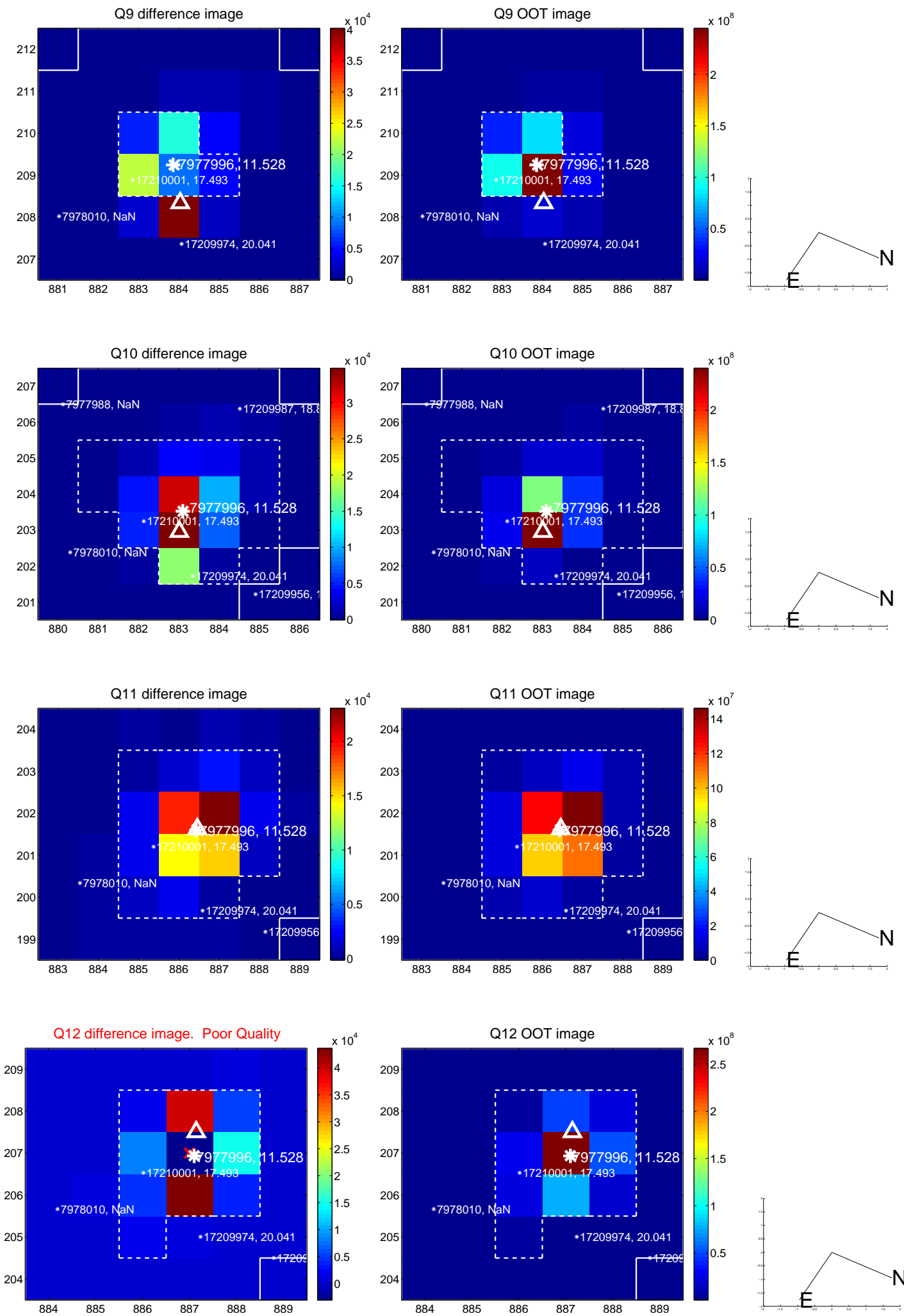
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



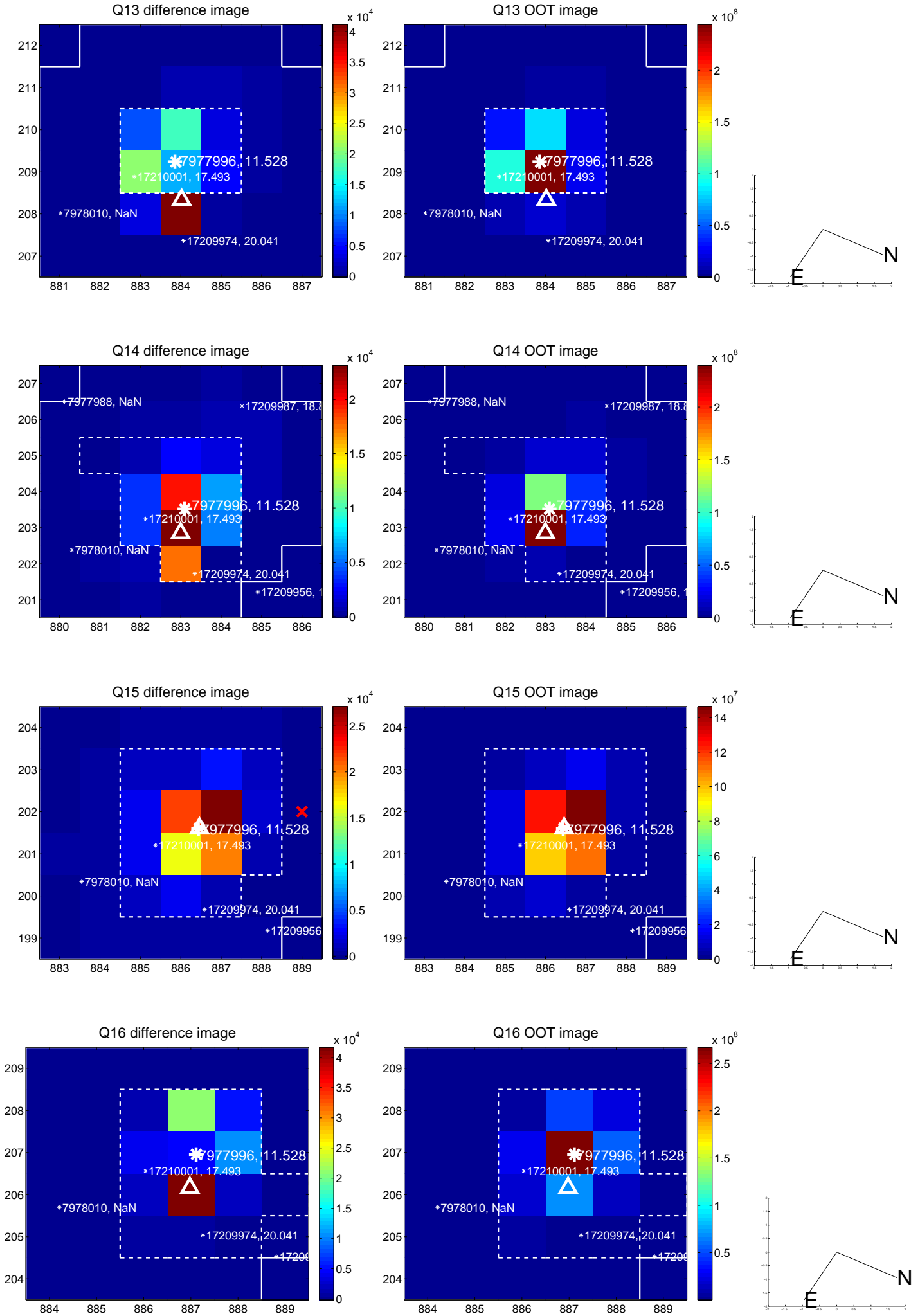
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



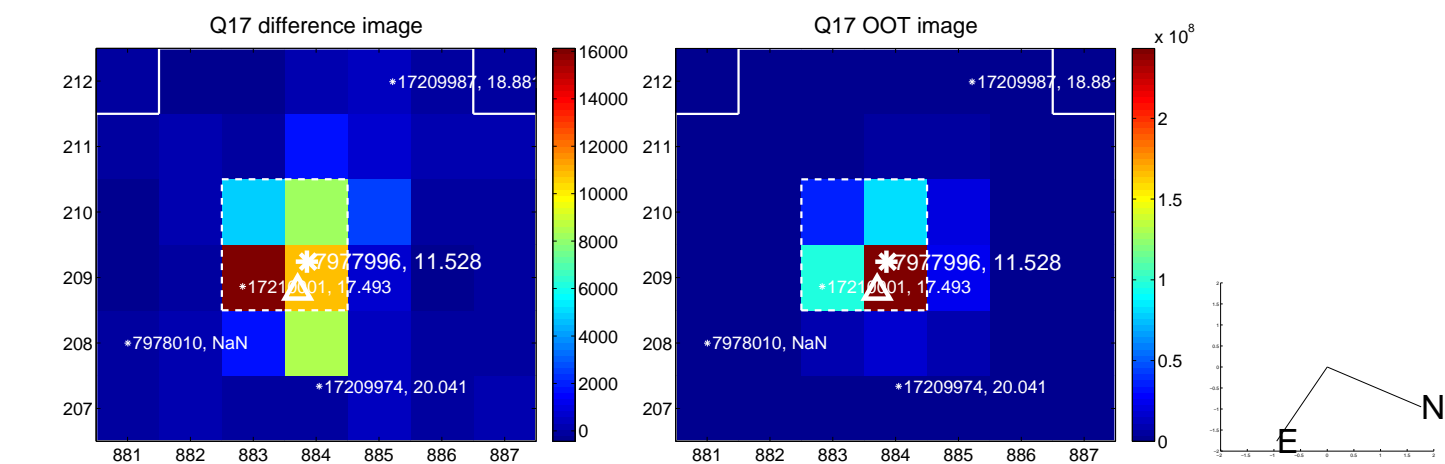
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



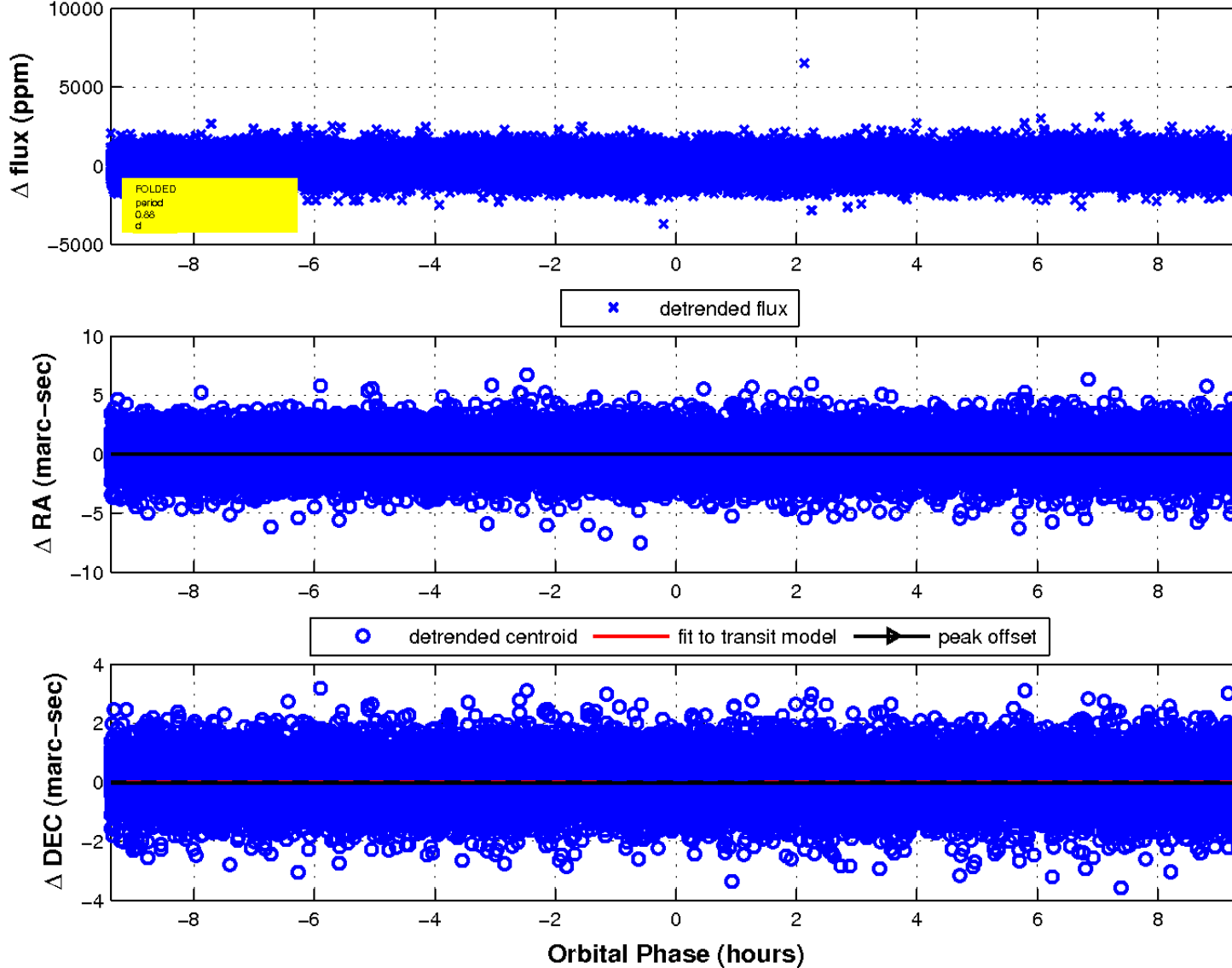
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

