

KIC 004733003

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})
004733003-01	OBS	No	2.109863	132.597602	28.9	7.445	9.2	9.6	4.01	5587	2.54	9814.96
004733003-02	OBS	No	201.001641	159.007169	140.8	7.430	7.9	3.8	4.01	5587	5.42	22.56
004733003-03	OBS	No	312.705376	315.758720	380.9	4.185	8.1	8.4	4.01	5587	9.01	12.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004733003-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT
004733003-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004733003-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

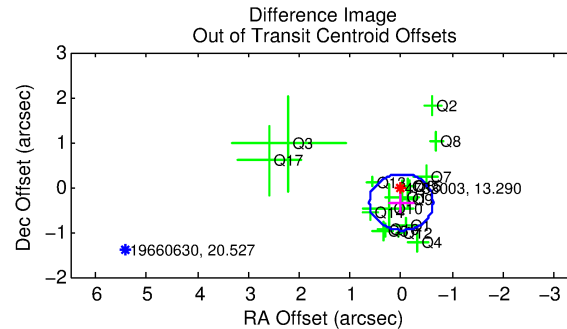
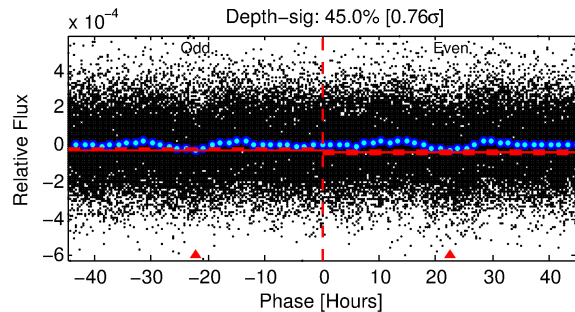
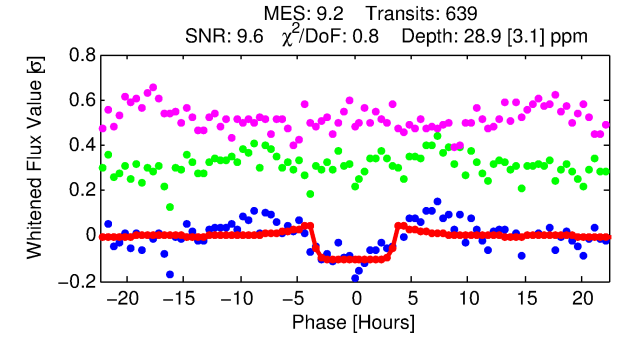
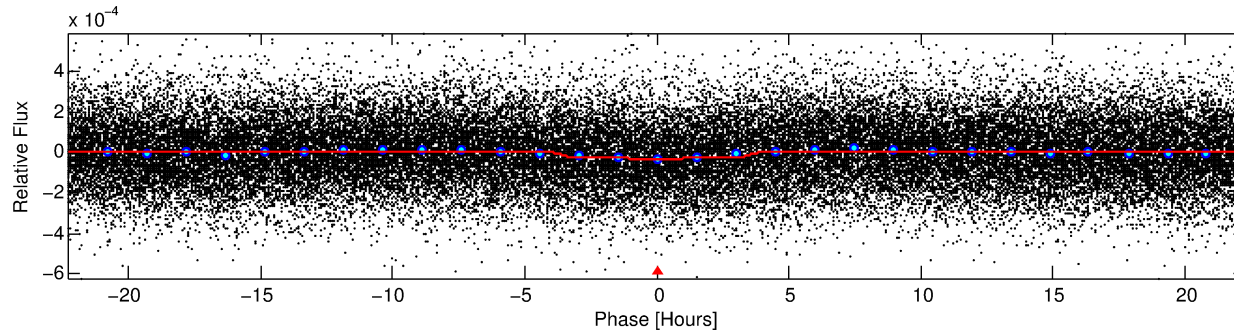
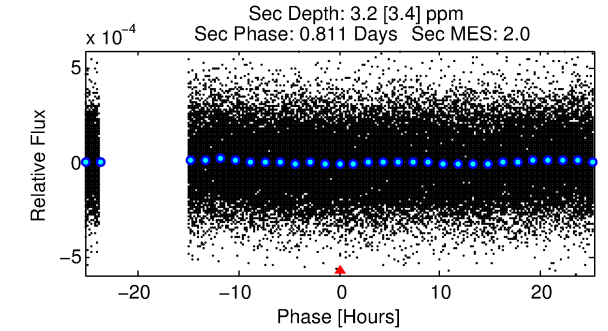
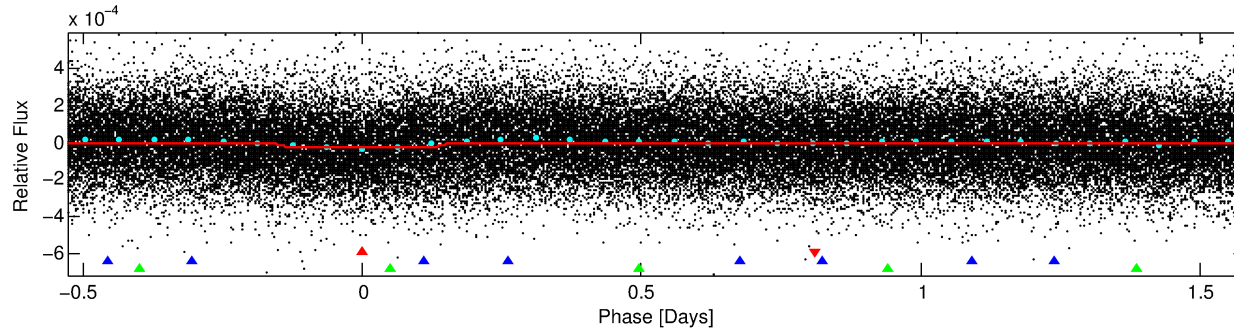
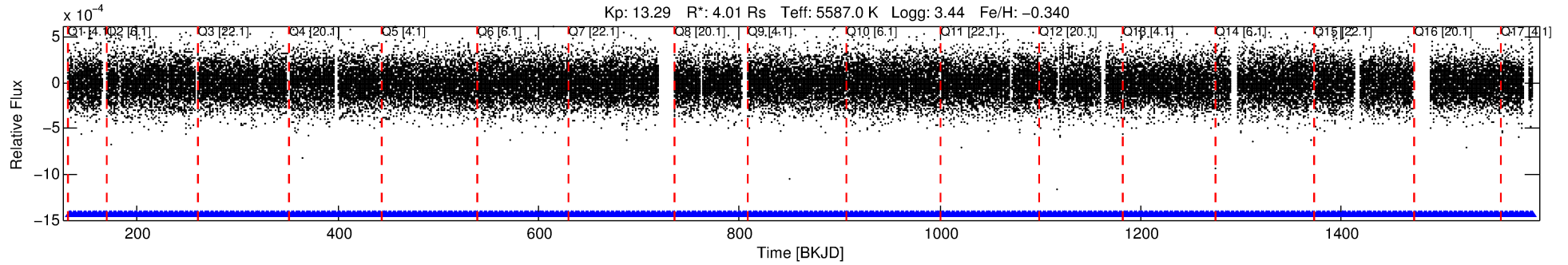
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004733003-01

No Significant Match Found

DV One-Page Summary

KIC: 4733003 Candidate: 1 of 3 Period: 2.110 d



DV Fit Results:

Period = 2.10986 [0.00002] d
Epoch = 132.5976 [0.0052] BKJD
Rp/R* = 0.0058 [0.0016]
a/R* = 1.38 [0.87]
b = 0.89 [0.32]
Seff = 9814.96 [14185.13]
Teq = 2538 [917] K
Rp = 2.53 [1.95] Re
a = 0.0378 [0.0314] AU
Ag = 0.40 [0.74] [-0.82σ]
Teffp = 3113 [936] K [0.44σ]

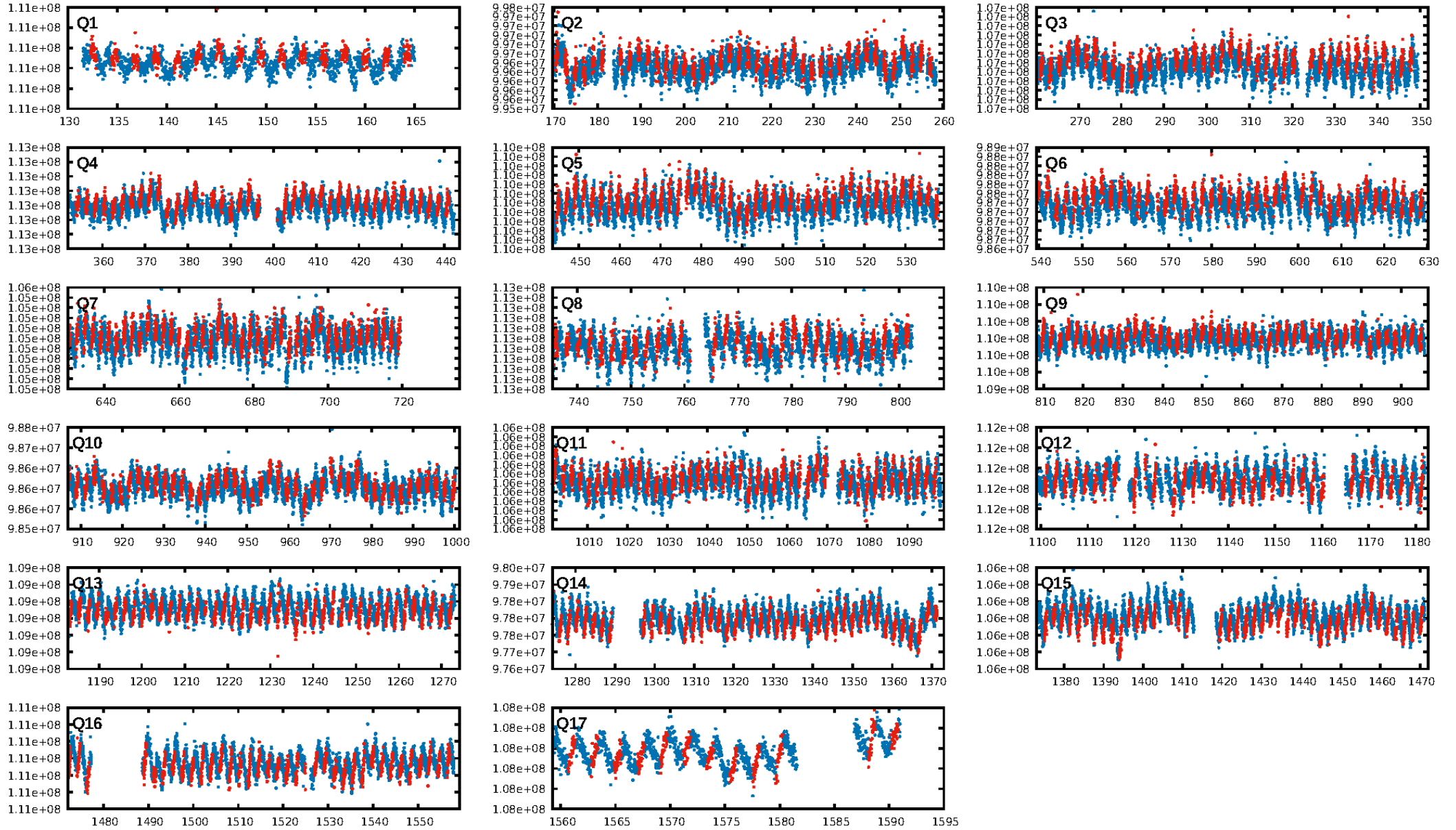
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [453.81σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.00e-15
RollingBand-fgt: 1.00 [611/611]
GhostDiagnostic-chr: 6.251
Centroid-sig: 8.5%
Centroid-so: 1.088 arcsec [1.58σ]
OotOffset-rm: 0.335 arcsec [1.61σ]
KicOffset-rm: 0.332 arcsec [1.55σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 1.00 [17/17]

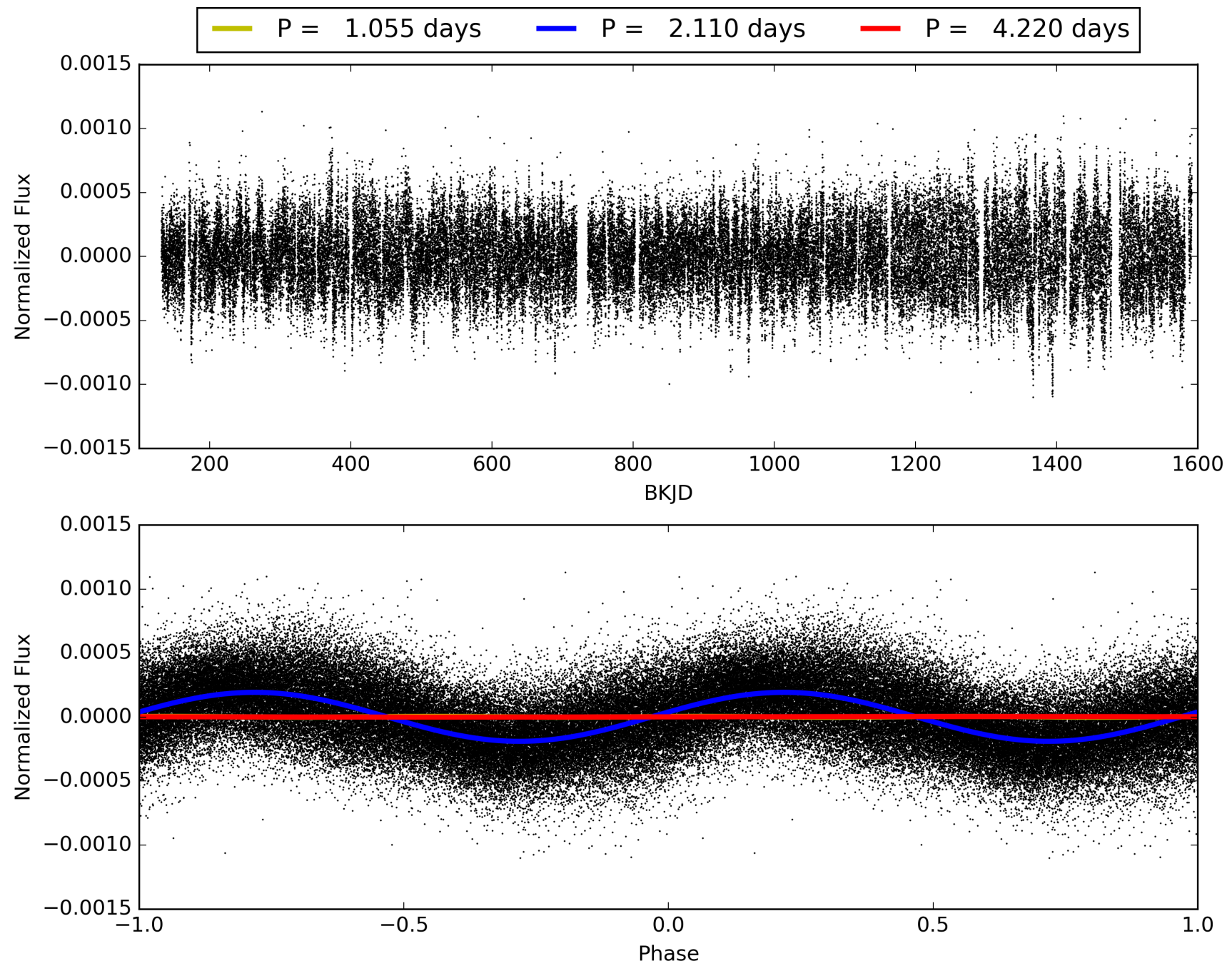
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:59:33 Z

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

TCE 004733003-01, PDC Light Curves

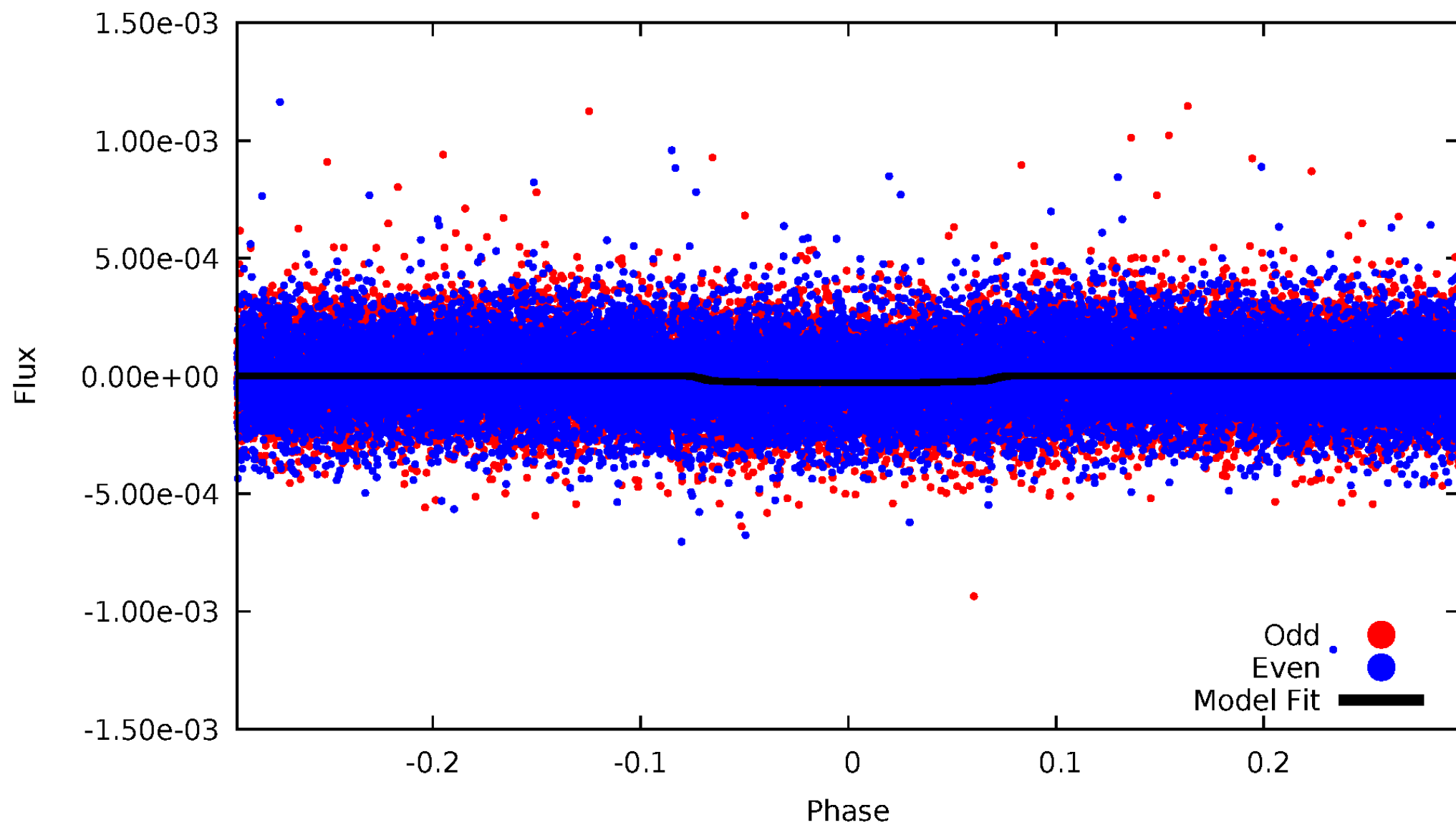


TCE 004733003-01



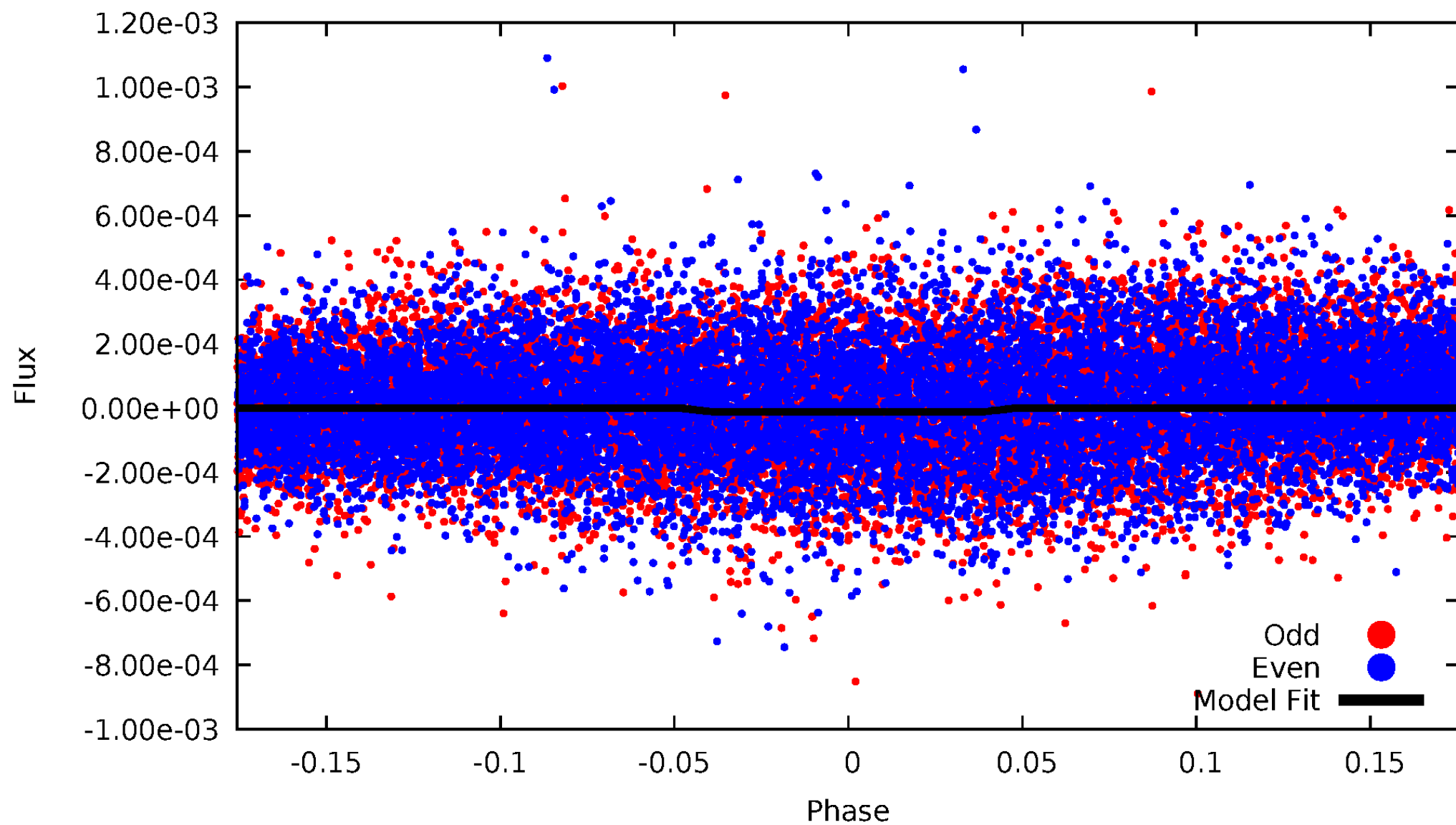
DV Odd/Even

TCE 004733003-01

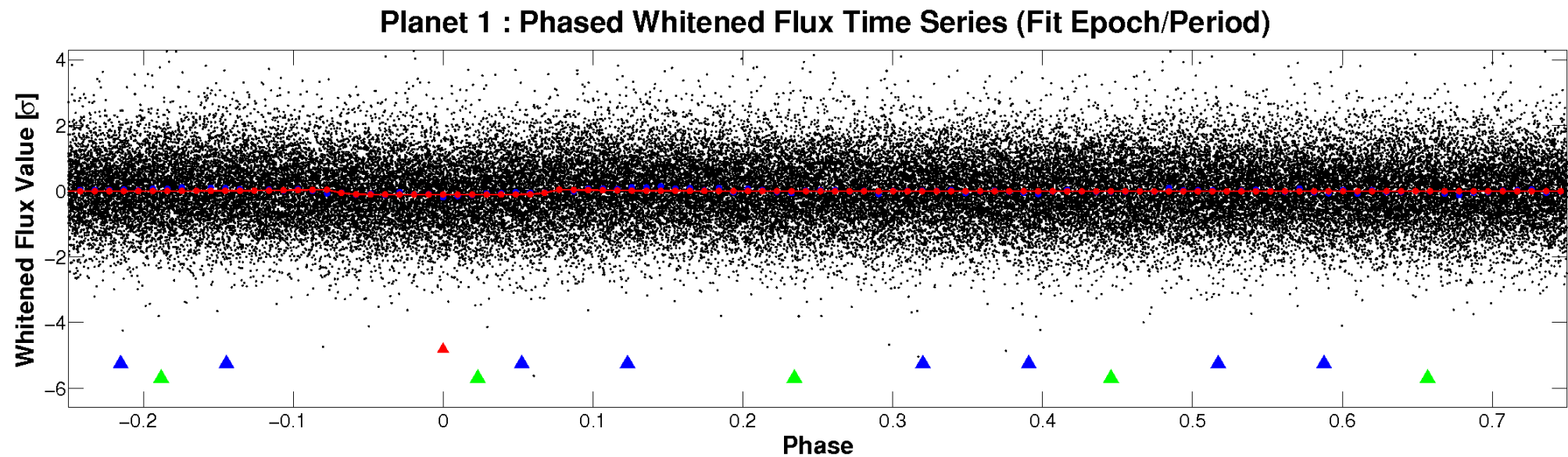
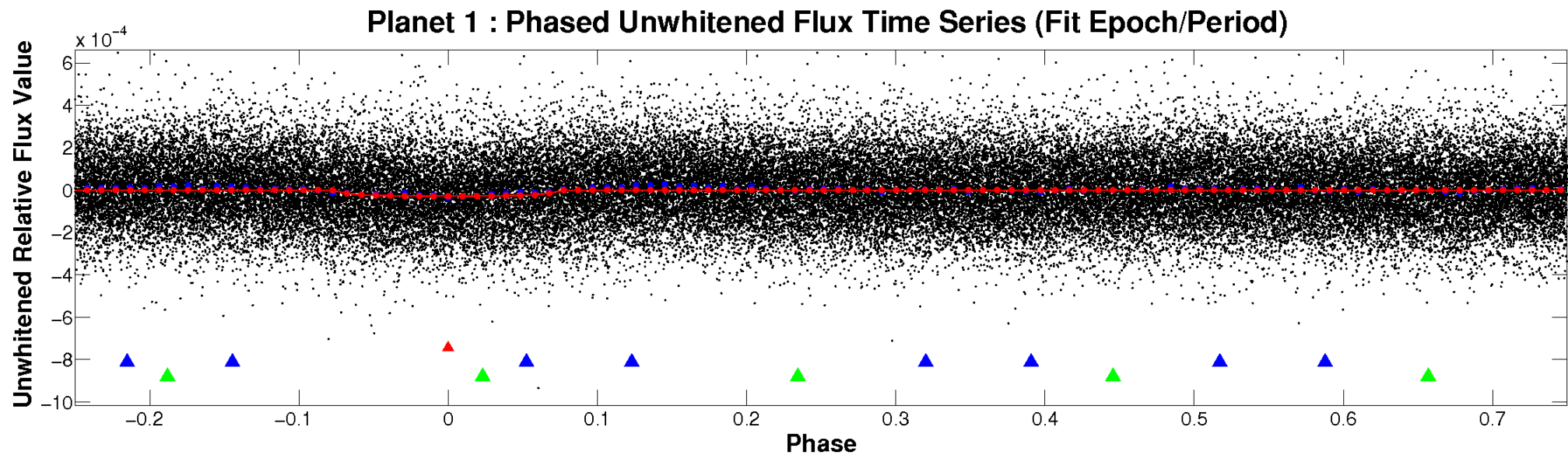


ALT Odd/Even

TCE 004733003-01

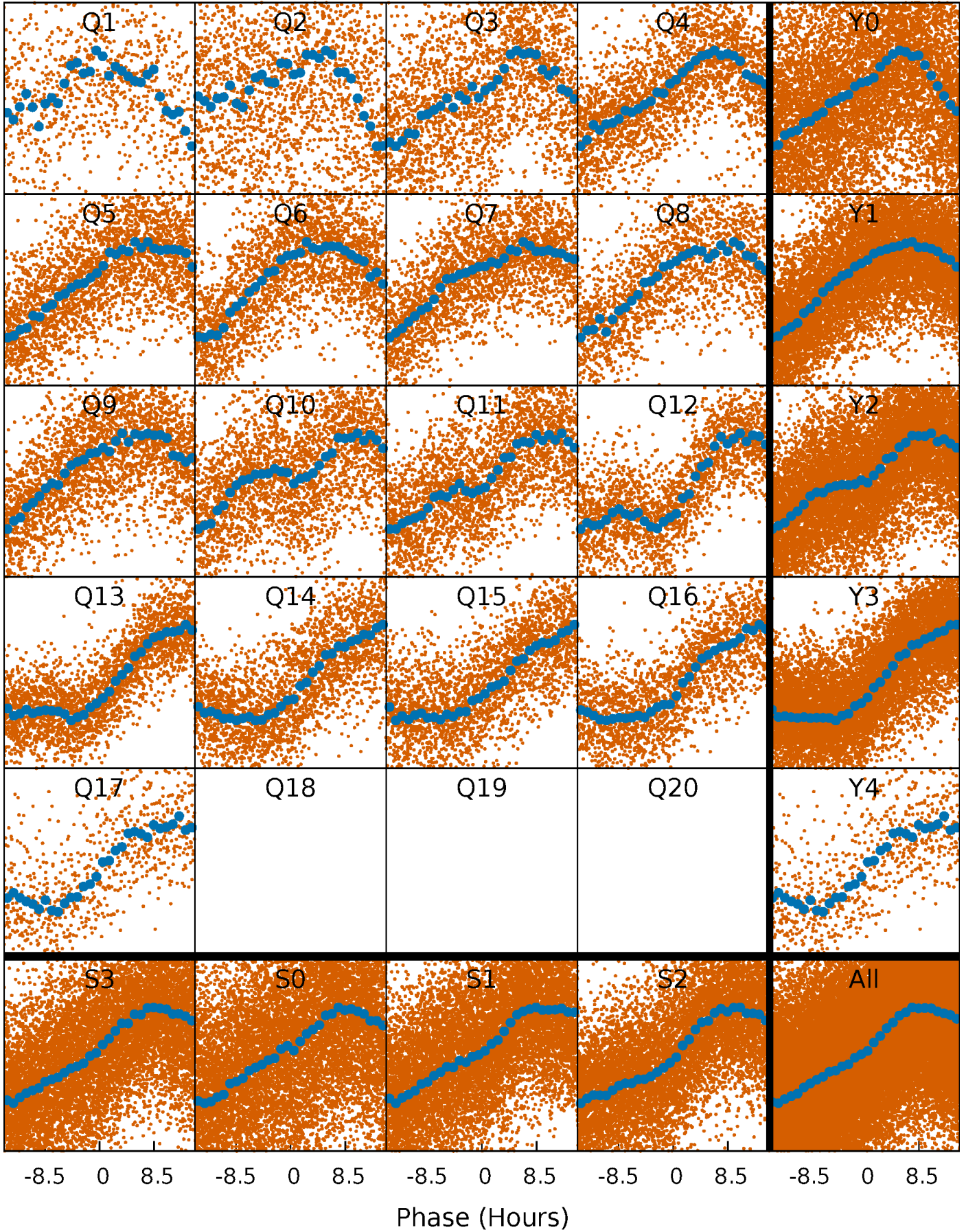


Non-Whitened Vs. Whitened Light Curve



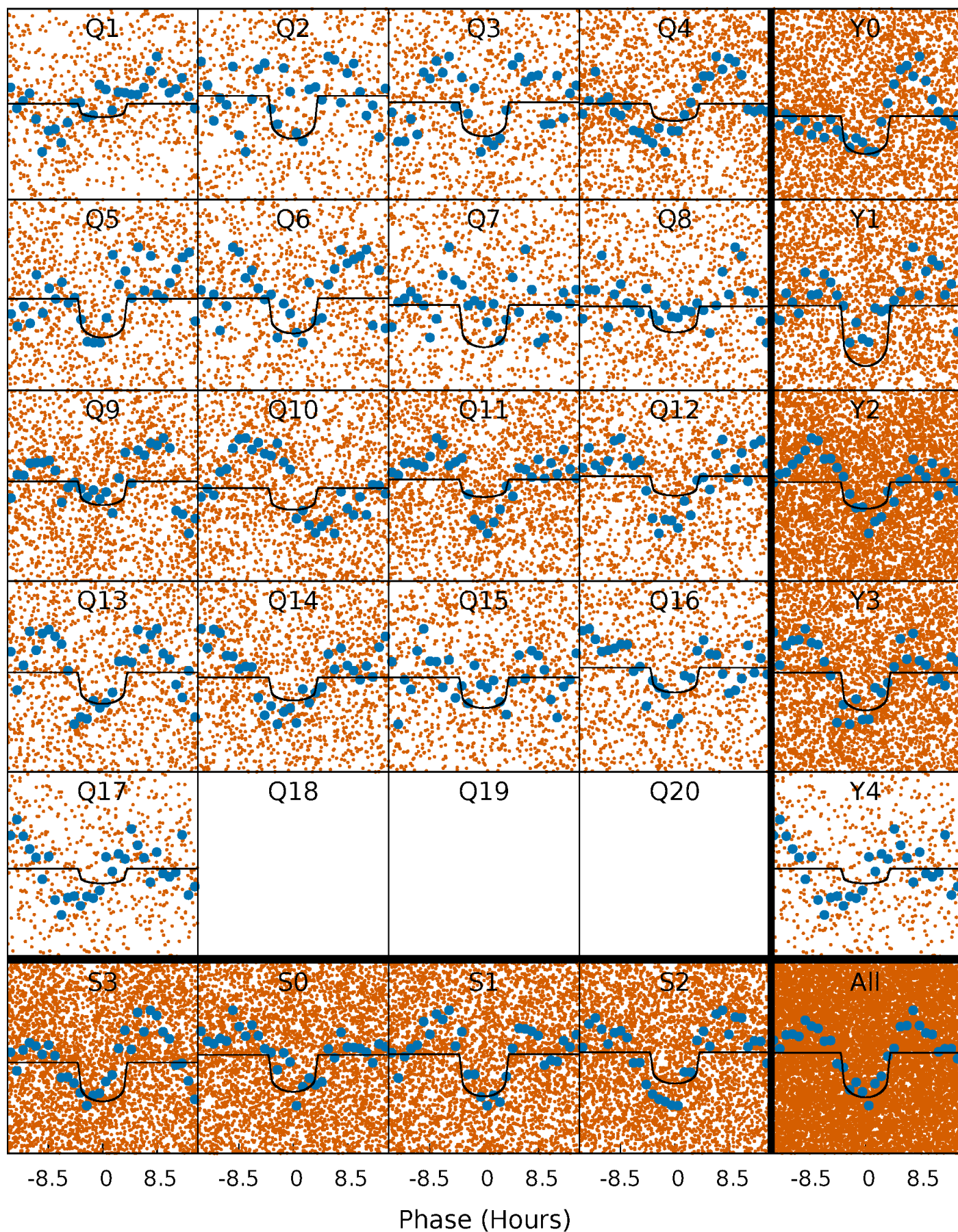
PDC Quarter-Phased Transit Curves

TCE 004733003-01 P= 2.109862 Days $T_0=132.597602$ (BKJD)



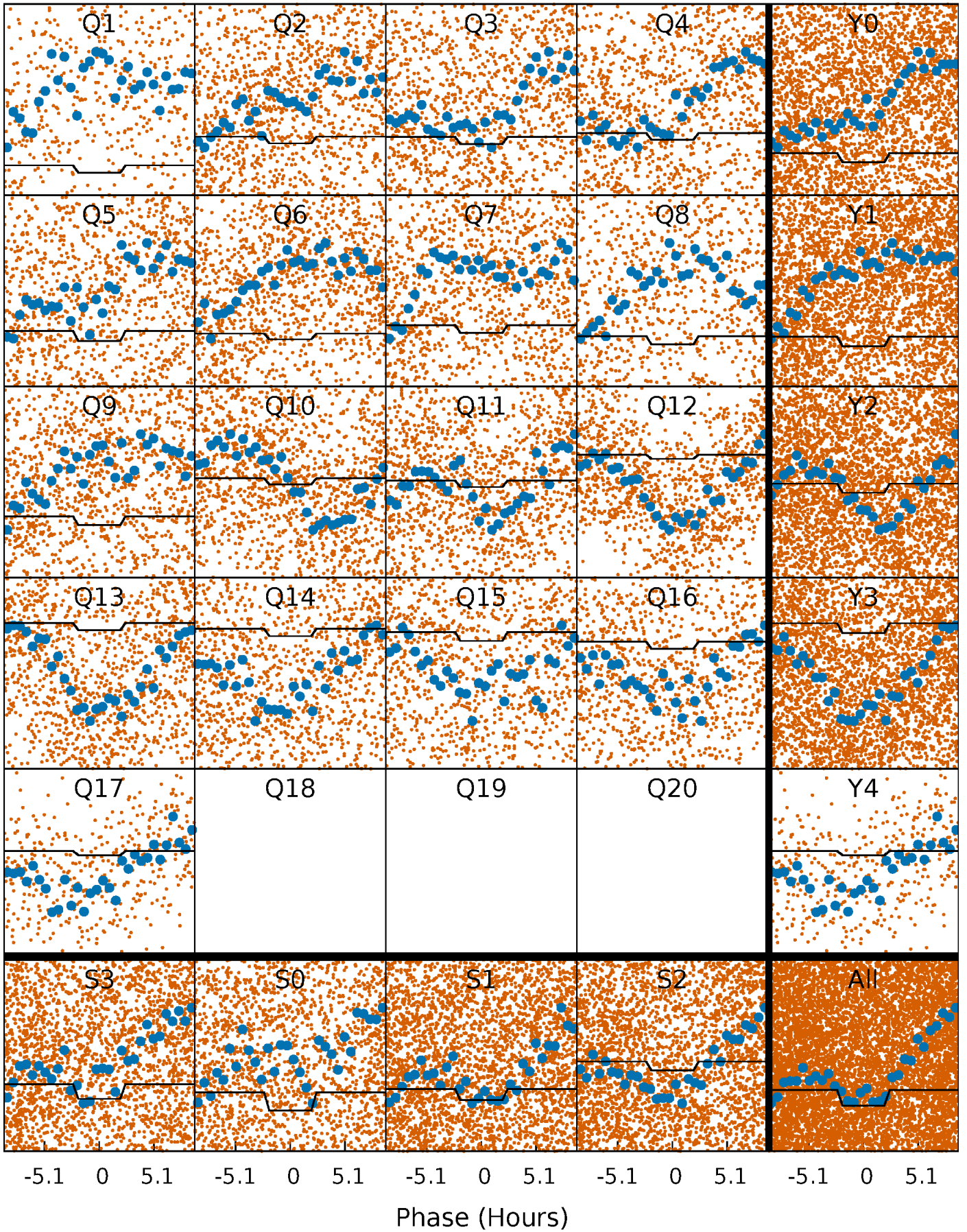
DV Quarter-Phased Transit Curves

TCE 004733003-01 P= 2.109862 Days $T_0=132.597602$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

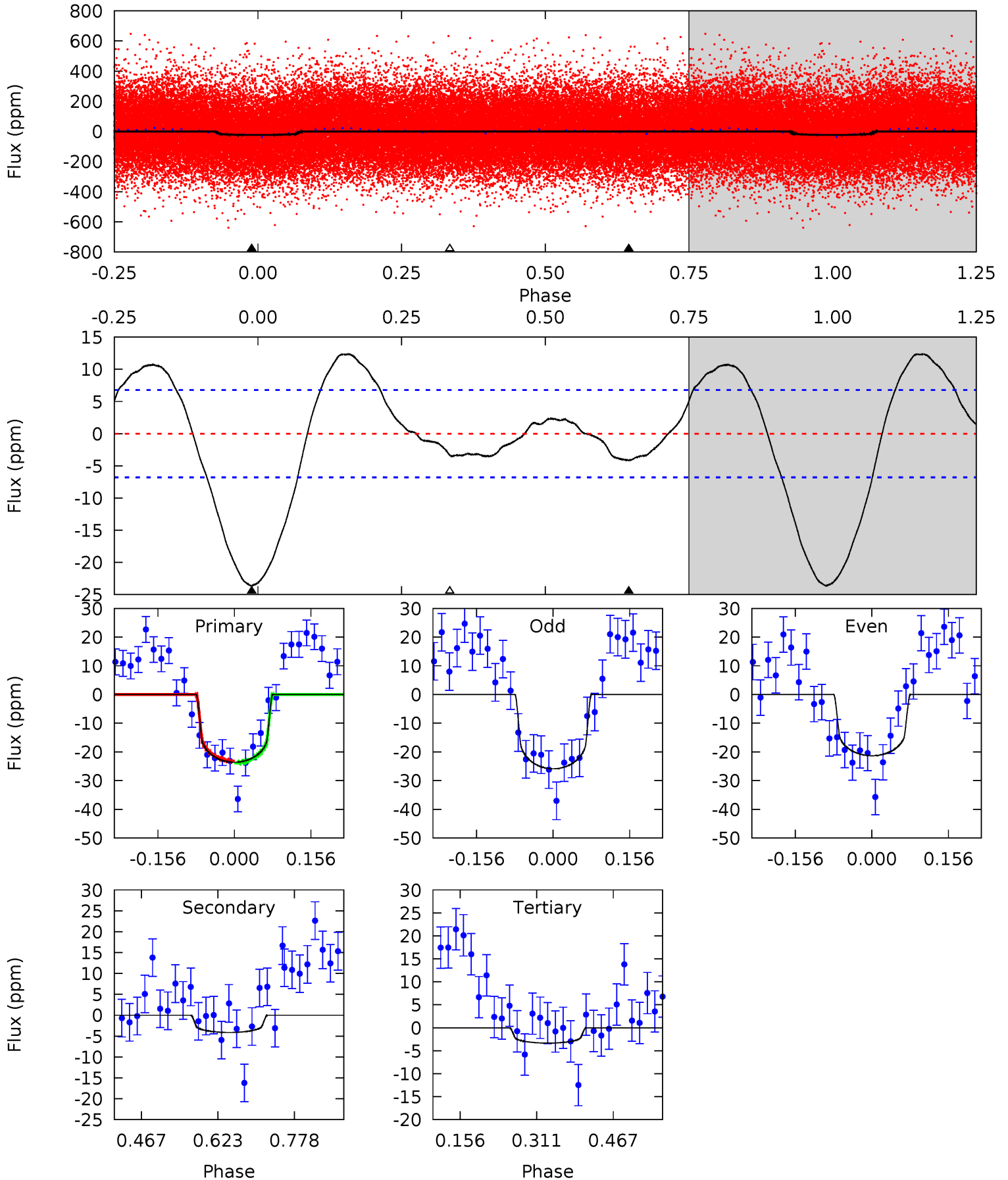
TCE 004733003-01 P= 2.109692 Days $T_0=132.605719$ (BKJD)



DV Model-Shift Uniqueness Test

004733003-01, P = 2.109862 Days, E = 130.487740 Days

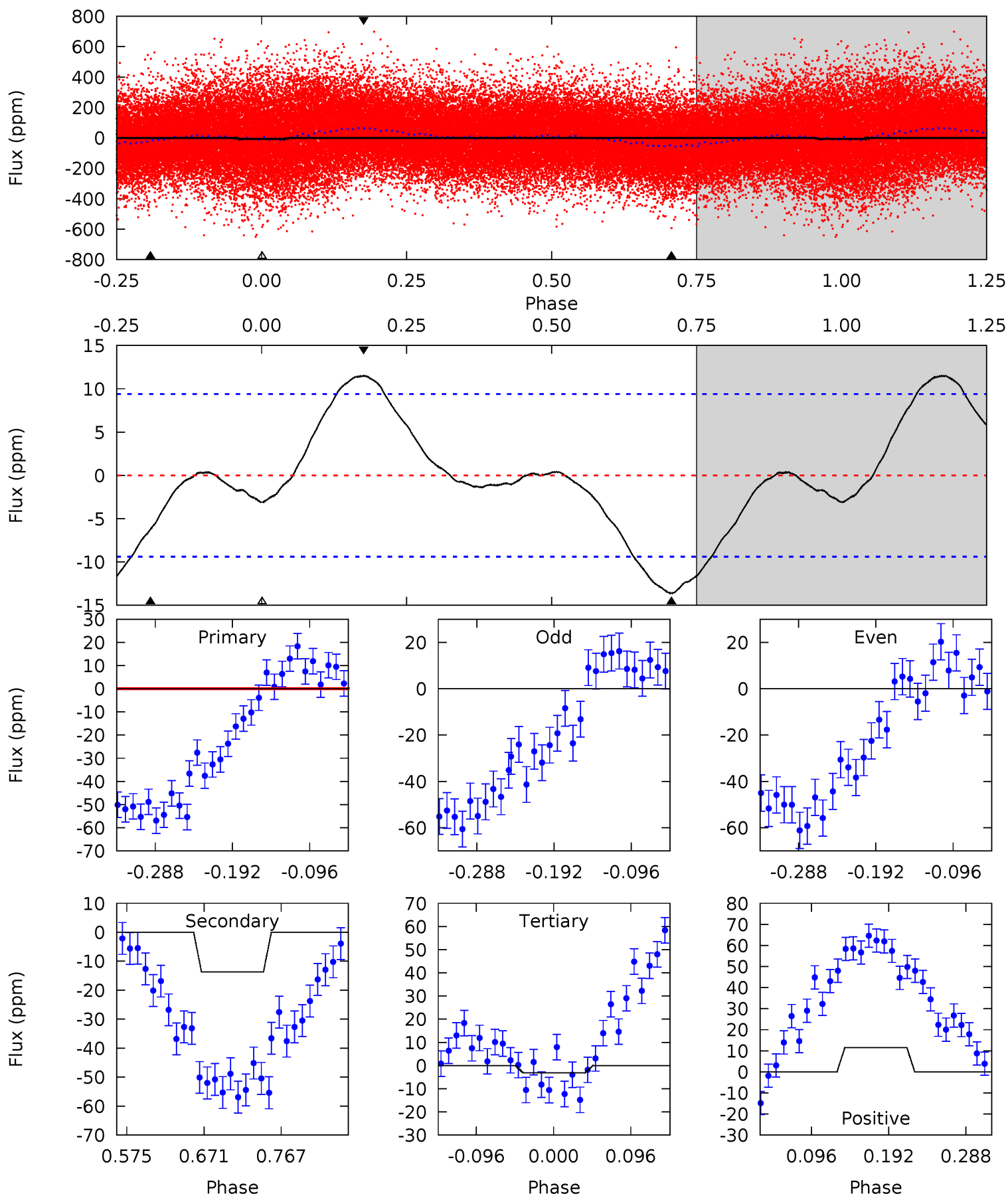
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	2.72	2.20	0	4.47	1.42	3.63	13.3	15.5	0.52	2.72	1.50	1.17	0.34	0.23



Alt Model-Shift Uniqueness Test

004733003-01, P = 2.109692 Days, E = 130.496027 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.04	6.64	1.51	5.60	4.57	1.67	2.20	1.52	-2.57	5.12	1.03	1.49	-4.71	0.46	0.35



Stellar Parameters For KIC 004733003

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5587^{+194}_{-194}	$3.441^{+0.884}_{-0.156}$	$-0.340^{+0.350}_{-0.300}$	$4.008^{+0.957}_{-2.871}$	$1.619^{+0.188}_{-0.753}$	$0.035^{+0.937}_{-0.016}$
	+3%/-3%	+26%/-5%	+103%/-88%	+24%/-72%	+12%/-47%	+2645%/-45%
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 004733003-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 2	$2.13^{+1.02}_{-0.94}$	3423^{+328}_{-695}	3393^{+676}_{-5738}	$0.697^{+1.266}_{-0.417}$
Alt.	-14 ± 2	$1.27^{+0.94}_{-0.70}$	3403^{+348}_{-641}	5599^{+2068}_{-932}	$6.348^{+22.693}_{-4.173}$

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

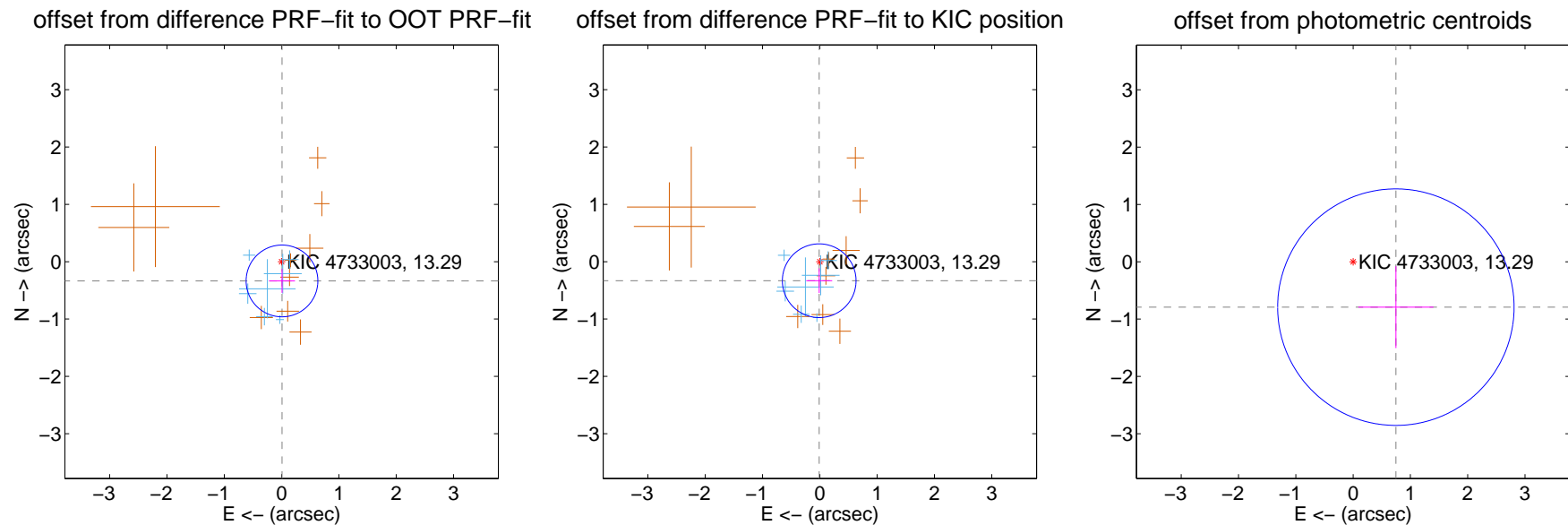
DV Centroid Data

Supplemental centroid analysis for 004733003-01. Kepler magnitude: 13.29. Transit SNR 9.62

There are 7 quarters with good PRF difference image offsets

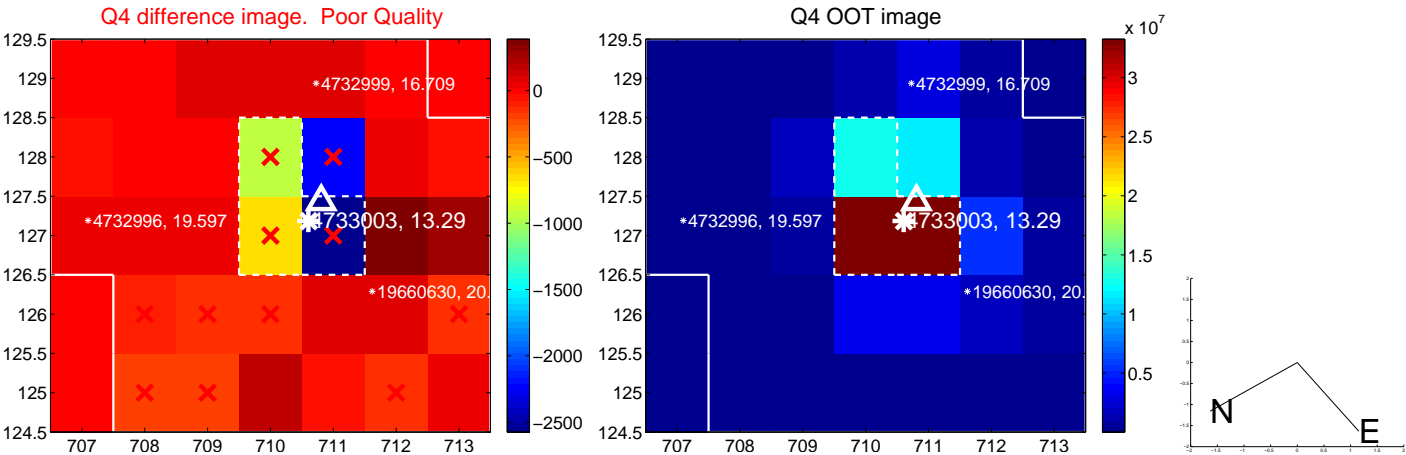
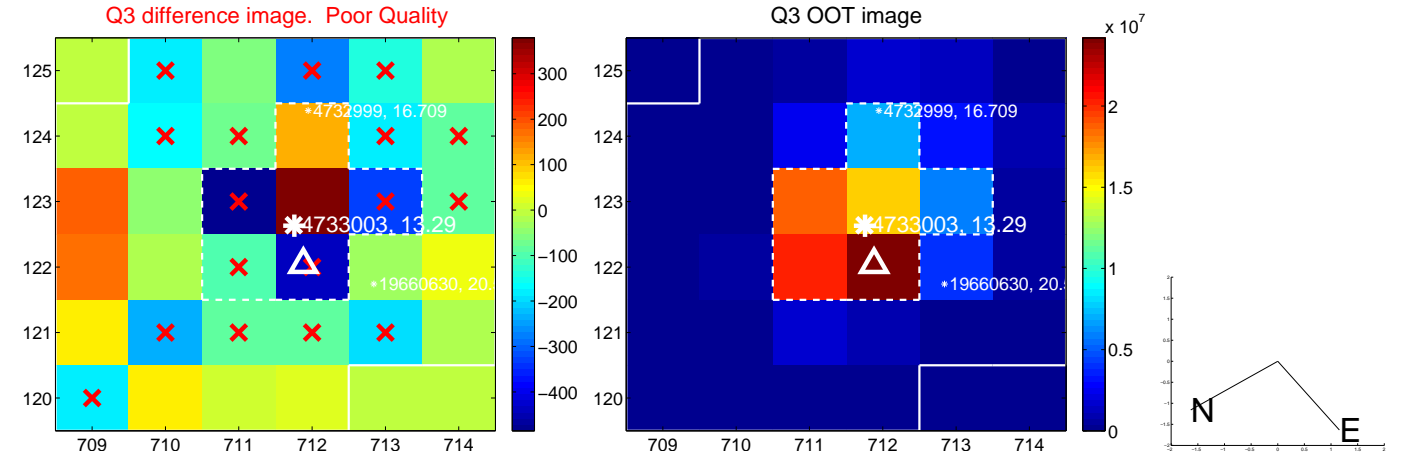
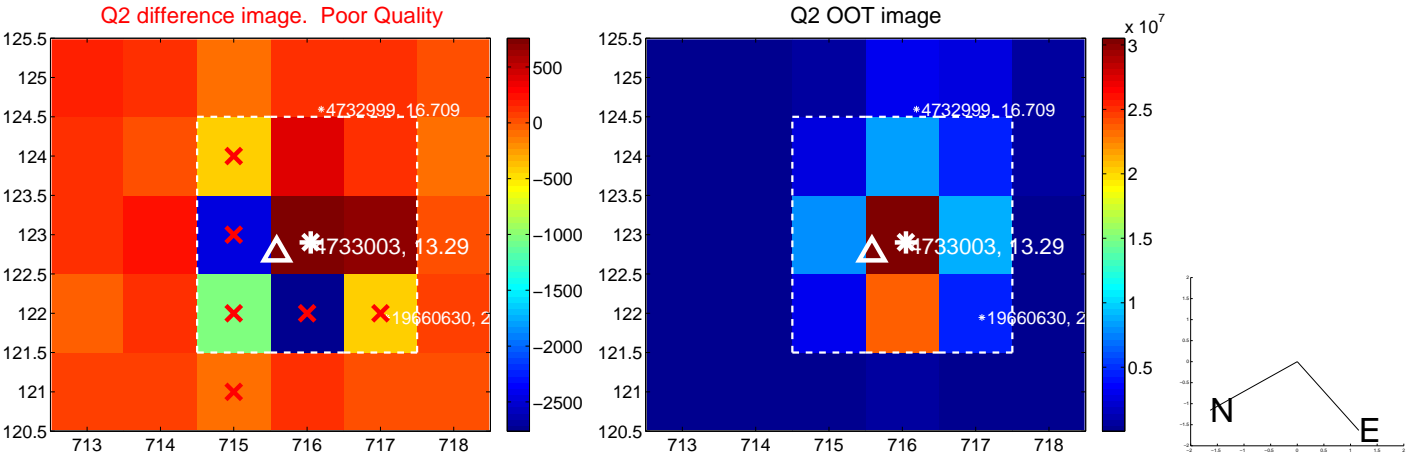
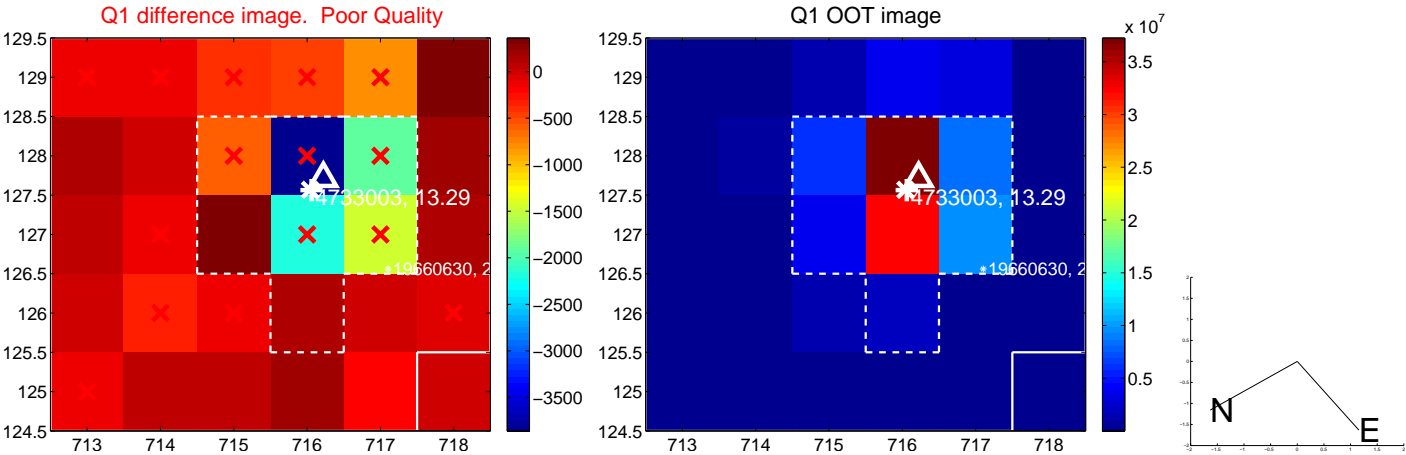
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.335 ± 0.209	1.61	-0.007 ± 0.226	-0.335 ± 0.208
PRF-fit source offset from KIC position	0.332 ± 0.214	1.55	0.011 ± 0.227	-0.332 ± 0.216
photometric centroid source offset	1.09 ± 0.69	1.58	-0.75 ± 0.66	-0.79 ± 0.71

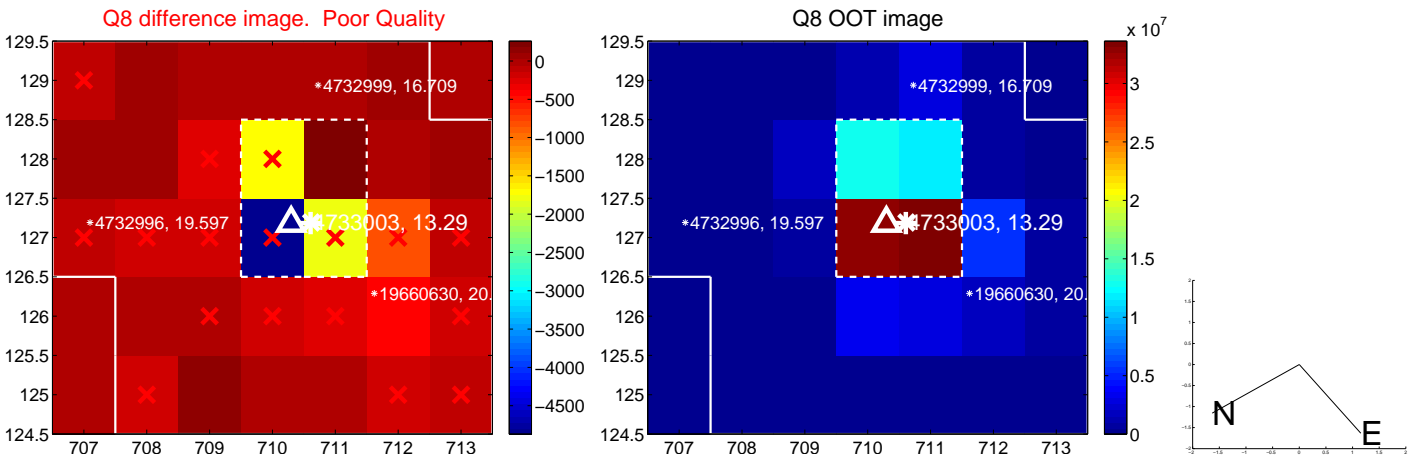
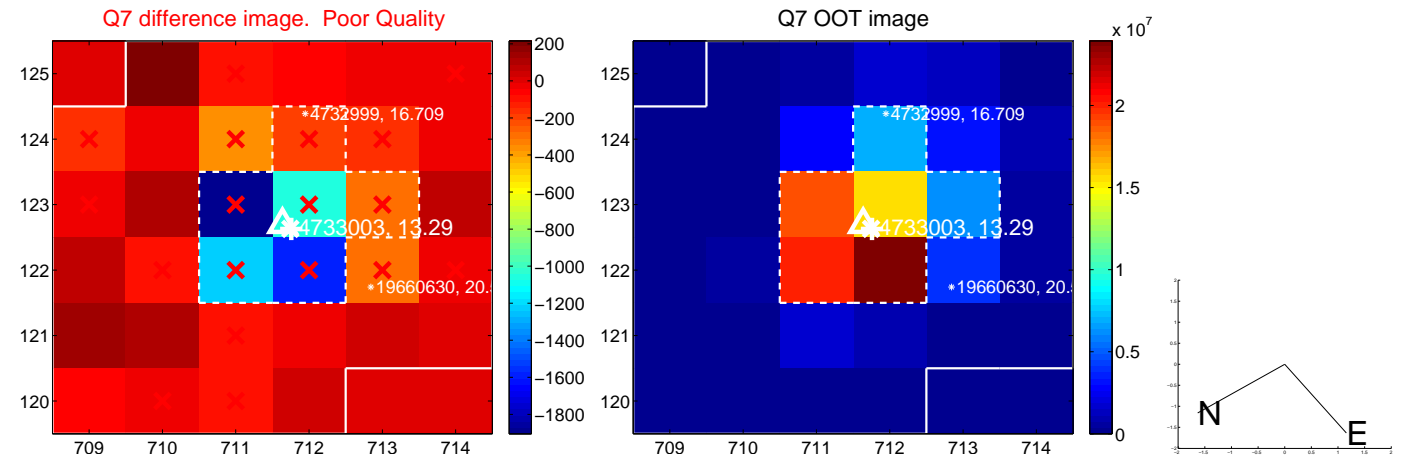
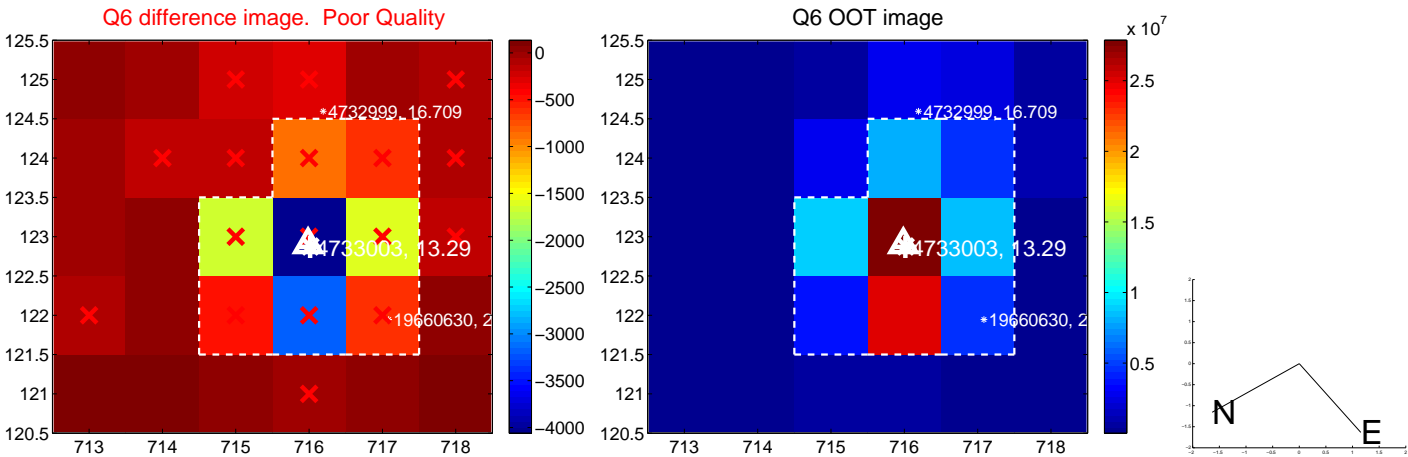
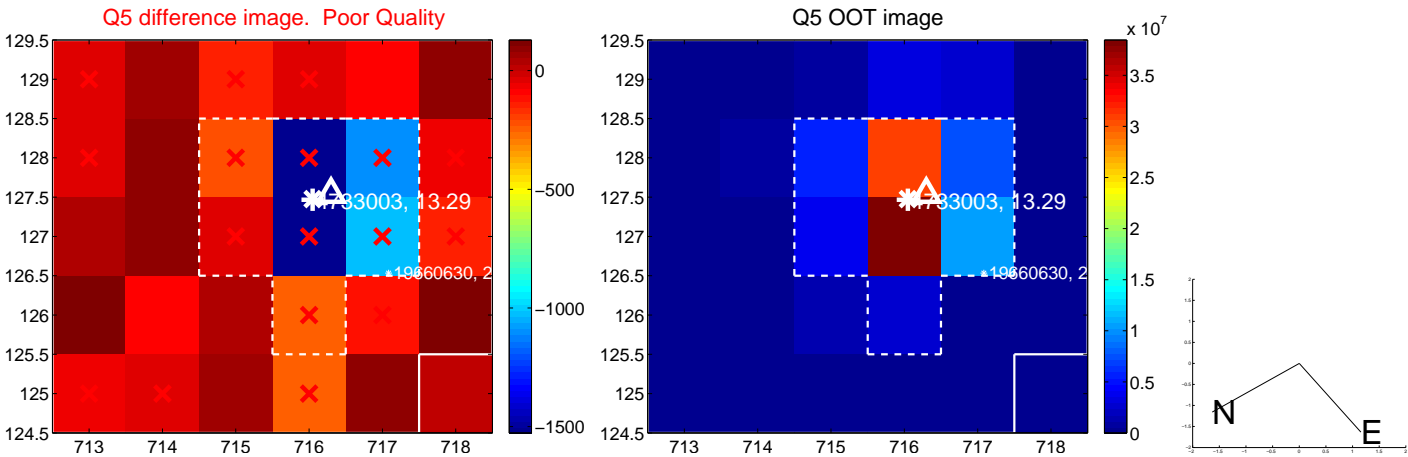


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

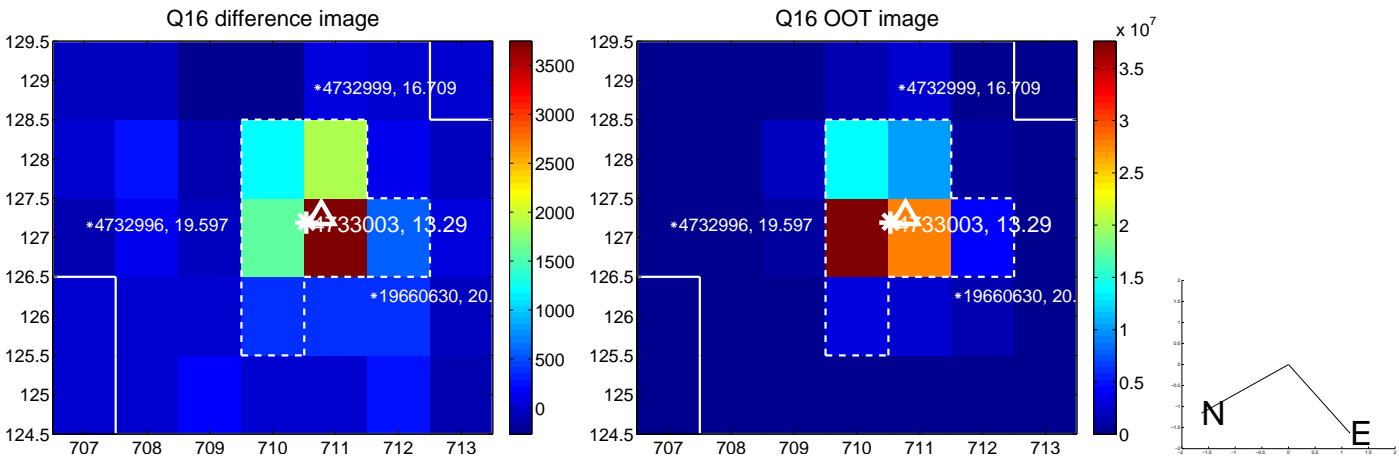
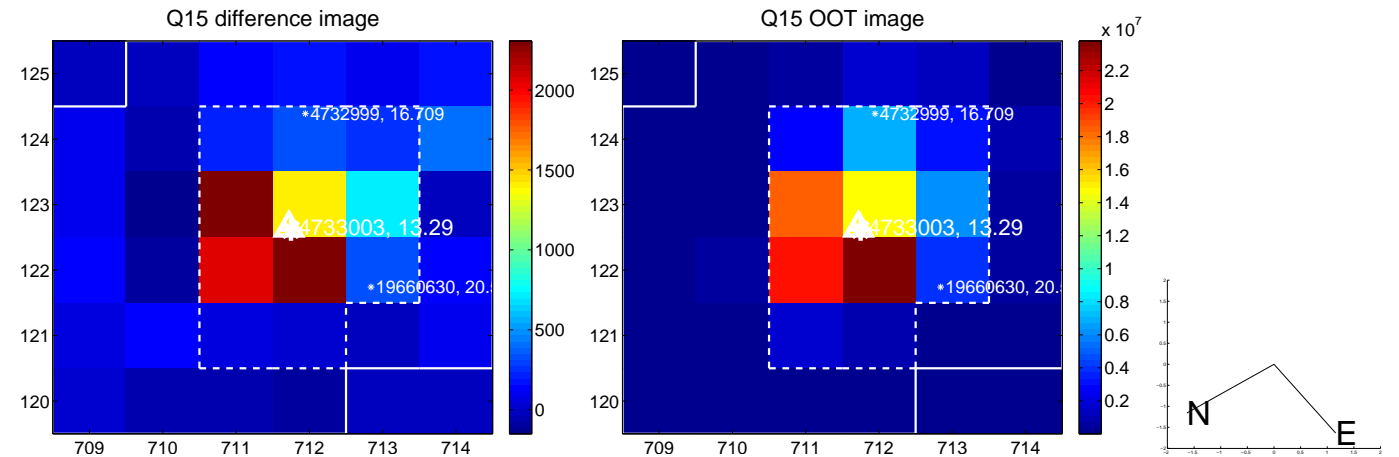
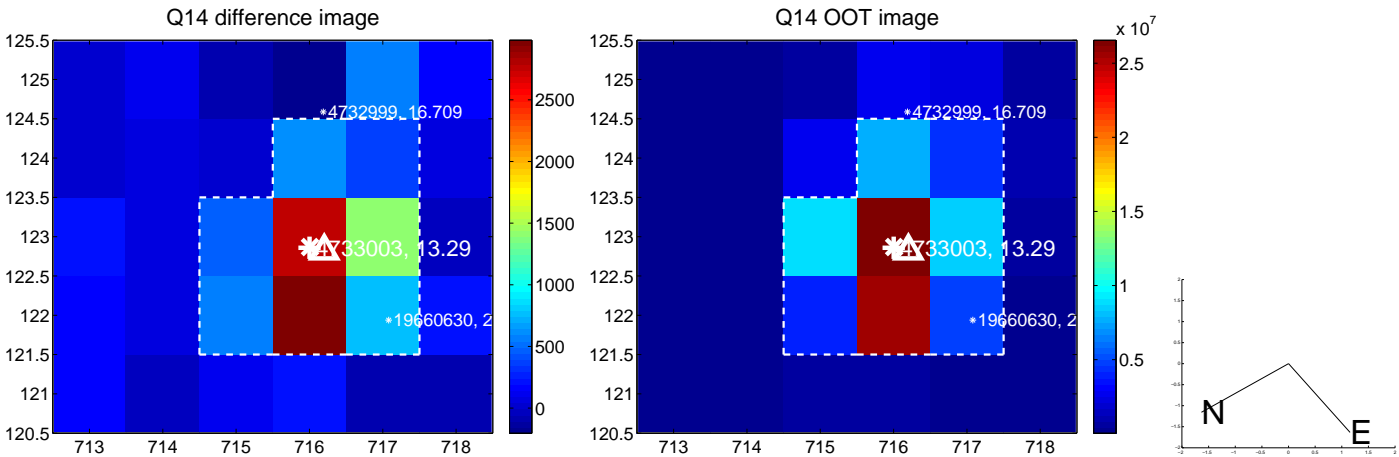
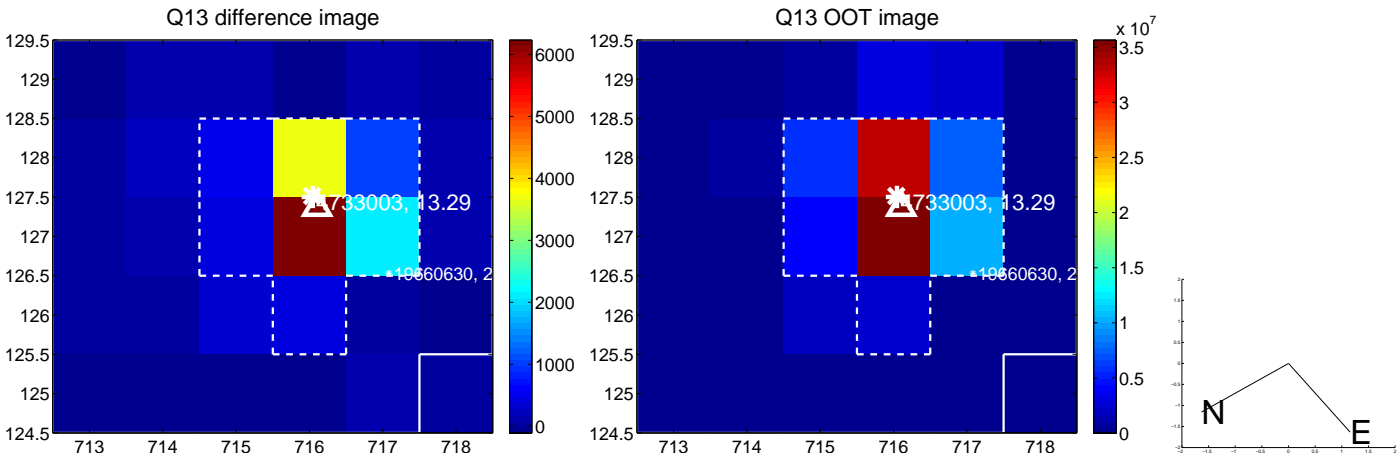
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

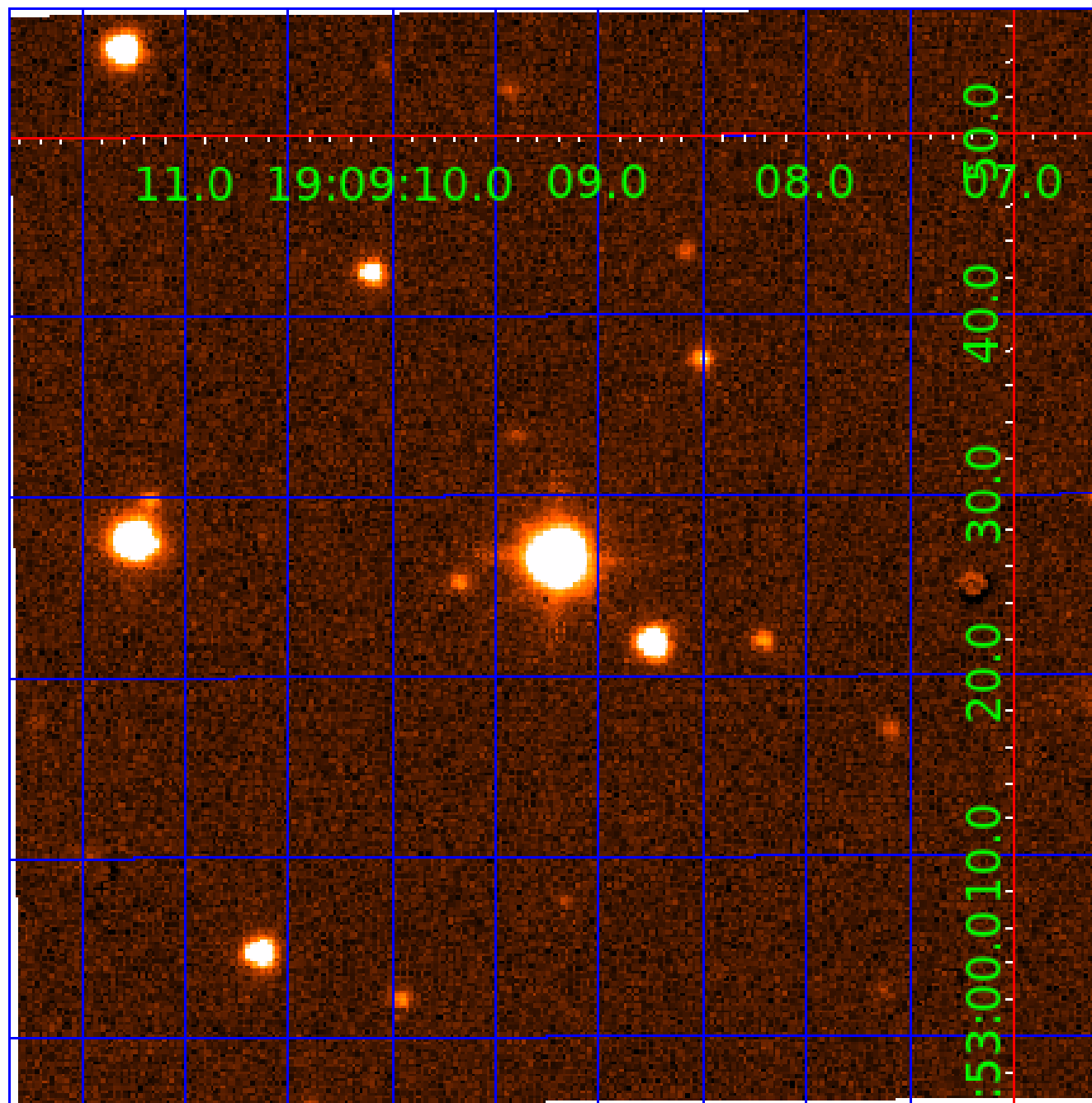


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004733003

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})
004733003-01	OBS	No	2.109863	132.597602	28.9	7.445	9.2	9.6	4.01	5587	2.54	9814.96
004733003-02	OBS	No	201.001641	159.007169	140.8	7.430	7.9	3.8	4.01	5587	5.42	22.56
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004733003-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT
004733003-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004733003-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

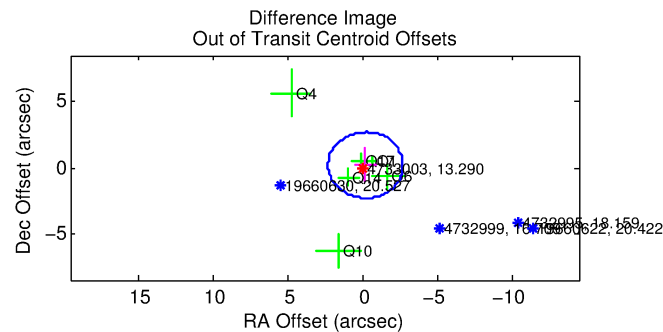
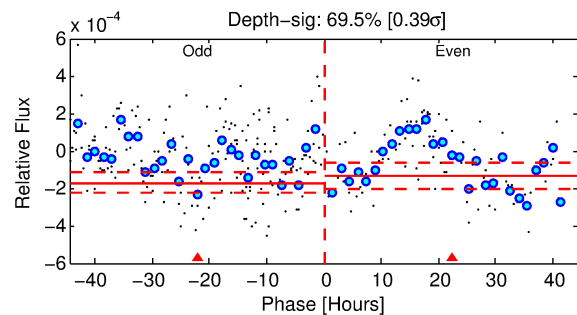
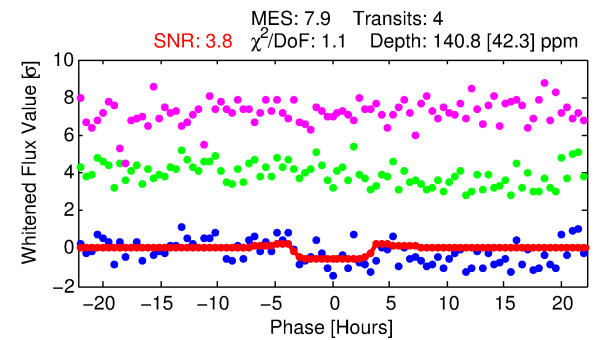
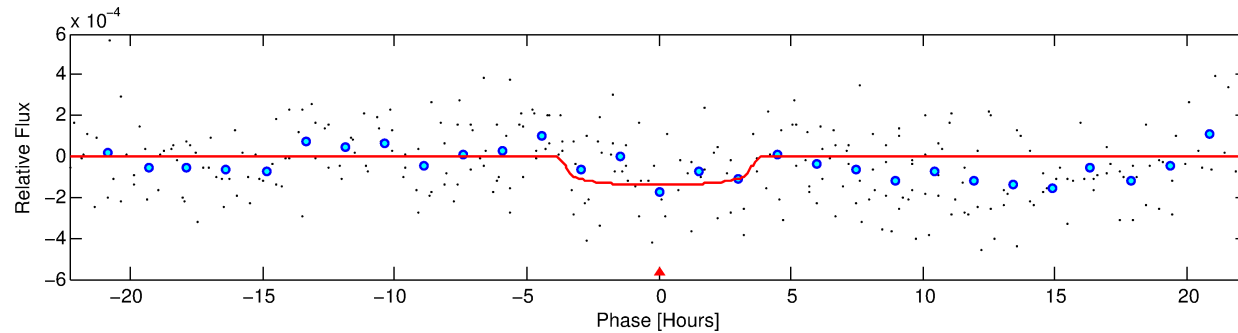
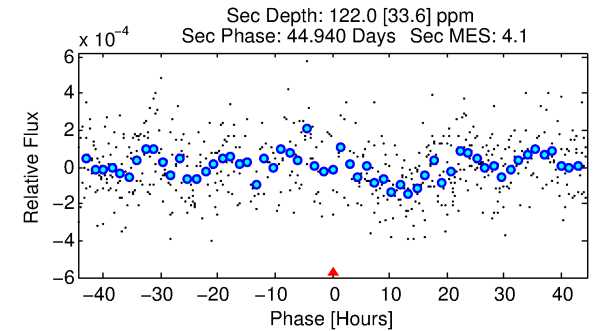
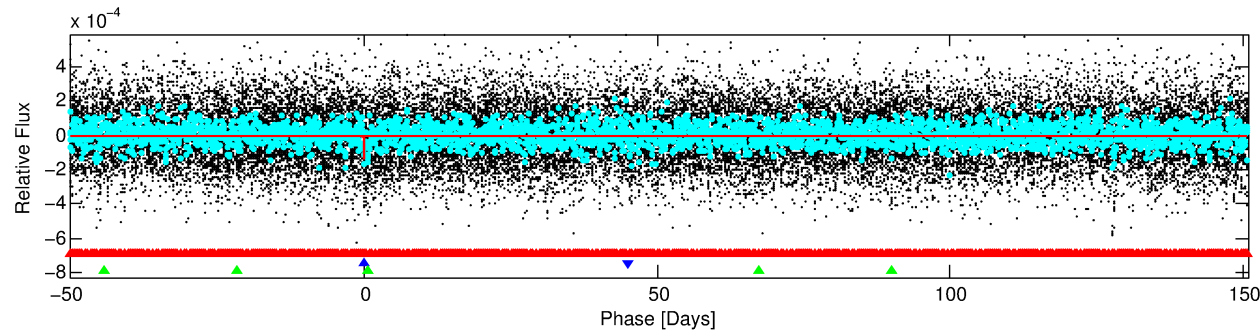
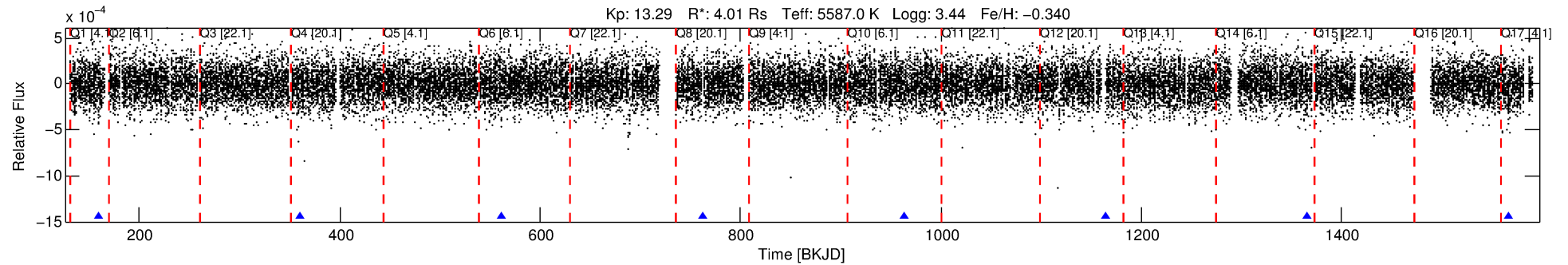
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004733003-02

No Significant Match Found

DV One-Page Summary

KIC: 4733003 Candidate: 2 of 3 Period: 201.002 d



DV Fit Results:

Period = 201.00164 [0.00537] d
Epoch = 159.0072 [0.0235] BKJD
Rp/R* = 0.0124 [0.0119]
a/R* = 114.13 [505.37]
b = 0.85 [1.48]
Seff = 22.56 [32.60]
Teq = 556 [201] K
Rp = 5.42 [6.50] Re
a = 0.7885 [0.6542] AU
Ag = 1421.39 [3439.51] [0.41σ]
Teffp = 5276 [2573] K [1.83σ]

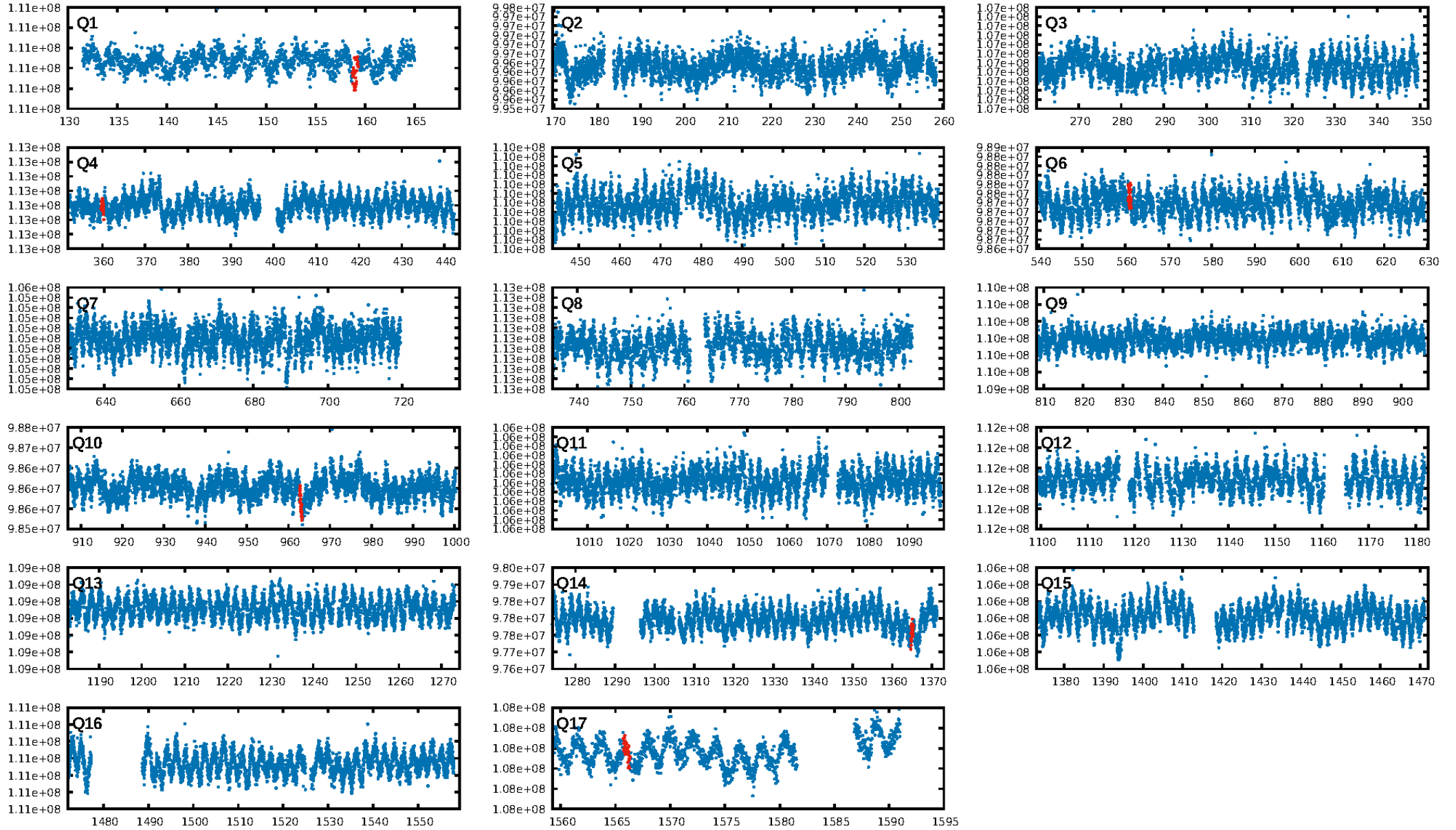
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [453.81σ]
LongPeriod-sig: 100.0% [314.38σ]
ModelChiSquare2-sig: 10.3%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 2.33e-11
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.9115
Centroid-sig: 36.4%
Centroid-so: 1.018 arcsec [0.65σ]
OotOffset-rm: 0.299 arcsec [0.36σ]
KicOffset-rm: 0.238 arcsec [0.25σ]
OotOffset-st: 3/0/1/2 [6]
KicOffset-st: 3/0/1/2 [6]
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DiffImageOverlap-fno: 0.33 [2/6]

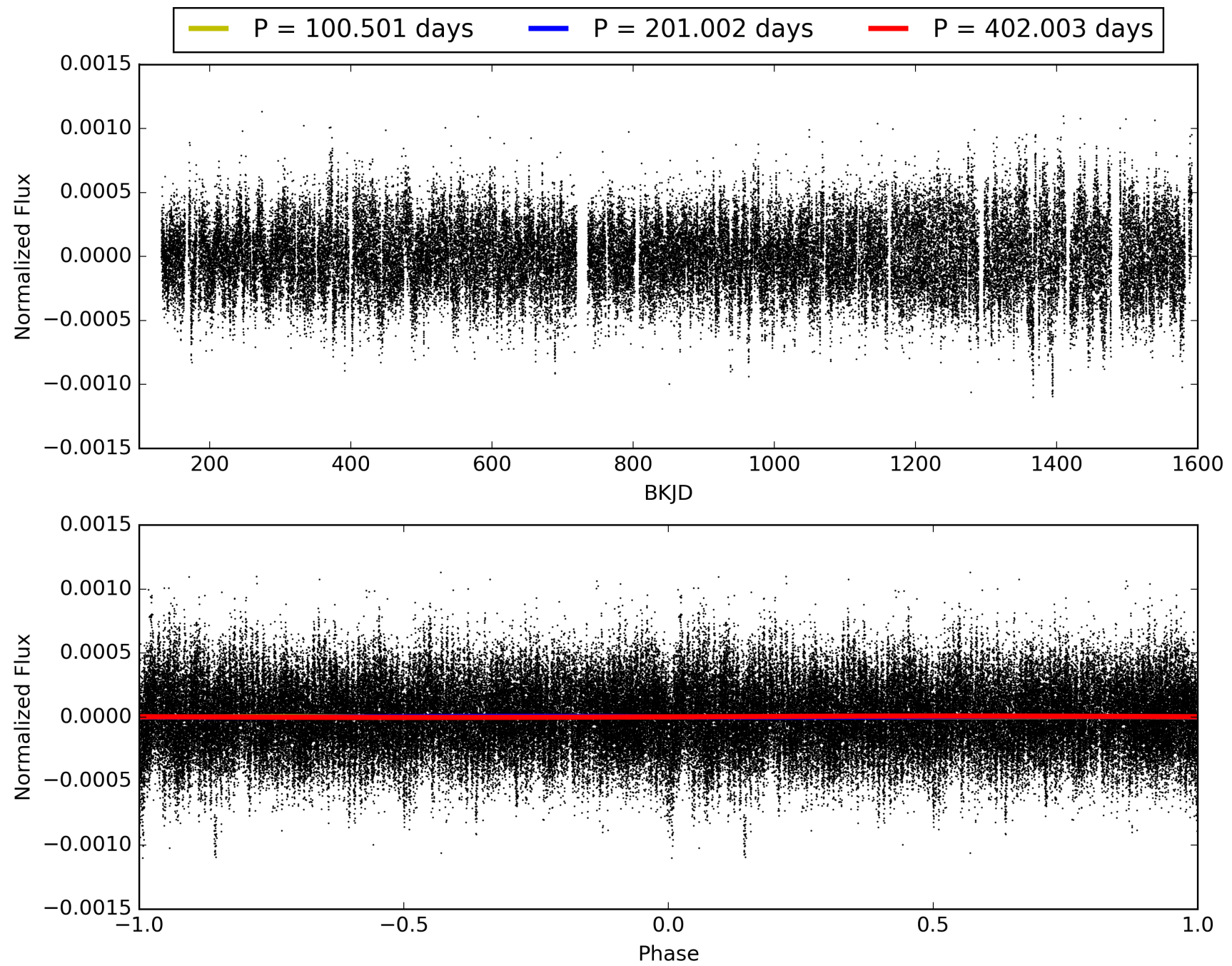
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004733003-02, PDC Light Curves

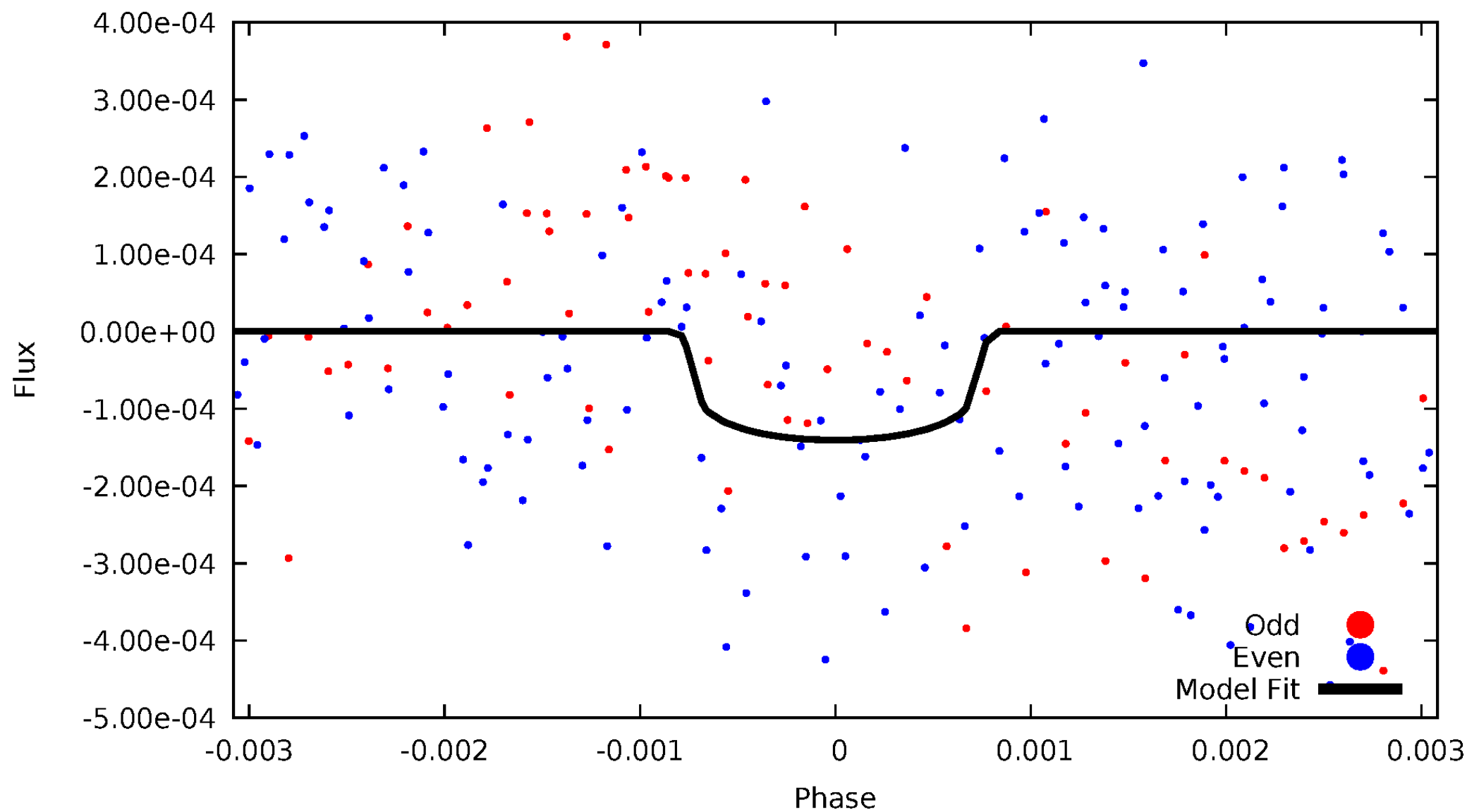


TCE 004733003-02



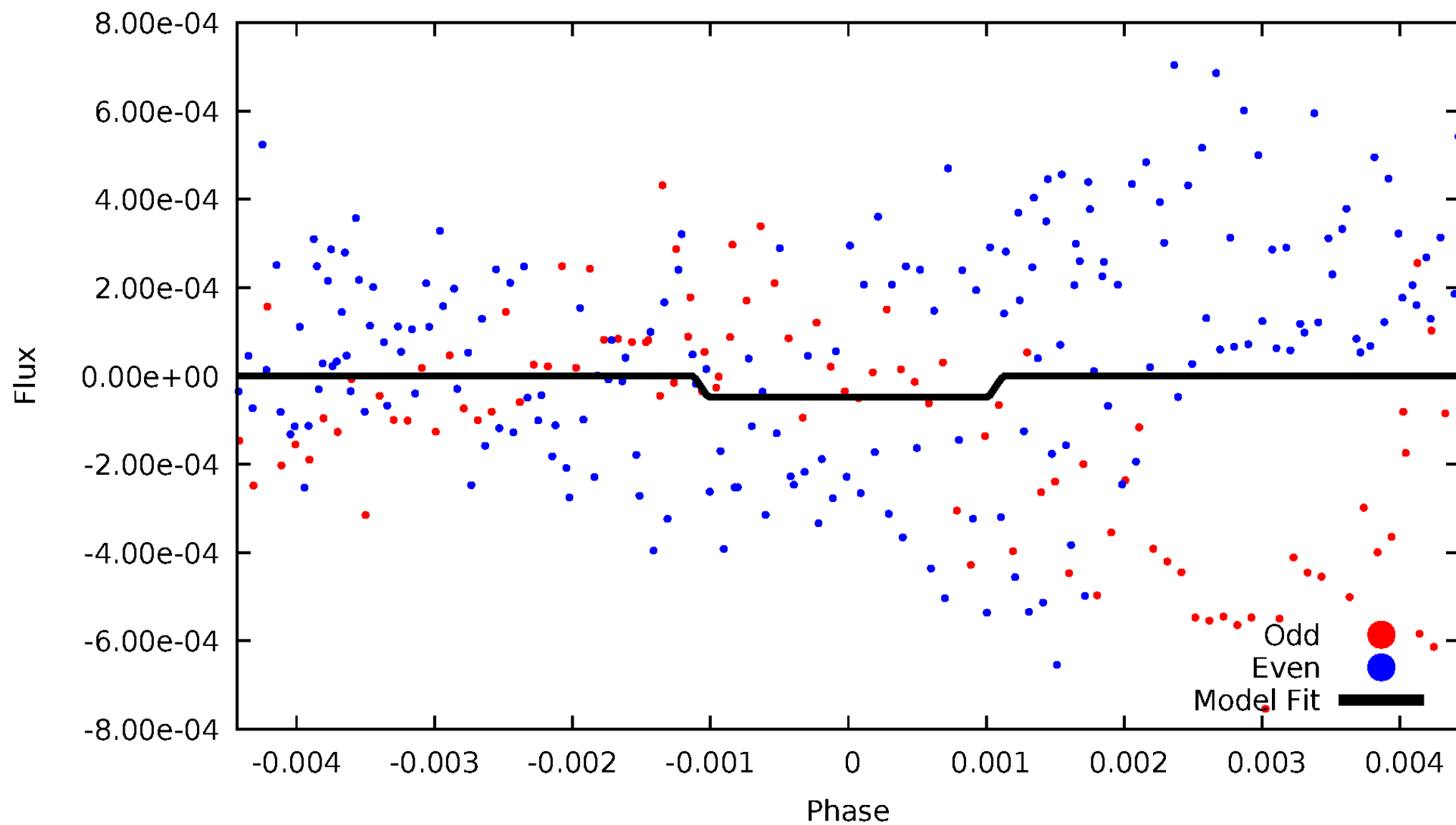
DV Odd/Even

TCE 004733003-02



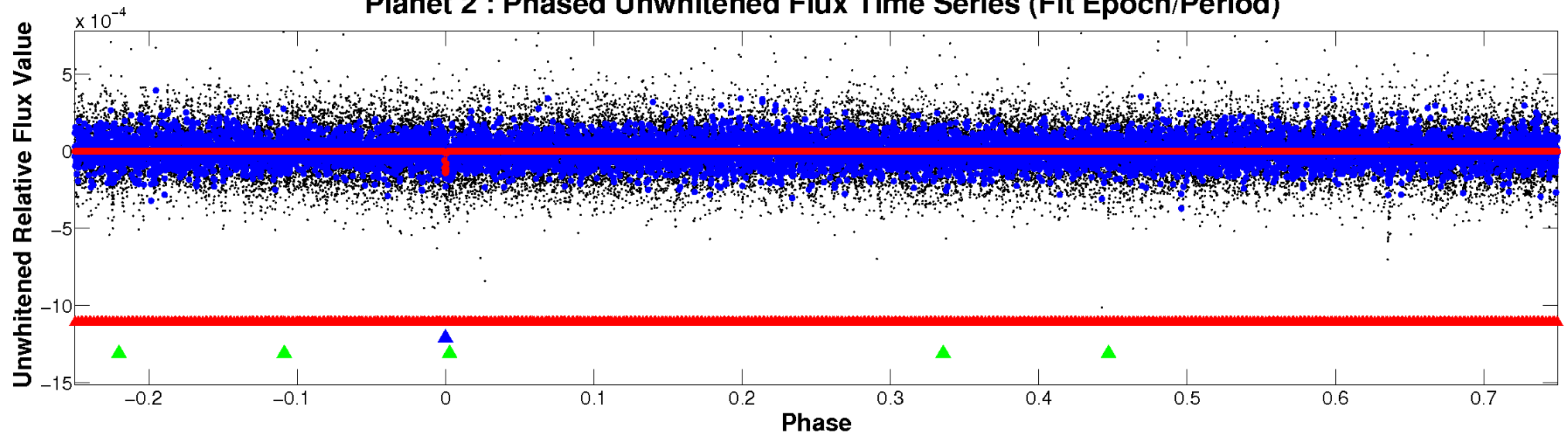
ALT Odd/Even

TCE 004733003-02

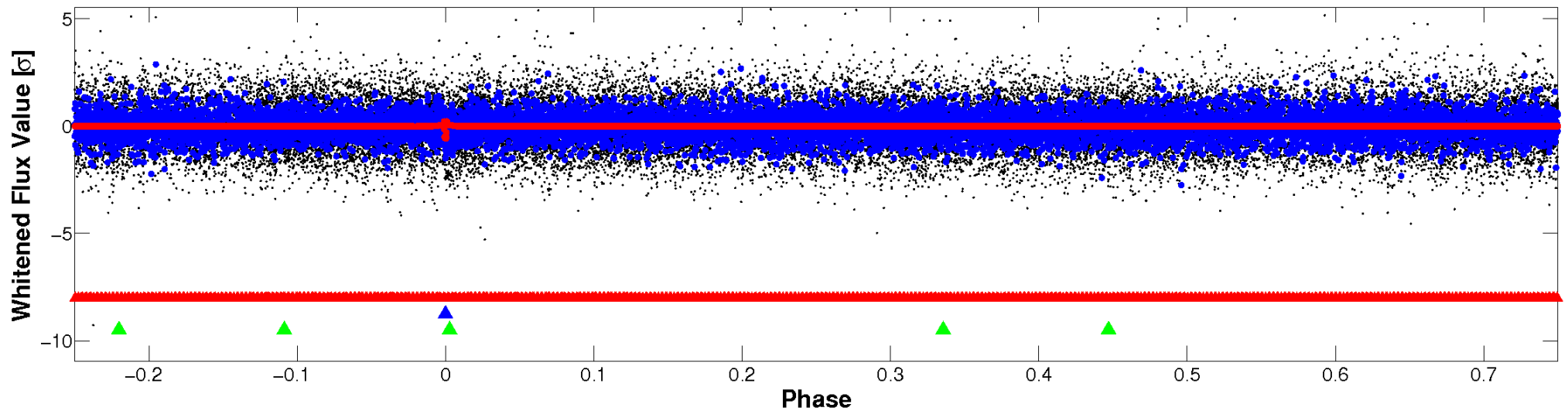


Non-Whitened Vs. Whitened Light Curve

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

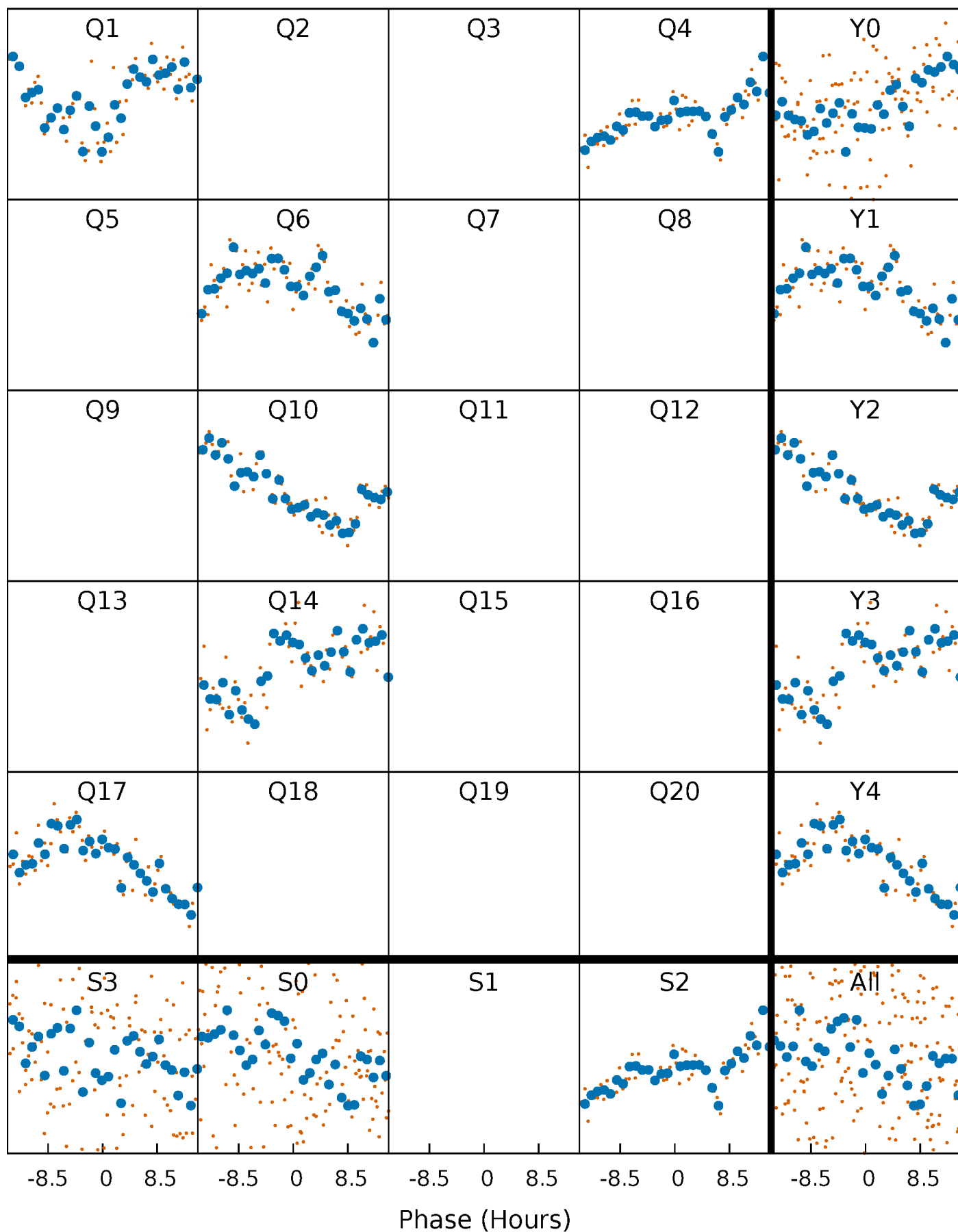


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



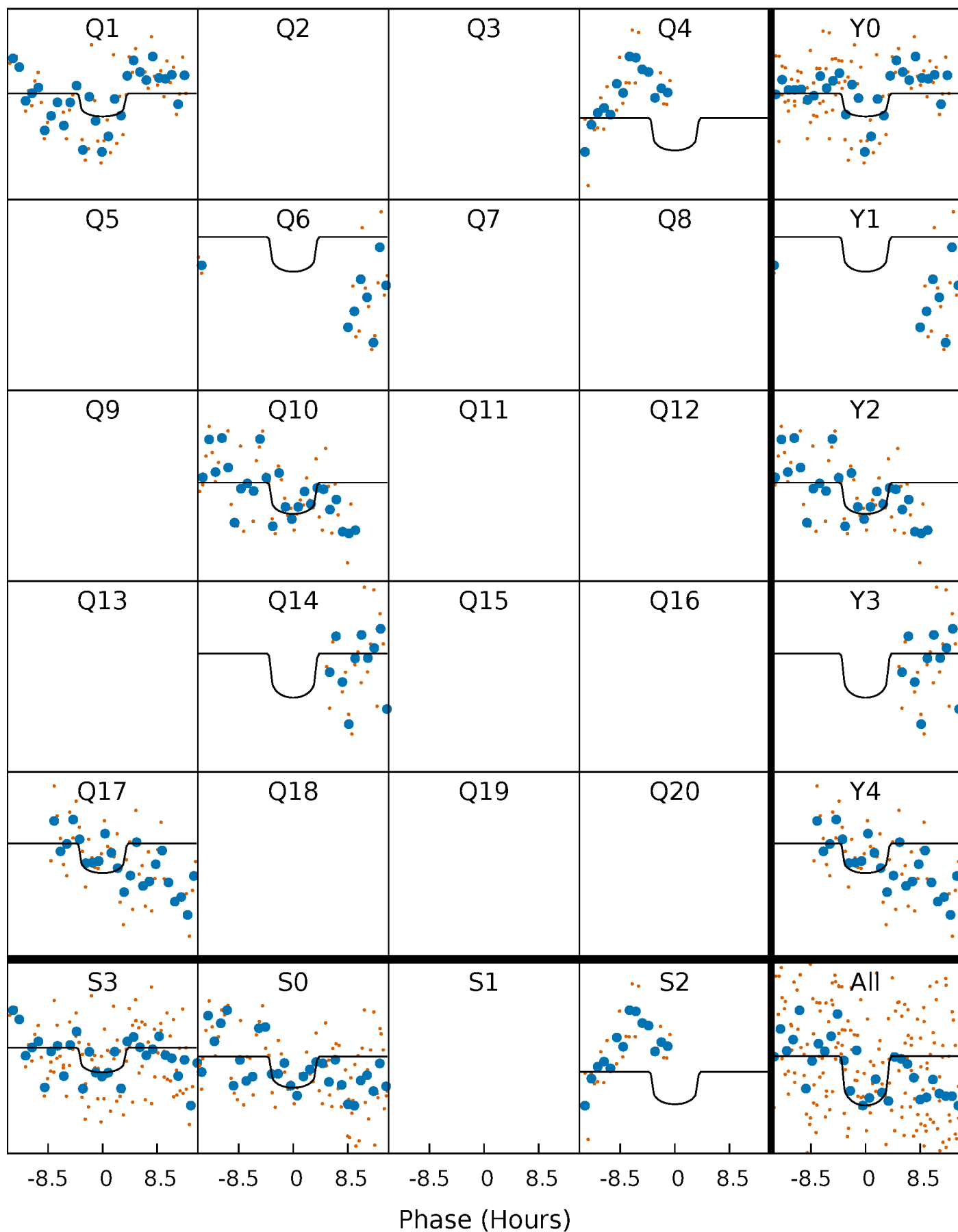
PDC Quarter-Phased Transit Curves

TCE 004733003-02 P=201.001641 Days $T_0=159.007169$ (BKJD)



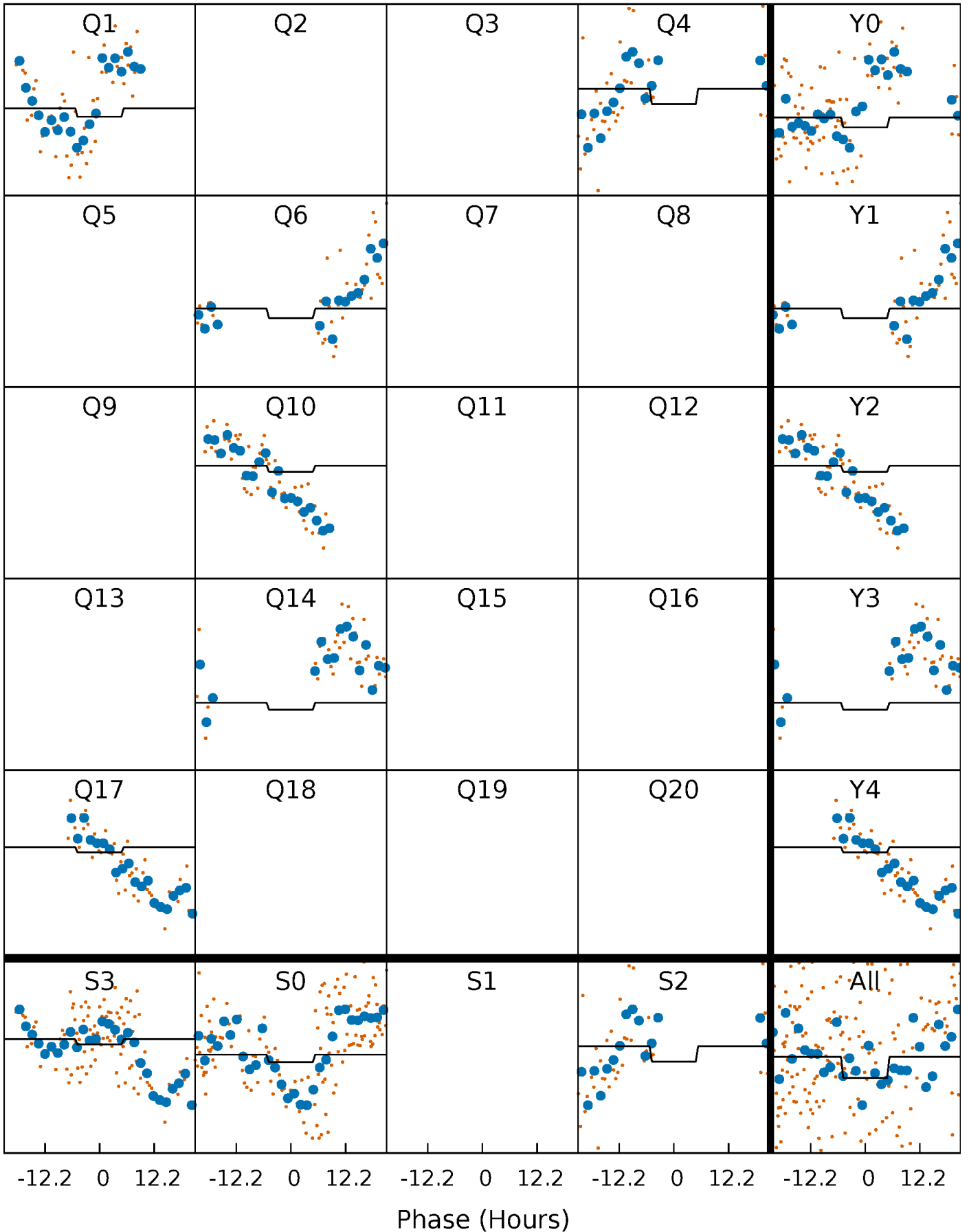
DV Quarter-Phased Transit Curves

TCE 004733003-02 P=201.001641 Days $T_0=159.007169$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

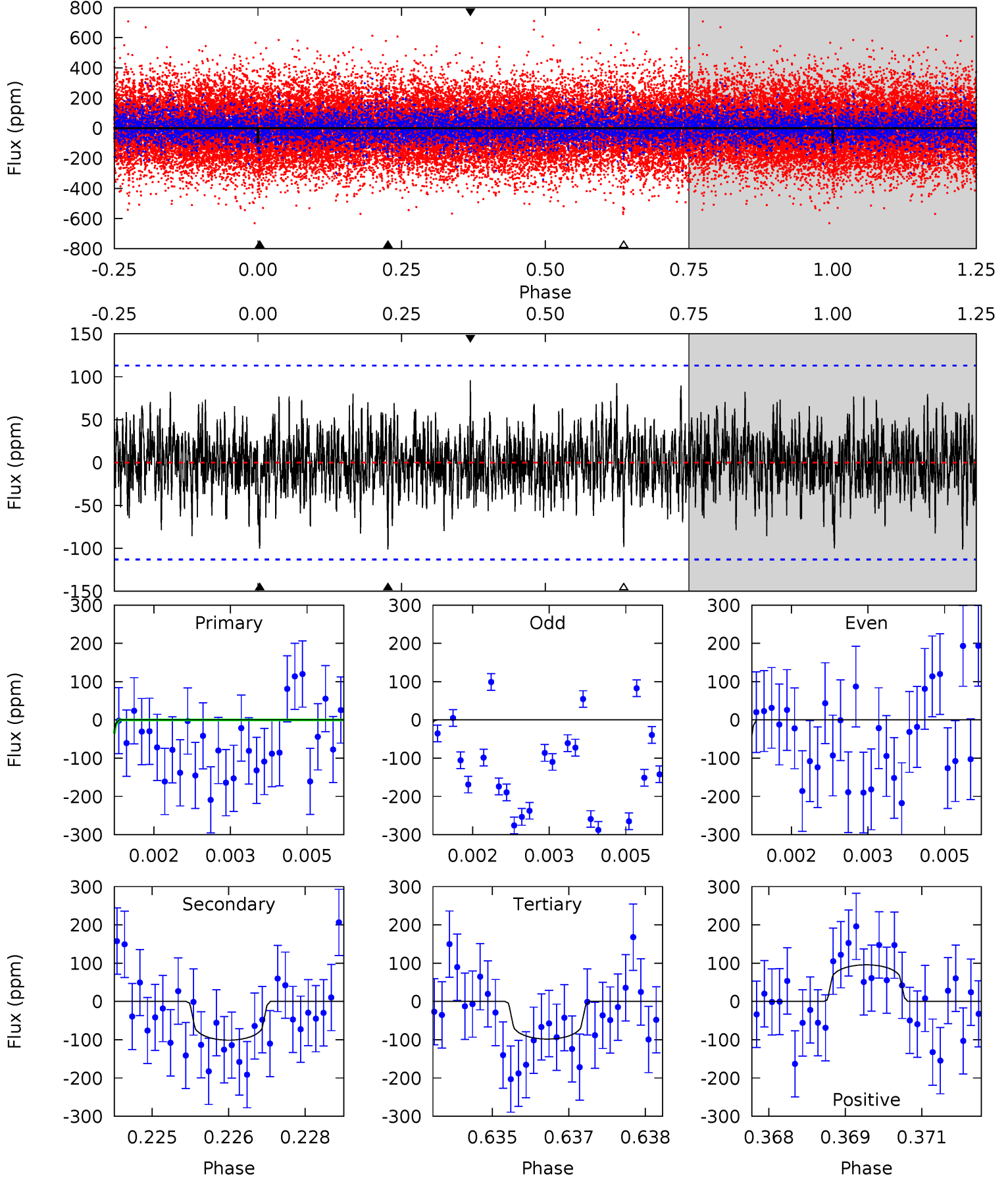
TCE 004733003-02 P=200.970874 Days $T_0=159.178652$ (BKJD)



DV Model-Shift Uniqueness Test

004733003-02, P = 201.001641 Days, E = 159.007169 Days

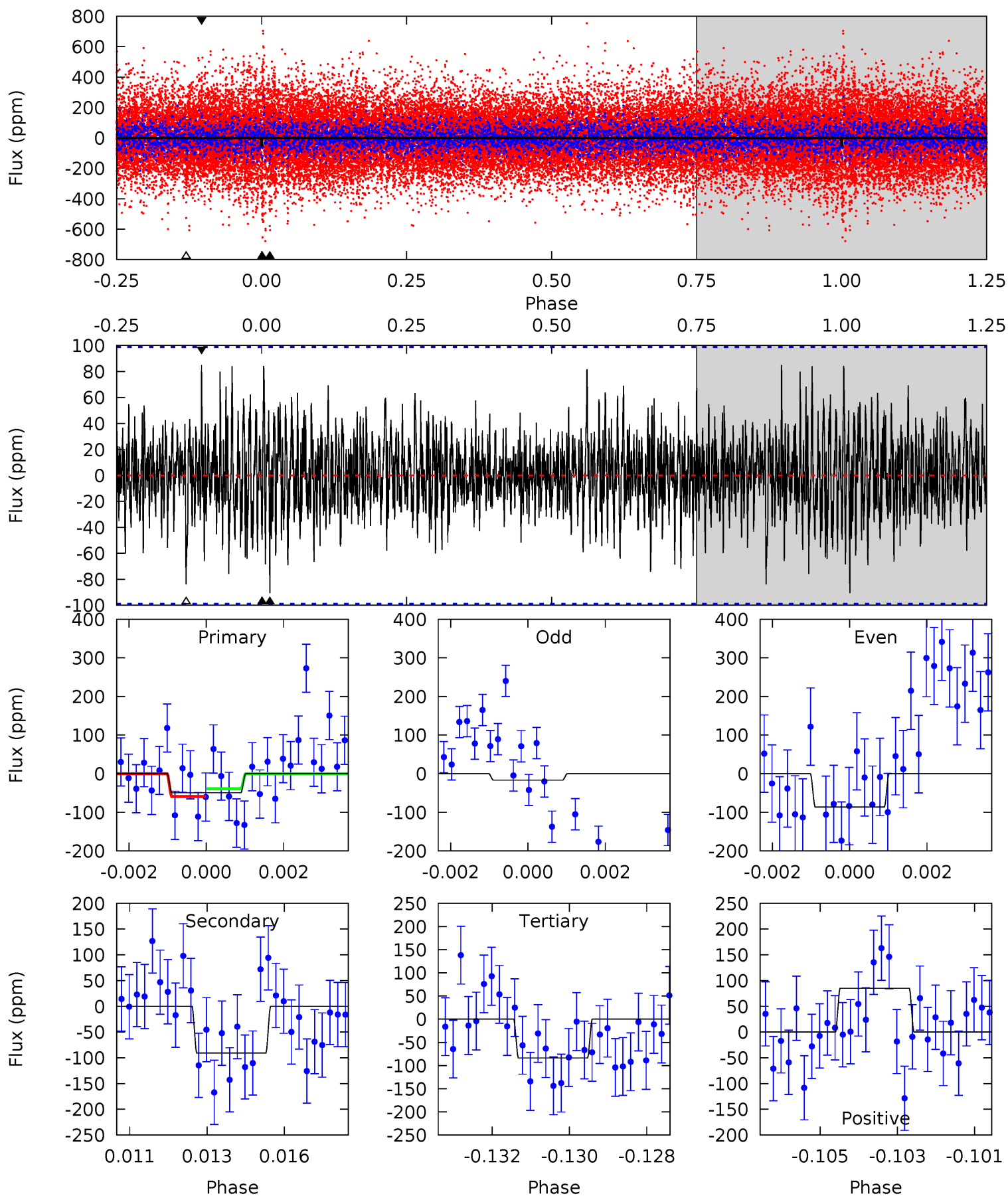
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.63	4.81	4.67	4.55	5.37	3.17	1.28	-0.05	0.07	0.13	0.26	3.03	0.71	0.49	0.99



Alt Model-Shift Uniqueness Test

004733003-02, P = 200.970874 Days, E = 159.178652 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.66	4.87	4.50	4.56	5.31	3.06	1.30	-1.84	-1.91	0.37	0.31	1.80	-2.02	0.48	0.55



Stellar Parameters For KIC 004733003

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5587^{+194}_{-194}	$3.441^{+0.884}_{-0.156}$	$-0.340^{+0.350}_{-0.300}$	$4.008^{+0.957}_{-2.871}$	$1.619^{+0.188}_{-0.753}$	$0.035^{+0.937}_{-0.016}$
	+3%/-3%	+26%/-5%	+103%/-88%	+24%/-72%	+12%/-47%	+2645%/-45%
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 004733003-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-101±21	$5.15^{+5.02}_{-3.21}$	746^{+79}_{-153}	4785^{+2463}_{-947}	1278^{+7858}_{-959}
Alt.	-91±19	$3.92^{+4.59}_{-2.89}$	754^{+73}_{-139}	5230^{+5872}_{-1188}	1975^{+23568}_{-1563}

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

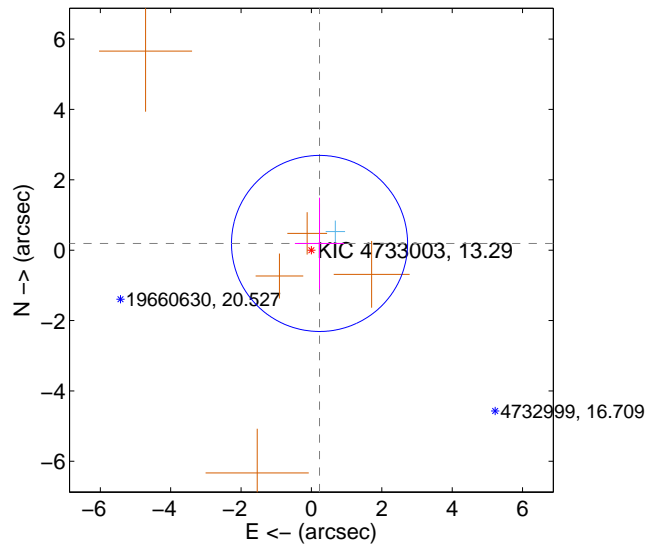
Supplemental centroid analysis for 004733003-02. Kepler magnitude: 13.29. Transit SNR 3.78

There are 1 quarters with good PRF difference image offsets

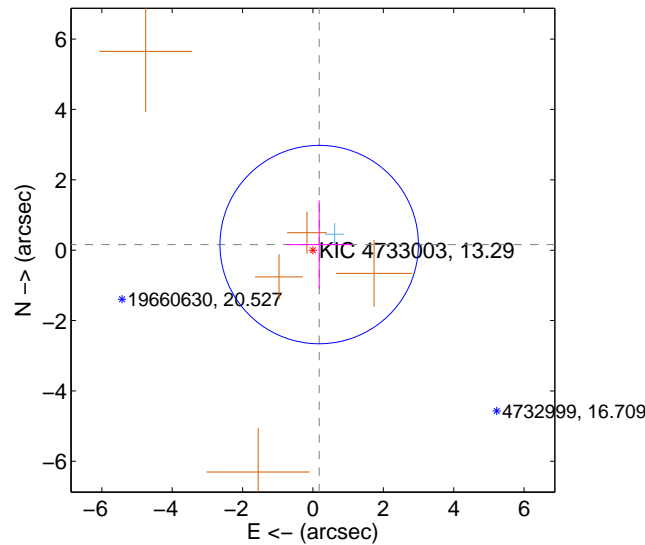
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.299 ± 0.834	0.36	-0.230 ± 0.702	0.191 ± 1.302
PRF-fit source offset from KIC position	0.238 ± 0.940	0.25	-0.176 ± 0.923	0.159 ± 1.254
photometric centroid source offset	1.02 ± 1.57	0.65	0.20 ± 1.40	1.00 ± 1.58

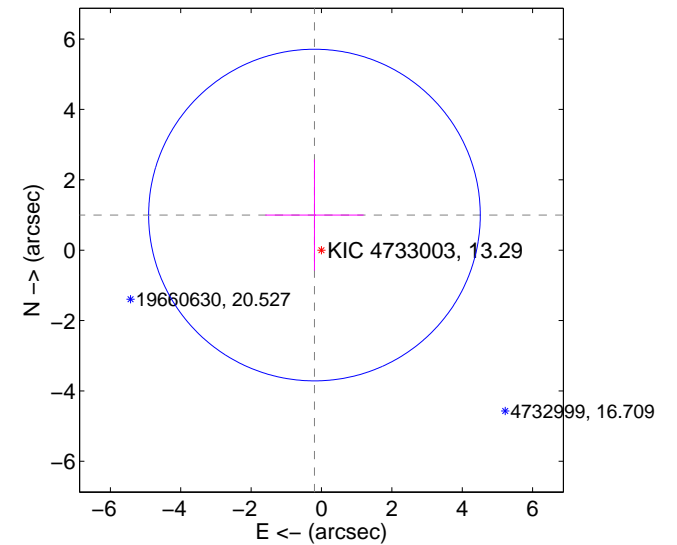
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

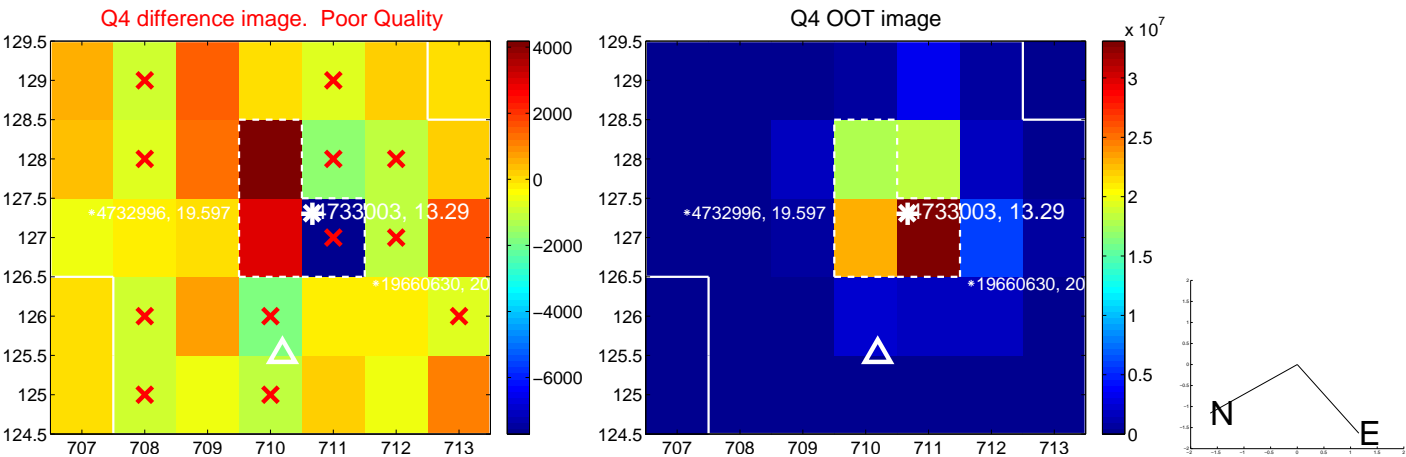
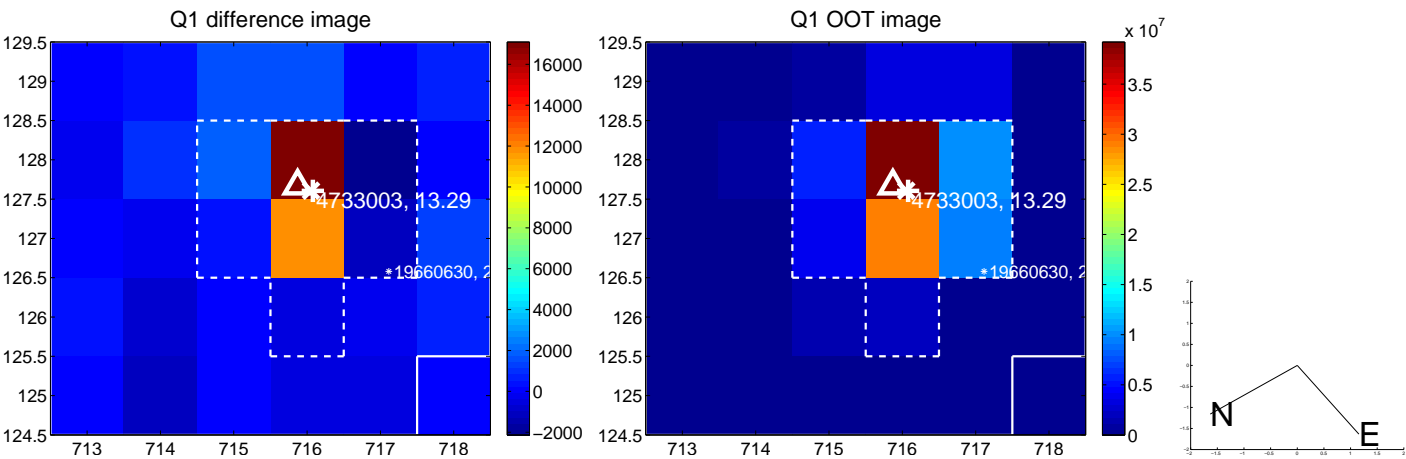


offset from photometric centroids

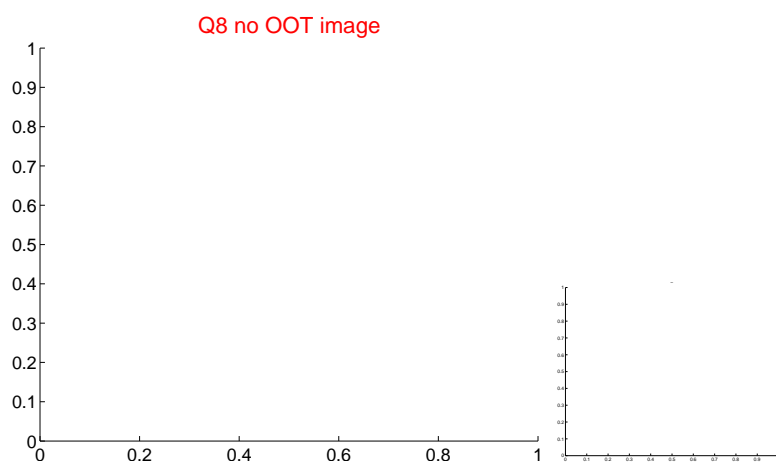
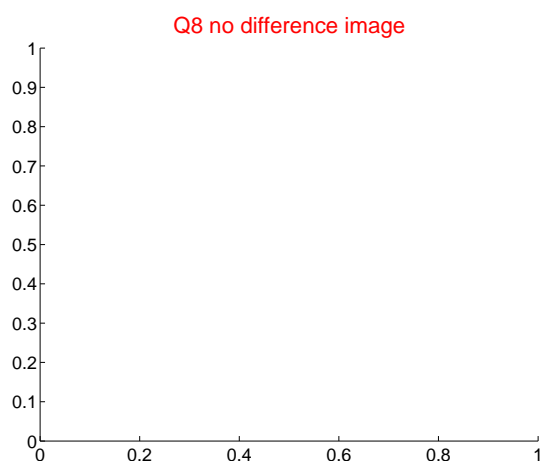
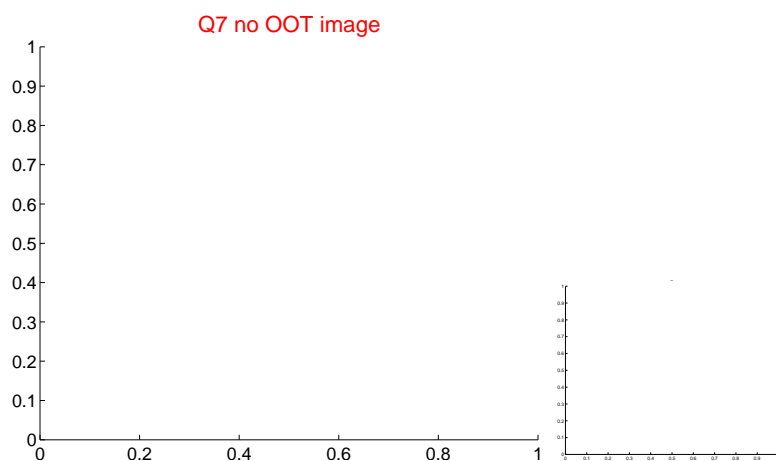
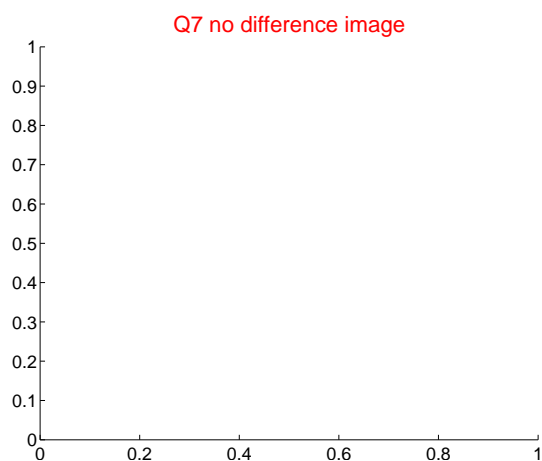
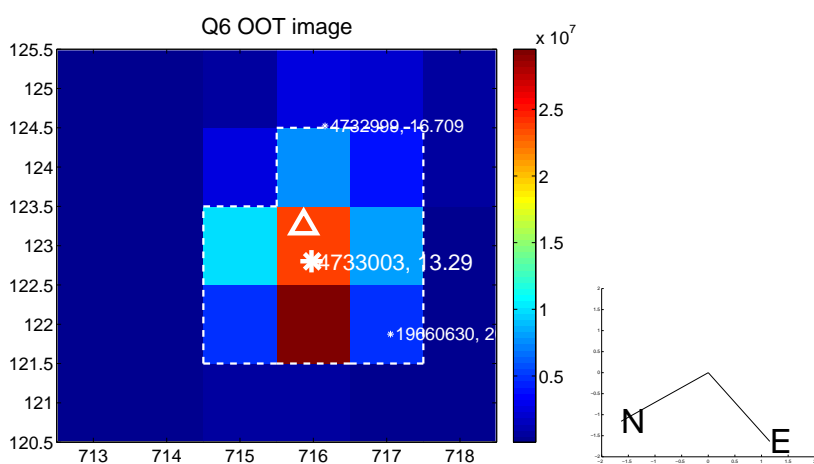
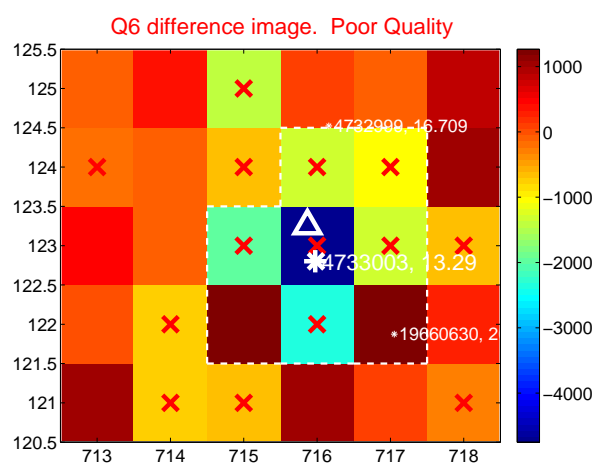
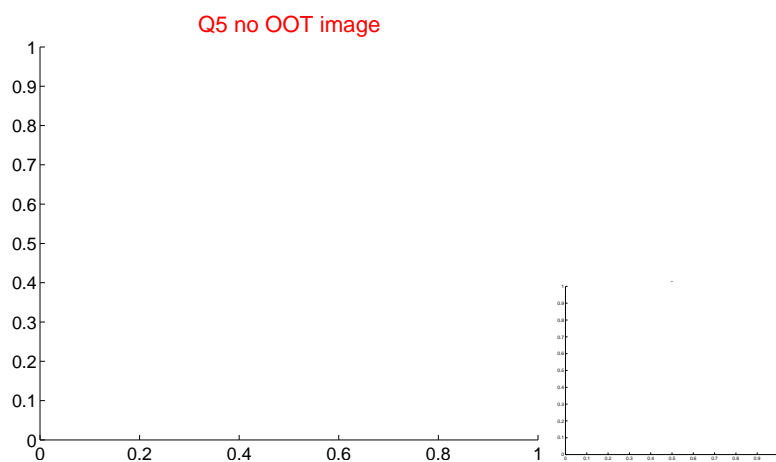
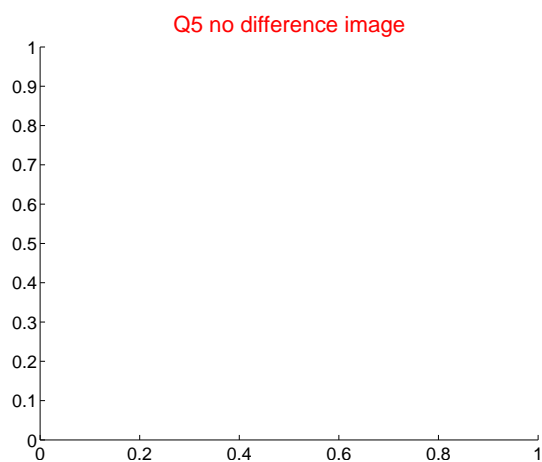


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

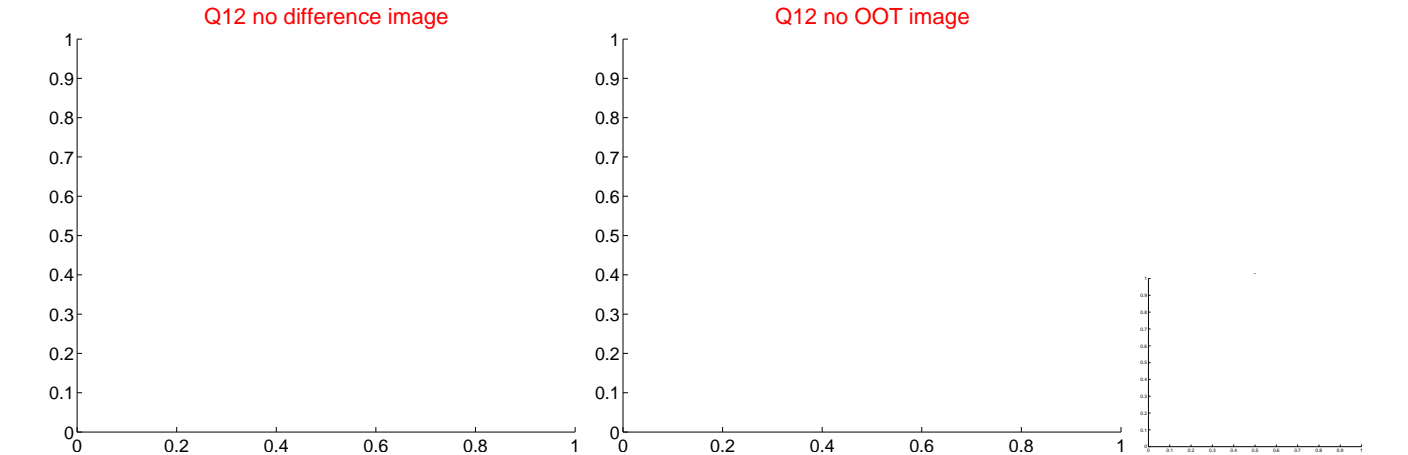
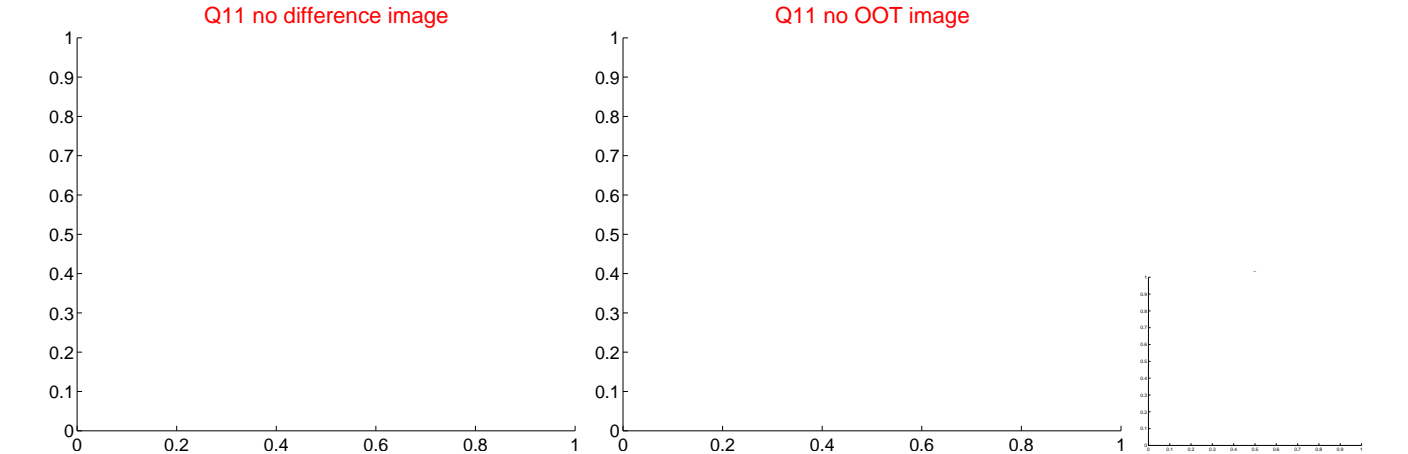
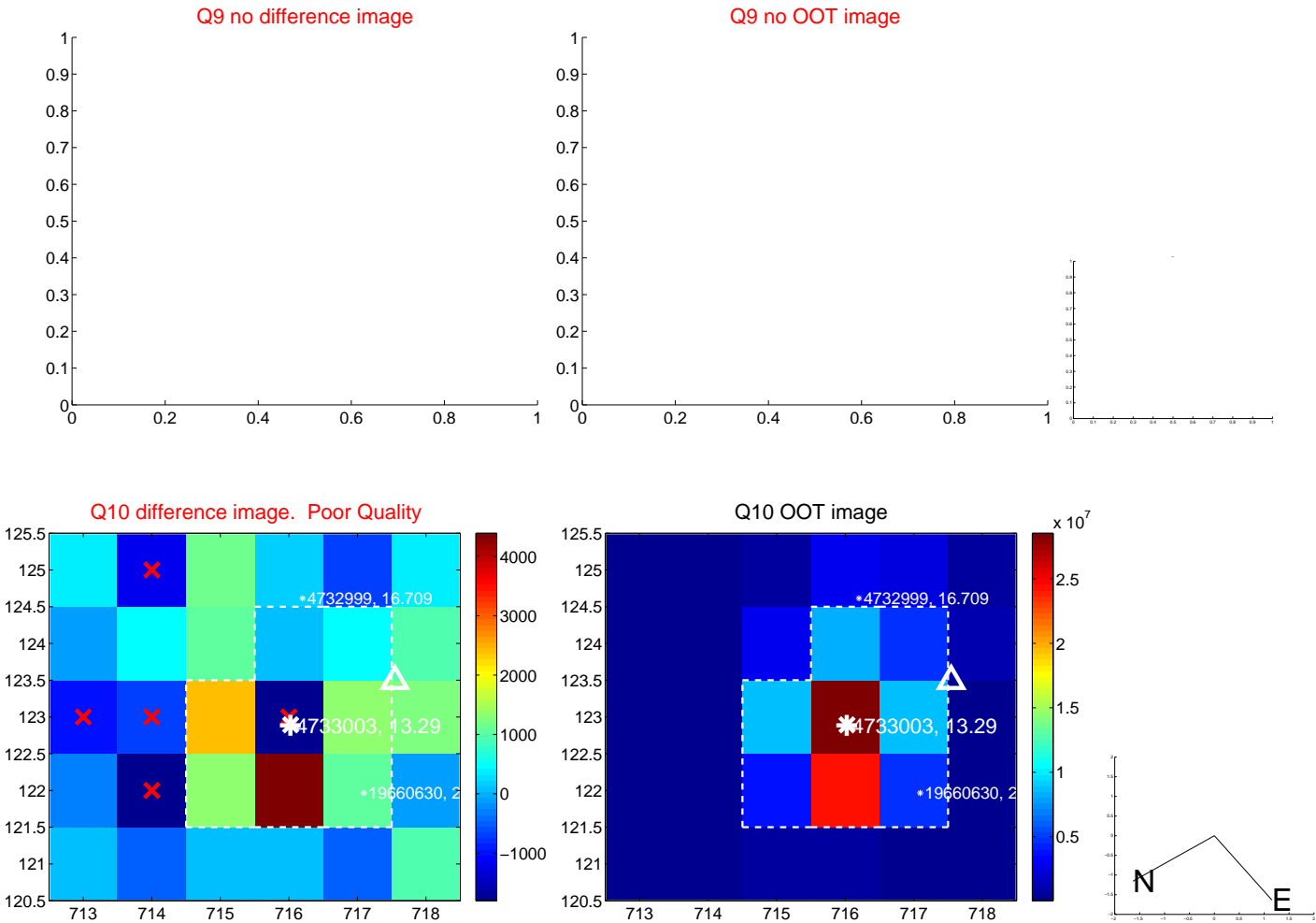
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



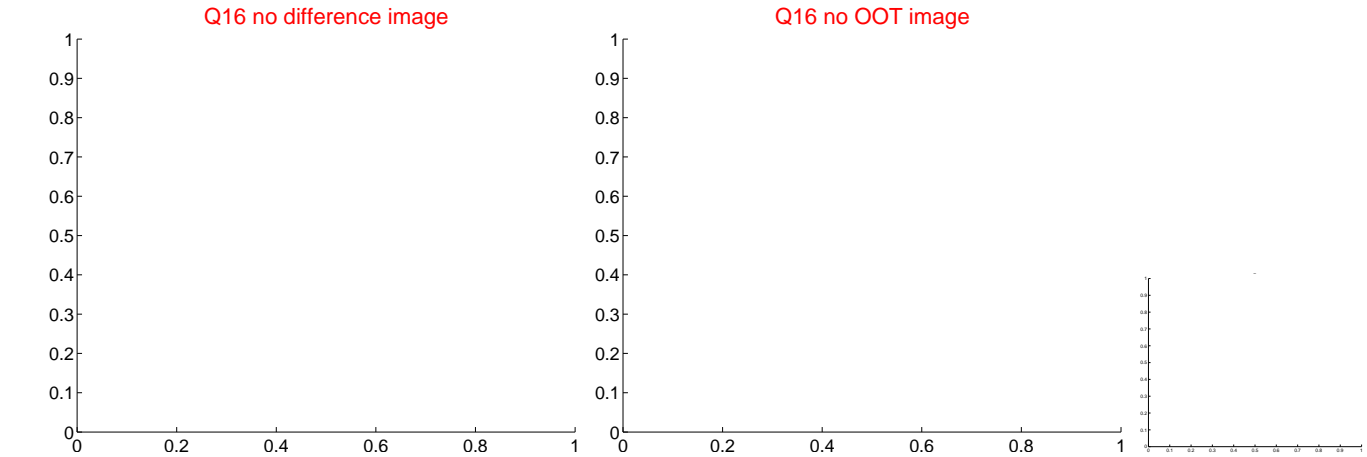
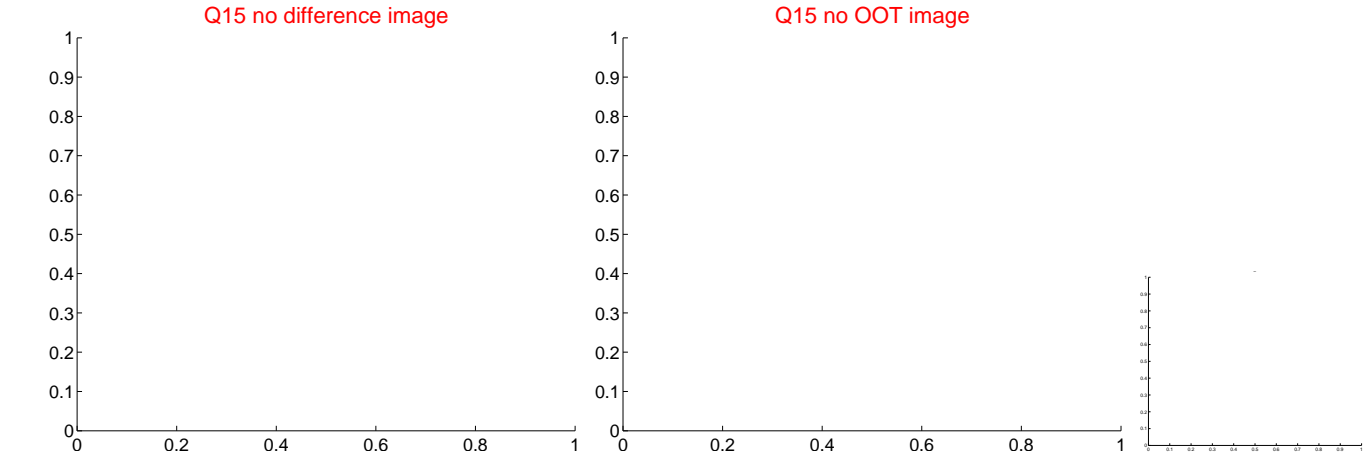
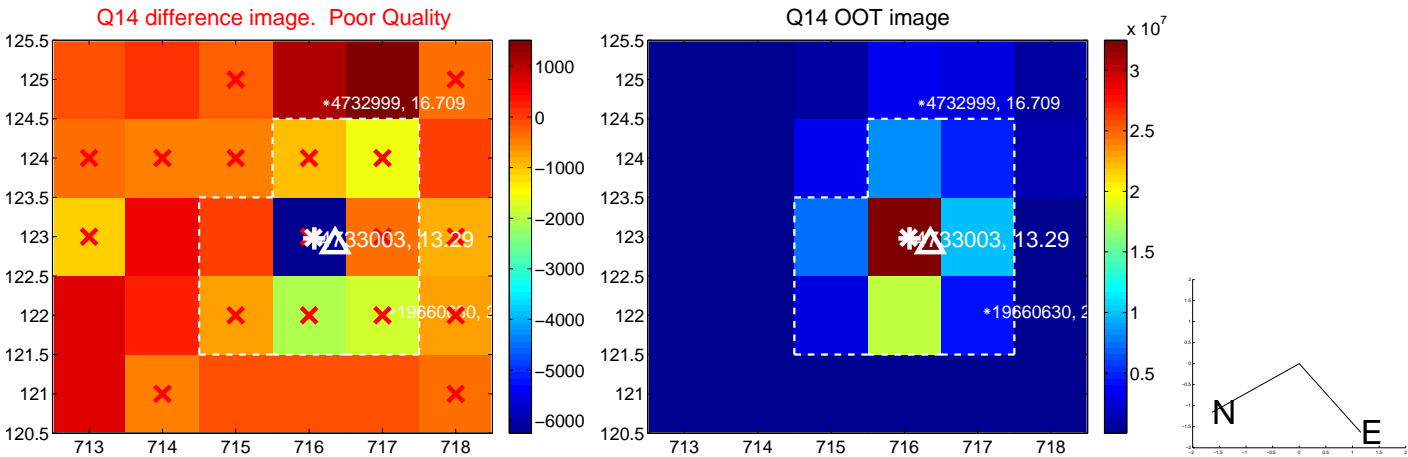
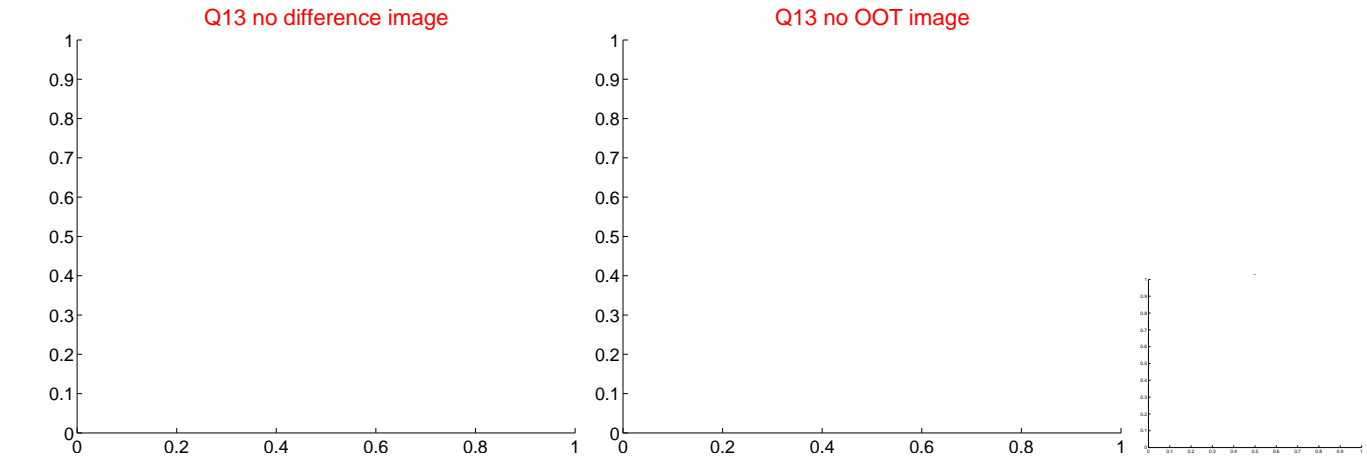
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



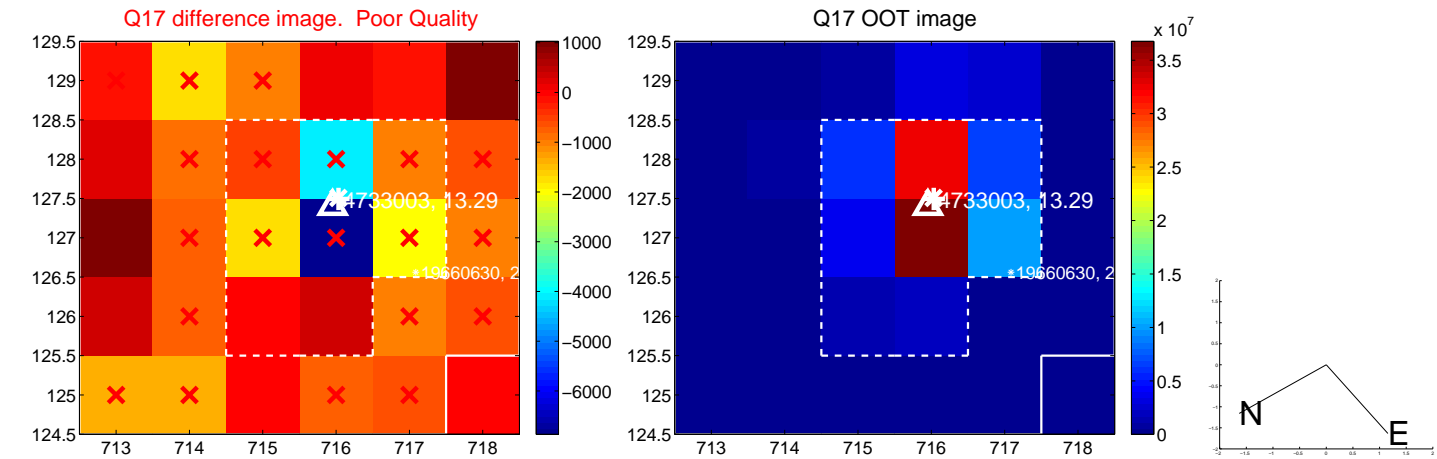
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



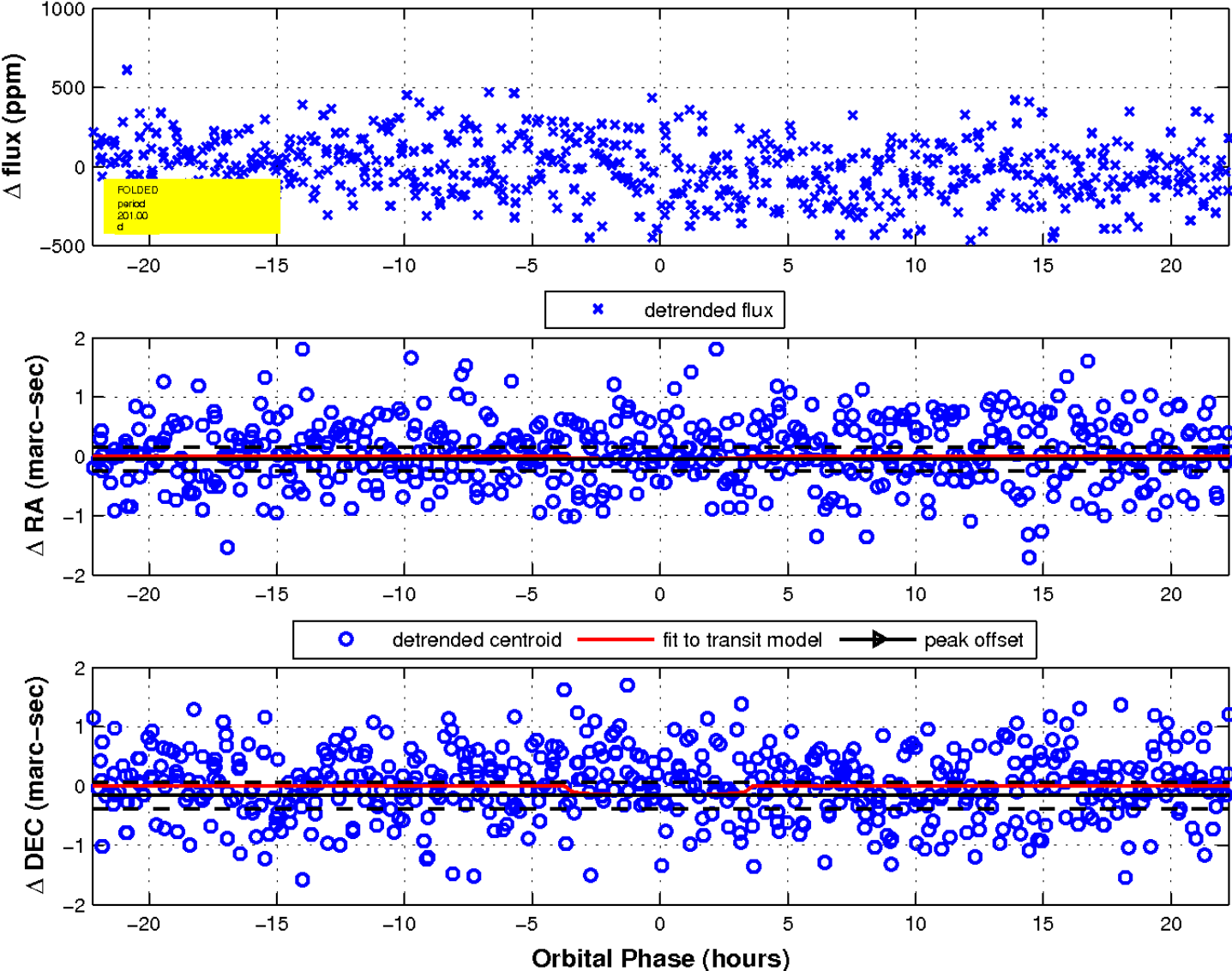
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

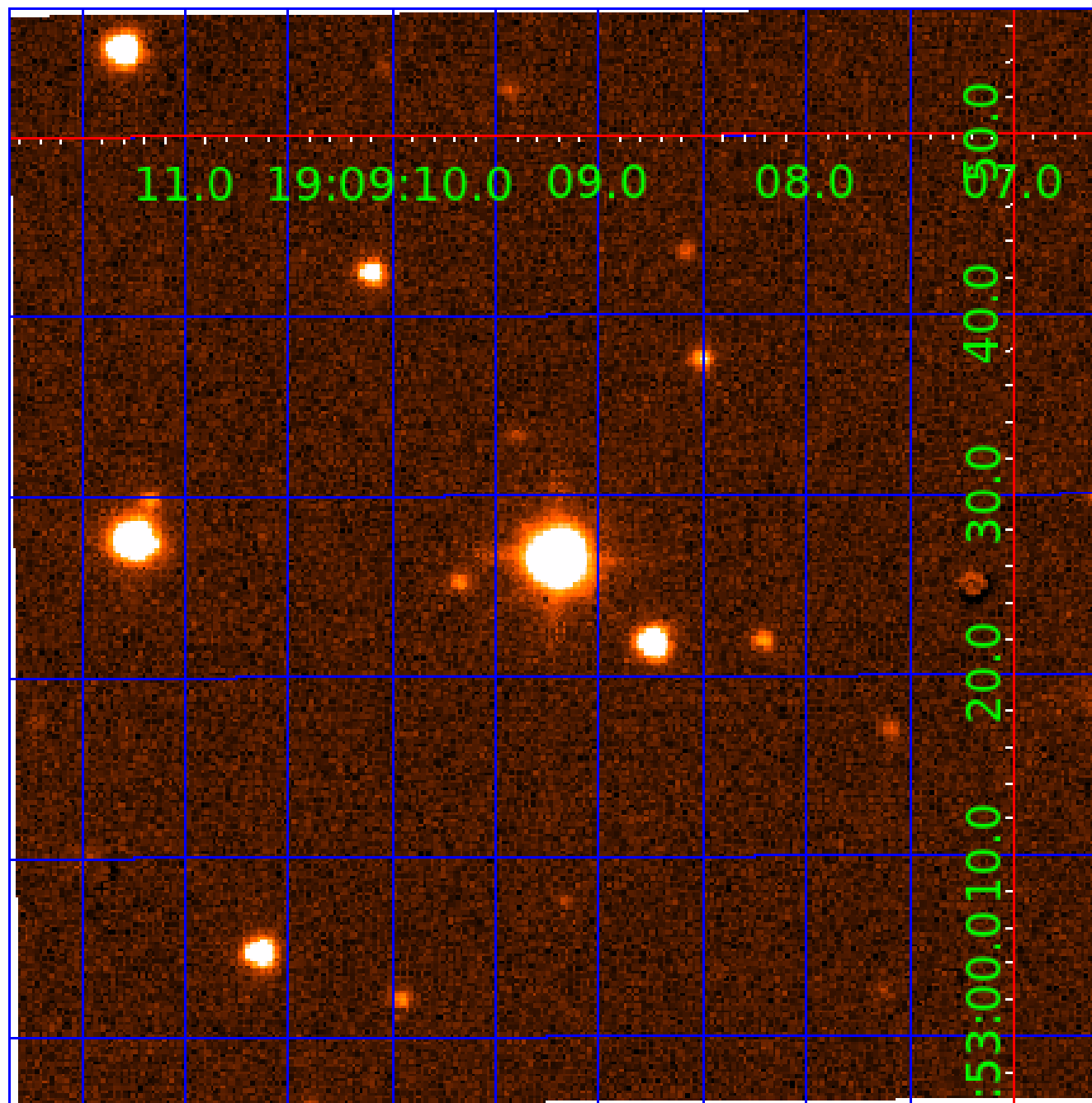


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 004733003

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})
004733003-01	OBS	No	2.109863	132.597602	28.9	7.445	9.2	9.6	4.01	5587	2.54	9814.96
004733003-02	OBS	No	201.001641	159.007169	140.8	7.430	7.9	3.8	4.01	5587	5.42	22.56
004733003-03	OBS	No	312.705376	315.758720	380.9	4.185	8.1	8.4	4.01	5587	9.01	12.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004733003-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT
004733003-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004733003-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

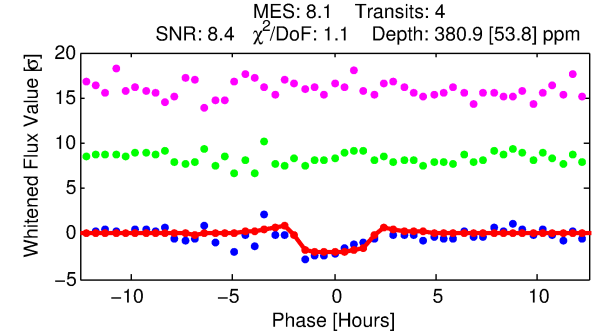
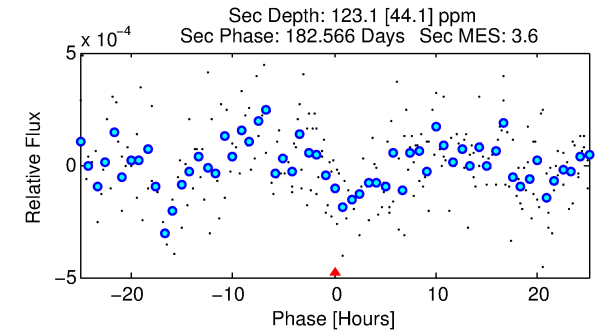
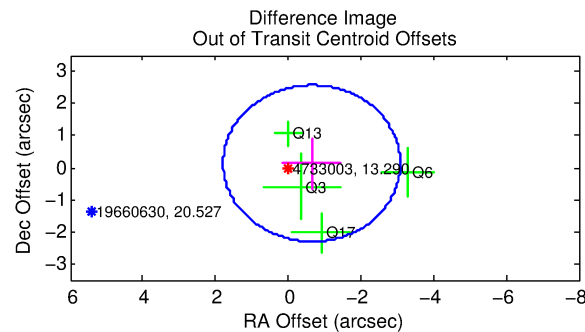
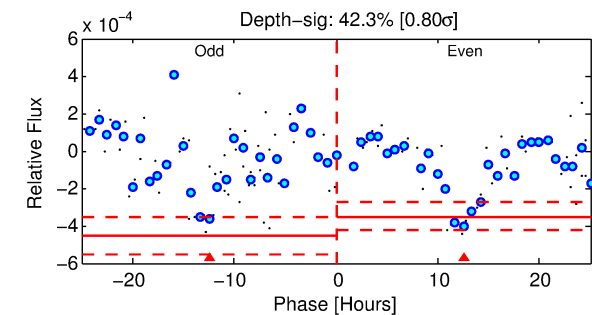
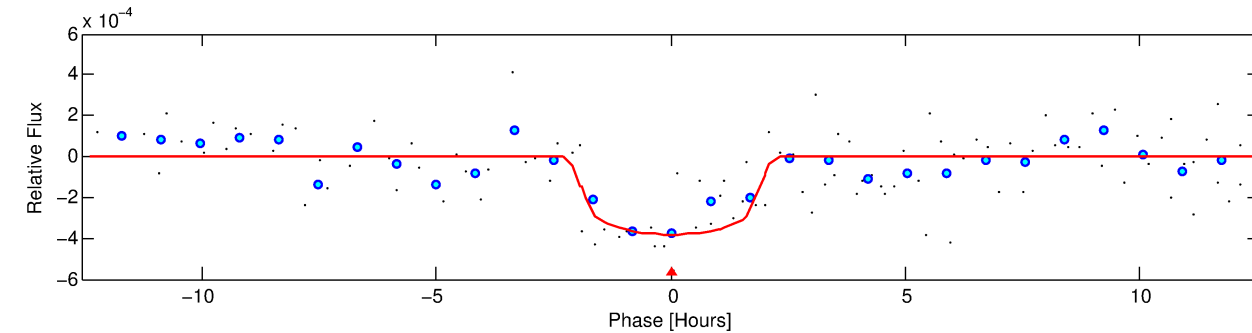
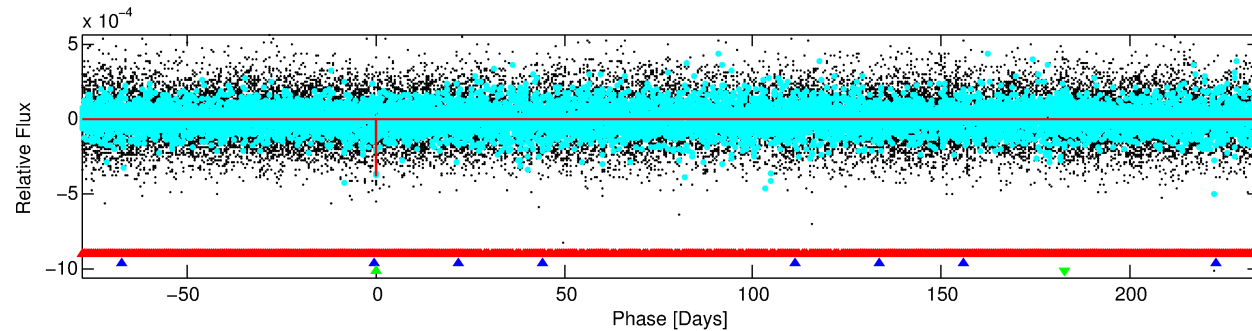
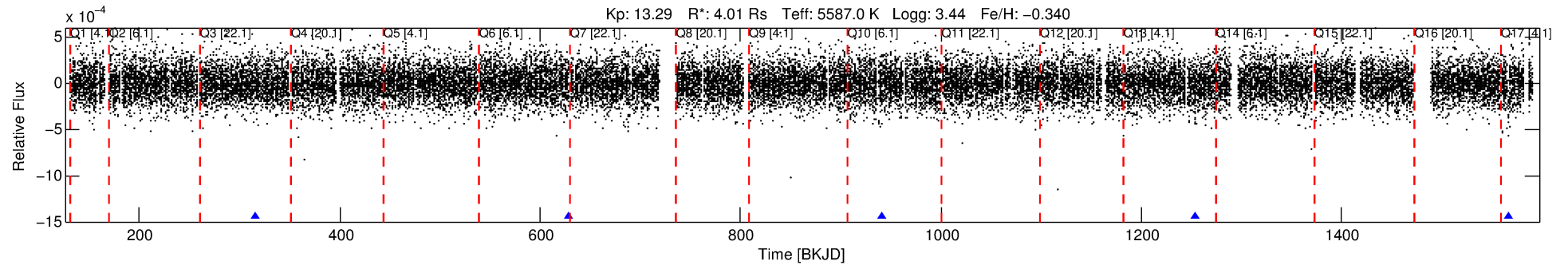
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004733003-03

No Significant Match Found

DV One-Page Summary

KIC: 4733003 Candidate: 3 of 3 Period: 312.705 d



DV Fit Results:

Period = 312.70538 [0.00381] d
Epoch = 315.7587 [0.0106] BKJD
Rp/R* = 0.0206 [0.0115]
a/R* = 310.07 [782.55]
b = 0.86 [0.76]
Seff = 12.51 [18.09]
Teq = 480 [173] K
Rp = 9.01 [8.17] Re
a = 1.0586 [0.8783] AU
Ag = 933.96 [1730.63] [0.54 σ]
Teffp = 4099 [1205] K [2.97 σ]

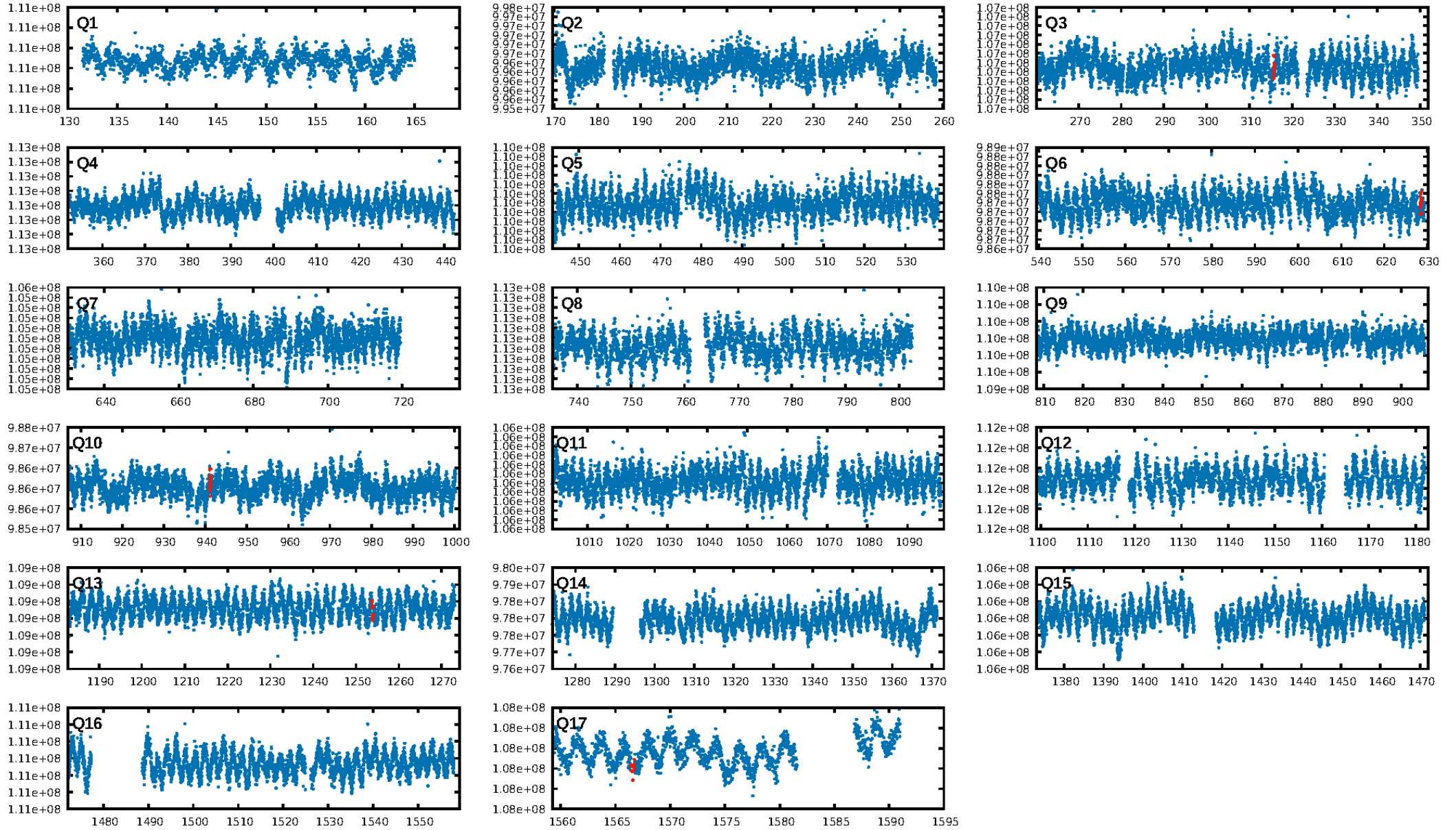
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [314.38 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 24.4%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 7.49e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.4185
Centroid-sig: 42.6%
Centroid-so: 0.570 arcsec [0.78 σ]
OotOffset-rm: 0.659 arcsec [0.81 σ]
OotOffset-st: 1/1/0/2 [4]
KicOffset-rm: 0.599 arcsec [0.73 σ]
KicOffset-st: 1/1/0/2 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.40 [2/5]

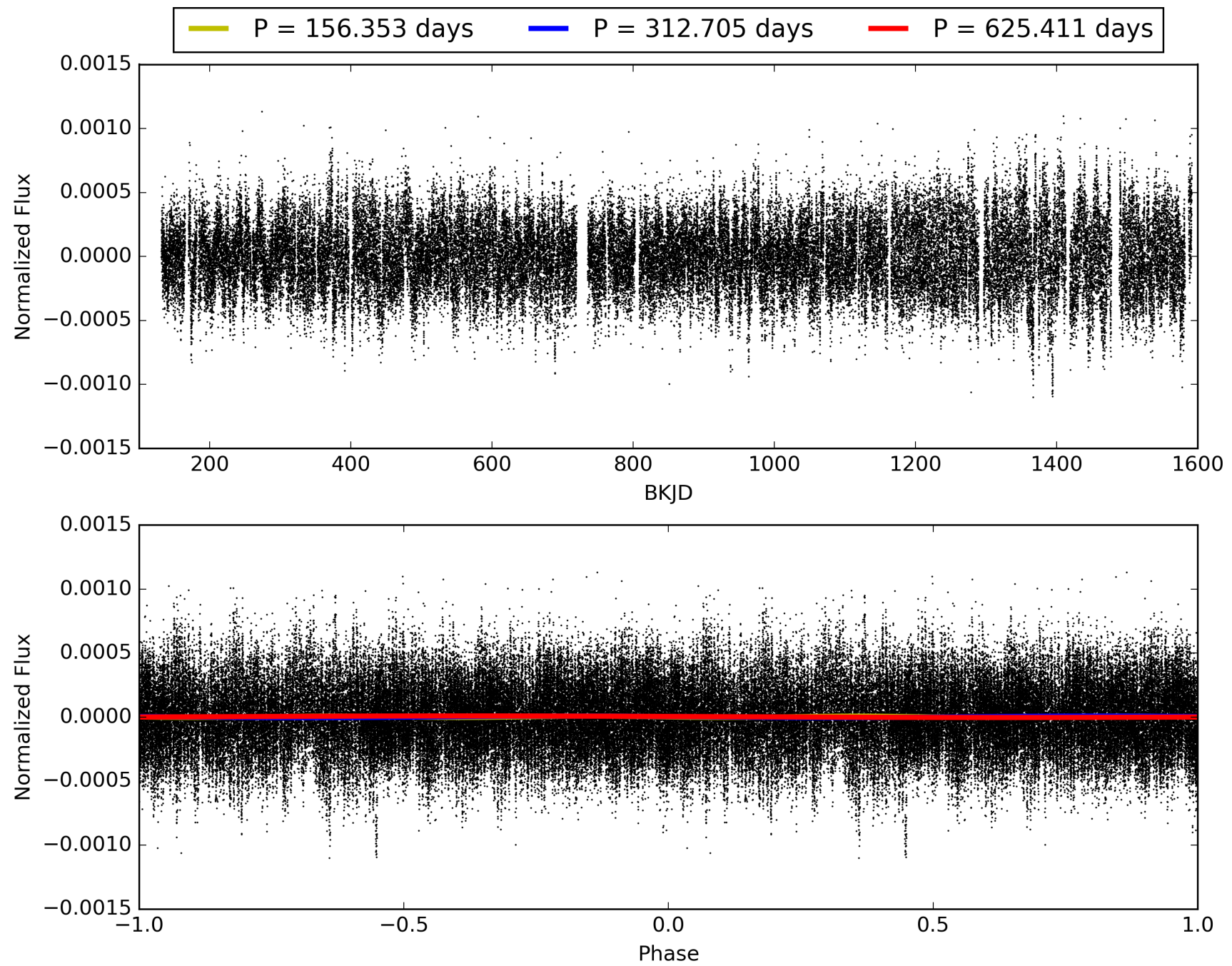
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:59:53 Z

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

TCE 004733003-03, PDC Light Curves

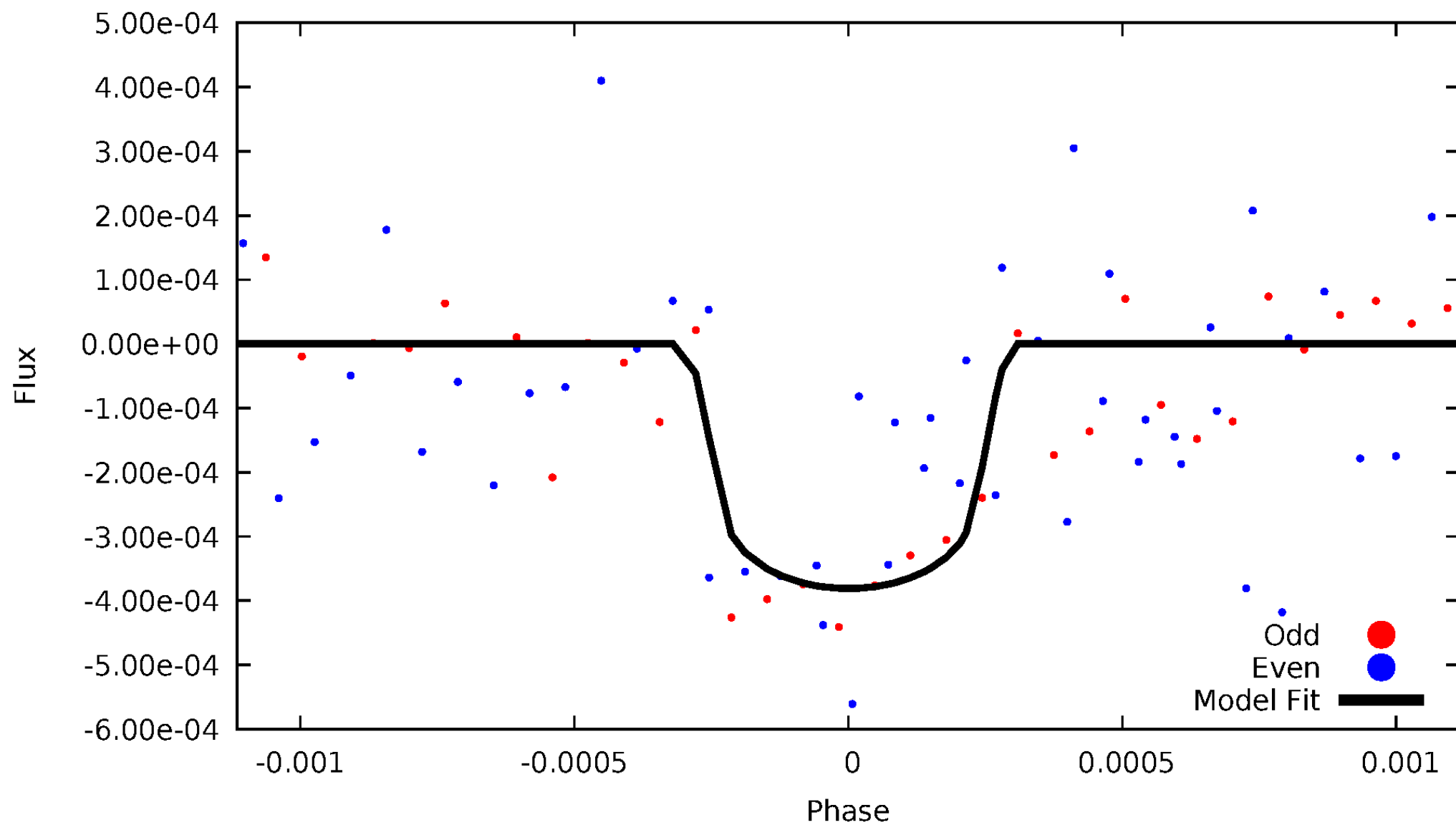


TCE 004733003-03



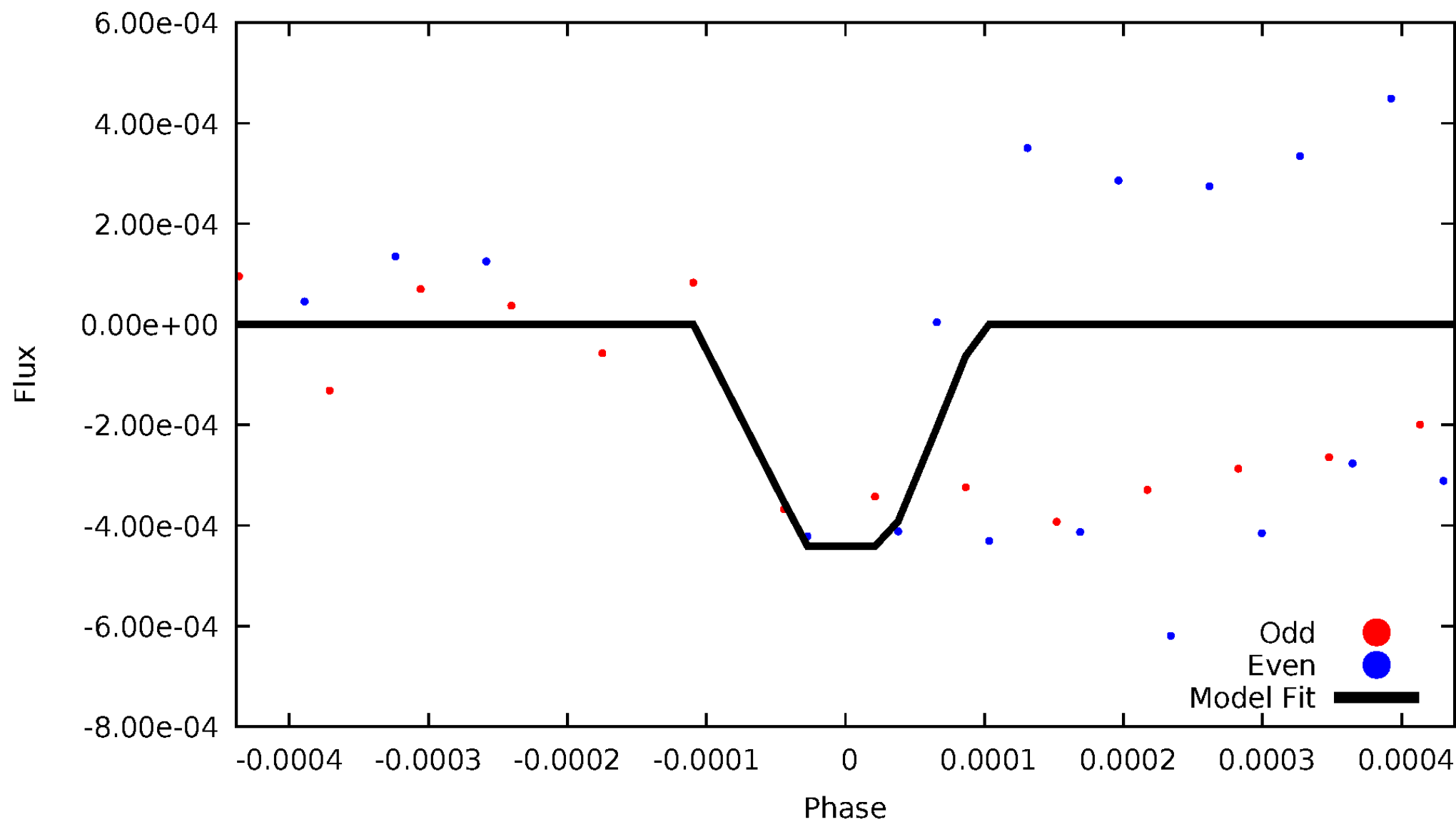
DV Odd/Even

TCE 004733003-03



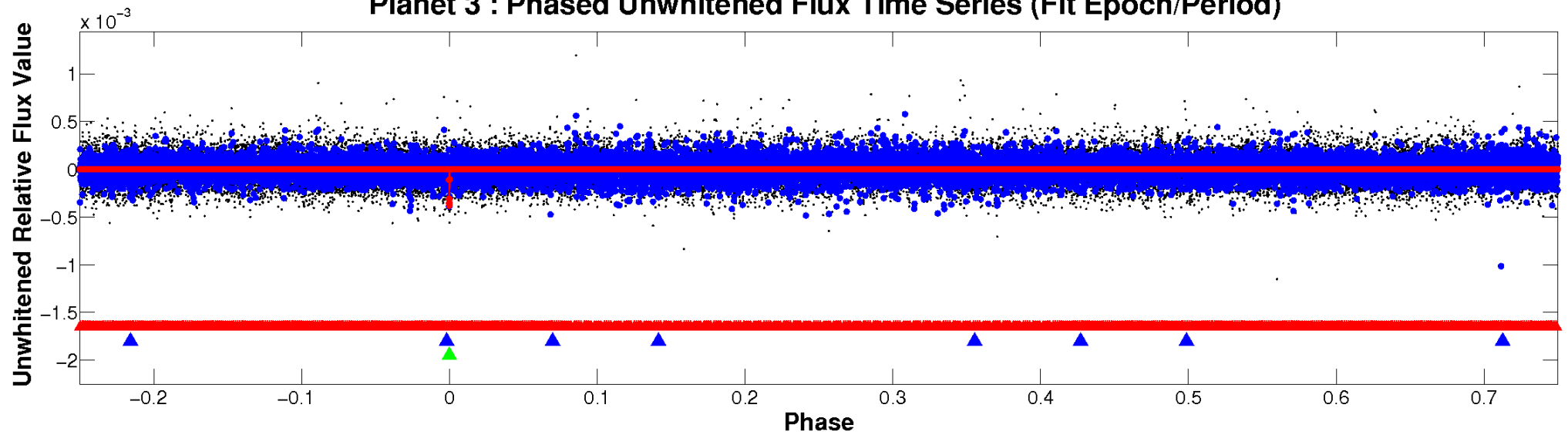
ALT Odd/Even

TCE 004733003-03

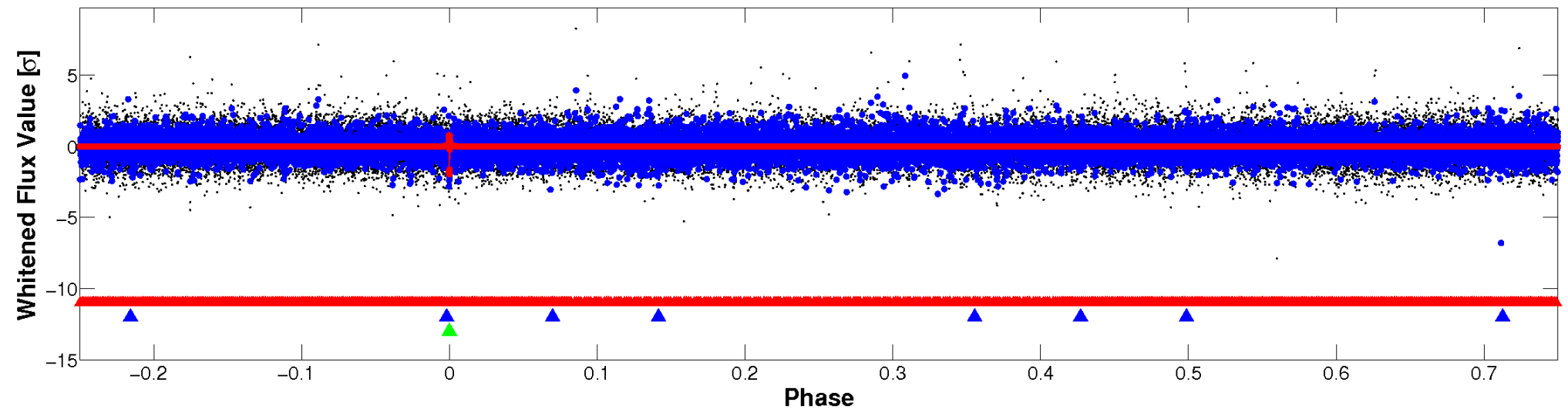


Non-Whitened Vs. Whitened Light Curve

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

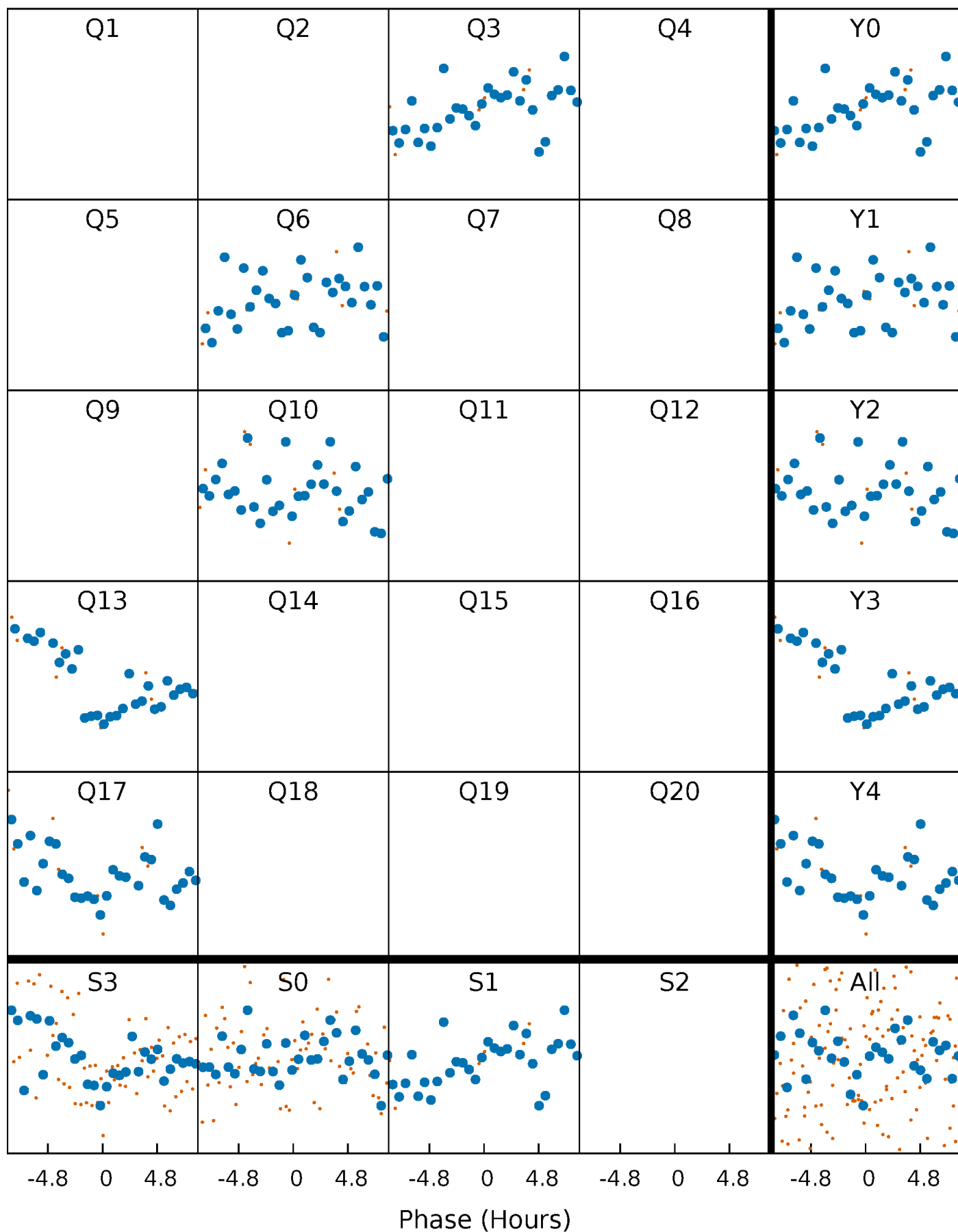


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



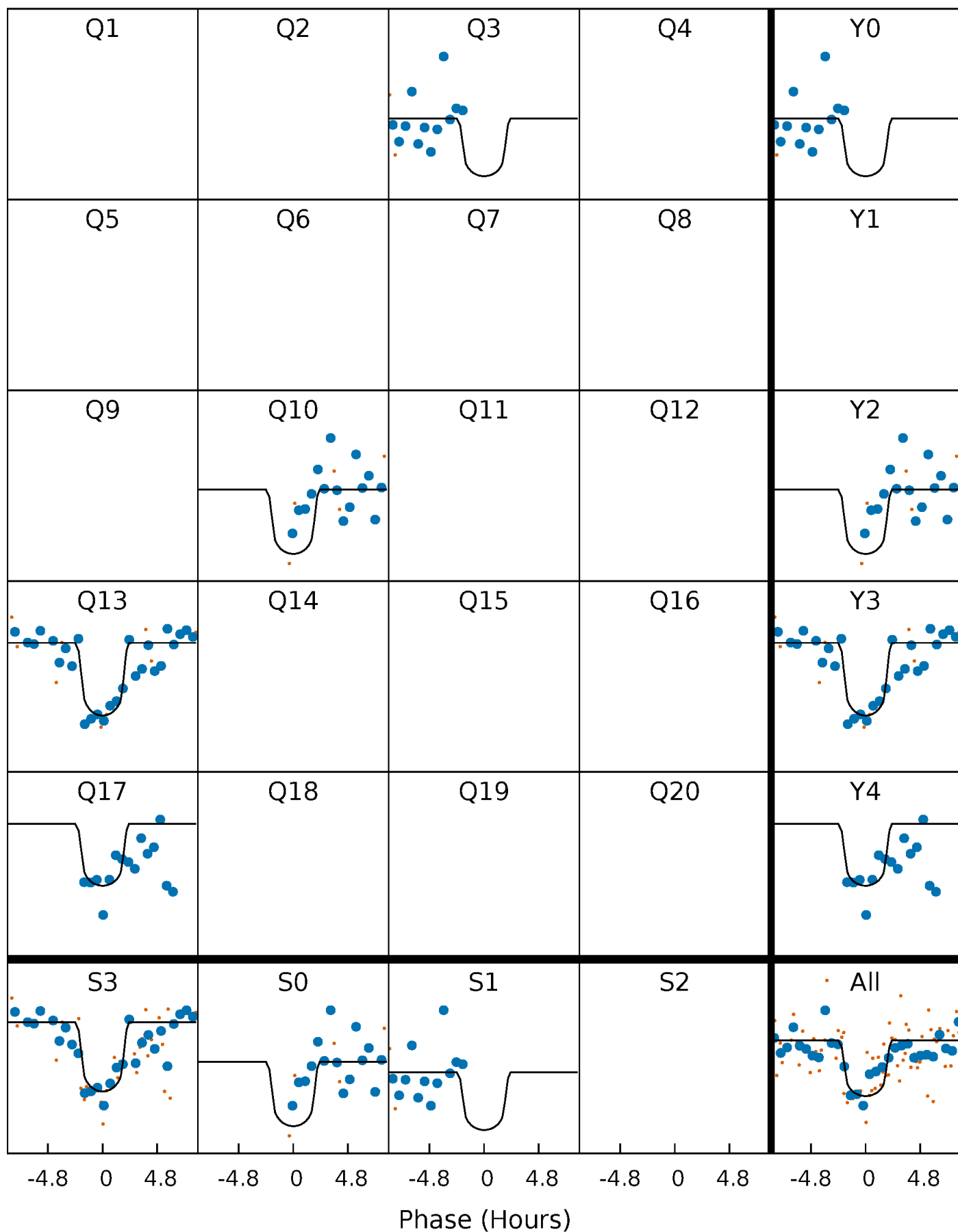
PDC Quarter-Phased Transit Curves

TCE 004733003-03 $P=312.705376$ Days $T_0=315.758720$ (BKJD)



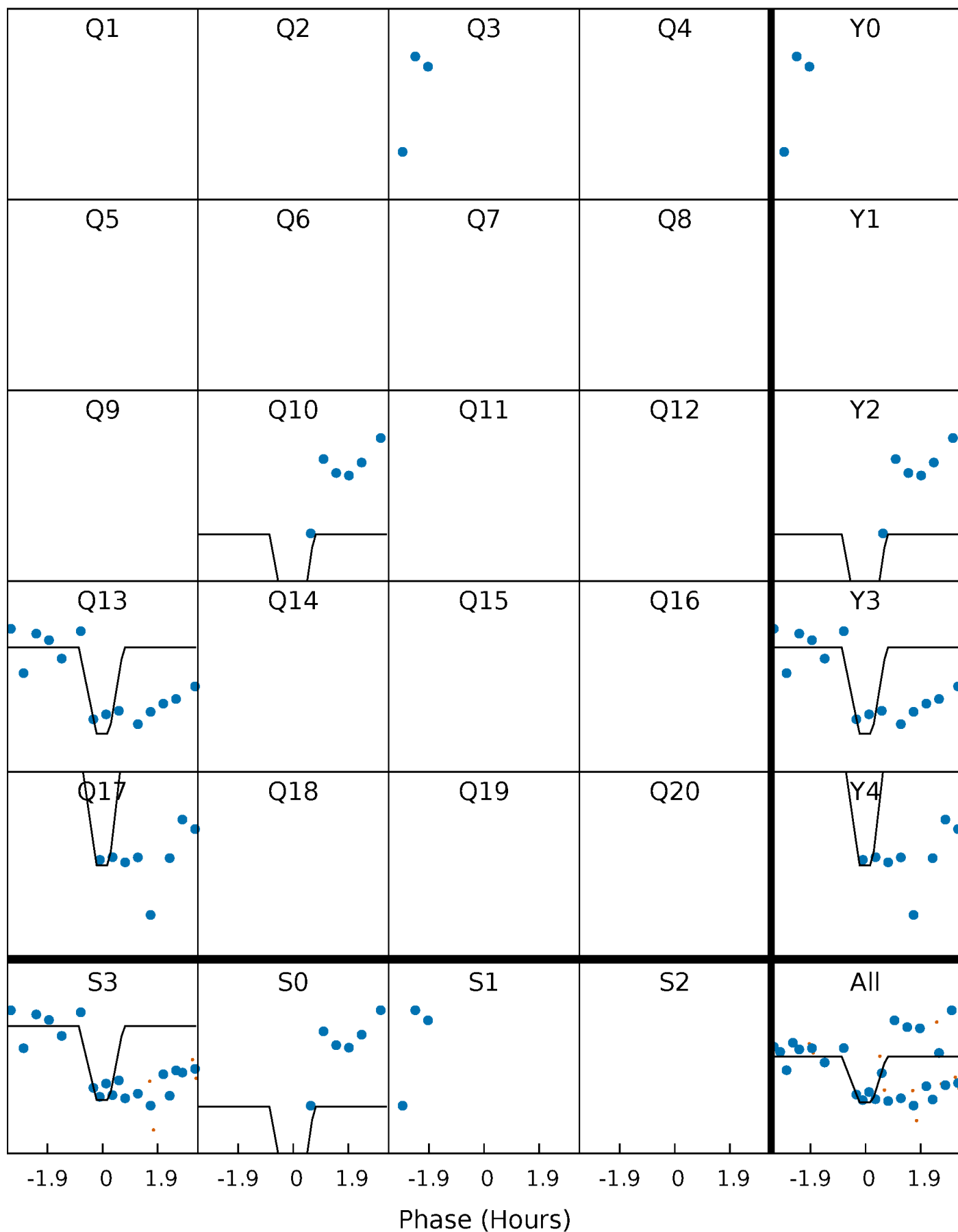
DV Quarter-Phased Transit Curves

TCE 004733003-03 $P=312.705376$ Days $T_0=315.758720$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

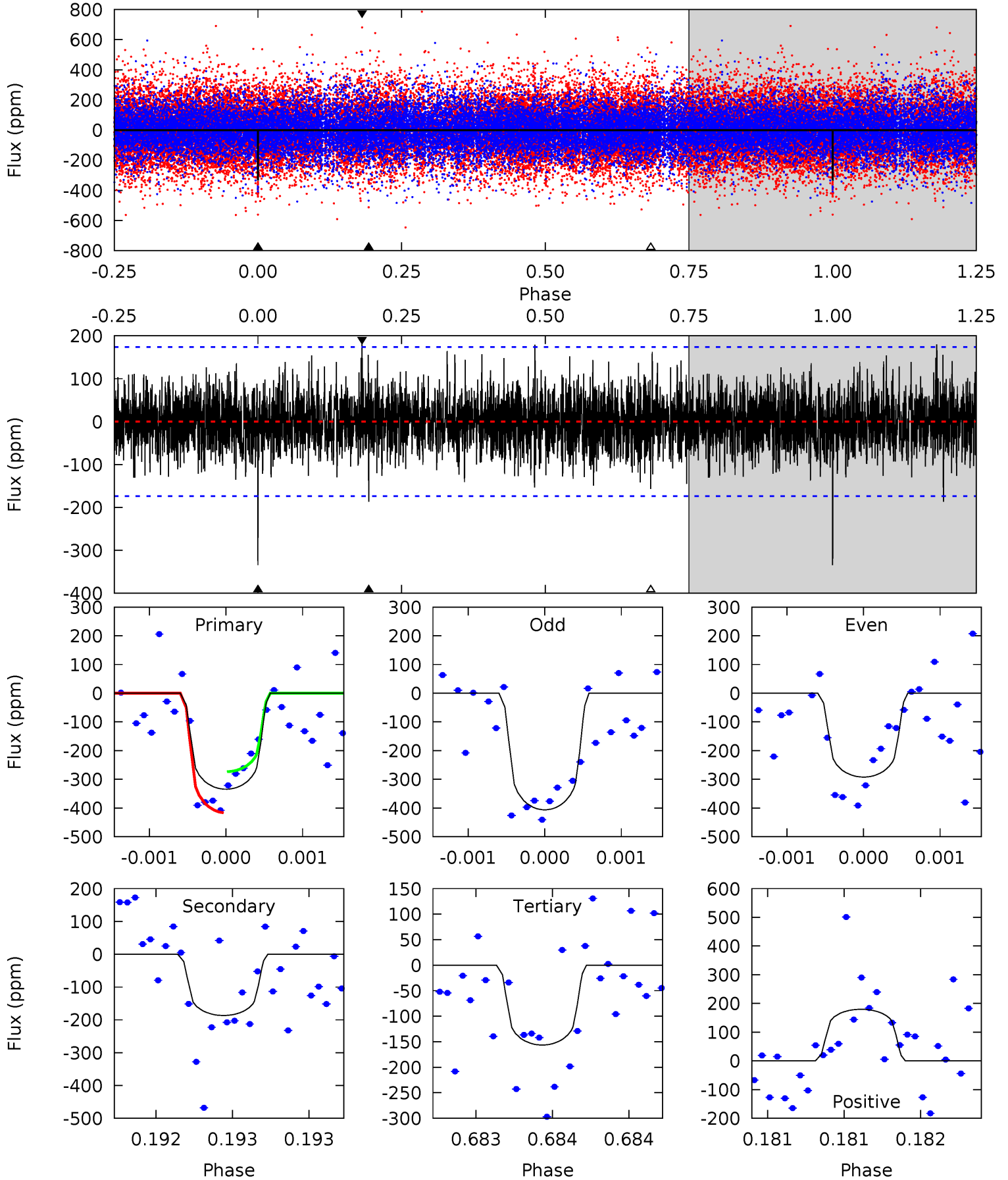
TCE 004733003-03 P=312.687401 Days $T_0=315.759727$ (BKJD)



DV Model-Shift Uniqueness Test

004733003-03, P = 312.705376 Days, E = 3.053344 Days

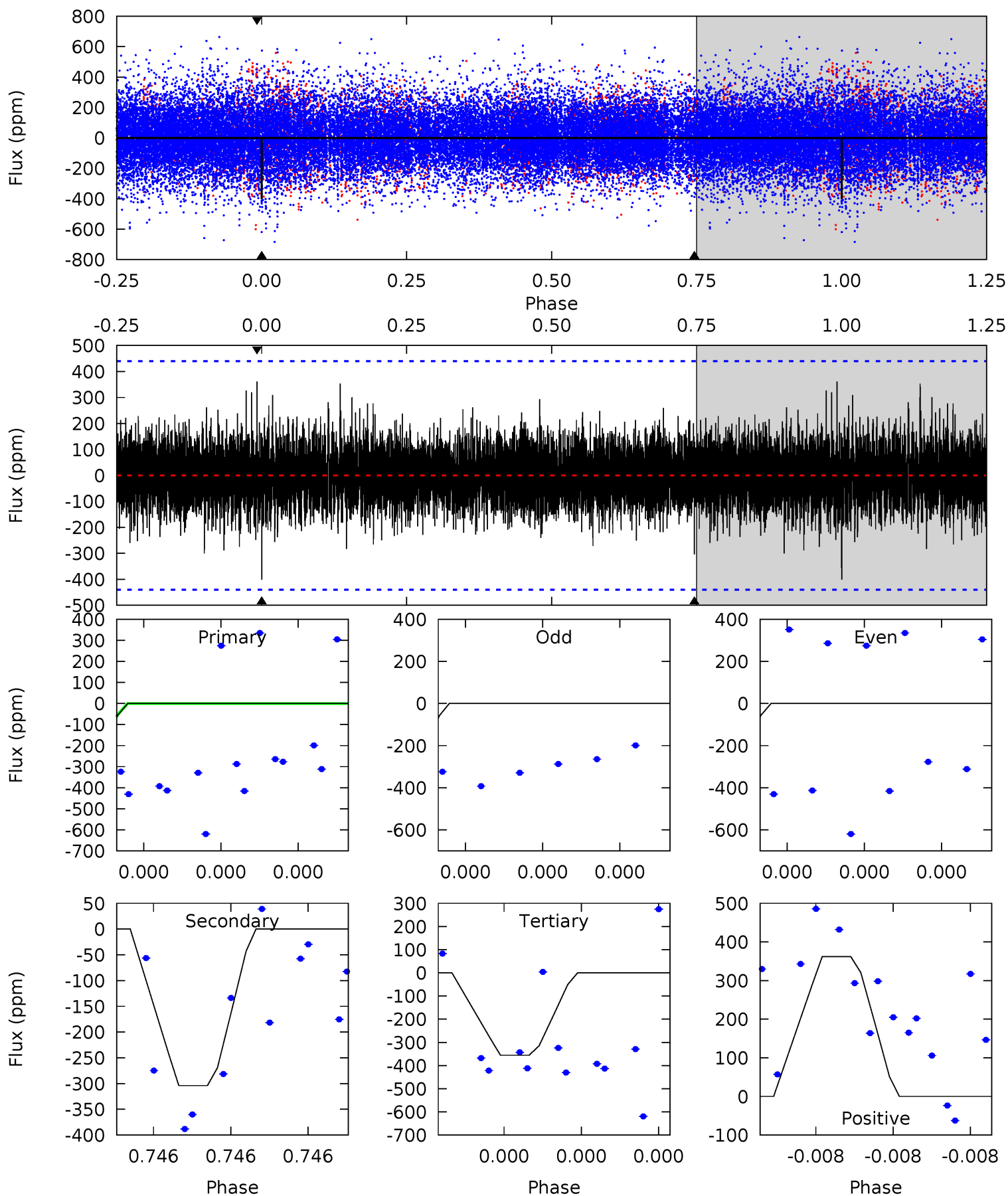
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	5.97	5.01	5.75	5.56	3.46	1.52	5.70	4.96	0.97	0.22	1.77	0.83	0.35	2.26



Alt Model-Shift Uniqueness Test

004733003-03, P = 312.687401 Days, E = 3.072326 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.28	4.01	4.69	4.77	5.80	3.83	0.98	0.60	0.51	-0.68	-0.76	0.11	1.00	0.47	0.37



Stellar Parameters For KIC 004733003

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5587^{+194}_{-194}	$3.441^{+0.884}_{-0.156}$	$-0.340^{+0.350}_{-0.300}$	$4.008^{+0.957}_{-2.871}$	$1.619^{+0.188}_{-0.753}$	$0.035^{+0.937}_{-0.016}$
	+3%/-3%	+26%/-5%	+103%/-88%	+24%/-72%	+12%/-47%	+2645%/-45%
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 004733003-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-187 ± 31	$7.40^{+5.42}_{-3.99}$	641^{+65}_{-123}	4647^{+1628}_{-716}	2022^{+7075}_{-1319}
Alt.	-304 ± 76	$7.88^{+5.77}_{-4.30}$	647^{+62}_{-118}	5062^{+1855}_{-855}	2819^{+10024}_{-1855}

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

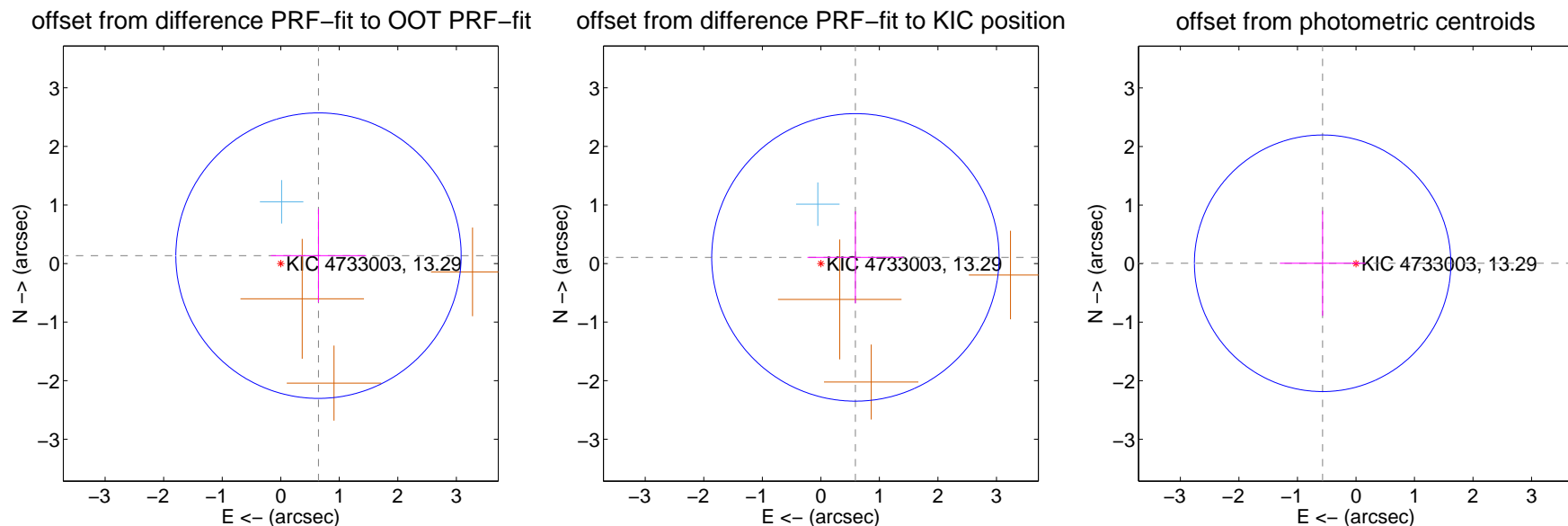
DV Centroid Data

Supplemental centroid analysis for 004733003-03. Kepler magnitude: 13.29. Transit SNR 8.40

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.659 ± 0.812	0.81	-0.645 ± 0.813	0.135 ± 0.796
PRF-fit source offset from KIC position	0.599 ± 0.818	0.73	-0.590 ± 0.819	0.105 ± 0.785
photometric centroid source offset	0.57 ± 0.73	0.78	0.57 ± 0.73	0.01 ± 0.90



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



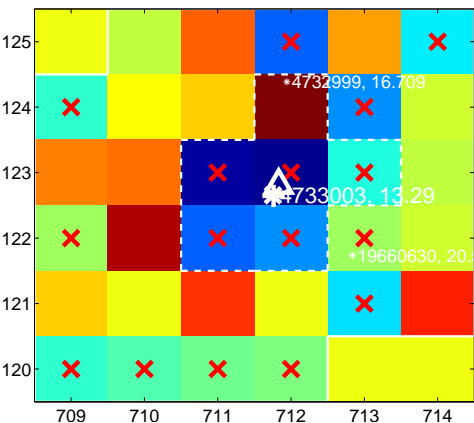
Q2 no difference image



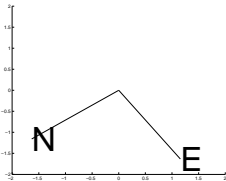
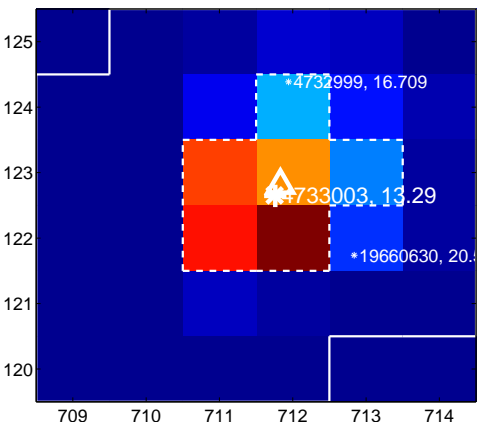
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



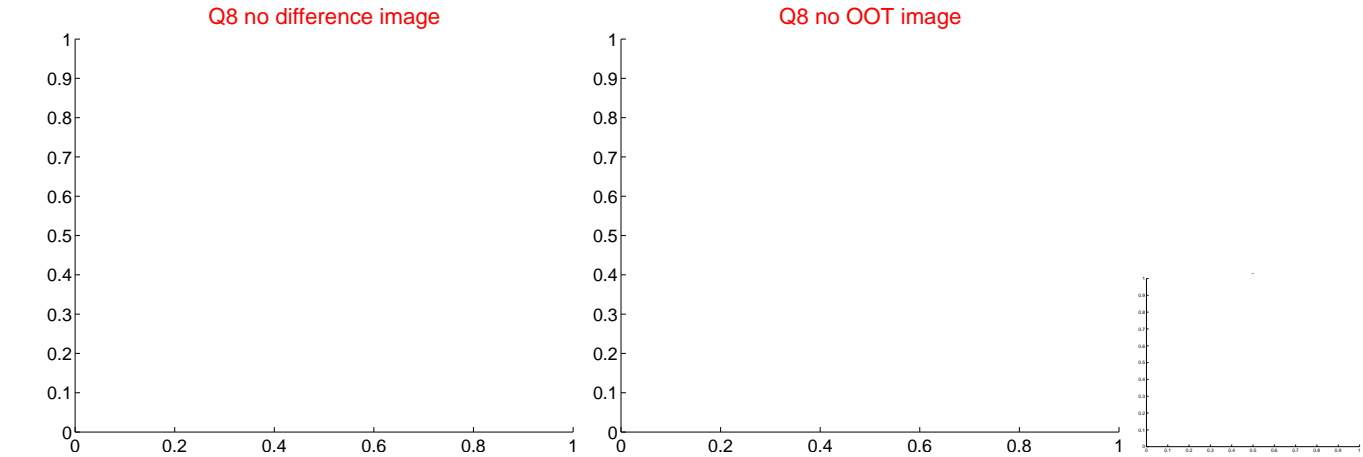
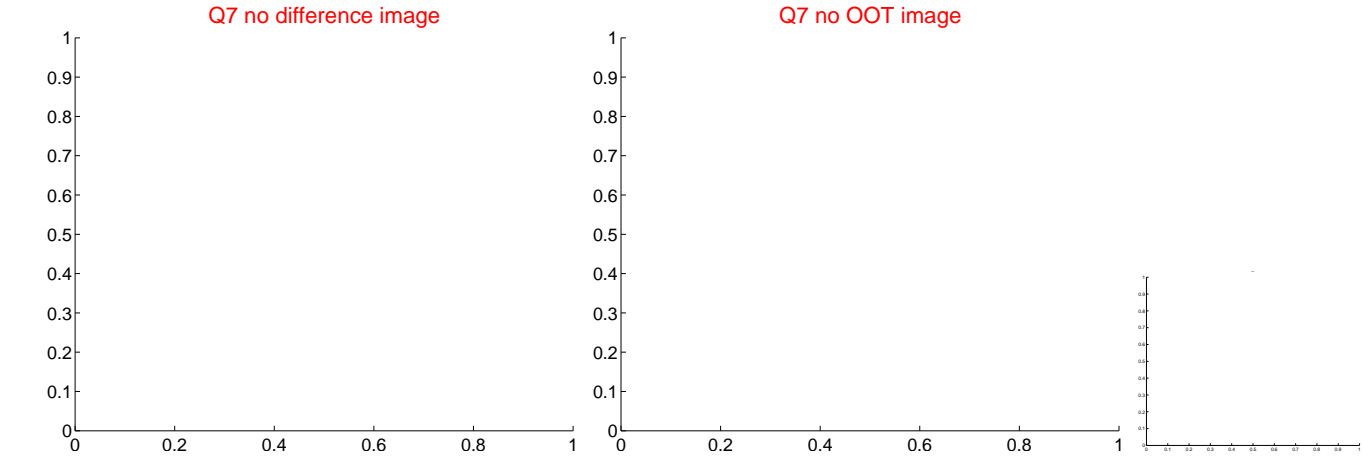
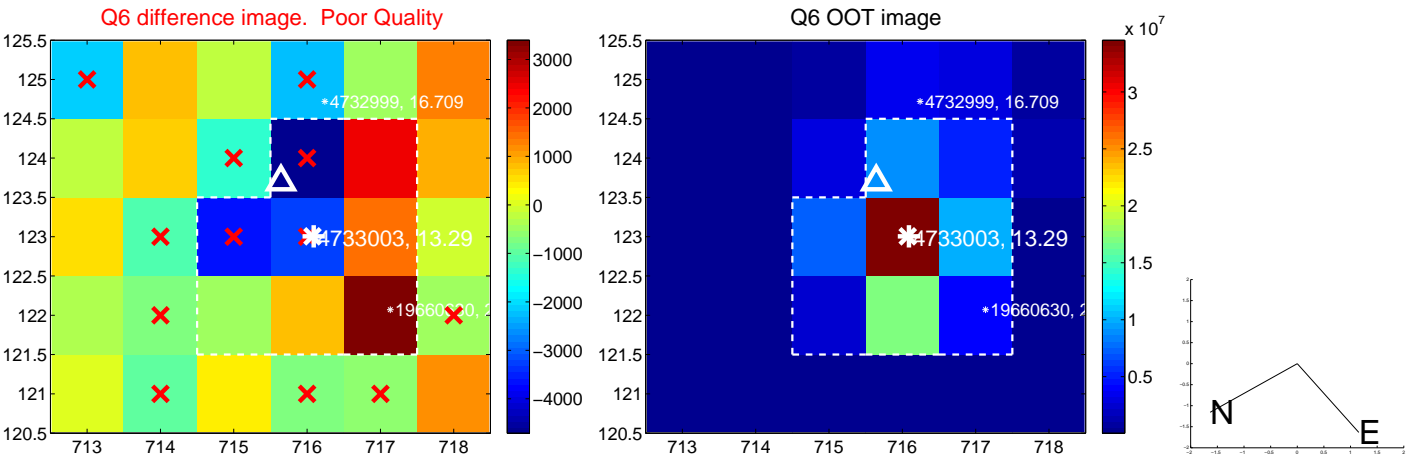
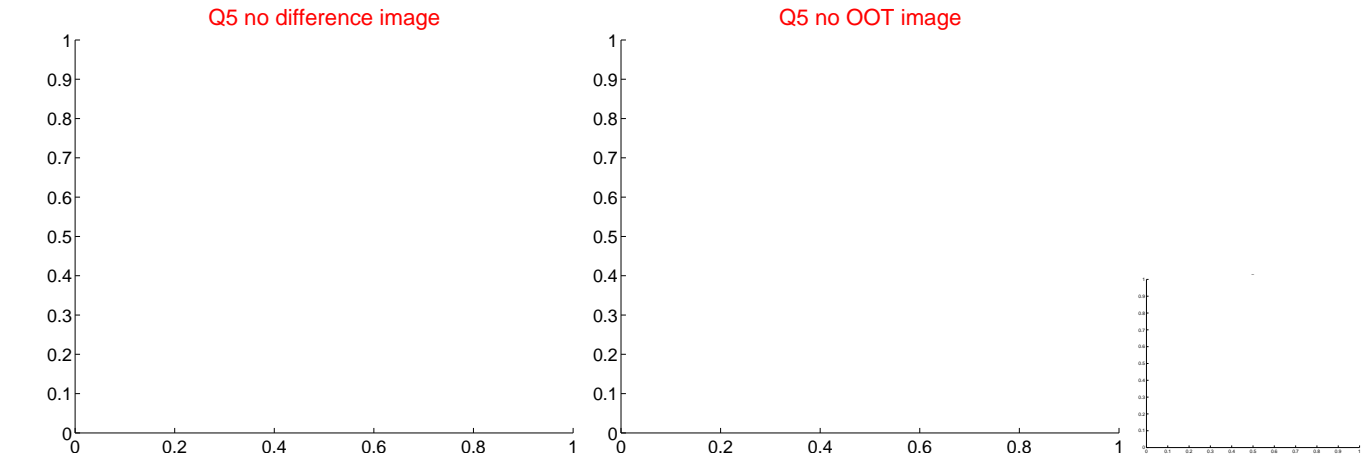
Q4 no difference image



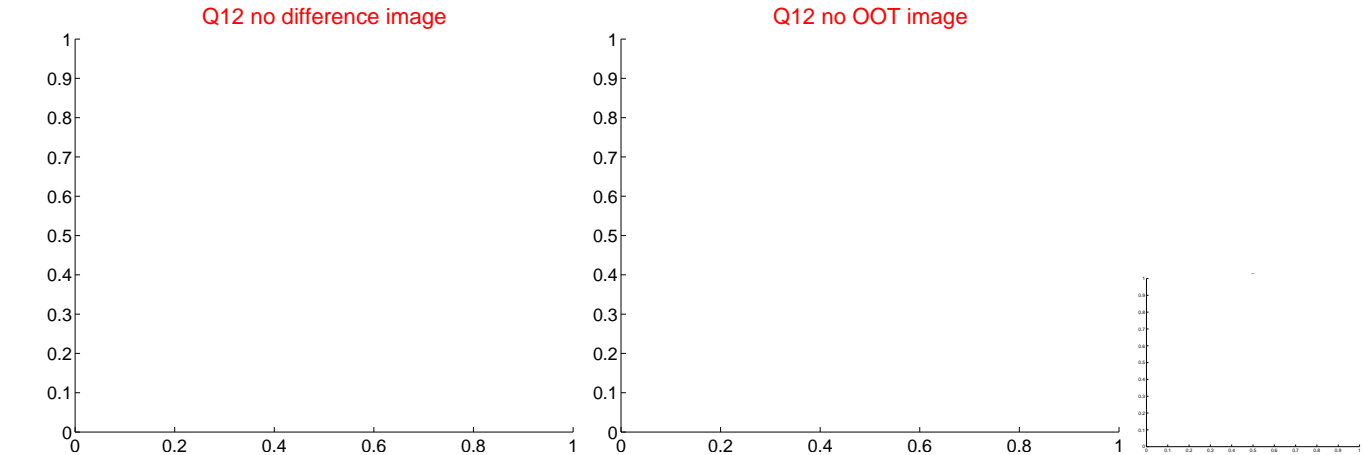
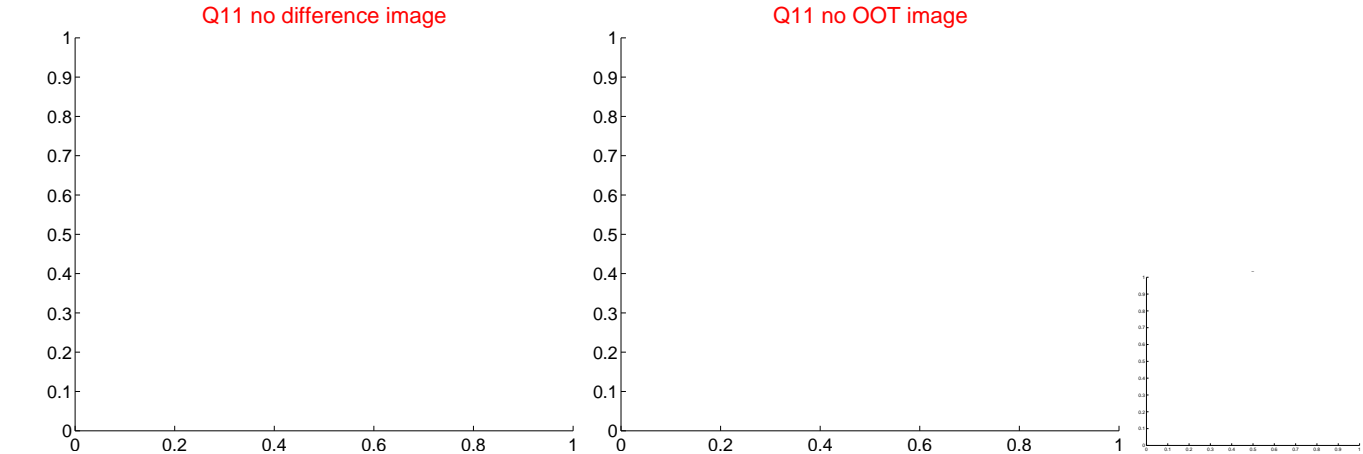
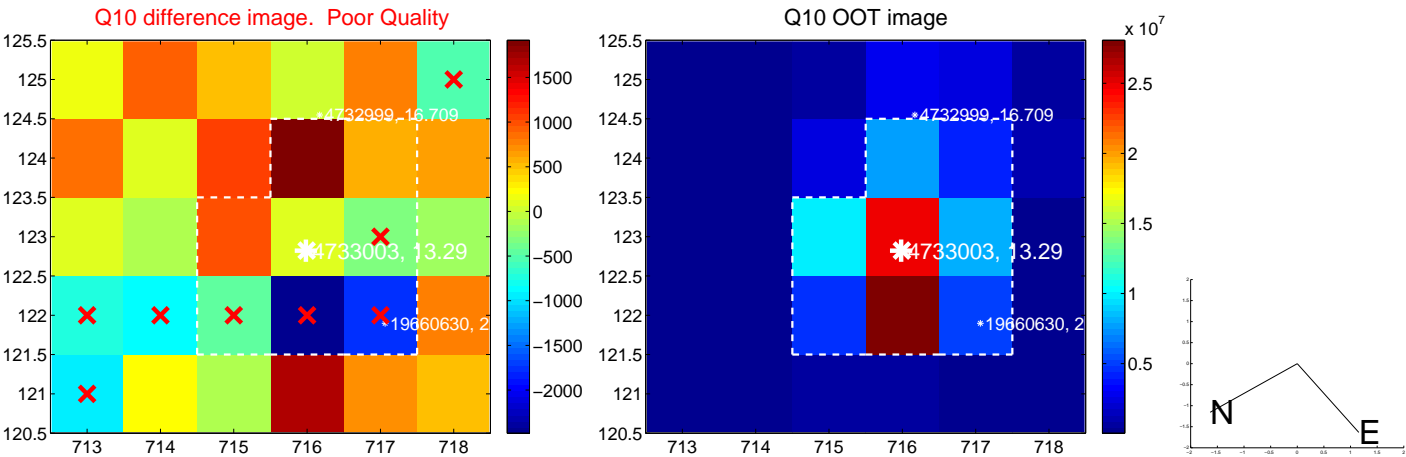
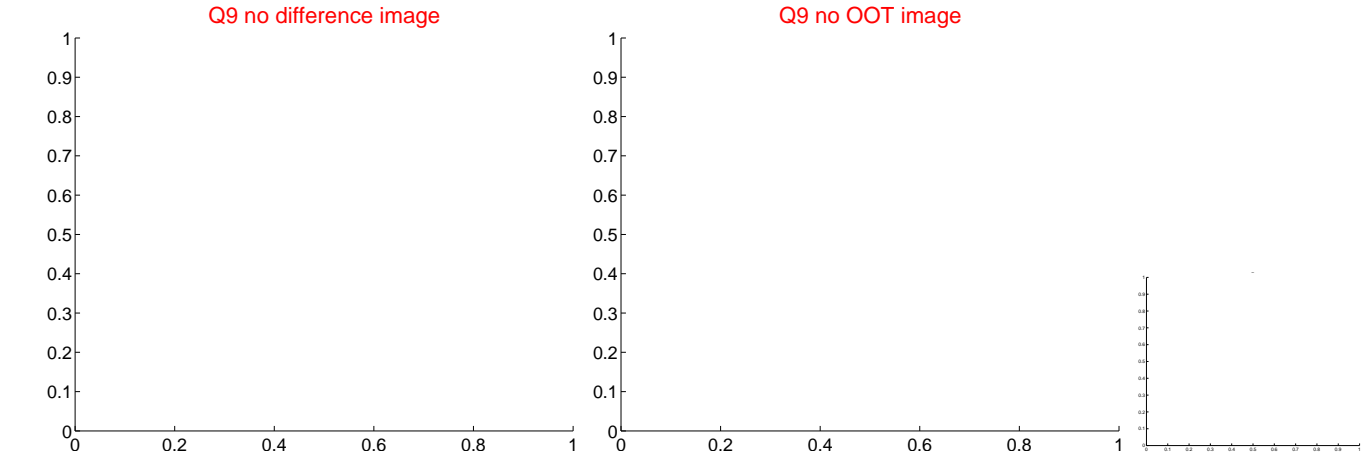
Q4 no OOT image



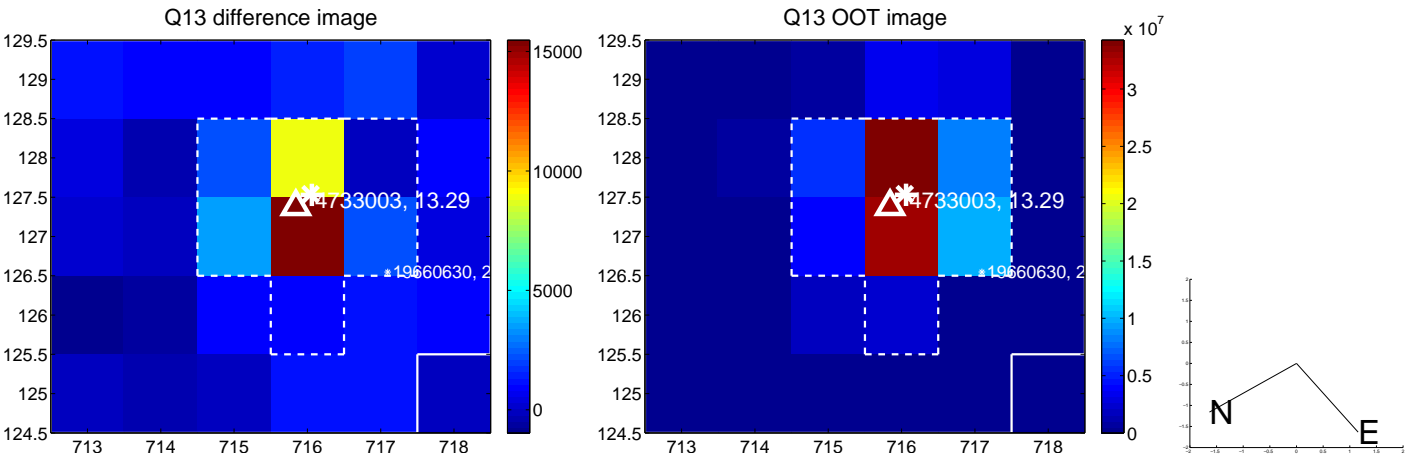
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



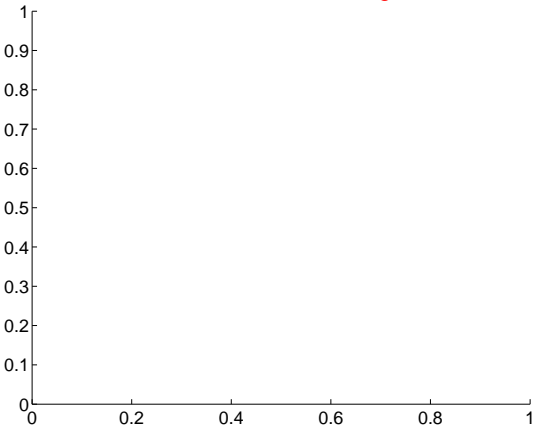
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



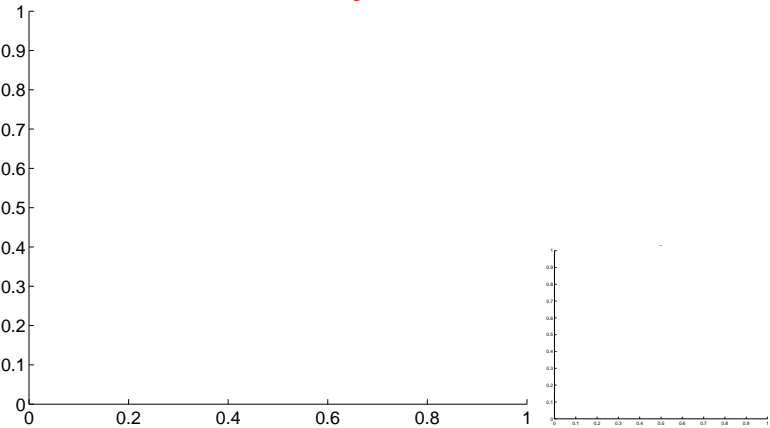
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



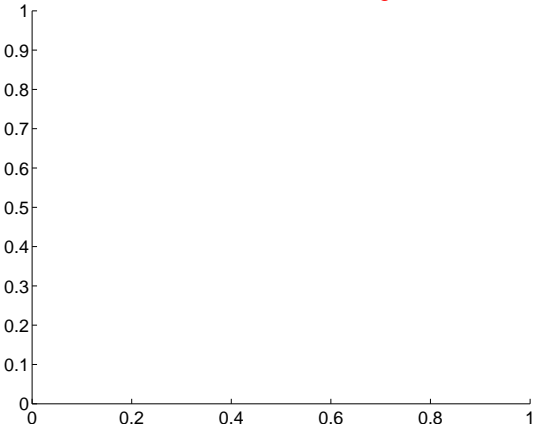
Q14 no difference image



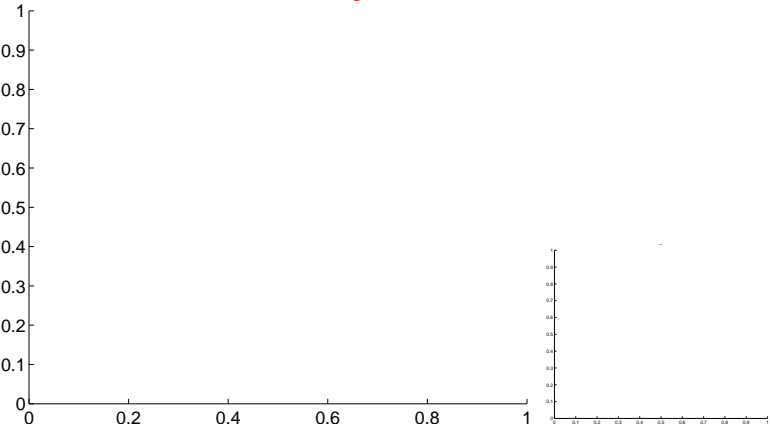
Q14 no OOT image



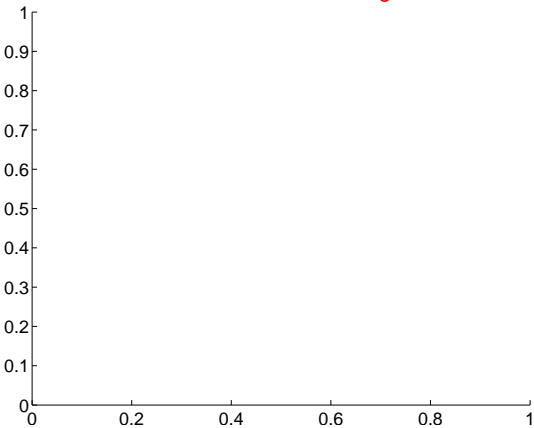
Q15 no difference image



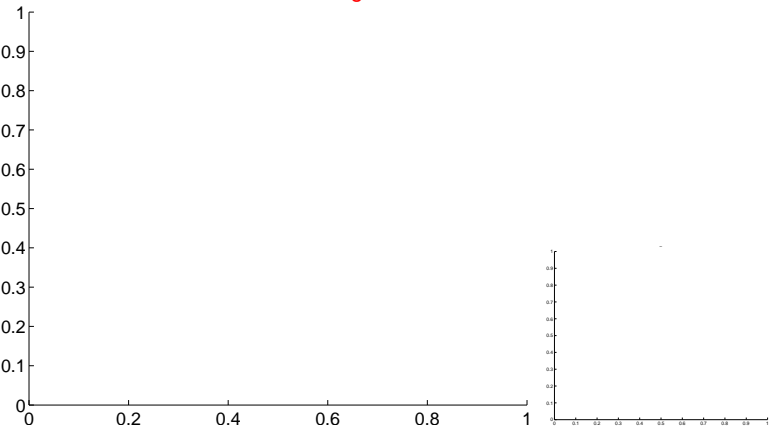
Q15 no OOT image



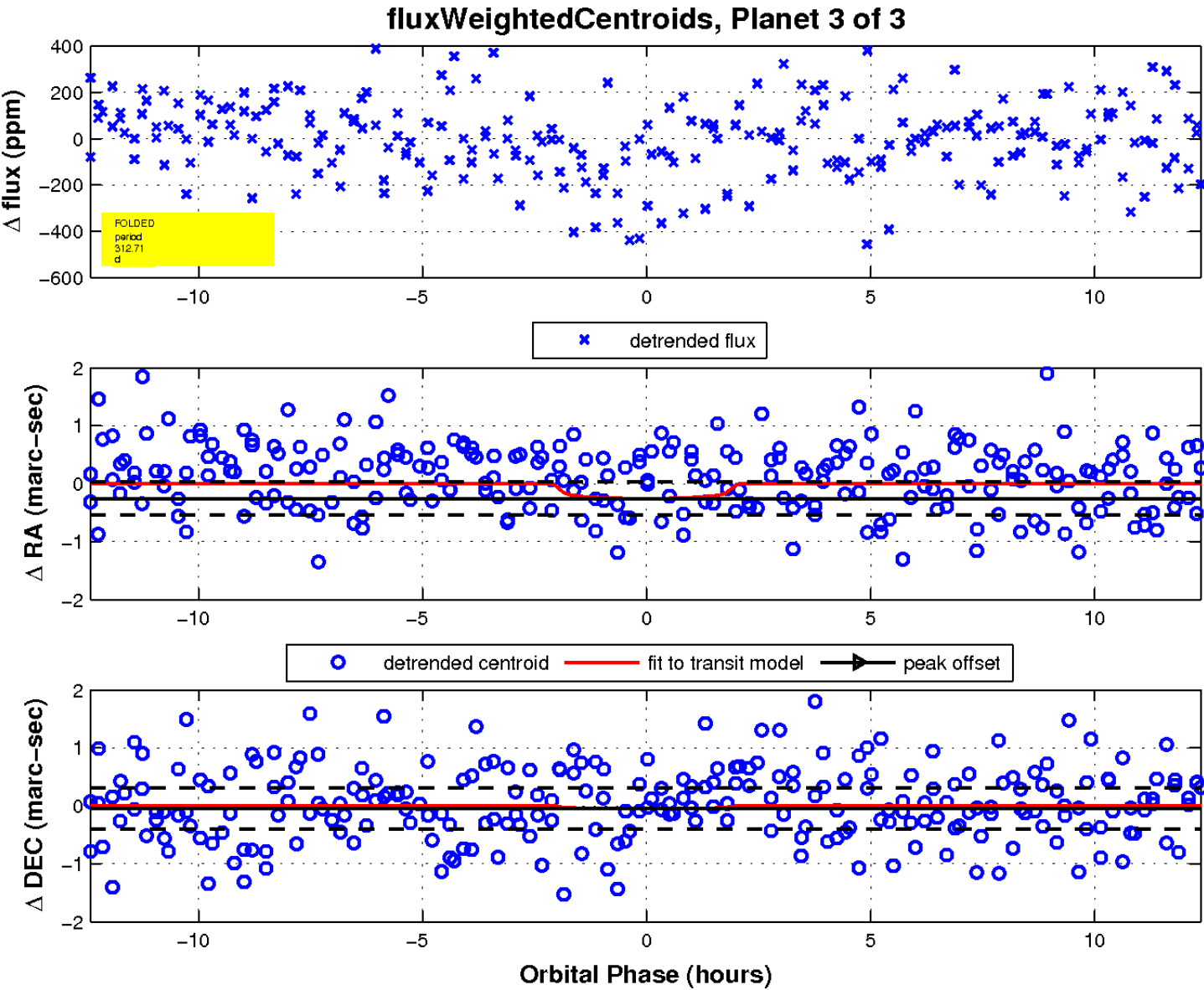
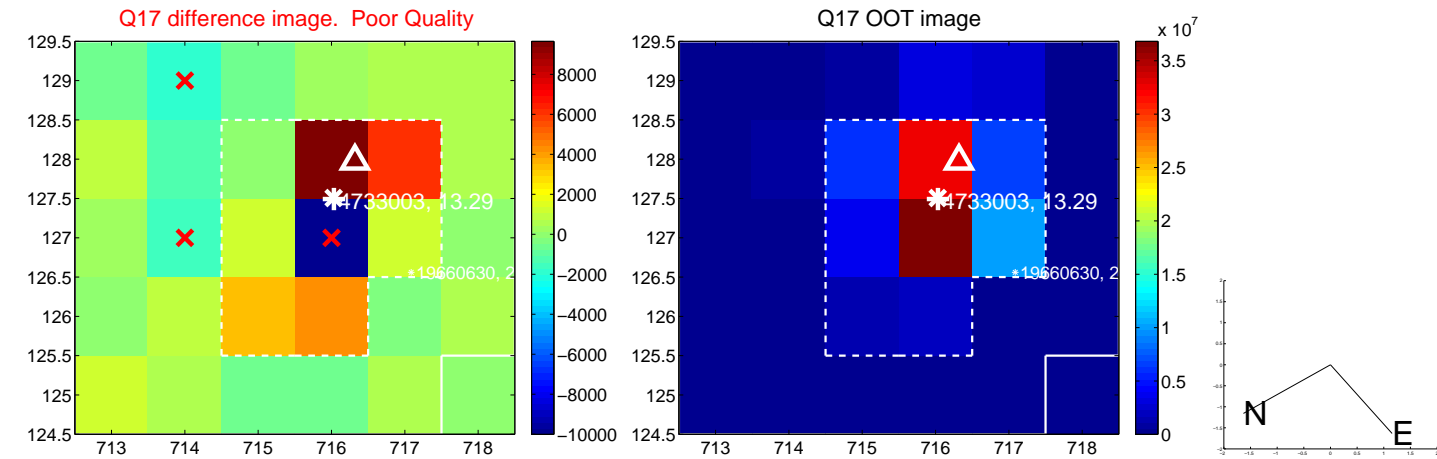
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

