

KIC 008188360

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})
008188360-01	OBS	No	3.000022	133.347696	58.2	17.251	7.7	7.9	0.52	4685	0.40	108.62
008188360-03	OBS	No	134.378184	198.523879	525.3	13.747	11.4	6.0	0.52	4685	1.33	0.68
008188360-04	OBS	No	112.861704	196.209226	1644.7	1.797	7.5	8.2	0.52	4685	2.58	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008188360-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008188360-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008188360-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

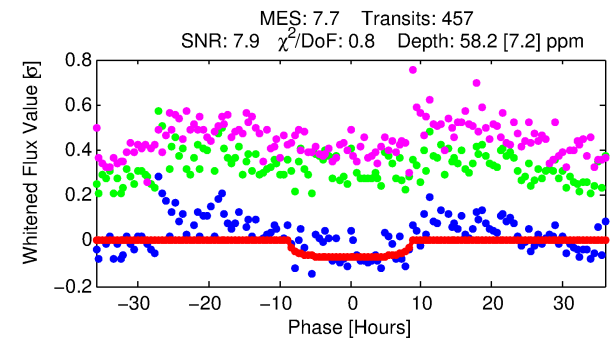
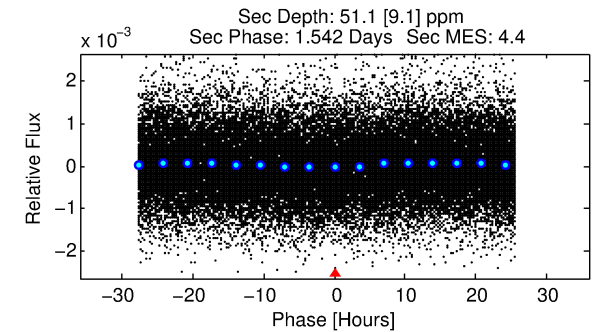
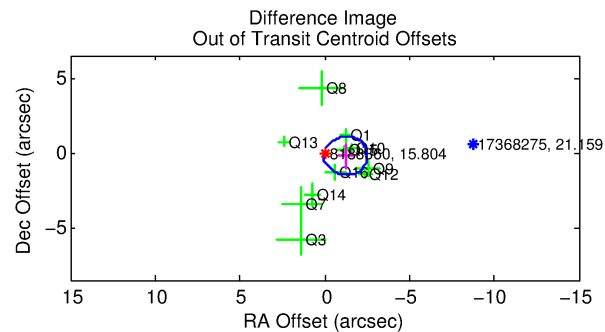
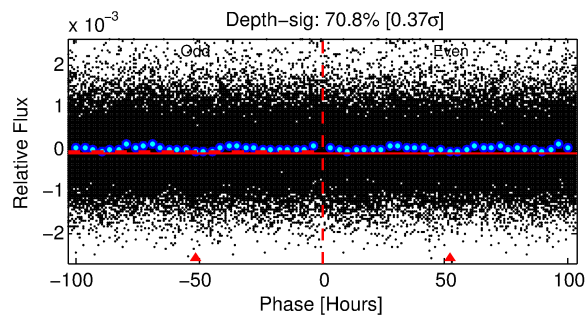
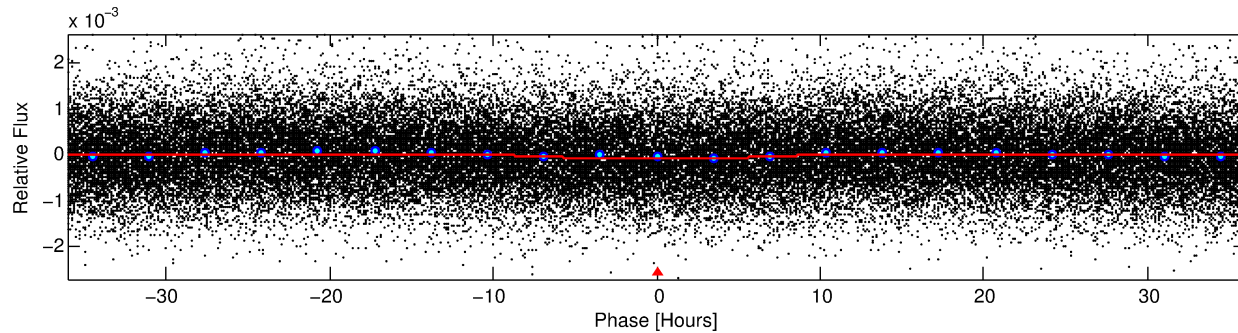
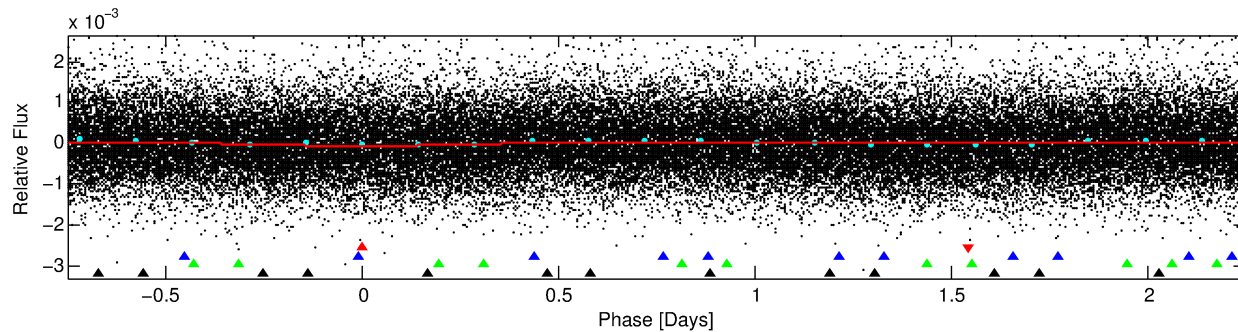
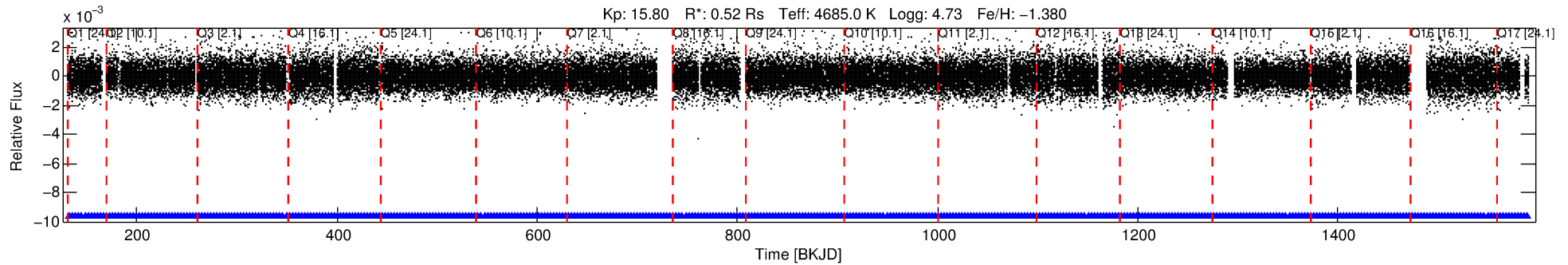
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008188360-01

No Significant Match Found

DV One-Page Summary

KIC: 8188360 Candidate: 1 of 4 Period: 3.000 d



DV Fit Results:

Period = 3.00002 [0.00010] d
Epoch = 133.3477 [0.0212] BKJD
Rp/R* = 0.0069 [0.0164]
a/R* = 1.44 [7.16]
b = 0.31 [28.65]
Seff = 108.62 [16.30]
Teq = 823 [31] K
Rp = 0.40 [0.94] Re
a = 0.0330 [0.0018] AU
Ag = 194.32 [917.08] [0.21 σ]
Teffp = 4752 [5608] K [0.70 σ]

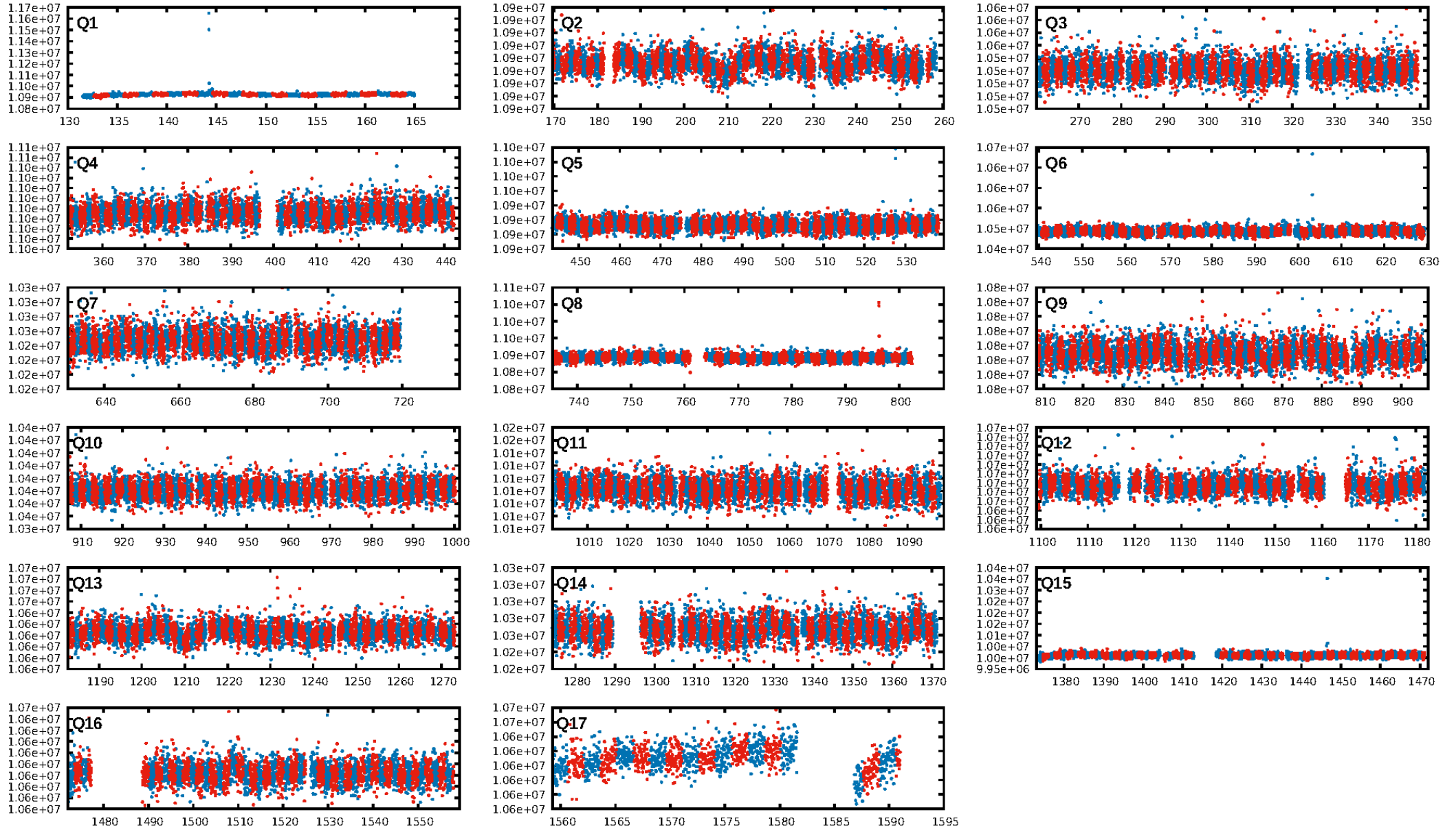
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [152.02 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.40e-11
RollingBand-fgt: 1.00 [437/437]
GhostDiagnostic-chr: 1.386
Centroid-sig: 31.7%
Centroid-so: 1.555 arcsec [0.86 σ]
OotOffset-rm: 1.268 arcsec [2.96 σ]
KicOffset-rm: 1.309 arcsec [2.78 σ]
OotOffset-st: 2/3/3/3 [11]
KicOffset-st: 2/3/3/3 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 1.00 [17/17]

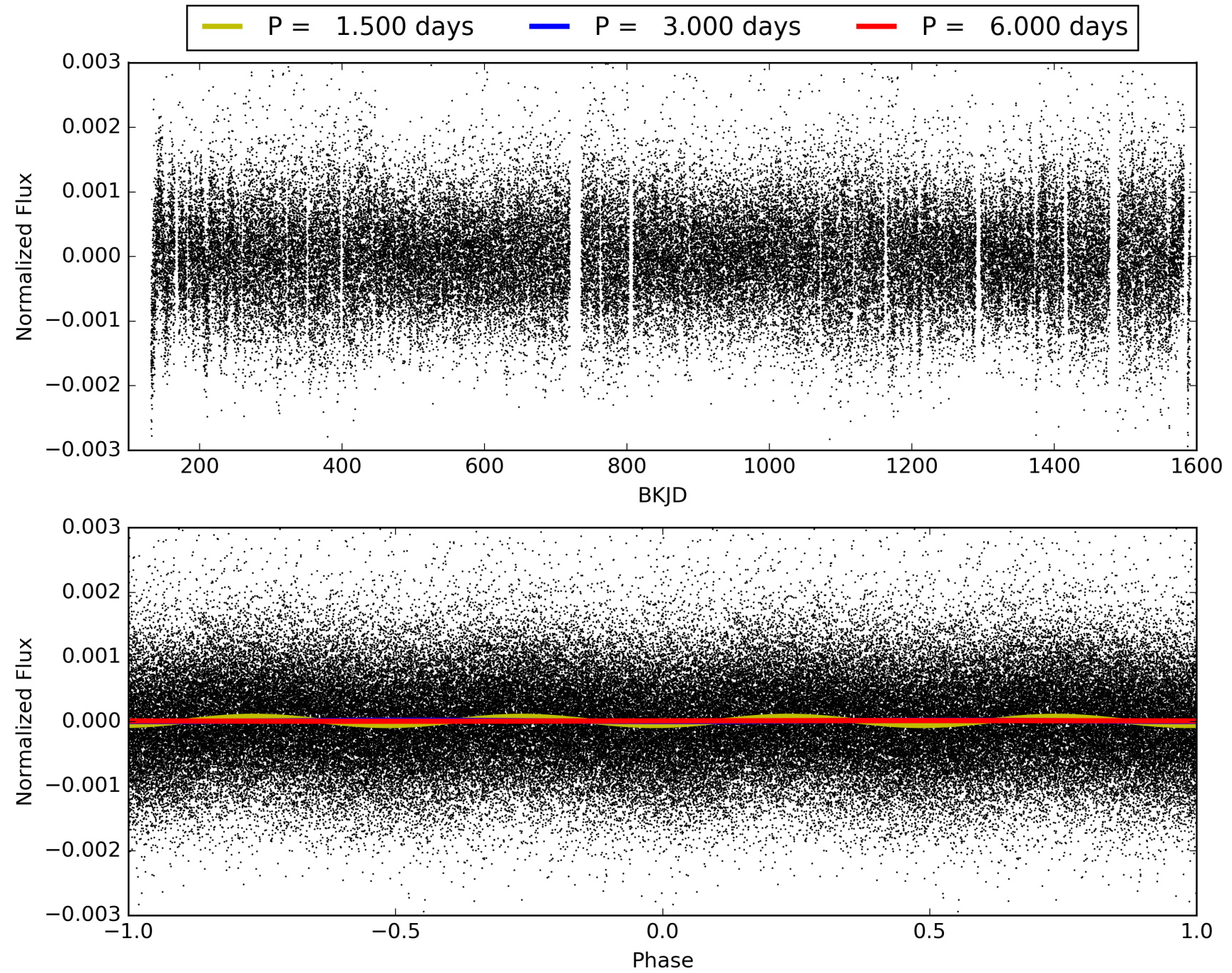
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:10:25 Z

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

TCE 008188360-01, PDC Light Curves

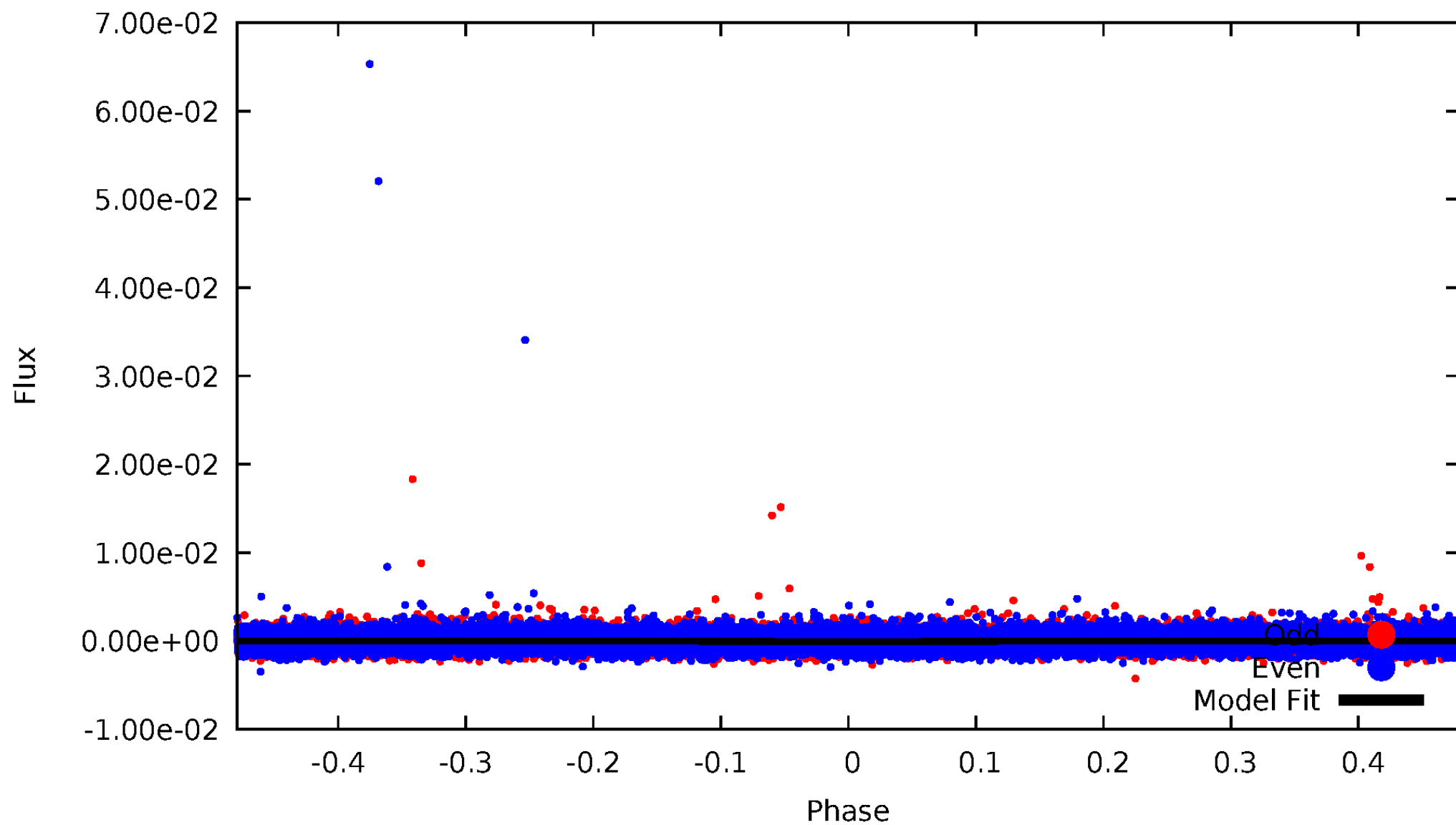


TCE 008188360-01



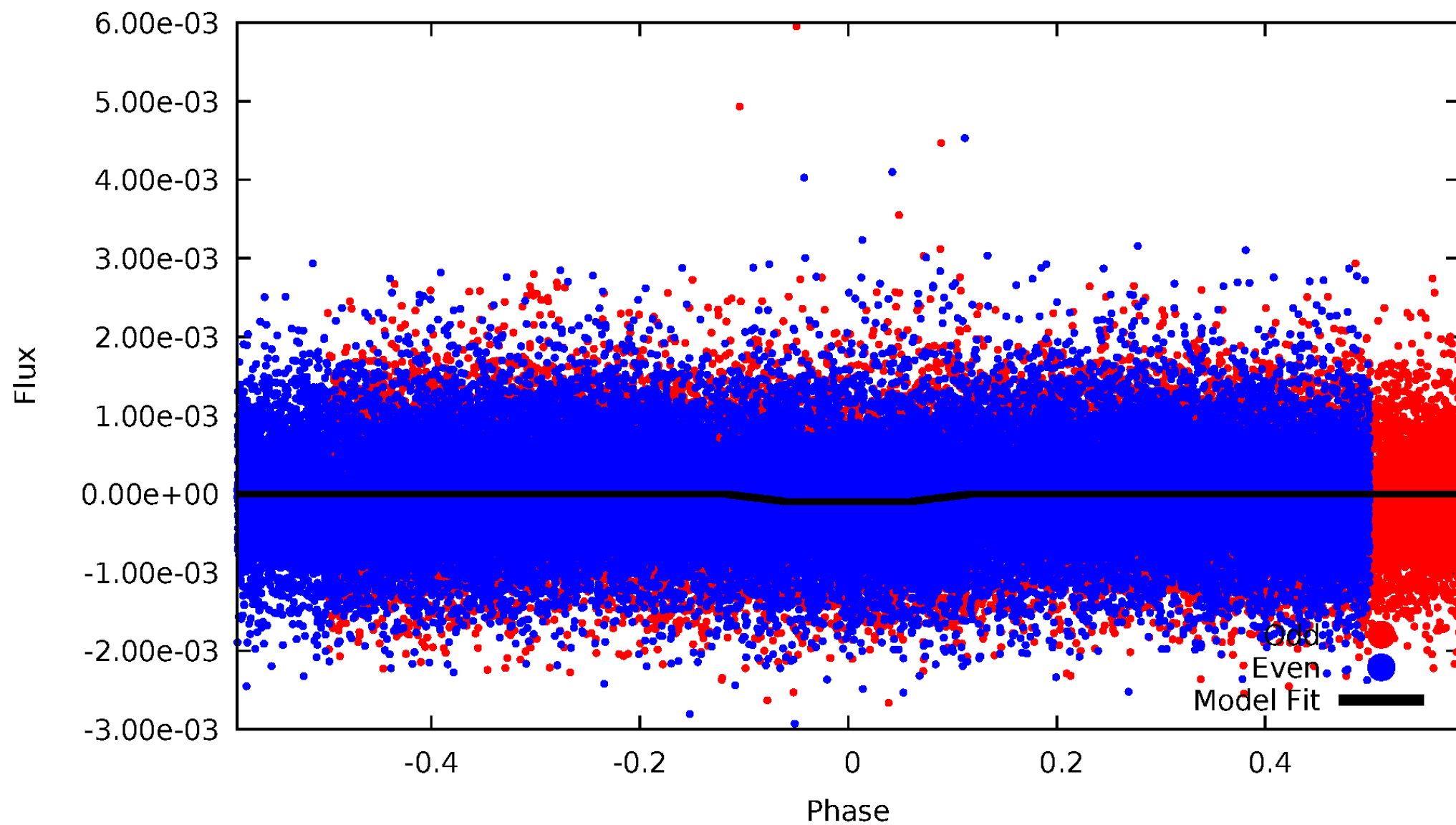
DV Odd/Even

TCE 008188360-01



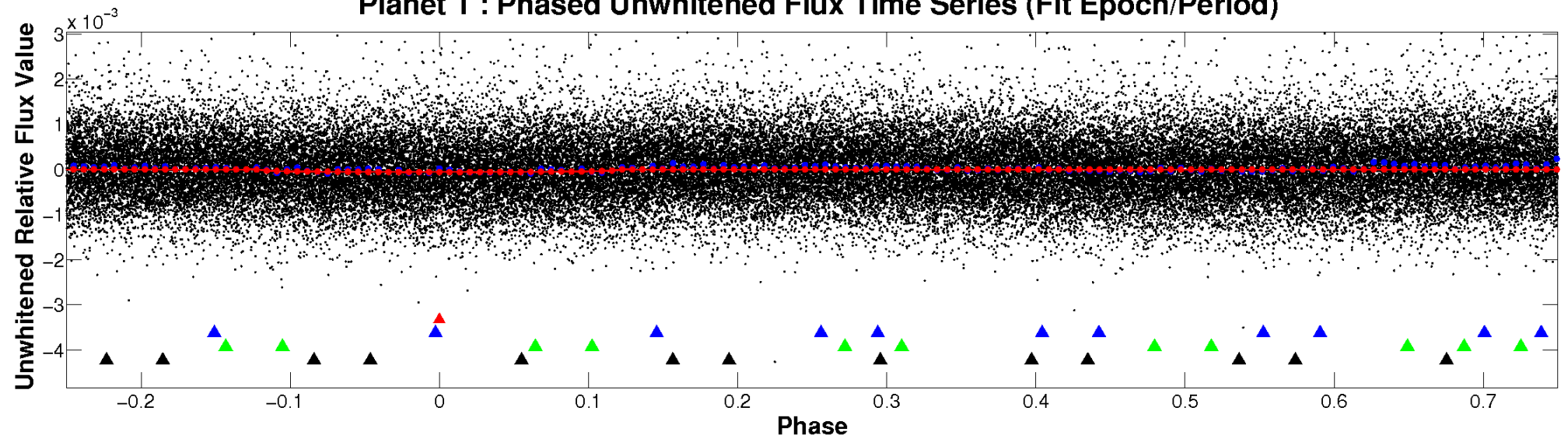
ALT Odd/Even

TCE 008188360-01

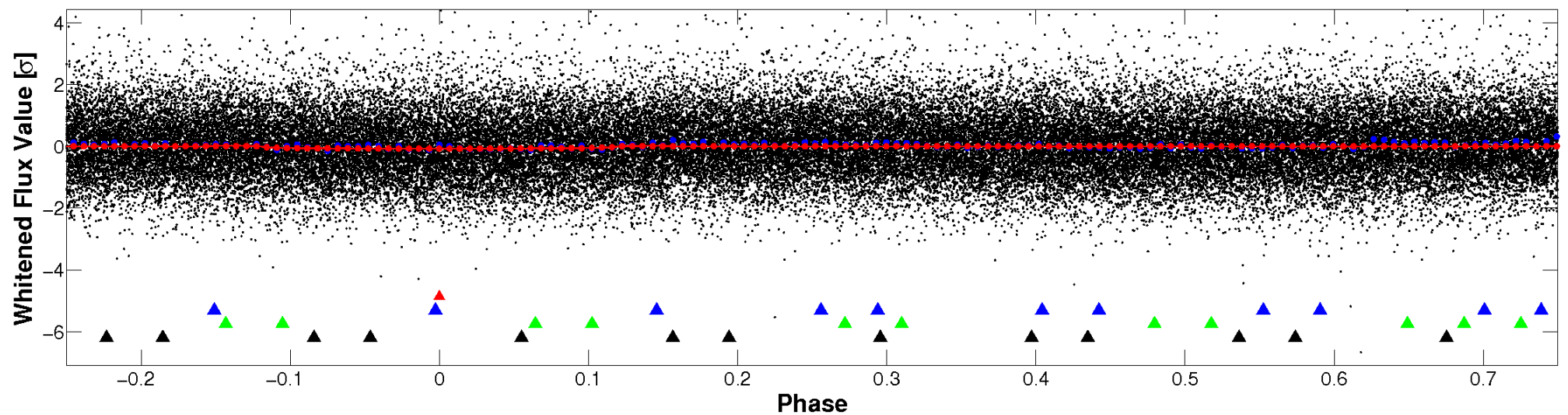


Non-Whitened Vs. Whitened Light Curve

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

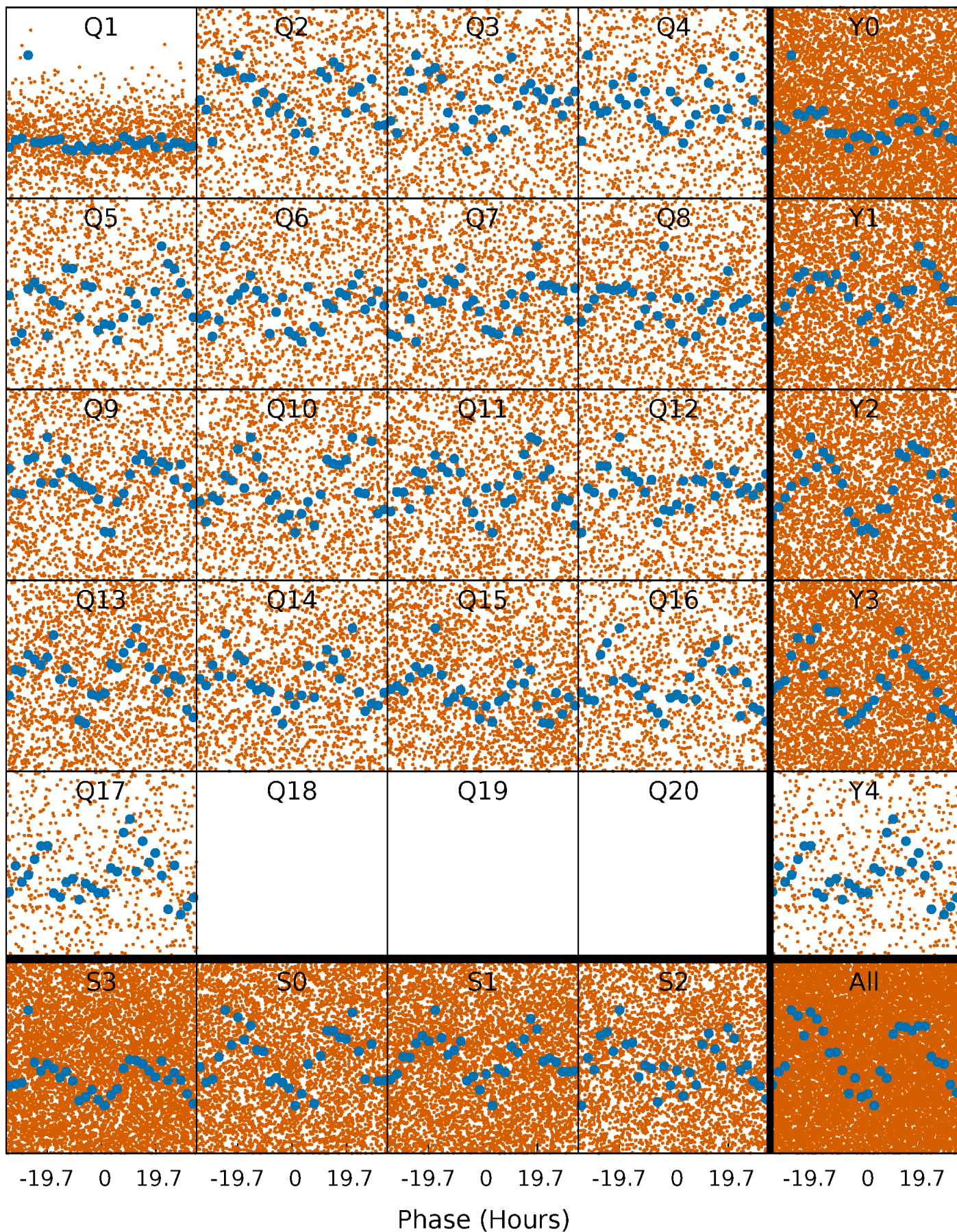


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



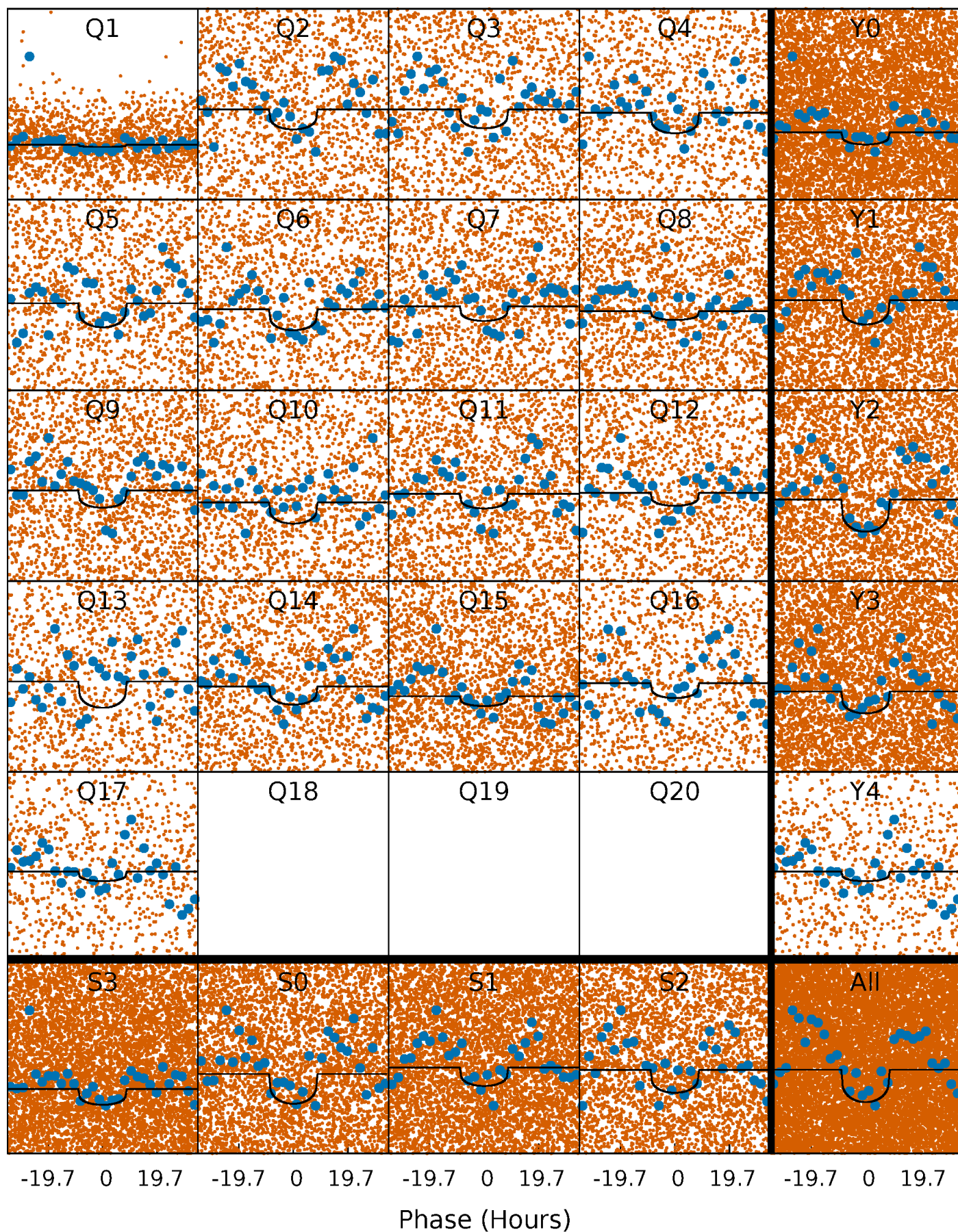
PDC Quarter-Phased Transit Curves

TCE 008188360-01 P= 3.000022 Days $T_0=133.347696$ (BKJD)



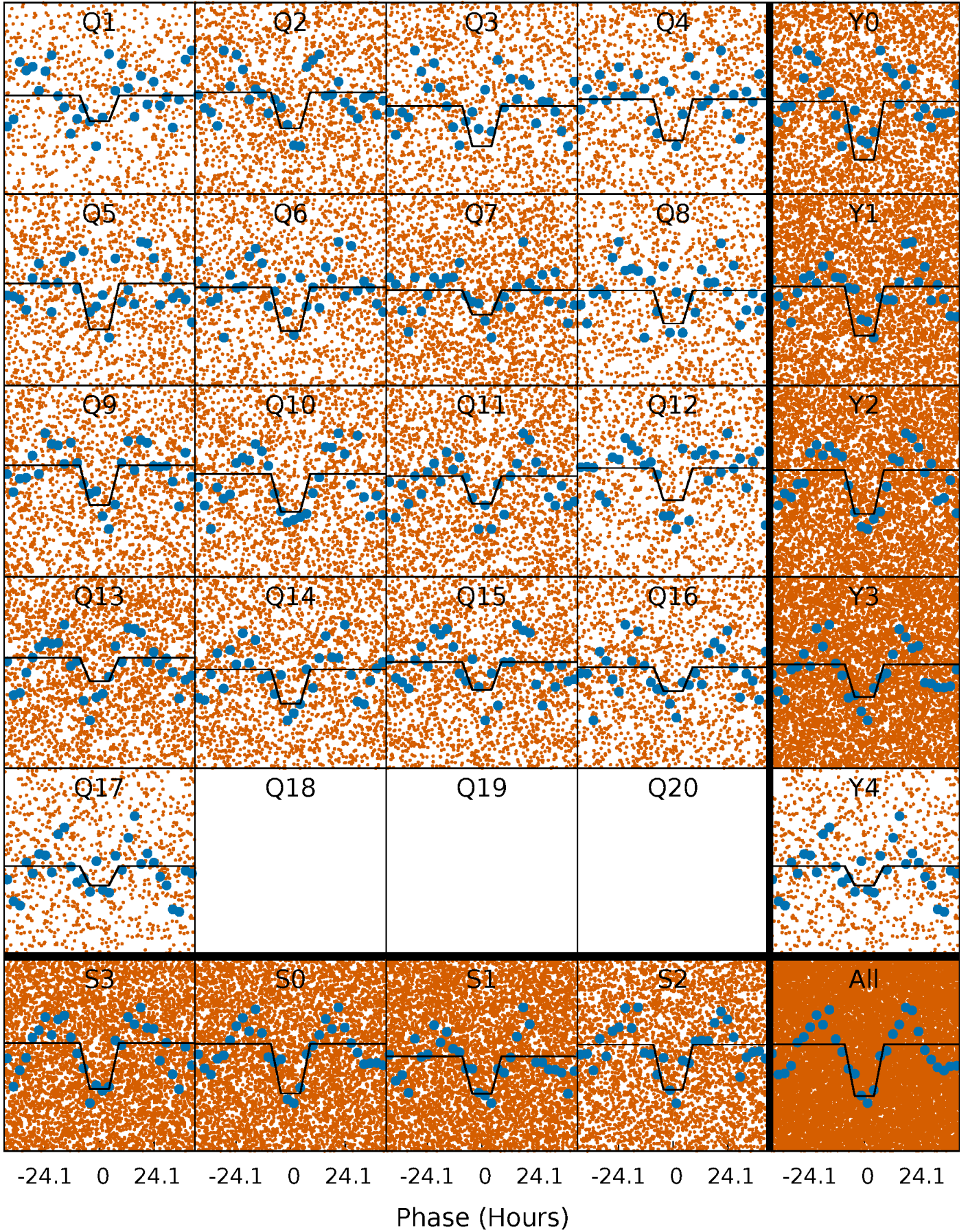
DV Quarter-Phased Transit Curves

TCE 008188360-01 P= 3.000022 Days $T_0=133.347696$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

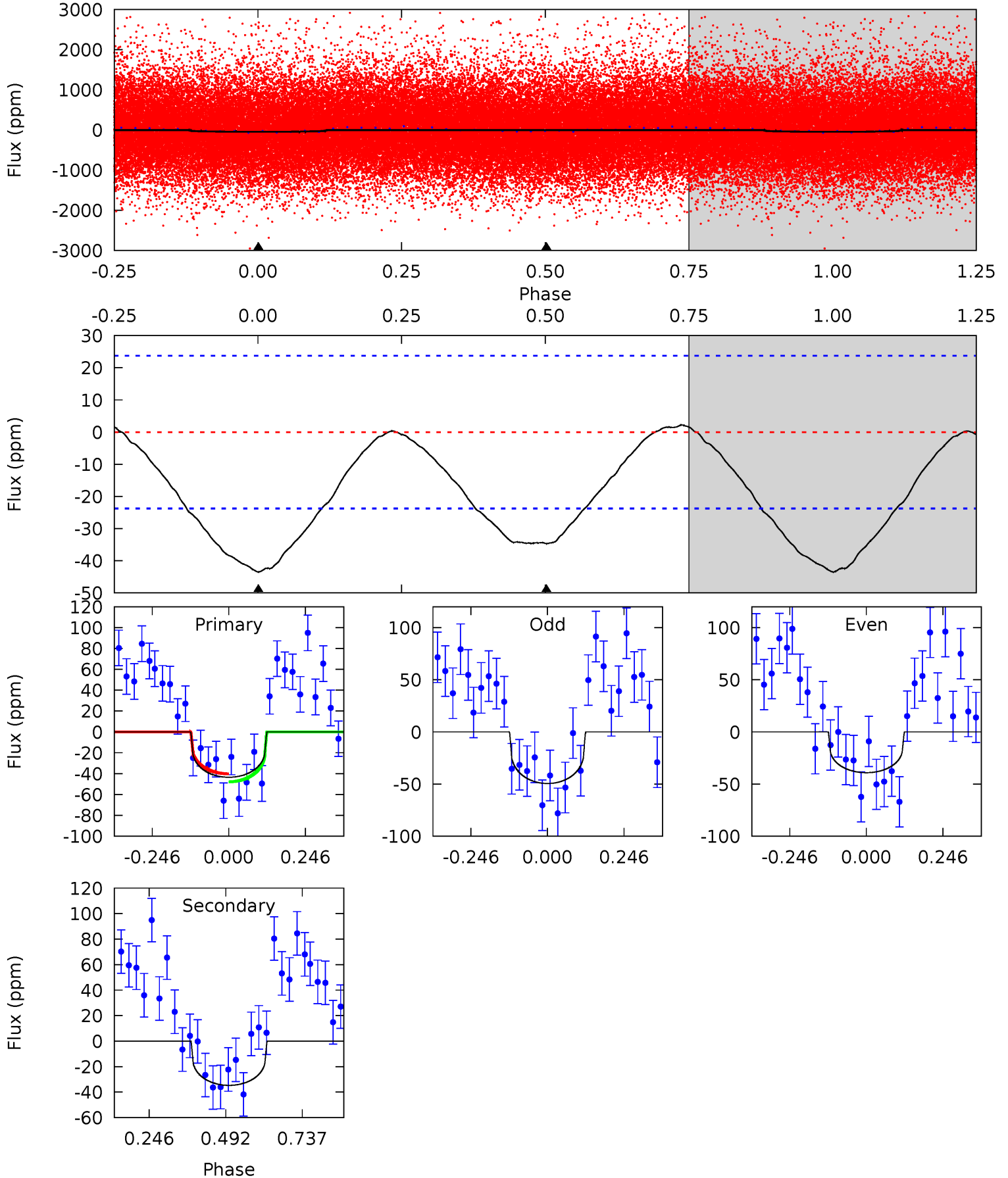
TCE 008188360-01 P= 2.999288 Days $T_0=133.520410$ (BKJD)



DV Model-Shift Uniqueness Test

008188360-01, P = 3.000022 Days, E = 130.347674 Days

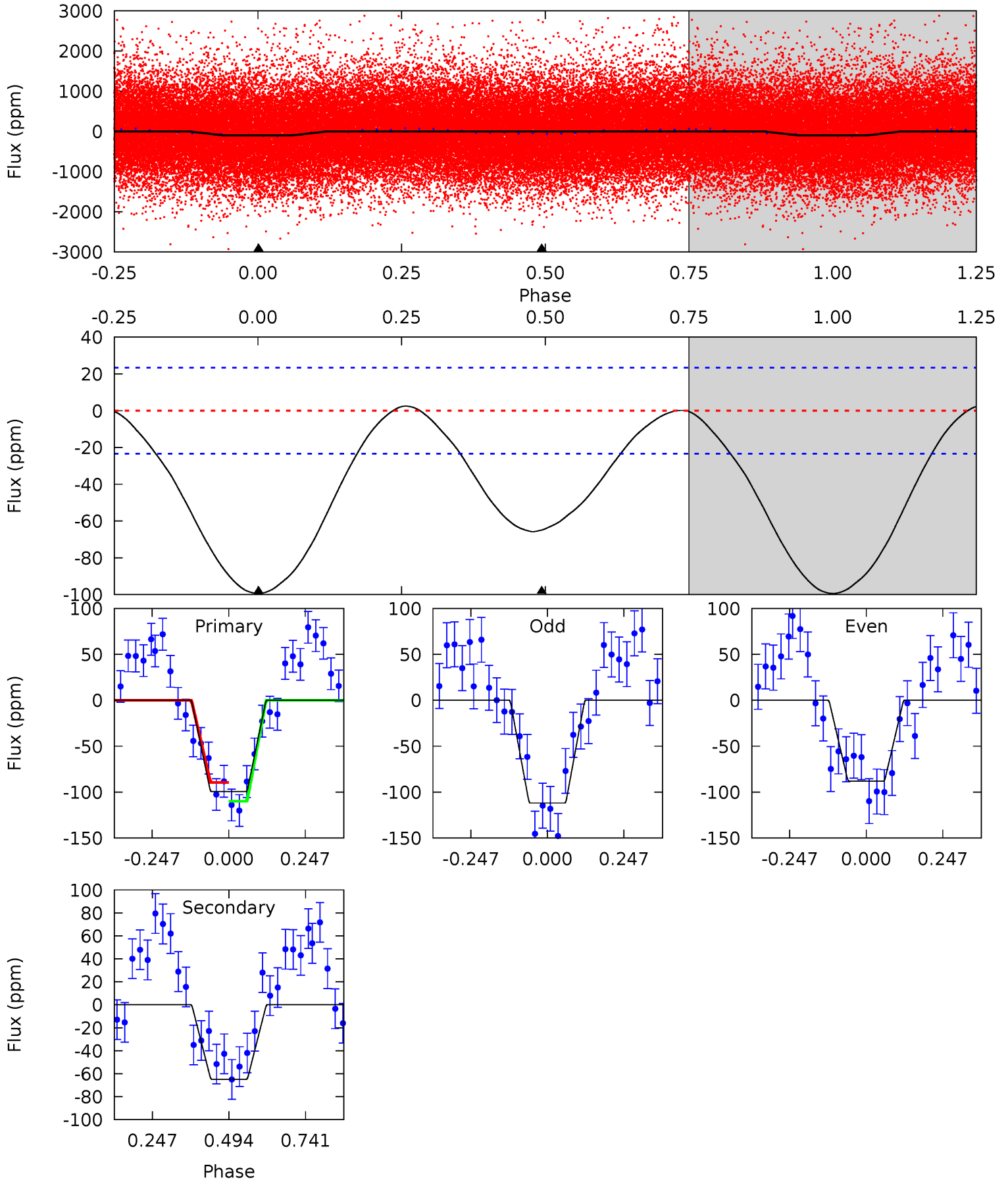
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.00	6.38	0	0	4.37	1.16	0.30	8.00	8.00	6.38	6.38	0.95	0.86	0.05	0.71



Alt Model-Shift Uniqueness Test

008188360-01, P = 2.999288 Days, E = 130.521122 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	12.1	0	0	4.37	1.16	0.40	18.6	18.6	12.1	12.1	2.24	1.02	0.02	1.87



Stellar Parameters For KIC 008188360

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4685^{+145}_{-145}	$4.726^{+0.048}_{-0.028}$	$-1.380^{+0.300}_{-0.300}$	$0.523^{+0.030}_{-0.033}$	$0.531^{+0.037}_{-0.021}$	$5.235^{+1.026}_{-0.546}$
	+3%/-3%	+1%/-1%	+22%/-22%	+6%/-6%	+7%/-4%	+20%/-10%
Source	PHO1	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 008188360-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-35 ± 5	$0.77^{+0.86}_{-0.53}$	1145^{+41}_{-41}	3458^{+1832}_{-688}	34^{+285}_{-26}
Alt.	-65 ± 5	$0.89^{+0.81}_{-0.58}$	1147^{+40}_{-39}	3704^{+1809}_{-690}	51^{+376}_{-37}

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

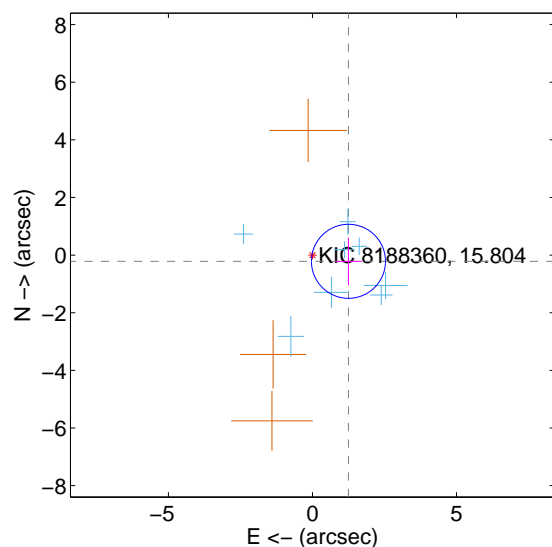
Supplemental centroid analysis for 008188360-01. Kepler magnitude: 15.80. Transit SNR 7.92

There are 8 quarters with good PRF difference image offsets

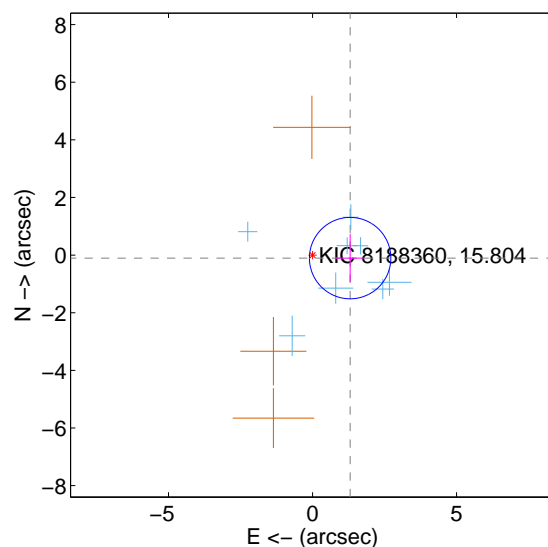
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.268 ± 0.428	2.96	-1.250 ± 0.462	-0.215 ± 0.827
PRF-fit source offset from KIC position	1.309 ± 0.471	2.78	-1.305 ± 0.493	-0.104 ± 0.830
photometric centroid source offset	1.56 ± 1.81	0.86	-0.59 ± 1.77	1.44 ± 1.82

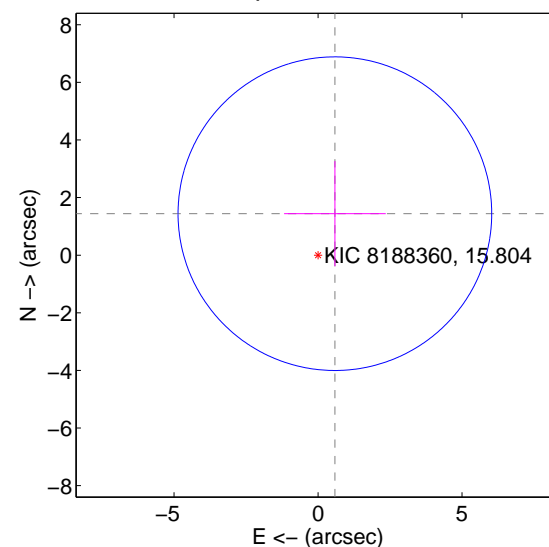
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

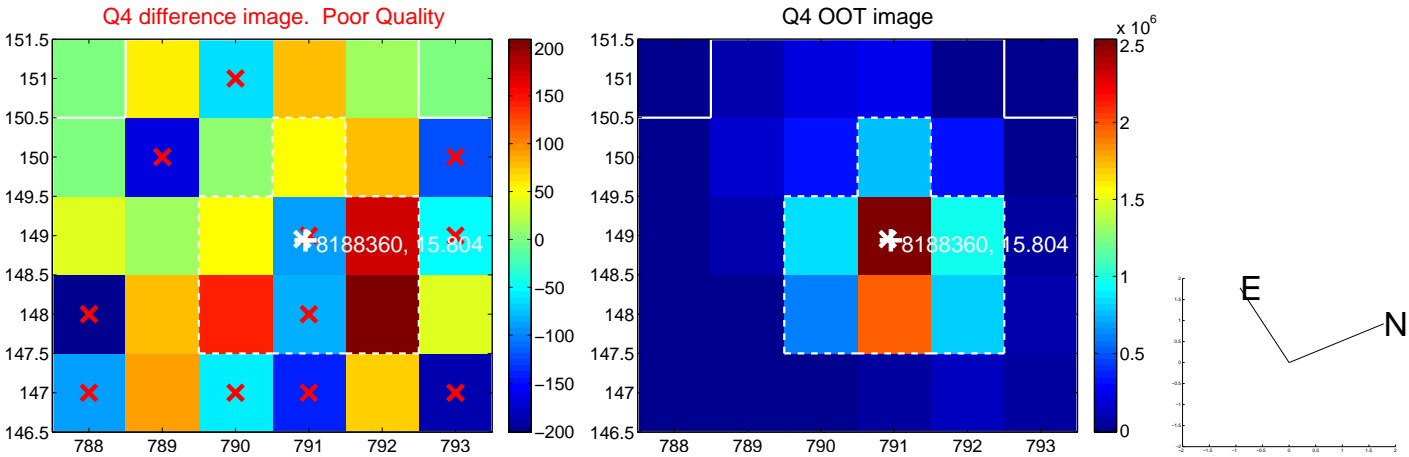
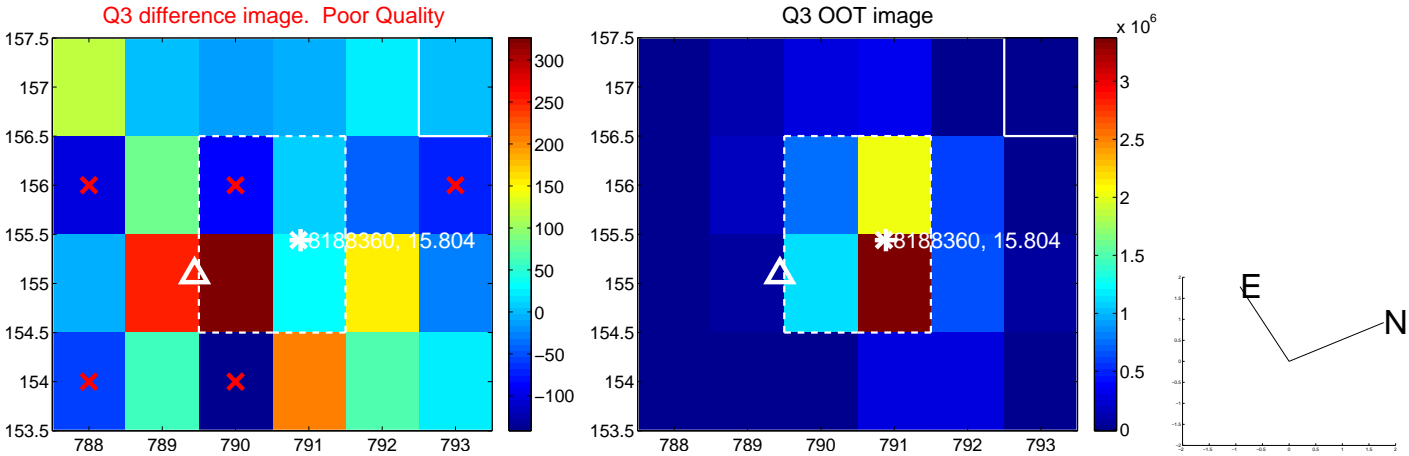
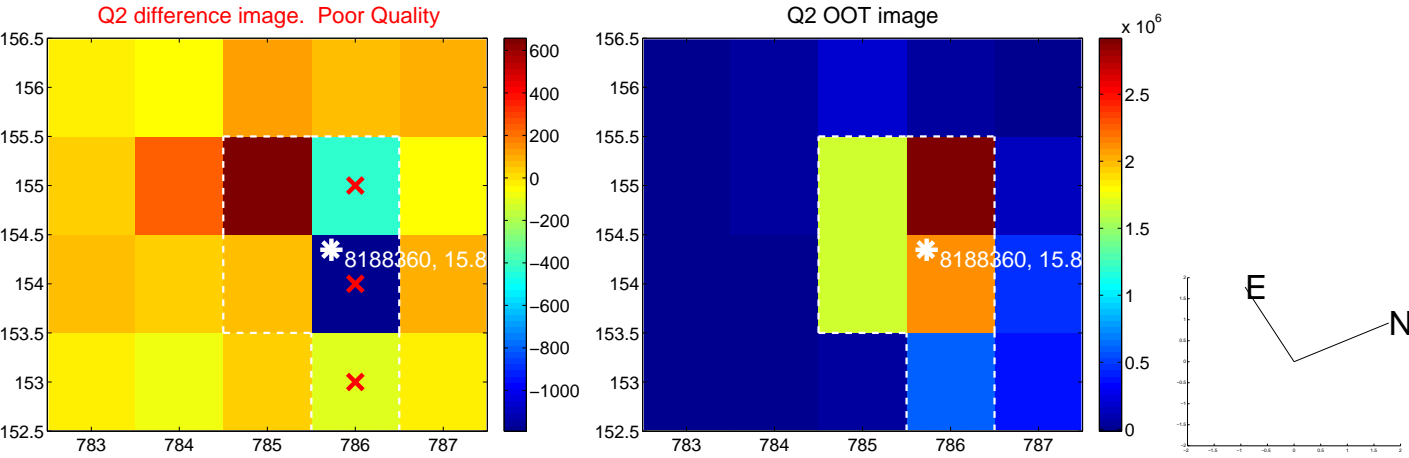
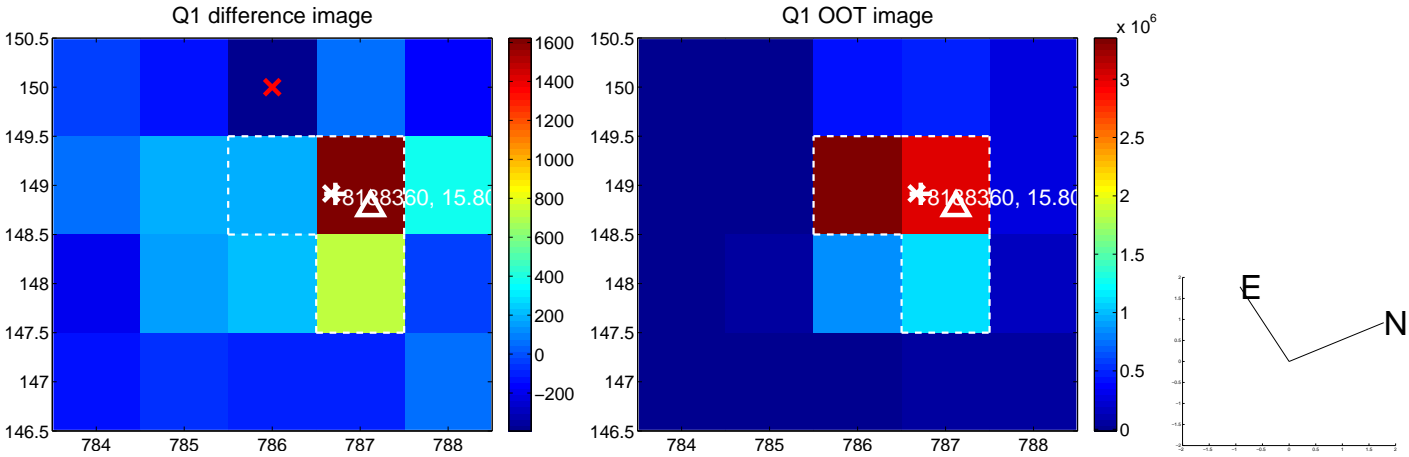


offset from photometric centroids

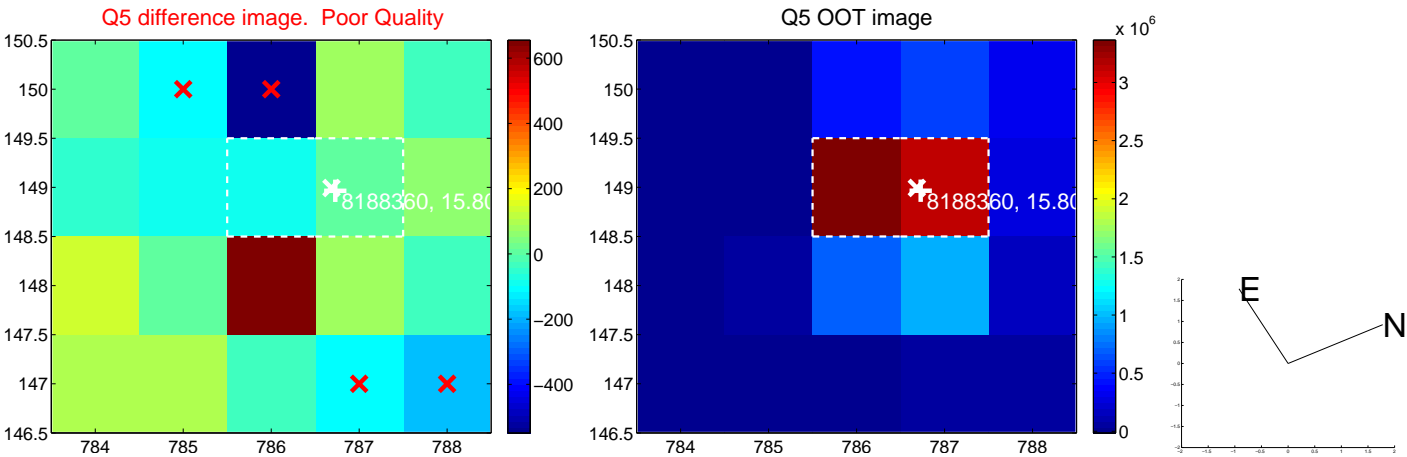


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

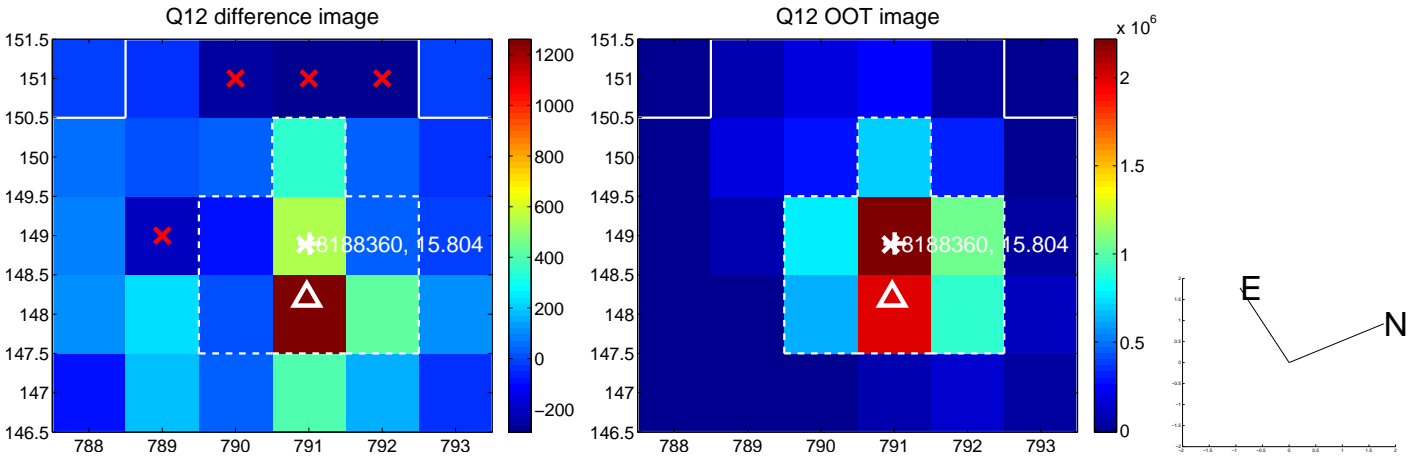
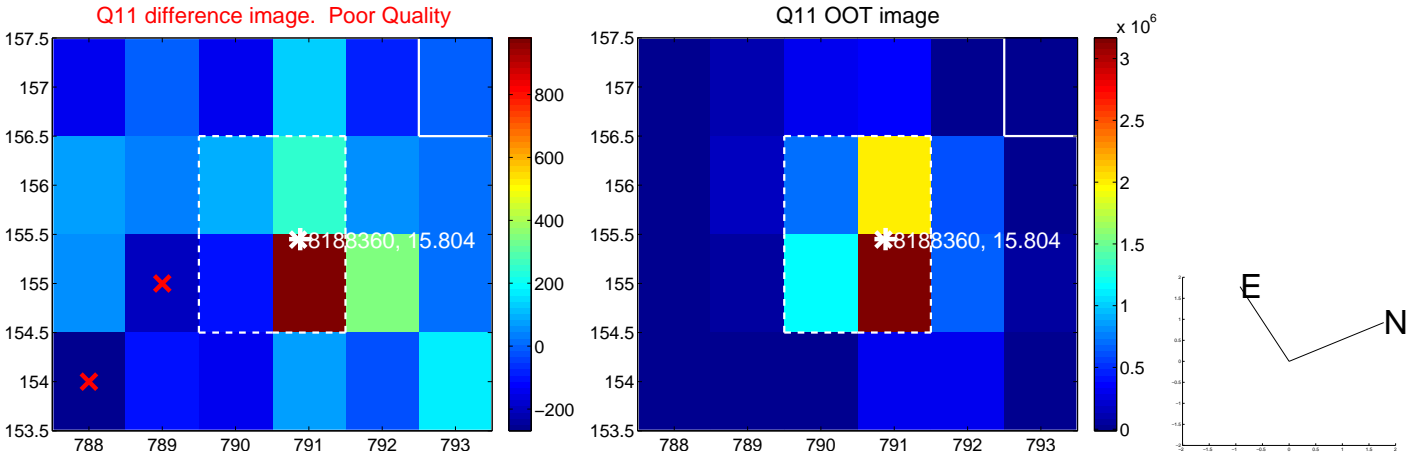
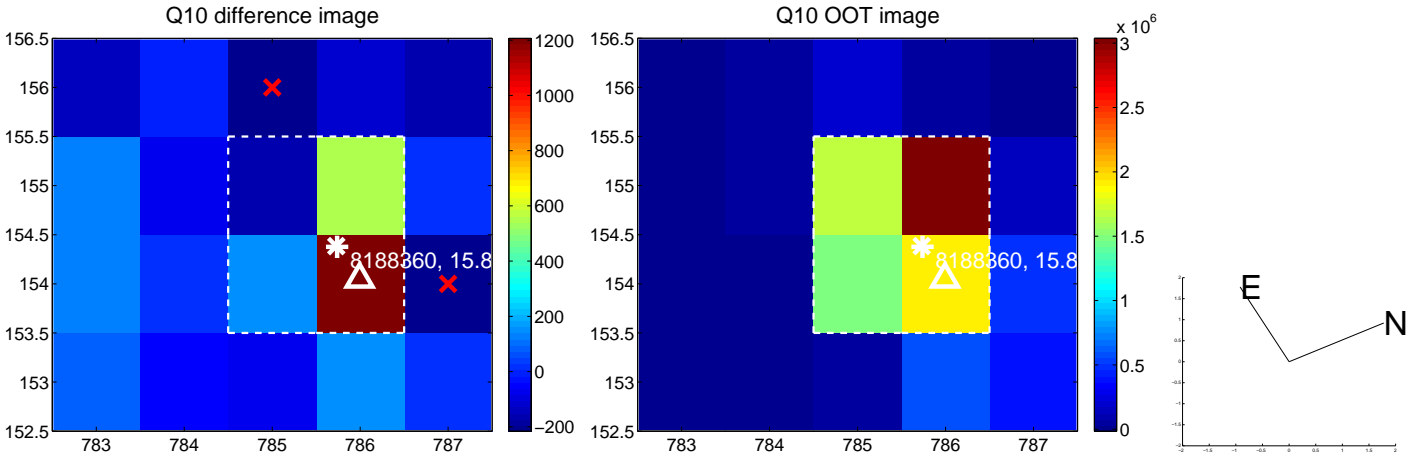
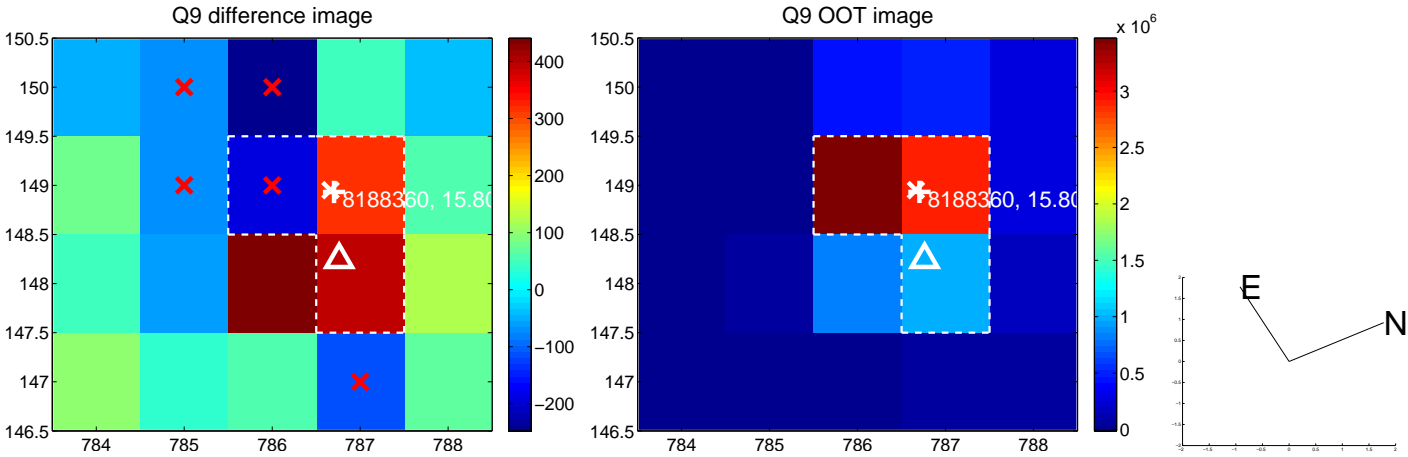
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



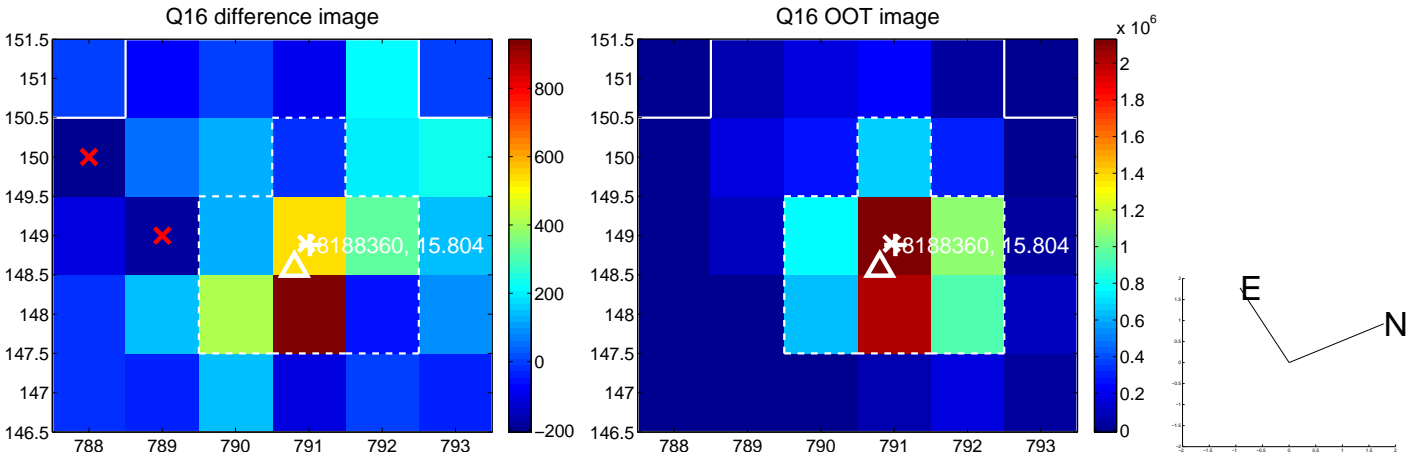
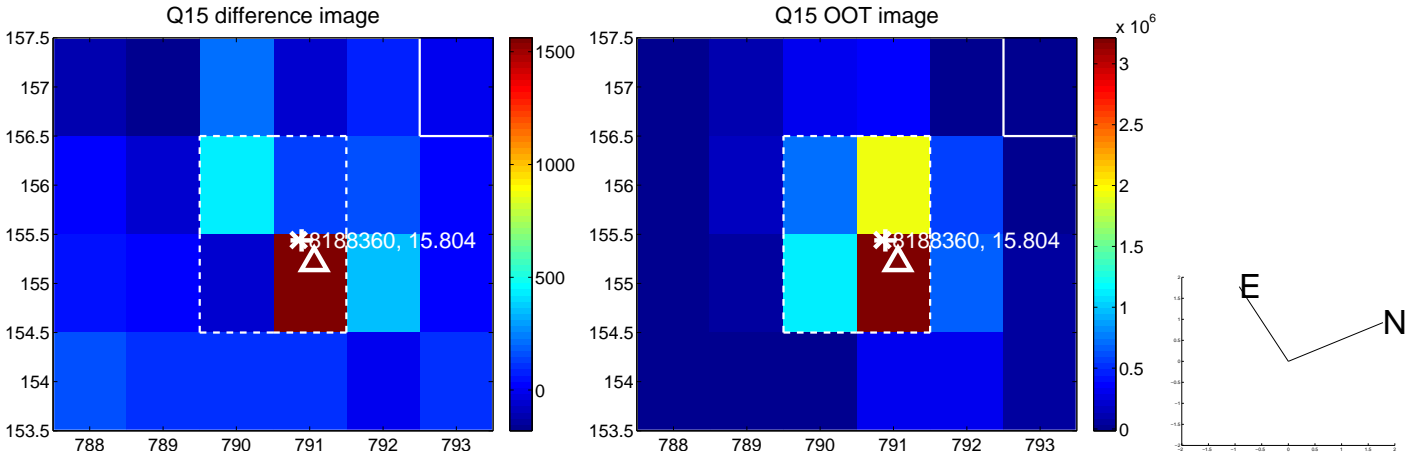
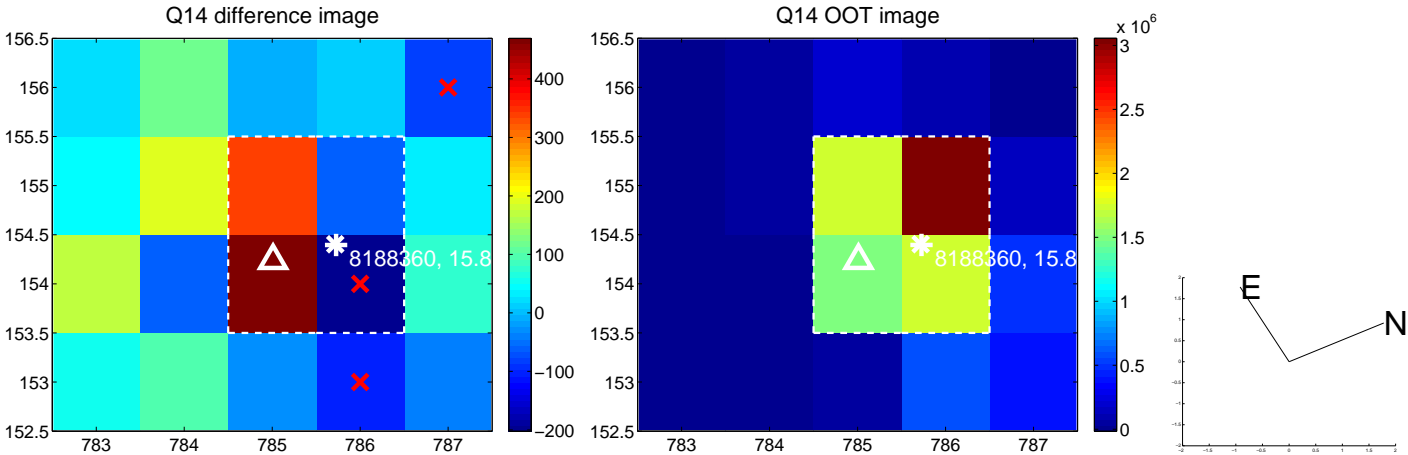
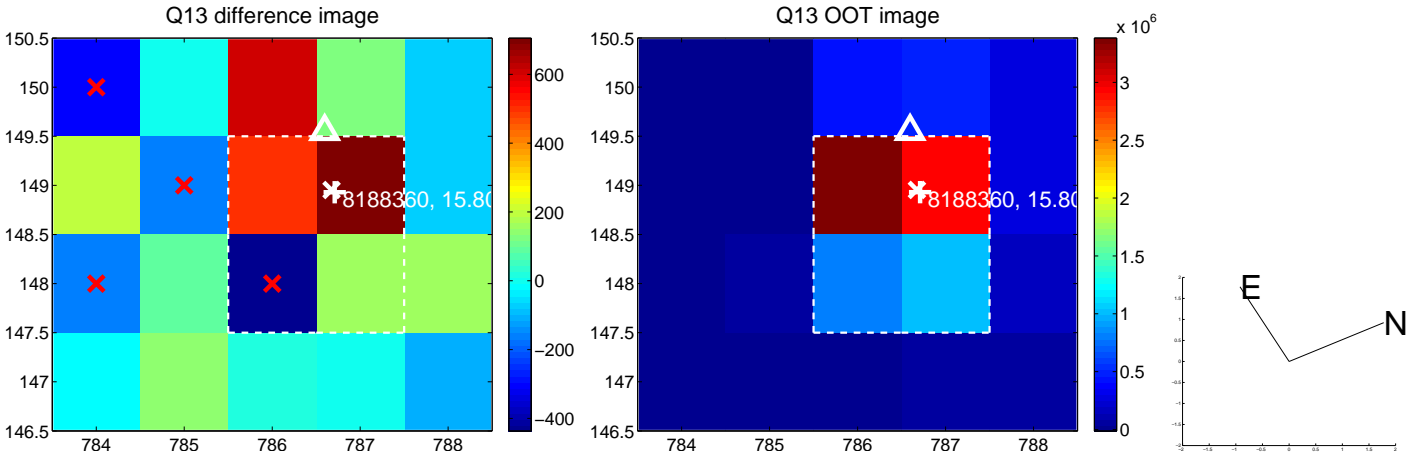
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



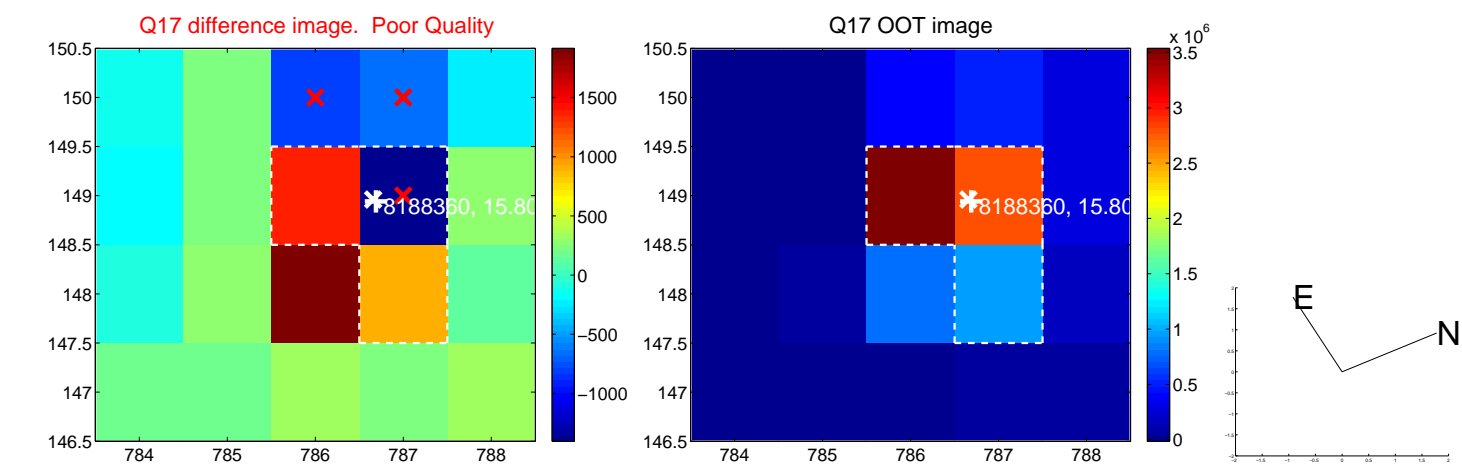
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



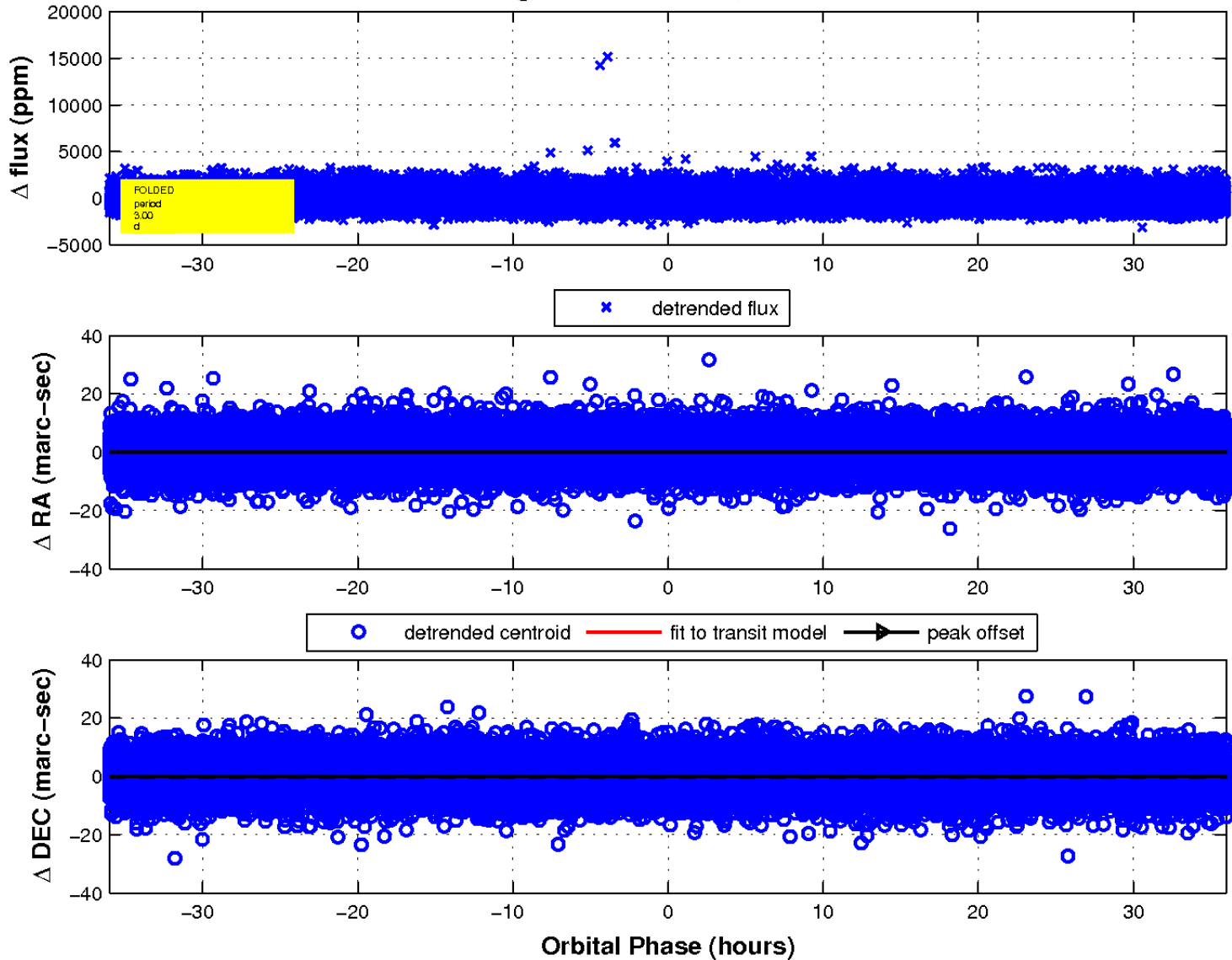
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



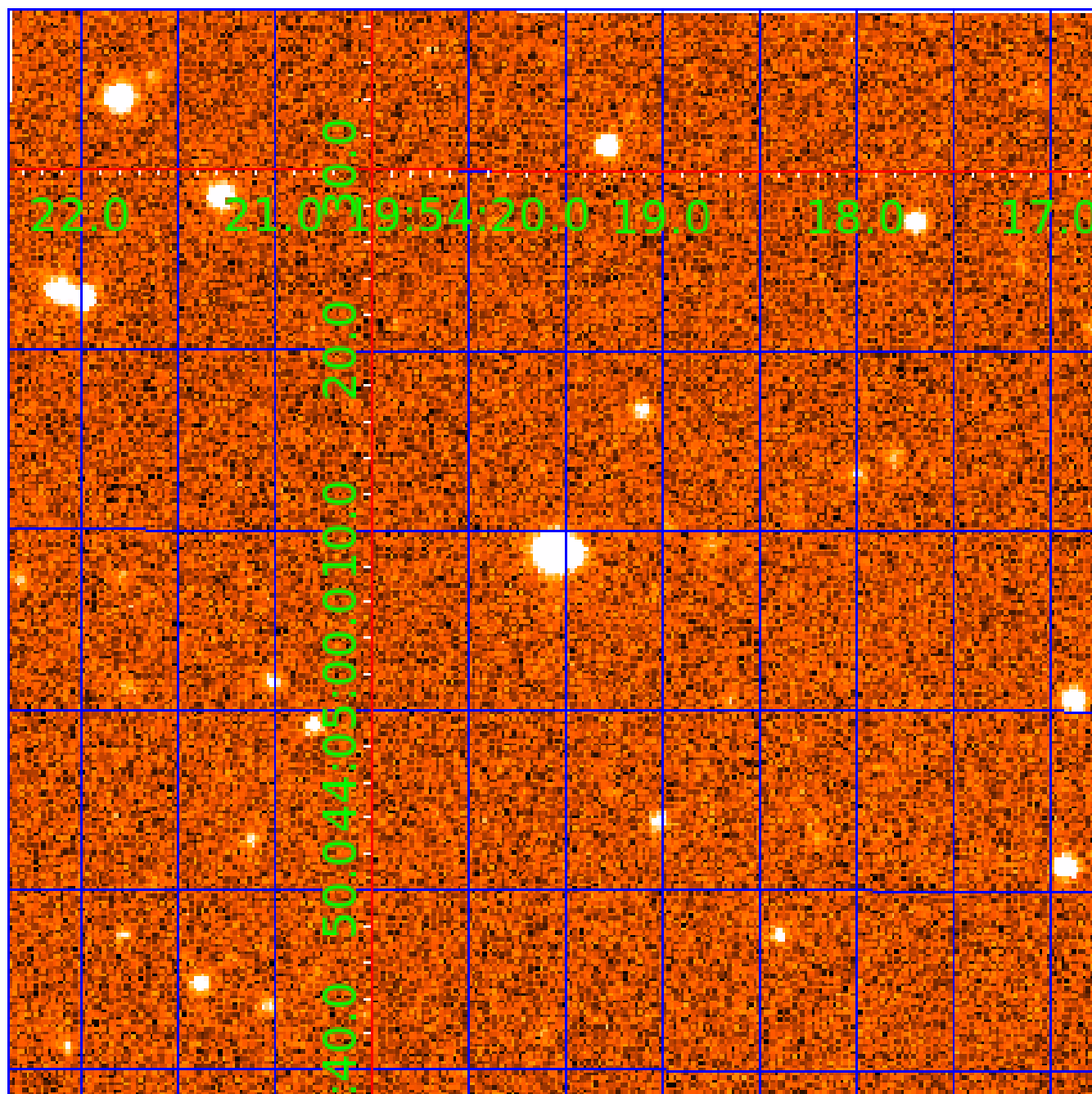
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 4



UKIRT Image



KIC 008188360

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})
008188360-01	OBS	No	3.000022	133.347696	58.2	17.251	7.7	7.9	0.52	4685	0.40	108.62
008188360-03	OBS	No	134.378184	198.523879	525.3	13.747	11.4	6.0	0.52	4685	1.33	0.68
008188360-04	OBS	No	112.861704	196.209226	1644.7	1.797	7.5	8.2	0.52	4685	2.58	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008188360-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008188360-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008188360-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

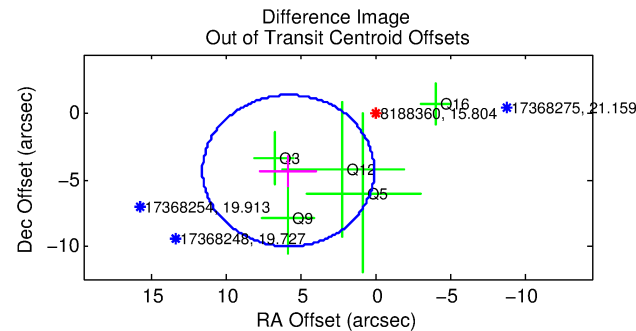
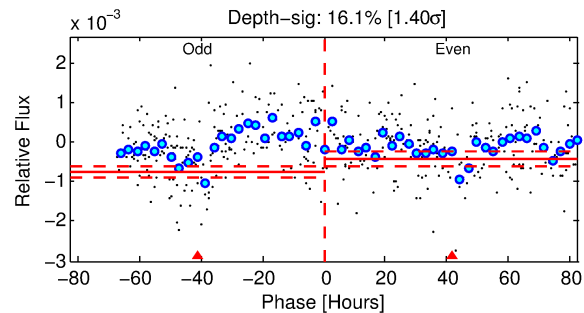
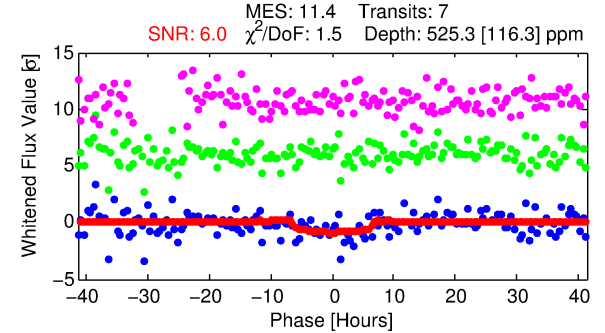
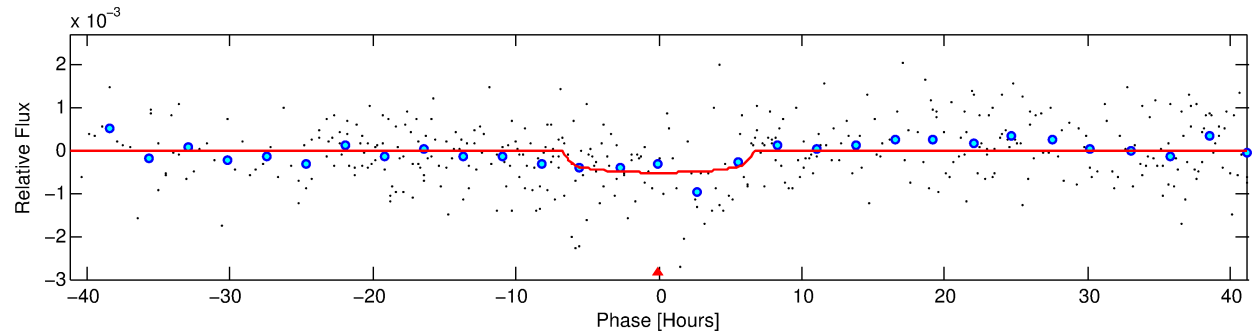
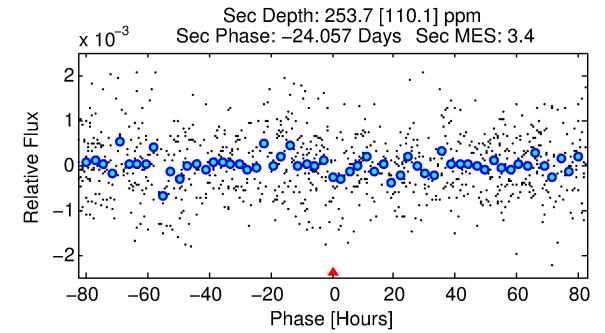
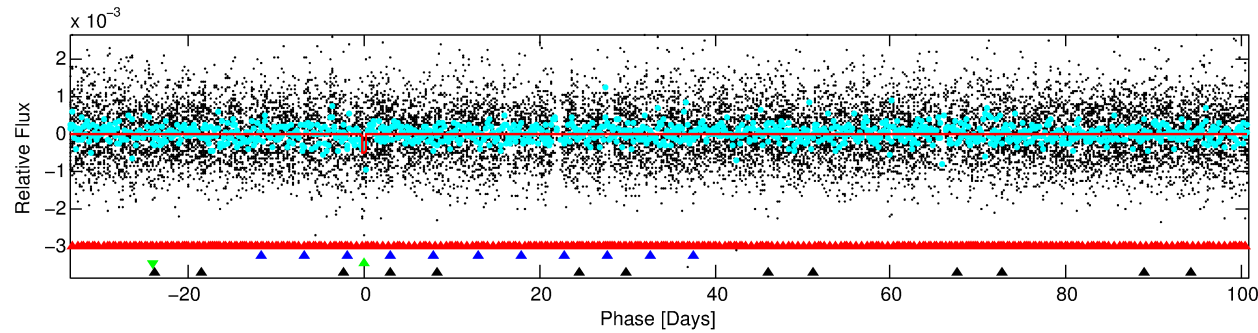
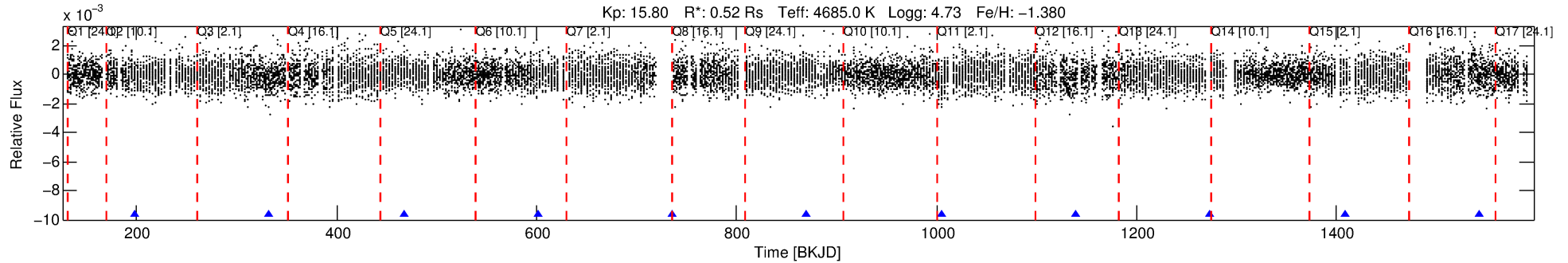
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008188360-03

No Significant Match Found

DV One-Page Summary

KIC: 8188360 Candidate: 3 of 4 Period: 134.378 d



DV Fit Results:

Period = 134.37818 [0.00721] d
Epoch = 198.5239 [0.0350] BKJD
Rp/R* = 0.0233 [0.0101]
a/R* = 48.33 [81.96]
b = 0.79 [0.81]
Seff = 0.68 [0.10]
Teq = 232 [9] K
Rp = 1.33 [0.58] Re
a = 0.4158 [0.0233] AU
Ag = 13705.99 [13327.66] [1.03σ]
Teffp = 3878 [947] K [3.85σ]

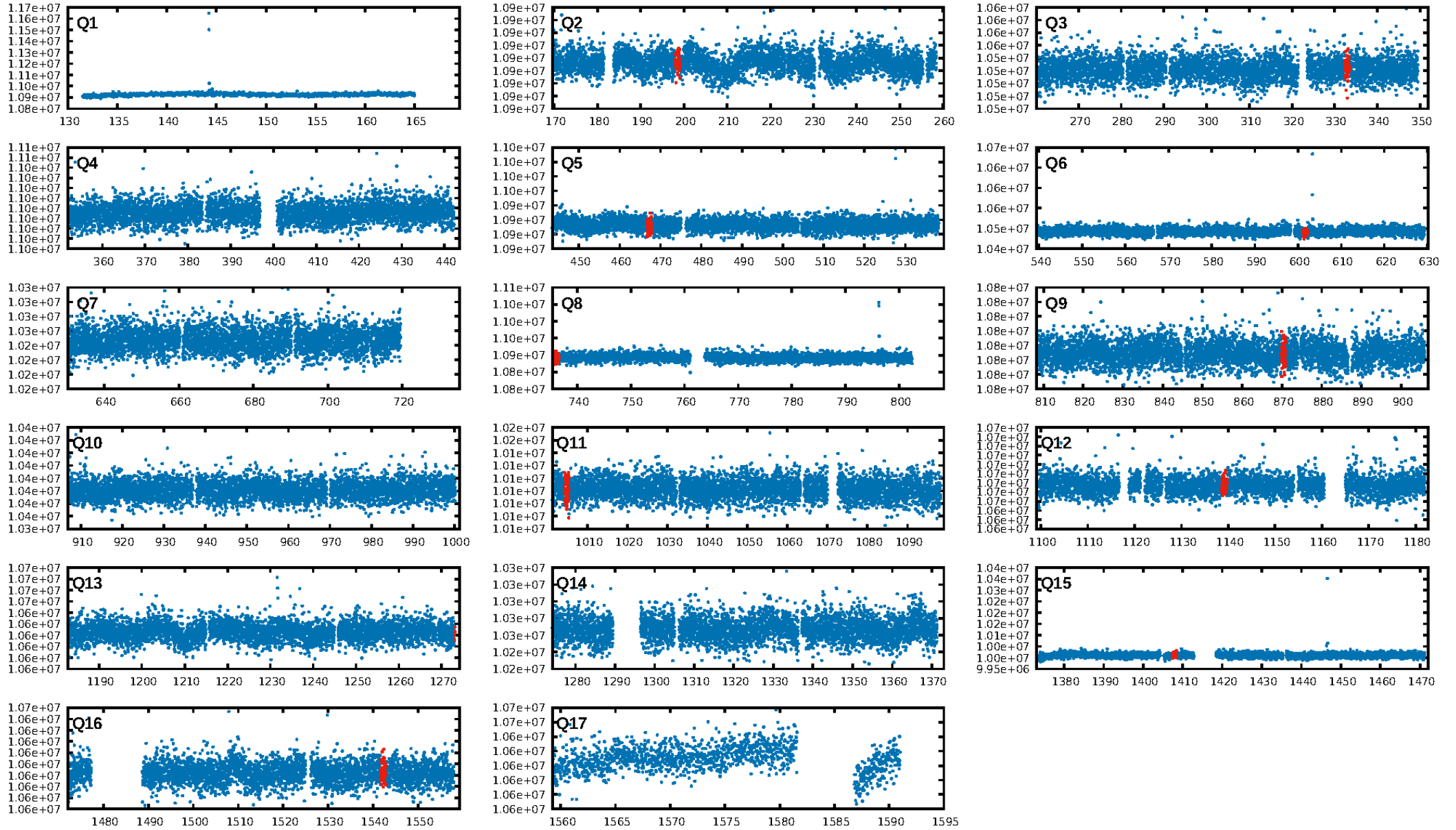
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.14σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.12e-24
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -2.131
Centroid-sig: 4.4%
Centroid-so: 2.081 arcsec [1.37σ]
OotOffset-rm: 7.220 arcsec [3.78σ]
KicOffset-rm: 7.185 arcsec [3.98σ]
OotOffset-st: 0/1/2/2 [5]
KicOffset-st: 0/1/2/2 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.12 [1/8]

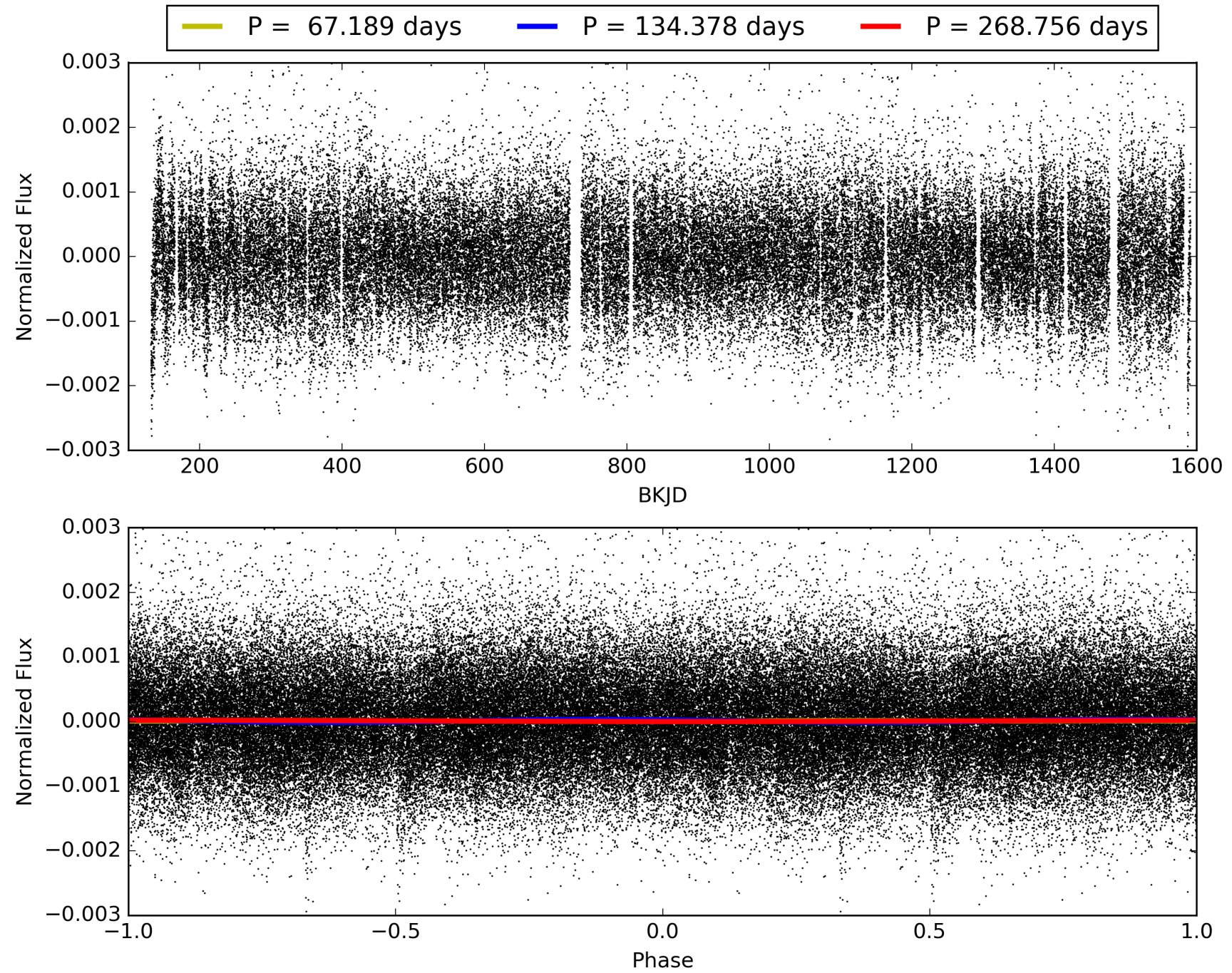
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:10:41 Z

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

TCE 008188360-03, PDC Light Curves

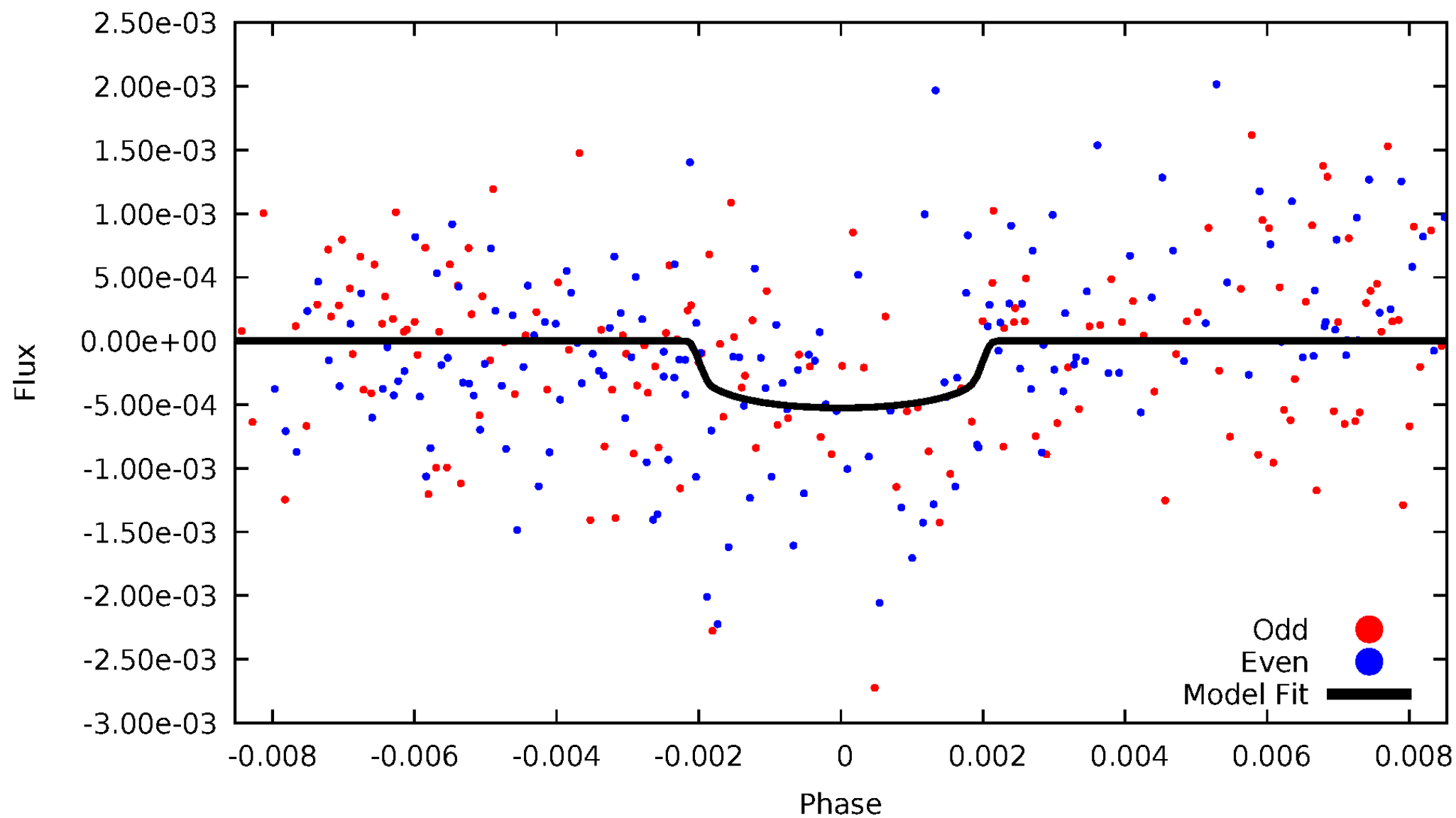


TCE 008188360-03



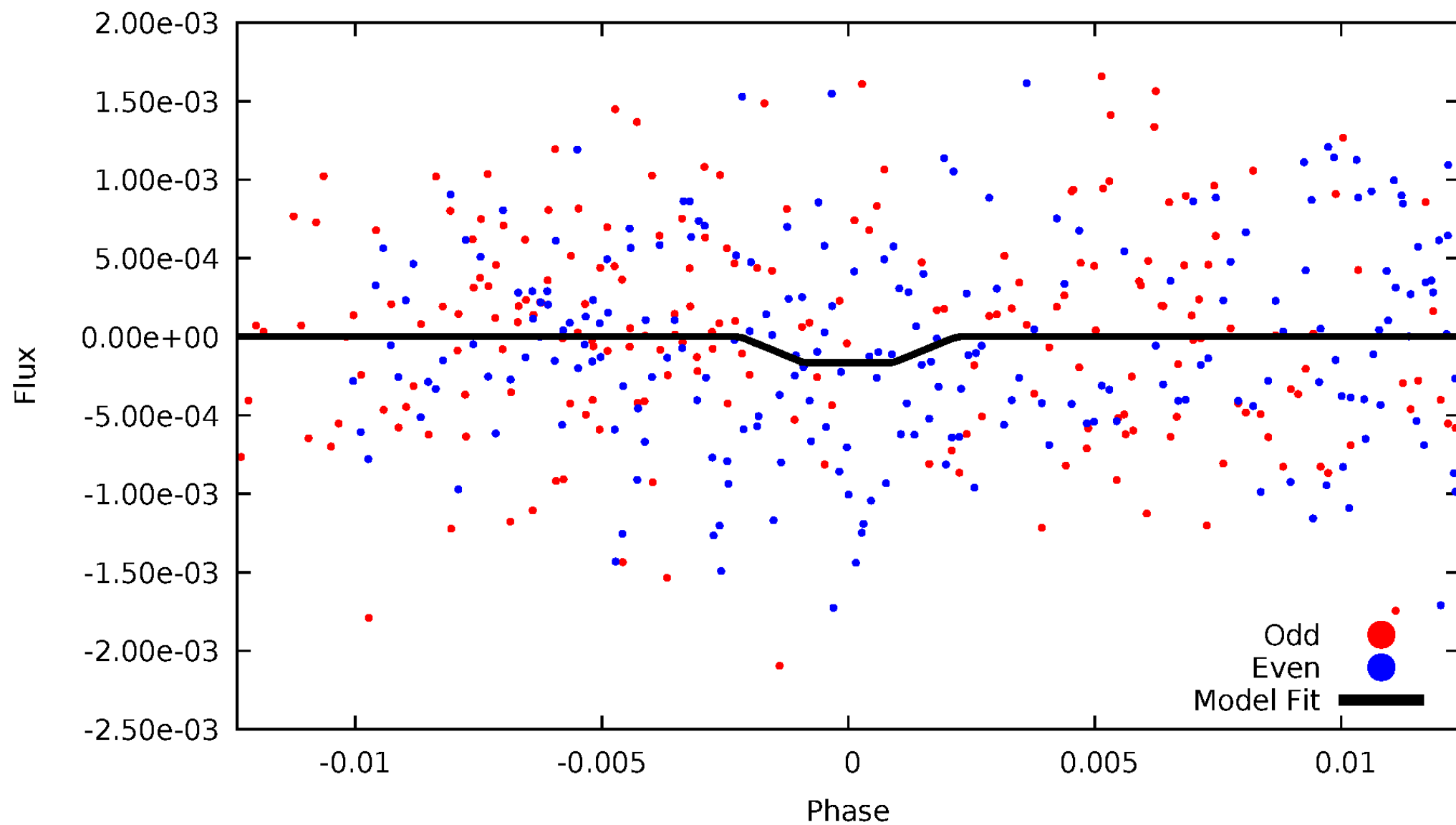
DV Odd/Even

TCE 008188360-03



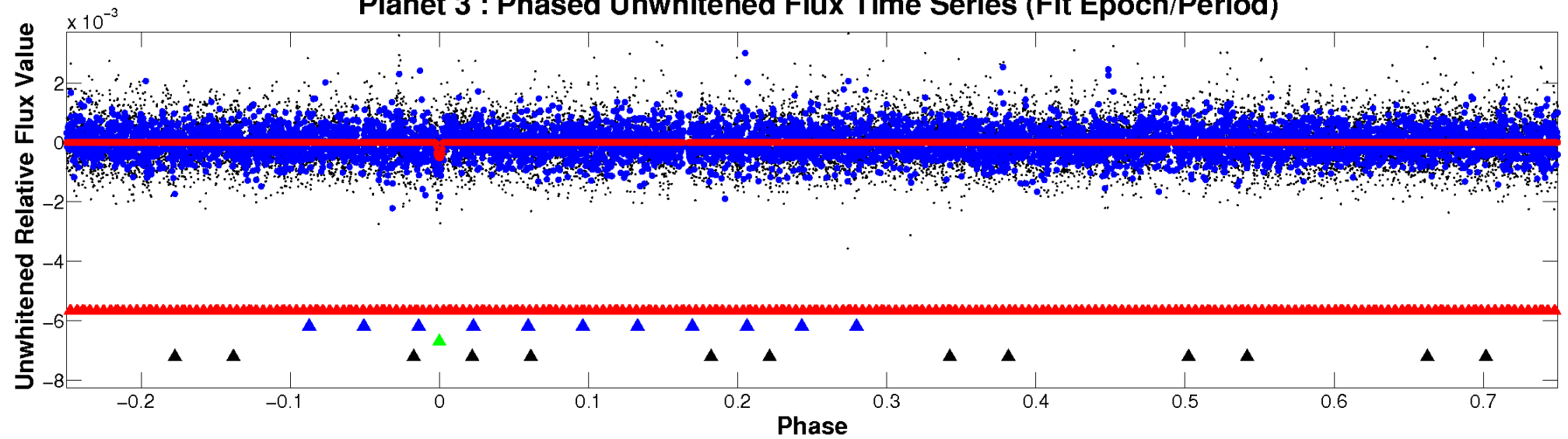
ALT Odd/Even

TCE 008188360-03

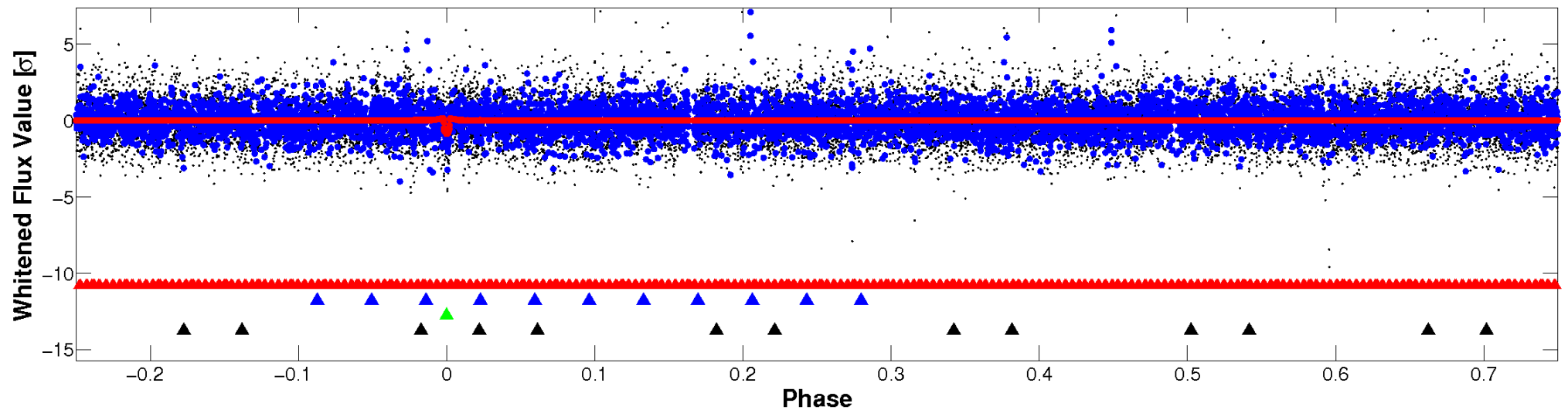


Non-Whitened Vs. Whitened Light Curve

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

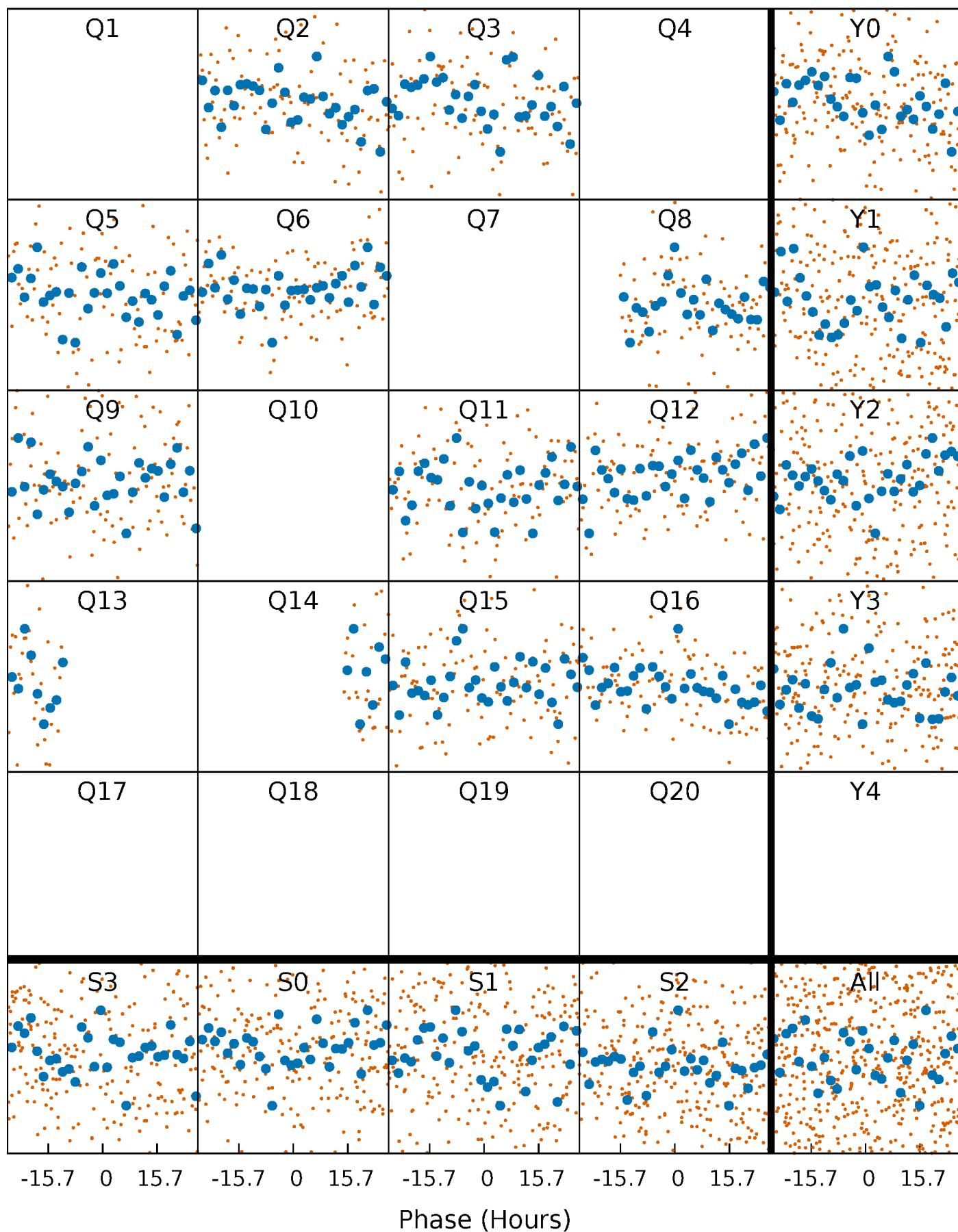


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



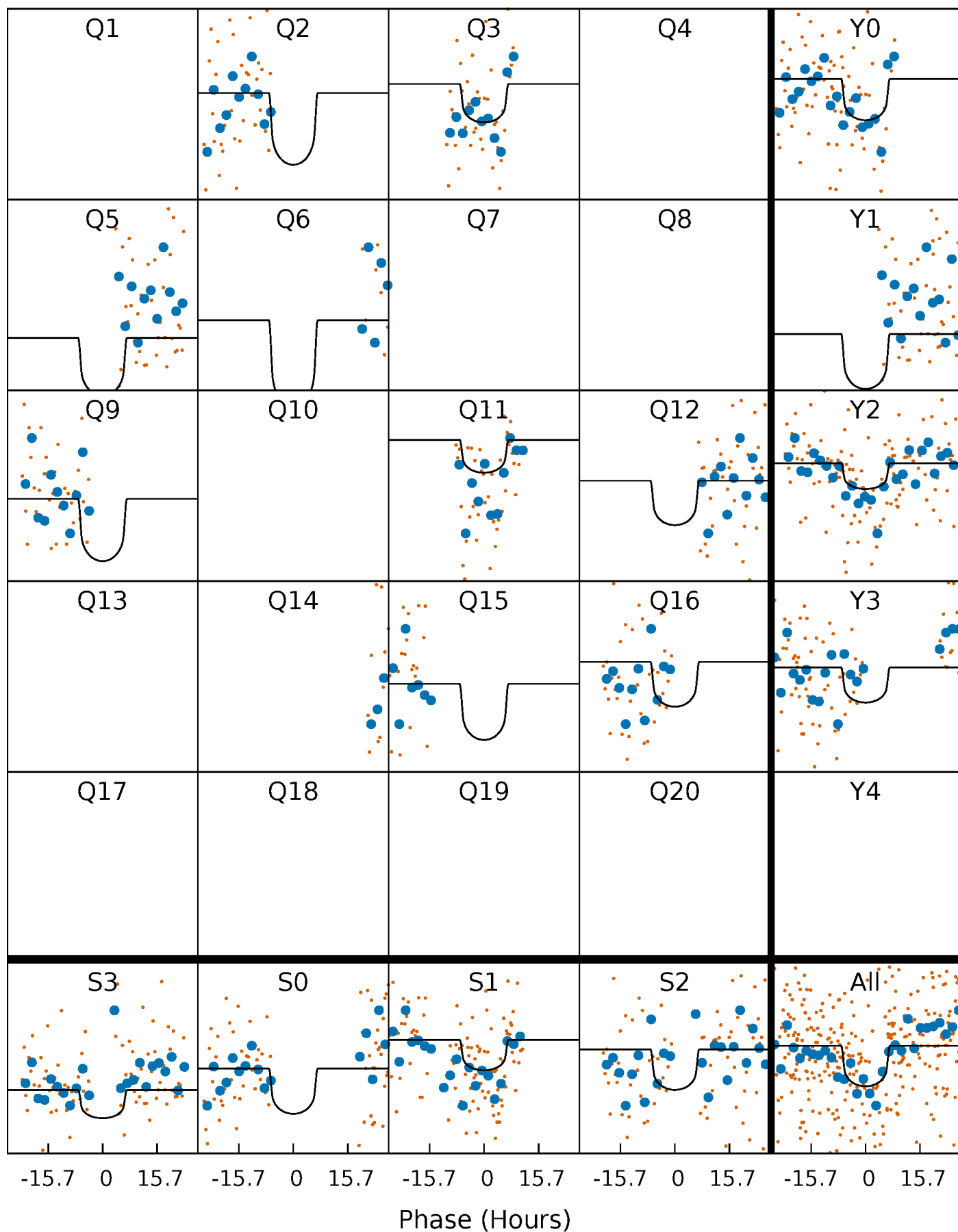
PDC Quarter-Phased Transit Curves

TCE 008188360-03 P=134.378184 Days $T_0=198.523879$ (BKJD)



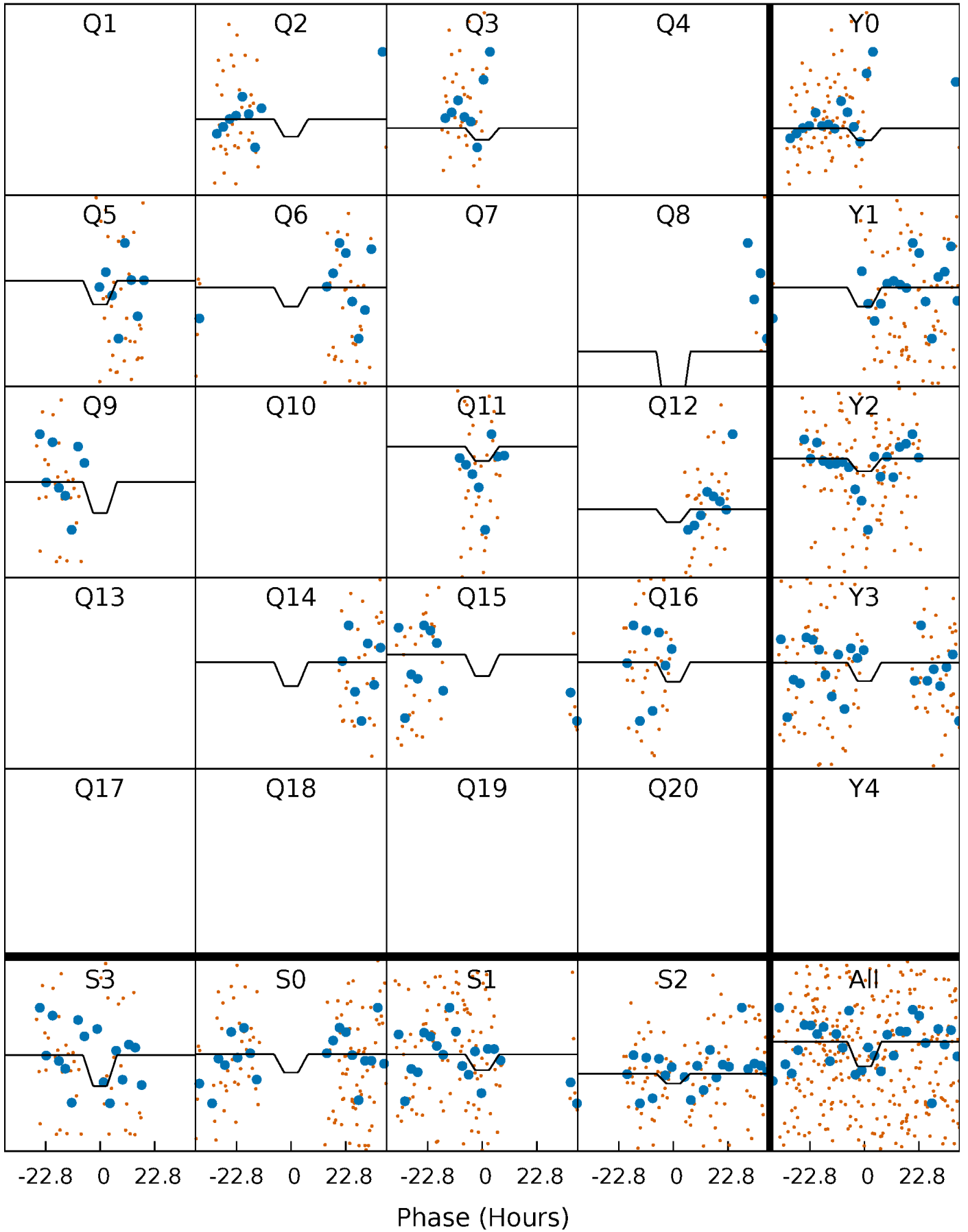
DV Quarter-Phased Transit Curves

TCE 008188360-03 $P=134.378184$ Days $T_0=198.523879$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

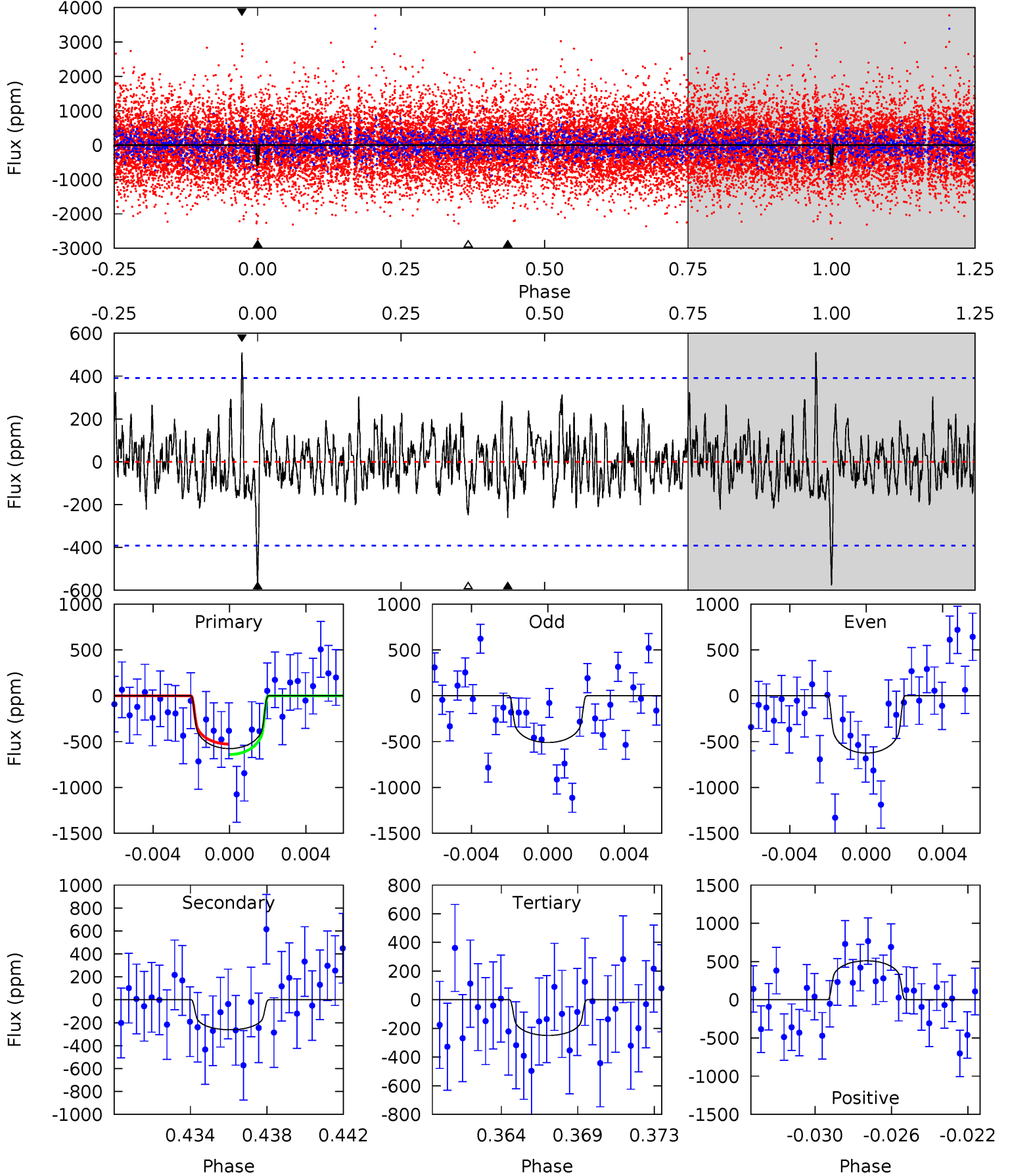
TCE 008188360-03 P=134.350657 Days $T_0=198.802899$ (BKJD)



DV Model-Shift Uniqueness Test

008188360-03, $P = 134.378184$ Days, $E = 64.145695$ Days

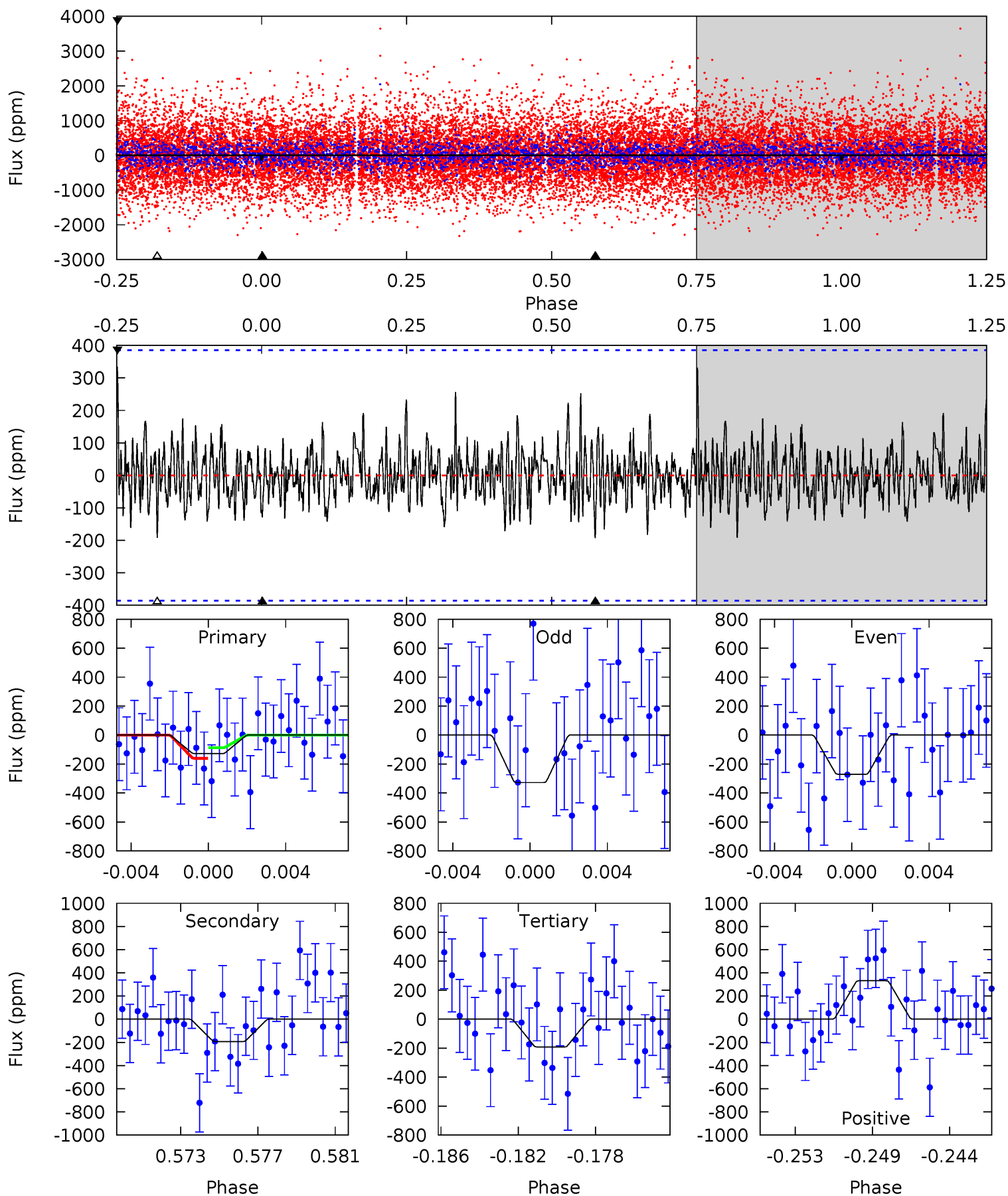
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.64	3.47	3.30	6.76	5.18	2.85	1.35	4.34	0.88	0.17	-3.29	0.75	-0.35	0.47	0.75



Alt Model-Shift Uniqueness Test

008188360-03, P = 134.350657 Days, E = 64.452242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.72	2.59	2.58	4.46	5.18	2.85	0.93	-0.86	-2.74	0.01	-1.86	0.35	1.23	0.63	0.49



Stellar Parameters For KIC 008188360

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4685^{+145}_{-145}	$4.726^{+0.048}_{-0.028}$	$-1.380^{+0.300}_{-0.300}$	$0.523^{+0.030}_{-0.033}$	$0.531^{+0.037}_{-0.021}$	$5.235^{+1.026}_{-0.546}$
	+3%/-3%	+1%/-1%	+22%/-22%	+6%/-6%	+7%/-4%	+20%/-10%
Source	PHO1	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 008188360-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-262 ± 75	$1.33^{+0.59}_{-0.53}$	322^{+11}_{-11}	4060^{+894}_{-536}	13661^{+24643}_{-7383}
Alt.	-193 ± 74	$0.83^{+0.54}_{-0.48}$	323^{+11}_{-11}	4612^{+2022}_{-916}	$27021^{+114126}_{-18759}$

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

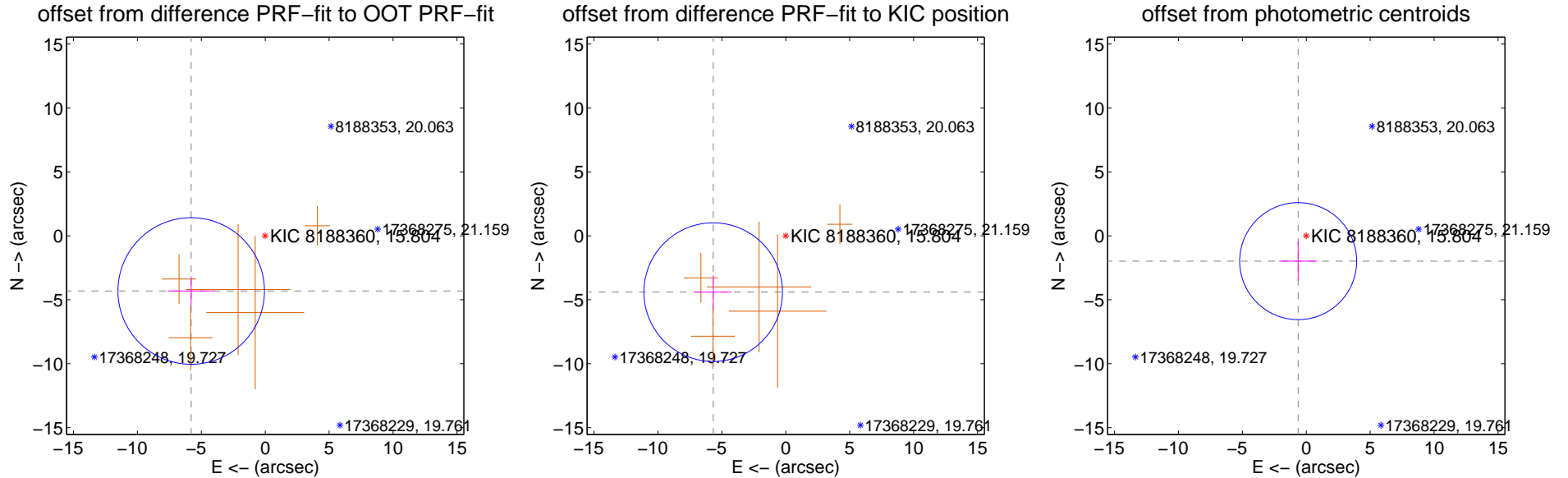
DV Centroid Data

Supplemental centroid analysis for 008188360-03. Kepler magnitude: 15.80. Transit SNR 6.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.220 ± 1.910	3.78	5.789 ± 1.846	-4.314 ± 1.134
PRF-fit source offset from KIC position	7.185 ± 1.806	3.98	5.677 ± 1.445	-4.405 ± 1.311
photometric centroid source offset	2.08 ± 1.52	1.37	0.64 ± 1.48	-1.98 ± 1.53



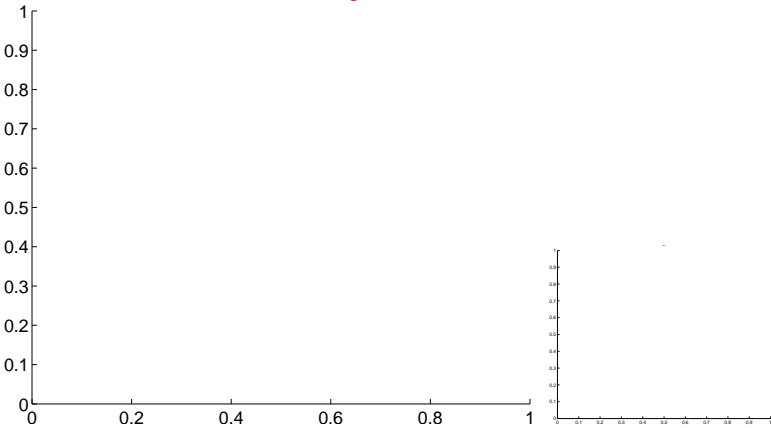
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

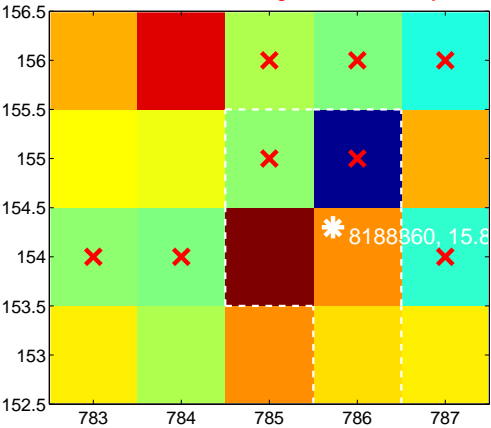
Q1 no difference image



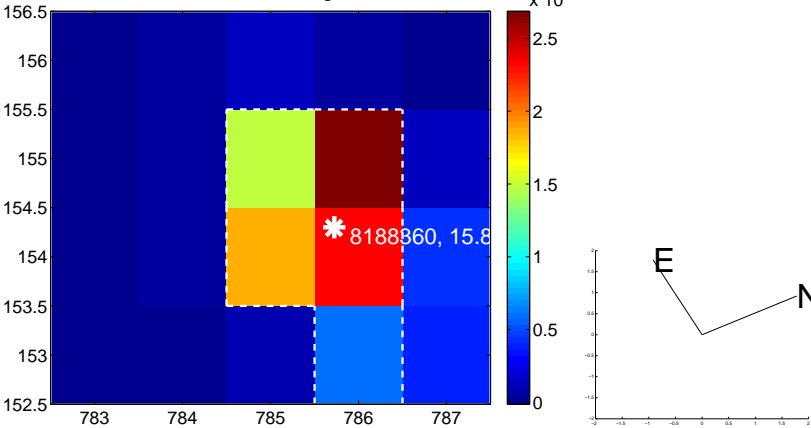
Q1 no OOT image



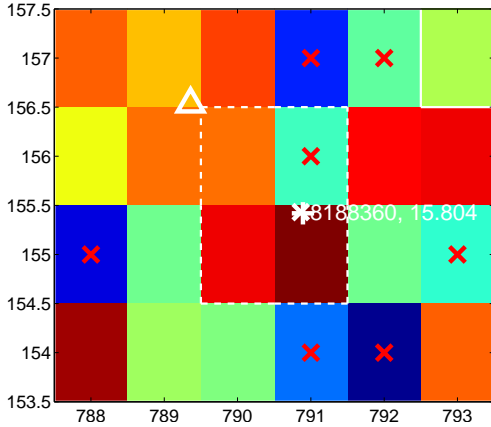
Q2 difference image. Poor Quality



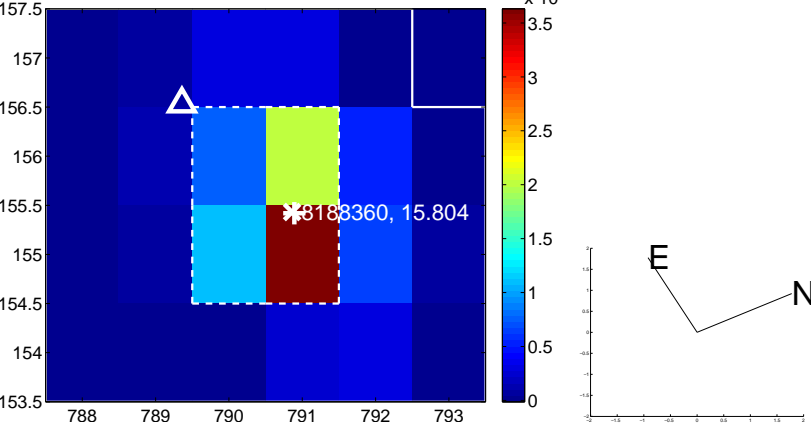
Q2 OOT image



Q3 difference image. Poor Quality



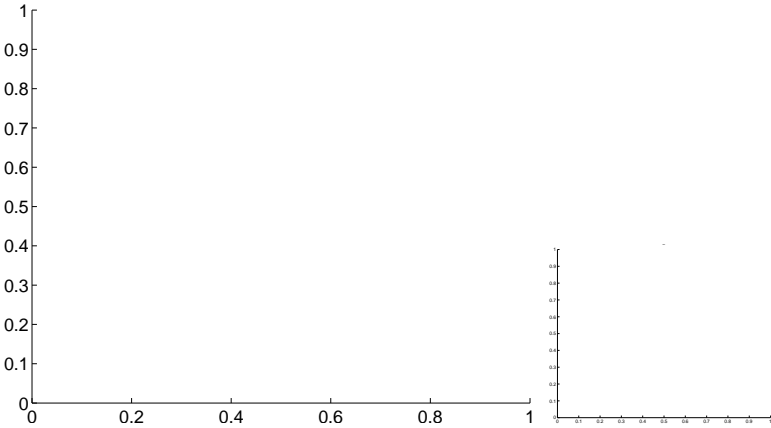
Q3 OOT image



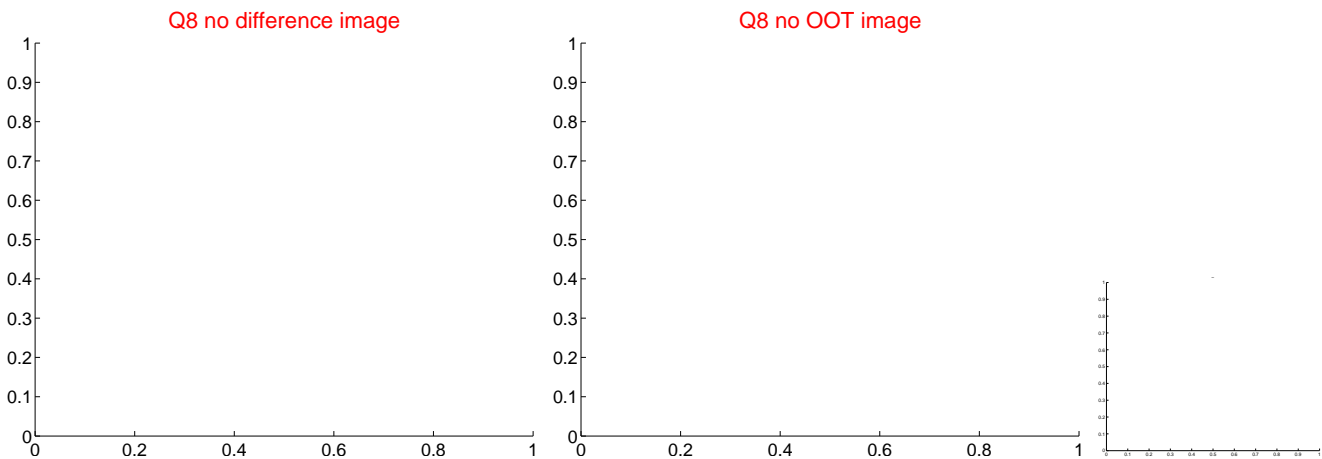
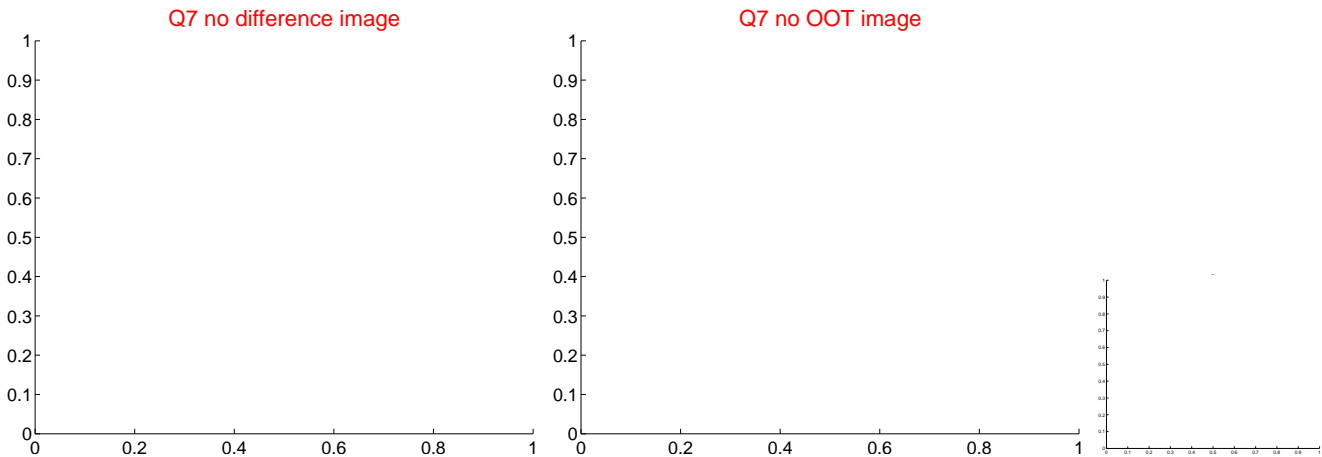
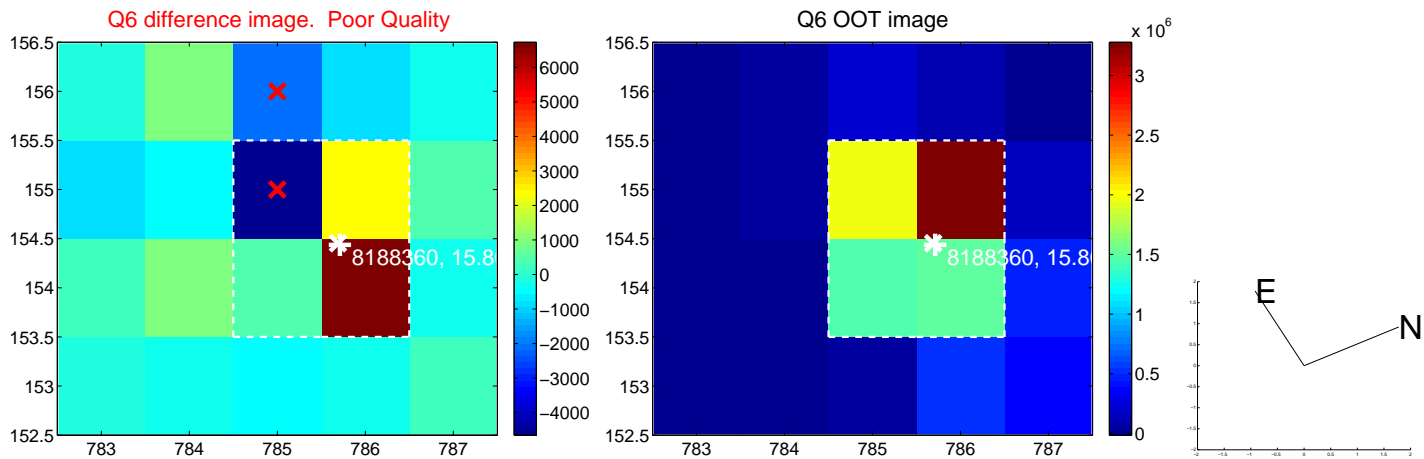
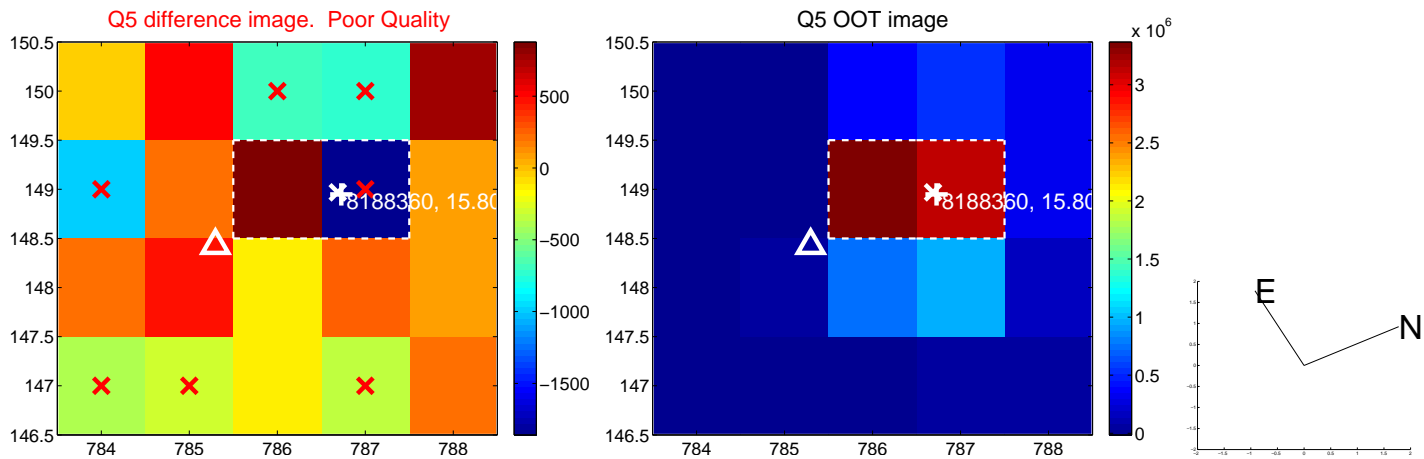
Q4 no difference image



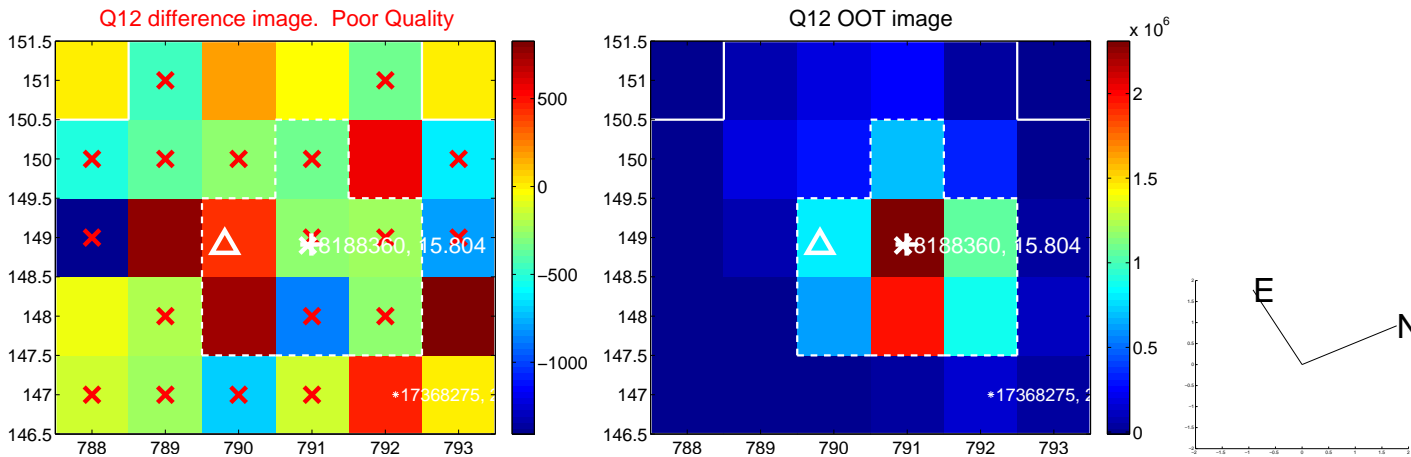
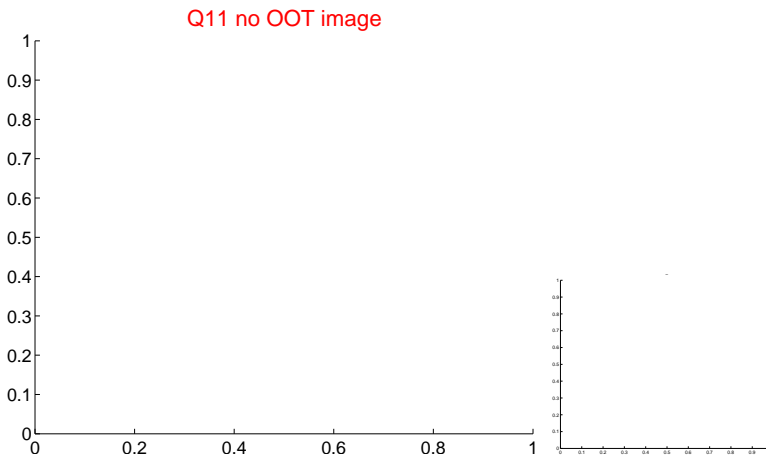
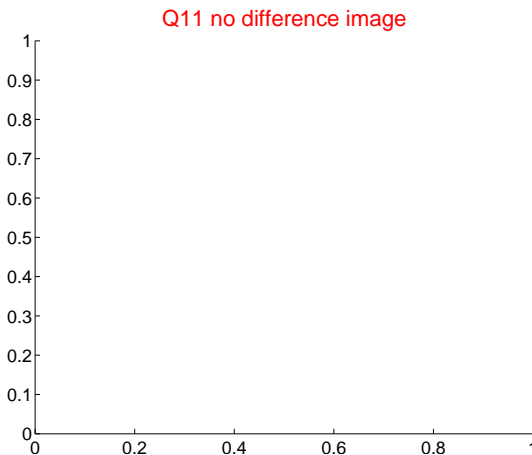
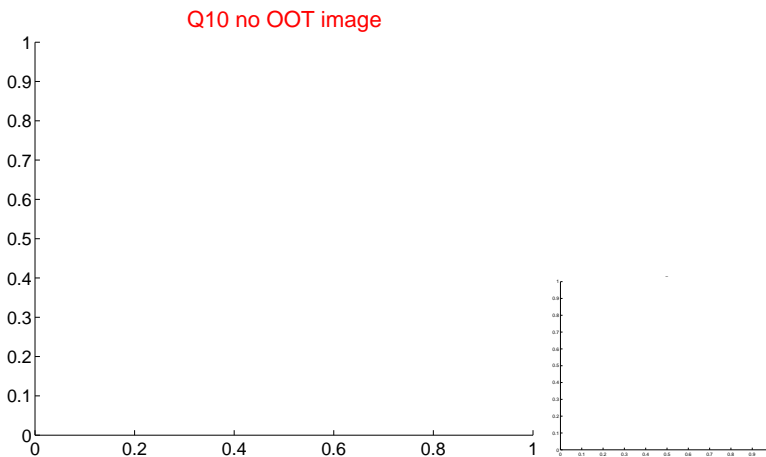
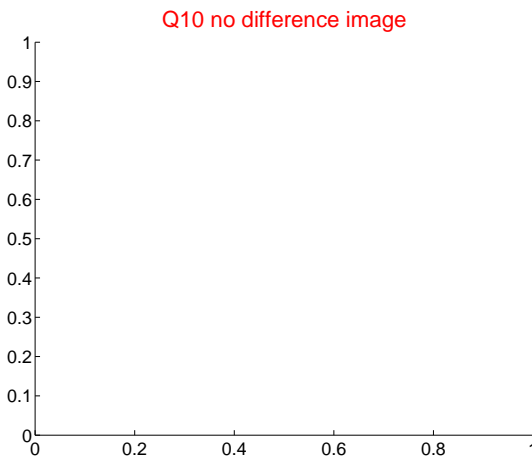
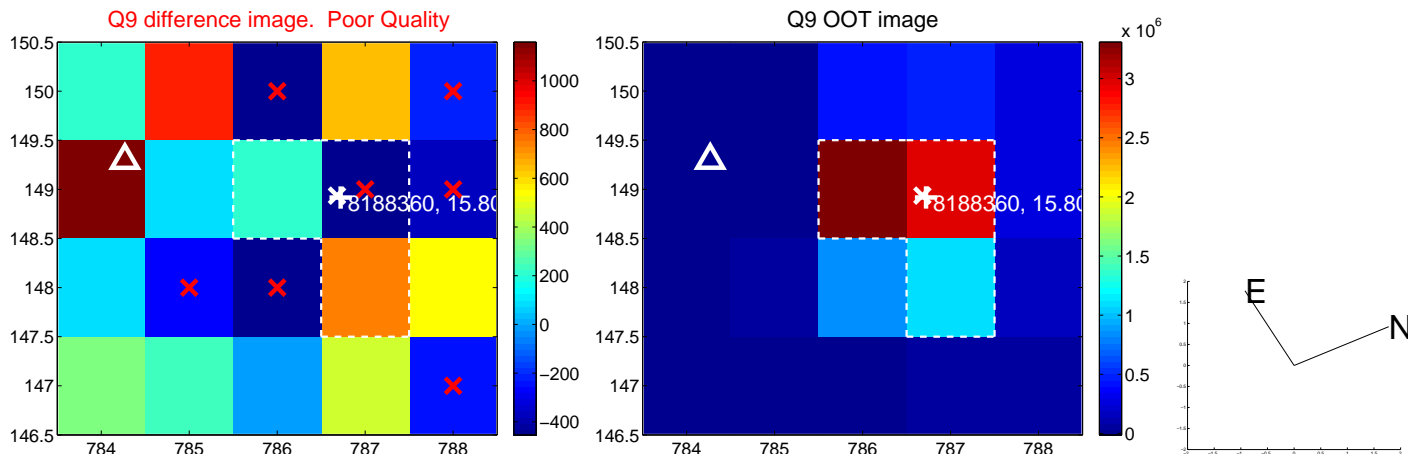
Q4 no OOT image



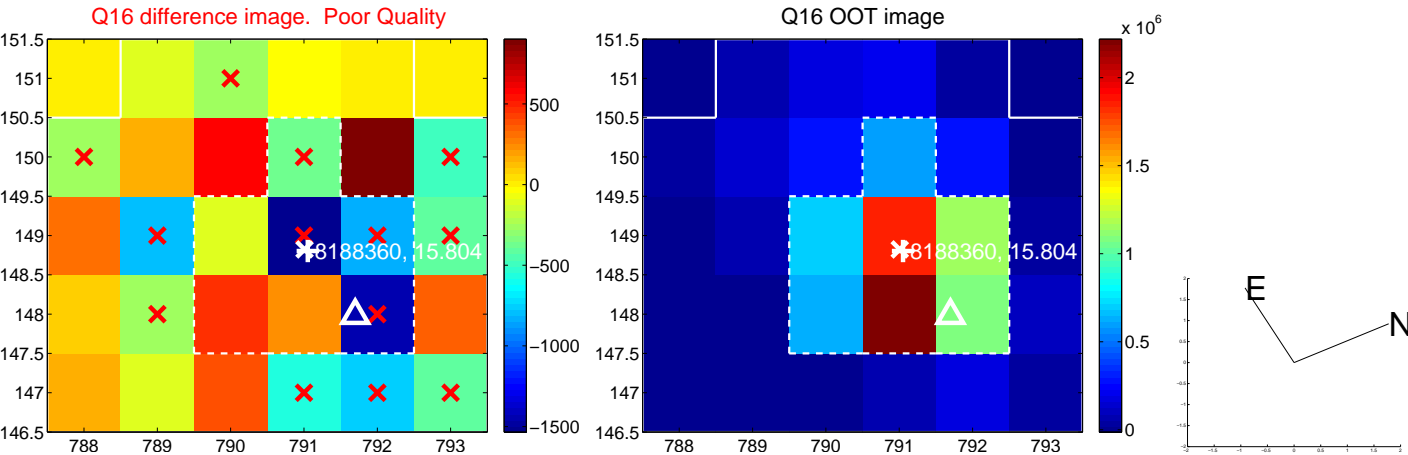
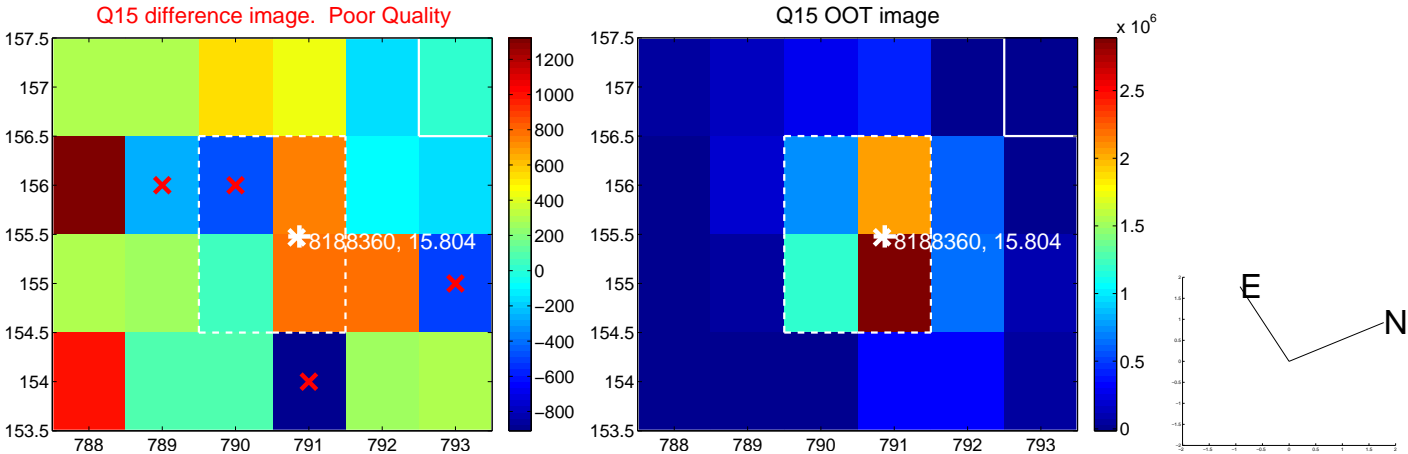
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



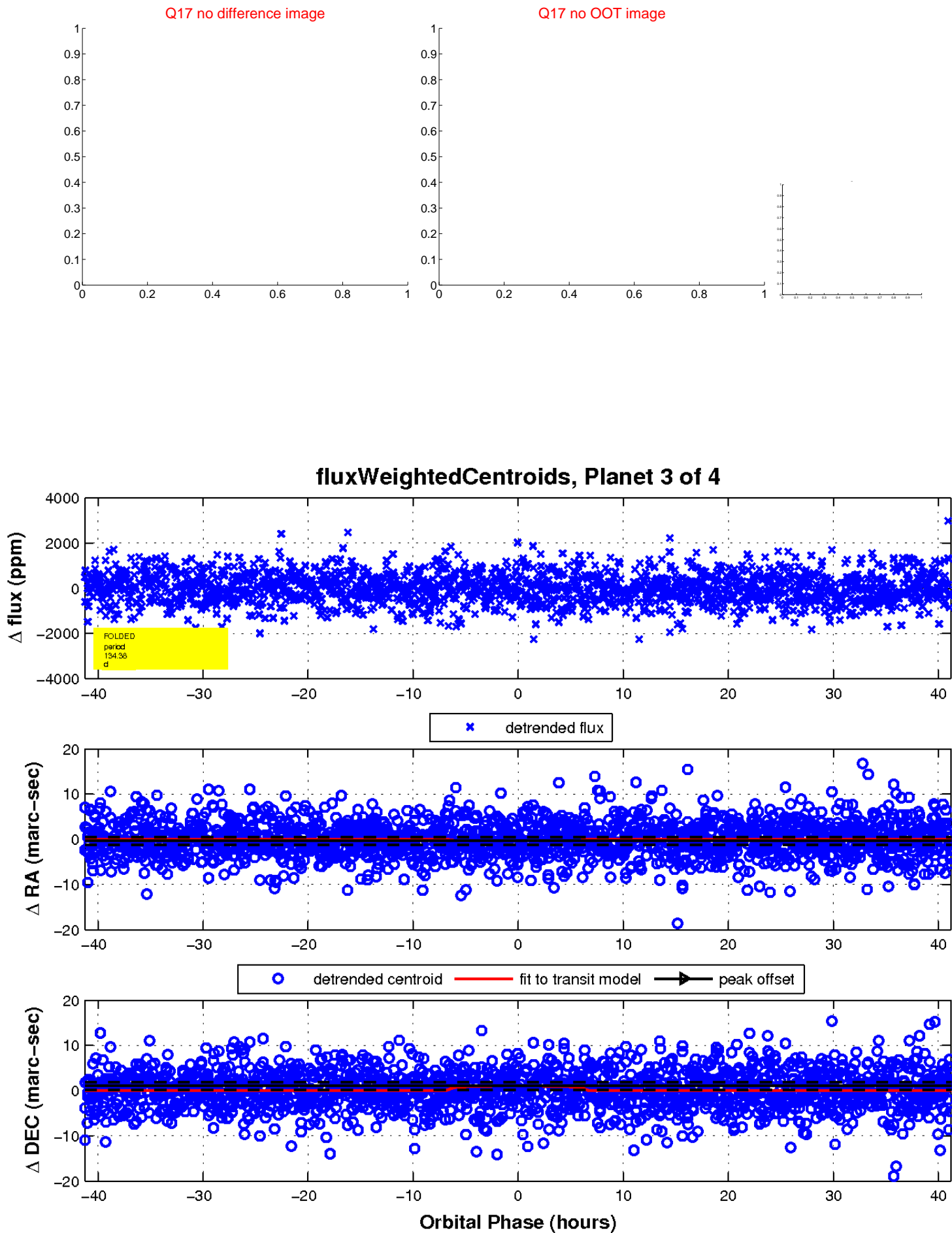
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

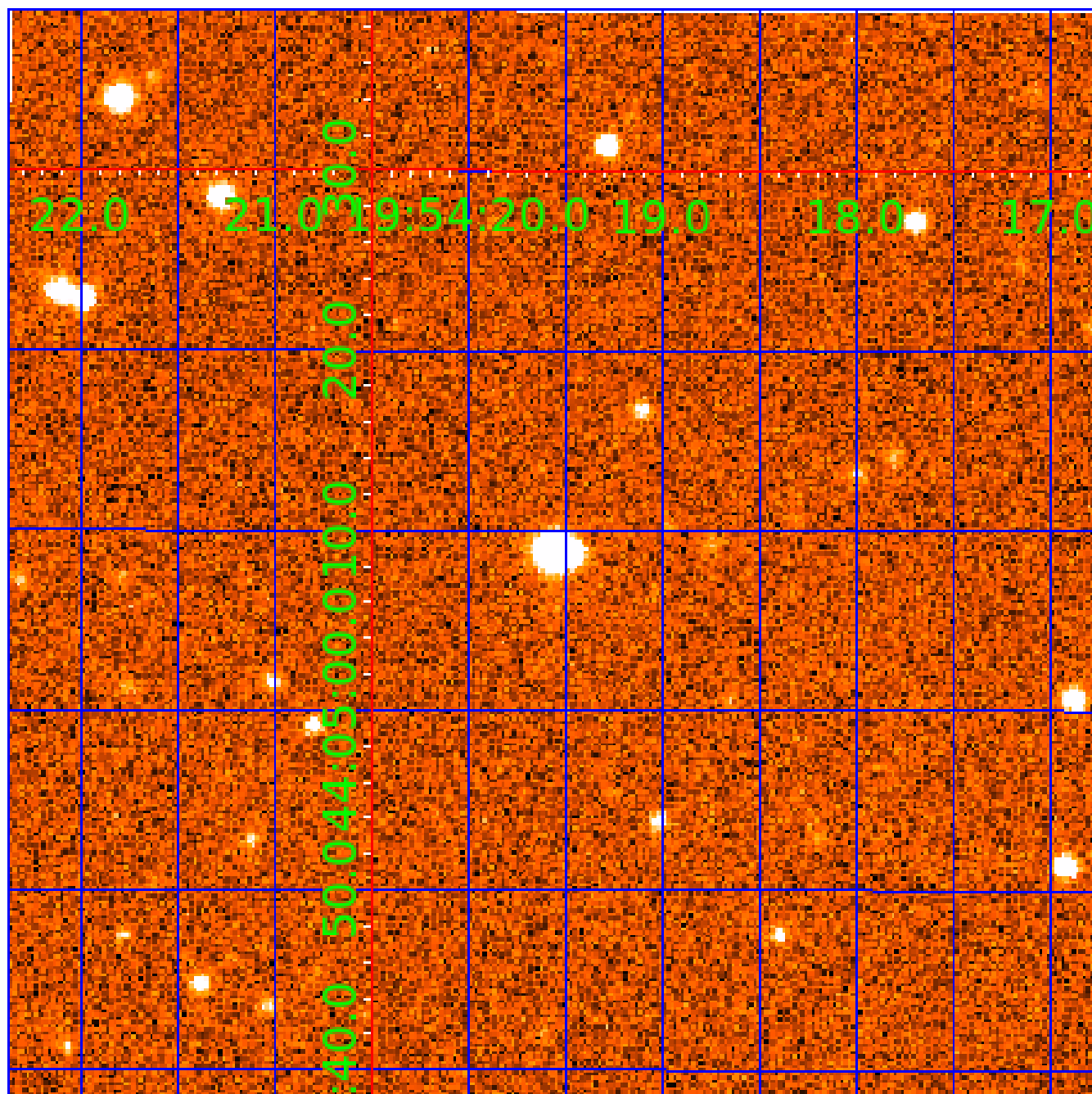


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008188360

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})
008188360-01	OBS	No	3.000022	133.347696	58.2	17.251	7.7	7.9	0.52	4685	0.40	108.62
008188360-03	OBS	No	134.378184	198.523879	525.3	13.747	11.4	6.0	0.52	4685	1.33	0.68
008188360-04	OBS	No	112.861704	196.209226	1644.7	1.797	7.5	8.2	0.52	4685	2.58	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008188360-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008188360-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008188360-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

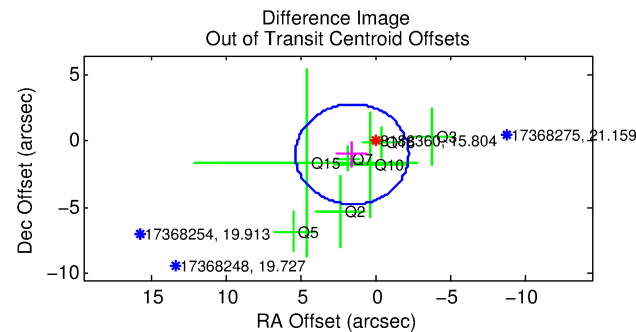
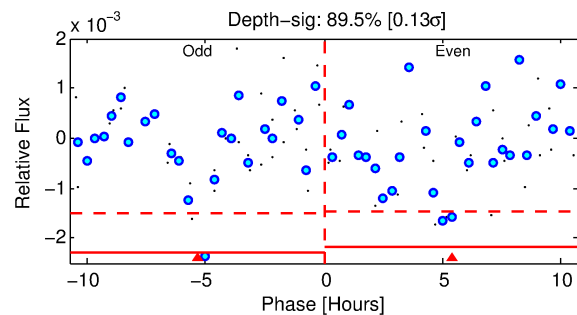
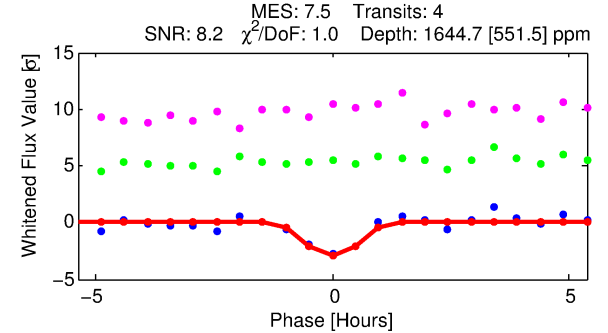
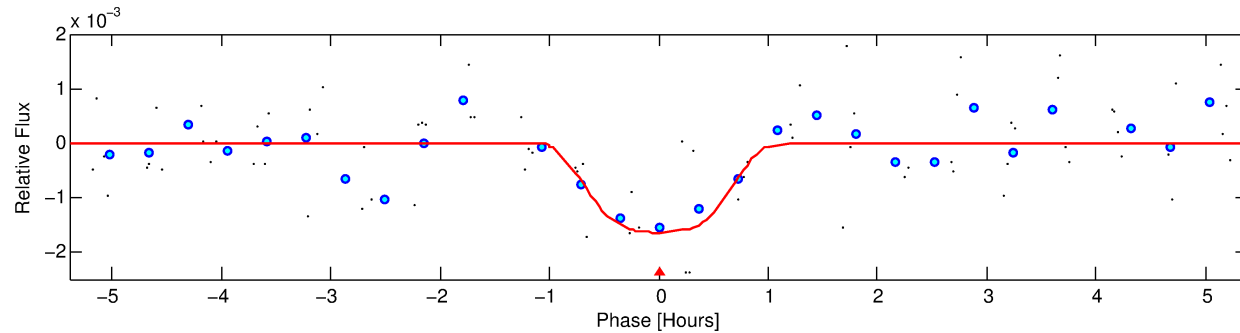
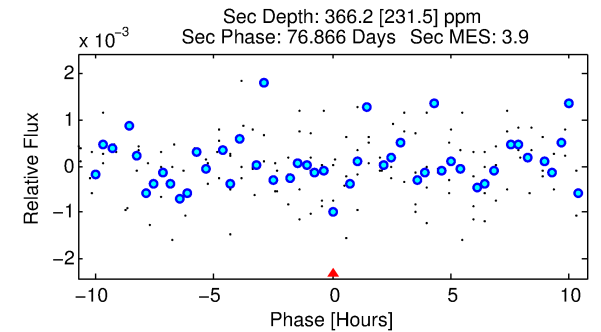
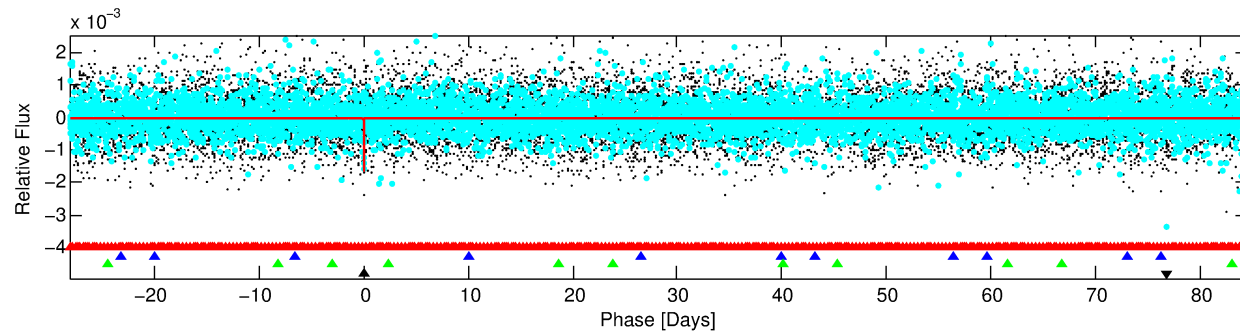
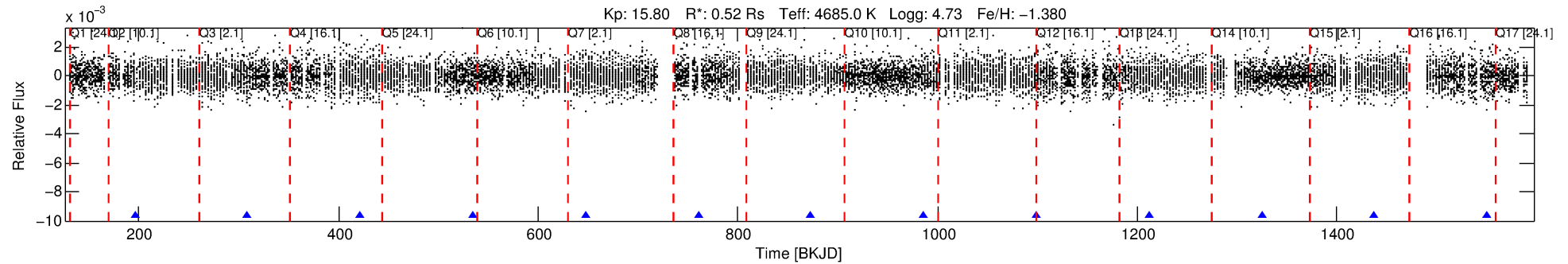
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008188360-04

No Significant Match Found

DV One-Page Summary

KIC: 8188360 Candidate: 4 of 4 Period: 112.862 d



DV Fit Results:

Period = 112.86170 [0.00080] d
Epoch = 196.2092 [0.0070] BKJD
Rp/R* = 0.0451 [0.1181]
a/R* = 249.58 [2601.37]
b = 0.91 [2.13]
Seff = 0.86 [0.13]
Teq = 246 [9] K
Rp = 2.58 [6.74] Re
a = 0.3702 [0.0207] AU
Ag = 4163.02 [21947.53] [0.19σ]
Teffp = 3051 [4022] K [0.70σ]

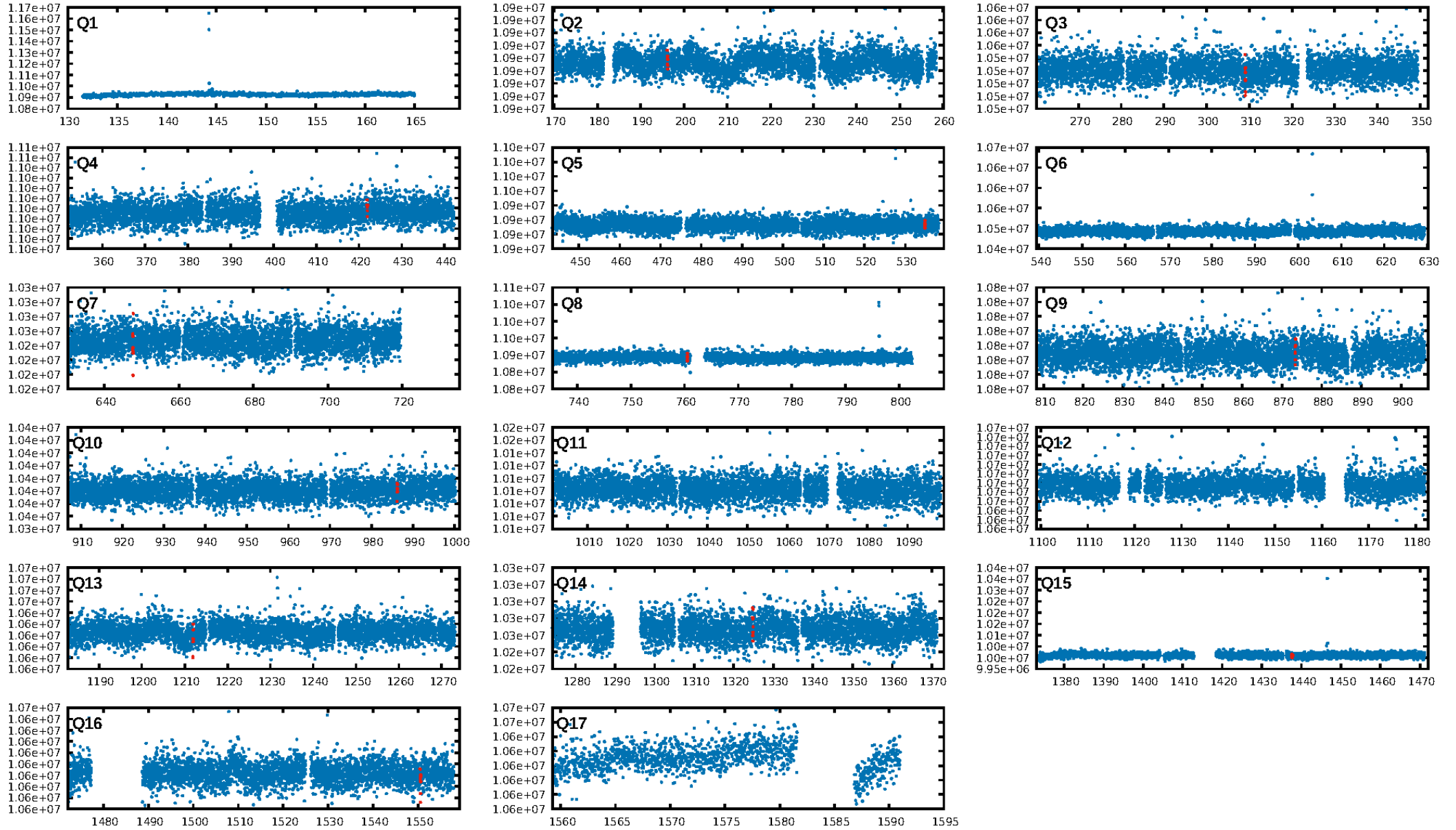
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [152.02σ]
LongPeriod-sig: 100.0% [15.82σ]
ModelChiSquare2-sig: 78.4%
ModelChiSquareGof-sig: 92.0%
Bootstrap-pfa: 1.02e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.574
Centroid-sig: 39.1%
Centroid-so: 1.156 arcsec [0.88σ]
OotOffset-rm: 1.828 arcsec [1.45σ]
OotOffset-st: 2/3/1/1 [7]
KicOffset-rm: 1.965 arcsec [1.37σ]
KicOffset-st: 2/3/1/1 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.58 [7/12]

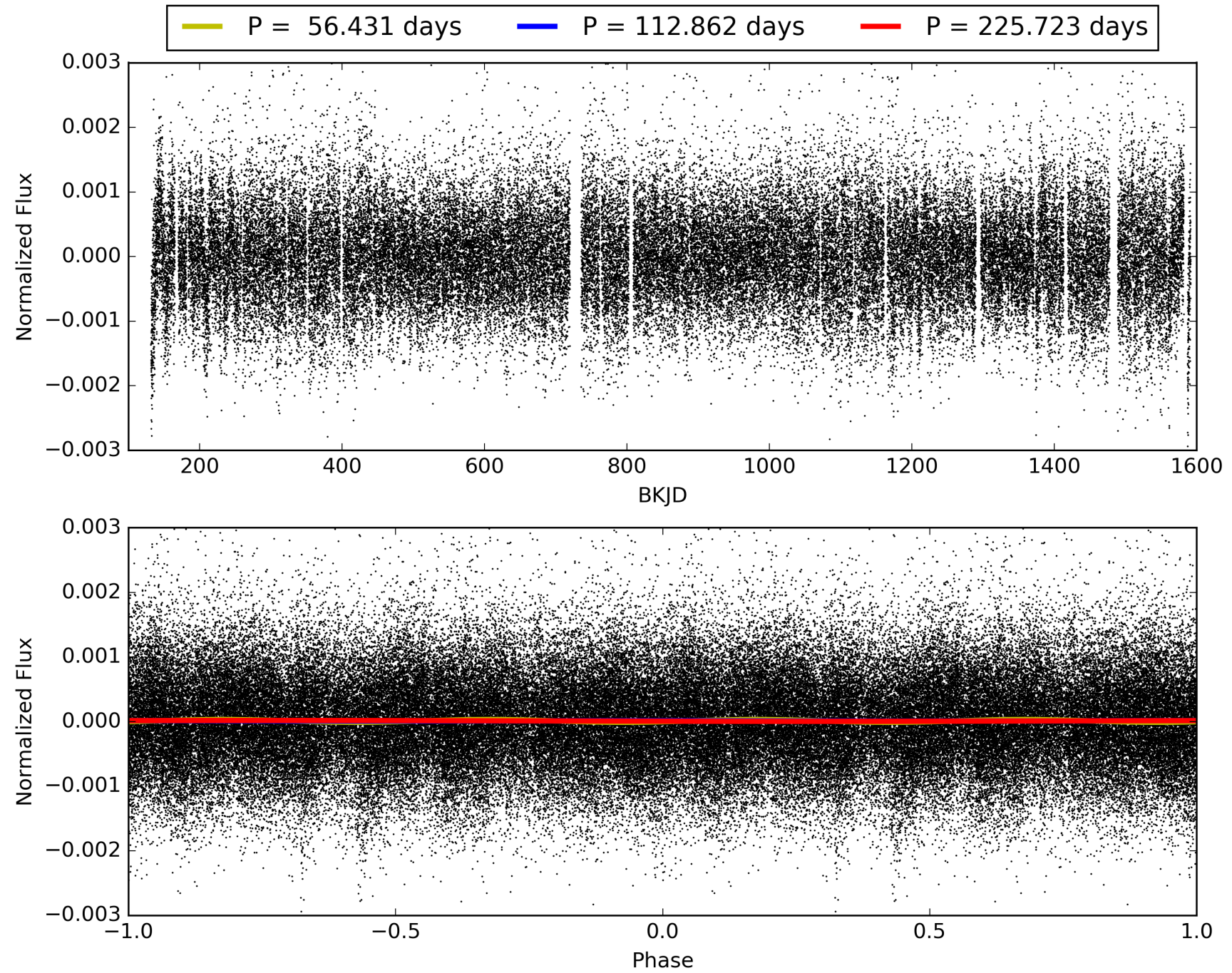
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:10:46 Z

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

TCE 008188360-04, PDC Light Curves

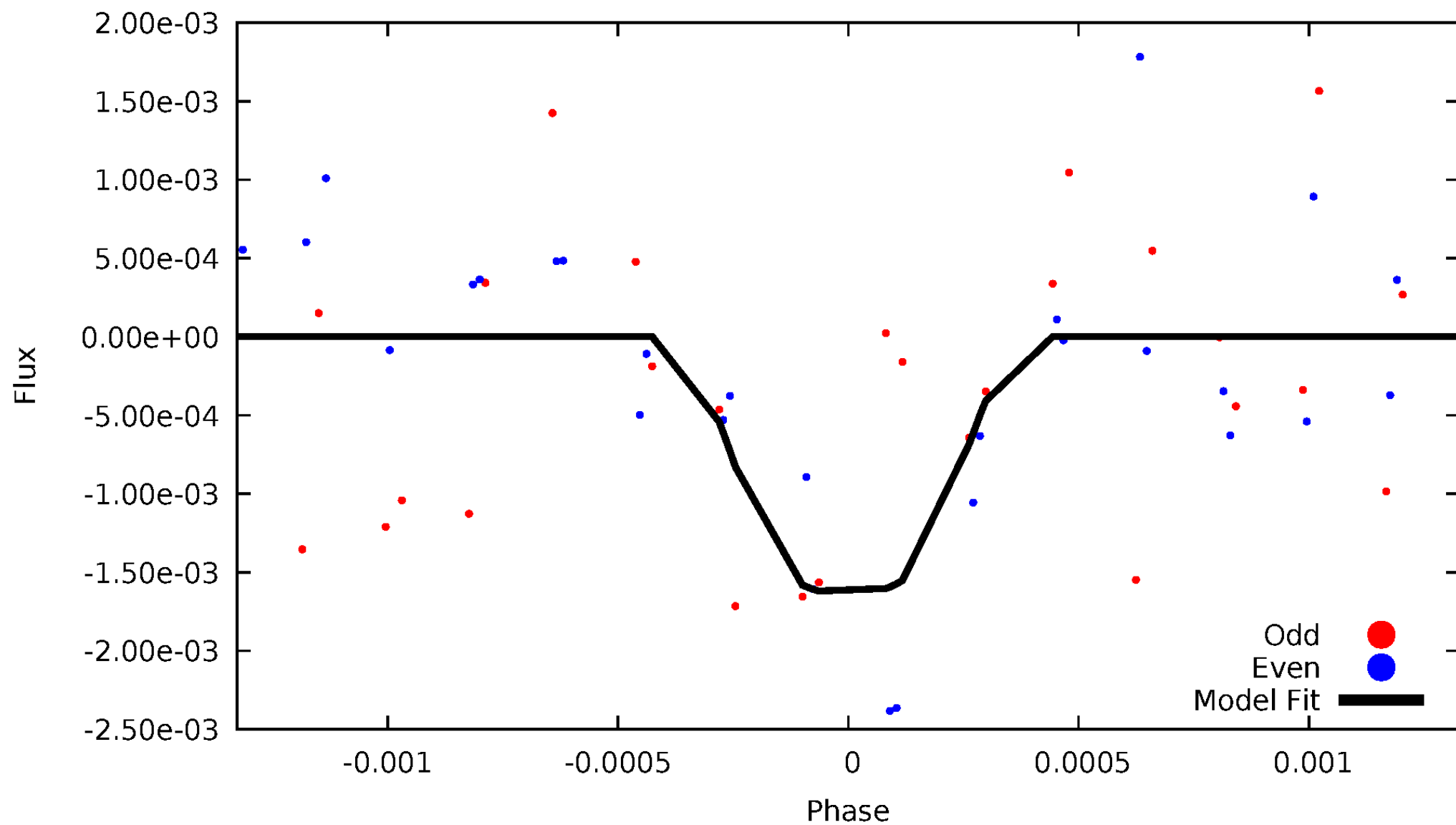


TCE 008188360-04



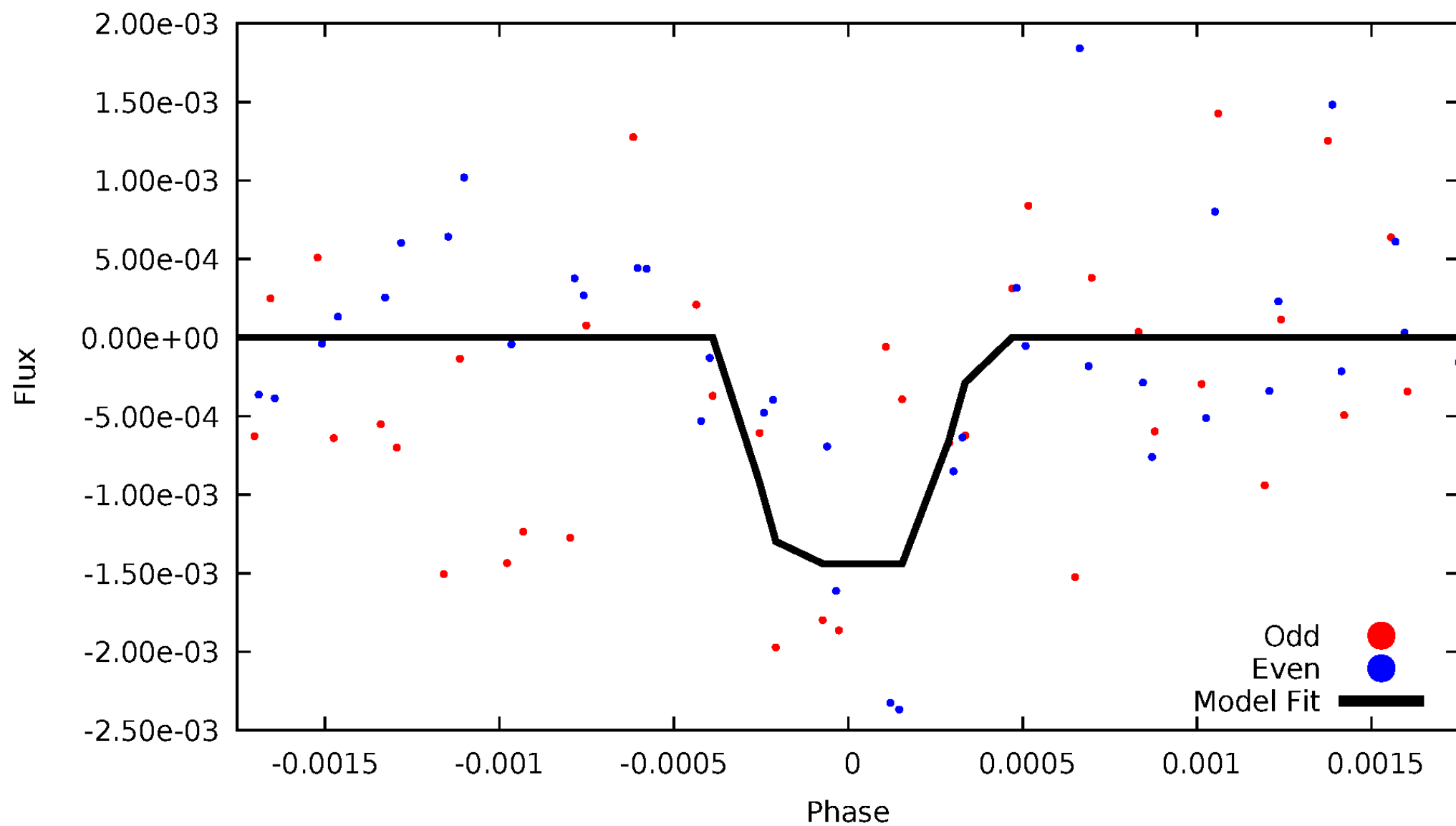
DV Odd/Even

TCE 008188360-04



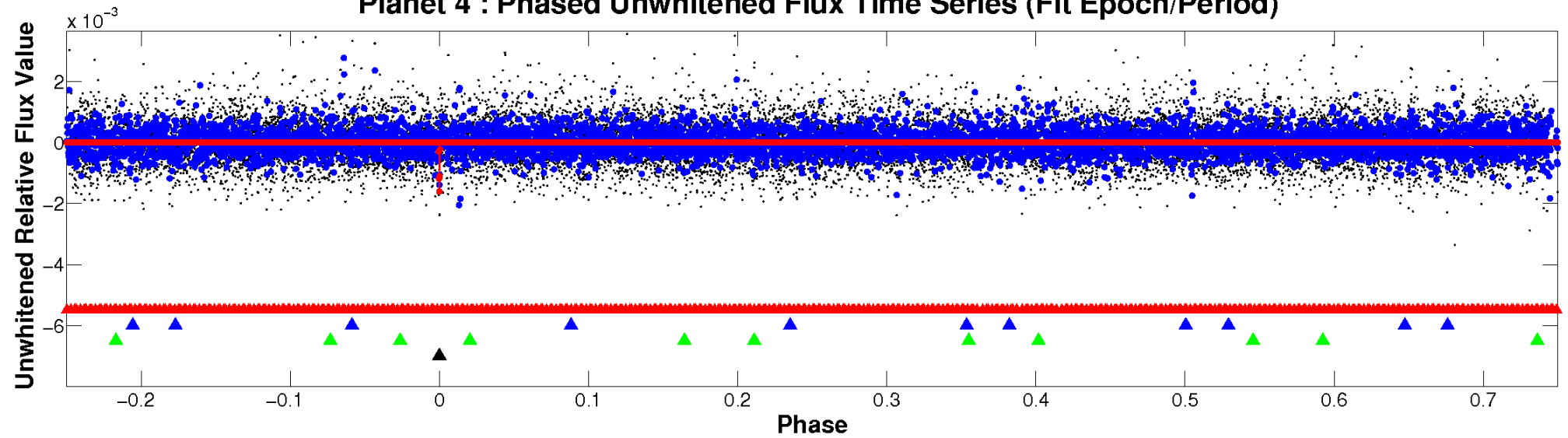
ALT Odd/Even

TCE 008188360-04

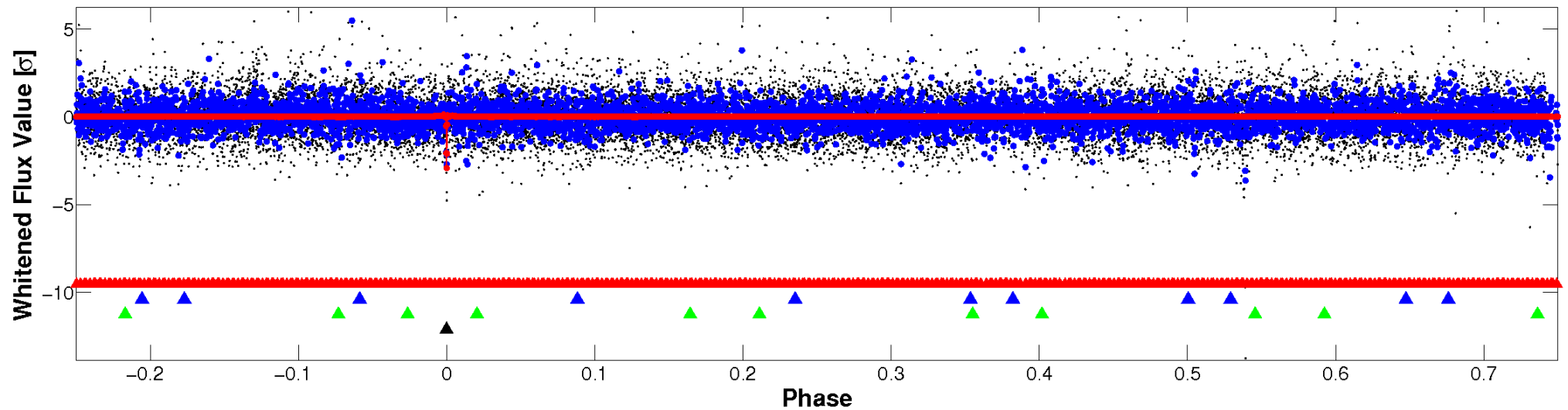


Non-Whitened Vs. Whitened Light Curve

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

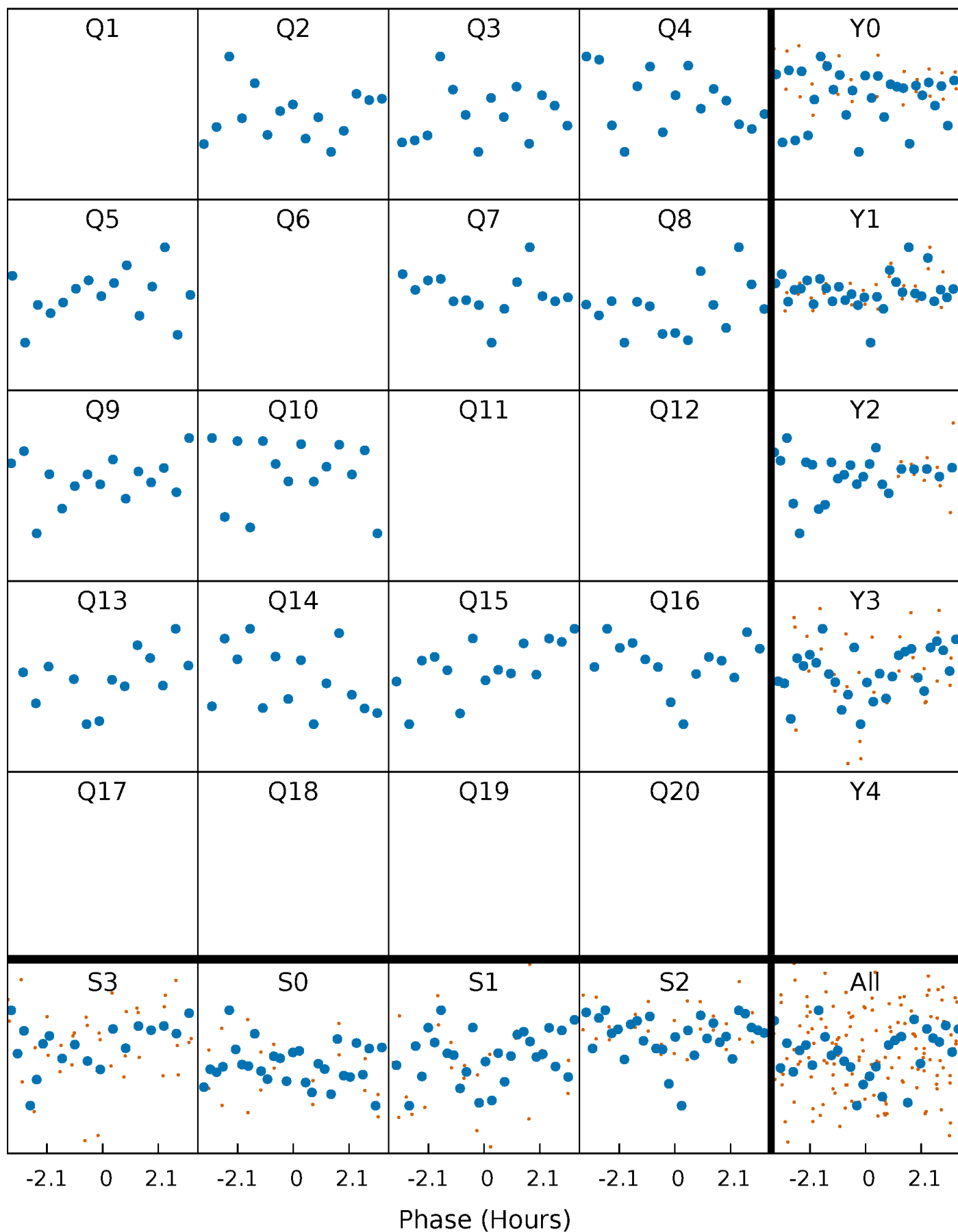


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



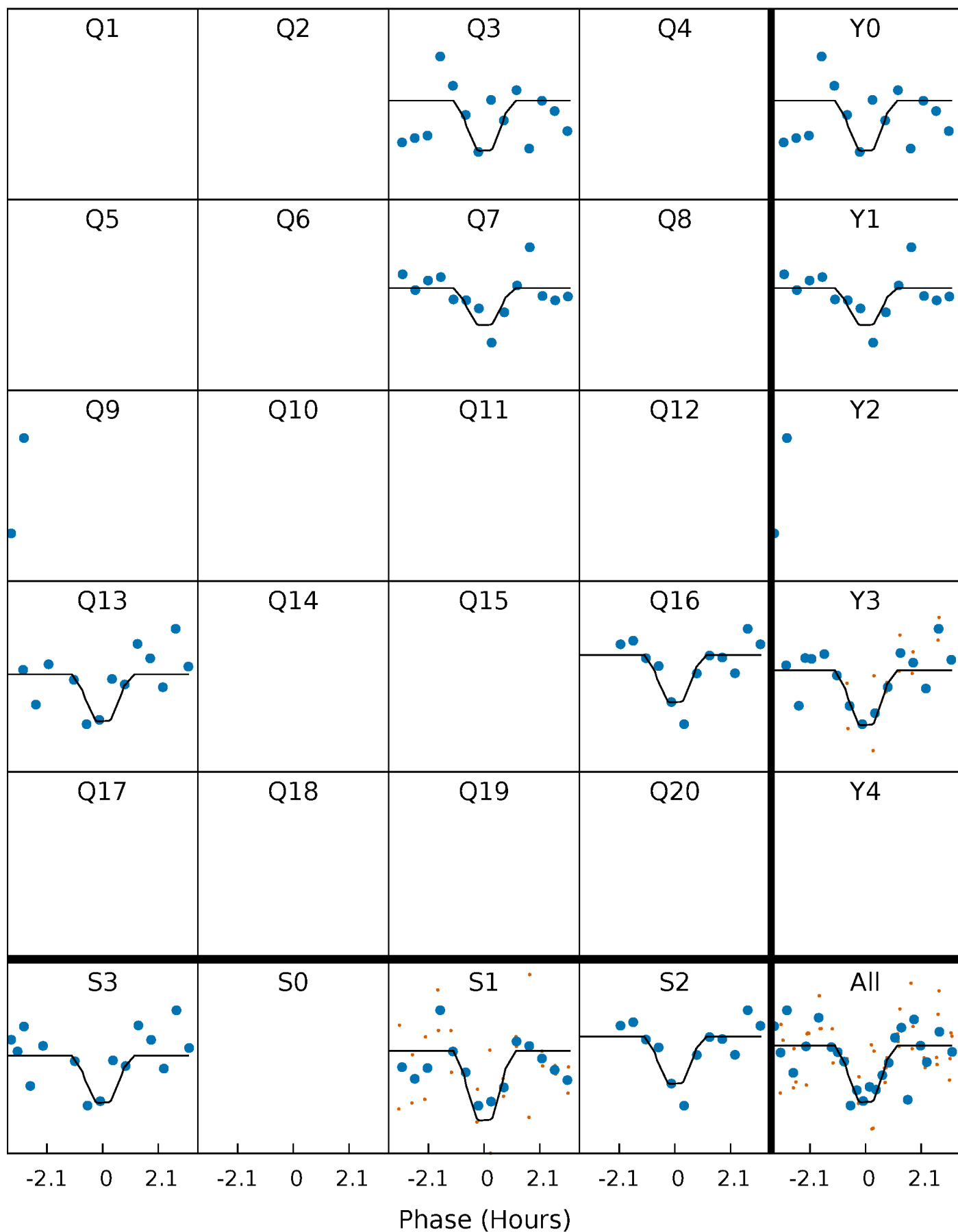
PDC Quarter-Phased Transit Curves

TCE 008188360-04 P=112.861704 Days $T_0=196.209226$ (BKJD)



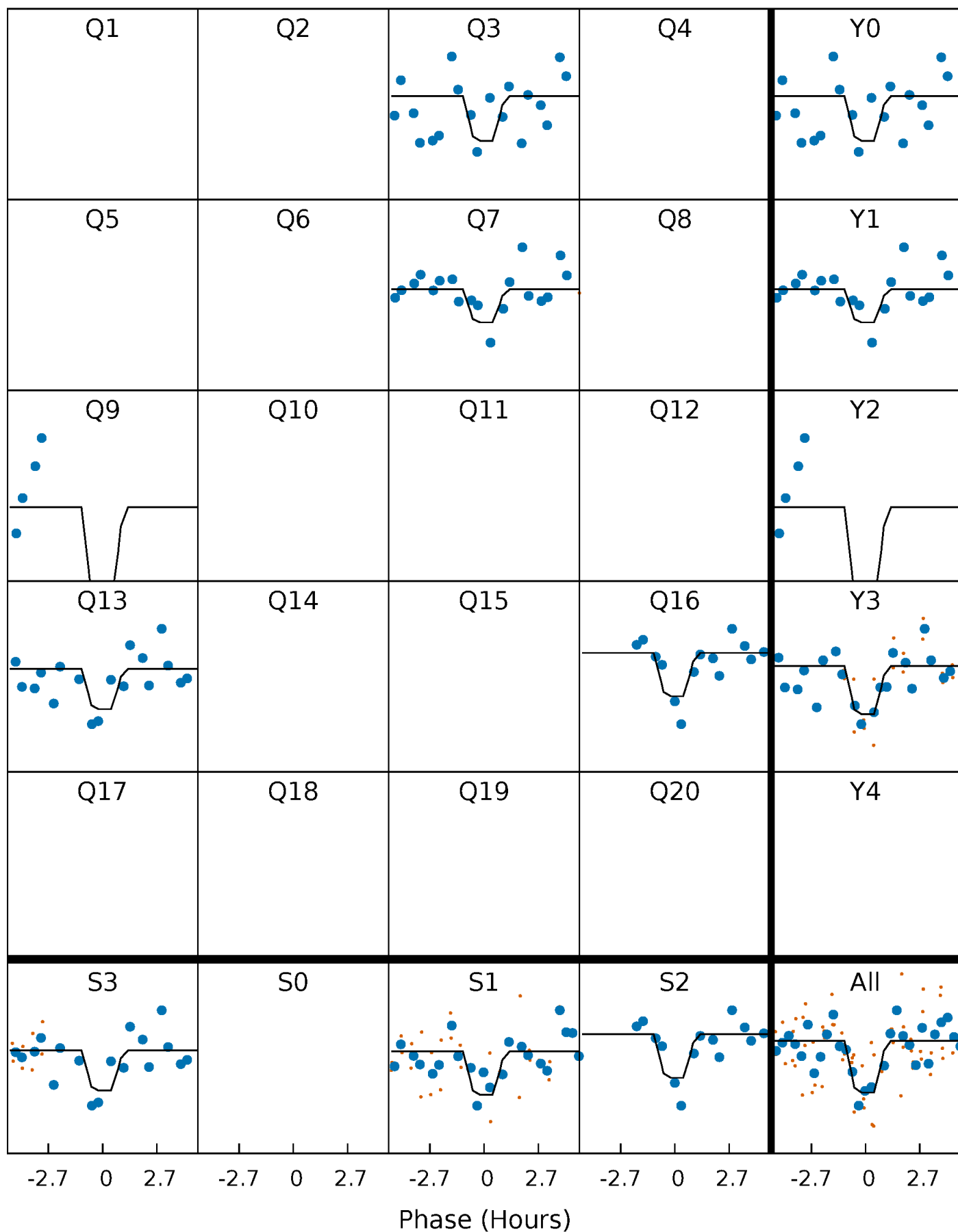
DV Quarter-Phased Transit Curves

TCE 008188360-04 P=112.861704 Days $T_0=196.209226$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

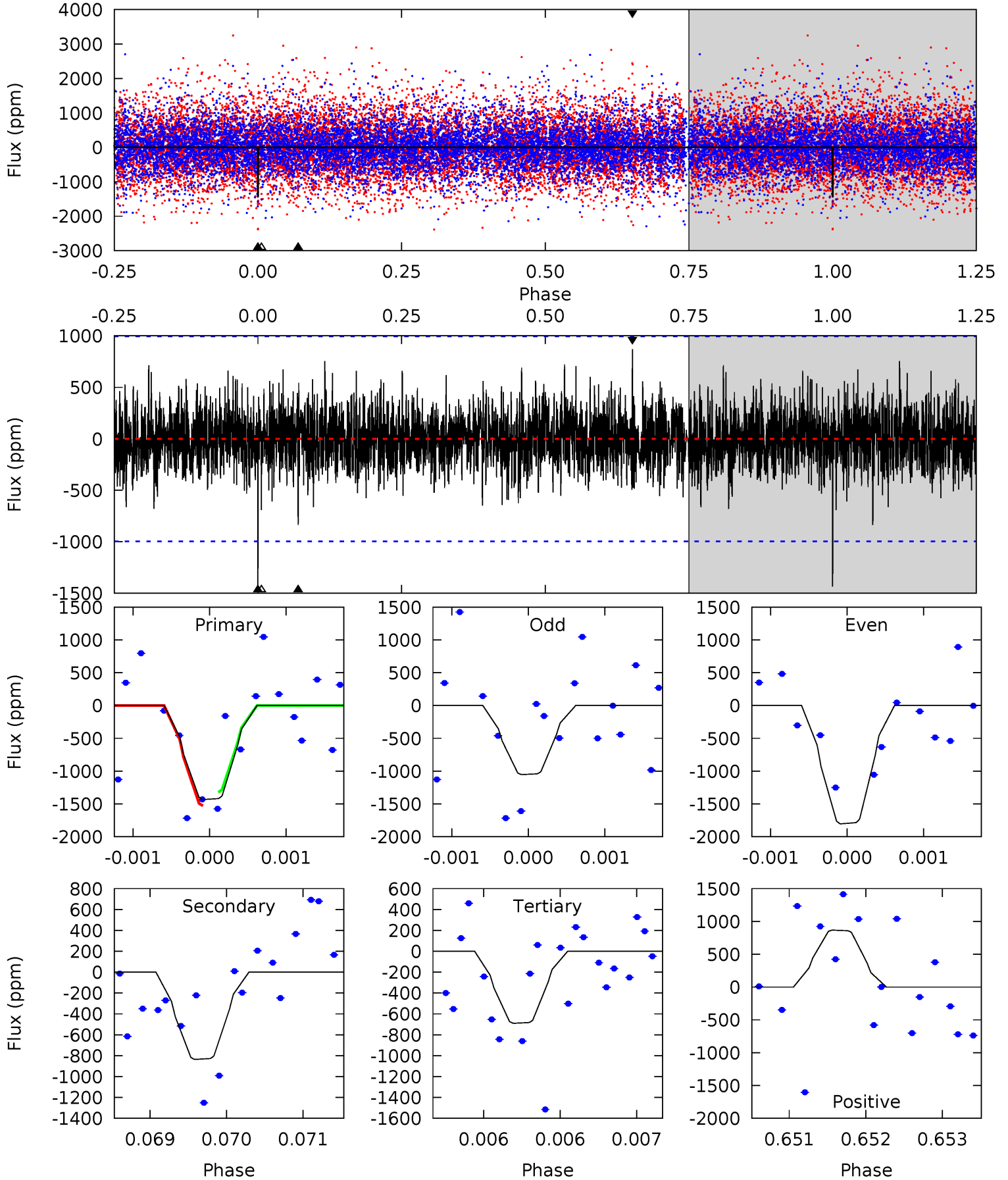
TCE 008188360-04 P=112.861547 Days $T_0=196.206458$ (BKJD)



DV Model-Shift Uniqueness Test

008188360-04, P = 112.861704 Days, E = 83.347522 Days

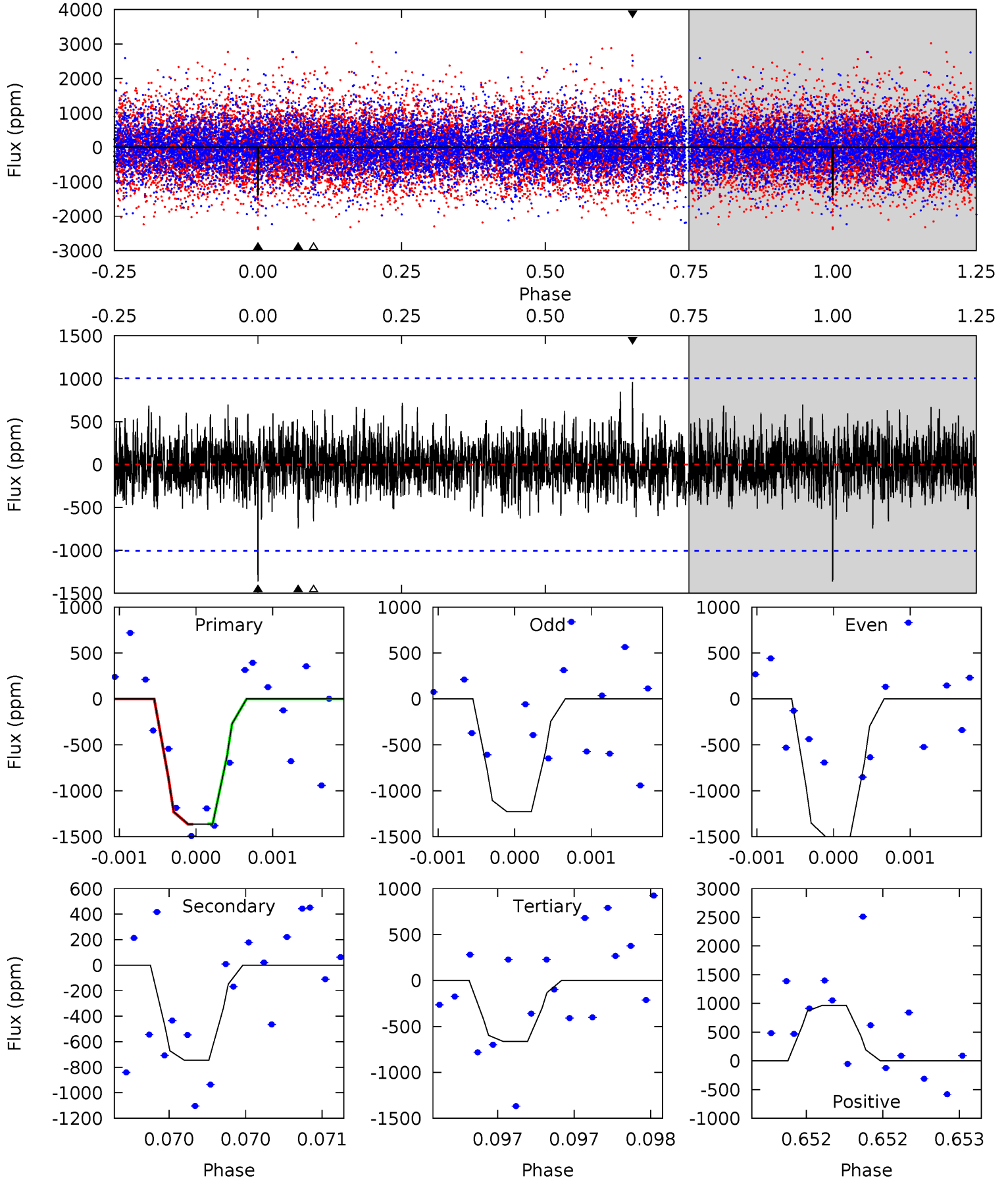
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.94	4.63	3.82	4.80	5.51	3.38	1.15	4.12	3.13	0.81	-0.18	2.08	0.98	0.38	0.56



Alt Model-Shift Uniqueness Test

008188360-04, P = 112.861547 Days, E = 83.344911 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.47	4.08	3.63	5.28	5.51	3.39	1.14	3.83	2.19	0.45	-1.19	0.75	0.95	0.41	0.01



Stellar Parameters For KIC 008188360

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4685^{+145}_{-145}	$4.726^{+0.048}_{-0.028}$	$-1.380^{+0.300}_{-0.300}$	$0.523^{+0.030}_{-0.033}$	$0.531^{+0.037}_{-0.021}$	$5.235^{+1.026}_{-0.546}$
	+3%/-3%	+1%/-1%	+22%/-22%	+6%/-6%	+7%/-4%	+20%/-10%
Source	PHO1	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 008188360-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-836 ± 181	$5.27^{+5.66}_{-3.50}$	342^{+12}_{-11}	3148^{+1527}_{-562}	2240^{+19223}_{-1695}
Alt.	-745 ± 183	$5.38^{+5.60}_{-3.76}$	341^{+12}_{-11}	3065^{+1436}_{-531}	1874^{+18165}_{-1431}

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 $A_{obs} \gg 1.0$

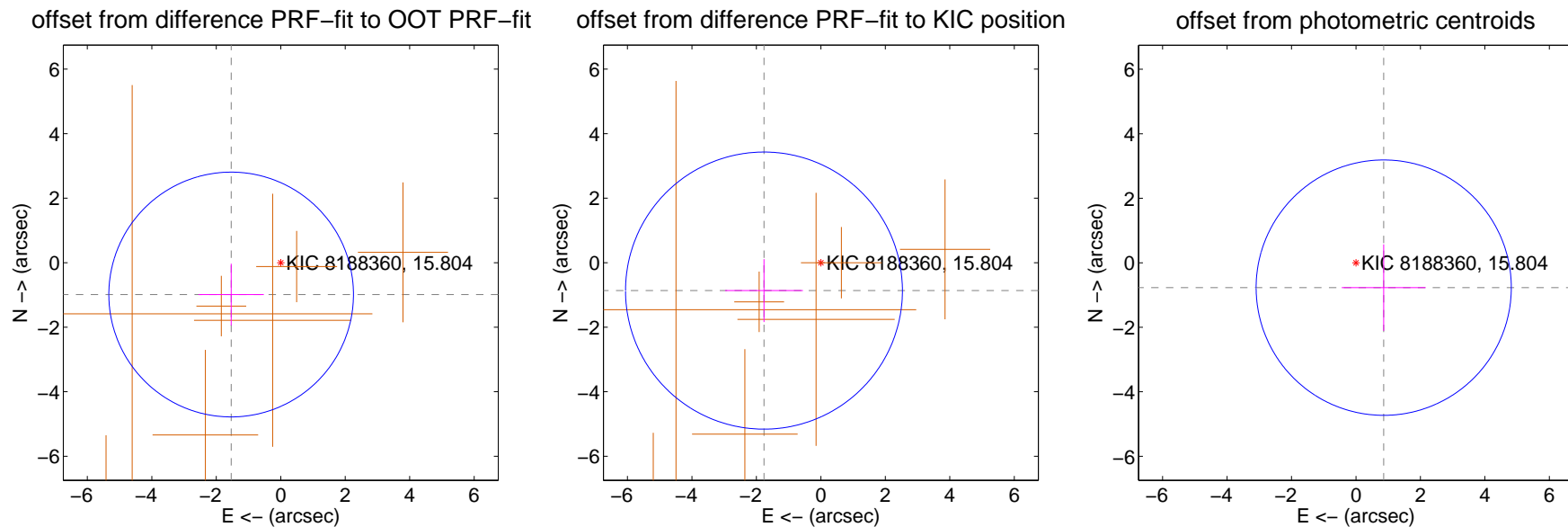
DV Centroid Data

Supplemental centroid analysis for 008188360-04. Kepler magnitude: 15.80. Transit SNR 8.23

There are 0 quarters with good PRF difference image offsets

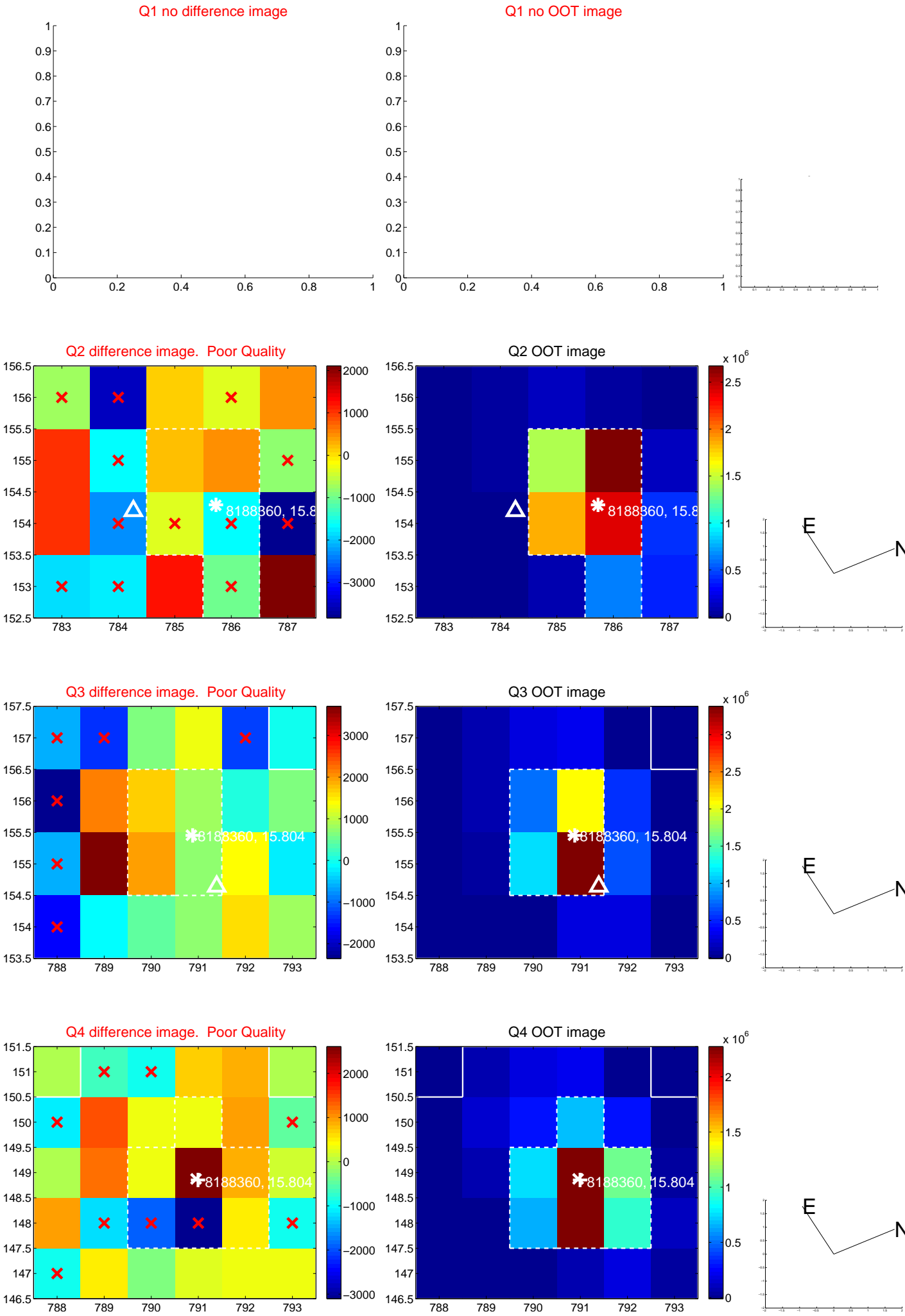
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.828 ± 1.264	1.45	1.539 ± 1.014	-0.987 ± 0.957
PRF-fit source offset from KIC position	1.965 ± 1.431	1.37	1.765 ± 1.206	-0.865 ± 0.975
photometric centroid source offset	1.16 ± 1.32	0.88	-0.86 ± 1.30	-0.77 ± 1.34

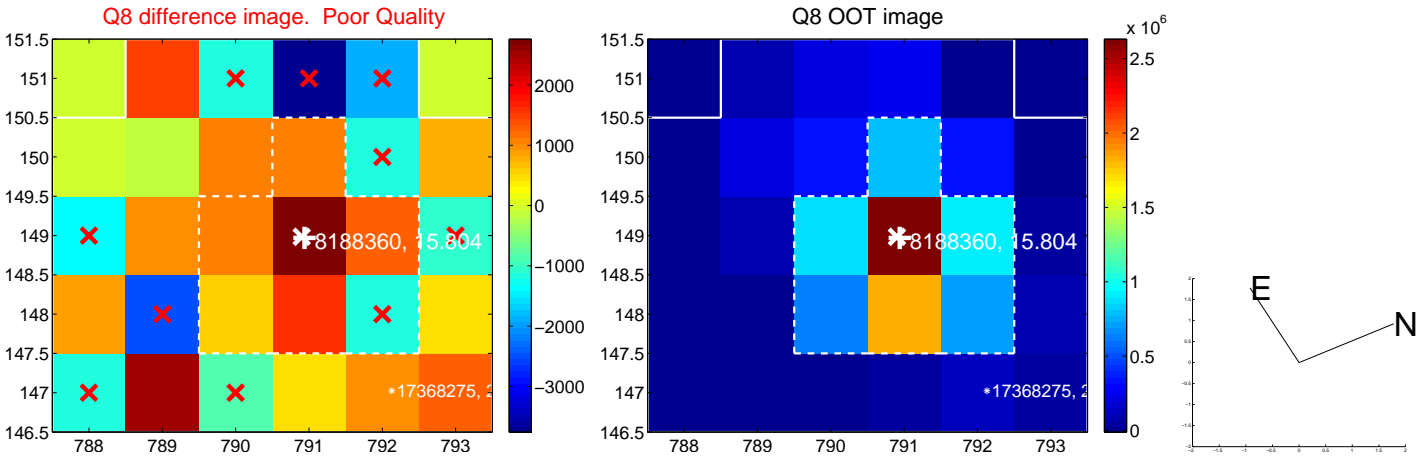
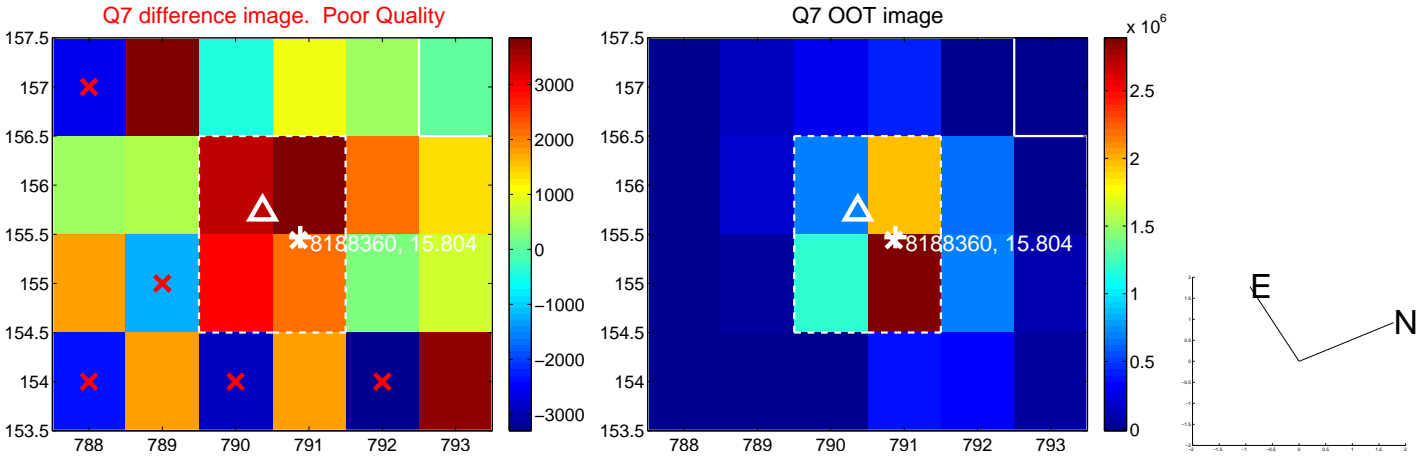
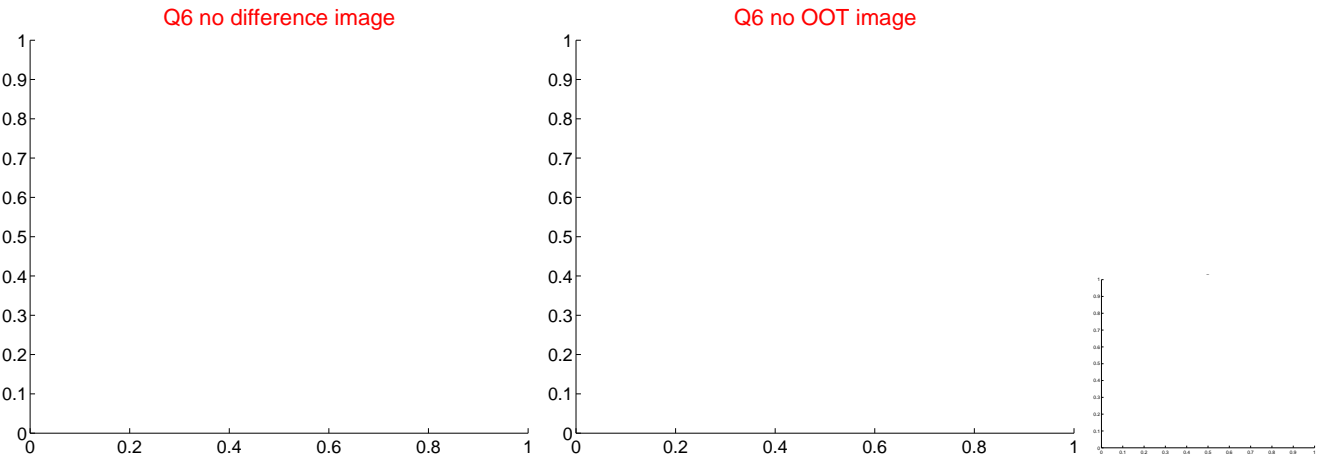
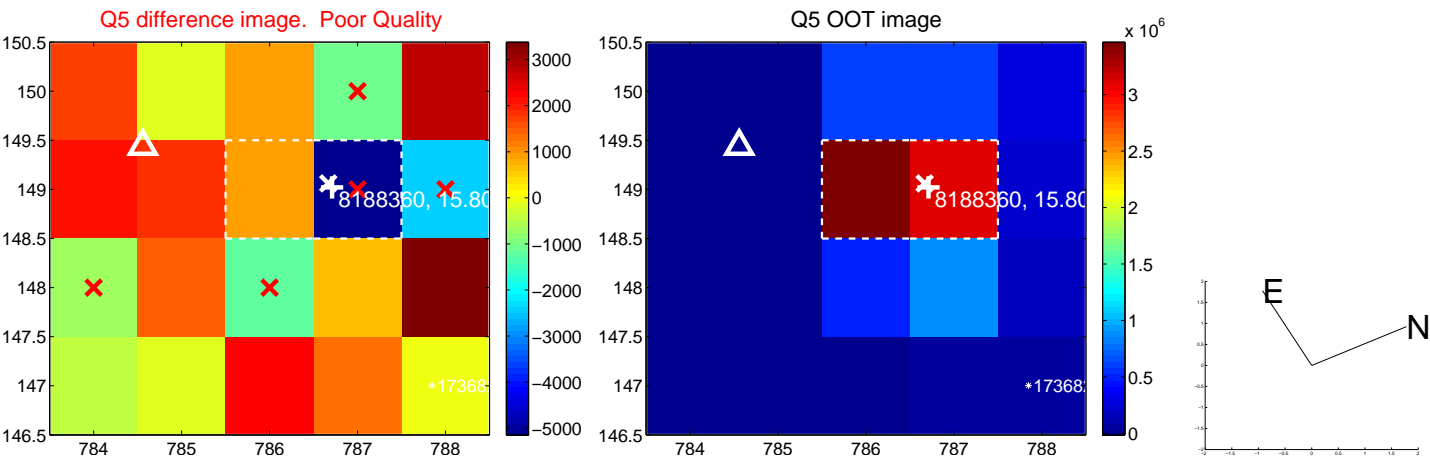


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

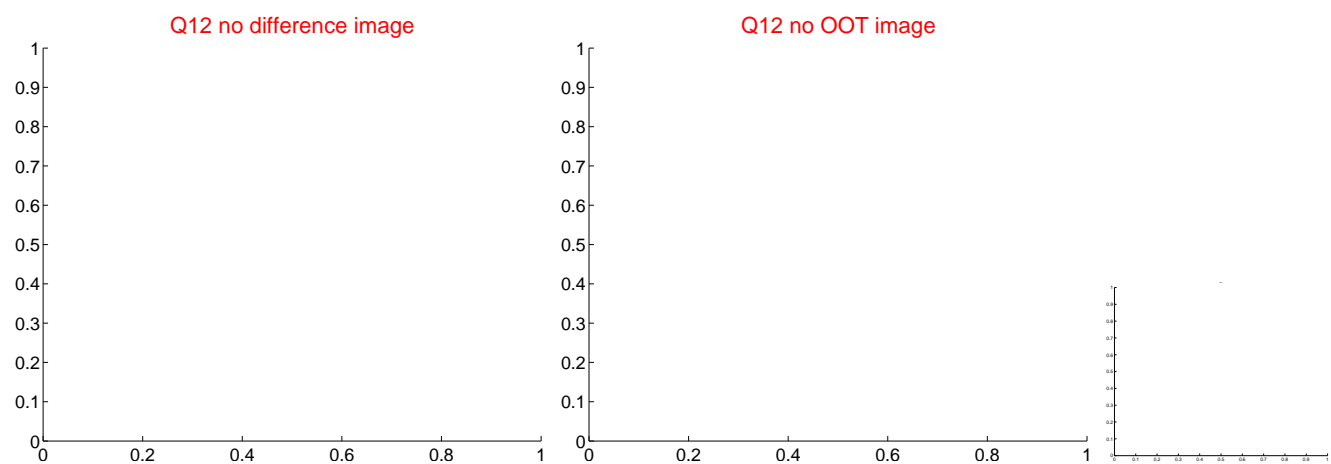
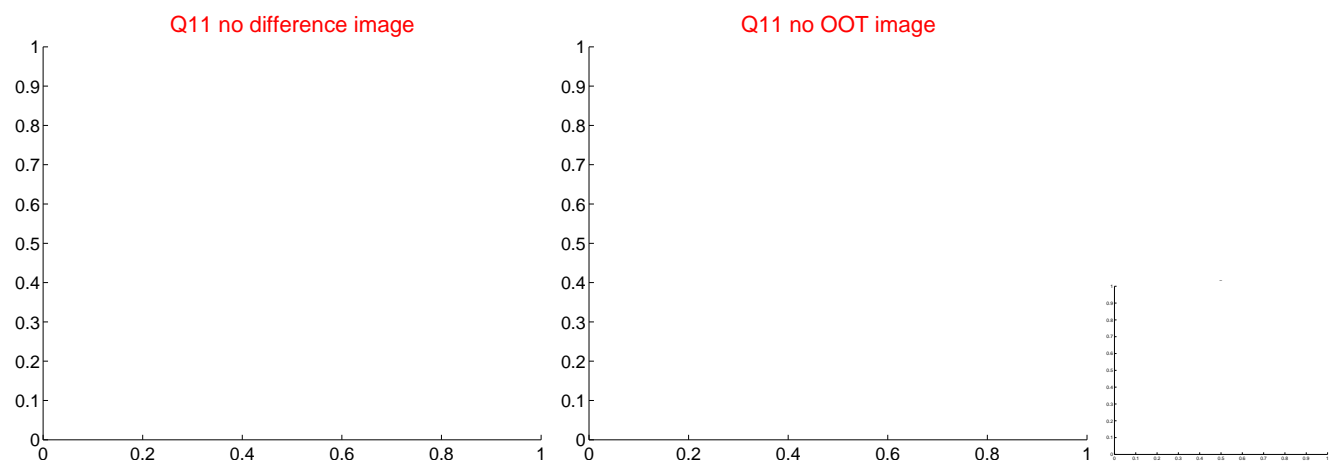
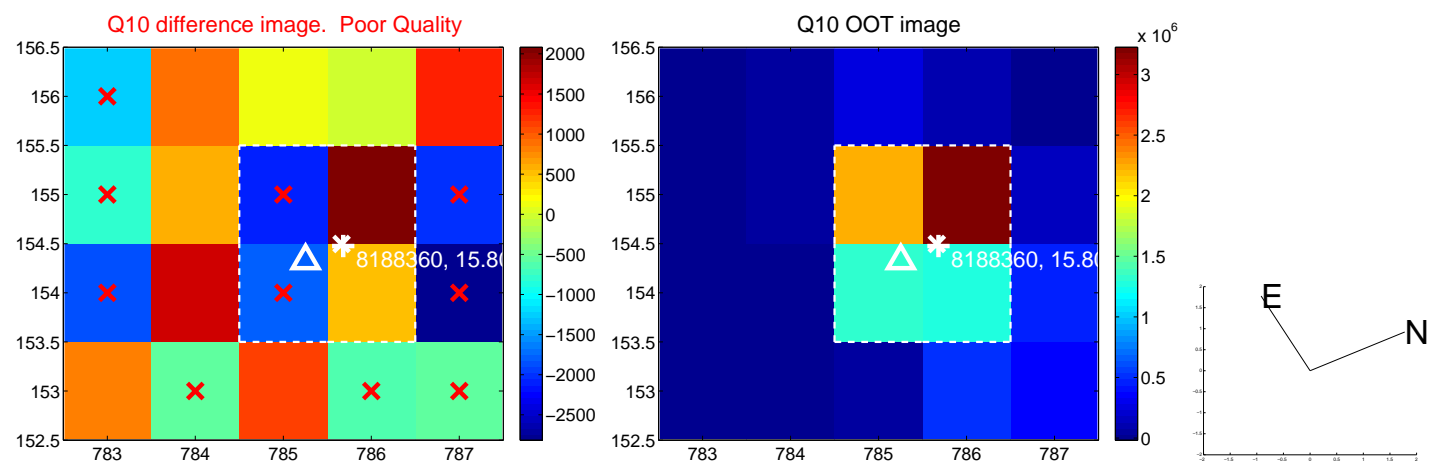
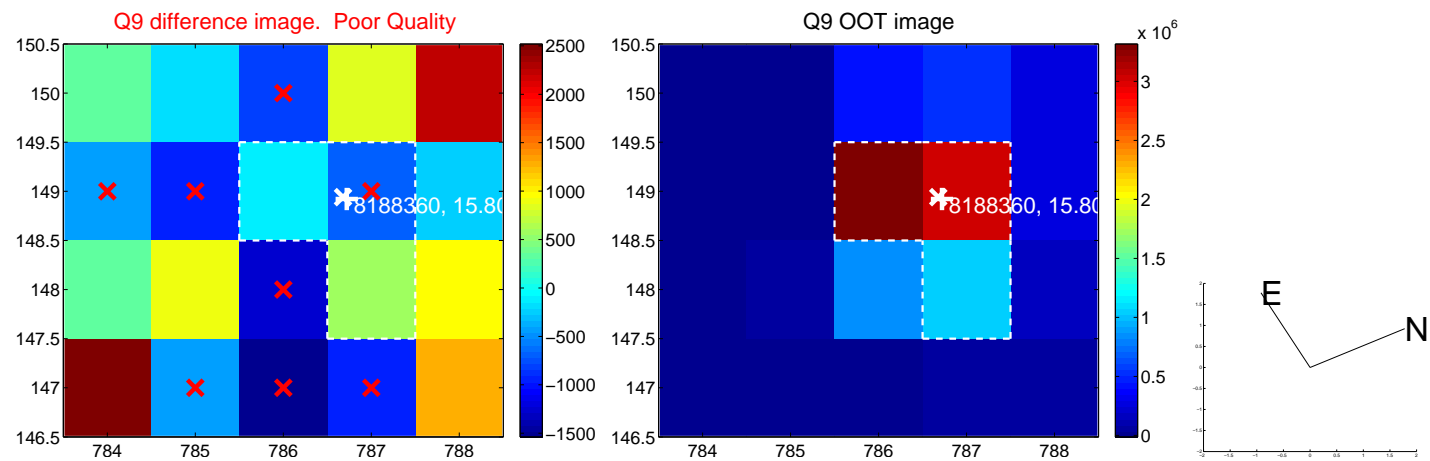
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



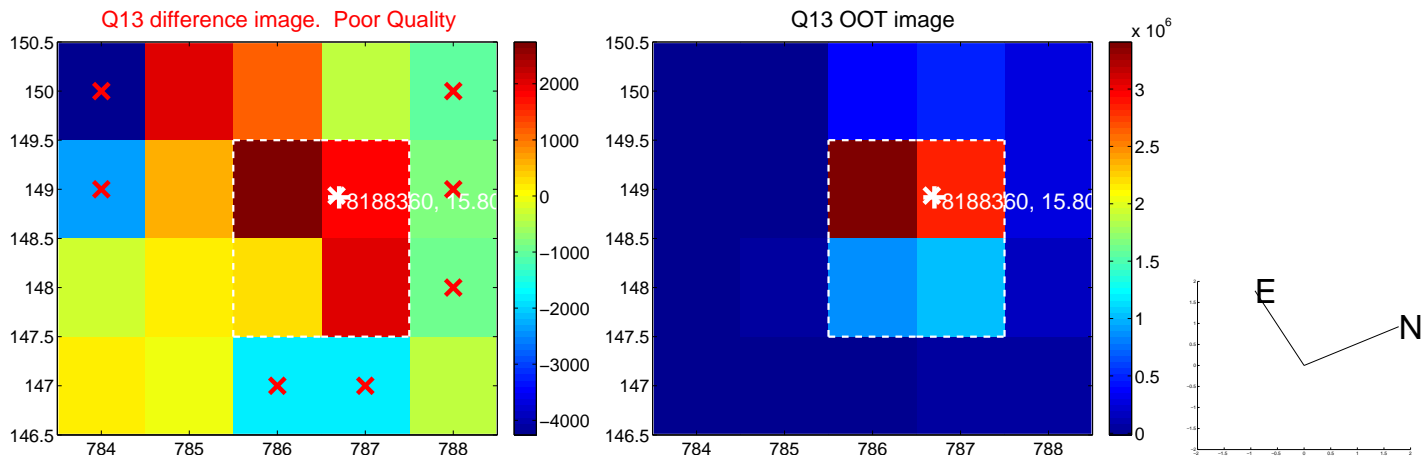
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



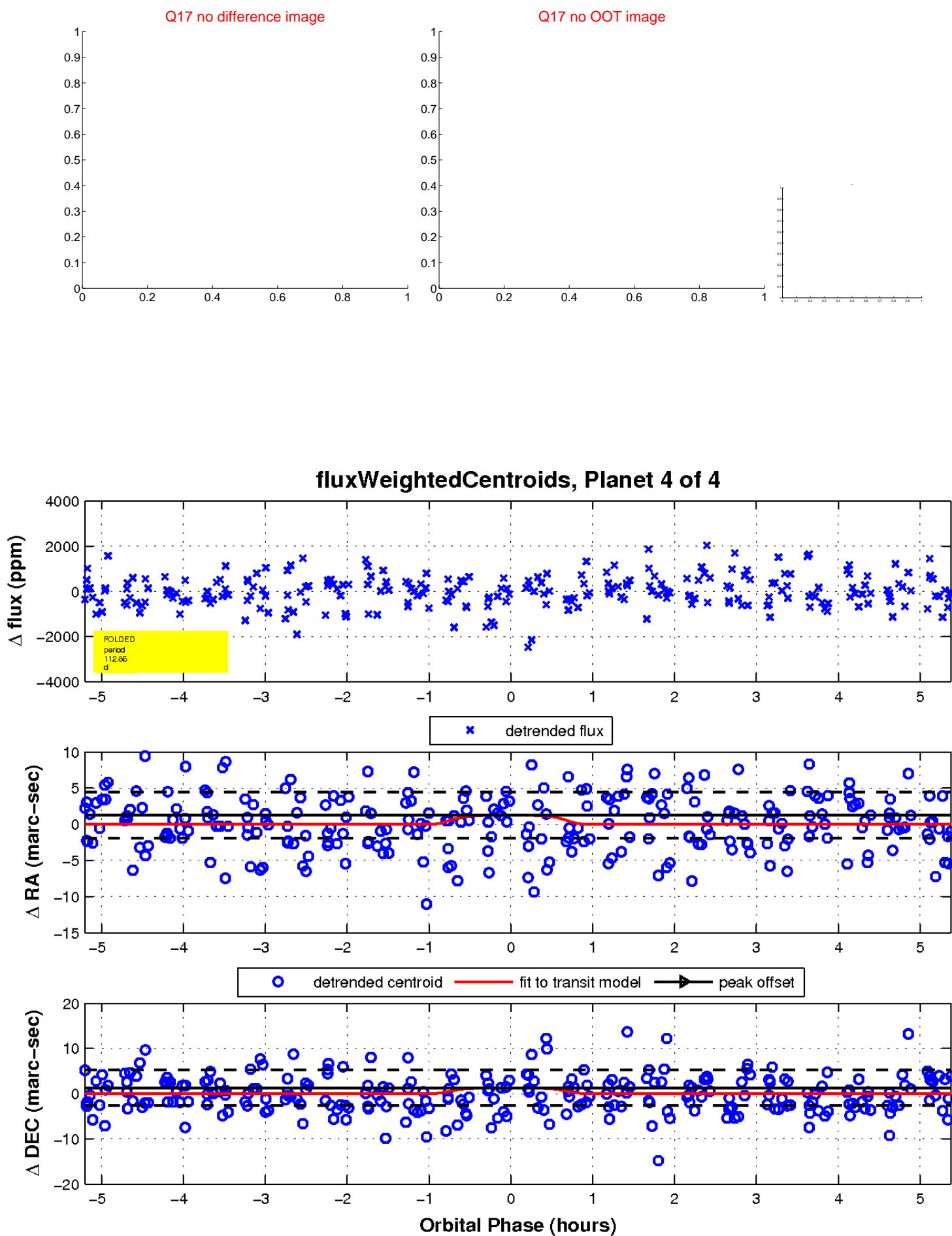
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

