

KIC 008180062

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})
008180062-01	OBS	No	1.389267	132.868815	25.3	7.426	7.5	6.4	1.33	6766	0.68	4781.20
008180062-02	OBS	No	169.714640	235.131431	725.7	7.673	16.6	8.4	1.33	6766	4.48	7.89
008180062-03	OBS	No	132.303935	159.450199	268.5	10.923	18.4	4.5	1.33	6766	2.40	10.99
008180062-04	OBS	No	2.778475	133.564835	53.8	6.938	9.5	9.4	1.33	6766	1.13	1897.47
008180062-05	OBS	No	253.010985	159.387102	400.4	8.975	14.0	6.5	1.33	6766	2.83	4.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008180062-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008180062-02	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
008180062-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
008180062-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008180062-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

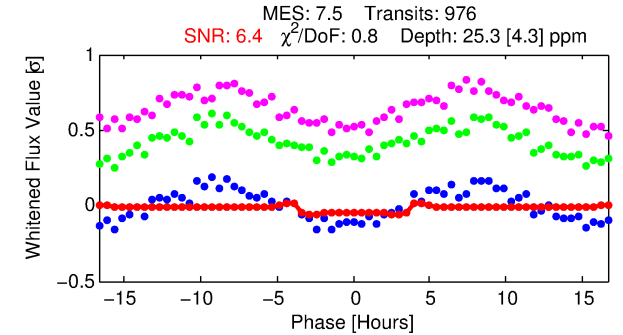
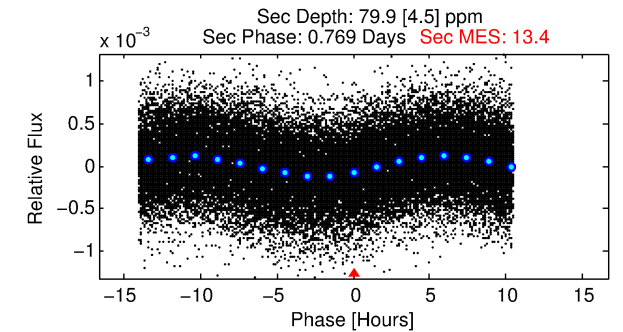
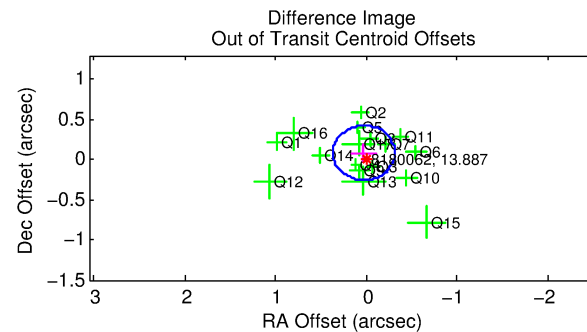
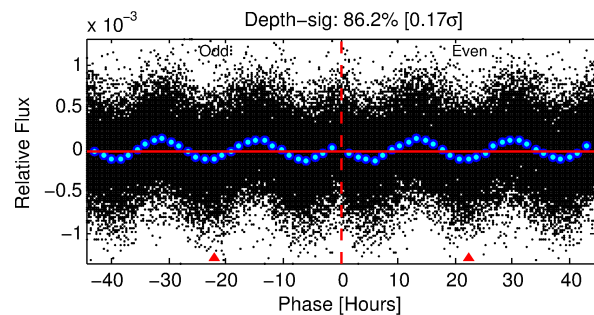
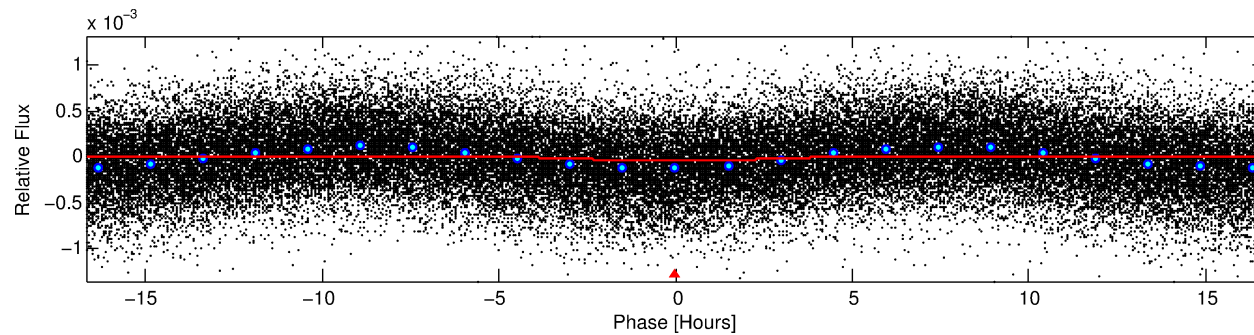
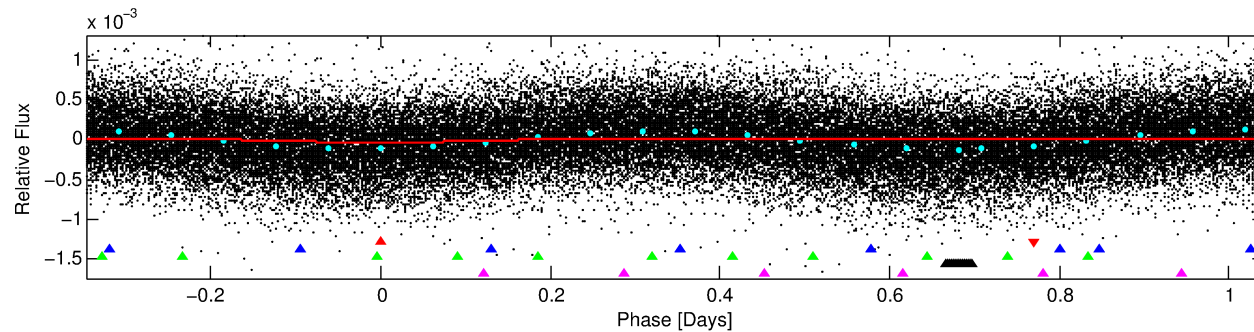
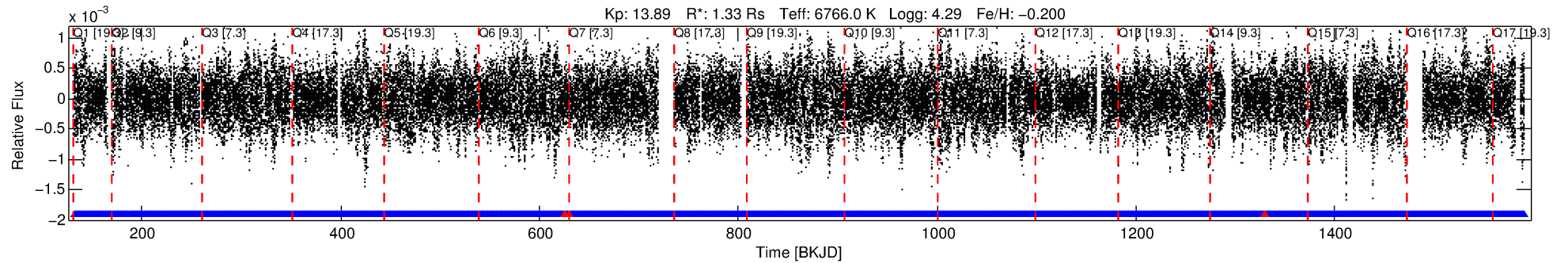
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008180062-01

No Significant Match Found

DV One-Page Summary

KIC: 8180062 Candidate: 1 of 5 Period: 1.389 d



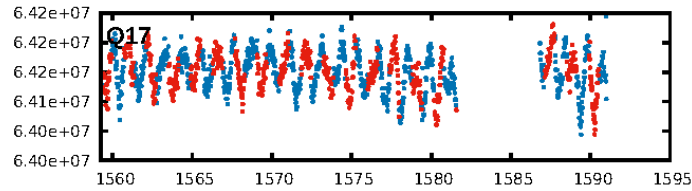
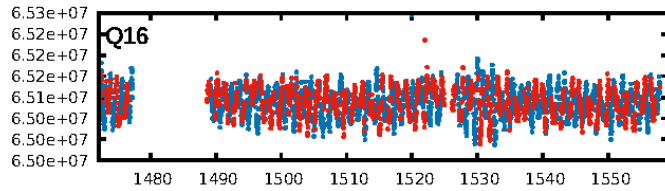
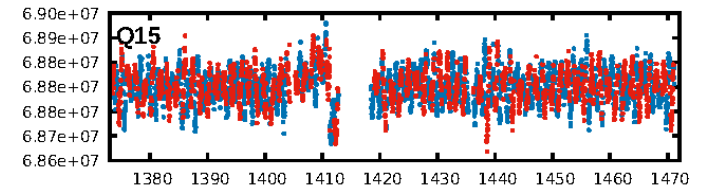
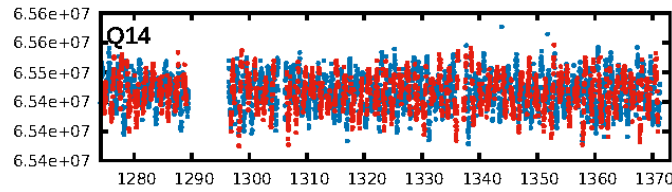
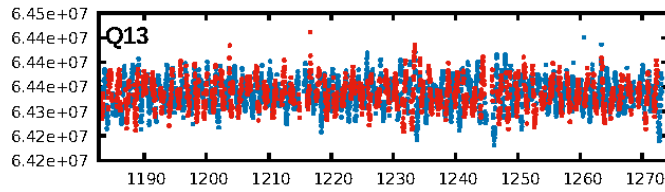
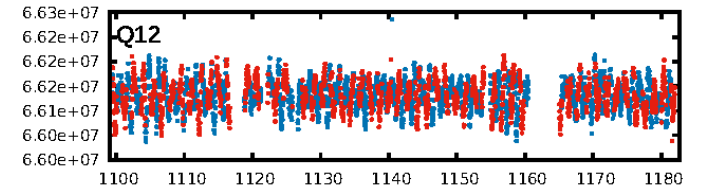
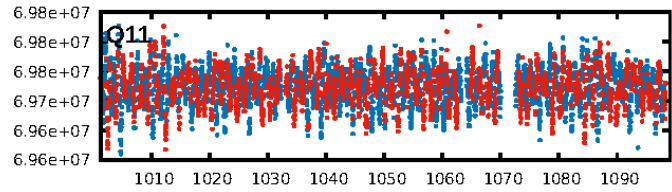
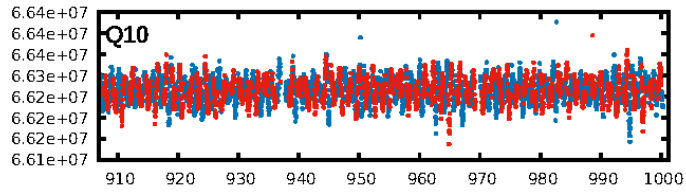
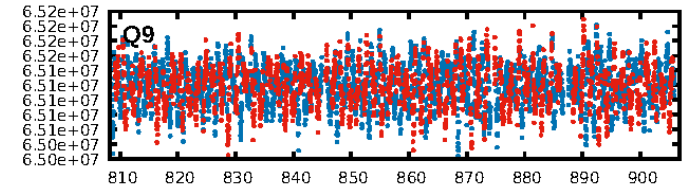
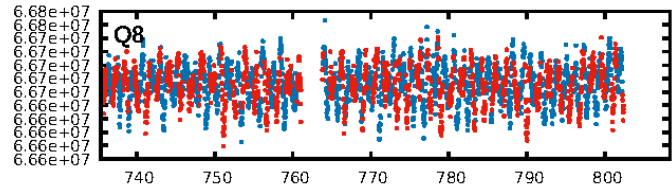
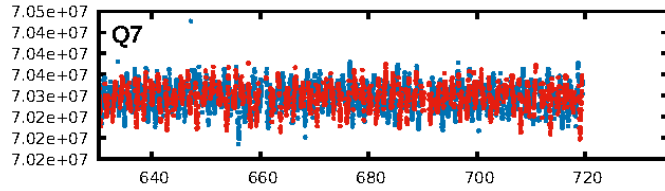
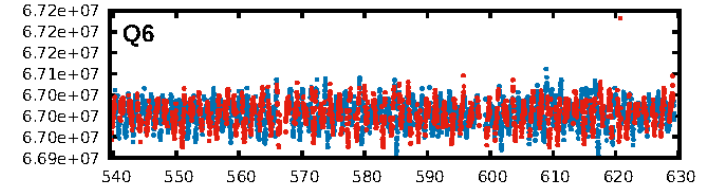
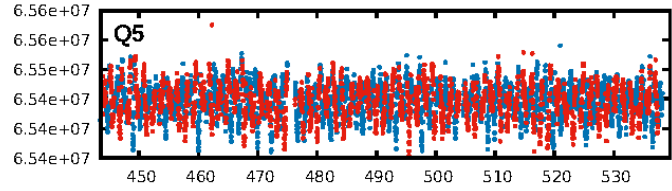
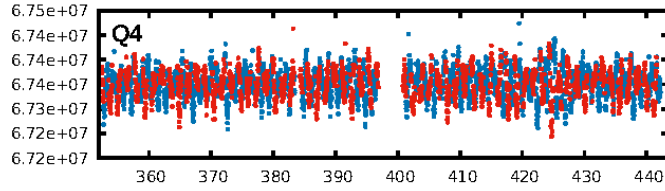
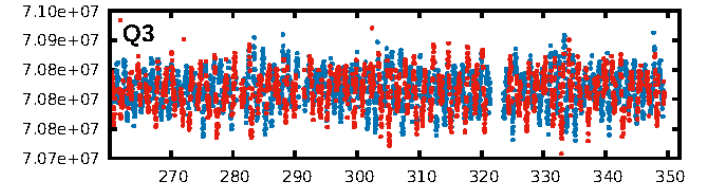
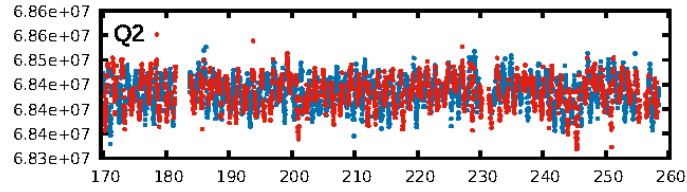
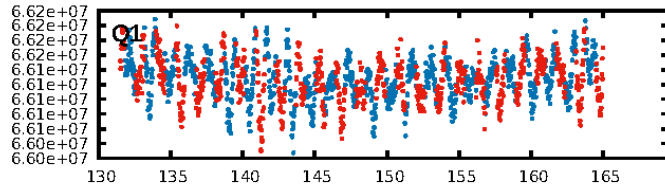
DV Fit Results:

Period = 1.38927 [0.00002] d
Epoch = 132.8688 [0.0055] BKJD
Rp/R* = 0.0047 [0.0033]
a/R* = 1.51 [3.35]
b = 0.33 [10.65]
Seff = 4781.20 [1941.89]
Teff = 2120 [215] K
Rp = 0.68 [0.53] Re
a = 0.0263 [0.0069] AU
Ag = 65.66 [95.94] [0.67 σ]
Teffp = 9332 [3313] K [2.17 σ]

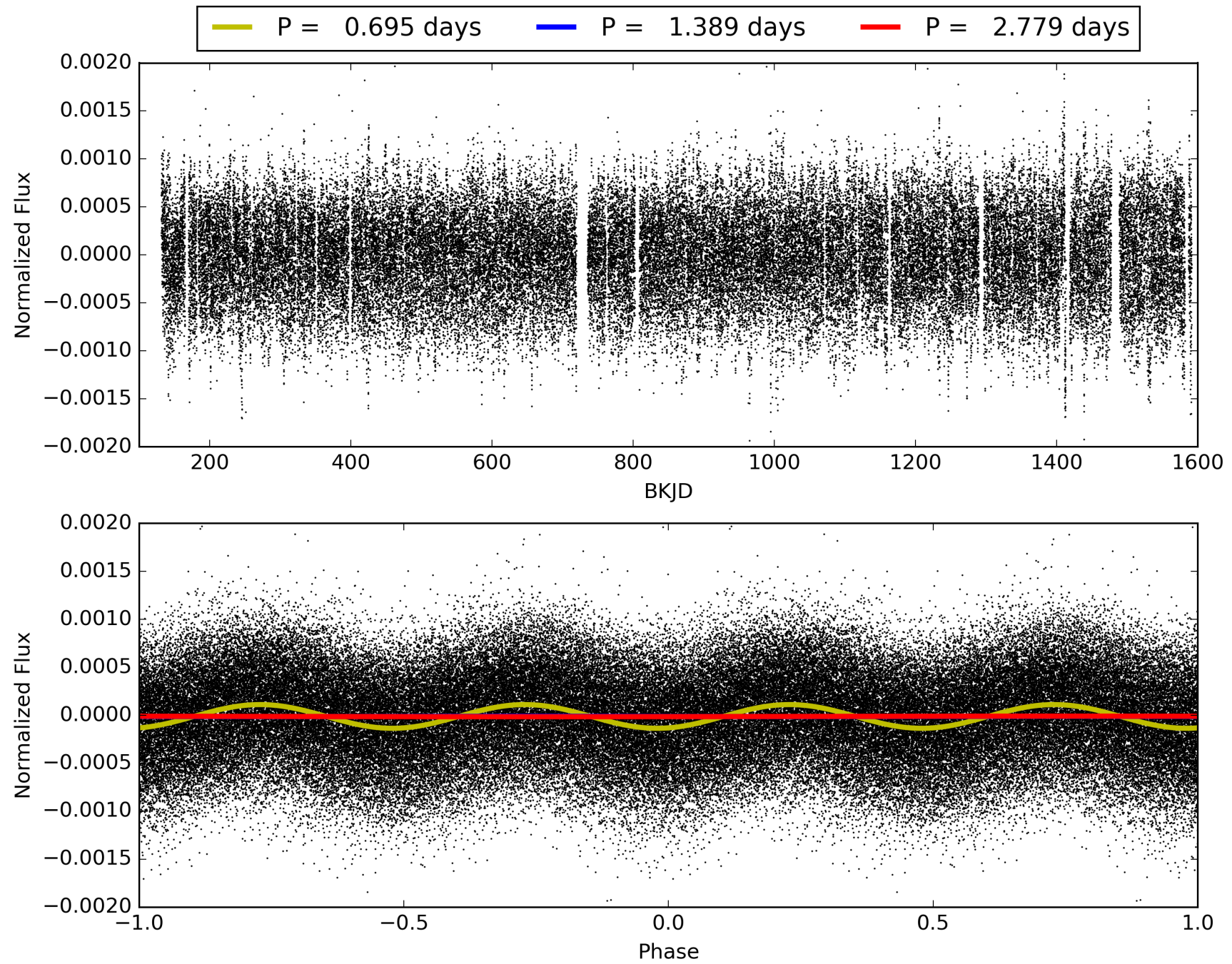
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.9% [3.28 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.76e-12
RollingBand-fgt: 1.00 [929/932]
GhostDiagnostic-chr: 2.683
Centroid-sig: 44.8%
Centroid-so: 0.555 arcsec [0.76 σ]
OotOffset-rm: 0.088 arcsec [0.77 σ]
KicOffset-rm: 0.068 arcsec [0.57 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 008180062-01, PDC Light Curves

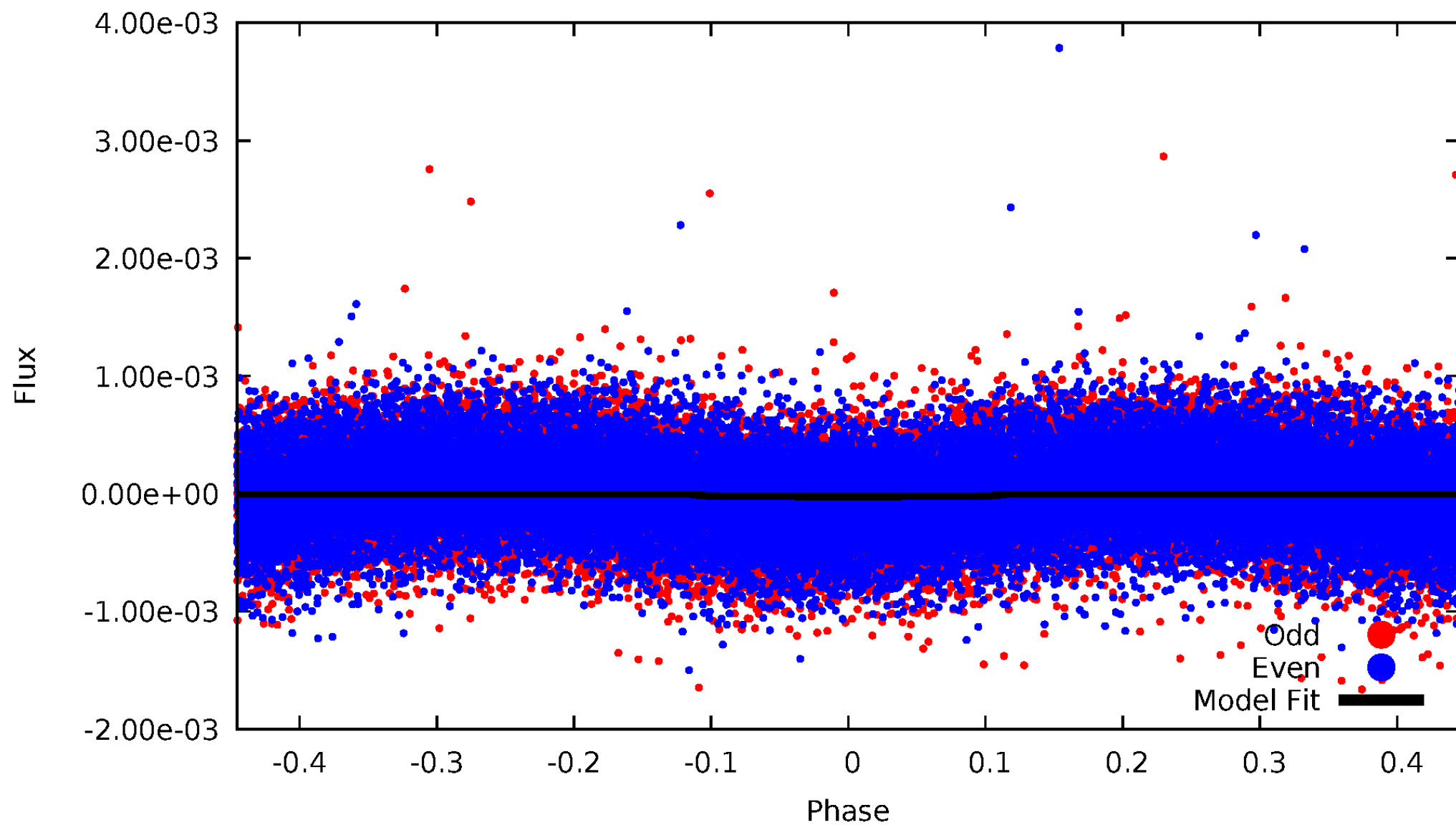


TCE 008180062-01



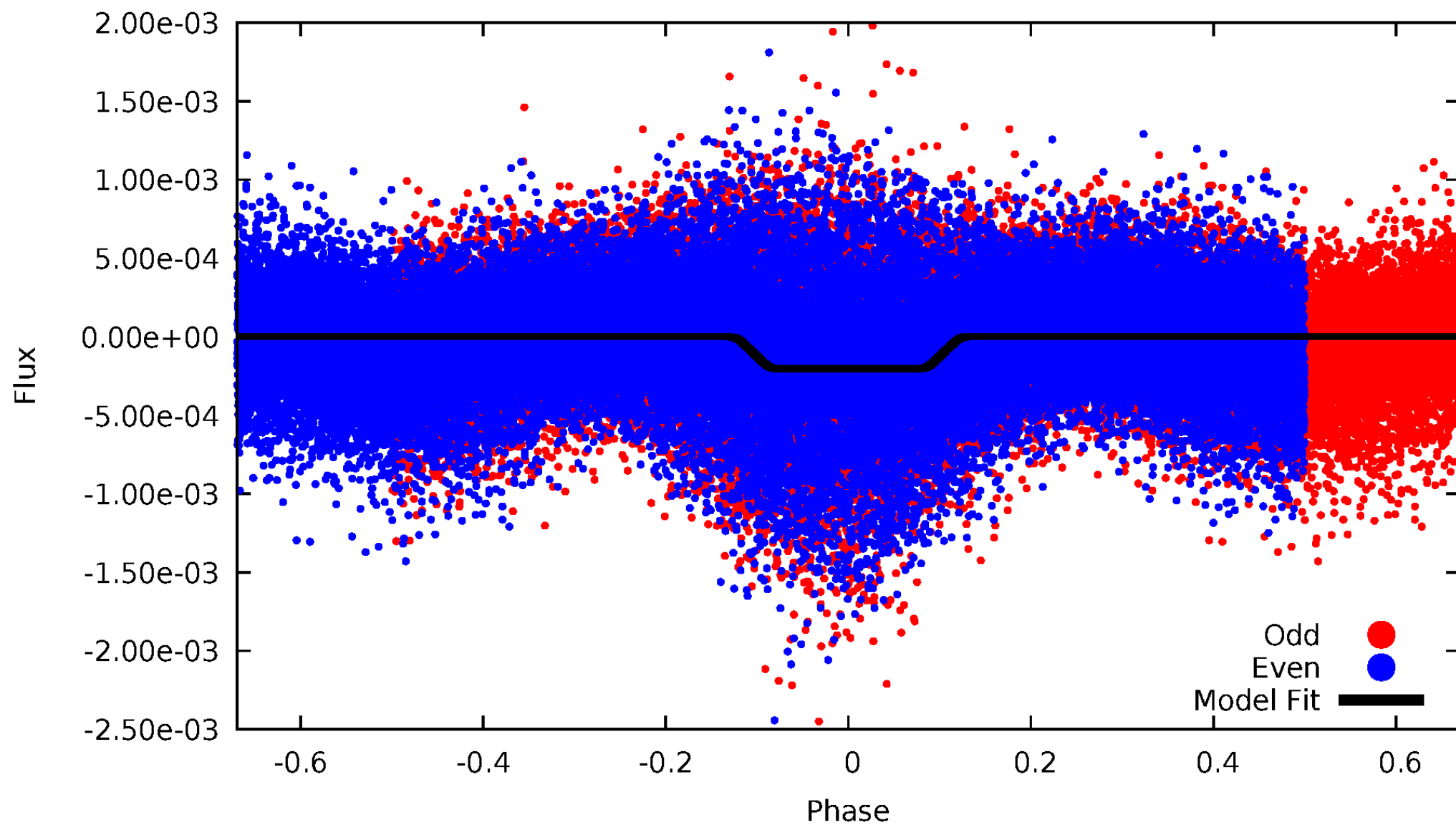
DV Odd/Even

TCE 008180062-01



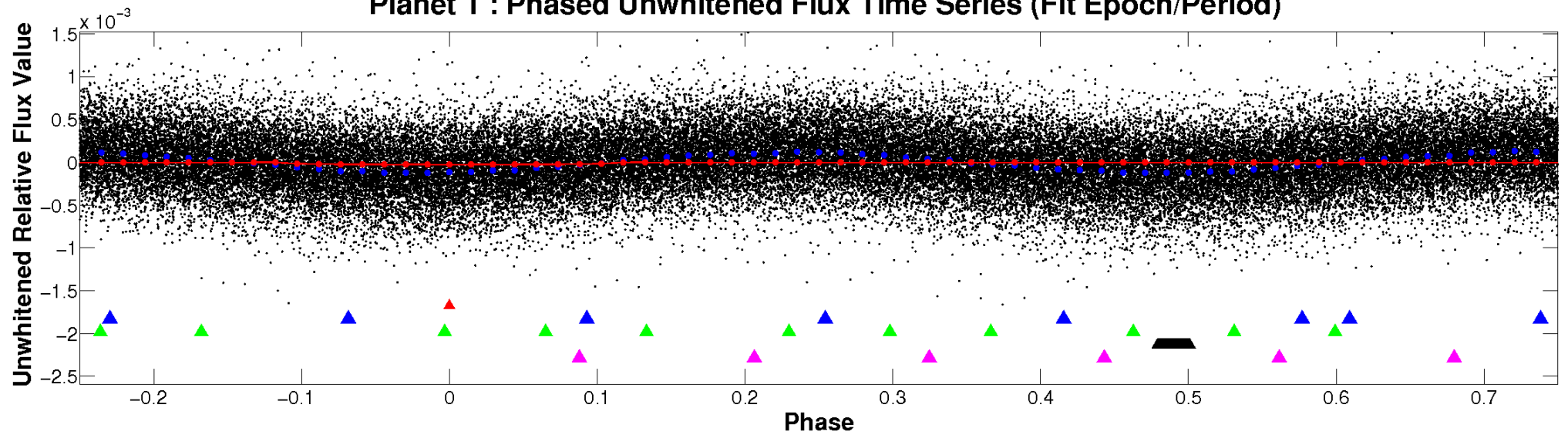
ALT Odd/Even

TCE 008180062-01

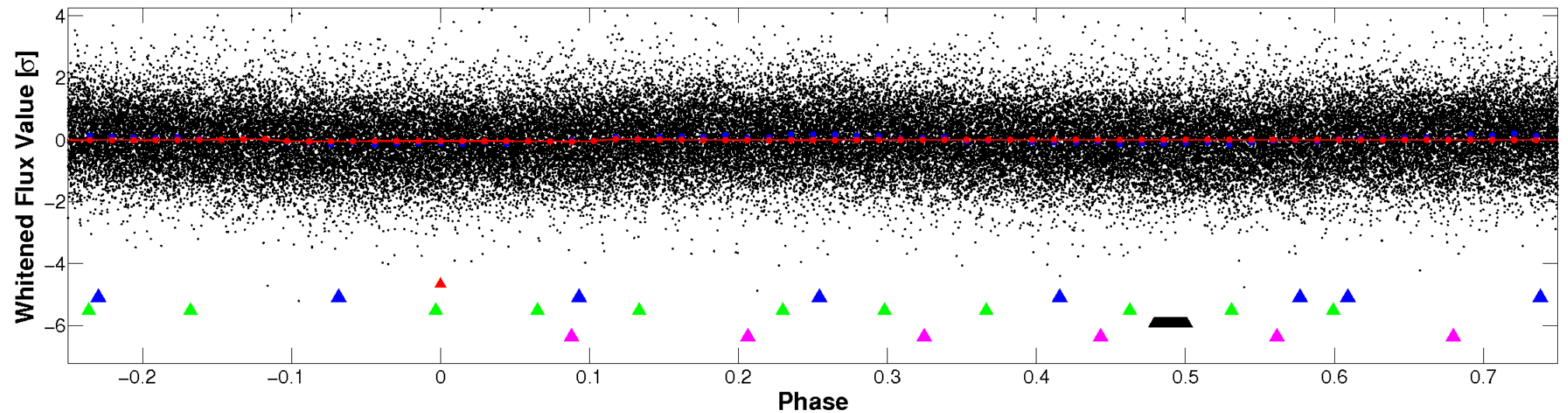


Non-Whitened Vs. Whitened Light Curve

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

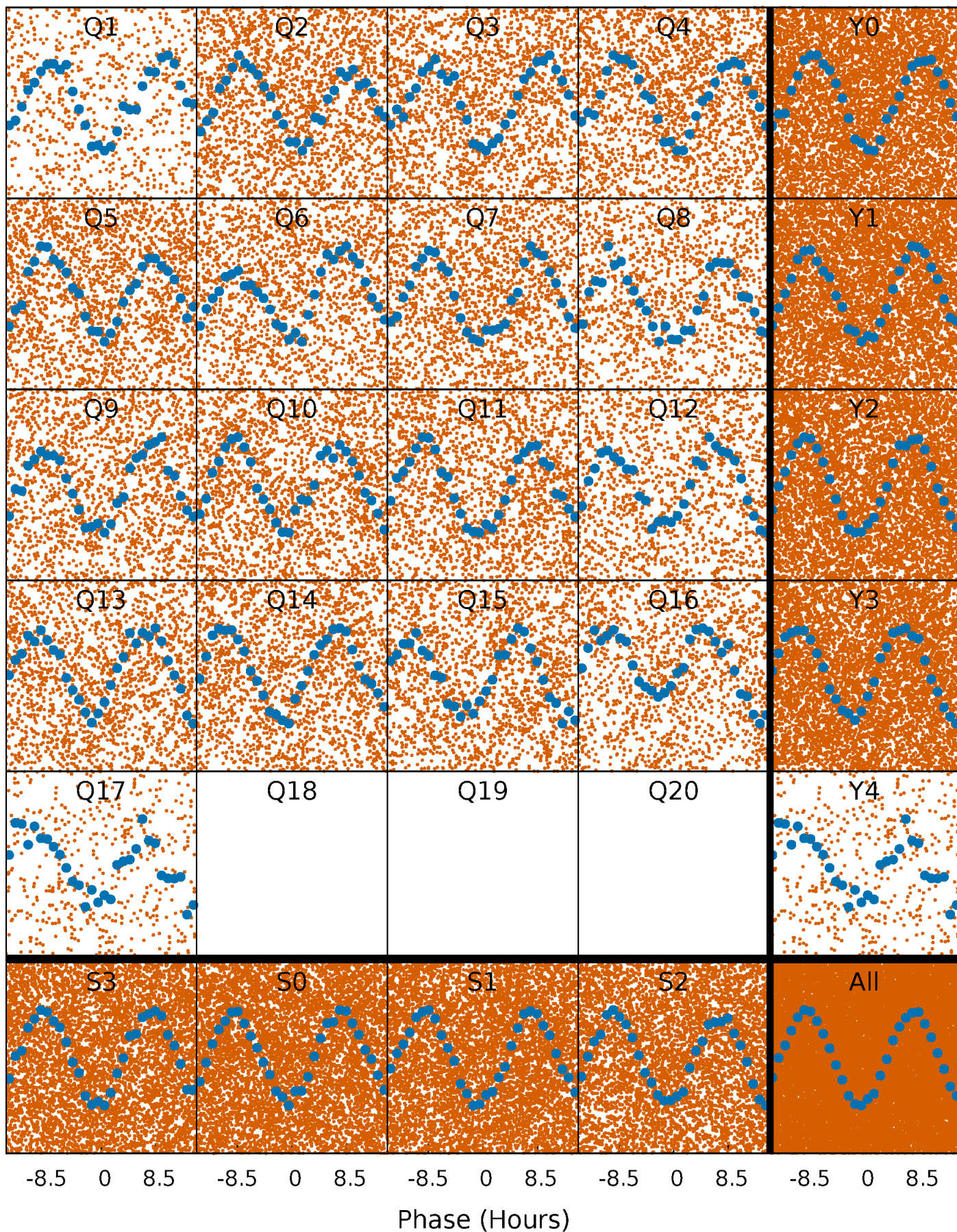


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



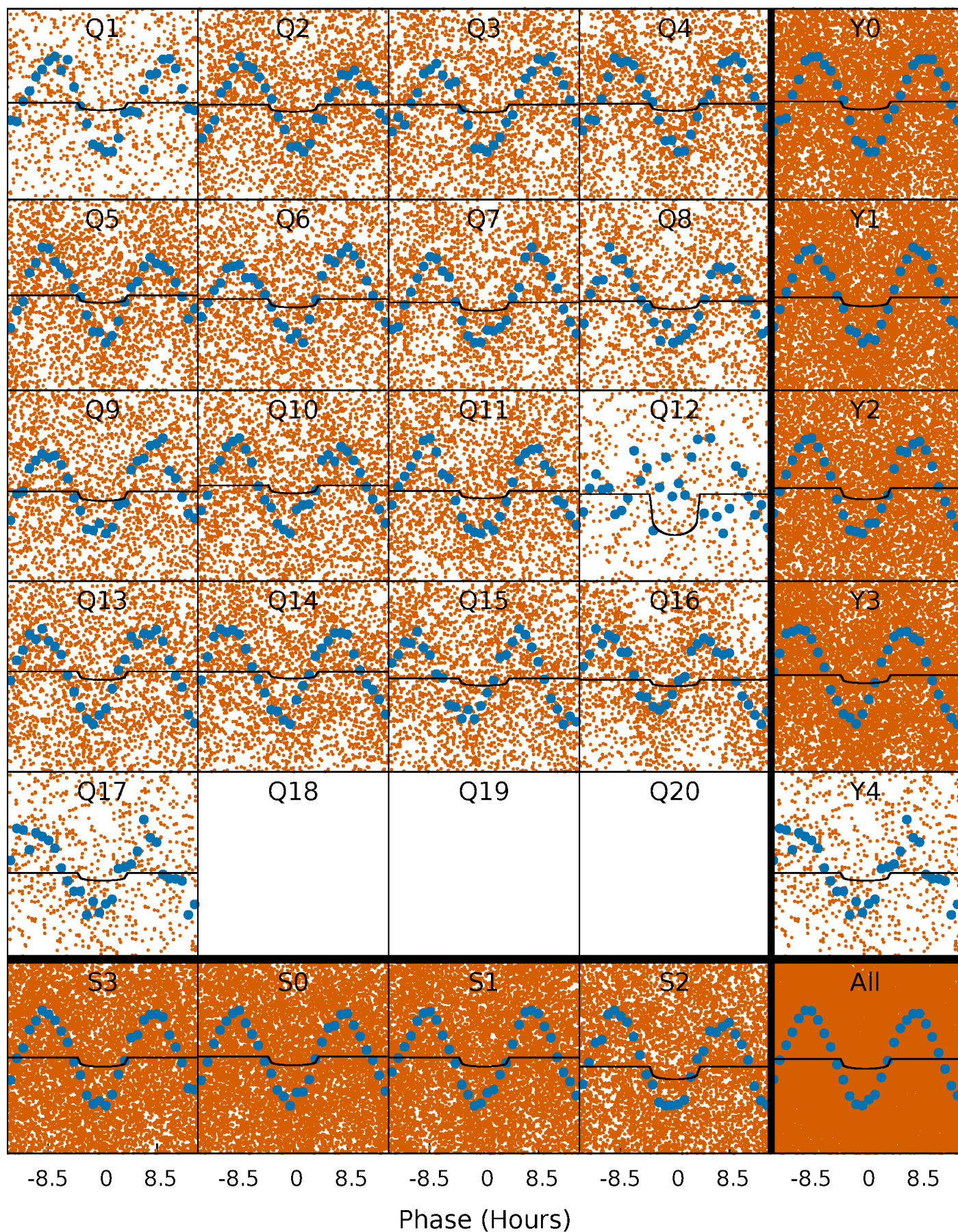
PDC Quarter-Phased Transit Curves

TCE 008180062-01 P= 1.389267 Days $T_0=132.868815$ (BKJD)



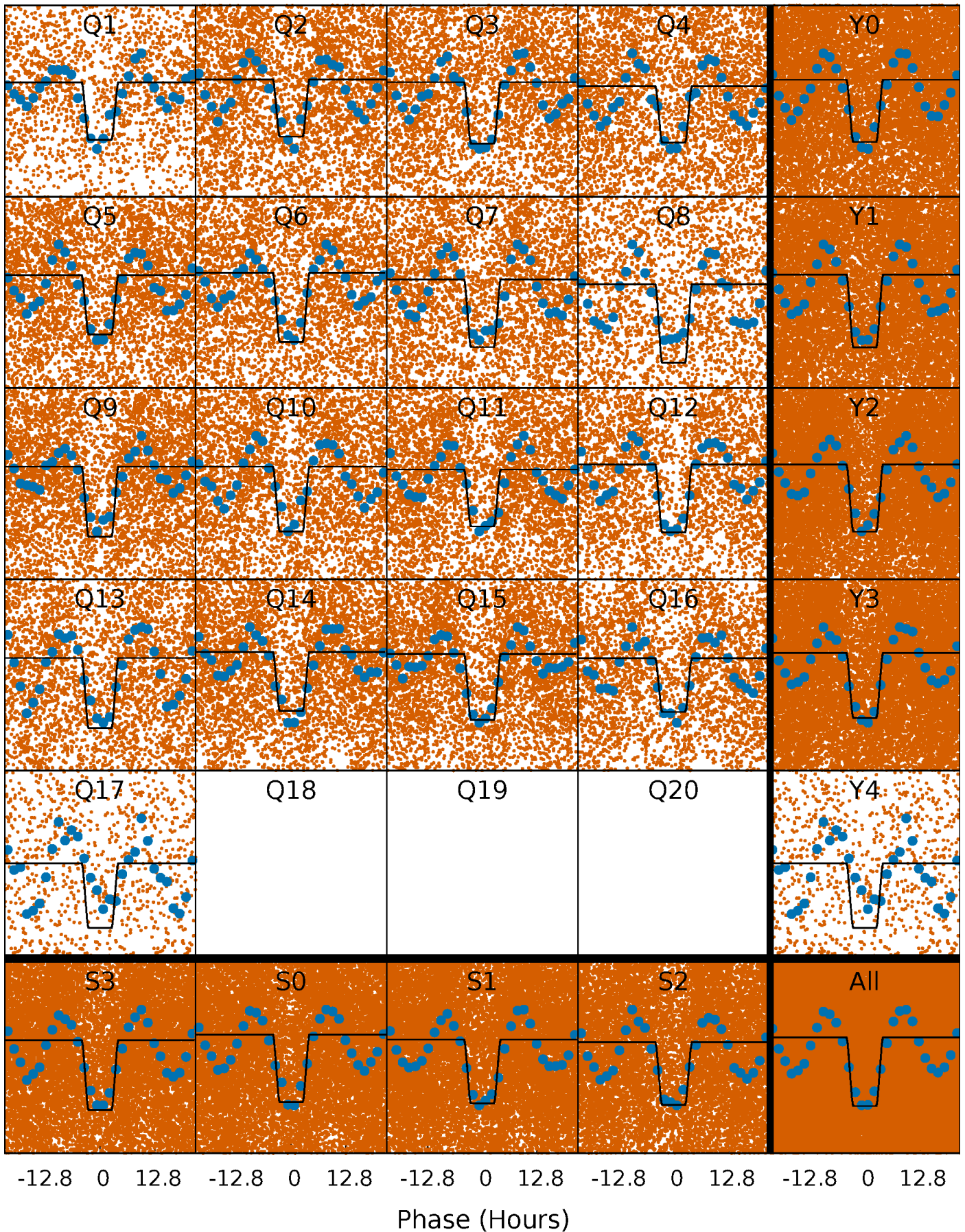
DV Quarter-Phased Transit Curves

TCE 008180062-01 P= 1.389267 Days $T_0=132.868815$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

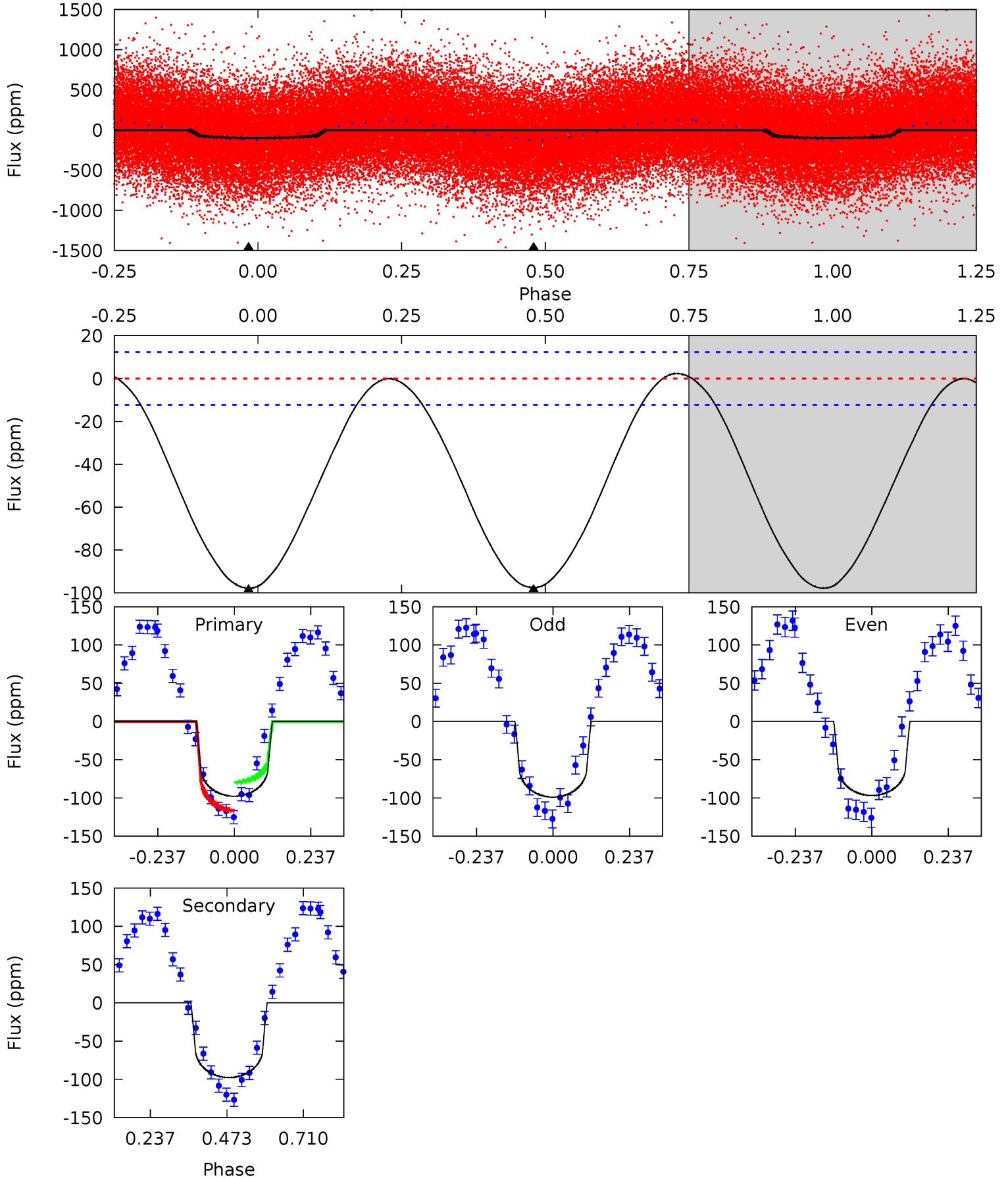
TCE 008180062-01 P= 1.389097 Days $T_0=132.921432$ (BKJD)



DV Model-Shift Uniqueness Test

008180062-01, P = 1.389267 Days, E = 131.479548 Days

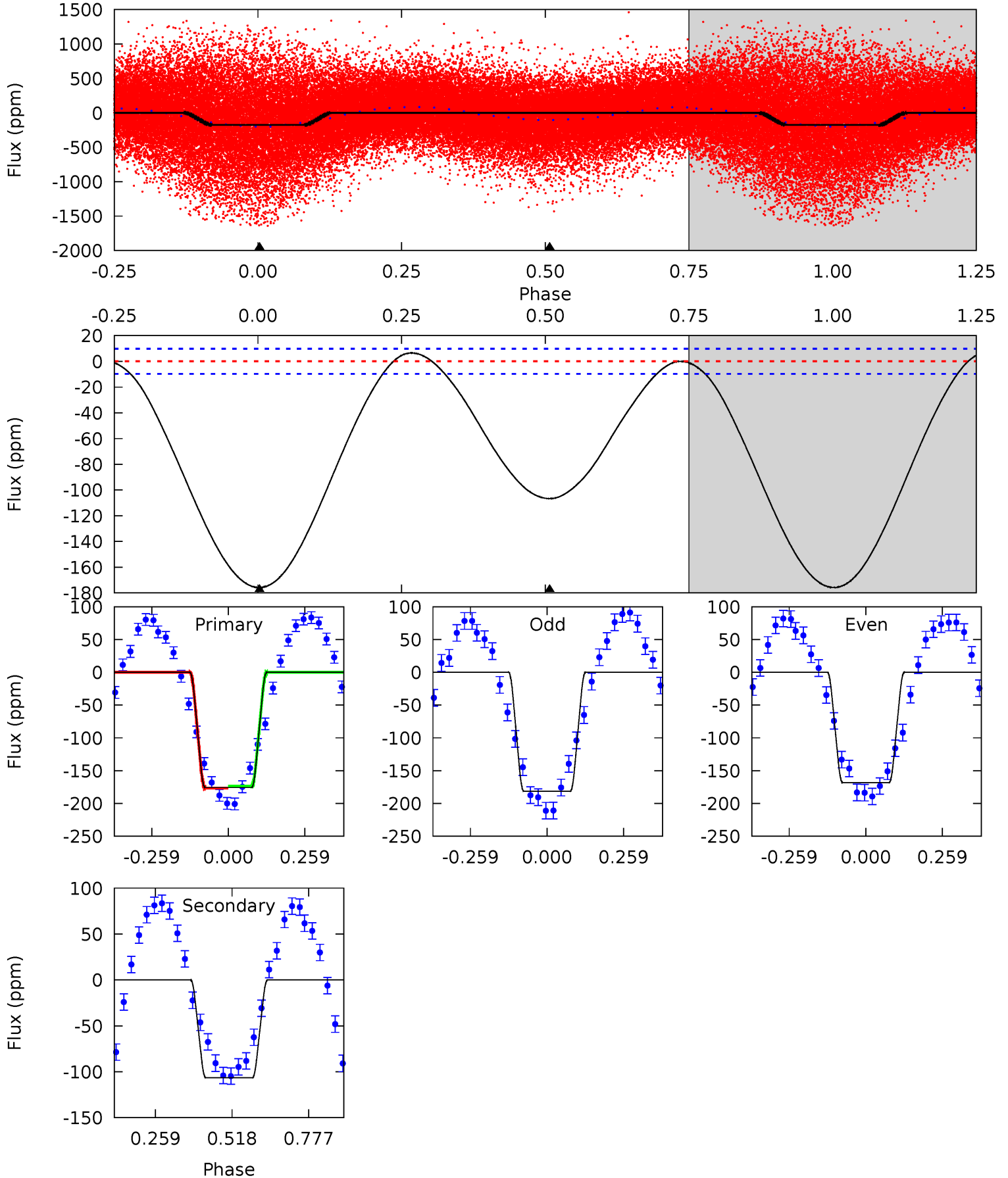
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.0	34.9	0	0	4.38	1.18	0.50	35.0	35.0	34.9	34.9	0.39	1.21	0.02	6.83



Alt Model-Shift Uniqueness Test

008180062-01, P = 1.389097 Days, E = 130.143238 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.1	47.4	0	0	4.36	1.13	2.05	78.1	78.1	47.4	47.4	2.90	1.05	0.04	0.50



Stellar Parameters For KIC 008180062

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6766^{+188}_{-258}	$4.291^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.326^{+0.420}_{-0.210}$	$1.261^{+0.190}_{-0.209}$	$0.762^{+0.345}_{-0.378}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-16%	+15%/-17%	+45%/-50%
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 008180062-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-98 ± 3	$0.78^{+0.42}_{-0.41}$	3001^{+219}_{-165}	10061^{+9619}_{-2481}	61^{+214}_{-35}
Alt.	-107 ± 2	$2.12^{+0.59}_{-0.51}$	2996^{+210}_{-167}	5684^{+790}_{-542}	$8.795^{+6.717}_{-3.228}$

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

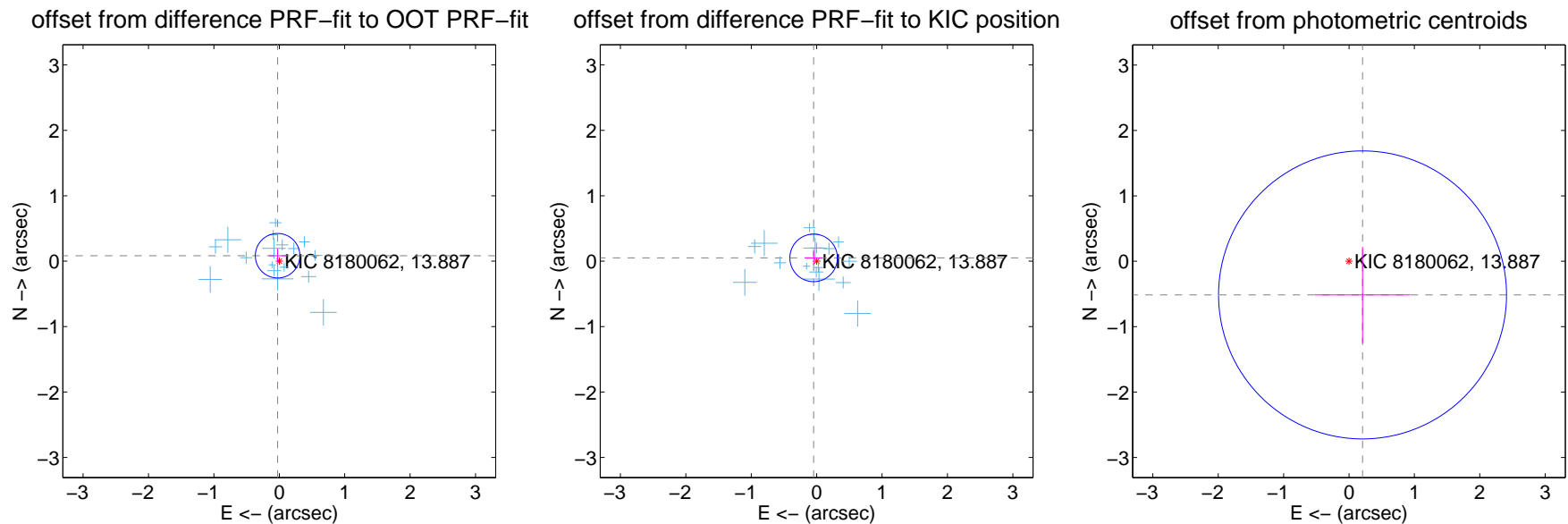
DV Centroid Data

Supplemental centroid analysis for 008180062-01. Kepler magnitude: 13.89. Transit SNR 6.37

There are 17 quarters with good PRF difference image offsets

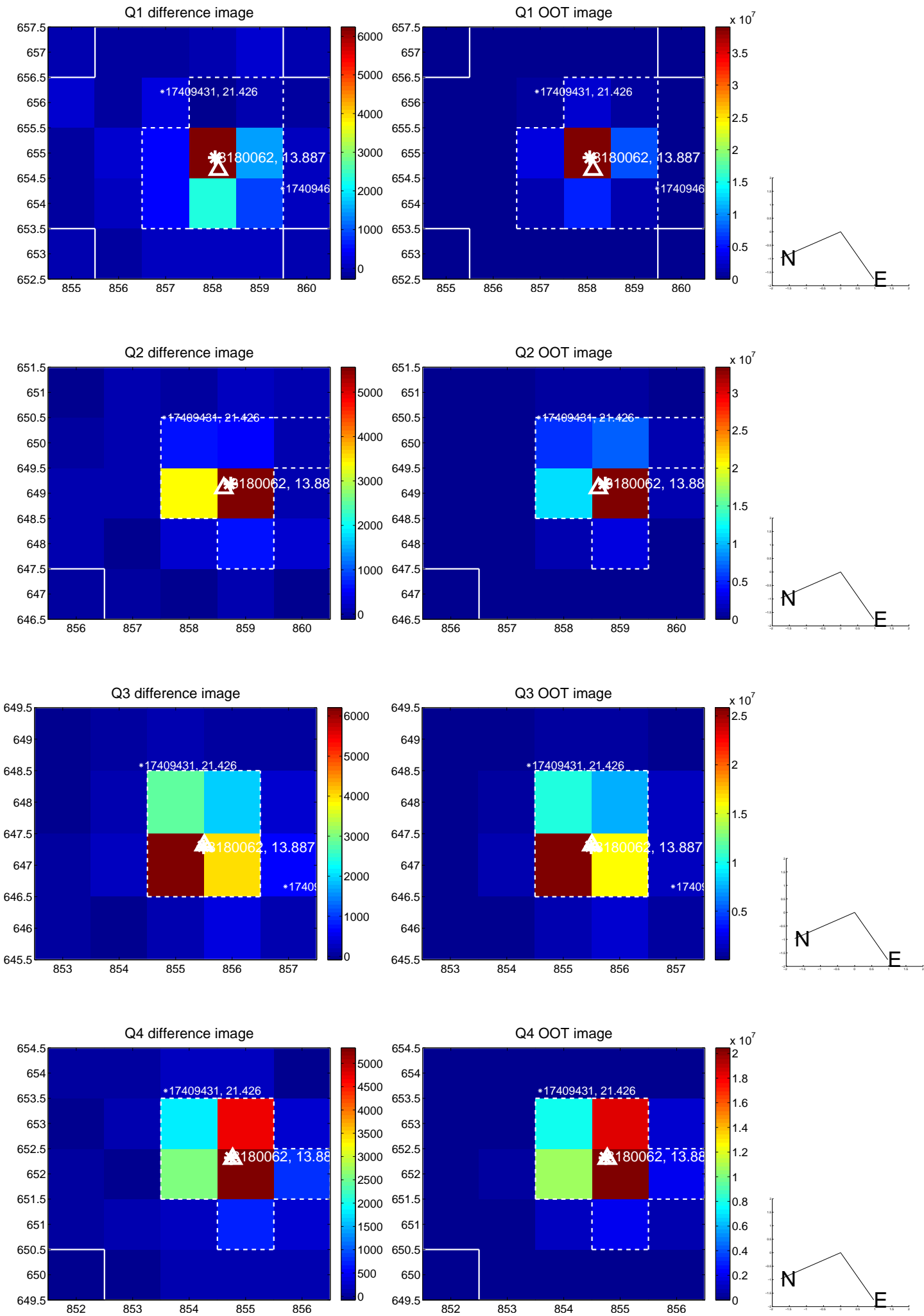
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.088 ± 0.113	0.77	0.026 ± 0.133	0.084 ± 0.105
PRF-fit source offset from KIC position	0.068 ± 0.121	0.57	0.046 ± 0.132	0.051 ± 0.104
photometric centroid source offset	0.55 ± 0.73	0.76	-0.21 ± 0.73	-0.51 ± 0.73

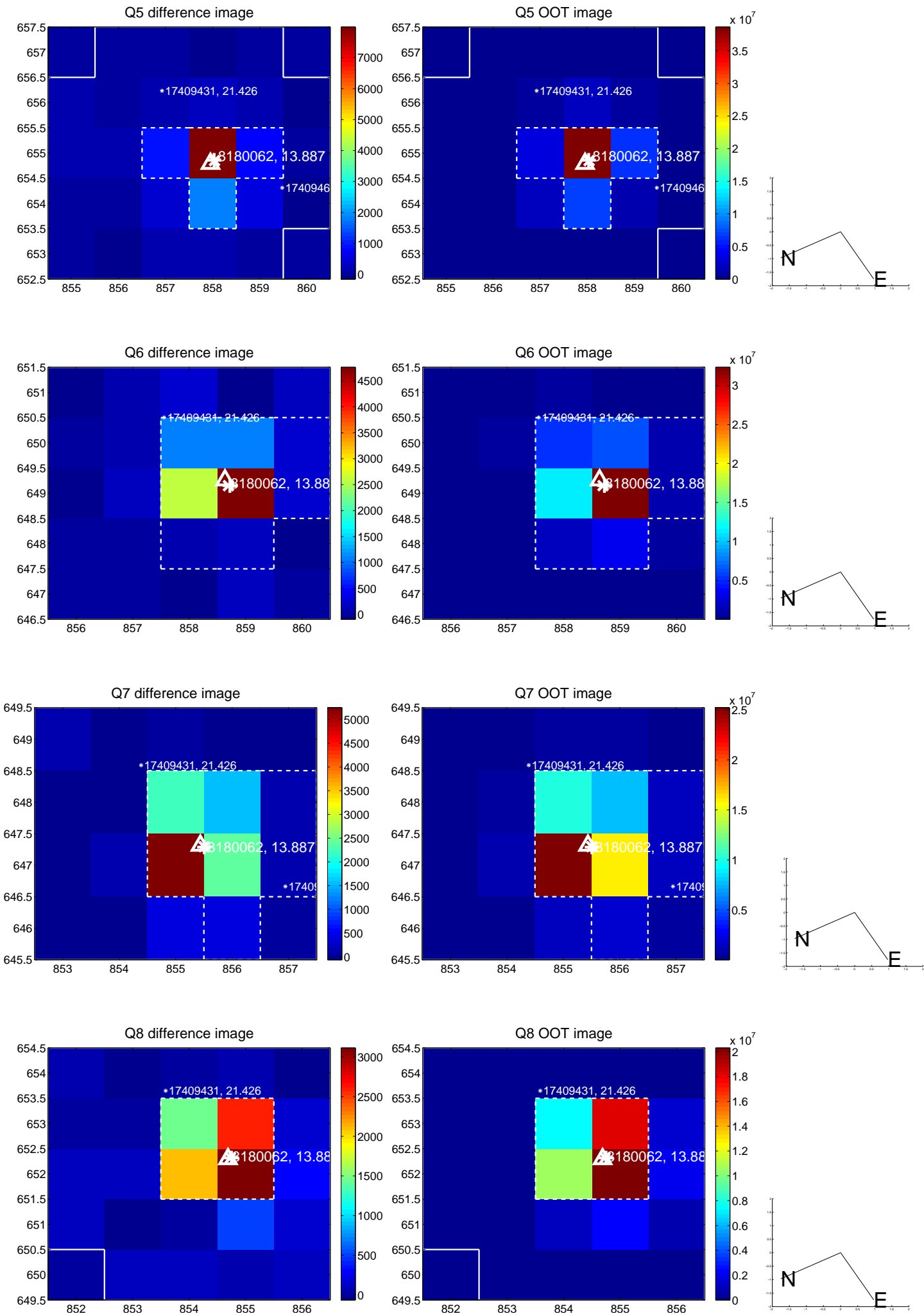


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

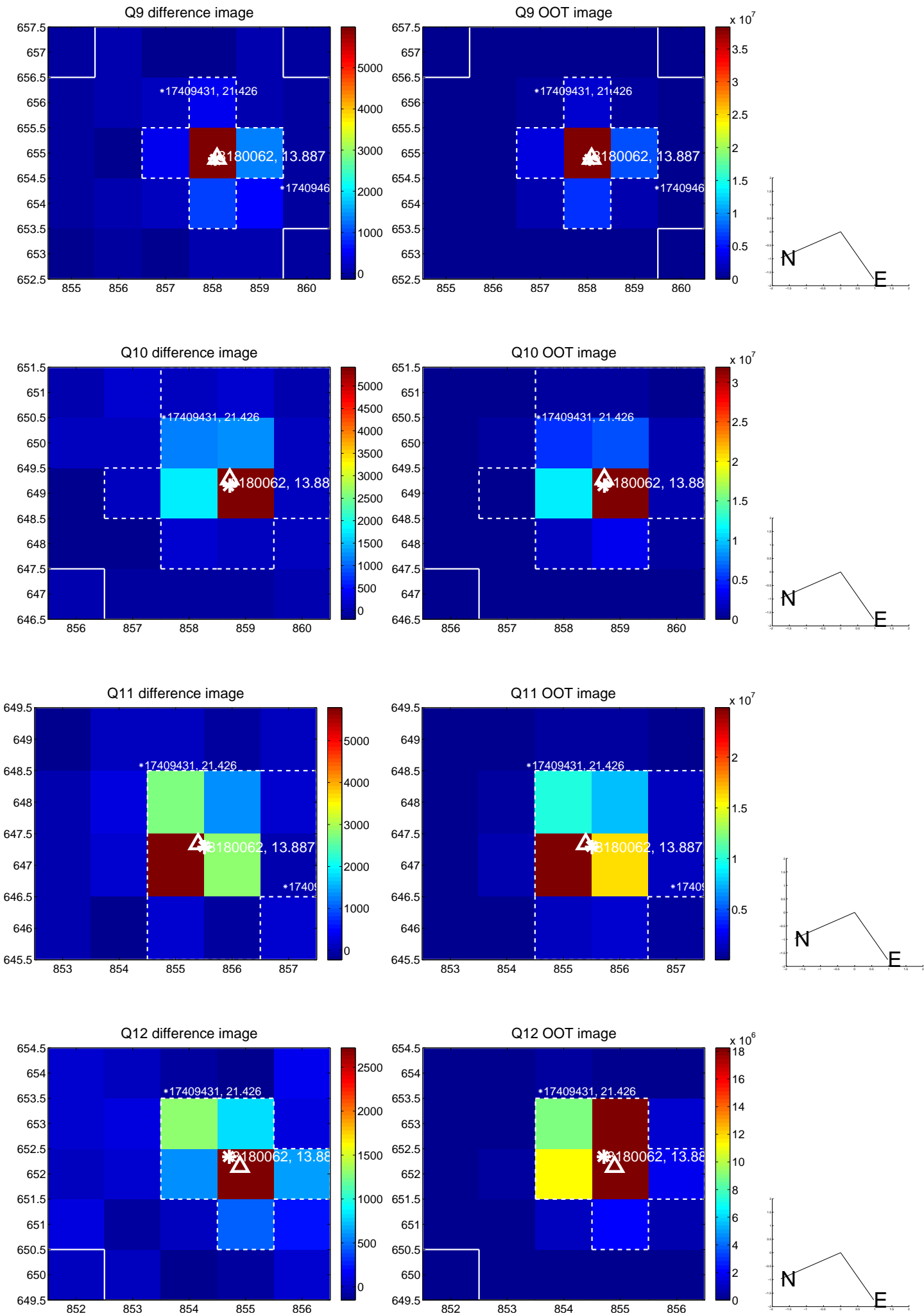
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



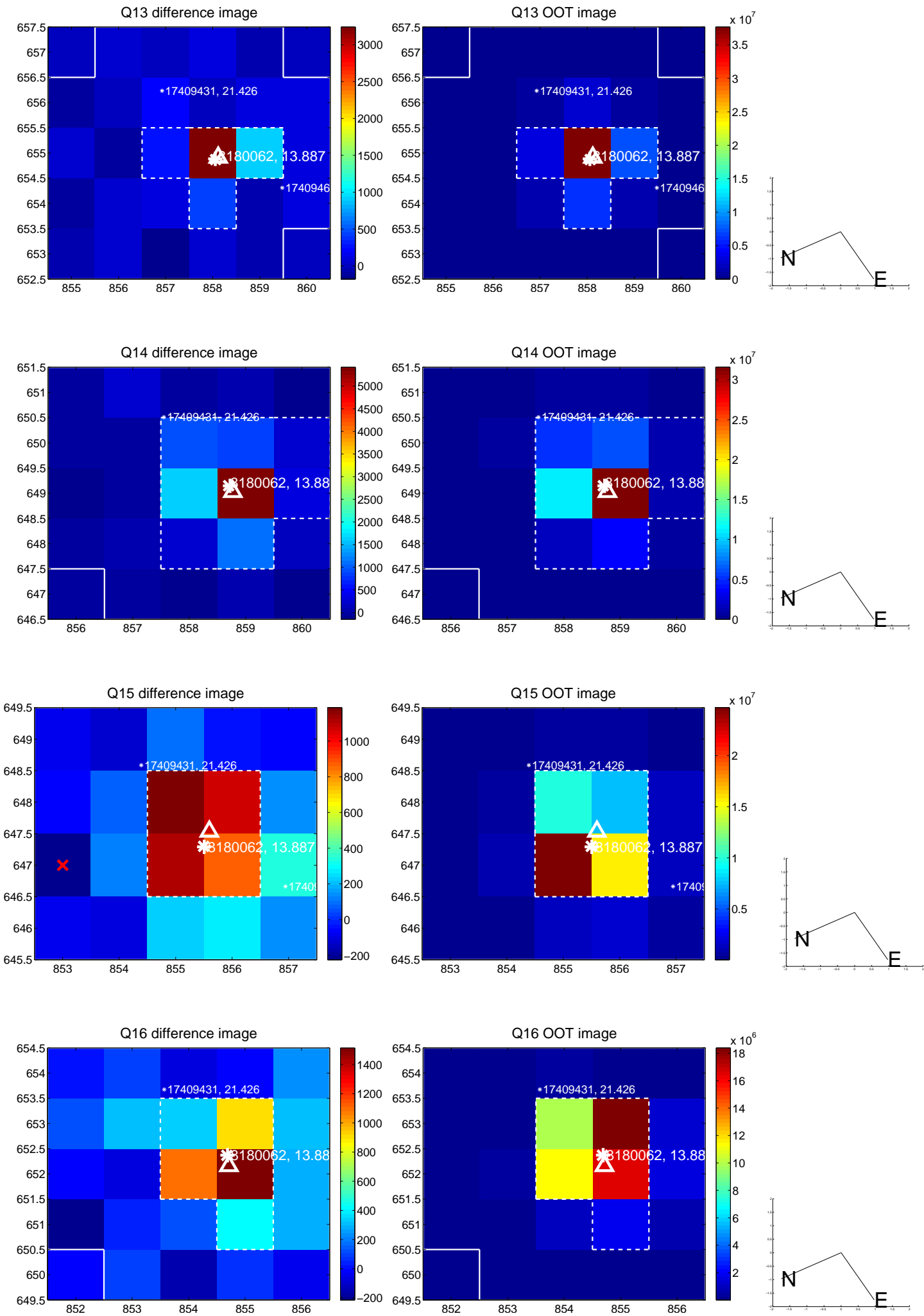
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



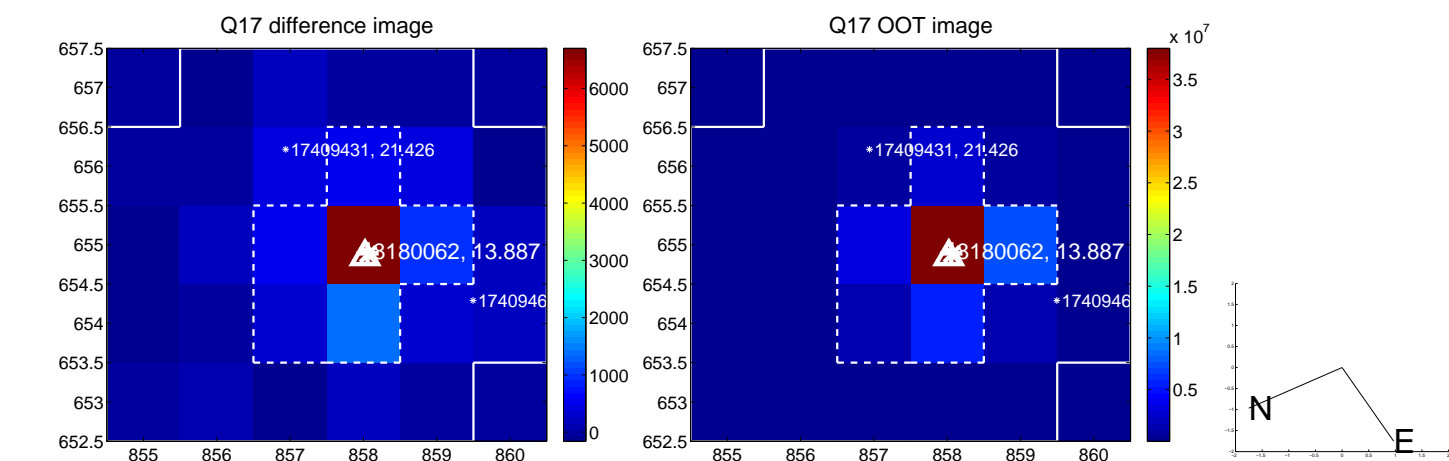
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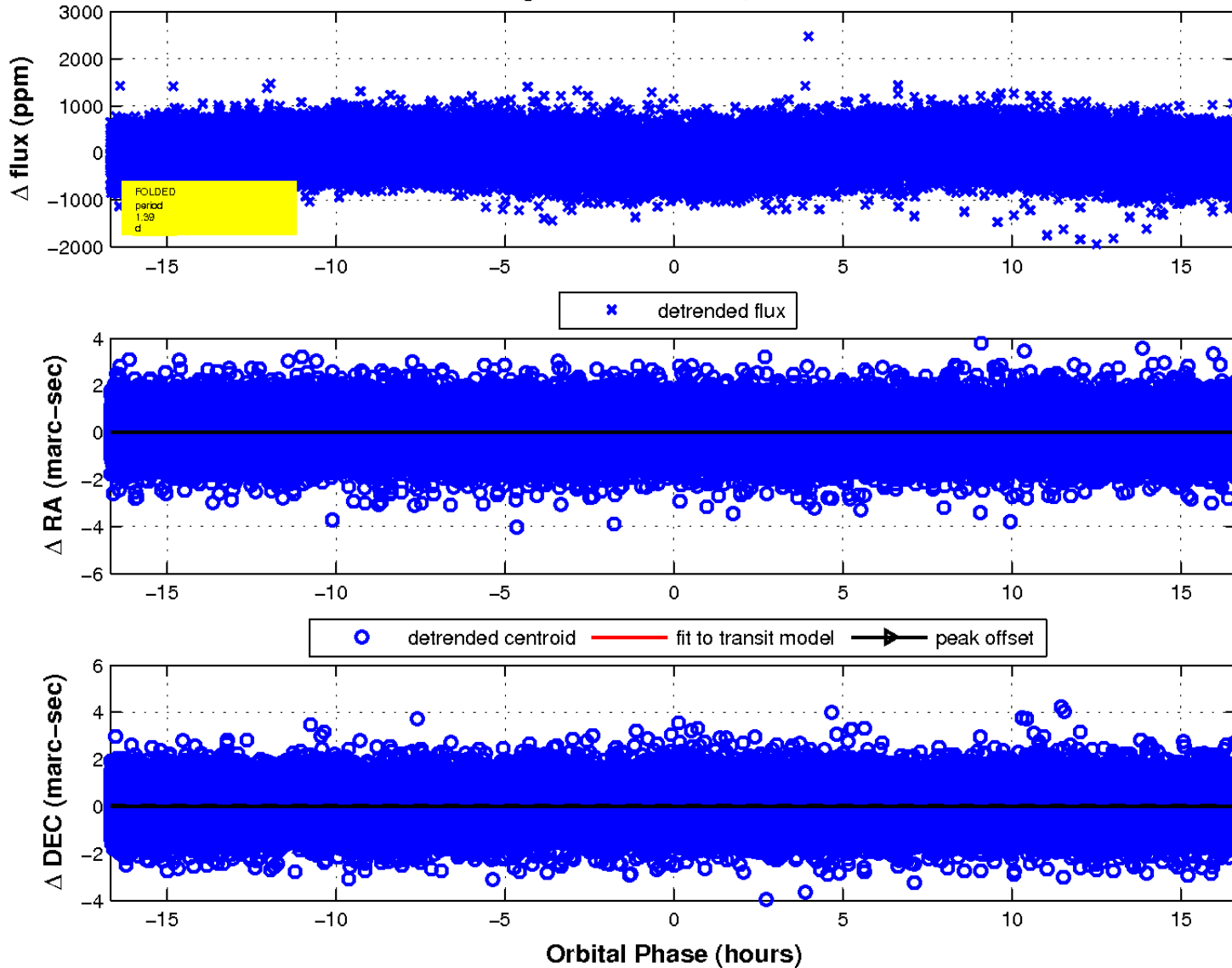
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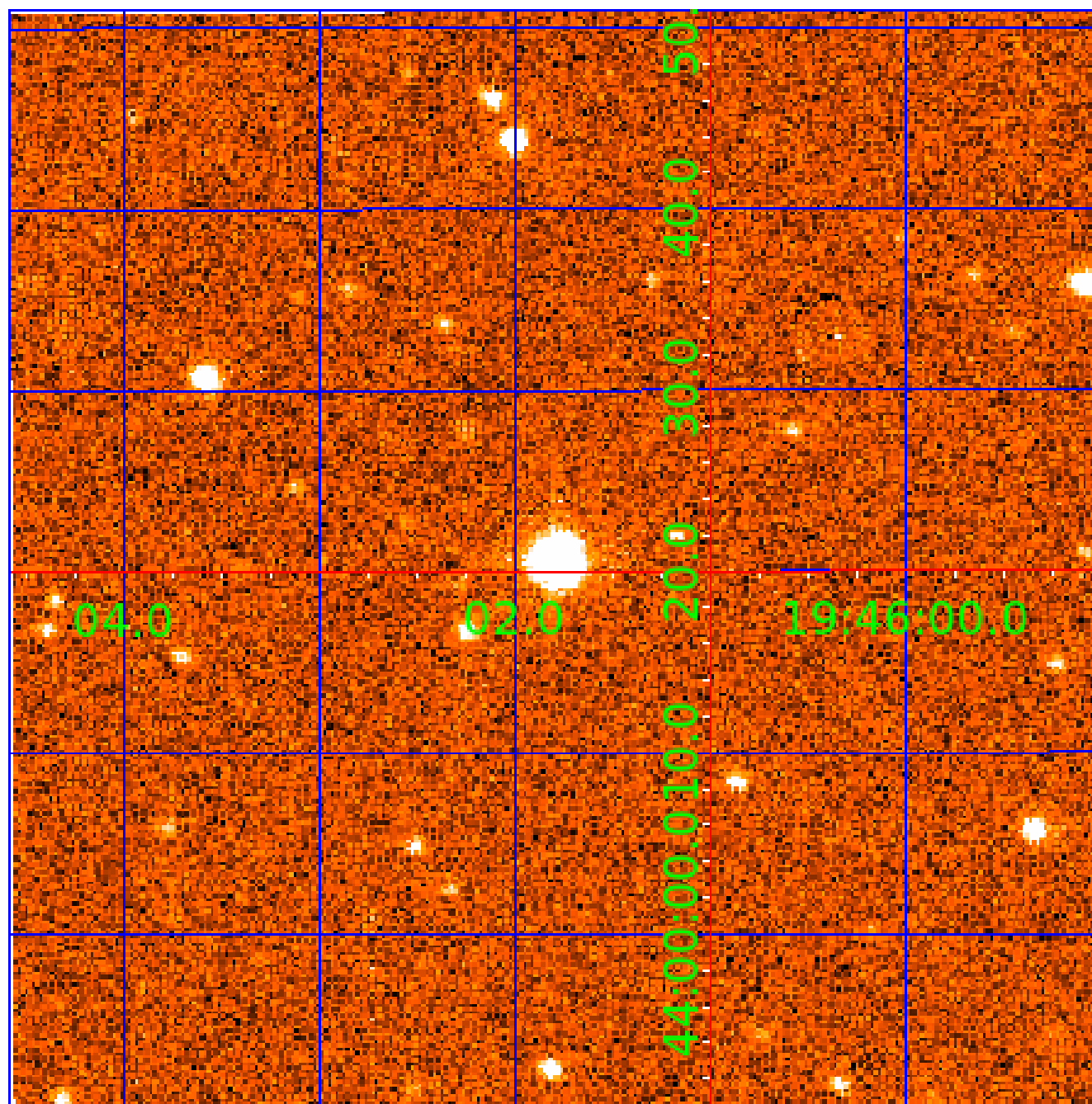


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 008180062

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})
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008180062-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
008180062-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008180062-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

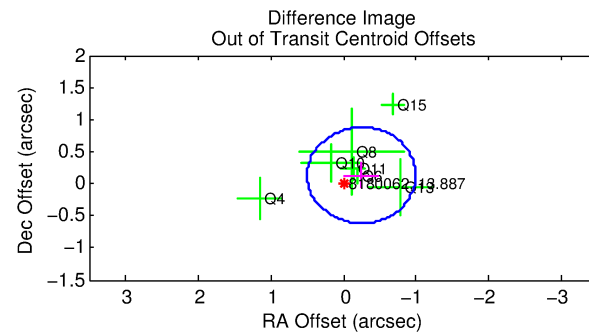
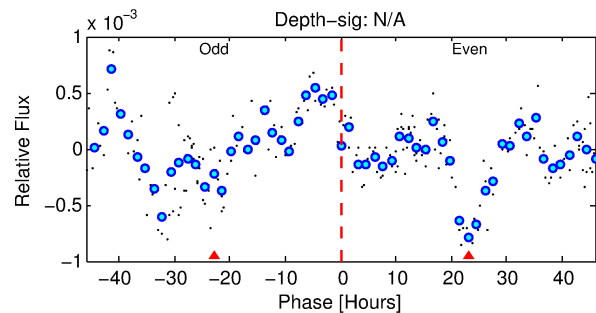
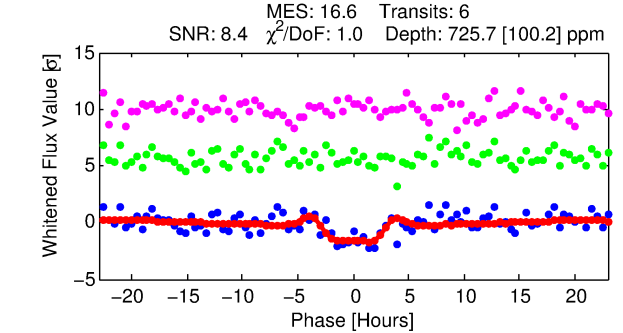
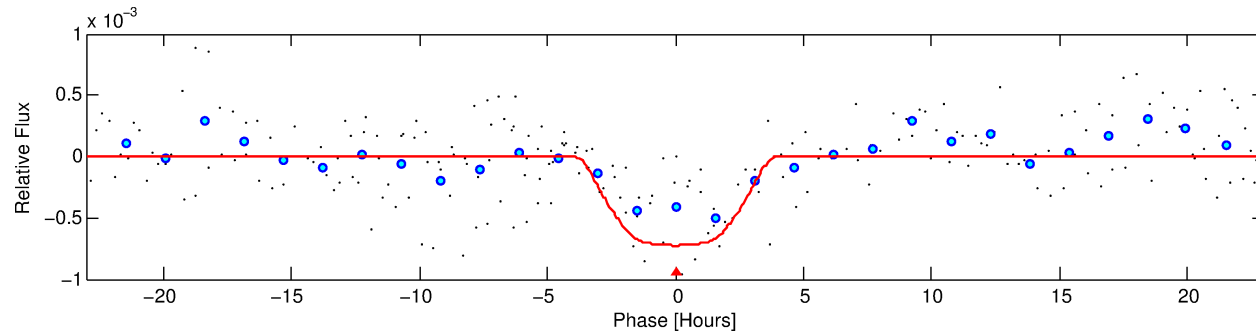
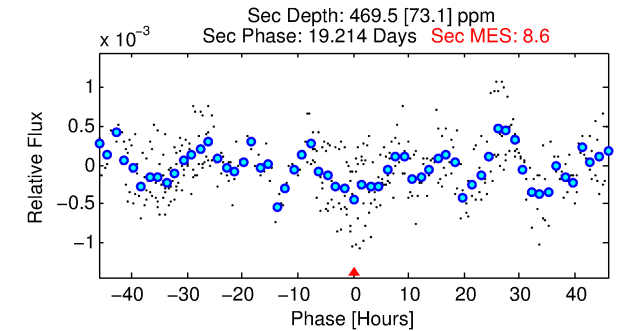
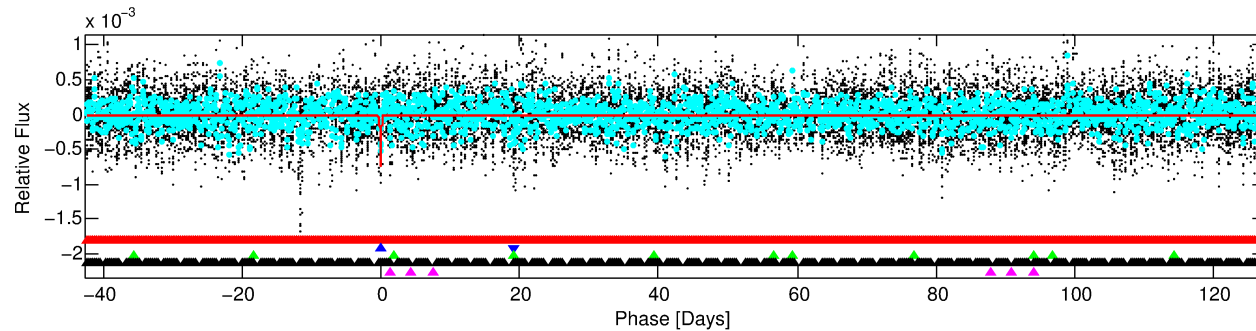
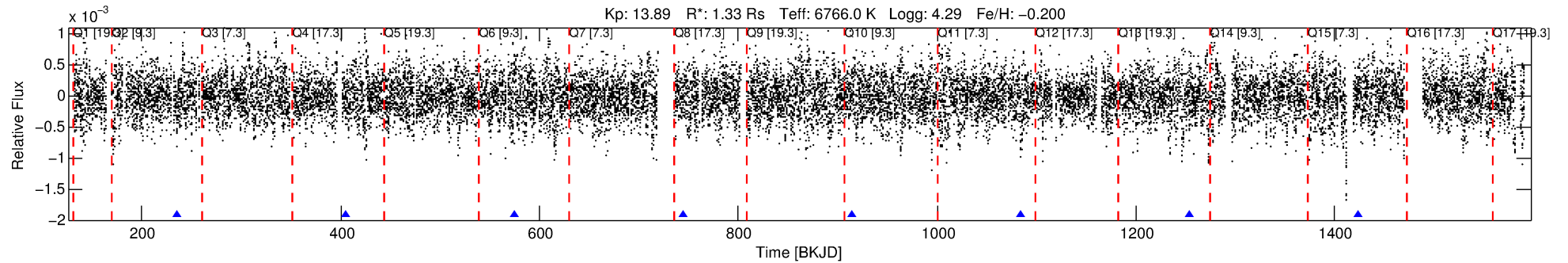
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008180062-02

No Significant Match Found

DV One-Page Summary

KIC: 8180062 Candidate: 2 of 5 Period: 169.715 d



DV Fit Results:

Period = 169.71464 [0.00354] d
Epoch = 235.1314 [0.0174] BKJD
Rp/R* = 0.0310 [0.0025]
a/R* = 63.52 [9.21]
b = 0.96 [0.01]
Seff = 7.89 [3.20]
Teff = 427 [43] K
Rp = 4.48 [1.46] Re
a = 0.6470 [0.1698] AU
Ag = 5385.38 [2358.68] [2.28 σ]
Teffp = 5660 [383] K [13.56 σ]

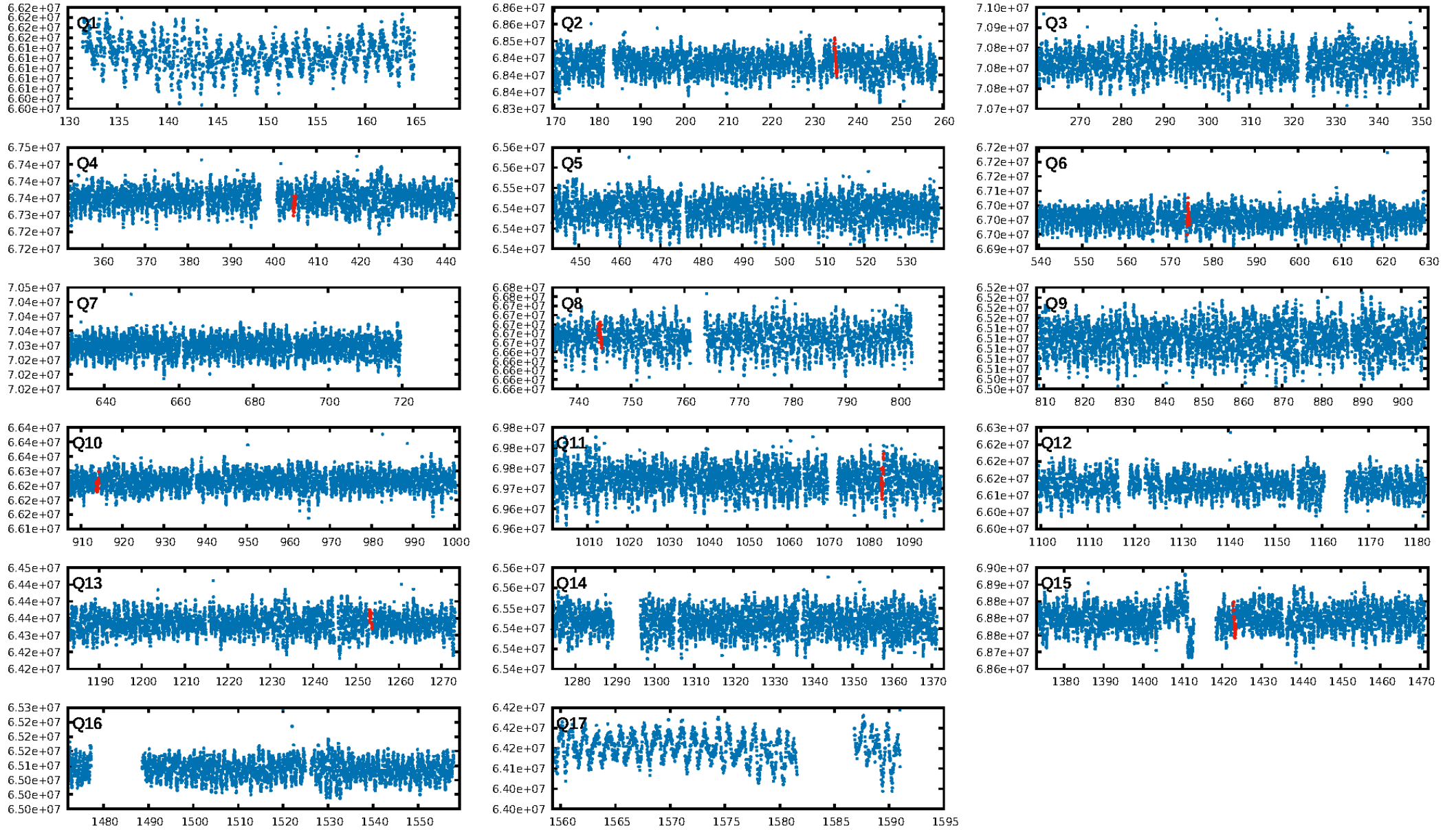
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [67.26 σ]
LongPeriod-sig: 100.0% [169.31 σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.66e-24
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.511
Centroid-sig: 84.6%
Centroid-so: 0.104 arcsec [0.31 σ]
OotOffset-rm: 0.279 arcsec [1.12 σ]
OotOffset-st: 2/2/2/1 [7]
KicOffset-rm: 0.191 arcsec [0.74 σ]
KicOffset-st: 2/2/2/1 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/8]

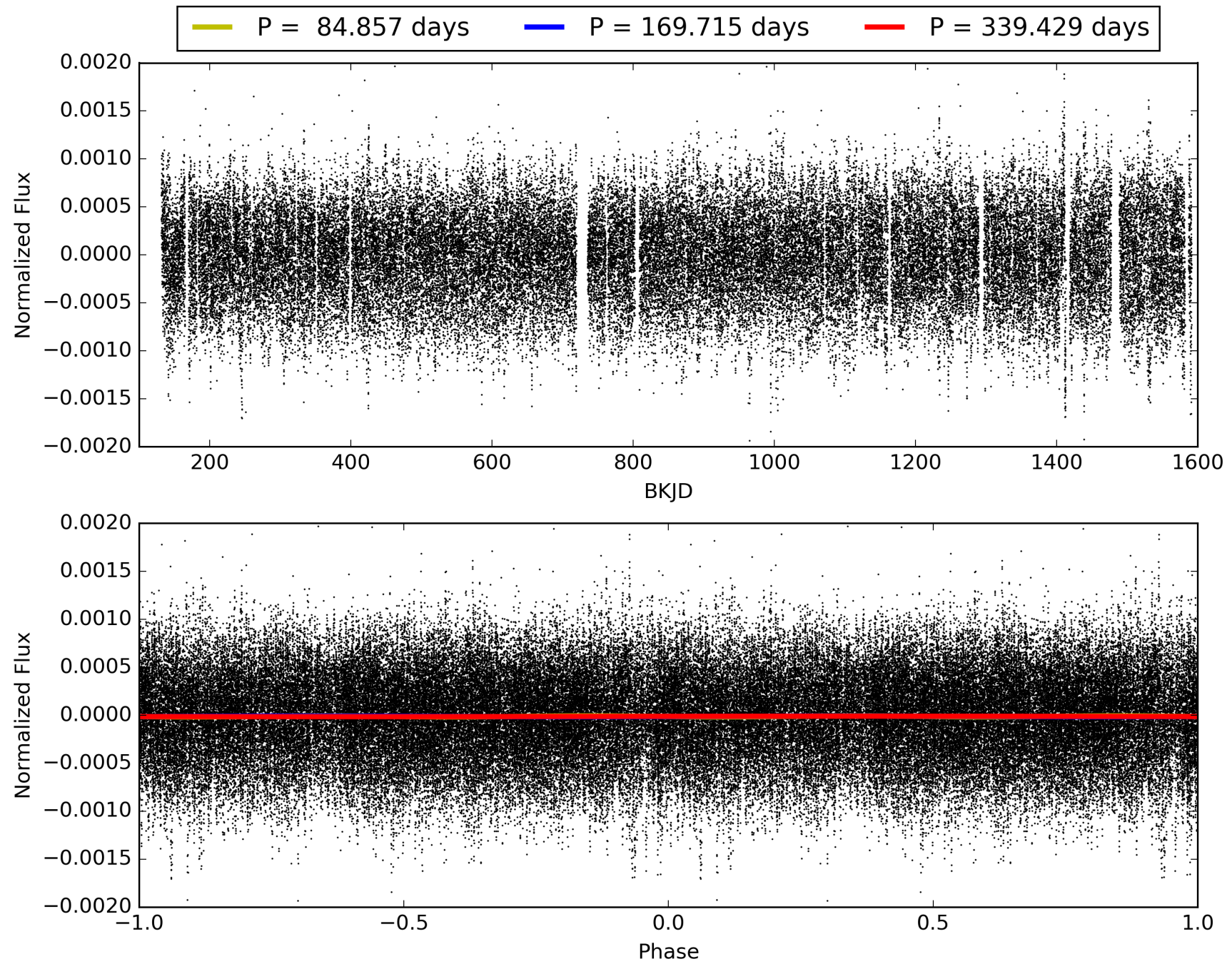
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:29:39 Z

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

TCE 008180062-02, PDC Light Curves

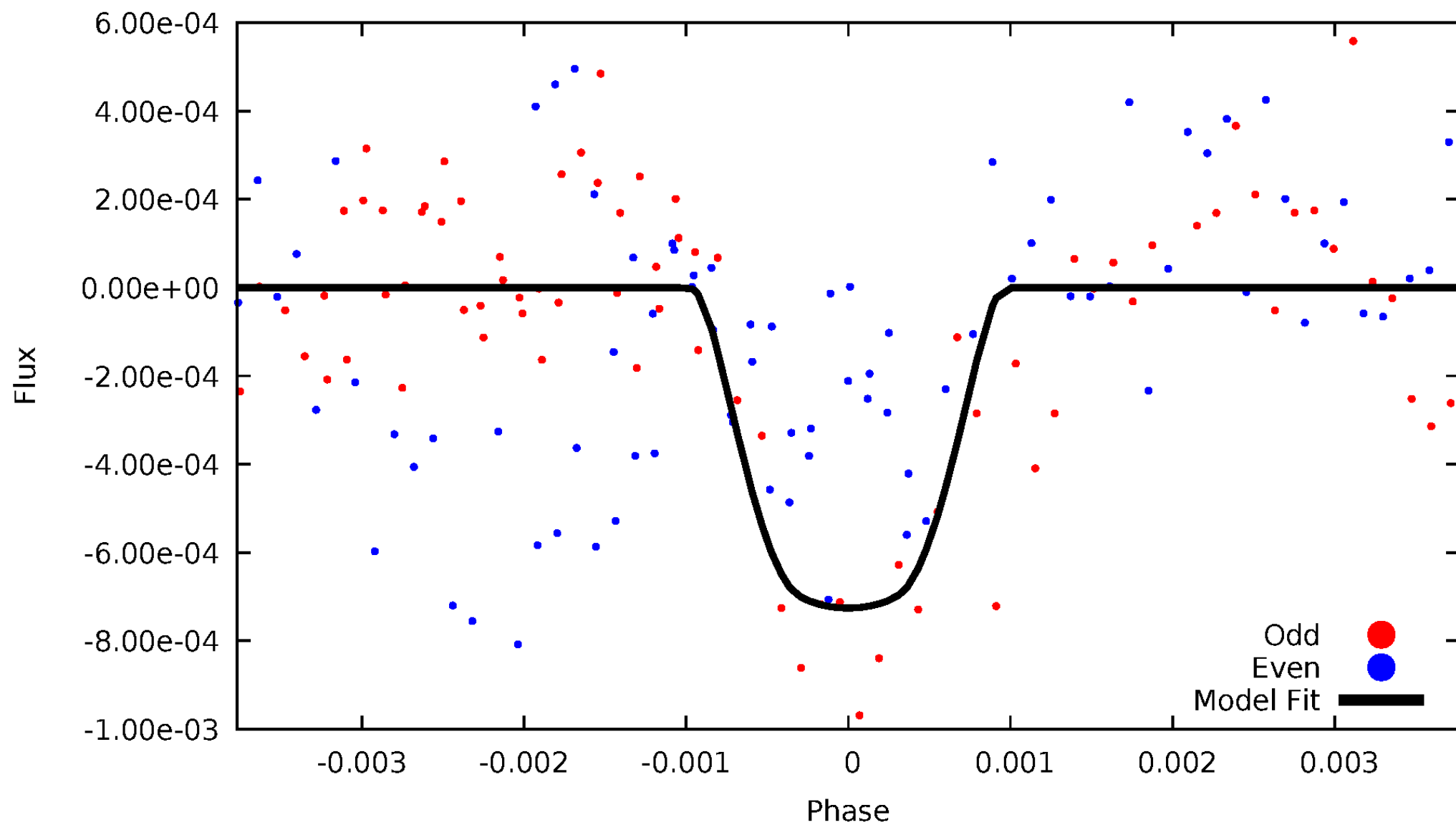


TCE 008180062-02



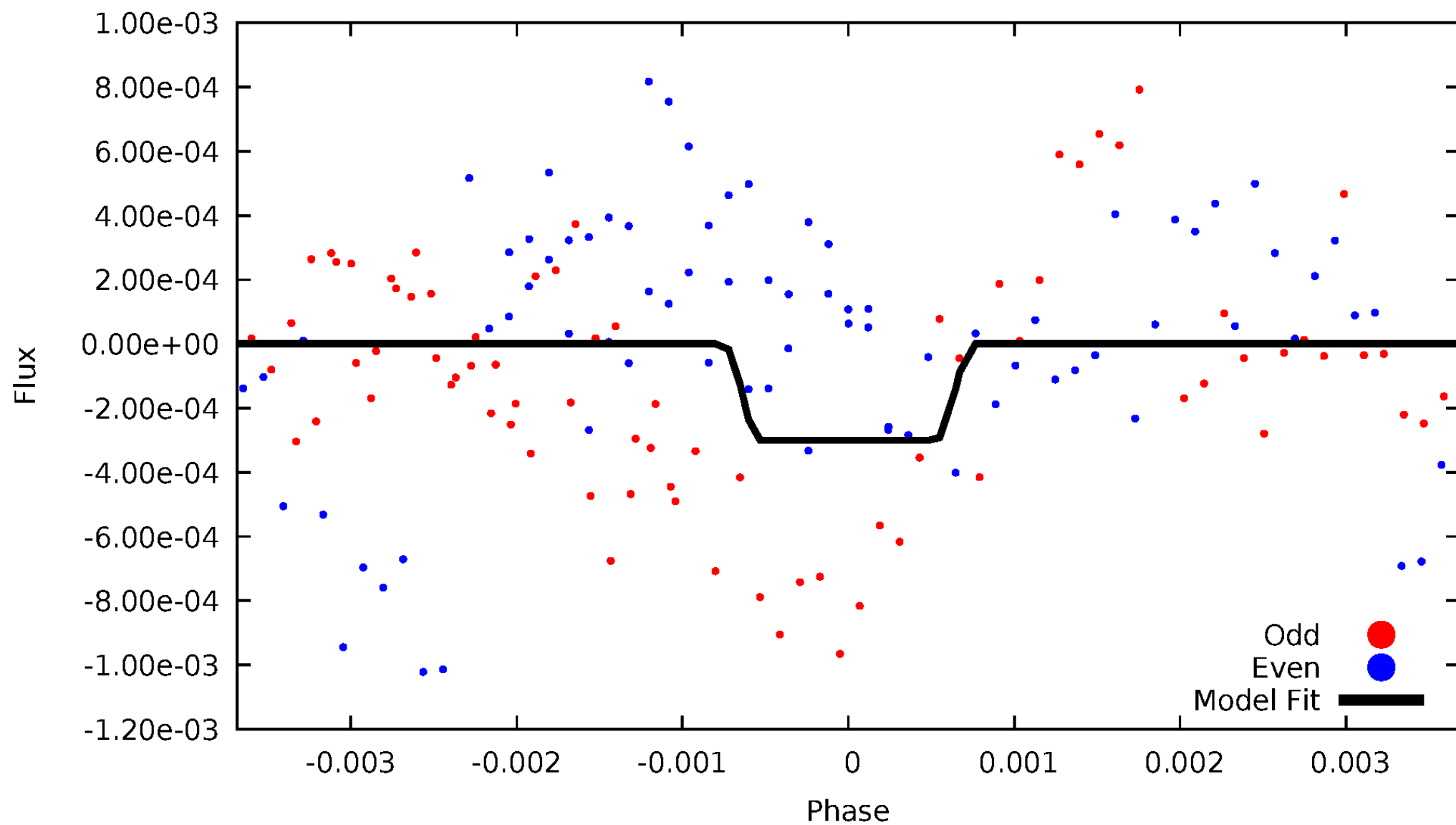
DV Odd/Even

TCE 008180062-02



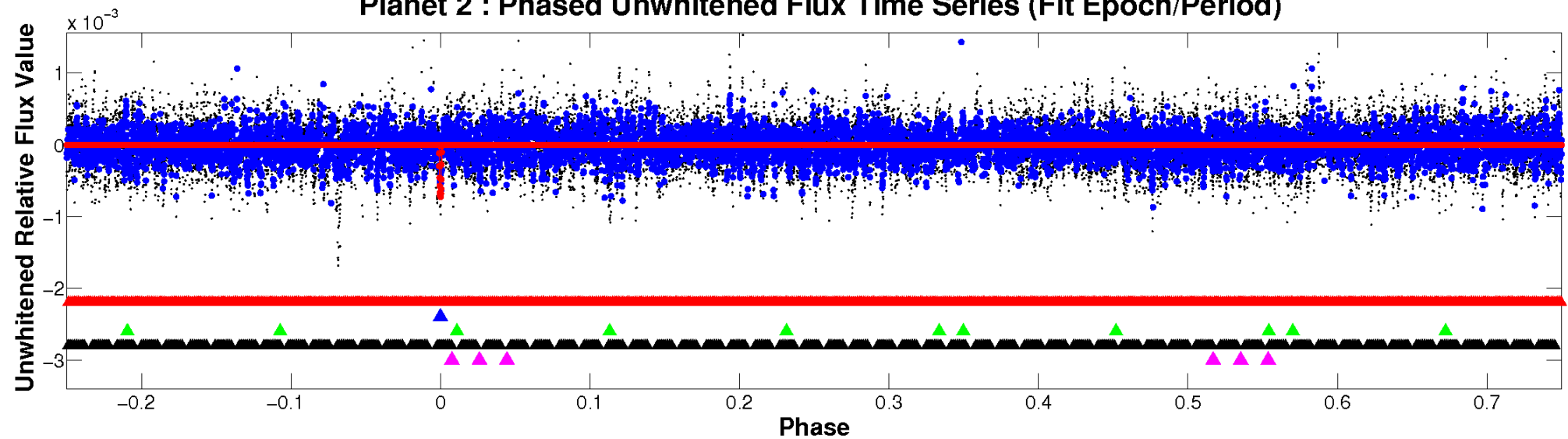
ALT Odd/Even

TCE 008180062-02

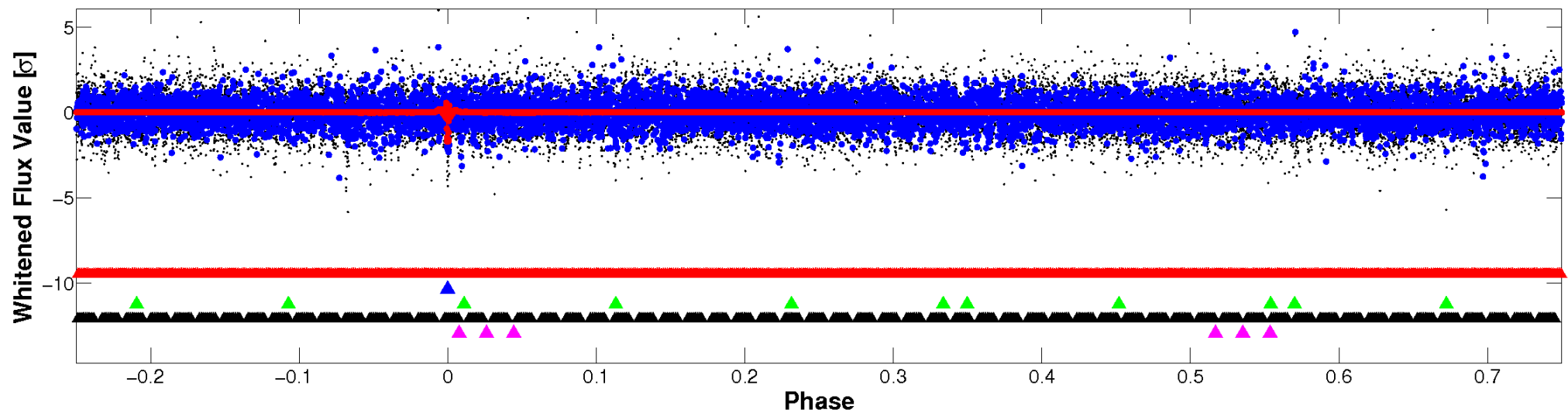


Non-Whitened Vs. Whitened Light Curve

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

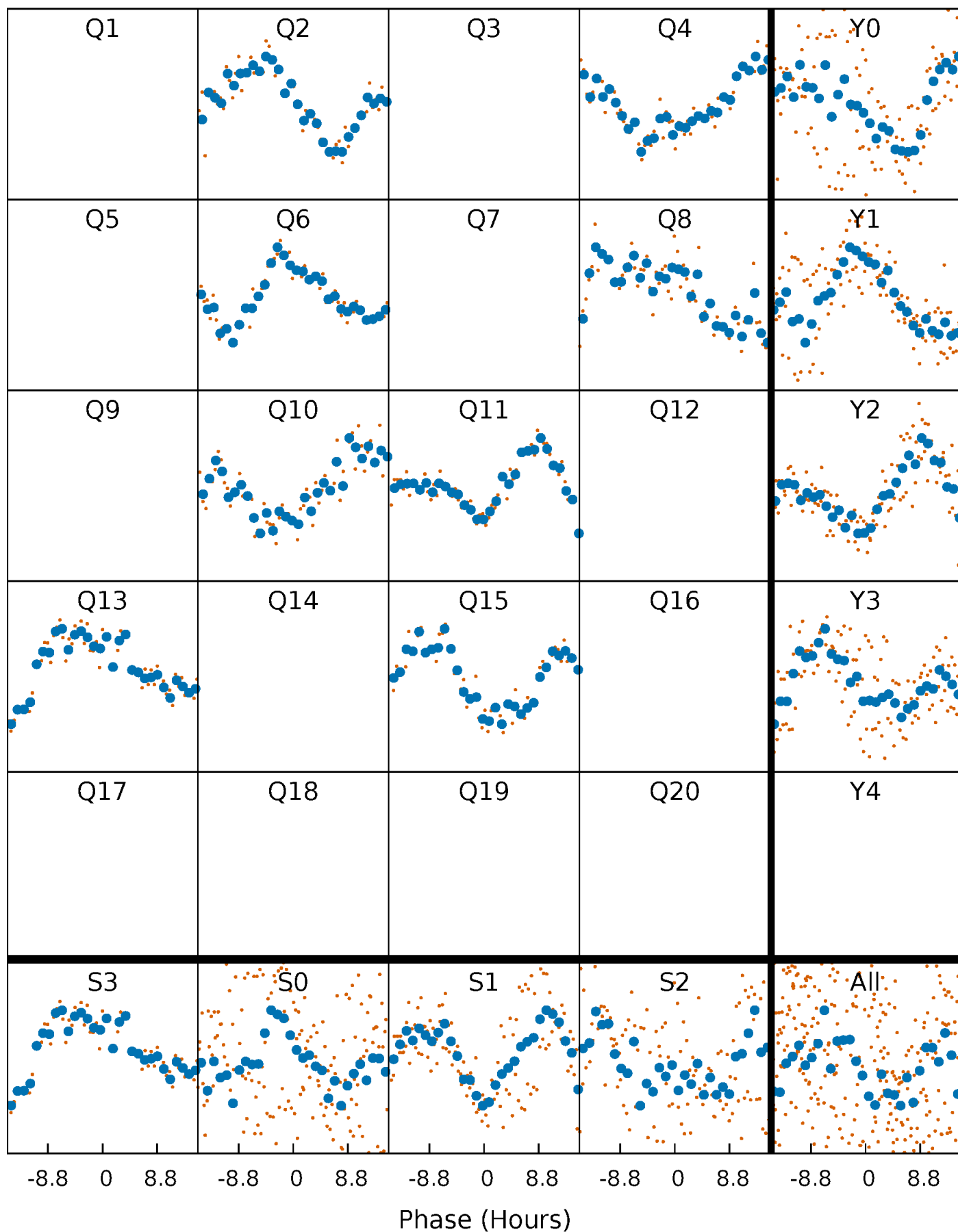


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



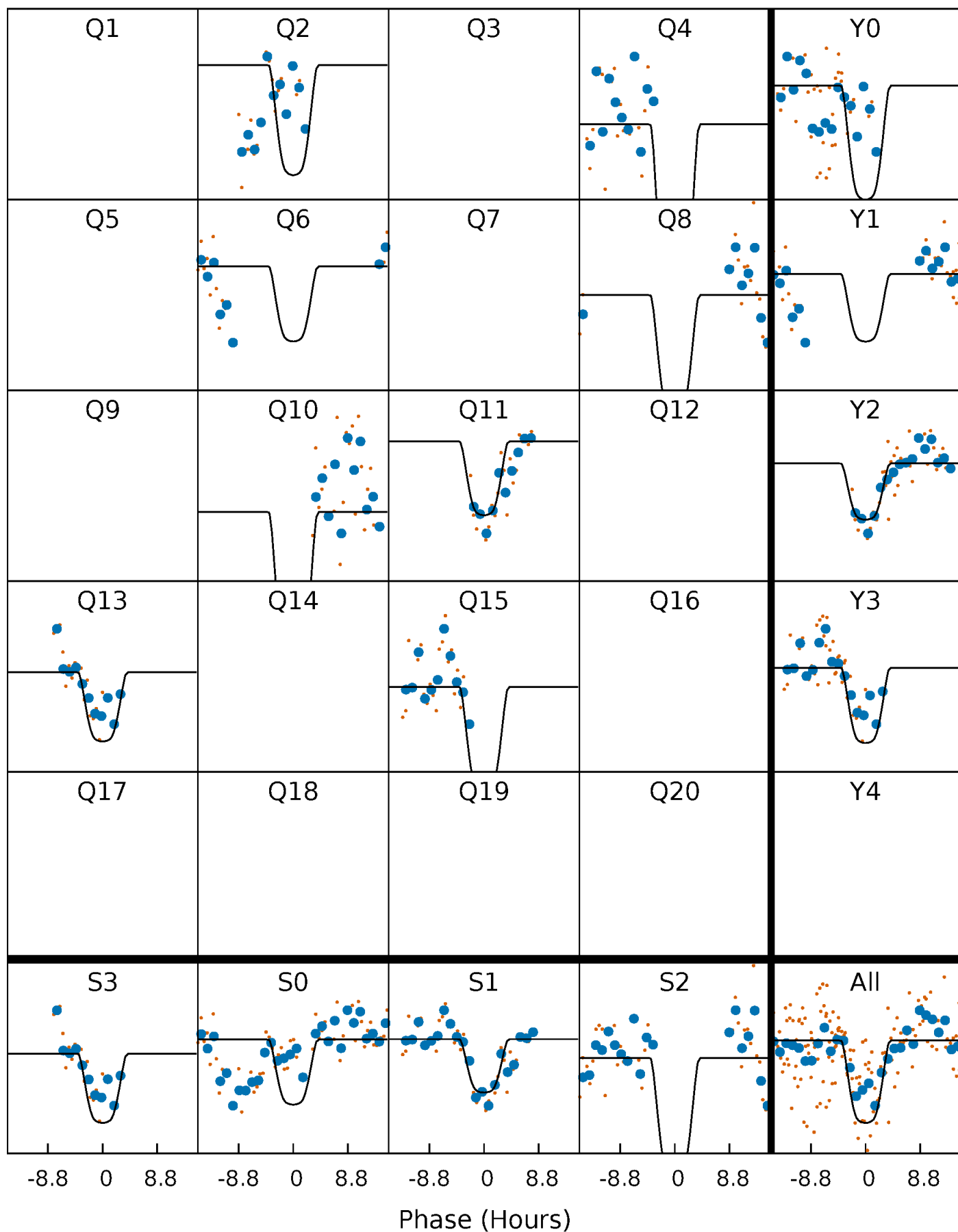
PDC Quarter-Phased Transit Curves

TCE 008180062-02 $P=169.714640$ Days $T_0=235.131431$ (BKJD)



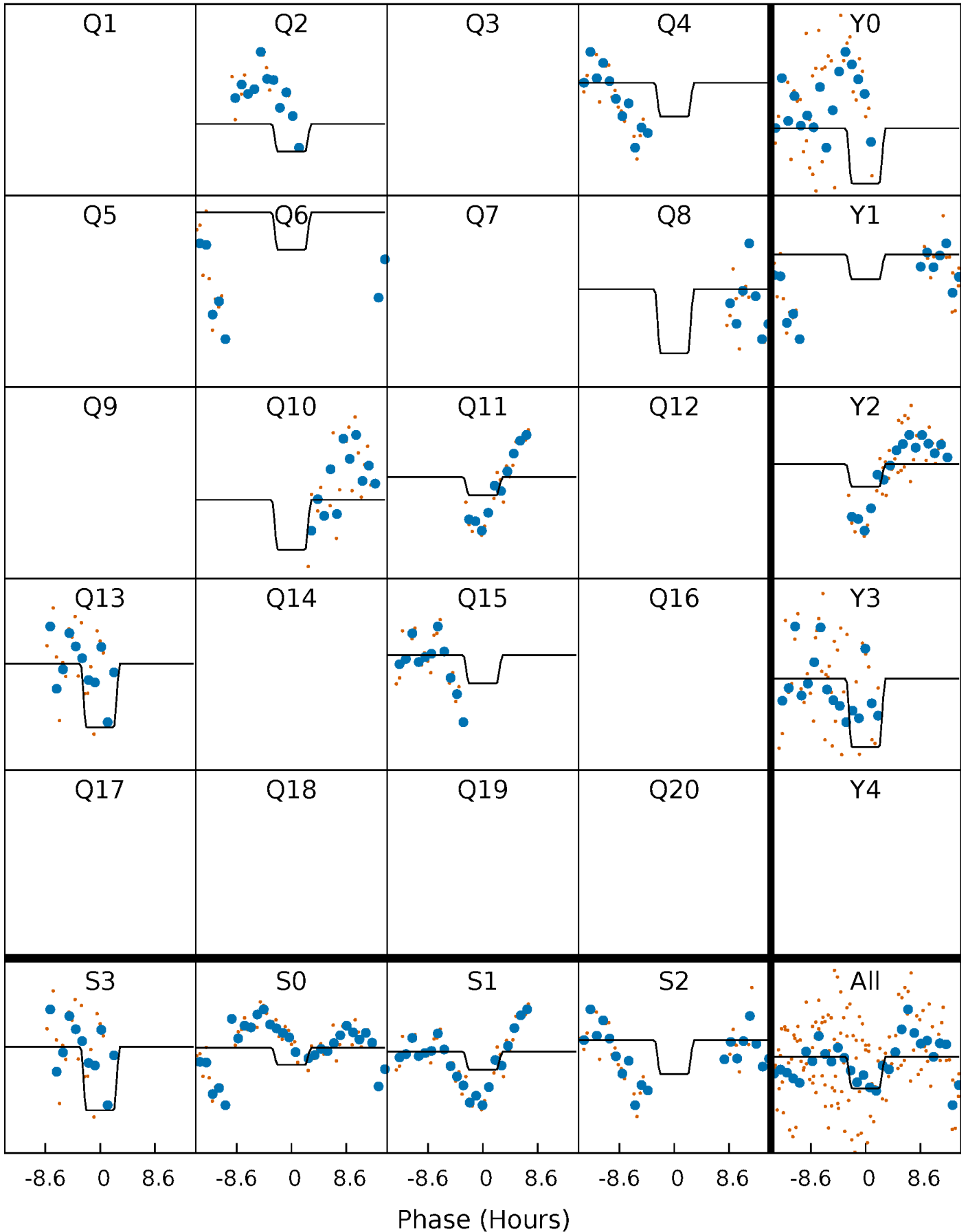
DV Quarter-Phased Transit Curves

TCE 008180062-02 P=169.714640 Days $T_0=235.131431$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

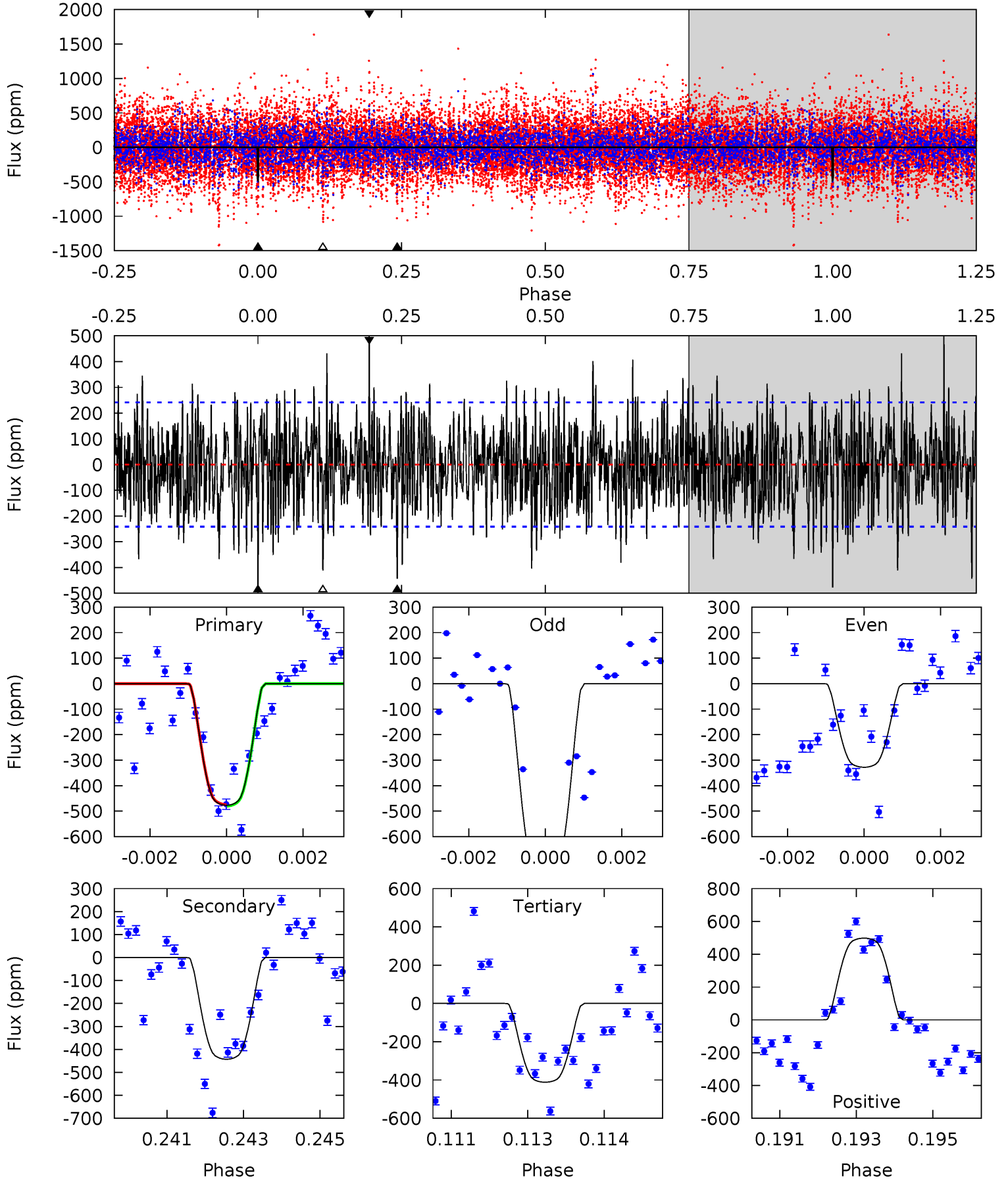
TCE 008180062-02 P=169.714338 Days $T_0=235.153368$ (BKJD)



DV Model-Shift Uniqueness Test

008180062-02, P = 169.714640 Days, E = 65.416791 Days

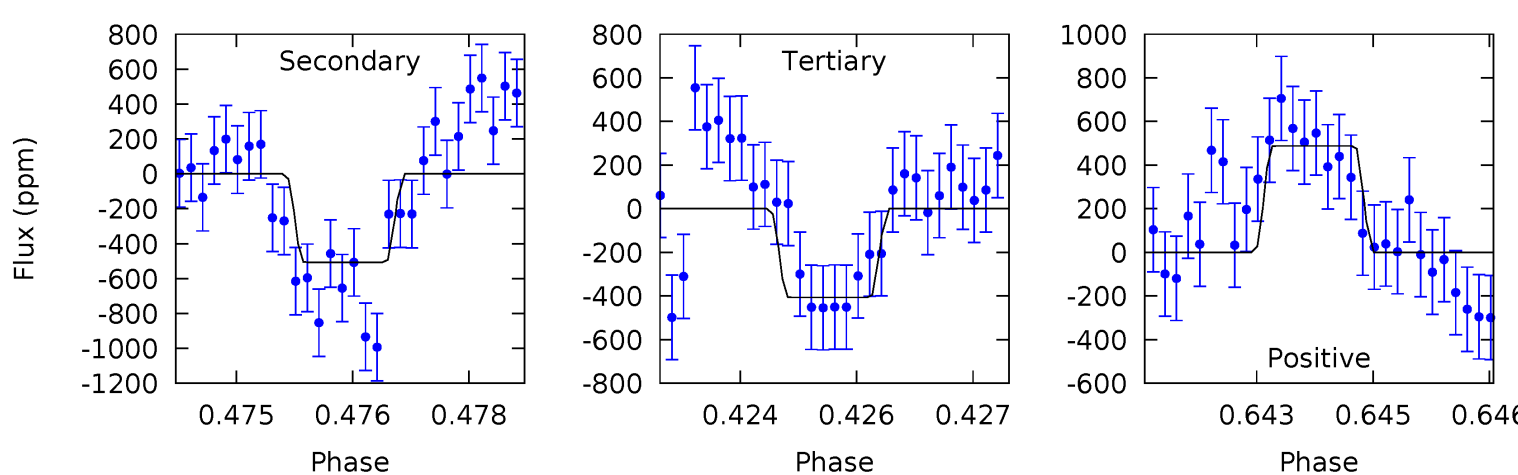
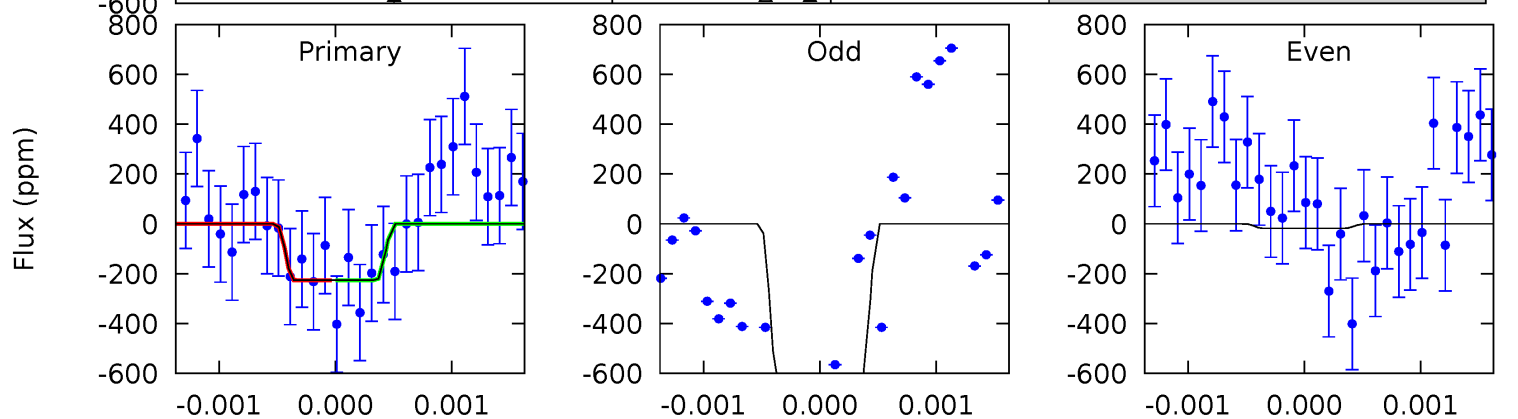
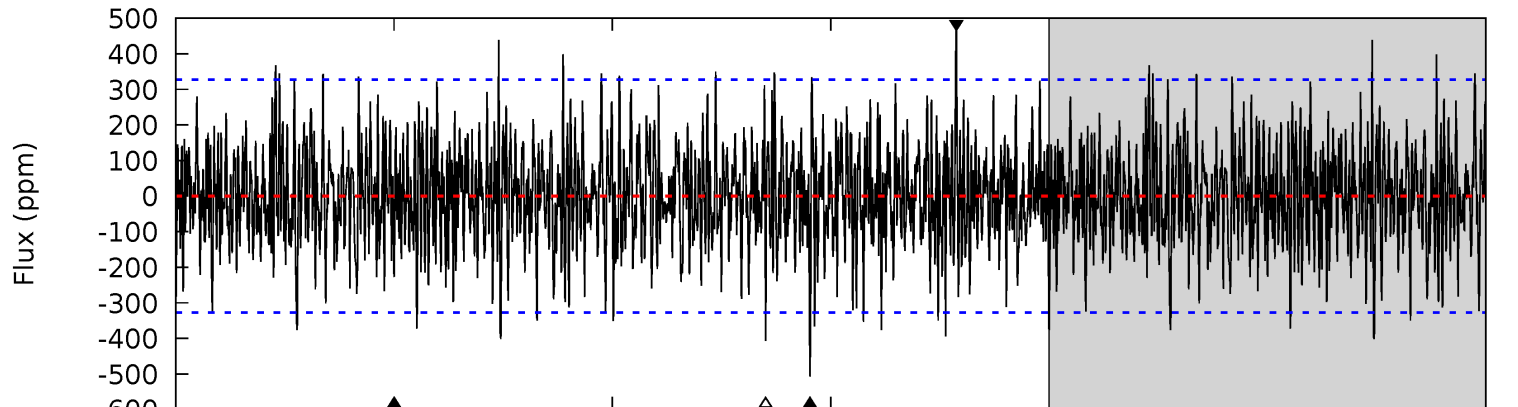
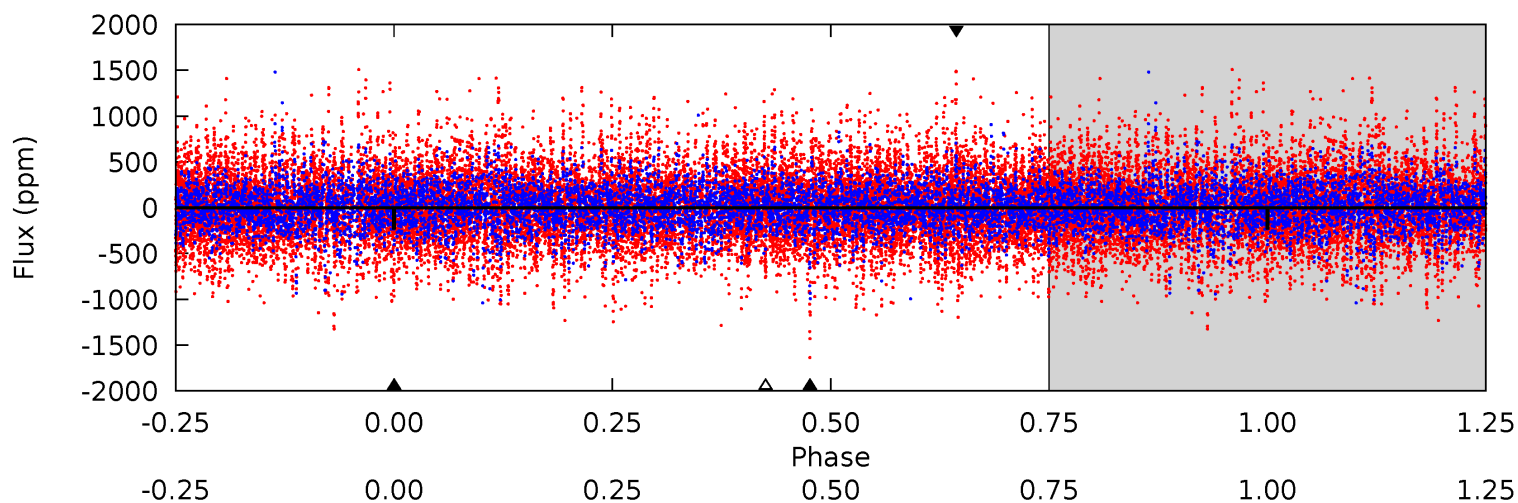
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	9.78	9.09	11.0	5.33	3.09	2.88	1.45	-0.47	0.69	-1.22	4.68	0.94	0.51	0.06



Alt Model-Shift Uniqueness Test

008180062-02, P = 169.714338 Days, E = 65.439030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.72	8.33	6.68	8.02	5.38	3.18	2.07	-2.96	-4.30	1.64	0.30	5.02	2.06	0.49	0.00



Stellar Parameters For KIC 008180062

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6766^{+188}_{-258}	$4.291^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.326^{+0.420}_{-0.210}$	$1.261^{+0.190}_{-0.209}$	$0.762^{+0.345}_{-0.378}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-16%	+15%/-17%	+45%/-50%
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 008180062-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-443 ± 45	$4.60^{+0.80}_{-0.62}$	605^{+46}_{-36}	5565^{+334}_{-295}	4709^{+1568}_{-1290}
Alt.	-507 ± 61	$2.57^{+0.57}_{-0.45}$	605^{+44}_{-35}	7816^{+857}_{-700}	16888^{+7892}_{-5163}

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

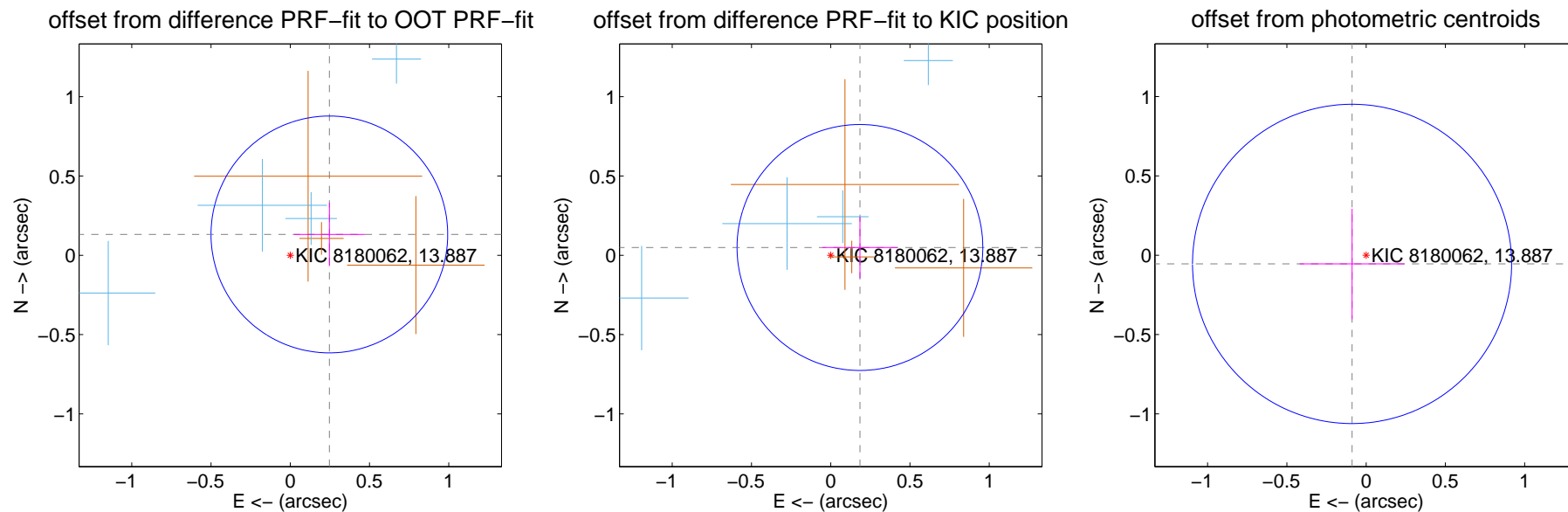
DV Centroid Data

Supplemental centroid analysis for 008180062-02. Kepler magnitude: 13.89. Transit SNR 8.40

There are 4 quarters with good PRF difference image offsets

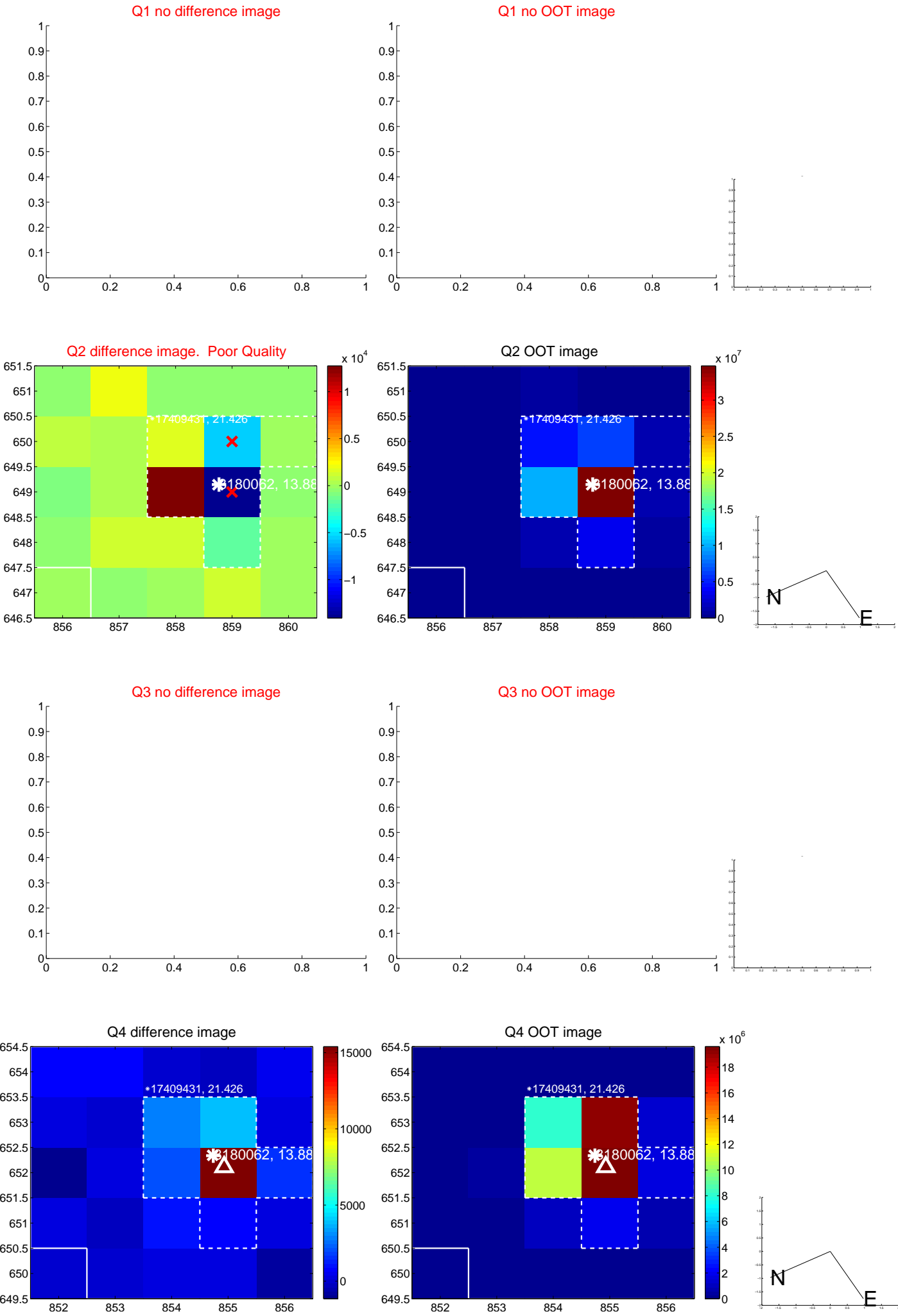
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.279 ± 0.249	1.12	-0.247 ± 0.223	0.131 ± 0.199
PRF-fit source offset from KIC position	0.191 ± 0.258	0.74	-0.184 ± 0.237	0.049 ± 0.194
photometric centroid source offset	0.10 ± 0.34	0.31	0.09 ± 0.33	-0.05 ± 0.35

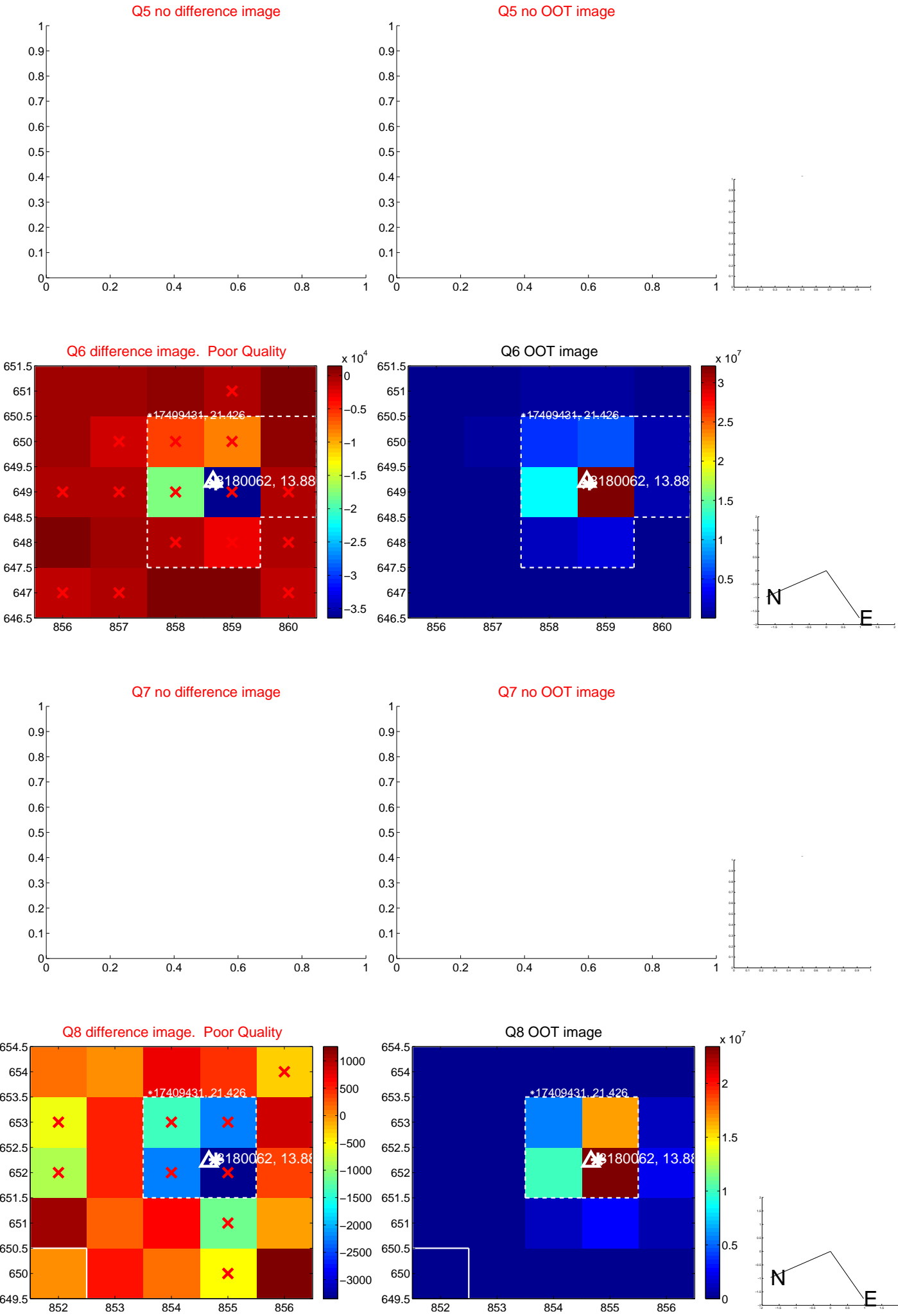


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

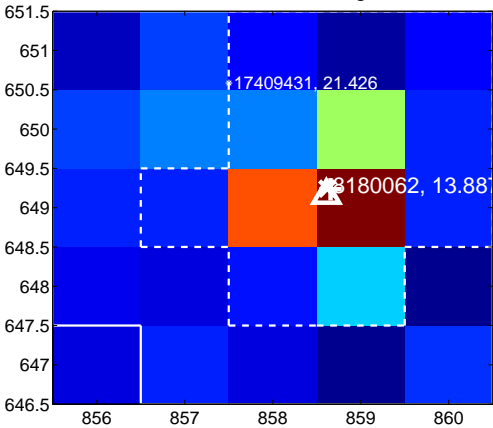
Q9 no difference image



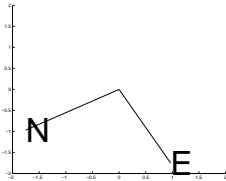
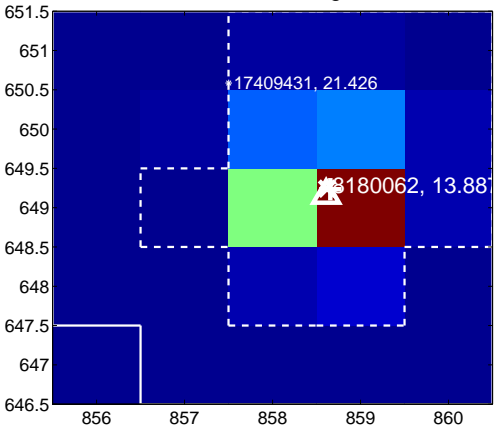
Q9 no OOT image



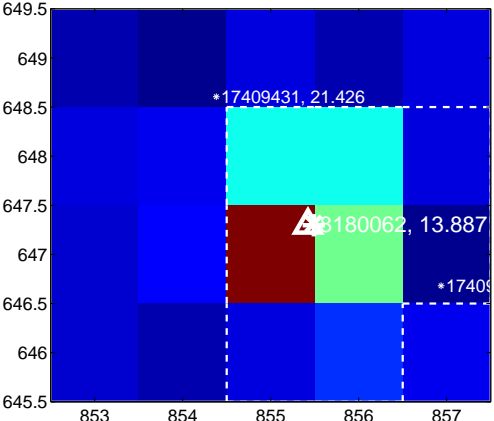
Q10 difference image



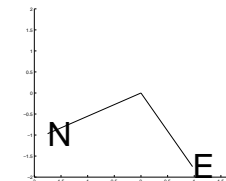
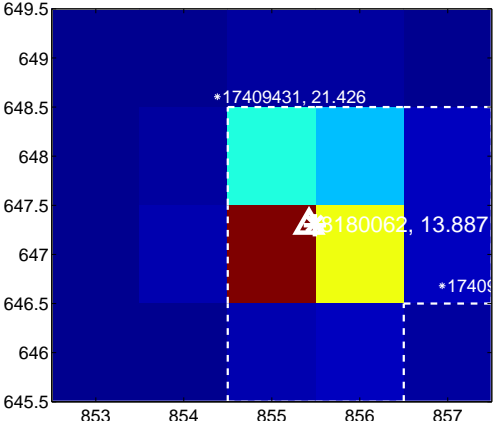
Q10 OOT image



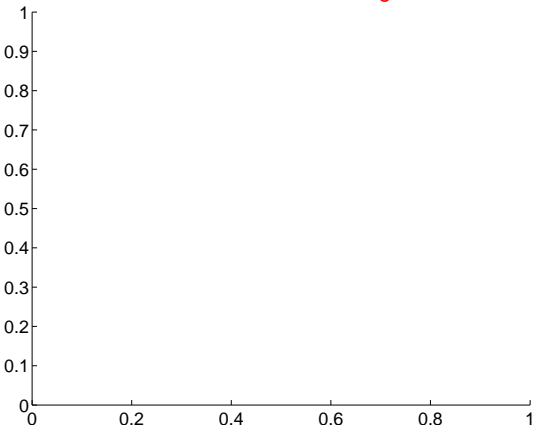
Q11 difference image



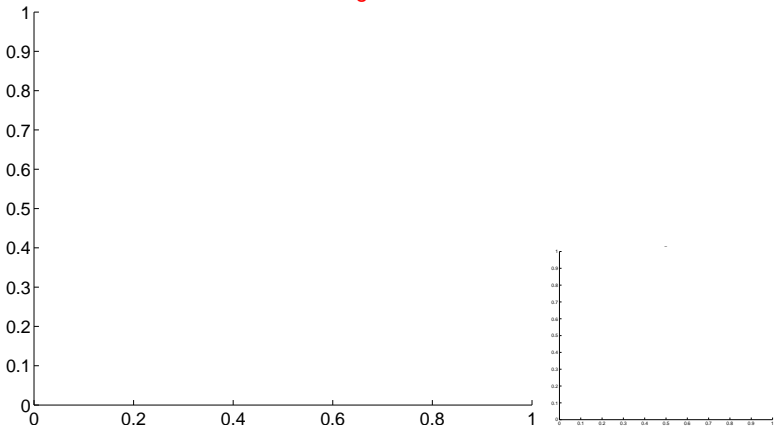
Q11 OOT image



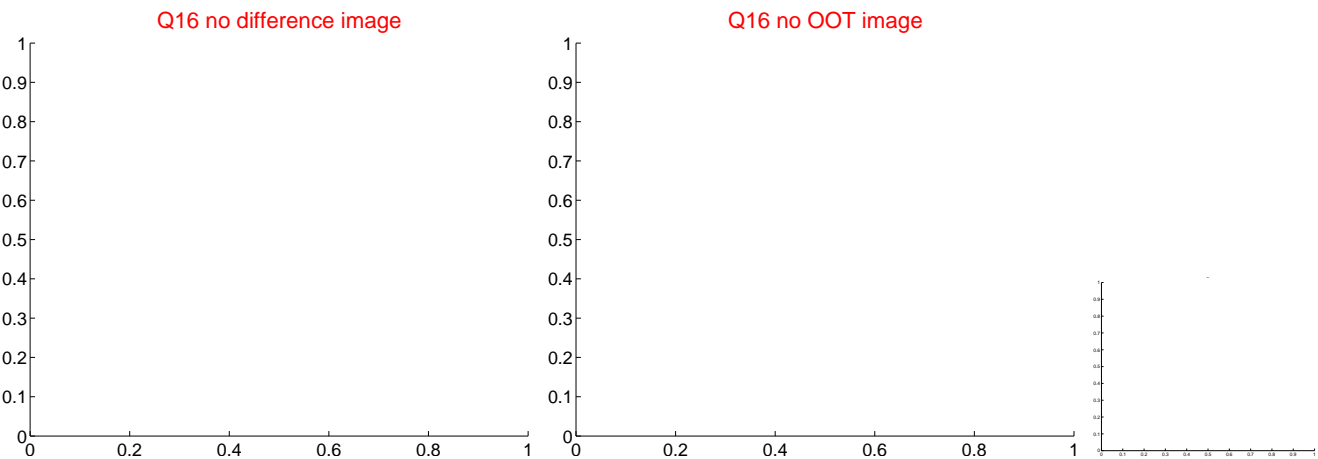
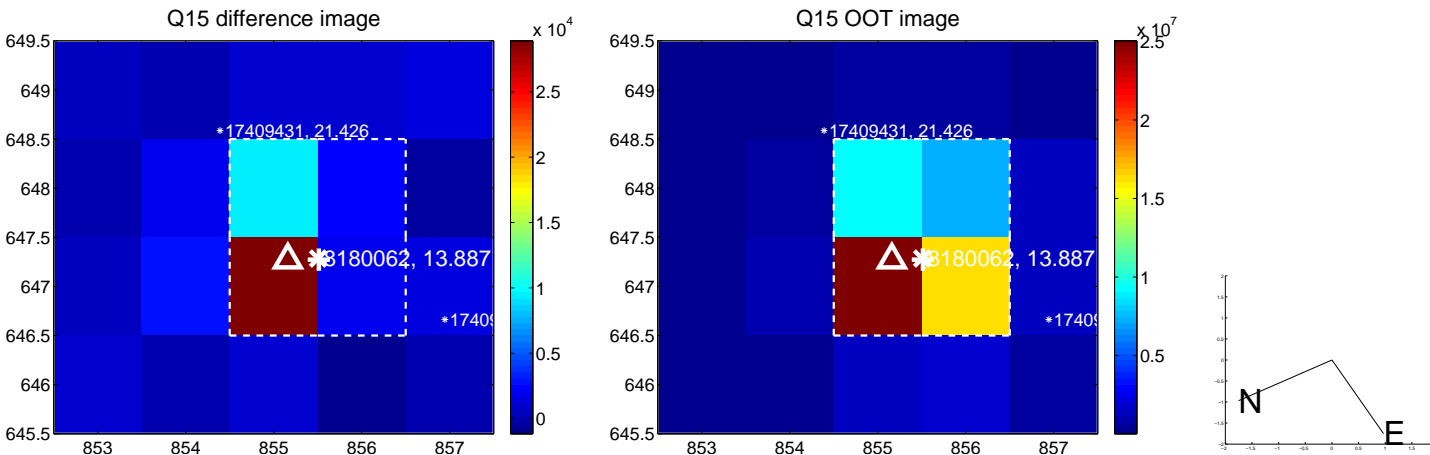
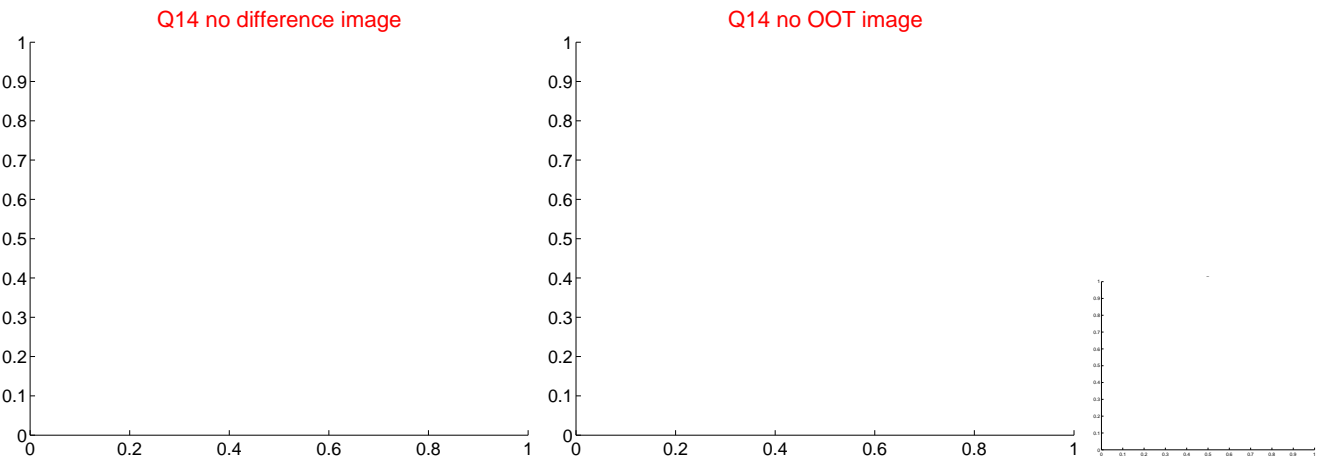
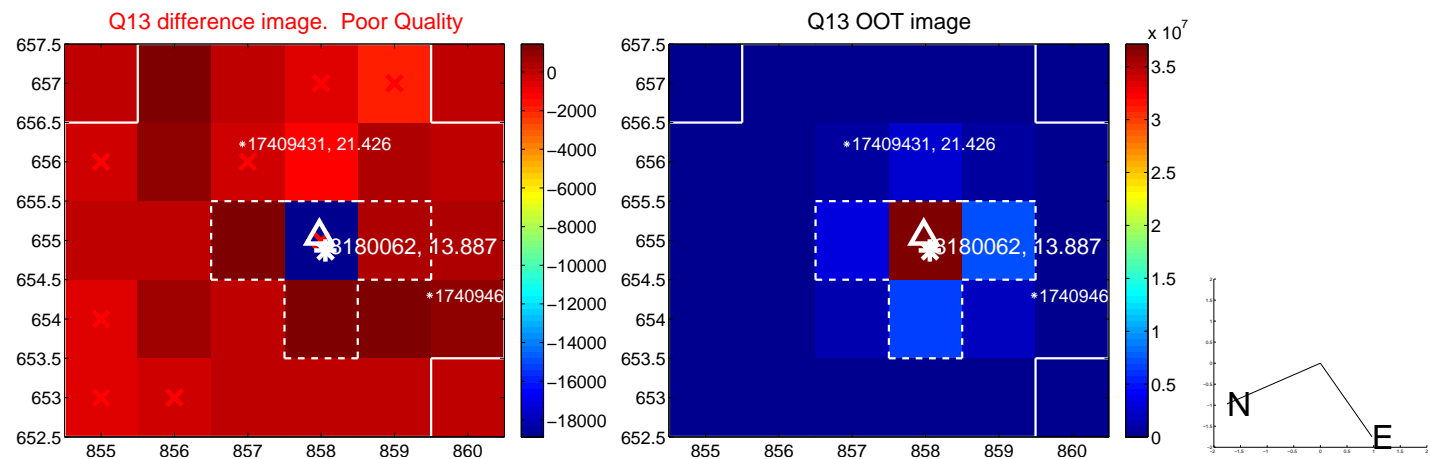
Q12 no difference image



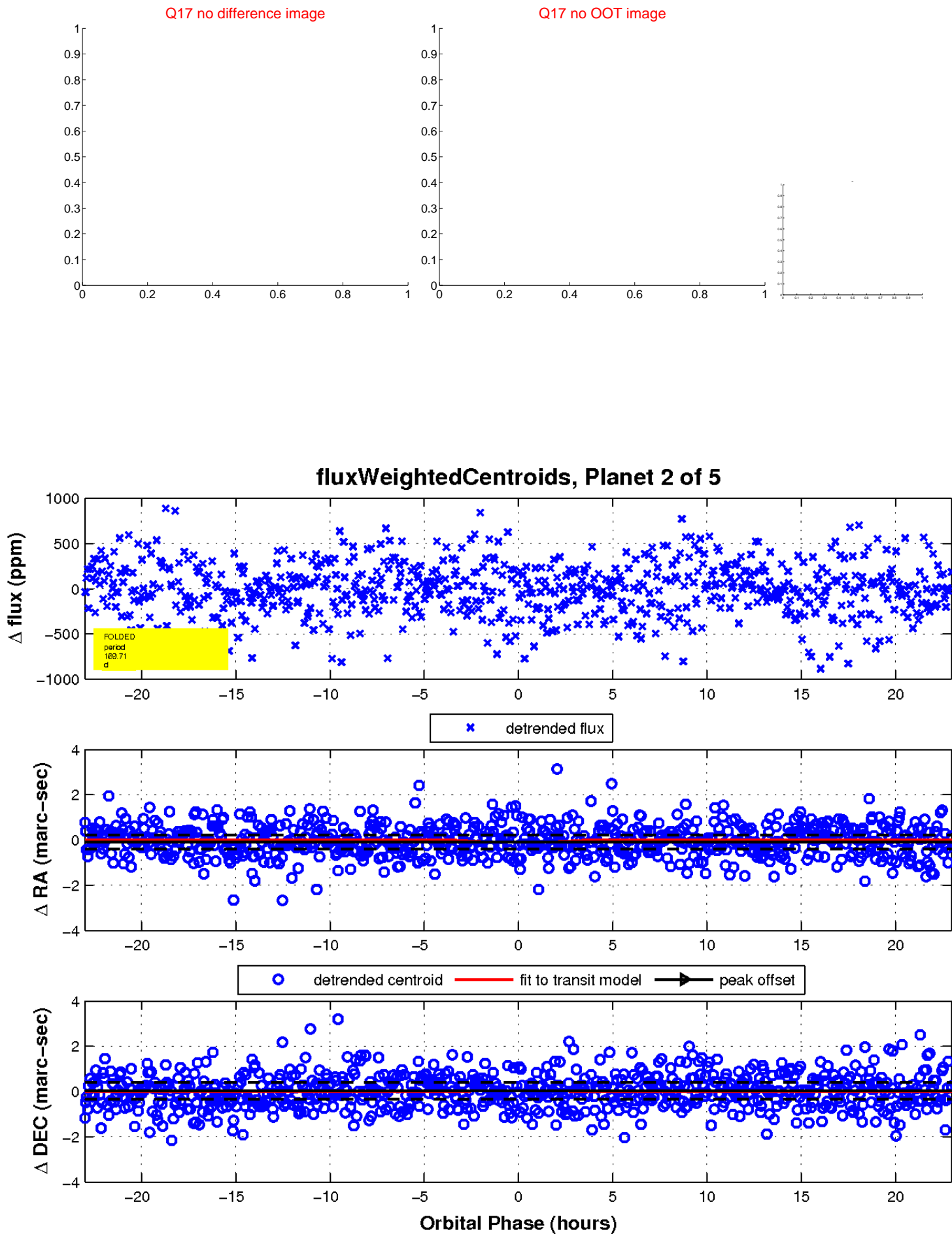
Q12 no OOT image



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

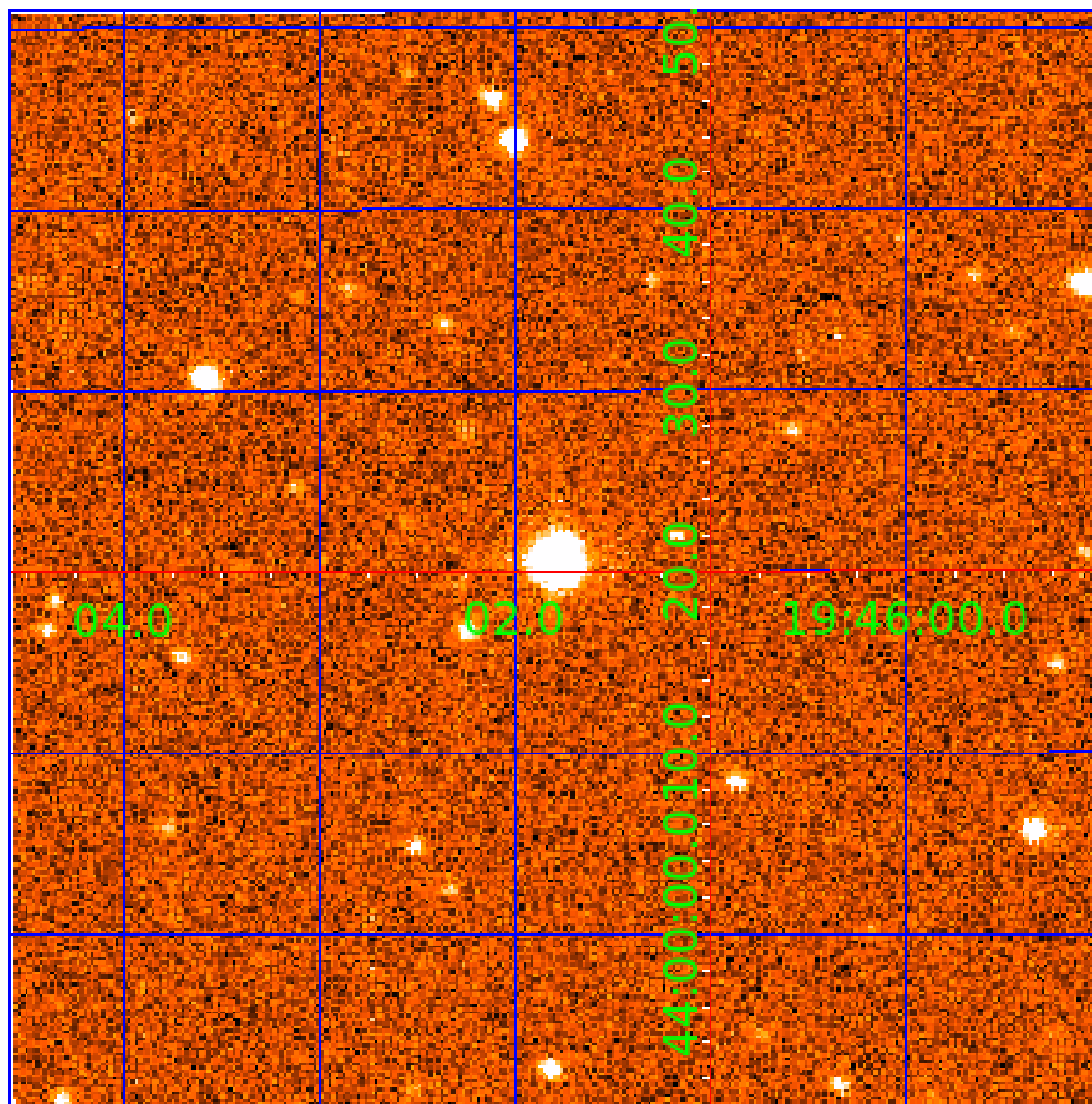


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008180062

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})
008180062-01	OBS	No	1.389267	132.868815	25.3	7.426	7.5	6.4	1.33	6766	0.68	4781.20
008180062-02	OBS	No	169.714640	235.131431	725.7	7.673	16.6	8.4	1.33	6766	4.48	7.89
008180062-03	OBS	No	132.303935	159.450199	268.5	10.923	18.4	4.5	1.33	6766	2.40	10.99
008180062-04	OBS	No	2.778475	133.564835	53.8	6.938	9.5	9.4	1.33	6766	1.13	1897.47
008180062-05	OBS	No	253.010985	159.387102	400.4	8.975	14.0	6.5	1.33	6766	2.83	4.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008180062-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008180062-02	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
008180062-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
008180062-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008180062-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

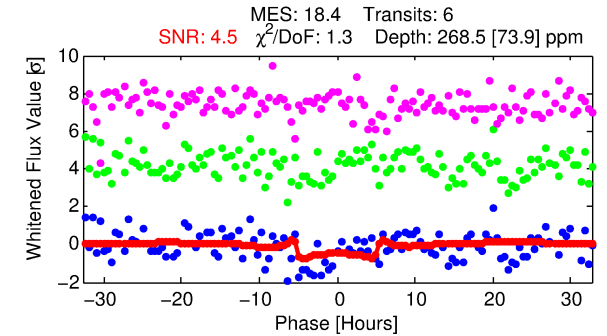
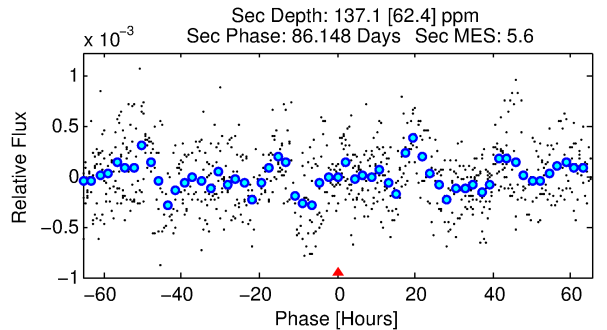
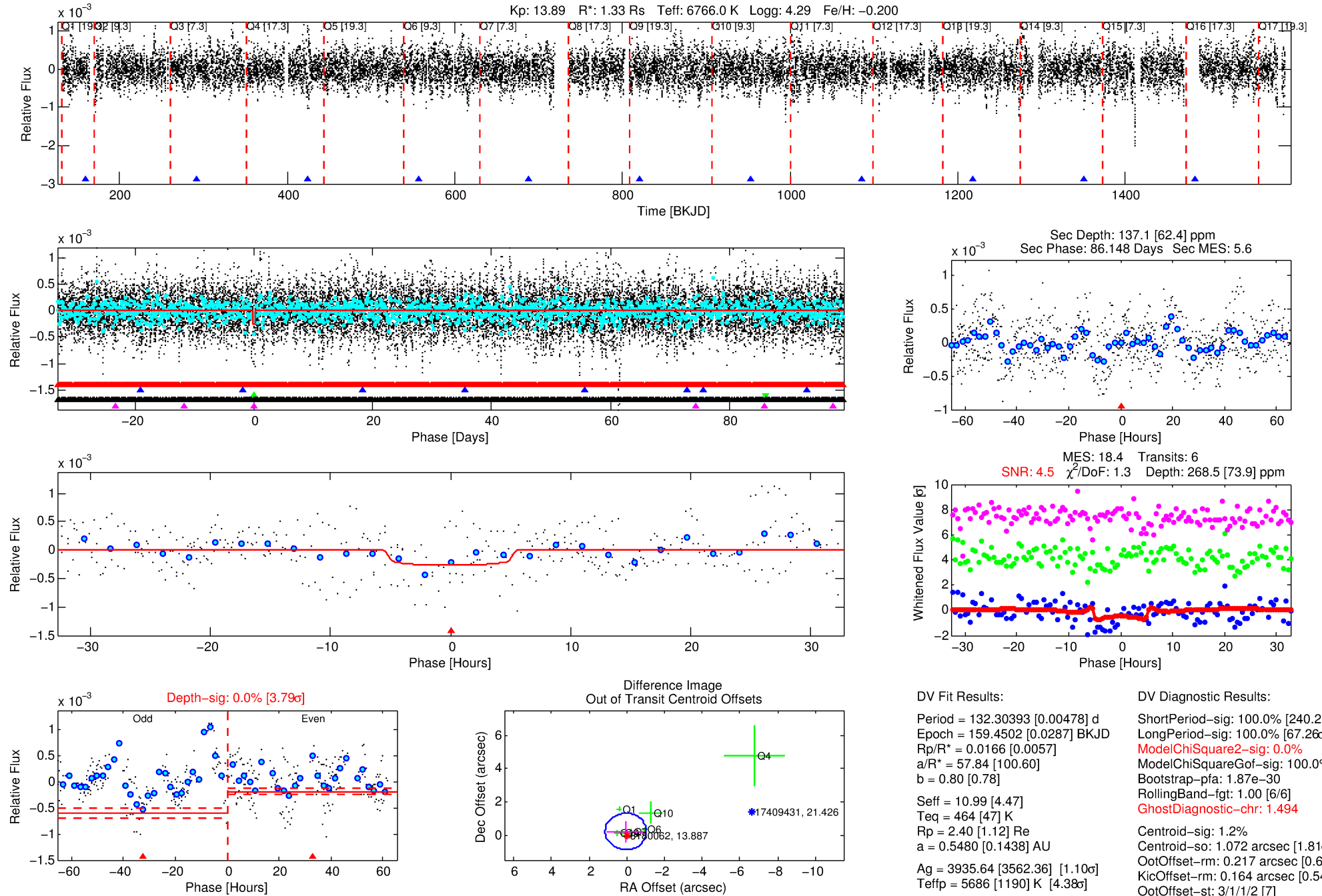
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008180062-03

No Significant Match Found

DV One-Page Summary

KIC: 8180062 Candidate: 3 of 5 Period: 132.304 d



DV Fit Results:

Period = 132.30393 [0.00478] d
Epoch = 159.4502 [0.0287] BKJD
Rp/R* = 0.0166 [0.0057]
a/R* = 57.84 [100.60]
b = 0.80 [0.78]
Seff = 10.99 [4.47]
Teq = 464 [47] K
Rp = 2.40 [1.12] Re
a = 0.5480 [0.1438] AU
Ag = 3935.64 [3562.36] [1.10σ]
Teffp = 5686 [1190] K [4.38σ]

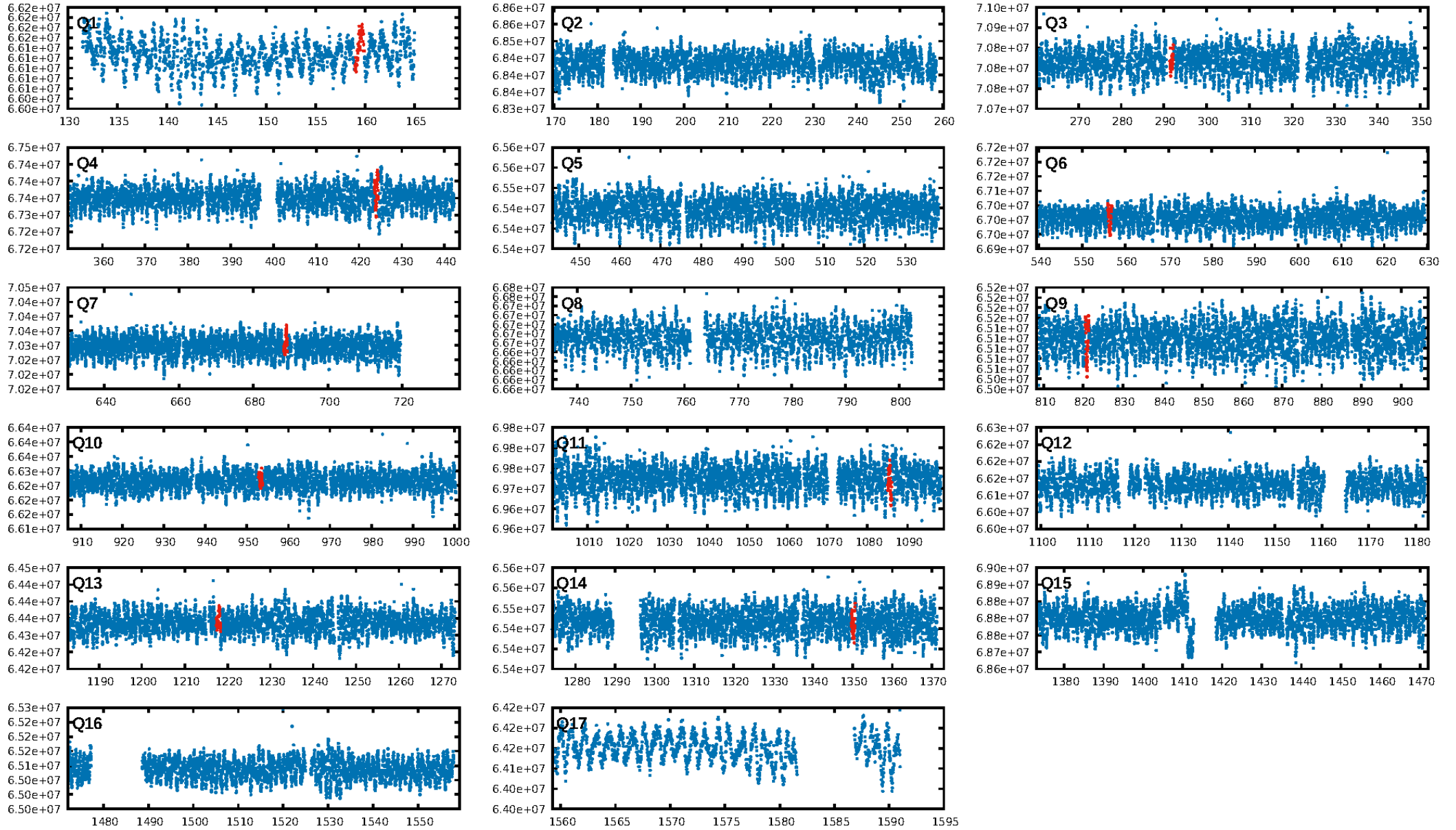
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [240.23σ]
LongPeriod-sig: 100.0% [67.26σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.87e-30
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.494
Centroid-sig: 1.2%
Centroid-so: 1.072 arcsec [1.81σ]
OotOffset-rm: 0.217 arcsec [0.60σ]
KicOffset-rm: 0.164 arcsec [0.54σ]
OotOffset-st: 3/1/1/2 [7]
KicOffset-st: 3/1/1/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.00 [0/8]

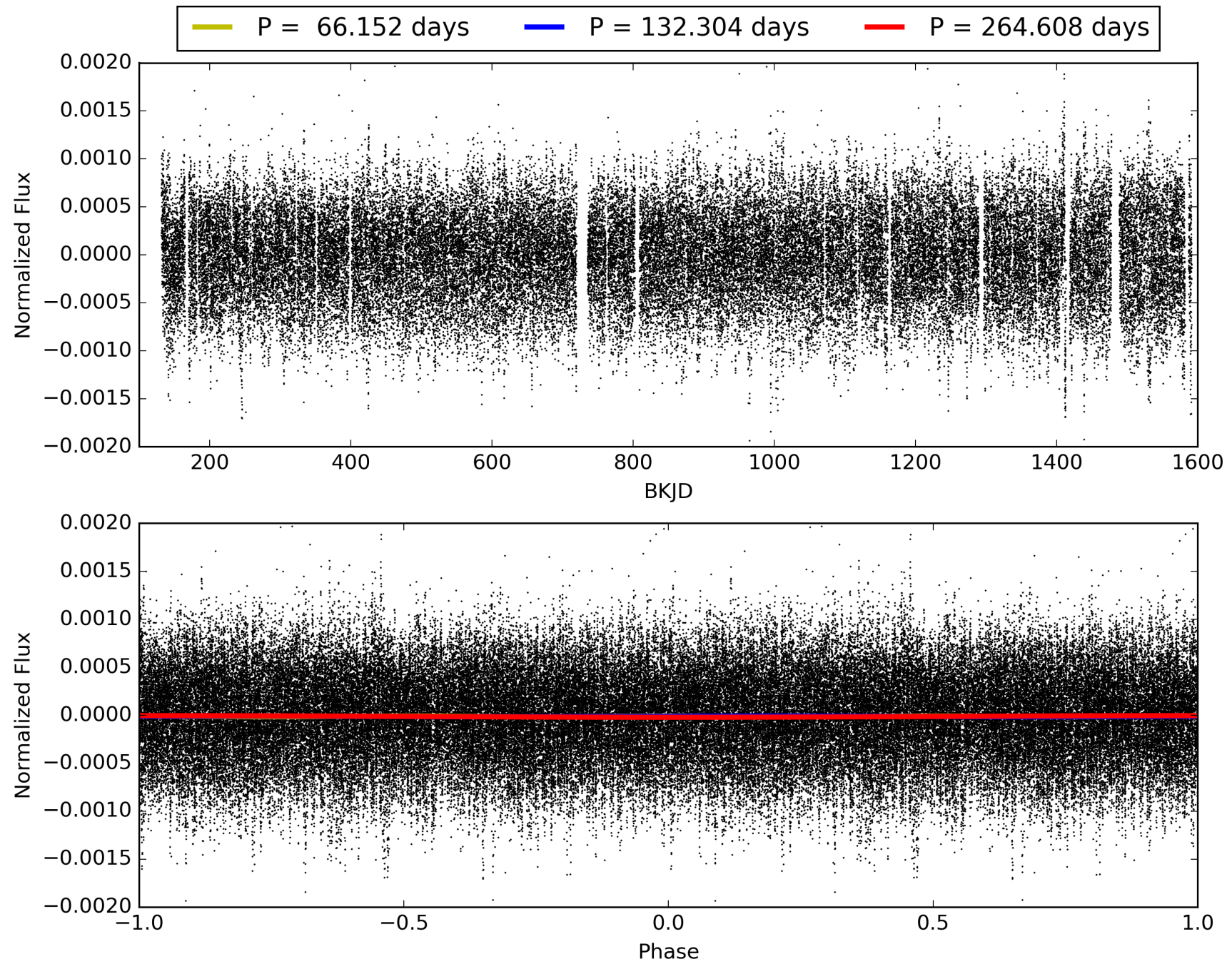
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:29:43 Z

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

TCE 008180062-03, PDC Light Curves

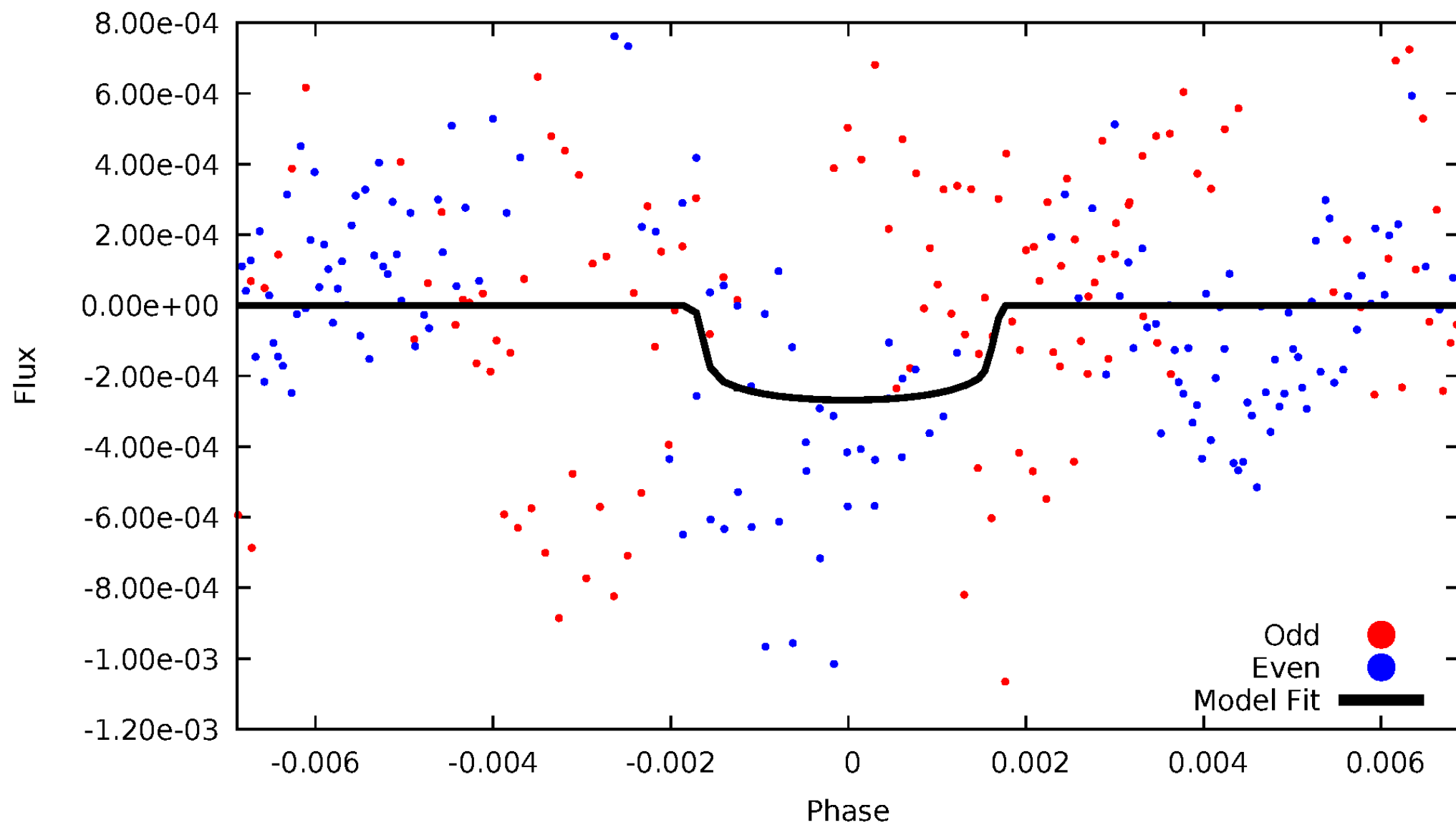


TCE 008180062-03



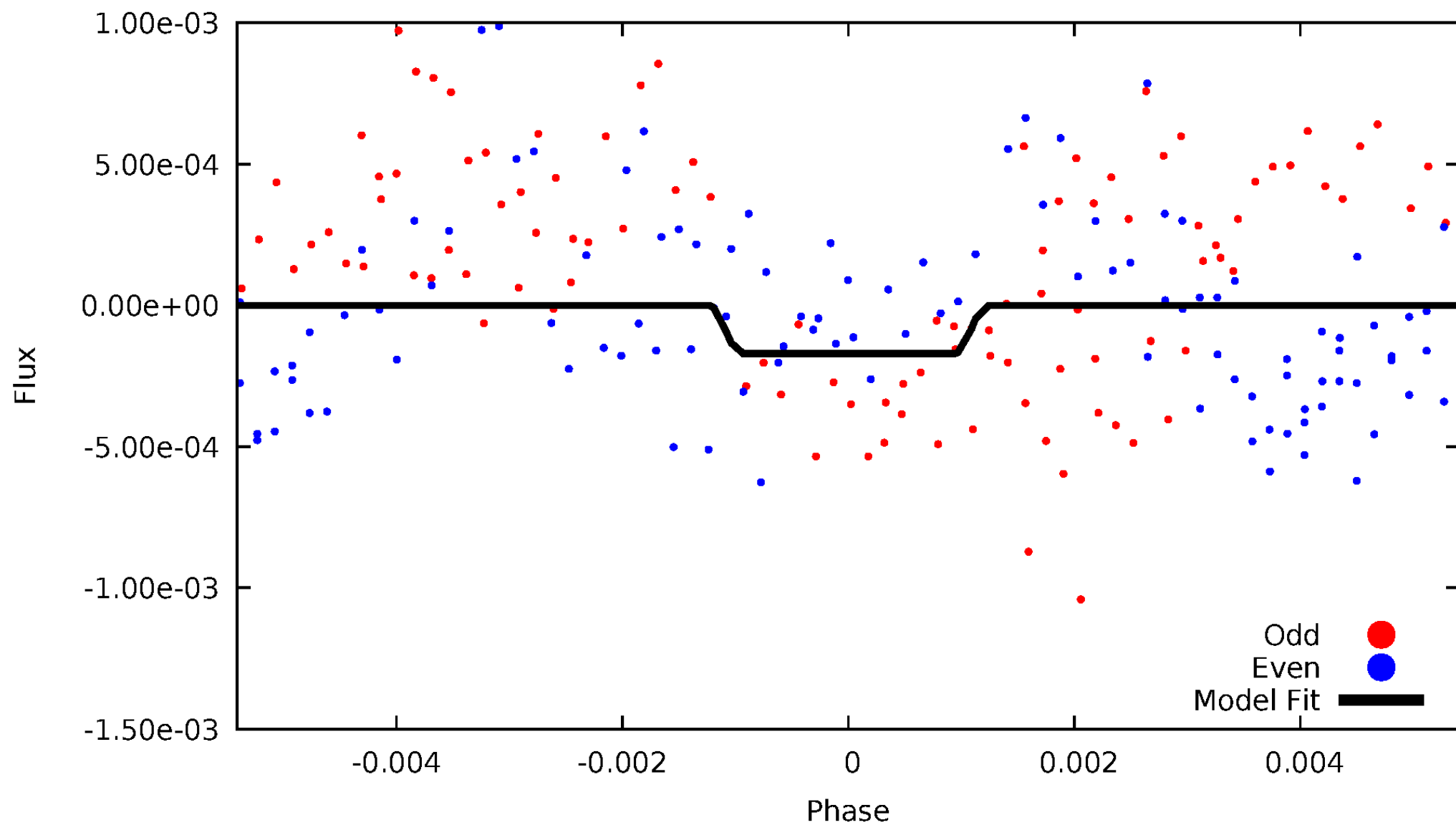
DV Odd/Even

TCE 008180062-03



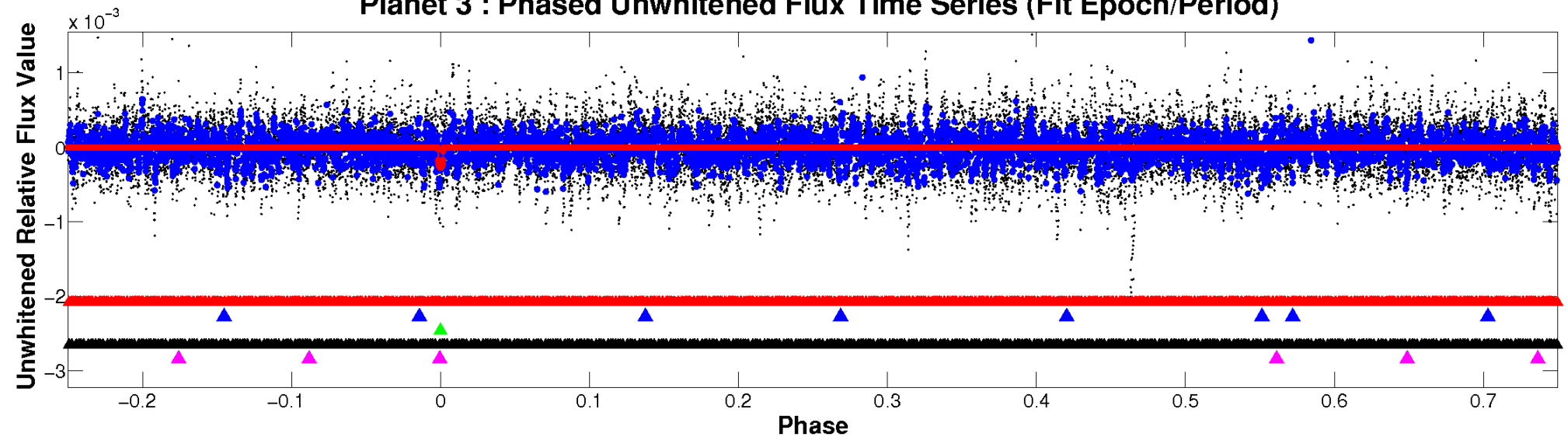
ALT Odd/Even

TCE 008180062-03

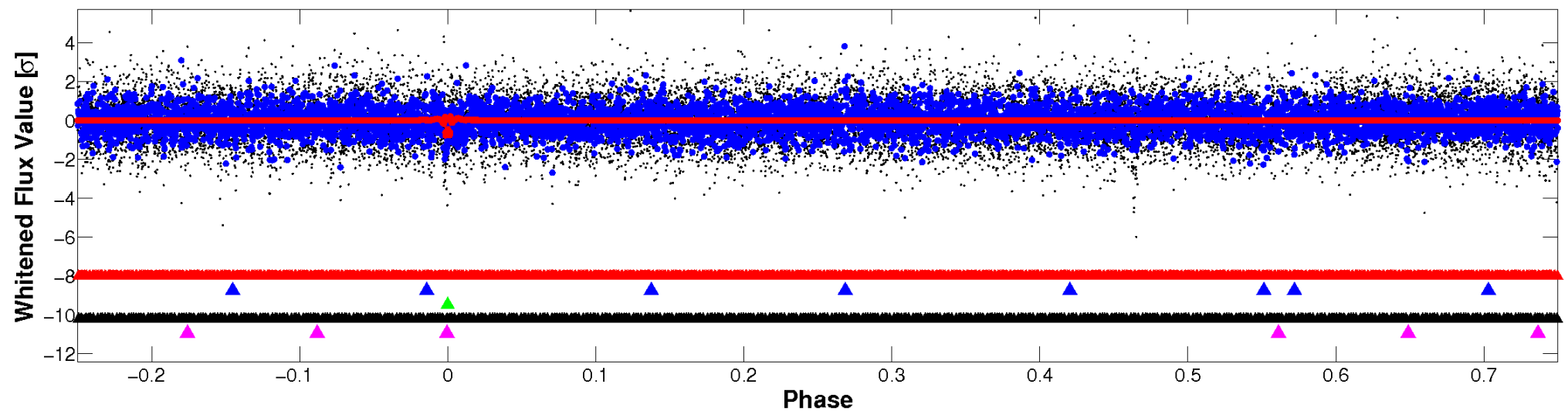


Non-Whitened Vs. Whitened Light Curve

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

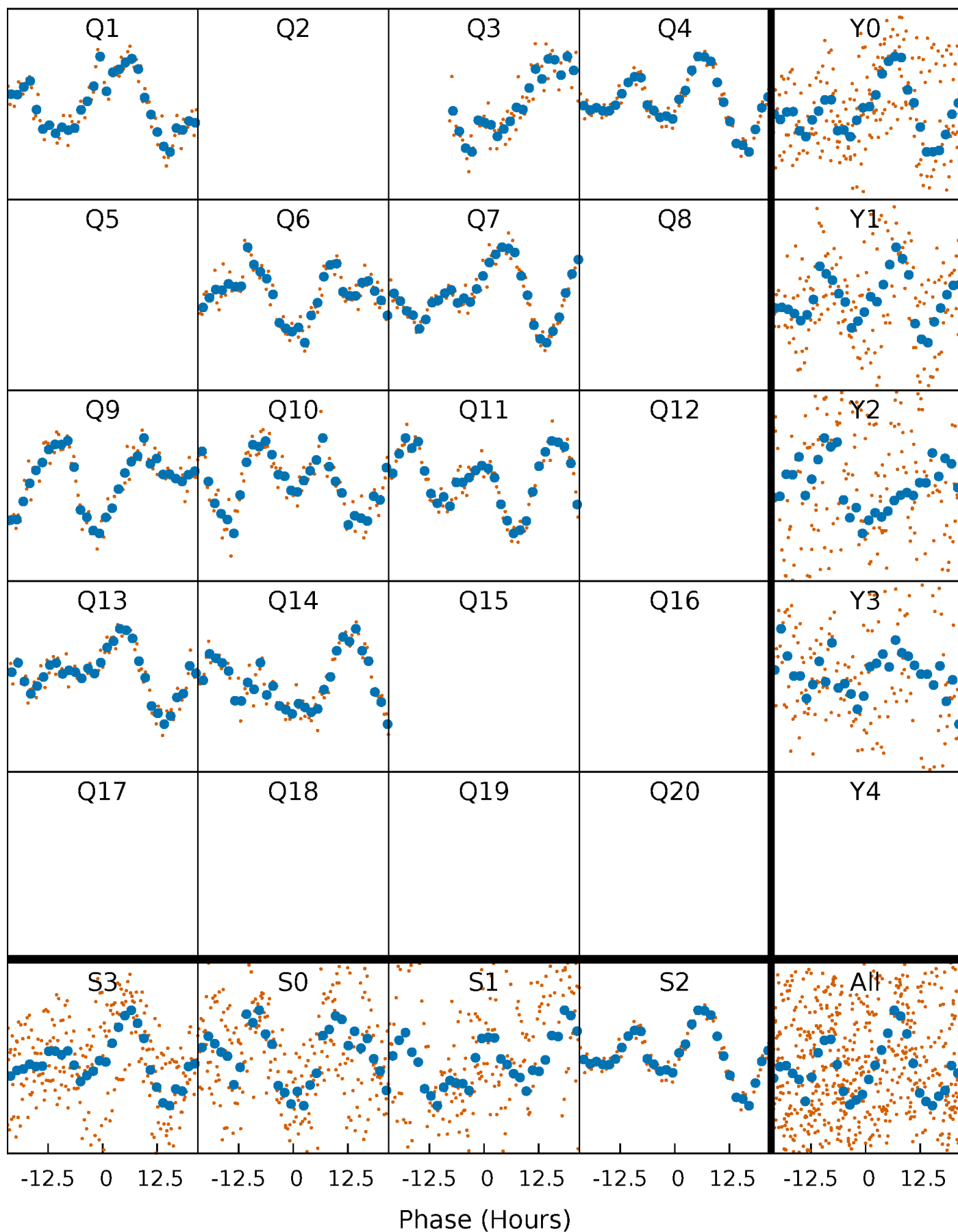


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



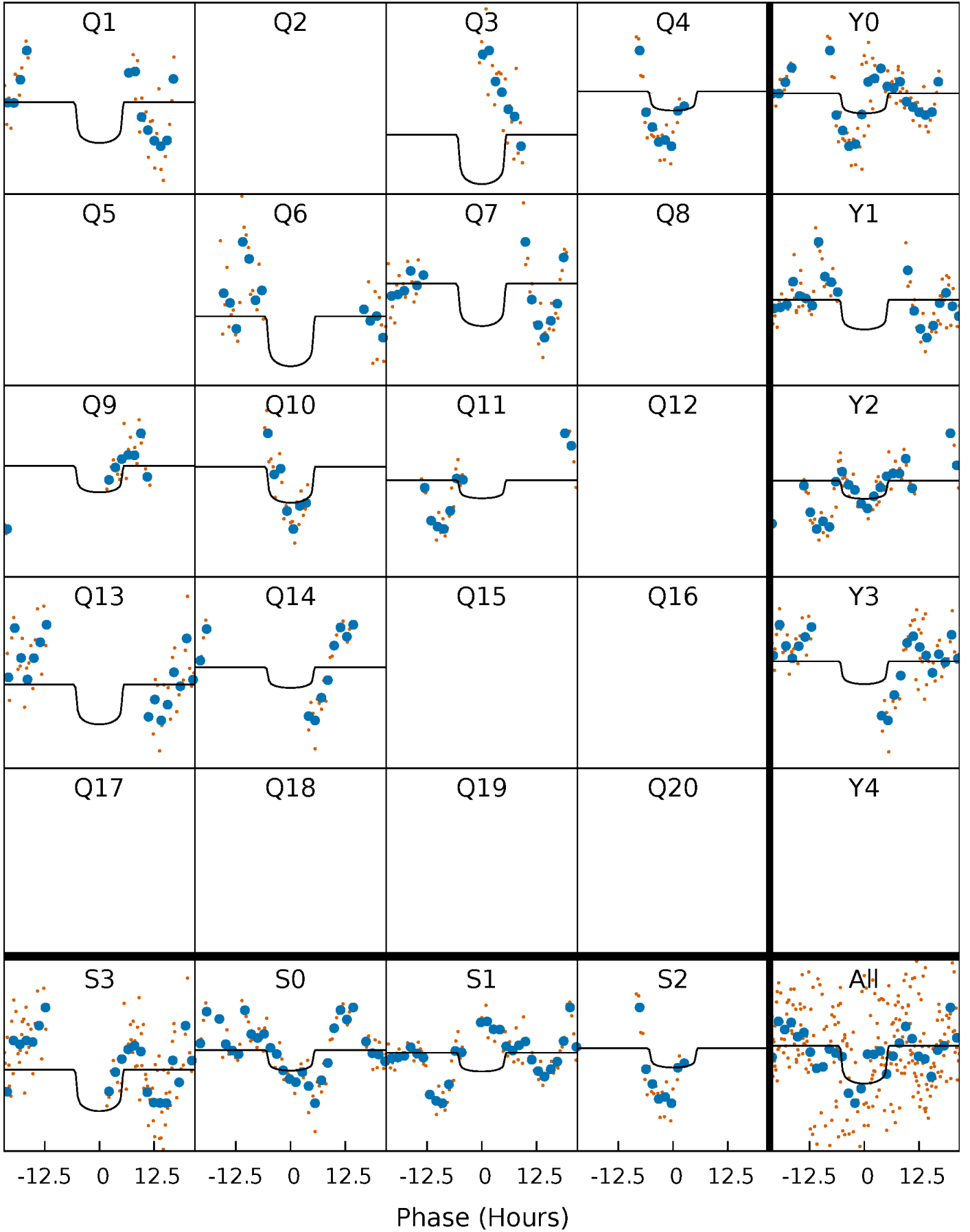
PDC Quarter-Phased Transit Curves

TCE 008180062-03 $P=132.303935$ Days $T_0=159.450199$ (BKJD)



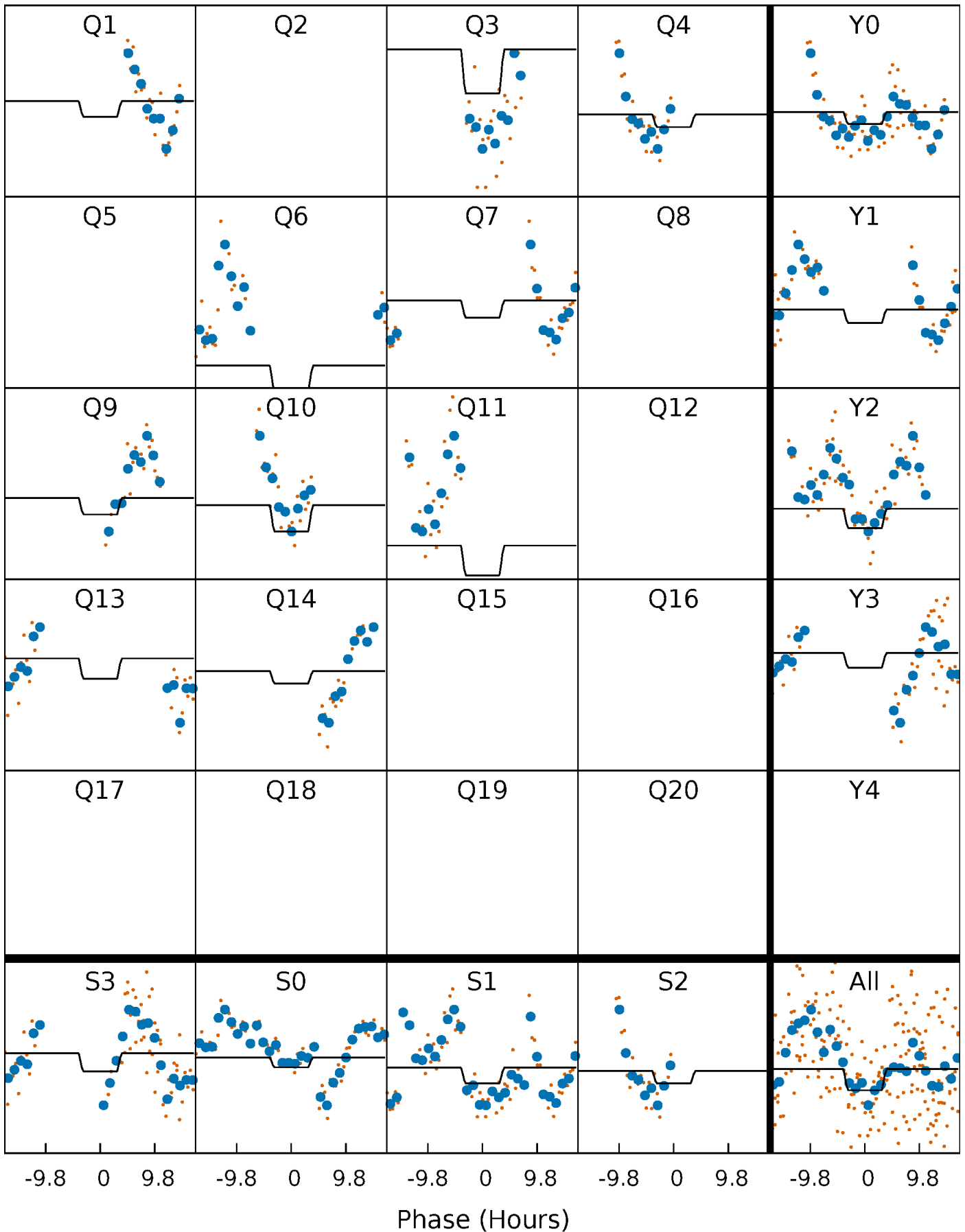
DV Quarter-Phased Transit Curves

TCE 008180062-03 P=132.303935 Days $T_0=159.450199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

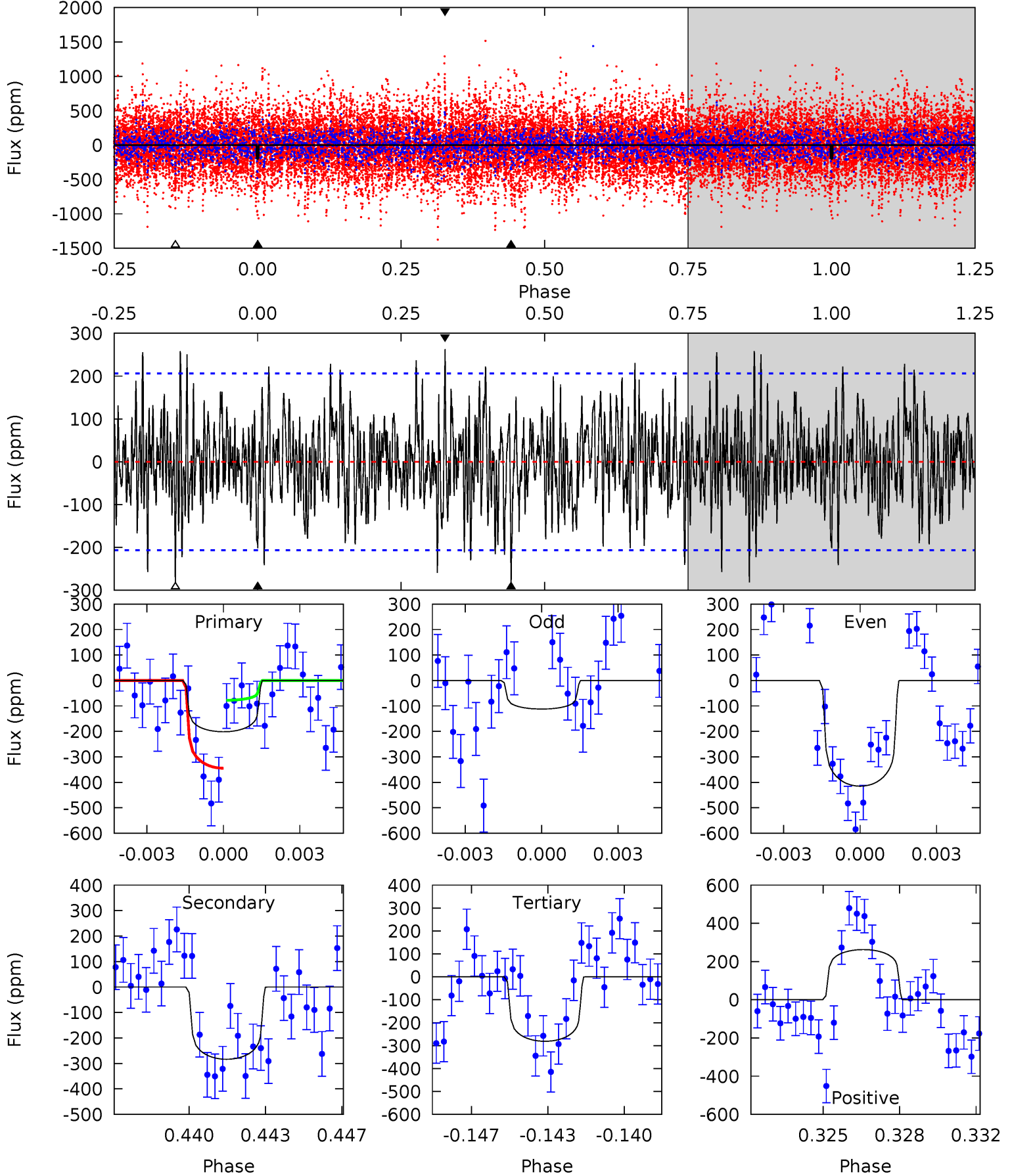
TCE 008180062-03 P=132.286867 Days $T_0=159.565335$ (BKJD)



DV Model-Shift Uniqueness Test

008180062-03, P = 132.303935 Days, E = 27.146264 Days

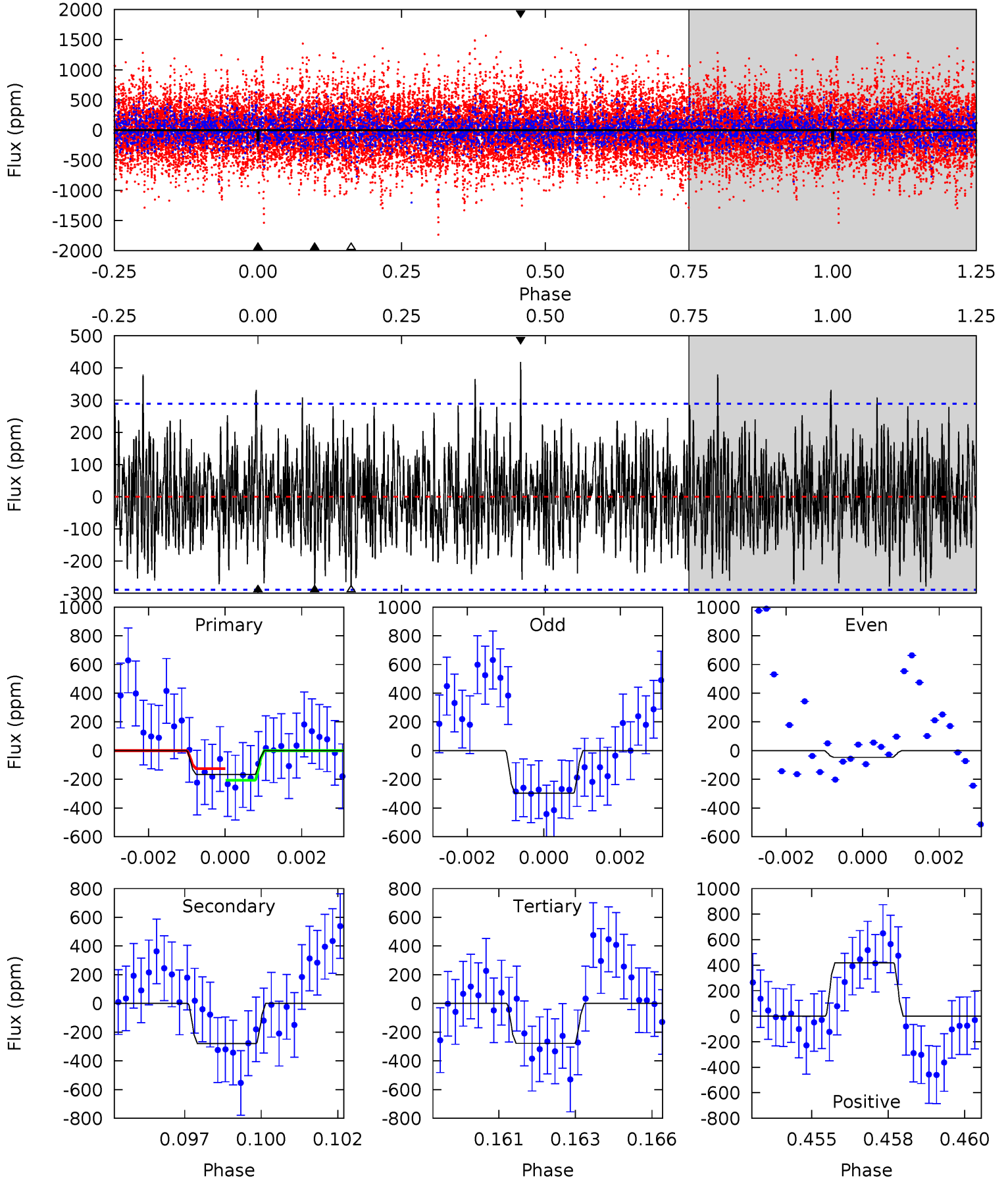
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.10	7.19	7.12	6.65	5.22	2.92	2.10	-2.02	-1.55	0.06	0.53	3.82	1.39	0.48	3.38



Alt Model-Shift Uniqueness Test

008180062-03, P = 132.286867 Days, E = 27.278468 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.05	5.10	5.10	7.66	5.29	3.03	1.92	-2.05	-4.61	0.00	-2.56	2.28	0.93	0.60	0.74



Stellar Parameters For KIC 008180062

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6766^{+188}_{-258}	$4.291^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.326^{+0.420}_{-0.210}$	$1.261^{+0.190}_{-0.209}$	$0.762^{+0.345}_{-0.378}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-16%	+15%/-17%	+45%/-50%
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 008180062-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-284 ± 39	$2.46^{+1.04}_{-0.87}$	660^{+48}_{-35}	6878^{+1961}_{-1105}	7619^{+9836}_{-3918}
Alt.	-278 ± 55	$1.97^{+0.90}_{-0.85}$	658^{+53}_{-38}	7706^{+3534}_{-1465}	11315^{+24154}_{-5955}

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

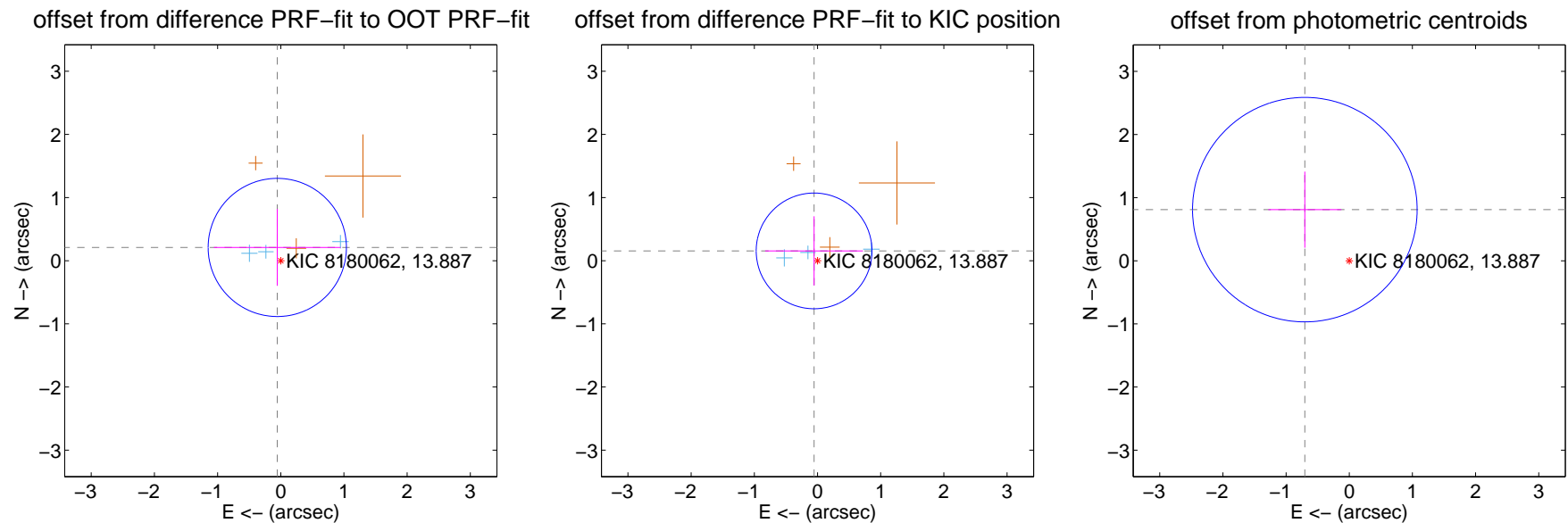
DV Centroid Data

Supplemental centroid analysis for 008180062-03. Kepler magnitude: 13.89. Transit SNR 4.50

There are 3 quarters with good PRF difference image offsets

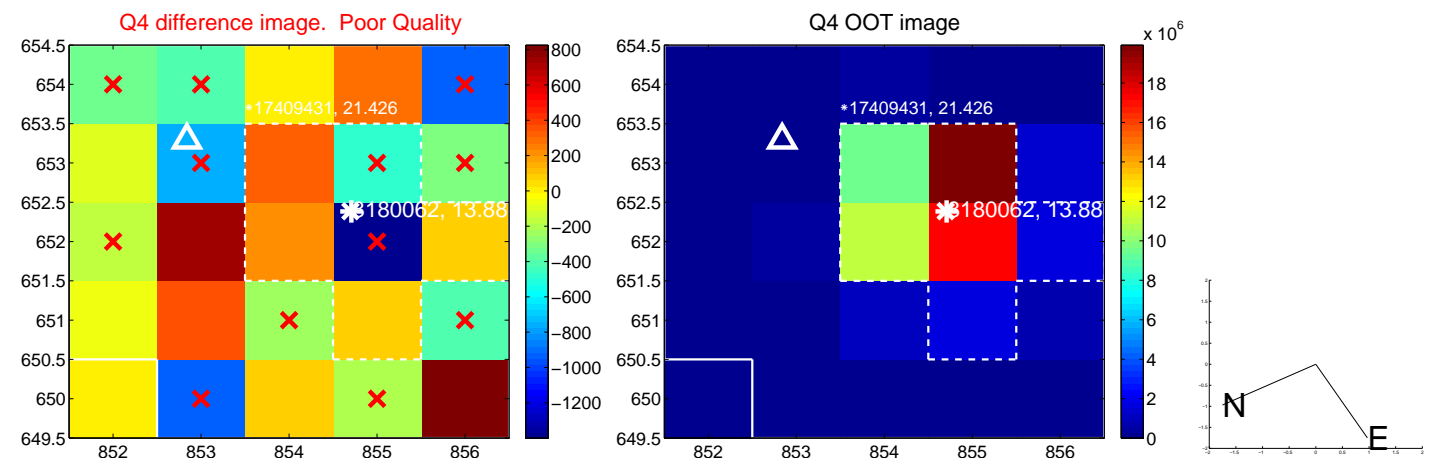
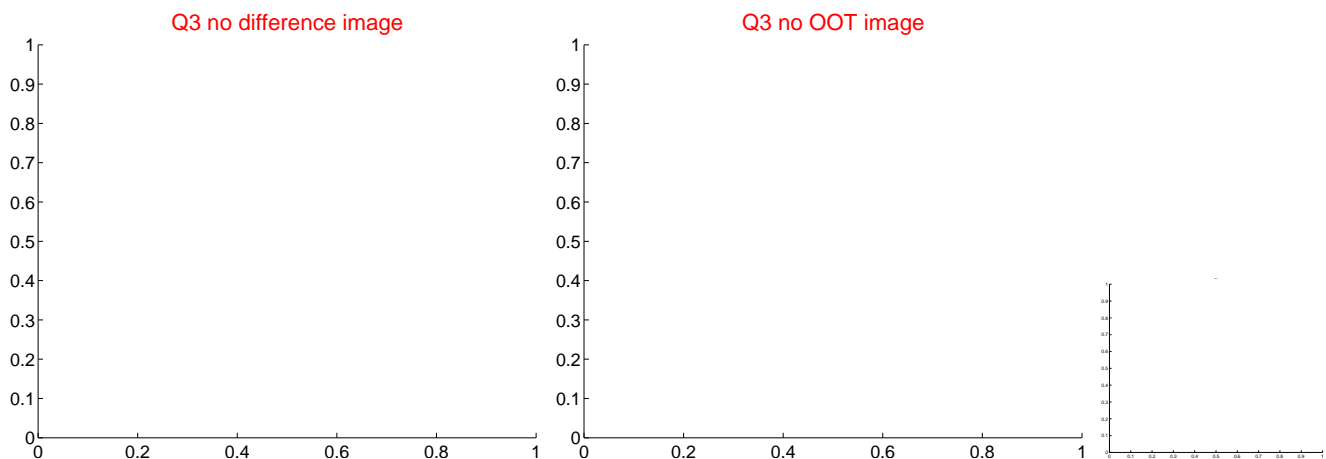
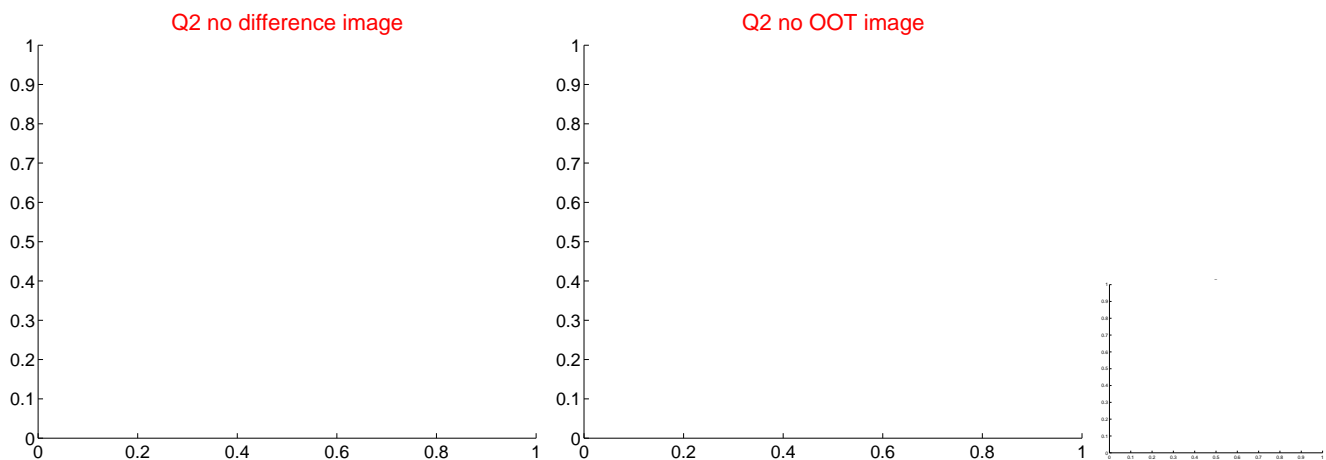
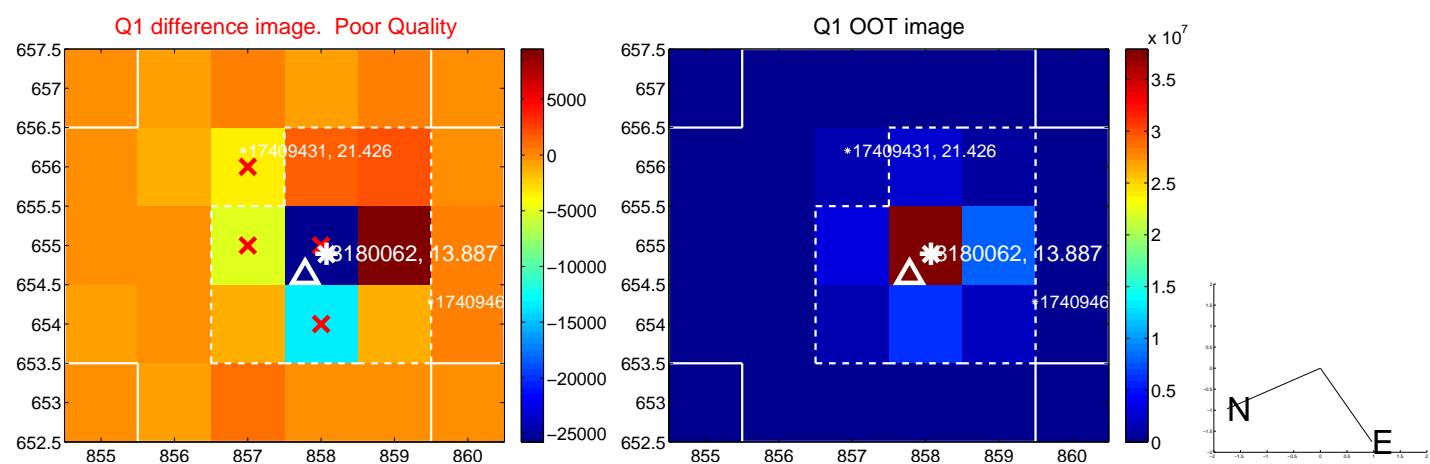
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.217 ± 0.365	0.60	0.055 ± 1.004	0.210 ± 0.608
PRF-fit source offset from KIC position	0.164 ± 0.305	0.54	0.054 ± 0.774	0.155 ± 0.548
photometric centroid source offset	1.07 ± 0.59	1.81	0.70 ± 0.58	0.81 ± 0.60



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.

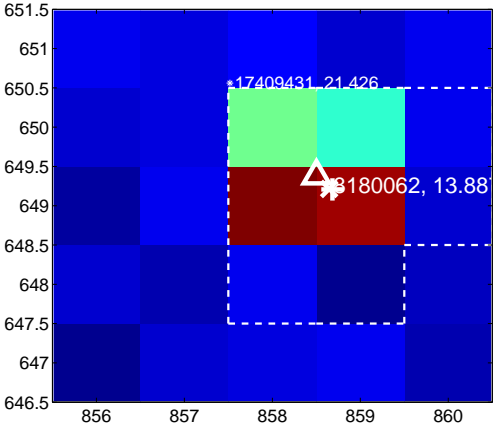
Q5 no difference image



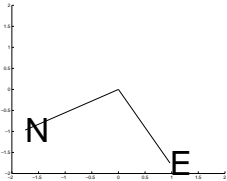
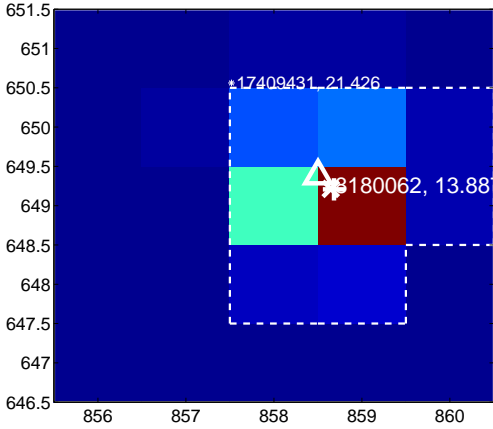
Q5 no OOT image



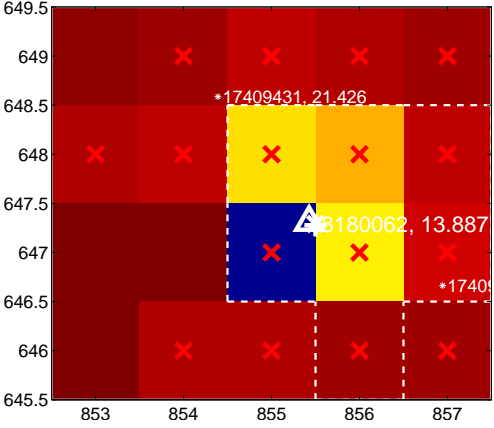
Q6 difference image



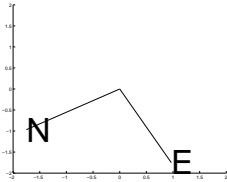
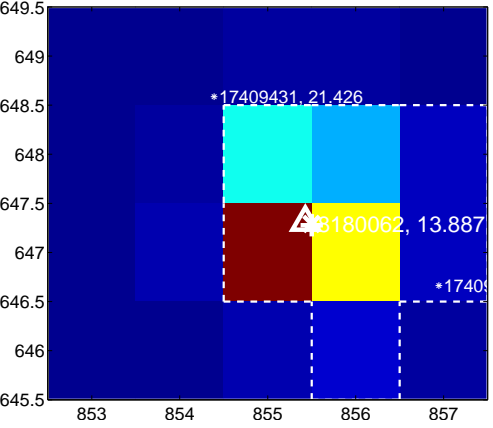
Q6 OOT image



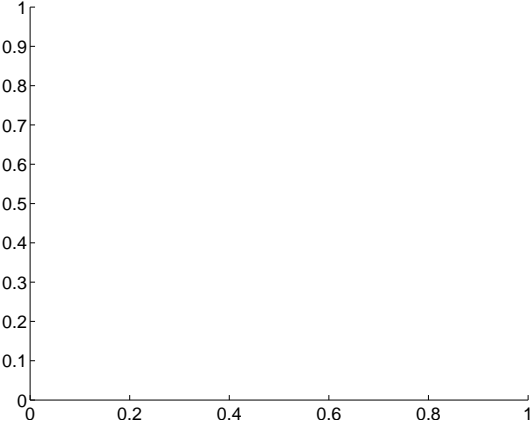
Q7 difference image. Poor Quality



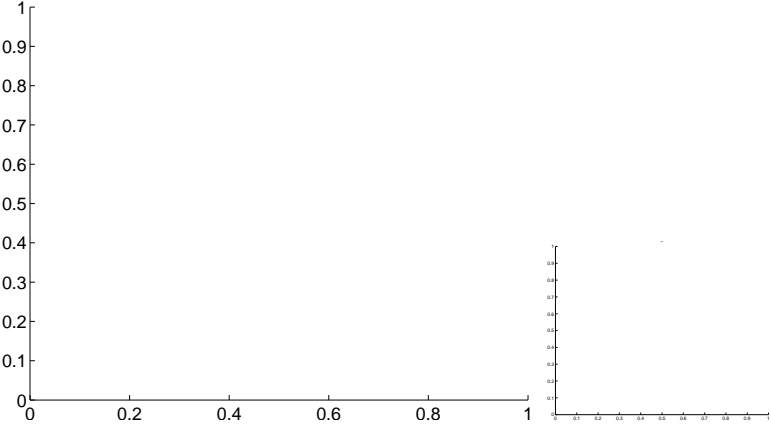
Q7 OOT image



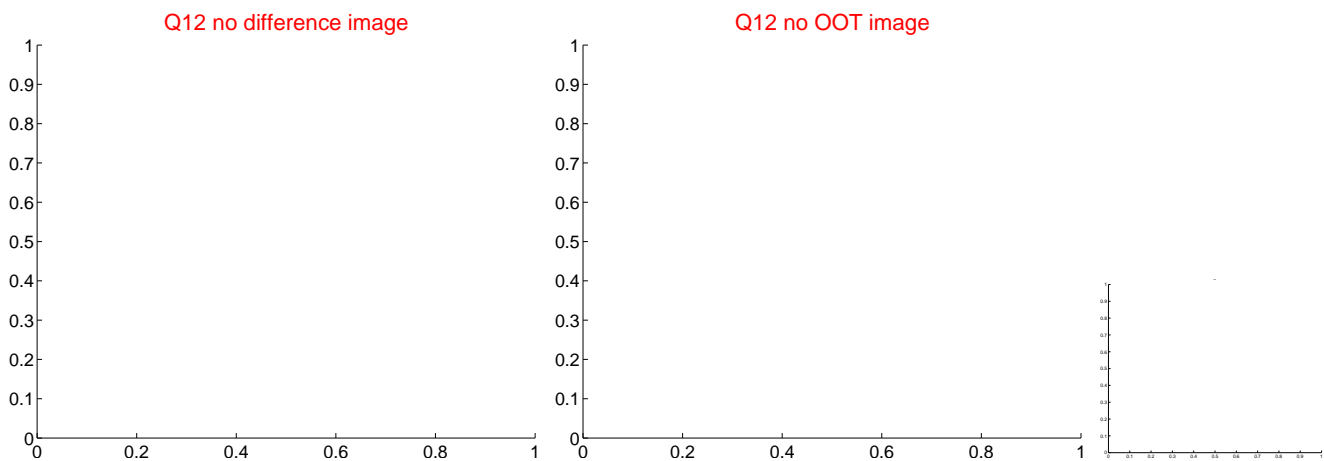
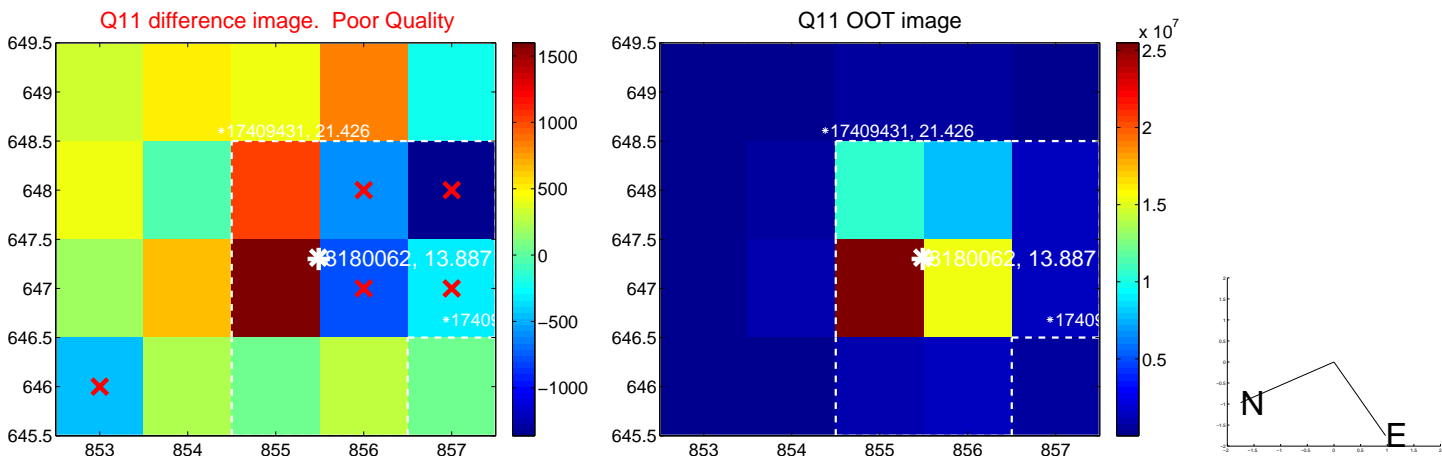
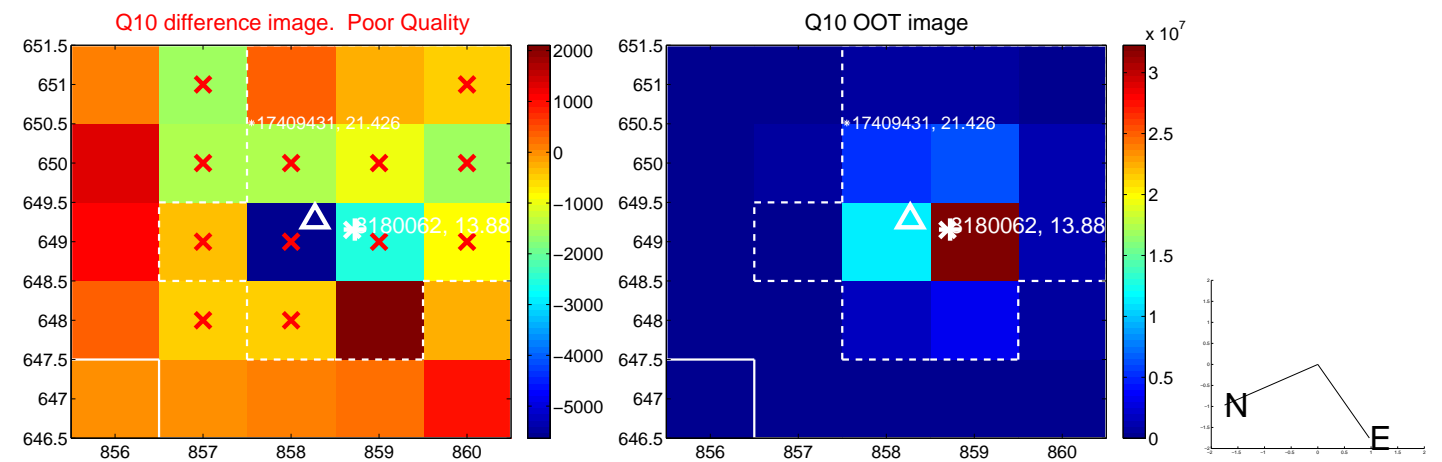
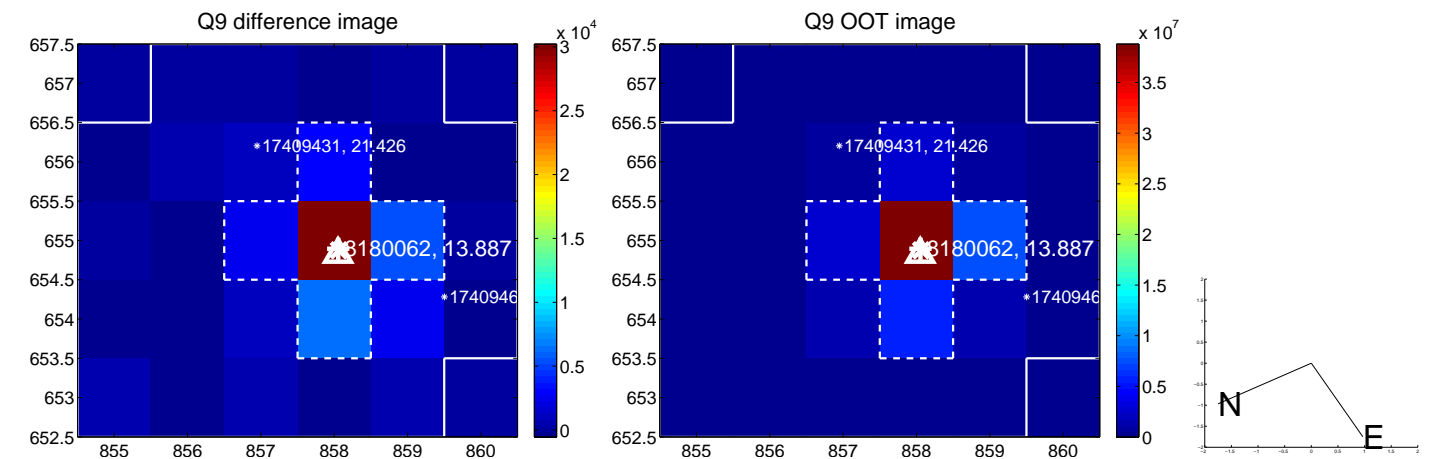
Q8 no difference image



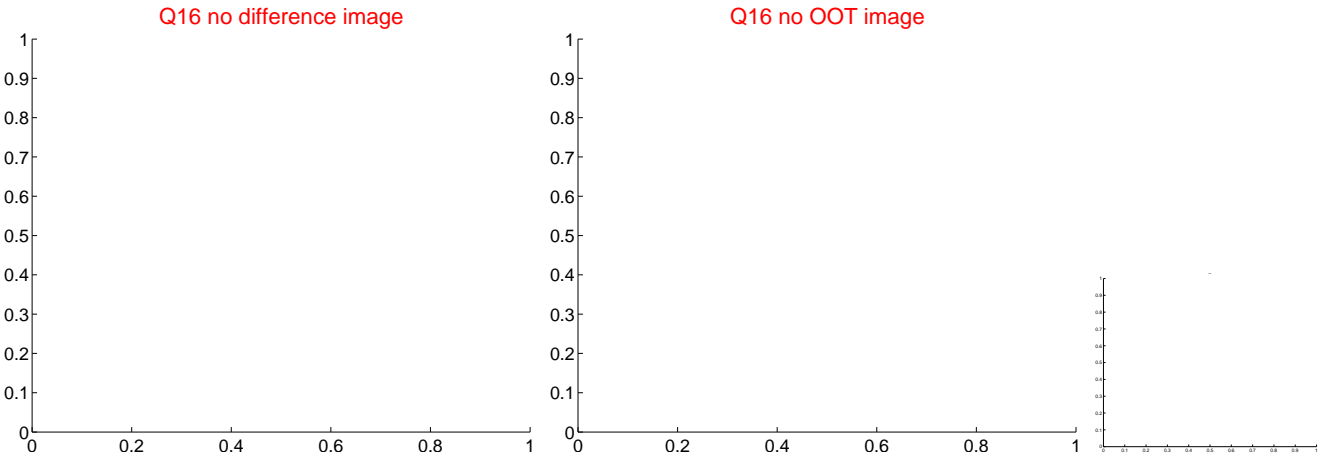
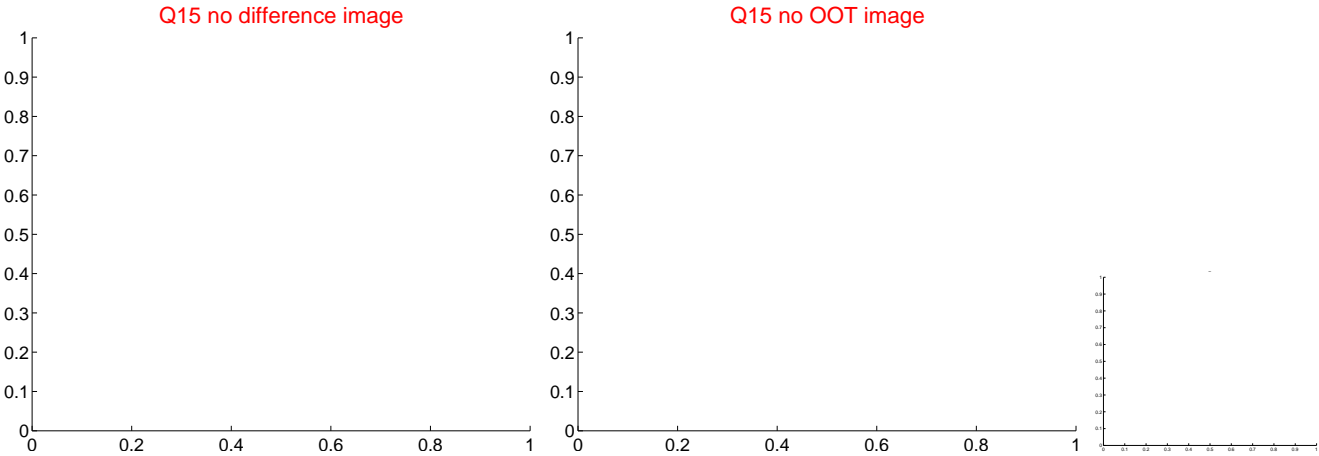
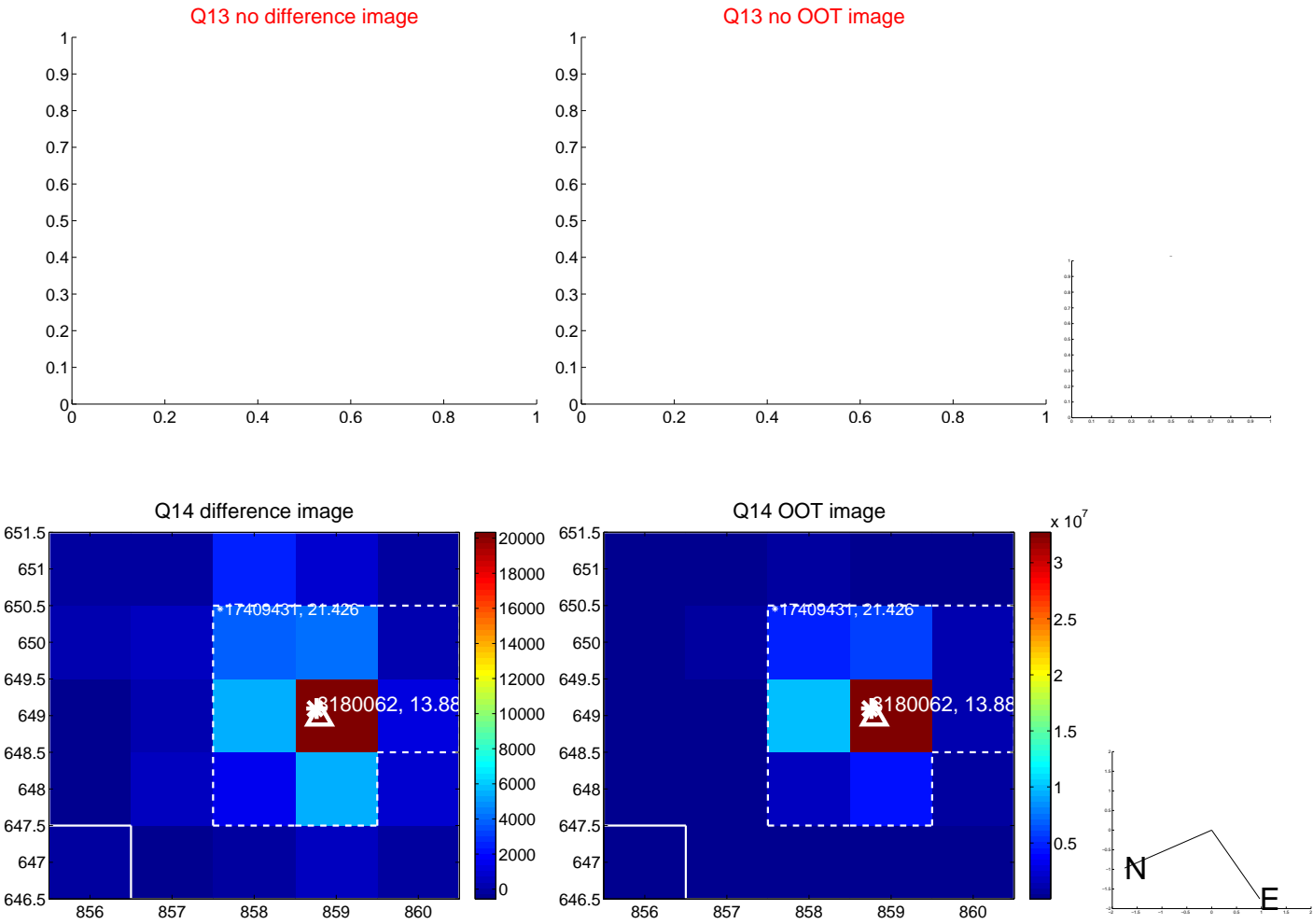
Q8 no OOT image



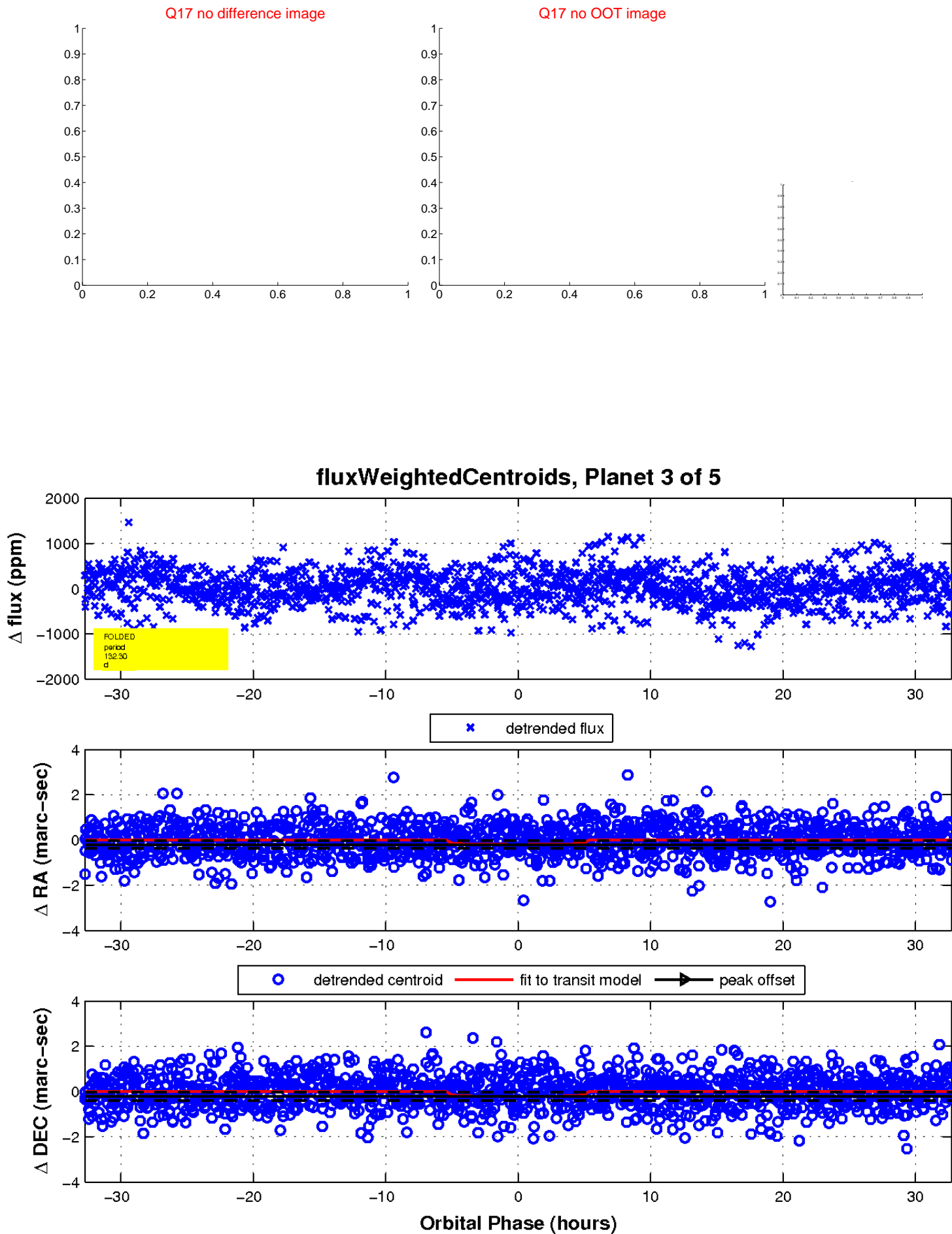
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

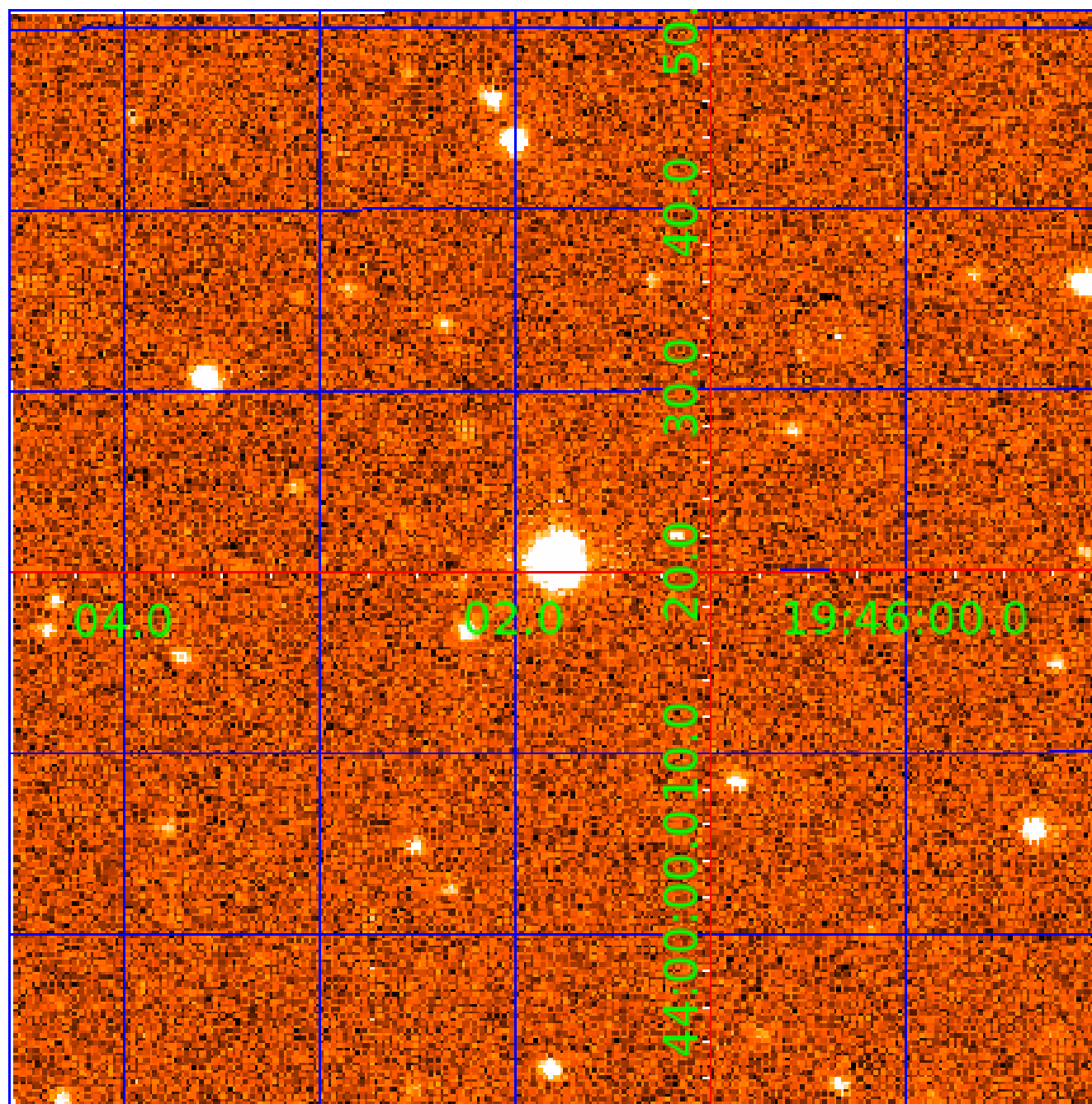


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008180062

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})
008180062-01	OBS	No	1.389267	132.868815	25.3	7.426	7.5	6.4	1.33	6766	0.68	4781.20
008180062-02	OBS	No	169.714640	235.131431	725.7	7.673	16.6	8.4	1.33	6766	4.48	7.89
008180062-03	OBS	No	132.303935	159.450199	268.5	10.923	18.4	4.5	1.33	6766	2.40	10.99
008180062-04	OBS	No	2.778475	133.564835	53.8	6.938	9.5	9.4	1.33	6766	1.13	1897.47
008180062-05	OBS	No	253.010985	159.387102	400.4	8.975	14.0	6.5	1.33	6766	2.83	4.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008180062-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008180062-02	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
008180062-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
008180062-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008180062-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

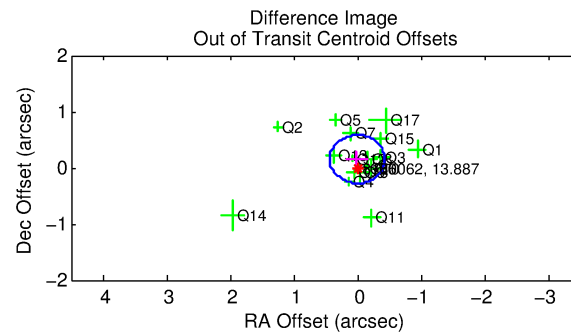
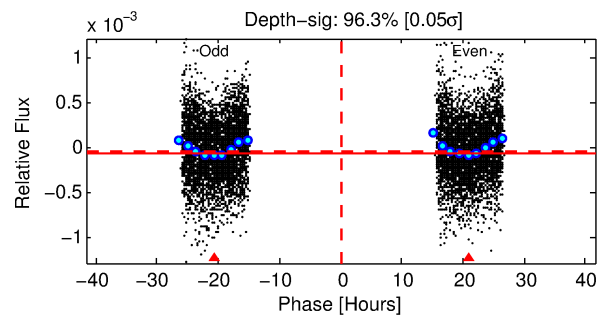
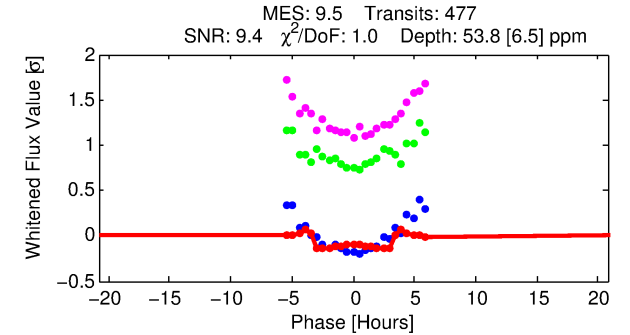
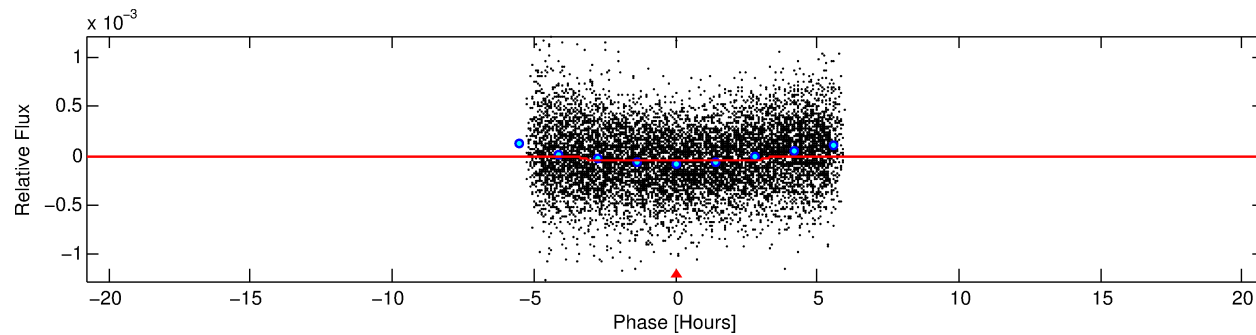
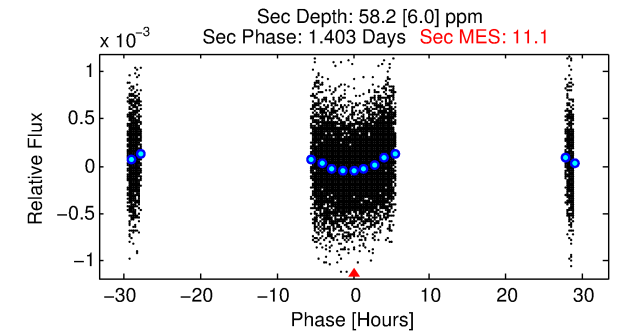
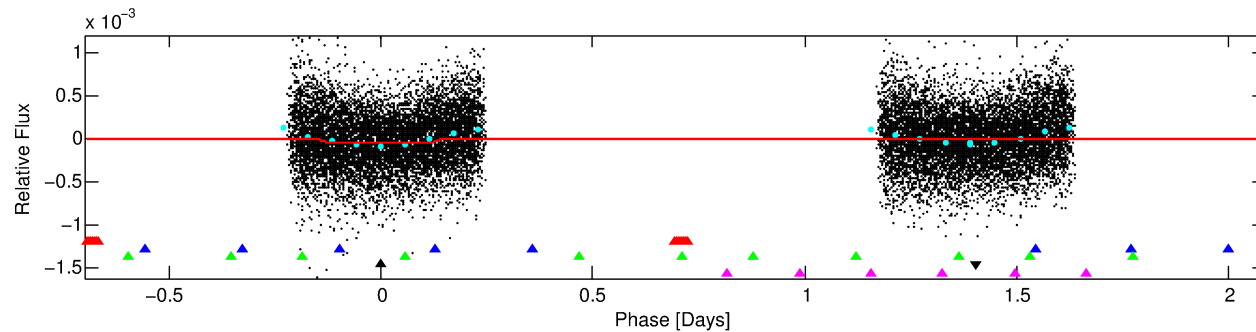
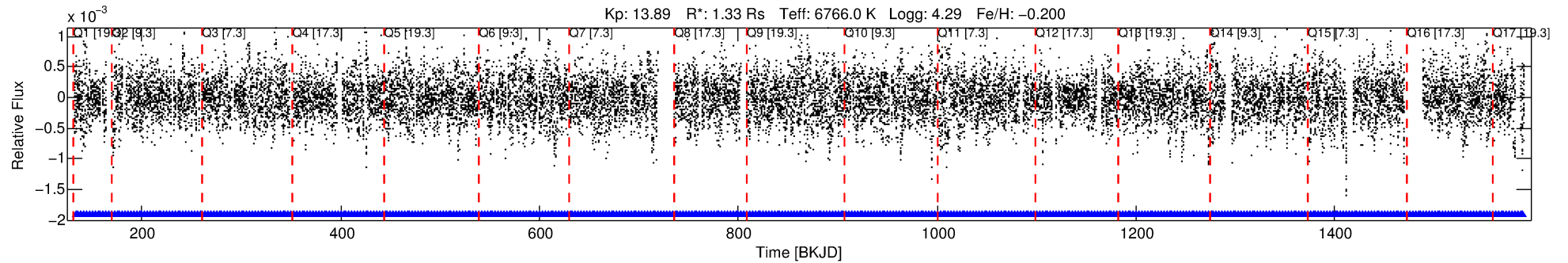
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008180062-04

No Significant Match Found

DV One-Page Summary

KIC: 8180062 Candidate: 4 of 5 Period: 2.778 d



DV Fit Results:

Period = 2.77848 [0.00002] d
Epoch = 133.5648 [0.0042] BKJD
Rp/R* = 0.0078 [0.0014]
a/R* = 1.68 [1.07]
b = 0.90 [0.21]
Seff = 1897.47 [770.66]
Teff = 1683 [171] K
Rp = 1.13 [0.41] Re
a = 0.0417 [0.0109] AU
Ag = 43.46 [23.04] [1.84σ]
Teffp = 6681 [673] K [7.19σ]

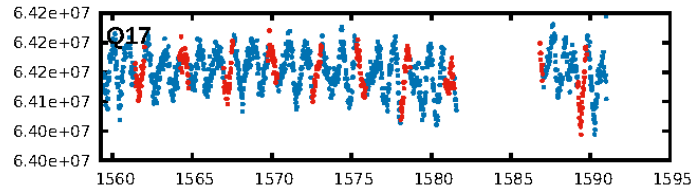
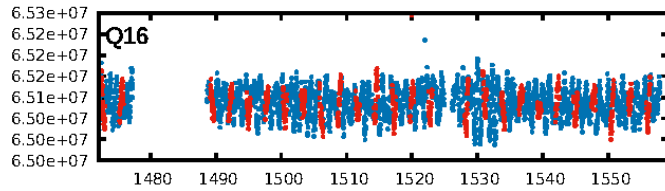
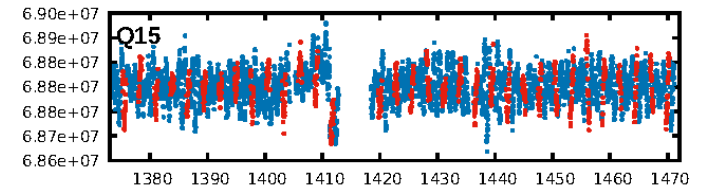
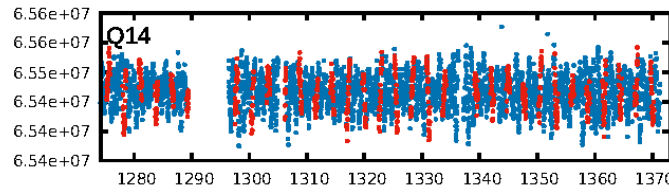
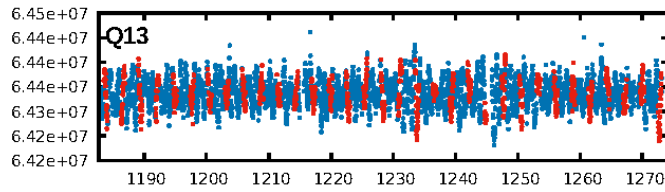
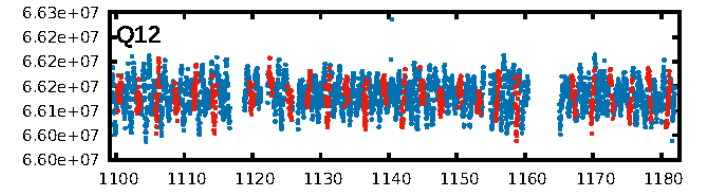
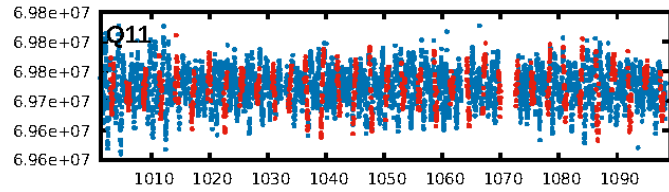
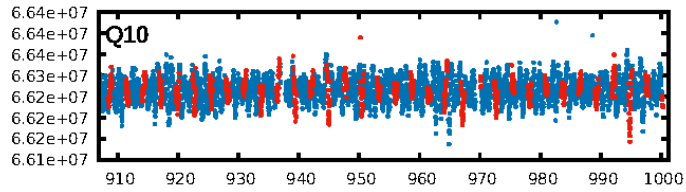
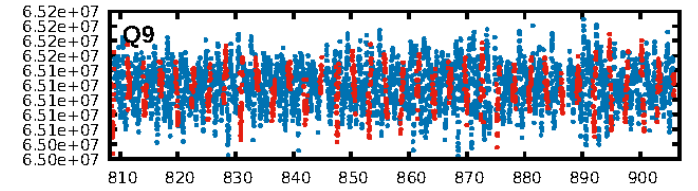
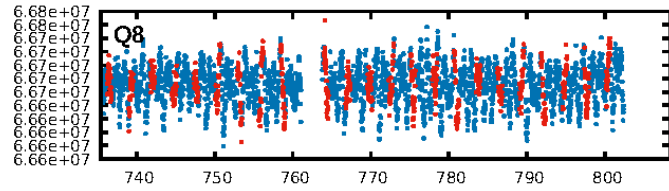
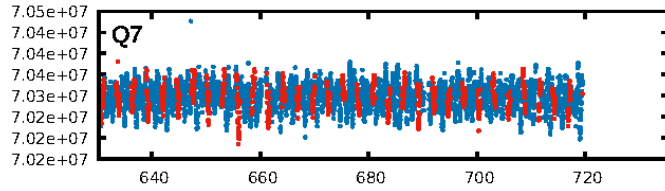
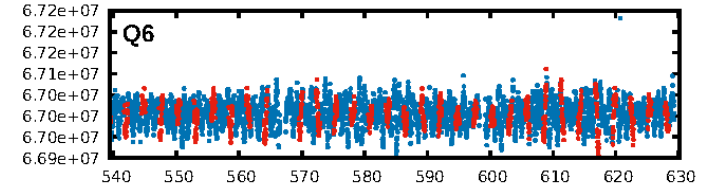
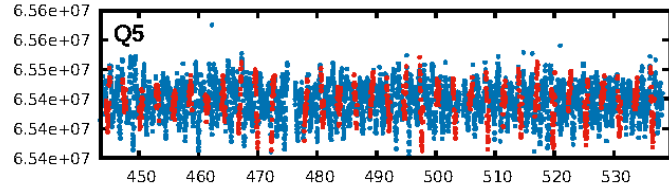
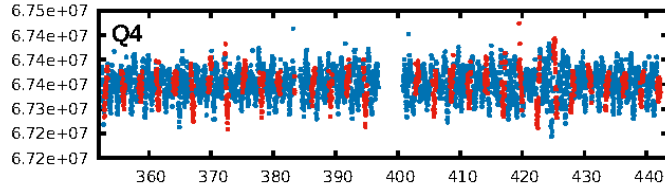
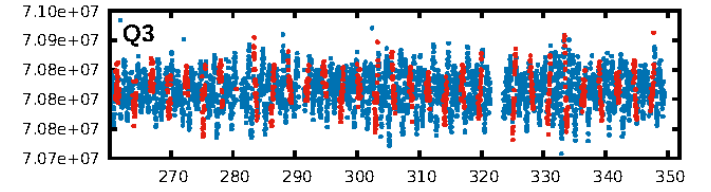
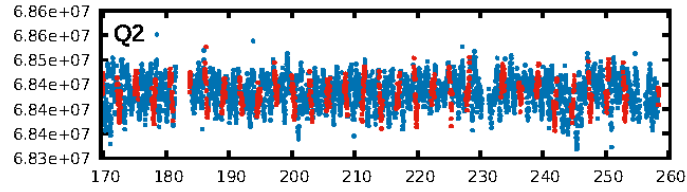
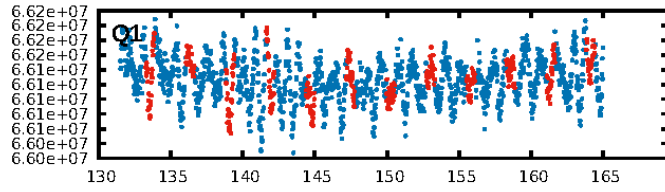
DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.28σ]
LongPeriod-sig: 100.0% [240.23σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.43e-15
RollingBand-fgt: 1.00 [455/455]
GhostDiagnostic-chr: 3.02
Centroid-sig: 71.4%
Centroid-so: 0.307 arcsec [0.60σ]
OotOffset-rm: 0.150 arcsec [1.05σ]
KicOffset-rm: 0.115 arcsec [0.86σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

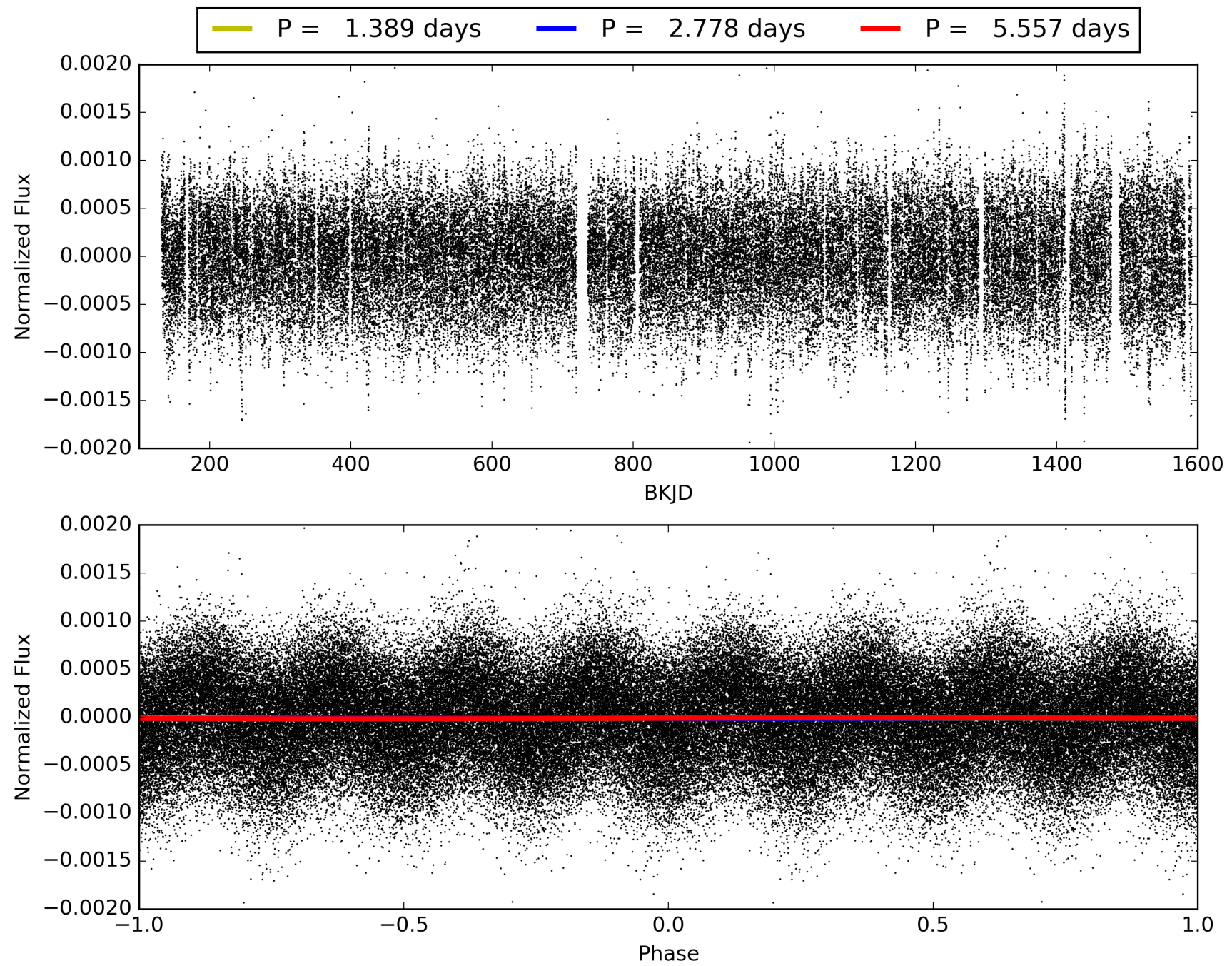
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:29:49 Z

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

TCE 008180062-04, PDC Light Curves

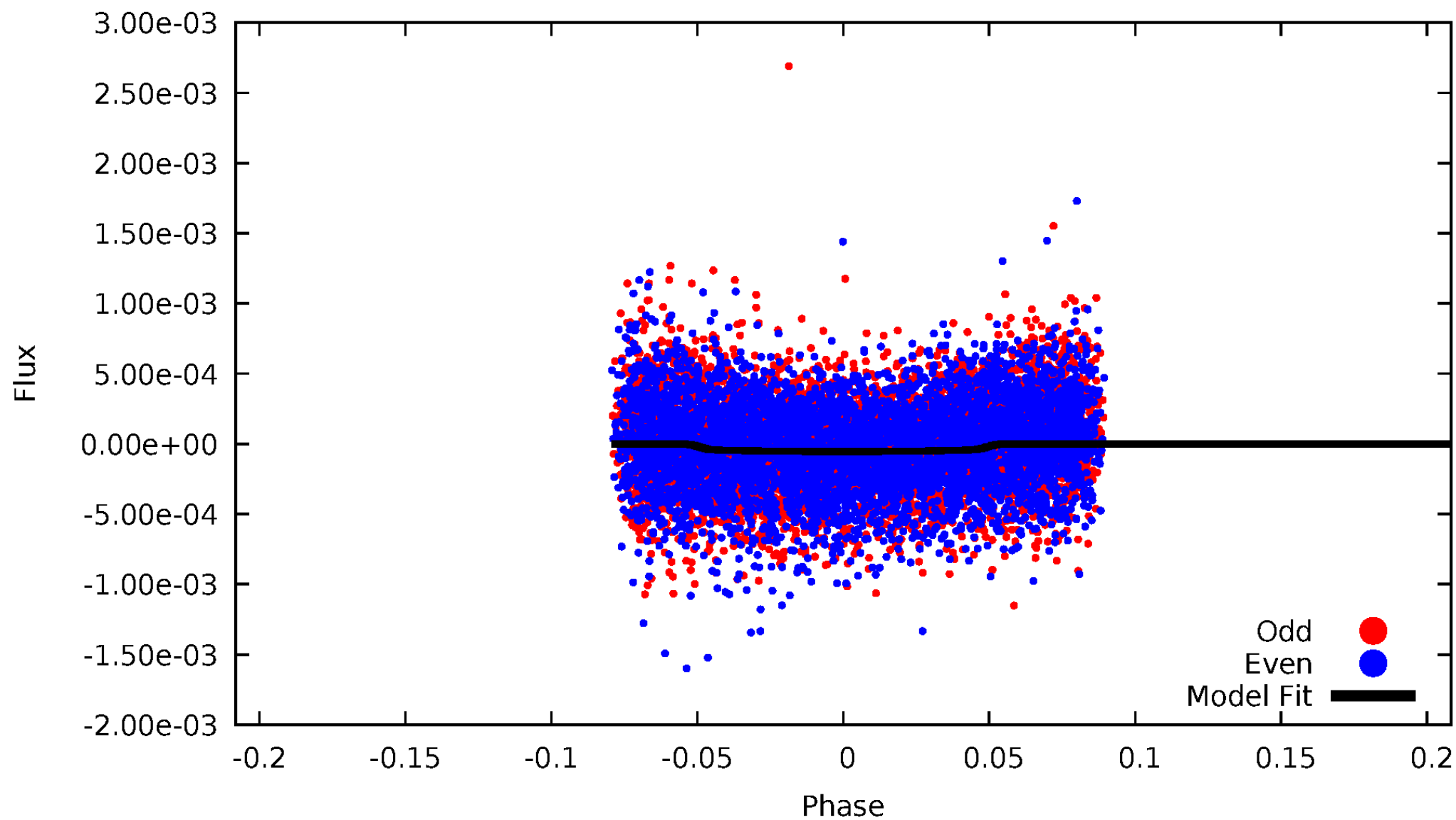


TCE 008180062-04



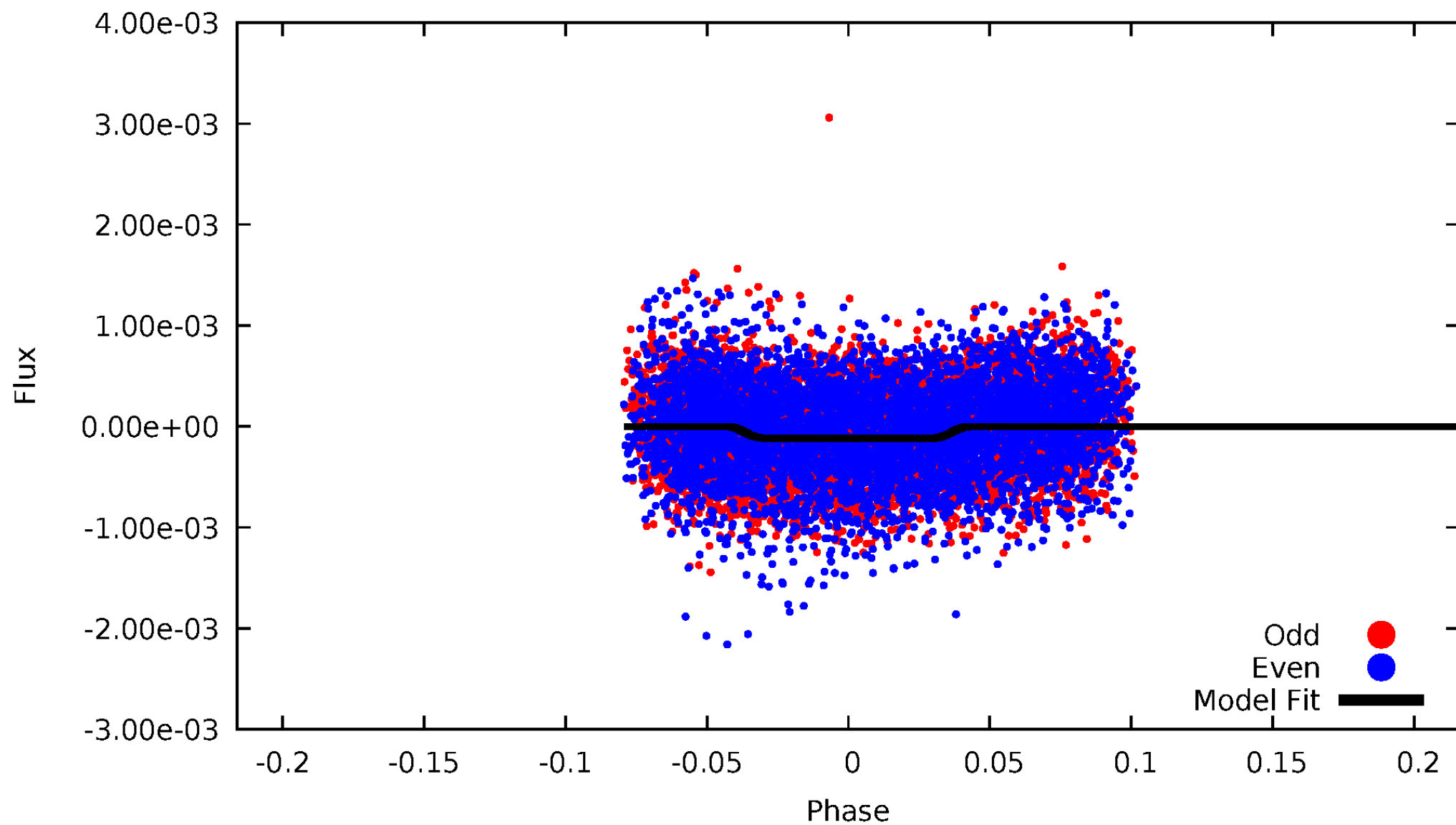
DV Odd/Even

TCE 008180062-04



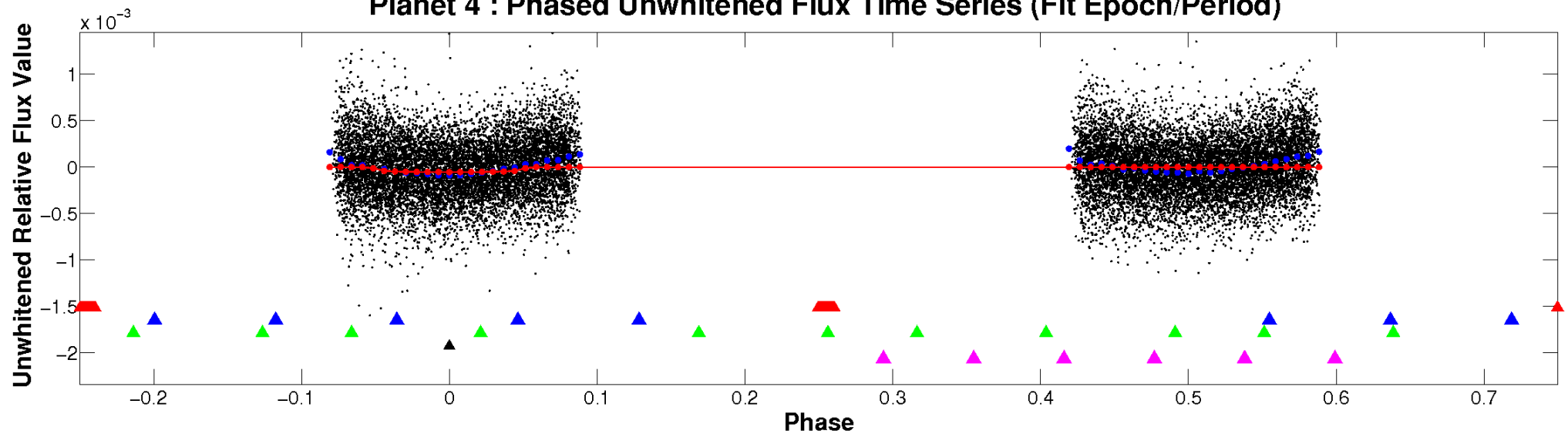
ALT Odd/Even

TCE 008180062-04

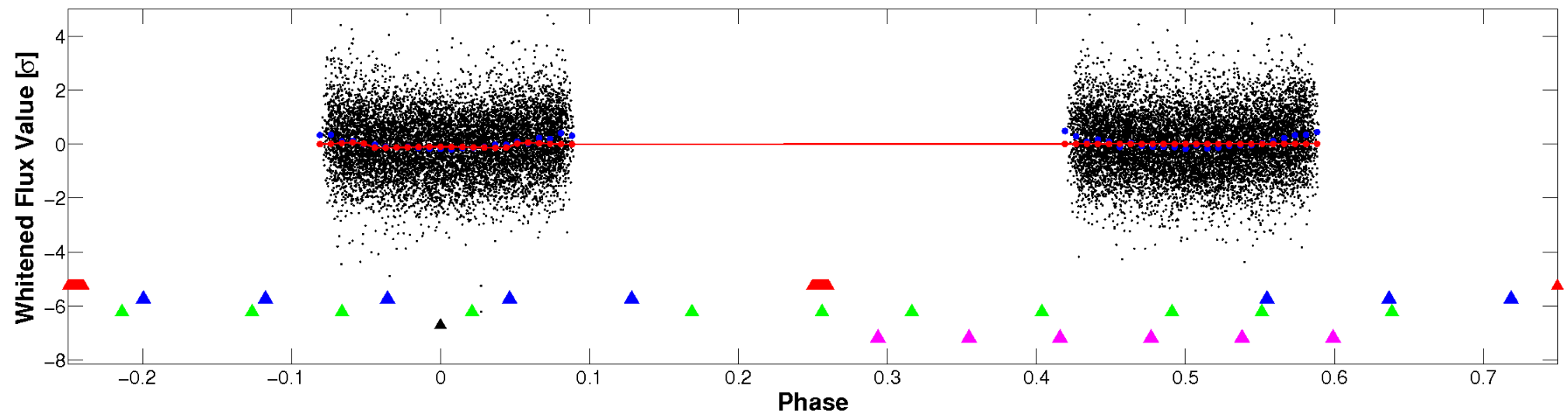


Non-Whitened Vs. Whitened Light Curve

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

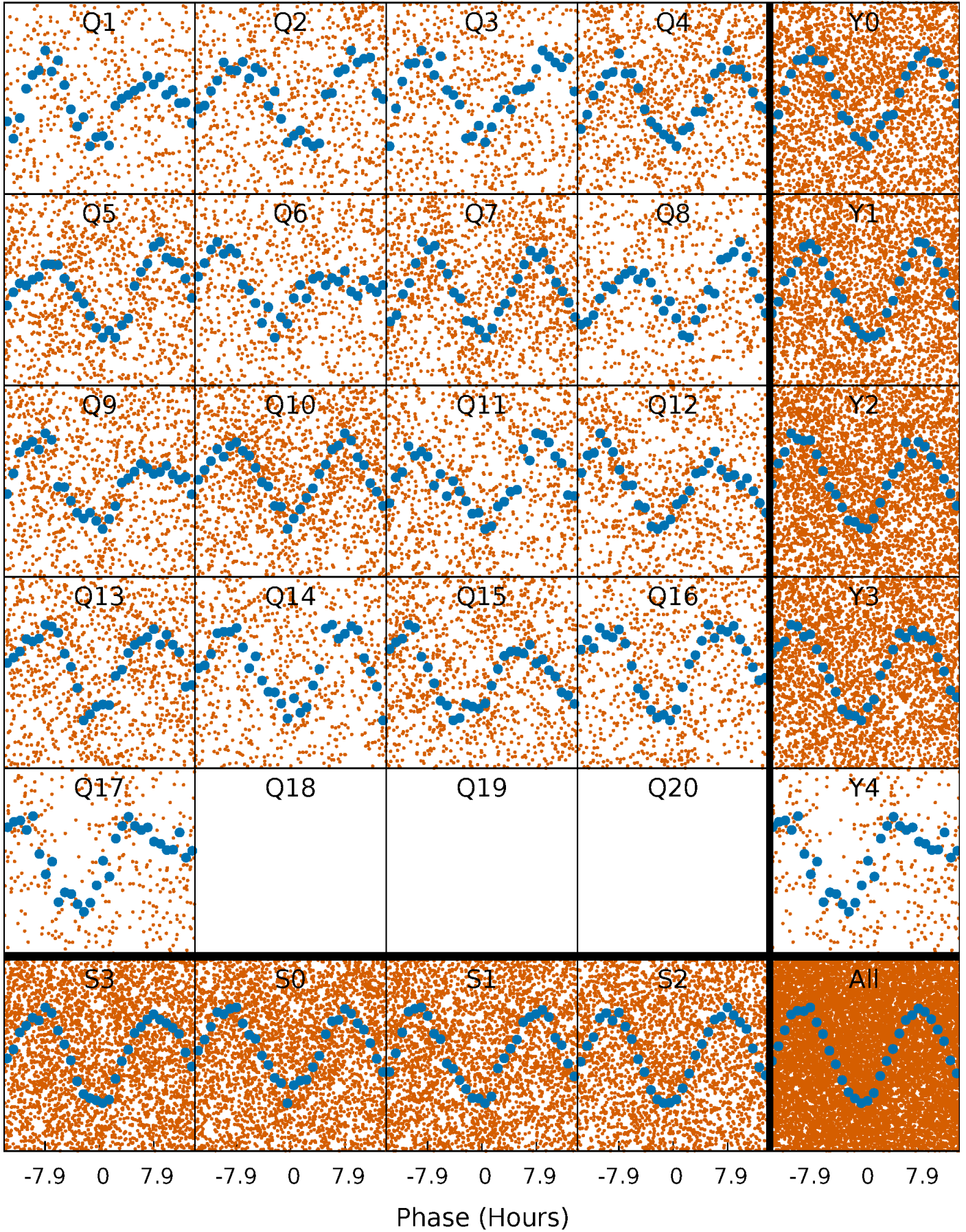


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



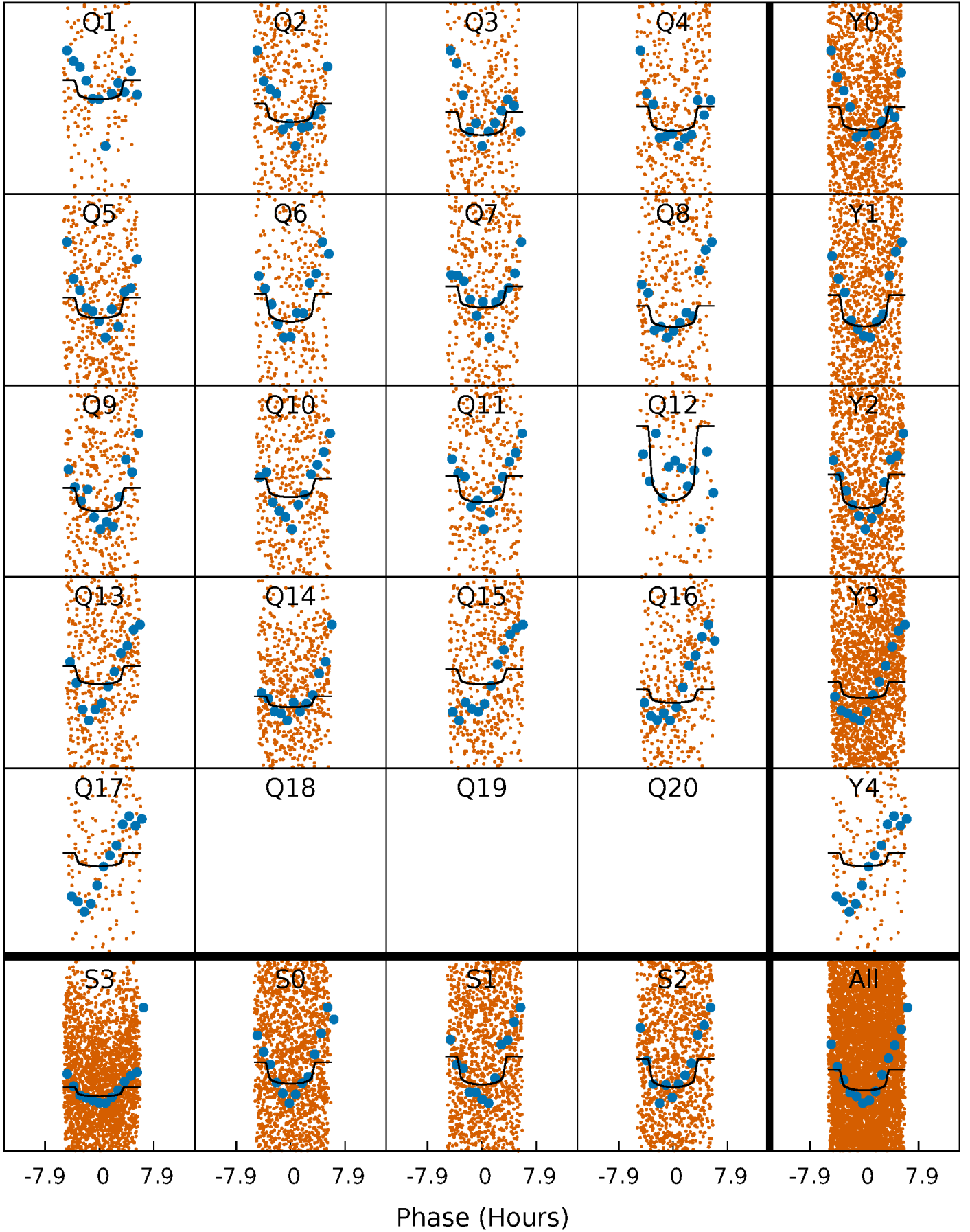
PDC Quarter-Phased Transit Curves

TCE 008180062-04 P= 2.778475 Days $T_0=133.564835$ (BKJD)



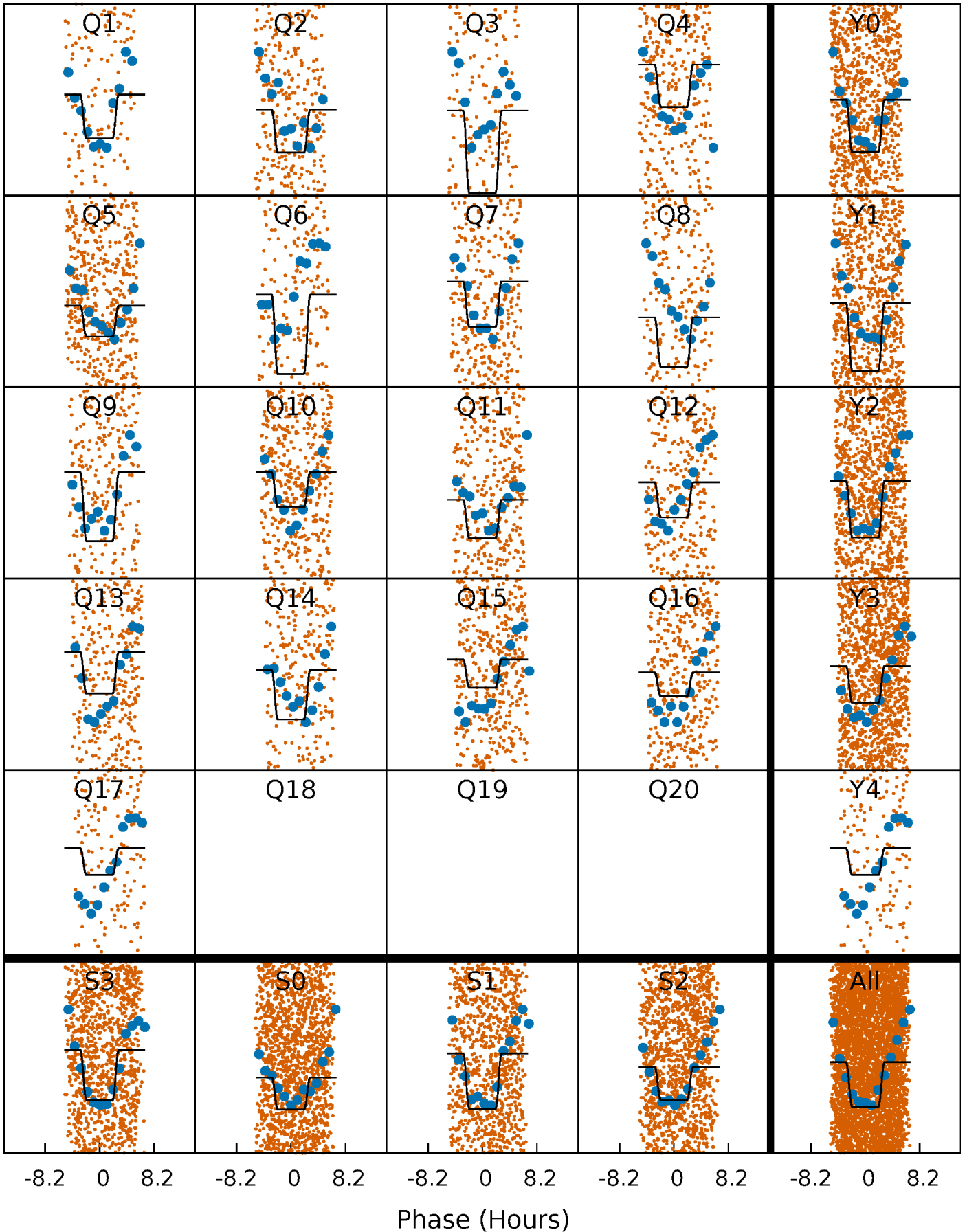
DV Quarter-Phased Transit Curves

TCE 008180062-04 $P = 2.778475$ Days $T_0 = 133.564835$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

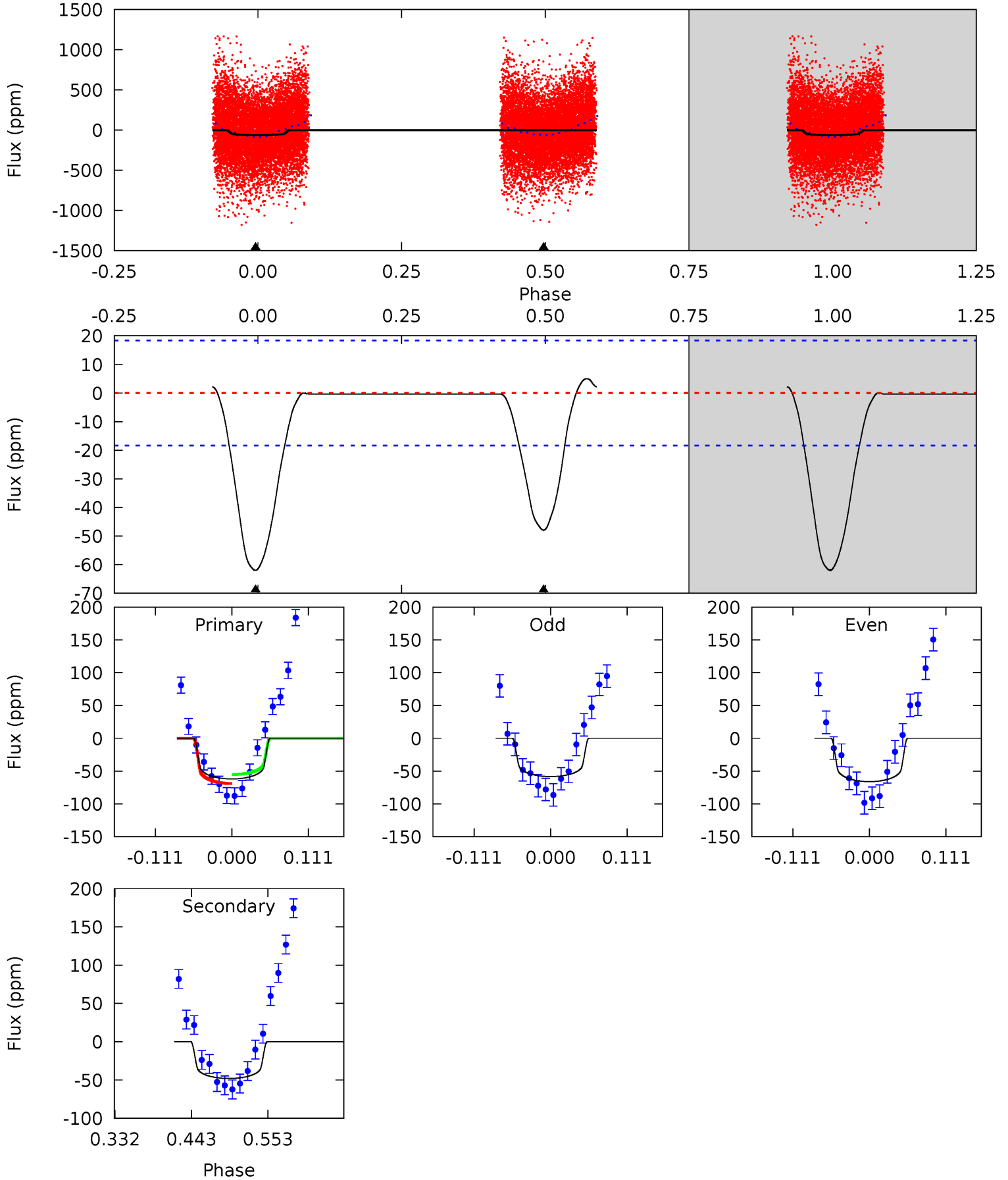
TCE 008180062-04 P= 2.778405 Days $T_0=133.566721$ (BKJD)



DV Model-Shift Uniqueness Test

008180062-04, P = 2.778475 Days, E = 130.786360 Days

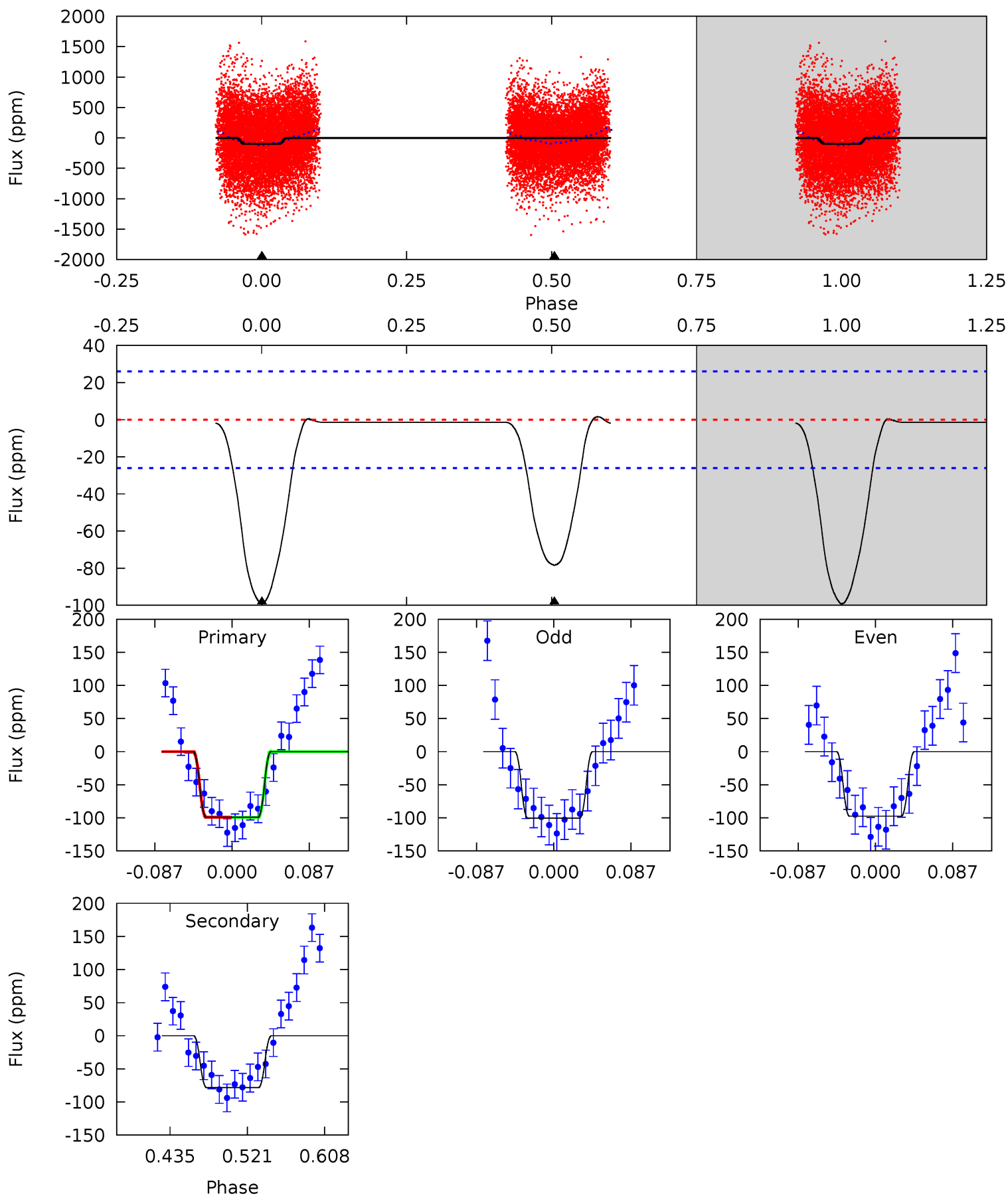
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	11.9	0	0	4.54	1.60	0.64	15.3	15.3	11.9	11.9	0.95	1.10	0.07	1.68



Alt Model-Shift Uniqueness Test

008180062-04, P = 2.778405 Days, E = 130.788316 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	13.8	0	0	4.59	1.71	0.20	17.5	17.5	13.8	13.8	0.25	1.24	0.02	0.03



Stellar Parameters For KIC 008180062

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6766^{+188}_{-258}	$4.291^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.326^{+0.420}_{-0.210}$	$1.261^{+0.190}_{-0.209}$	$0.762^{+0.345}_{-0.378}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-16%	+15%/-17%	+45%/-50%
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 008180062-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-48 ± 4	$1.16^{+0.30}_{-0.24}$	2387^{+191}_{-145}	6326^{+797}_{-555}	34^{+19}_{-12}
Alt.	-78 ± 6	$1.60^{+0.35}_{-0.26}$	2393^{+165}_{-136}	6041^{+590}_{-362}	28^{+12}_{-8}

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 $A_{obs} \gg 1.0$

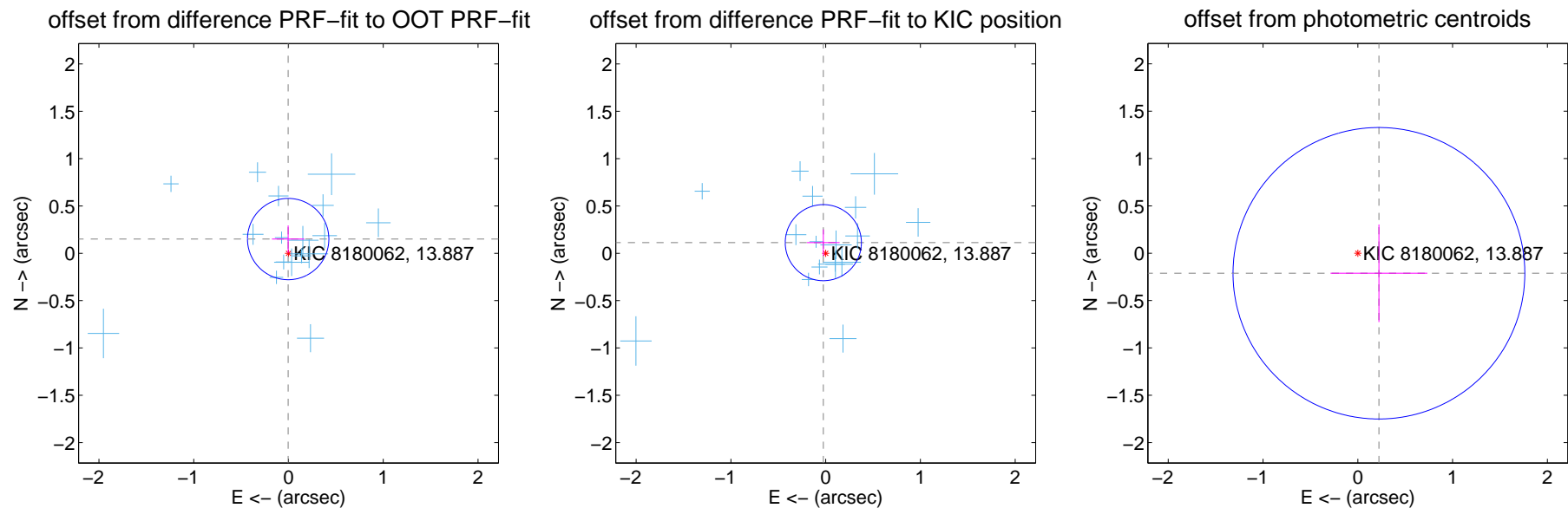
DV Centroid Data

Supplemental centroid analysis for 008180062-04. Kepler magnitude: 13.89. Transit SNR 9.44

There are 17 quarters with good PRF difference image offsets

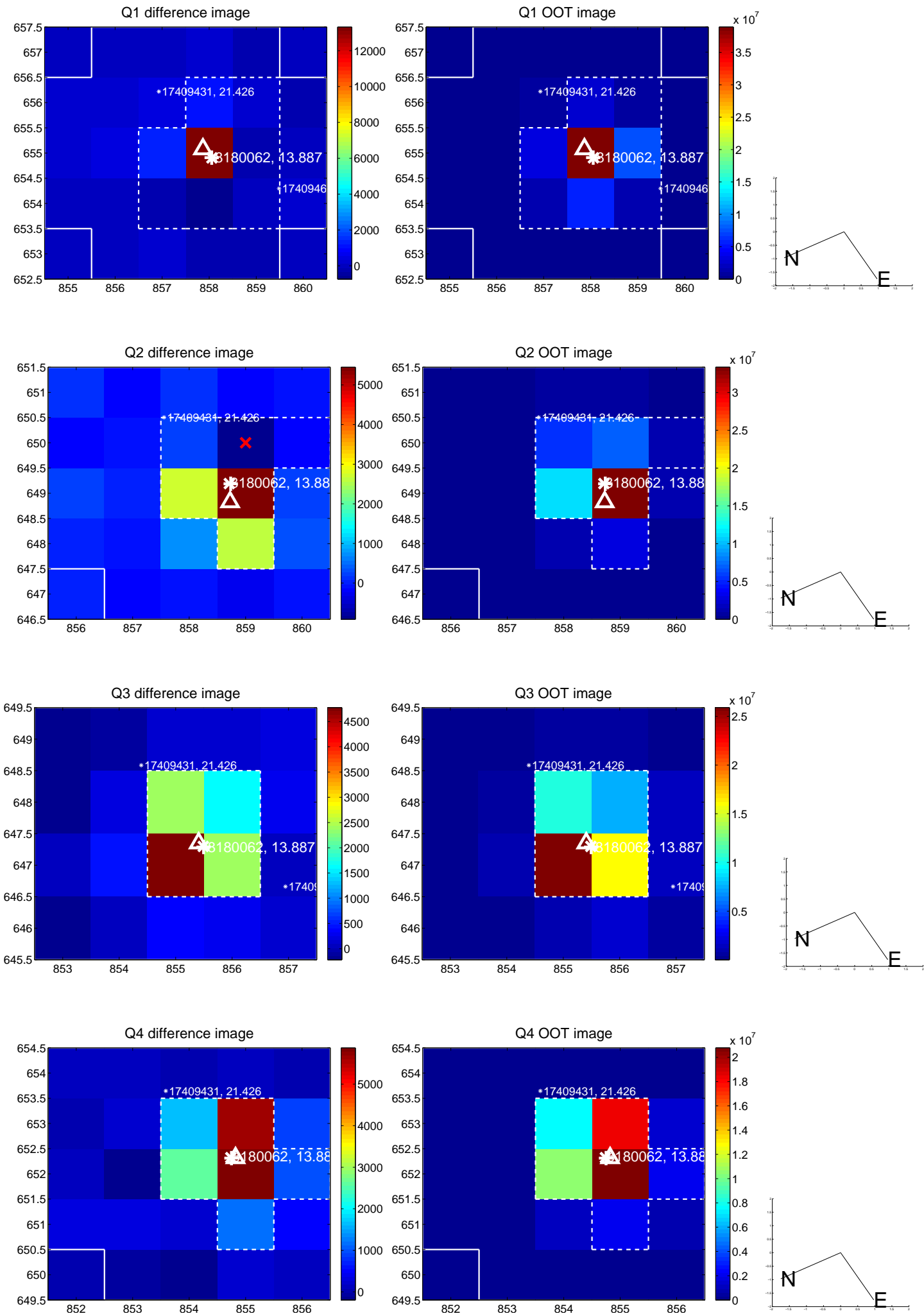
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.150 ± 0.143	1.05	0.003 ± 0.171	0.150 ± 0.144
PRF-fit source offset from KIC position	0.115 ± 0.134	0.86	0.025 ± 0.172	0.112 ± 0.140
photometric centroid source offset	0.31 ± 0.51	0.60	-0.22 ± 0.51	-0.21 ± 0.52

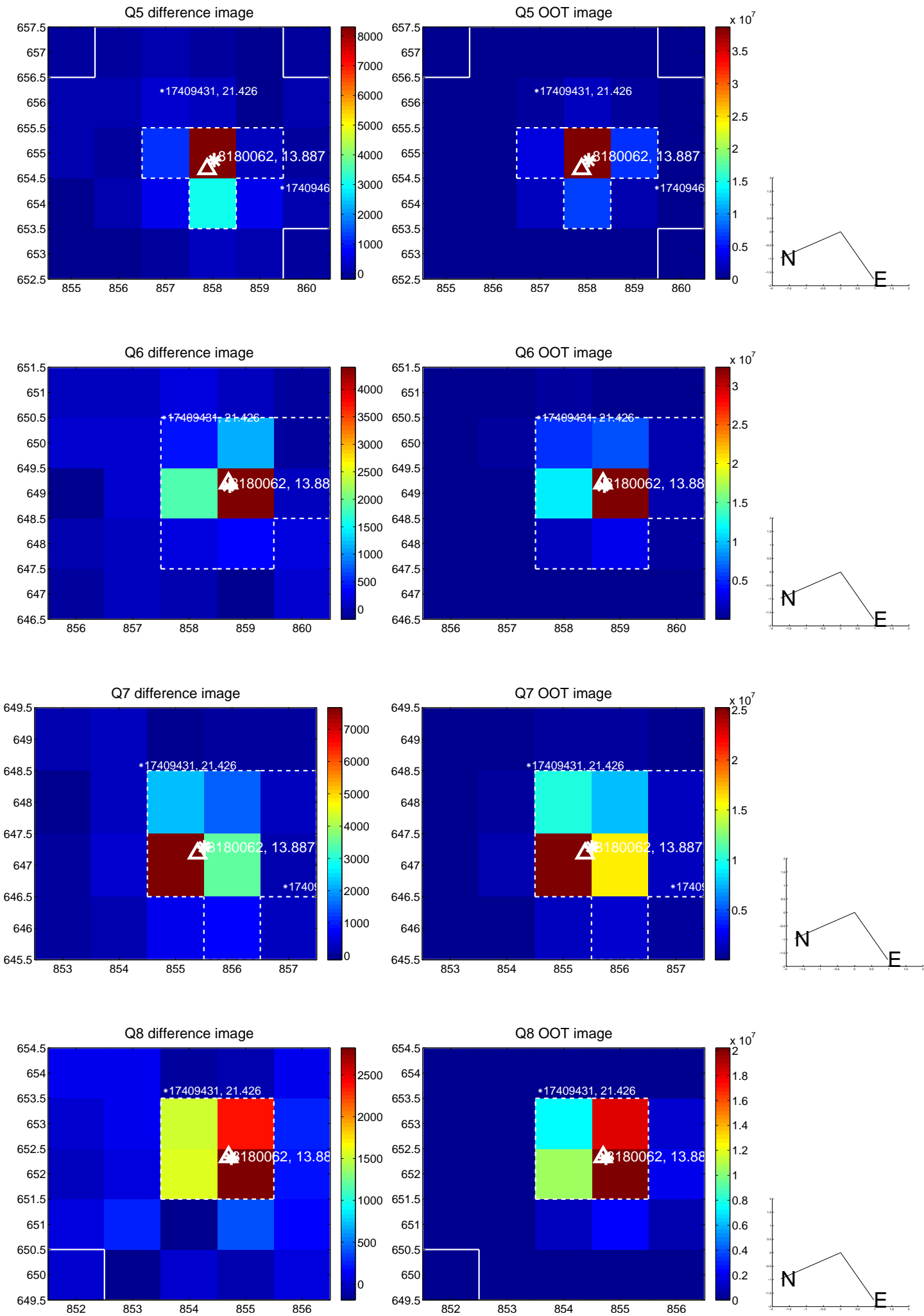


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

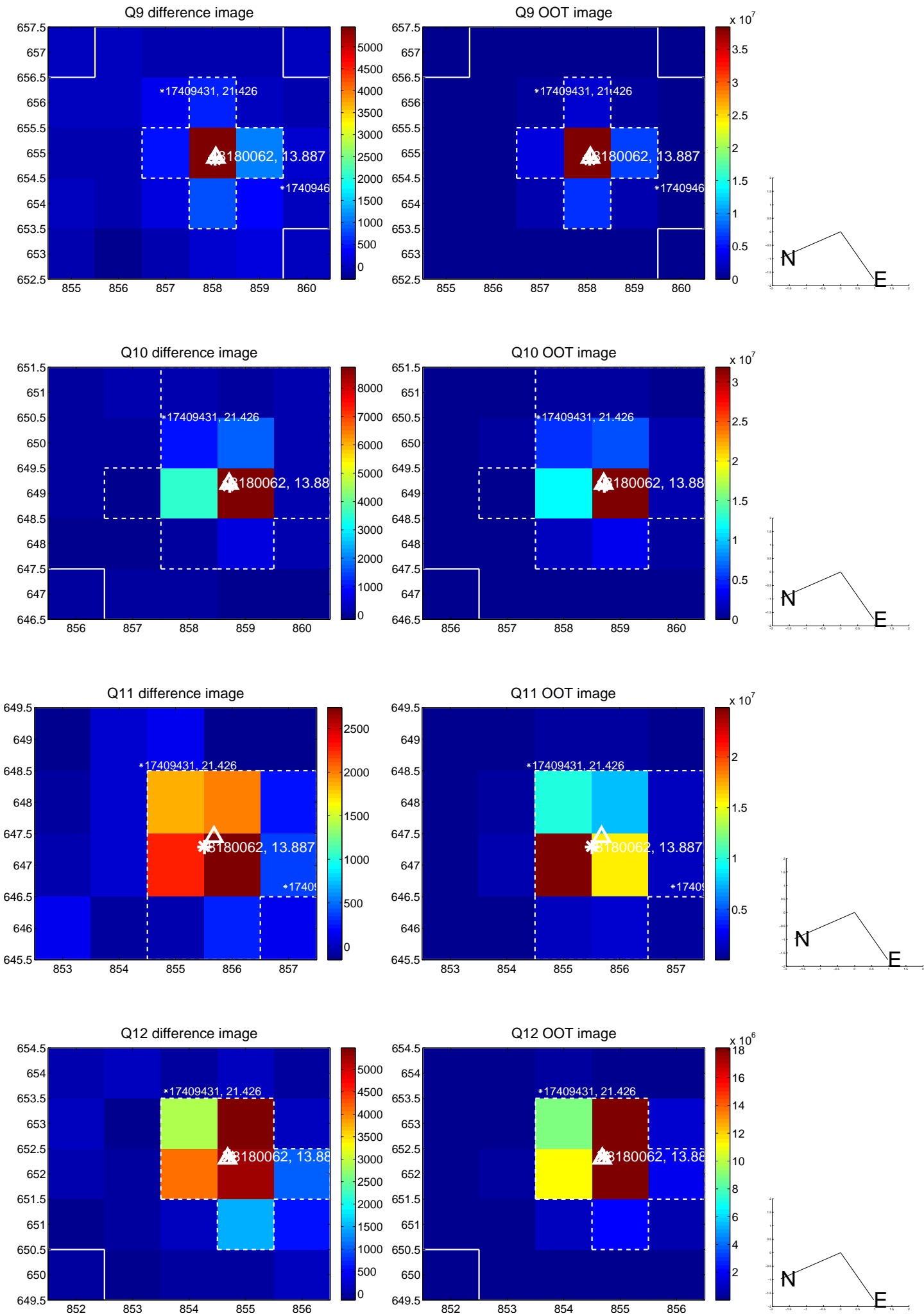
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



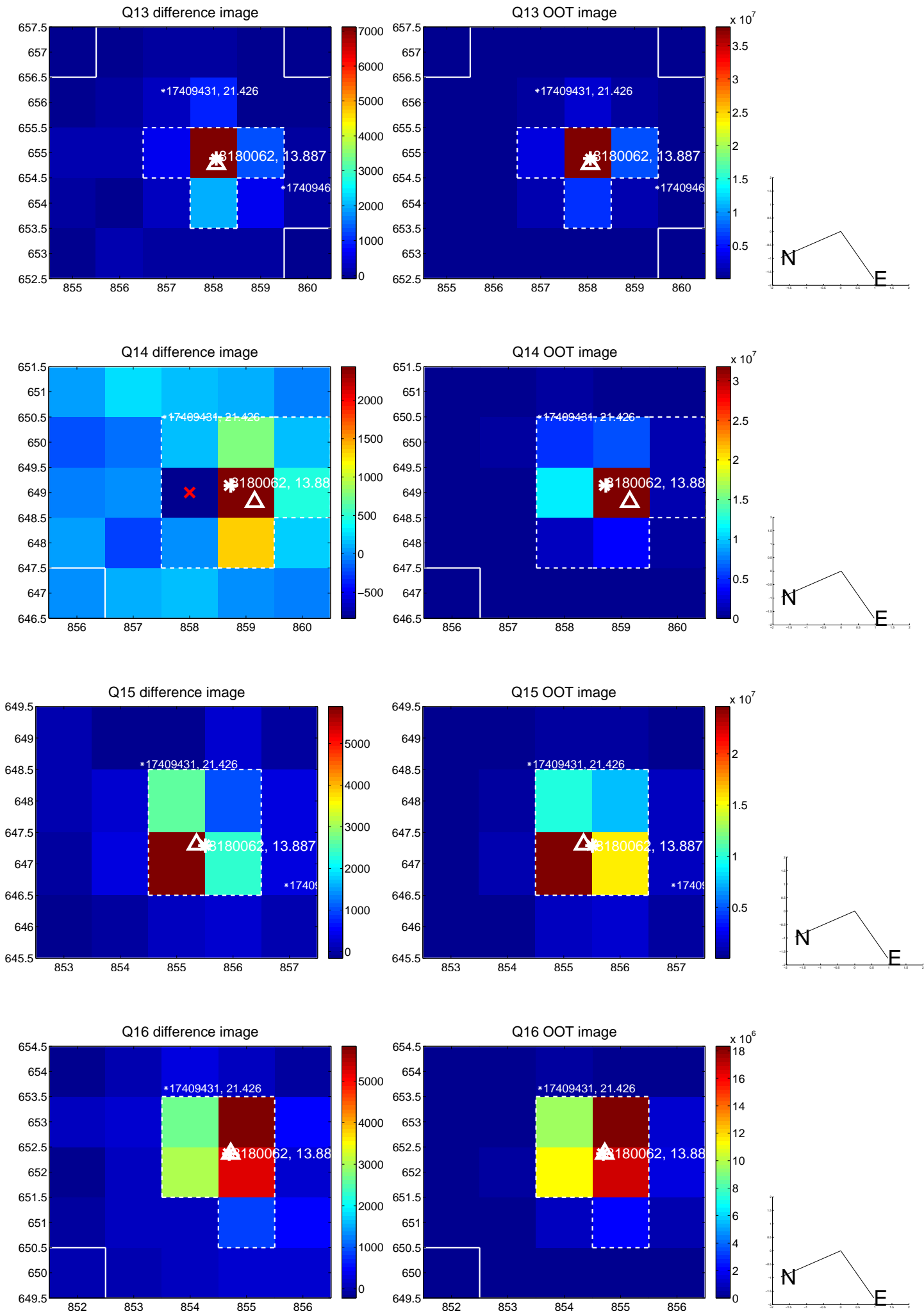
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



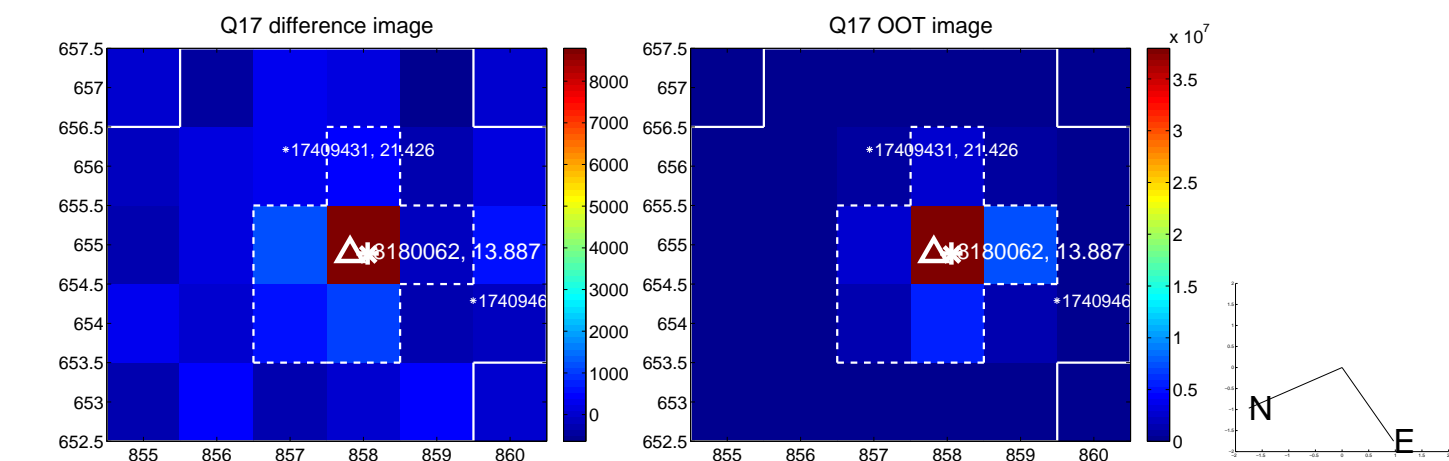
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



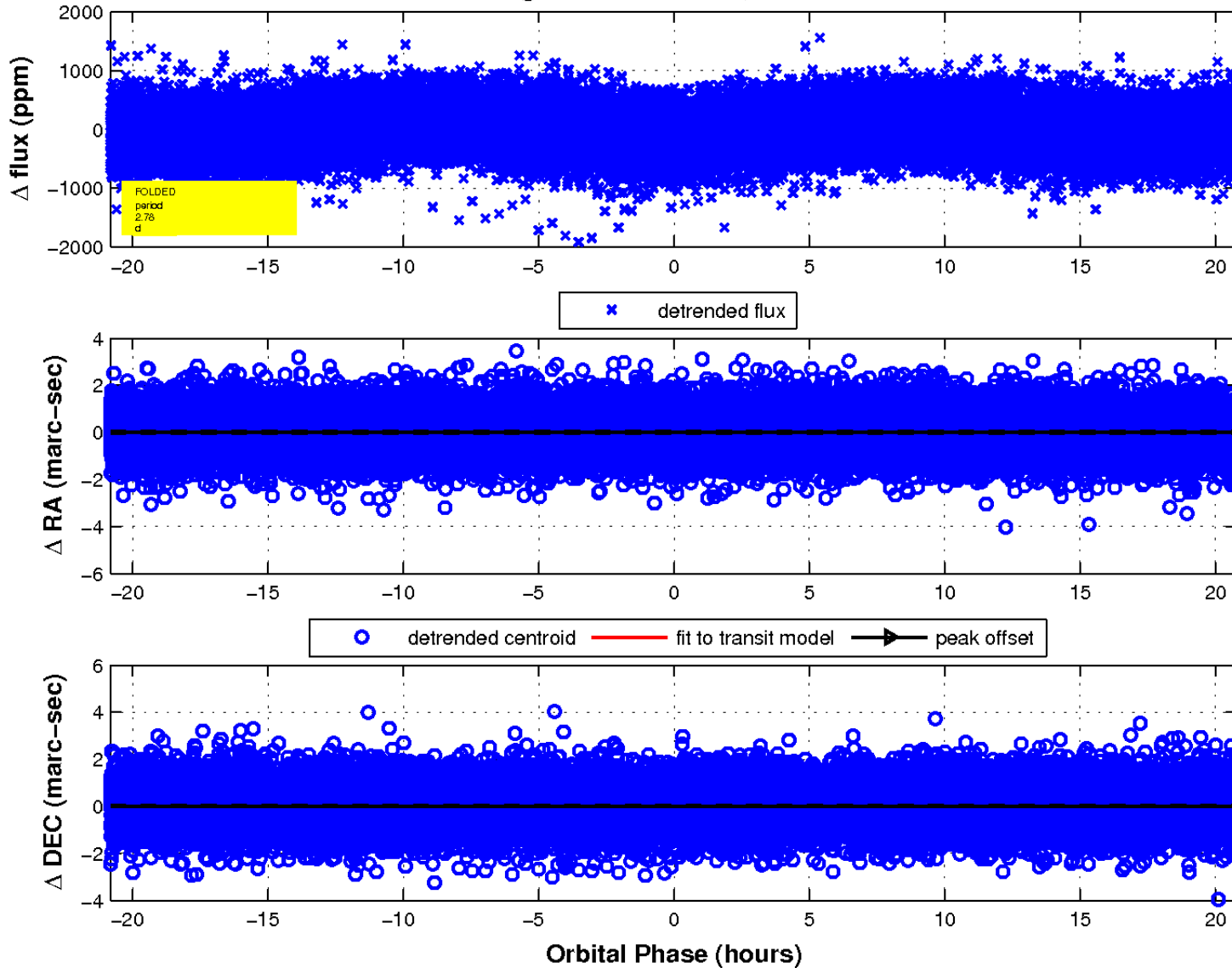
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

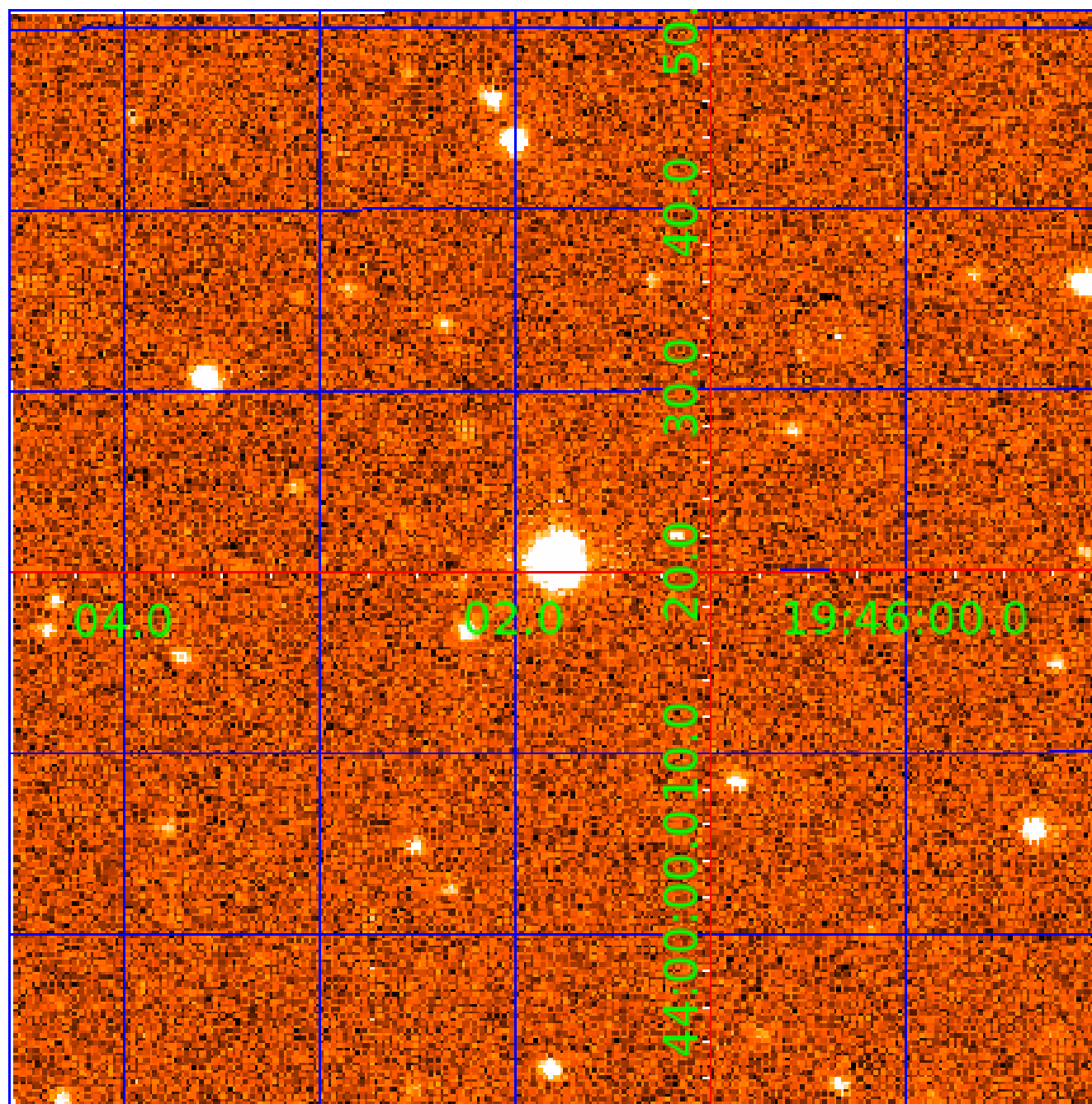


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 008180062

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})
008180062-01	OBS	No	1.389267	132.868815	25.3	7.426	7.5	6.4	1.33	6766	0.68	4781.20
008180062-02	OBS	No	169.714640	235.131431	725.7	7.673	16.6	8.4	1.33	6766	4.48	7.89
008180062-03	OBS	No	132.303935	159.450199	268.5	10.923	18.4	4.5	1.33	6766	2.40	10.99
008180062-04	OBS	No	2.778475	133.564835	53.8	6.938	9.5	9.4	1.33	6766	1.13	1897.47
008180062-05	OBS	No	253.010985	159.387102	400.4	8.975	14.0	6.5	1.33	6766	2.83	4.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008180062-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008180062-02	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
008180062-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
008180062-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
008180062-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

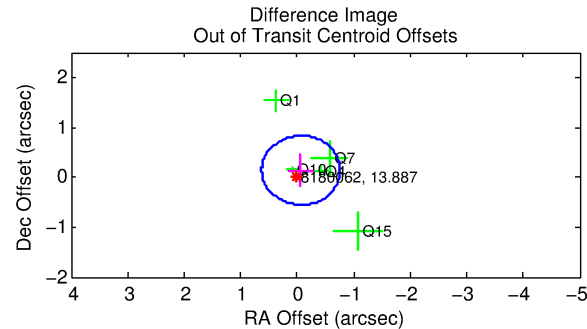
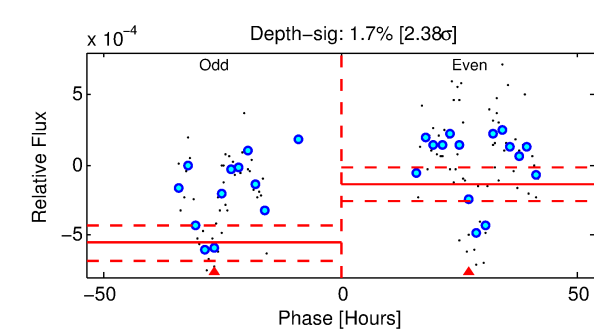
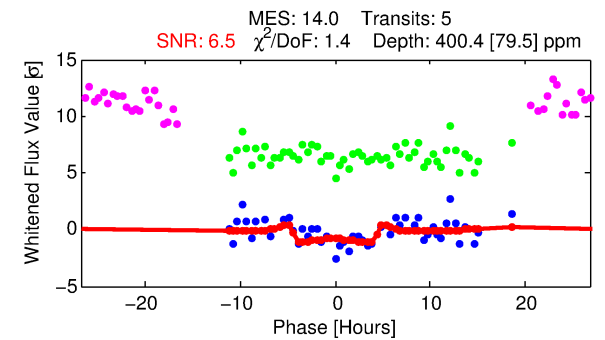
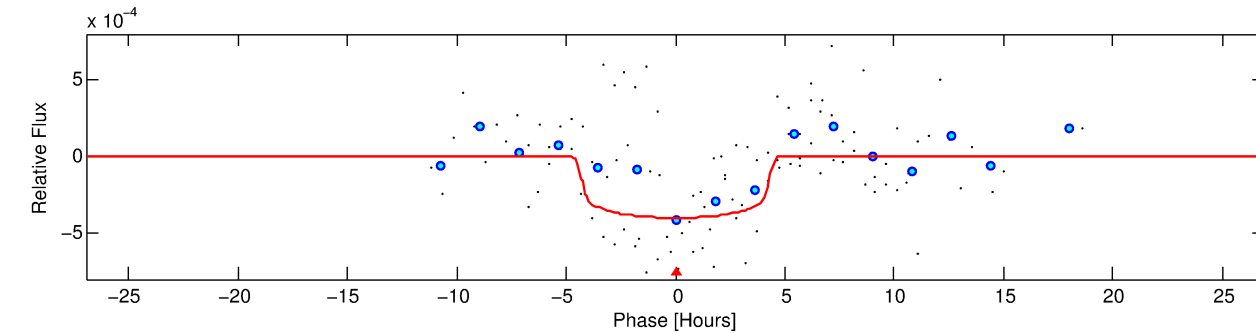
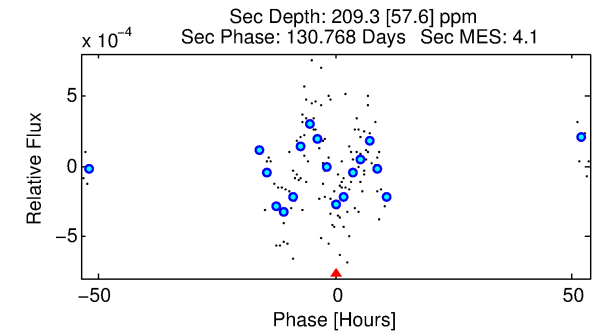
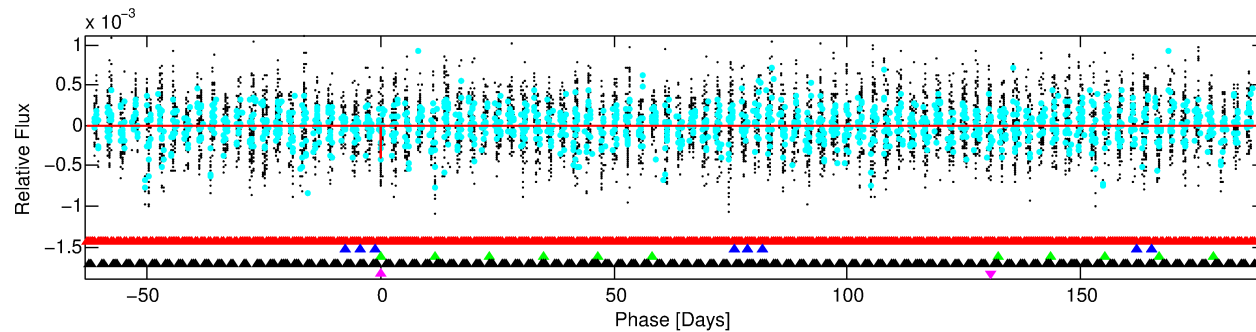
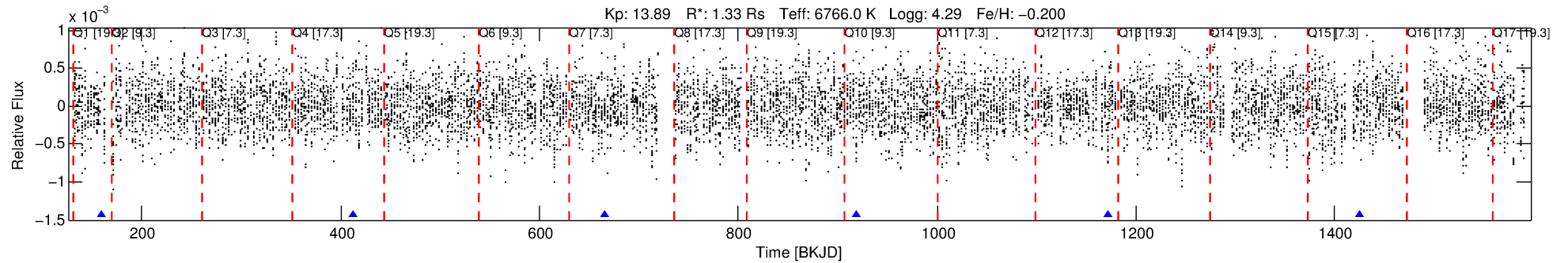
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008180062-05

No Significant Match Found

DV One-Page Summary

KIC: 8180062 Candidate: 5 of 5 Period: 253.011 d



DV Fit Results:

Period = 253.01099 [0.01660] d
Epoch = 159.3871 [0.0594] BKJD
Rp/R* = 0.0196 [0.0281]
a/R* = 162.04 [1357.50]
b = 0.69 [6.39]
Seff = 4.63 [1.88]
Teff = 374 [38] K
Rp = 2.83 [4.16] Re
a = 0.8443 [0.2216] AU
Ag = 10225.86 [29742.94] [0.34 σ]
Teffp = 5816 [4199] K [1.30 σ]

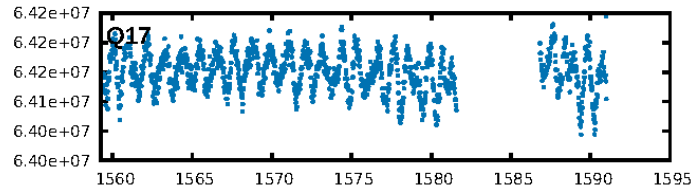
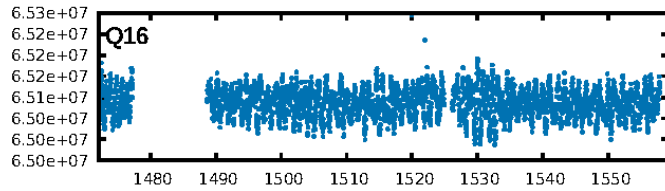
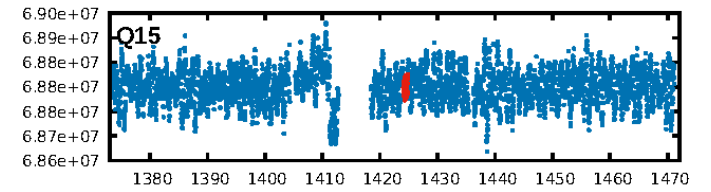
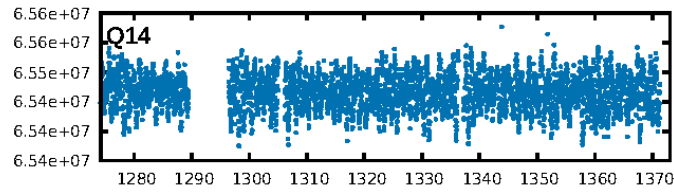
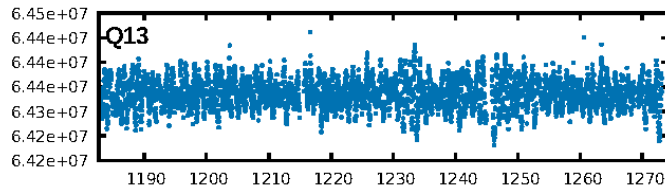
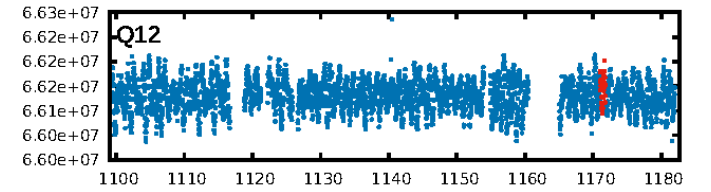
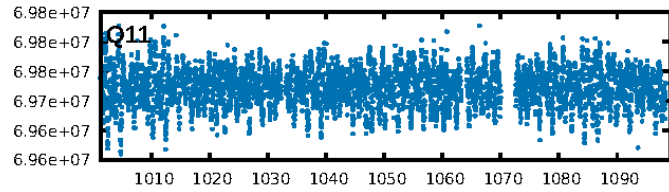
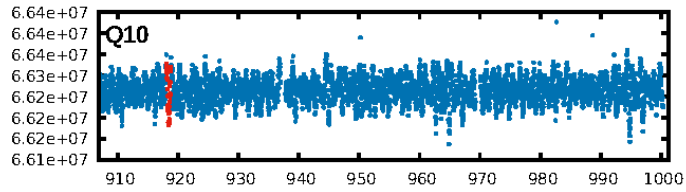
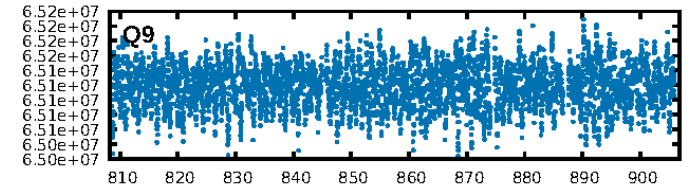
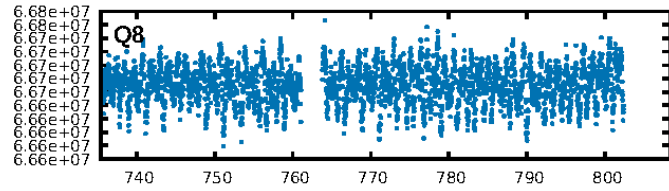
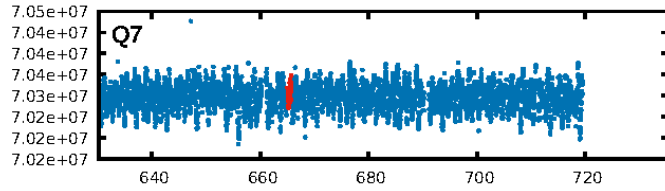
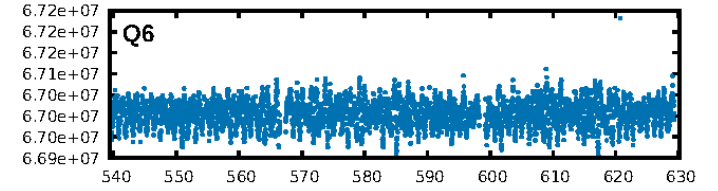
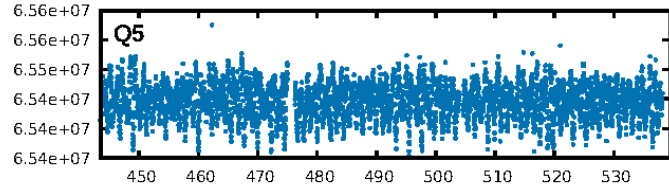
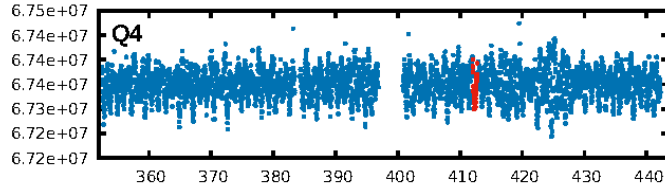
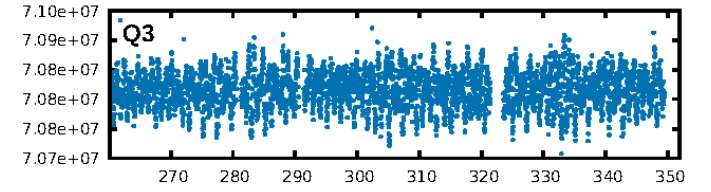
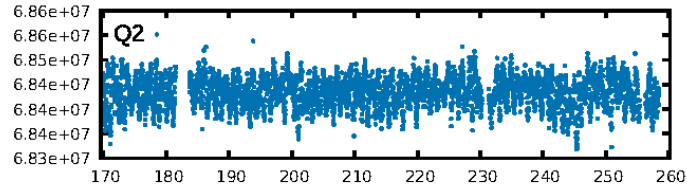
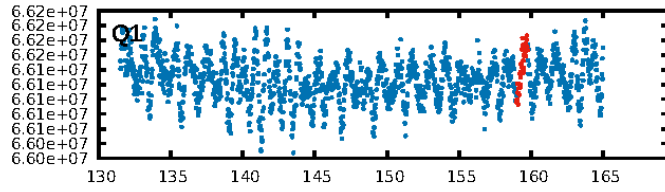
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [169.31 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 4.19e-19
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.9651
Centroid-sig: 17.4%
Centroid-so: 0.648 arcsec [1.15 σ]
OotOffset-rm: 0.152 arcsec [0.66 σ]
KicOffset-rm: 0.036 arcsec [0.09 σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.00 [0/5]

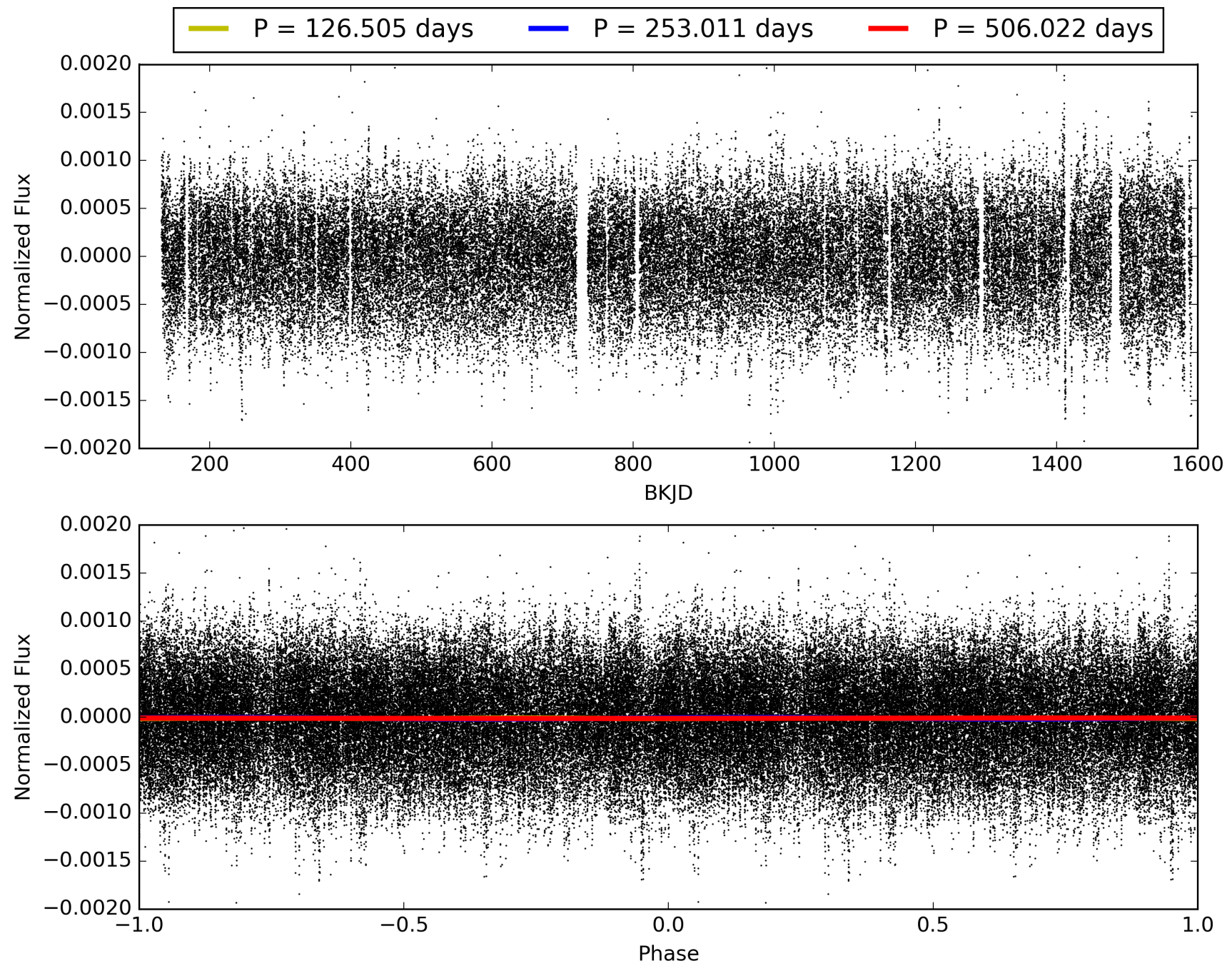
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:29:53 Z

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

TCE 008180062-05, PDC Light Curves

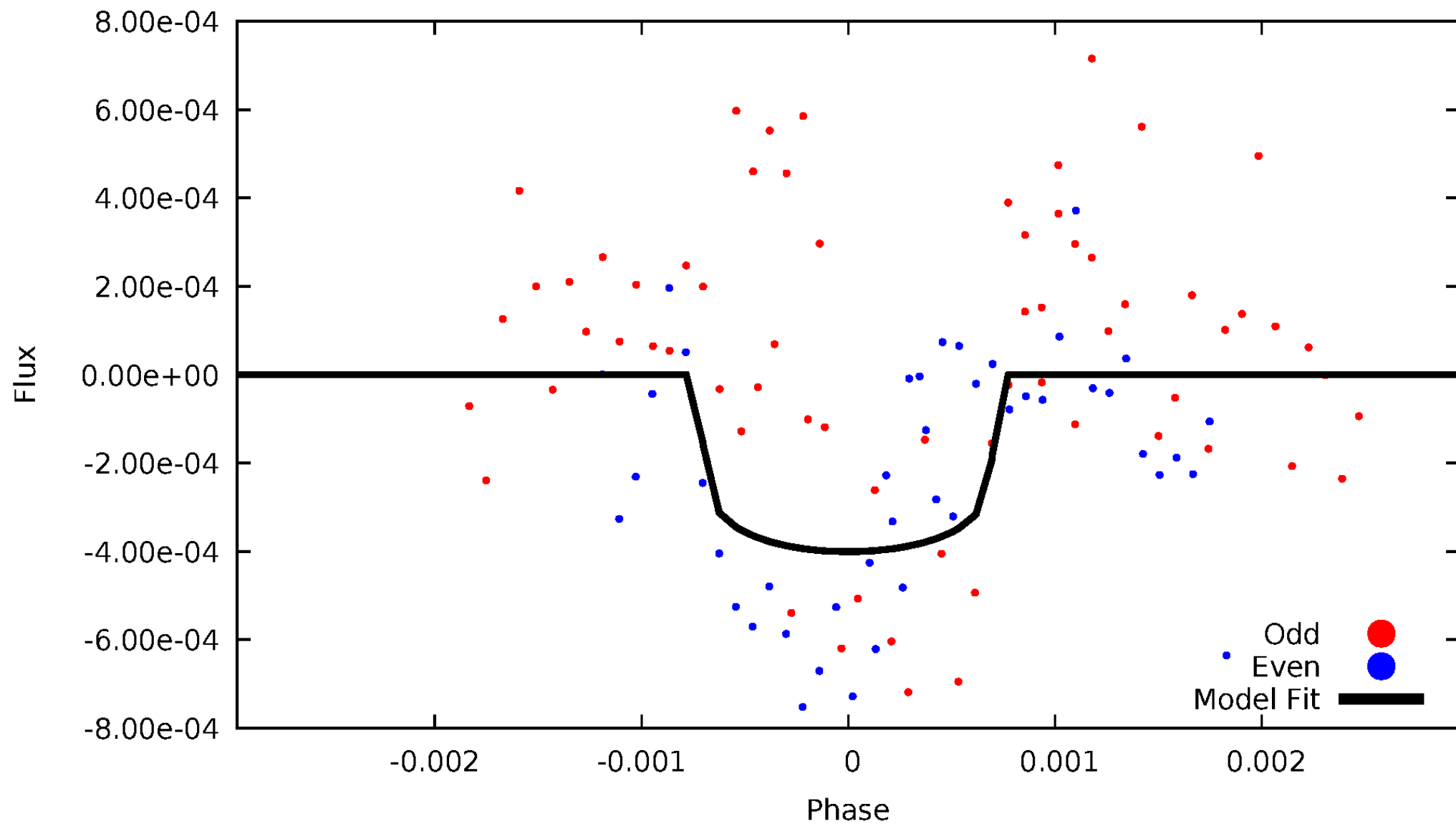


TCE 008180062-05



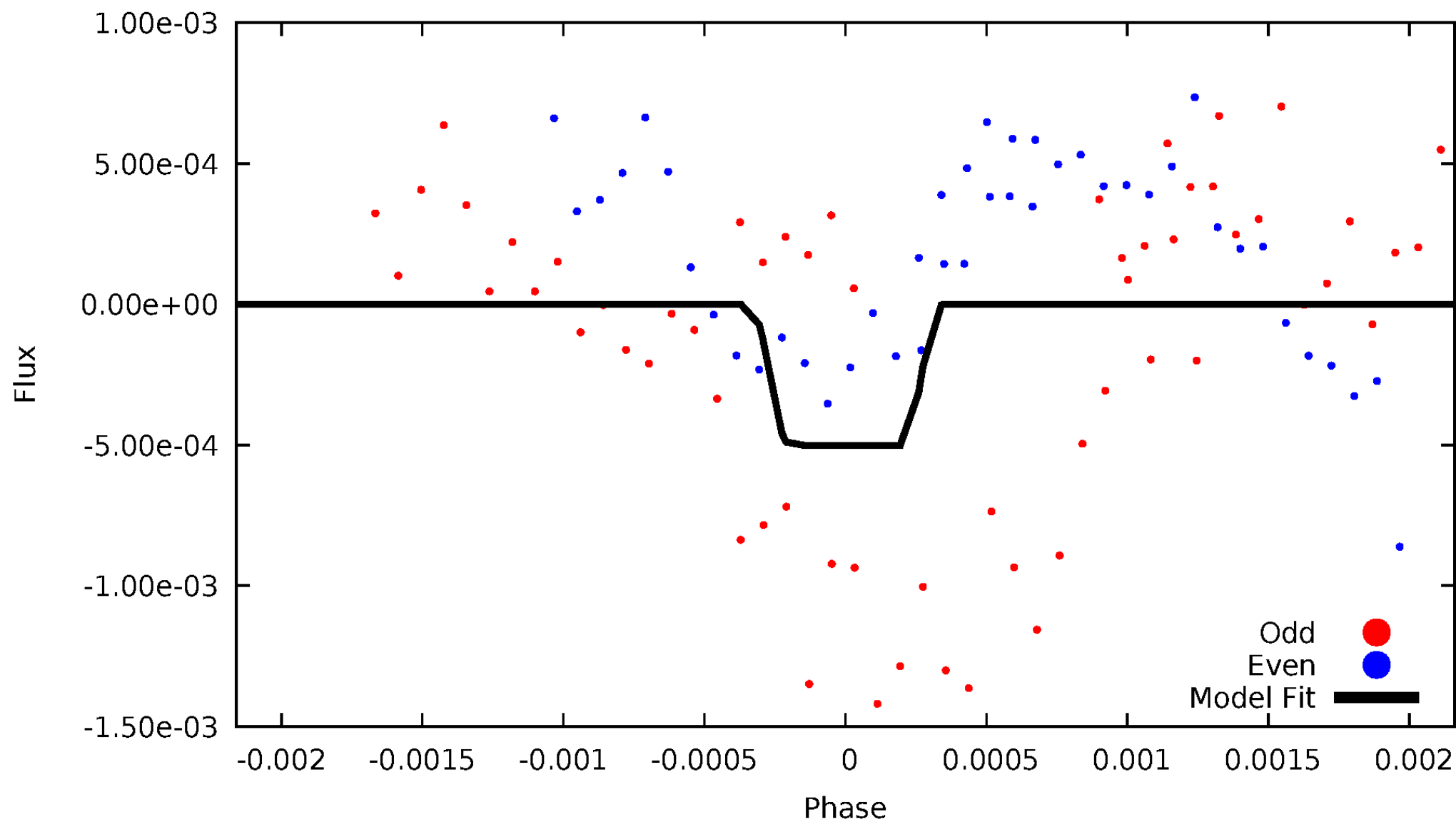
DV Odd/Even

TCE 008180062-05



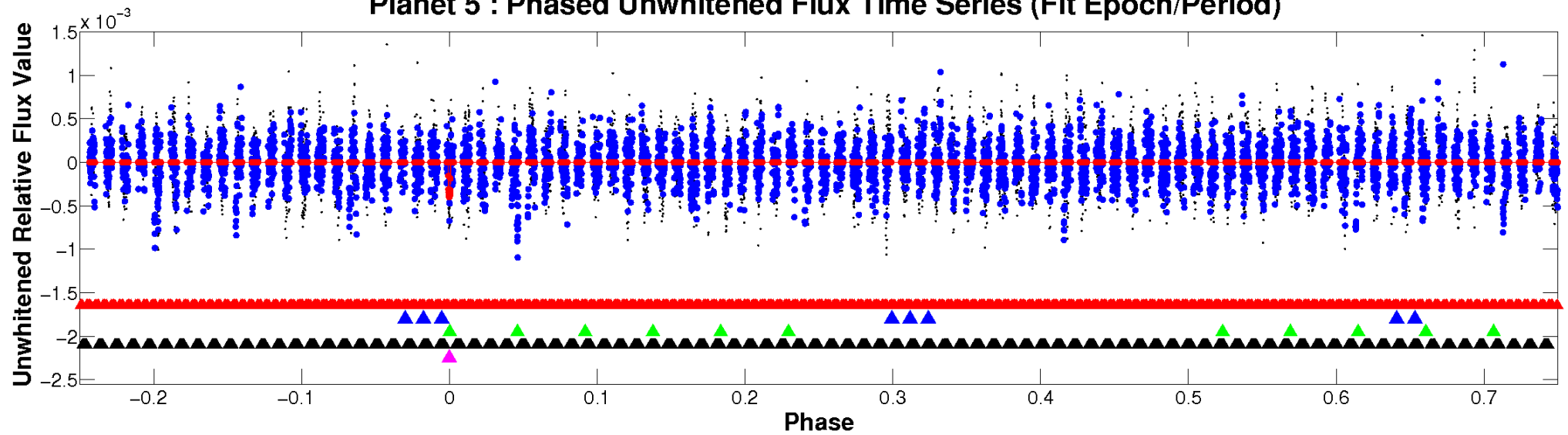
ALT Odd/Even

TCE 008180062-05

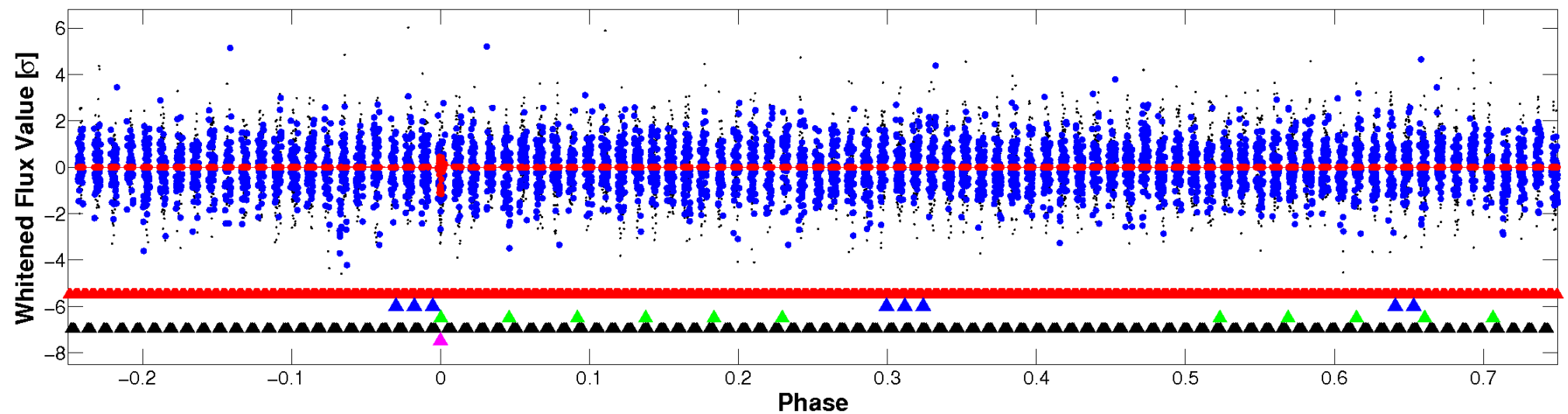


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

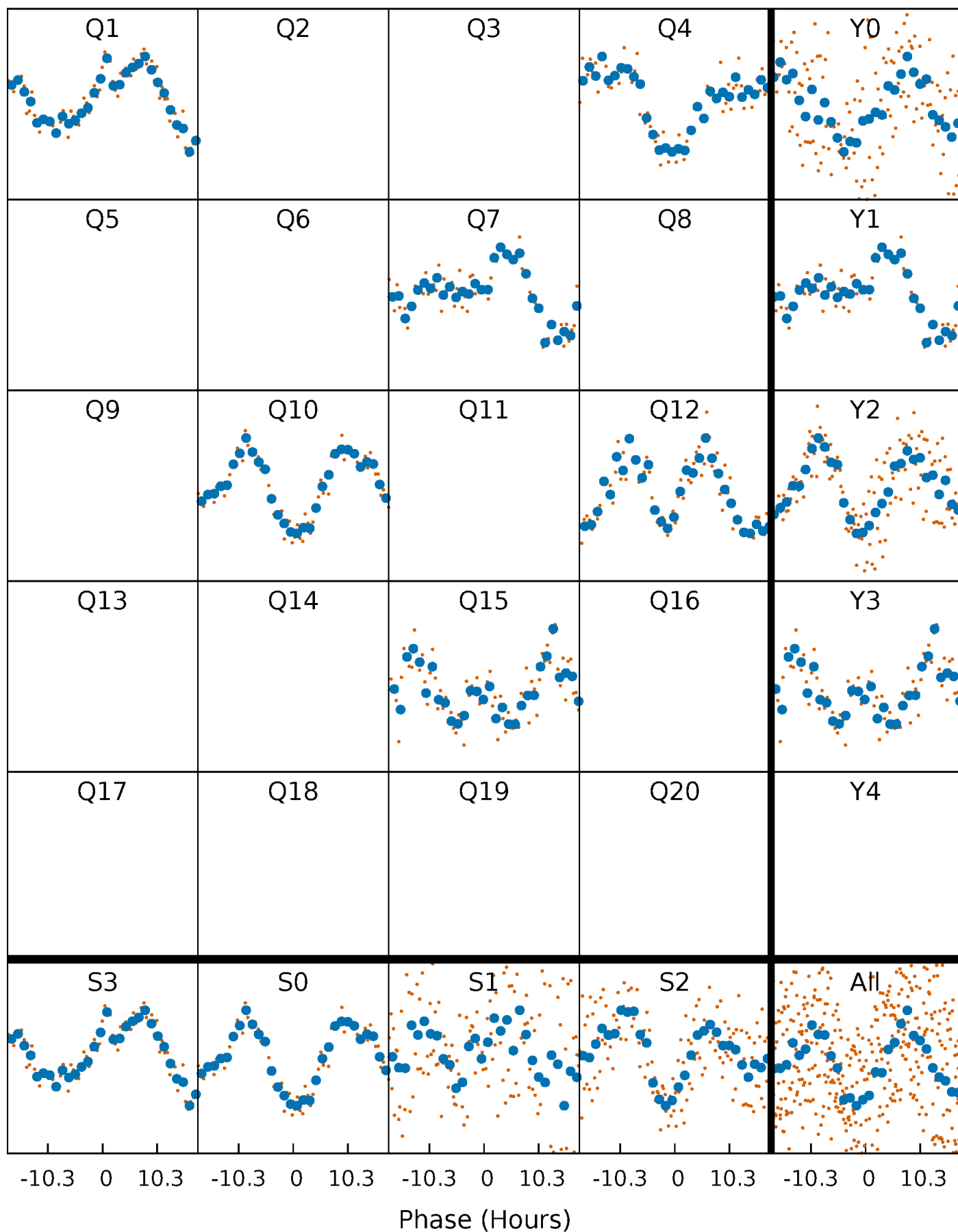


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



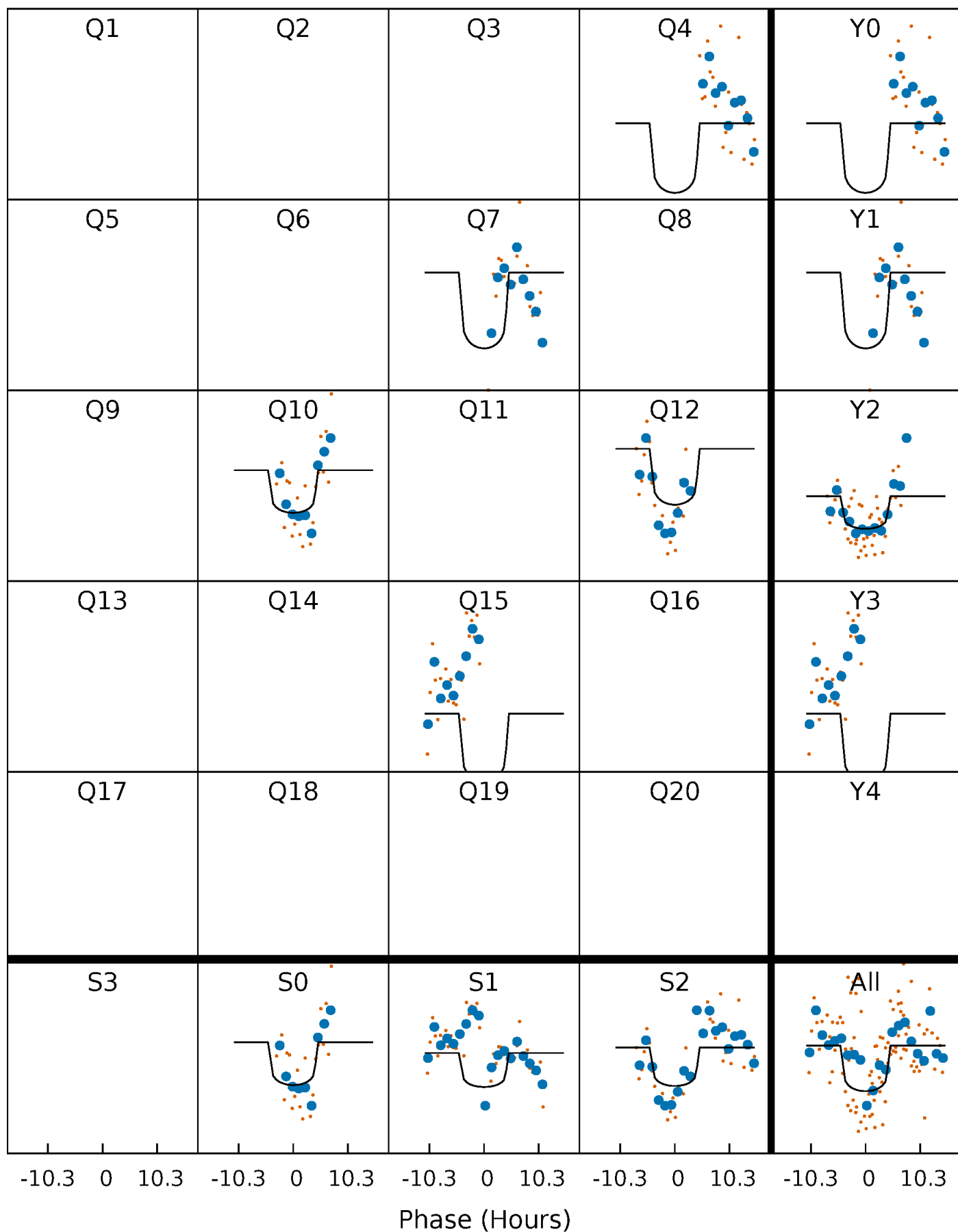
PDC Quarter-Phased Transit Curves

TCE 008180062-05 $P=253.010985$ Days $T_0=159.387102$ (BKJD)



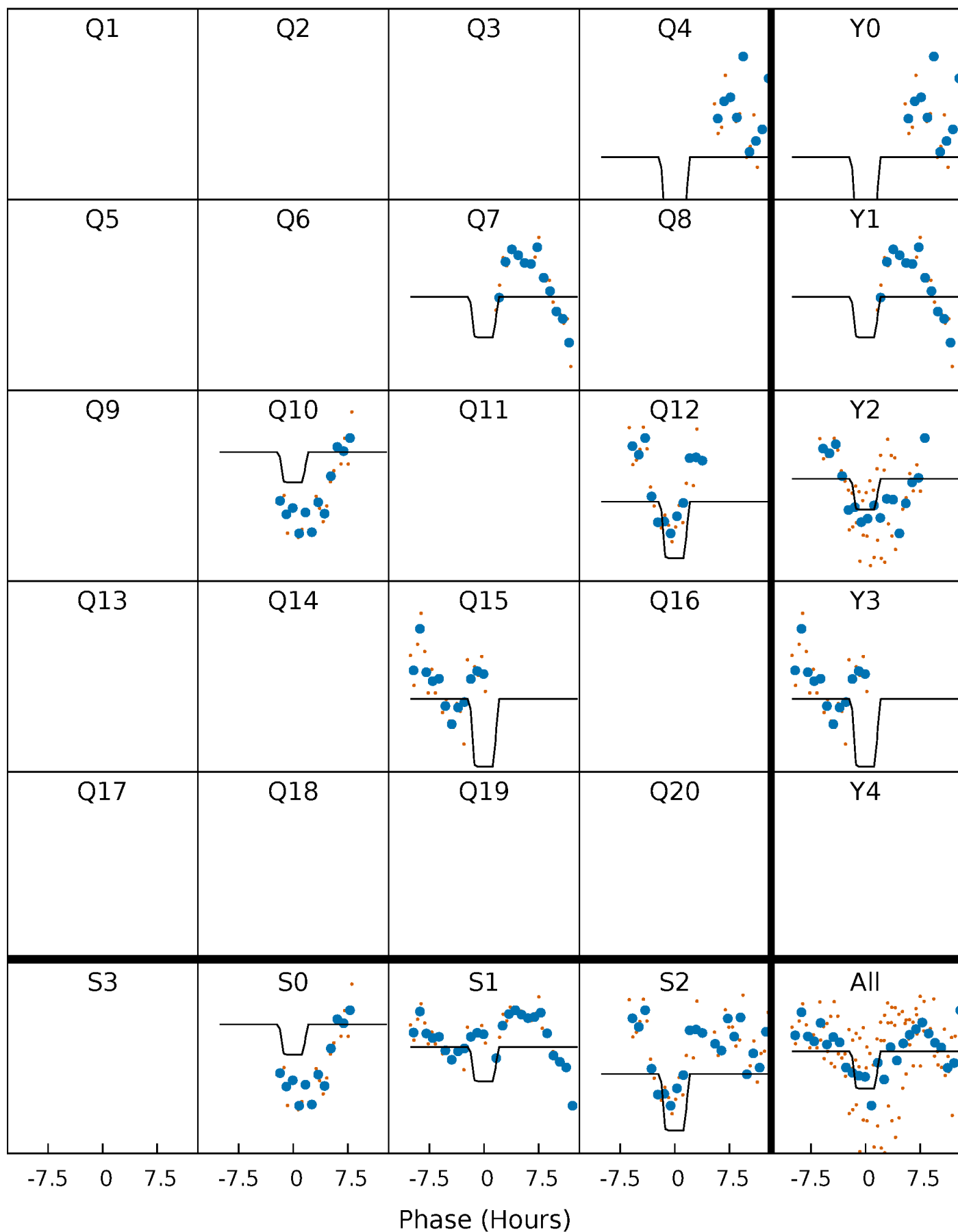
DV Quarter-Phased Transit Curves

TCE 008180062-05 $P=253.010985$ Days $T_0=159.387102$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

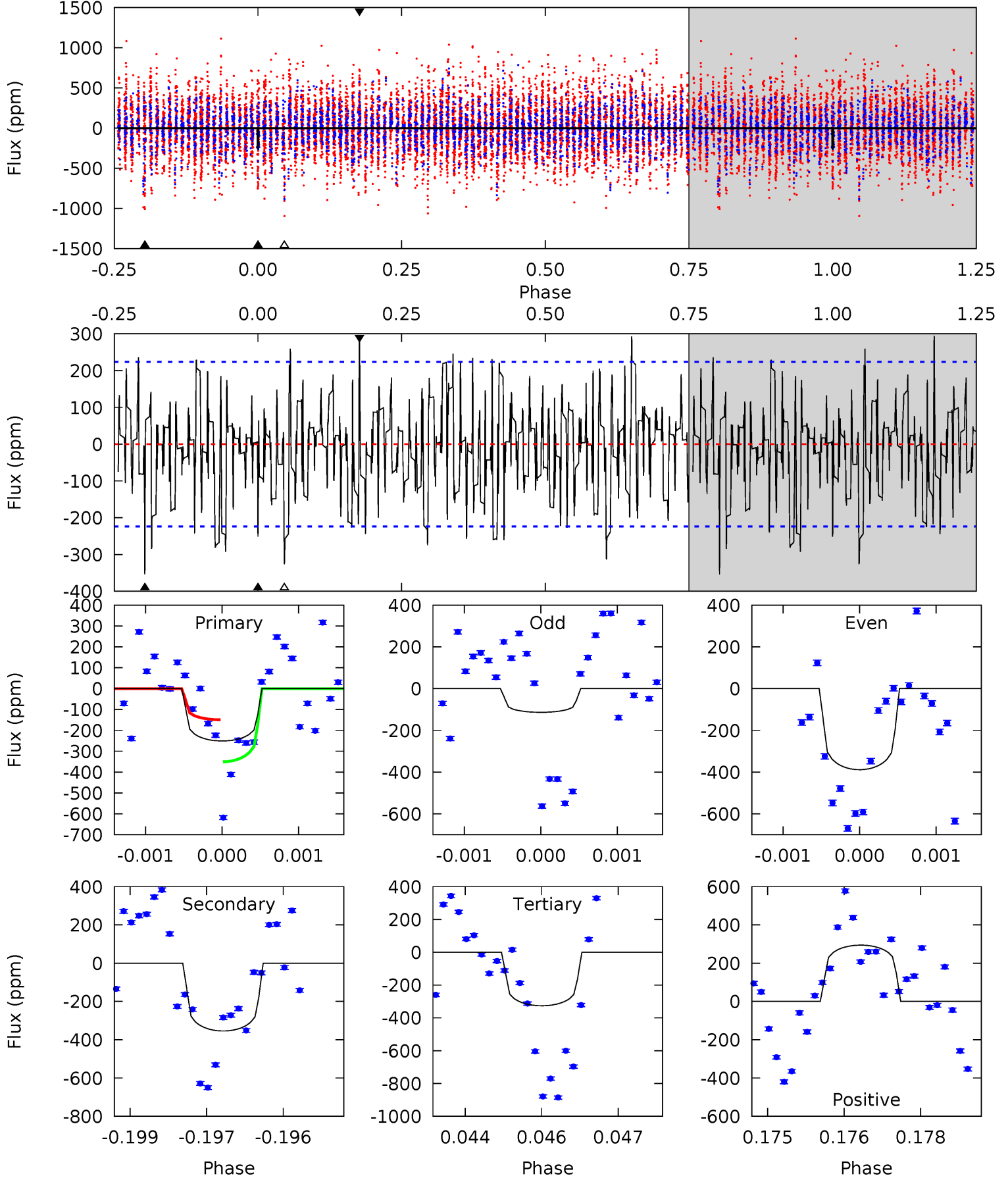
TCE 008180062-05 P=253.008340 Days $T_0=159.357856$ (BKJD)



DV Model-Shift Uniqueness Test

008180062-05, P = 253.010985 Days, E = 159.387102 Days

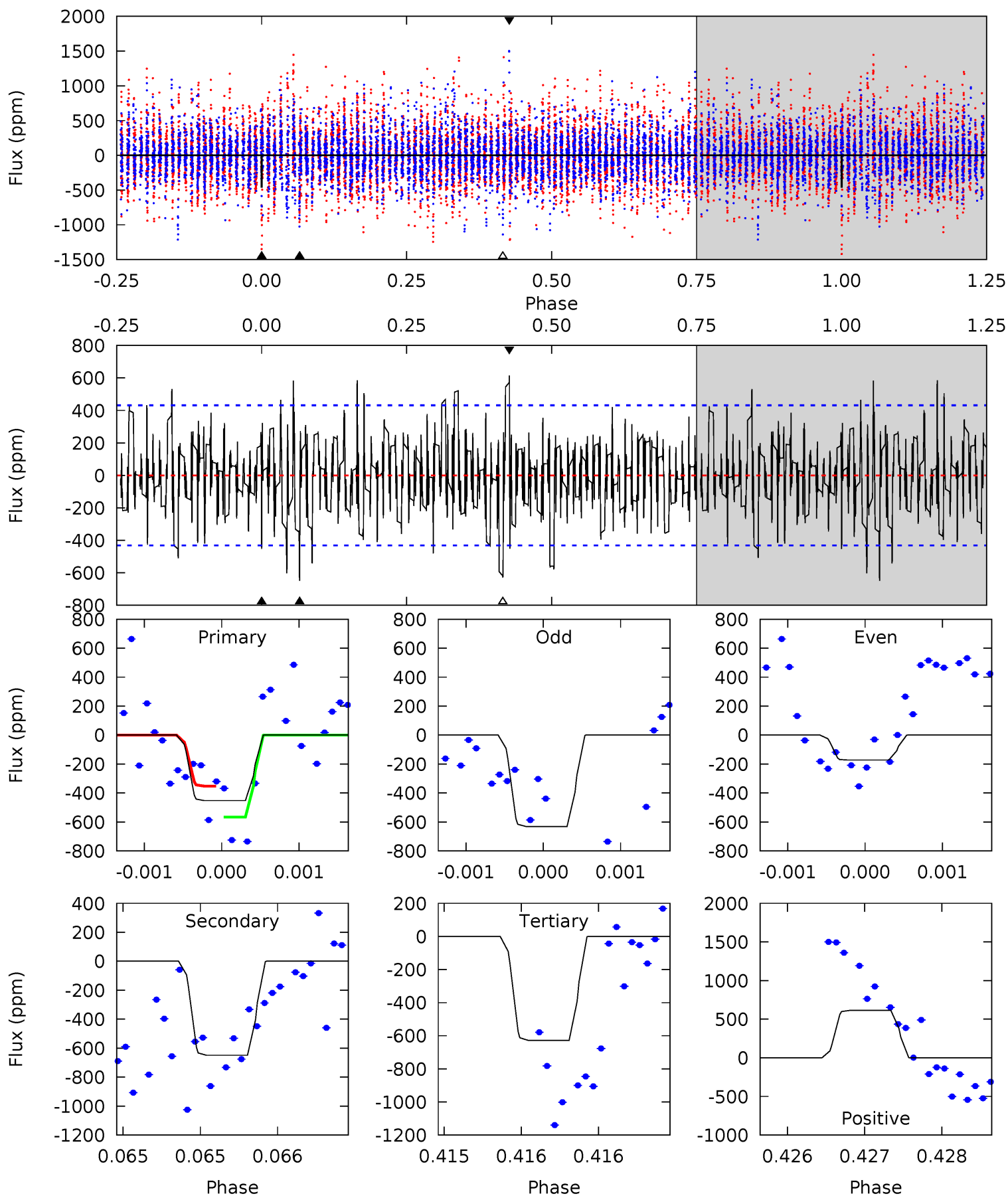
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.04	8.53	7.85	7.08	5.38	3.18	2.52	-1.81	-1.04	0.68	1.45	3.30	0.53	0.45	2.42



Alt Model-Shift Uniqueness Test

008180062-05, P = 253.008340 Days, E = 159.357856 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.80	8.32	8.04	7.87	5.53	3.42	2.17	-2.24	-2.06	0.27	0.45	2.99	2.26	0.49	1.38



Stellar Parameters For KIC 008180062

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6766^{+188}_{-258}	$4.291^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.326^{+0.420}_{-0.210}$	$1.261^{+0.190}_{-0.209}$	$0.762^{+0.345}_{-0.378}$
	+3%/-4%	+2%/-5%	+125%/-150%	+32%/-16%	+15%/-17%	+45%/-50%
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 008180062-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-354 ± 42	$4.39^{+3.89}_{-2.92}$	534^{+39}_{-33}	5447^{+4885}_{-1230}	6847^{+56947}_{-4840}
Alt.	-649 ± 78	$4.39^{+4.25}_{-2.67}$	529^{+39}_{-28}	6297^{+5241}_{-1642}	13055^{+73914}_{-9709}

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 $A_{obs} \gg 1.0$

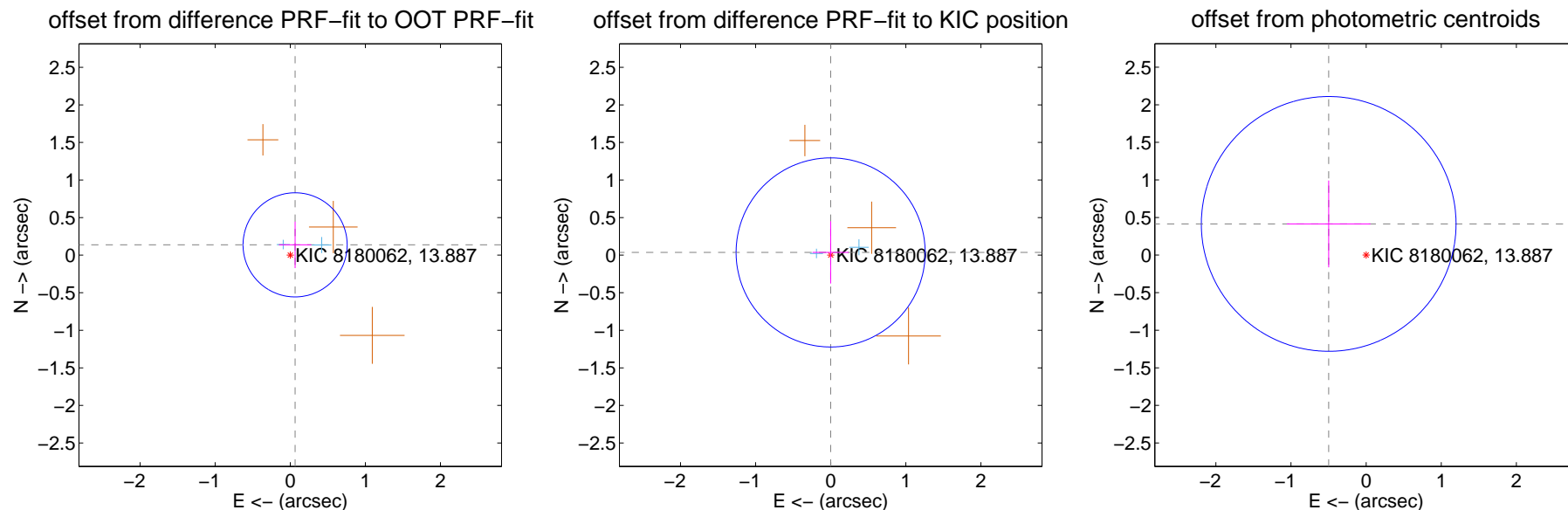
DV Centroid Data

Supplemental centroid analysis for 008180062-05. Kepler magnitude: 13.89. Transit SNR 6.54

There are 2 quarters with good PRF difference image offsets

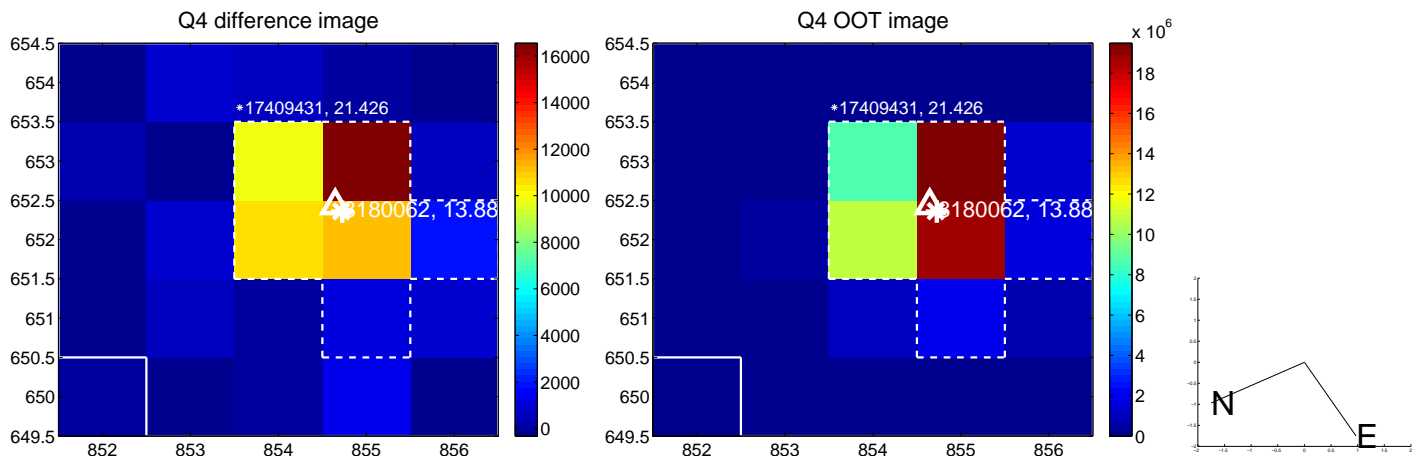
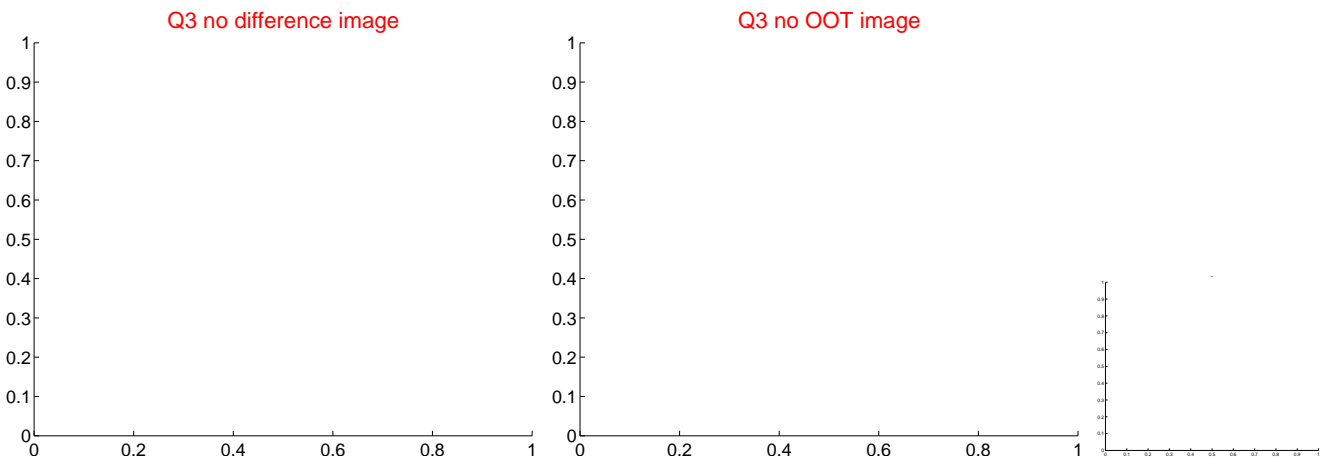
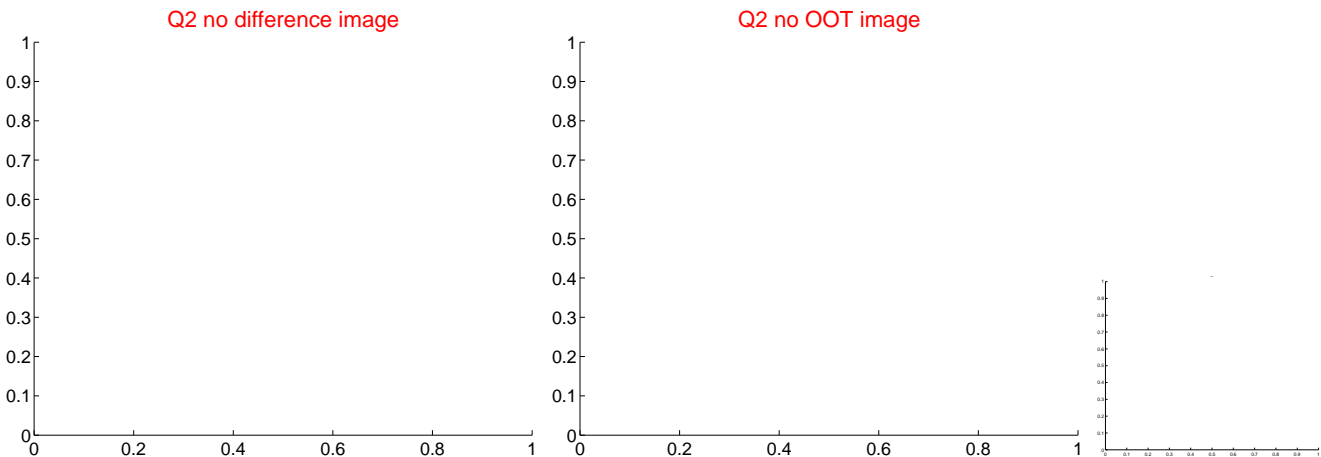
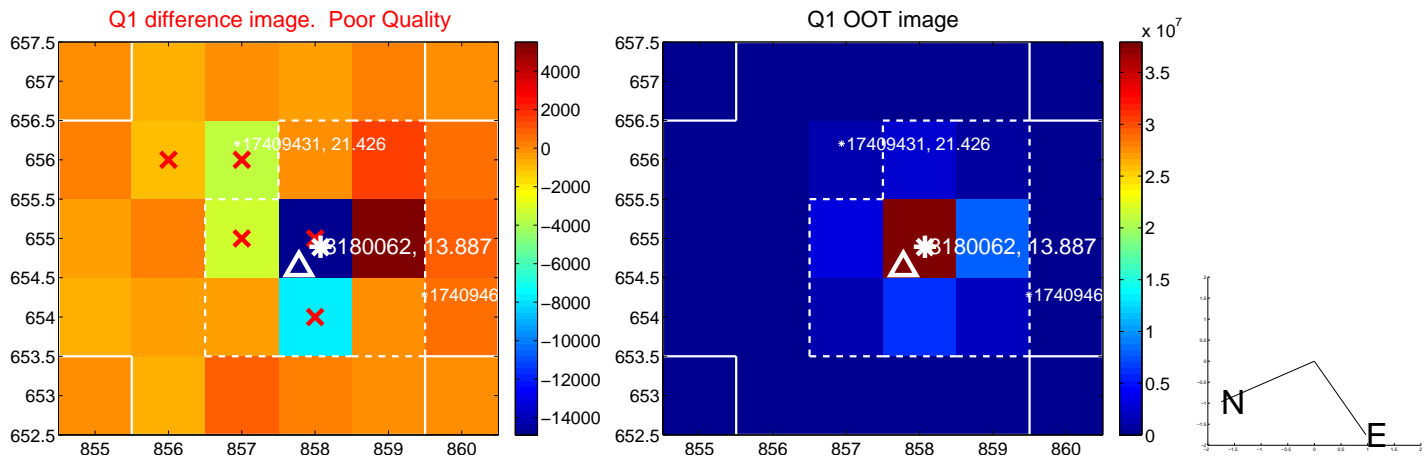
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.152 ± 0.231	0.66	-0.064 ± 0.215	0.137 ± 0.309
PRF-fit source offset from KIC position	0.036 ± 0.419	0.09	0.001 ± 0.241	0.036 ± 0.414
photometric centroid source offset	0.65 ± 0.56	1.15	0.50 ± 0.56	0.41 ± 0.58



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.

Q5 no difference image



Q5 no OOT image



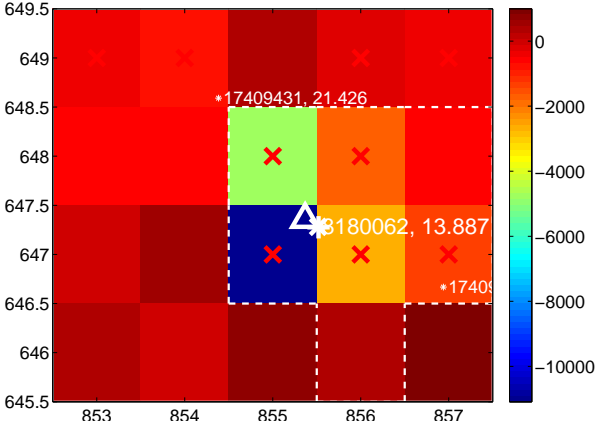
Q6 no difference image



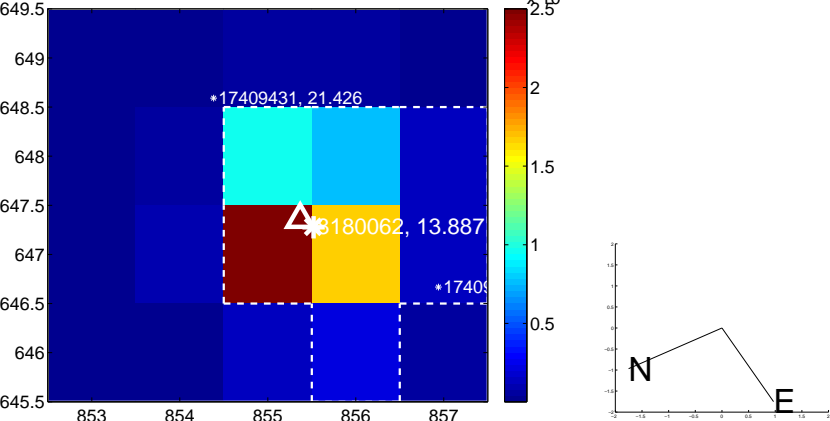
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image

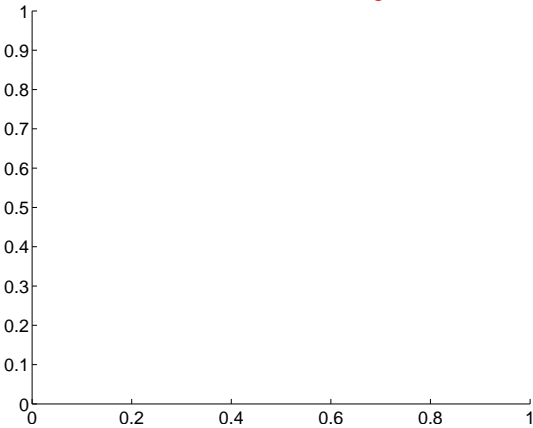


Q8 no OOT image

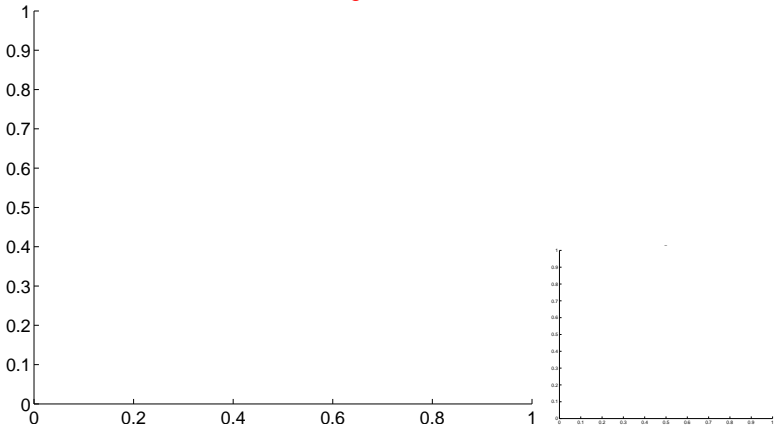


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

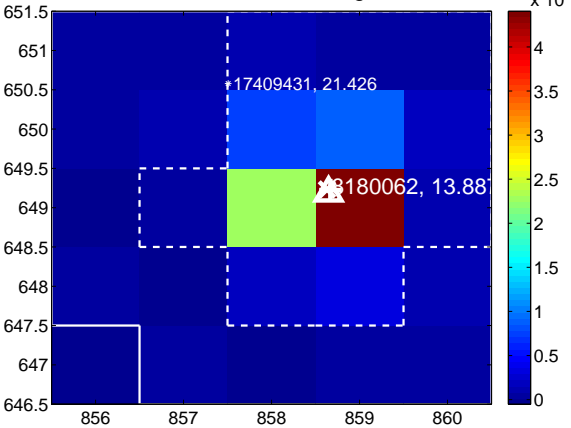
Q9 no difference image



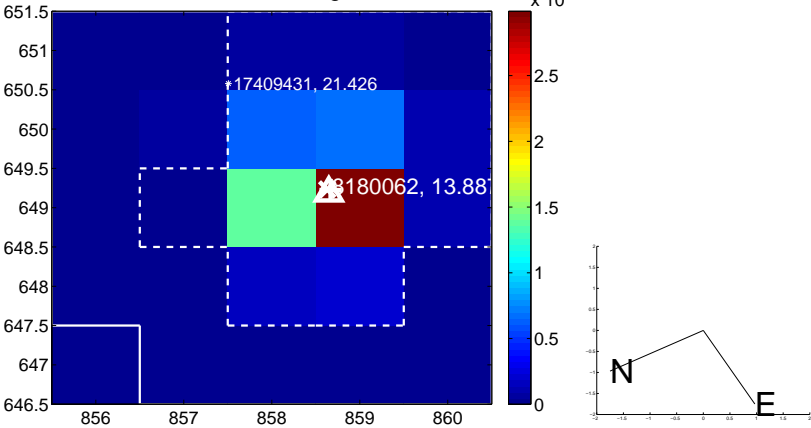
Q9 no OOT image



Q10 difference image



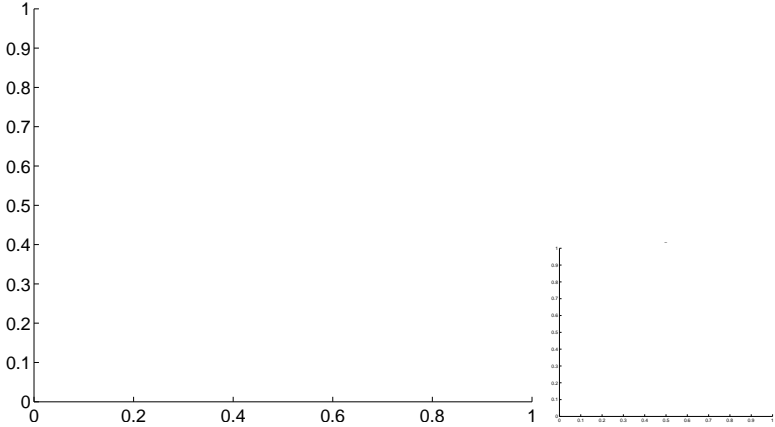
Q10 OOT image



Q11 no difference image



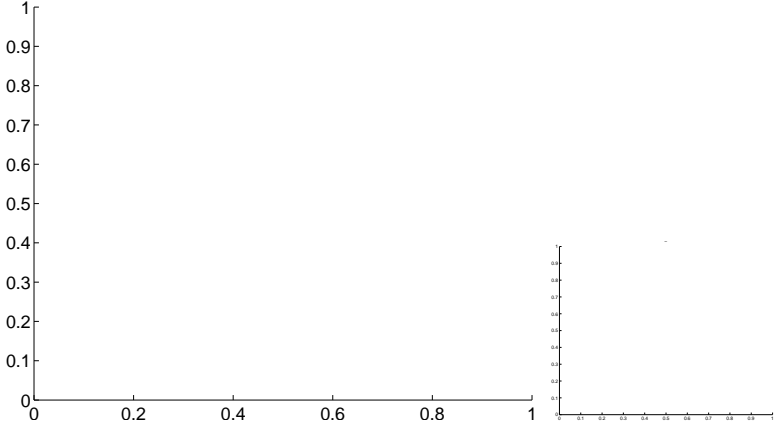
Q11 no OOT image



Q12 no difference image

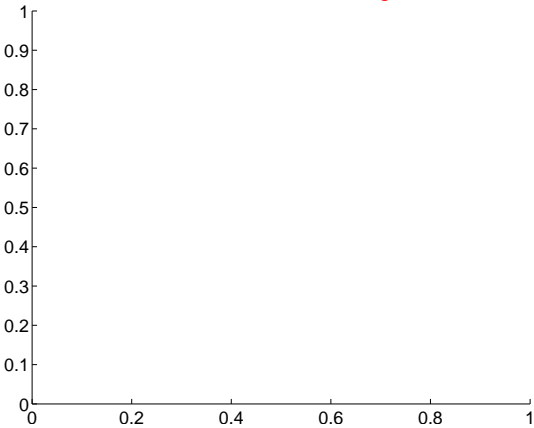


Q12 no OOT image

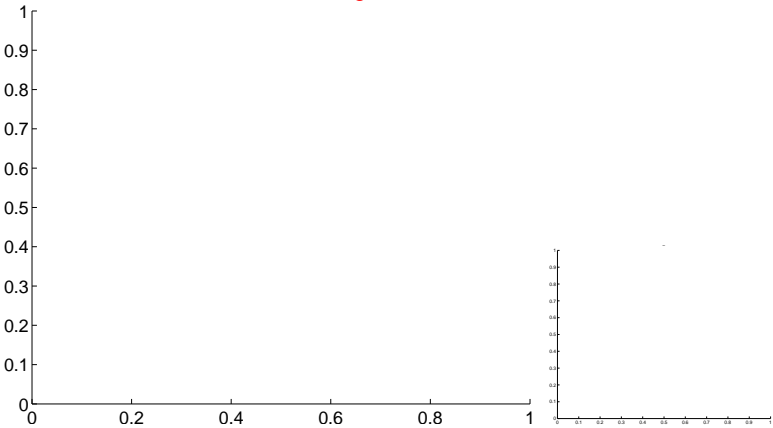


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

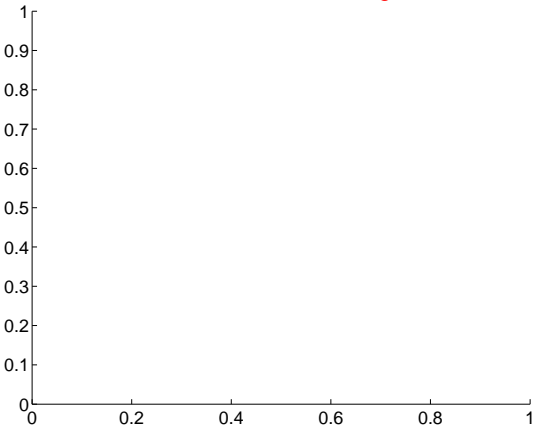
Q13 no difference image



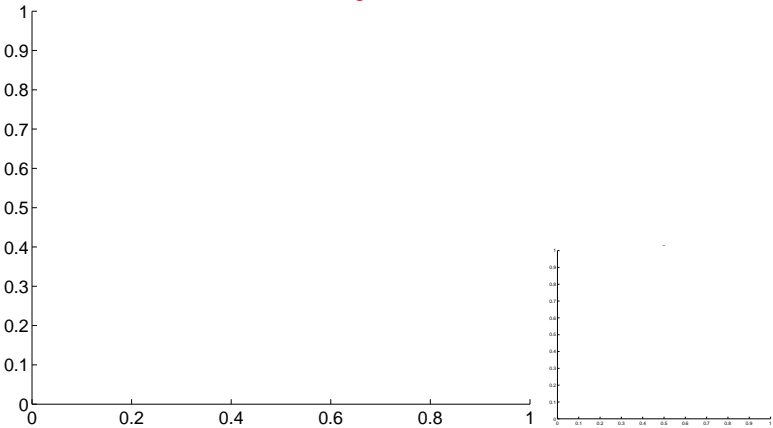
Q13 no OOT image



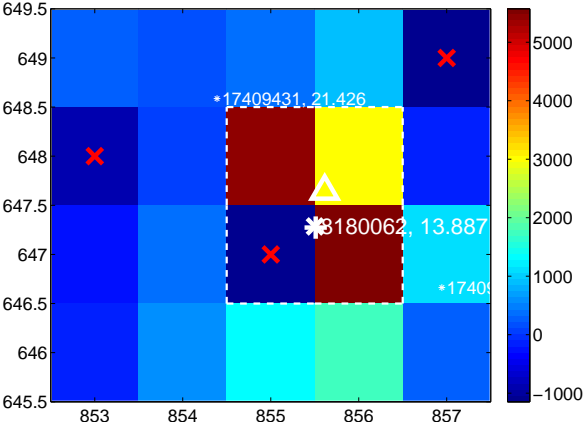
Q14 no difference image



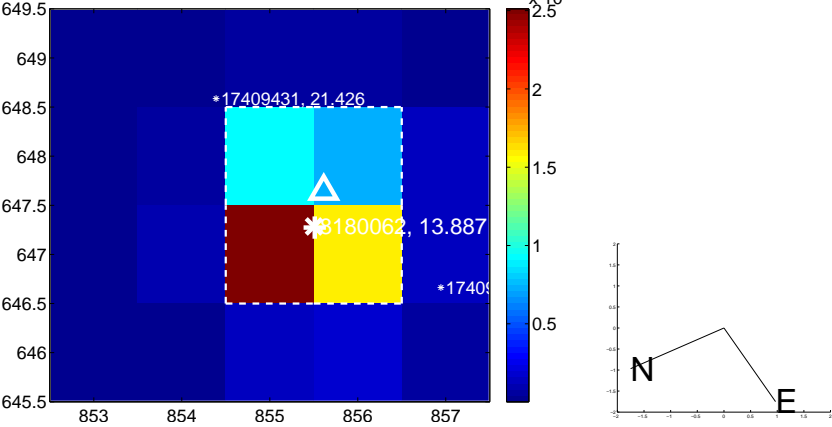
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



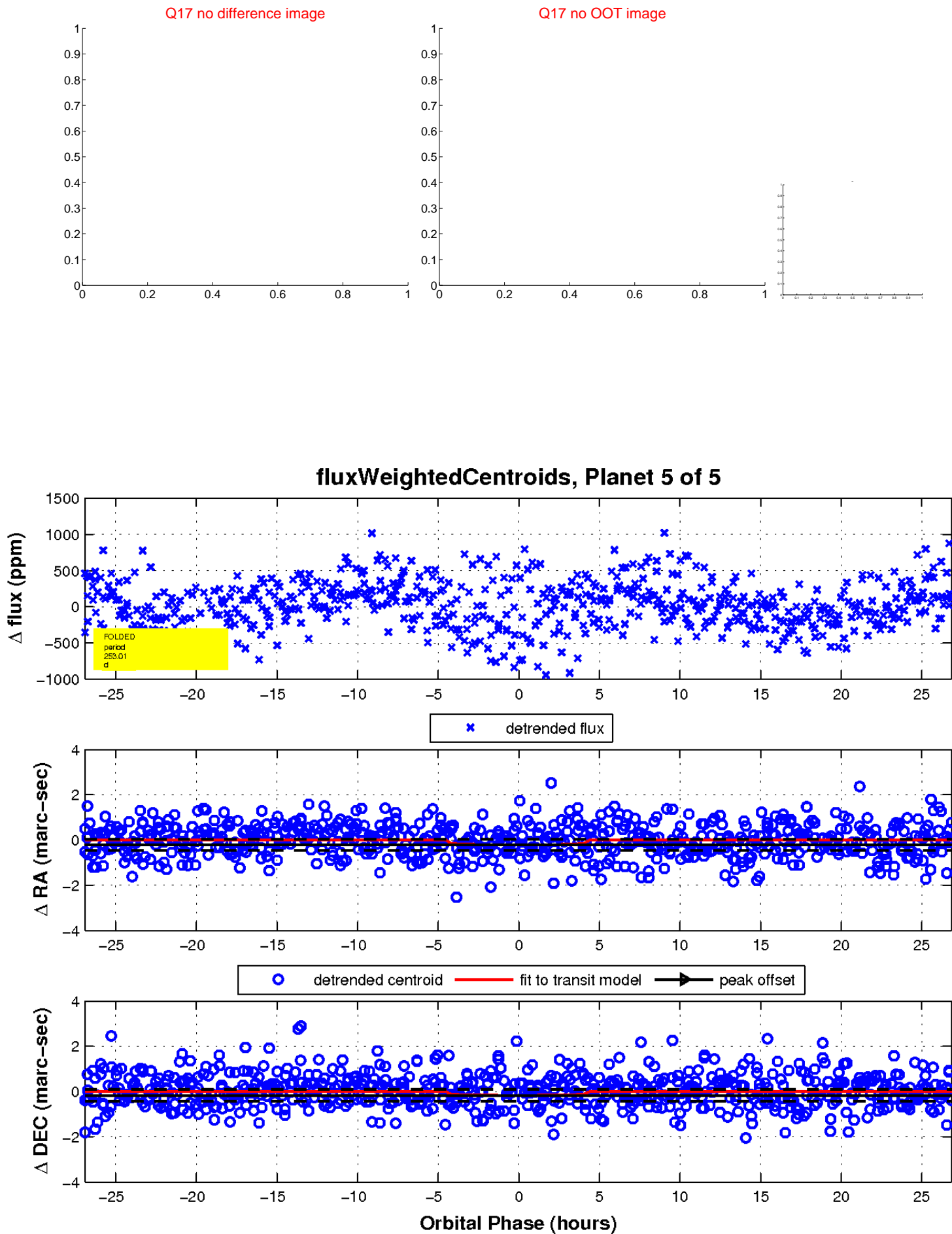
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

