

KIC 004768668

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})
004768668-01	OBS	No	0.598067	131.945842	84.4	1.820	12.3	12.2	2.00	7919	2.15	51859.45
004768668-02	OBS	No	0.598064	131.575391	94.9	1.922	12.8	14.0	2.00	7919	2.28	51859.76
004768668-03	OBS	No	30.333029	148.952077	421.1	20.757	8.3	6.2	2.00	7919	4.25	276.23
004768668-04	OBS	No	58.535207	153.490353	1426.3	8.874	7.7	8.6	2.00	7919	9.28	114.97
004768668-05	OBS	No	106.183615	190.934125	254.5	2.000	7.1	-1.0	2.00	7919	3.21	51.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768668-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
004768668-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004768668-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

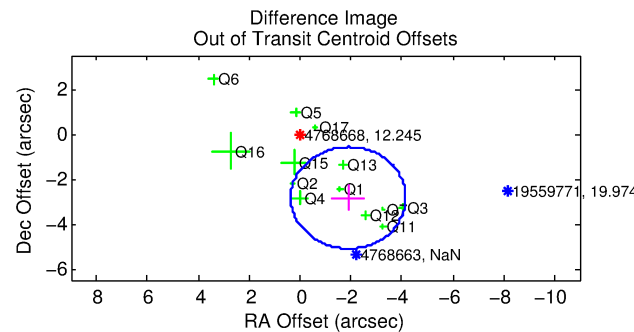
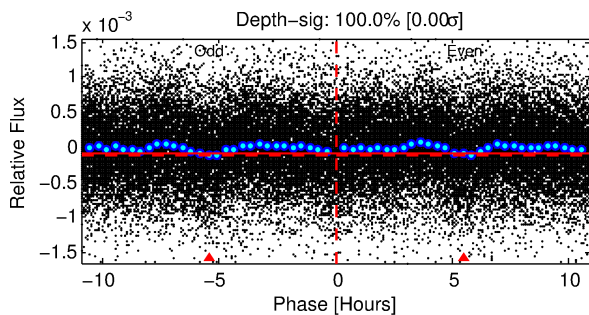
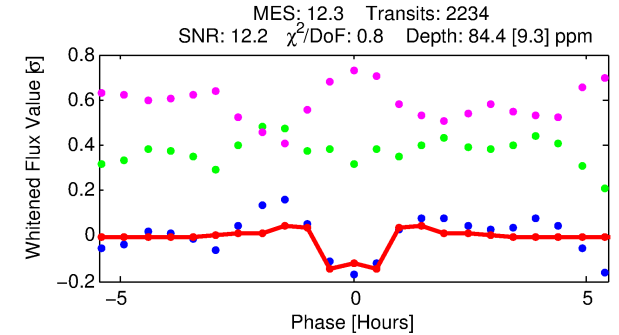
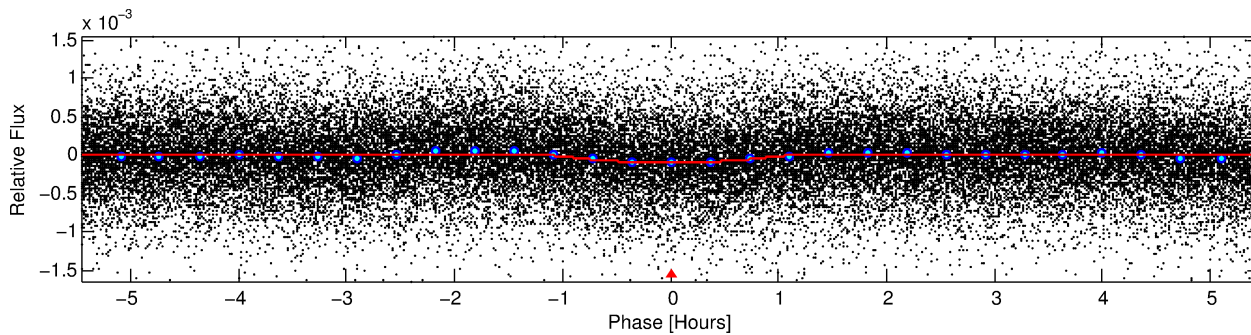
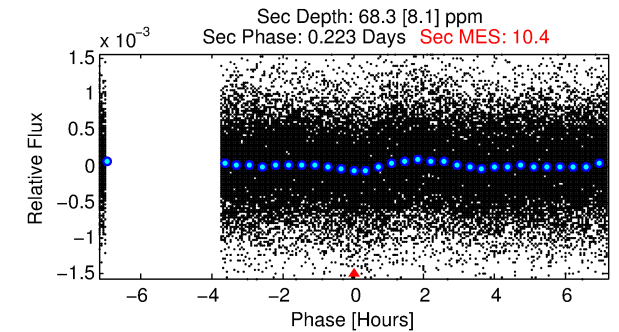
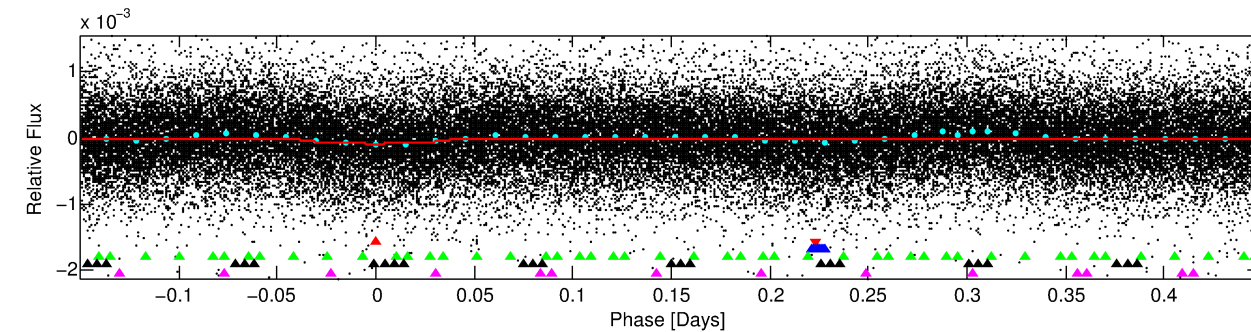
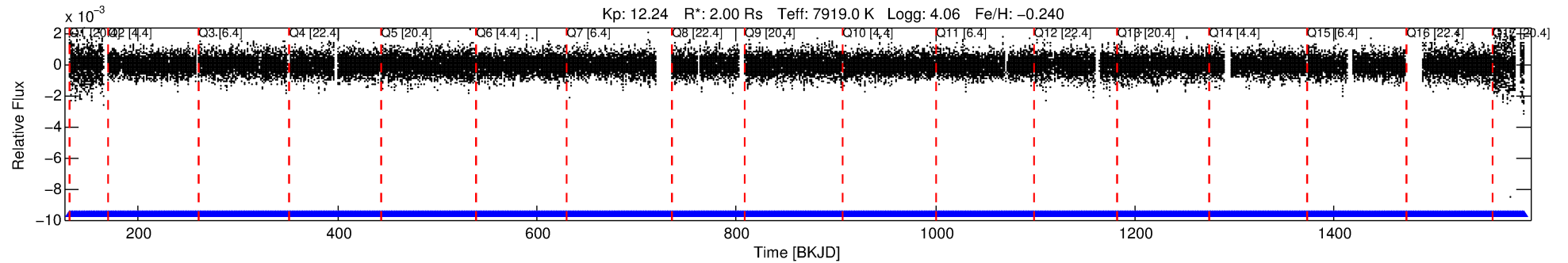
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768668-01

No Significant Match Found

DV One-Page Summary

KIC: 4768668 Candidate: 1 of 5 Period: 0.598 d



DV Fit Results:

Period = 0.59807 [0.00001] d
Epoch = 131.9458 [0.0011] BKJD
Rp/R* = 0.0099 [0.0021]
a/R* = 1.48 [0.98]
b = 0.90 [0.26]
Seff = 51859.45 [19170.96]
Teff = 3848 [356] K
Rp = 2.15 [0.70] Re
a = 0.0165 [0.0036] AU
Ag = 2.20 [1.22] [0.99σ]
Teffp = 7247 [857] K [3.66σ]

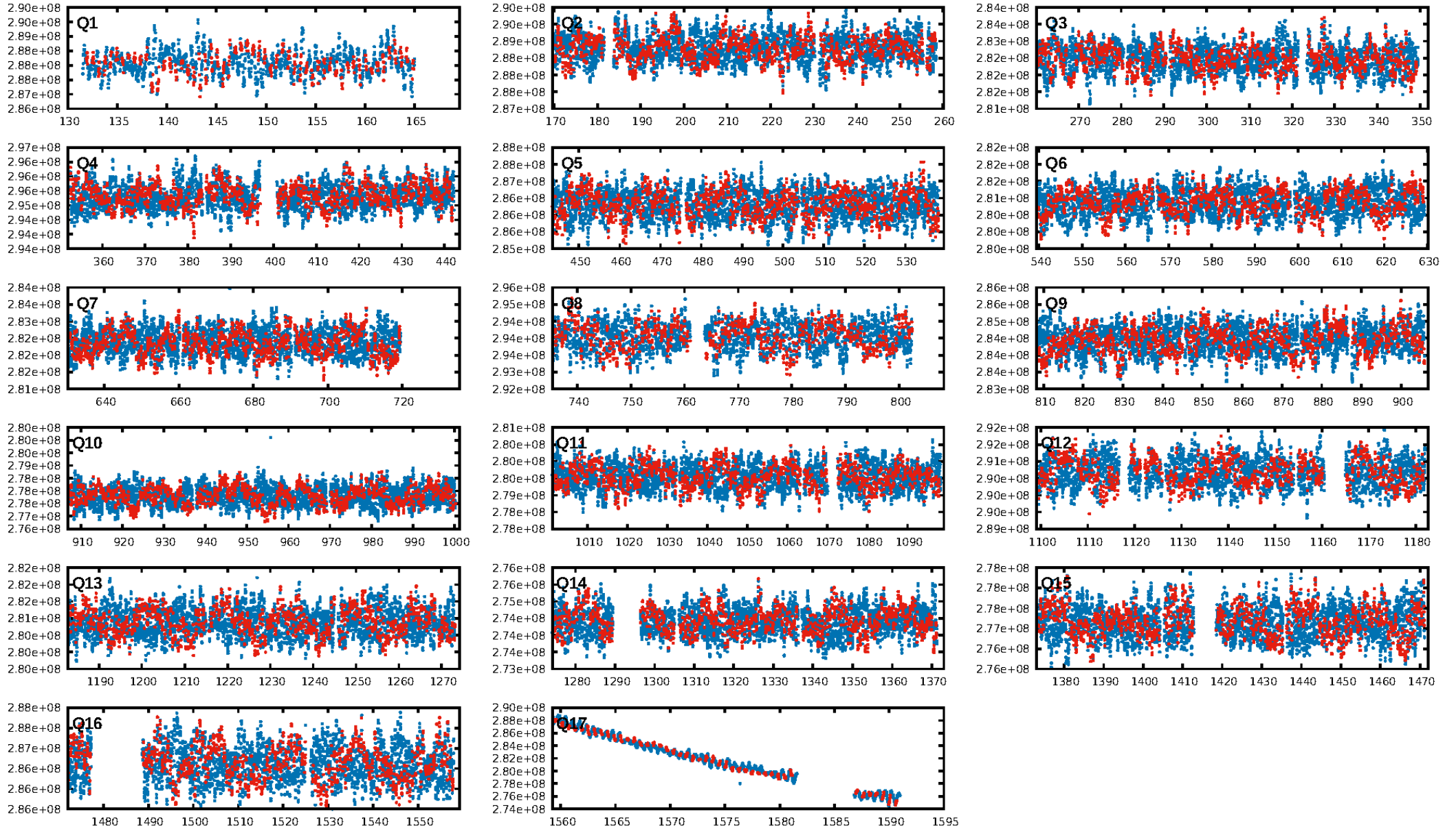
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [34.25σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2134/2134]
GhostDiagnostic-chr: 1.553
Centroid-sig: 0.0%
Centroid-so: 0.948 arcsec [2.70σ]
OotOffset-rm: 3.418 arcsec [4.53σ]
KicOffset-rm: 0.241 arcsec [0.58σ]
OotOffset-st: 2/4/3/4 [13]
KicOffset-st: 2/4/3/4 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 0.00 [0/17]

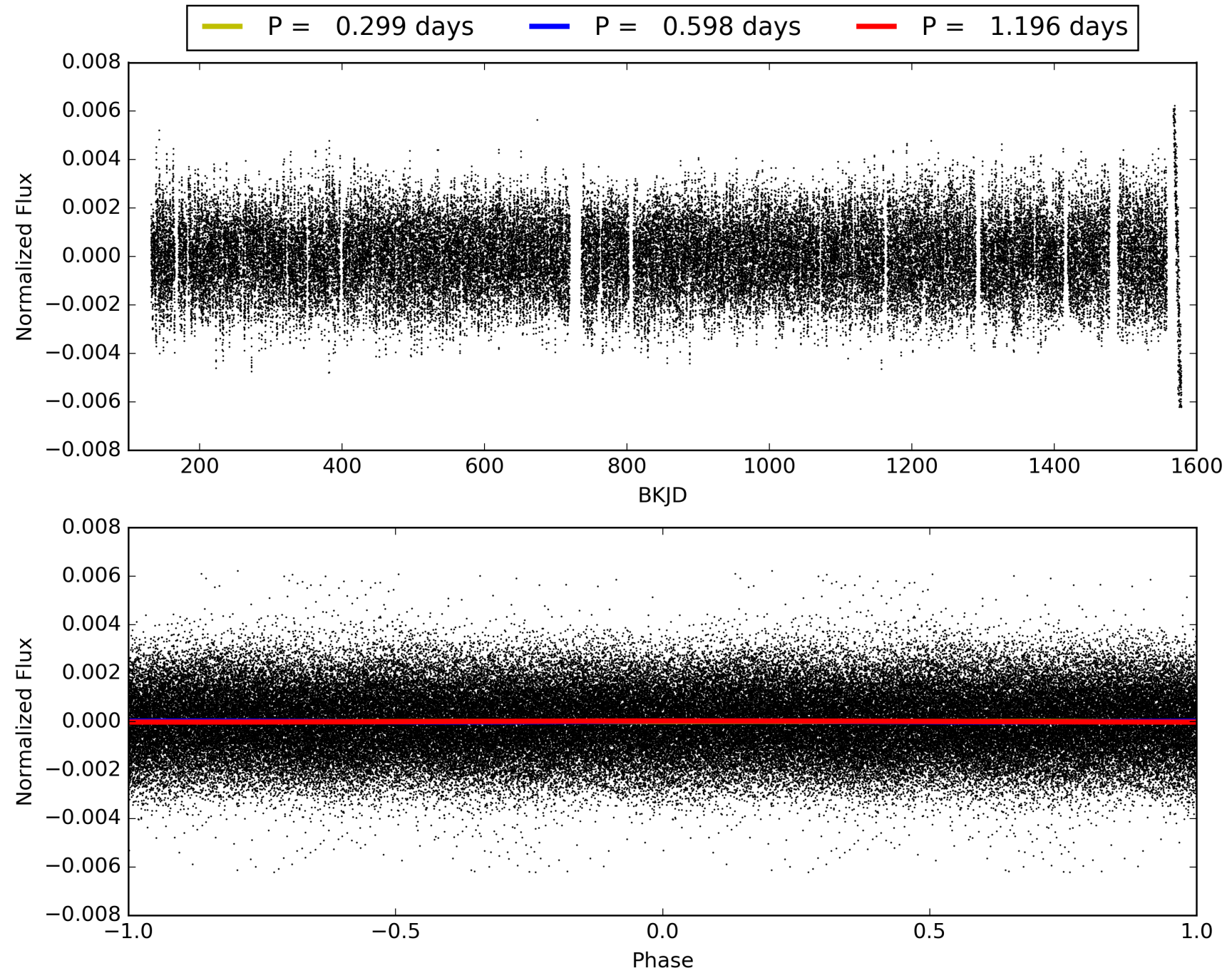
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:18:55 Z

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

TCE 004768668-01, PDC Light Curves

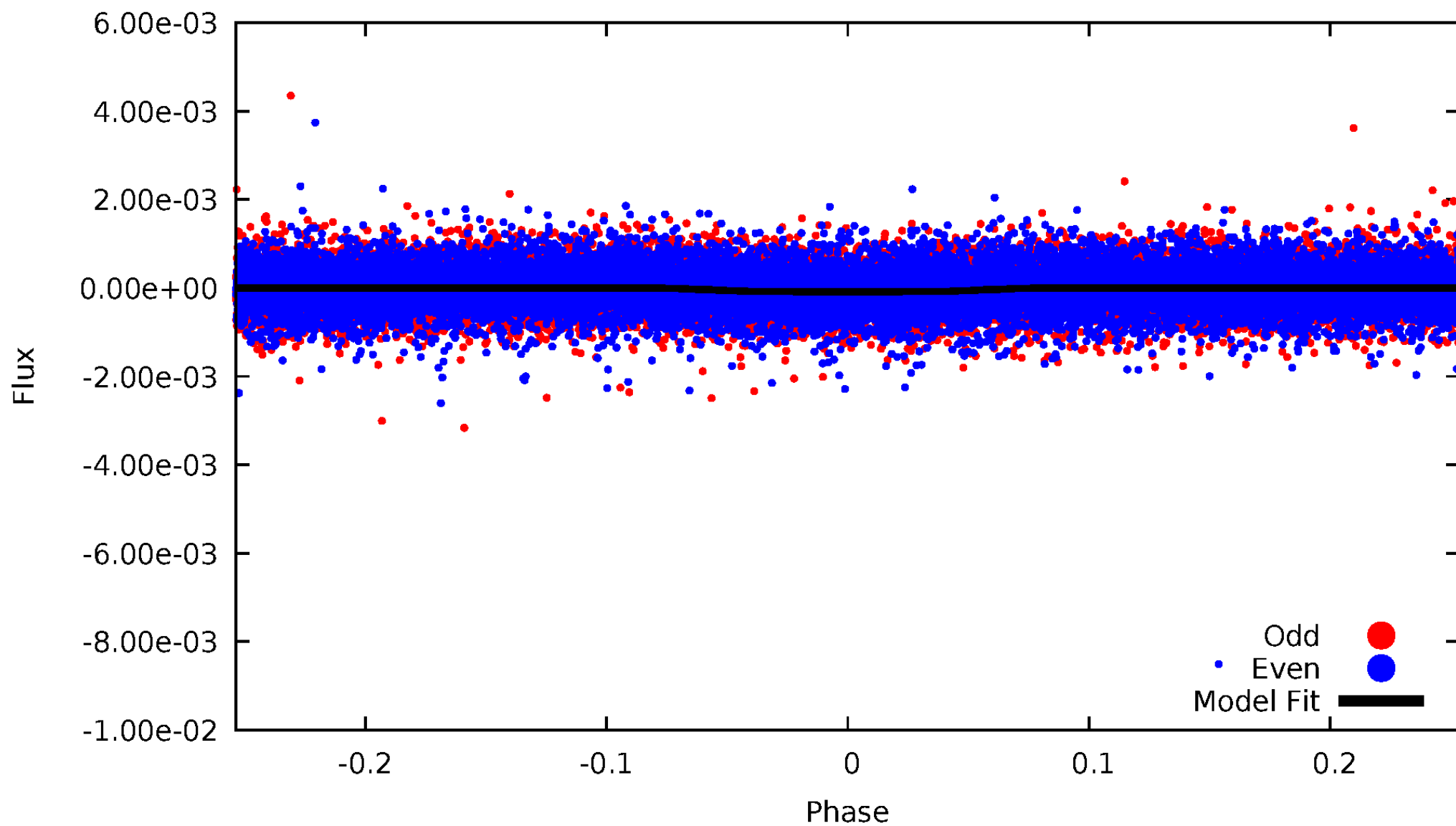


TCE 004768668-01



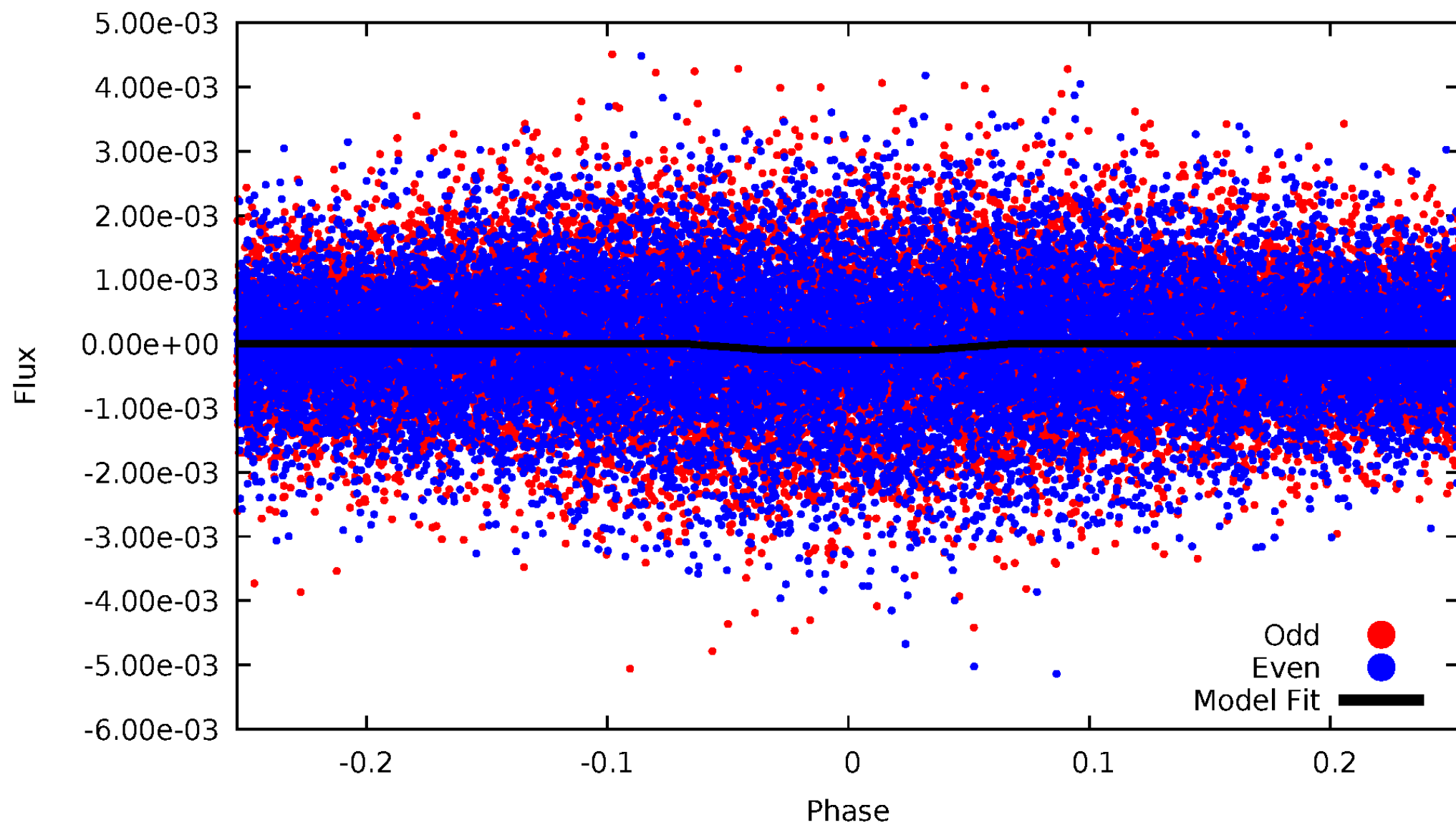
DV Odd/Even

TCE 004768668-01

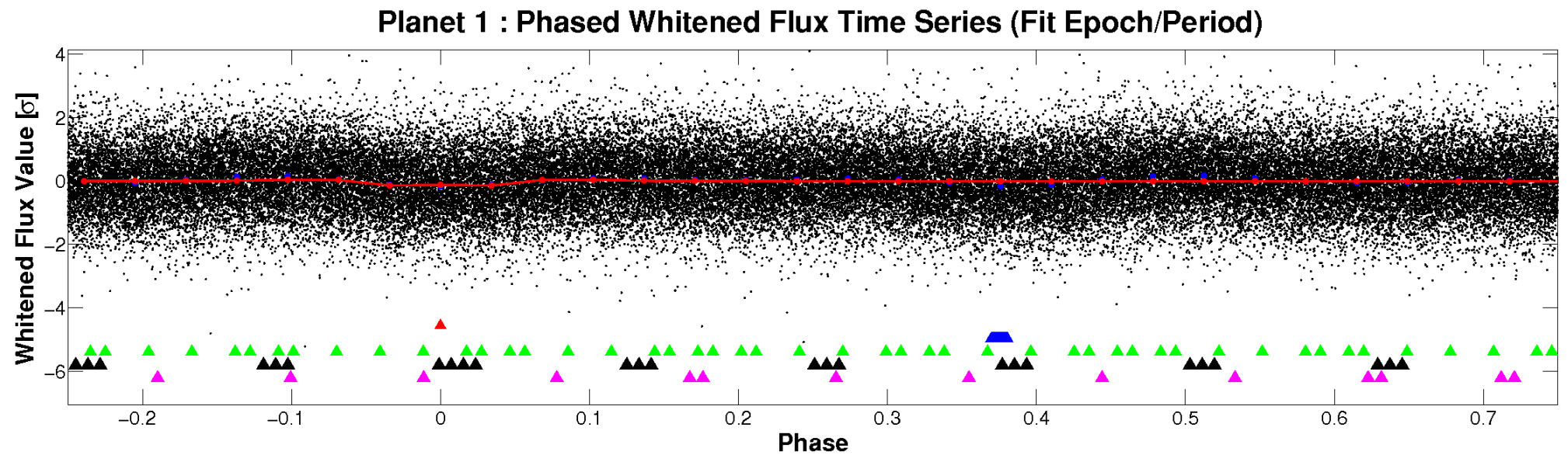
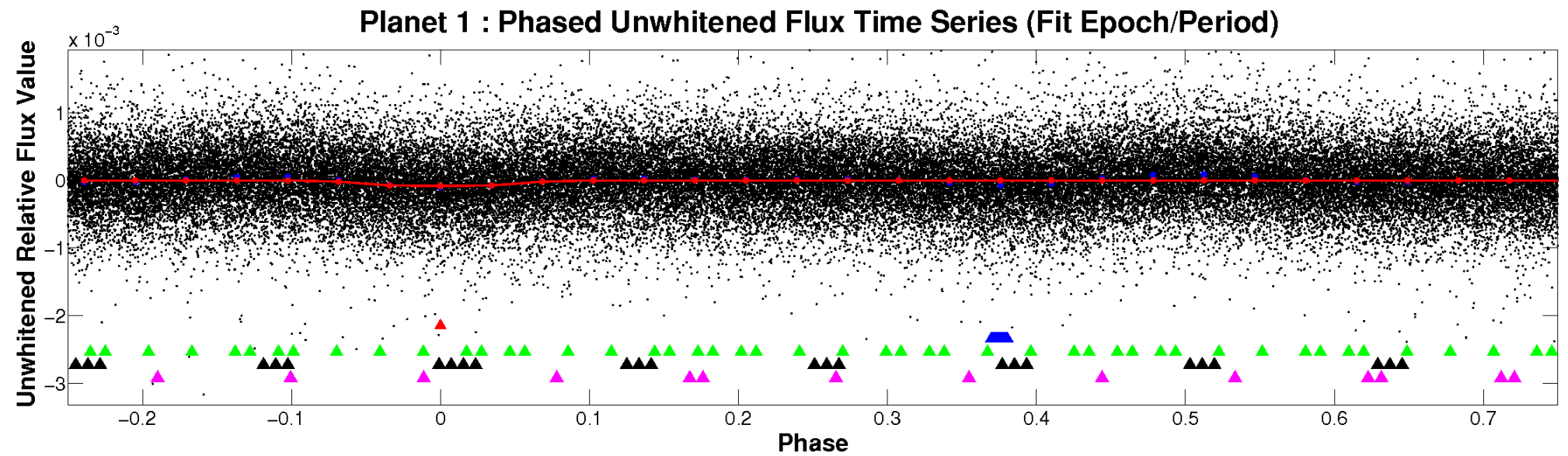


ALT Odd/Even

TCE 004768668-01

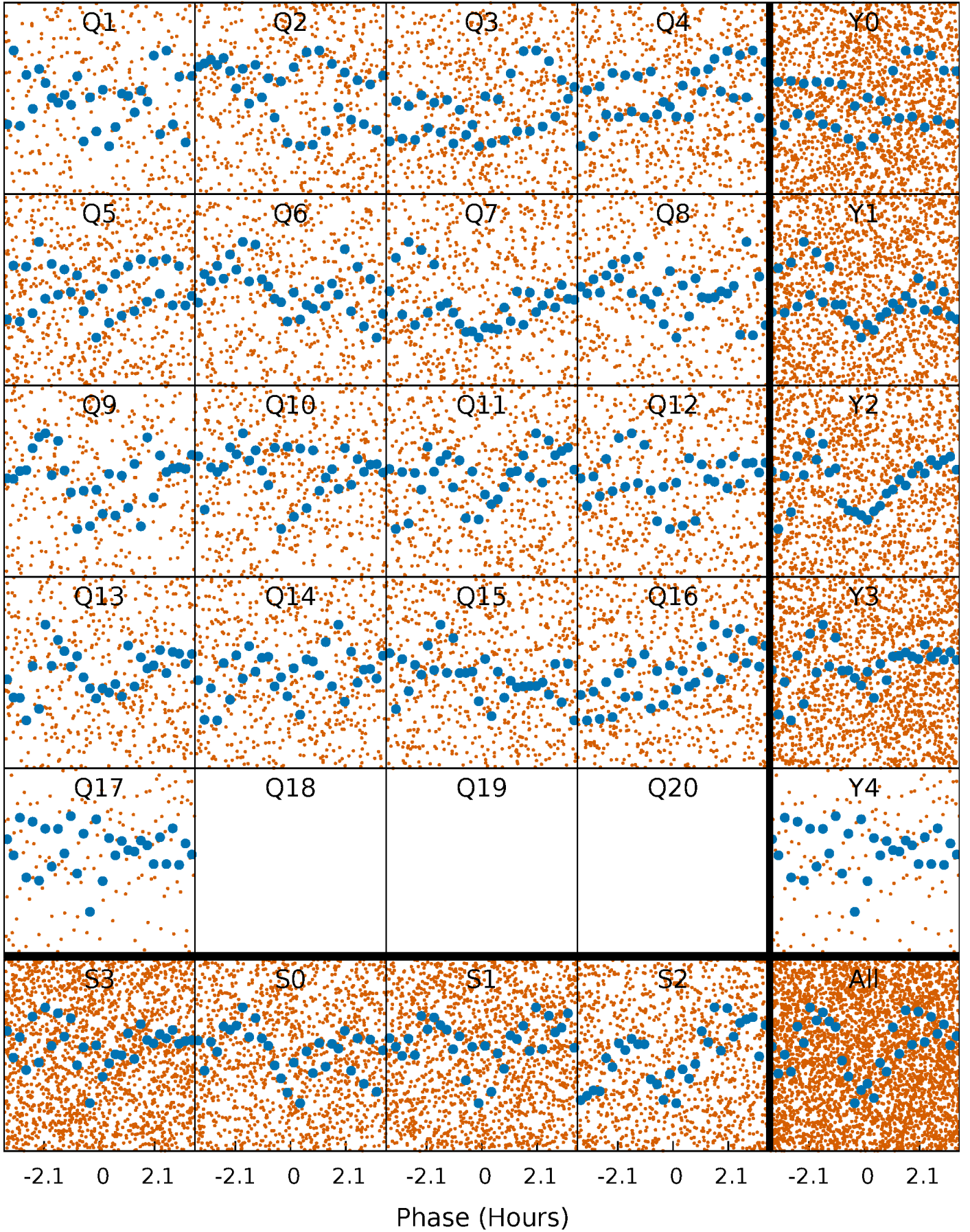


Non-Whitened Vs. Whitened Light Curve



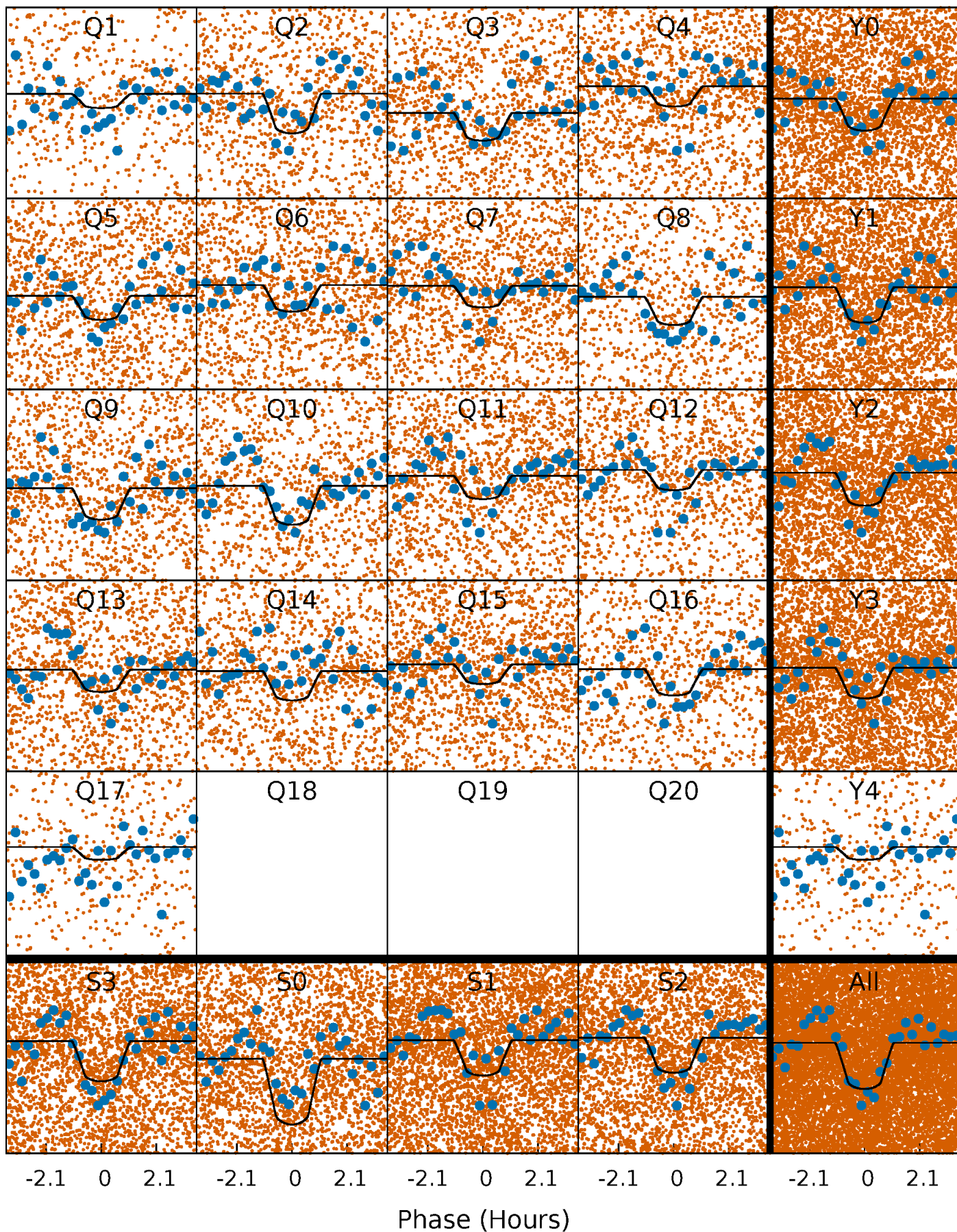
PDC Quarter-Phased Transit Curves

TCE 004768668-01 P= 0.598067 Days $T_0=131.945842$ (BKJD)



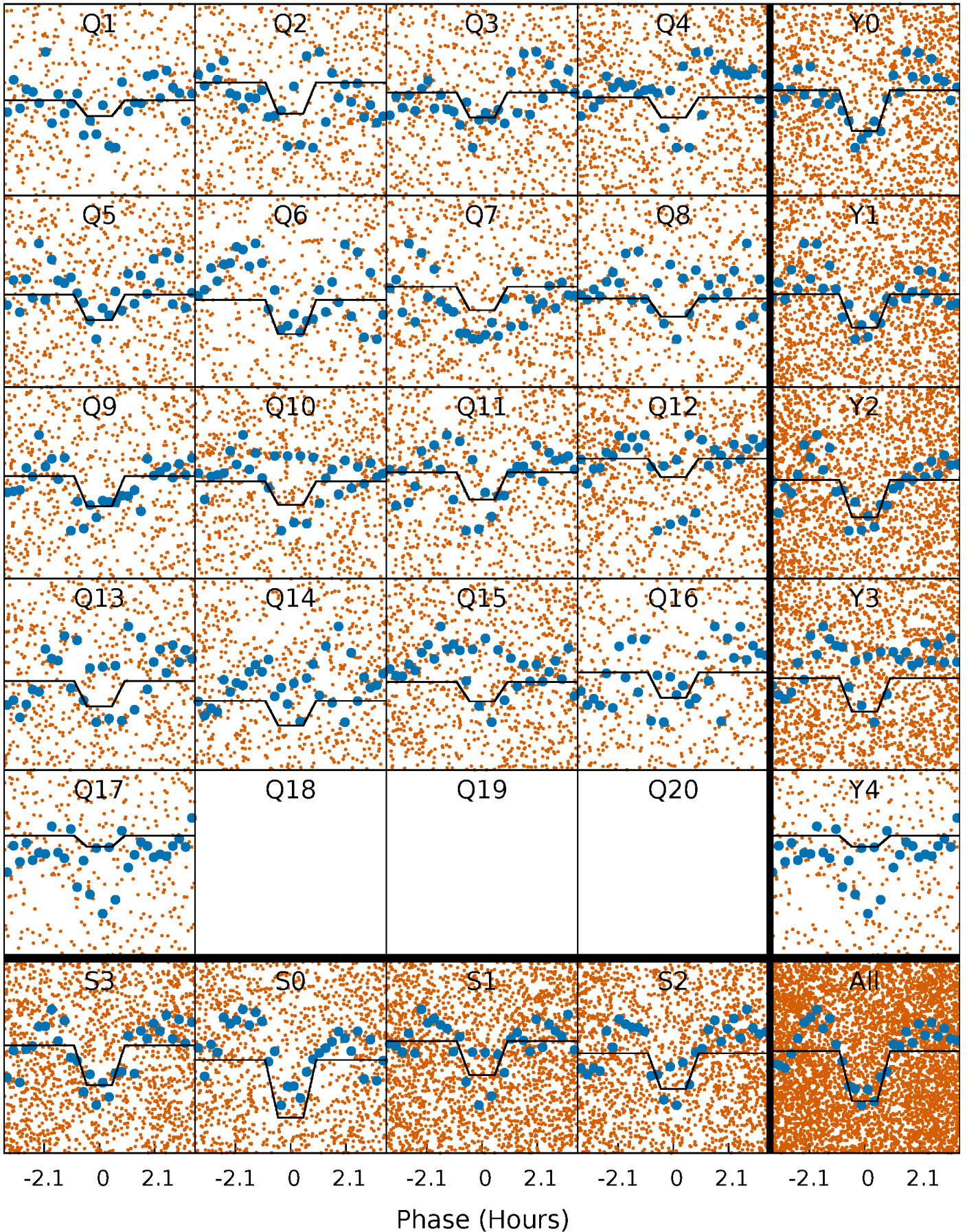
DV Quarter-Phased Transit Curves

TCE 004768668-01 P= 0.598067 Days $T_0=131.945842$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

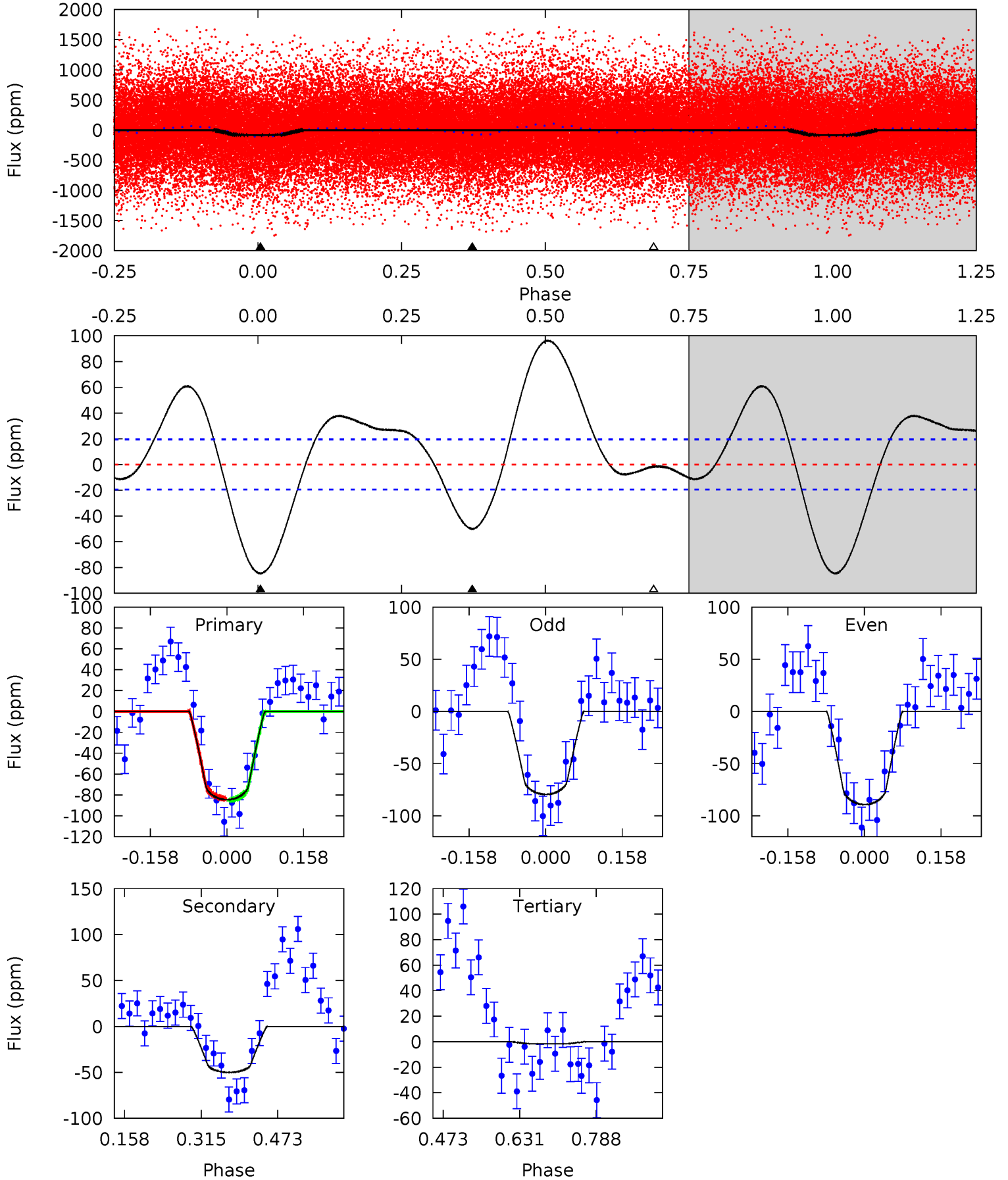
TCE 004768668-01 P= 0.598067 Days $T_0=131.945842$ (BKJD)



DV Model-Shift Uniqueness Test

004768668-01, P = 0.598067 Days, E = 131.347775 Days

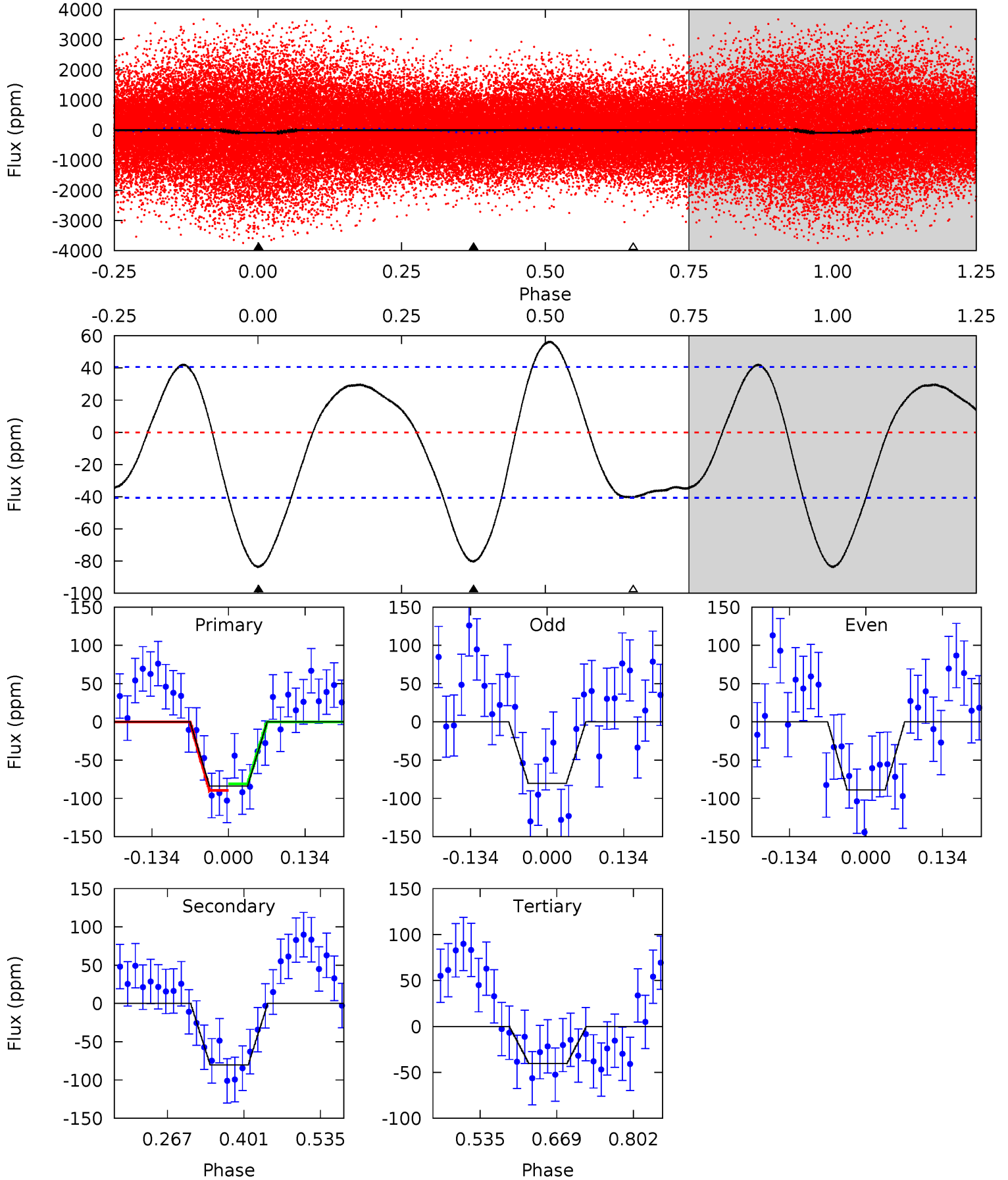
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	11.5	0.39	0	4.47	1.41	5.47	19.1	19.4	11.1	11.5	1.12	1.07	0.53	0.18



Alt Model-Shift Uniqueness Test

004768668-01, P = 0.598067 Days, E = 131.347775 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.29	8.90	4.48	0	4.50	1.50	3.45	4.81	9.29	4.42	8.90	0.48	1.01	0.40	0.46



Stellar Parameters For KIC 004768668

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7919^{+216}_{-325}	$4.058^{+0.187}_{-0.153}$	$-0.240^{+0.200}_{-0.350}$	$1.997^{+0.446}_{-0.495}$	$1.658^{+0.185}_{-0.277}$	$0.293^{+0.304}_{-0.119}$
	+3%/-4%	+5%/-4%	+83%/-146%	+22%/-25%	+11%/-17%	+104%/-40%
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 004768668-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-50 ± 4	$2.12^{+0.60}_{-0.50}$	5363^{+376}_{-402}	6199^{+1035}_{-778}	$1.647^{+1.135}_{-0.632}$
Alt.	-80 ± 9	$2.10^{+0.60}_{-0.53}$	5352^{+381}_{-384}	7210^{+1331}_{-890}	$2.675^{+1.945}_{-1.046}$

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 $A_{obs} \gg 1.0$

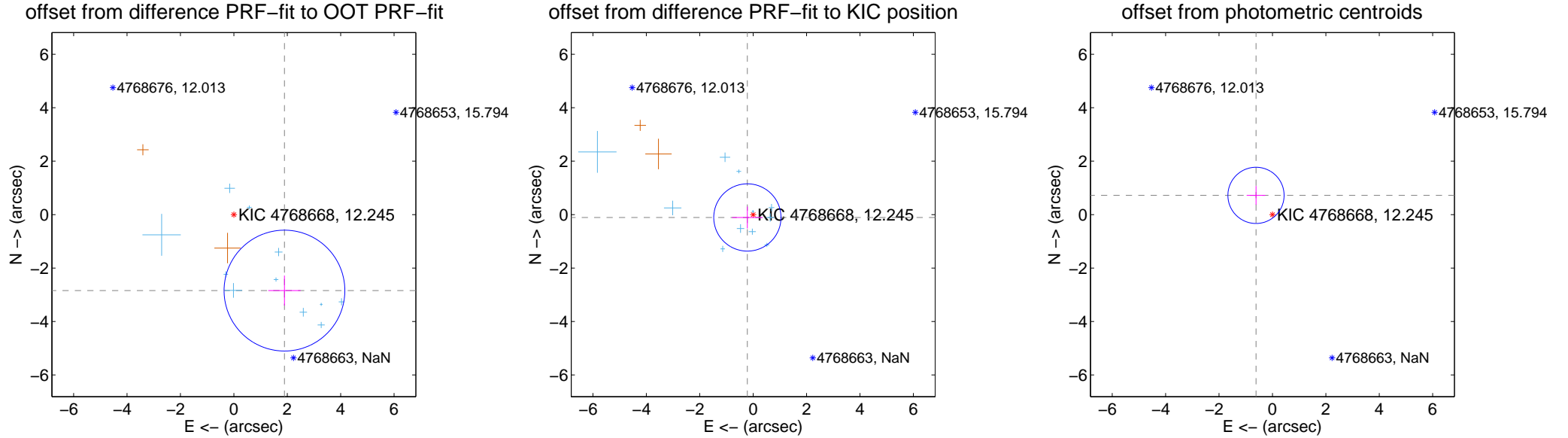
DV Centroid Data

Supplemental centroid analysis for 004768668-01. Kepler magnitude: 12.24. Transit SNR 12.20

There are 11 quarters with good PRF difference image offsets

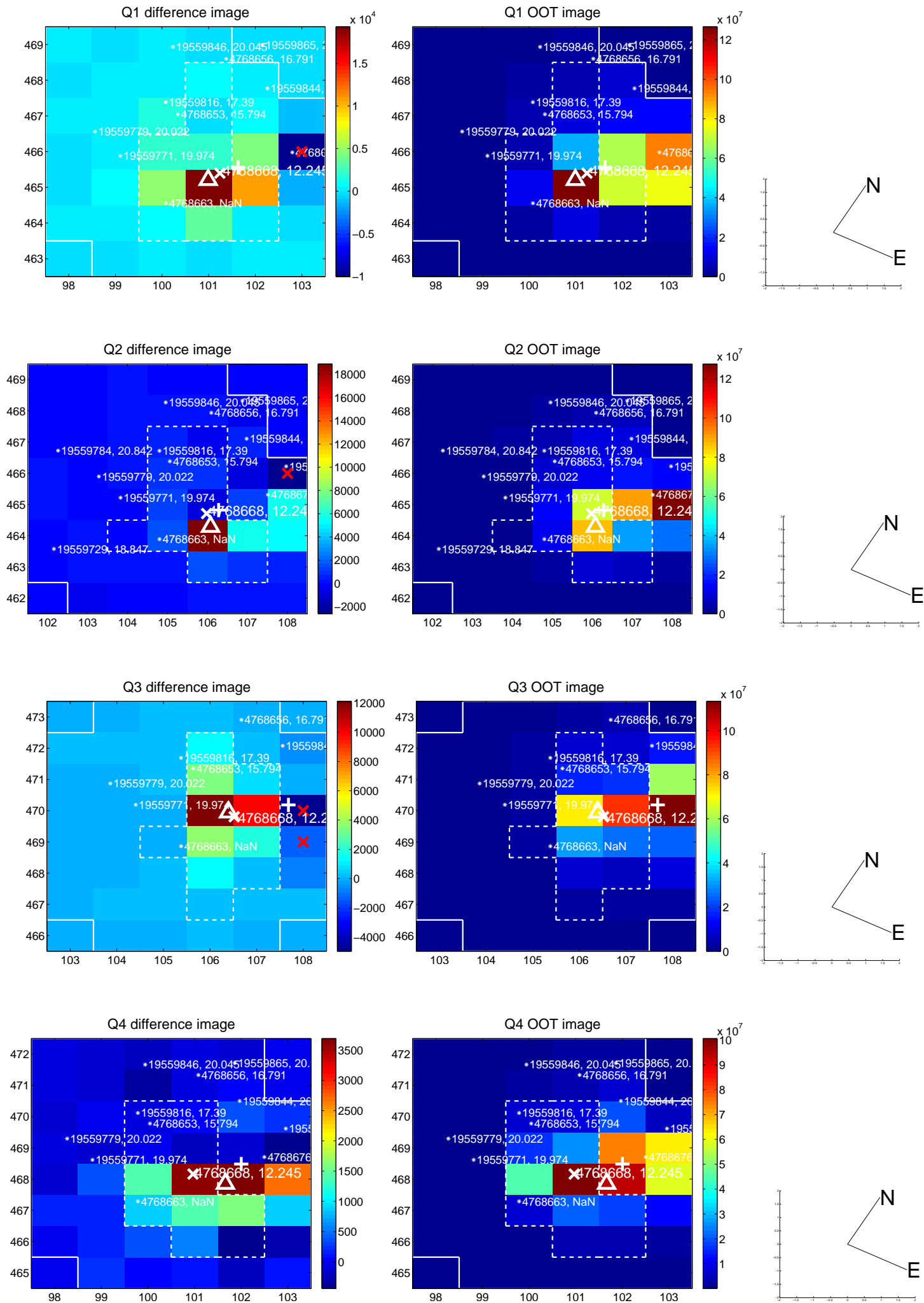
The direct PRF centroid is offset from the target star catalog position by about 1.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.418 ± 0.754	4.53	-1.895 ± 0.607	-2.844 ± 0.561
PRF-fit source offset from KIC position	0.241 ± 0.420	0.58	0.217 ± 0.576	-0.107 ± 0.410
photometric centroid source offset	0.95 ± 0.35	2.70	0.62 ± 0.35	0.72 ± 0.35

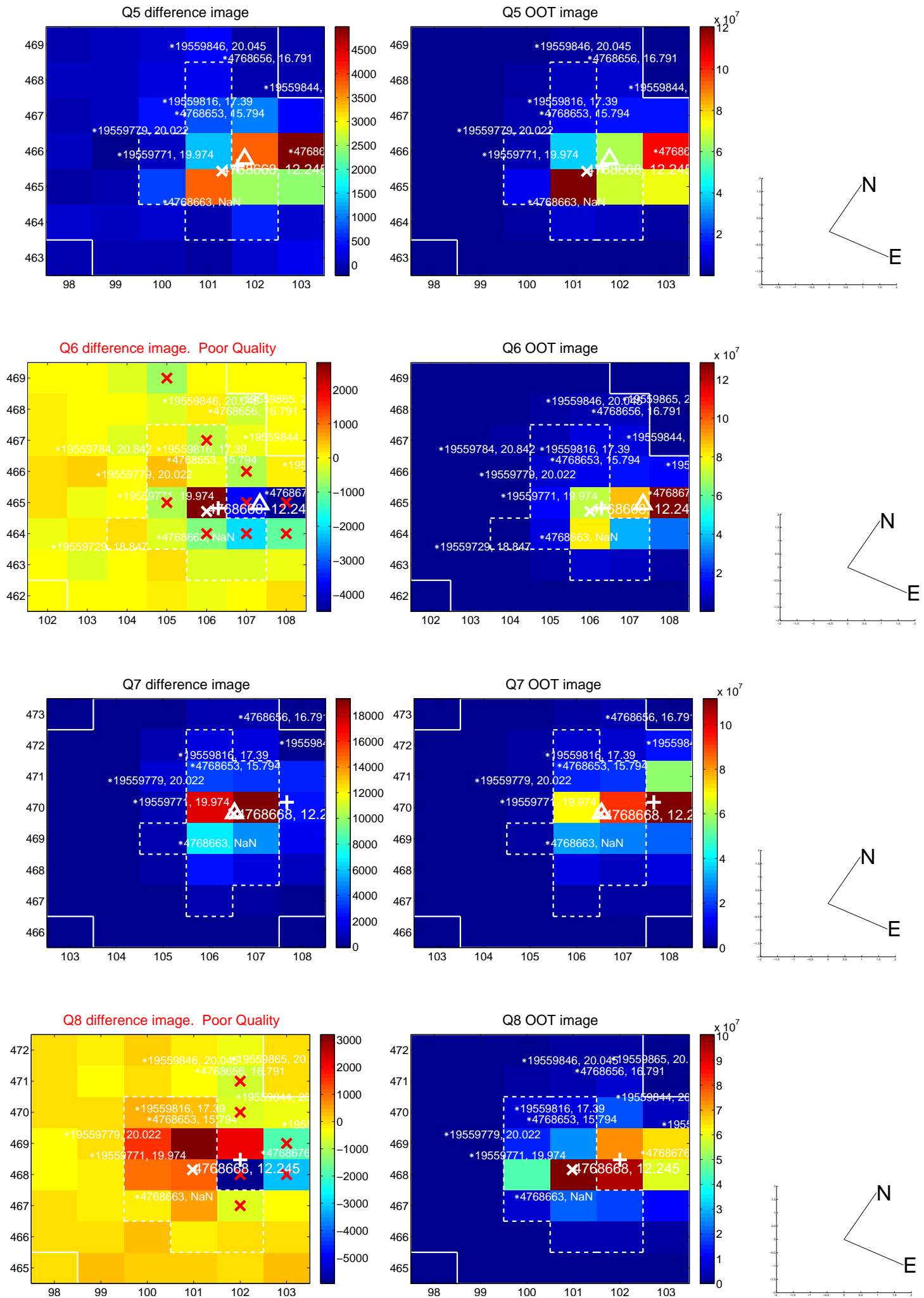


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

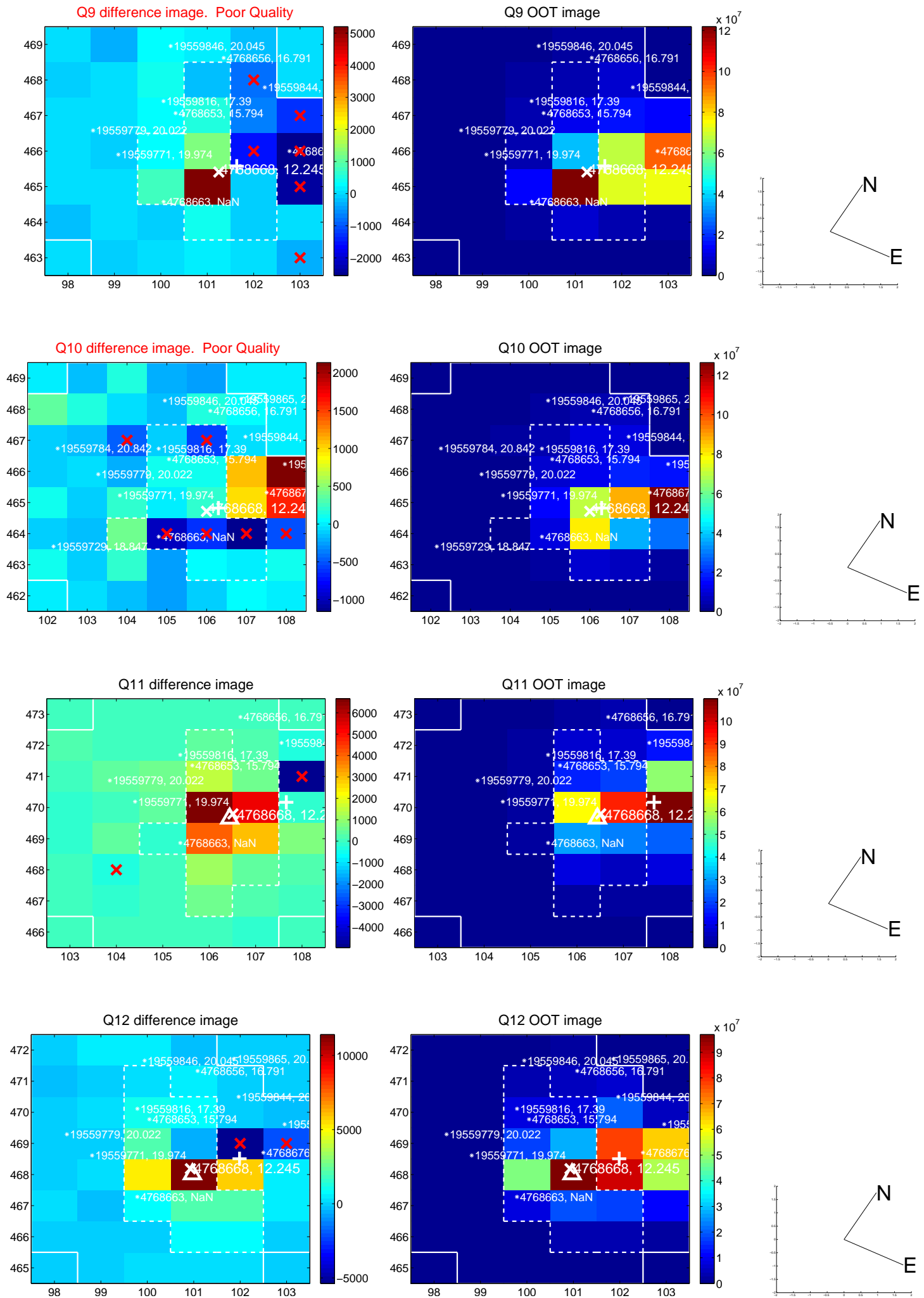
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



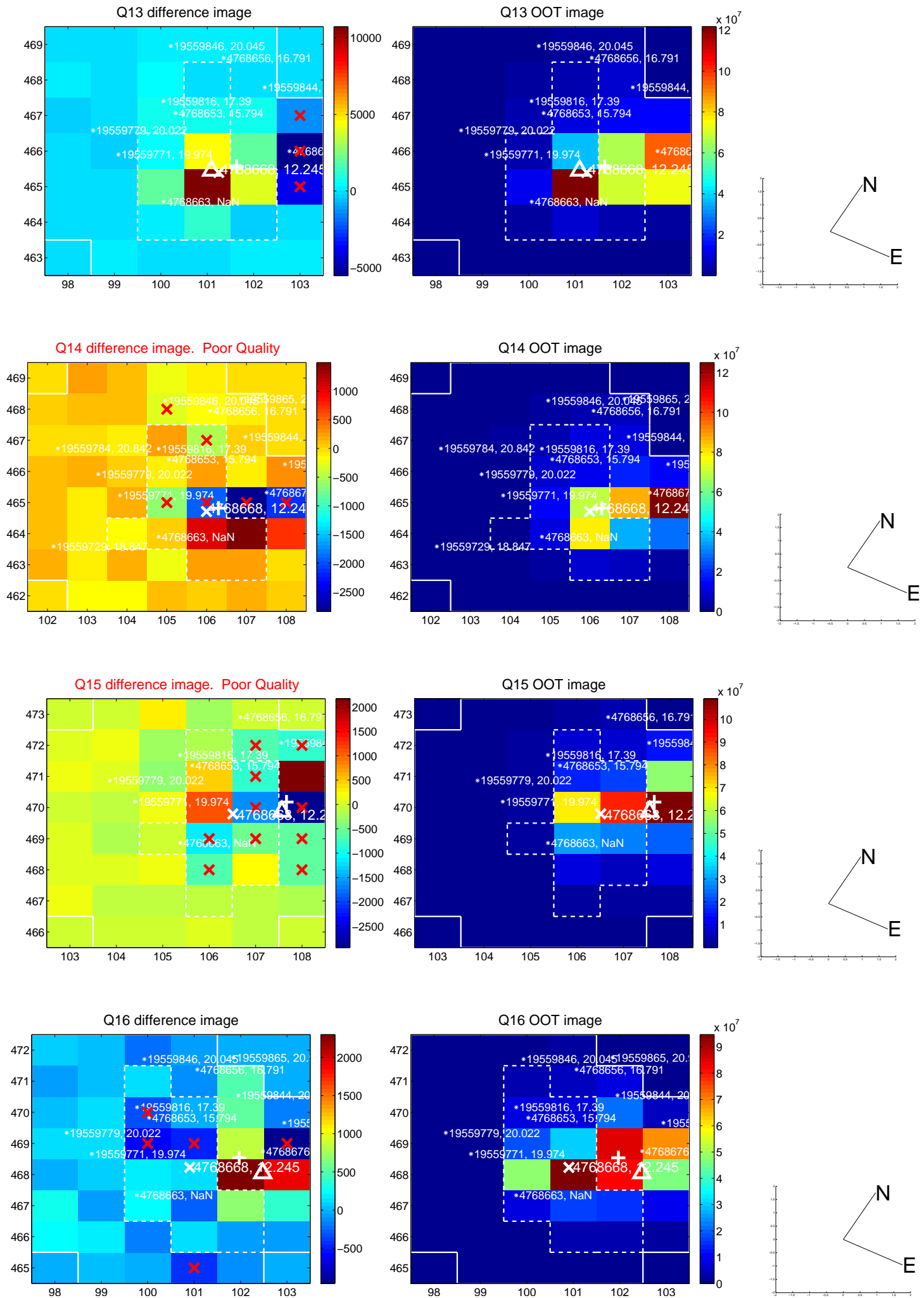
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



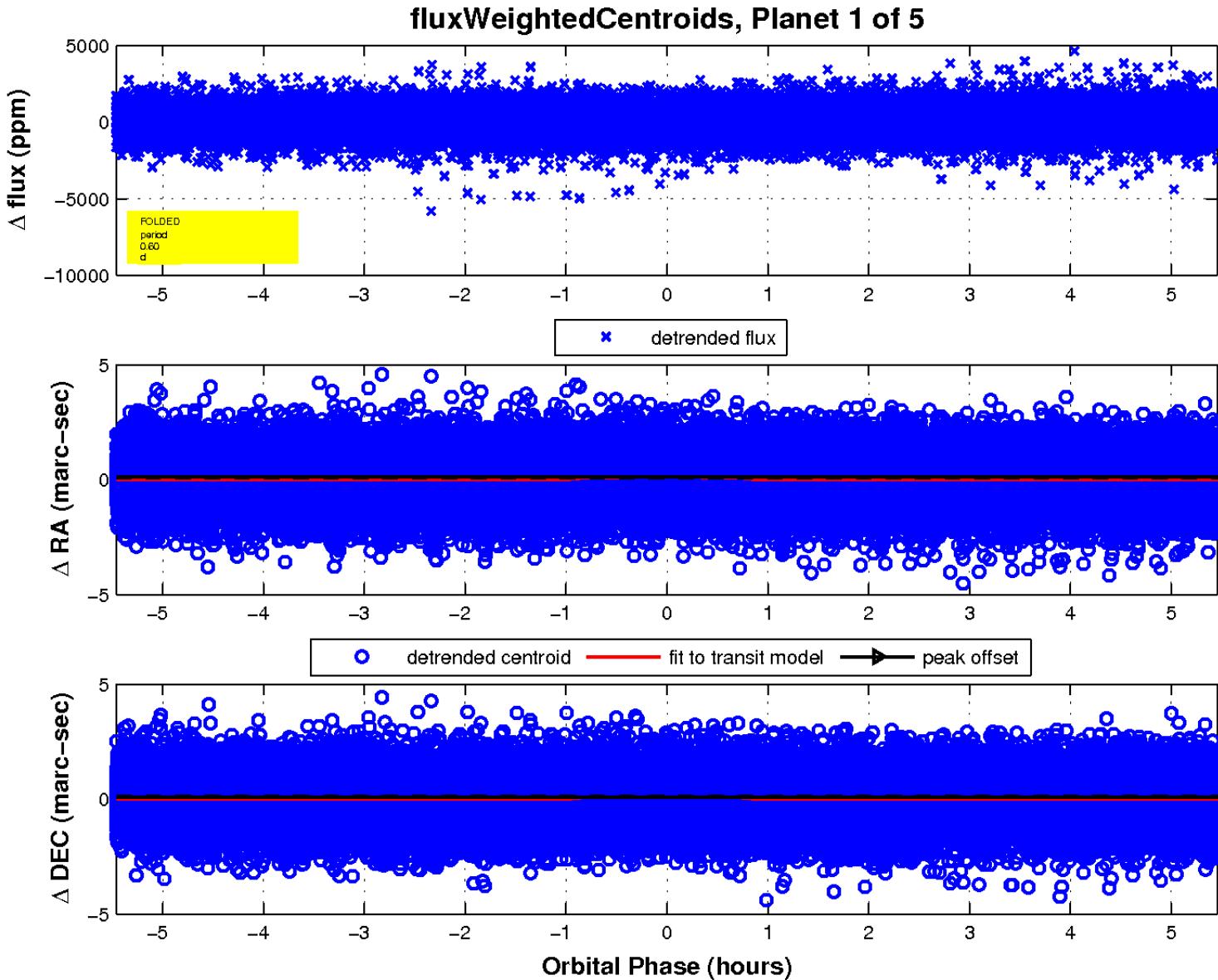
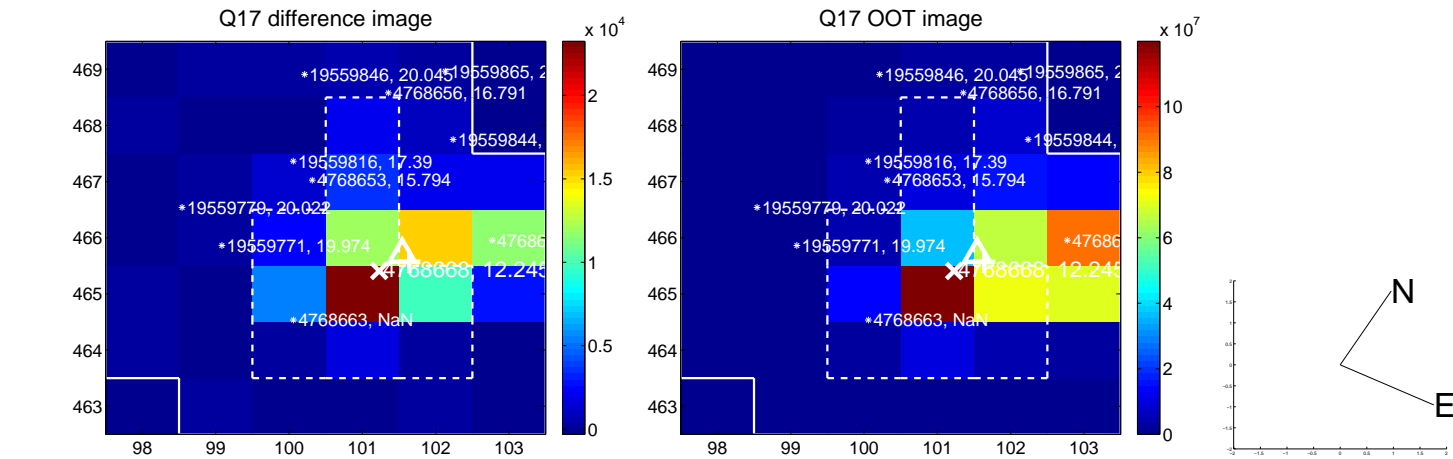
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



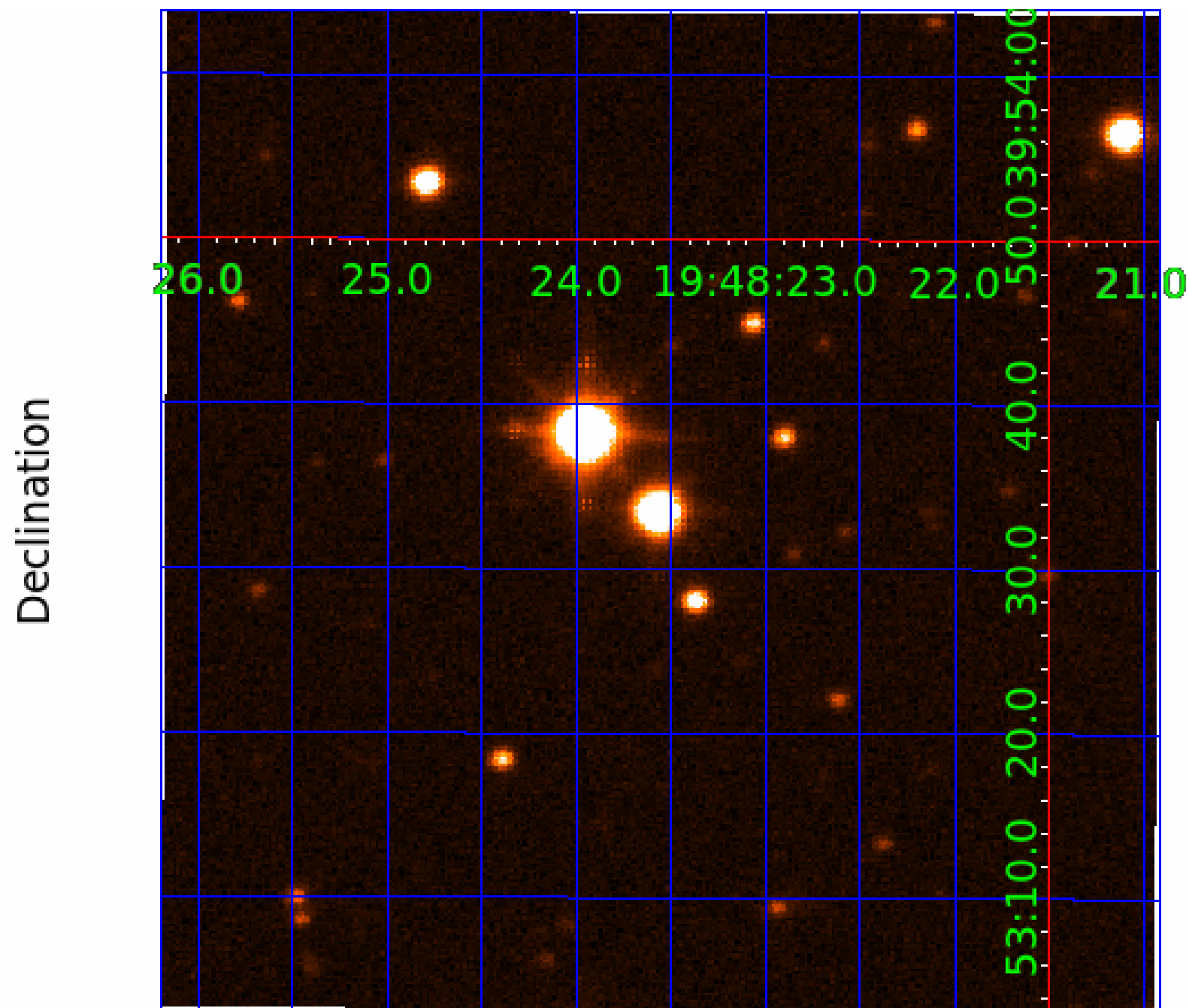
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004768668

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})
004768668-01	OBS	No	0.598067	131.945842	84.4	1.820	12.3	12.2	2.00	7919	2.15	51859.45
004768668-02	OBS	No	0.598064	131.575391	94.9	1.922	12.8	14.0	2.00	7919	2.28	51859.76
004768668-03	OBS	No	30.333029	148.952077	421.1	20.757	8.3	6.2	2.00	7919	4.25	276.23
004768668-04	OBS	No	58.535207	153.490353	1426.3	8.874	7.7	8.6	2.00	7919	9.28	114.97
004768668-05	OBS	No	106.183615	190.934125	254.5	2.000	7.1	-1.0	2.00	7919	3.21	51.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768668-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
004768668-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004768668-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

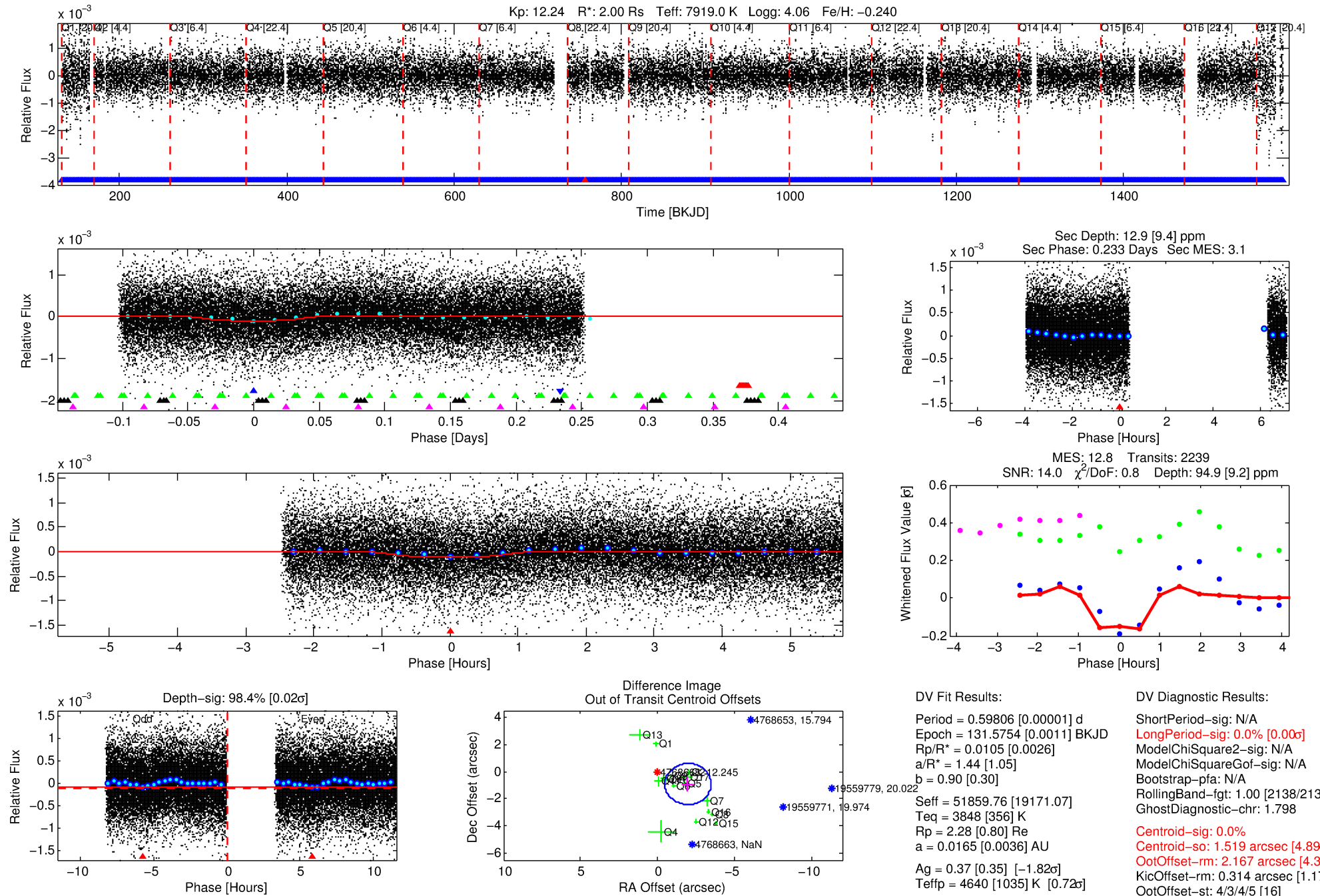
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768668-02

No Significant Match Found

DV One-Page Summary

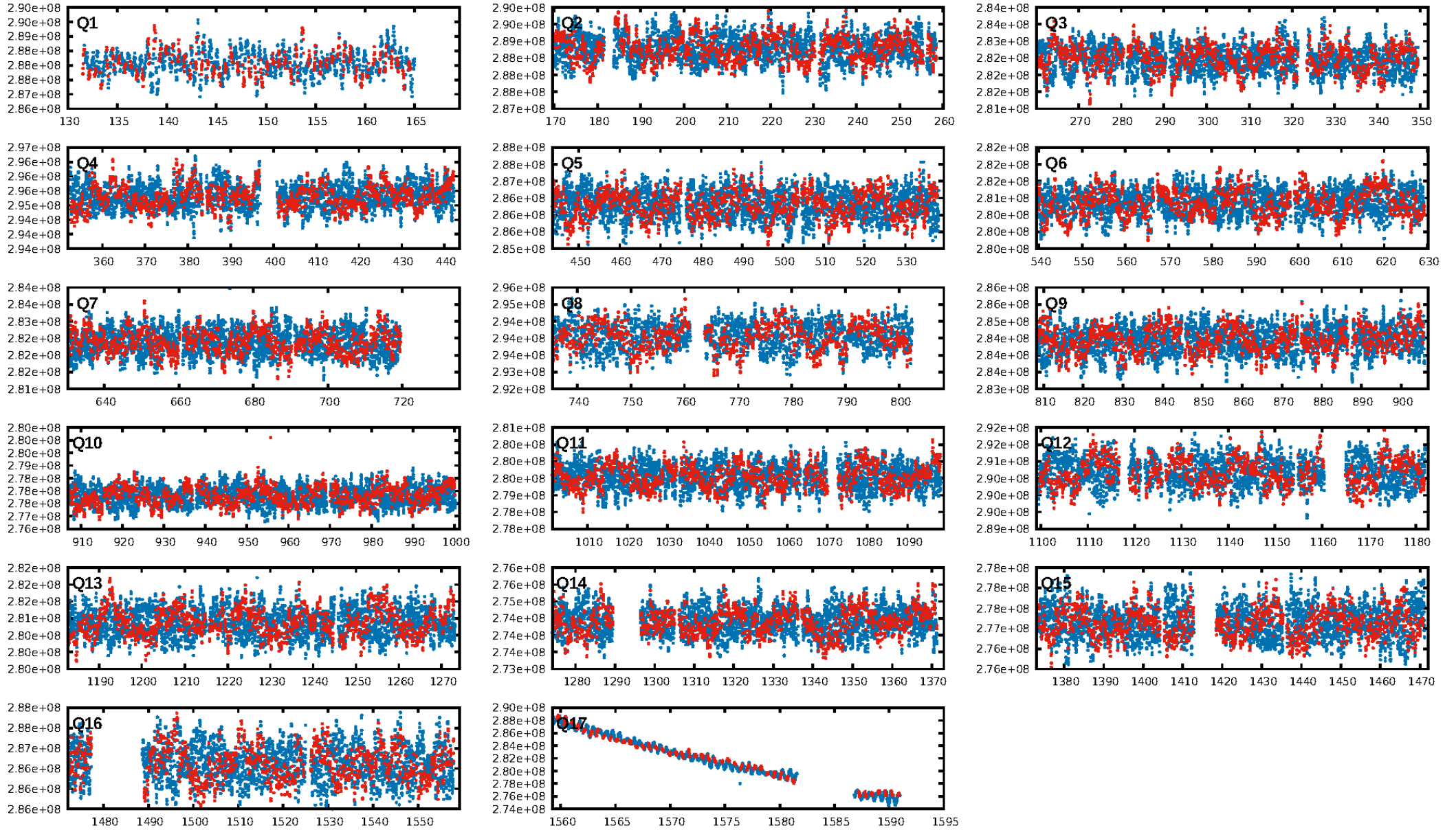
KIC: 4768668 Candidate: 2 of 5 Period: 0.598 d



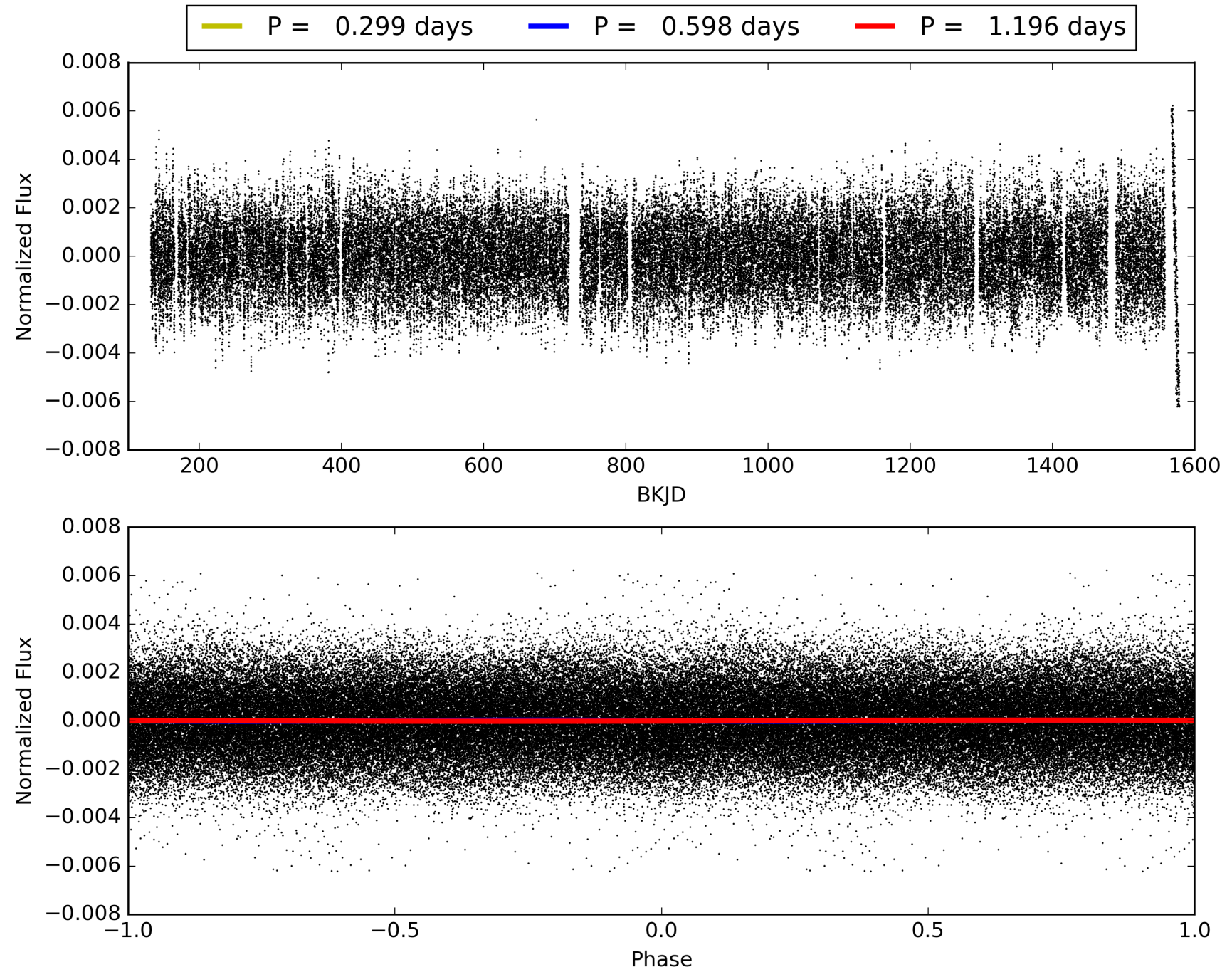
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:19:07 Z

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

TCE 004768668-02, PDC Light Curves

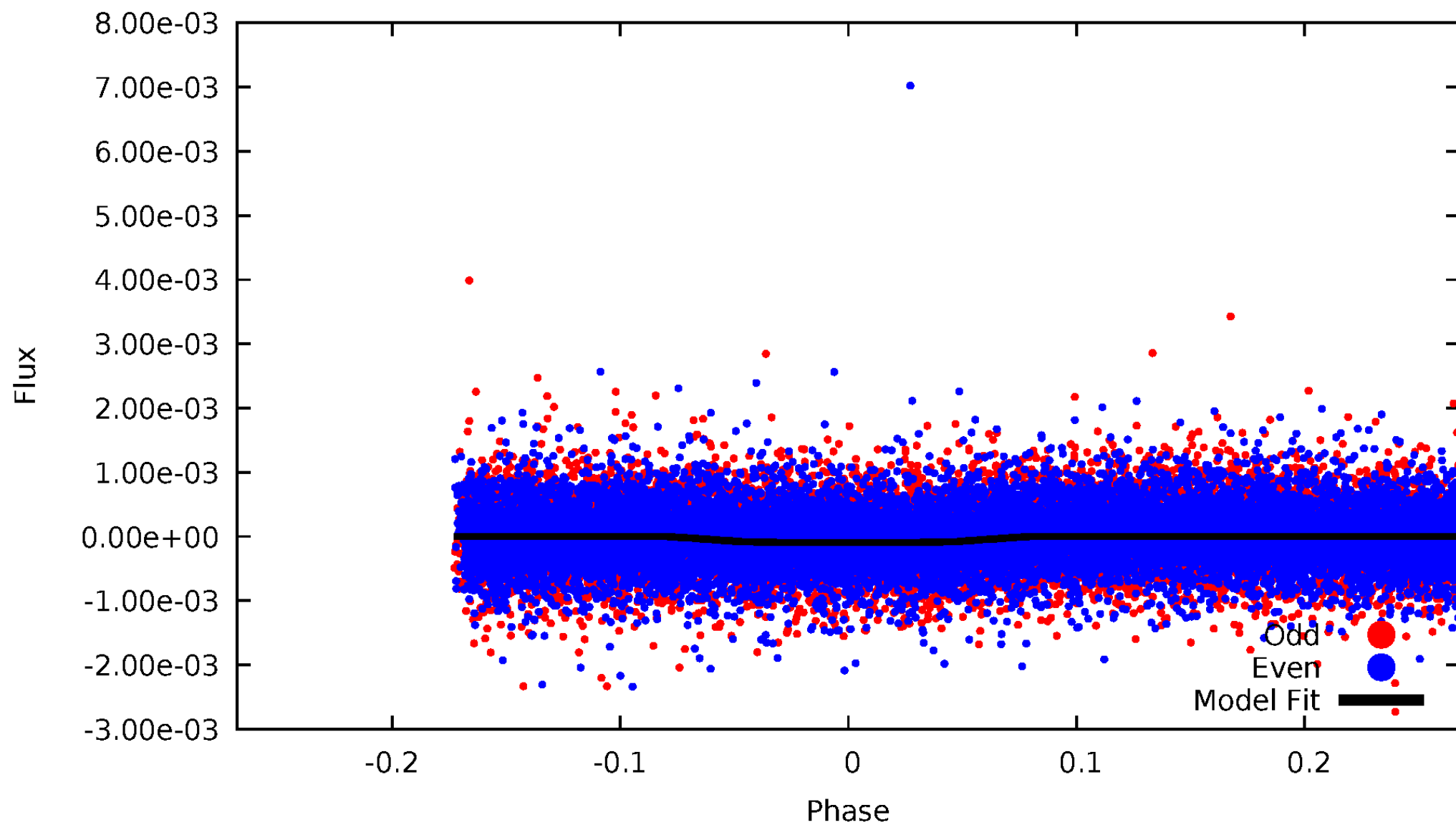


TCE 004768668-02



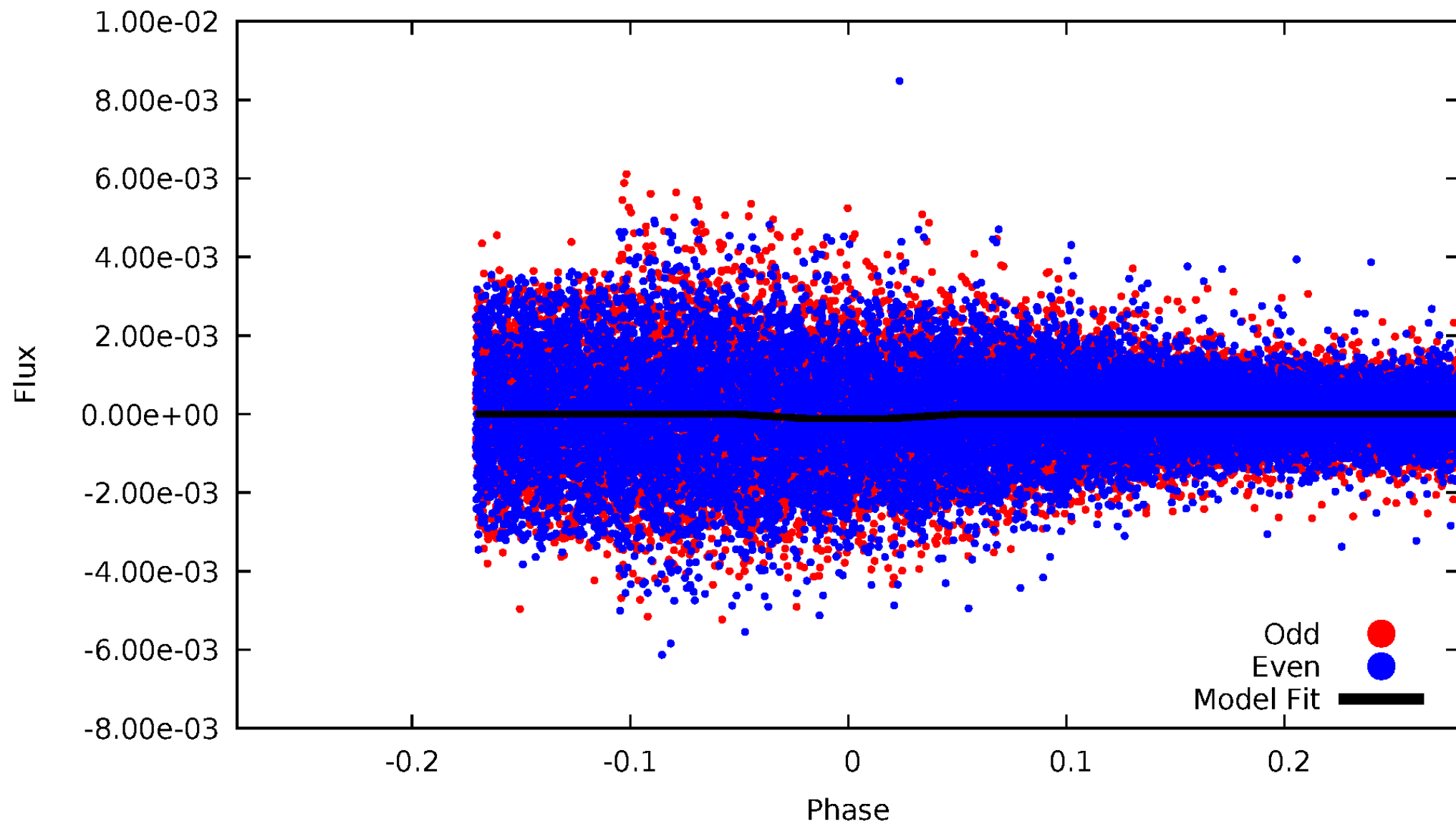
DV Odd/Even

TCE 004768668-02



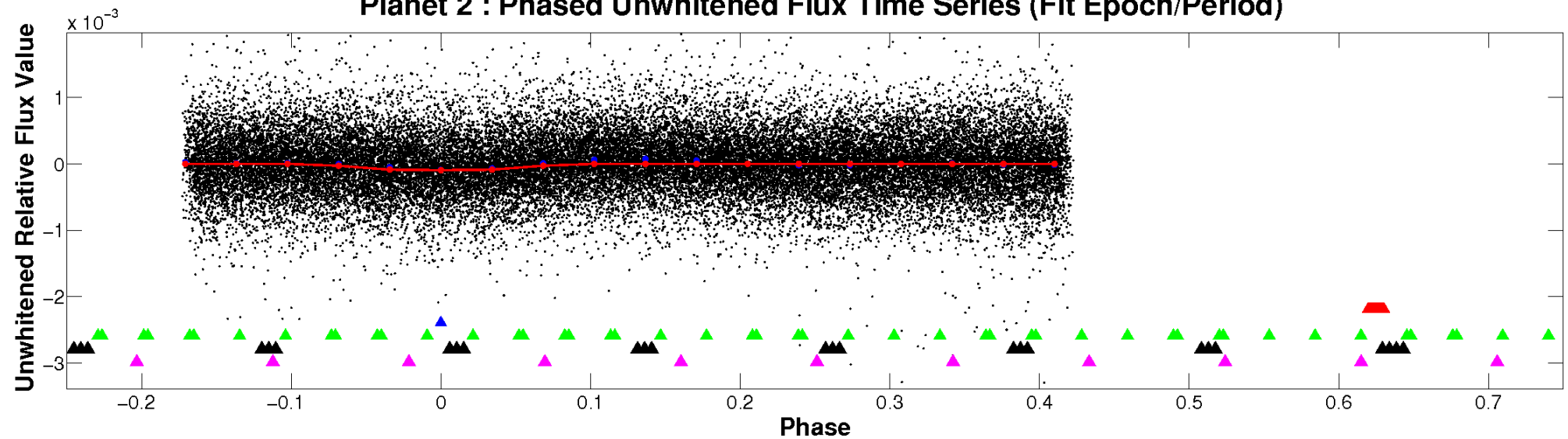
ALT Odd/Even

TCE 004768668-02

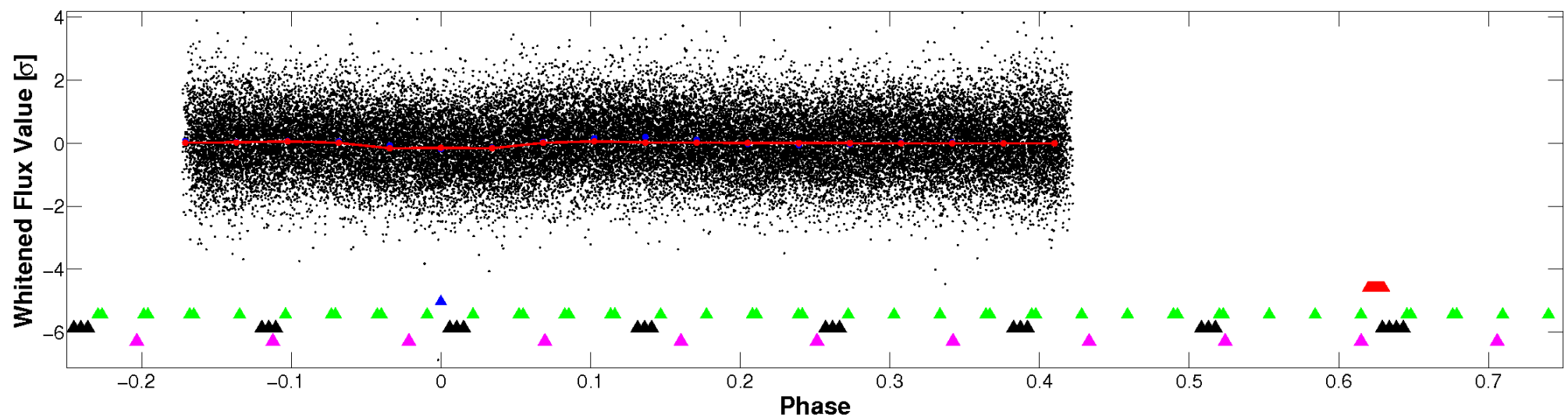


Non-Whitened Vs. Whitened Light Curve

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

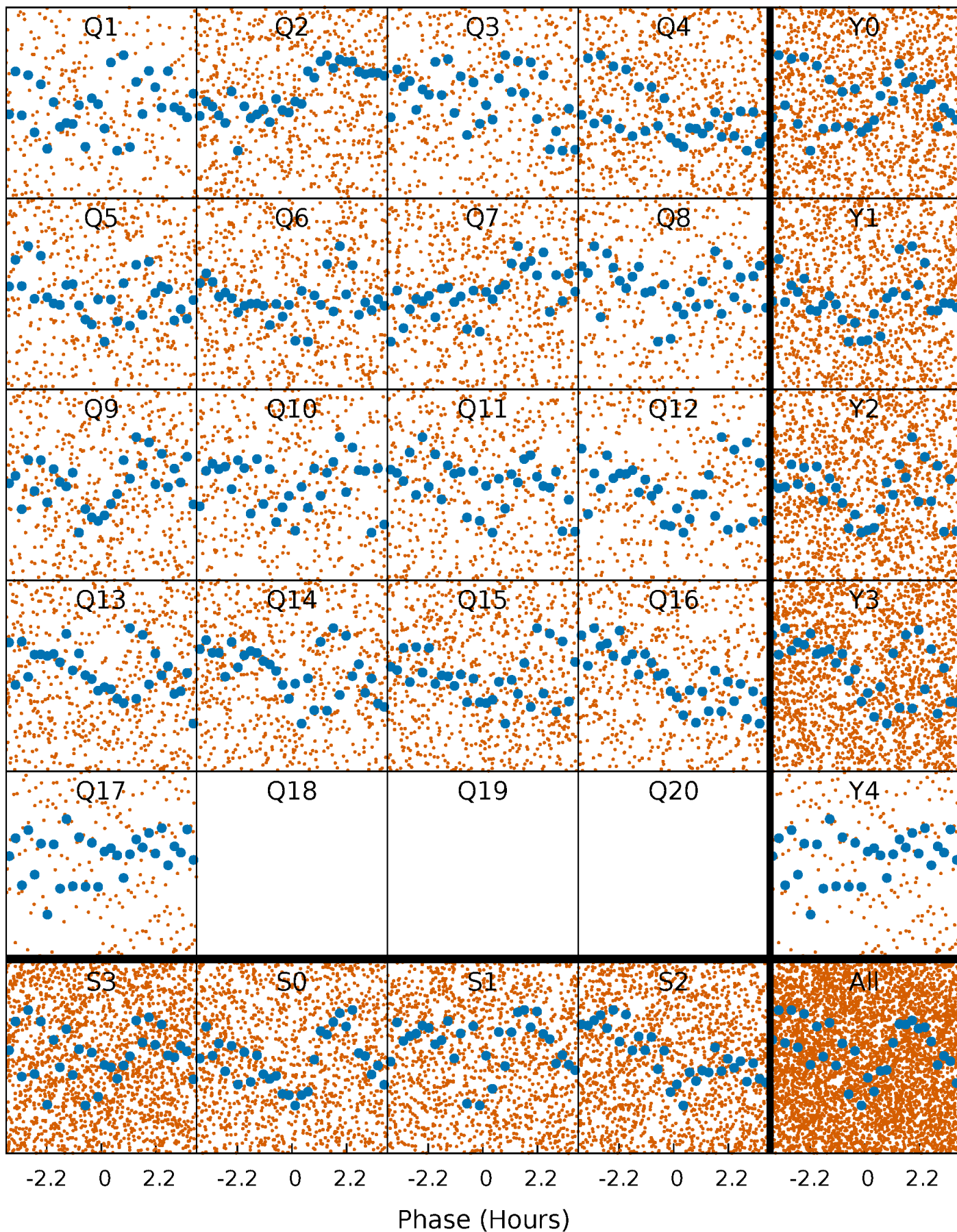


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



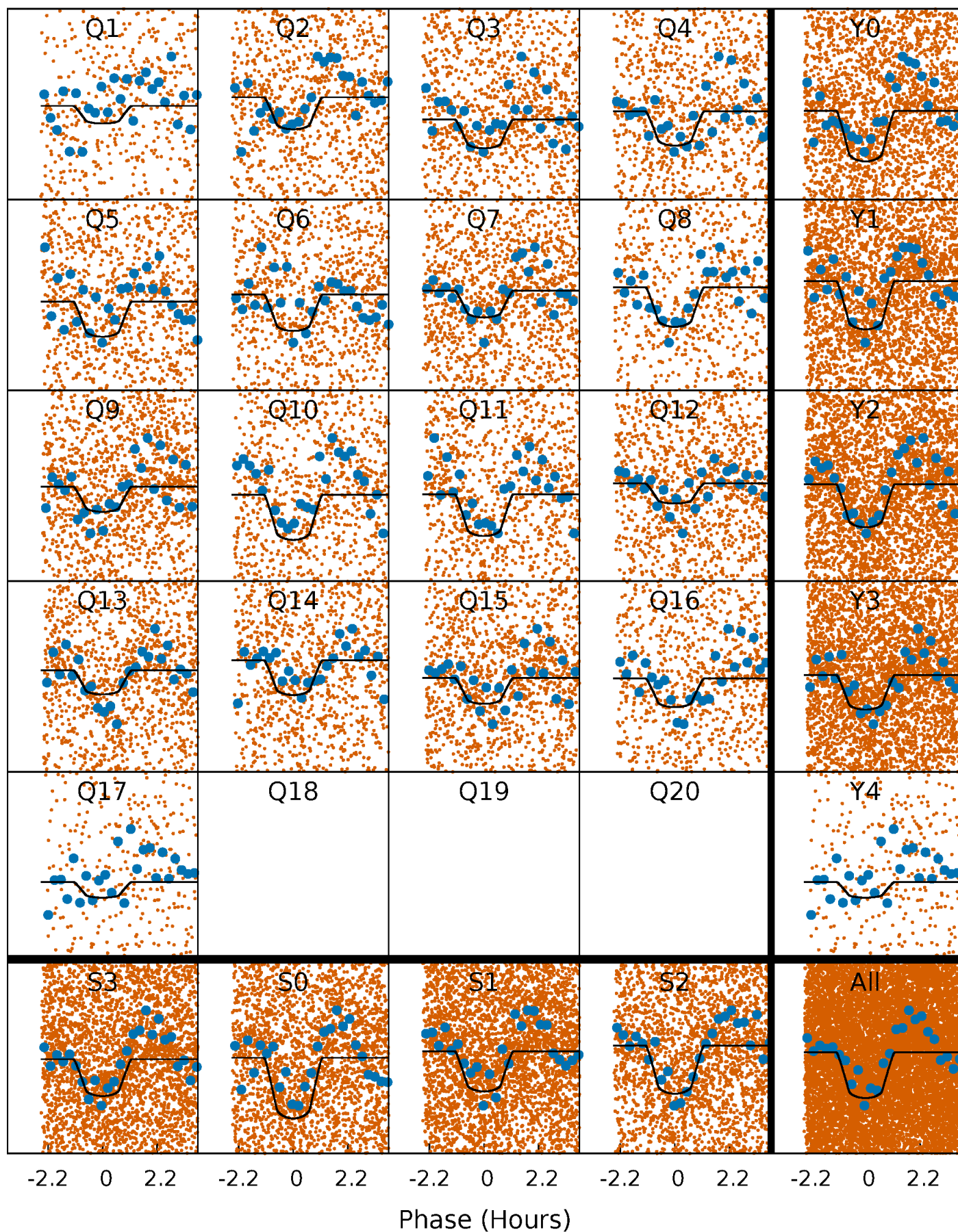
PDC Quarter-Phased Transit Curves

TCE 004768668-02 P= 0.598064 Days $T_0=131.575391$ (BKJD)



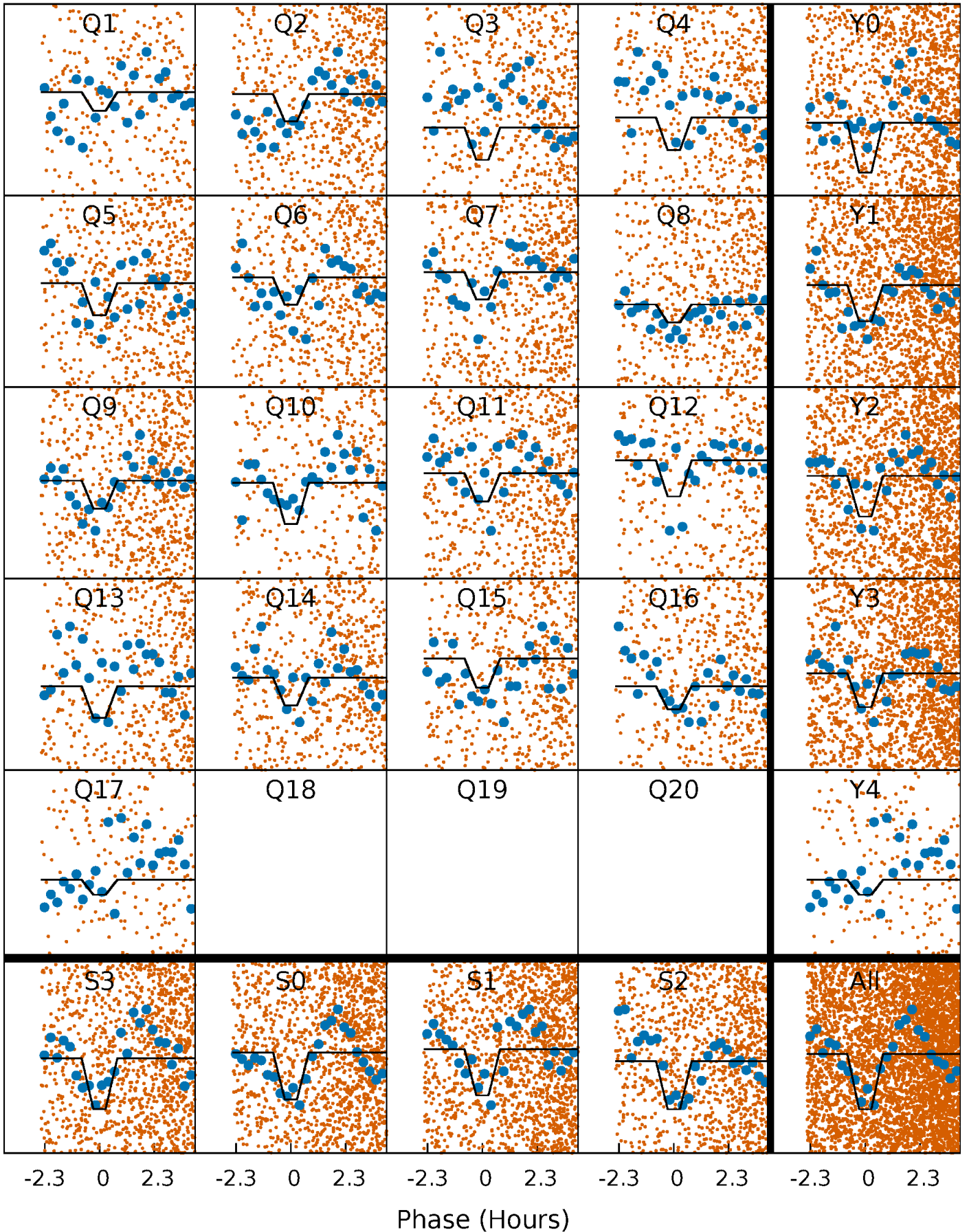
DV Quarter-Phased Transit Curves

TCE 004768668-02 P= 0.598064 Days $T_0=131.575391$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

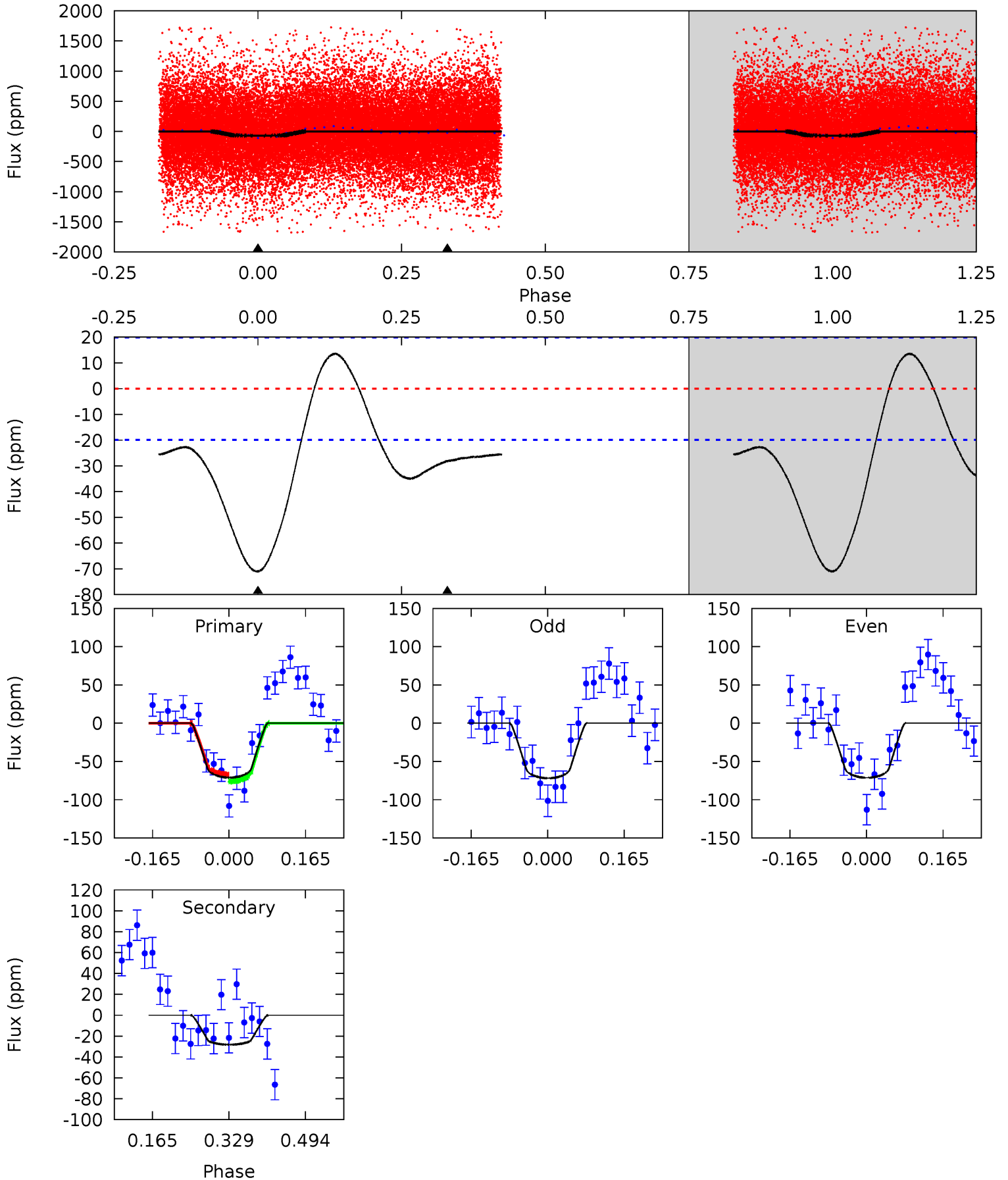
TCE 004768668-02 P= 0.598067 Days $T_0=131.573871$ (BKJD)



DV Model-Shift Uniqueness Test

004768668-02, P = 0.598064 Days, E = 130.977327 Days

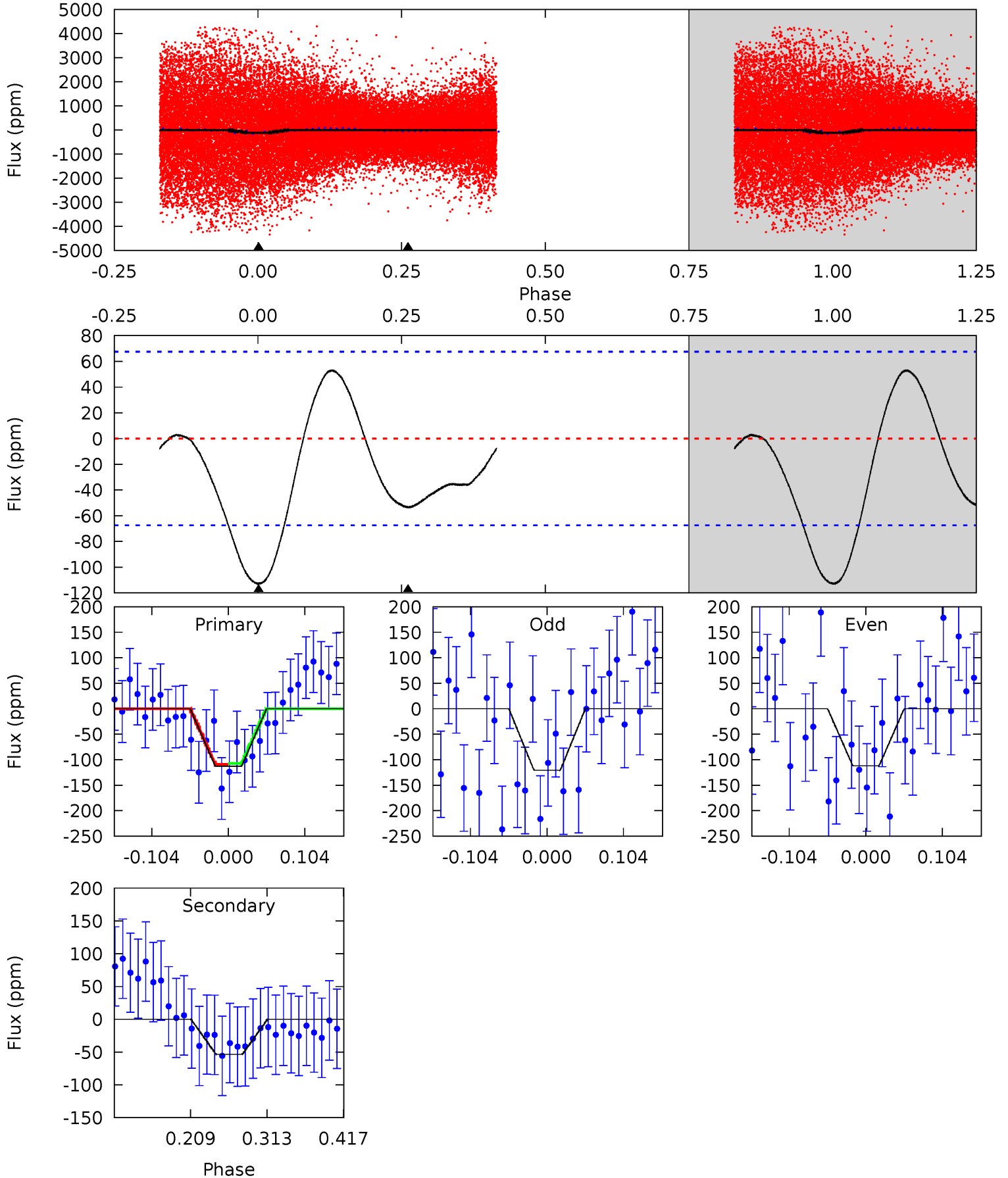
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	6.33	0	0	4.46	1.39	3.28	15.9	15.9	6.33	6.33	0.07	1.03	0.16	0.96



Alt Model-Shift Uniqueness Test

004768668-02, P = 0.598067 Days, E = 130.975804 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.63	3.61	0	0	4.56	1.62	1.99	7.63	7.63	3.61	3.61	0.29	1.19	0.32	0.05



Stellar Parameters For KIC 004768668

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7919^{+216}_{-325}	$4.058^{+0.187}_{-0.153}$	$-0.240^{+0.200}_{-0.350}$	$1.997^{+0.446}_{-0.495}$	$1.658^{+0.185}_{-0.277}$	$0.293^{+0.304}_{-0.119}$
	+3%/-4%	+5%/-4%	+83%/-146%	+22%/-25%	+11%/-17%	+104%/-40%
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 004768668-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-28 ± 4	$2.26^{+0.65}_{-0.58}$	5344^{+386}_{-393}	4953^{+1023}_{-857}	$0.815^{+0.668}_{-0.334}$
Alt.	-53 ± 15	$2.33^{+0.63}_{-0.60}$	5344^{+377}_{-386}	5944^{+1202}_{-1004}	$1.472^{+1.144}_{-0.698}$

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 $A_{obs} \gg 1.0$

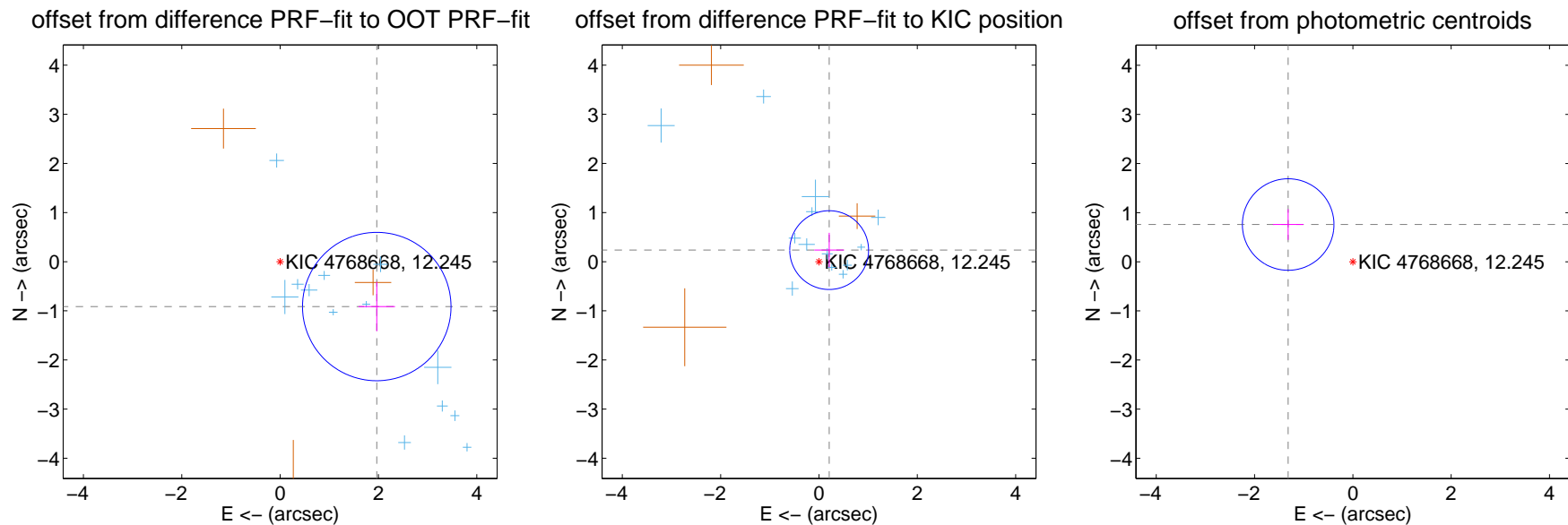
DV Centroid Data

Supplemental centroid analysis for 004768668-02. Kepler magnitude: 12.24. Transit SNR 13.98

There are 13 quarters with good PRF difference image offsets

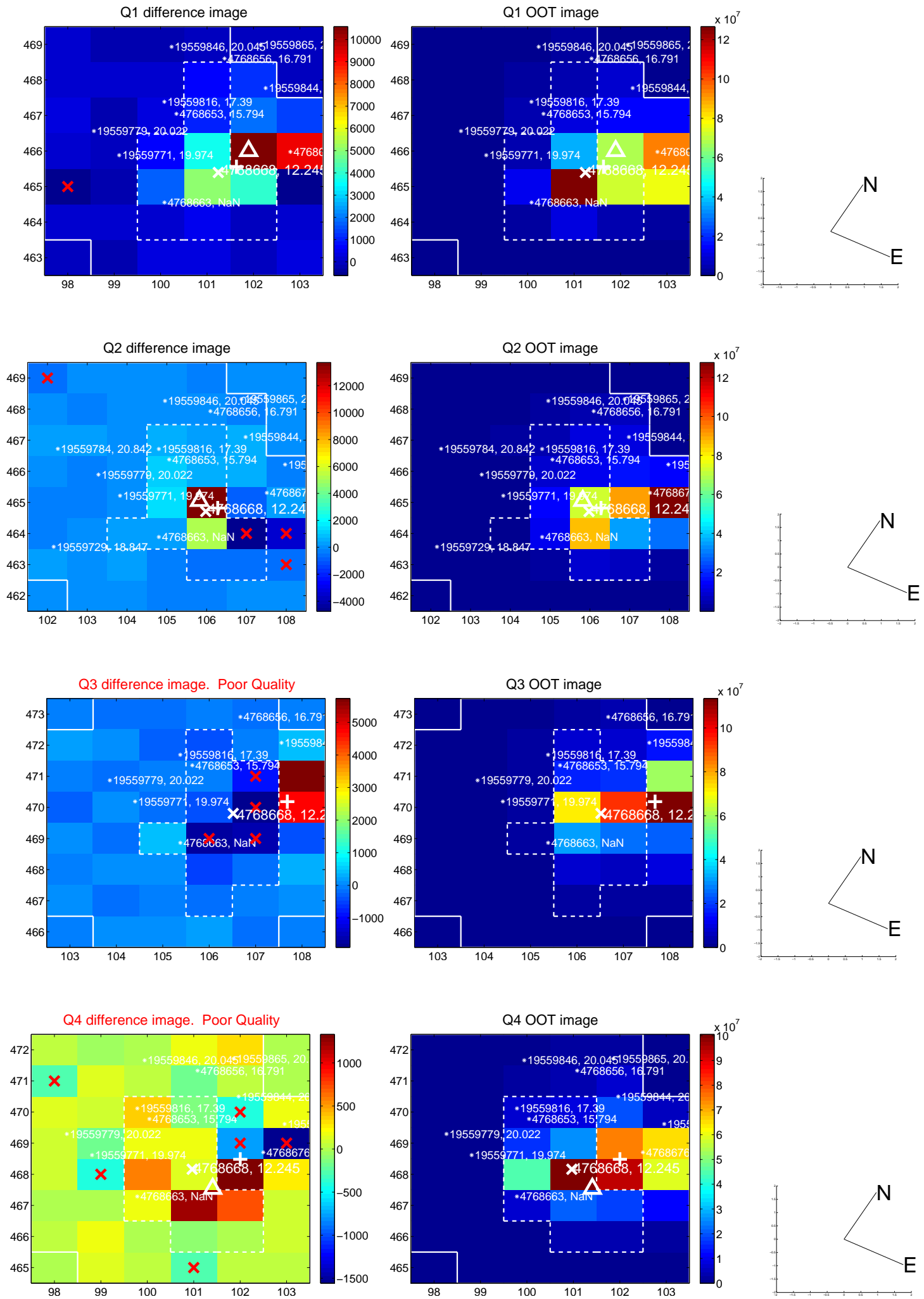
The direct PRF centroid is offset from the target star catalog position by about 1.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.167 ± 0.503	4.31	-1.966 ± 0.372	-0.913 ± 0.501
PRF-fit source offset from KIC position	0.314 ± 0.267	1.17	-0.207 ± 0.302	0.236 ± 0.352
photometric centroid source offset	1.52 ± 0.31	4.89	1.32 ± 0.31	0.76 ± 0.31

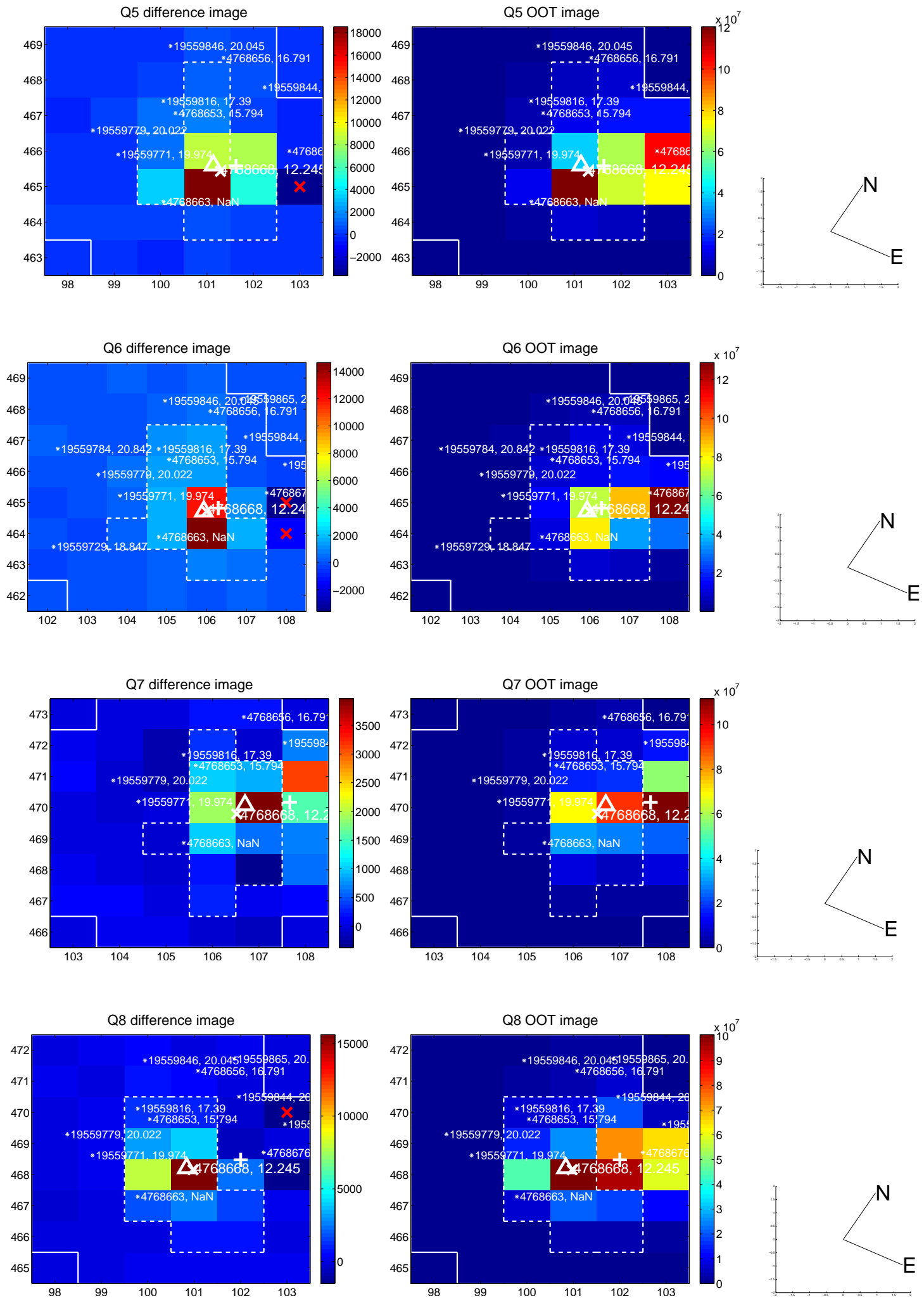


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

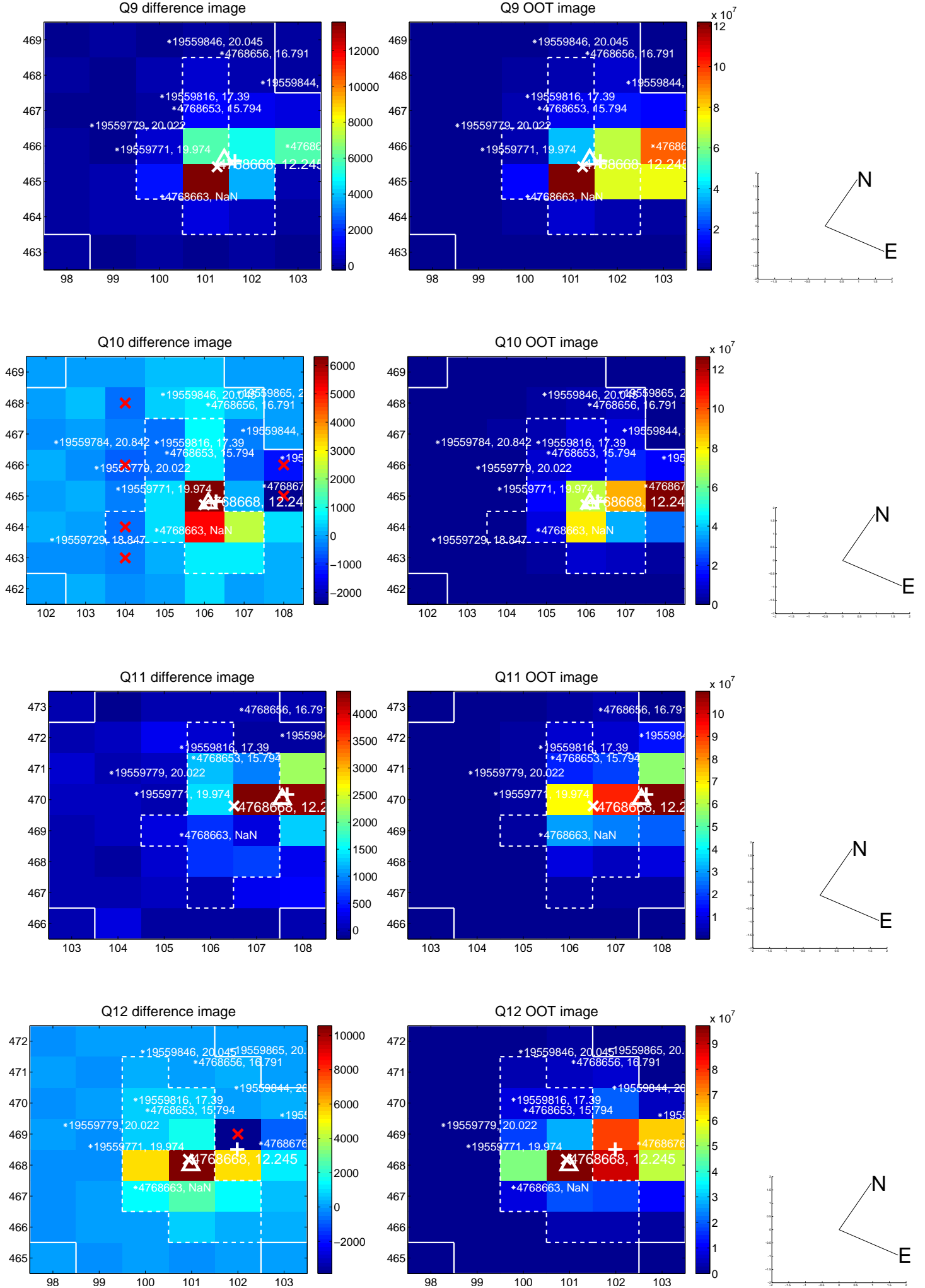
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



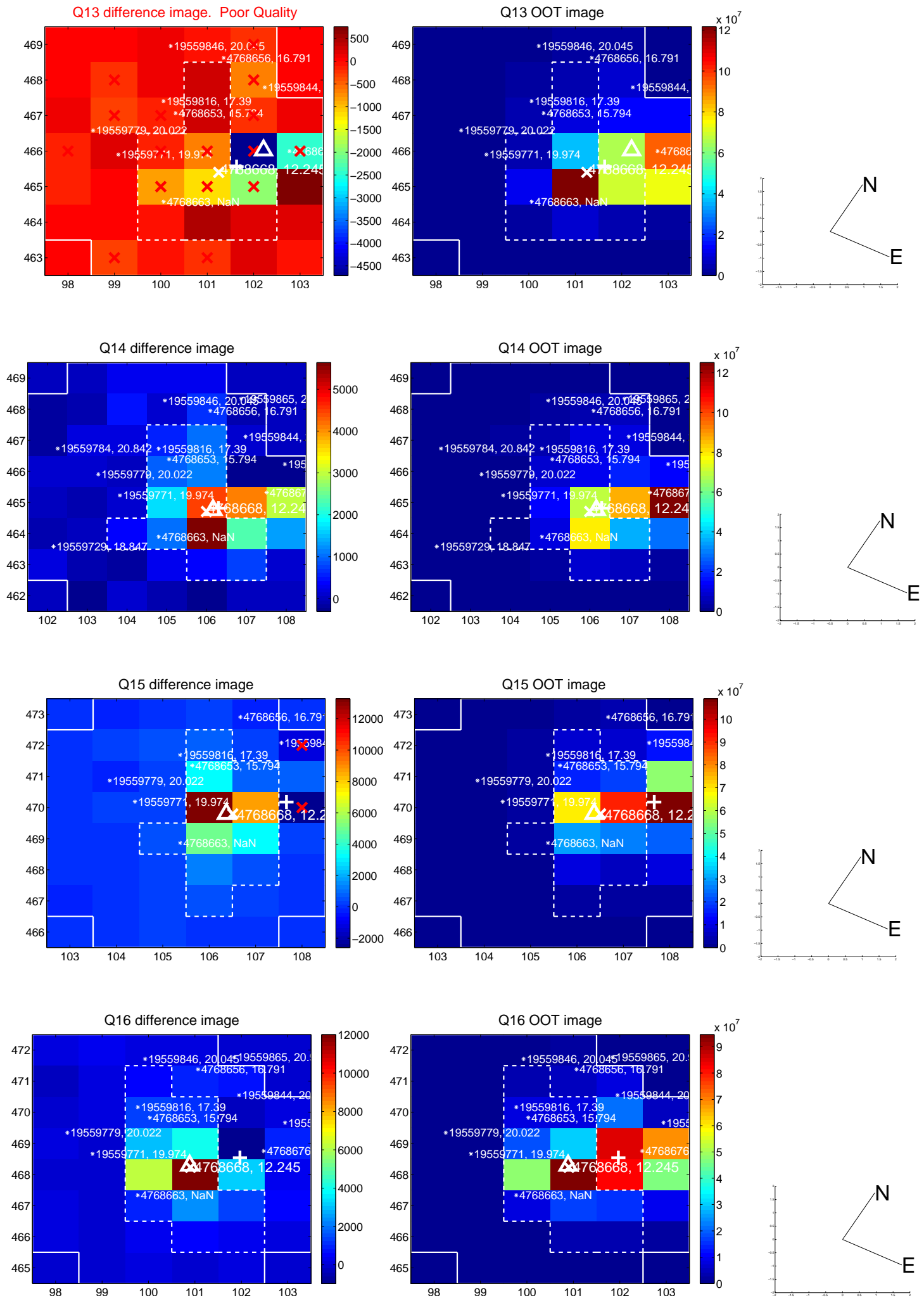
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



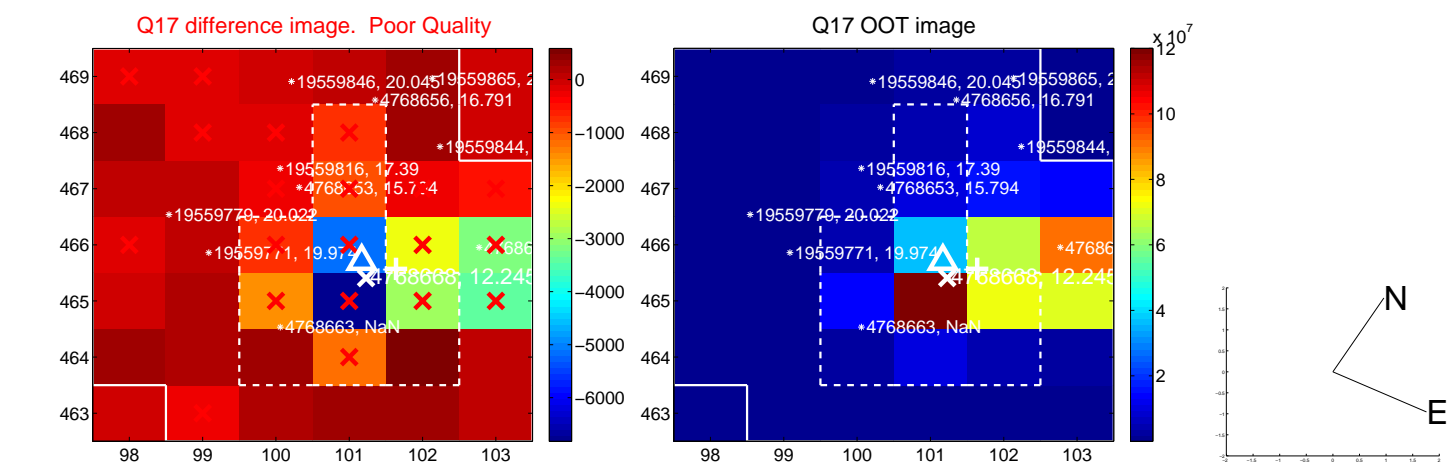
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



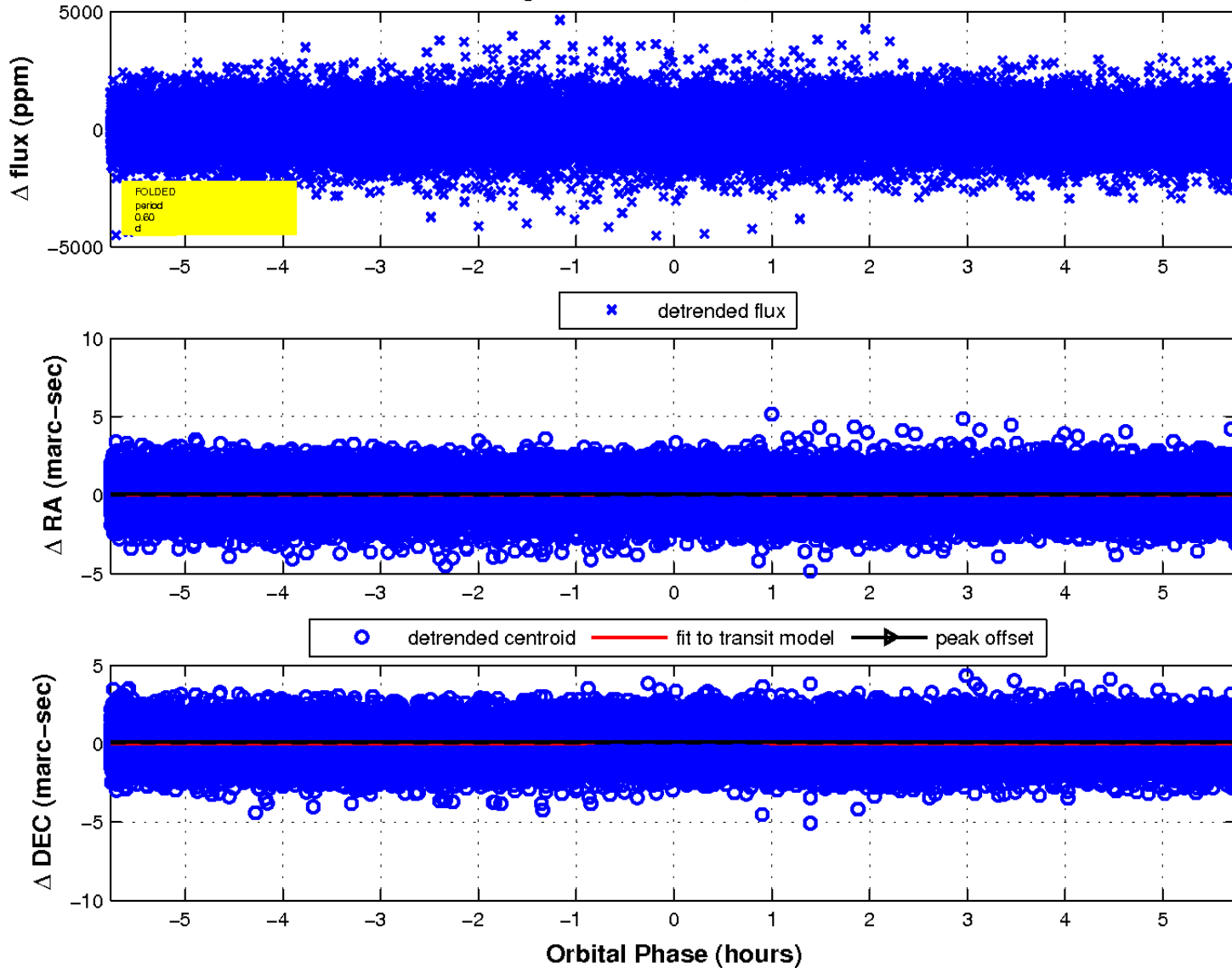
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



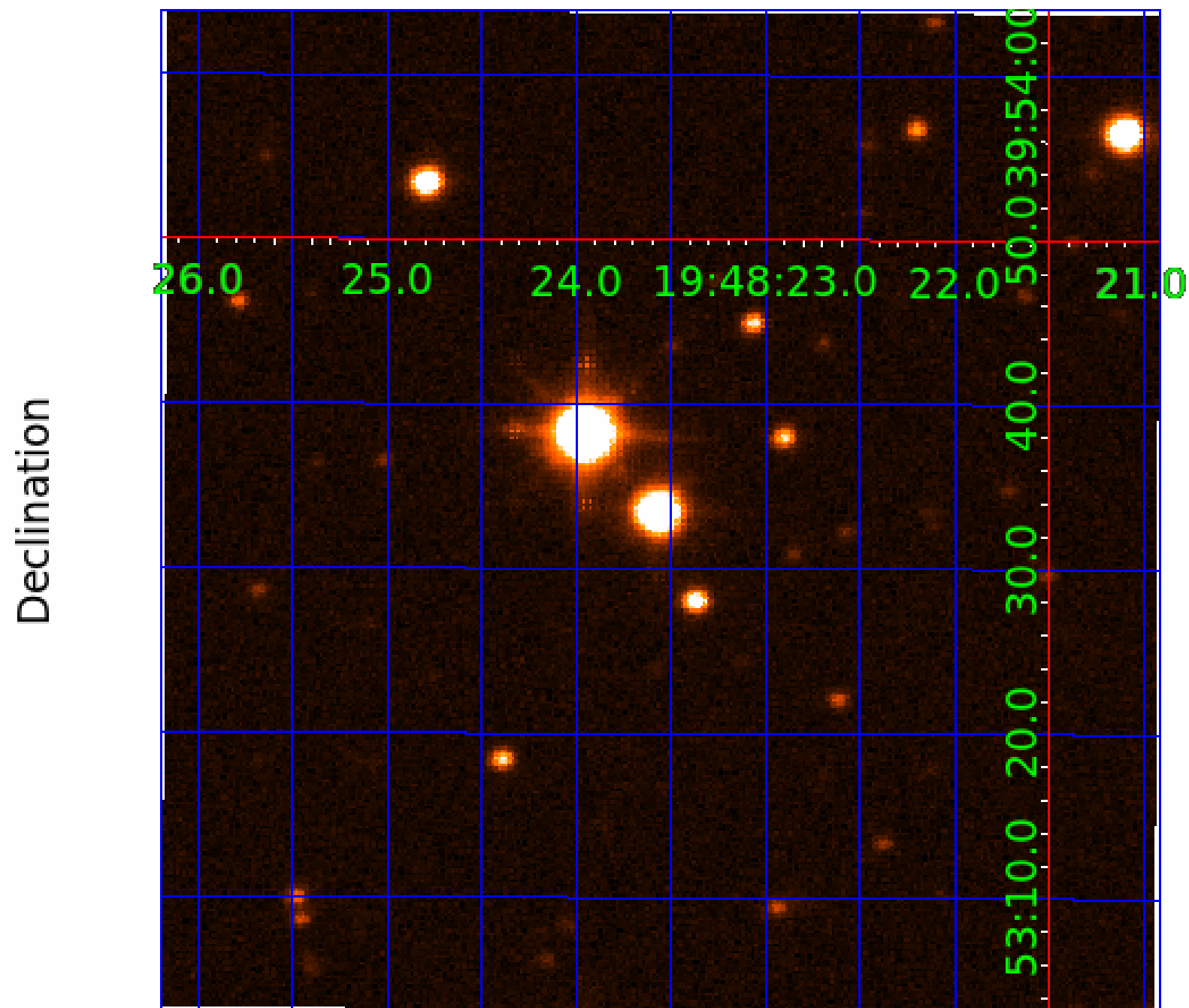
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 5



UKIRT Image



KIC 004768668

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})
004768668-01	OBS	No	0.598067	131.945842	84.4	1.820	12.3	12.2	2.00	7919	2.15	51859.45
004768668-02	OBS	No	0.598064	131.575391	94.9	1.922	12.8	14.0	2.00	7919	2.28	51859.76
004768668-03	OBS	No	30.333029	148.952077	421.1	20.757	8.3	6.2	2.00	7919	4.25	276.23
004768668-04	OBS	No	58.535207	153.490353	1426.3	8.874	7.7	8.6	2.00	7919	9.28	114.97
004768668-05	OBS	No	106.183615	190.934125	254.5	2.000	7.1	-1.0	2.00	7919	3.21	51.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768668-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
004768668-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004768668-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

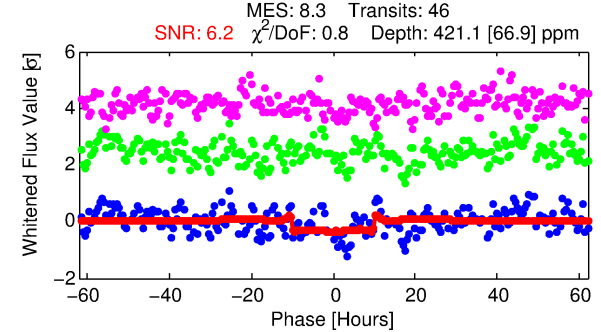
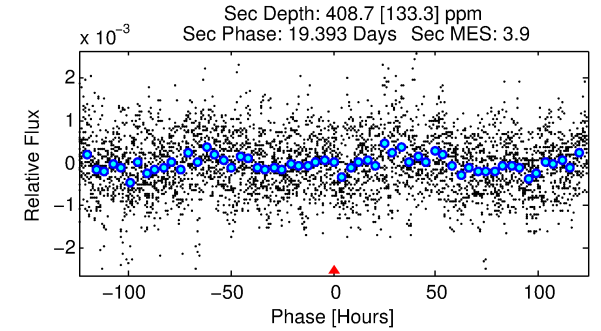
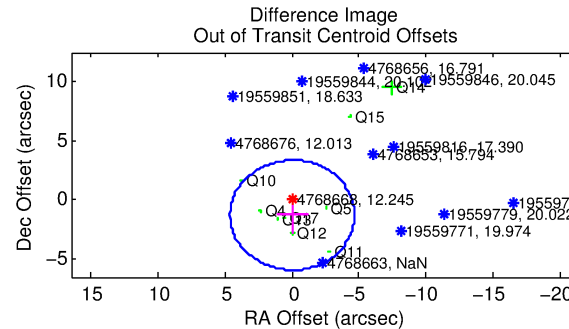
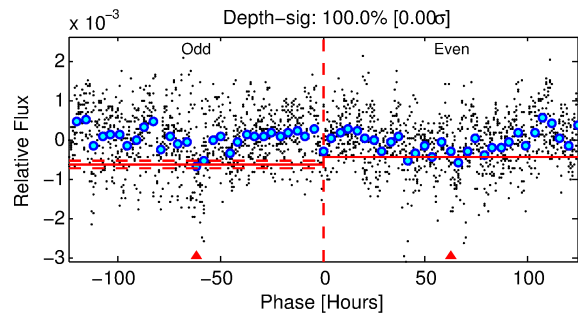
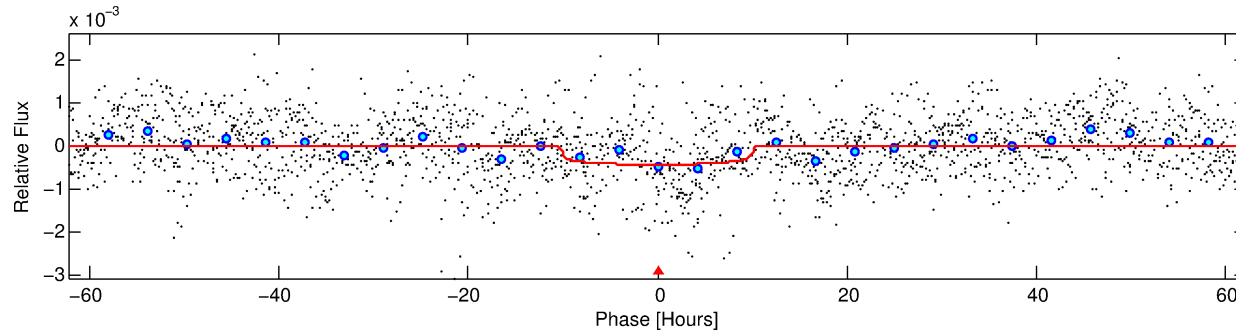
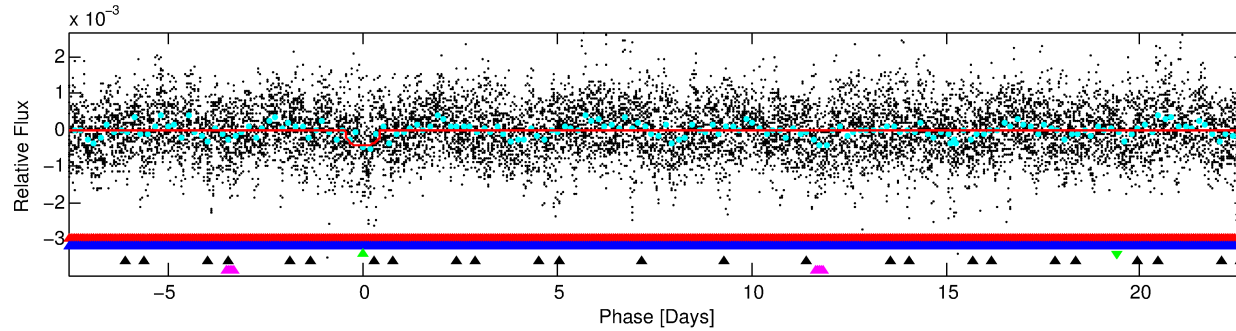
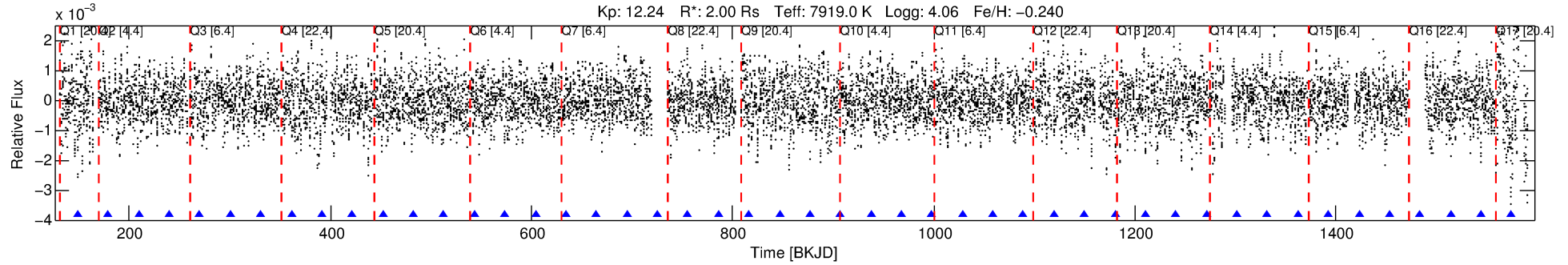
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768668-03

No Significant Match Found

DV One-Page Summary

KIC: 4768668 Candidate: 3 of 5 Period: 30.333 d



DV Fit Results:

Period = 30.33303 [0.00069] d
Epoch = 148.9521 [0.0178] BKJD
Rp/R* = 0.0195 [0.0042]
a/R* = 9.69 [10.03]
b = 0.54 [1.38]
Seff = 276.23 [102.11]
Teq = 1040 [96] K
Rp = 4.25 [1.40] Re
a = 0.2255 [0.0494] AU
Ag = 632.14 [400.52] [1.58σ]
Teffp = 8059 [1137] K [6.15σ]

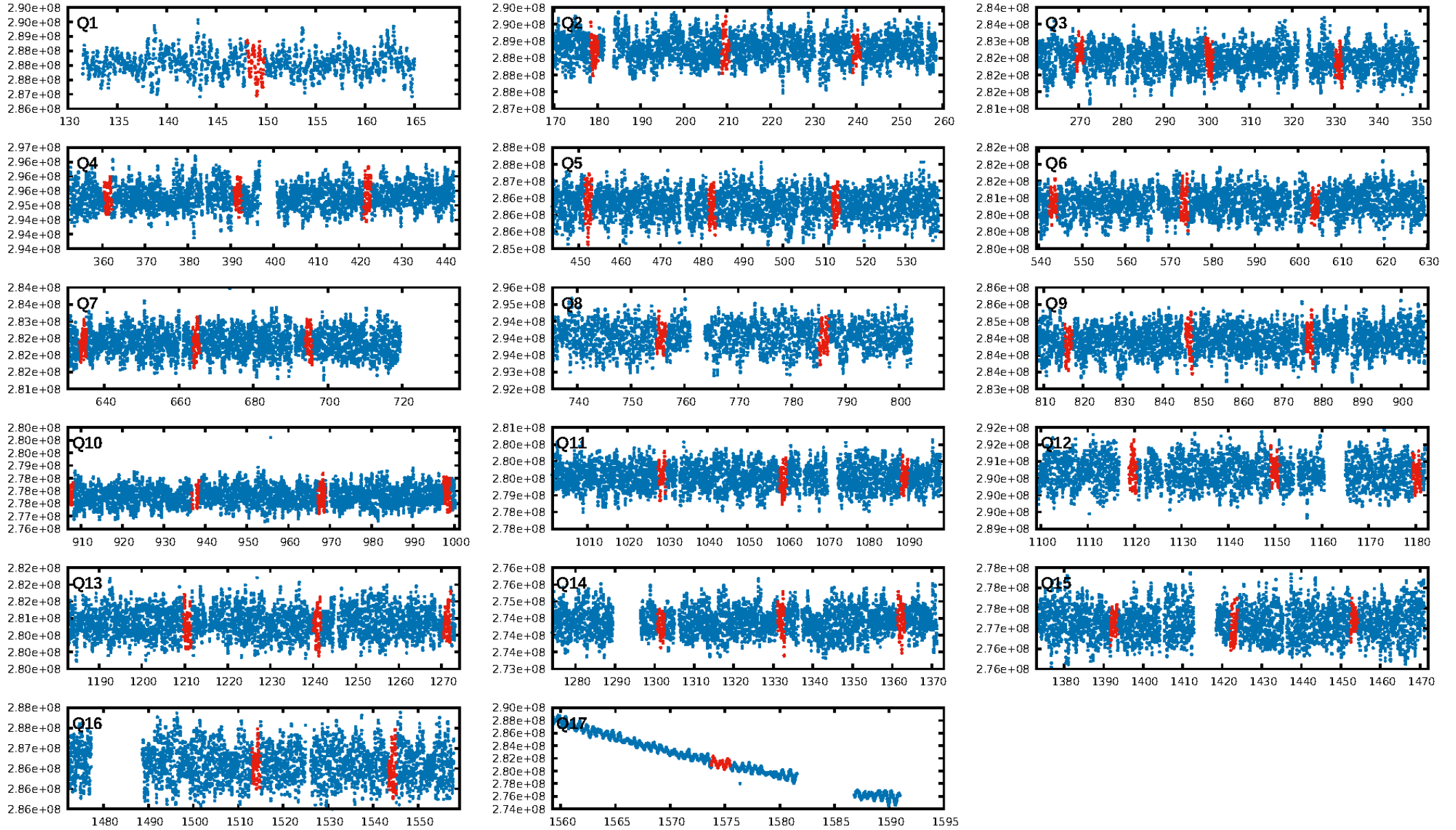
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.25σ]
LongPeriod-sig: 100.0% [29.98σ]
ModelChiSquare2-sig: 2.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [44/44]
GhostDiagnostic-chr: -0.8226
Centroid-sig: 51.8%
Centroid-so: 2.774 arcsec [8.40σ]
OotOffset-rm: 1.272 arcsec [0.82σ]
KicOffset-rm: 1.924 arcsec [2.10σ]
OotOffset-st: 2/2/2/3 [9]
KicOffset-st: 2/2/2/3 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.00 [0/17]

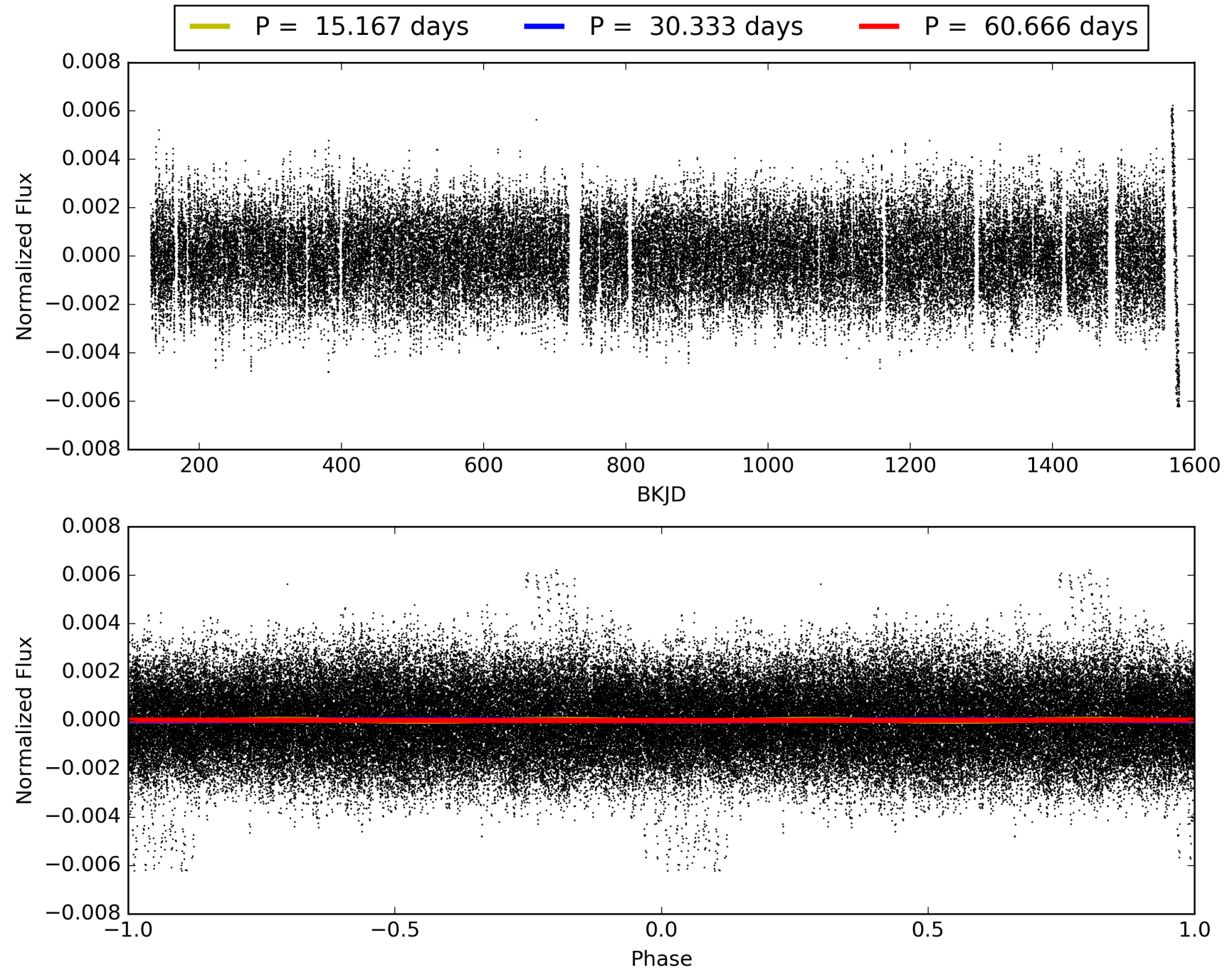
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:19:15 Z

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

TCE 004768668-03, PDC Light Curves

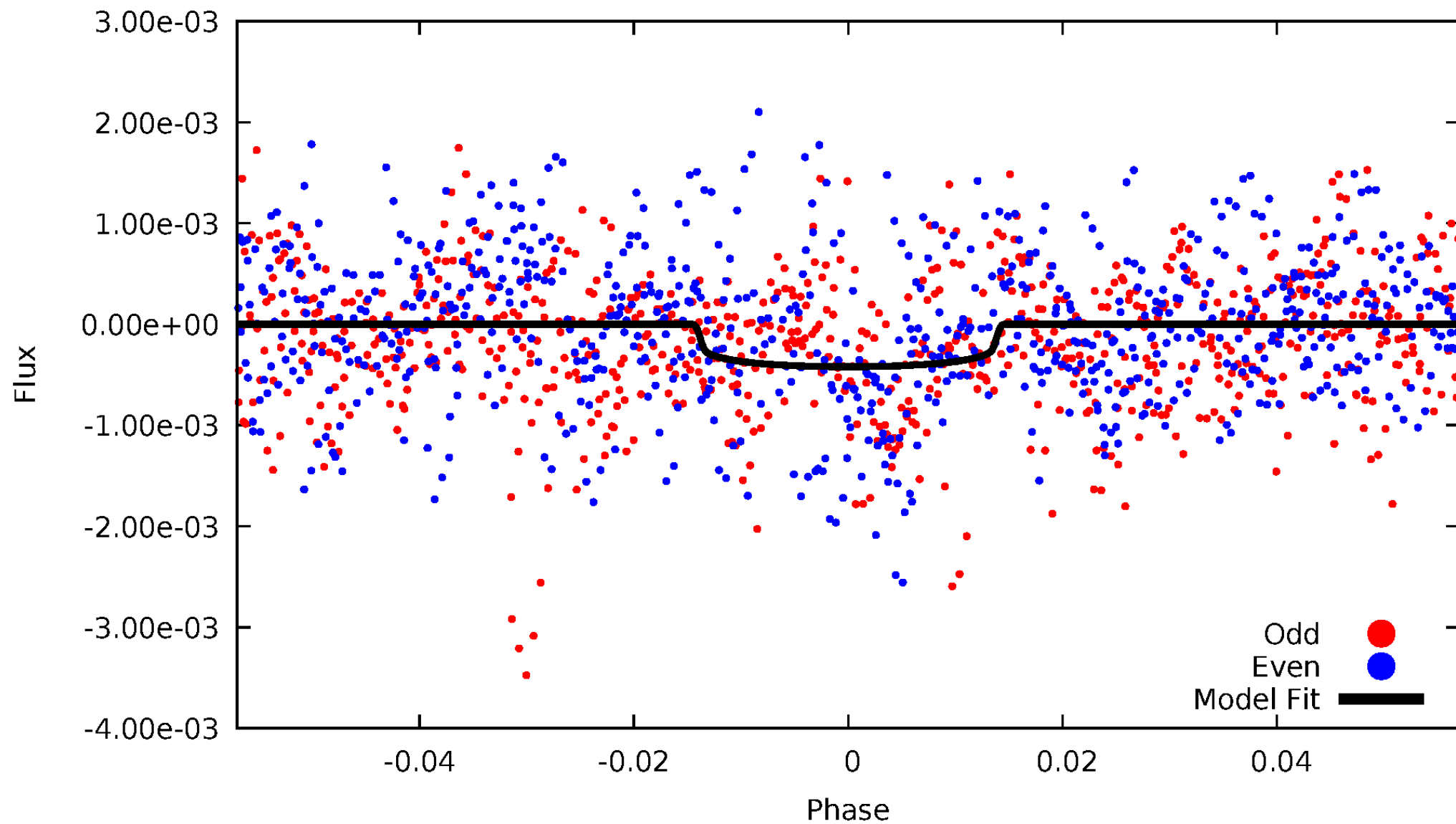


TCE 004768668-03



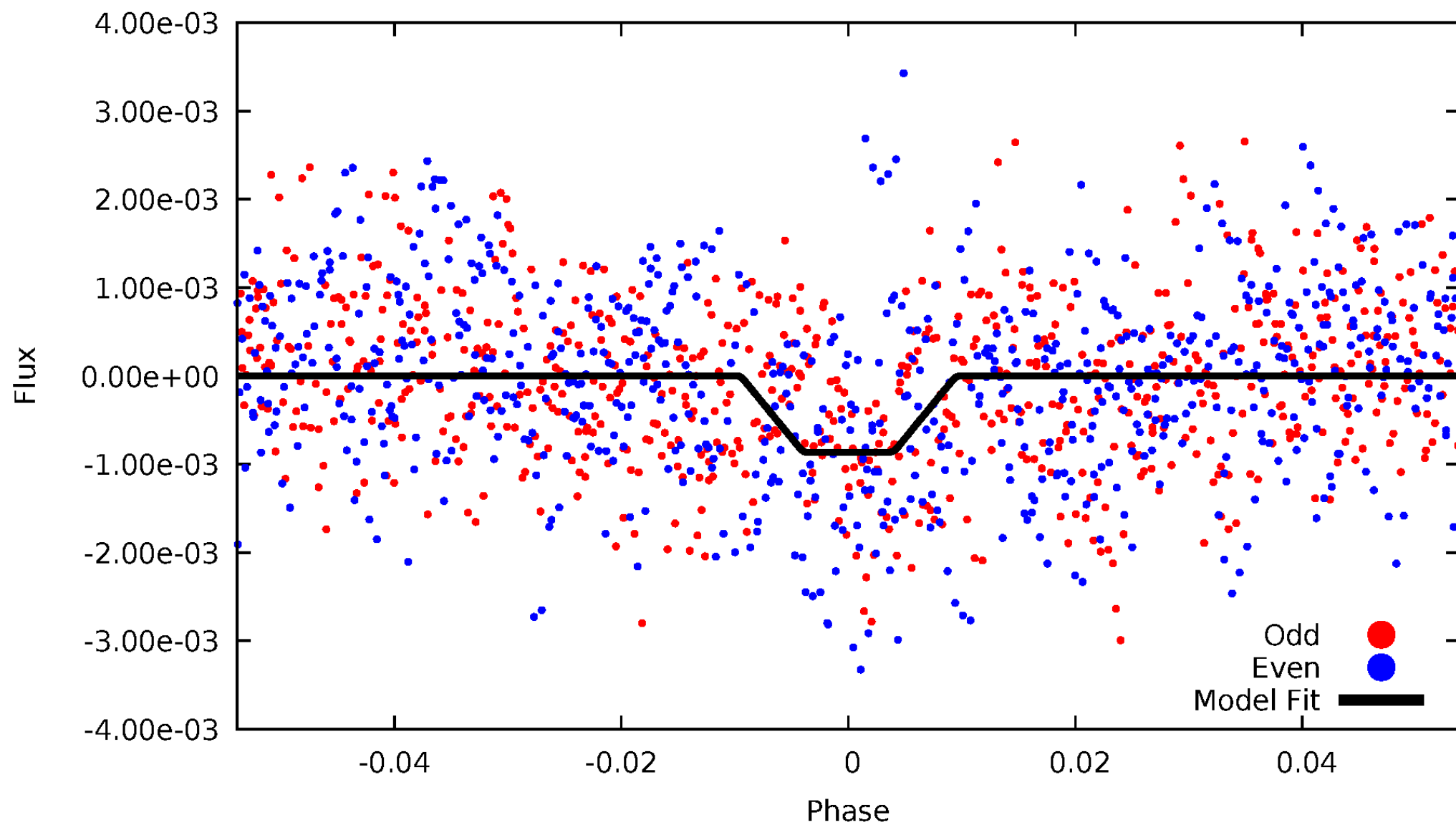
DV Odd/Even

TCE 004768668-03



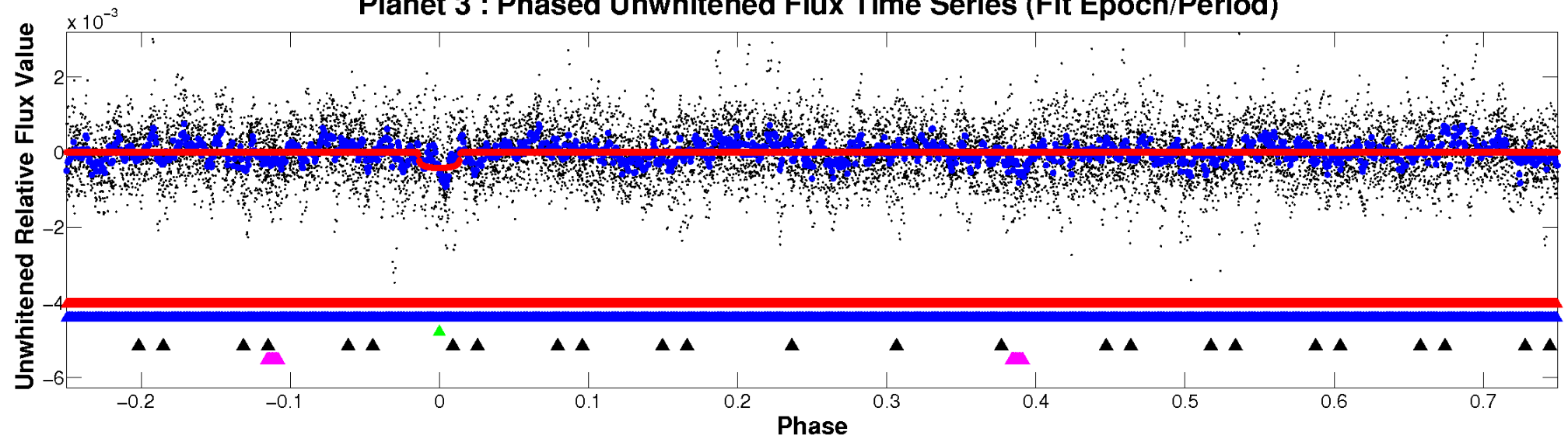
ALT Odd/Even

TCE 004768668-03

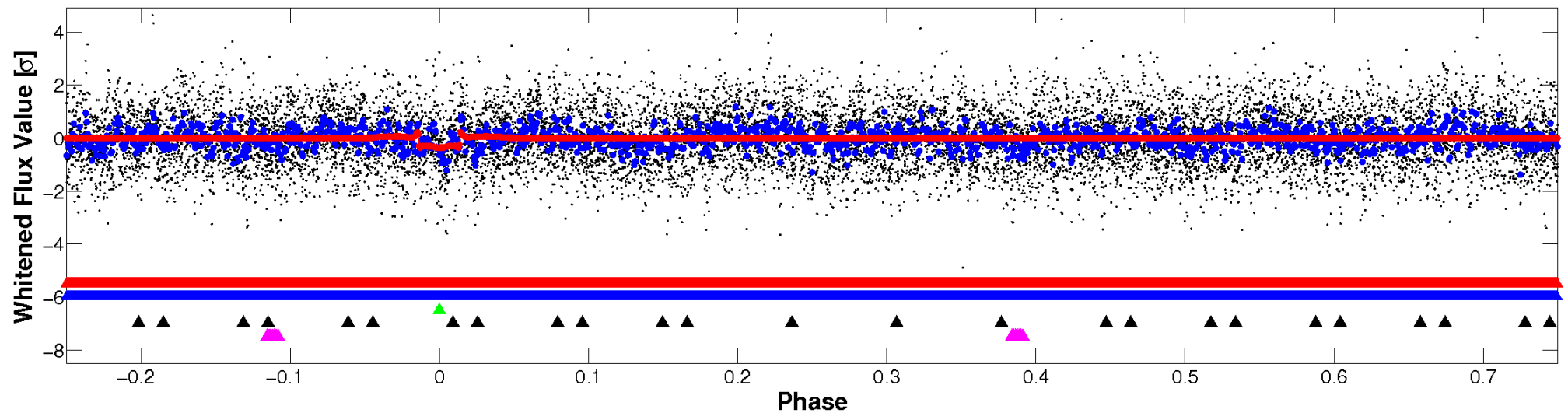


Non-Whitened Vs. Whitened Light Curve

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

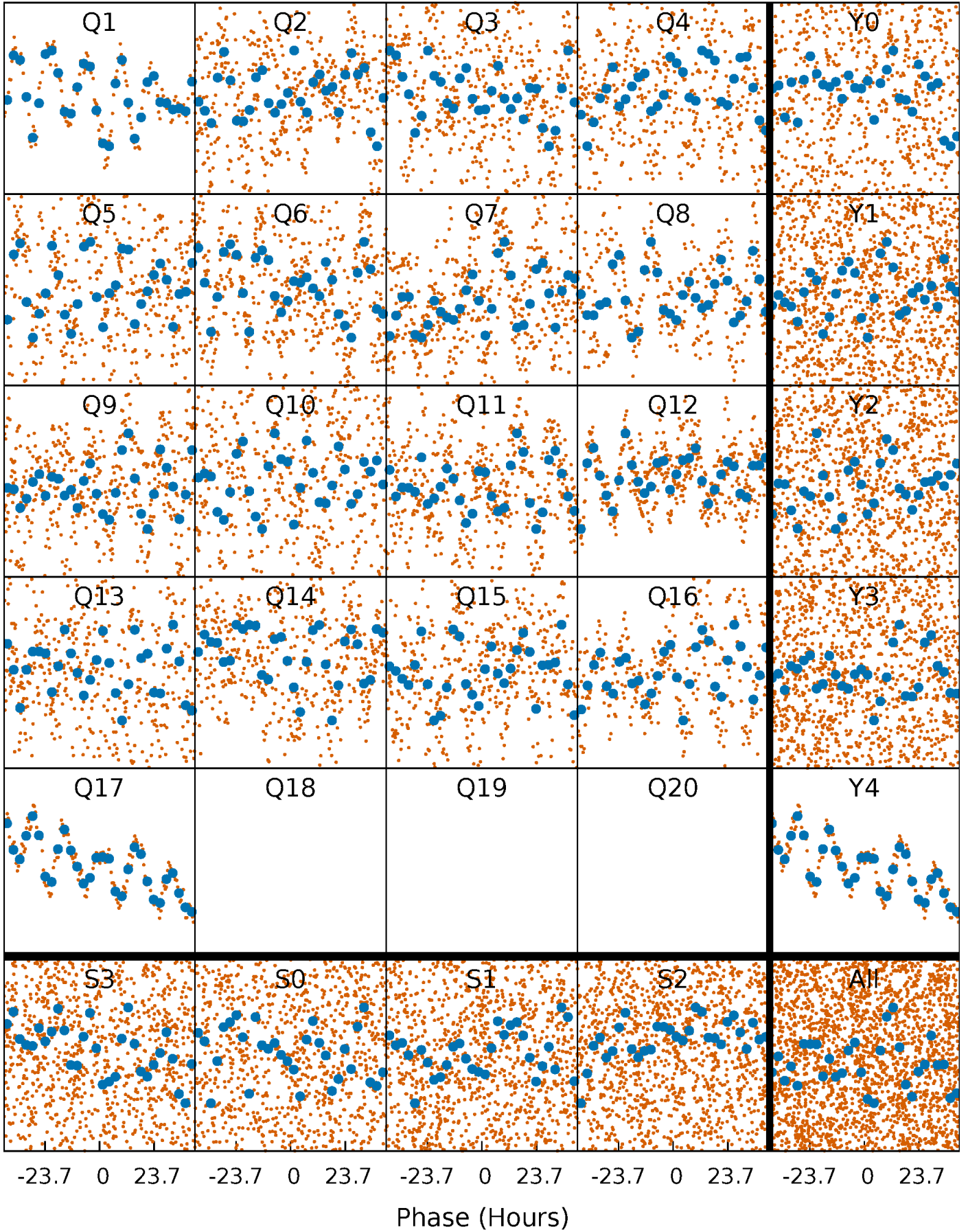


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



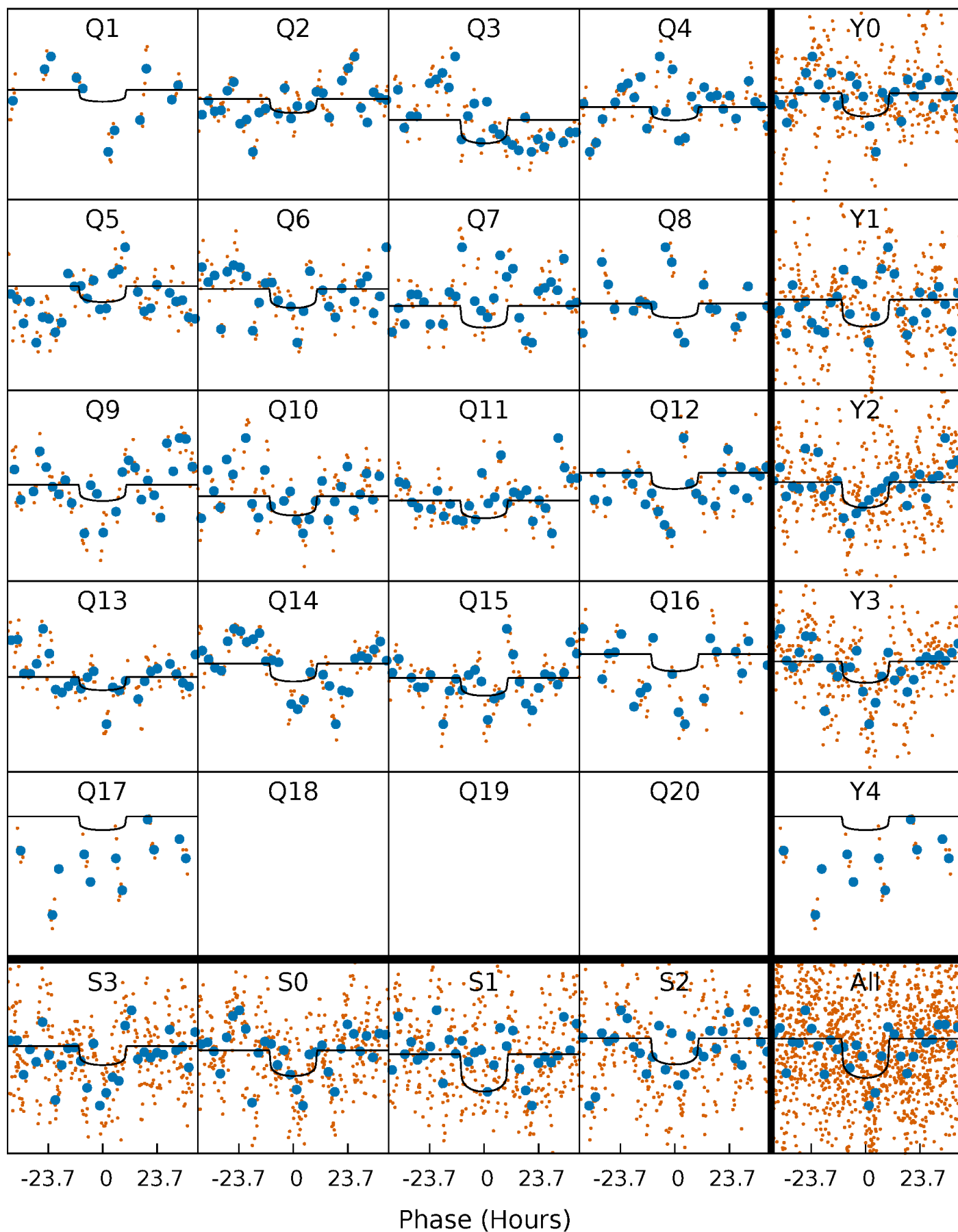
PDC Quarter-Phased Transit Curves

TCE 004768668-03 P= 30.333029 Days $T_0=148.952077$ (BKJD)



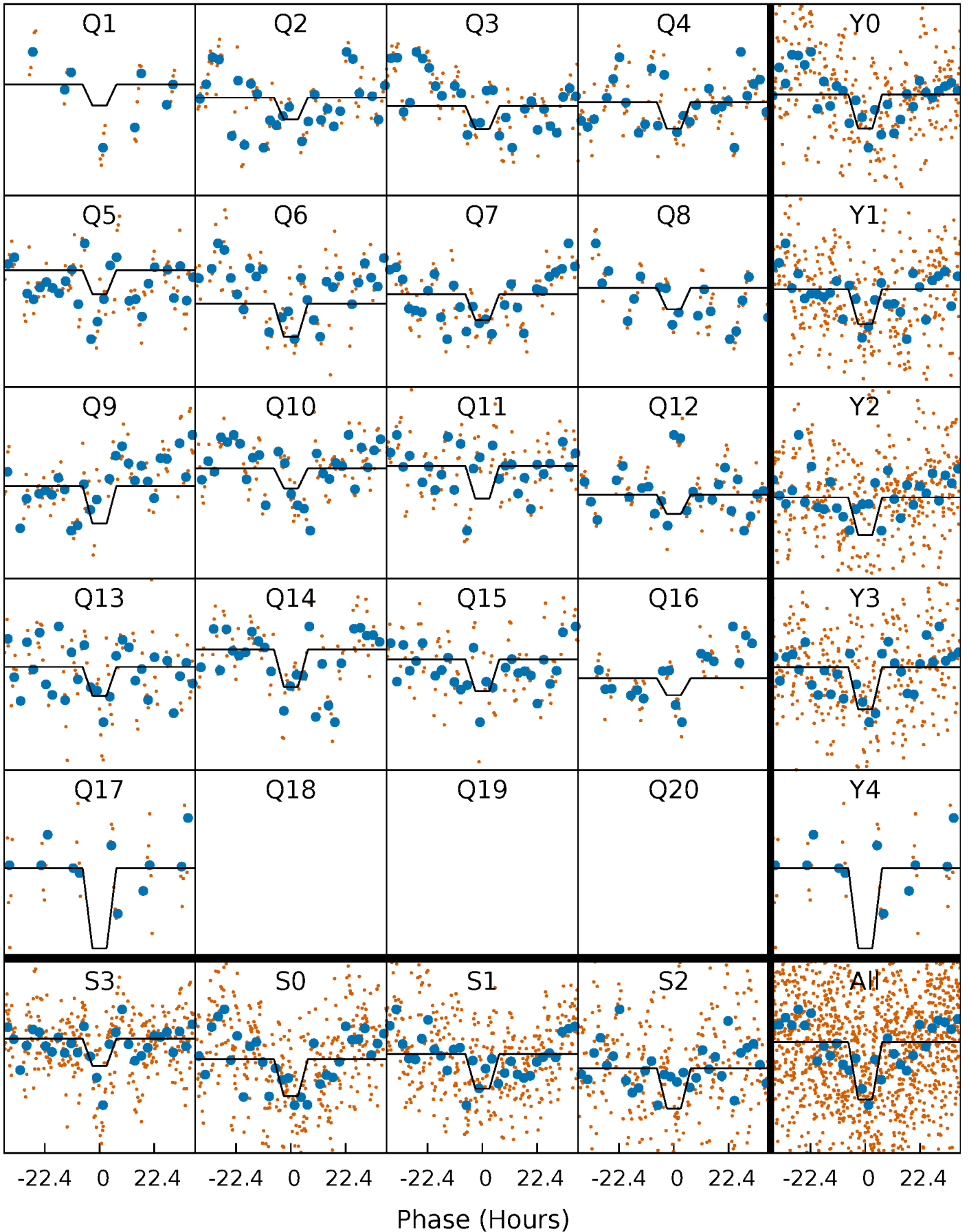
DV Quarter-Phased Transit Curves

TCE 004768668-03 P= 30.333029 Days $T_0=148.952077$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

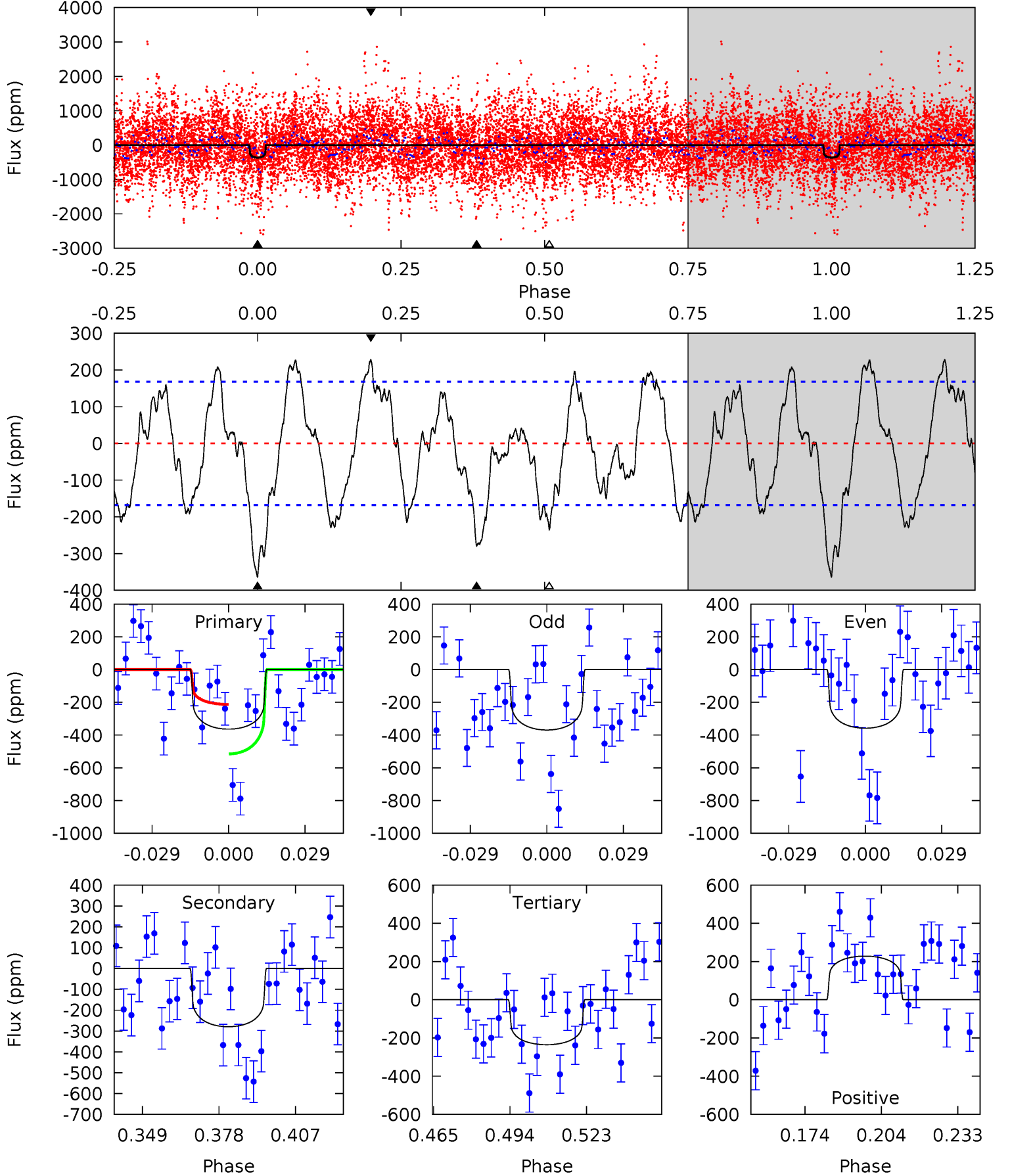
TCE 004768668-03 P= 30.331897 Days $T_0=149.052503$ (BKJD)



DV Model-Shift Uniqueness Test

004768668-03, P = 30.333029 Days, E = 118.619048 Days

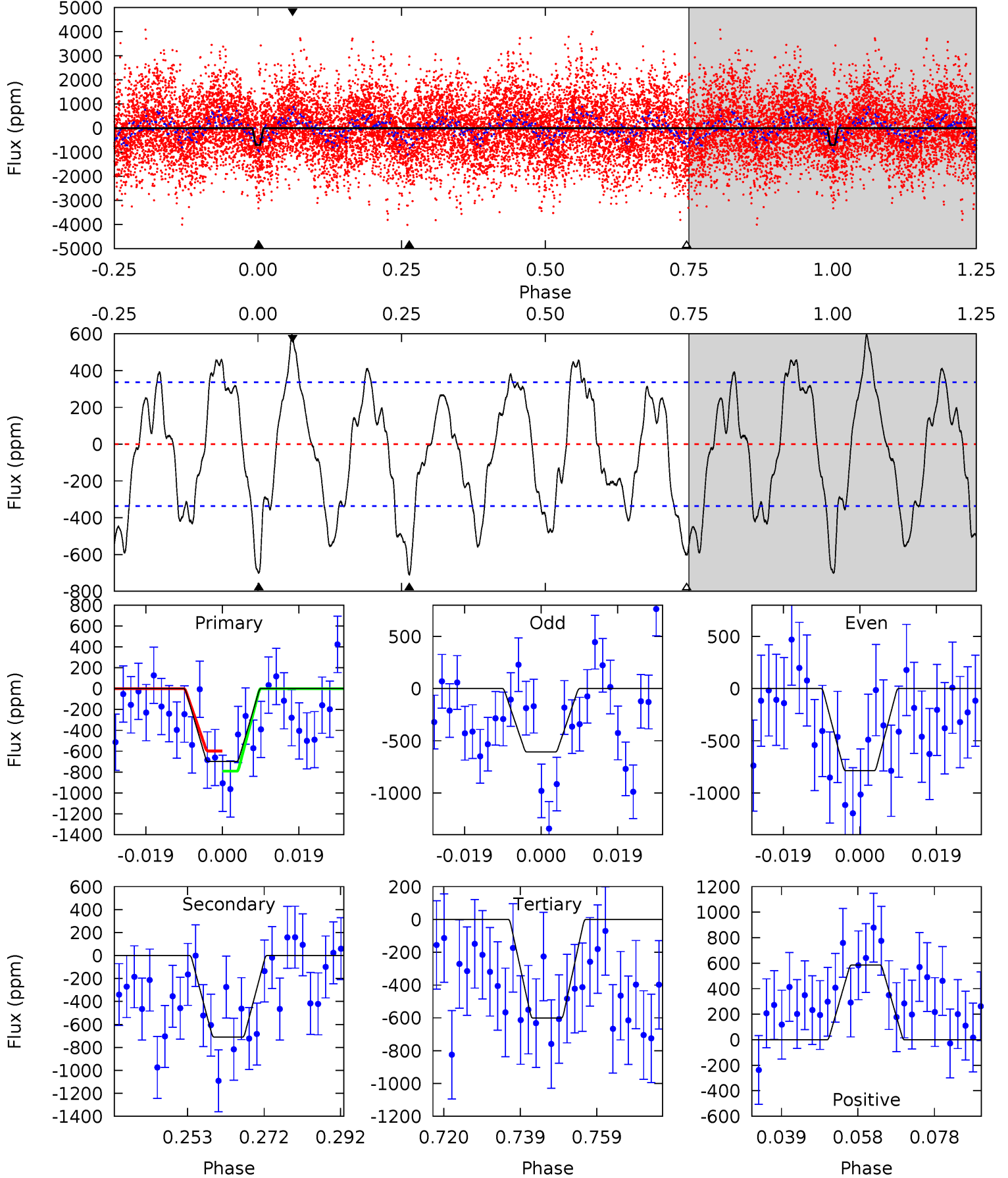
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	8.02	6.76	6.55	4.82	2.18	3.44	3.70	3.90	1.26	1.47	0.16	0.98	0.39	4.33



Alt Model-Shift Uniqueness Test

004768668-03, P = 30.331897 Days, E = 118.720606 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	10.3	8.74	8.51	4.90	2.34	4.24	1.43	1.66	1.59	1.82	1.30	1.21	0.46	1.40



Stellar Parameters For KIC 004768668

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7919^{+216}_{-325}	$4.058^{+0.187}_{-0.153}$	$-0.240^{+0.200}_{-0.350}$	$1.997^{+0.446}_{-0.495}$	$1.658^{+0.185}_{-0.277}$	$0.293^{+0.304}_{-0.119}$
	+3%/-4%	+5%/-4%	+83%/-146%	+22%/-25%	+11%/-17%	+104%/-40%
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 004768668-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-279 ± 35	$4.16^{+1.17}_{-1.04}$	1441^{+100}_{-99}	7170^{+1178}_{-829}	450^{+335}_{-181}
Alt.	-710 ± 69	$6.35^{+1.31}_{-1.26}$	1448^{+101}_{-102}	7471^{+814}_{-641}	480^{+268}_{-145}

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

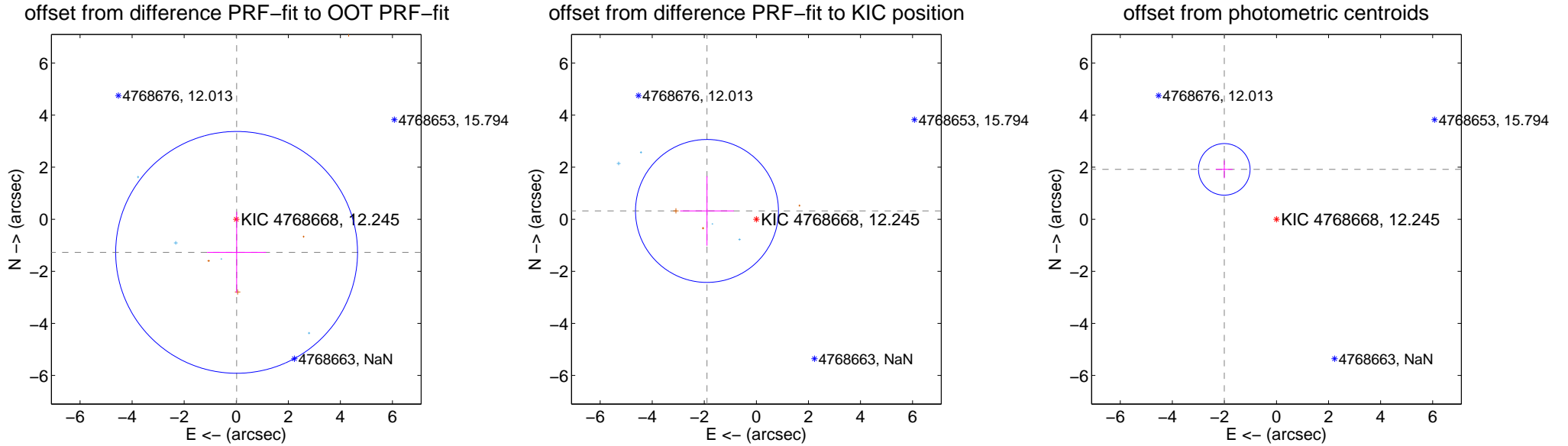
DV Centroid Data

Supplemental centroid analysis for 004768668-03. Kepler magnitude: 12.24. Transit SNR 6.22

There are 4 quarters with good PRF difference image offsets

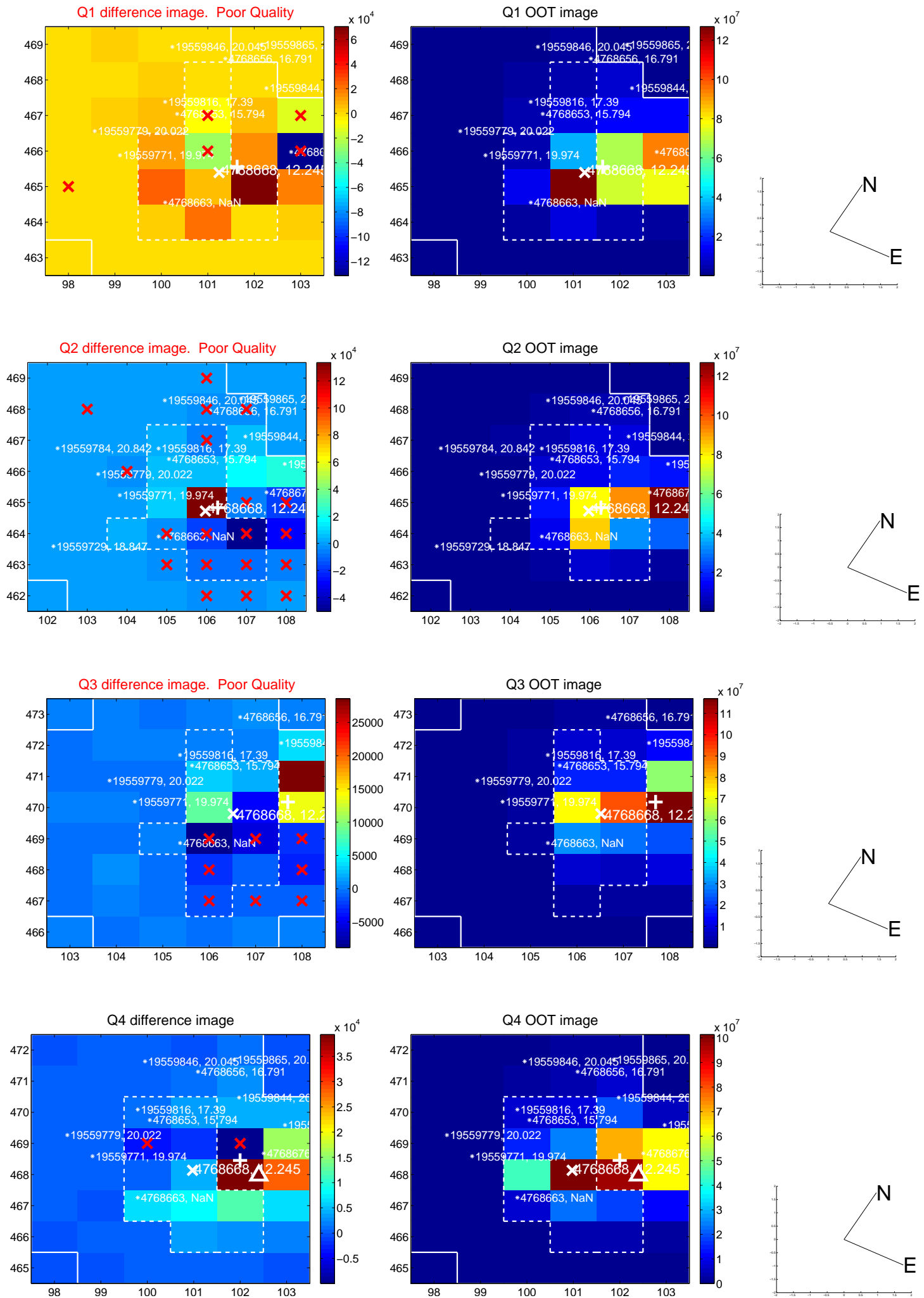
The direct PRF centroid is offset from the target star catalog position by about 1.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.272 ± 1.548	0.82	-0.014 ± 1.135	-1.272 ± 1.556
PRF-fit source offset from KIC position	1.924 ± 0.915	2.10	1.897 ± 1.032	0.319 ± 1.336
photometric centroid source offset	2.77 ± 0.33	8.40	2.00 ± 0.32	1.92 ± 0.34

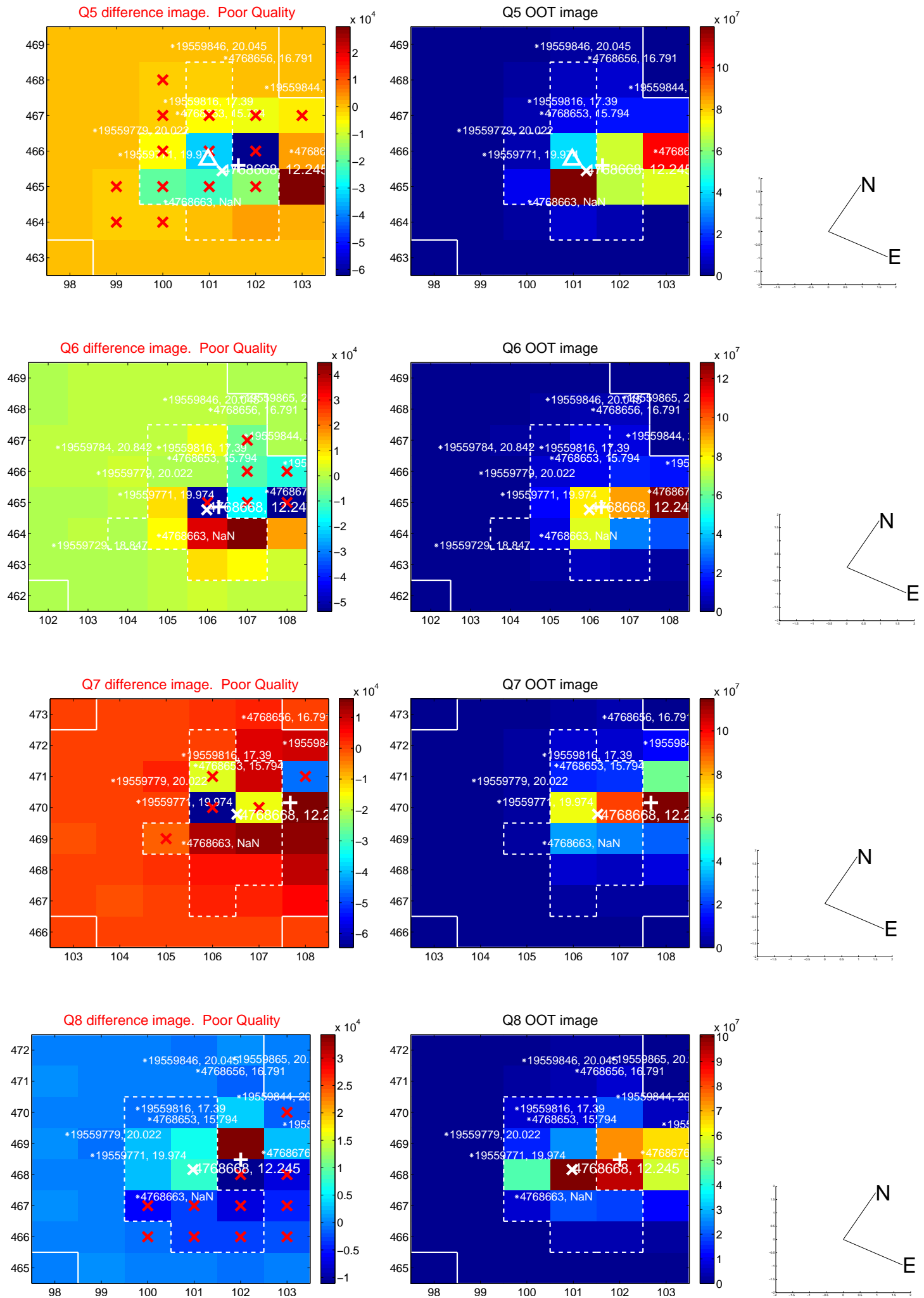


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

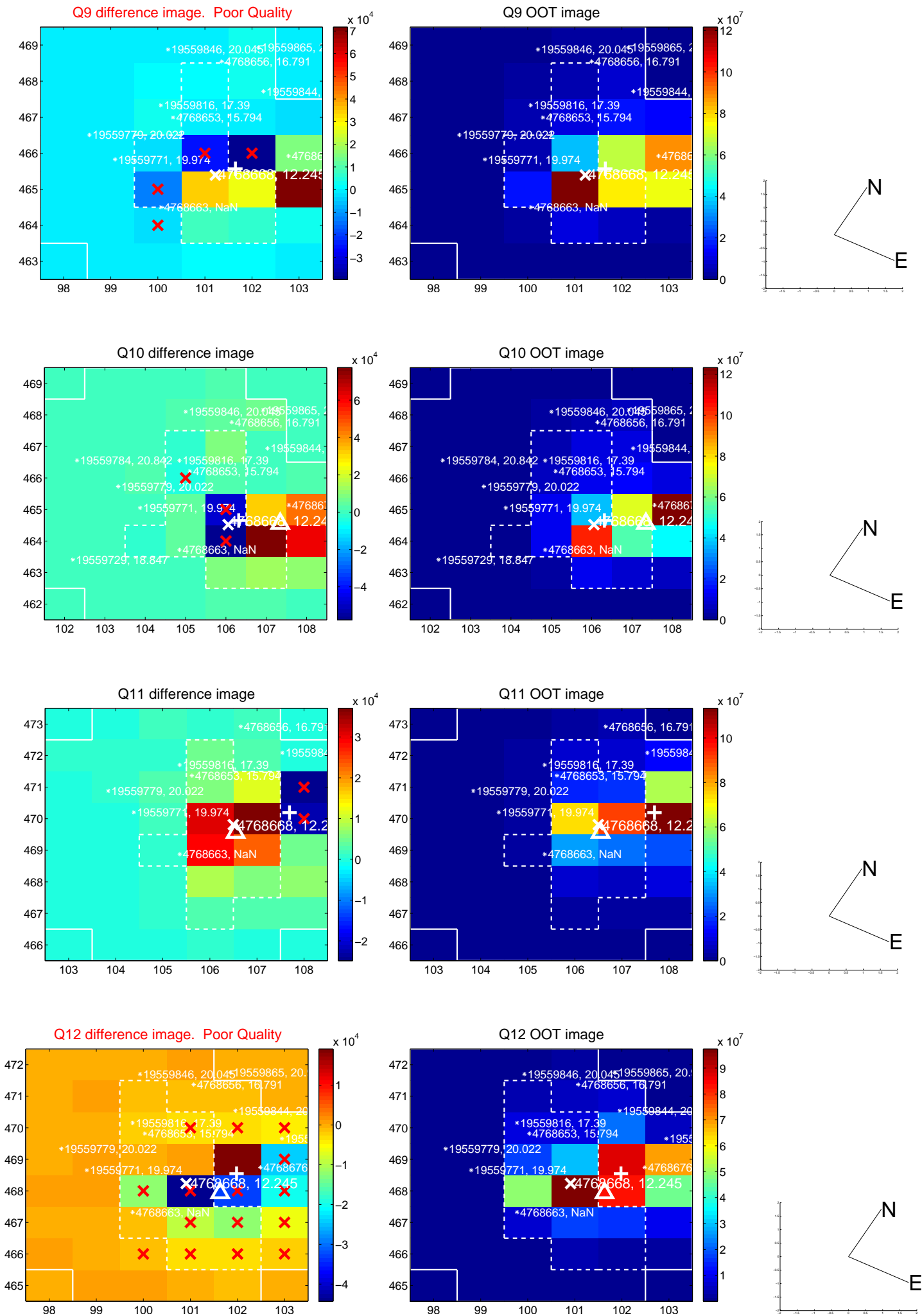
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



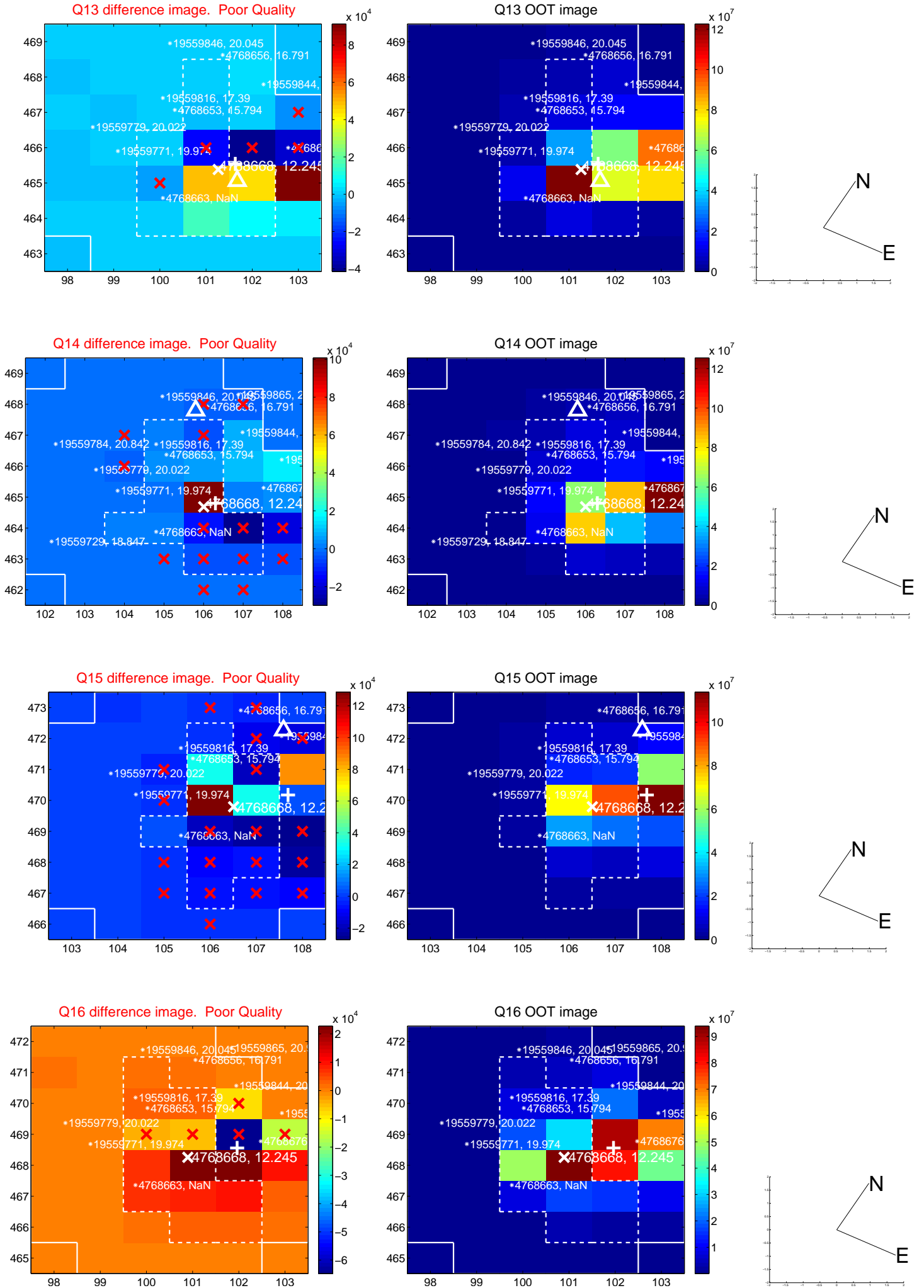
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



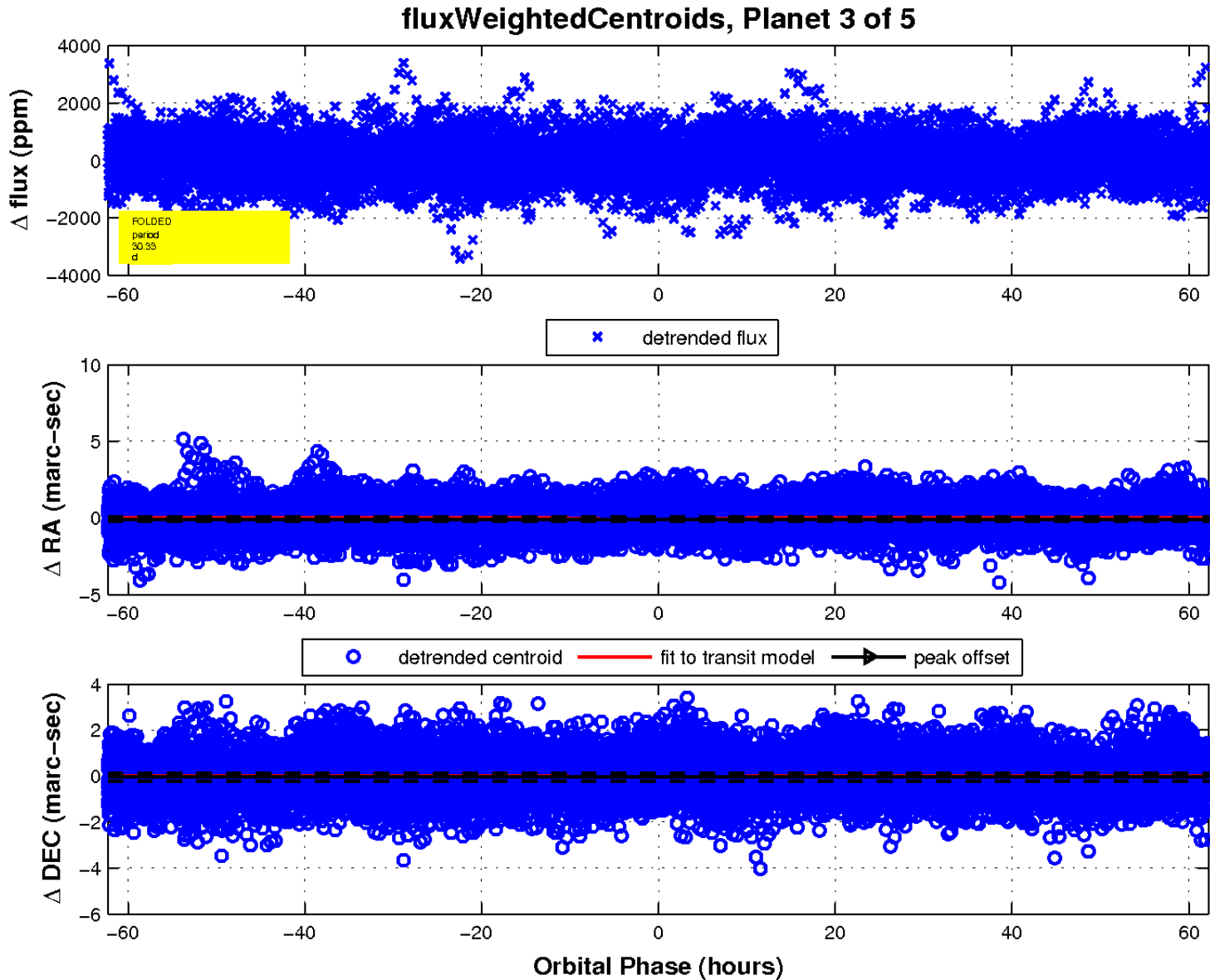
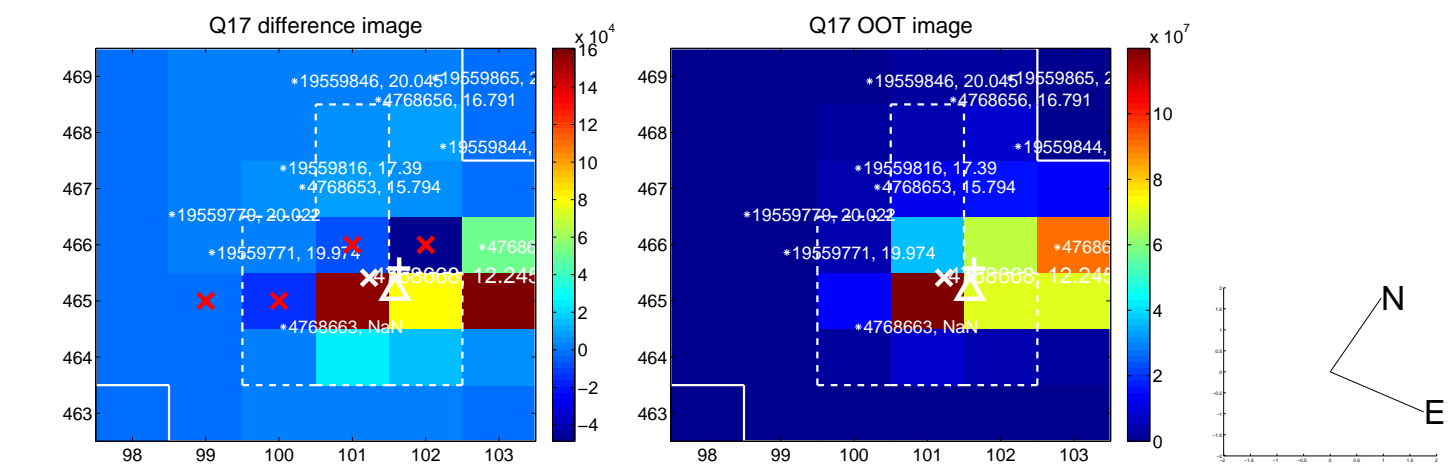
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



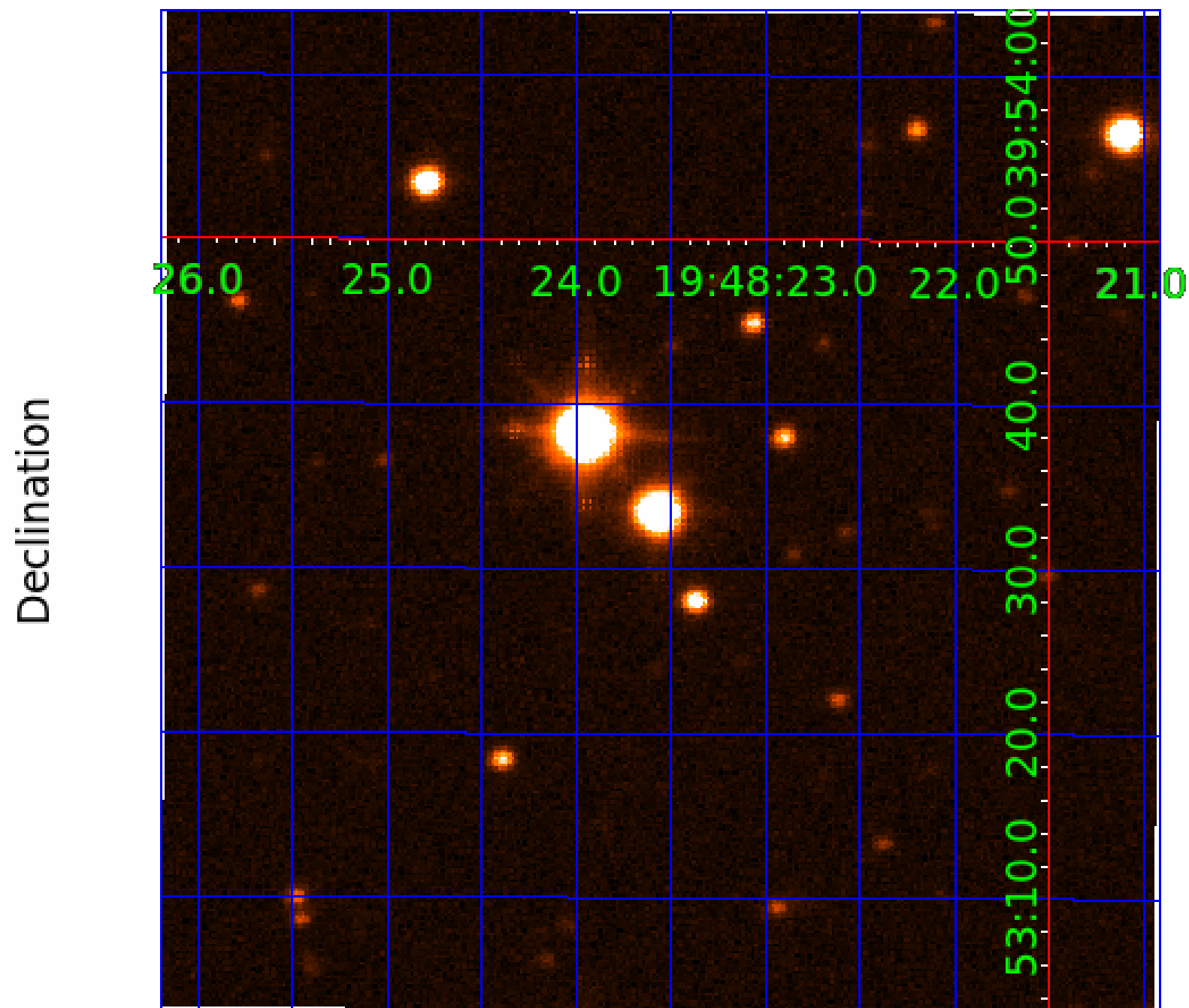
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004768668

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})
004768668-01	OBS	No	0.598067	131.945842	84.4	1.820	12.3	12.2	2.00	7919	2.15	51859.45
004768668-02	OBS	No	0.598064	131.575391	94.9	1.922	12.8	14.0	2.00	7919	2.28	51859.76
004768668-03	OBS	No	30.333029	148.952077	421.1	20.757	8.3	6.2	2.00	7919	4.25	276.23
004768668-04	OBS	No	58.535207	153.490353	1426.3	8.874	7.7	8.6	2.00	7919	9.28	114.97
004768668-05	OBS	No	106.183615	190.934125	254.5	2.000	7.1	-1.0	2.00	7919	3.21	51.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768668-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
004768668-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004768668-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

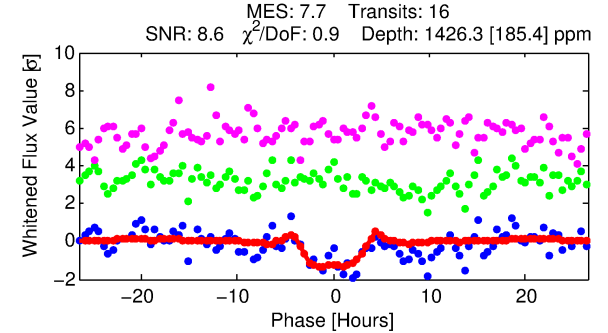
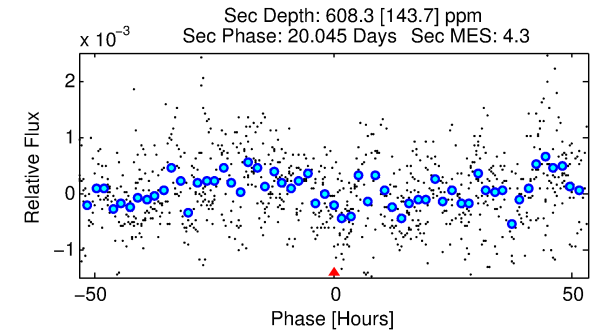
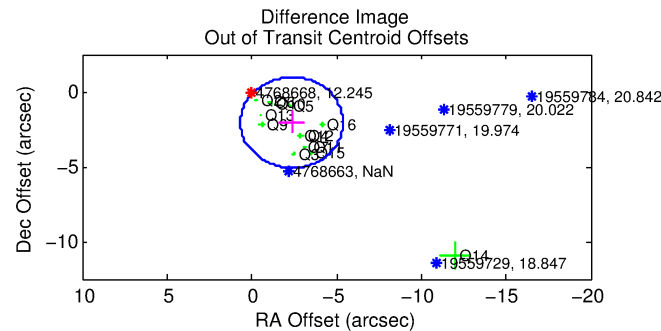
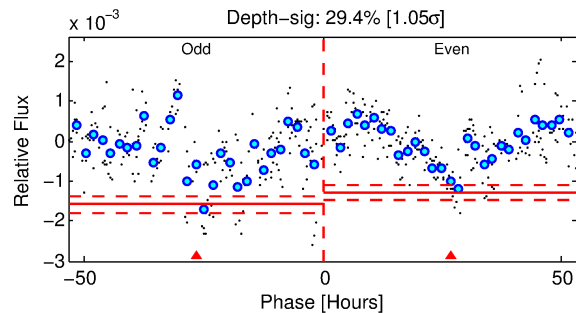
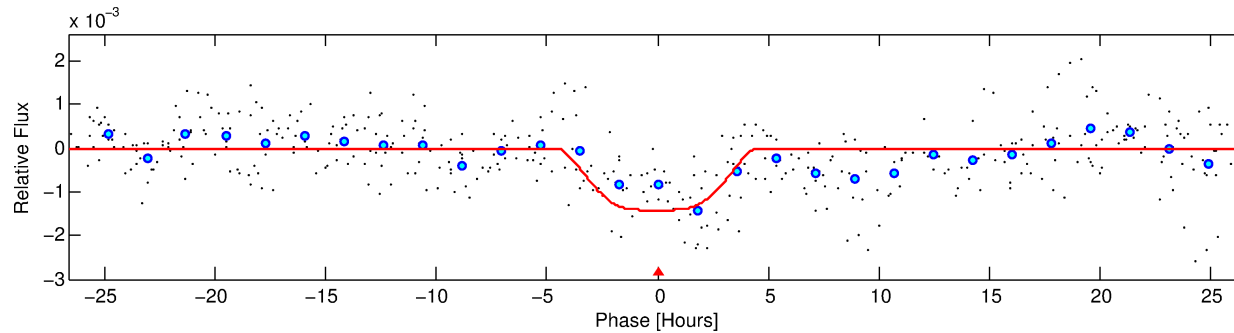
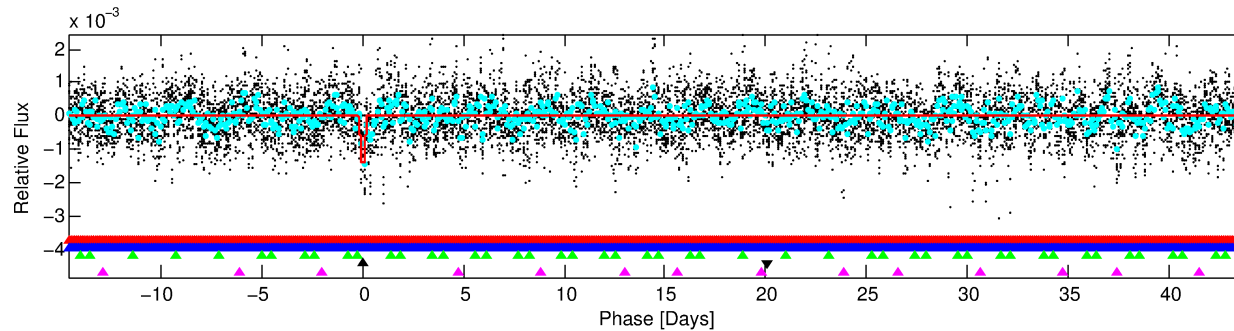
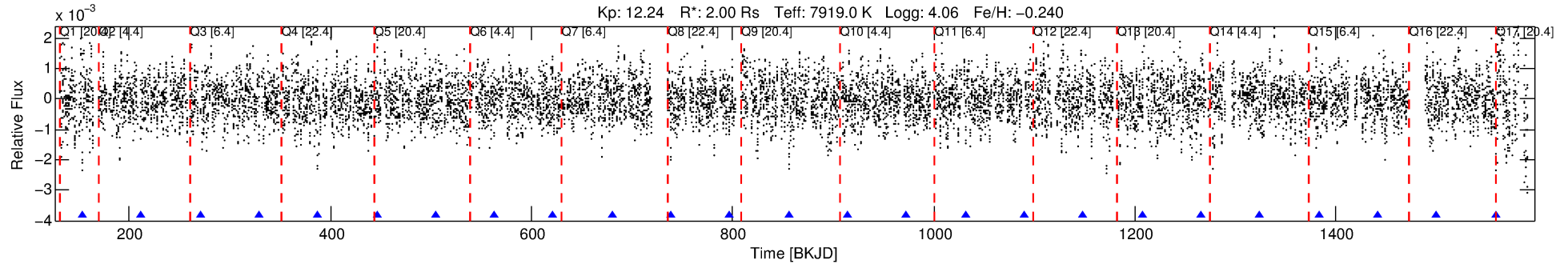
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768668-04

No Significant Match Found

DV One-Page Summary

KIC: 4768668 Candidate: 4 of 5 Period: 58.535 d



DV Fit Results:

Period = 58.53521 [0.00127] d
Epoch = 153.4904 [0.0160] BKJD
Rp/R* = 0.0426 [0.0033]
a/R* = 22.22 [2.58]
b = 0.94 [0.02]
Seff = 114.98 [42.50]
Teq = 835 [77] K
Rp = 9.28 [2.41] Re
a = 0.3496 [0.0765] AU
Ag = 475.20 [206.55] [2.30 σ]
Teffp = 6027 [491] K [10.45 σ]

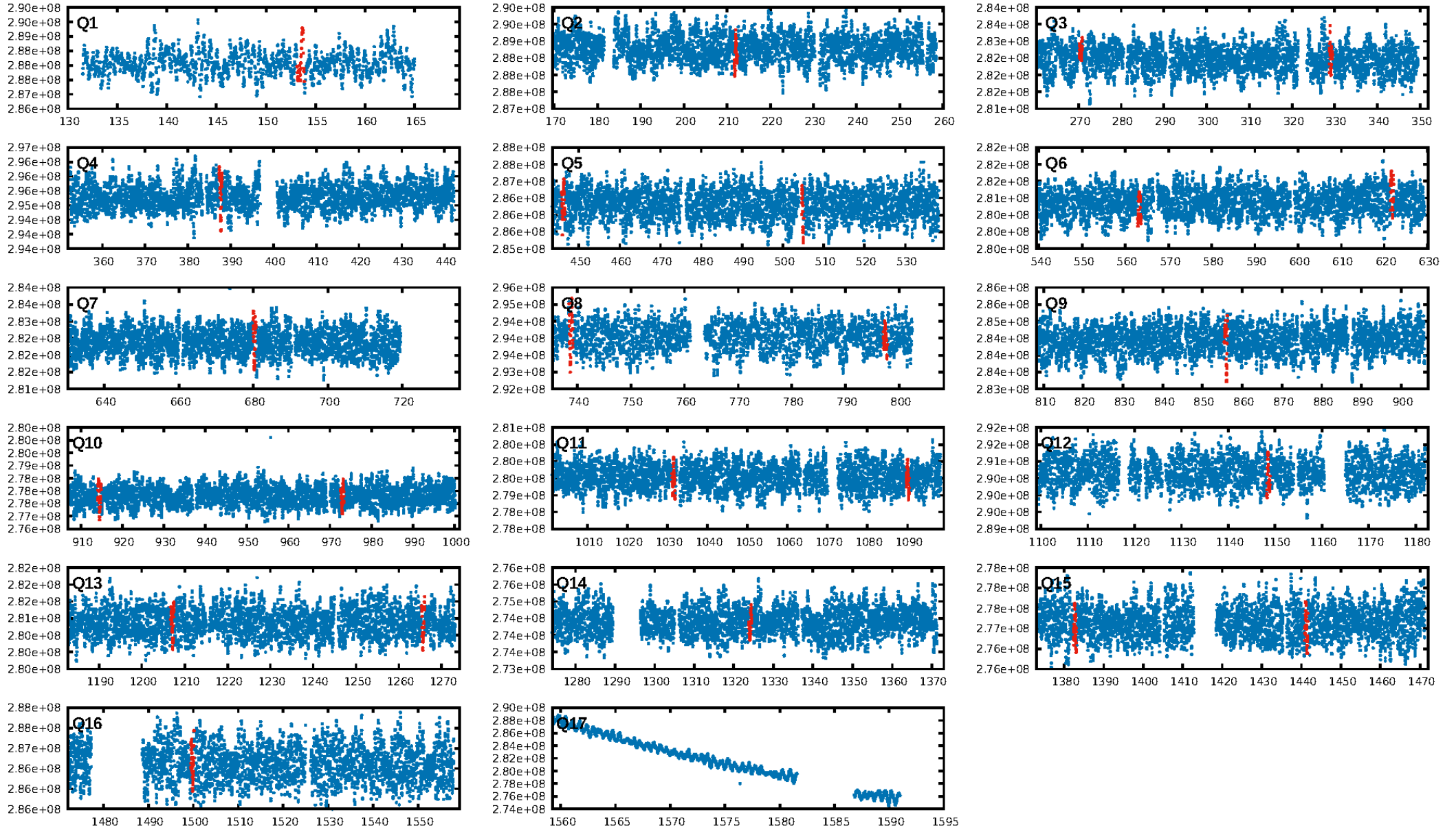
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.98 σ]
LongPeriod-sig: 100.0% [125.71 σ]
ModelChiSquare2-sig: 20.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: -0.7371
Centroid-sig: 42.4%
Centroid-so: 2.563 arcsec [10.53 σ]
OotOffset-rm: 3.128 arcsec [3.10 σ]
KicOffset-rm: 0.046 arcsec [0.06 σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/16]

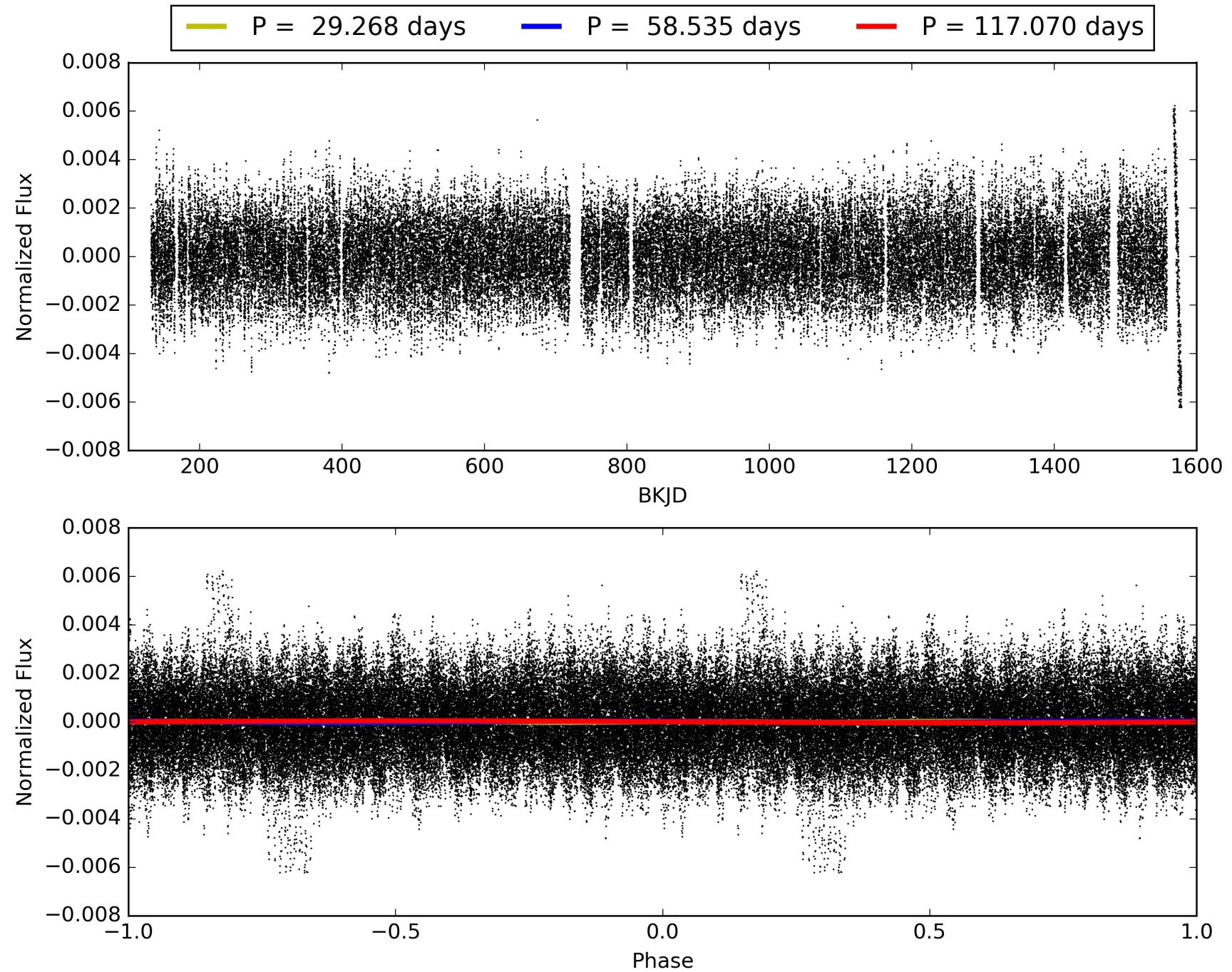
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:19:19 Z

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

TCE 004768668-04, PDC Light Curves

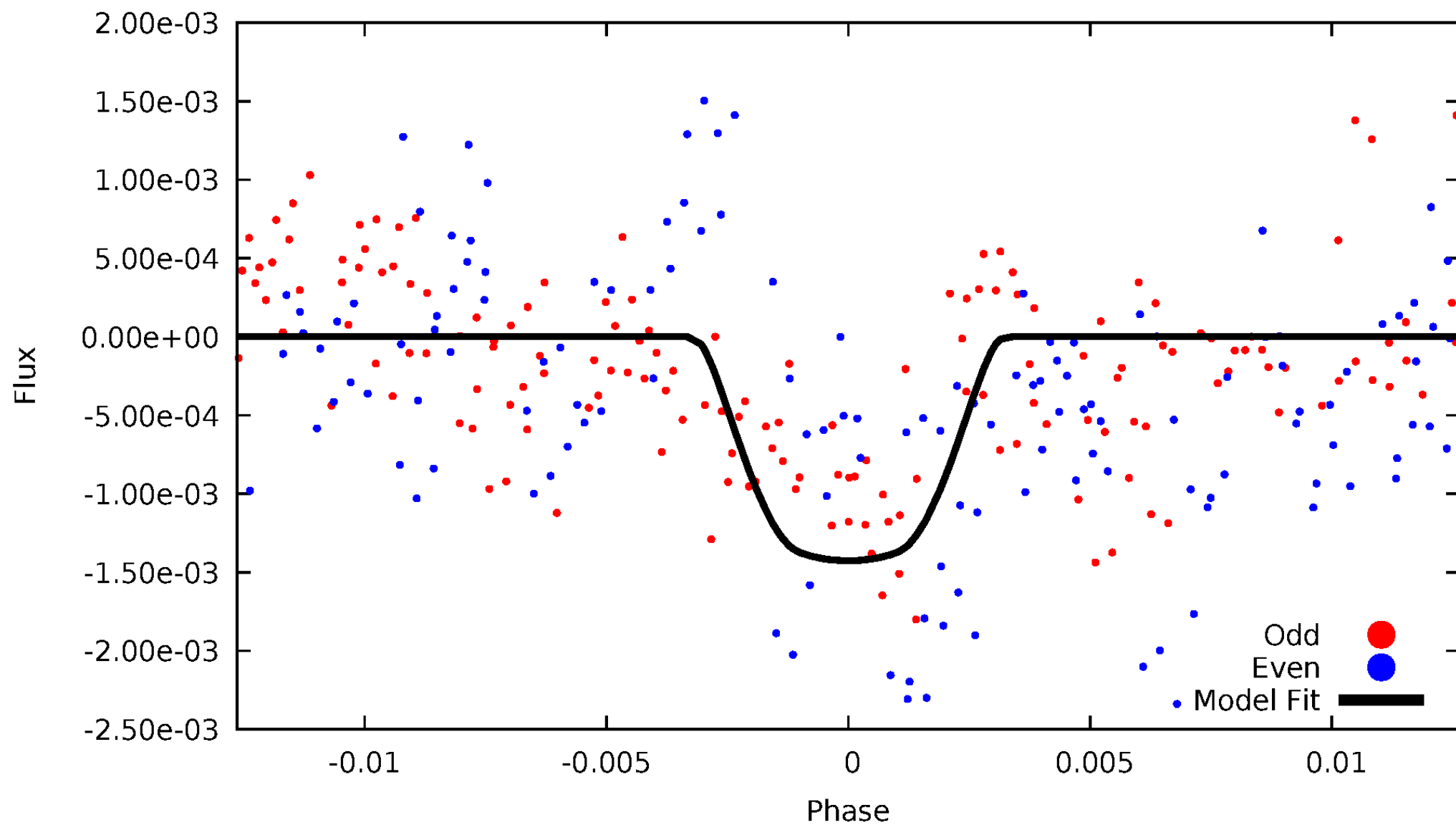


TCE 004768668-04



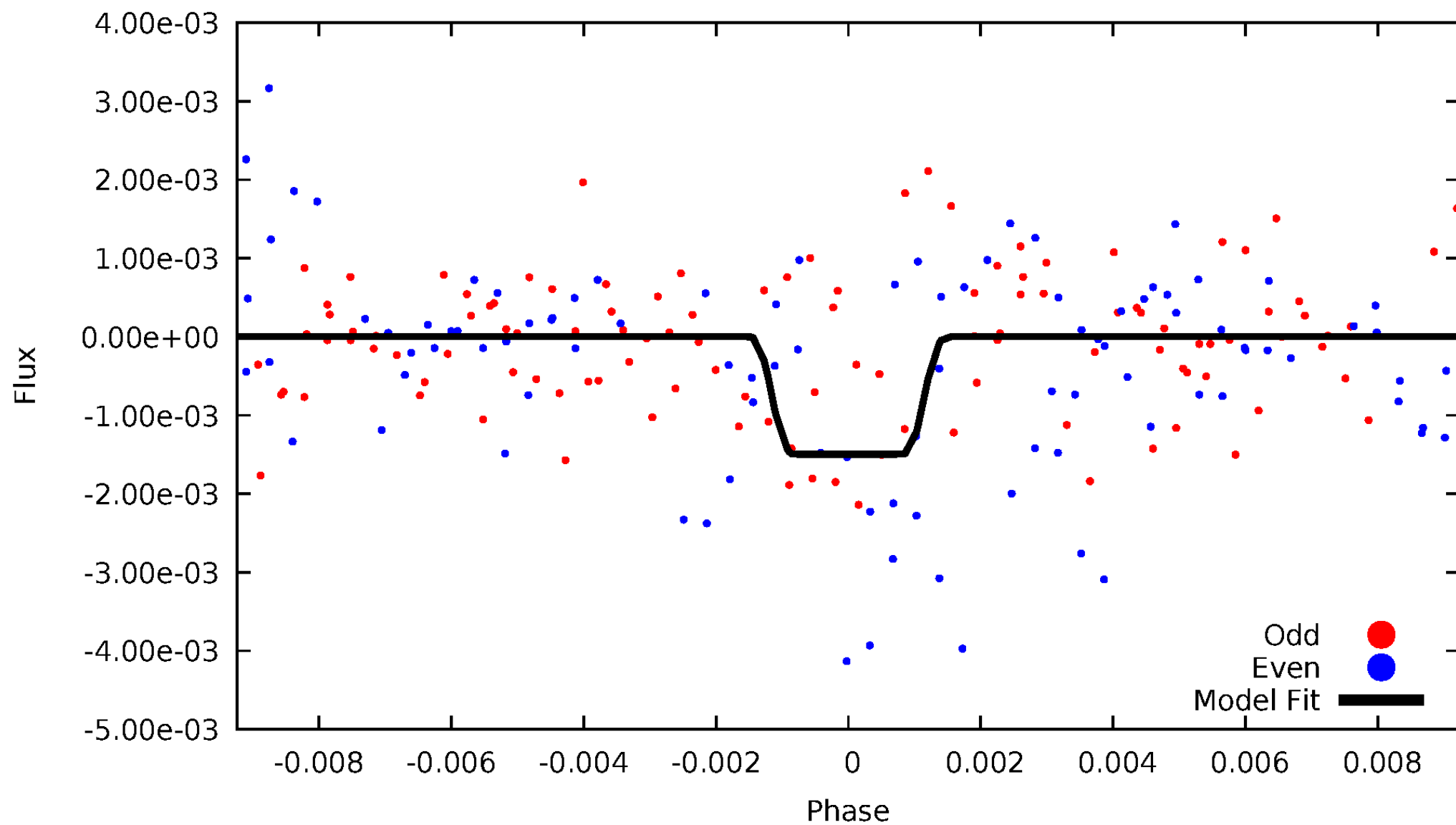
DV Odd/Even

TCE 004768668-04



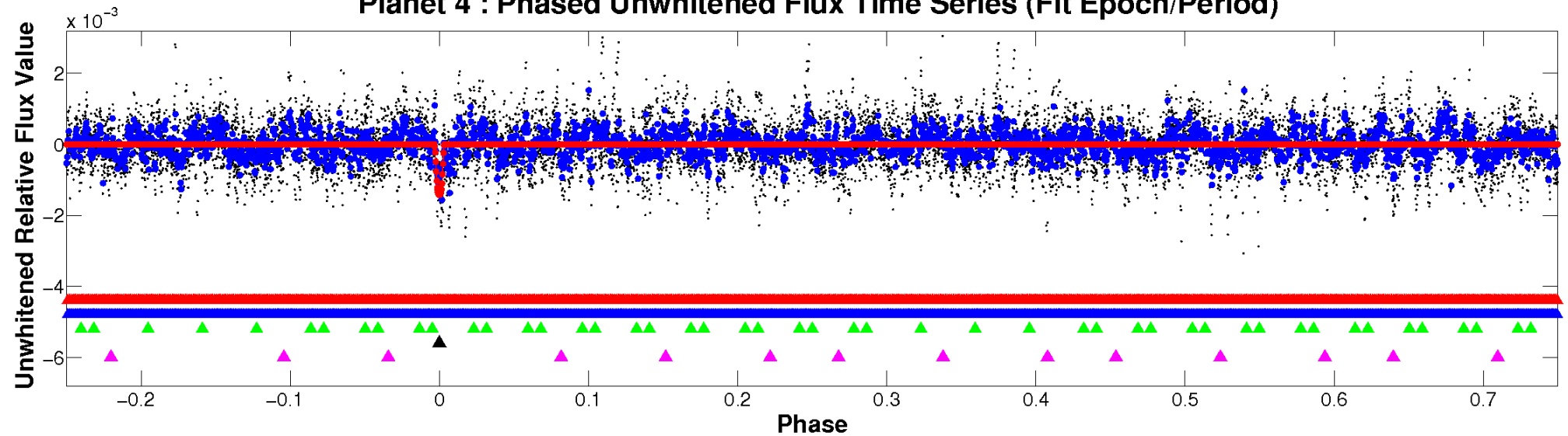
ALT Odd/Even

TCE 004768668-04

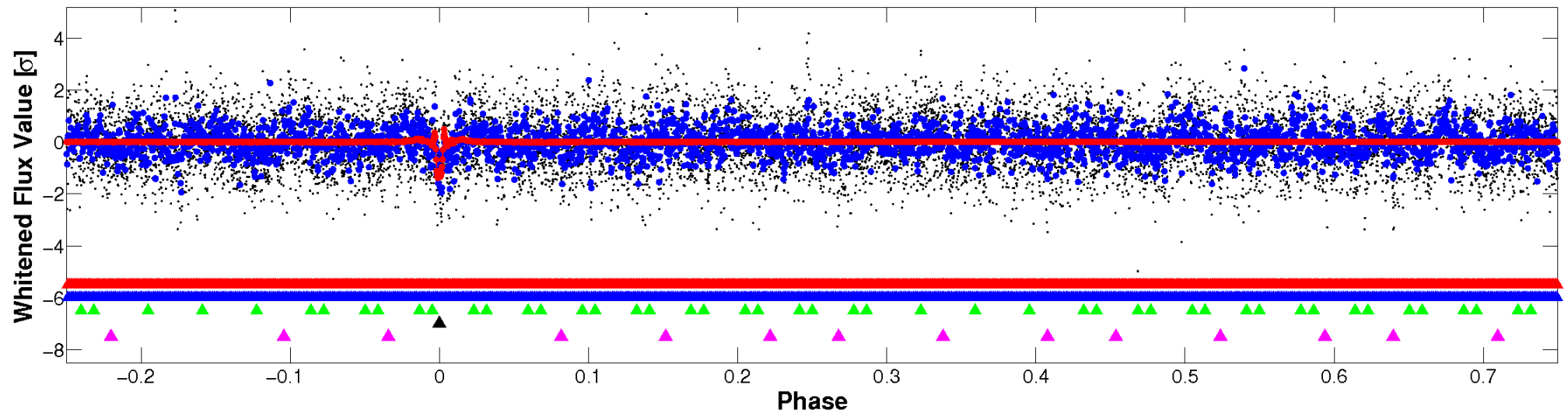


Non-Whitened Vs. Whitened Light Curve

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

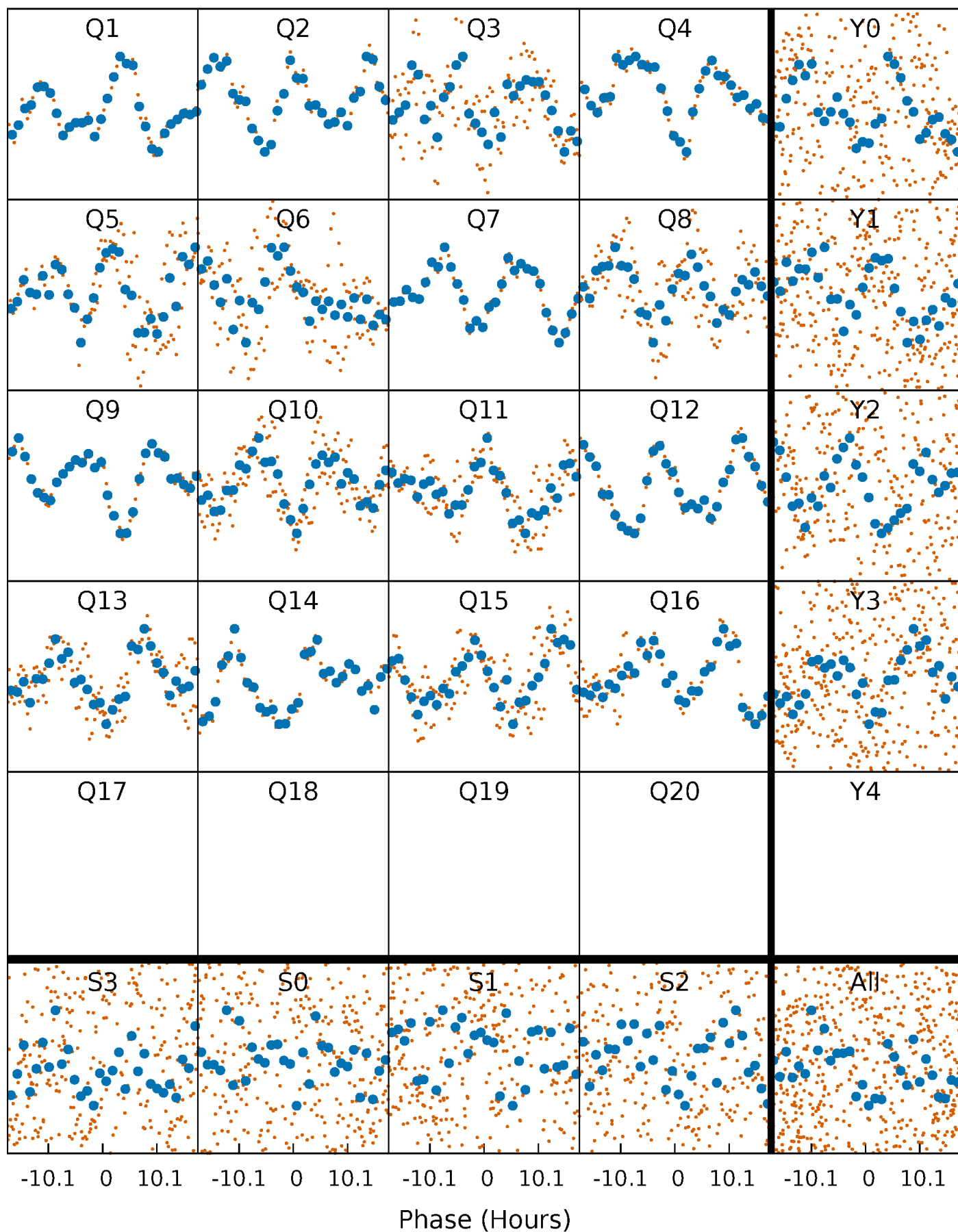


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



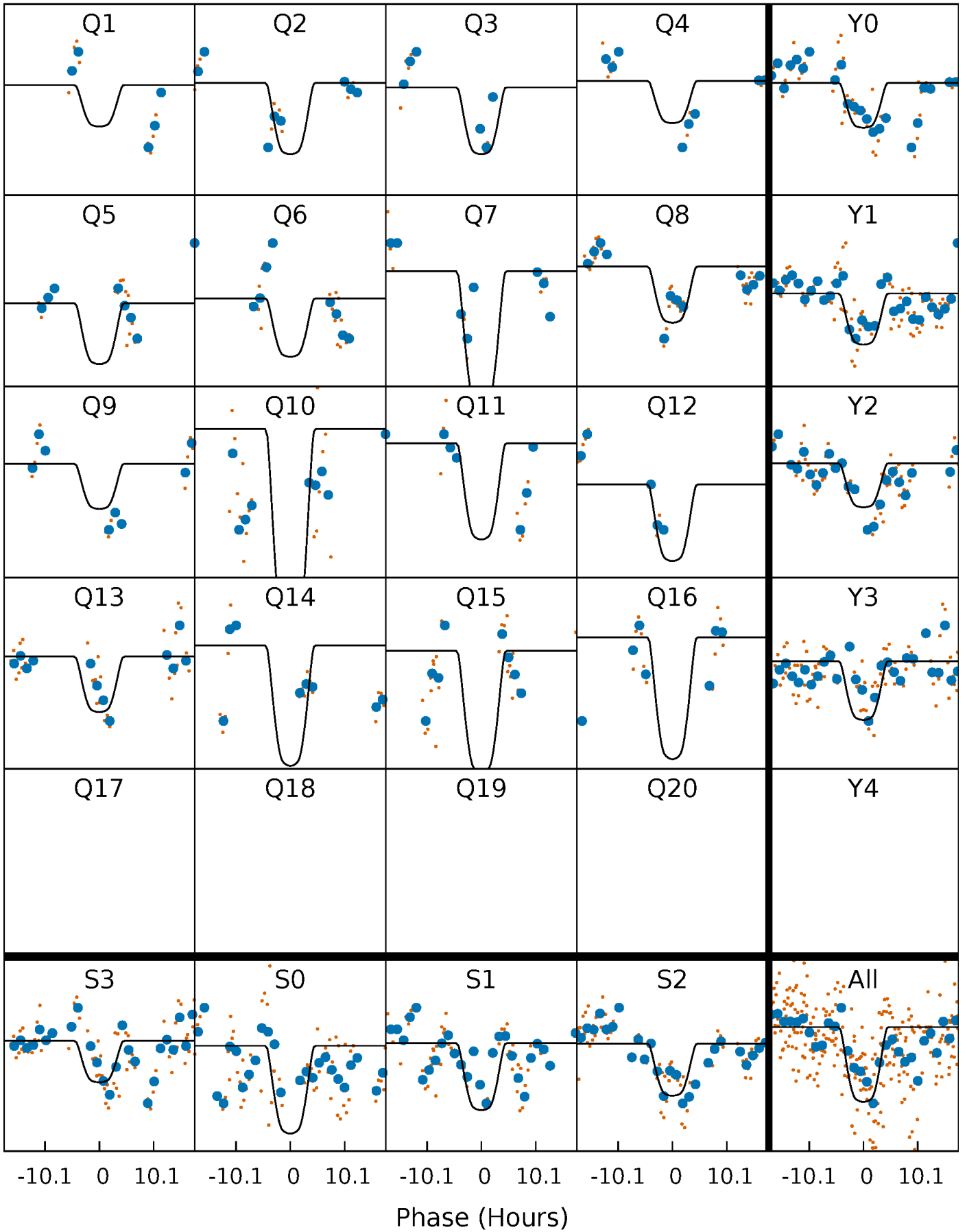
PDC Quarter-Phased Transit Curves

TCE 004768668-04 P= 58.535207 Days $T_0=153.490353$ (BKJD)



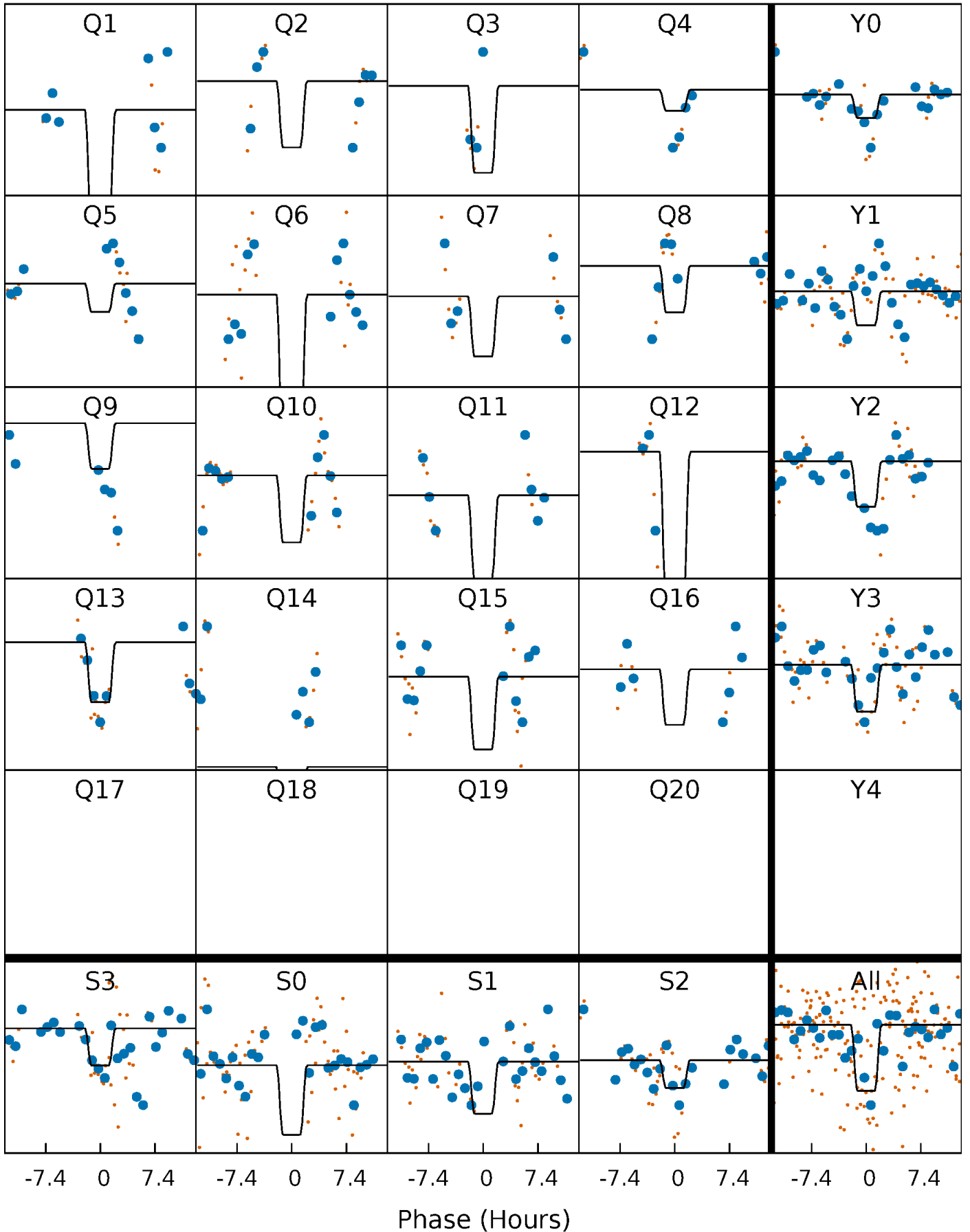
DV Quarter-Phased Transit Curves

TCE 004768668-04 P= 58.535207 Days $T_0=153.490353$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

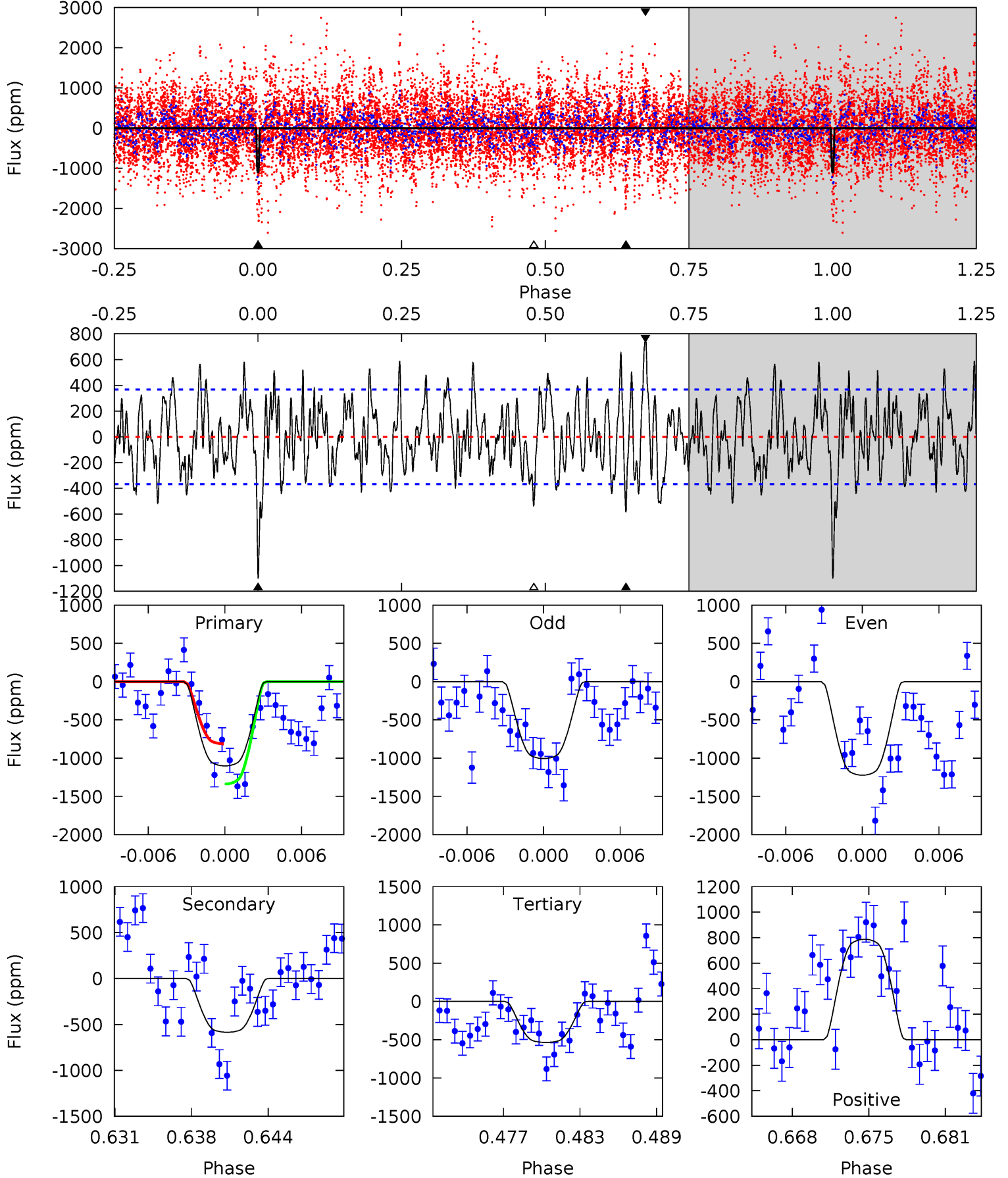
TCE 004768668-04 $P = 58.532305$ Days $T_0 = 153.577553$ (BKJD)



DV Model-Shift Uniqueness Test

004768668-04, P = 58.535207 Days, E = 94.955146 Days

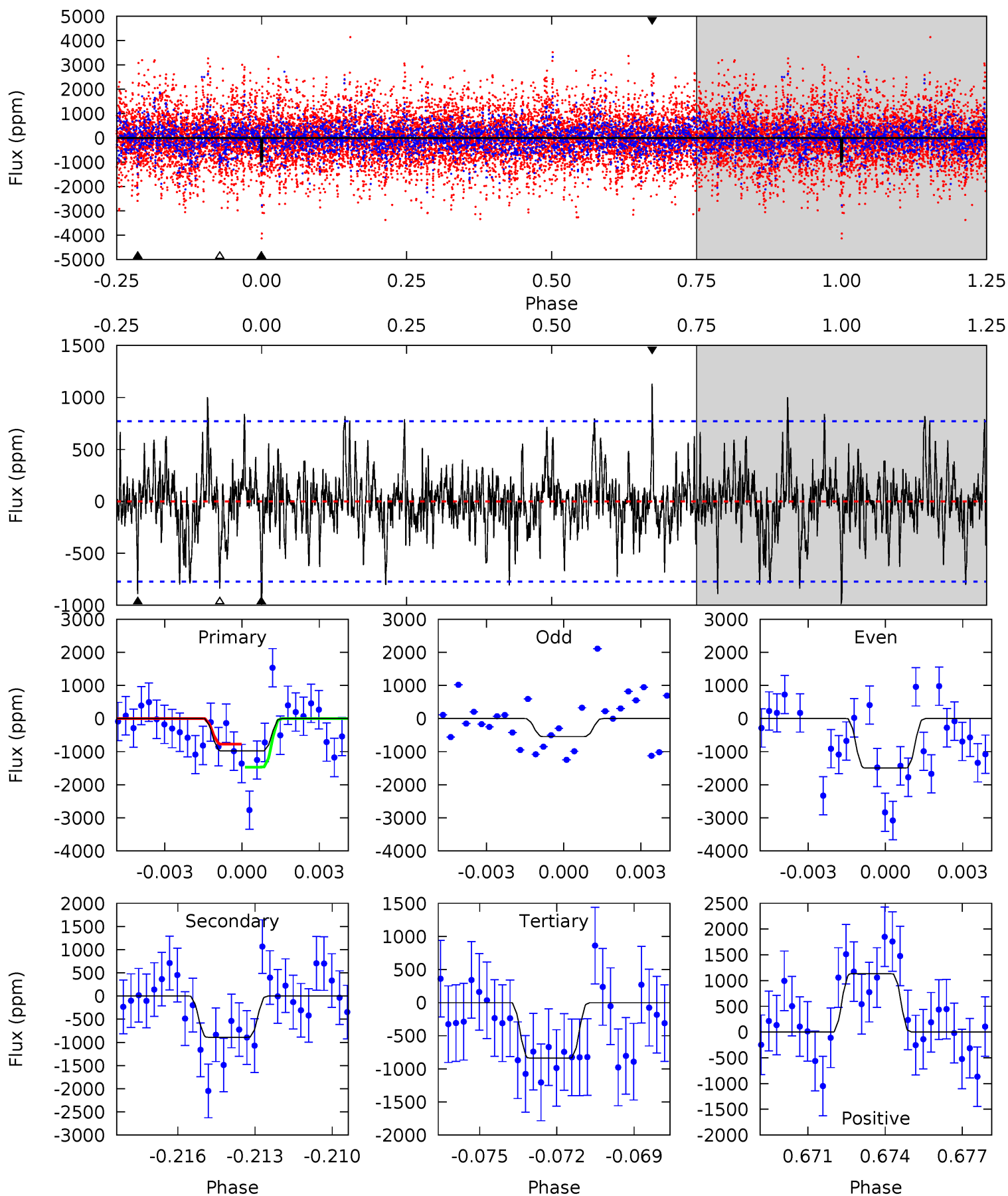
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	8.14	7.44	11.0	5.12	2.74	3.27	7.87	4.36	0.70	-2.81	1.50	0.36	0.42	3.64



Alt Model-Shift Uniqueness Test

004768668-04, P = 58.532305 Days, E = 95.045248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.68	6.06	5.70	7.71	5.25	2.97	1.61	0.97	-1.03	0.36	-1.65	3.20	0.76	0.54	2.34



Stellar Parameters For KIC 004768668

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7919^{+216}_{-325}	$4.058^{+0.187}_{-0.153}$	$-0.240^{+0.200}_{-0.350}$	$1.997^{+0.446}_{-0.495}$	$1.658^{+0.185}_{-0.277}$	$0.293^{+0.304}_{-0.119}$
	+3%/-4%	+5%/-4%	+83%/-146%	+22%/-25%	+11%/-17%	+104%/-40%
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 004768668-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-585 ± 72	$9.14^{+1.41}_{-1.35}$	1153^{+81}_{-75}	5786^{+325}_{-290}	470^{+162}_{-132}
Alt.	-890 ± 147	$8.37^{+1.31}_{-1.28}$	1159^{+88}_{-82}	6787^{+537}_{-497}	850^{+367}_{-250}

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

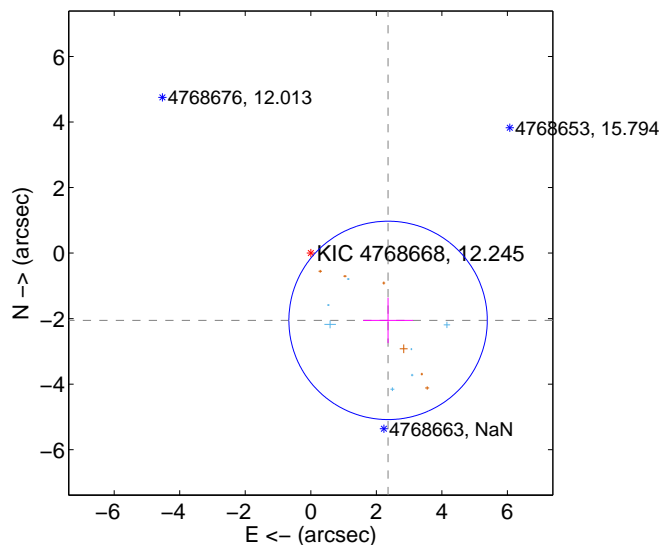
Supplemental centroid analysis for 004768668-04. Kepler magnitude: 12.24. Transit SNR 8.65

There are 7 quarters with good PRF difference image offsets

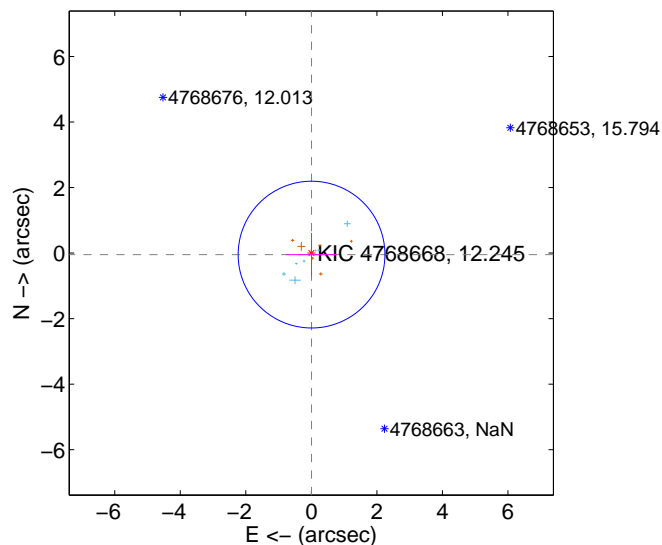
The OOT PRF centroid is offset from the target star catalog position by about 4.35 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.128 ± 1.009	3.10	-2.359 ± 0.760	-2.054 ± 0.692
PRF-fit source offset from KIC position	0.046 ± 0.747	0.06	-0.006 ± 0.780	-0.046 ± 0.659
photometric centroid source offset	2.56 ± 0.24	10.53	1.95 ± 0.24	1.67 ± 0.25

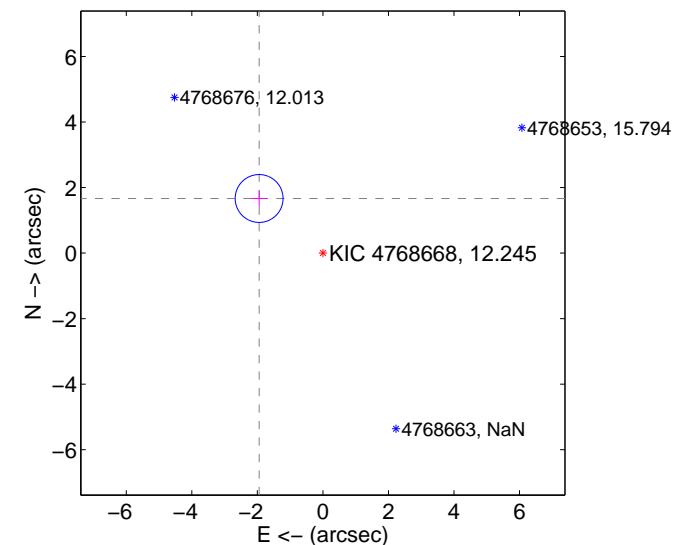
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

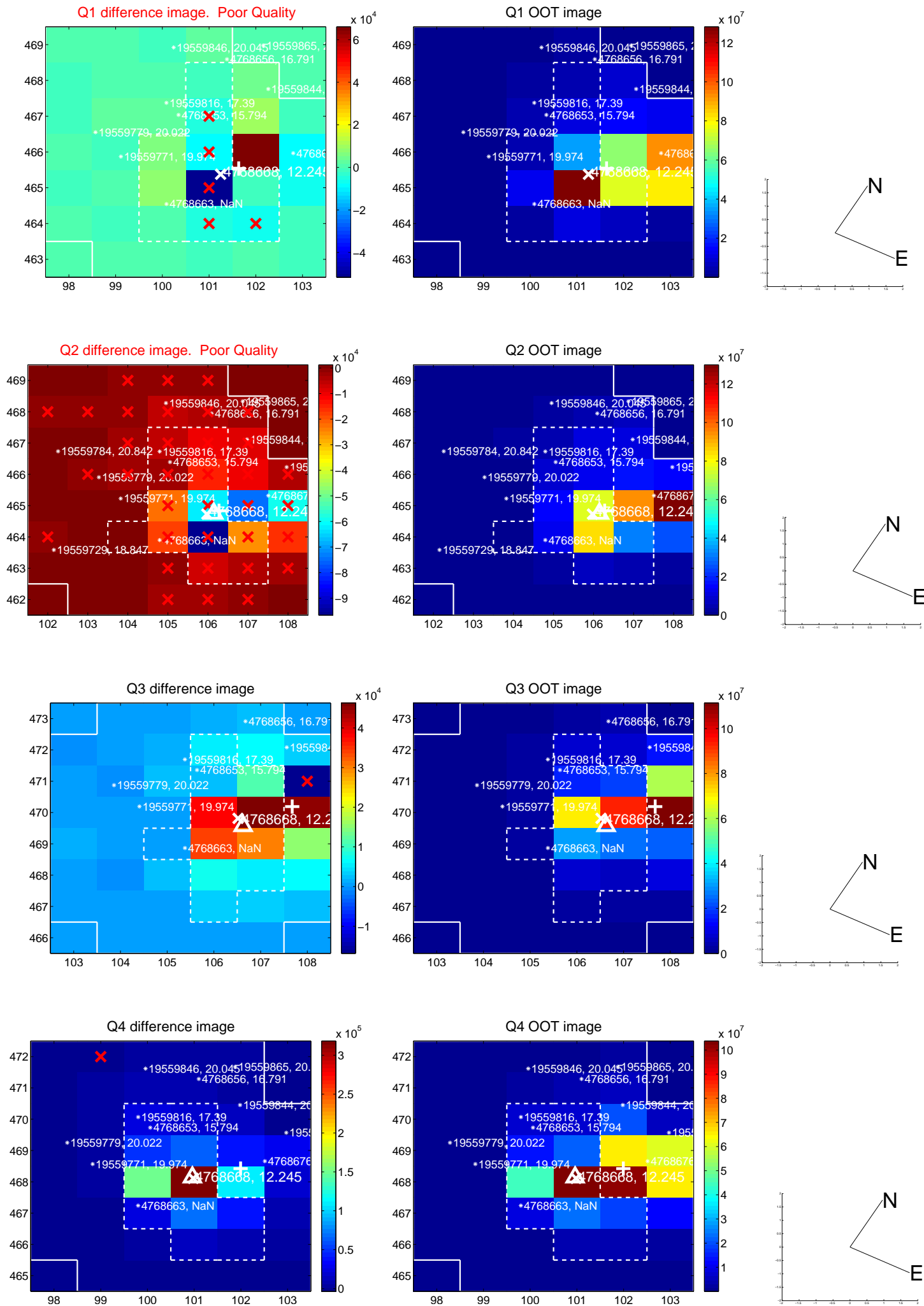


offset from photometric centroids

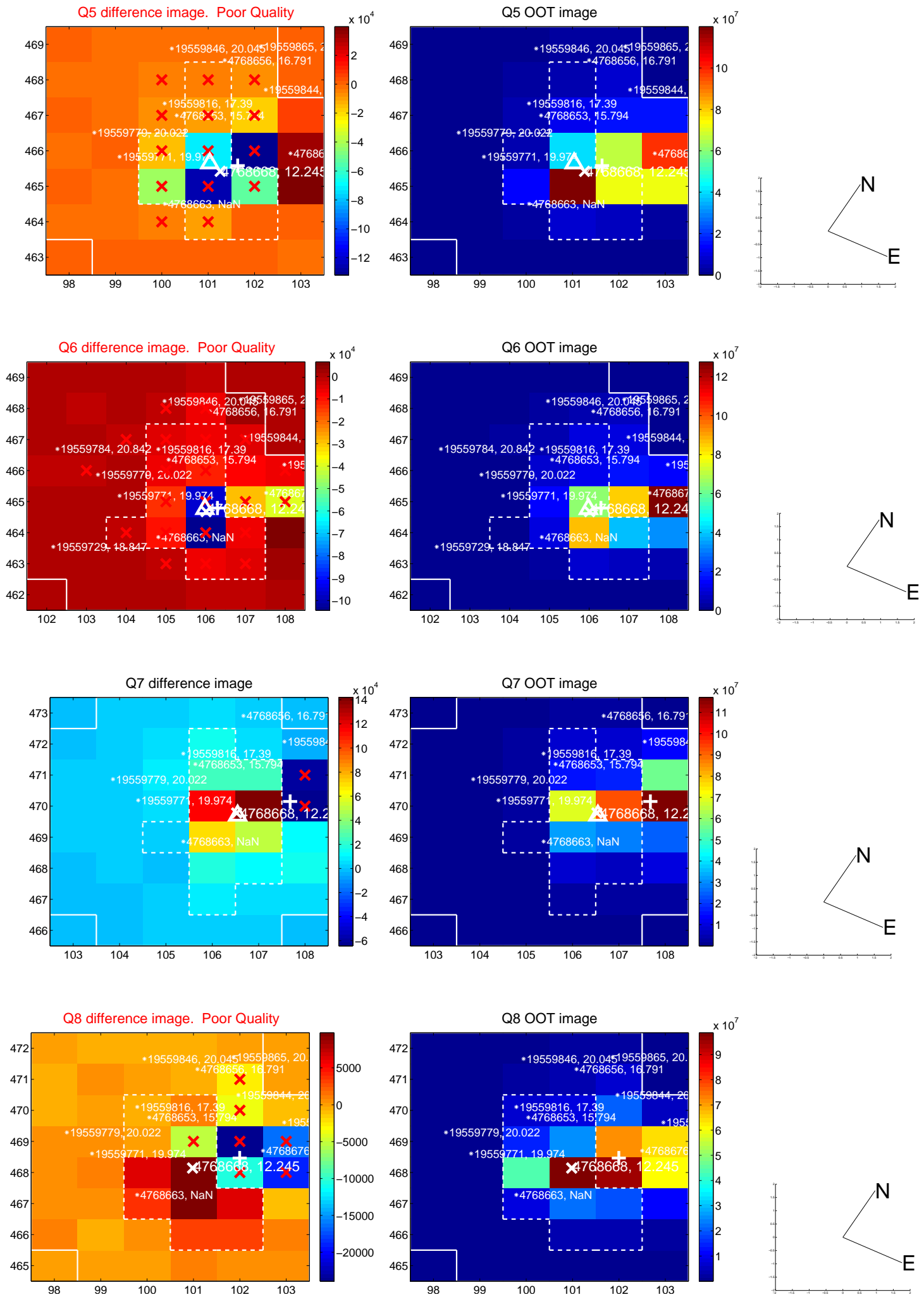


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

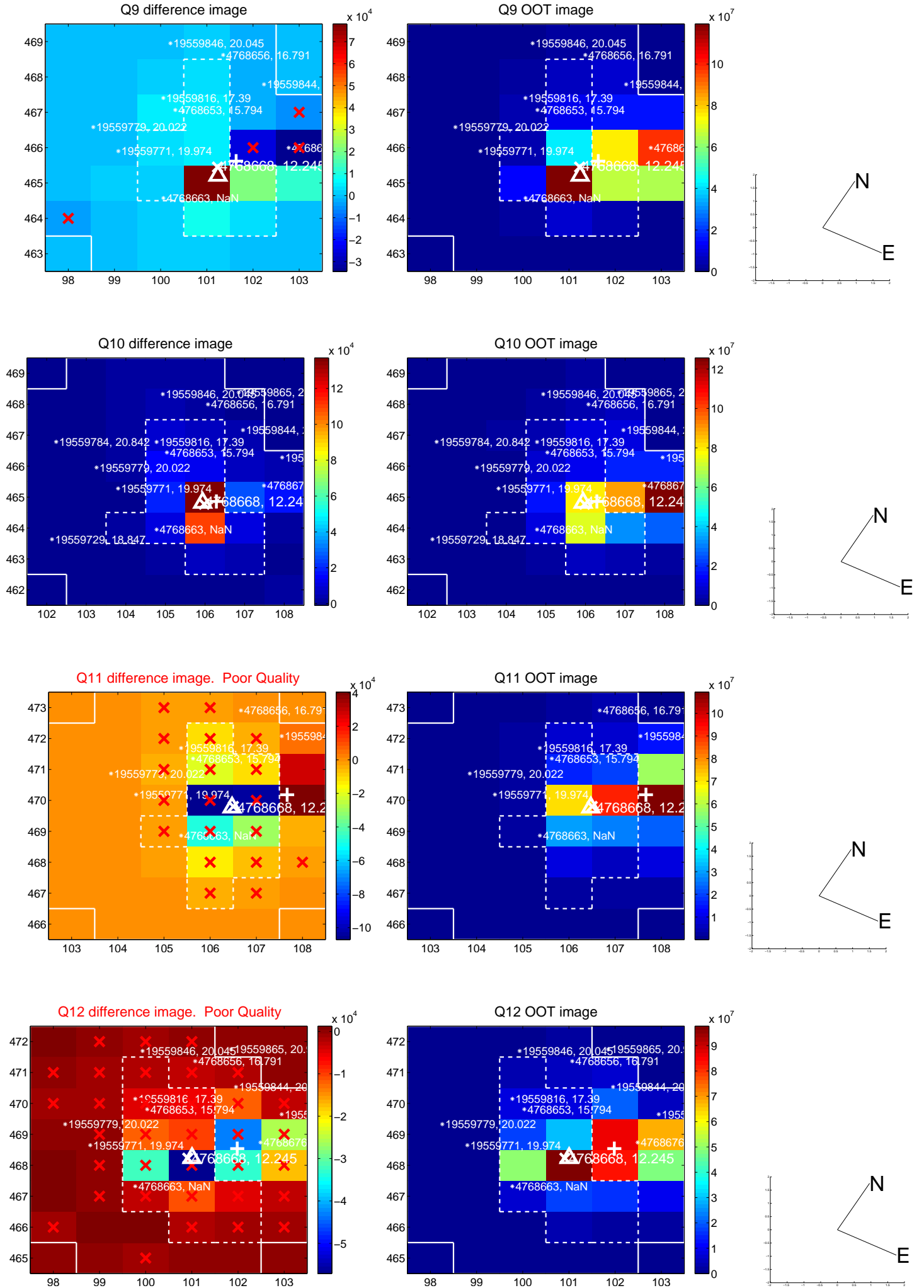
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



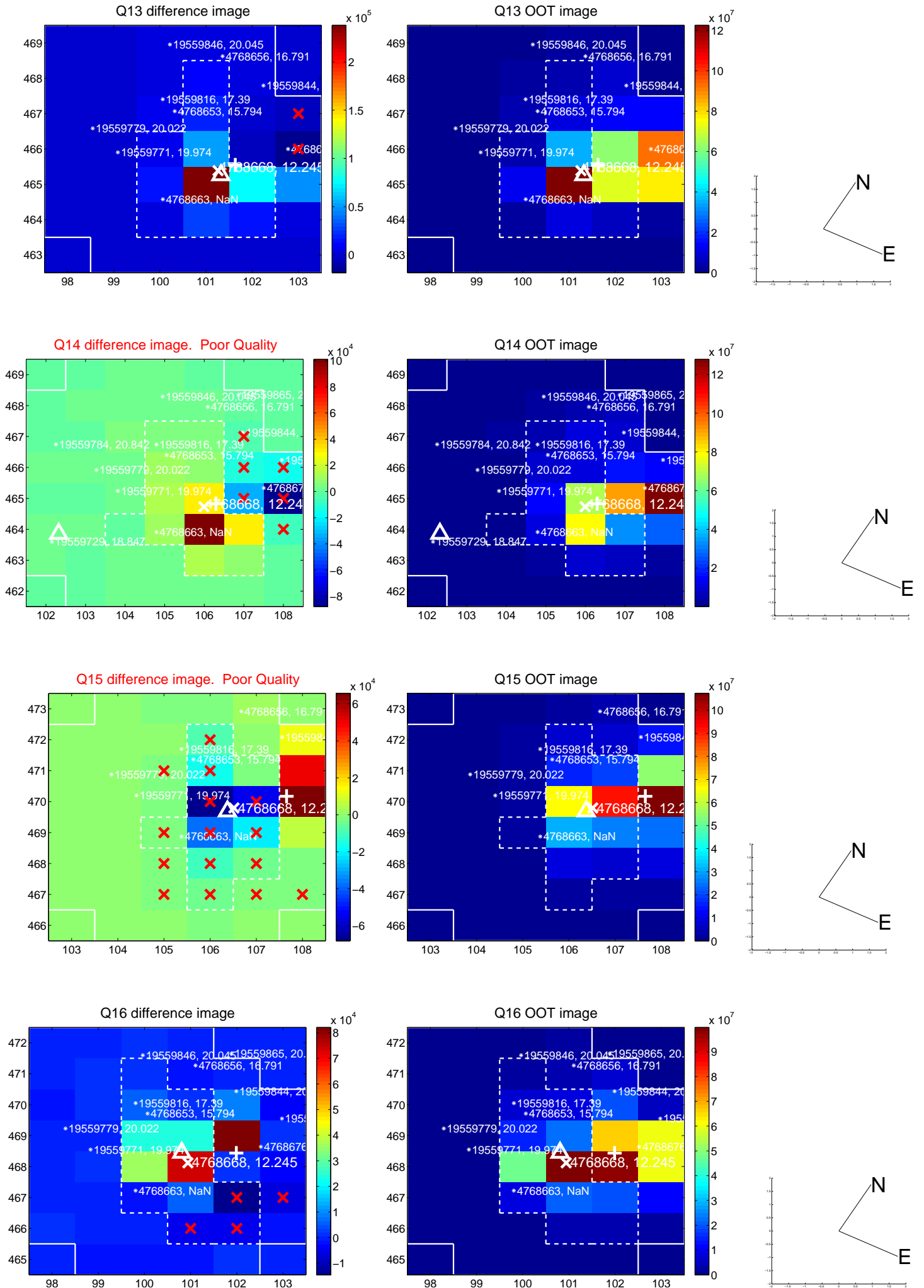
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



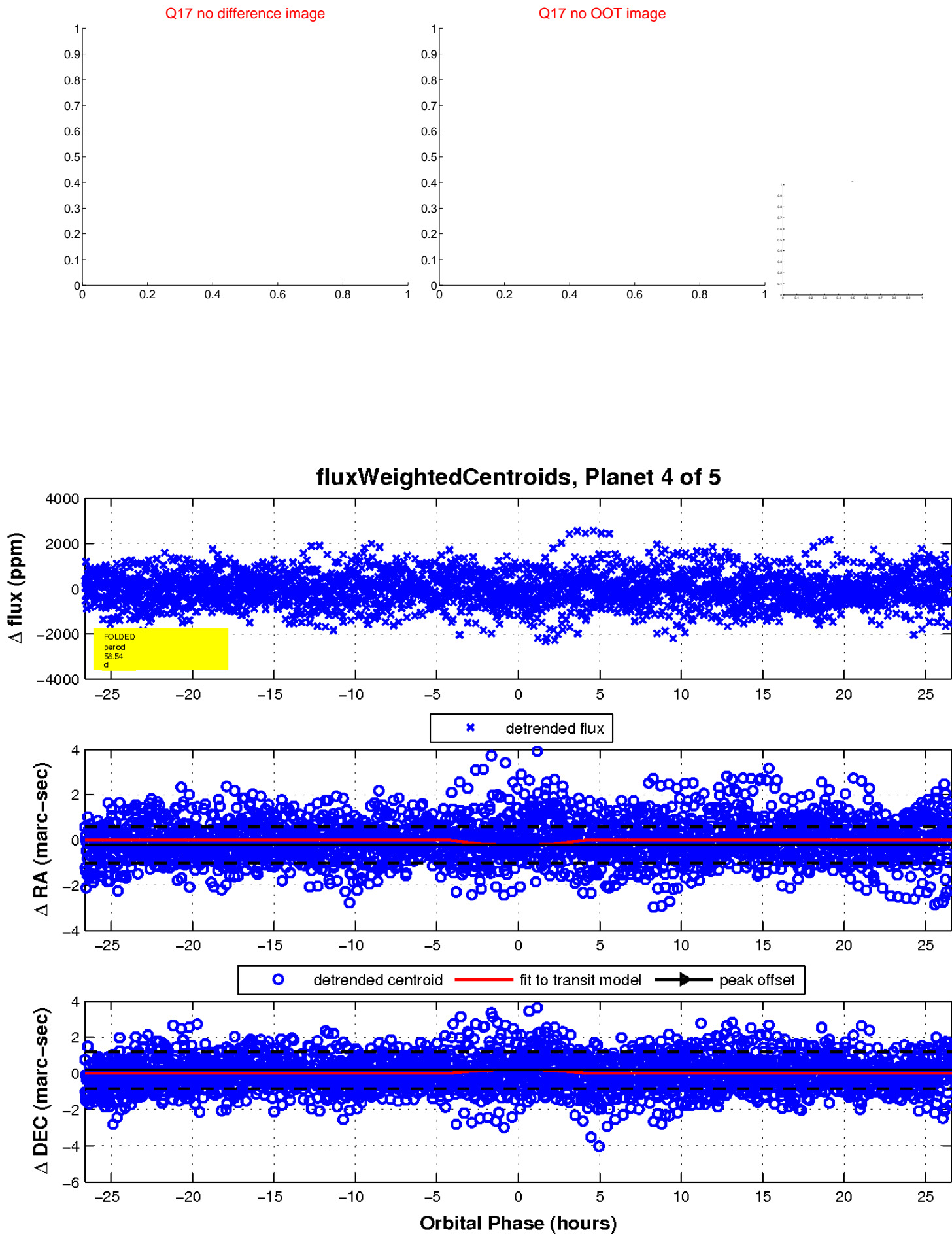
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



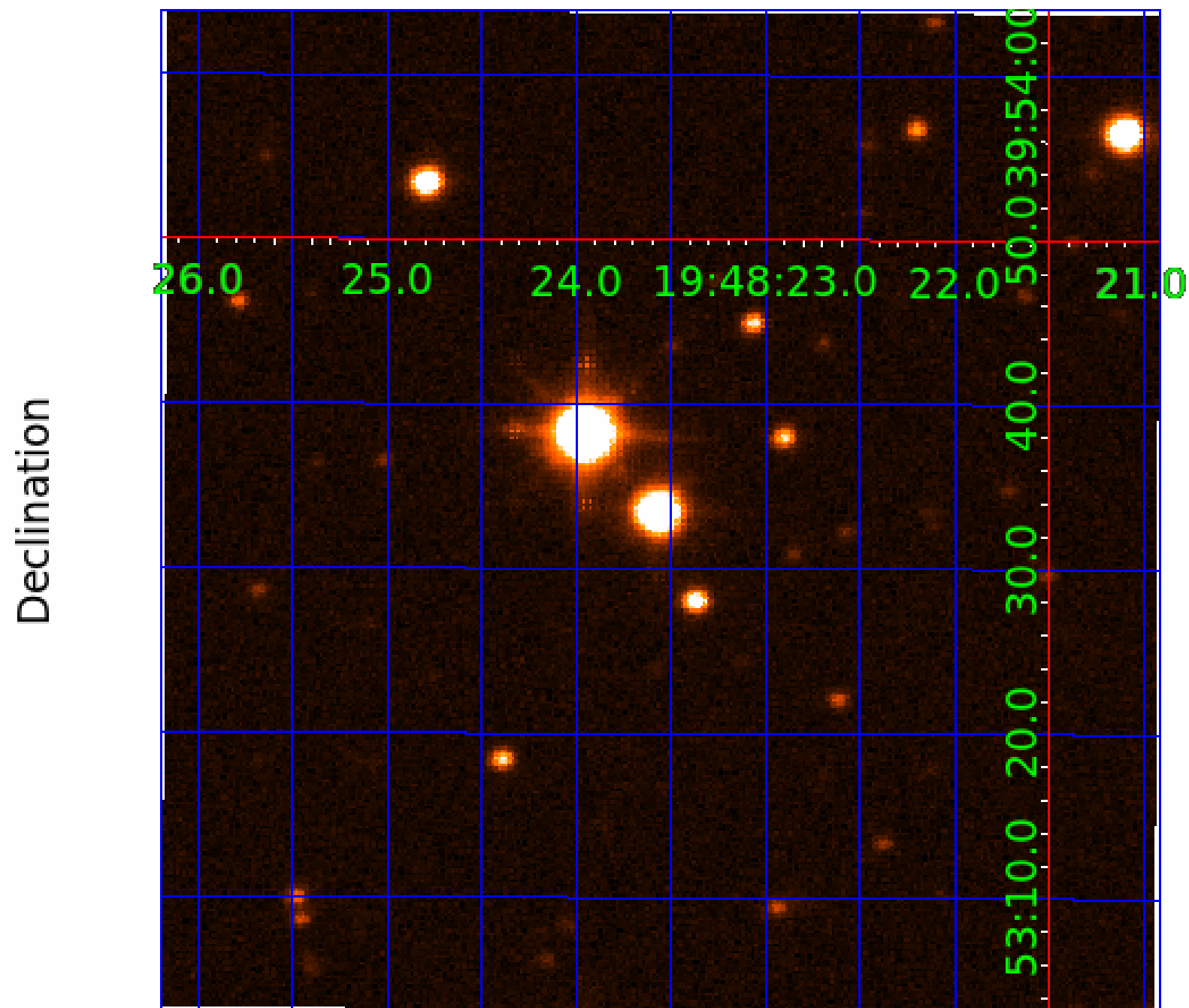
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004768668

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})
004768668-01	OBS	No	0.598067	131.945842	84.4	1.820	12.3	12.2	2.00	7919	2.15	51859.45
004768668-02	OBS	No	0.598064	131.575391	94.9	1.922	12.8	14.0	2.00	7919	2.28	51859.76
004768668-03	OBS	No	30.333029	148.952077	421.1	20.757	8.3	6.2	2.00	7919	4.25	276.23
004768668-04	OBS	No	58.535207	153.490353	1426.3	8.874	7.7	8.6	2.00	7919	9.28	114.97
004768668-05	OBS	No	106.183615	190.934125	254.5	2.000	7.1	-1.0	2.00	7919	3.21	51.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004768668-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
004768668-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
004768668-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
004768668-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

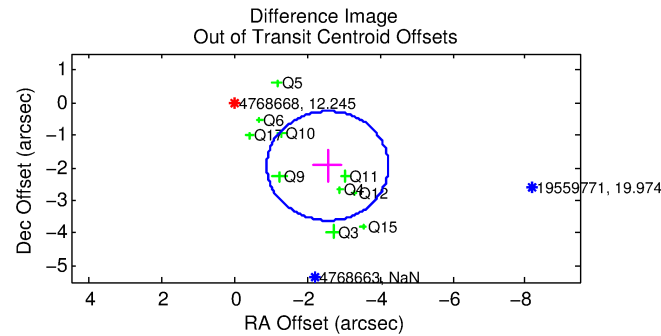
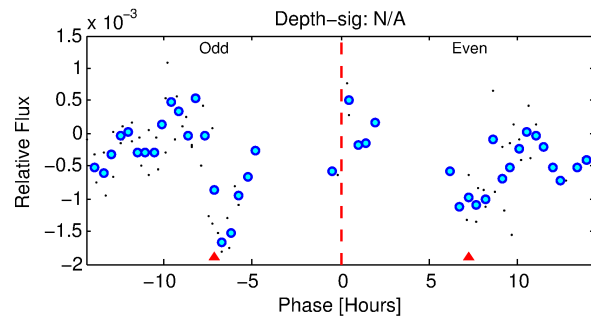
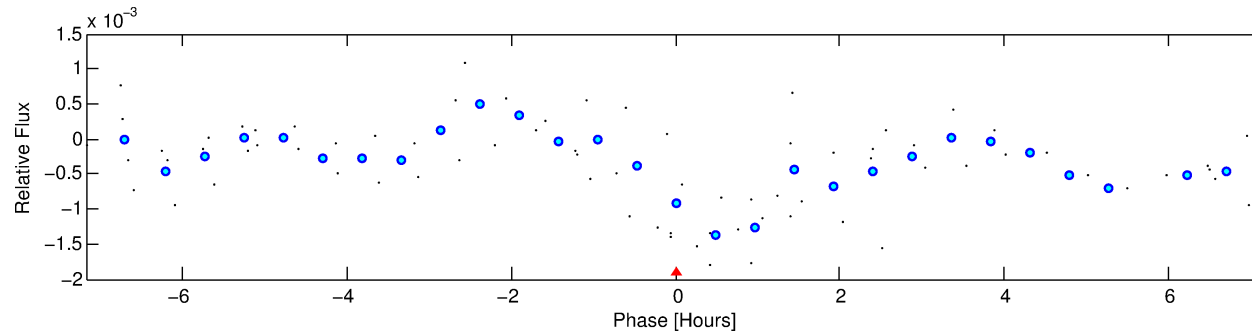
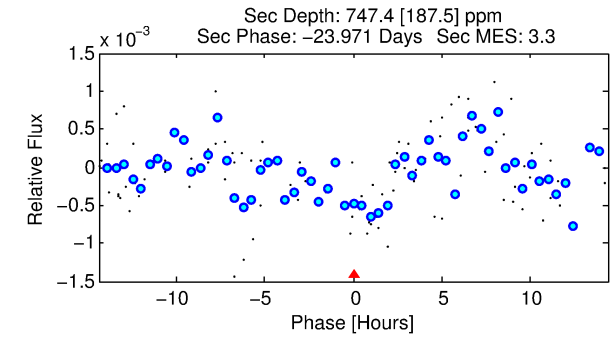
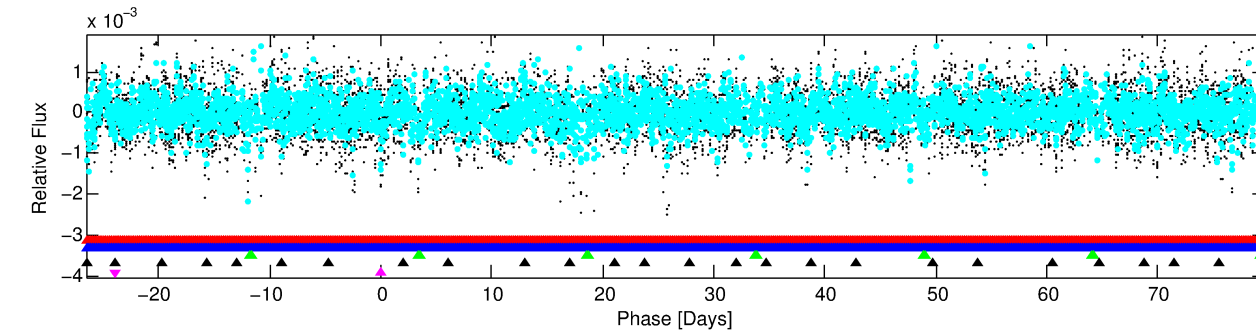
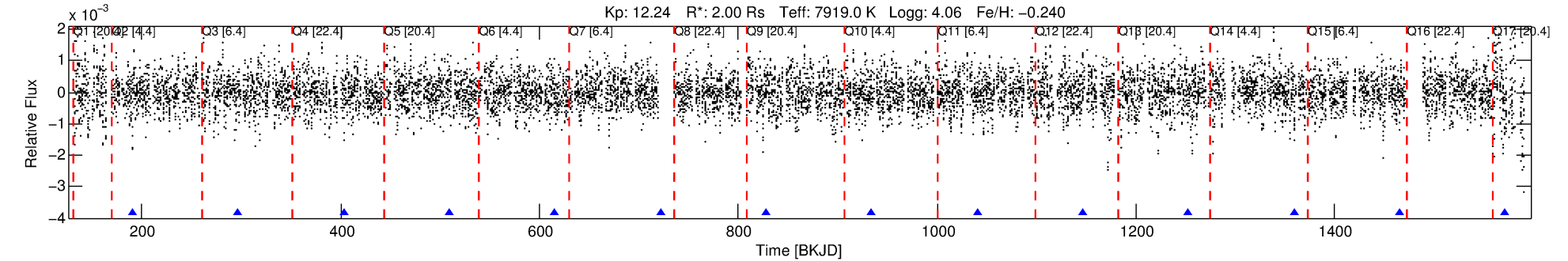
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004768668-05

No Significant Match Found

DV One-Page Summary

KIC: 4768668 Candidate: 5 of 5 Period: 106.184 d



TPS TCE Results:

Period = 106.18361 d
Epoch = 190.9341 BKJD

DV fit results are unavailable

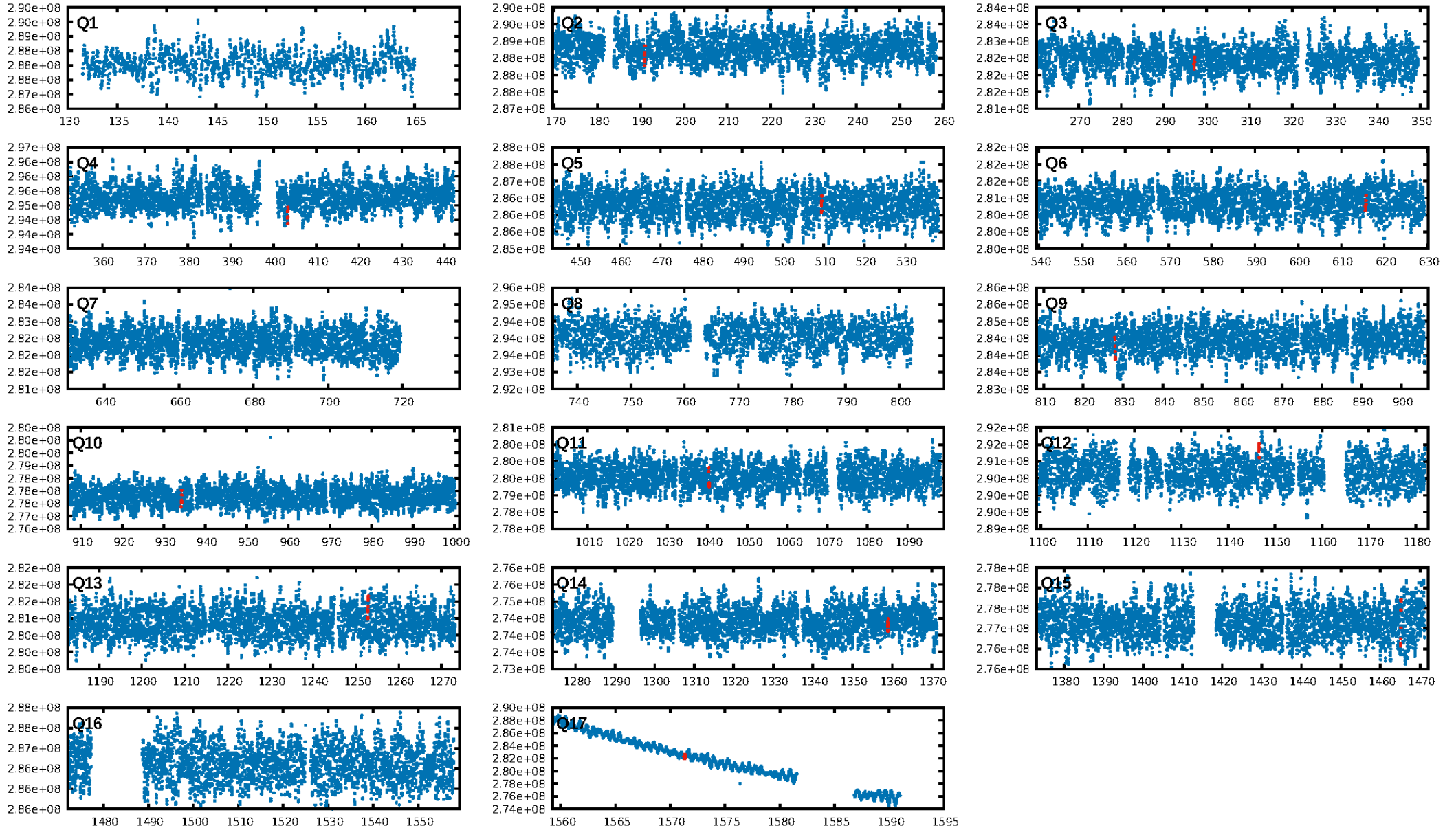
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [125.71 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 3.92
Centroid-sig: 16.1%
Centroid-so: 2.308 arcsec [8.40 σ]
OotOffset-rm: 3.212 arcsec [5.76 σ]
KicOffset-rm: 0.251 arcsec [1.16 σ]
OotOffset-st: 2/3/2/3 [10]
KicOffset-st: 2/3/2/3 [10]
DiffImageQuality-fgm: 0.80 [8/10]
DiffImageOverlap-fno: 0.00 [0/13]

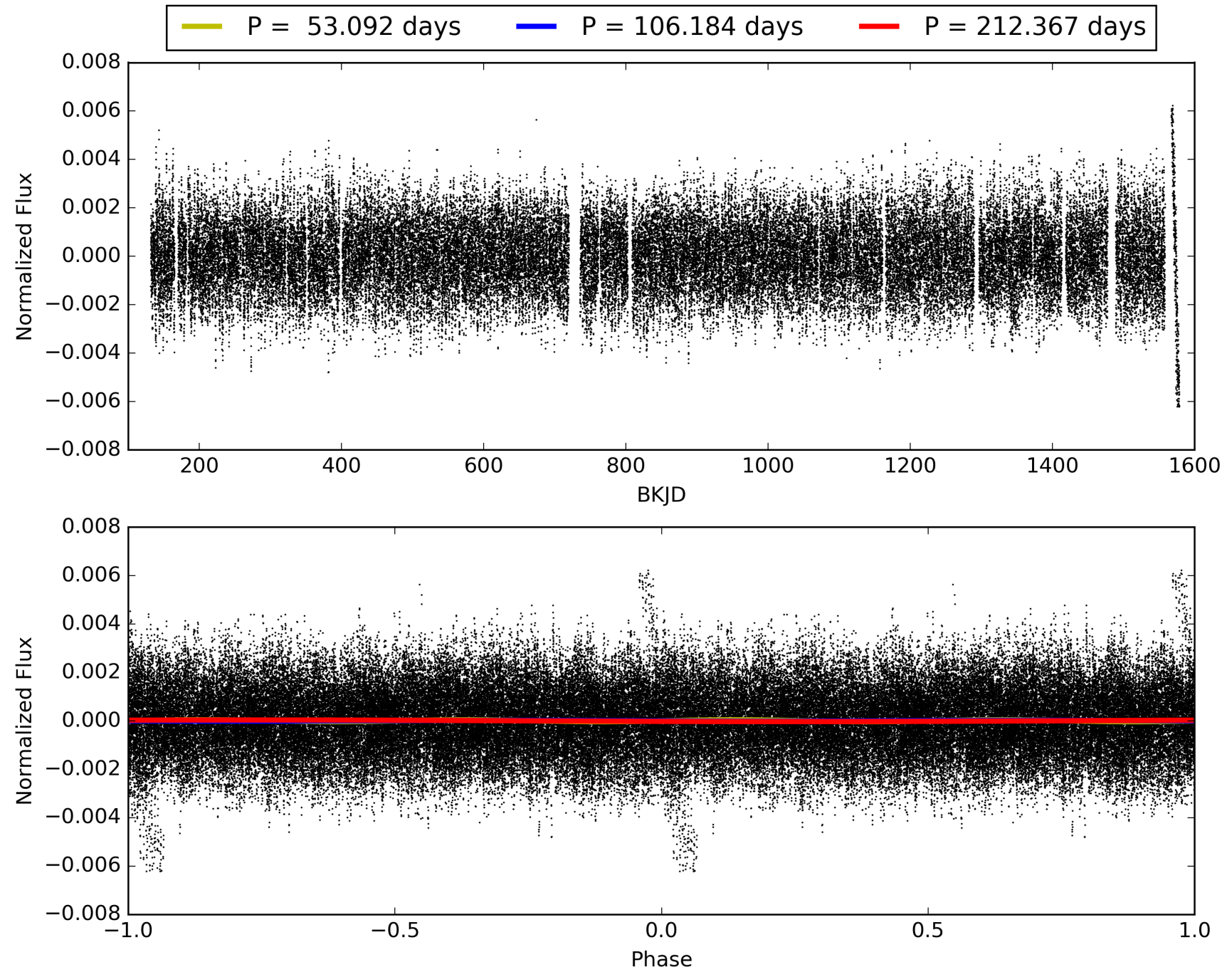
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:19:23 Z

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

TCE 004768668-05, PDC Light Curves

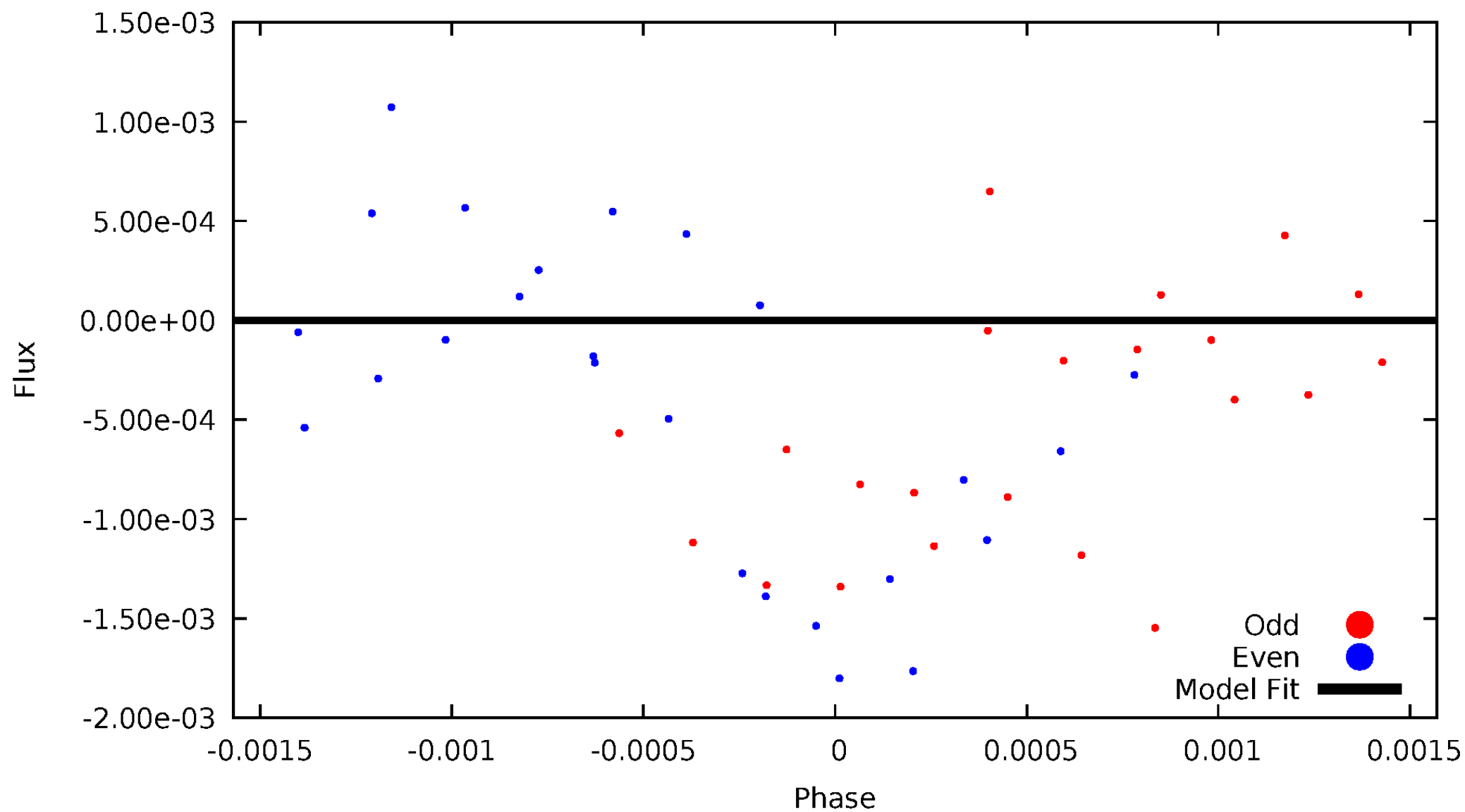


TCE 004768668-05



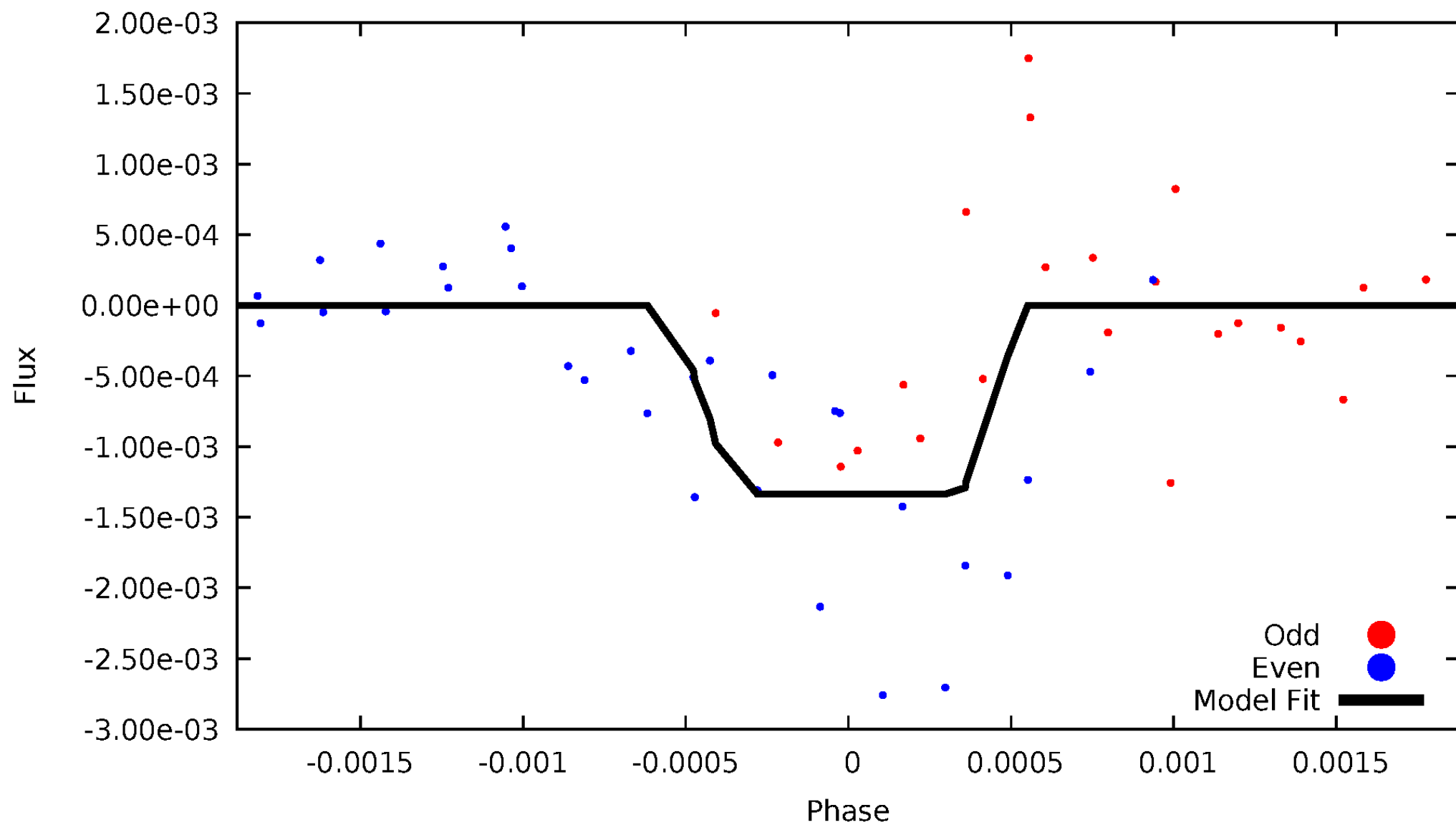
DV Odd/Even

TCE 004768668-05

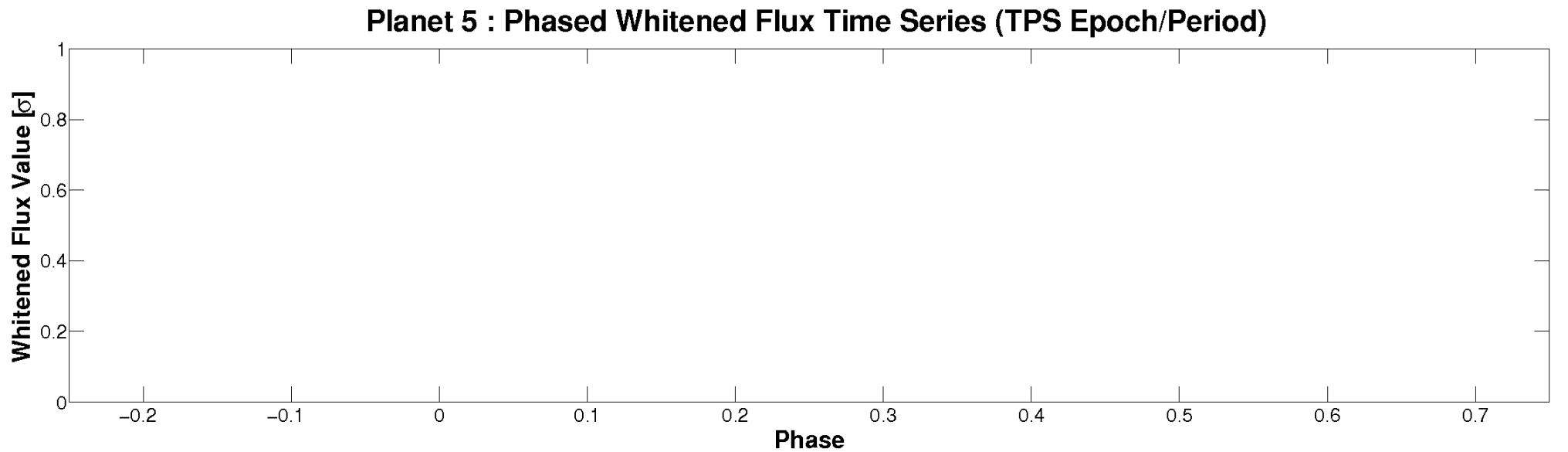
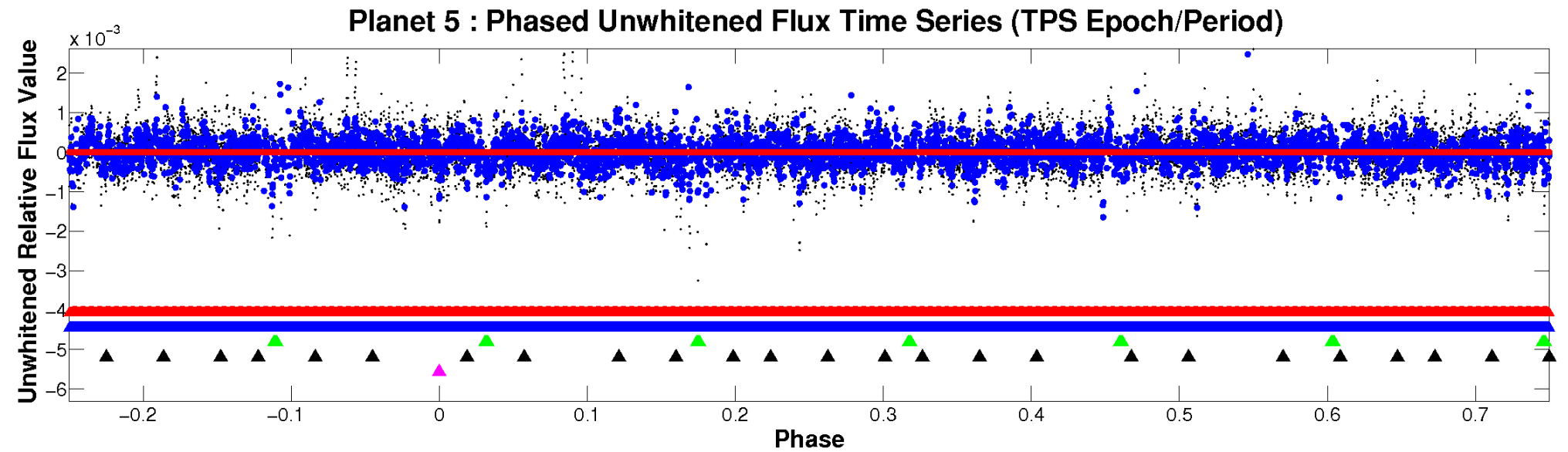


ALT Odd/Even

TCE 004768668-05

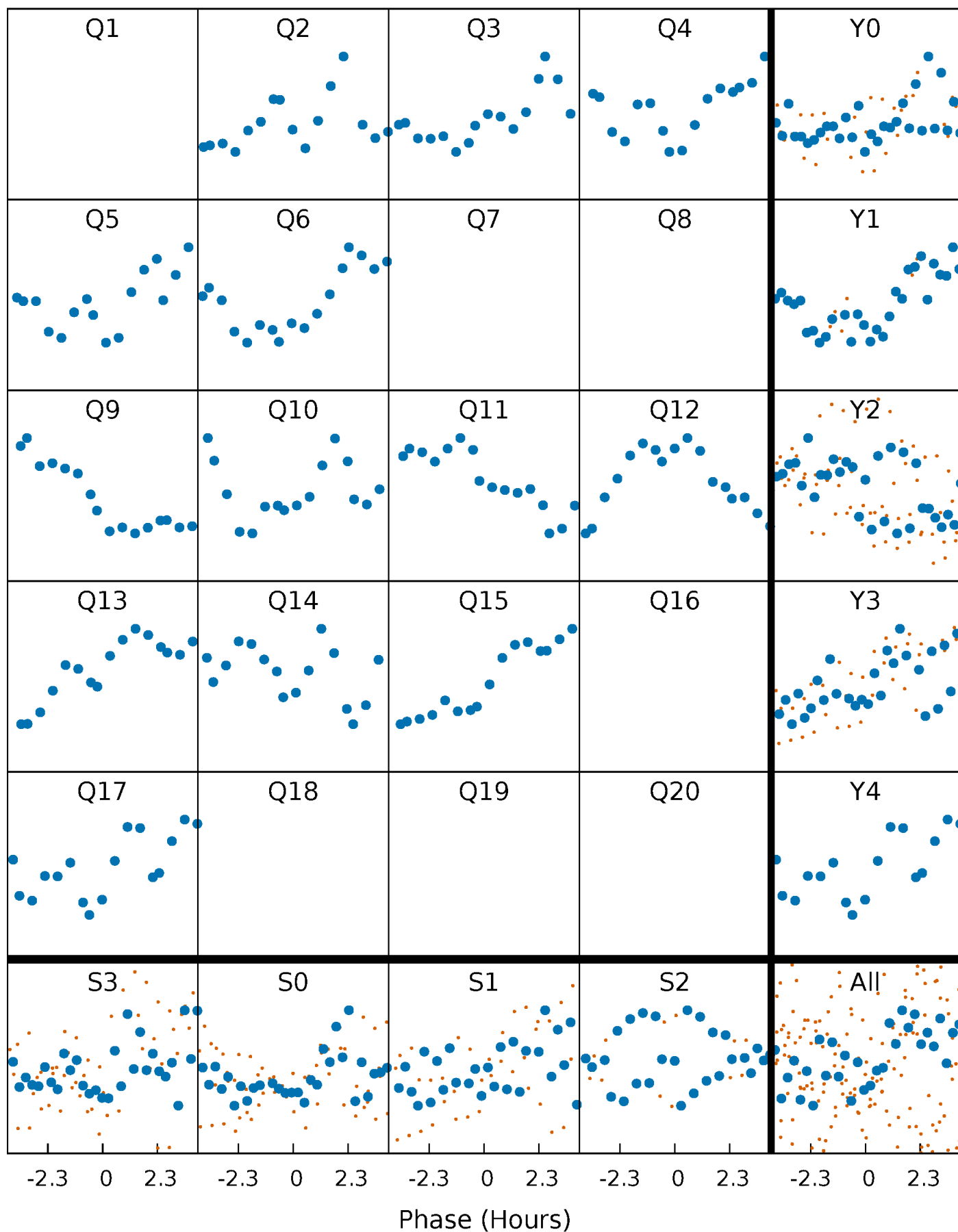


Non-Whitened Vs. Whitened Light Curve



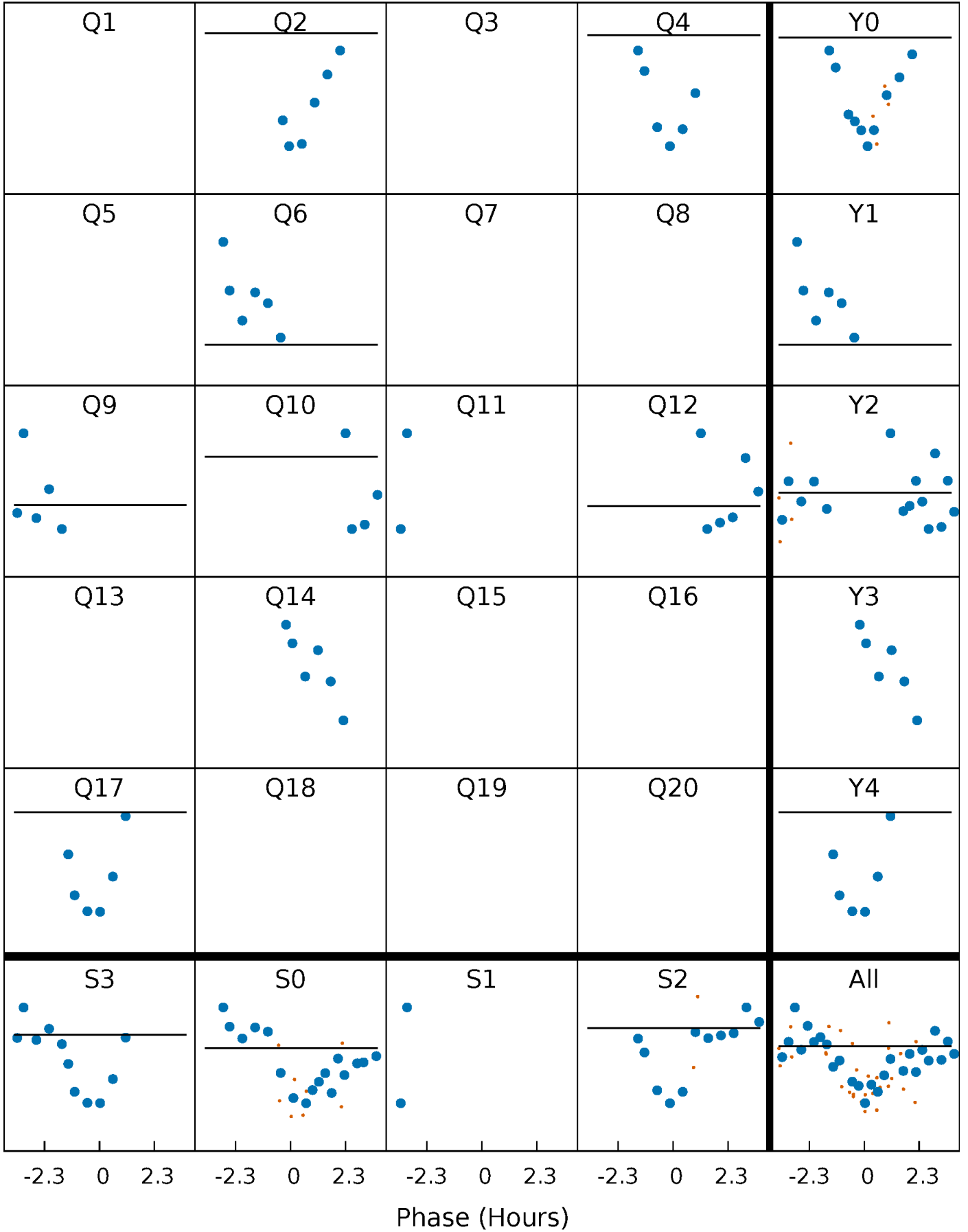
PDC Quarter-Phased Transit Curves

TCE 004768668-05 $P=106.183615$ Days $T_0=190.934124$ (BKJD)



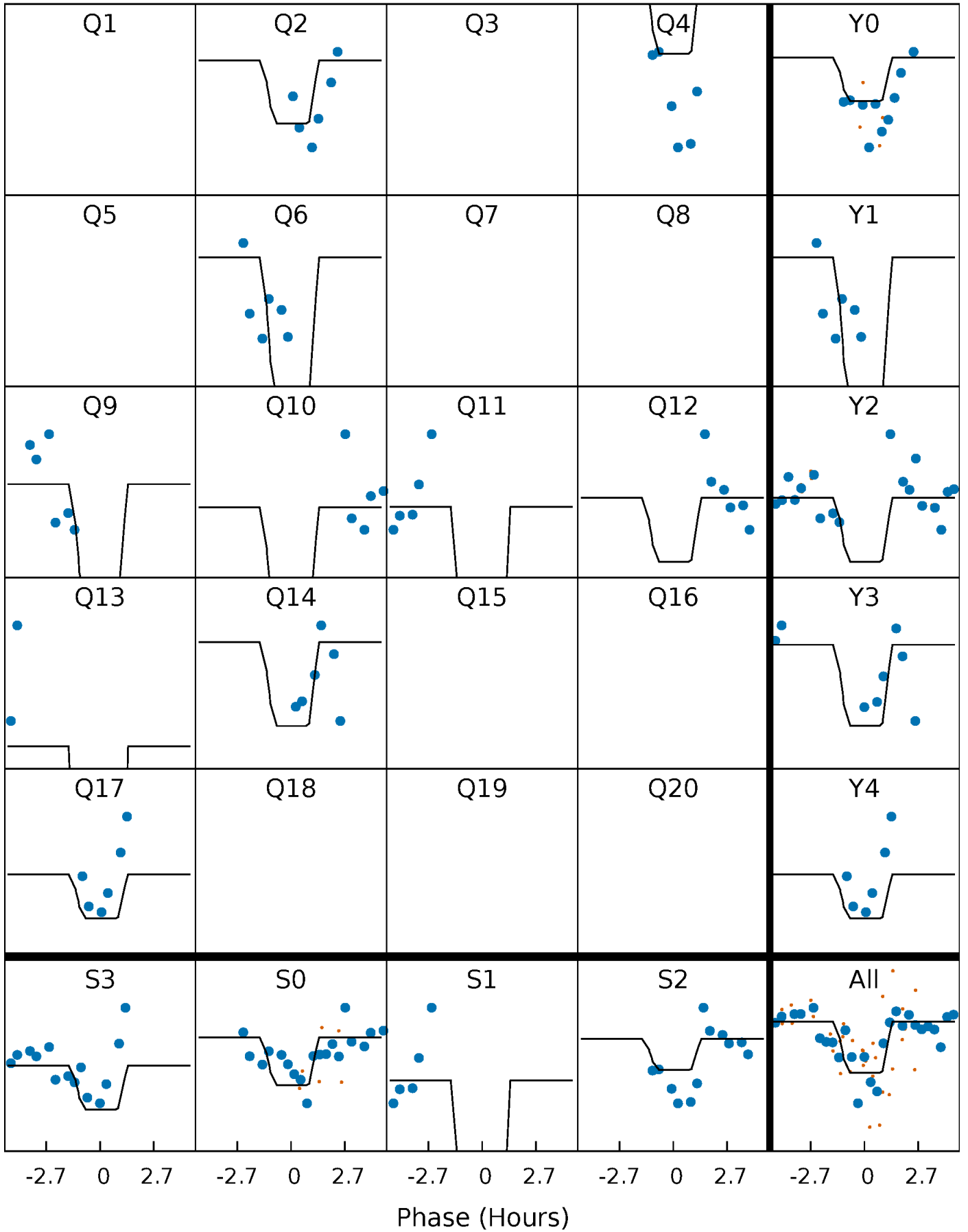
DV Quarter-Phased Transit Curves

TCE 004768668-05 P=106.183615 Days $T_0=190.934124$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

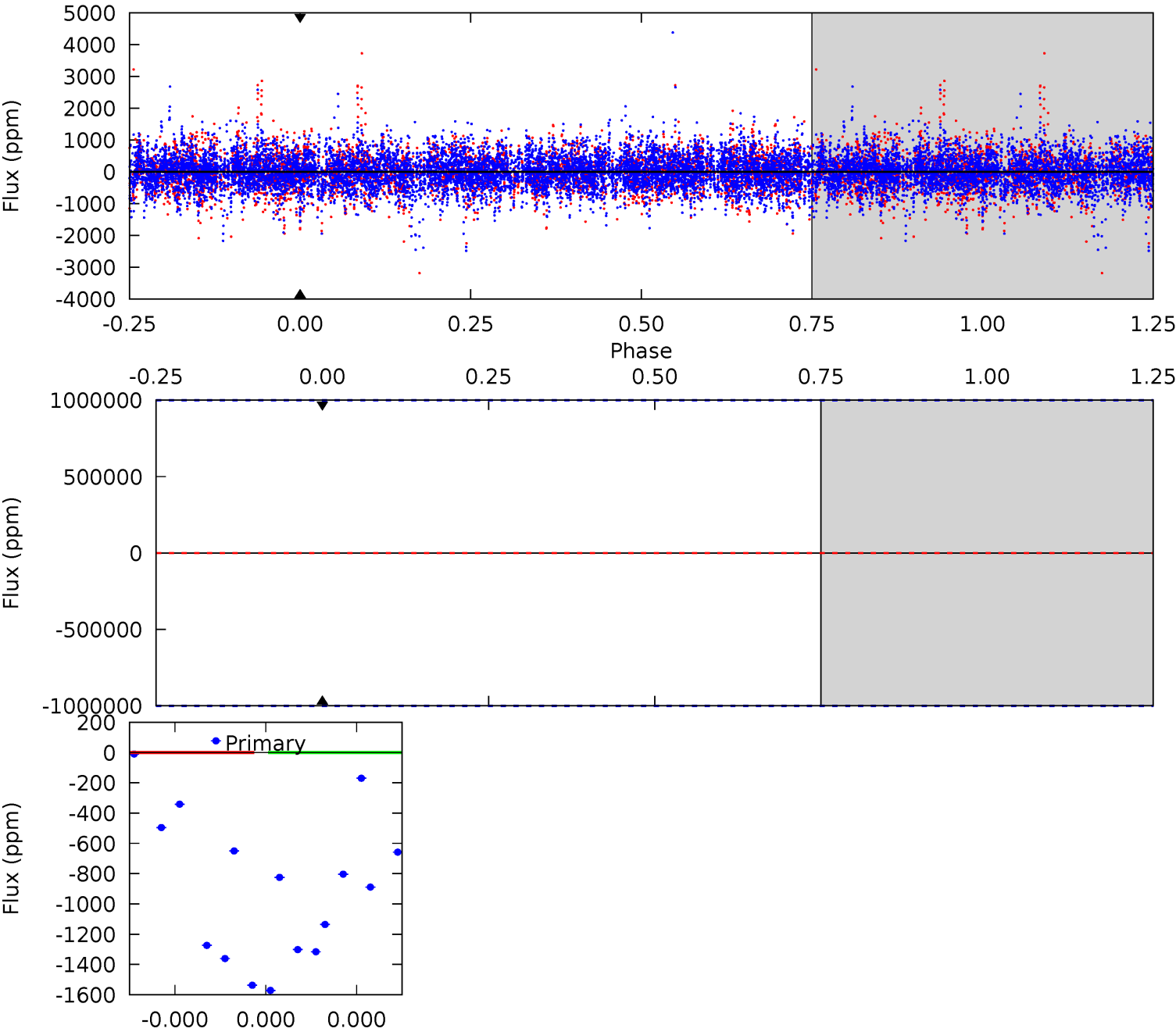
TCE 004768668-05 $P=106.183615$ Days $T_0=190.917624$ (BKJD)



DV Model-Shift Uniqueness Test

004768668-05, P = 106.183615 Days, E = 84.750509 Days

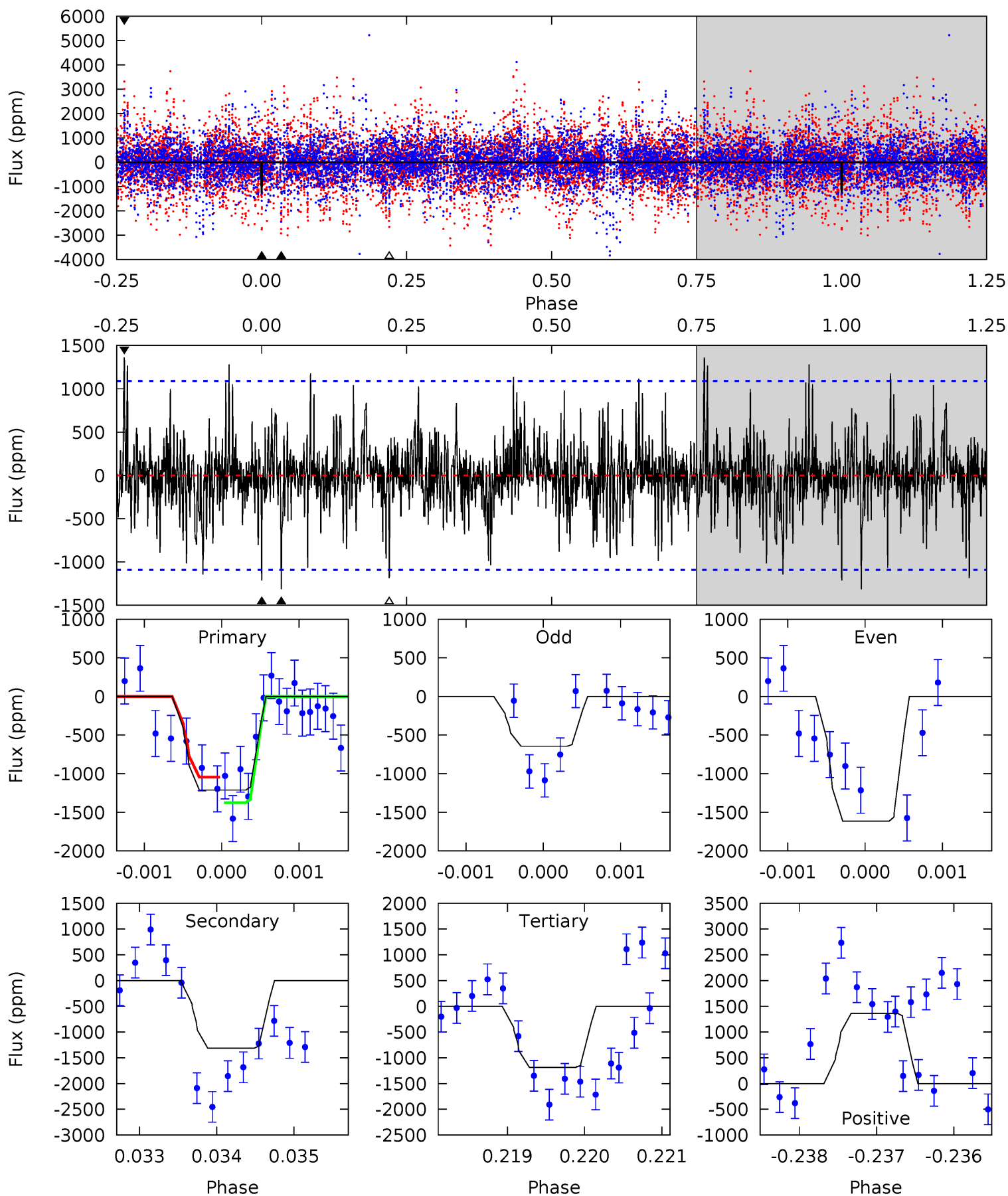
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004768668-05, $P = 106.183615$ Days, $E = 84.734009$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.07	6.58	5.94	6.82	5.46	3.30	1.55	0.13	-0.75	0.64	-0.24	2.41	1.21	0.51	0.83



Stellar Parameters For KIC 004768668

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7919^{+216}_{-325}	$4.058^{+0.187}_{-0.153}$	$-0.240^{+0.200}_{-0.350}$	$1.997^{+0.446}_{-0.495}$	$1.658^{+0.185}_{-0.277}$	$0.293^{+0.304}_{-0.119}$
	+3%/-4%	+5%/-4%	+83%/-146%	+22%/-25%	+11%/-17%	+104%/-40%
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 004768668-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$15.53^{+18.29}_{-10.57}$	953^{+66}_{-70}	5316^{+44755}_{-43183}	$752^{+115631}_{-80710}$
Alt.	-1314 ± 200	$17.20^{+17.48}_{-11.75}$	949^{+61}_{-67}	5198^{+4450}_{-1238}	630^{+5729}_{-467}

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

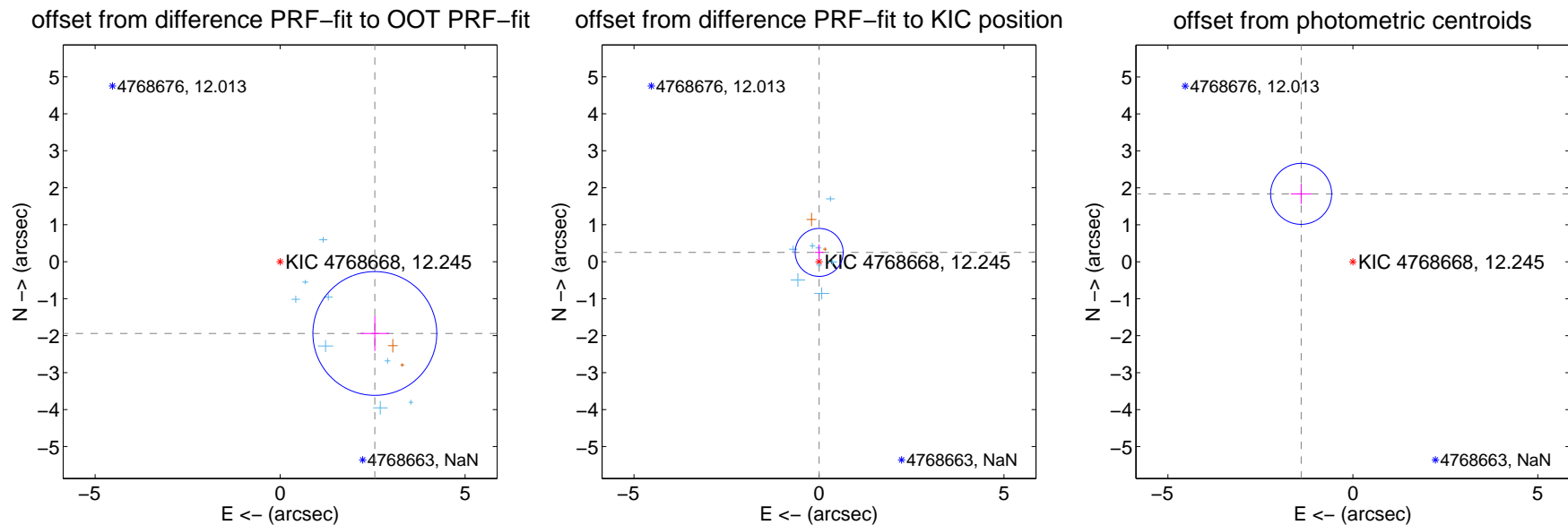
DV Centroid Data

Supplemental centroid analysis for 004768668-05. Kepler magnitude: 12.24. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.76 arcsec

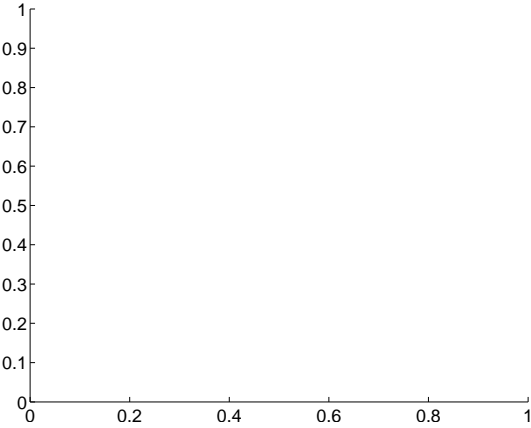
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.212 ± 0.558	5.76	-2.560 ± 0.383	-1.941 ± 0.472
PRF-fit source offset from KIC position	0.251 ± 0.216	1.16	-0.005 ± 0.117	0.251 ± 0.216
photometric centroid source offset	2.31 ± 0.27	8.40	1.40 ± 0.28	1.84 ± 0.27



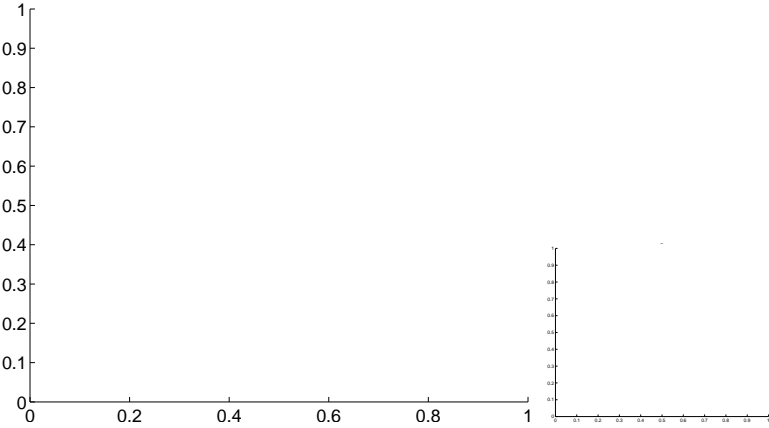
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

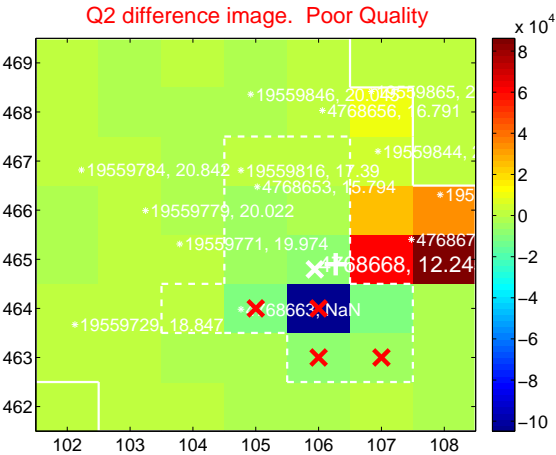
Q1 no difference image



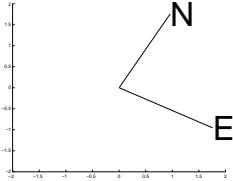
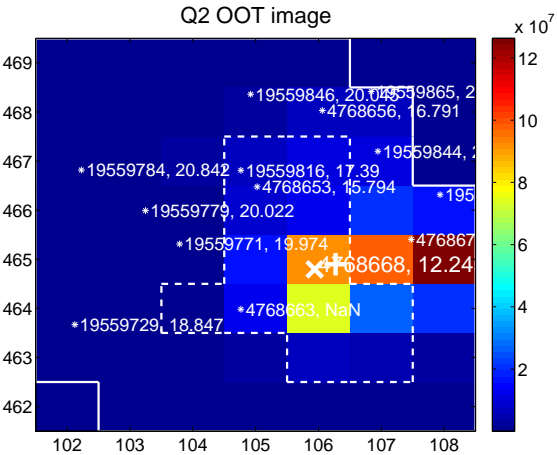
Q1 no OOT image



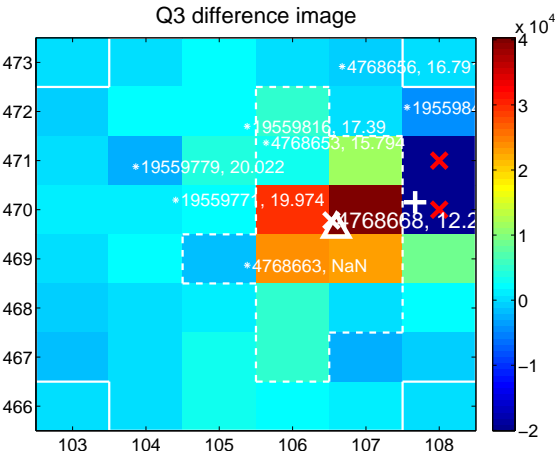
Q2 difference image. Poor Quality



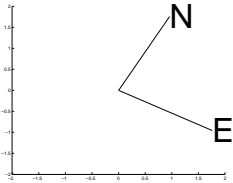
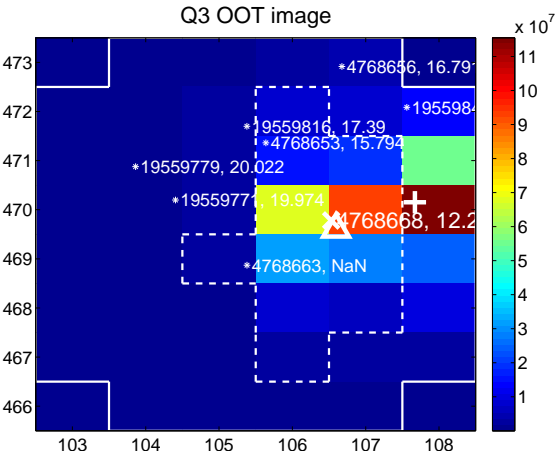
Q2 OOT image



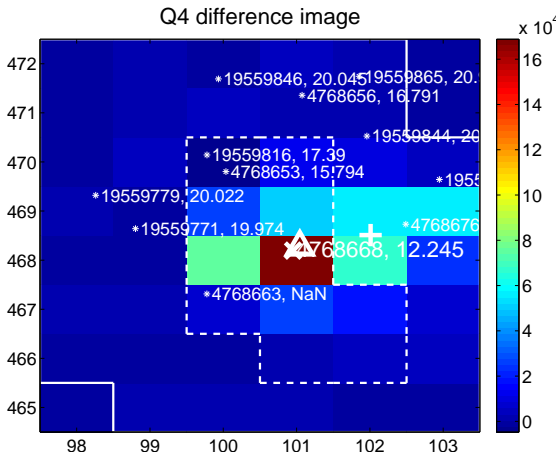
Q3 difference image



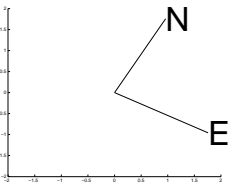
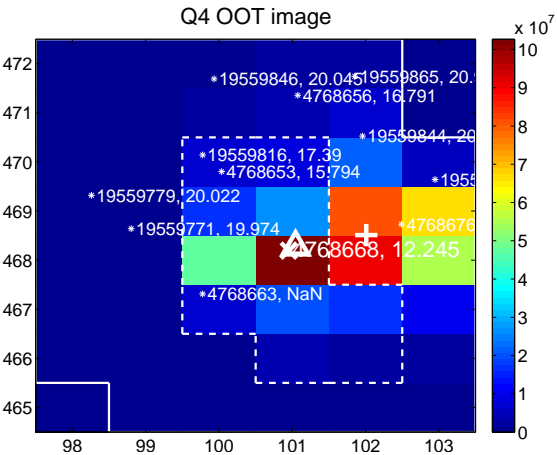
Q3 OOT image



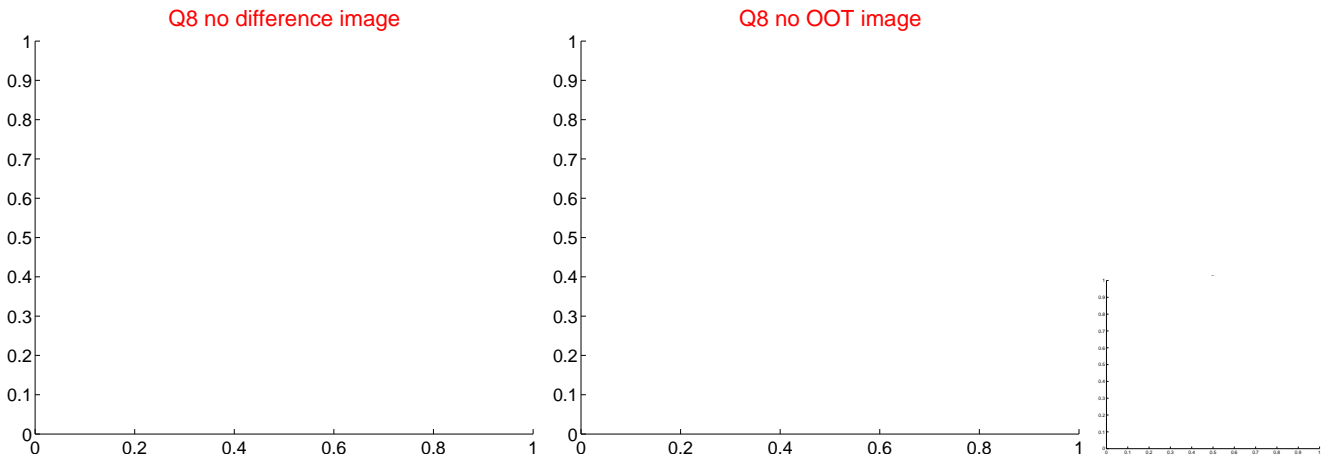
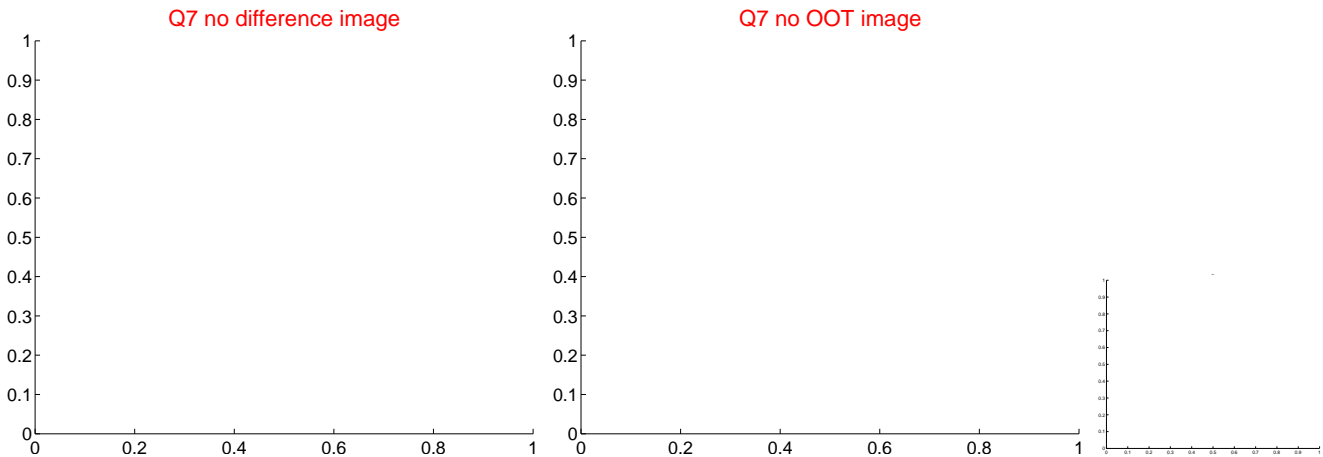
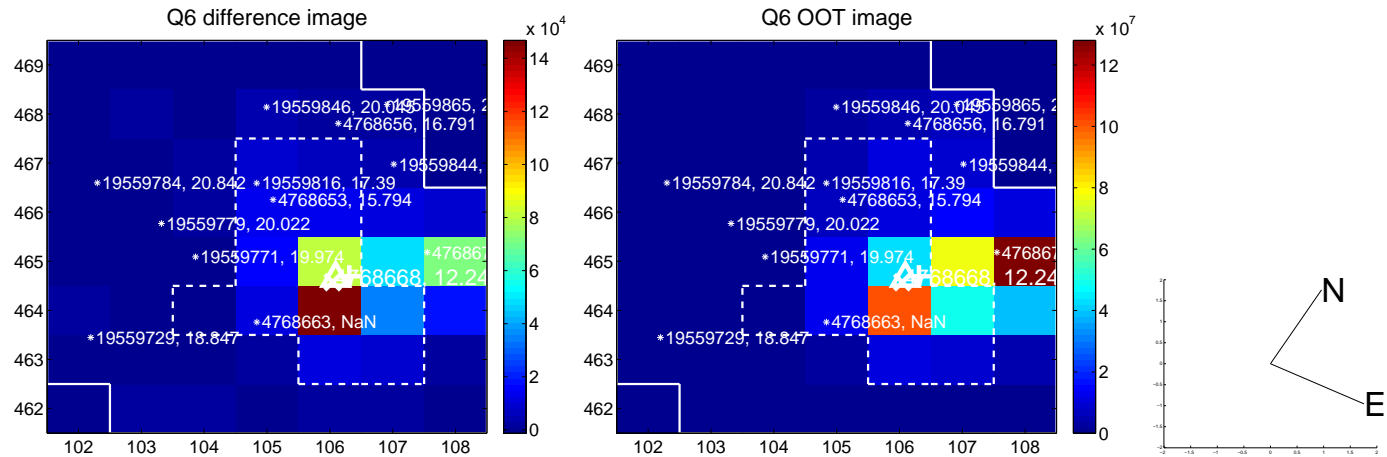
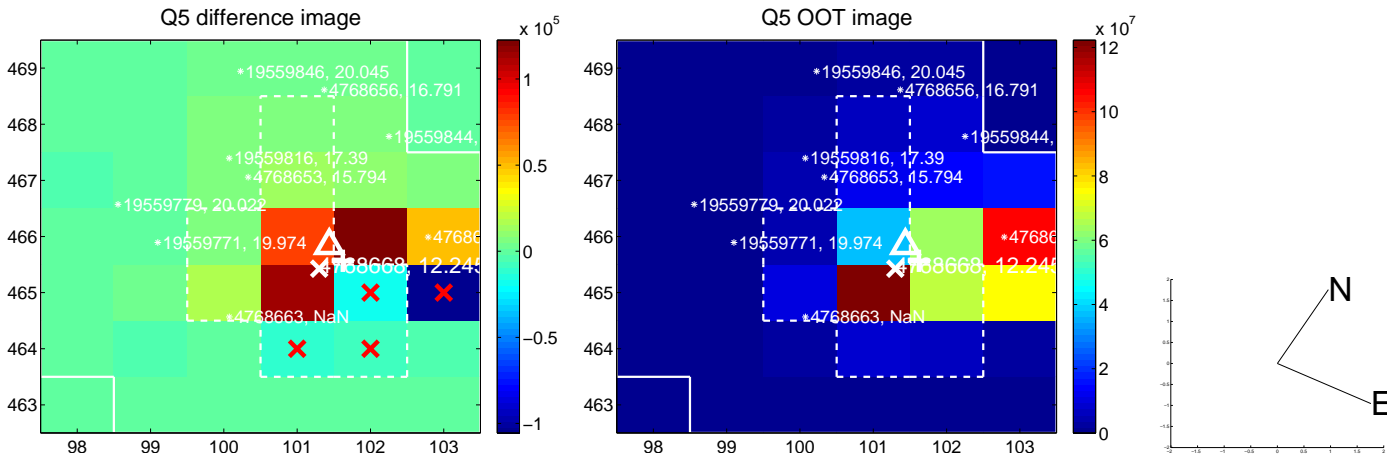
Q4 difference image



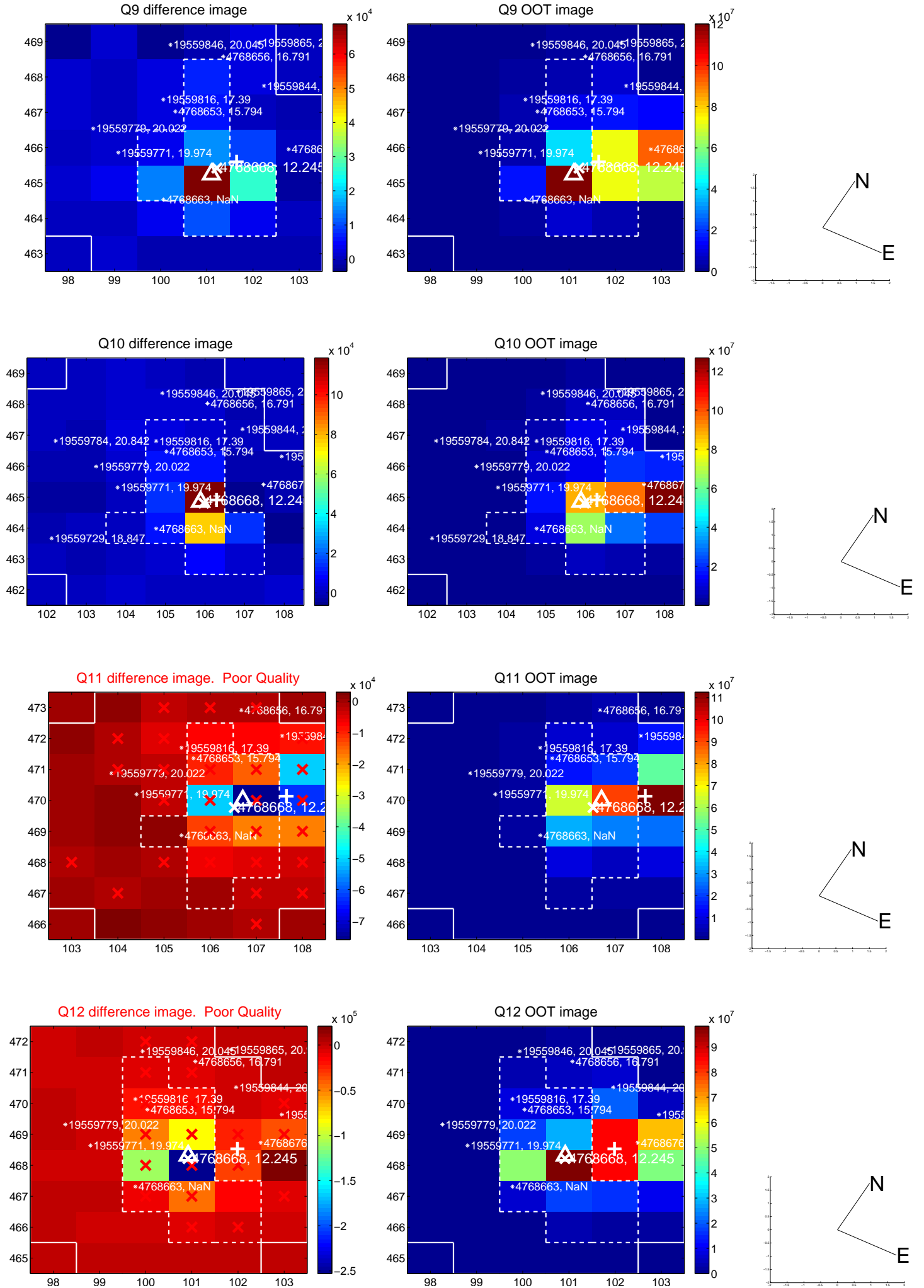
Q4 OOT image



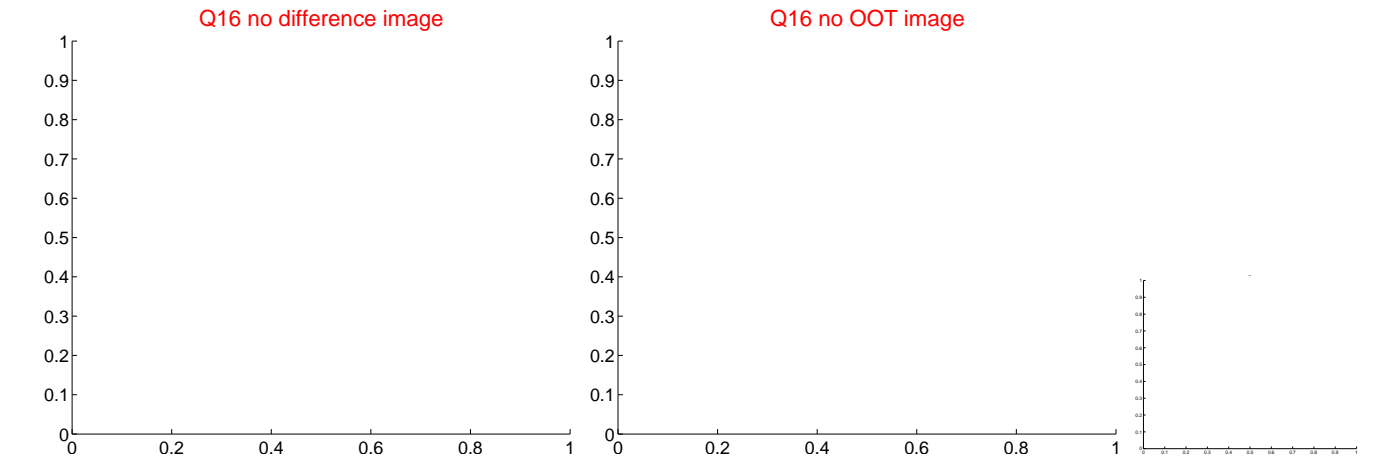
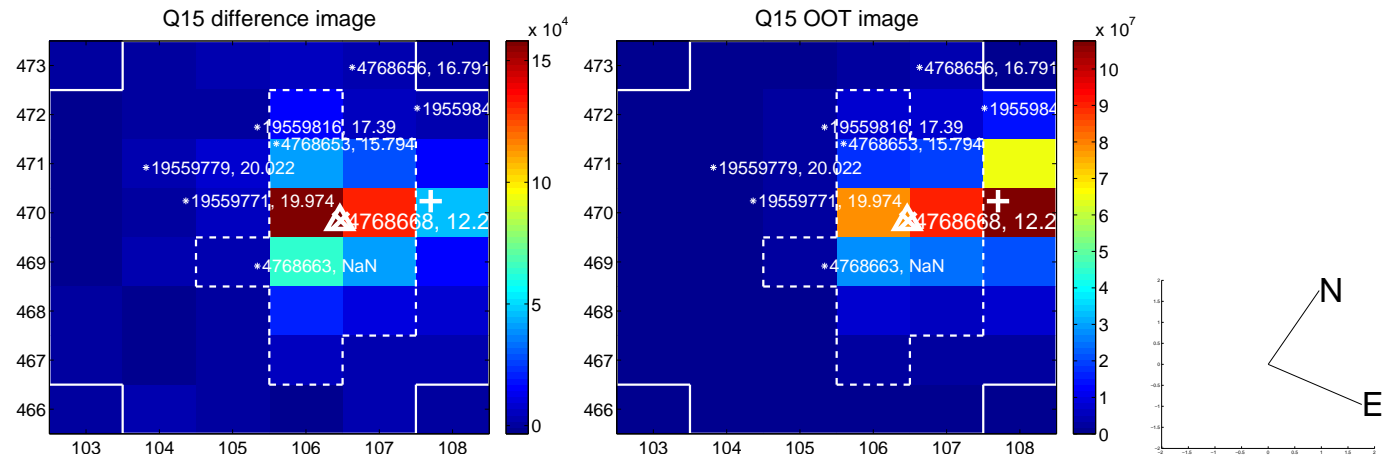
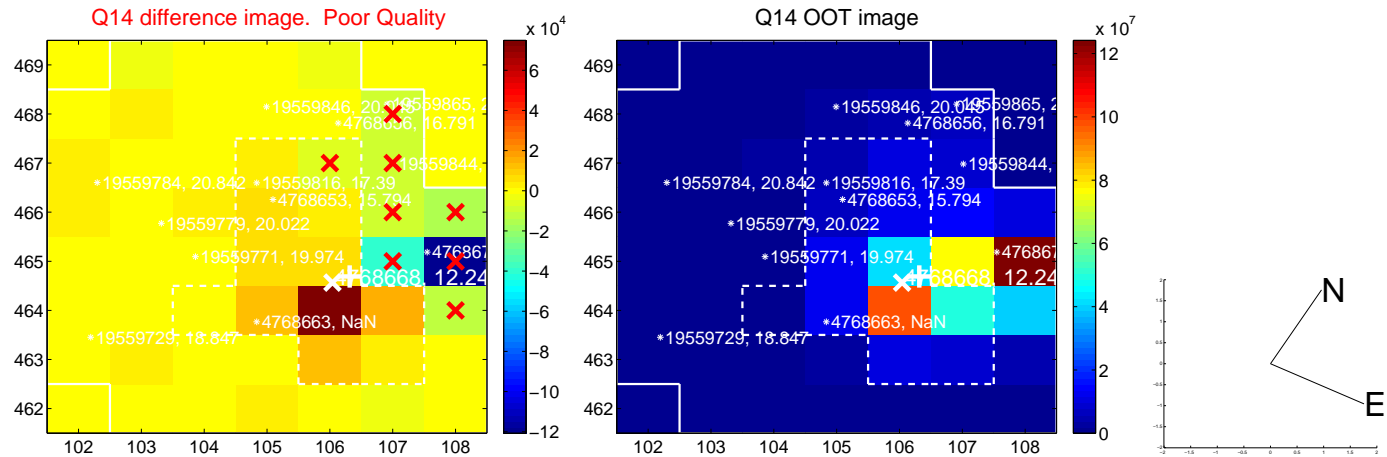
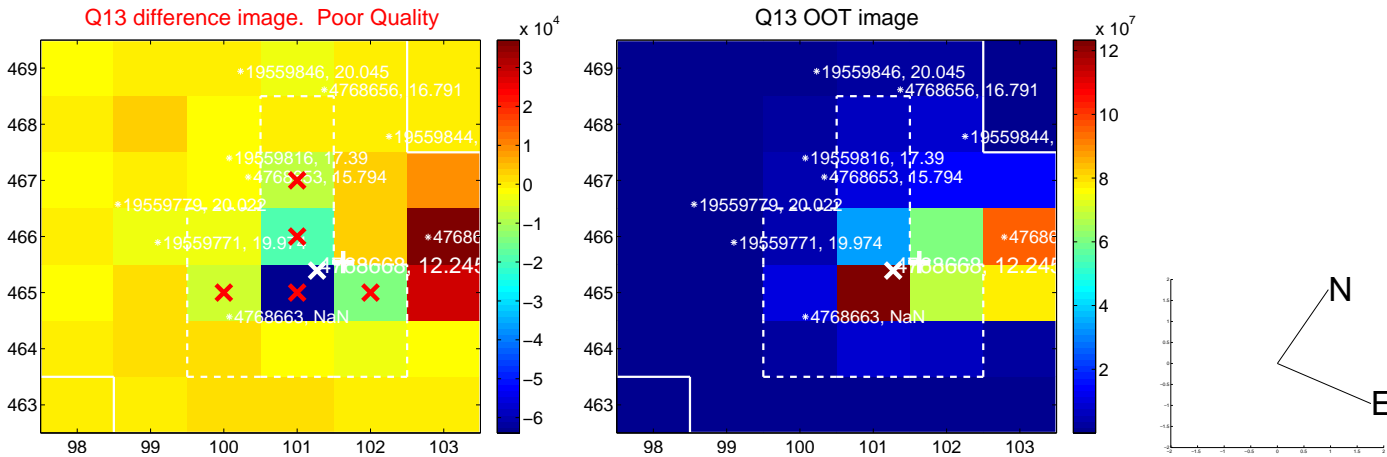
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



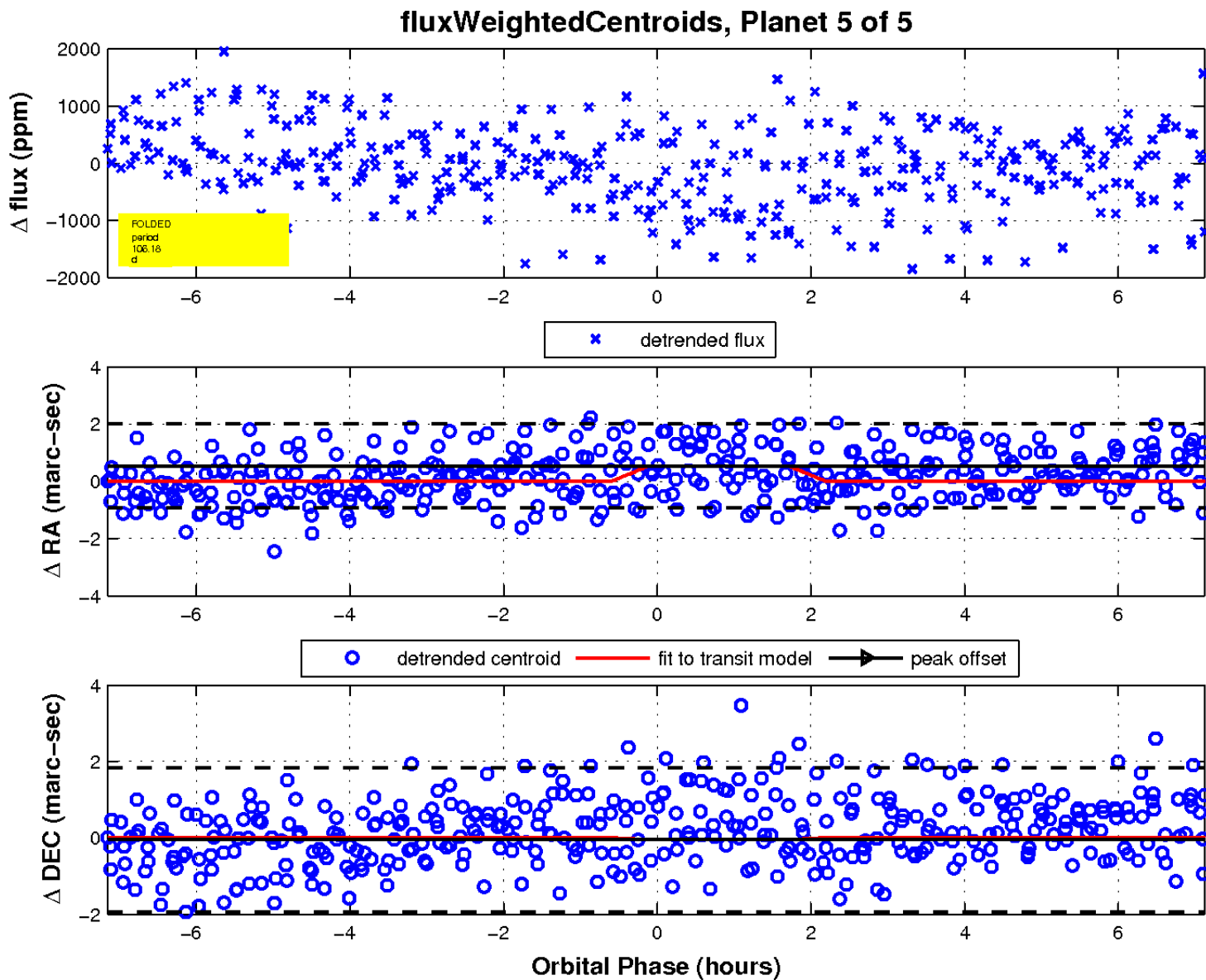
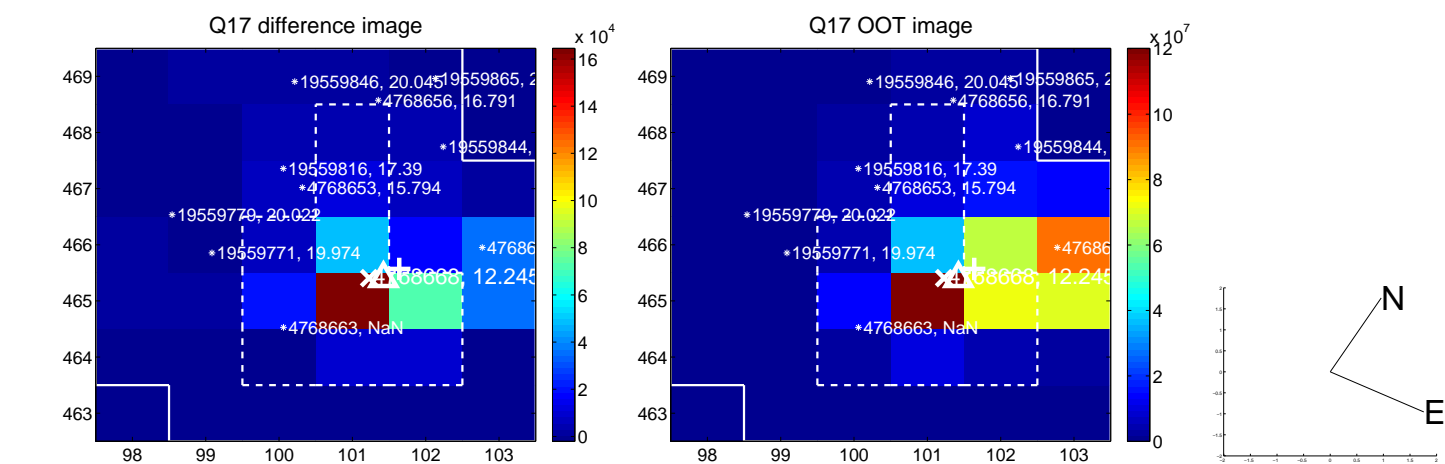
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

