

KIC 011871236

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})
011871236-01	OBS	No	0.604874	131.685201	68.0	2.908	8.2	9.4	2.39	7904	2.23	67039.03
011871236-02	OBS	No	42.121850	137.847403	1036.1	3.998	8.1	7.8	2.39	7904	14.29	233.99
011871236-03	OBS	No	57.119953	139.944188	1075.0	3.410	8.4	10.2	2.39	7904	9.27	155.89
011871236-04	OBS	No	53.914144	149.971115	561.8	8.839	8.2	6.6	2.39	7904	6.08	168.38
011871236-05	OBS	No	103.701363	150.878193	985.9	2.306	8.1	8.8	2.39	7904	8.86	70.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011871236-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011871236-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011871236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
011871236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011871236-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

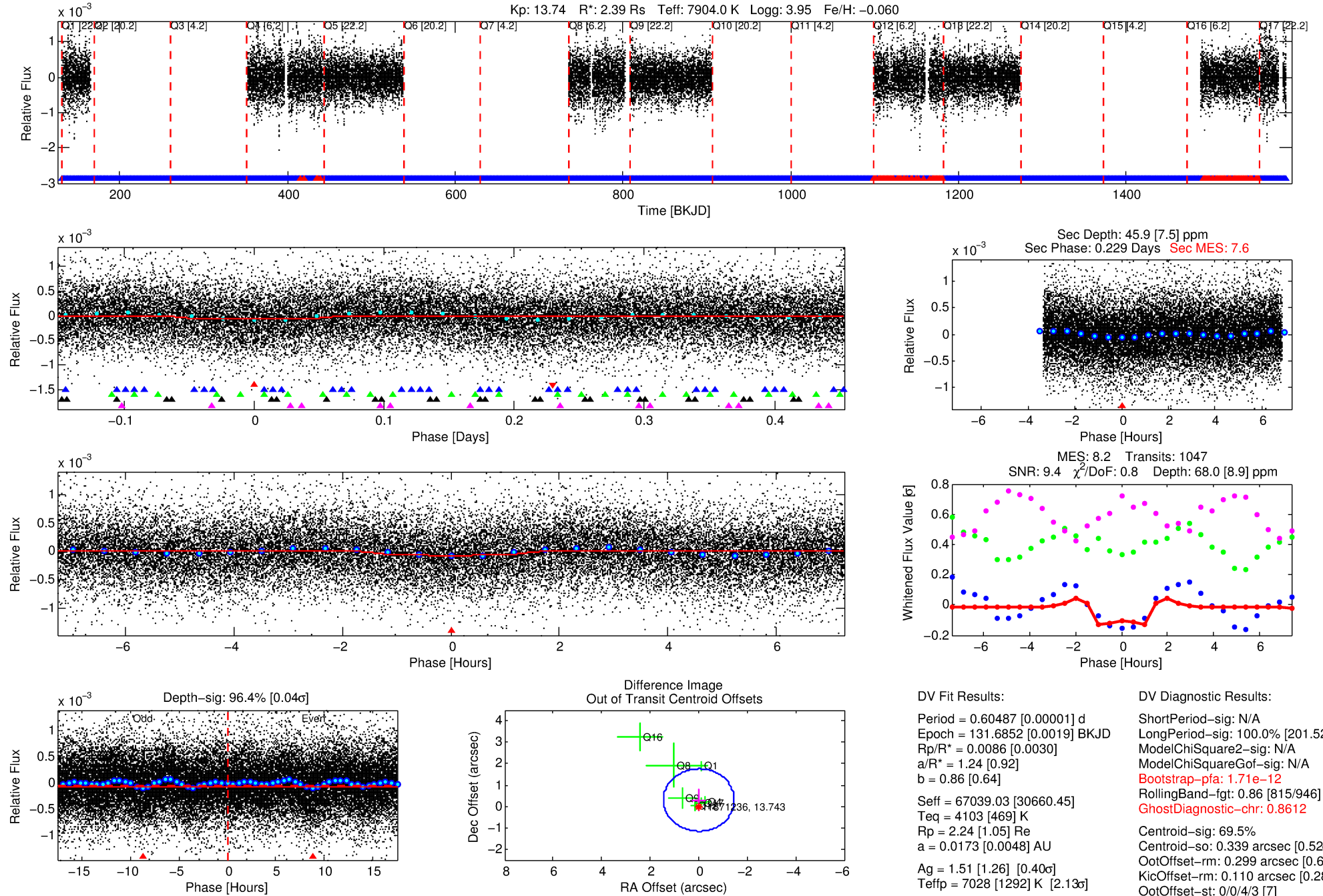
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011871236-01

No Significant Match Found

DV One-Page Summary

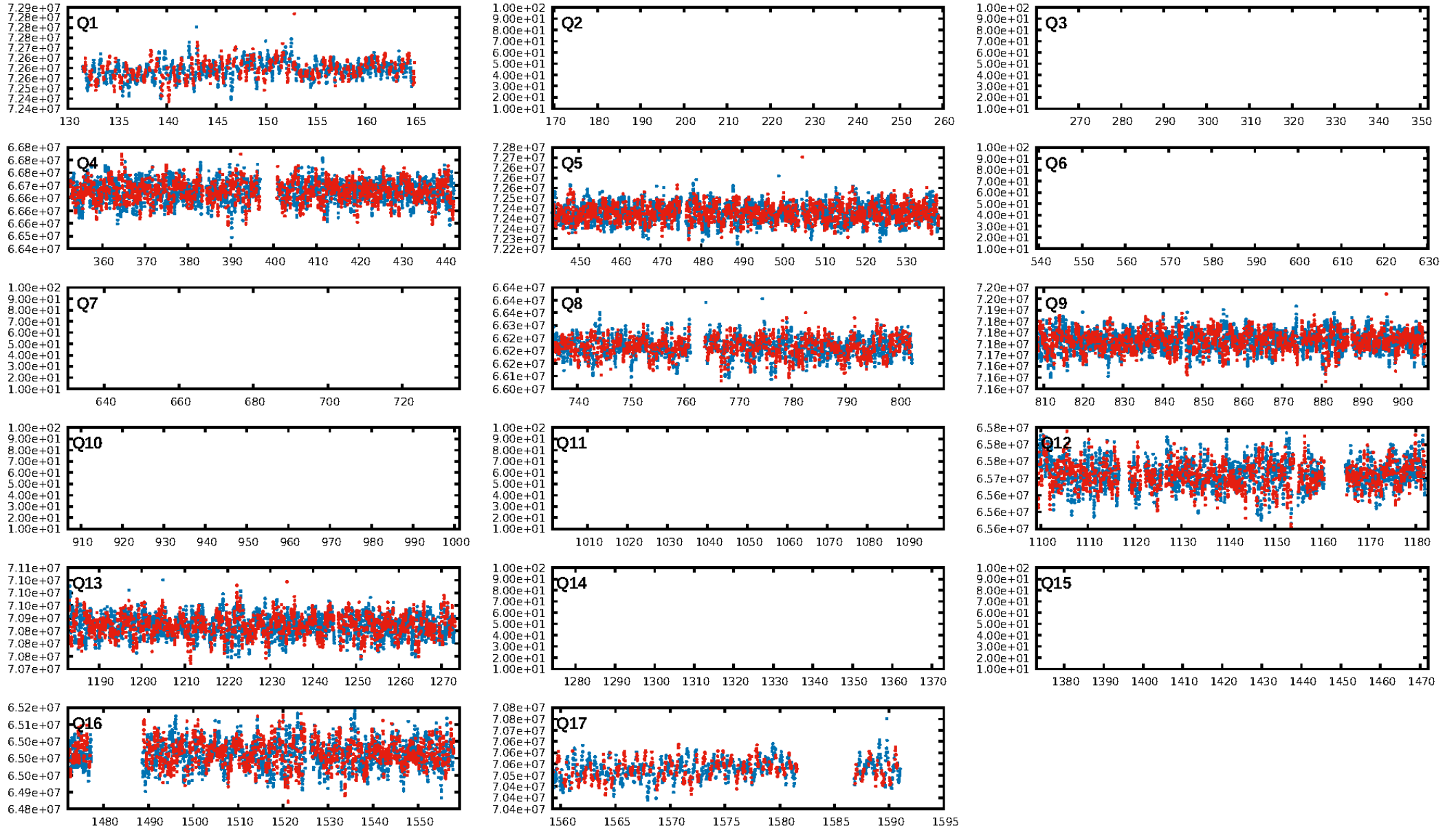
KIC: 11871236 Candidate: 1 of 5 Period: 0.605 d



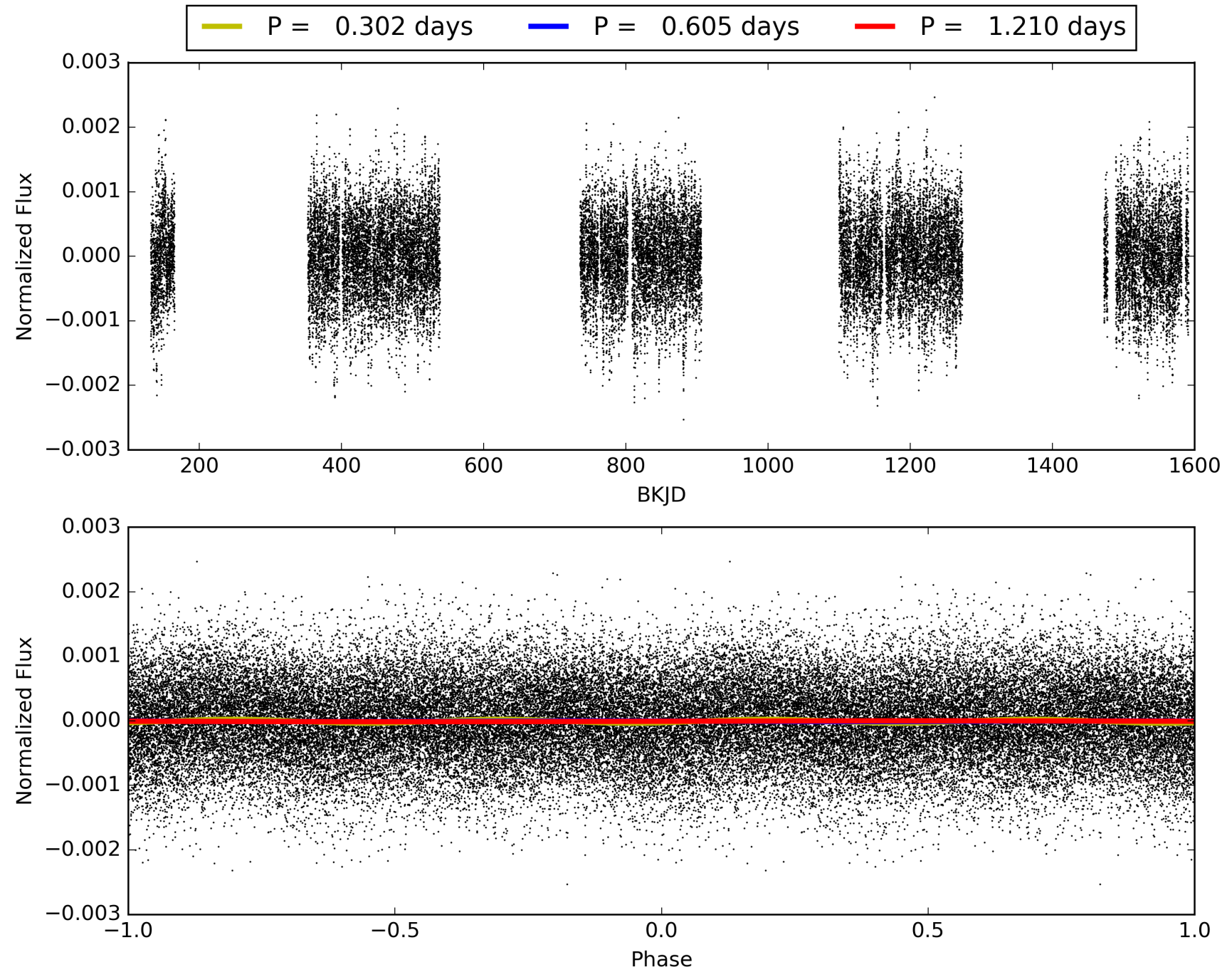
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011871236-01, PDC Light Curves

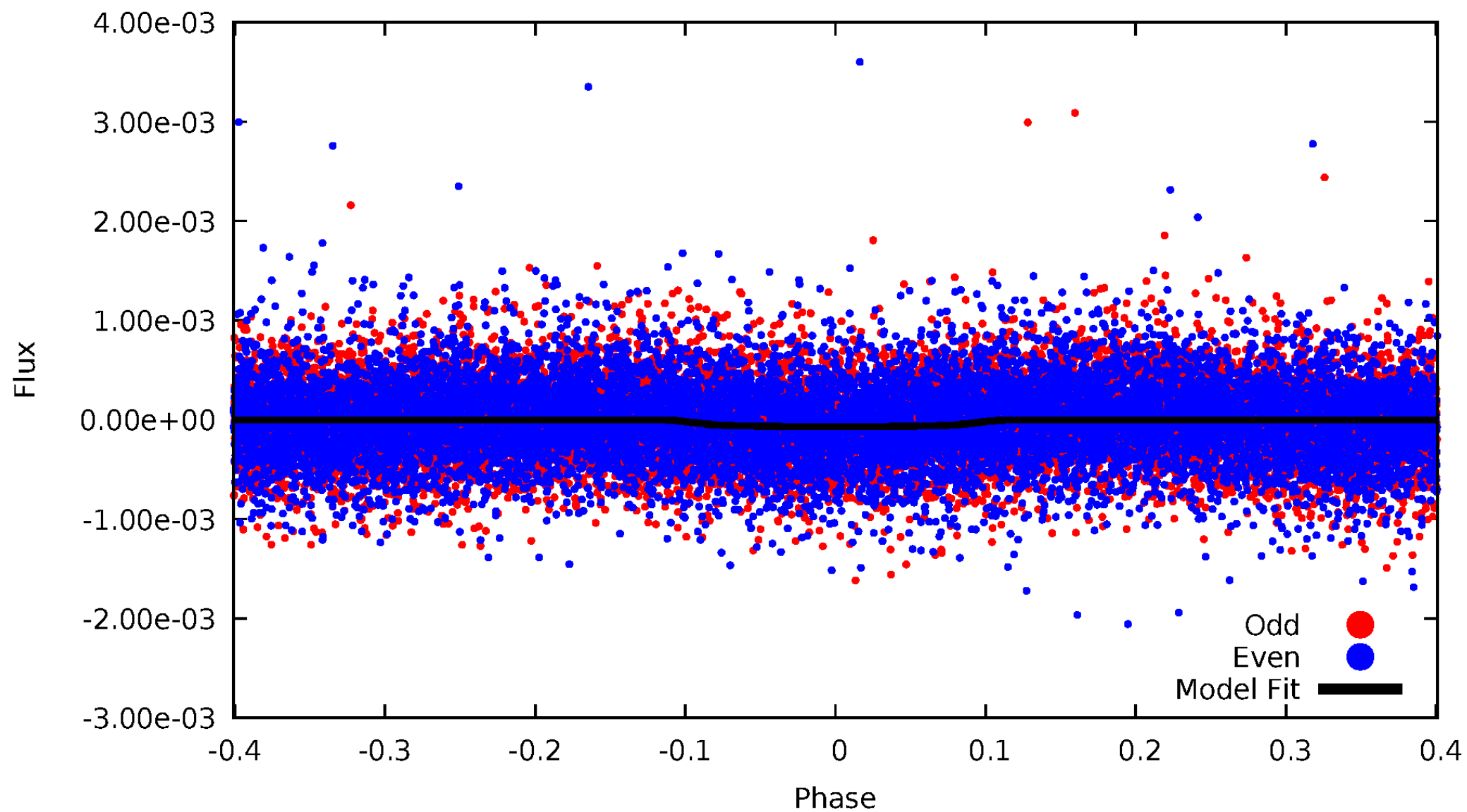


TCE 011871236-01



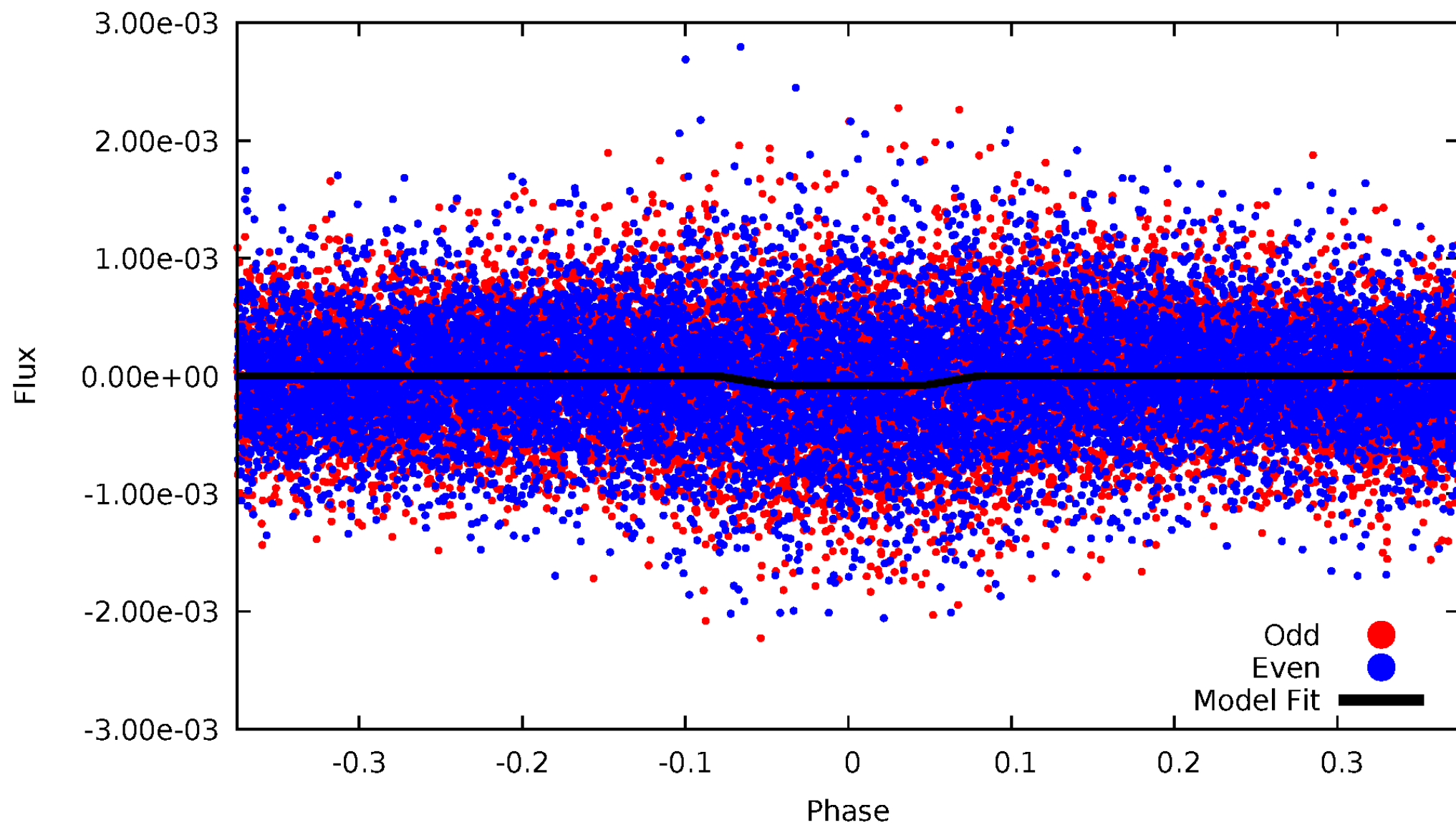
DV Odd/Even

TCE 011871236-01

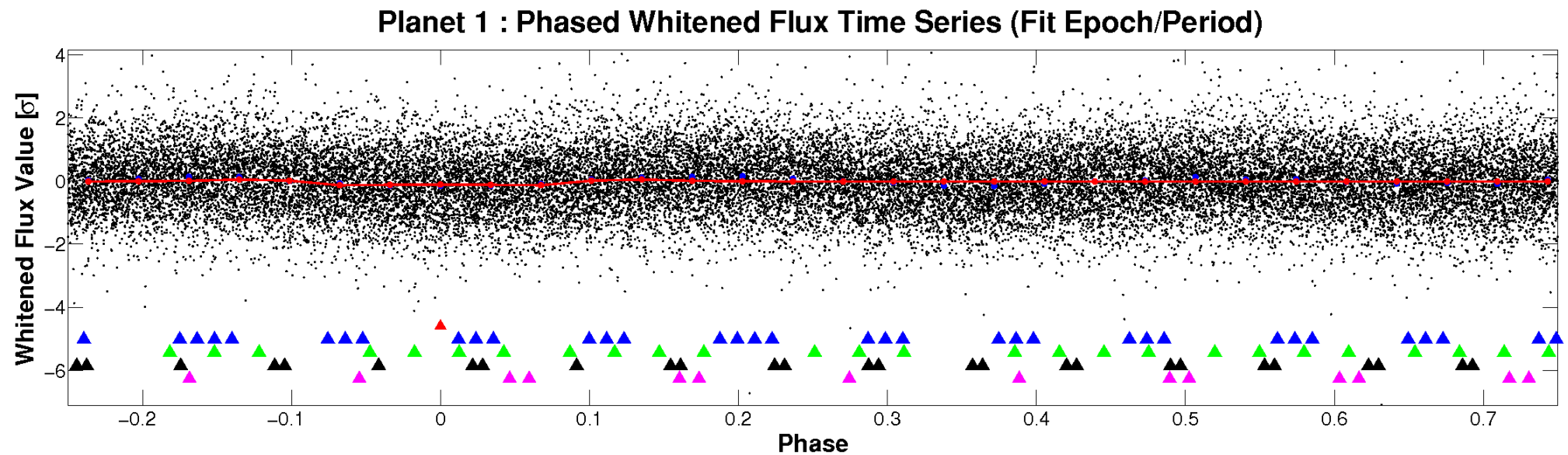
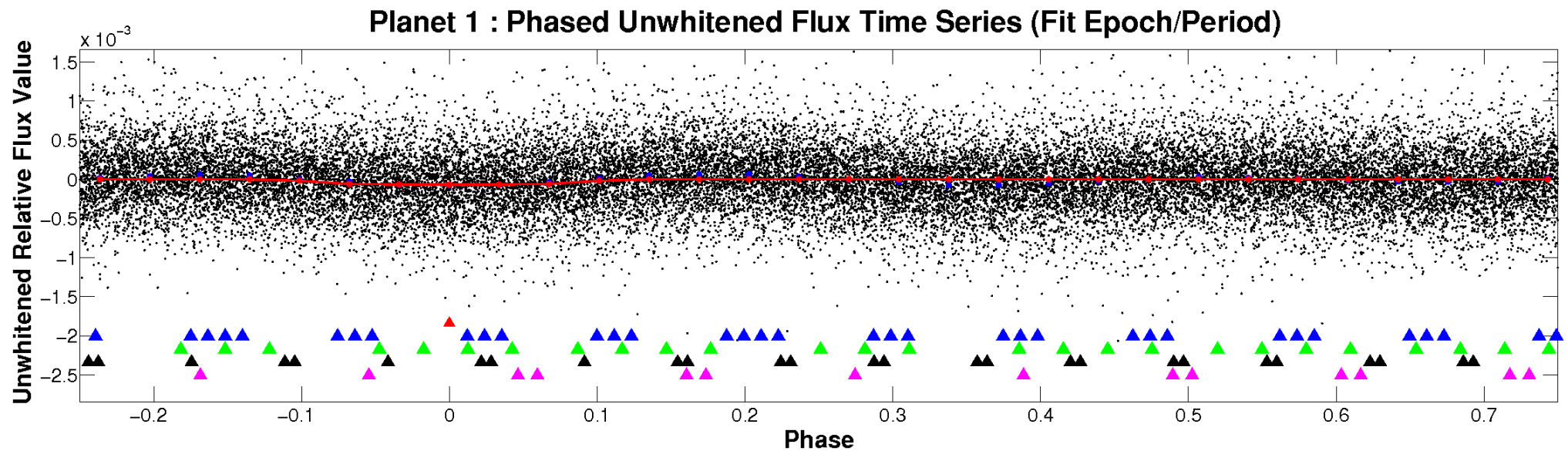


ALT Odd/Even

TCE 011871236-01

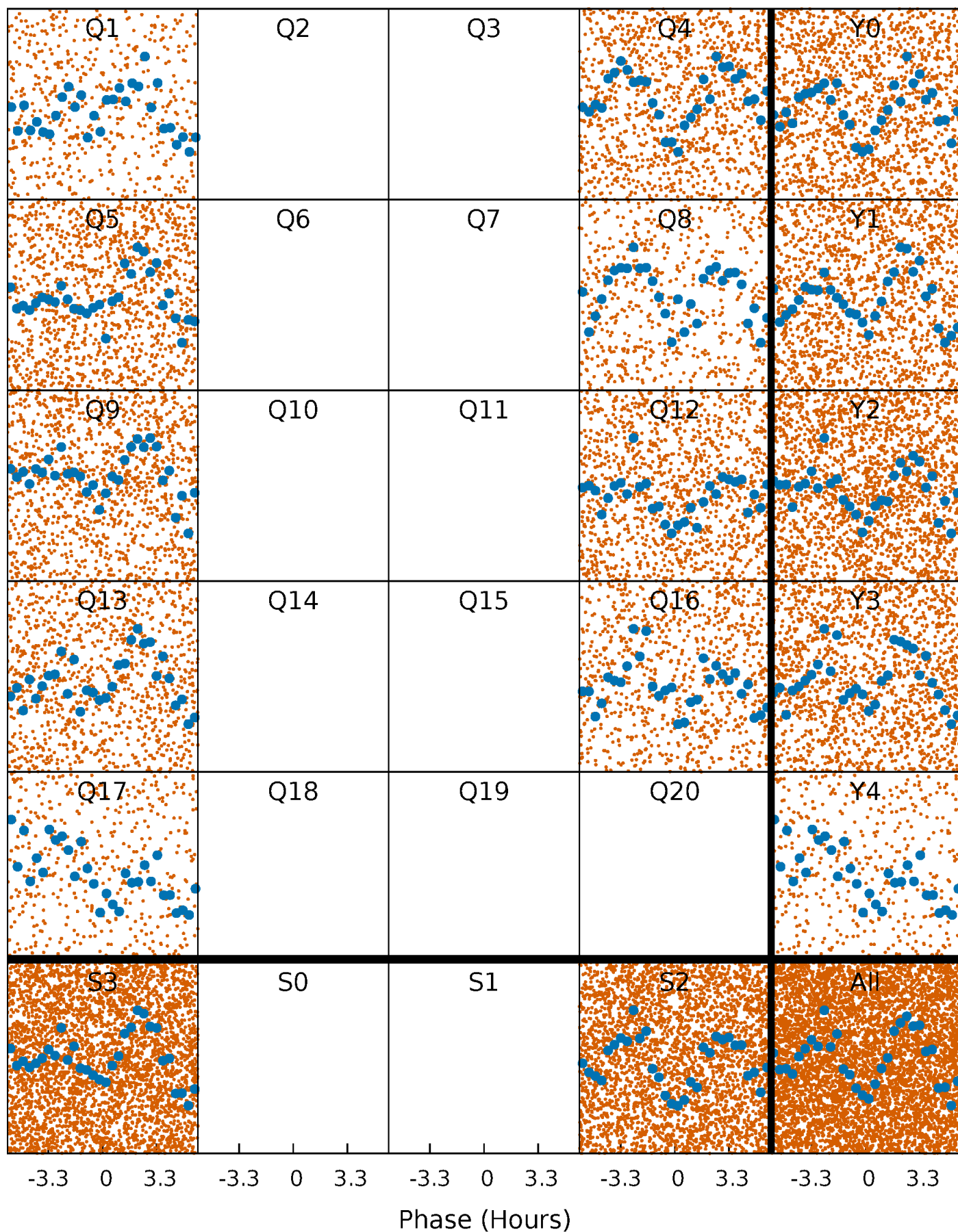


Non-Whitened Vs. Whitened Light Curve



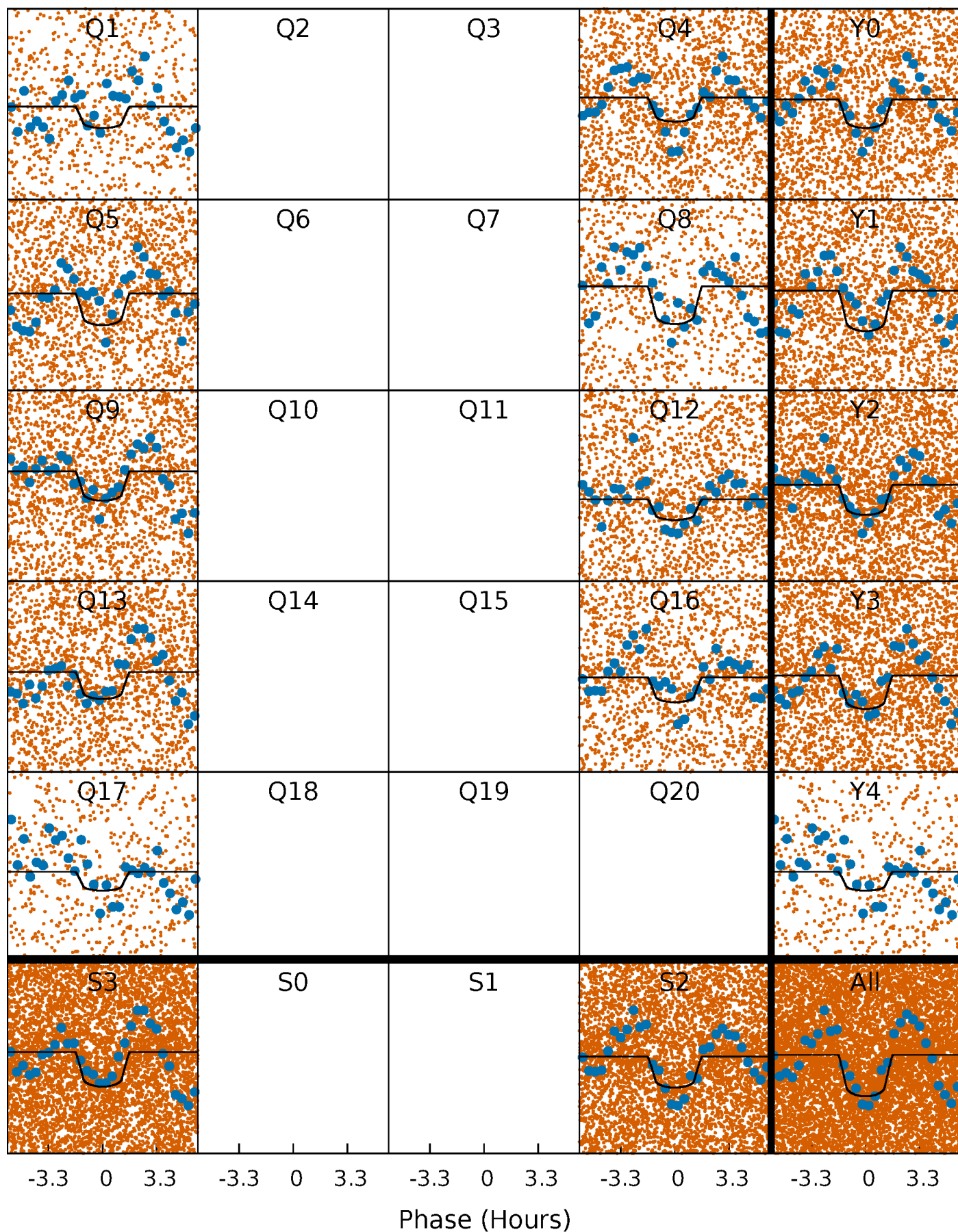
PDC Quarter-Phased Transit Curves

TCE 011871236-01 P= 0.604874 Days $T_0=131.685201$ (BKJD)



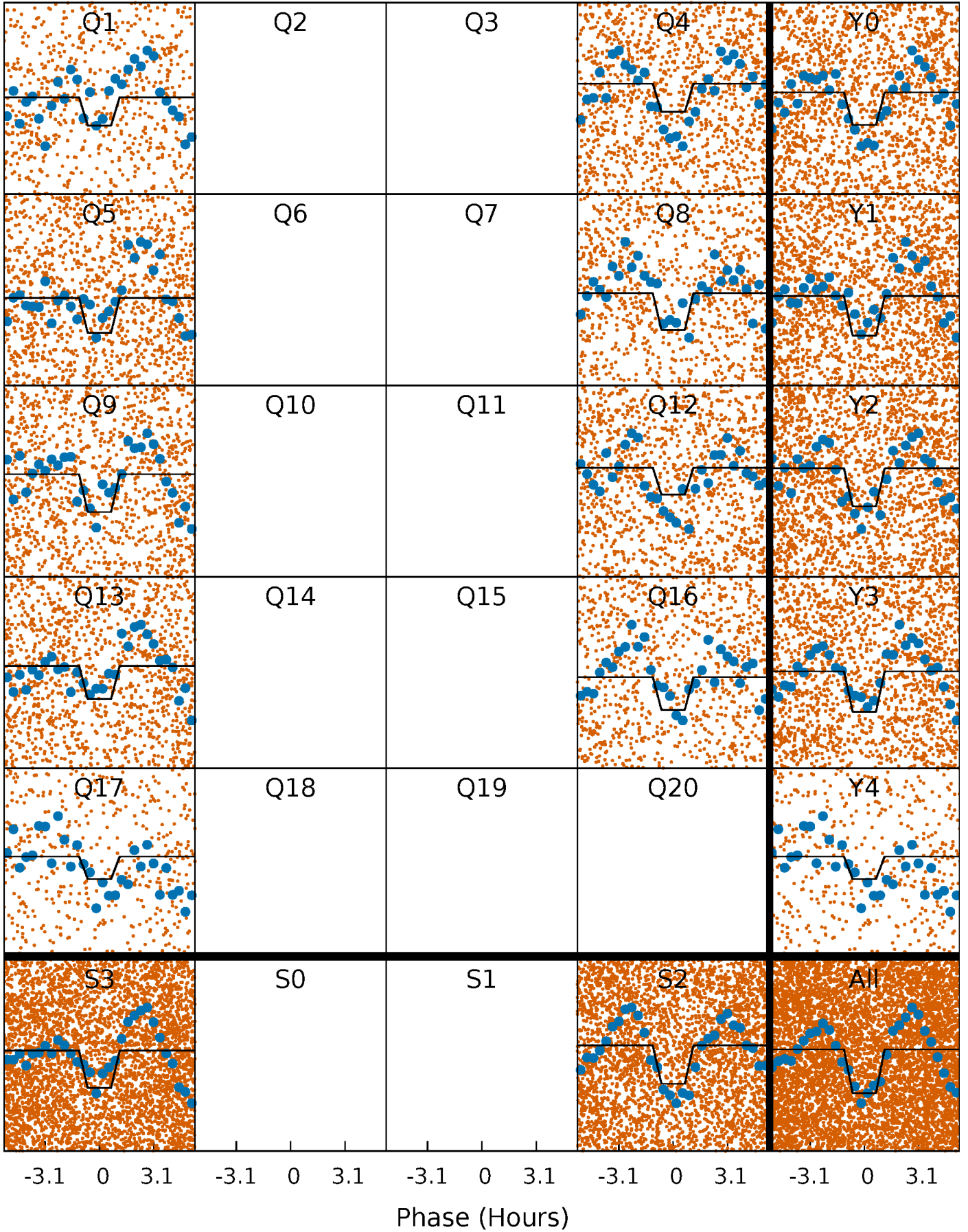
DV Quarter-Phased Transit Curves

TCE 011871236-01 P= 0.604874 Days $T_0=131.685201$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

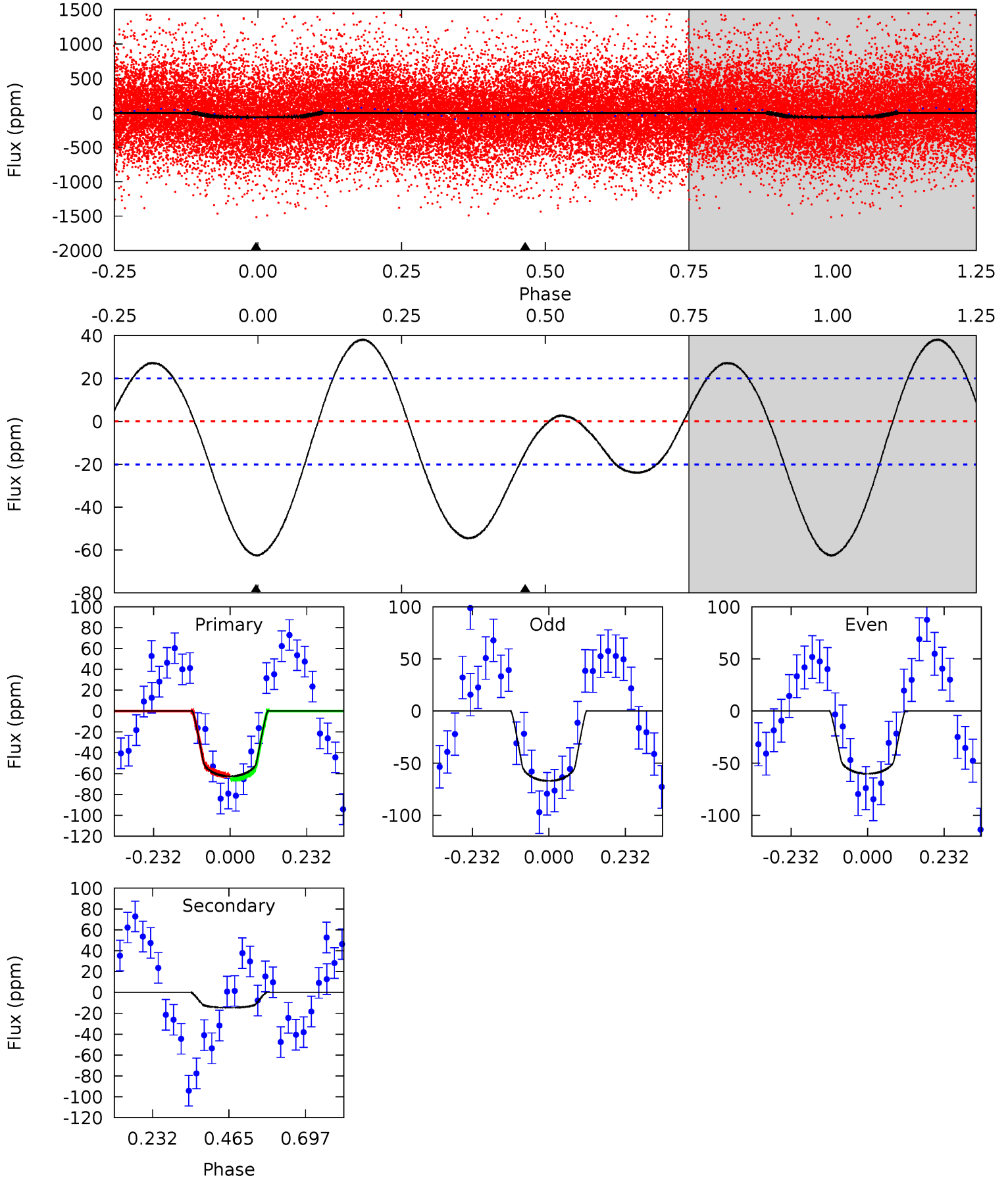
TCE 011871236-01 P= 0.604879 Days $T_0=131.676125$ (BKJD)



DV Model-Shift Uniqueness Test

011871236-01, P = 0.604874 Days, E = 131.080327 Days

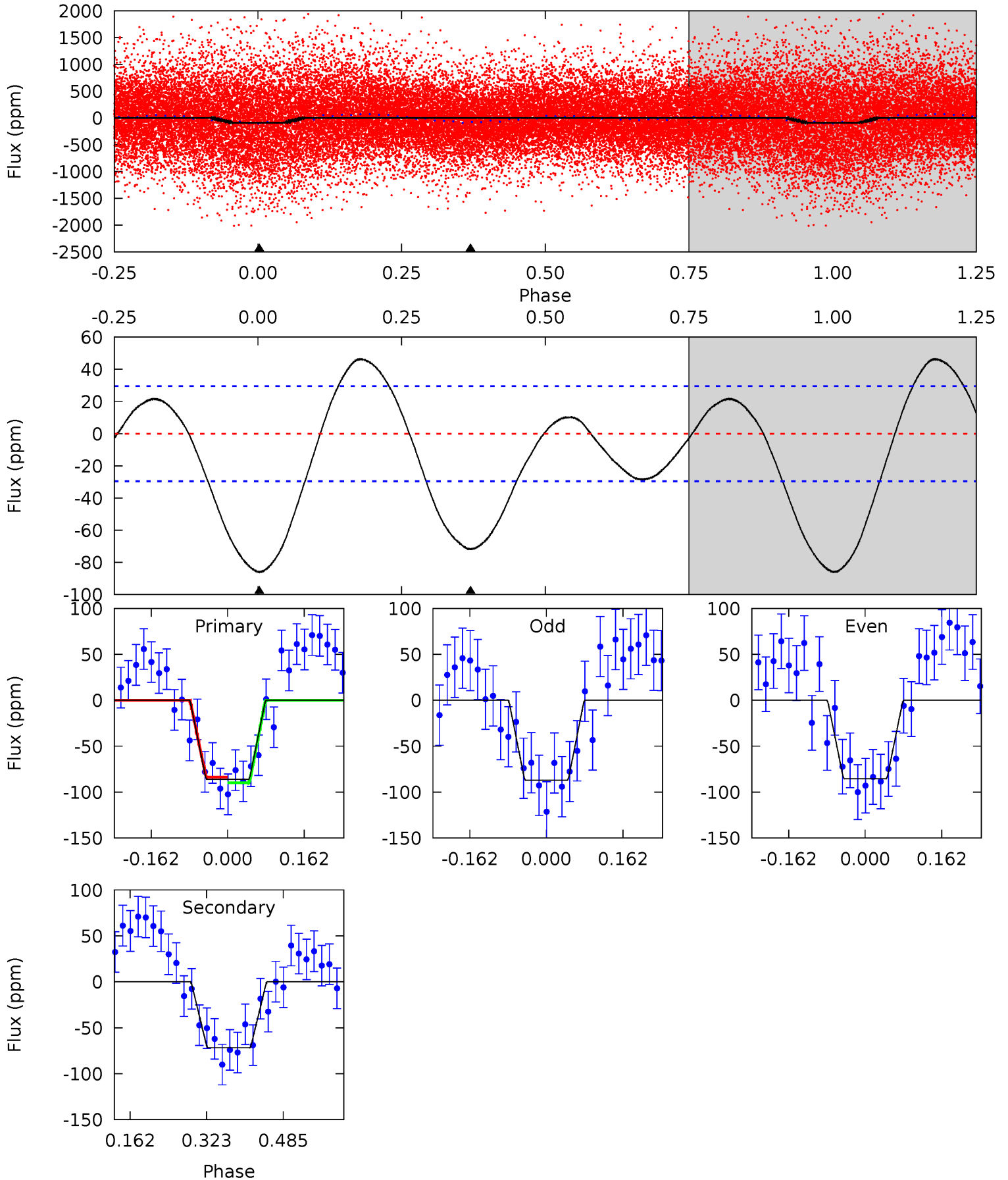
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	3.20	0	0	4.38	1.19	3.21	13.7	13.7	3.20	3.20	0.75	0.97	0.38	0.39



Alt Model-Shift Uniqueness Test

011871236-01, P = 0.604879 Days, E = 131.071246 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	10.8	0	0	4.46	1.40	3.43	13.0	13.0	10.8	10.8	0.12	1.30	0.35	0.46



Stellar Parameters For KIC 011871236

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7904^{+219}_{-329}	$3.954^{+0.241}_{-0.130}$	$-0.060^{+0.200}_{-0.350}$	$2.390^{+0.466}_{-0.757}$	$1.872^{+0.104}_{-0.389}$	$0.193^{+0.284}_{-0.075}$
	+3%/-4%	+6%/-3%	+333%/-583%	+19%/-32%	+6%/-21%	+147%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011871236-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 5	$2.08^{+0.88}_{-0.72}$	5662^{+405}_{-465}	4269^{+1721}_{-7905}	$0.499^{+0.799}_{-0.273}$
Alt.	-72 ± 7	$2.24^{+0.91}_{-0.79}$	5645^{+397}_{-449}	7199^{+2345}_{-1314}	$2.244^{+2.966}_{-1.111}$

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 $A_{obs} \gg 1.0$

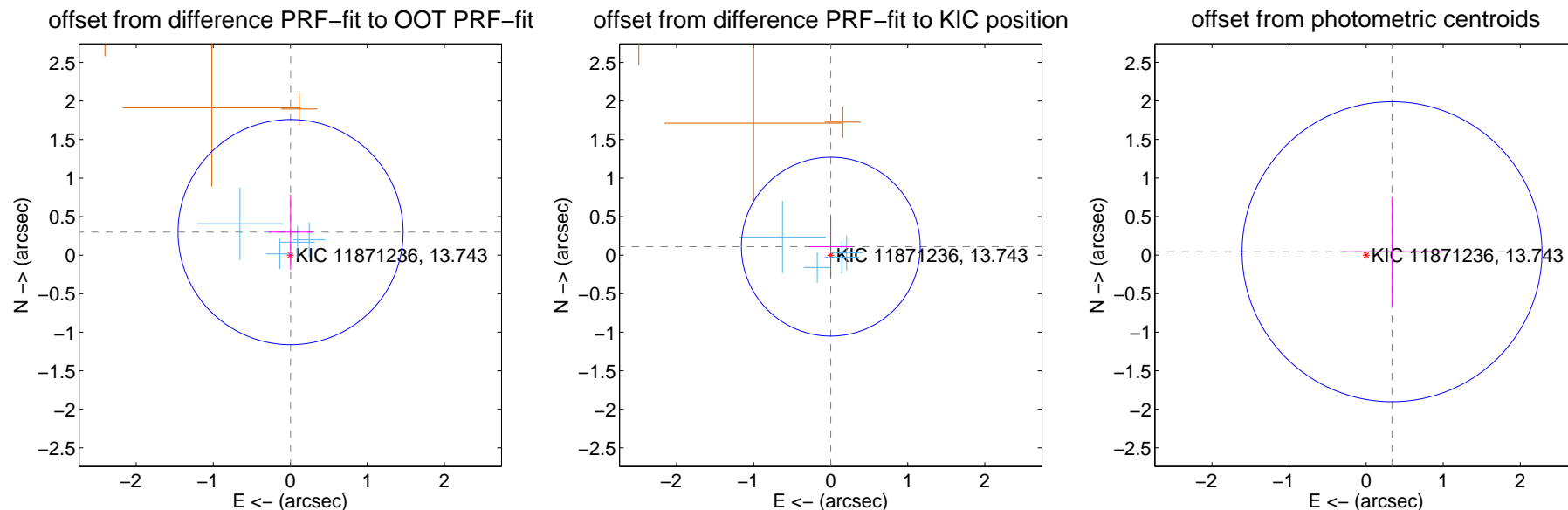
DV Centroid Data

Supplemental centroid analysis for 011871236-01. Kepler magnitude: 13.74. Transit SNR 9.42

There are 4 quarters with good PRF difference image offsets

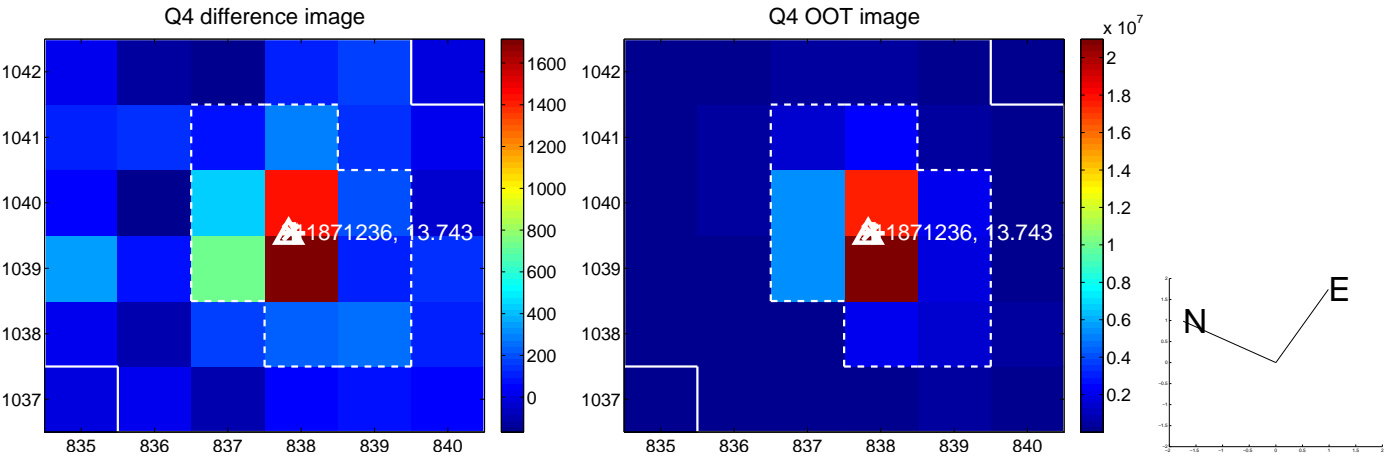
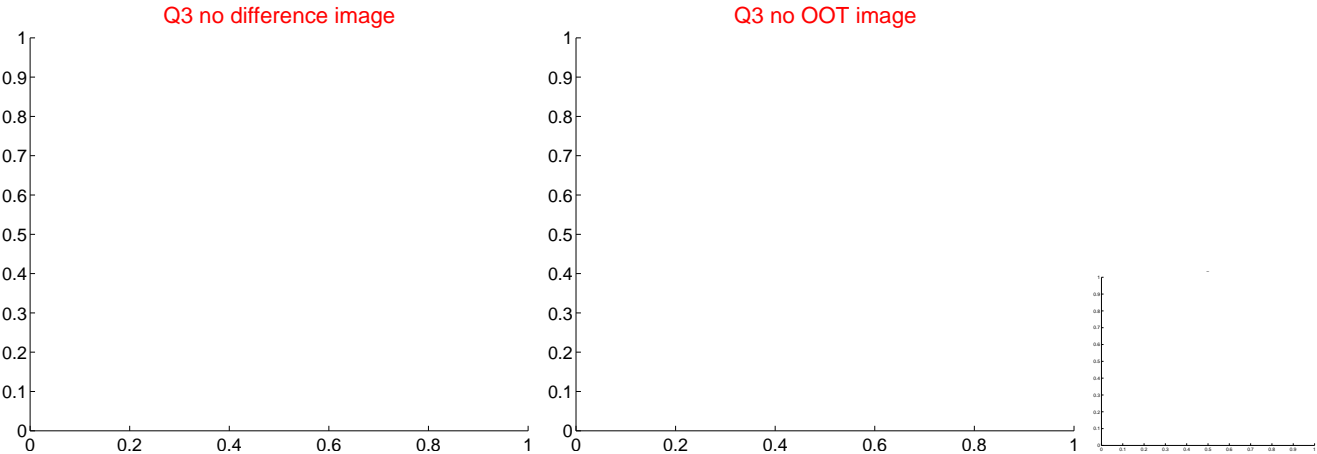
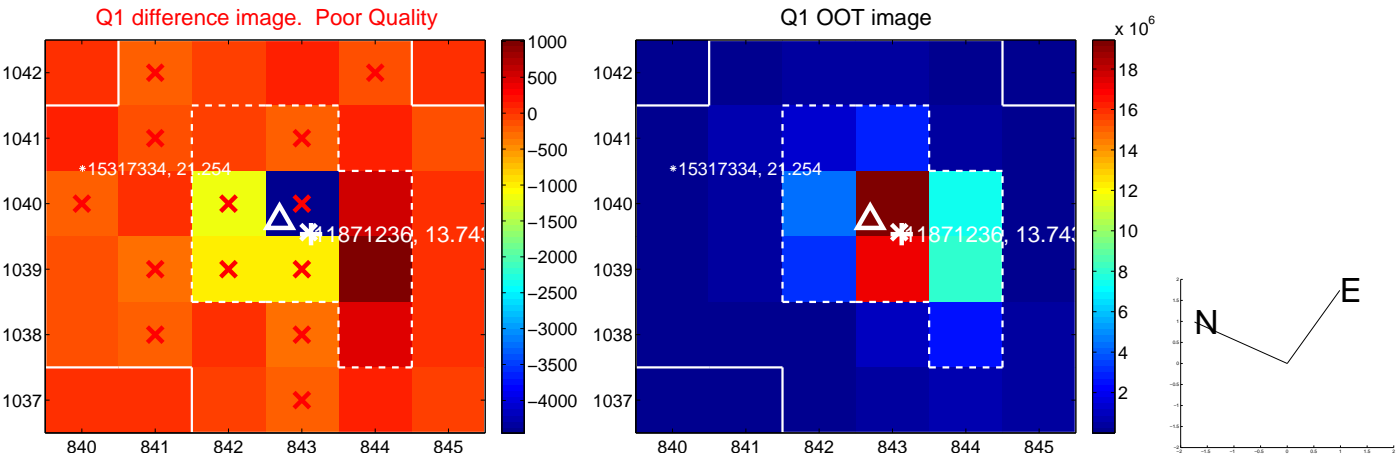
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.299 ± 0.487	0.61	-0.004 ± 0.281	0.299 ± 0.490
PRF-fit source offset from KIC position	0.110 ± 0.387	0.28	-0.001 ± 0.280	0.110 ± 0.389
photometric centroid source offset	0.34 ± 0.65	0.52	-0.34 ± 0.65	0.04 ± 0.71

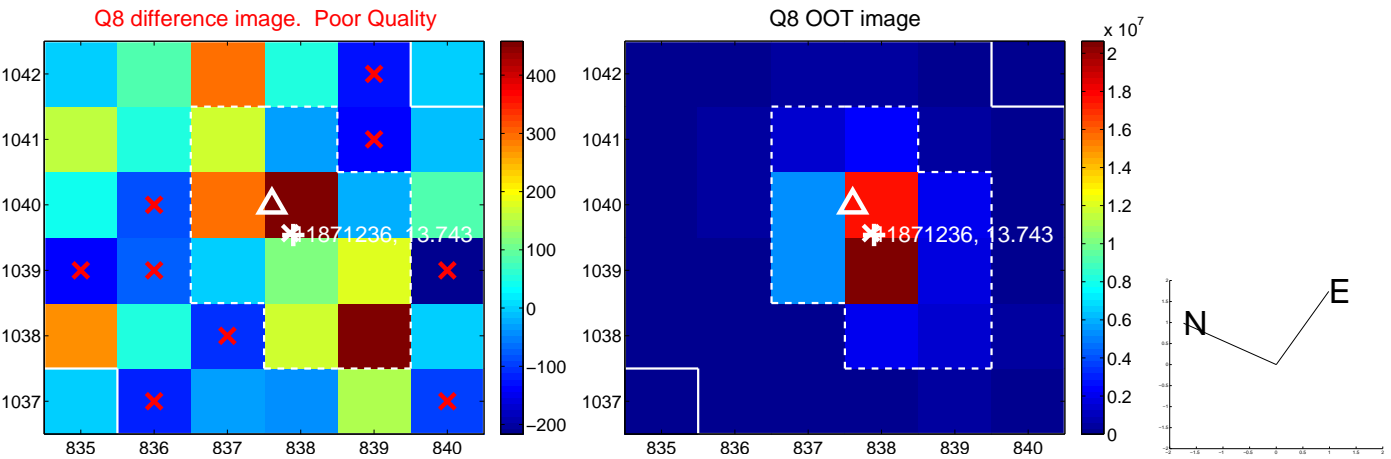
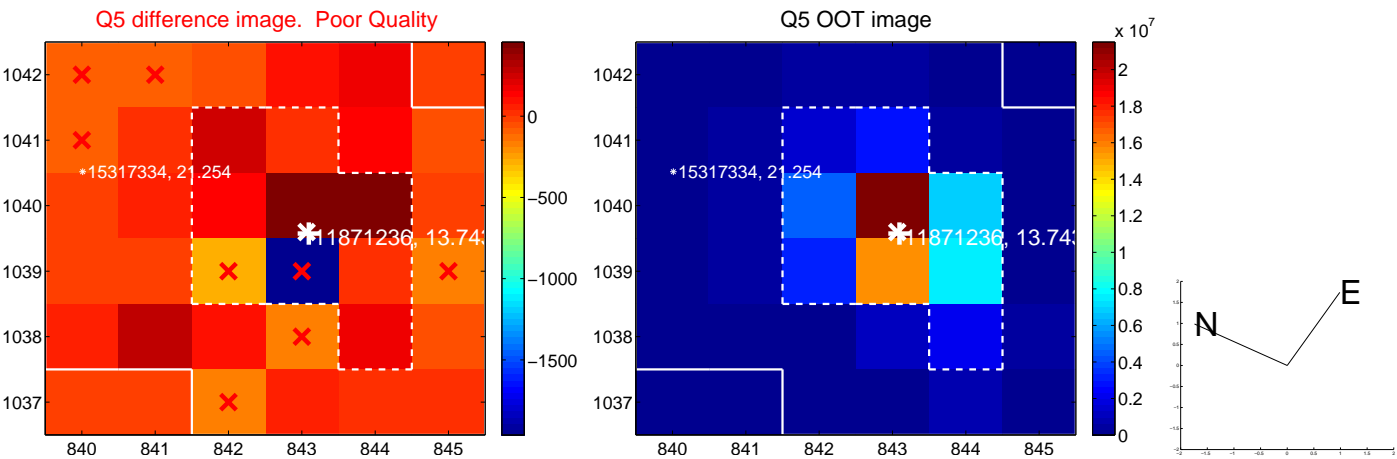


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

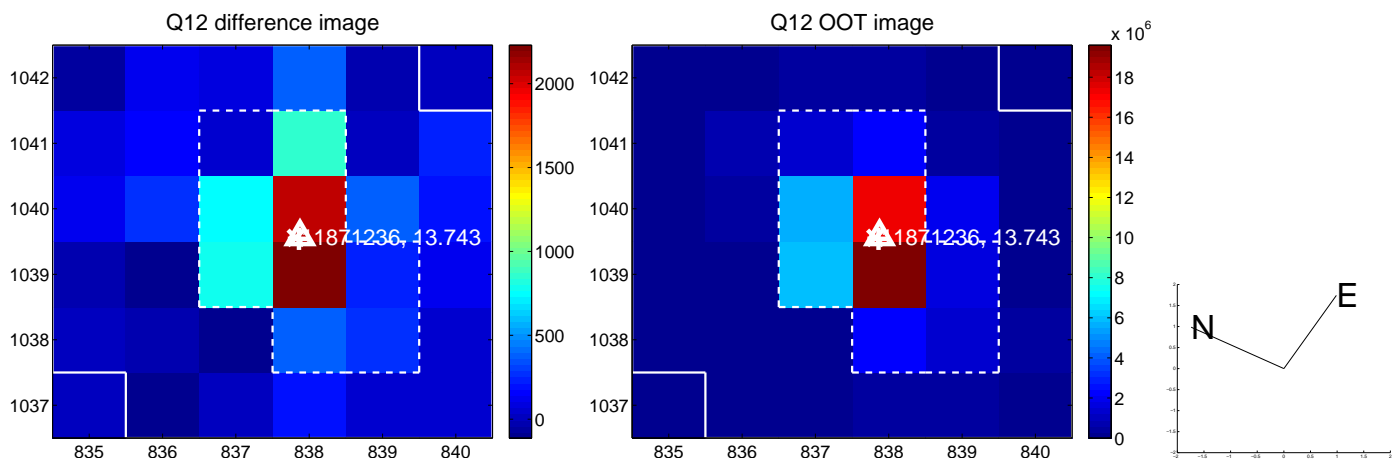
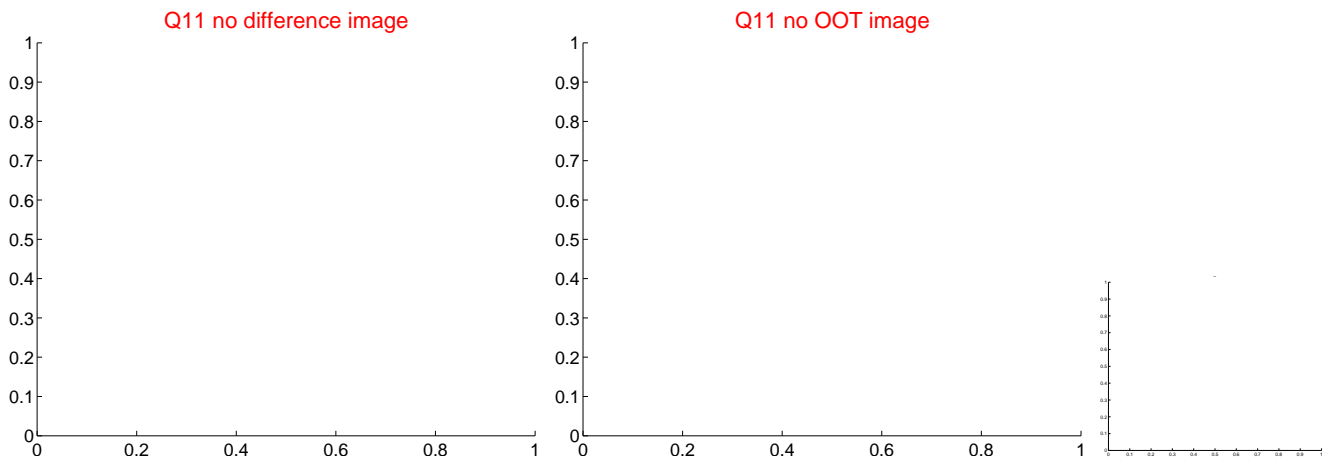
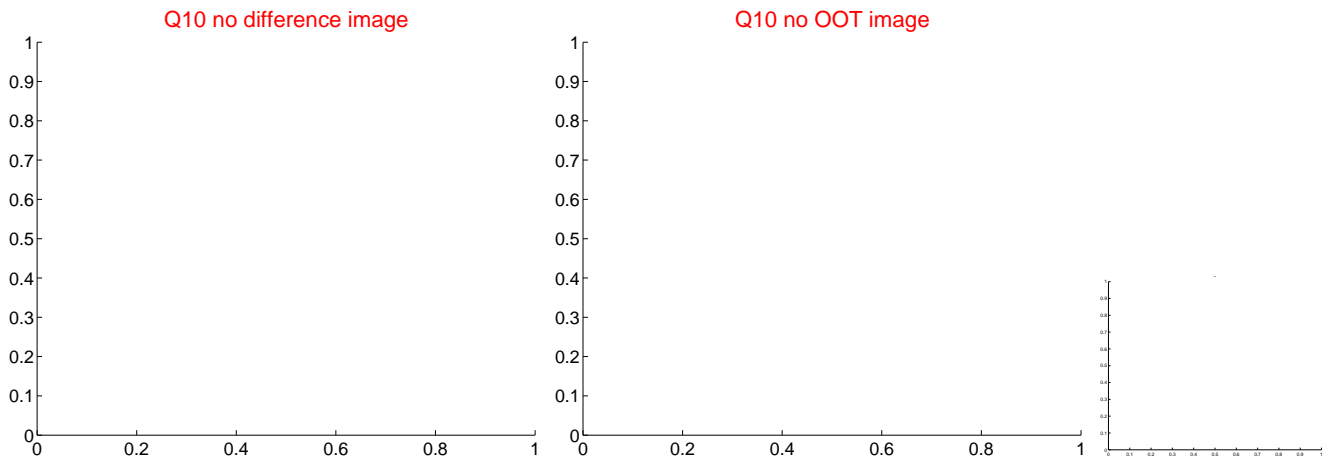
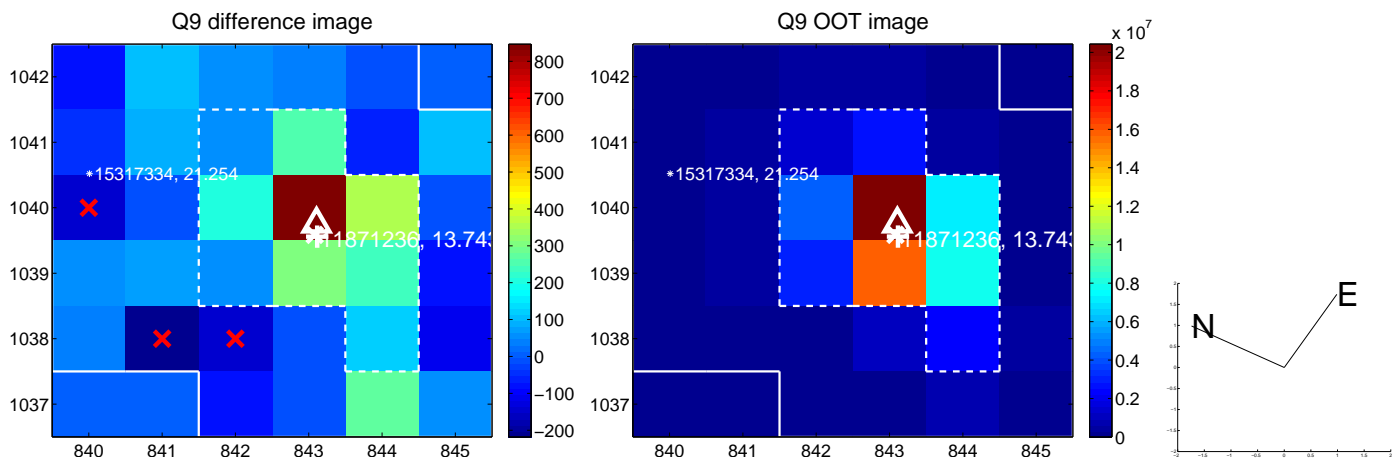
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



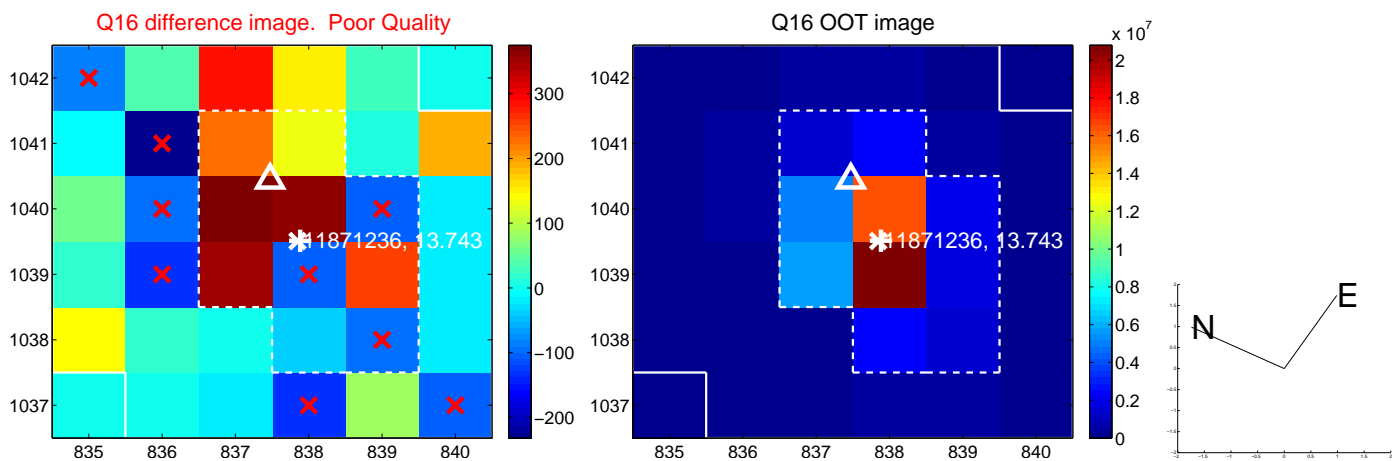
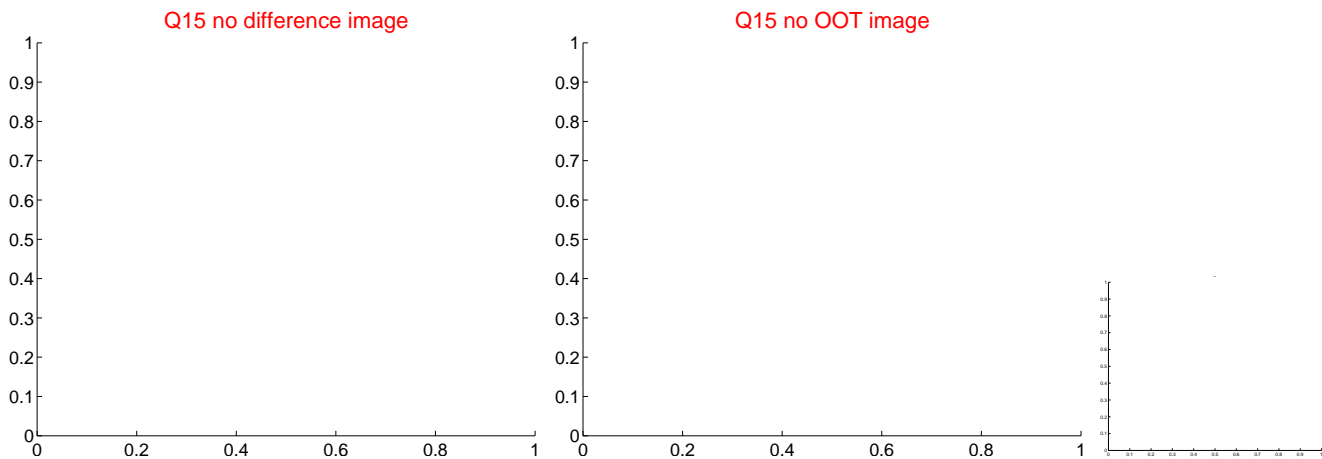
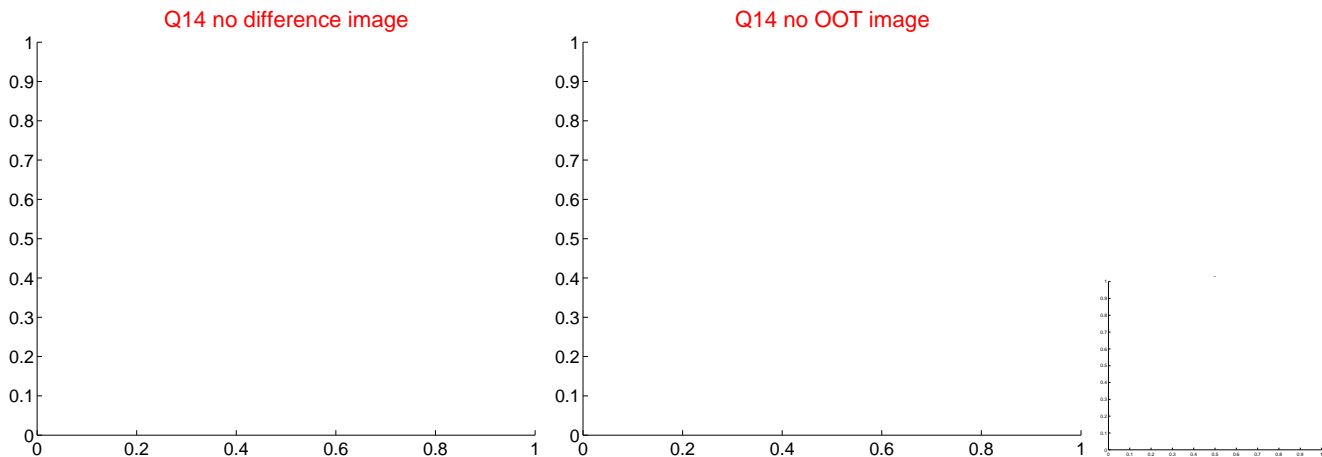
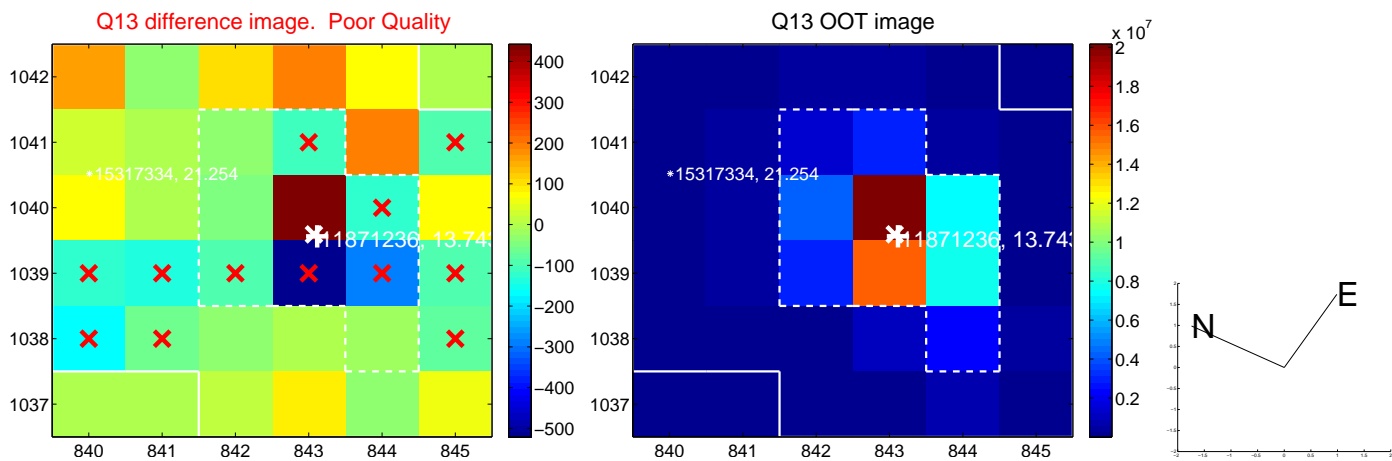
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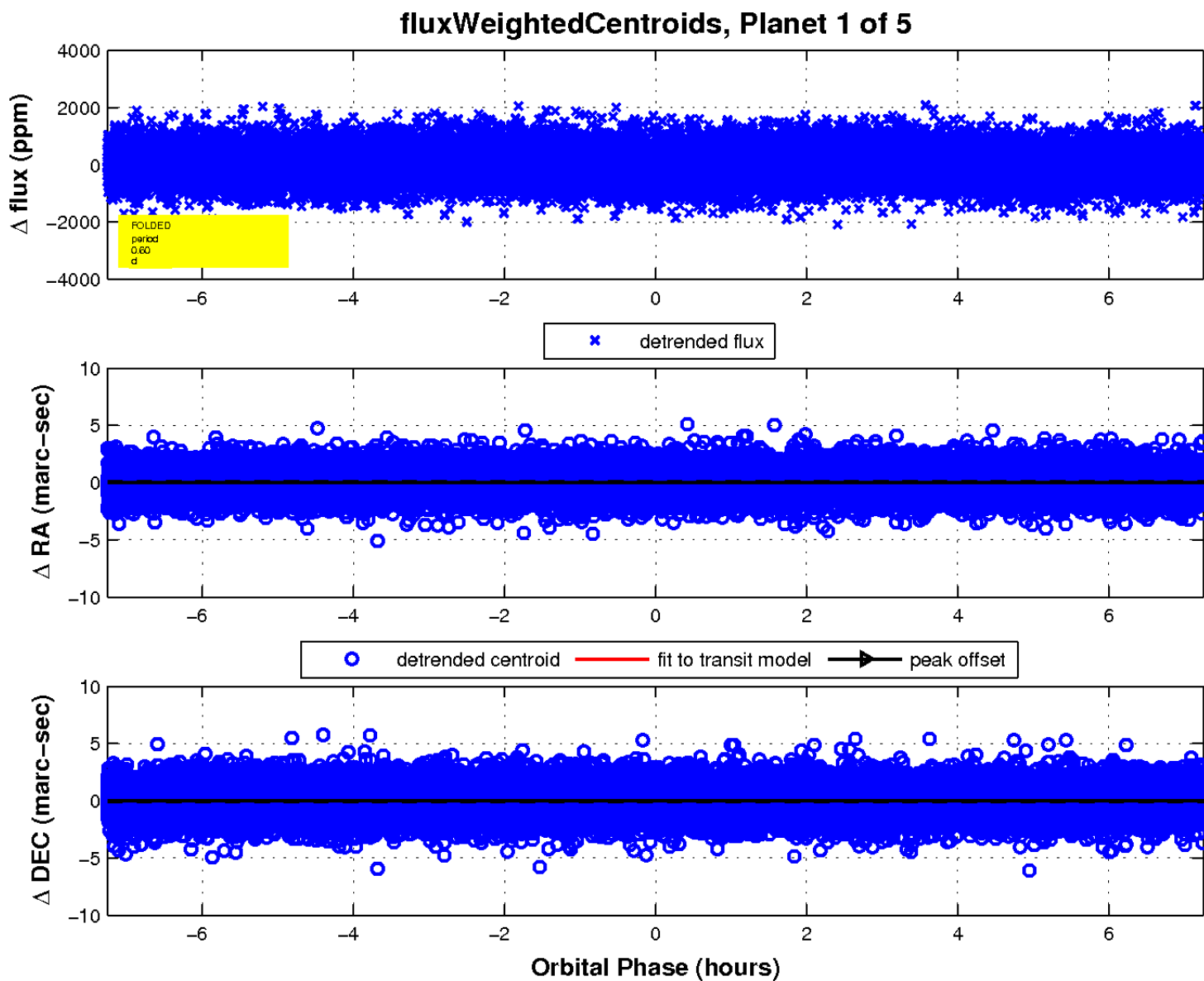
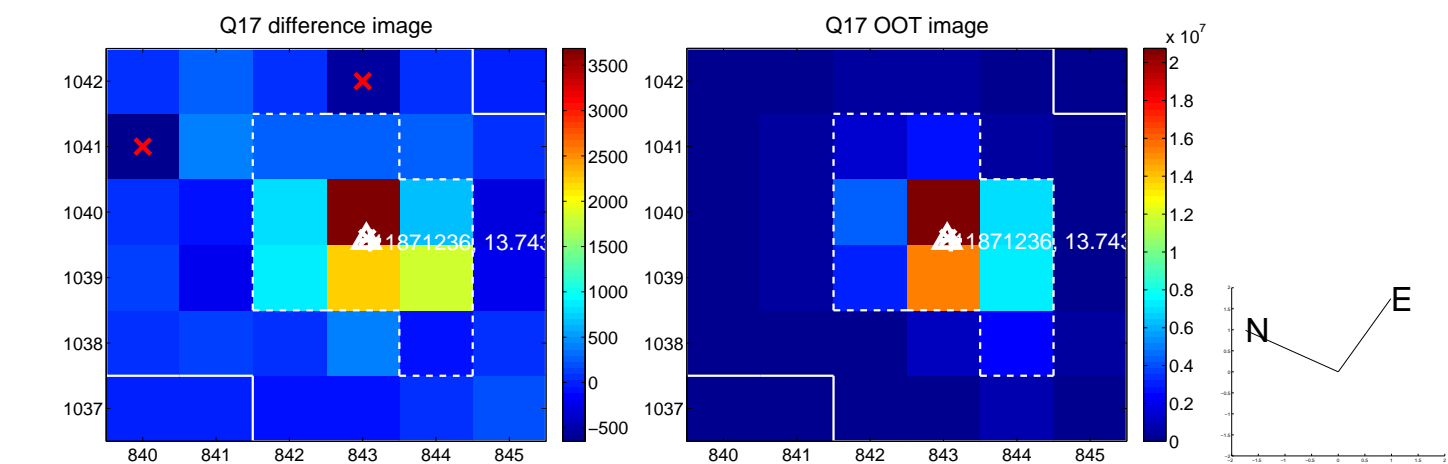
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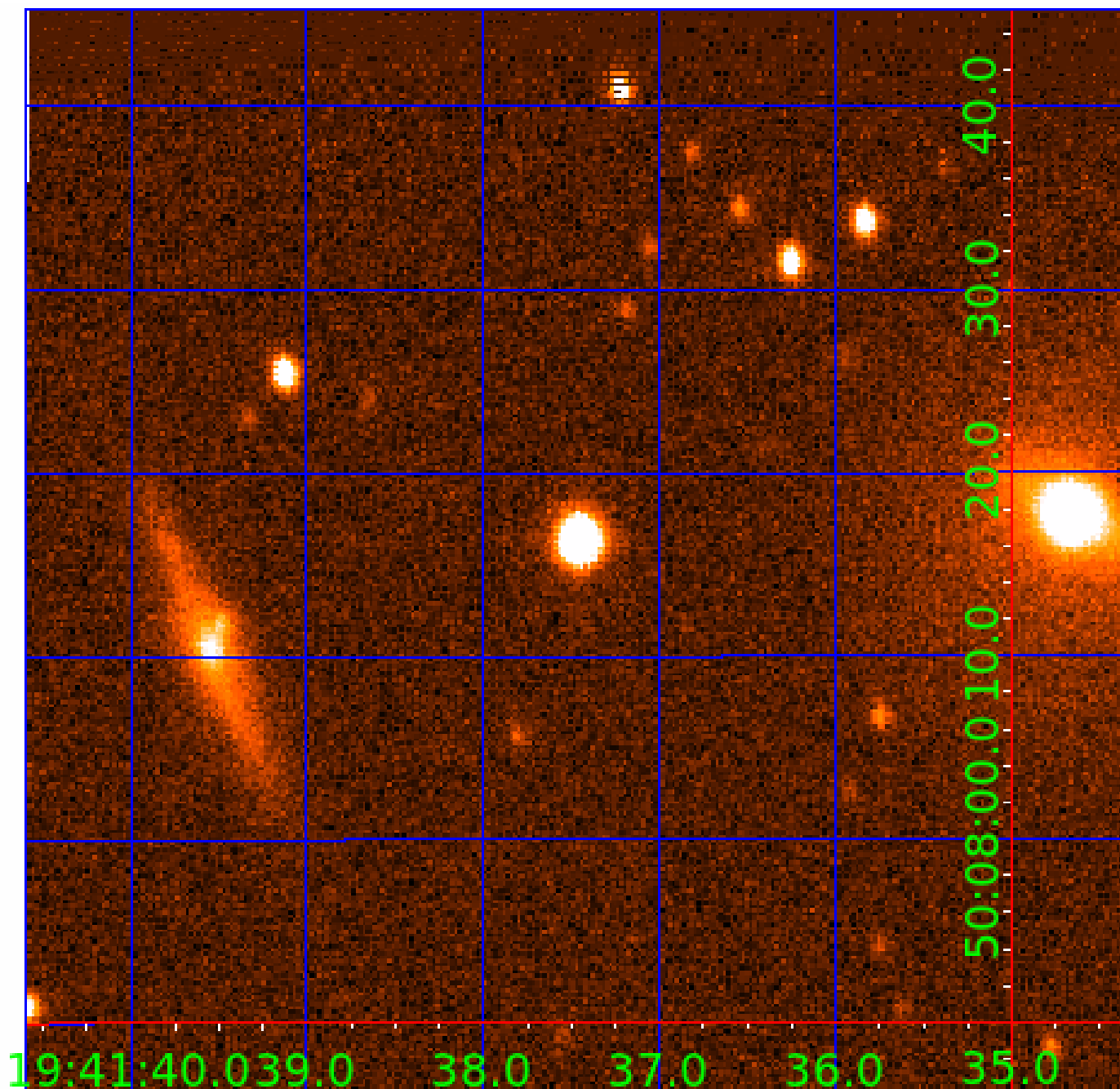


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011871236

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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011871236-04	OBS	No	53.914144	149.971115	561.8	8.839	8.2	6.6	2.39	7904	6.08	168.38
011871236-05	OBS	No	103.701363	150.878193	985.9	2.306	8.1	8.8	2.39	7904	8.86	70.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011871236-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011871236-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011871236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
011871236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011871236-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

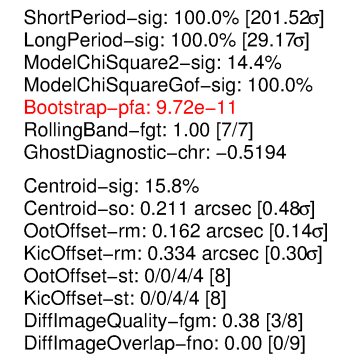
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

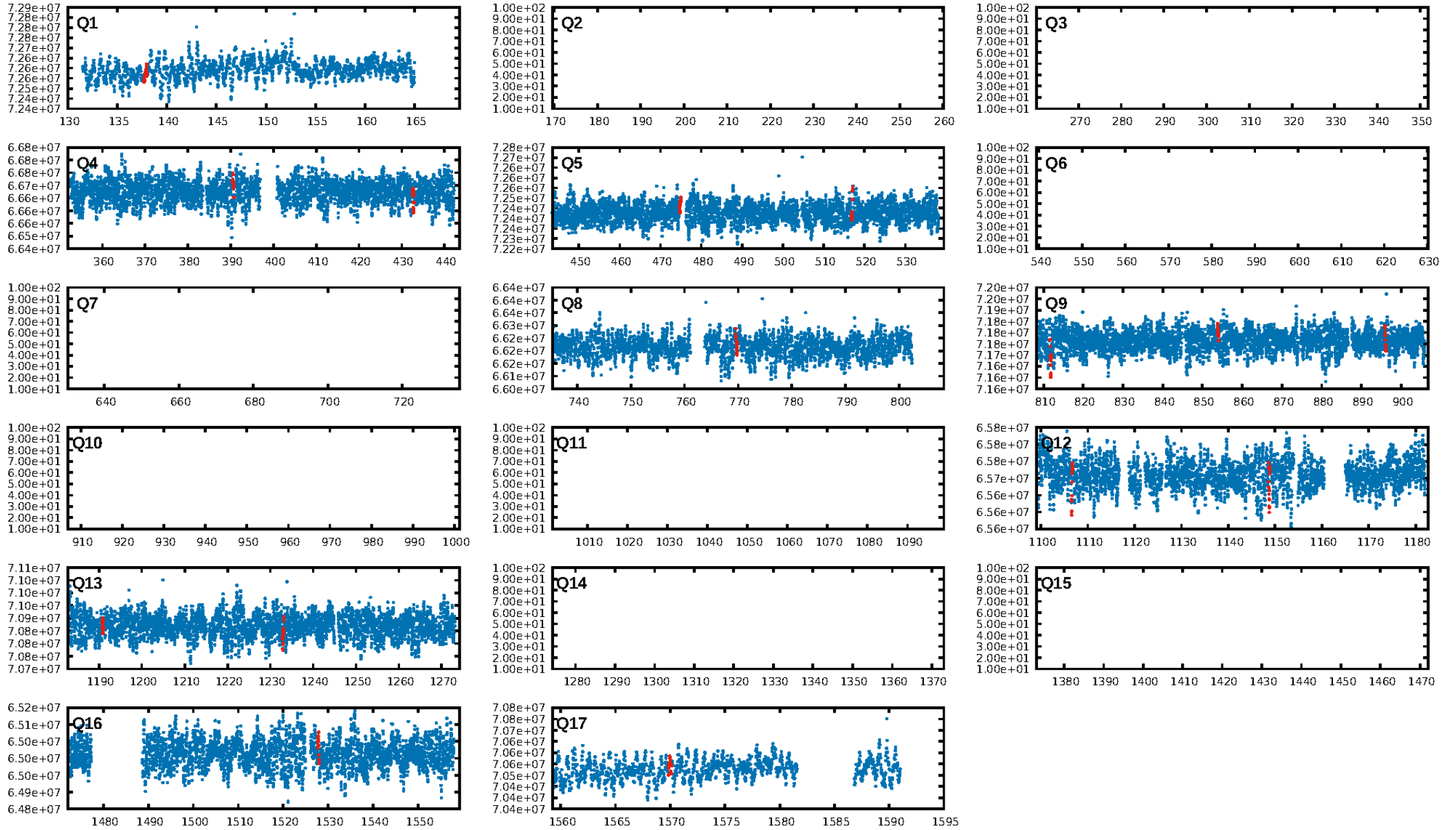
Ephemeris Match Information For 011871236-02

No Significant Match Found

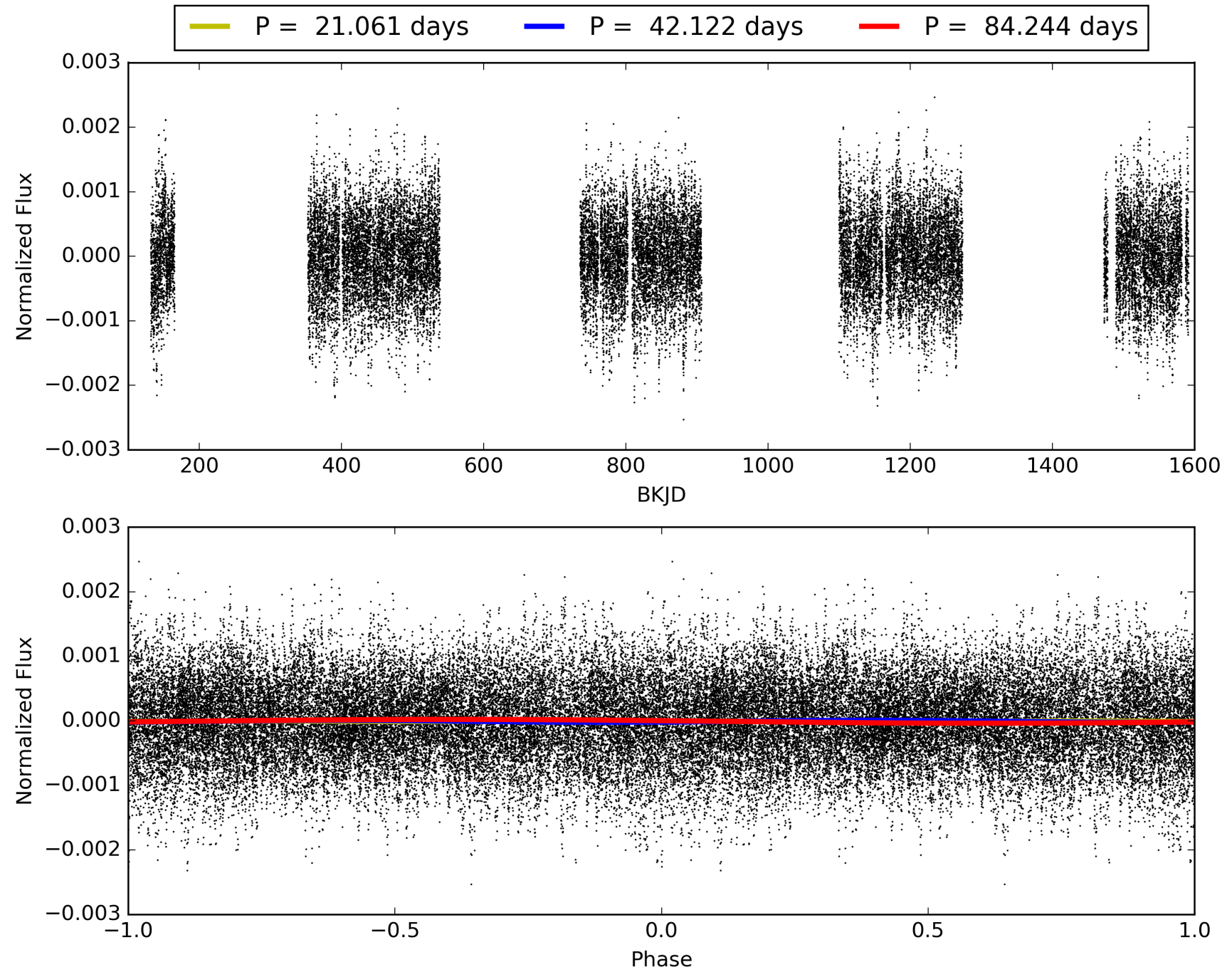
KIC: 11871236 Candidate: 2 of 5 Period: 42.122 d



TCE 011871236-02, PDC Light Curves

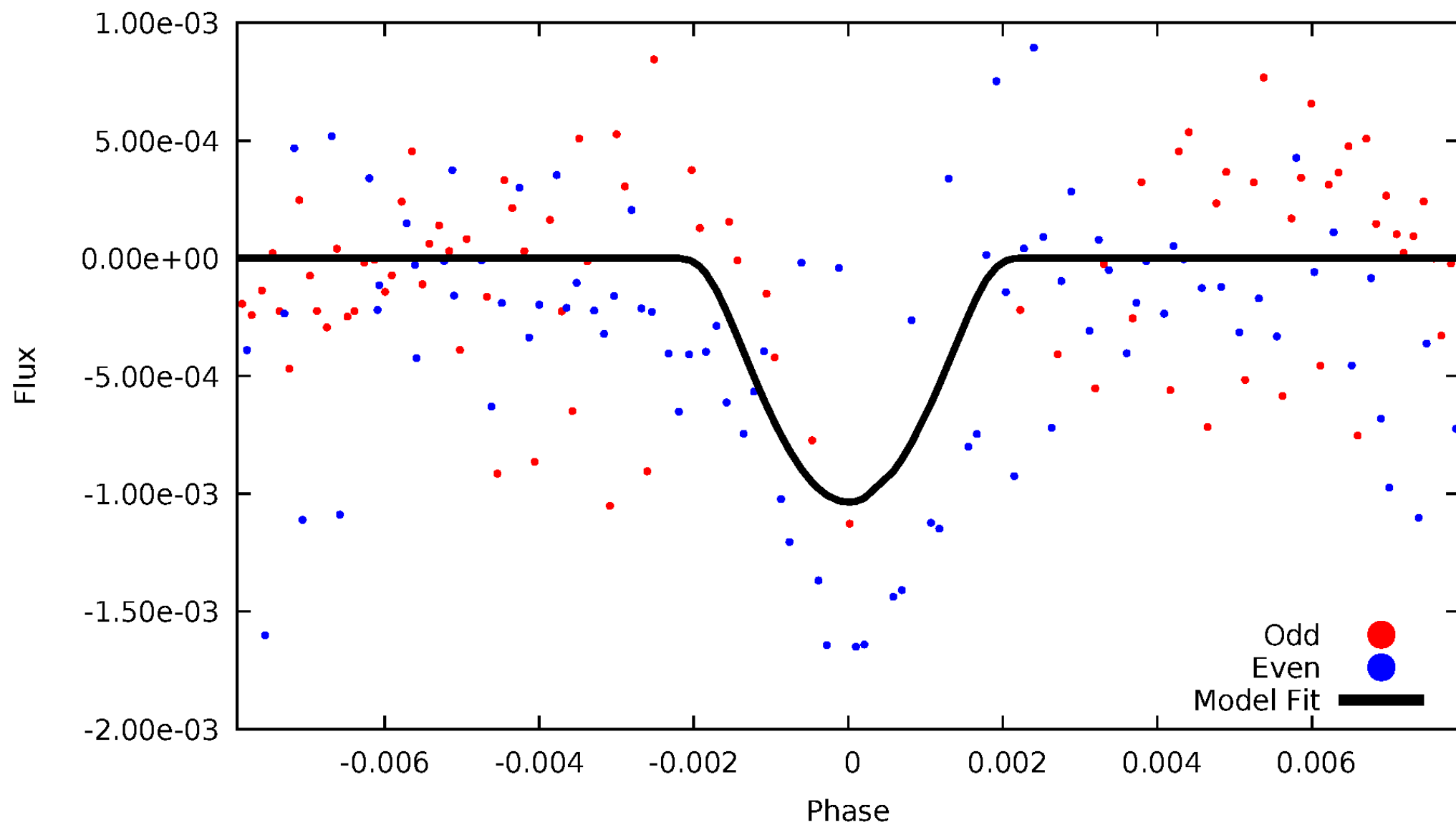


TCE 011871236-02



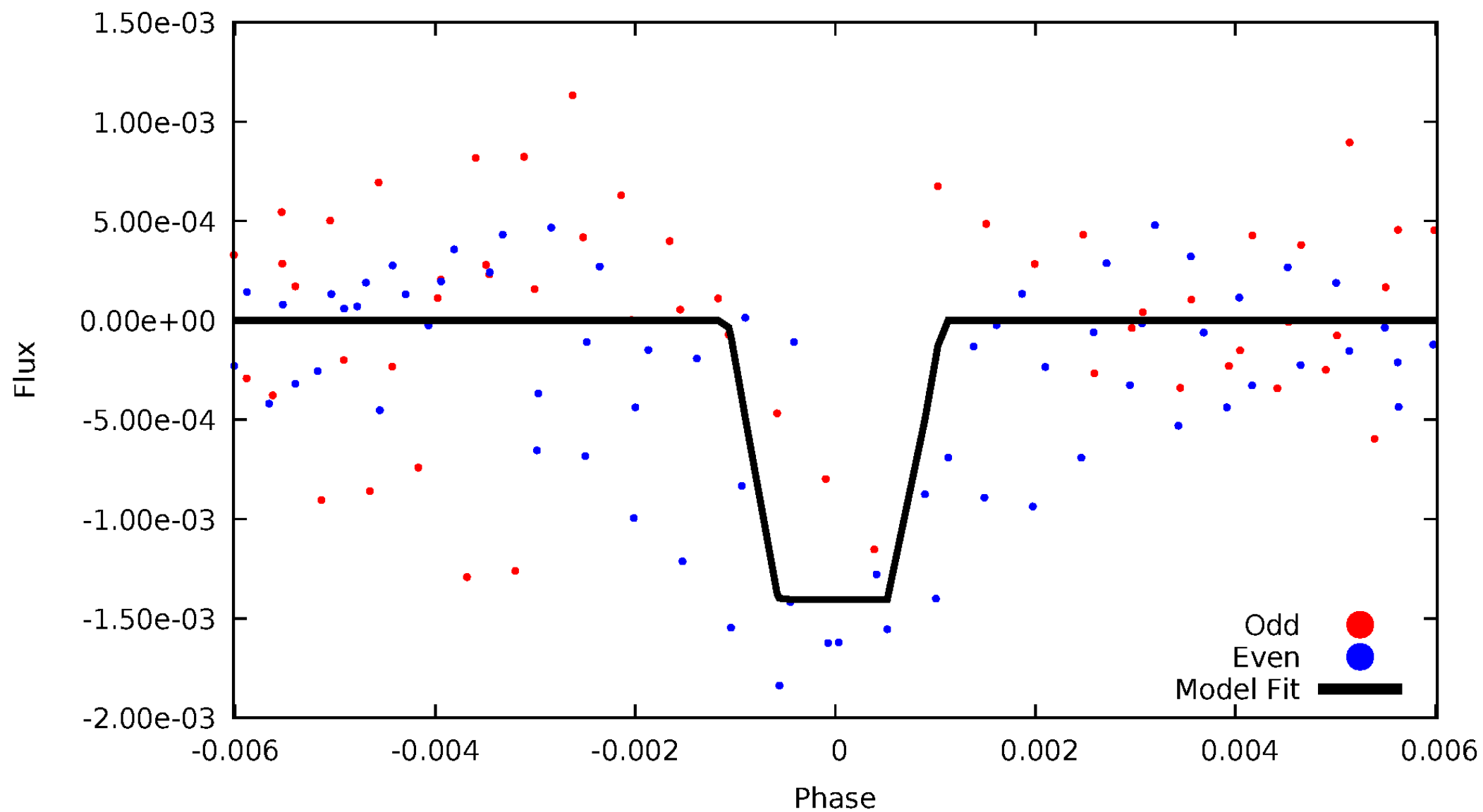
DV Odd/Even

TCE 011871236-02



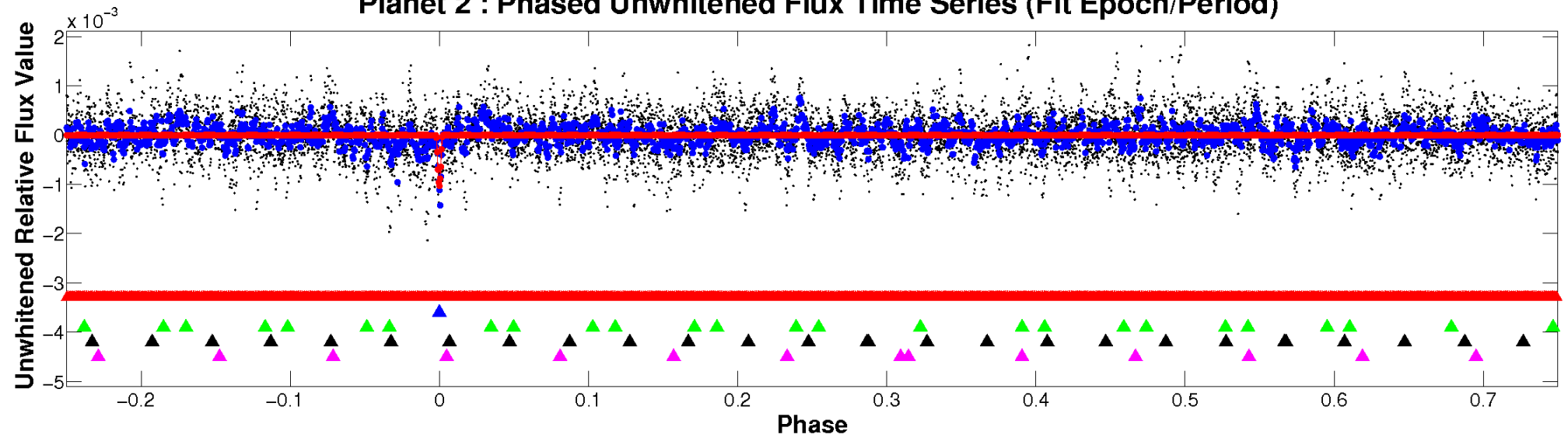
ALT Odd/Even

TCE 011871236-02

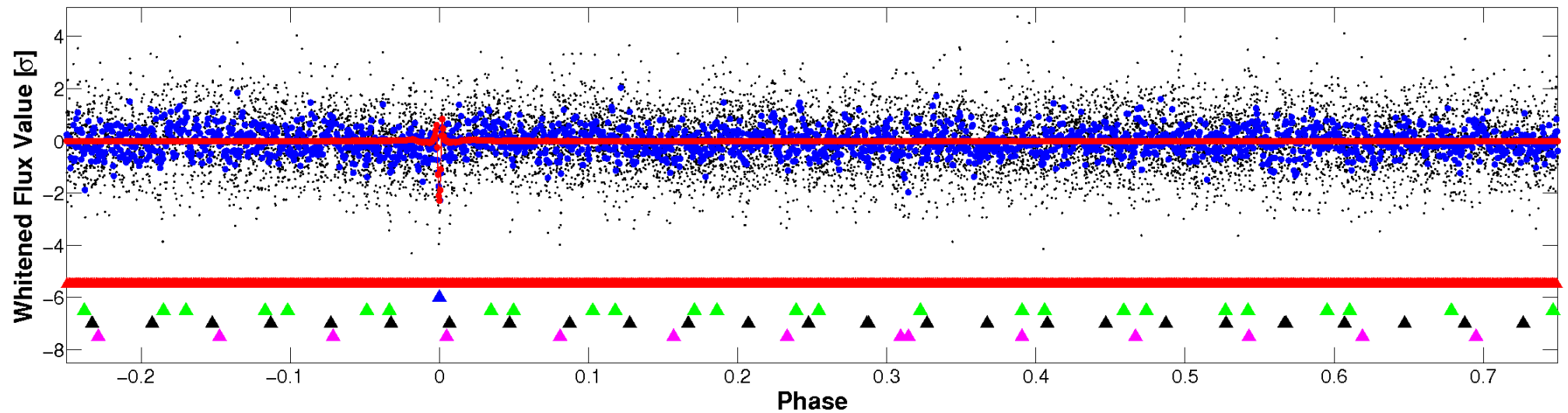


Non-Whitened Vs. Whitened Light Curve

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

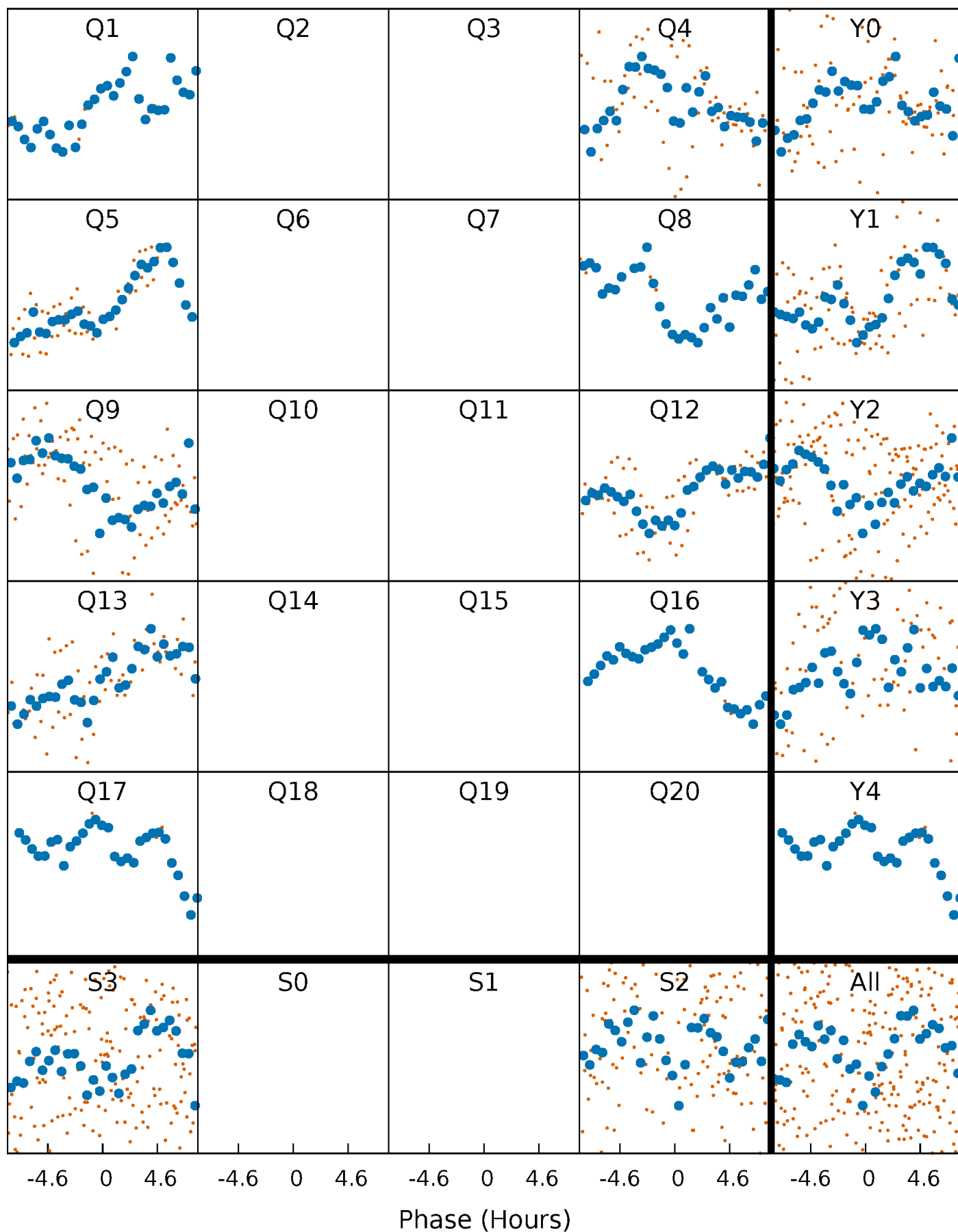


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



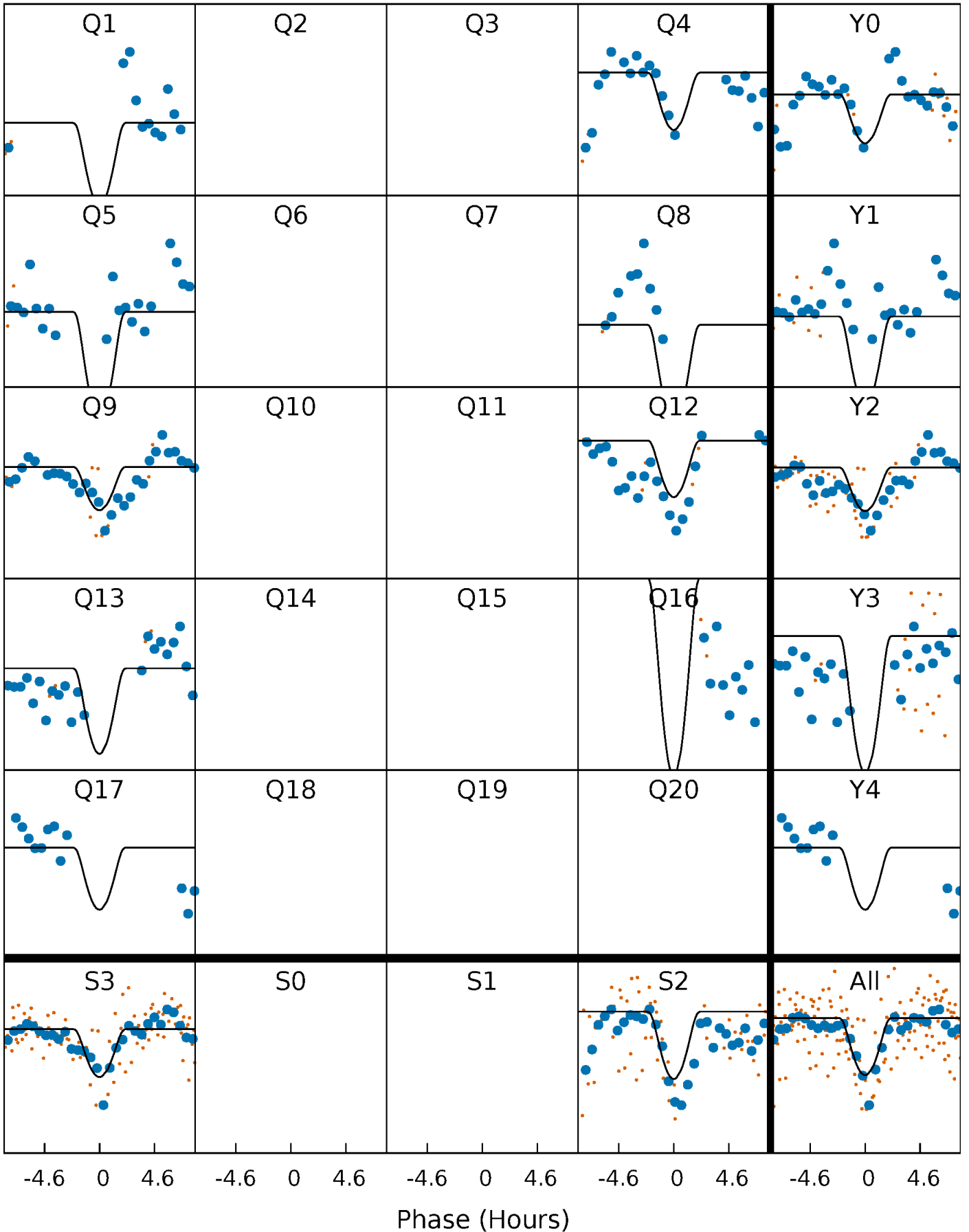
PDC Quarter-Phased Transit Curves

TCE 011871236-02 P= 42.121850 Days $T_0=137.847403$ (BKJD)



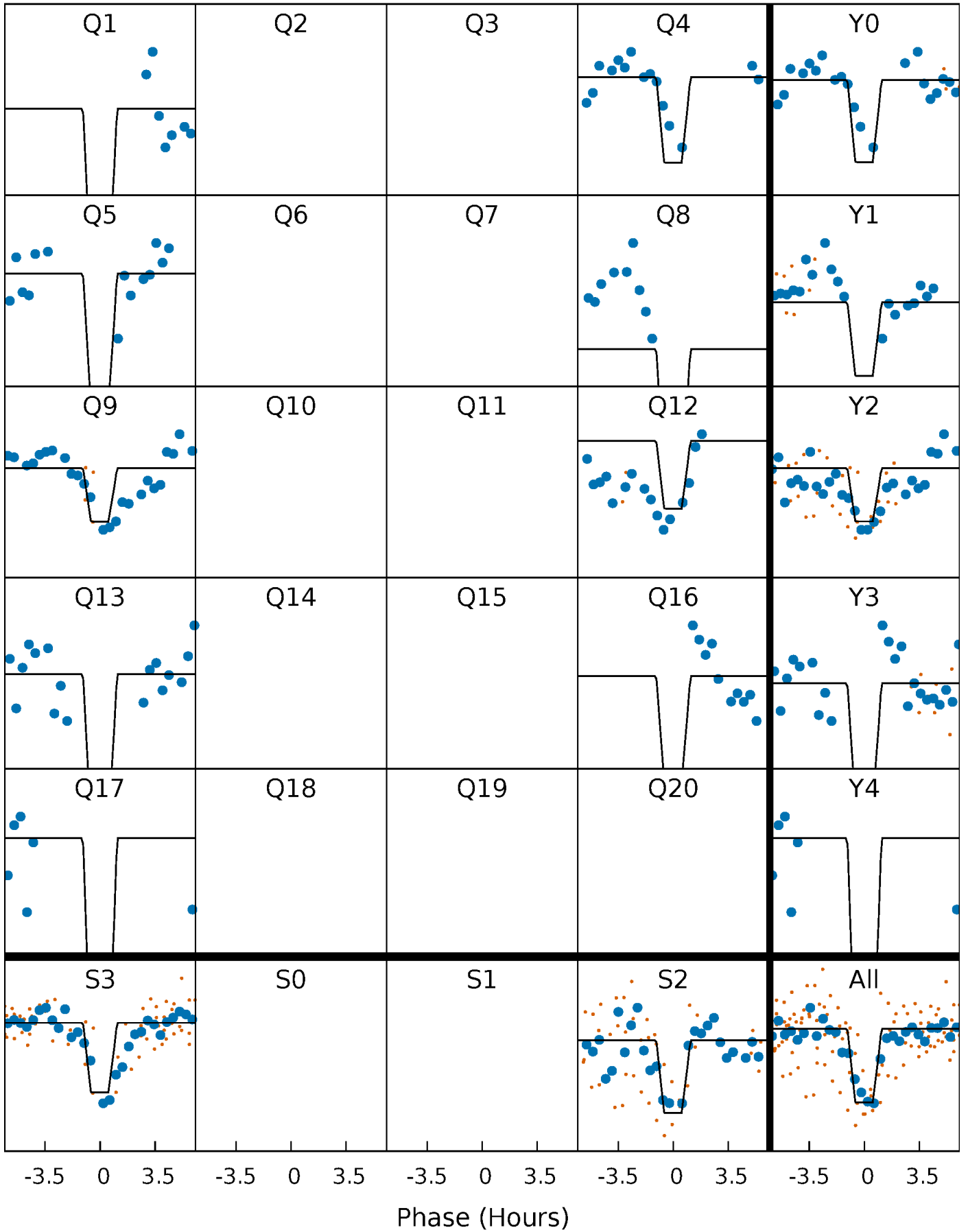
DV Quarter-Phased Transit Curves

TCE 011871236-02 P= 42.121850 Days $T_0=137.847403$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

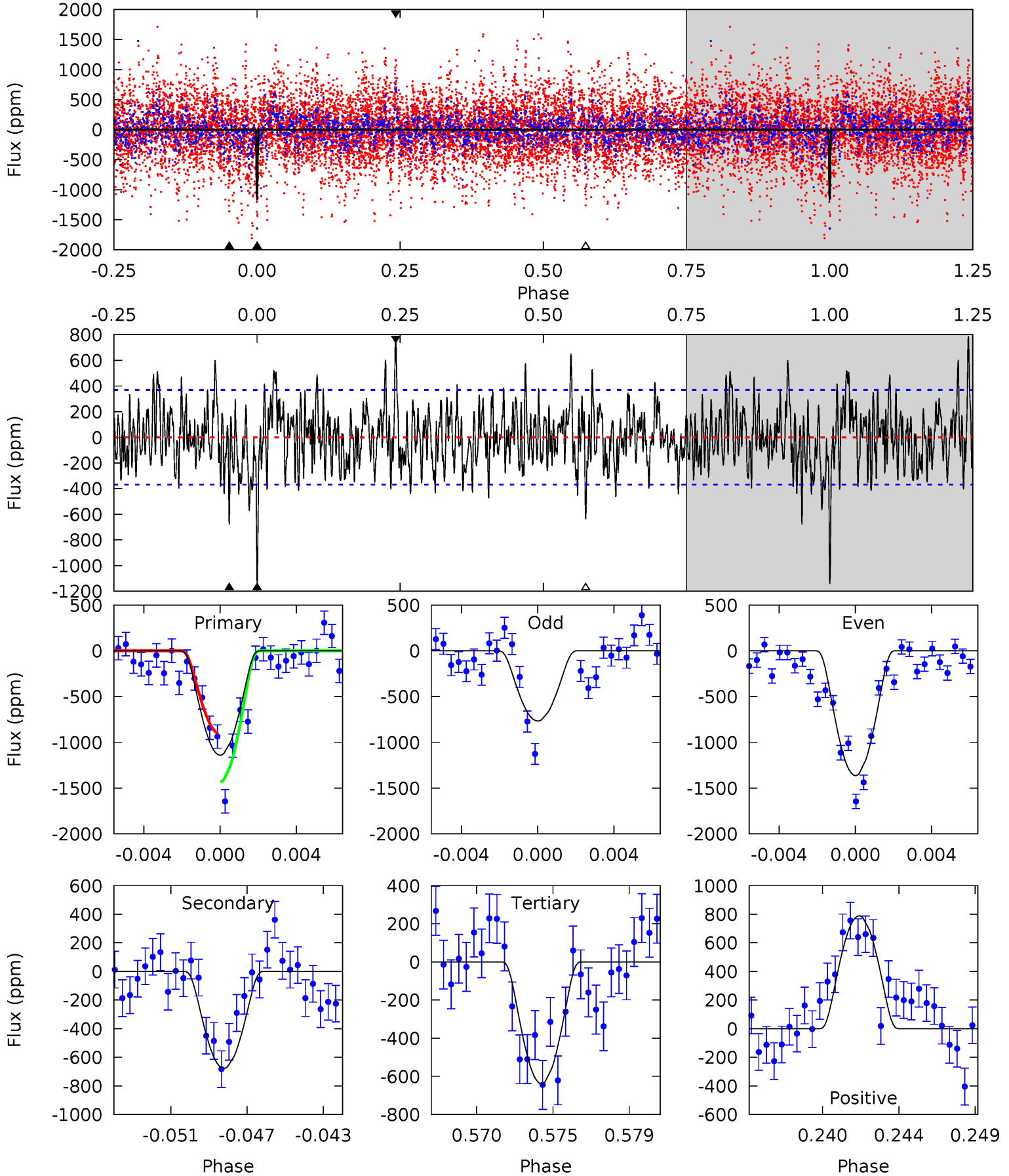
TCE 011871236-02 P= 42.124400 Days $T_0=137.813886$ (BKJD)



DV Model-Shift Uniqueness Test

011871236-02, P = 42.121850 Days, E = 95.725553 Days

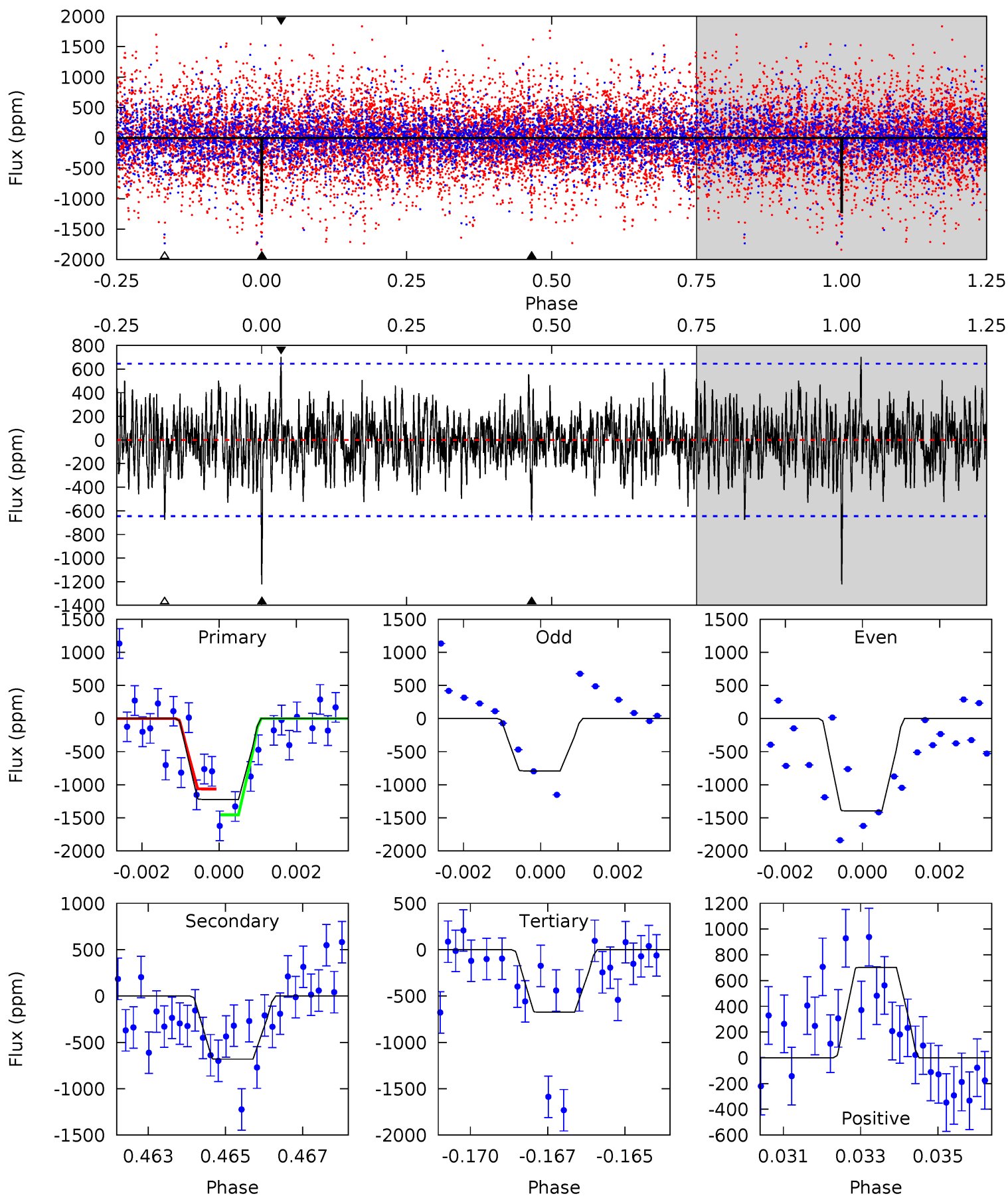
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	9.53	8.98	11.1	5.19	2.86	2.79	7.07	4.95	0.55	-1.57	3.60	0.95	0.41	3.70



Alt Model-Shift Uniqueness Test

011871236-02, P = 42.124400 Days, E = 95.689486 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	5.61	5.56	5.79	5.32	3.08	1.47	4.51	4.28	0.05	-0.17	2.04	0.86	0.37	1.60



Stellar Parameters For KIC 011871236

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7904^{+219}_{-329}	$3.954^{+0.241}_{-0.130}$	$-0.060^{+0.200}_{-0.350}$	$2.390^{+0.466}_{-0.757}$	$1.872^{+0.104}_{-0.389}$	$0.193^{+0.284}_{-0.075}$
	+3%/-4%	+6%/-3%	+333%/-583%	+19%/-32%	+6%/-21%	+147%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011871236-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-678 ± 71	$29.80^{+30.04}_{-21.59}$	1375^{+98}_{-116}	3917^{+2783}_{-788}	37^{+390}_{-28}
Alt.	-681 ± 121	$28.70^{+29.52}_{-19.91}$	1380^{+89}_{-110}	3958^{+2631}_{-805}	37^{+363}_{-28}

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

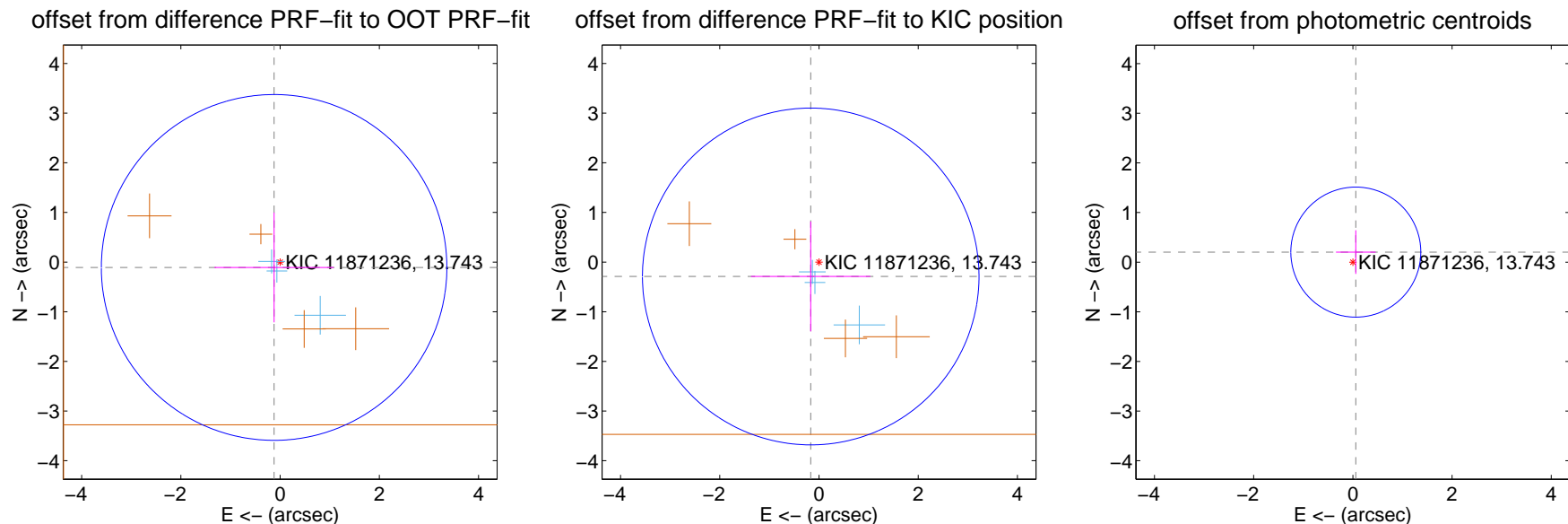
DV Centroid Data

Supplemental centroid analysis for 011871236-02. Kepler magnitude: 13.74. Transit SNR 7.77

There are 3 quarters with good PRF difference image offsets

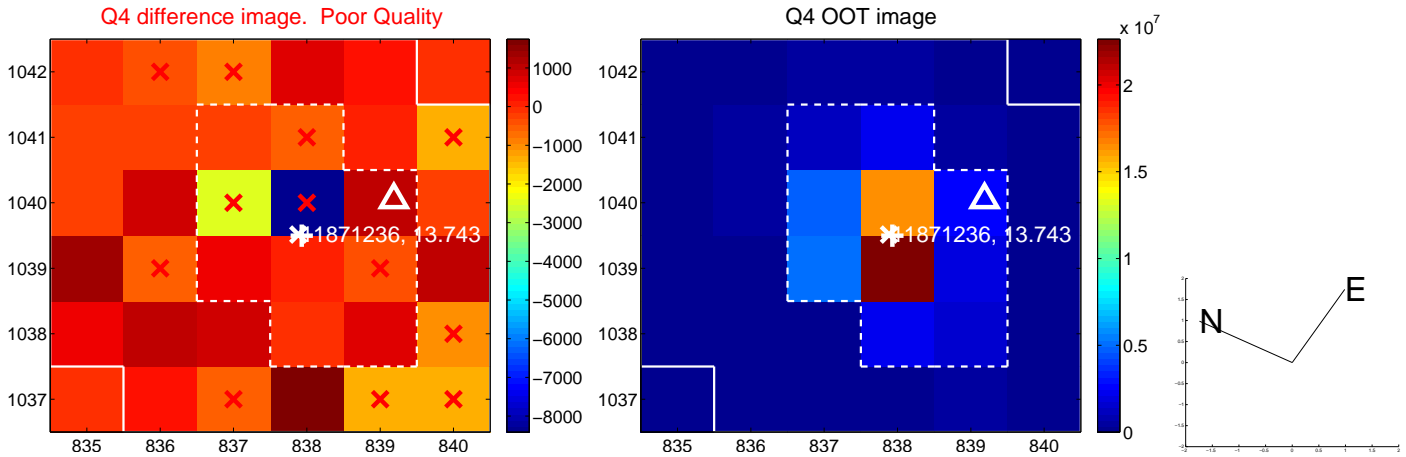
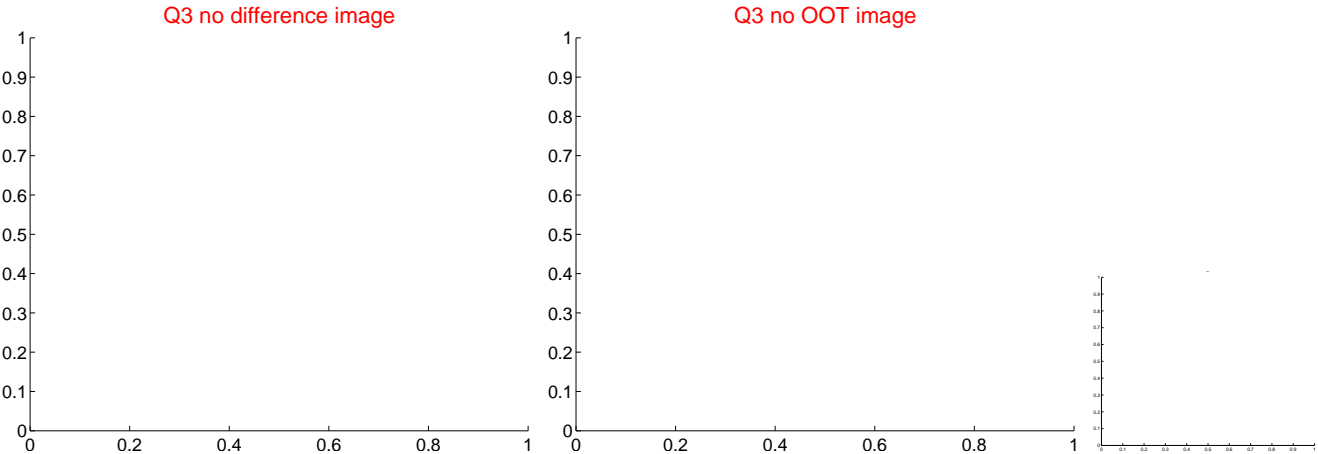
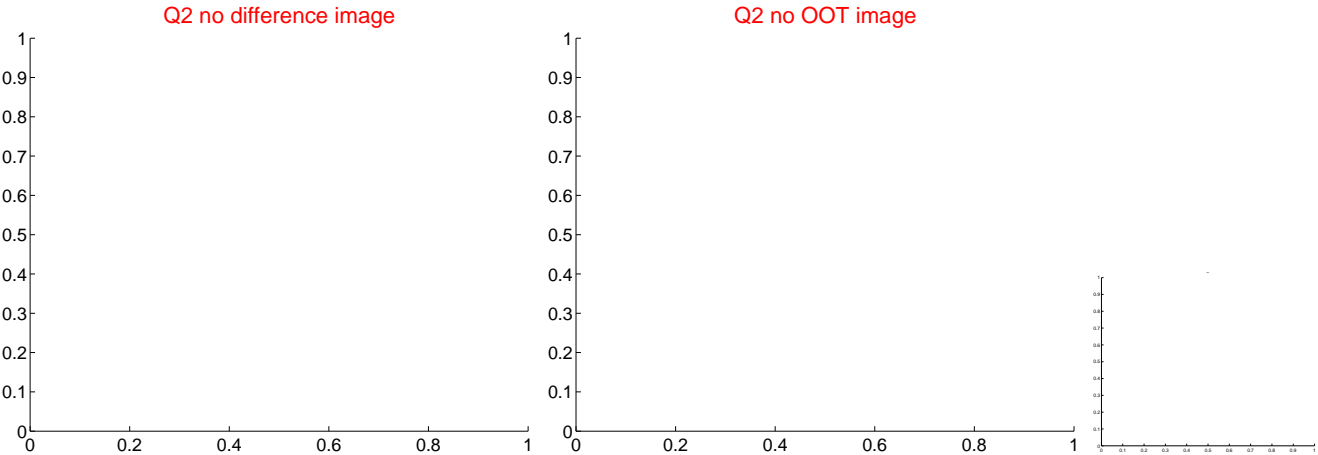
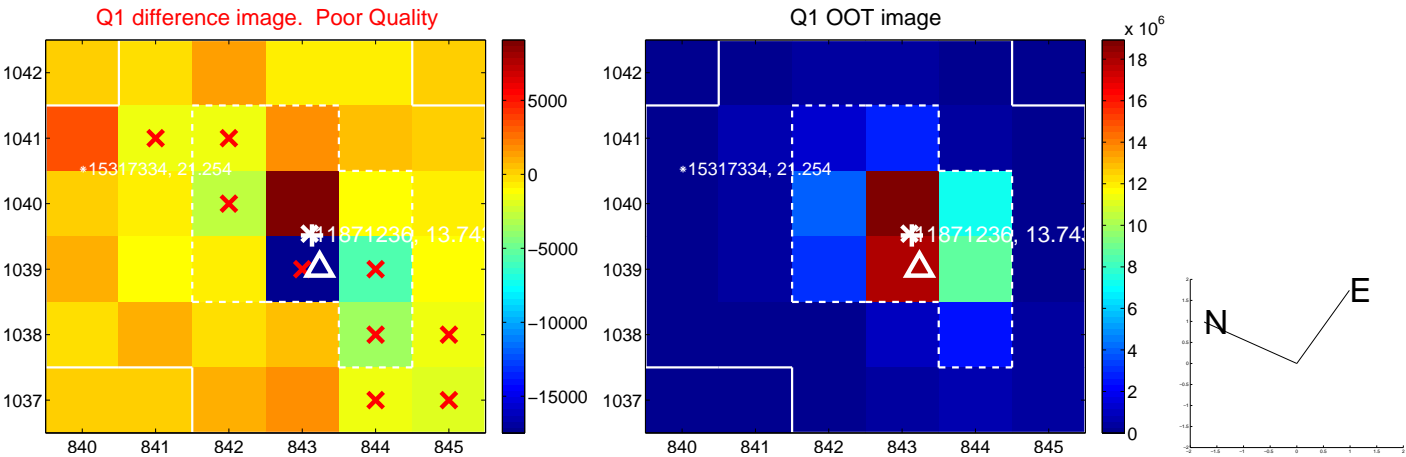
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.162 ± 1.161	0.14	0.121 ± 1.203	-0.108 ± 1.106
PRF-fit source offset from KIC position	0.334 ± 1.131	0.30	0.166 ± 1.203	-0.290 ± 1.106
photometric centroid source offset	0.21 ± 0.44	0.48	-0.06 ± 0.40	0.20 ± 0.44

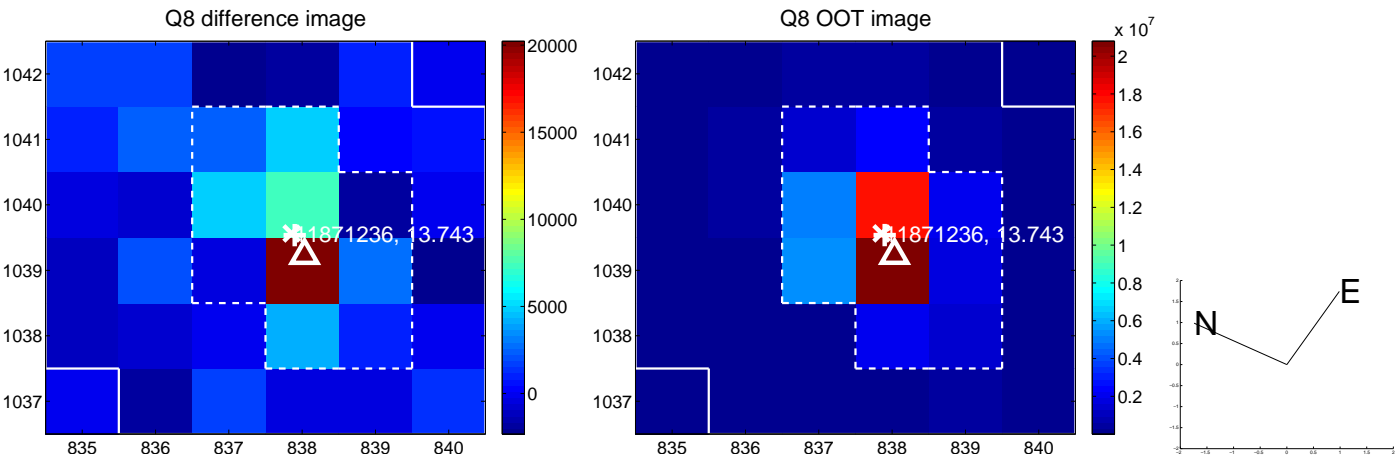
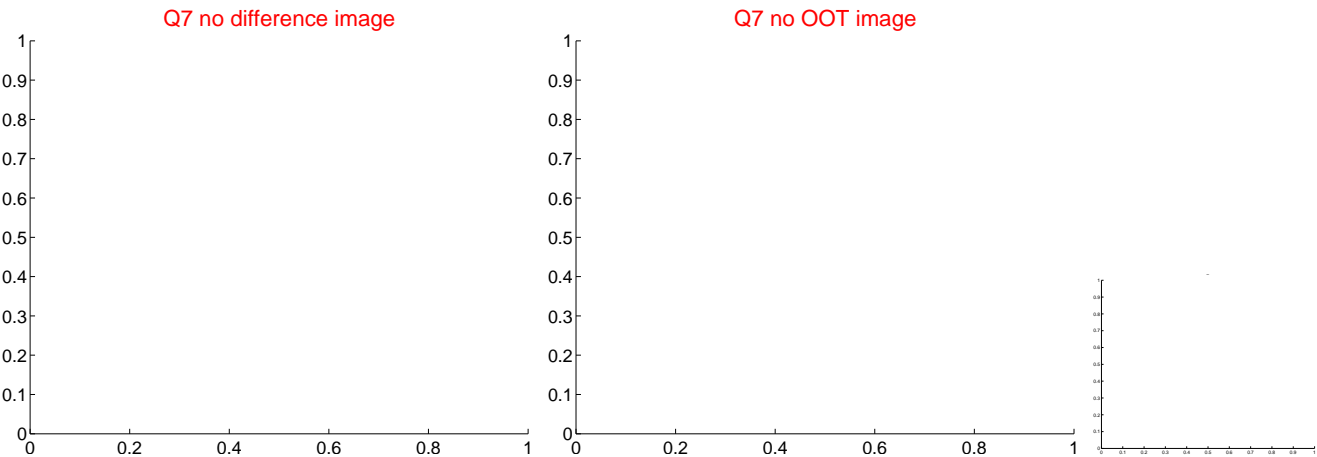
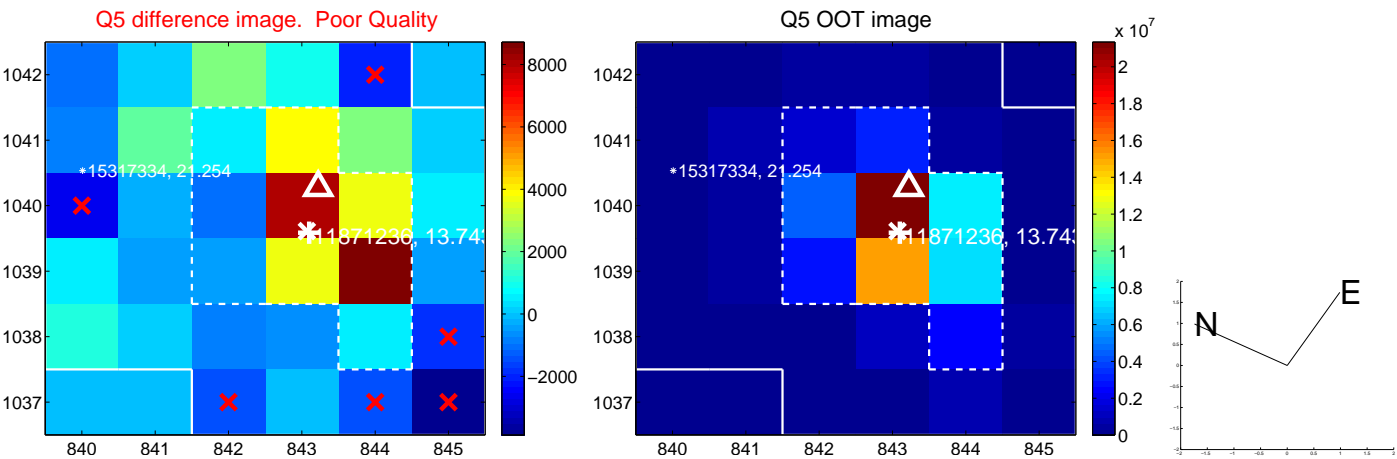


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

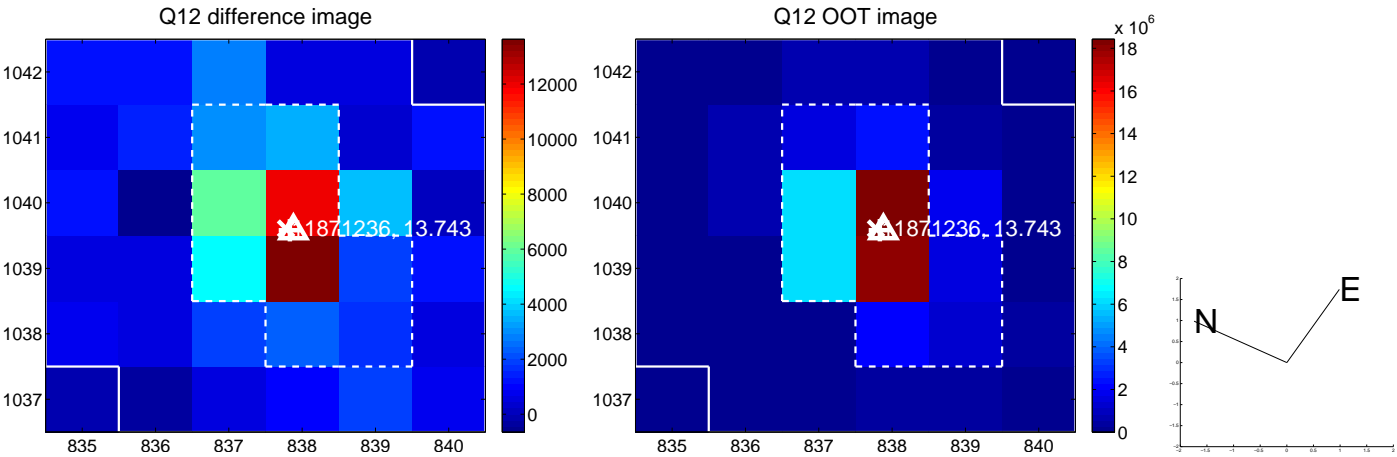
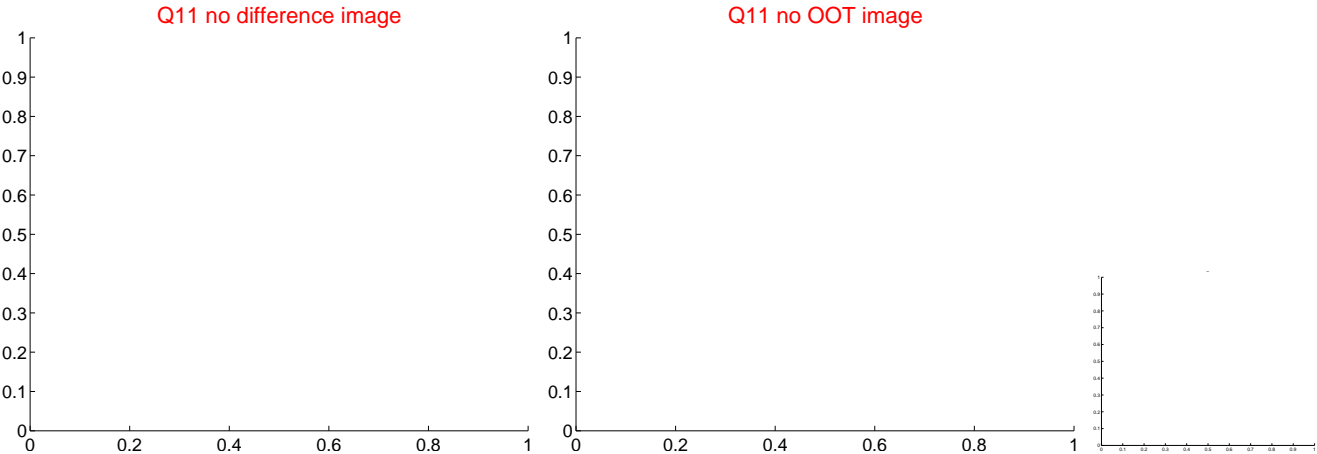
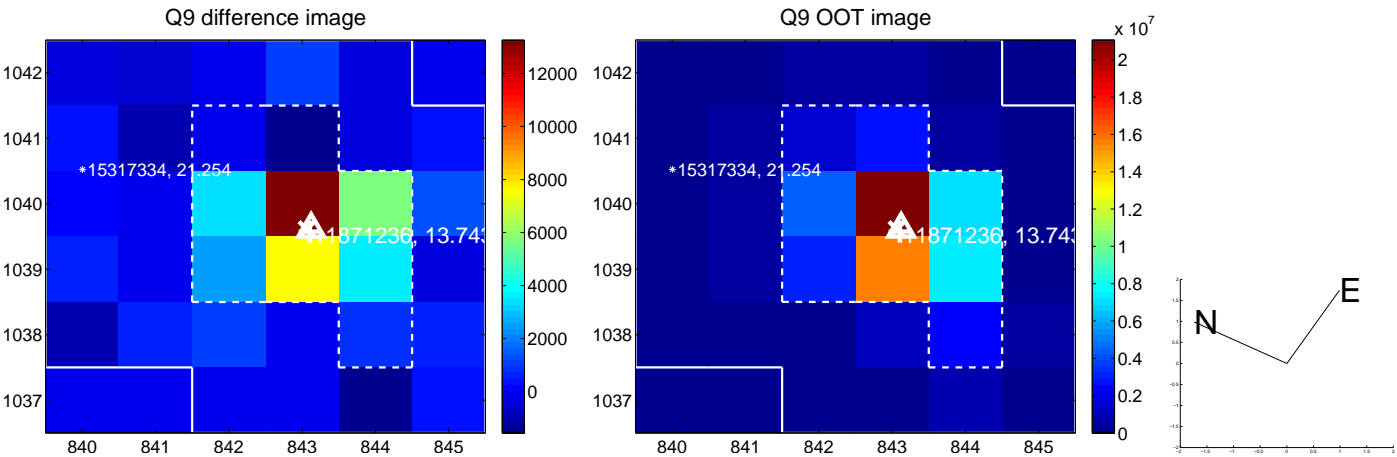
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



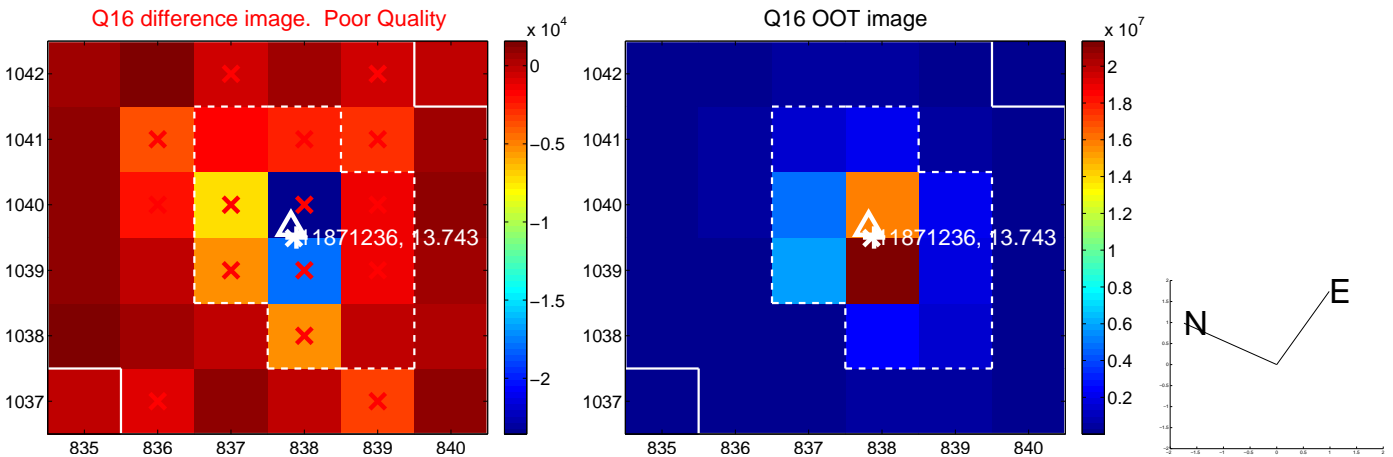
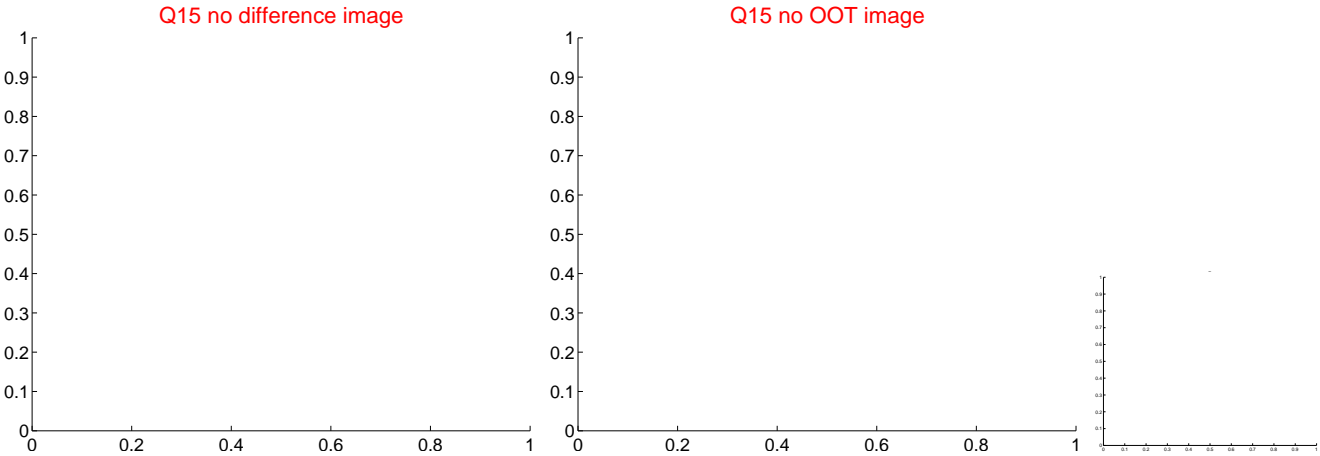
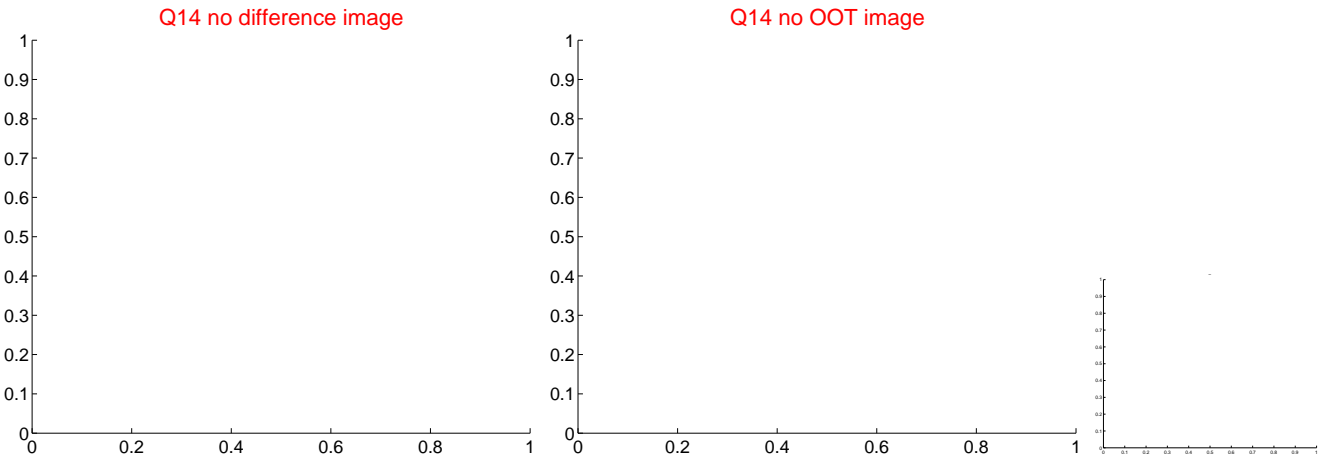
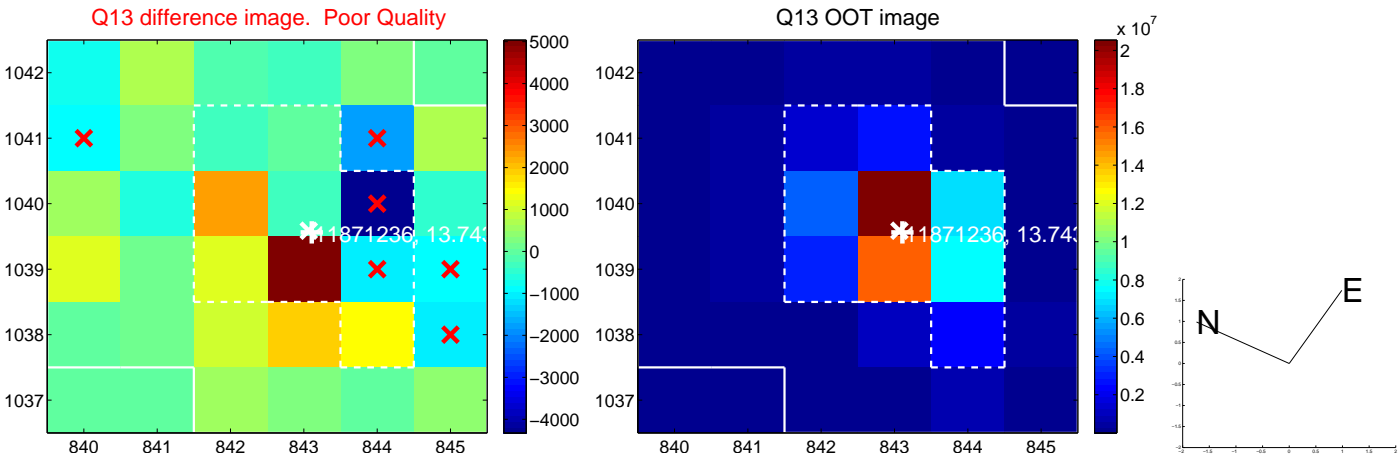
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



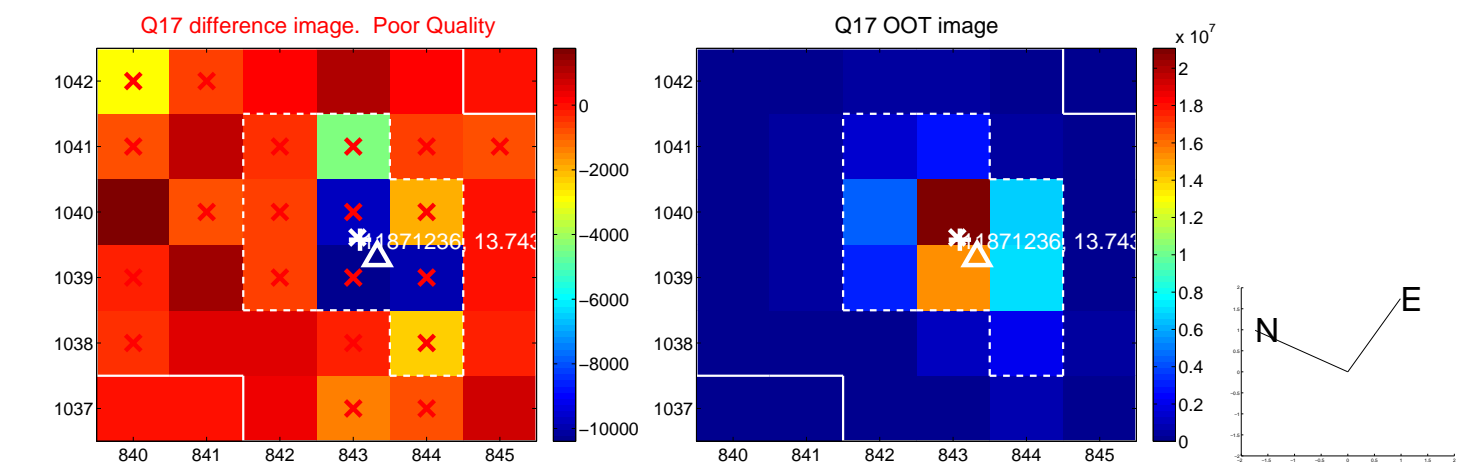
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



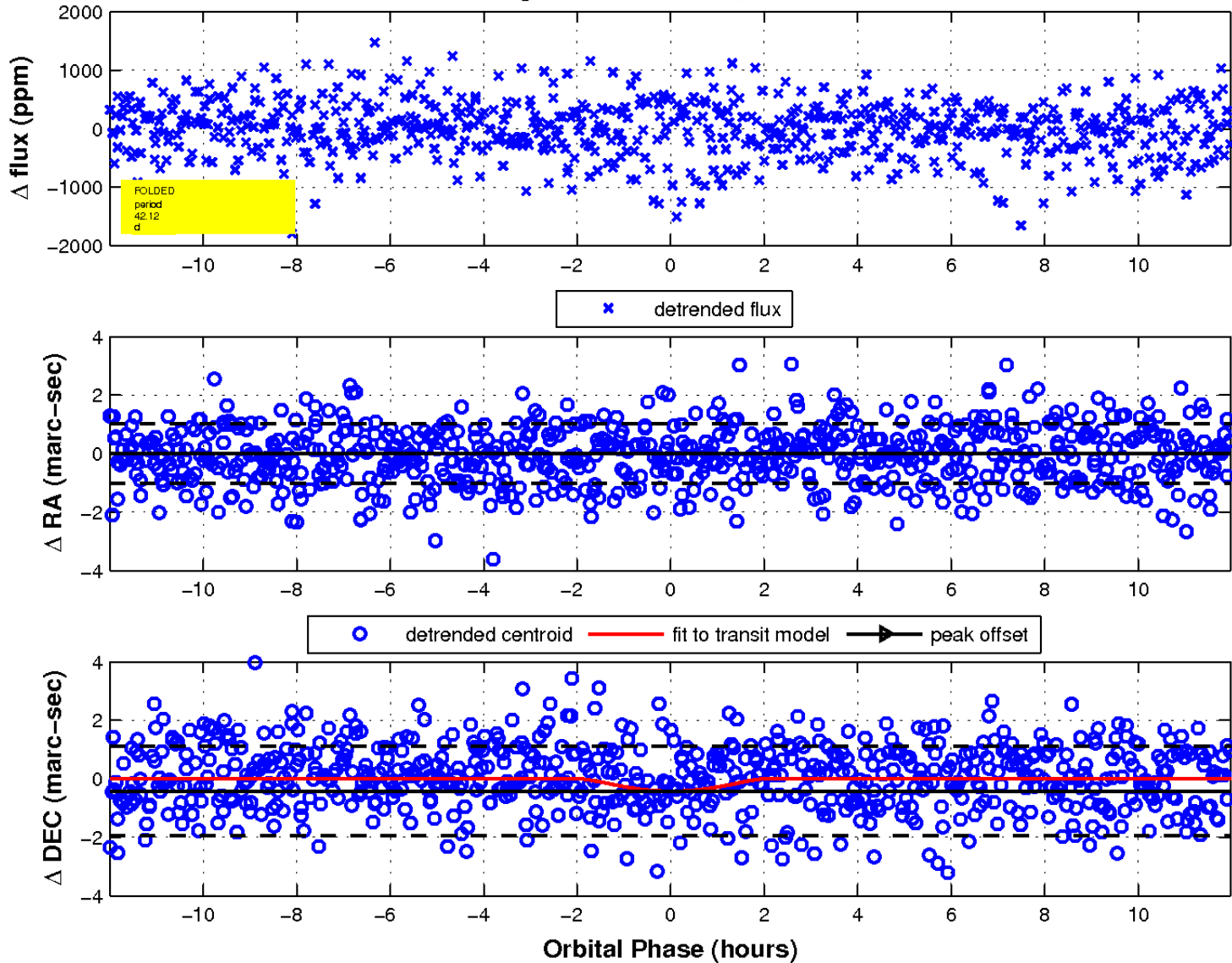
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

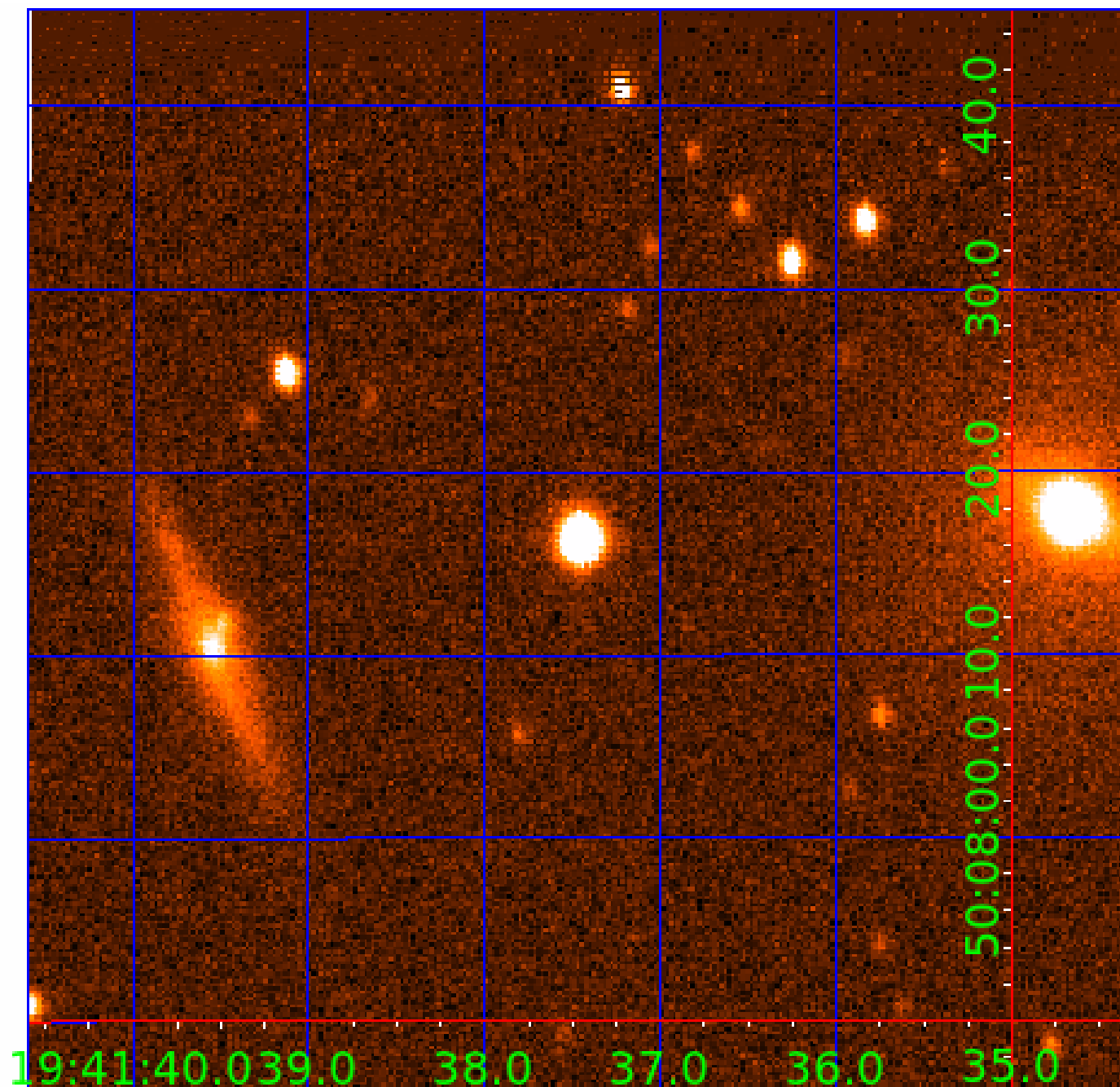


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 011871236

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})
011871236-01	OBS	No	0.604874	131.685201	68.0	2.908	8.2	9.4	2.39	7904	2.23	67039.03
011871236-02	OBS	No	42.121850	137.847403	1036.1	3.998	8.1	7.8	2.39	7904	14.29	233.99
011871236-03	OBS	No	57.119953	139.944188	1075.0	3.410	8.4	10.2	2.39	7904	9.27	155.89
011871236-04	OBS	No	53.914144	149.971115	561.8	8.839	8.2	6.6	2.39	7904	6.08	168.38
011871236-05	OBS	No	103.701363	150.878193	985.9	2.306	8.1	8.8	2.39	7904	8.86	70.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011871236-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011871236-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011871236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
011871236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011871236-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

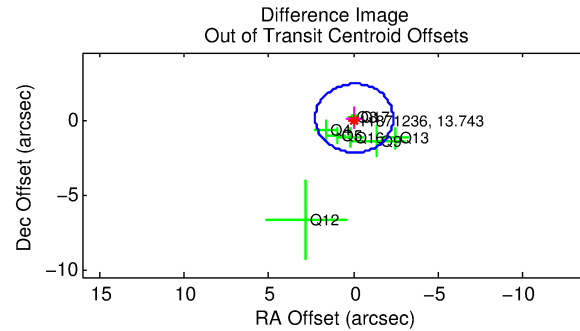
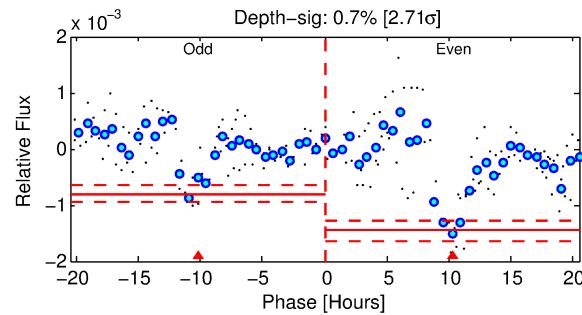
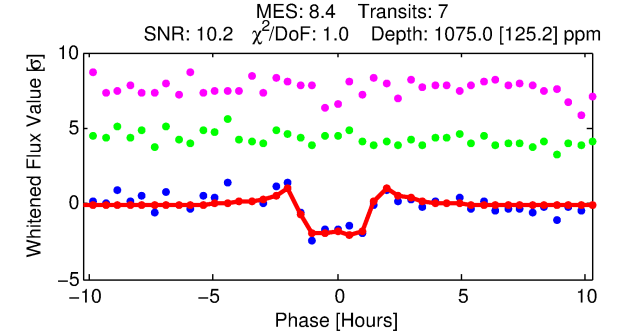
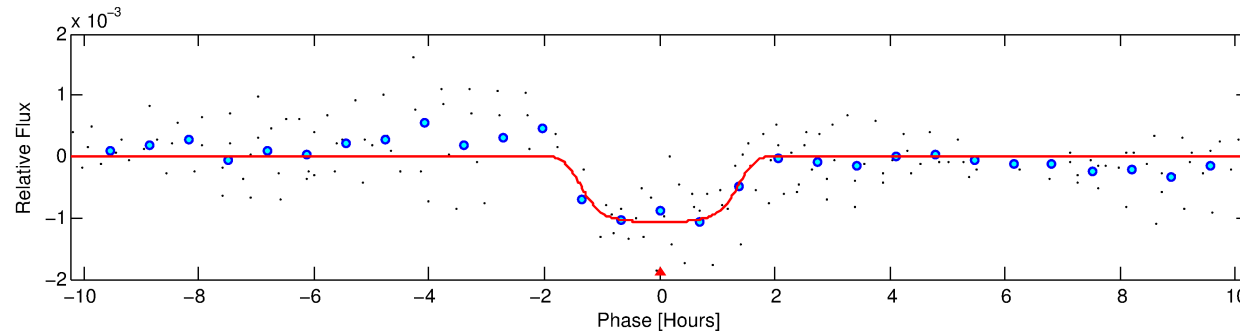
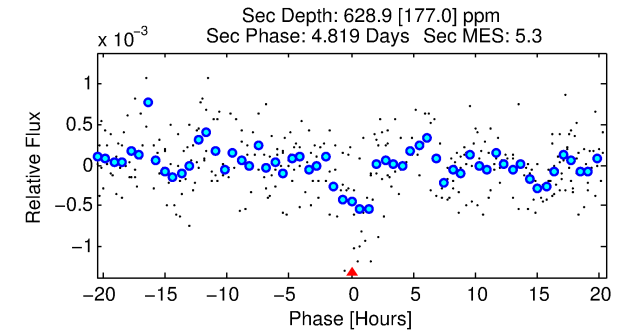
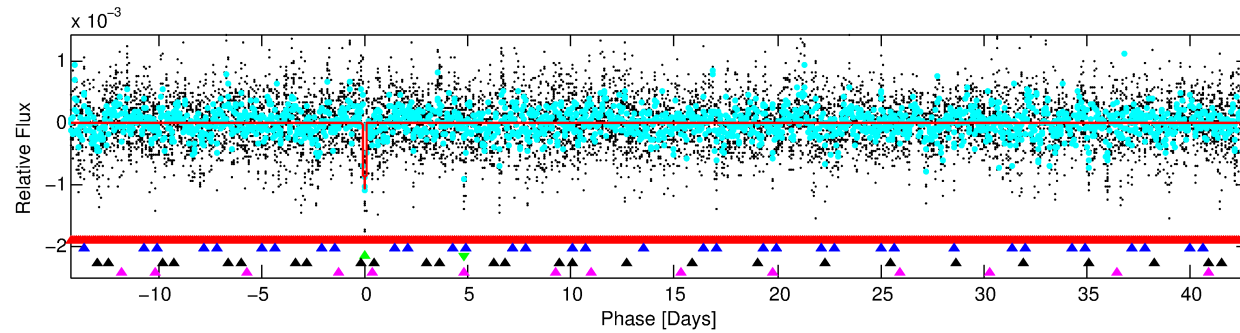
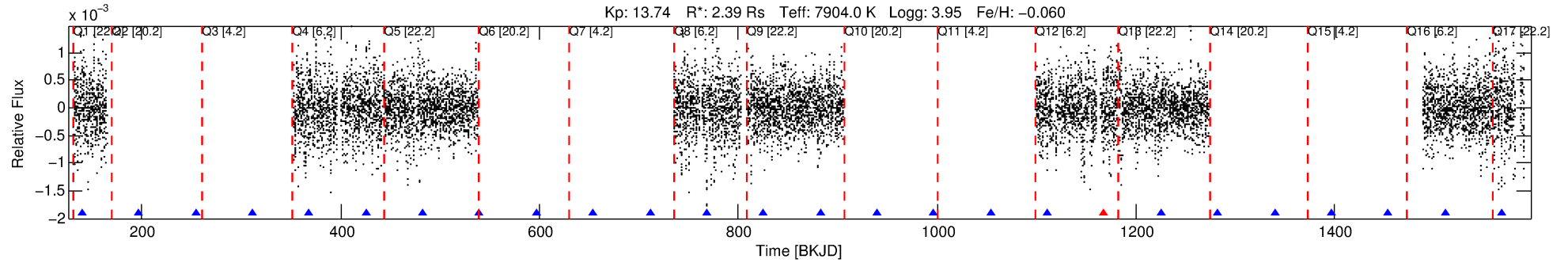
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011871236-03

No Significant Match Found

DV One-Page Summary

KIC: 11871236 Candidate: 3 of 5 Period: 57.120 d



DV Fit Results:

Period = 57.11995 [0.00032] d
Epoch = 139.9442 [0.0048] BKJD
Rp/R* = 0.0356 [0.0032]
a/R* = 60.57 [20.83]
b = 0.92 [0.06]
Seff = 155.89 [71.30]
Teff = 901 [103] K
Rp = 9.27 [3.06] Re
a = 0.3579 [0.1005] AU
Ag = 515.40 [279.24] [1.84 σ]
Teffp = 6638 [620] K [9.12 σ]

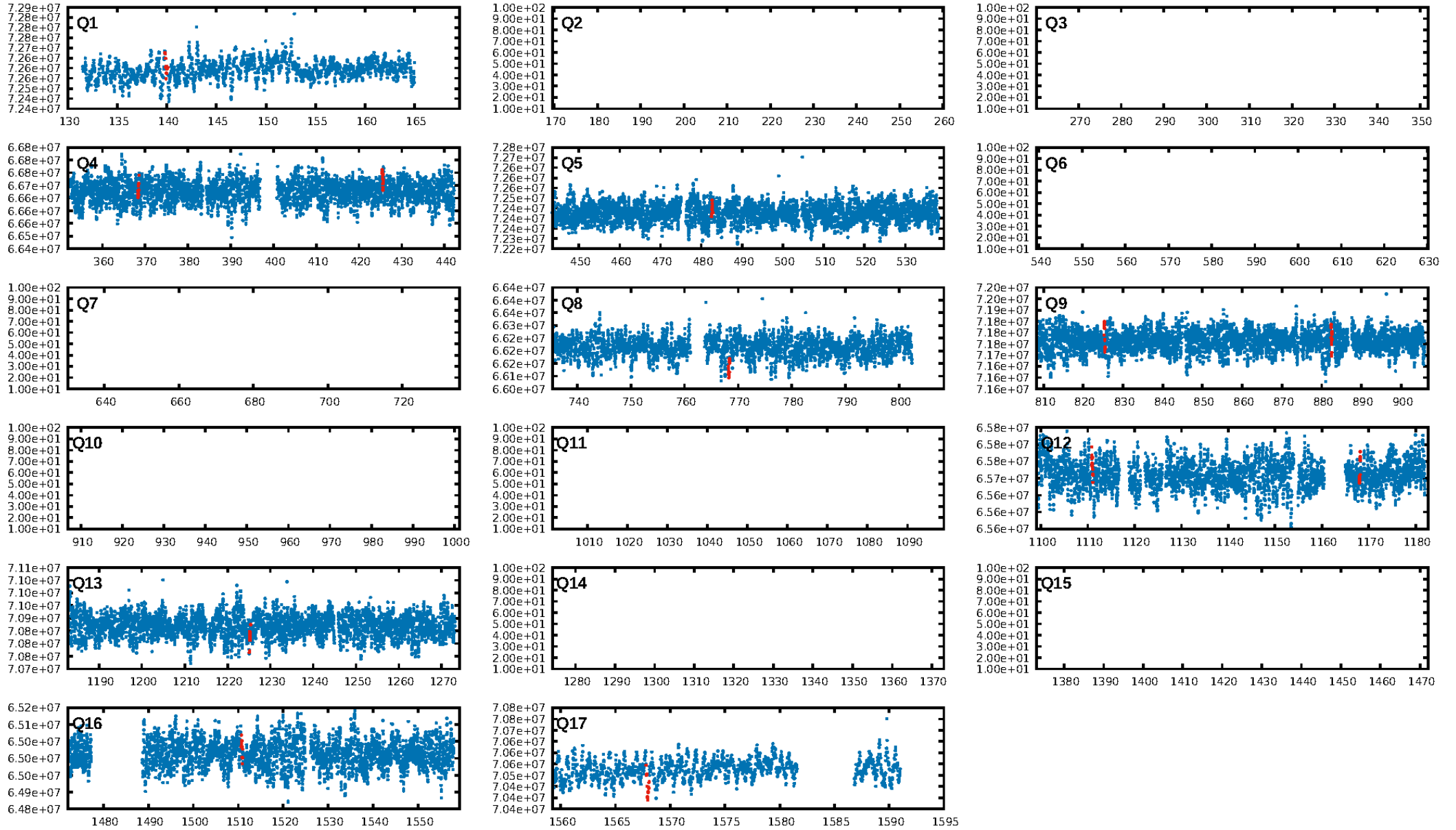
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.12 σ]
LongPeriod-sig: 100.0% [271.56 σ]
ModelChiSquare2-sig: 35.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.16e-11
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: 3.922
Centroid-sig: 5.7%
Centroid-so: 0.306 arcsec [0.71 σ]
OotOffset-rm: 0.115 arcsec [0.15 σ]
KicOffset-rm: 0.110 arcsec [0.22 σ]
OotOffset-st: 0/0/4/4 [8]
KicOffset-st: 0/0/4/4 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 0.00 [0/9]

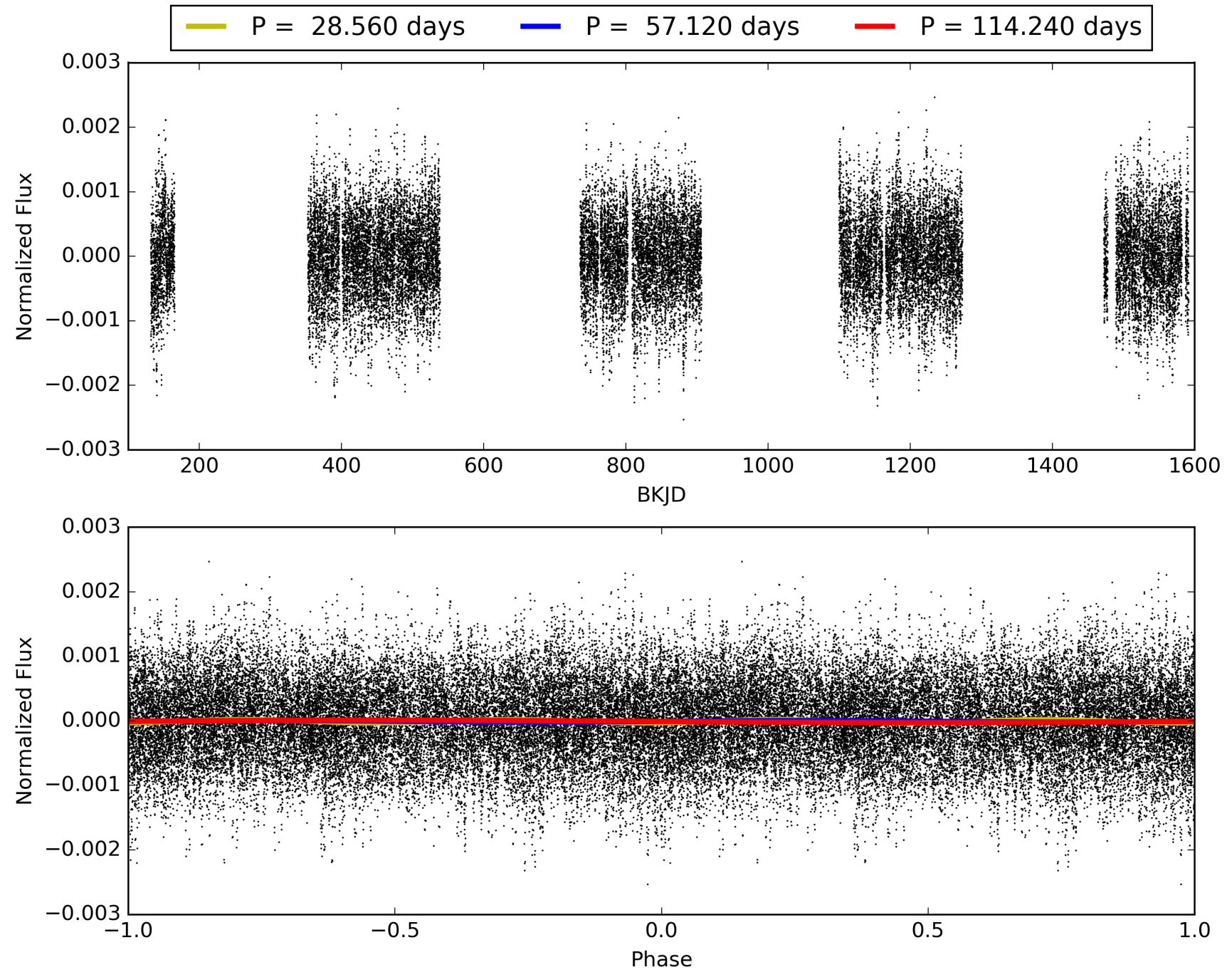
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:27:54 Z

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

TCE 011871236-03, PDC Light Curves

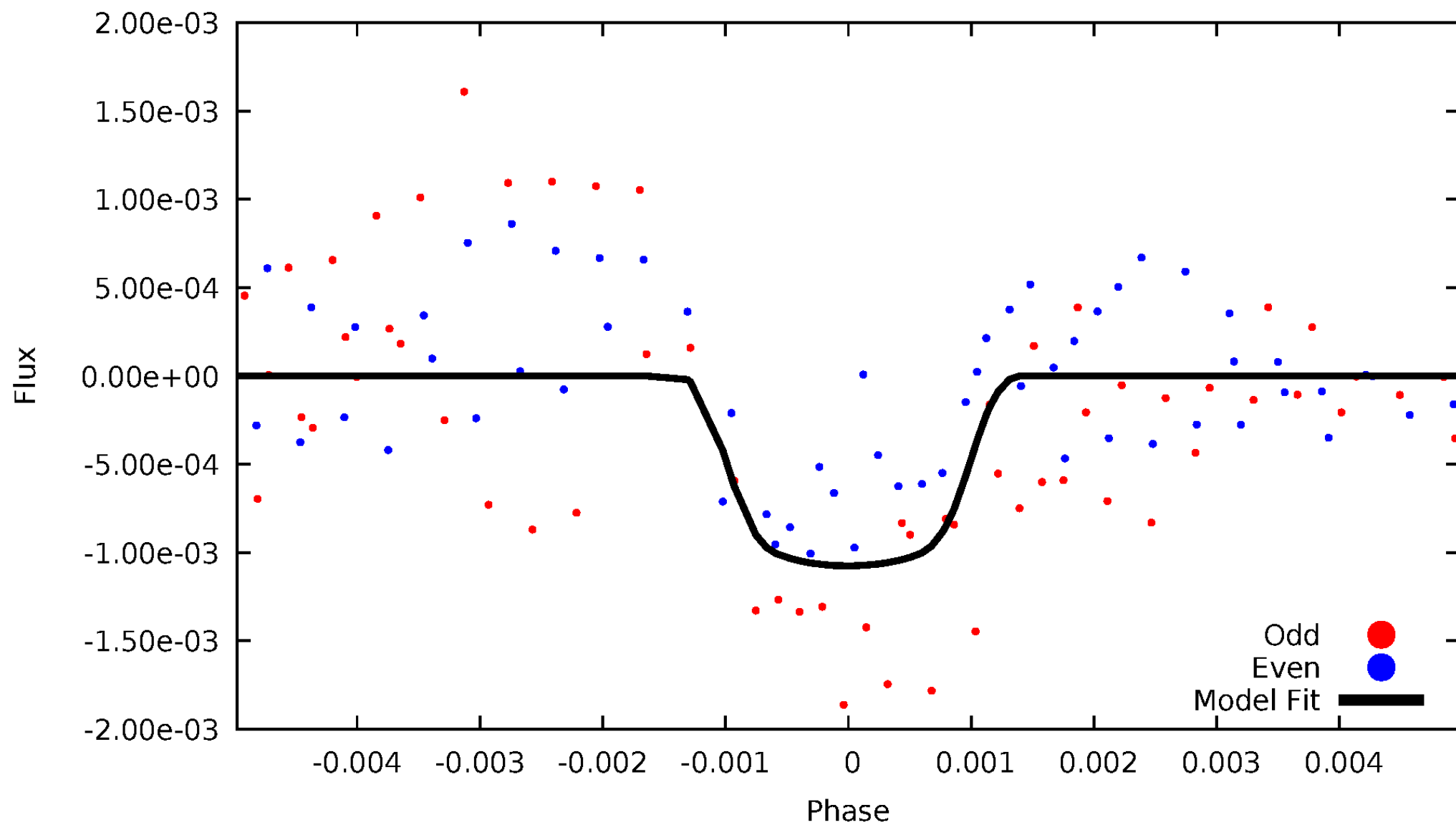


TCE 011871236-03



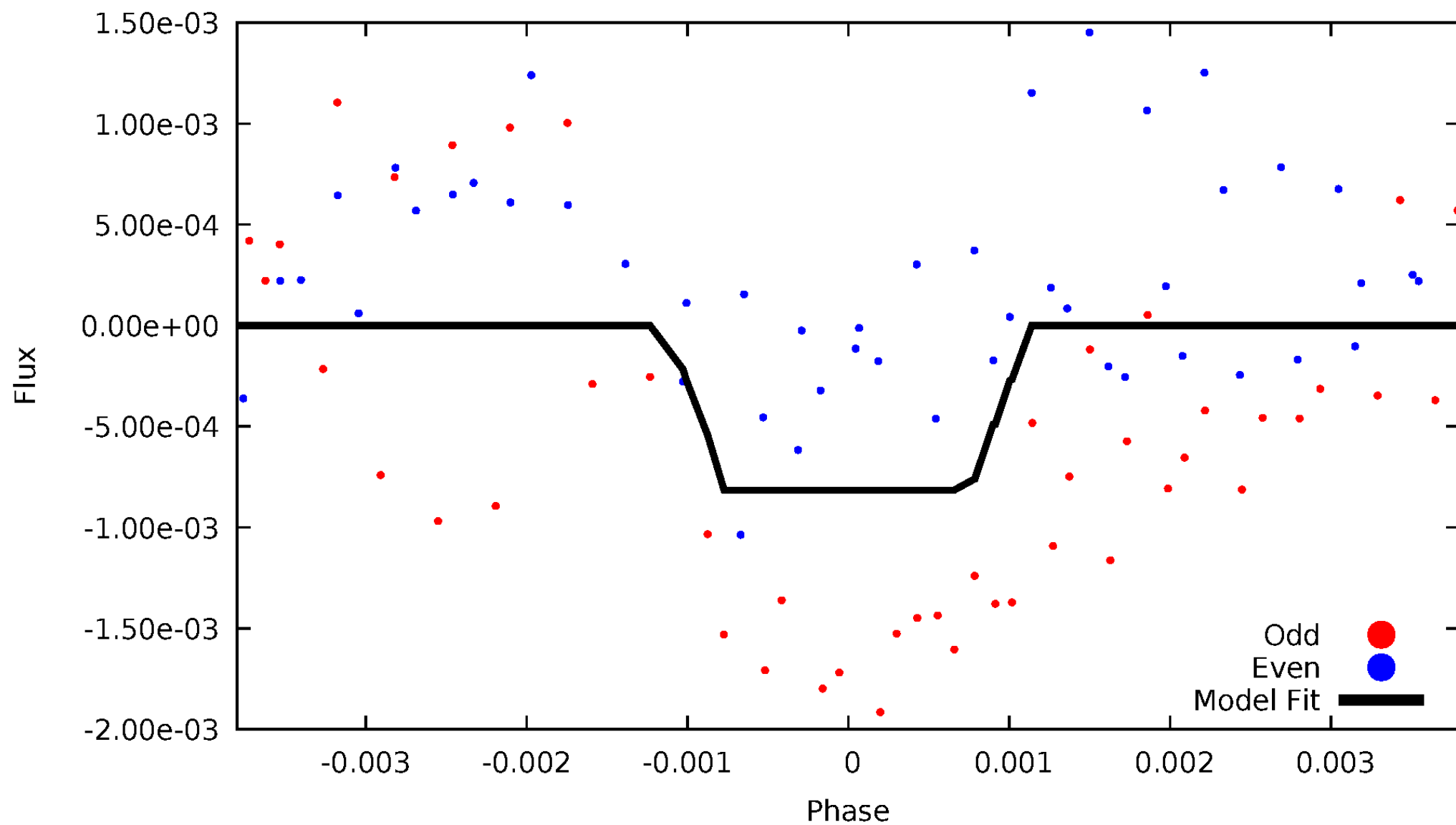
DV Odd/Even

TCE 011871236-03



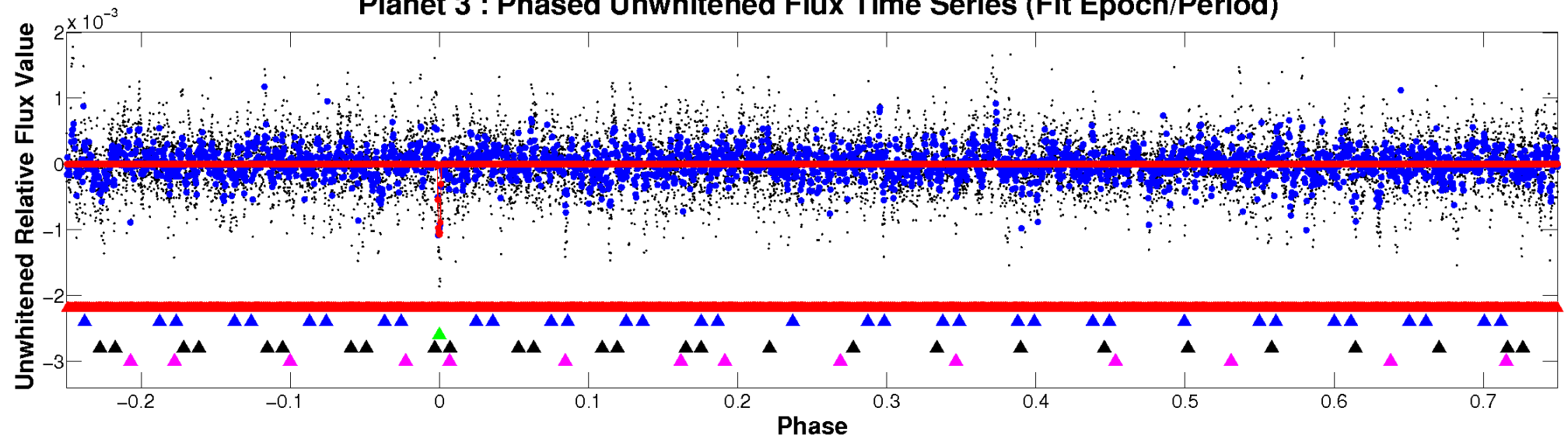
ALT Odd/Even

TCE 011871236-03

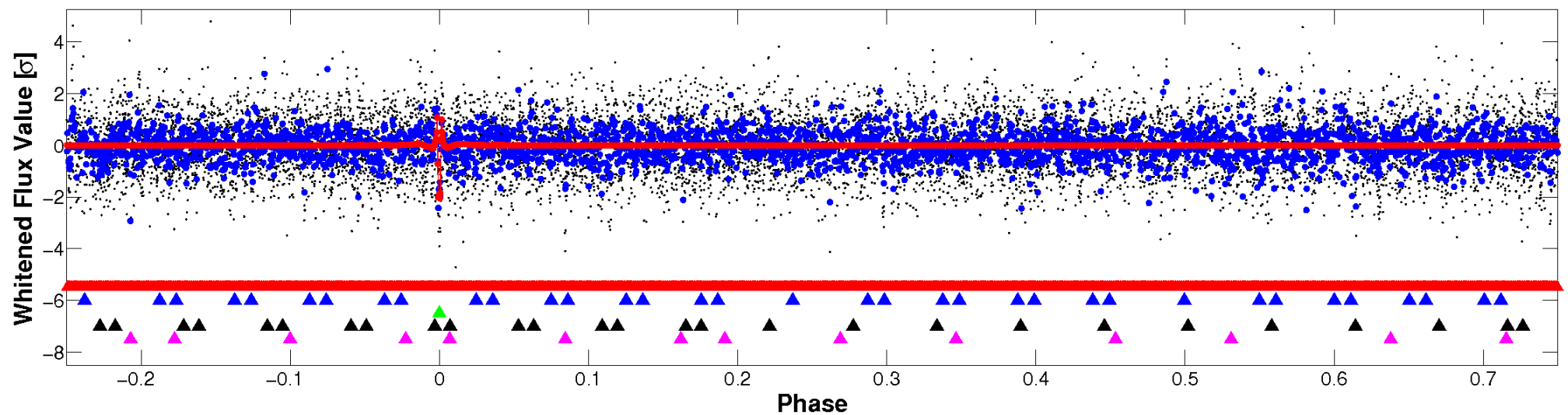


Non-Whitened Vs. Whitened Light Curve

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

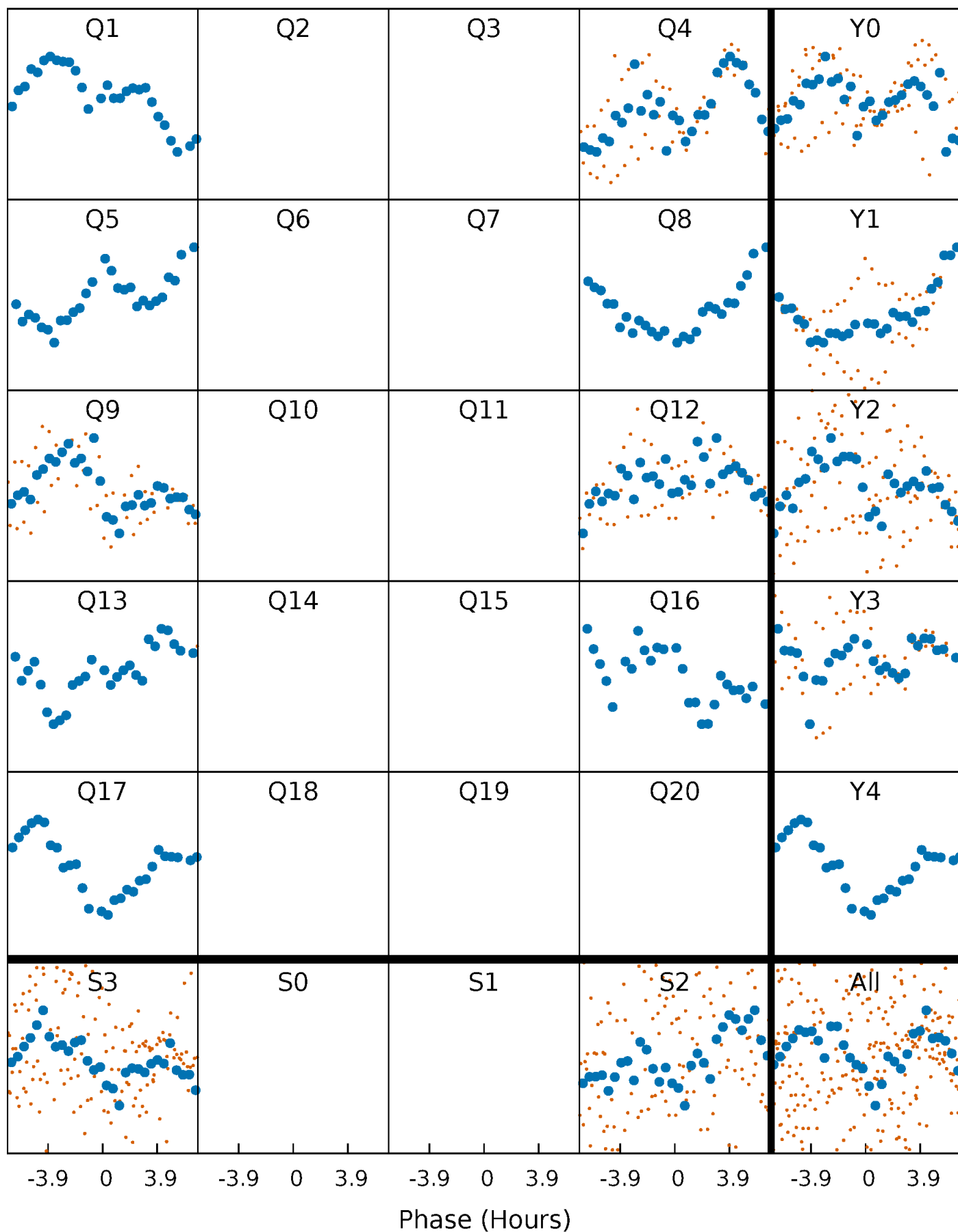


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



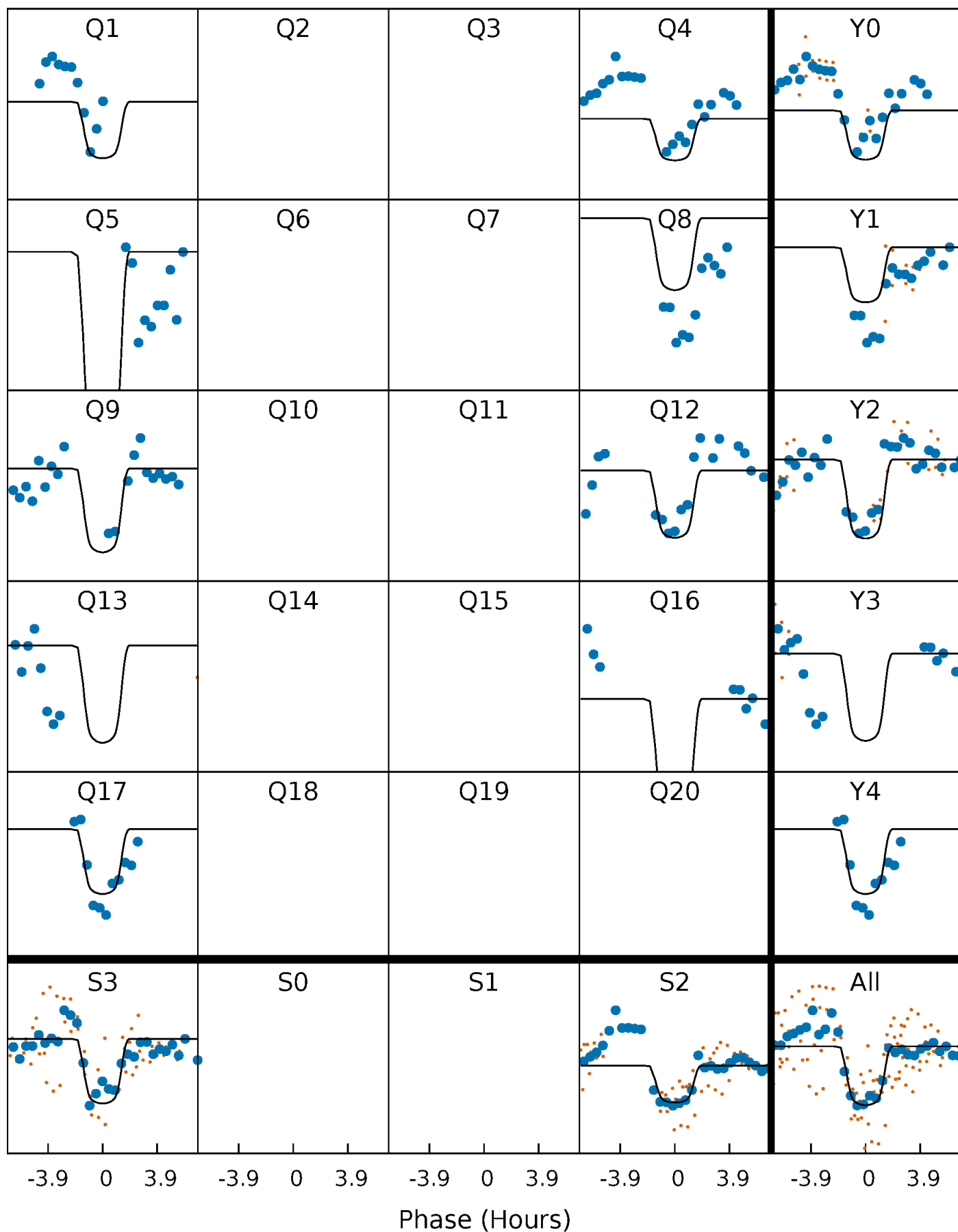
PDC Quarter-Phased Transit Curves

TCE 011871236-03 P= 57.119953 Days $T_0=139.944188$ (BKJD)



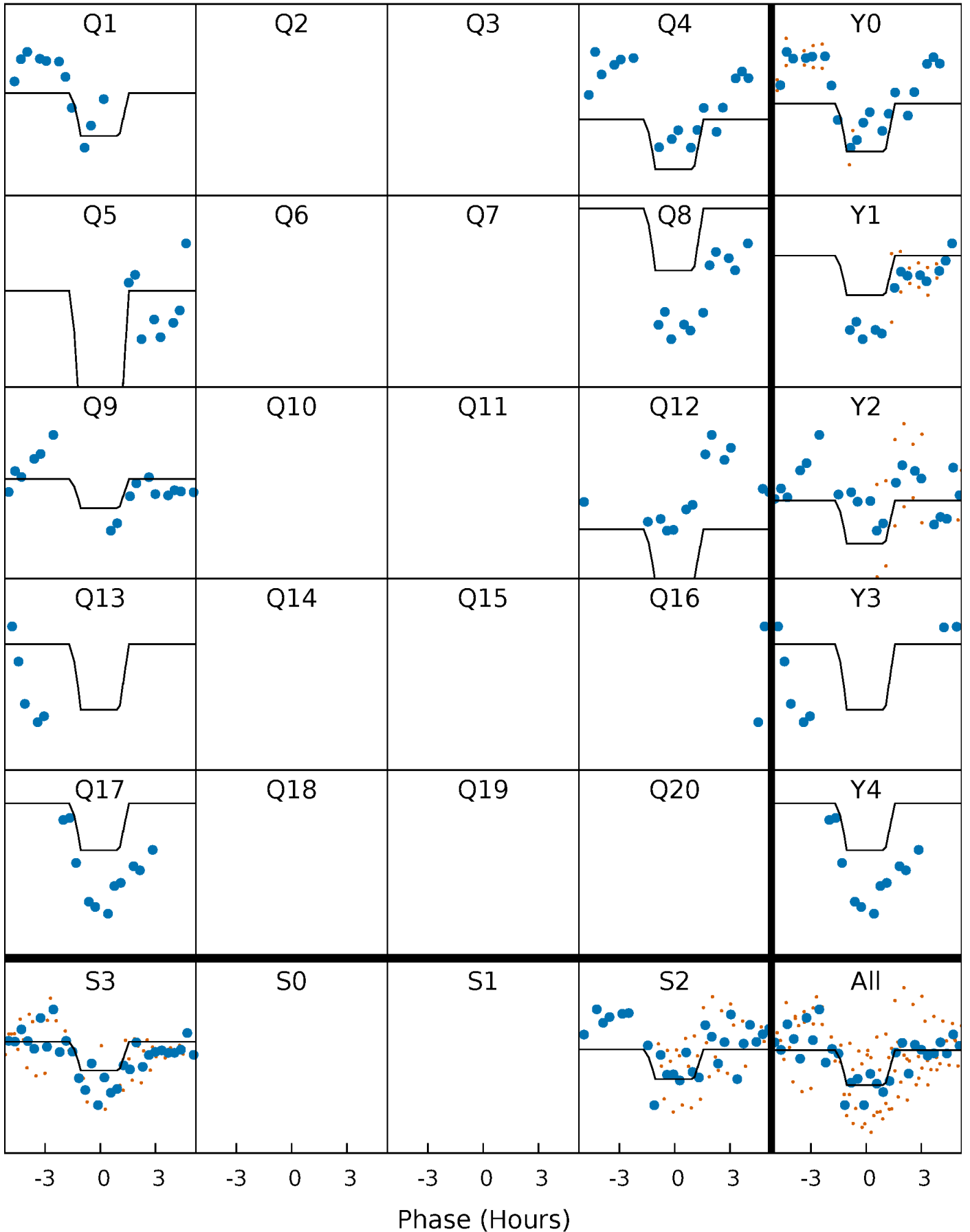
DV Quarter-Phased Transit Curves

TCE 011871236-03 P= 57.119953 Days $T_0=139.944188$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

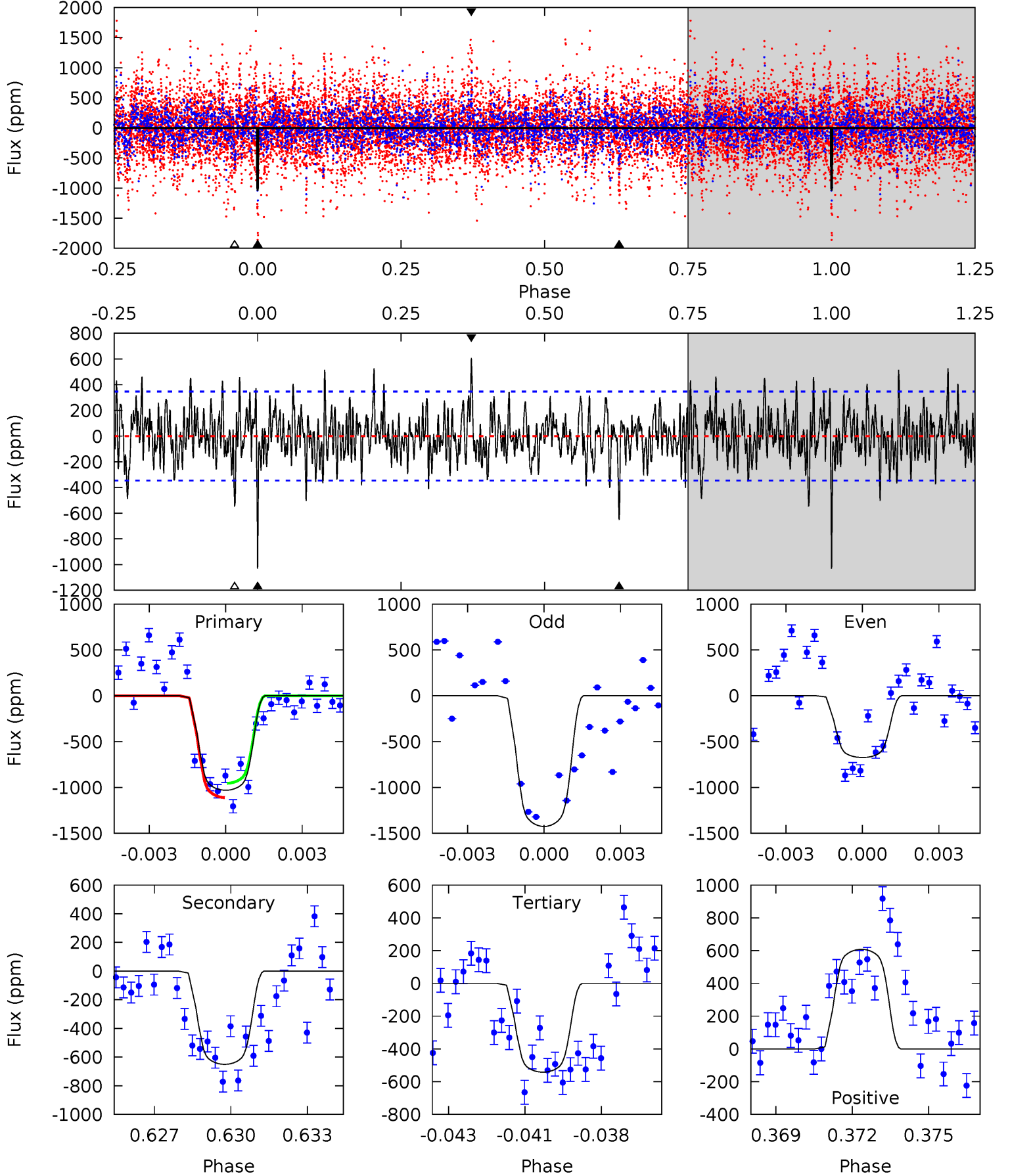
TCE 011871236-03 P= 57.119659 Days $T_0=139.948509$ (BKJD)



DV Model-Shift Uniqueness Test

011871236-03, P = 57.119953 Days, E = 82.824235 Days

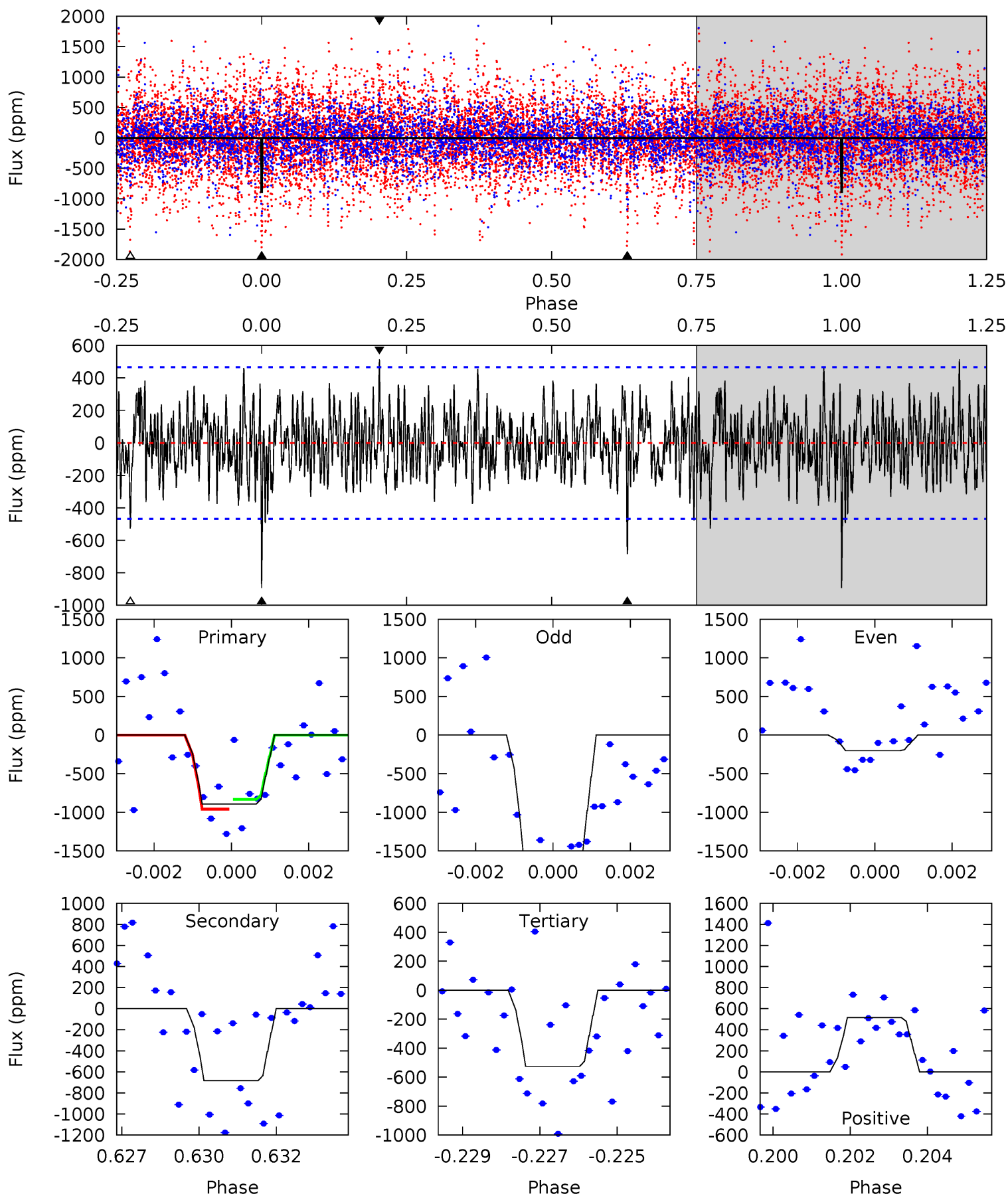
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	9.90	8.25	9.25	5.27	3.00	2.39	7.43	6.43	1.65	0.66	5.85	0.97	0.37	1.16



Alt Model-Shift Uniqueness Test

011871236-03, P = 57.119659 Days, E = 82.828850 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	7.79	6.00	5.87	5.32	3.08	1.84	4.18	4.31	1.79	1.92	8.03	0.92	0.37	0.71



Stellar Parameters For KIC 011871236

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7904^{+219}_{-329}	$3.954^{+0.241}_{-0.130}$	$-0.060^{+0.200}_{-0.350}$	$2.390^{+0.466}_{-0.757}$	$1.872^{+0.104}_{-0.389}$	$0.193^{+0.284}_{-0.075}$
	+3%/-4%	+6%/-3%	+333%/-583%	+19%/-32%	+6%/-21%	+147%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011871236-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-651 ± 66	$8.90^{+1.68}_{-1.57}$	1245^{+86}_{-108}	6498^{+461}_{-351}	563^{+256}_{-162}
Alt.	-683 ± 88	$7.27^{+1.29}_{-1.35}$	1252^{+83}_{-99}	7501^{+673}_{-582}	882^{+454}_{-259}

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 $A_{obs} \gg 1.0$

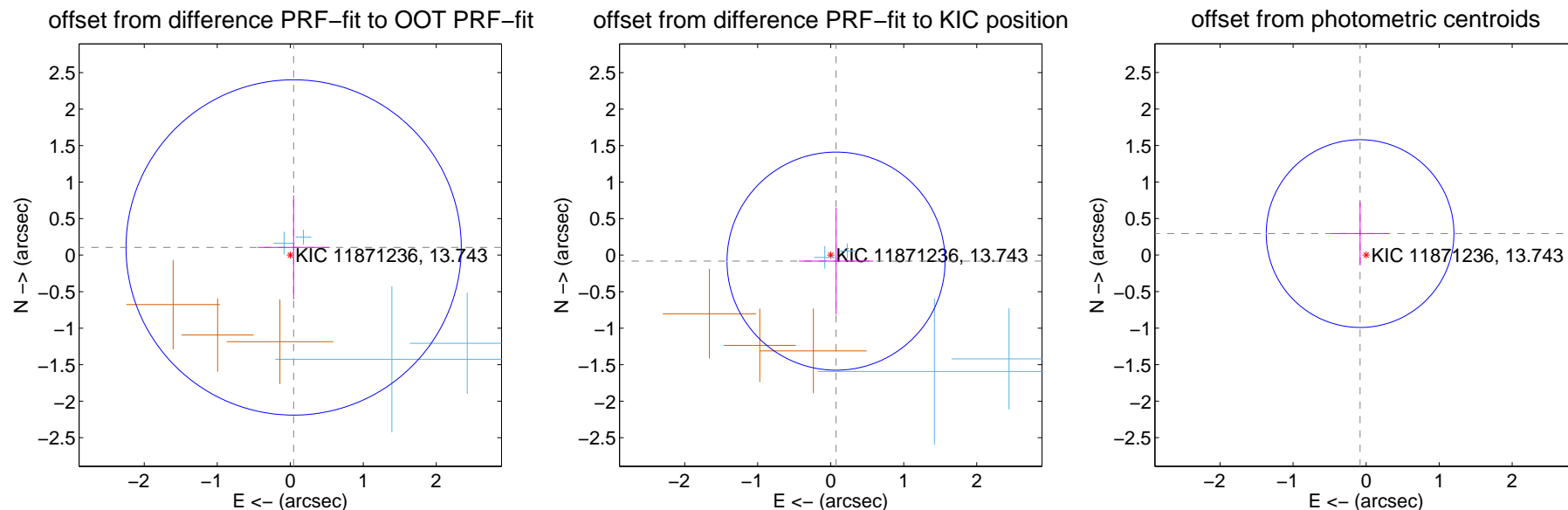
DV Centroid Data

Supplemental centroid analysis for 011871236-03. Kepler magnitude: 13.74. Transit SNR 10.18

There are 4 quarters with good PRF difference image offsets

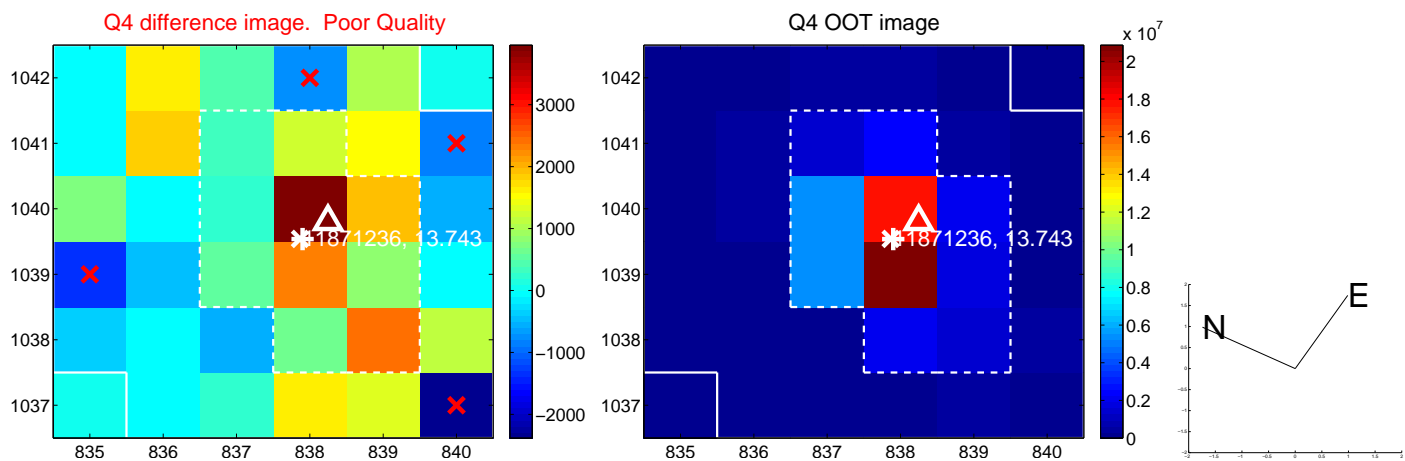
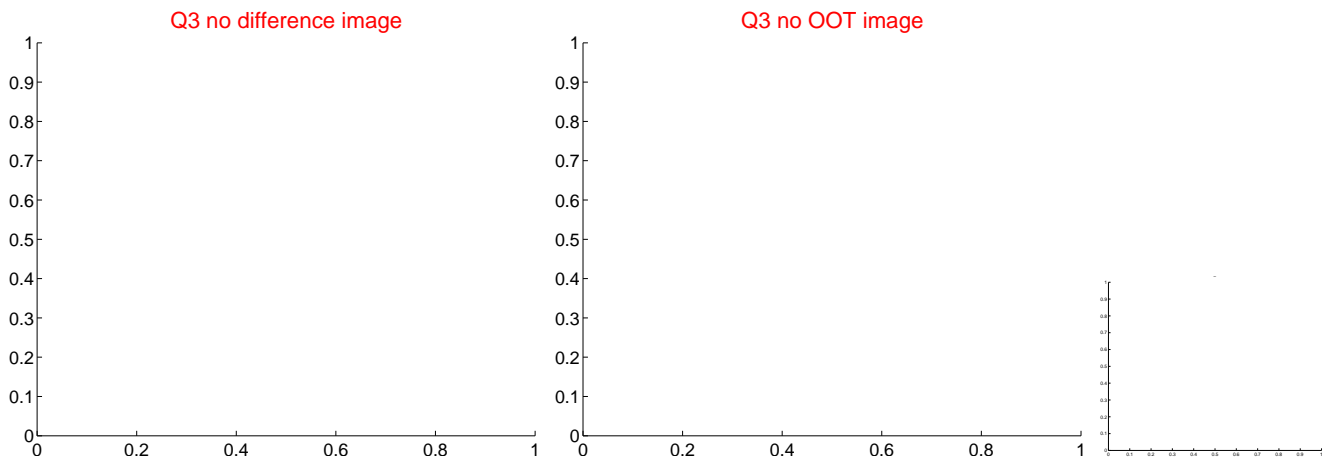
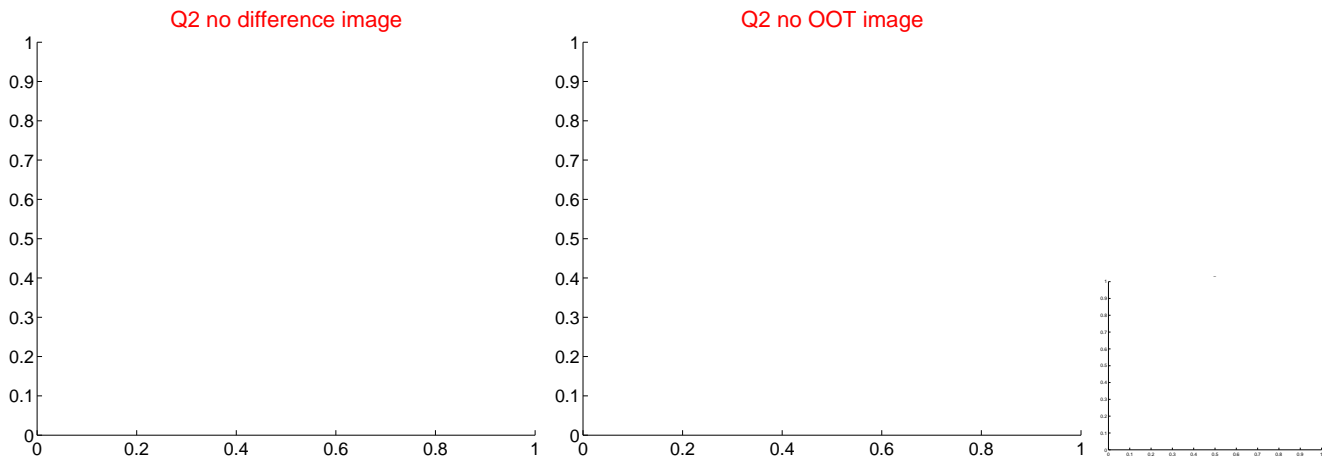
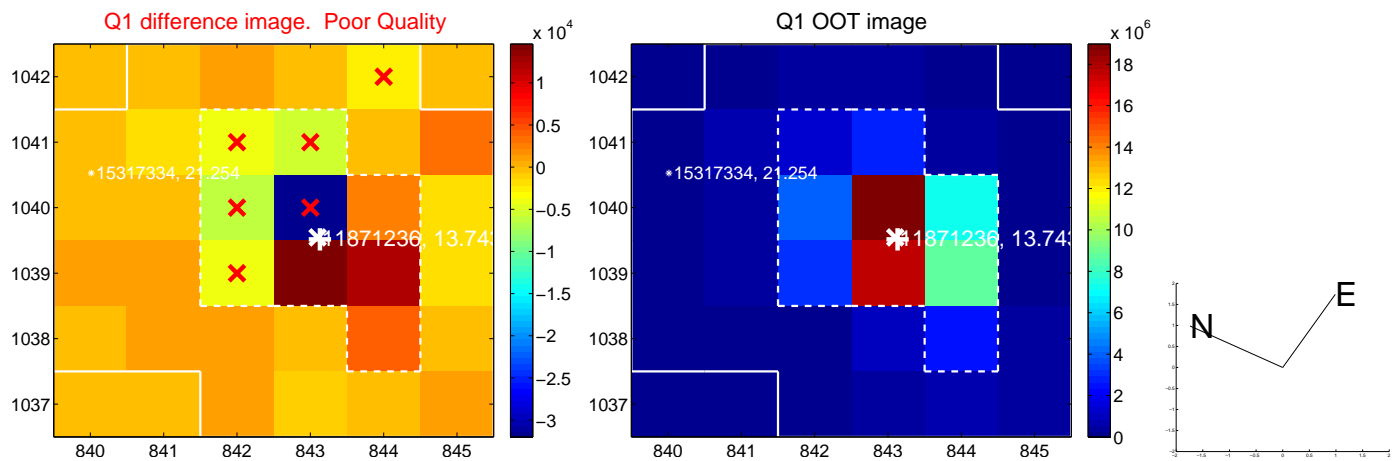
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.115 ± 0.765	0.15	-0.046 ± 0.494	0.105 ± 0.712
PRF-fit source offset from KIC position	0.110 ± 0.498	0.22	-0.073 ± 0.509	-0.082 ± 0.731
photometric centroid source offset	0.31 ± 0.43	0.71	0.08 ± 0.39	0.29 ± 0.43

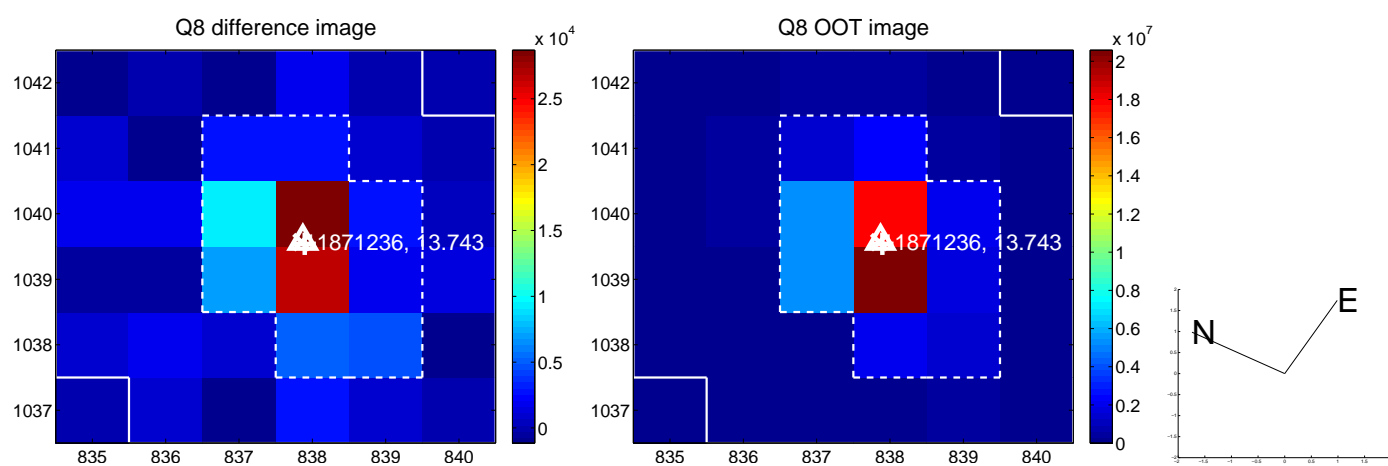
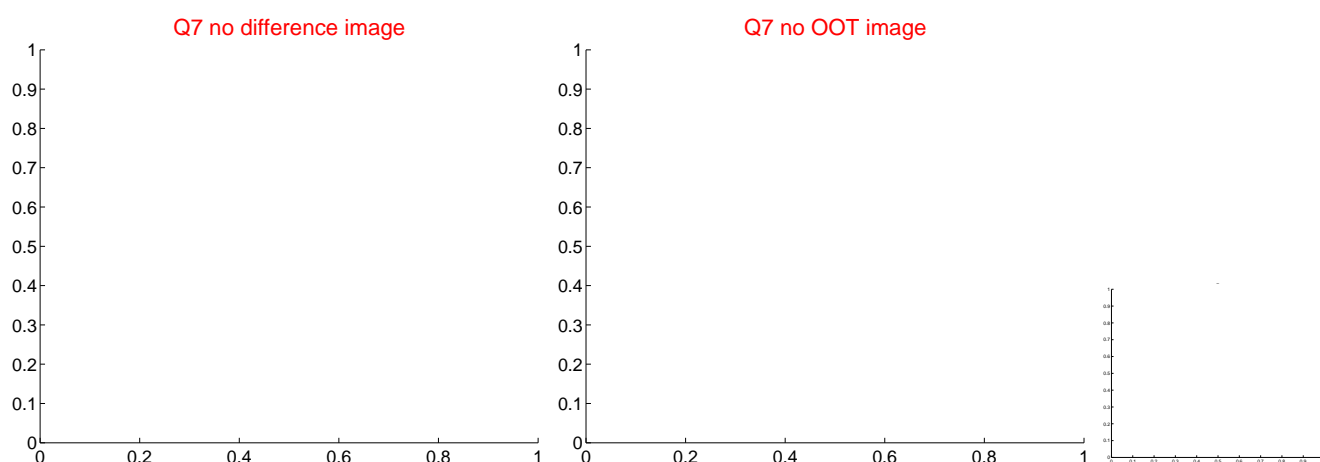
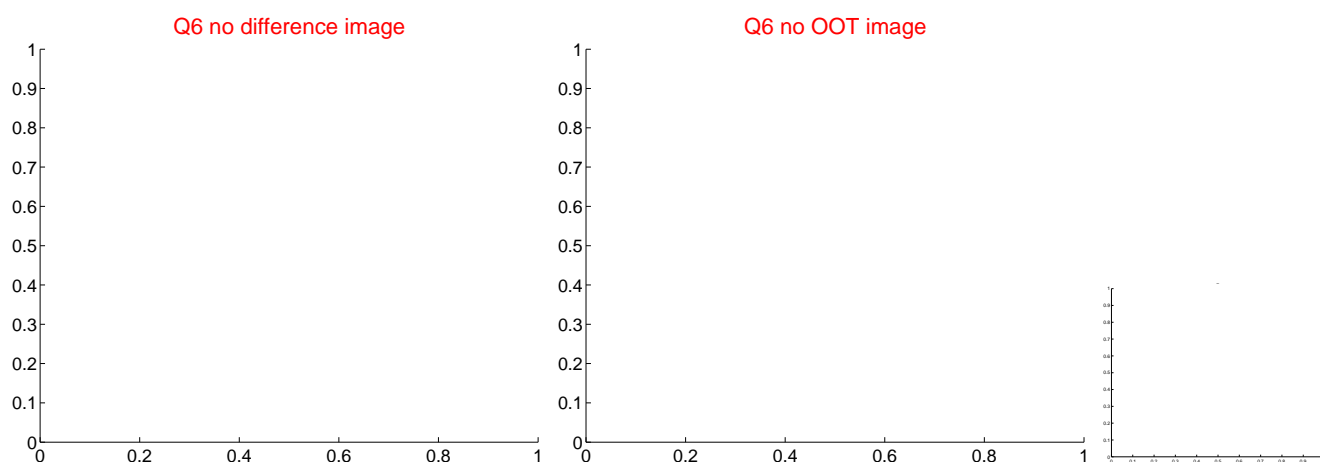
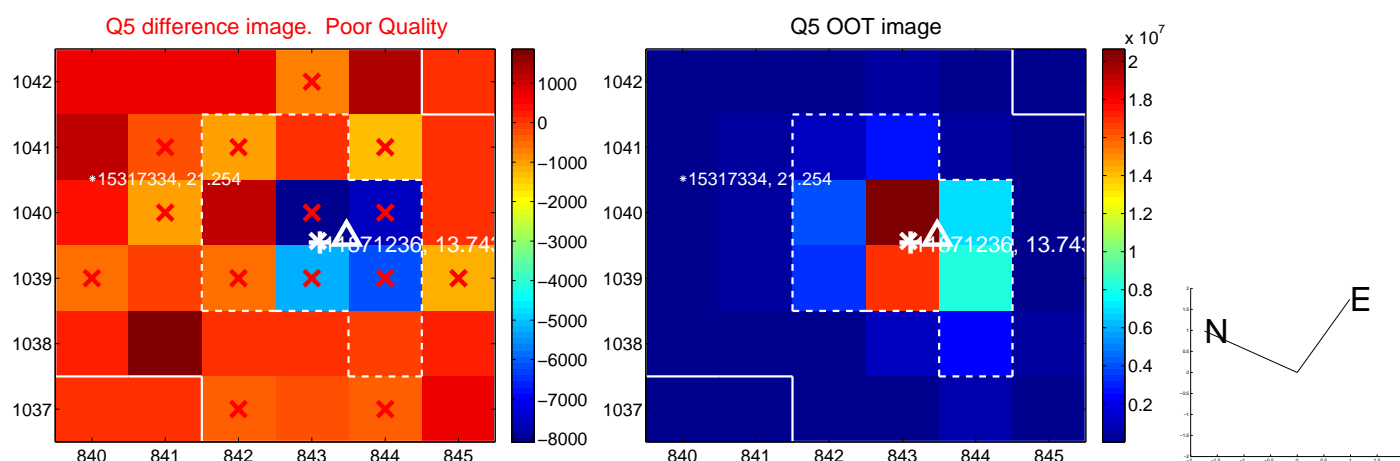


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

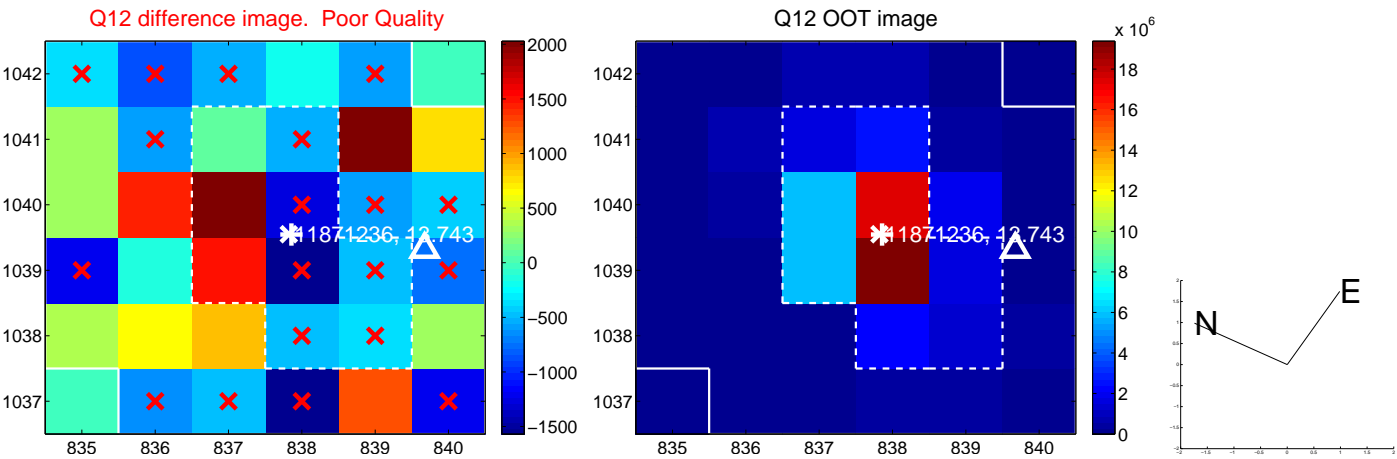
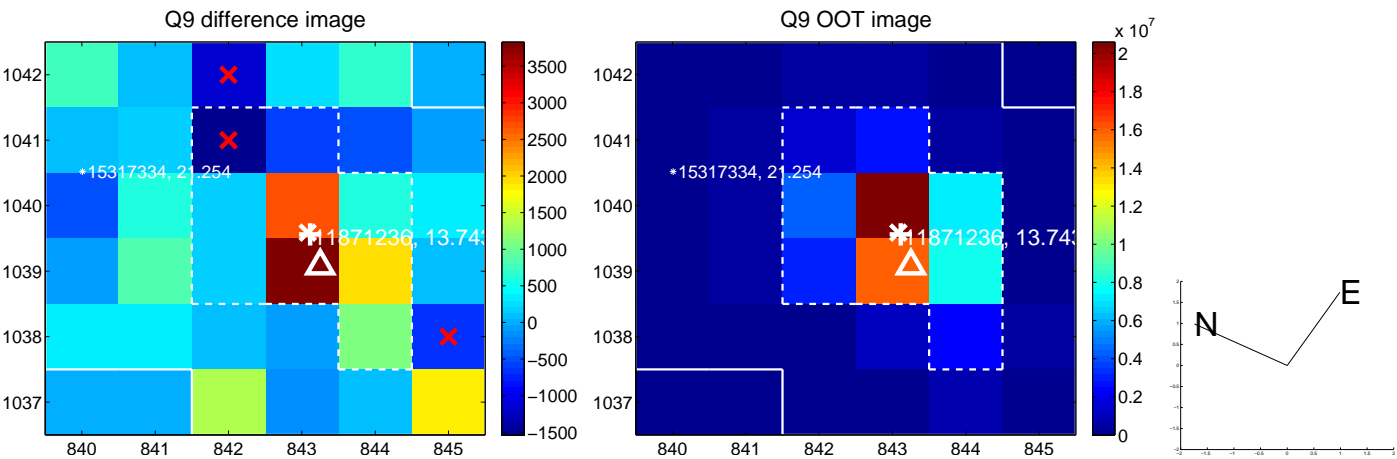
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



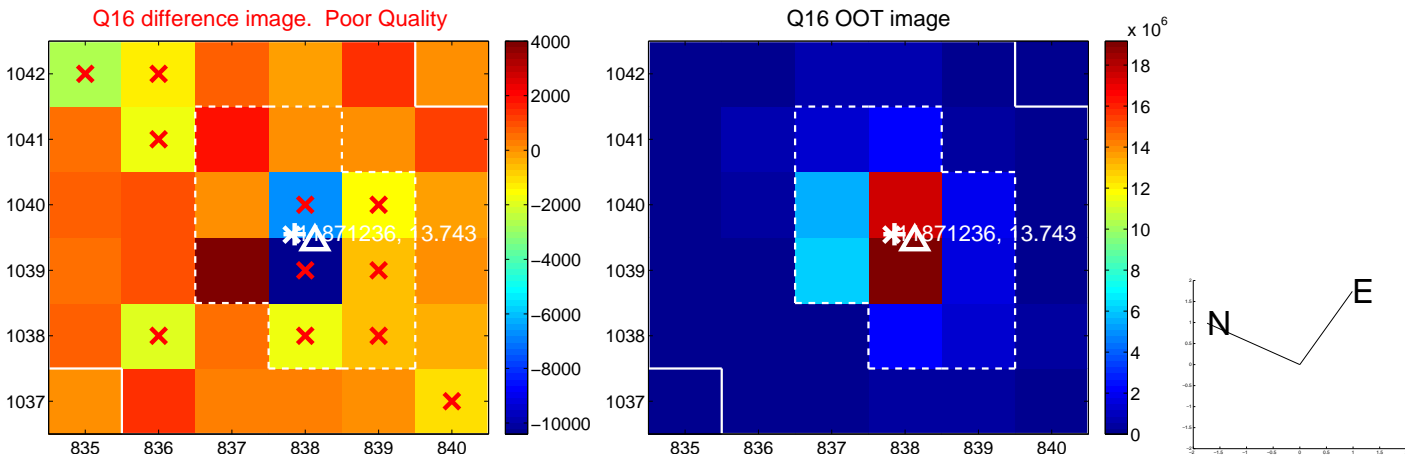
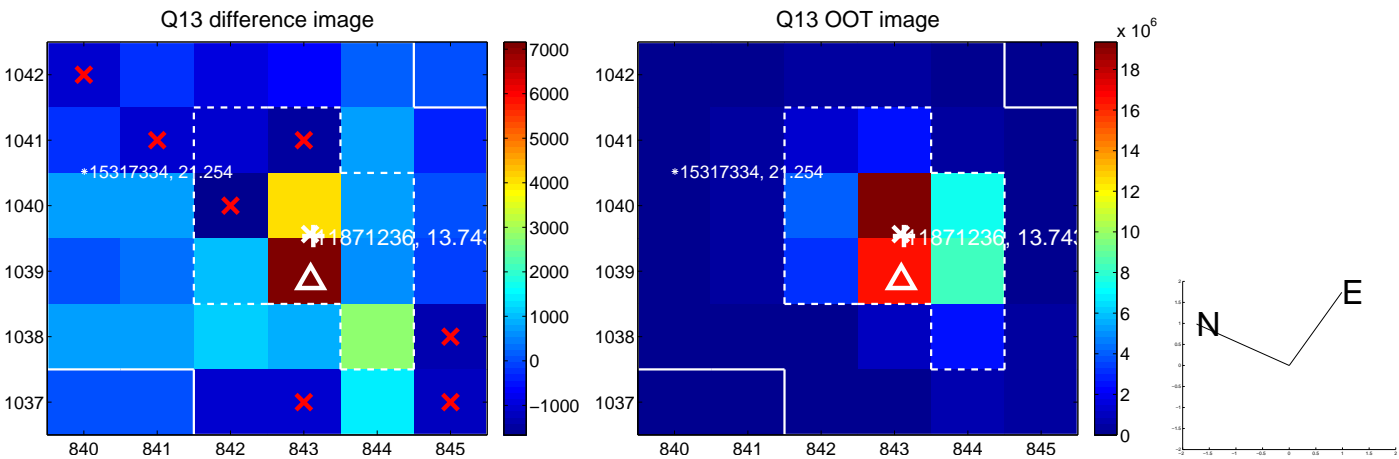
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



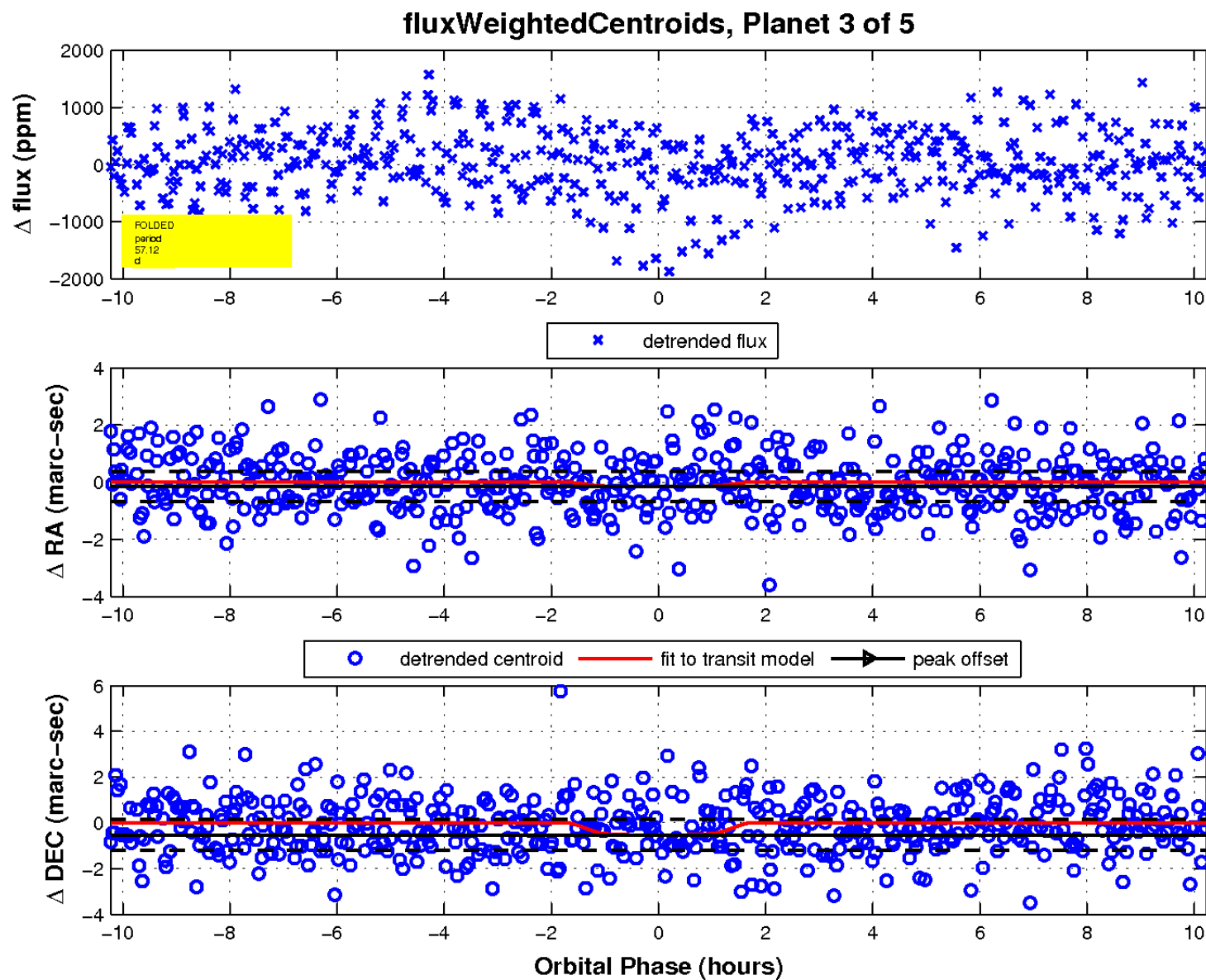
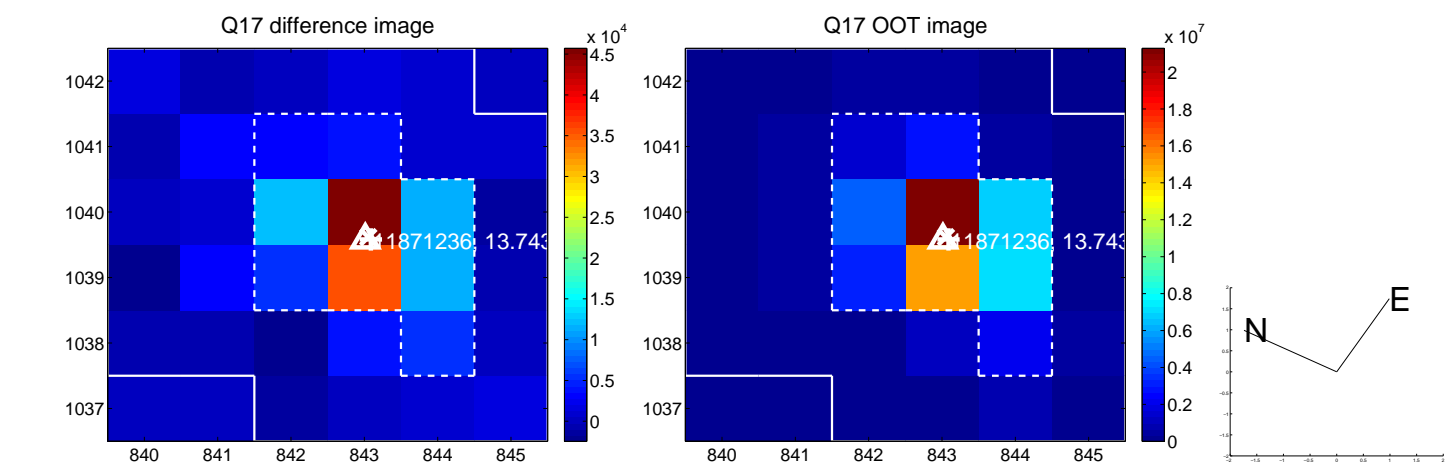
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

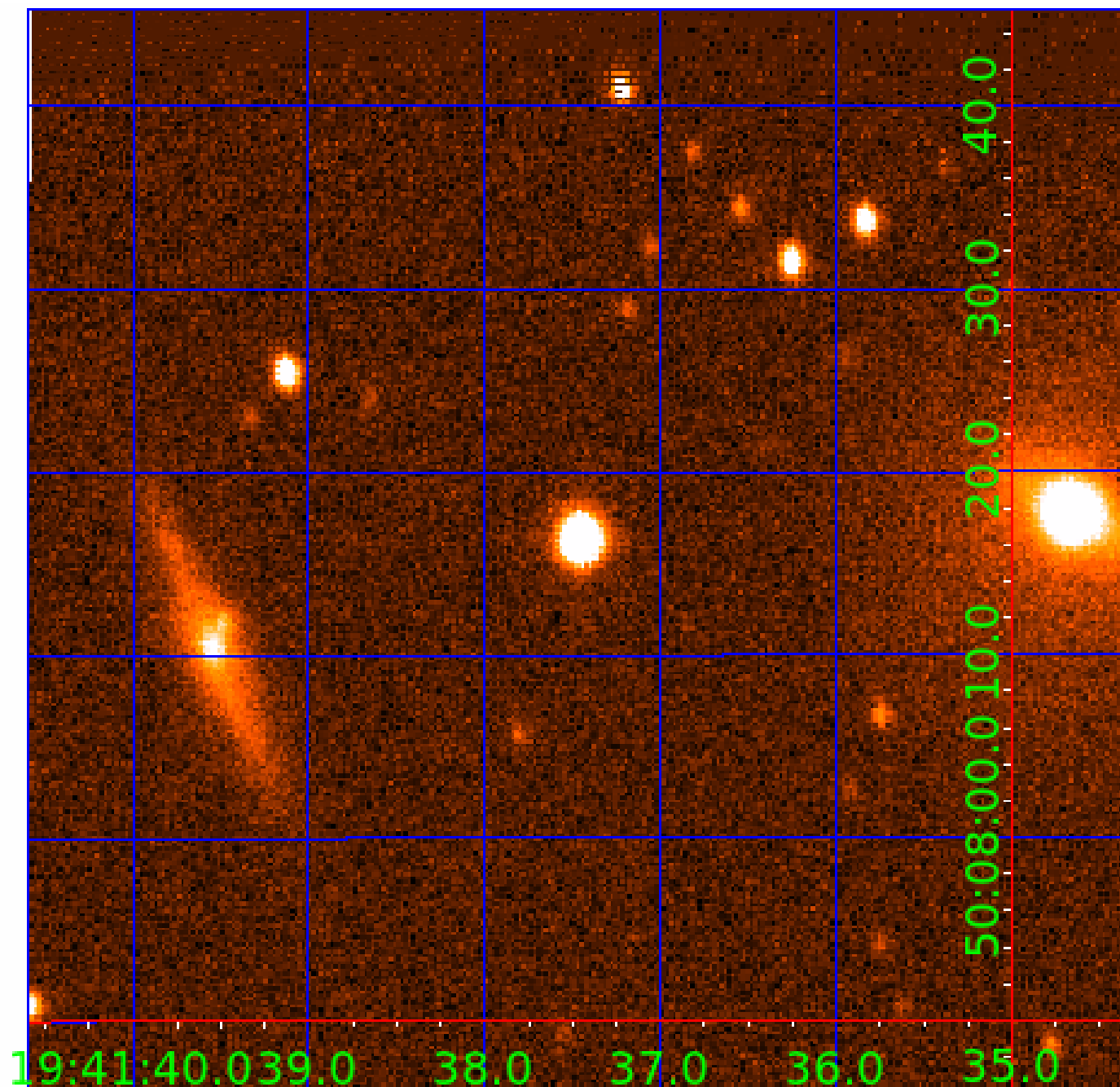


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011871236

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})
011871236-01	OBS	No	0.604874	131.685201	68.0	2.908	8.2	9.4	2.39	7904	2.23	67039.03
011871236-02	OBS	No	42.121850	137.847403	1036.1	3.998	8.1	7.8	2.39	7904	14.29	233.99
011871236-03	OBS	No	57.119953	139.944188	1075.0	3.410	8.4	10.2	2.39	7904	9.27	155.89
011871236-04	OBS	No	53.914144	149.971115	561.8	8.839	8.2	6.6	2.39	7904	6.08	168.38
011871236-05	OBS	No	103.701363	150.878193	985.9	2.306	8.1	8.8	2.39	7904	8.86	70.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011871236-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011871236-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011871236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
011871236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011871236-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

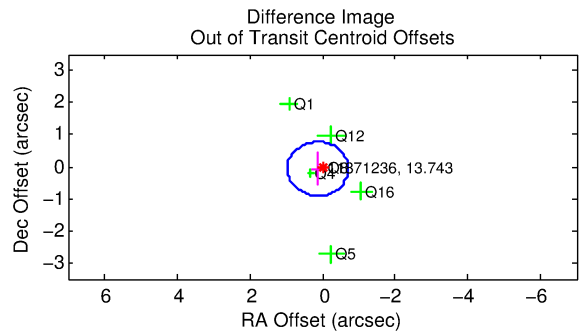
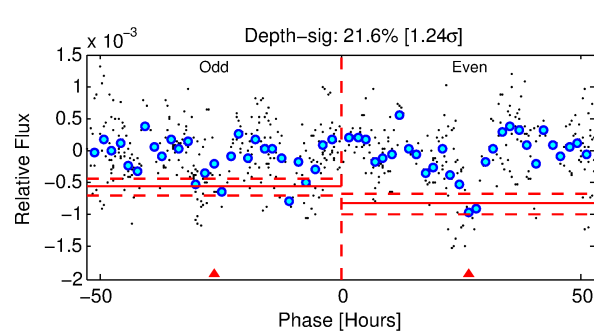
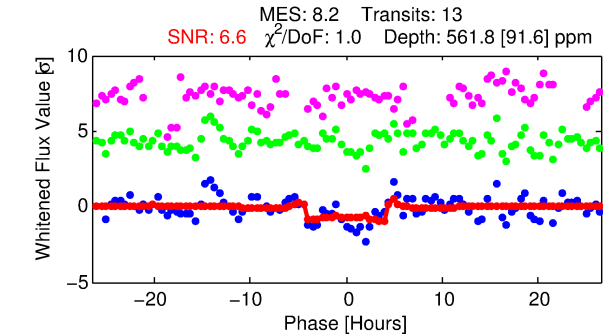
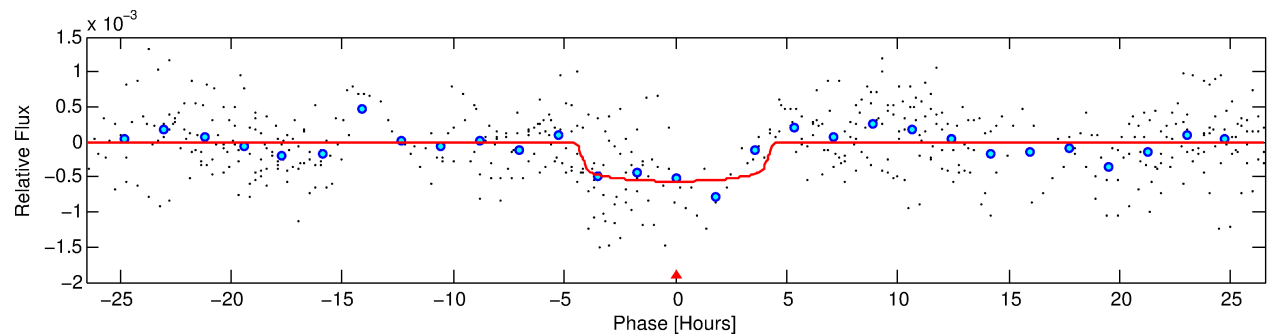
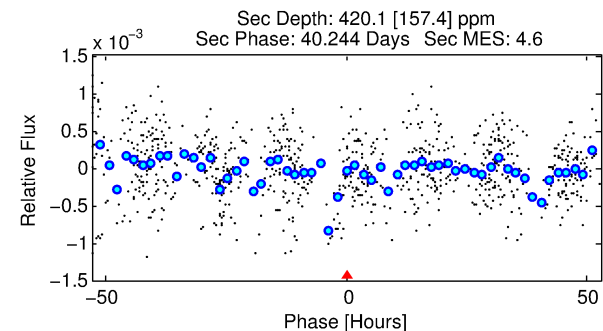
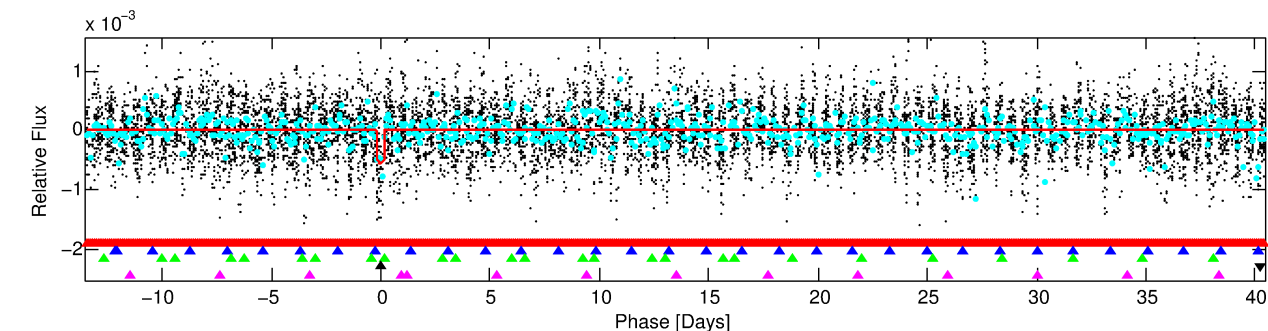
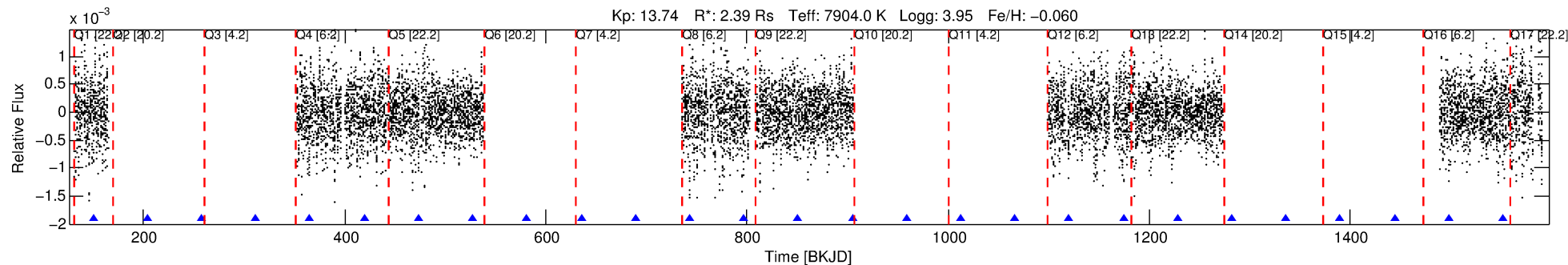
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011871236-04

No Significant Match Found

DV One-Page Summary

KIC: 11871236 Candidate: 4 of 5 Period: 53.914 d



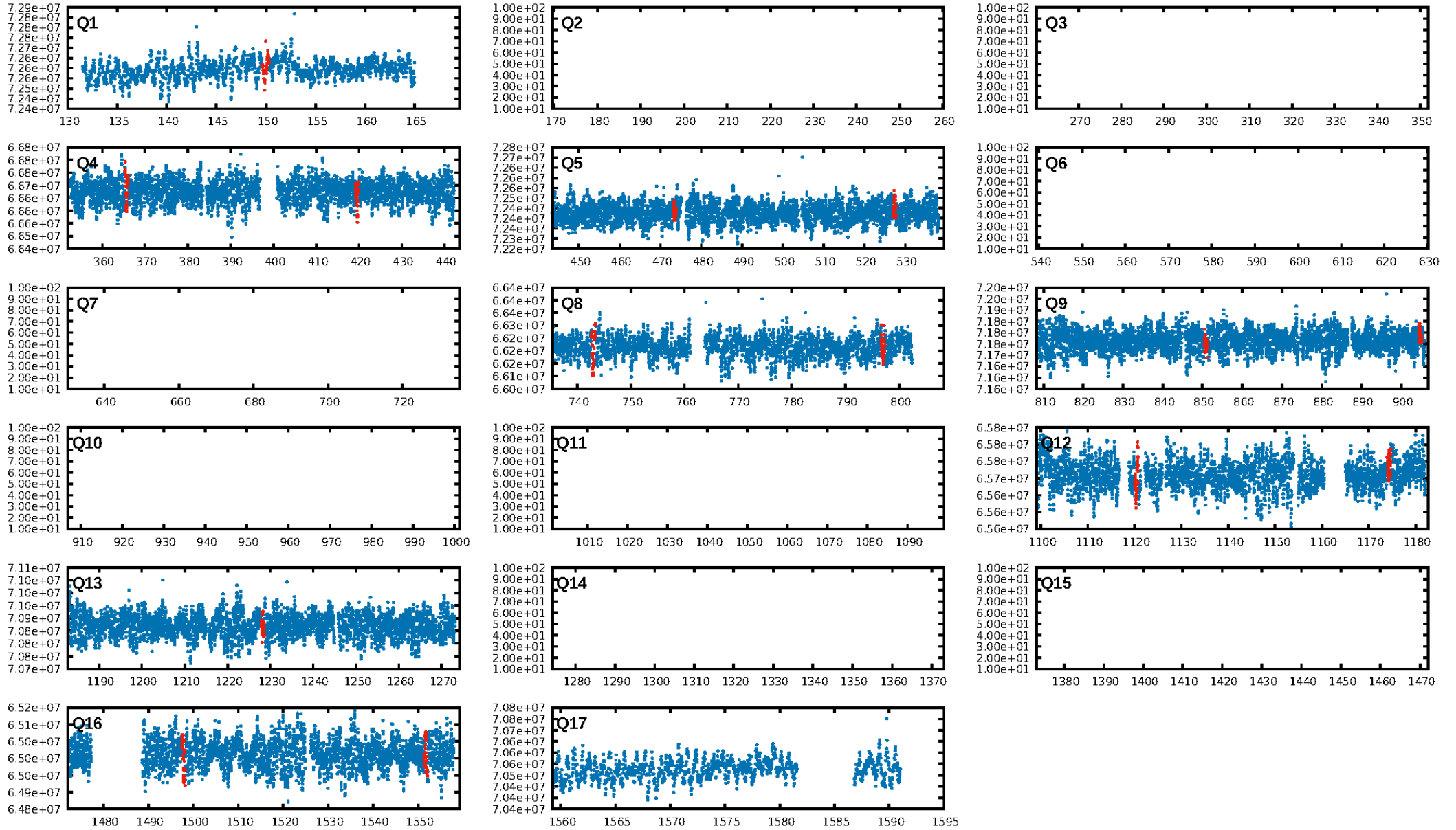
DV Fit Results:

Period = 53.91414 [0.00066] d
Epoch = 149.9711 [0.0087] BKJD
Rp/R* = 0.0233 [0.0052]
a/R* = 34.57 [40.85]
b = 0.70 [0.85]
Seff = 168.37 [77.01]
Teff = 919 [105] K
Rp = 6.08 [2.36] Re
a = 0.3444 [0.0967] AU
Ag = 742.58 [537.50] [1.38 σ]
Teffp = 7413 [1128] K [5.73 σ]

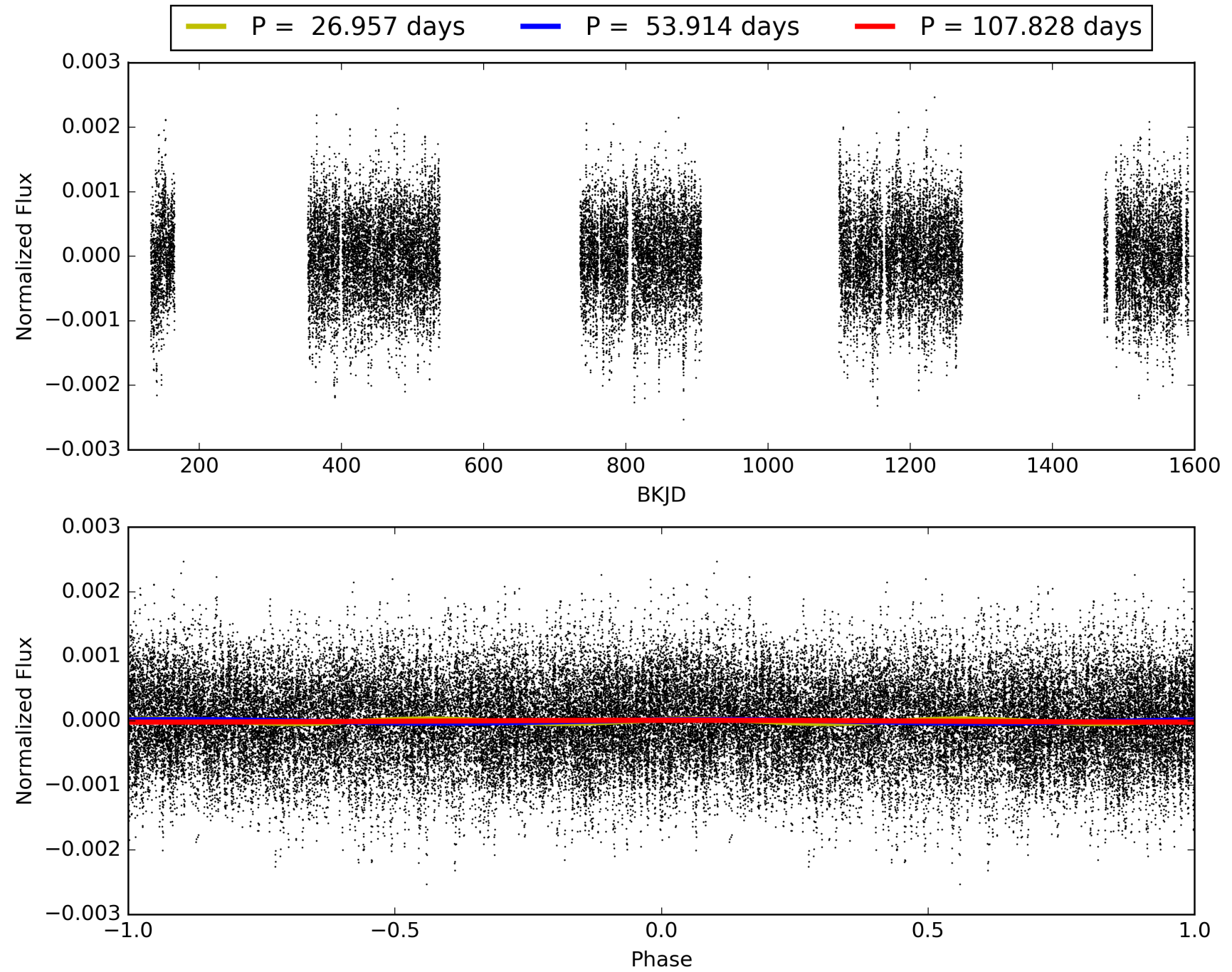
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.17 σ]
LongPeriod-sig: 100.0% [8.12 σ]
ModelChiSquare2-sig: 3.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.91e-11
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 0.5156
Centroid-sig: 27.8%
Centroid-so: 0.606 arcsec [1.51 σ]
OotOffset-rm: 0.146 arcsec [0.52 σ]
KicOffset-rm: 0.294 arcsec [0.55 σ]
OotOffset-st: 0/0/4/2 [6]
KicOffset-st: 0/0/4/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.00 [0/7]

TCE 011871236-04, PDC Light Curves

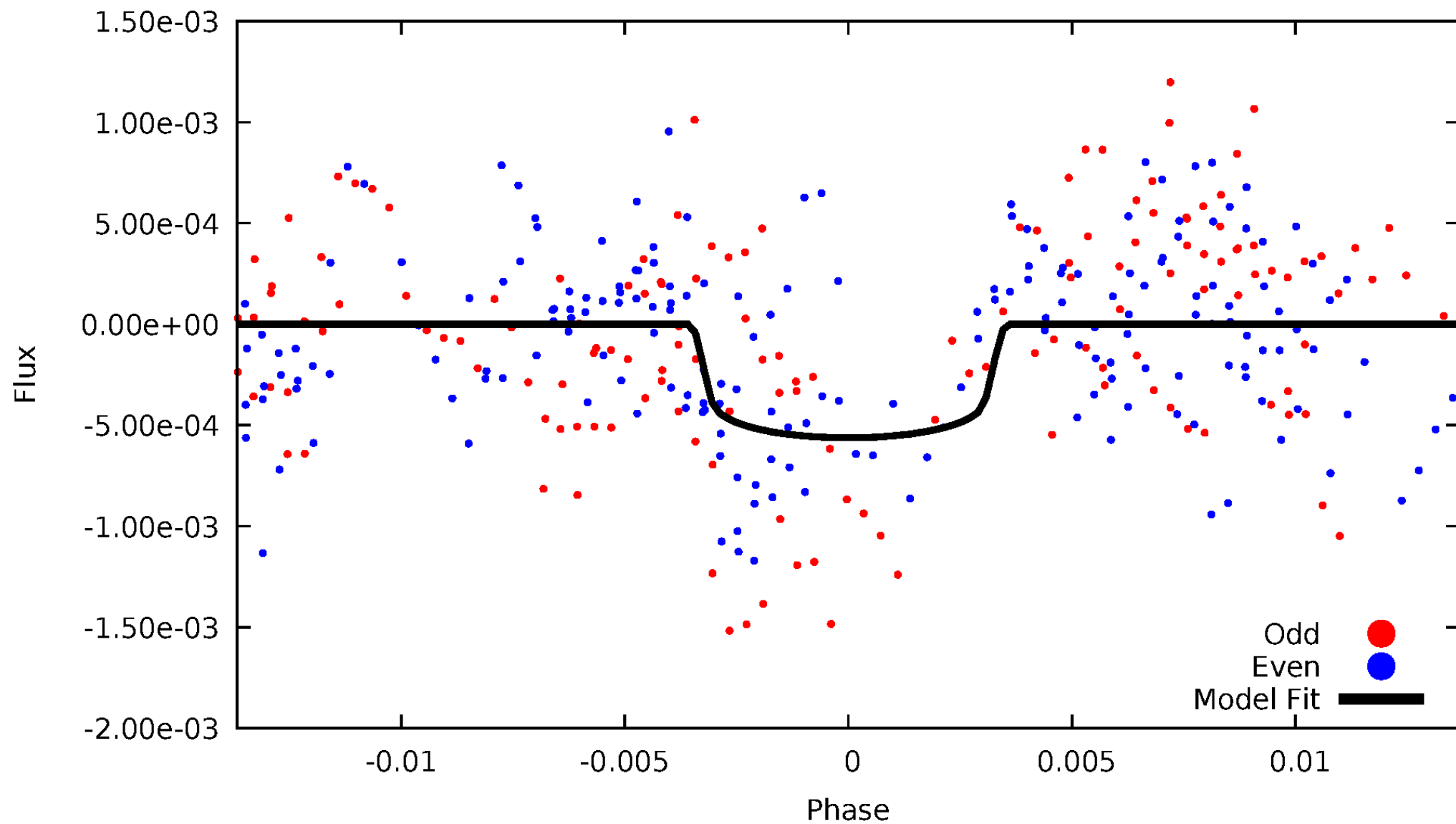


TCE 011871236-04



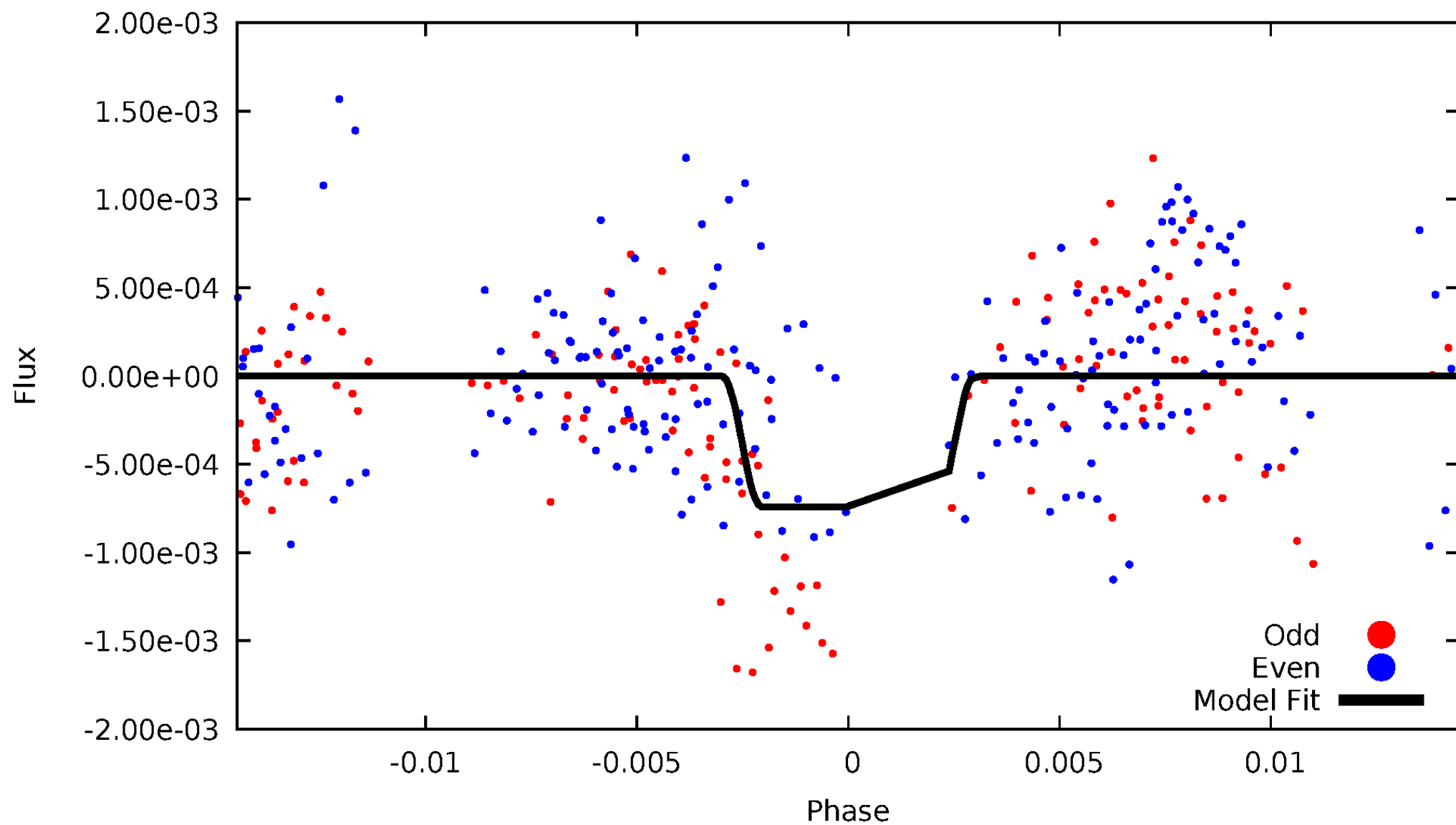
DV Odd/Even

TCE 011871236-04



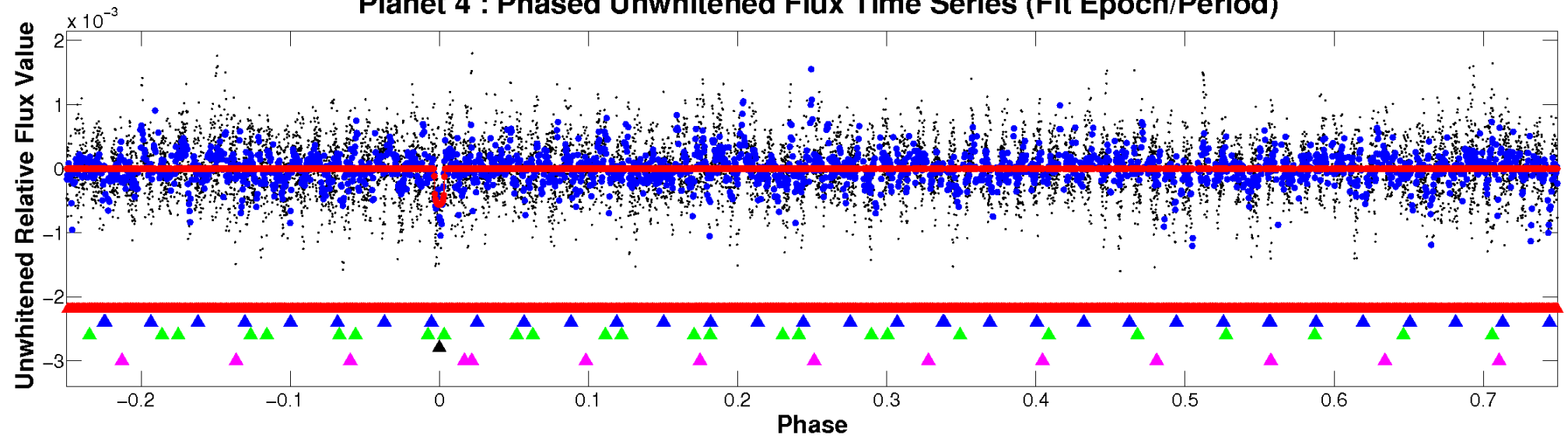
ALT Odd/Even

TCE 011871236-04

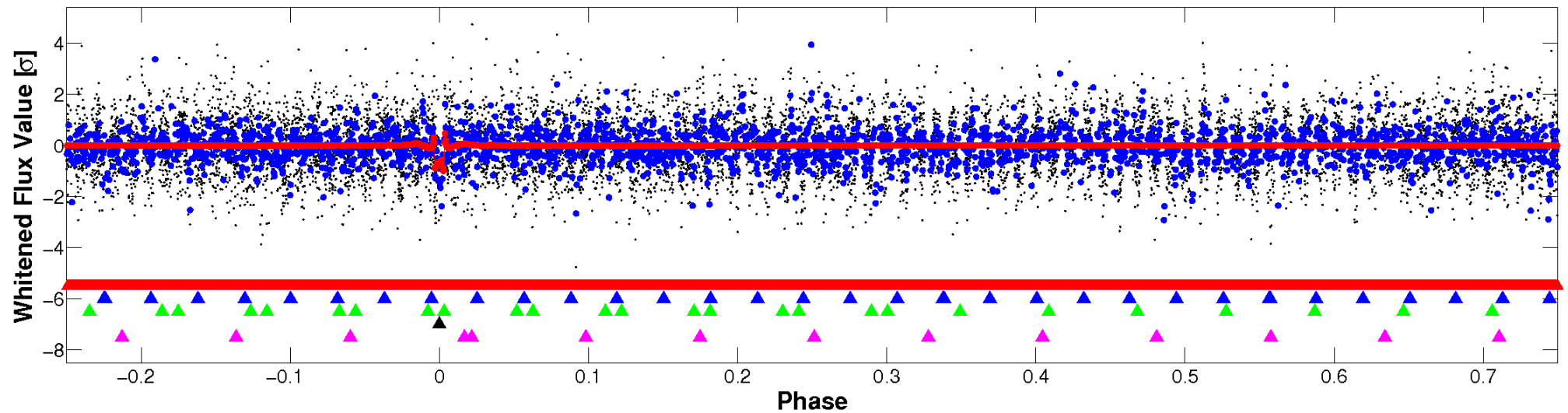


Non-Whitened Vs. Whitened Light Curve

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

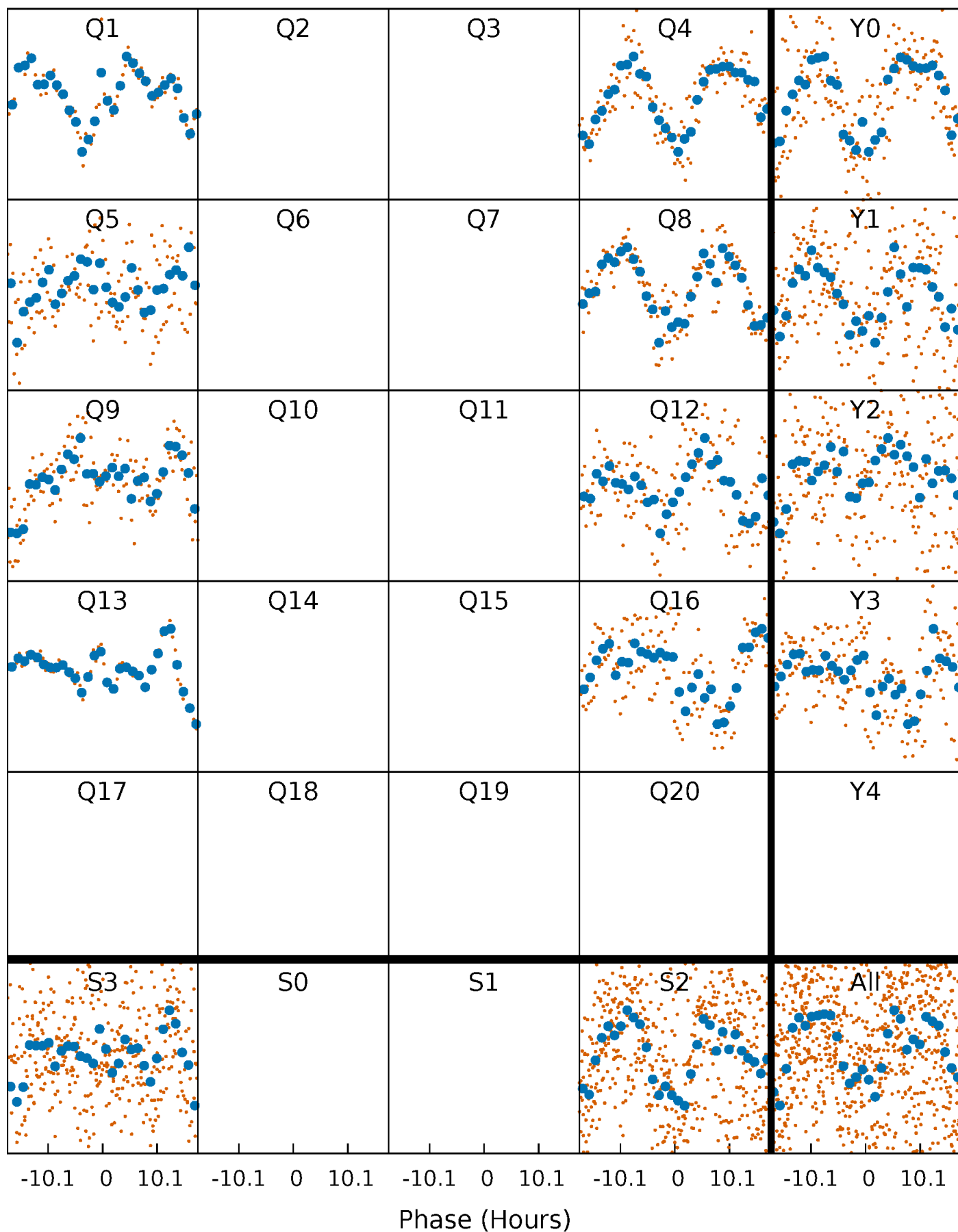


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



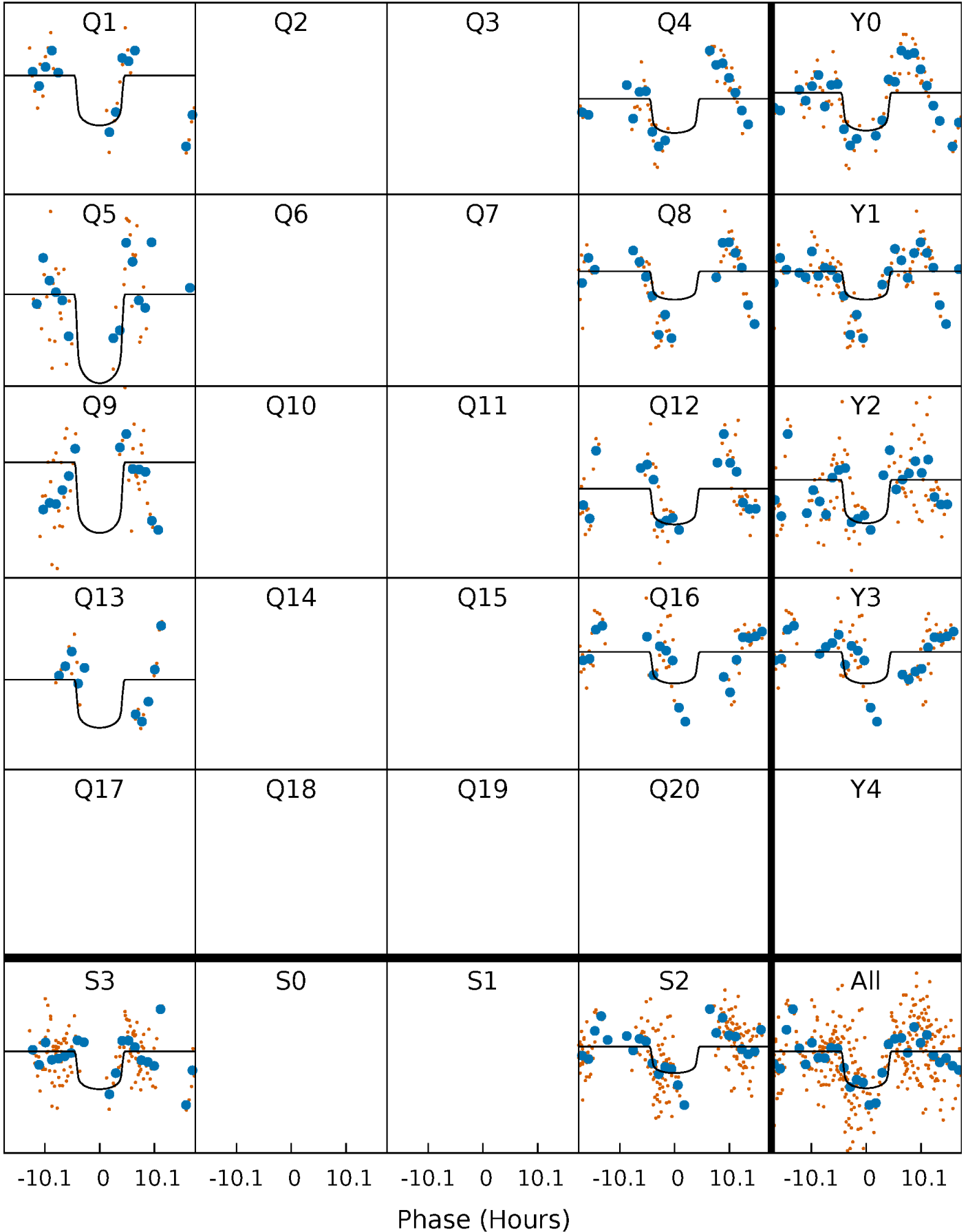
PDC Quarter-Phased Transit Curves

TCE 011871236-04 $P = 53.914144$ Days $T_0 = 149.971115$ (BKJD)



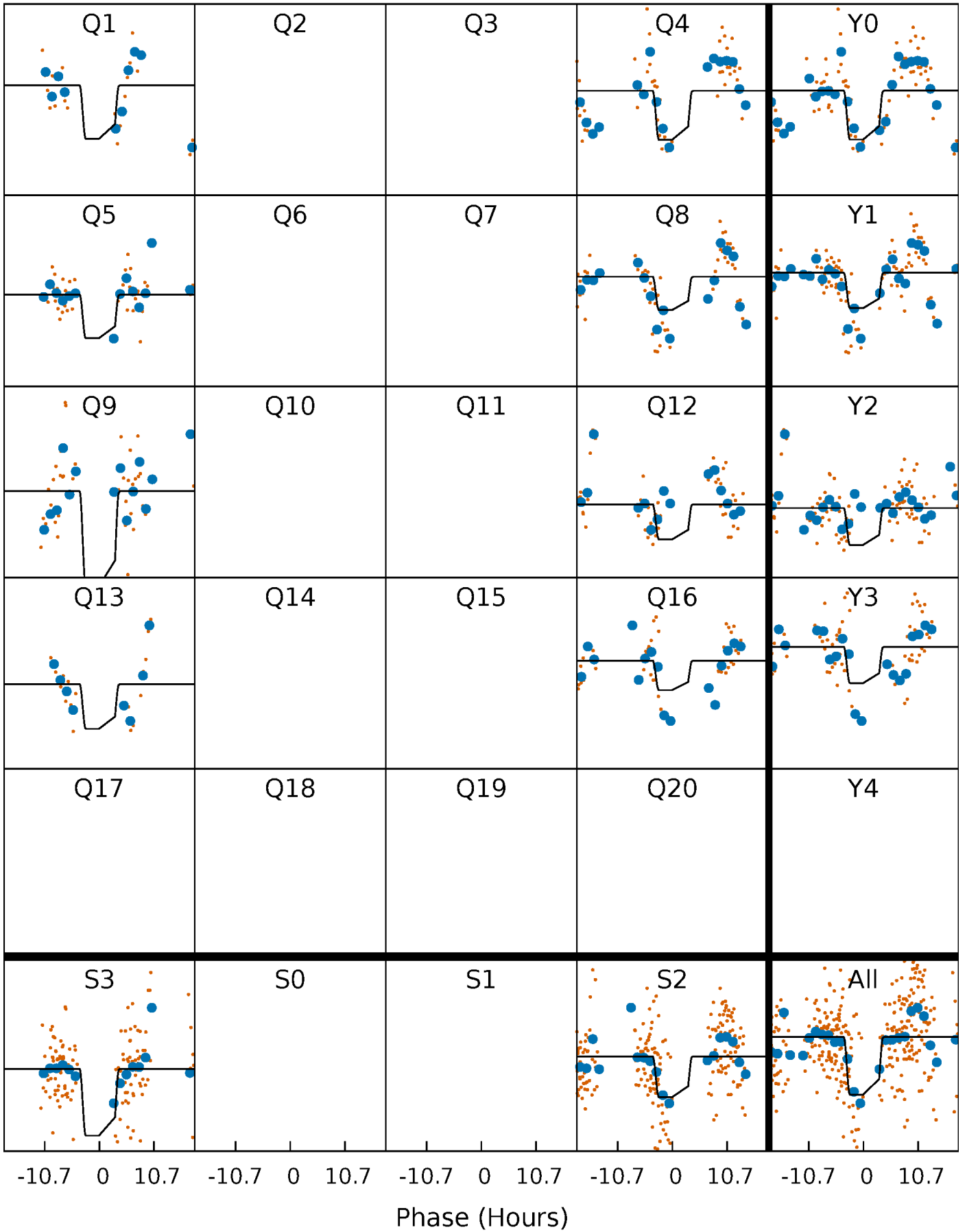
DV Quarter-Phased Transit Curves

TCE 011871236-04 $P = 53.914144$ Days $T_0 = 149.971115$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

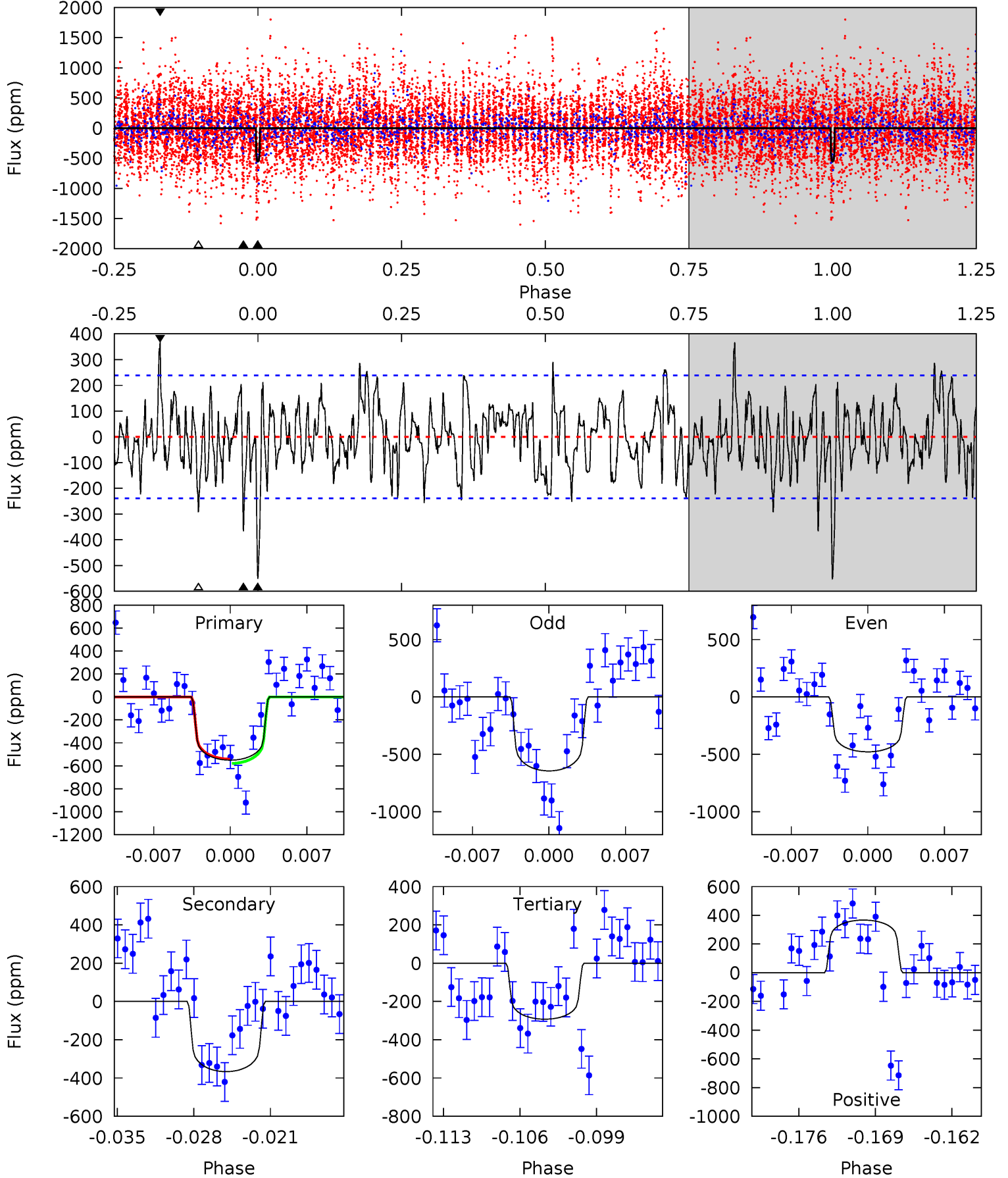
TCE 011871236-04 P= 53.920827 Days $T_0=149.896690$ (BKJD)



DV Model-Shift Uniqueness Test

011871236-04, P = 53.914144 Days, E = 96.056971 Days

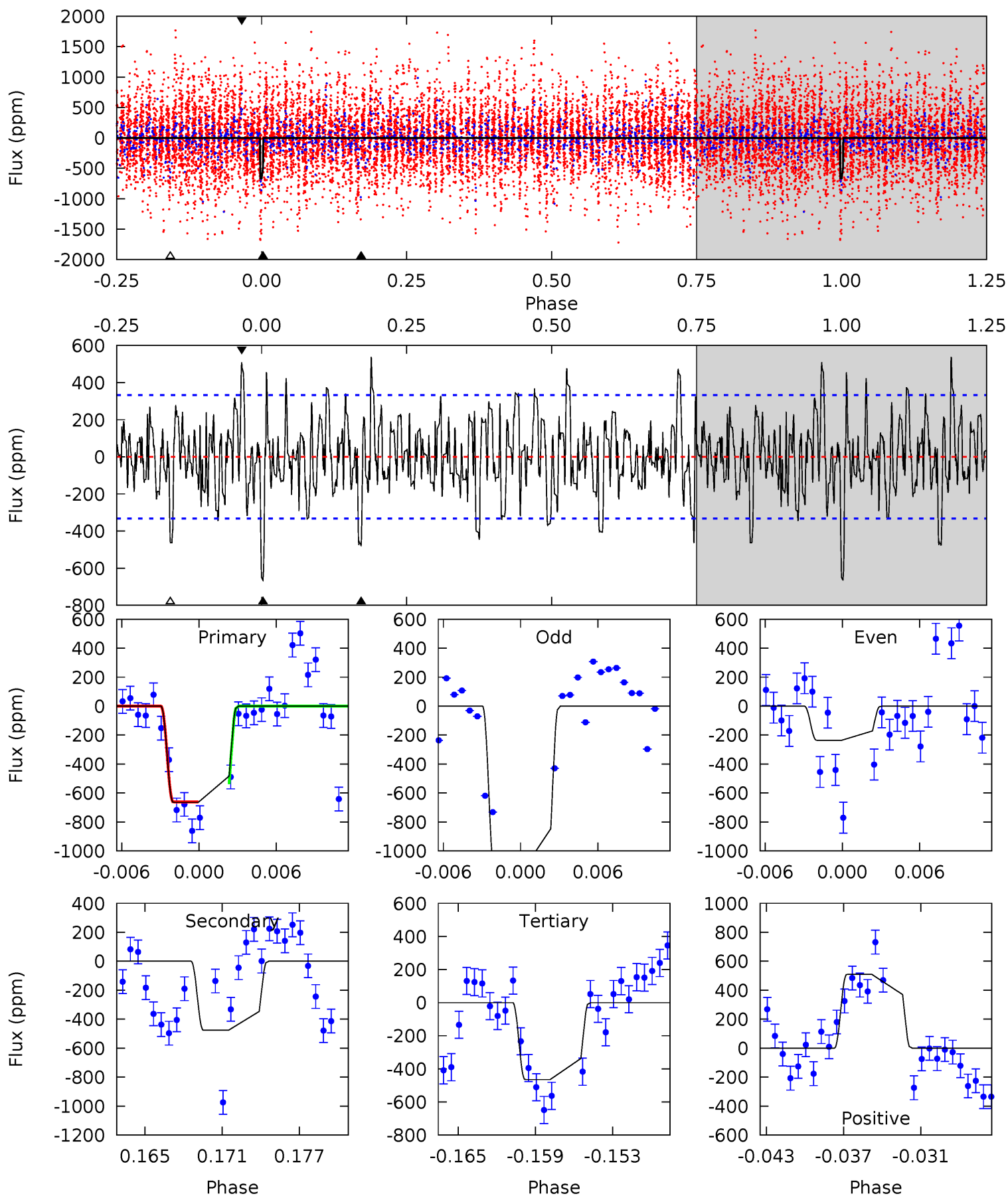
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	7.82	6.24	7.83	5.09	2.69	2.31	5.51	3.92	1.58	-0.01	1.76	0.94	0.40	0.34



Alt Model-Shift Uniqueness Test

011871236-04, P = 53.920827 Days, E = 95.975863 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	7.33	7.14	7.83	5.12	2.74	2.24	3.08	2.40	0.18	-0.50	7.10	0.72	0.45	0.63



Stellar Parameters For KIC 011871236

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7904^{+219}_{-329}	$3.954^{+0.241}_{-0.130}$	$-0.060^{+0.200}_{-0.350}$	$2.390^{+0.466}_{-0.757}$	$1.872^{+0.104}_{-0.389}$	$0.193^{+0.284}_{-0.075}$
	+3%/-4%	+6%/-3%	+333%/-583%	+19%/-32%	+6%/-21%	+147%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011871236-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-367 ± 47	$5.82^{+1.69}_{-1.56}$	1268^{+89}_{-109}	6976^{+1241}_{-806}	685^{+601}_{-279}
Alt.	-477 ± 65	$6.76^{+1.76}_{-1.60}$	1270^{+83}_{-106}	6965^{+998}_{-748}	664^{+445}_{-234}

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

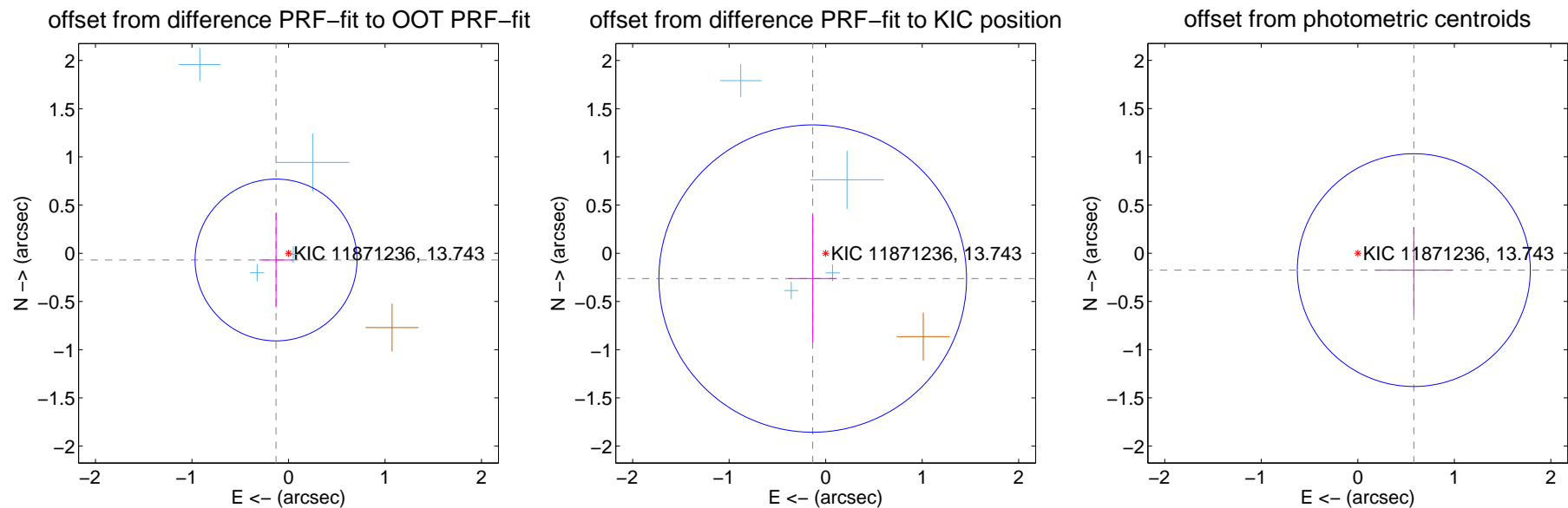
DV Centroid Data

Supplemental centroid analysis for 011871236-04. Kepler magnitude: 13.74. Transit SNR 6.62

There are 4 quarters with good PRF difference image offsets

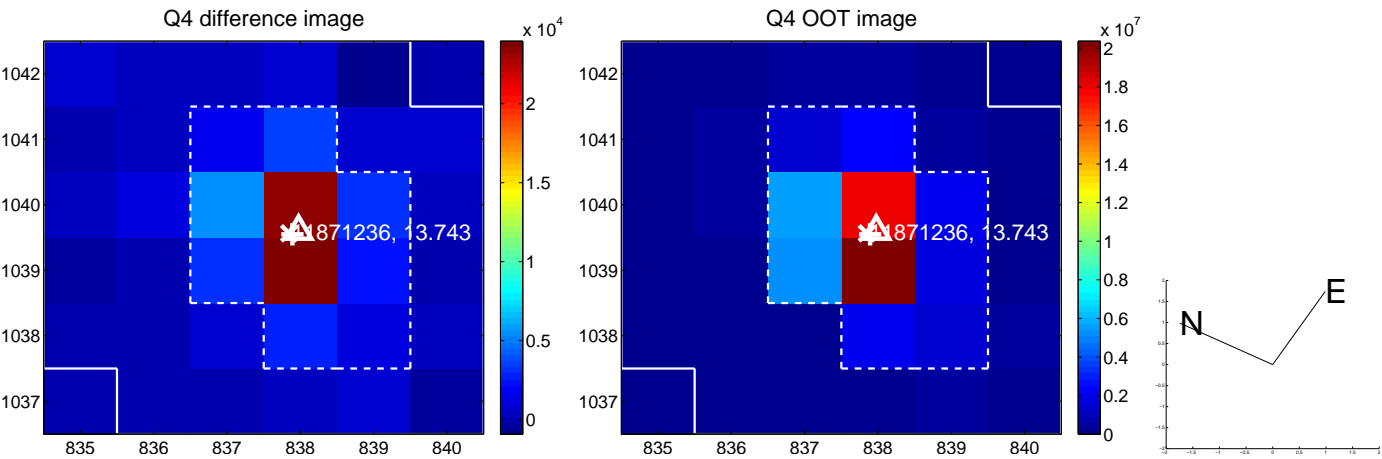
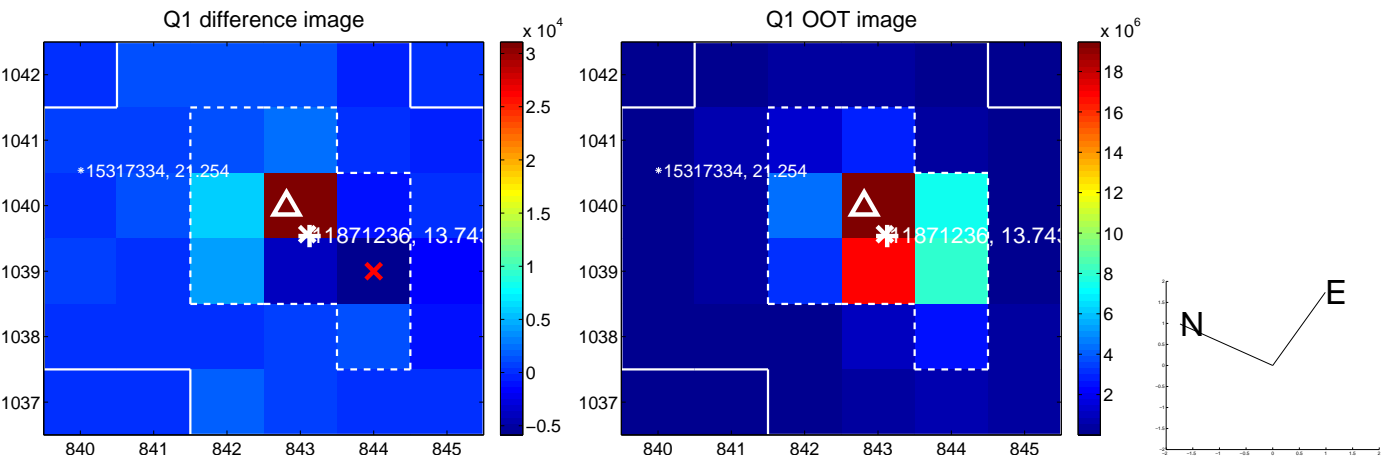
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.146 ± 0.280	0.52	0.129 ± 0.176	-0.070 ± 0.491
PRF-fit source offset from KIC position	0.294 ± 0.531	0.55	0.134 ± 0.251	-0.262 ± 0.662
photometric centroid source offset	0.61 ± 0.40	1.51	-0.58 ± 0.40	-0.18 ± 0.45

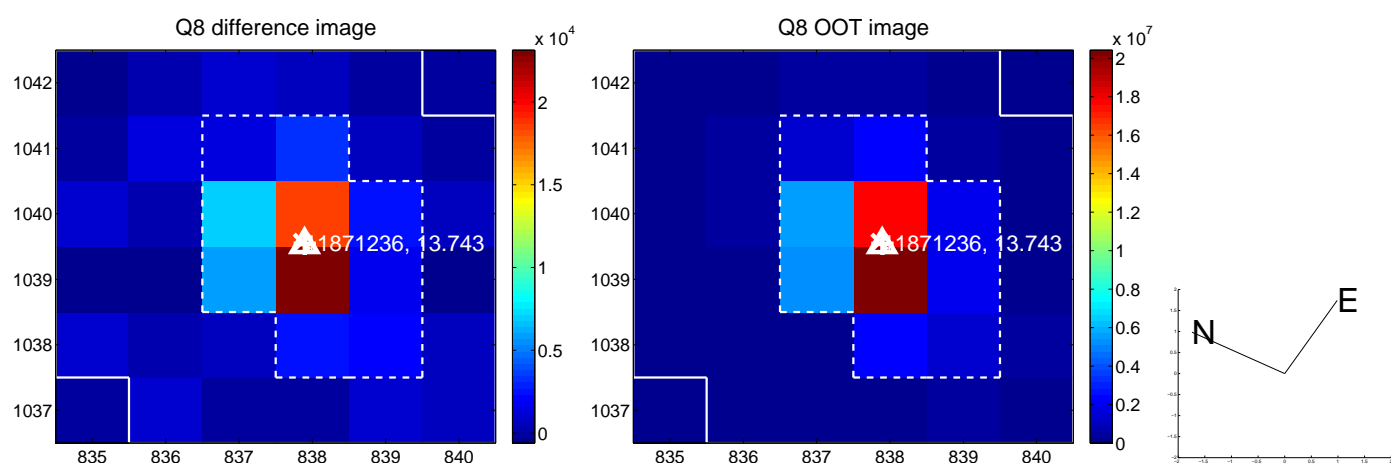
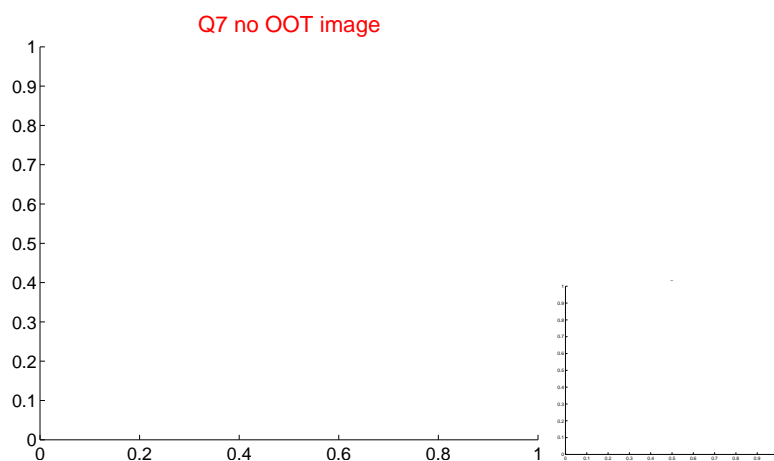
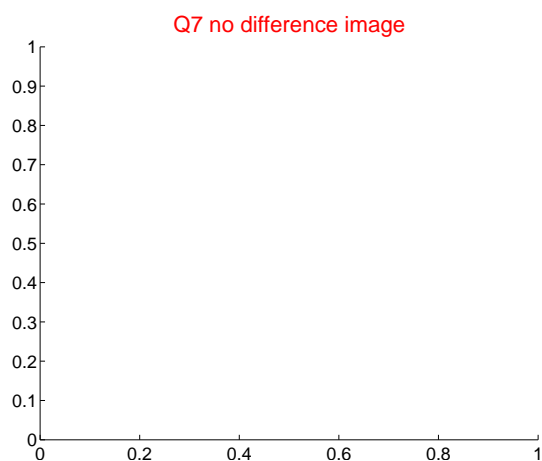
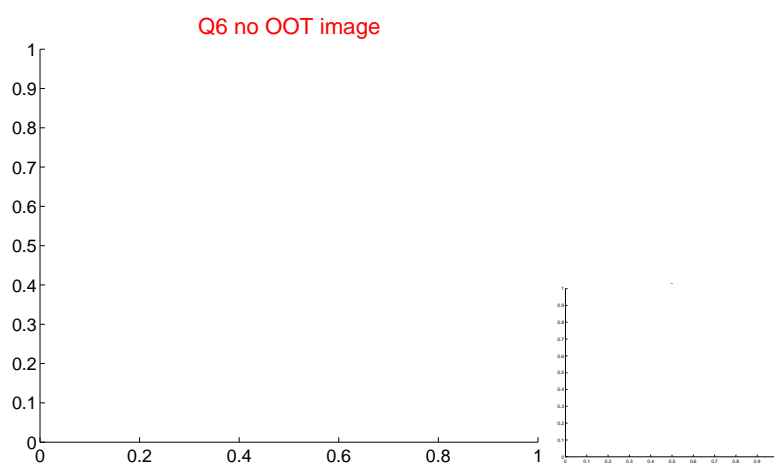
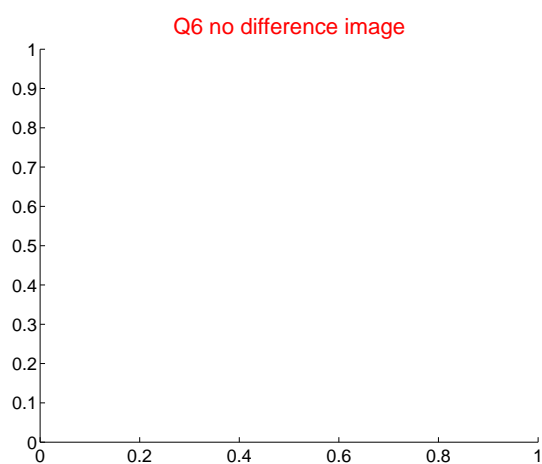
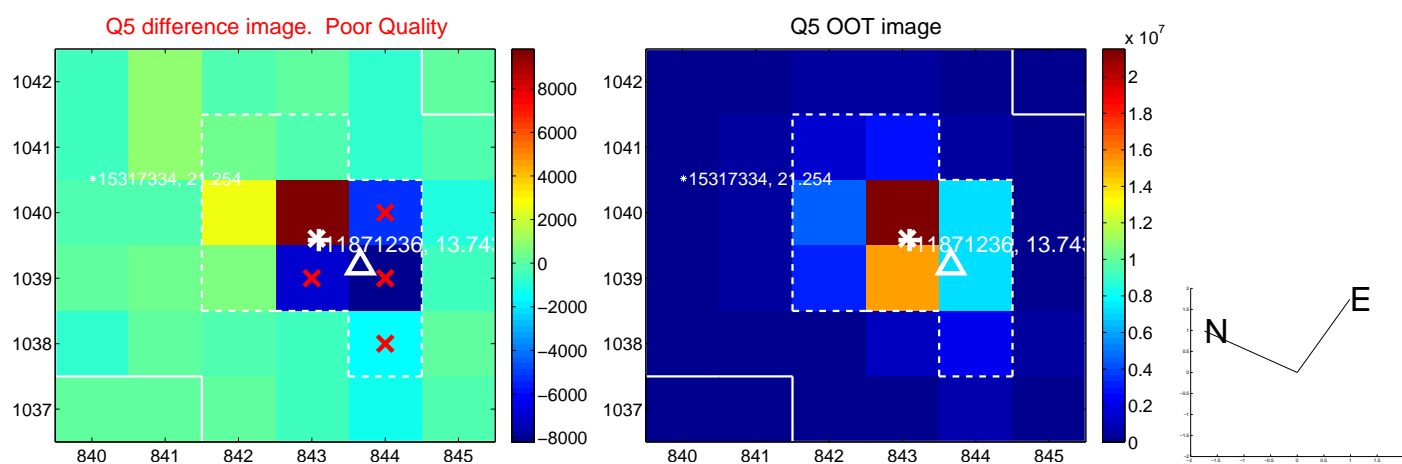


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

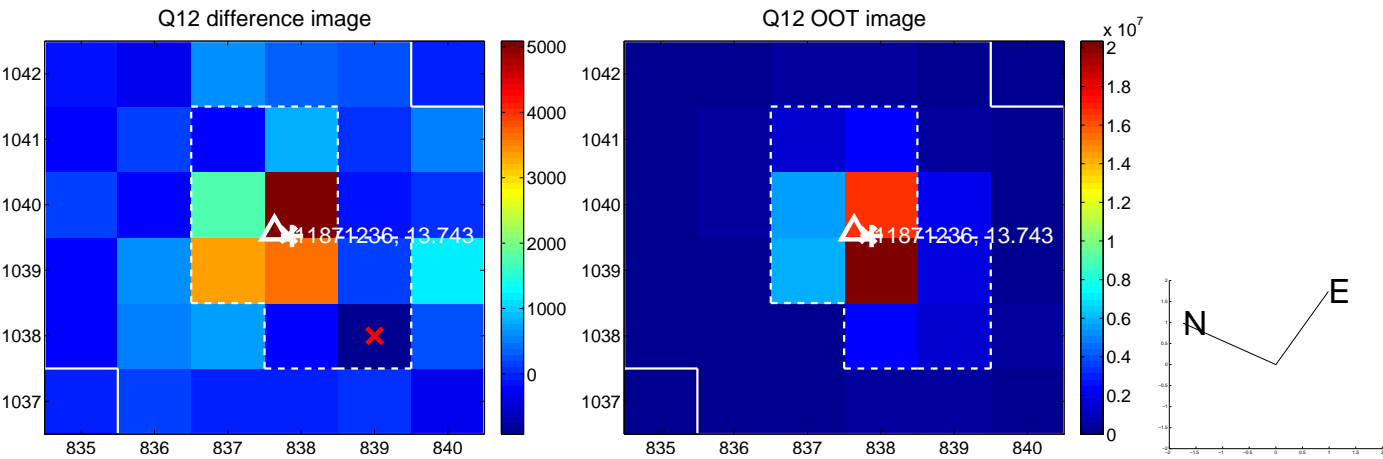
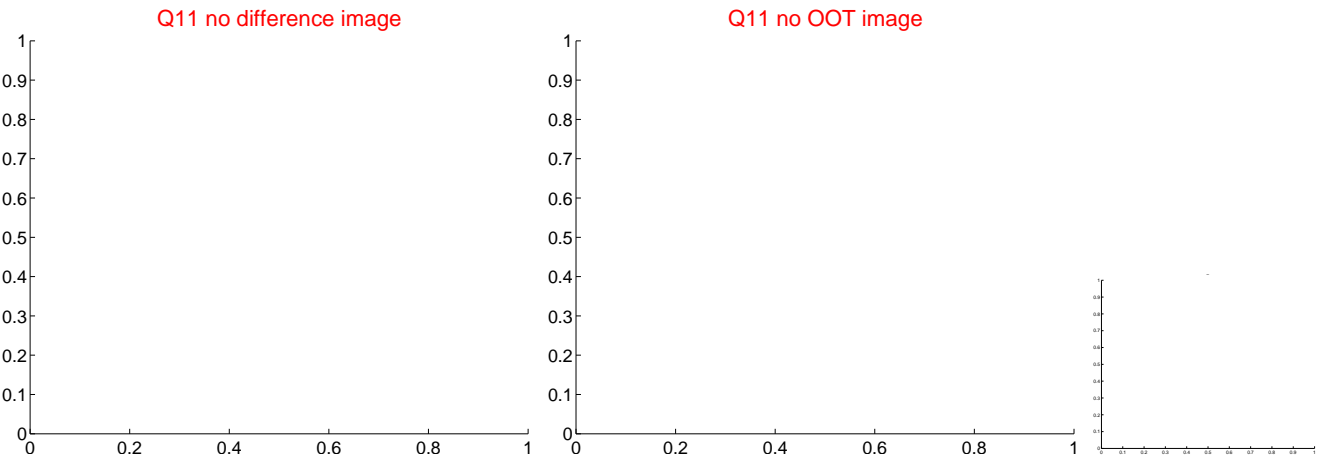
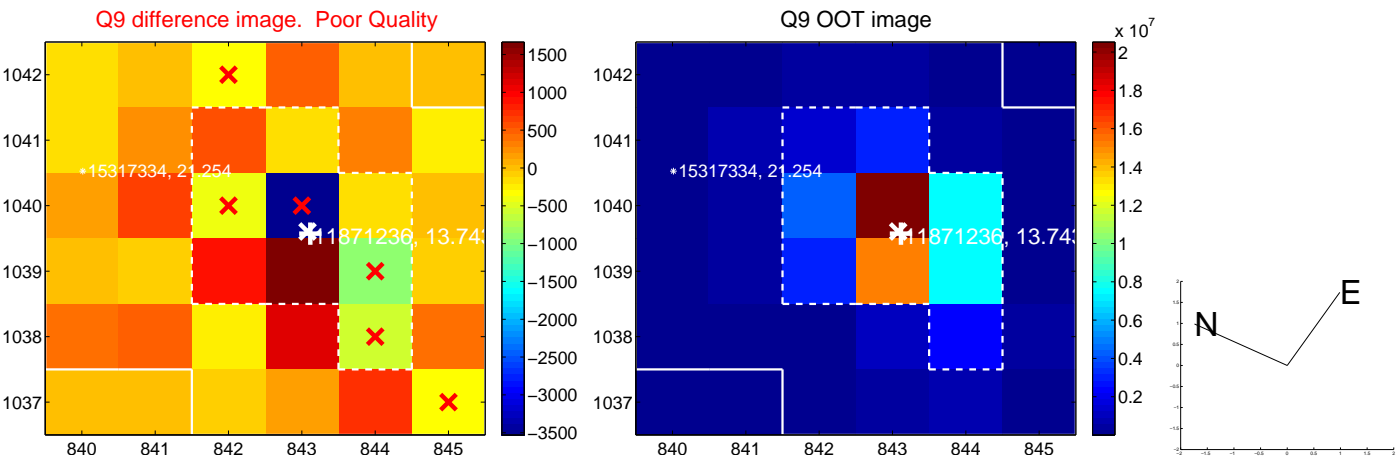
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



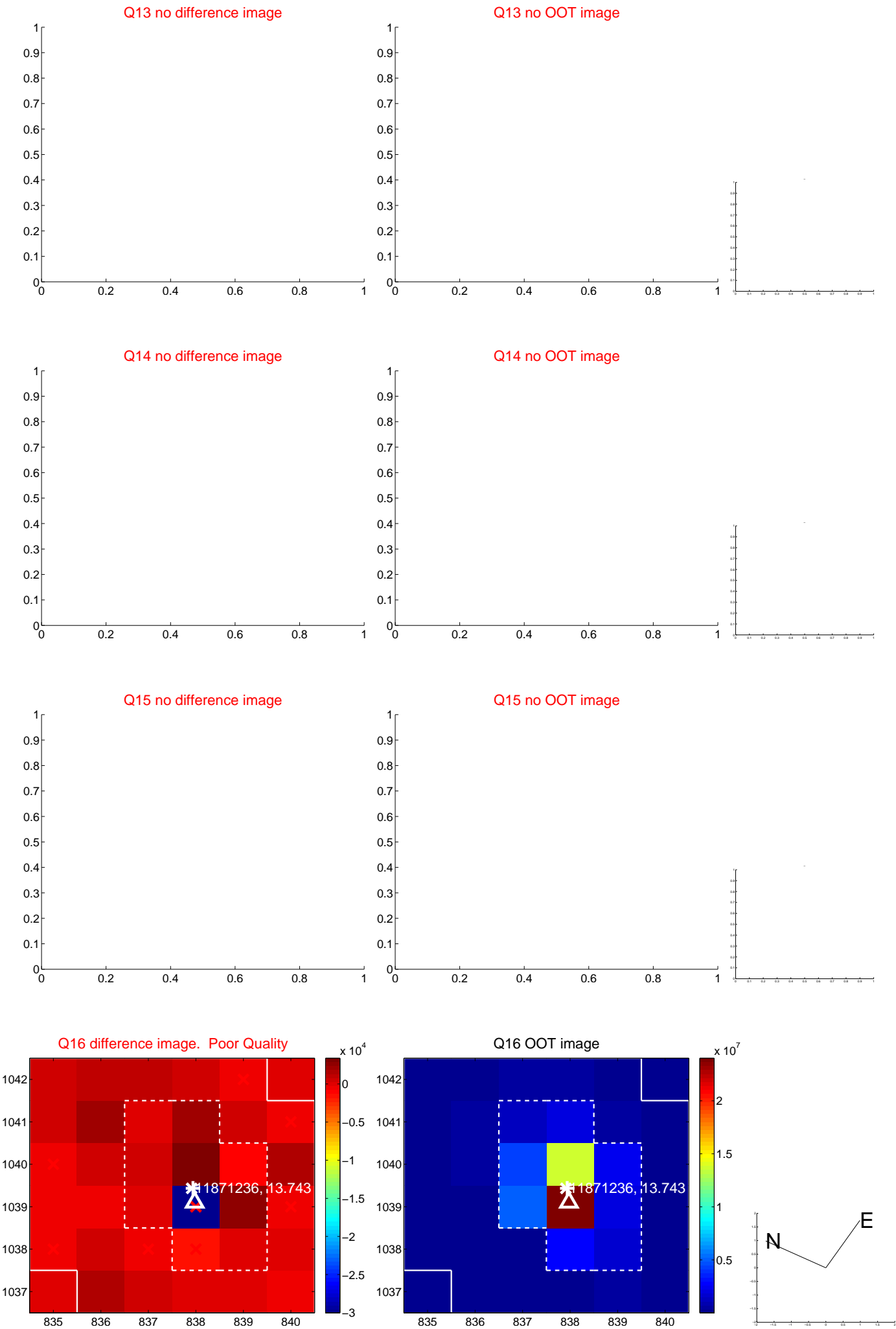
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



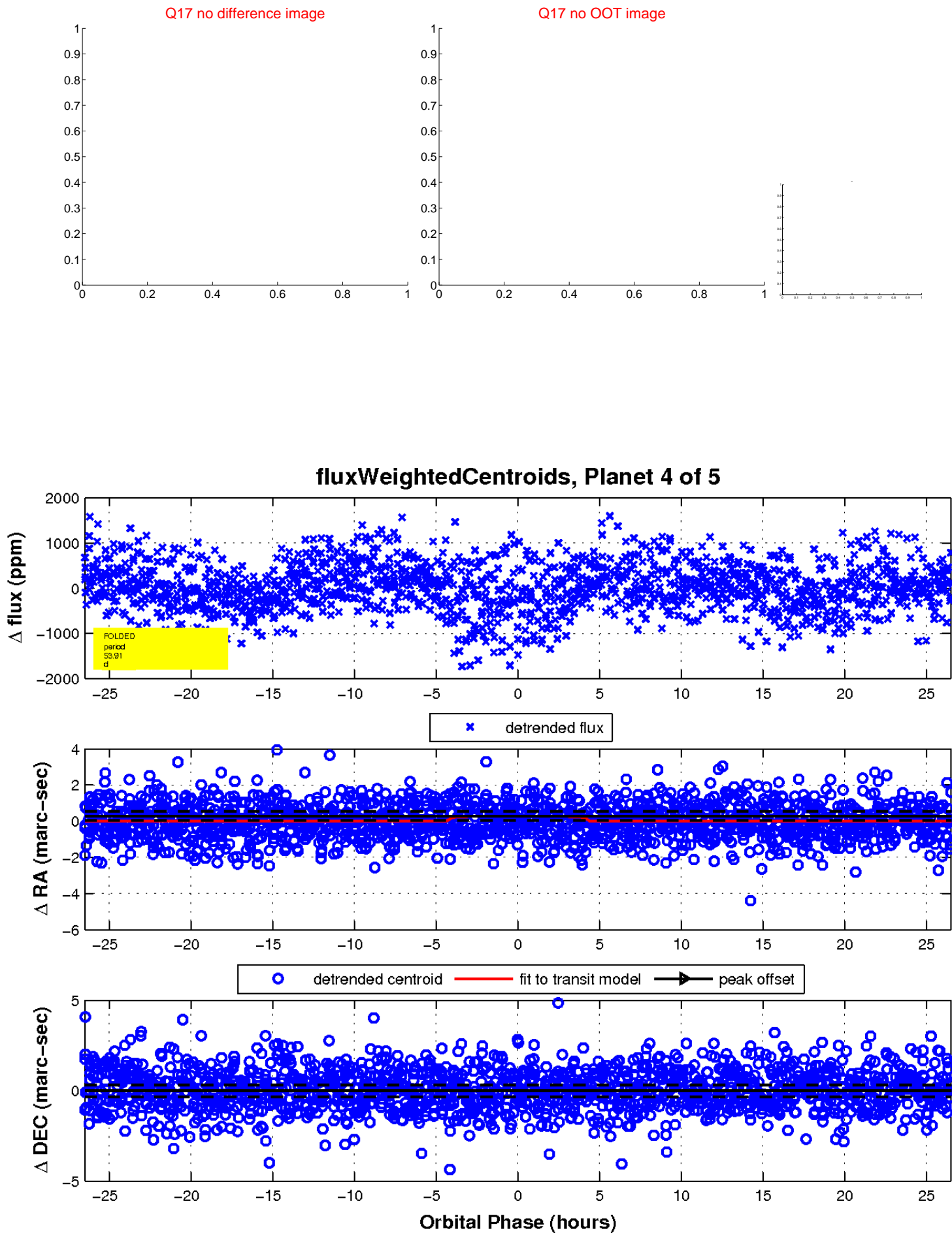
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

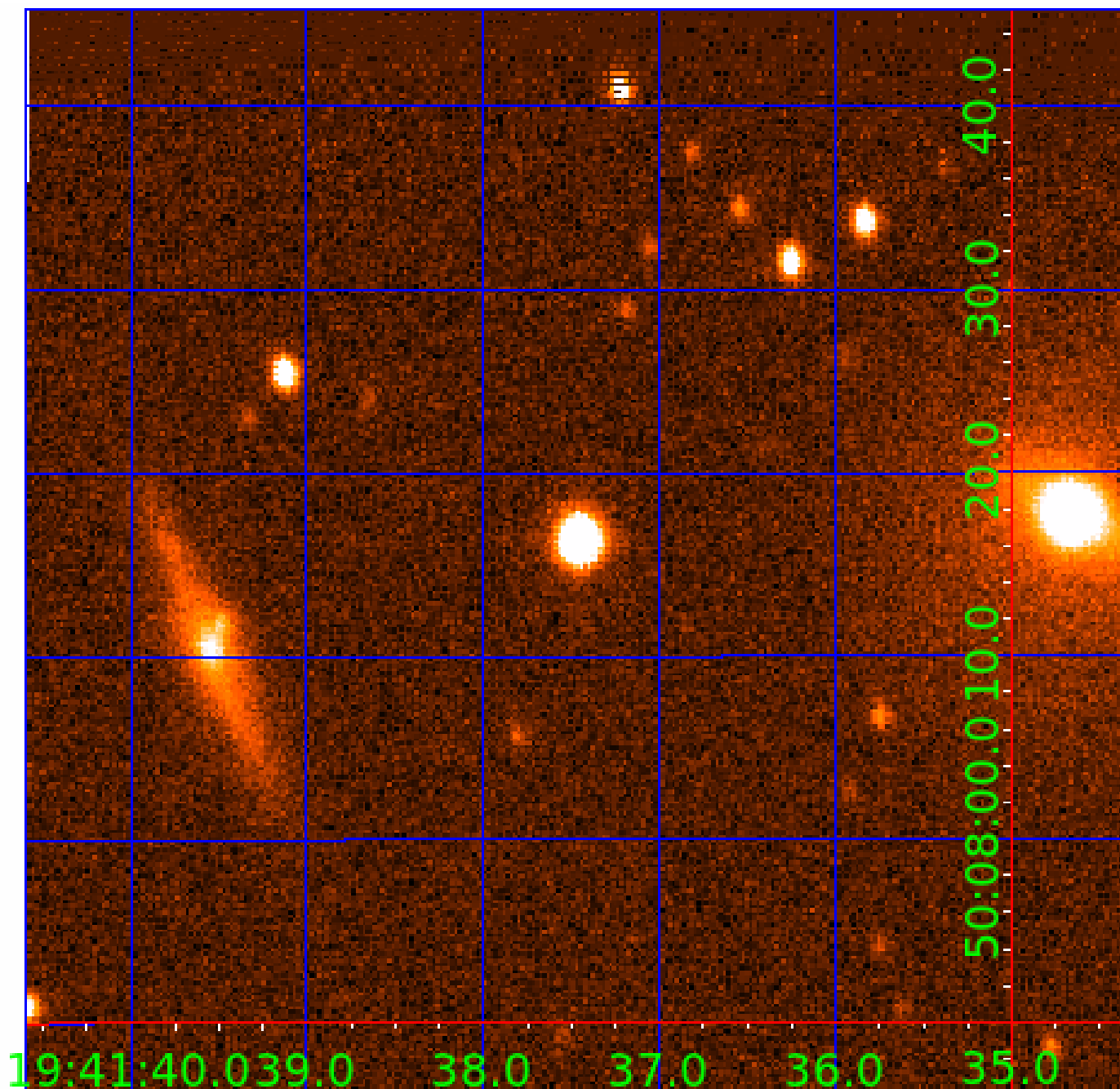


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011871236

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})
011871236-01	OBS	No	0.604874	131.685201	68.0	2.908	8.2	9.4	2.39	7904	2.23	67039.03
011871236-02	OBS	No	42.121850	137.847403	1036.1	3.998	8.1	7.8	2.39	7904	14.29	233.99
011871236-03	OBS	No	57.119953	139.944188	1075.0	3.410	8.4	10.2	2.39	7904	9.27	155.89
011871236-04	OBS	No	53.914144	149.971115	561.8	8.839	8.2	6.6	2.39	7904	6.08	168.38
011871236-05	OBS	No	103.701363	150.878193	985.9	2.306	8.1	8.8	2.39	7904	8.86	70.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011871236-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011871236-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011871236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
011871236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011871236-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

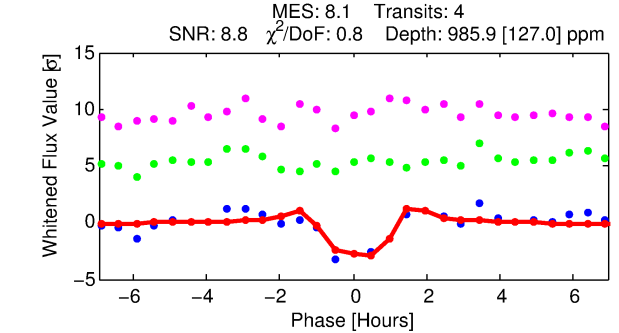
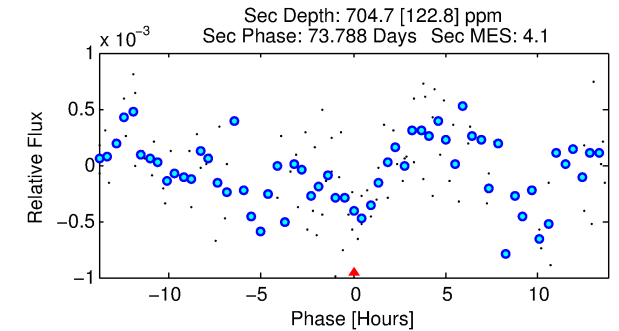
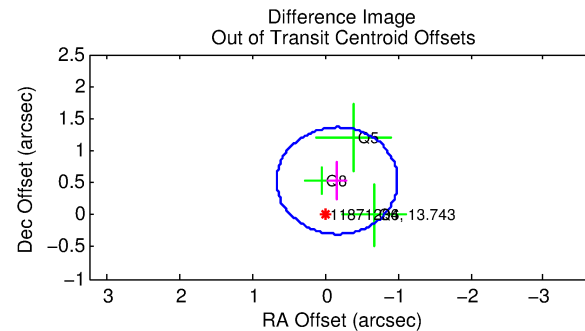
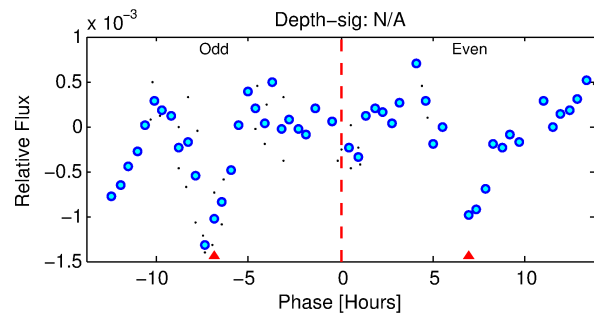
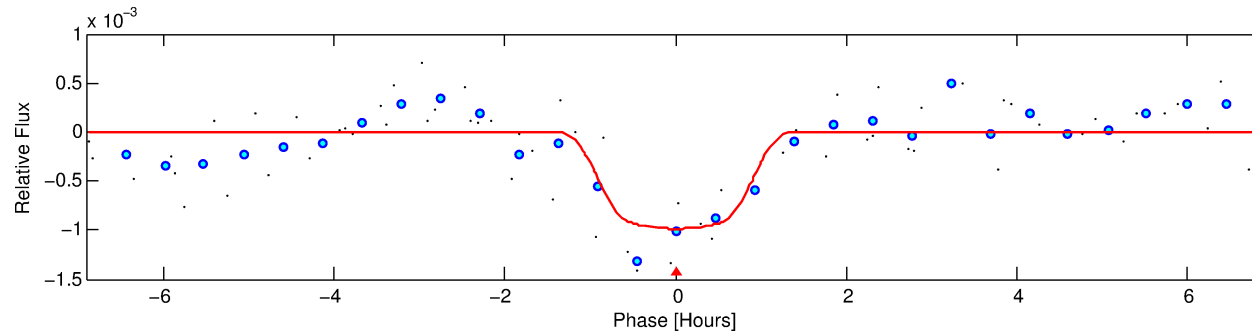
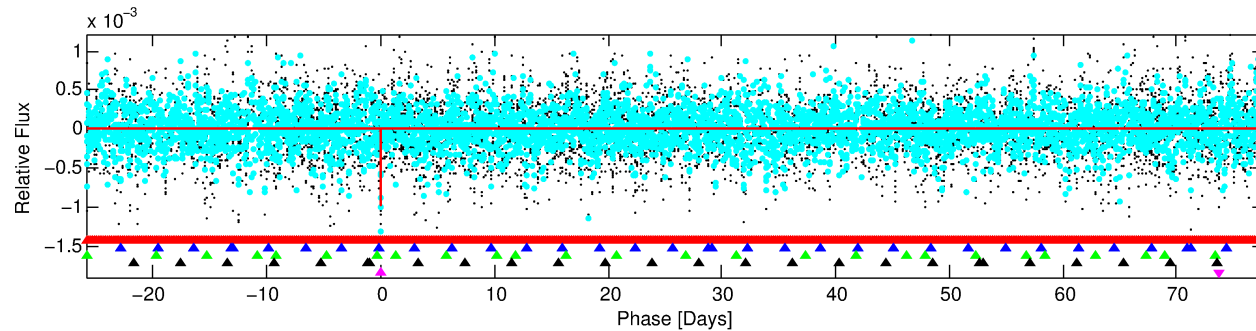
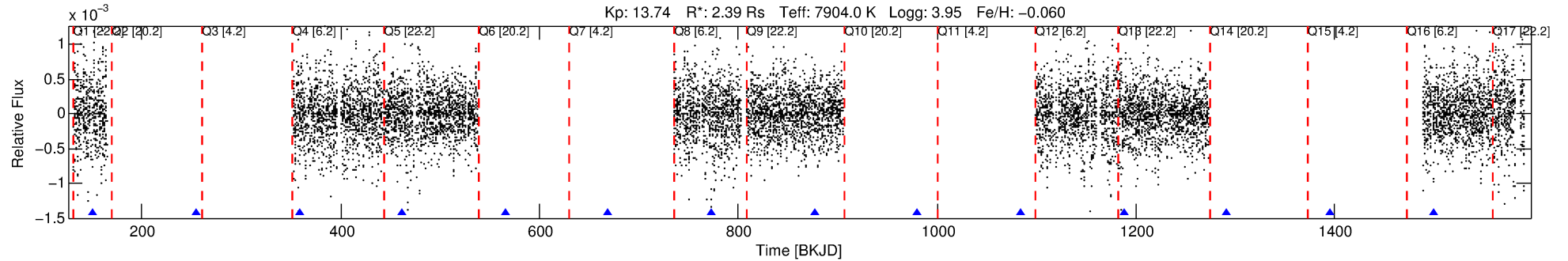
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011871236-05

No Significant Match Found

DV One-Page Summary

KIC: 11871236 Candidate: 5 of 5 Period: 103.701 d



DV Fit Results:

Period = 103.70136 [0.00085] d
Epoch = 150.8782 [0.0055] BKJD
Rp/R* = 0.0340 [0.0071]
a/R* = 163.56 [183.37]
b = 0.92 [0.20]
Seff = 70.39 [32.19]
Teq = 739 [84] K
Rp = 8.86 [3.37] Re
a = 0.5327 [0.1495] AU
Ag = 1401.01 [872.50] [1.60 σ]
Teffp = 6986 [845] K [7.36 σ]

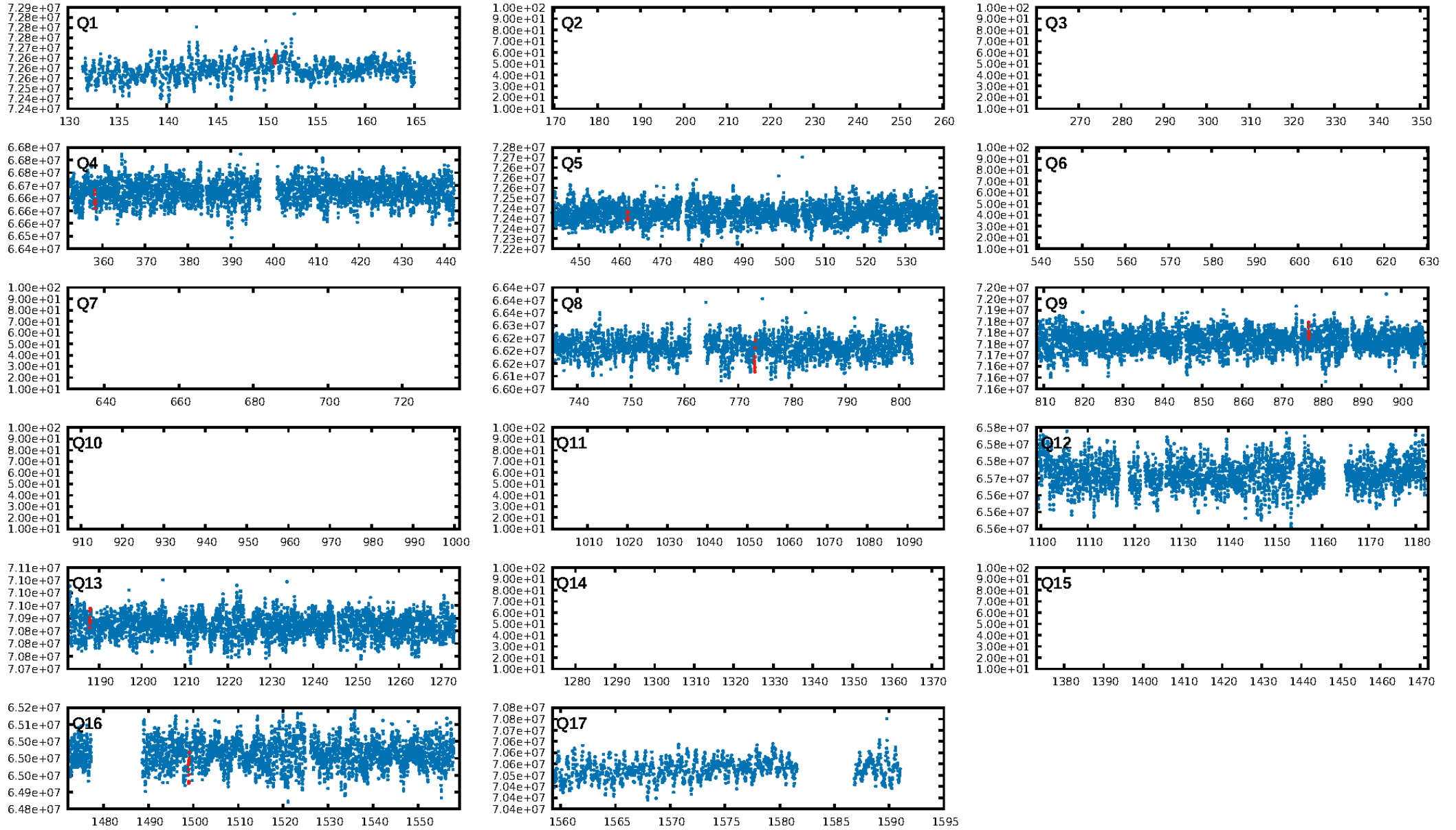
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [271.56 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 65.8%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 3.07e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4521
Centroid-sig: 36.2%
Centroid-so: 0.356 arcsec [0.49 σ]
OotOffset-rm: 0.554 arcsec [2.00 σ]
KicOffset-rm: 0.382 arcsec [1.16 σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/5]

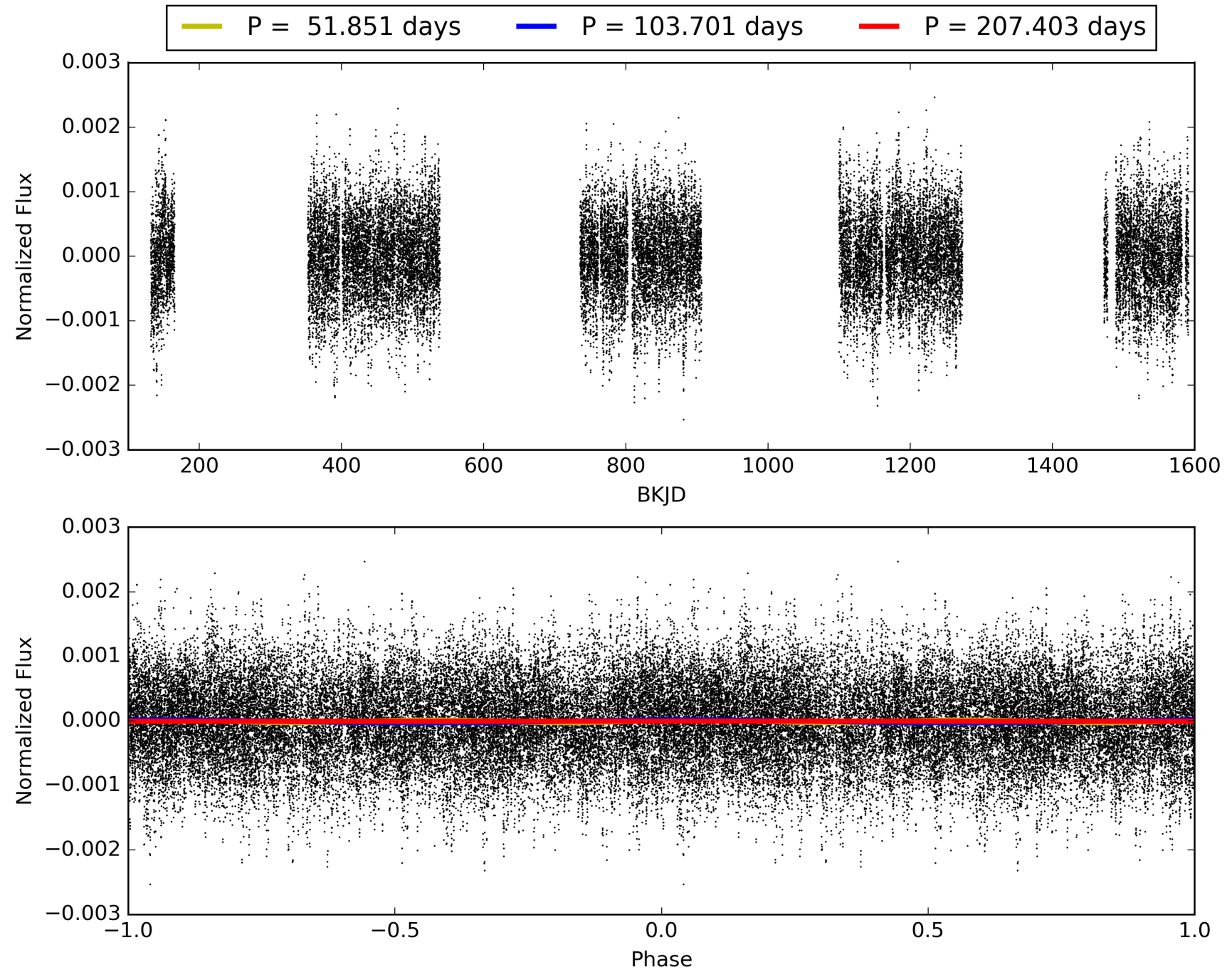
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:28:02 Z

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

TCE 011871236-05, PDC Light Curves

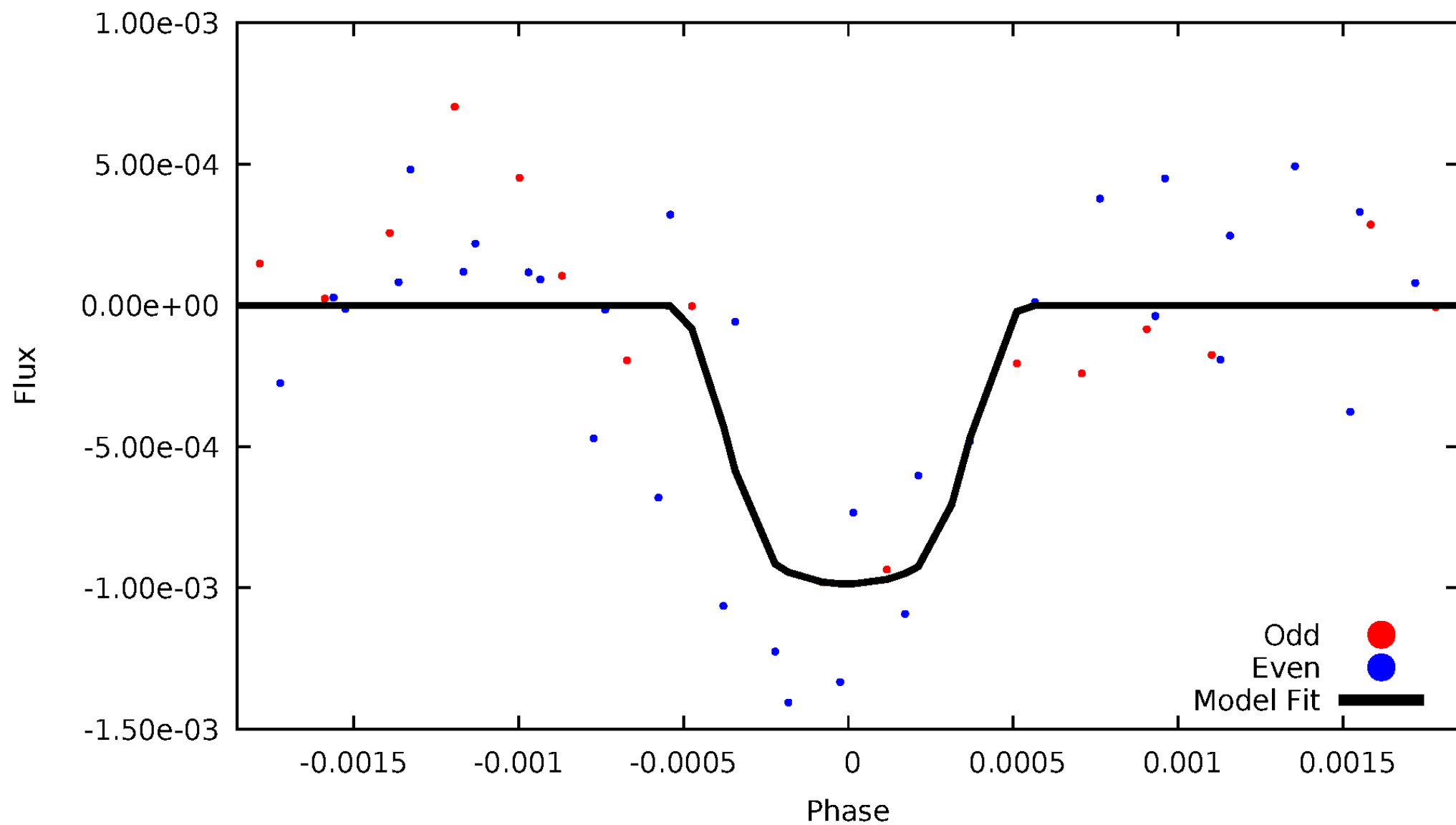


TCE 011871236-05



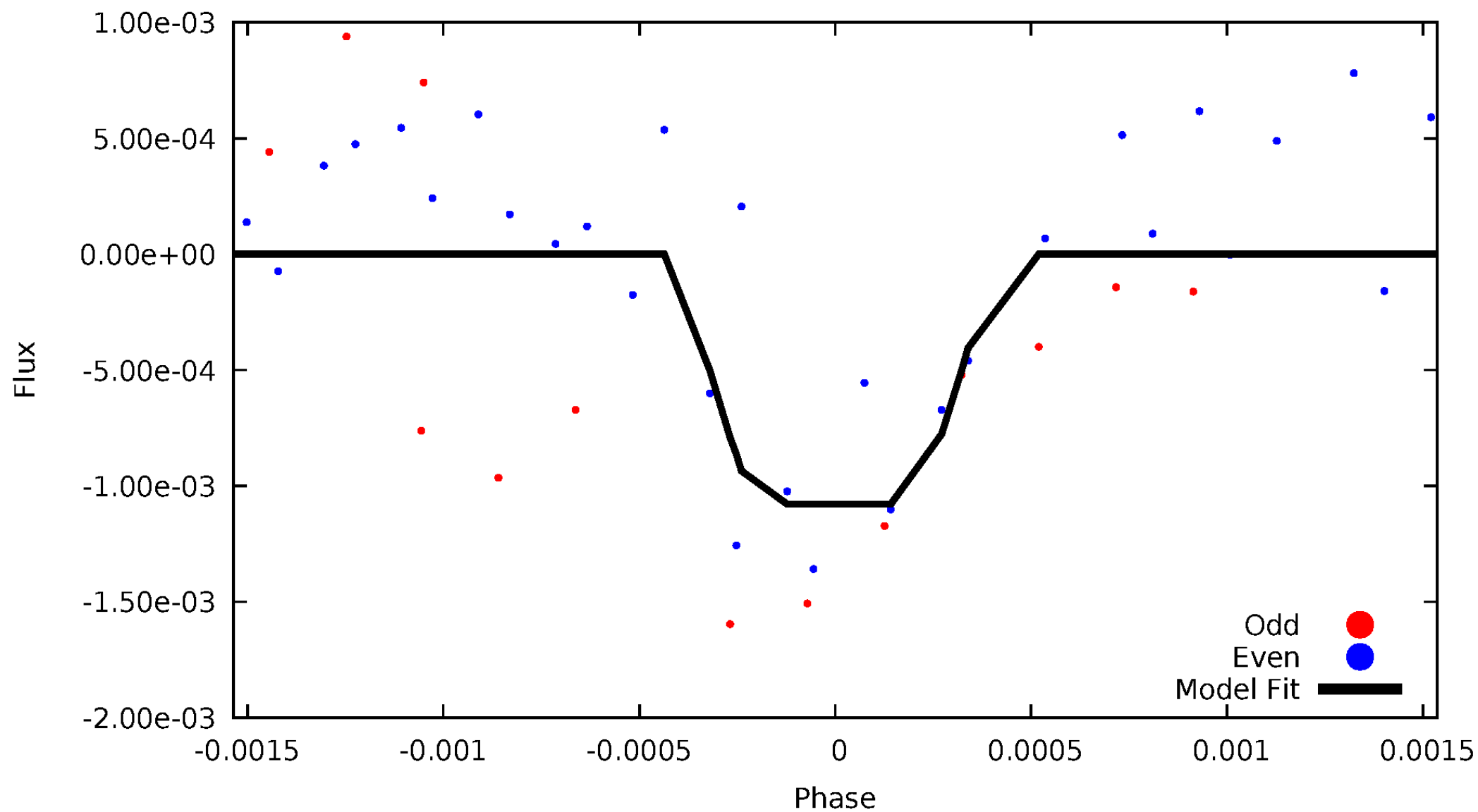
DV Odd/Even

TCE 011871236-05



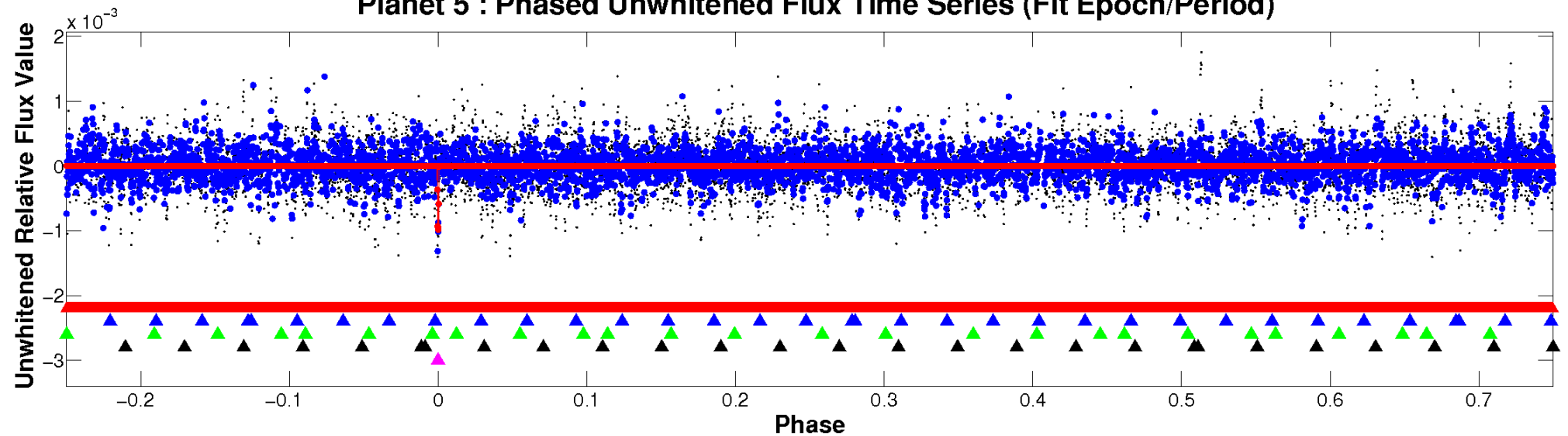
ALT Odd/Even

TCE 011871236-05

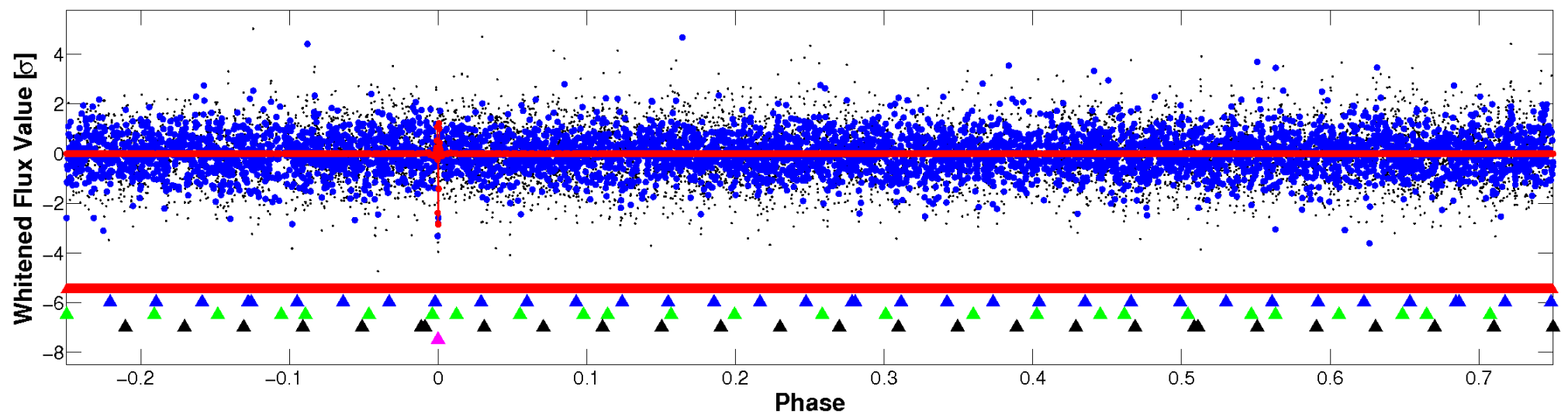


Non-Whitened Vs. Whitened Light Curve

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

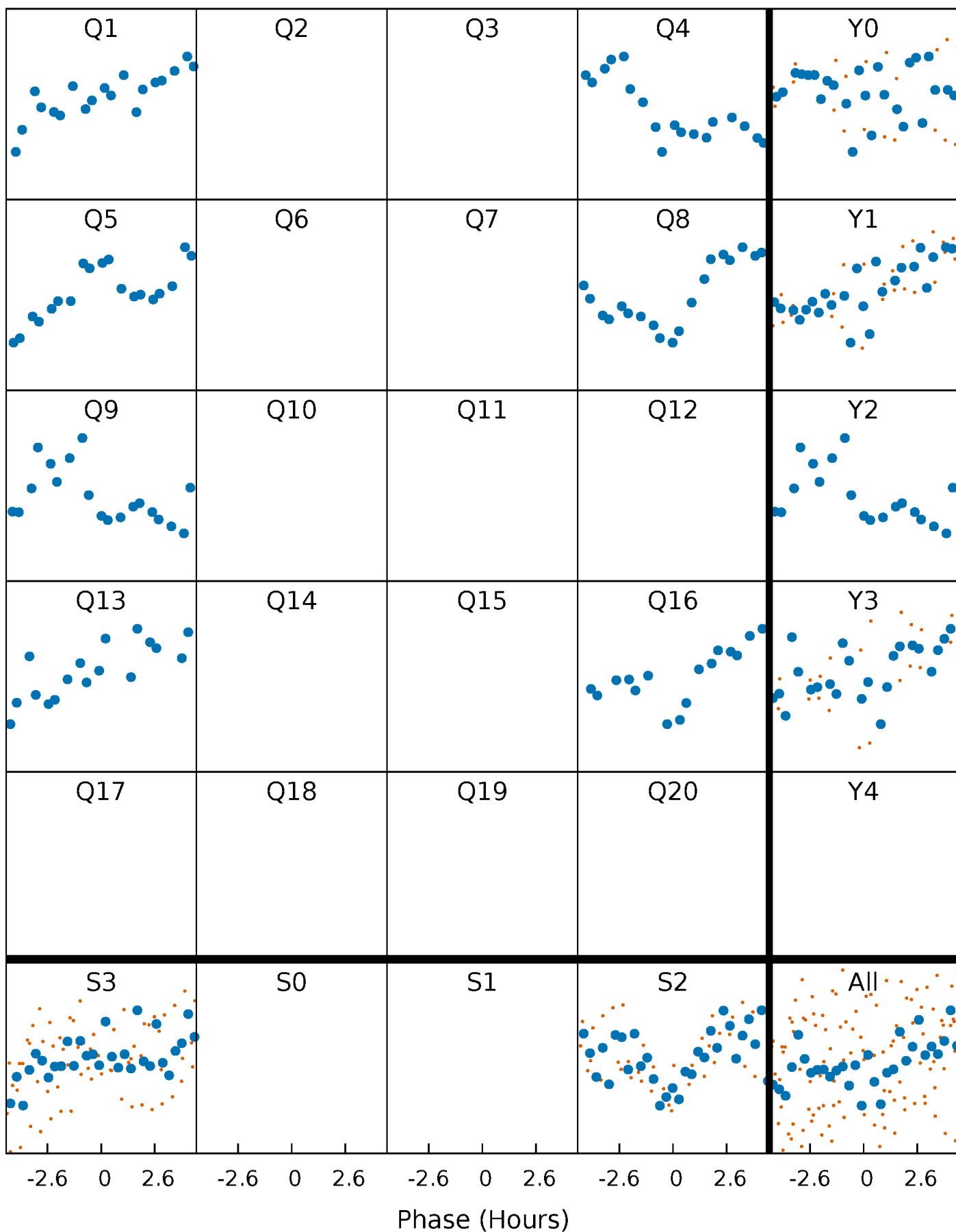


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



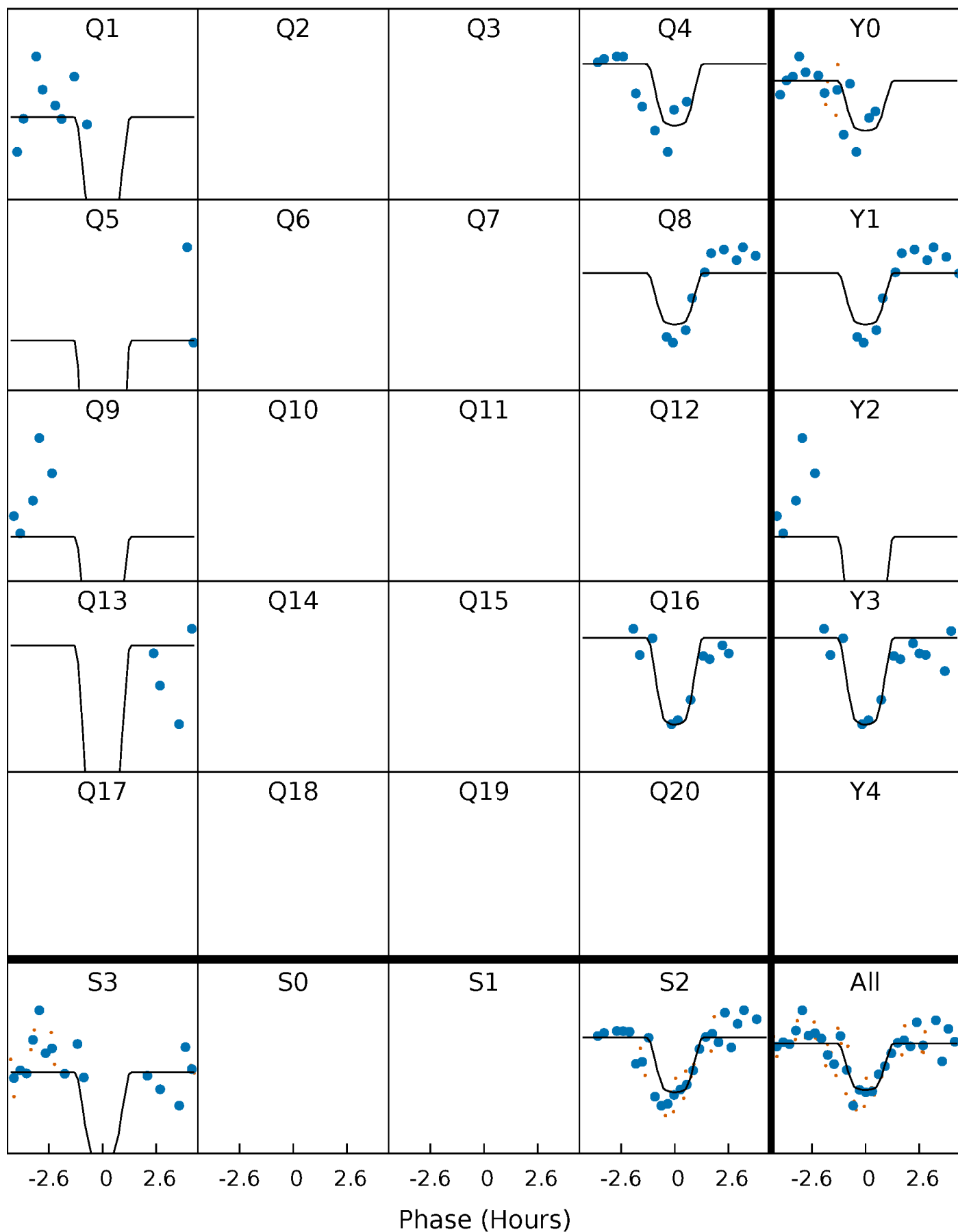
PDC Quarter-Phased Transit Curves

TCE 011871236-05 $P=103.701363$ Days $T_0=150.878193$ (BKJD)



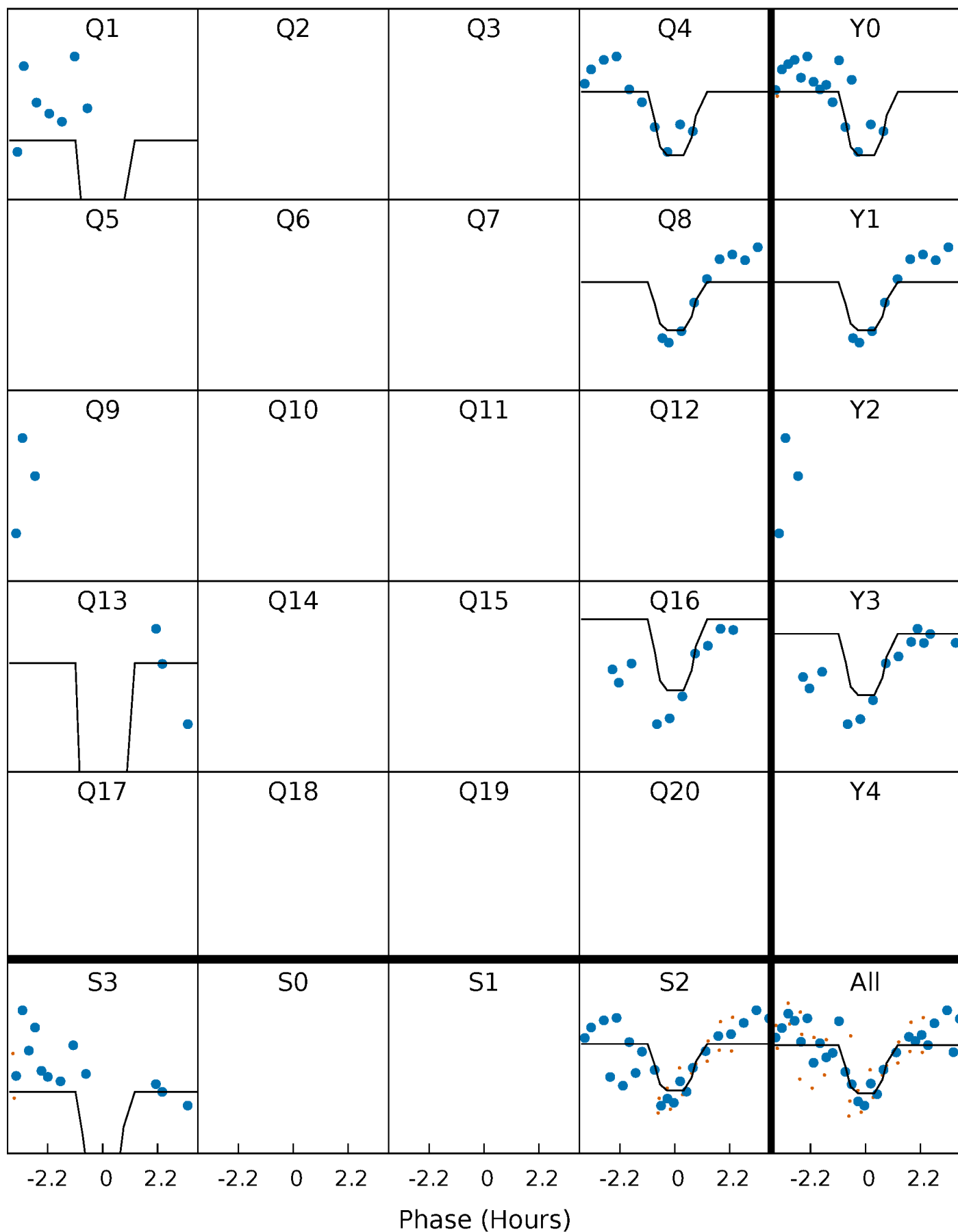
DV Quarter-Phased Transit Curves

TCE 011871236-05 $P=103.701363$ Days $T_0=150.878193$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

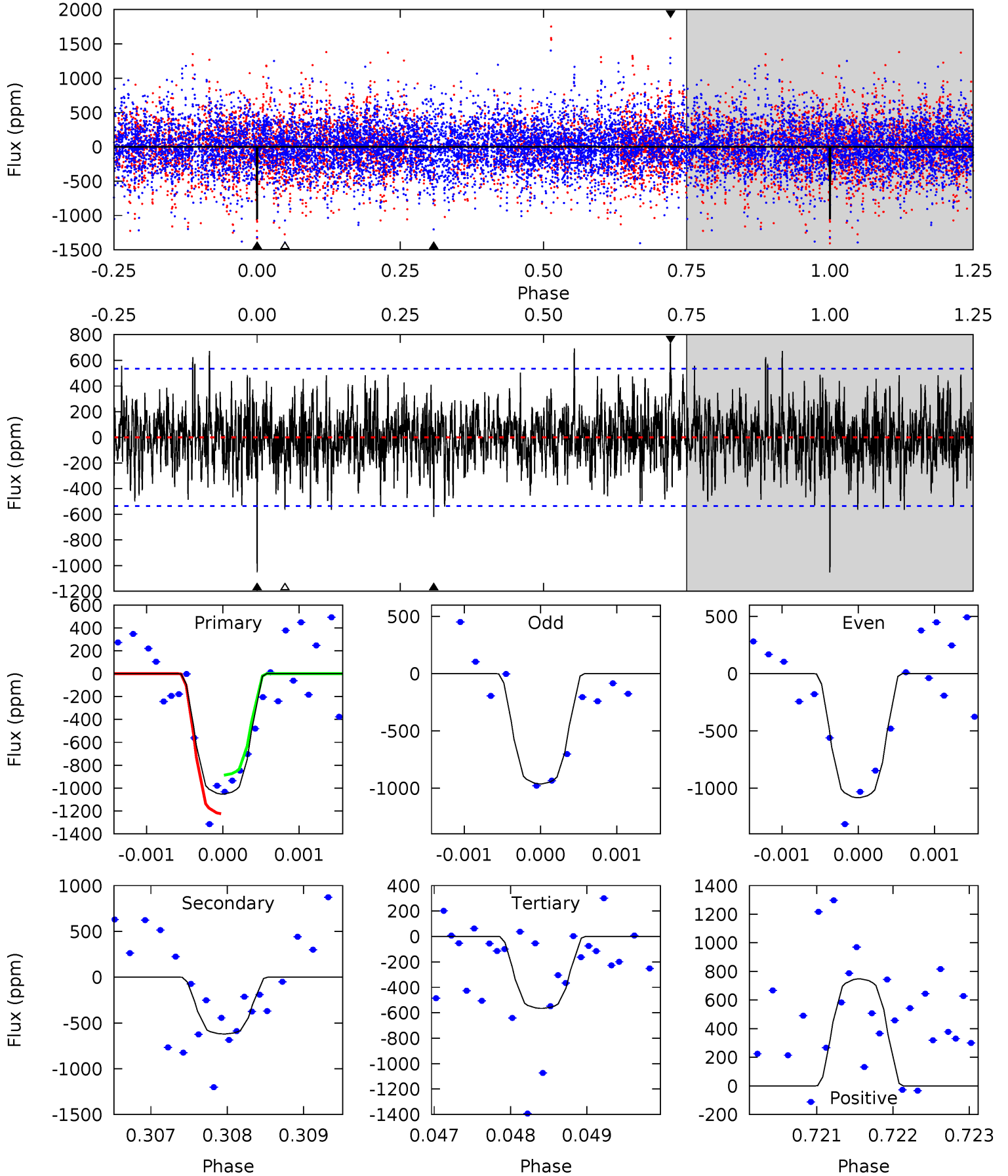
TCE 011871236-05 $P=103.703694$ Days $T_0=150.867421$ (BKJD)



DV Model-Shift Uniqueness Test

011871236-05, P = 103.701363 Days, E = 47.176830 Days

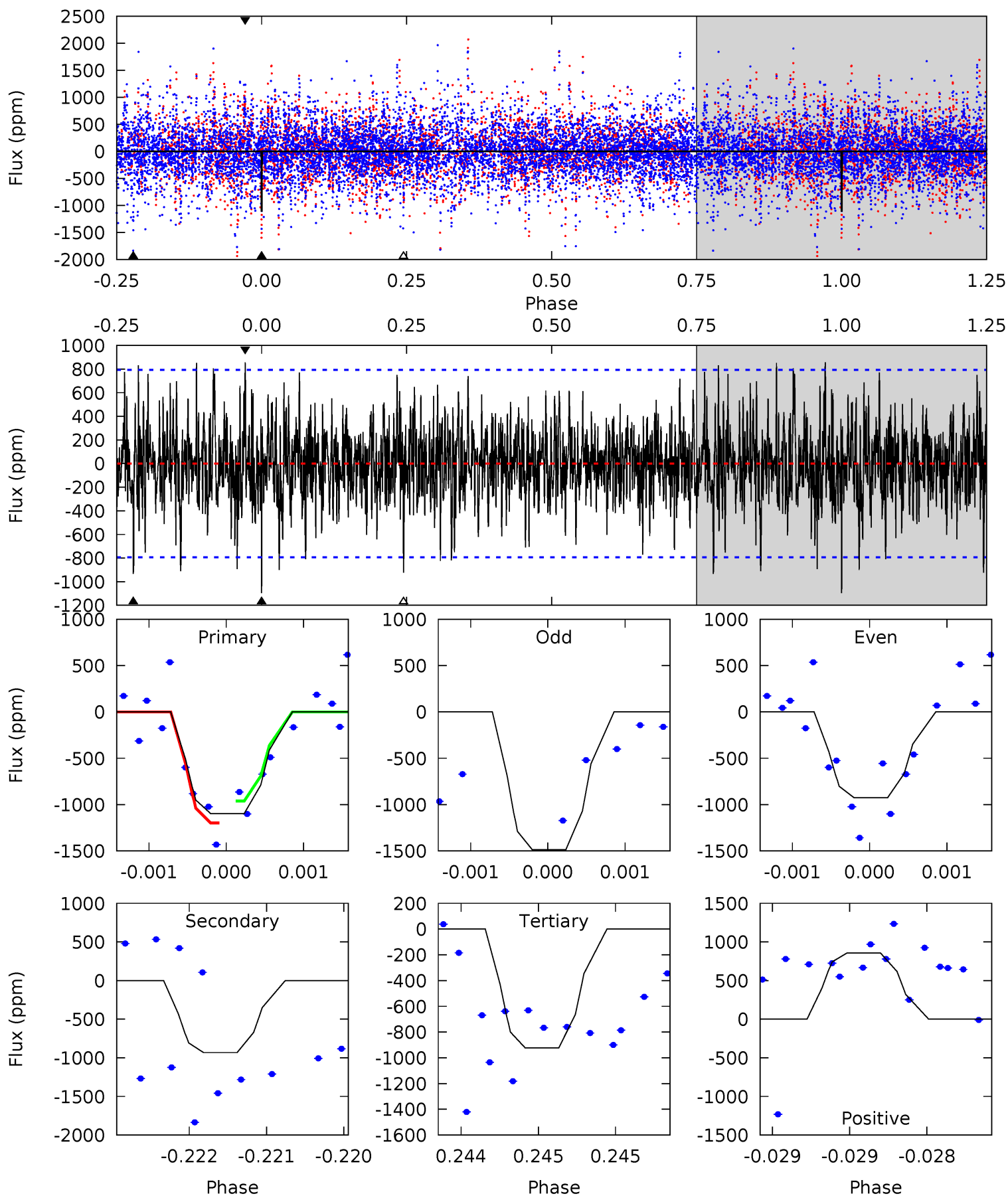
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	6.32	5.76	7.62	5.45	3.29	1.83	4.96	3.10	0.56	-1.30	0.55	0.83	0.42	1.72



Alt Model-Shift Uniqueness Test

011871236-05, P = 103.703694 Days, E = 47.163727 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.66	6.51	6.45	5.98	5.54	3.43	1.80	1.21	1.68	0.06	0.53	1.81	0.93	0.44	0.83



Stellar Parameters For KIC 011871236

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7904^{+219}_{-329}	$3.954^{+0.241}_{-0.130}$	$-0.060^{+0.200}_{-0.350}$	$2.390^{+0.466}_{-0.757}$	$1.872^{+0.104}_{-0.389}$	$0.193^{+0.284}_{-0.075}$
	+3%/-4%	+6%/-3%	+333%/-583%	+19%/-32%	+6%/-21%	+147%/-39%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011871236-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-620 ± 98	$8.40^{+2.33}_{-1.93}$	1015^{+73}_{-80}	6580^{+995}_{-707}	1290^{+945}_{-509}
Alt.	-932 ± 143	$8.16^{+2.22}_{-2.08}$	1015^{+74}_{-81}	7489^{+1426}_{-824}	2123^{+1671}_{-840}

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

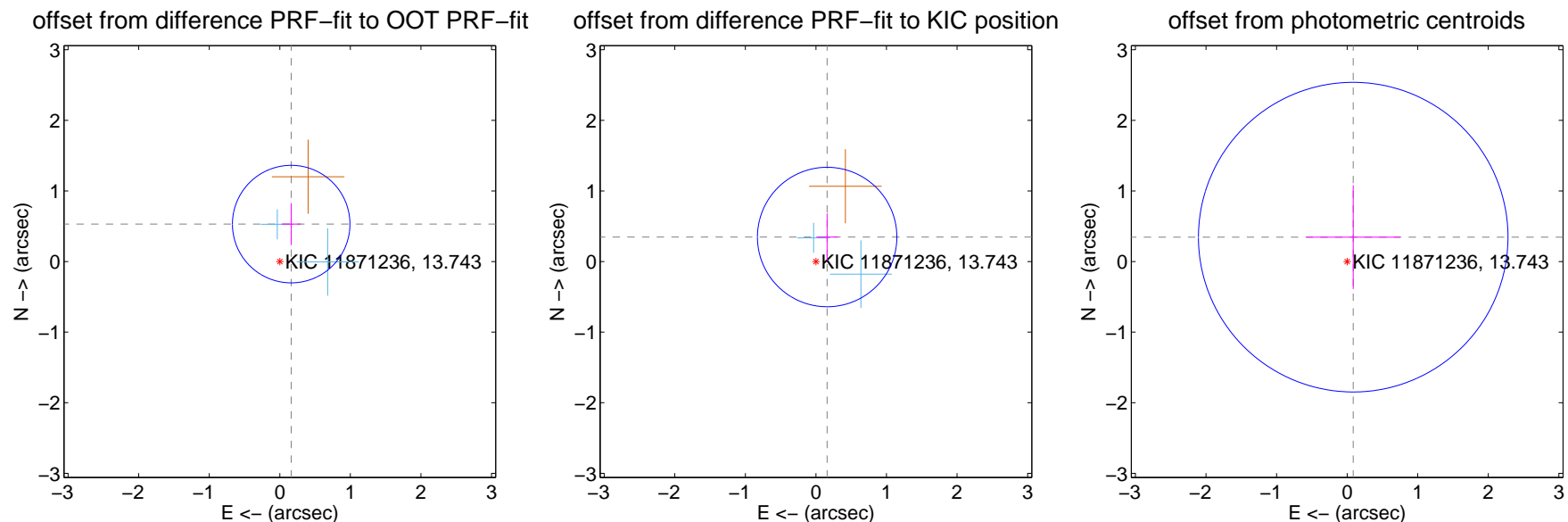
DV Centroid Data

Supplemental centroid analysis for 011871236-05. Kepler magnitude: 13.74. Transit SNR 8.84

There are 2 quarters with good PRF difference image offsets

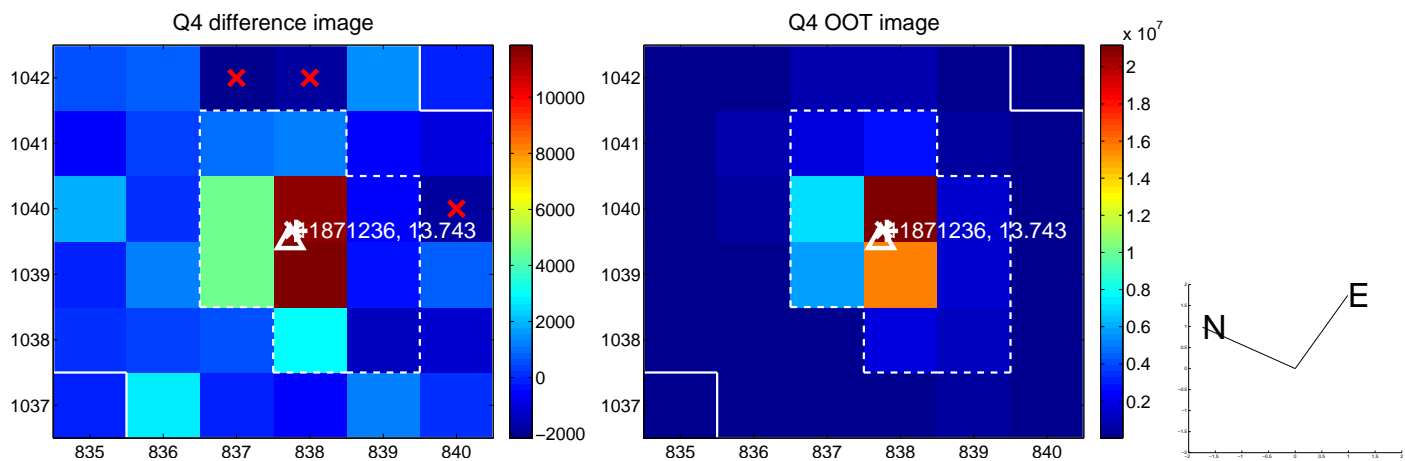
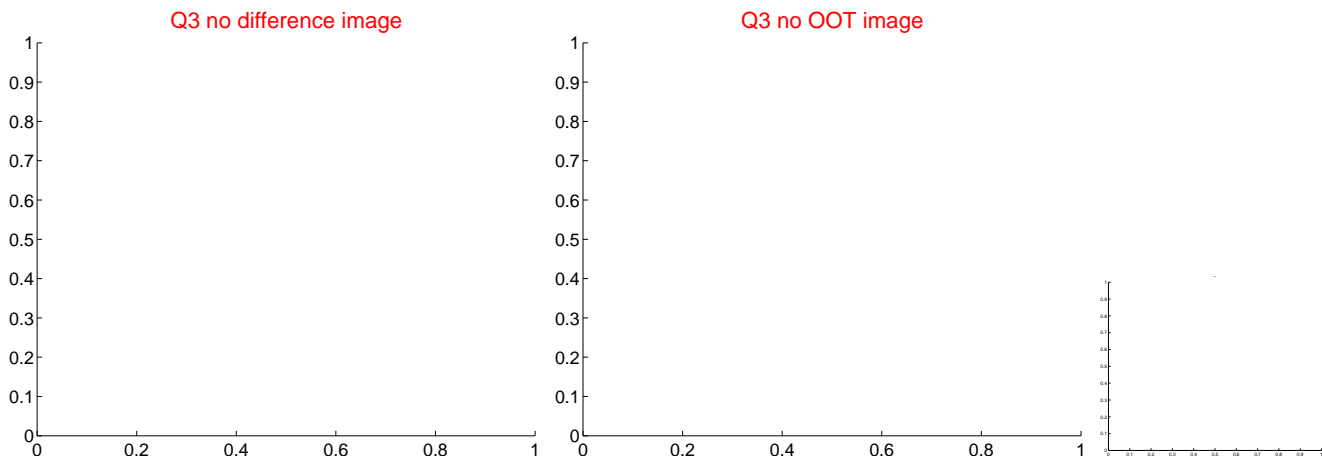
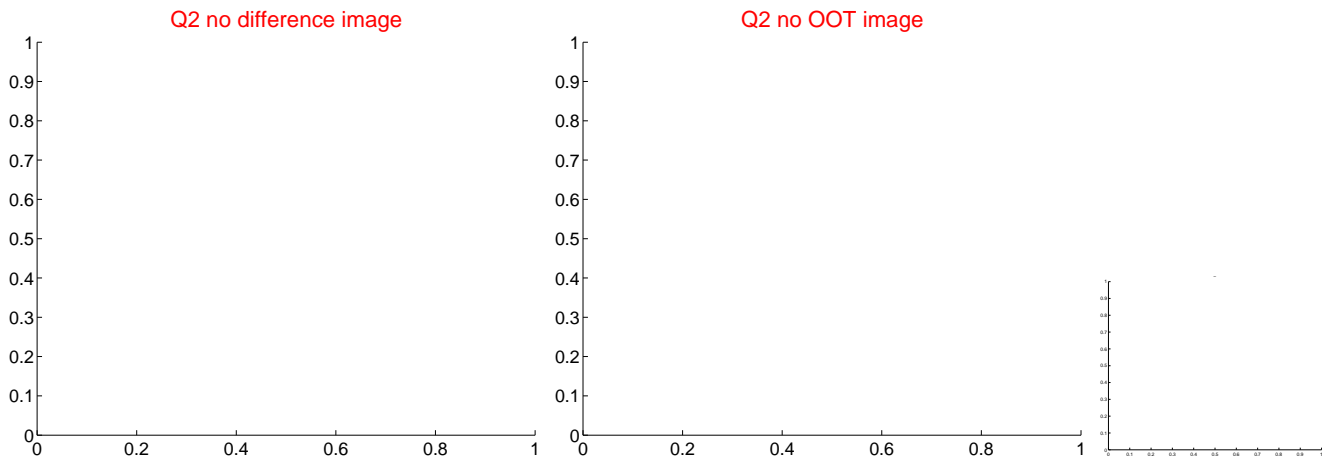
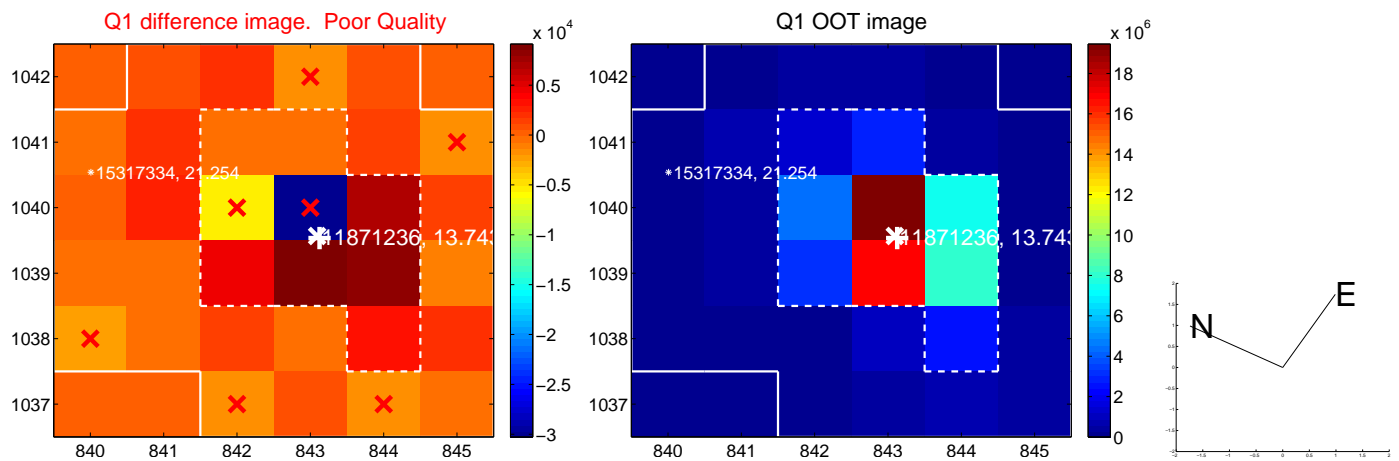
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.554 ± 0.277	2.00	-0.161 ± 0.137	0.530 ± 0.297
PRF-fit source offset from KIC position	0.382 ± 0.329	1.16	-0.159 ± 0.153	0.347 ± 0.333
photometric centroid source offset	0.36 ± 0.73	0.49	-0.09 ± 0.67	0.35 ± 0.73

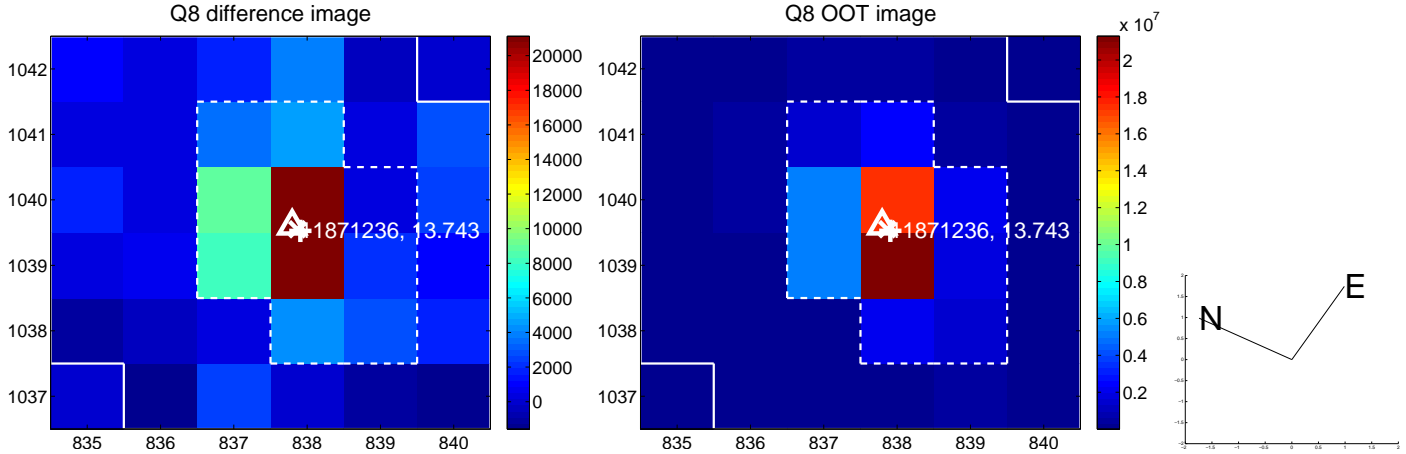
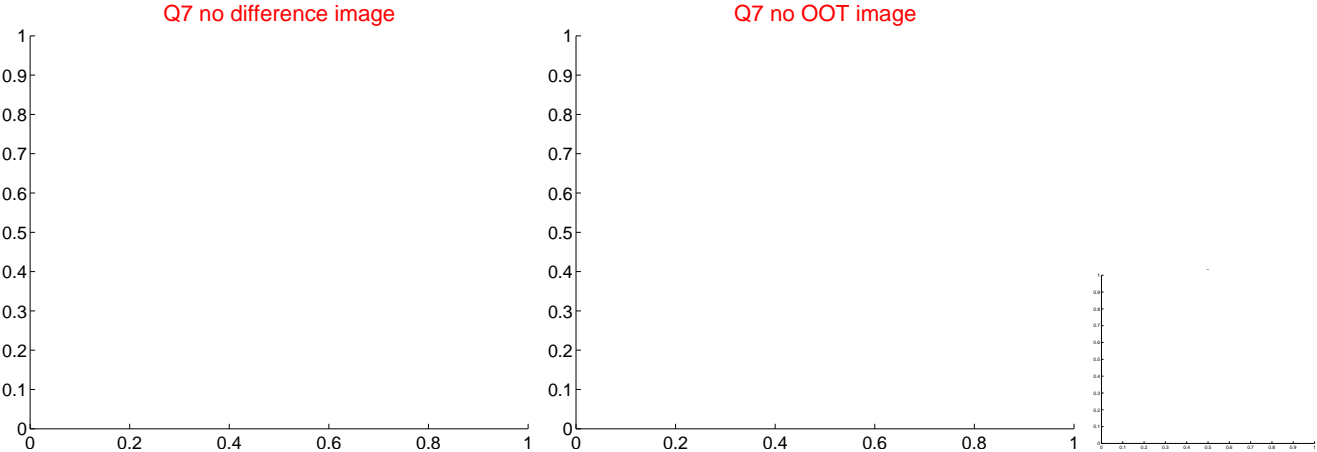
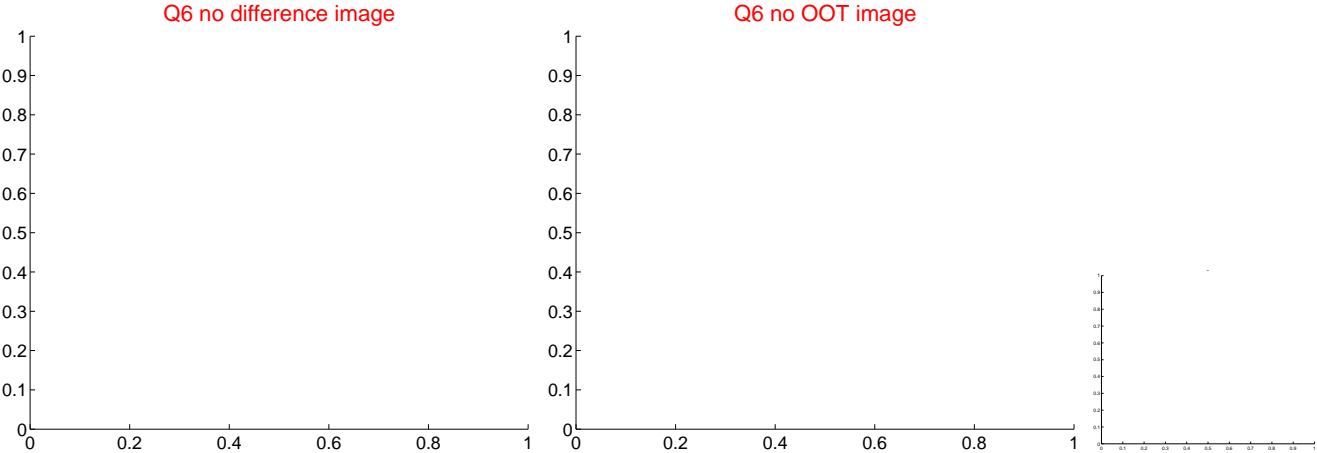
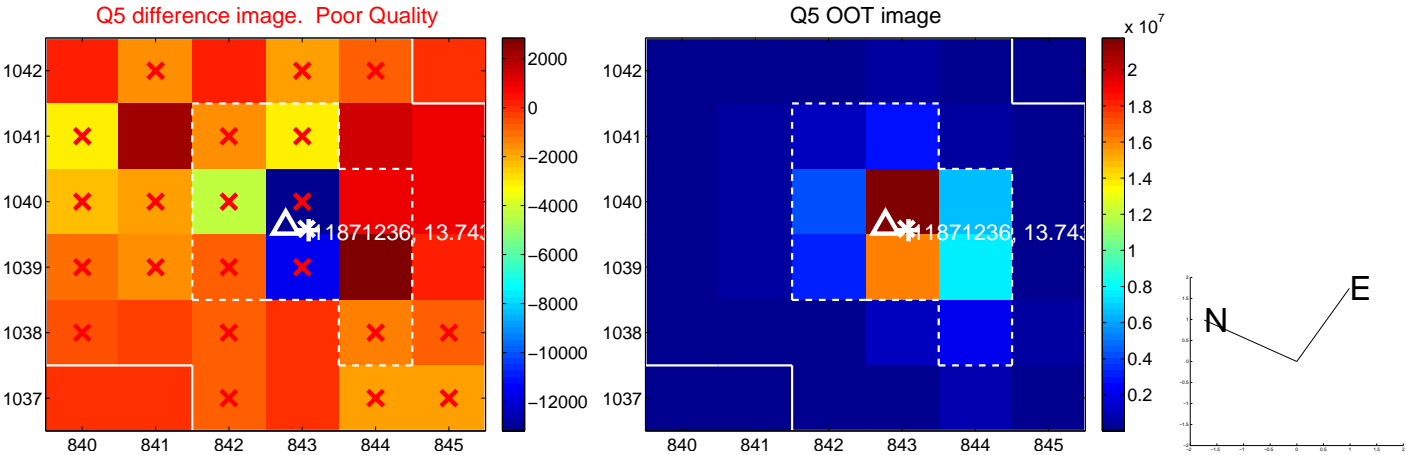


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

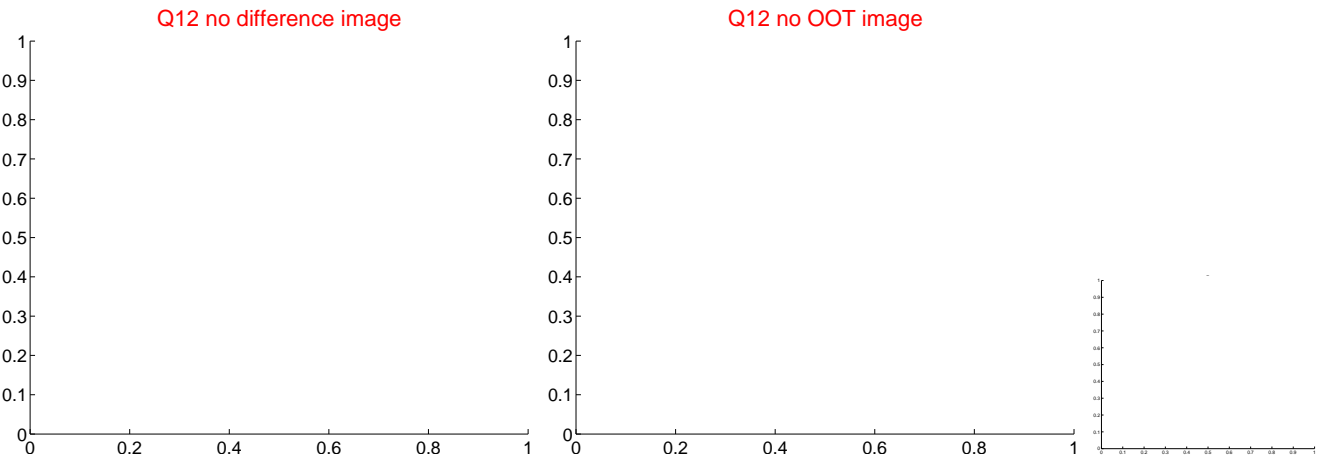
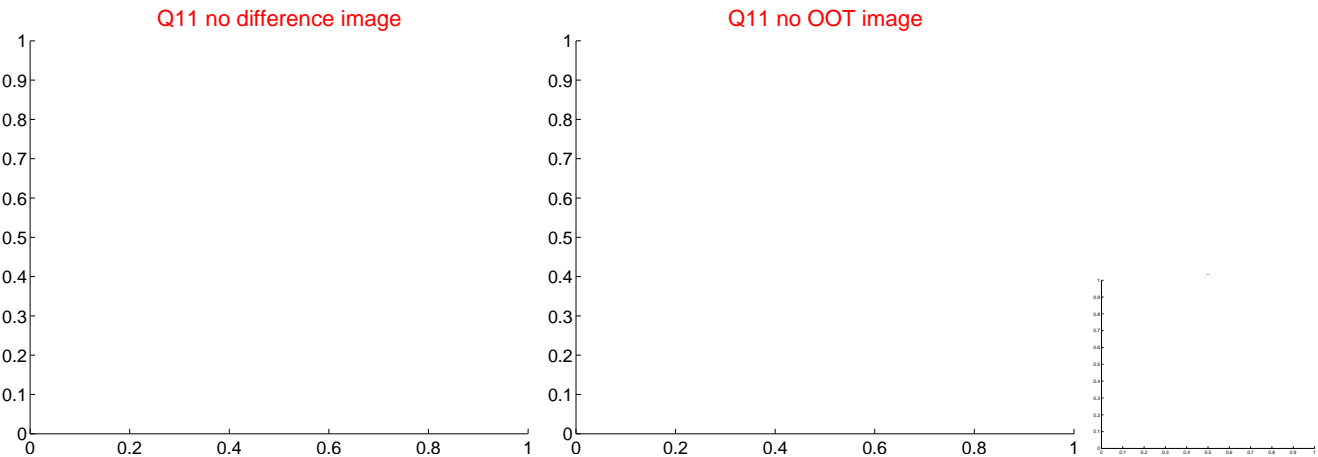
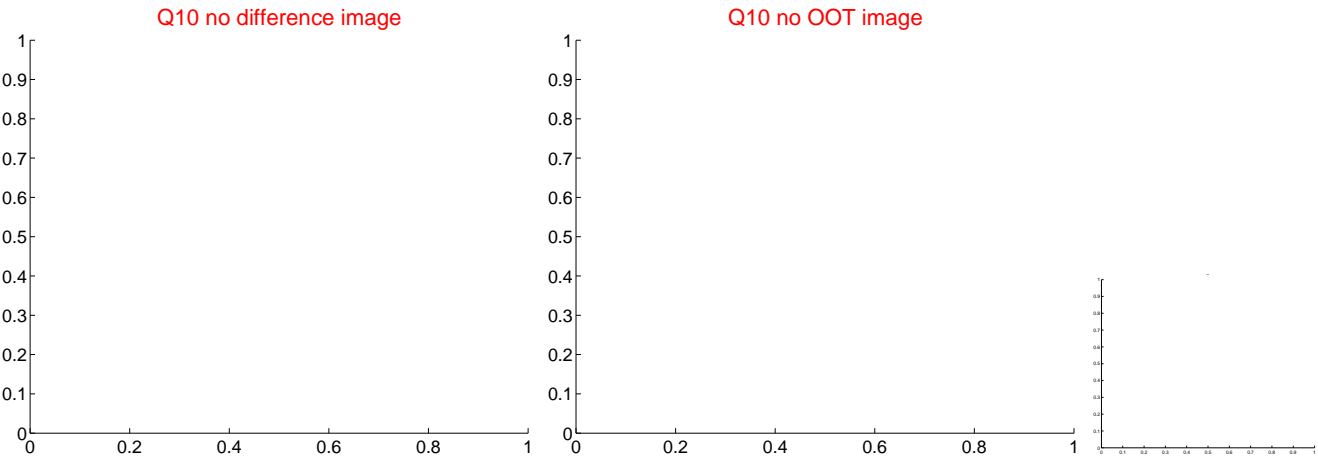
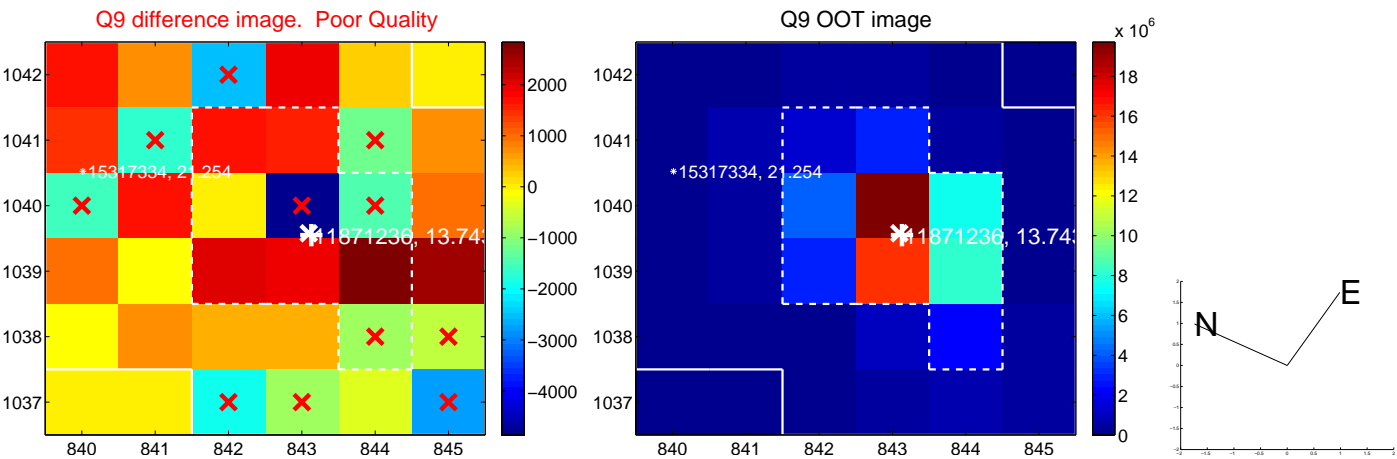
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



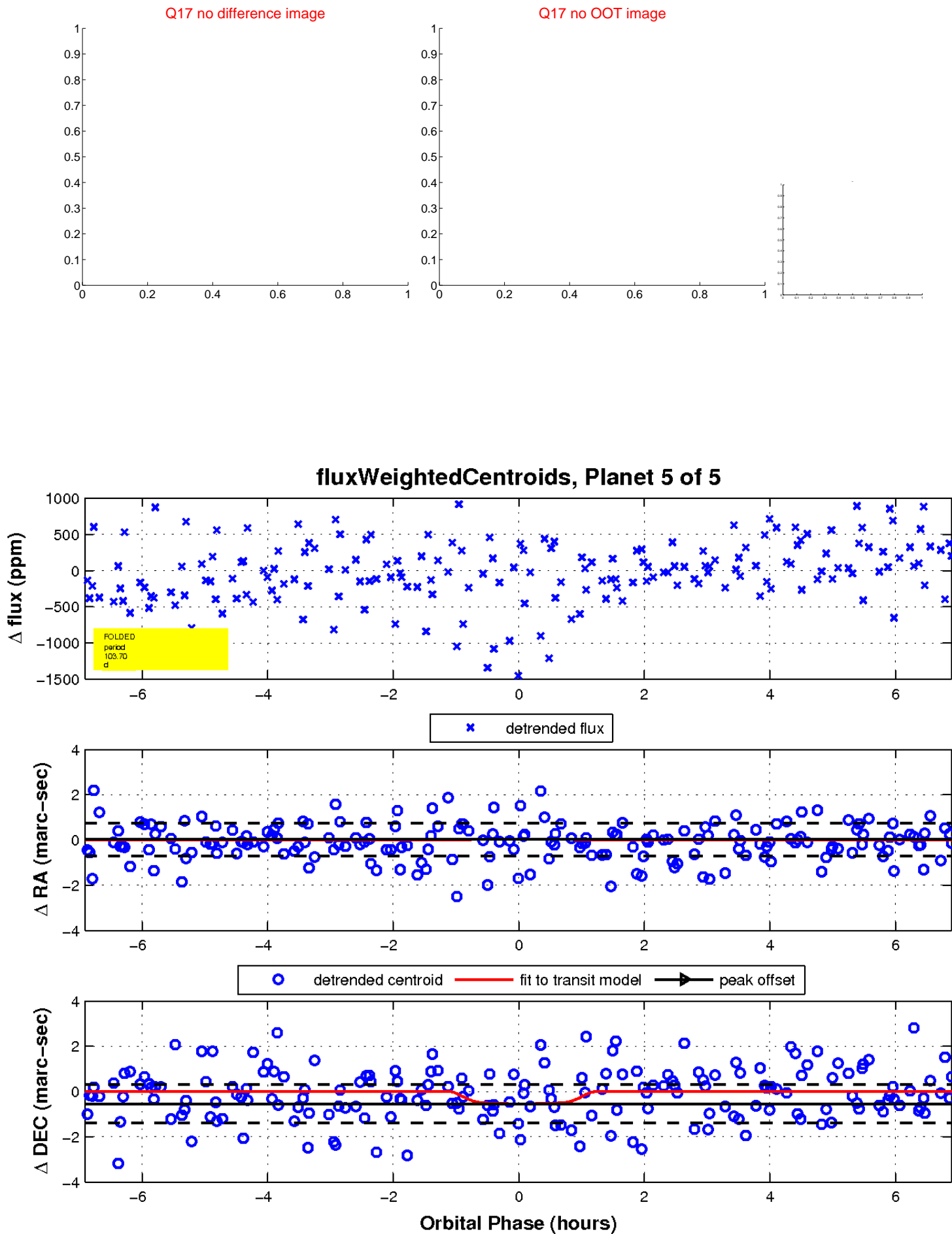
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

