

KIC 010161873

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})
010161873-01	OBS	No	1.136768	131.702800	1.9	5.339	8.6	0.2	0.55	4530	0.08	380.83
010161873-02	OBS	No	63.970081	158.395416	426.9	9.243	9.2	4.6	0.55	4530	1.21	1.77
010161873-03	OBS	No	235.653254	161.745283	1183.4	4.821	8.3	7.0	0.55	4530	2.26	0.31
010161873-04	OBS	No	239.037733	315.025159	1222.0	6.232	7.4	7.3	0.55	4530	1.96	0.30
010161873-05	OBS	No	118.894286	135.604932	665.5	8.302	7.3	6.4	0.55	4530	1.58	0.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010161873-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010161873-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010161873-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

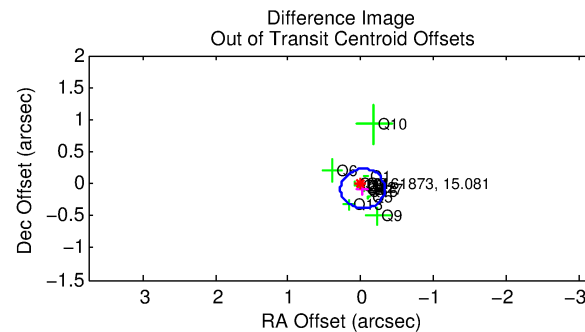
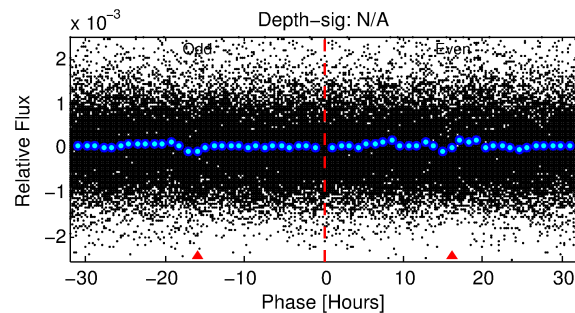
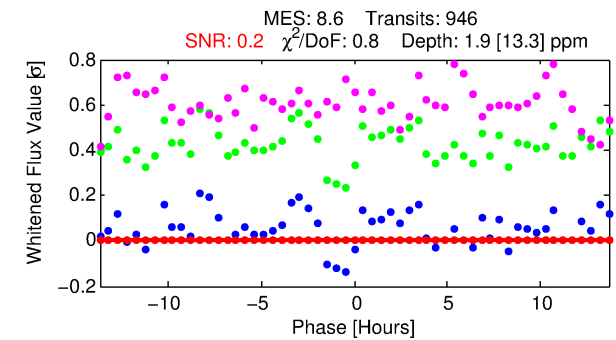
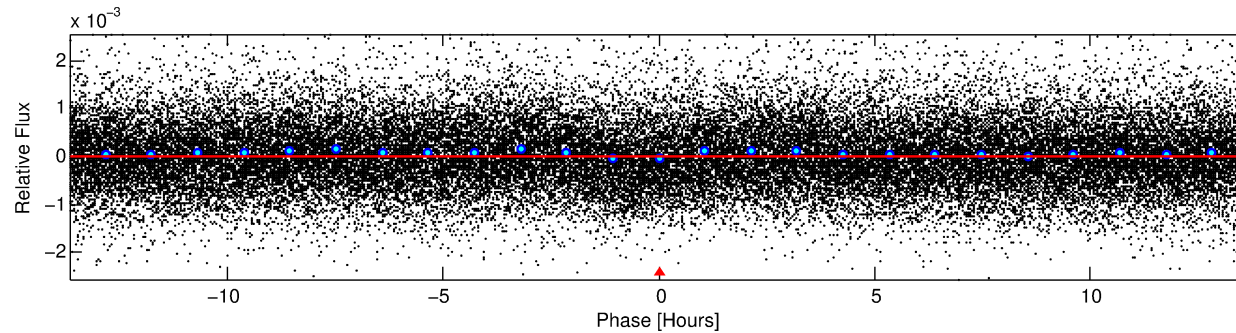
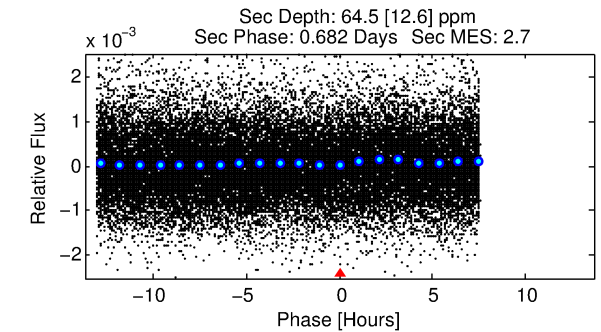
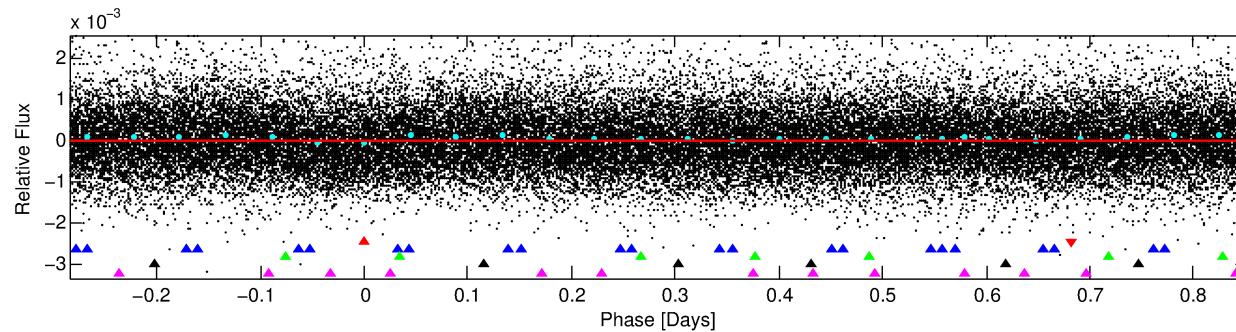
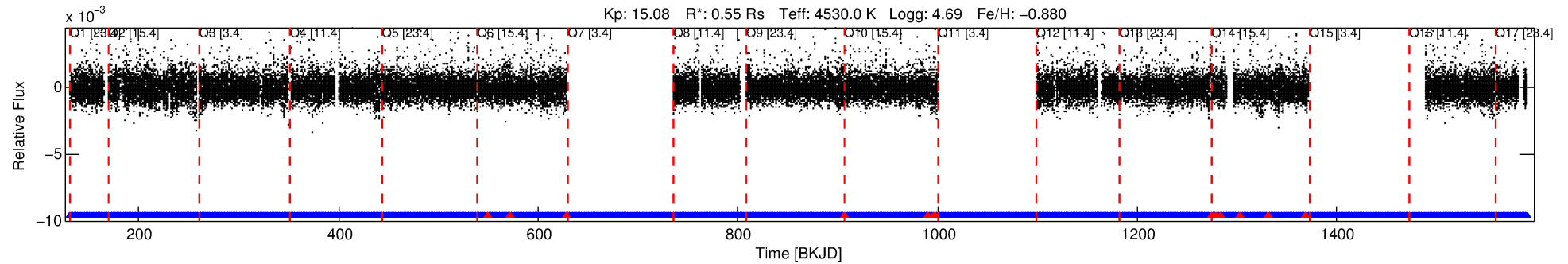
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010161873-01

No Significant Match Found

DV One-Page Summary

KIC: 10161873 Candidate: 1 of 5 Period: 1.137 d



DV Fit Results:

Period = 1.13677 [0.00080] d
Epoch = 131.7028 [0.2268] BKJD
Rp/R* = 0.0013 [0.0080]
a/R* = 1.49 [14.19]
b = 0.63 [16.78]
Seff = 380.83 [61.44]
Teq = 1126 [45] K
Rp = 0.08 [0.48] Re
a = 0.0174 [0.0012] AU
Ag = 1697.02 [20488.92] [0.08σ]
Teffp = 11178 [33741] K [0.30σ]

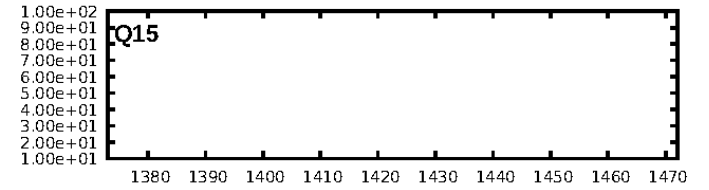
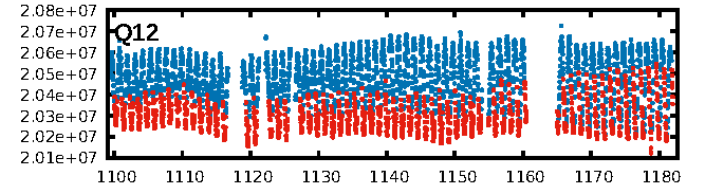
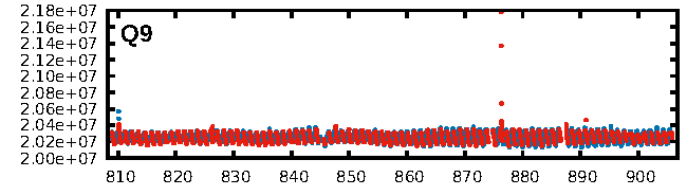
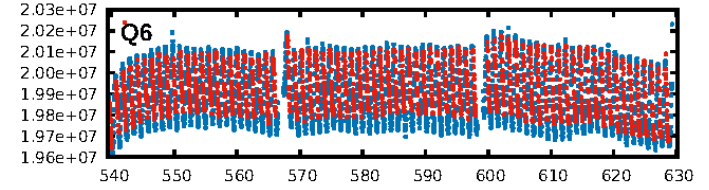
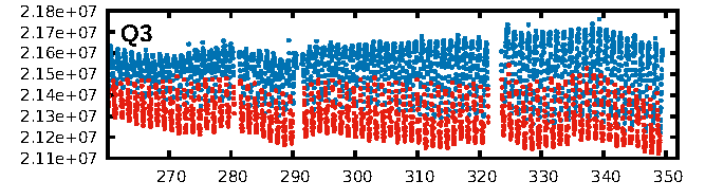
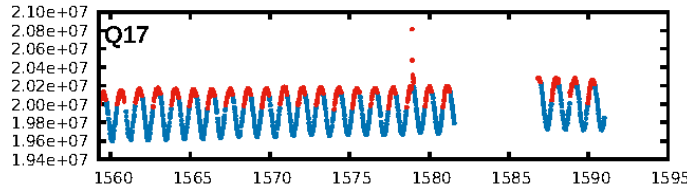
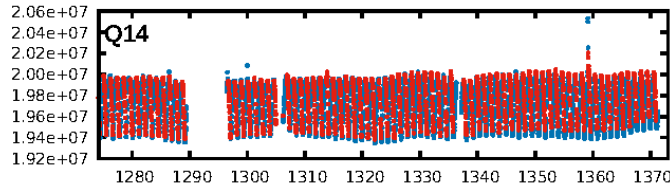
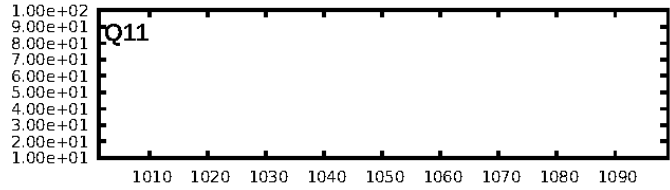
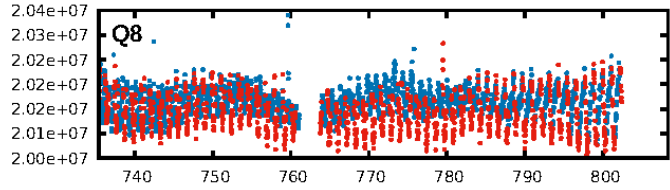
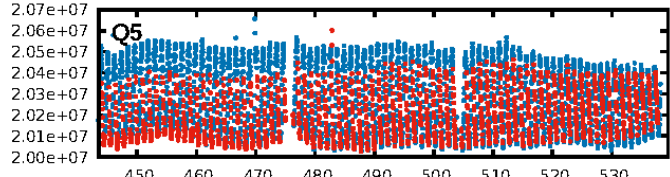
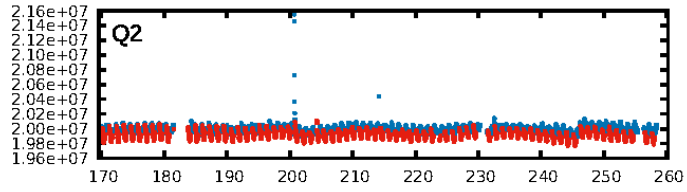
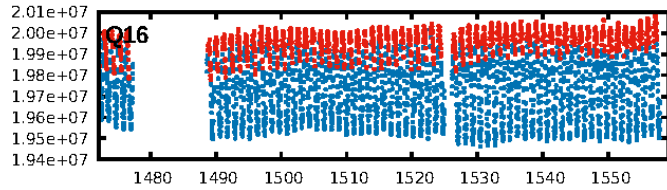
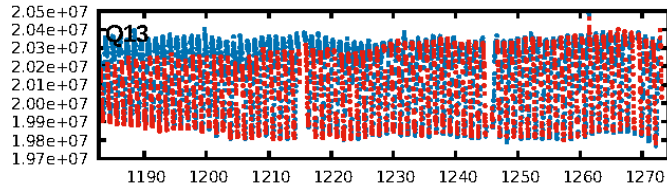
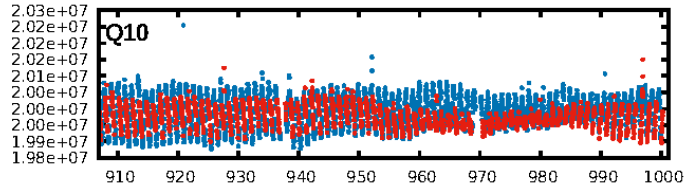
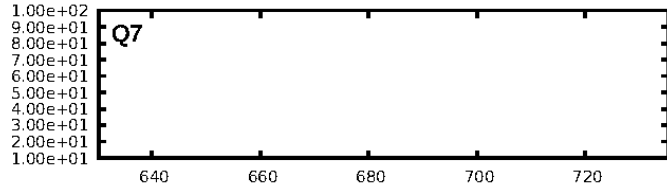
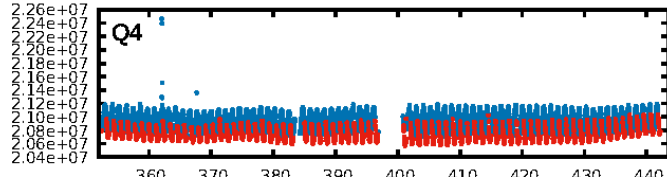
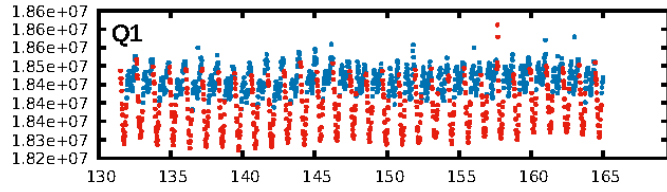
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [141.27σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.58e-13
RollingBand-fgt: 0.98 [878/892]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.080 arcsec [0.79σ]
KicOffset-rm: 0.227 arcsec [2.30σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 1.00 [14/14]

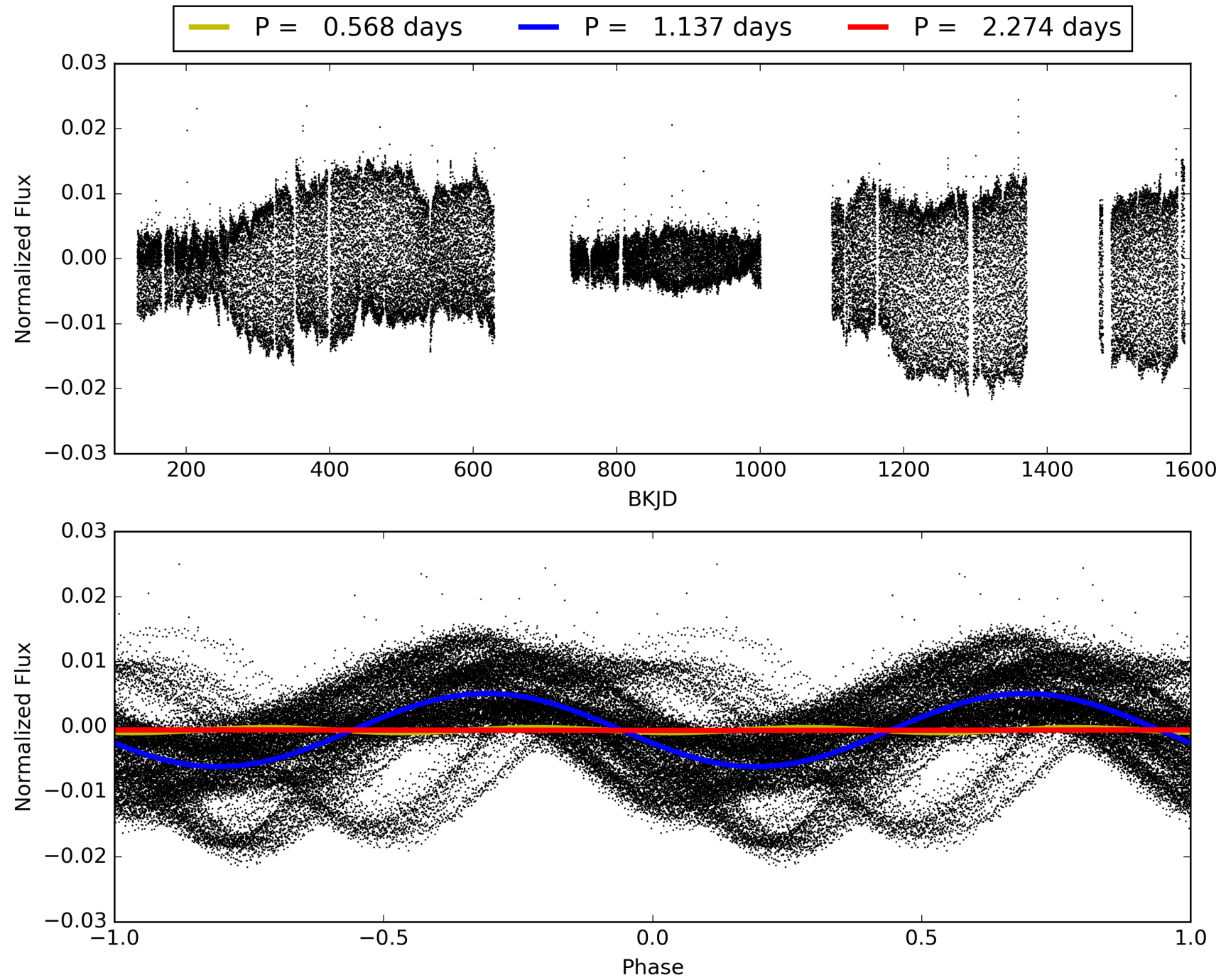
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010161873-01, PDC Light Curves

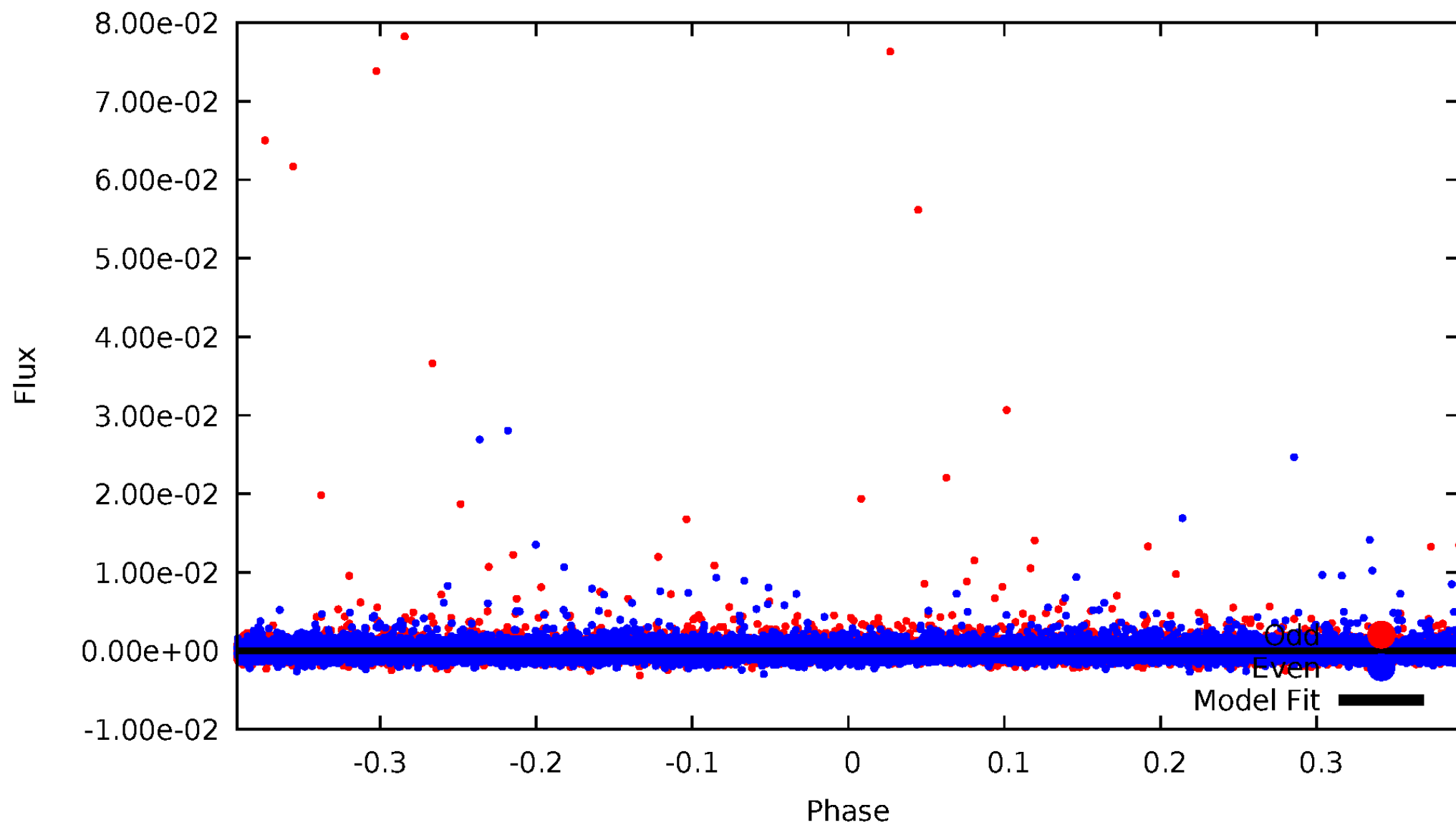


TCE 010161873-01



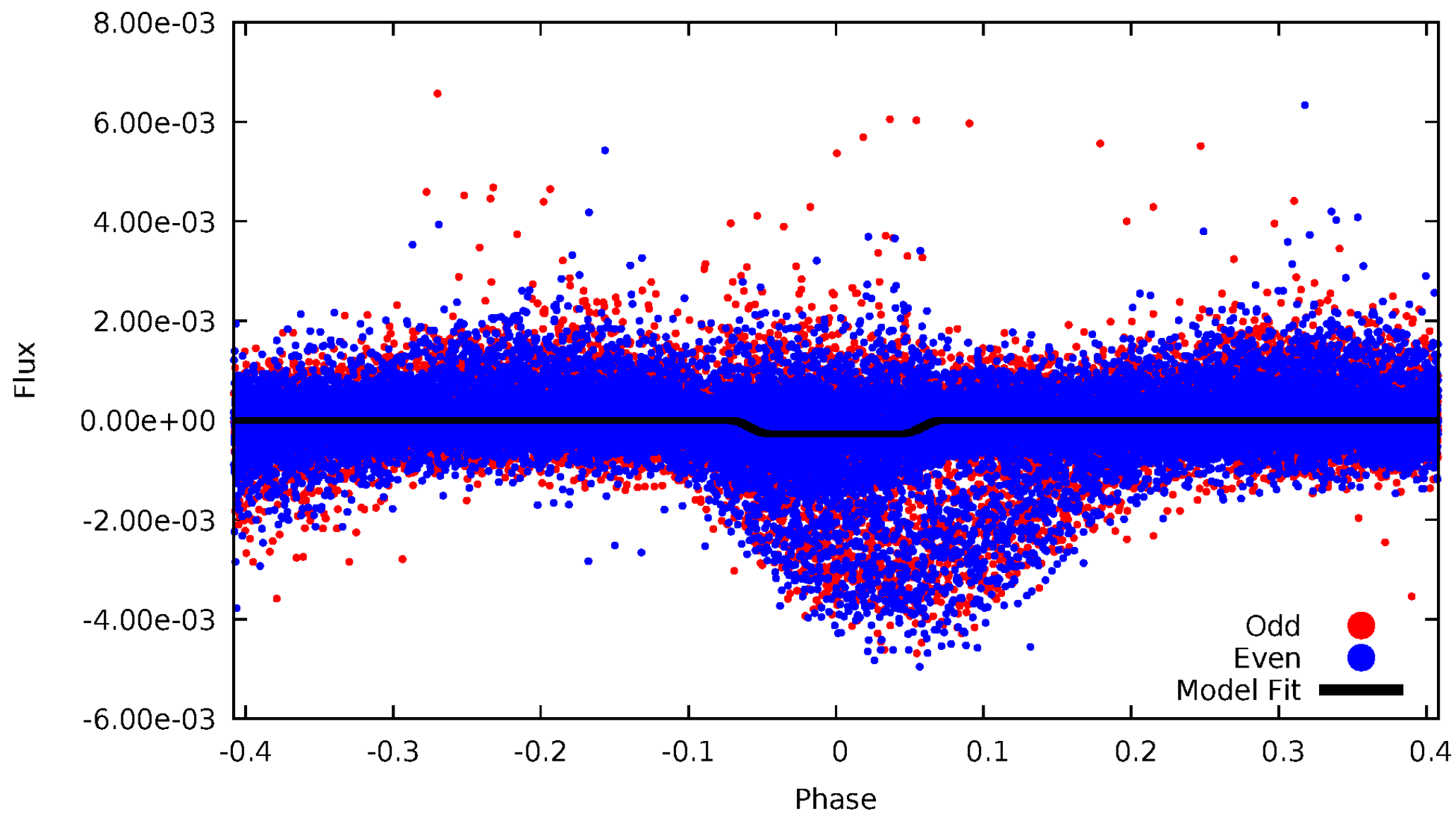
DV Odd/Even

TCE 010161873-01

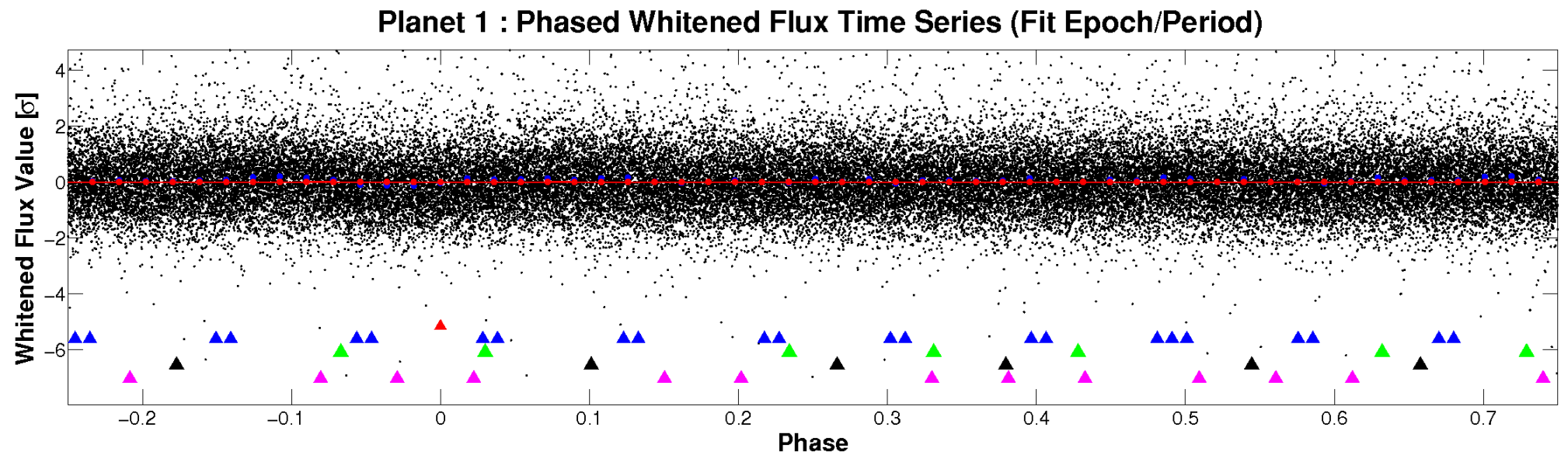
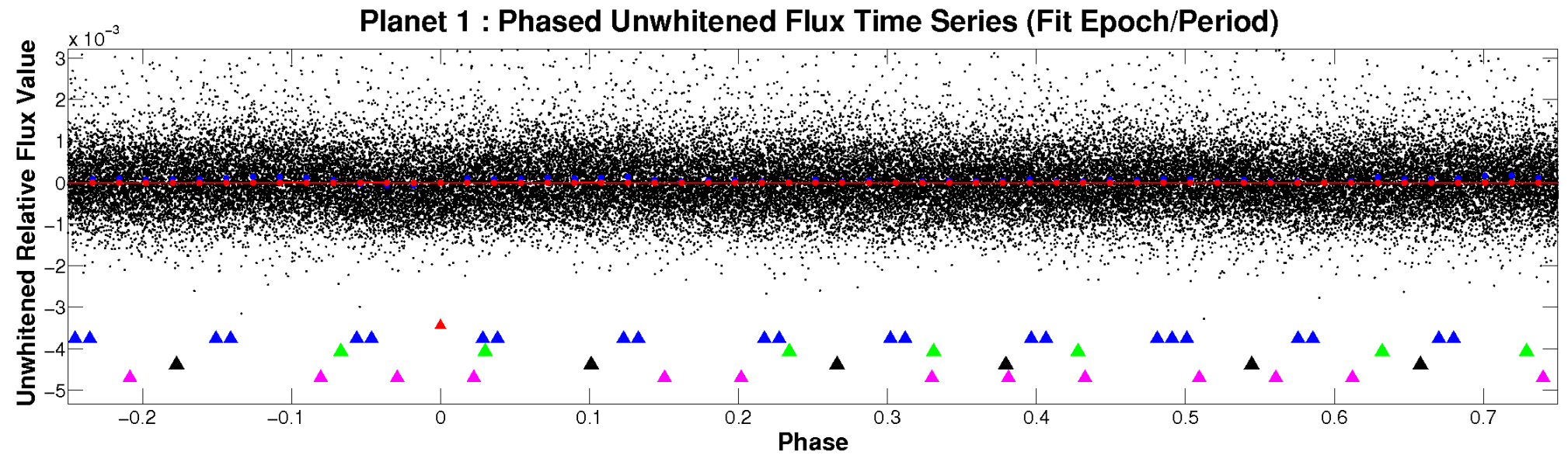


ALT Odd/Even

TCE 010161873-01

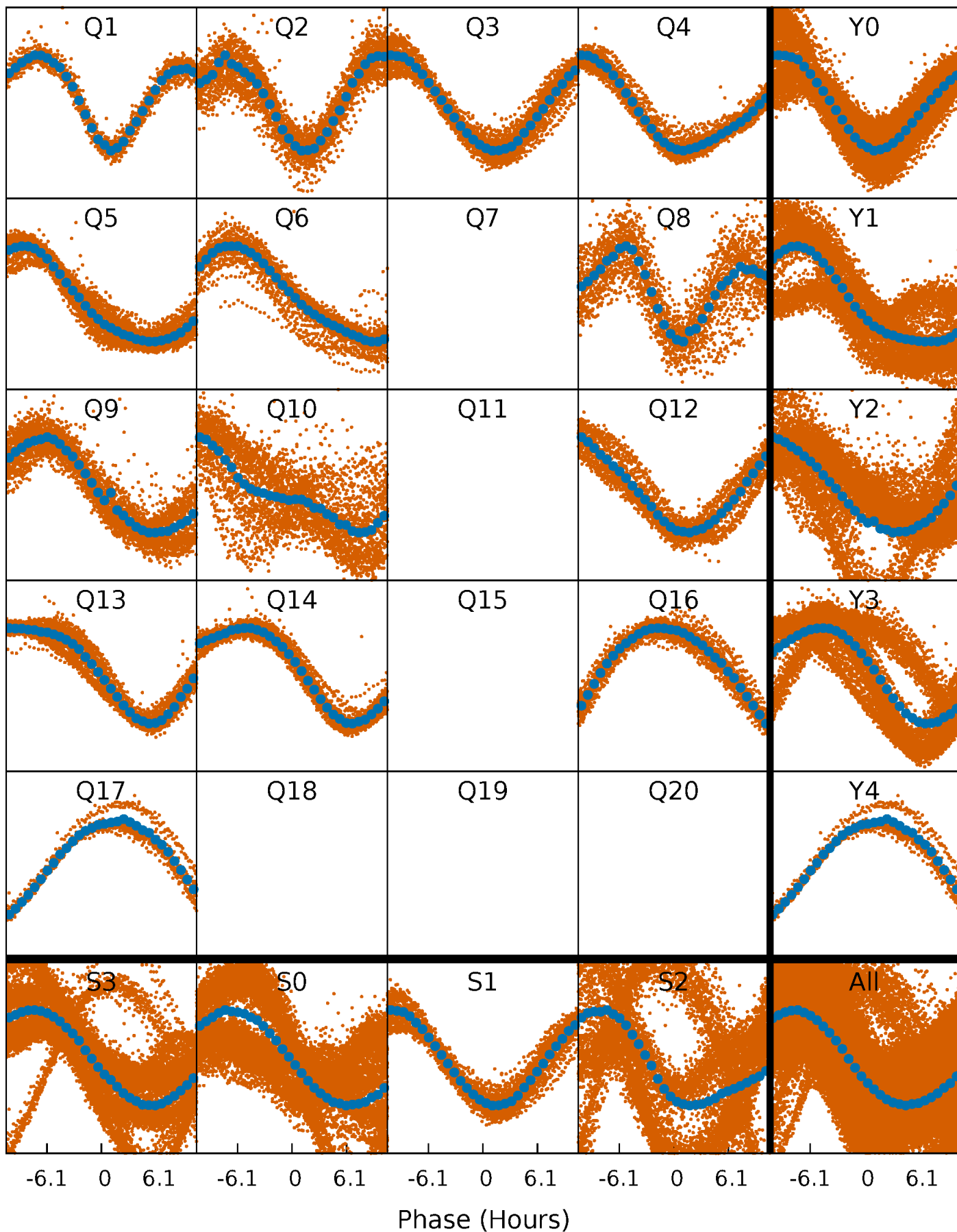


Non-Whitened Vs. Whitened Light Curve



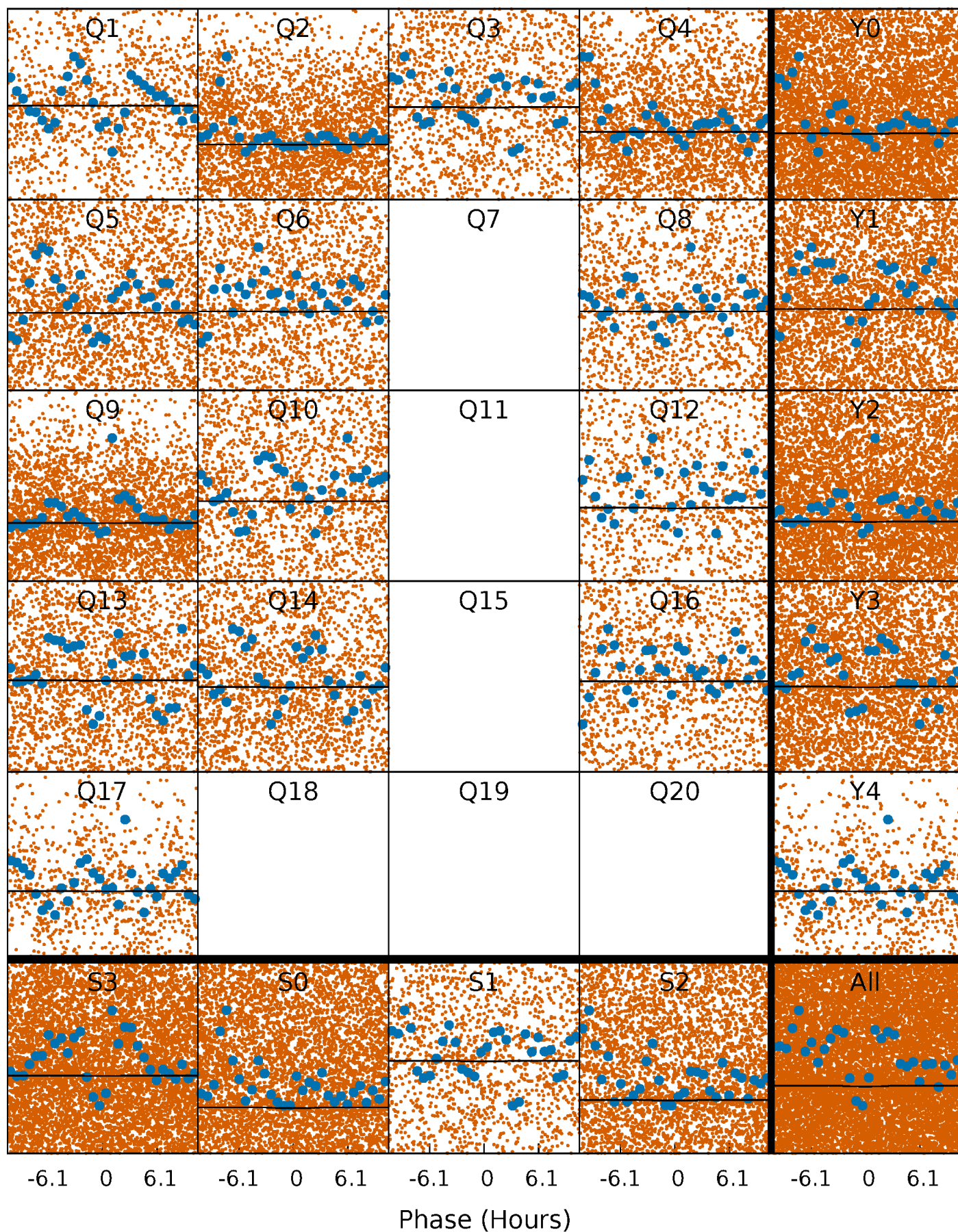
PDC Quarter-Phased Transit Curves

TCE 010161873-01 P= 1.136768 Days $T_0=131.702800$ (BKJD)



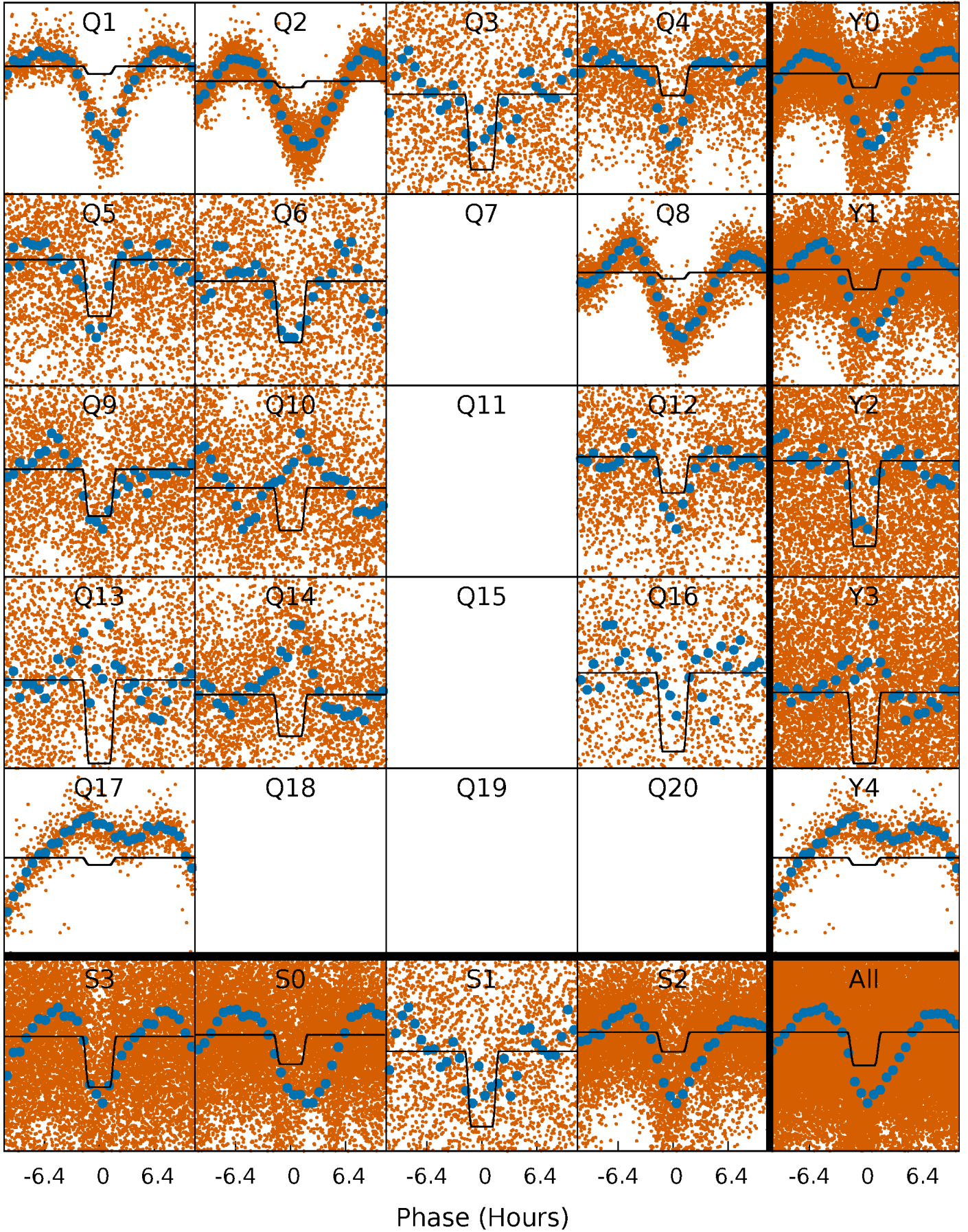
DV Quarter-Phased Transit Curves

TCE 010161873-01 P= 1.136768 Days $T_0=131.702800$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

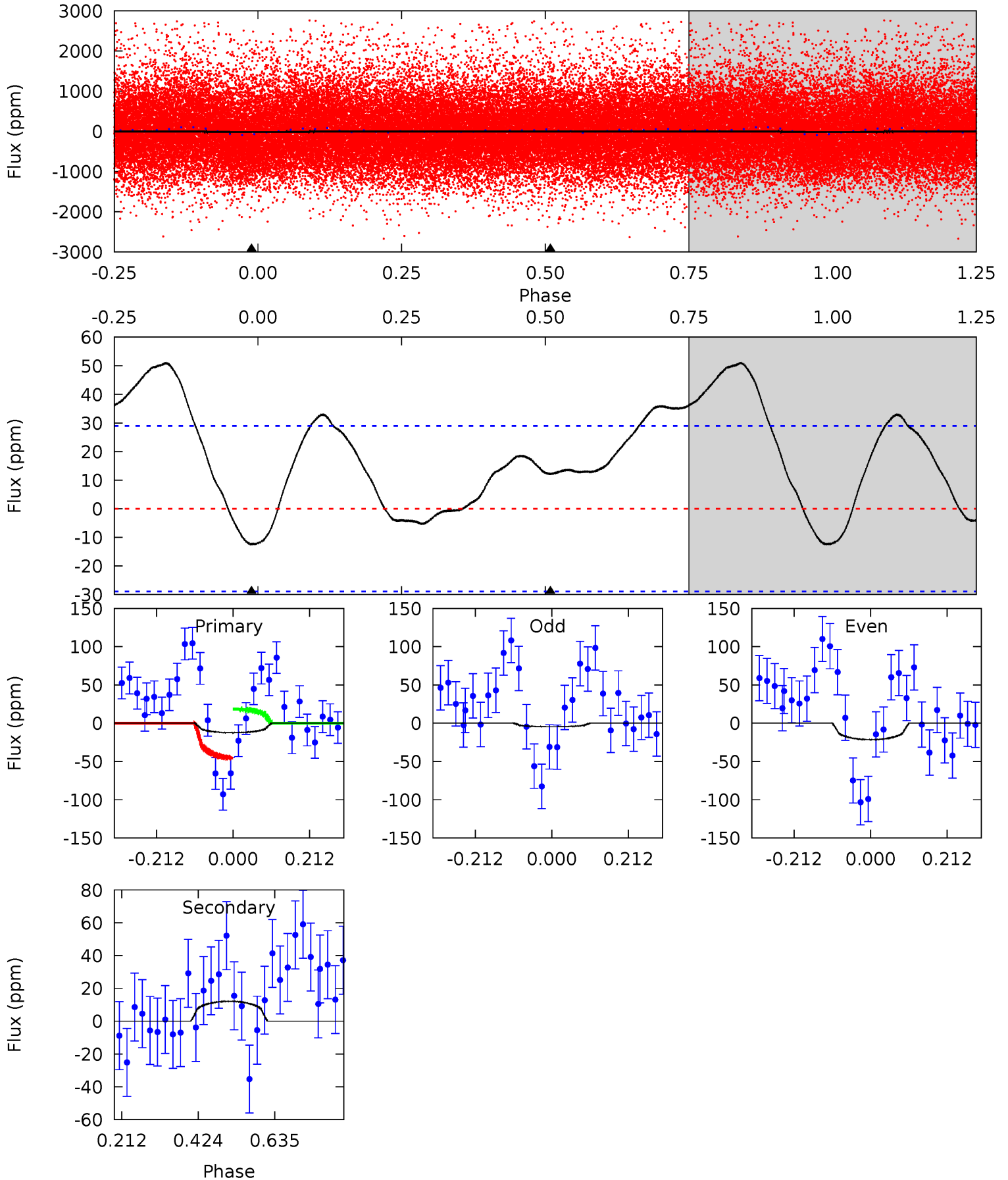
TCE 010161873-01 P= 1.136747 Days $T_0=131.703275$ (BKJD)



DV Model-Shift Uniqueness Test

010161873-01, P = 1.136768 Days, E = 130.566032 Days

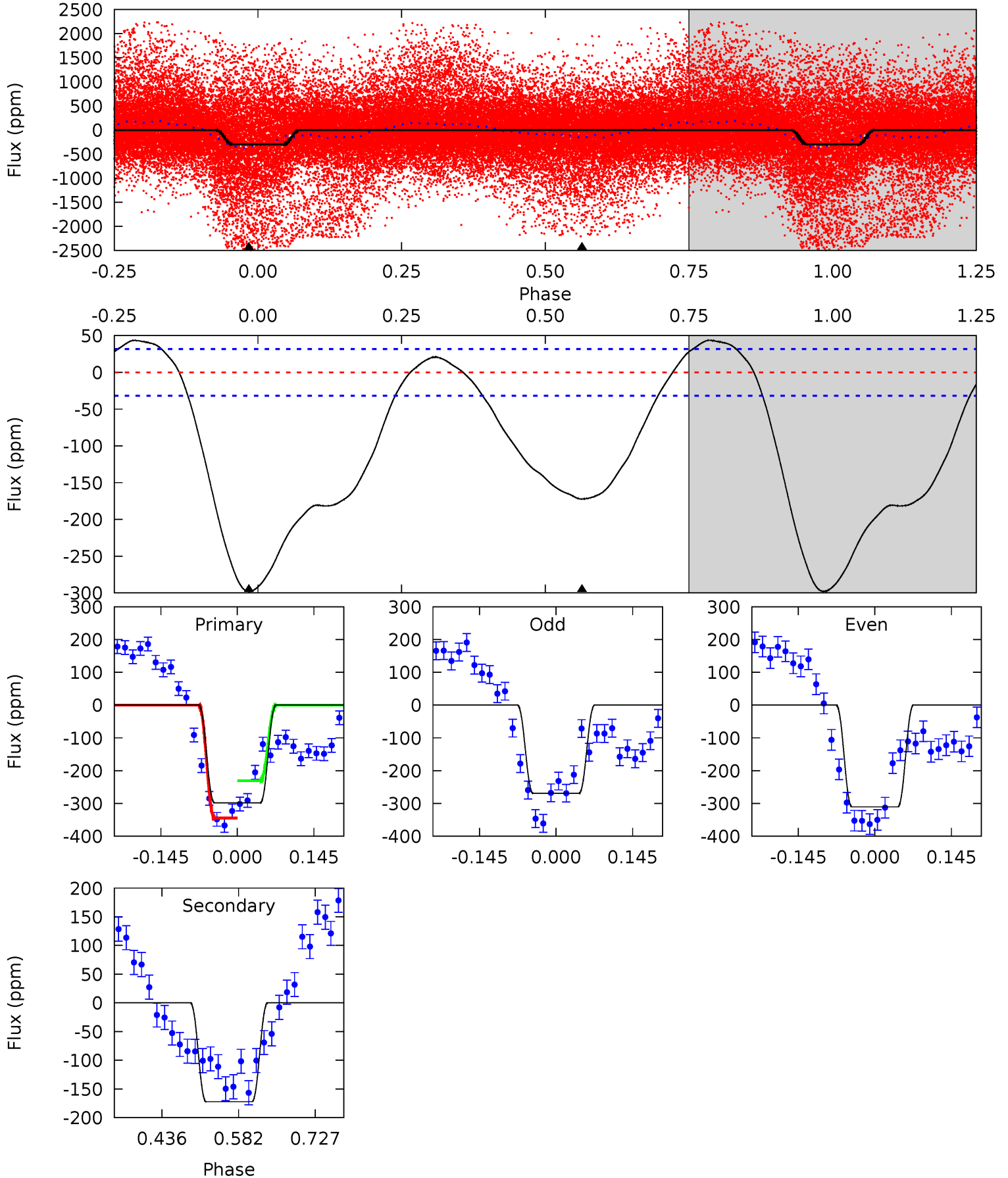
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.89	-1.85	0	0	4.40	1.25	2.90	1.89	1.89	-1.85	-1.85	1.29	-2.43	0.80	2.06



Alt Model-Shift Uniqueness Test

010161873-01, P = 1.136747 Days, E = 130.566528 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.1	24.3	0	0	4.49	1.46	9.48	42.1	42.1	24.3	24.3	2.92	2.22	0.13	8.20



Stellar Parameters For KIC 010161873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4530^{+134}_{-147}	$4.689^{+0.052}_{-0.032}$	$-0.880^{+0.300}_{-0.300}$	$0.554^{+0.040}_{-0.044}$	$0.548^{+0.046}_{-0.031}$	$4.532^{+1.038}_{-0.581}$
	+3%/-3%	+1%/-1%	+34%/-34%	+7%/-8%	+8%/-6%	+23%/-13%
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 010161873-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	12 ± 7	$0.36^{+0.34}_{-0.24}$	1571^{+53}_{-57}	-3719^{+796}_{-2101}	$-15.591^{+12.879}_{-121.707}$
Alt.	-172 ± 7	$1.00^{+0.50}_{-0.47}$	1566^{+57}_{-56}	4145^{+1232}_{-566}	29^{+72}_{-16}

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

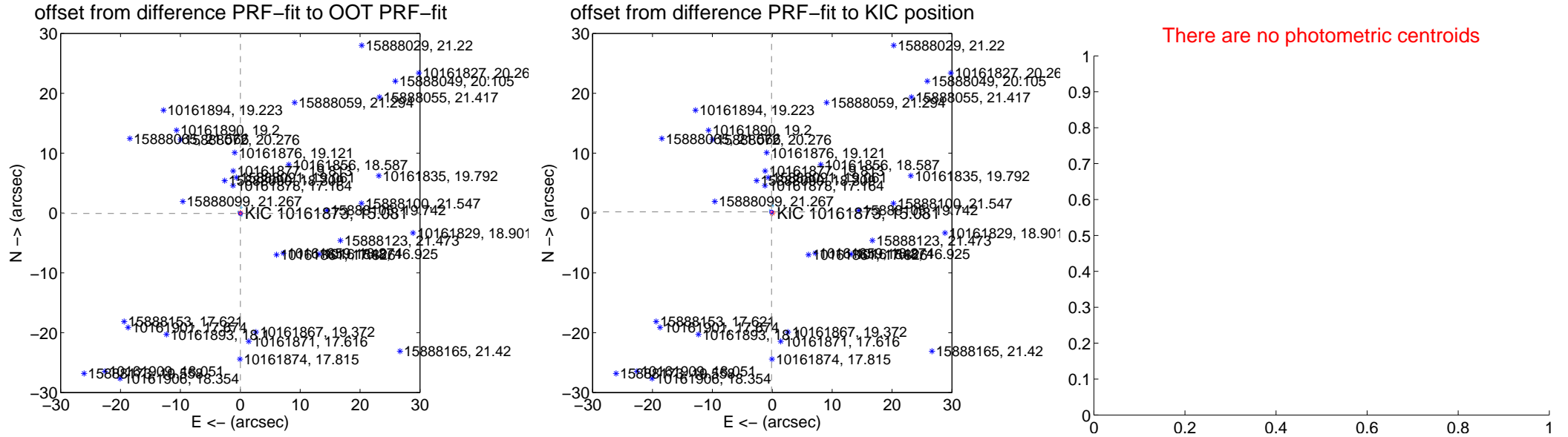
DV Centroid Data

Supplemental centroid analysis for 010161873-01. Kepler magnitude: 15.08. Transit SNR 0.15

There are 11 quarters with good PRF difference image offsets

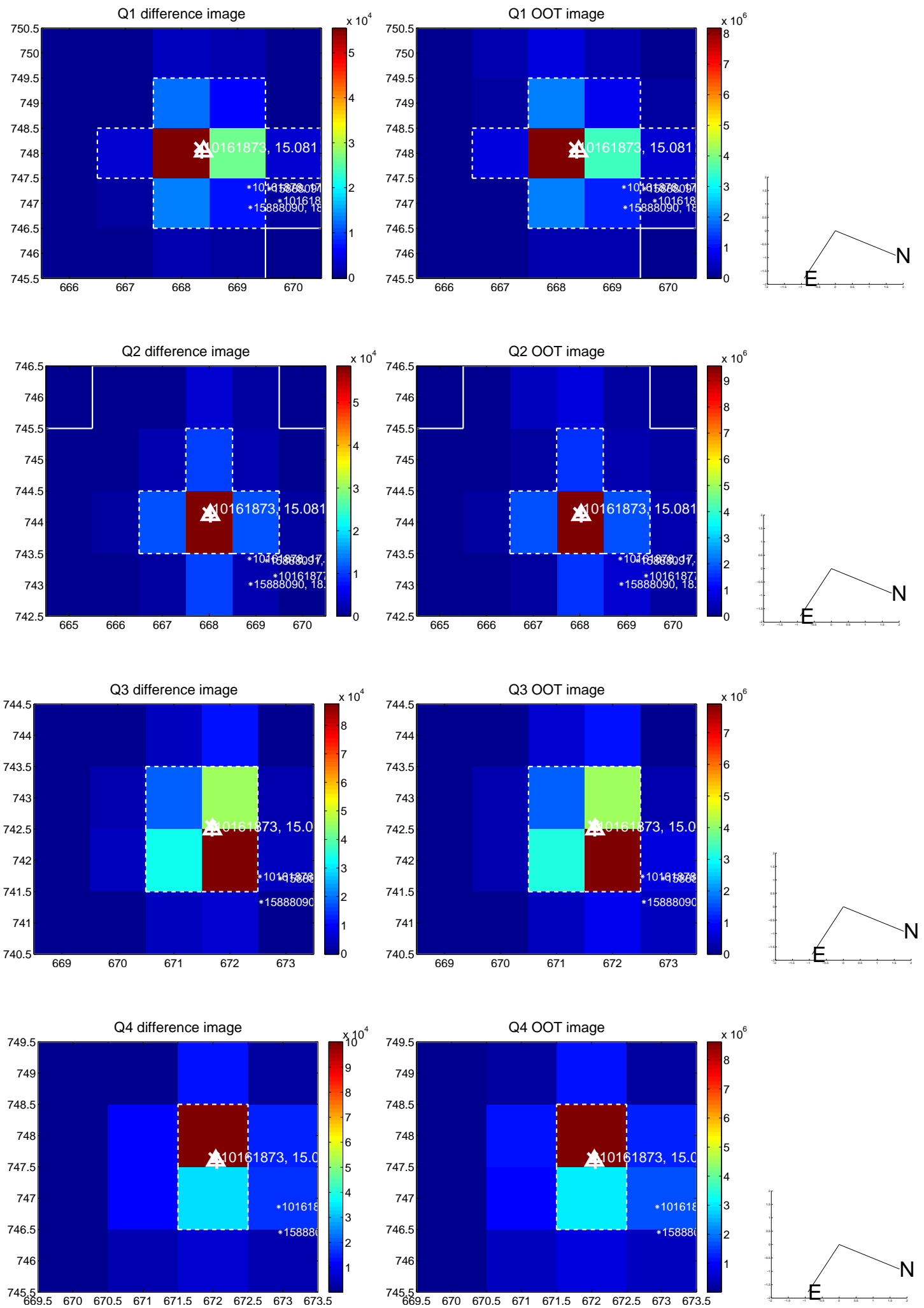
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.102	0.79	-0.025 ± 0.077	-0.076 ± 0.104
PRF-fit source offset from KIC position	0.227 ± 0.099	2.30	0.123 ± 0.076	0.191 ± 0.112
photometric centroid source offset	—	—	—	—

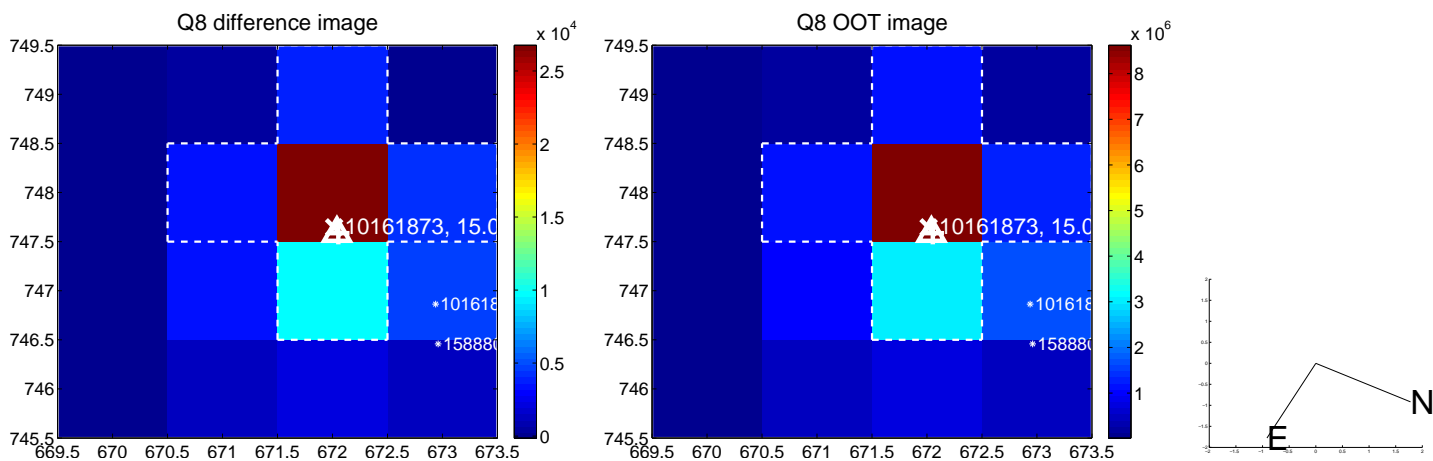
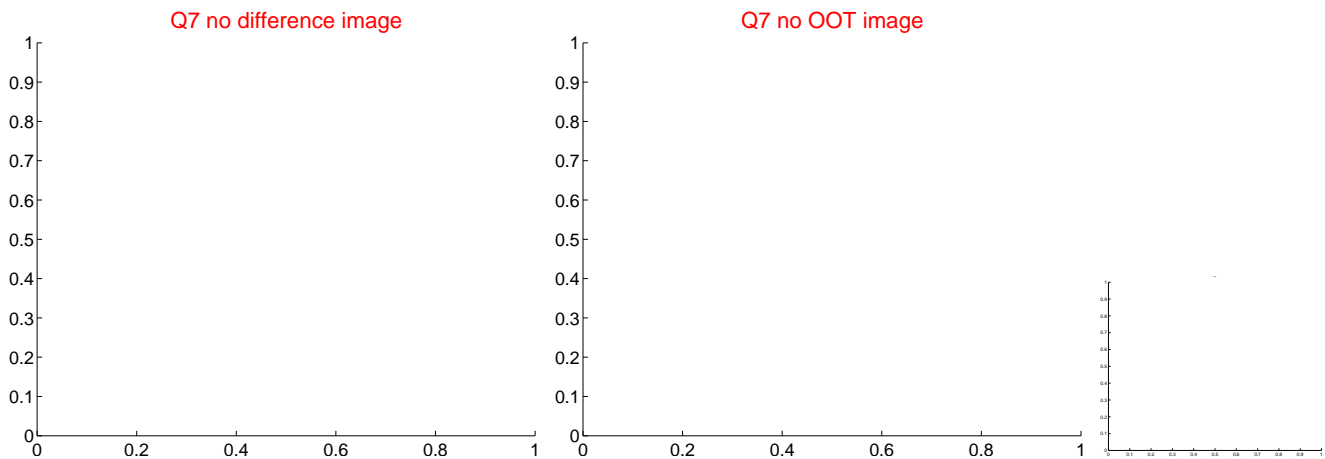
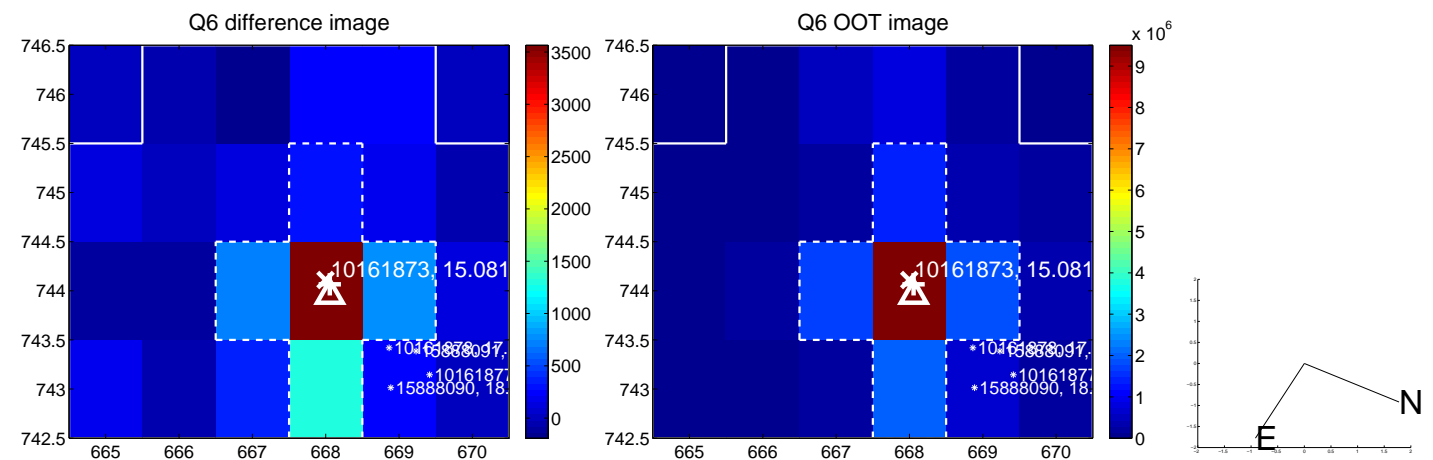
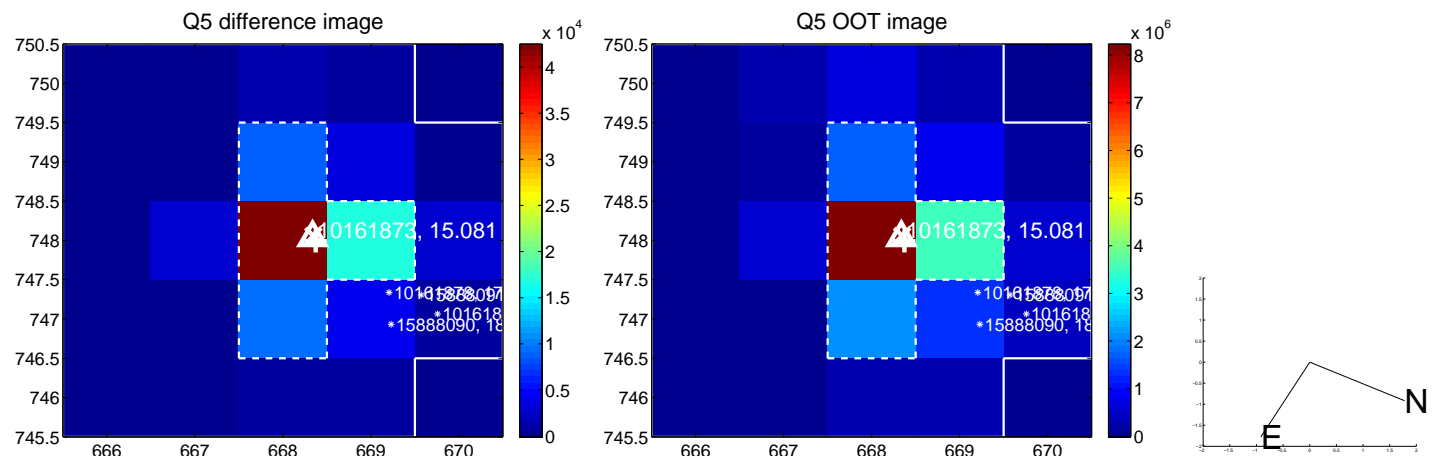


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

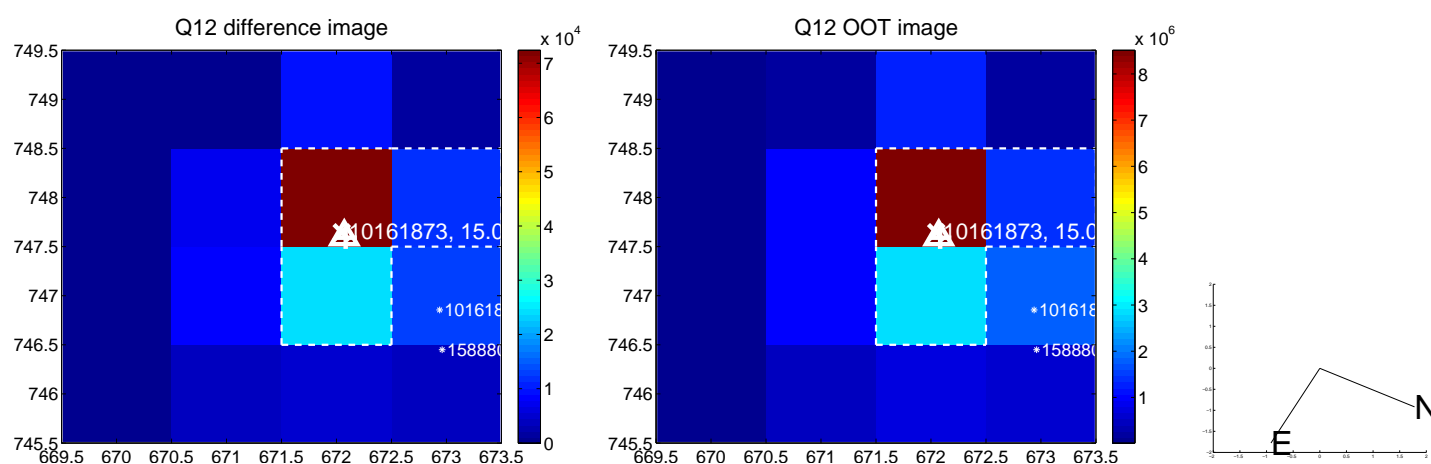
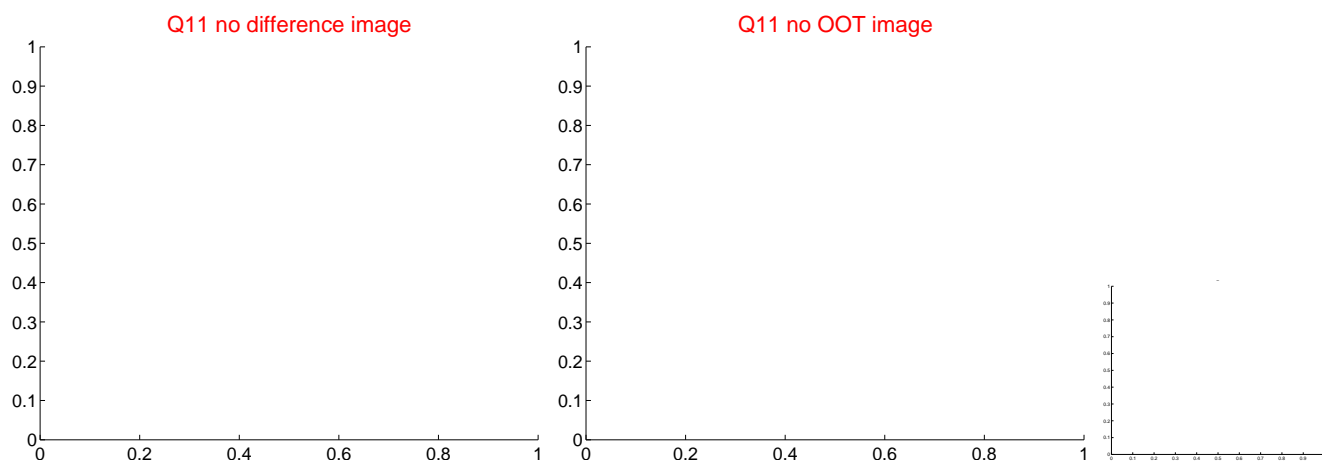
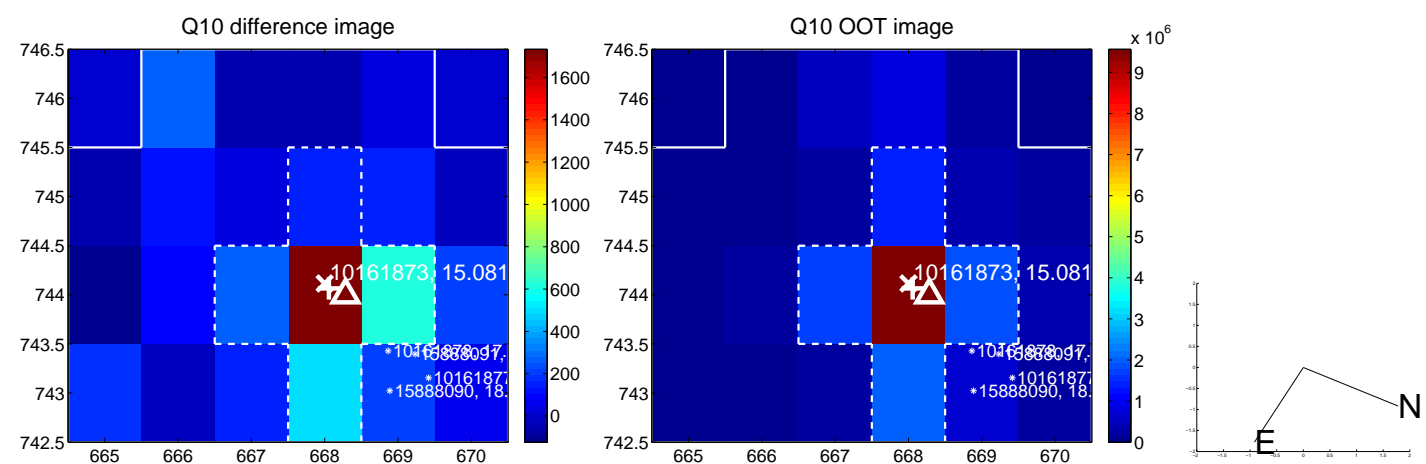
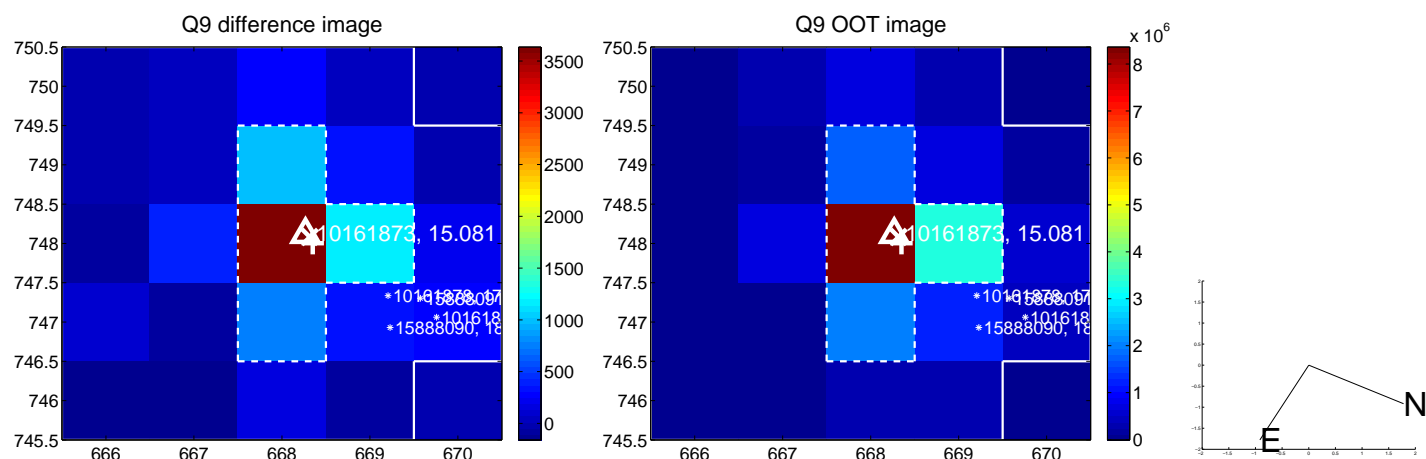
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



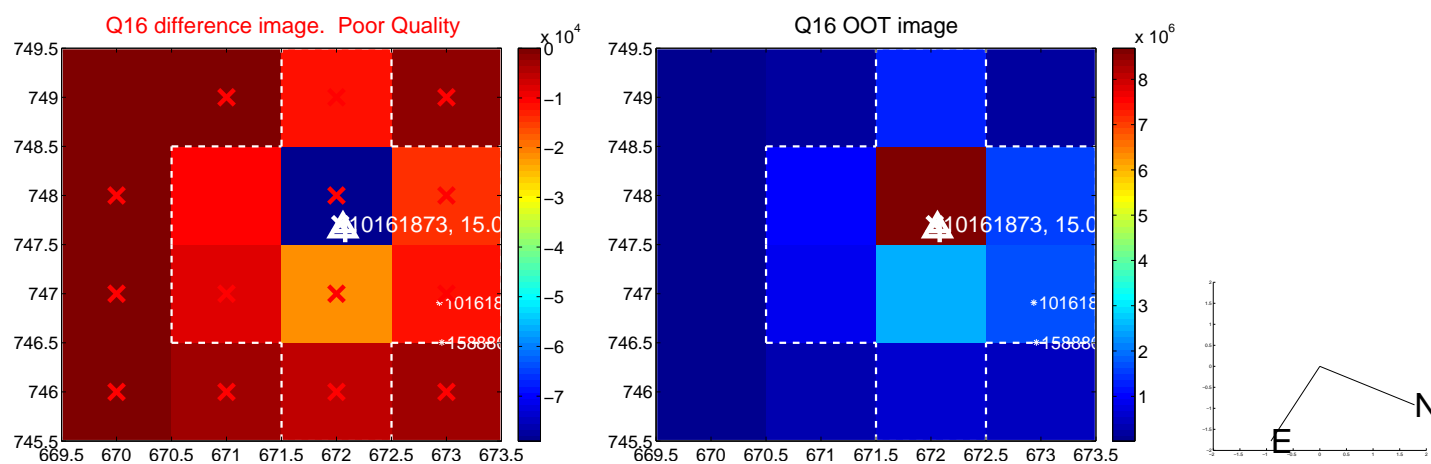
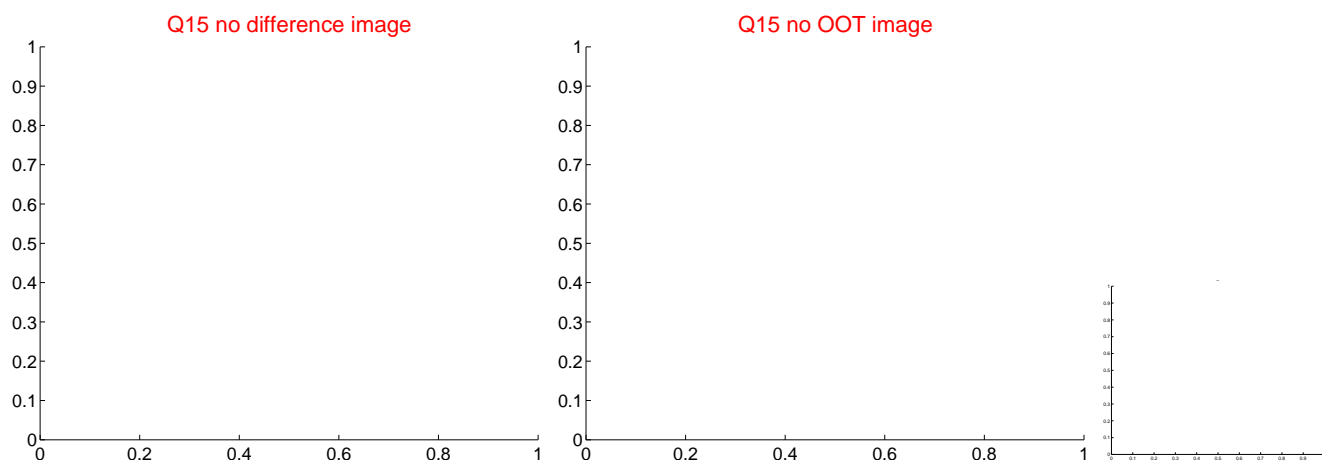
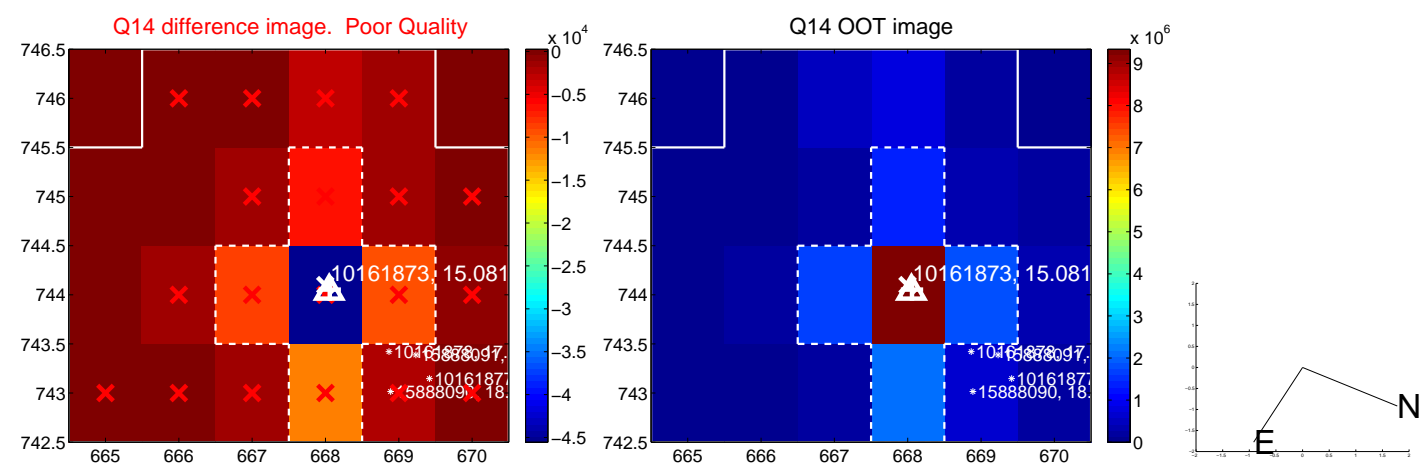
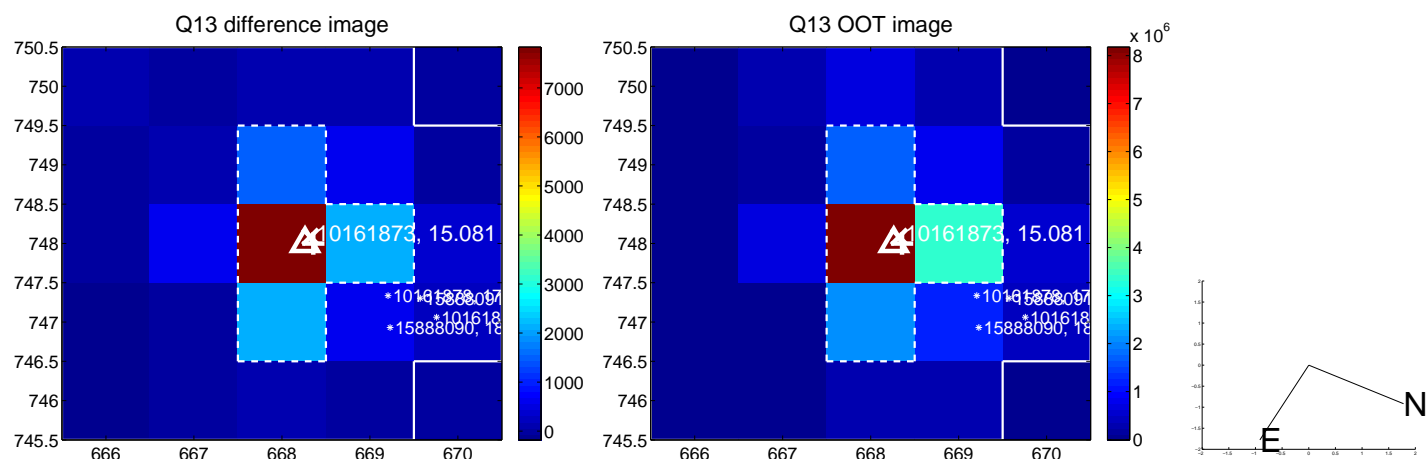
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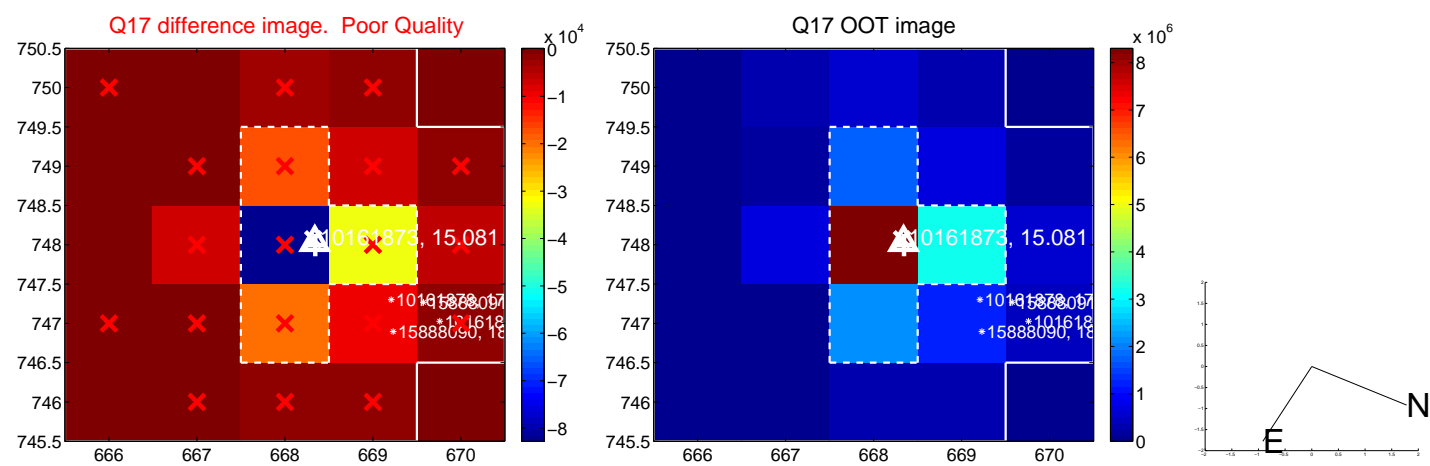
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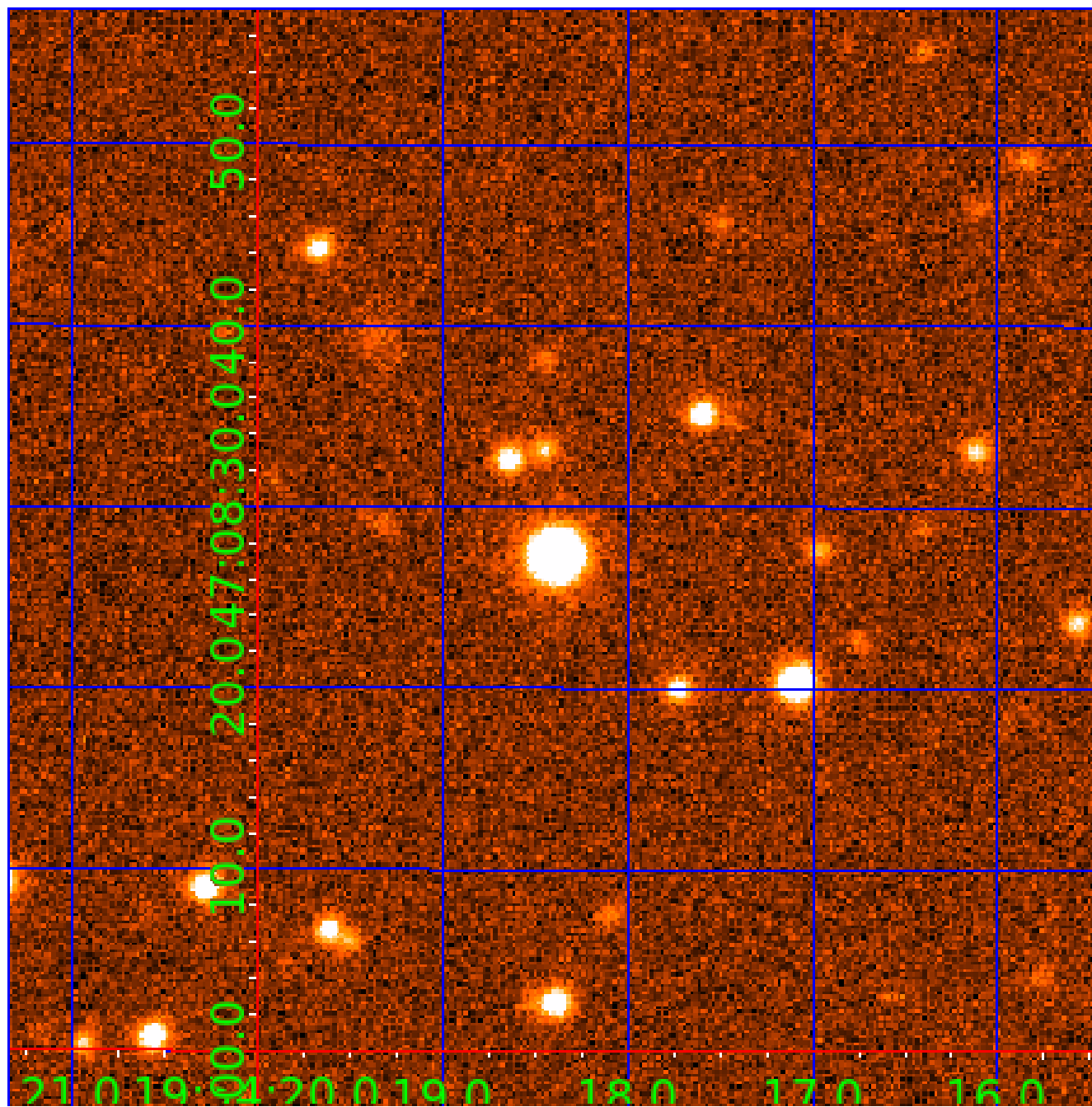
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folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 010161873

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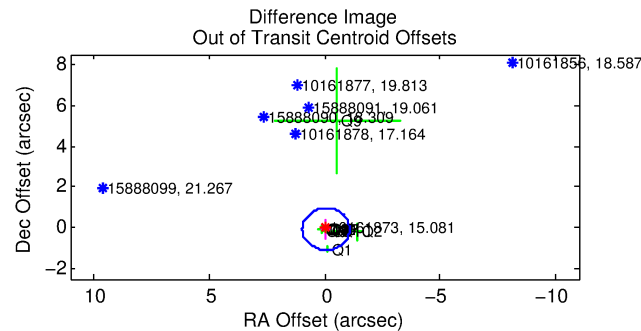
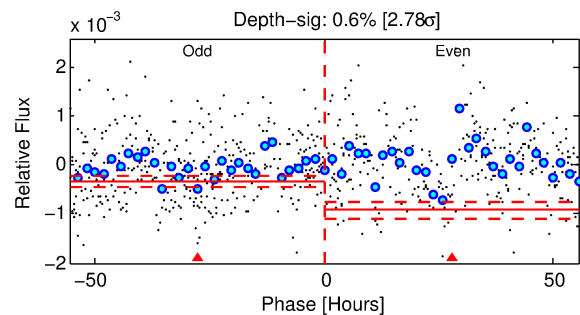
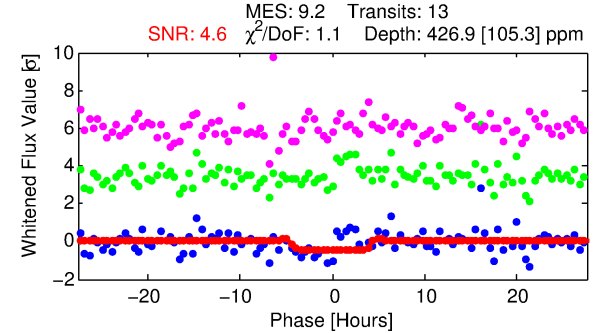
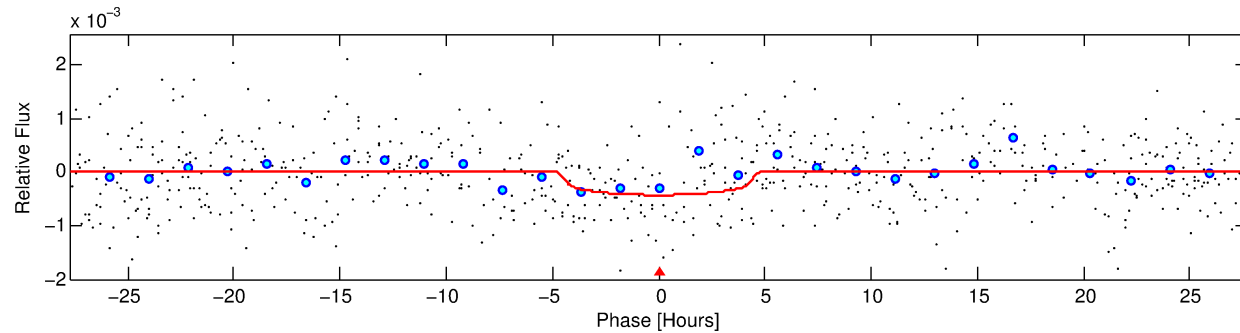
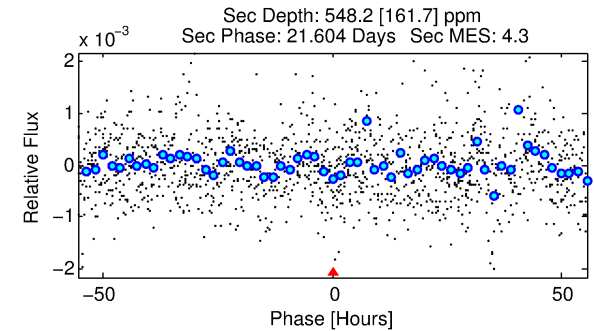
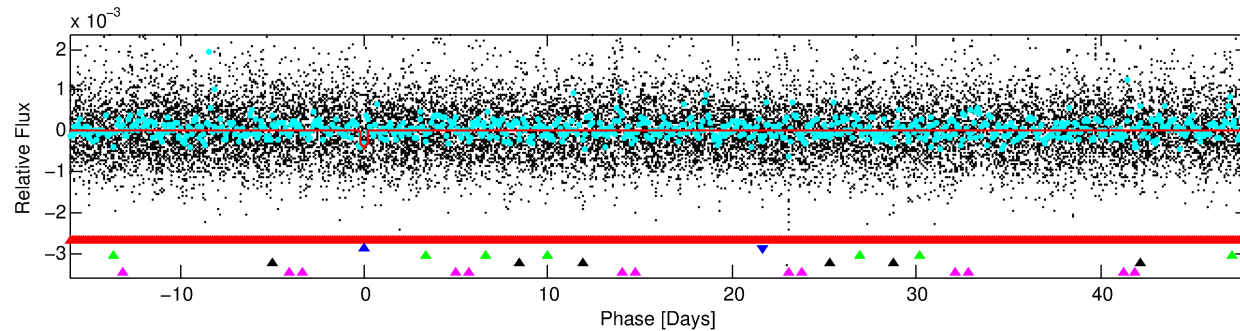
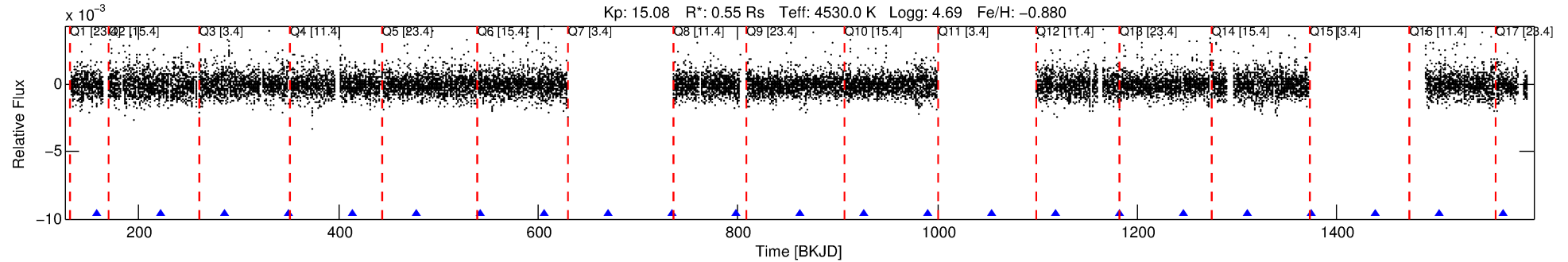
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010161873-02

No Significant Match Found

DV One-Page Summary

KIC: 10161873 Candidate: 2 of 5 Period: 63.970 d



DV Fit Results:

Period = 63.97008 [0.00179] d
Epoch = 158.3954 [0.0234] BKJD
Rp/R* = 0.0200 [0.0264]
a/R* = 40.38 [188.77]
b = 0.68 [3.81]
Seff = 1.77 [0.28]
Teq = 294 [12] K
Rp = 1.21 [1.60] Re
a = 0.2561 [0.0170] AU
Ag = 13529.06 [36004.69] [0.38σ]
Teffp = 4902 [3263] K [1.41σ]

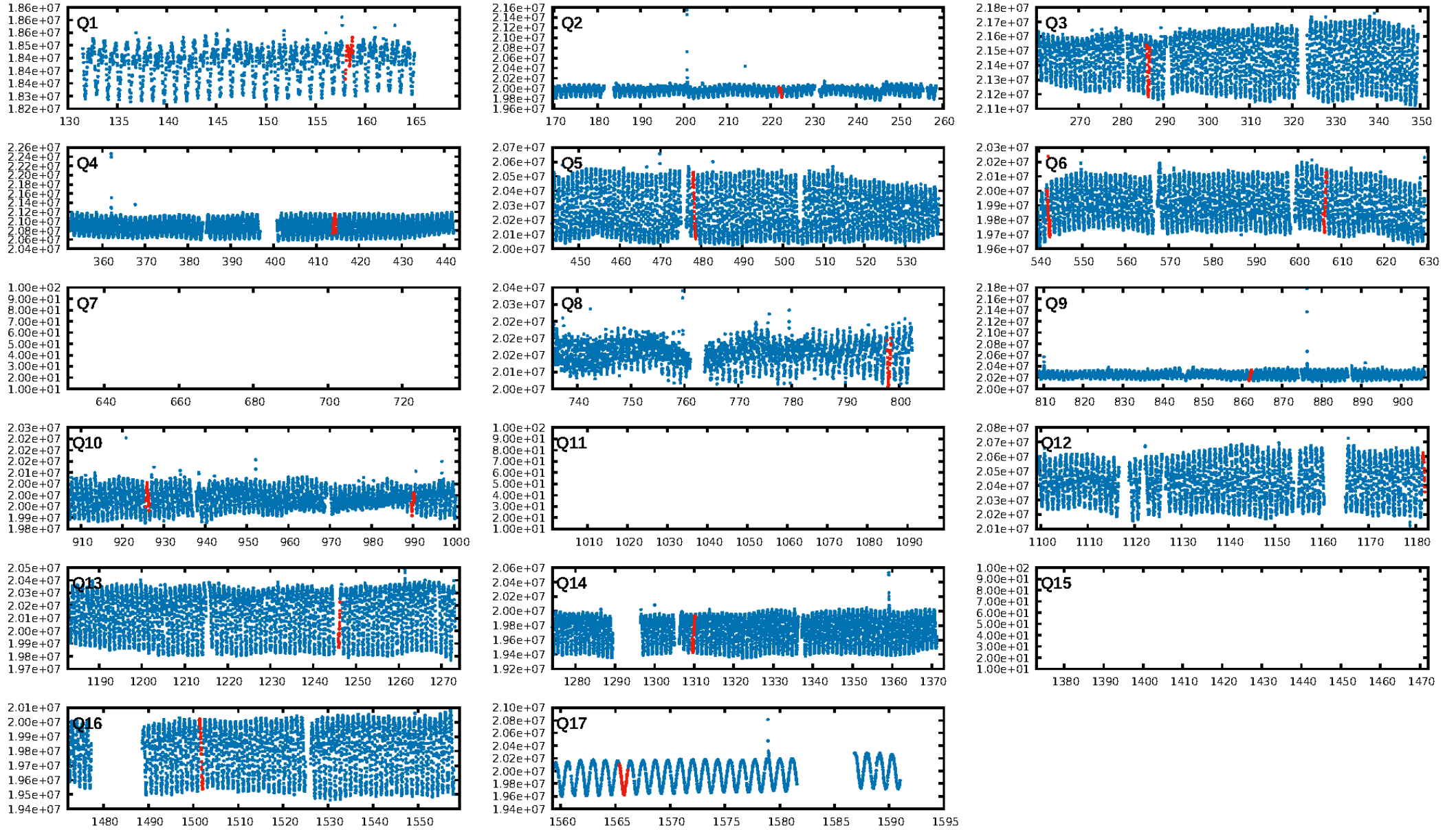
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [141.27σ]
LongPeriod-sig: 100.0% [106.10σ]
ModelChiSquare2-sig: 48.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.44e-13
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 6.153
Centroid-sig: 2.6%
Centroid-so: 1.900 arcsec [1.69σ]
OotOffset-rm: 0.076 arcsec [0.22σ]
OotOffset-st: 4/1/3/4 [12]
KicOffset-rm: 0.179 arcsec [0.57σ]
KicOffset-st: 4/1/3/4 [12]
DiffImageQuality-fgm: 0.50 [6/12]
DiffImageOverlap-fno: 0.00 [0/12]

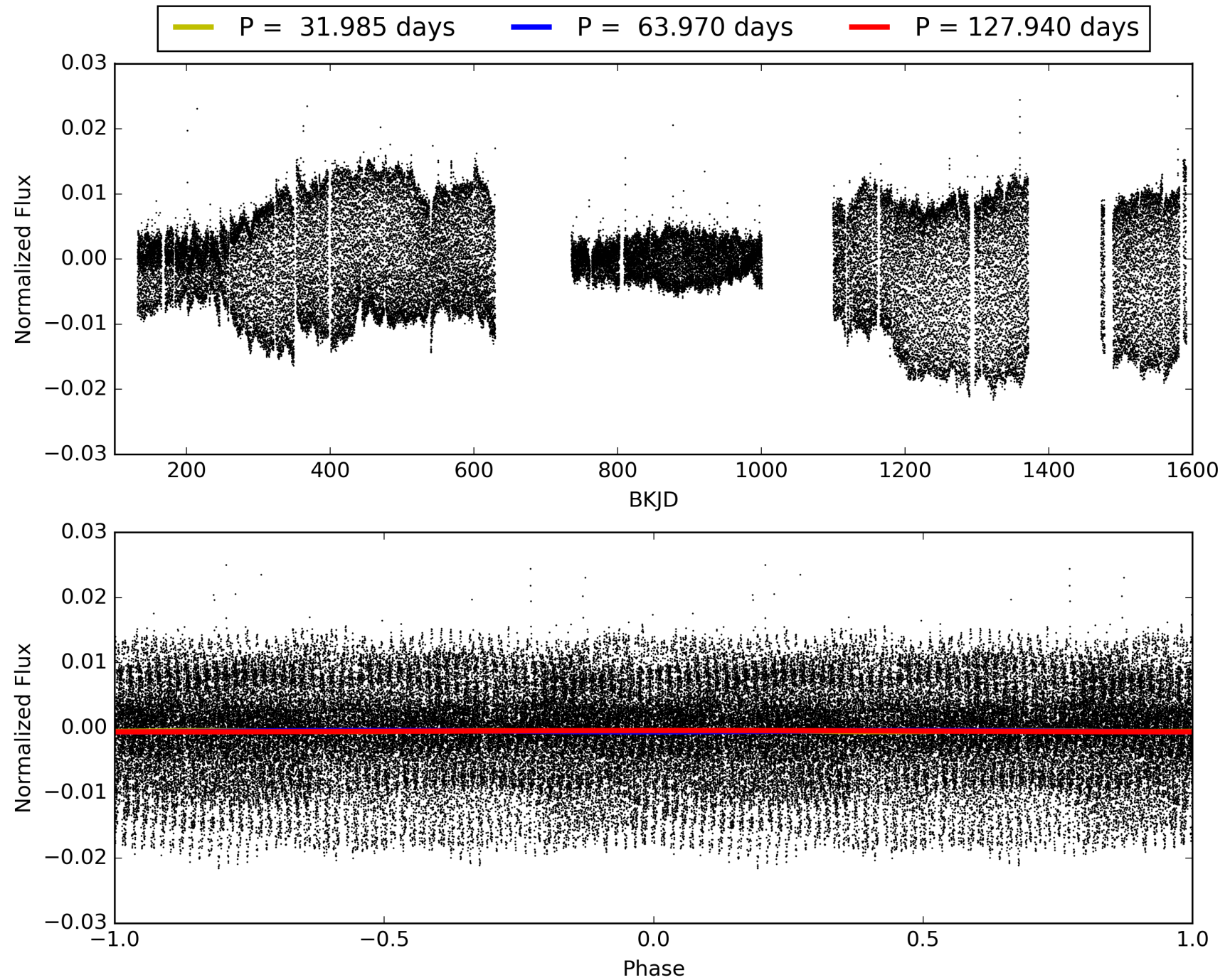
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:43:24 Z

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

TCE 010161873-02, PDC Light Curves

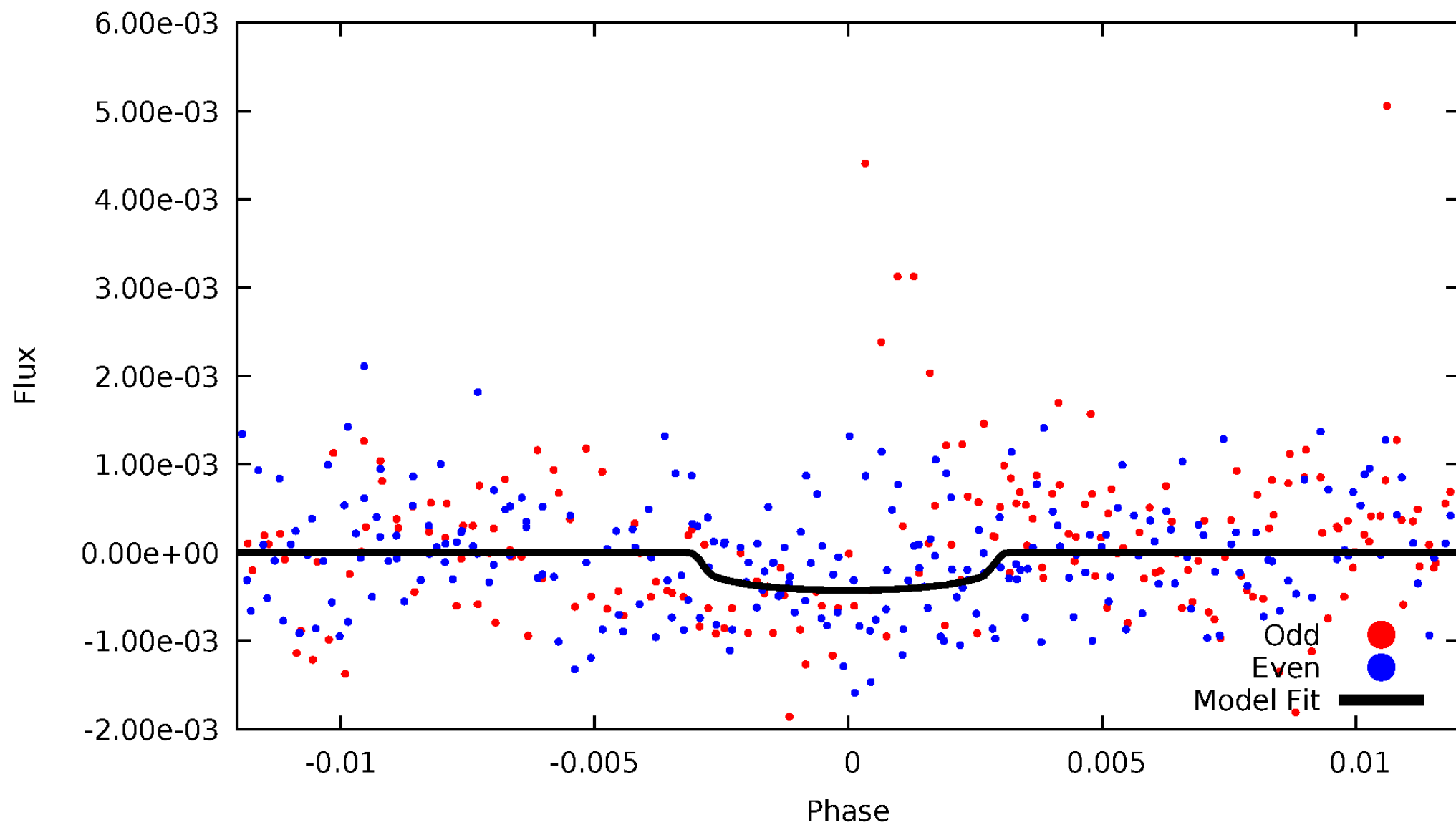


TCE 010161873-02



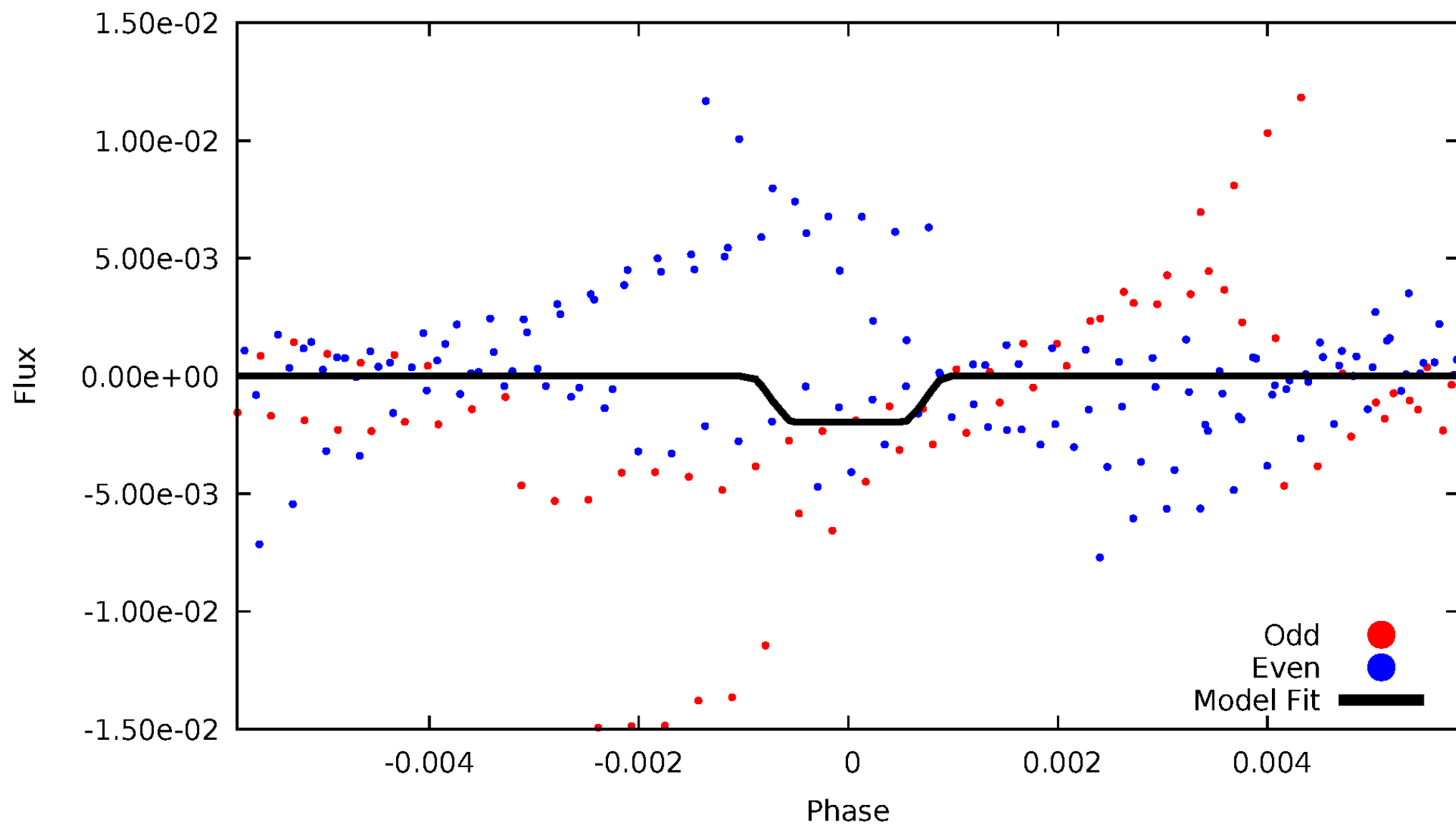
DV Odd/Even

TCE 010161873-02



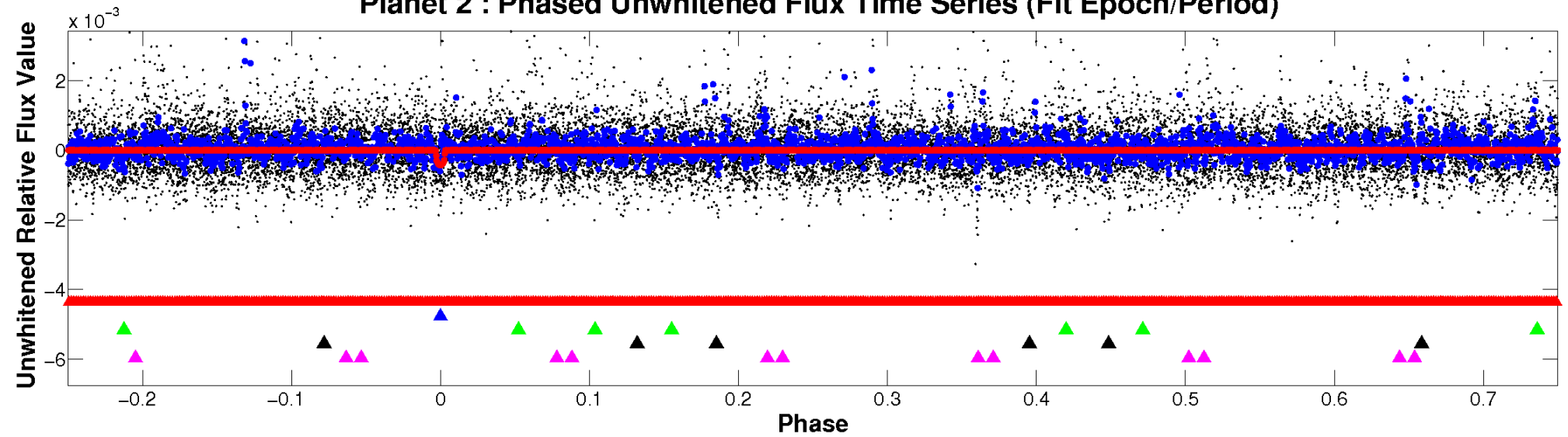
ALT Odd/Even

TCE 010161873-02

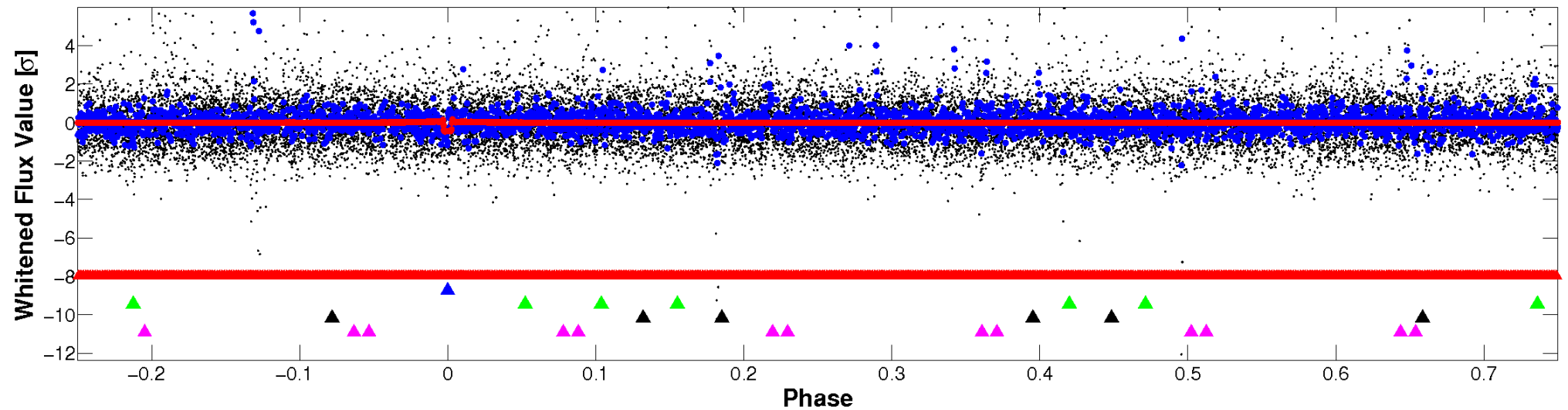


Non-Whitened Vs. Whitened Light Curve

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

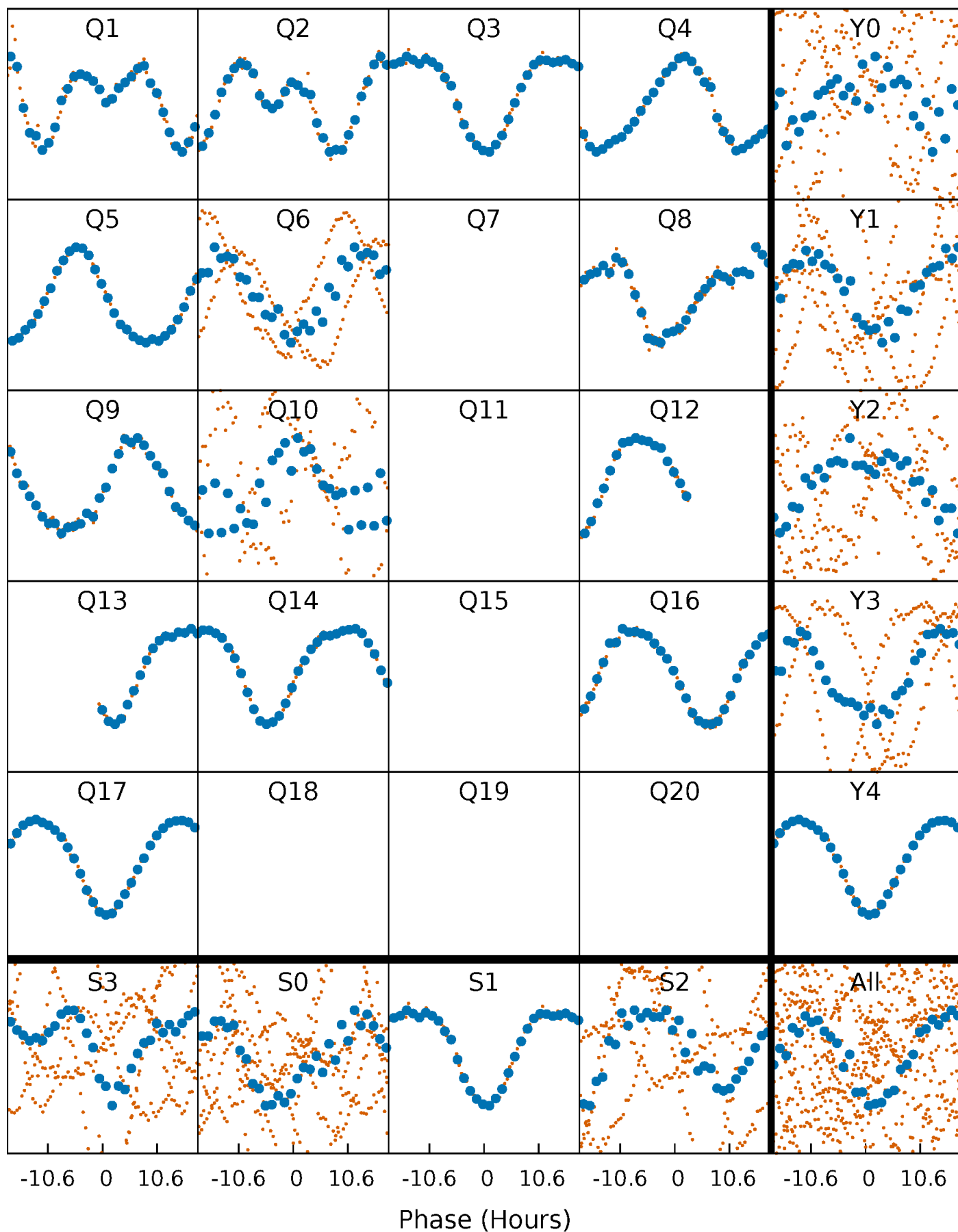


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



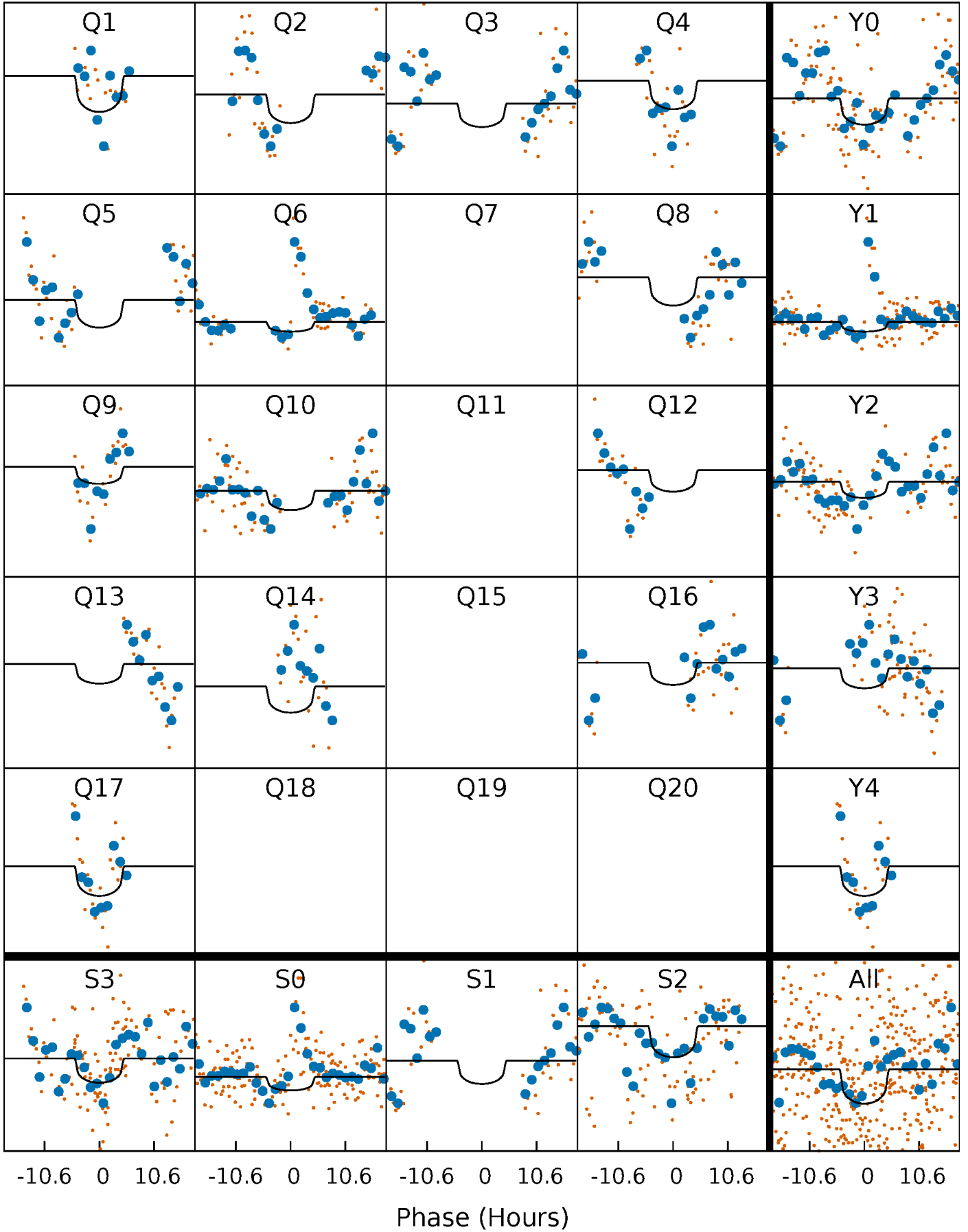
PDC Quarter-Phased Transit Curves

TCE 010161873-02 P= 63.970081 Days $T_0=158.395416$ (BKJD)



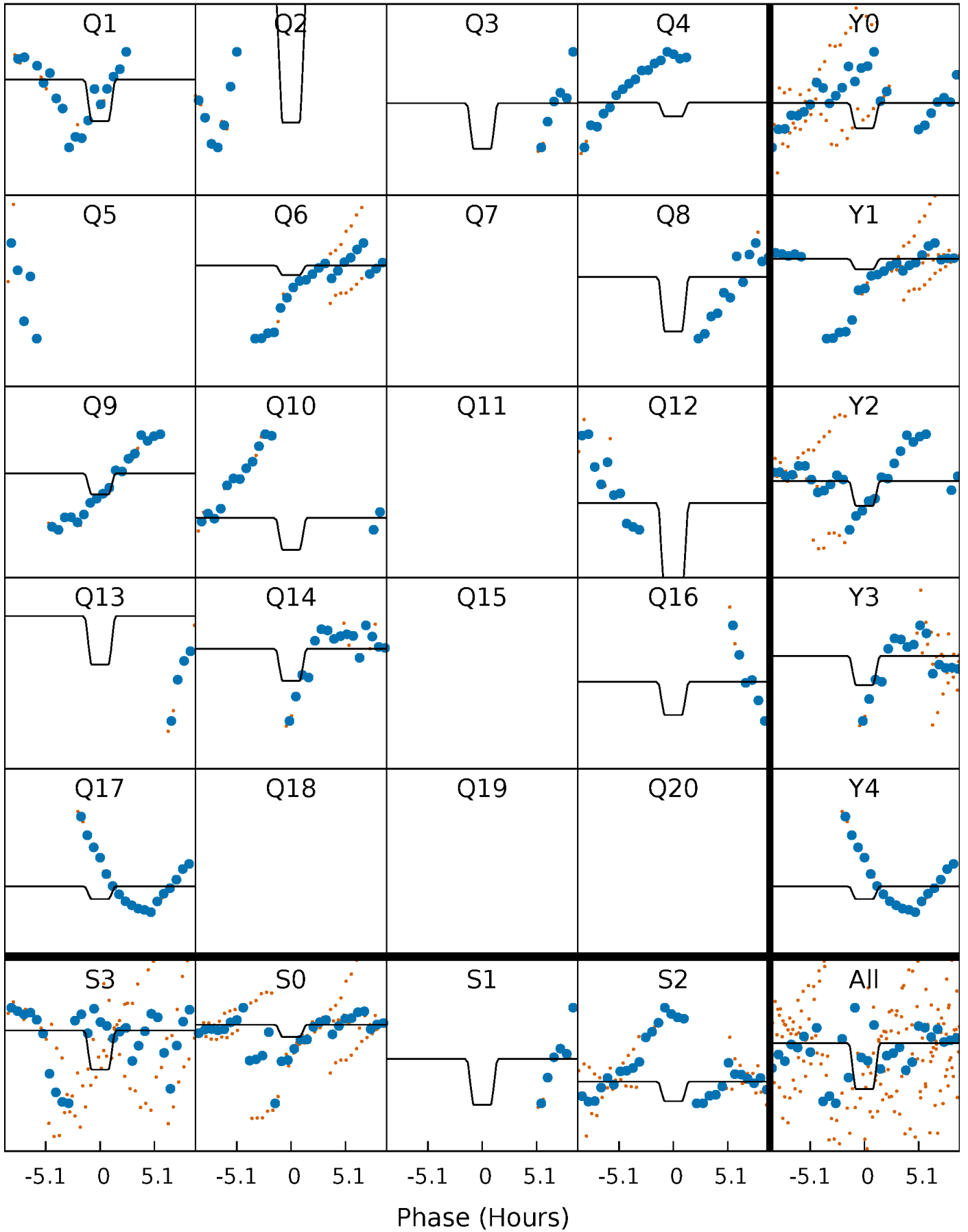
DV Quarter-Phased Transit Curves

TCE 010161873-02 P= 63.970081 Days $T_0=158.395416$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

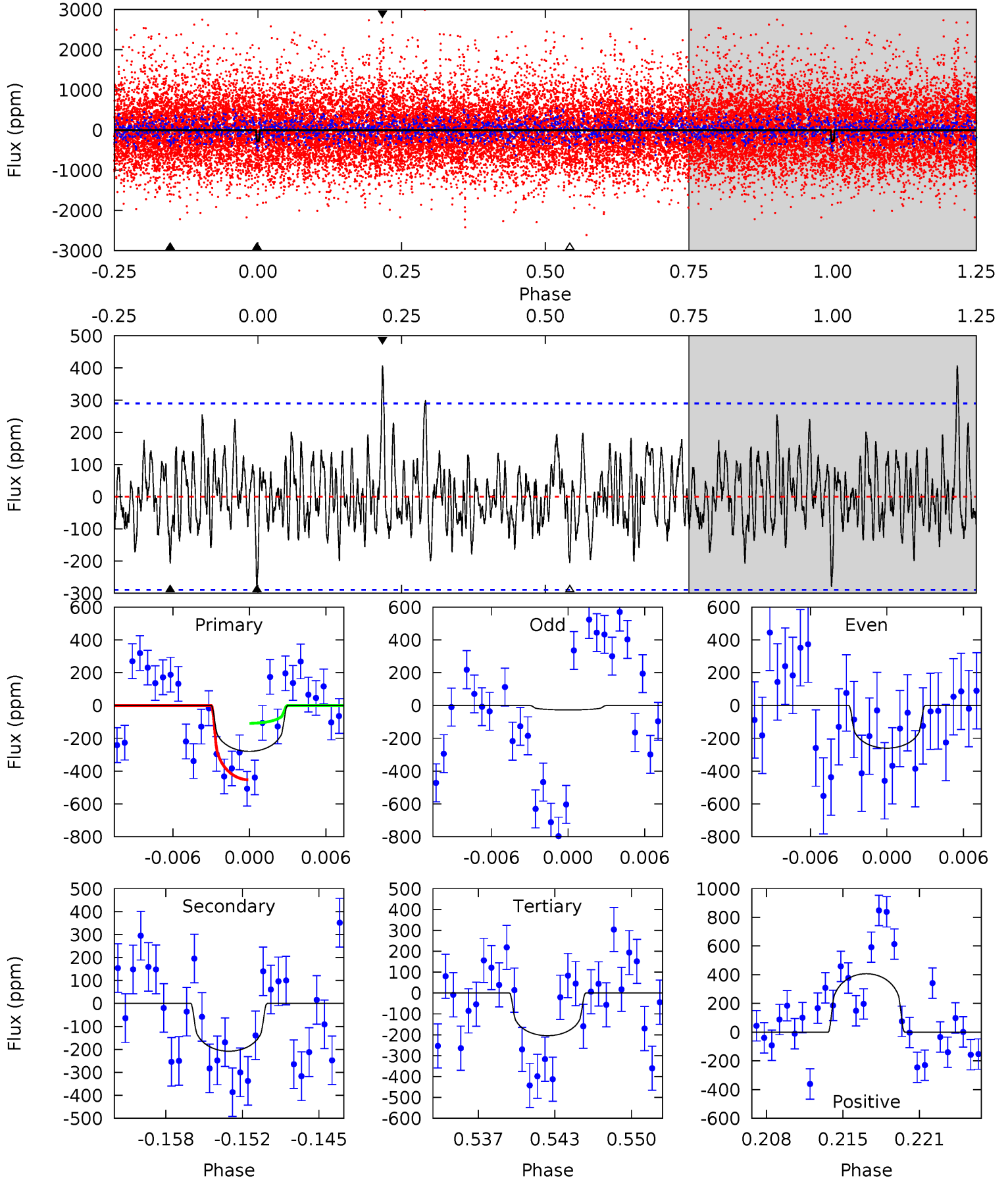
TCE 010161873-02 $P = 63.957942$ Days $T_0 = 158.531664$ (BKJD)



DV Model-Shift Uniqueness Test

010161873-02, P = 63.970081 Days, E = 94.425335 Days

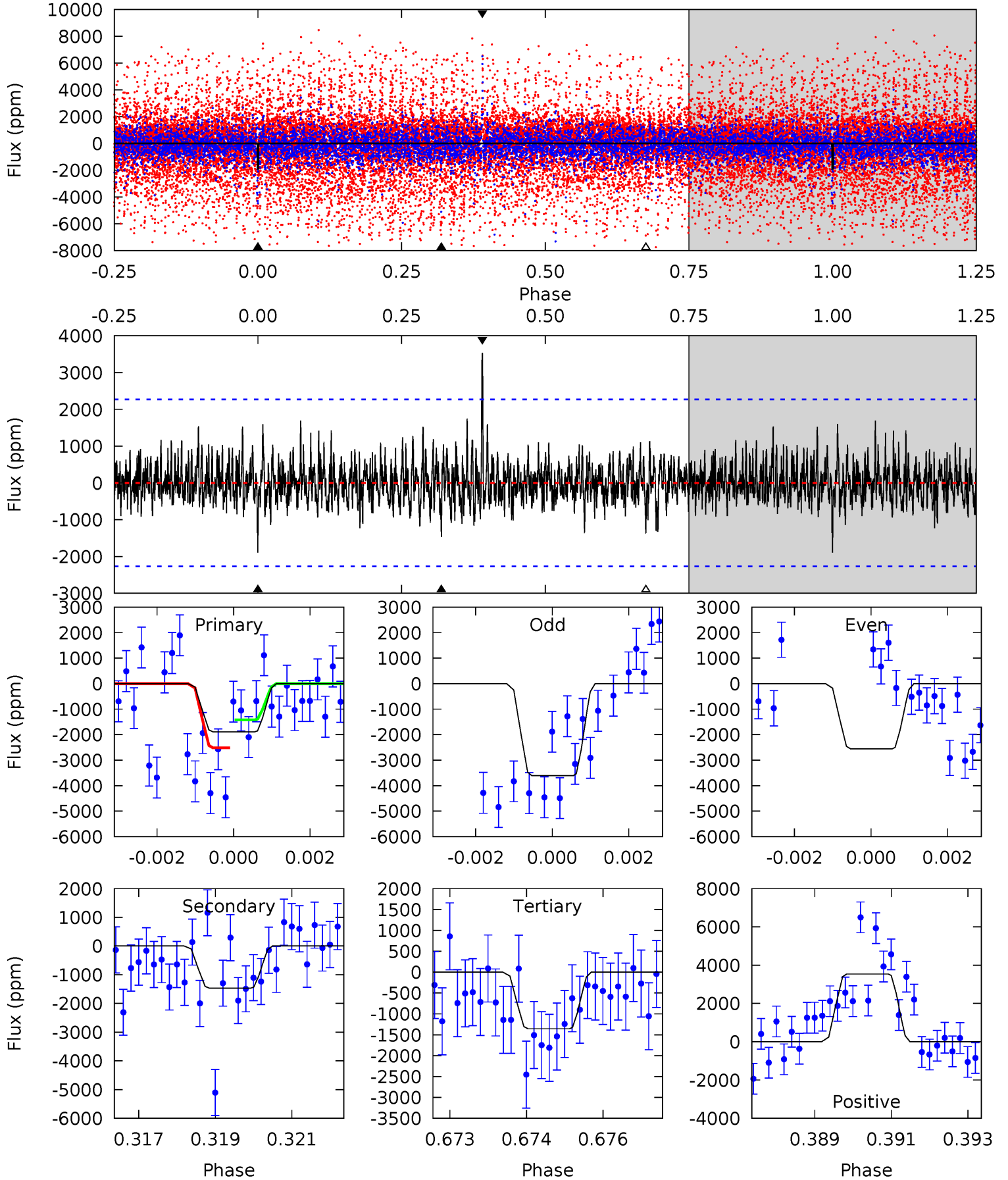
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.94	3.67	3.61	7.18	5.11	2.73	1.57	1.33	-2.25	0.06	-3.51	1.99	0.56	0.59	3.07



Alt Model-Shift Uniqueness Test

010161873-02, P = 63.957942 Days, E = 94.573722 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.45	3.45	3.19	8.33	5.35	3.13	1.07	1.26	-3.88	0.26	-4.88	1.20	0.10	0.65	1.31



Stellar Parameters For KIC 010161873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4530^{+134}_{-147}	$4.689^{+0.052}_{-0.032}$	$-0.880^{+0.300}_{-0.300}$	$0.554^{+0.040}_{-0.044}$	$0.548^{+0.046}_{-0.031}$	$4.532^{+1.038}_{-0.581}$
	+3%/-3%	+1%/-1%	+34%/-34%	+7%/-8%	+8%/-6%	+23%/-13%
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 010161873-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-208 ± 57	$1.72^{+1.27}_{-1.21}$	409^{+14}_{-16}	3581^{+1973}_{-631}	2621^{+23701}_{-1888}
Alt.	-1464 ± 424	$2.80^{+1.58}_{-1.49}$	409^{+14}_{-15}	4195^{+1583}_{-628}	6910^{+23413}_{-4298}

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

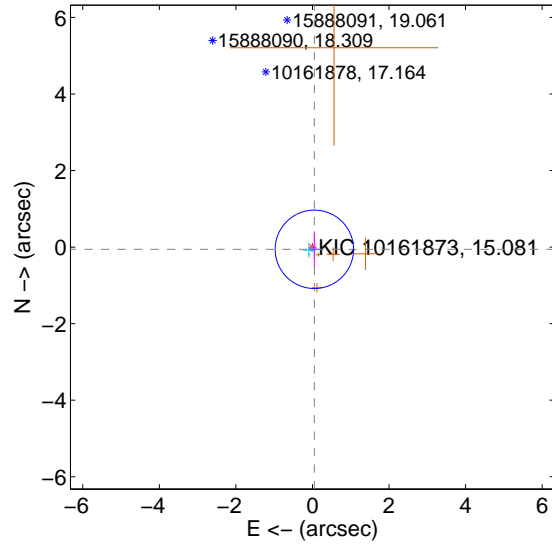
Supplemental centroid analysis for 010161873-02. Kepler magnitude: 15.08. Transit SNR 4.56

There are 6 quarters with good PRF difference image offsets

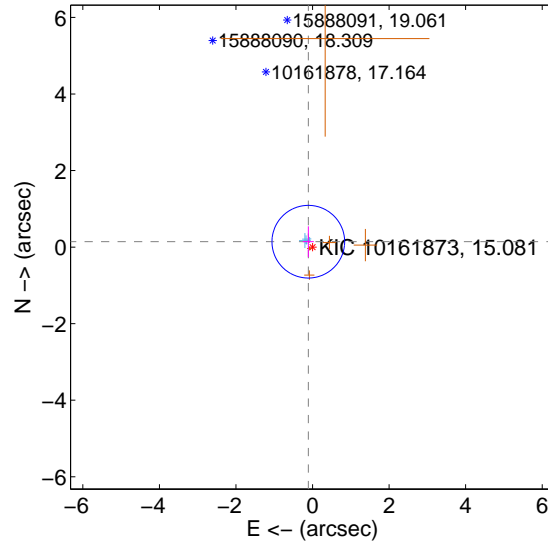
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.076 ± 0.341	0.22	-0.050 ± 0.138	-0.058 ± 0.469
PRF-fit source offset from KIC position	0.179 ± 0.316	0.57	0.110 ± 0.145	0.141 ± 0.402
photometric centroid source offset	1.90 ± 1.12	1.69	-0.24 ± 1.04	1.88 ± 1.12

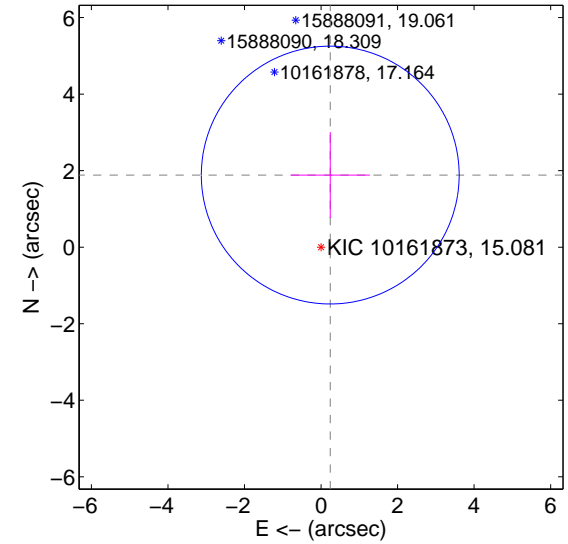
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

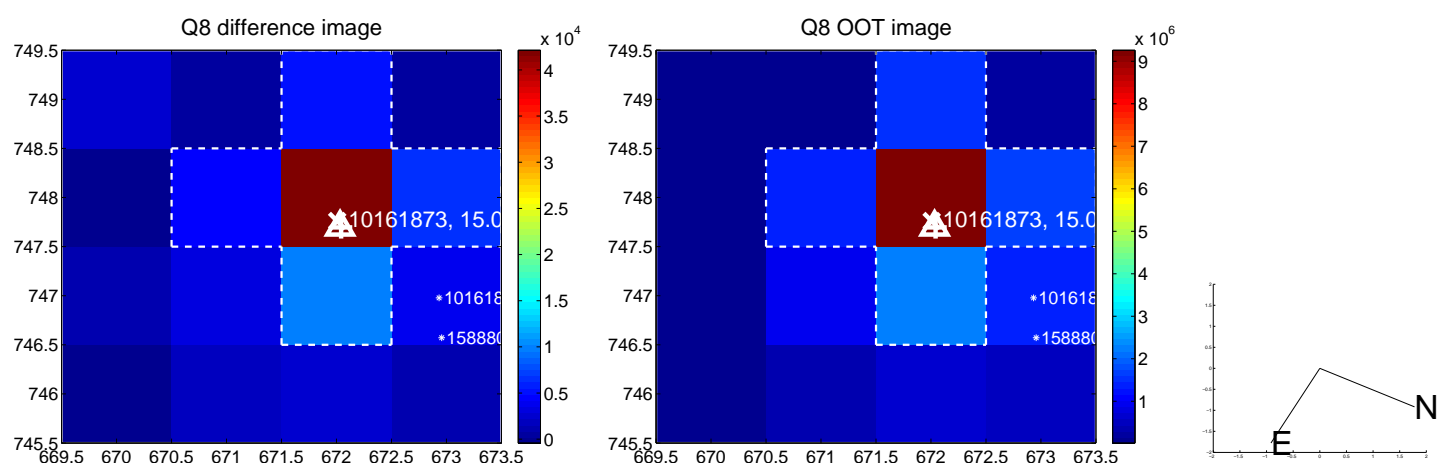
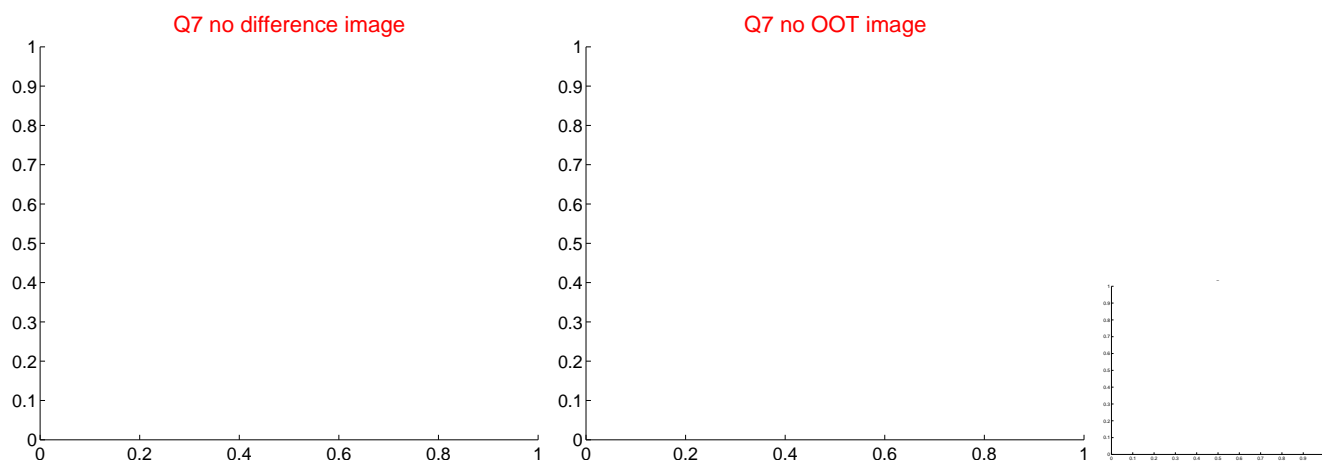
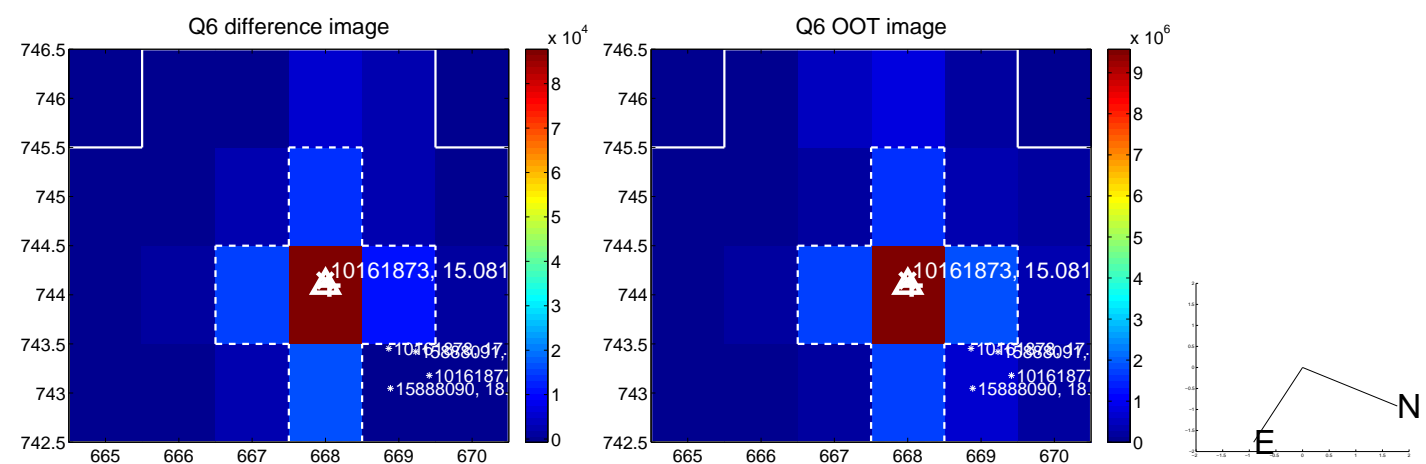
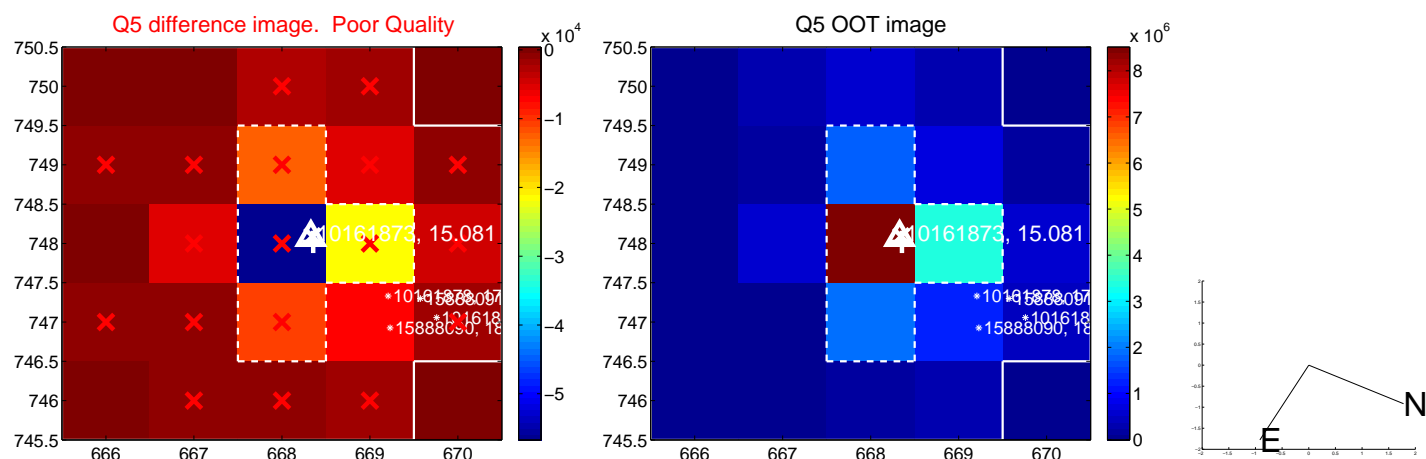


offset from photometric centroids

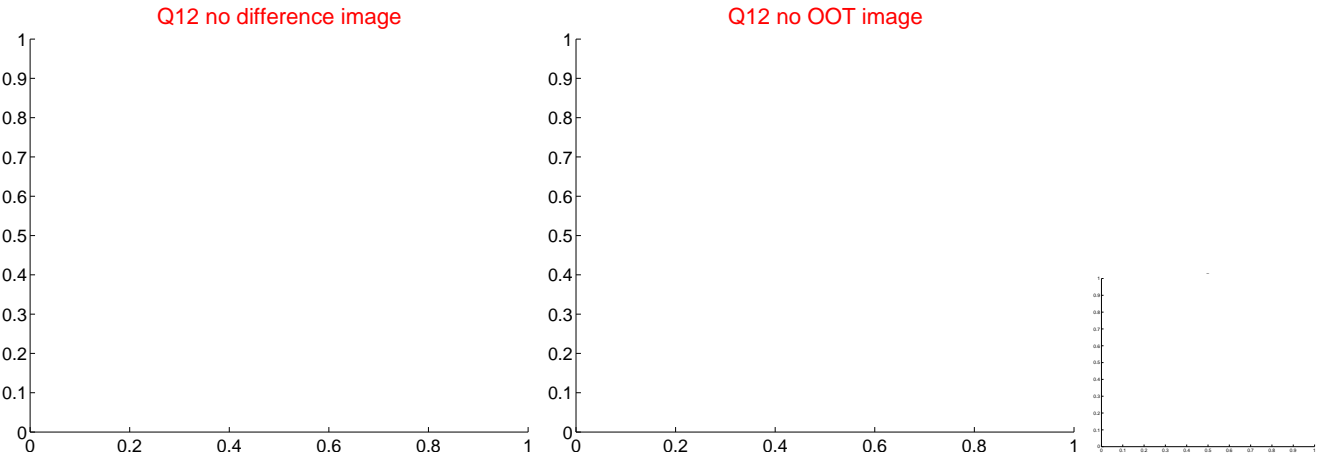
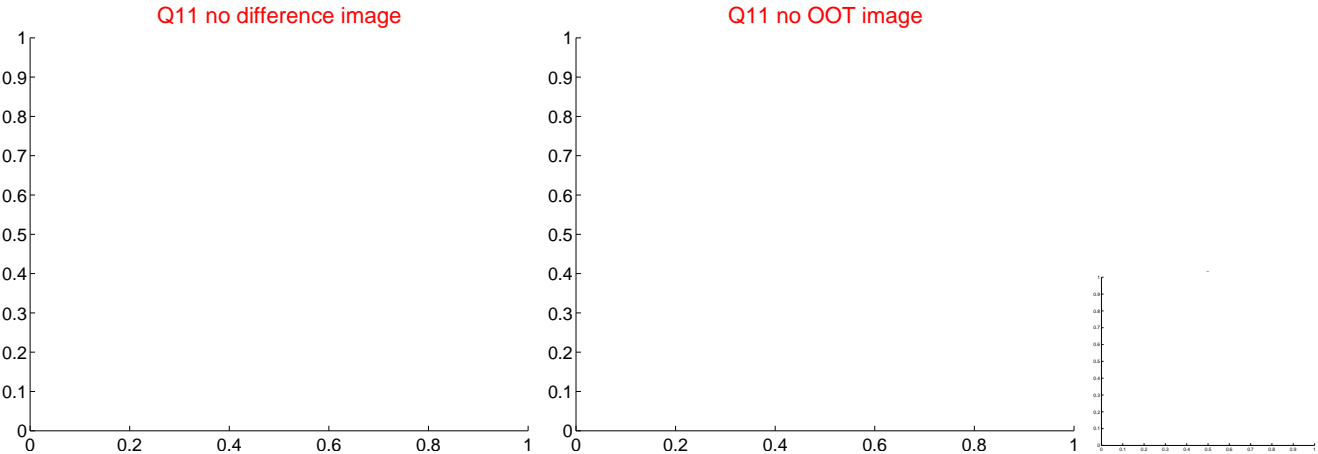
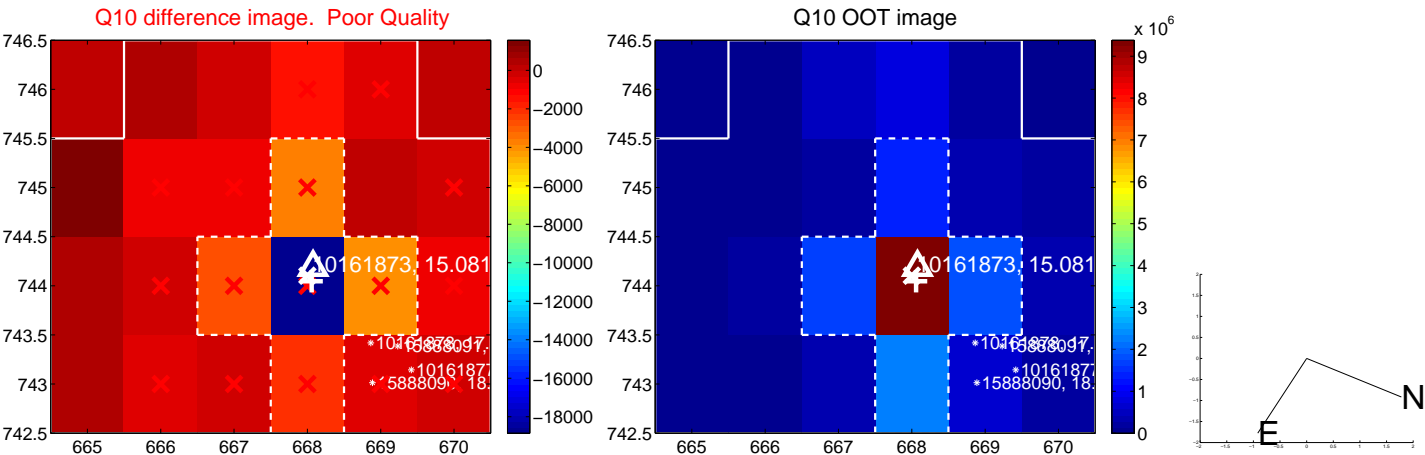
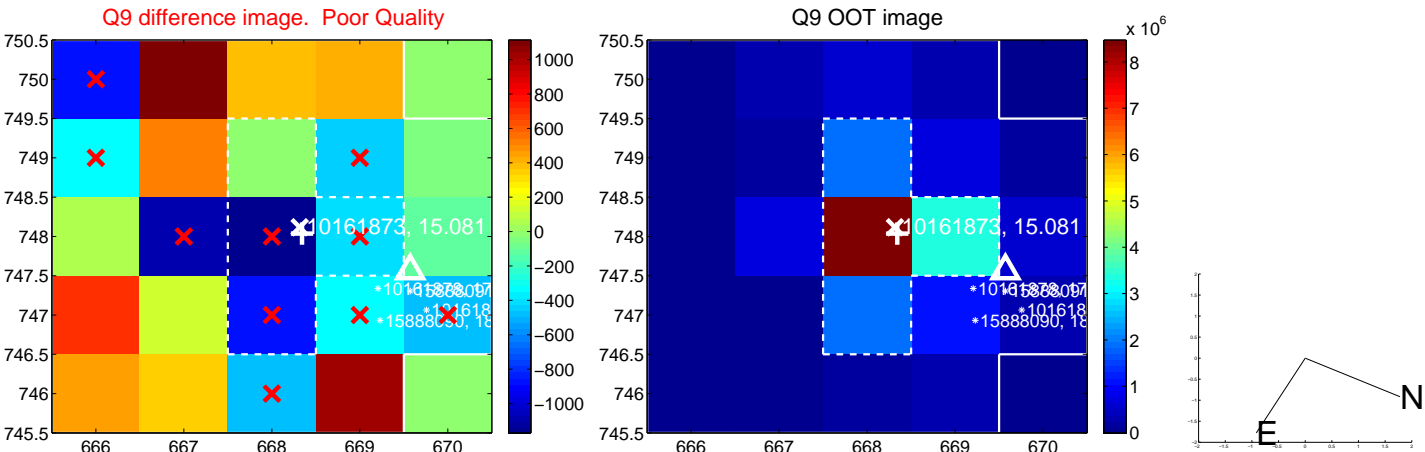


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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

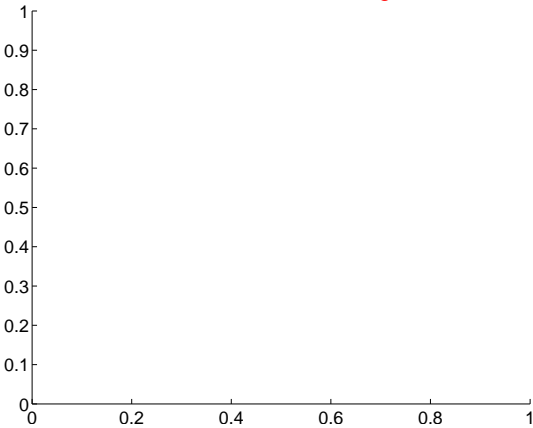


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

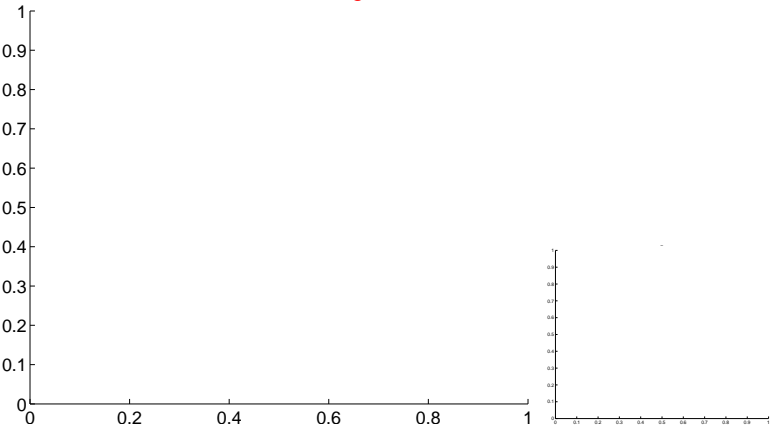


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

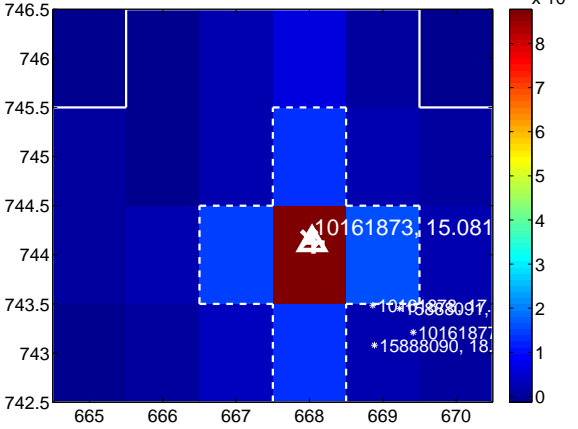
Q13 no difference image



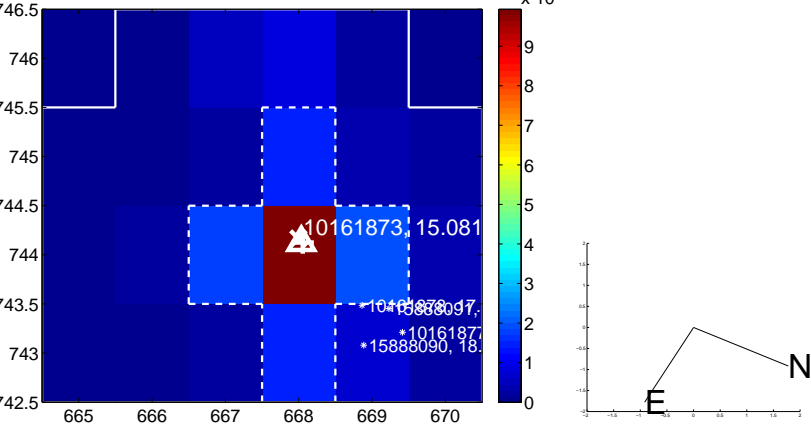
Q13 no OOT image



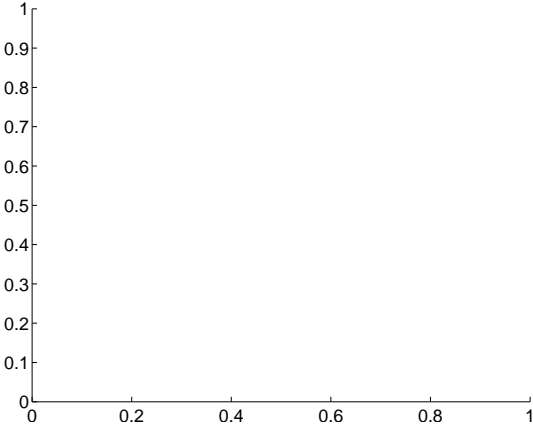
Q14 difference image



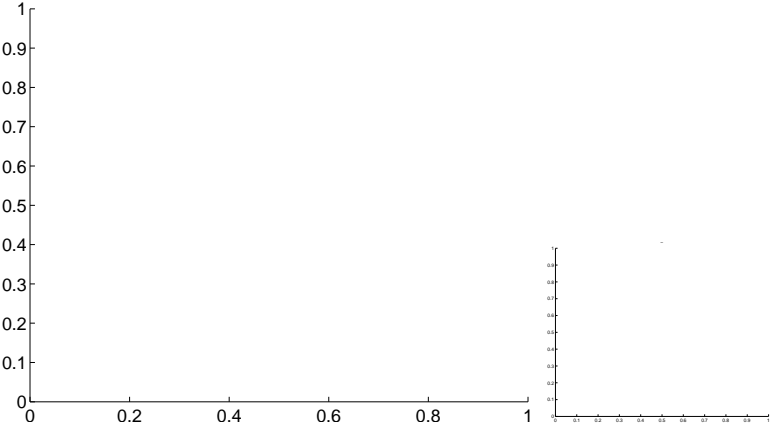
Q14 OOT image



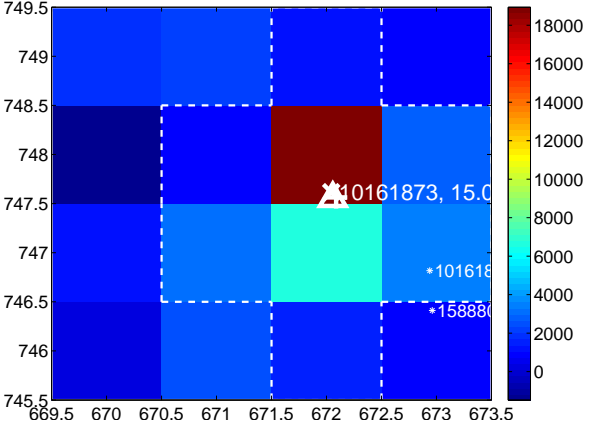
Q15 no difference image



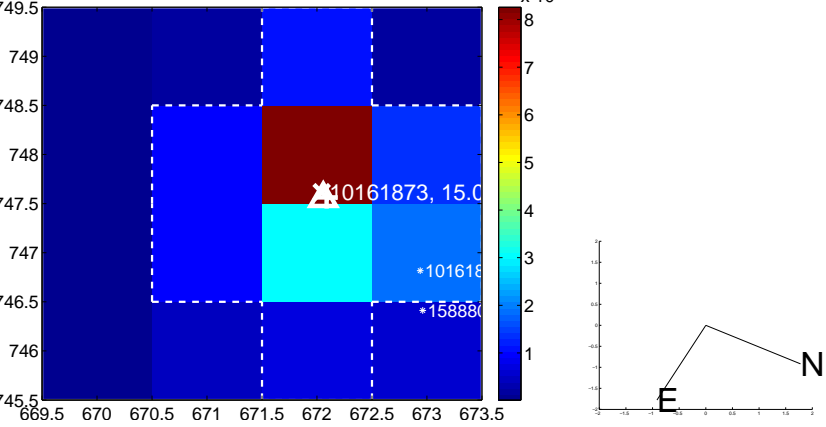
Q15 no OOT image



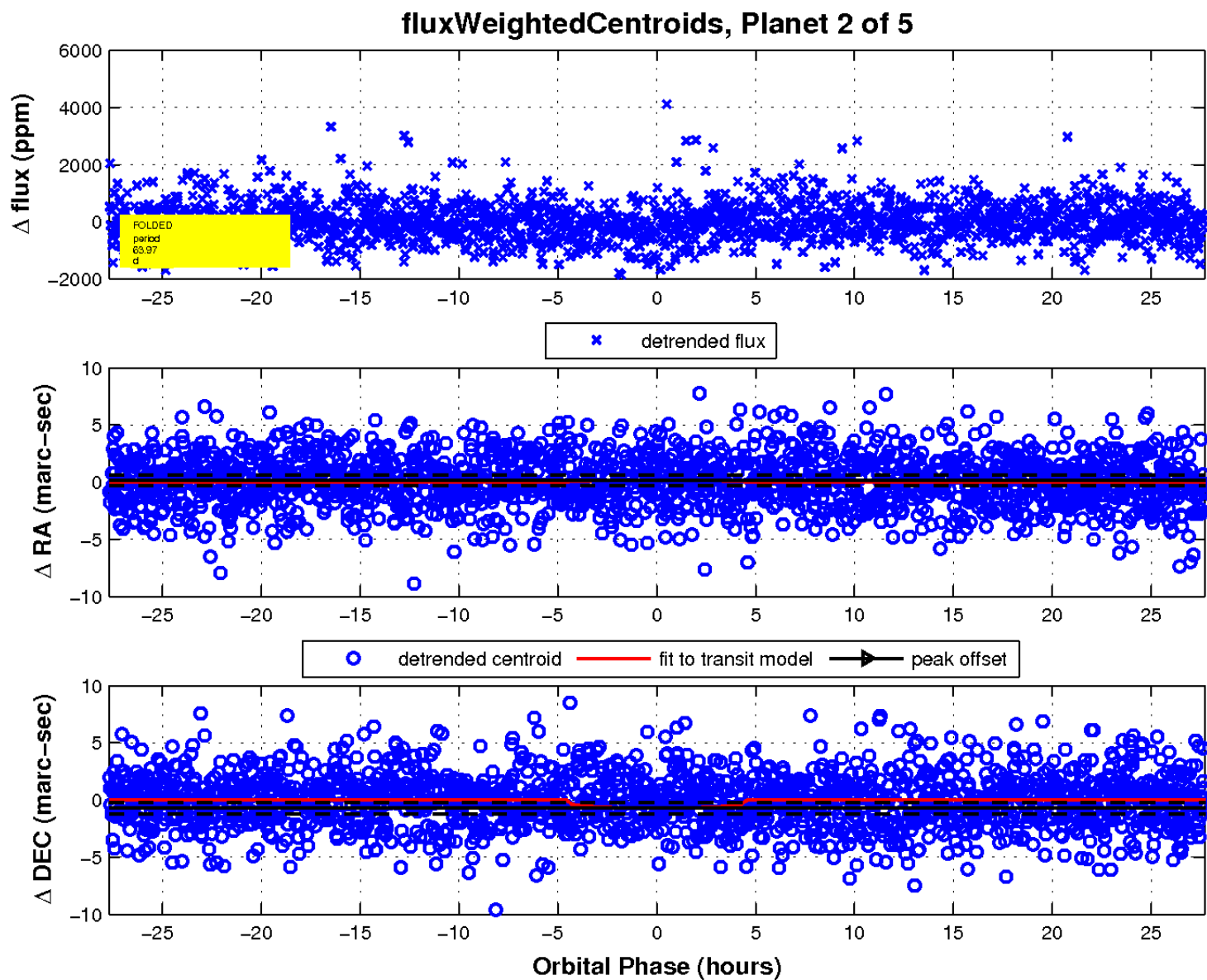
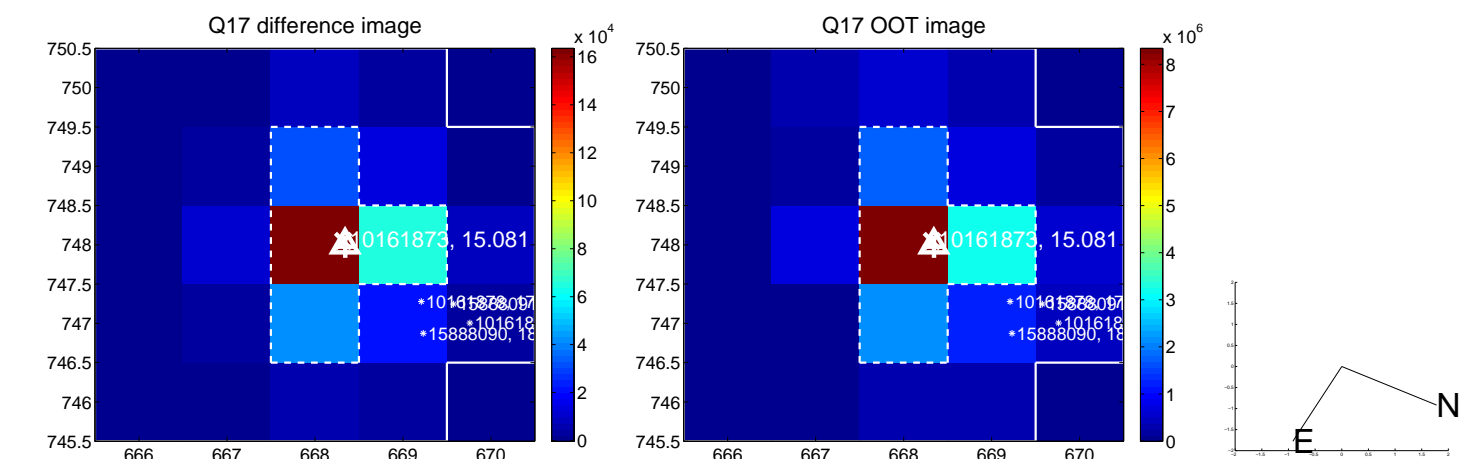
Q16 difference image



Q16 OOT image

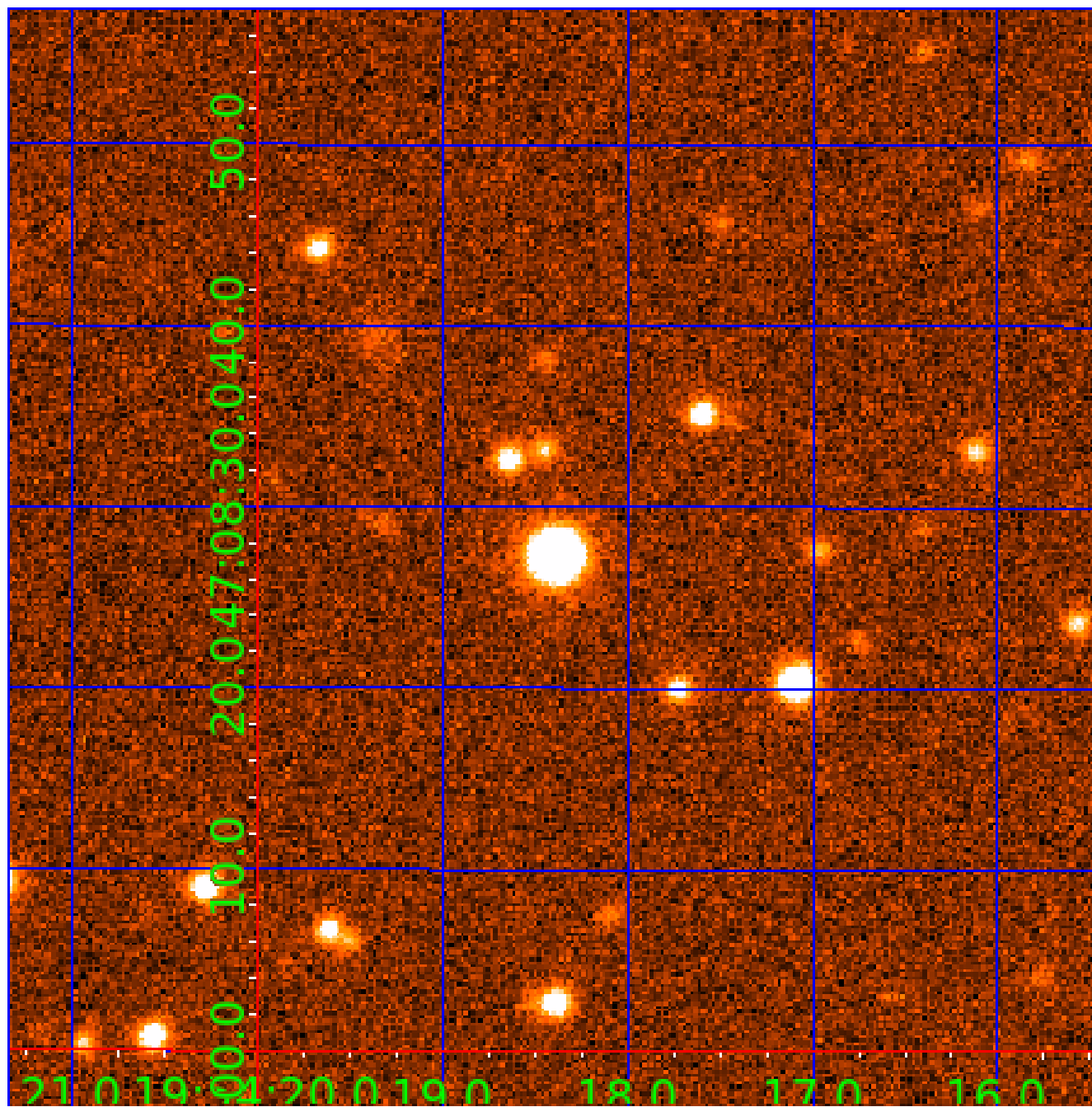


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010161873

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})
010161873-01	OBS	No	1.136768	131.702800	1.9	5.339	8.6	0.2	0.55	4530	0.08	380.83
010161873-02	OBS	No	63.970081	158.395416	426.9	9.243	9.2	4.6	0.55	4530	1.21	1.77
010161873-03	OBS	No	235.653254	161.745283	1183.4	4.821	8.3	7.0	0.55	4530	2.26	0.31
010161873-04	OBS	No	239.037733	315.025159	1222.0	6.232	7.4	7.3	0.55	4530	1.96	0.30
010161873-05	OBS	No	118.894286	135.604932	665.5	8.302	7.3	6.4	0.55	4530	1.58	0.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010161873-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010161873-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010161873-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

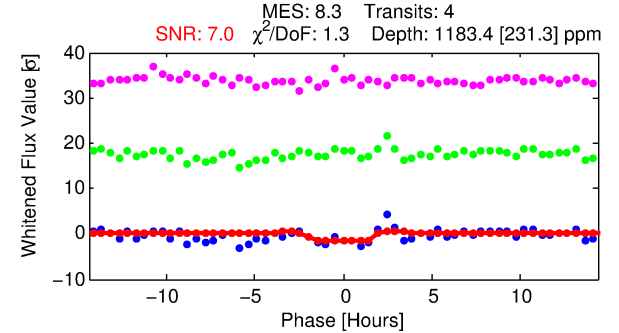
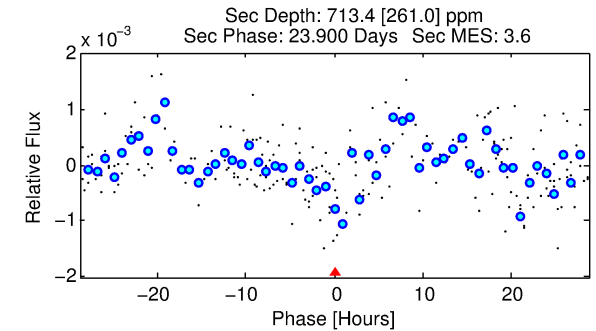
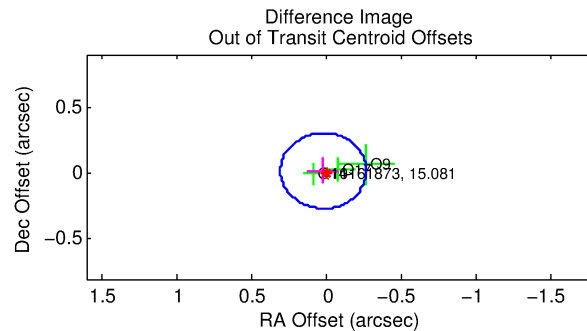
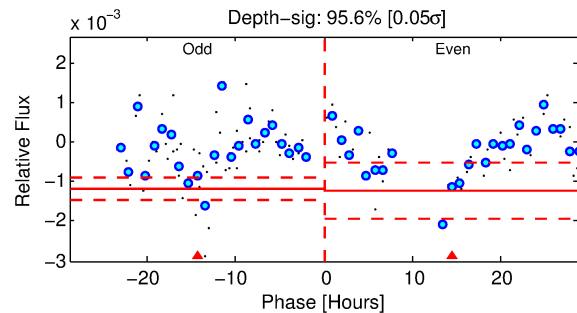
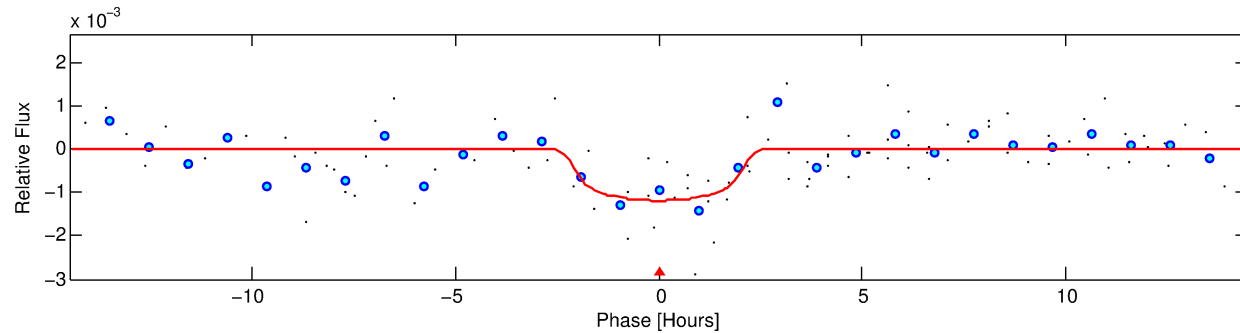
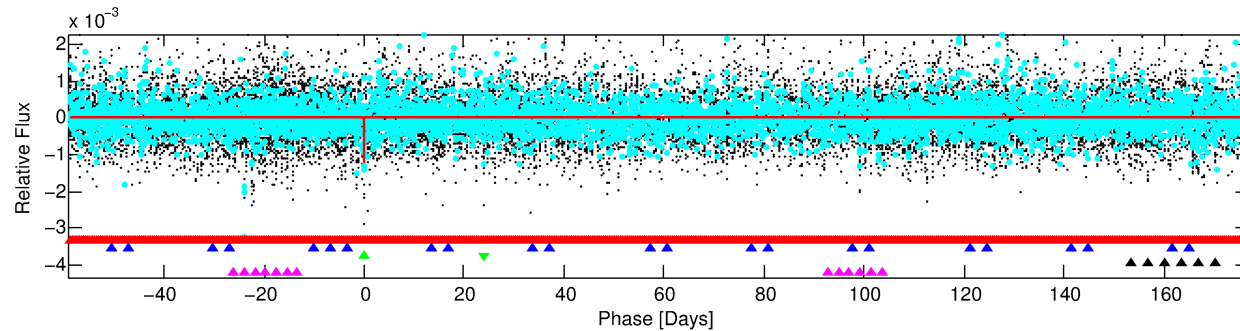
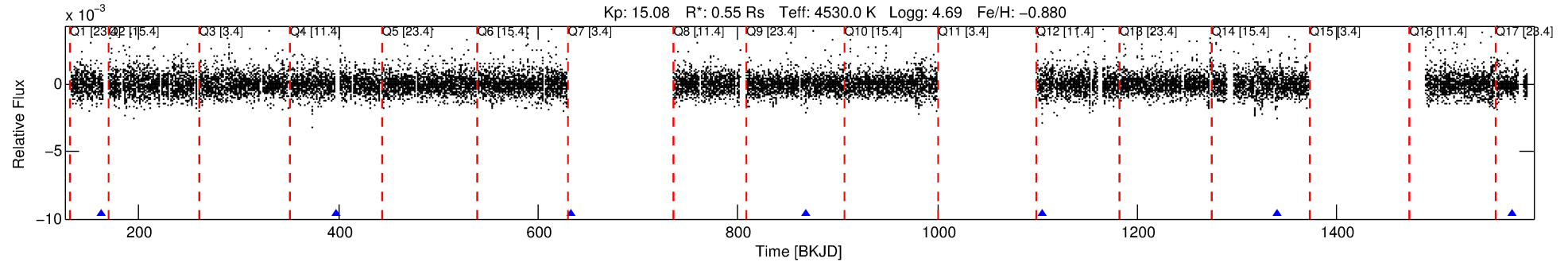
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010161873-03

No Significant Match Found

DV One-Page Summary

KIC: 10161873 Candidate: 3 of 5 Period: 235.653 d



DV Fit Results:

Period = 235.65325 [0.00395] d
Epoch = 161.7453 [0.0121] BKJD
Rp/R* = 0.0373 [0.0157]
a/R* = 209.19 [293.04]
b = 0.87 [0.41]
Seff = 0.31 [0.05]
Teq = 190 [8] K
Rp = 2.26 [0.97] Re
a = 0.6108 [0.0405] AU
Ag = 28757.76 [26574.18] [1.08 σ]
Teffp = 3832 [889] K [4.10 σ]

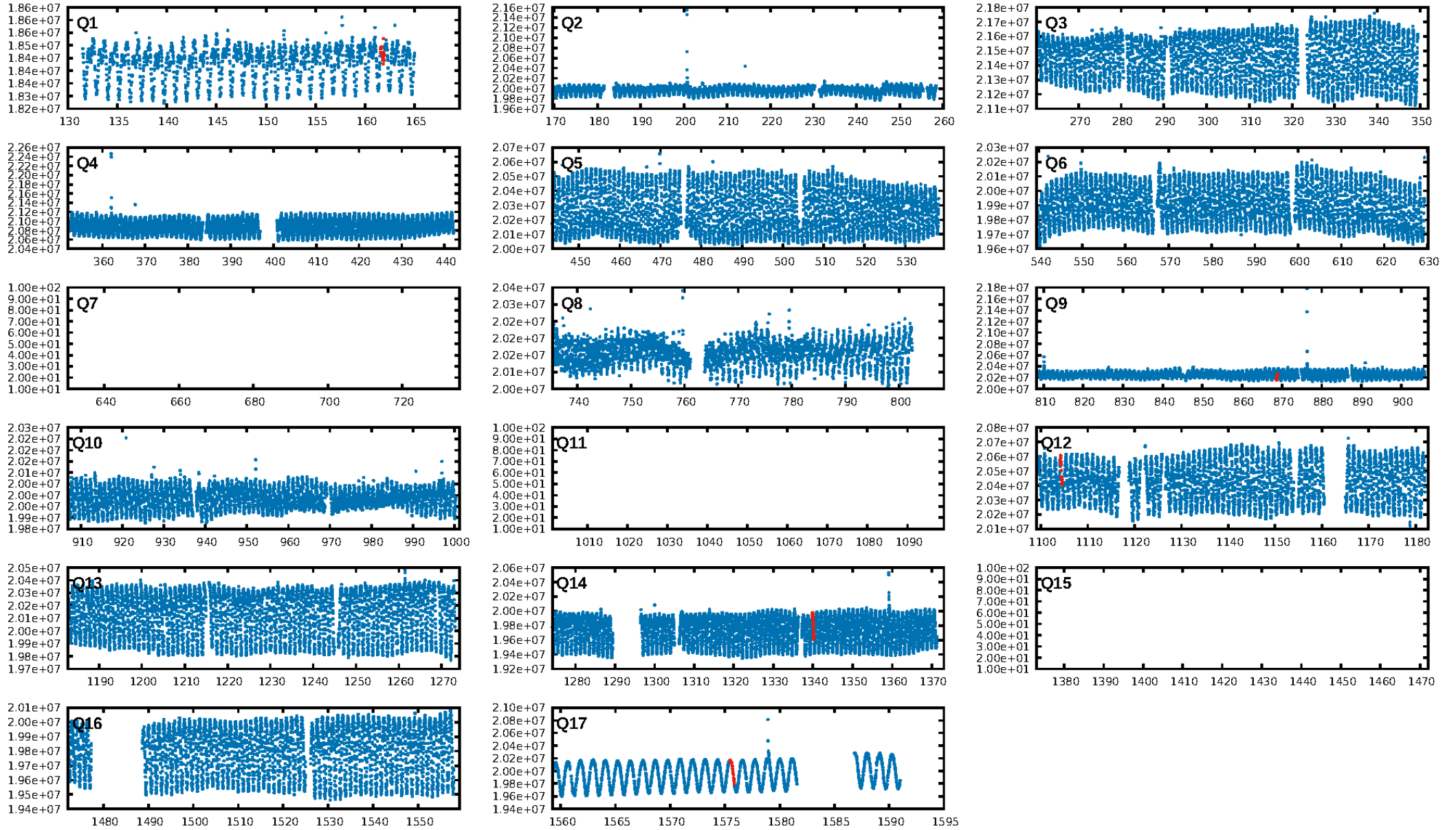
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [291.89 σ]
LongPeriod-sig: 100.0% [10.31 σ]
ModelChiSquare2-sig: 13.5%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.24e-11
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.8455
Centroid-sig: 6.8%
Centroid-so: 1.749 arcsec [1.86 σ]
OotOffset-rm: 0.025 arcsec [0.26 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 0.270 arcsec [2.93 σ]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

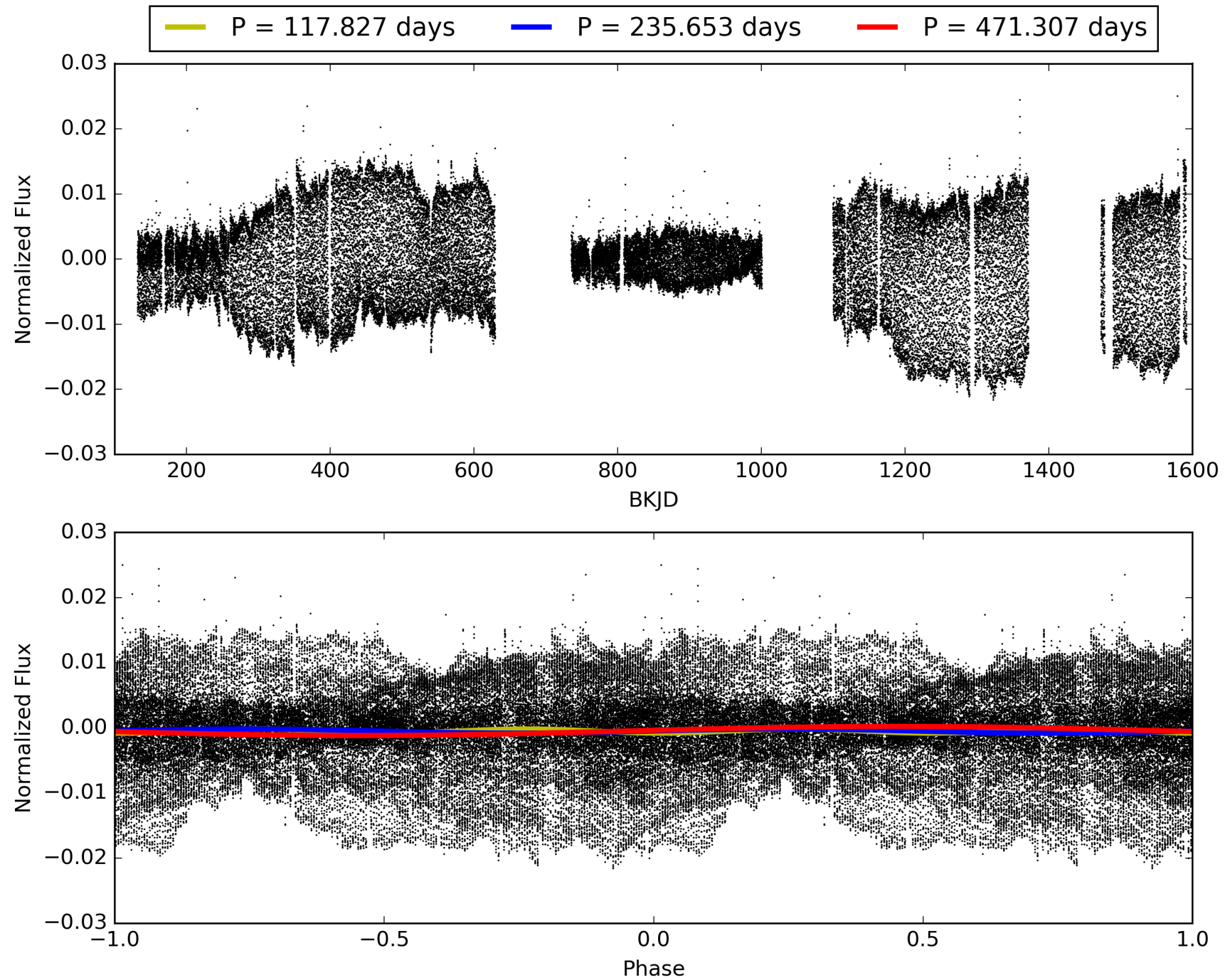
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:43:29 Z

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

TCE 010161873-03, PDC Light Curves

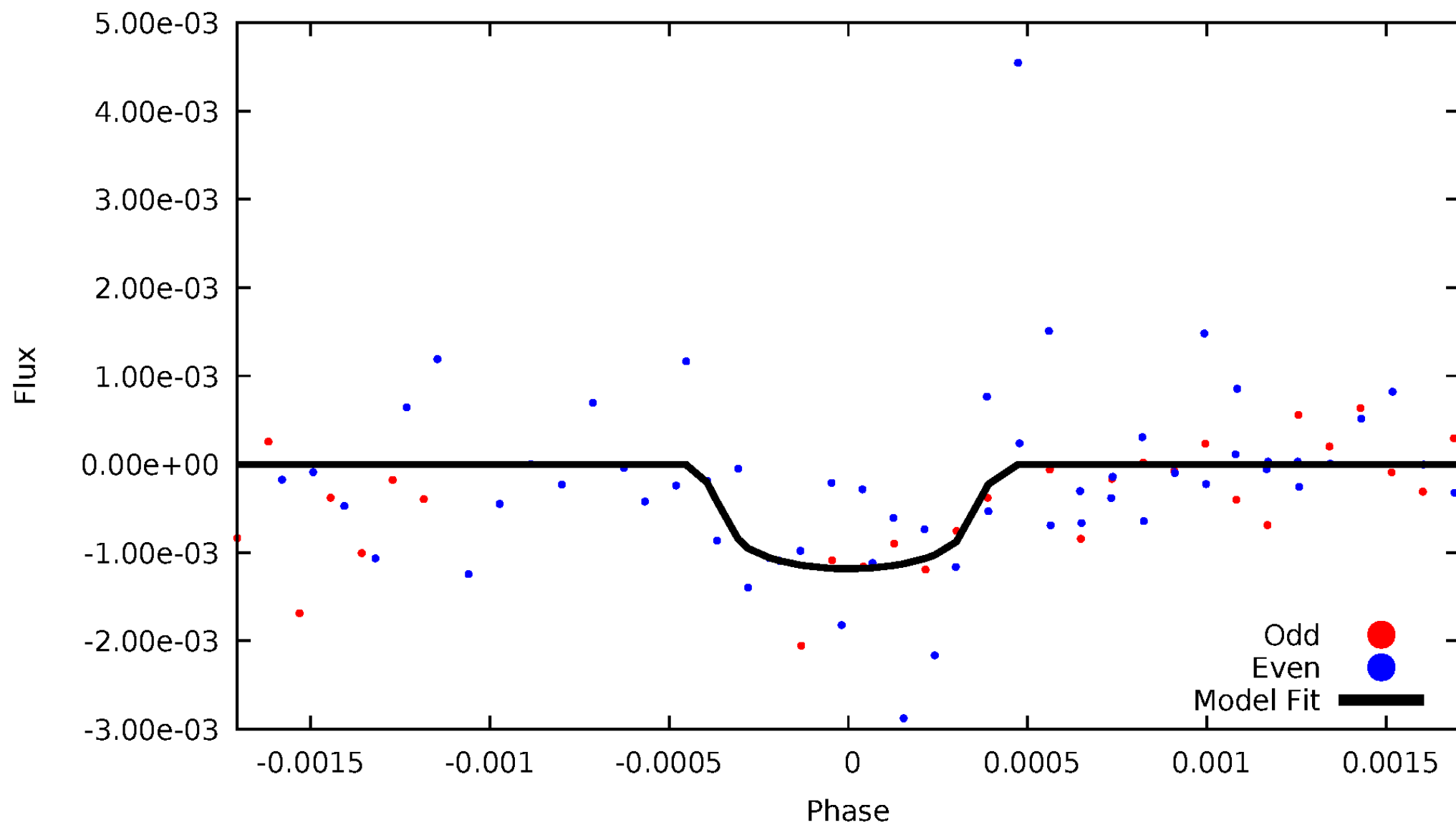


TCE 010161873-03



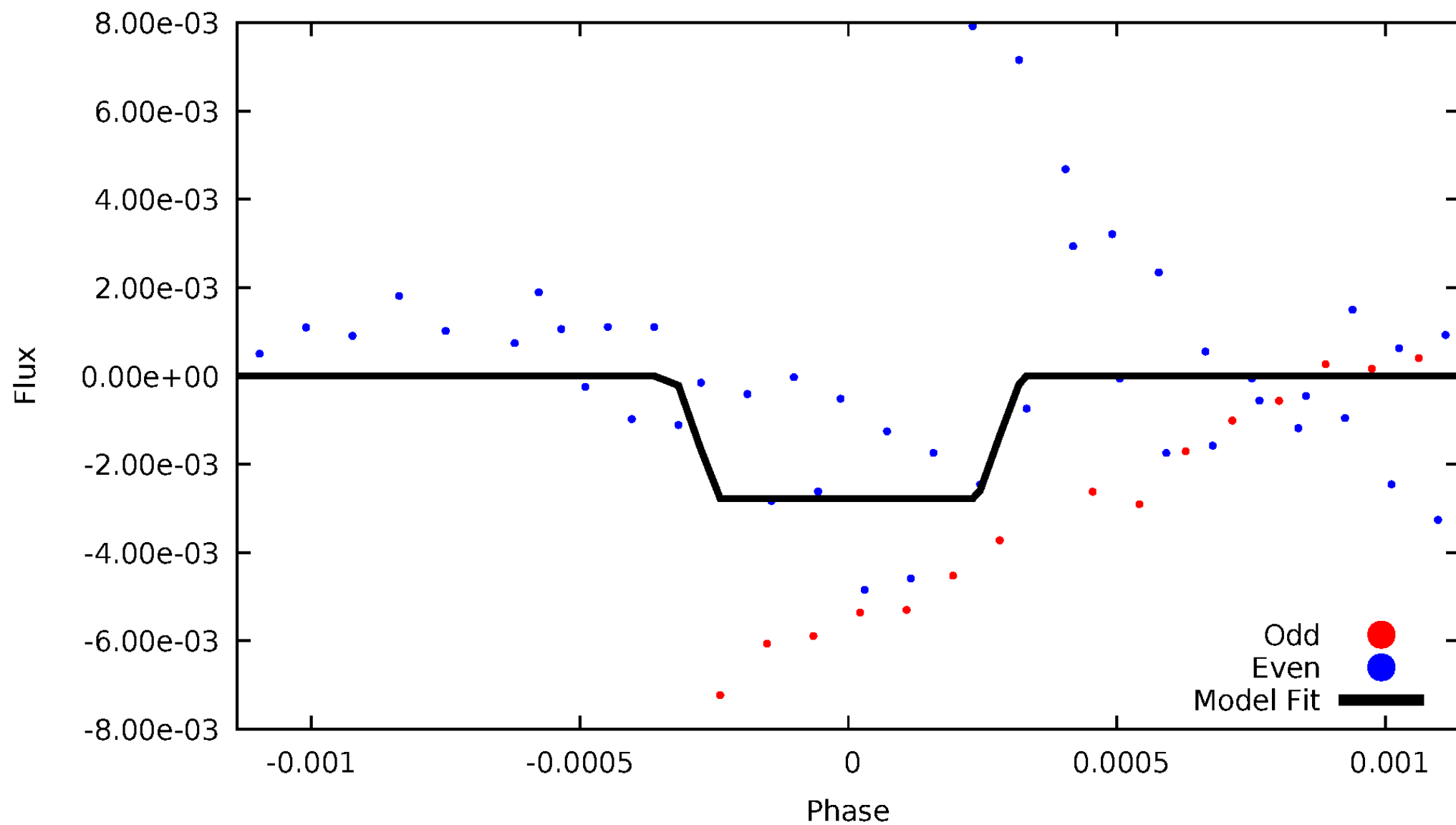
DV Odd/Even

TCE 010161873-03



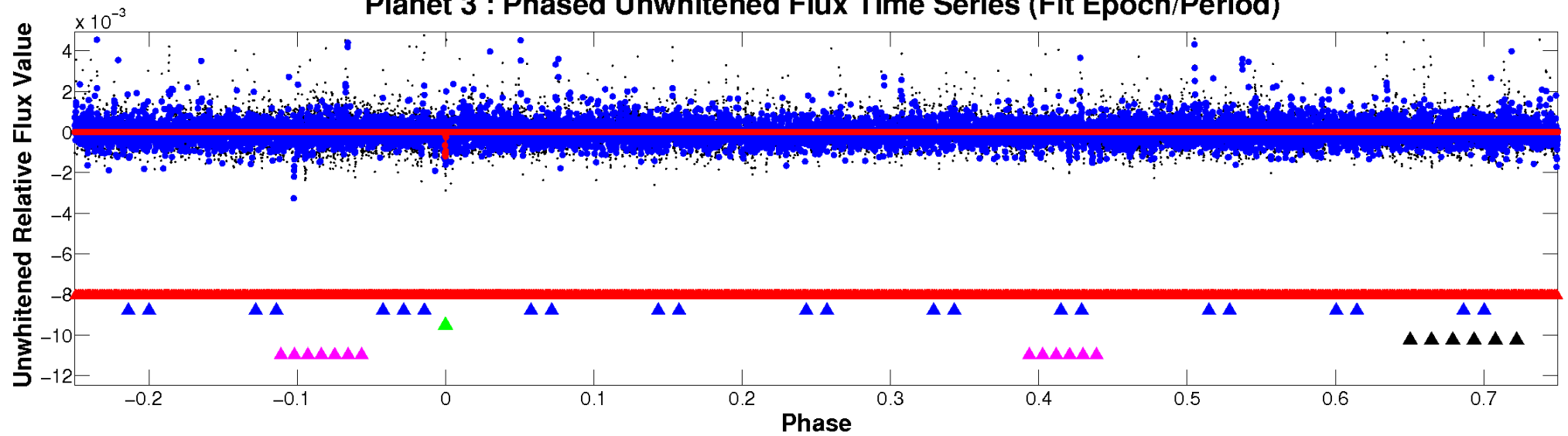
ALT Odd/Even

TCE 010161873-03

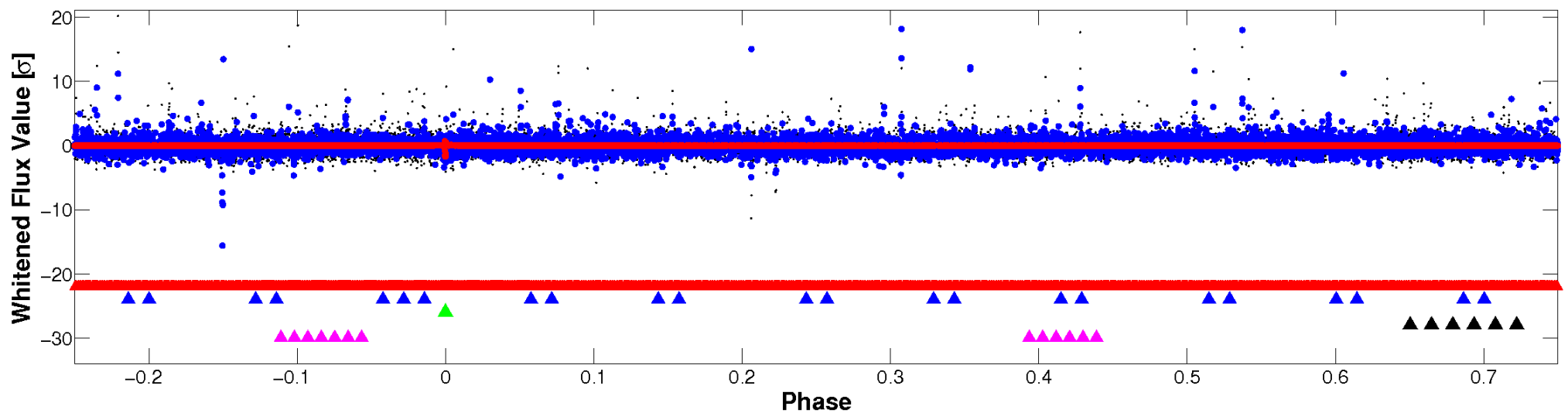


Non-Whitened Vs. Whitened Light Curve

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

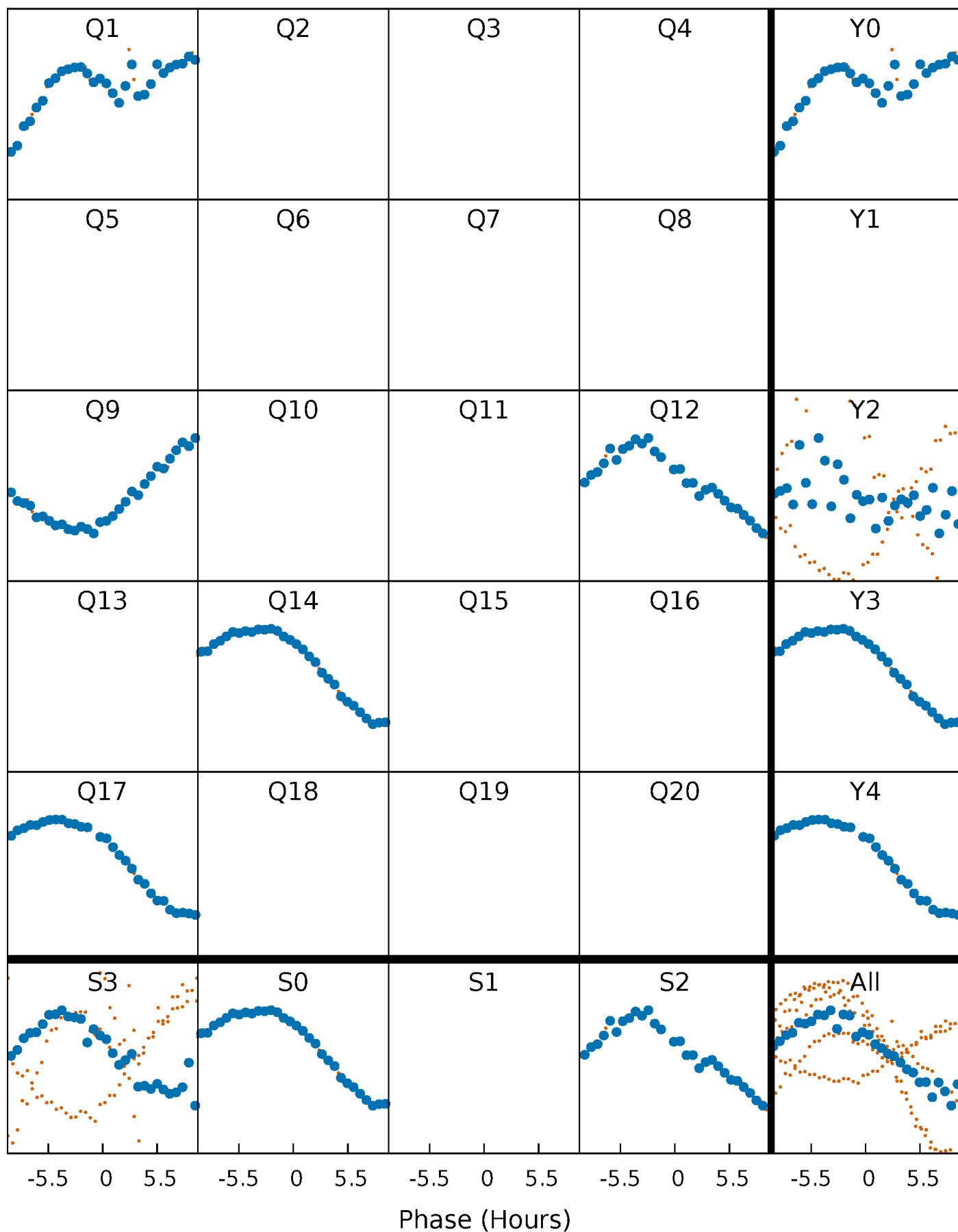


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



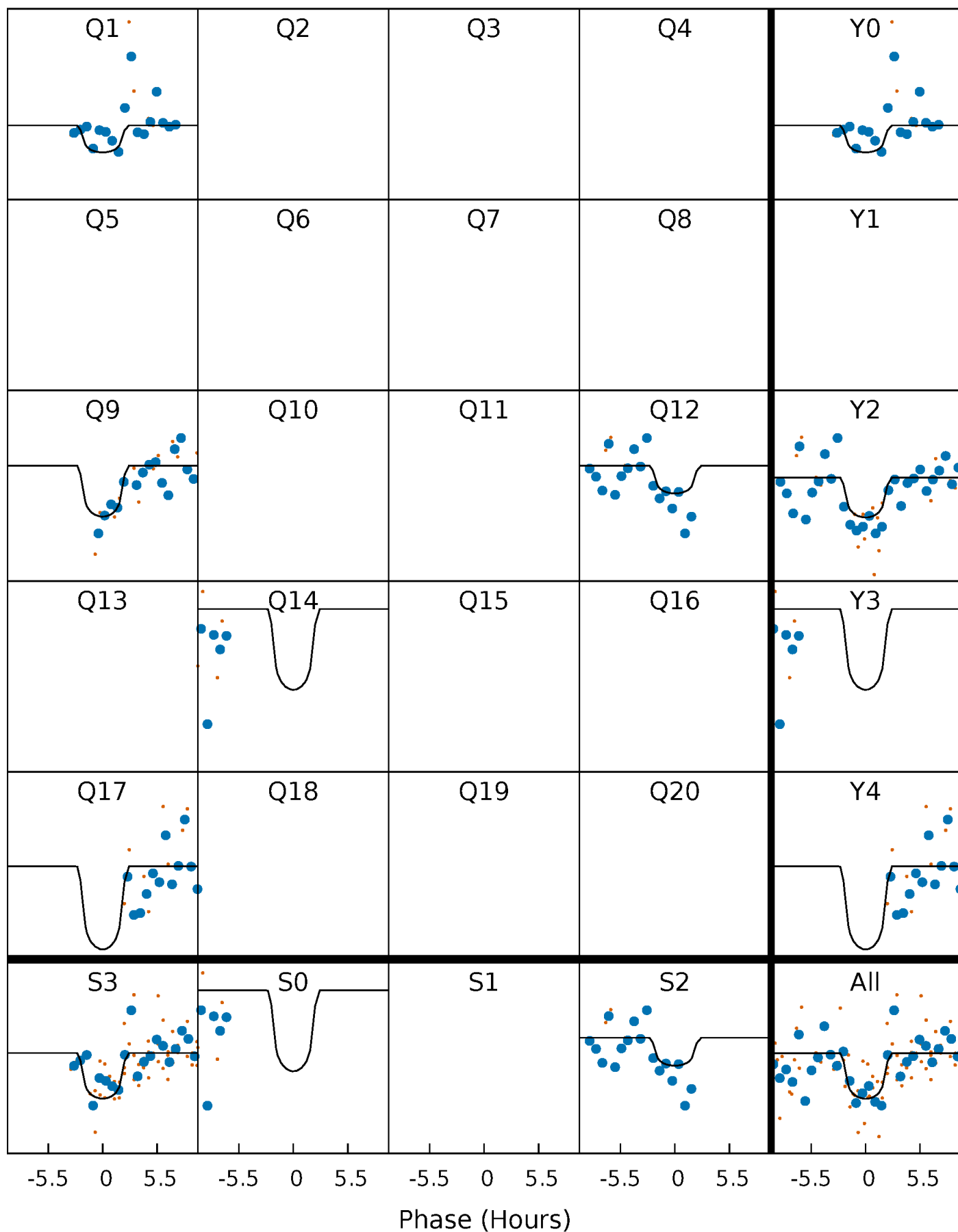
PDC Quarter-Phased Transit Curves

TCE 010161873-03 P=235.653254 Days $T_0=161.745283$ (BKJD)



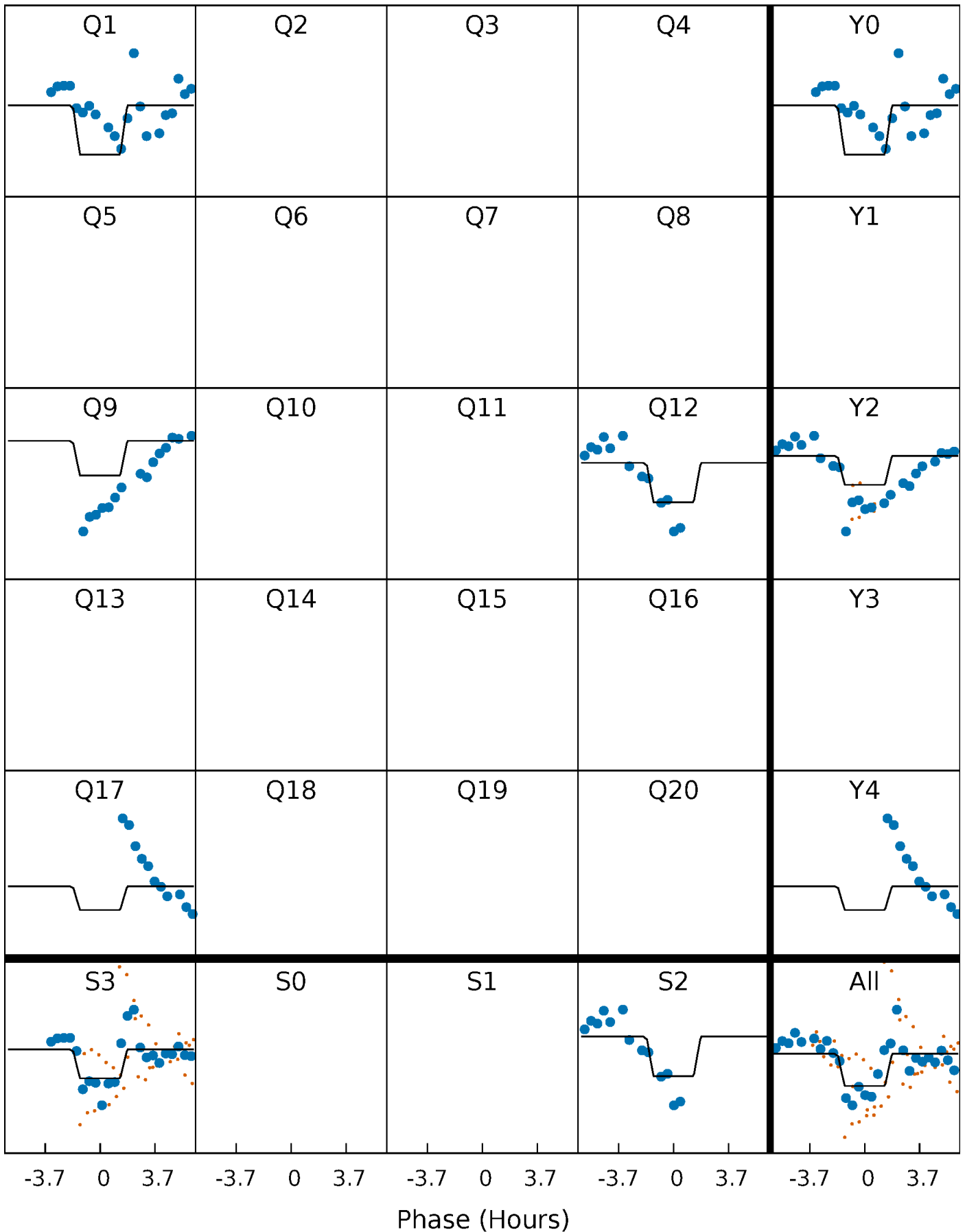
DV Quarter-Phased Transit Curves

TCE 010161873-03 $P=235.653254$ Days $T_0=161.745283$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

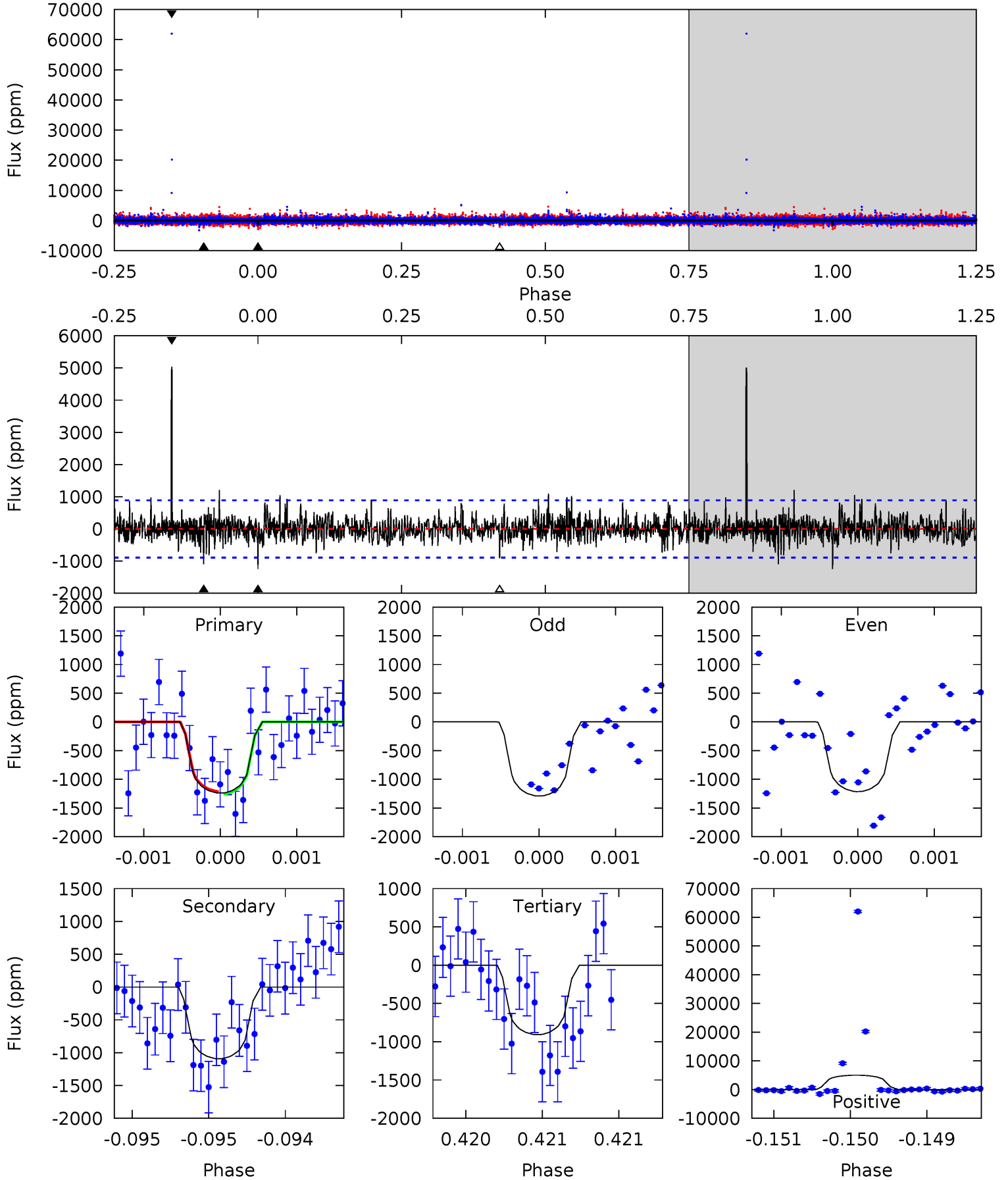
TCE 010161873-03 P=235.657383 Days $T_0=161.758059$ (BKJD)



DV Model-Shift Uniqueness Test

010161873-03, P = 235.653254 Days, E = 161.745283 Days

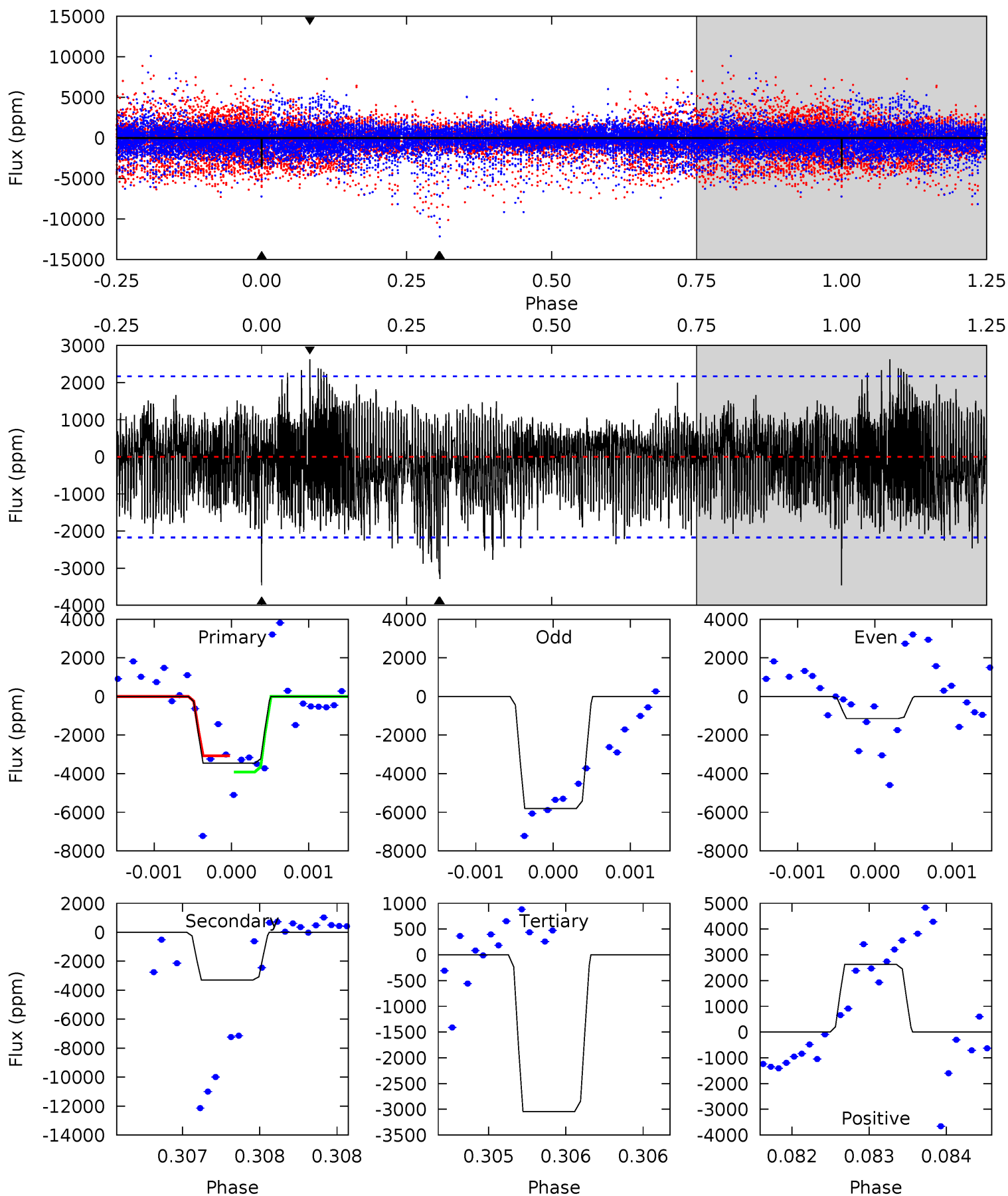
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.63	6.72	5.59	30.8	5.48	3.33	1.79	2.04	-23.2	1.13	-24.1	0.20	0.99	0.80	0.13



Alt Model-Shift Uniqueness Test

010161873-03, P = 235.657383 Days, E = 161.758059 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.81	8.38	7.75	6.69	5.53	3.41	2.02	1.06	2.11	0.63	1.69	5.52	0.23	0.43	1.03



Stellar Parameters For KIC 010161873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4530^{+134}_{-147}	$4.689^{+0.052}_{-0.032}$	$-0.880^{+0.300}_{-0.300}$	$0.554^{+0.040}_{-0.044}$	$0.548^{+0.046}_{-0.031}$	$4.532^{+1.038}_{-0.581}$
	+3%/-3%	+1%/-1%	+34%/-34%	+7%/-8%	+8%/-6%	+23%/-13%
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 010161873-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1092 ± 162	$2.26^{+0.93}_{-0.89}$	265^{+9}_{-10}	4312^{+958}_{-524}	44379^{+77372}_{-22328}
Alt.	-3293 ± 393	$3.16^{+0.97}_{-0.93}$	264^{+10}_{-9}	4685^{+787}_{-495}	67357^{+70585}_{-27758}

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

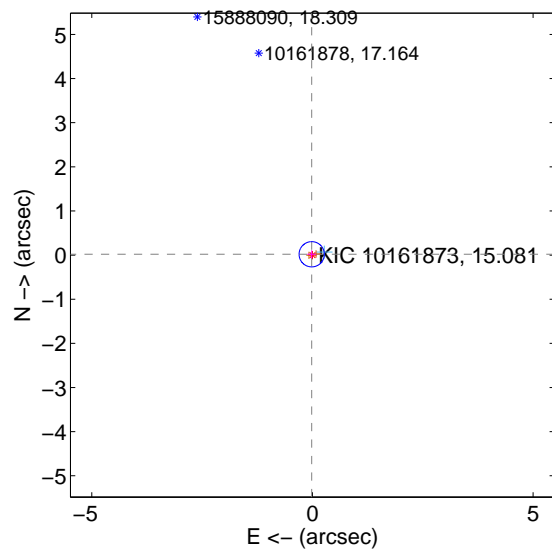
Supplemental centroid analysis for 010161873-03. Kepler magnitude: 15.08. Transit SNR 7.01

There are 1 quarters with good PRF difference image offsets

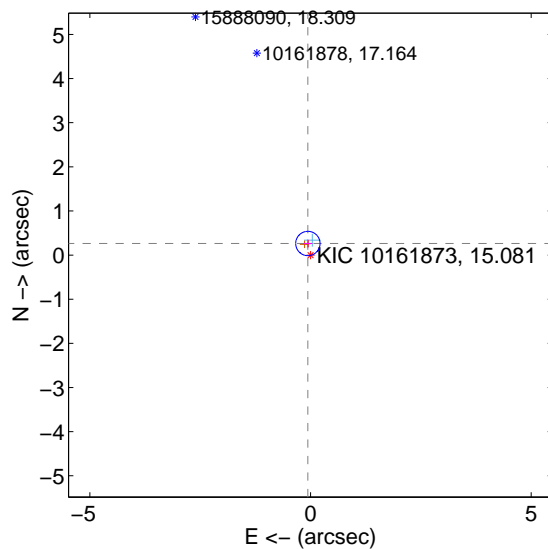
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.025 ± 0.095	0.26	0.017 ± 0.100	0.019 ± 0.091
PRF-fit source offset from KIC position	0.270 ± 0.092	2.93	0.060 ± 0.100	0.263 ± 0.091
photometric centroid source offset	1.75 ± 0.94	1.86	1.05 ± 0.93	1.40 ± 0.95

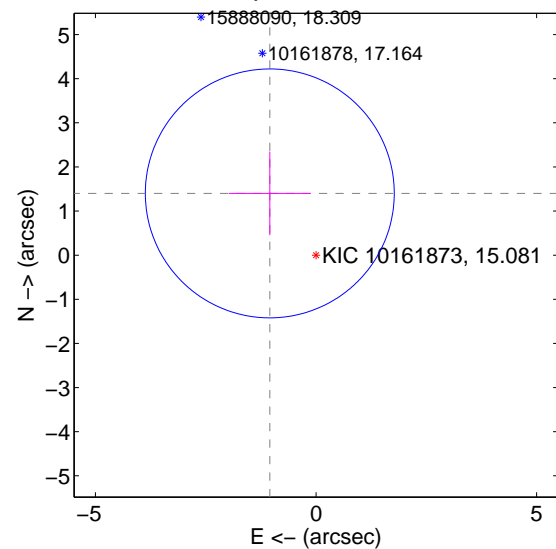
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

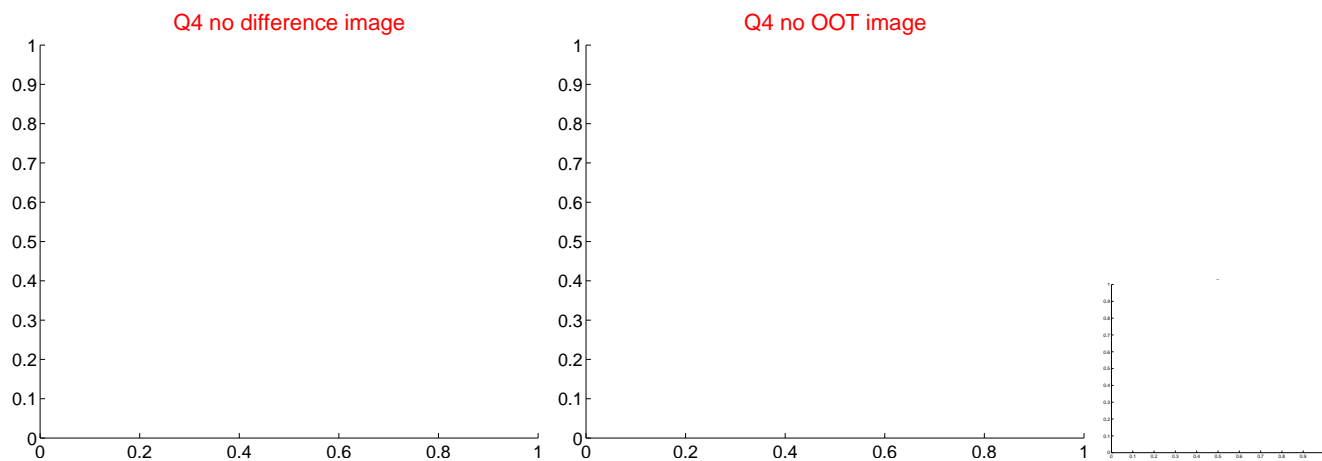
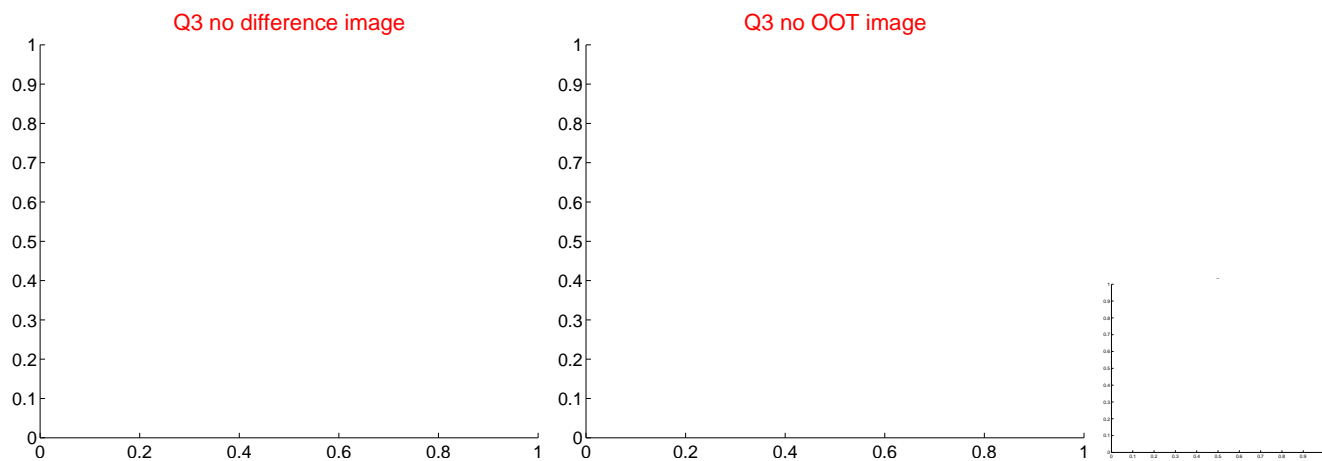
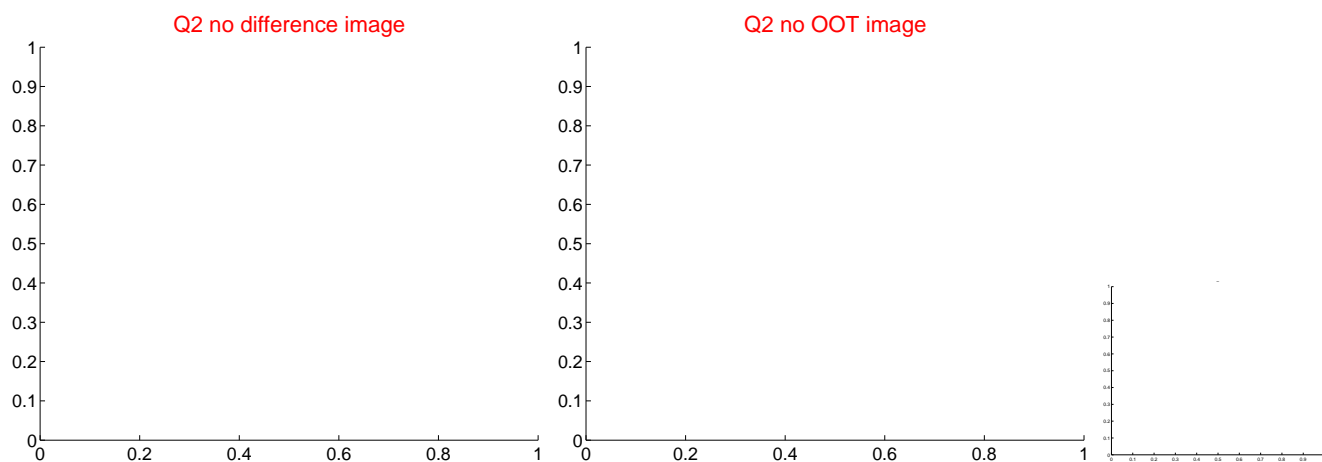
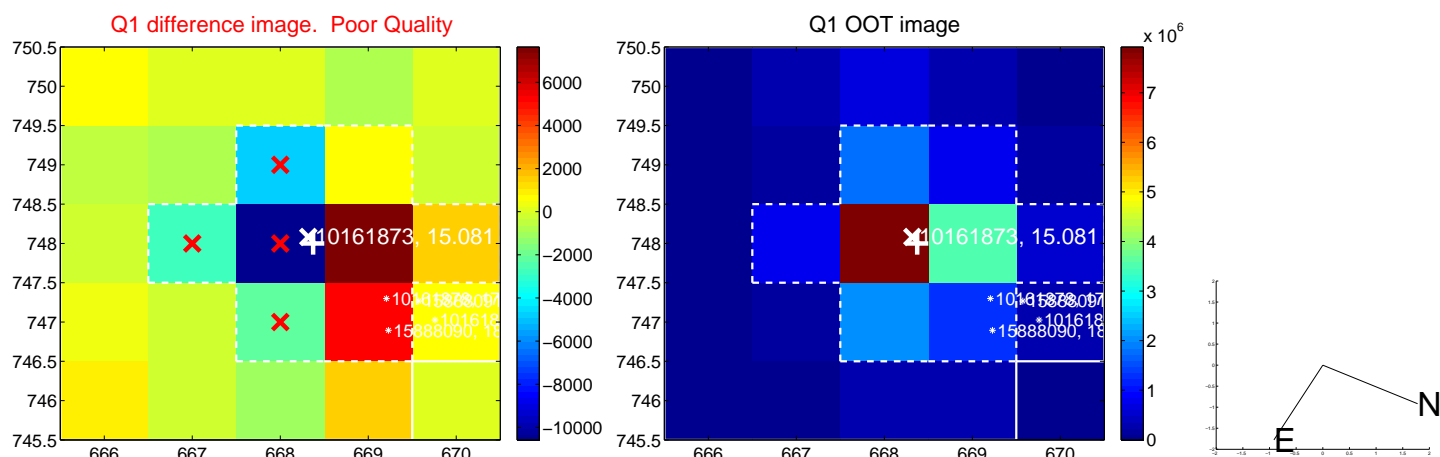


offset from photometric centroids

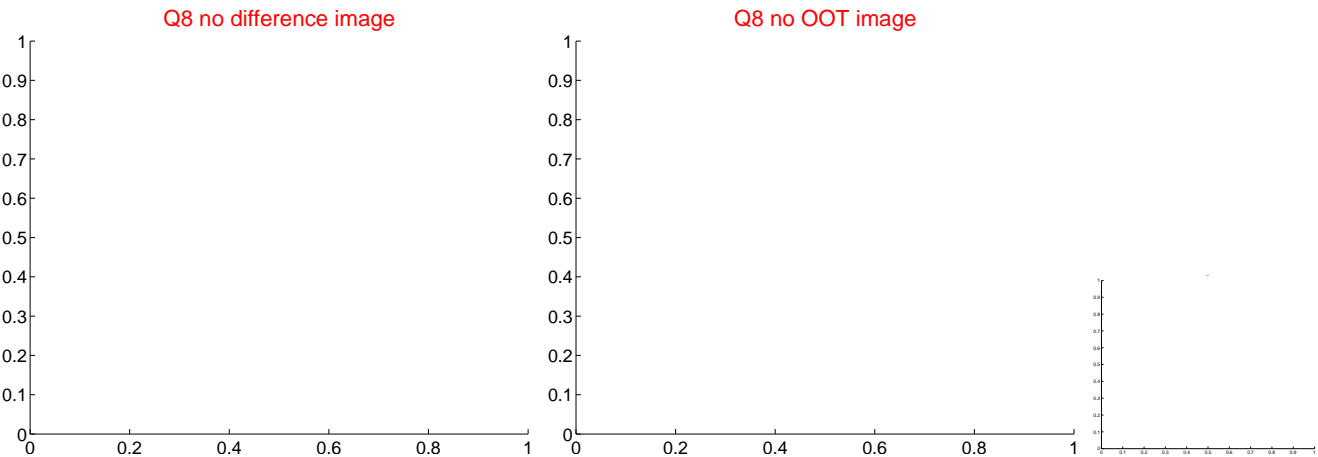
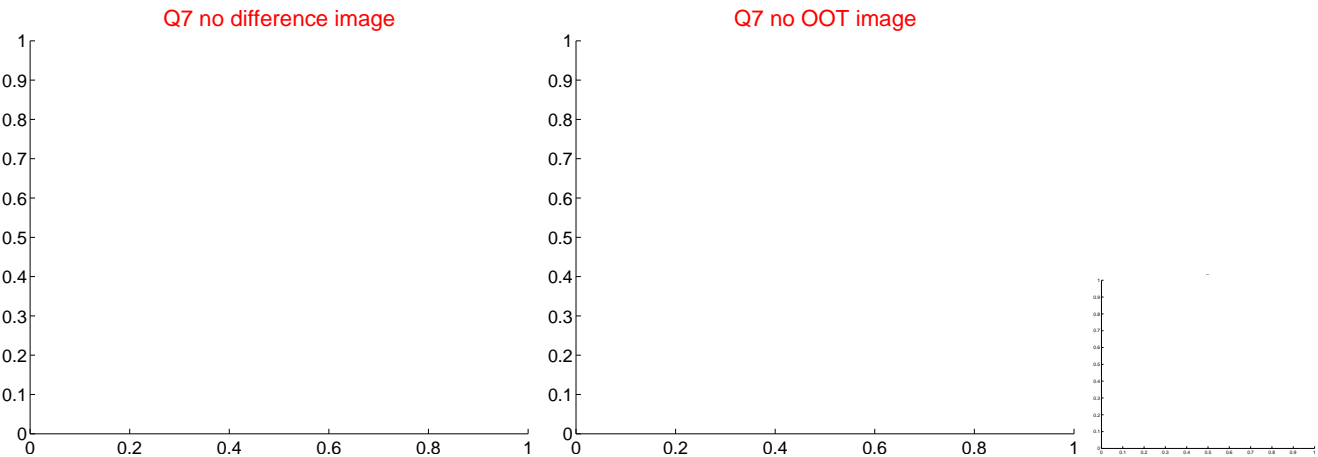
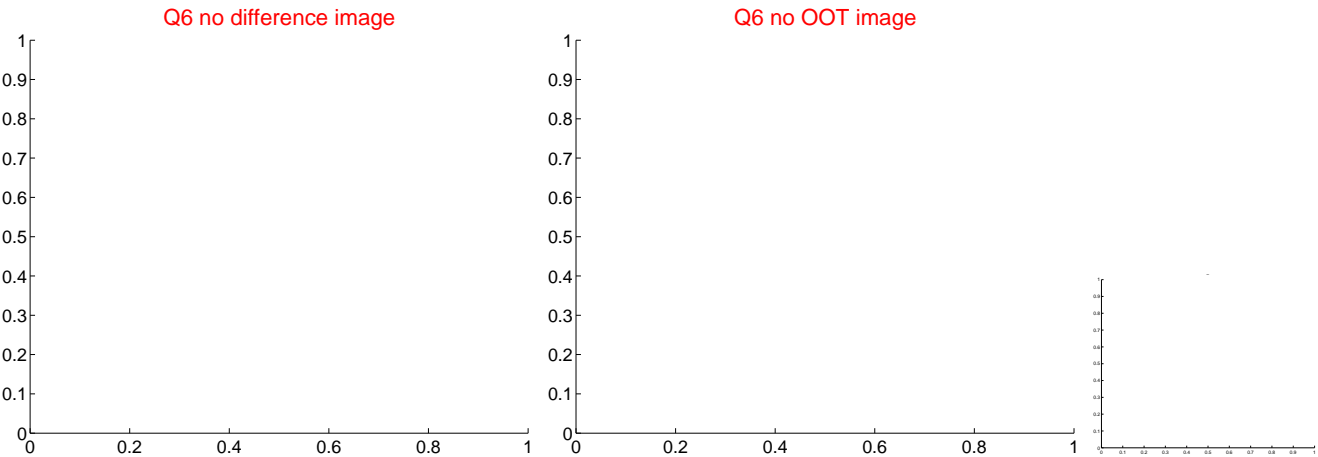
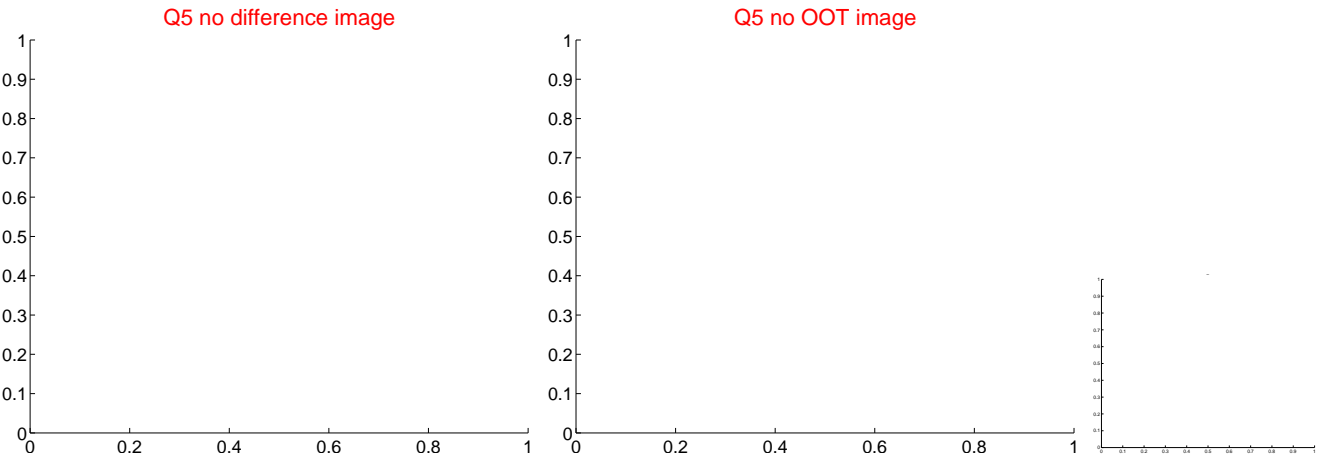


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

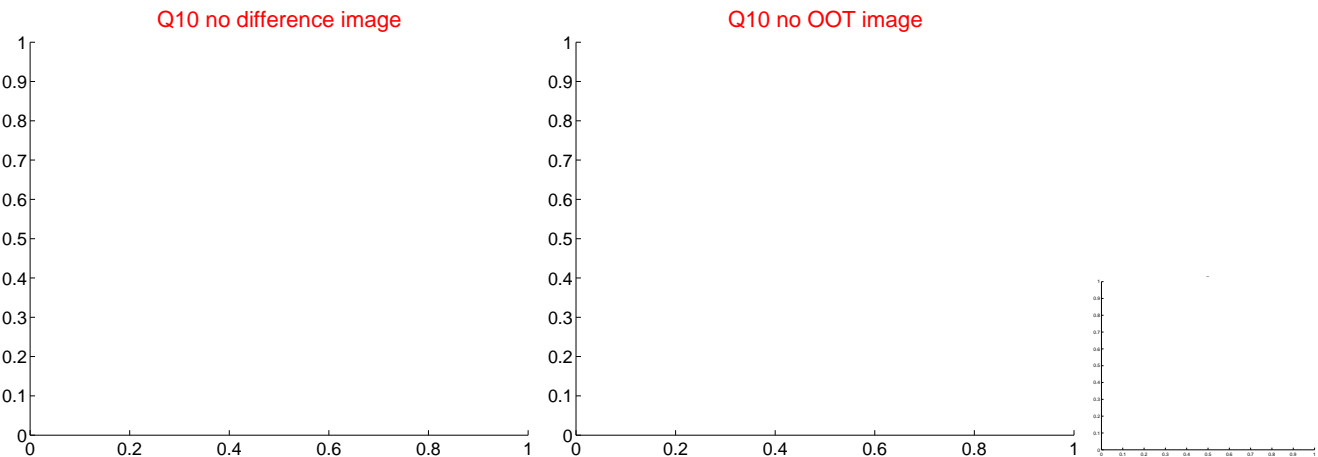
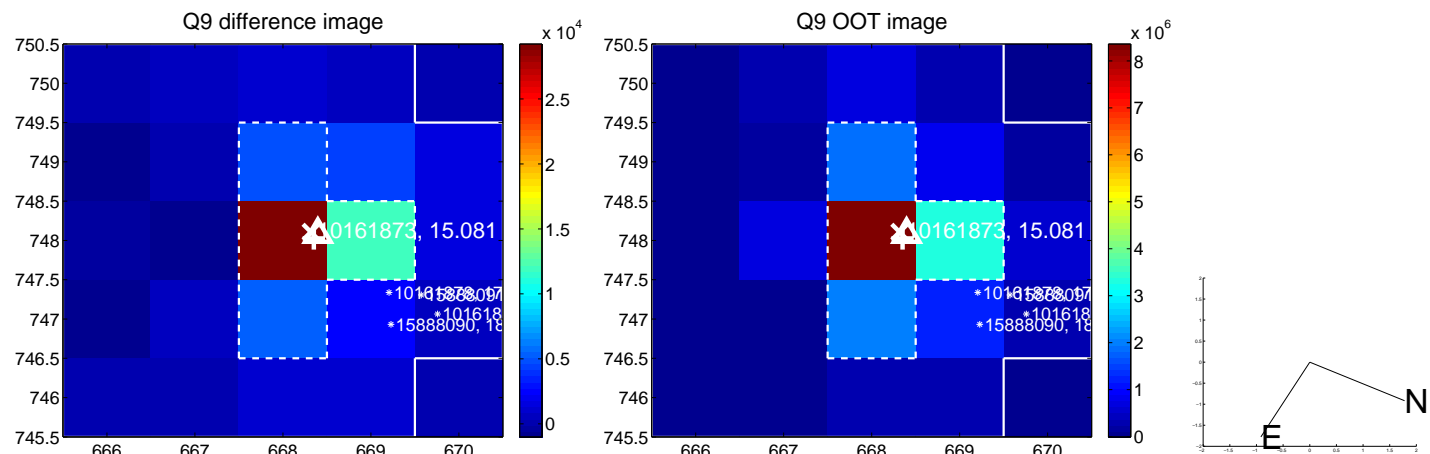
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



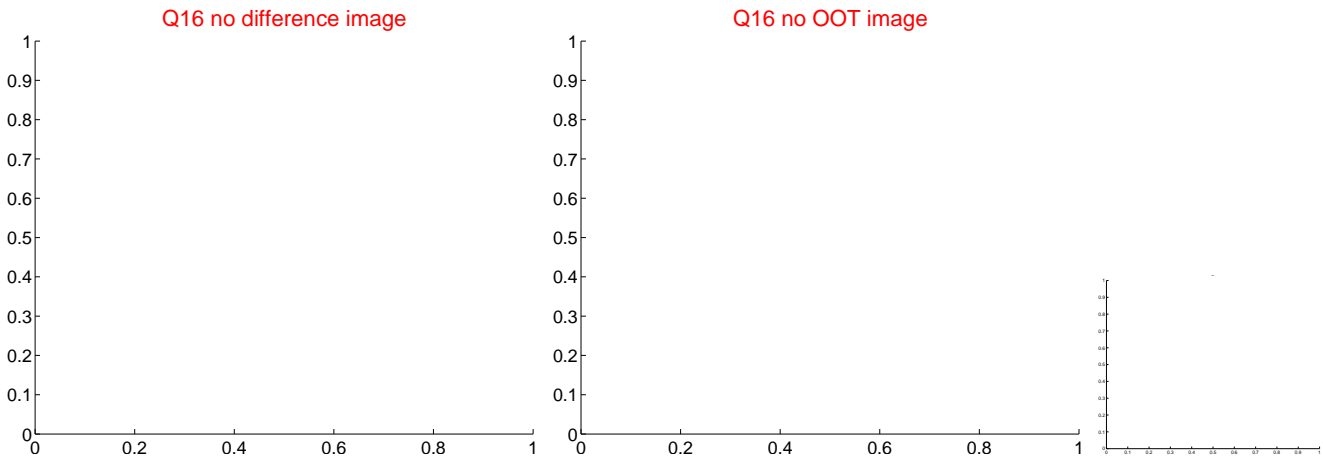
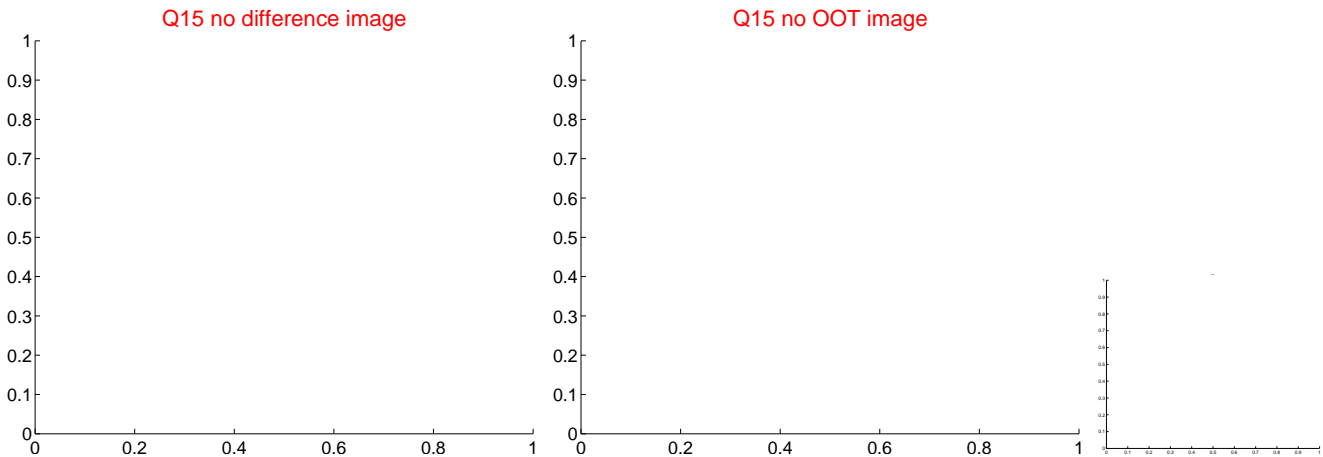
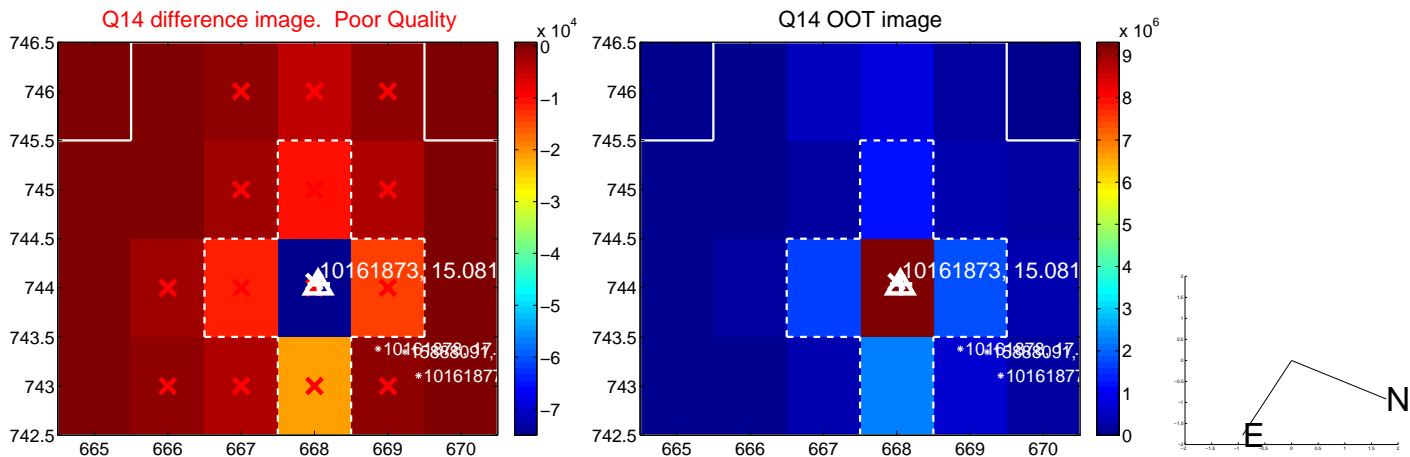
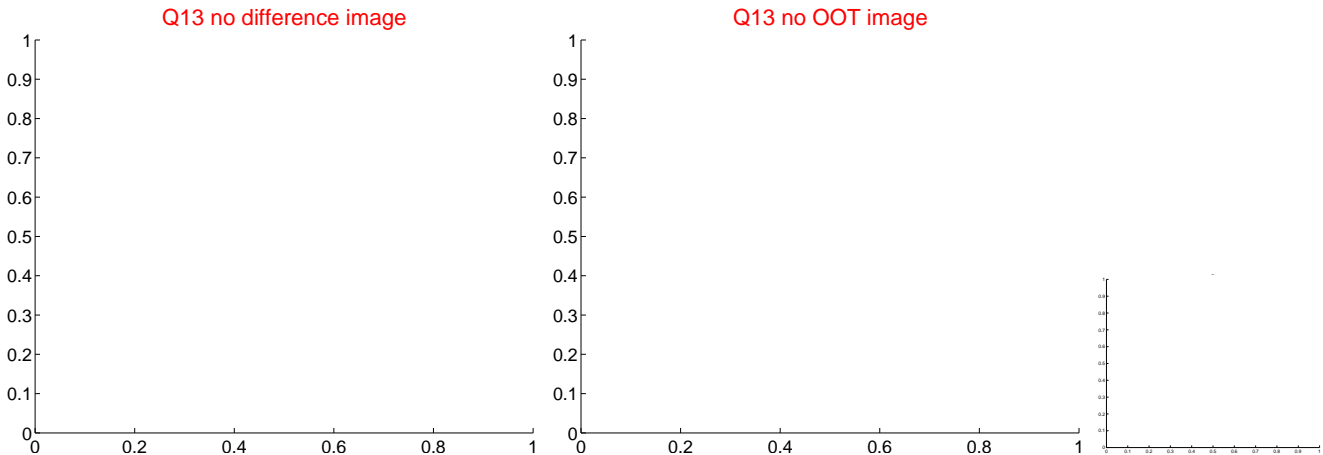
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



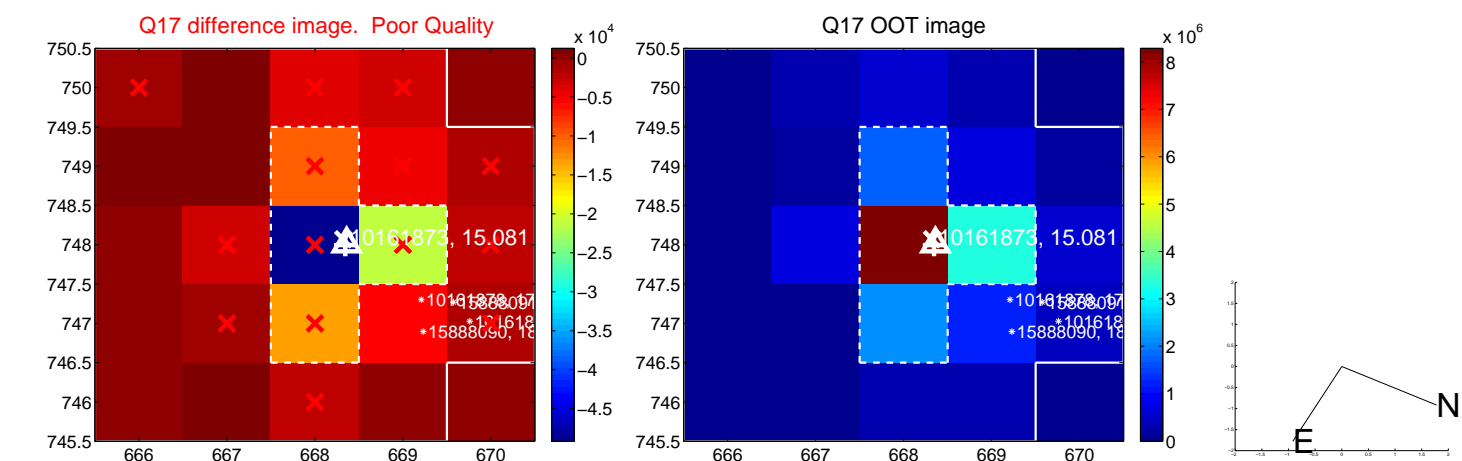
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



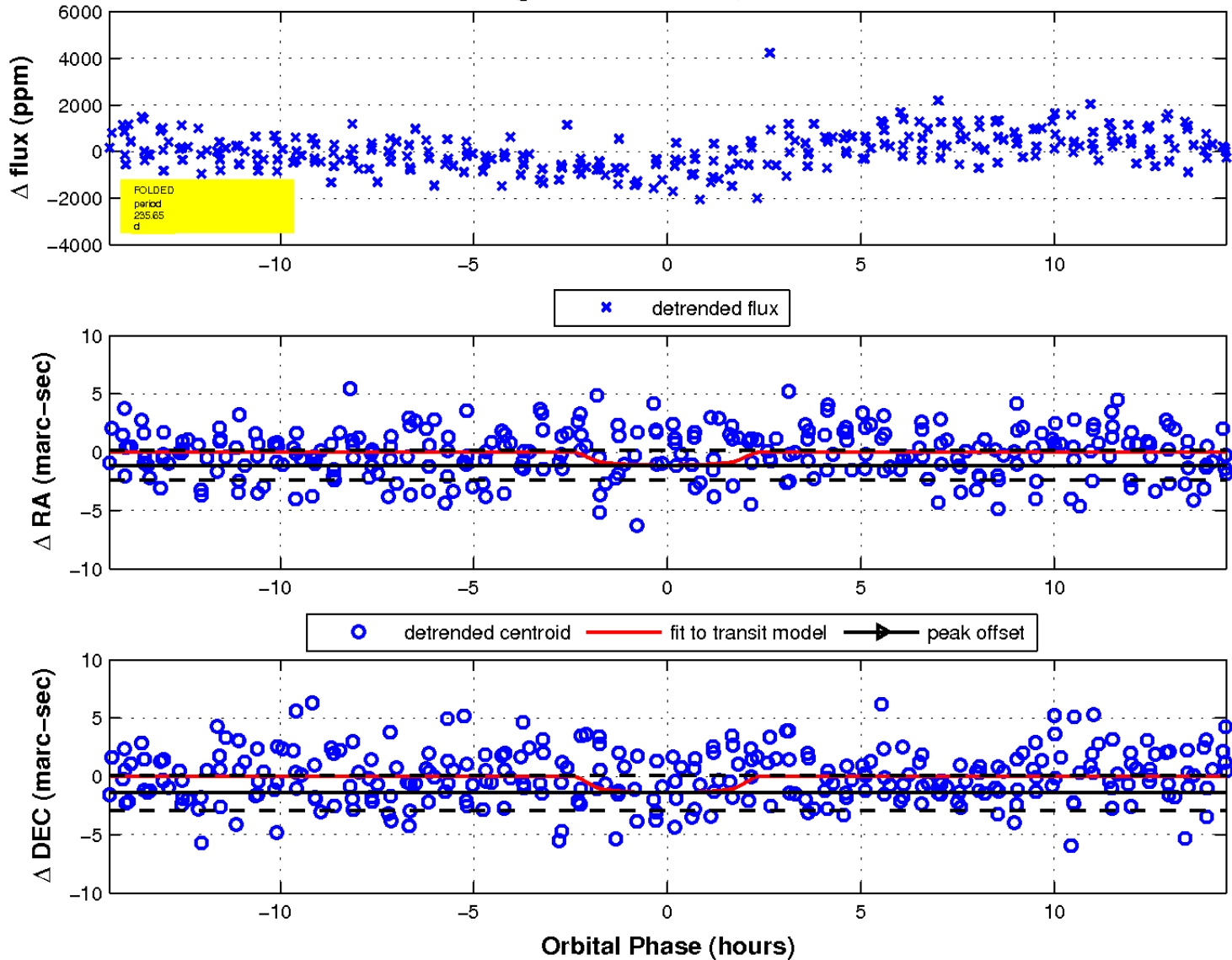
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

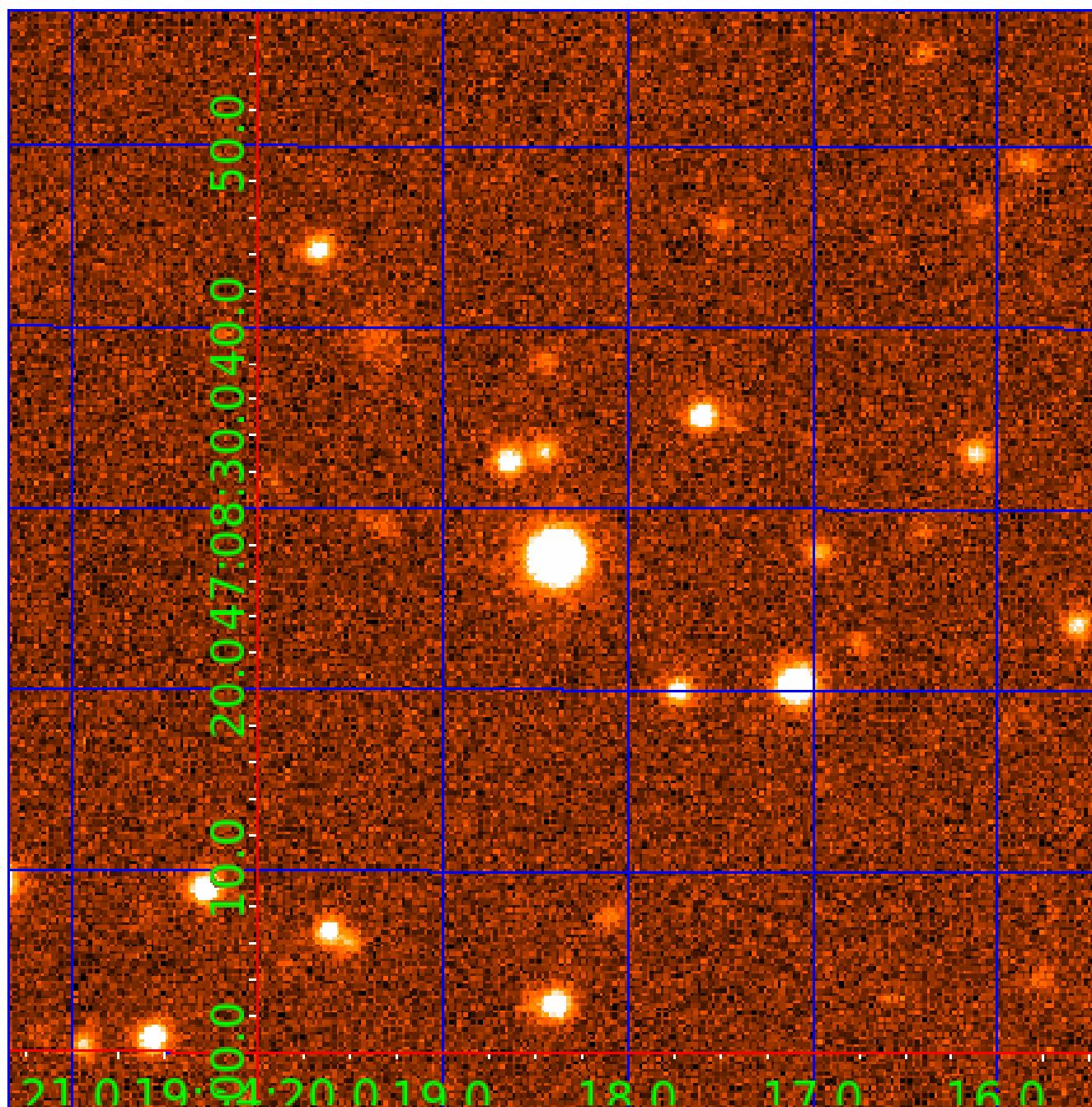


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 010161873

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})
010161873-01	OBS	No	1.136768	131.702800	1.9	5.339	8.6	0.2	0.55	4530	0.08	380.83
010161873-02	OBS	No	63.970081	158.395416	426.9	9.243	9.2	4.6	0.55	4530	1.21	1.77
010161873-03	OBS	No	235.653254	161.745283	1183.4	4.821	8.3	7.0	0.55	4530	2.26	0.31
010161873-04	OBS	No	239.037733	315.025159	1222.0	6.232	7.4	7.3	0.55	4530	1.96	0.30
010161873-05	OBS	No	118.894286	135.604932	665.5	8.302	7.3	6.4	0.55	4530	1.58	0.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010161873-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010161873-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010161873-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

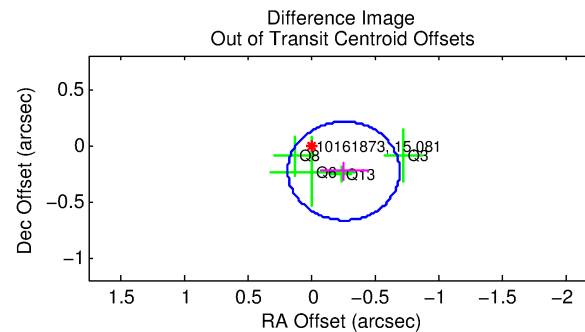
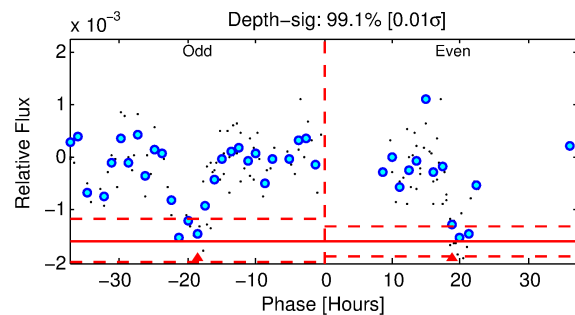
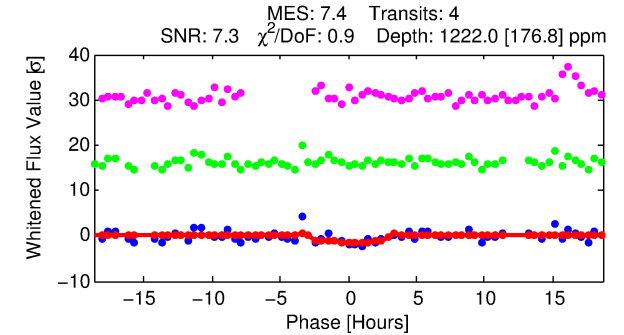
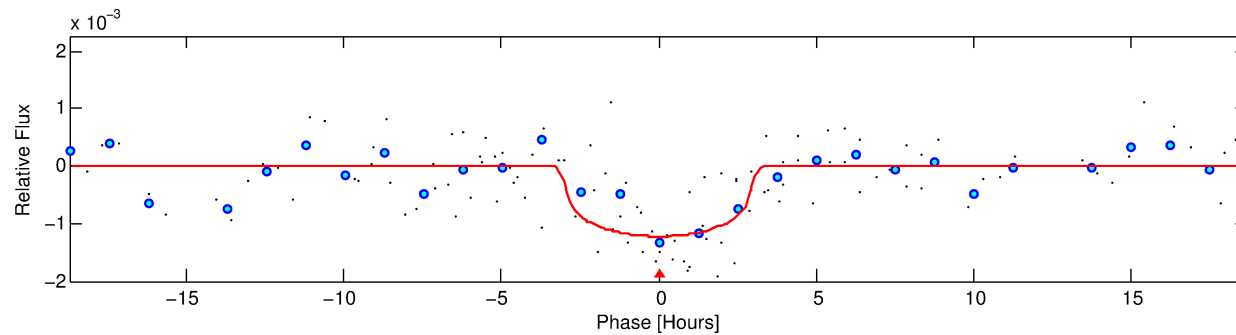
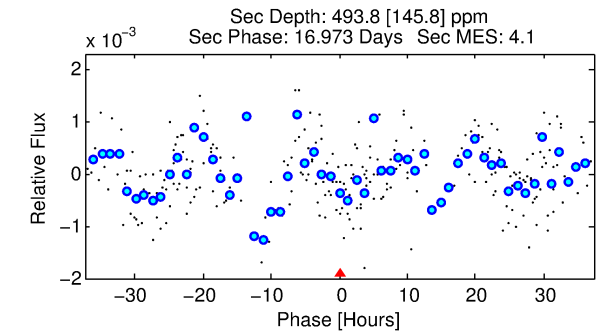
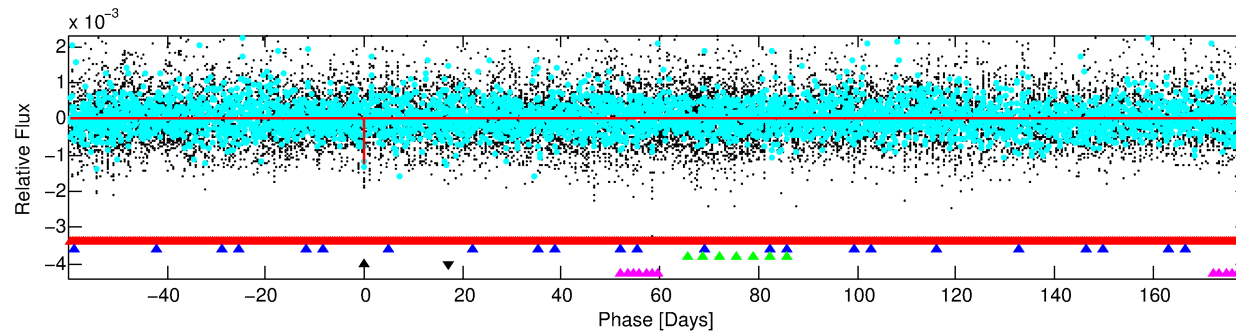
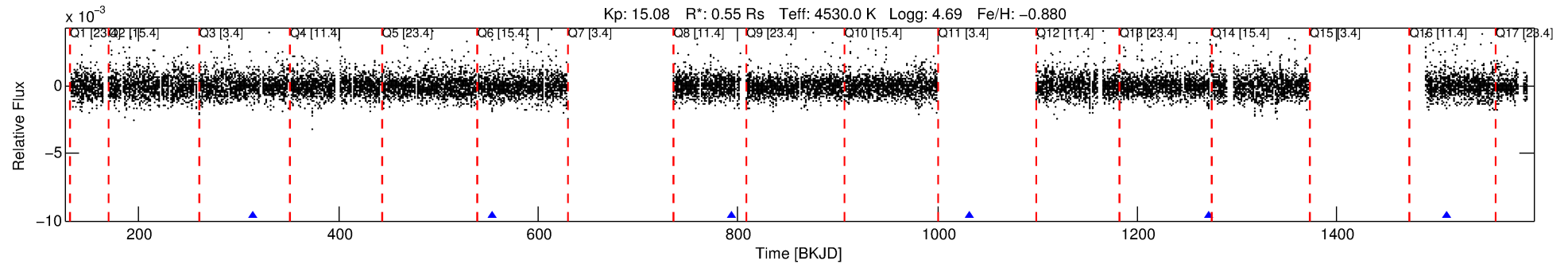
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010161873-04

No Significant Match Found

DV One-Page Summary

KIC: 10161873 Candidate: 4 of 5 Period: 239.038 d



DV Fit Results:

Period = 239.03773 [0.00391] d
Epoch = 315.0252 [0.0113] BKJD
Rp/R* = 0.0325 [0.0684]
a/R* = 260.01 [1883.96]
b = 0.53 [10.08]
Seff = 0.30 [0.05]
Teq = 189 [8] K
Rp = 1.96 [4.14] Re
a = 0.6166 [0.0409] AU
Ag = 26763.26 [112965.03] [0.24 σ]
Teffp = 3746 [3954] K [0.90 σ]

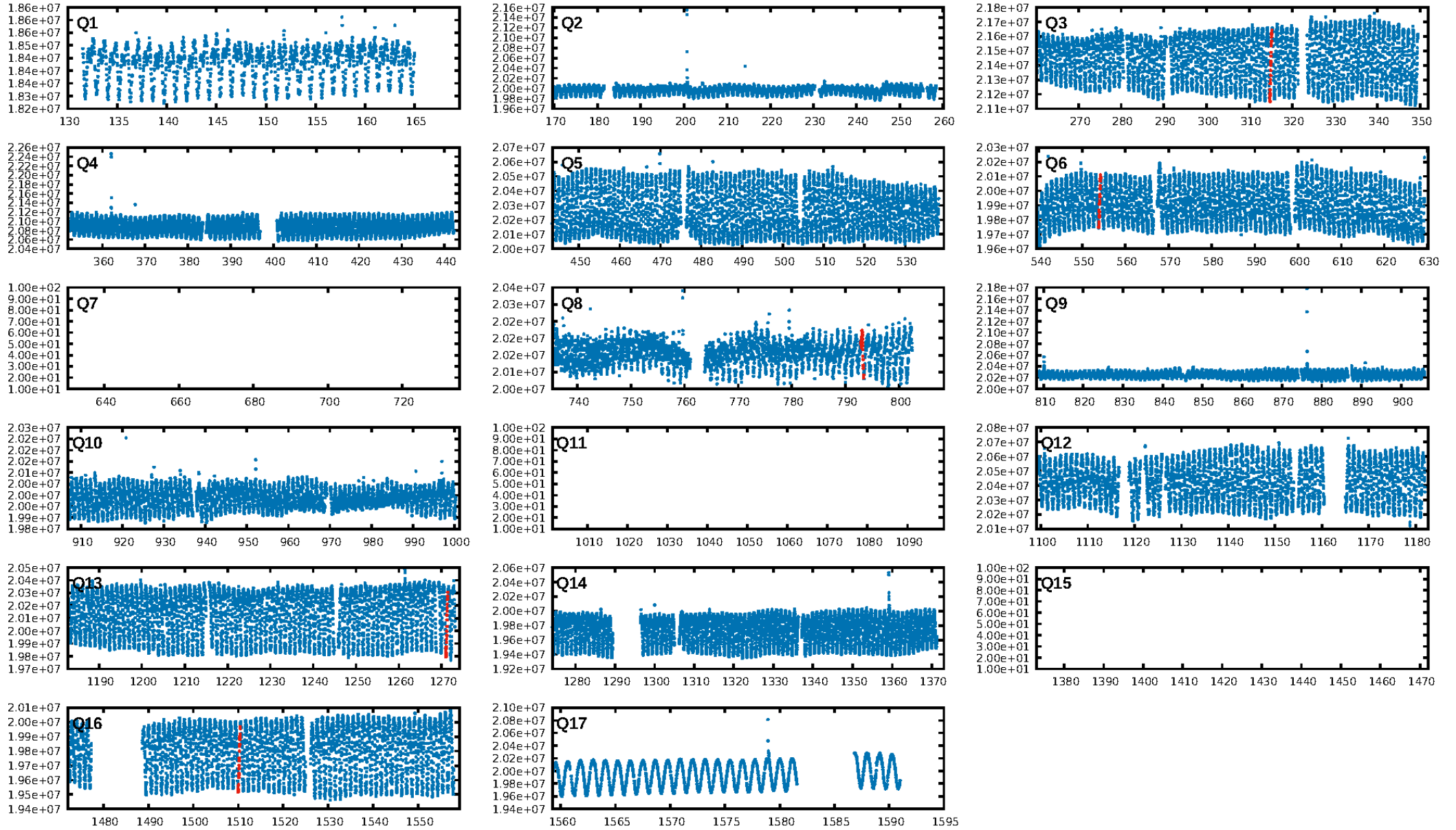
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.31 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 67.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.16e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.916
Centroid-sig: 43.2%
Centroid-so: 0.730 arcsec [0.85 σ]
OotOffset-rm: 0.346 arcsec [2.36 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 0.174 arcsec [1.39 σ]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/4]

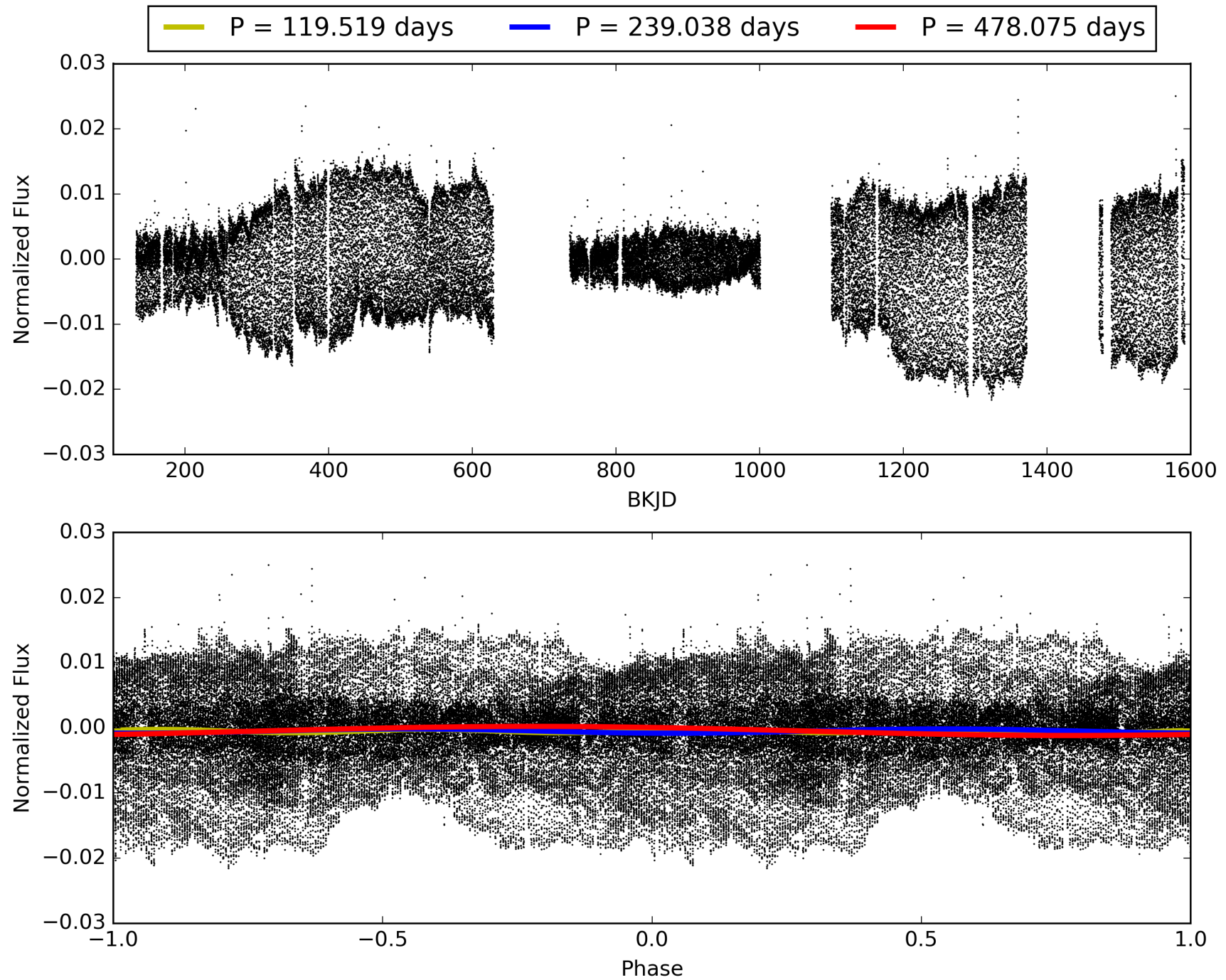
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:43:35 Z

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

TCE 010161873-04, PDC Light Curves

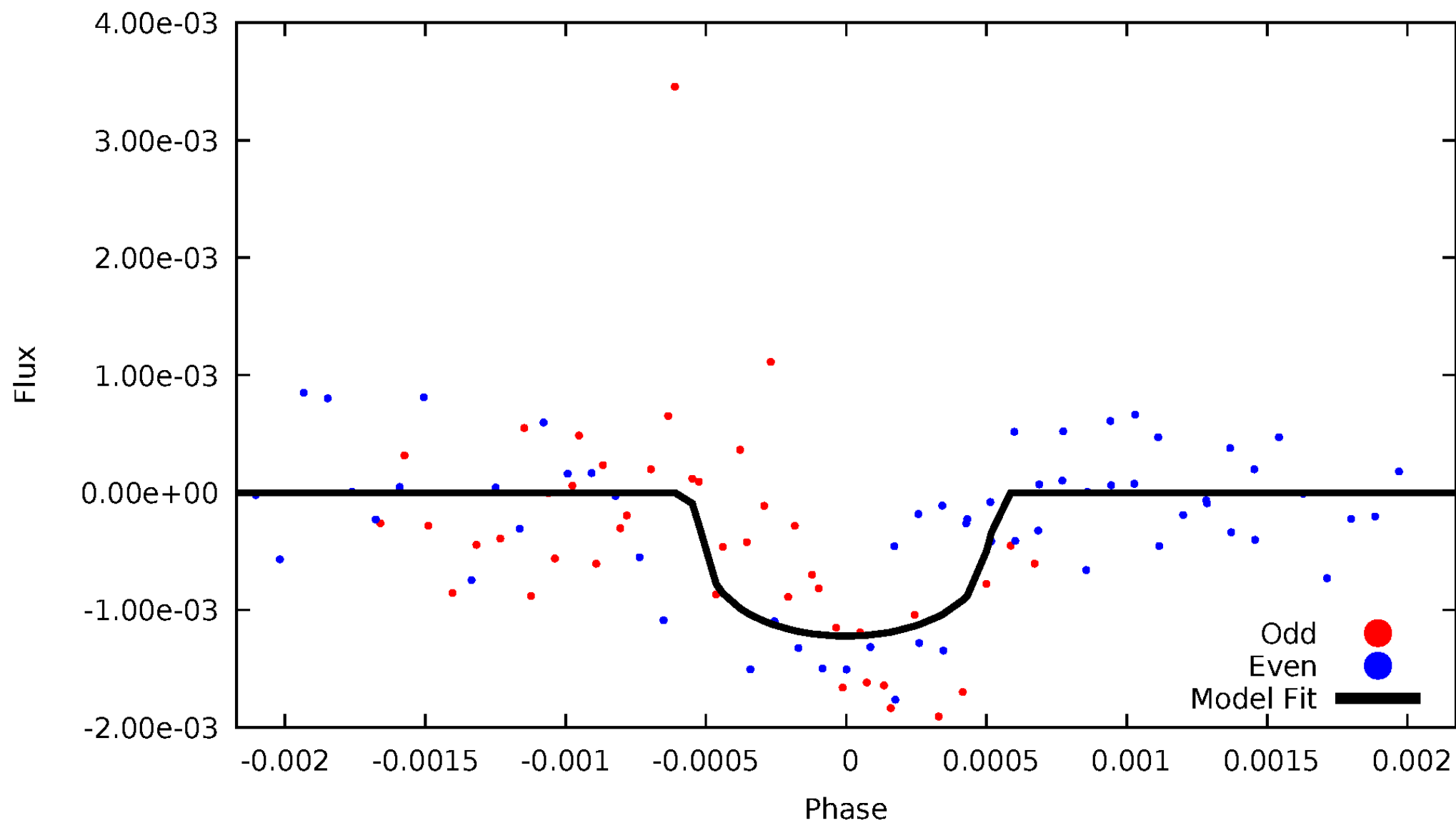


TCE 010161873-04



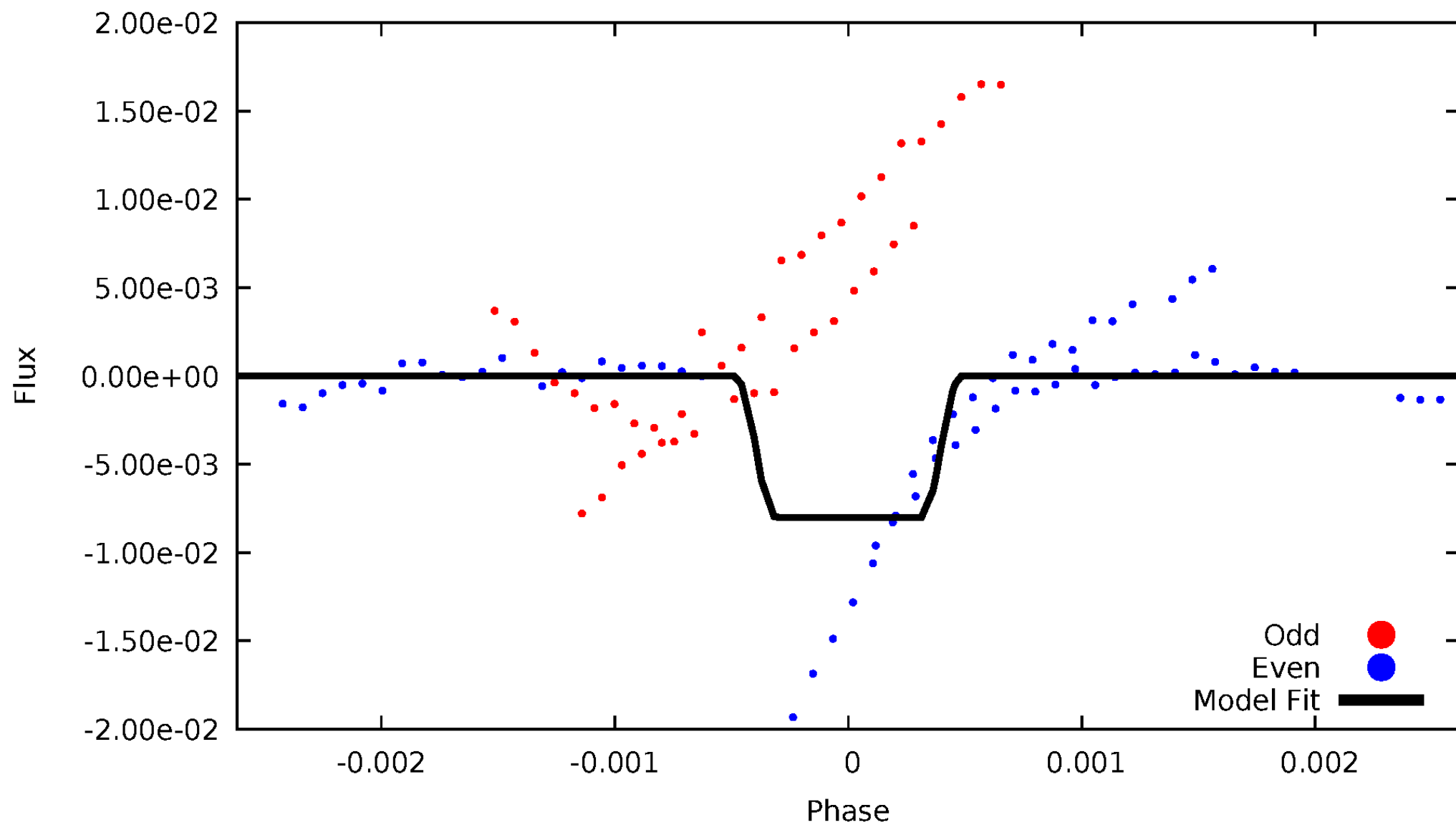
DV Odd/Even

TCE 010161873-04



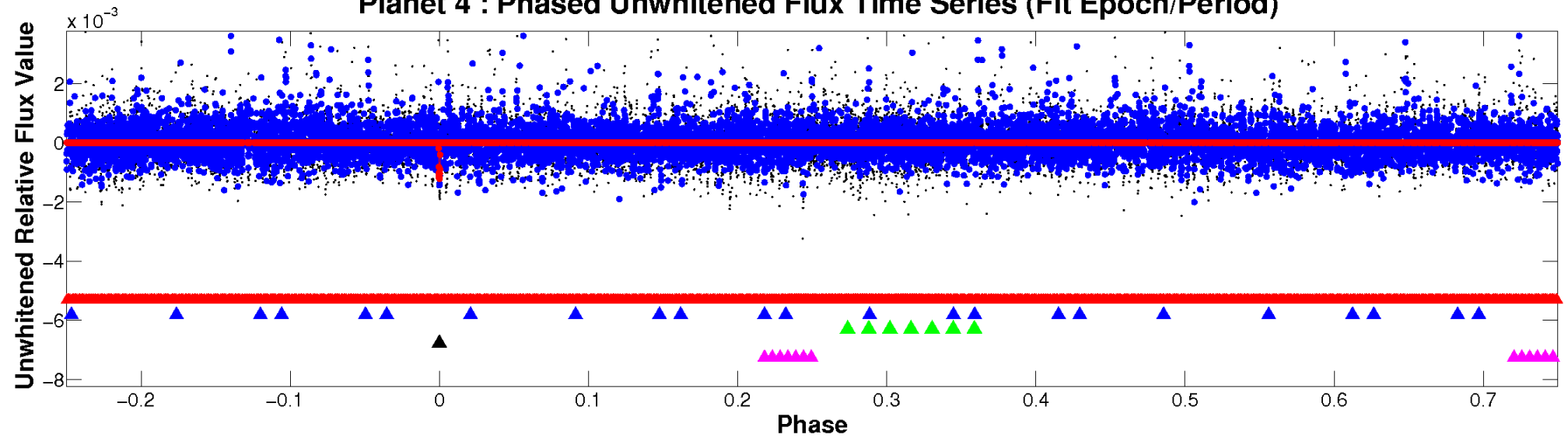
ALT Odd/Even

TCE 010161873-04

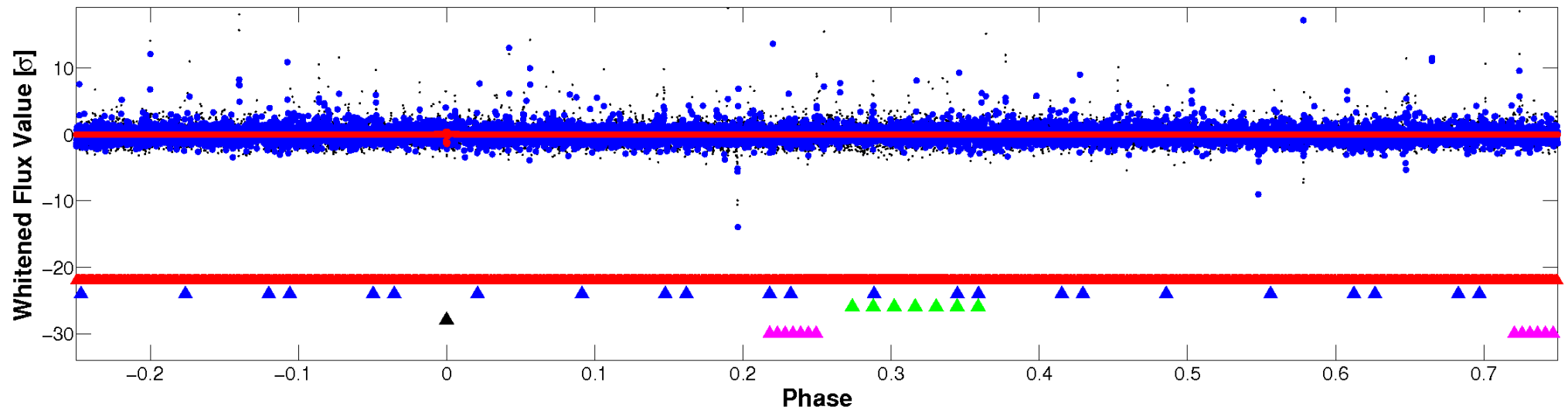


Non-Whitened Vs. Whitened Light Curve

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

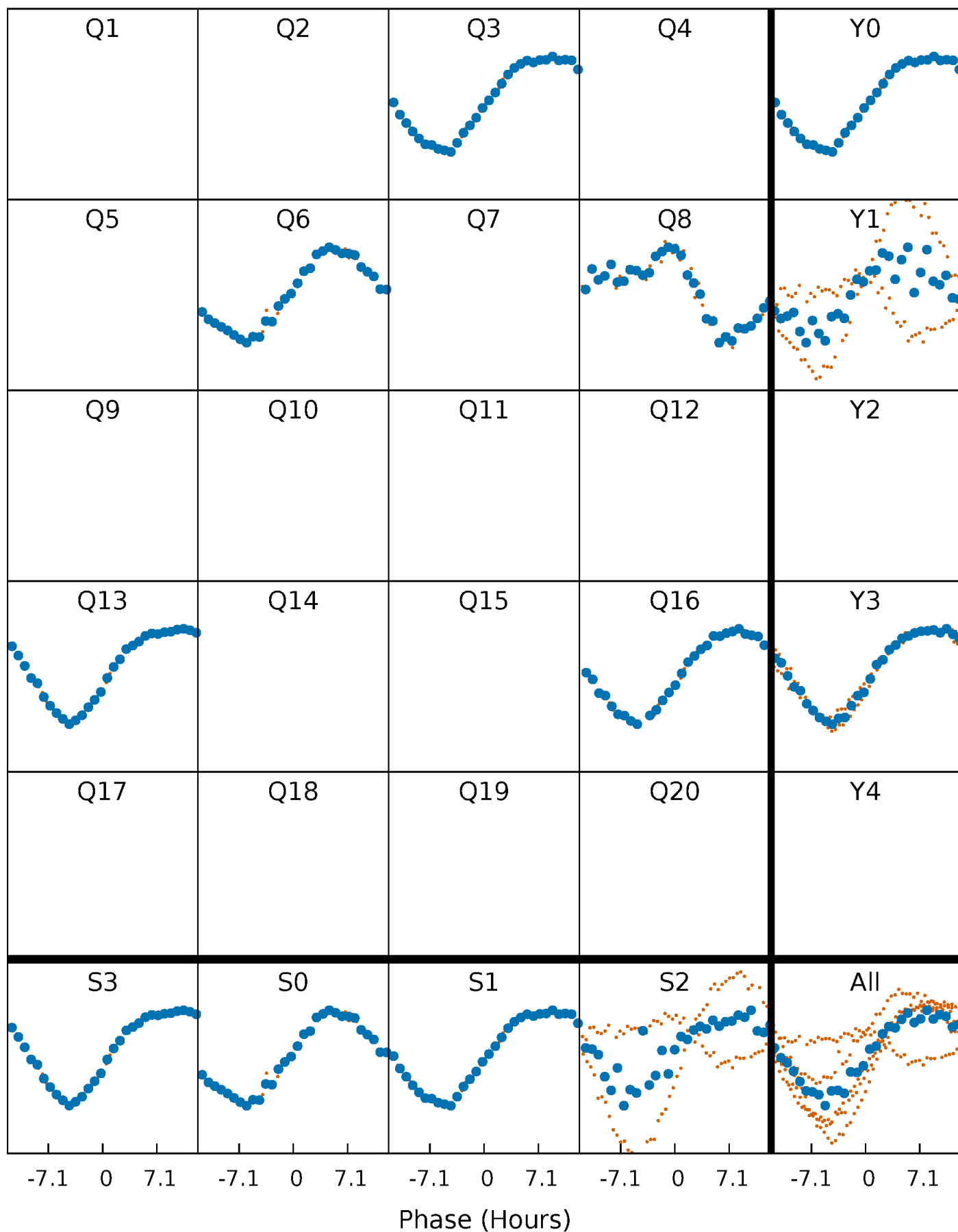


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



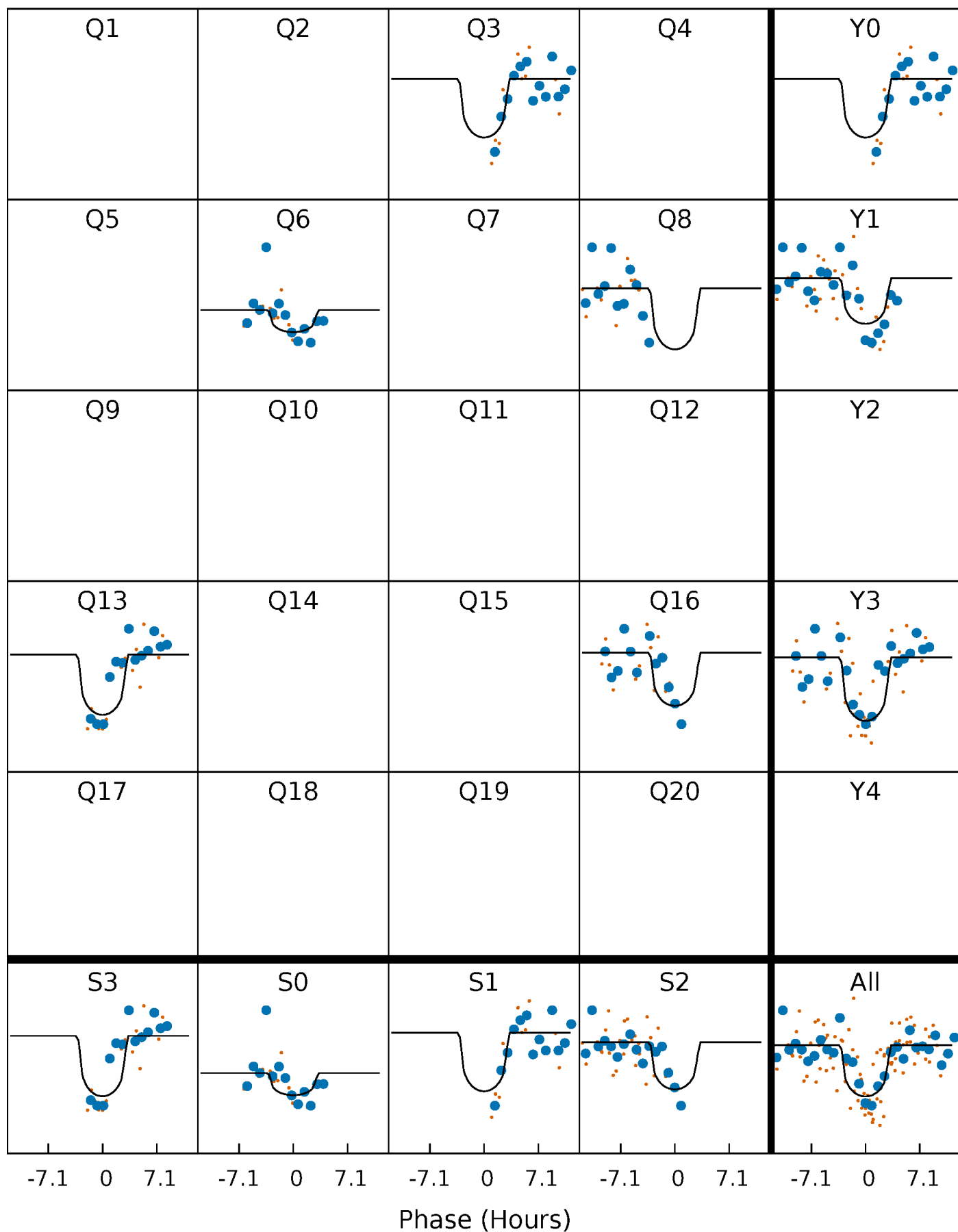
PDC Quarter-Phased Transit Curves

TCE 010161873-04 P=239.037734 Days $T_0=315.025159$ (BKJD)



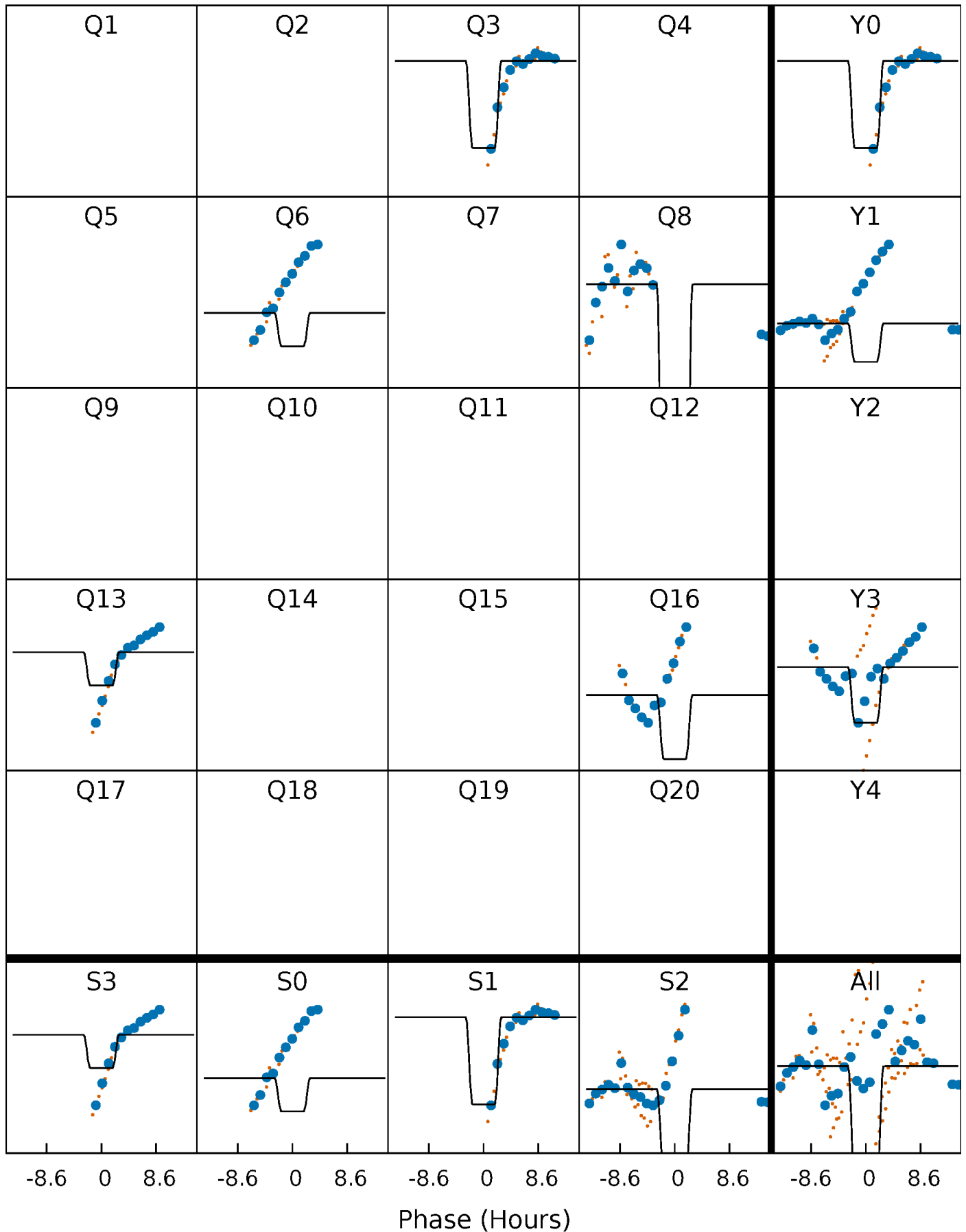
DV Quarter-Phased Transit Curves

TCE 010161873-04 P=239.037734 Days $T_0=315.025159$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

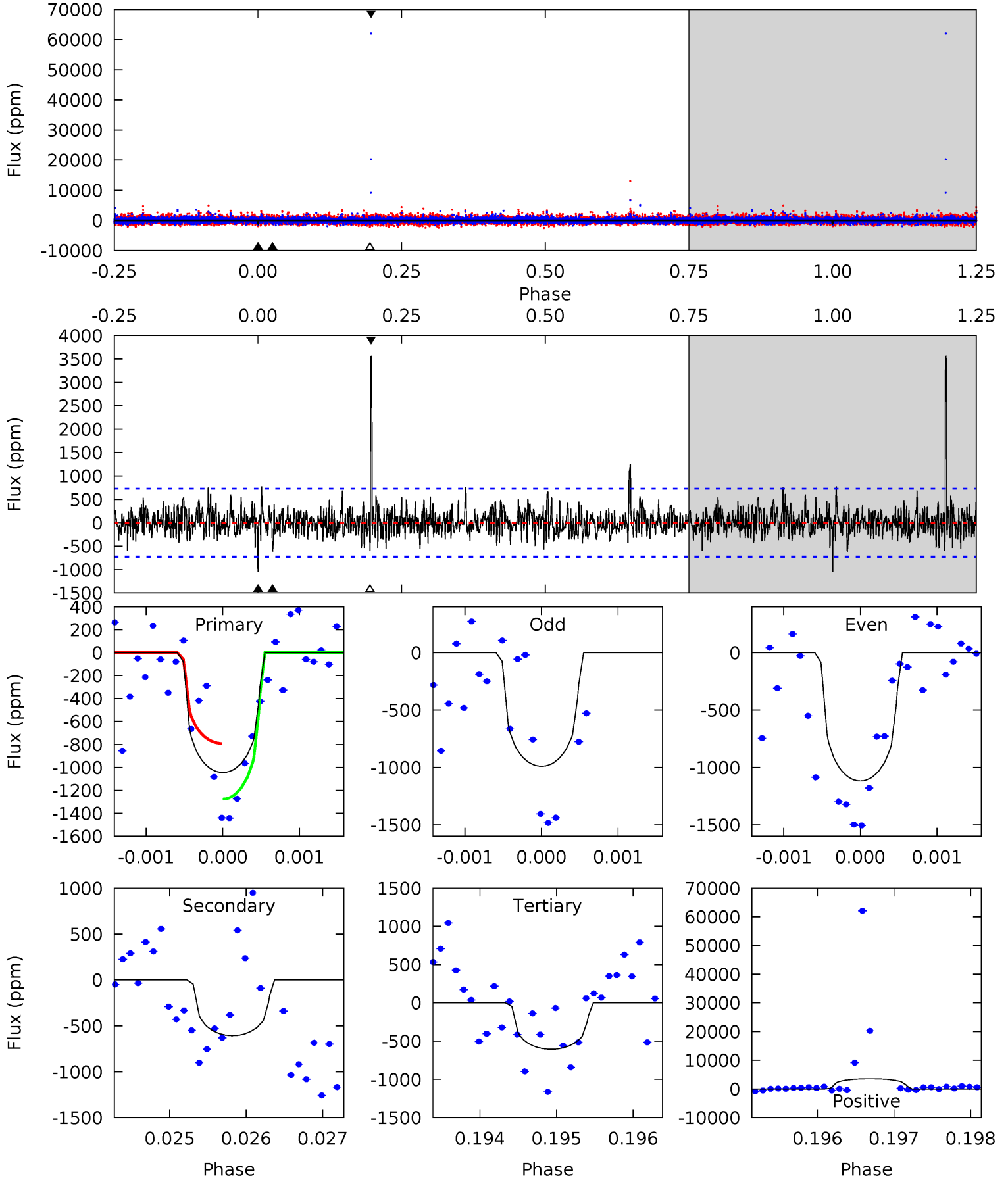
TCE 010161873-04 P=239.028007 Days $T_0=315.039009$ (BKJD)



DV Model-Shift Uniqueness Test

010161873-04, P = 239.037734 Days, E = 75.987425 Days

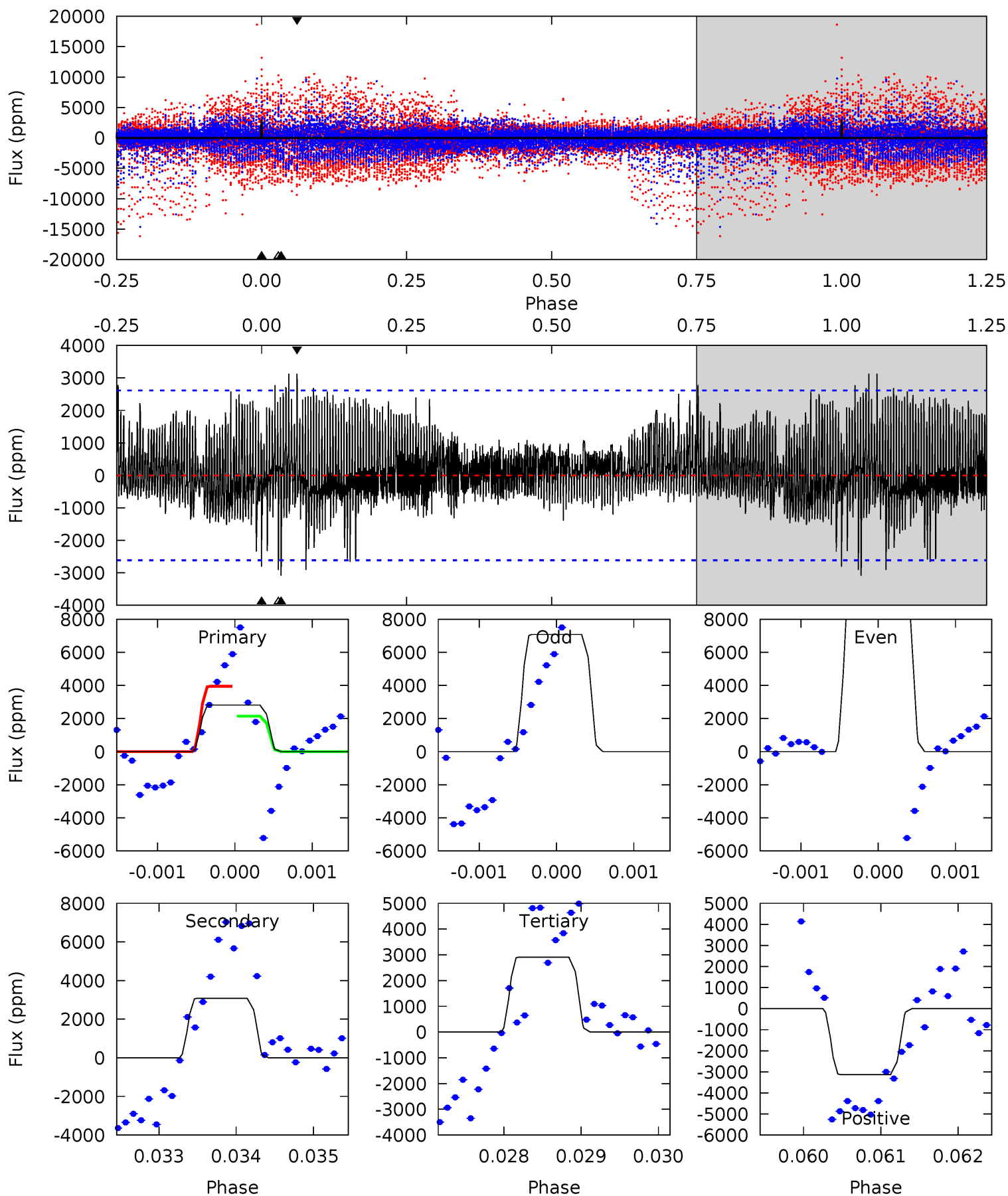
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.82	4.55	4.53	26.7	5.44	3.27	1.81	3.29	-18.9	0.01	-22.1	0.46	1.04	0.77	1.85



Alt Model-Shift Uniqueness Test

010161873-04, P = 239.028007 Days, E = 76.011002 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.88	6.45	6.09	6.55	5.47	3.32	1.72	-0.21	-0.67	0.36	-0.10	3.70	0.75	0.50	1.83



Stellar Parameters For KIC 010161873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4530^{+134}_{-147}	$4.689^{+0.052}_{-0.032}$	$-0.880^{+0.300}_{-0.300}$	$0.554^{+0.040}_{-0.044}$	$0.548^{+0.046}_{-0.031}$	$4.532^{+1.038}_{-0.581}$
	+3%/-3%	+1%/-1%	+34%/-34%	+7%/-8%	+8%/-6%	+23%/-13%
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 010161873-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-607 ± 134	$3.57^{+3.41}_{-2.39}$	264^{+9}_{-9}	3345^{+1553}_{-586}	10328^{+76468}_{-7826}
Alt.	-3084 ± 478	$5.68^{+3.71}_{-3.43}$	264^{+9}_{-10}	3733^{+1507}_{-567}	$20020^{+107950}_{-12776}$

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 $A_{obs} \gg 1.0$

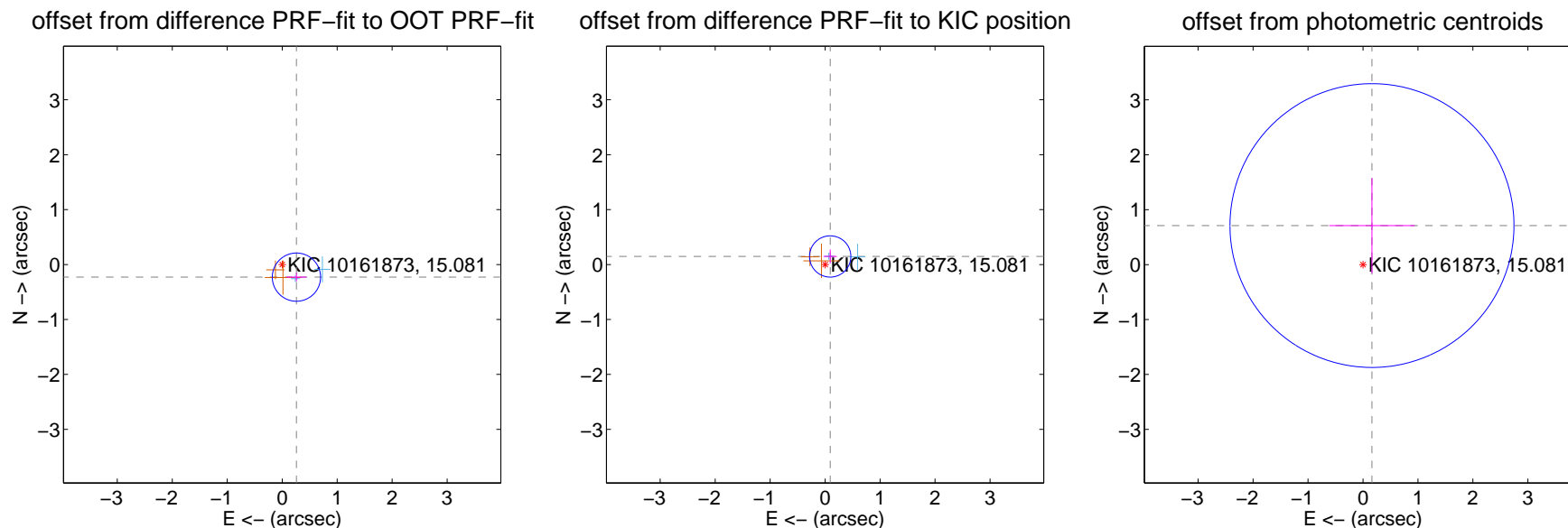
DV Centroid Data

Supplemental centroid analysis for 010161873-04. Kepler magnitude: 15.08. Transit SNR 7.33

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

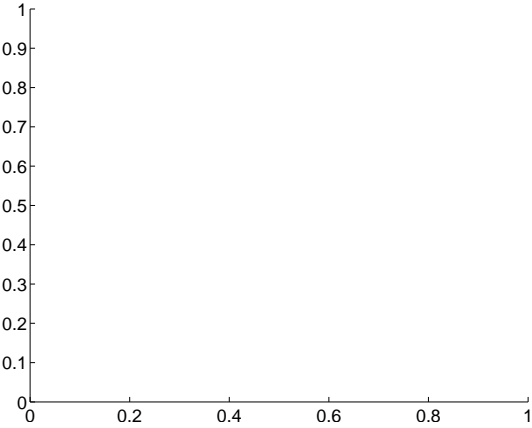
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.346 ± 0.146	2.36	-0.259 ± 0.183	-0.229 ± 0.077
PRF-fit source offset from KIC position	0.174 ± 0.125	1.39	-0.092 ± 0.121	0.147 ± 0.127
photometric centroid source offset	0.73 ± 0.86	0.85	-0.16 ± 0.78	0.71 ± 0.87



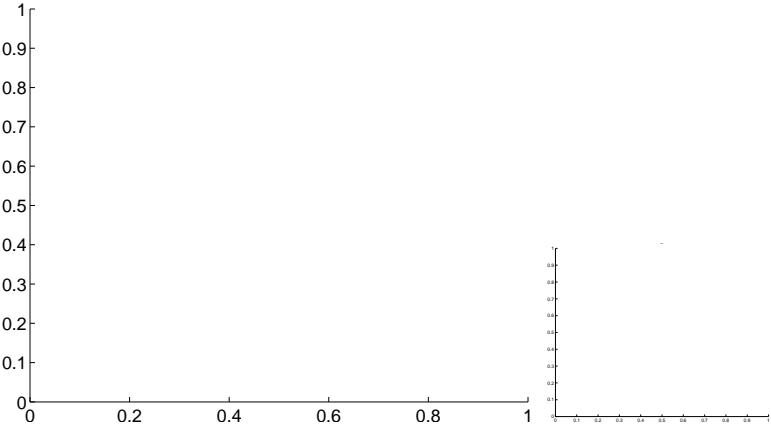
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

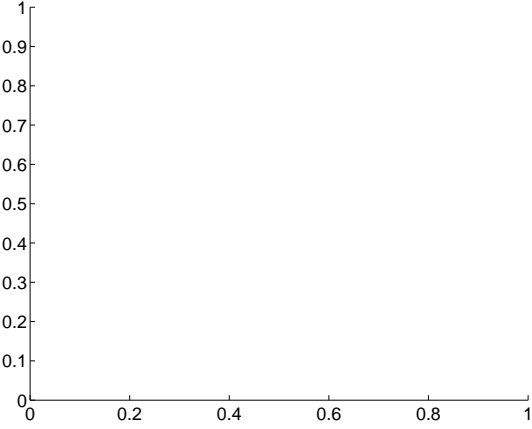
Q1 no difference image



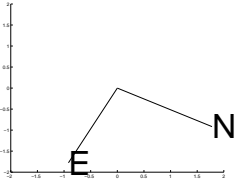
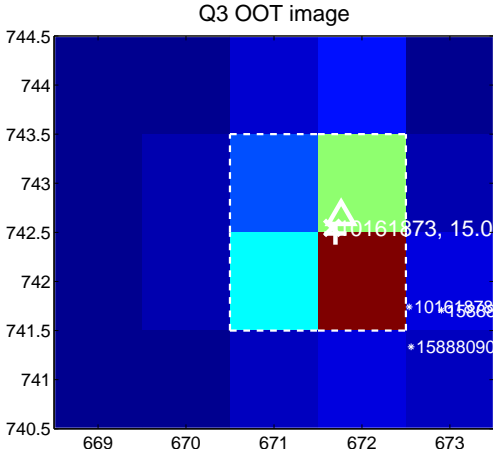
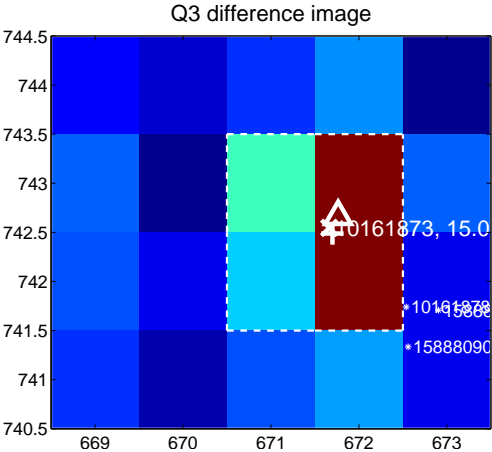
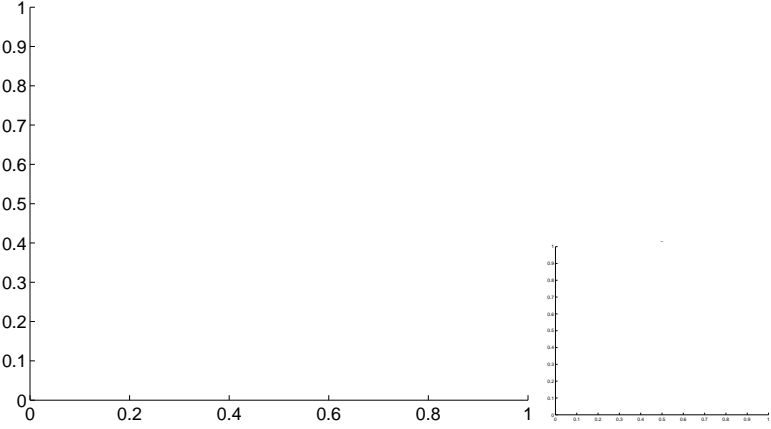
Q1 no OOT image



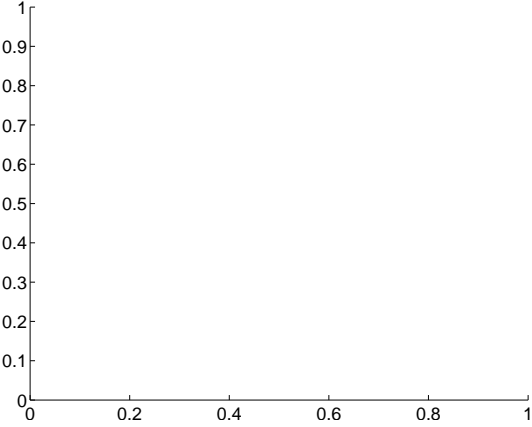
Q2 no difference image



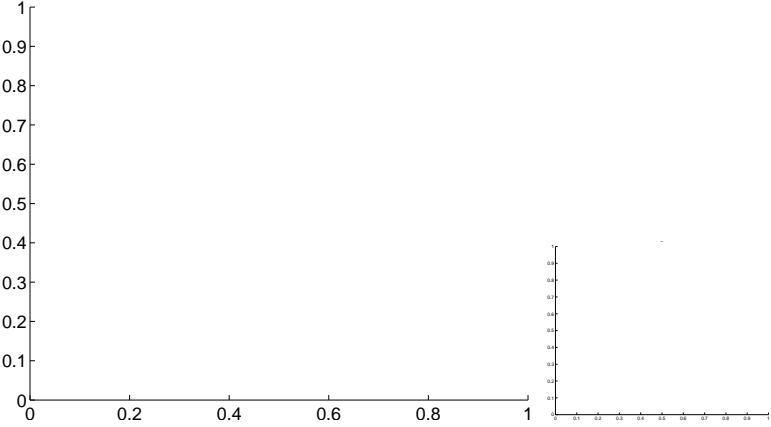
Q2 no OOT image



Q4 no difference image

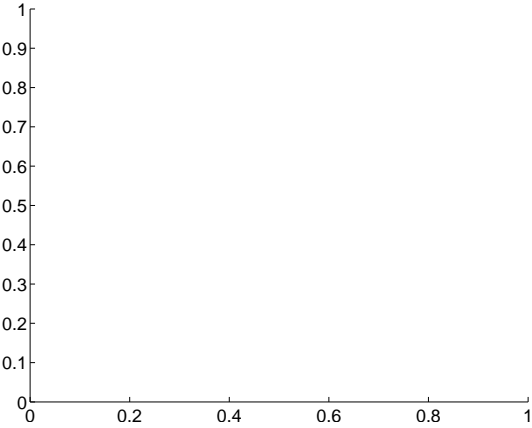


Q4 no OOT image

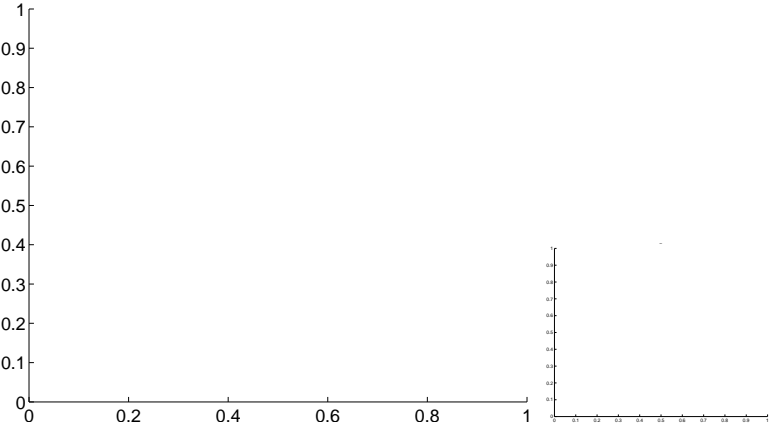


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

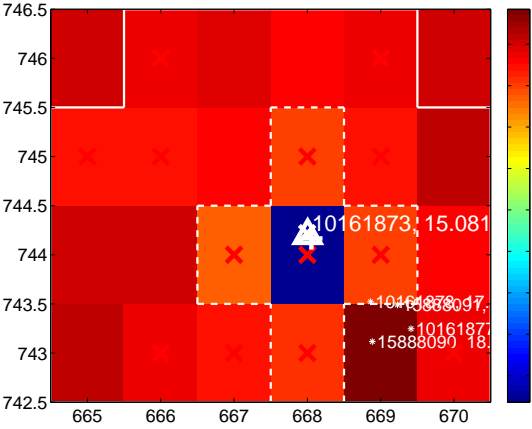
Q5 no difference image



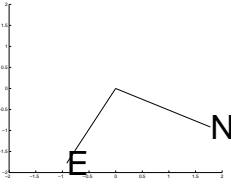
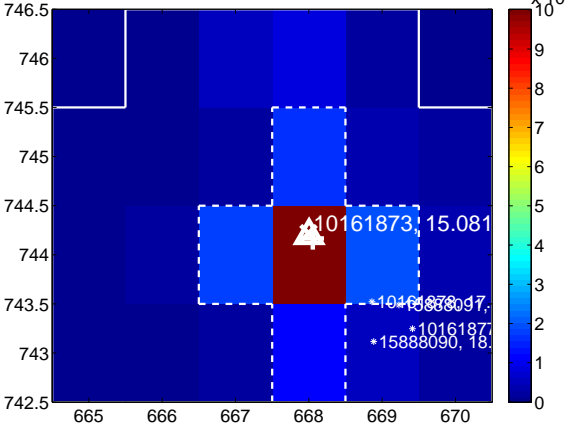
Q5 no OOT image



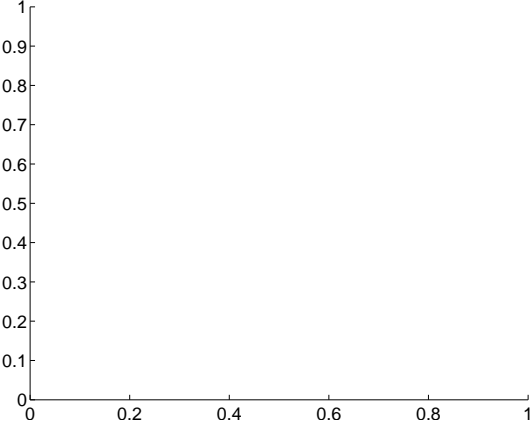
Q6 difference image. Poor Quality



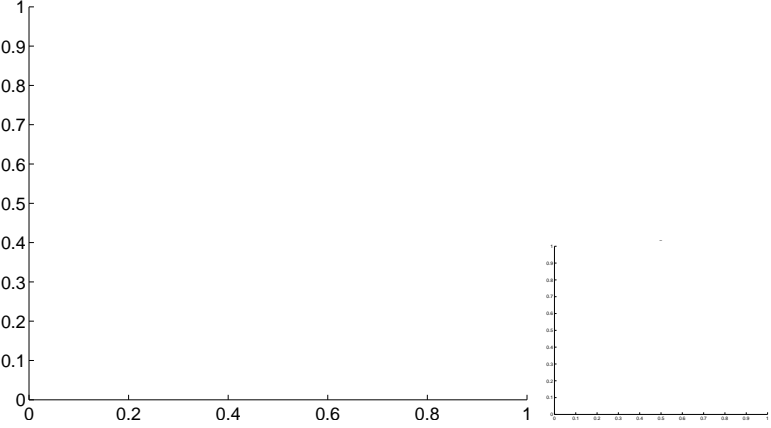
Q6 OOT image



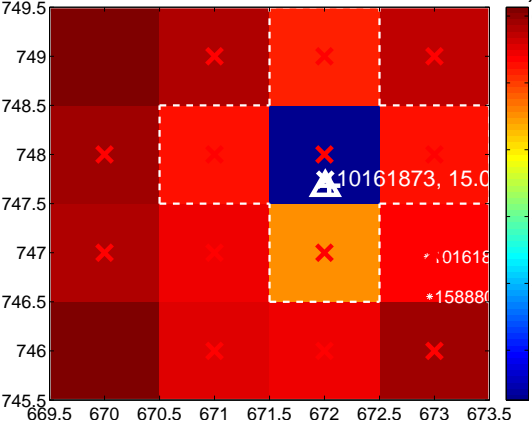
Q7 no difference image



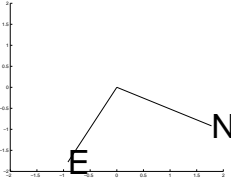
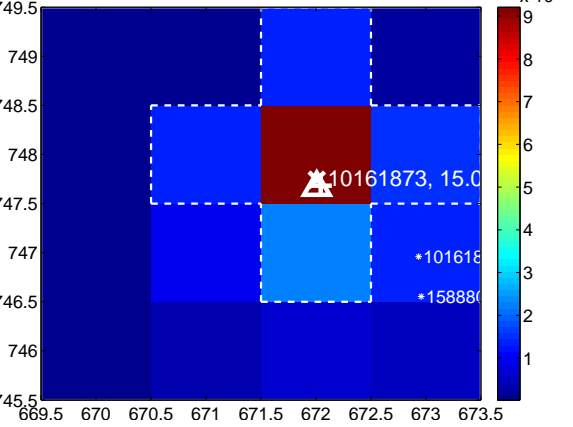
Q7 no OOT image



Q8 difference image. Poor Quality



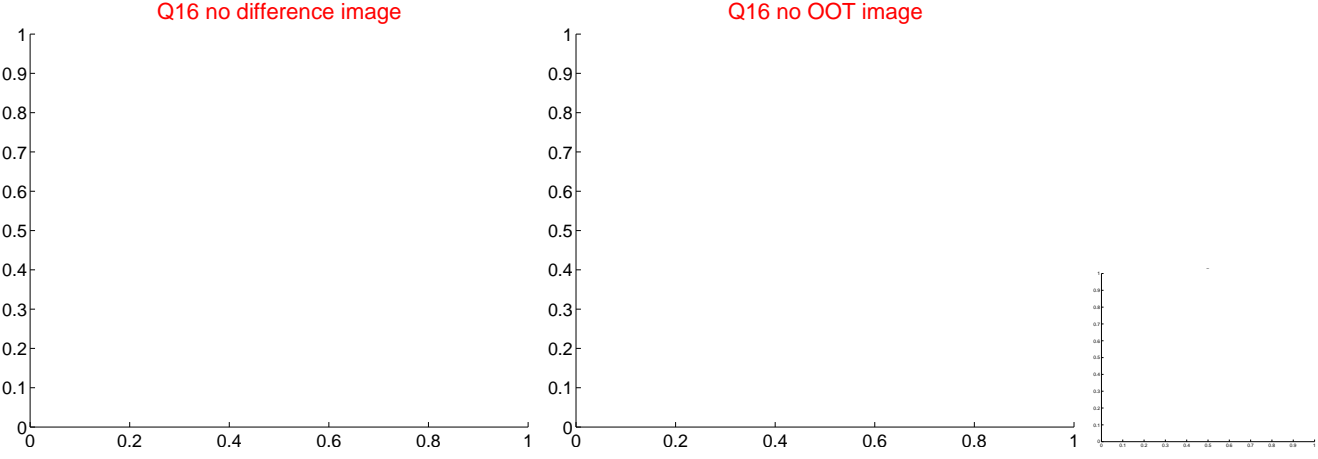
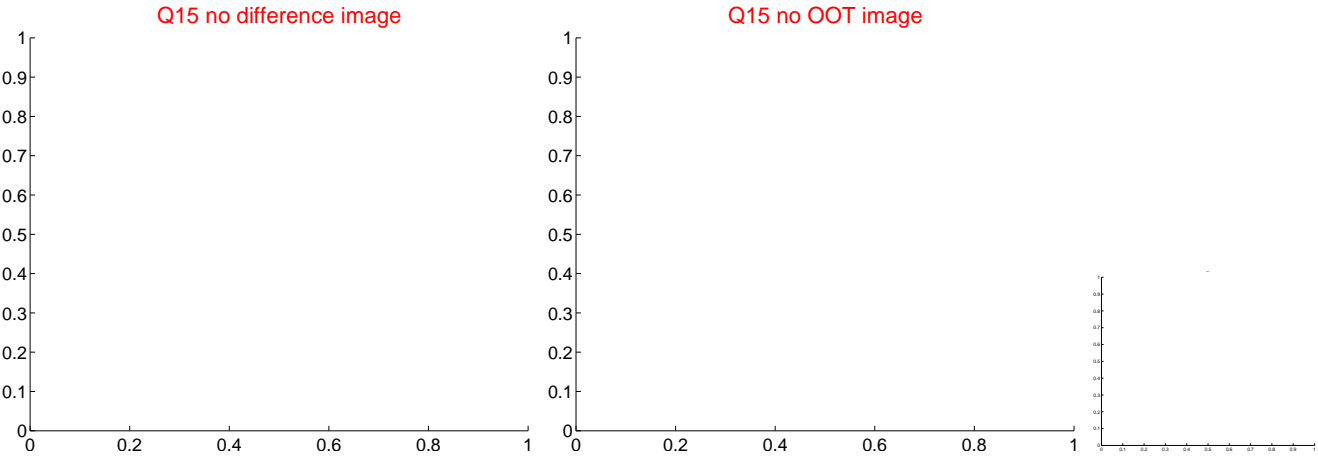
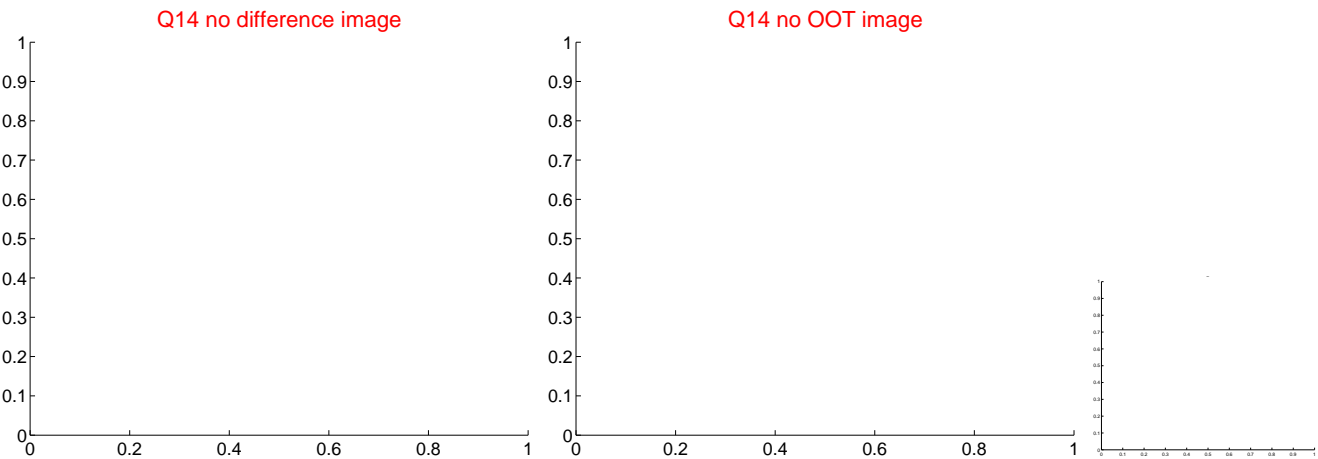
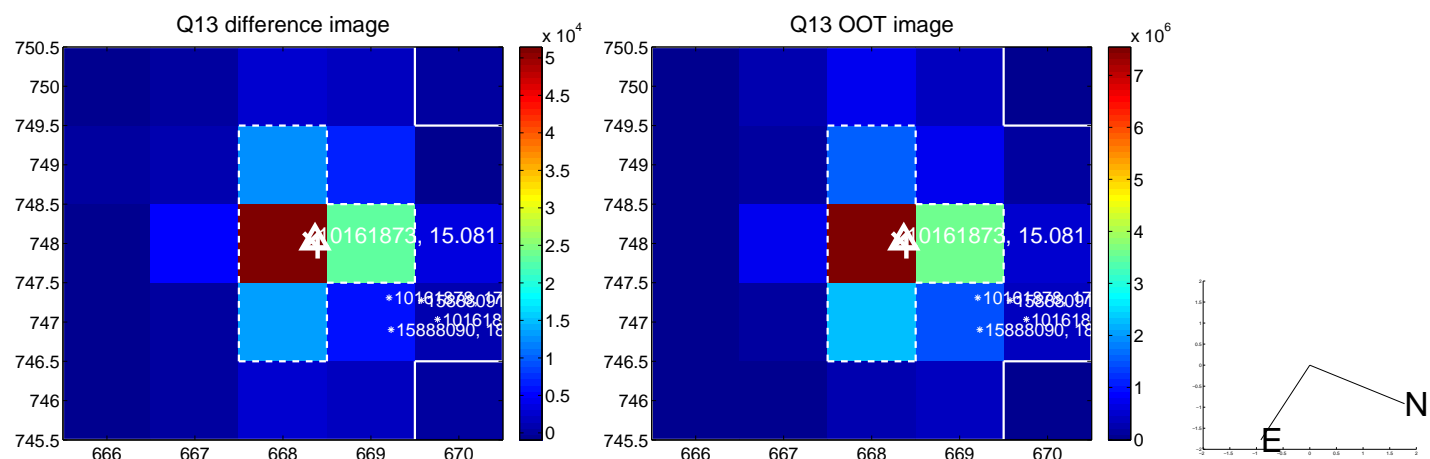
Q8 OOT image



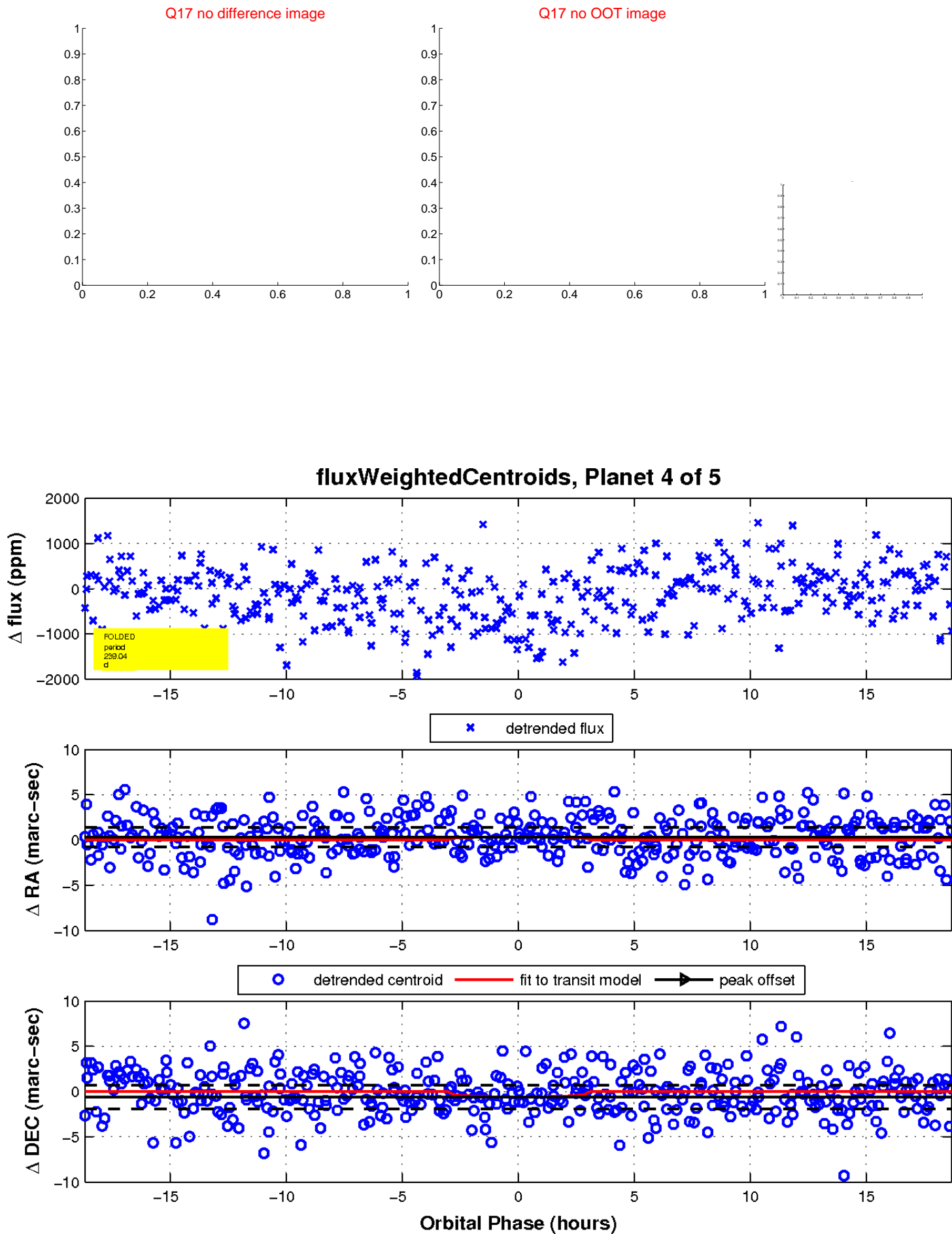
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

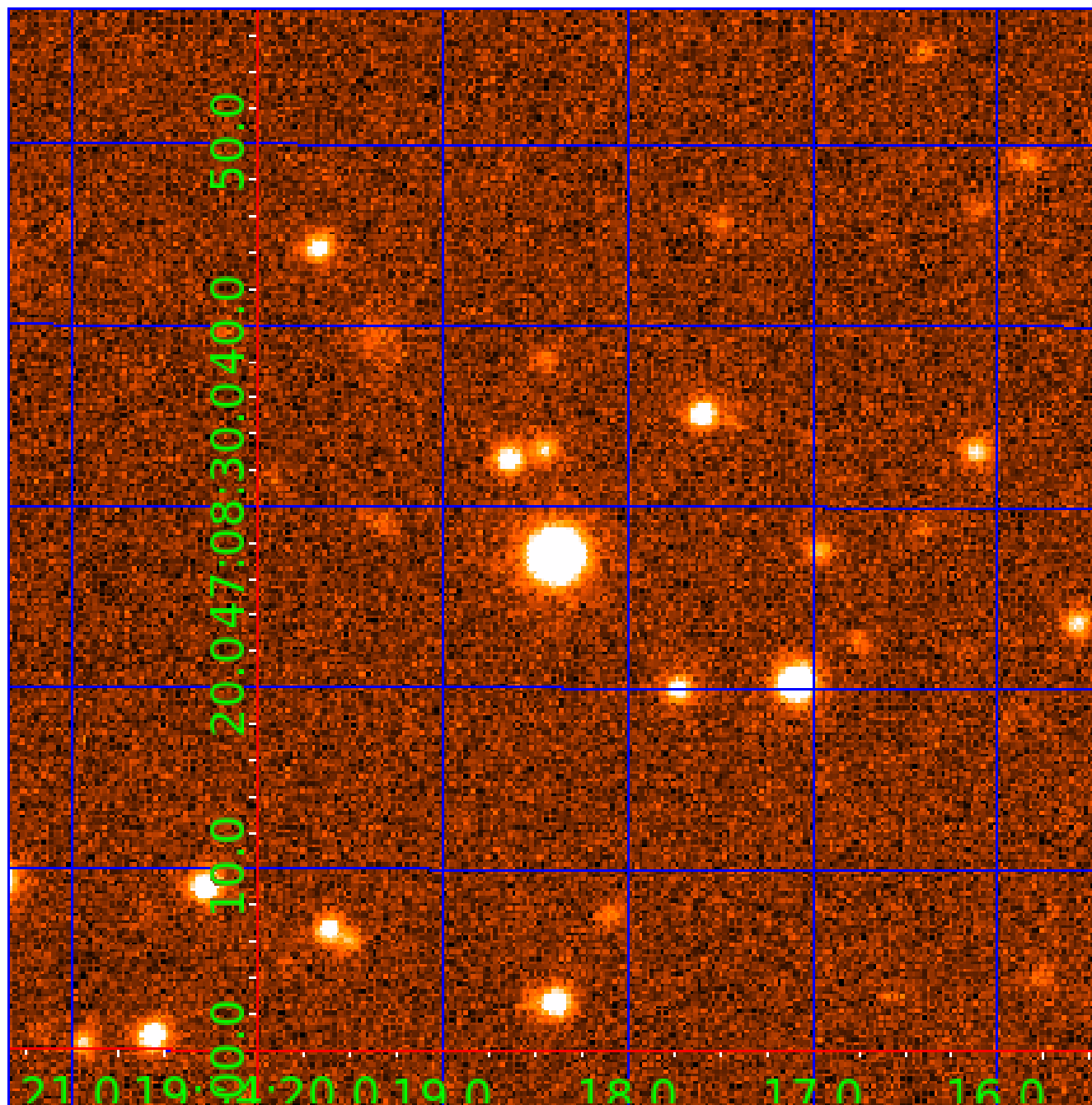


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010161873

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})
010161873-01	OBS	No	1.136768	131.702800	1.9	5.339	8.6	0.2	0.55	4530	0.08	380.83
010161873-02	OBS	No	63.970081	158.395416	426.9	9.243	9.2	4.6	0.55	4530	1.21	1.77
010161873-03	OBS	No	235.653254	161.745283	1183.4	4.821	8.3	7.0	0.55	4530	2.26	0.31
010161873-04	OBS	No	239.037733	315.025159	1222.0	6.232	7.4	7.3	0.55	4530	1.96	0.30
010161873-05	OBS	No	118.894286	135.604932	665.5	8.302	7.3	6.4	0.55	4530	1.58	0.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010161873-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010161873-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010161873-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010161873-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

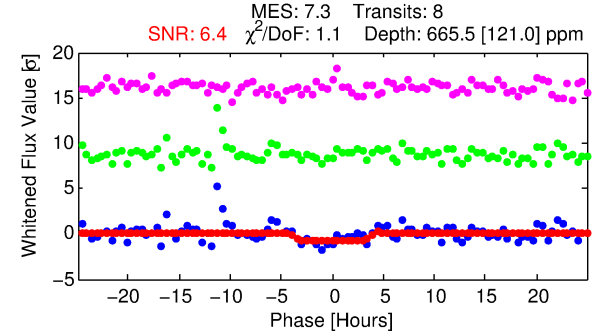
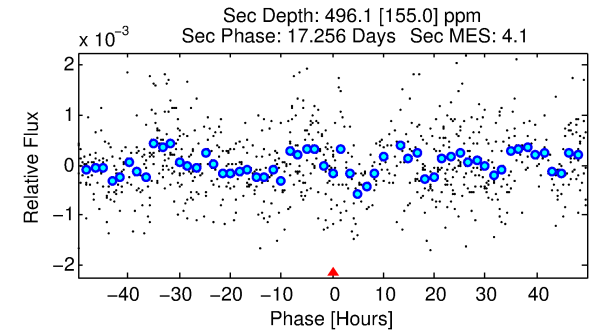
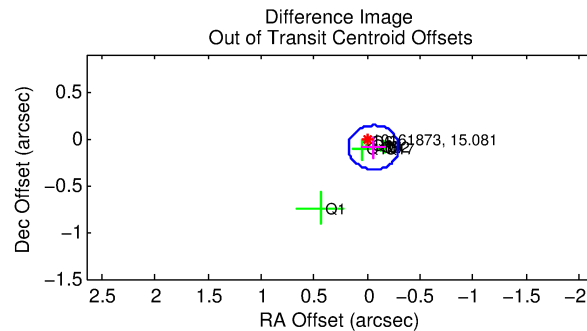
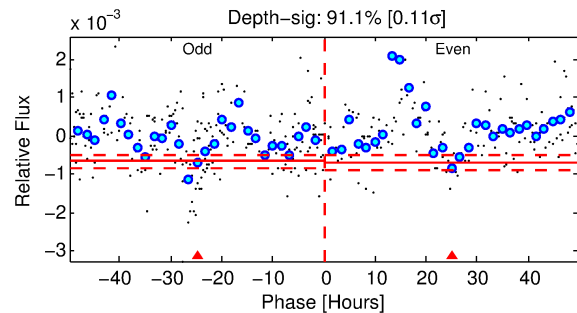
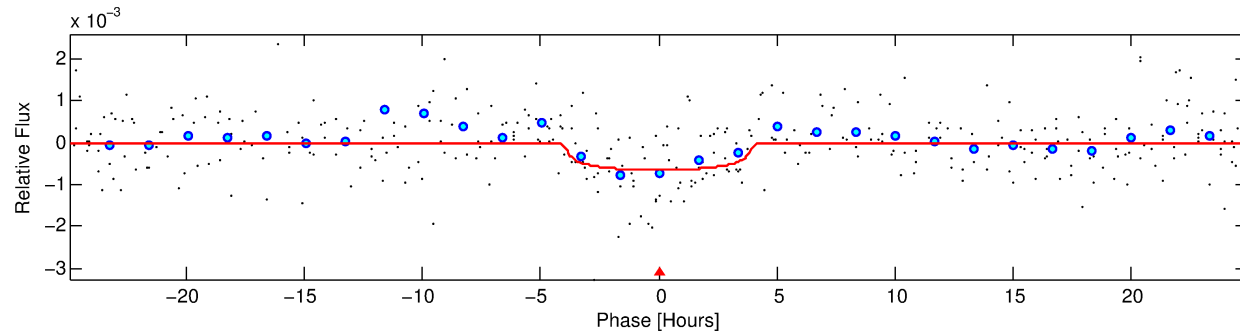
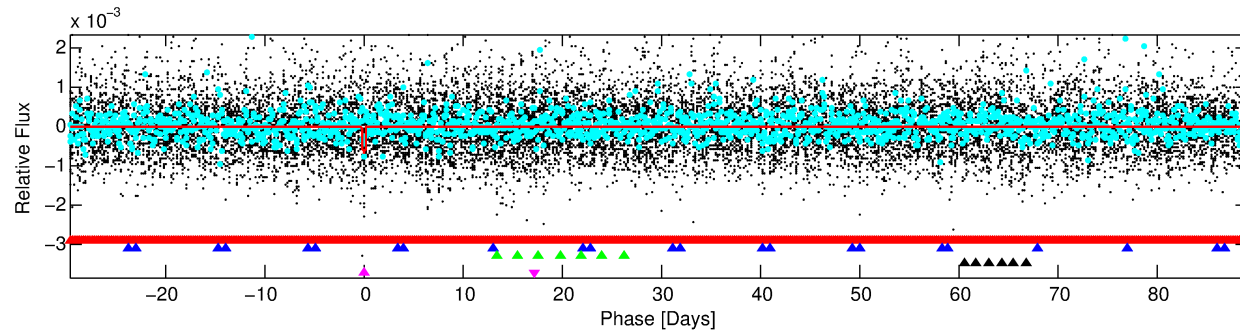
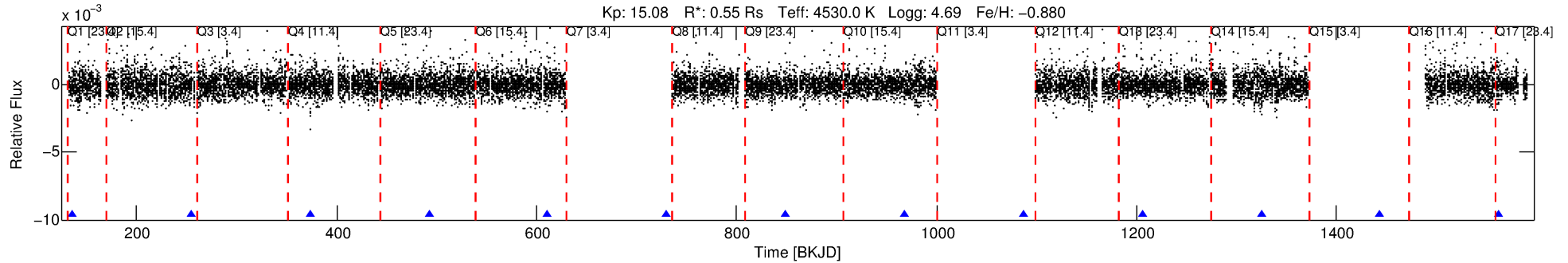
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010161873-05

No Significant Match Found

DV One-Page Summary

KIC: 10161873 Candidate: 5 of 5 Period: 118.894 d



DV Fit Results:

Period = 118.89429 [0.00272] d
Epoch = 135.6049 [0.0211] BKJD
Rp/R* = 0.0262 [0.0140]
a/R* = 72.55 [138.22]
b = 0.78 [0.95]
Seff = 0.77 [0.12]
Teq = 239 [10] K
Rp = 1.58 [0.85] Re
a = 0.3871 [0.0257] AU
Ag = 16317.31 [18205.77] [0.90 σ]
Teffp = 4178 [1169] K [3.37 σ]

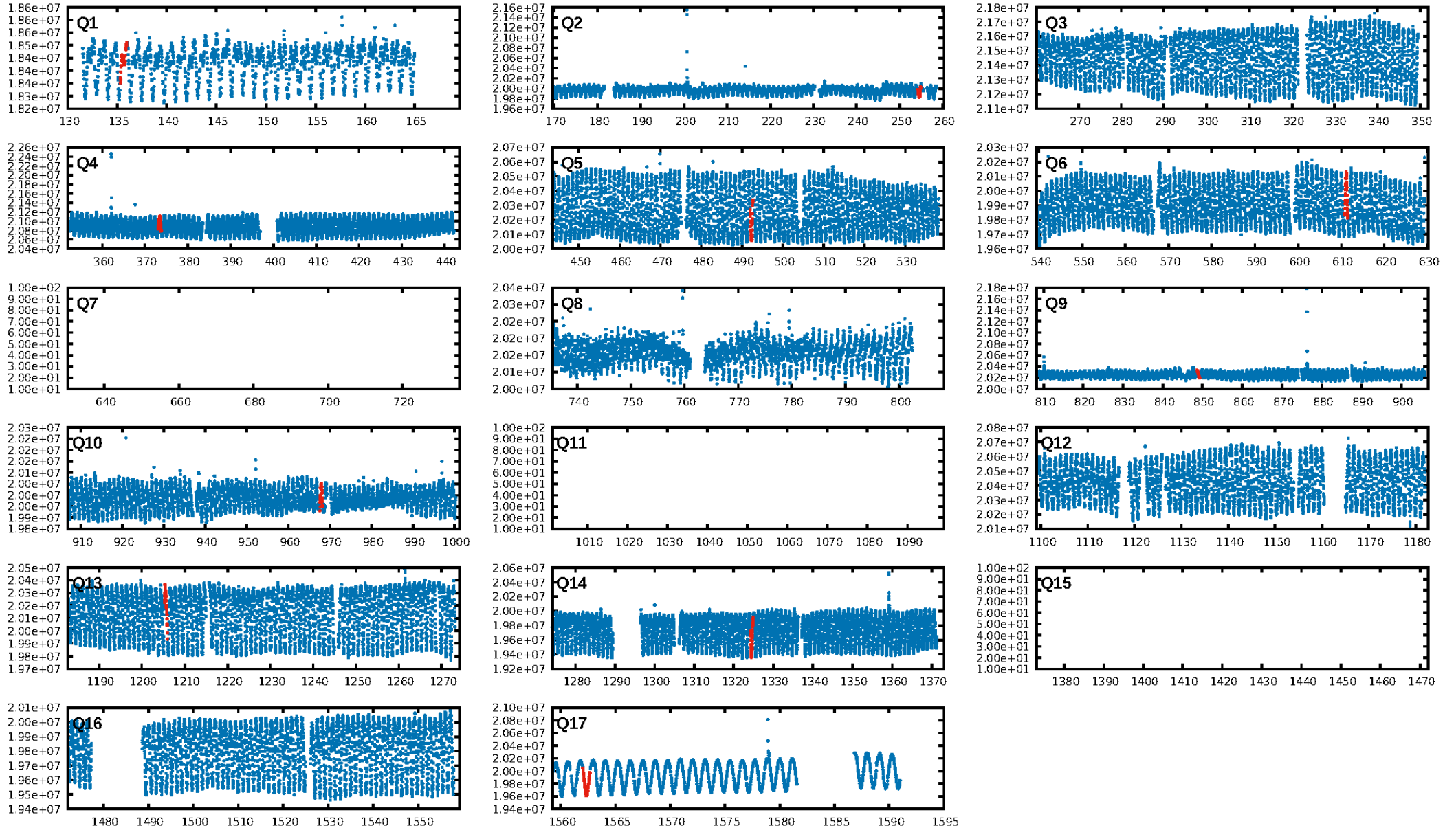
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.10 σ]
LongPeriod-sig: 100.0% [291.89 σ]
ModelChiSquare2-sig: 59.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.28e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.122
Centroid-sig: 54.9%
Centroid-so: 0.312 arcsec [0.34 σ]
OotOffset-rm: 0.112 arcsec [1.42 σ]
KicOffset-rm: 0.127 arcsec [1.33 σ]
OotOffset-st: 4/0/0/3 [7]
KicOffset-st: 4/0/0/3 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/8]

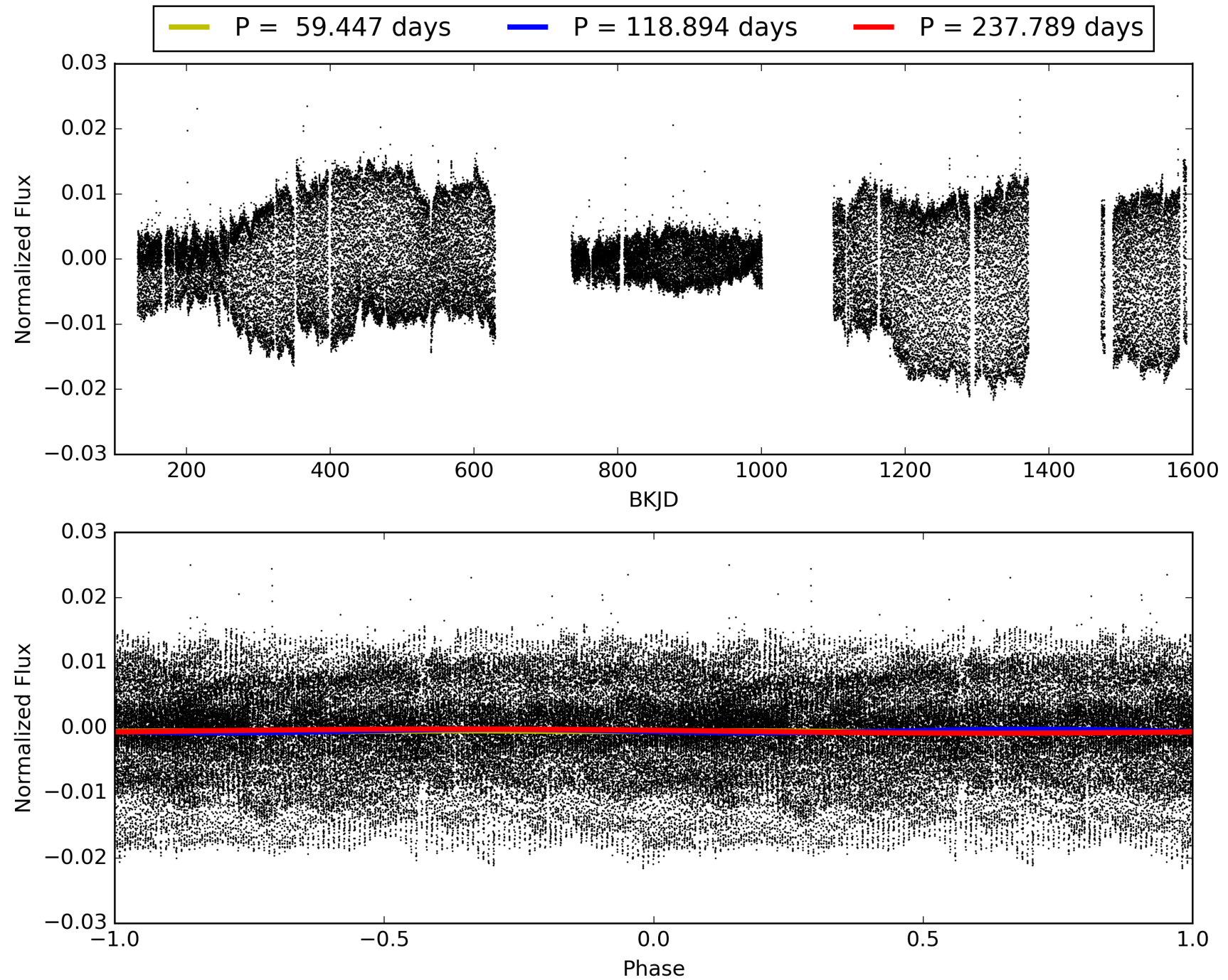
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:43:39 Z

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

TCE 010161873-05, PDC Light Curves

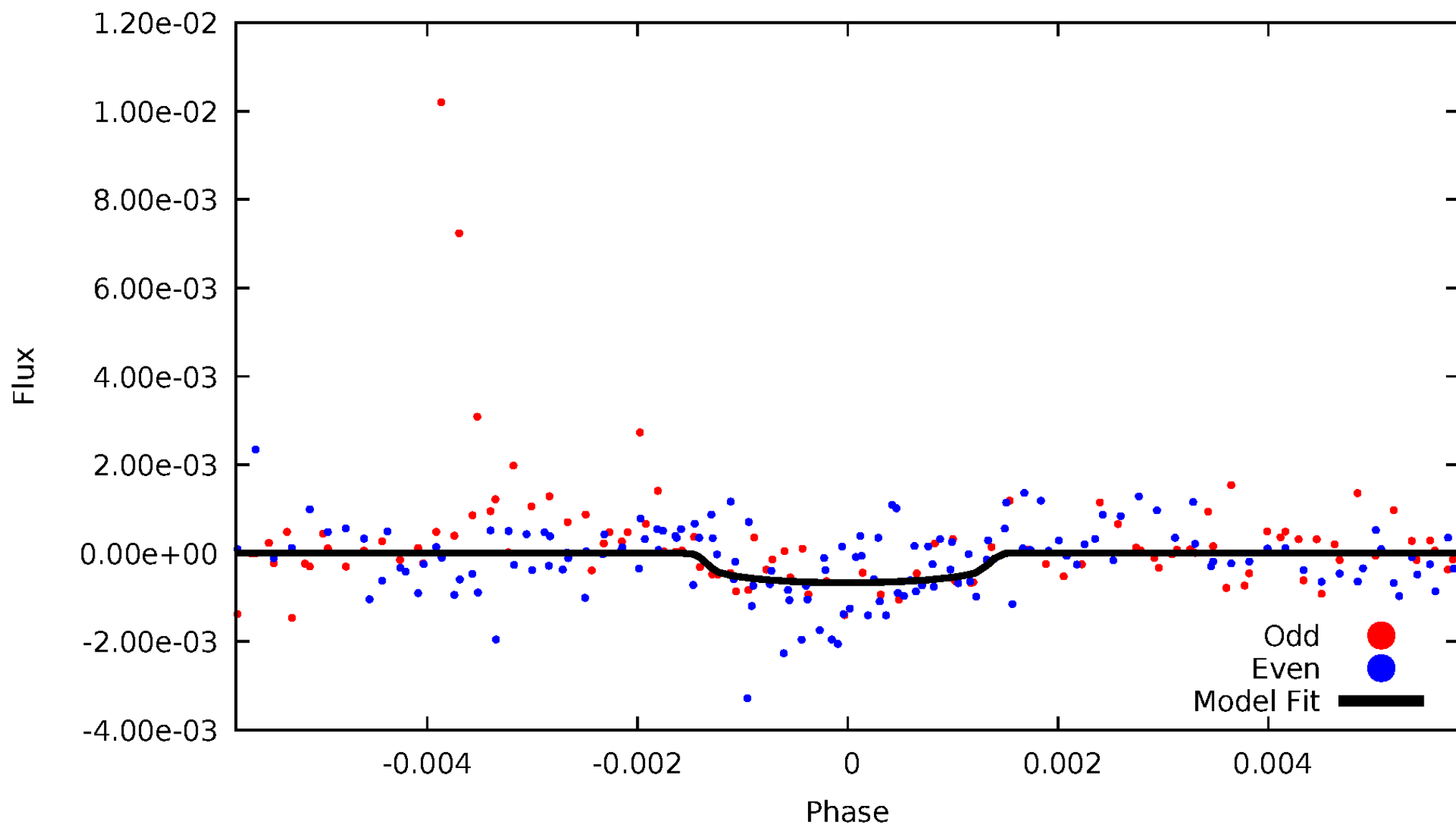


TCE 010161873-05



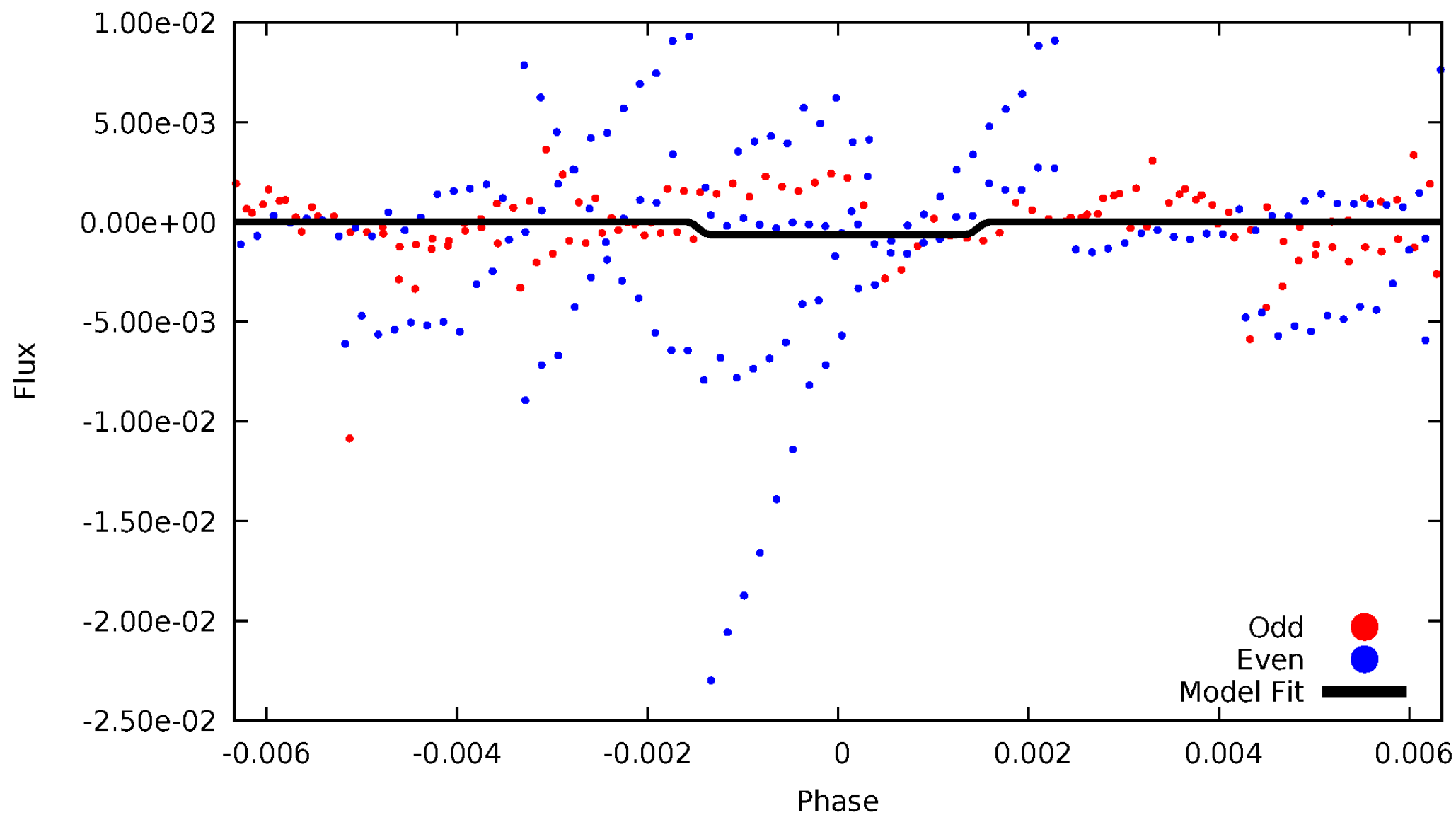
DV Odd/Even

TCE 010161873-05



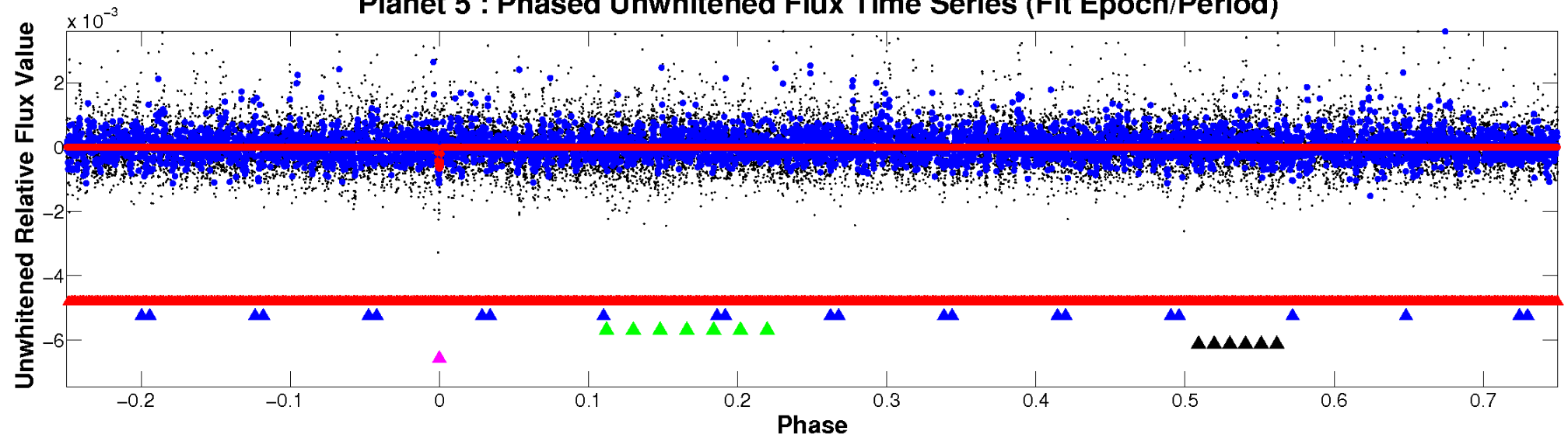
ALT Odd/Even

TCE 010161873-05

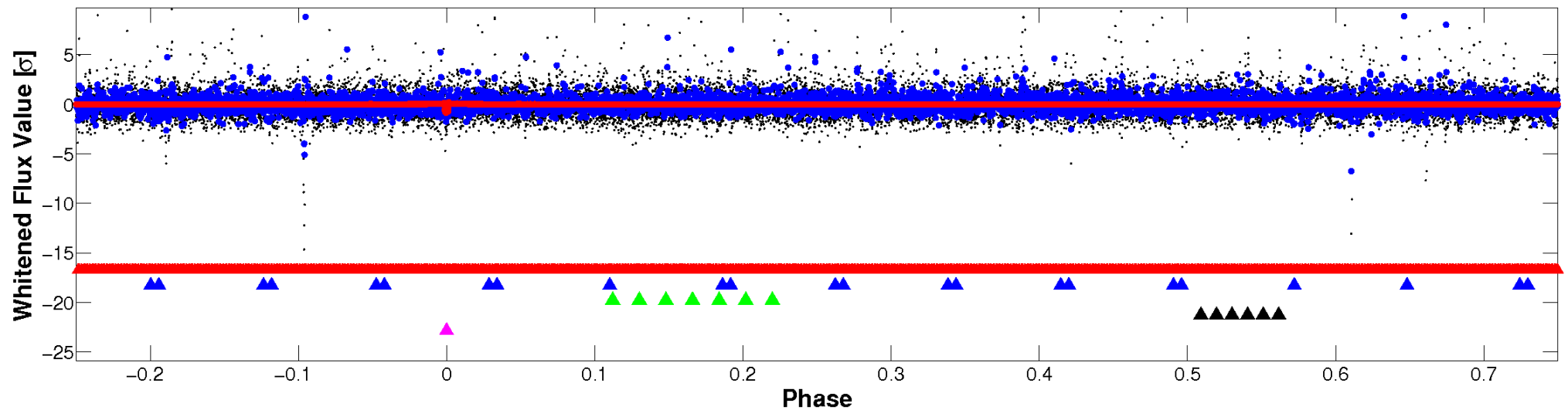


Non-Whitened Vs. Whitened Light Curve

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

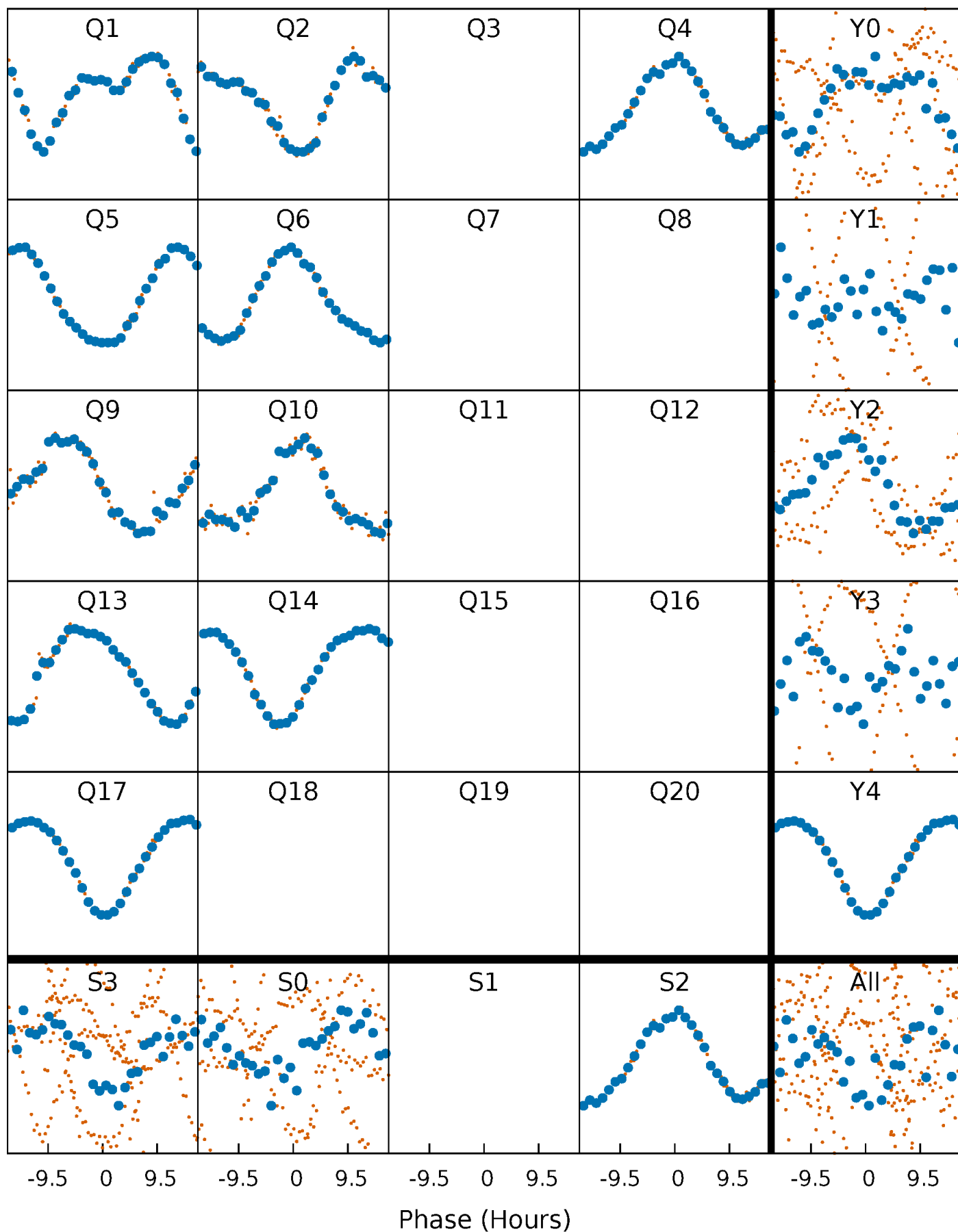


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



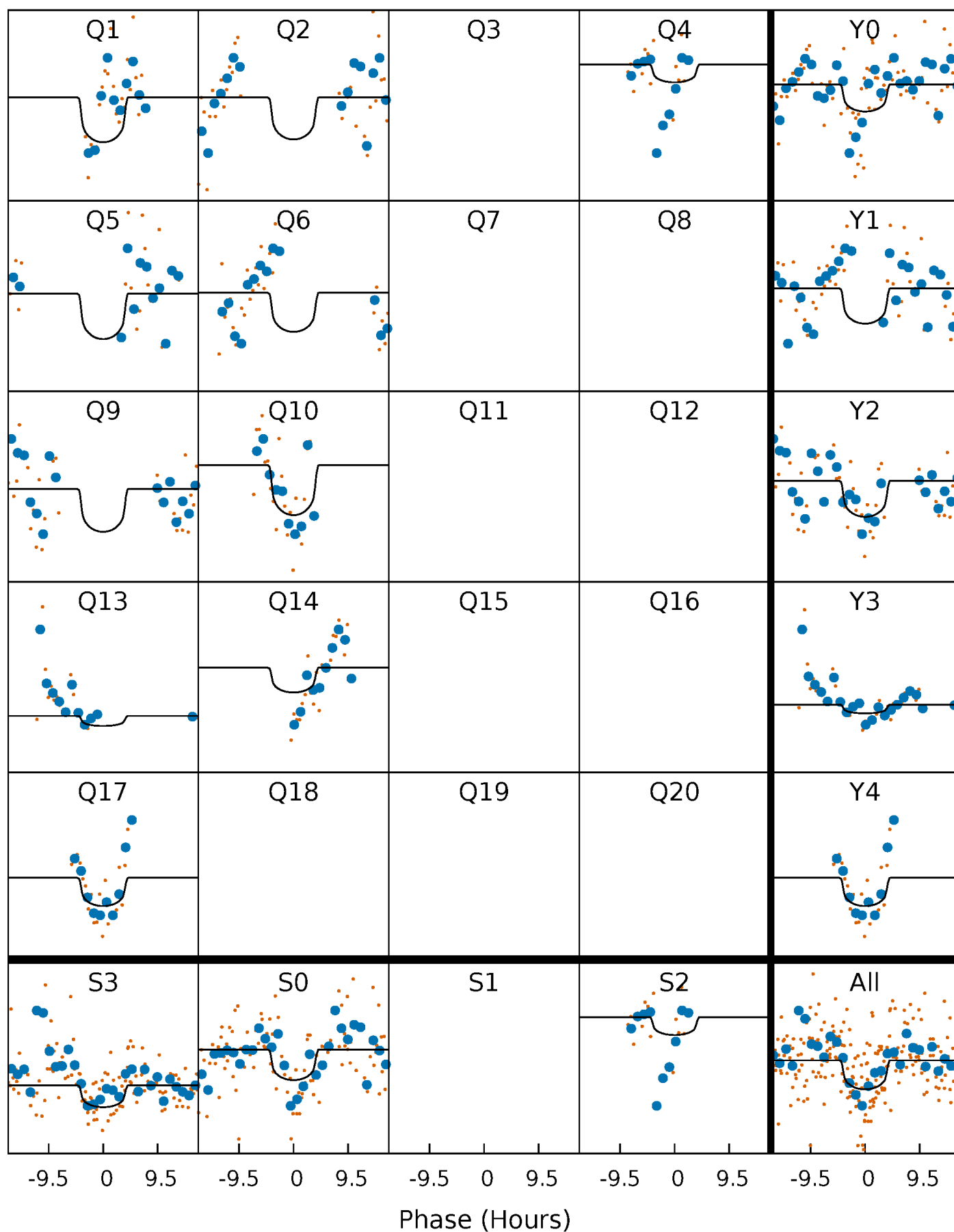
PDC Quarter-Phased Transit Curves

TCE 010161873-05 $P=118.894286$ Days $T_0=135.604932$ (BKJD)



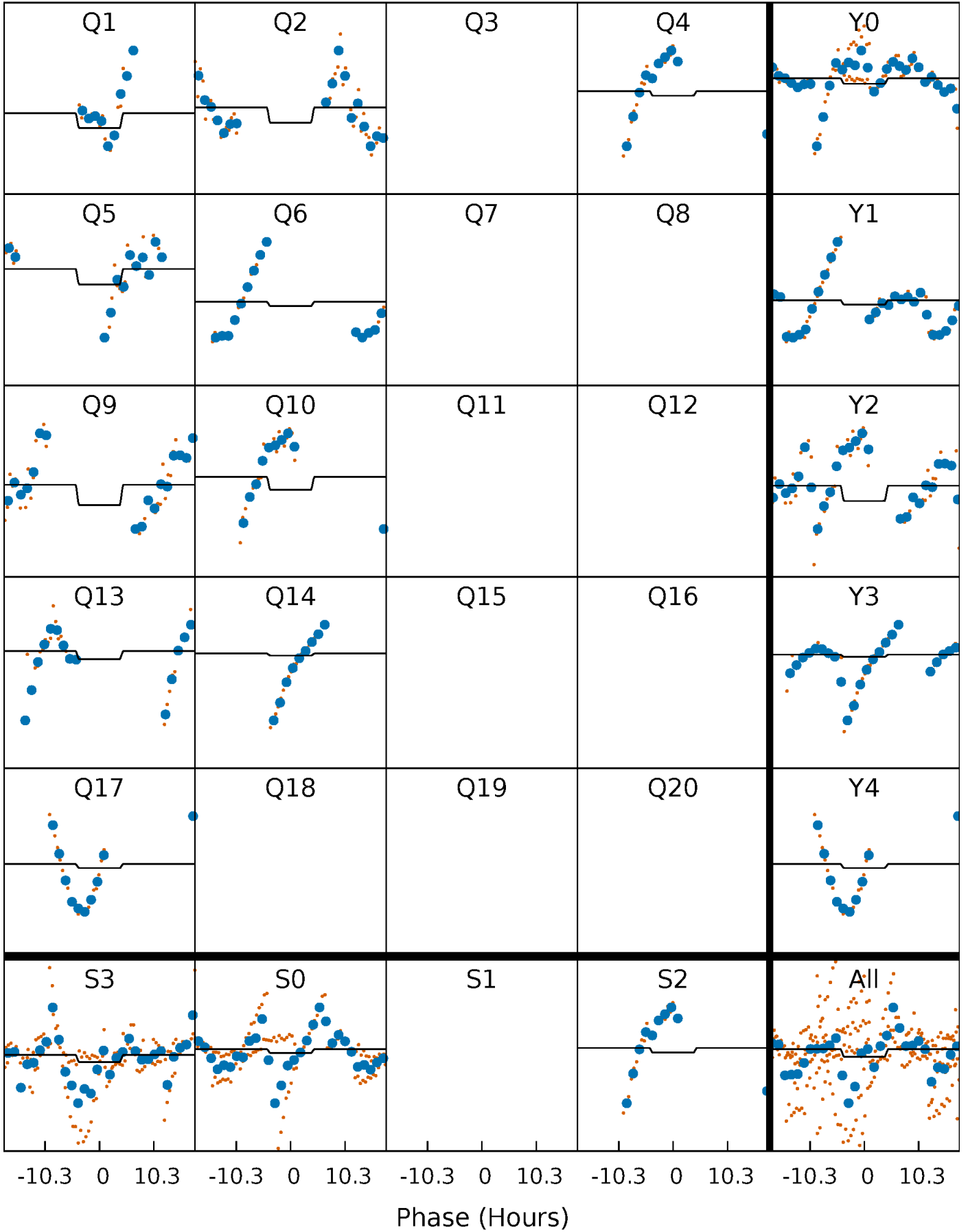
DV Quarter-Phased Transit Curves

TCE 010161873-05 P=118.894286 Days $T_0=135.604932$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

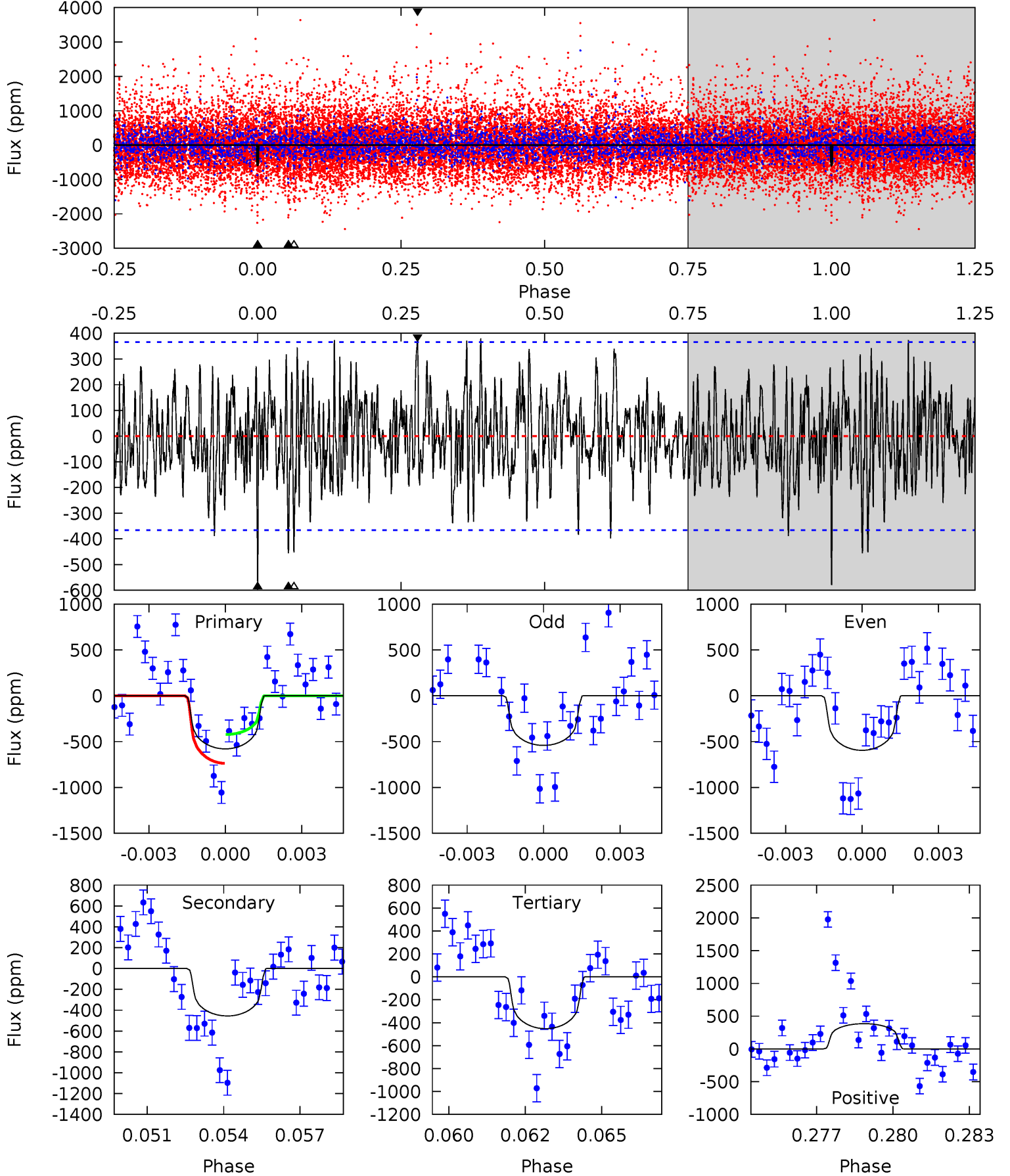
TCE 010161873-05 $P=118.905320$ Days $T_0=135.634969$ (BKJD)



DV Model-Shift Uniqueness Test

010161873-05, $P = 118.894286$ Days, $E = 16.710646$ Days

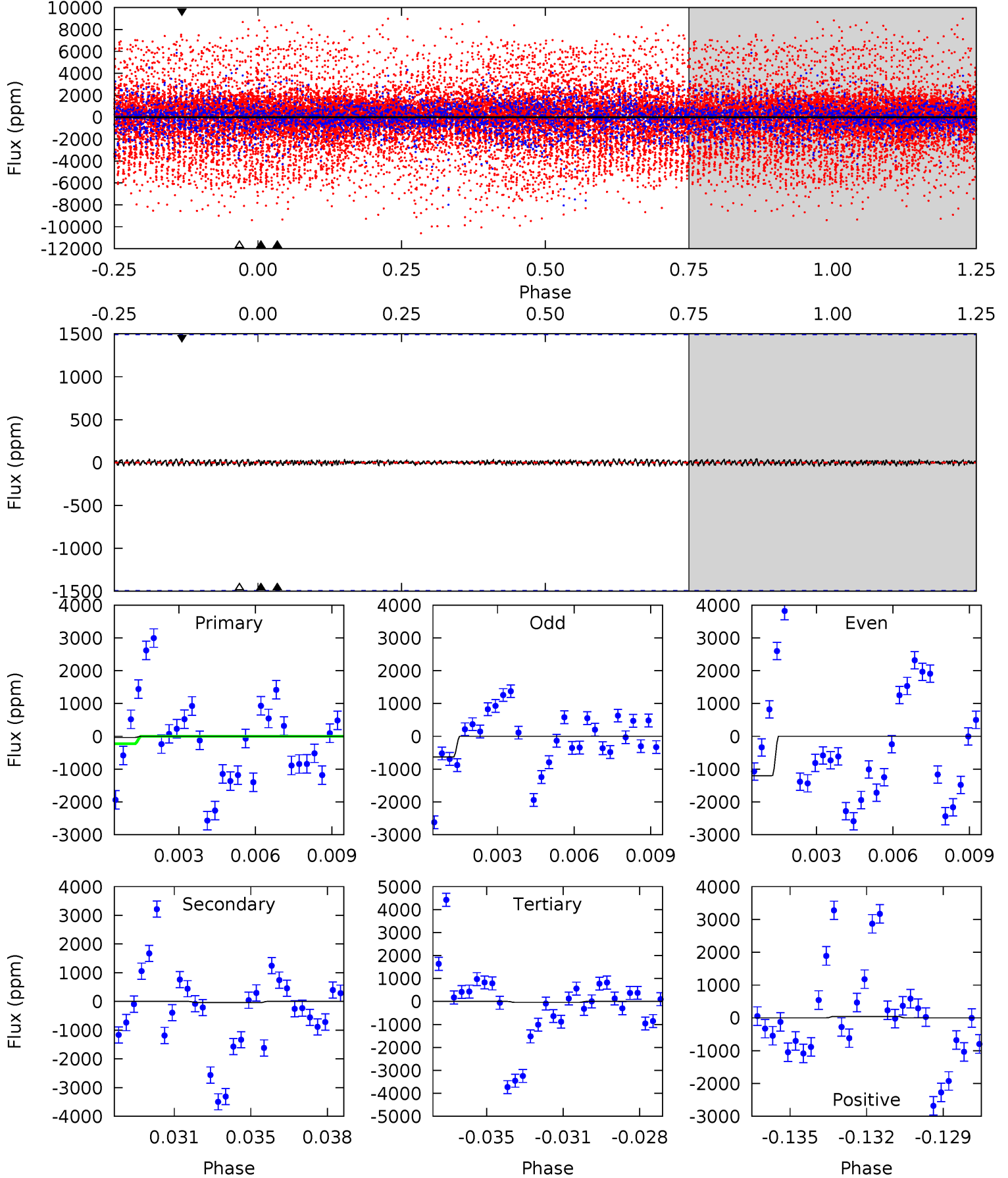
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.32	6.54	6.49	5.53	5.25	2.97	1.89	1.83	2.79	0.05	1.01	0.34	0.73	0.40	2.26



Alt Model-Shift Uniqueness Test

010161873-05, $P = 118.905320$ Days, $E = 16.729649$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.12	0.14	0.14	0.15	5.24	2.95	0.05	-0.02	-0.03	0.00	-0.01	0.95	1.49	0.52	0.09



Stellar Parameters For KIC 010161873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4530^{+134}_{-147}	$4.689^{+0.052}_{-0.032}$	$-0.880^{+0.300}_{-0.300}$	$0.554^{+0.040}_{-0.044}$	$0.548^{+0.046}_{-0.031}$	$4.532^{+1.038}_{-0.581}$
	+3%/-3%	+1%/-1%	+34%/-34%	+7%/-8%	+8%/-6%	+23%/-13%
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 010161873-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-455 ± 70	$1.62^{+0.84}_{-0.78}$	333^{+12}_{-12}	4168^{+1273}_{-596}	14878^{+39563}_{-8678}
Alt.	-40 ± 285	$1.55^{+0.88}_{-0.78}$	333^{+11}_{-12}	2793^{+1467}_{-6751}	1113^{+15792}_{-11766}

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

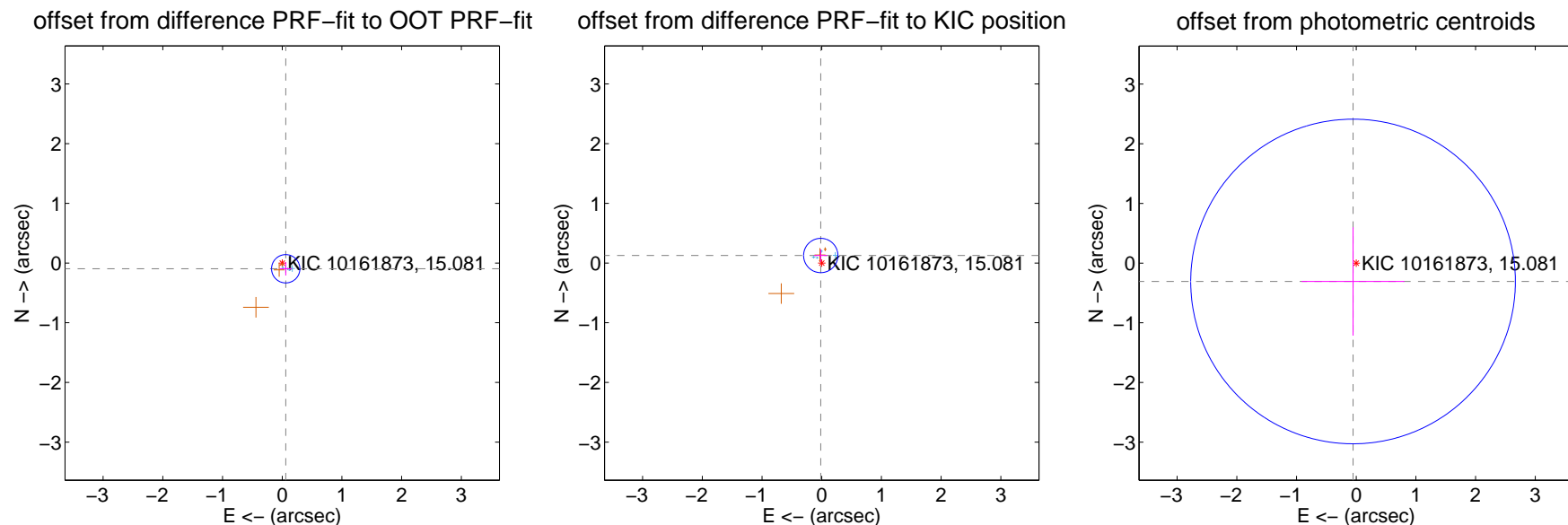
DV Centroid Data

Supplemental centroid analysis for 010161873-05. Kepler magnitude: 15.08. Transit SNR 6.40

There are 4 quarters with good PRF difference image offsets

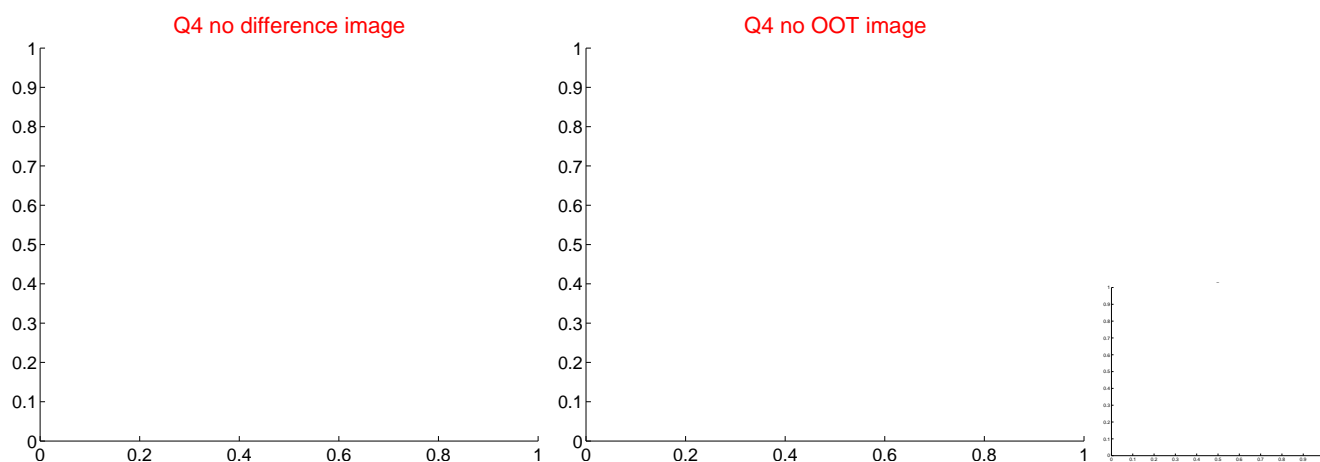
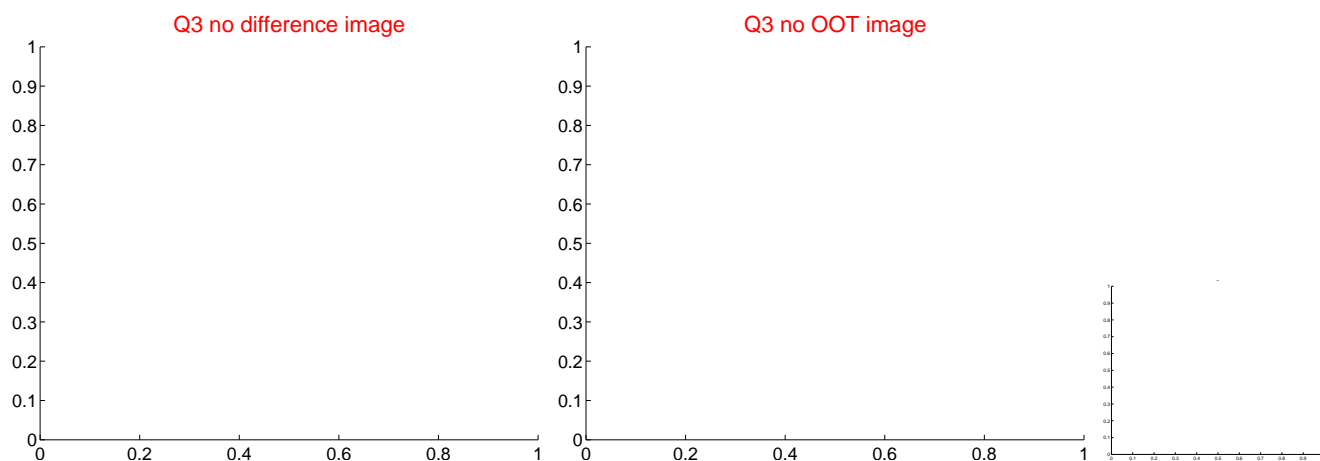
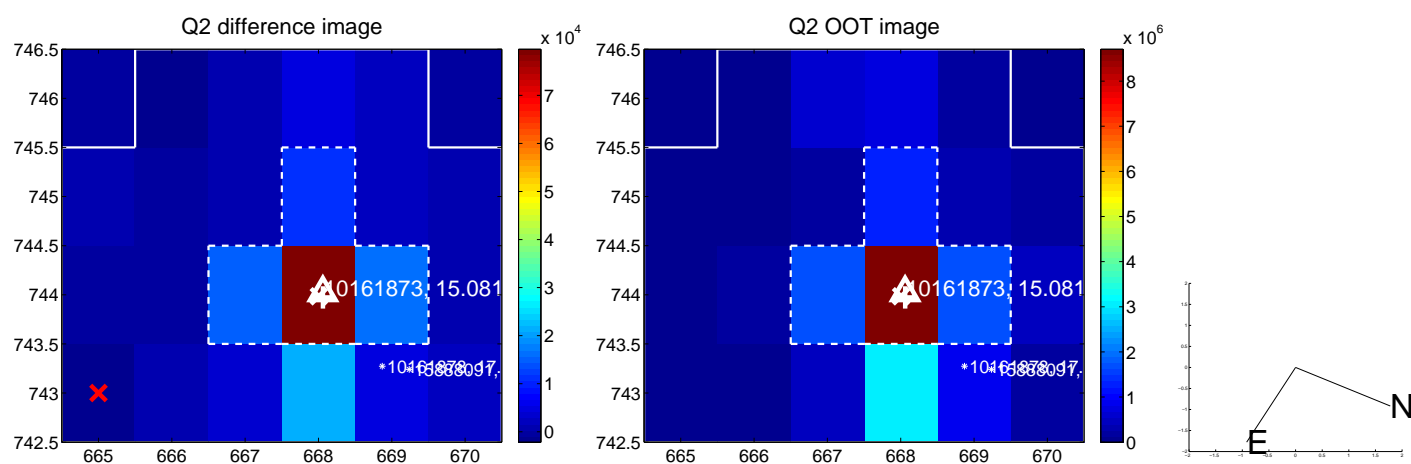
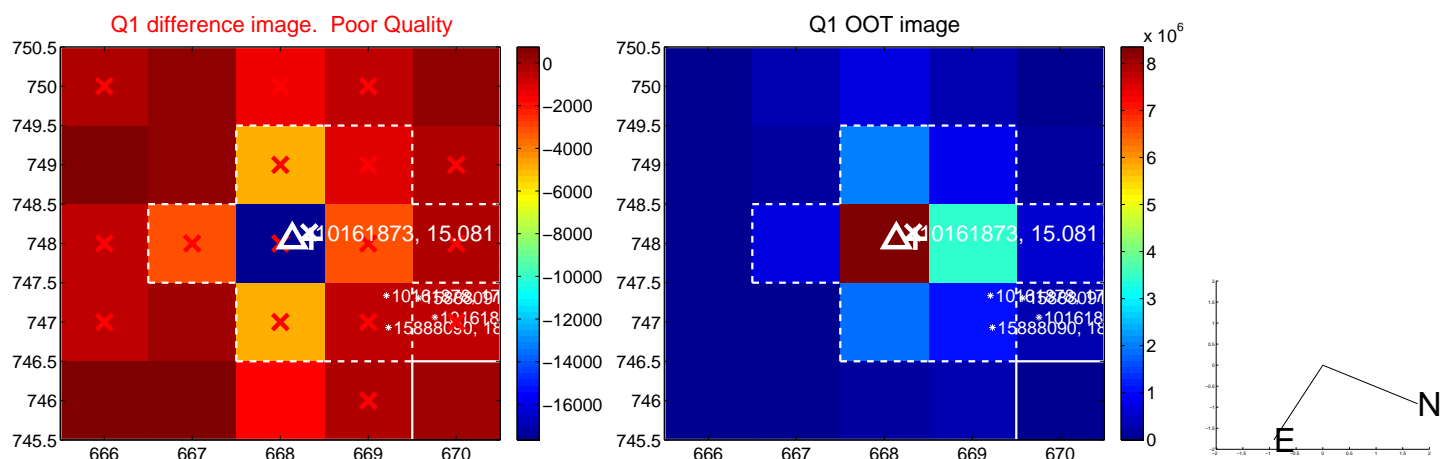
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.112 ± 0.079	1.42	-0.059 ± 0.102	-0.096 ± 0.114
PRF-fit source offset from KIC position	0.127 ± 0.096	1.33	0.016 ± 0.108	0.126 ± 0.104
photometric centroid source offset	0.31 ± 0.91	0.34	0.05 ± 0.86	-0.31 ± 0.91

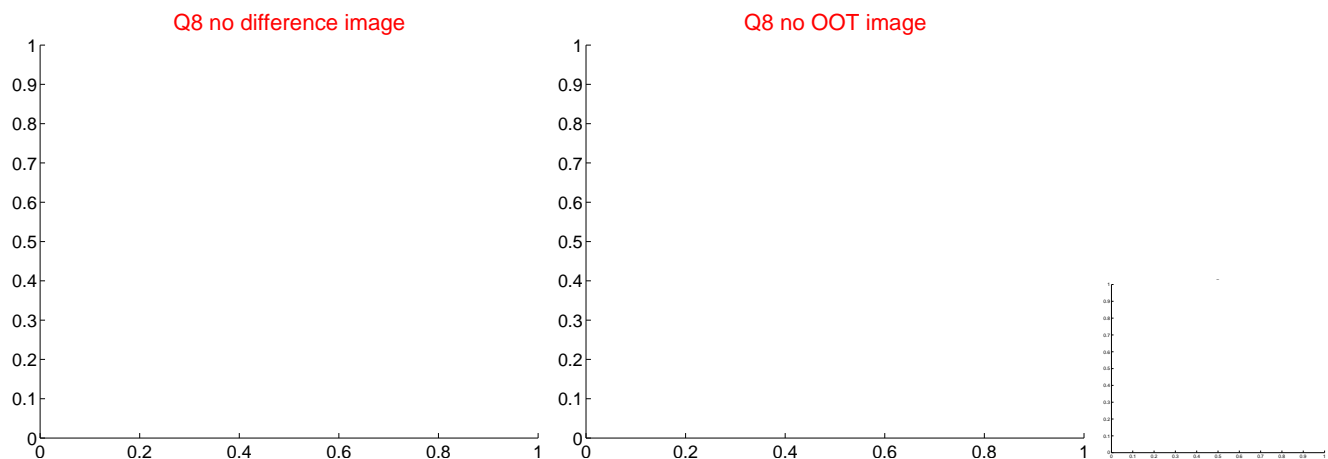
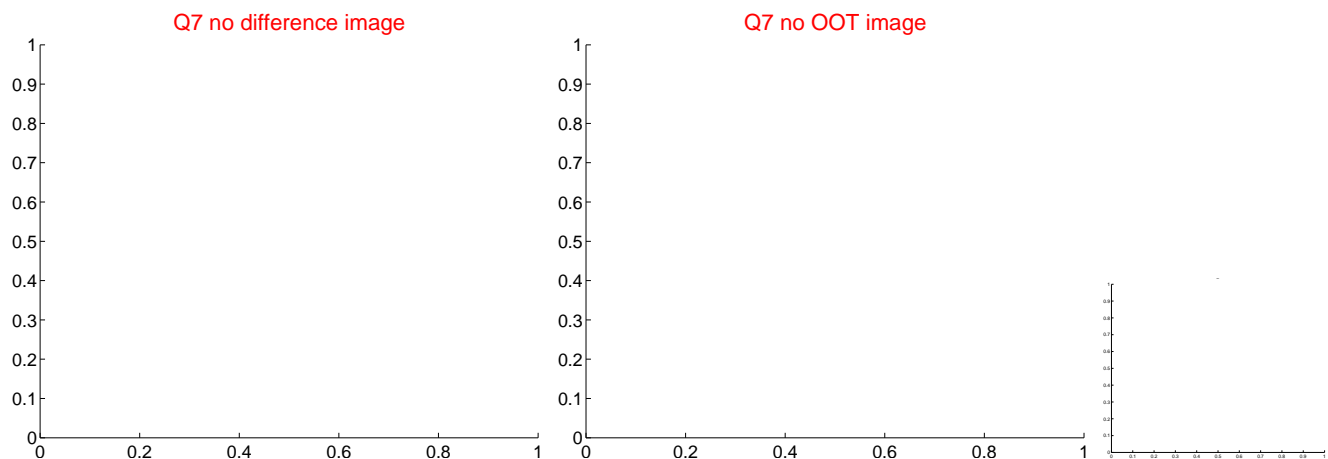
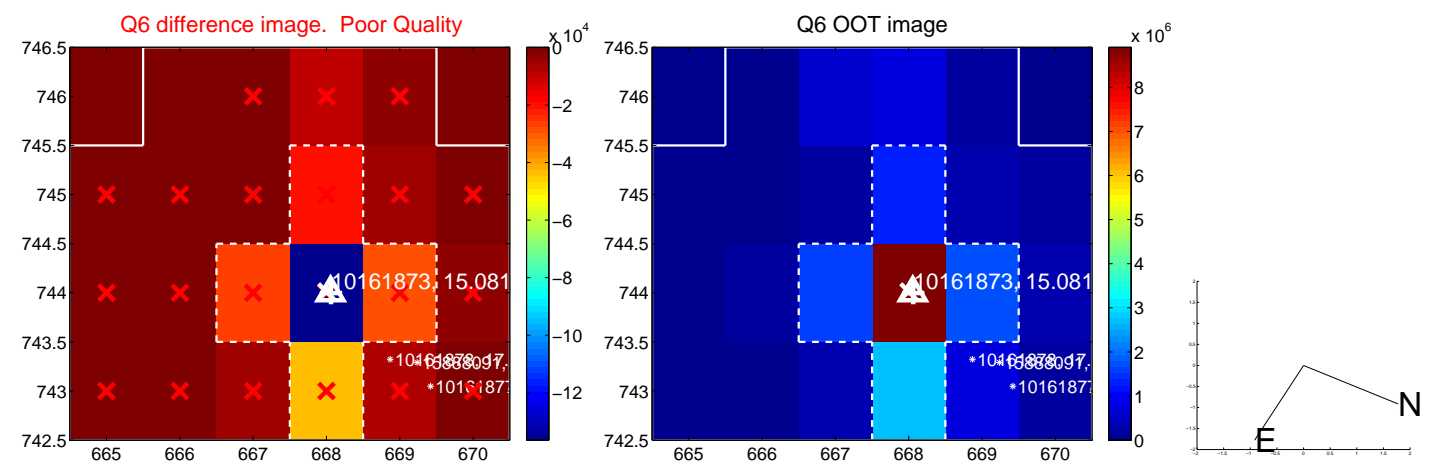
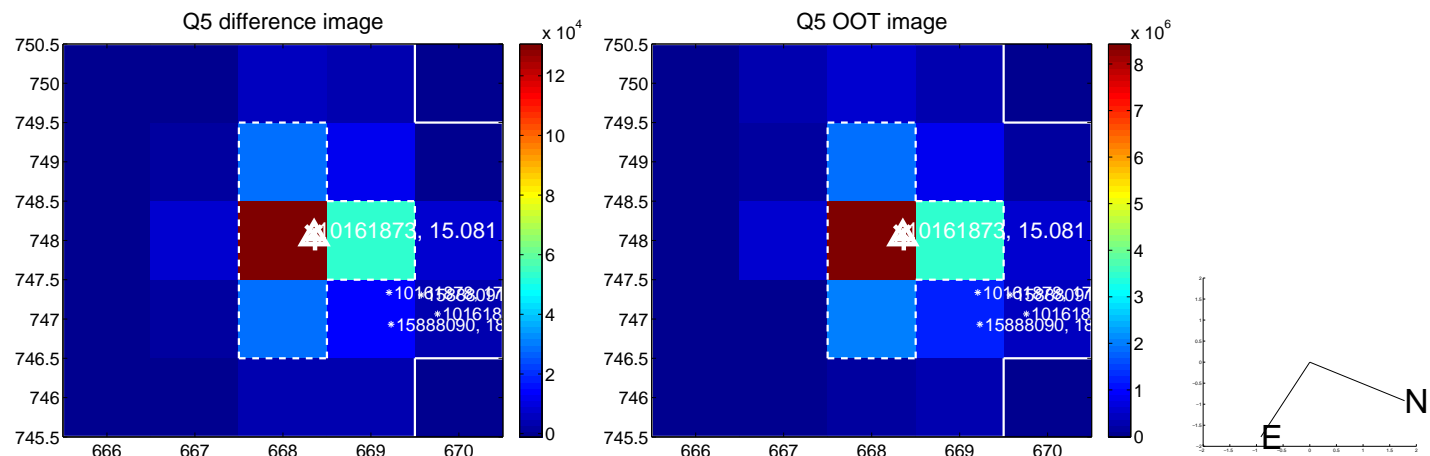


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

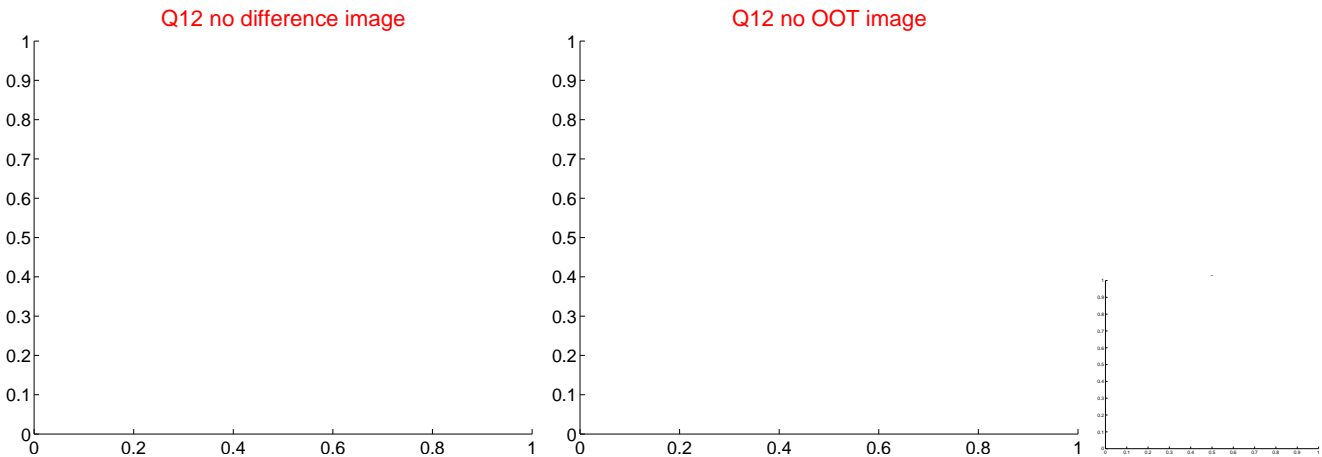
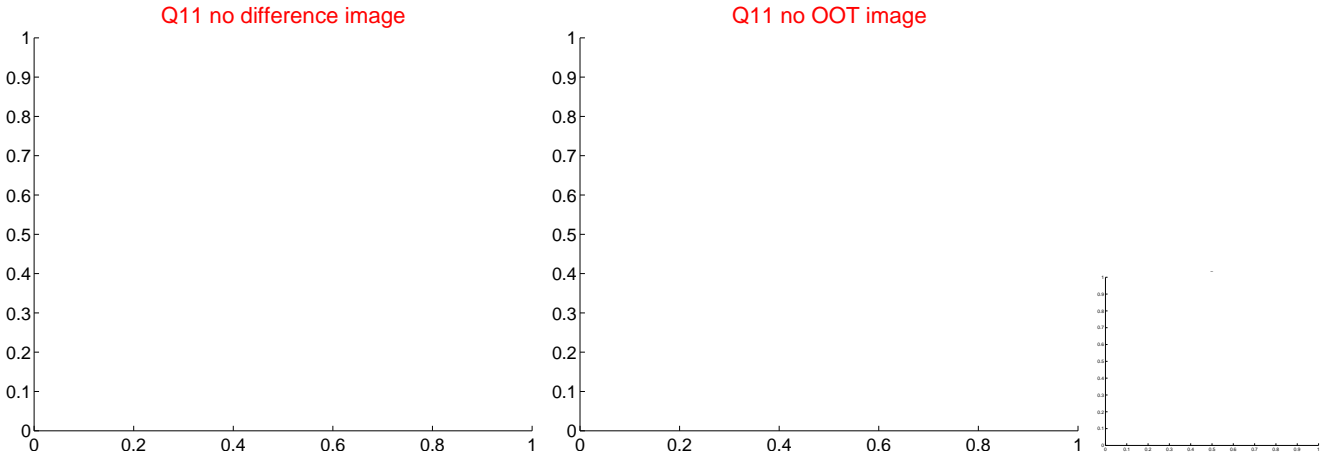
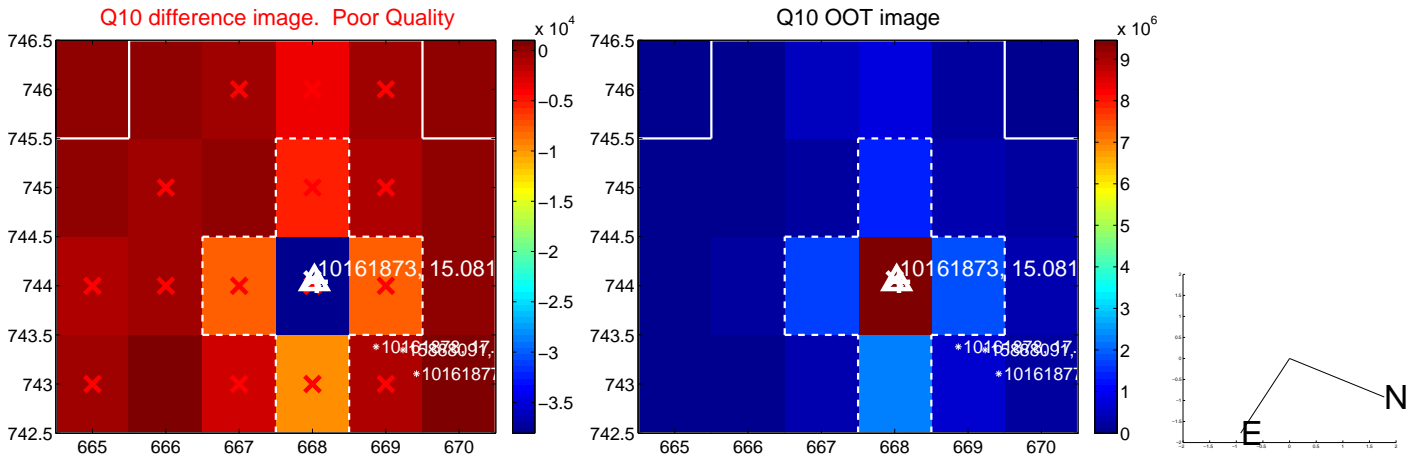
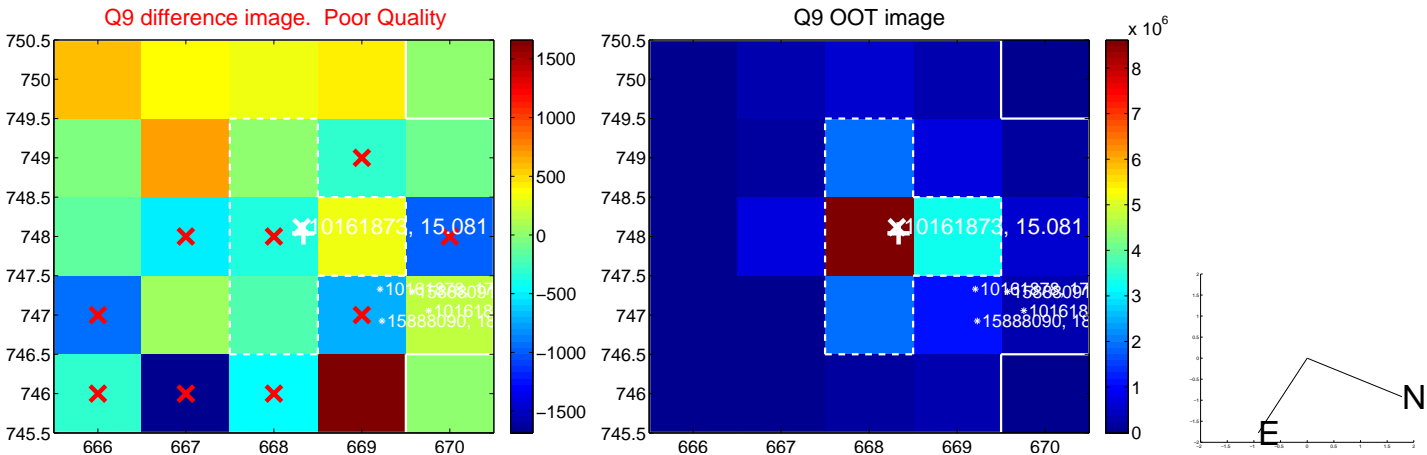
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



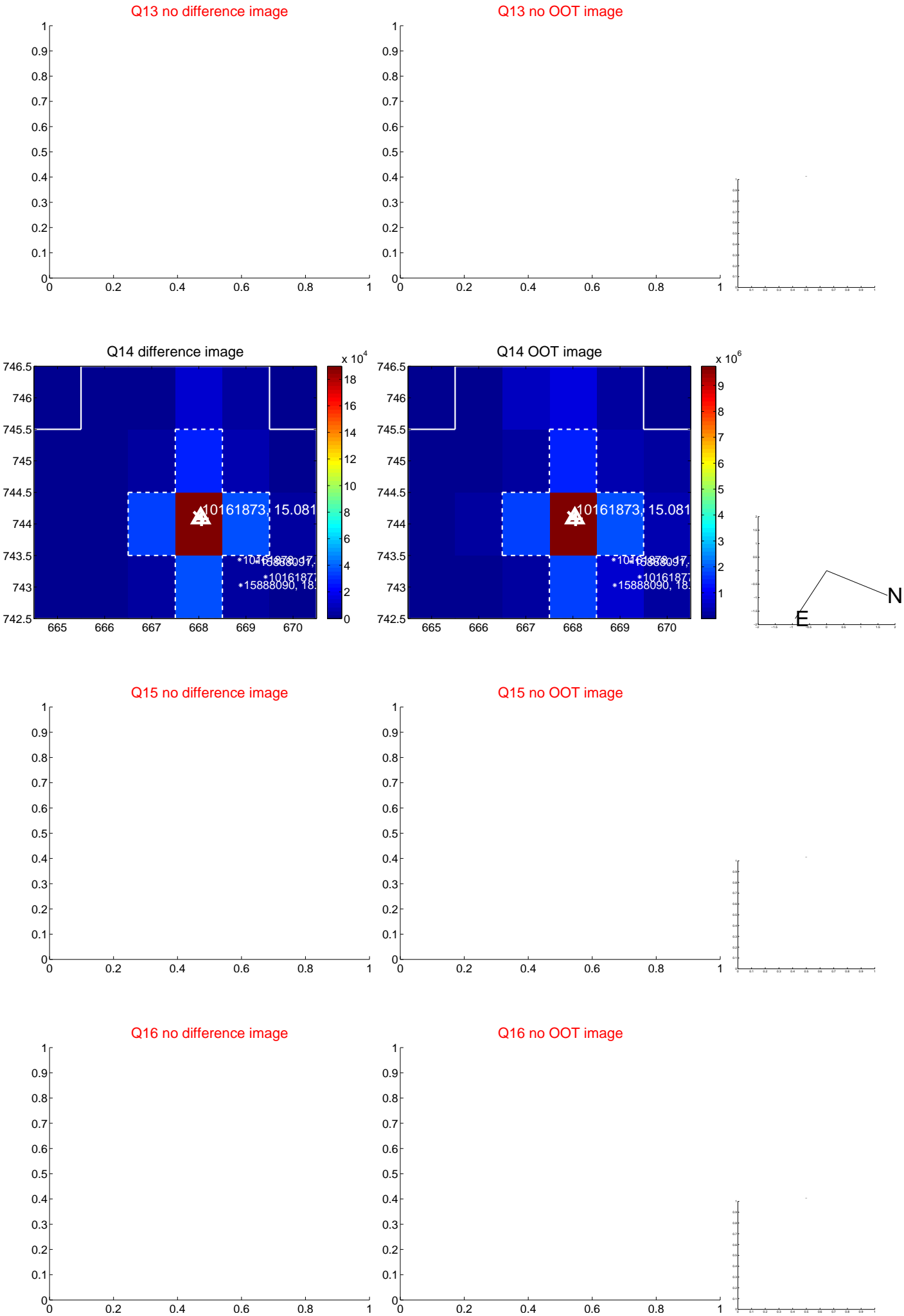
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



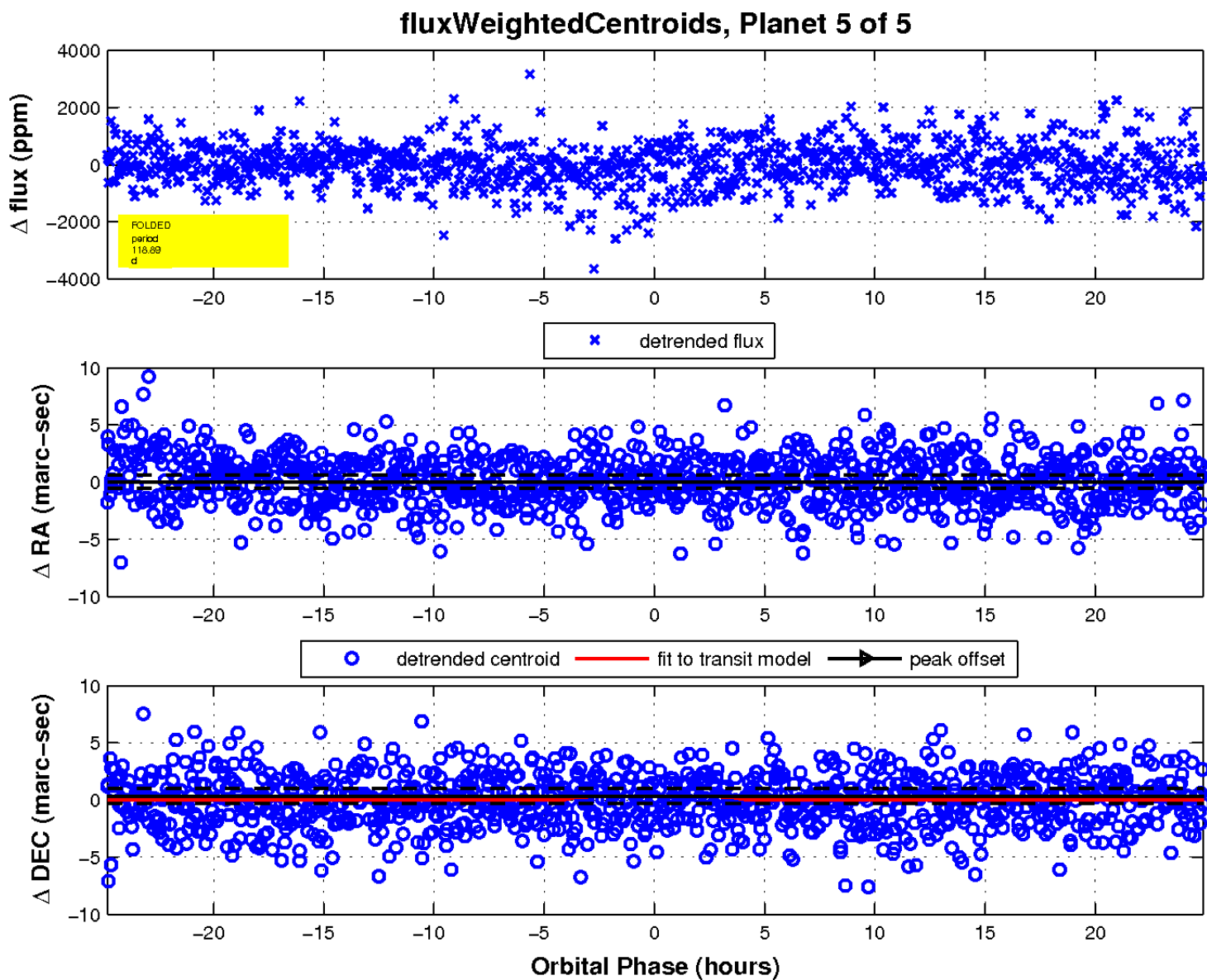
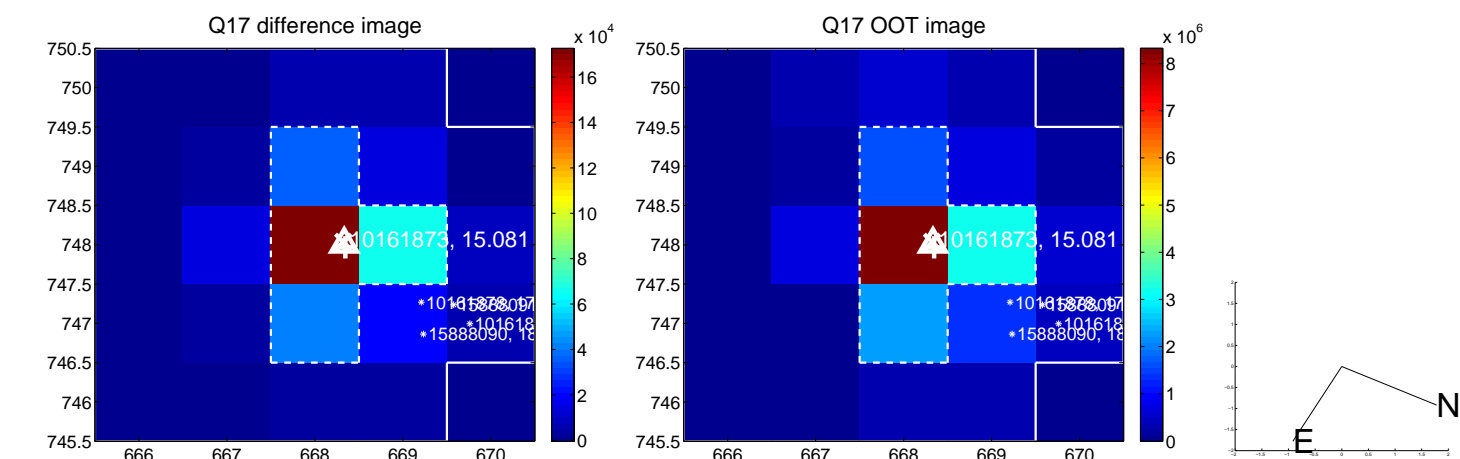
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

