

KIC 008173017

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})
008173017-01	OBS	No	0.590307	132.043133	135.2	1.559	11.7	12.6	1.35	6797	1.59	15184.51
008173017-02	OBS	No	0.590302	131.692249	134.6	1.497	10.8	11.0	1.35	6797	1.83	15184.68
008173017-03	OBS	No	110.297200	214.681822	1456.2	5.953	8.5	4.2	1.35	6797	5.36	14.21
008173017-04	OBS	No	55.368081	182.870130	2689.7	5.137	8.0	8.5	1.35	6797	12.78	35.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008173017-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008173017-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008173017-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—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
008173017-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

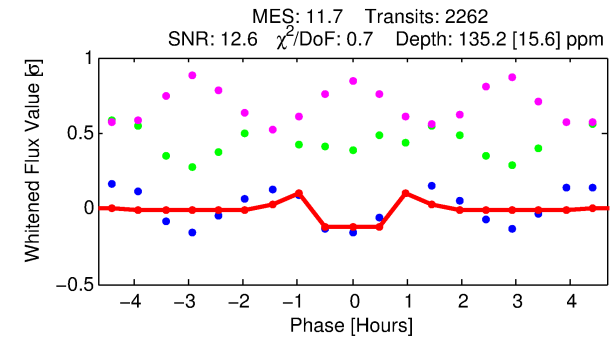
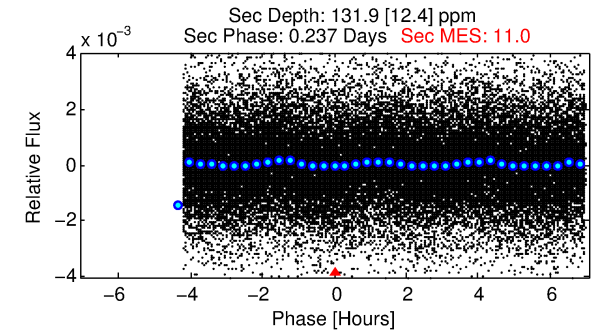
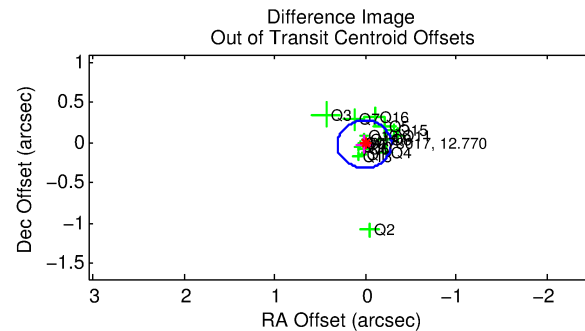
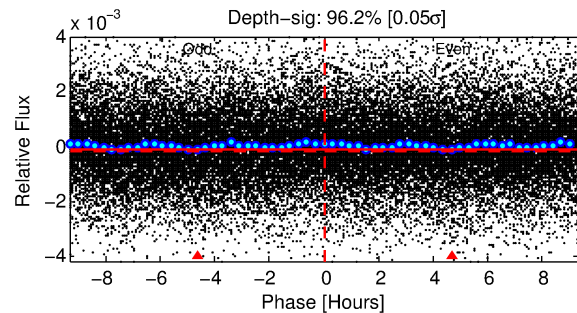
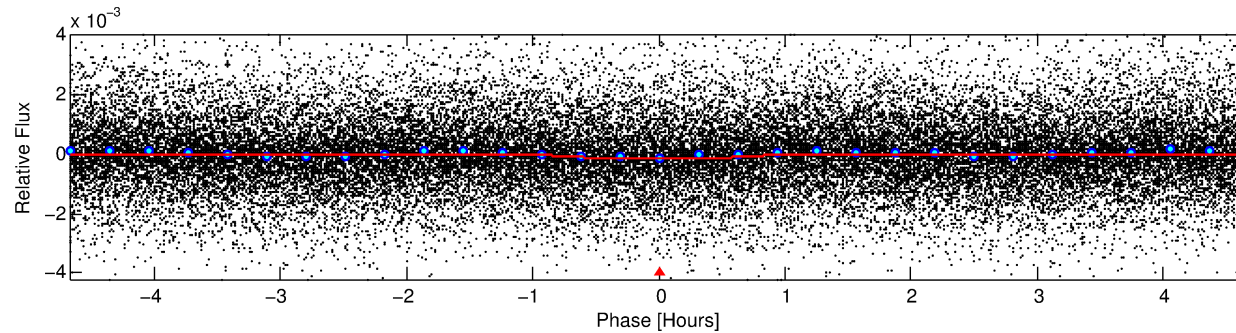
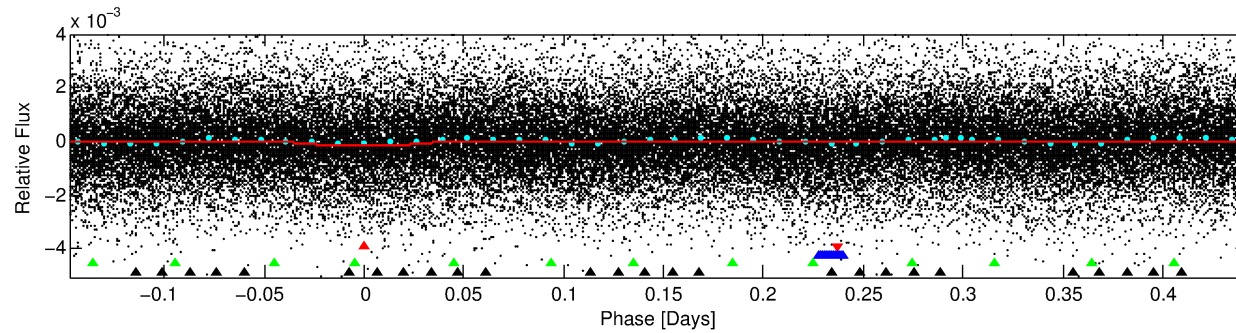
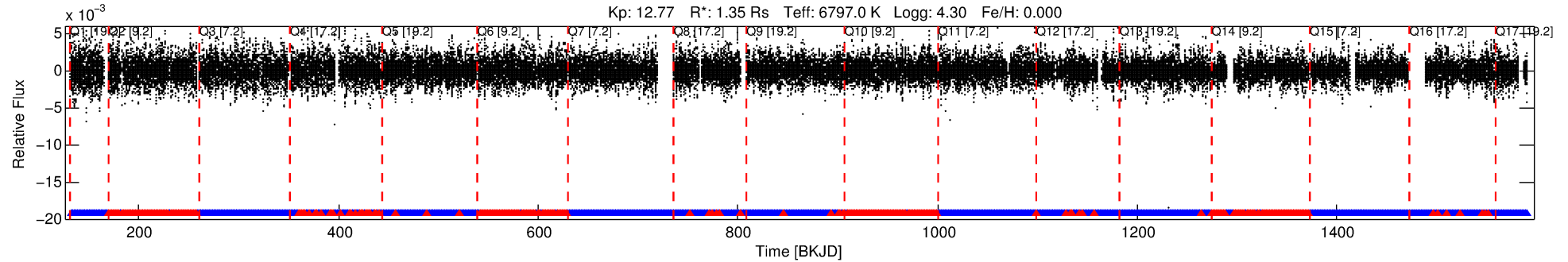
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008173017-01

No Significant Match Found

DV One-Page Summary

KIC: 8173017 Candidate: 1 of 4 Period: 0.590 d



DV Fit Results:

Period = 0.59031 [0.00001] d
Epoch = 132.0431 [0.0008] BKJD
Rp/R* = 0.0108 [0.0036]
a/R* = 2.97 [4.72]
b = 0.10 [17.78]
Seff = 15184.51 [6449.45]
Teq = 2831 [301] K
Rp = 1.59 [0.77] Re
a = 0.0151 [0.0043] AU
Ag = 6.60 [5.13] [1.09 σ]
Teffp = 7015 [1194] K [3.40 σ]

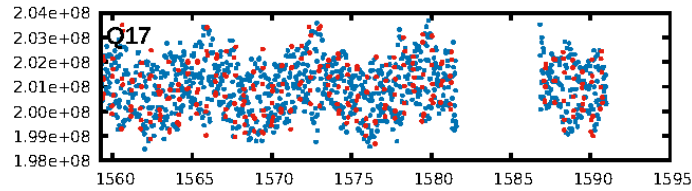
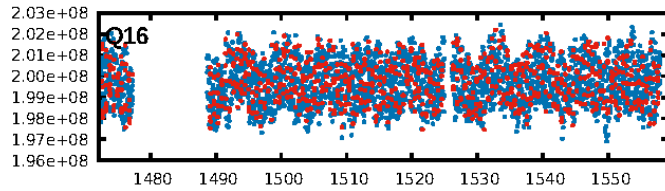
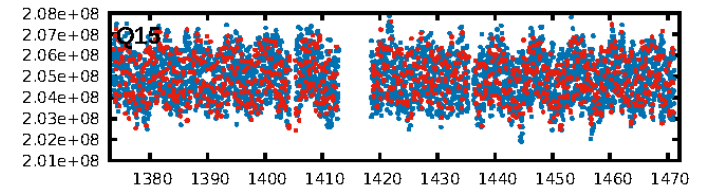
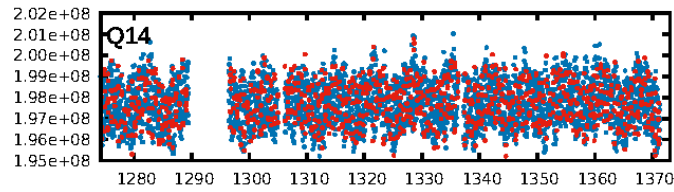
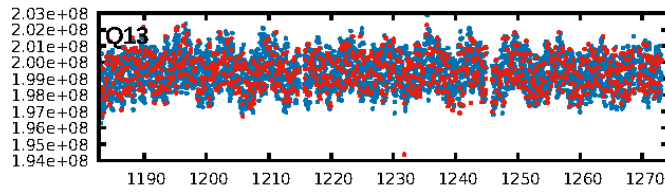
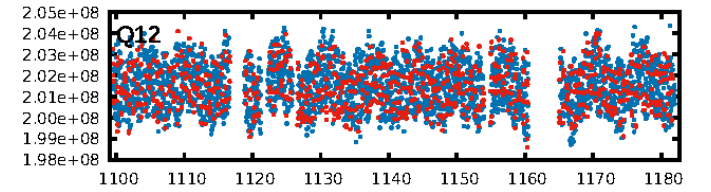
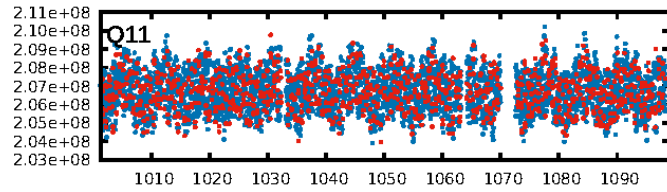
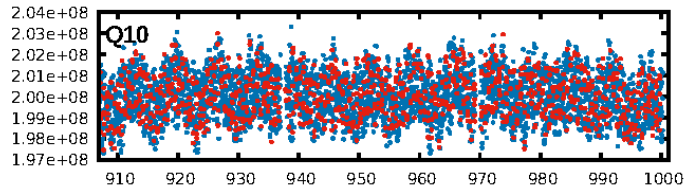
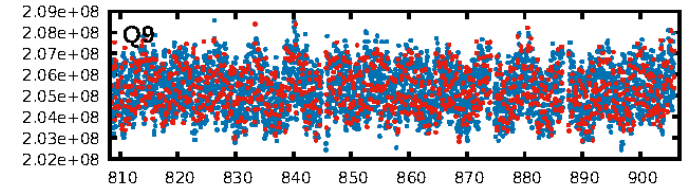
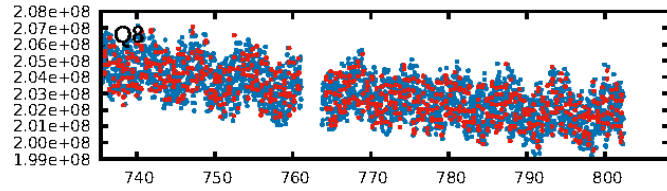
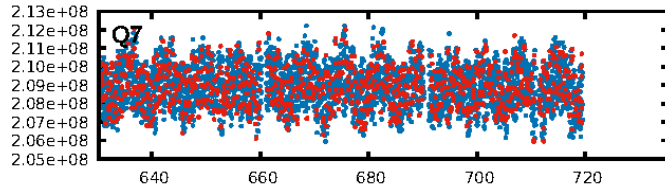
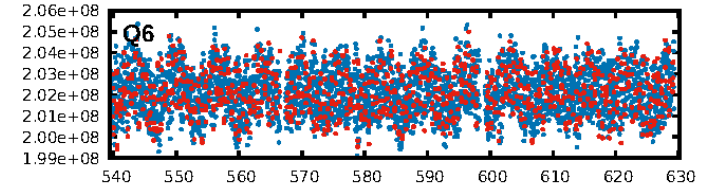
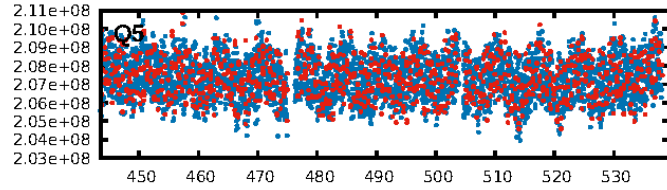
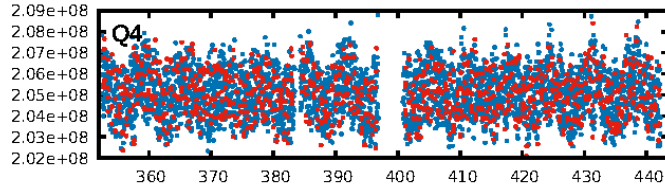
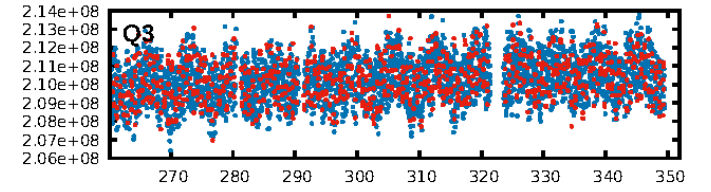
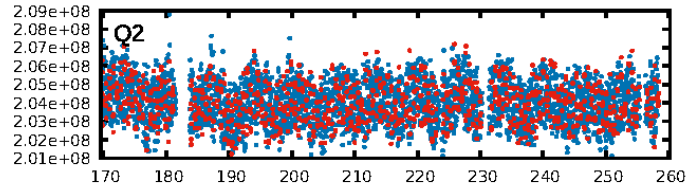
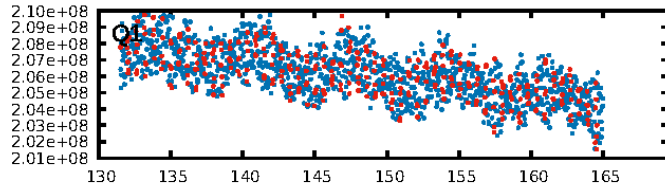
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [244.90 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.24e-37
RollingBand-fgt: 0.76 [1647/2161]
GhostDiagnostic-chr: 0.7119
Centroid-sig: 51.8%
Centroid-so: 0.210 arcsec [1.72 σ]
OotOffset-rm: 0.023 arcsec [0.23 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.101 arcsec [0.94 σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 0.00 [0/17]

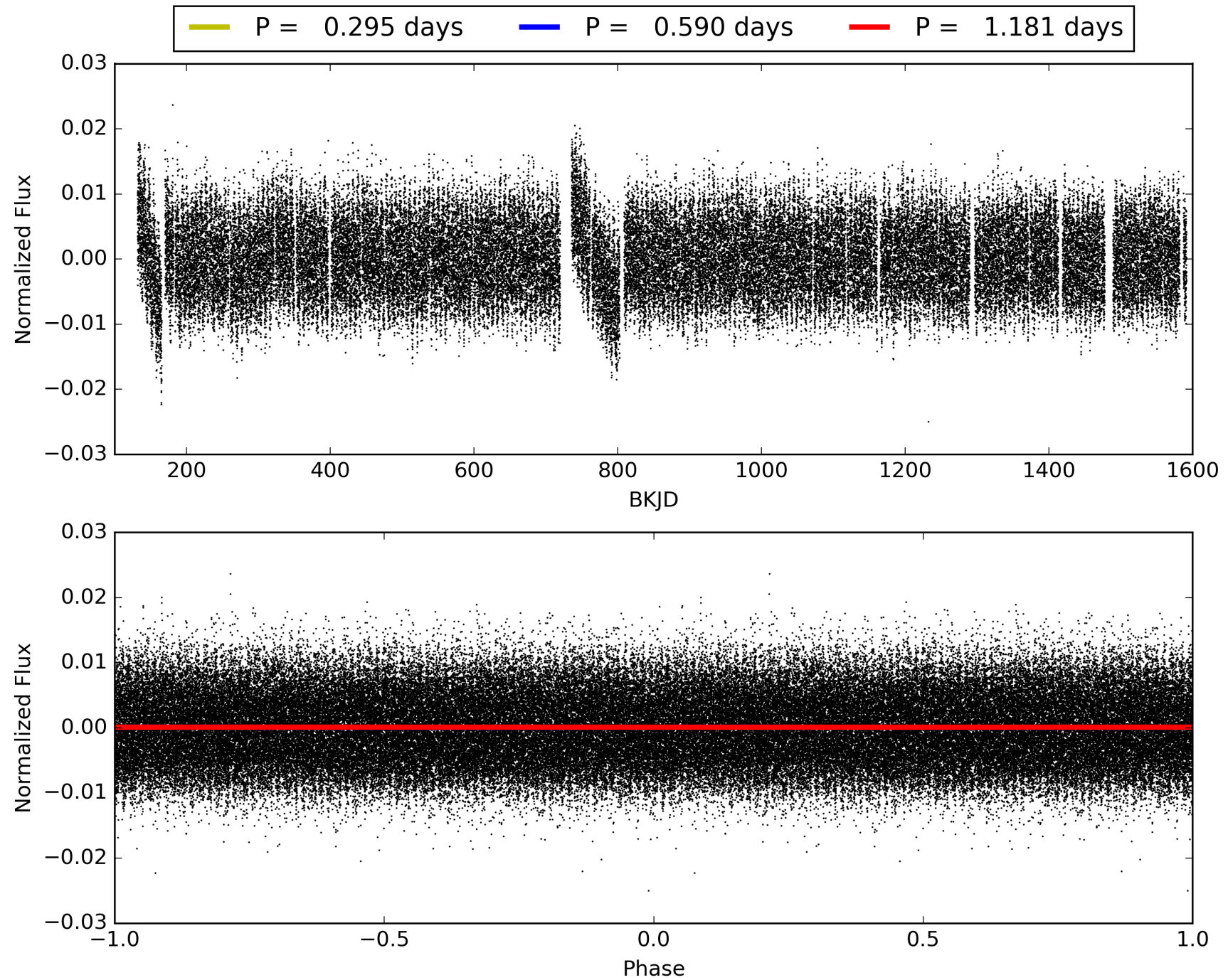
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008173017-01, PDC Light Curves

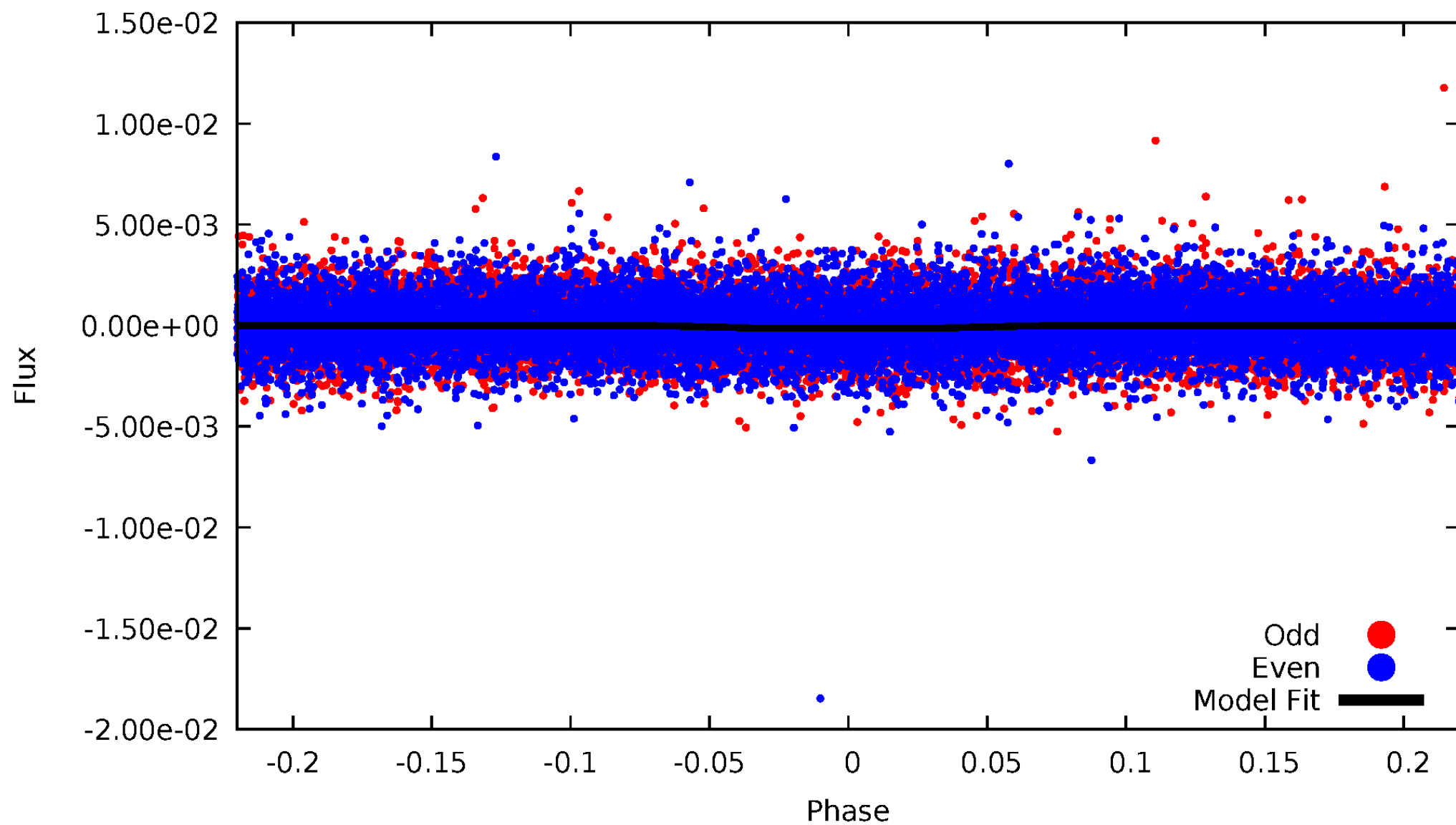


TCE 008173017-01



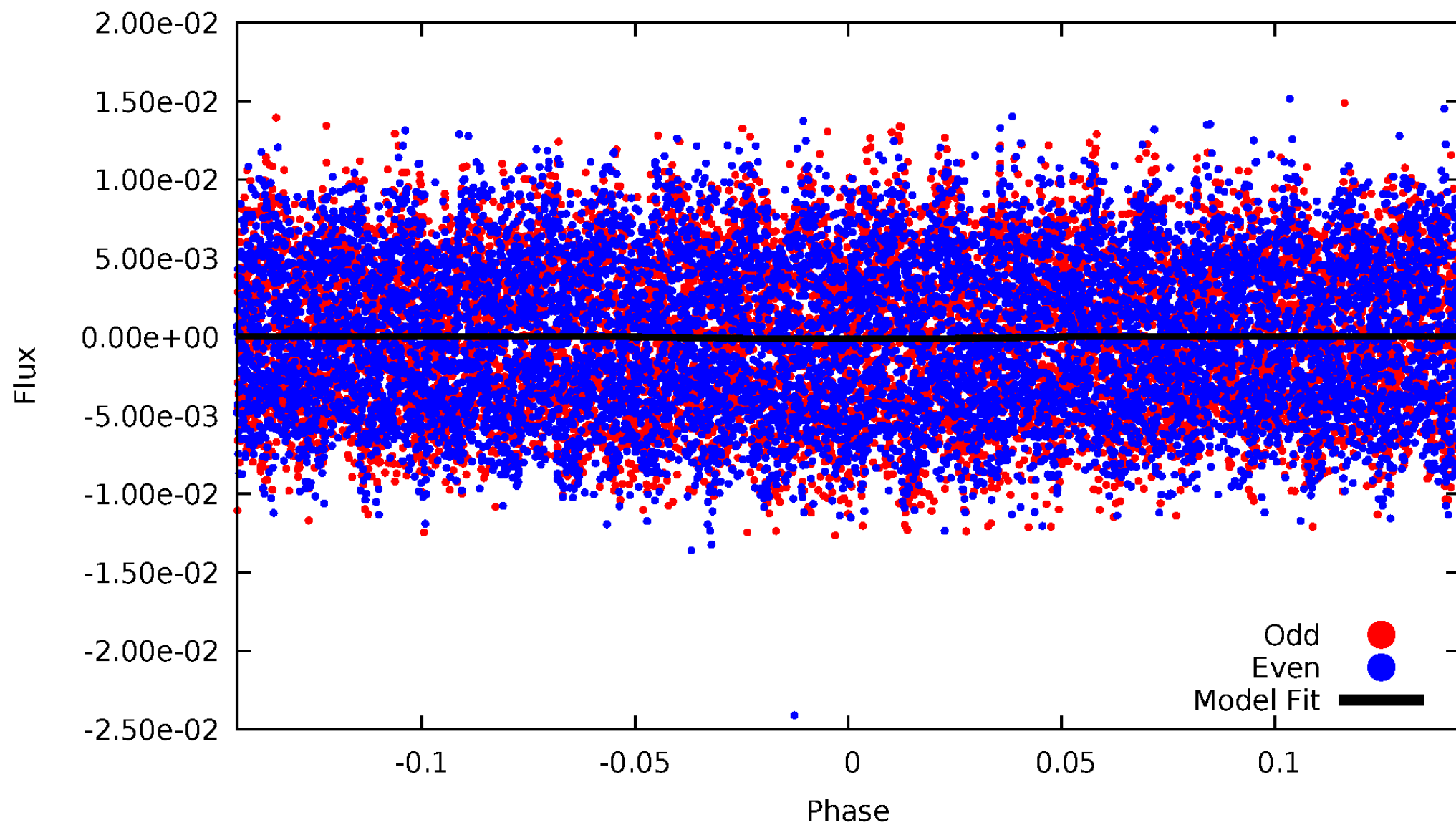
DV Odd/Even

TCE 008173017-01

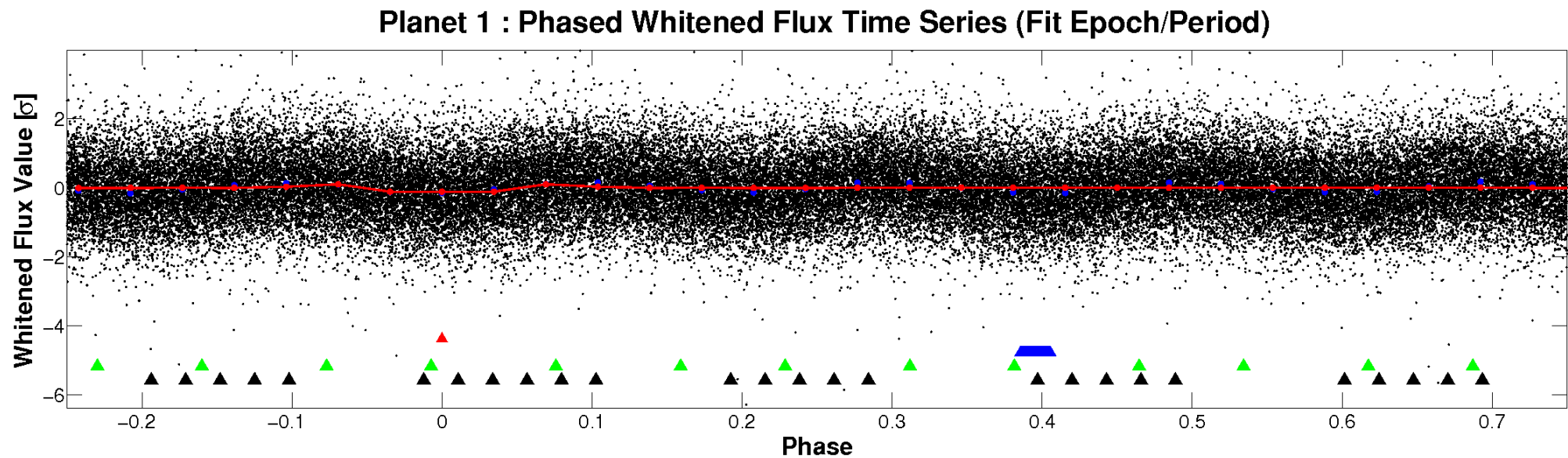
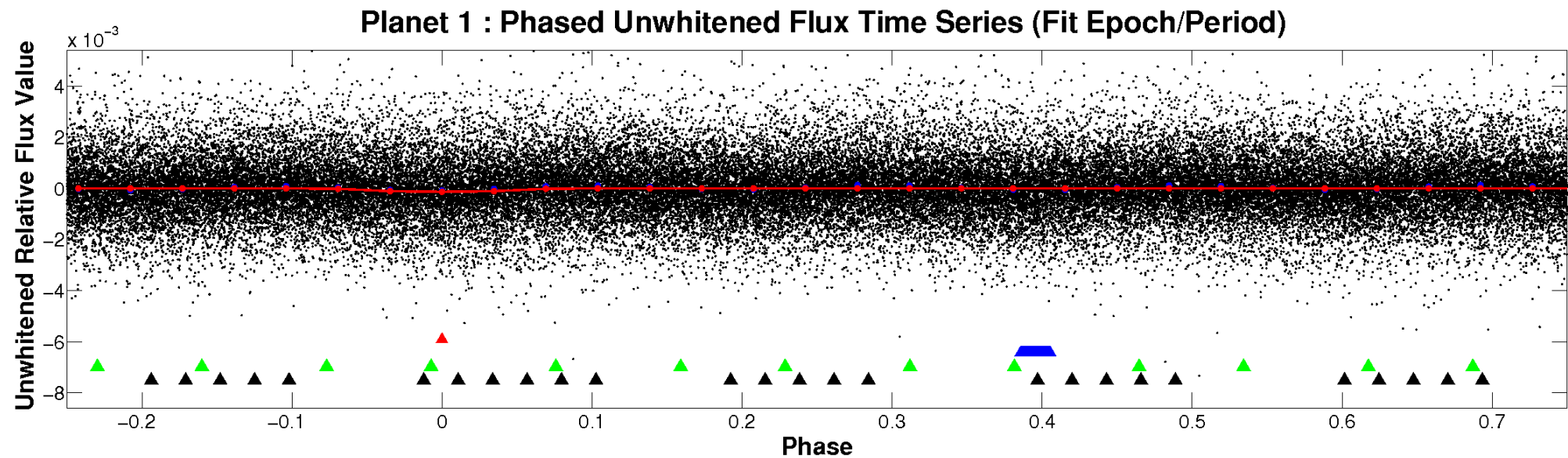


ALT Odd/Even

TCE 008173017-01

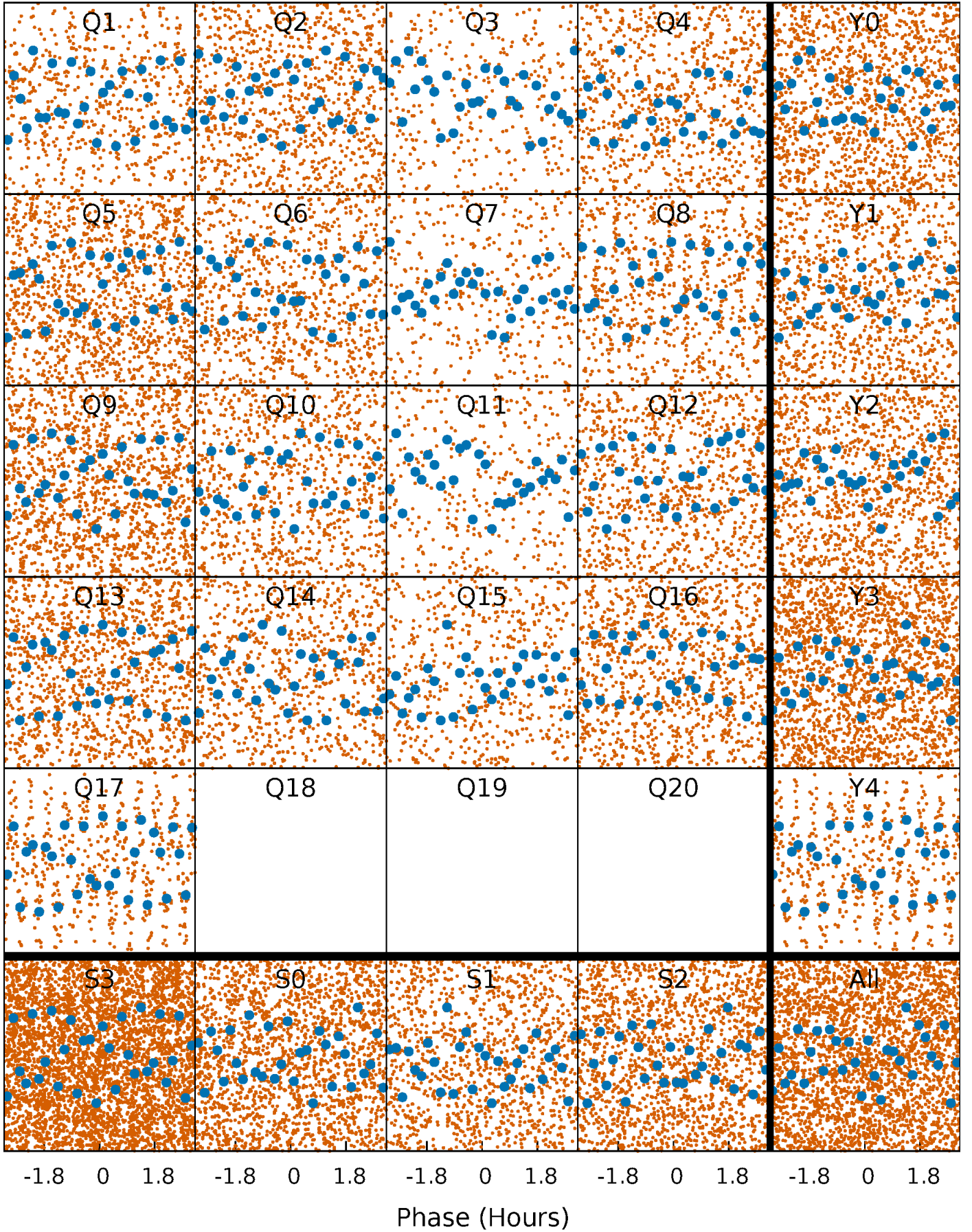


Non-Whitened Vs. Whitened Light Curve



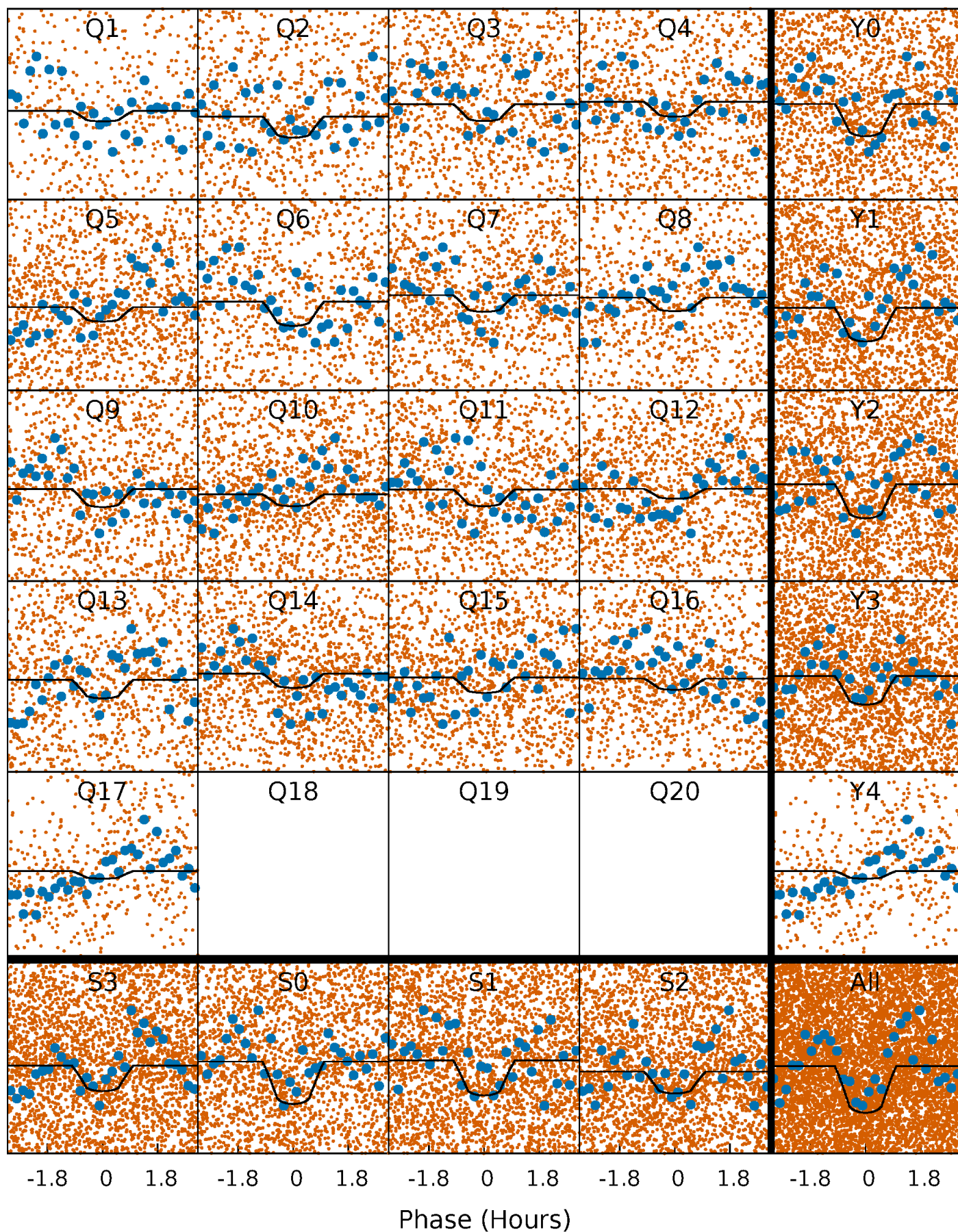
PDC Quarter-Phased Transit Curves

TCE 008173017-01 P= 0.590307 Days $T_0=132.043133$ (BKJD)



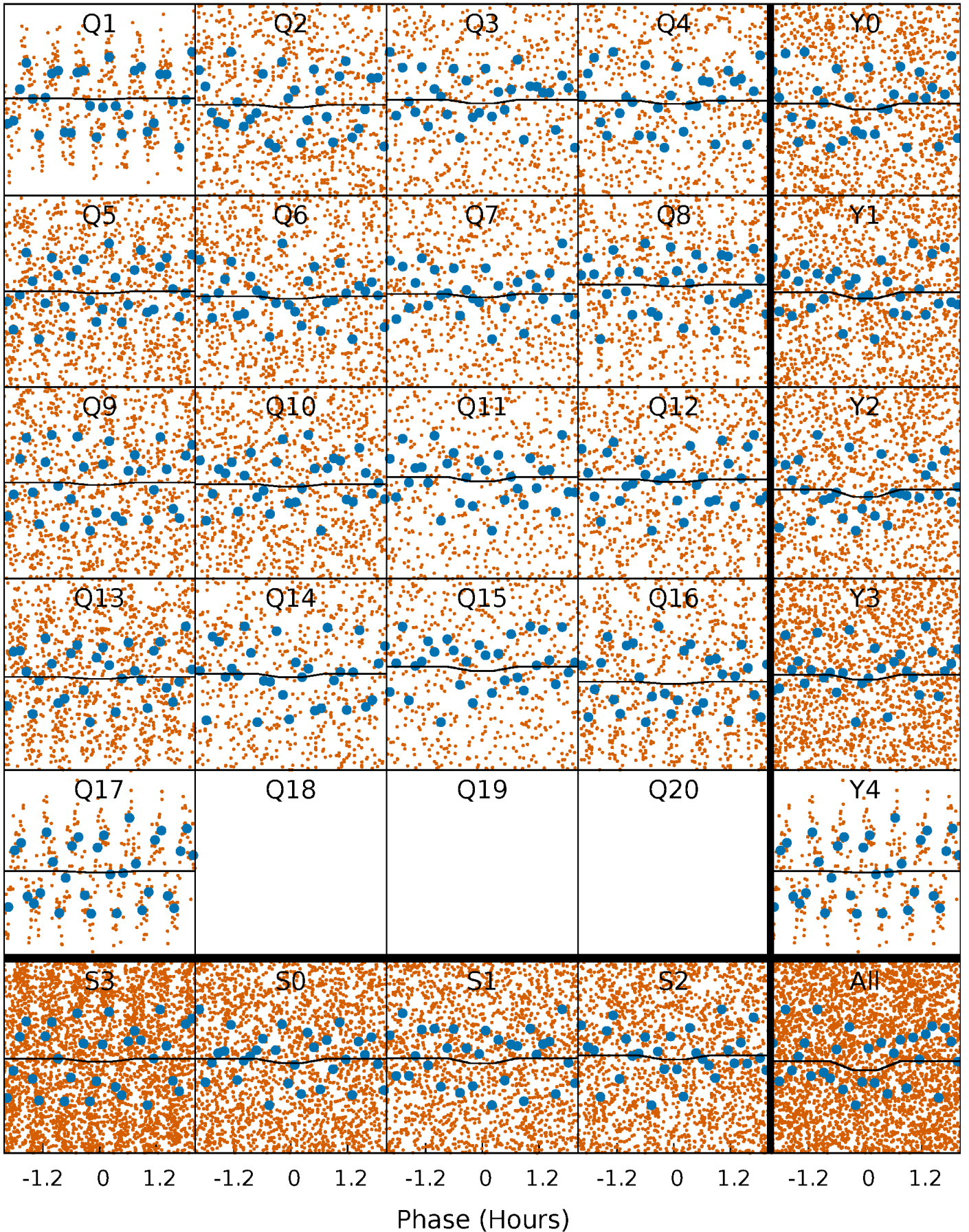
DV Quarter-Phased Transit Curves

TCE 008173017-01 P= 0.590307 Days $T_0=132.043133$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

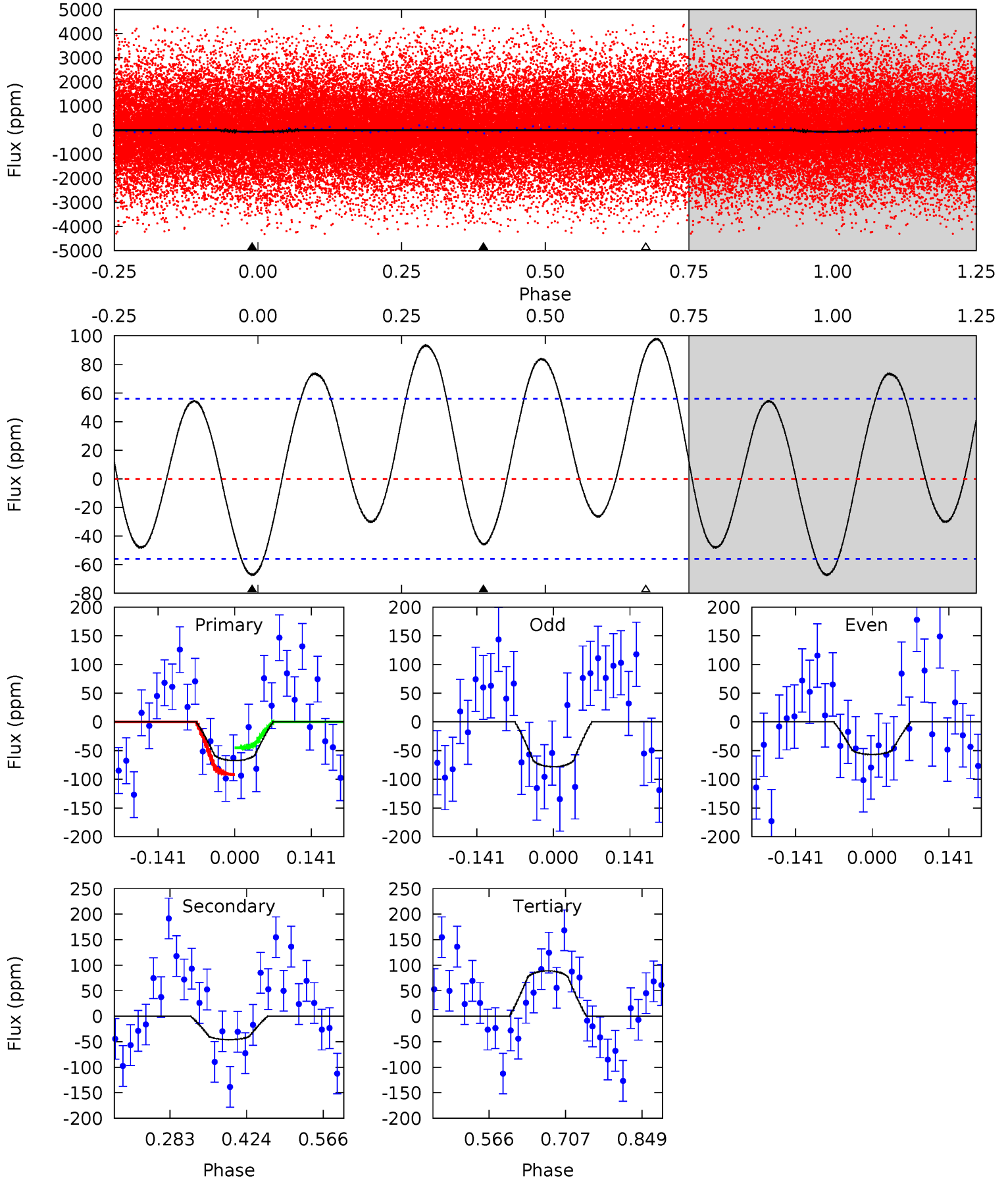
TCE 008173017-01 P= 0.590307 Days $T_0=132.044584$ (BKJD)



DV Model-Shift Uniqueness Test

008173017-01, P = 0.590307 Days, E = 131.452826 Days

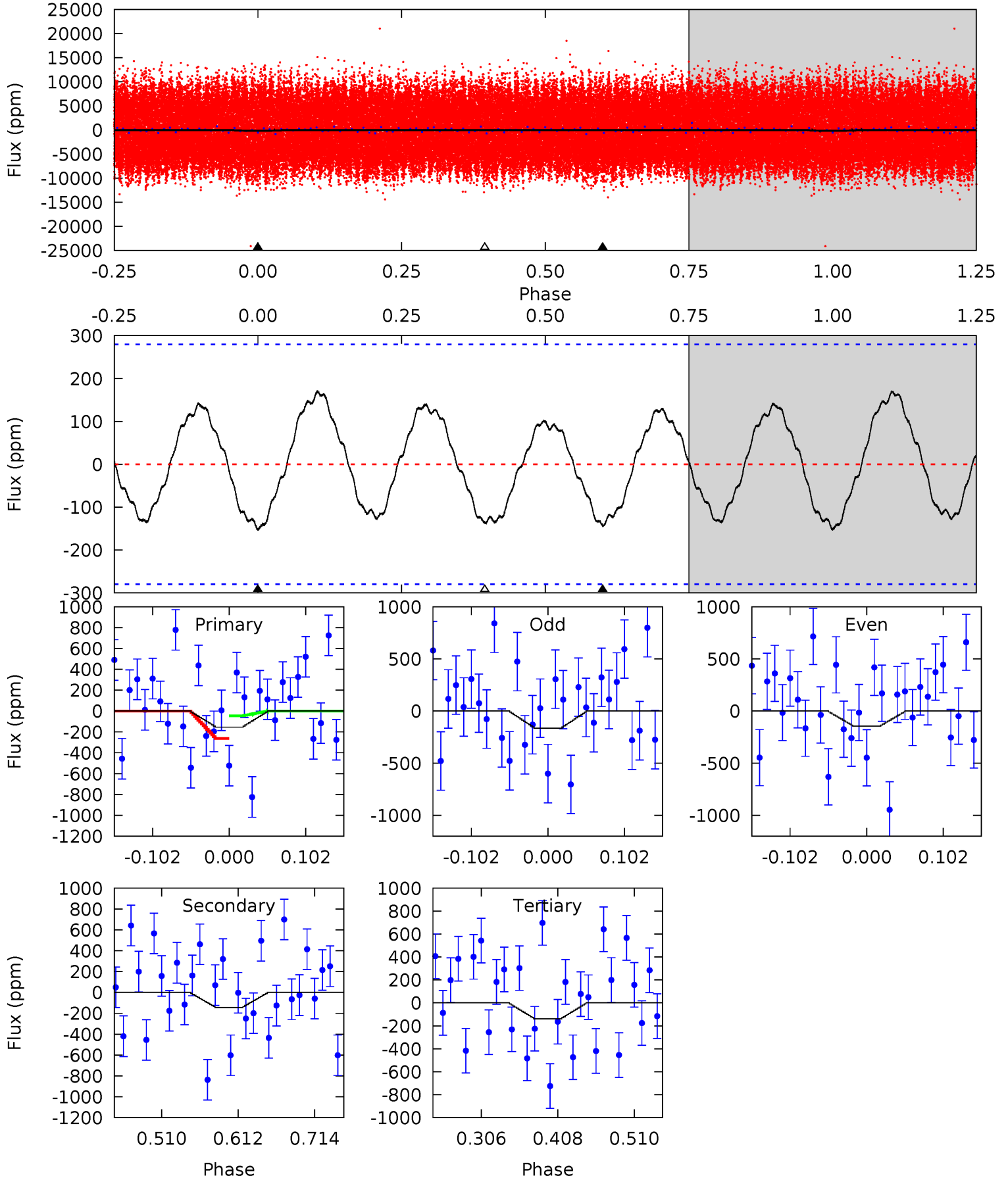
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.41	3.68	-7.14	0	4.49	1.47	3.36	12.6	5.41	10.8	3.68	0.86	0.67	0.59	1.85



Alt Model-Shift Uniqueness Test

008173017-01, P = 0.590307 Days, E = 131.454277 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.51	2.35	2.26	0	4.56	1.64	1.52	0.26	2.51	0.09	2.35	0.16	0.63	0.53	1.74



Stellar Parameters For KIC 008173017

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6797^{+162}_{-243}	$4.301^{+0.070}_{-0.210}$	$0.000^{+0.250}_{-0.350}$	$1.349^{+0.479}_{-0.160}$	$1.335^{+0.209}_{-0.190}$	$0.766^{+0.240}_{-0.411}$
	+2%/-4%	+2%/-5%	+inf%/-inf%	+36%/-12%	+16%/-14%	+31%/-54%
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 008173017-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 12	$1.68^{+0.60}_{-0.56}$	4018^{+273}_{-213}	5148^{+1298}_{-848}	$2.004^{+2.670}_{-1.028}$
Alt.	-144 ± 61	$1.88^{+0.67}_{-0.61}$	4018^{+324}_{-203}	6575^{+1708}_{-1295}	$4.891^{+6.046}_{-2.831}$

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 $A_{obs} \gg 1.0$

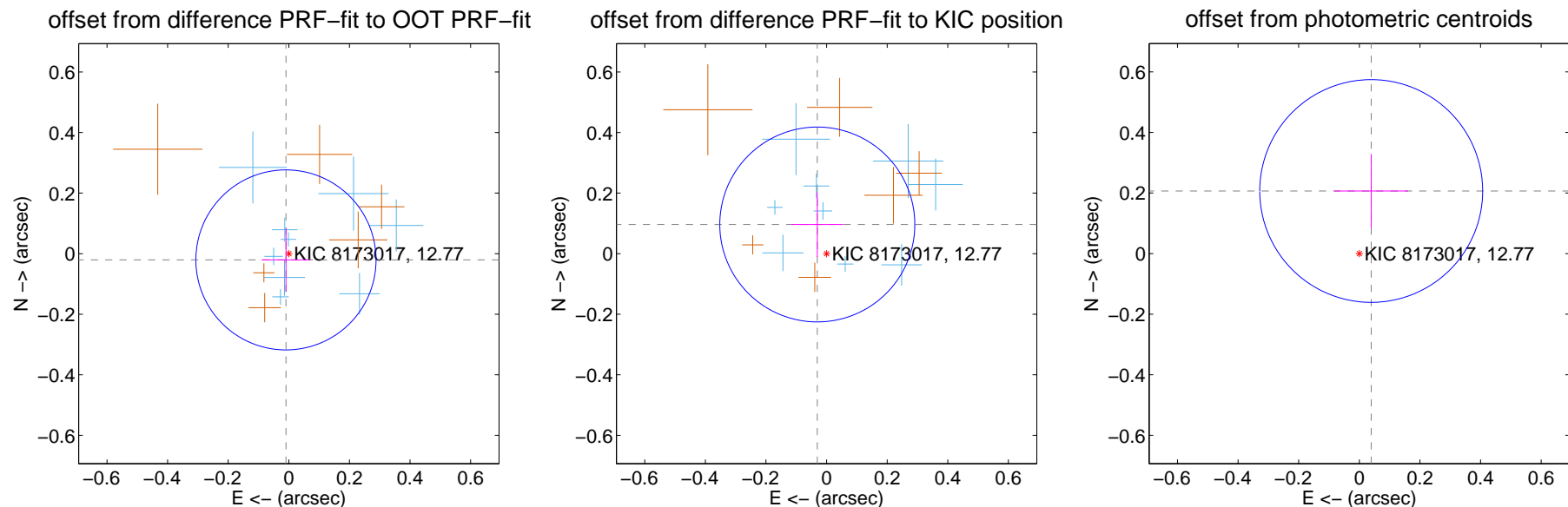
DV Centroid Data

Supplemental centroid analysis for 008173017-01. Kepler magnitude: 12.77. Transit SNR 12.57

There are 10 quarters with good PRF difference image offsets

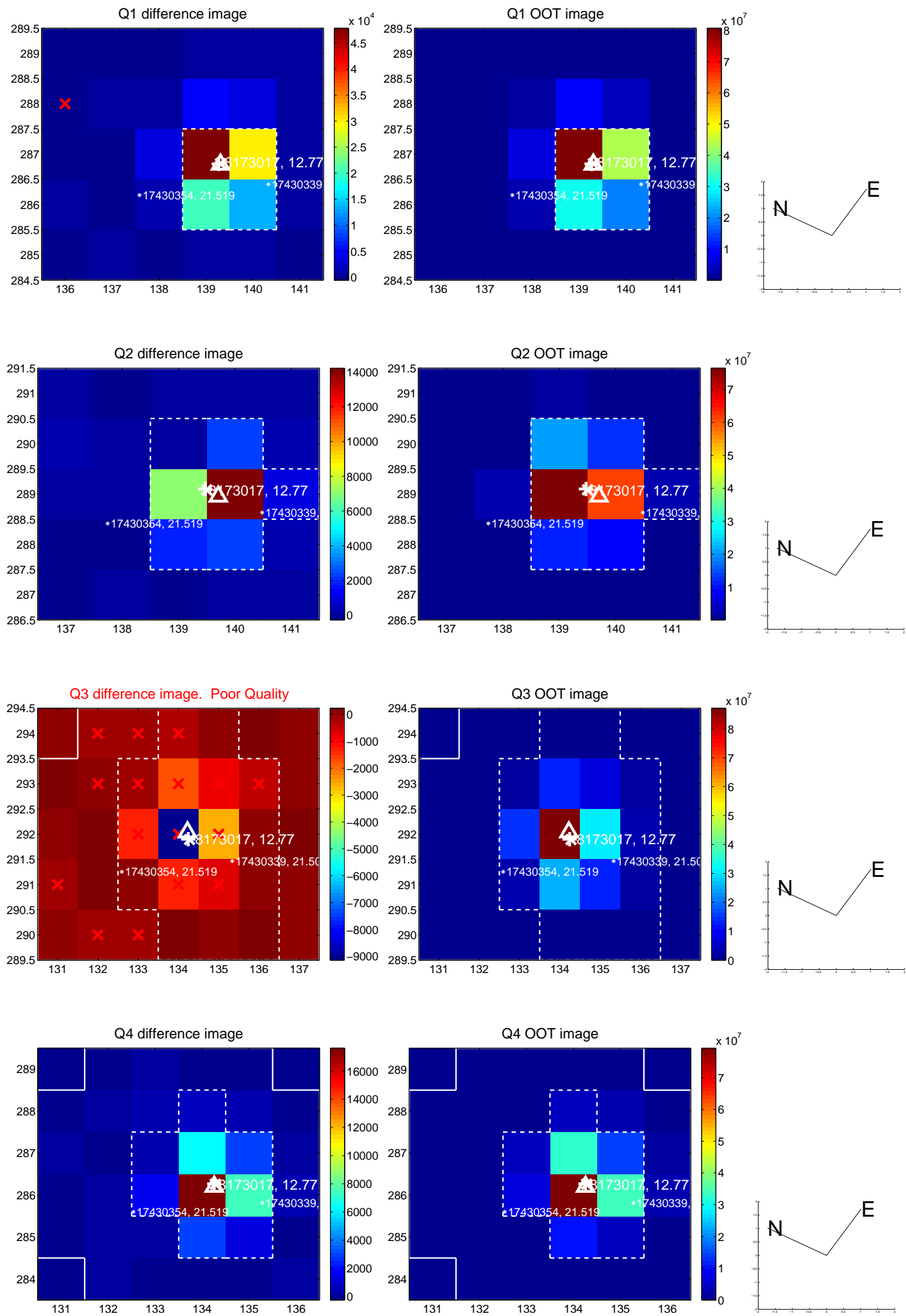
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.023 ± 0.099	0.23	0.009 ± 0.080	-0.021 ± 0.104
PRF-fit source offset from KIC position	0.101 ± 0.107	0.94	0.031 ± 0.085	0.096 ± 0.107
photometric centroid source offset	0.21 ± 0.12	1.72	-0.04 ± 0.12	0.21 ± 0.12

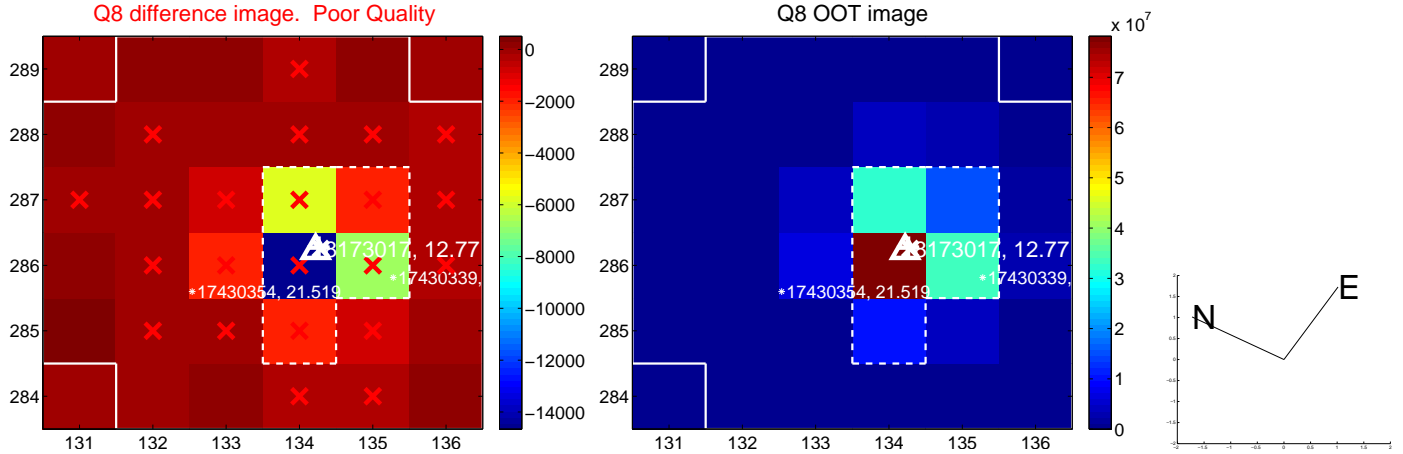
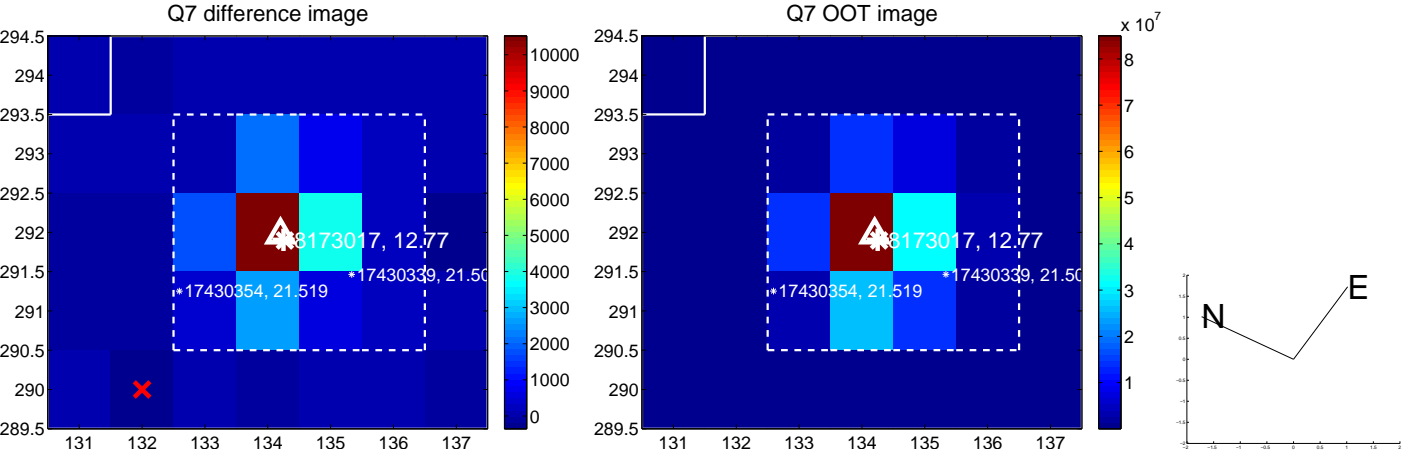
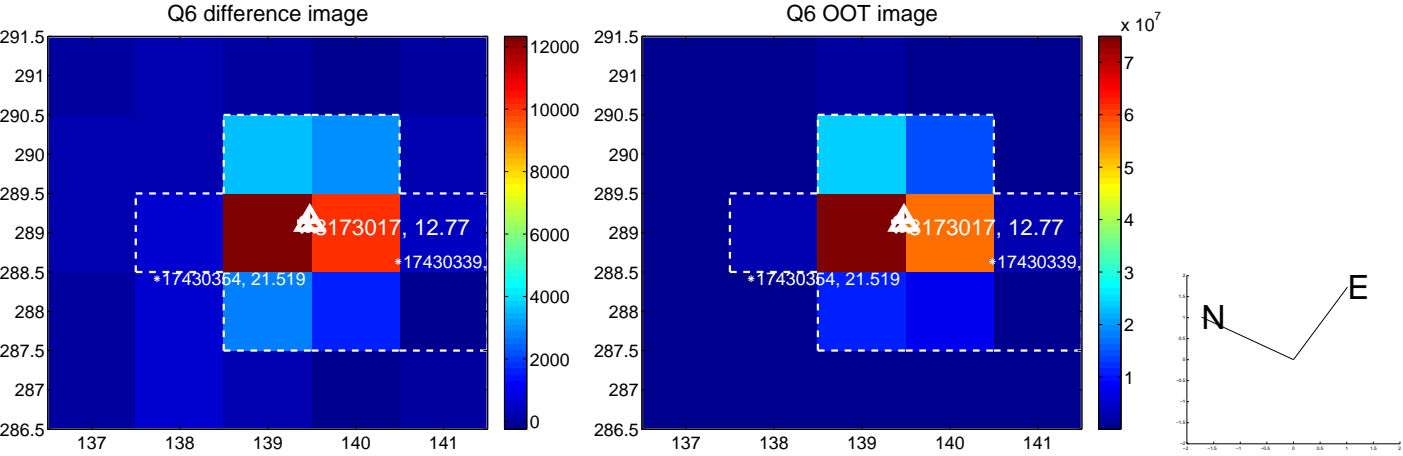
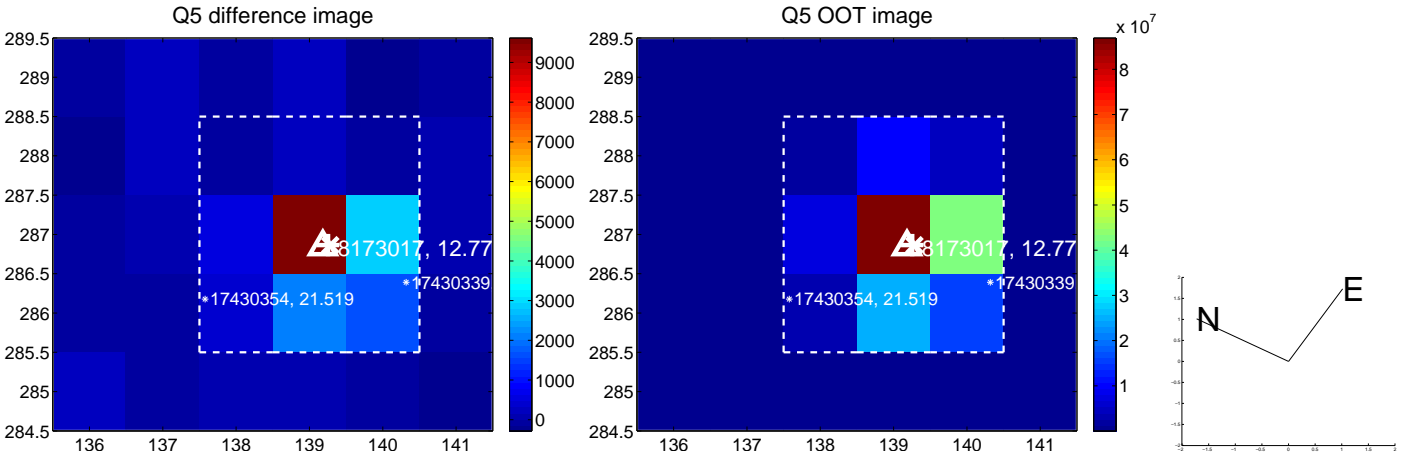


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

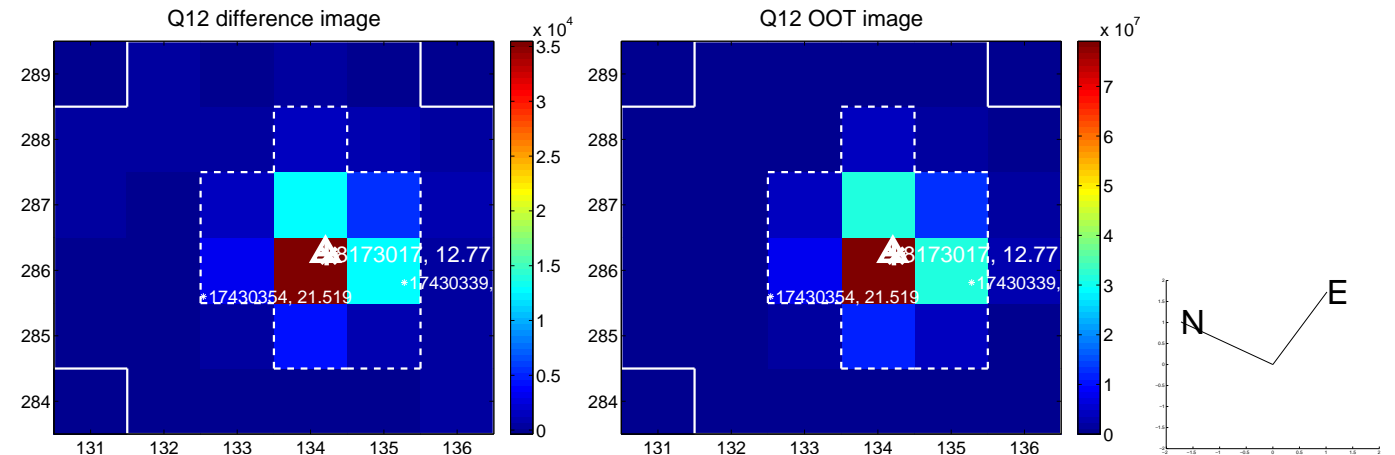
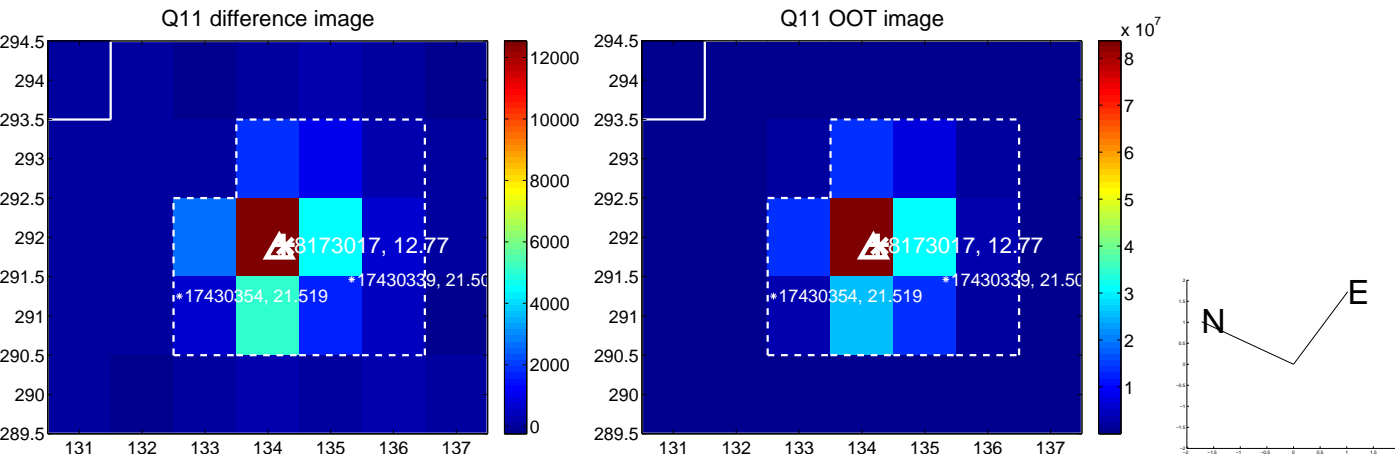
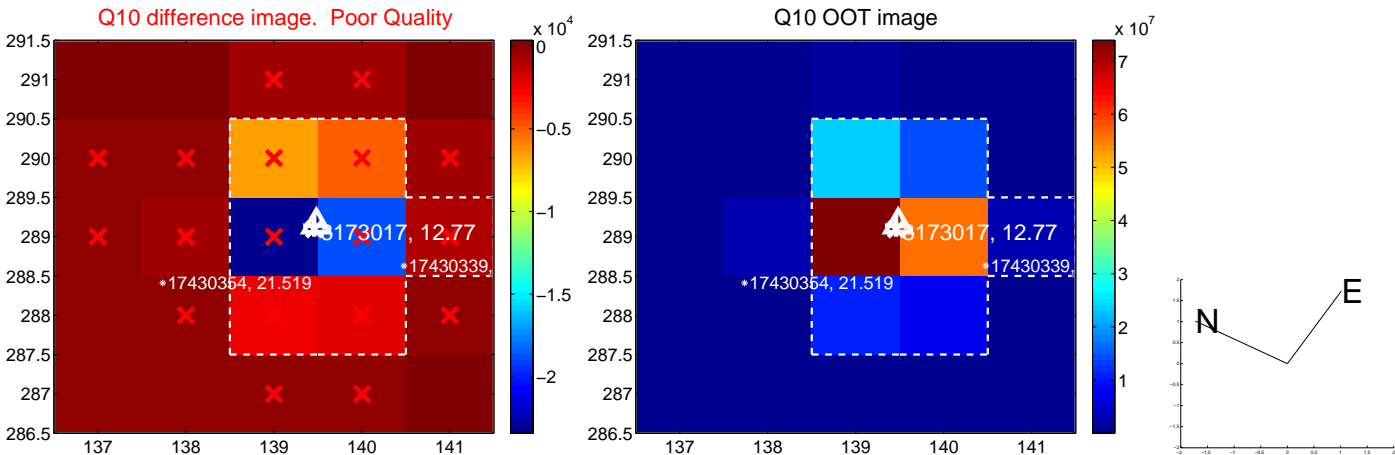
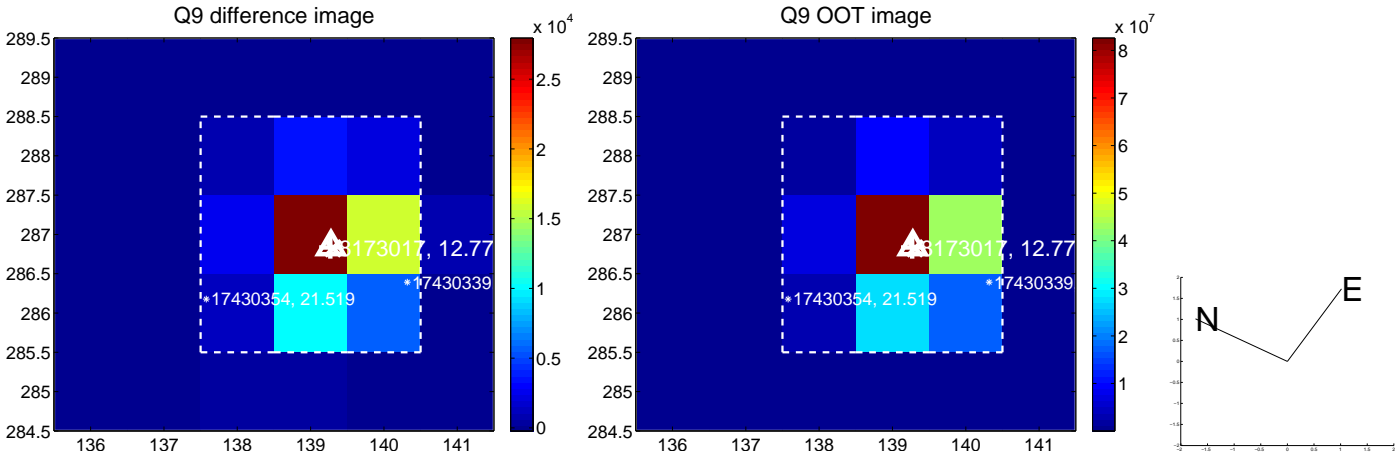
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



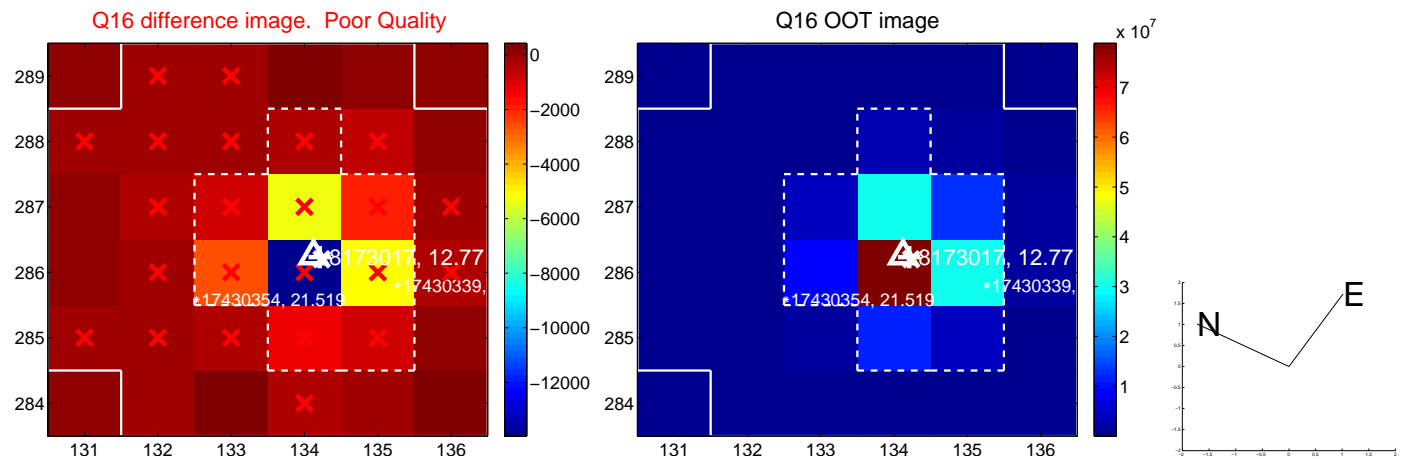
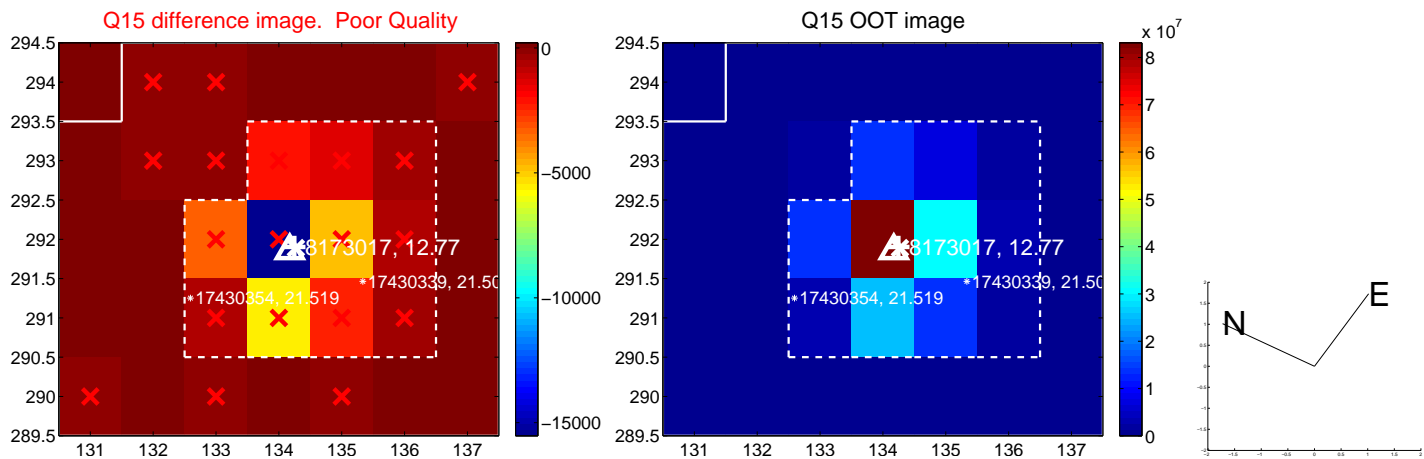
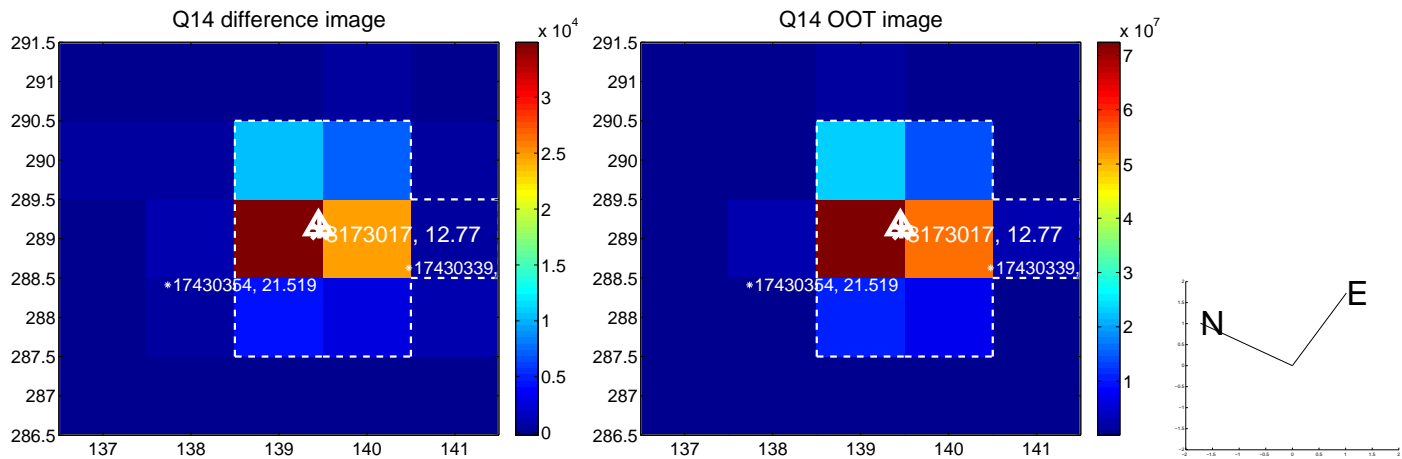
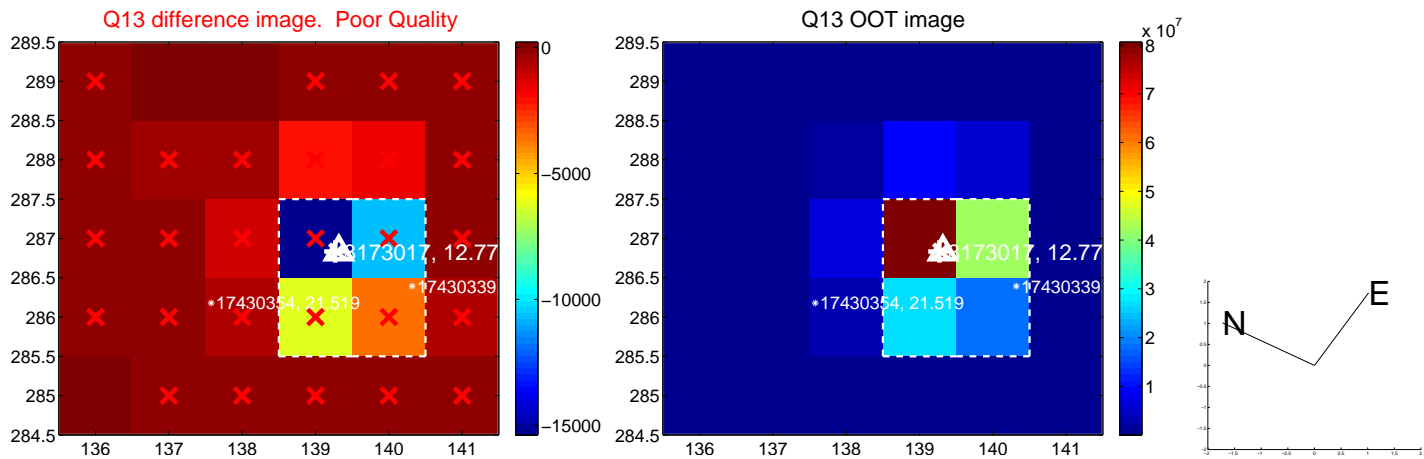
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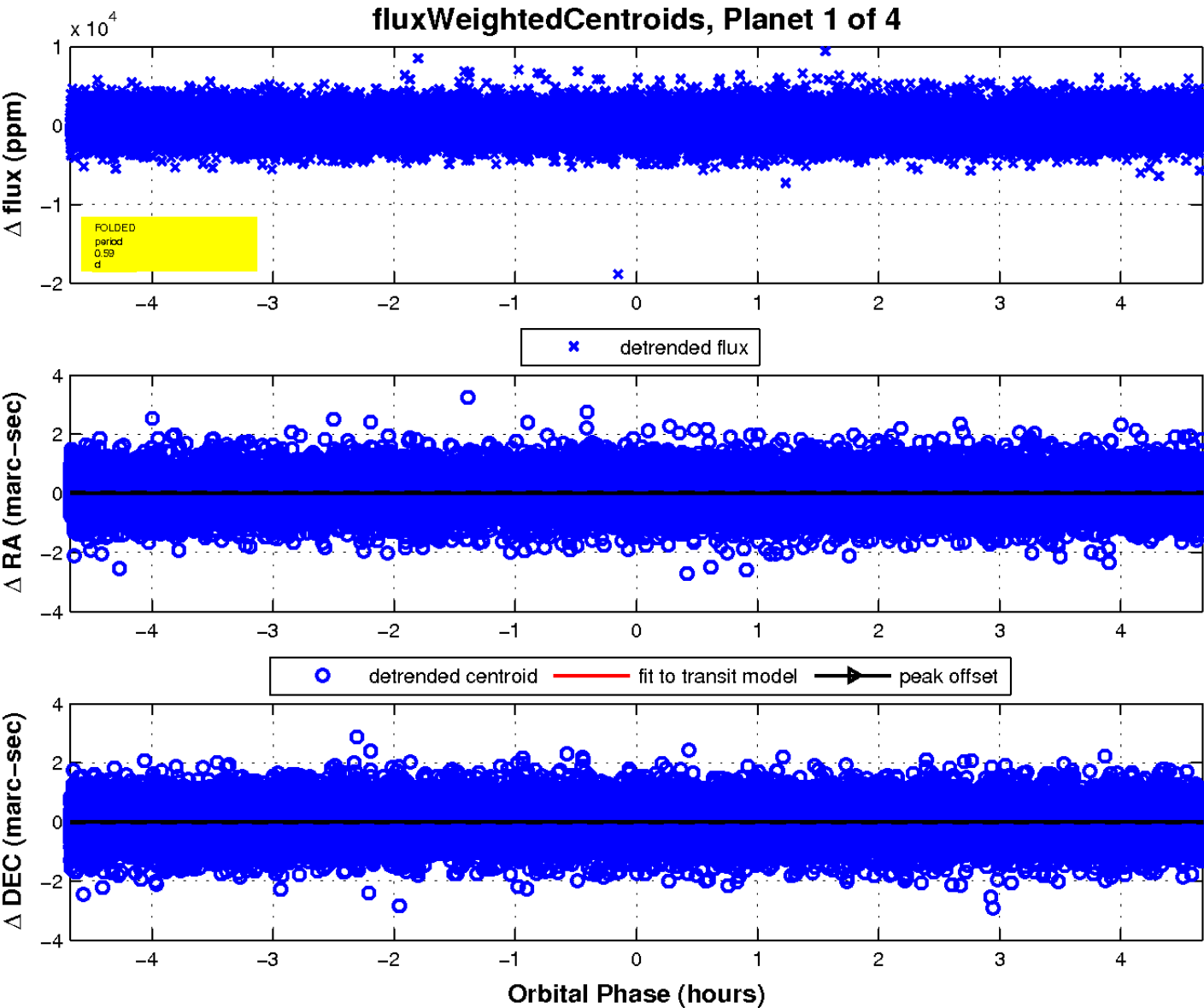
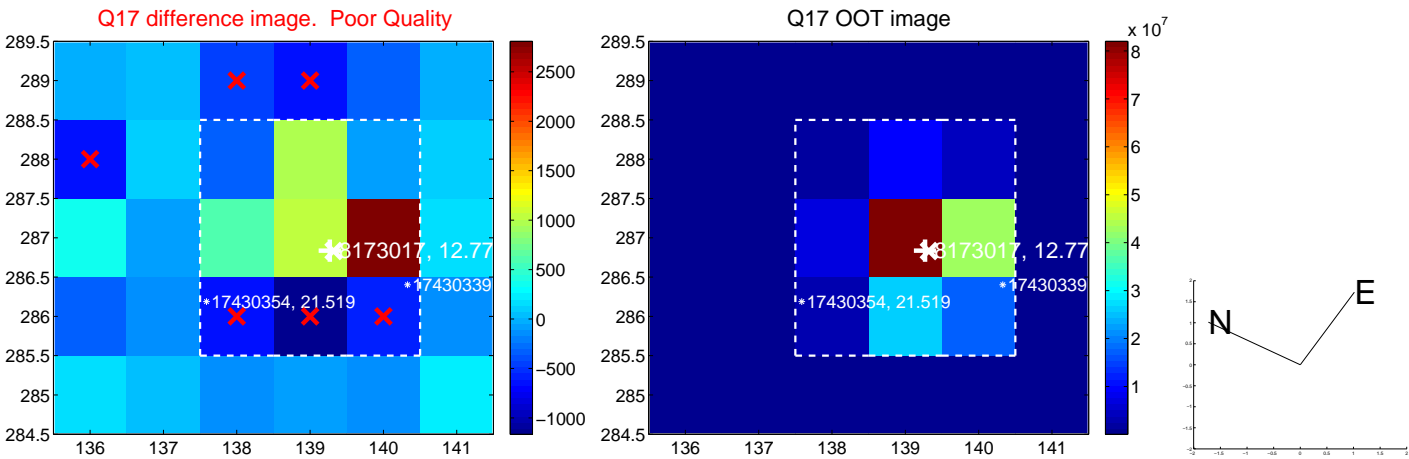
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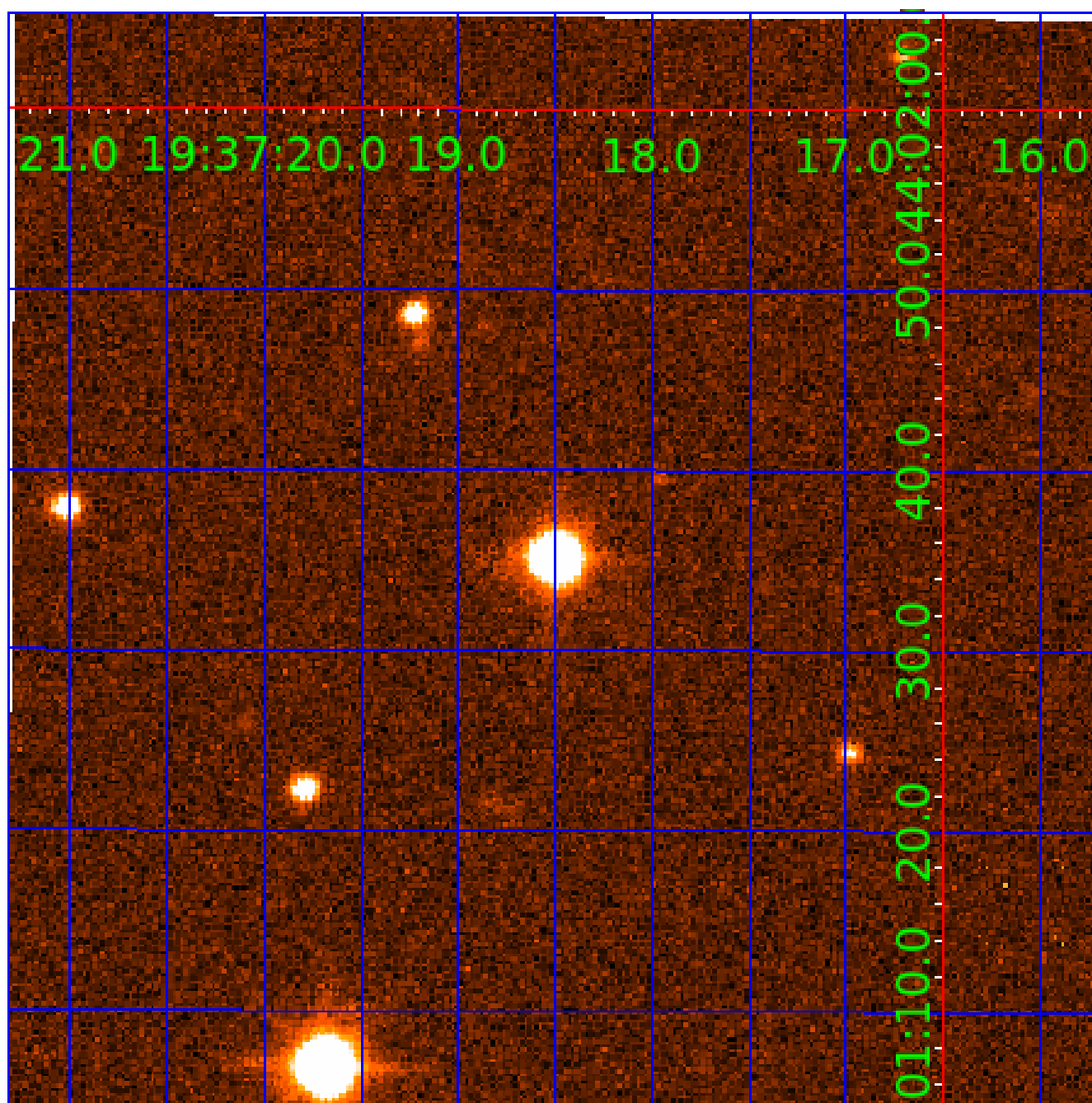


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UKIRT Image

Declination



KIC 008173017

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008173017-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—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.

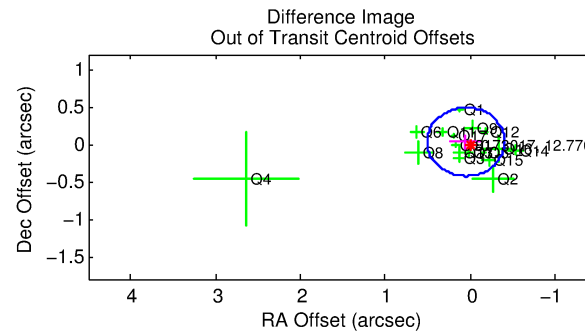
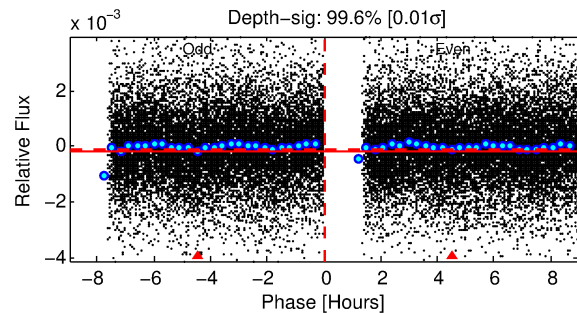
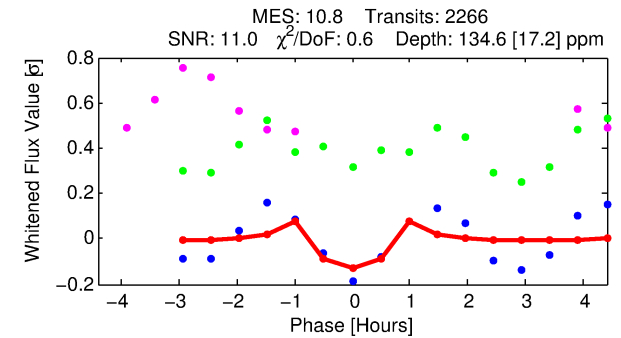
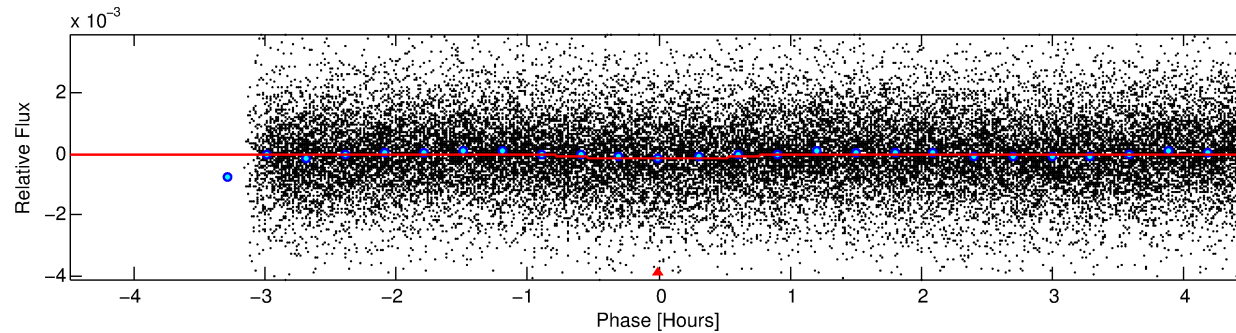
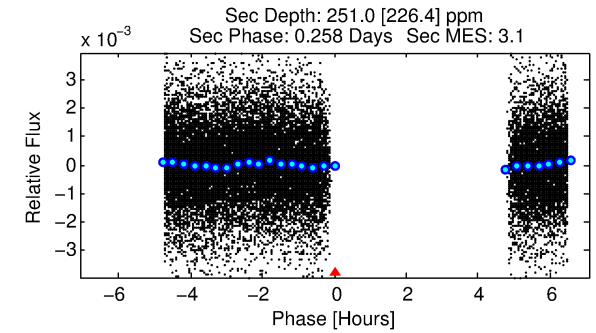
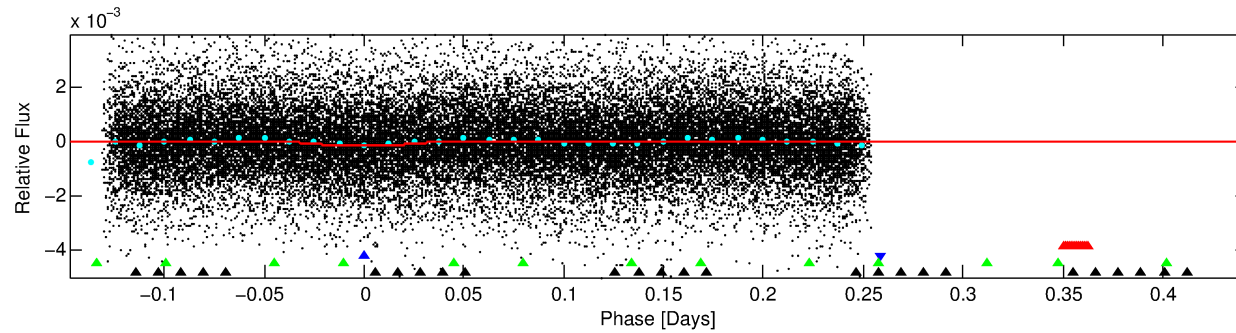
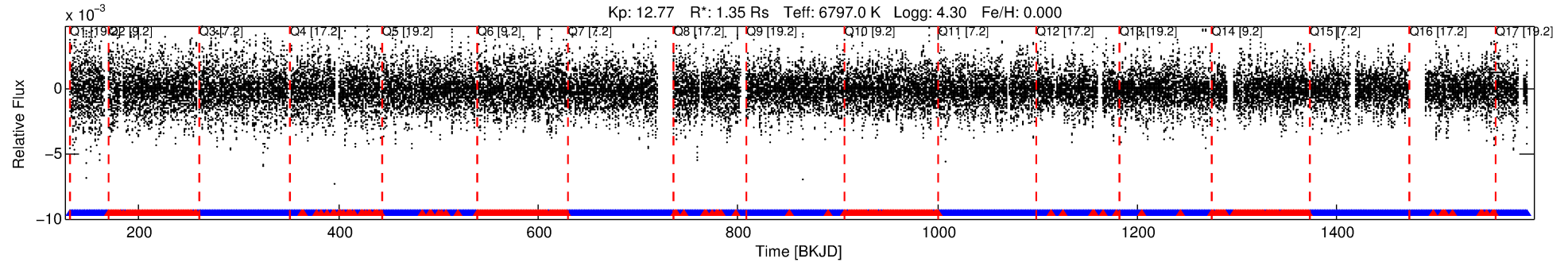
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008173017-02

No Significant Match Found

DV One-Page Summary

KIC: 8173017 Candidate: 2 of 4 Period: 0.590 d



DV Fit Results:

Period = 0.59030 [0.00001] d
Epoch = 131.6922 [0.0010] BKJD
Rp/R* = 0.0124 [0.0028]
a/R* = 1.68 [1.38]
b = 0.90 [0.27]
Seff = 15184.68 [6449.52]
Teff = 2831 [301] K
Rp = 1.83 [0.77] Re
a = 0.0151 [0.0043] AU
Ag = 9.47 [10.26] [0.82σ]
Teffp = 7676 [1954] K [2.45σ]

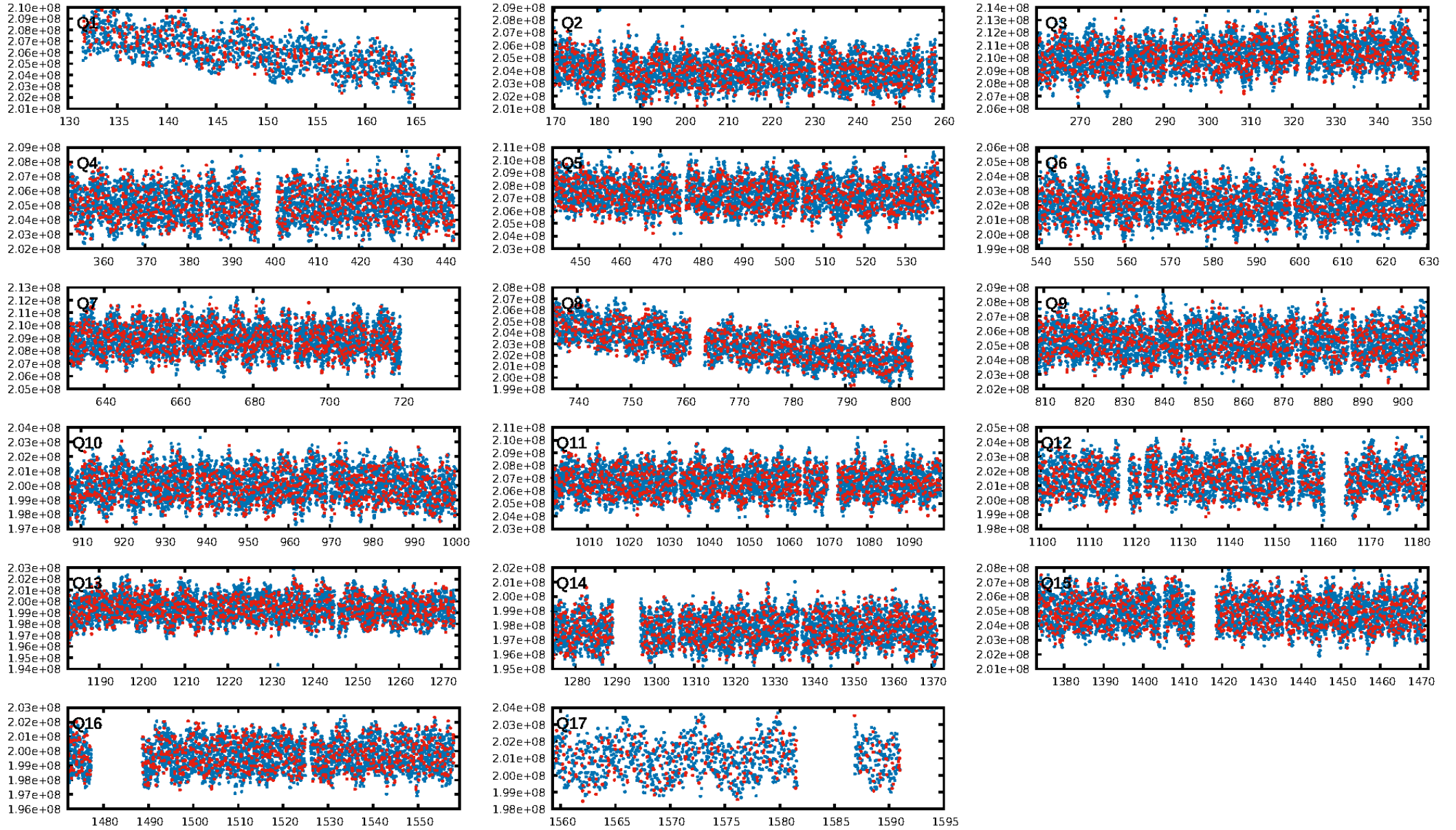
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.67e-24
RollingBand-fgt: 0.76 [1654/2164]
GhostDiagnostic-chr: 0.8696
Centroid-sig: 31.6%
Centroid-so: 0.176 arcsec [1.38σ]
OotOffset-rm: 0.058 arcsec [0.38σ]
KicOffset-rm: 0.168 arcsec [1.95σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 0.06 [1/17]

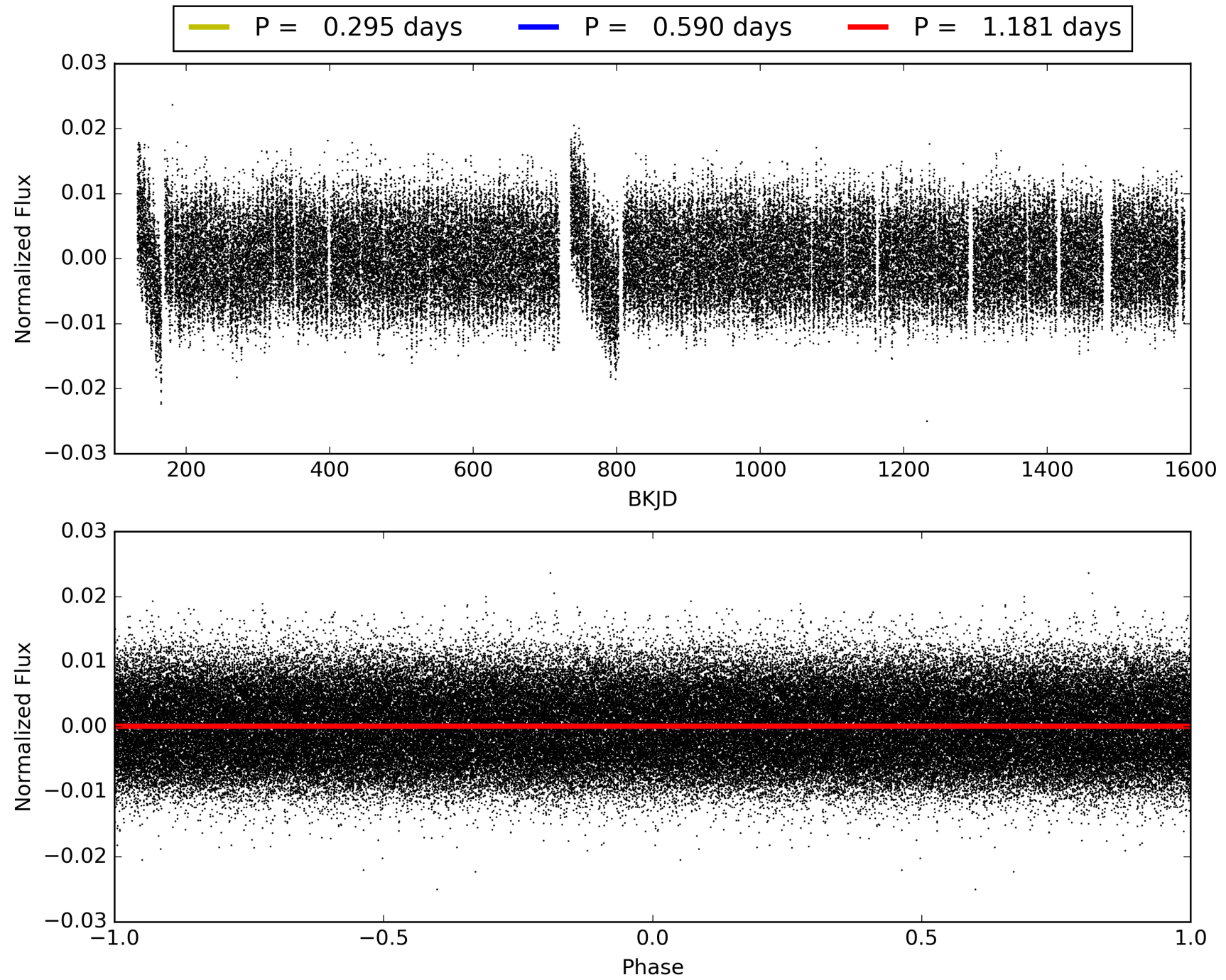
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:01:44 Z

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

TCE 008173017-02, PDC Light Curves

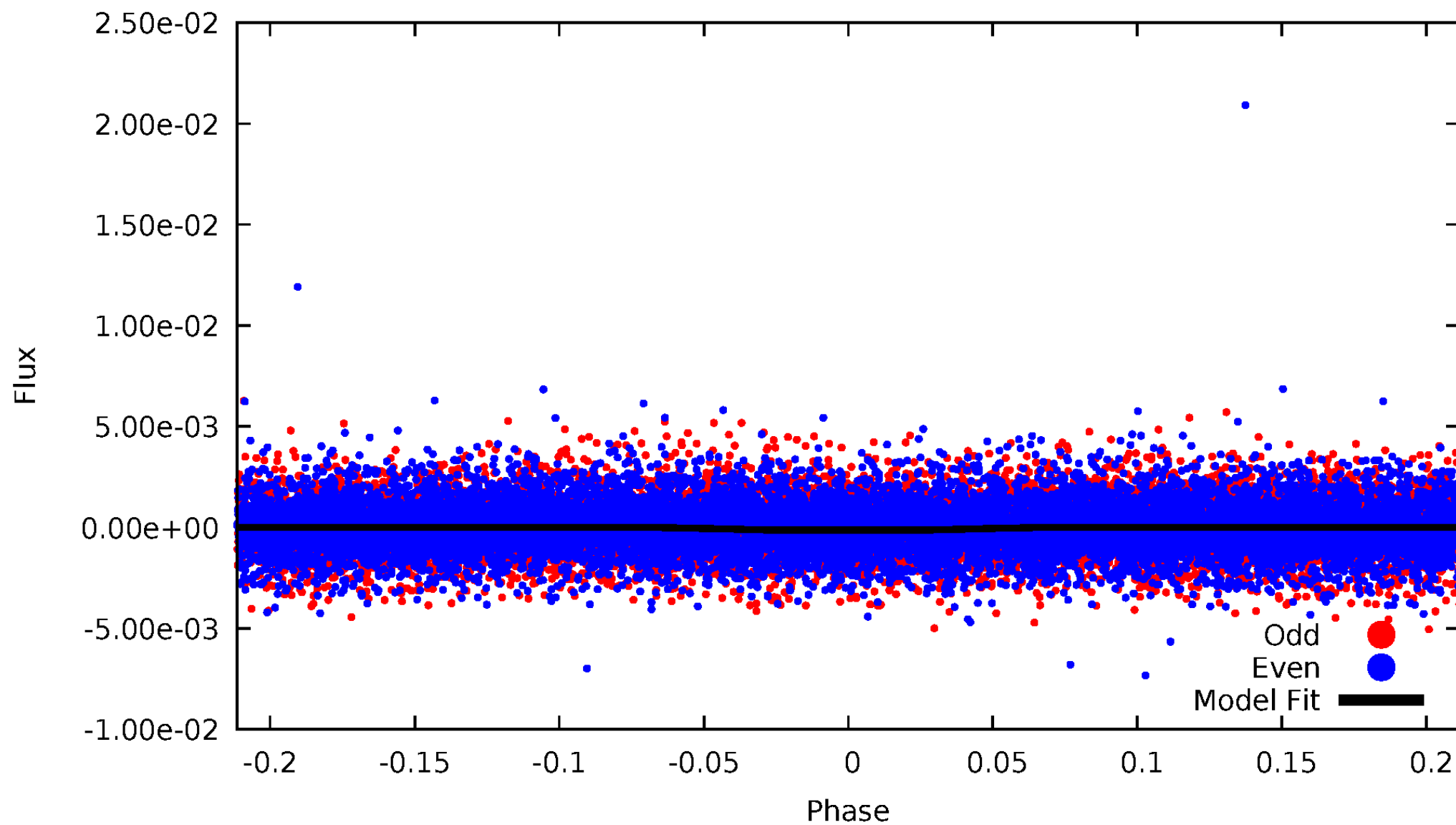


TCE 008173017-02



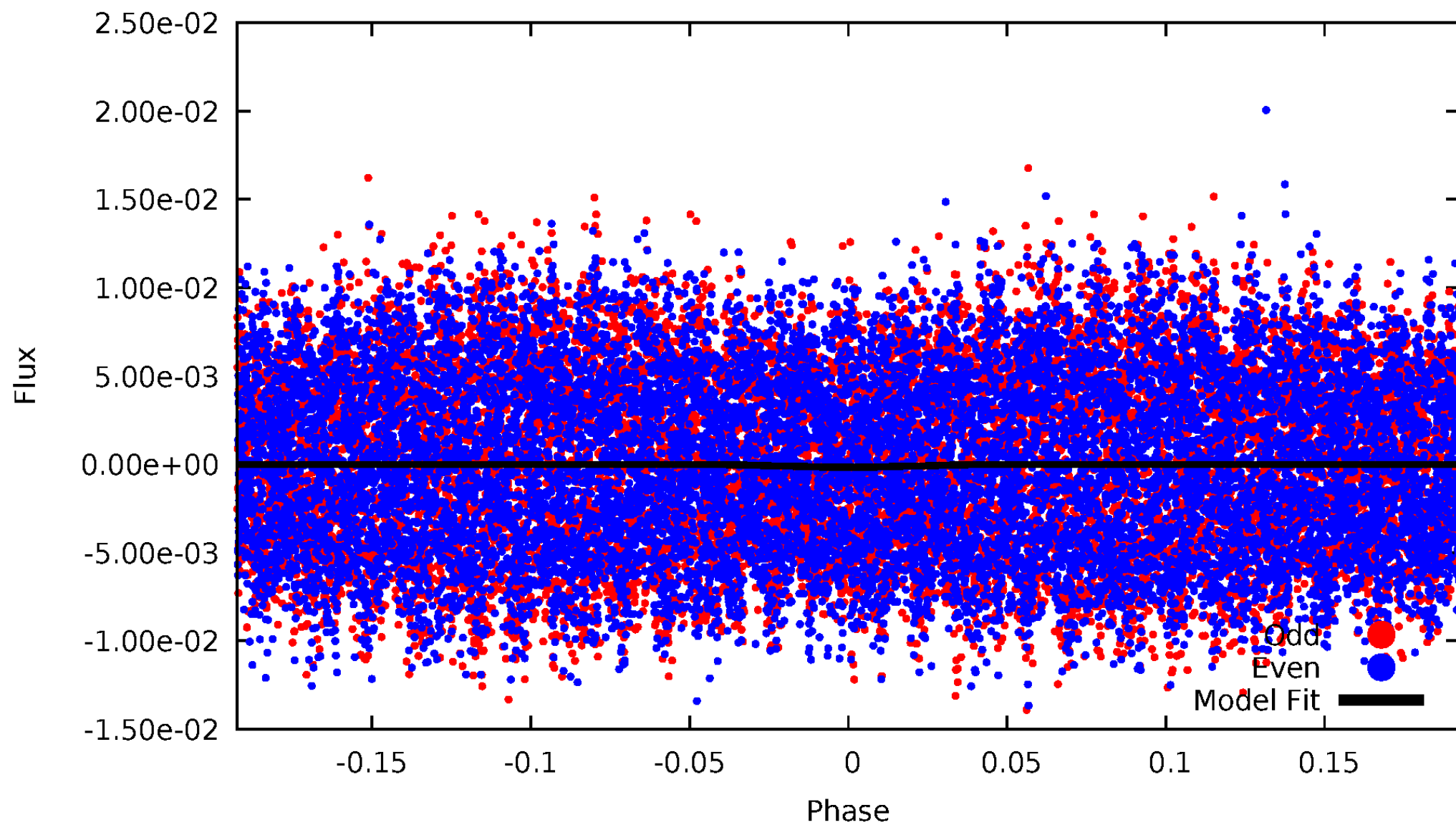
DV Odd/Even

TCE 008173017-02



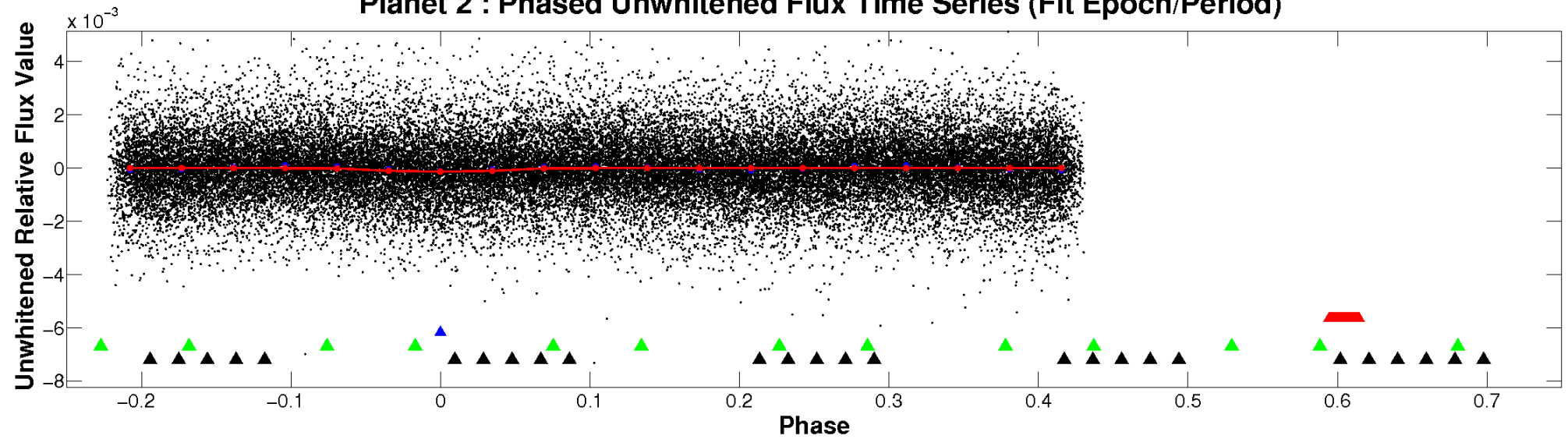
ALT Odd/Even

TCE 008173017-02

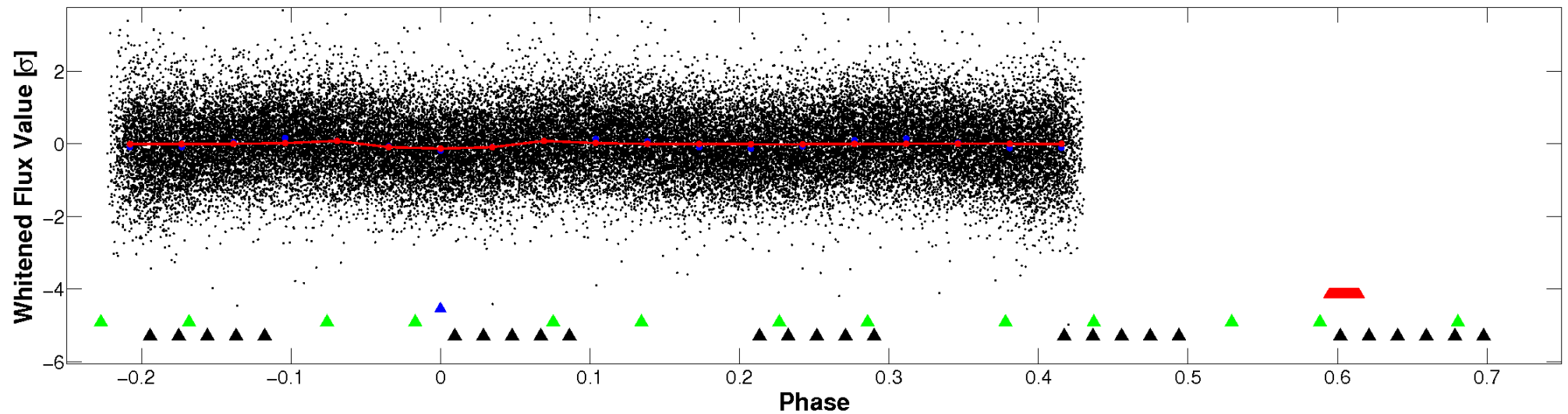


Non-Whitened Vs. Whitened Light Curve

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

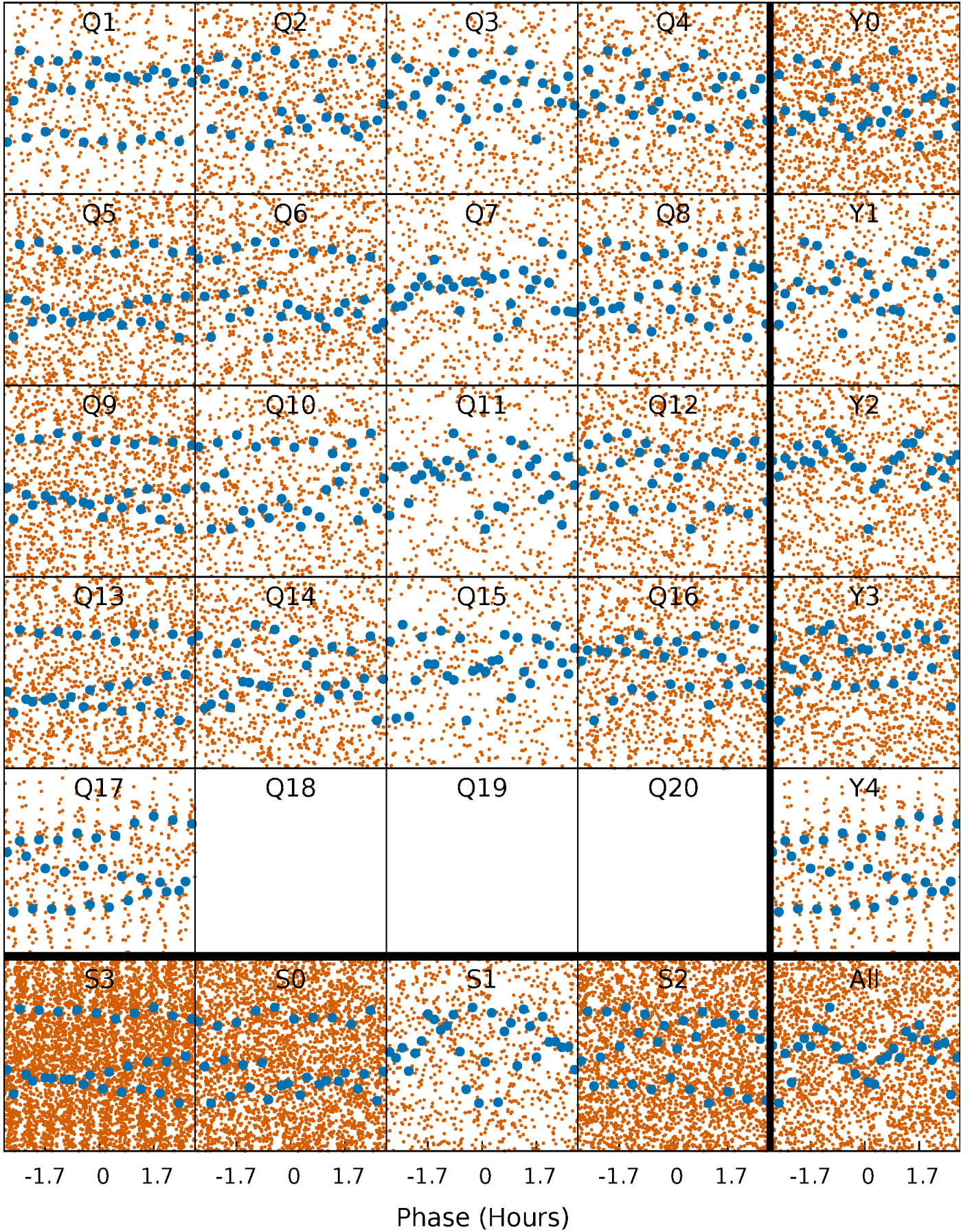


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



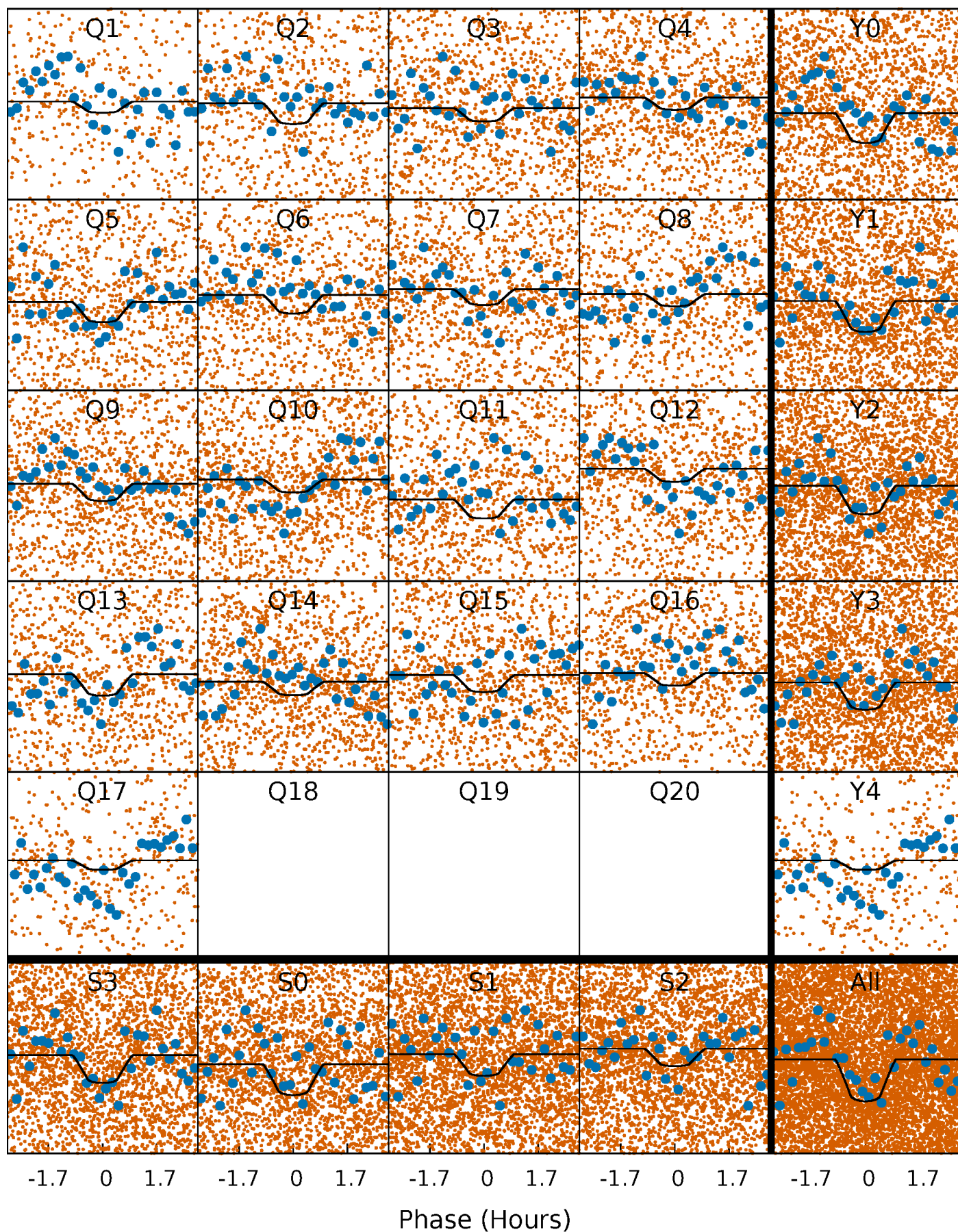
PDC Quarter-Phased Transit Curves

TCE 008173017-02 P= 0.590302 Days $T_0=131.692250$ (BKJD)



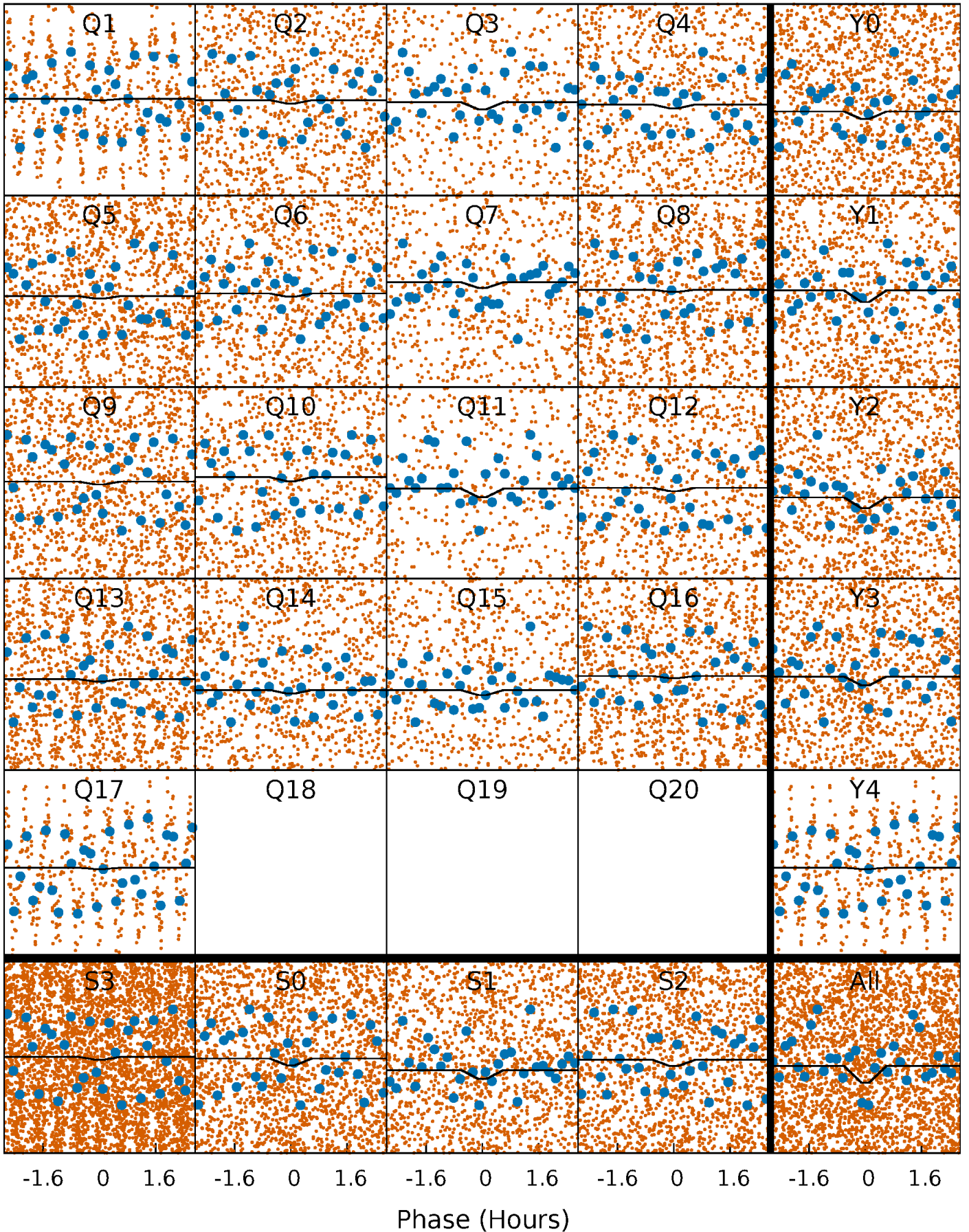
DV Quarter-Phased Transit Curves

TCE 008173017-02 P= 0.590302 Days $T_0=131.692250$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

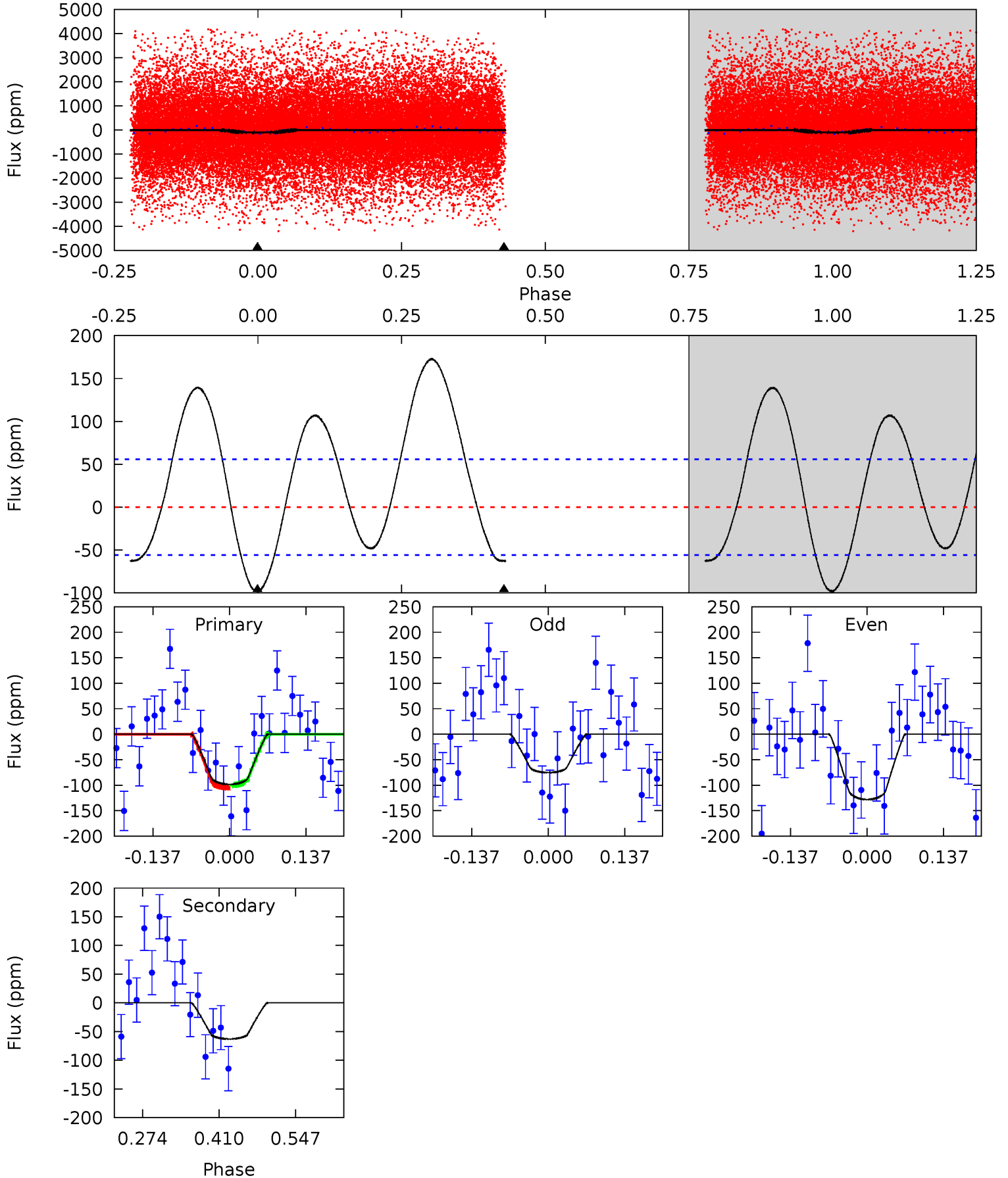
TCE 008173017-02 P= 0.590307 Days $T_0=131.693740$ (BKJD)



DV Model-Shift Uniqueness Test

008173017-02, P = 0.590302 Days, E = 131.101948 Days

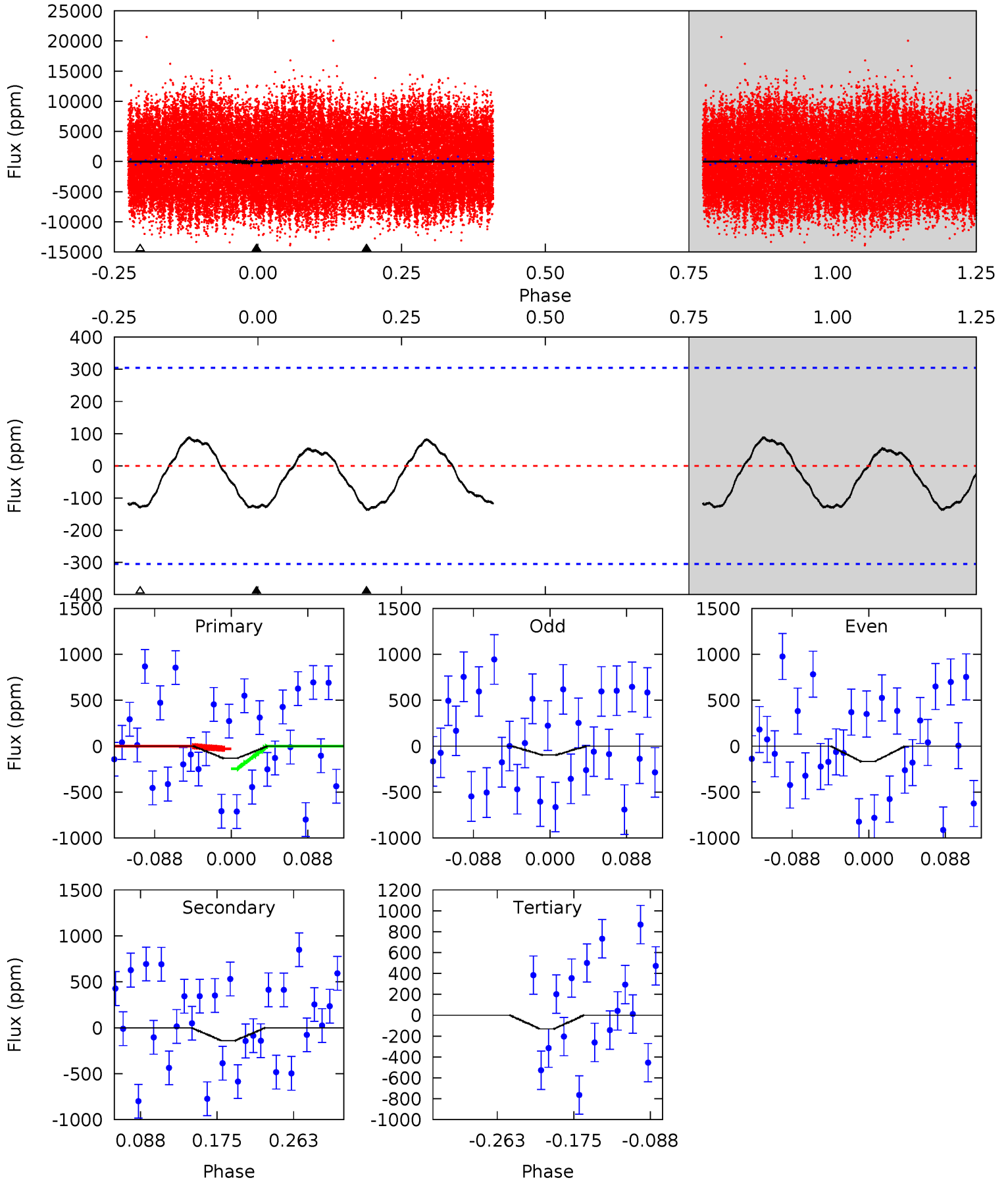
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.91	5.06	0	0	4.50	1.49	5.07	7.91	7.91	5.06	5.06	2.14	0.59	0.64	0.19



Alt Model-Shift Uniqueness Test

008173017-02, P = 0.590307 Days, E = 131.103433 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.99	2.10	1.98	0	4.59	1.71	1.15	0.00	1.99	0.12	2.10	0.53	0.61	0.39	1.62



Stellar Parameters For KIC 008173017

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6797^{+162}_{-243}	$4.301^{+0.070}_{-0.210}$	$0.000^{+0.250}_{-0.350}$	$1.349^{+0.479}_{-0.160}$	$1.335^{+0.209}_{-0.190}$	$0.766^{+0.240}_{-0.411}$
	+2%/-4%	+2%/-5%	+inf%/-inf%	+36%/-12%	+16%/-14%	+31%/-54%
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 008173017-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-63 ± 12	$1.89^{+0.50}_{-0.46}$	4034^{+308}_{-224}	5236^{+862}_{-564}	$2.133^{+1.721}_{-0.826}$
Alt.	-139 ± 66	$1.93^{+0.55}_{-0.45}$	4025^{+307}_{-211}	6390^{+1333}_{-1208}	$4.382^{+4.301}_{-2.419}$

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 $A_{obs} \gg 1.0$

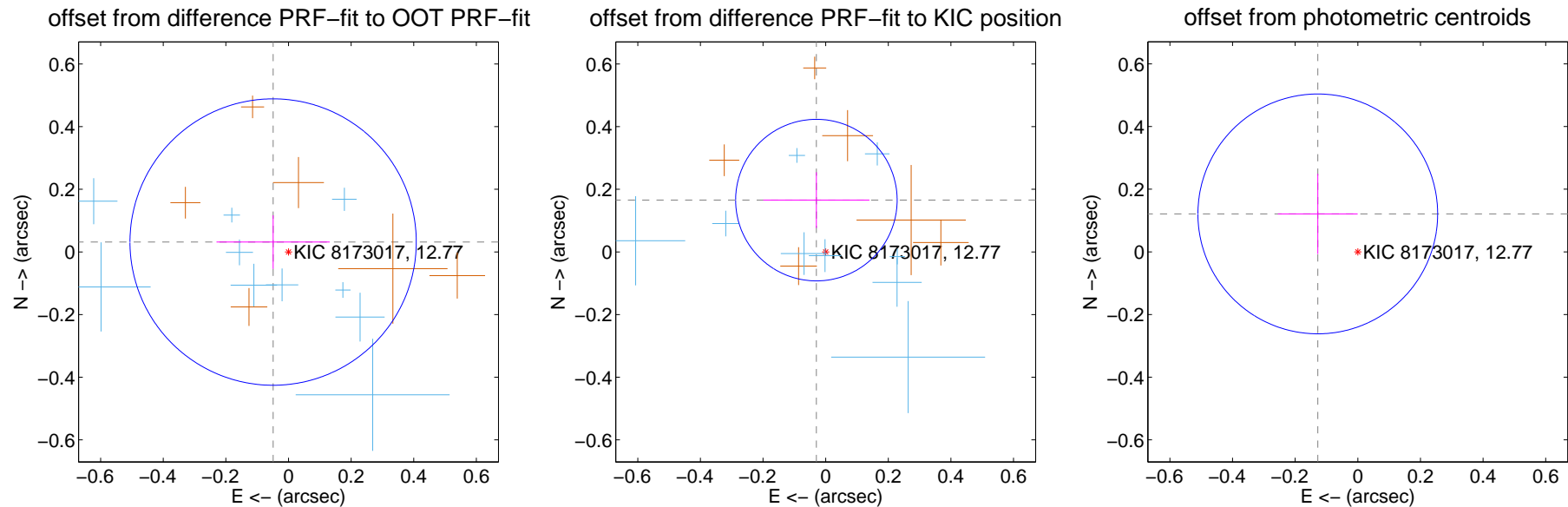
DV Centroid Data

Supplemental centroid analysis for 008173017-02. Kepler magnitude: 12.77. Transit SNR 10.99

There are 10 quarters with good PRF difference image offsets

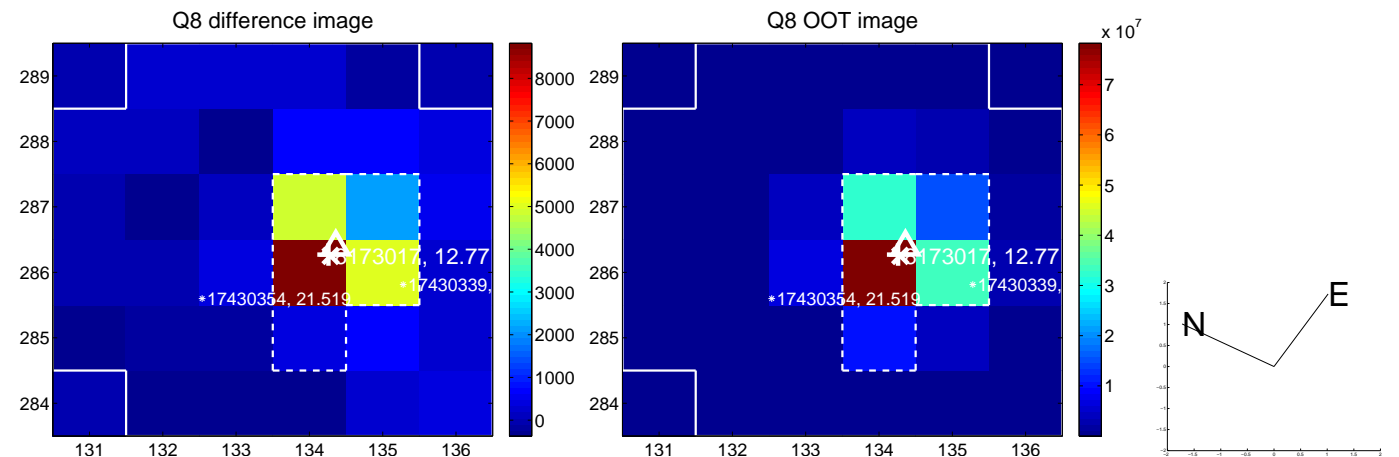
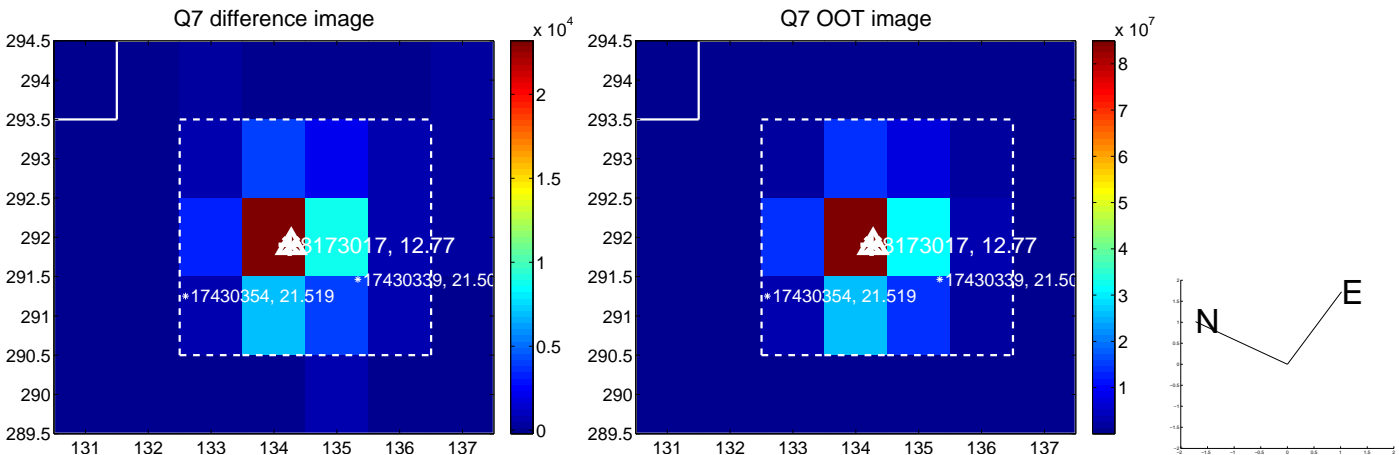
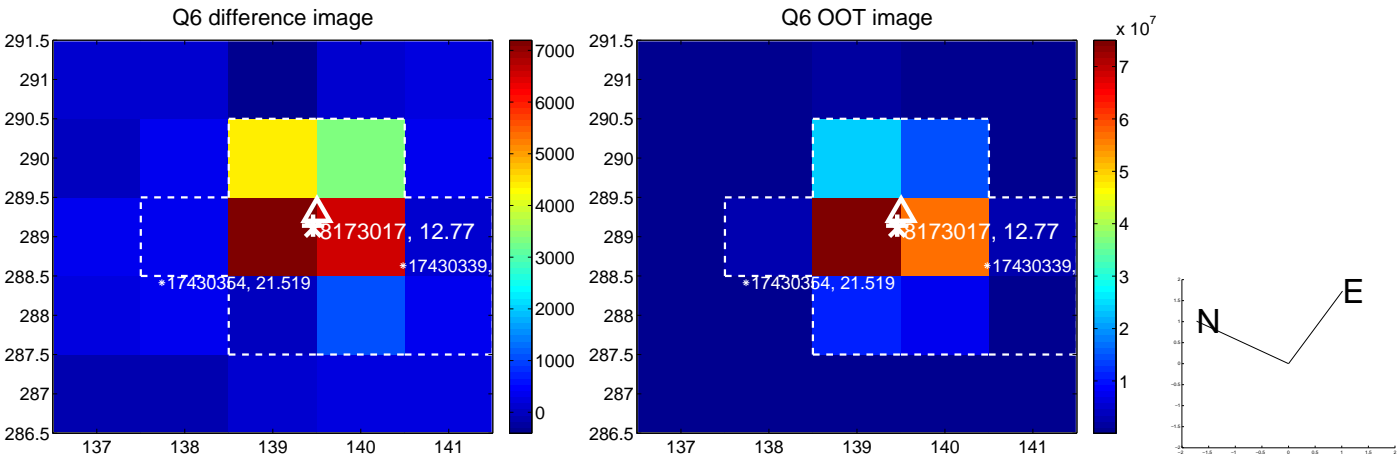
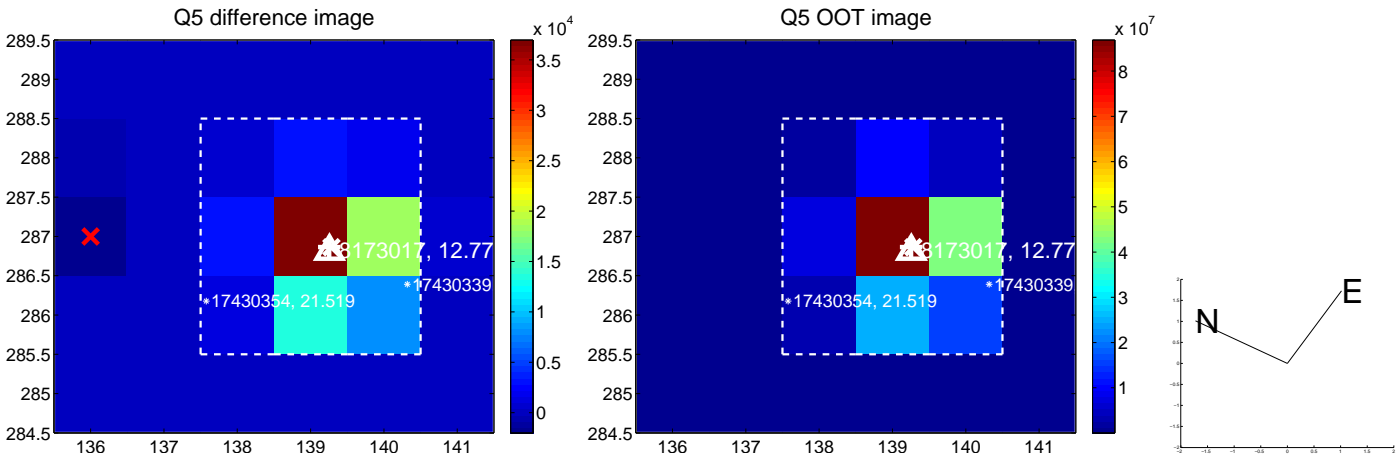
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.058 ± 0.152	0.38	0.049 ± 0.181	0.031 ± 0.085
PRF-fit source offset from KIC position	0.168 ± 0.086	1.95	0.030 ± 0.169	0.165 ± 0.089
photometric centroid source offset	0.18 ± 0.13	1.38	0.13 ± 0.13	0.12 ± 0.13

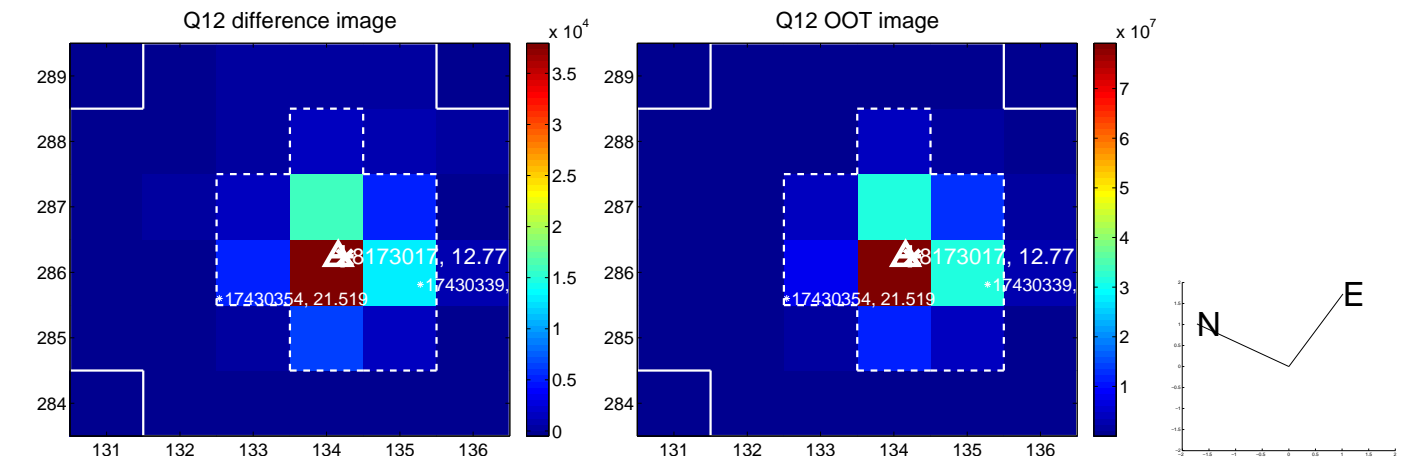
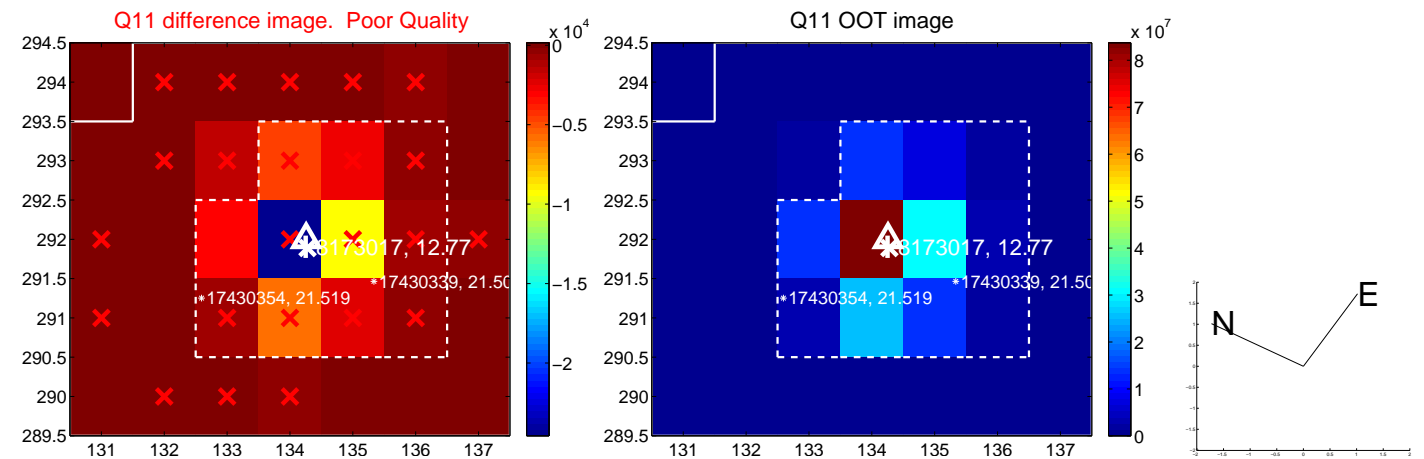
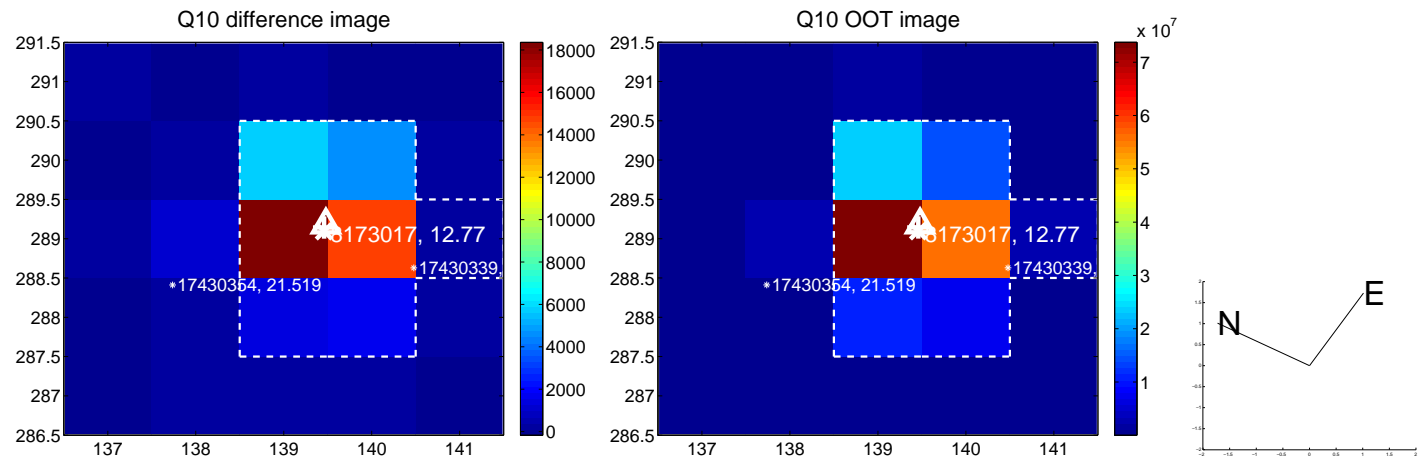
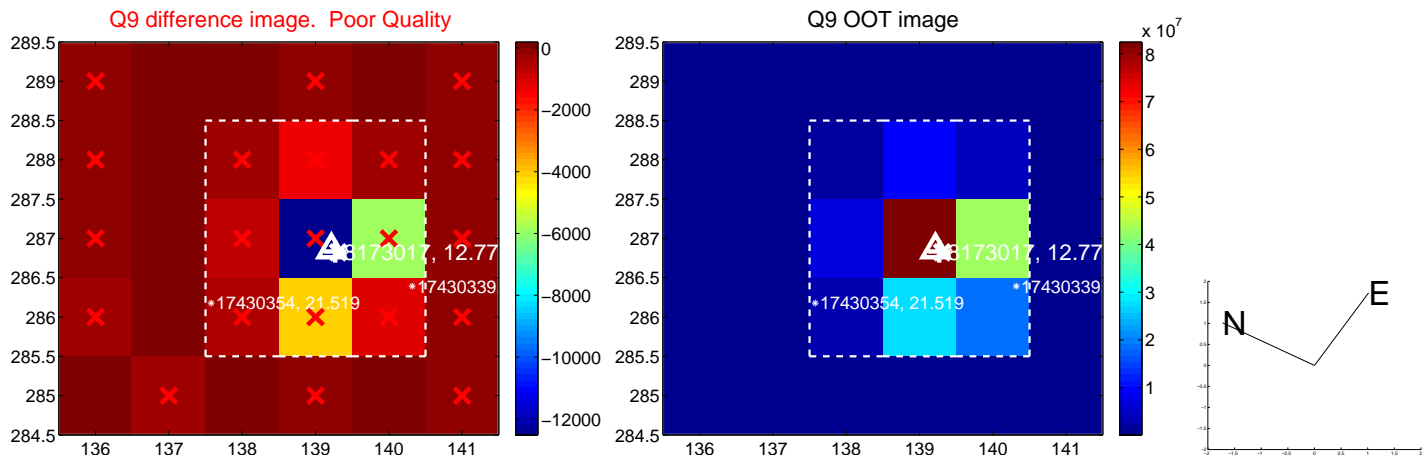


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

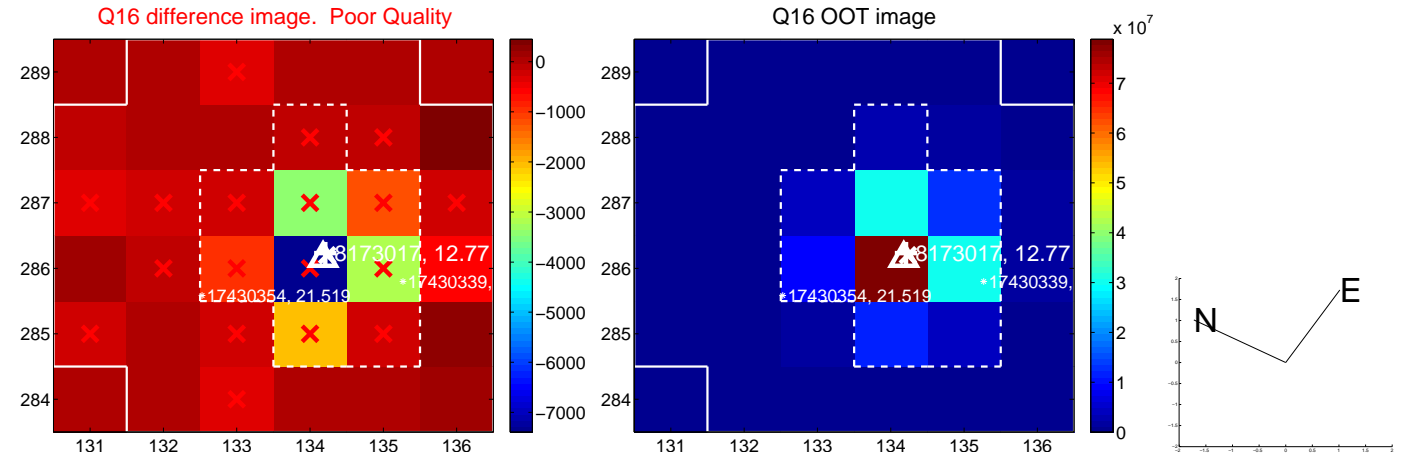
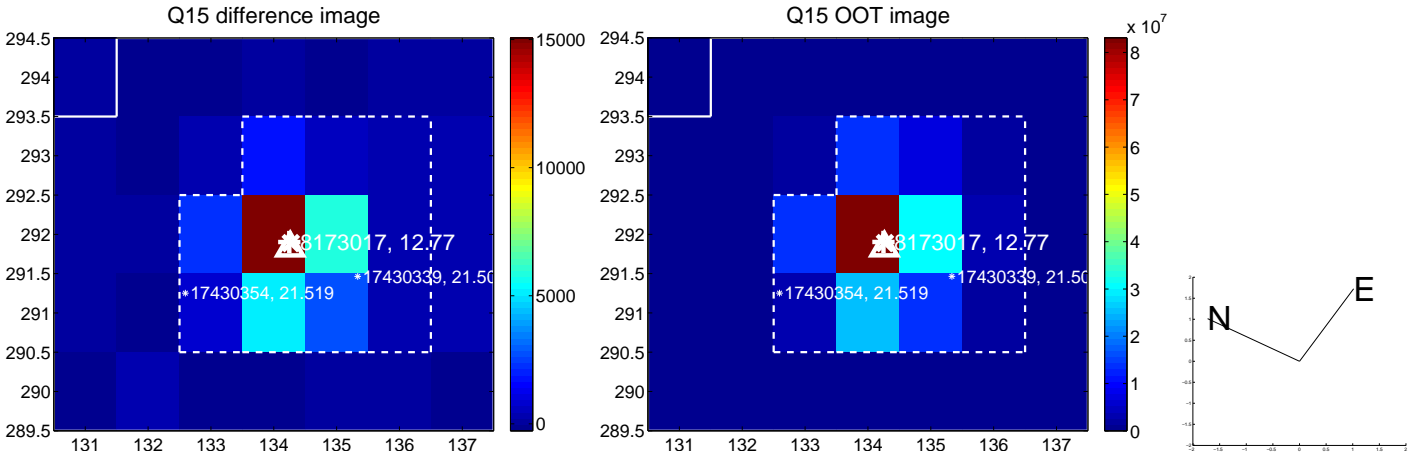
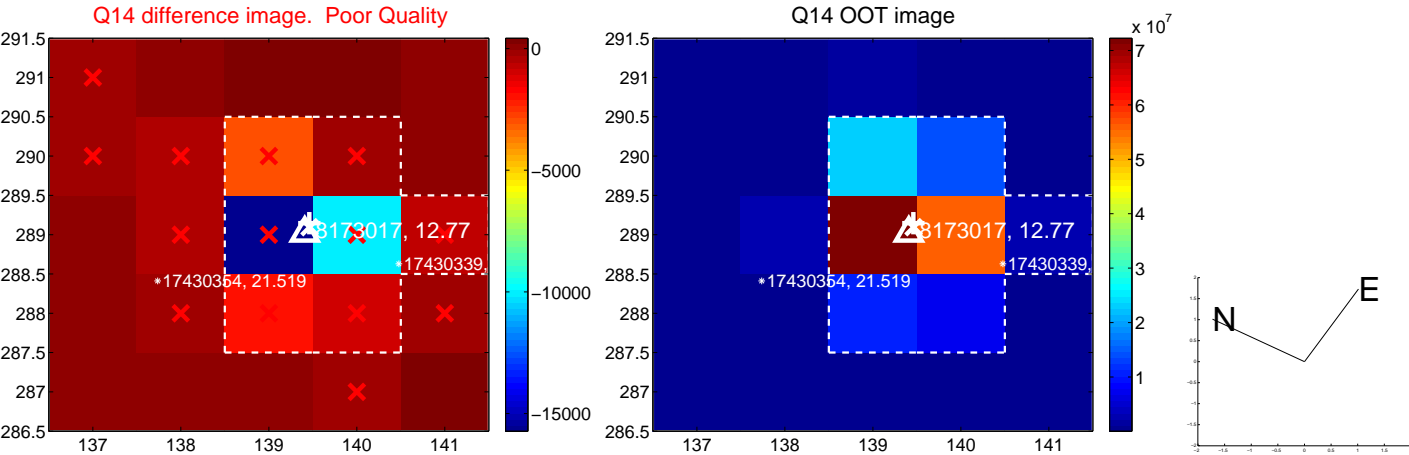
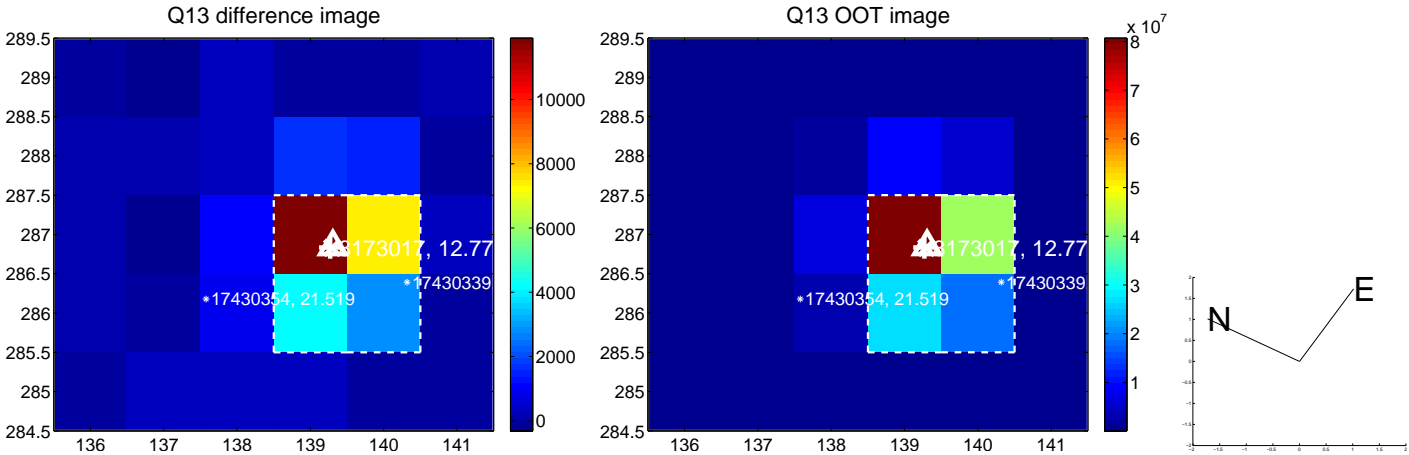
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



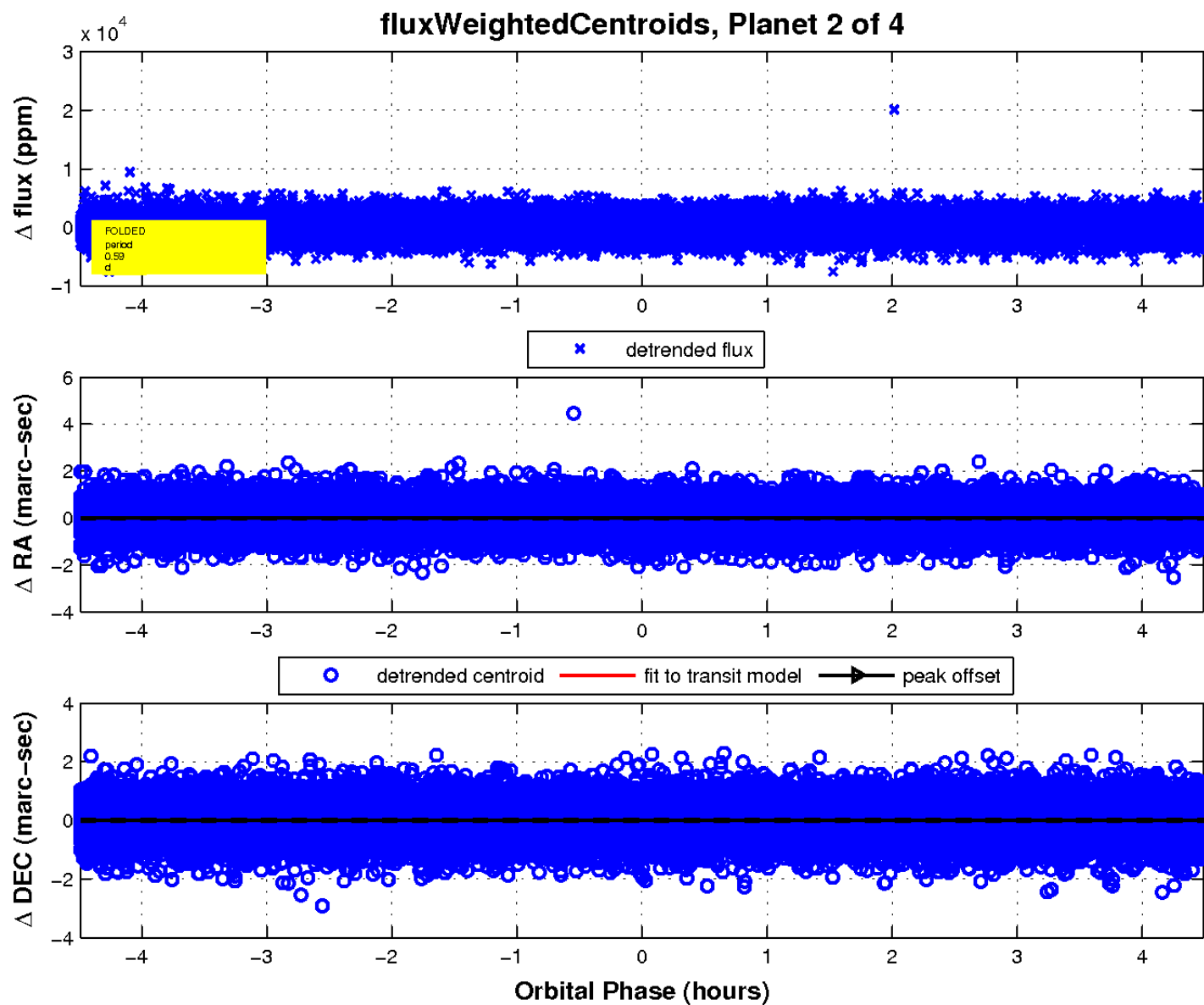
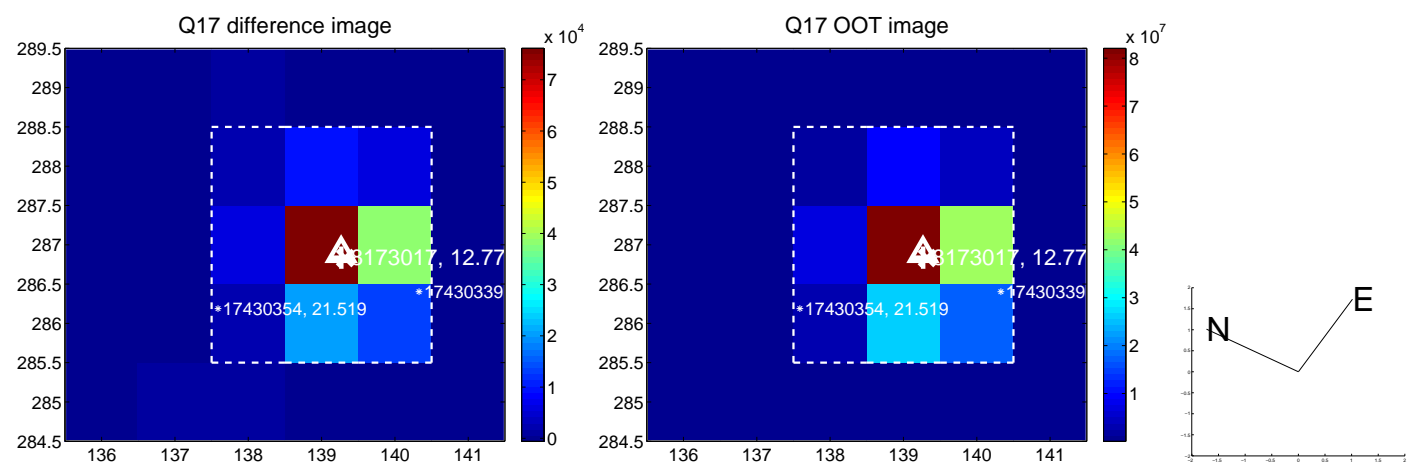
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

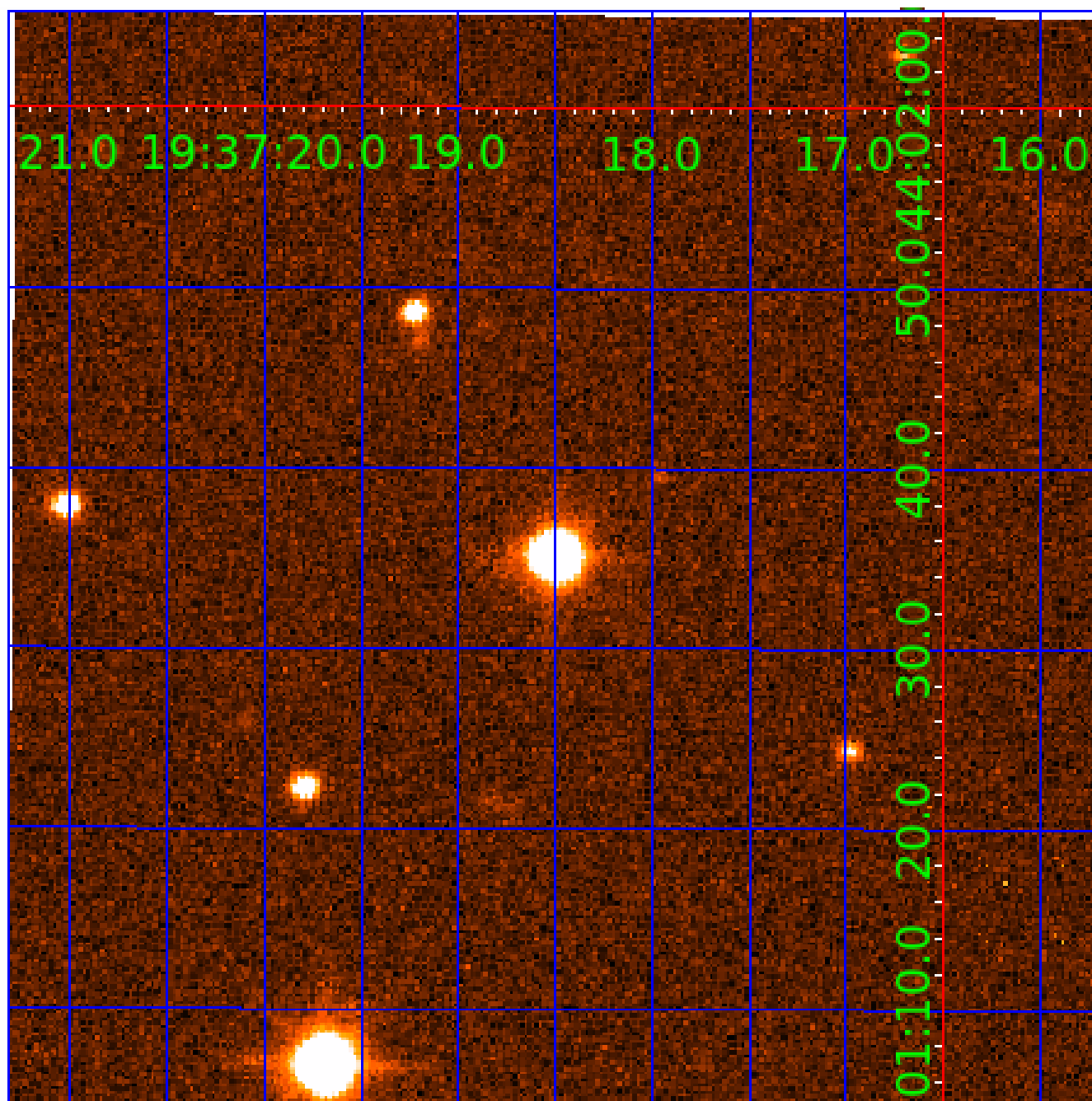


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008173017

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})
008173017-01	OBS	No	0.590307	132.043133	135.2	1.559	11.7	12.6	1.35	6797	1.59	15184.51
008173017-02	OBS	No	0.590302	131.692249	134.6	1.497	10.8	11.0	1.35	6797	1.83	15184.68
008173017-03	OBS	No	110.297200	214.681822	1456.2	5.953	8.5	4.2	1.35	6797	5.36	14.21
008173017-04	OBS	No	55.368081	182.870130	2689.7	5.137	8.0	8.5	1.35	6797	12.78	35.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008173017-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008173017-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008173017-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—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
008173017-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

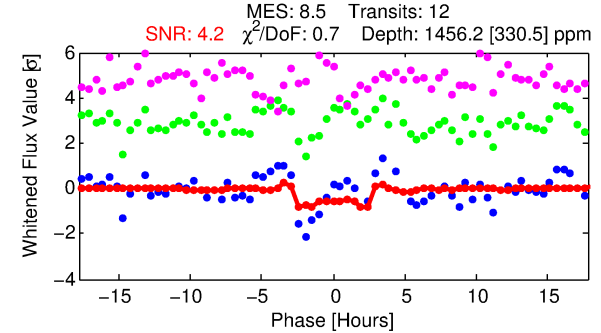
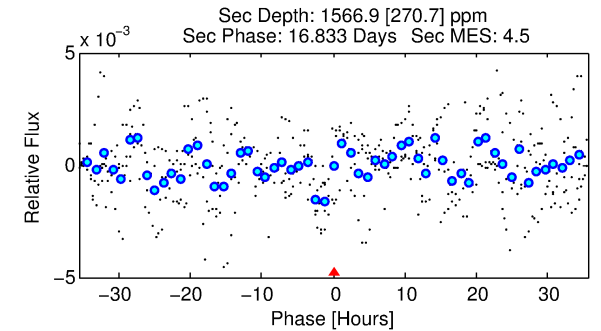
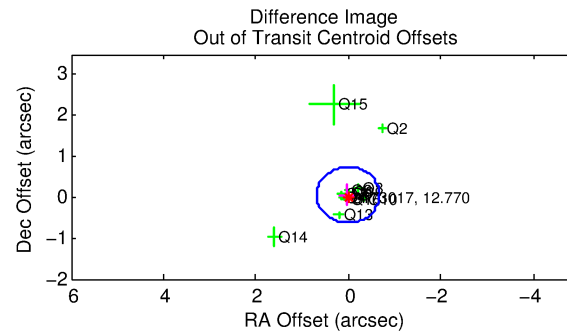
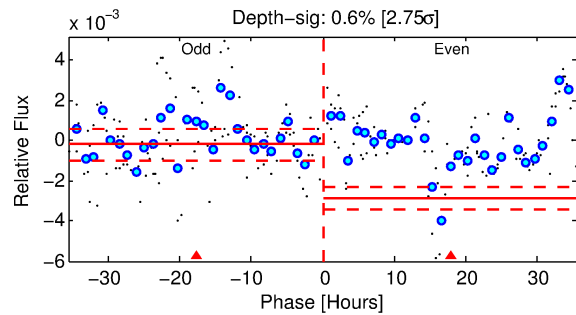
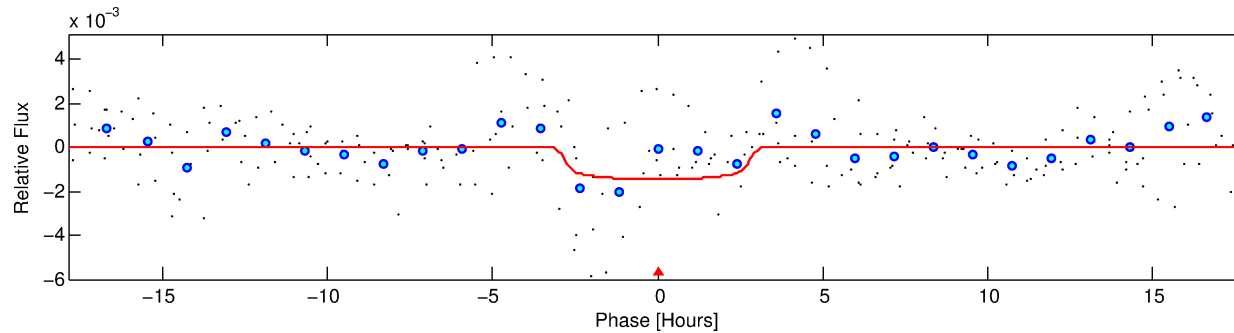
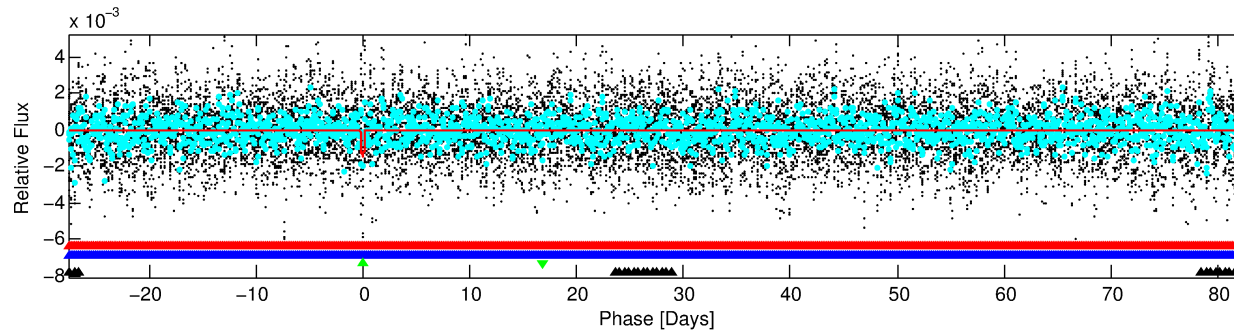
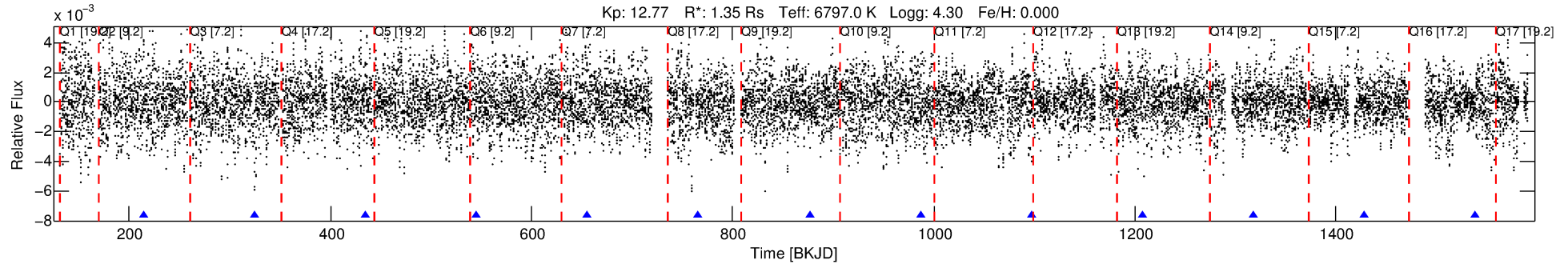
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008173017-03

No Significant Match Found

DV One-Page Summary

KIC: 8173017 Candidate: 3 of 4 Period: 110.297 d



DV Fit Results:

Period = 110.29720 [0.00153] d
Epoch = 214.6818 [0.0098] BKJD
Rp/R* = 0.0364 [0.0160]
a/R* = 124.10 [275.87]
b = 0.55 [2.81]
Seff = 14.22 [6.04]
Teq = 495 [53] K
Rp = 5.36 [3.03] Re
a = 0.4948 [0.1417] AU
Ag = 7336.75 [7191.46] [1.02 σ]
Teffp = 7085 [1605] K [4.10 σ]

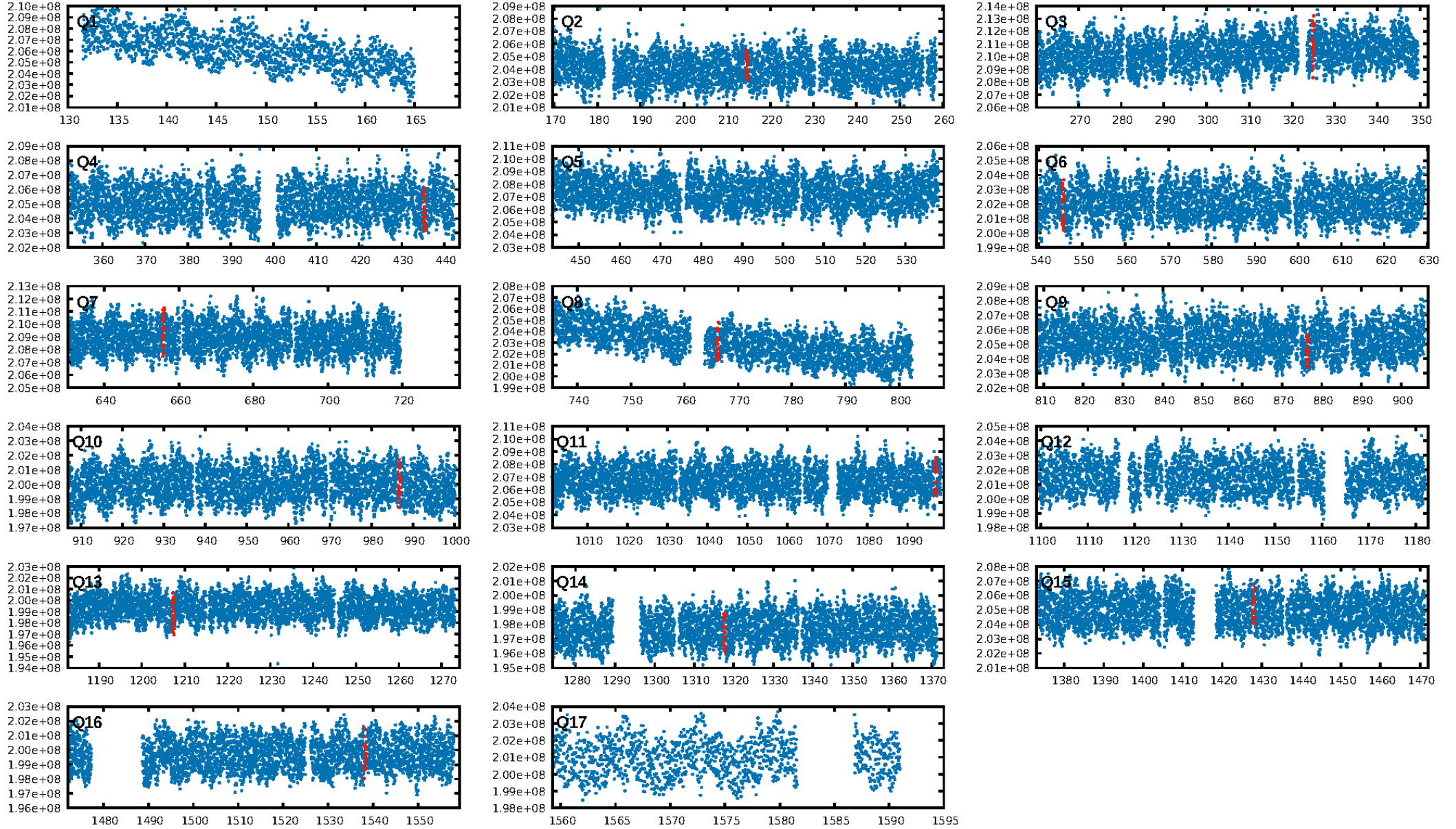
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [167.65 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 10.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.40e-13
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 0.5903
Centroid-sig: 3.8%
Centroid-so: 0.170 arcsec [1.89 σ]
OotOffset-rm: 0.060 arcsec [0.26 σ]
KicOffset-rm: 0.172 arcsec [0.74 σ]
OotOffset-st: 4/3/3/2 [12]
KicOffset-st: 4/3/3/2 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 0.00 [0/12]

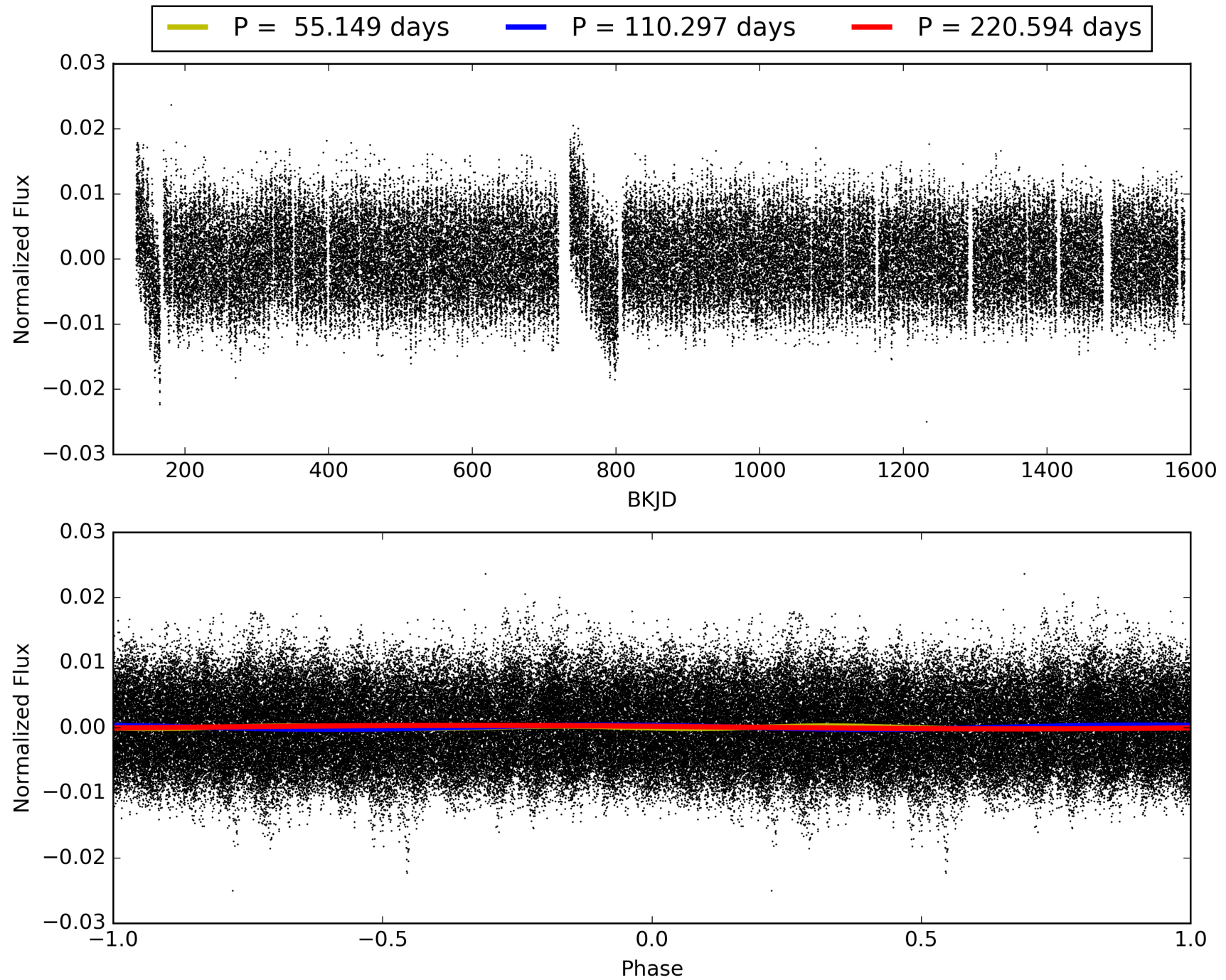
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:01:52 Z

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

TCE 008173017-03, PDC Light Curves

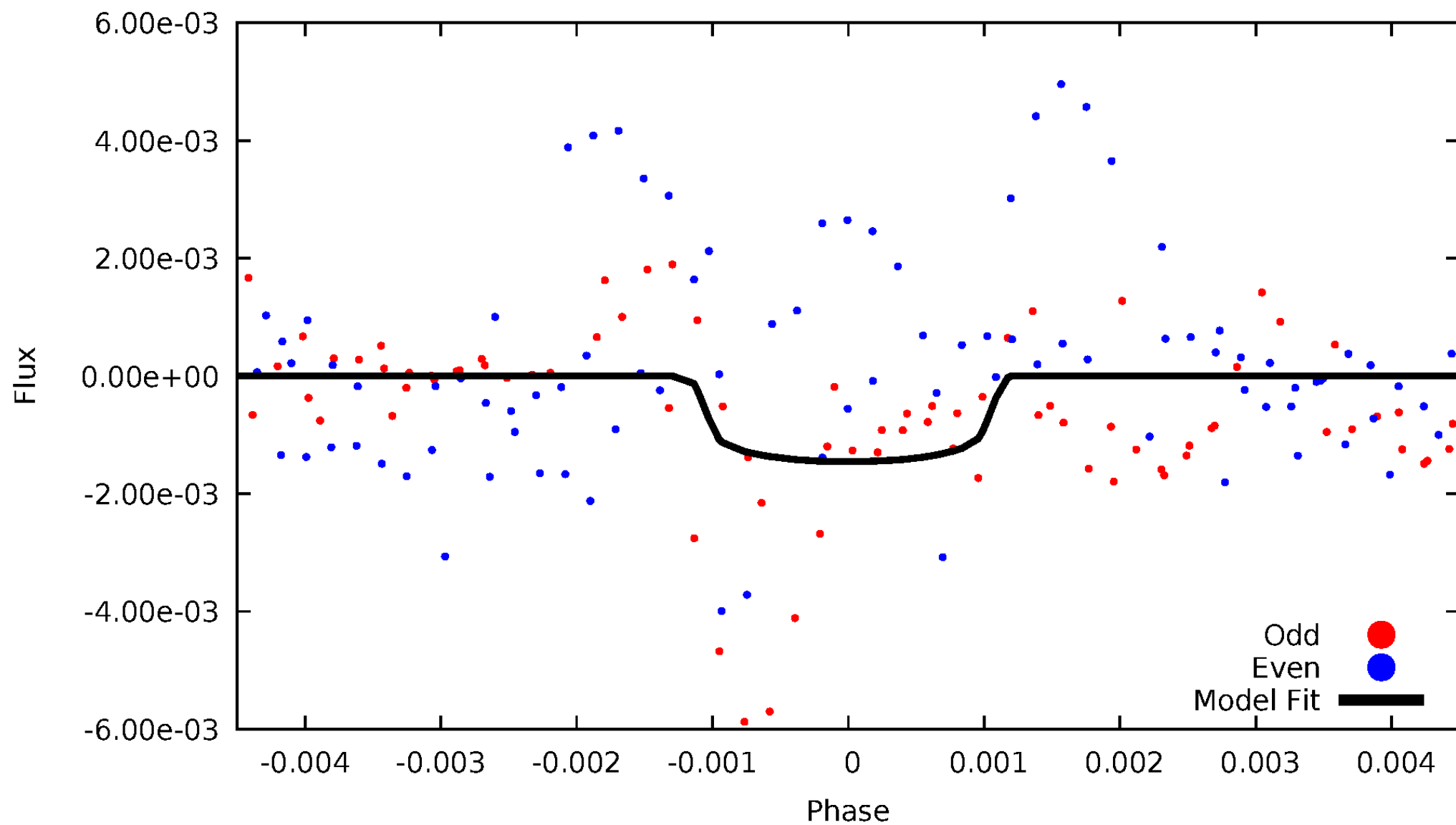


TCE 008173017-03



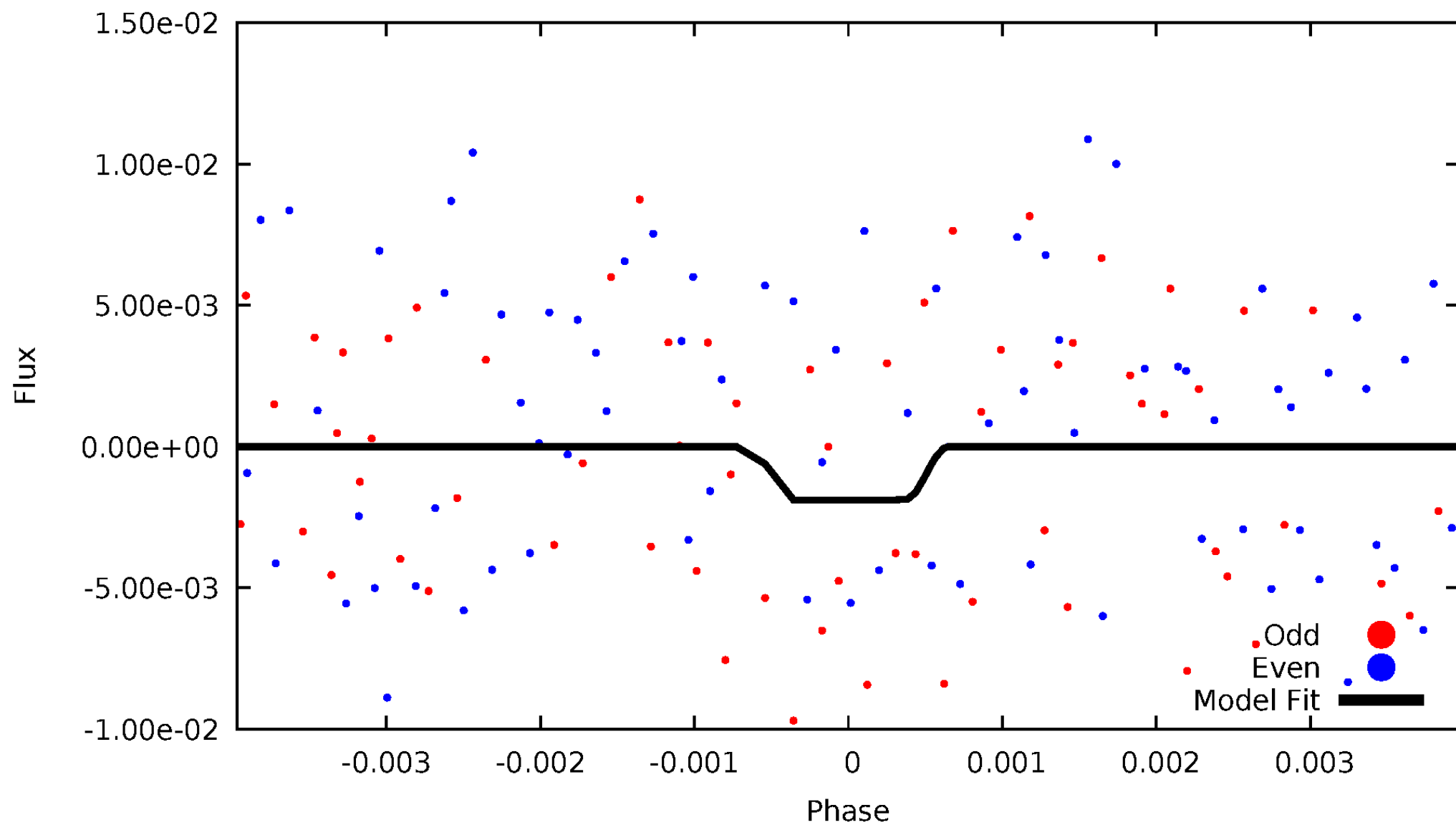
DV Odd/Even

TCE 008173017-03



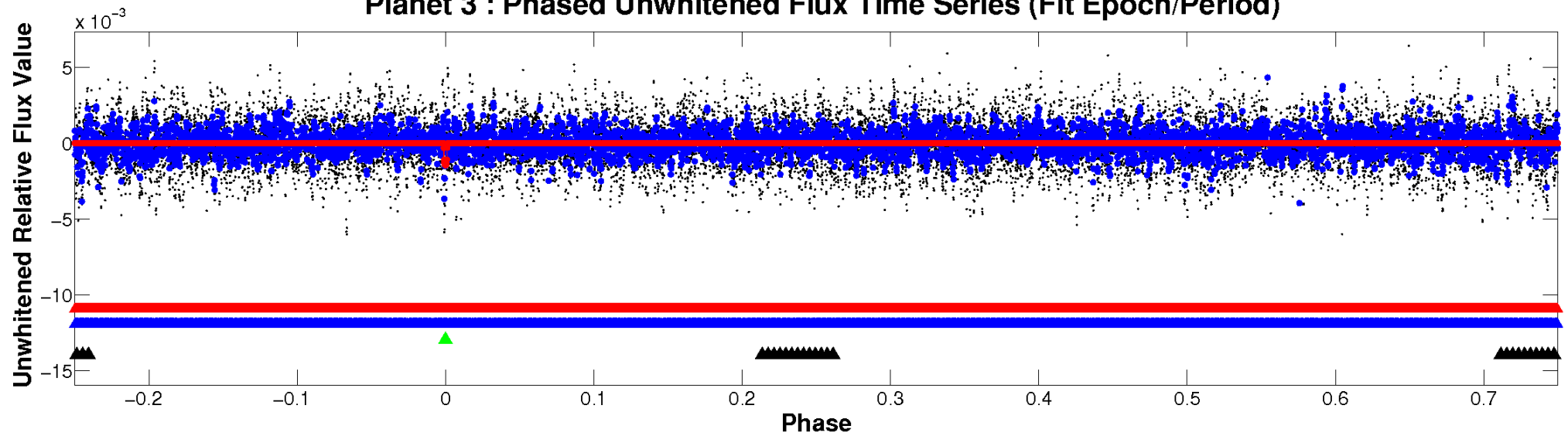
ALT Odd/Even

TCE 008173017-03

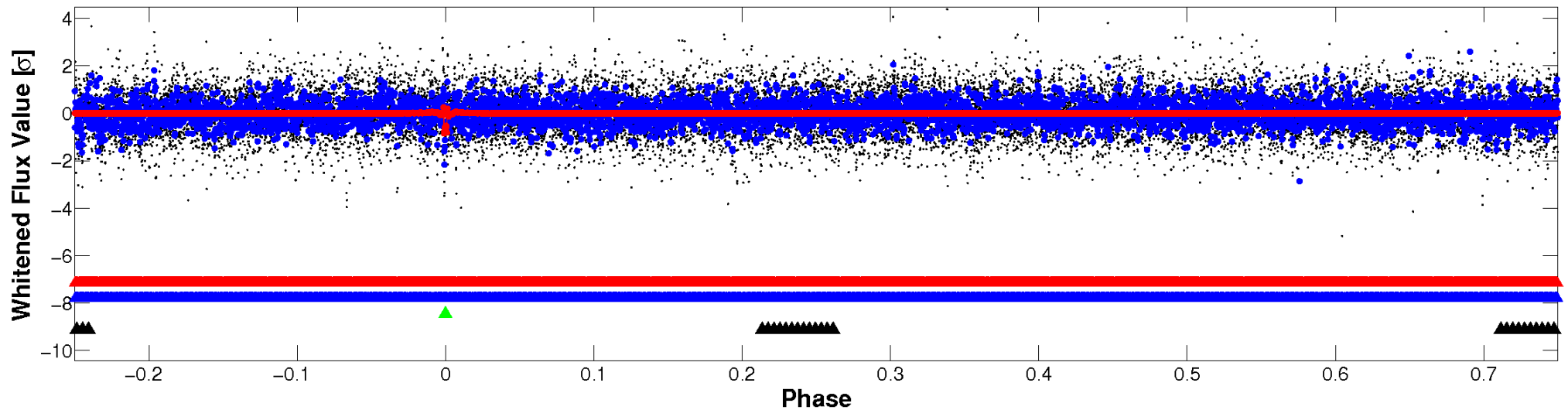


Non-Whitened Vs. Whitened Light Curve

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

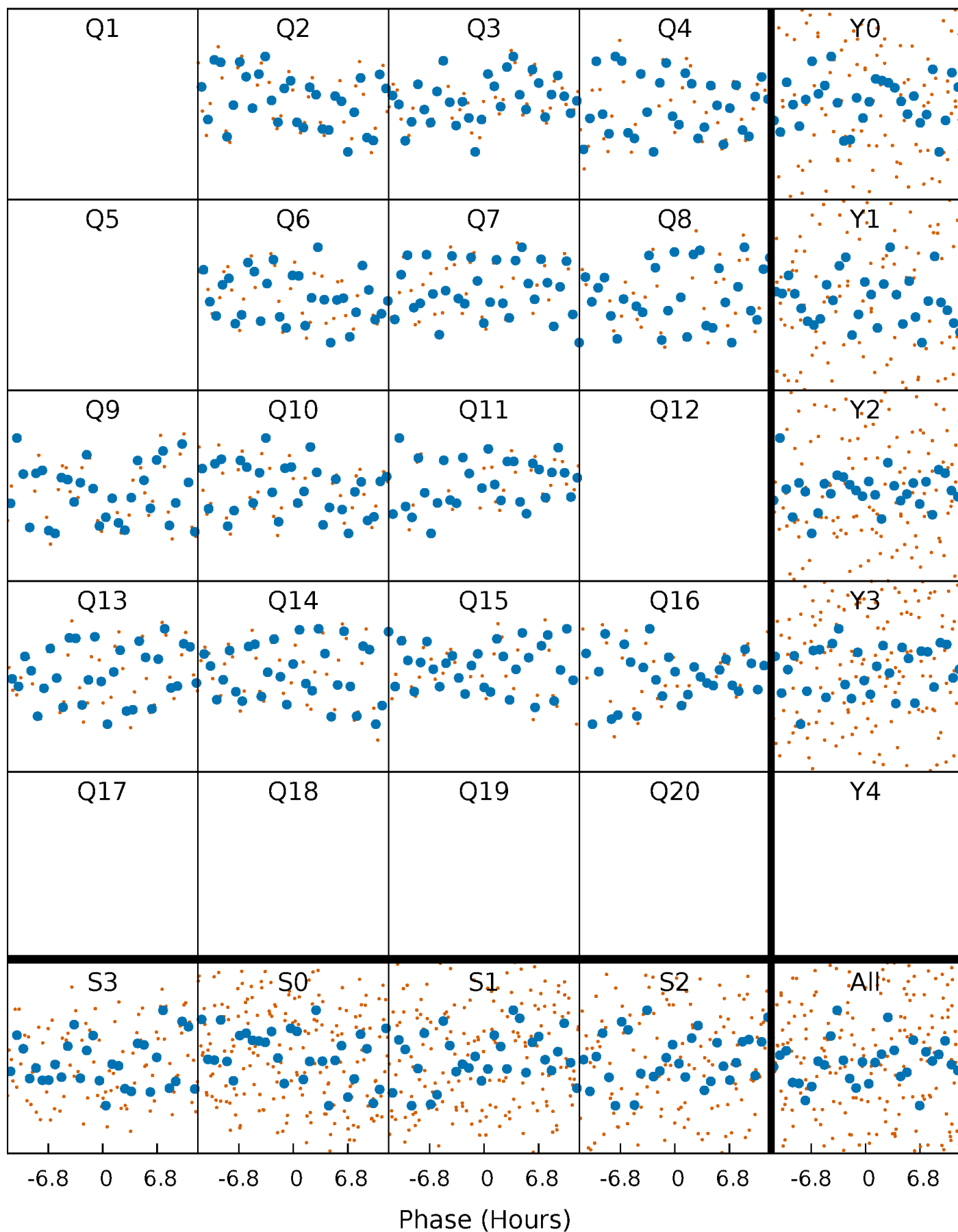


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



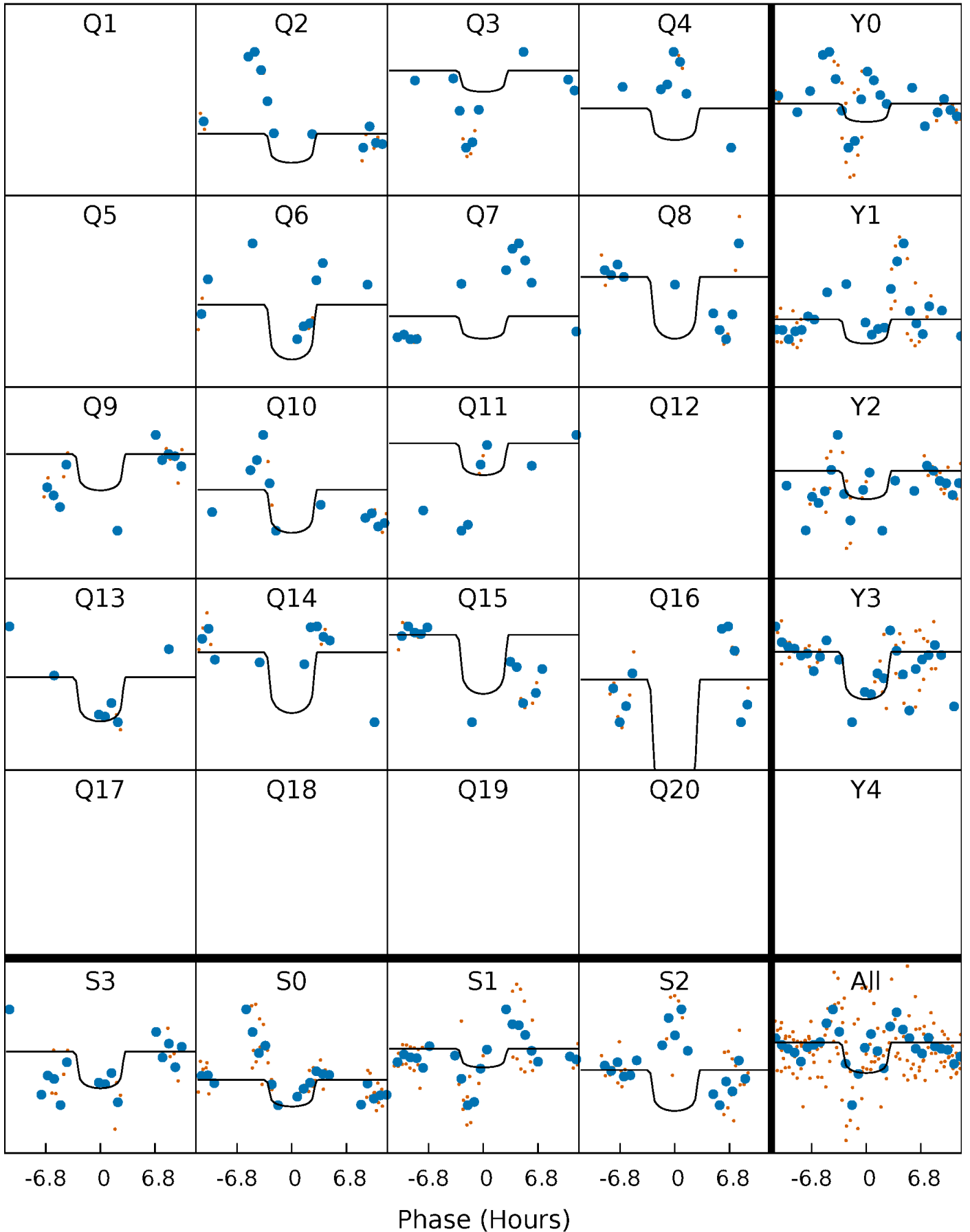
PDC Quarter-Phased Transit Curves

TCE 008173017-03 P=110.297200 Days $T_0=214.681822$ (BKJD)



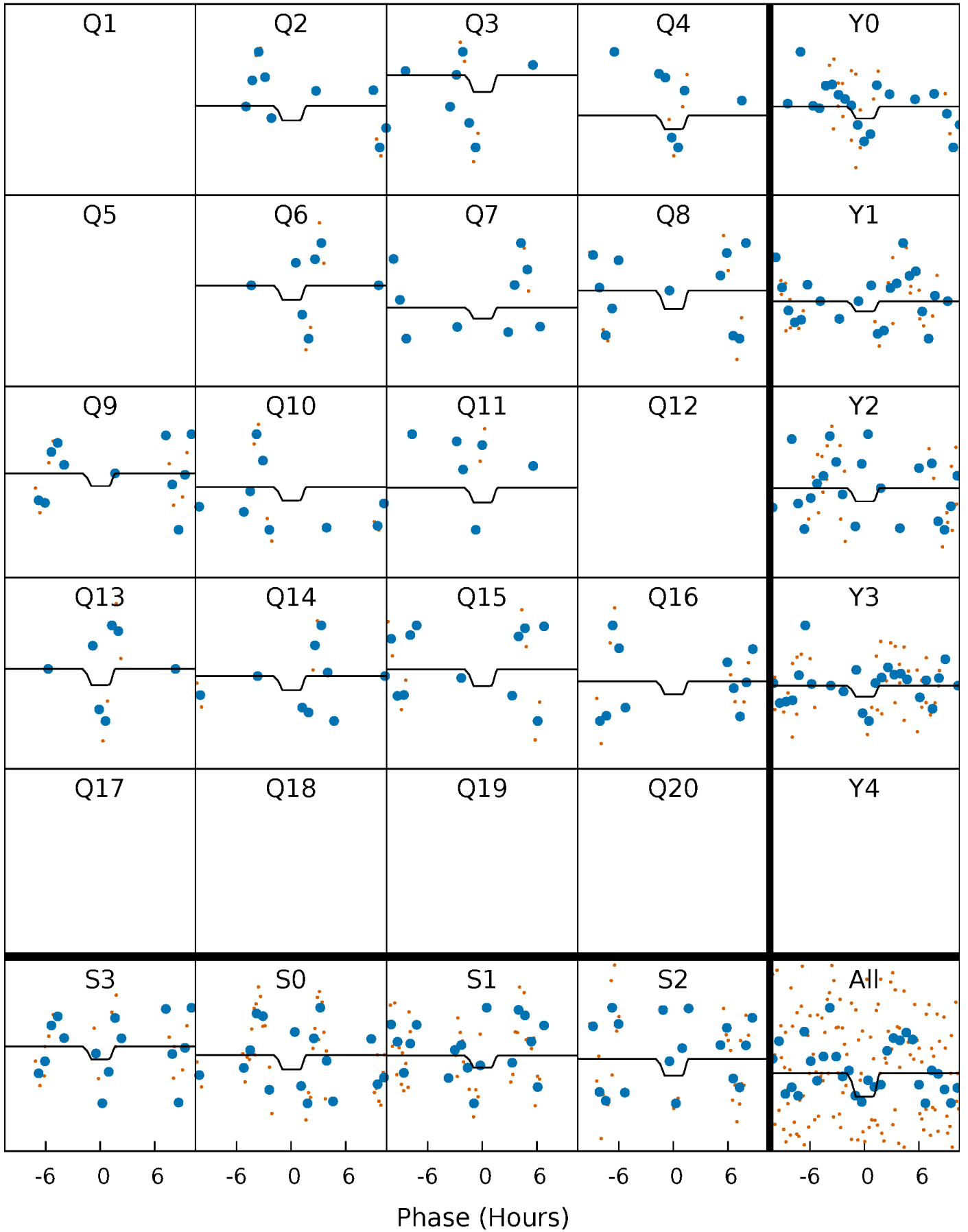
DV Quarter-Phased Transit Curves

TCE 008173017-03 P=110.297200 Days $T_0=214.681822$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

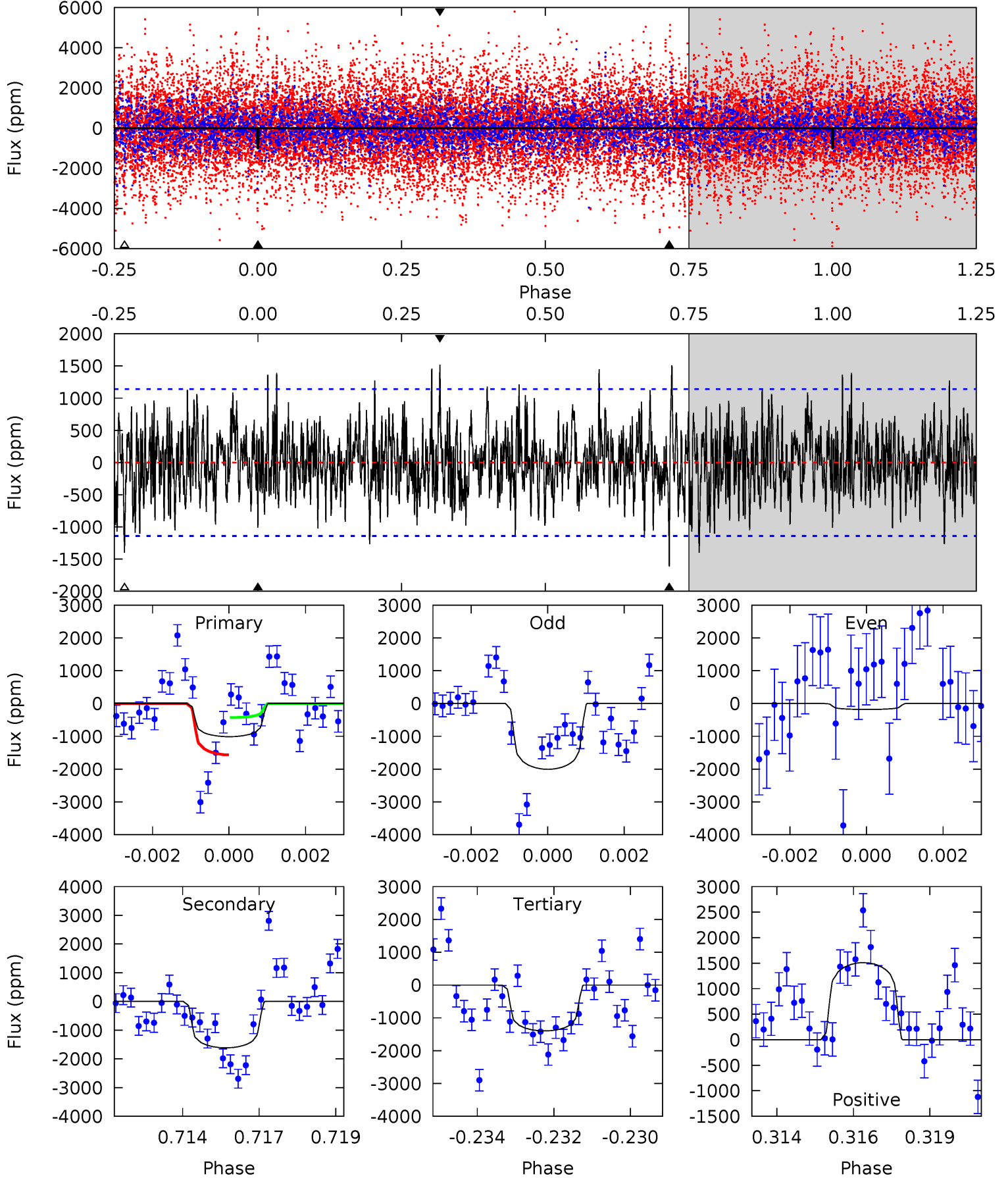
TCE 008173017-03 P=110.298992 Days $T_0=214.675916$ (BKJD)



DV Model-Shift Uniqueness Test

008173017-03, P = 110.297200 Days, E = 104.384622 Days

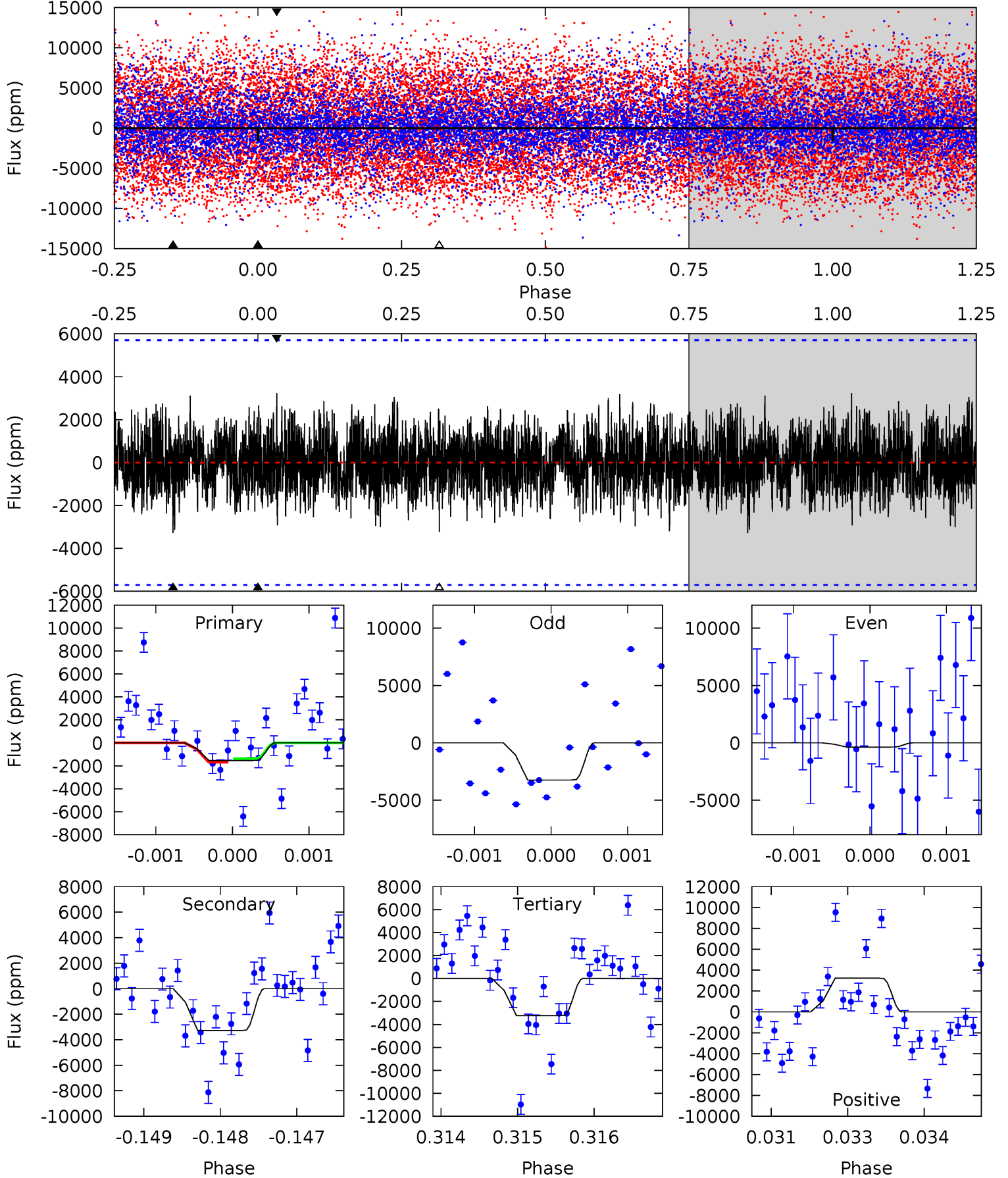
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.70	7.51	6.49	7.02	5.30	3.04	1.99	-1.79	-2.31	1.02	0.49	4.21	0.52	0.48	2.64



Alt Model-Shift Uniqueness Test

008173017-03, P = 110.298992 Days, E = 104.376924 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.46	3.12	3.07	3.08	5.42	3.25	1.06	-1.61	-1.62	0.05	0.05	1.37	5.87	0.50	0.15



Stellar Parameters For KIC 008173017

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6797^{+162}_{-243}	$4.301^{+0.070}_{-0.210}$	$0.000^{+0.250}_{-0.350}$	$1.349^{+0.479}_{-0.160}$	$1.335^{+0.209}_{-0.190}$	$0.766^{+0.240}_{-0.411}$
	+2%/-4%	+2%/-5%	+inf%/-inf%	+36%/-12%	+16%/-14%	+31%/-54%
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 008173017-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1616±215	$5.61^{+2.50}_{-2.41}$	702^{+52}_{-35}	7157^{+3280}_{-1255}	6794^{+14565}_{-3565}
Alt.	-3283±1051	$6.66^{+3.02}_{-2.38}$	704^{+55}_{-39}	7890^{+2697}_{-1543}	9415^{+14638}_{-5414}

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 $A_{obs} \gg 1.0$

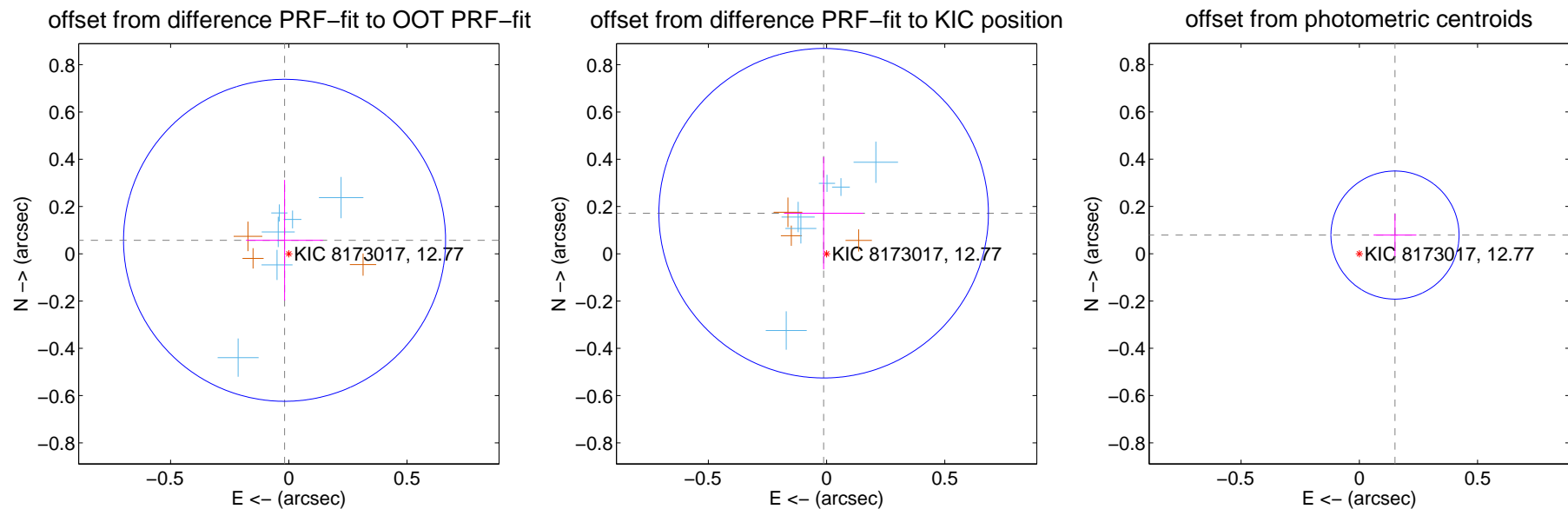
DV Centroid Data

Supplemental centroid analysis for 008173017-03. Kepler magnitude: 12.77. Transit SNR 4.19

There are 7 quarters with good PRF difference image offsets

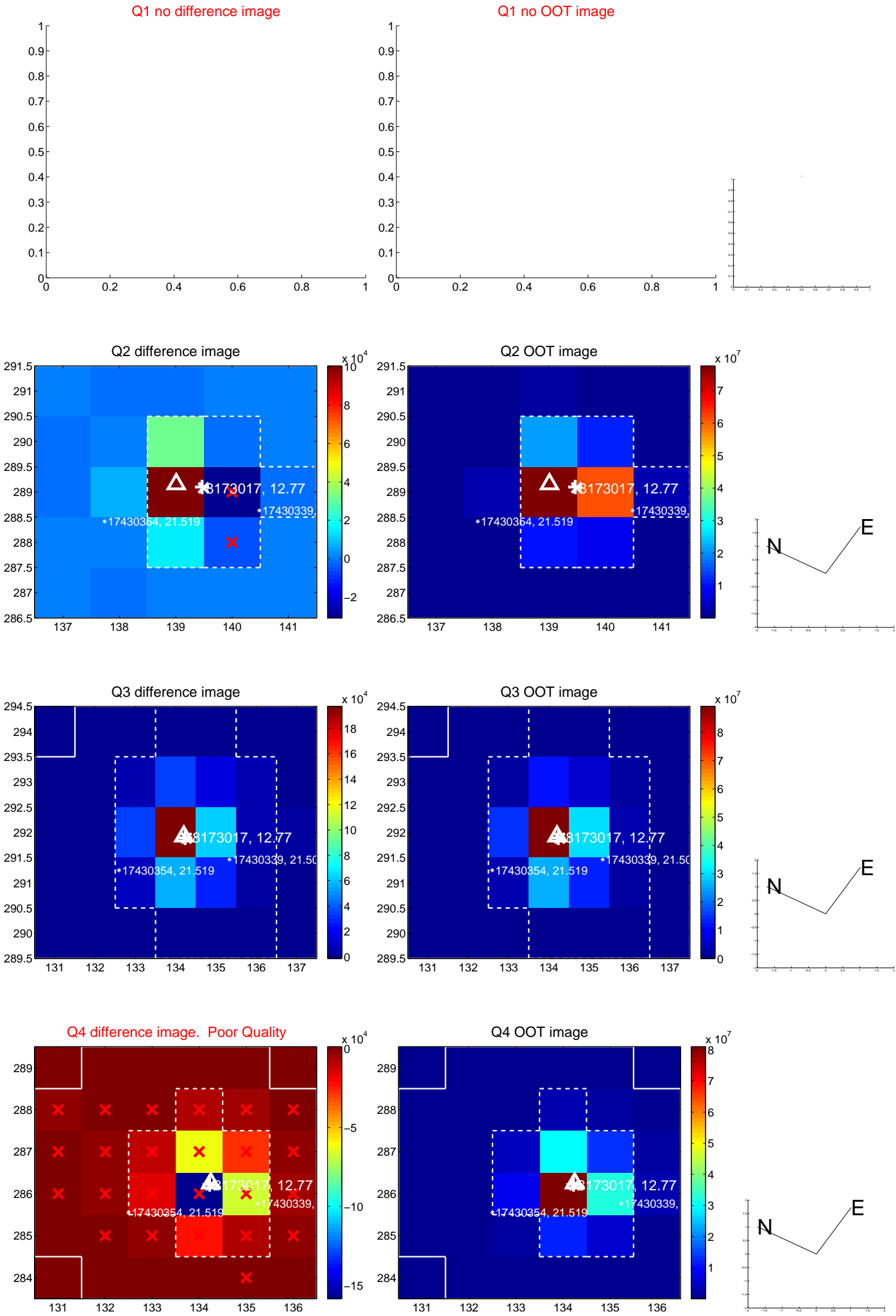
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.060 ± 0.227	0.26	0.018 ± 0.163	0.057 ± 0.255
PRF-fit source offset from KIC position	0.172 ± 0.232	0.74	0.012 ± 0.168	0.172 ± 0.238
photometric centroid source offset	0.17 ± 0.09	1.89	-0.15 ± 0.09	0.08 ± 0.09

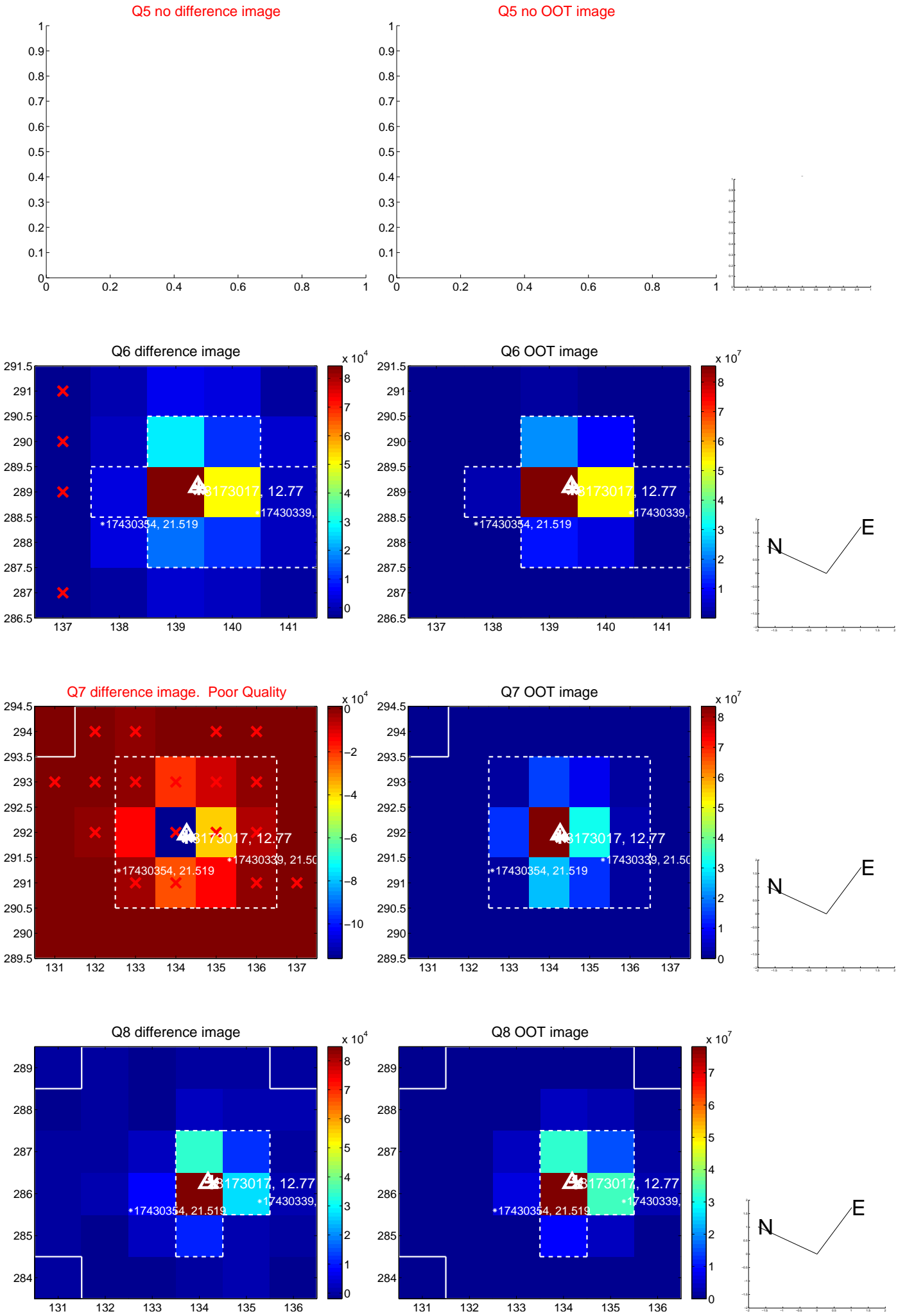


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

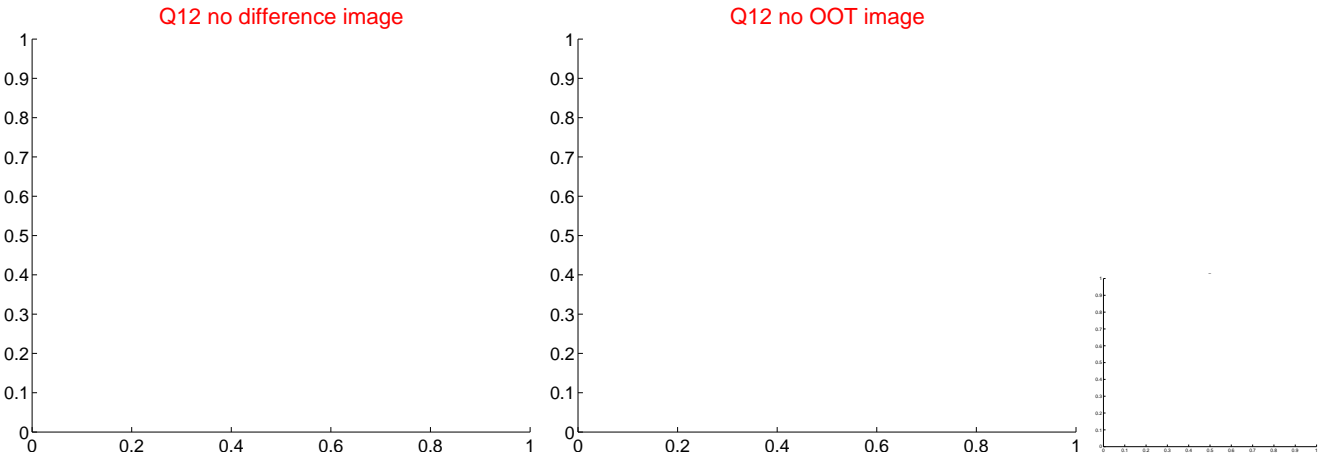
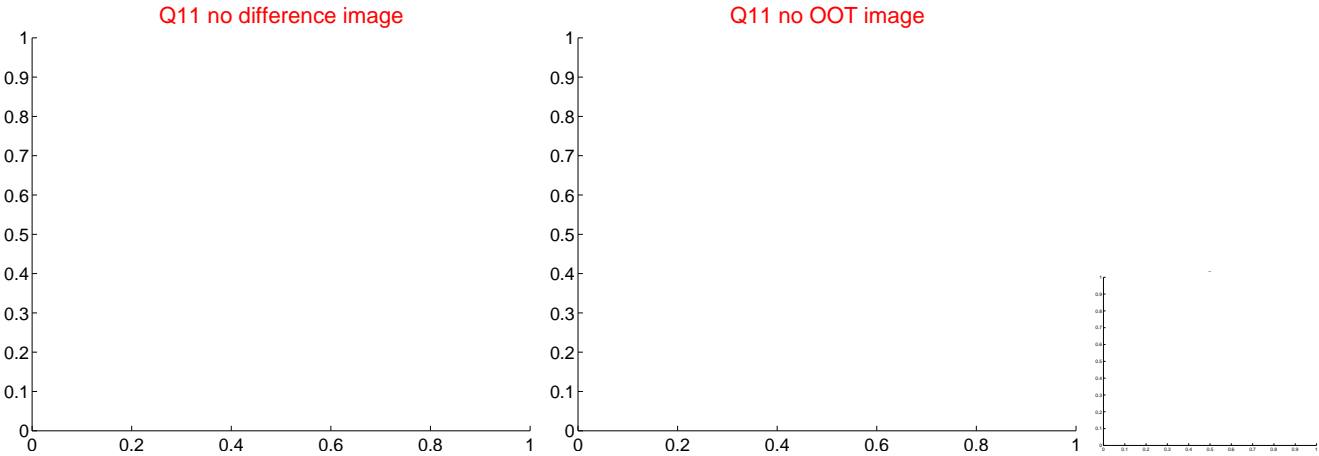
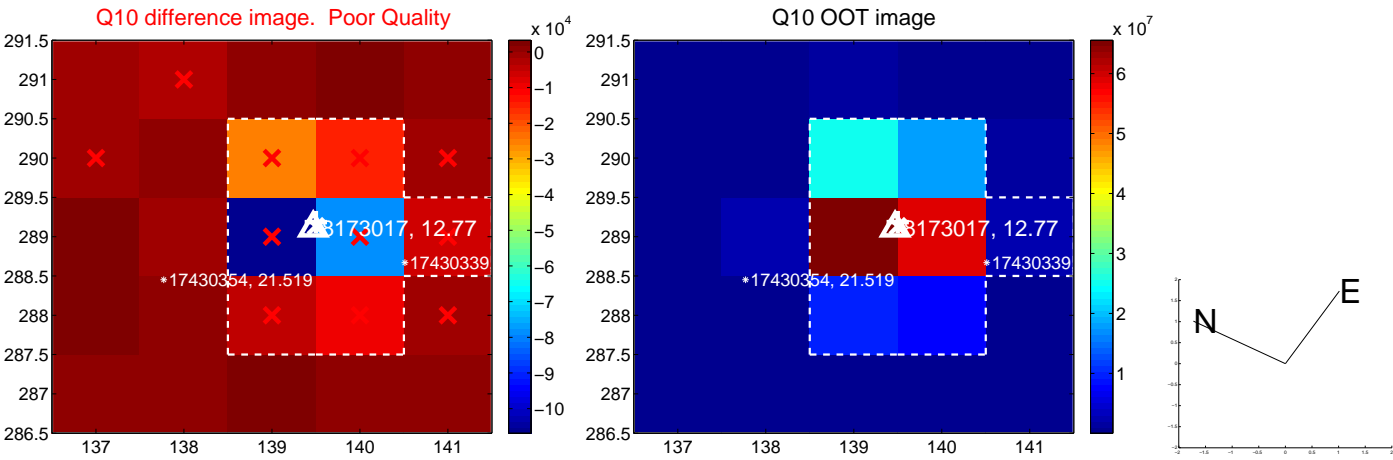
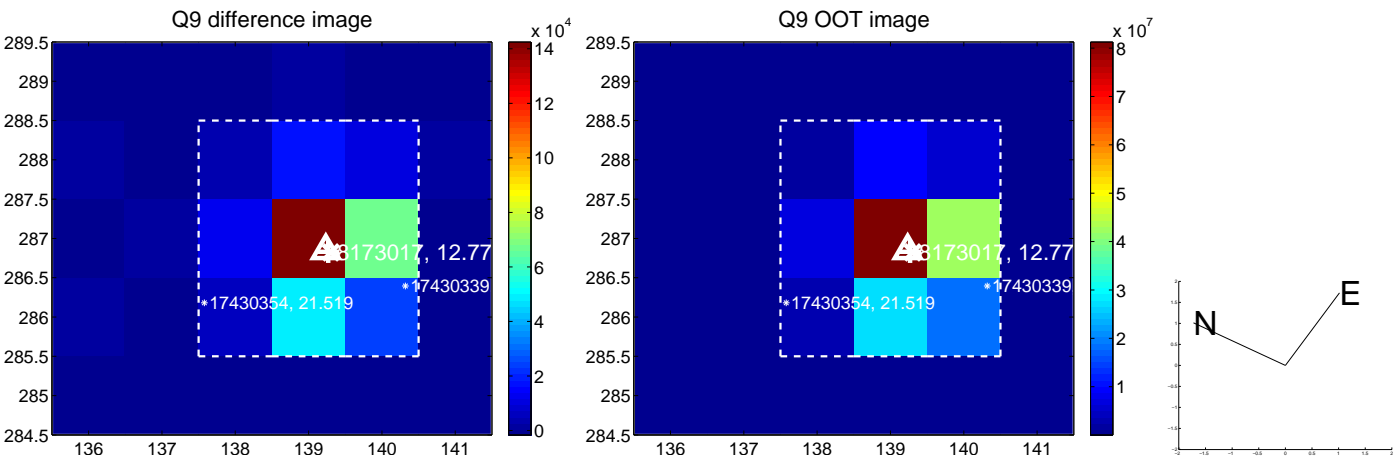
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



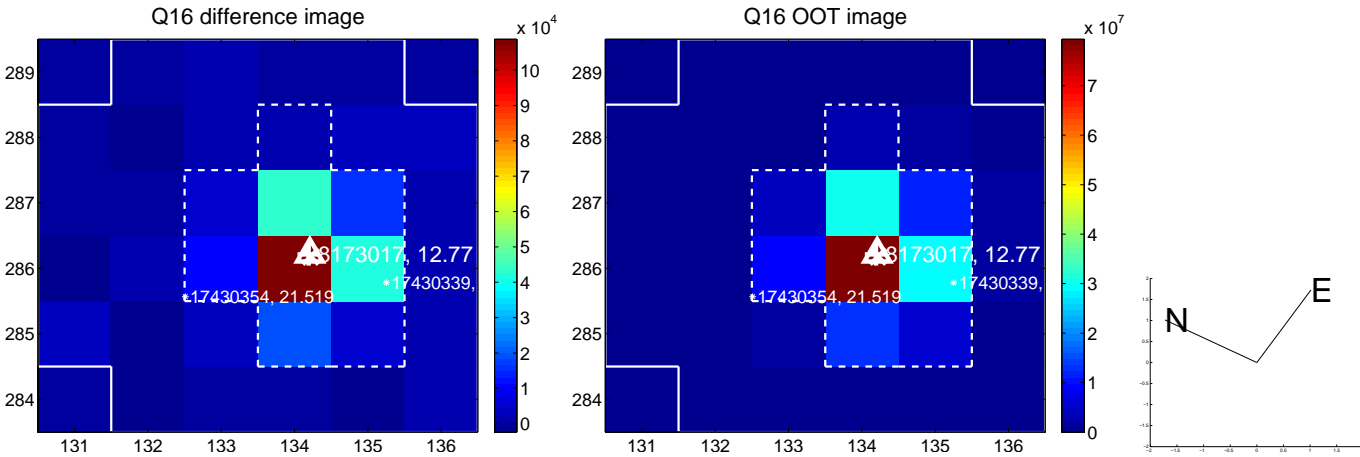
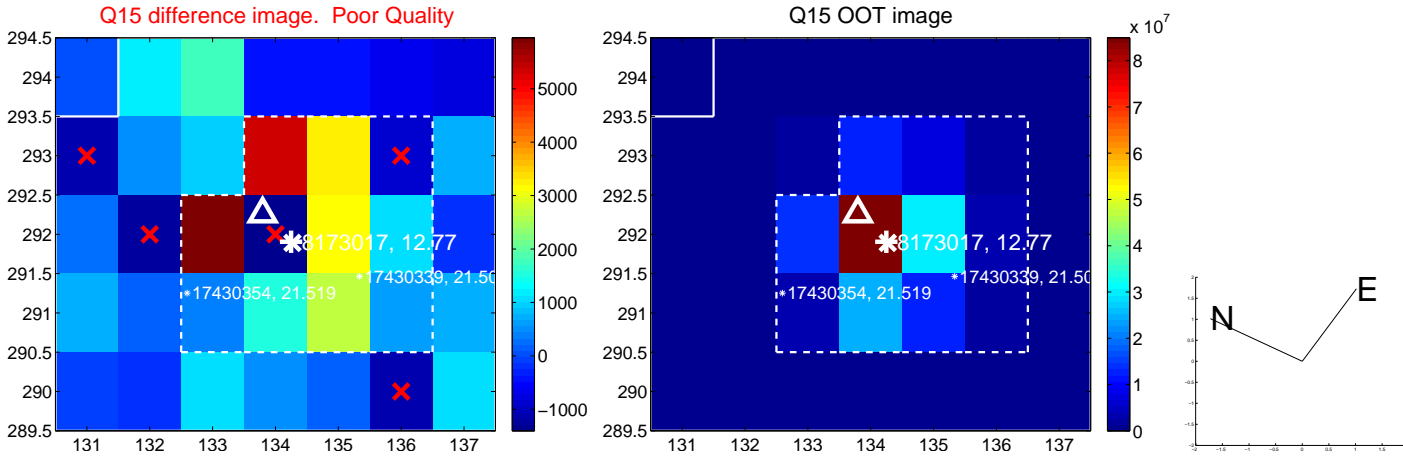
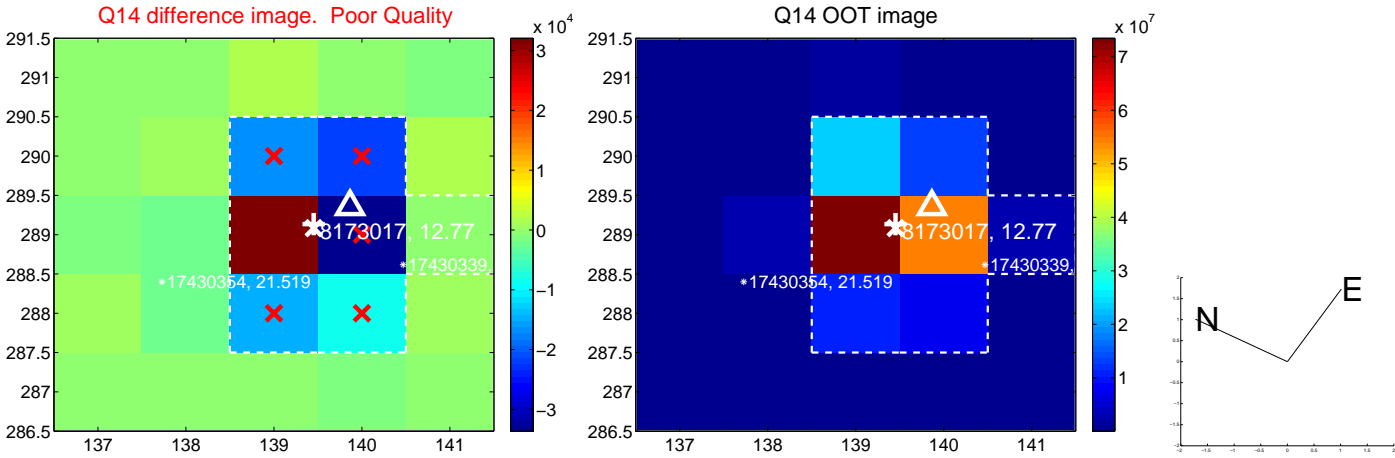
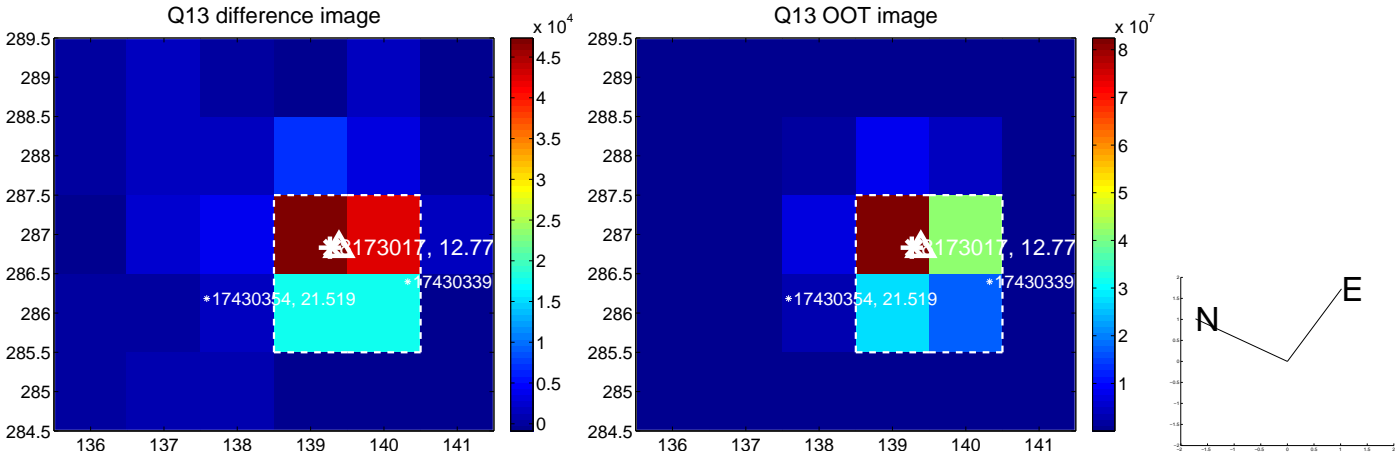
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



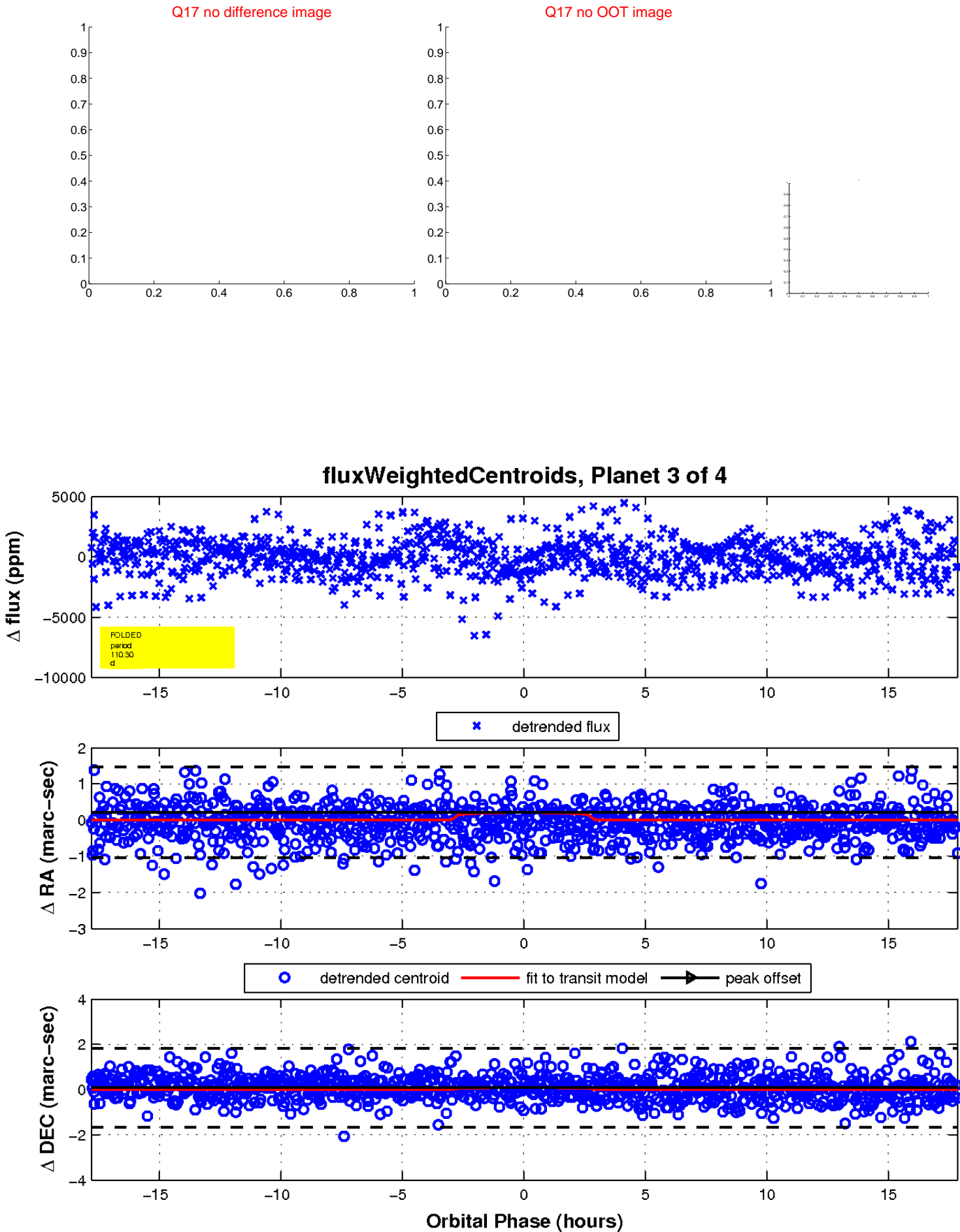
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

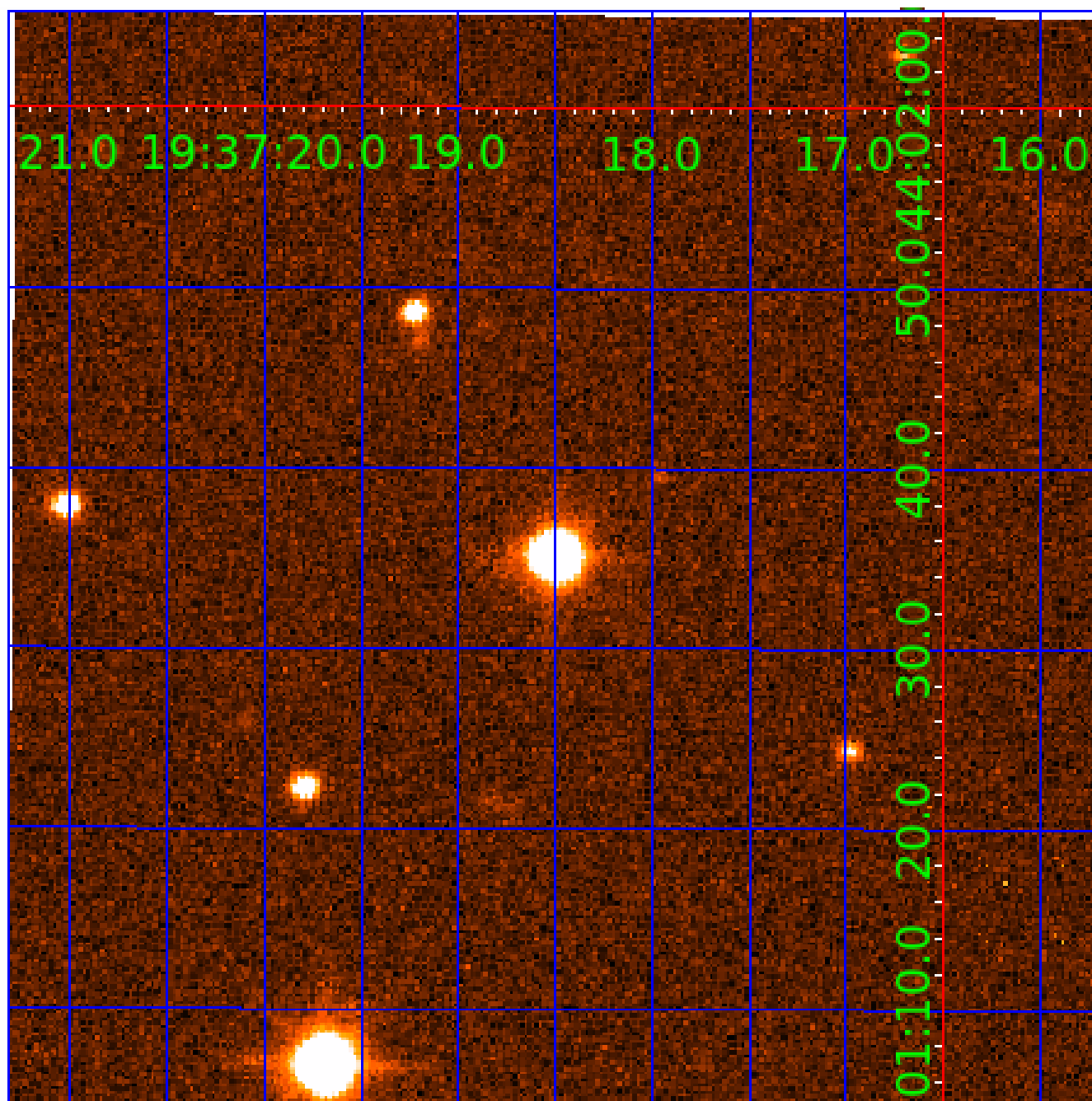


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008173017

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})
008173017-01	OBS	No	0.590307	132.043133	135.2	1.559	11.7	12.6	1.35	6797	1.59	15184.51
008173017-02	OBS	No	0.590302	131.692249	134.6	1.497	10.8	11.0	1.35	6797	1.83	15184.68
008173017-03	OBS	No	110.297200	214.681822	1456.2	5.953	8.5	4.2	1.35	6797	5.36	14.21
008173017-04	OBS	No	55.368081	182.870130	2689.7	5.137	8.0	8.5	1.35	6797	12.78	35.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008173017-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008173017-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
008173017-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—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
008173017-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

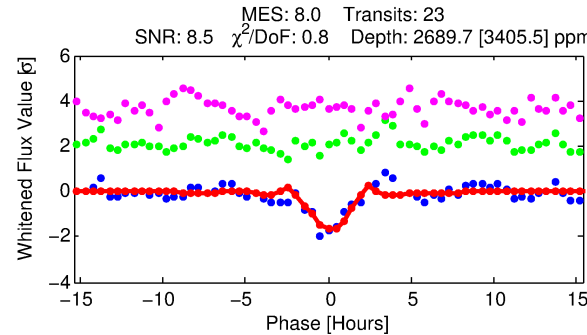
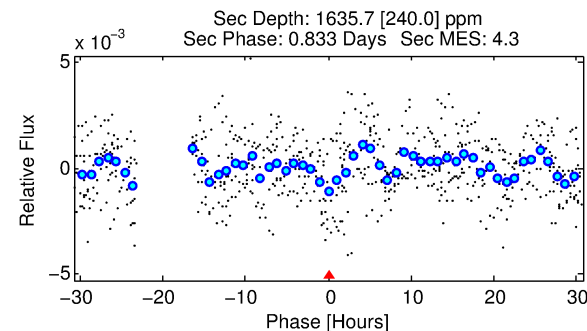
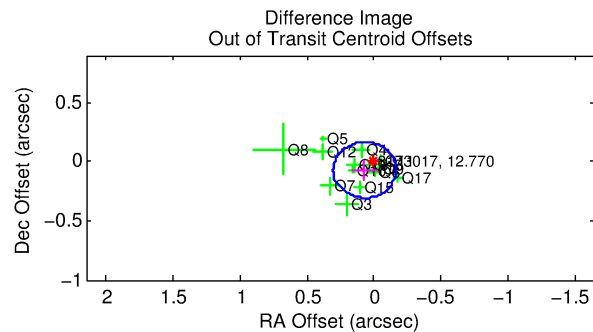
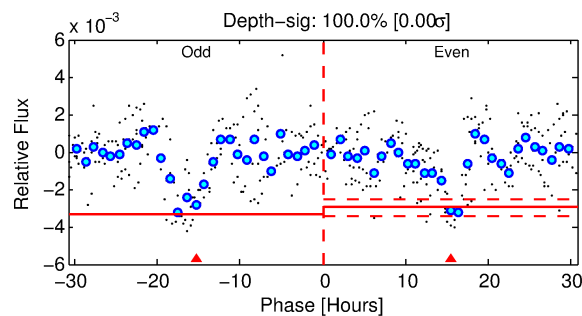
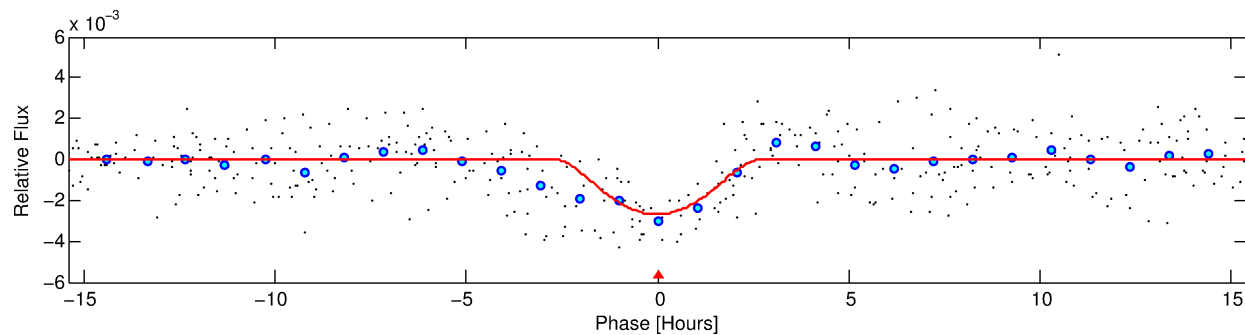
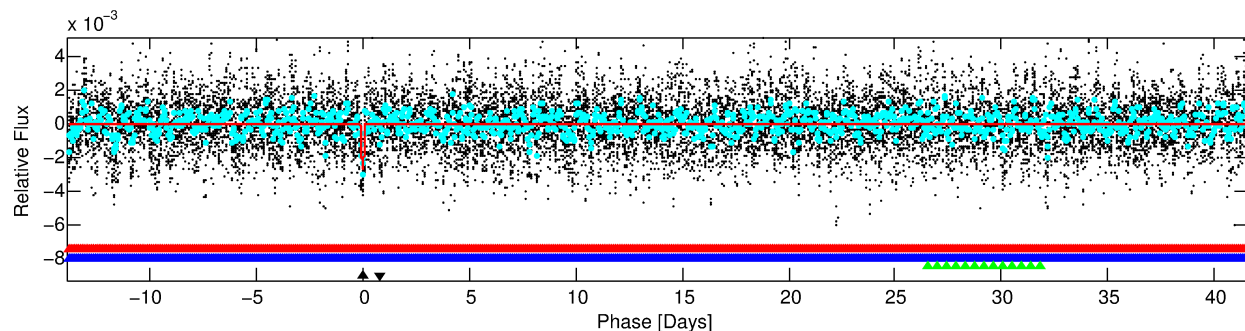
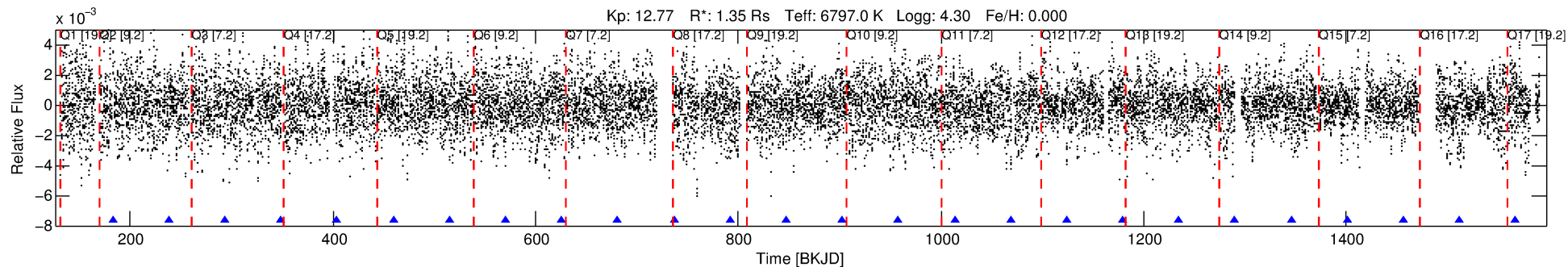
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008173017-04

No Significant Match Found

DV One-Page Summary

KIC: 8173017 Candidate: 4 of 4 Period: 55.368 d



DV Fit Results:

Period = 55.36808 [0.00085] d
Epoch = 182.8701 [0.0125] BKJD
Rp/R* = 0.0868 [0.1758]
a/R* = 35.06 [15.29]
b = 1.00 [0.33]
Seff = 35.63 [15.13]
Teq = 623 [66] K
Rp = 12.78 [26.27] Re
a = 0.3125 [0.0895] AU
Ag = 538.34 [2192.75] [0.25σ]
Teffp = 4640 [4705] K [0.85σ]

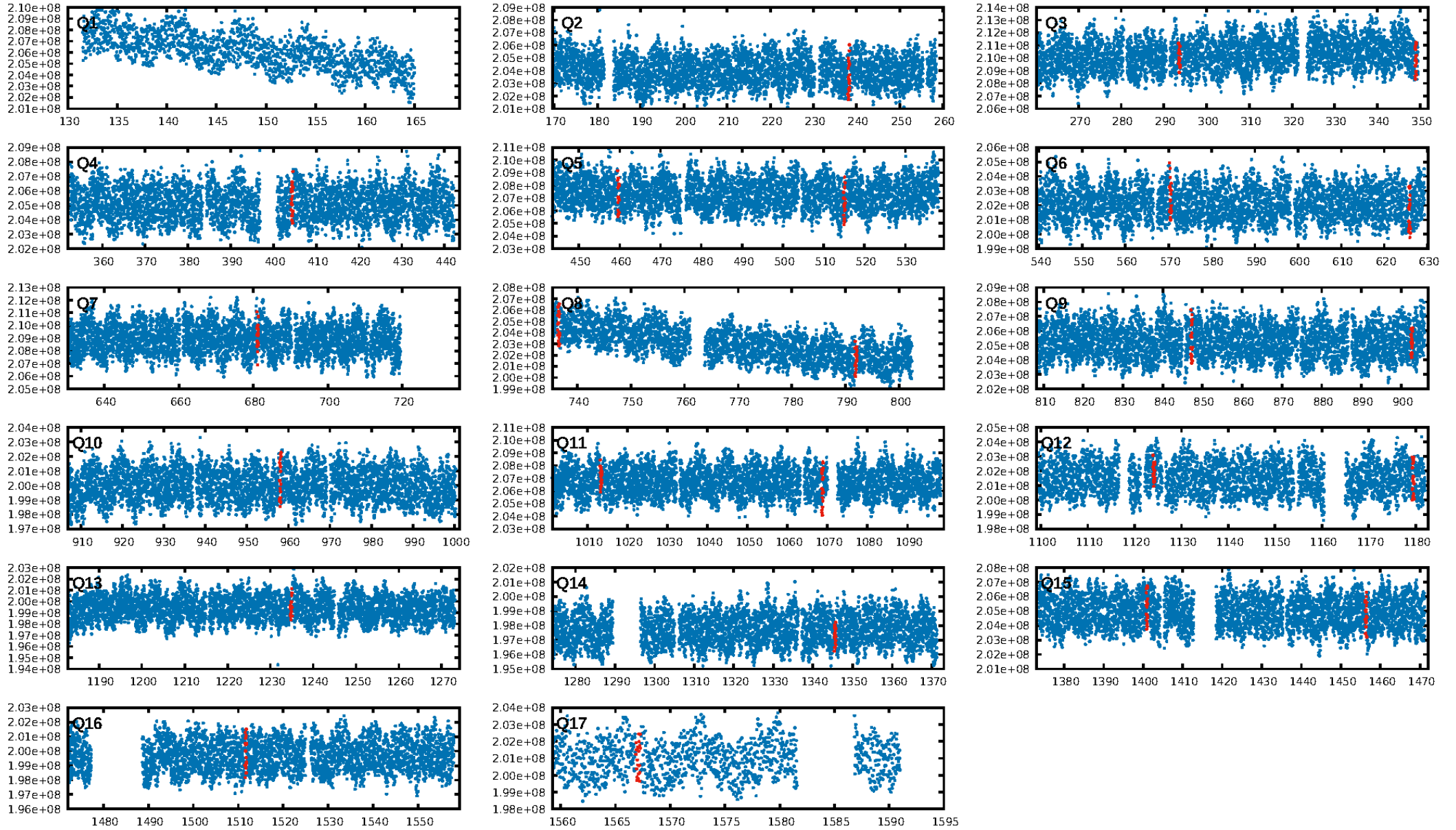
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [244.90σ]
LongPeriod-sig: 100.0% [167.65σ]
ModelChiSquare2-sig: 67.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.05e-12
RollingBand-fgt: 1.00 [22/22]
GhostDiagnostic-chr: 1.523
Centroid-sig: 9.5%
Centroid-so: 0.145 arcsec [3.01σ]
OotOffset-rm: 0.099 arcsec [1.26σ]
KicOffset-rm: 0.132 arcsec [1.49σ]
OotOffset-st: 2/4/4/4 [14]
KicOffset-st: 2/4/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/16]

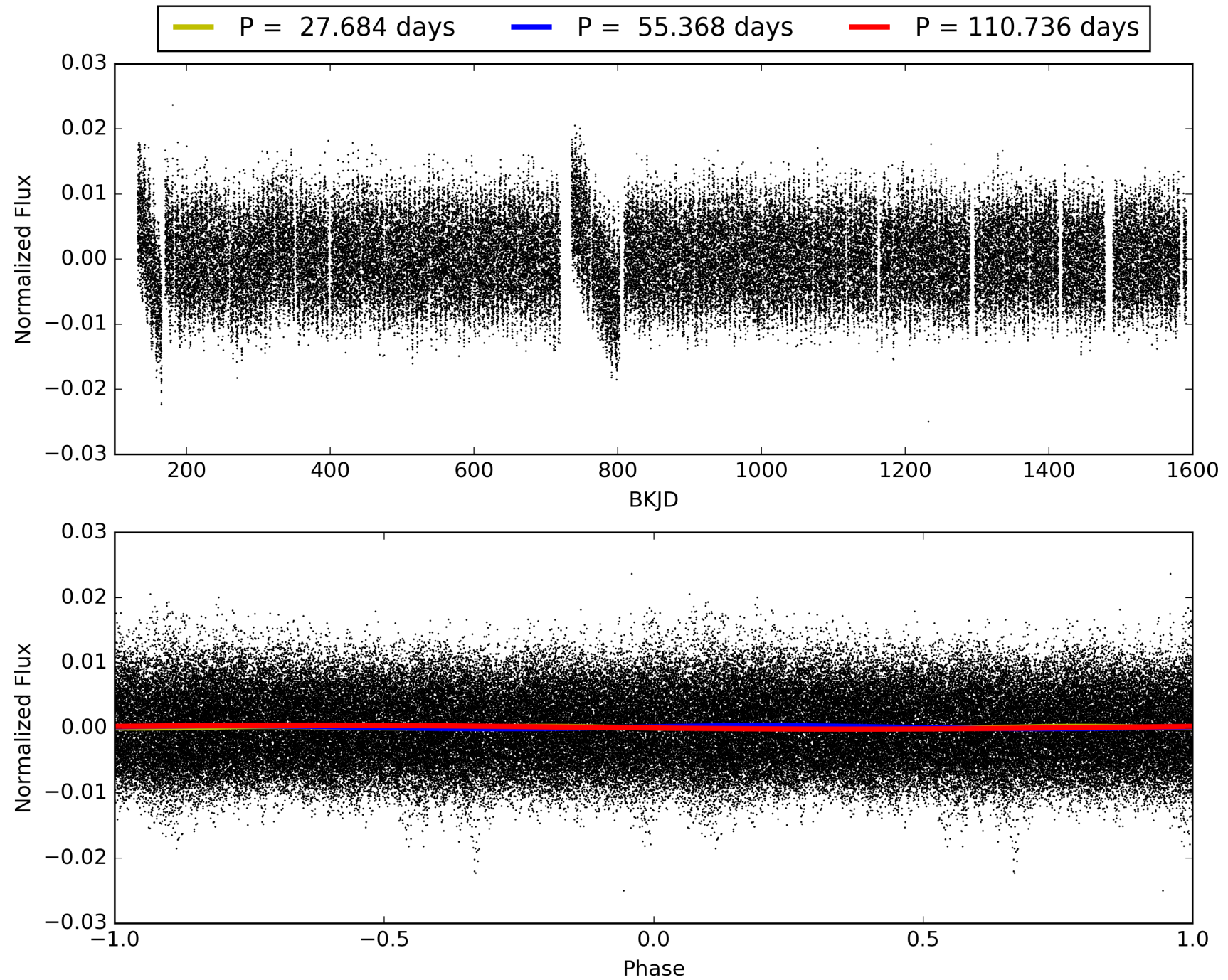
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:01:56 Z

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

TCE 008173017-04, PDC Light Curves

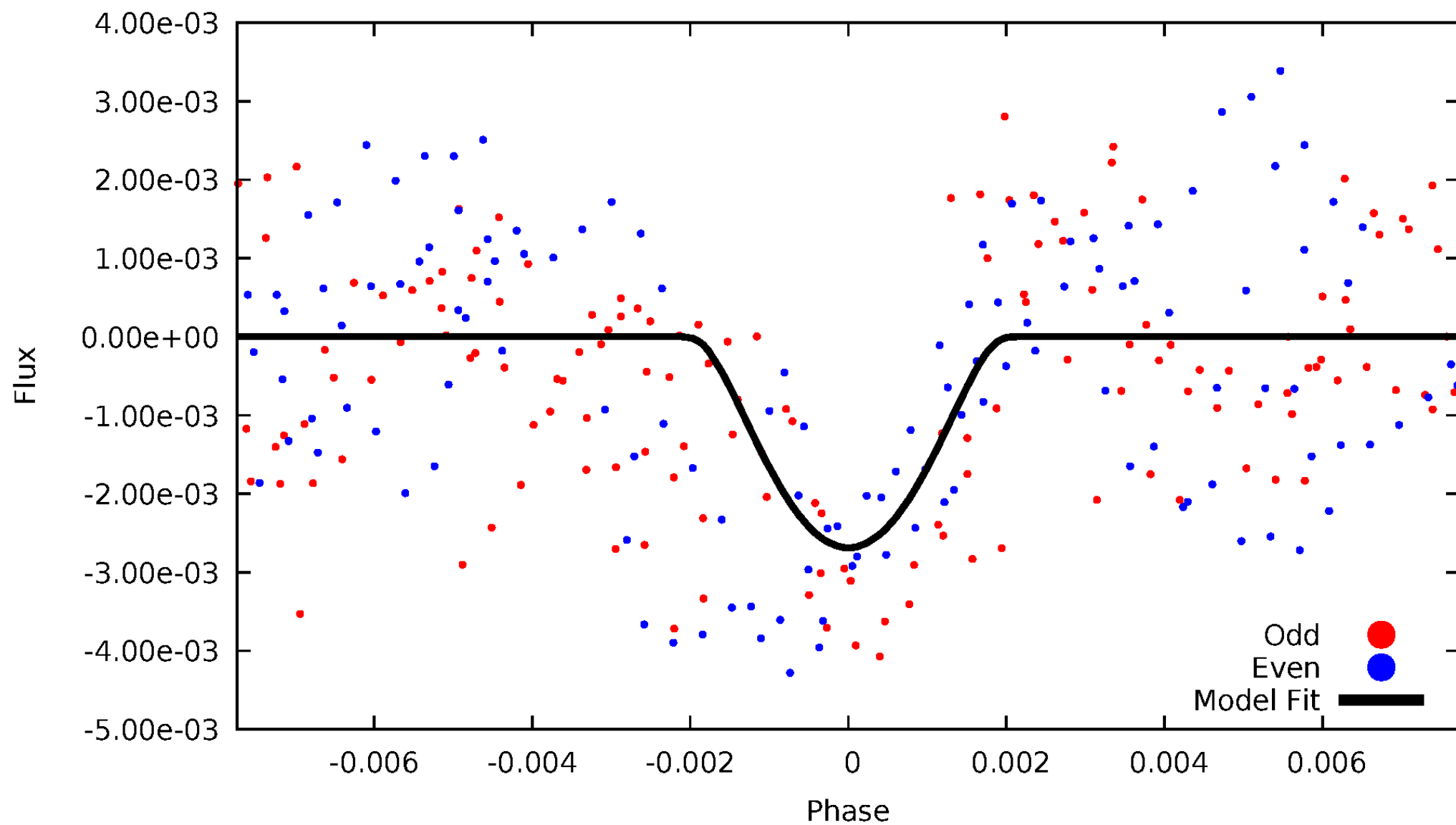


TCE 008173017-04



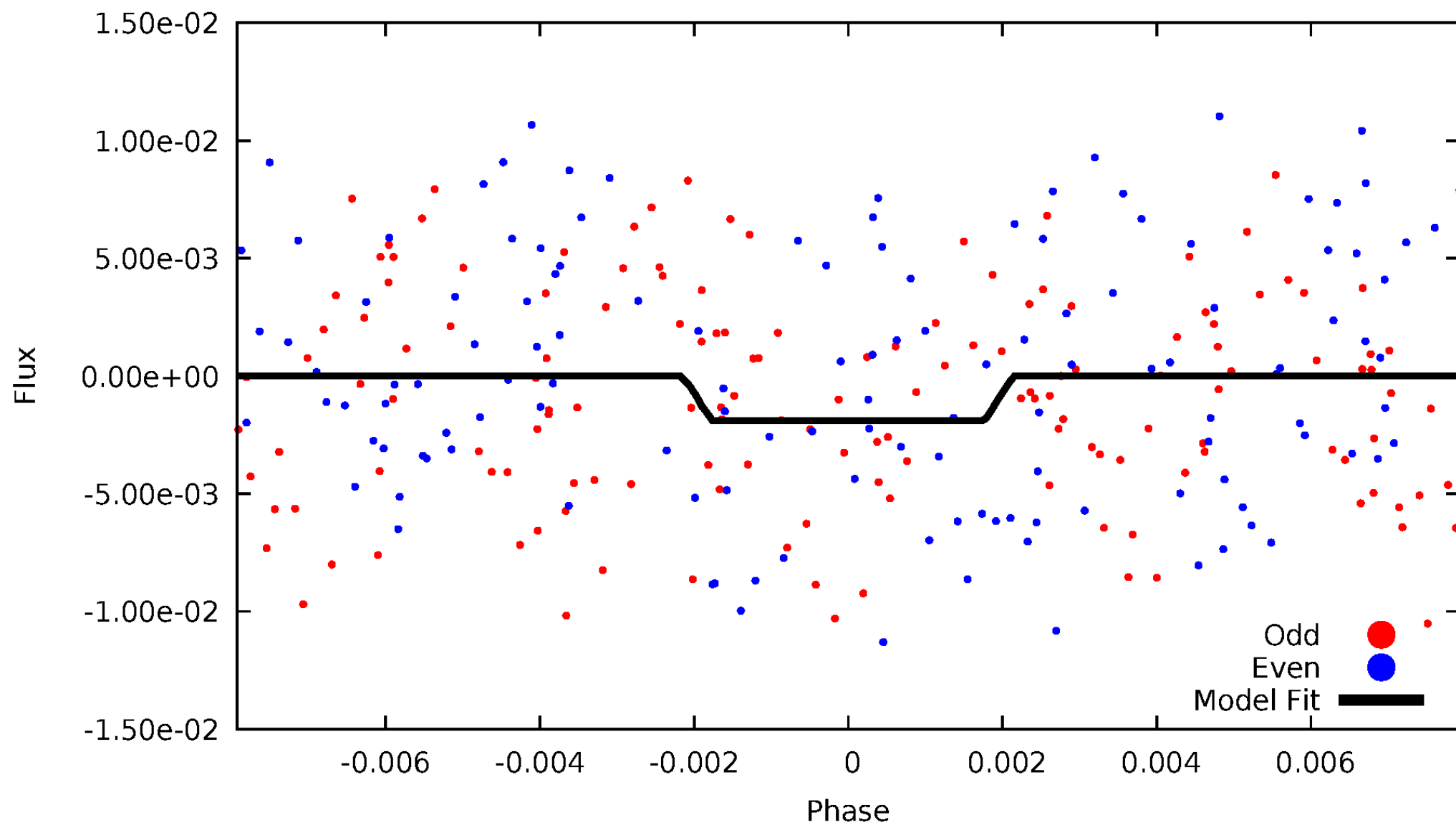
DV Odd/Even

TCE 008173017-04



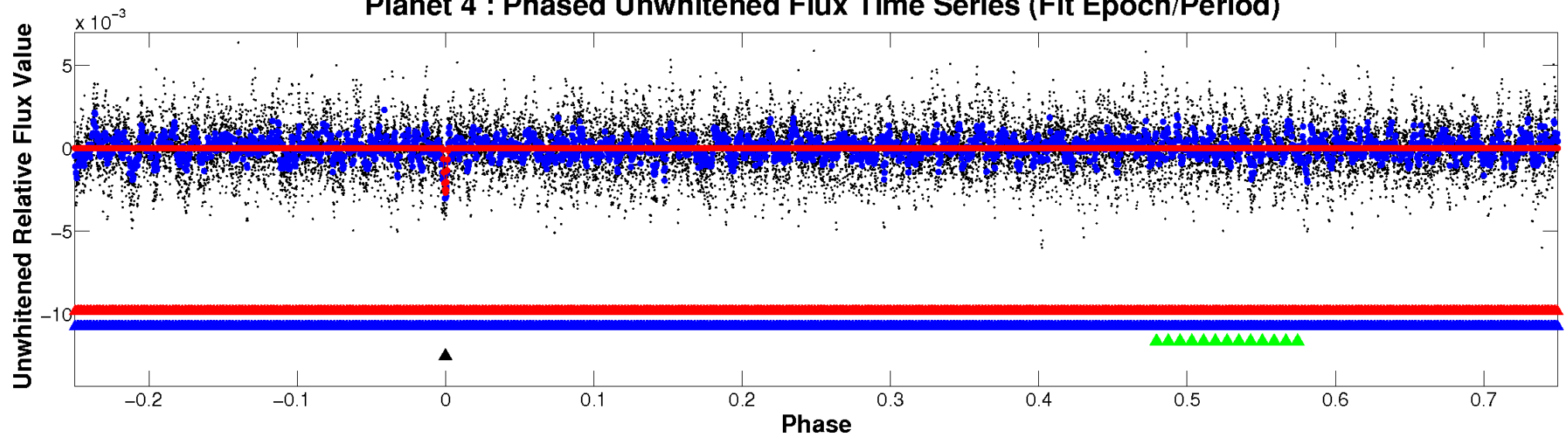
ALT Odd/Even

TCE 008173017-04

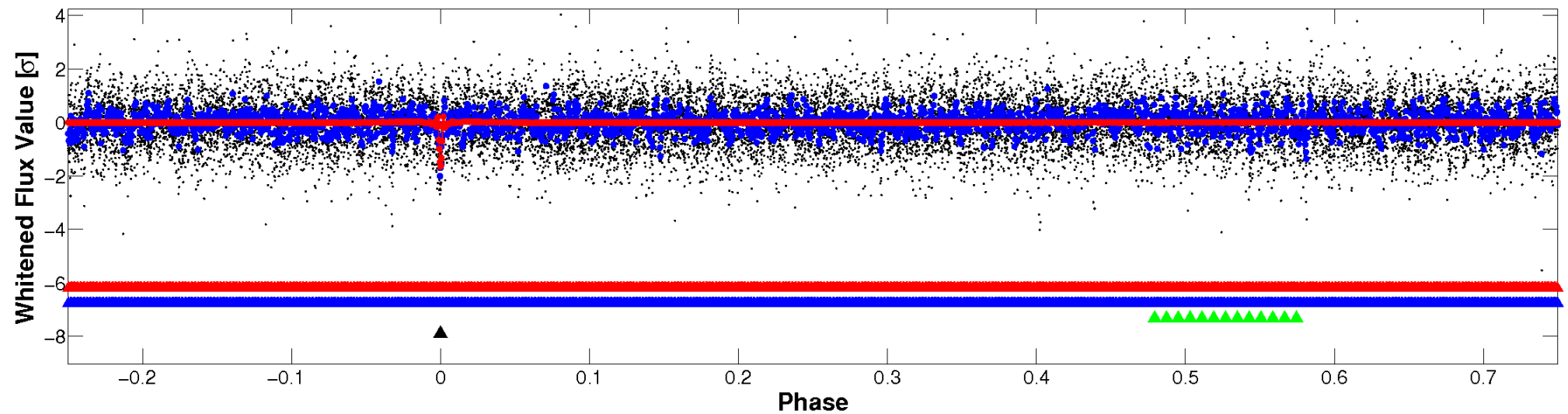


Non-Whitened Vs. Whitened Light Curve

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

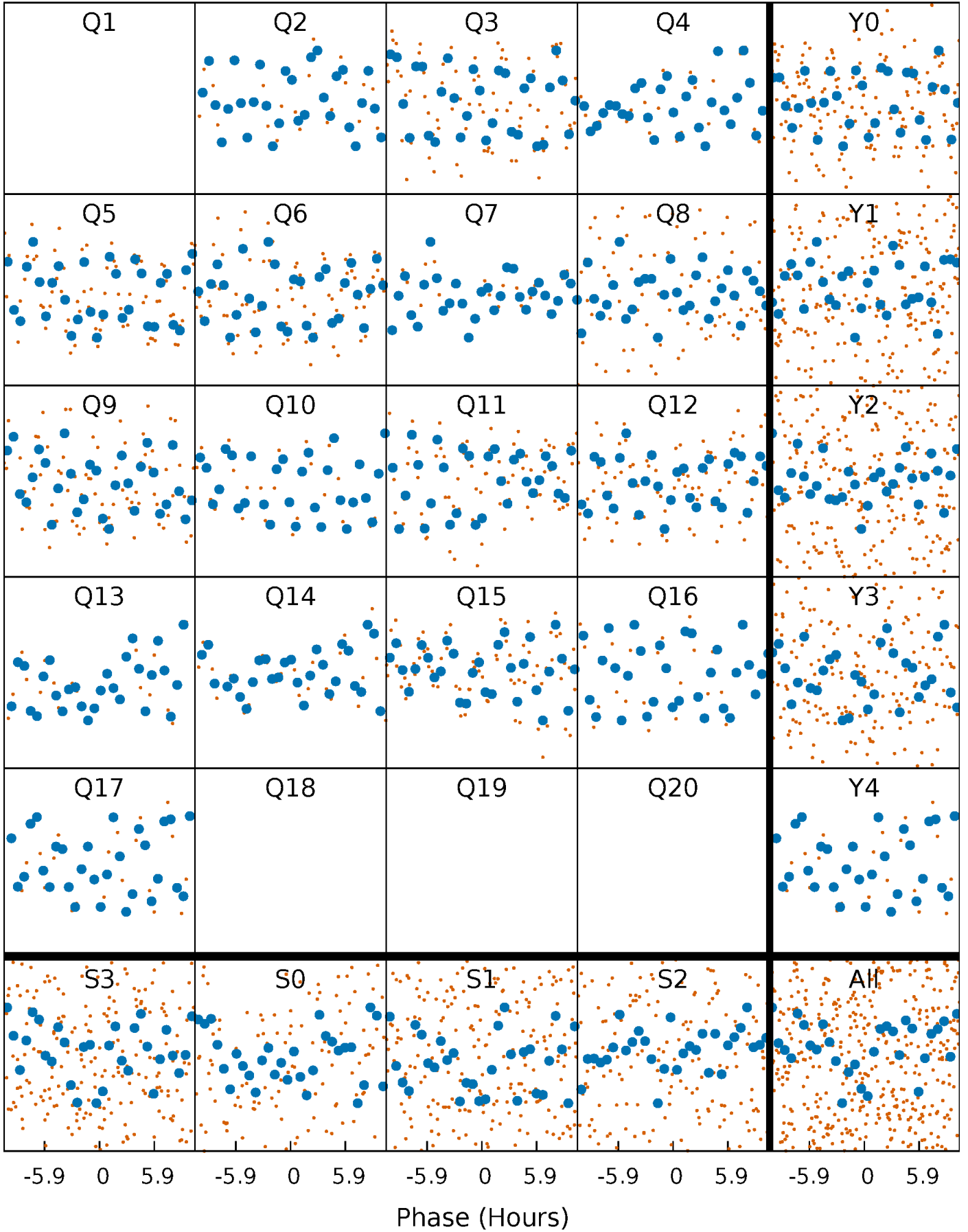


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



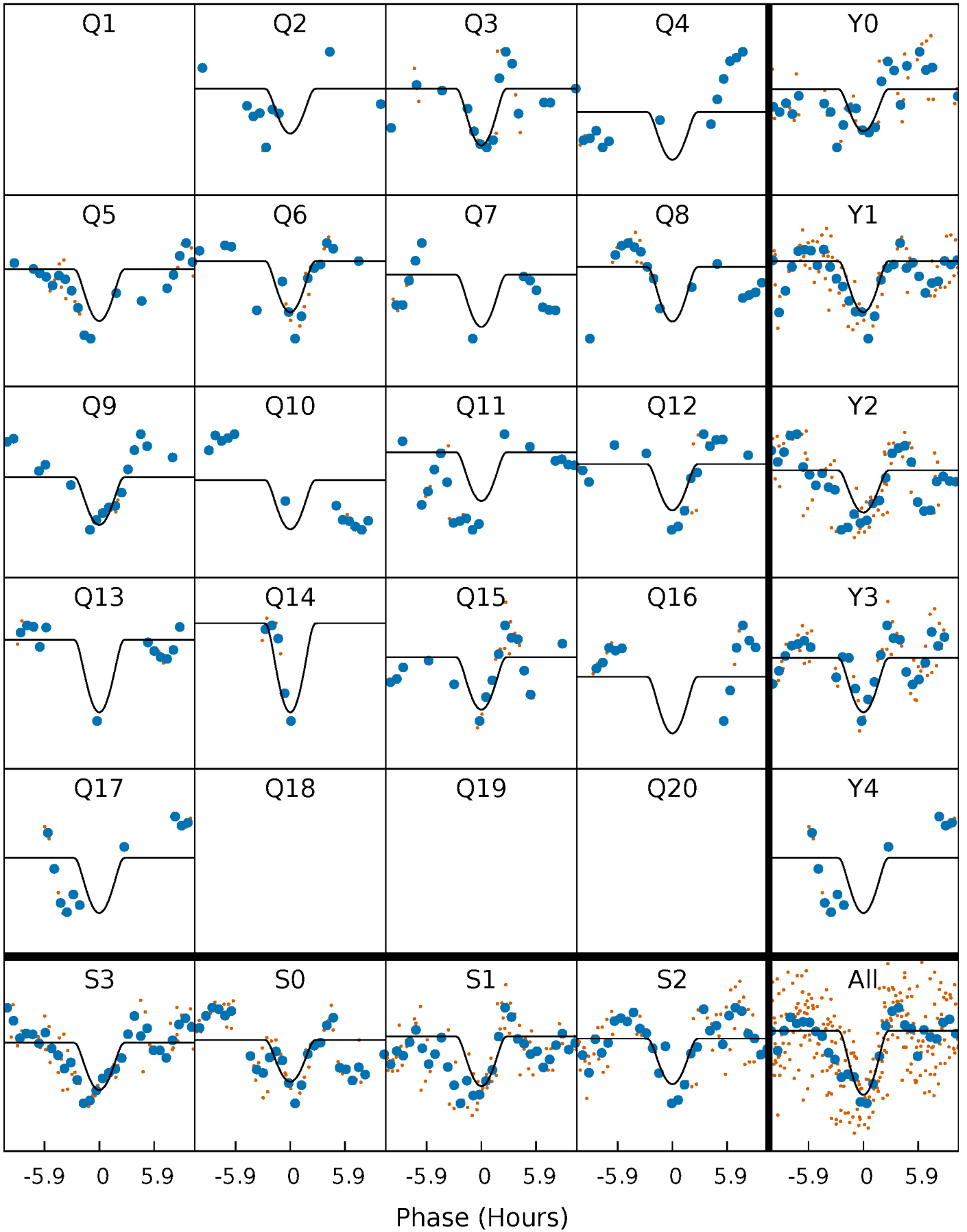
PDC Quarter-Phased Transit Curves

TCE 008173017-04 P= 55.368081 Days $T_0=182.870130$ (BKJD)



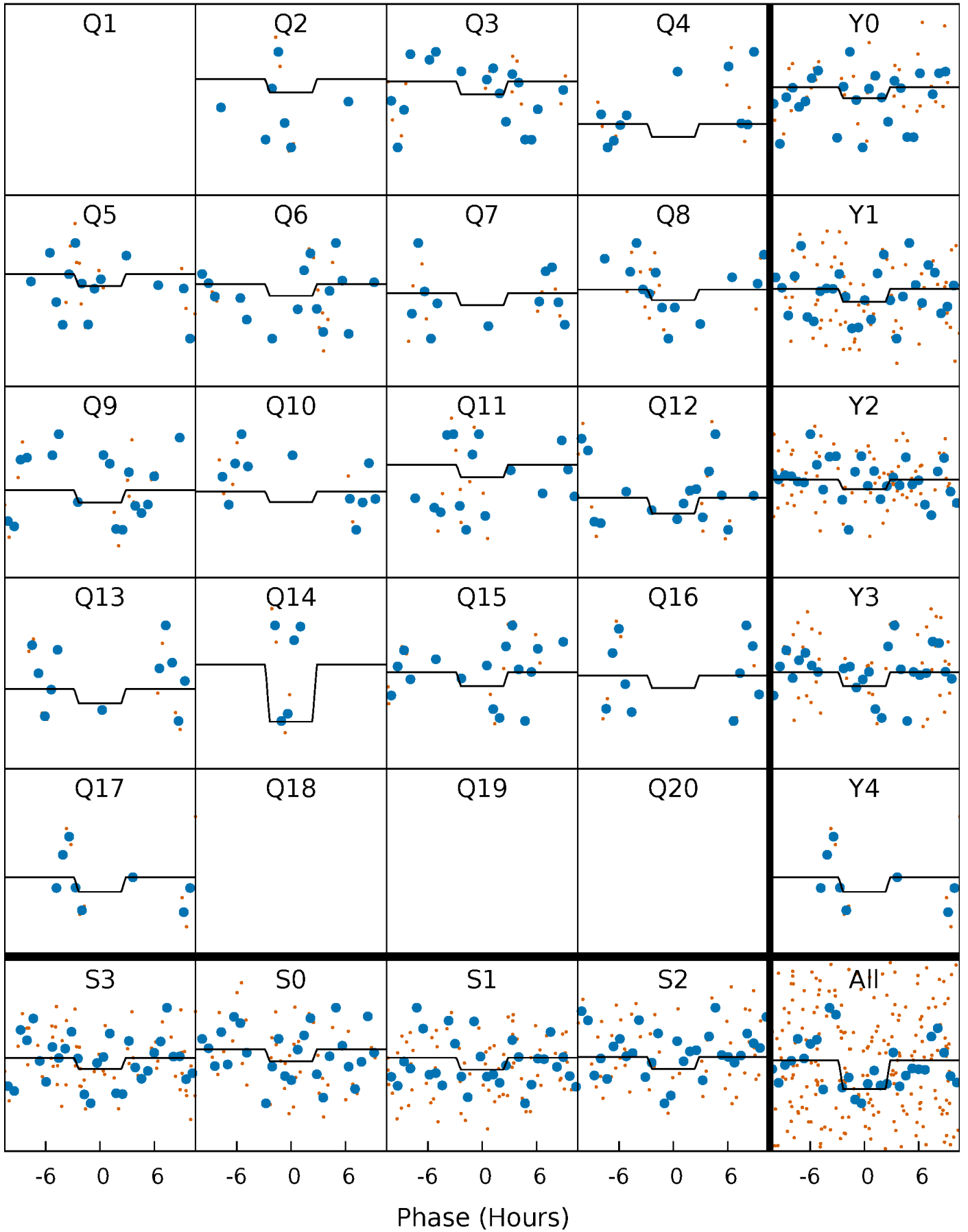
DV Quarter-Phased Transit Curves

TCE 008173017-04 P= 55.368081 Days $T_0=182.870130$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

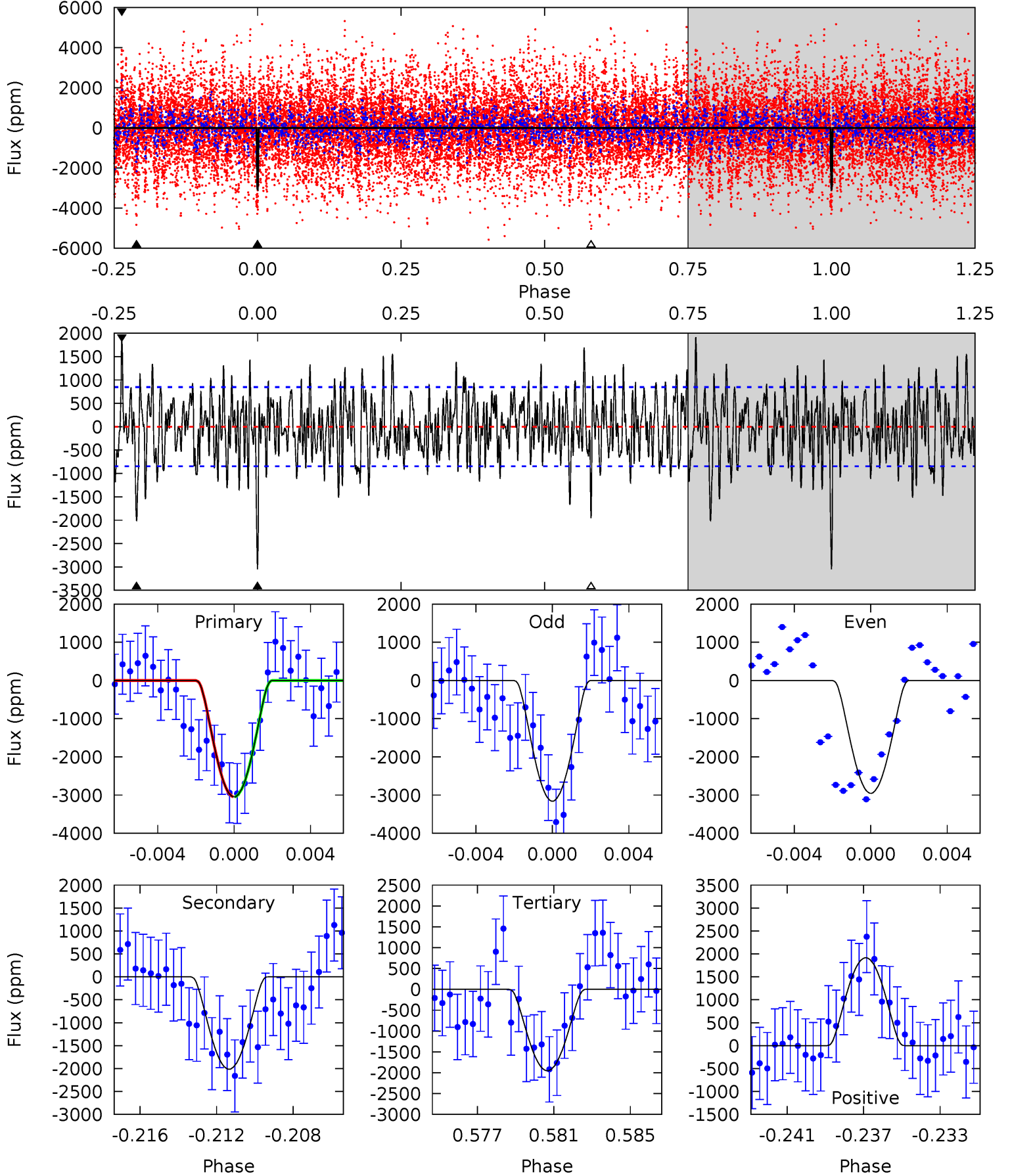
TCE 008173017-04 $P = 55.369813$ Days $T_0 = 182.797039$ (BKJD)



DV Model-Shift Uniqueness Test

008173017-04, P = 55.368081 Days, E = 127.502049 Days

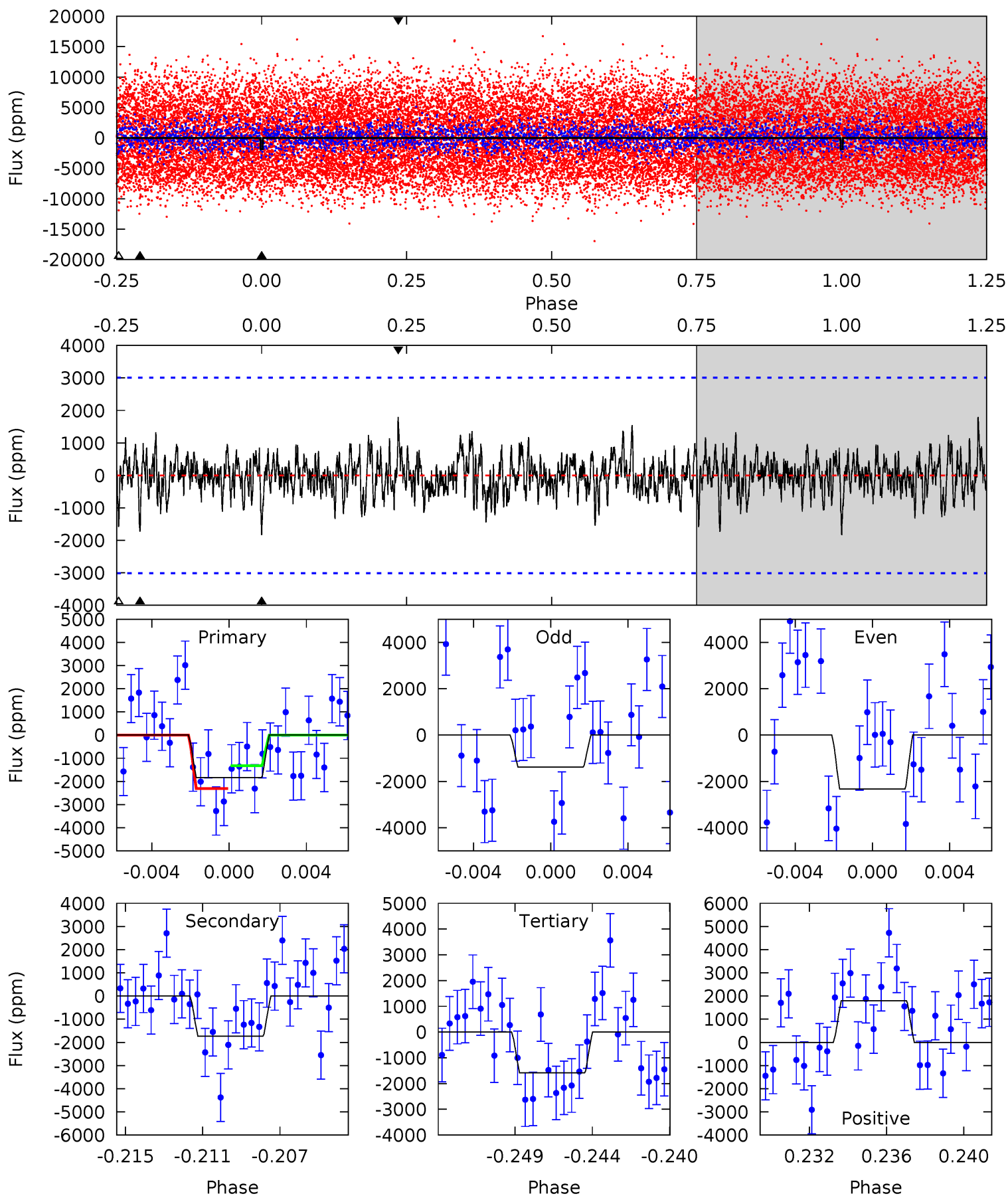
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	12.4	12.0	11.8	5.19	2.87	3.47	6.71	6.95	0.37	0.61	0.63	-9.60	0.39	0.01



Alt Model-Shift Uniqueness Test

008173017-04, P = 55.369813 Days, E = 127.427226 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.16	2.99	2.73	3.10	5.19	2.87	0.85	0.43	0.06	0.25	-0.12	0.82	0.95	0.50	0.85



Stellar Parameters For KIC 008173017

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6797^{+162}_{-243}	$4.301^{+0.070}_{-0.210}$	$0.000^{+0.250}_{-0.350}$	$1.349^{+0.479}_{-0.160}$	$1.335^{+0.209}_{-0.190}$	$0.766^{+0.240}_{-0.411}$
	+2%/-4%	+2%/-5%	+inf%/-inf%	+36%/-12%	+16%/-14%	+31%/-54%
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 008173017-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2014 ± 163	$25.78^{+21.23}_{-17.09}$	882^{+68}_{-43}	3871^{+2149}_{-682}	163^{+1252}_{-115}
Alt.	-1731 ± 580	$21.35^{+22.71}_{-14.69}$	879^{+70}_{-46}	3964^{+2720}_{-836}	197^{+1929}_{-156}

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 $A_{obs} \gg 1.0$

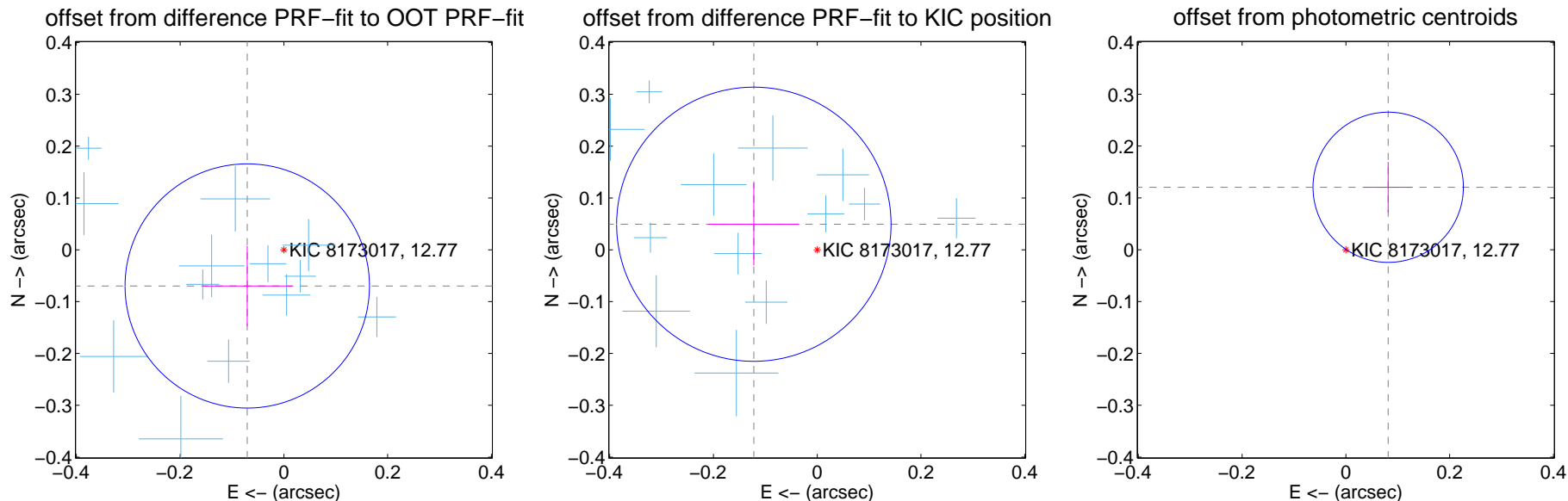
DV Centroid Data

Supplemental centroid analysis for 008173017-04. Kepler magnitude: 12.77. Transit SNR 8.51

There are 14 quarters with good PRF difference image offsets

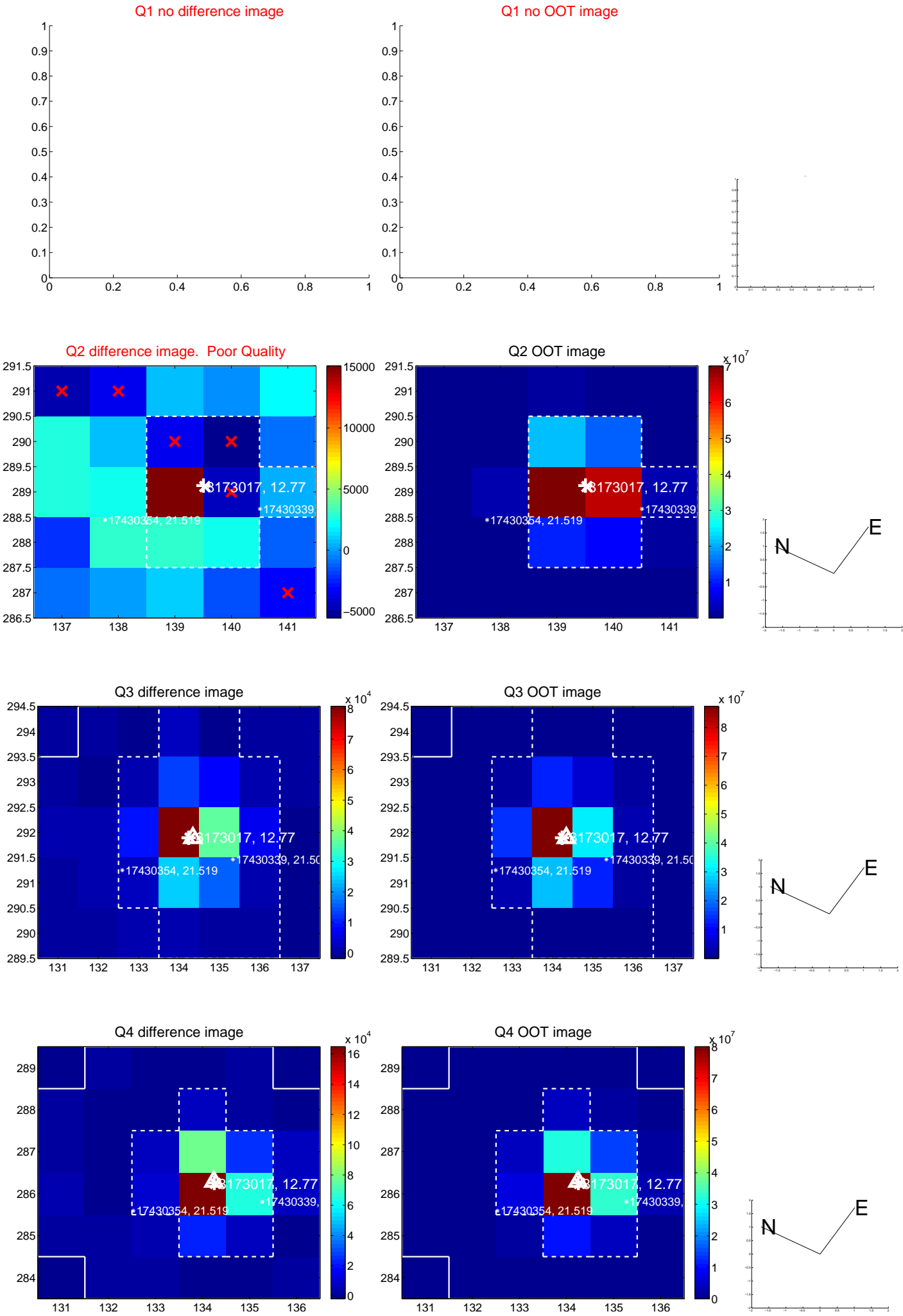
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.099 ± 0.079	1.26	0.071 ± 0.087	-0.070 ± 0.077
PRF-fit source offset from KIC position	0.132 ± 0.088	1.49	0.122 ± 0.087	0.049 ± 0.079
photometric centroid source offset	0.15 ± 0.05	3.01	-0.08 ± 0.05	0.12 ± 0.05

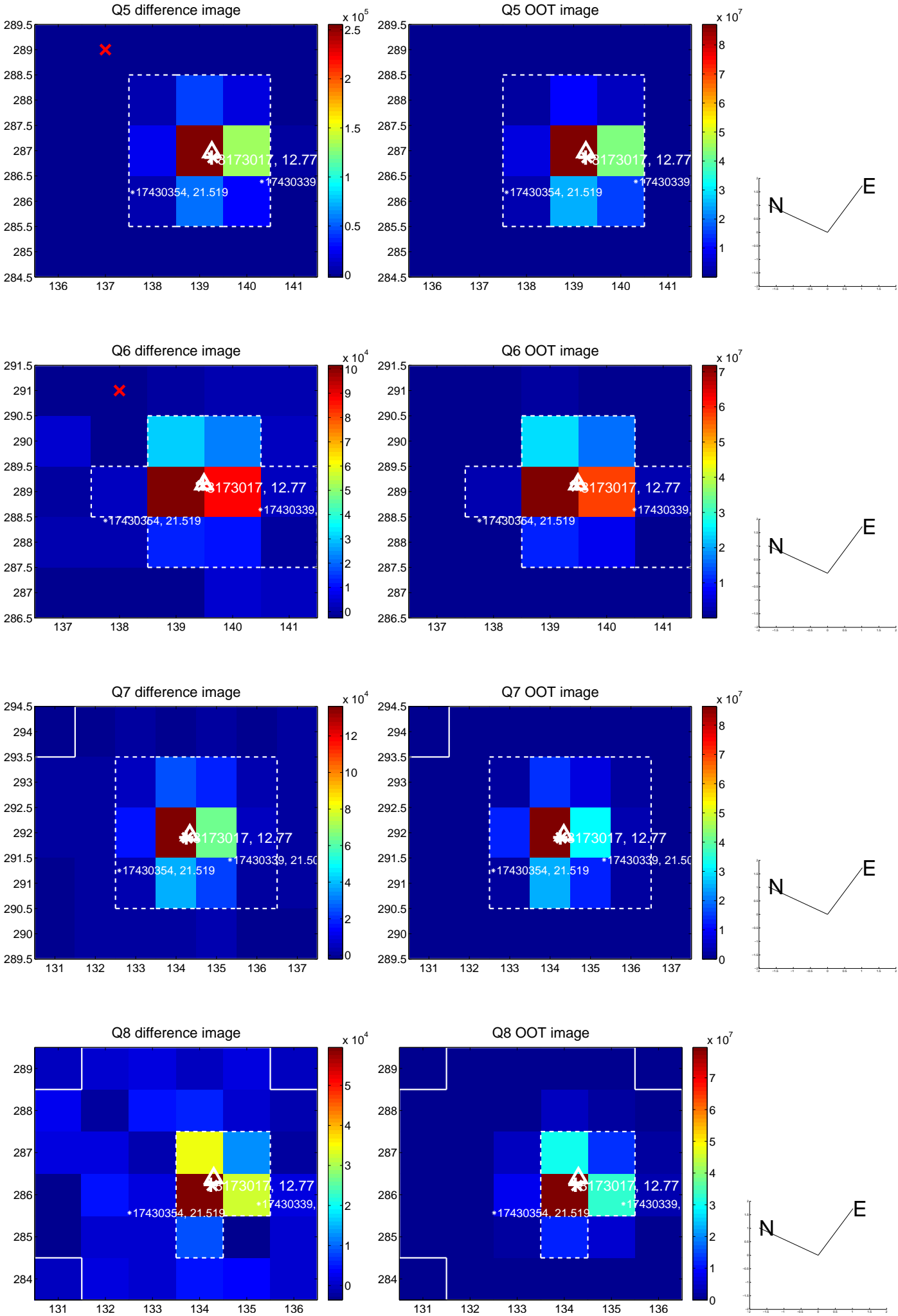


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

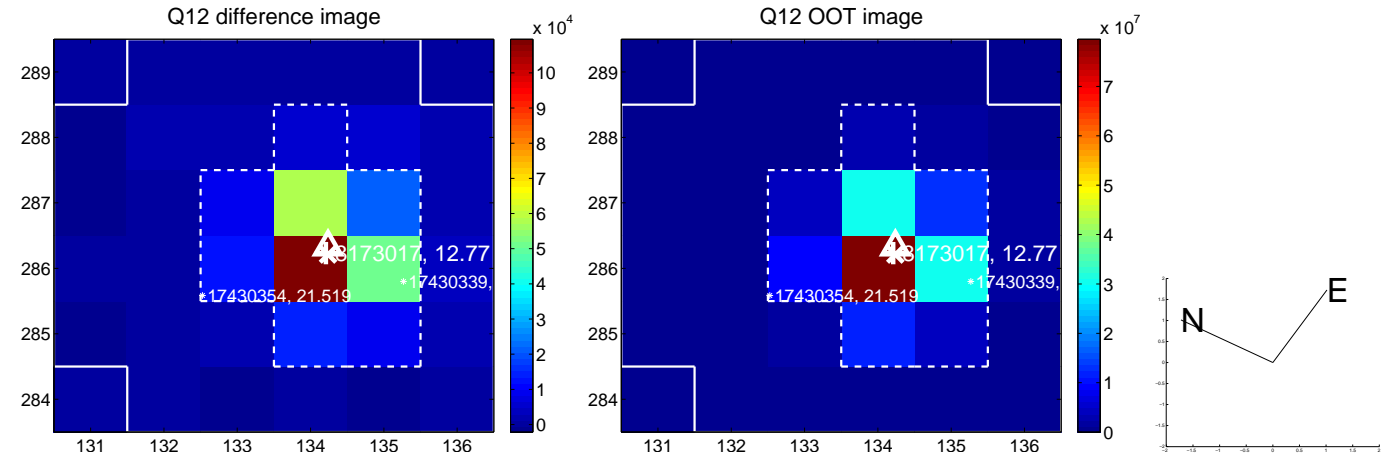
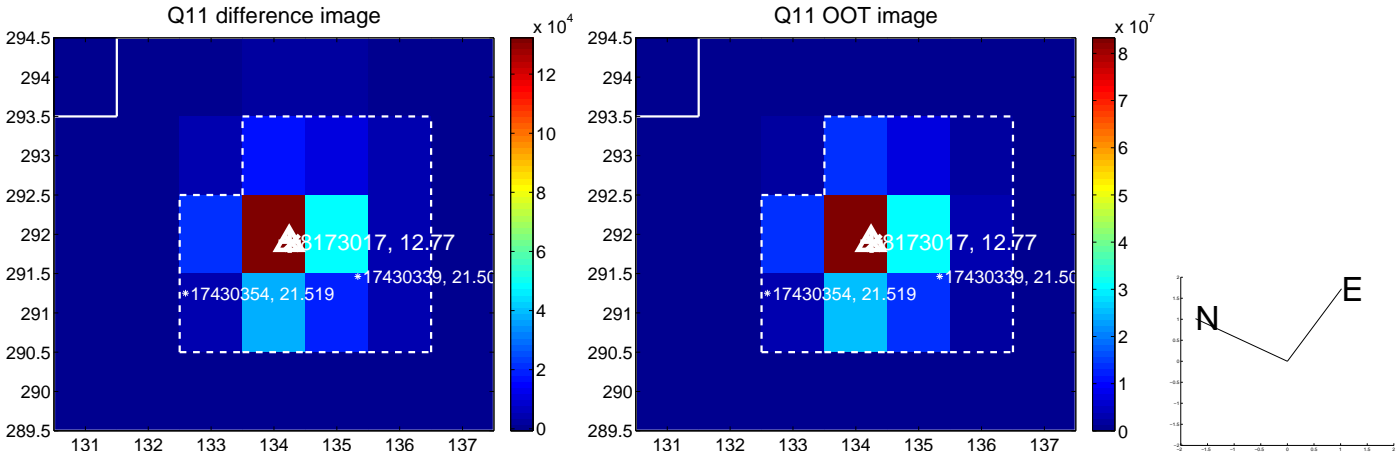
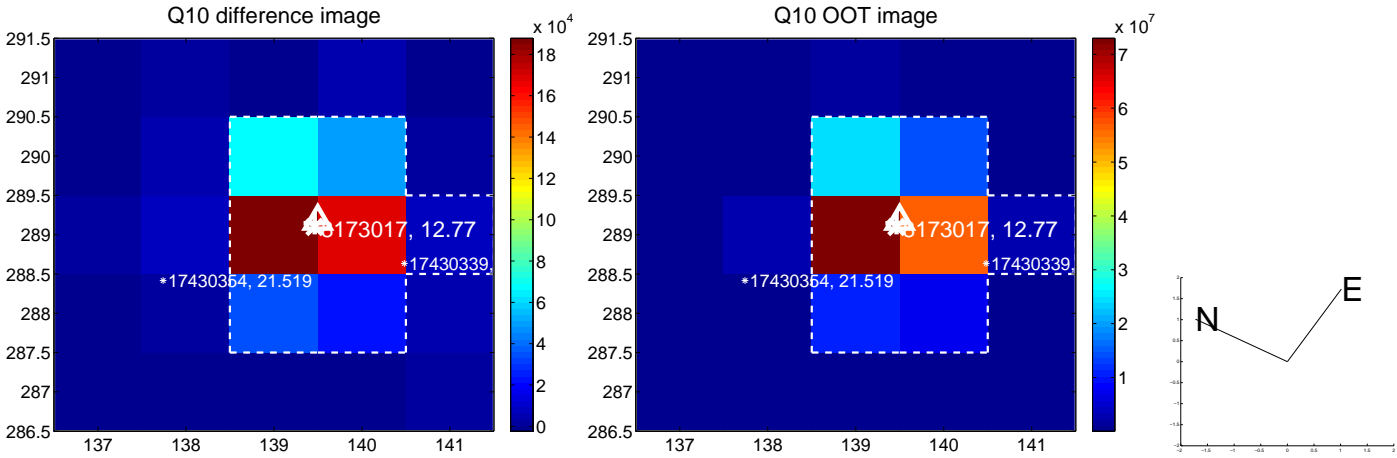
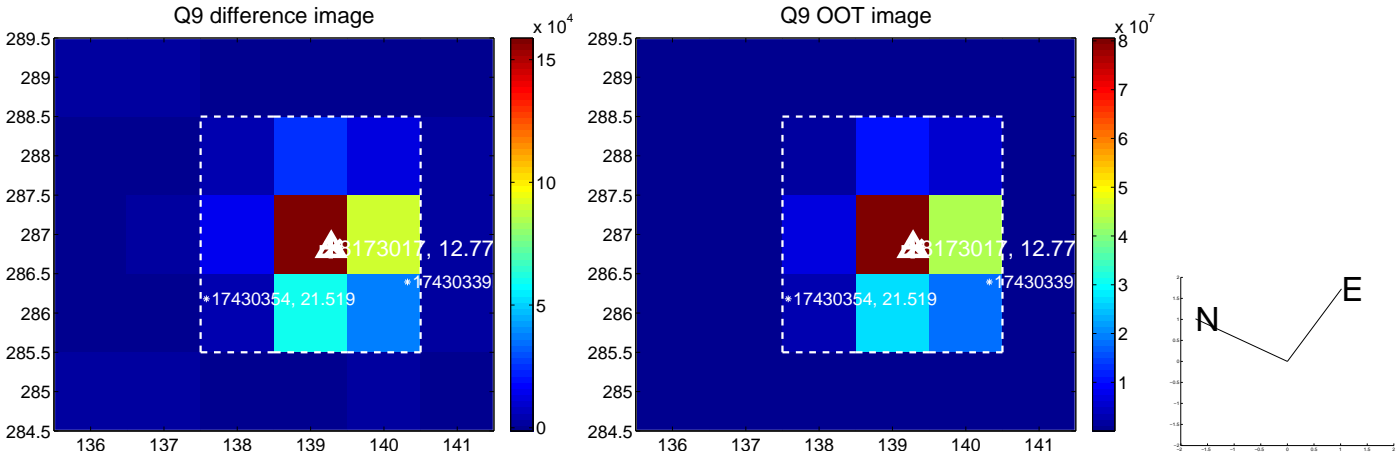
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



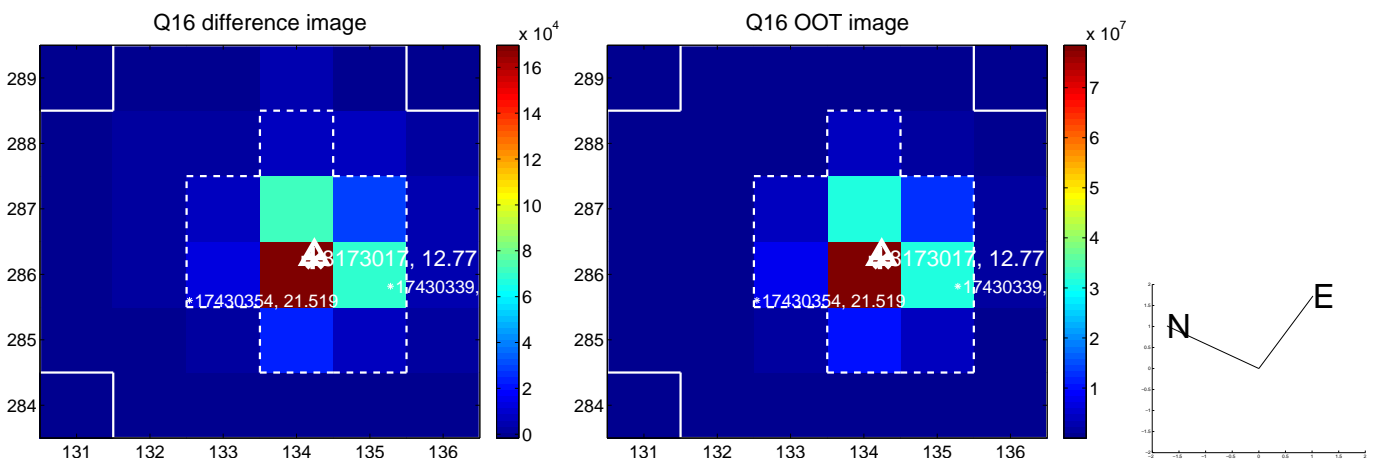
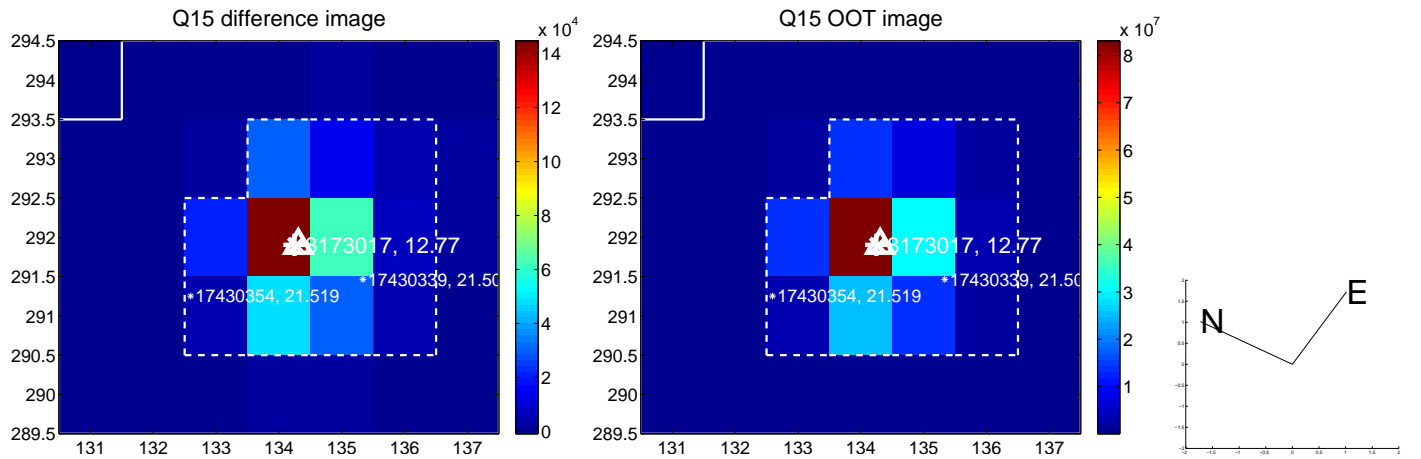
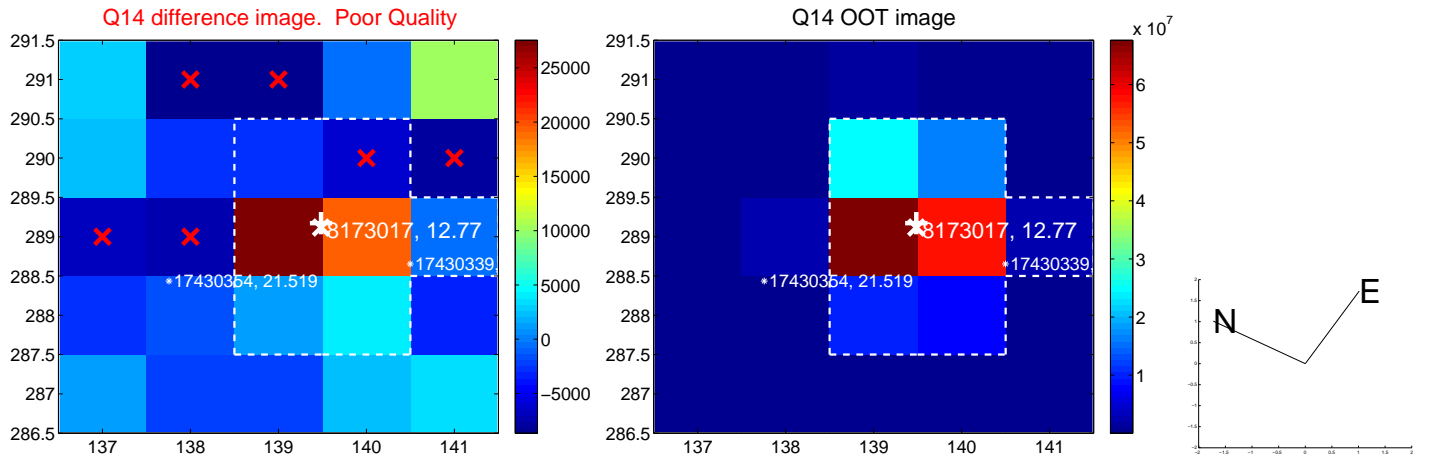
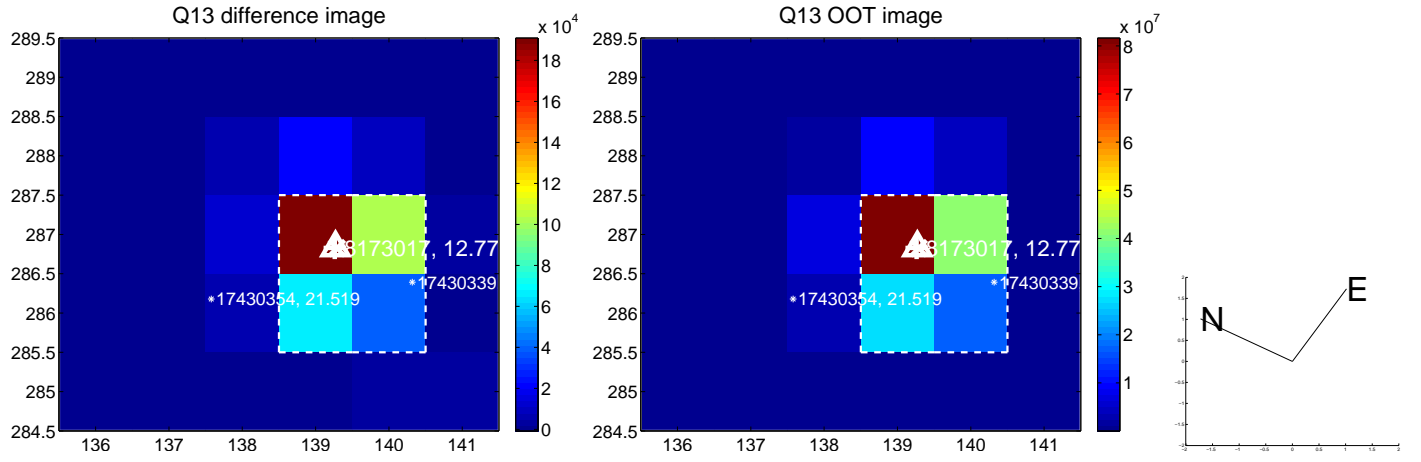
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



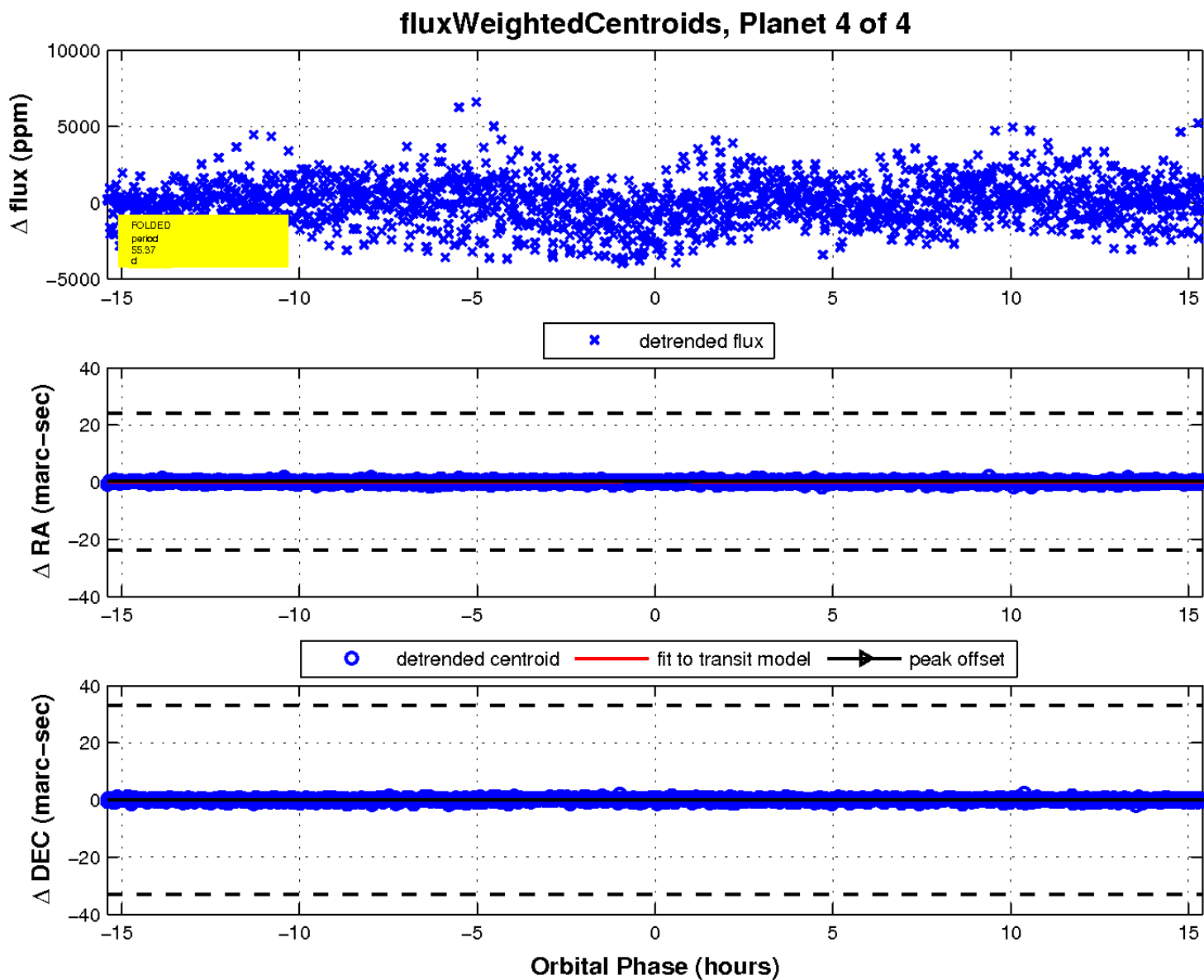
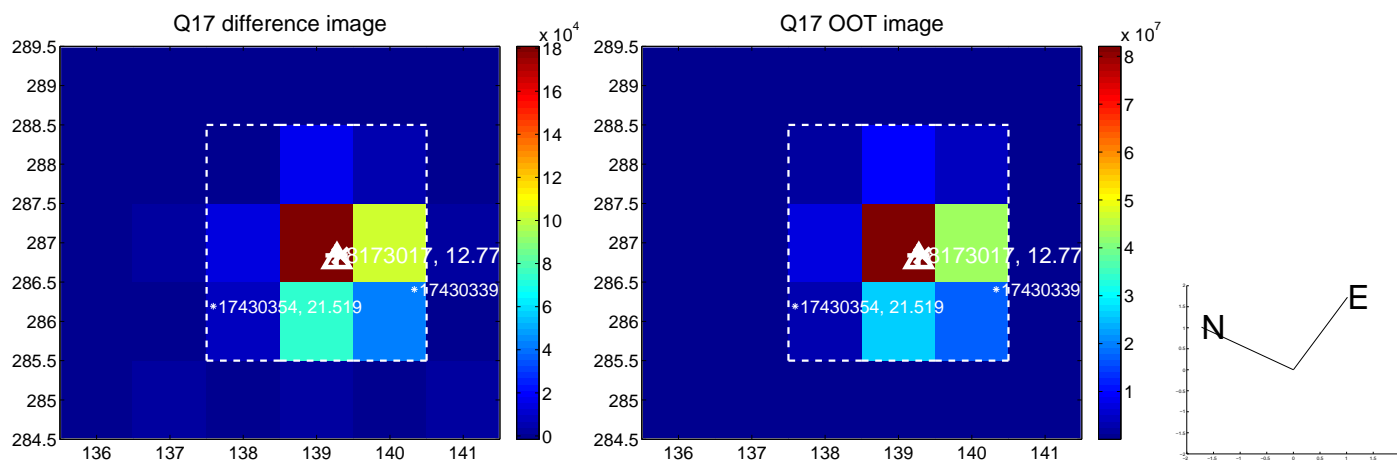
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

