

KIC 008181880

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})
008181880-01	OBS	No	0.745414	131.616210	24.2	2.543	13.0	15.1	1.77	7347	0.98	23002.76
008181880-02	OBS	No	0.745643	131.597496	20.4	4.624	10.3	9.8	1.77	7347	0.93	22993.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008181880-01	OBS	FP	0.00	1	0	0	0	LPP_ALT
008181880-02	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.

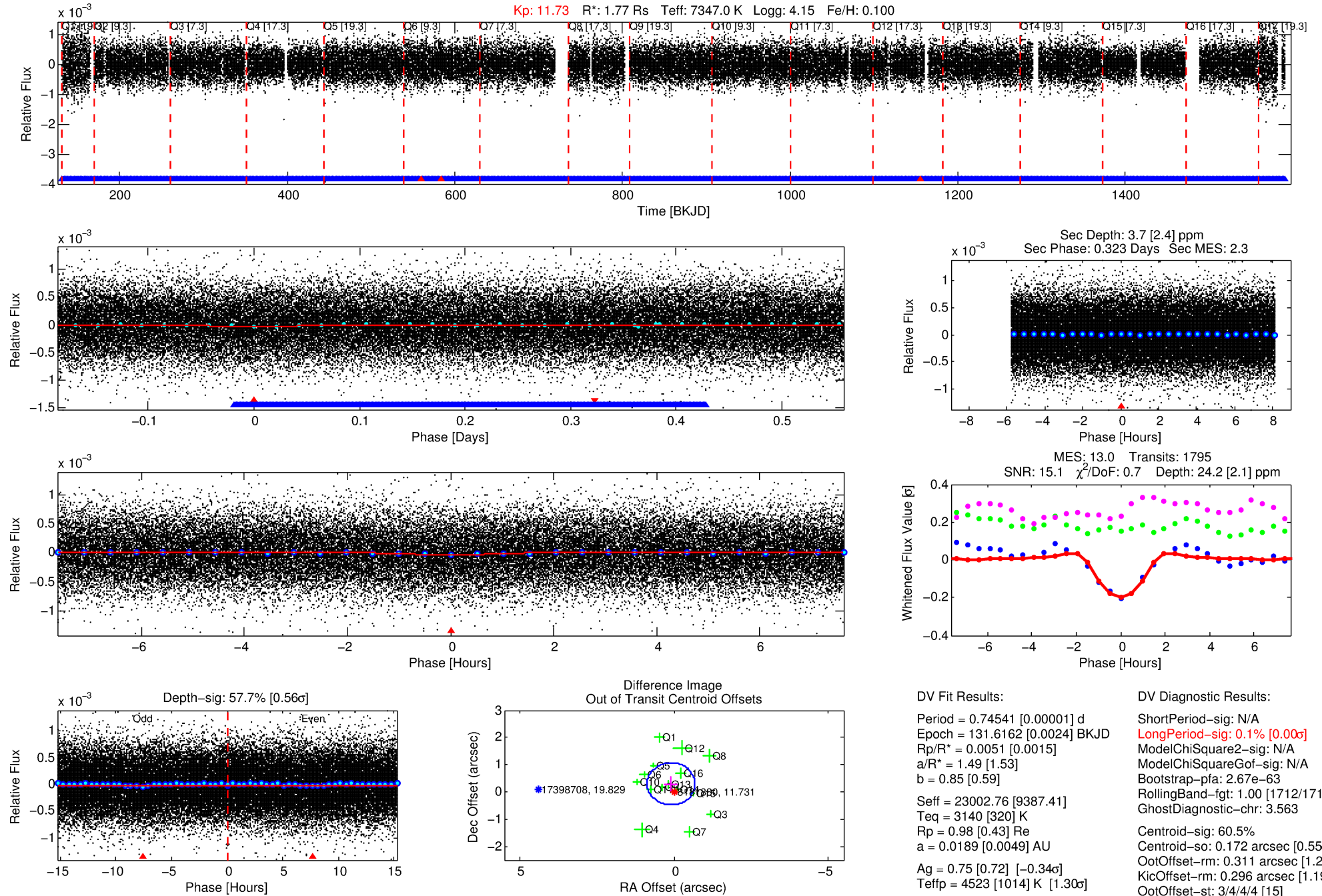
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008181880-01

No Significant Match Found

DV One-Page Summary

KIC: 8181880 Candidate: 1 of 2 Period: 0.745 d



DV Fit Results:

Period = 0.74541 [0.00001] d
Epoch = 131.6162 [0.0024] BKJD
Rp/R* = 0.0051 [0.0015]
a/R* = 1.49 [1.53]
b = 0.85 [0.59]
Seff = 23002.76 [9387.41]
Teff = 3140 [320] K
Rp = 0.98 [0.43] Re
a = 0.0189 [0.0049] AU
Ag = 0.75 [0.72] [-0.34 σ]
Teffp = 4523 [1014] K [1.30 σ]

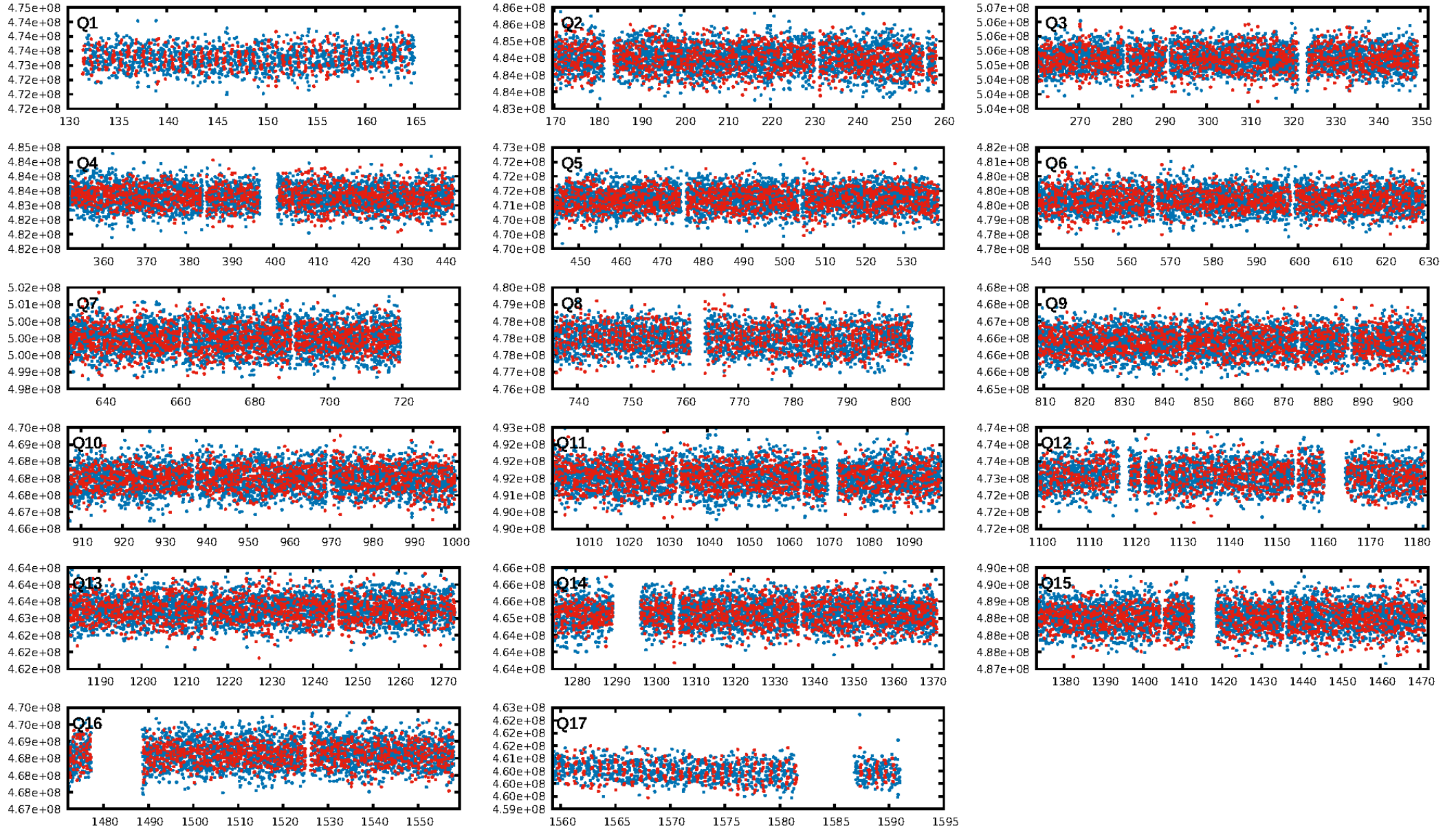
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.67e-63
RollingBand-fgt: 1.00 [1712/1715]
GhostDiagnostic-chr: 3.563
Centroid-sig: 60.5%
Centroid-so: 0.172 arcsec [0.55 σ]
OotOffset-rm: 0.311 arcsec [1.20 σ]
KicOffset-rm: 0.296 arcsec [1.19 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 0.00 [0/17]

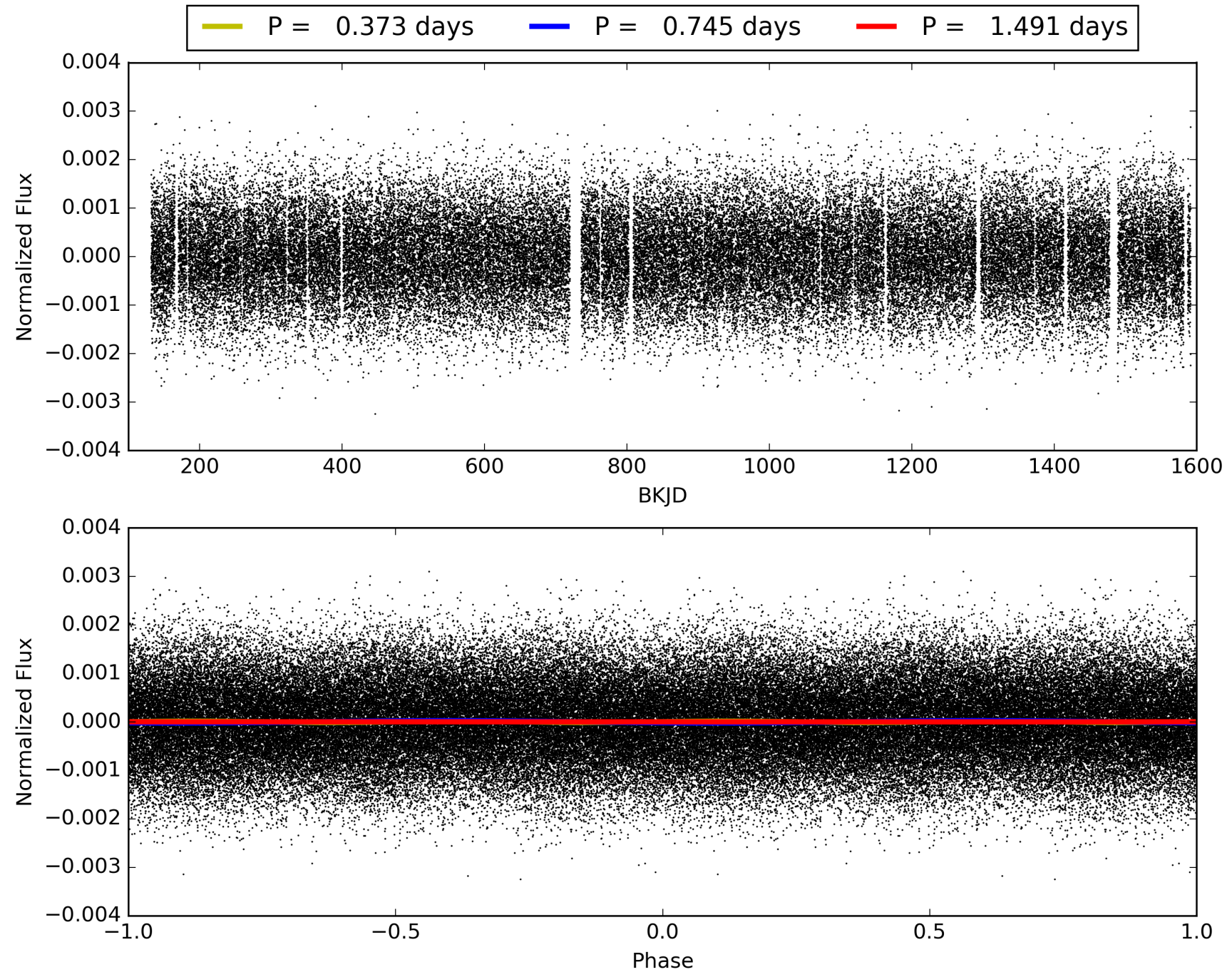
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:09:20 Z

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

TCE 008181880-01, PDC Light Curves

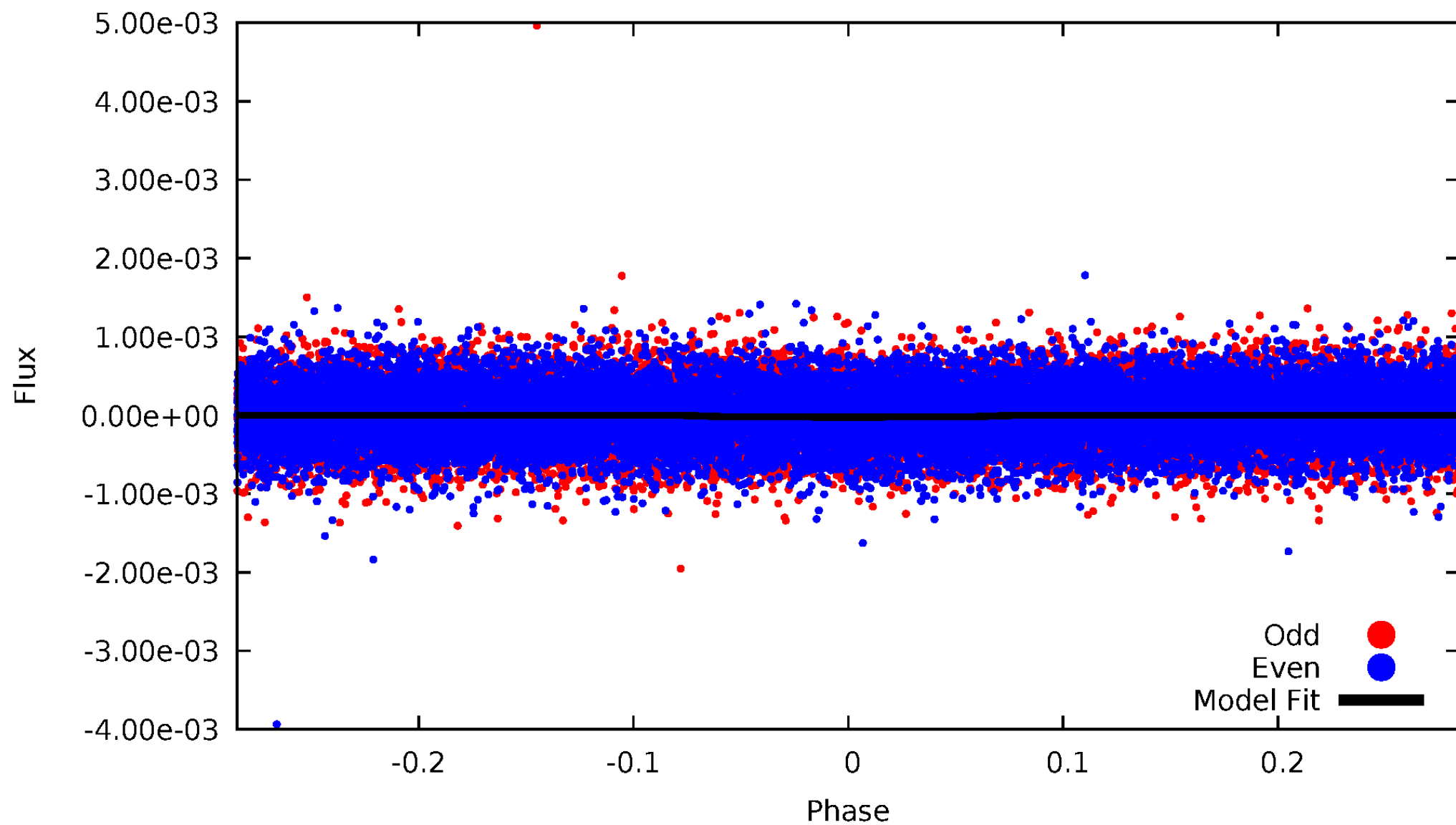


TCE 008181880-01



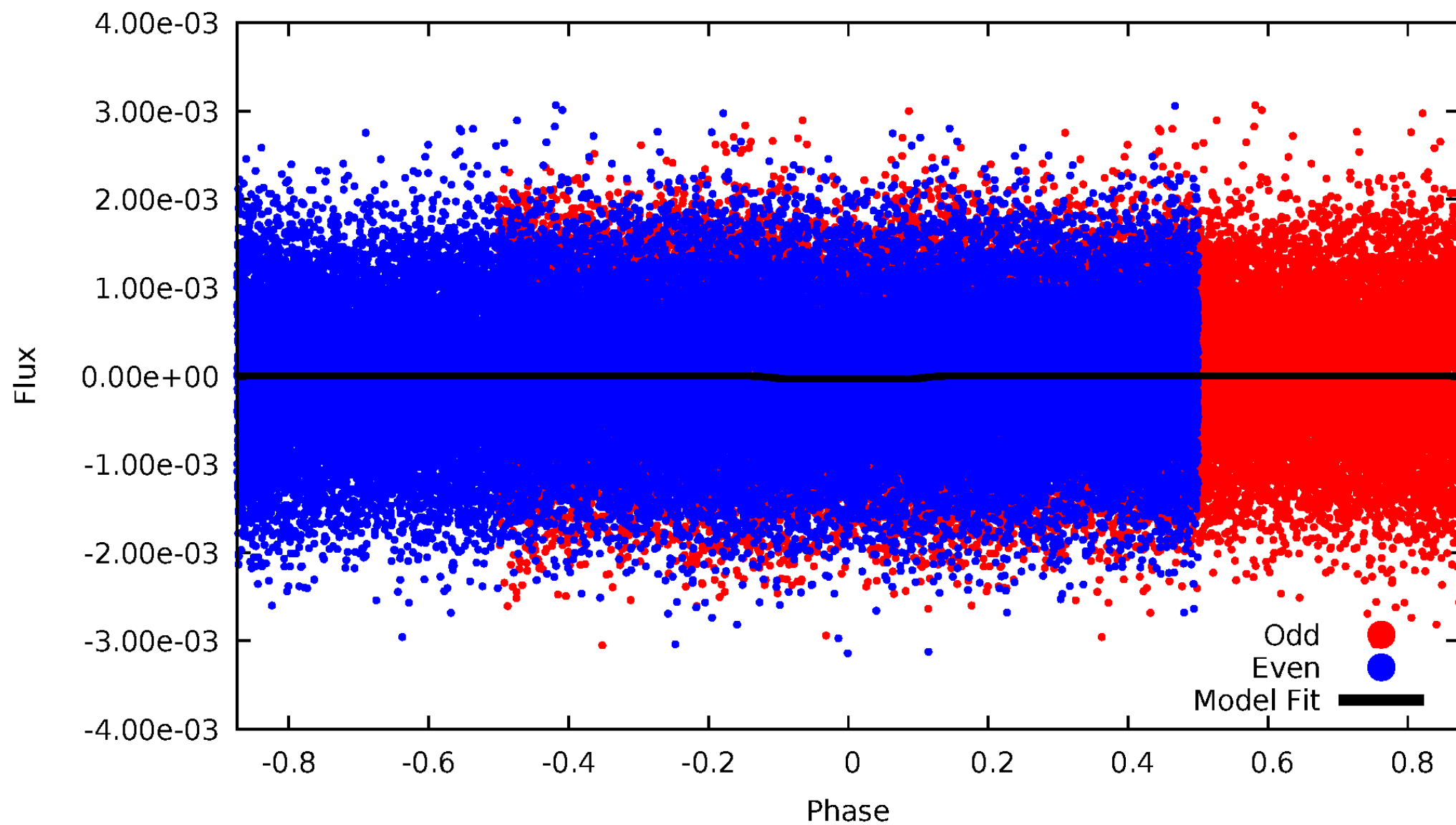
DV Odd/Even

TCE 008181880-01



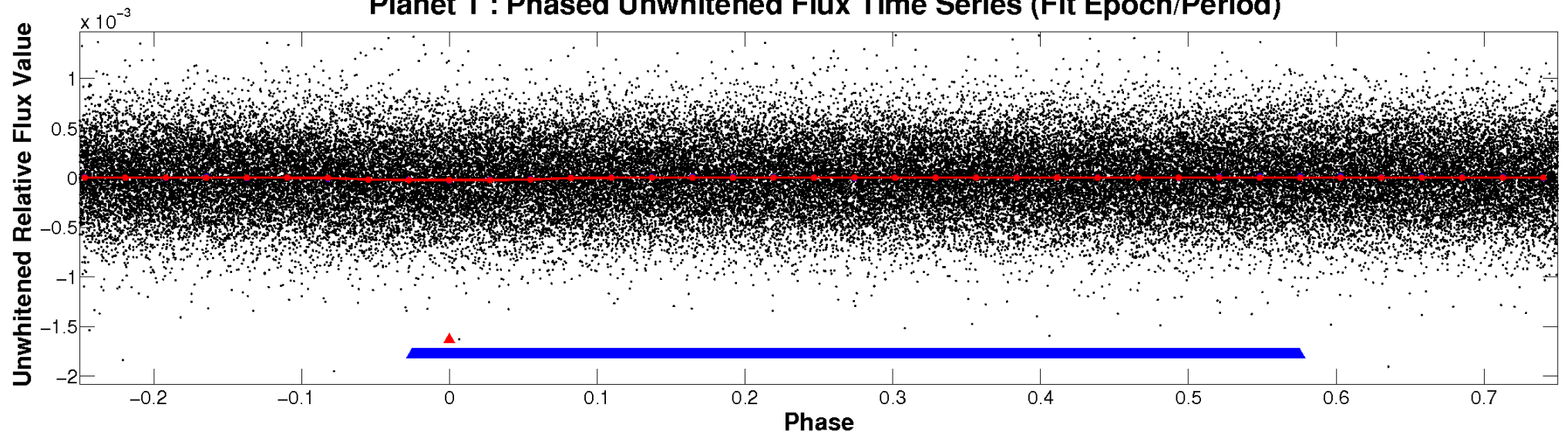
ALT Odd/Even

TCE 008181880-01

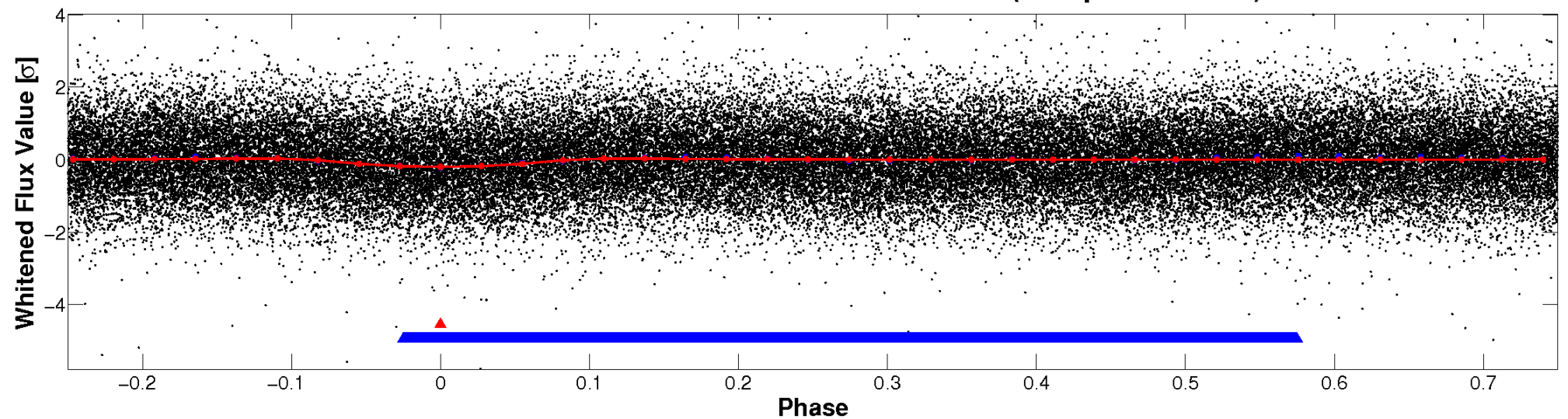


Non-Whitened Vs. Whitened Light Curve

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

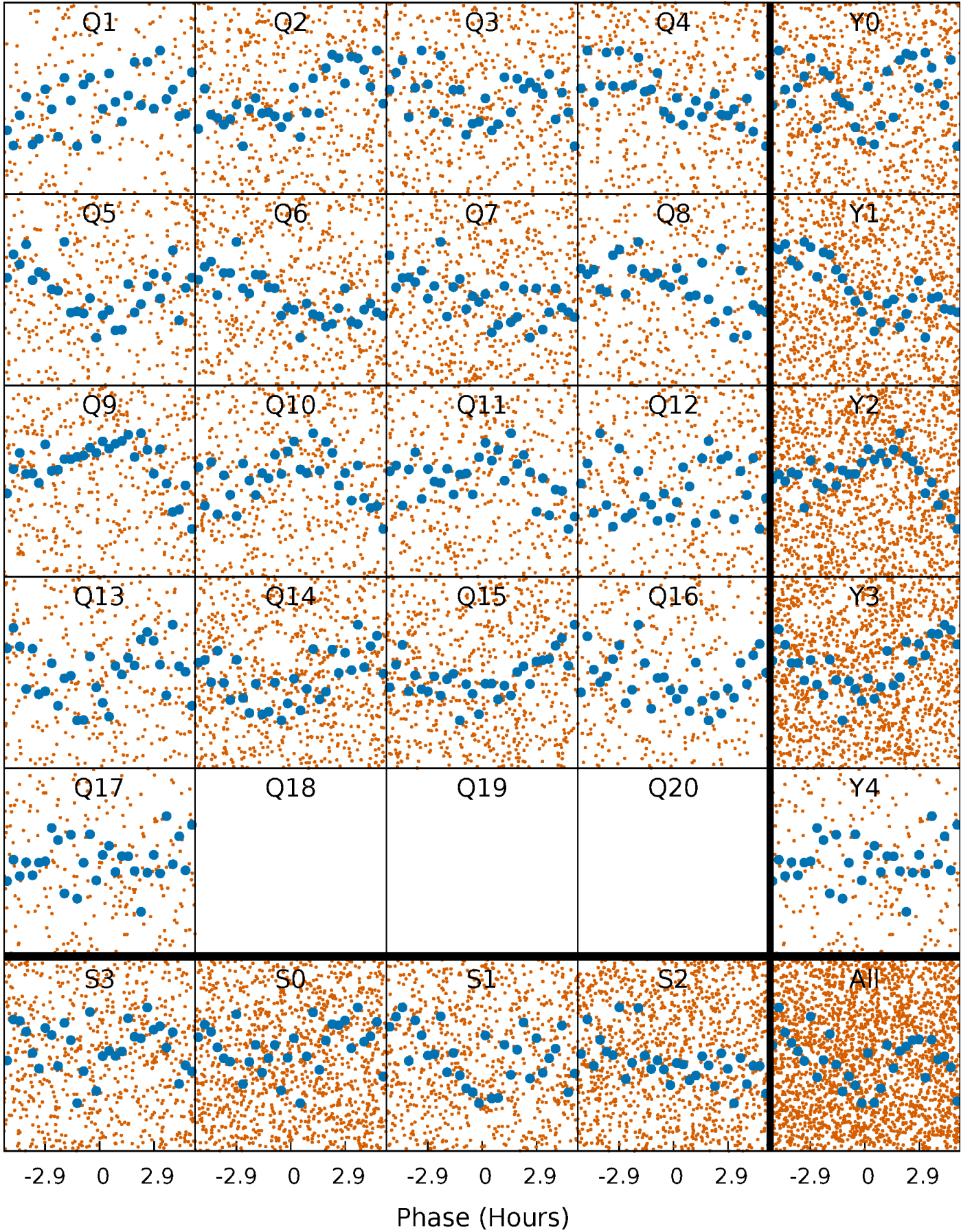


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



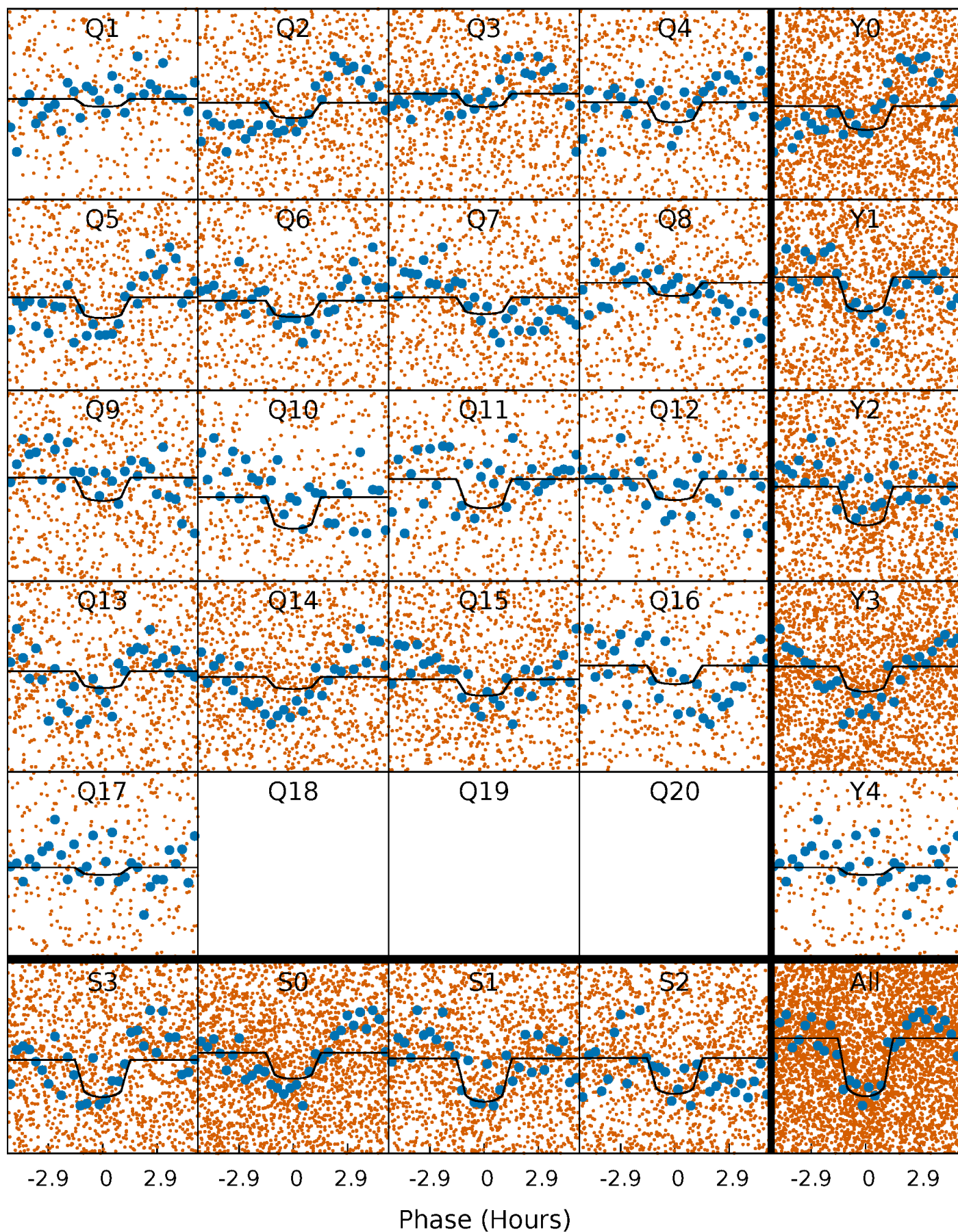
PDC Quarter-Phased Transit Curves

TCE 008181880-01 P= 0.745414 Days $T_0=131.616209$ (BKJD)



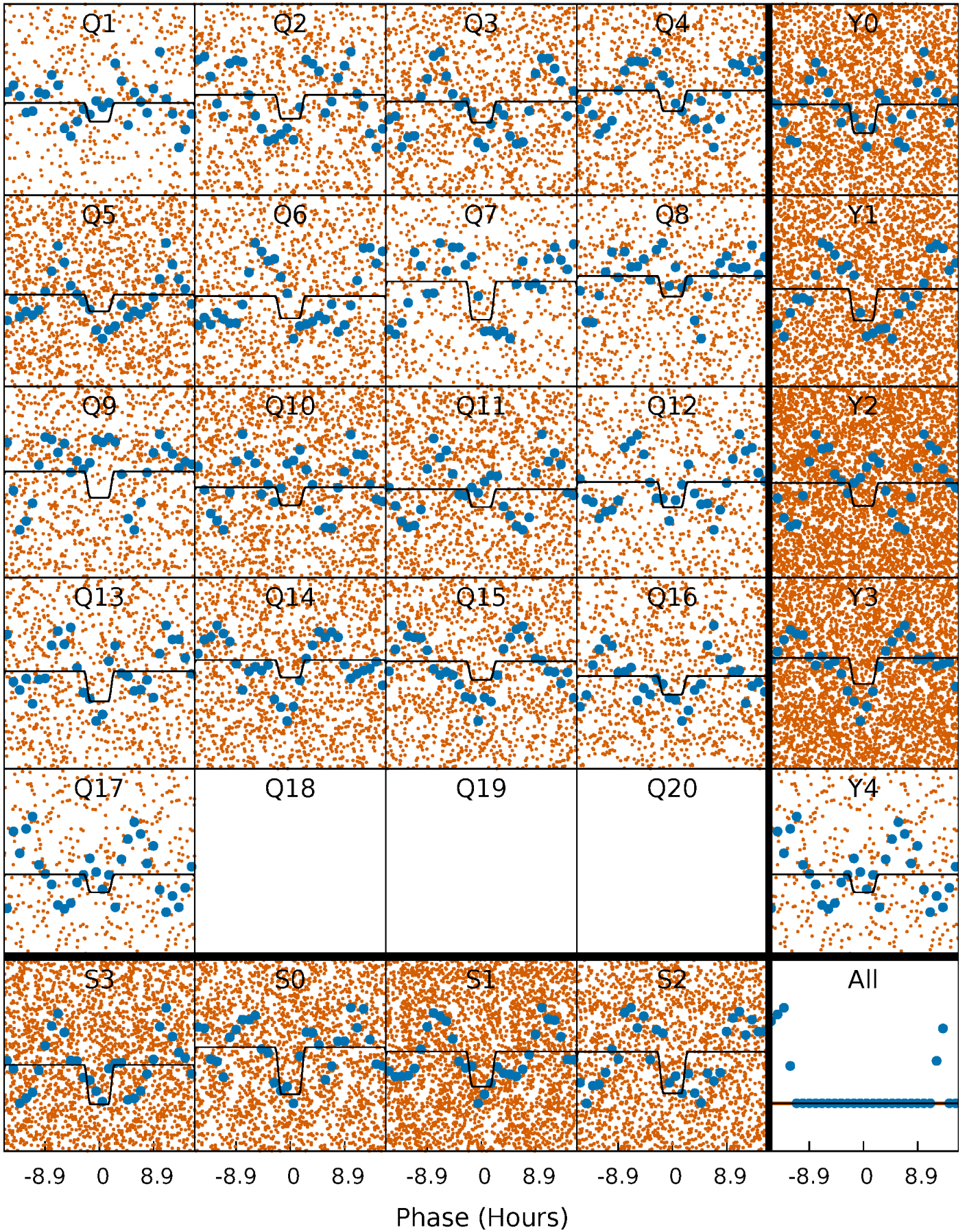
DV Quarter-Phased Transit Curves

TCE 008181880-01 P= 0.745414 Days $T_0=131.616209$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

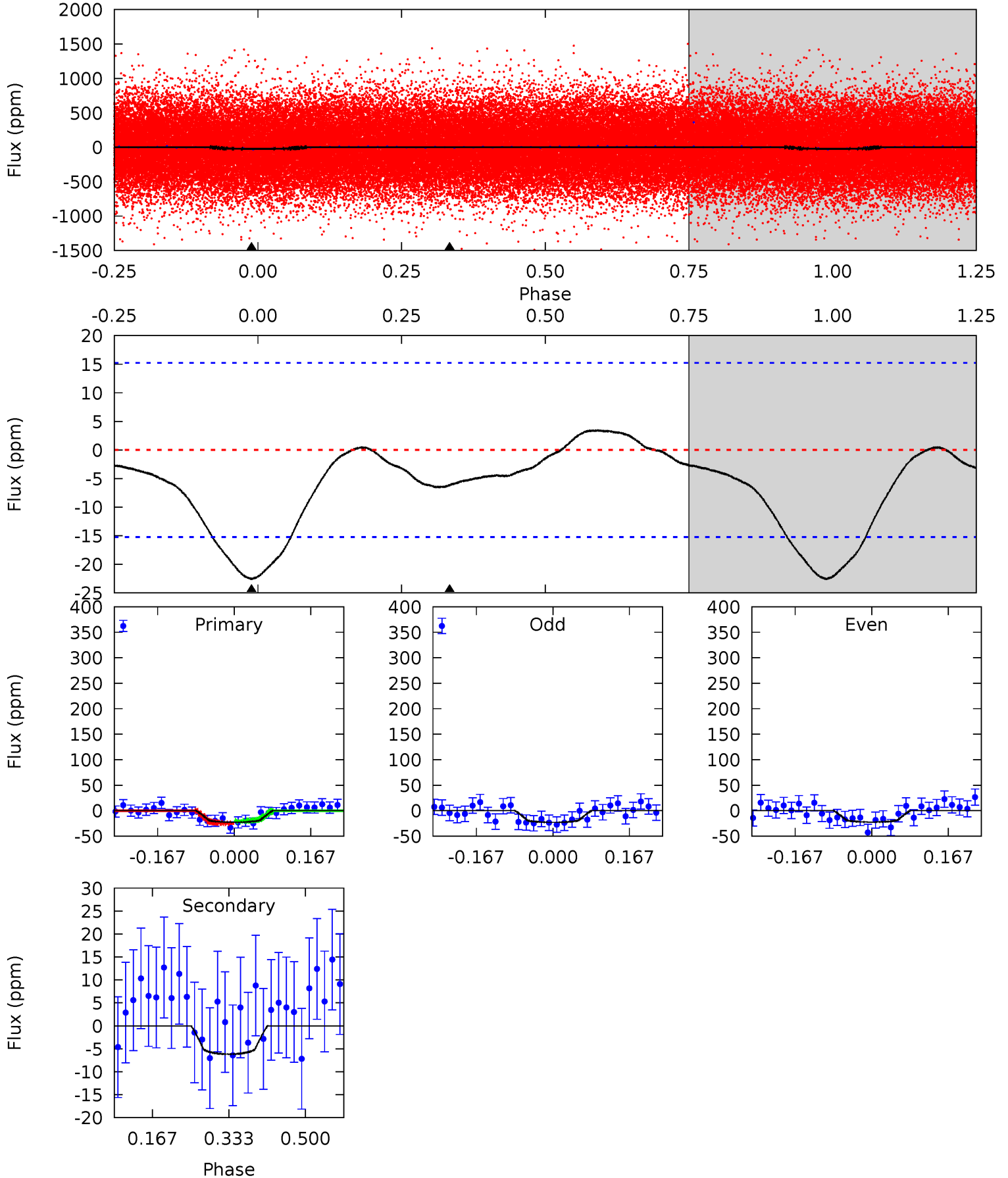
TCE 008181880-01 P= 0.745418 Days $T_0=131.600755$ (BKJD)



DV Model-Shift Uniqueness Test

008181880-01, P = 0.745414 Days, E = 130.870795 Days

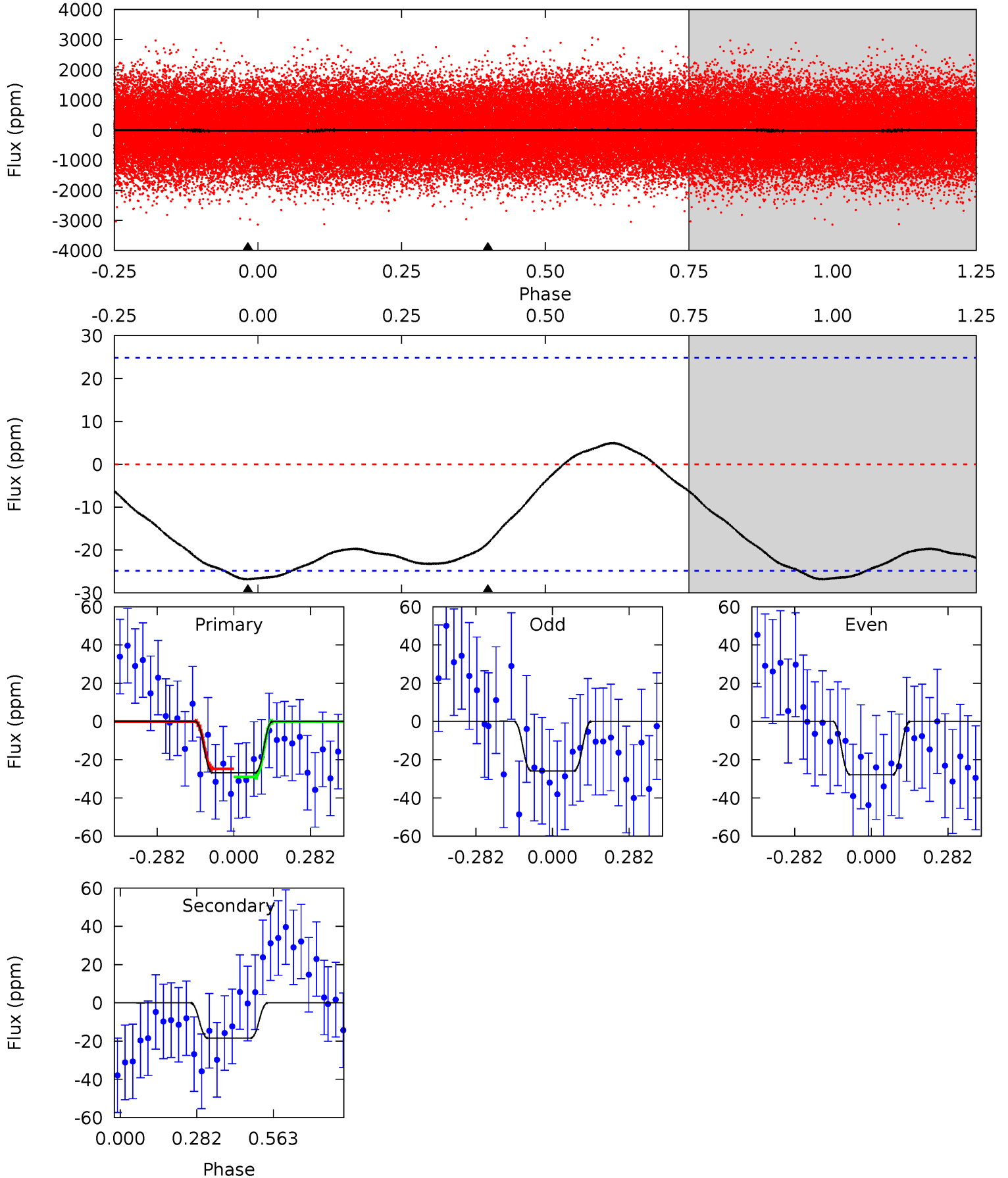
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.61	1.81	0	0	4.46	1.38	0.73	6.61	6.61	1.81	1.81	0.08	0.99	0.13	0.68



Alt Model-Shift Uniqueness Test

008181880-01, P = 0.745418 Days, E = 130.855337 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.70	3.22	0	0	4.34	1.08	0.51	4.70	4.70	3.22	3.22	0.17	0.94	0.16	0.36



Stellar Parameters For KIC 008181880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7347^{+206}_{-324}	$4.149^{+0.105}_{-0.195}$	$0.100^{+0.200}_{-0.350}$	$1.772^{+0.569}_{-0.306}$	$1.616^{+0.214}_{-0.235}$	$0.409^{+0.205}_{-0.218}$
	+3%/-4%	+3%/-5%	+200%/-350%	+32%/-17%	+13%/-15%	+50%/-53%
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 008181880-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6 ± 3	$0.98^{+0.34}_{-0.29}$	4407^{+366}_{-282}	4783^{+1164}_{-1359}	$1.179^{+1.413}_{-0.750}$
Alt.	-18 ± 6	$1.16^{+0.34}_{-0.32}$	4409^{+338}_{-269}	5982^{+1332}_{-916}	$2.614^{+2.792}_{-1.244}$

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 $A_{obs} \gg 1.0$

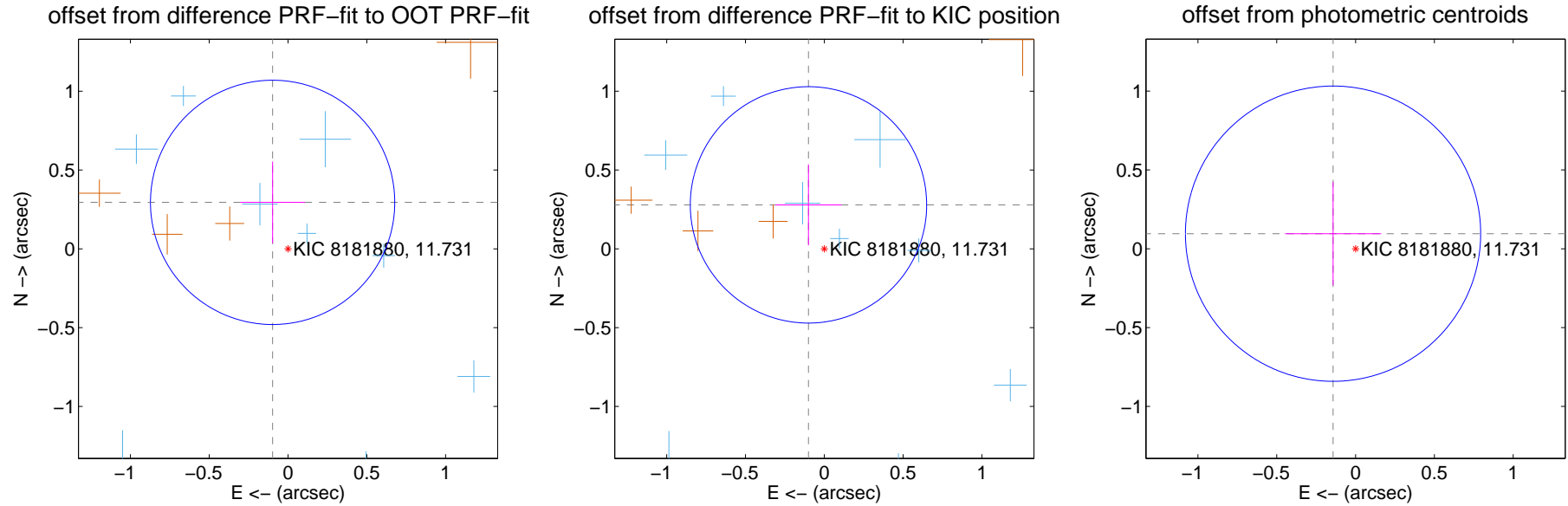
DV Centroid Data

Supplemental centroid analysis for 008181880-01. **Kepler magnitude: 11.73.** Transit SNR 15.14

There are 10 quarters with good PRF difference image offsets

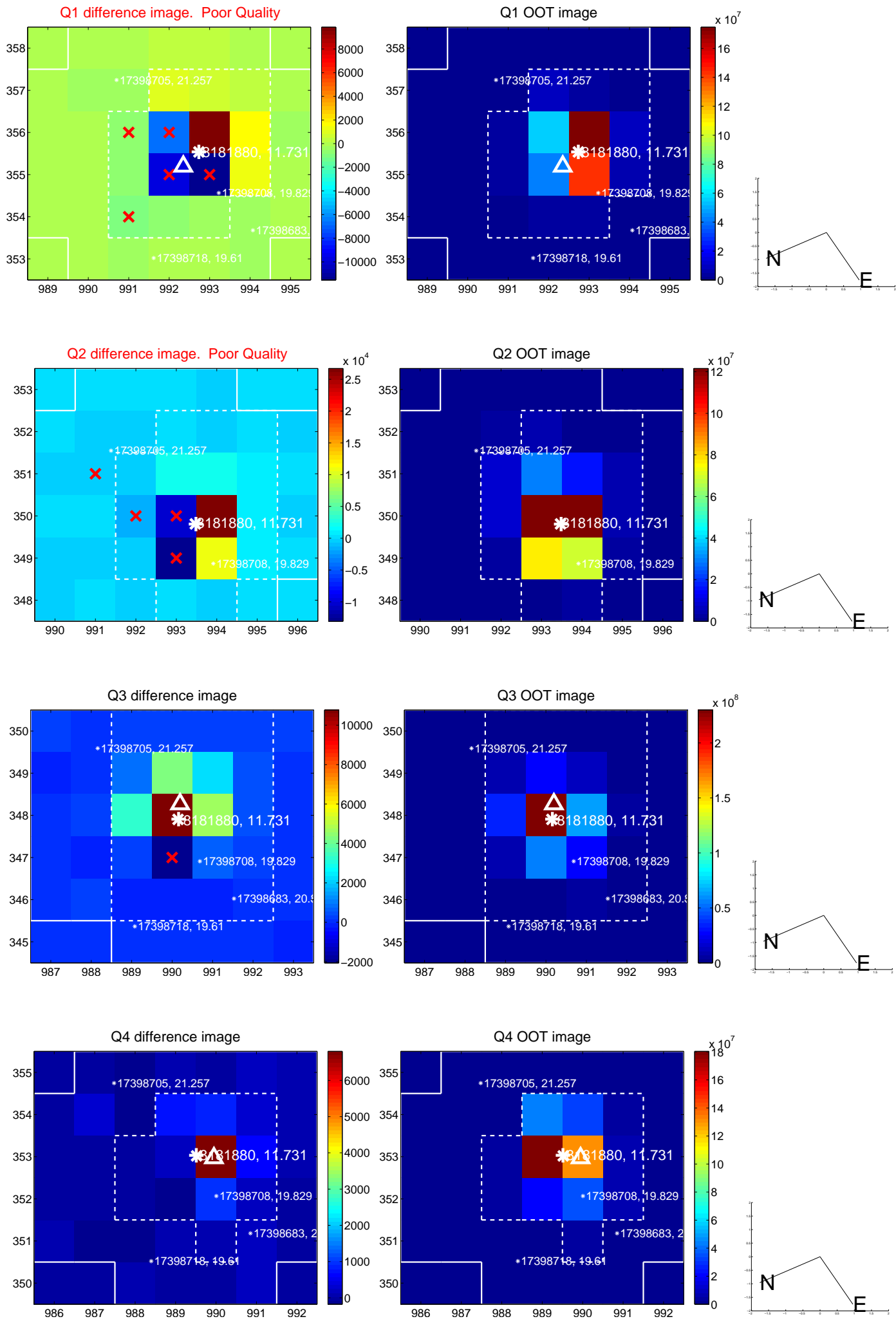
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.311 ± 0.258	1.20	0.098 ± 0.205	0.295 ± 0.259
PRF-fit source offset from KIC position	0.296 ± 0.250	1.19	0.100 ± 0.209	0.279 ± 0.257
photometric centroid source offset	0.17 ± 0.31	0.55	0.14 ± 0.31	0.10 ± 0.33

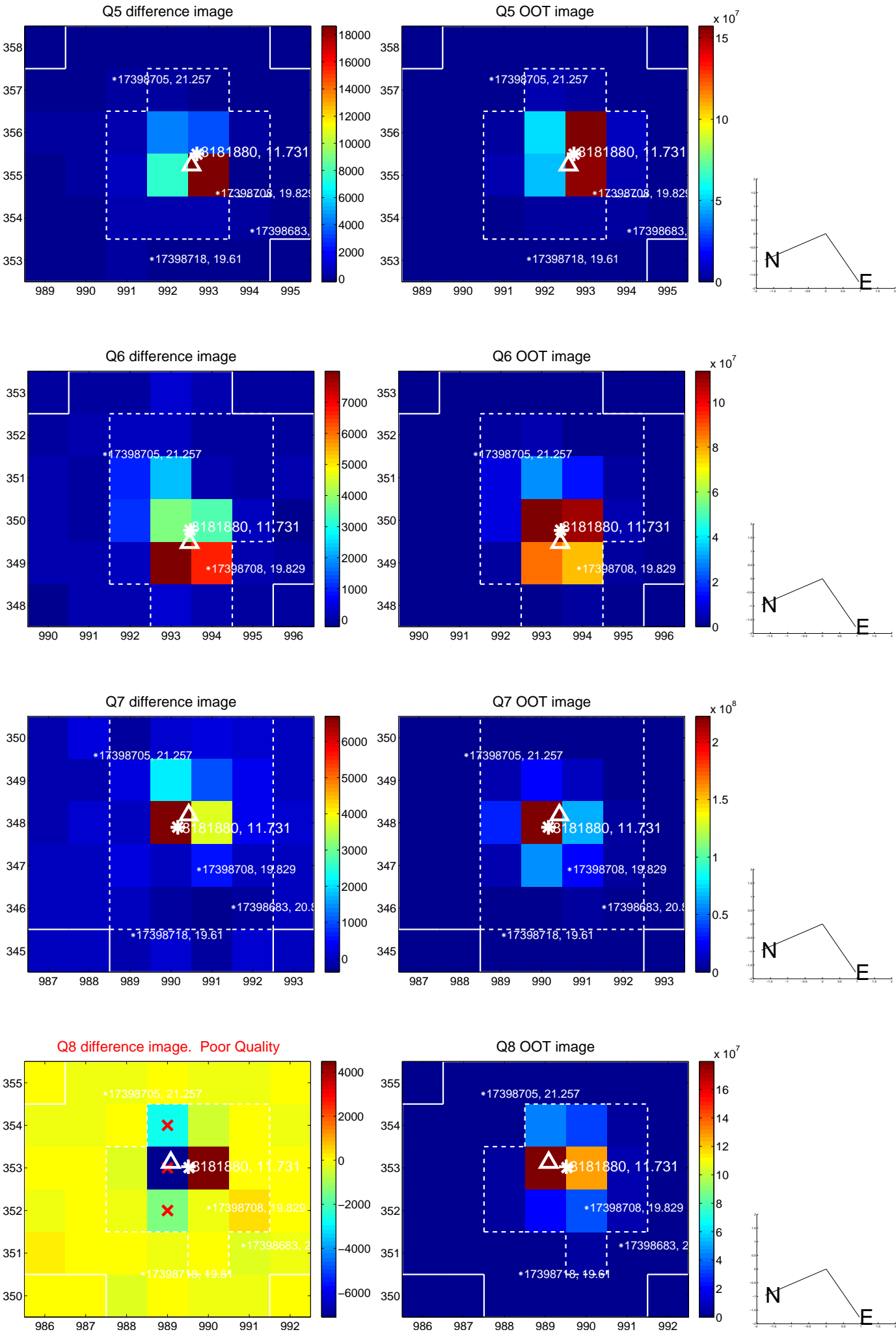


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

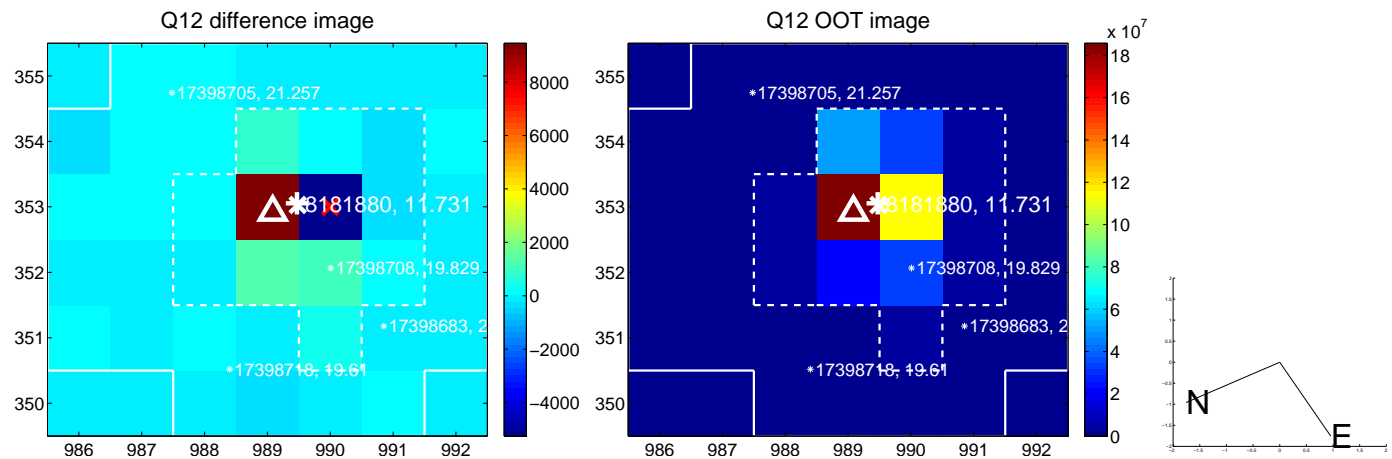
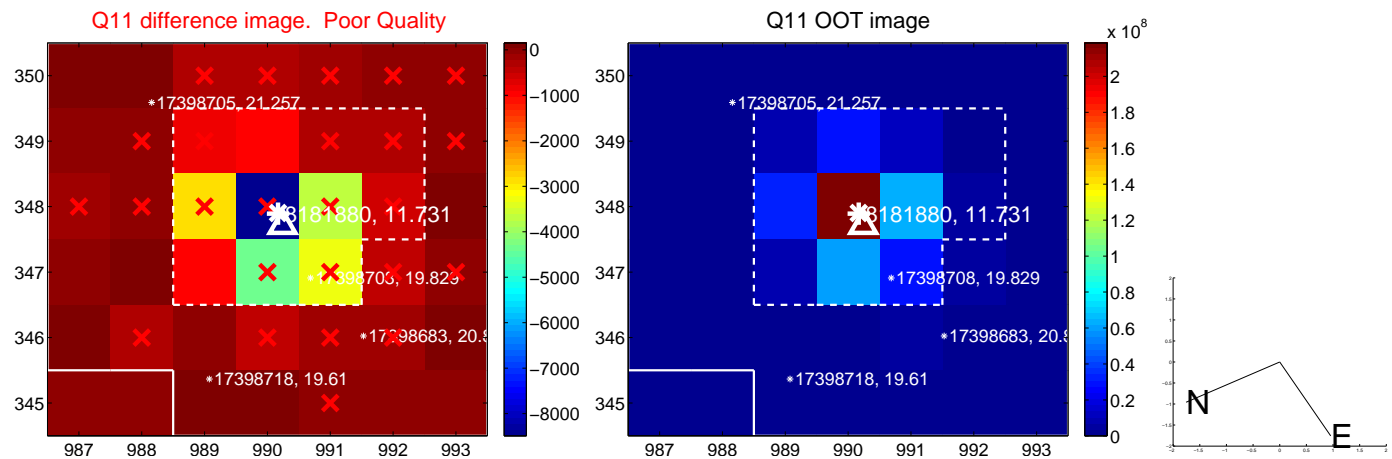
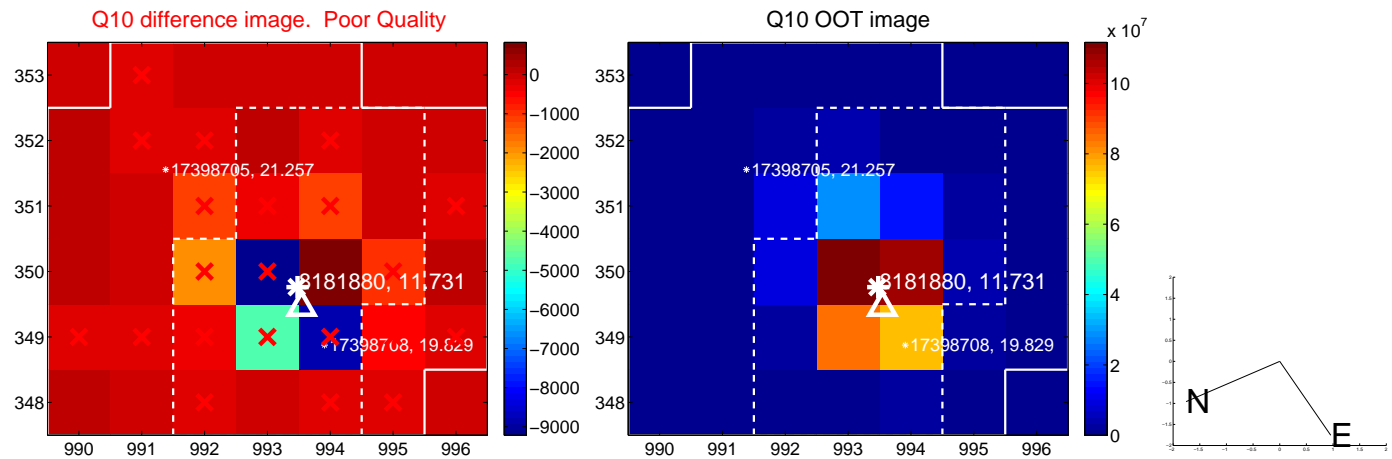
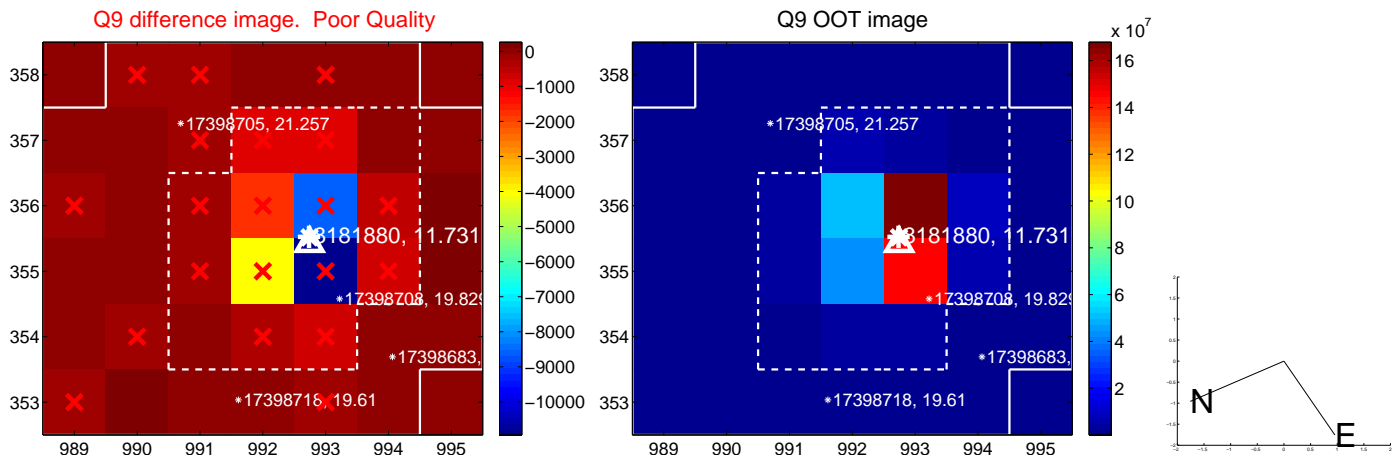
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



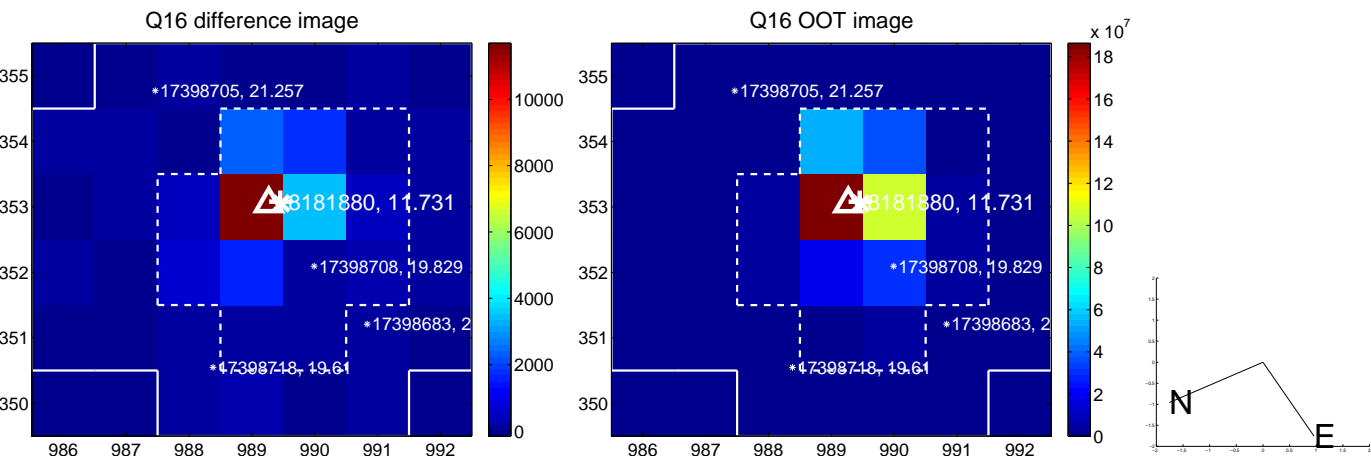
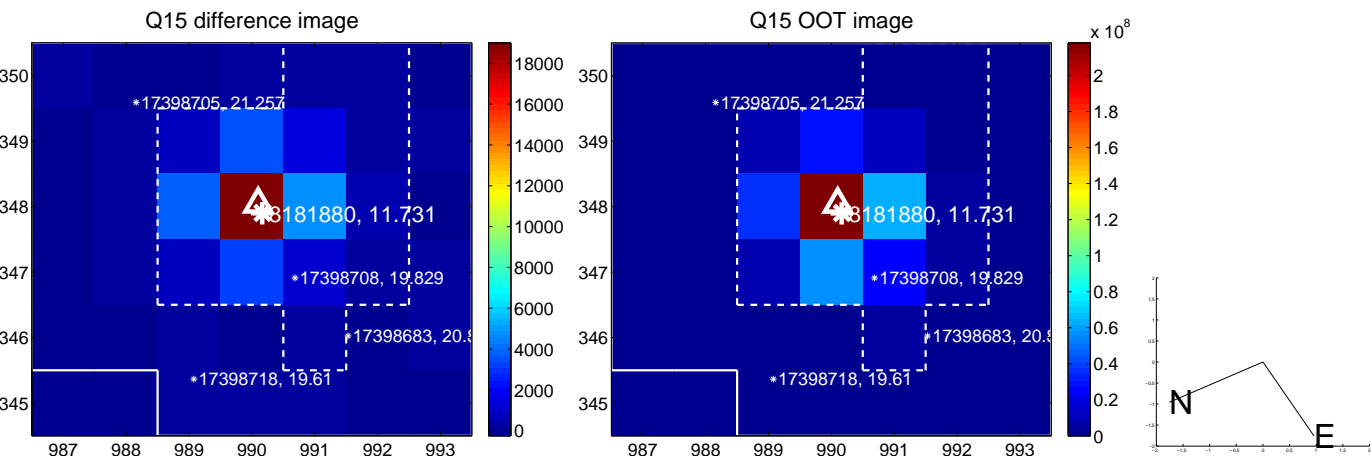
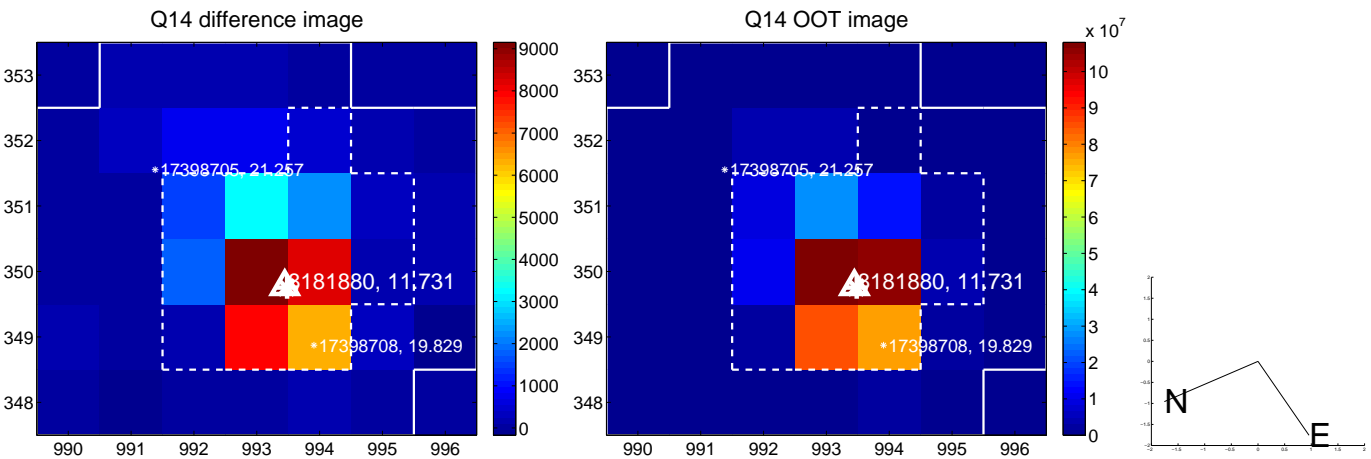
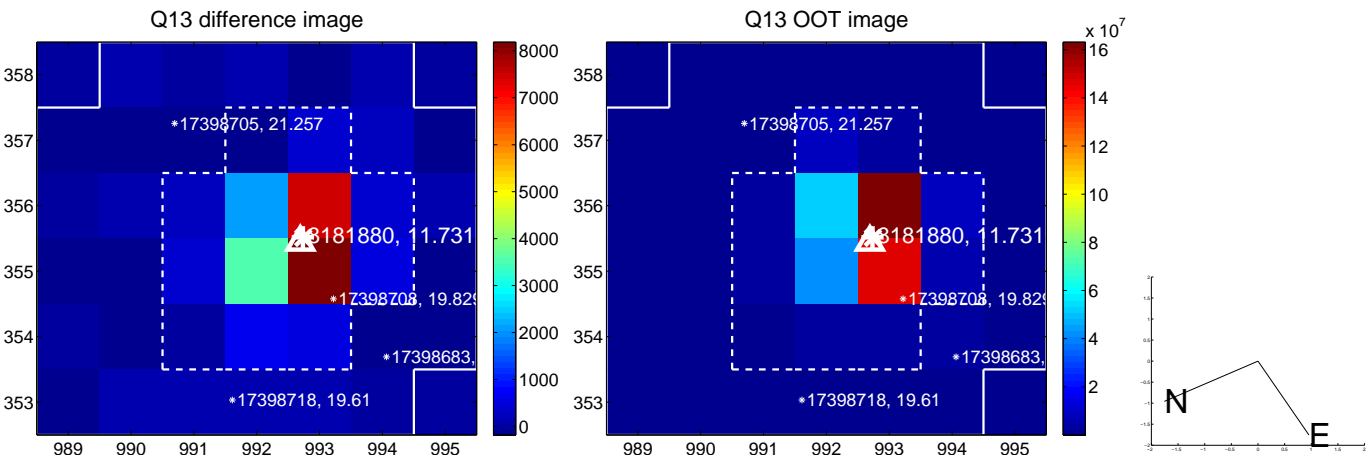
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



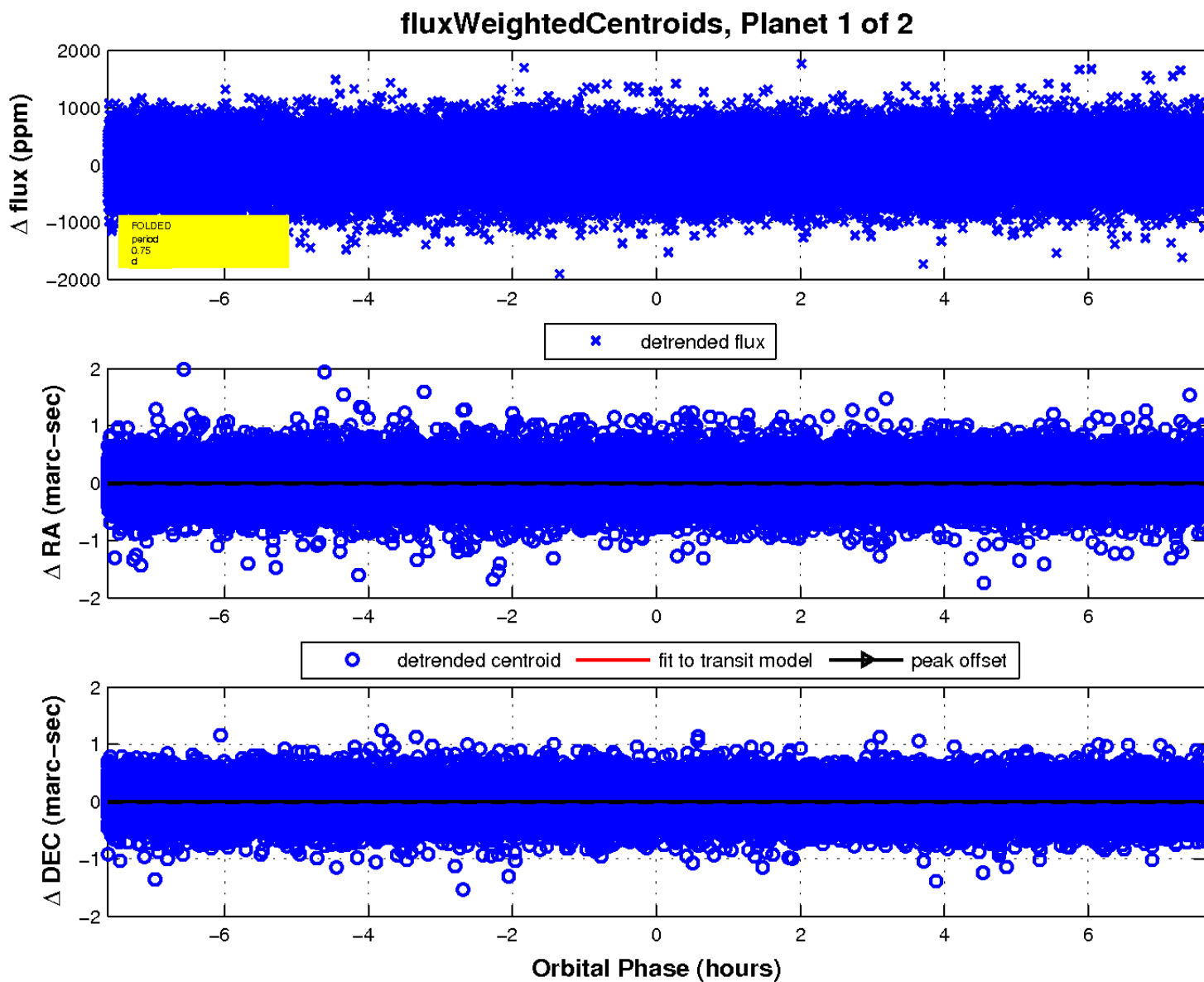
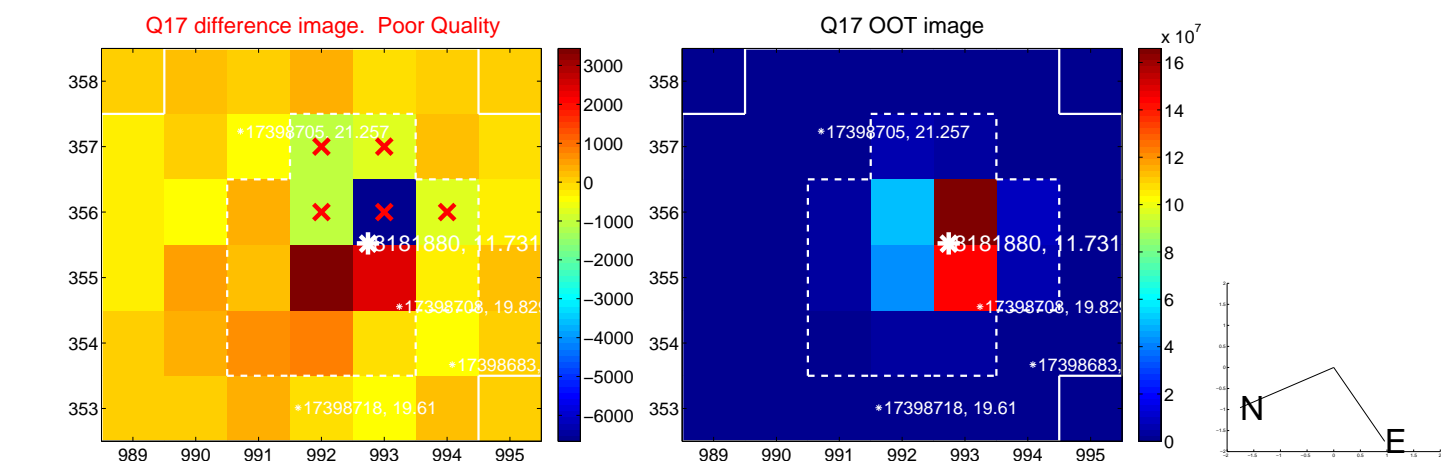
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

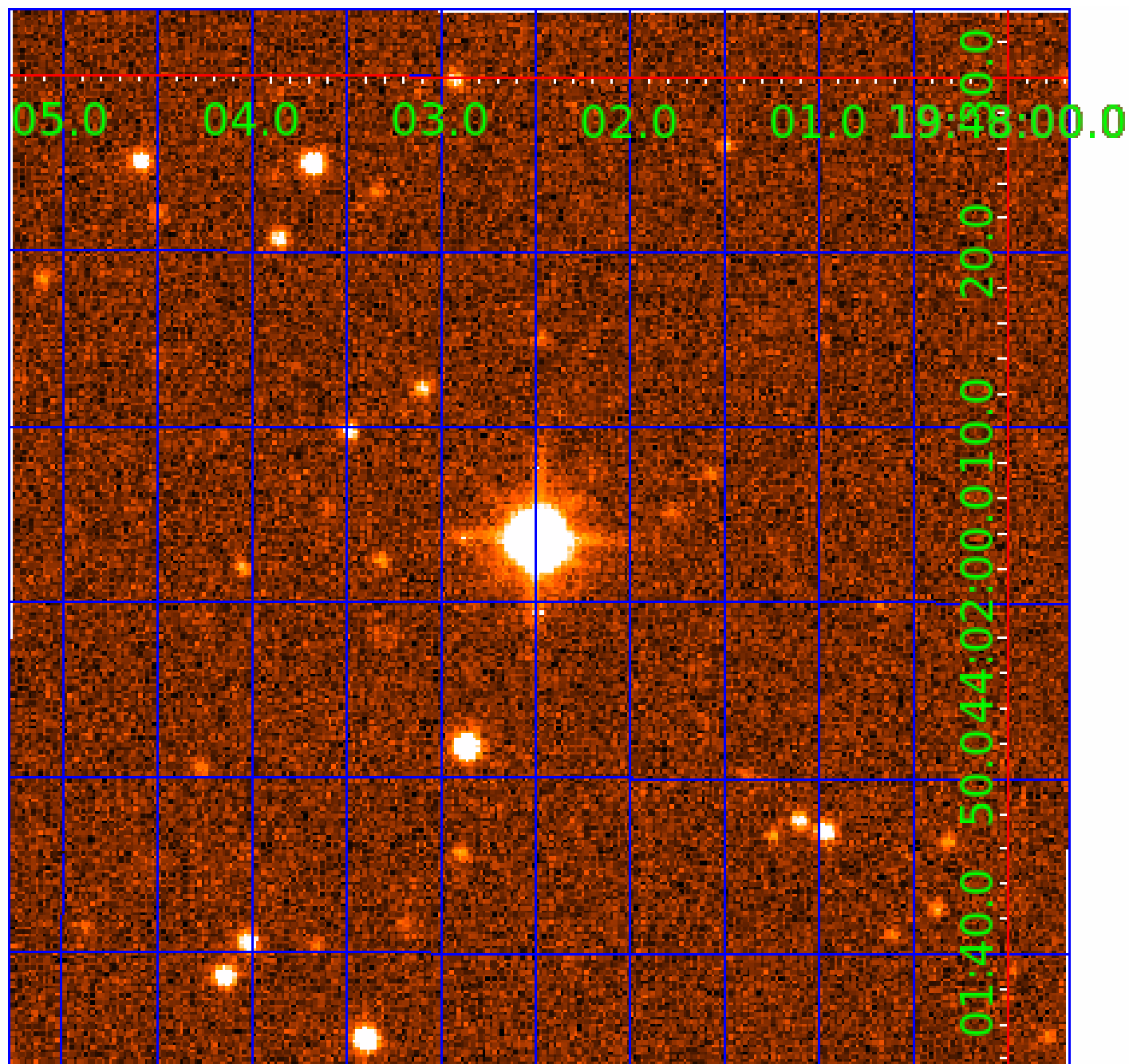


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008181880

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})
008181880-01	OBS	No	0.745414	131.616210	24.2	2.543	13.0	15.1	1.77	7347	0.98	23002.76
008181880-02	OBS	No	0.745643	131.597496	20.4	4.624	10.3	9.8	1.77	7347	0.93	22993.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008181880-01	OBS	FP	0.00	1	0	0	0	LPP_ALT
008181880-02	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.

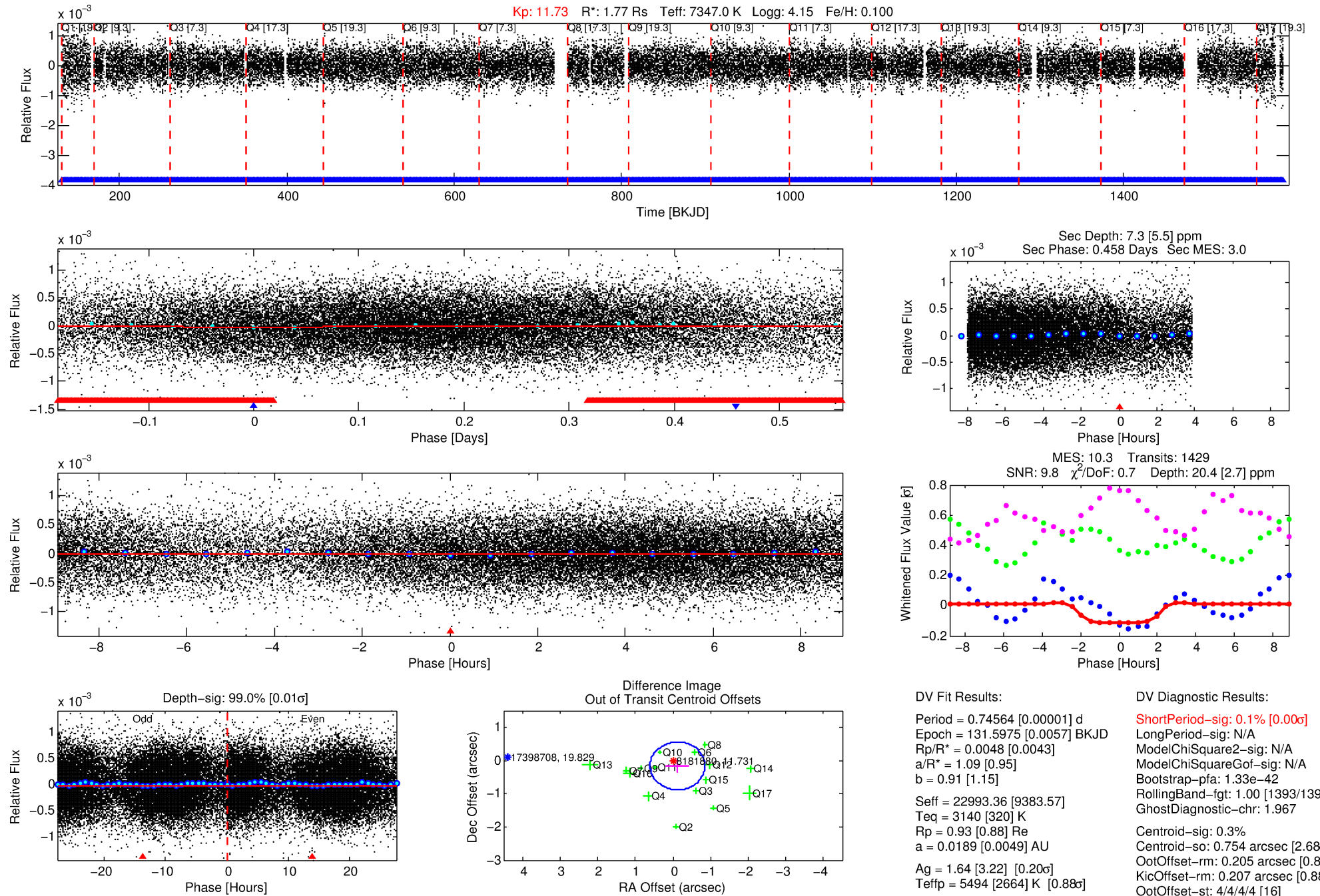
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008181880-02

No Significant Match Found

DV One-Page Summary

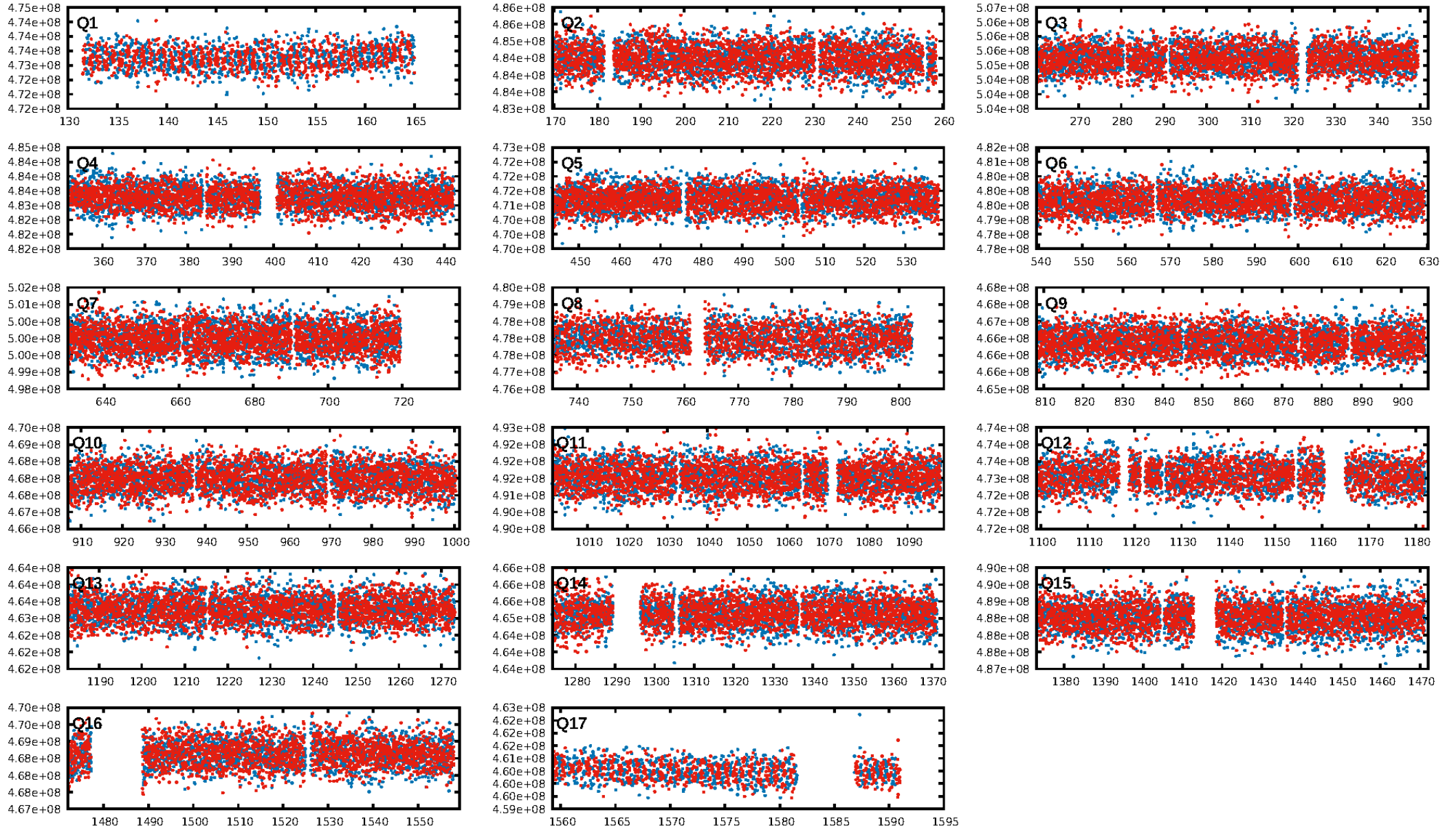
KIC: 8181880 Candidate: 2 of 2 Period: 0.746 d



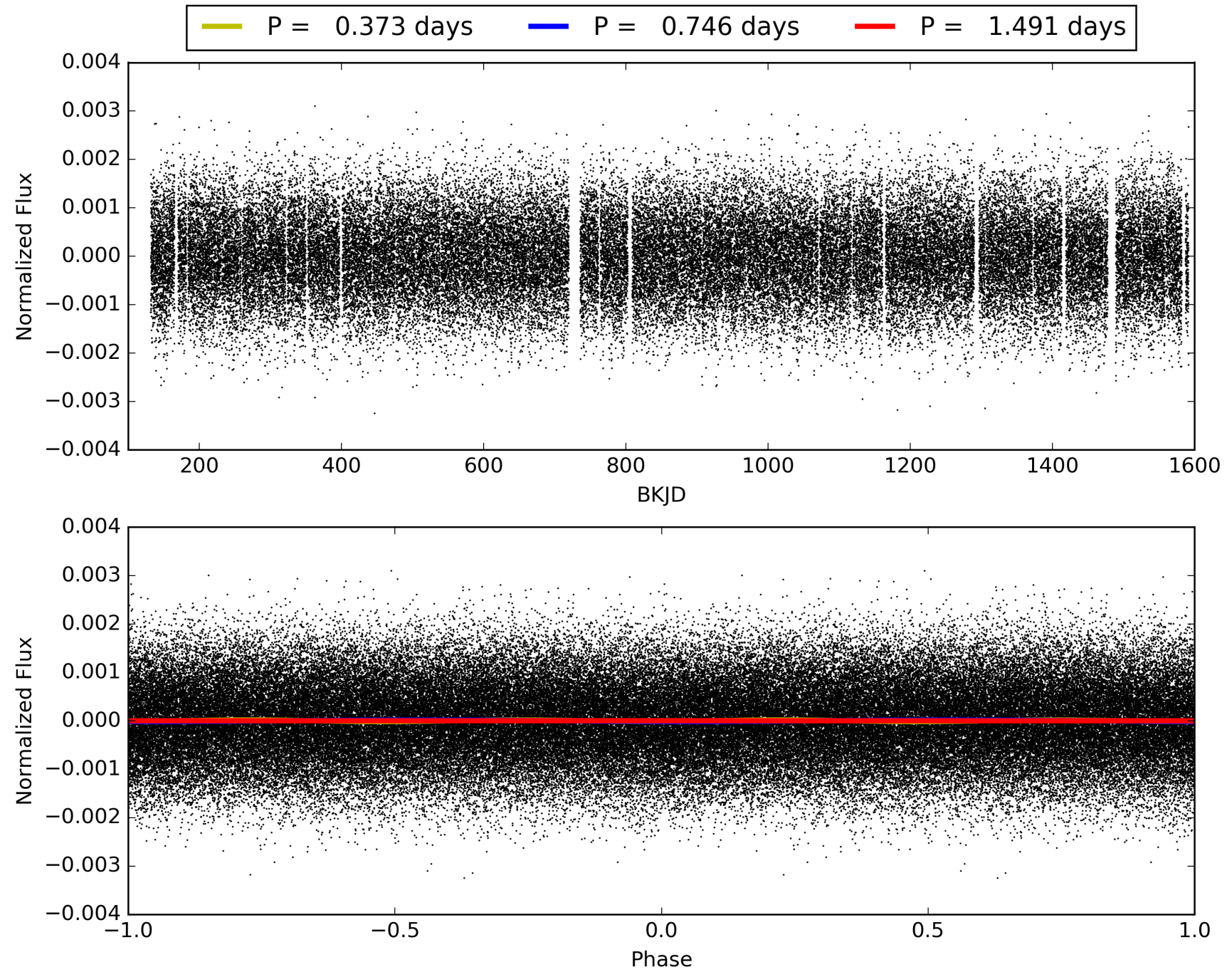
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:09:34 Z

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

TCE 008181880-02, PDC Light Curves

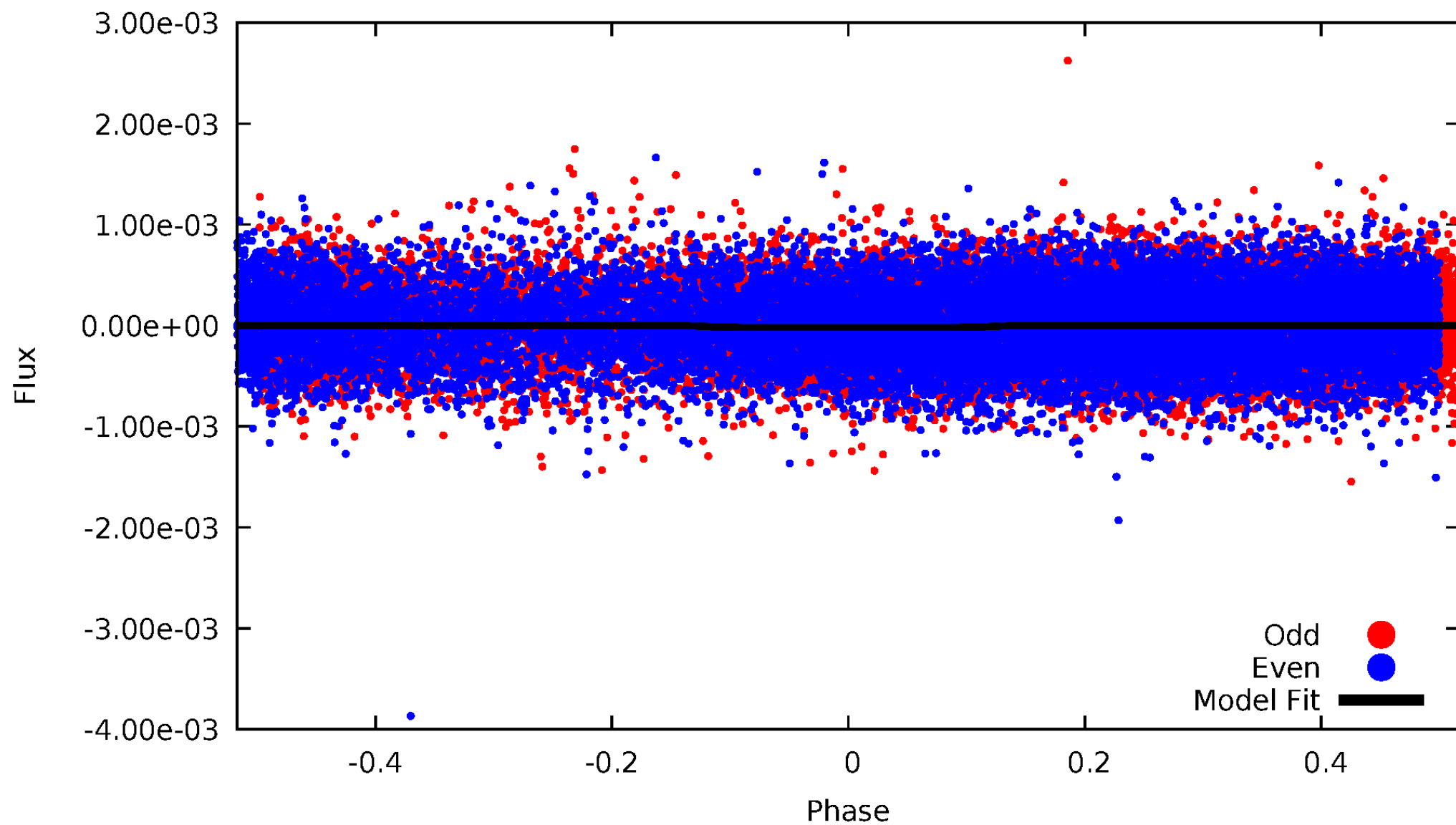


TCE 008181880-02



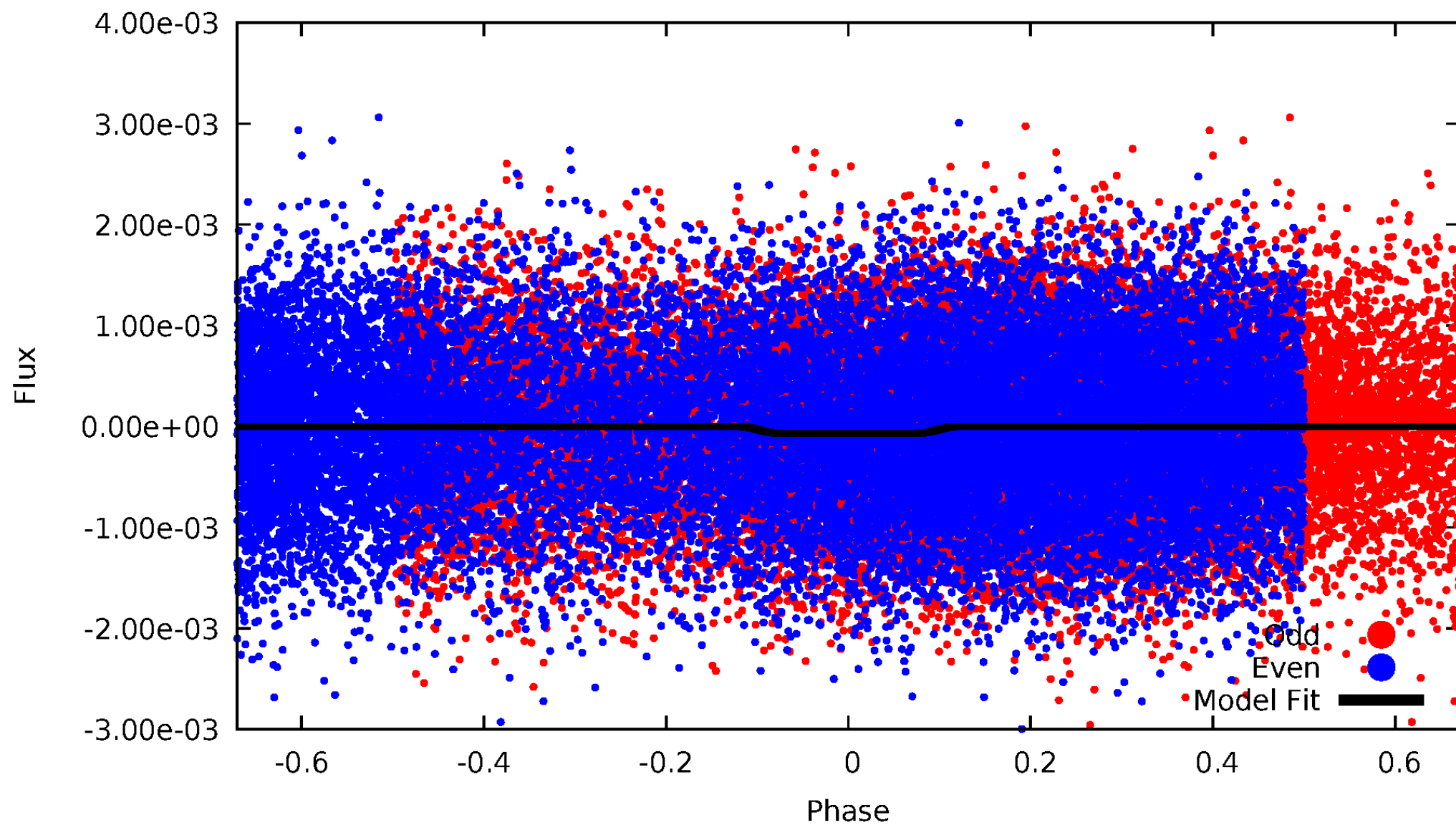
DV Odd/Even

TCE 008181880-02



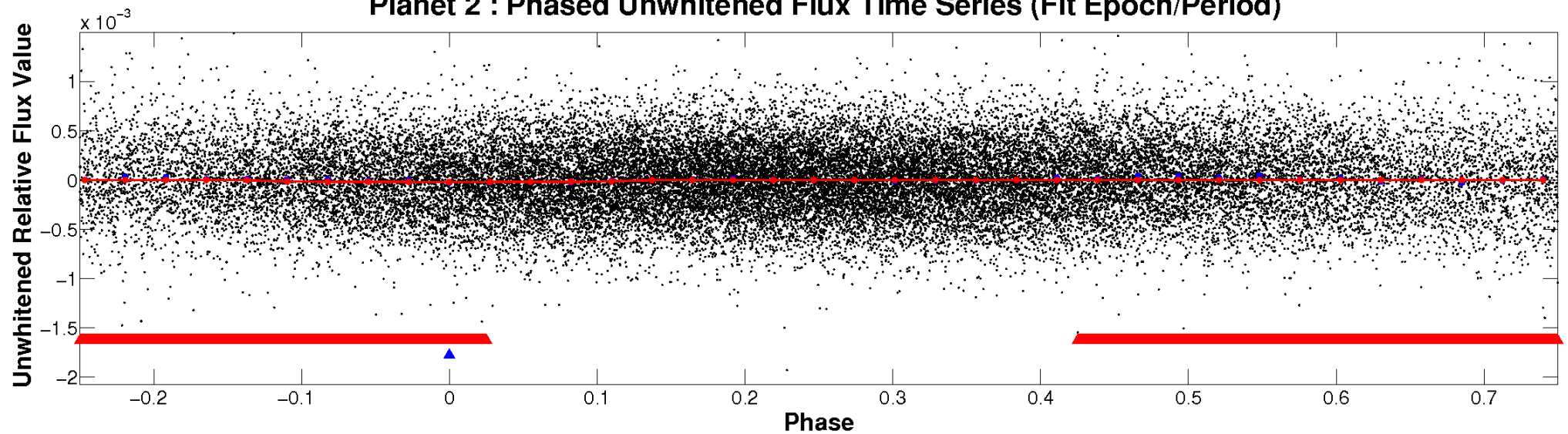
ALT Odd/Even

TCE 008181880-02

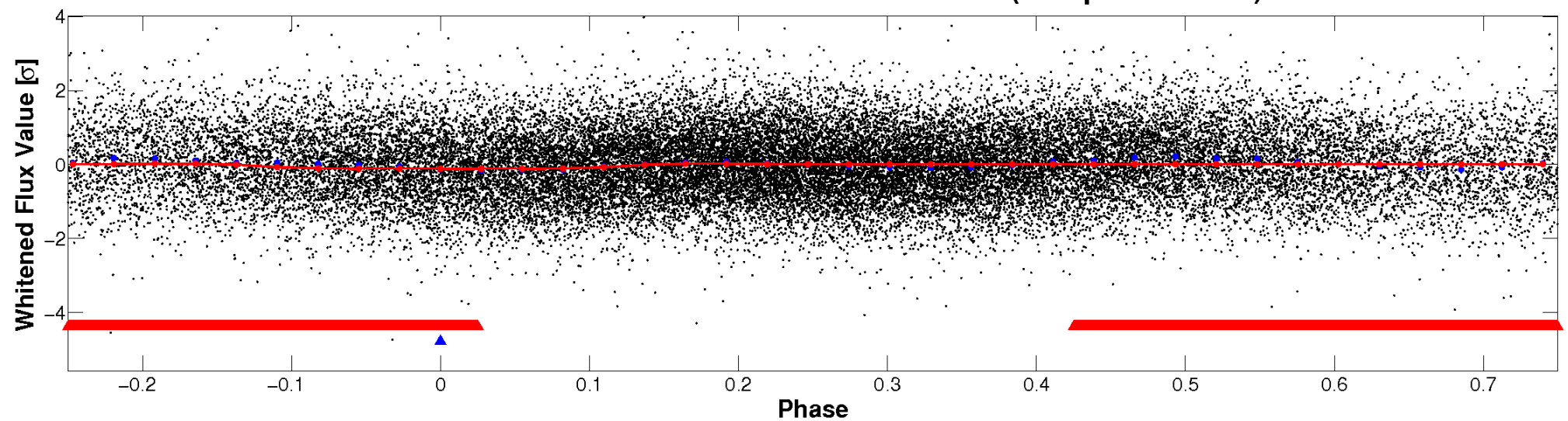


Non-Whitened Vs. Whitened Light Curve

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

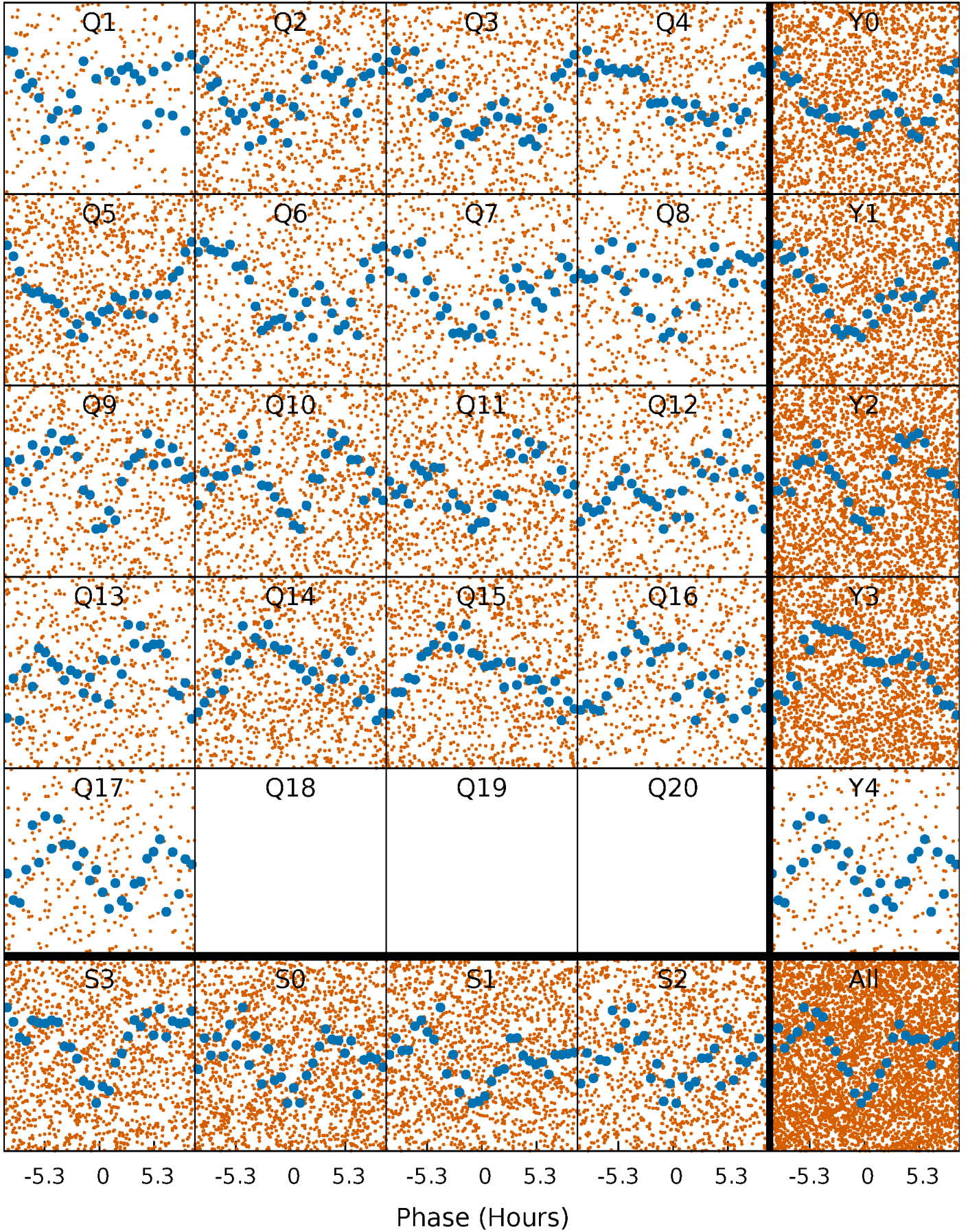


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



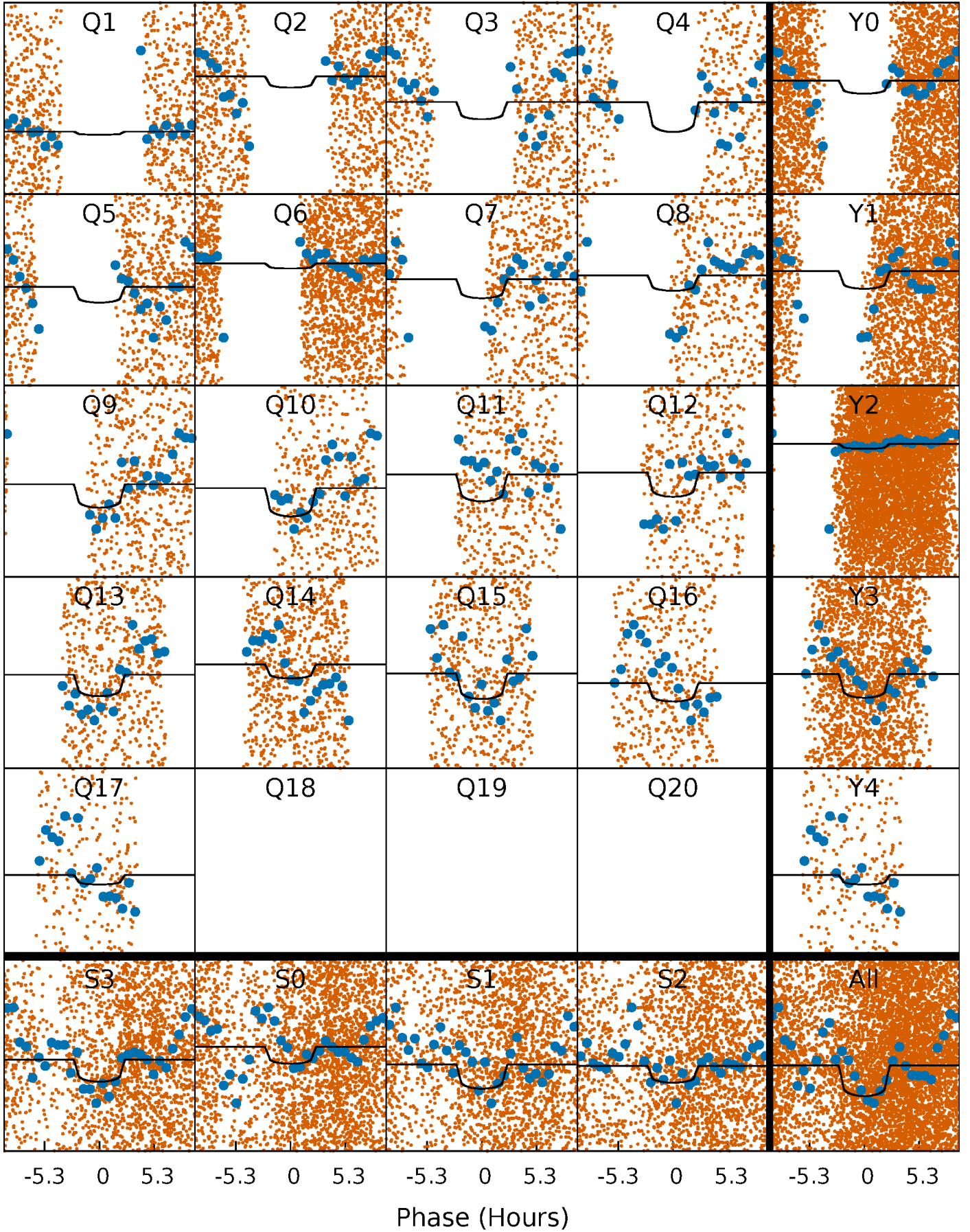
PDC Quarter-Phased Transit Curves

TCE 008181880-02 P= 0.745643 Days $T_0=131.597496$ (BKJD)



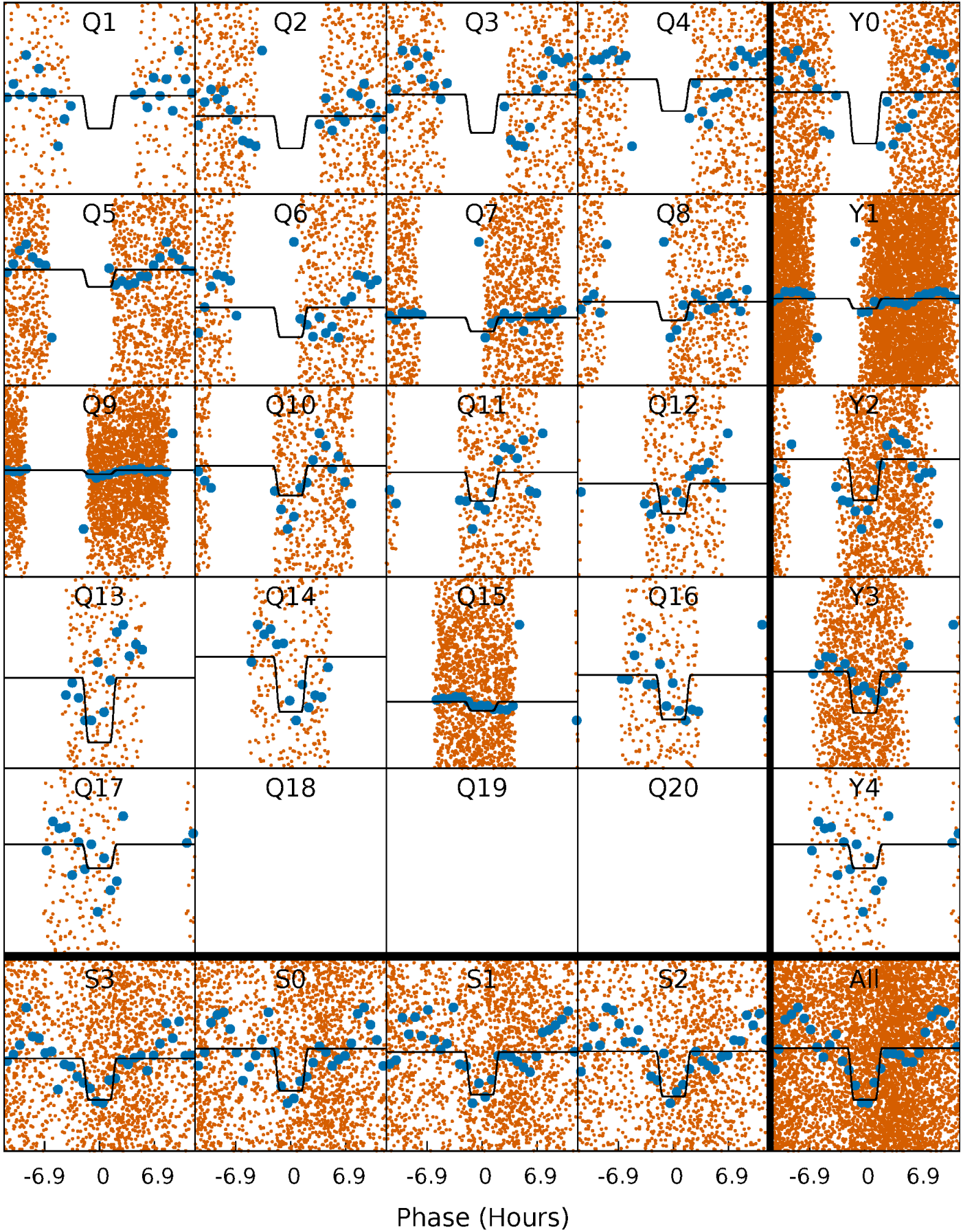
DV Quarter-Phased Transit Curves

TCE 008181880-02 P= 0.745643 Days $T_0=131.597496$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

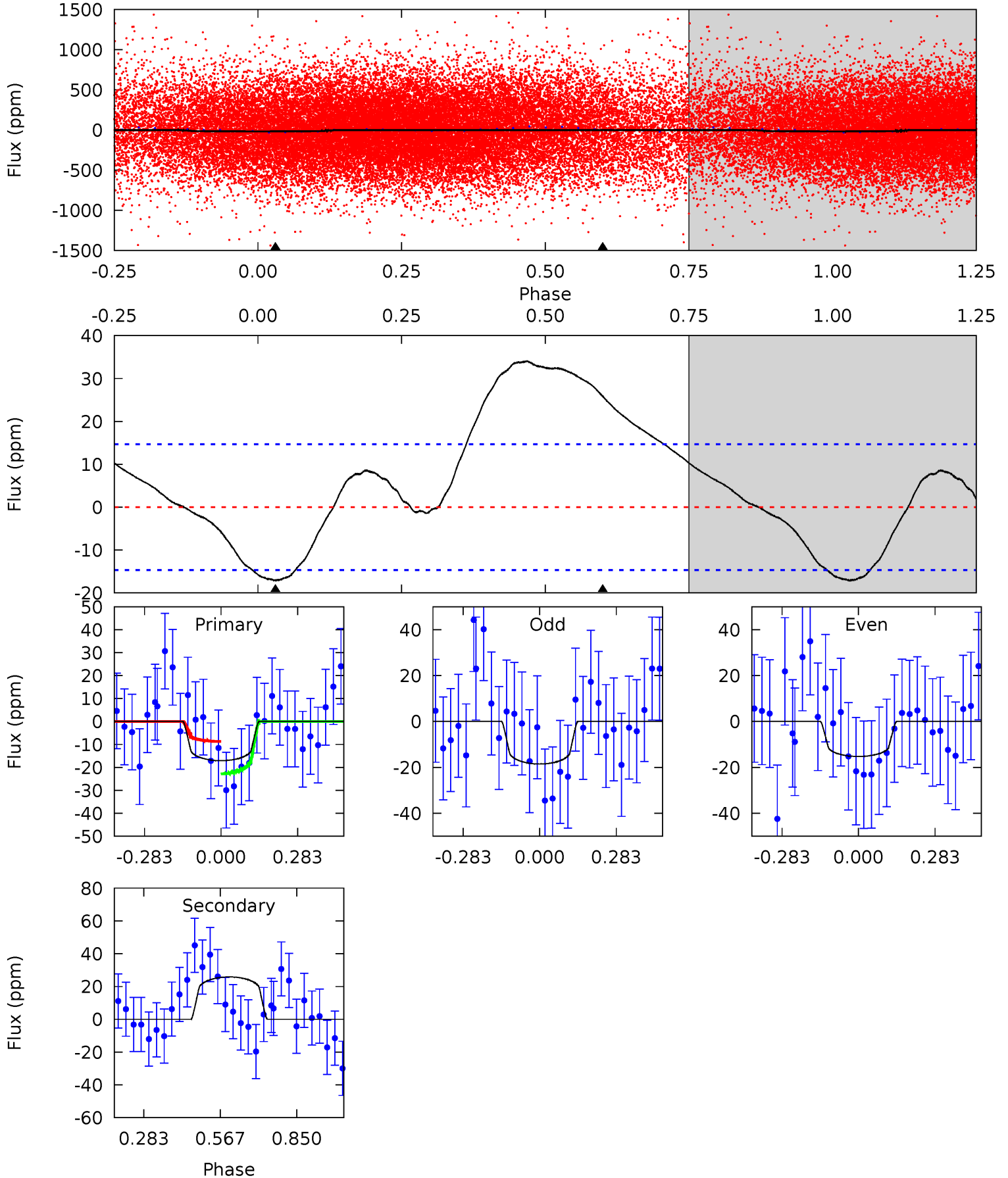
TCE 008181880-02 P= 0.745663 Days $T_0=131.597407$ (BKJD)



DV Model-Shift Uniqueness Test

008181880-02, P = 0.745643 Days, E = 131.597496 Days

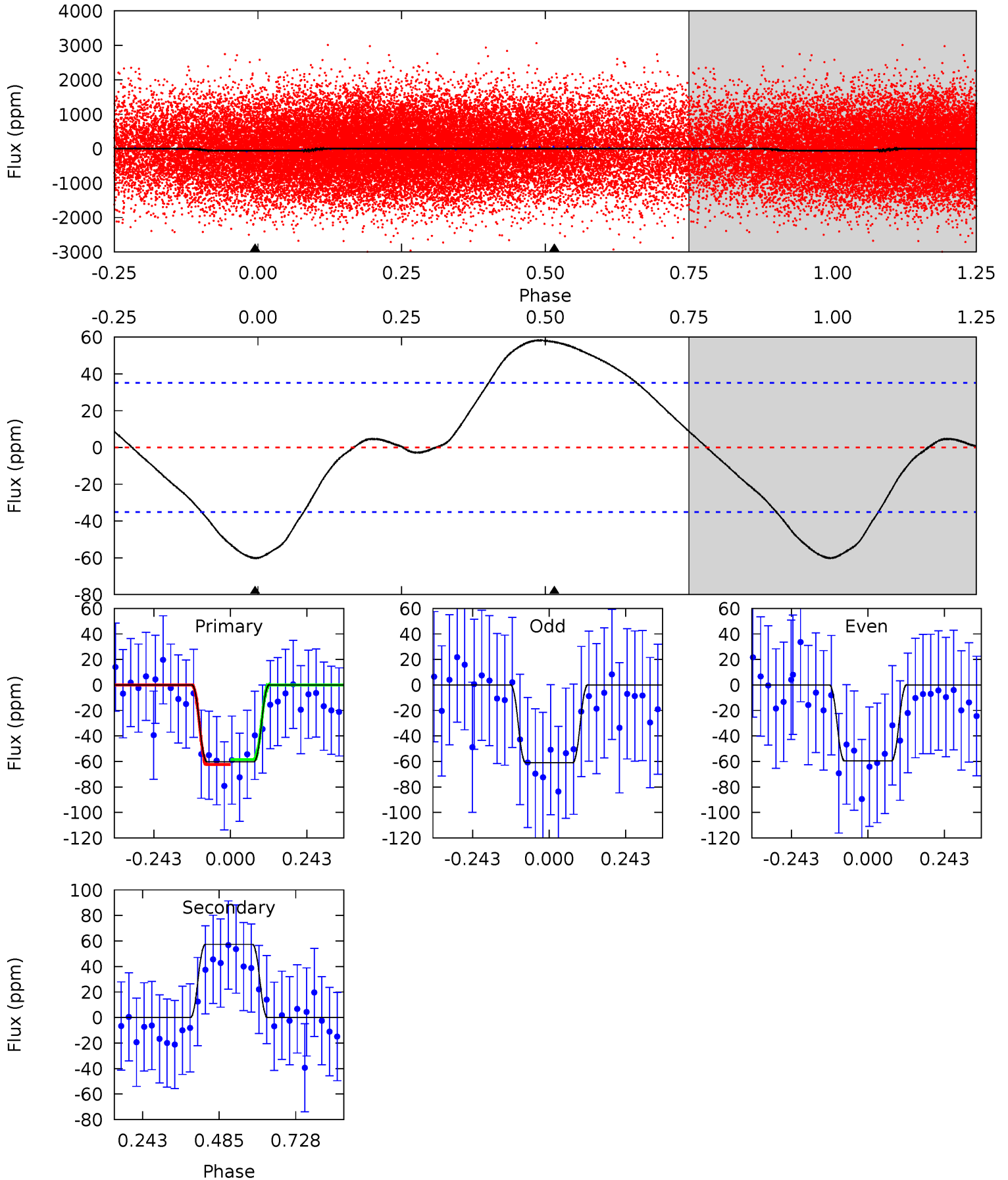
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.05	-7.64	0	0	4.34	1.07	0.99	5.05	5.05	-7.64	-7.64	0.47	0.81	0.67	1.88



Alt Model-Shift Uniqueness Test

008181880-02, P = 0.745663 Days, E = 131.597407 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.49	-7.14	0	0	4.38	1.17	0.37	7.49	7.49	-7.14	-7.14	0.09	1.03	0.49	0.24



Stellar Parameters For KIC 008181880

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7347^{+206}_{-324}	$4.149^{+0.105}_{-0.195}$	$0.100^{+0.200}_{-0.350}$	$1.772^{+0.569}_{-0.306}$	$1.616^{+0.214}_{-0.235}$	$0.409^{+0.205}_{-0.218}$
	+3%/-4%	+3%/-5%	+200%/-350%	+32%/-17%	+13%/-15%	+50%/-53%
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 008181880-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	26 ± 3	$1.02^{+0.88}_{-0.63}$	4429^{+348}_{-277}	-7279^{+1714}_{-8046}	$-4.557^{+3.212}_{-28.486}$
Alt.	57 ± 8	$1.58^{+0.95}_{-0.77}$	4413^{+343}_{-287}	-7235^{+1397}_{-3680}	$-4.474^{+2.719}_{-11.950}$

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 $A_{\text{obs}} \gg 1.0$

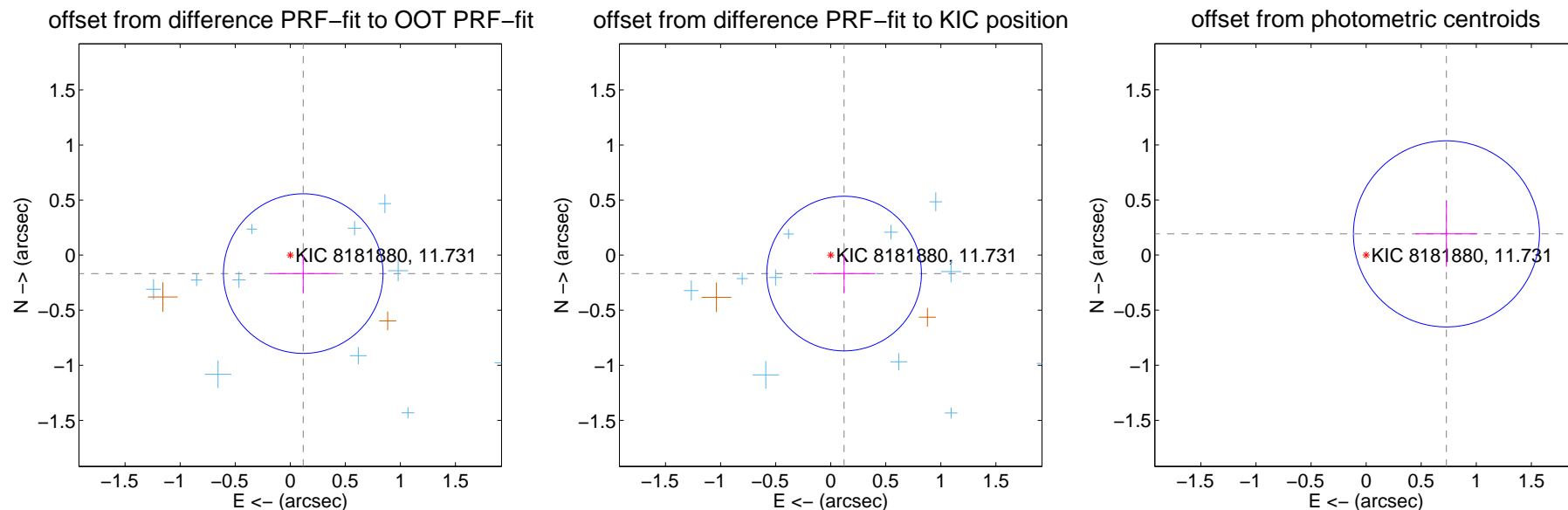
DV Centroid Data

Supplemental centroid analysis for 008181880-02. **Kepler magnitude: 11.73.** Transit SNR 9.80

There are 13 quarters with good PRF difference image offsets

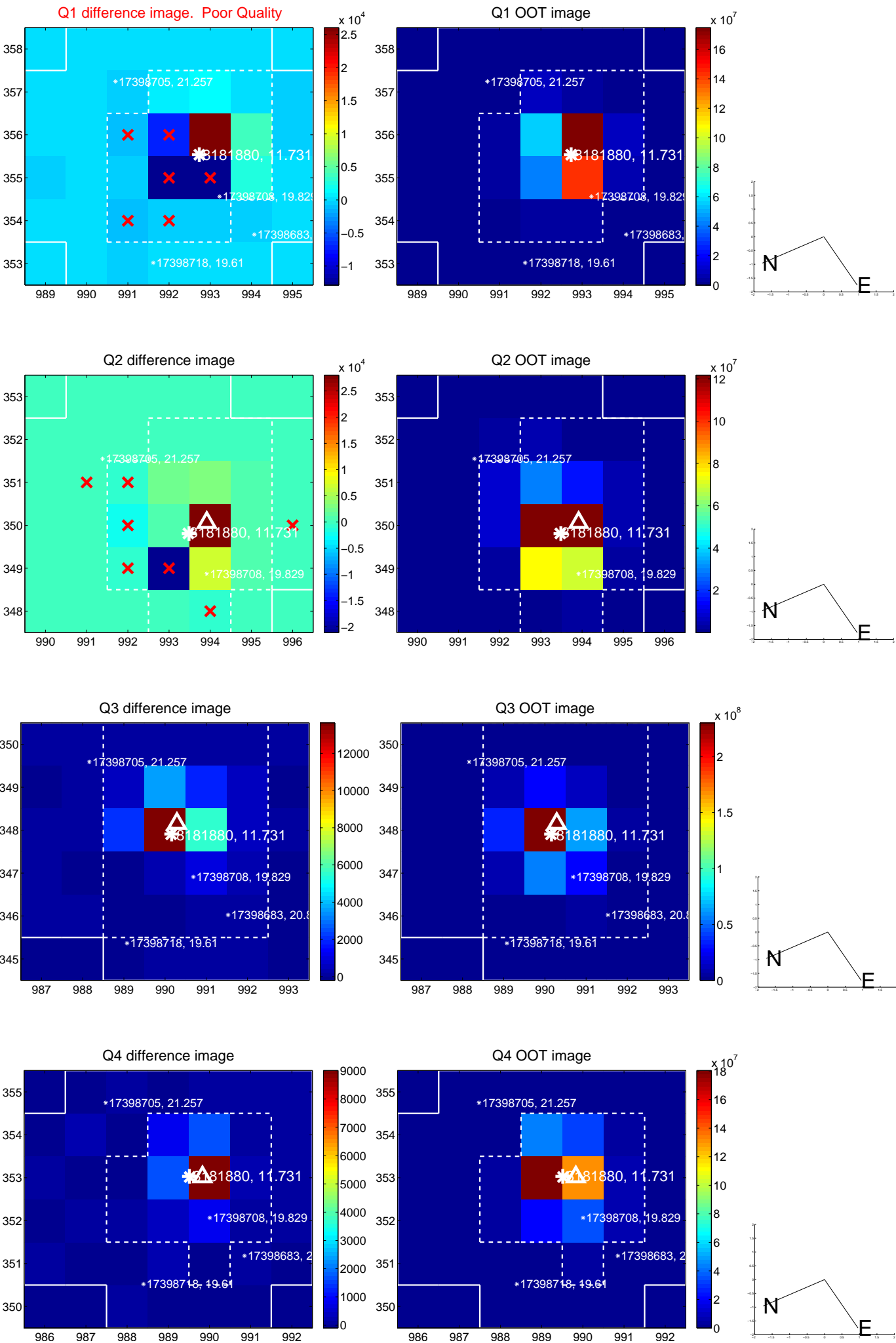
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.205 ± 0.241	0.85	-0.118 ± 0.301	-0.167 ± 0.171
PRF-fit source offset from KIC position	0.207 ± 0.234	0.88	-0.122 ± 0.283	-0.167 ± 0.173
photometric centroid source offset	0.75 ± 0.28	2.68	-0.73 ± 0.28	0.19 ± 0.30

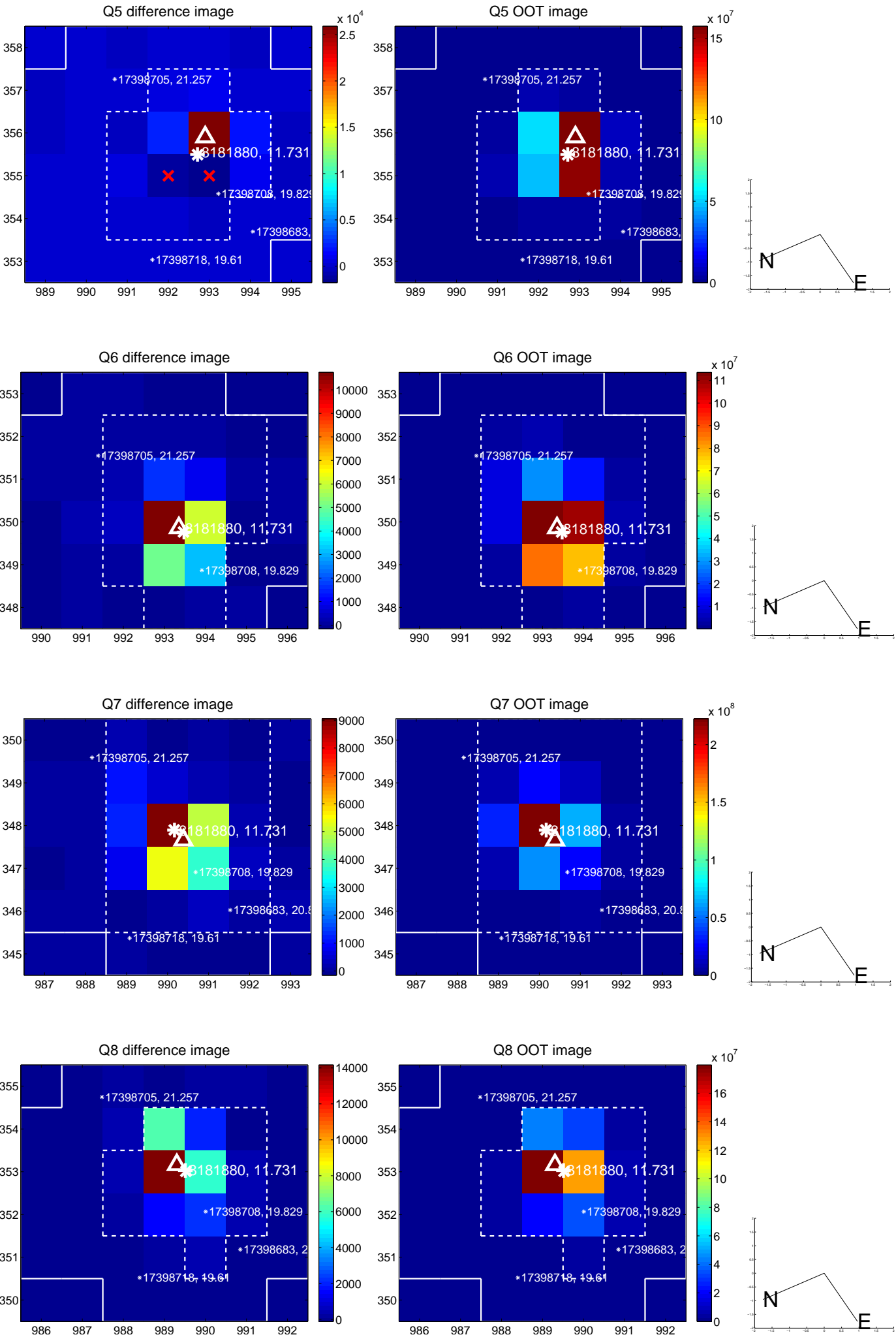


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

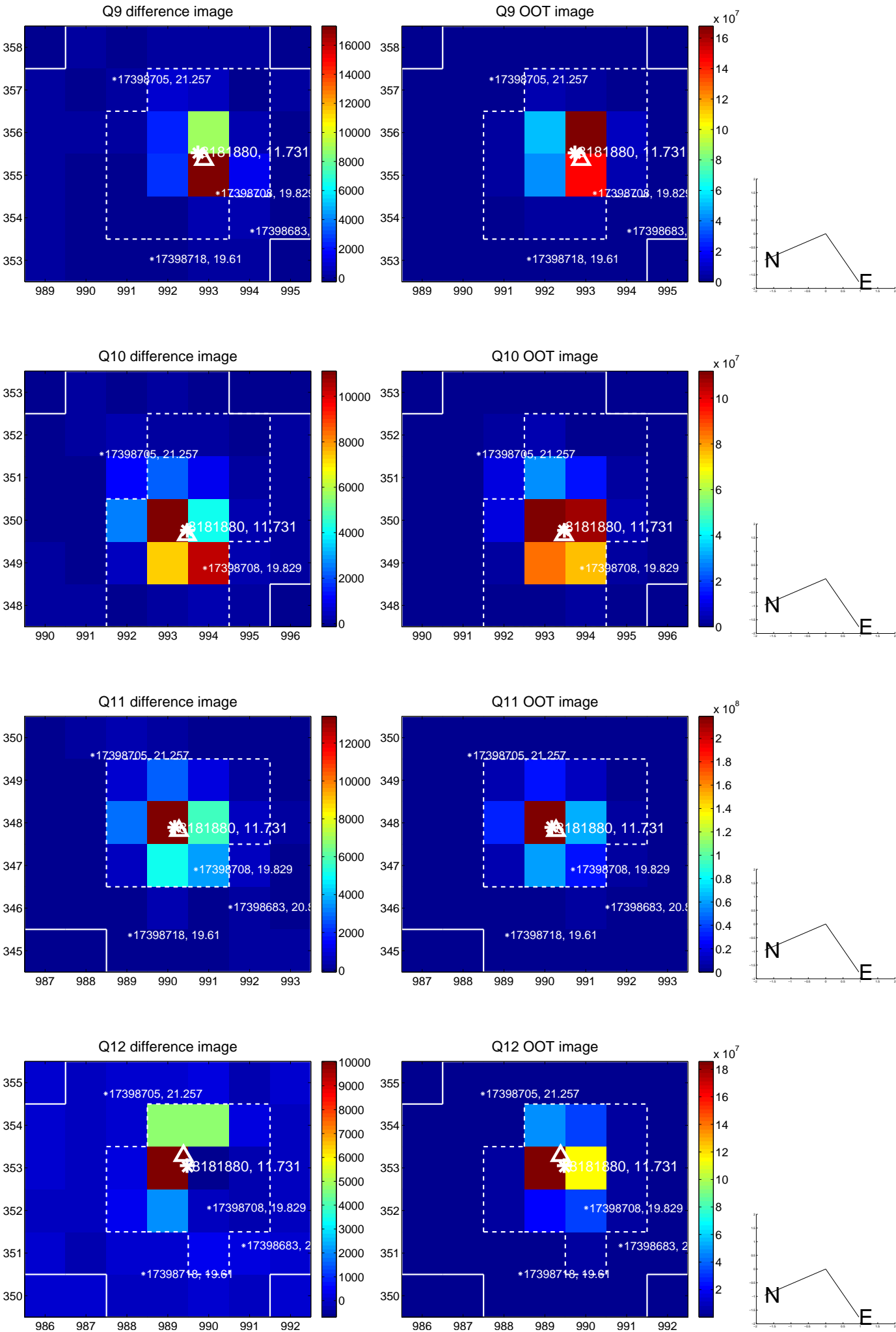
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



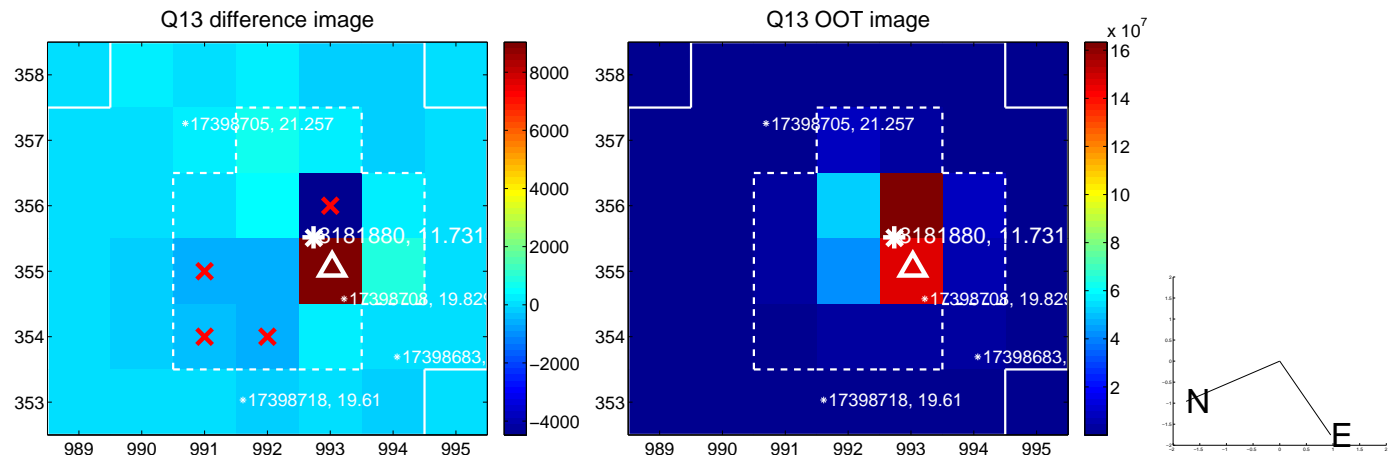
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



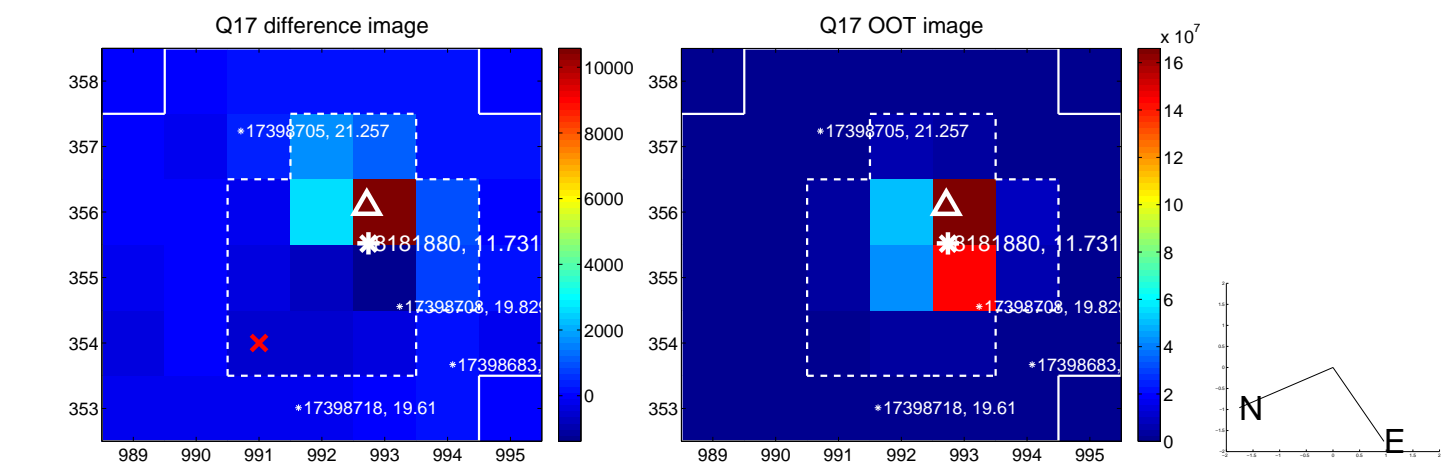
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



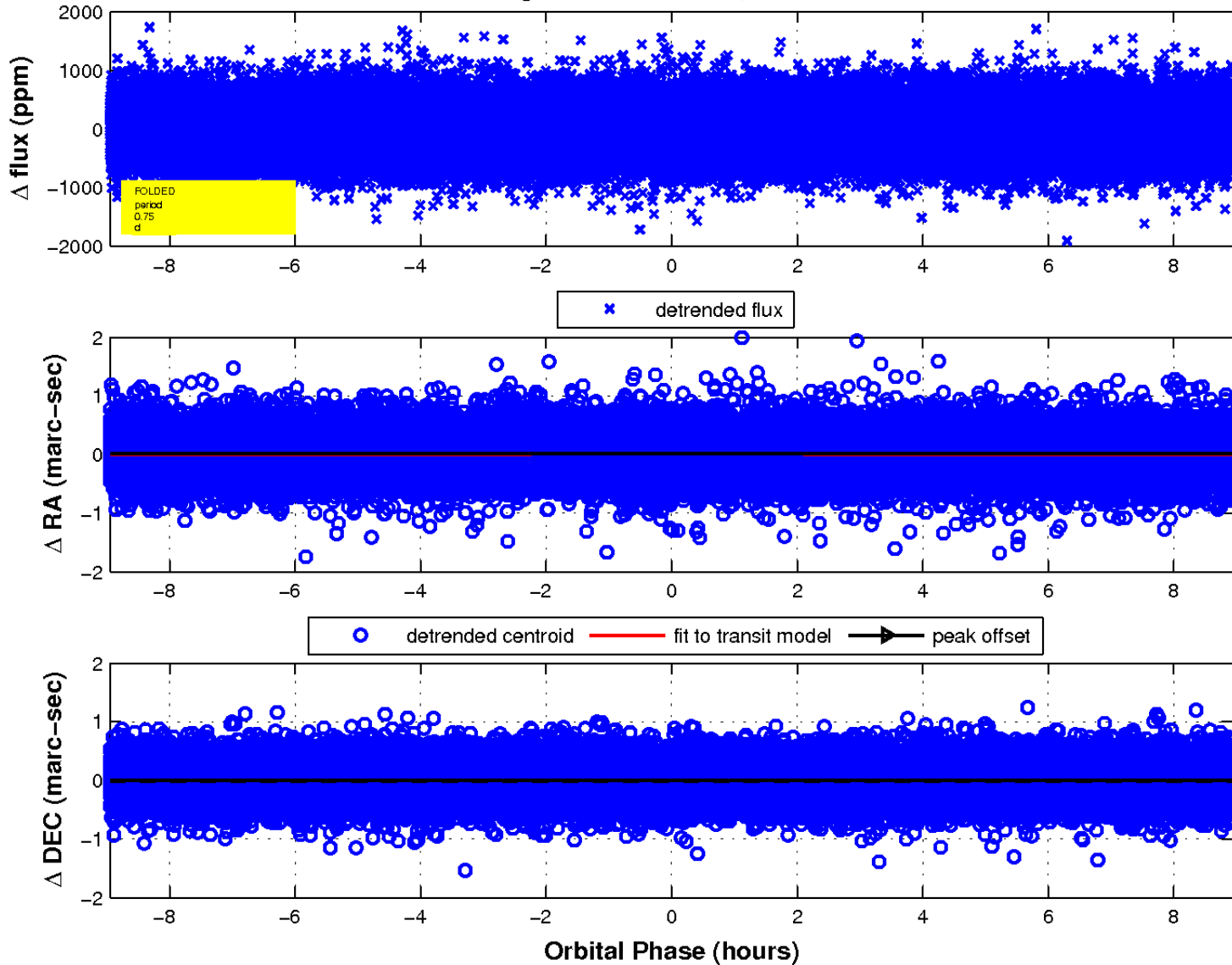
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

