

KIC 006468987

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})
006468987-01	OBS	No	0.687446	132.154867	6.7	1.154	9.0	1.4	2.18	7299	0.66	37468.68
006468987-02	OBS	No	0.687487	131.920113	53.3	4.050	9.4	6.6	2.18	7299	1.62	37465.69
006468987-03	OBS	No	2.087202	131.770835	368.9	5.485	8.7	9.5	2.18	7299	6.95	8522.50
006468987-04	OBS	No	58.836472	160.467172	1918.7	4.167	9.3	7.2	2.18	7299	17.52	99.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006468987-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006468987-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
006468987-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006468987-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

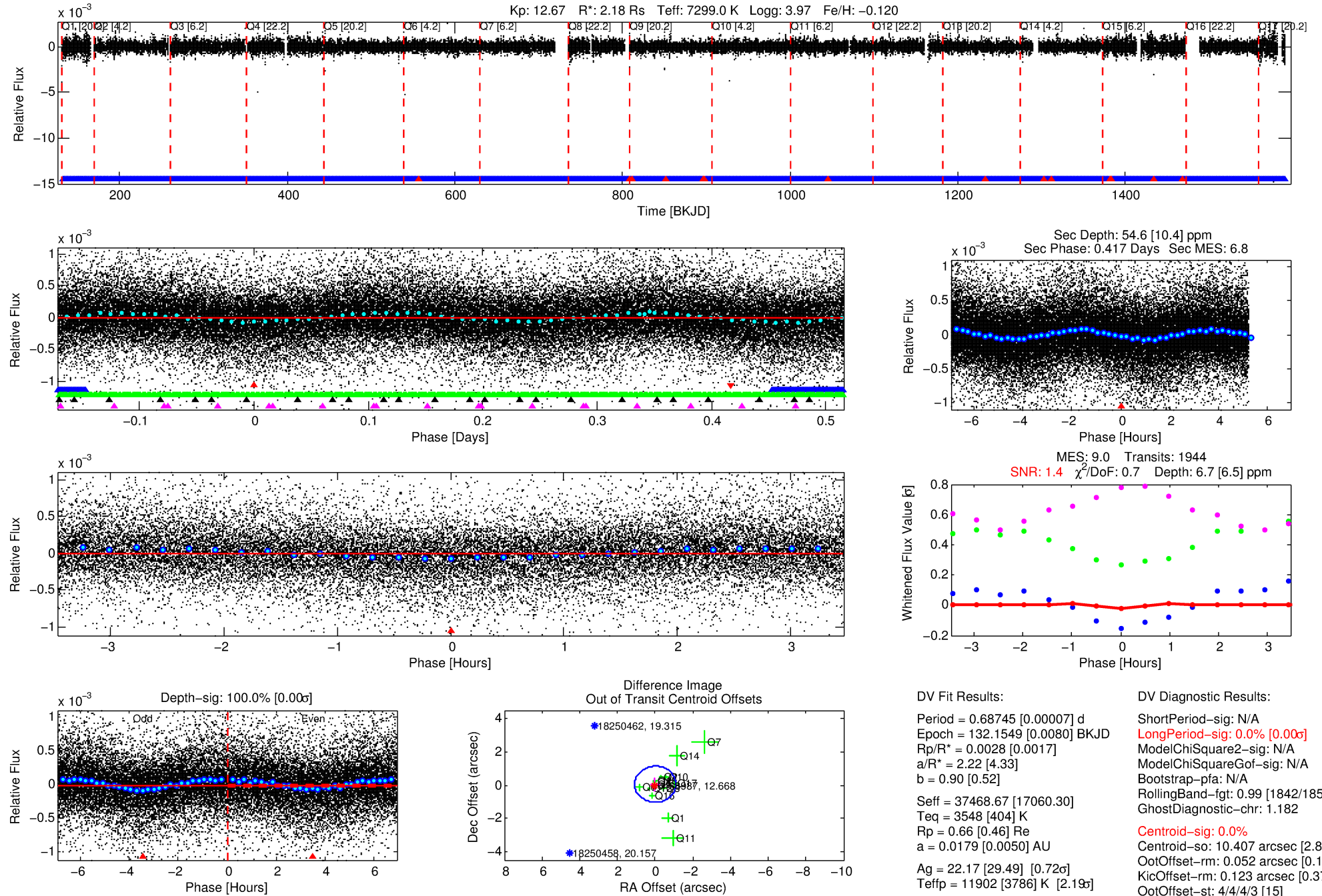
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006468987-01

No Significant Match Found

DV One-Page Summary

KIC: 6468987 Candidate: 1 of 5 Period: 0.687 d



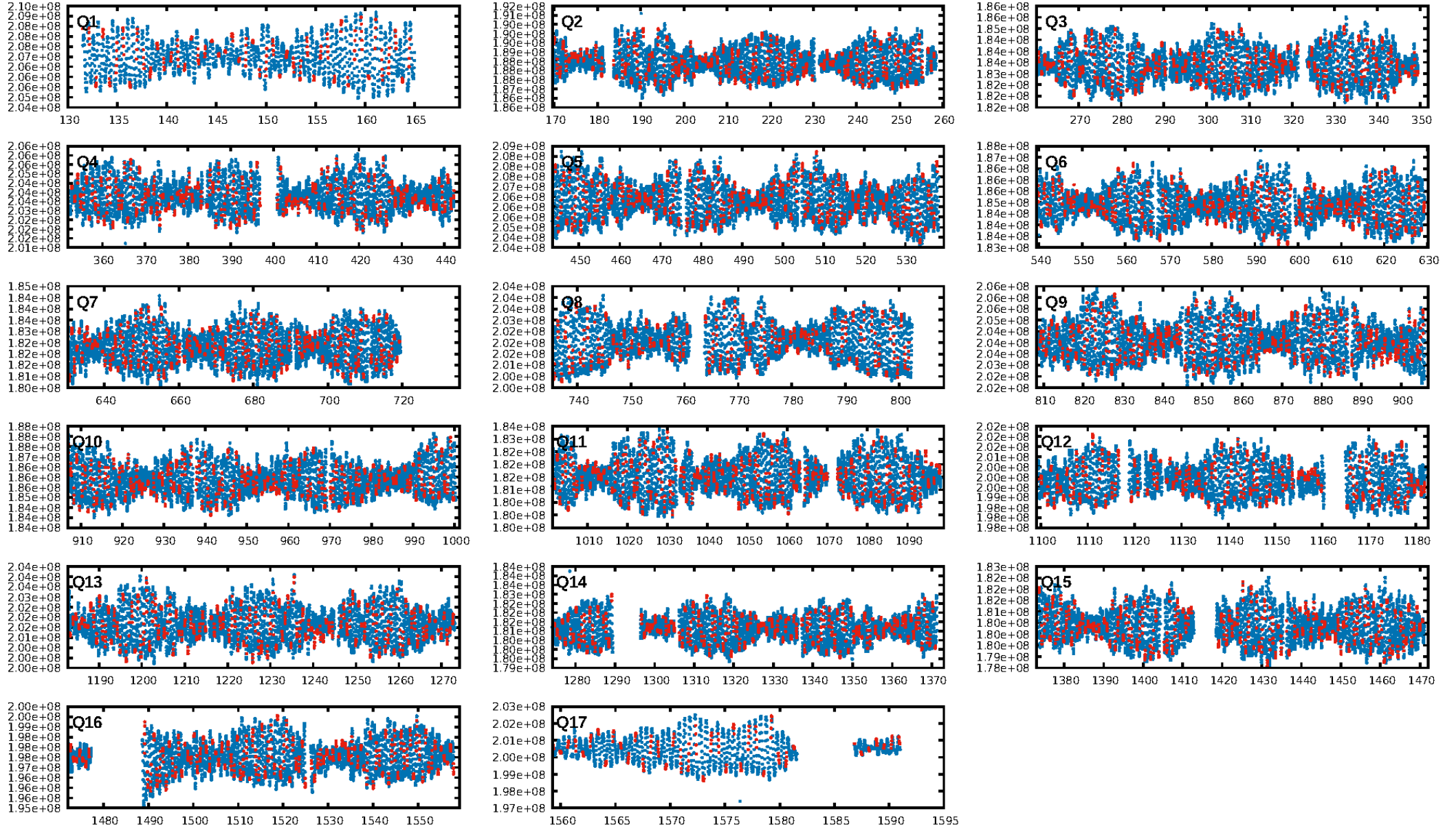
DV Fit Results:

Period = 0.68745 [0.00007] d
Epoch = 132.1549 [0.0080] BKJD
Rp/R* = 0.0028 [0.0017]
a/R* = 2.22 [4.33]
b = 0.90 [0.52]
Seff = 37468.67 [17060.30]
Teq = 3548 [404] K
Rp = 0.66 [0.46] Re
a = 0.0179 [0.0050] AU
Ag = 22.17 [29.49] [0.72σ]
Teffp = 11902 [3786] K [2.19σ]

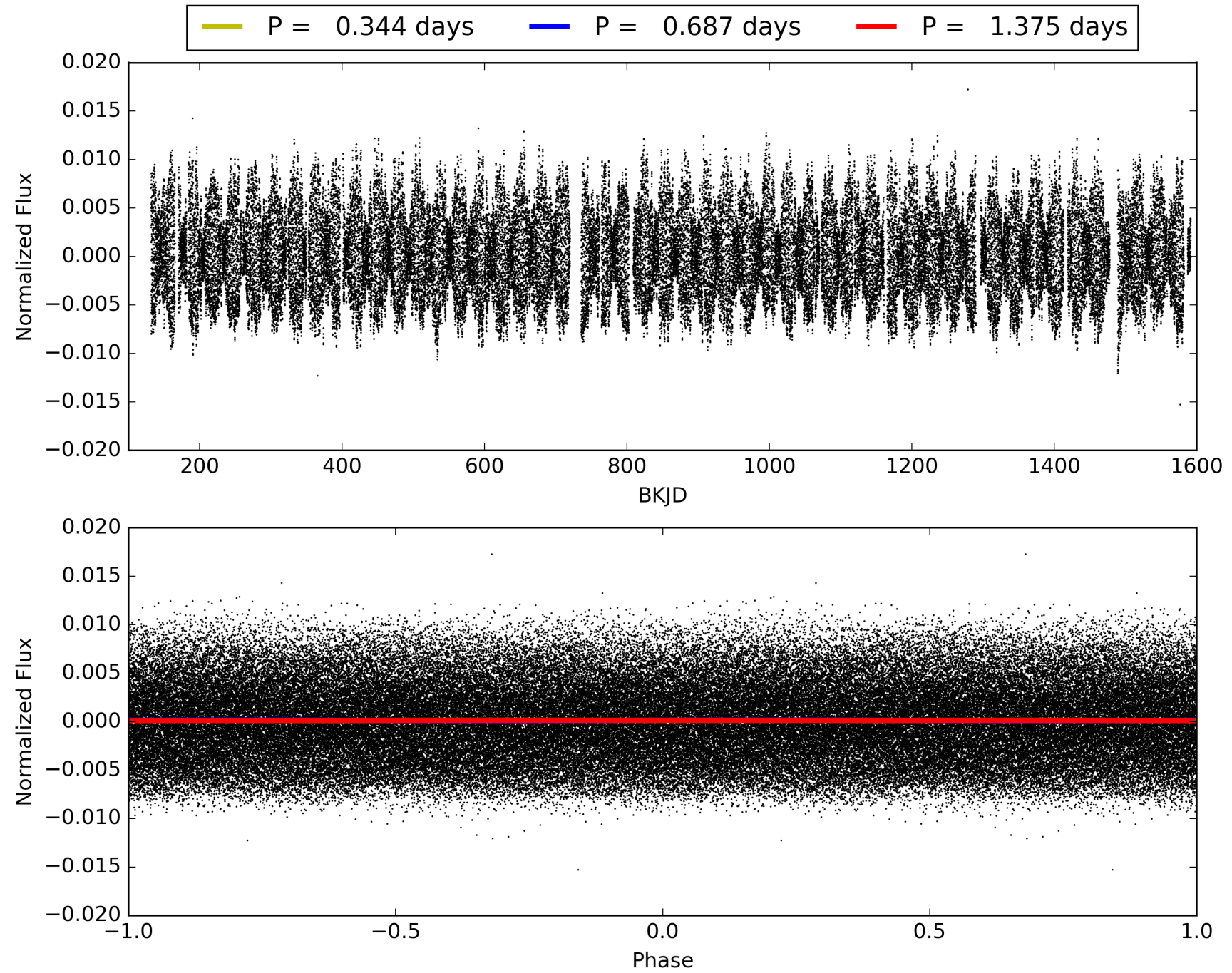
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1842/1857]
GhostDiagnostic-chr: 1.182
Centroid-sig: 0.0%
Centroid-so: 10.407 arcsec [2.81σ]
OotOffset-rm: 0.052 arcsec [0.14σ]
KicOffset-rm: 0.123 arcsec [0.37σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 006468987-01, PDC Light Curves

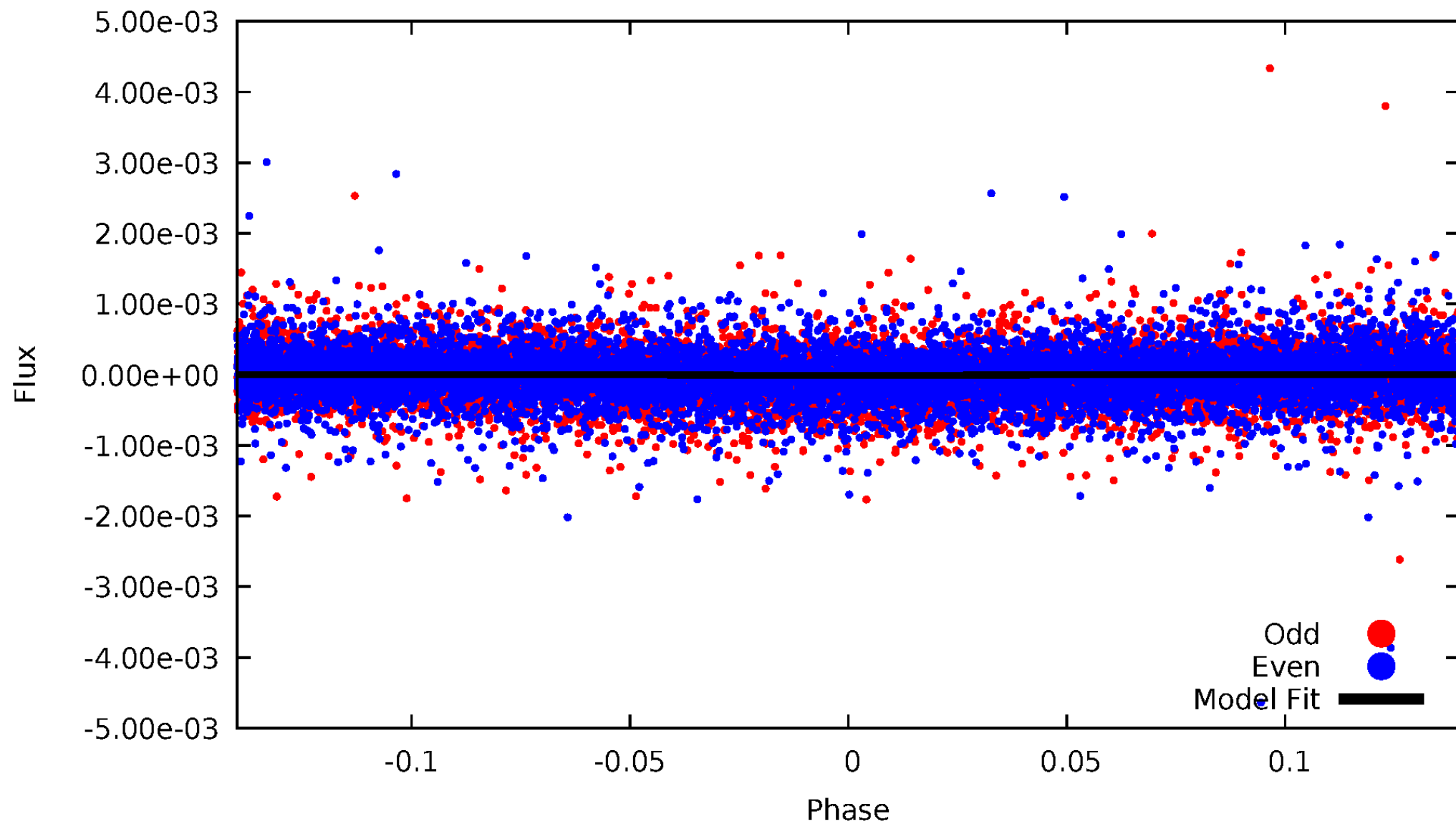


TCE 006468987-01



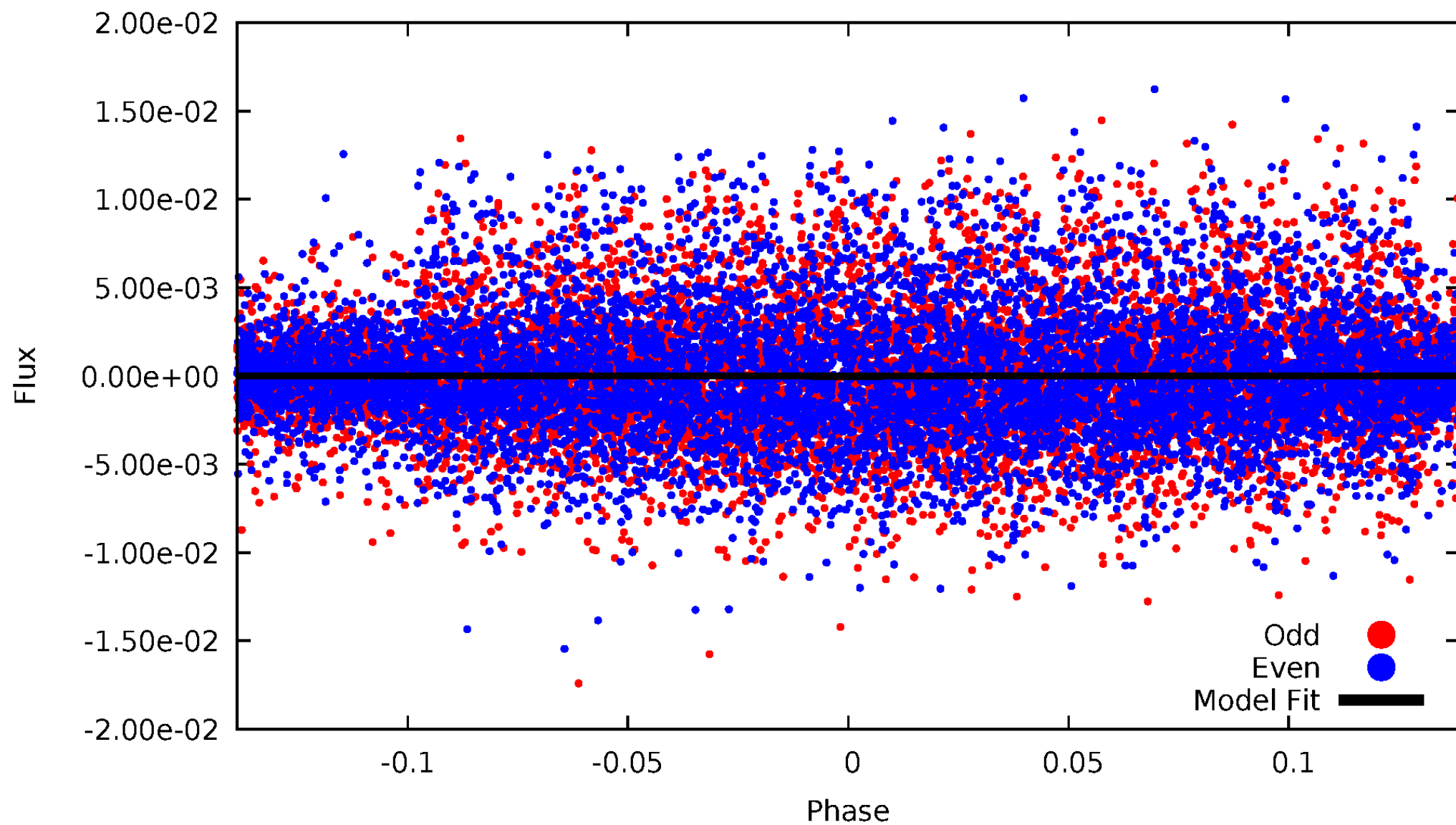
DV Odd/Even

TCE 006468987-01

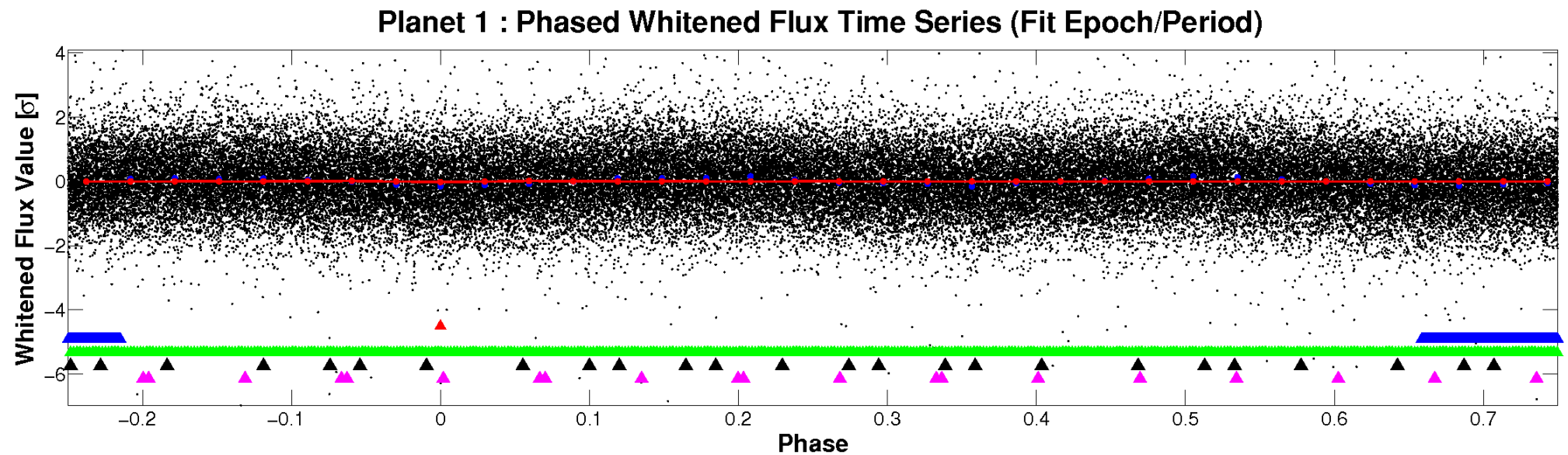
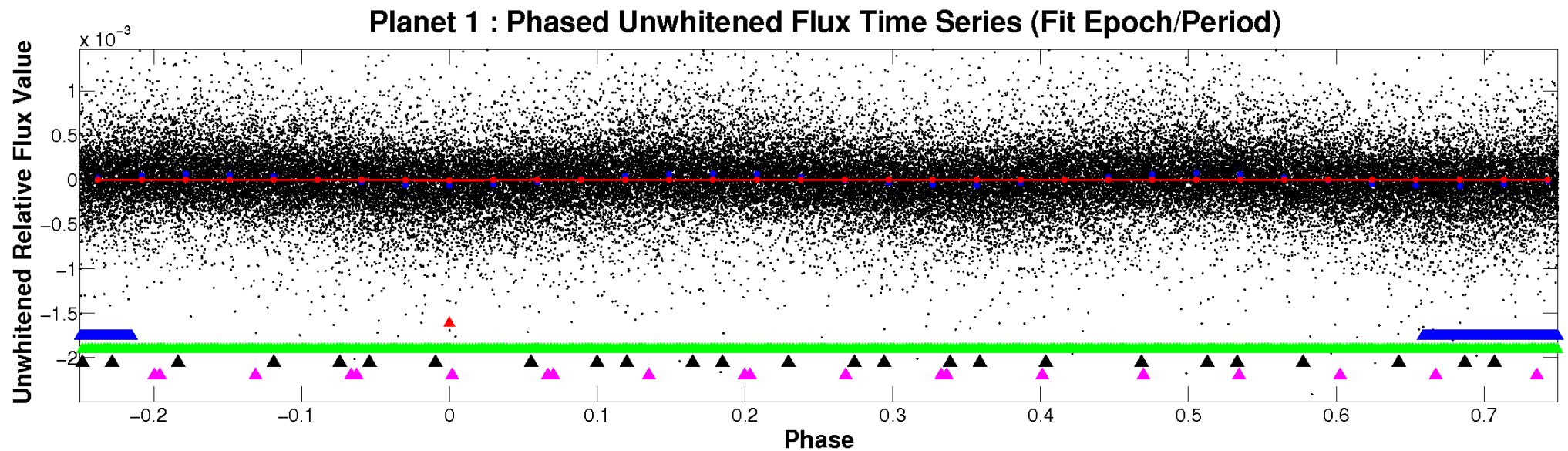


ALT Odd/Even

TCE 006468987-01

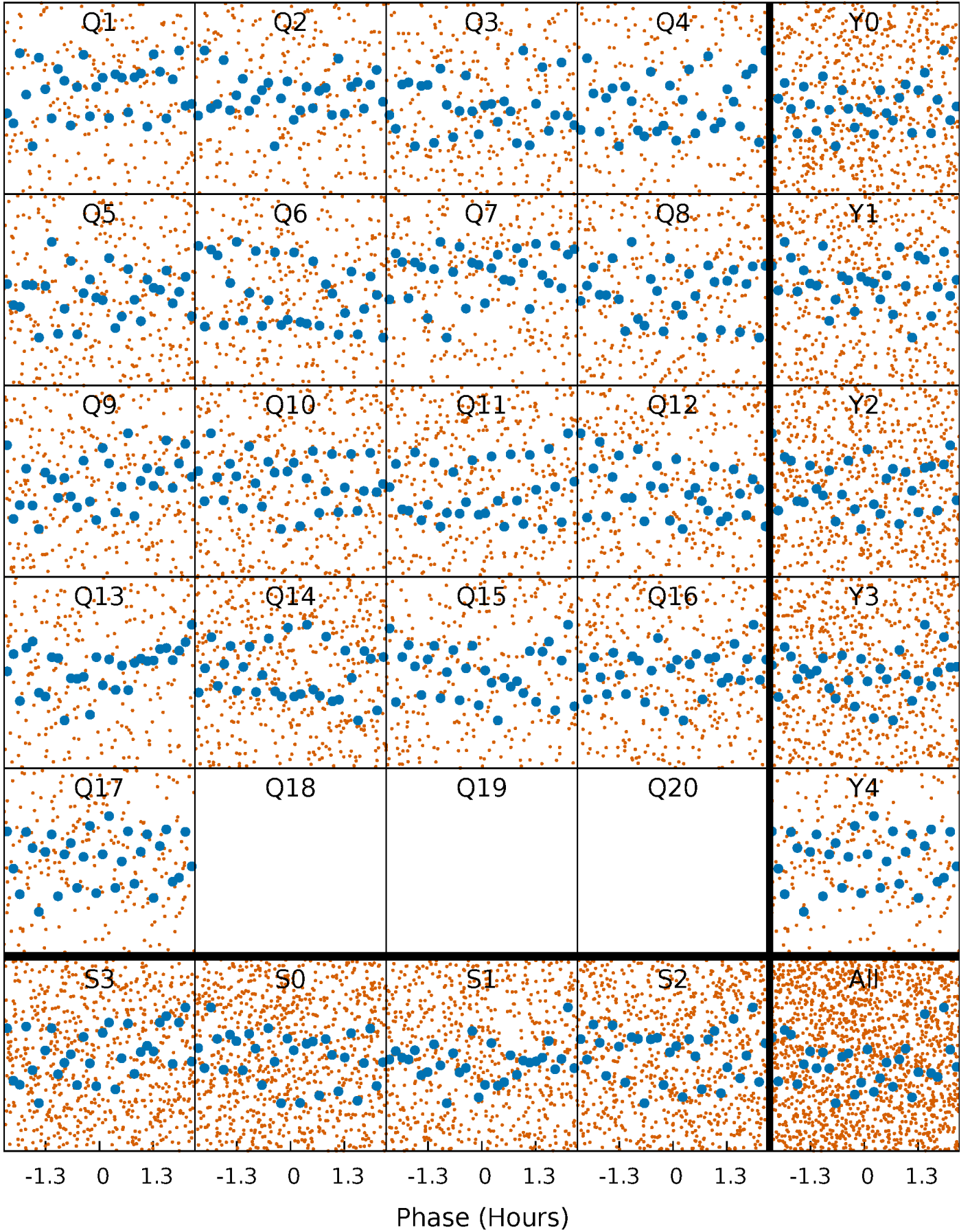


Non-Whitened Vs. Whitened Light Curve



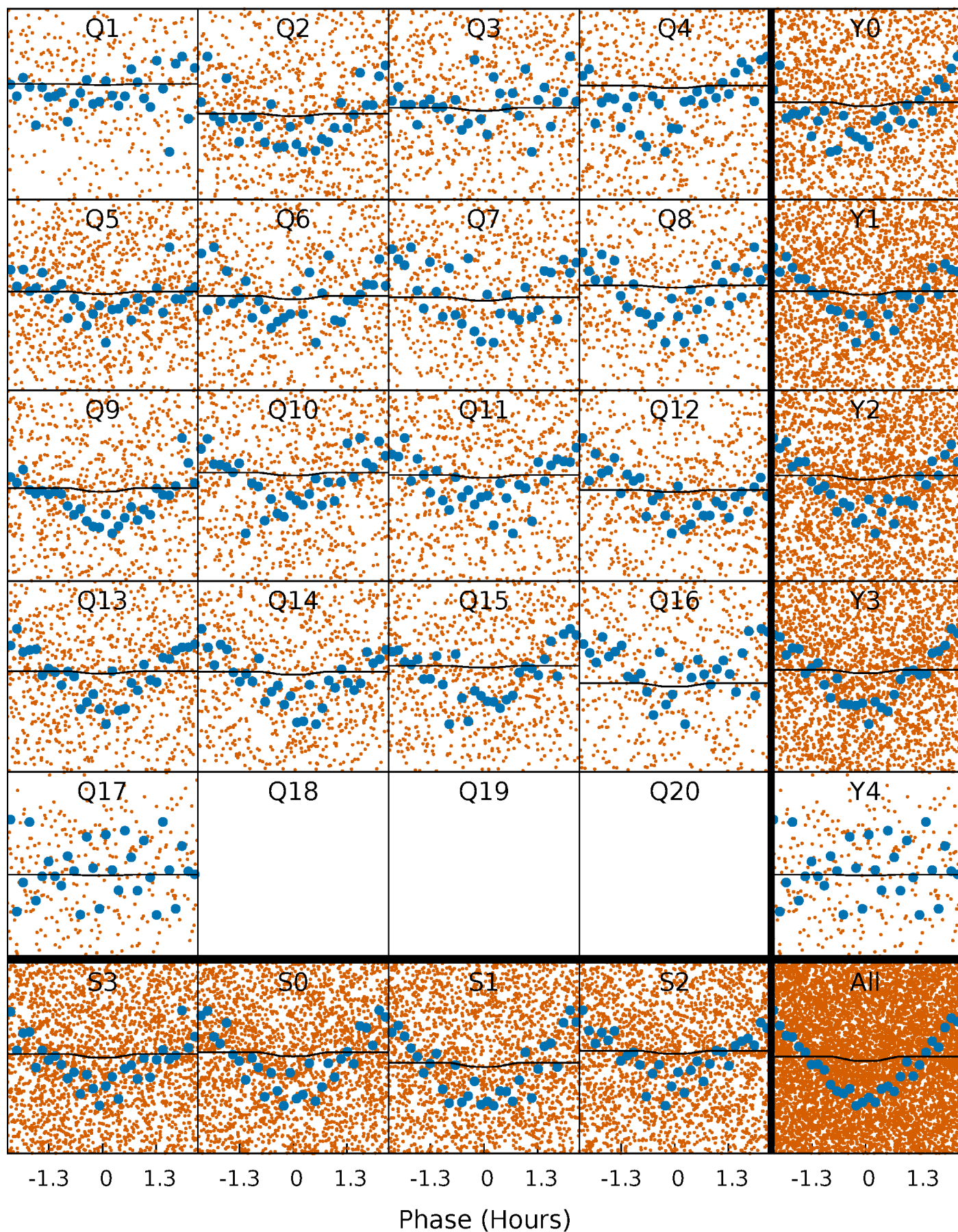
PDC Quarter-Phased Transit Curves

TCE 006468987-01 P= 0.687446 Days $T_0=132.154867$ (BKJD)



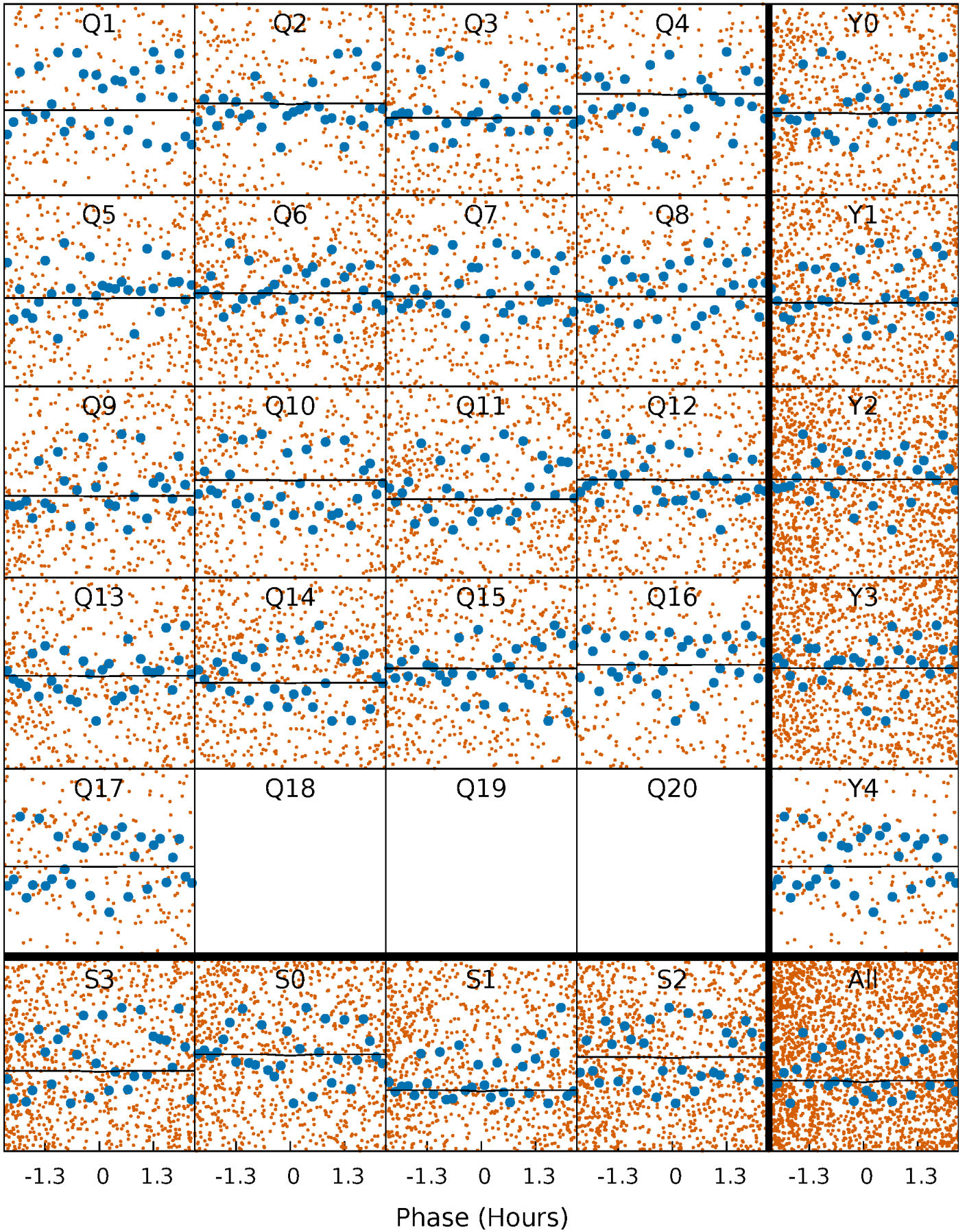
DV Quarter-Phased Transit Curves

TCE 006468987-01 P= 0.687446 Days $T_0=132.154867$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

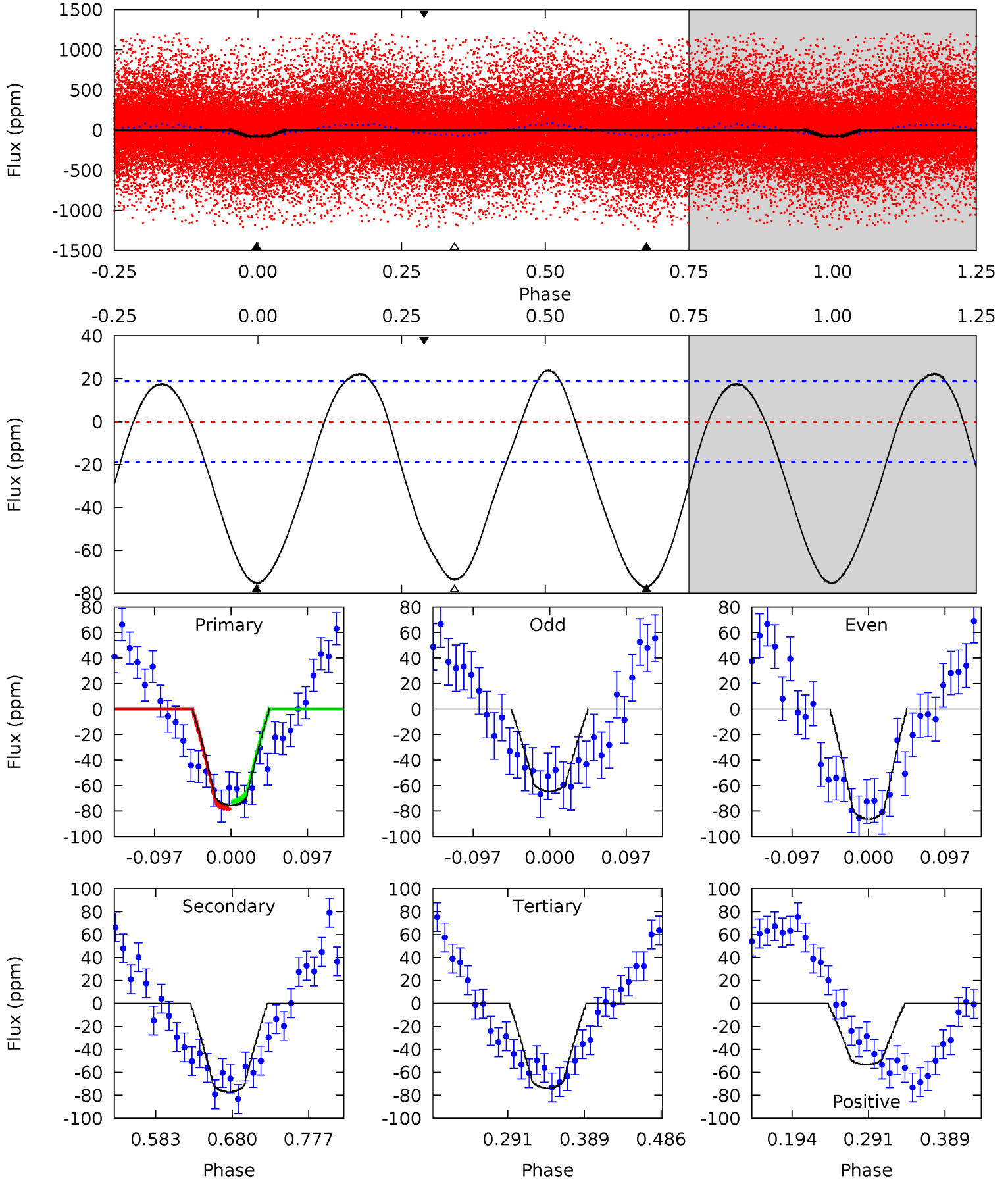
TCE 006468987-01 P= 0.687450 Days $T_0=132.154962$ (BKJD)



DV Model-Shift Uniqueness Test

006468987-01, P = 0.687446 Days, E = 131.467421 Days

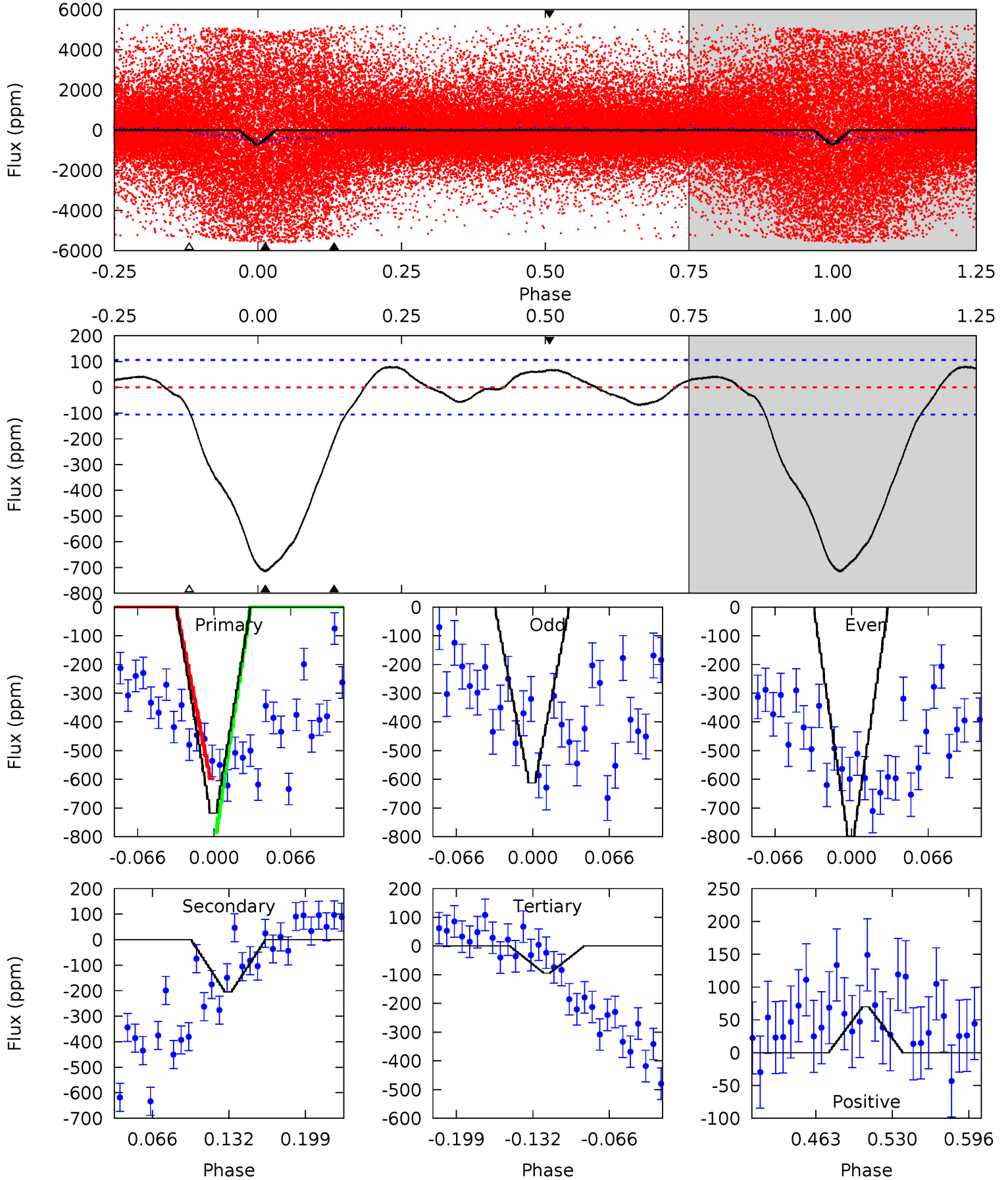
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	18.8	18.0	-13.0	4.57	1.66	7.50	0.41	31.4	0.85	31.8	2.69	1.20	0.24	0.69



Alt Model-Shift Uniqueness Test

006468987-01, P = 0.687450 Days, E = 131.467512 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.5	9.04	4.14	3.07	4.65	1.84	4.04	27.4	28.5	4.89	5.97	4.07	0.05	0.10	0



Stellar Parameters For KIC 006468987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7299^{+228}_{-304}	$3.974^{+0.240}_{-0.160}$	$-0.120^{+0.250}_{-0.350}$	$2.178^{+0.560}_{-0.684}$	$1.628^{+0.199}_{-0.323}$	$0.222^{+0.329}_{-0.101}$
	+3%/-4%	+6%/-4%	+208%/-292%	+26%/-31%	+12%/-20%	+148%/-45%
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 006468987-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-77 ± 4	$0.66^{+0.42}_{-0.33}$	4909^{+379}_{-411}	17243^{+24718}_{-6166}	31^{+92}_{-19}
Alt.	-206 ± 23	$0.63^{+0.42}_{-0.38}$	4909^{+384}_{-393}	$32943^{+111000}_{-14853}$	88^{+460}_{-56}

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

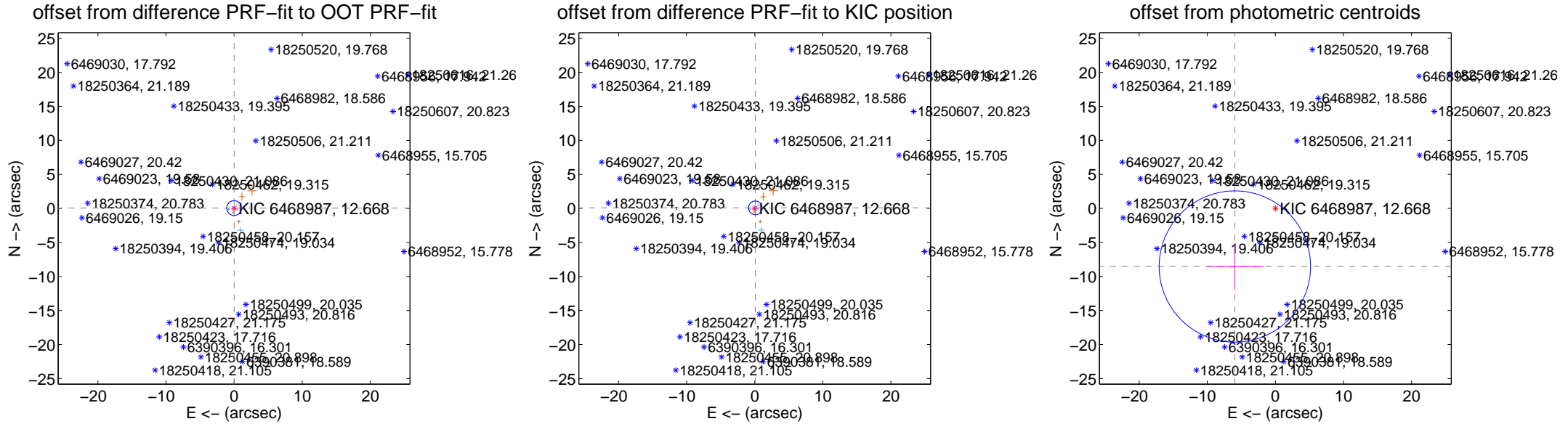
DV Centroid Data

Supplemental centroid analysis for 006468987-01. Kepler magnitude: 12.67. Transit SNR 1.44

There are 10 quarters with good PRF difference image offsets

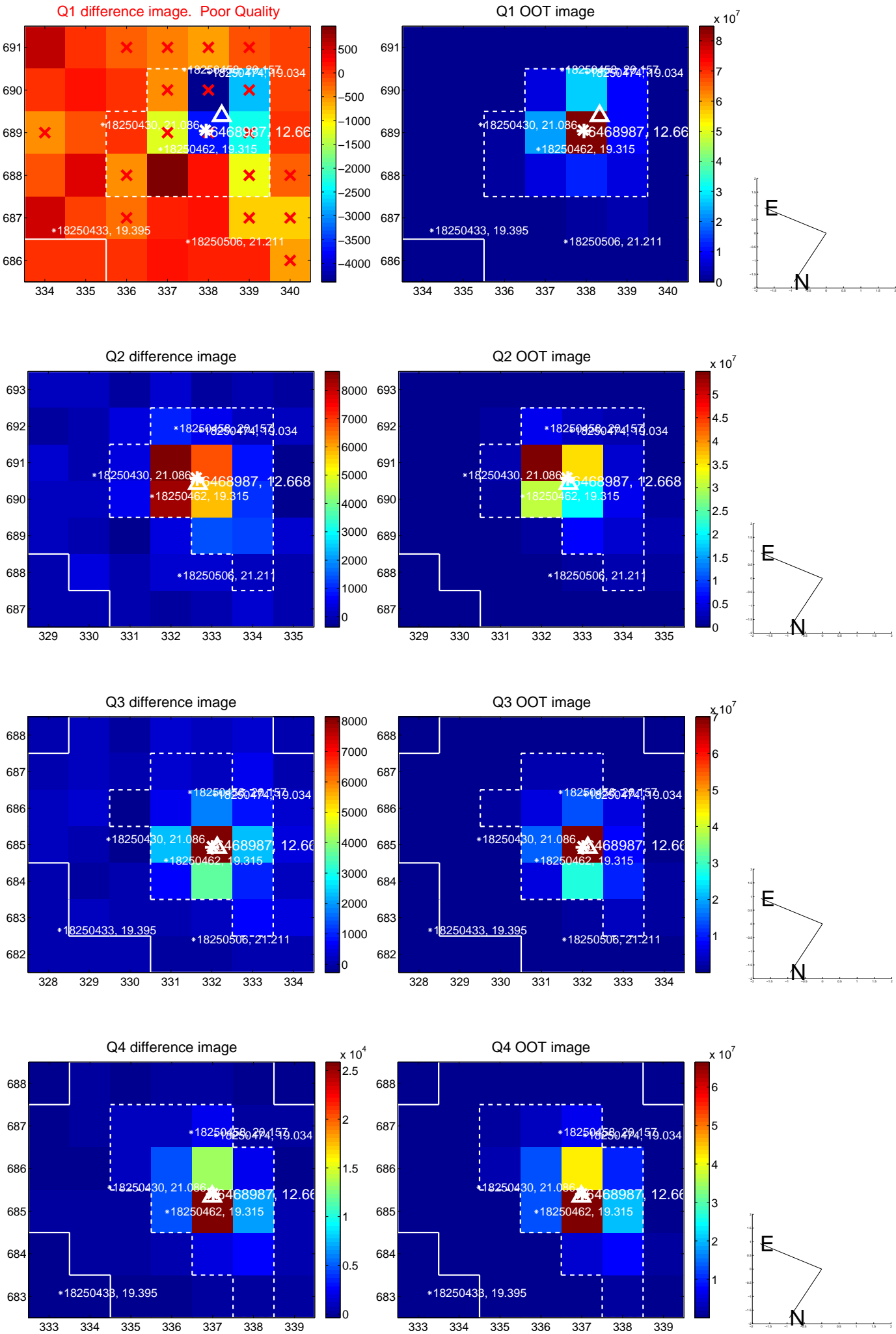
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.362	0.14	-0.001 ± 0.218	0.052 ± 0.361
PRF-fit source offset from KIC position	0.123 ± 0.334	0.37	-0.085 ± 0.211	0.090 ± 0.339
photometric centroid source offset	10.41 ± 3.71	2.81	5.95 ± 4.16	-8.54 ± 3.46

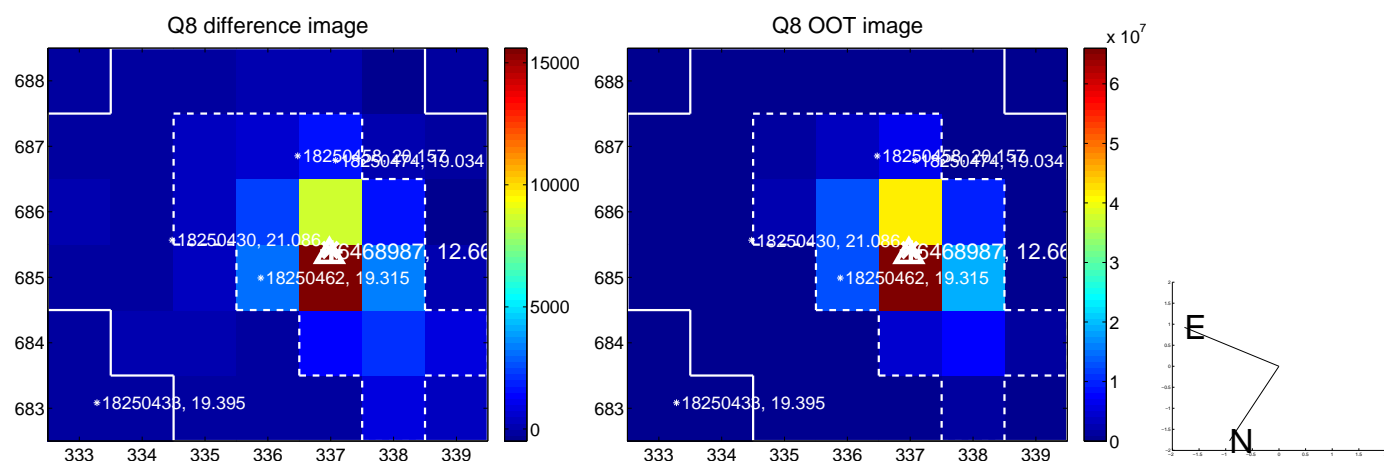
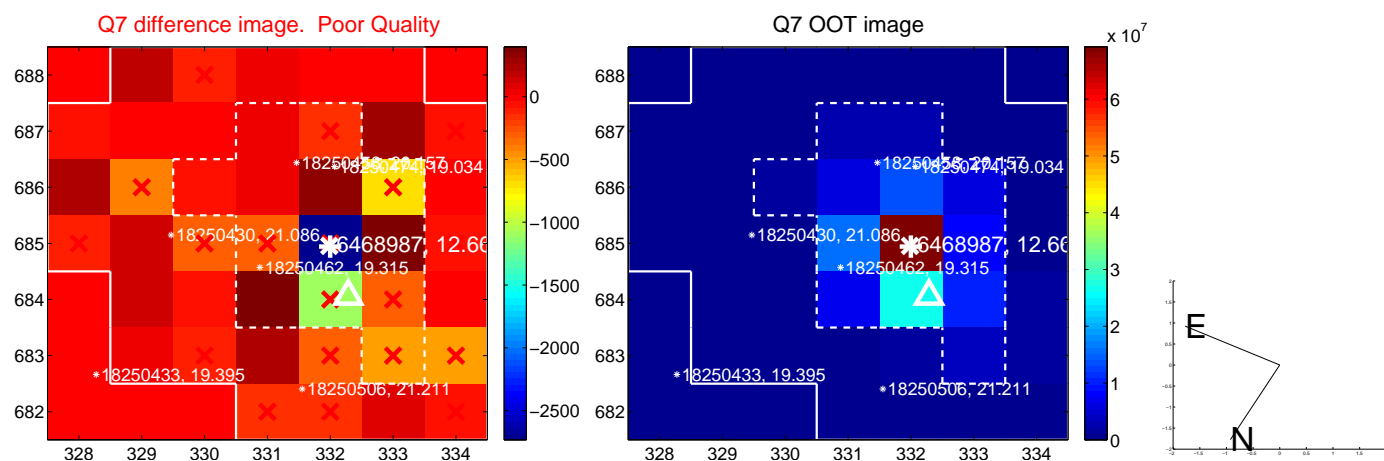
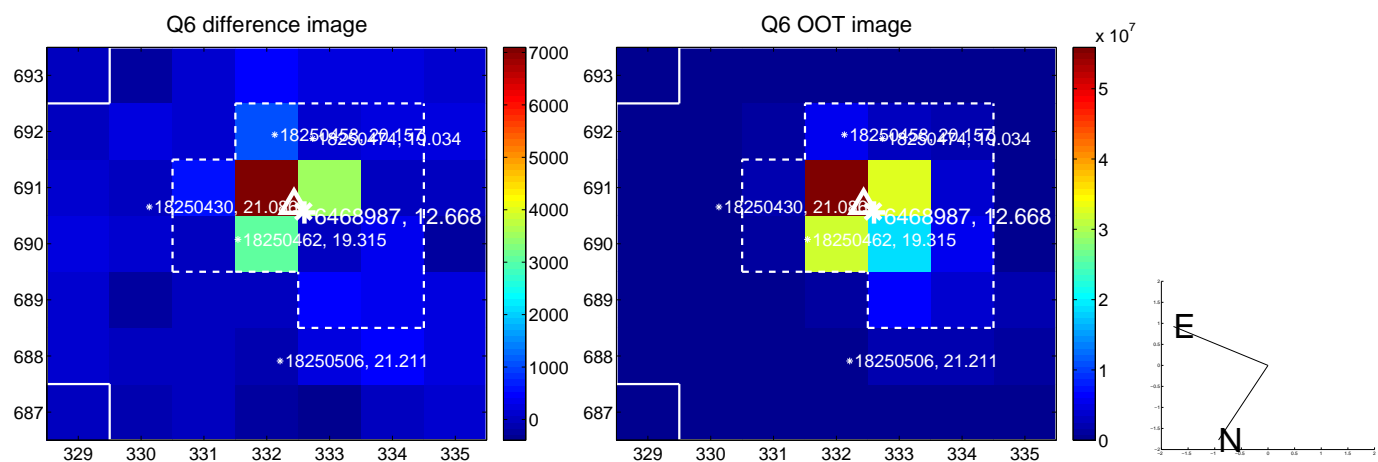
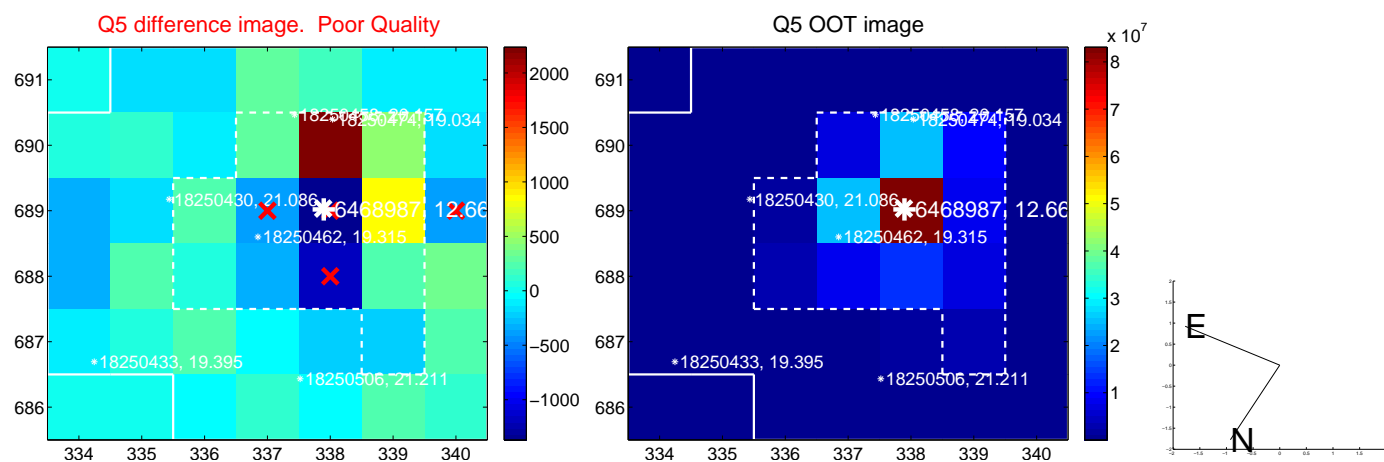


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

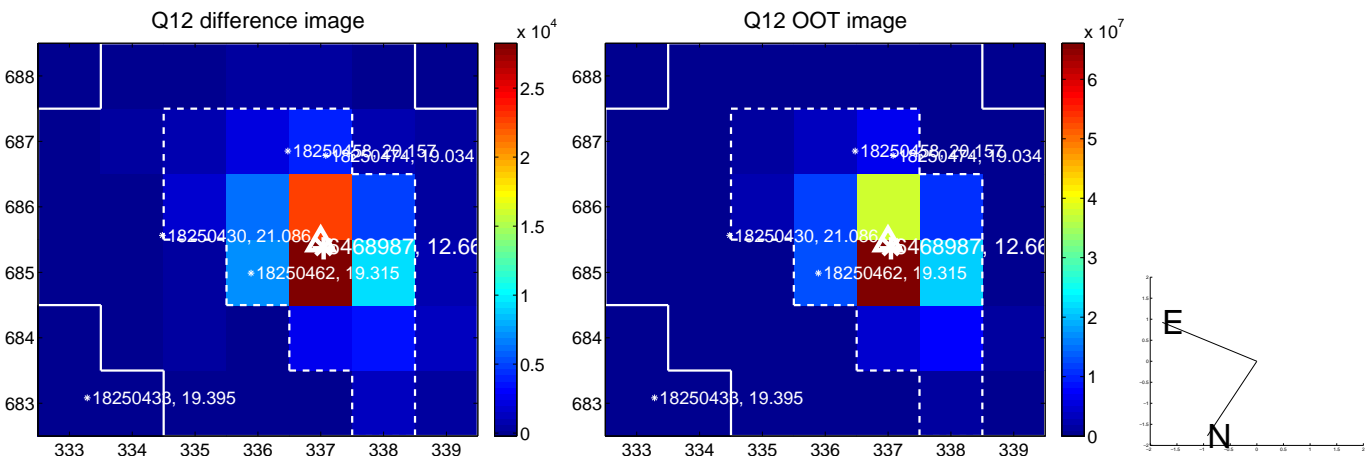
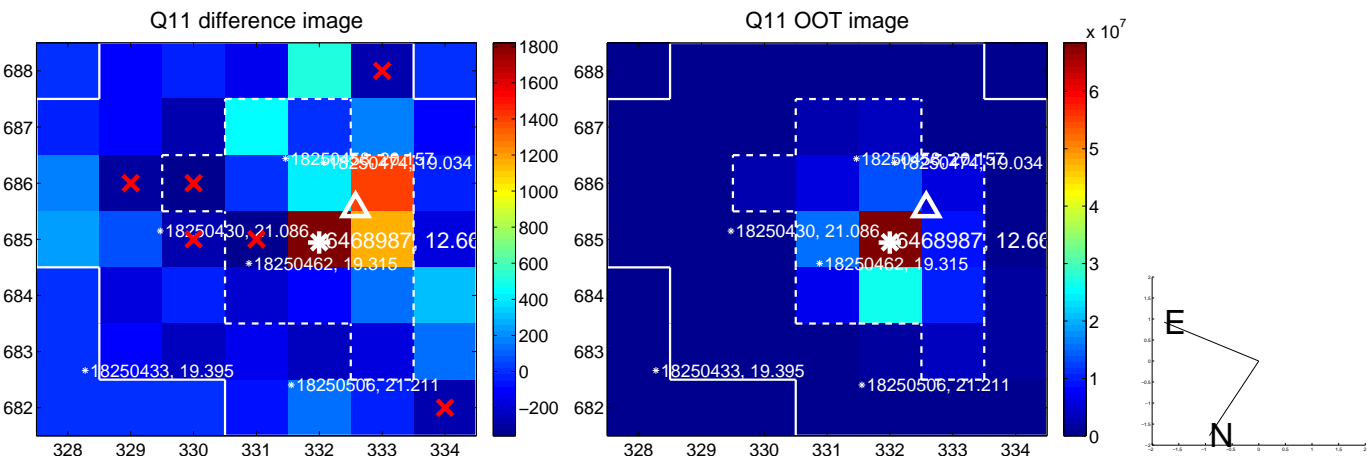
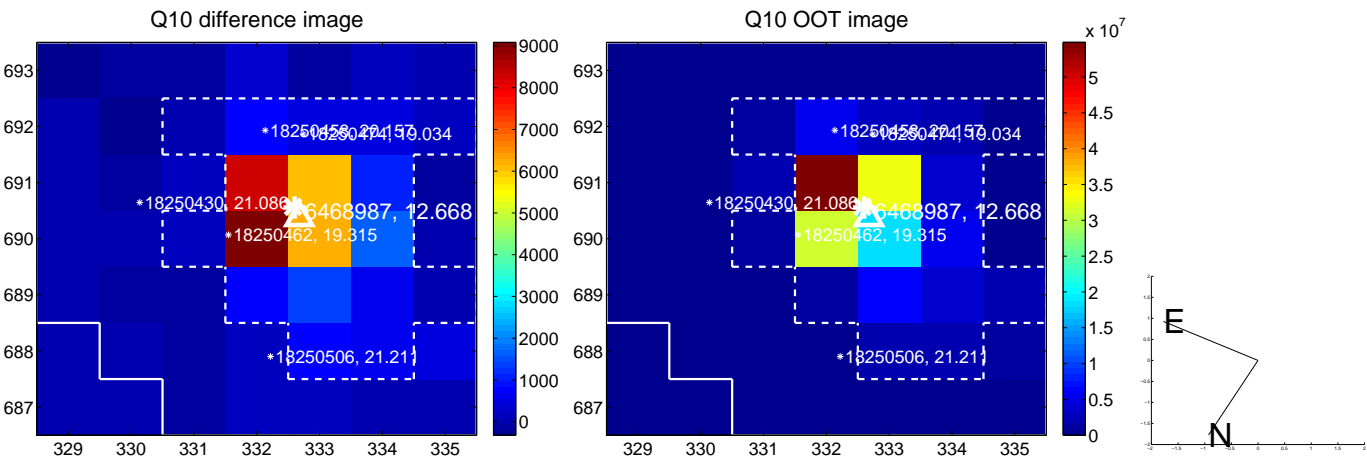
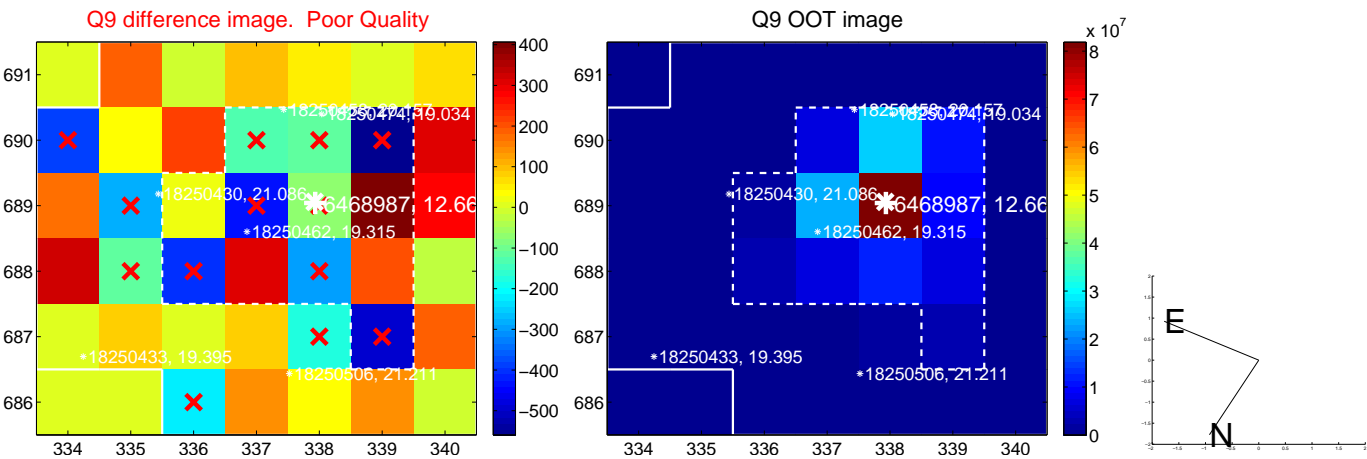
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



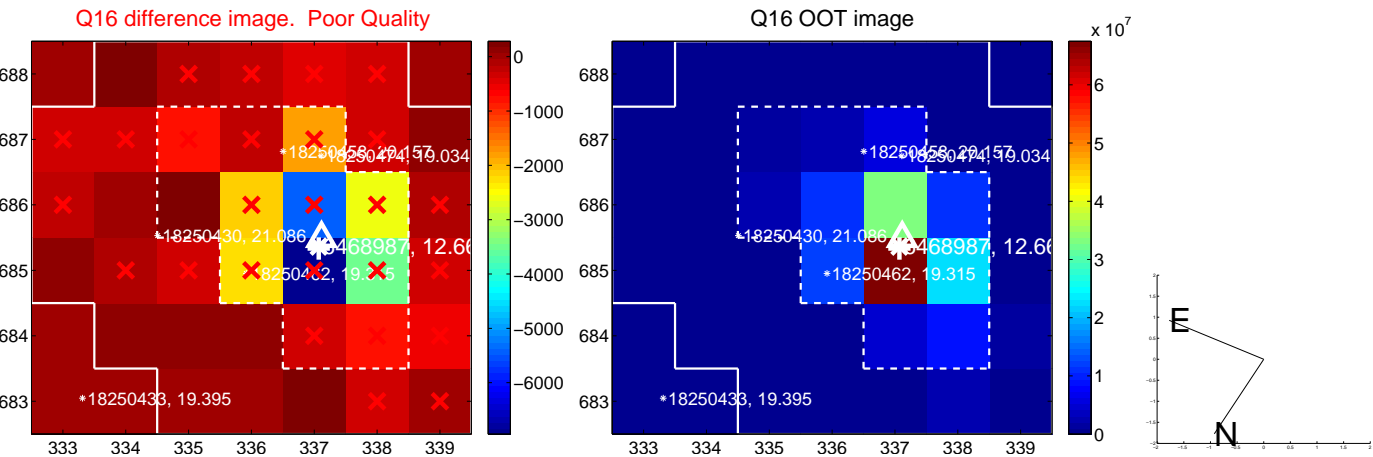
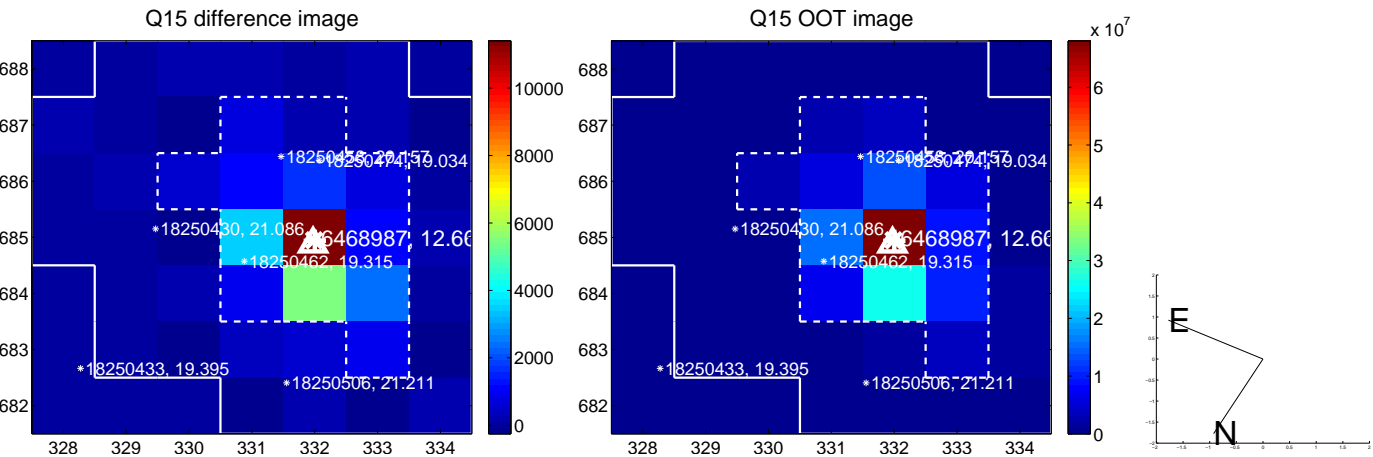
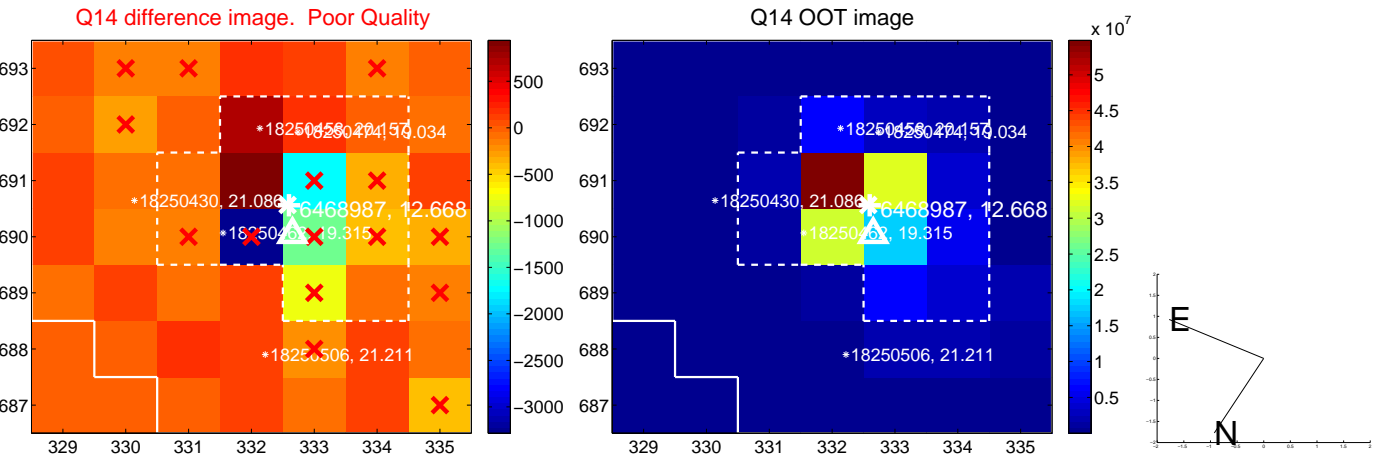
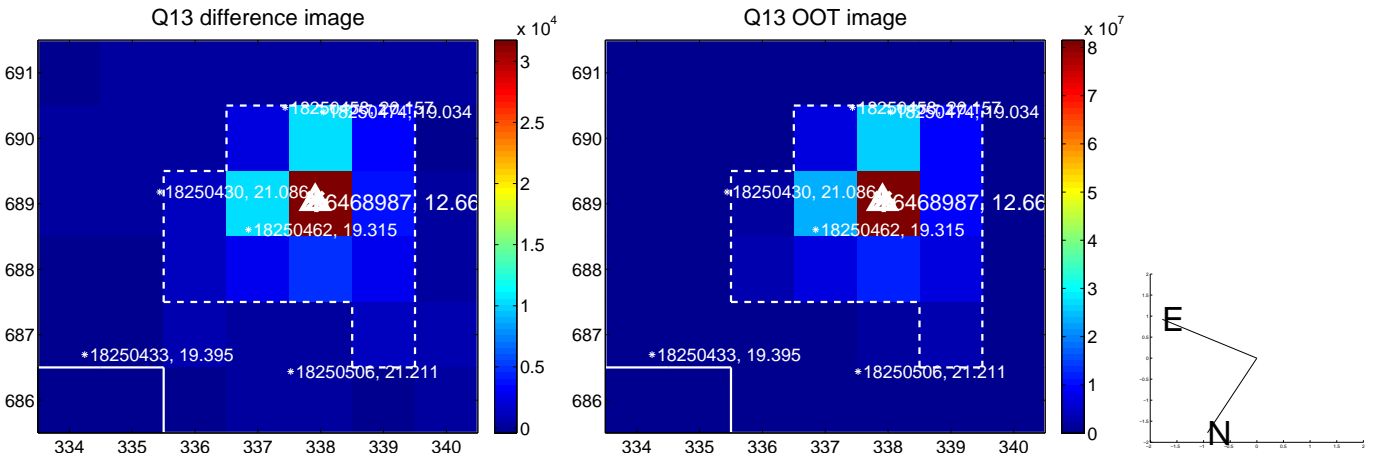
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



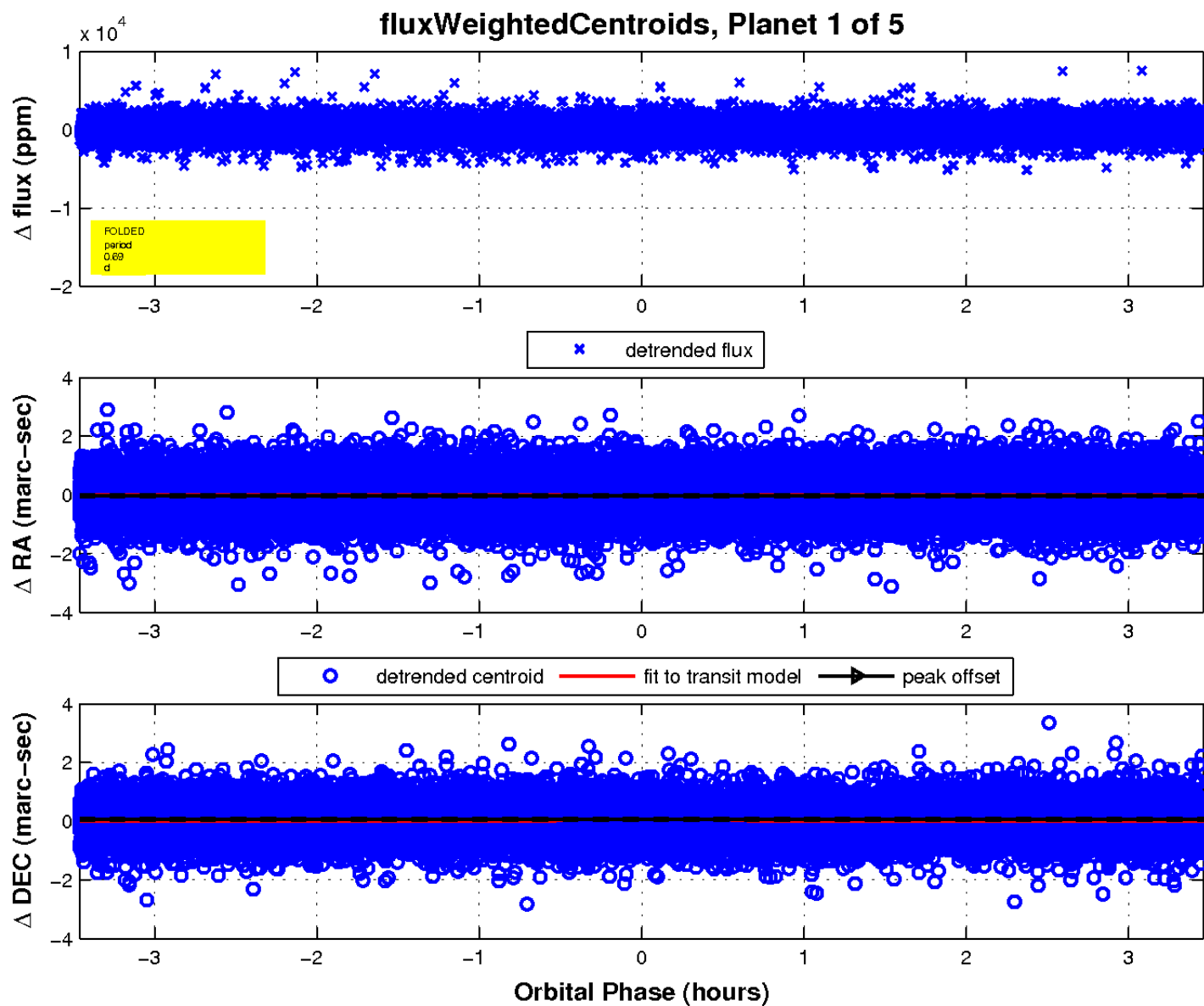
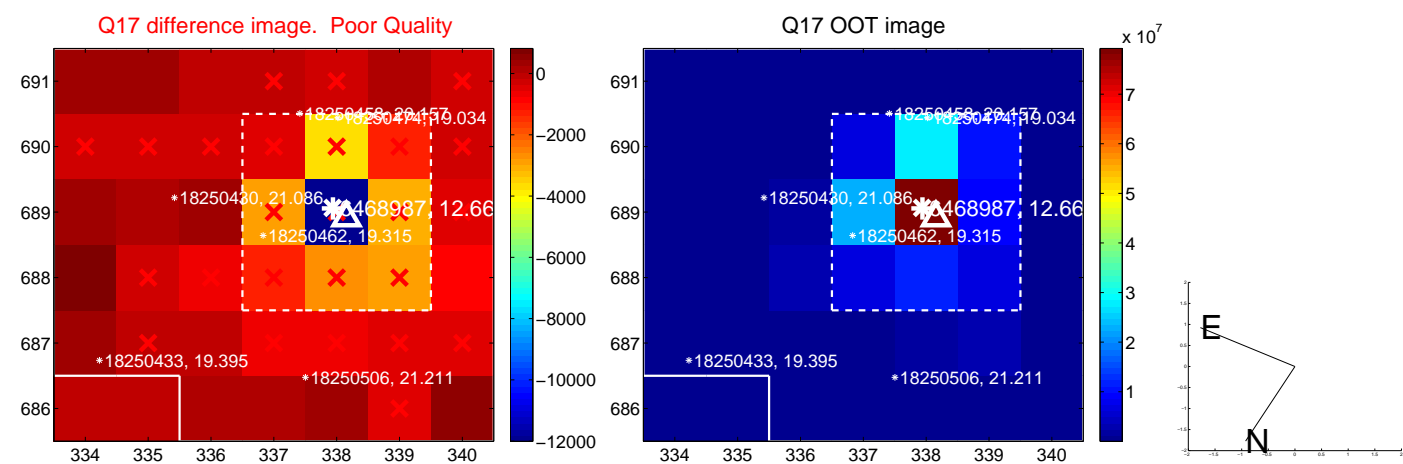
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

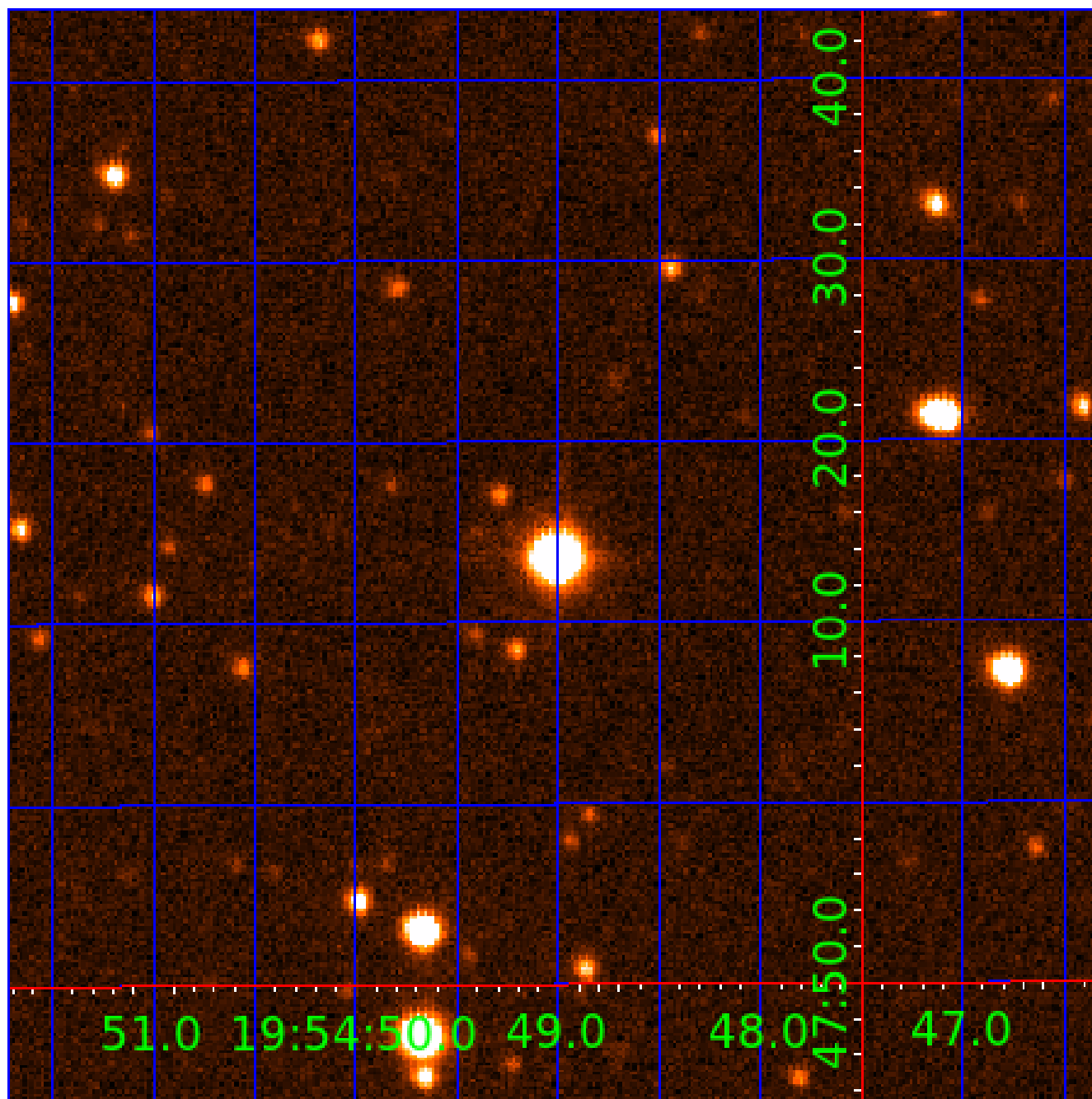


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006468987

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})
006468987-01	OBS	No	0.687446	132.154867	6.7	1.154	9.0	1.4	2.18	7299	0.66	37468.68
006468987-02	OBS	No	0.687487	131.920113	53.3	4.050	9.4	6.6	2.18	7299	1.62	37465.69
006468987-03	OBS	No	2.087202	131.770835	368.9	5.485	8.7	9.5	2.18	7299	6.95	8522.50
006468987-04	OBS	No	58.836472	160.467172	1918.7	4.167	9.3	7.2	2.18	7299	17.52	99.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006468987-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006468987-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
006468987-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006468987-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

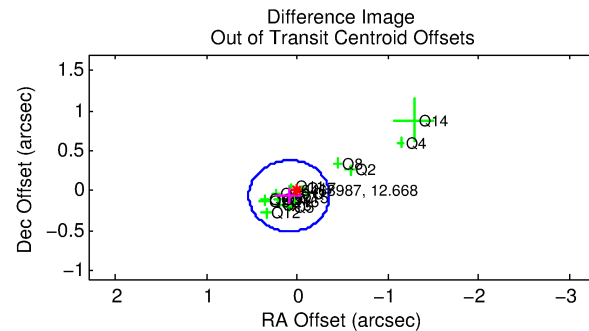
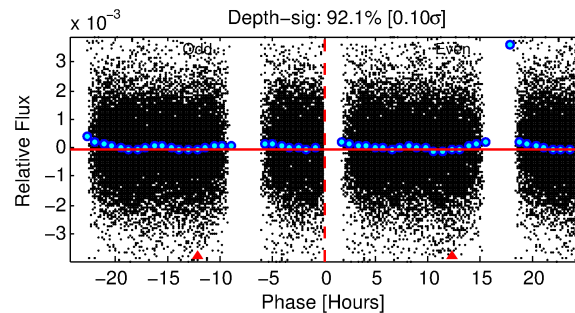
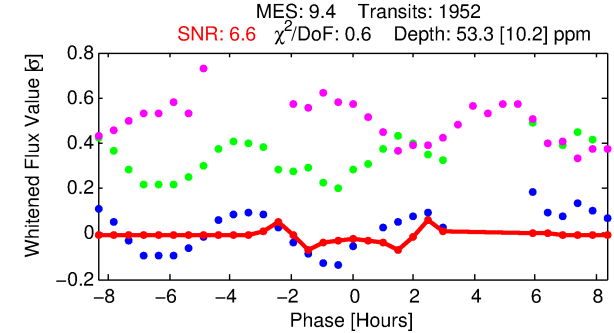
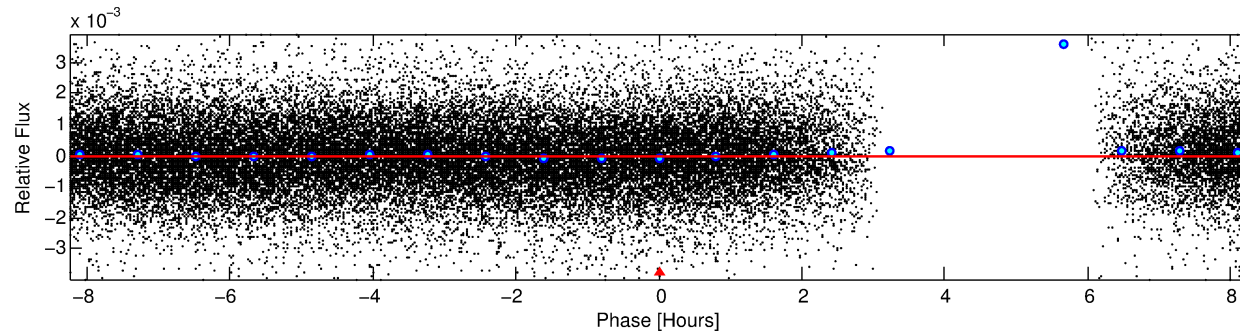
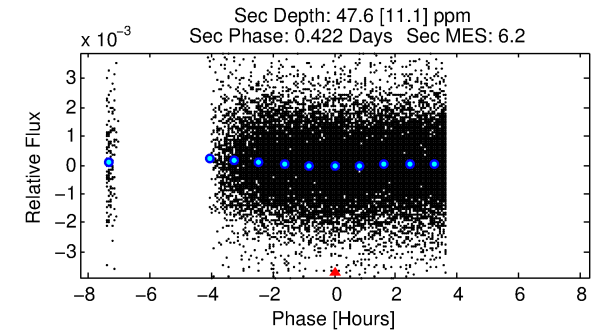
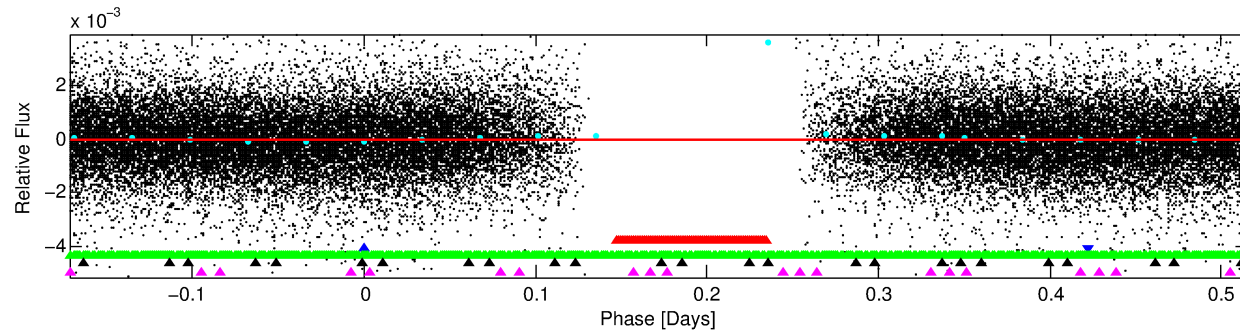
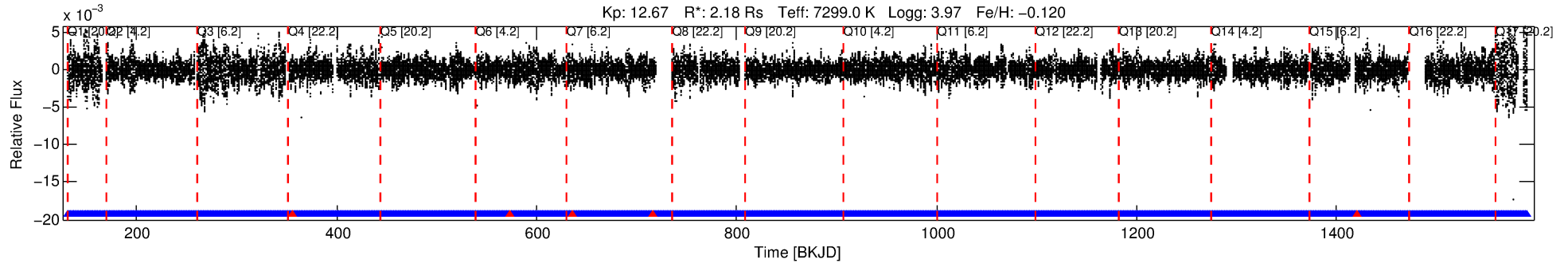
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006468987-02

No Significant Match Found

DV One-Page Summary

KIC: 6468987 Candidate: 2 of 5 Period: 0.687 d



DV Fit Results:

Period = 0.68749 [0.00002] d
Epoch = 131.9201 [0.0019] BKJD
Rp/R* = 0.0068 [0.0025]
a/R* = 1.41 [1.50]
b = 0.30 [6.51]
Seff = 37465.69 [17058.94]
Teq = 3548 [404] K
Rp = 1.62 [0.78] Re
a = 0.0179 [0.0050] AU
Ag = 3.22 [2.83] [0.78σ]
Teffp = 7345 [1448] K [2.53σ]

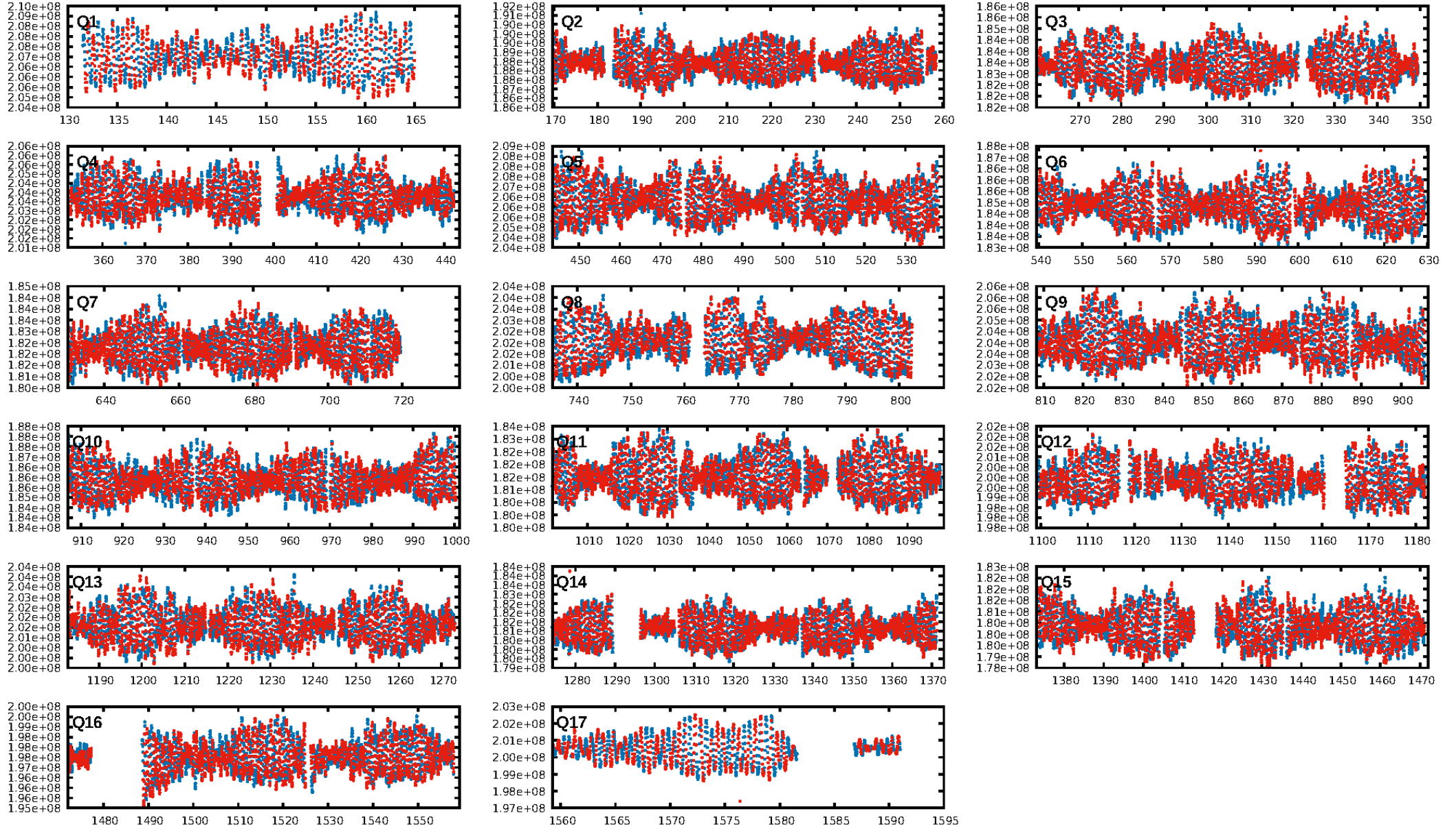
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [4.93σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1860/1865]
GhostDiagnostic-chr: 1.184
Centroid-sig: 18.2%
Centroid-so: 0.506 arcsec [1.67σ]
OotOffset-rm: 0.111 arcsec [0.75σ]
KicOffset-rm: 0.041 arcsec [0.28σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

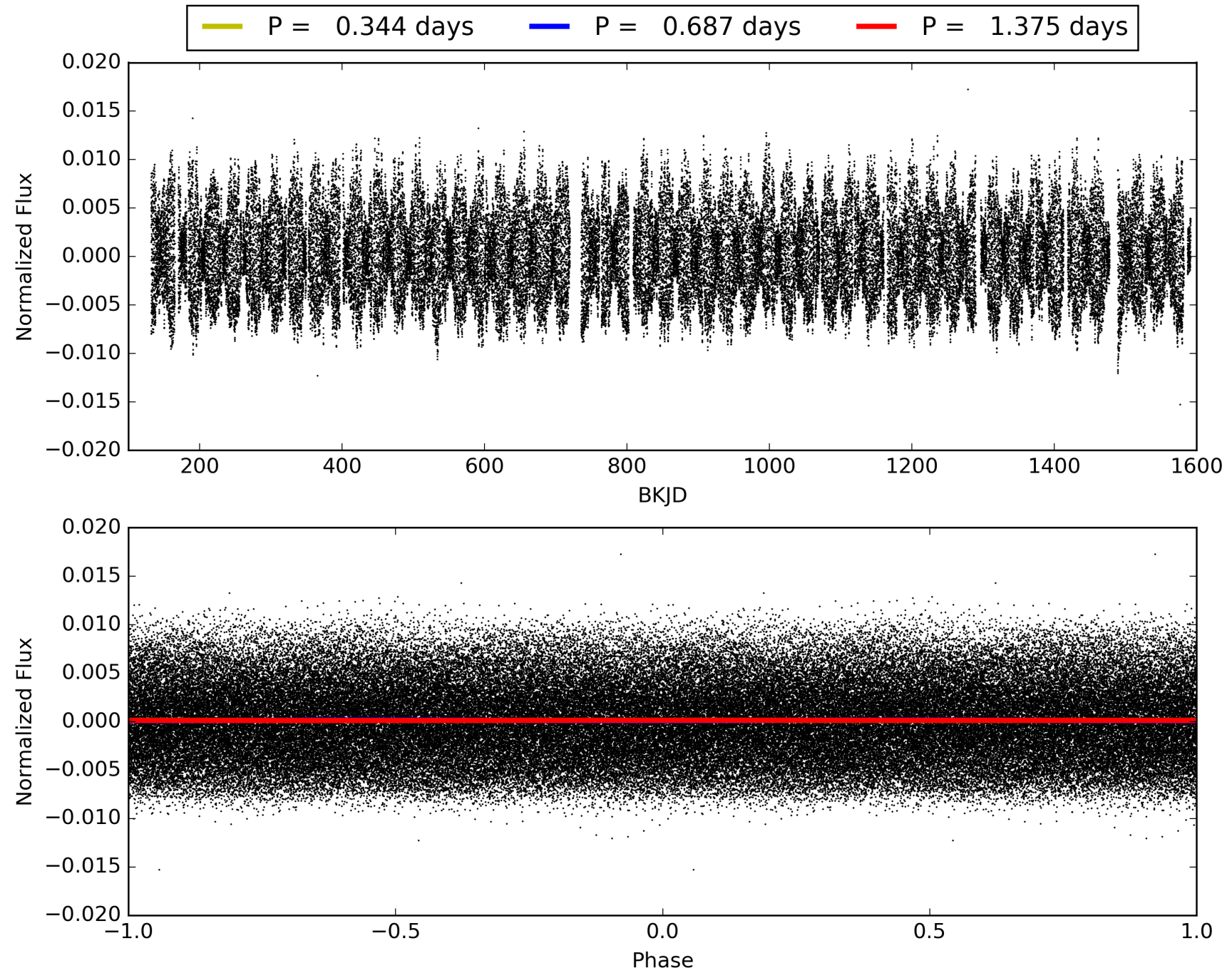
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:41 Z

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

TCE 006468987-02, PDC Light Curves

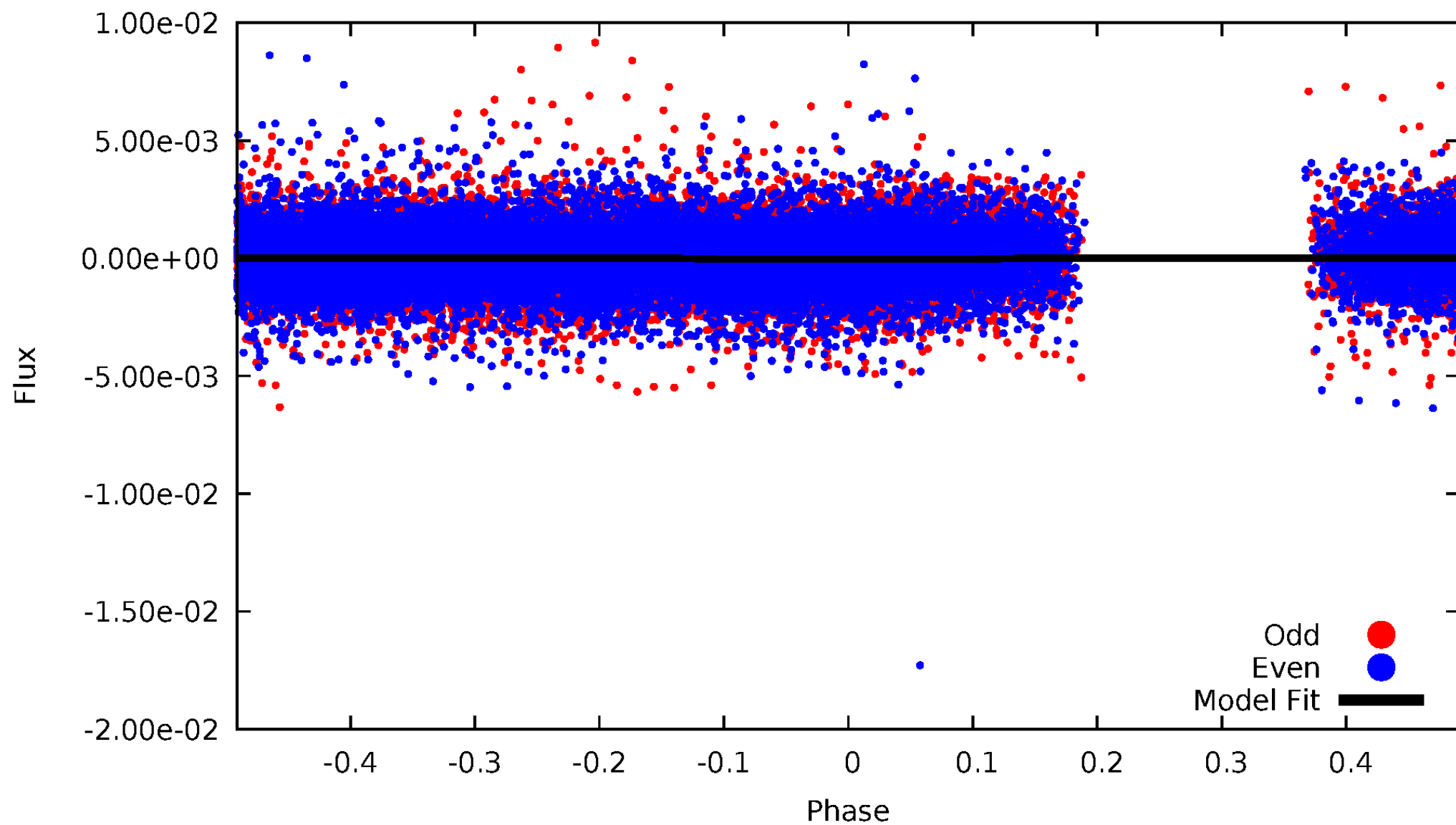


TCE 006468987-02



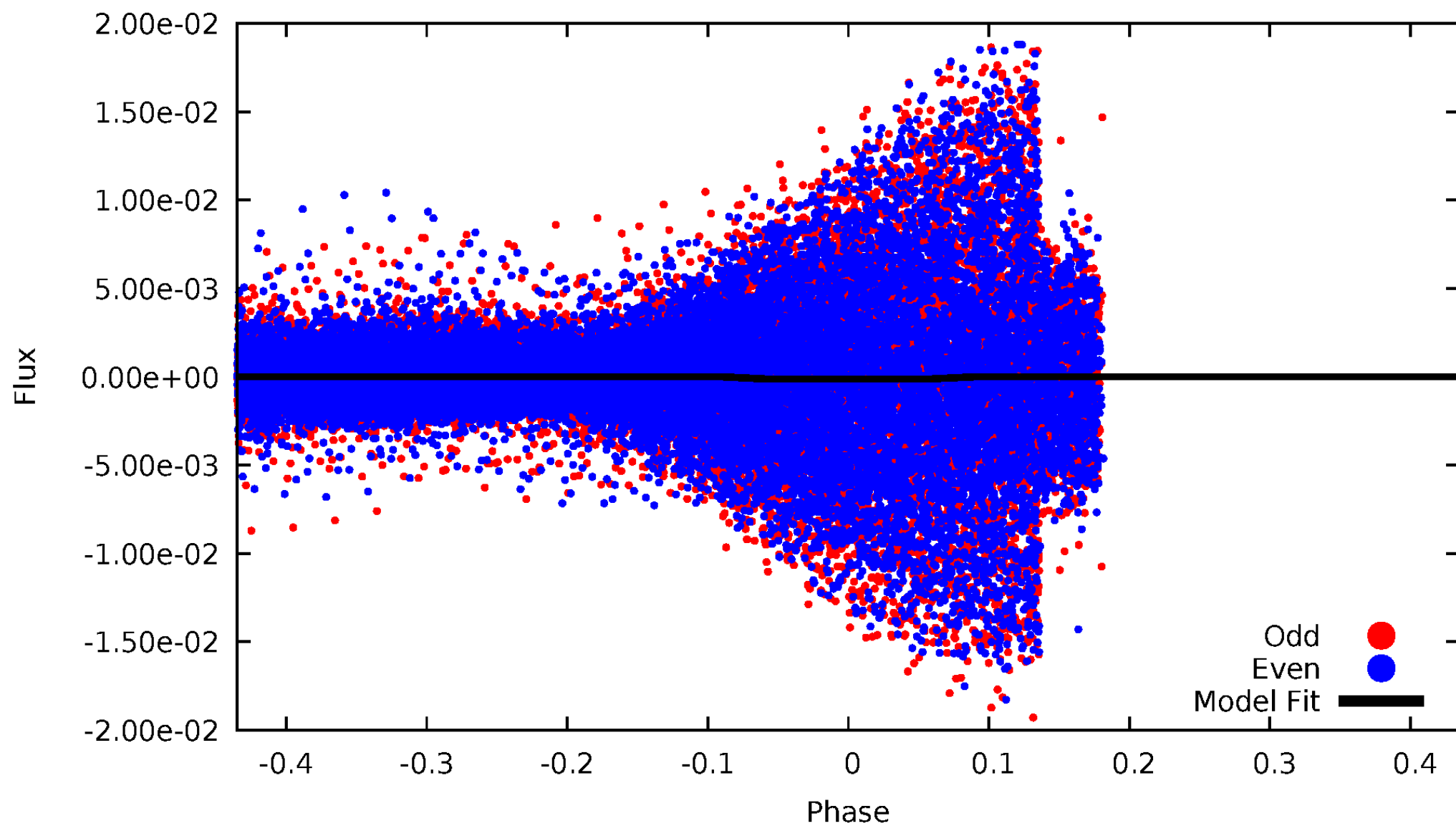
DV Odd/Even

TCE 006468987-02



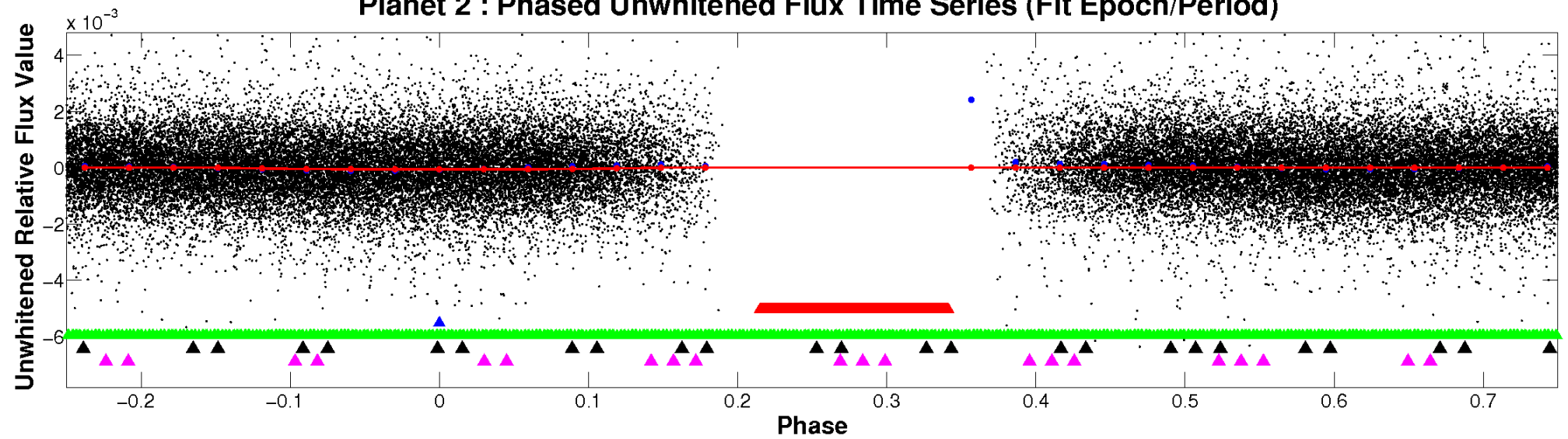
ALT Odd/Even

TCE 006468987-02

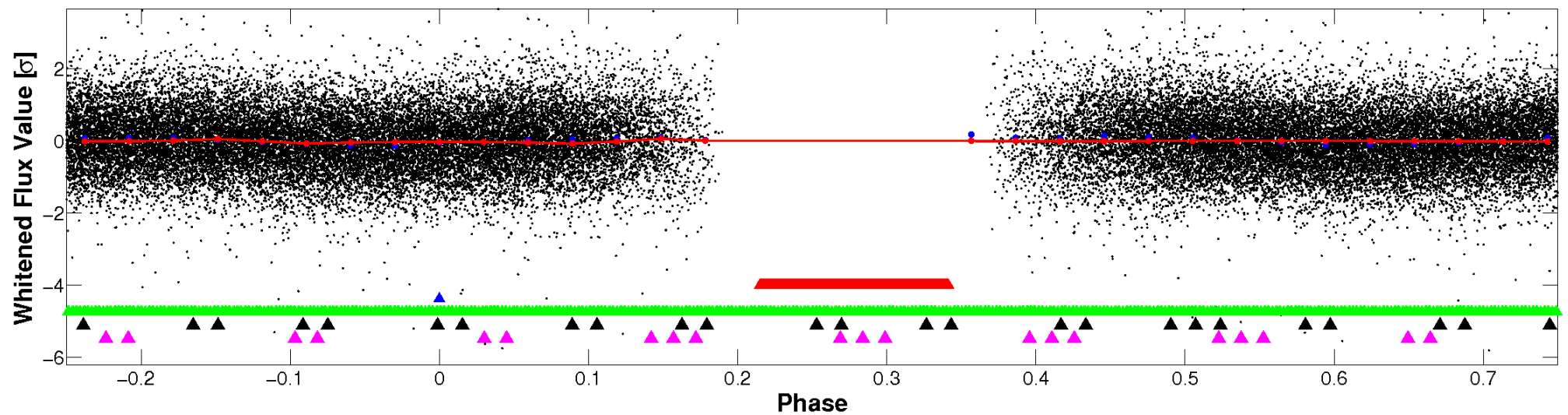


Non-Whitened Vs. Whitened Light Curve

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

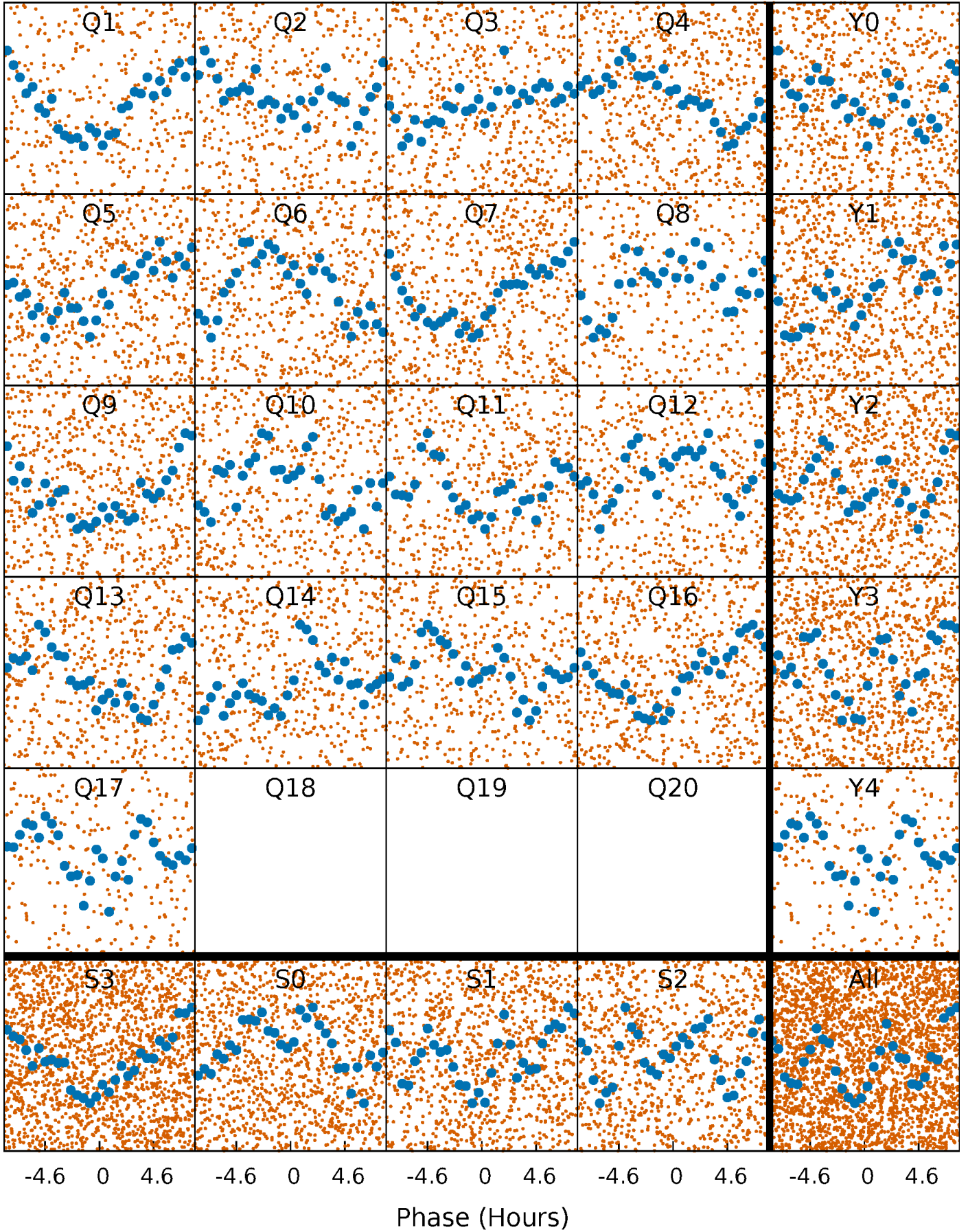


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



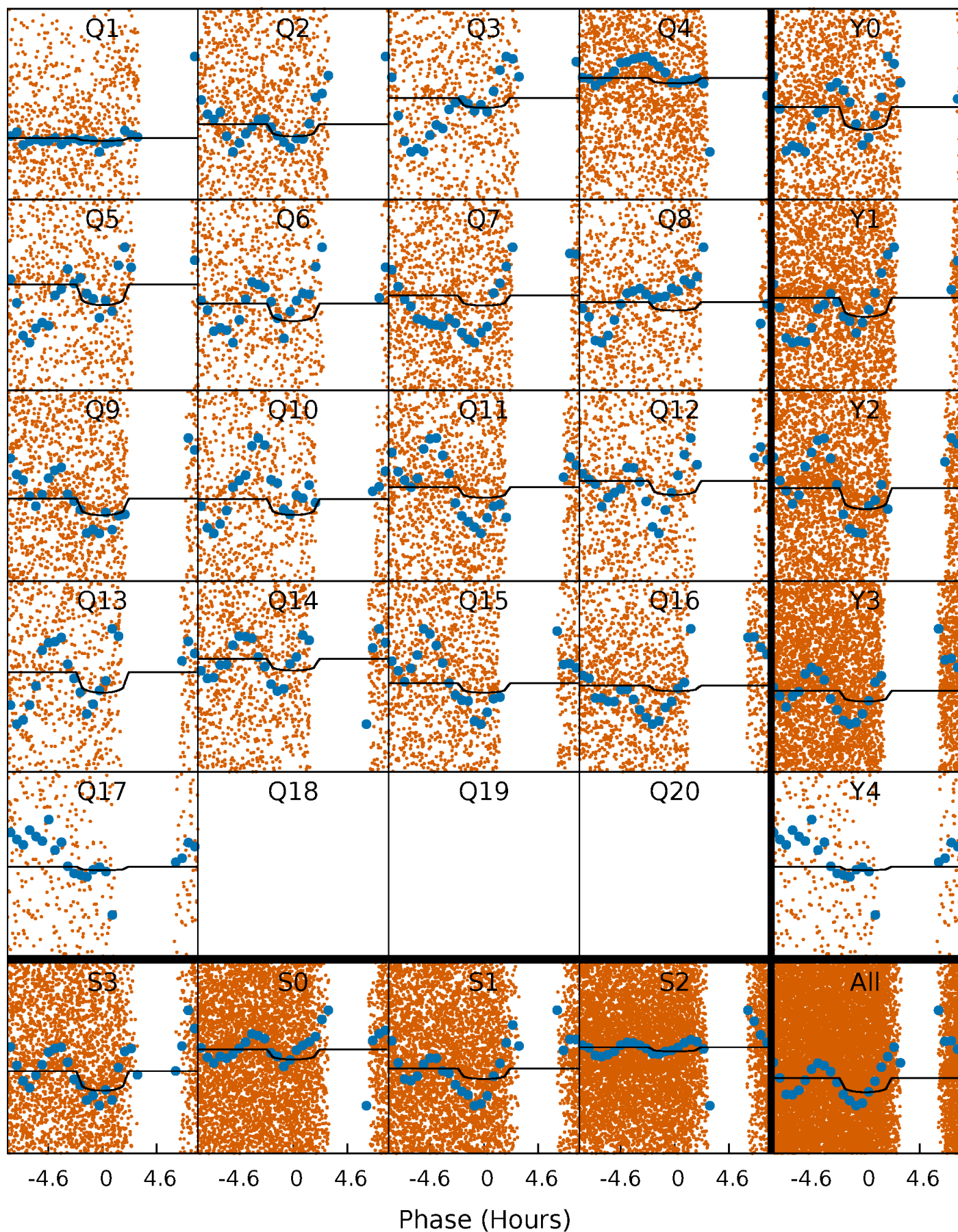
PDC Quarter-Phased Transit Curves

TCE 006468987-02 $P = 0.687487$ Days $T_0 = 131.920113$ (BKJD)



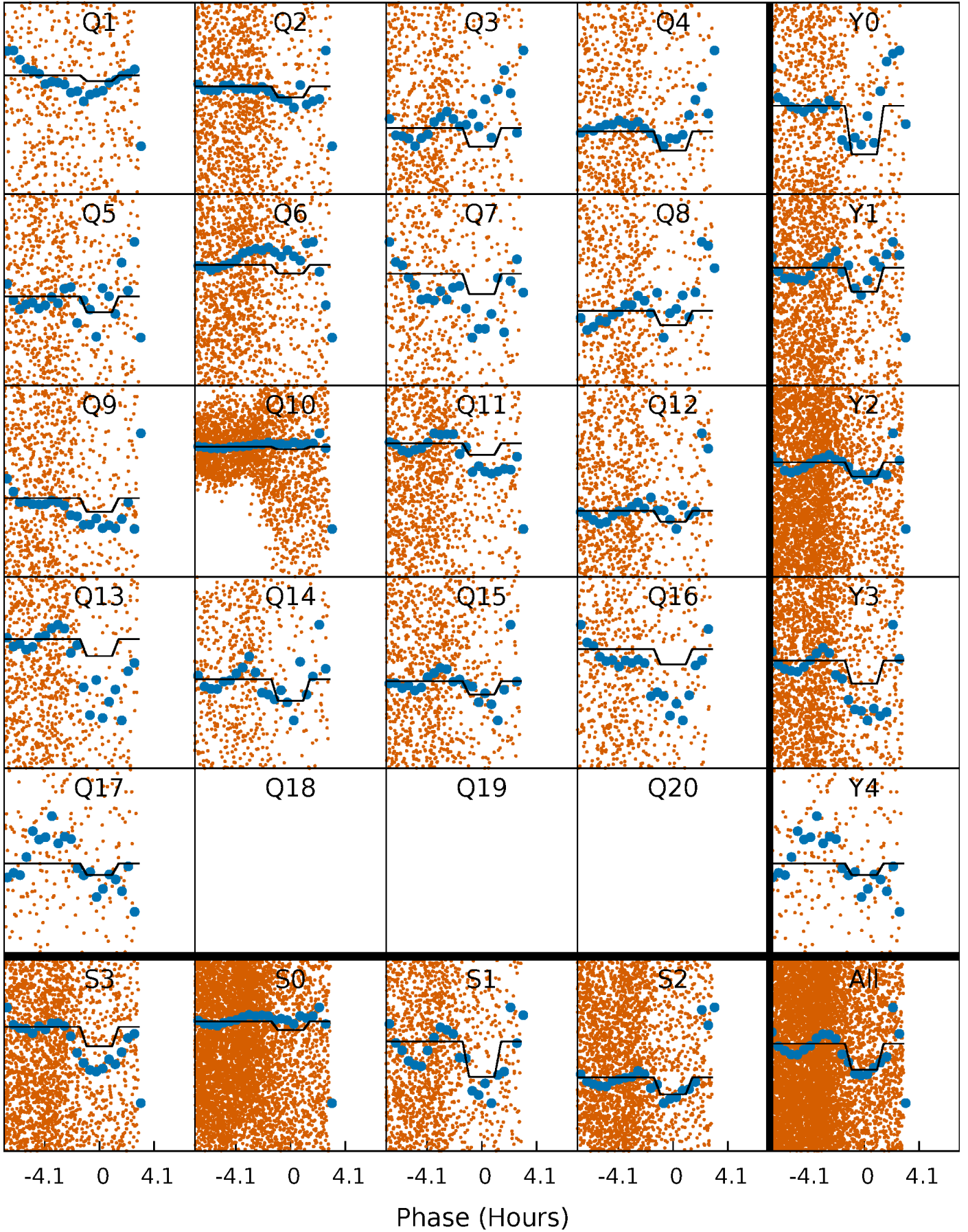
DV Quarter-Phased Transit Curves

TCE 006468987-02 P= 0.687487 Days $T_0=131.920113$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

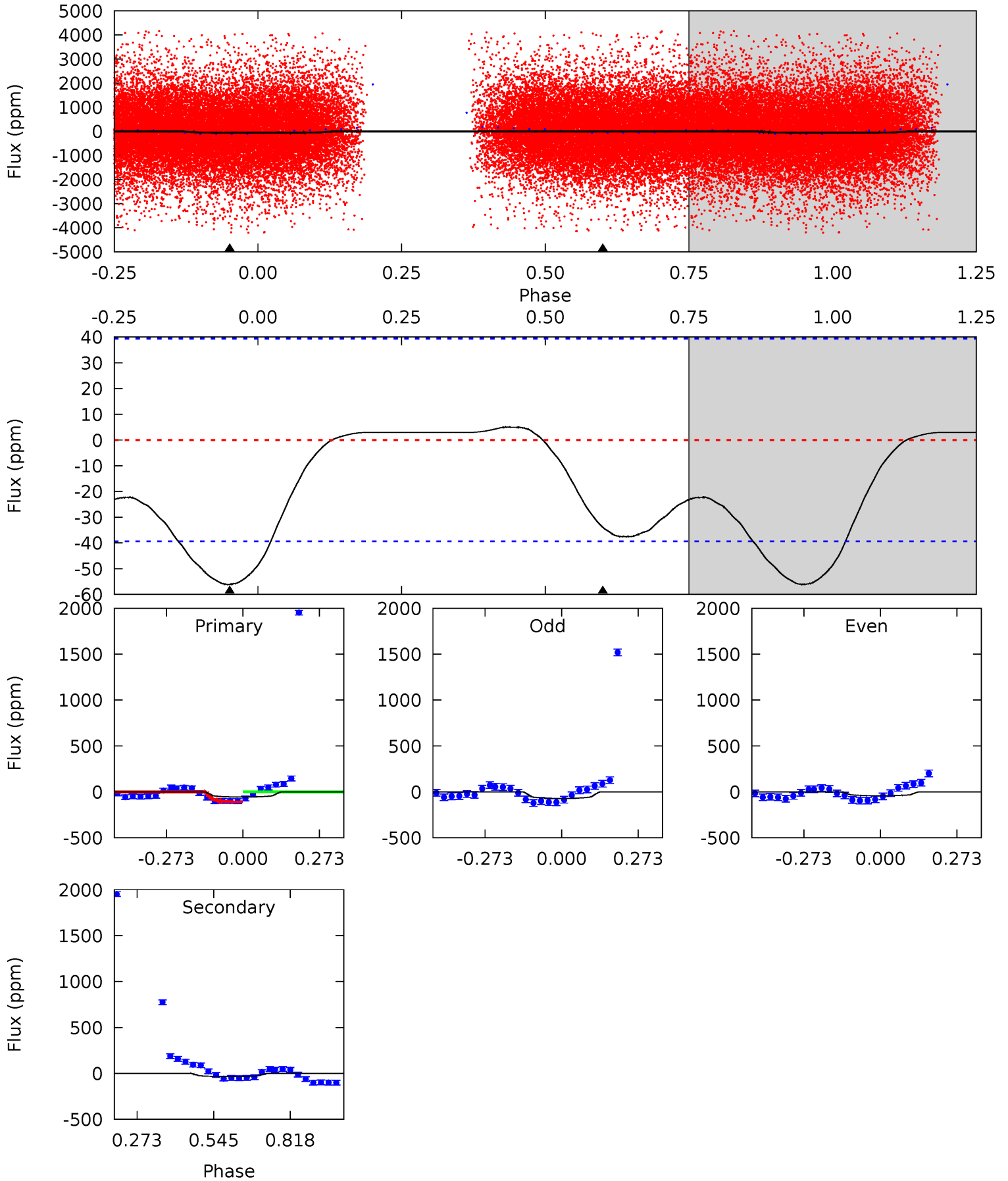
TCE 006468987-02 $P = 0.687450$ Days $T_0 = 131.925861$ (BKJD)



DV Model-Shift Uniqueness Test

006468987-02, P = 0.687487 Days, E = 131.232626 Days

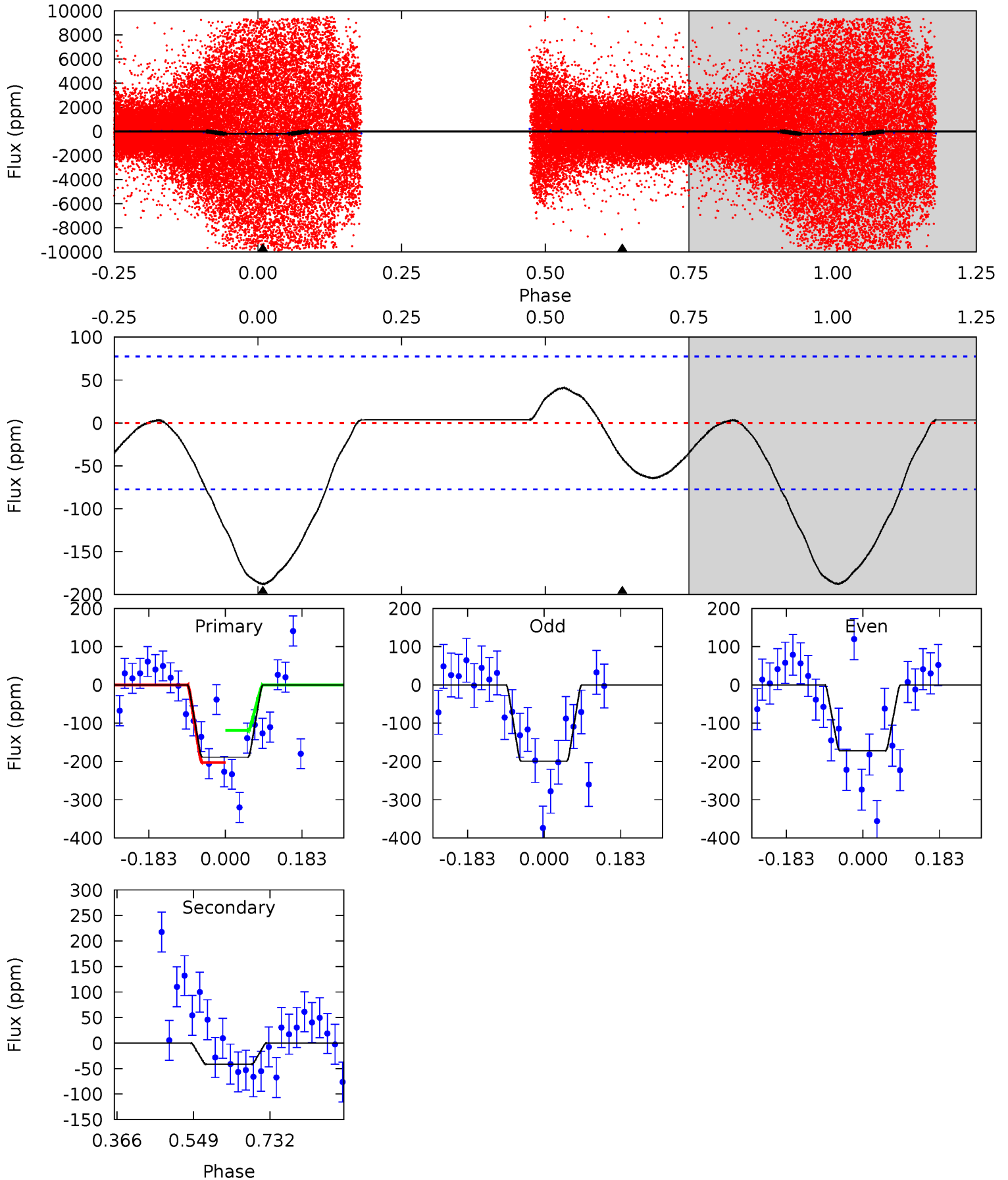
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.20	3.74	0	0	4.35	1.10	1.33	6.20	6.20	3.74	3.74	1.65	1.28	0.08	6.42



Alt Model-Shift Uniqueness Test

006468987-02, P = 0.687450 Days, E = 131.238411 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	2.37	0	0	4.44	1.33	0.18	10.8	10.8	2.37	2.37	0.81	0.55	0.18	1.62



Stellar Parameters For KIC 006468987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7299^{+228}_{-304}	$3.974^{+0.240}_{-0.160}$	$-0.120^{+0.250}_{-0.350}$	$2.178^{+0.560}_{-0.684}$	$1.628^{+0.199}_{-0.323}$	$0.222^{+0.329}_{-0.101}$
	+3%/-4%	+6%/-4%	+208%/-292%	+26%/-31%	+12%/-20%	+148%/-45%
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 006468987-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 9	$1.54^{+0.71}_{-0.59}$	4895^{+382}_{-420}	6355^{+2361}_{-1203}	$2.423^{+4.184}_{-1.354}$
Alt.	-41 ± 17	$2.65^{+0.76}_{-0.66}$	4949^{+382}_{-418}	4952^{+1047}_{-1113}	$0.965^{+1.082}_{-0.513}$

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

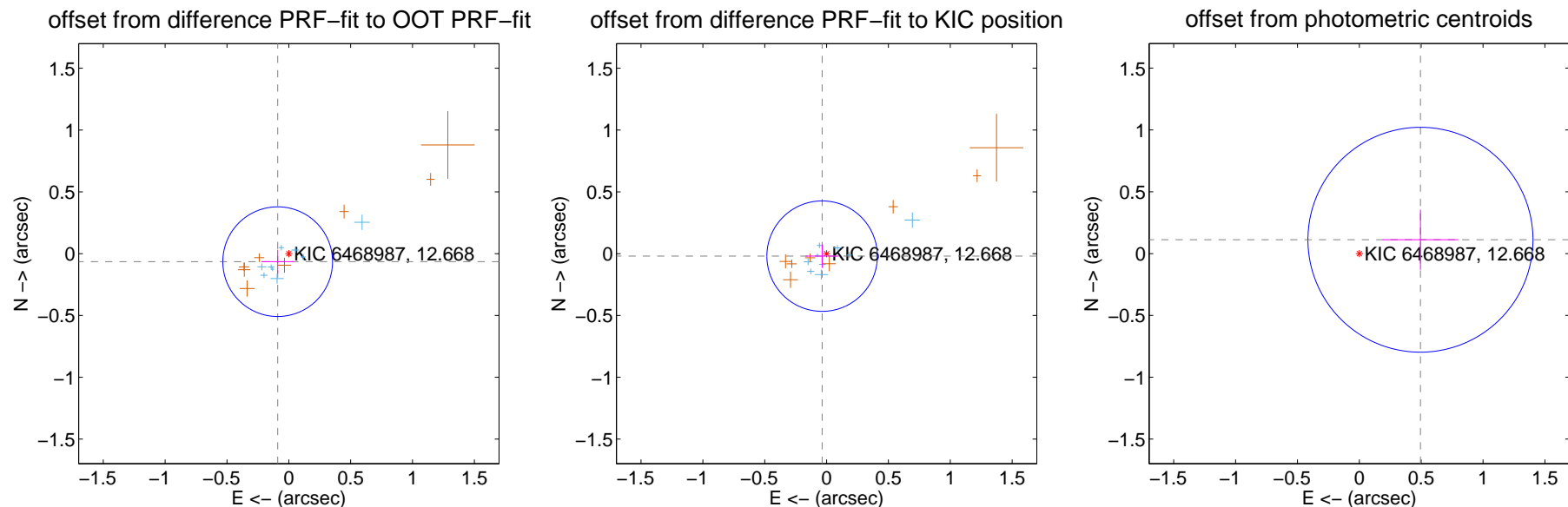
DV Centroid Data

Supplemental centroid analysis for 006468987-02. Kepler magnitude: 12.67. Transit SNR 6.63

There are 9 quarters with good PRF difference image offsets

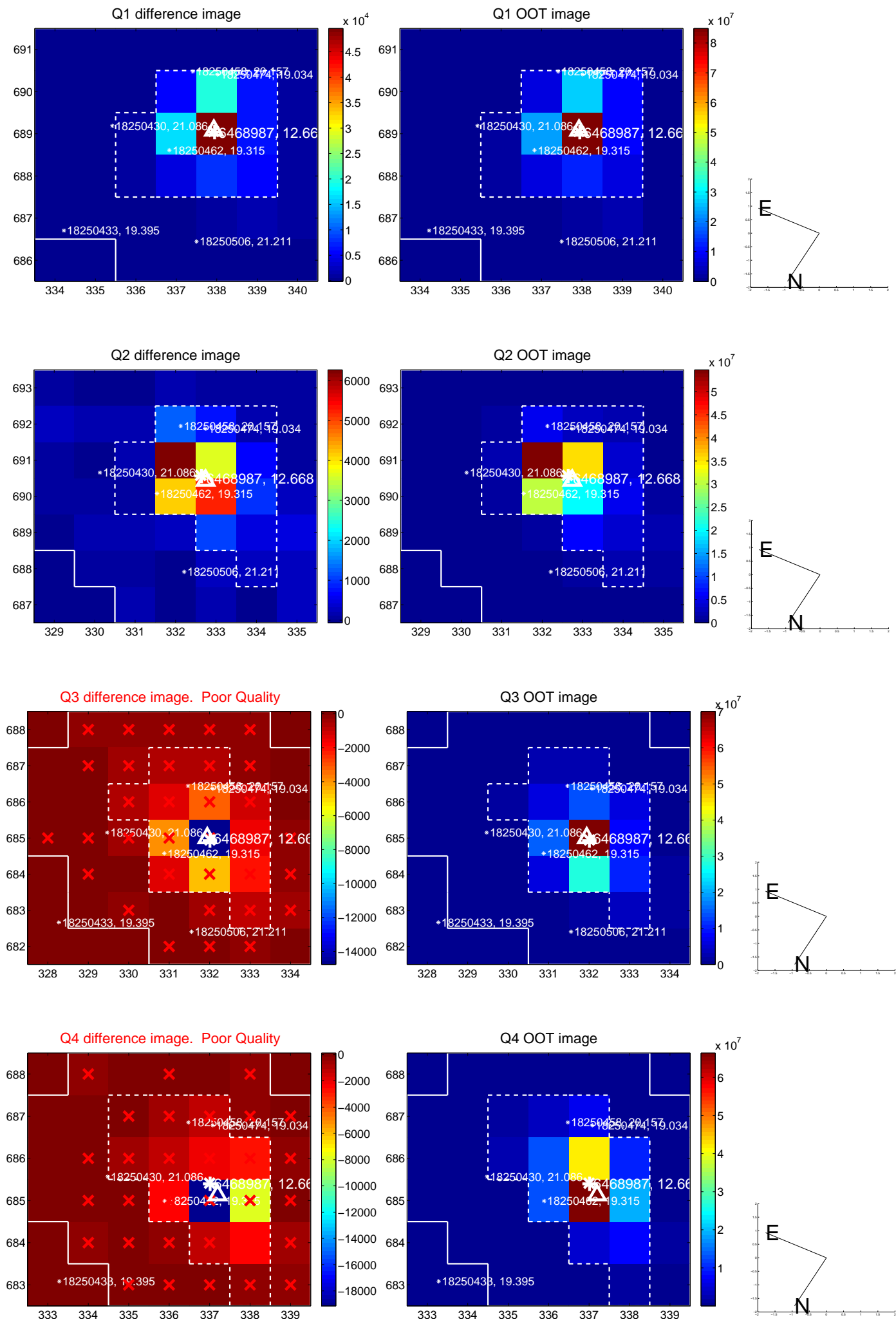
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.111 ± 0.148	0.75	0.090 ± 0.132	-0.065 ± 0.096
PRF-fit source offset from KIC position	0.041 ± 0.149	0.28	0.036 ± 0.134	-0.020 ± 0.095
photometric centroid source offset	0.51 ± 0.30	1.67	-0.49 ± 0.31	0.11 ± 0.24

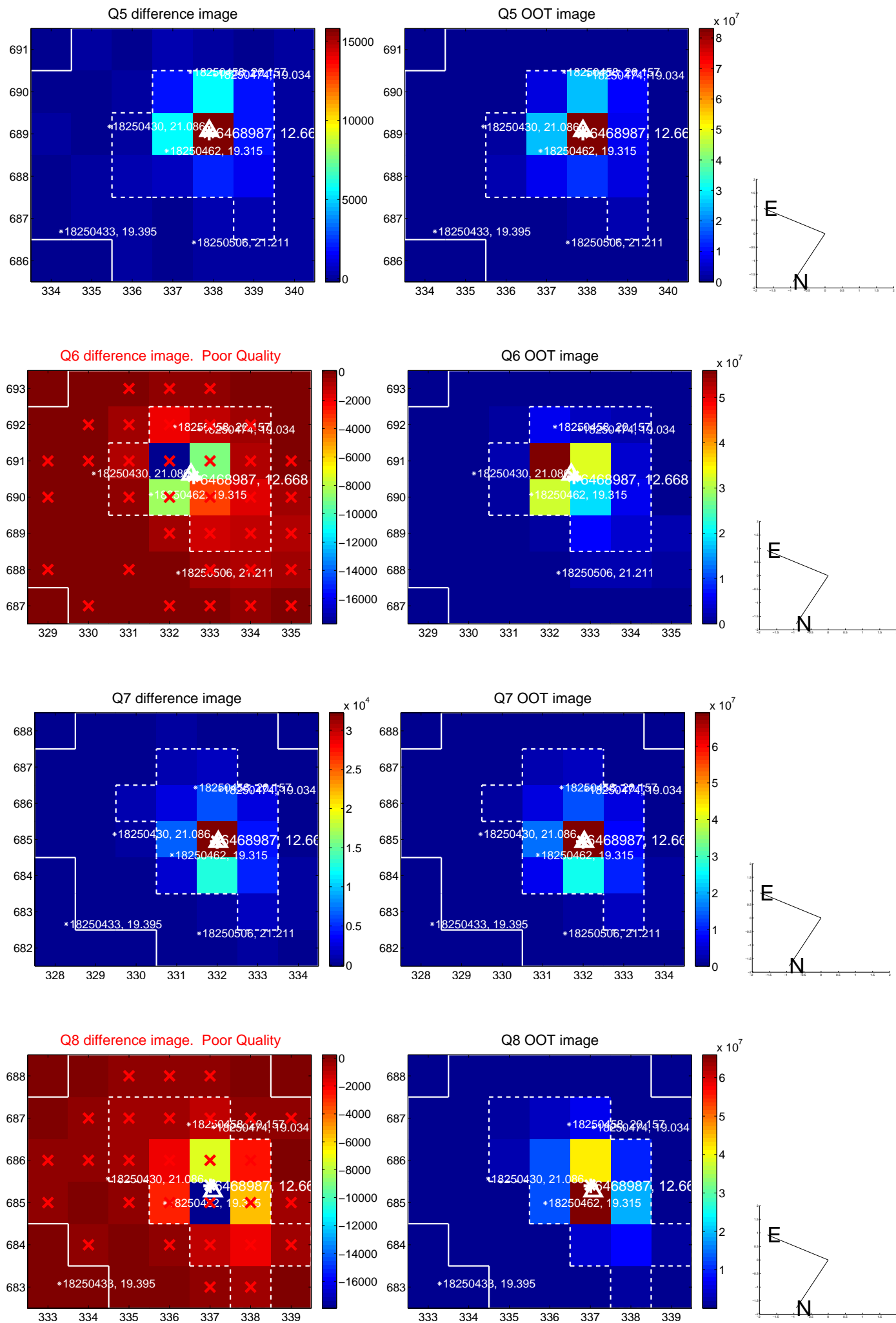


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

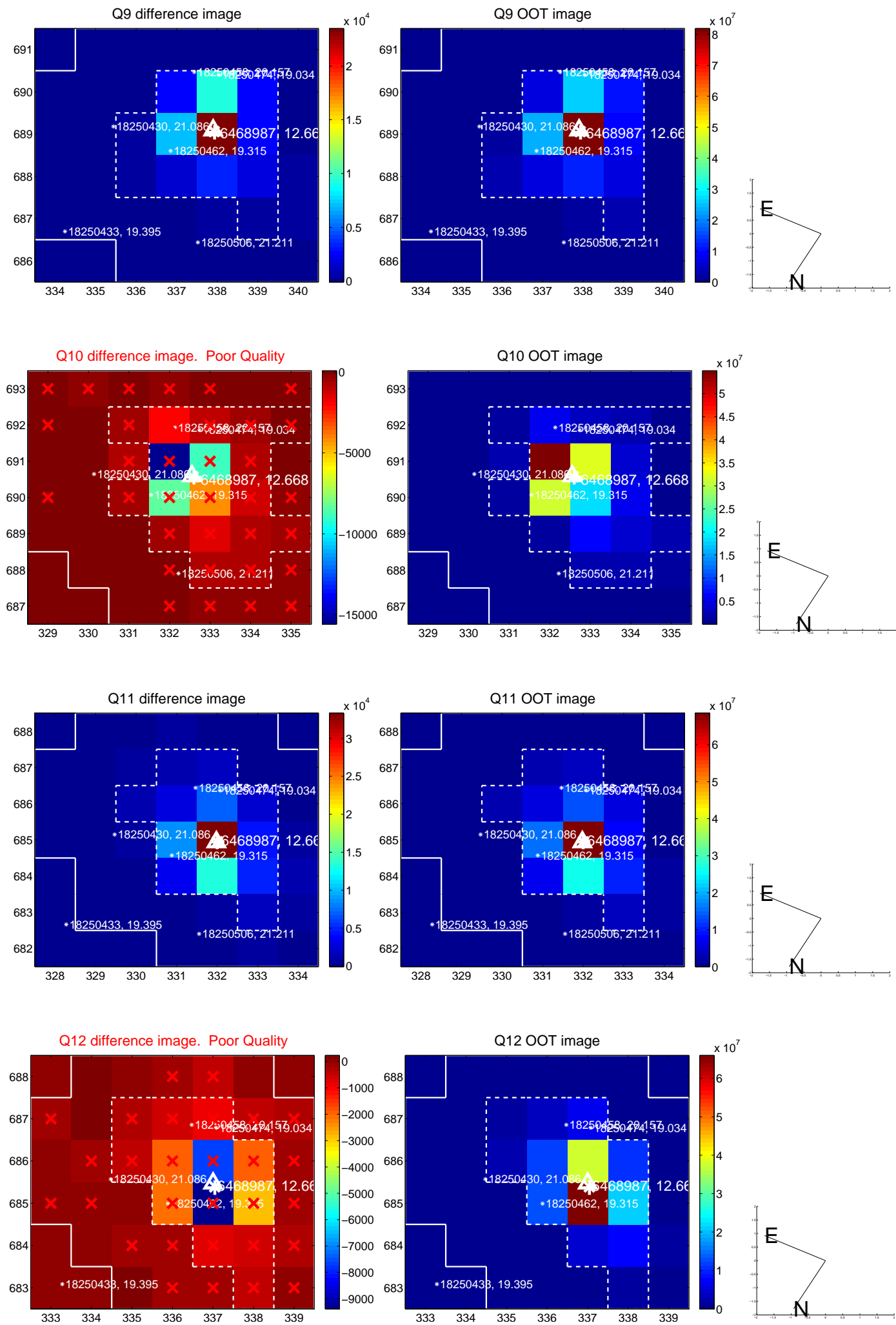
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



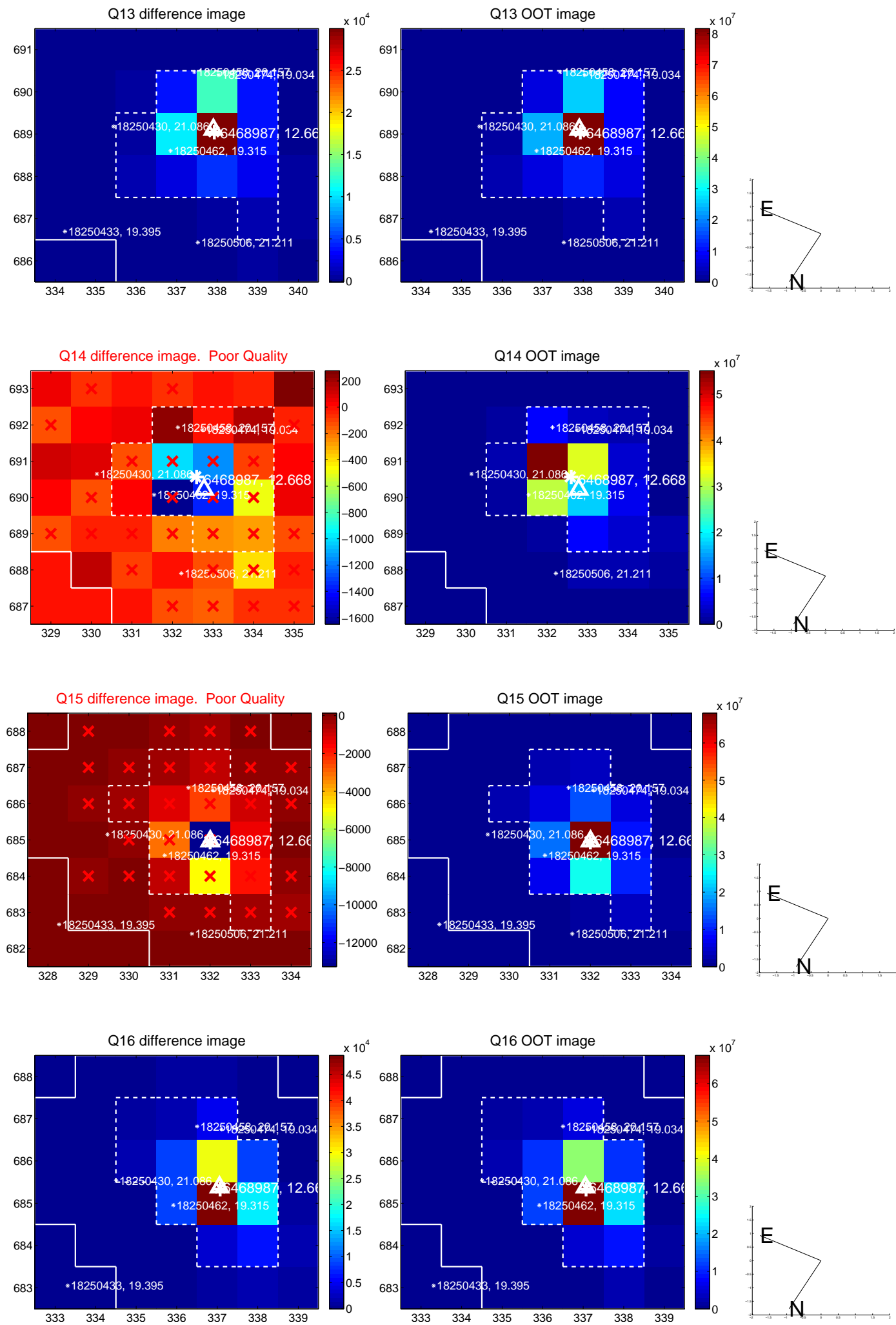
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



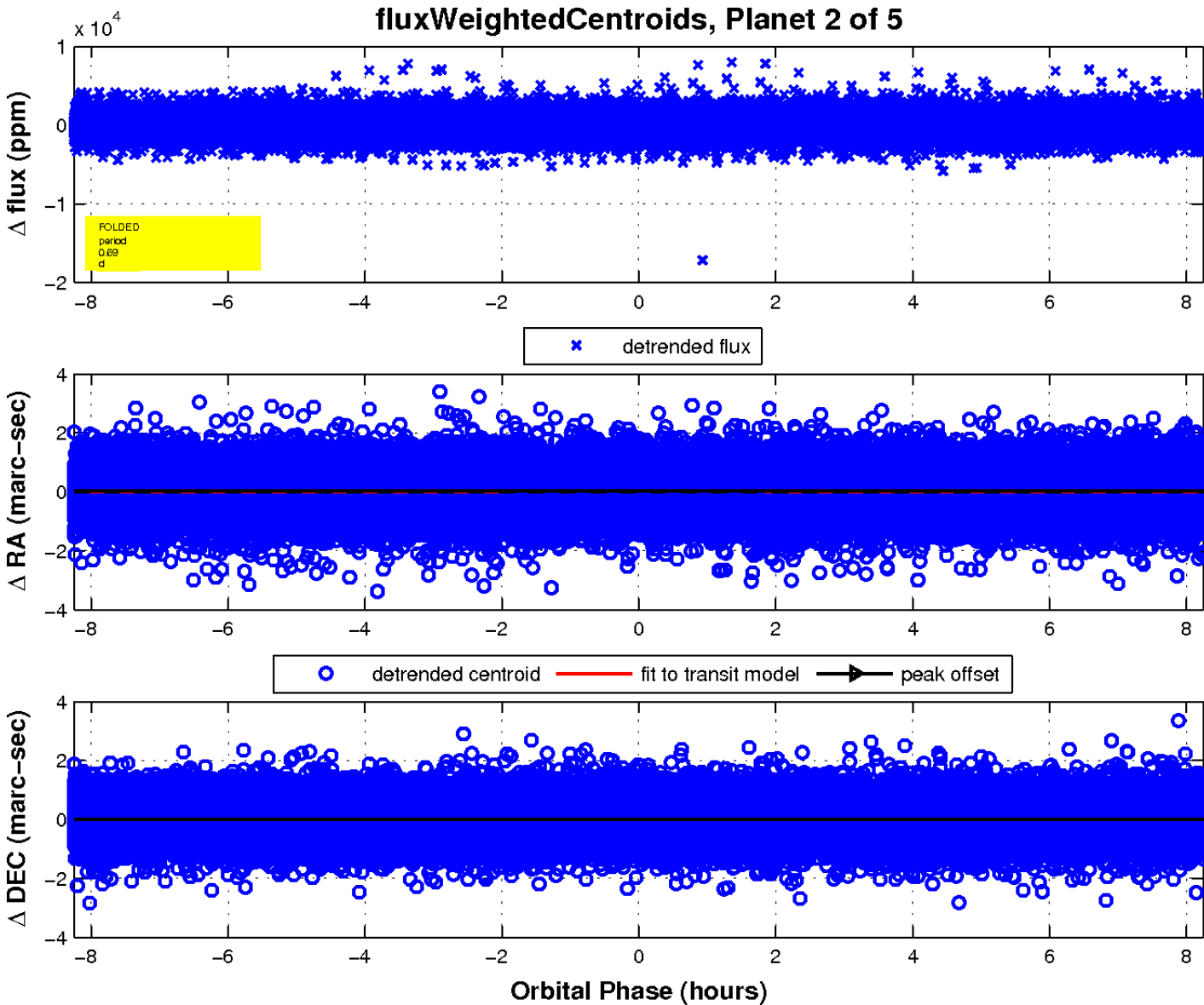
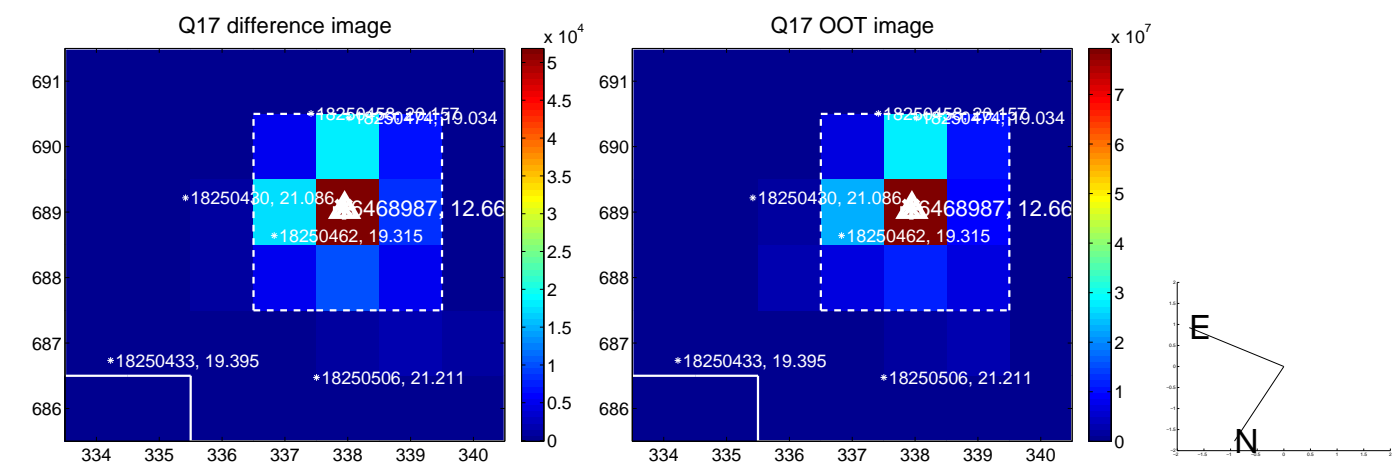
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

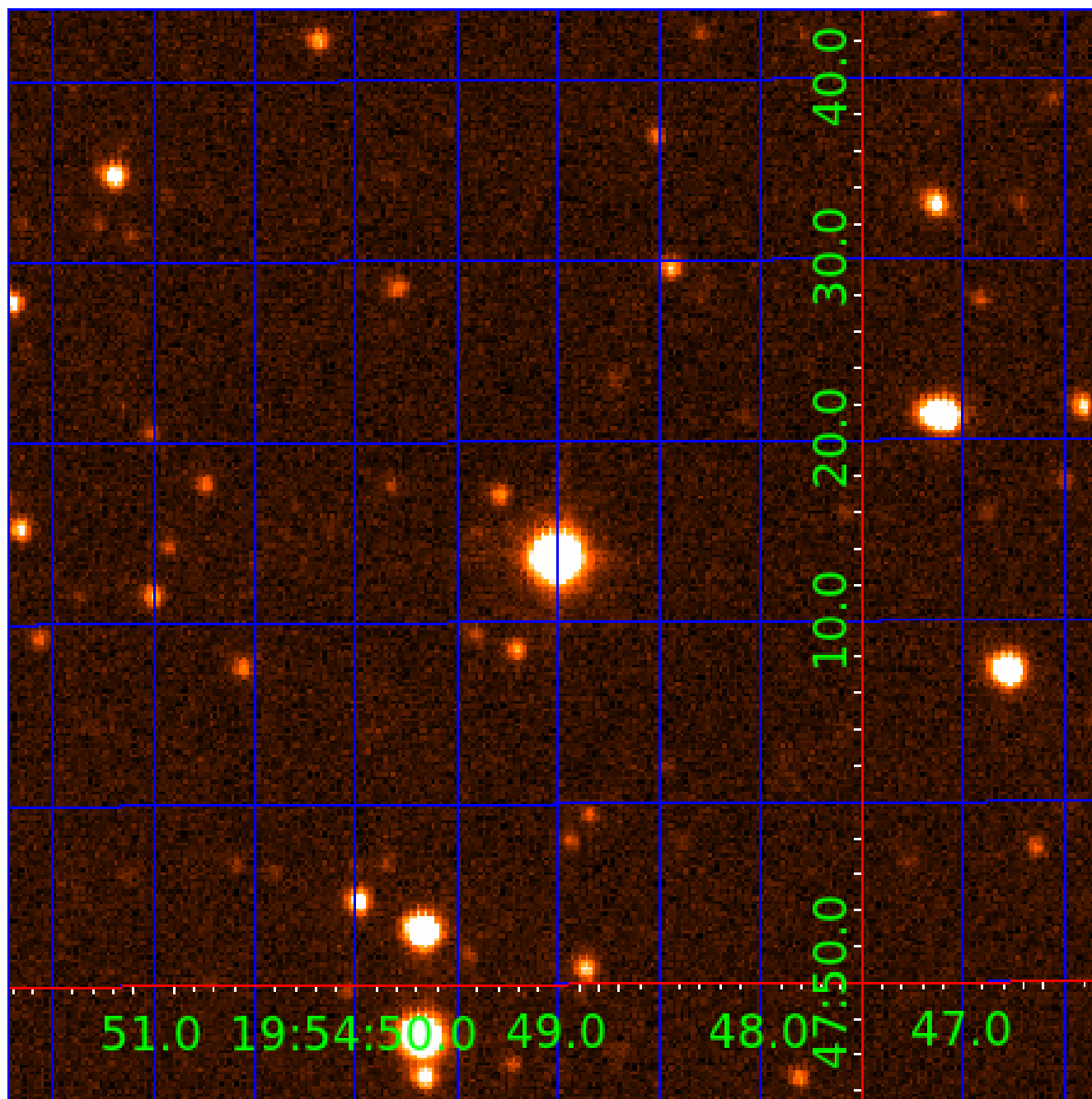


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006468987

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})
006468987-01	OBS	No	0.687446	132.154867	6.7	1.154	9.0	1.4	2.18	7299	0.66	37468.68
006468987-02	OBS	No	0.687487	131.920113	53.3	4.050	9.4	6.6	2.18	7299	1.62	37465.69
006468987-03	OBS	No	2.087202	131.770835	368.9	5.485	8.7	9.5	2.18	7299	6.95	8522.50
006468987-04	OBS	No	58.836472	160.467172	1918.7	4.167	9.3	7.2	2.18	7299	17.52	99.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006468987-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006468987-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
006468987-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006468987-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

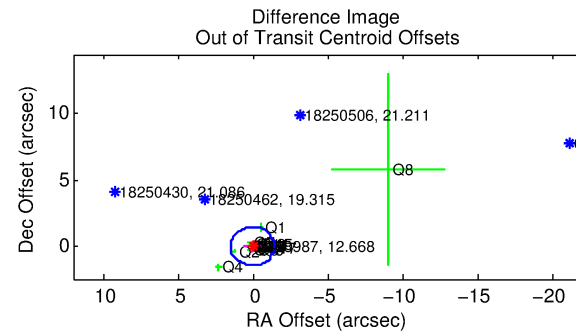
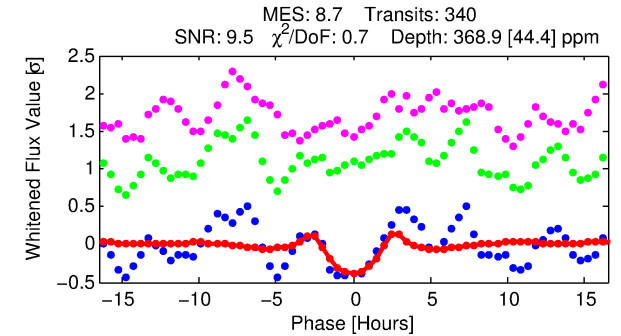
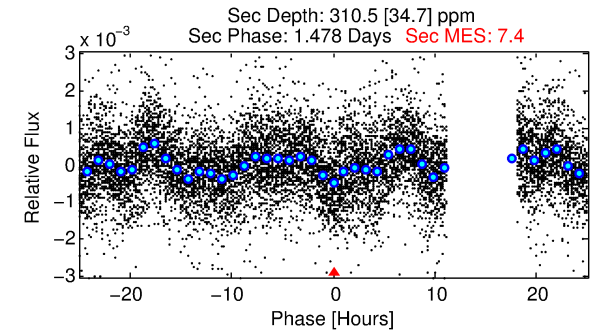
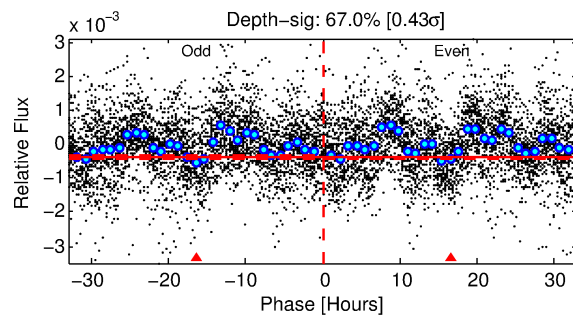
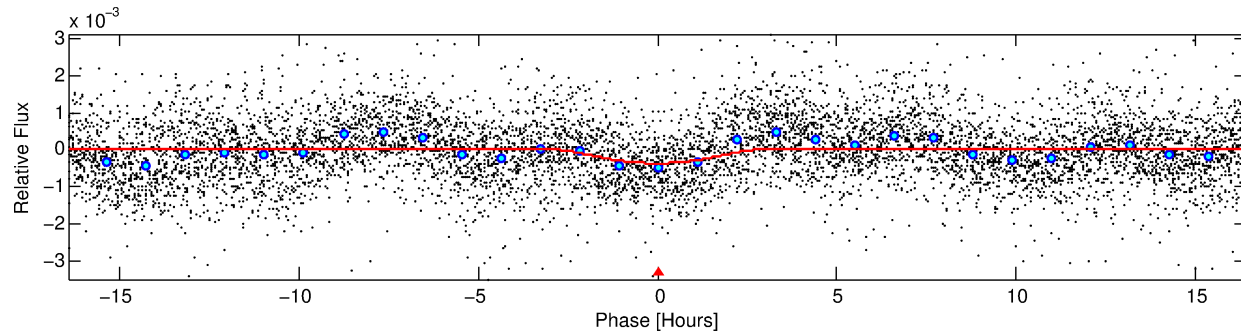
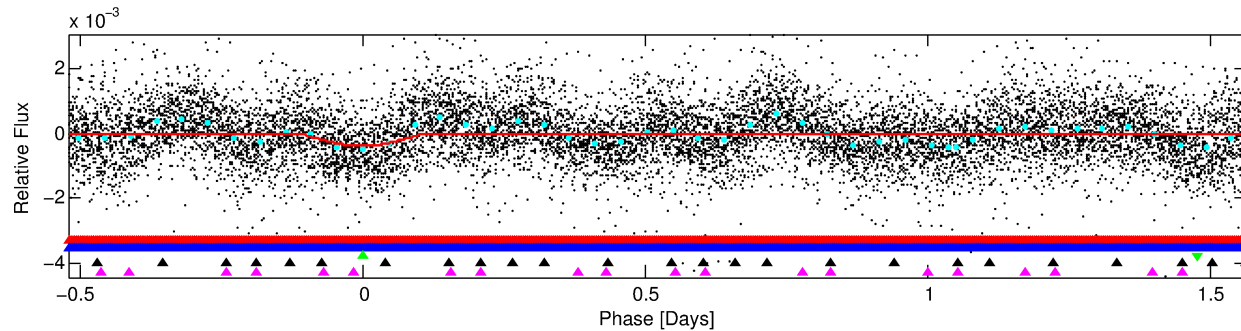
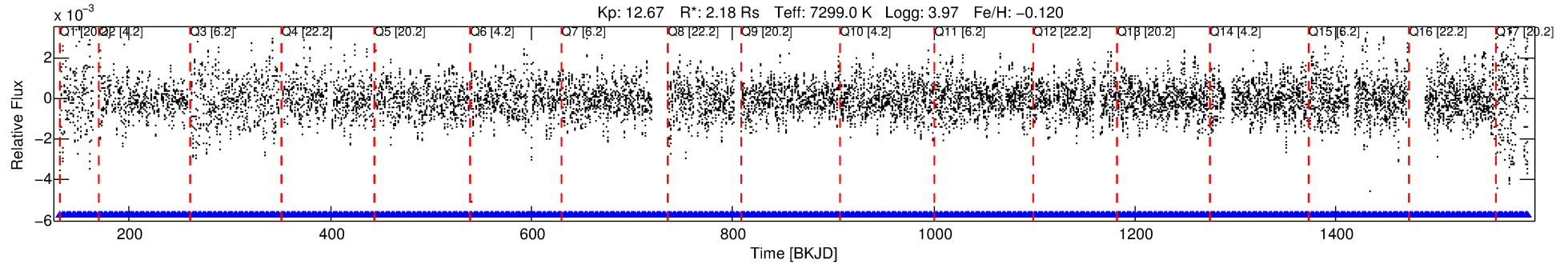
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006468987-03

No Significant Match Found

DV One-Page Summary

KIC: 6468987 Candidate: 3 of 5 Period: 2.087 d



DV Fit Results:

Period = 2.08720 [0.00002] d
Epoch = 131.7708 [0.0061] BKJD
Rp/R* = 0.0292 [0.0222]
a/R* = 1.28 [0.10]
b = 0.99 [0.04]
Seff = 8522.50 [3880.48]
Teq = 2450 [279] K
Rp = 6.95 [5.72] Re
a = 0.0376 [0.0105] AU
Ag = 5.01 [7.92] [0.51 σ]
Teffp = 5666 [2172] K [1.47 σ]

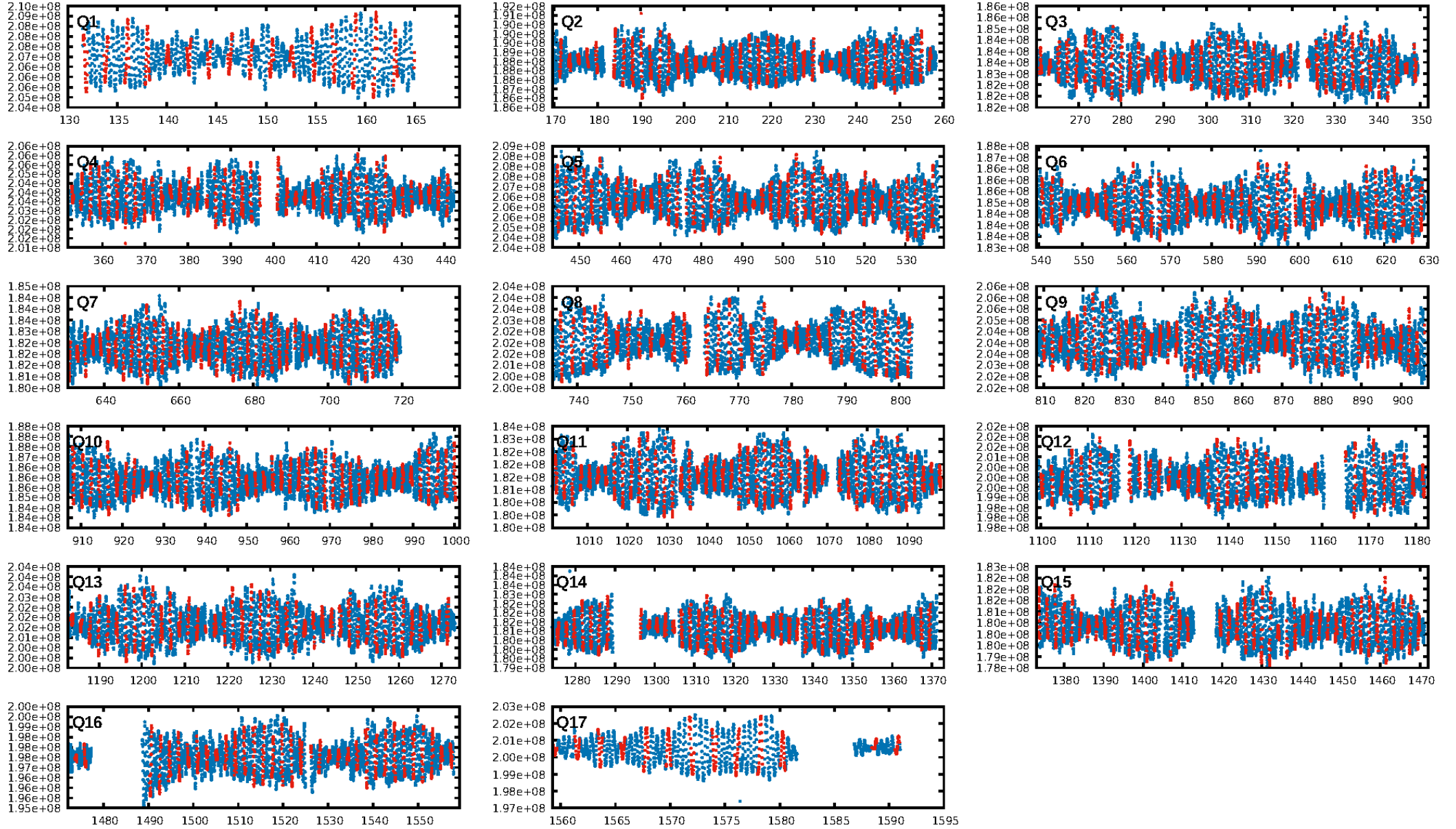
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.93 σ]
LongPeriod-sig: 100.0% [197.71 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [328/328]
GhostDiagnostic-chr: 2.285
Centroid-sig: 0.0%
Centroid-so: 0.308 arcsec [4.24 σ]
OotOffset-rm: 0.038 arcsec [0.08 σ]
KicOffset-rm: 0.069 arcsec [0.22 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.00 [0/17]

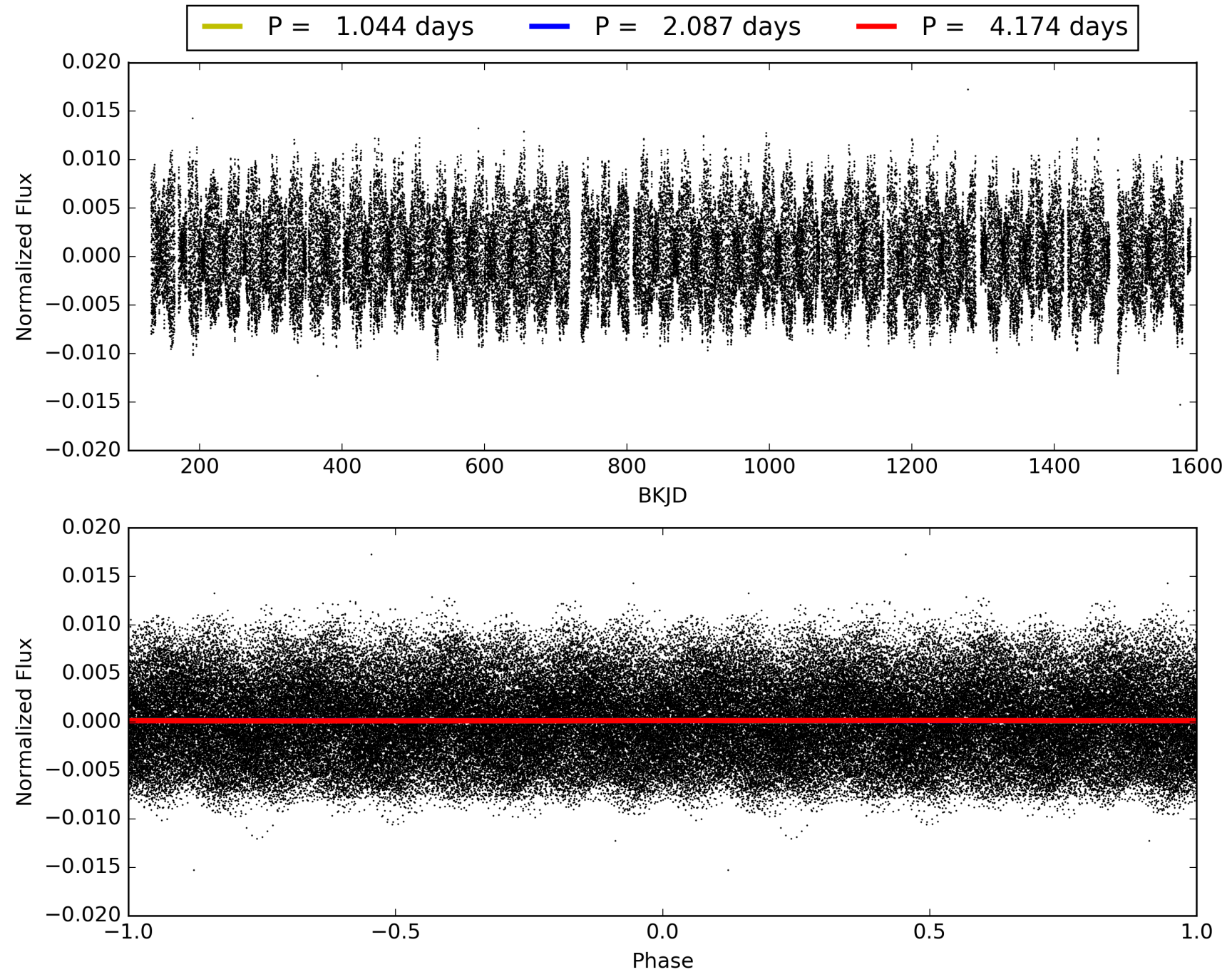
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:51 Z

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

TCE 006468987-03, PDC Light Curves

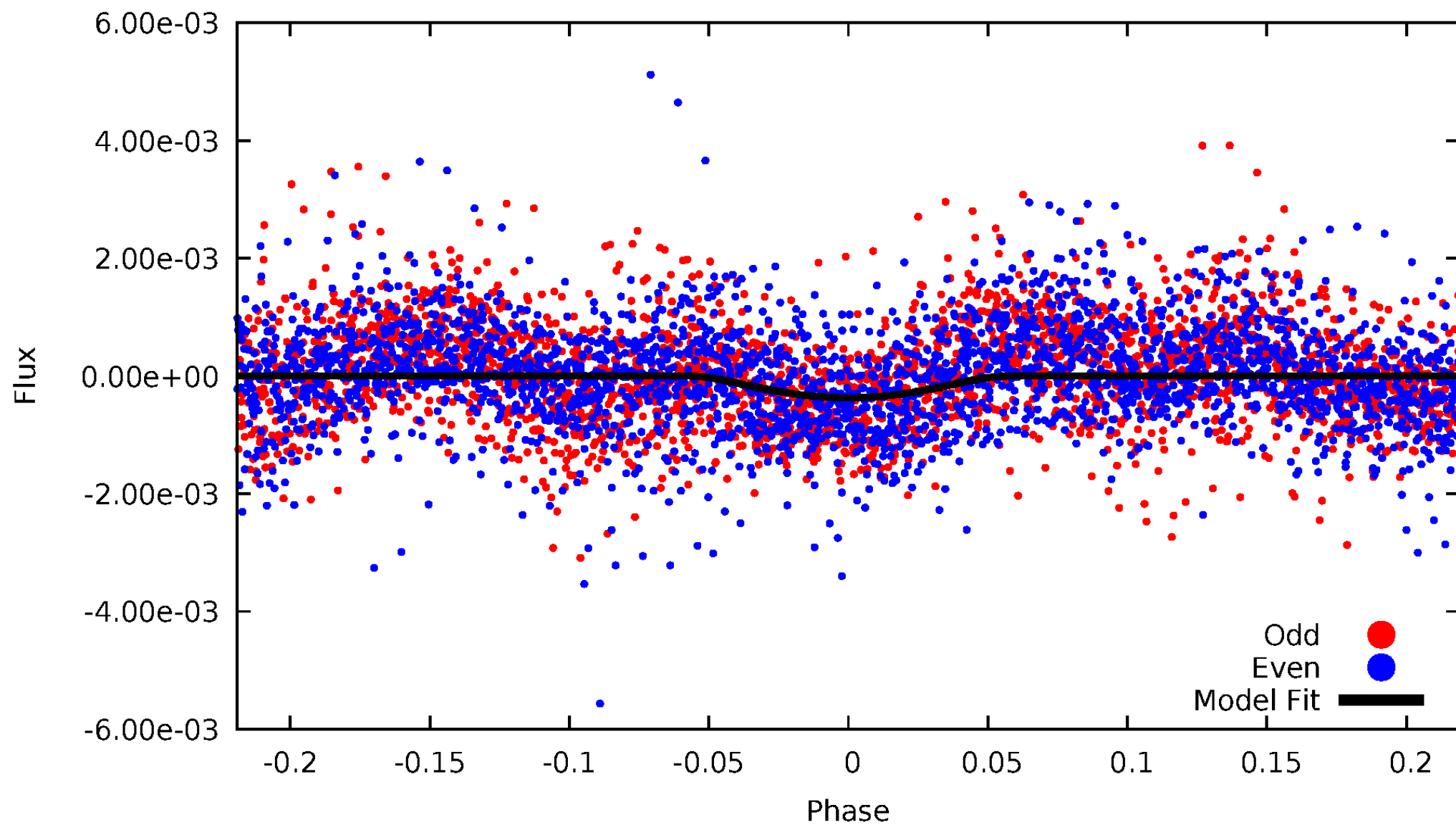


TCE 006468987-03



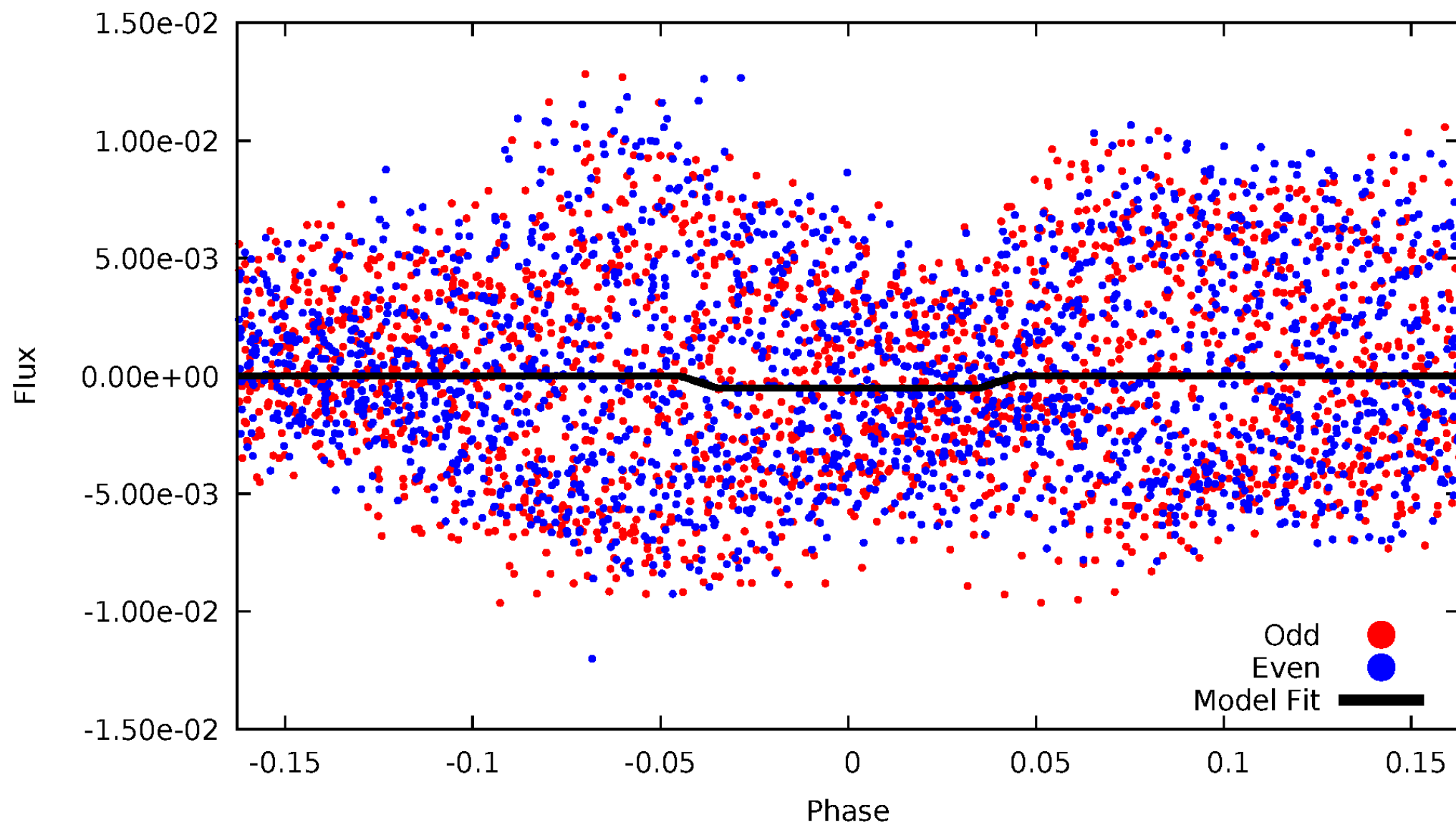
DV Odd/Even

TCE 006468987-03

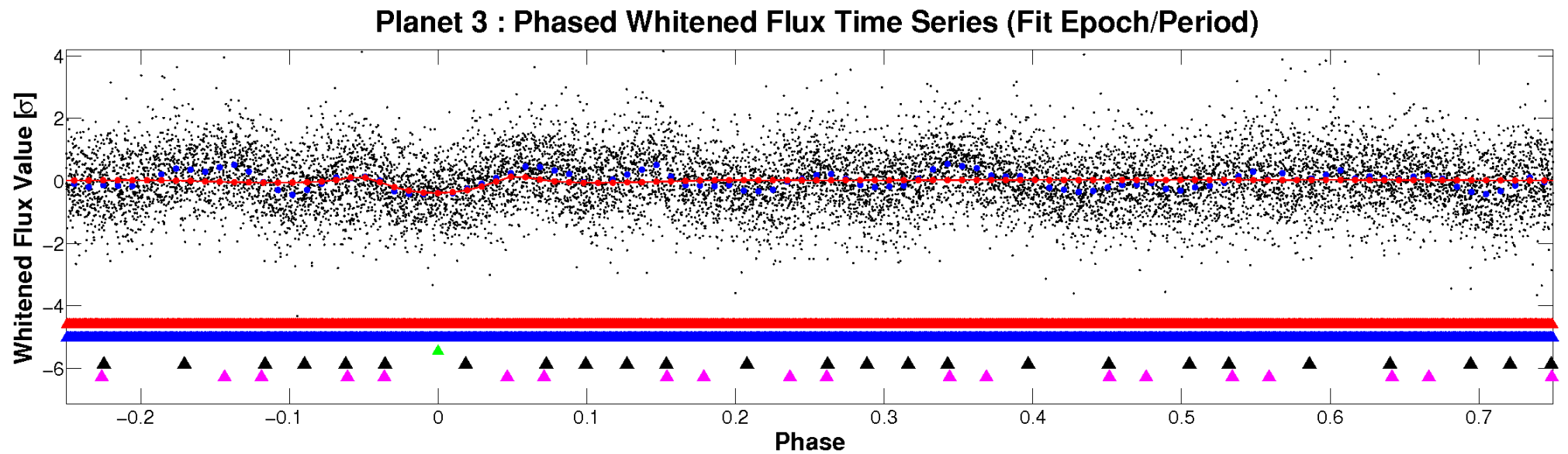
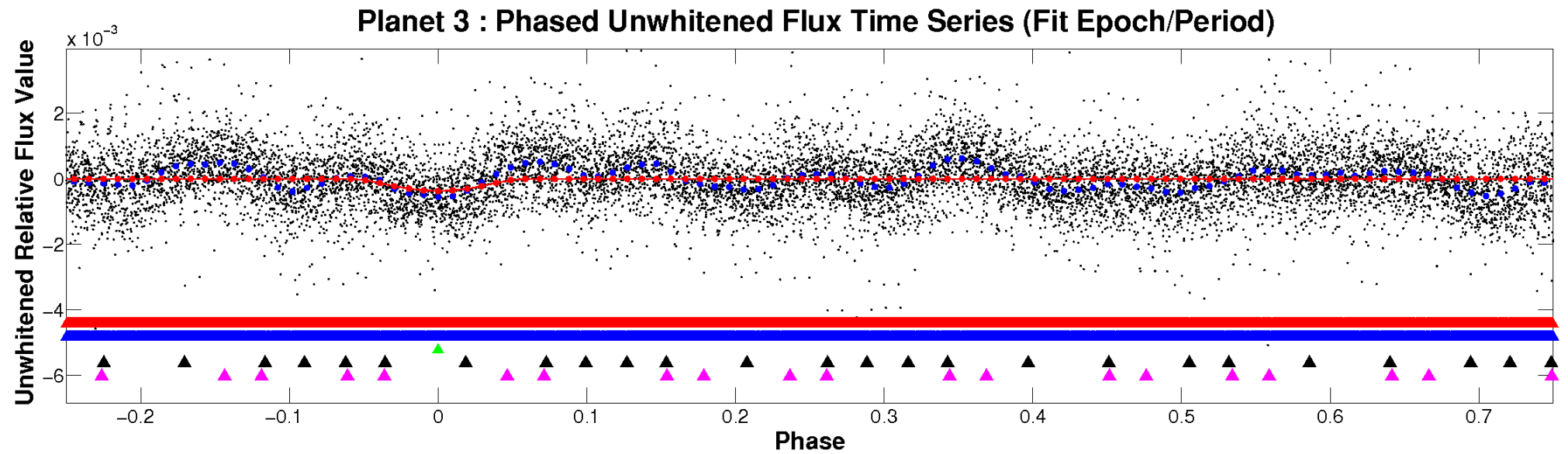


ALT Odd/Even

TCE 006468987-03

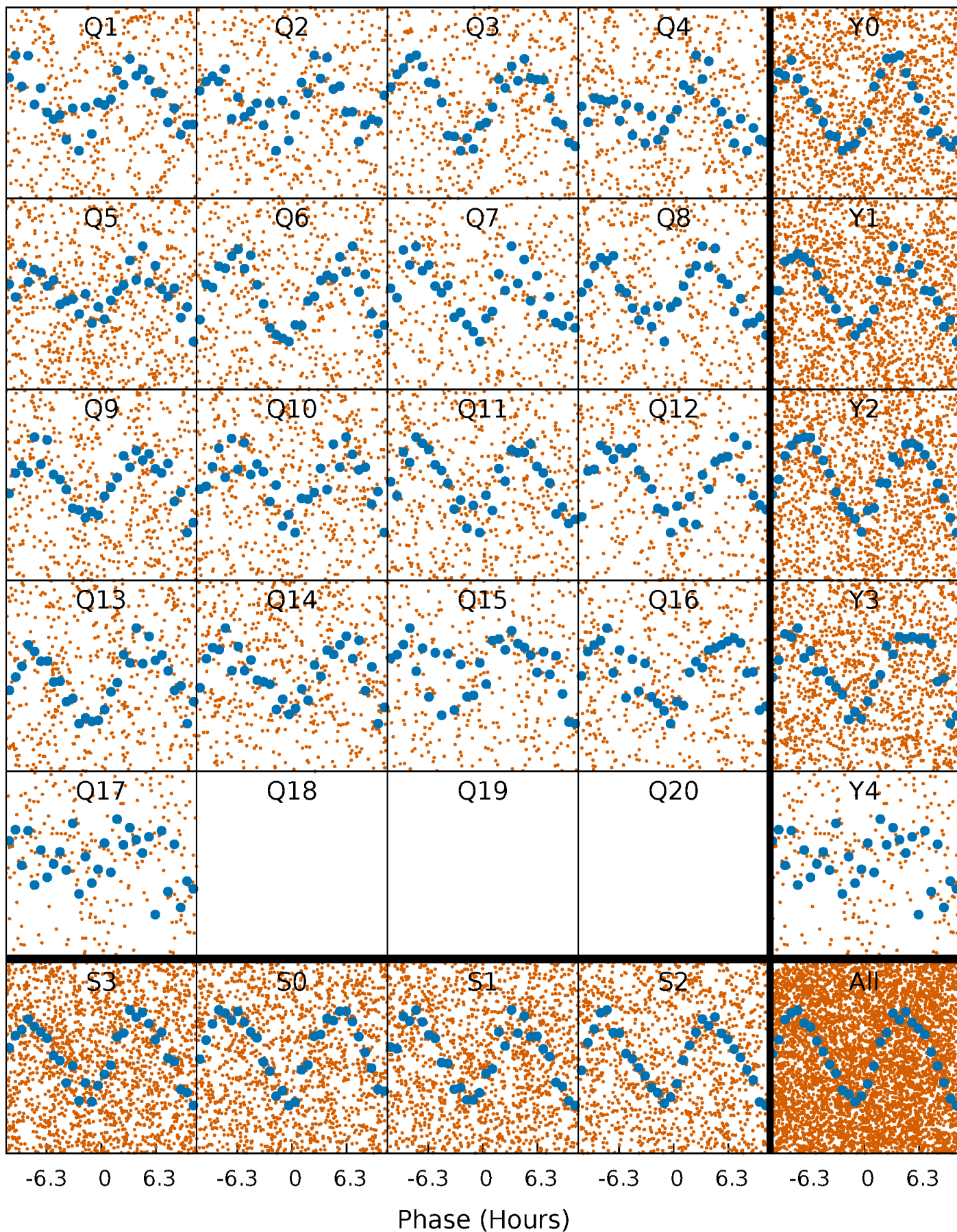


Non-Whitened Vs. Whitened Light Curve



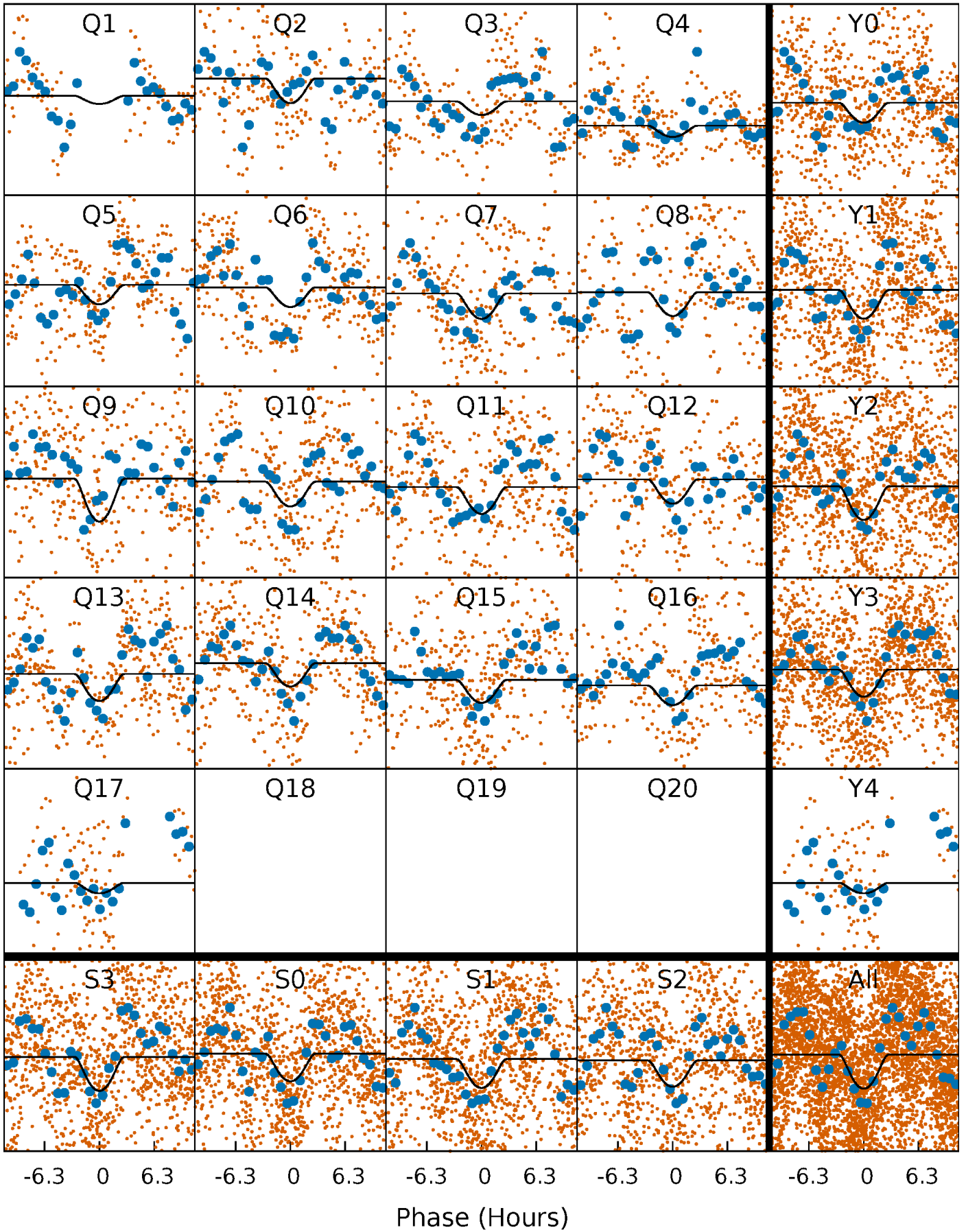
PDC Quarter-Phased Transit Curves

TCE 006468987-03 P= 2.087202 Days $T_0=131.770835$ (BKJD)



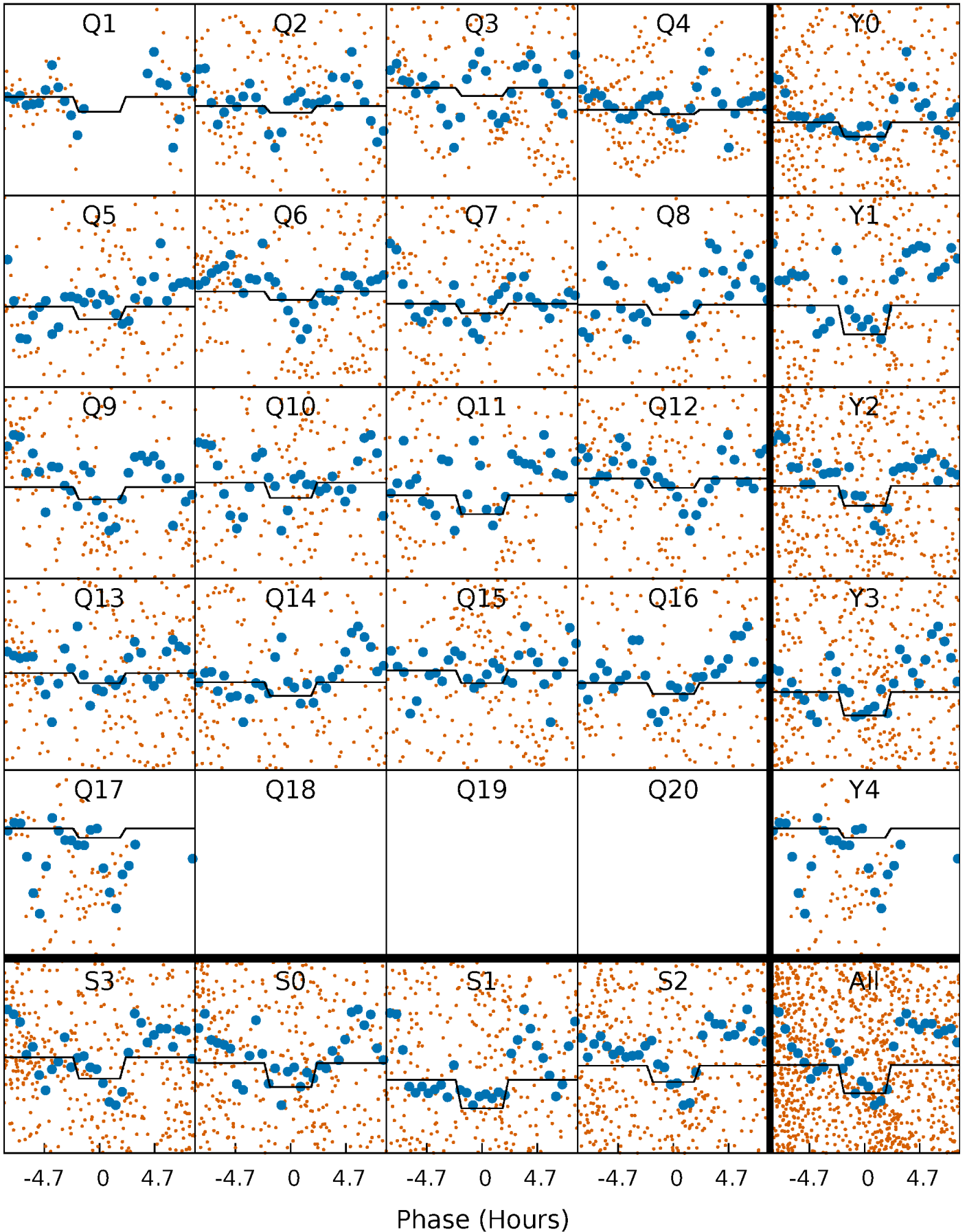
DV Quarter-Phased Transit Curves

TCE 006468987-03 P= 2.087202 Days $T_0=131.770835$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

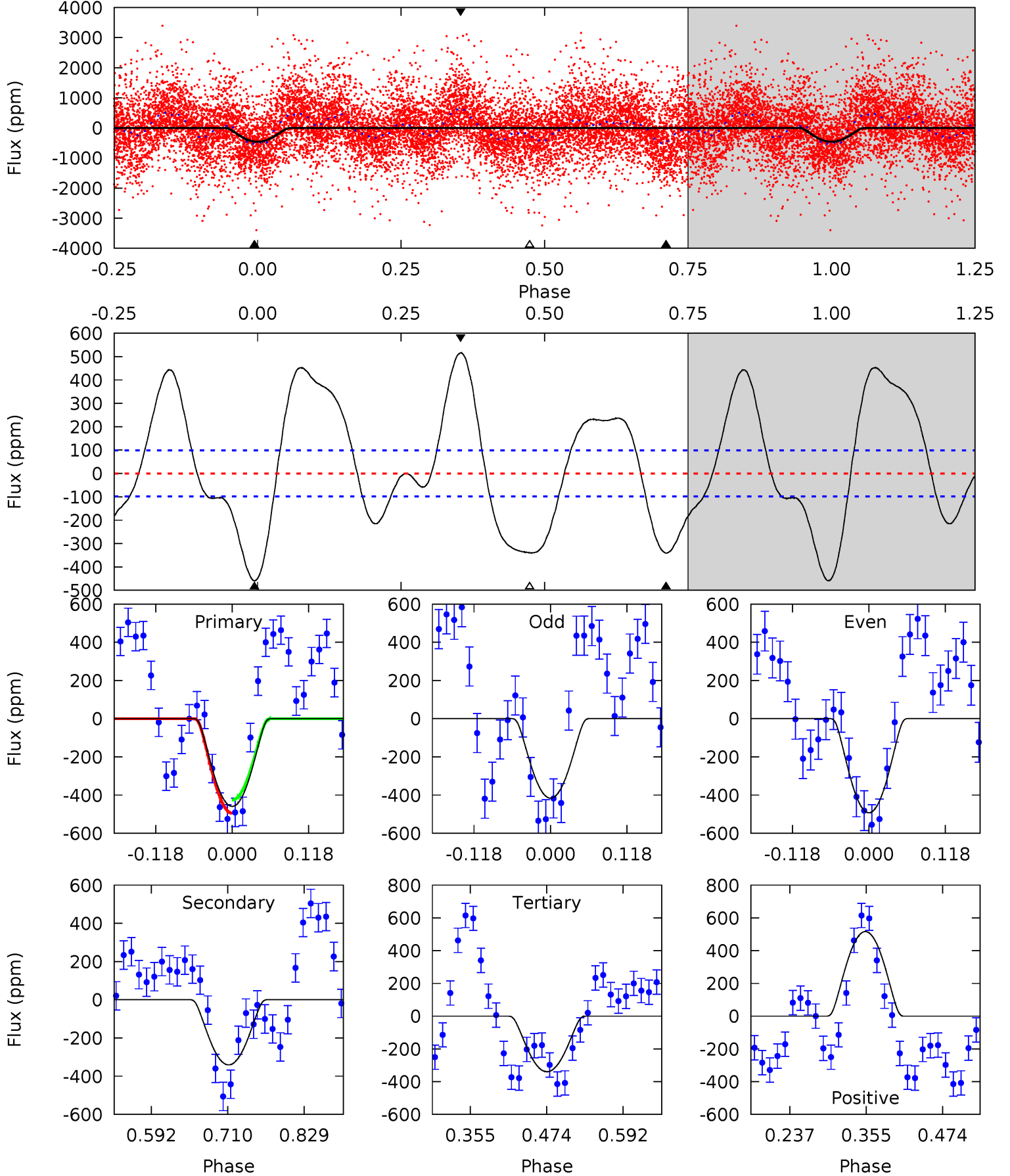
TCE 006468987-03 P= 2.087310 Days $T_0=131.715394$ (BKJD)



DV Model-Shift Uniqueness Test

006468987-03, P = 2.087202 Days, E = 129.683633 Days

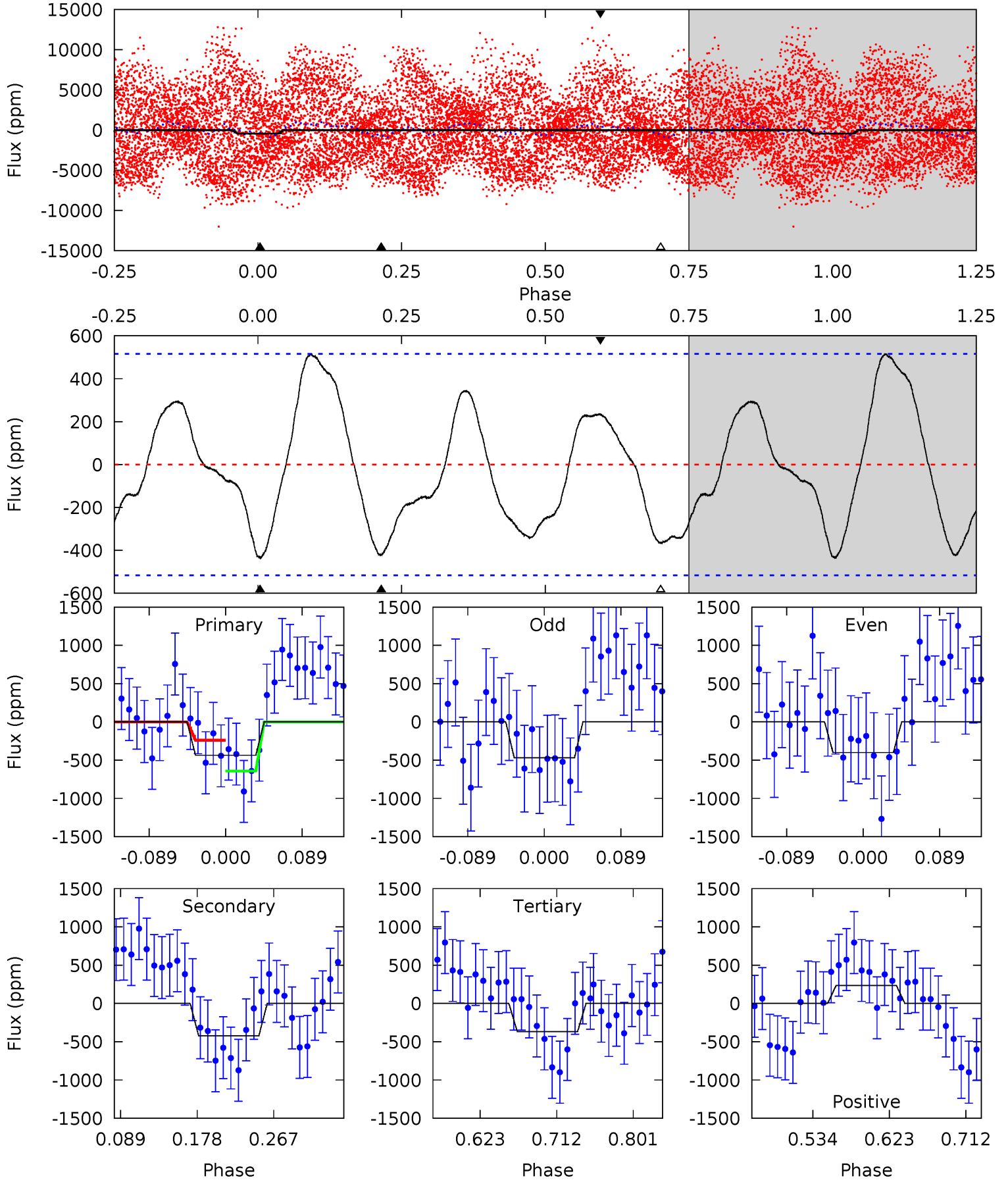
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	15.7	15.6	23.8	4.53	1.56	11.9	5.53	-2.62	0.07	-8.09	1.79	0.25	0.53	1.60



Alt Model-Shift Uniqueness Test

006468987-03, P = 2.087310 Days, E = 129.628084 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.88	3.75	3.26	2.10	4.59	1.70	2.15	0.61	1.78	0.49	1.65	0.30	0.65	0.54	1.77



Stellar Parameters For KIC 006468987

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7299^{+228}_{-304}	$3.974^{+0.240}_{-0.160}$	$-0.120^{+0.250}_{-0.350}$	$2.178^{+0.560}_{-0.684}$	$1.628^{+0.199}_{-0.323}$	$0.222^{+0.329}_{-0.101}$
	+3%/-4%	+6%/-4%	+208%/-292%	+26%/-31%	+12%/-20%	+148%/-45%
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 006468987-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-341 ± 22	$7.69^{+5.08}_{-4.38}$	3397^{+261}_{-281}	5273^{+3242}_{-1024}	$4.375^{+19.178}_{-2.755}$
Alt.	-422 ± 112	$6.38^{+5.02}_{-3.97}$	3387^{+268}_{-288}	6166^{+5292}_{-1534}	$8.000^{+48.448}_{-5.618}$

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

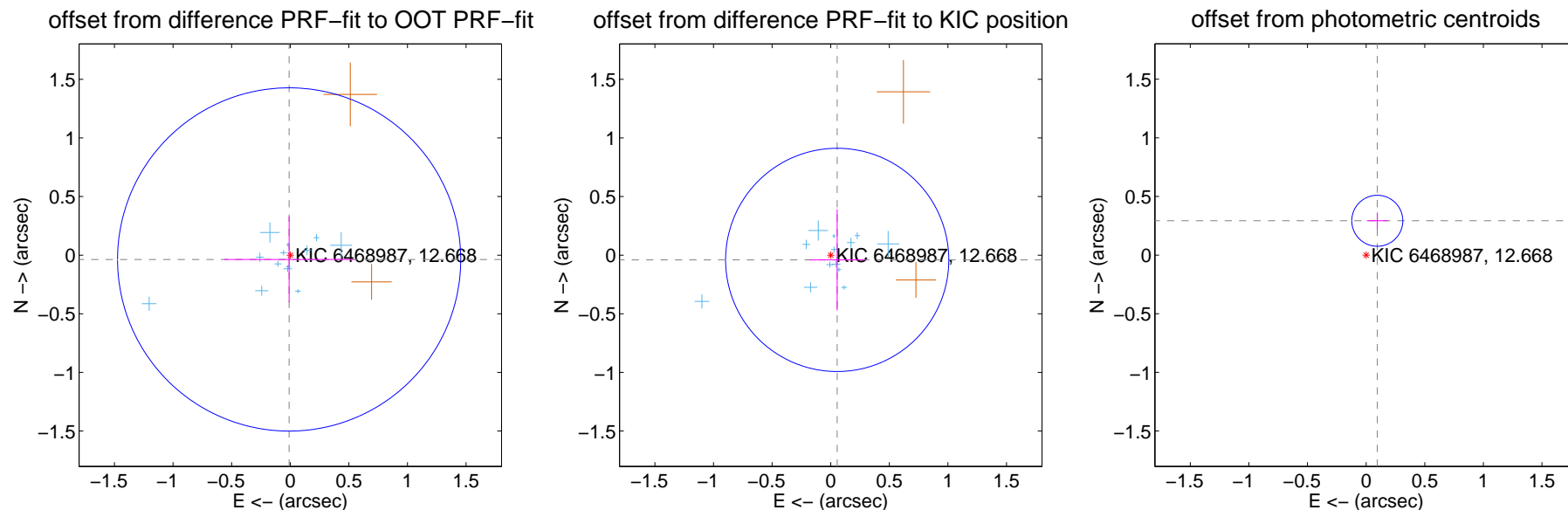
DV Centroid Data

Supplemental centroid analysis for 006468987-03. Kepler magnitude: 12.67. Transit SNR 9.54

There are 13 quarters with good PRF difference image offsets

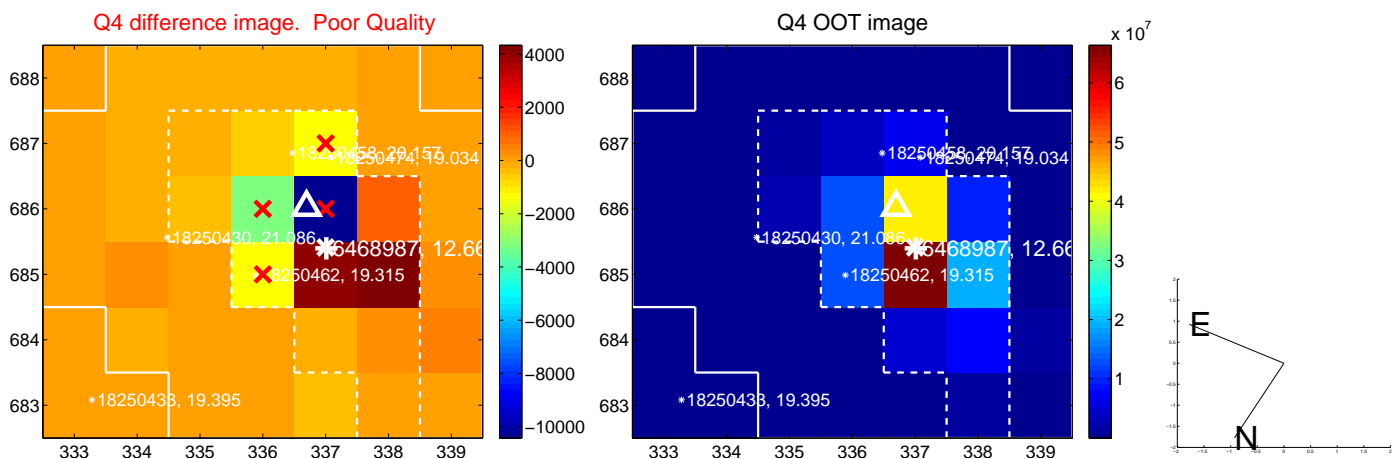
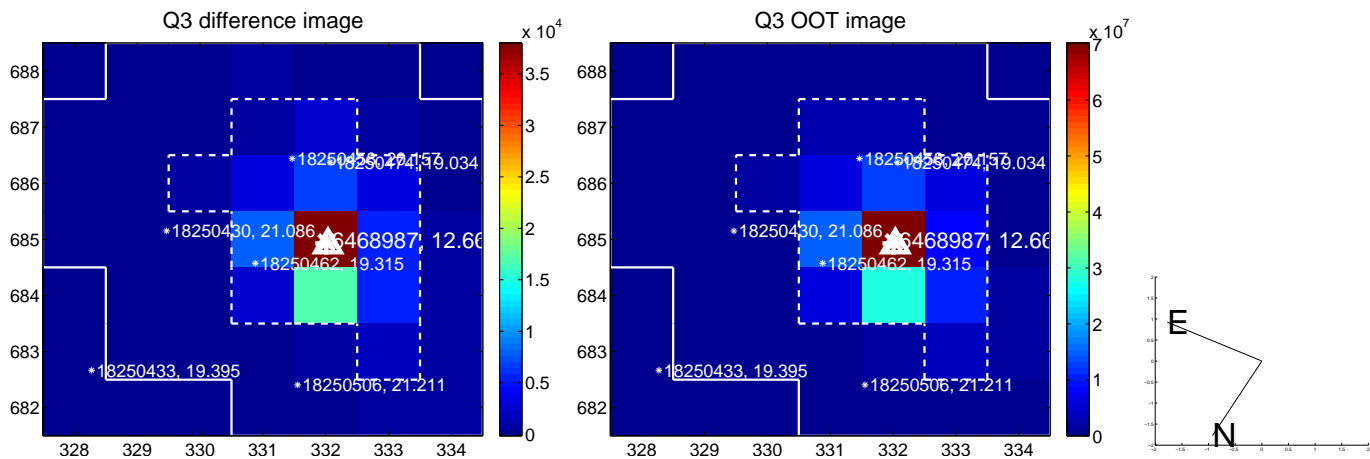
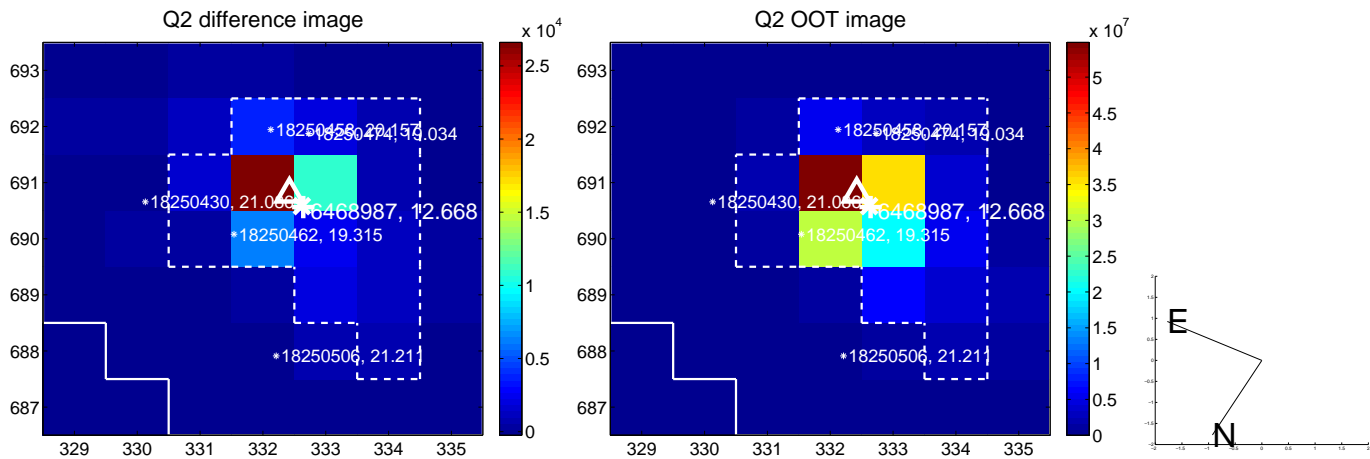
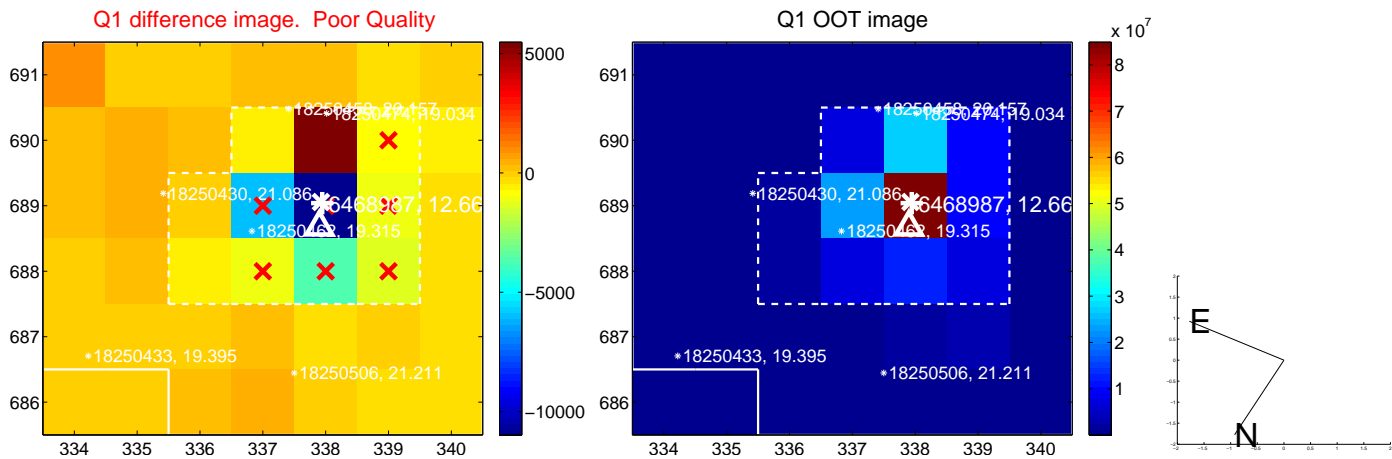
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.038 ± 0.488	0.08	0.010 ± 0.554	-0.037 ± 0.366
PRF-fit source offset from KIC position	0.069 ± 0.317	0.22	-0.055 ± 0.234	-0.041 ± 0.432
photometric centroid source offset	0.31 ± 0.07	4.24	-0.10 ± 0.09	0.29 ± 0.07

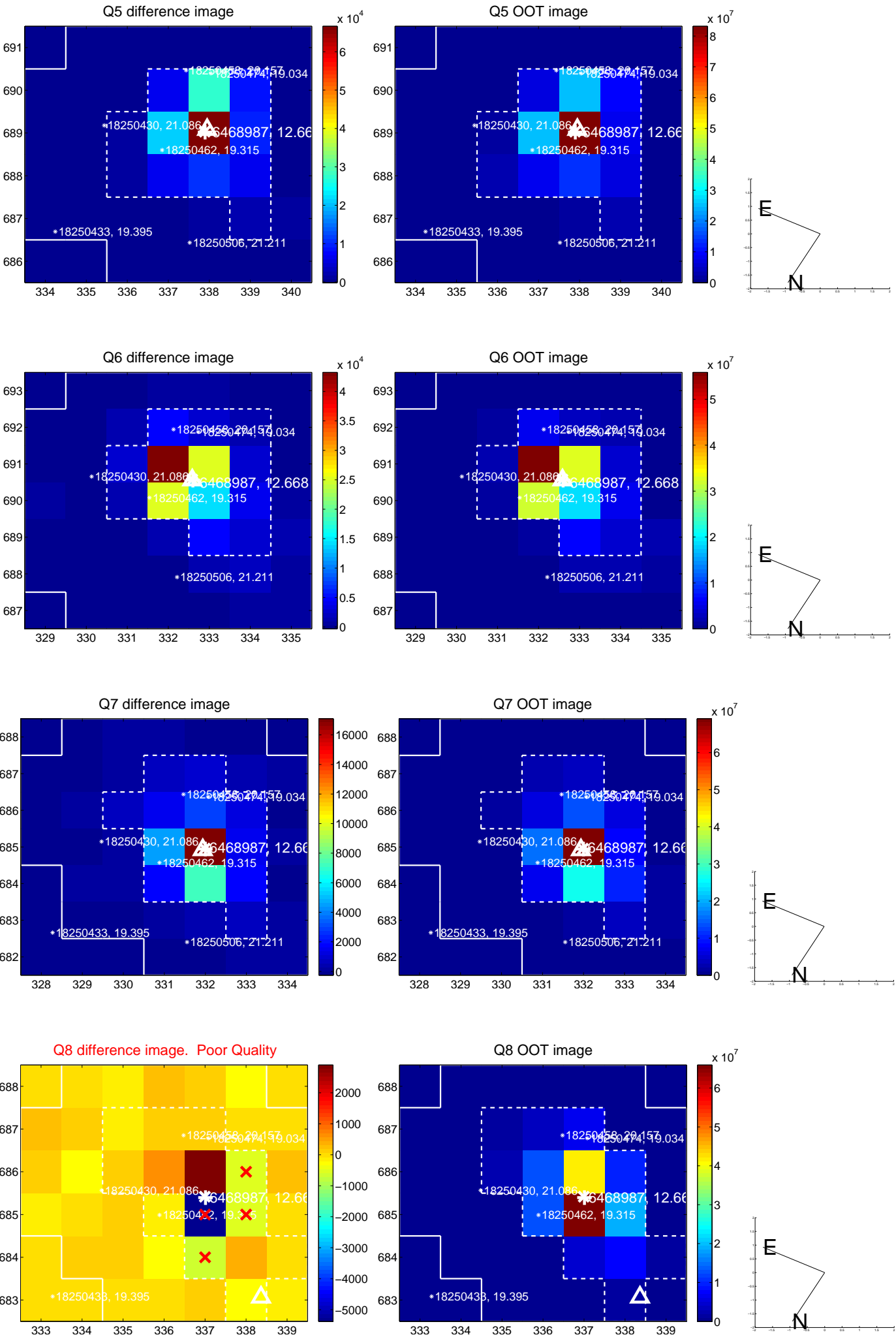


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

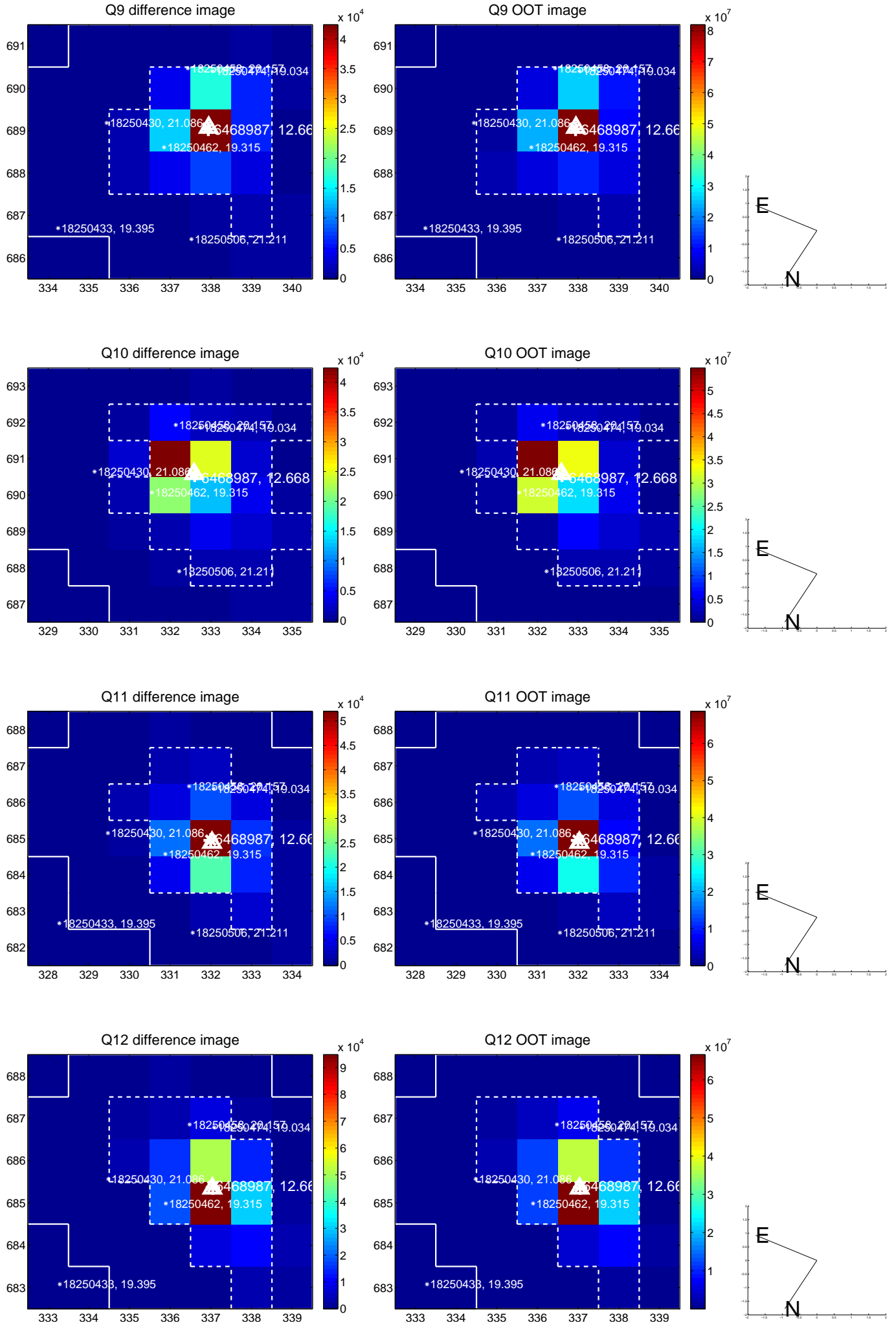
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



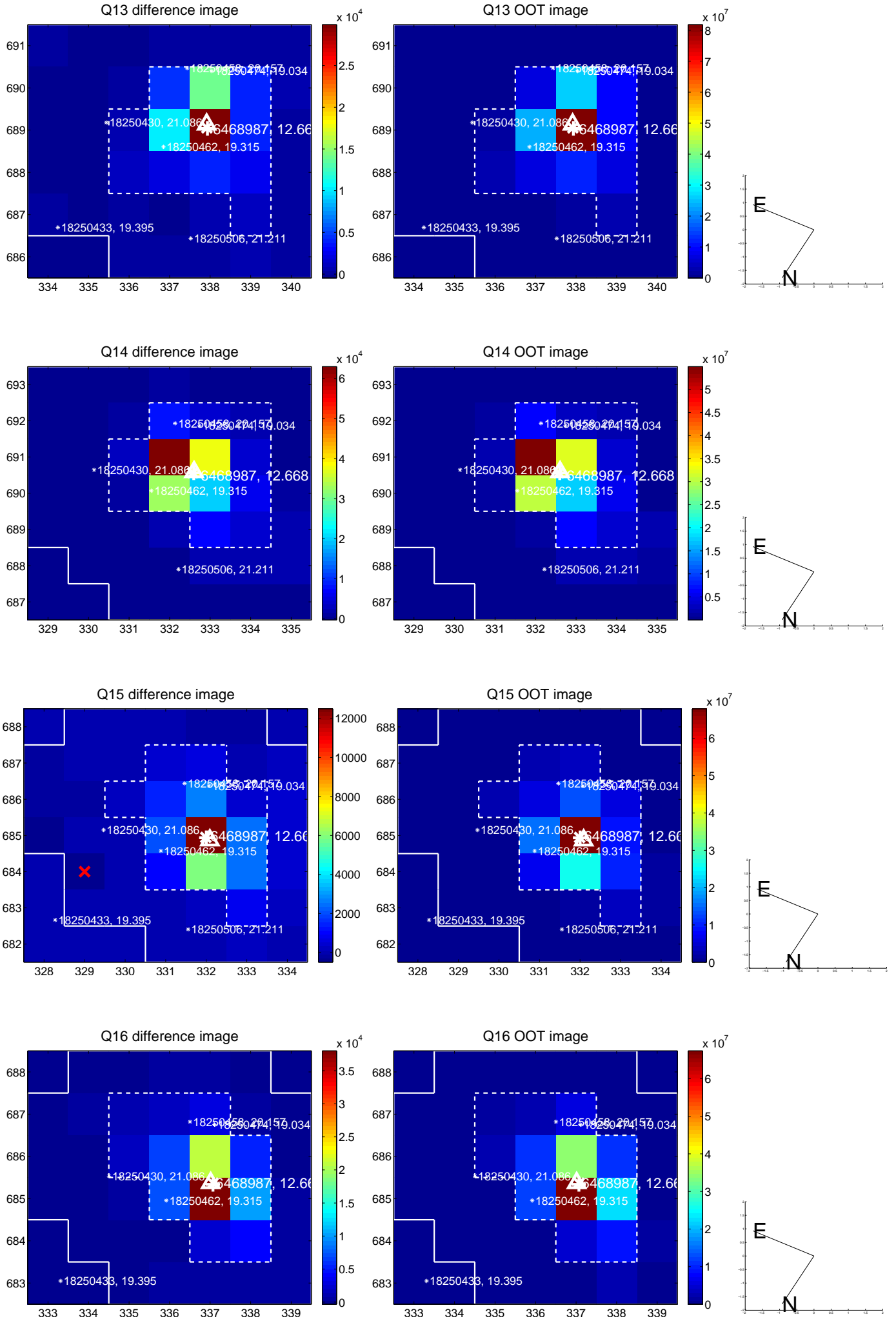
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



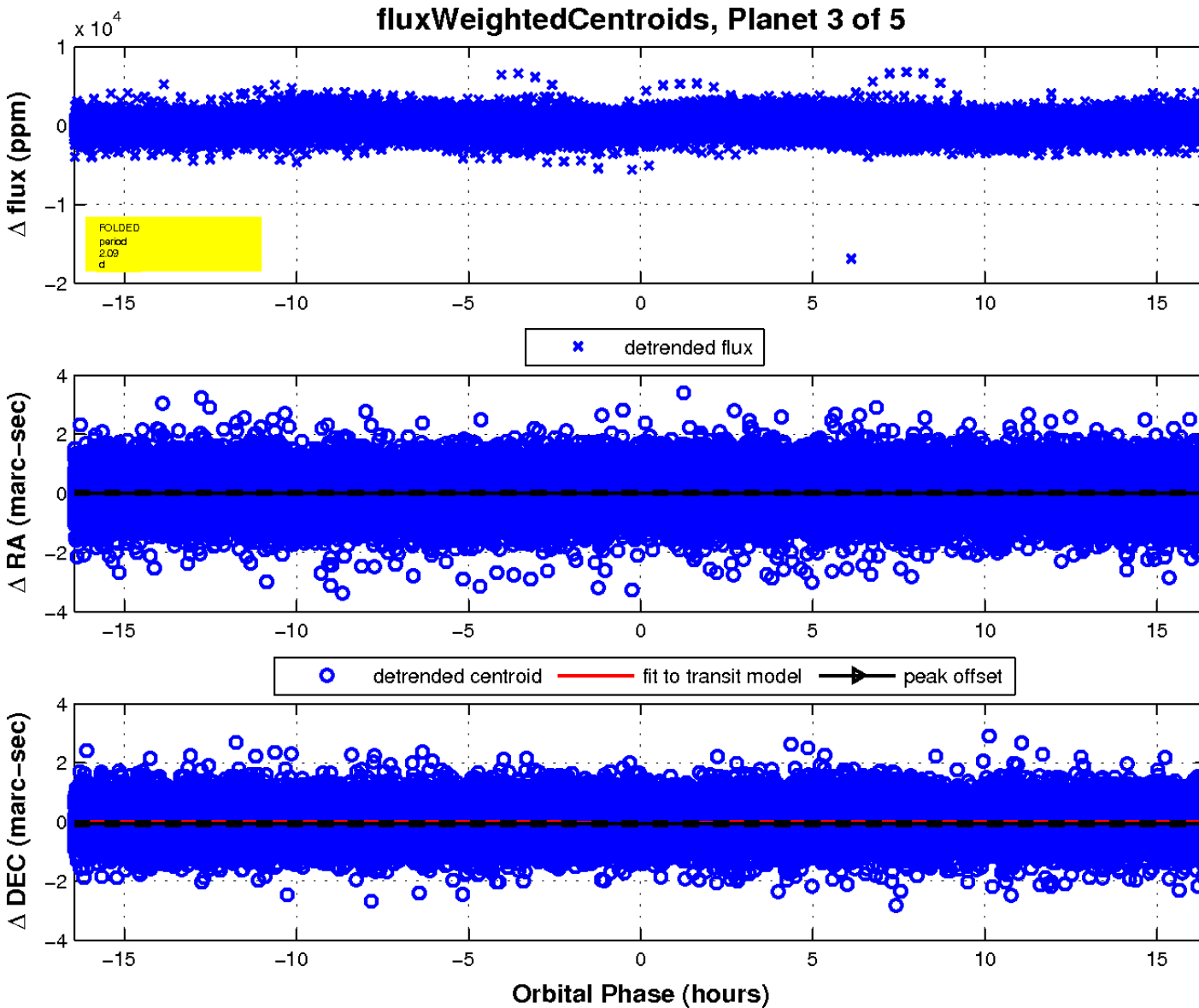
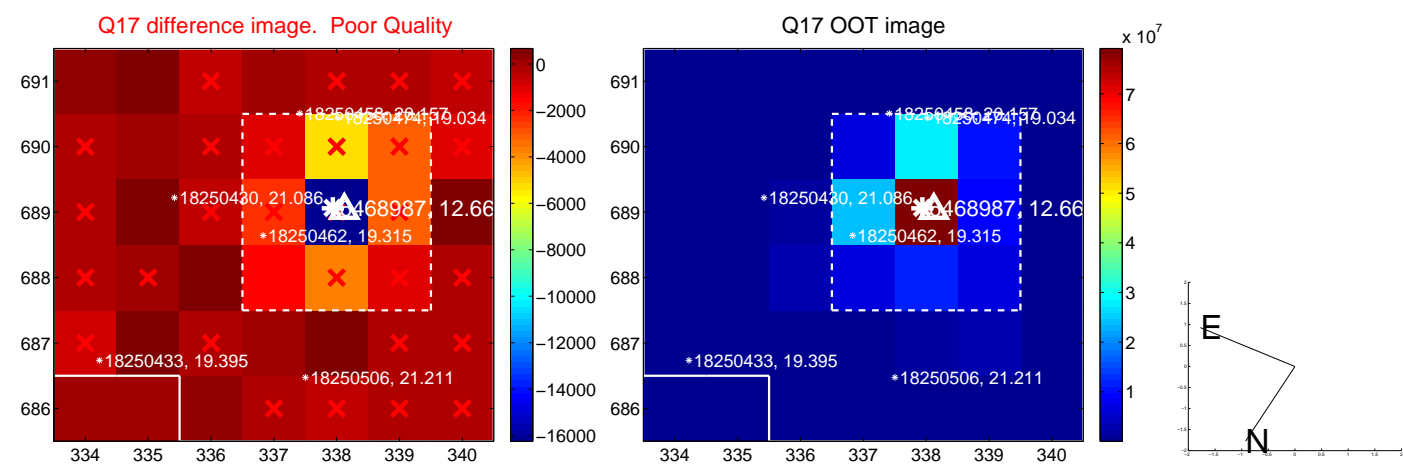
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

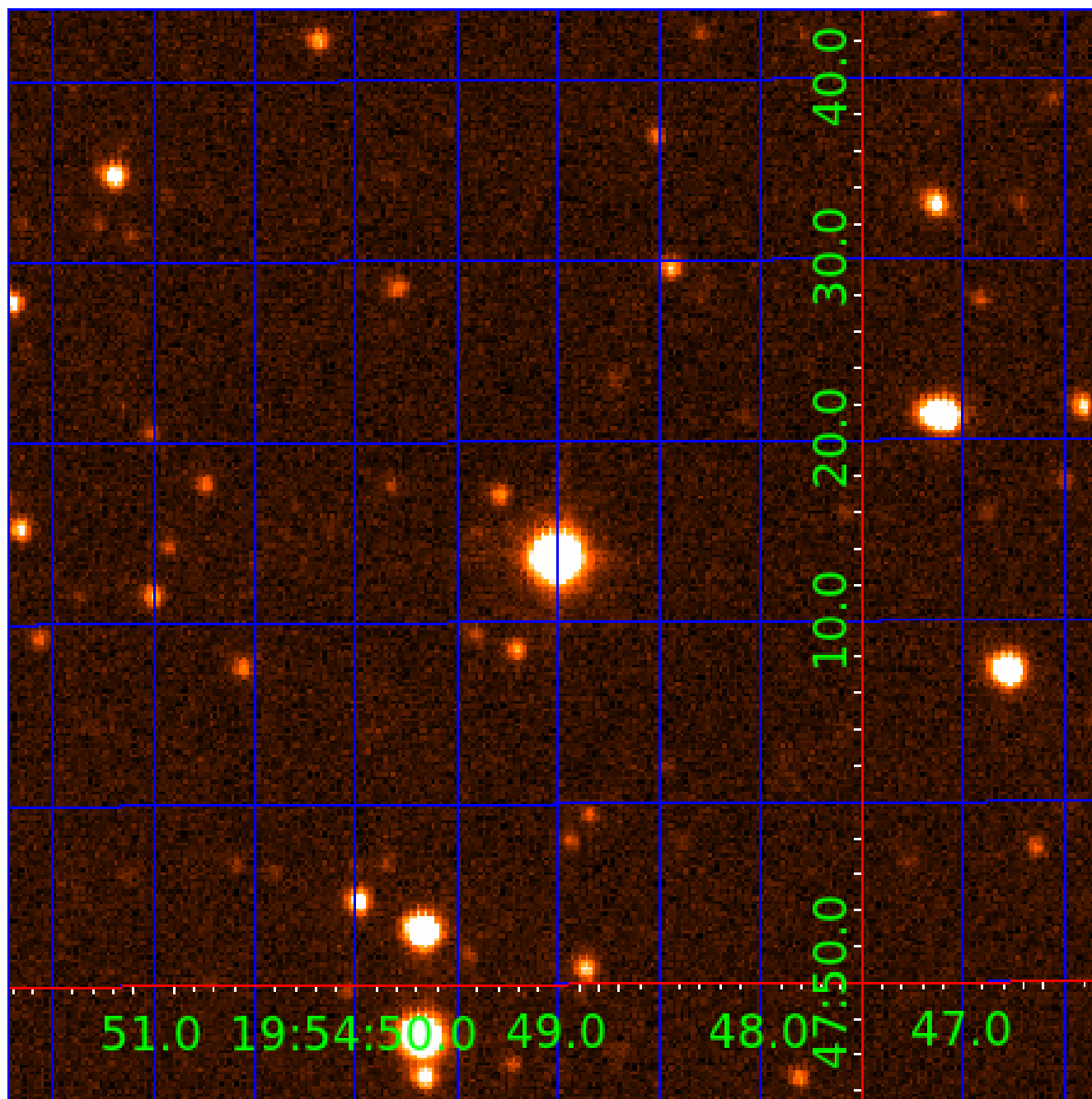


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006468987

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})
006468987-01	OBS	No	0.687446	132.154867	6.7	1.154	9.0	1.4	2.18	7299	0.66	37468.68
006468987-02	OBS	No	0.687487	131.920113	53.3	4.050	9.4	6.6	2.18	7299	1.62	37465.69
006468987-03	OBS	No	2.087202	131.770835	368.9	5.485	8.7	9.5	2.18	7299	6.95	8522.50
006468987-04	OBS	No	58.836472	160.467172	1918.7	4.167	9.3	7.2	2.18	7299	17.52	99.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006468987-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006468987-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
006468987-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006468987-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST

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

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

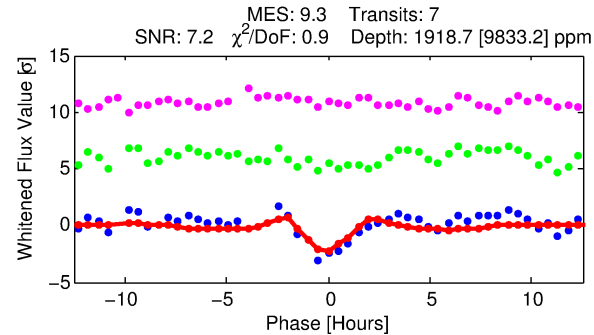
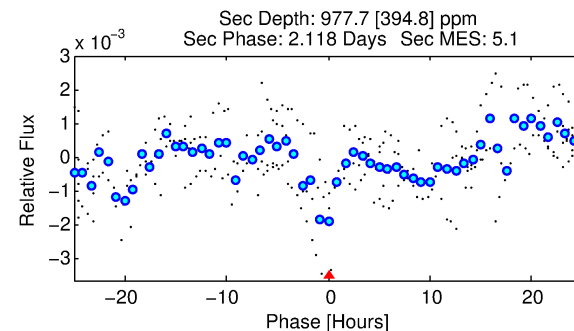
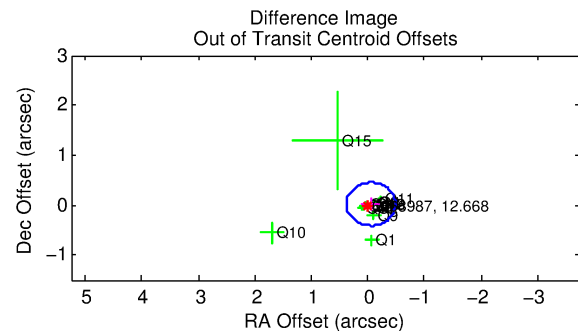
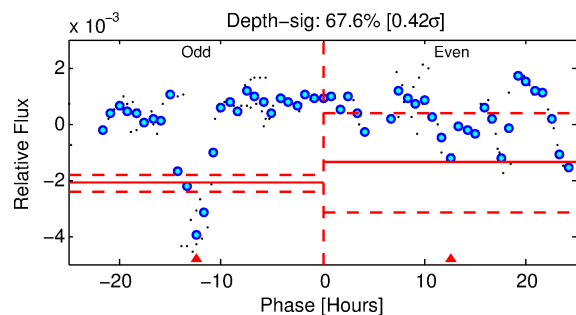
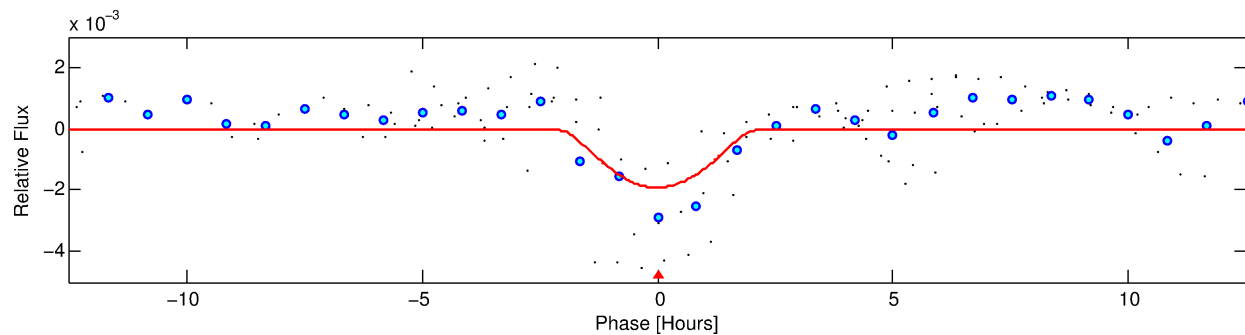
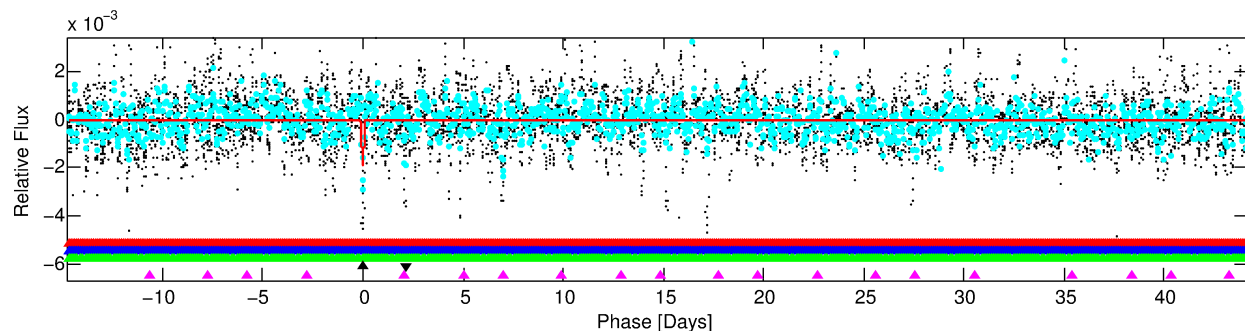
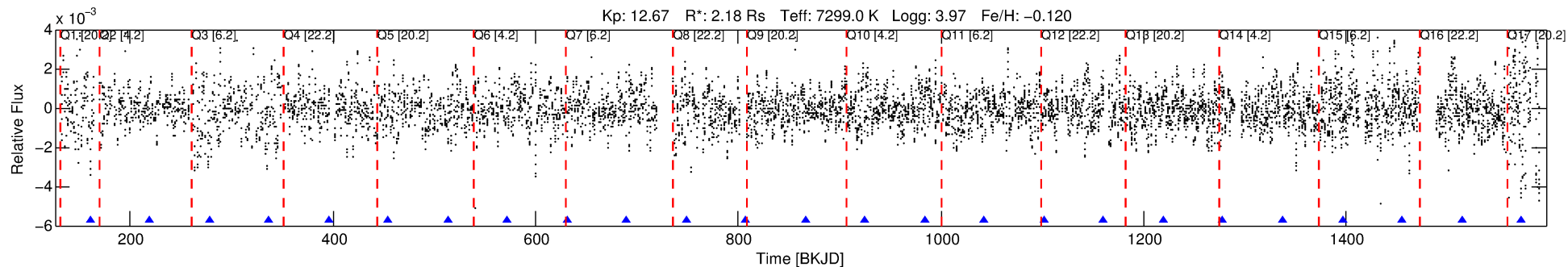
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006468987-04

No Significant Match Found

DV One-Page Summary

KIC: 6468987 Candidate: 4 of 5 Period: 58.836 d



DV Fit Results:

Period = 58.83647 [0.00074] d
Epoch = 160.4672 [0.0105] BKJD
Rp/R* = 0.0737 [0.2307]
a/R* = 42.18 [30.15]
b = 1.00 [0.59]
Seff = 99.34 [45.23]
Teq = 805 [92] K
Rp = 17.52 [55.12] Re
a = 0.3485 [0.0972] AU
Ag = 212.80 [1338.06] [0.16 σ]
Teffp = 4754 [7458] K [0.53 σ]

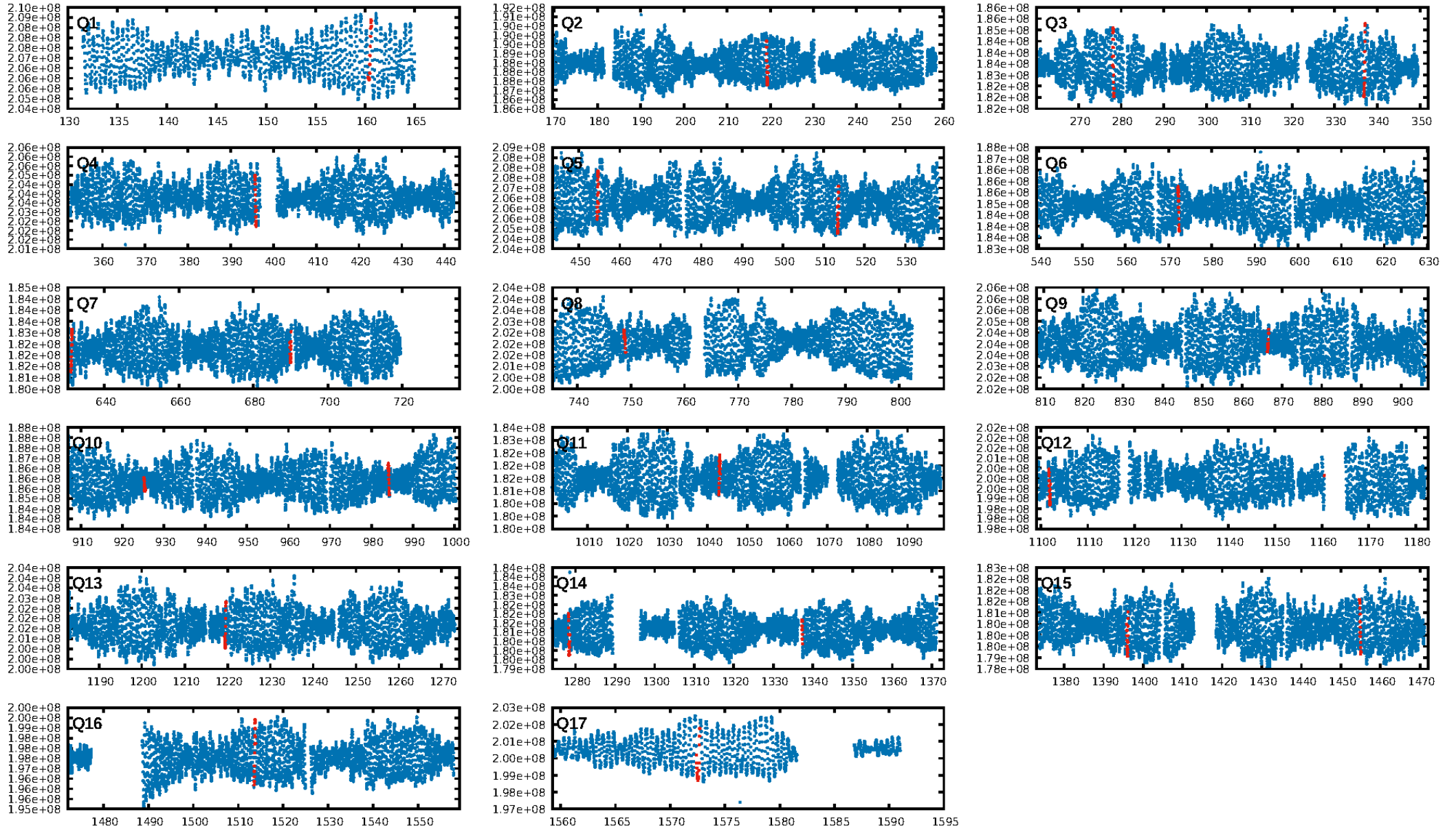
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [197.71 σ]
LongPeriod-sig: 100.0% [47.01 σ]
ModelChiSquare2-sig: 16.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.213
Centroid-sig: 4.0%
Centroid-so: 0.227 arcsec [2.24 σ]
OotOffset-rm: 0.053 arcsec [0.37 σ]
KicOffset-rm: 0.137 arcsec [1.04 σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/15]

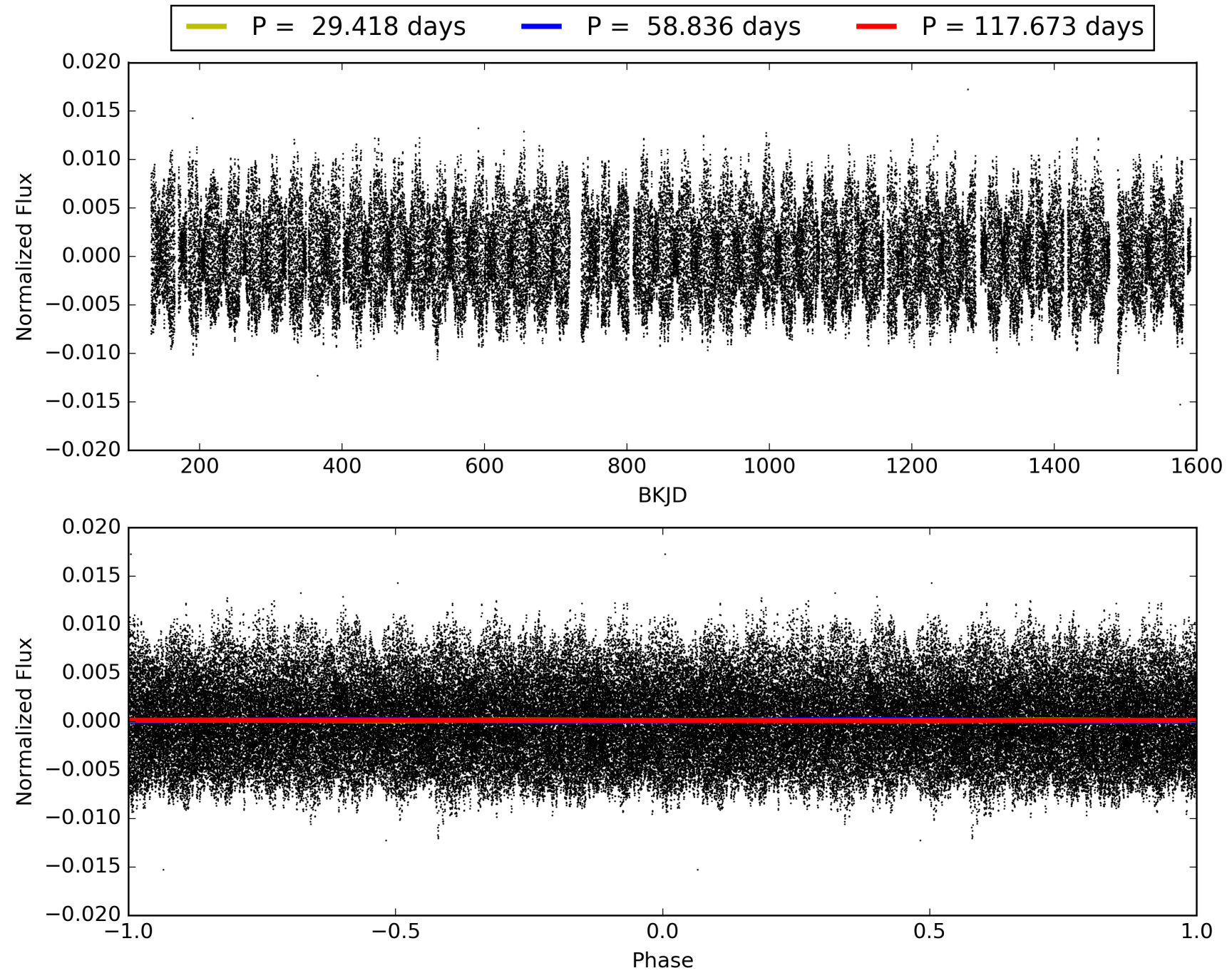
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:55 Z

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

TCE 006468987-04, PDC Light Curves

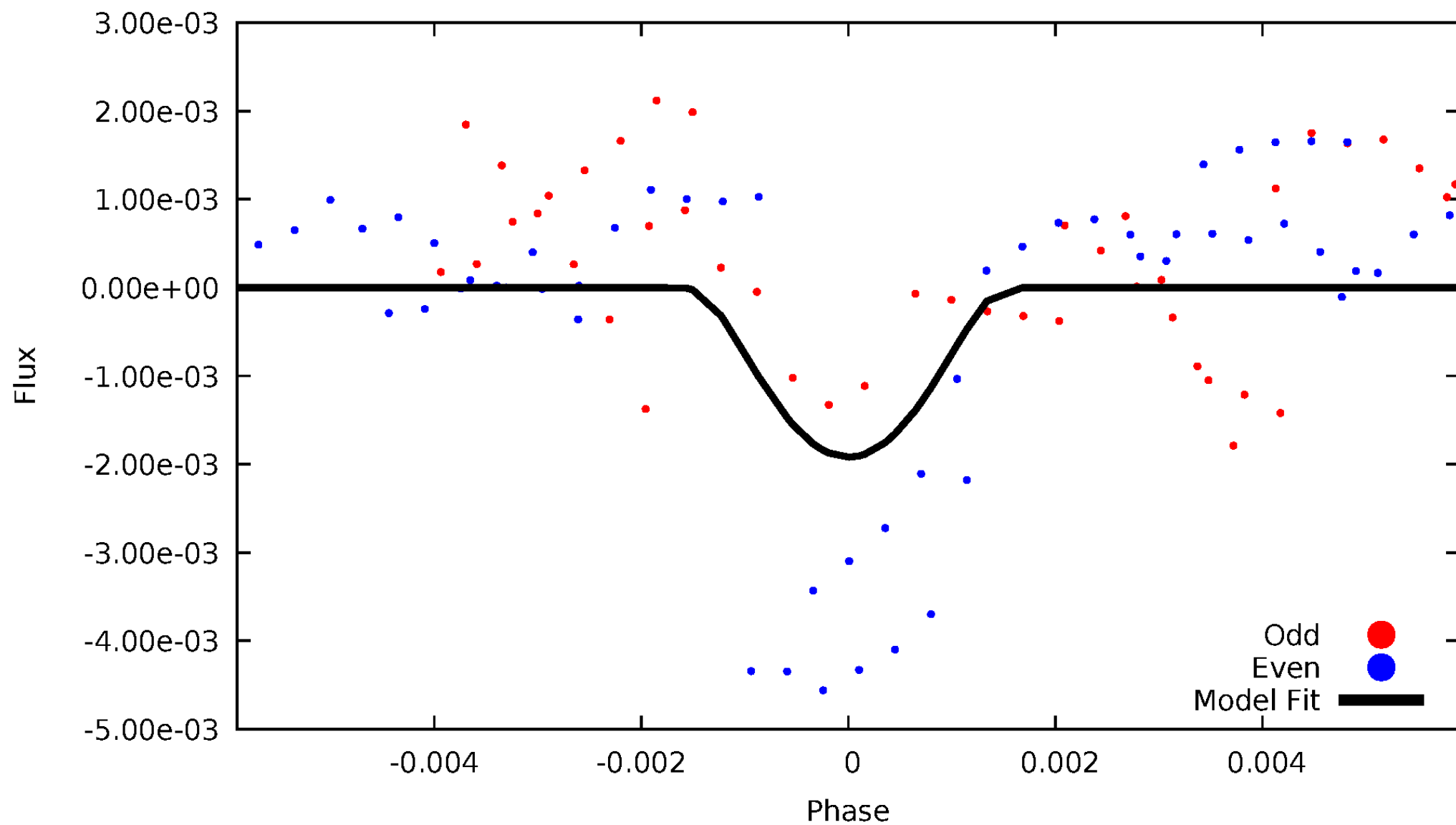


TCE 006468987-04



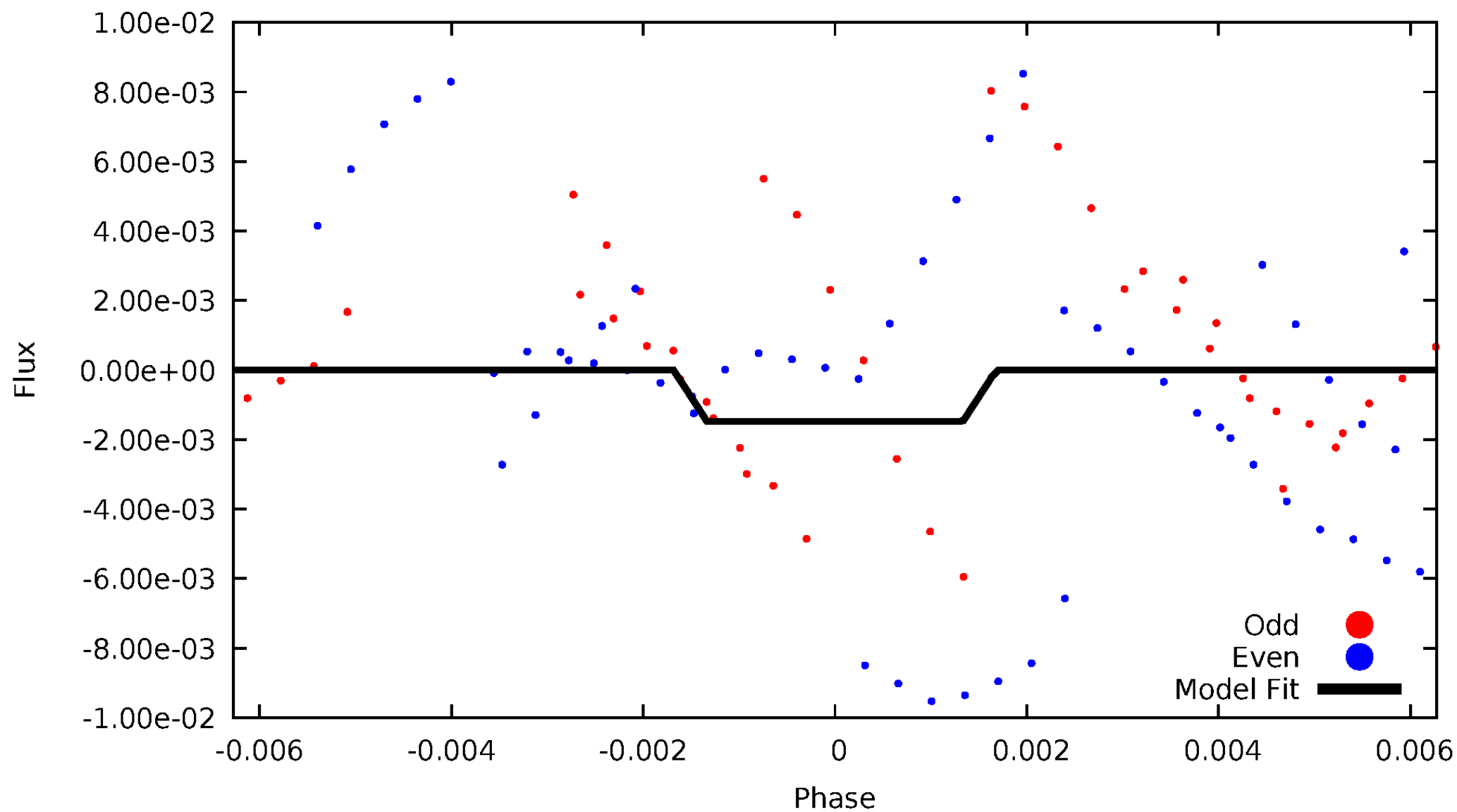
DV Odd/Even

TCE 006468987-04



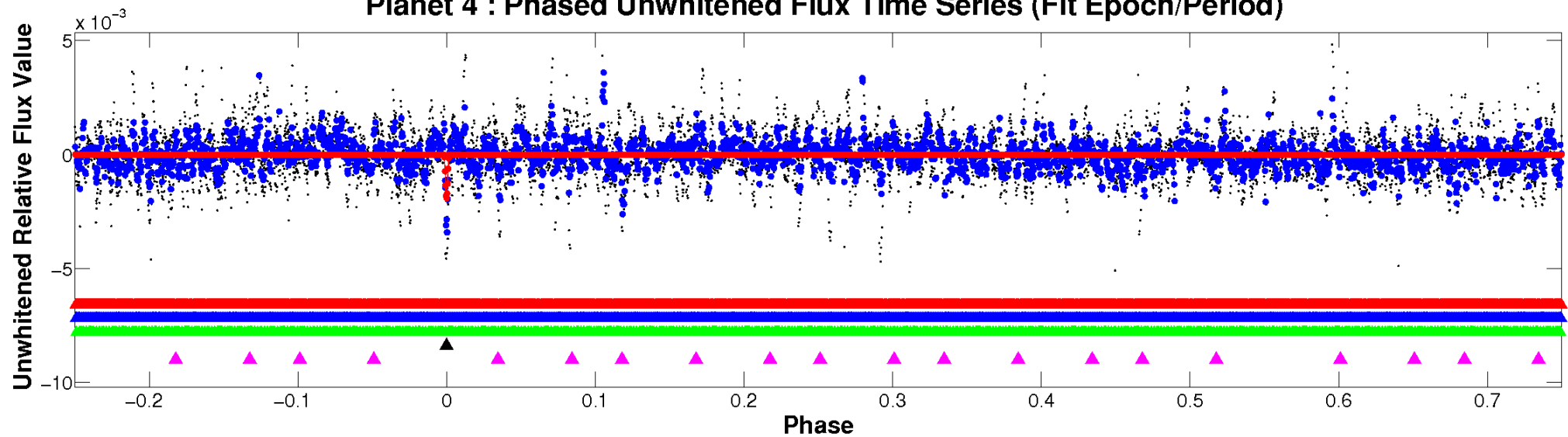
ALT Odd/Even

TCE 006468987-04

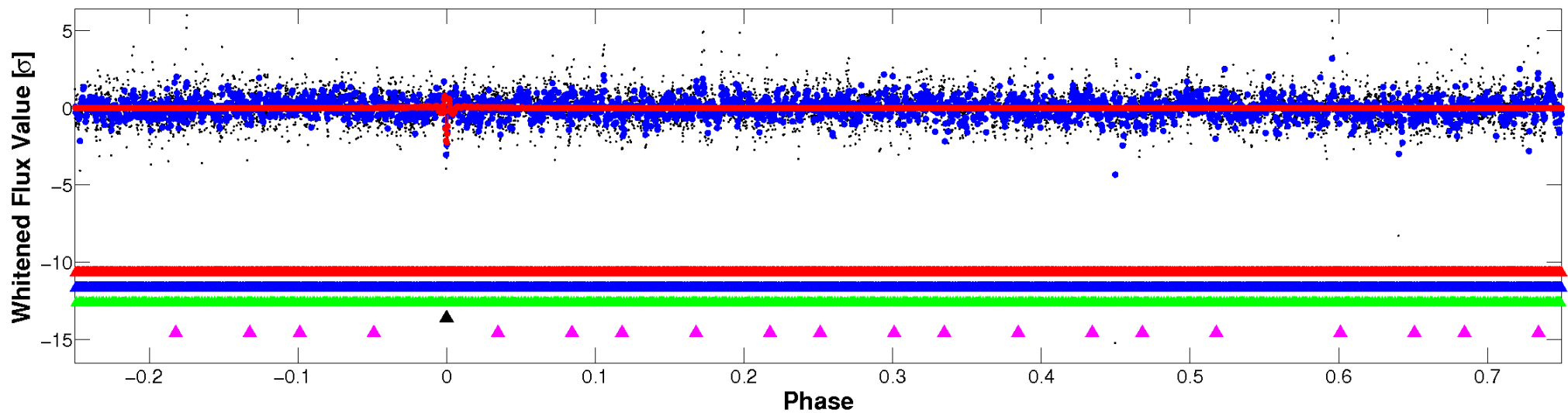


Non-Whitened Vs. Whitened Light Curve

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

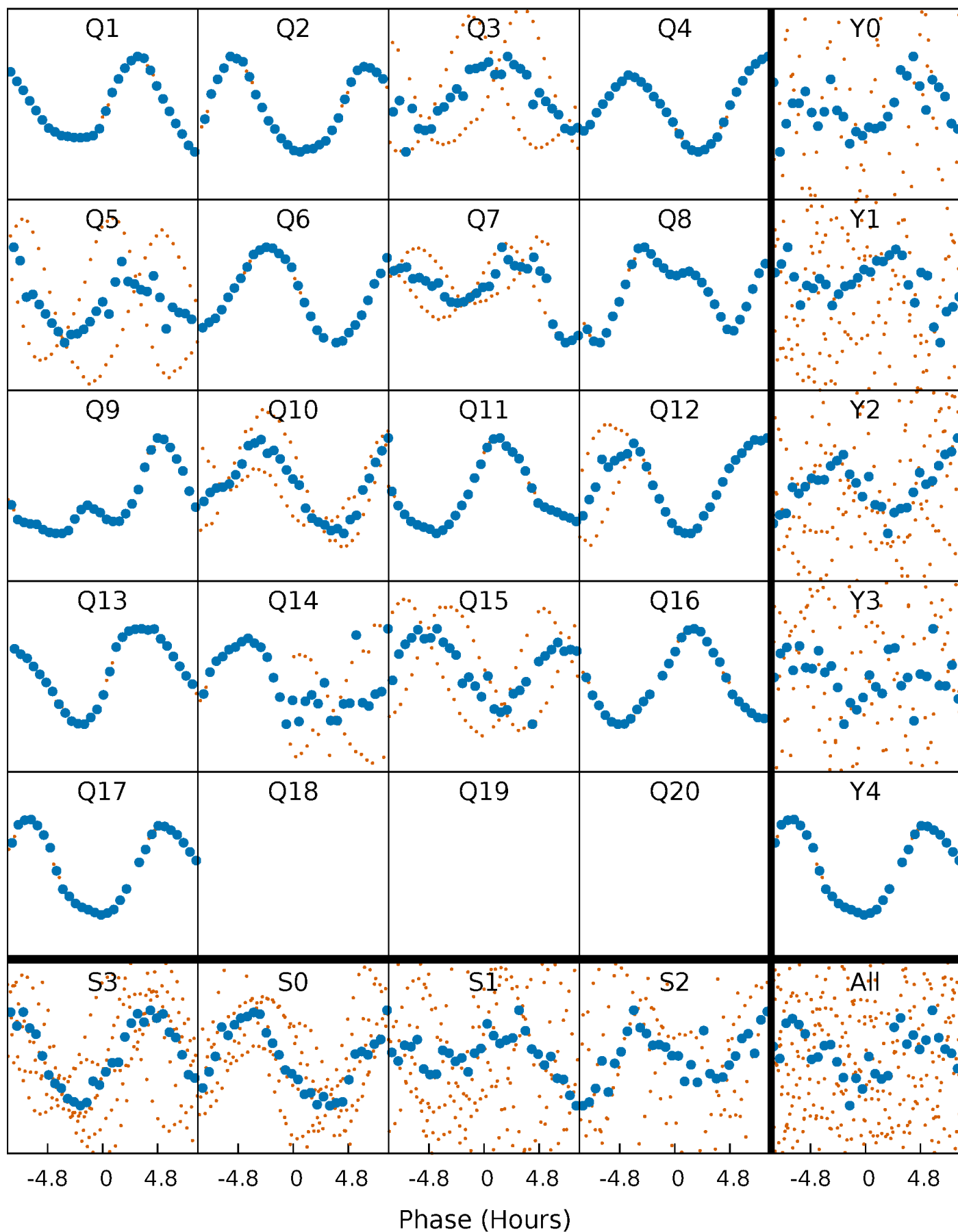


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



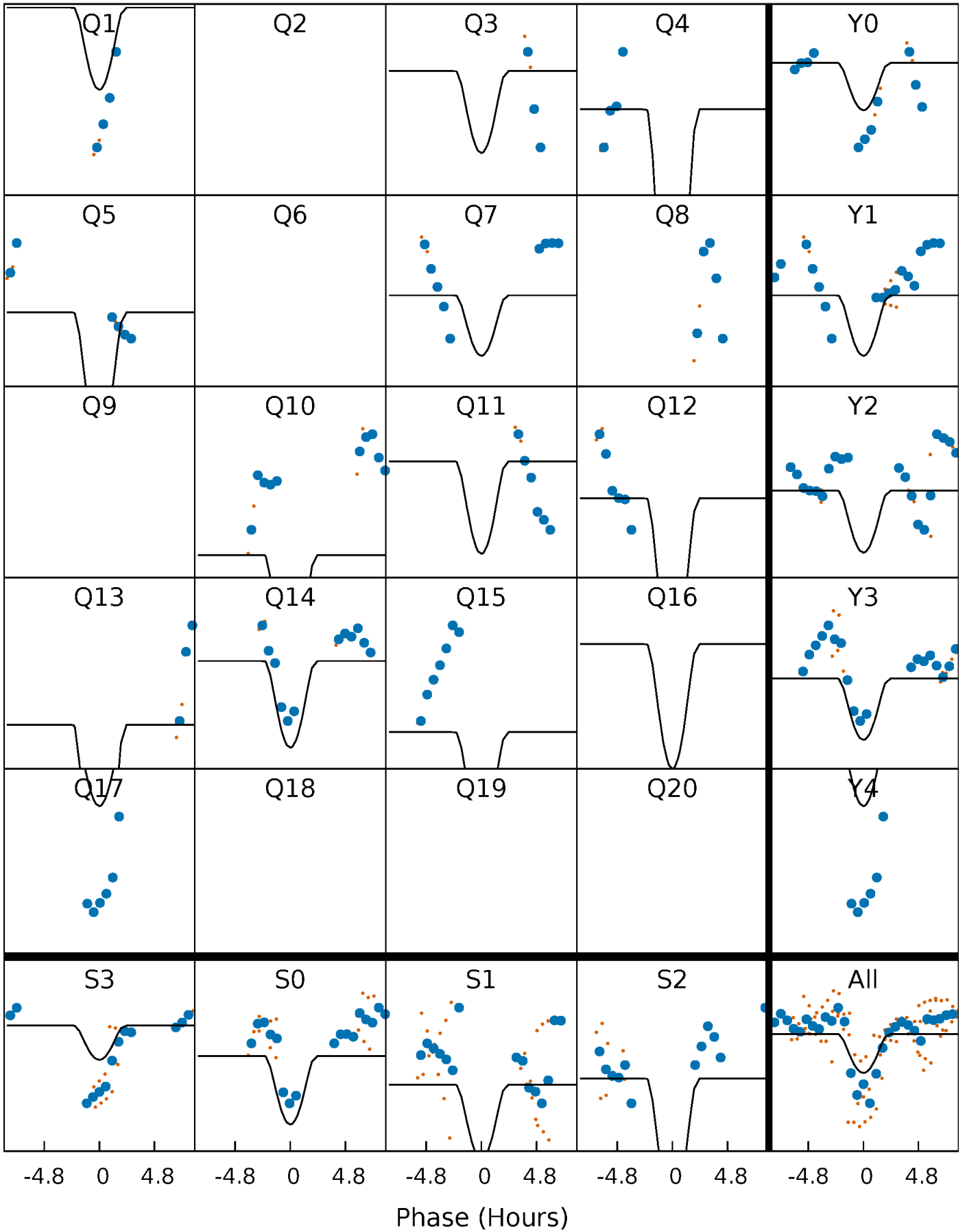
PDC Quarter-Phased Transit Curves

TCE 006468987-04 P= 58.836472 Days $T_0=160.467172$ (BKJD)



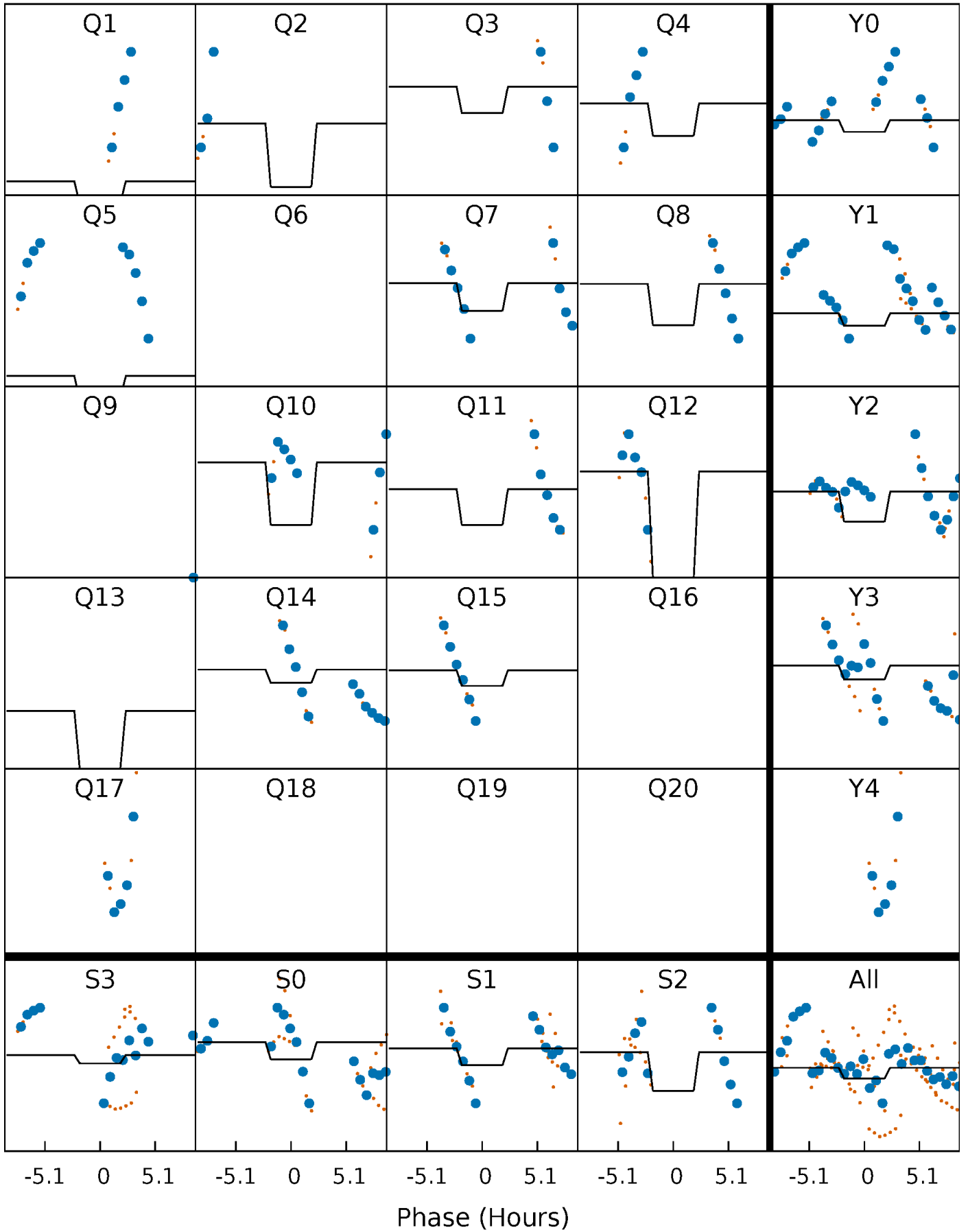
DV Quarter-Phased Transit Curves

TCE 006468987-04 P= 58.836472 Days $T_0=160.467172$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

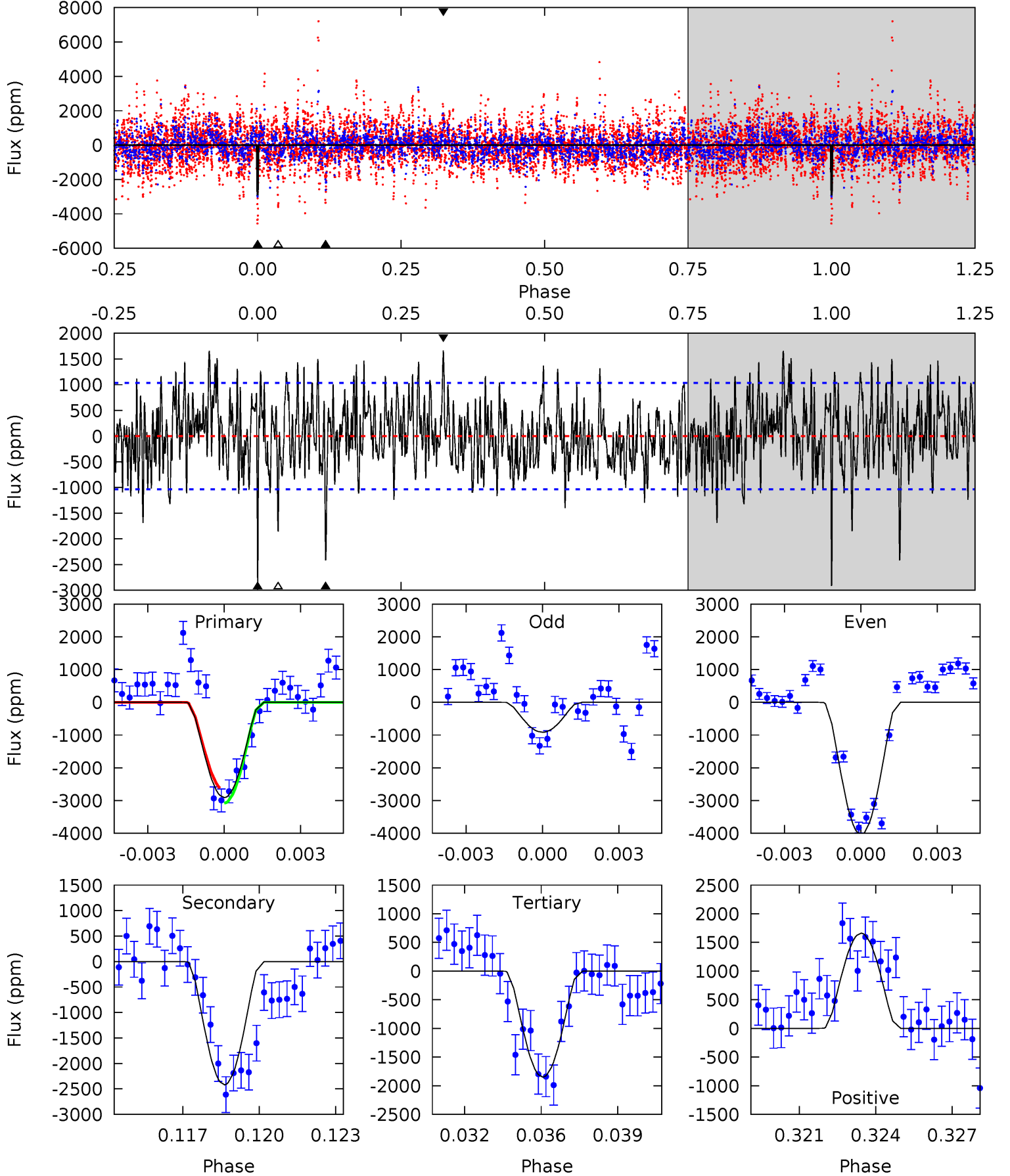
TCE 006468987-04 P= 58.835639 Days $T_0=160.413542$ (BKJD)



DV Model-Shift Uniqueness Test

006468987-04, P = 58.836472 Days, E = 101.630700 Days

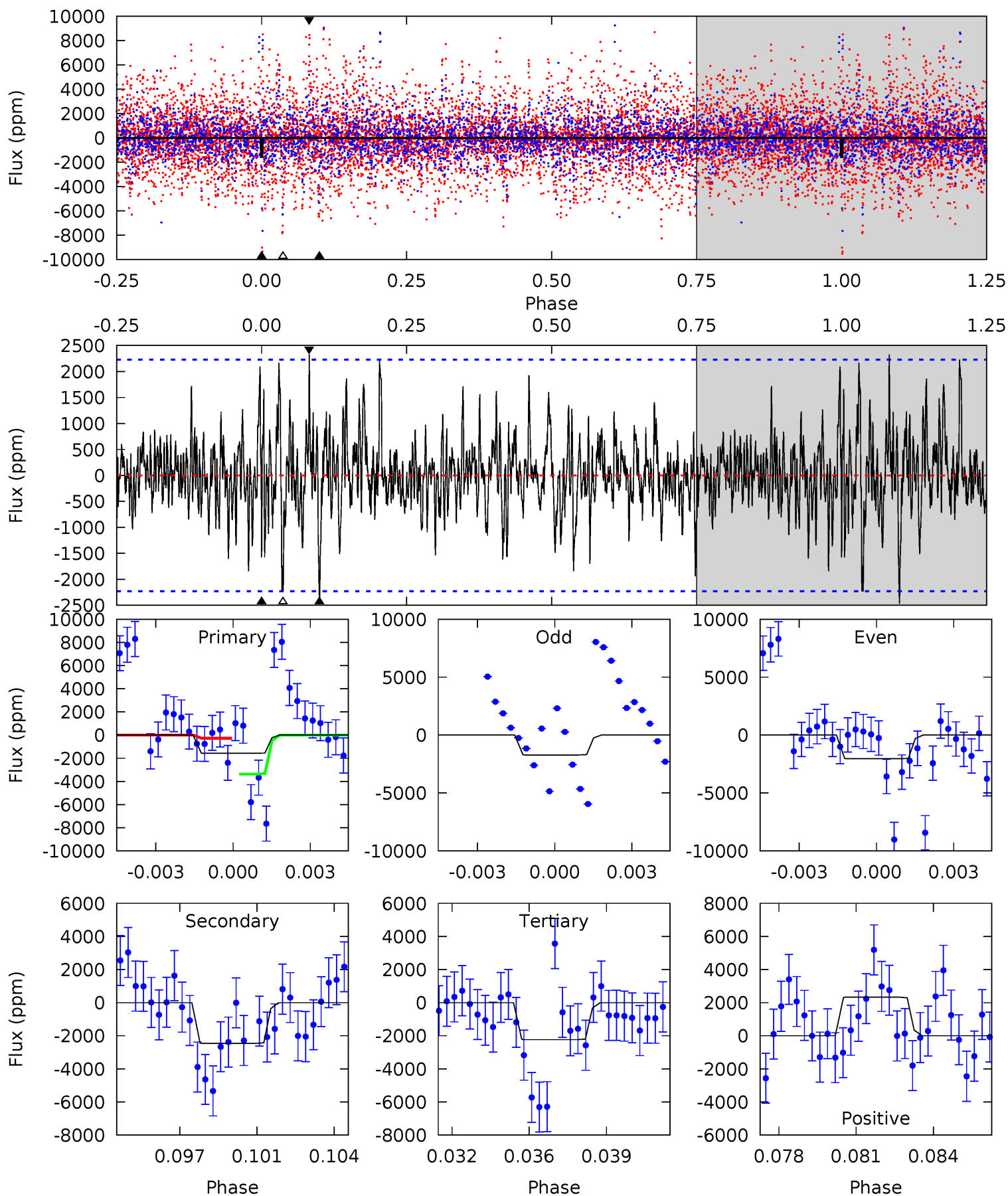
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	12.2	9.36	8.41	5.24	2.94	2.75	5.37	6.32	2.88	3.83	7.78	1.33	0.36	1.16



Alt Model-Shift Uniqueness Test

006468987-04, P = 58.835639 Days, E = 101.577903 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.70	5.79	5.25	5.47	5.24	2.94	1.40	-1.55	-1.77	0.54	0.32	0.38	1.60	0.49	3.64



Stellar Parameters For KIC 006468987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7299^{+228}_{-304}	$3.974^{+0.240}_{-0.160}$	$-0.120^{+0.250}_{-0.350}$	$2.178^{+0.560}_{-0.684}$	$1.628^{+0.199}_{-0.323}$	$0.222^{+0.329}_{-0.101}$
	+3%/-4%	+6%/-4%	+208%/-292%	+26%/-31%	+12%/-20%	+148%/-45%
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 006468987-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2419 ± 198	$42.12^{+44.07}_{-27.60}$	1114^{+94}_{-98}	4019^{+2226}_{-826}	87^{+657}_{-66}
Alt.	-2464 ± 425	$41.54^{+42.36}_{-28.71}$	1111^{+91}_{-91}	4128^{+2813}_{-900}	96^{+875}_{-74}

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

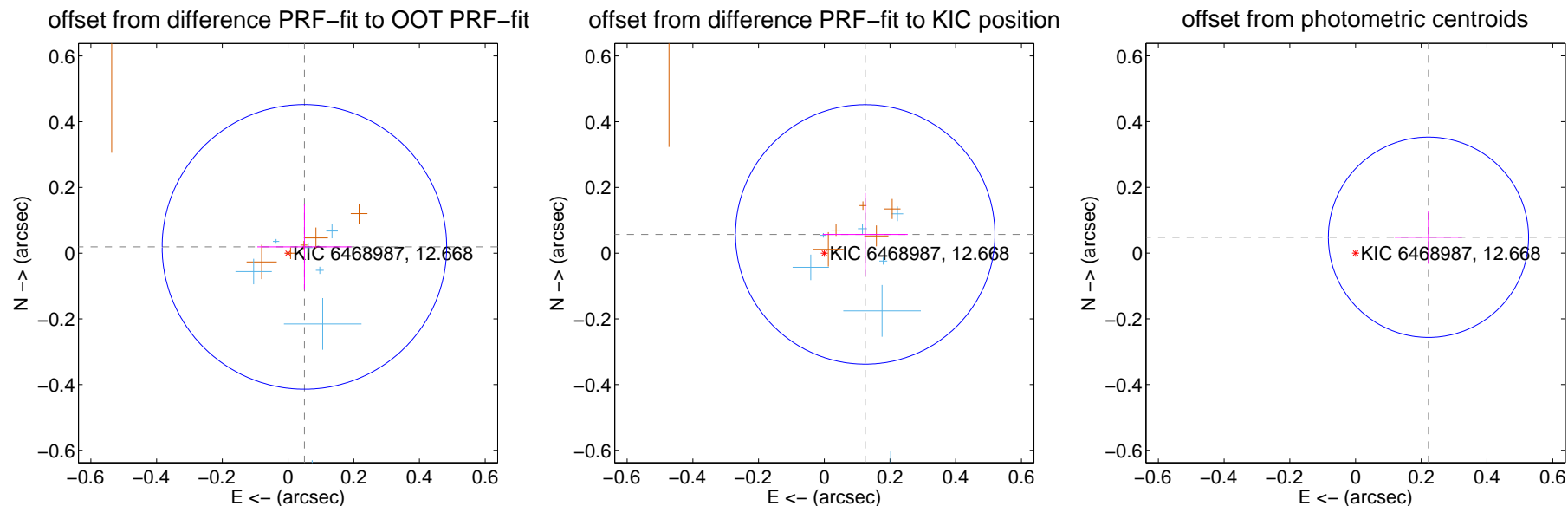
DV Centroid Data

Supplemental centroid analysis for 006468987-04. Kepler magnitude: 12.67. Transit SNR 7.23

There are 7 quarters with good PRF difference image offsets

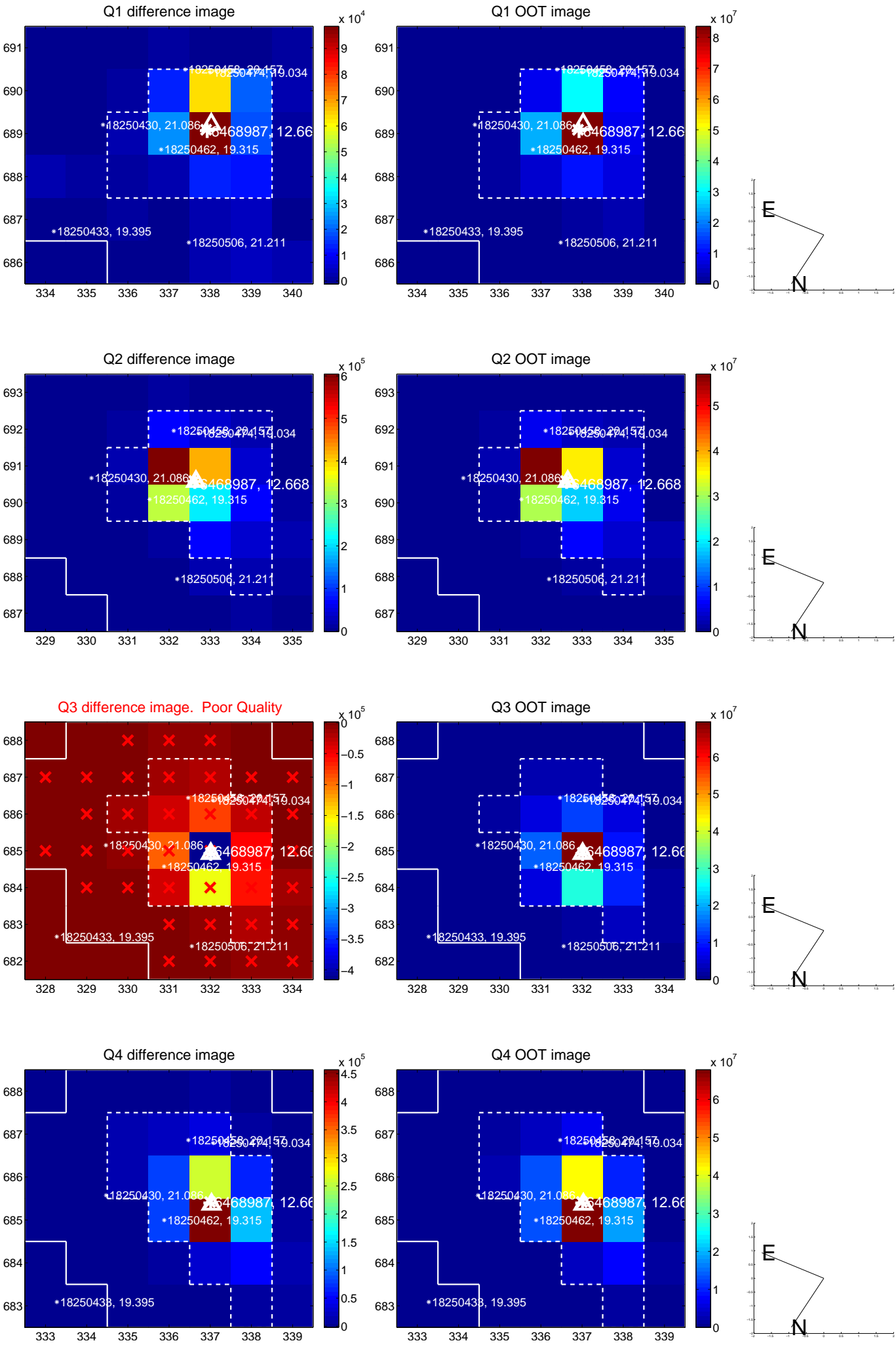
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.053 ± 0.144	0.37	-0.050 ± 0.143	0.019 ± 0.130
PRF-fit source offset from KIC position	0.137 ± 0.132	1.04	-0.124 ± 0.130	0.057 ± 0.126
photometric centroid source offset	0.23 ± 0.10	2.24	-0.22 ± 0.10	0.05 ± 0.08

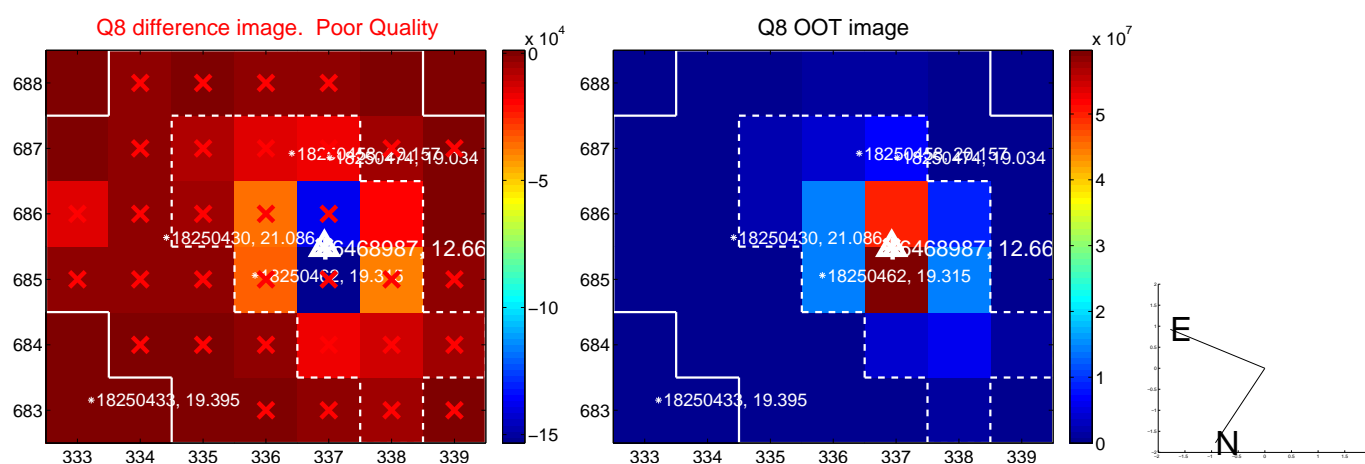
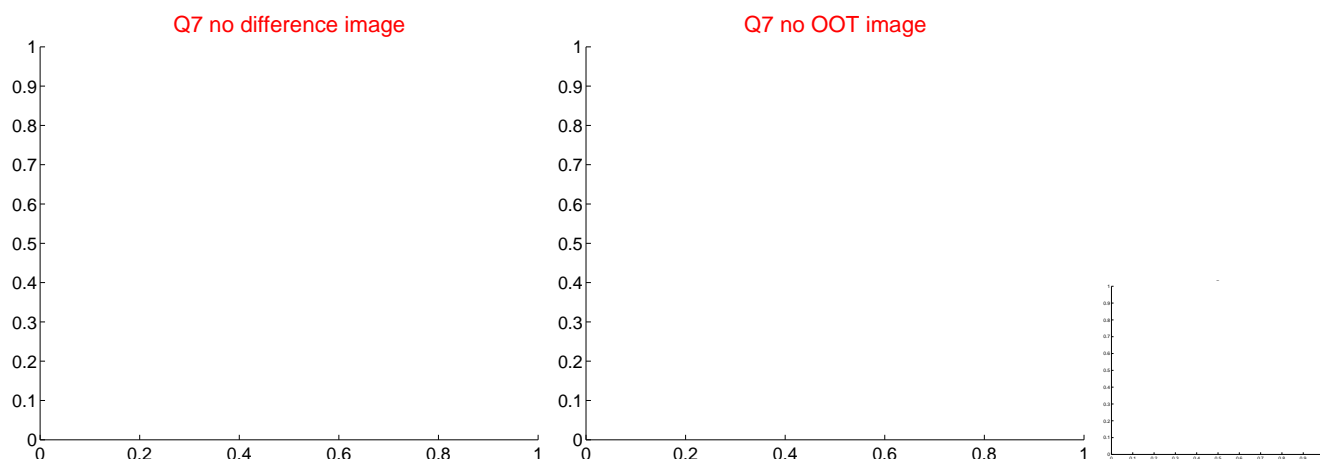
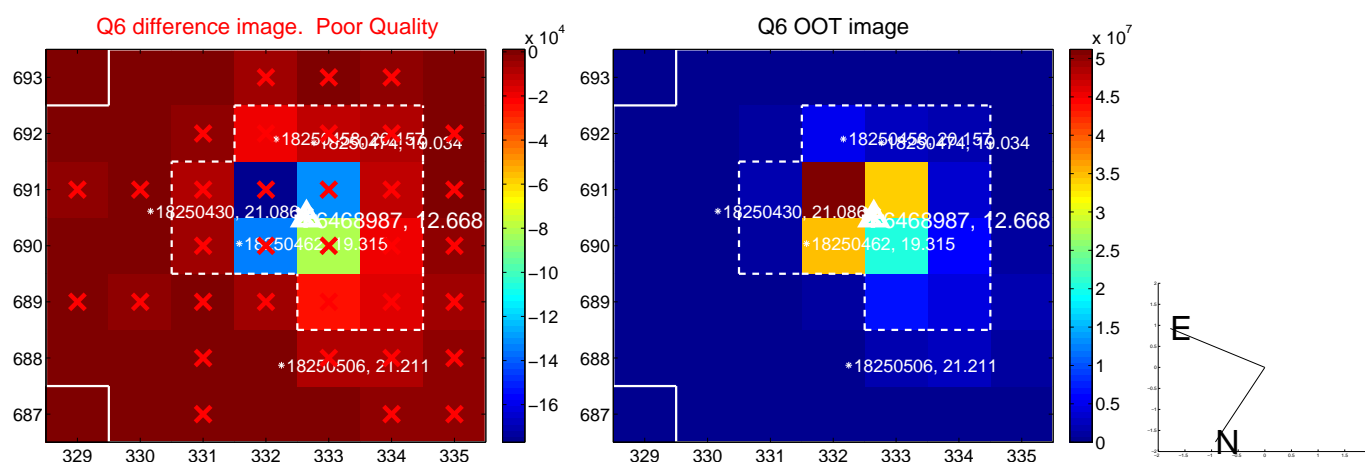
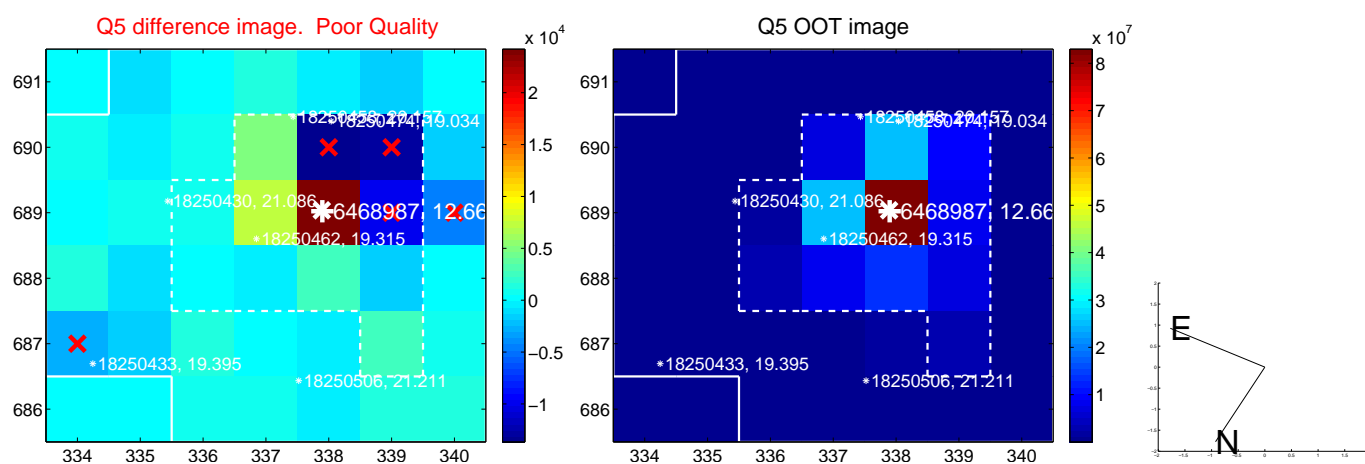


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

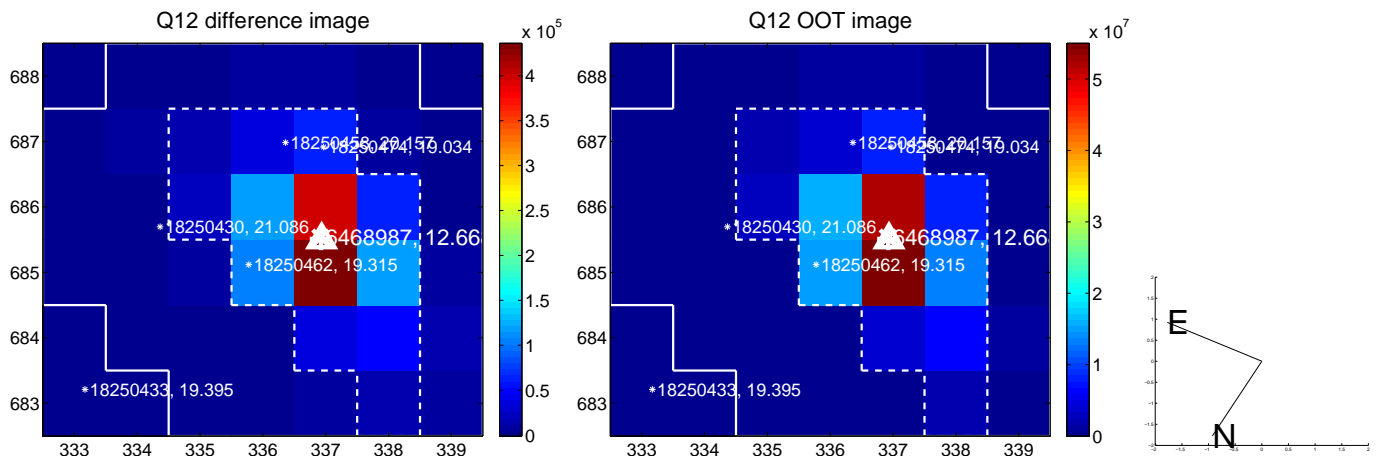
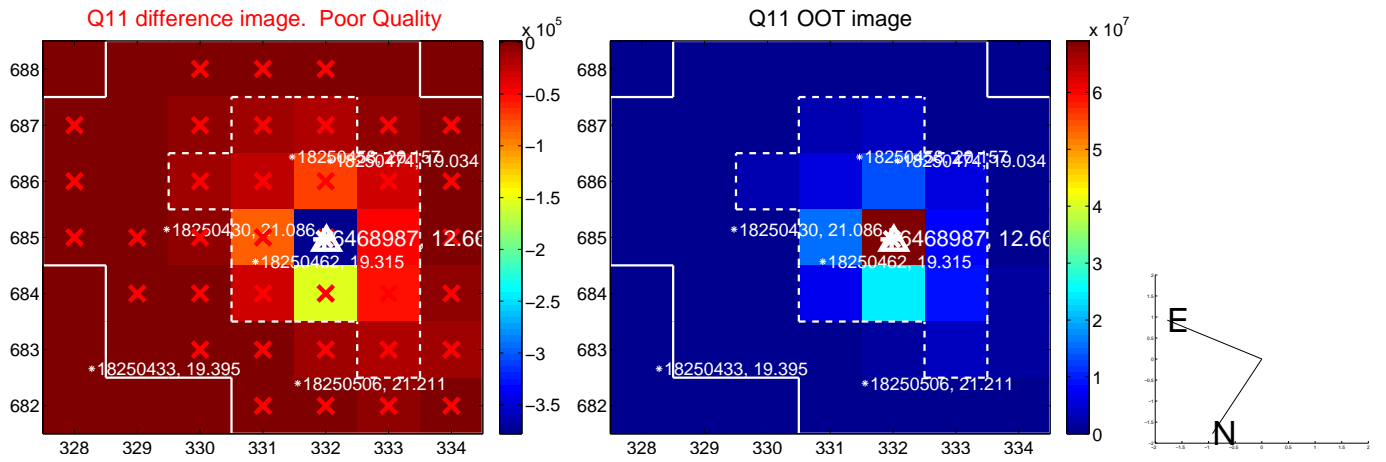
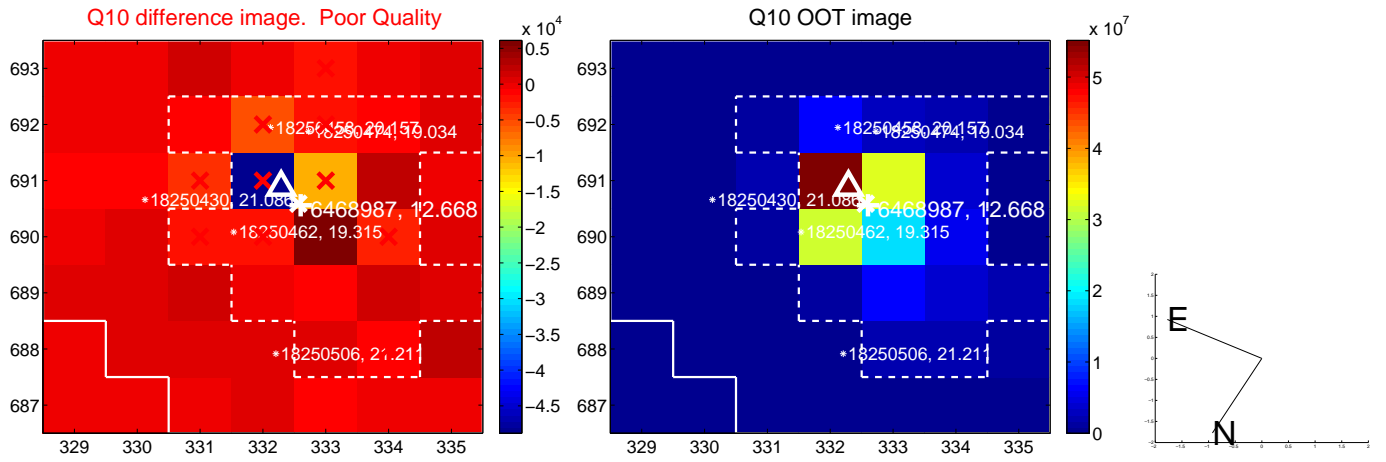
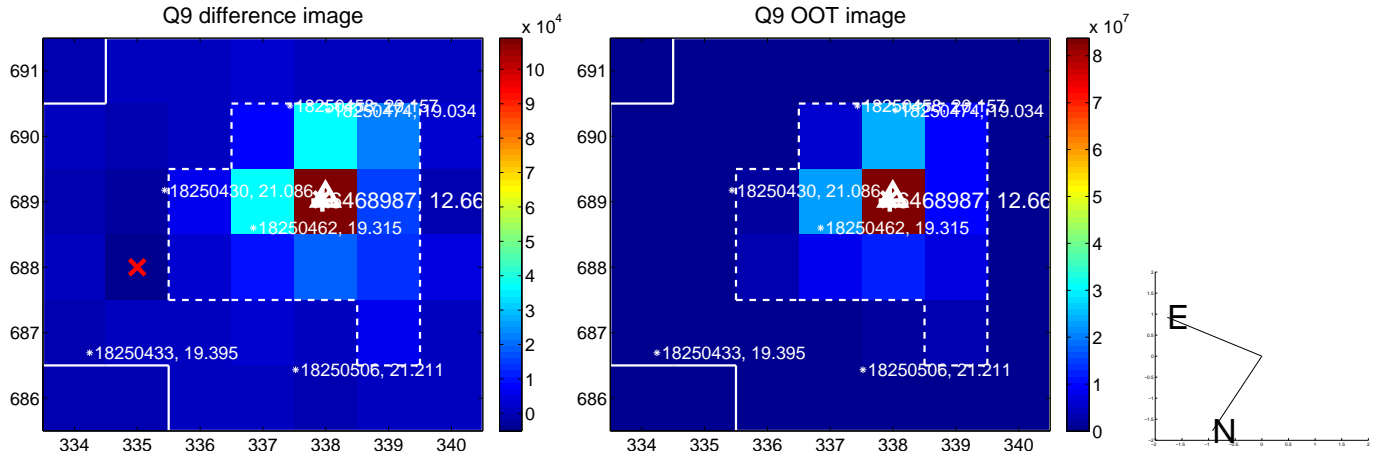
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



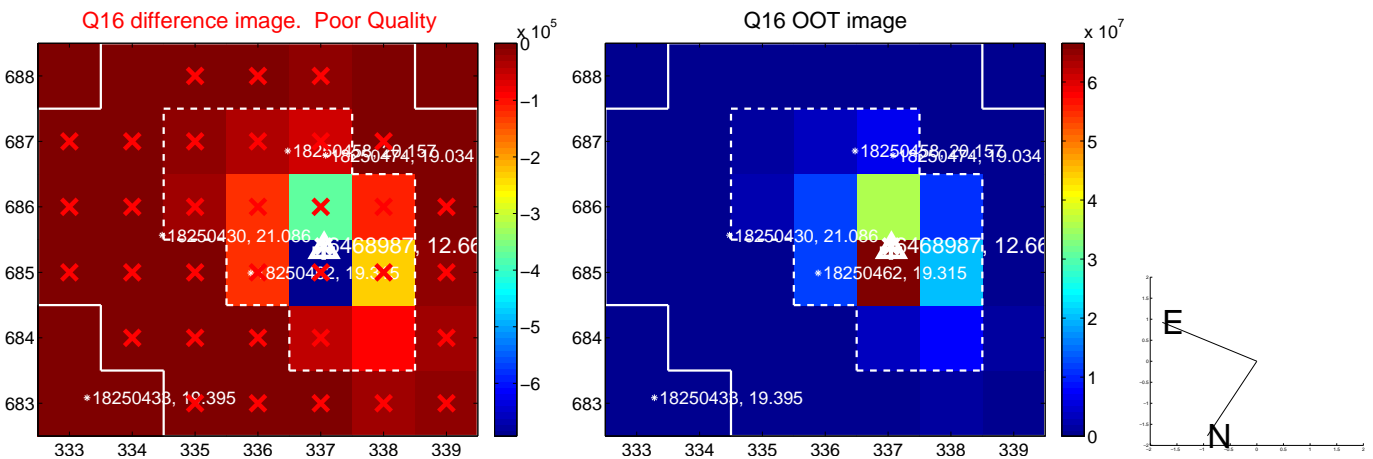
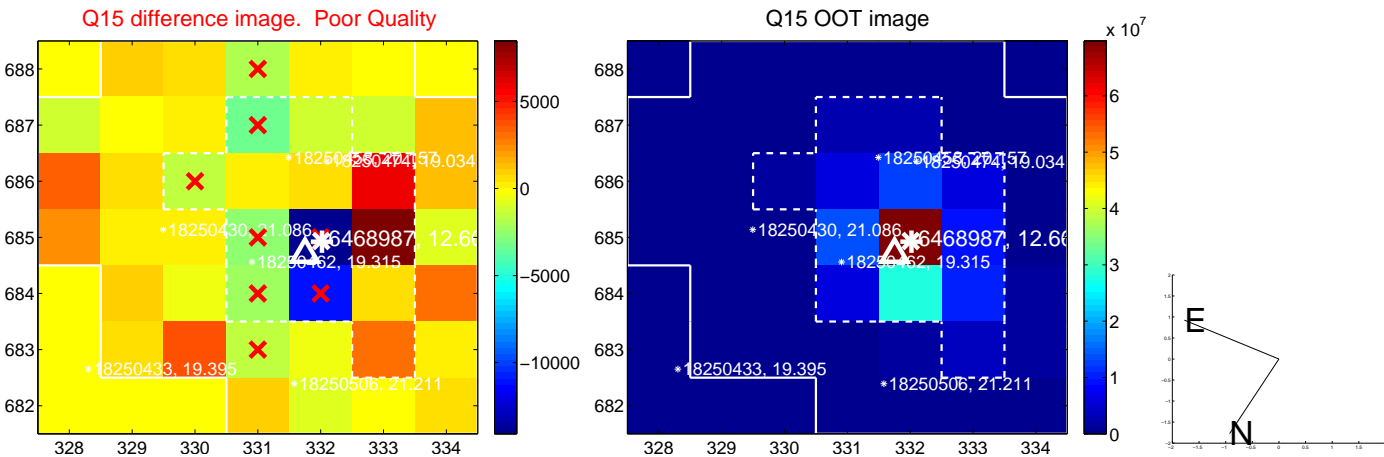
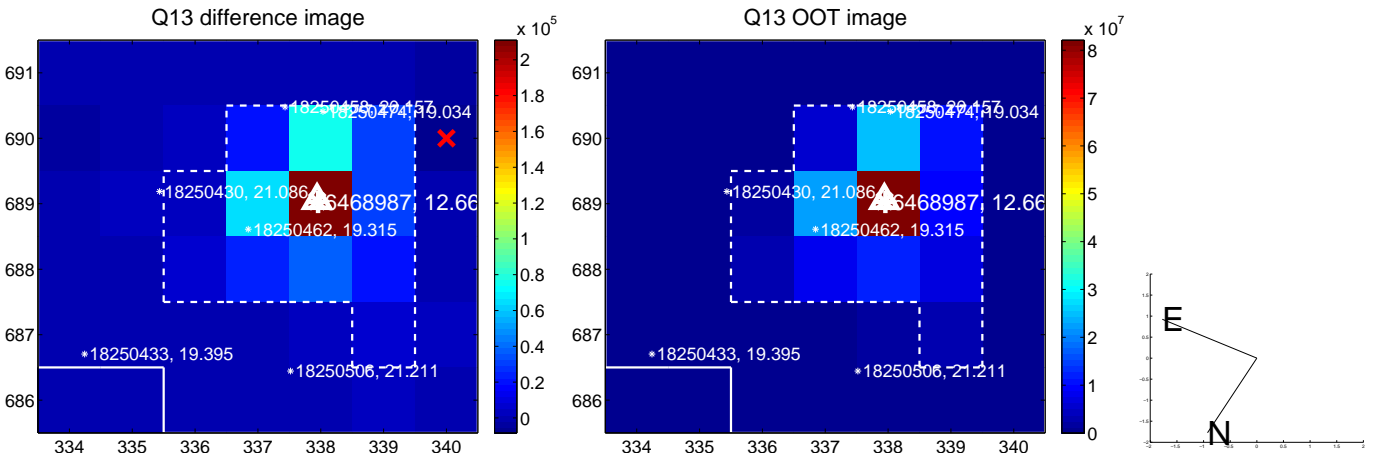
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



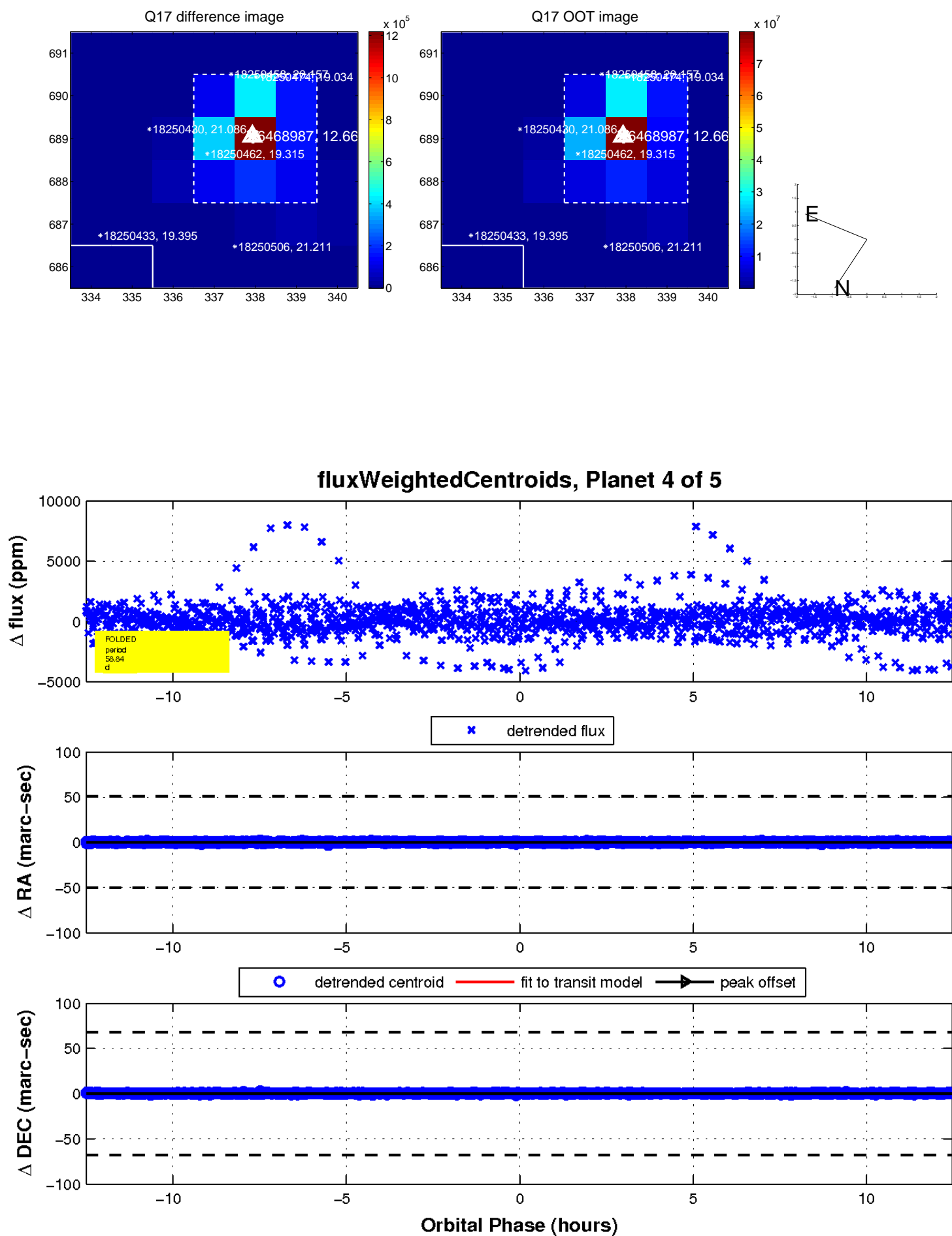
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

