

KIC 003970233

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})
003970233-01	OBS	0604.01	8.254918	133.160401	19339.5	6.668	1356.8	1326.8	0.83	5366	11.70	93.69
003970233-02	OBS	No	4.127454	133.120564	581.4	6.598	44.8	42.4	0.83	5366	2.35	236.07
003970233-03	OBS	No	562.917981	302.854629	562.7	4.473	11.1	6.4	0.83	5366	2.17	0.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003970233-01	OBS	FP	0.03	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003970233-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003970233-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

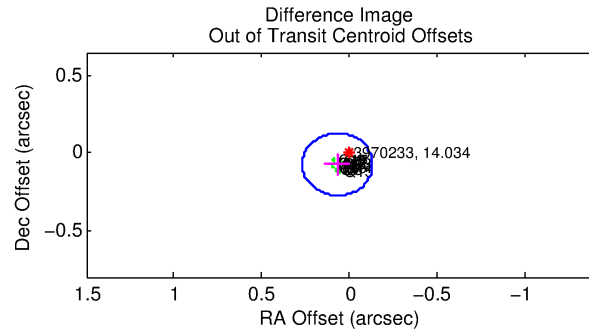
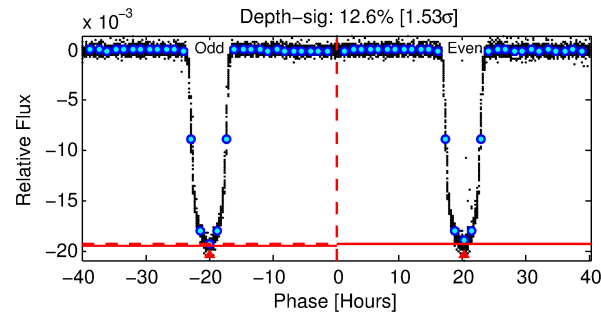
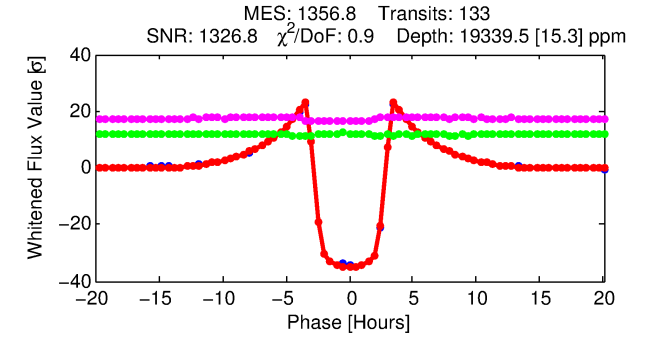
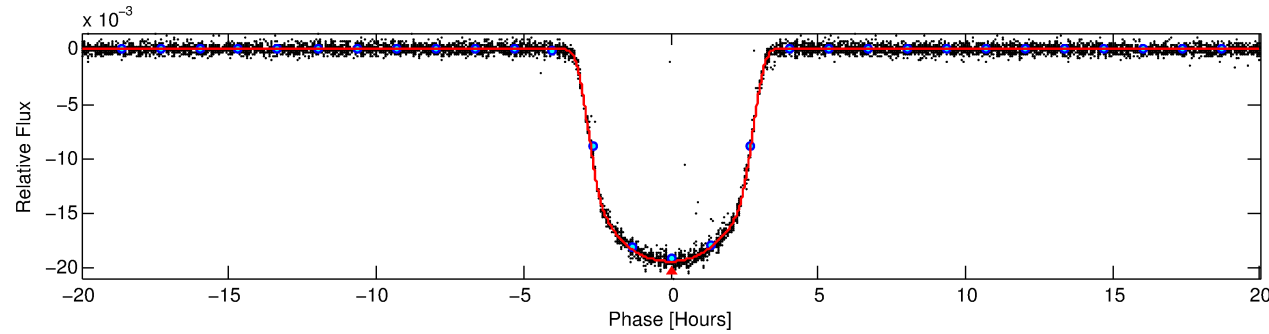
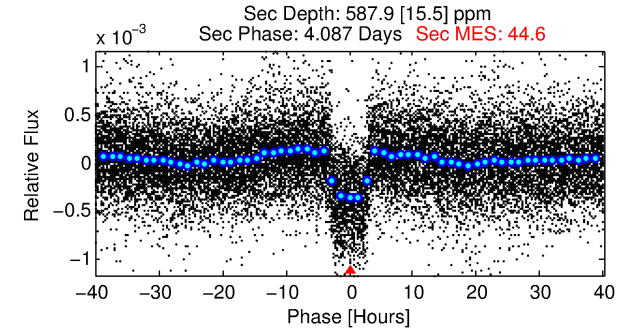
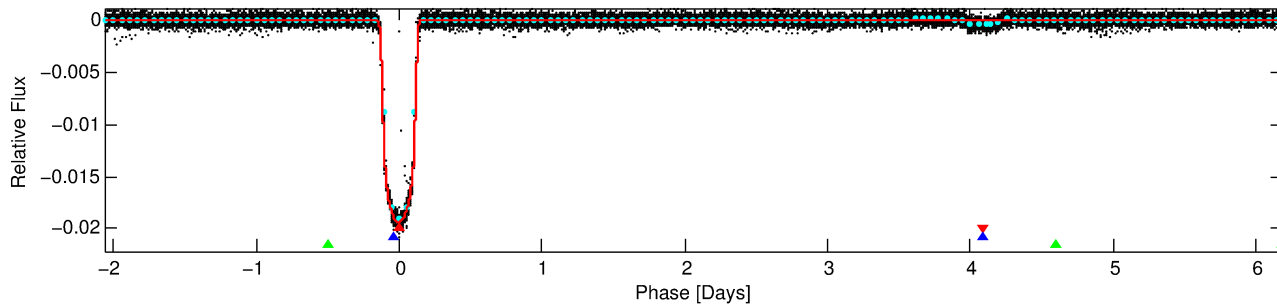
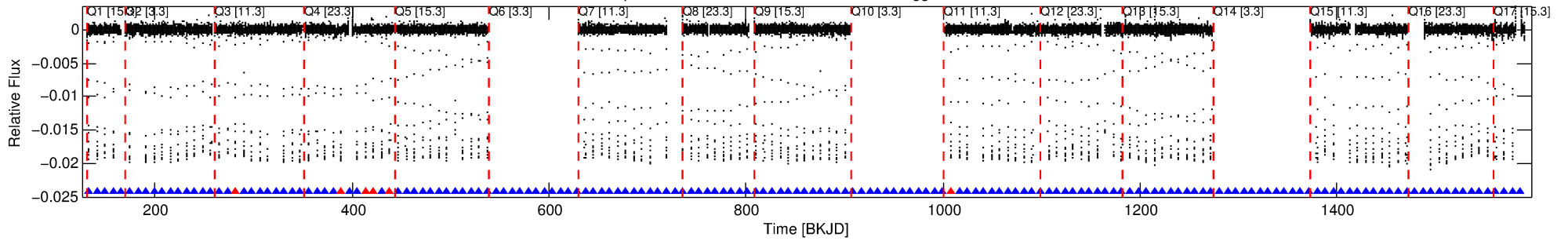
Ephemeris Match Information For 003970233-01

No Significant Match Found

DV One-Page Summary

KIC: 3970233 Candidate: 1 of 3 Period: 8.255 d
KOI: K00604.01 Corr: 0.930

Kp: 14.03 R*: 0.83 Rs Teff: 5366.0 K Logg: 4.50 Fe/H: -0.160



DV Fit Results:

Period = 8.25492 [0.00000] d
Epoch = 133.1604 [0.0001] BKJD
Rp/R* = 0.1284 [0.0001]
a/R* = 9.88 [0.03]
b = 0.43 [0.01]
Seff = 93.69 [22.43]
Teq = 793 [47] K
Rp = 11.70 [1.97] Re
a = 0.0744 [0.0106] AU
Ag = 13.07 [2.74] [4.40σ]
Teffp = 2332 [71] K [18.05σ]

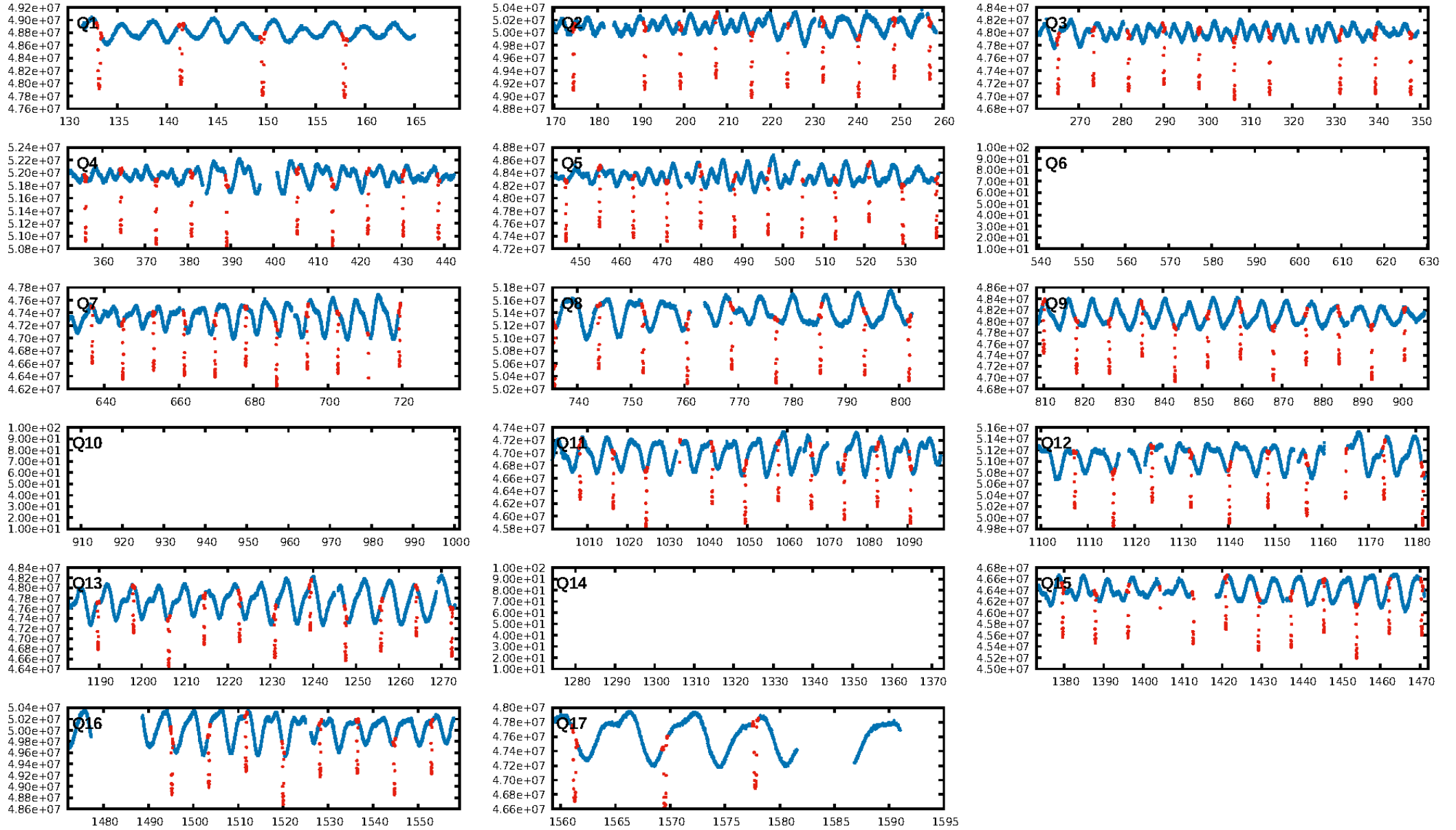
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.56σ]
LongPeriod-sig: 100.0% [1657.93σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.95 [120/126]
GhostDiagnostic-chr: 2.581
Centroid-sig: 0.0%
Centroid-so: 0.334 arcsec [39.85σ]
OotOffset-rm: 0.101 arcsec [1.51σ]
KicOffset-rm: 0.190 arcsec [2.79σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

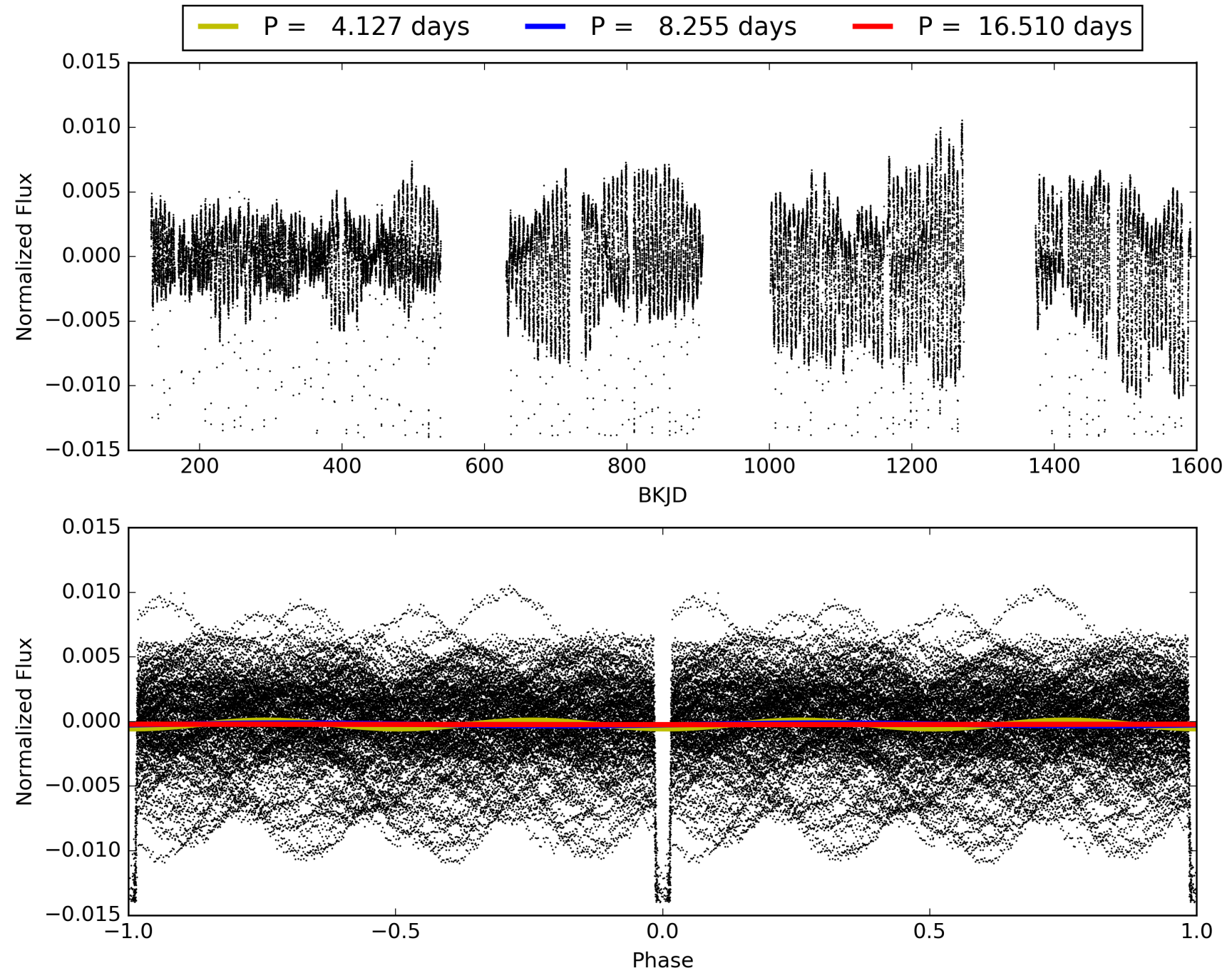
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:35:12 Z

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

TCE 003970233-01, PDC Light Curves

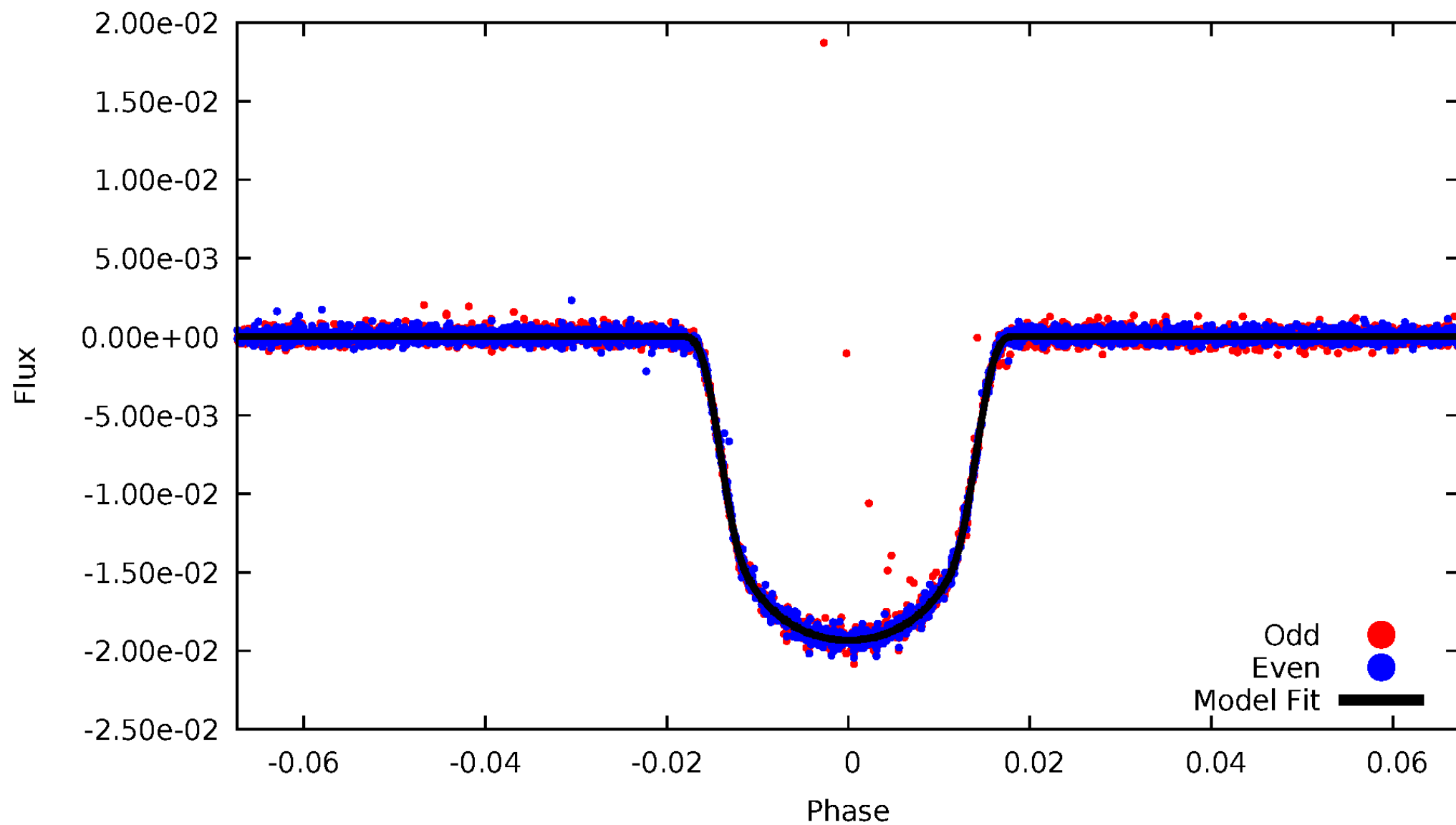


TCE 003970233-01



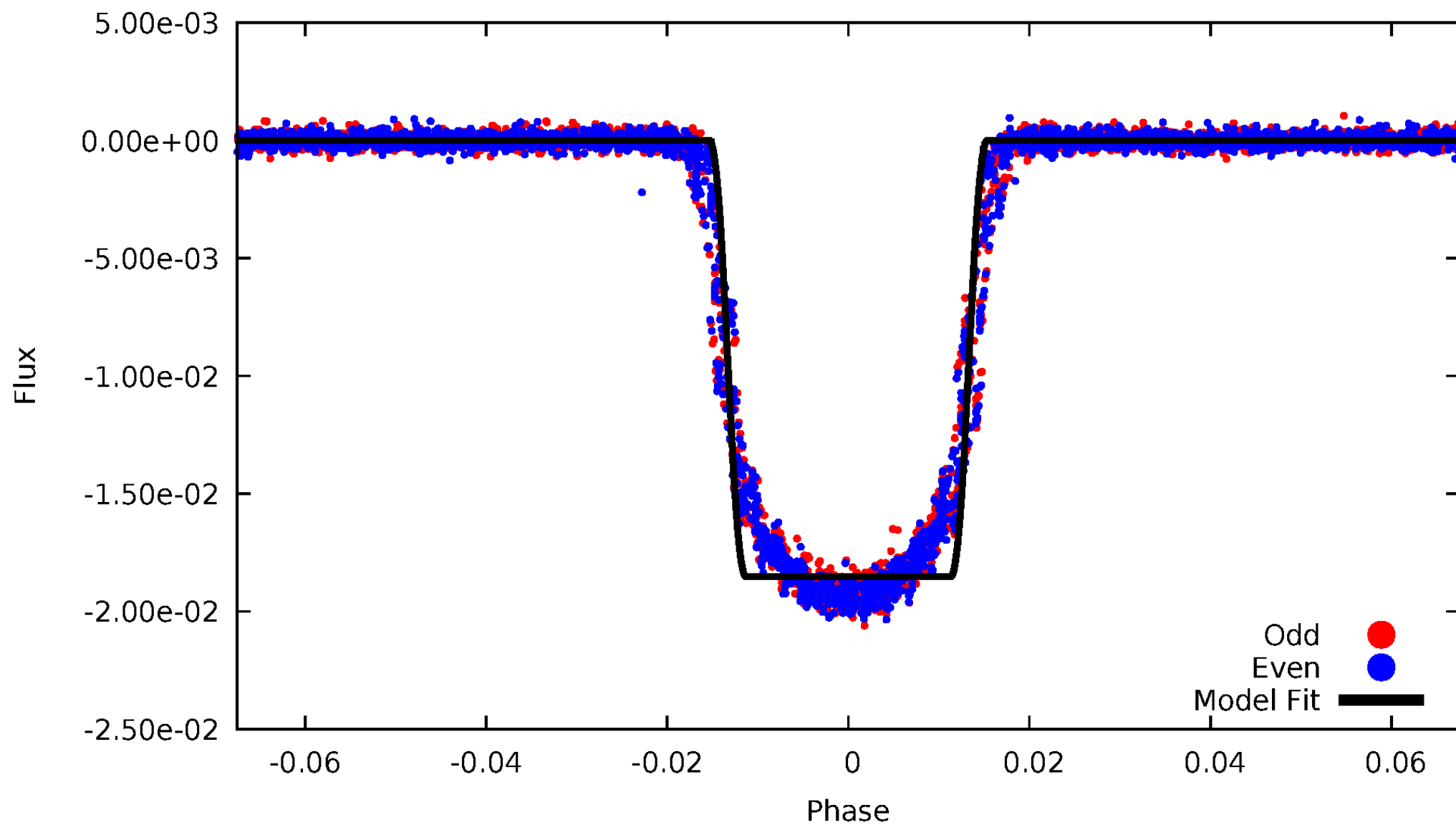
DV Odd/Even

TCE 003970233-01



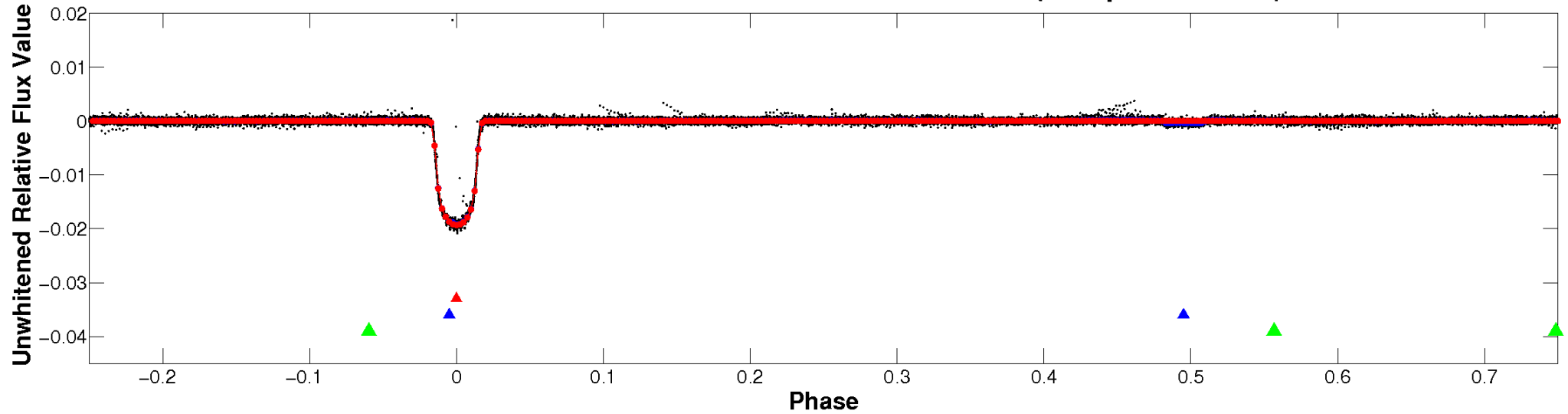
ALT Odd/Even

TCE 003970233-01

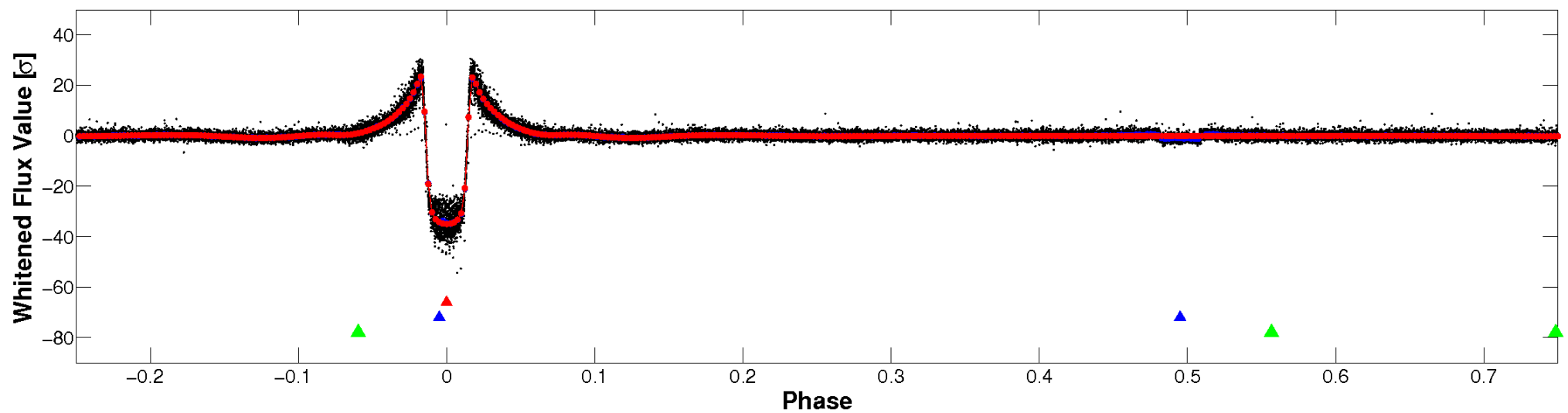


Non-Whitened Vs. Whitened Light Curve

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

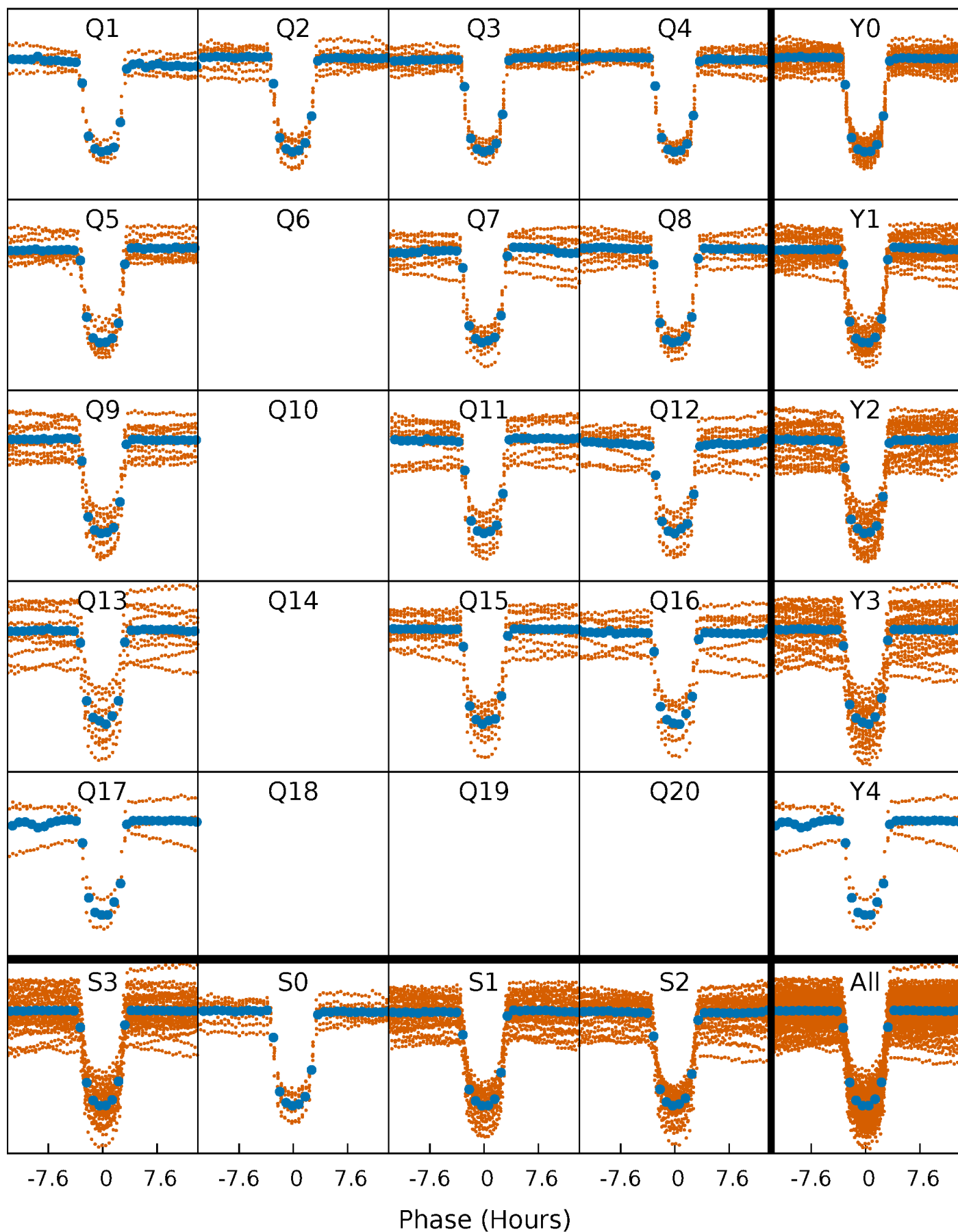


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



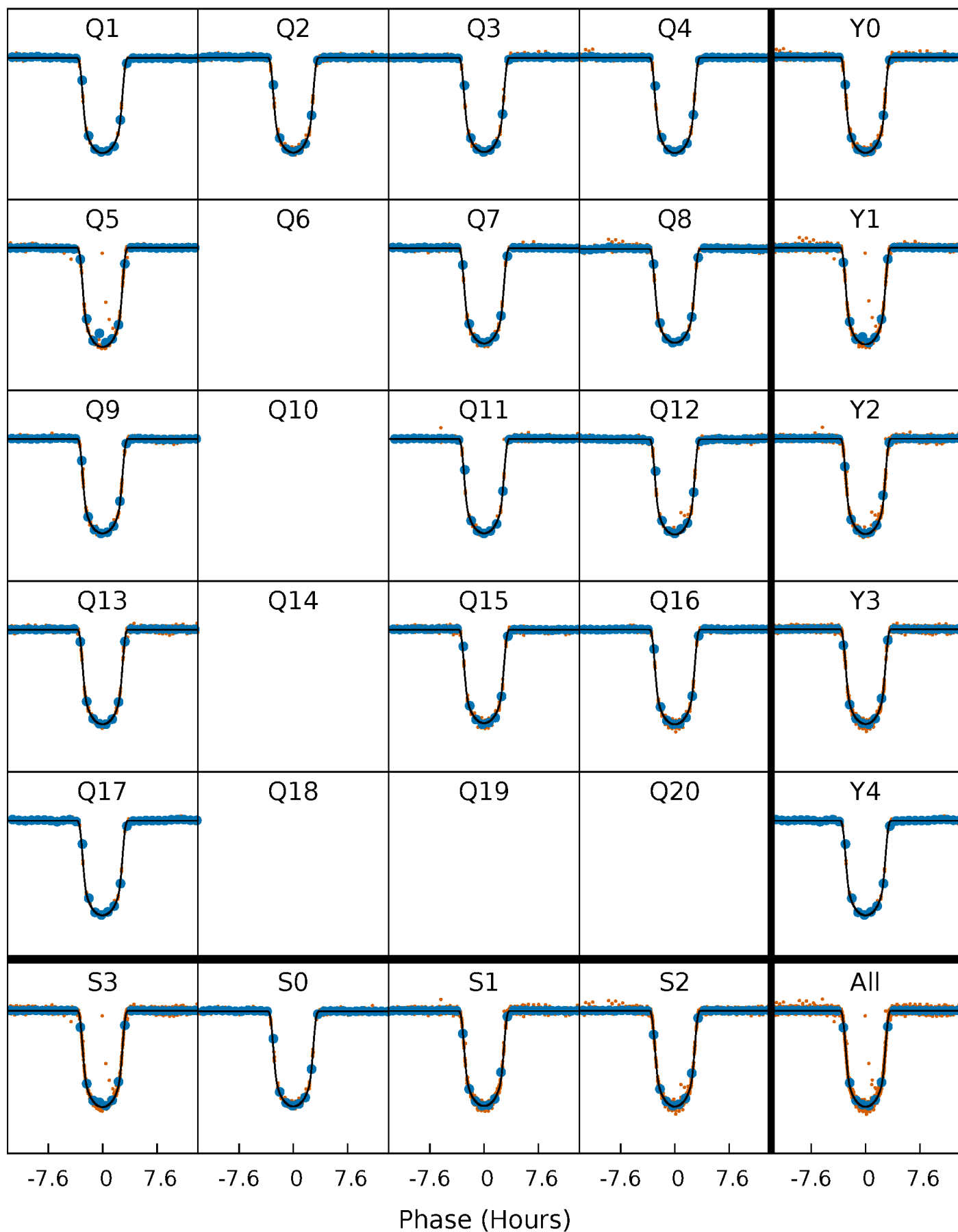
PDC Quarter-Phased Transit Curves

TCE 003970233-01 P= 8.254918 Days $T_0=133.160401$ (BKJD)



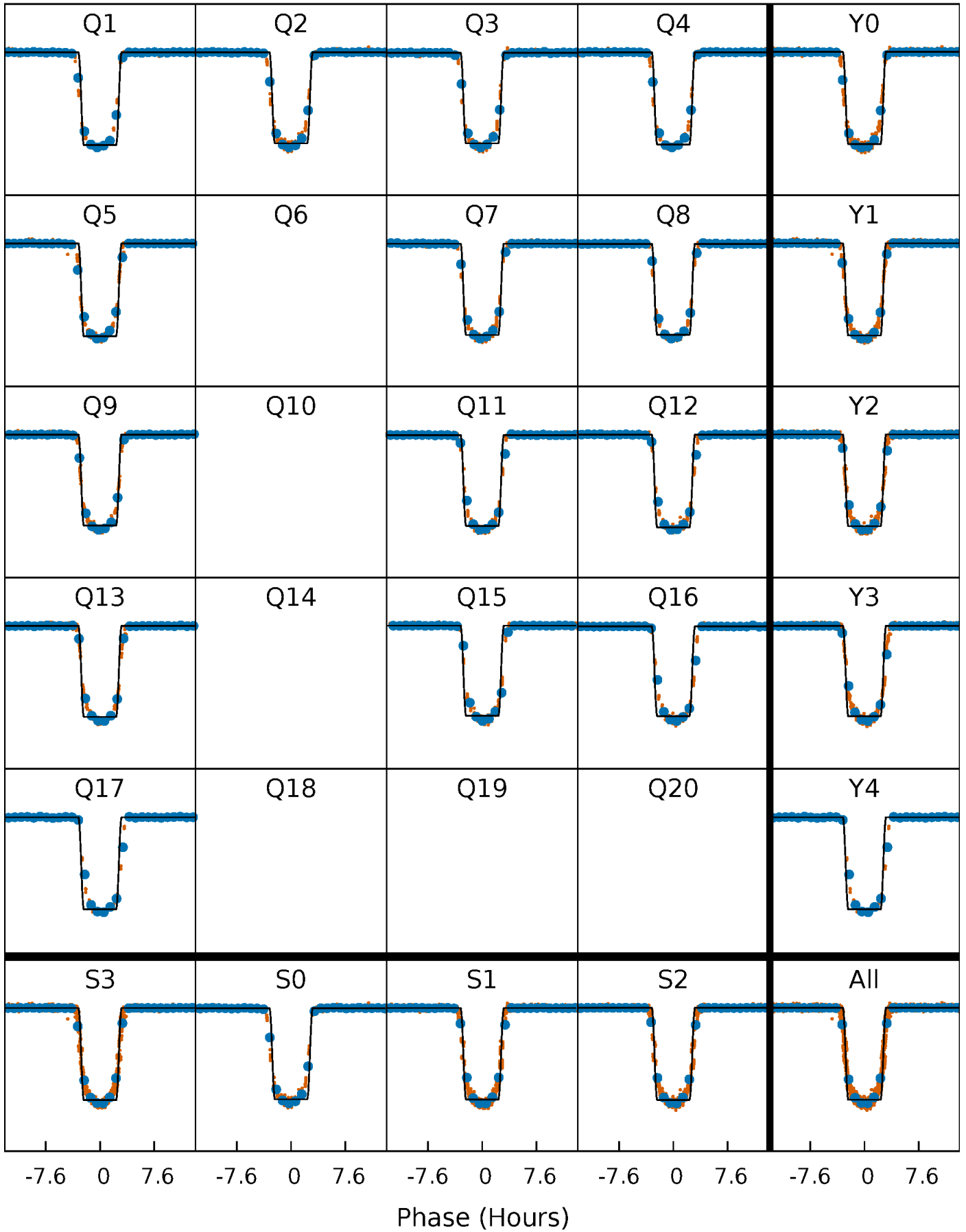
DV Quarter-Phased Transit Curves

TCE 003970233-01 P= 8.254918 Days $T_0=133.160401$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

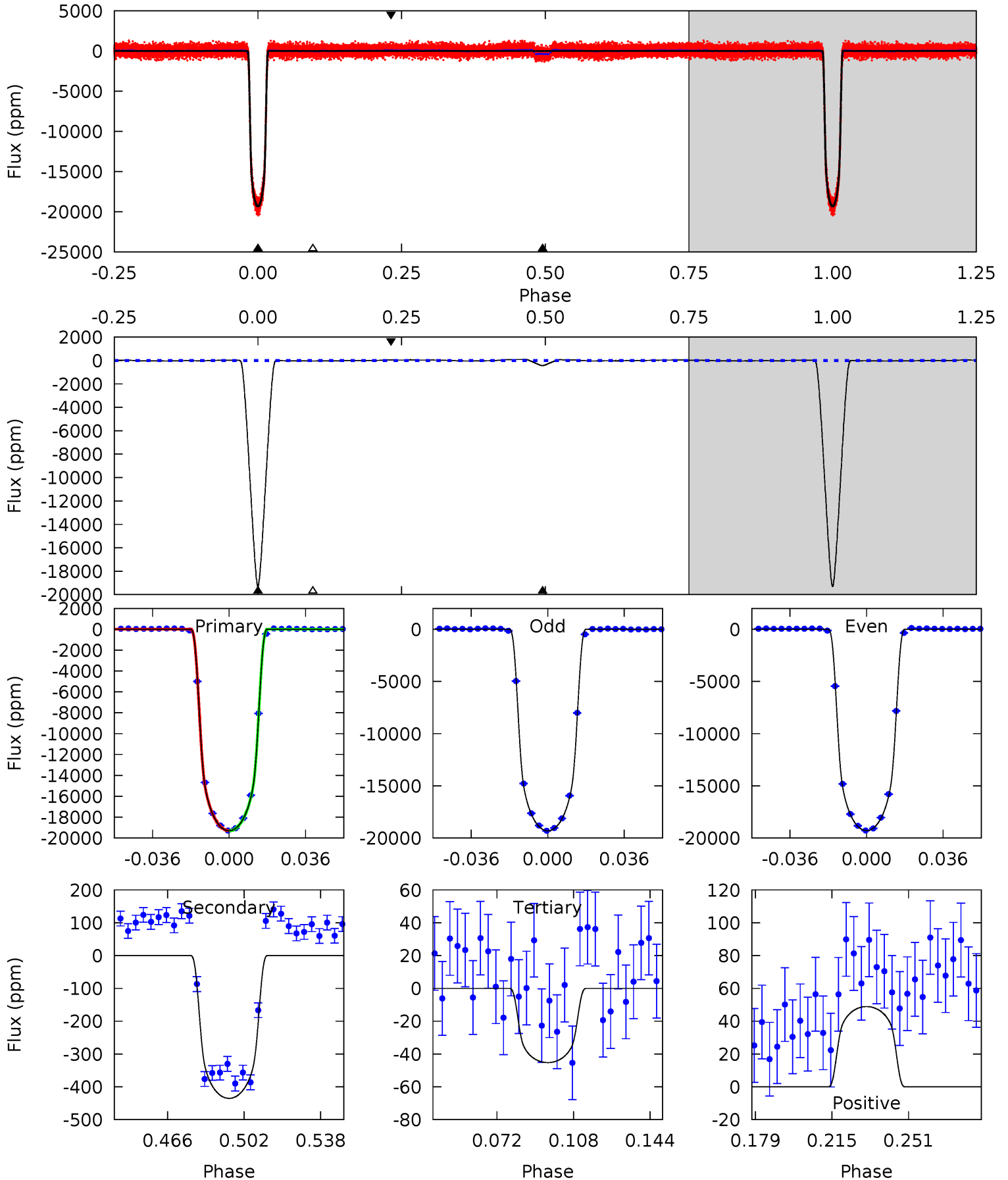
TCE 003970233-01 P= 8.254796 Days $T_0=133.170825$ (BKJD)



DV Model-Shift Uniqueness Test

003970233-01, P = 8.254918 Days, E = 124.905483 Days

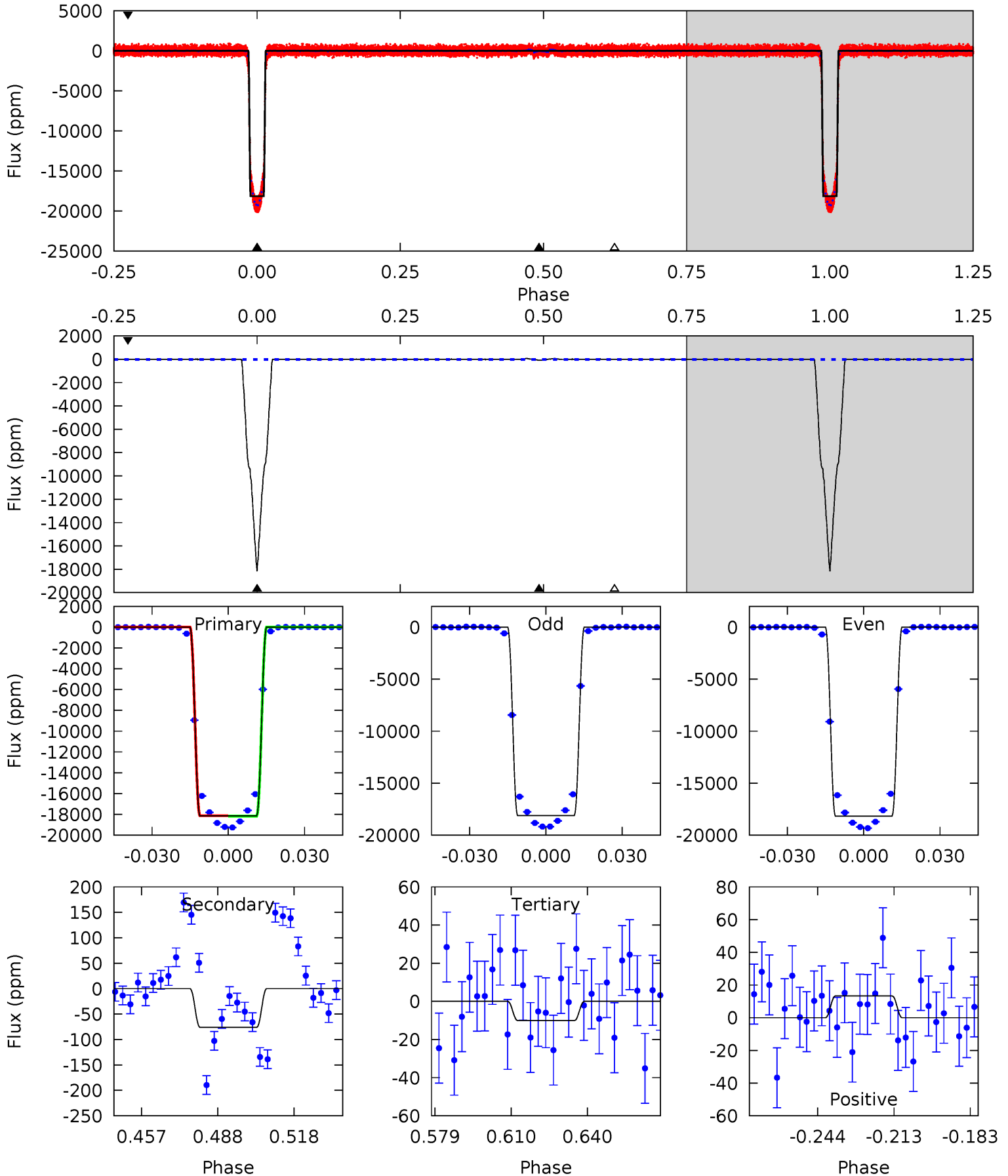
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2702	60.9	6.33	6.84	4.78	2.10	4.33	2696	2695	54.6	54.1	1.39	0.99	0.00	1.55



Alt Model-Shift Uniqueness Test

003970233-01, P = 8.254796 Days, E = 124.916029 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2767	11.6	1.53	2.03	4.81	2.16	0.72	2766	2765	10.1	9.57	4.07	1.00	0.00	2.81



Stellar Parameters For KIC 003970233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5366^{+159}_{-143}	$4.500^{+0.085}_{-0.114}$	$-0.160^{+0.300}_{-0.300}$	$0.835^{+0.141}_{-0.094}$	$0.805^{+0.104}_{-0.070}$	$1.950^{+0.712}_{-0.663}$
	+3%/-3%	+2%/-3%	+188%/-188%	+17%/-11%	+13%/-9%	+37%/-34%
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 003970233-01 / KOI 0604.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-435 ± 7	$11.79^{+1.23}_{-0.83}$	1118^{+52}_{-52}	2857^{+49}_{-45}	$9.495^{+1.433}_{-1.421}$
Alt.	-76 ± 7	$12.45^{+1.27}_{-0.81}$	1111^{+52}_{-45}	2220^{+43}_{-44}	$1.485^{+0.252}_{-0.253}$

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 $A_{obs} \gg 1.0$

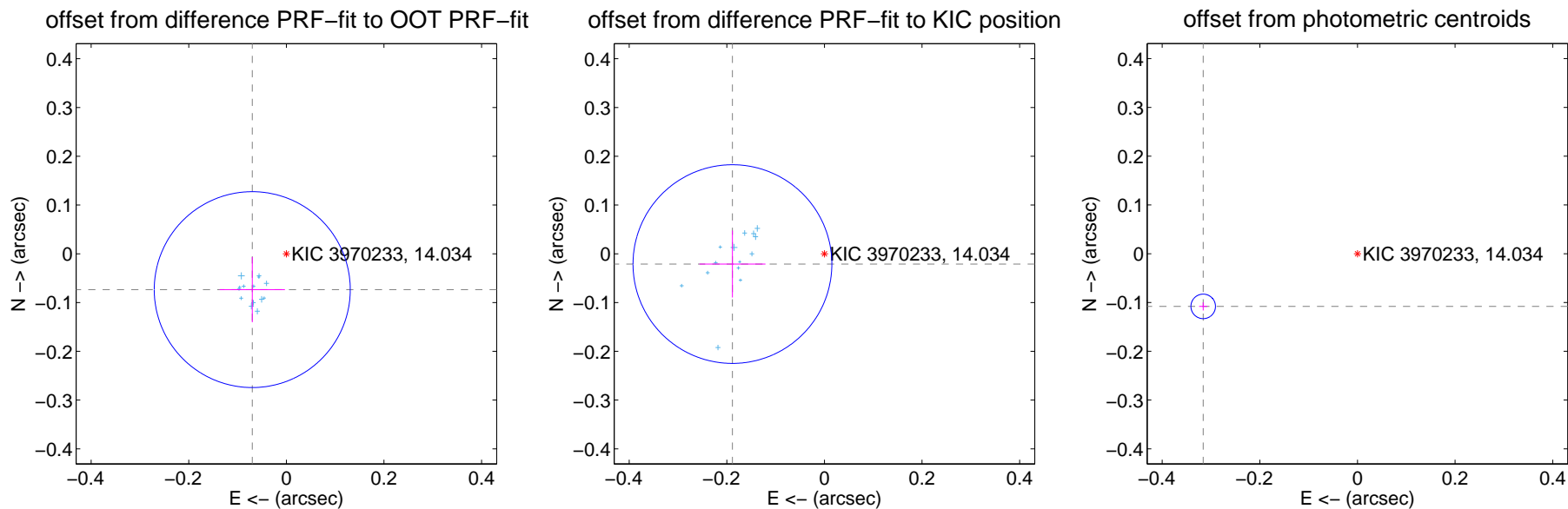
DV Centroid Data

Supplemental centroid analysis for 003970233-01. Kepler magnitude: 14.03. Transit SNR 1326.82

There are 14 quarters with good PRF difference image offsets

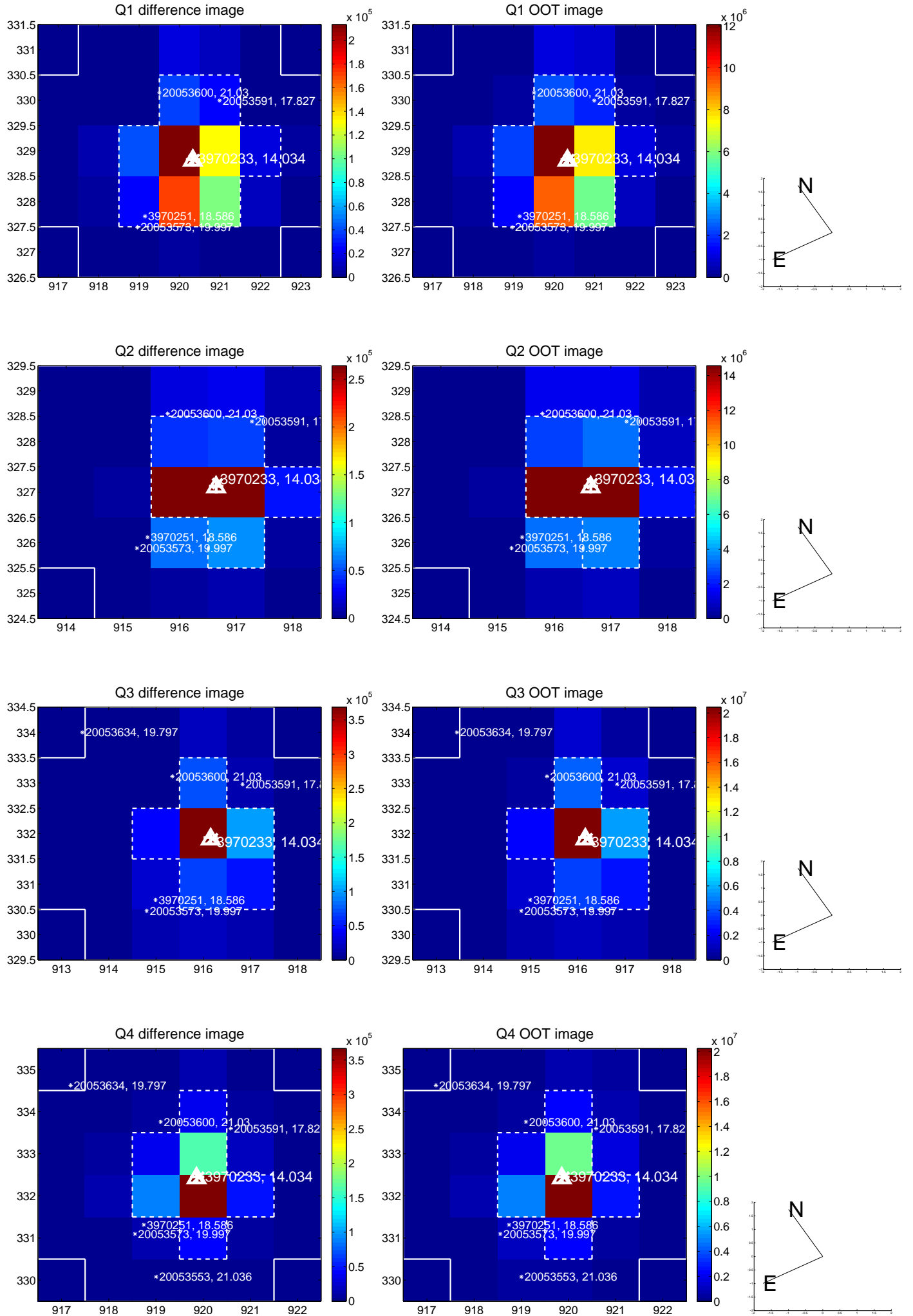
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.067	1.51	0.070 ± 0.067	-0.073 ± 0.067
PRF-fit source offset from KIC position	0.190 ± 0.068	2.79	0.189 ± 0.068	-0.021 ± 0.069
photometric centroid source offset	0.33 ± 0.01	39.85	0.32 ± 0.01	-0.11 ± 0.01

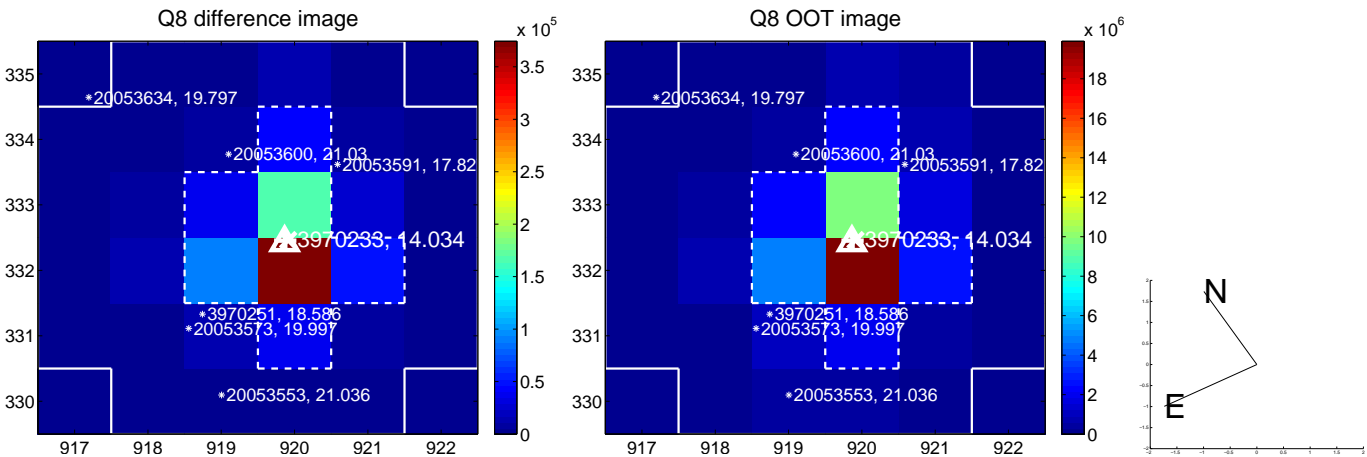
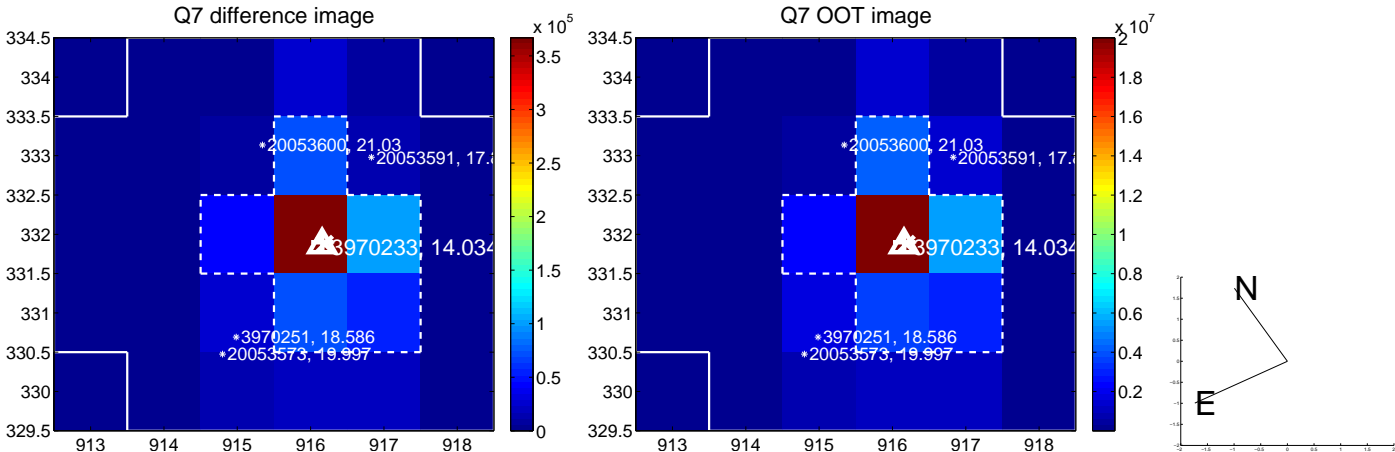
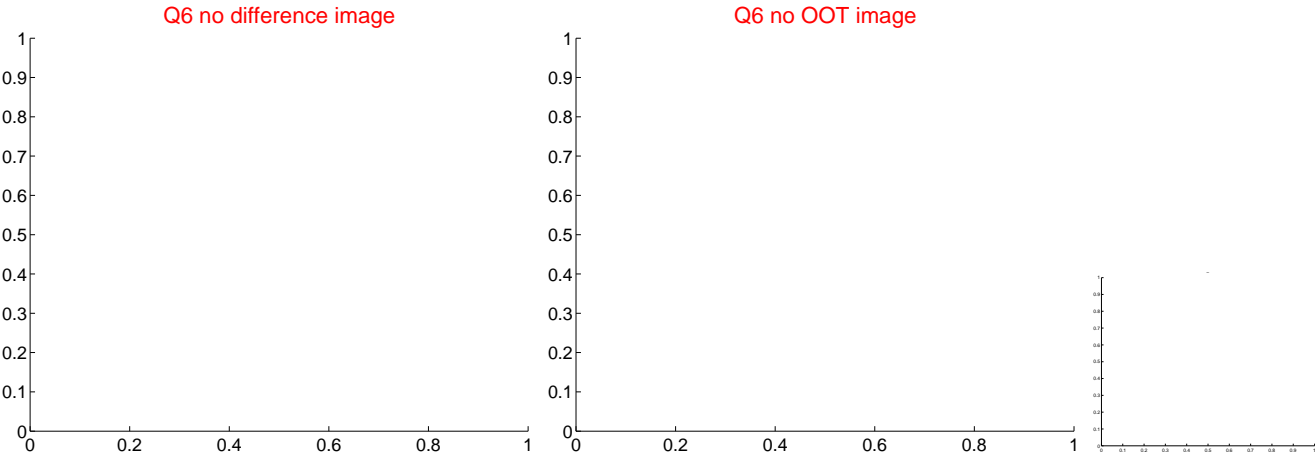
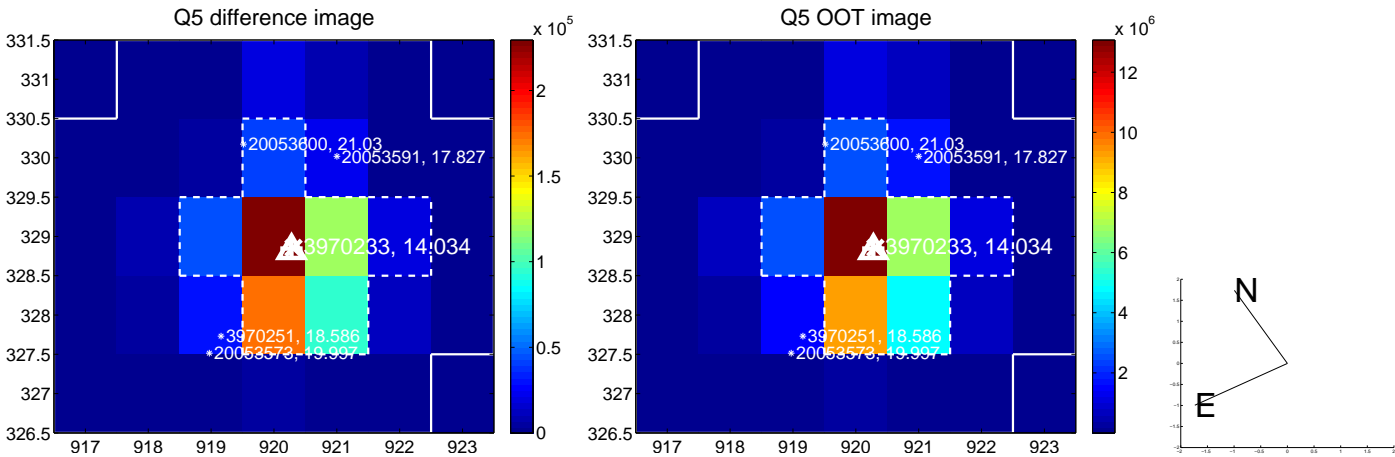


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

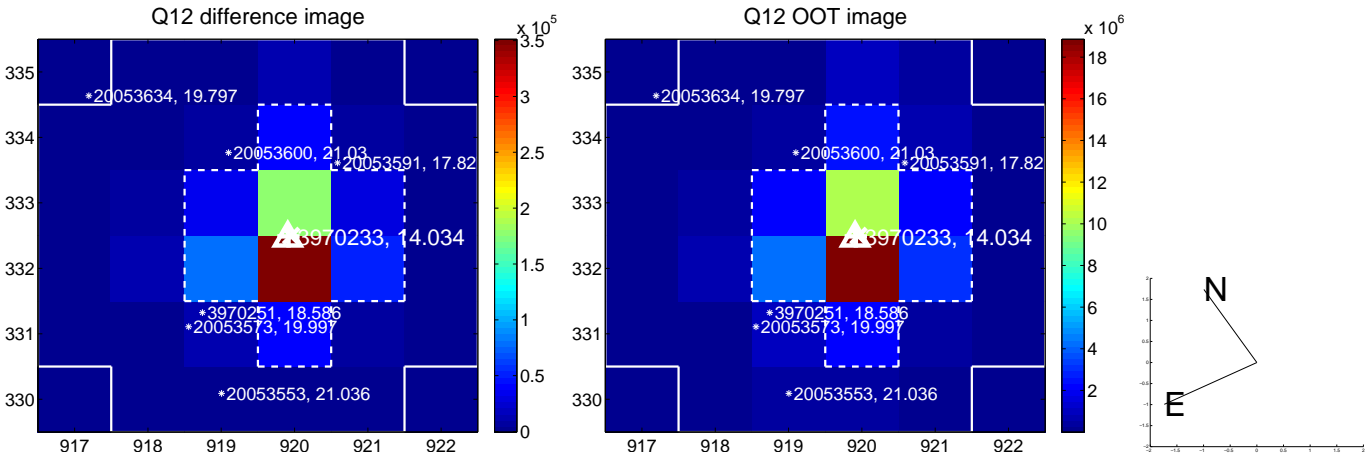
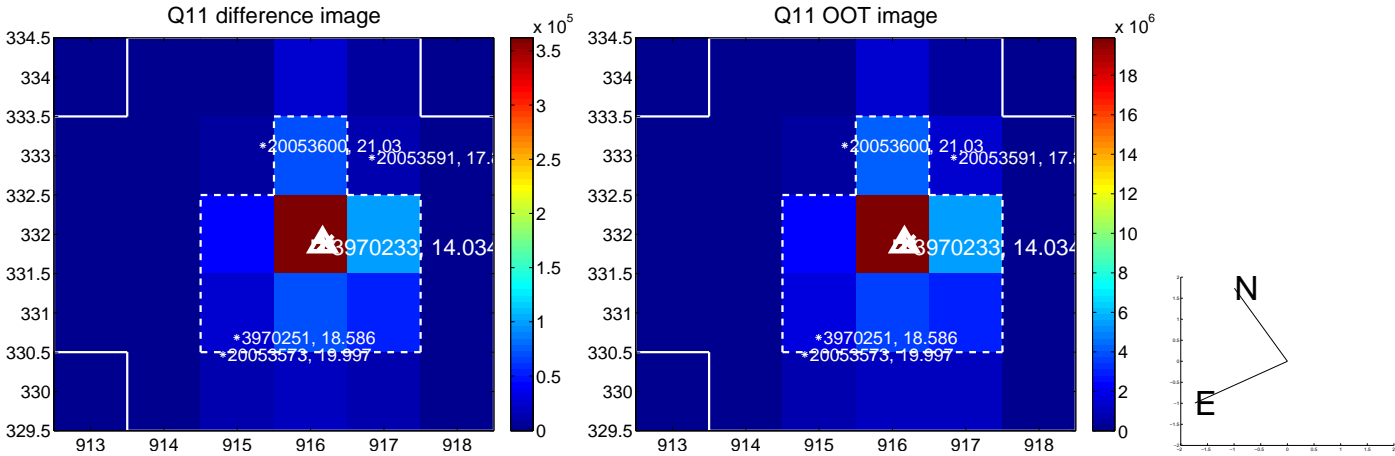
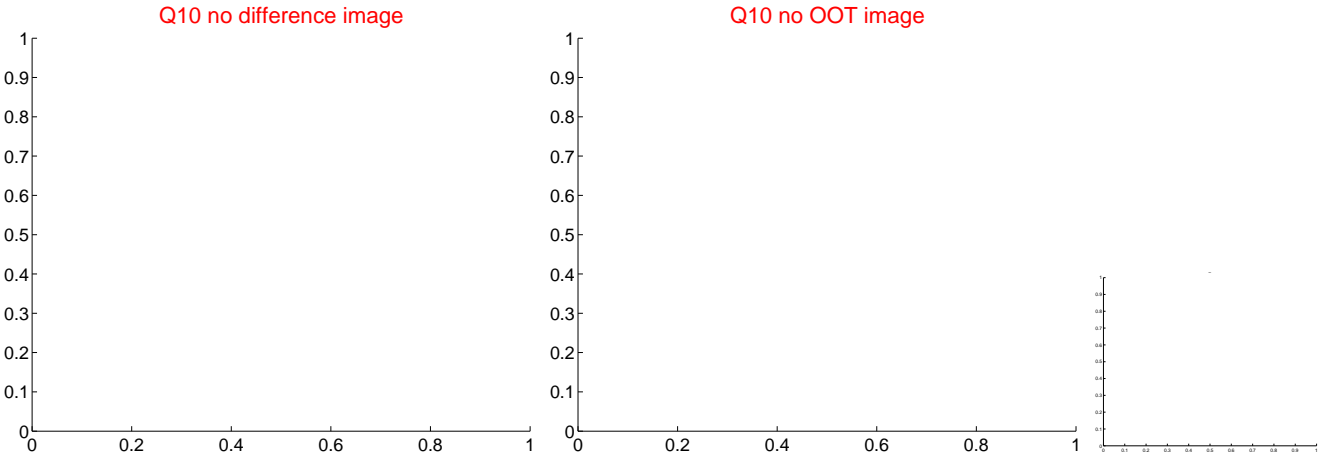
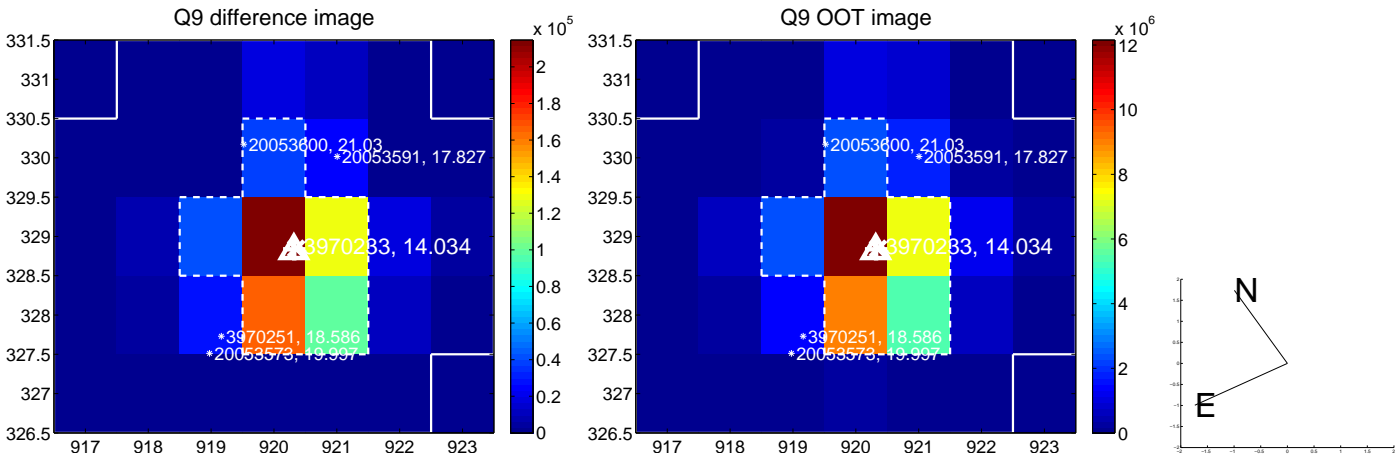
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



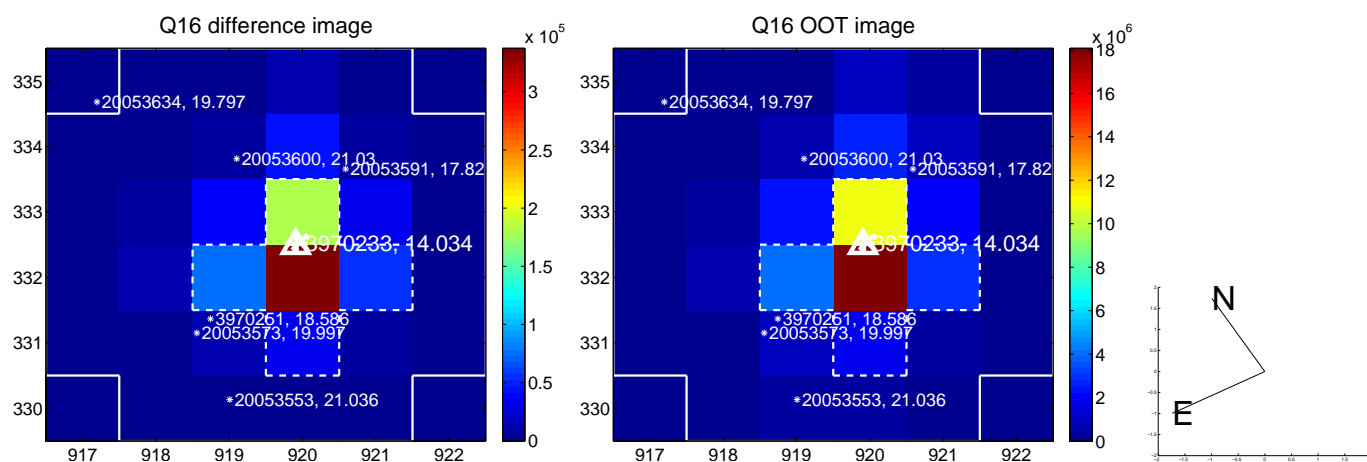
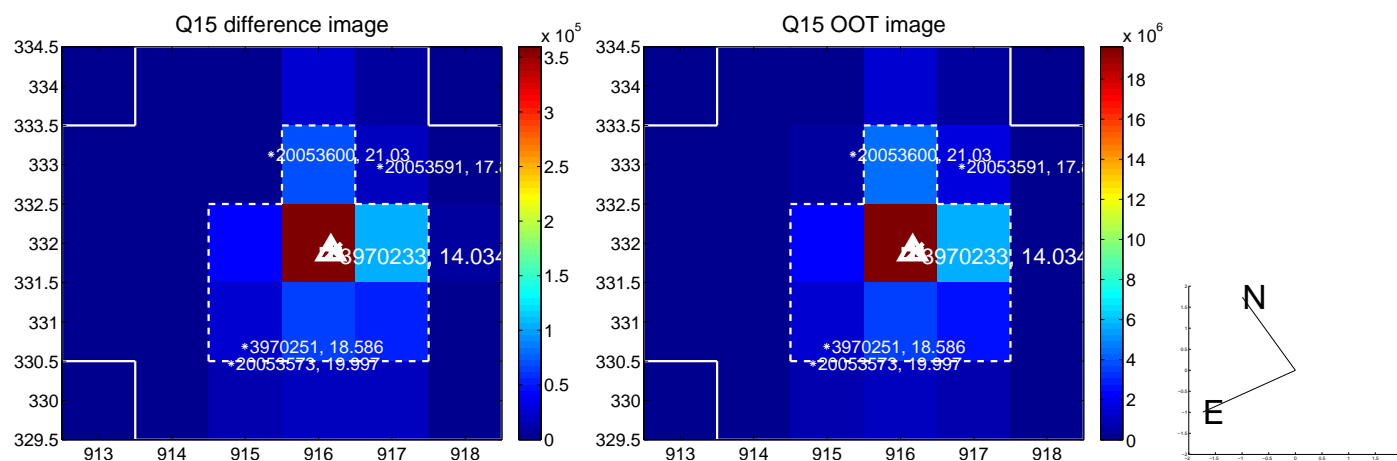
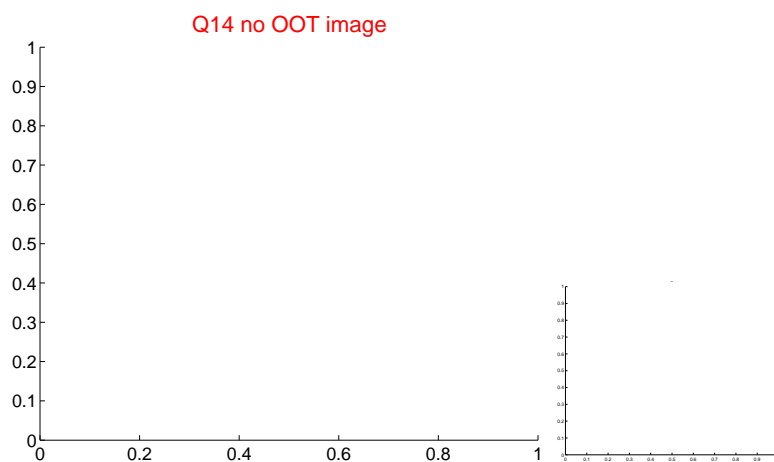
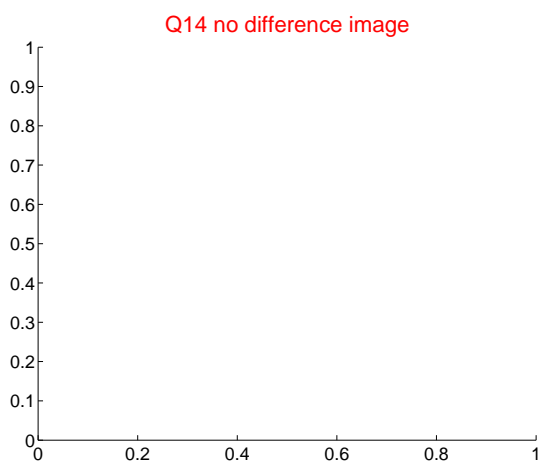
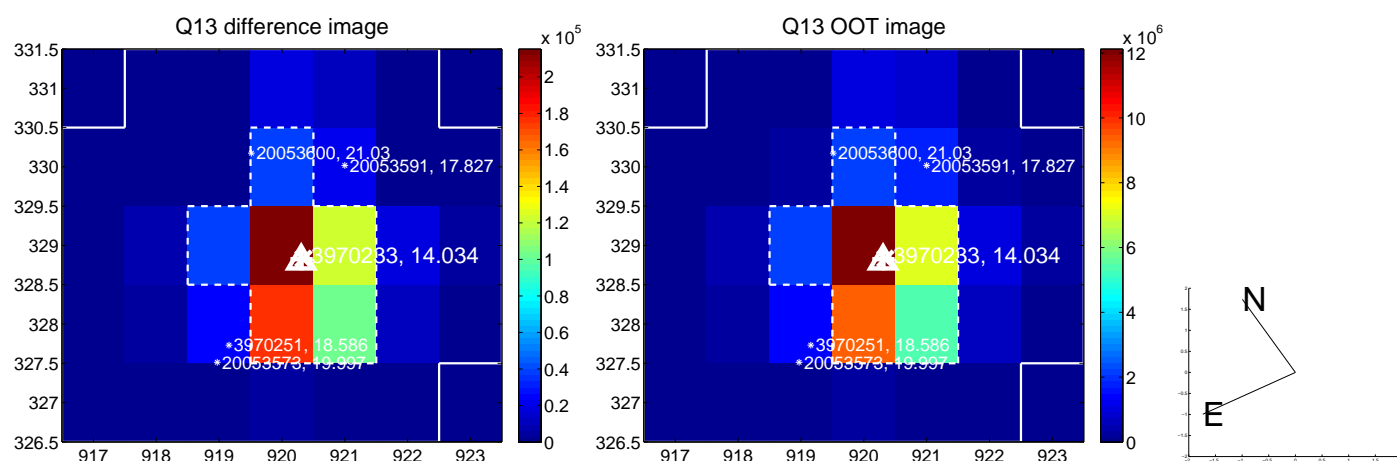
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



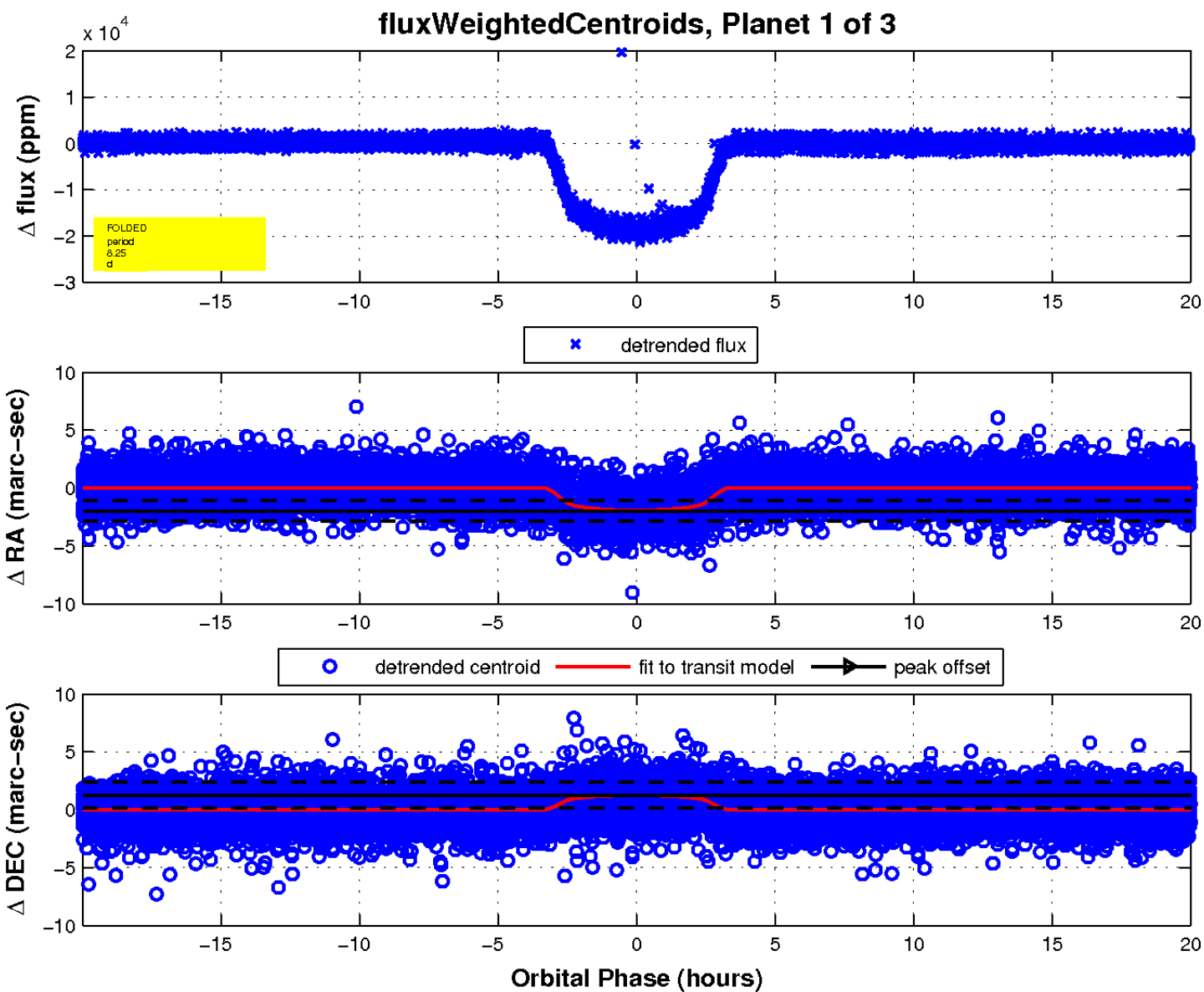
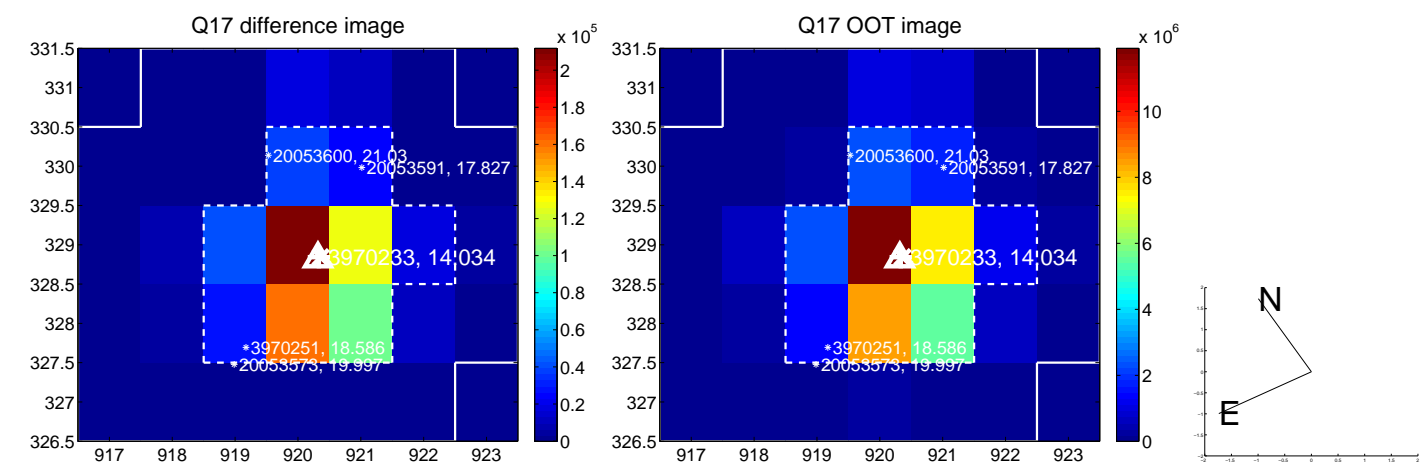
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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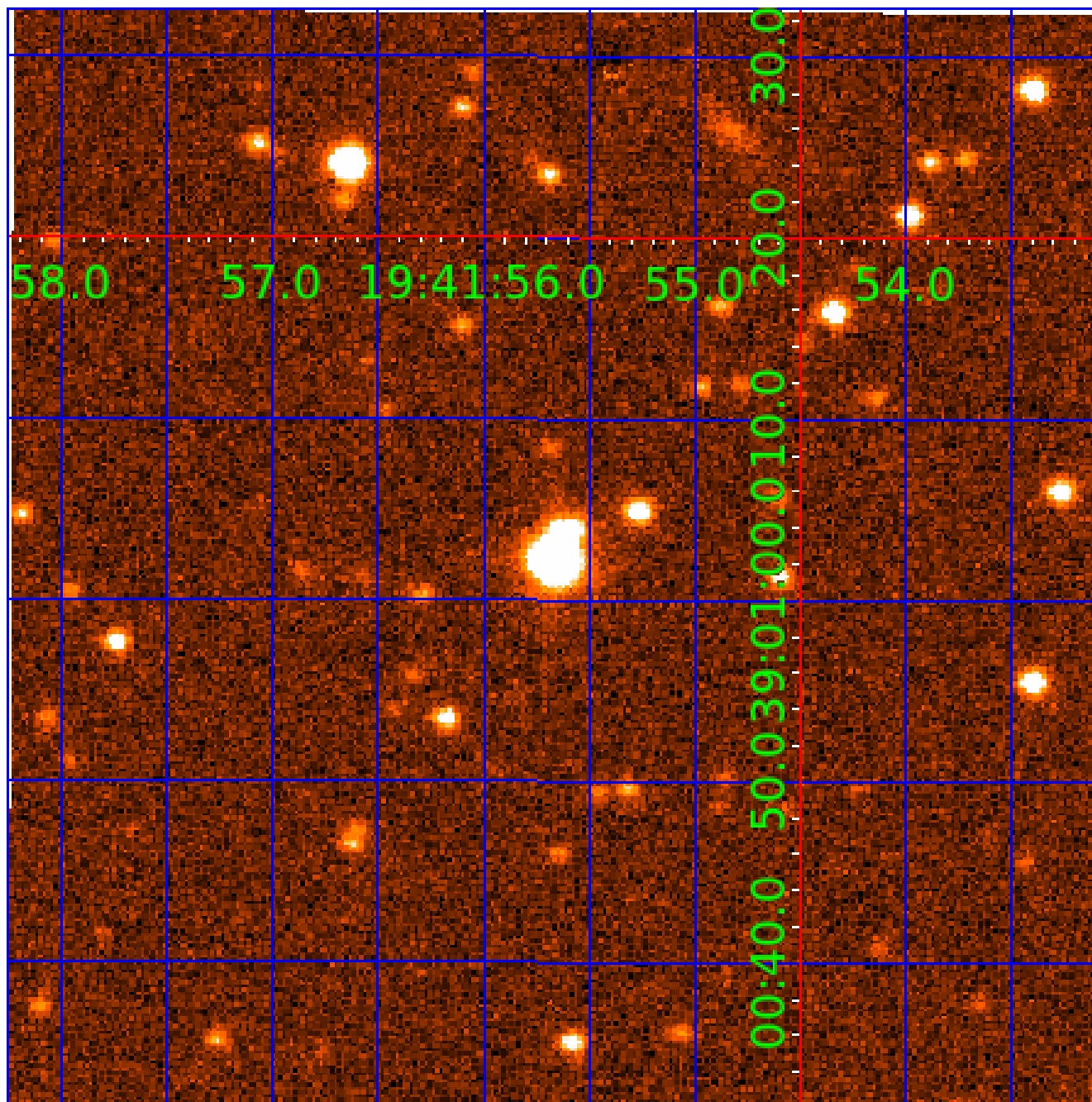


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003970233

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})
003970233-01	OBS	0604.01	8.254918	133.160401	19339.5	6.668	1356.8	1326.8	0.83	5366	11.70	93.69
003970233-02	OBS	No	4.127454	133.120564	581.4	6.598	44.8	42.4	0.83	5366	2.35	236.07
003970233-03	OBS	No	562.917981	302.854629	562.7	4.473	11.1	6.4	0.83	5366	2.17	0.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003970233-01	OBS	FP	0.03	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003970233-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003970233-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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 003970233-02

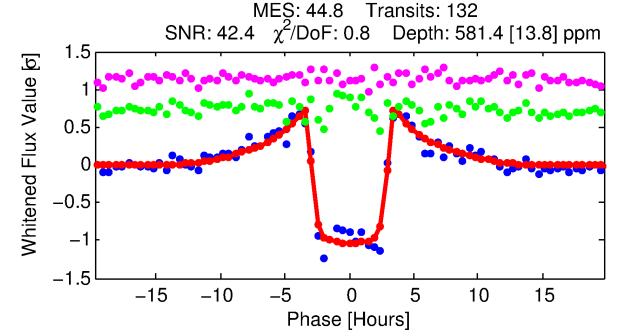
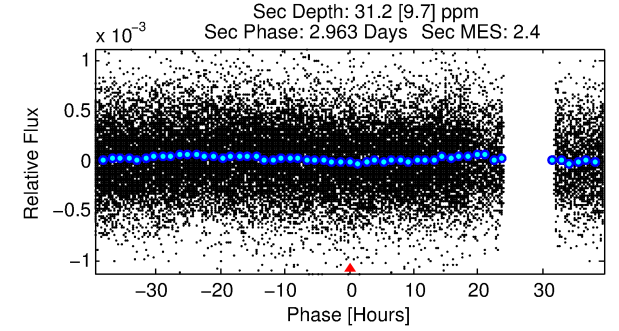
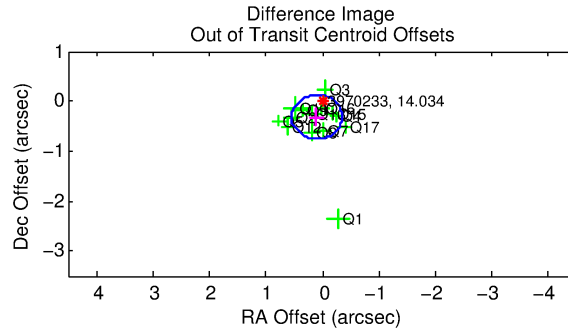
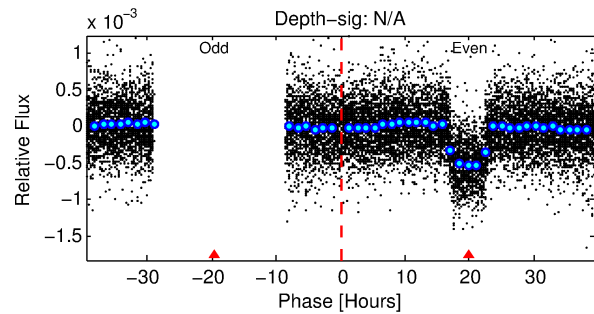
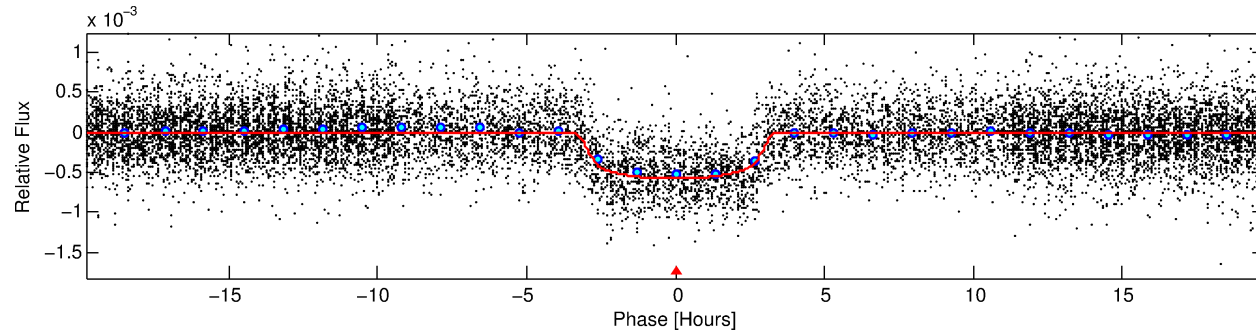
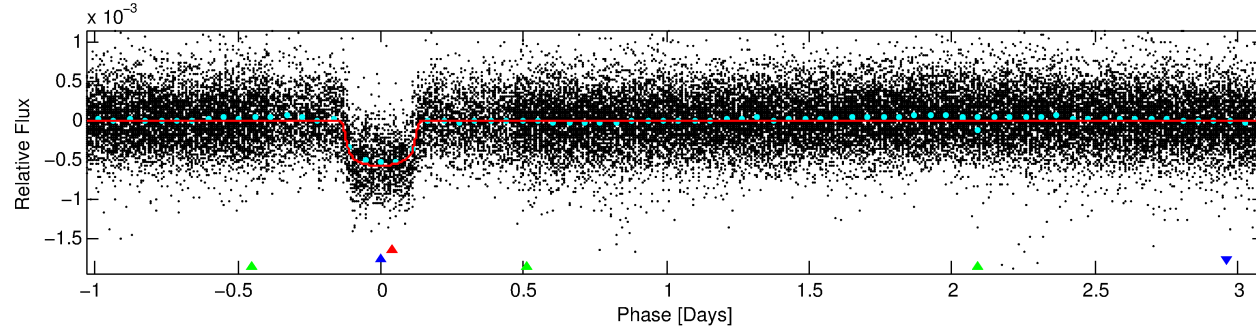
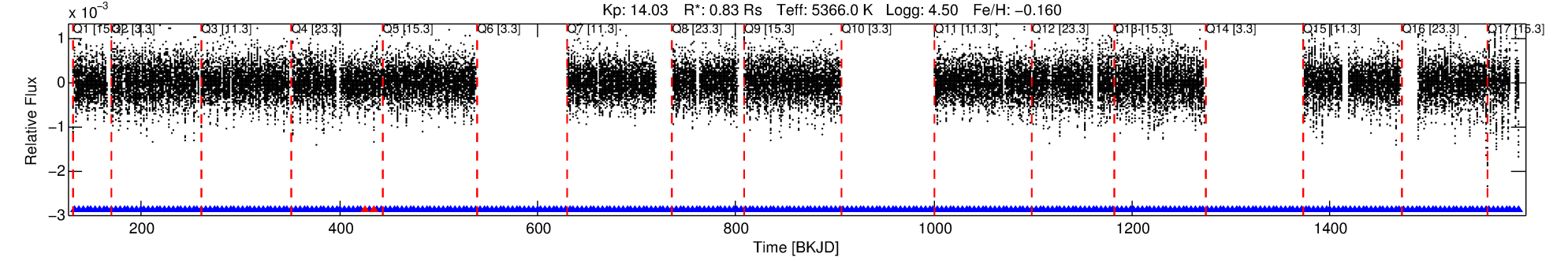
No Significant Match Found

DV One-Page Summary

KIC: 3970233 Candidate: 2 of 3 Period: 4.127 d

KOI: K00604 Corr: No Ephemeris Match

Kp: 14.03 R*: 0.83 Rs Teff: 5366.0 K Logg: 4.50 Fe/H: -0.160



DV Fit Results:

Period = 4.12745 [0.00001] d
Epoch = 133.1206 [0.0014] BKJD
Rp/R* = 0.0258 [0.0009]
a/R* = 2.77 [0.30]
b = 0.87 [0.04]
Seff = 236.07 [56.53]
Teff = 1000 [60] K
Rp = 2.35 [0.40] Re
a = 0.0468 [0.0067] AU
Ag = 6.83 [2.61] [2.24σ]
Teffp = 2498 [213] K [6.78σ]

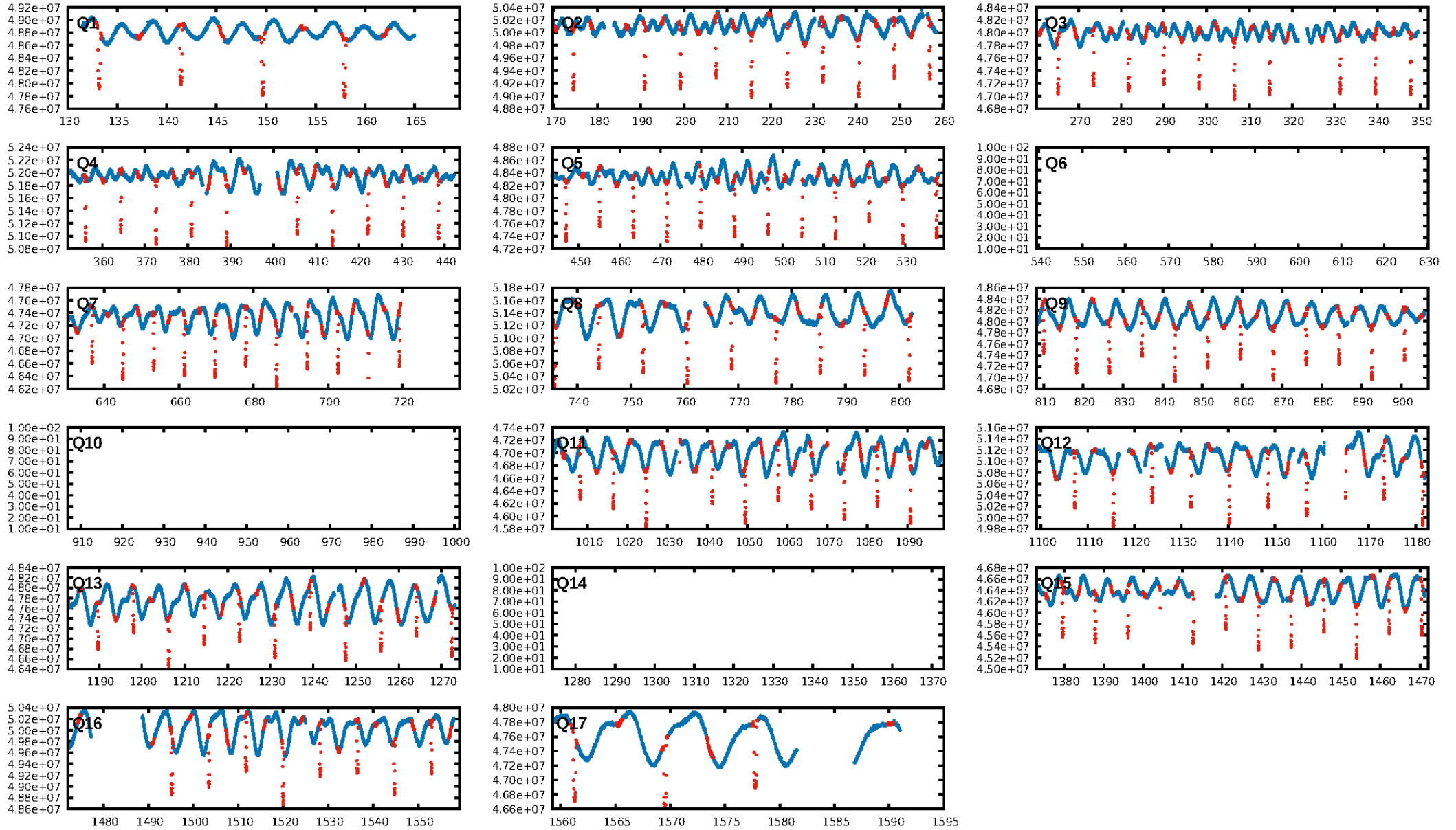
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [10.56σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [123/125]
GhostDiagnostic-chr: 2.772
Centroid-sig: 0.0%
Centroid-so: 0.392 arcsec [2.08σ]
OotOffset-rm: 0.330 arcsec [2.23σ]
KicOffset-rm: 0.344 arcsec [2.28σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

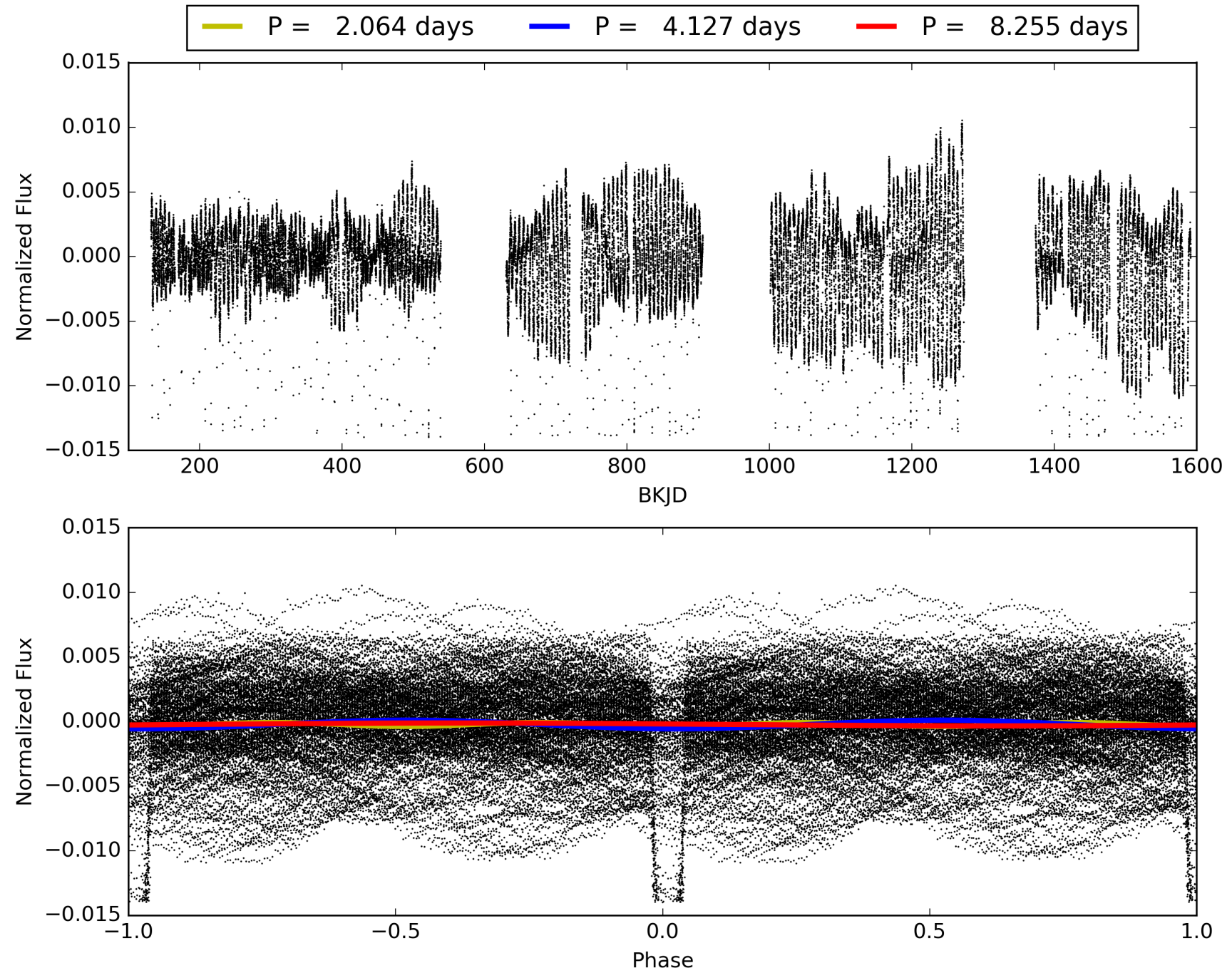
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:35:19 Z

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

TCE 003970233-02, PDC Light Curves

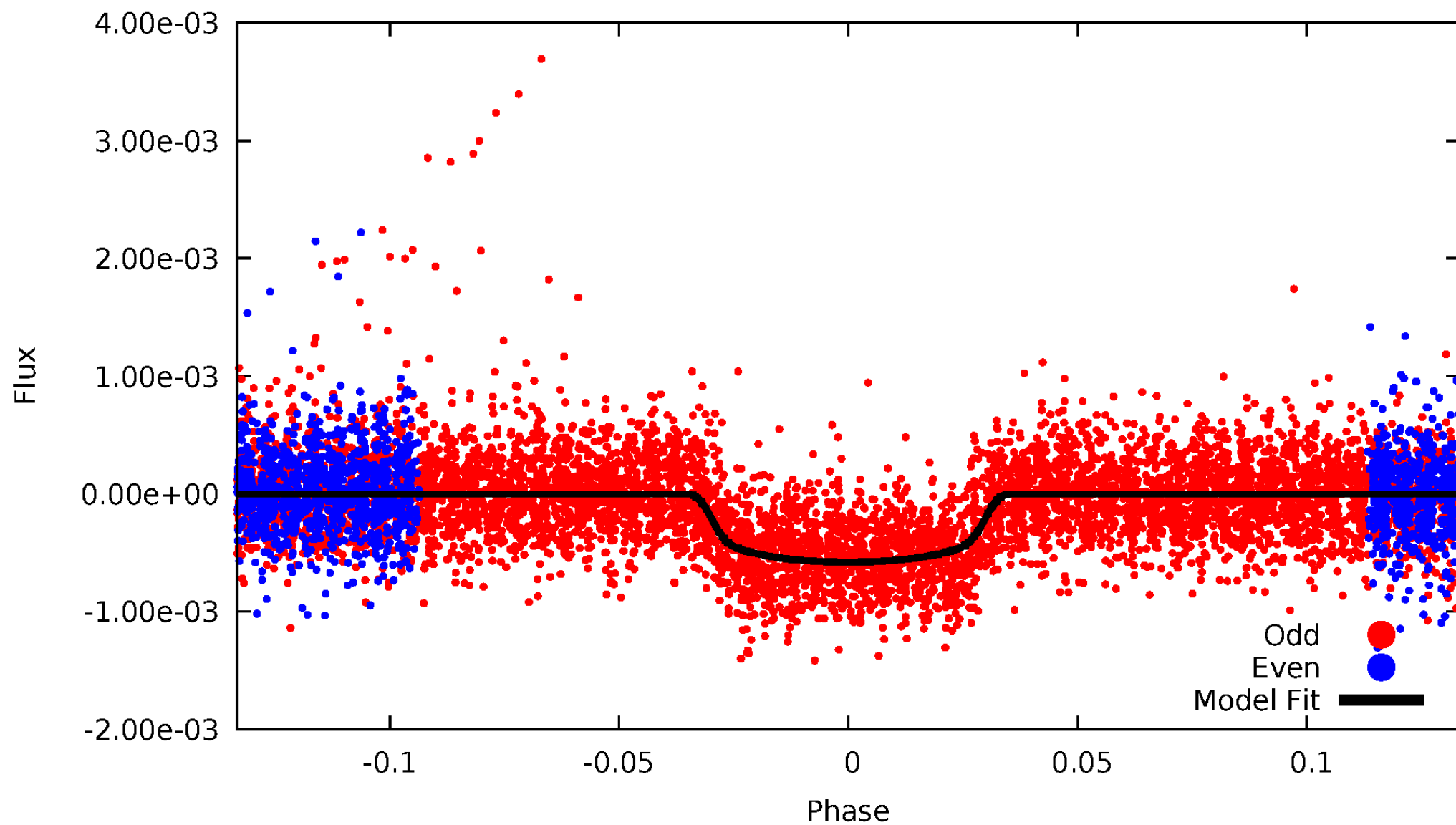


TCE 003970233-02



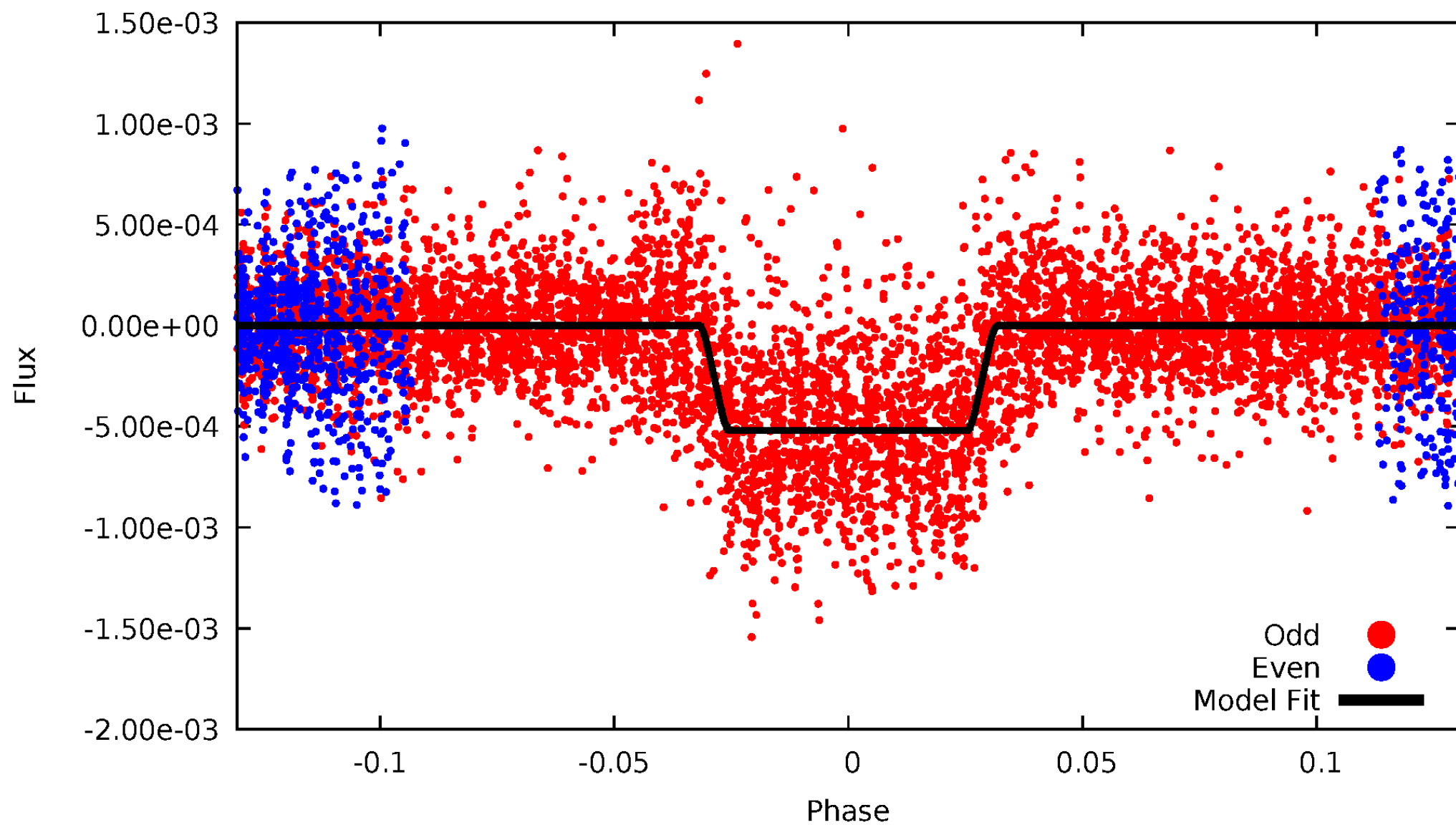
DV Odd/Even

TCE 003970233-02



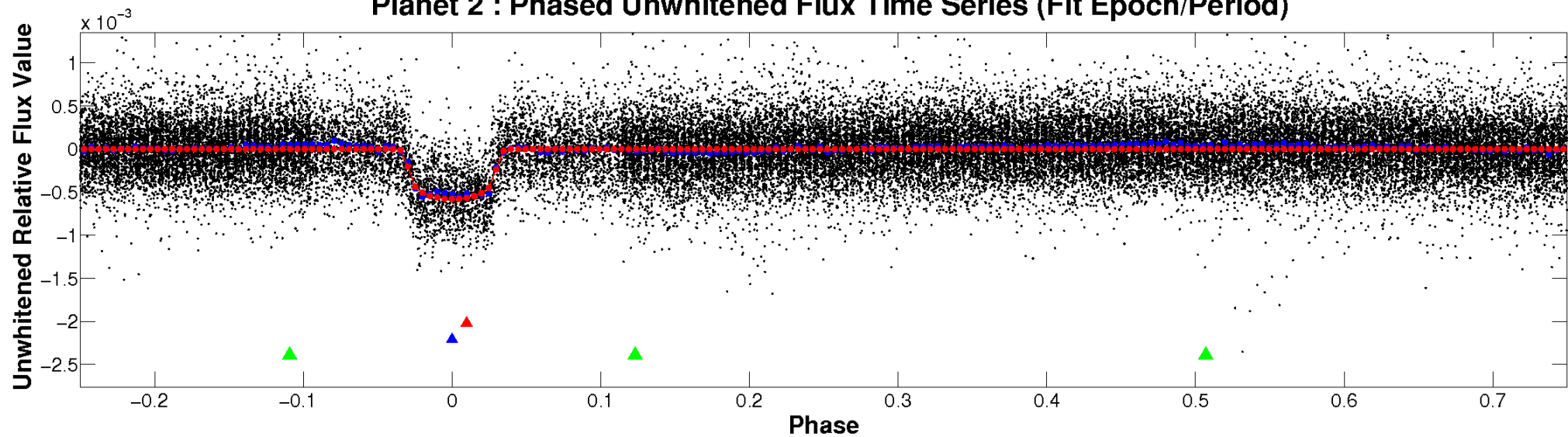
ALT Odd/Even

TCE 003970233-02

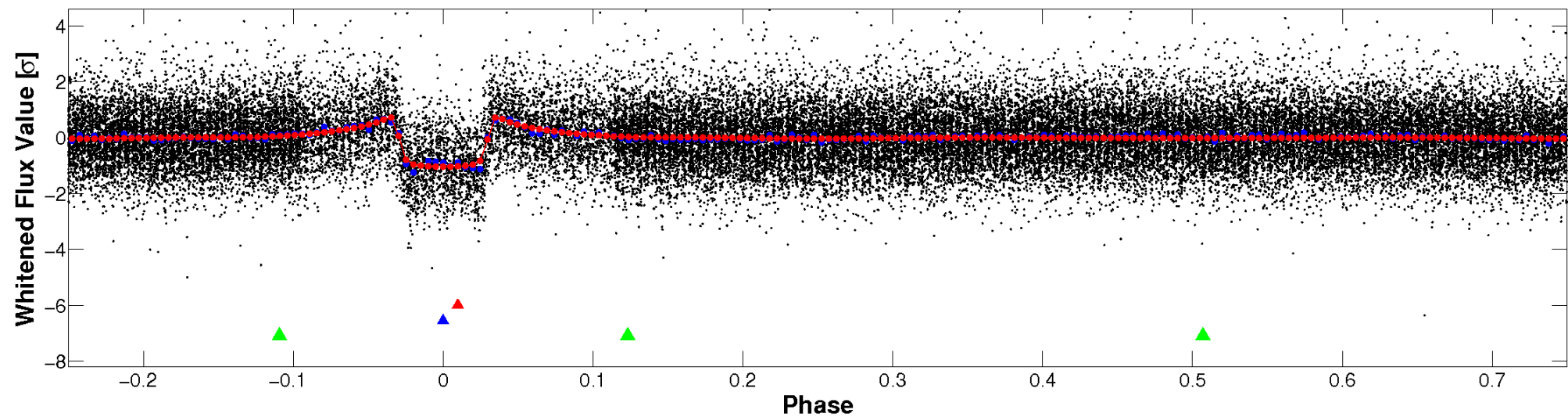


Non-Whitened Vs. Whitened Light Curve

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

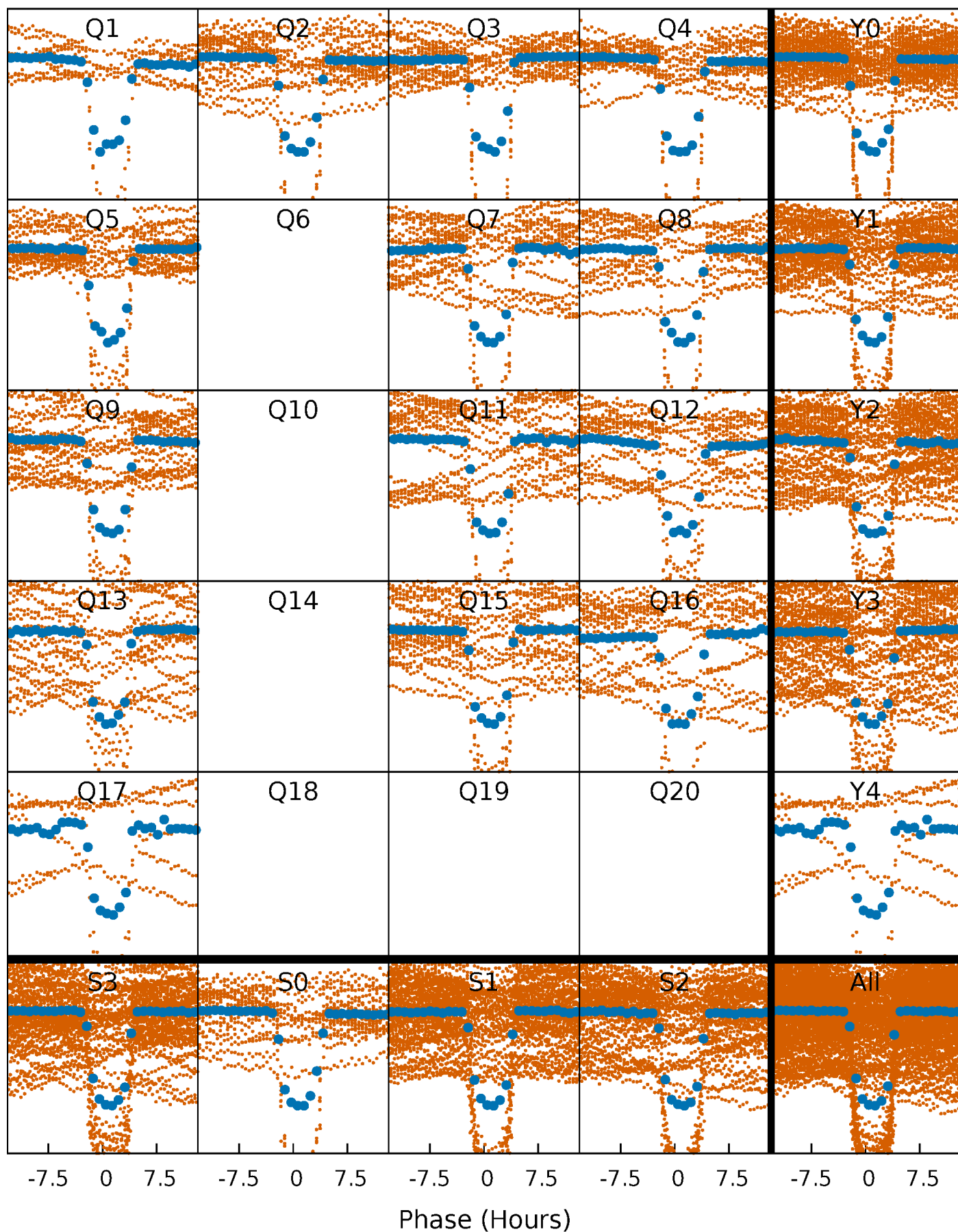


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



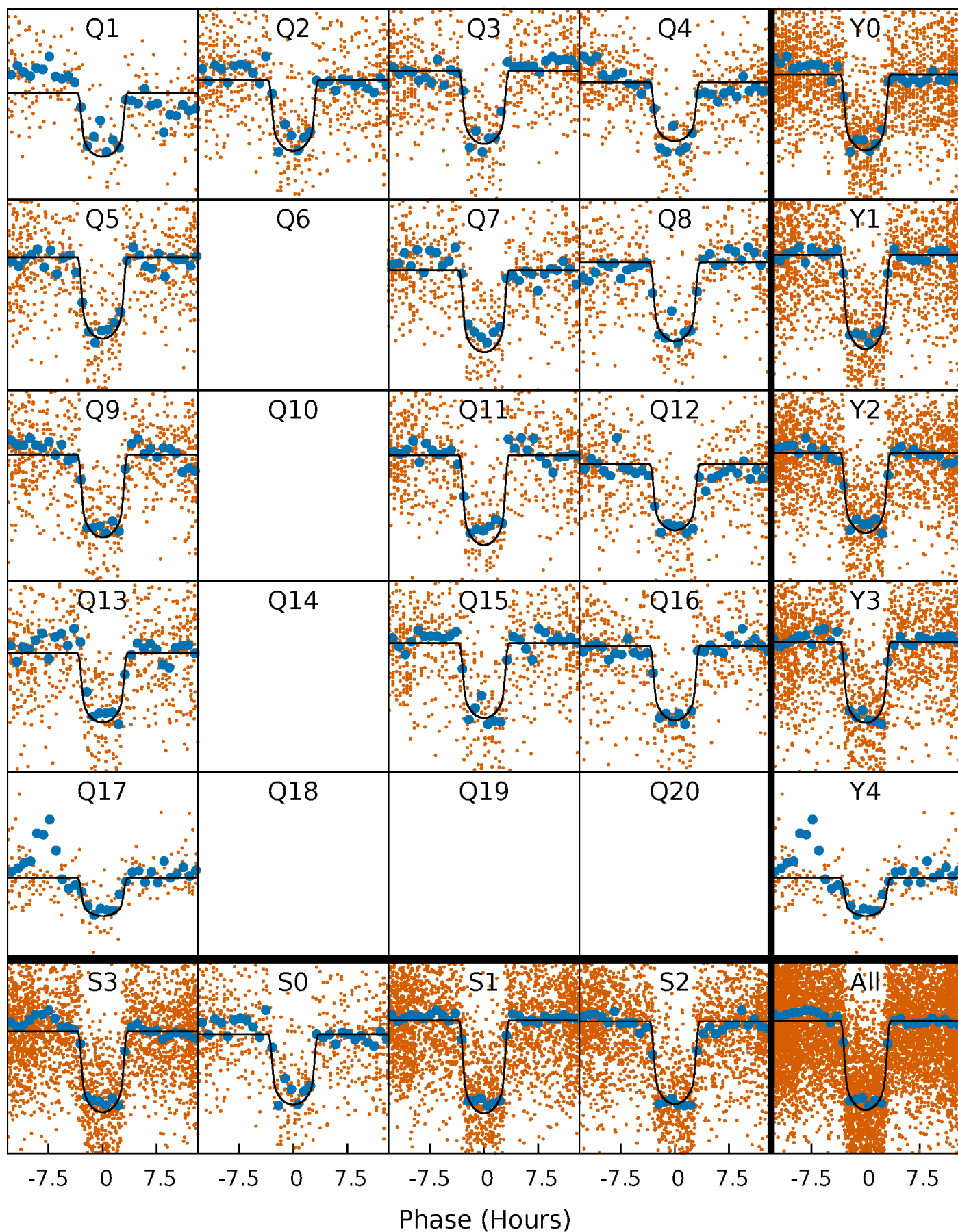
PDC Quarter-Phased Transit Curves

TCE 003970233-02 P= 4.127454 Days $T_0=133.120564$ (BKJD)



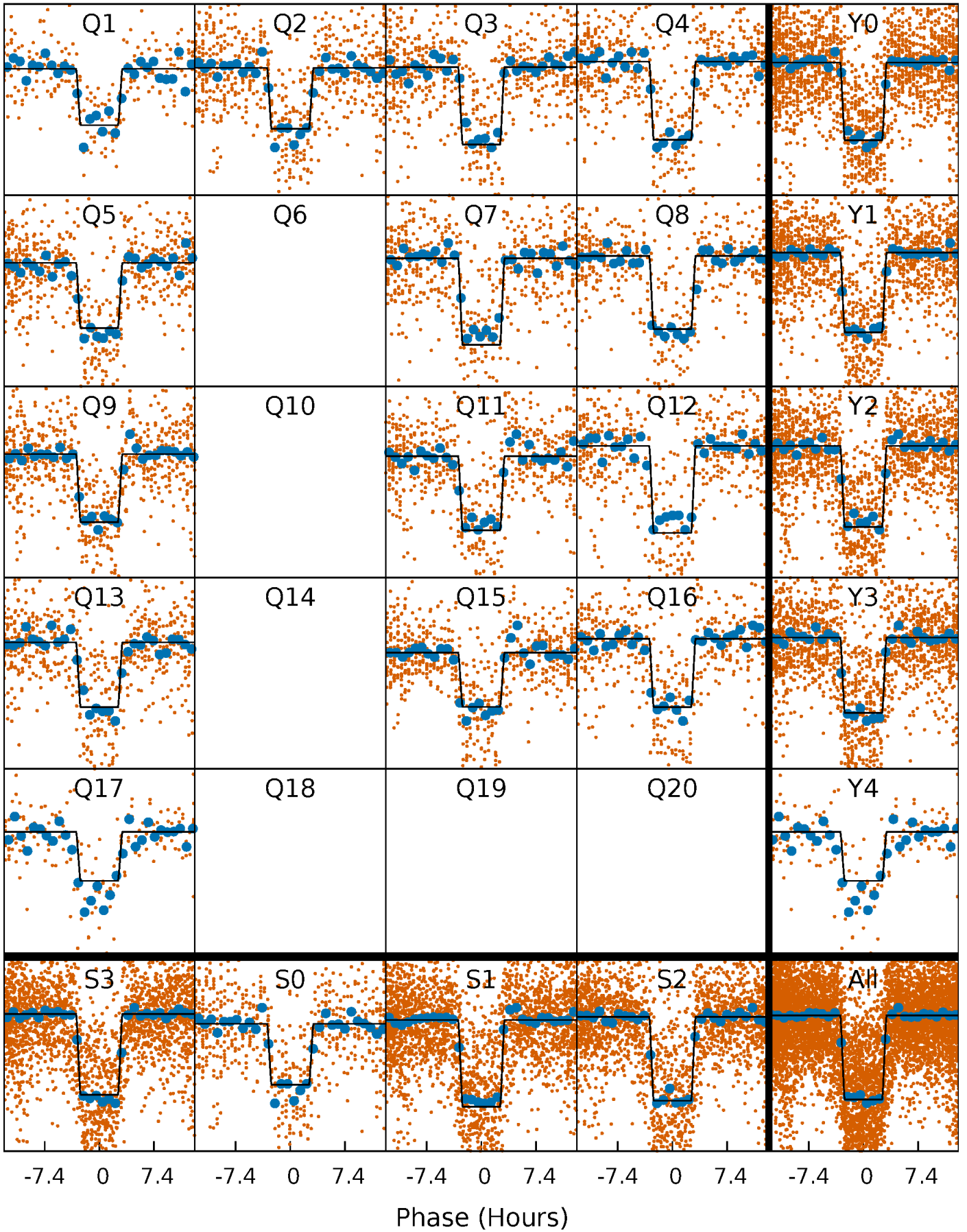
DV Quarter-Phased Transit Curves

TCE 003970233-02 P= 4.127454 Days $T_0=133.120564$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

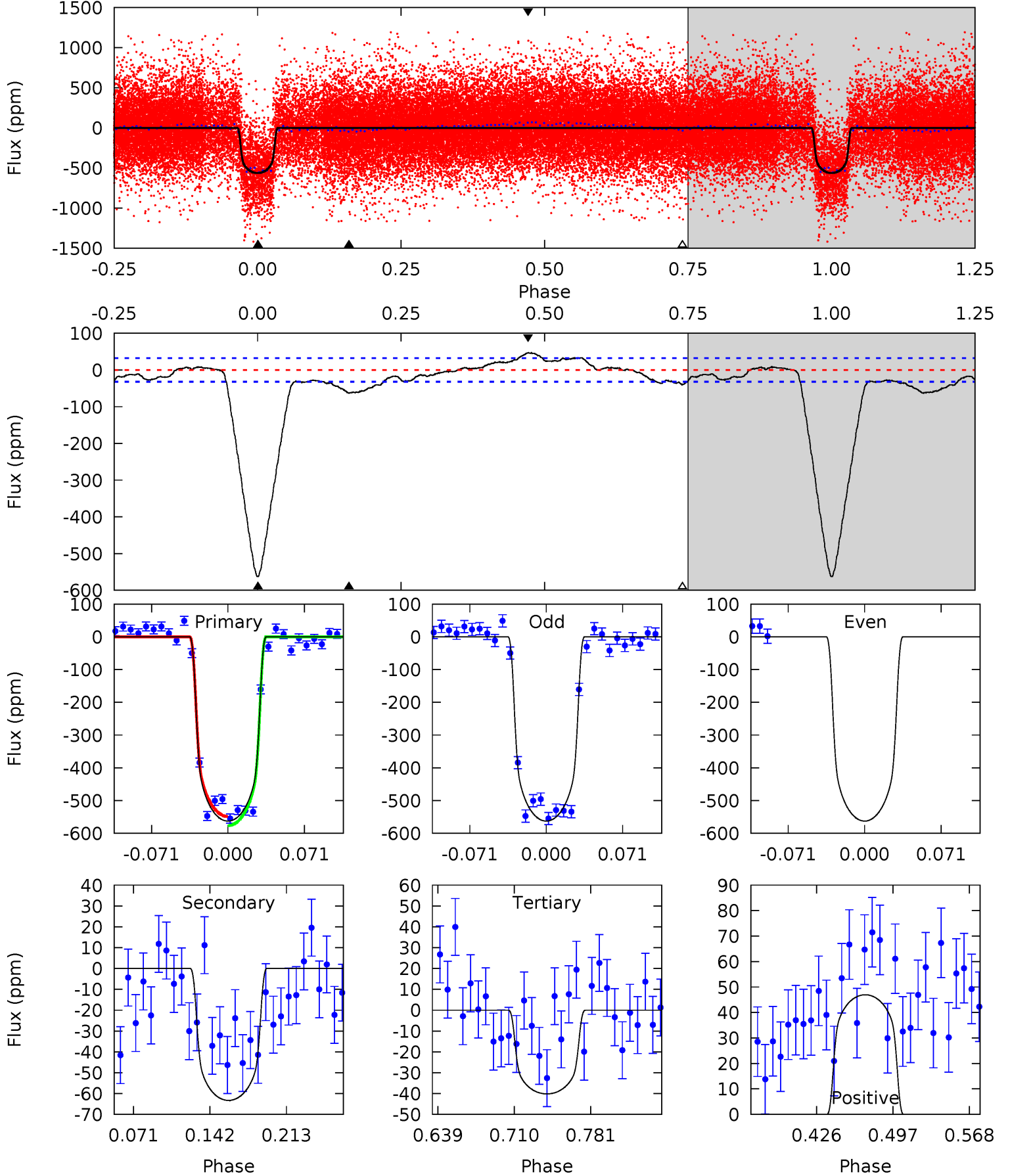
TCE 003970233-02 P= 4.127501 Days $T_0=133.113024$ (BKJD)



DV Model-Shift Uniqueness Test

003970233-02, P = 4.127454 Days, E = 128.993110 Days

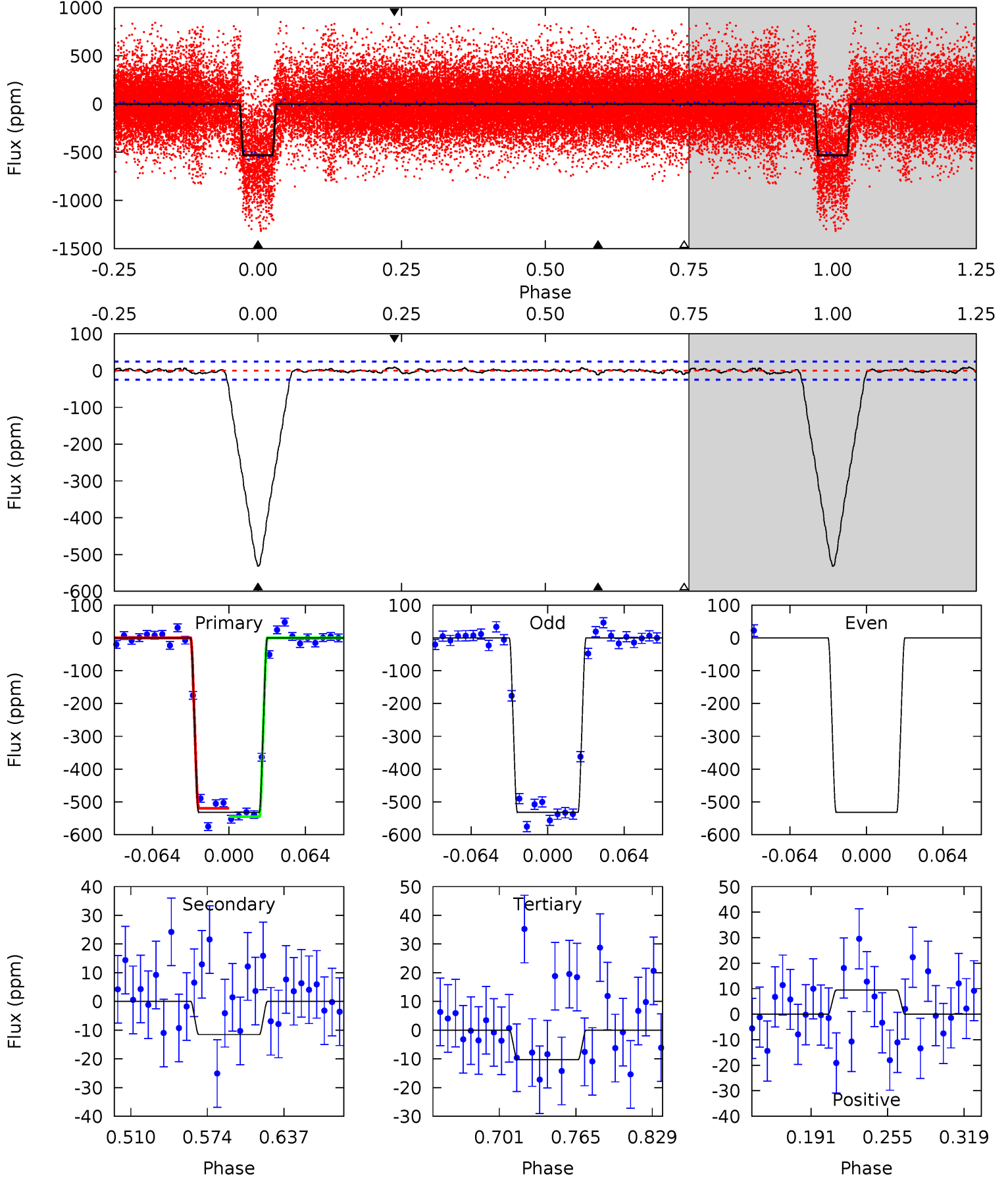
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.8	9.09	5.77	6.75	4.64	1.81	3.12	75.1	74.1	3.32	2.35	0	1.02	0.08	1.99



Alt Model-Shift Uniqueness Test

003970233-02, P = 4.127501 Days, E = 128.985523 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.9	2.16	1.94	1.77	4.66	1.85	0.68	97.9	98.1	0.23	0.39	0	0.96	0.02	2.36



Stellar Parameters For KIC 003970233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5366^{+159}_{-143}	$4.500^{+0.085}_{-0.114}$	$-0.160^{+0.300}_{-0.300}$	$0.835^{+0.141}_{-0.094}$	$0.805^{+0.104}_{-0.070}$	$1.950^{+0.712}_{-0.663}$
	+3%/-3%	+2%/-3%	+188%/-188%	+17%/-11%	+13%/-9%	+37%/-34%
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 003970233-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-63 ± 7	$2.37^{+0.26}_{-0.17}$	1403^{+66}_{-58}	3455^{+90}_{-106}	14^{+3}_{-3}
Alt.	-12 ± 5	$2.12^{+0.21}_{-0.18}$	1409^{+69}_{-62}	2772^{+171}_{-238}	$3.124^{+1.724}_{-1.395}$

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 $A_{obs} \gg 1.0$

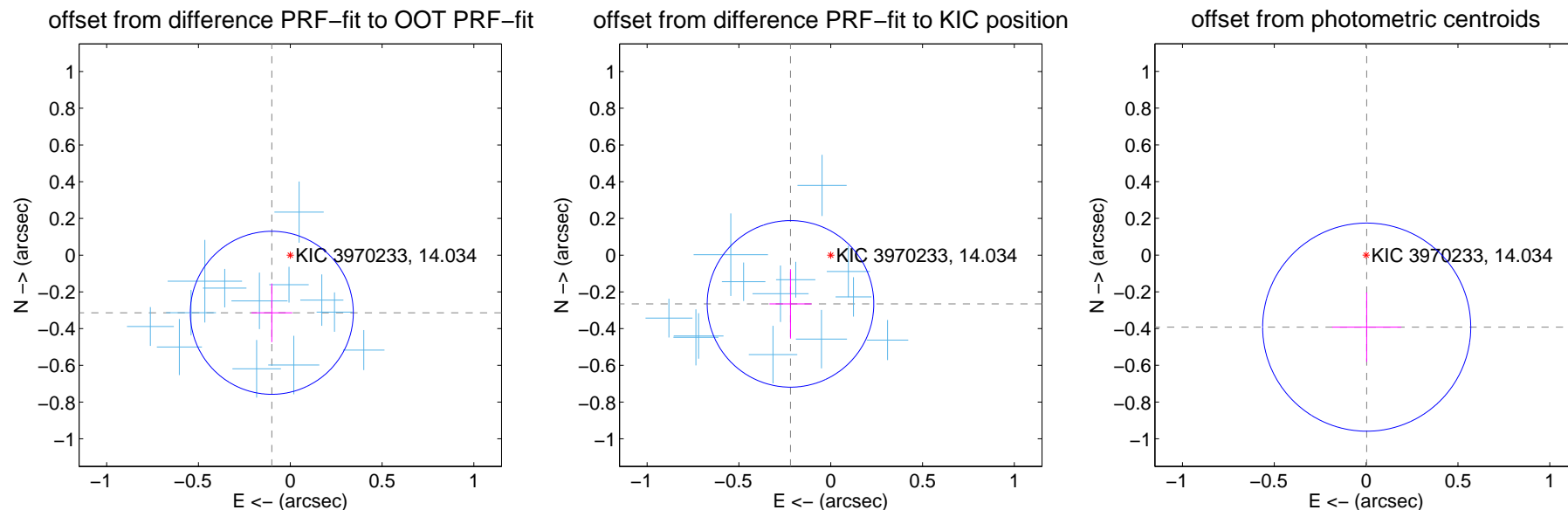
DV Centroid Data

Supplemental centroid analysis for 003970233-02. Kepler magnitude: 14.03. Transit SNR 42.41

There are 14 quarters with good PRF difference image offsets

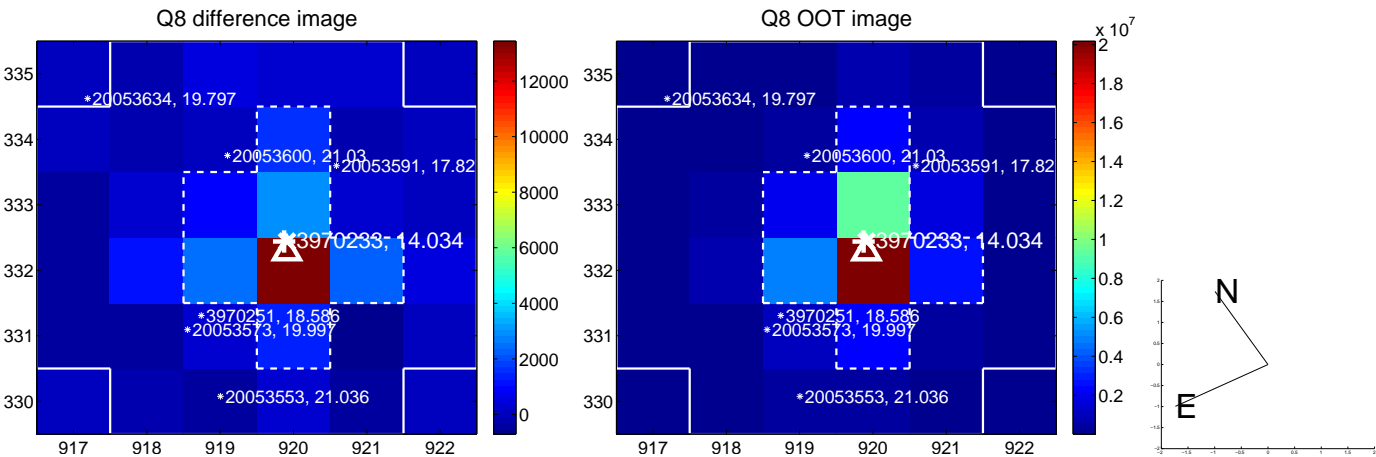
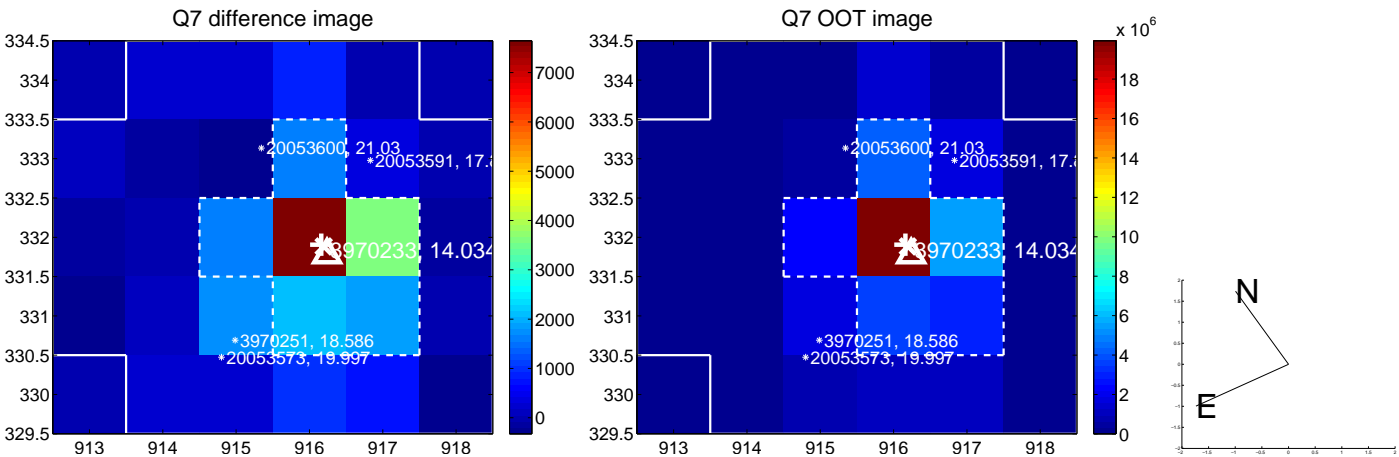
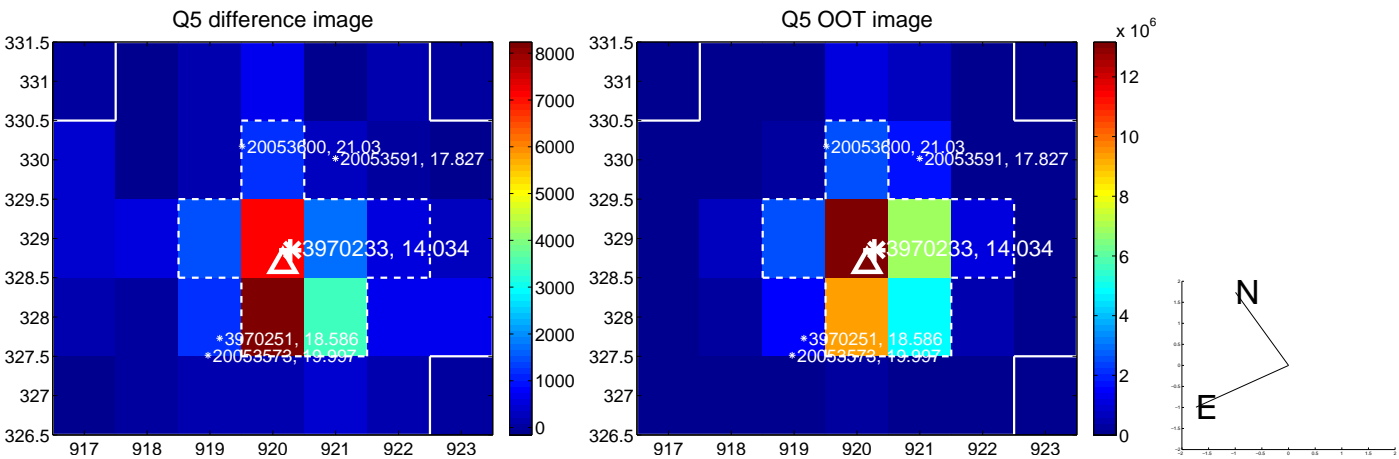
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.330 ± 0.148	2.23	0.101 ± 0.111	-0.314 ± 0.159
PRF-fit source offset from KIC position	0.344 ± 0.151	2.28	0.219 ± 0.115	-0.265 ± 0.189
photometric centroid source offset	0.39 ± 0.19	2.08	-0.00 ± 0.19	-0.39 ± 0.19

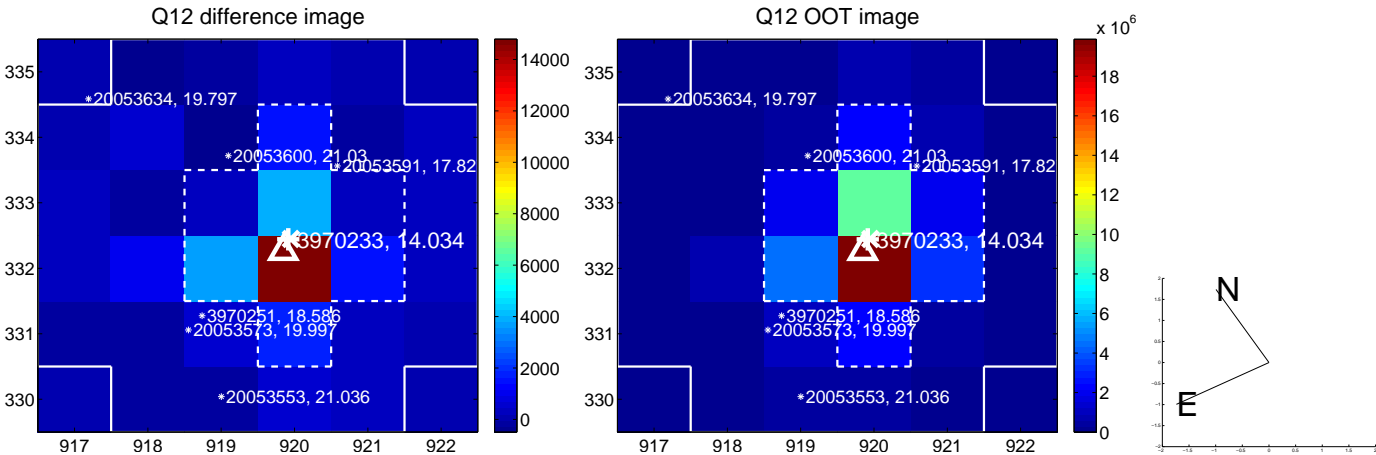
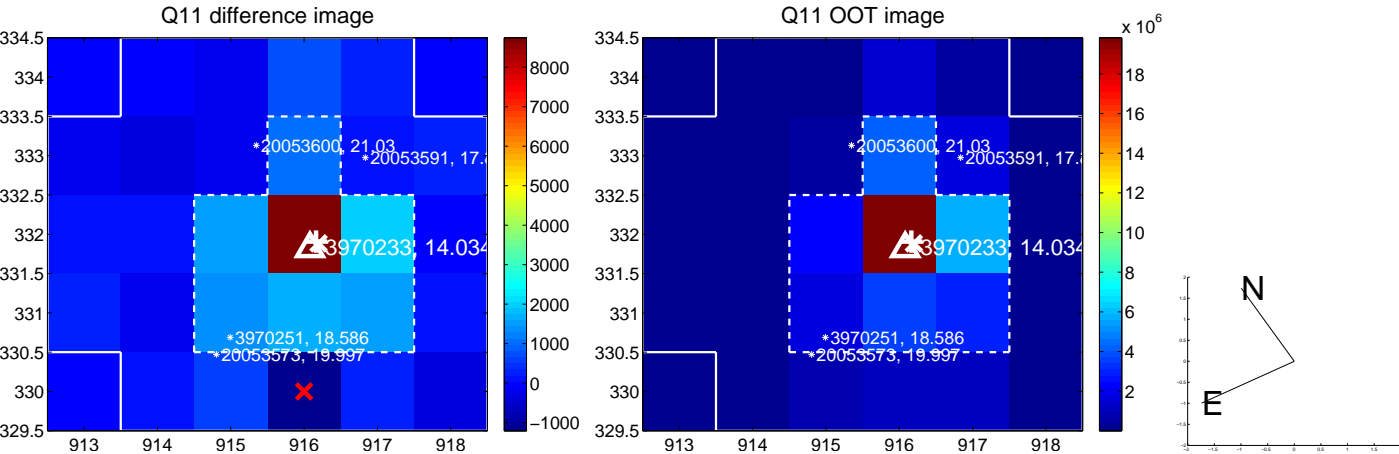
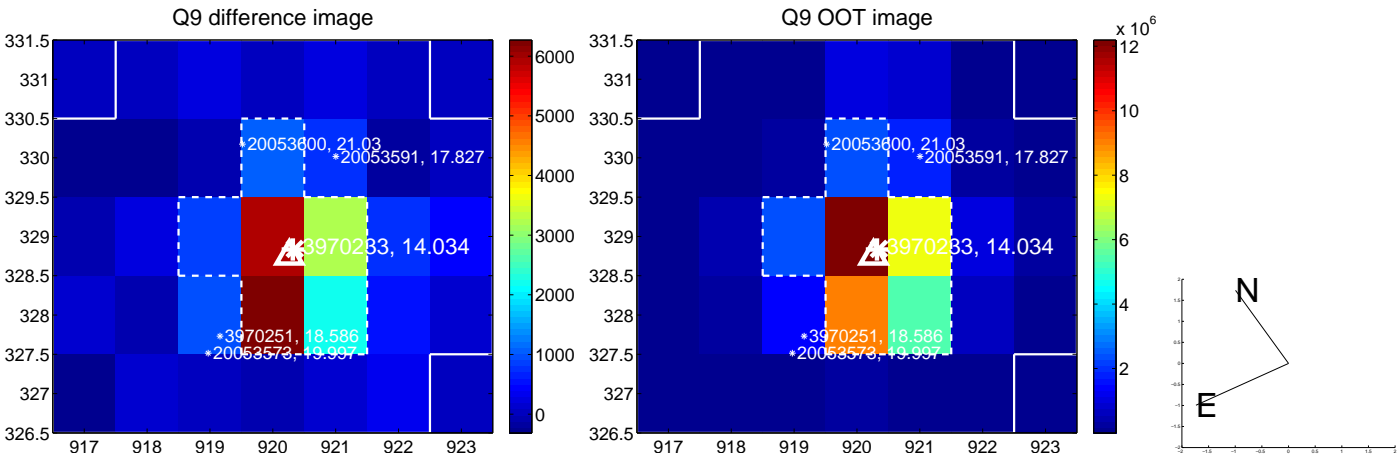


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

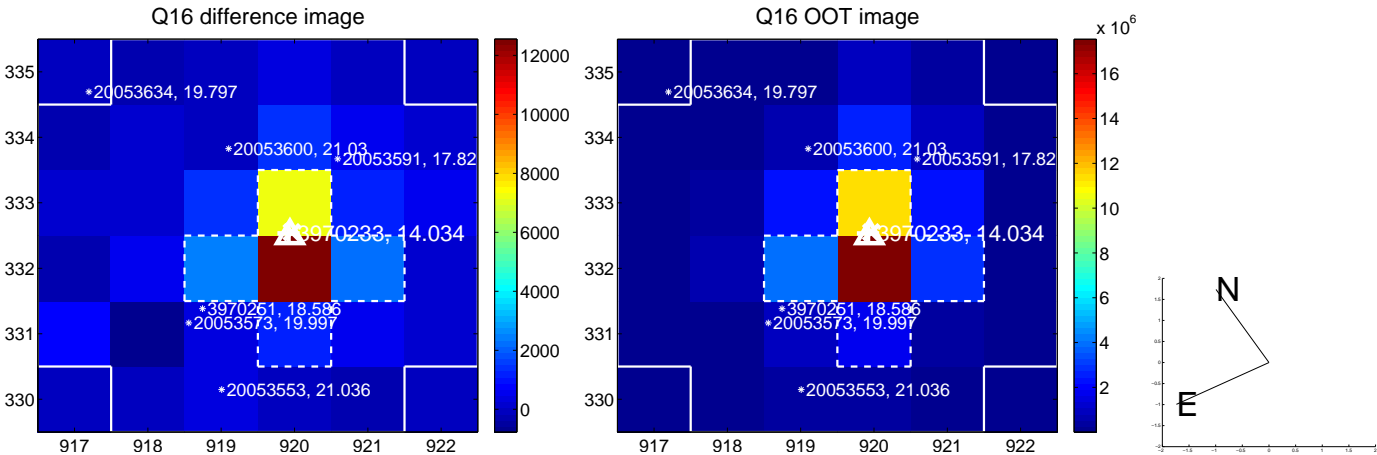
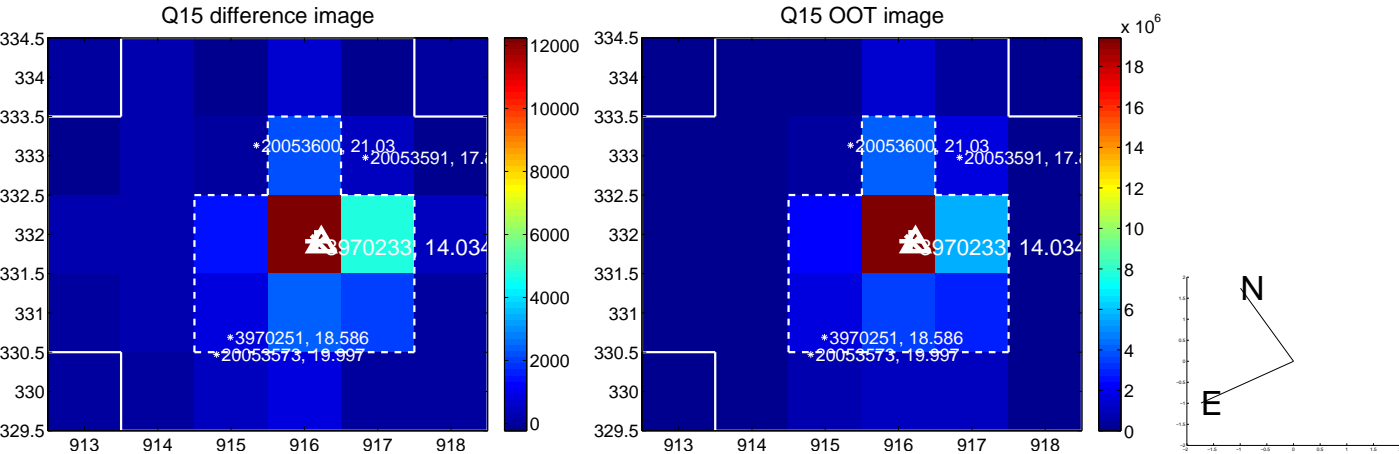
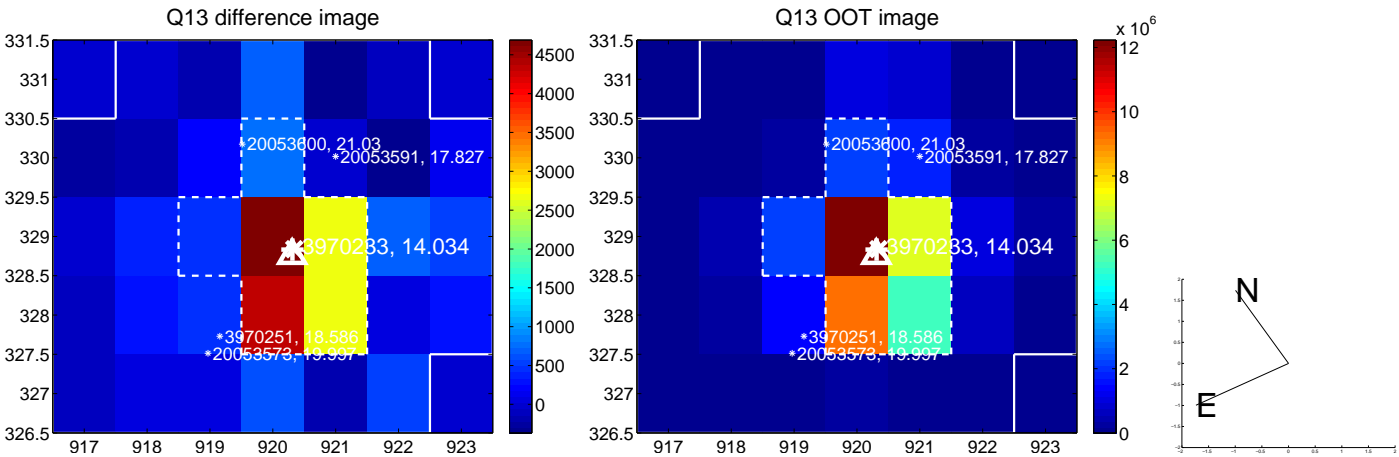
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



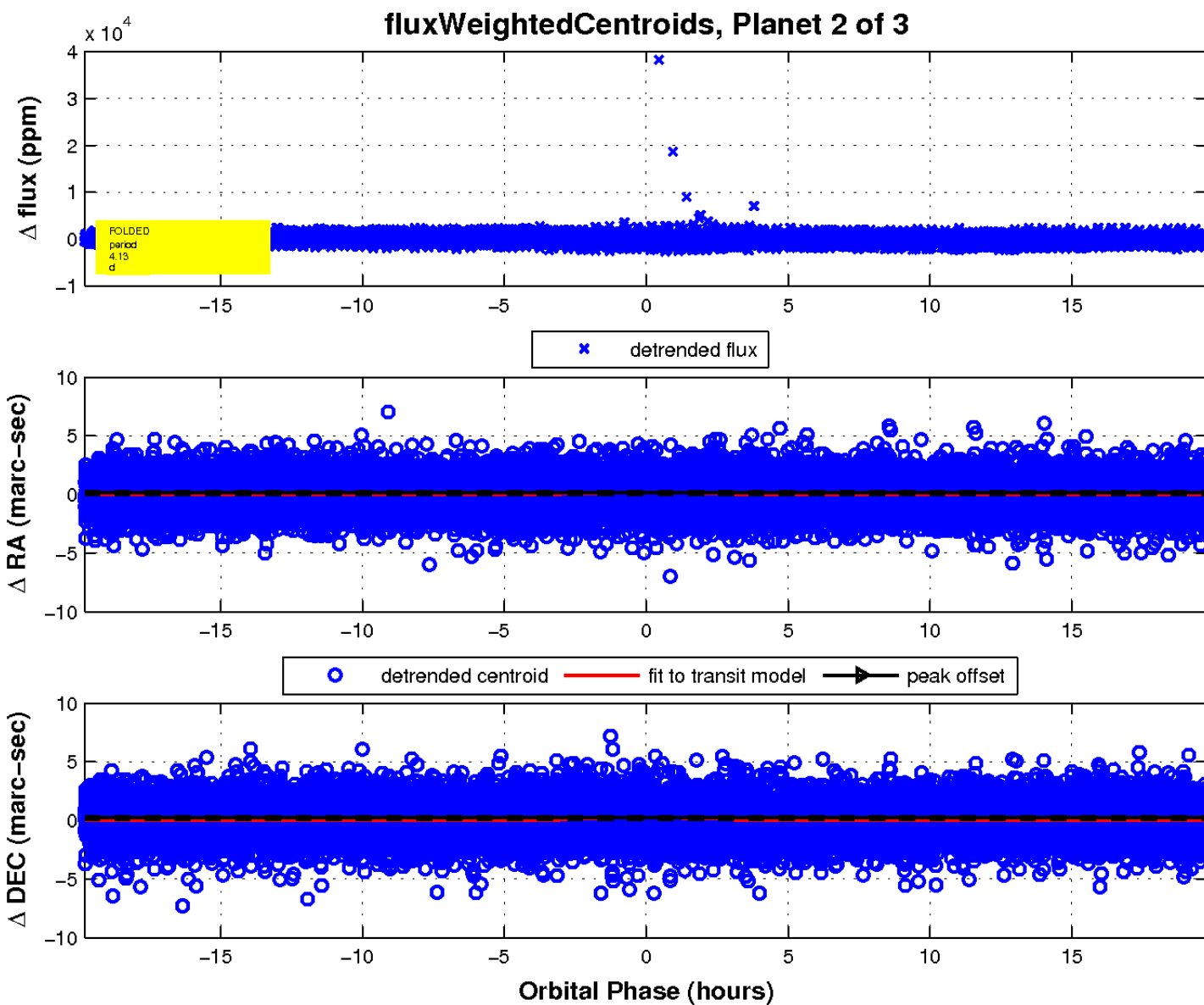
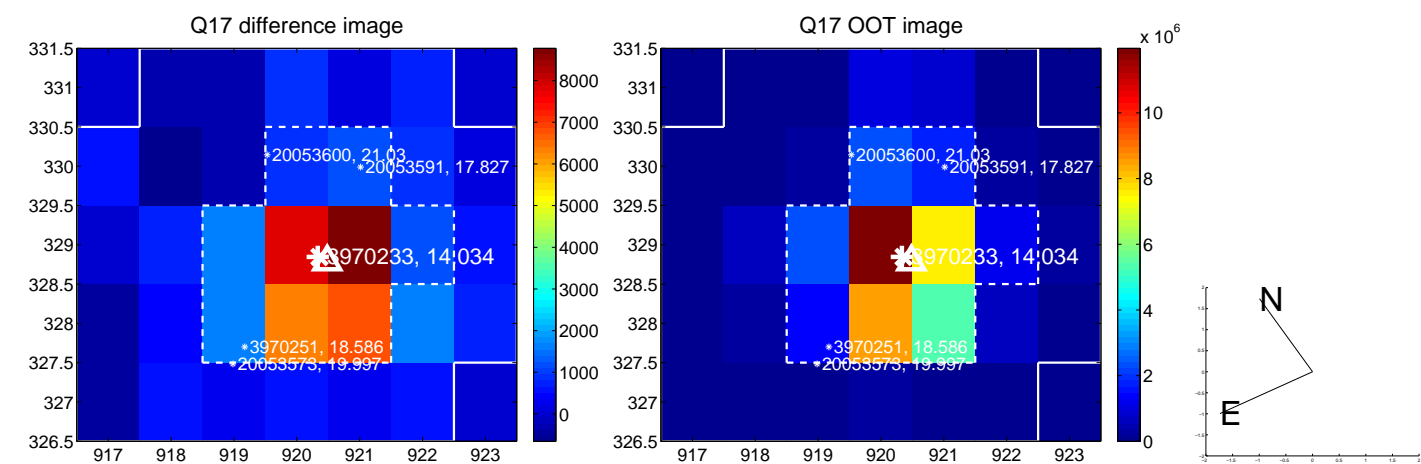
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

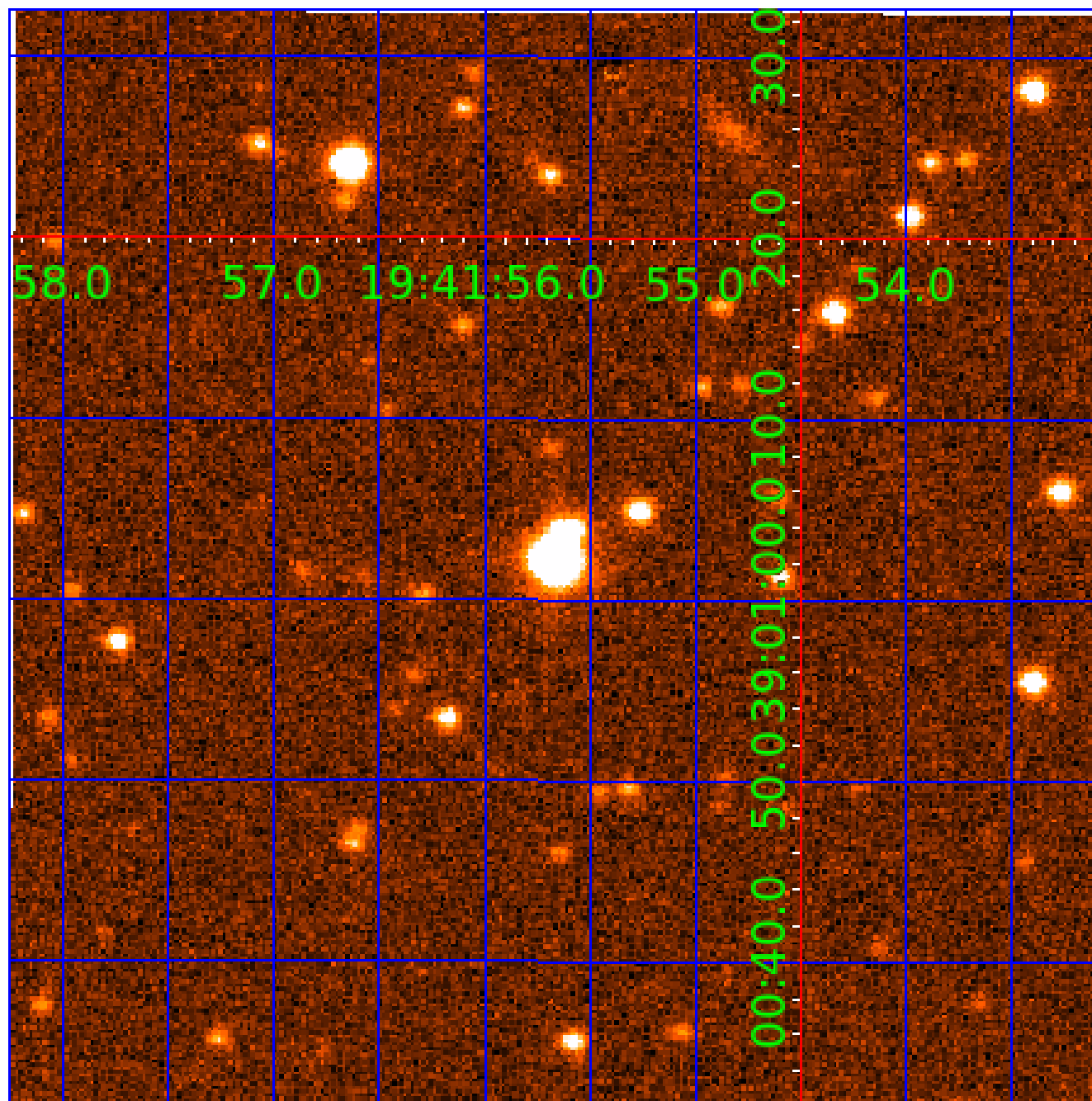


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003970233

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})
003970233-01	OBS	0604.01	8.254918	133.160401	19339.5	6.668	1356.8	1326.8	0.83	5366	11.70	93.69
003970233-02	OBS	No	4.127454	133.120564	581.4	6.598	44.8	42.4	0.83	5366	2.35	236.07
003970233-03	OBS	No	562.917981	302.854629	562.7	4.473	11.1	6.4	0.83	5366	2.17	0.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003970233-01	OBS	FP	0.03	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003970233-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003970233-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

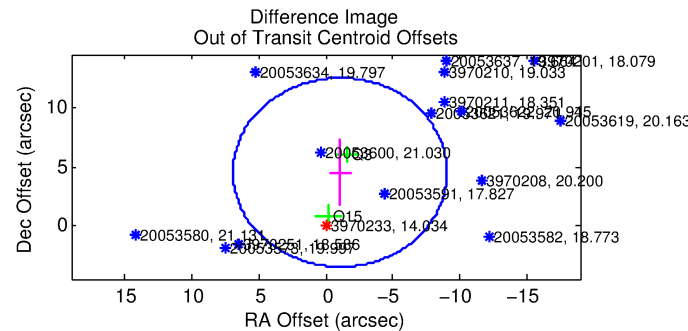
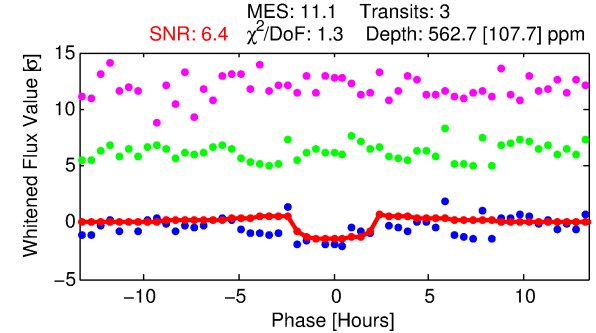
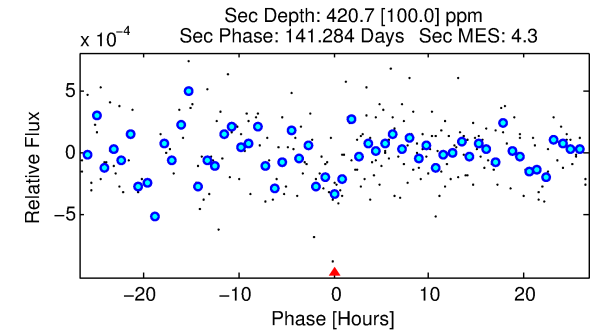
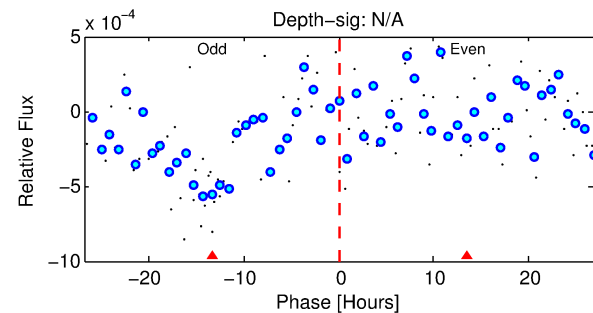
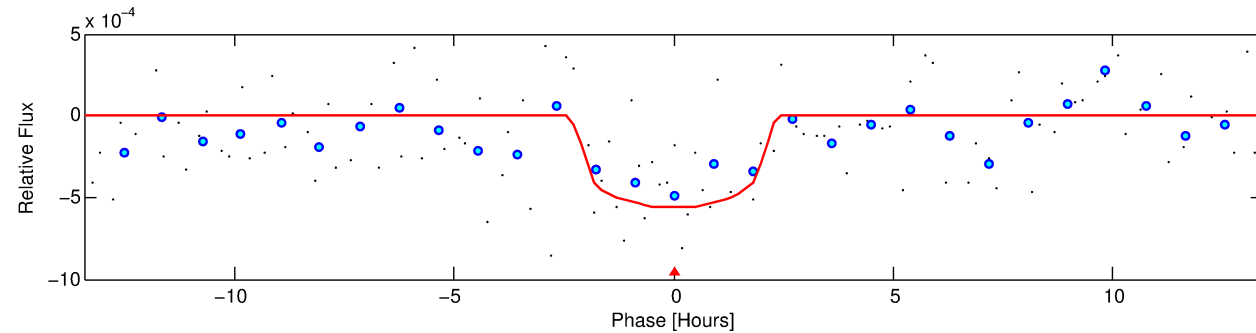
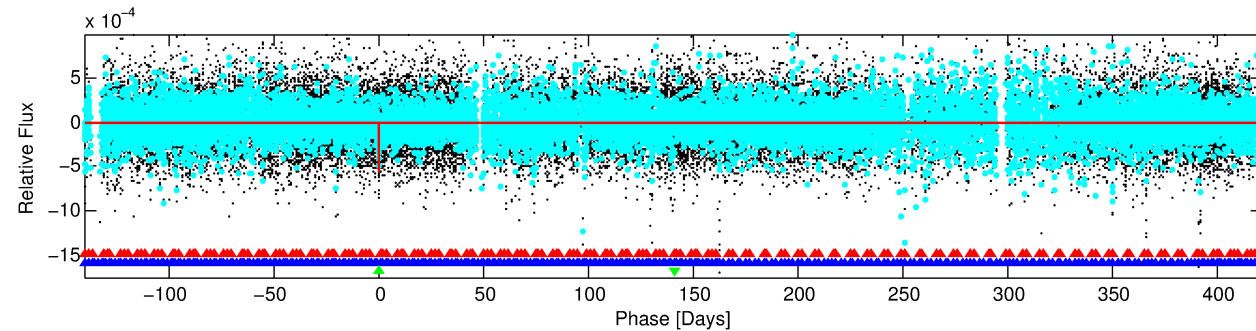
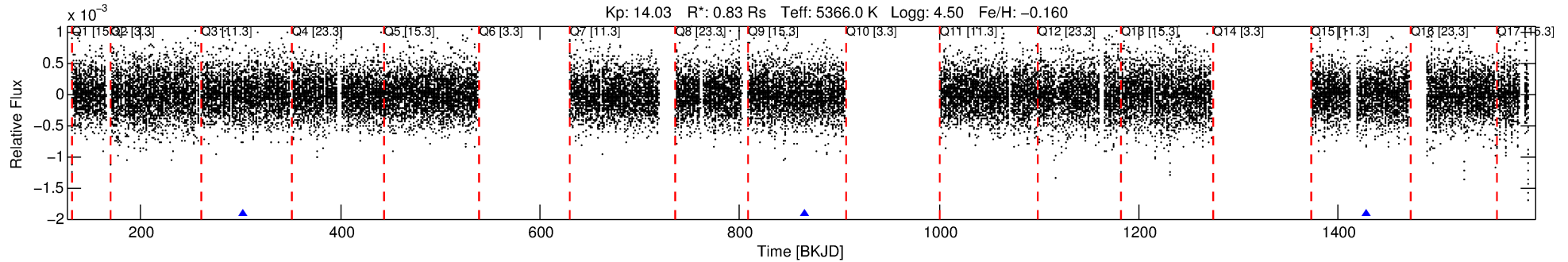
Ephemeris Match Information For 003970233-03

No Significant Match Found

DV One-Page Summary

KIC: 3970233 Candidate: 3 of 3 Period: 562.918 d
KOI: K00604 Corr: No Ephemeris Match

Kp: 14.03 R*: 0.83 Rs Teff: 5366.0 K Logg: 4.50 Fe/H: -0.160



DV Fit Results:

Period = 562.91798 [0.01612] d
Epoch = 302.8546 [0.0179] BKJD
Rp/R* = 0.0238 [0.0423]
a/R* = 652.70 [4615.97]
b = 0.77 [3.86]
Seff = 0.34 [0.08]
Teq = 194 [12] K
Rp = 2.17 [3.88] Re
a = 1.2410 [0.1769] AU
Ag = 75702.19 [270242.40] [0.28σ]
Teffp = 4980 [4439] K [1.08σ]

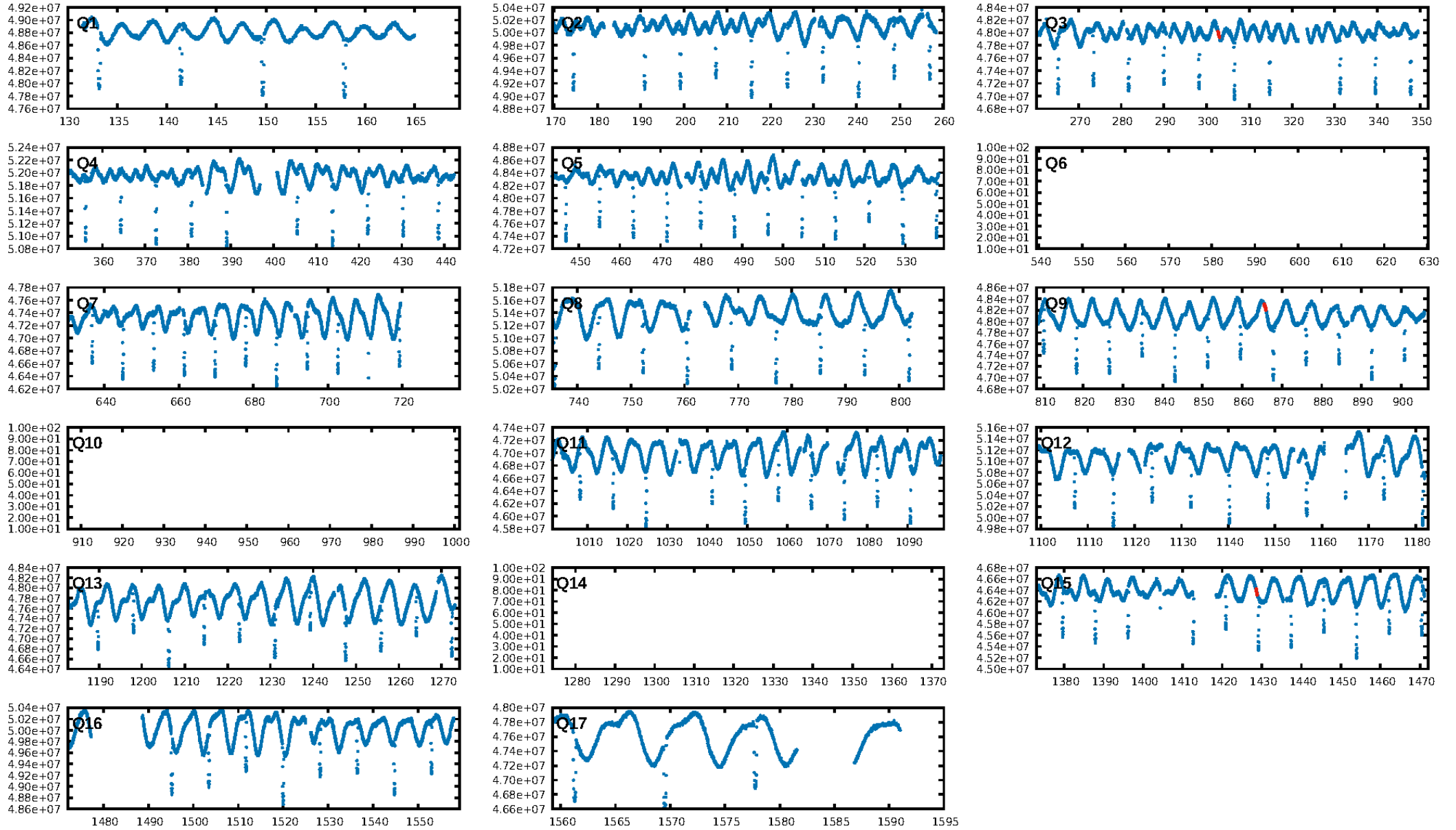
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1657.93σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 92.0%
Bootstrap-pfa: 1.29e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.513
Centroid-sig: 48.4%
Centroid-so: 1.059 arcsec [0.69σ]
OotOffset-rm: 4.643 arcsec [1.74σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-rm: 4.778 arcsec [1.79σ]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.33 [1/3]

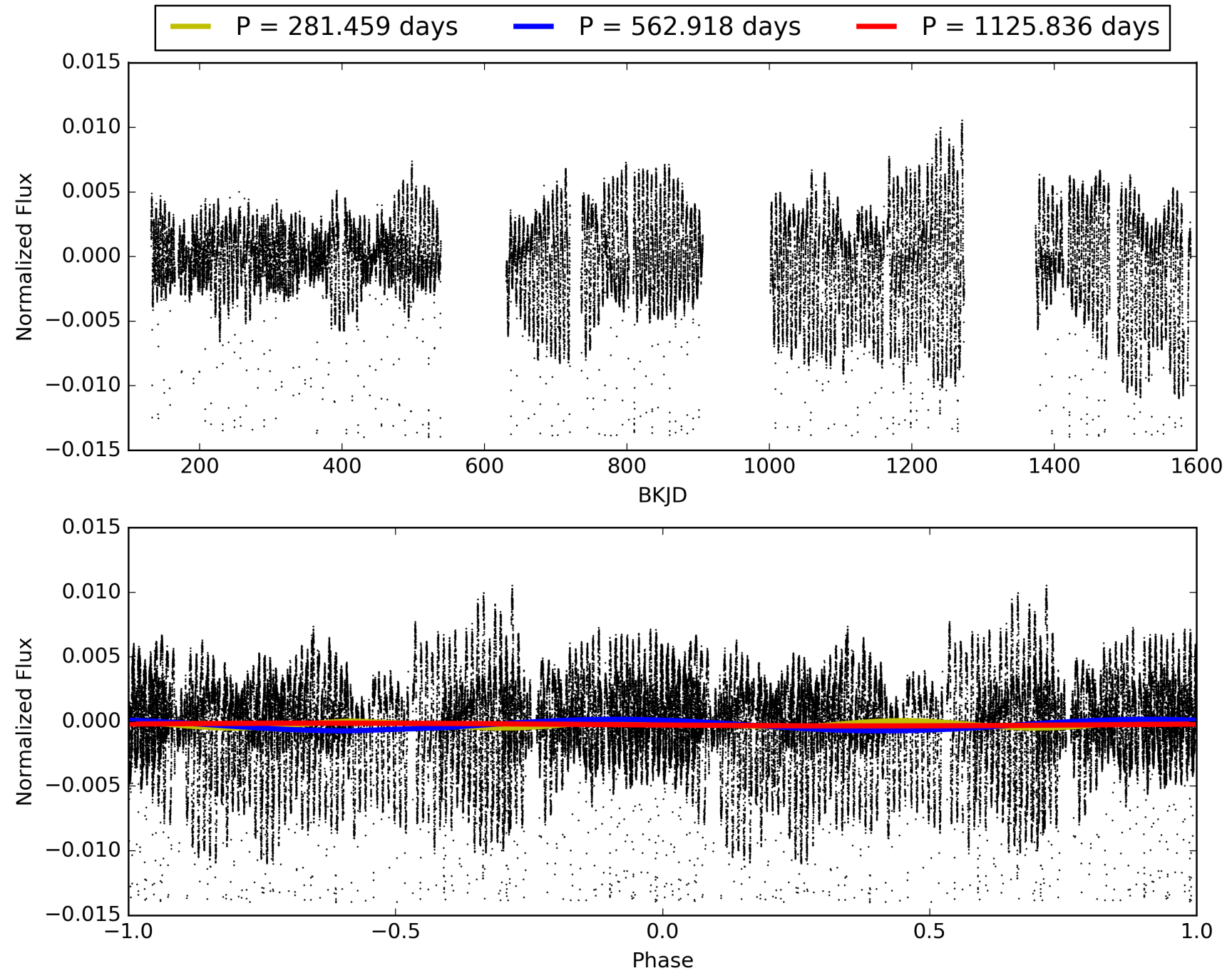
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:35:33 Z

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

TCE 003970233-03, PDC Light Curves

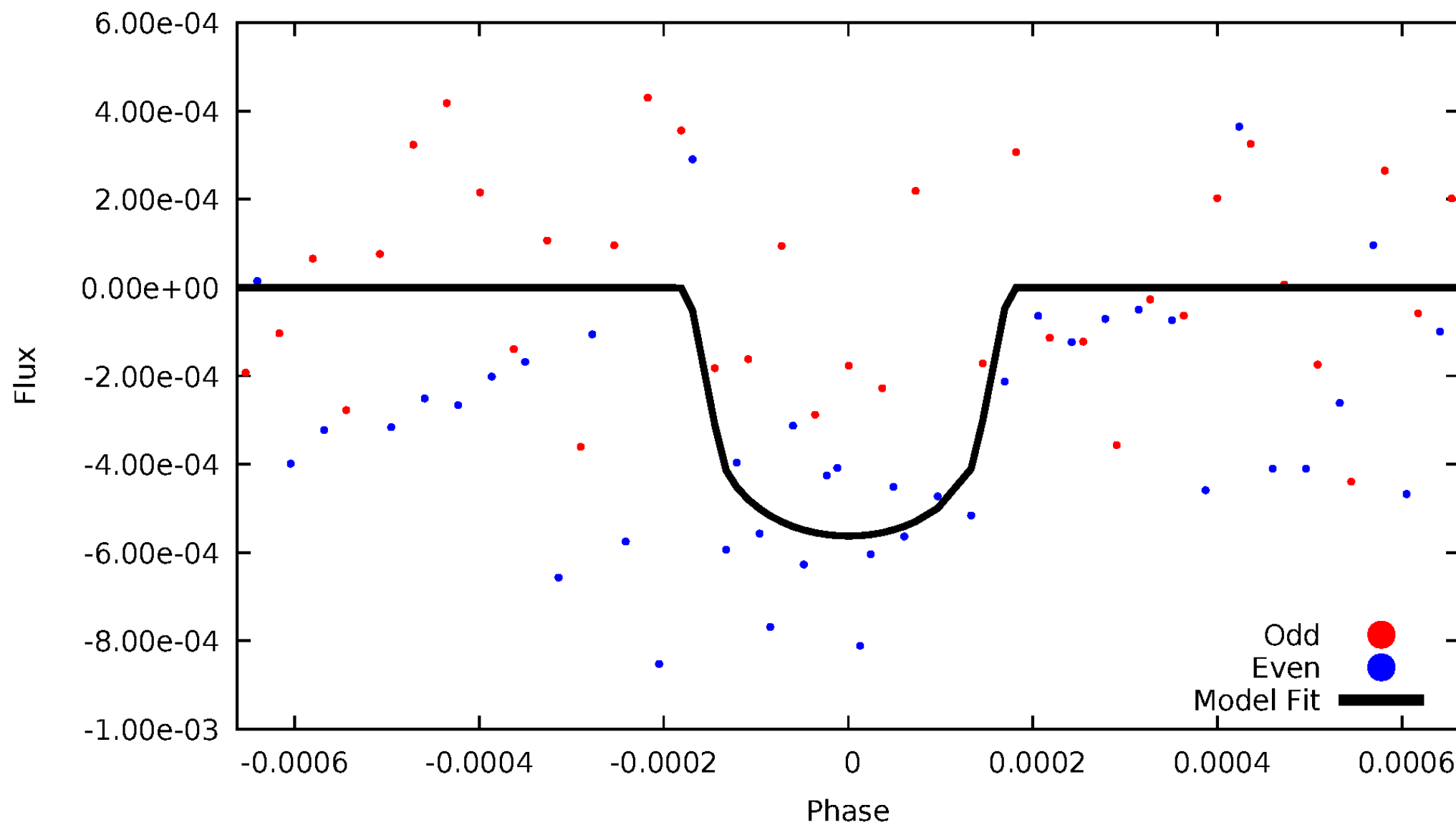


TCE 003970233-03



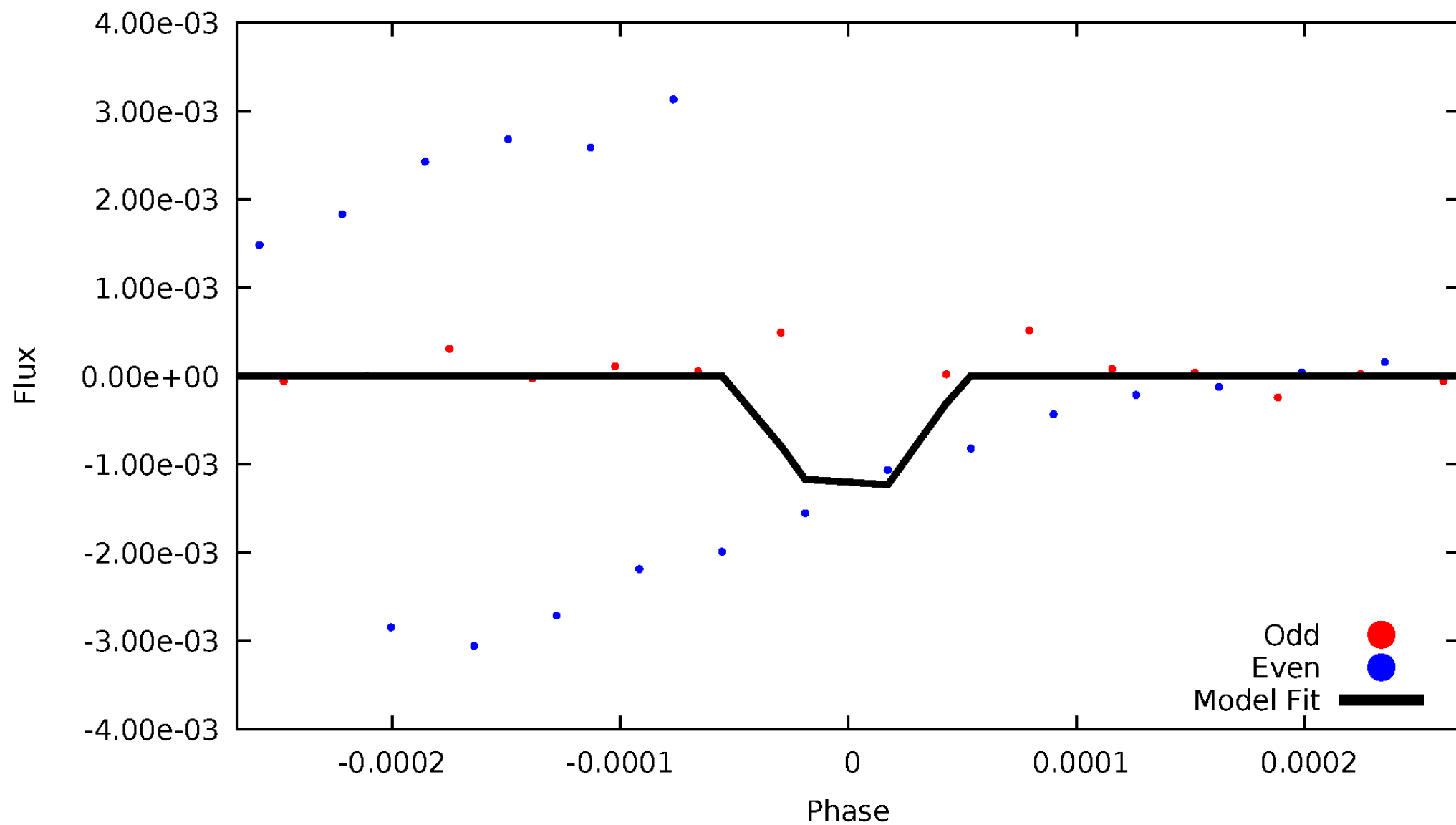
DV Odd/Even

TCE 003970233-03



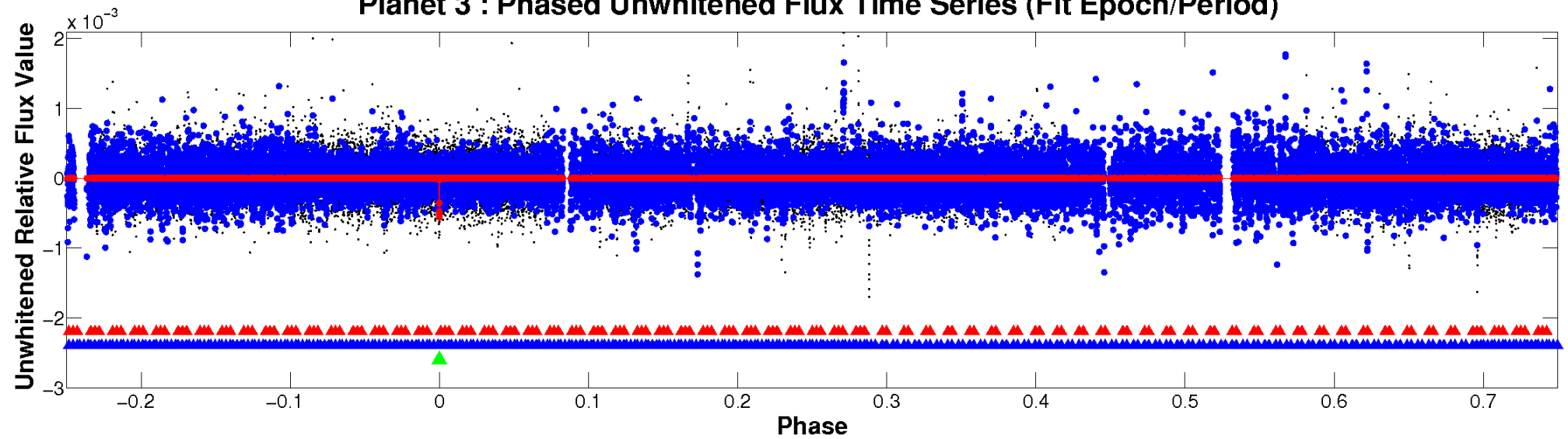
ALT Odd/Even

TCE 003970233-03

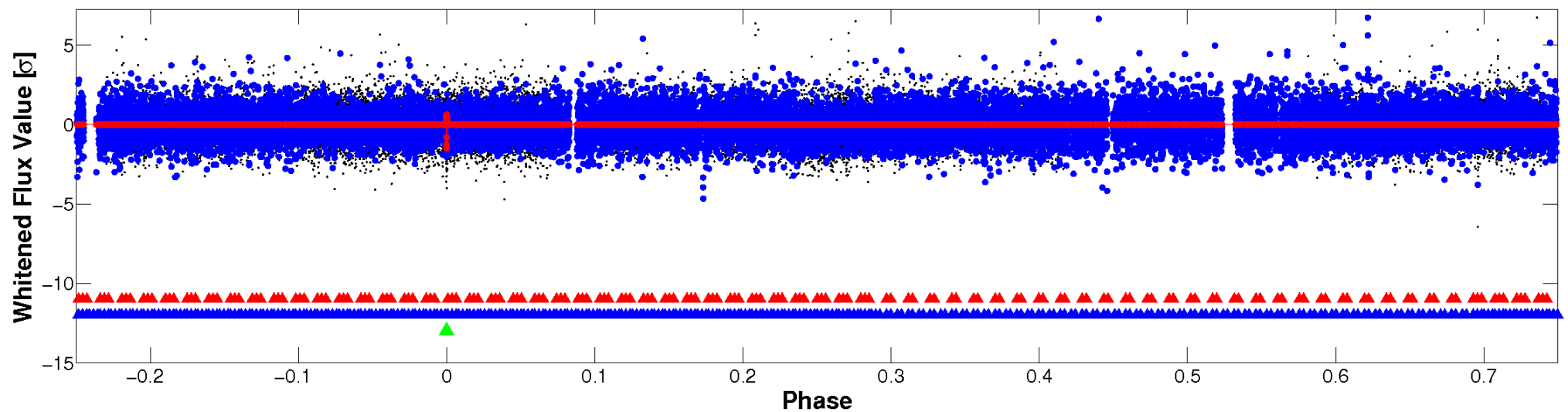


Non-Whitened Vs. Whitened Light Curve

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

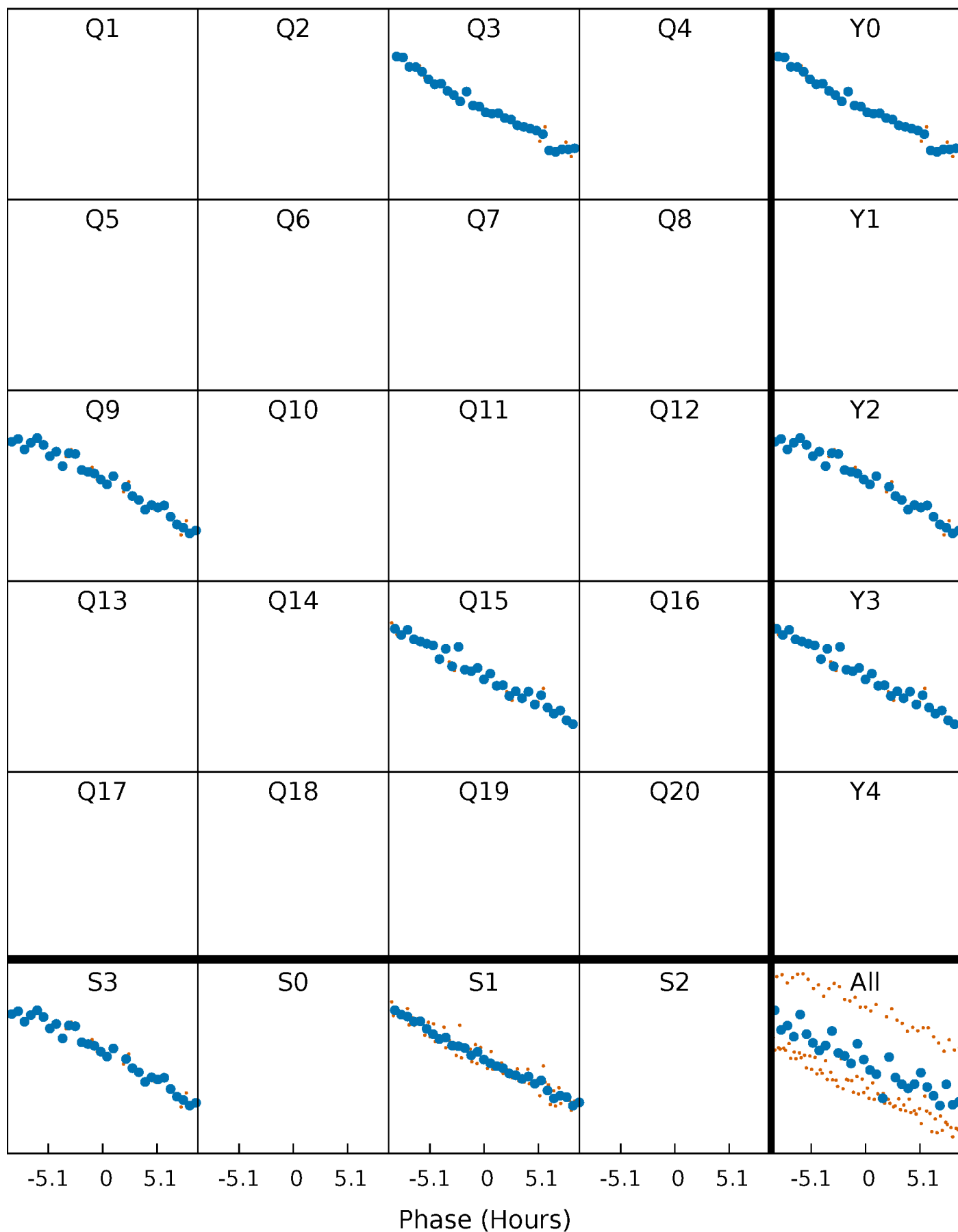


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 003970233-03 P=562.917981 Days $T_0=302.854629$ (BKJD)



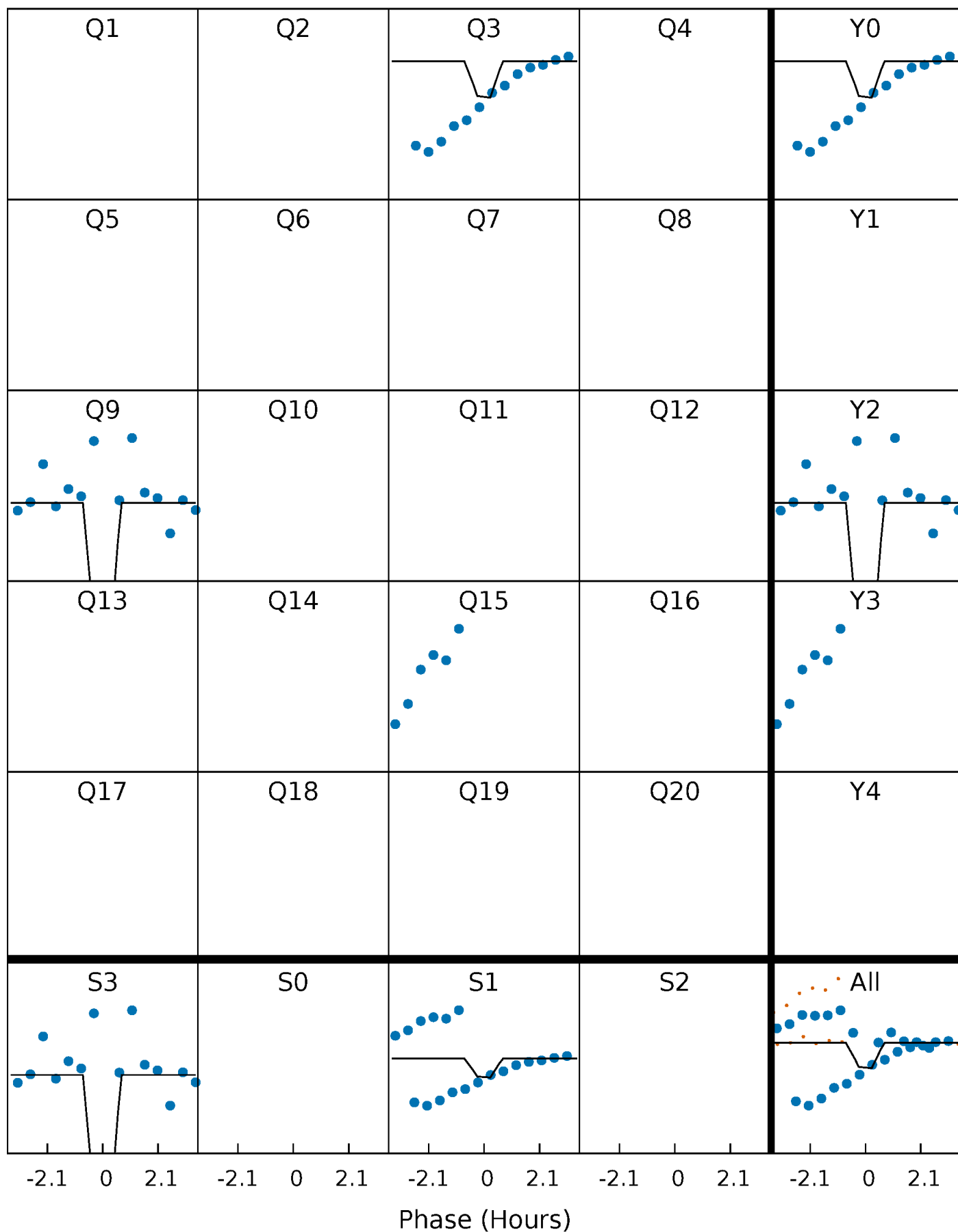
DV Quarter-Phased Transit Curves

TCE 003970233-03 P=562.917981 Days $T_0=302.854629$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

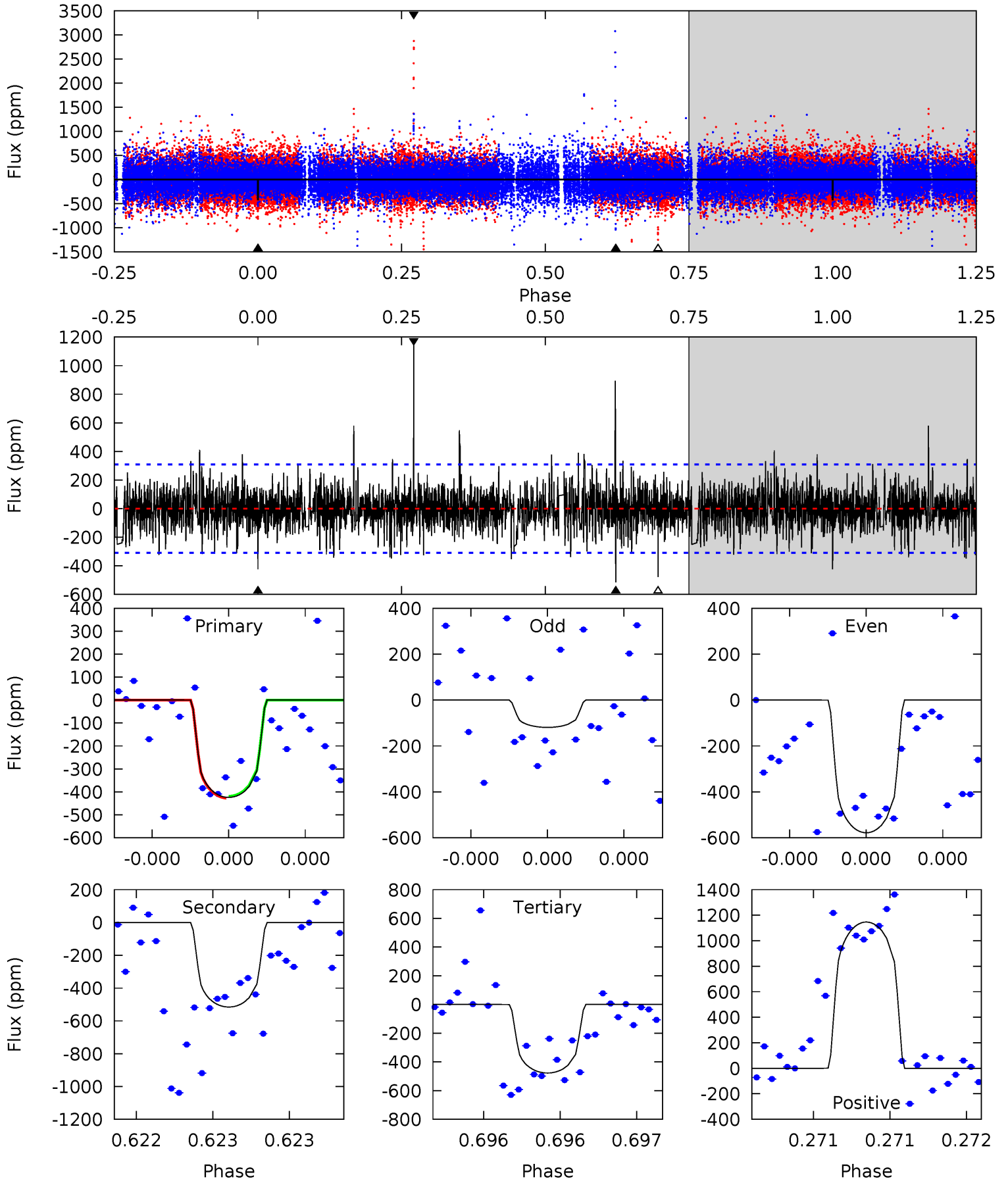
TCE 003970233-03 P=562.930956 Days $T_0=302.899420$ (BKJD)



DV Model-Shift Uniqueness Test

003970233-03, P = 562.917981 Days, E = 302.854629 Days

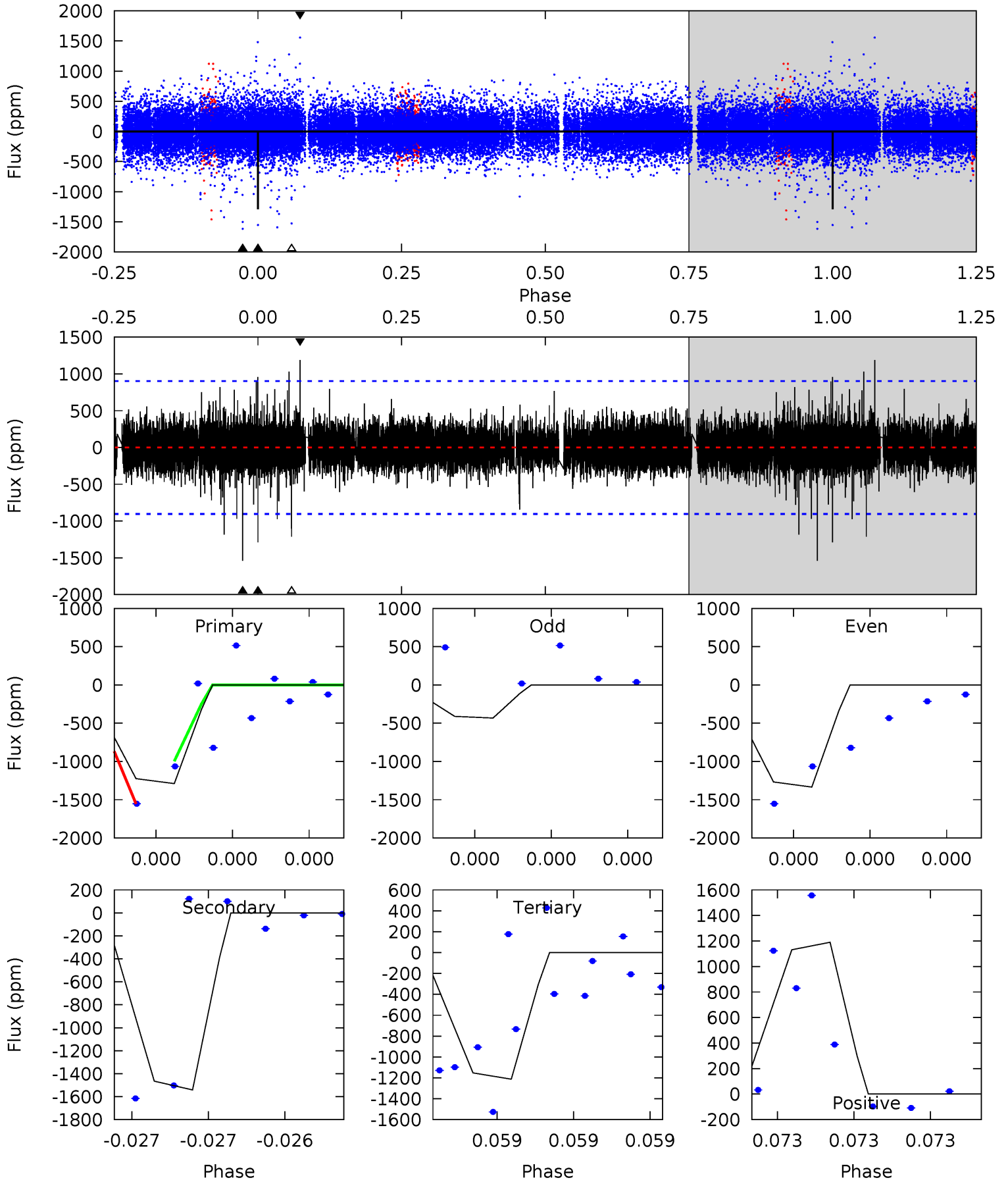
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.71	9.38	8.69	20.9	5.63	3.57	1.79	-0.97	-13.1	0.69	-11.5	4.01	0.77	0.69	0.08



Alt Model-Shift Uniqueness Test

003970233-03, P = 562.930956 Days, E = 302.899420 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.42	10.1	7.92	7.77	5.90	3.97	0.97	0.50	0.65	2.15	2.30	2.90	1.00	0.44	0.00



Stellar Parameters For KIC 003970233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5366^{+159}_{-143}	$4.500^{+0.085}_{-0.114}$	$-0.160^{+0.300}_{-0.300}$	$0.835^{+0.141}_{-0.094}$	$0.805^{+0.104}_{-0.070}$	$1.950^{+0.712}_{-0.663}$
	+3%/-3%	+2%/-3%	+188%/-188%	+17%/-11%	+13%/-9%	+37%/-34%
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 003970233-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-516 ± 55	$3.86^{+3.18}_{-2.74}$	272^{+13}_{-11}	4216^{+3177}_{-776}	$29513^{+318768}_{-20485}$
Alt.	-1542 ± 153	$4.49^{+3.33}_{-2.98}$	272^{+14}_{-12}	4882^{+3634}_{-942}	$64988^{+499621}_{-43726}$

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 $A_{obs} \gg 1.0$

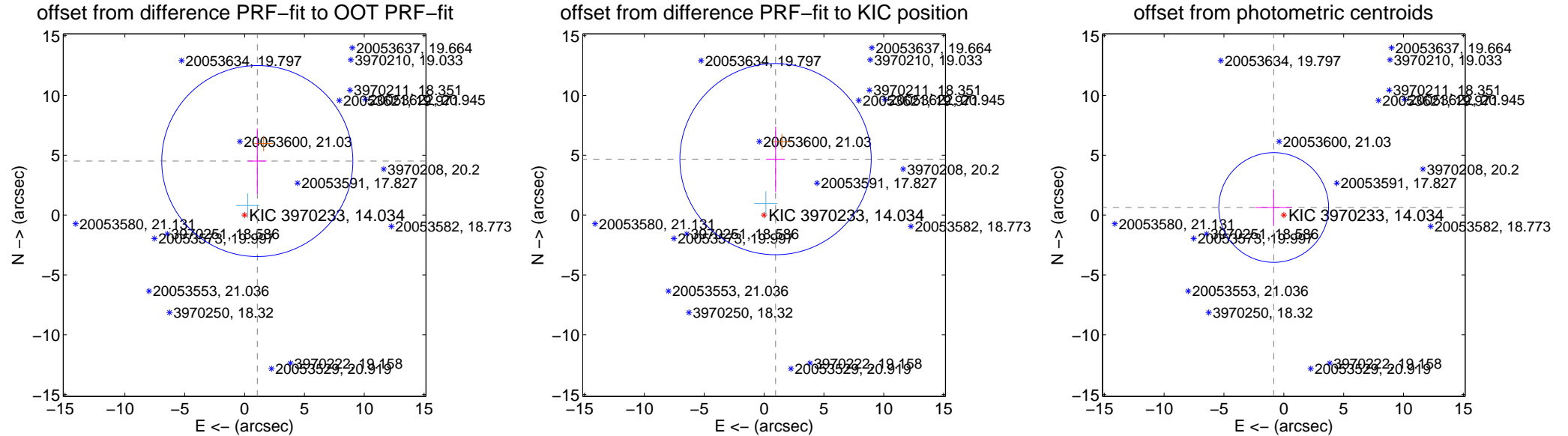
DV Centroid Data

Supplemental centroid analysis for 003970233-03. Kepler magnitude: 14.03. Transit SNR 6.43

There are 1 quarters with good PRF difference image offsets

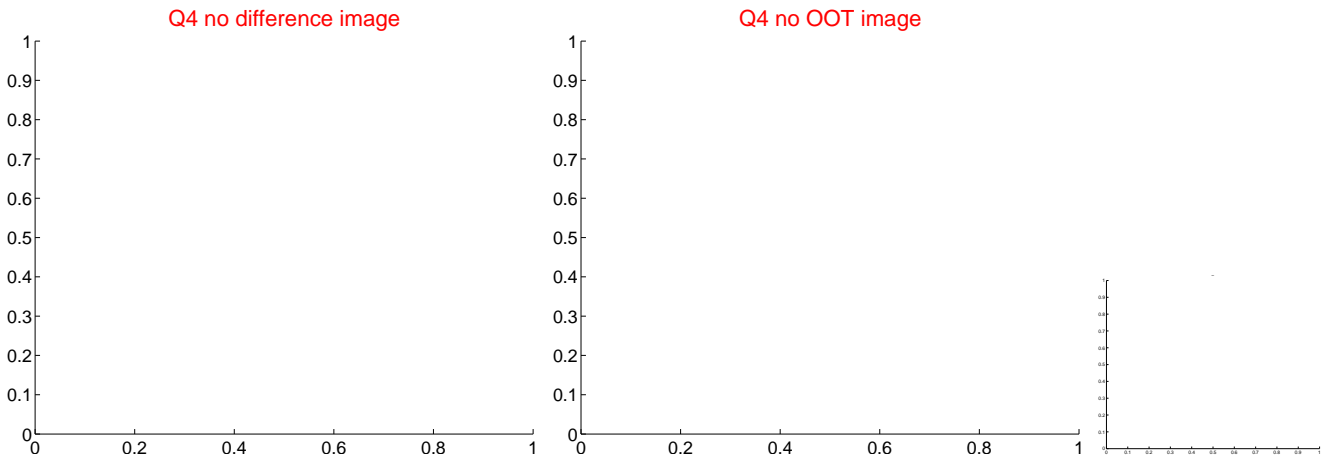
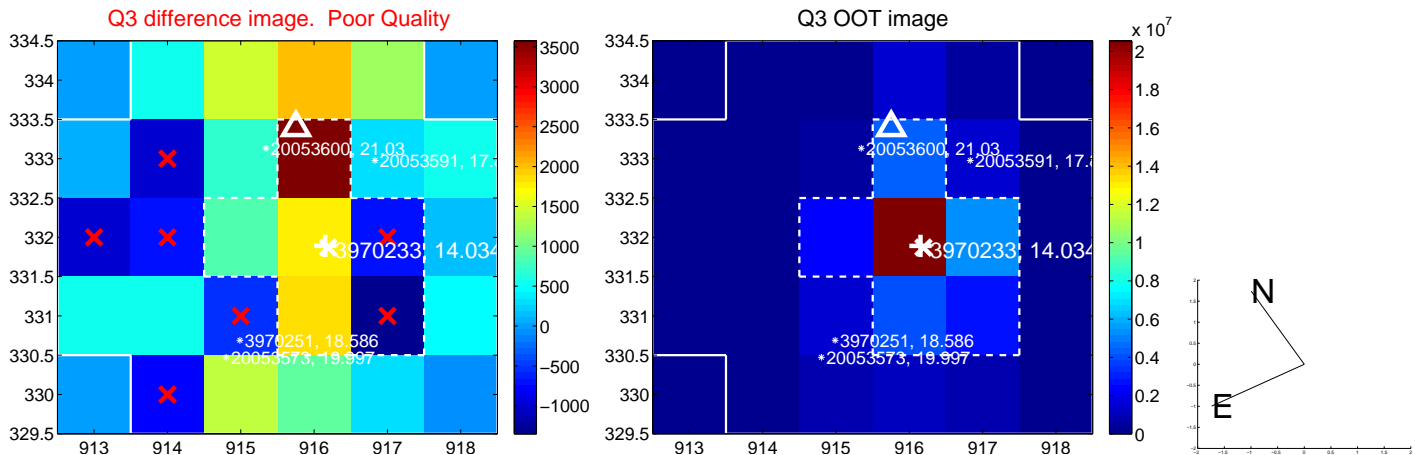
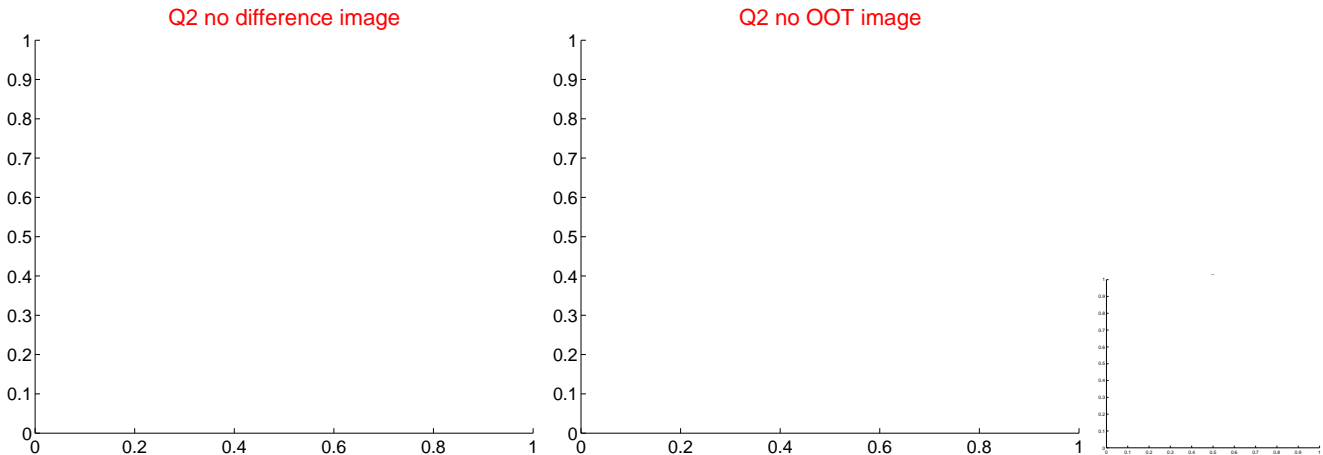
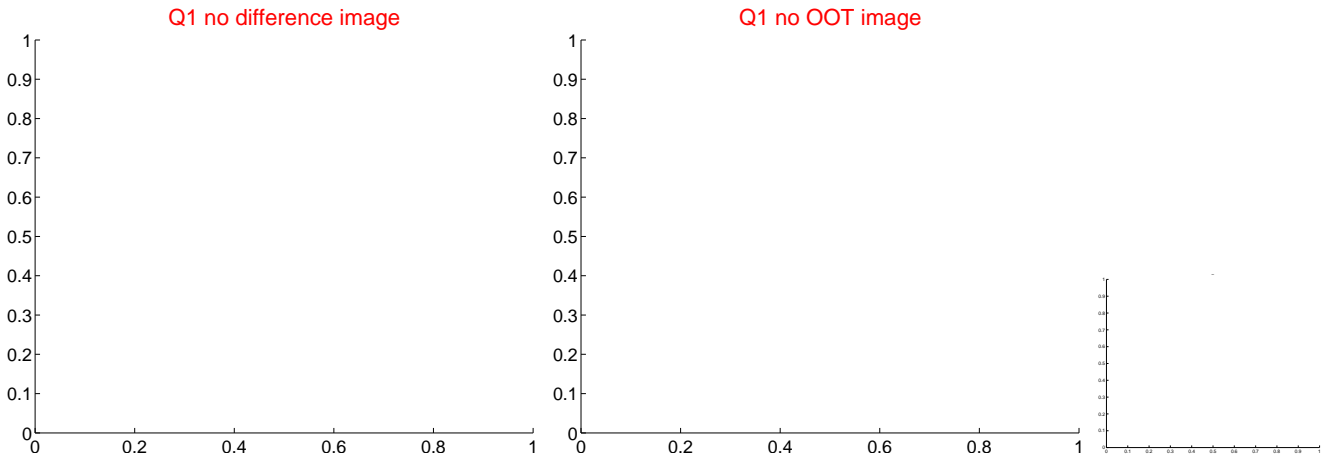
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.643 ± 2.661	1.74	-1.063 ± 0.766	4.520 ± 2.728
PRF-fit source offset from KIC position	4.778 ± 2.664	1.79	-0.962 ± 0.771	4.680 ± 2.715
photometric centroid source offset	1.06 ± 1.53	0.69	0.84 ± 1.52	0.64 ± 1.54



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.

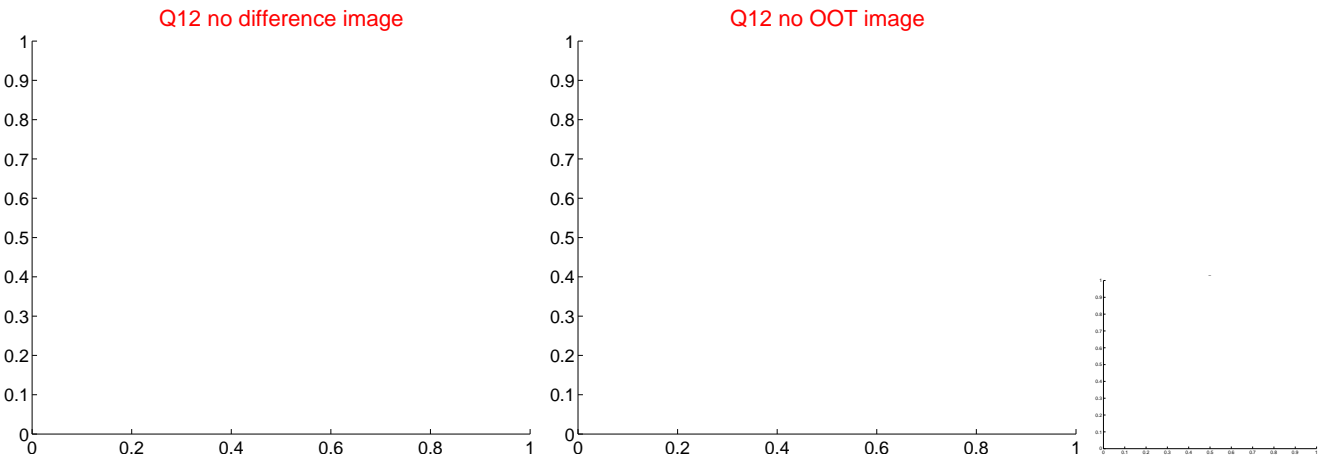
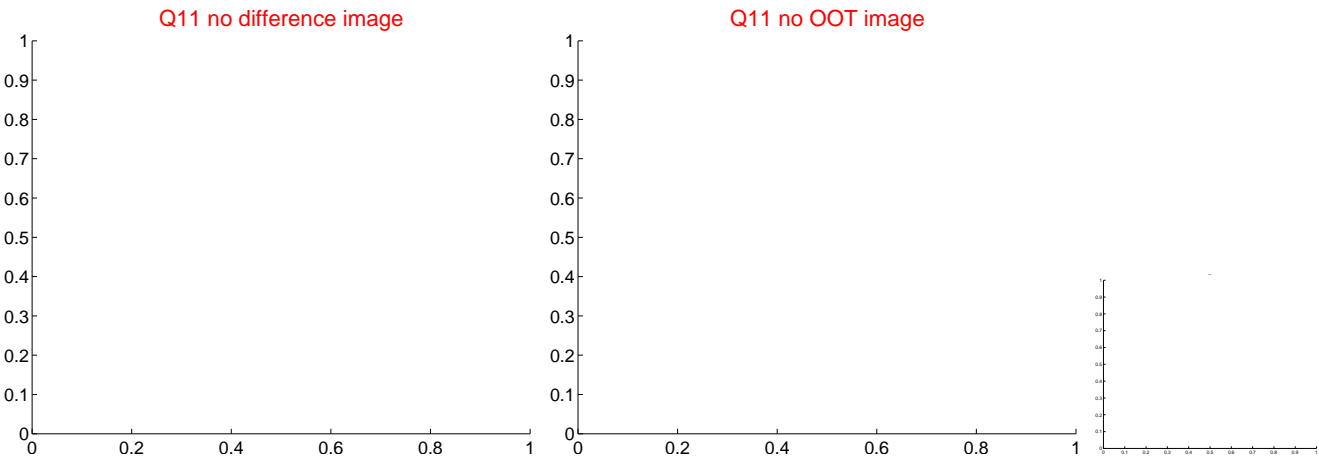
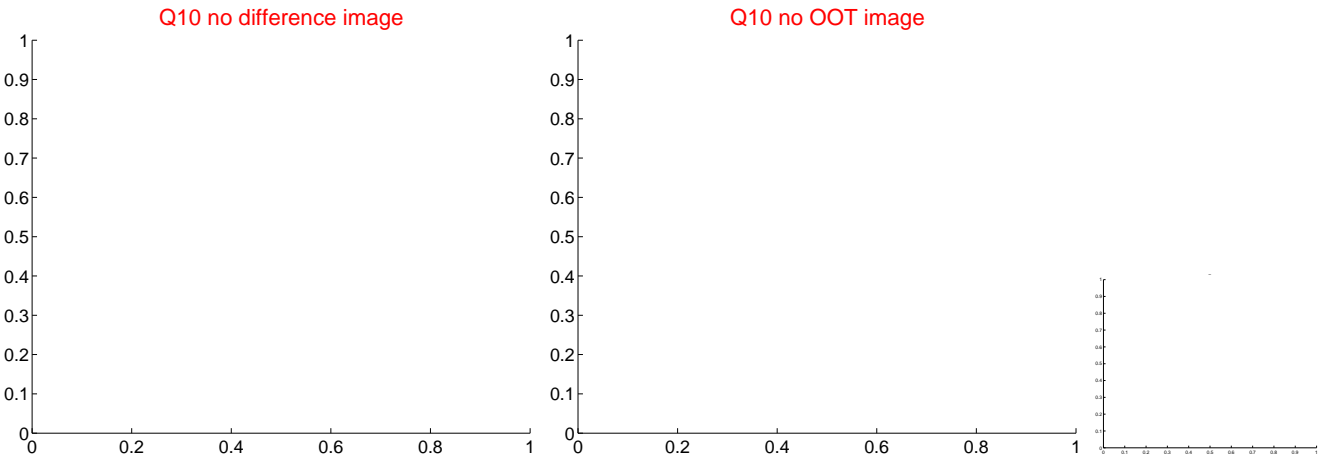
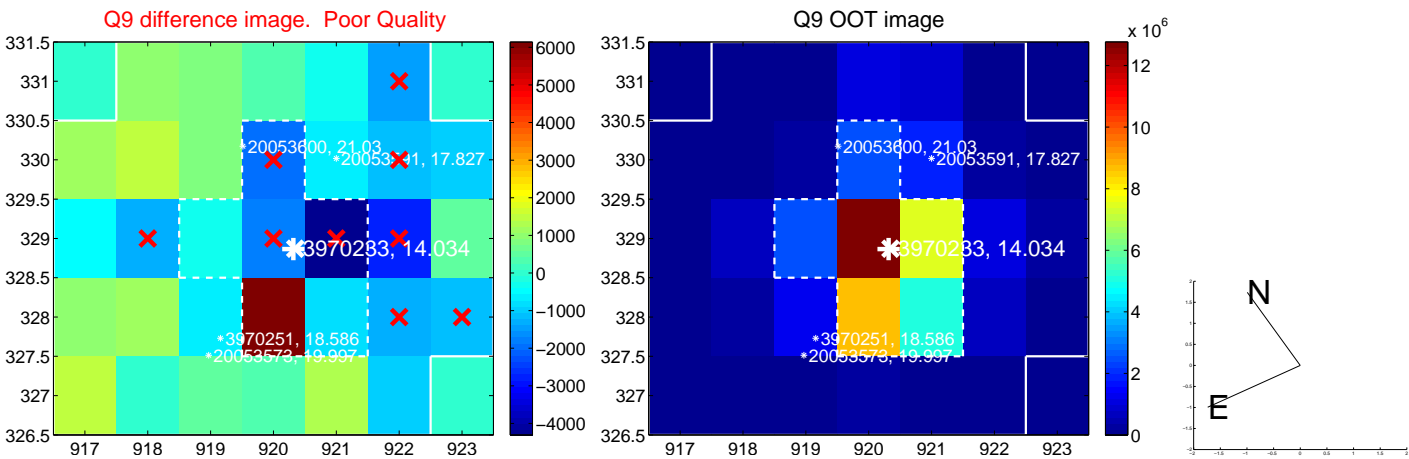
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



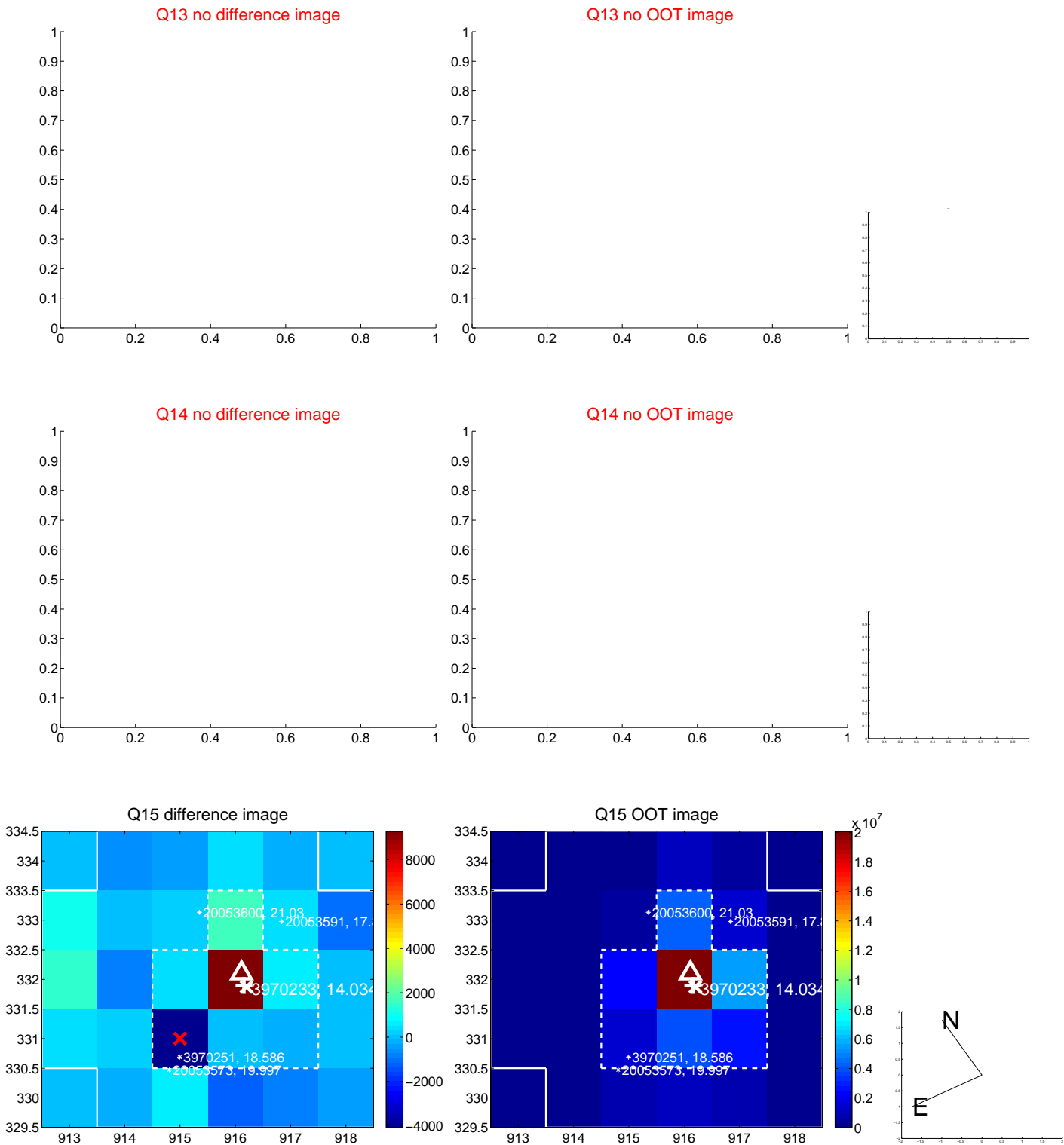
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



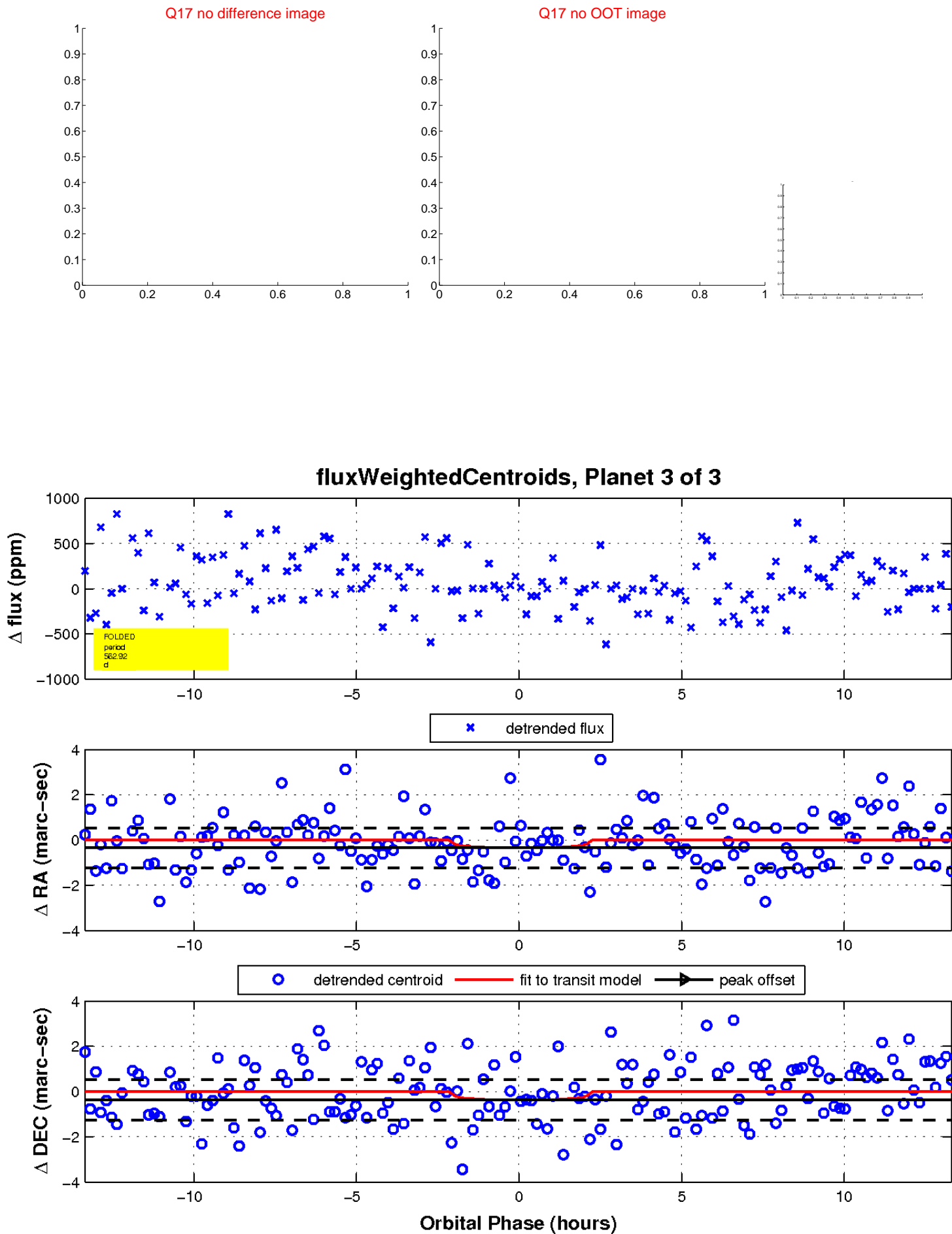
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

