

KIC 004743189

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})
004743189-01	OBS	No	0.909812	132.233634	4.2	5.144	11.3	1.6	2.26	7050	0.47	23131.17
004743189-02	OBS	No	116.827776	230.319700	380.8	4.966	8.9	7.1	2.26	7050	4.93	35.71
004743189-03	OBS	No	79.671640	135.114621	291.0	5.403	8.2	6.5	2.26	7050	4.28	59.48
004743189-04	OBS	No	126.847906	147.228063	362.3	4.338	8.4	7.2	2.26	7050	4.79	32.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004743189-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004743189-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
004743189-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004743189-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

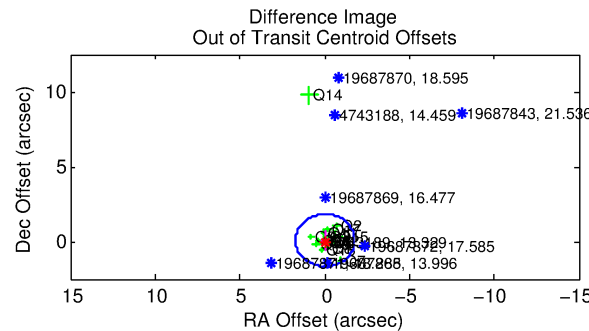
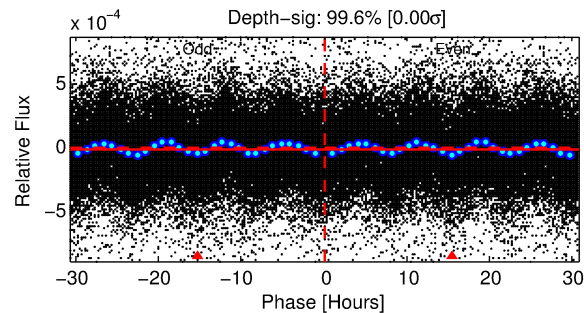
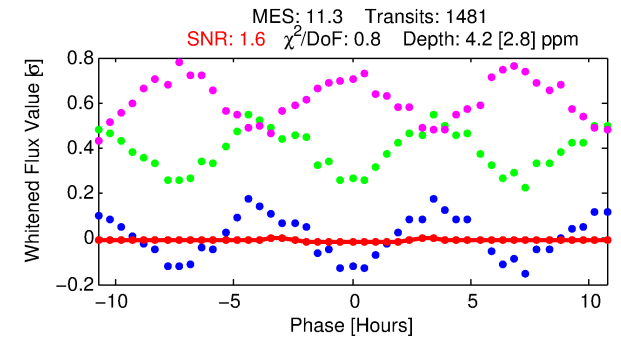
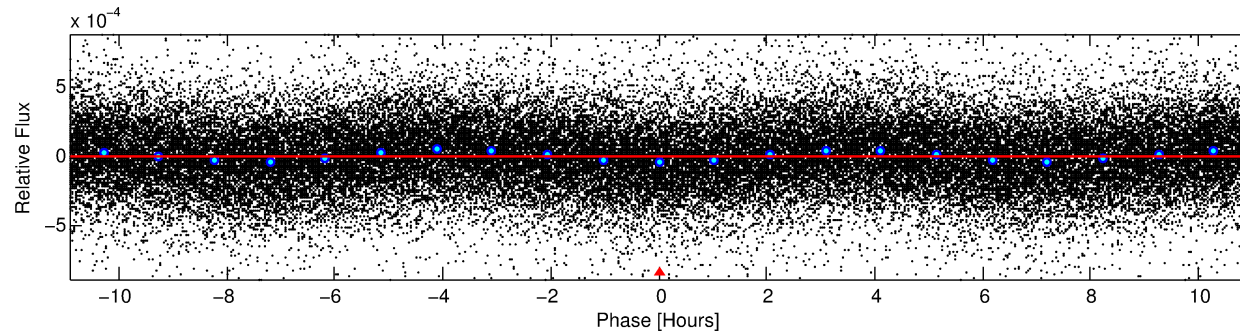
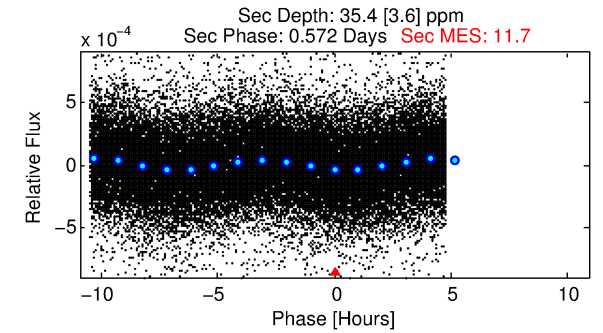
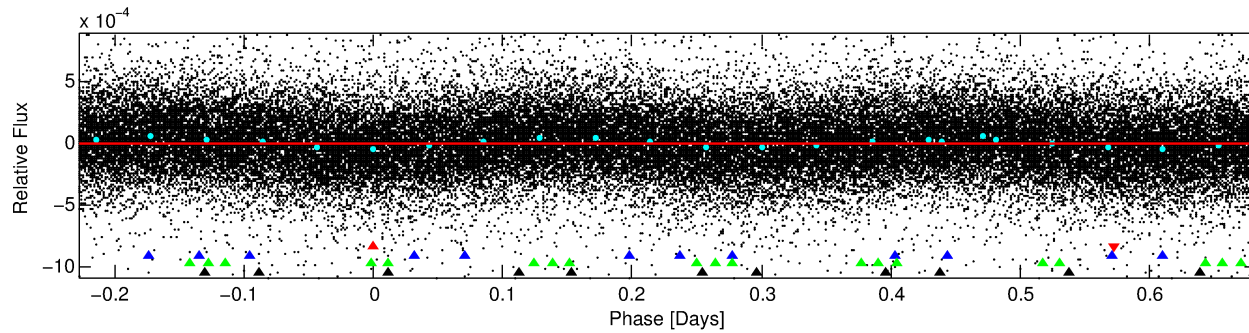
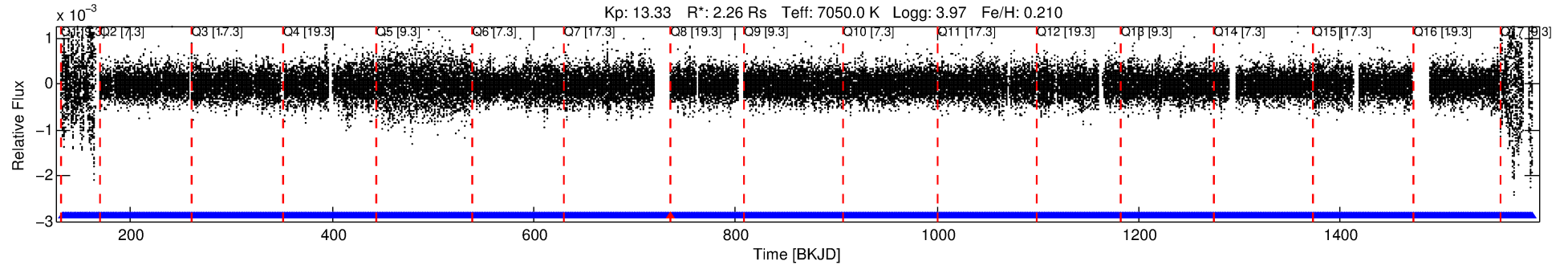
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004743189-01

No Significant Match Found

DV One-Page Summary

KIC: 4743189 Candidate: 1 of 4 Period: 0.910 d



DV Fit Results:

Period = 0.90981 [0.00008] d
Epoch = 132.2336 [0.0210] BKJD
Rp/R* = 0.0019 [0.0032]
a/R* = 1.44 [7.09]
b = 0.33 [25.98]
Seff = 23131.17 [9592.57]
Teq = 3145 [326] K
Rp = 0.47 [0.79] Re
a = 0.0221 [0.0054] AU
Ag = 42.36 [140.91] [0.29σ]
Teffp = 12404 [10264] K [0.90σ]

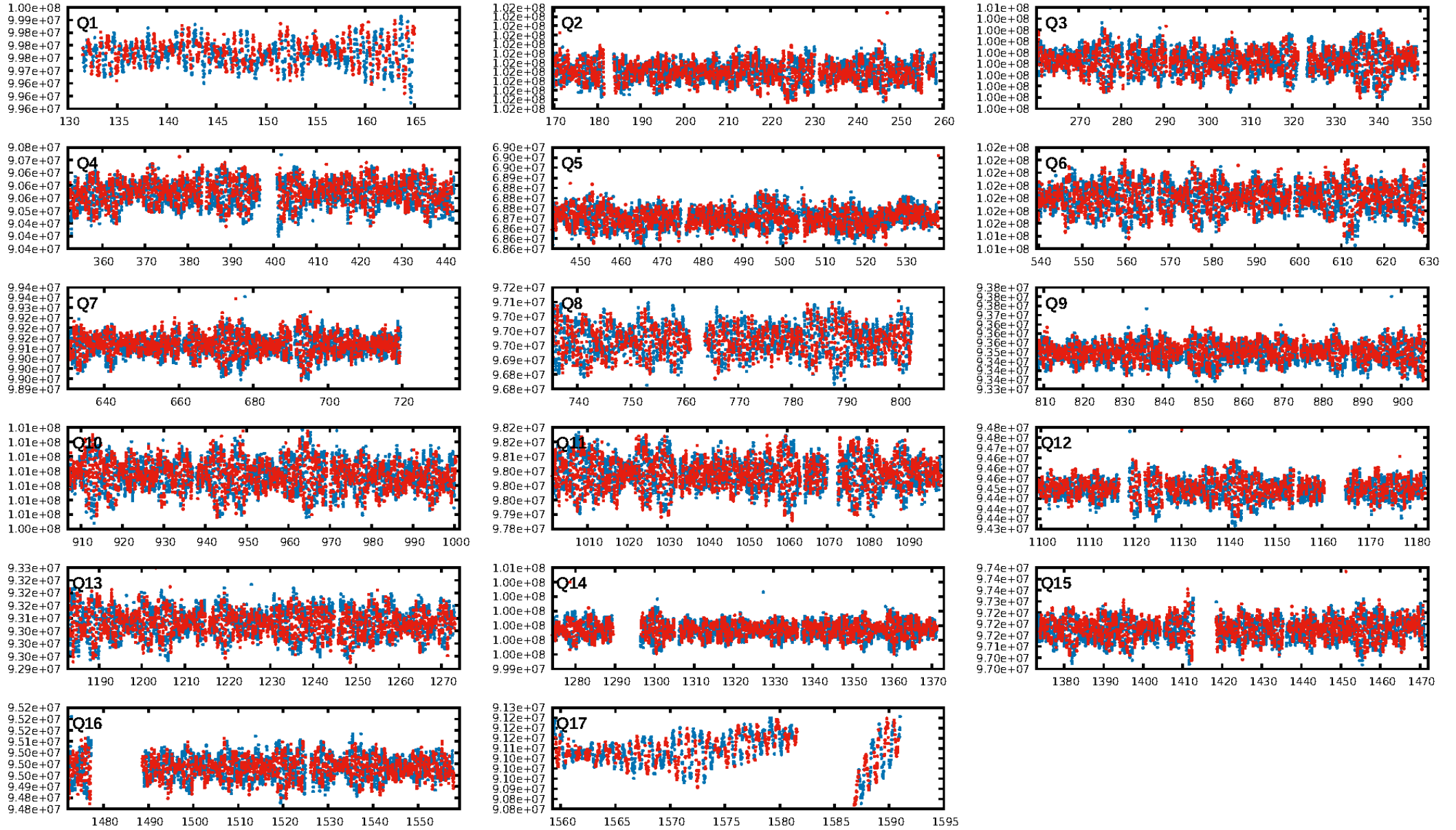
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [253.40σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.95e-19
RollingBand-fgt: 1.00 [1413/1414]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.079 arcsec [0.14σ]
KicOffset-rm: 1.235 arcsec [2.04σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 1.00 [17/17]

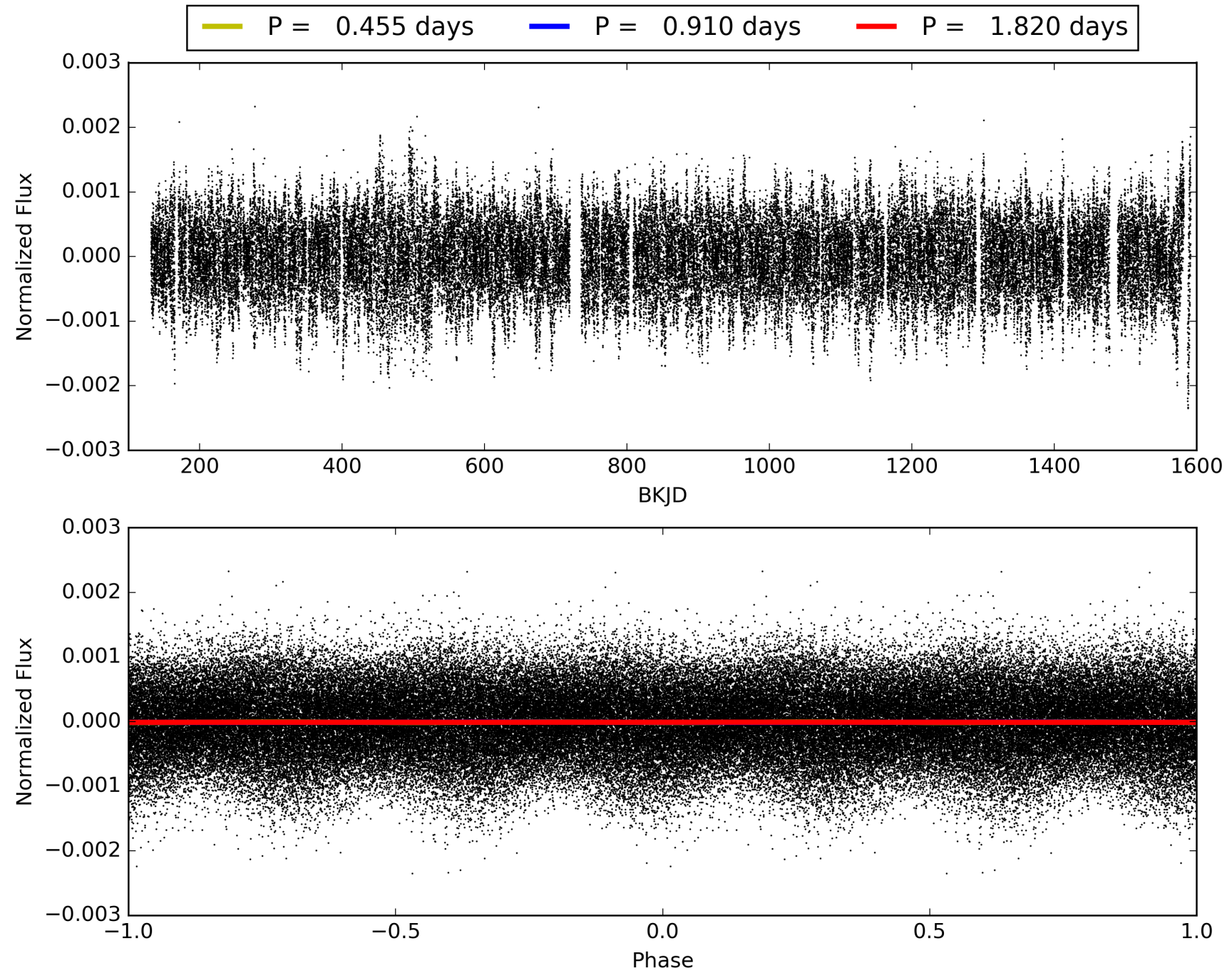
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:36:11 Z

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

TCE 004743189-01, PDC Light Curves

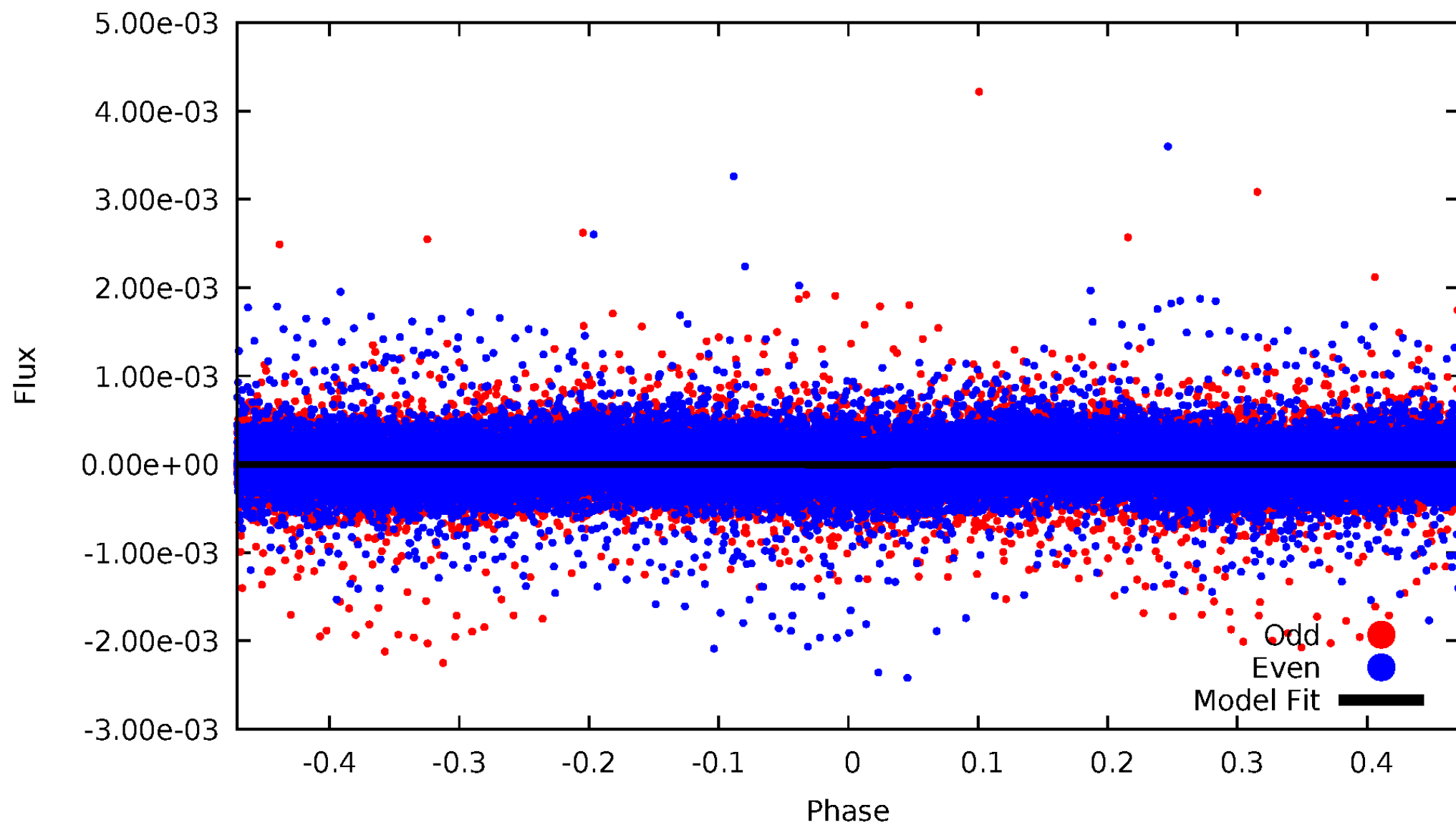


TCE 004743189-01



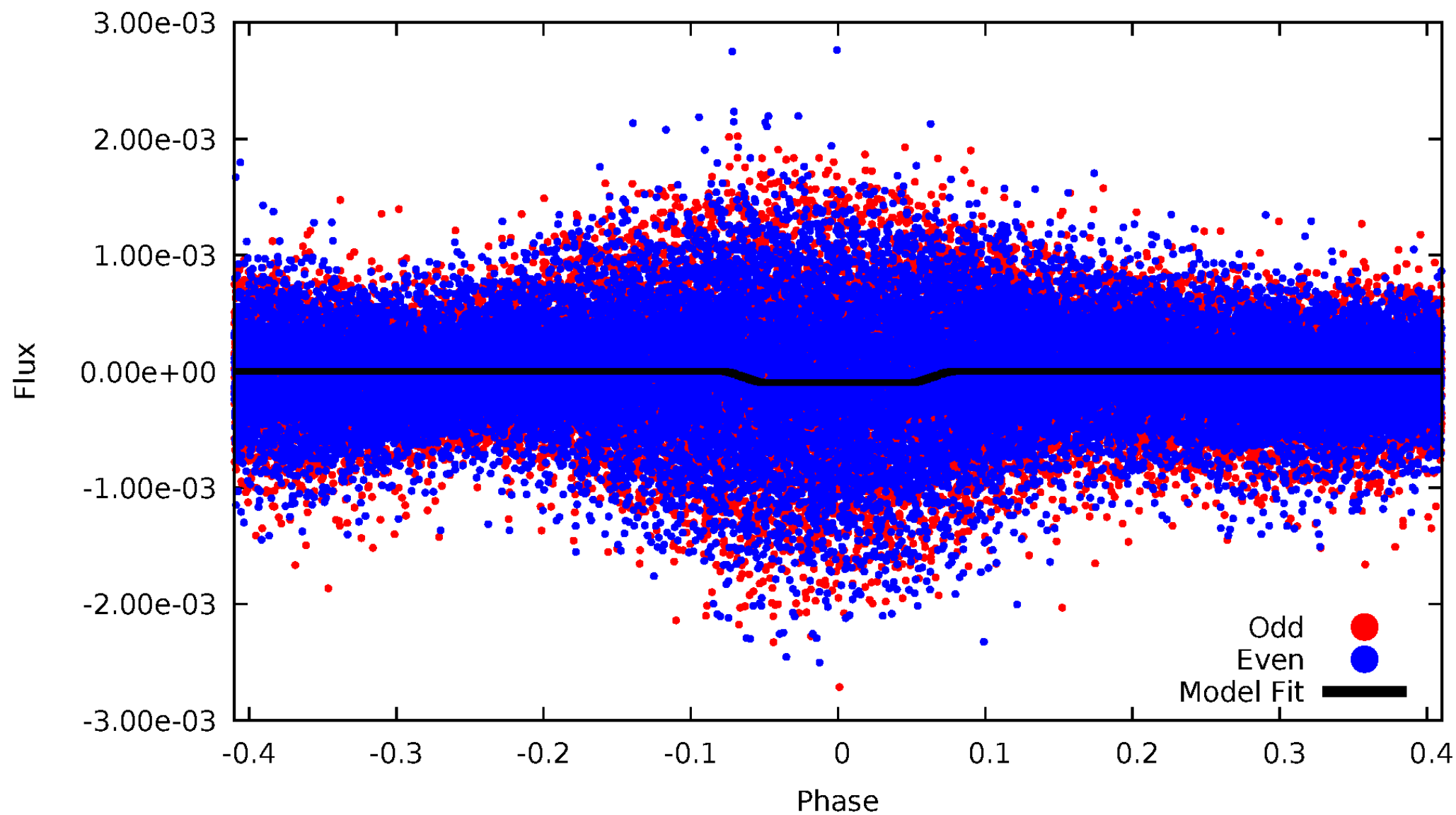
DV Odd/Even

TCE 004743189-01



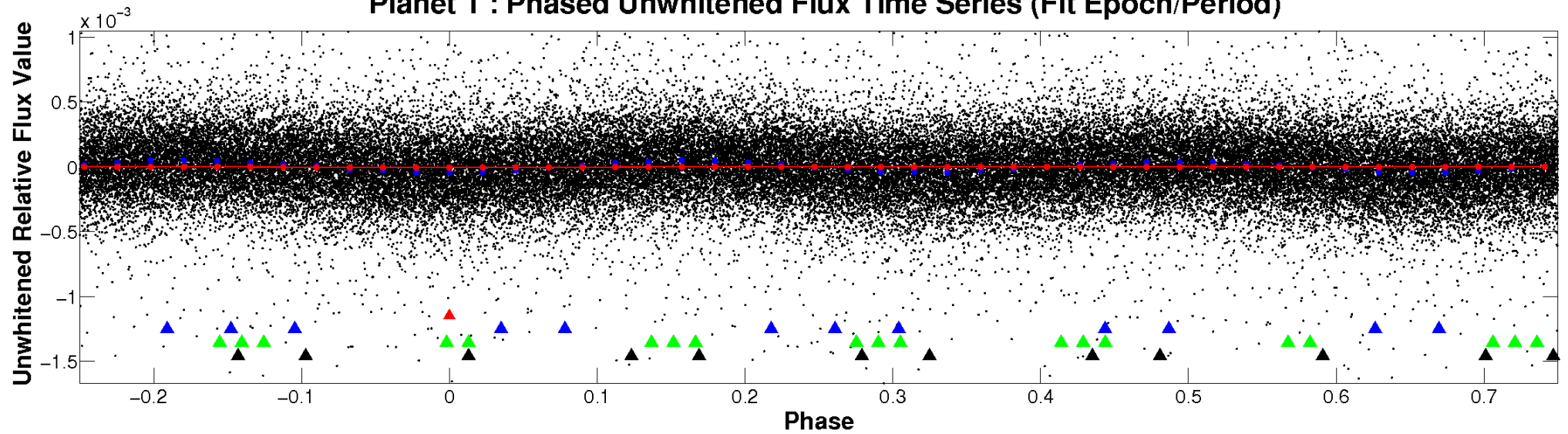
ALT Odd/Even

TCE 004743189-01

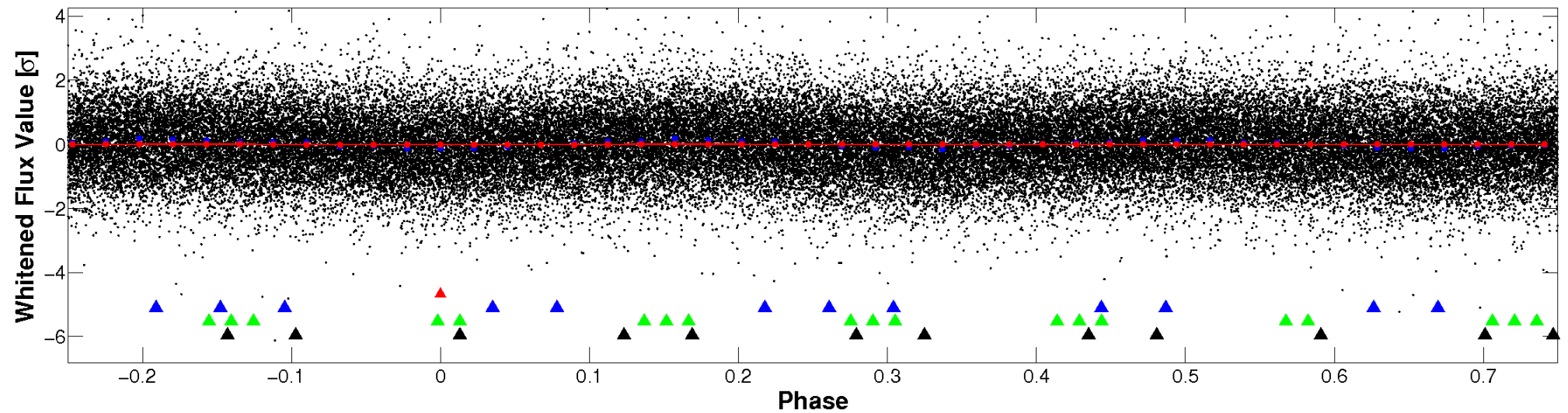


Non-Whitened Vs. Whitened Light Curve

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

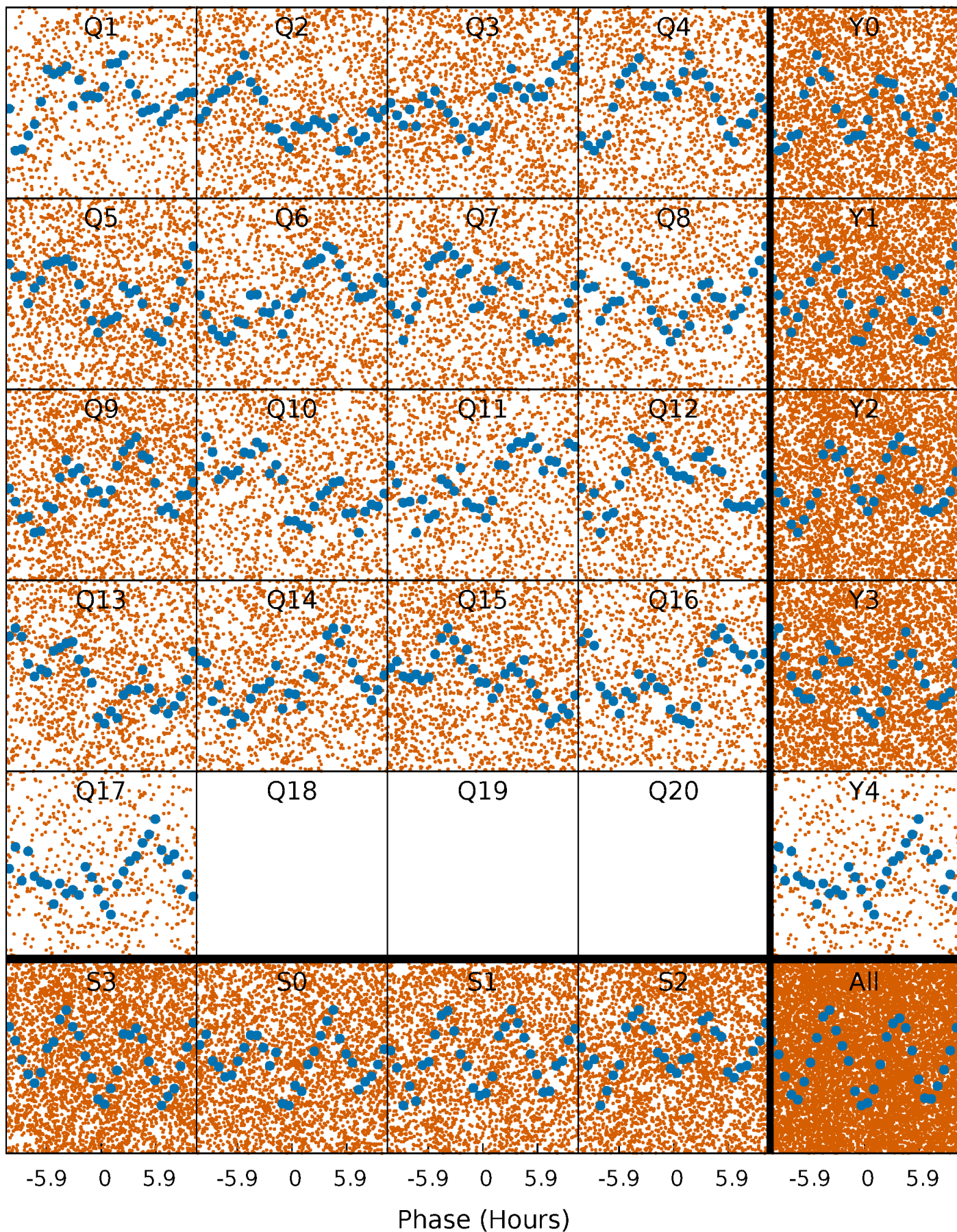


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



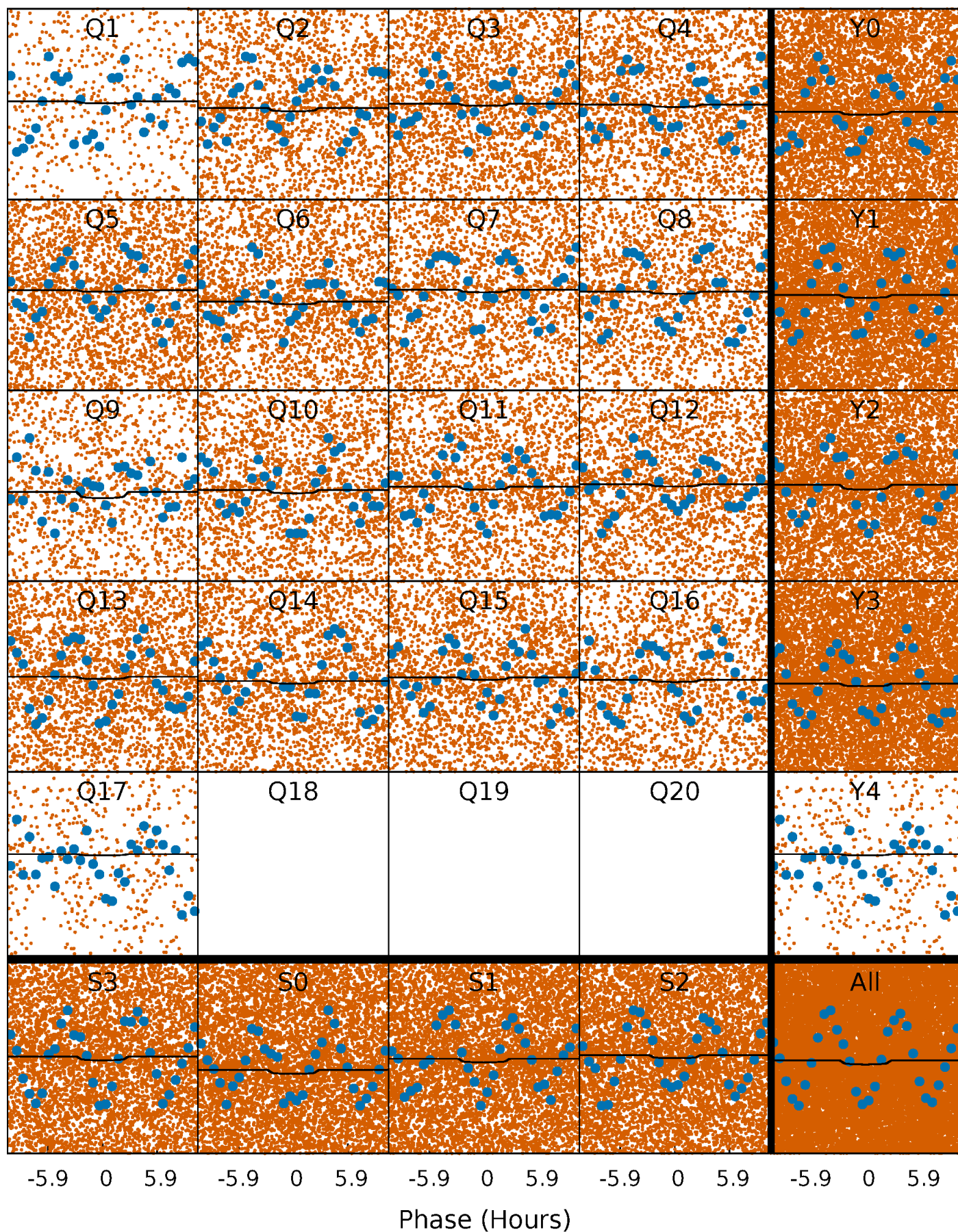
PDC Quarter-Phased Transit Curves

TCE 004743189-01 P= 0.909812 Days $T_0=132.233634$ (BKJD)



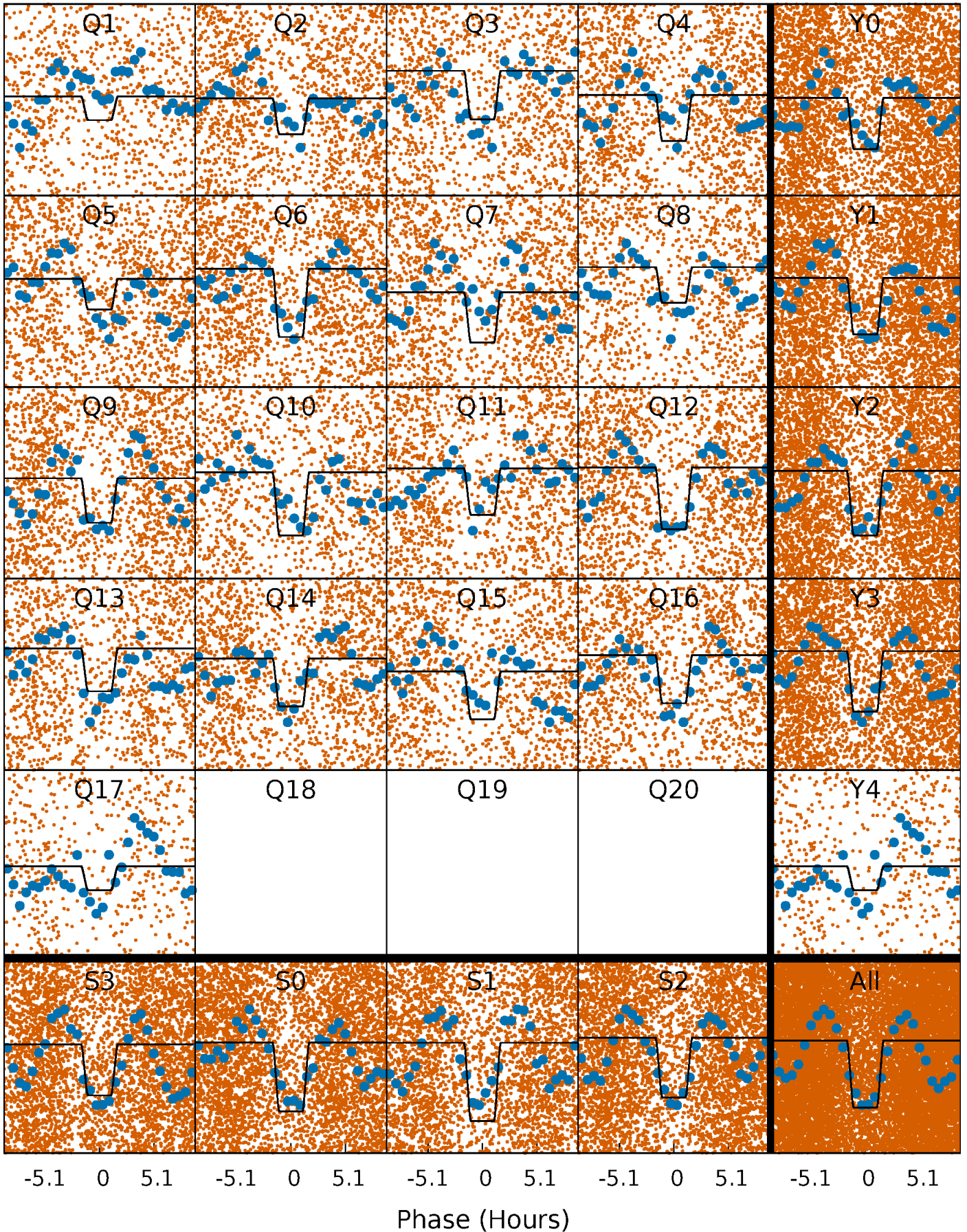
DV Quarter-Phased Transit Curves

TCE 004743189-01 P= 0.909812 Days $T_0=132.233634$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

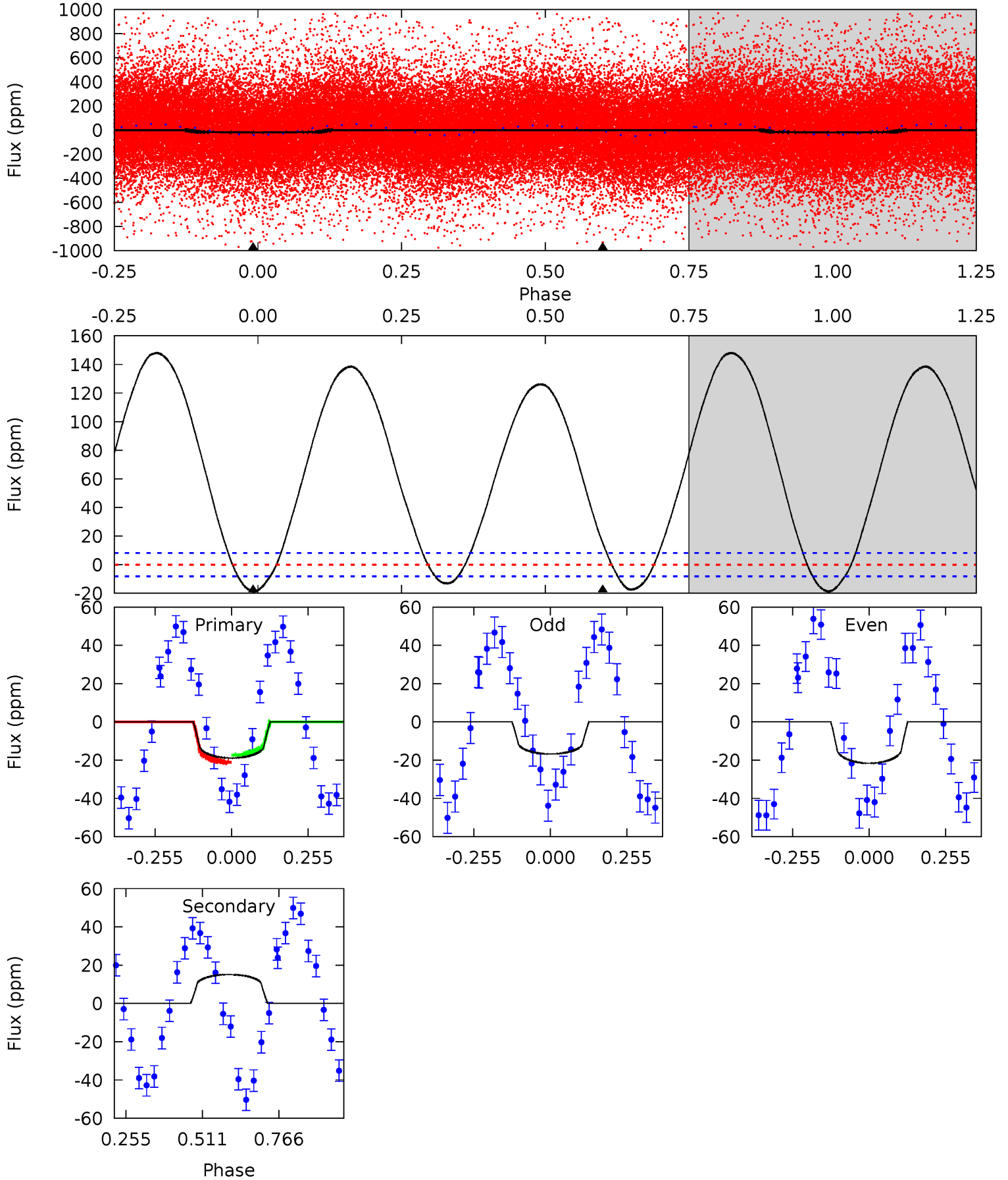
TCE 004743189-01 P= 0.909883 Days $T_0=132.175462$ (BKJD)



DV Model-Shift Uniqueness Test

004743189-01, P = 0.909812 Days, E = 131.323822 Days

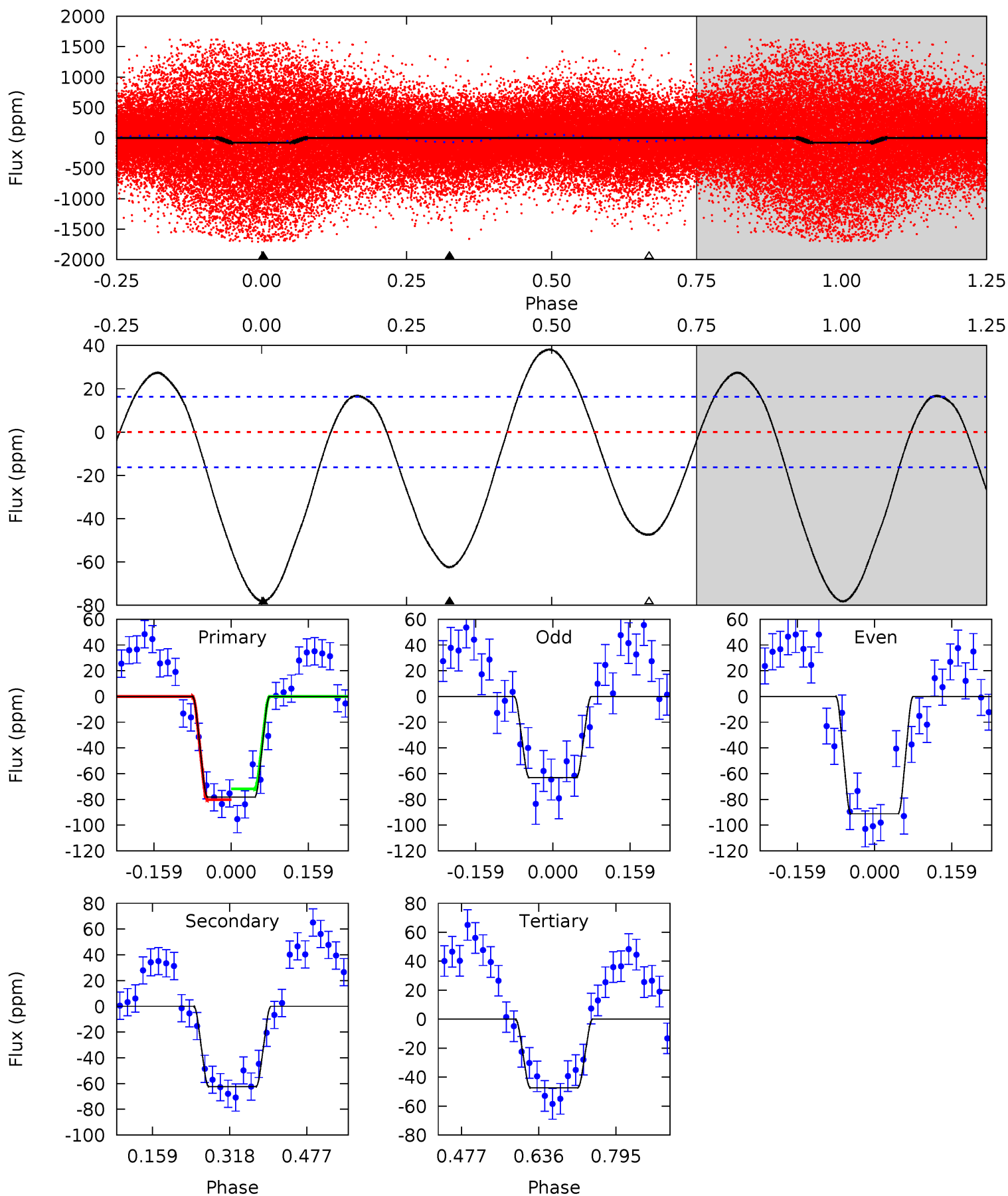
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	-8.03	0	0	4.36	1.14	11.8	10.0	10.0	-8.03	-8.03	1.29	0.96	0.89	0.99



Alt Model-Shift Uniqueness Test

004743189-01, P = 0.909883 Days, E = 131.265579 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	17.1	13.0	0	4.47	1.41	8.04	8.44	21.4	4.11	17.1	3.30	1.54	0.33	1.19



Stellar Parameters For KIC 004743189

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-307}	$3.970^{+0.214}_{-0.156}$	$0.210^{+0.150}_{-0.350}$	$2.258^{+0.622}_{-0.622}$	$1.736^{+0.172}_{-0.319}$	$0.212^{+0.301}_{-0.093}$
	+3%/-4%	+5%/-4%	+71%/-167%	+28%/-28%	+10%/-18%	+142%/-44%
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 004743189-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	15 ± 2	$0.71^{+0.62}_{-0.48}$	4339^{+304}_{-334}	-8375^{+2407}_{-13452}	$-8.140^{+5.993}_{-71.355}$
Alt.	-62 ± 4	$2.30^{+0.88}_{-0.86}$	4356^{+327}_{-358}	6142^{+1788}_{-894}	$3.108^{+4.573}_{-1.492}$

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 $A_{obs} \gg 1.0$

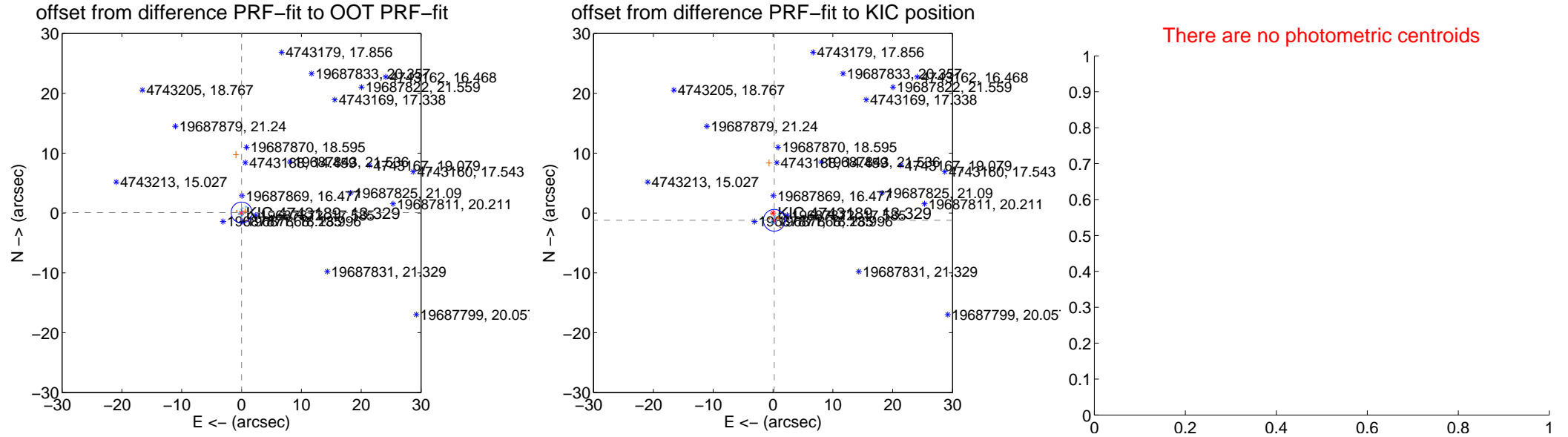
DV Centroid Data

Supplemental centroid analysis for 004743189-01. Kepler magnitude: 13.33. Transit SNR 1.57

There are 9 quarters with good PRF difference image offsets

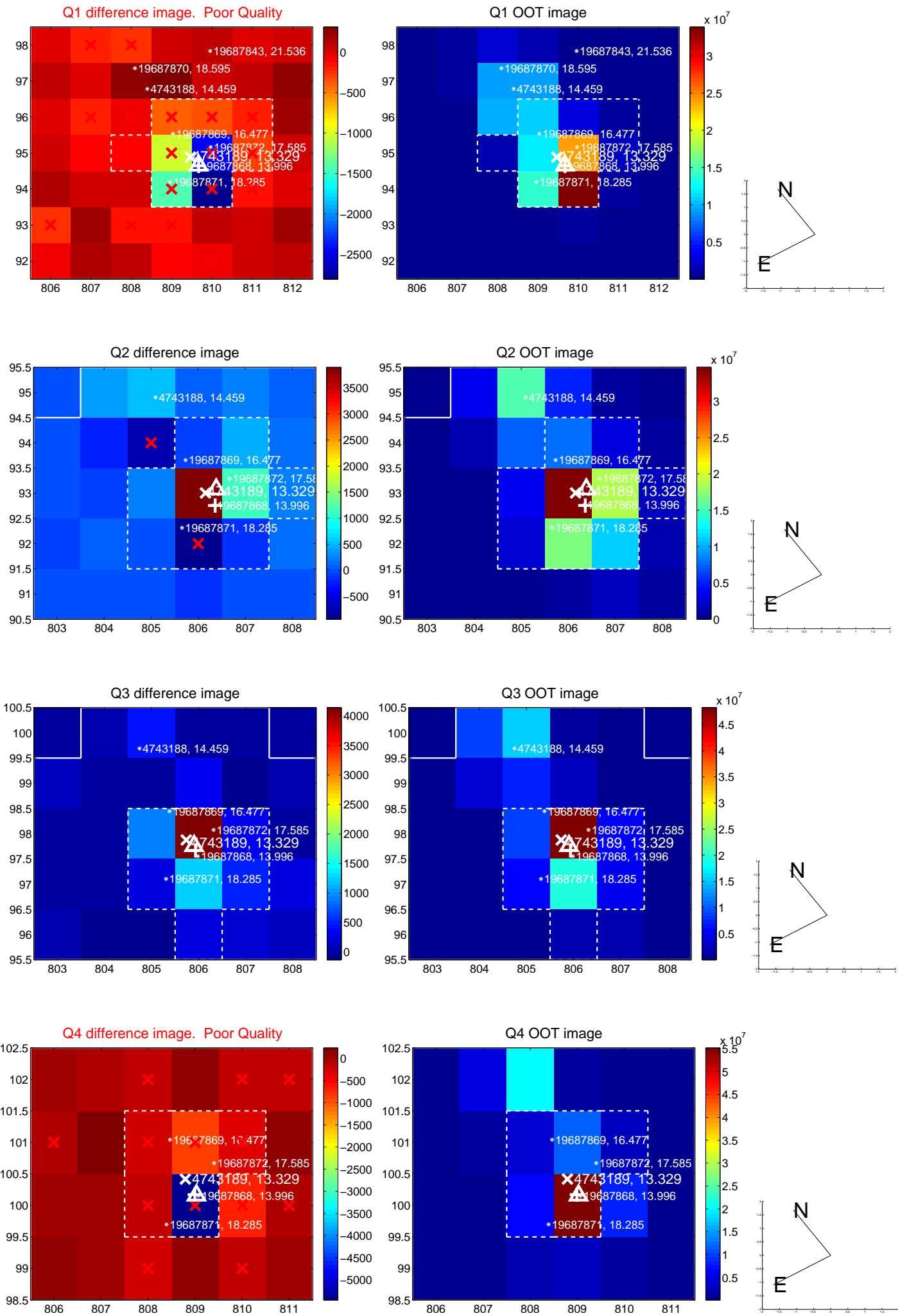
The direct PRF centroid is offset from the target star catalog position by about 1.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.079 ± 0.583	0.14	-0.010 ± 0.134	0.078 ± 0.594
PRF-fit source offset from KIC position	1.235 ± 0.606	2.04	-0.211 ± 0.130	-1.217 ± 0.606
photometric centroid source offset	—	—	—	—

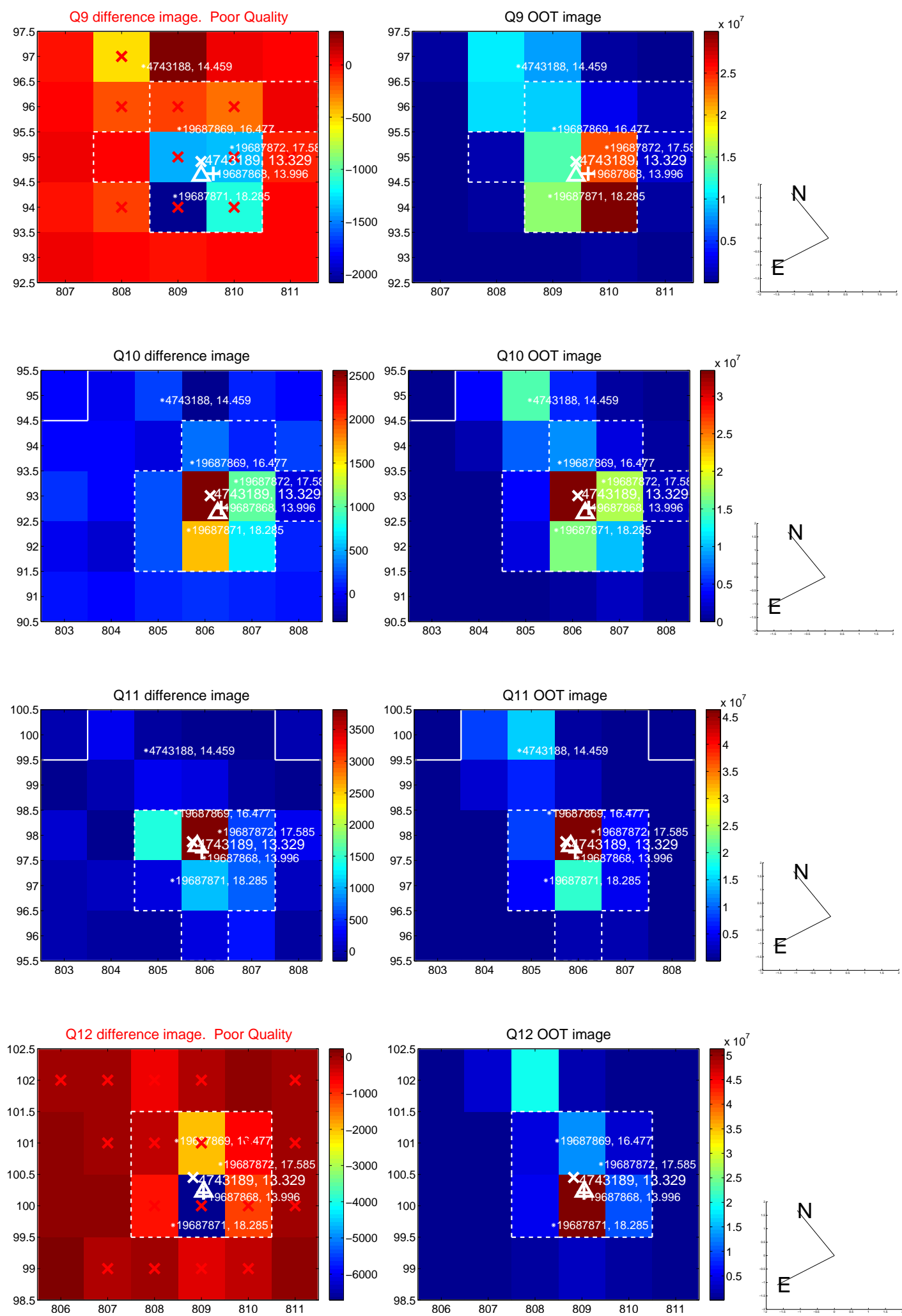


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

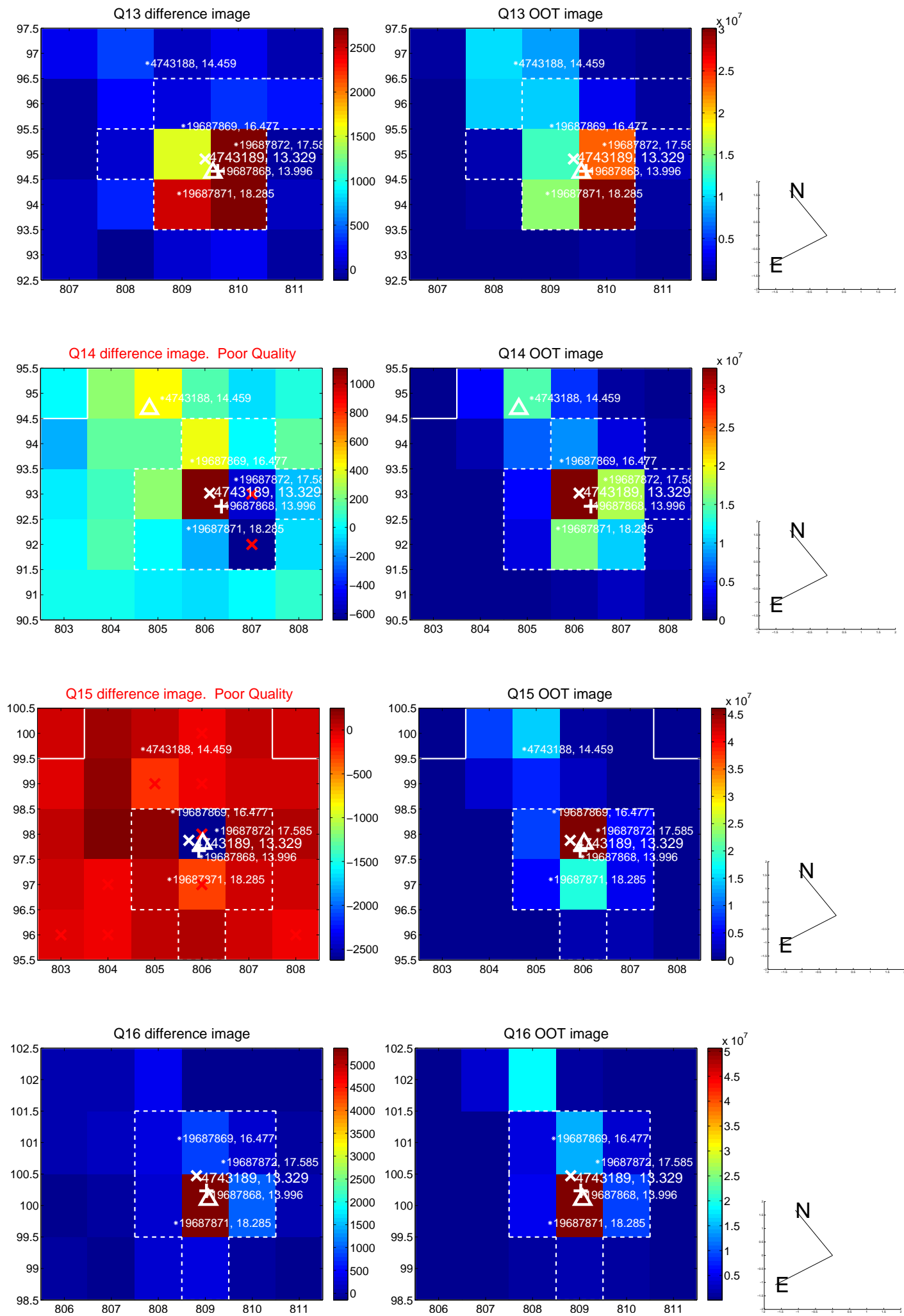
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



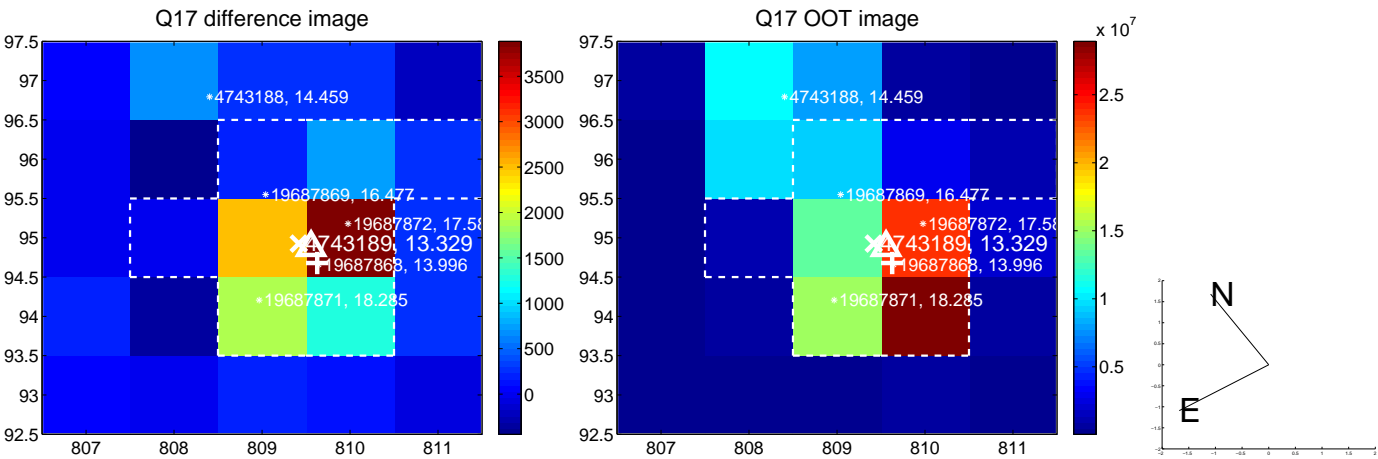
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



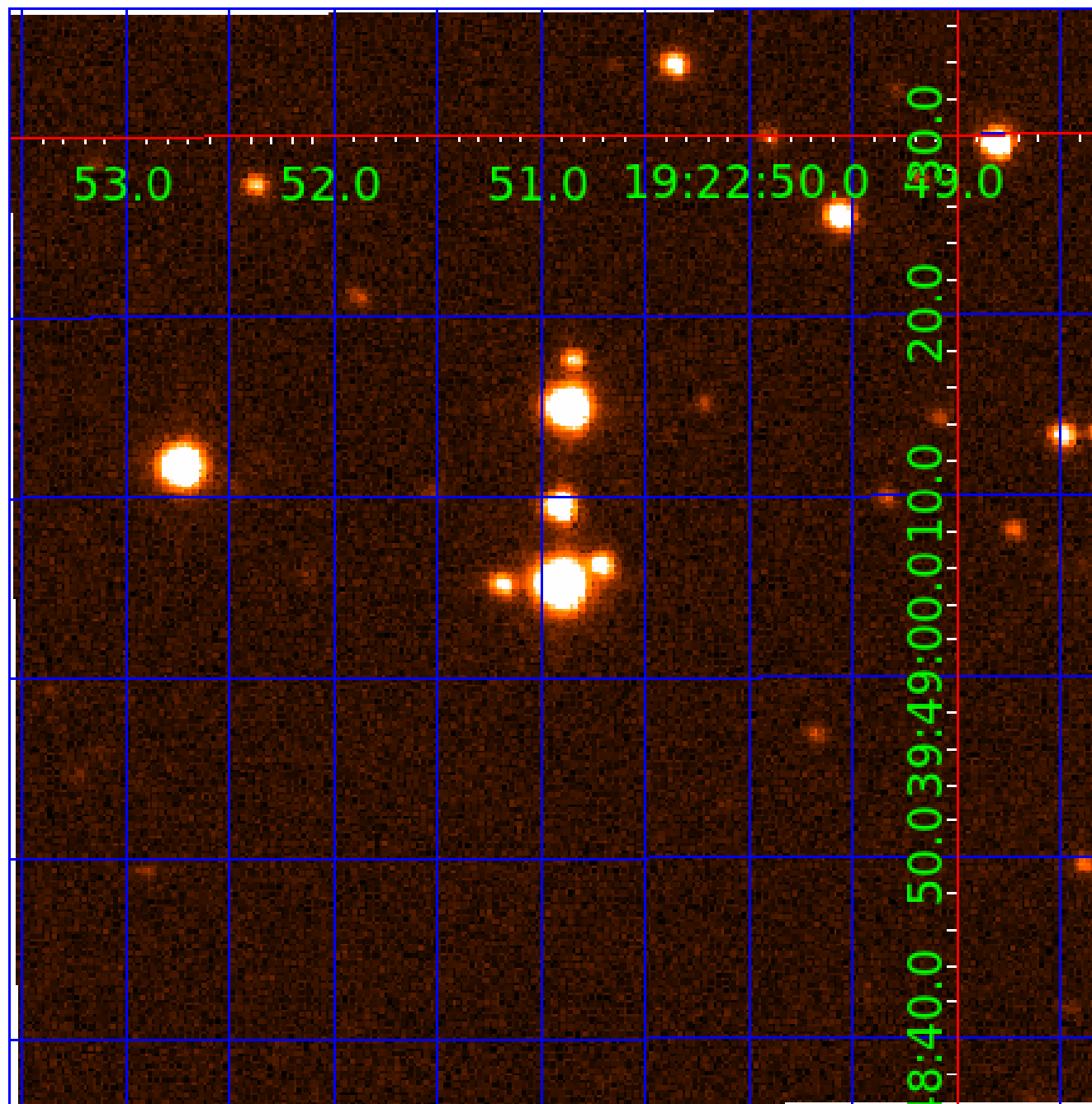
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 004743189

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})
004743189-01	OBS	No	0.909812	132.233634	4.2	5.144	11.3	1.6	2.26	7050	0.47	23131.17
004743189-02	OBS	No	116.827776	230.319700	380.8	4.966	8.9	7.1	2.26	7050	4.93	35.71
004743189-03	OBS	No	79.671640	135.114621	291.0	5.403	8.2	6.5	2.26	7050	4.28	59.48
004743189-04	OBS	No	126.847906	147.228063	362.3	4.338	8.4	7.2	2.26	7050	4.79	32.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004743189-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004743189-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
004743189-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004743189-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

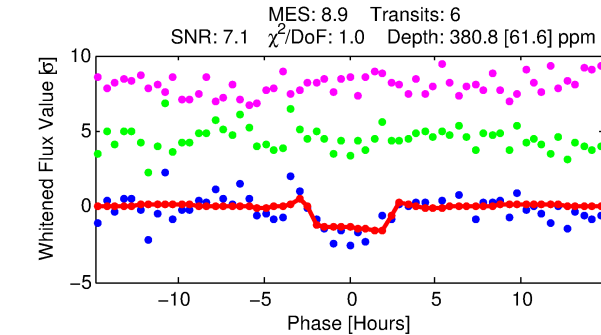
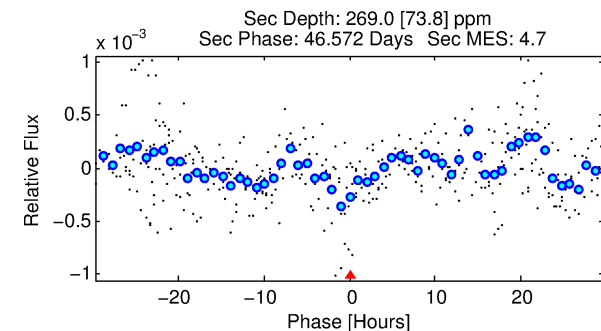
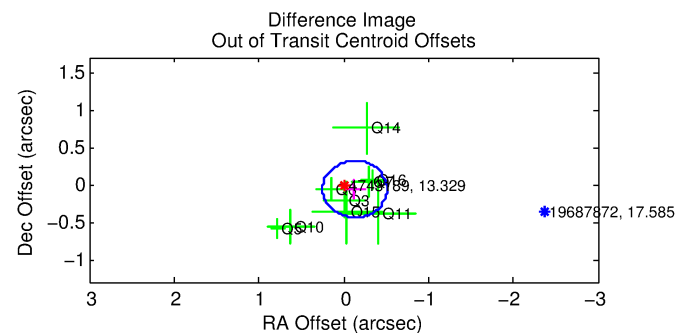
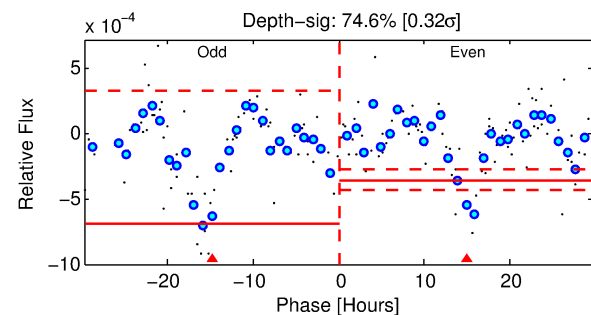
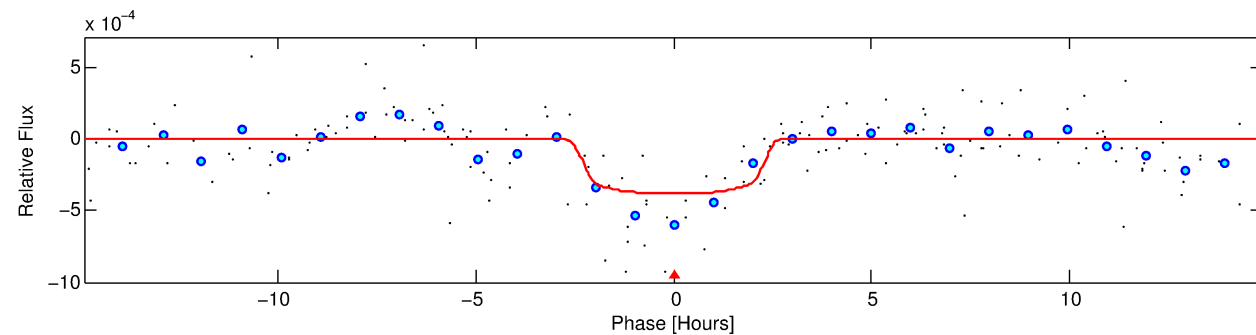
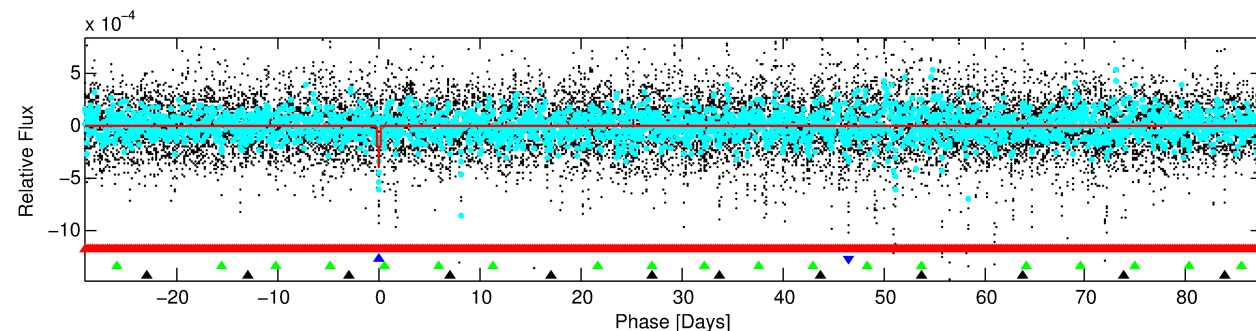
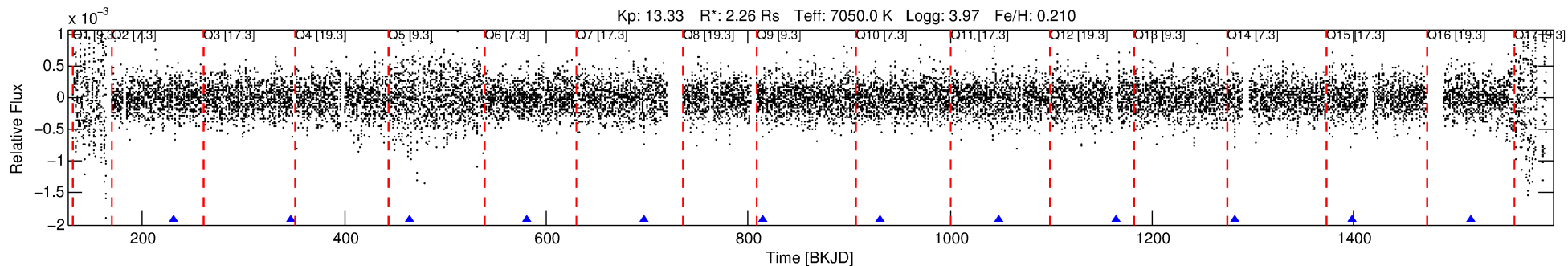
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004743189-02

No Significant Match Found

DV One-Page Summary

KIC: 4743189 Candidate: 2 of 4 Period: 116.828 d



DV Fit Results:

Period = 116.82778 [0.00180] d
Epoch = 230.3197 [0.0142] BKJD
Rp/R* = 0.0200 [0.0103]
a/R* = 105.31 [324.53]
b = 0.83 [1.12]
Seff = 35.71 [14.81]
Teff = 623 [65] K
Rp = 4.93 [2.87] Re
a = 0.5622 [0.1385] AU
Ag = 1924.29 [2168.81] [0.89 σ]
Teffp = 6383 [1718] K [3.35 σ]

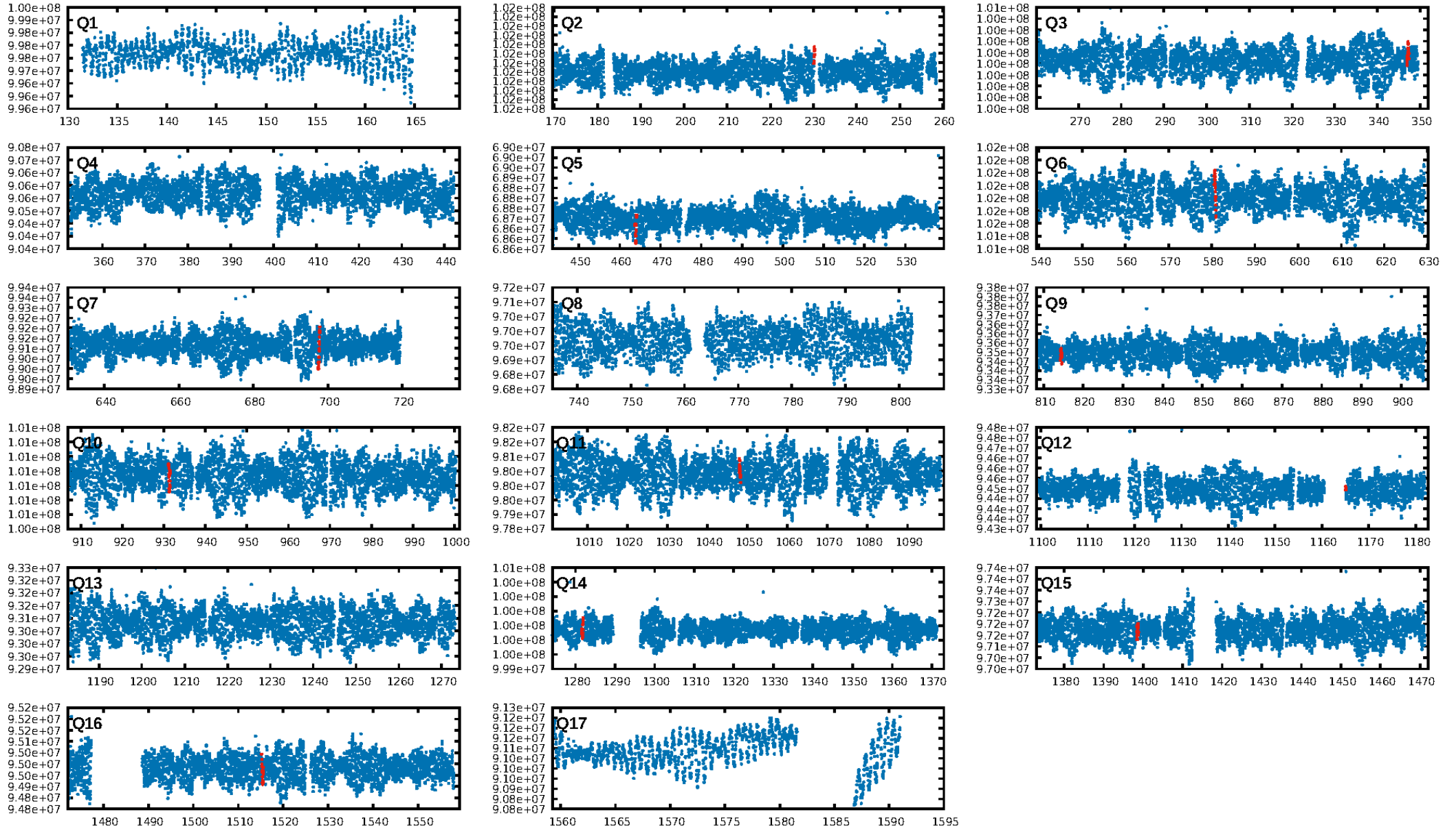
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.52 σ]
LongPeriod-sig: 100.0% [36.47 σ]
ModelChiSquare2-sig: 7.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.61e-10
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.07103
Centroid-sig: 34.2%
Centroid-so: 0.623 arcsec [1.39 σ]
OotOffset-rm: 0.144 arcsec [1.14 σ]
OotOffset-st: 3/4/1/1 [9]
KicOffset-rm: 1.306 arcsec [11.17 σ]
KicOffset-st: 3/4/1/1 [9]
DiffImageQuality-fgm: 0.67 [6/9]
DiffImageOverlap-fno: 0.00 [0/10]

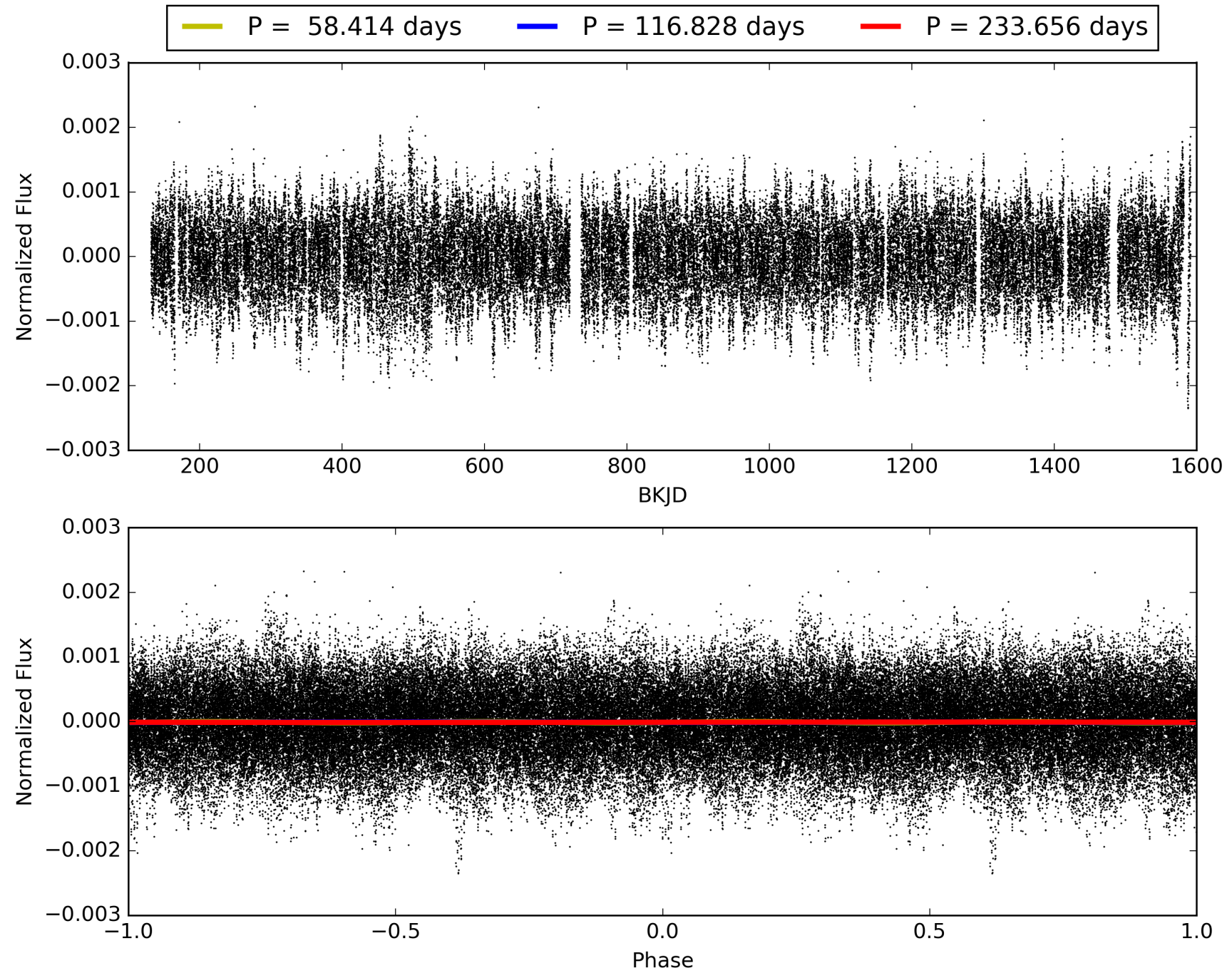
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:36:22 Z

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

TCE 004743189-02, PDC Light Curves

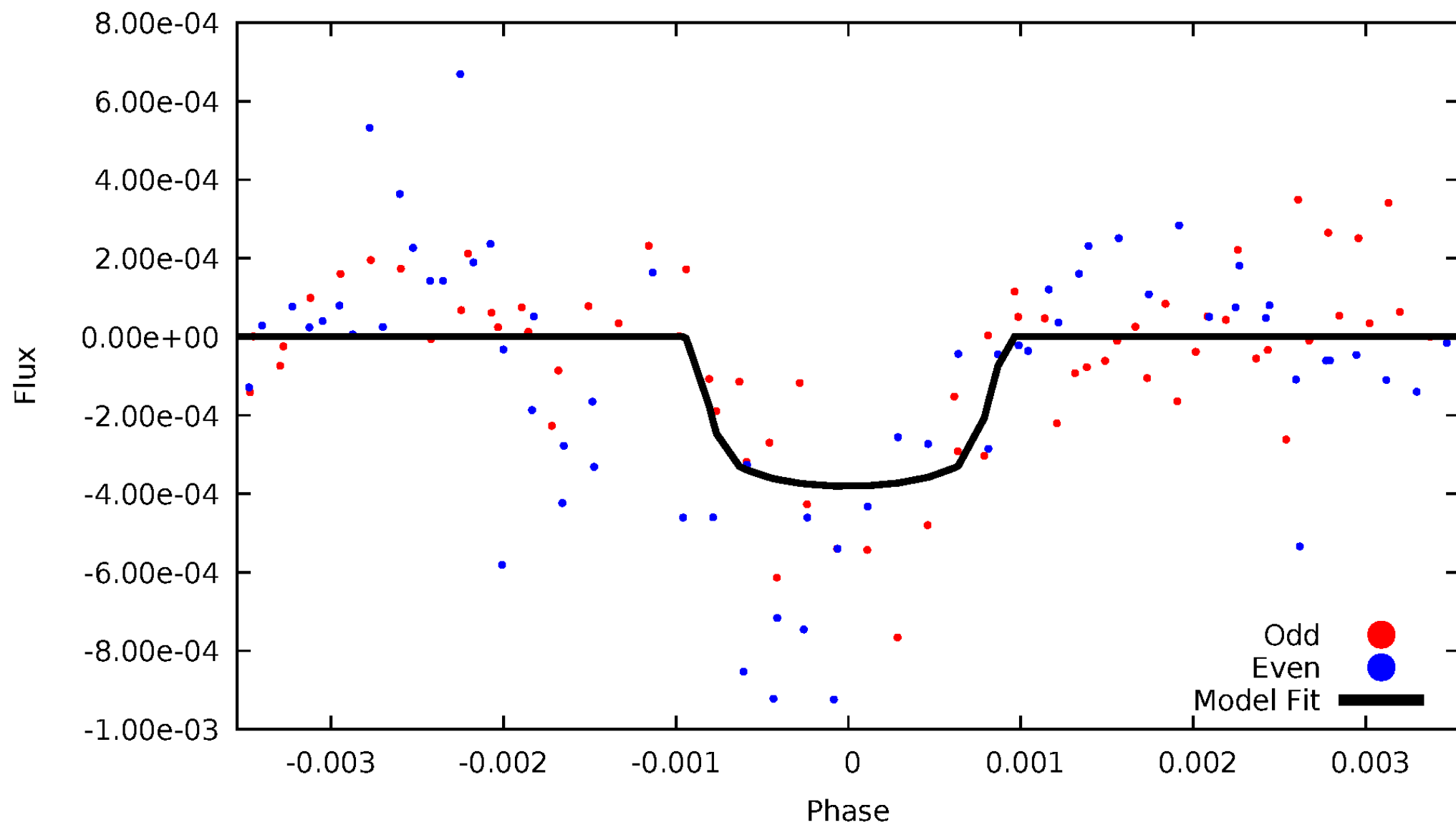


TCE 004743189-02



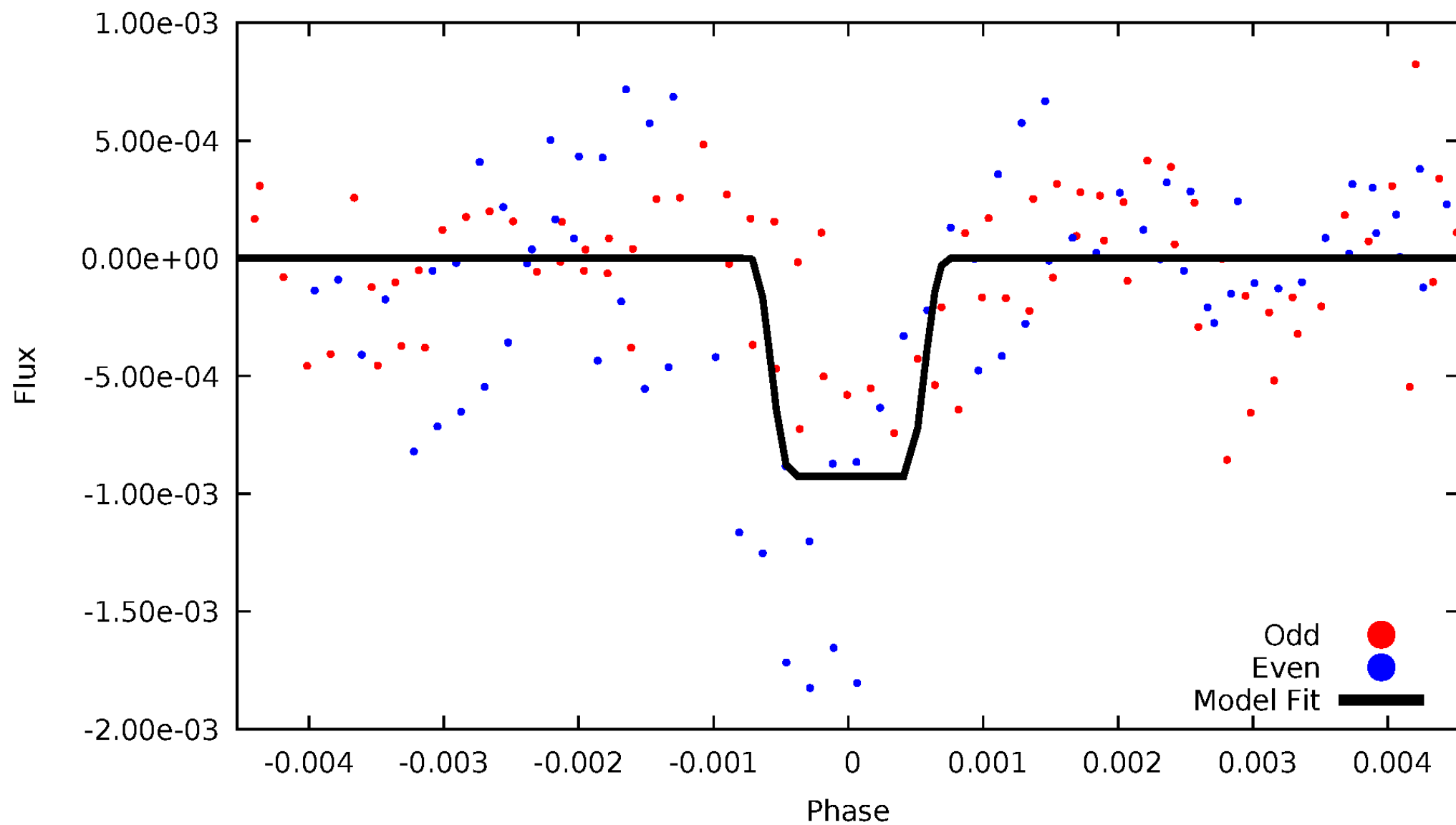
DV Odd/Even

TCE 004743189-02



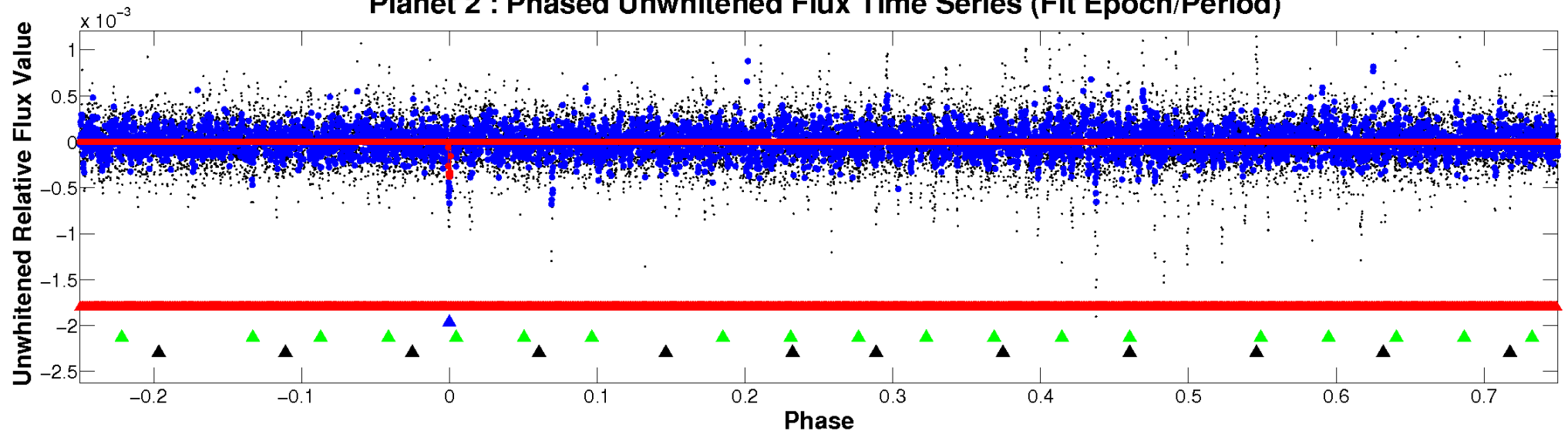
ALT Odd/Even

TCE 004743189-02

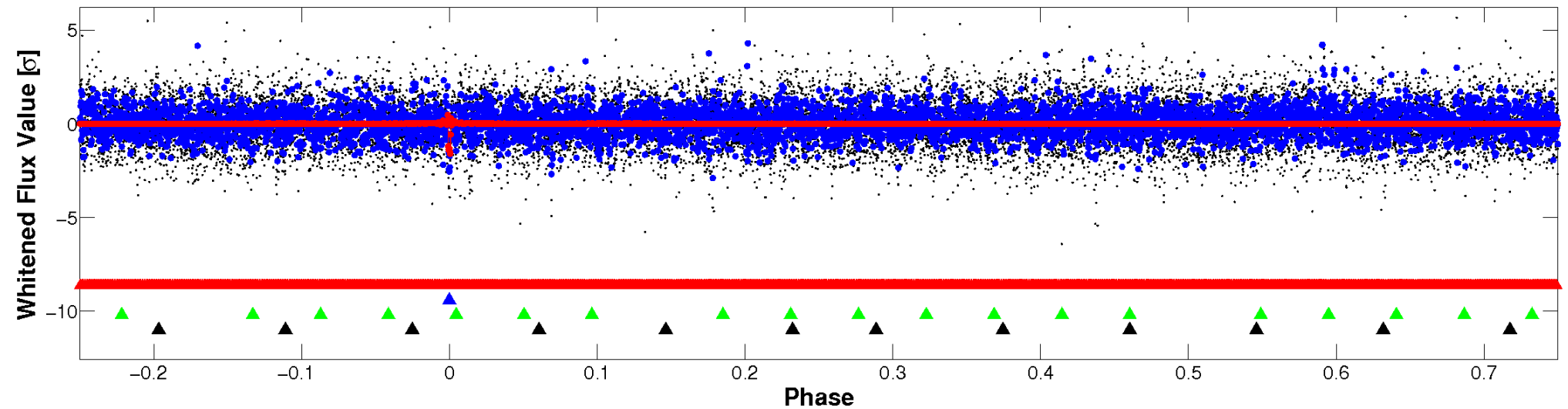


Non-Whitened Vs. Whitened Light Curve

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

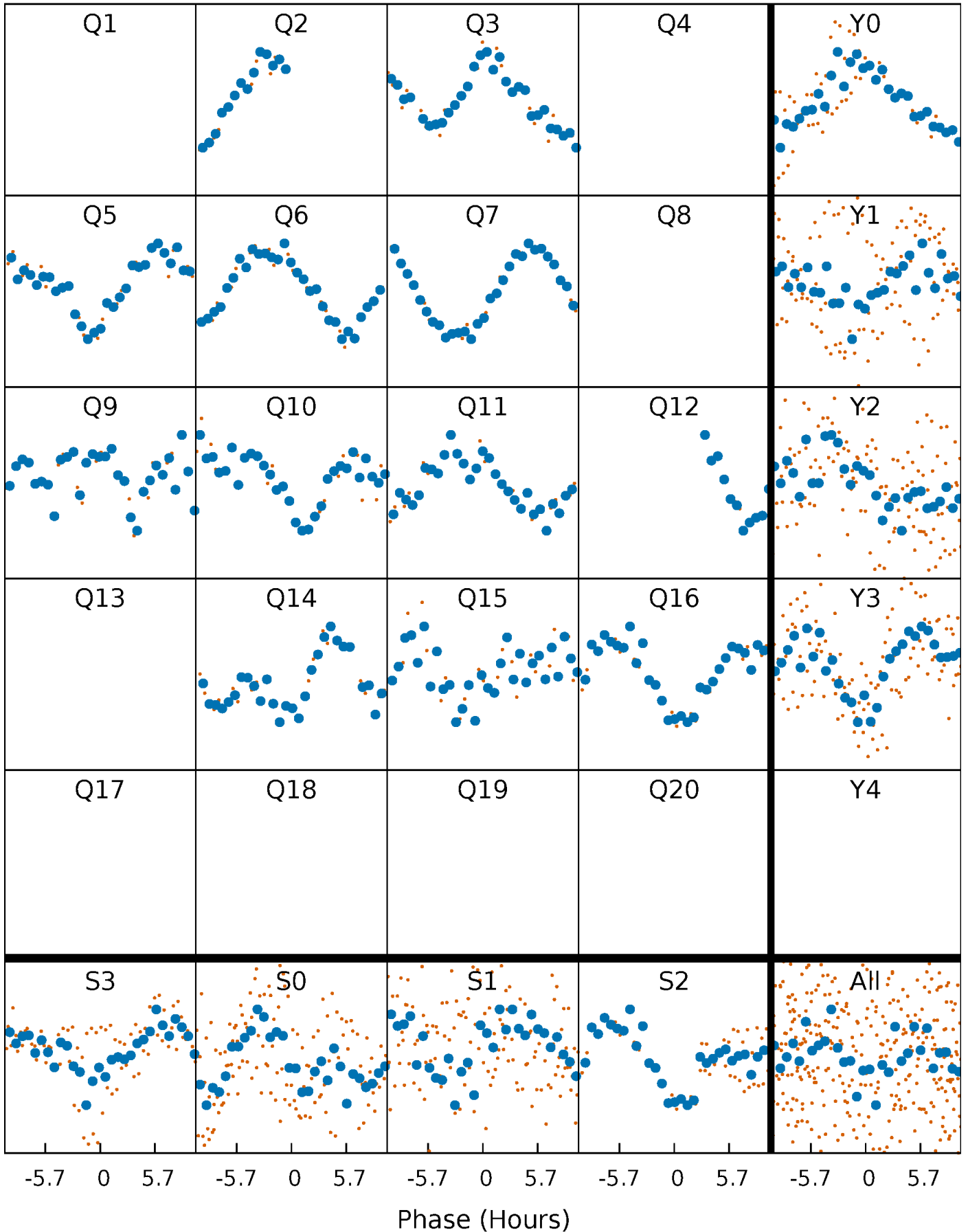


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



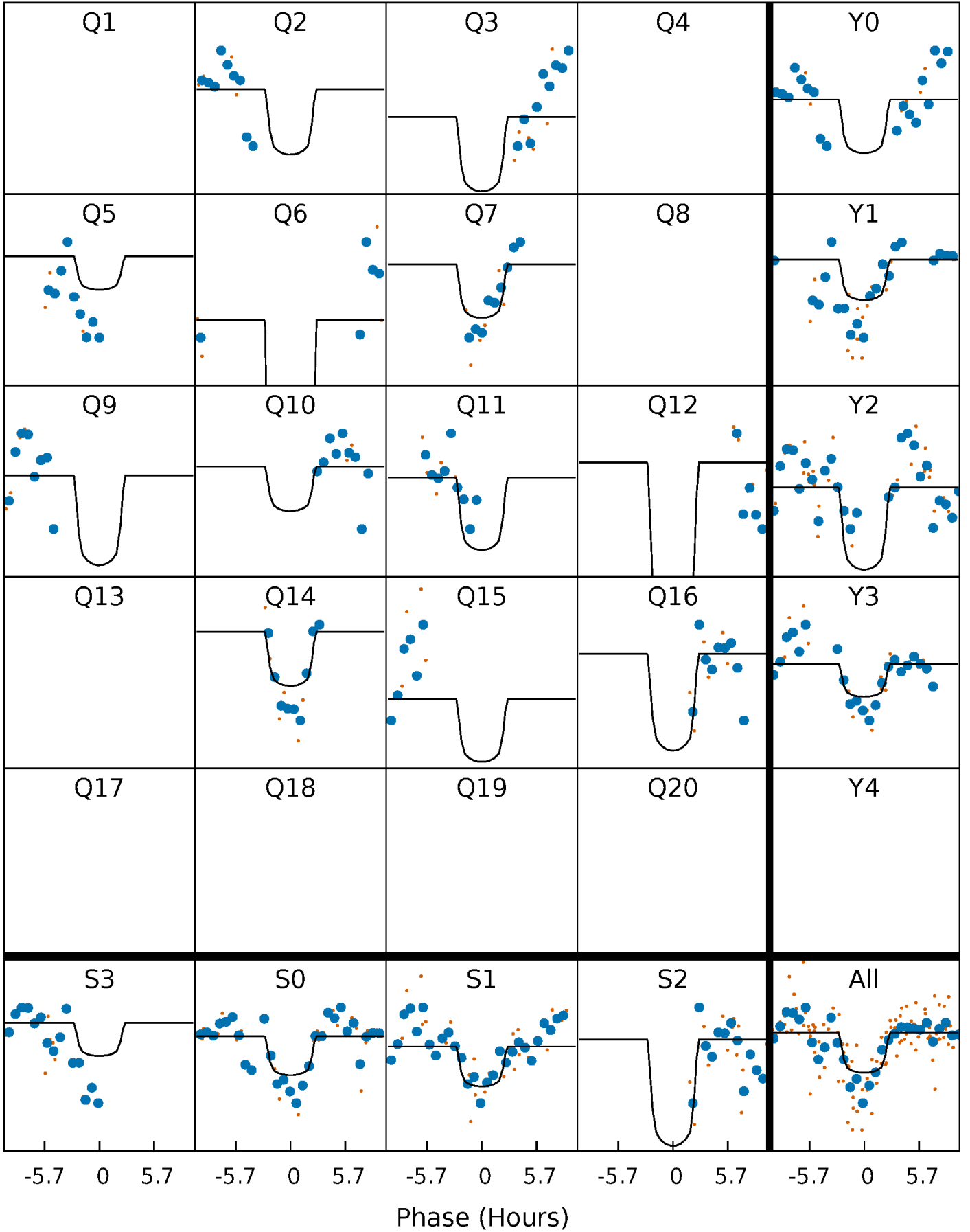
PDC Quarter-Phased Transit Curves

TCE 004743189-02 $P=116.827776$ Days $T_0=230.319700$ (BKJD)



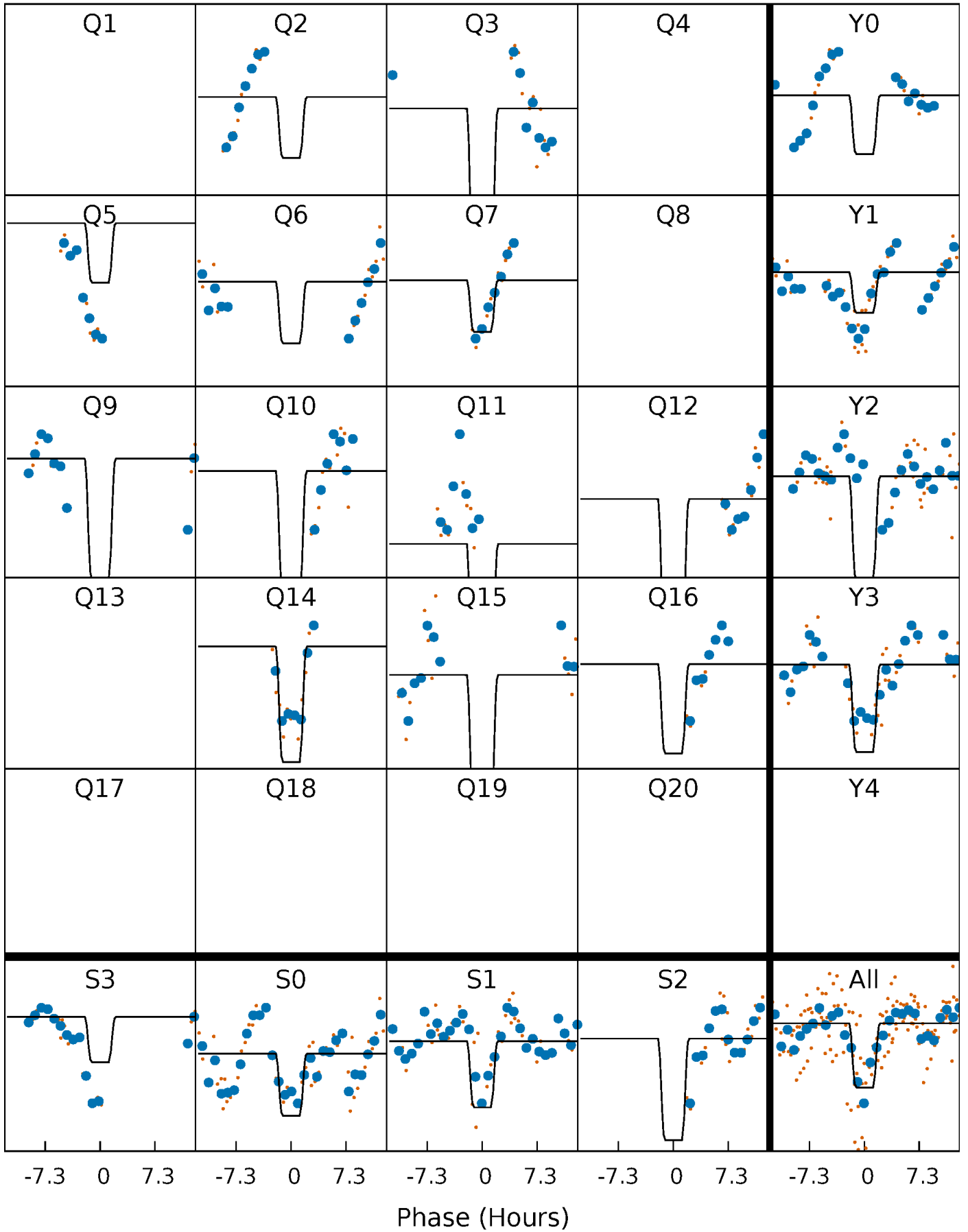
DV Quarter-Phased Transit Curves

TCE 004743189-02 P=116.827776 Days $T_0=230.319700$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

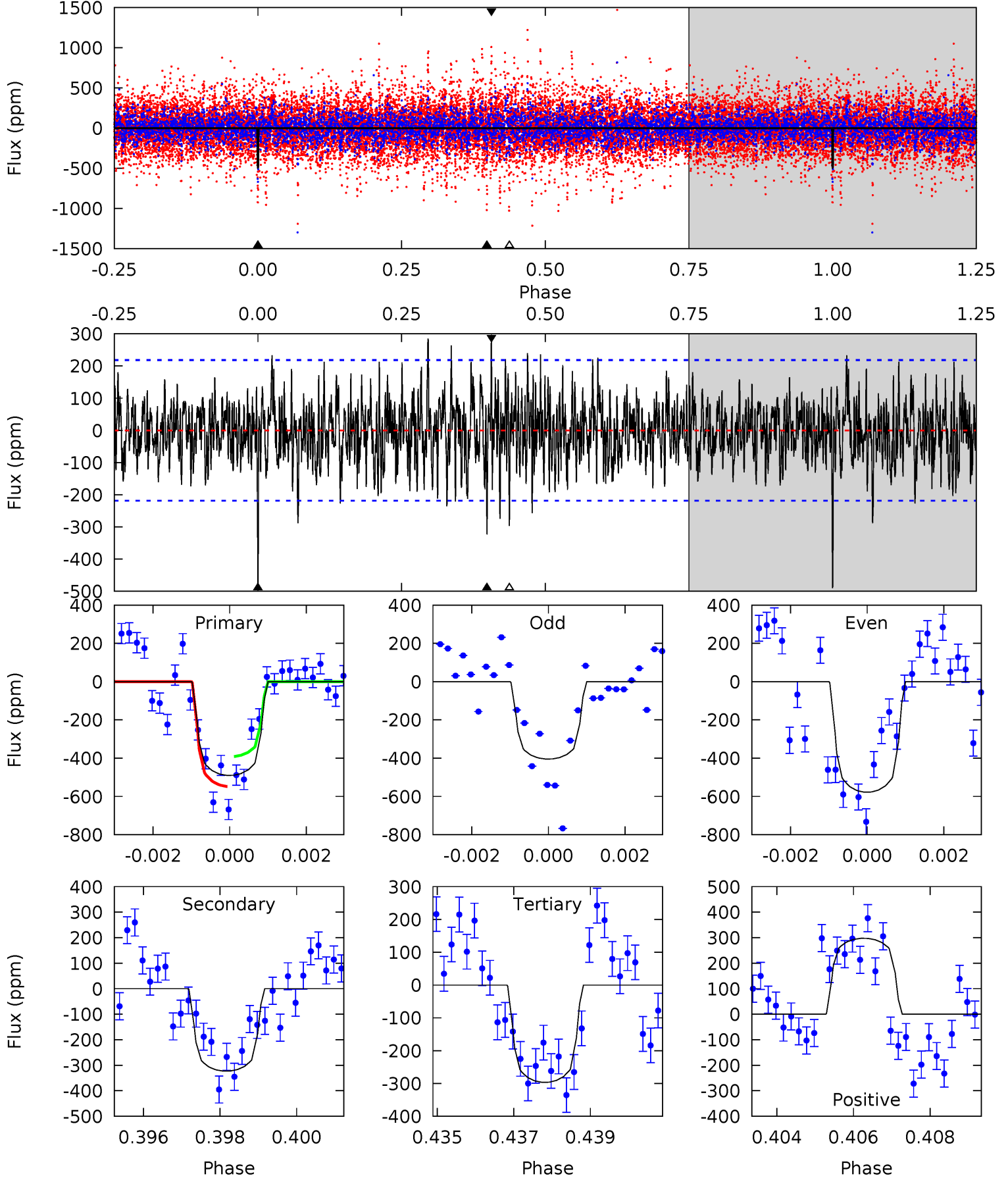
TCE 004743189-02 P=116.829347 Days $T_0=230.299120$ (BKJD)



DV Model-Shift Uniqueness Test

004743189-02, P = 116.827776 Days, E = 113.491924 Days

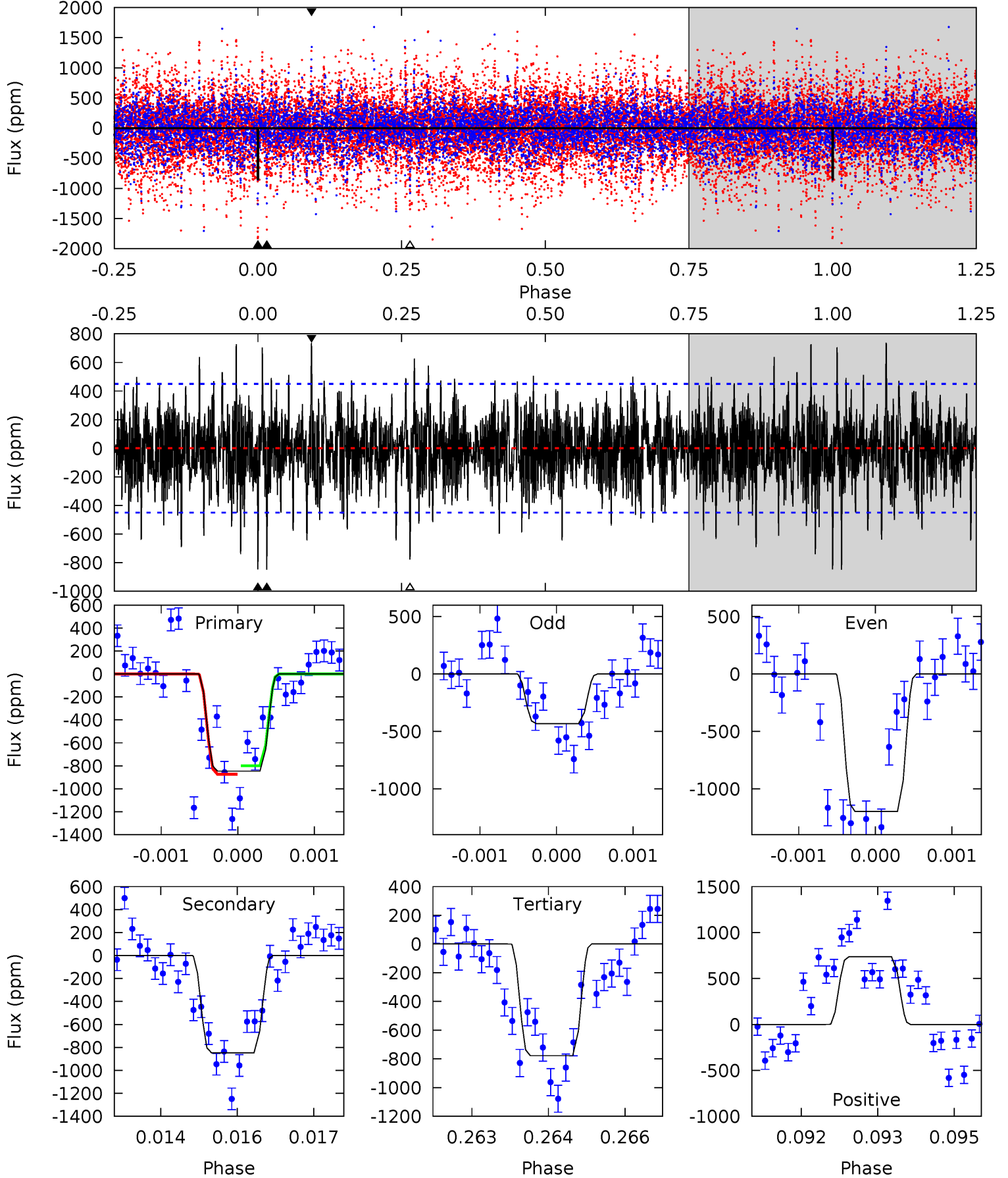
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	7.88	7.24	7.26	5.33	3.10	2.01	4.72	4.70	0.64	0.62	2.08	1.10	0.38	1.89



Alt Model-Shift Uniqueness Test

004743189-02, P = 116.829347 Days, E = 113.469773 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	10.2	9.32	8.84	5.39	3.19	2.45	0.82	1.30	0.84	1.32	4.58	1.11	0.47	0.43



Stellar Parameters For KIC 004743189

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-307}	$3.970^{+0.214}_{-0.156}$	$0.210^{+0.150}_{-0.350}$	$2.258^{+0.622}_{-0.622}$	$1.736^{+0.172}_{-0.319}$	$0.212^{+0.301}_{-0.093}$
	+3%/-4%	+5%/-4%	+71%/-167%	+28%/-28%	+10%/-18%	+142%/-44%
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 004743189-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-323 ± 41	$4.77^{+2.72}_{-2.30}$	865^{+65}_{-68}	6634^{+3306}_{-1255}	2416^{+6419}_{-1437}
Alt.	-848 ± 83	$7.26^{+3.06}_{-2.45}$	862^{+59}_{-68}	6810^{+1705}_{-1004}	2760^{+3447}_{-1375}

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 $A_{obs} \gg 1.0$

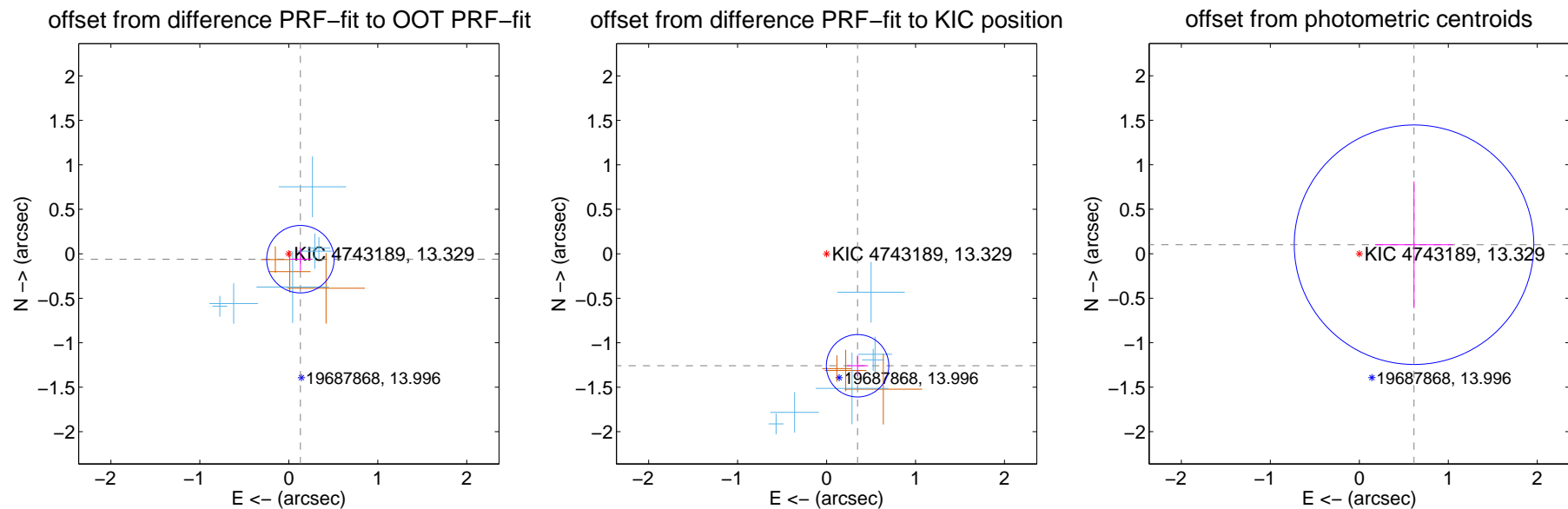
DV Centroid Data

Supplemental centroid analysis for 004743189-02. Kepler magnitude: 13.33. Transit SNR 7.10

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.144 ± 0.126	1.14	-0.130 ± 0.125	-0.061 ± 0.131
PRF-fit source offset from KIC position	1.306 ± 0.117	11.17	-0.349 ± 0.118	-1.259 ± 0.117
photometric centroid source offset	0.62 ± 0.45	1.39	-0.61 ± 0.44	0.10 ± 0.71



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.

Q1 no difference image



Q1 no OOT image



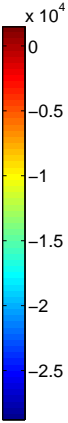
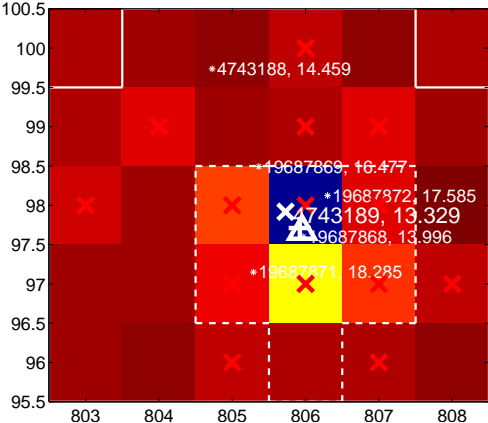
Q2 no difference image



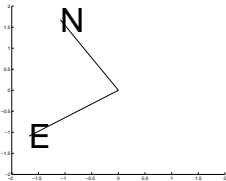
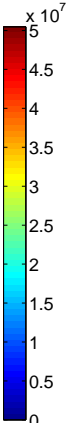
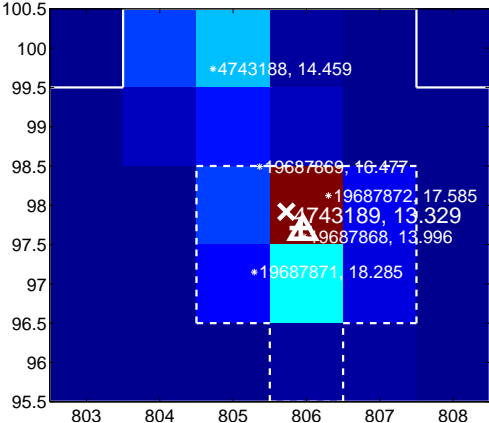
Q2 no OOT image



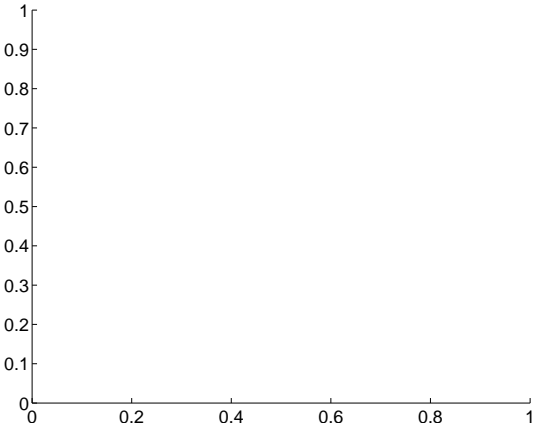
Q3 difference image. Poor Quality



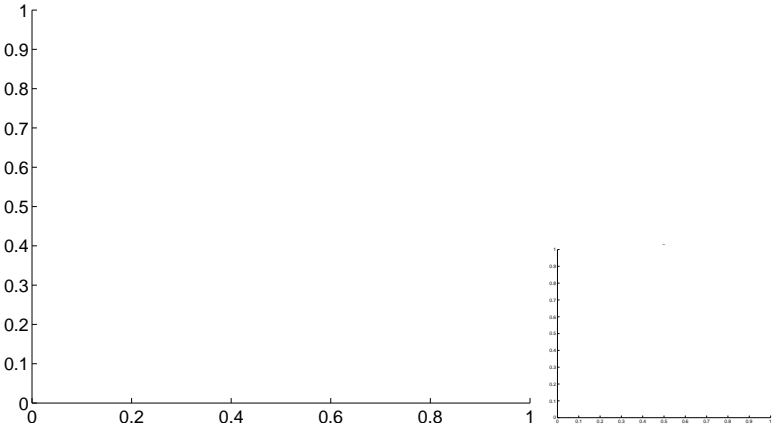
Q3 OOT image



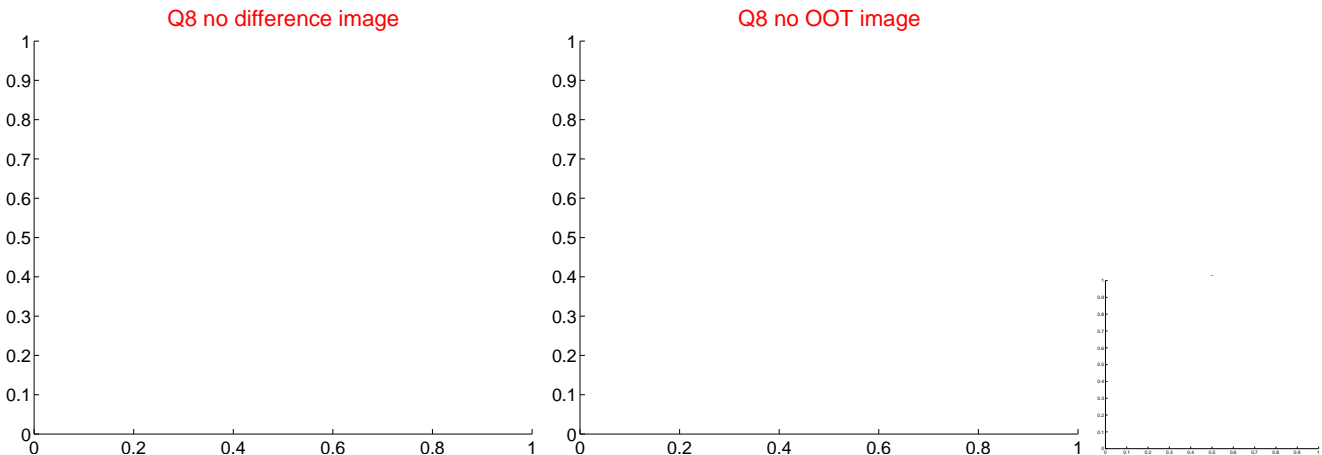
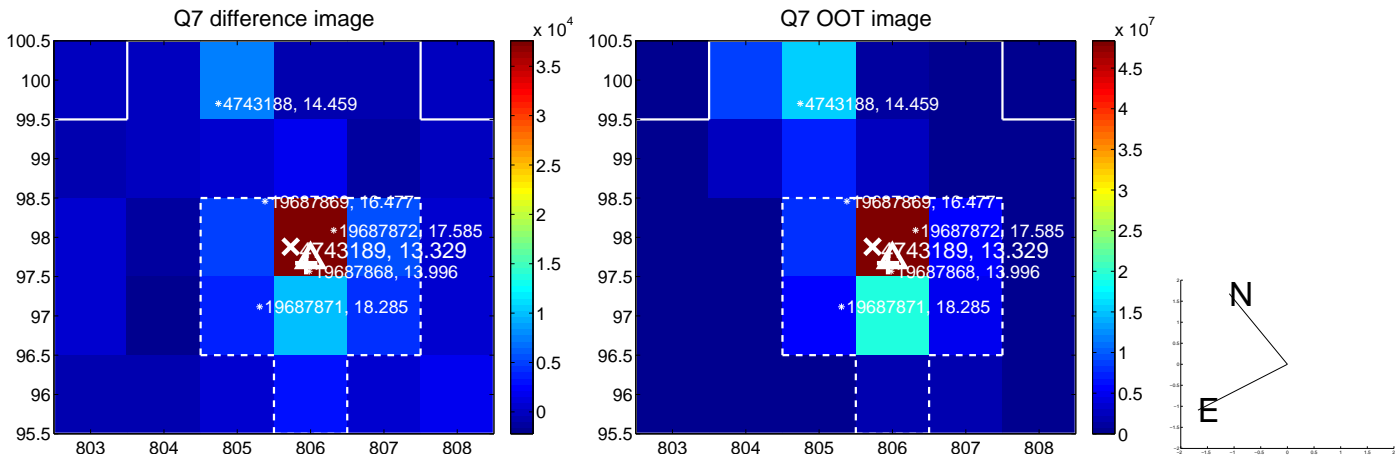
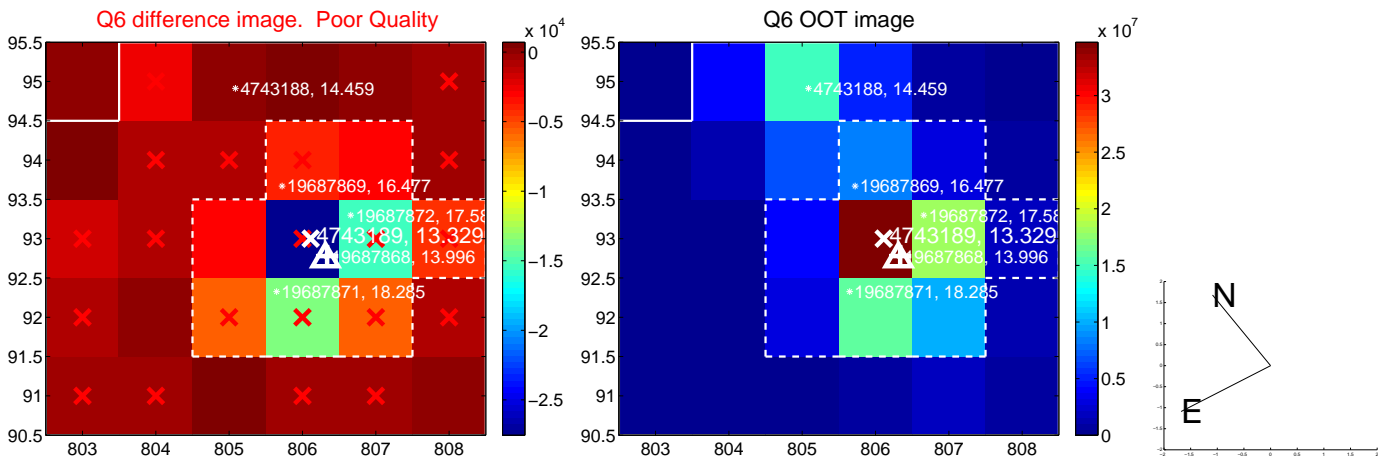
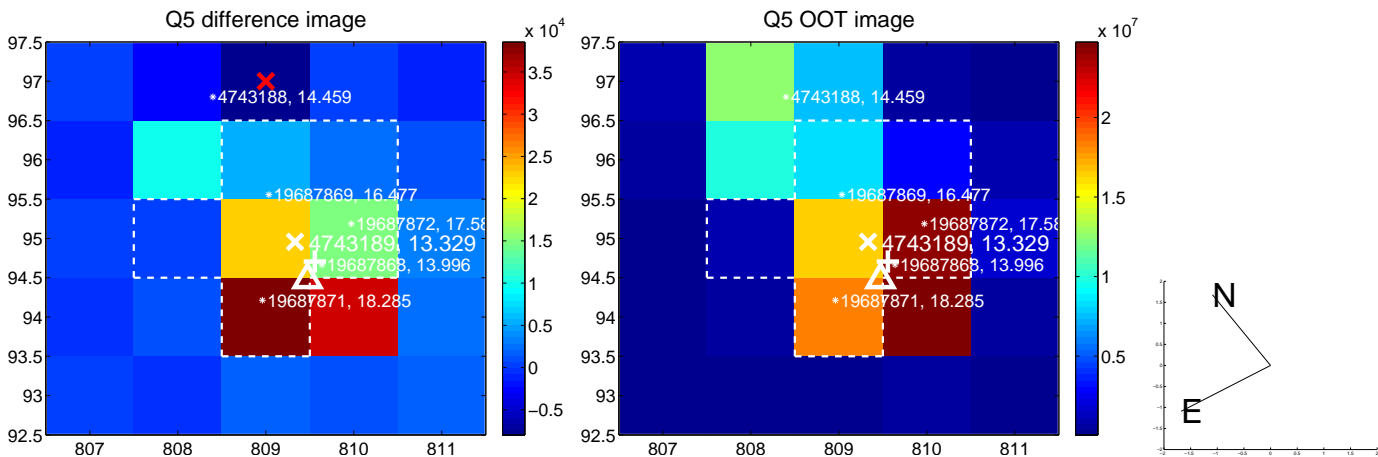
Q4 no difference image



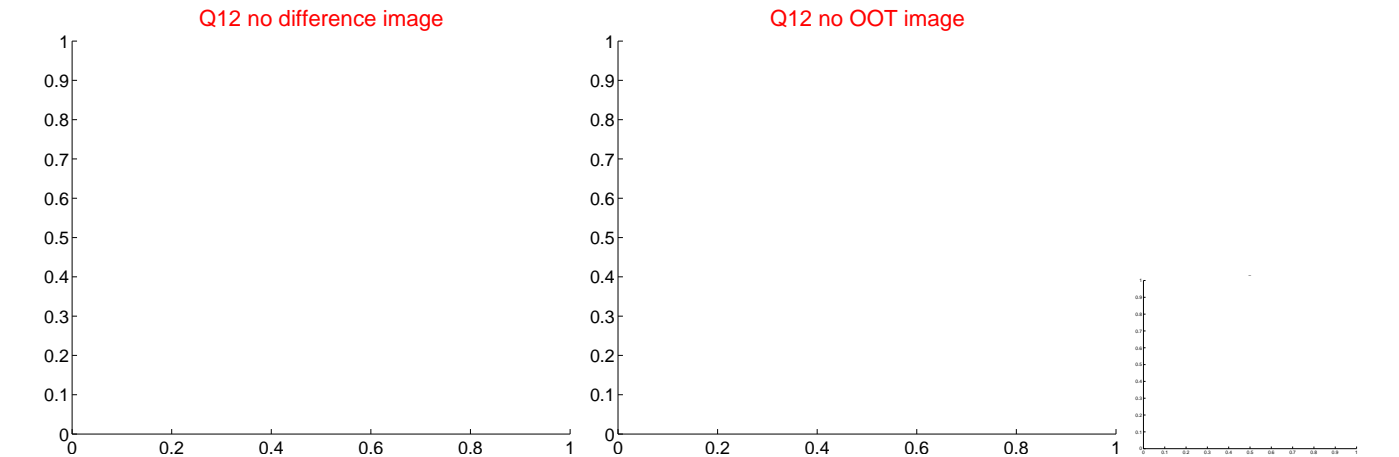
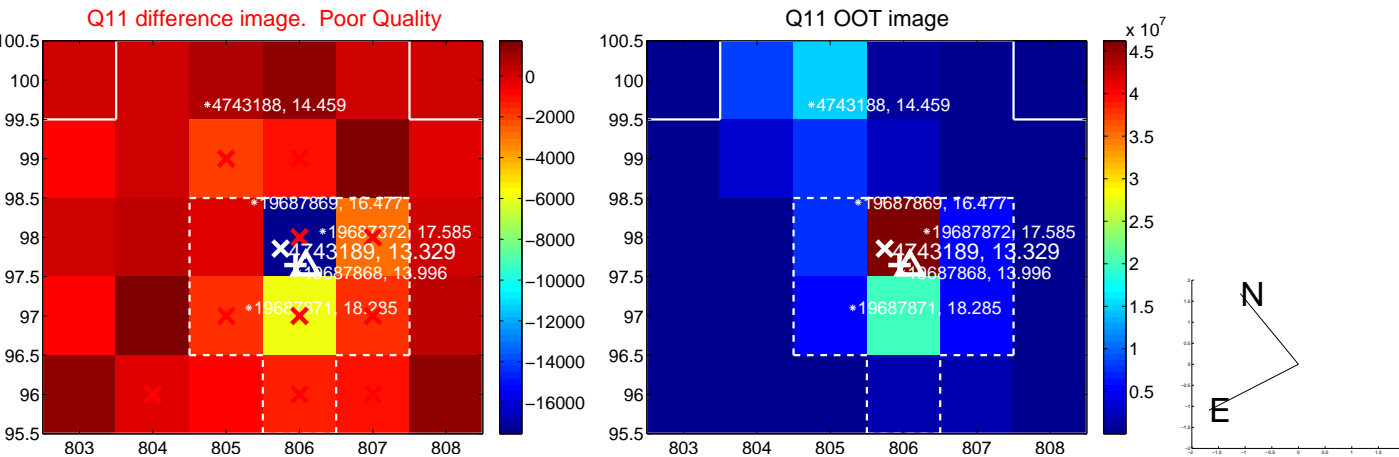
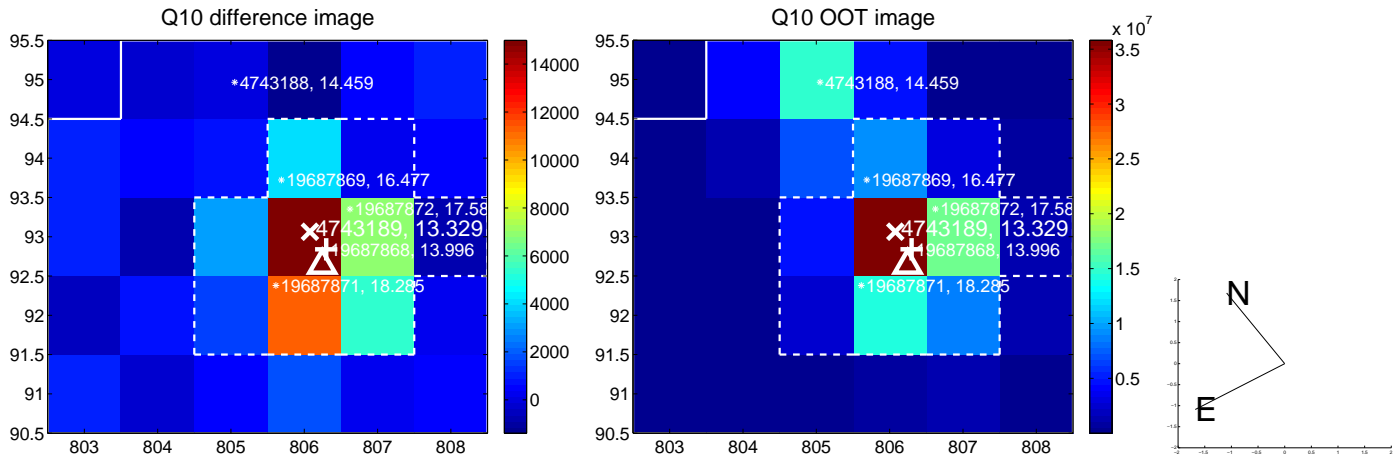
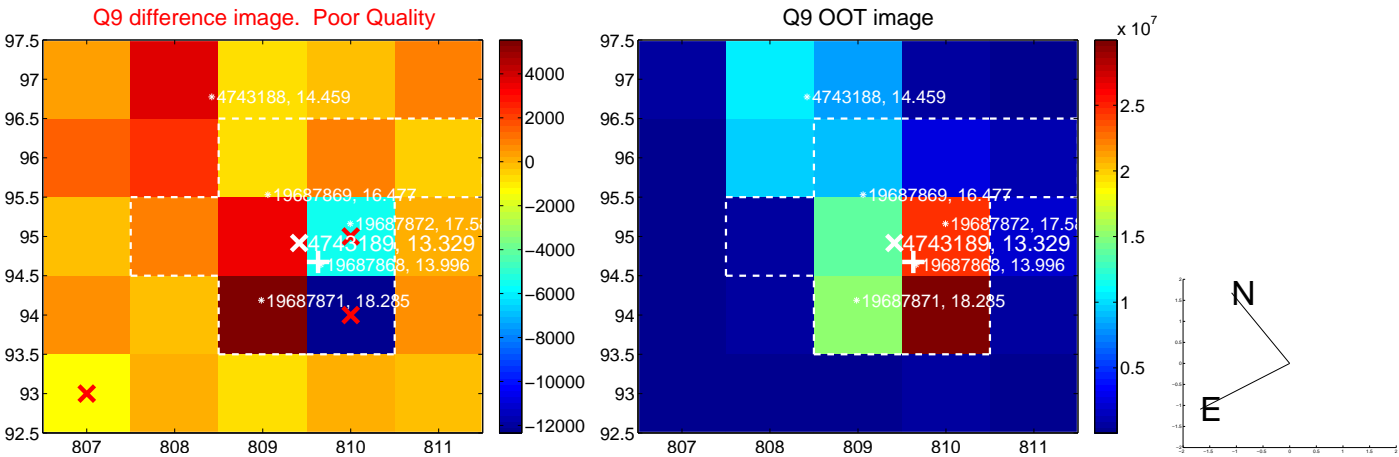
Q4 no OOT image



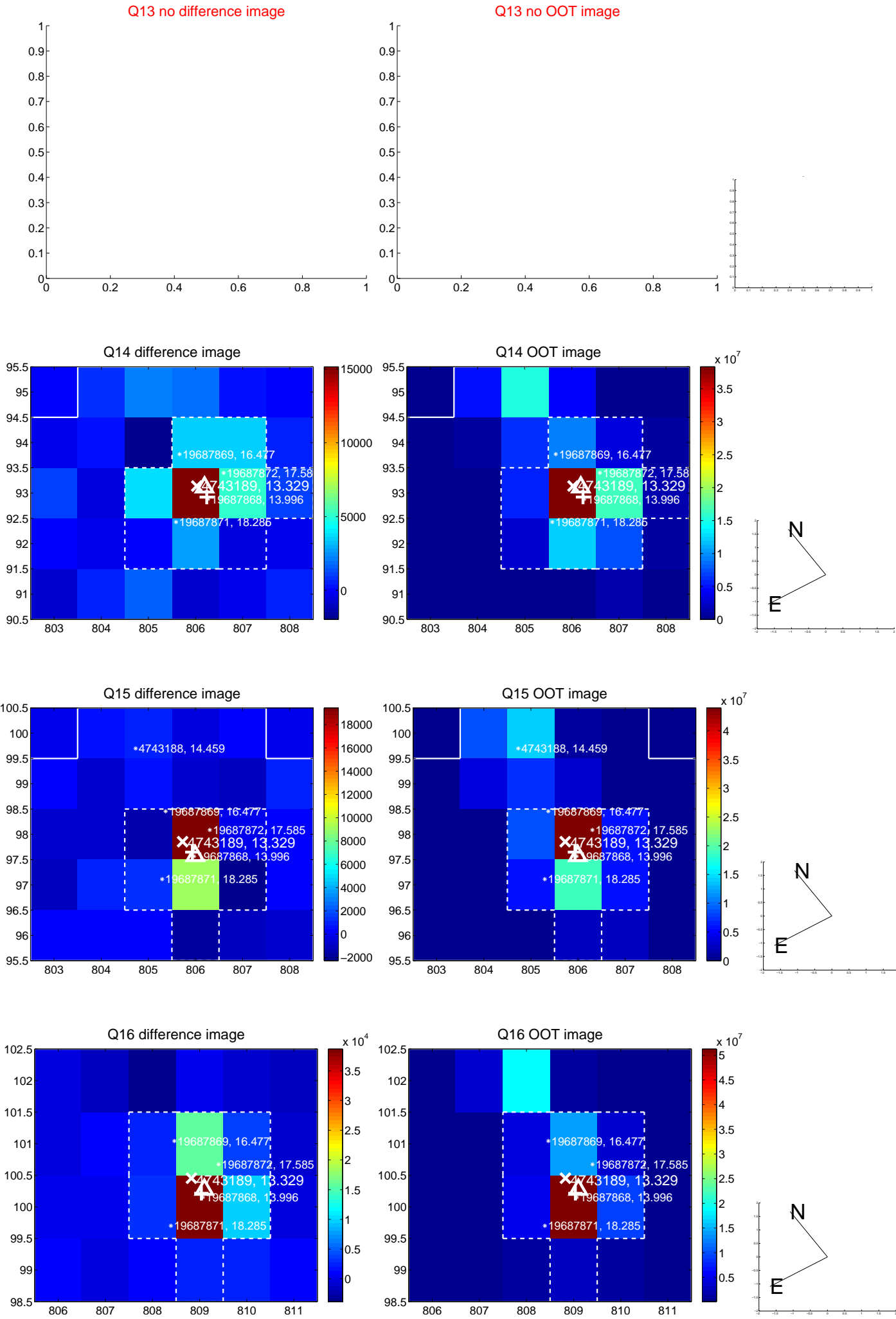
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



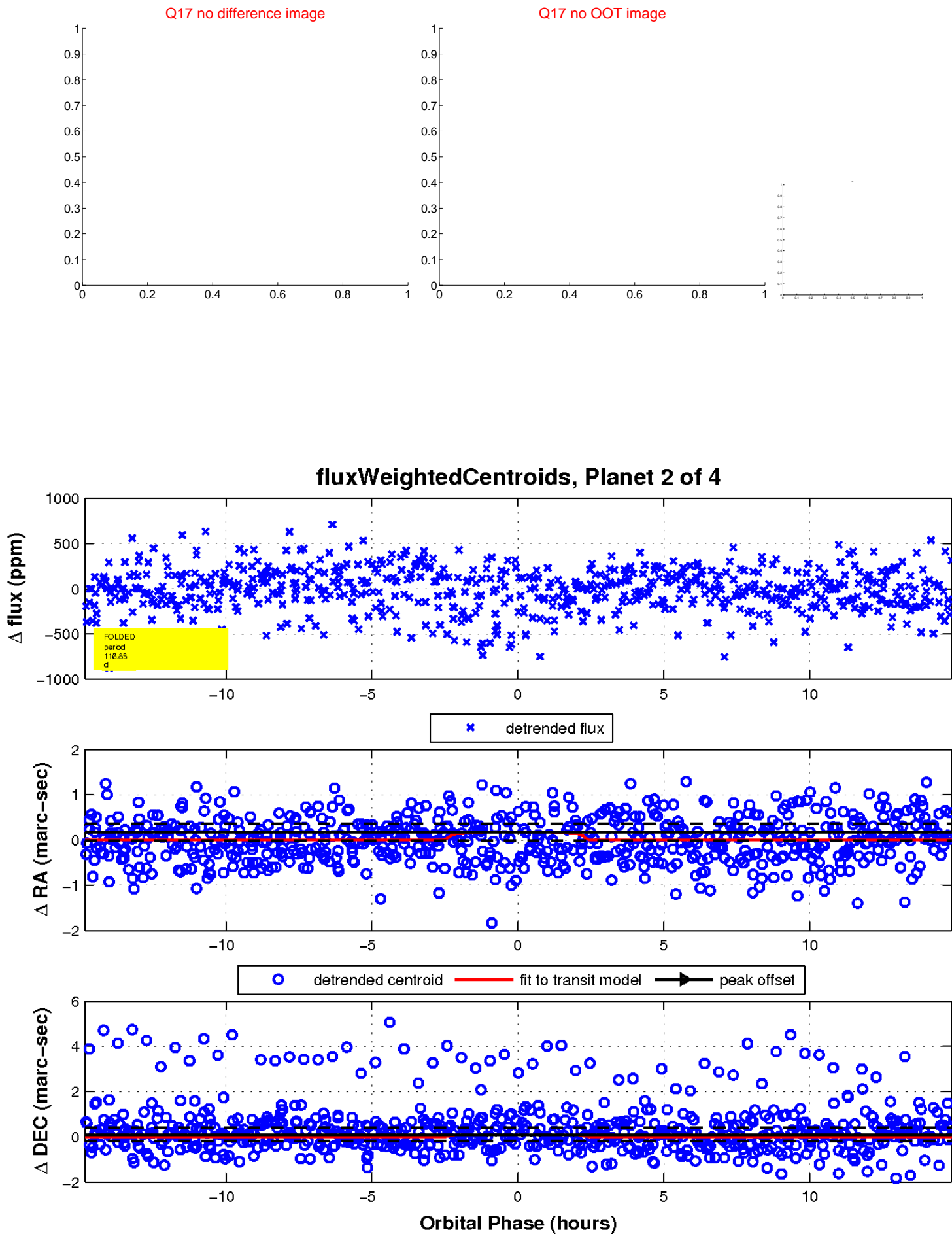
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

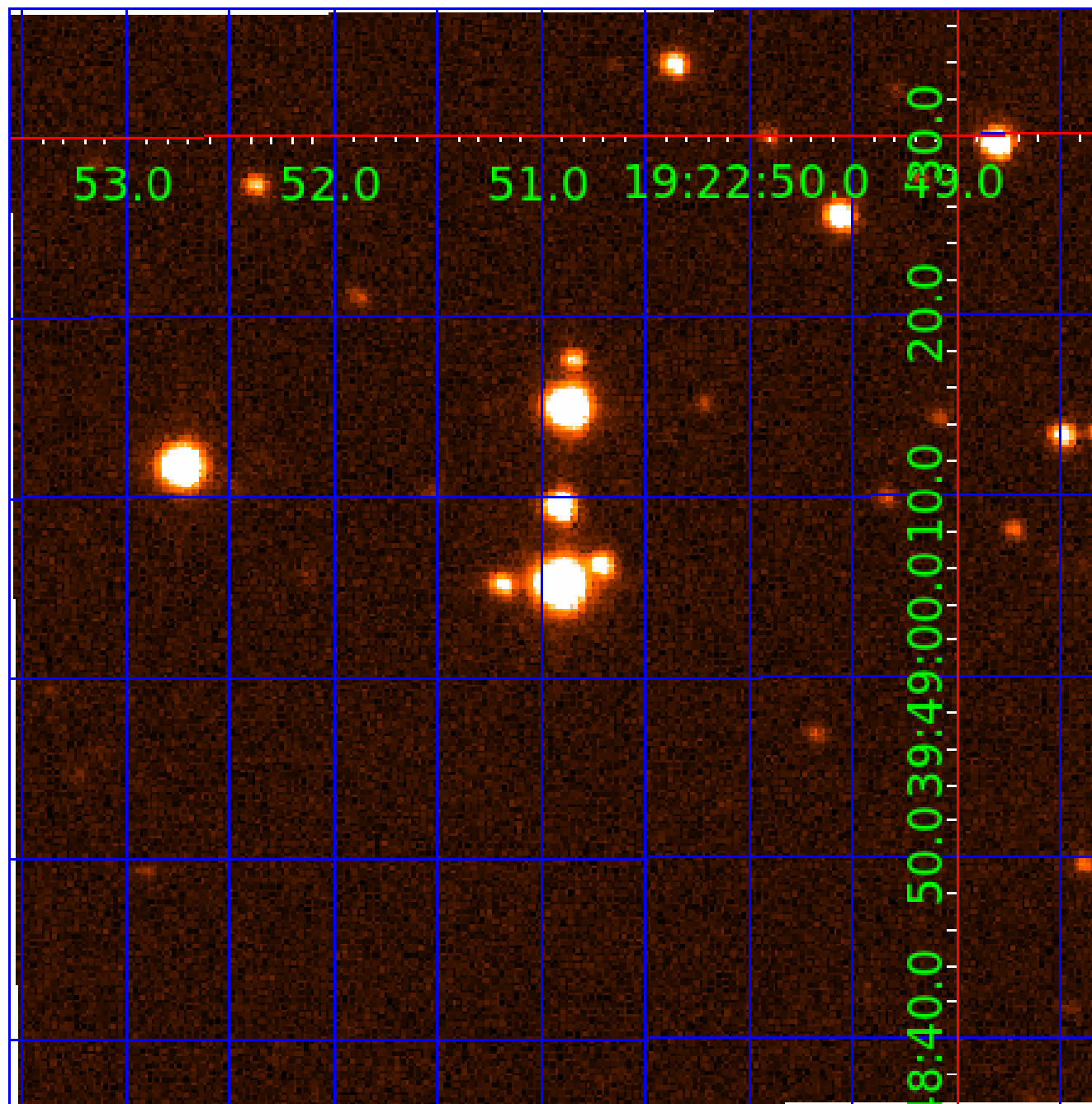


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004743189

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})
004743189-01	OBS	No	0.909812	132.233634	4.2	5.144	11.3	1.6	2.26	7050	0.47	23131.17
004743189-02	OBS	No	116.827776	230.319700	380.8	4.966	8.9	7.1	2.26	7050	4.93	35.71
004743189-03	OBS	No	79.671640	135.114621	291.0	5.403	8.2	6.5	2.26	7050	4.28	59.48
004743189-04	OBS	No	126.847906	147.228063	362.3	4.338	8.4	7.2	2.26	7050	4.79	32.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004743189-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004743189-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
004743189-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004743189-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

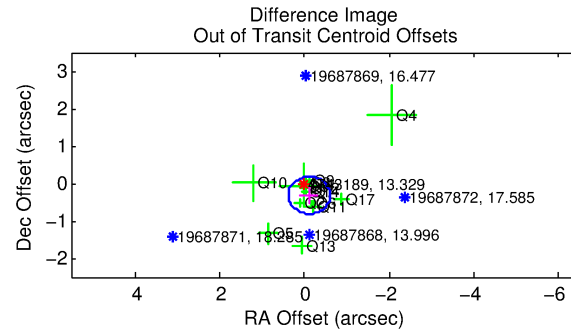
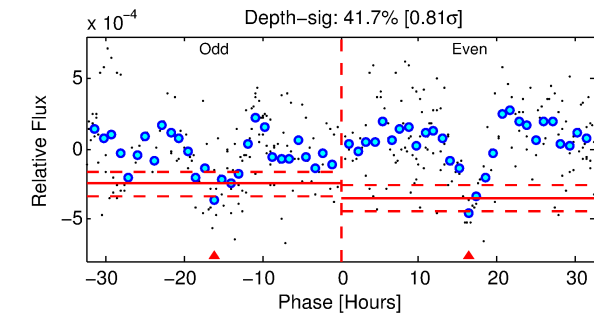
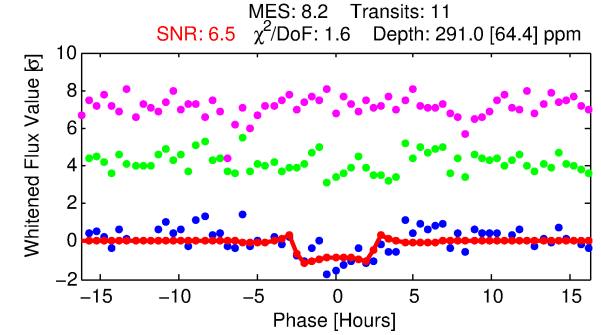
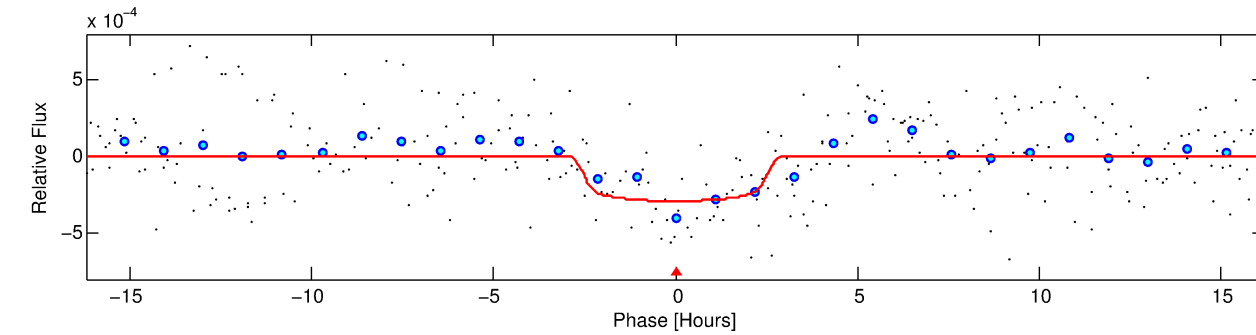
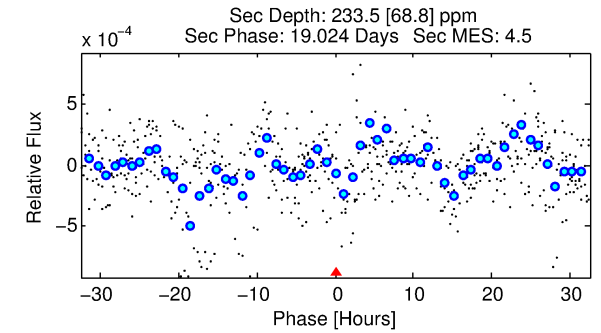
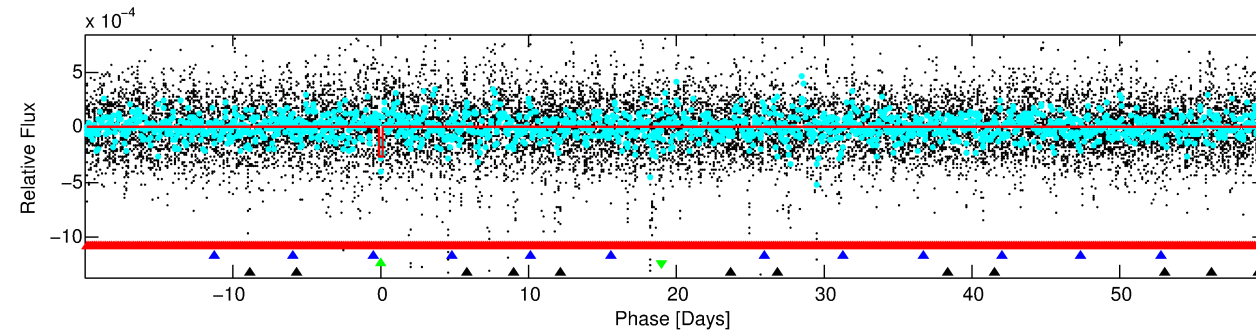
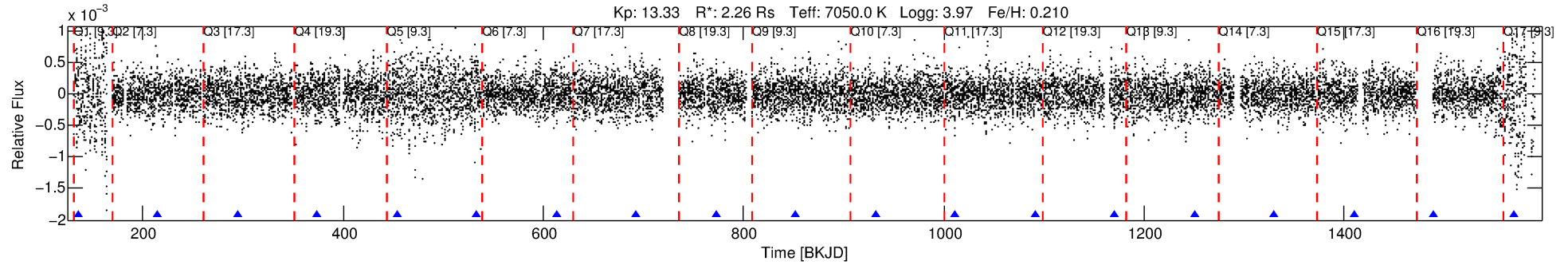
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004743189-03

No Significant Match Found

DV One-Page Summary

KIC: 4743189 Candidate: 3 of 4 Period: 79.672 d



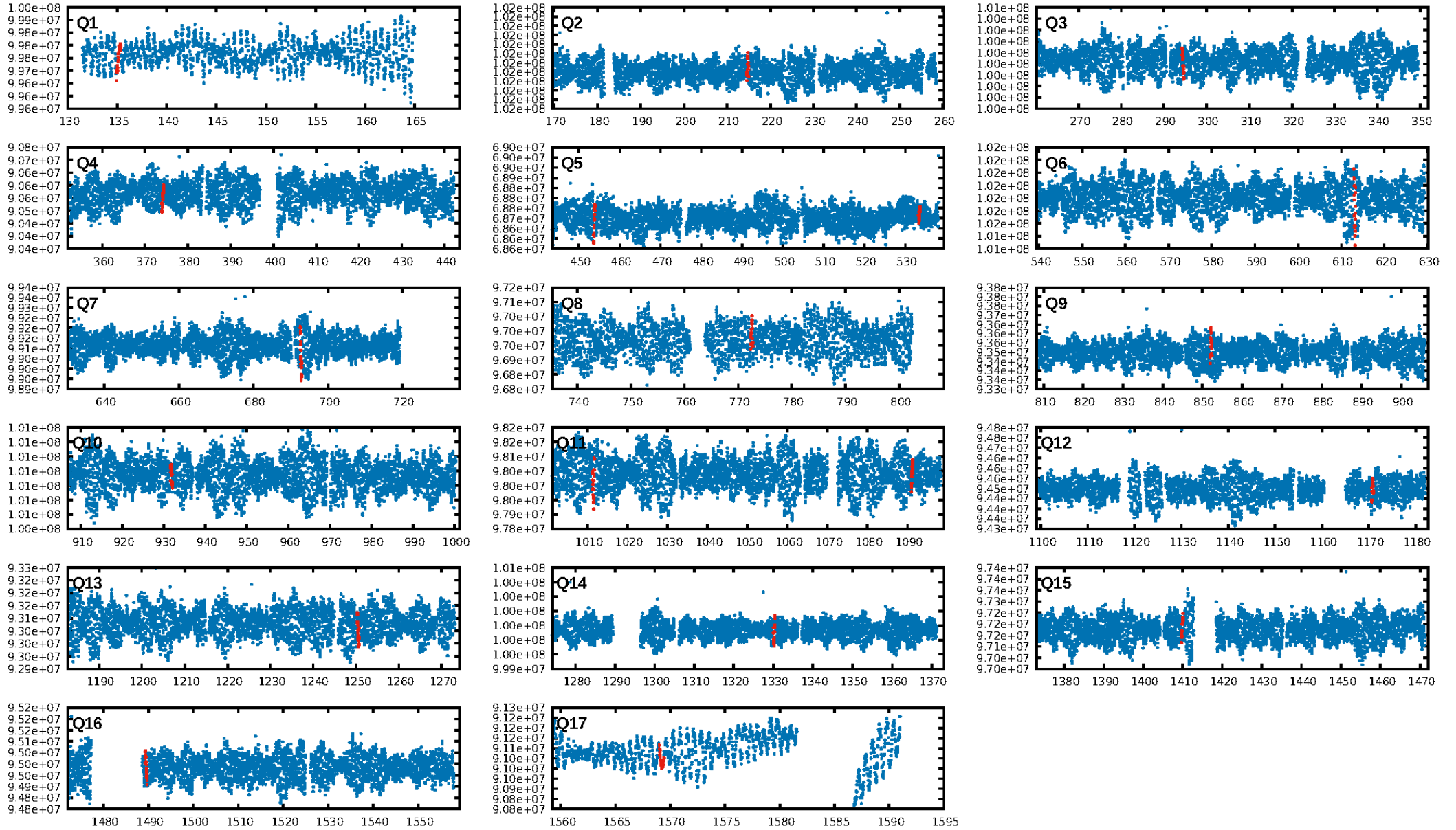
DV Fit Results:

Period = 79.67164 [0.00124] d
Epoch = 135.1146 [0.0134] BKJD
Rp/R* = 0.0174 [0.0087]
a/R* = 67.73 [191.78]
b = 0.82 [1.14]
Seff = 59.48 [24.67]
Teq = 708 [73] K
Rp = 4.28 [2.45] Re
a = 0.4356 [0.1073] AU
Ag = 1329.12 [1476.87] [0.90 σ]
Teffp = 6611 [1752] K [3.37 σ]

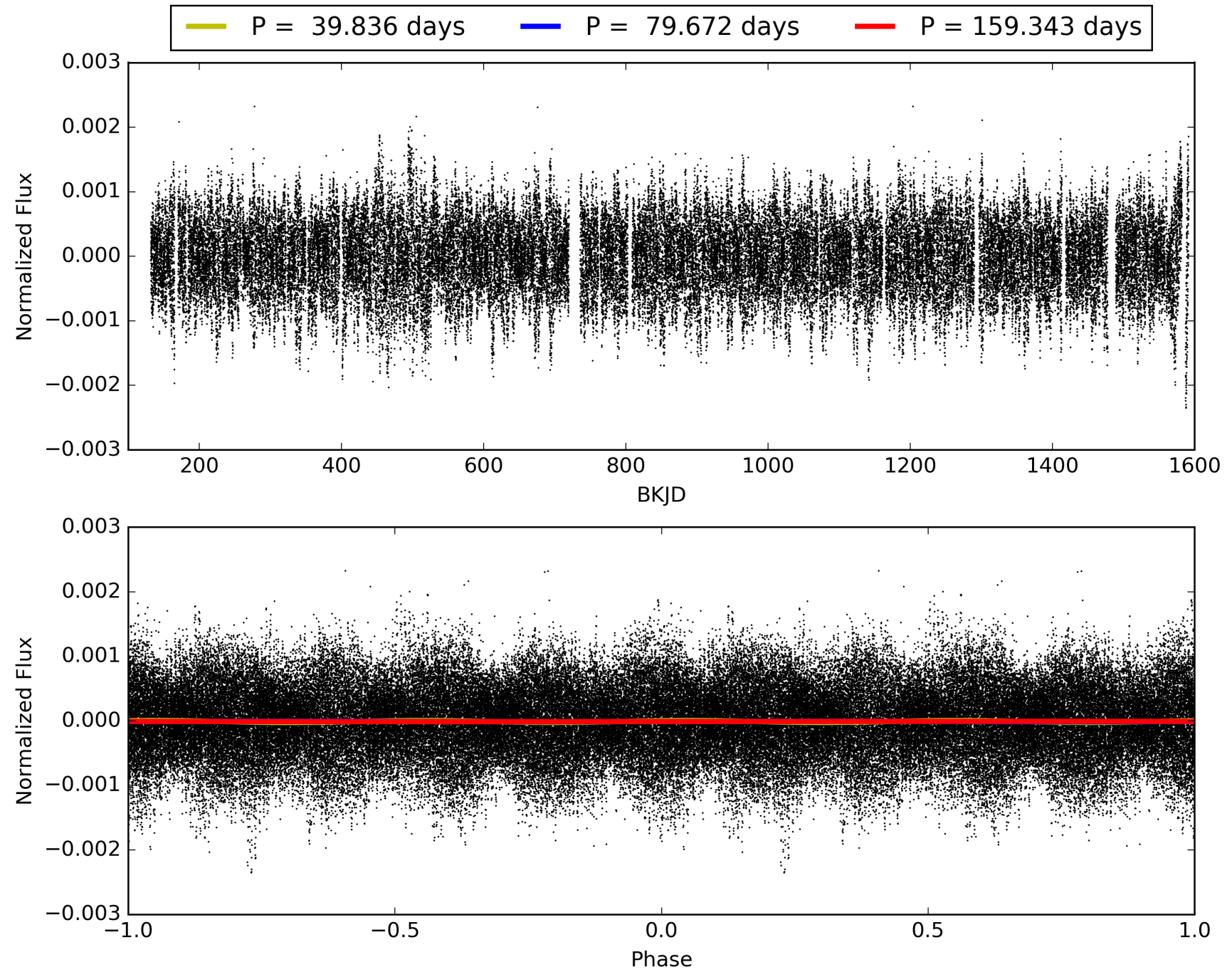
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [253.40 σ]
LongPeriod-sig: 100.0% [121.52 σ]
ModelChiSquare2-sig: 57.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.55e-10
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -0.9258
Centroid-sig: 69.0%
Centroid-so: 0.629 arcsec [0.90 σ]
OotOffset-rm: 0.338 arcsec [2.06 σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-rm: 1.576 arcsec [7.85 σ]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/15]

TCE 004743189-03, PDC Light Curves

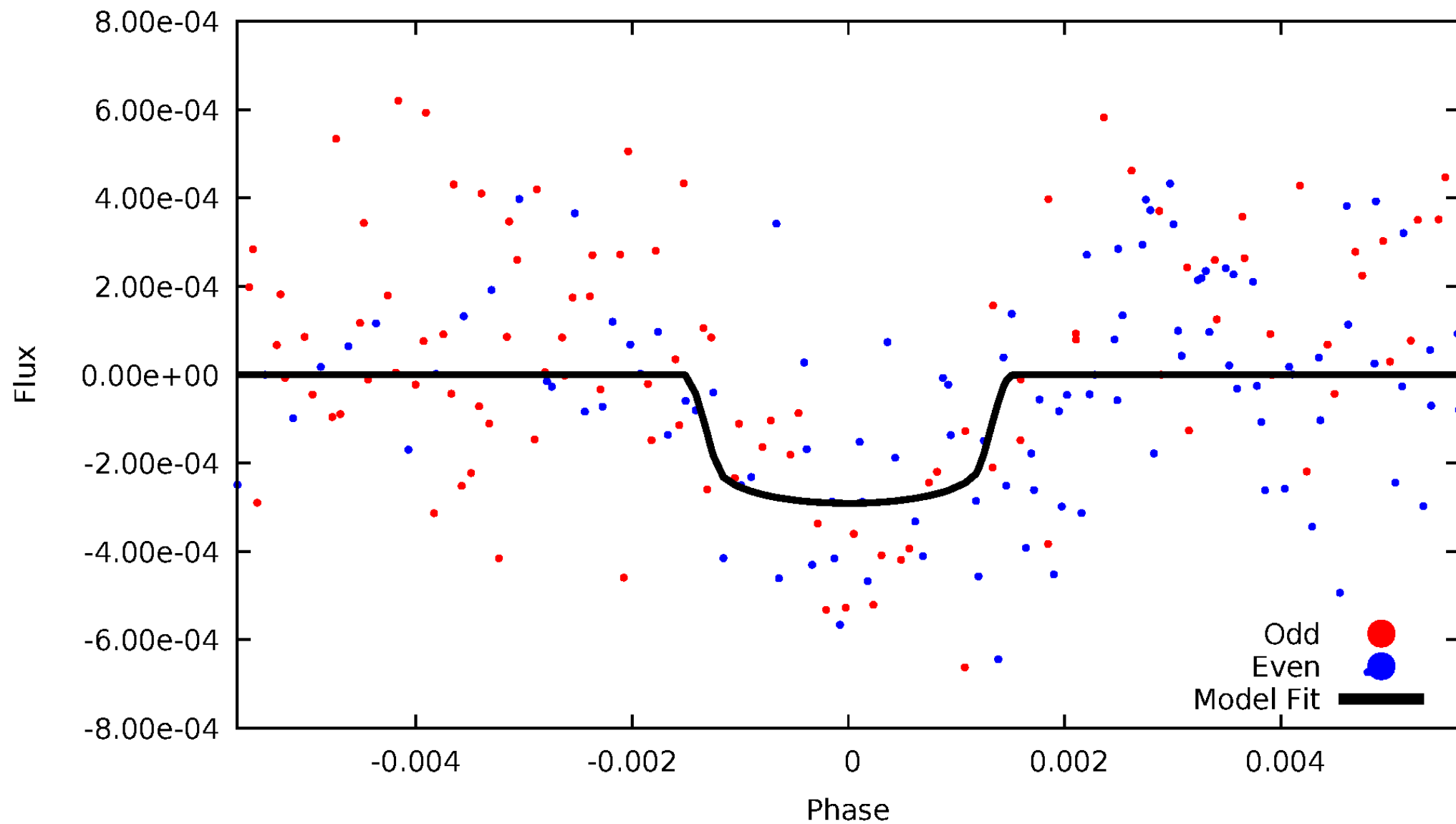


TCE 004743189-03



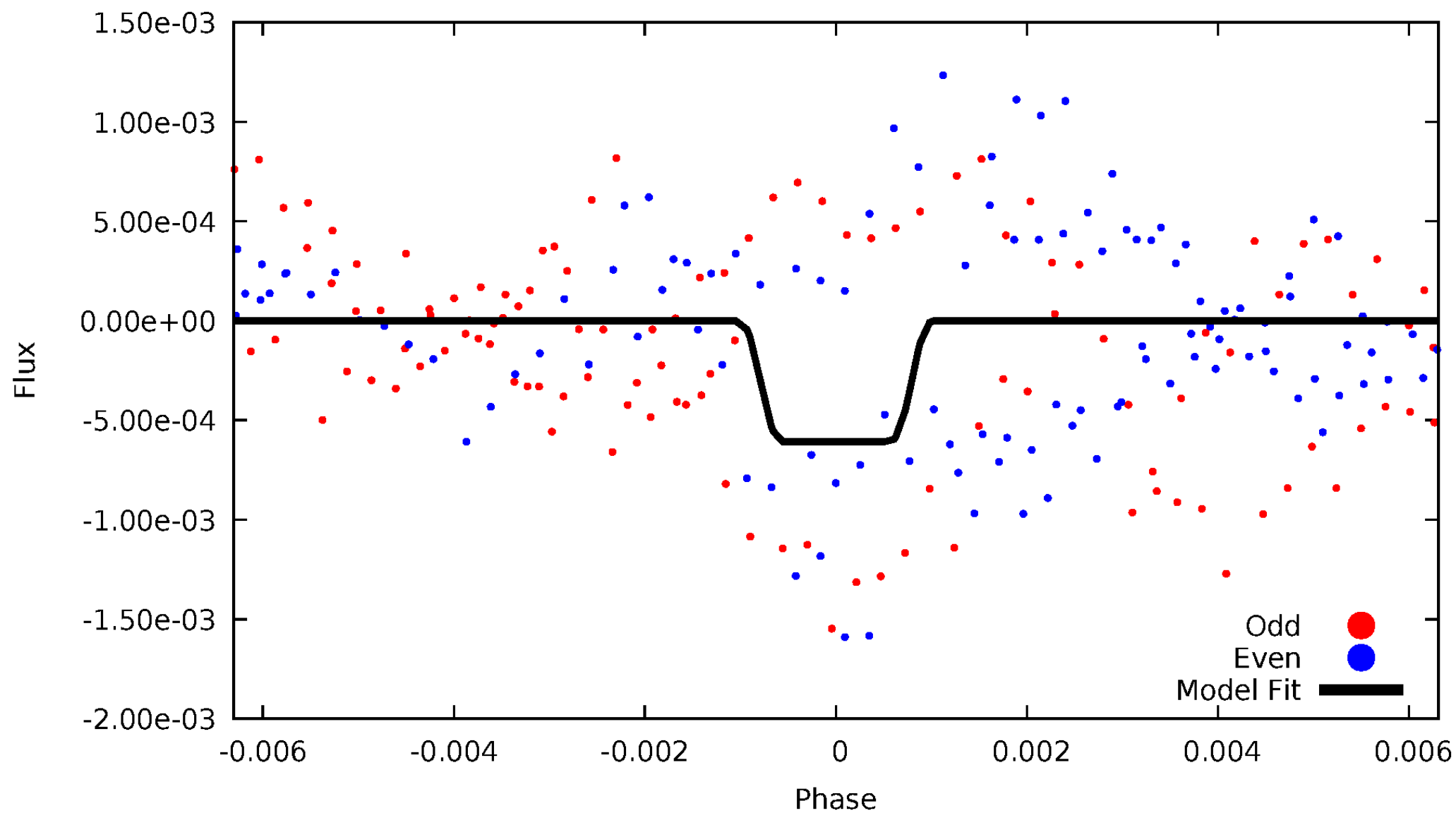
DV Odd/Even

TCE 004743189-03



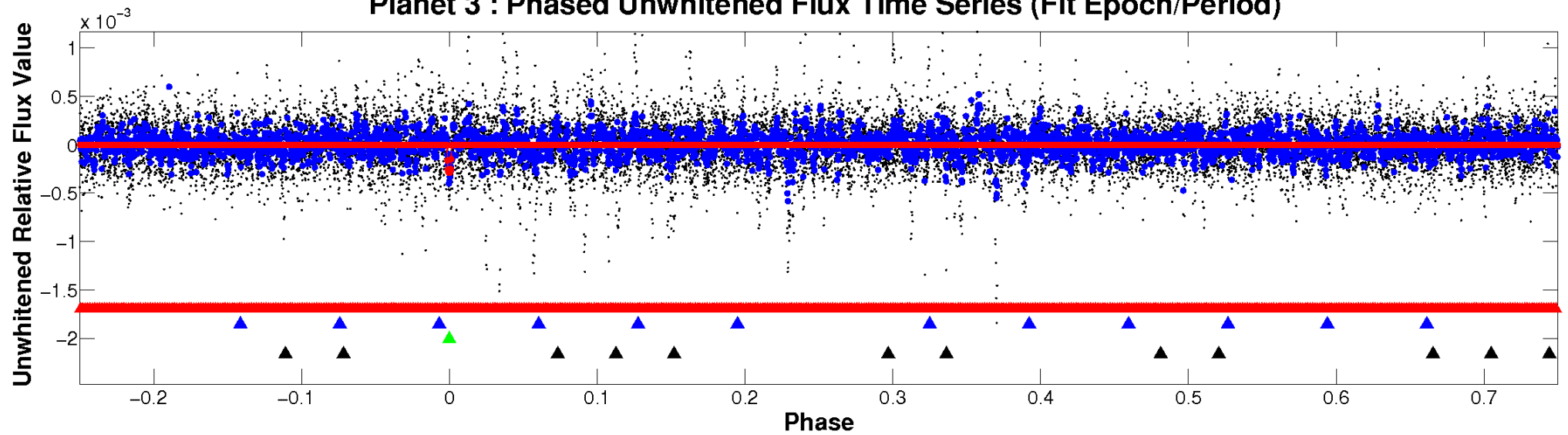
ALT Odd/Even

TCE 004743189-03

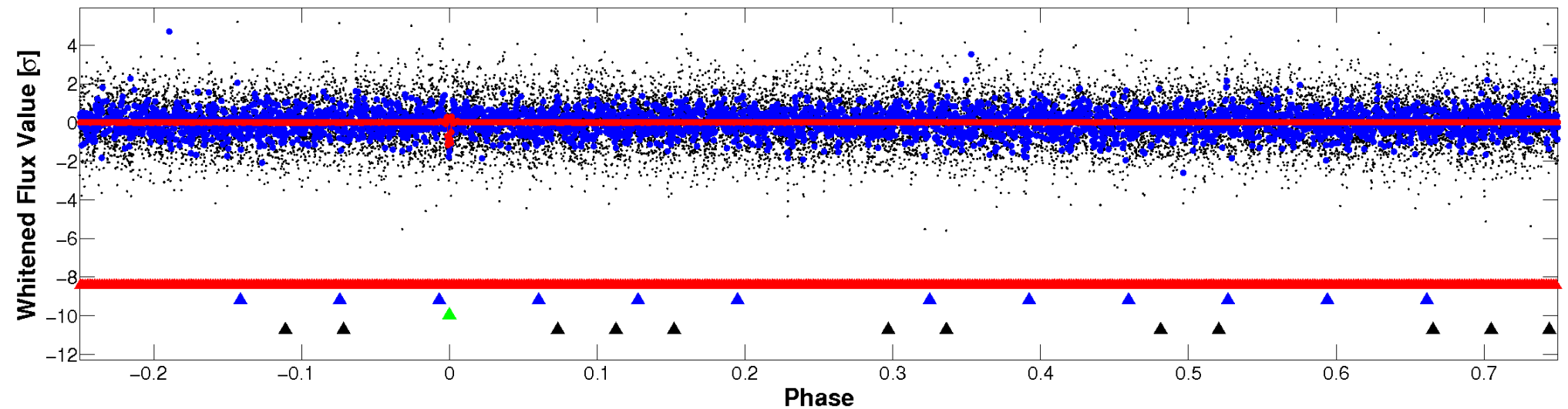


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

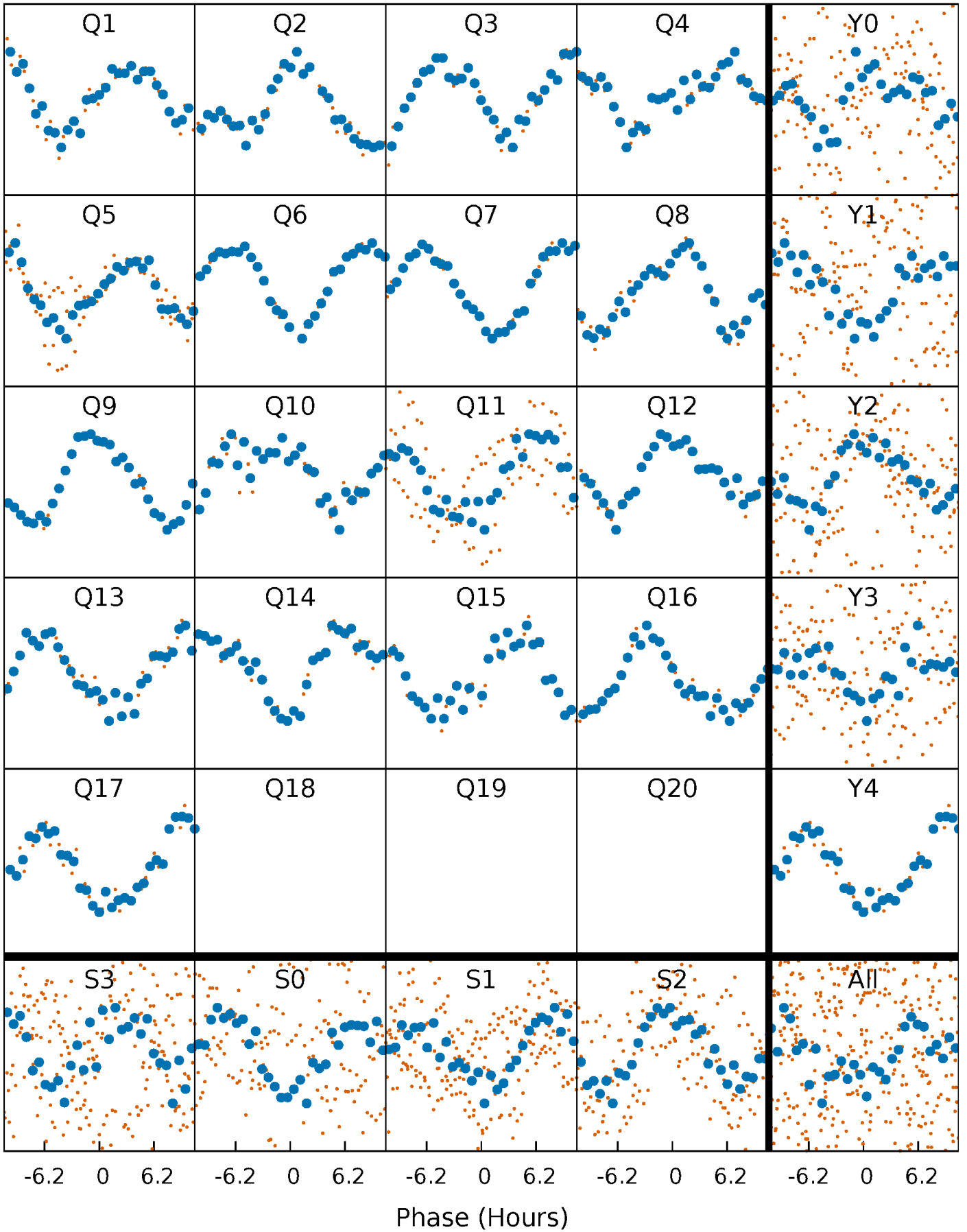


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



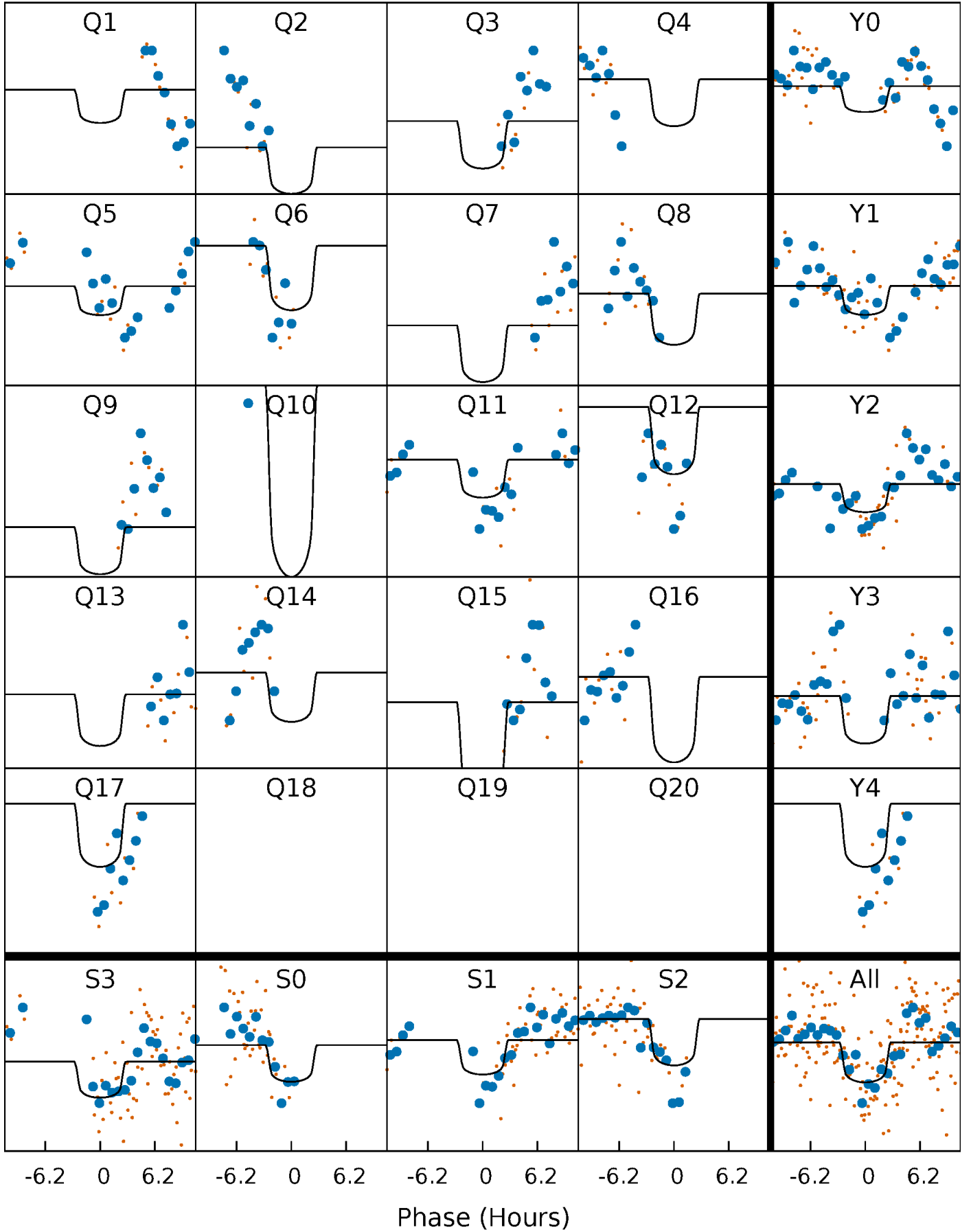
PDC Quarter-Phased Transit Curves

TCE 004743189-03 P= 79.671640 Days $T_0=135.114621$ (BKJD)



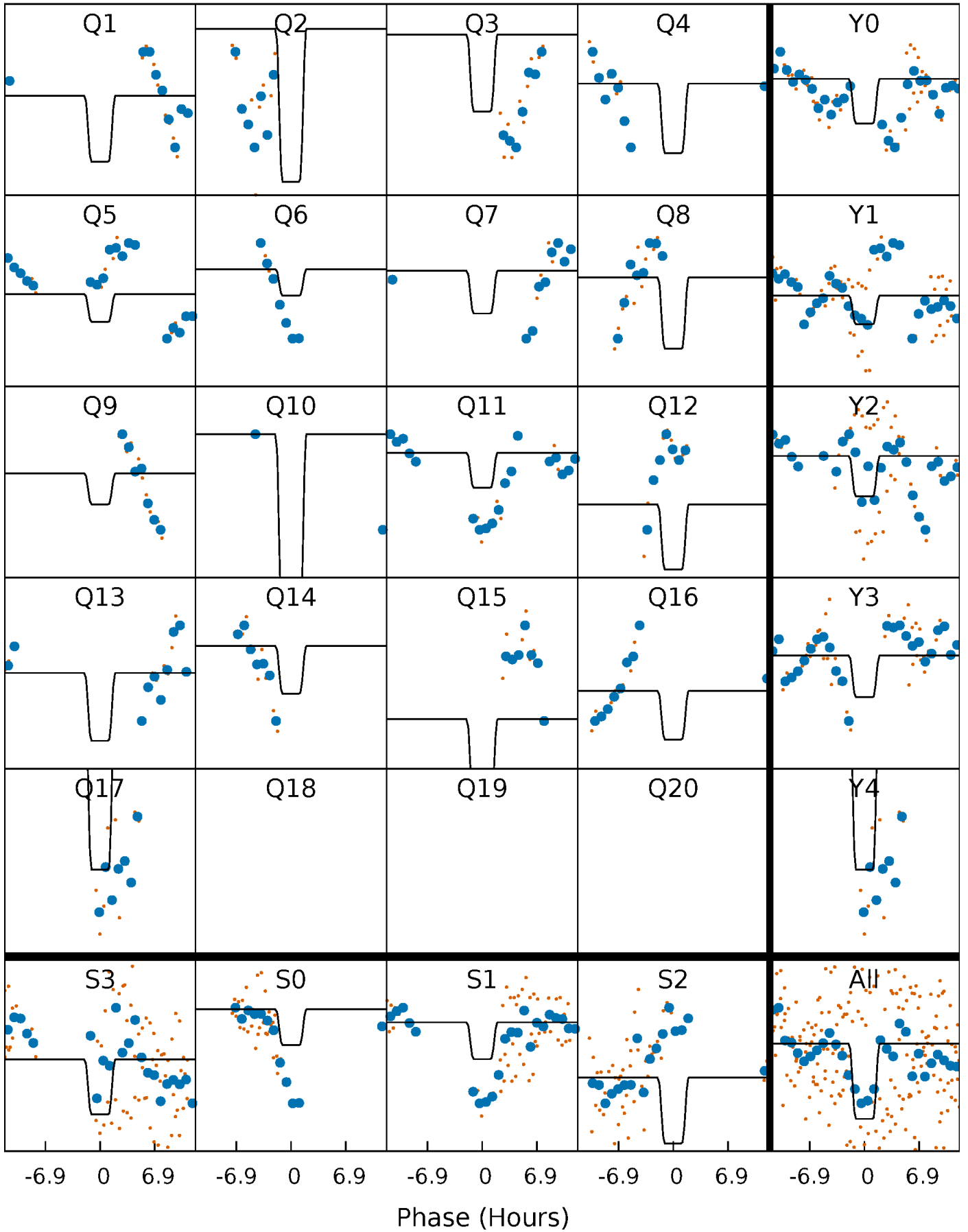
DV Quarter-Phased Transit Curves

TCE 004743189-03 P= 79.671640 Days $T_0=135.114621$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

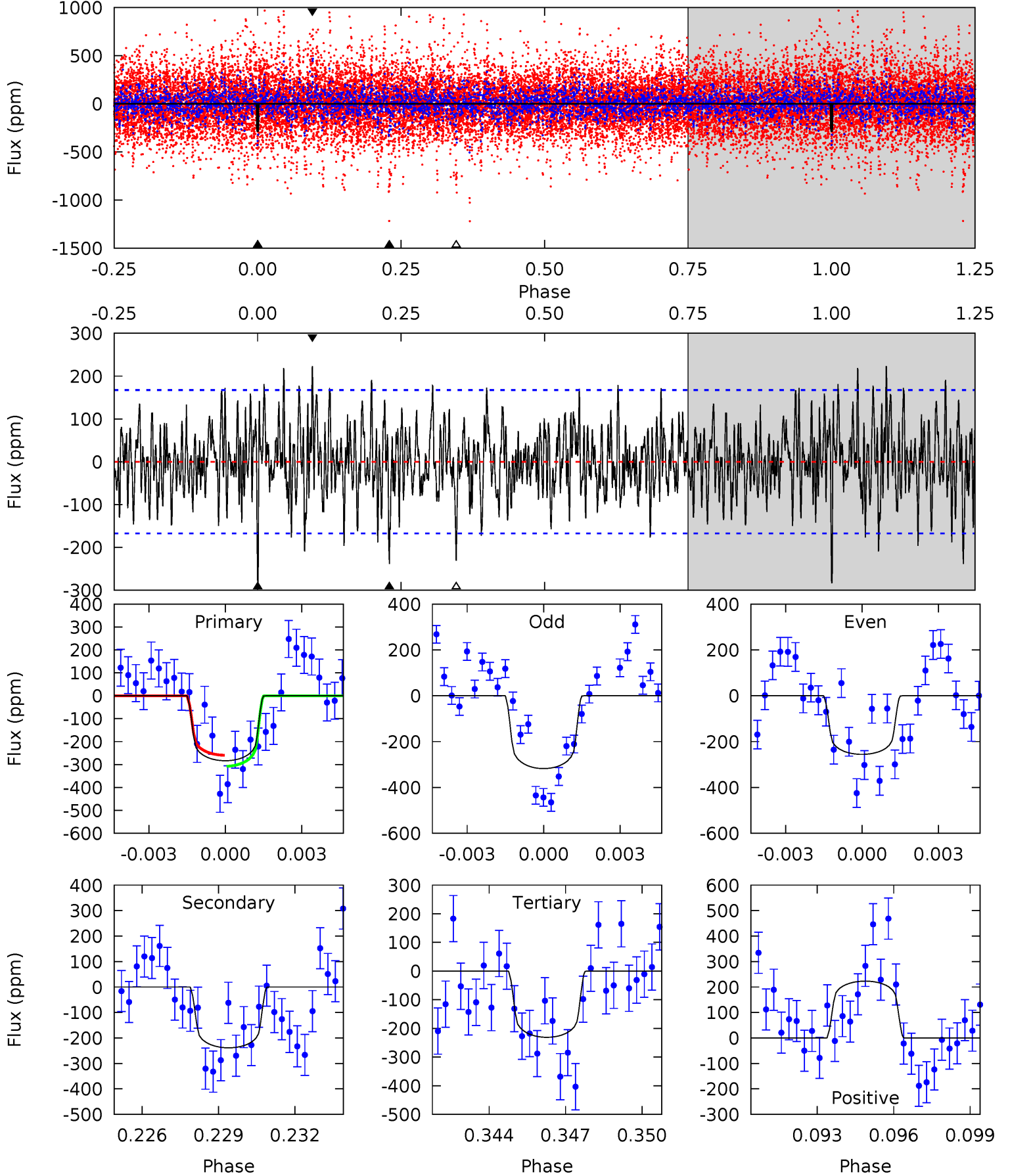
TCE 004743189-03 P= 79.672604 Days $T_0=135.091180$ (BKJD)



DV Model-Shift Uniqueness Test

004743189-03, P = 79.671640 Days, E = 55.442981 Days

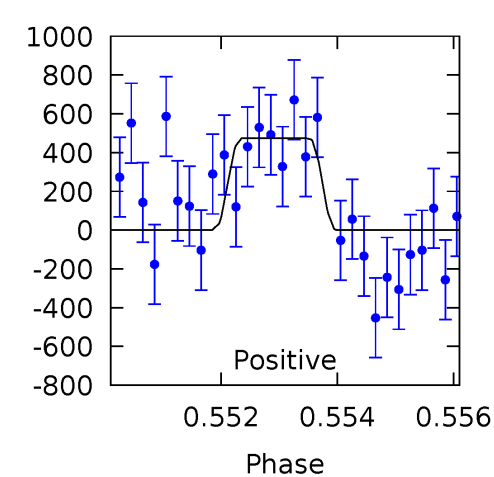
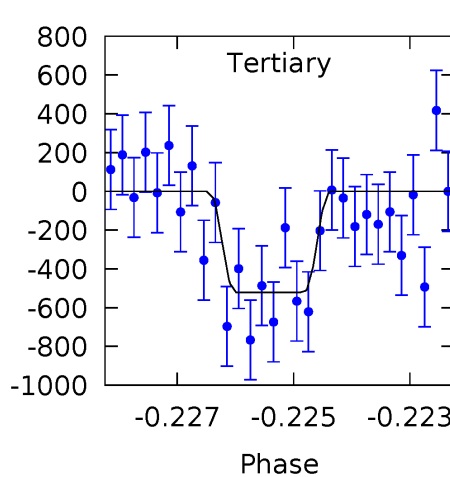
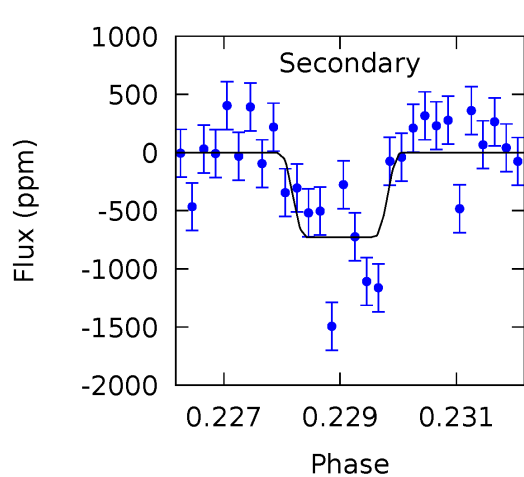
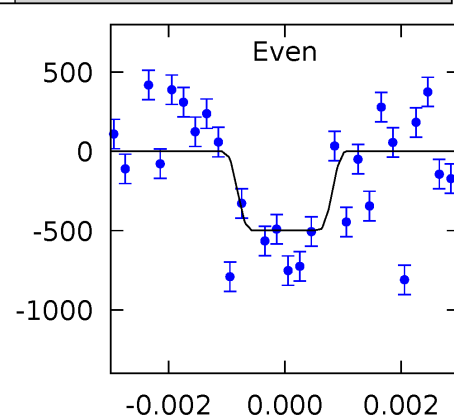
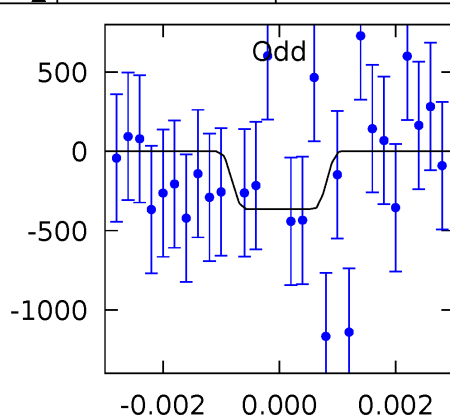
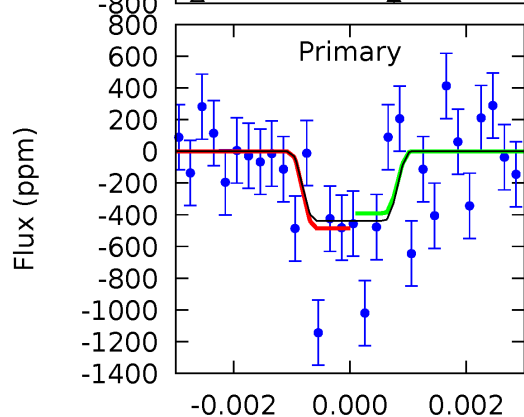
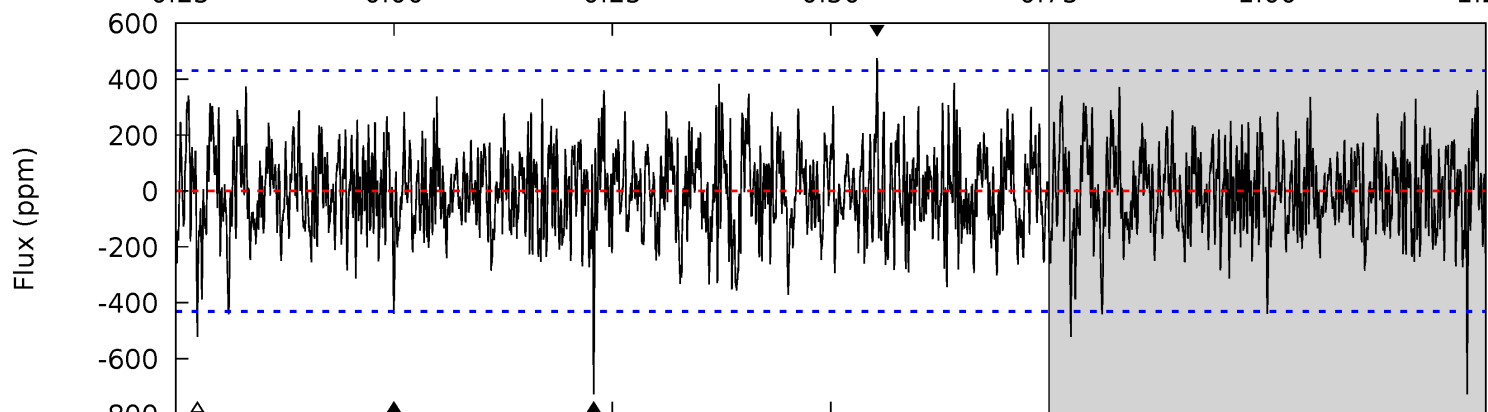
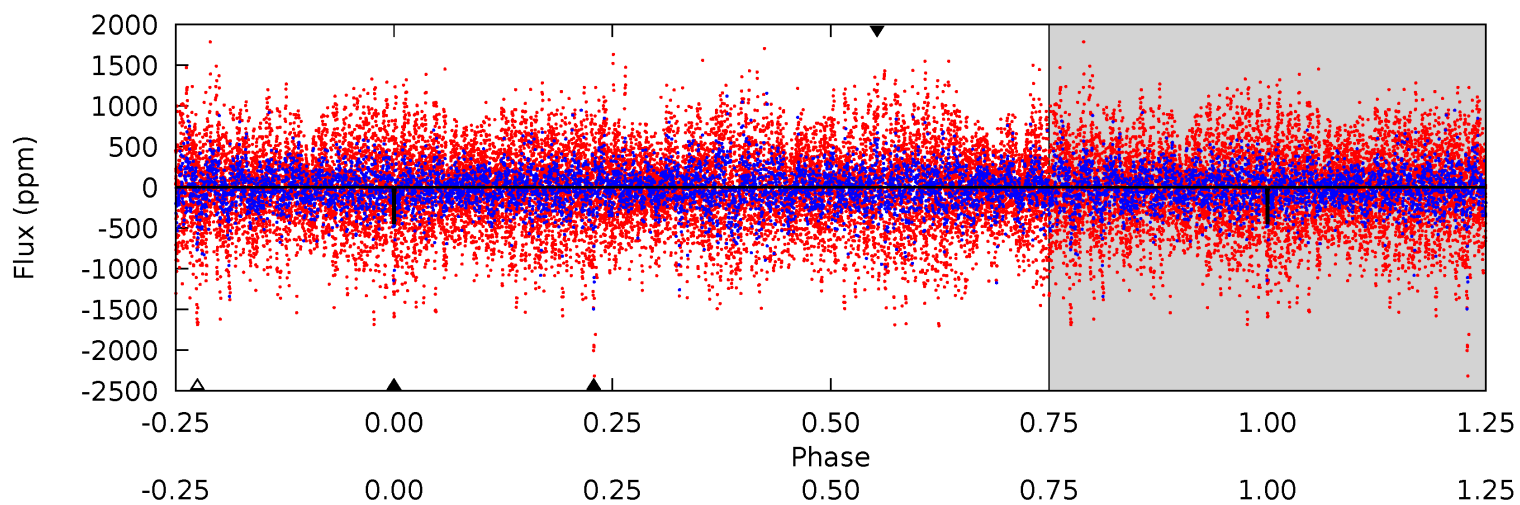
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.90	7.49	7.25	7.01	5.25	2.97	2.09	1.65	1.89	0.24	0.48	0.97	1.00	0.44	0.76



Alt Model-Shift Uniqueness Test

004743189-03, P = 79.672604 Days, E = 55.418576 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.43	9.00	6.45	5.88	5.33	3.10	1.62	-1.02	-0.45	2.55	3.13	0.82	0.66	0.39	0.58



Stellar Parameters For KIC 004743189

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-307}	$3.970^{+0.214}_{-0.156}$	$0.210^{+0.150}_{-0.350}$	$2.258^{+0.622}_{-0.622}$	$1.736^{+0.172}_{-0.319}$	$0.212^{+0.301}_{-0.093}$
	+3%/-4%	+5%/-4%	+71%/-167%	+28%/-28%	+10%/-18%	+142%/-44%
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 004743189-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-239 ± 32	$4.23^{+2.15}_{-2.07}$	980^{+75}_{-75}	6591^{+3022}_{-1239}	1401^{+4044}_{-818}
Alt.	-728 ± 81	$6.04^{+2.26}_{-2.34}$	982^{+70}_{-79}	7345^{+2588}_{-1168}	2096^{+3487}_{-1034}

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

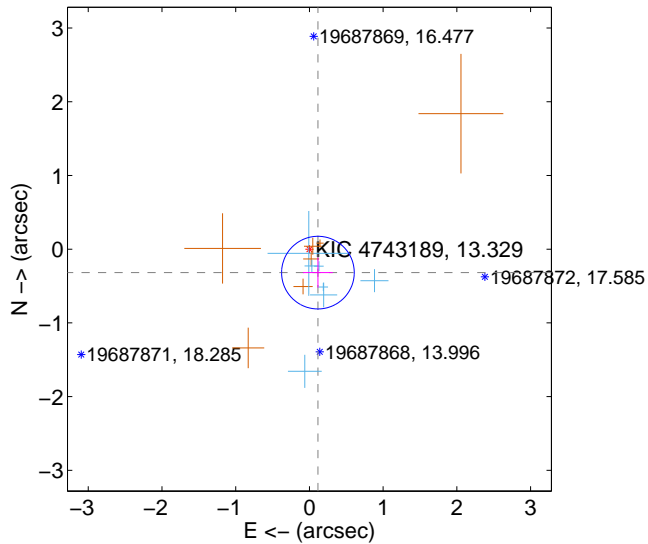
Supplemental centroid analysis for 004743189-03. Kepler magnitude: 13.33. Transit SNR 6.46

There are 7 quarters with good PRF difference image offsets

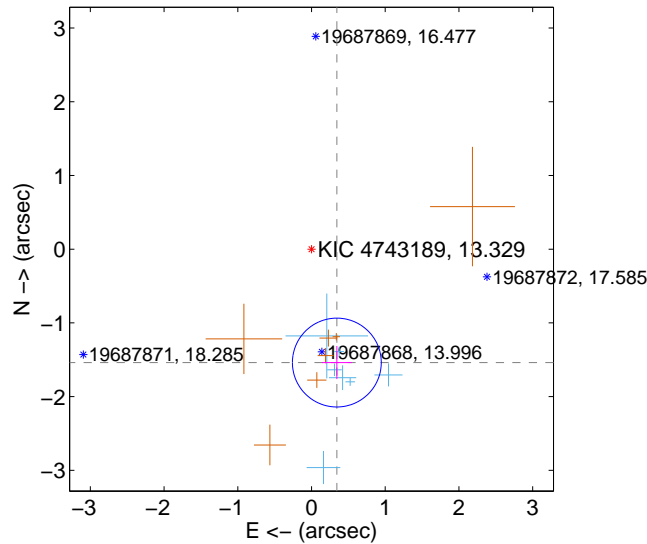
The direct PRF centroid is offset from the target star catalog position by about 1.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.338 ± 0.164	2.06	-0.115 ± 0.203	-0.318 ± 0.204
PRF-fit source offset from KIC position	1.576 ± 0.201	7.85	-0.344 ± 0.203	-1.538 ± 0.224
photometric centroid source offset	0.63 ± 0.70	0.90	-0.07 ± 0.40	0.62 ± 0.70

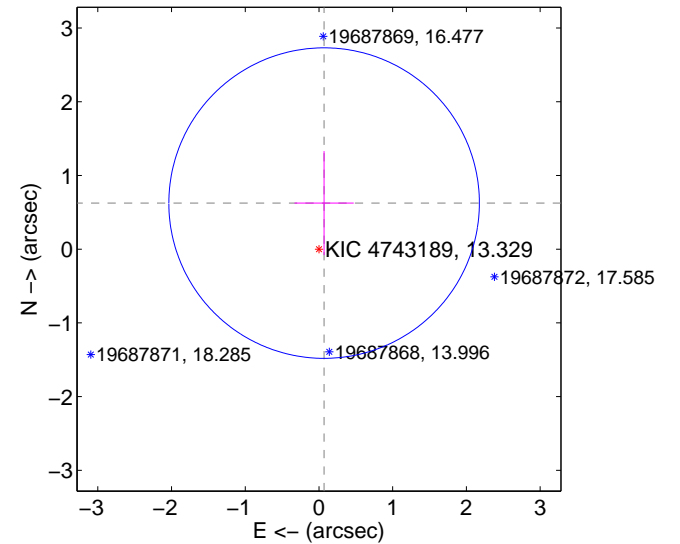
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

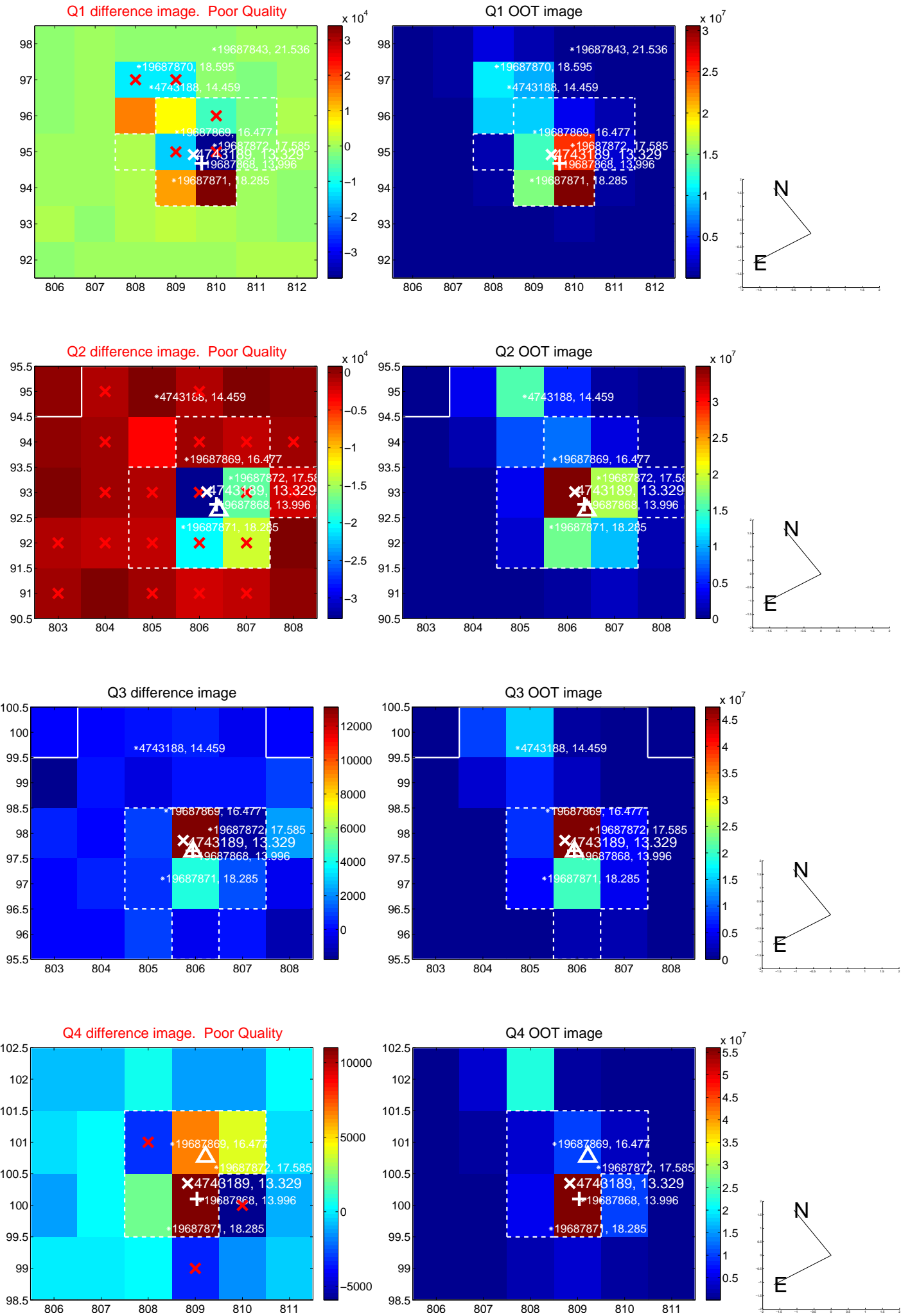


offset from photometric centroids

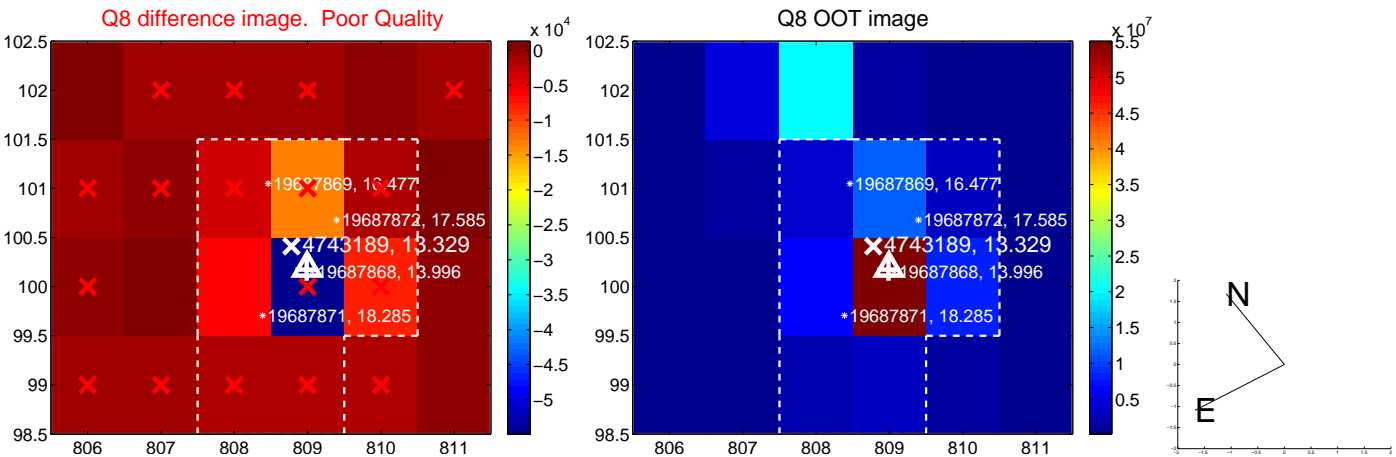
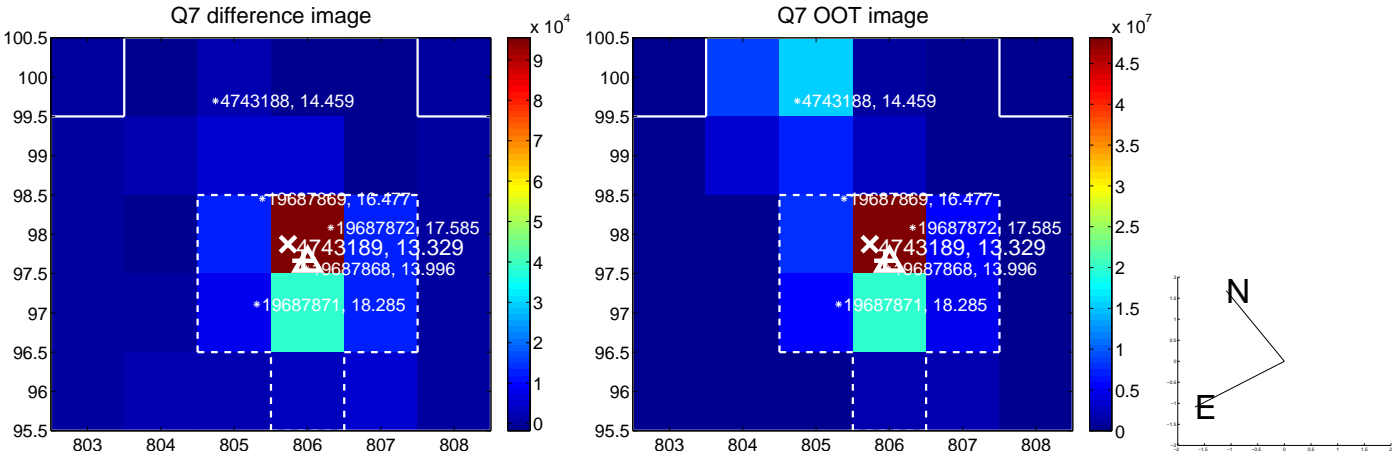
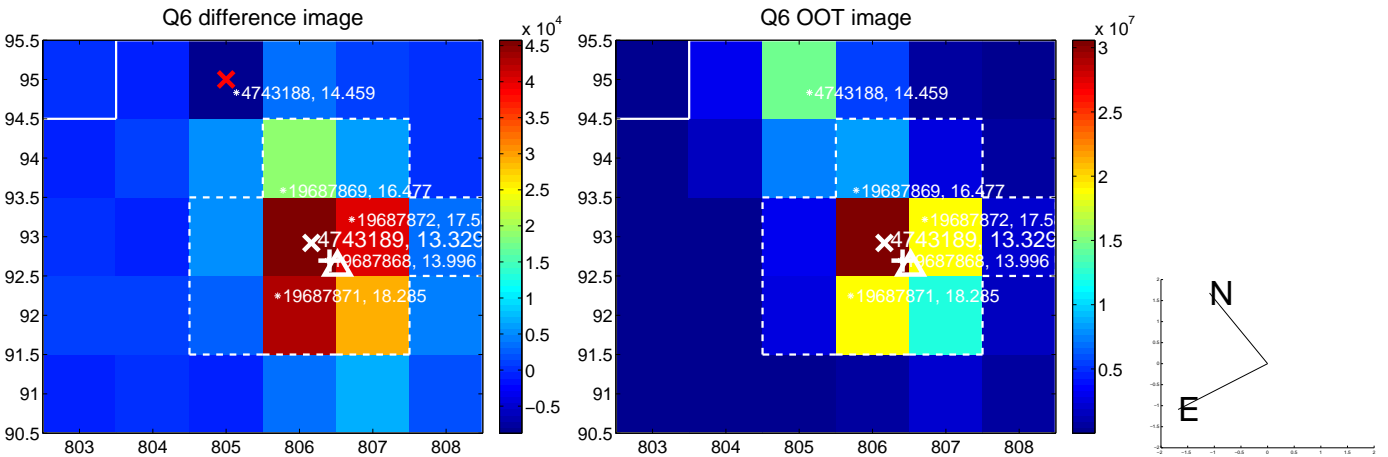
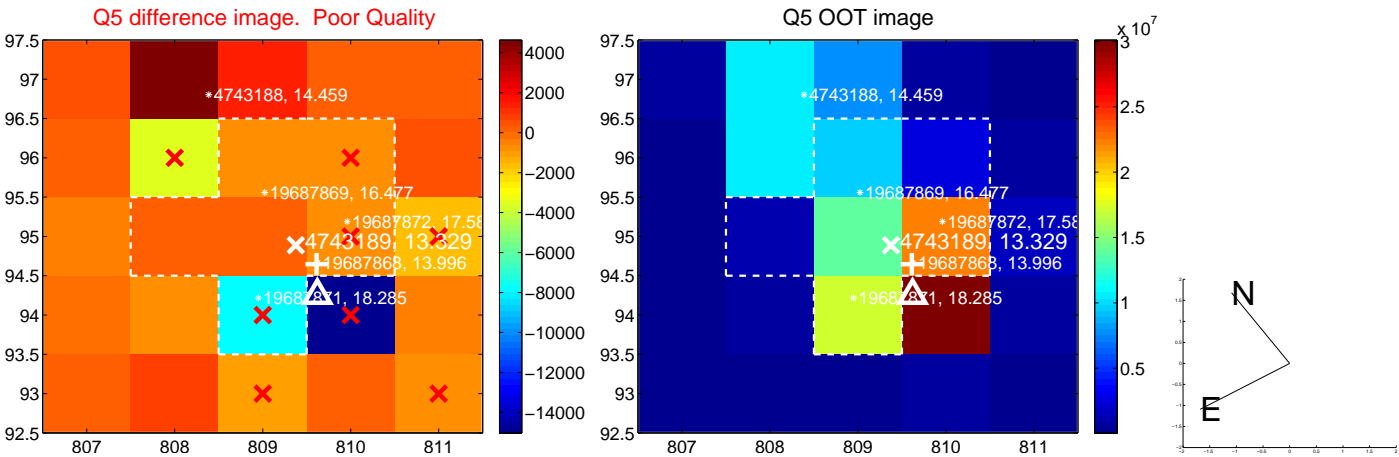


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

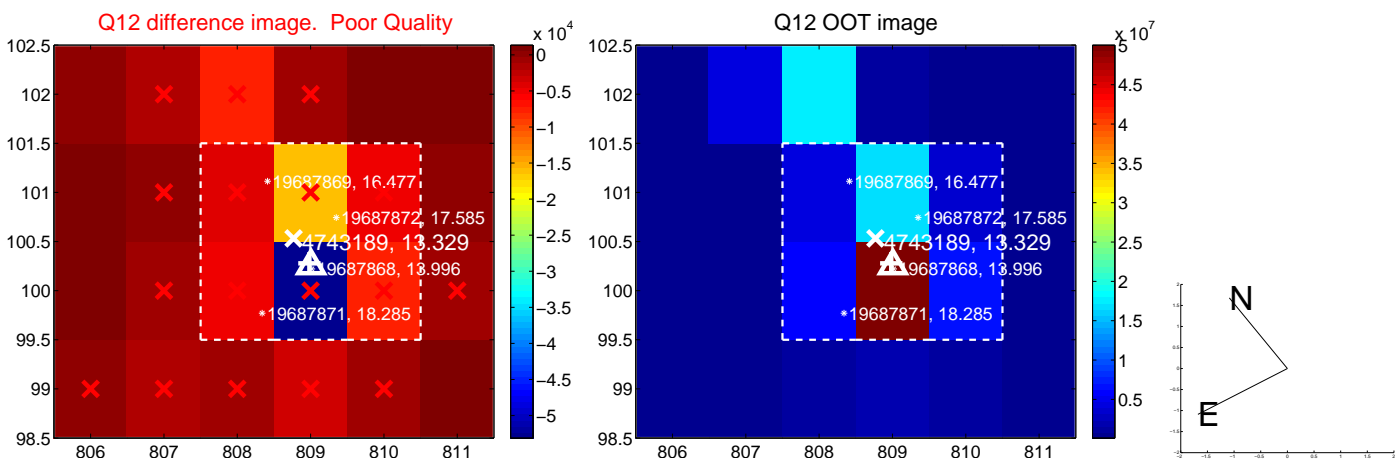
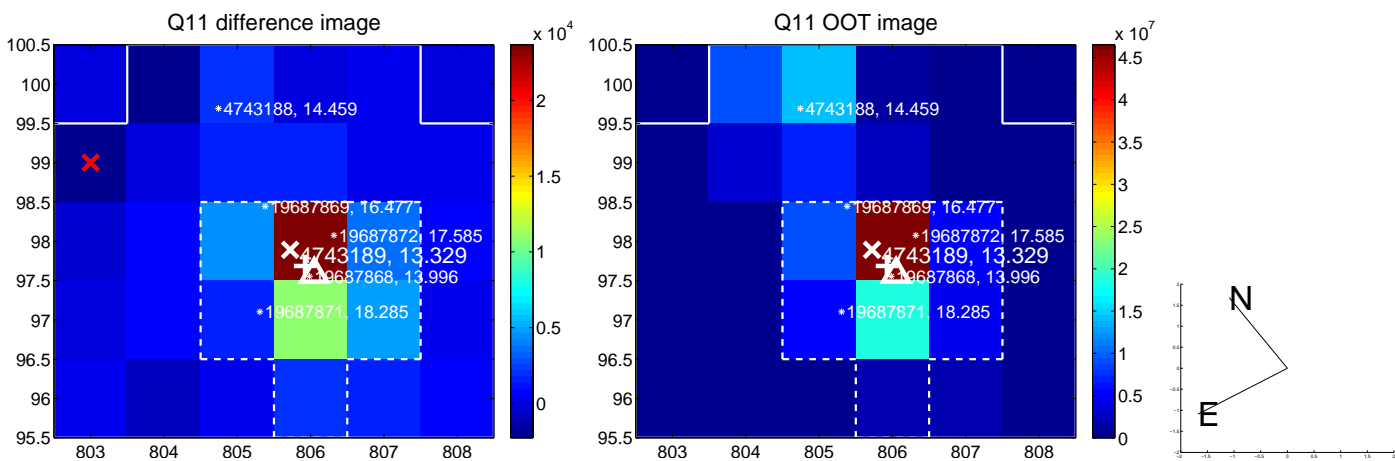
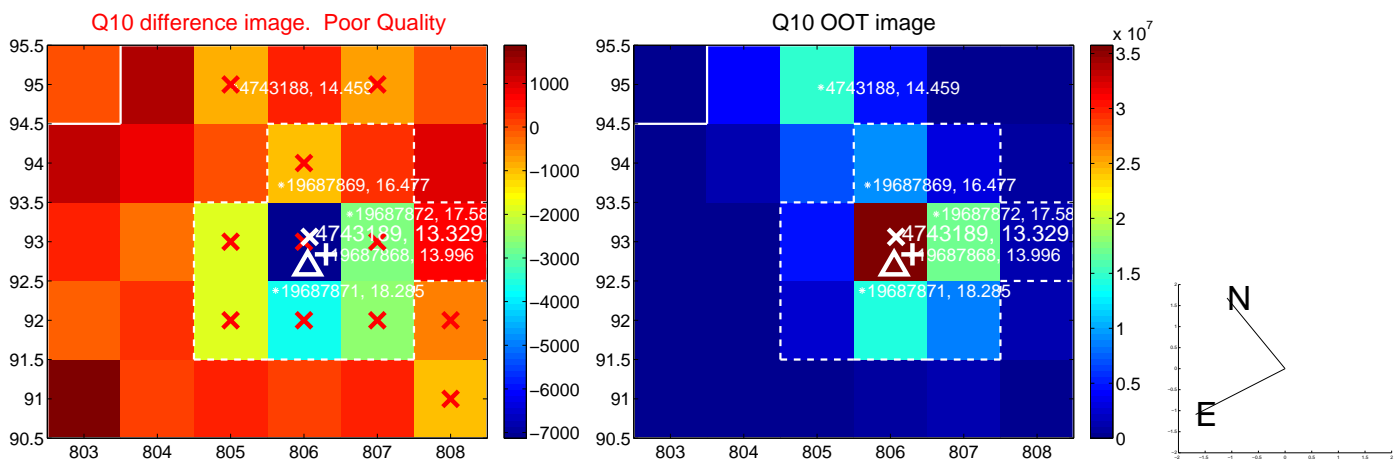
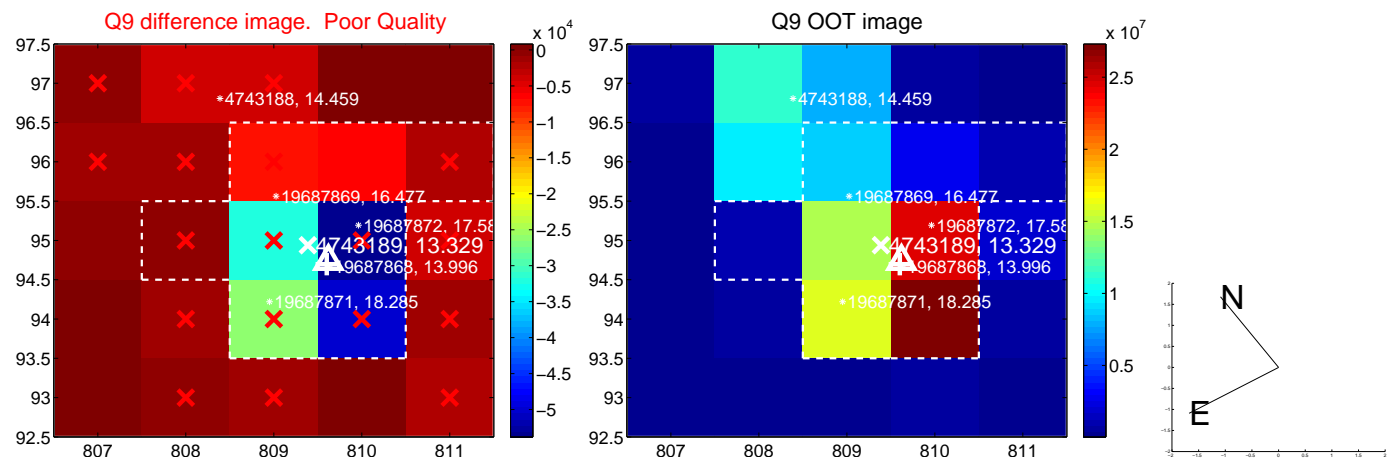
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



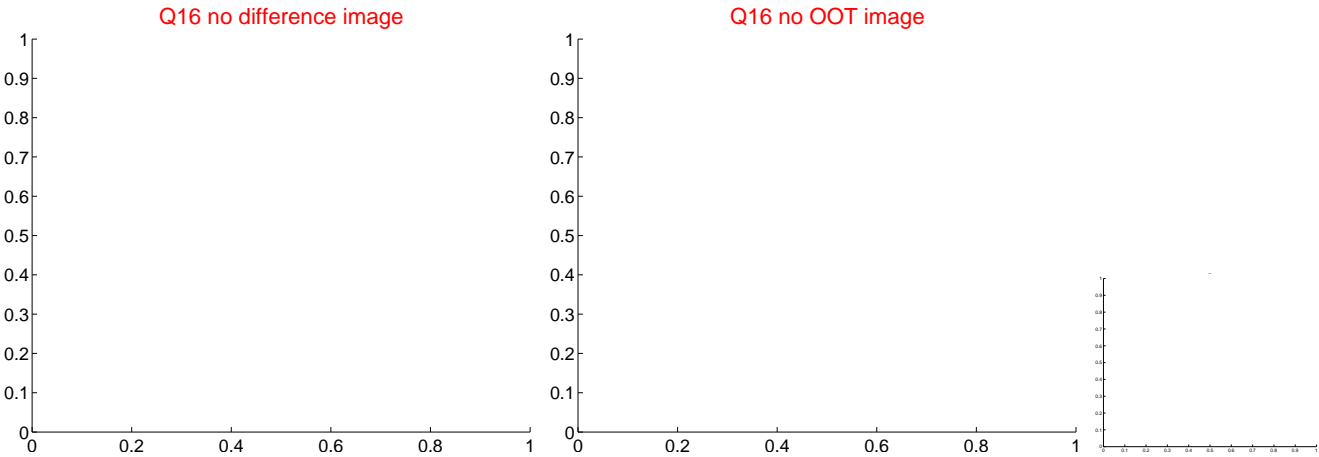
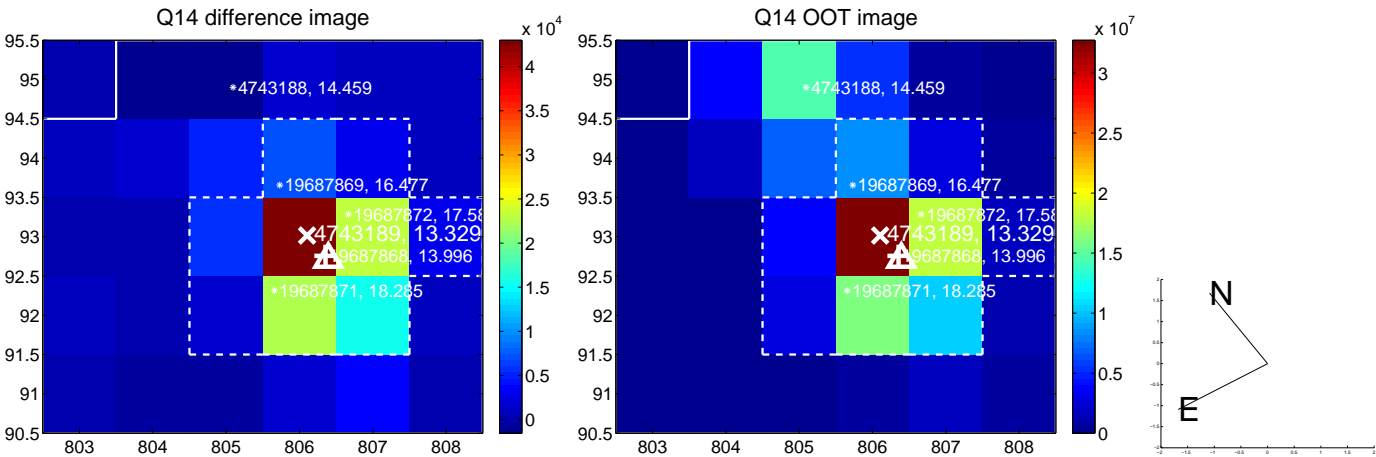
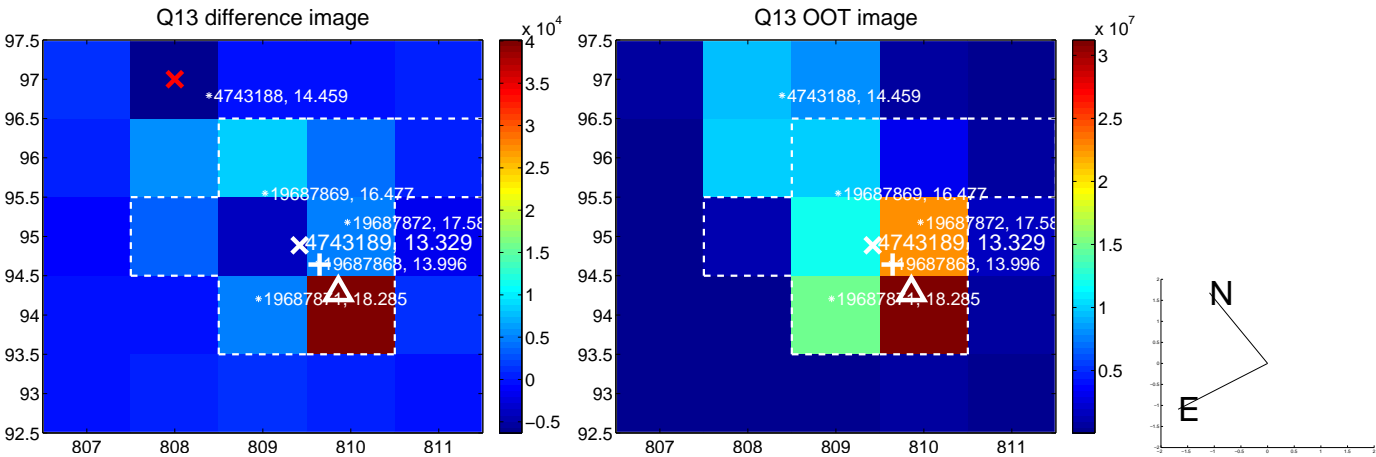
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



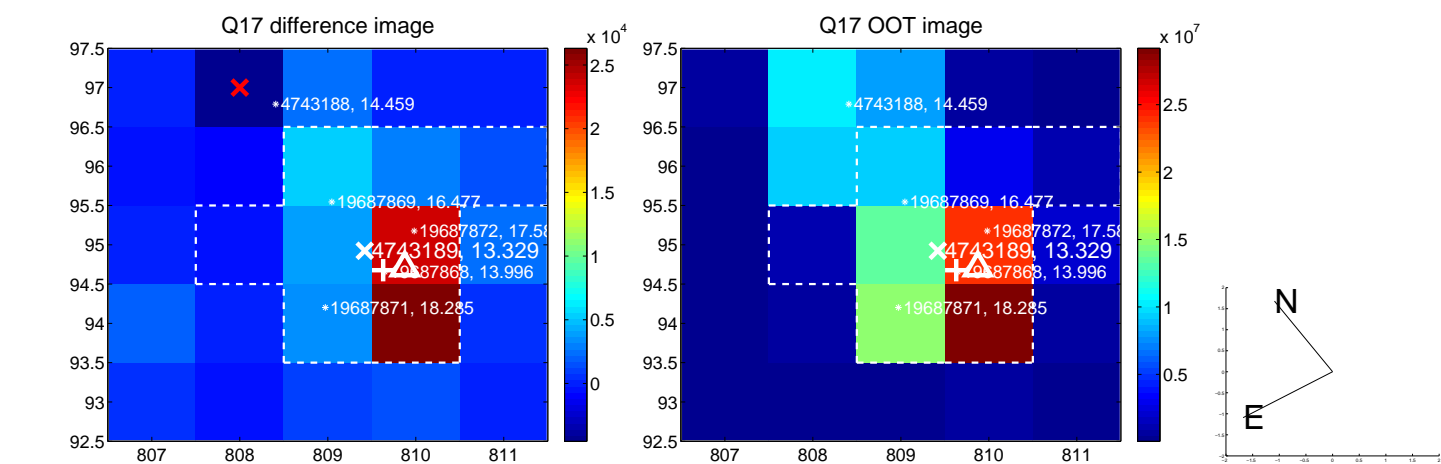
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



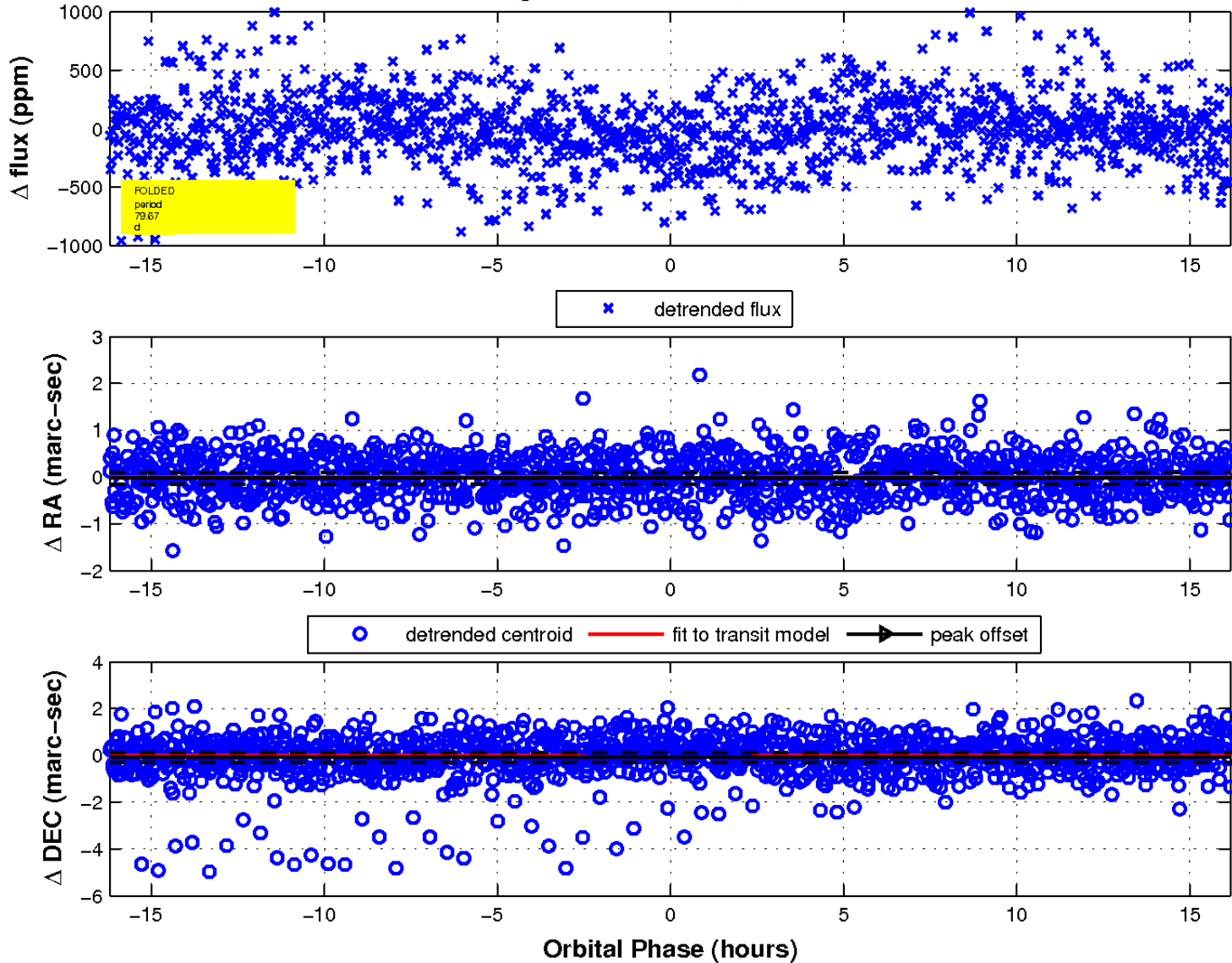
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

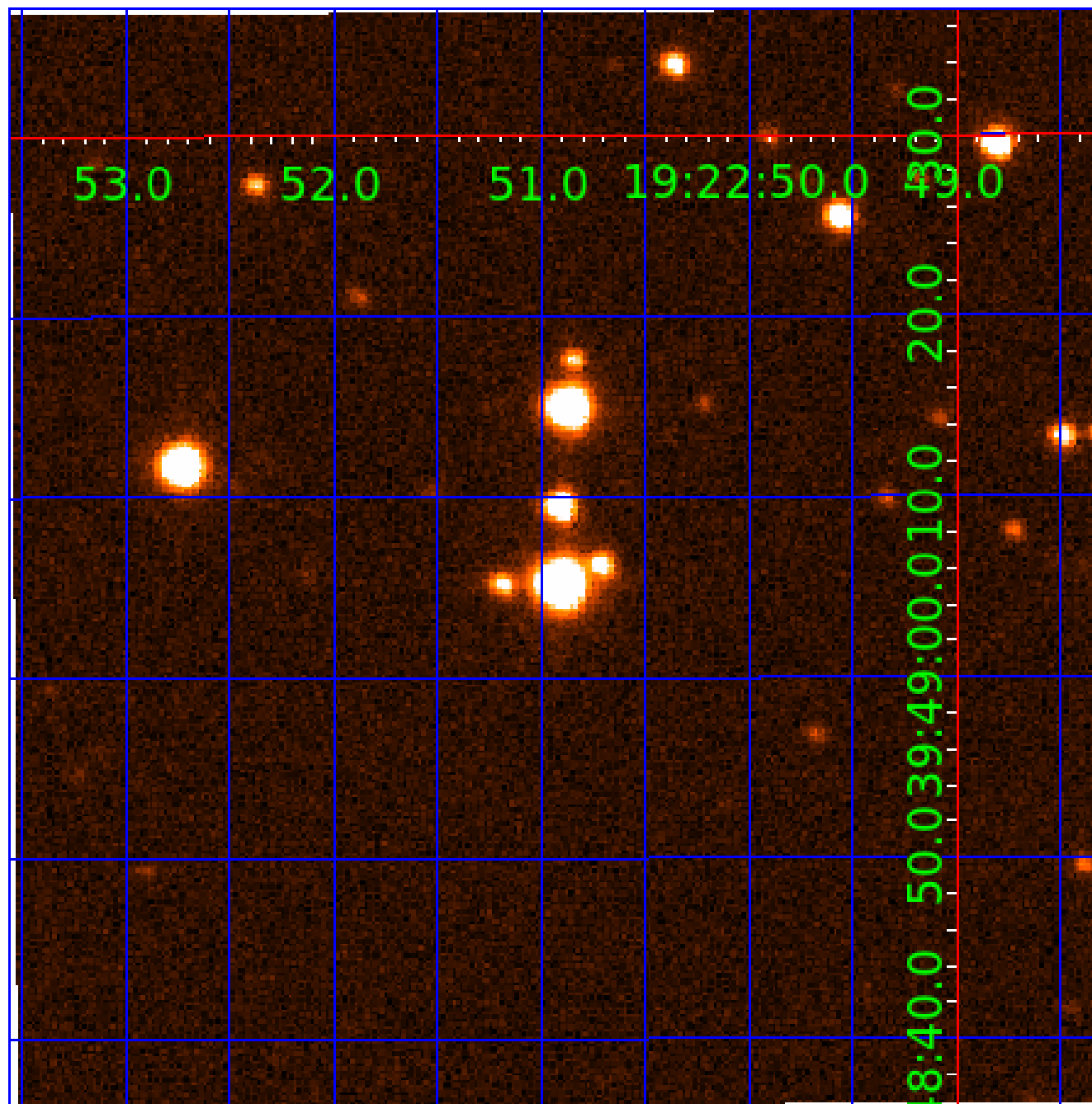


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 004743189

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})
004743189-01	OBS	No	0.909812	132.233634	4.2	5.144	11.3	1.6	2.26	7050	0.47	23131.17
004743189-02	OBS	No	116.827776	230.319700	380.8	4.966	8.9	7.1	2.26	7050	4.93	35.71
004743189-03	OBS	No	79.671640	135.114621	291.0	5.403	8.2	6.5	2.26	7050	4.28	59.48
004743189-04	OBS	No	126.847906	147.228063	362.3	4.338	8.4	7.2	2.26	7050	4.79	32.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004743189-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004743189-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
004743189-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004743189-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

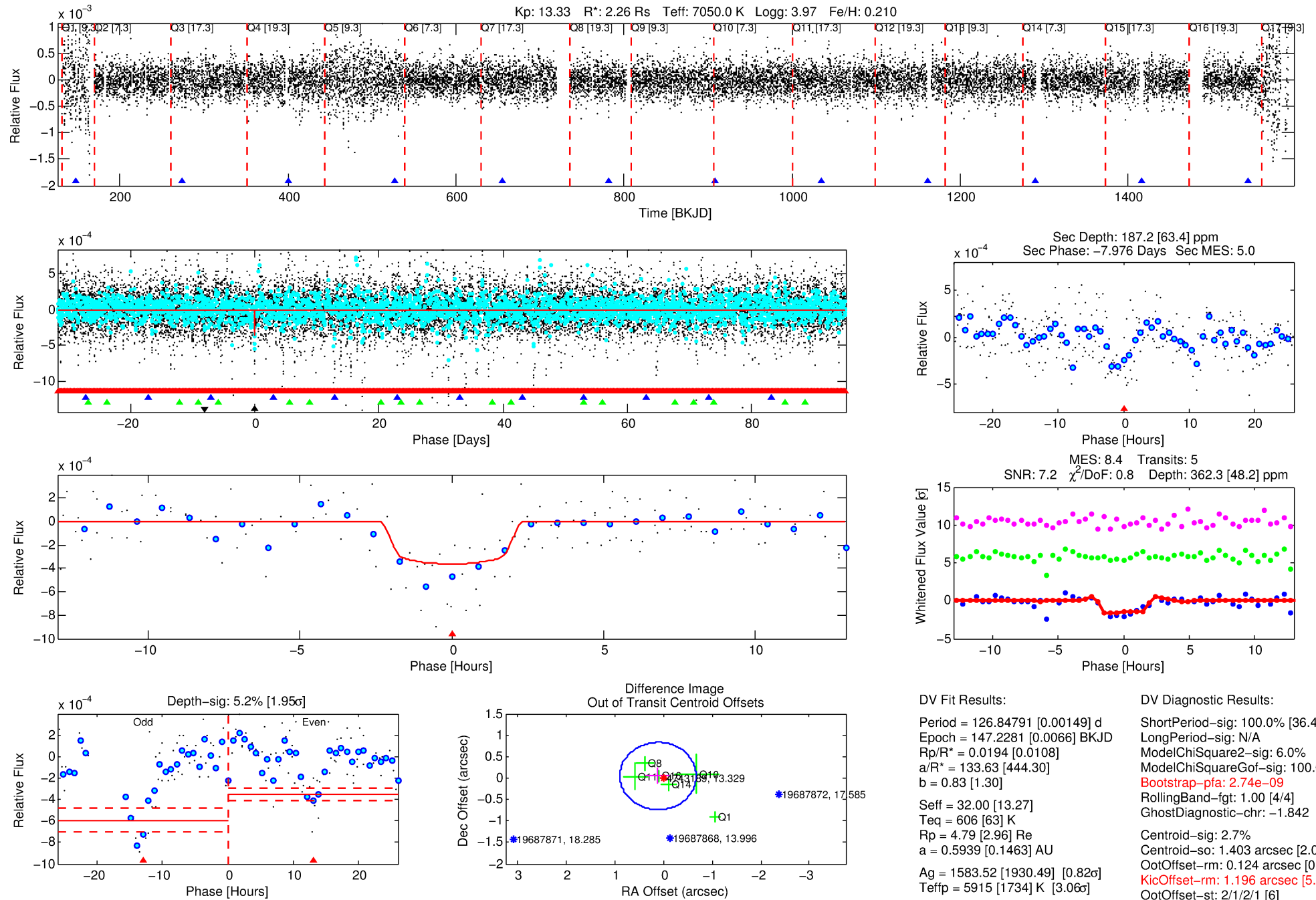
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004743189-04

No Significant Match Found

DV One-Page Summary

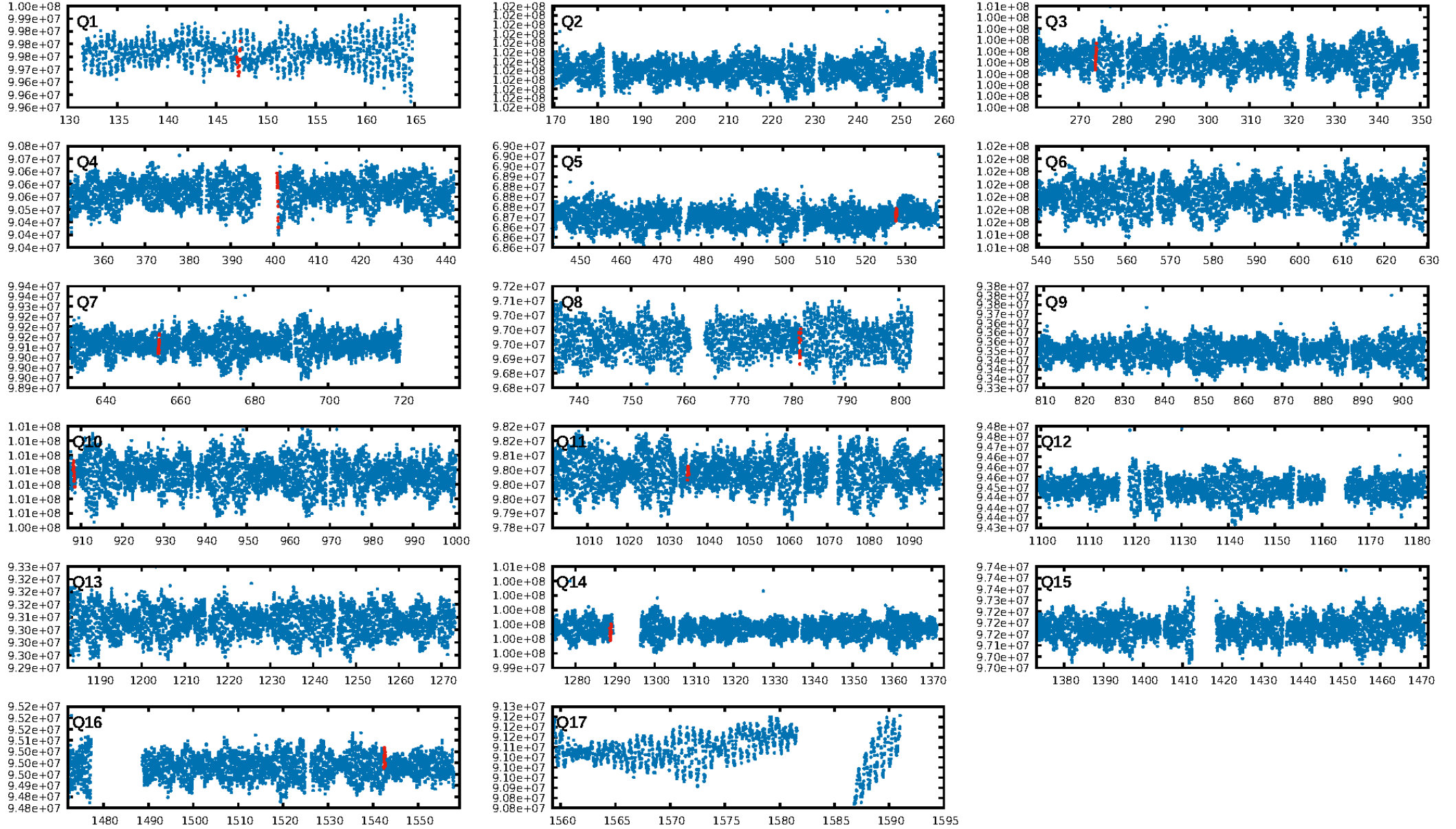
KIC: 4743189 Candidate: 4 of 4 Period: 126.848 d



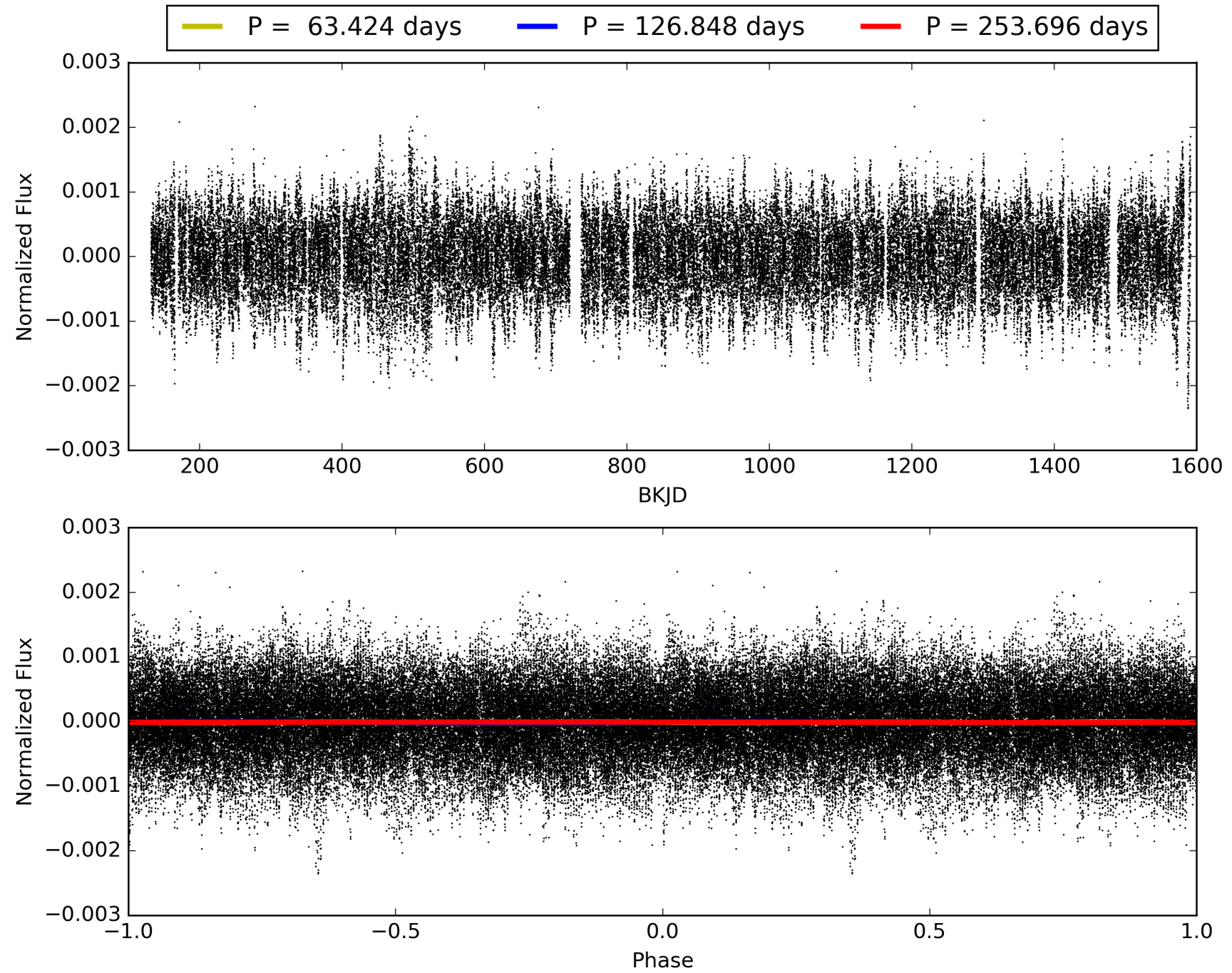
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:36:31 Z

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

TCE 004743189-04, PDC Light Curves

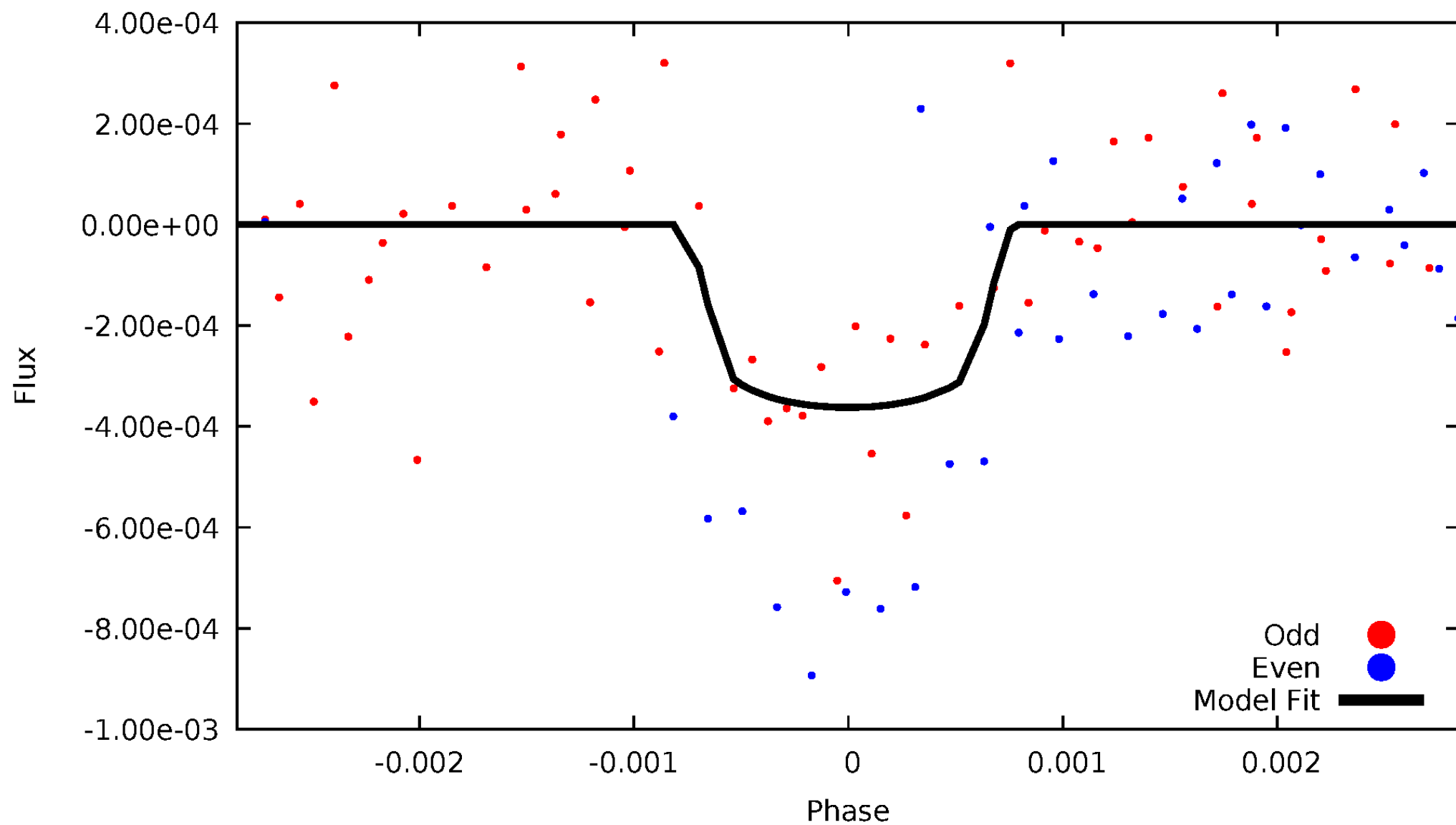


TCE 004743189-04



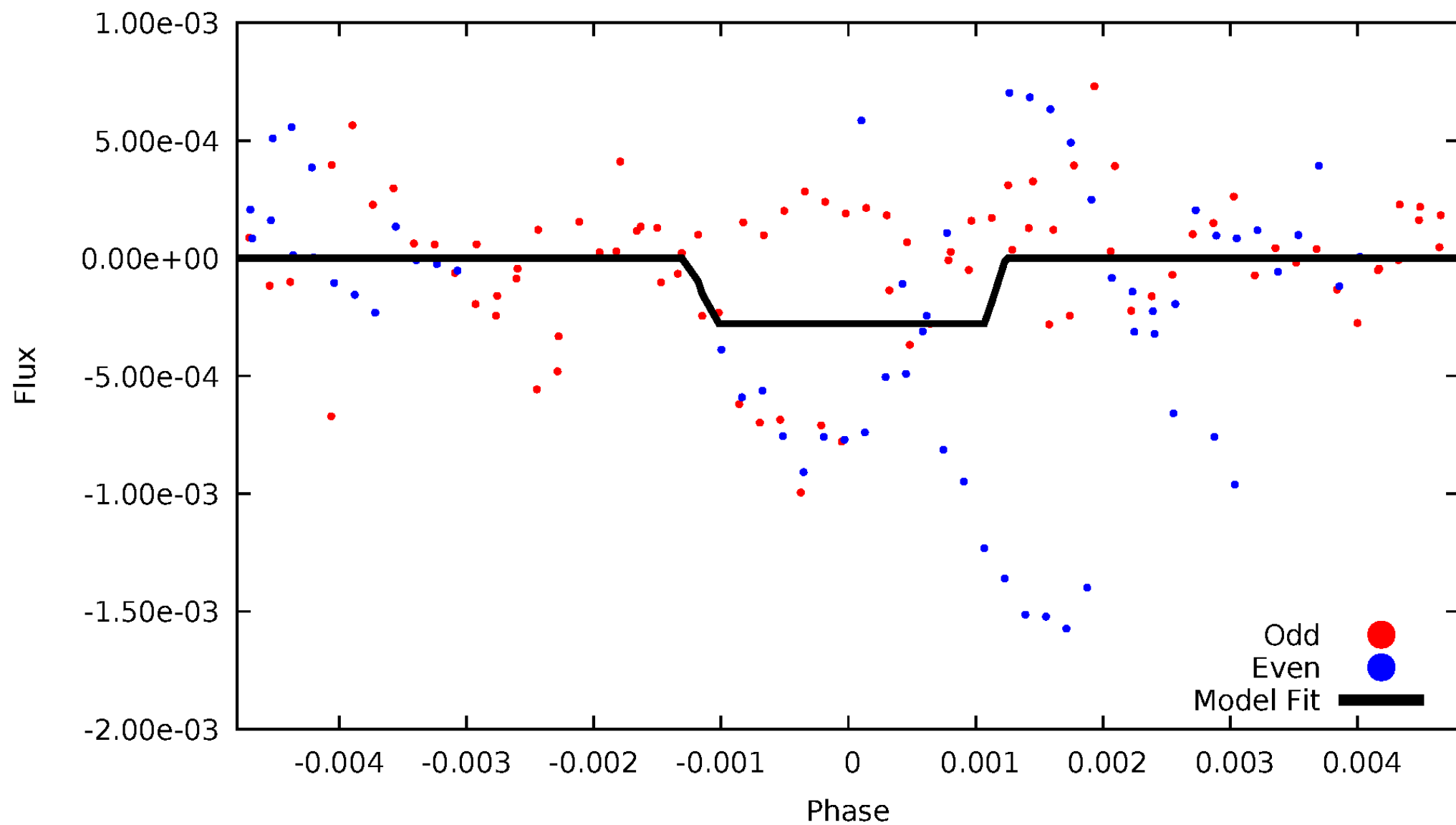
DV Odd/Even

TCE 004743189-04



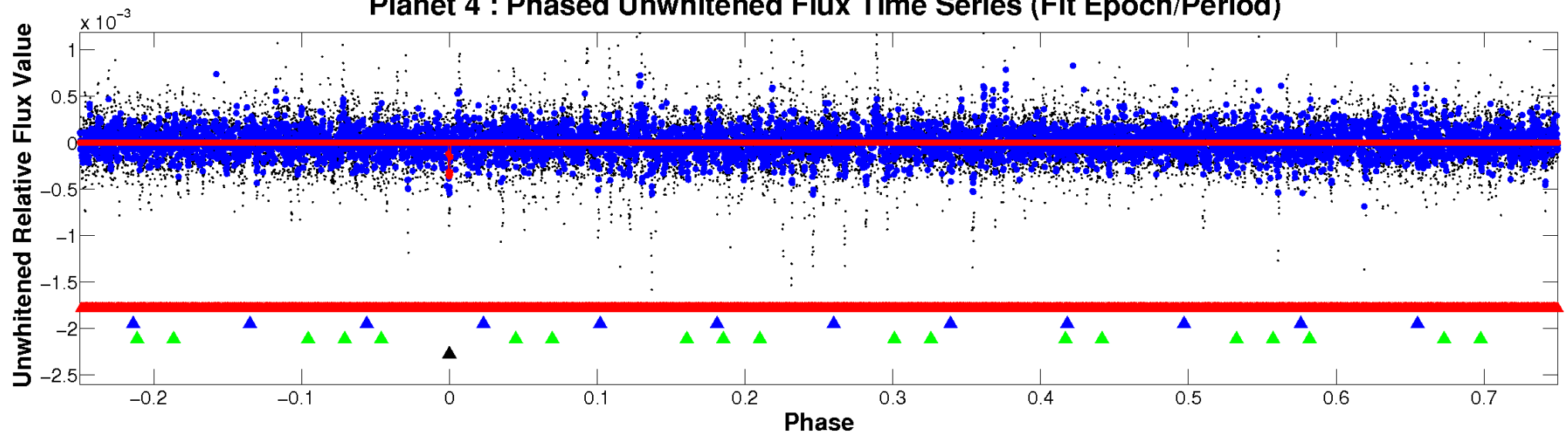
ALT Odd/Even

TCE 004743189-04

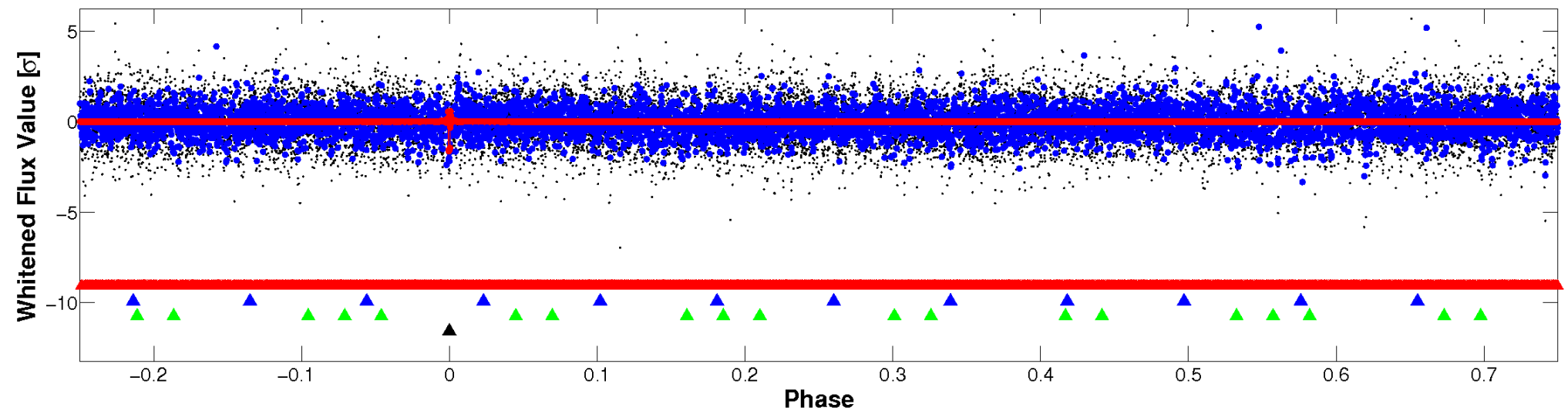


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

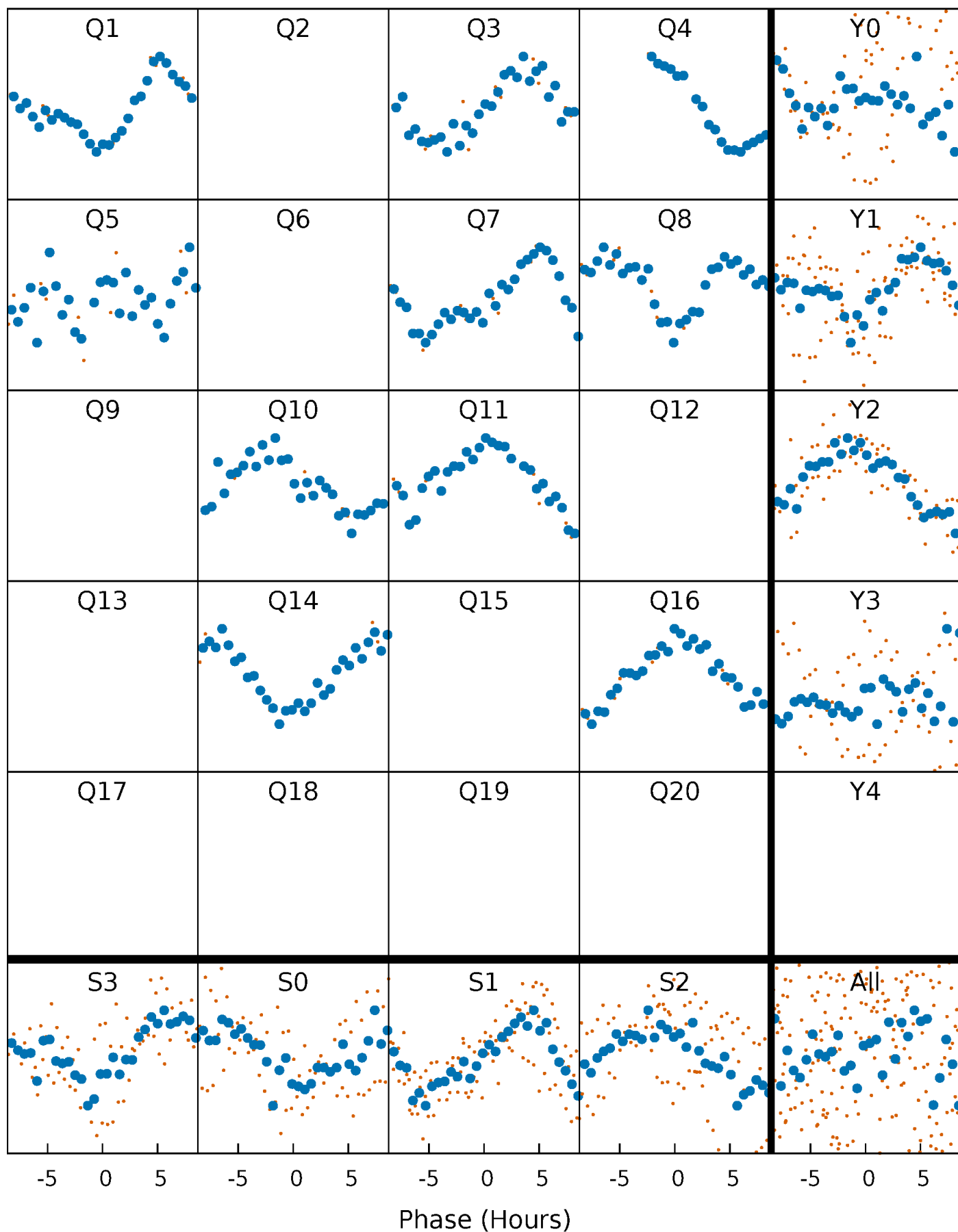


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



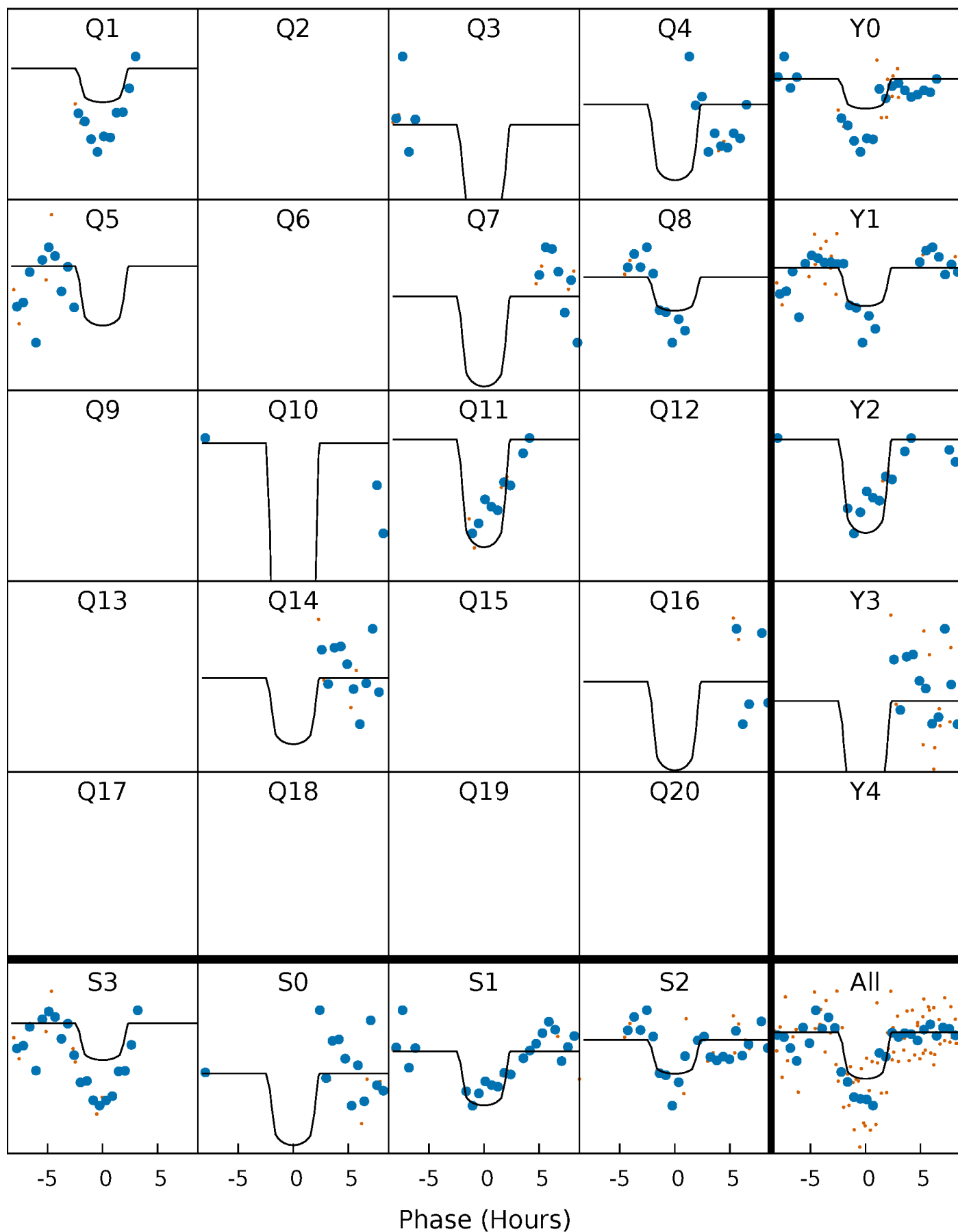
PDC Quarter-Phased Transit Curves

TCE 004743189-04 P=126.847906 Days $T_0=147.228063$ (BKJD)



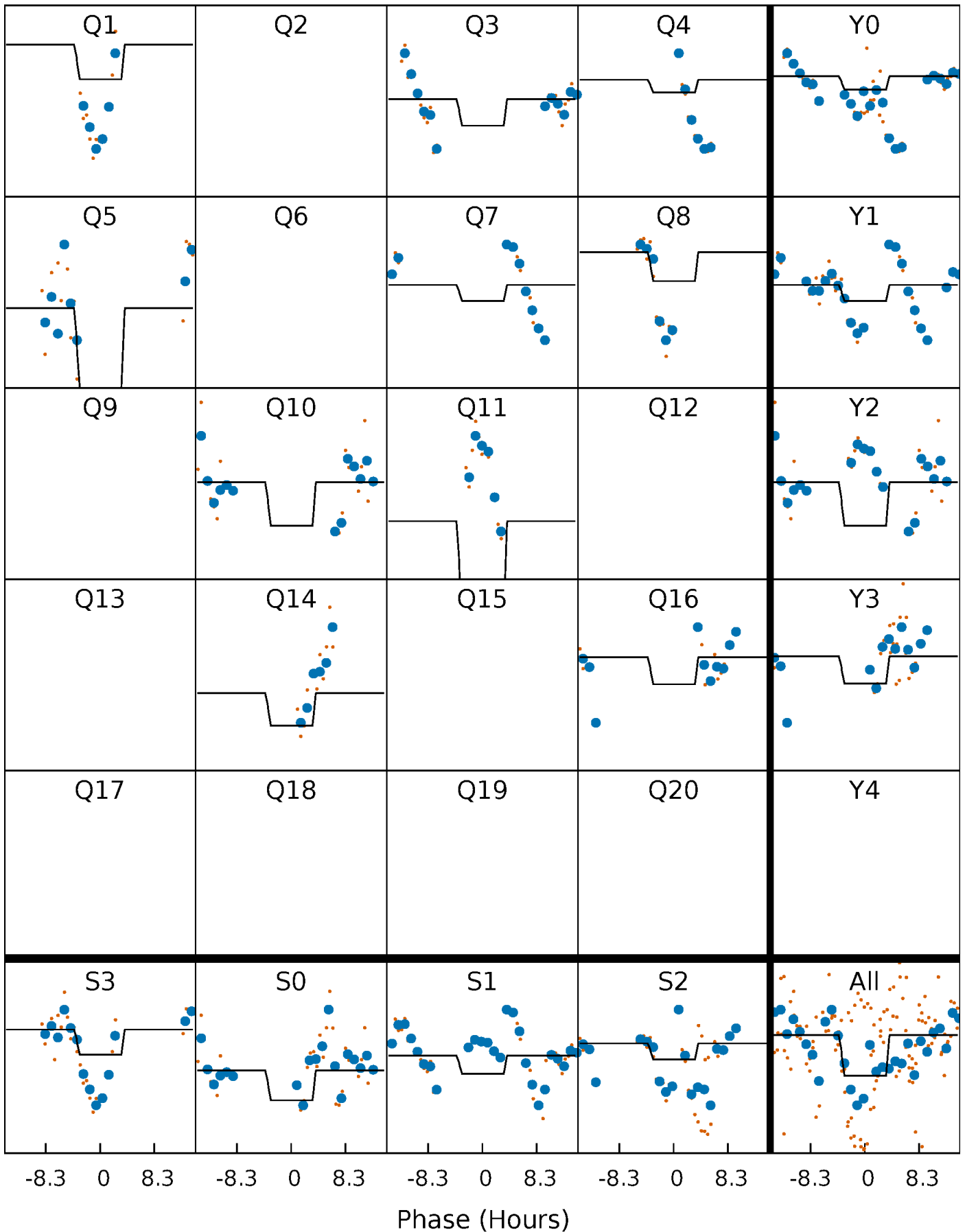
DV Quarter-Phased Transit Curves

TCE 004743189-04 P=126.847906 Days $T_0=147.228063$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

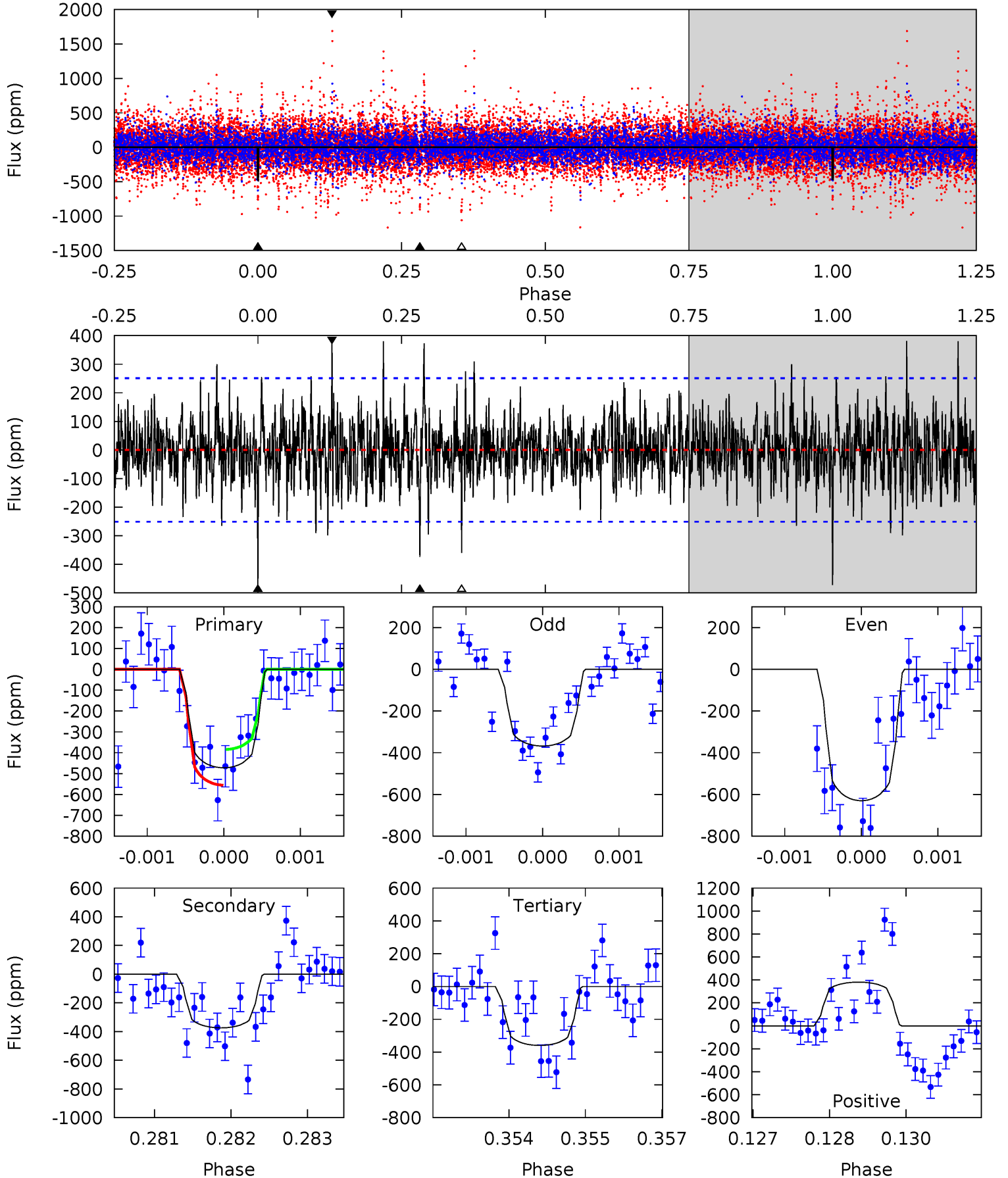
TCE 004743189-04 P=126.851465 Days $T_0=147.250976$ (BKJD)



DV Model-Shift Uniqueness Test

004743189-04, P = 126.847906 Days, E = 20.380157 Days

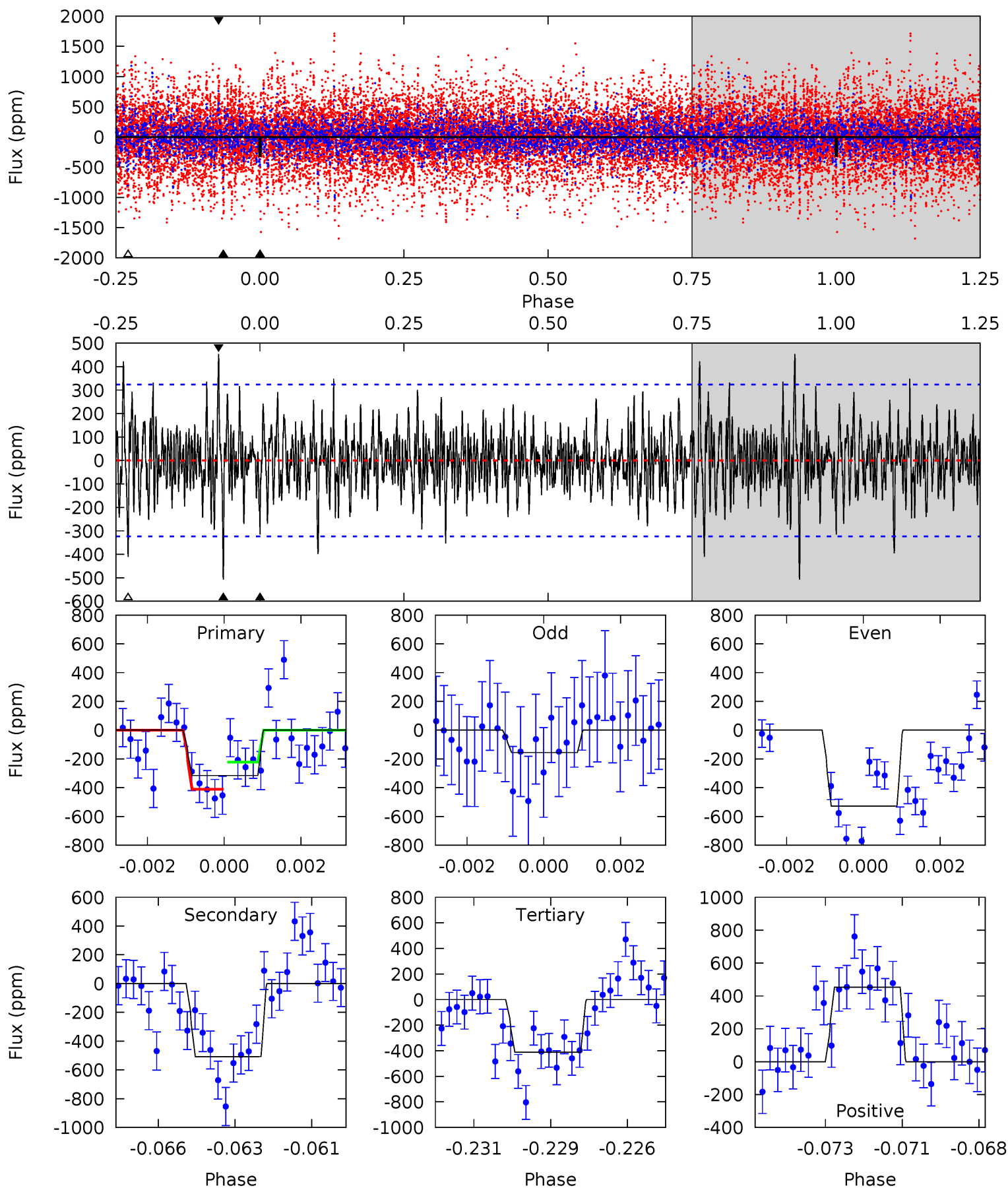
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	8.04	7.72	8.18	5.39	3.19	1.80	2.42	1.97	0.32	-0.14	2.75	0.87	0.45	1.85



Alt Model-Shift Uniqueness Test

004743189-04, P = 126.851465 Days, E = 20.399511 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.16	8.29	6.72	7.40	5.29	3.03	1.76	-1.56	-2.25	1.58	0.89	3.00	0.68	0.47	1.52



Stellar Parameters For KIC 004743189

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7050^{+195}_{-307}	$3.970^{+0.214}_{-0.156}$	$0.210^{+0.150}_{-0.350}$	$2.258^{+0.622}_{-0.622}$	$1.736^{+0.172}_{-0.319}$	$0.212^{+0.301}_{-0.093}$
	+3%/-4%	+5%/-4%	+71%/-167%	+28%/-28%	+10%/-18%	+142%/-44%
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 004743189-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-374 ± 47	$4.69^{+2.69}_{-2.46}$	839^{+65}_{-65}	6873^{+4377}_{-1304}	3218^{+10368}_{-1960}
Alt.	-508 ± 61	$4.08^{+2.79}_{-2.21}$	837^{+60}_{-62}	8228^{+6660}_{-2000}	5873^{+21037}_{-3789}

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 $A_{obs} \gg 1.0$

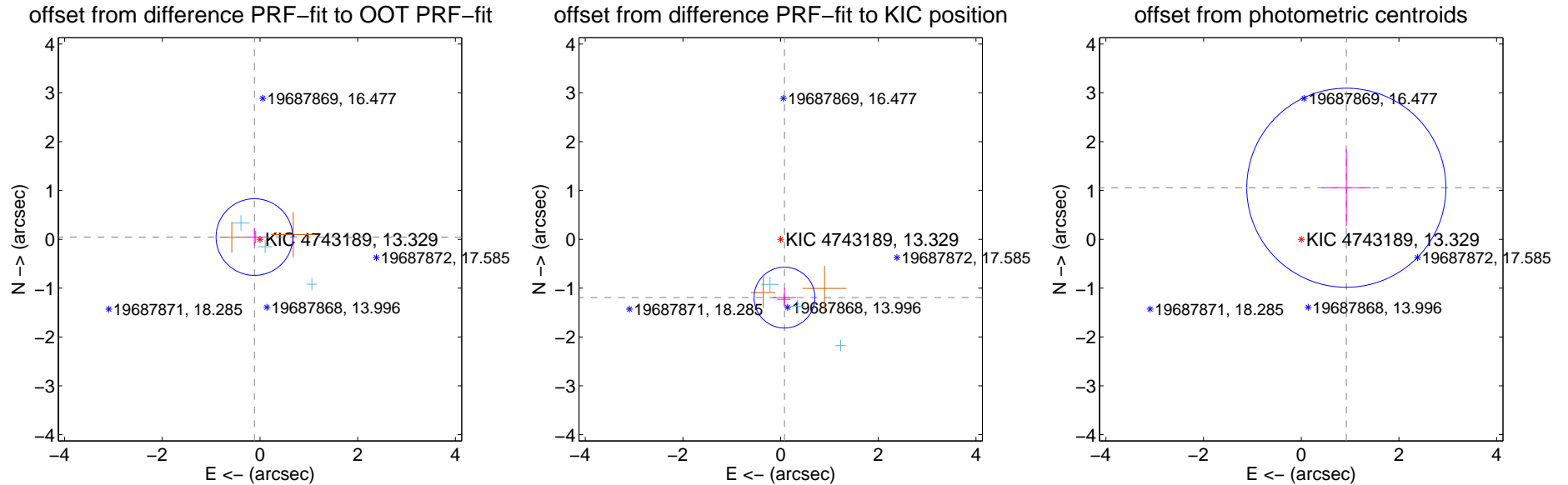
DV Centroid Data

Supplemental centroid analysis for 004743189-04. Kepler magnitude: 13.33. Transit SNR 7.19

There are 3 quarters with good PRF difference image offsets

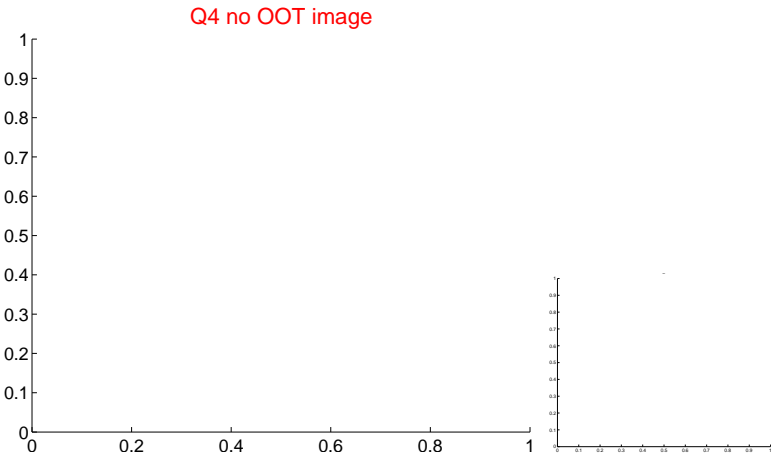
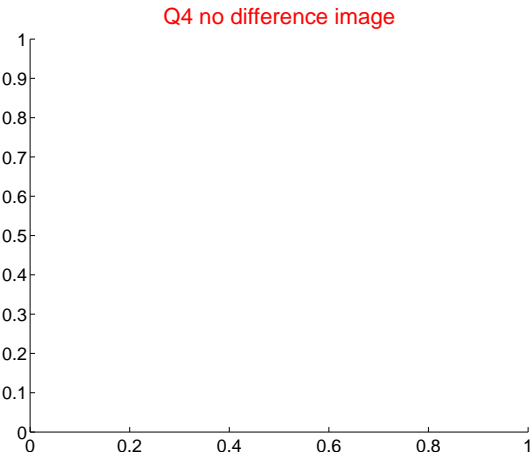
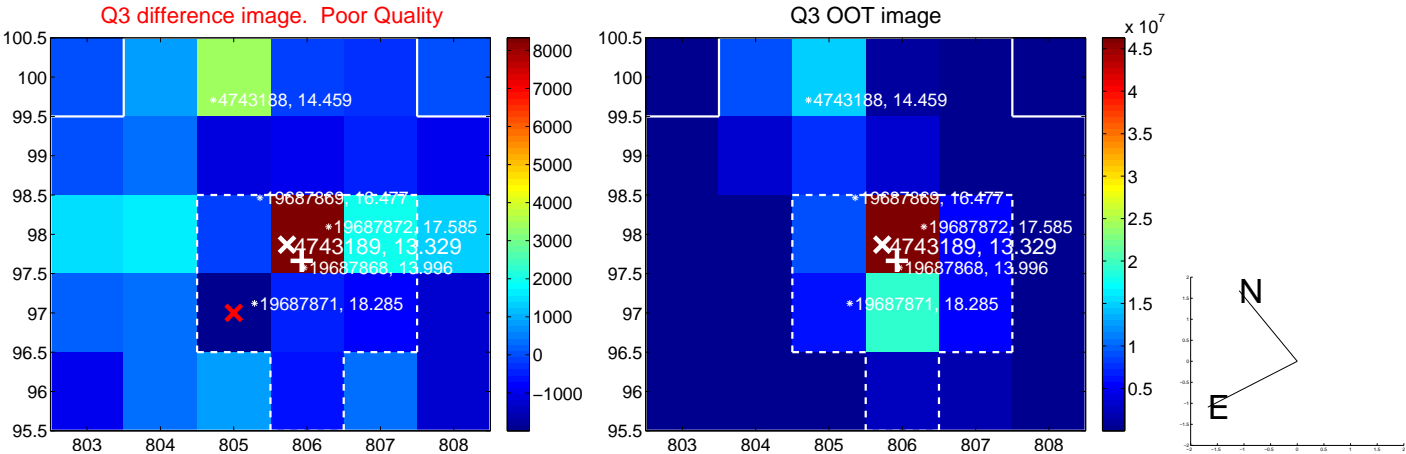
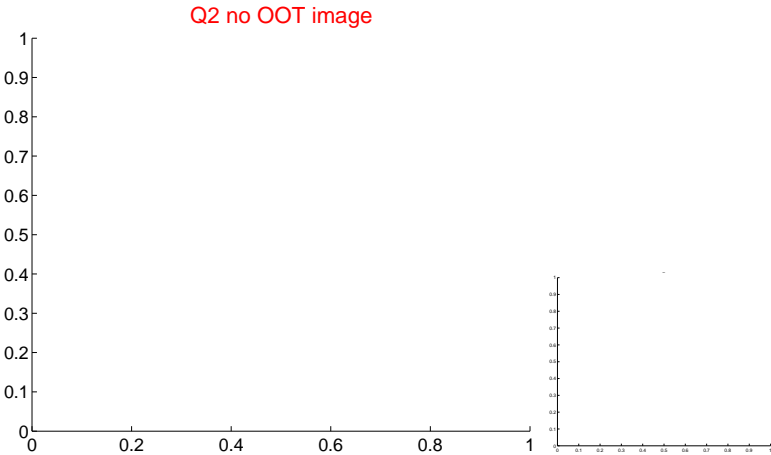
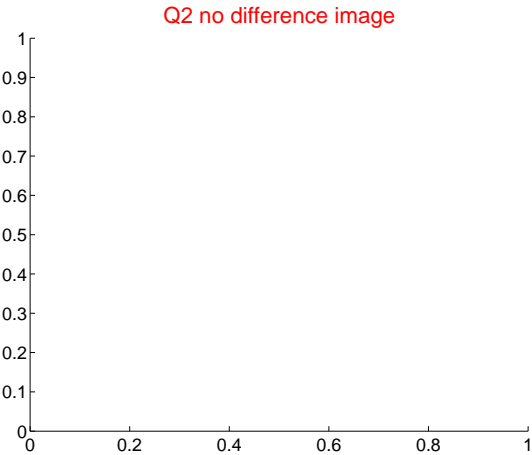
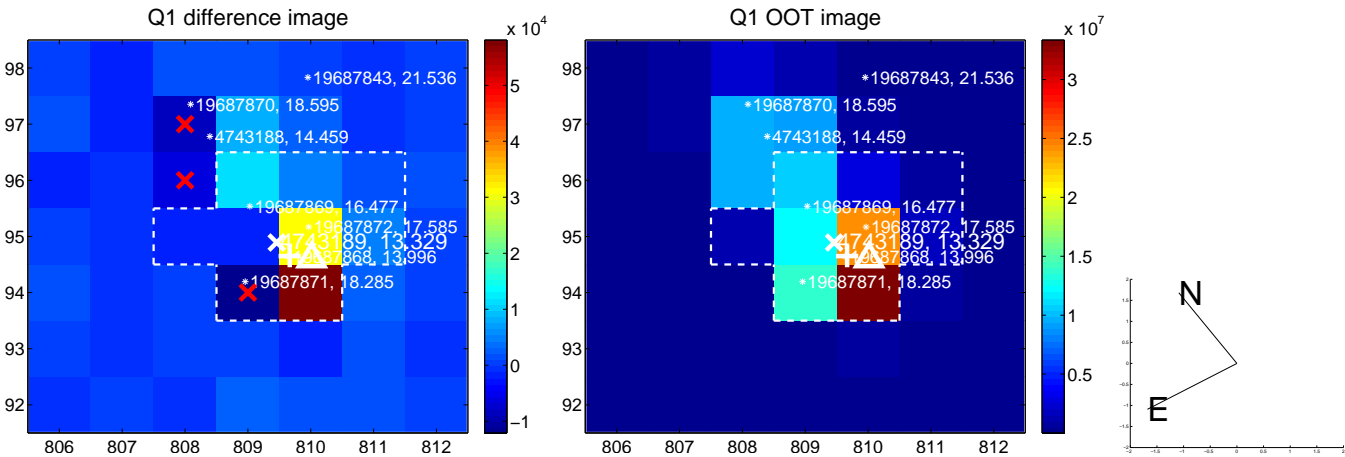
The direct PRF centroid is offset from the target star catalog position by about 1.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.124 ± 0.262	0.47	0.115 ± 0.230	0.047 ± 0.175
PRF-fit source offset from KIC position	1.196 ± 0.208	5.76	-0.078 ± 0.240	-1.194 ± 0.200
photometric centroid source offset	1.40 ± 0.68	2.06	-0.92 ± 0.50	1.06 ± 0.79

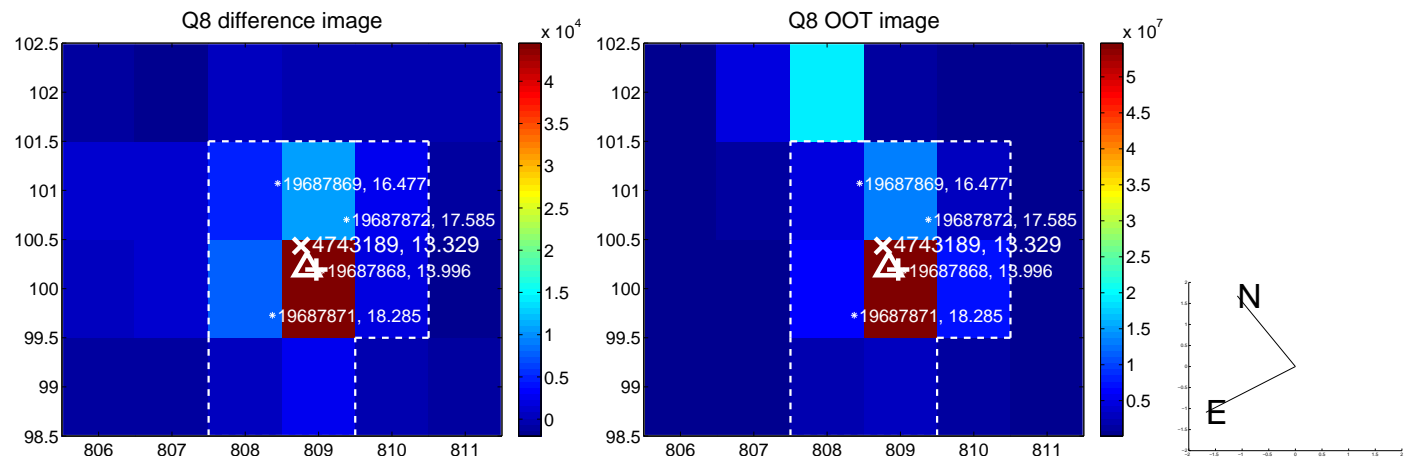
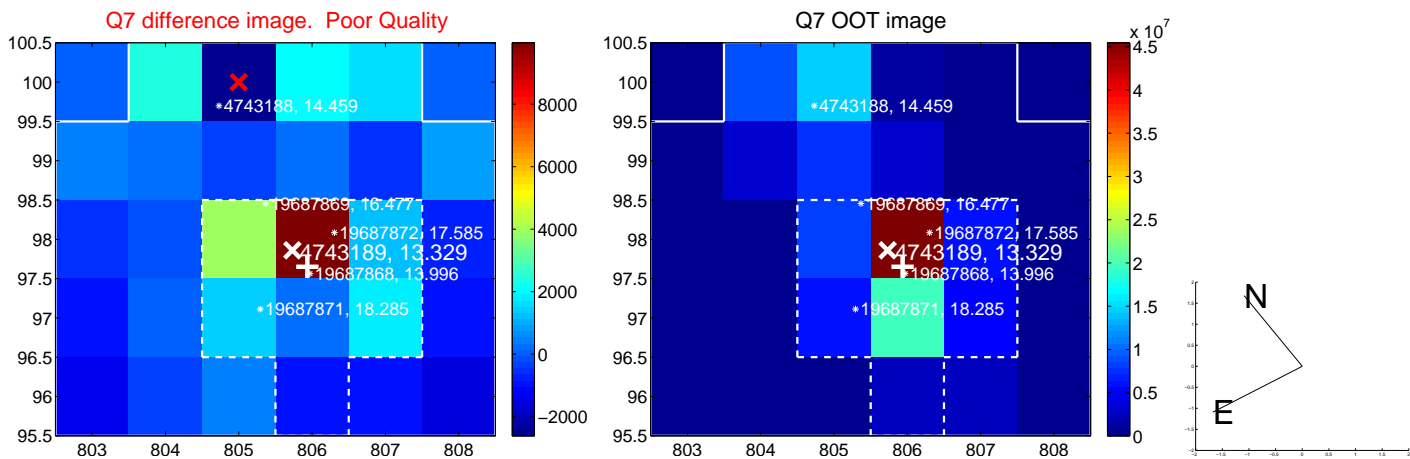
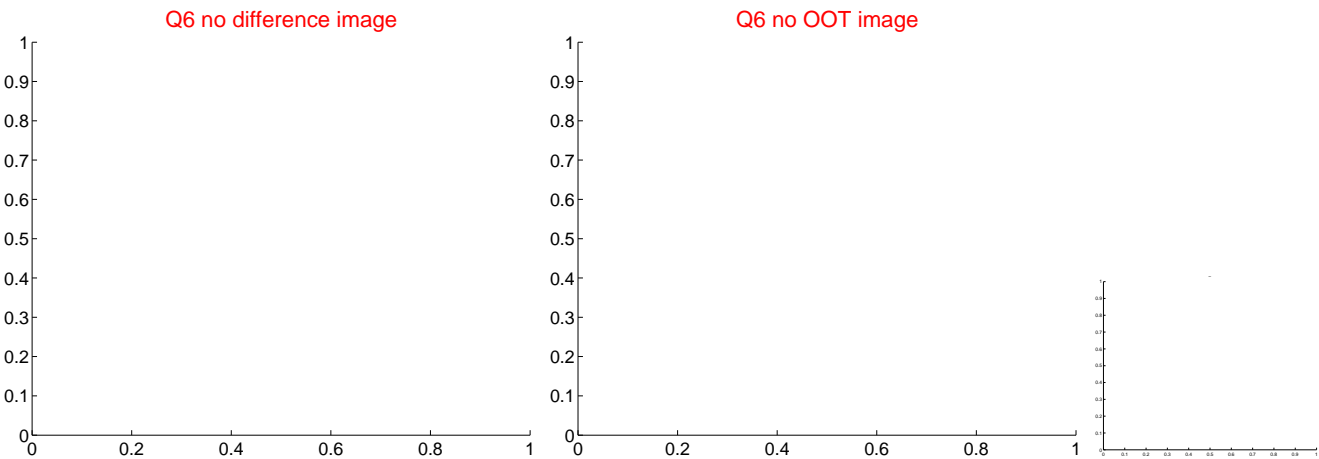
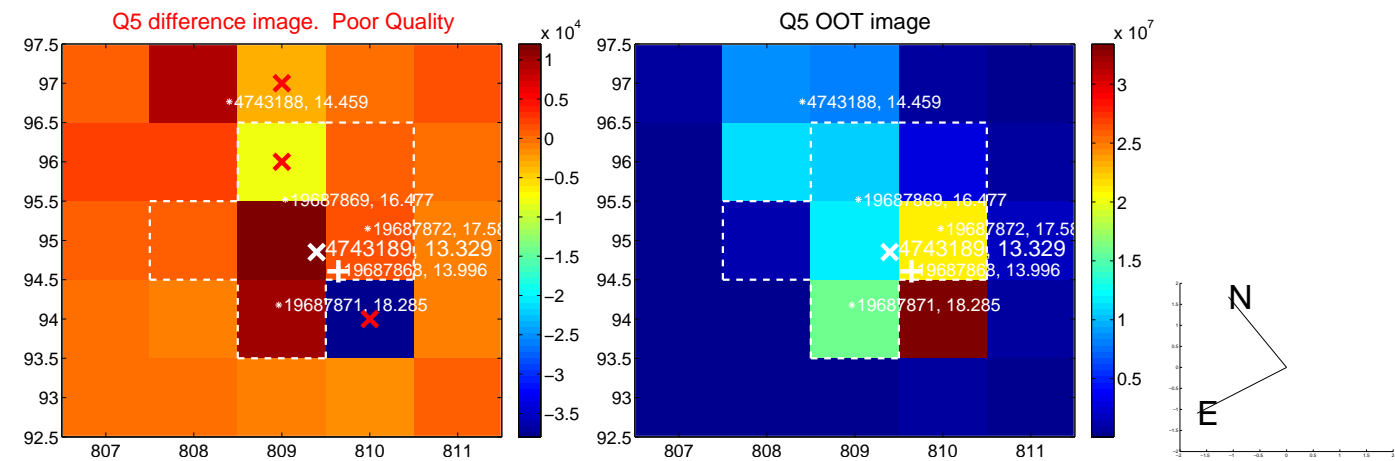


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

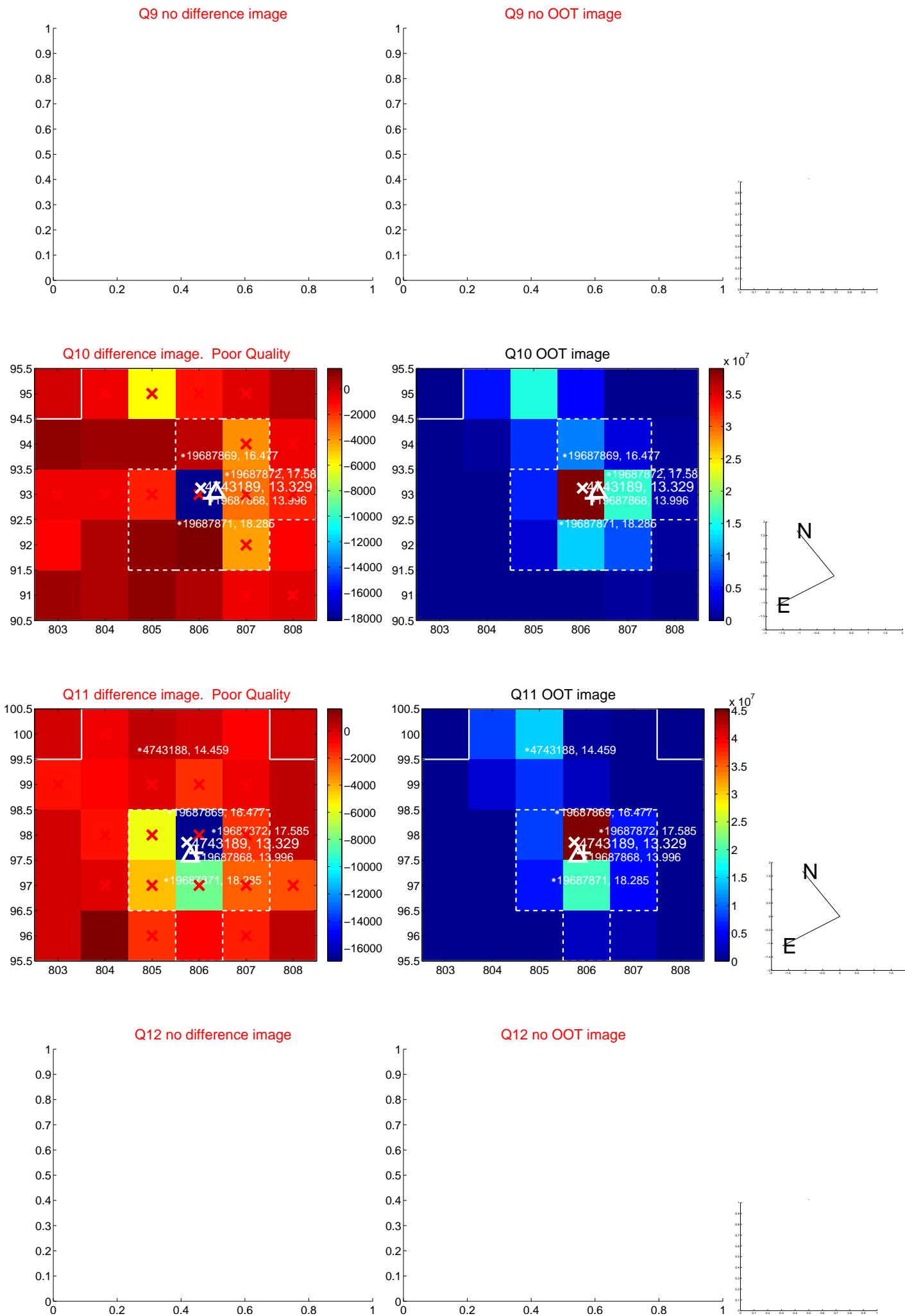
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



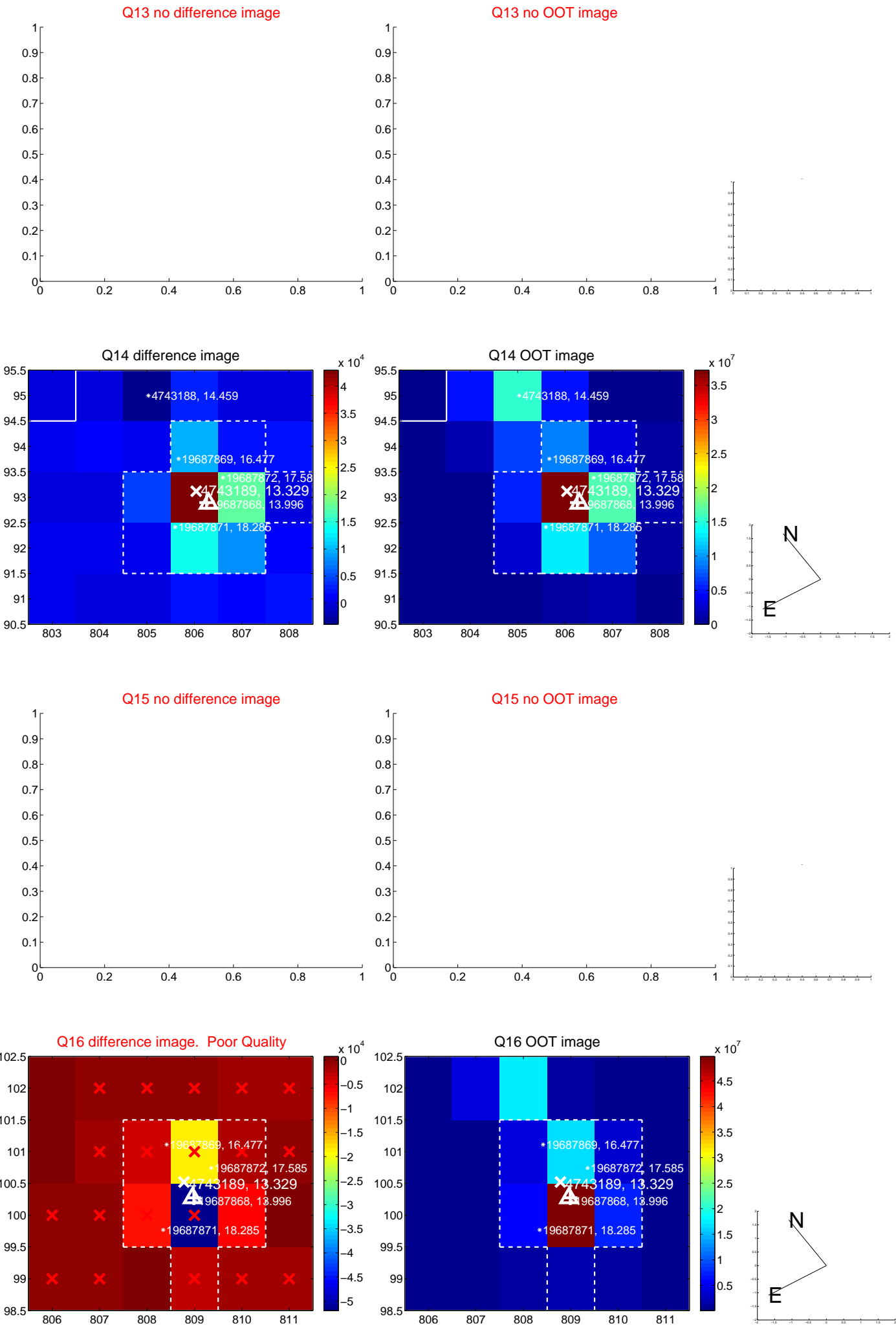
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



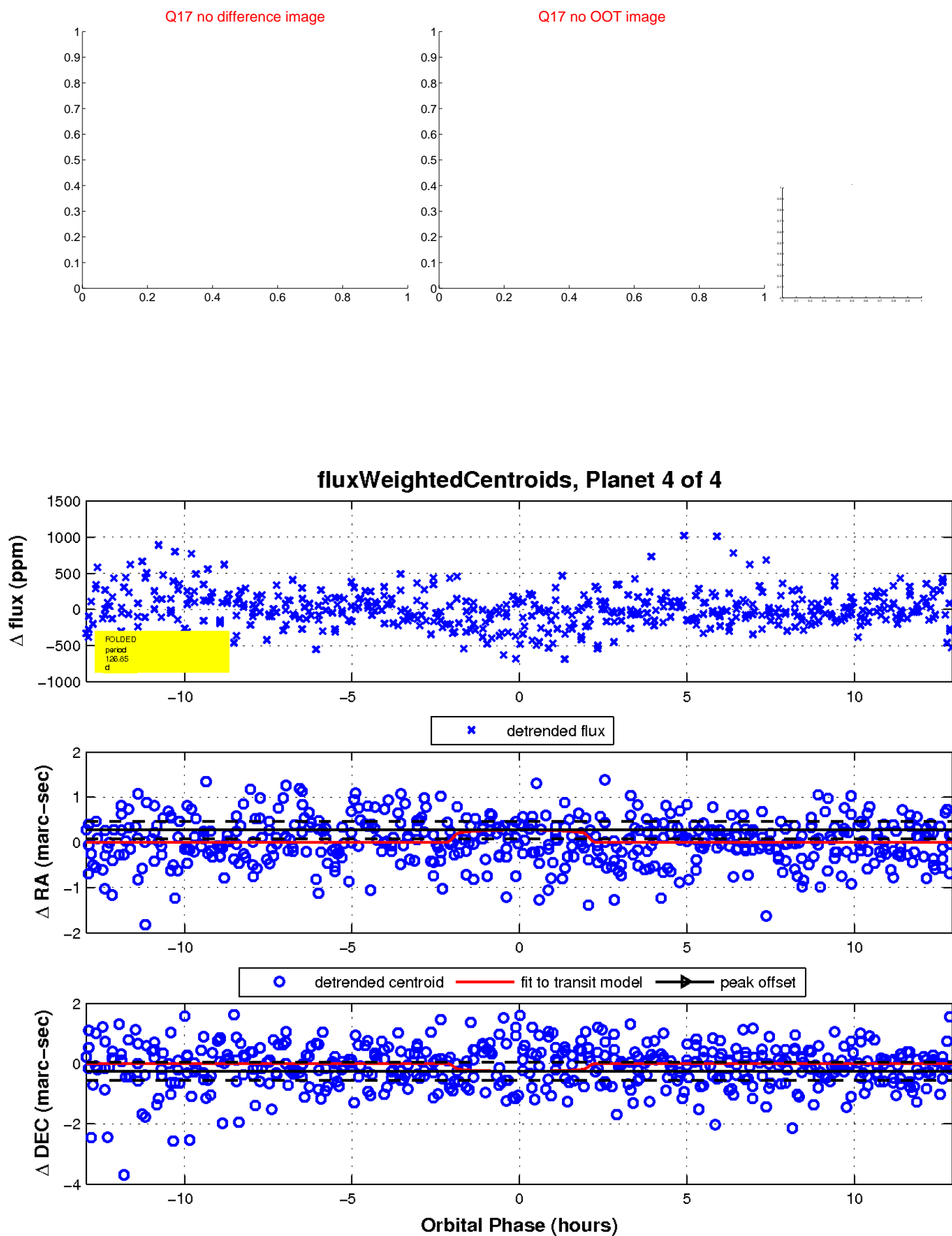
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

