

KIC 005219234

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})
005219234-01	OBS	1563.01	5.487089	136.596077	1319.5	2.912	40.3	45.8	0.79	5103	3.18	115.45
005219234-02	OBS	1563.02	8.290834	135.784748	1030.4	3.590	27.0	30.4	0.79	5103	3.15	66.59
005219234-03	OBS	1563.03	3.205382	133.461456	445.9	2.091	15.5	17.6	0.79	5103	1.80	236.41
005219234-04	OBS	1563.04	16.738566	141.819015	999.4	2.388	13.8	16.3	0.79	5103	3.03	26.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005219234-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

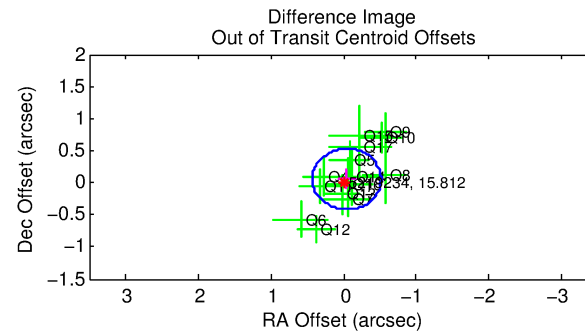
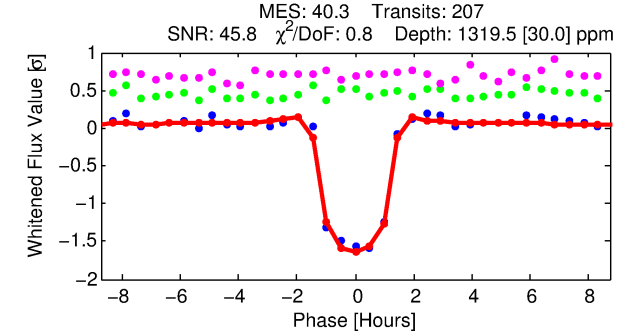
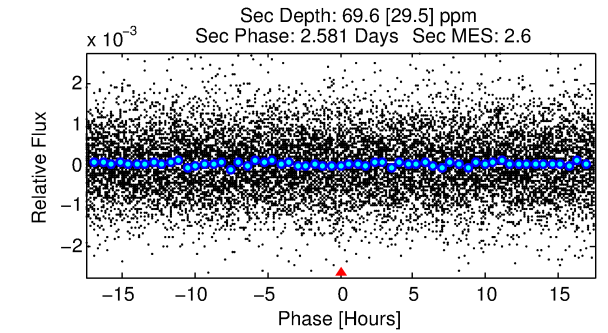
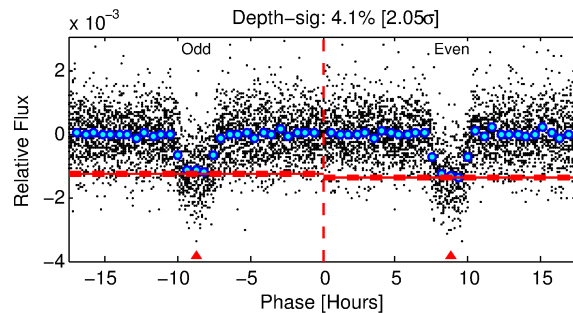
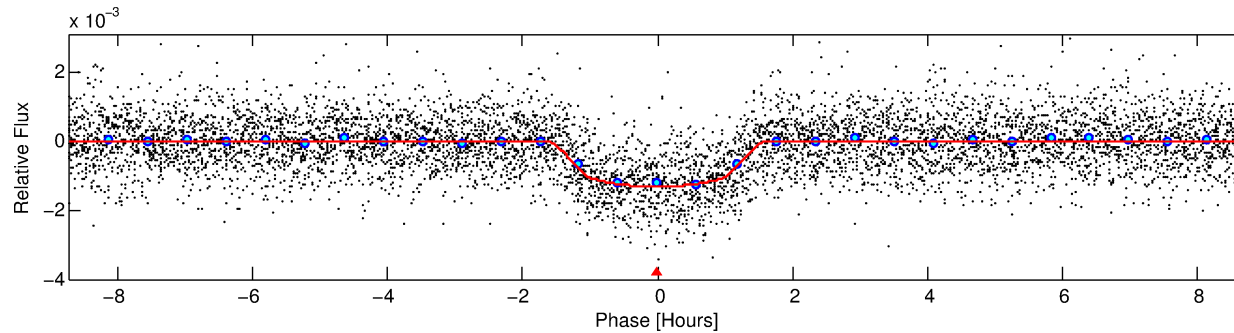
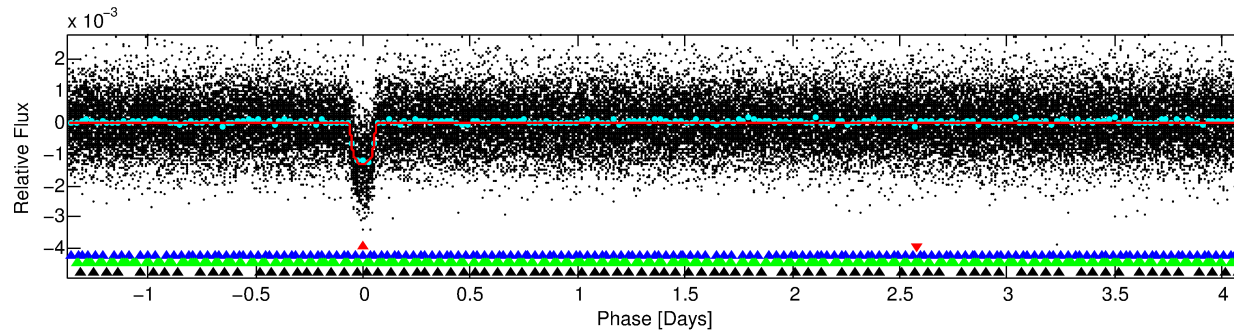
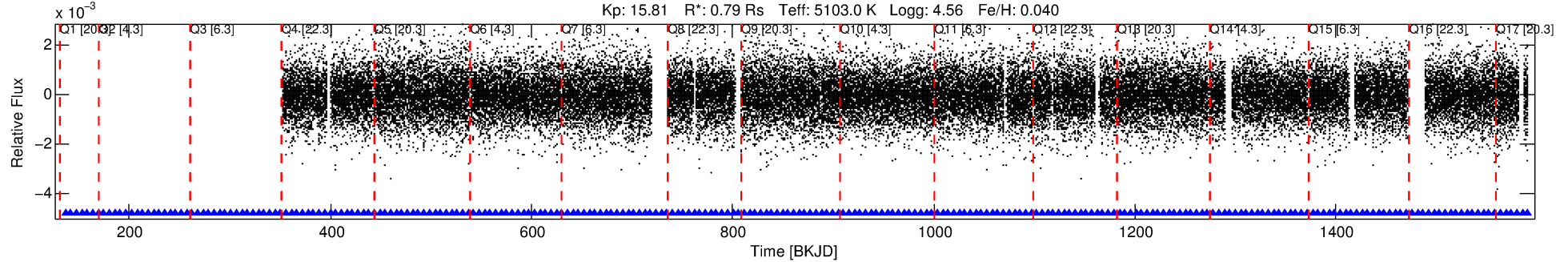
Ephemeris Match Information For 005219234-01

No Significant Match Found

DV One-Page Summary

KIC: 5219234 Candidate: 1 of 4 Period: 5.487 d
KOI: K01563.01 Name: Kepler-305b Corr: 0.988

Kp: 15.81 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 5.48709 [0.00001] d
Epoch = 136.5961 [0.0012] BKJD
Rp/R* = 0.0370 [0.0058]
a/R* = 9.77 [5.49]
b = 0.79 [0.28]
Seff = 115.45 [13.45]
Teff = 836 [24] K
Rp = 3.18 [0.54] Re
a = 0.0571 [0.0032] AU
Ag = 12.37 [6.62] [1.72σ]
Teffp = 2423 [324] K [4.89σ]

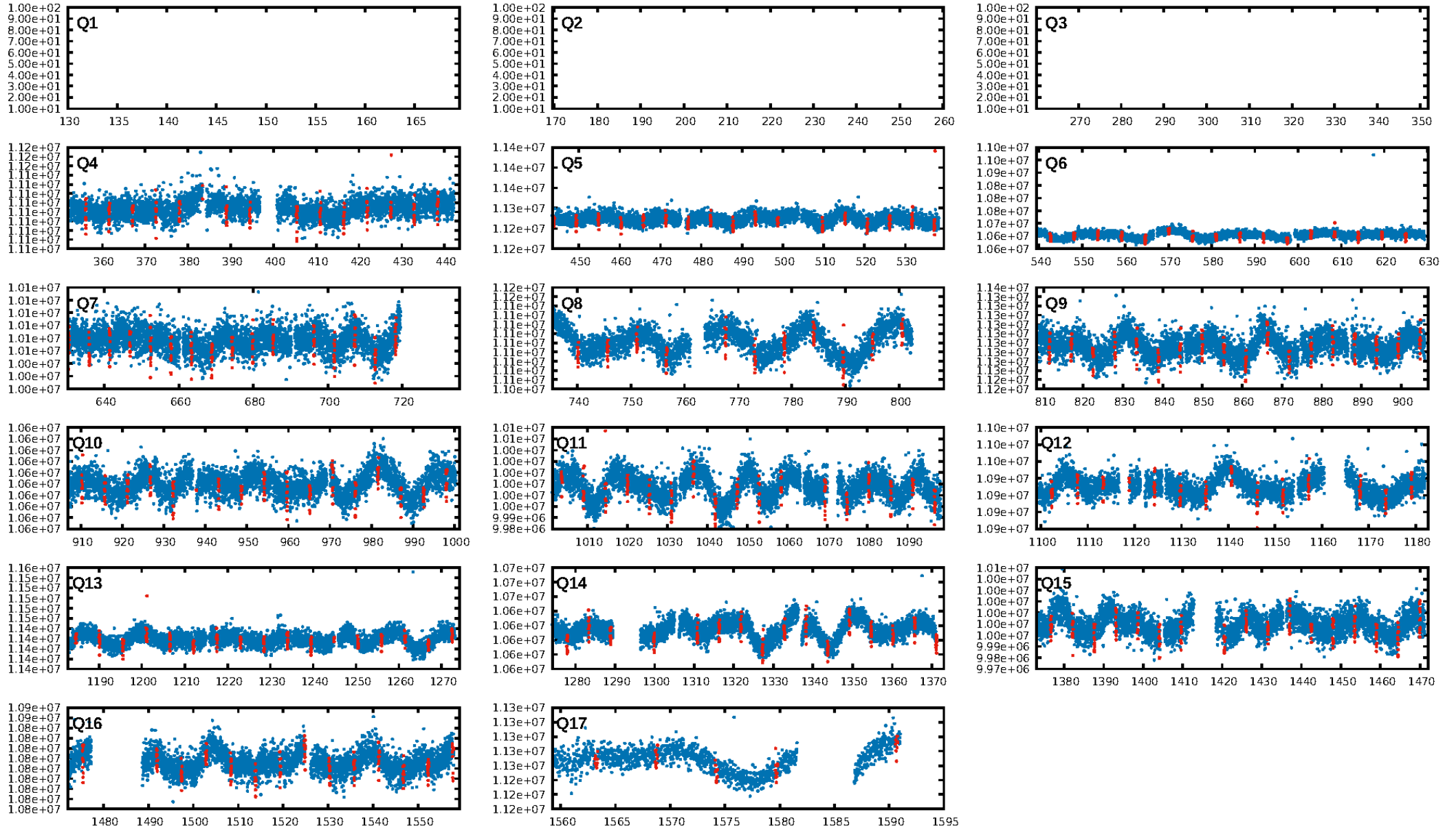
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.27σ]
LongPeriod-sig: 100.0% [14.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [202/202]
GhostDiagnostic-chr: 3.121
Centroid-sig: 4.0%
Centroid-so: 0.801 arcsec [2.76σ]
OotOffset-rm: 0.070 arcsec [0.45σ]
KicOffset-rm: 0.181 arcsec [1.18σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

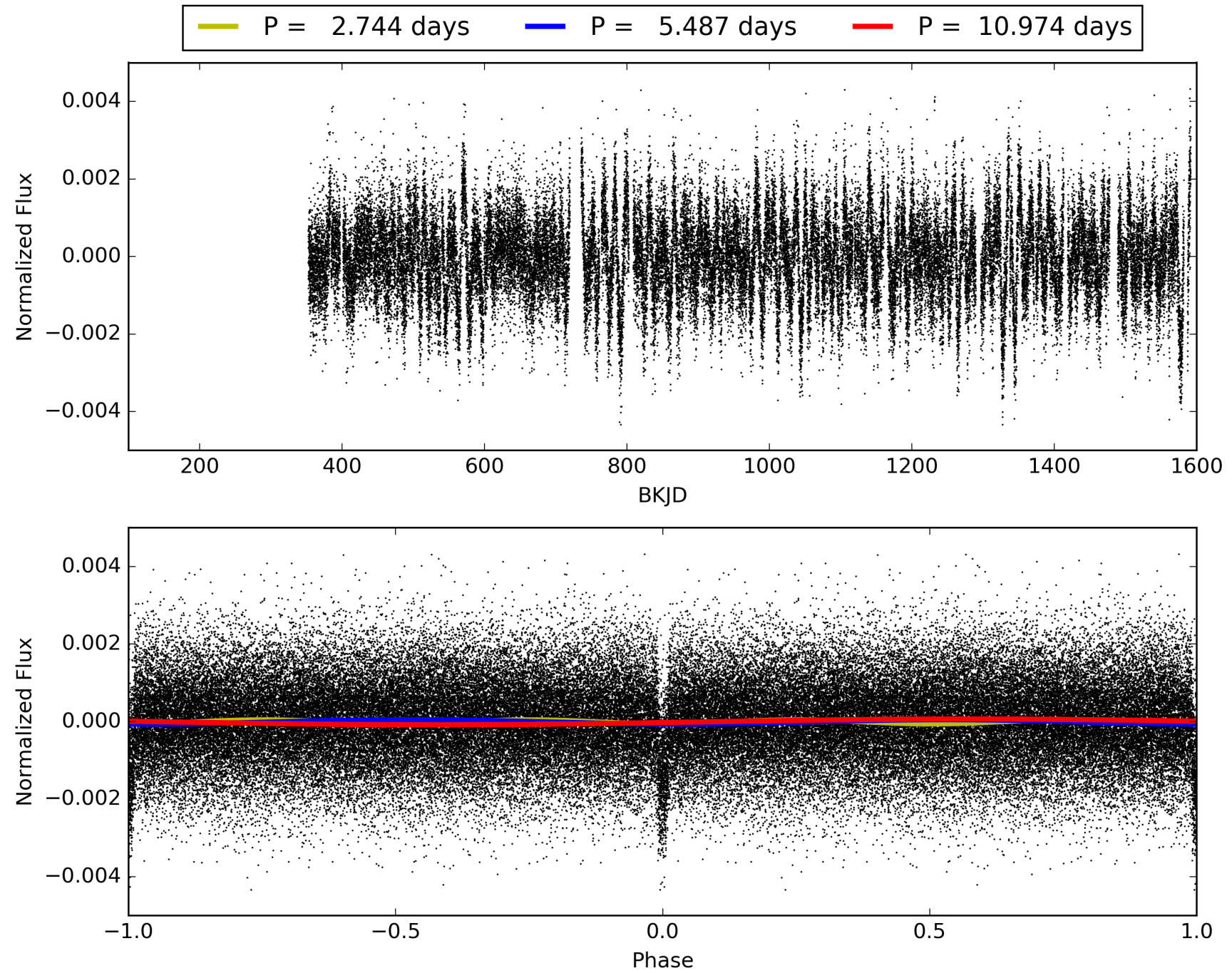
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:16:06 Z

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

TCE 005219234-01, PDC Light Curves

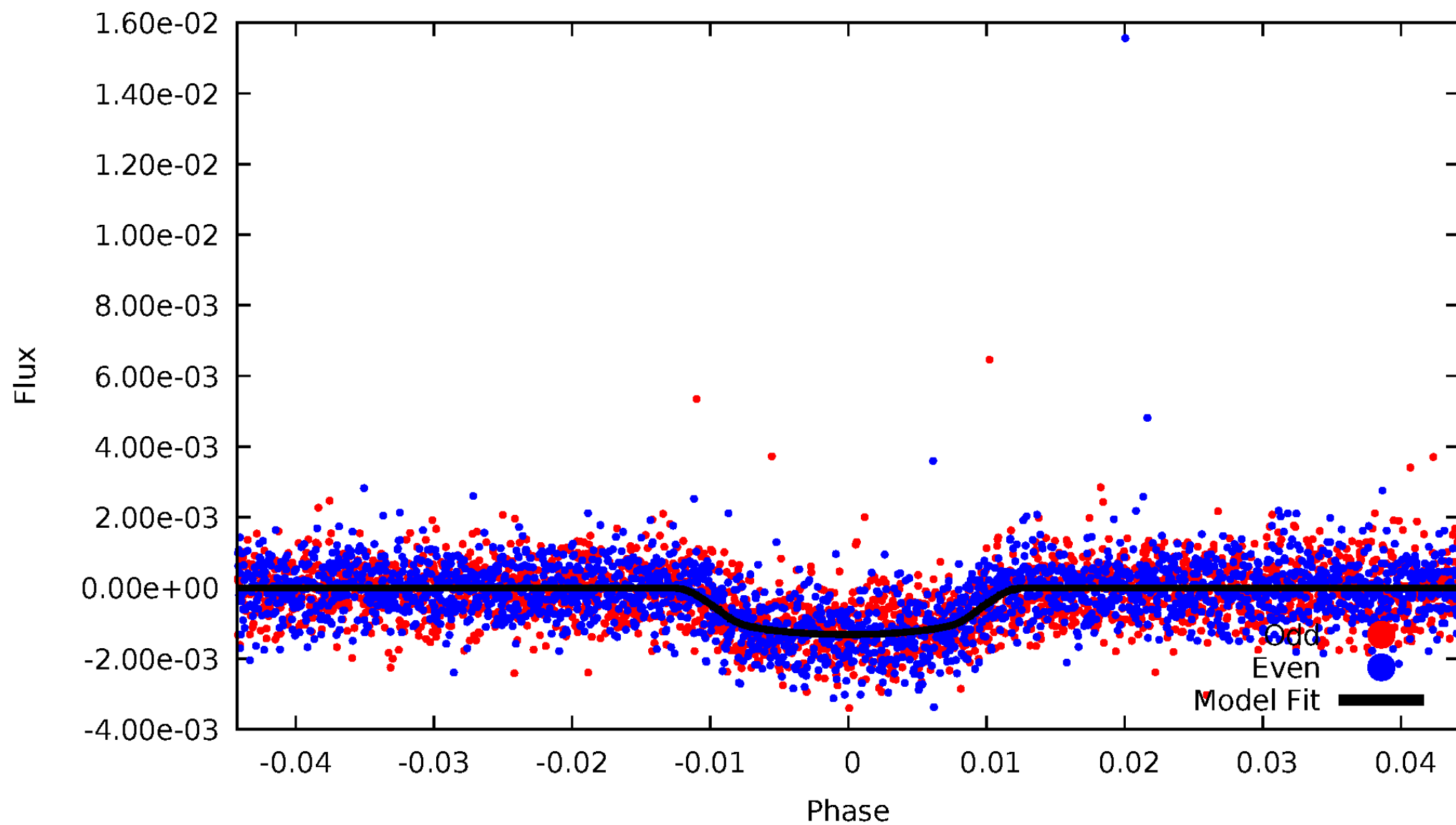


TCE 005219234-01



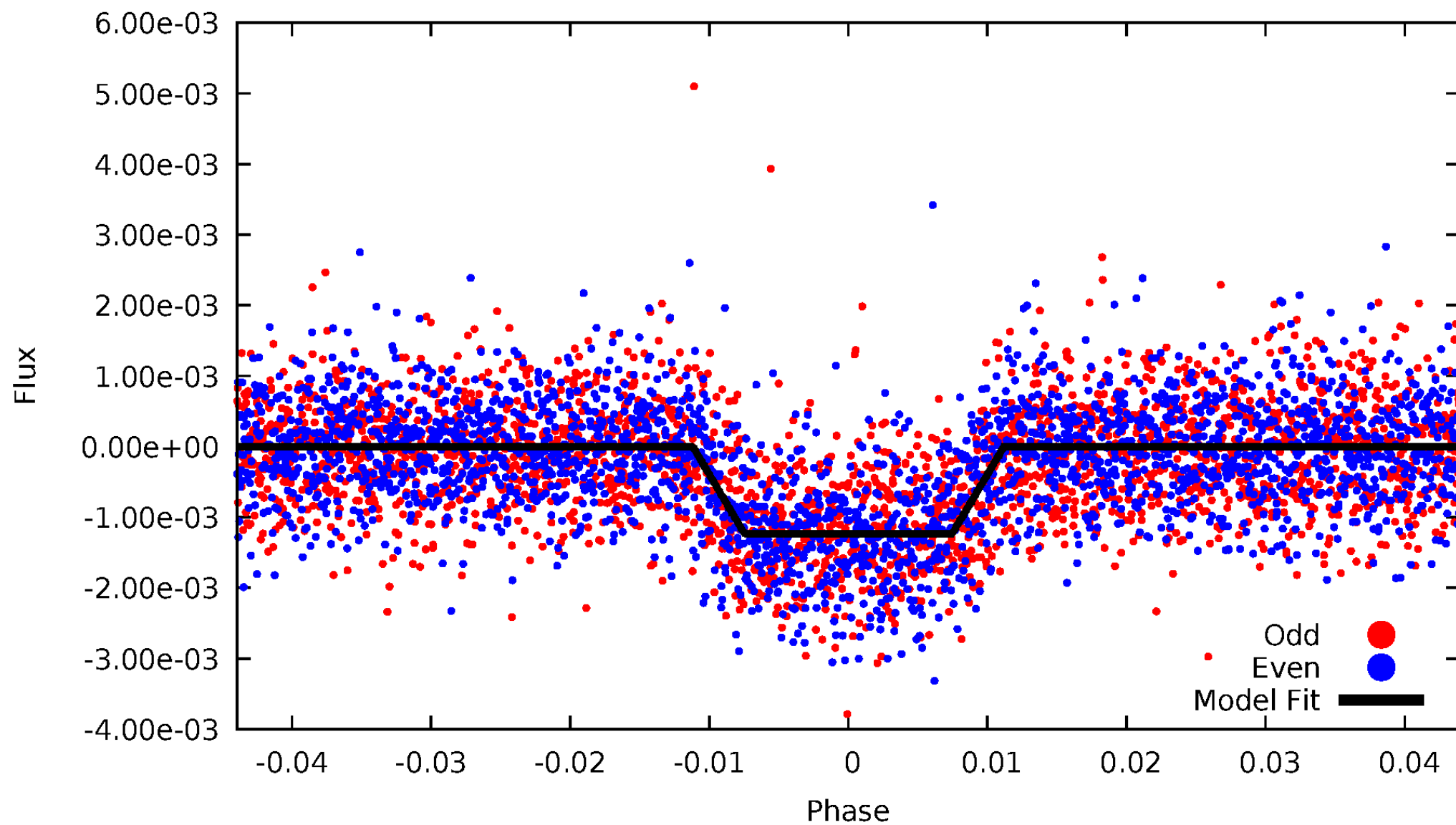
DV Odd/Even

TCE 005219234-01

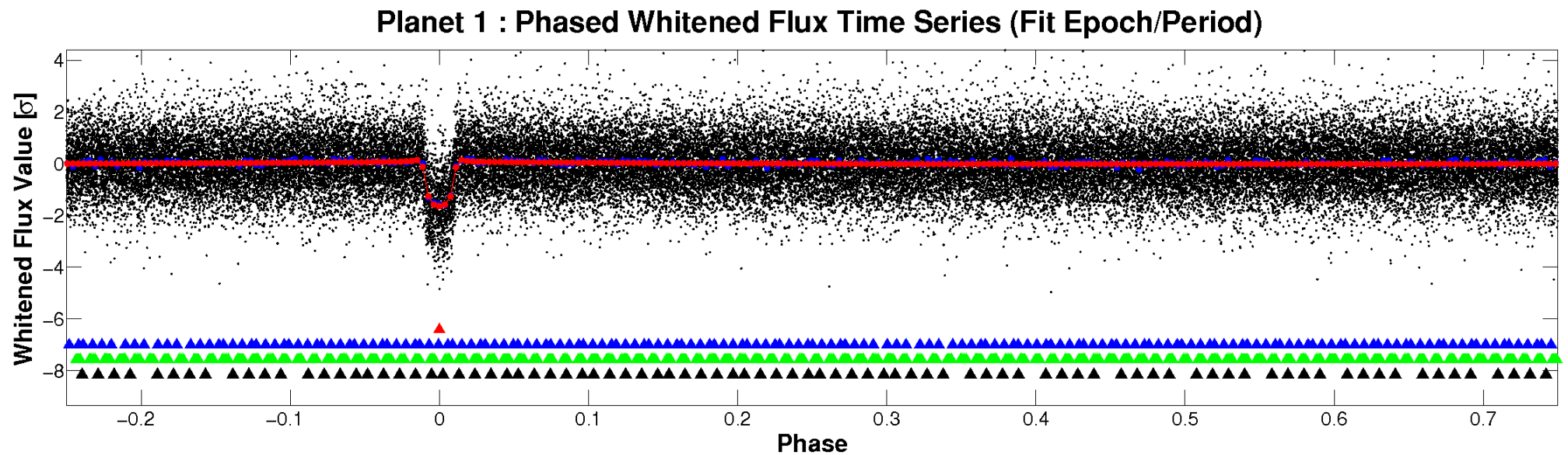
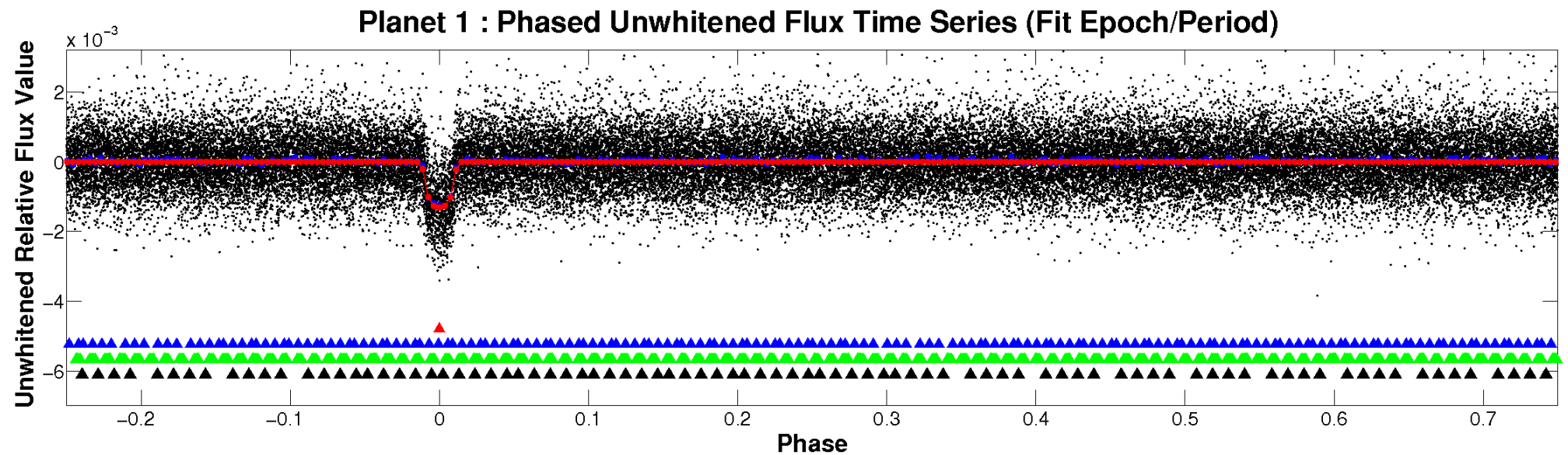


ALT Odd/Even

TCE 005219234-01

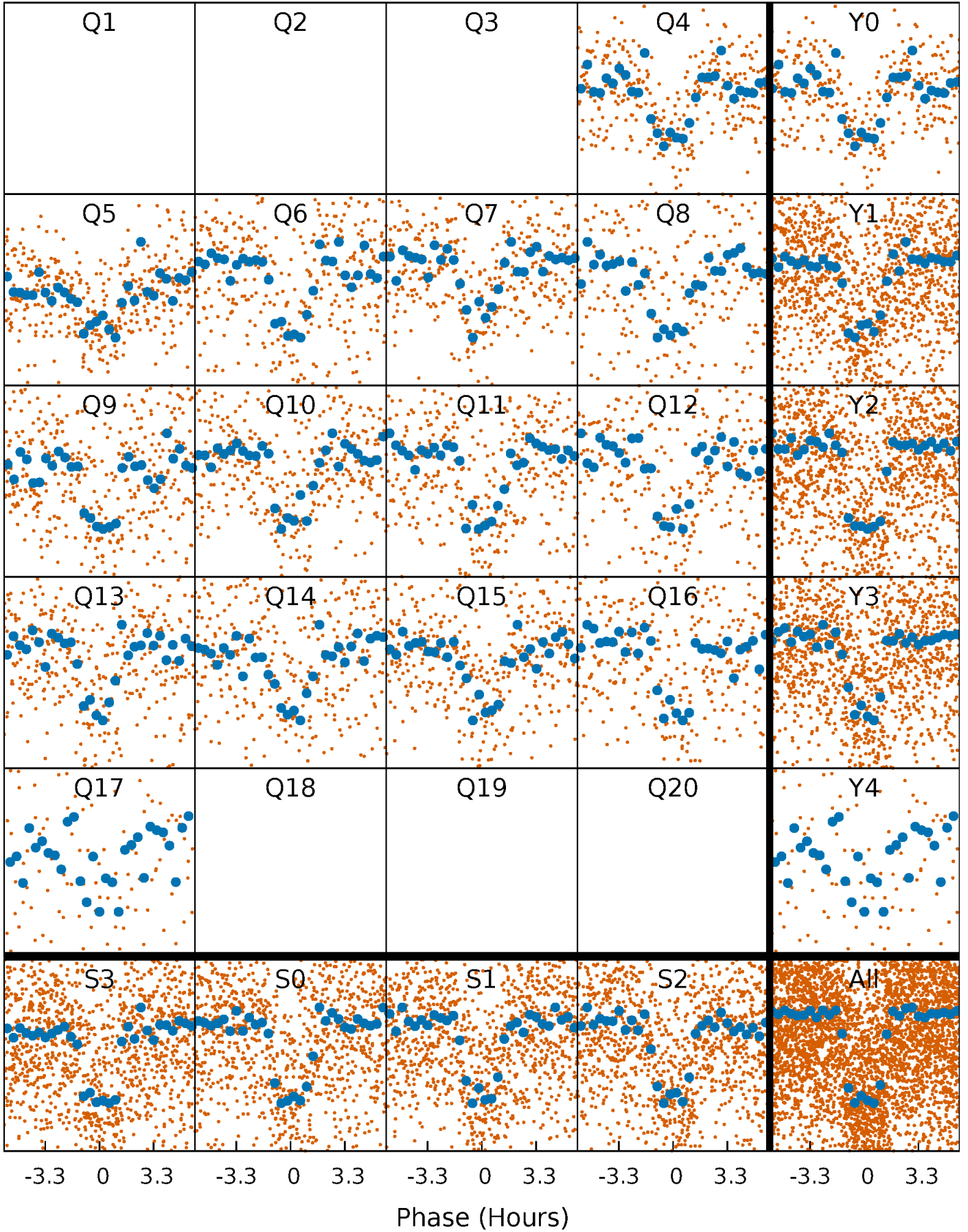


Non-Whitened Vs. Whitened Light Curve



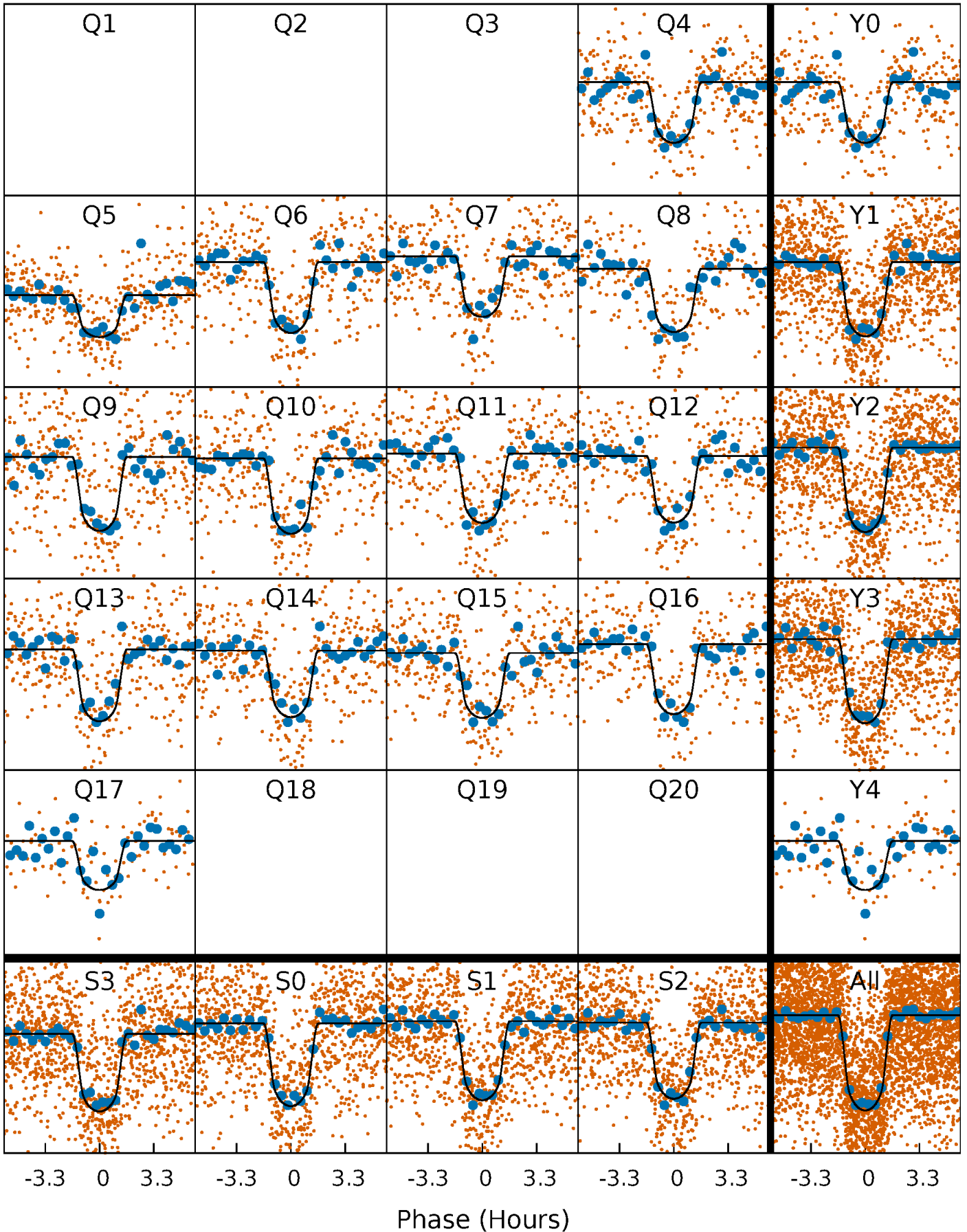
PDC Quarter-Phased Transit Curves

TCE 005219234-01 P= 5.487089 Days $T_0=136.596077$ (BKJD)



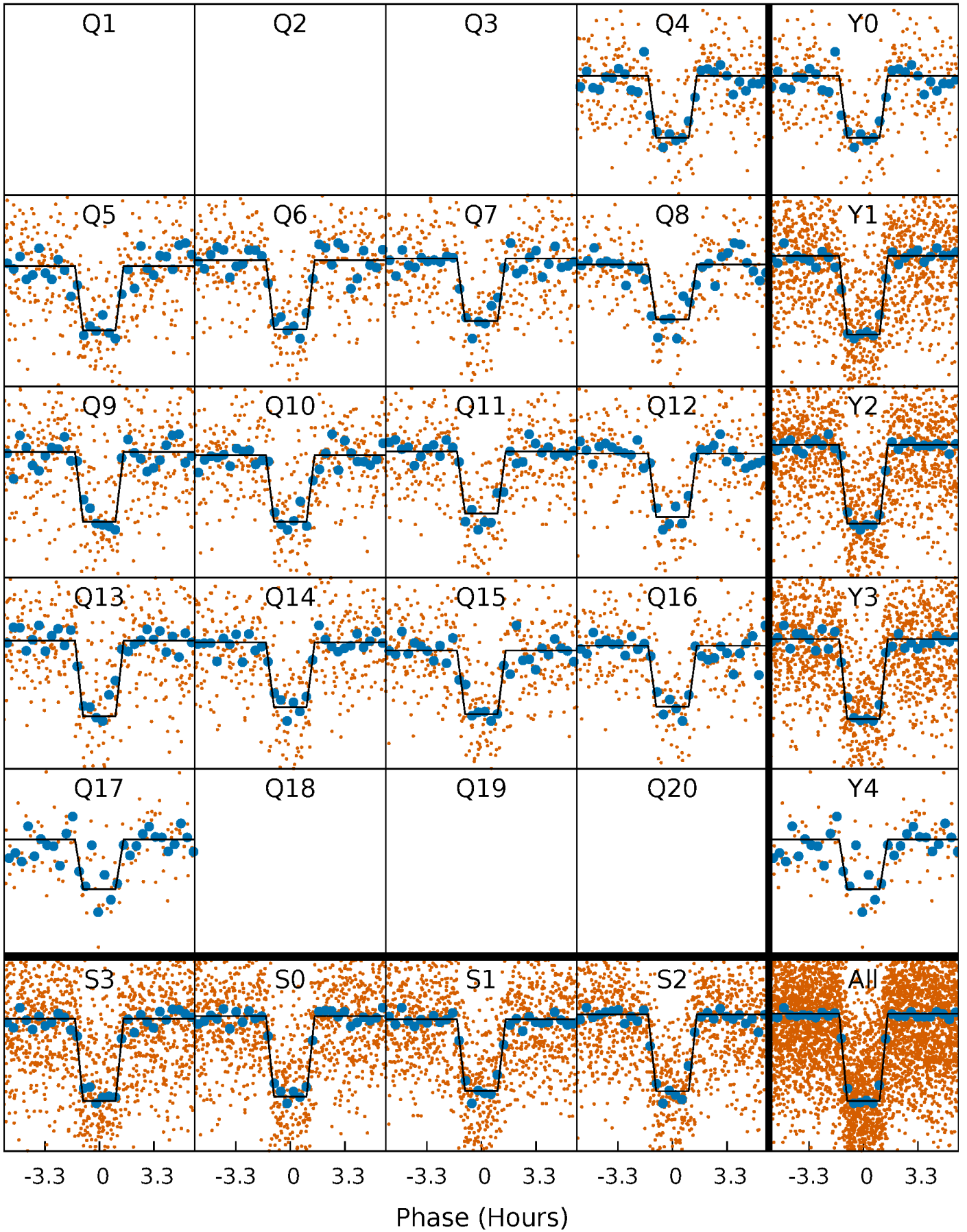
DV Quarter-Phased Transit Curves

TCE 005219234-01 P= 5.487089 Days $T_0=136.596077$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

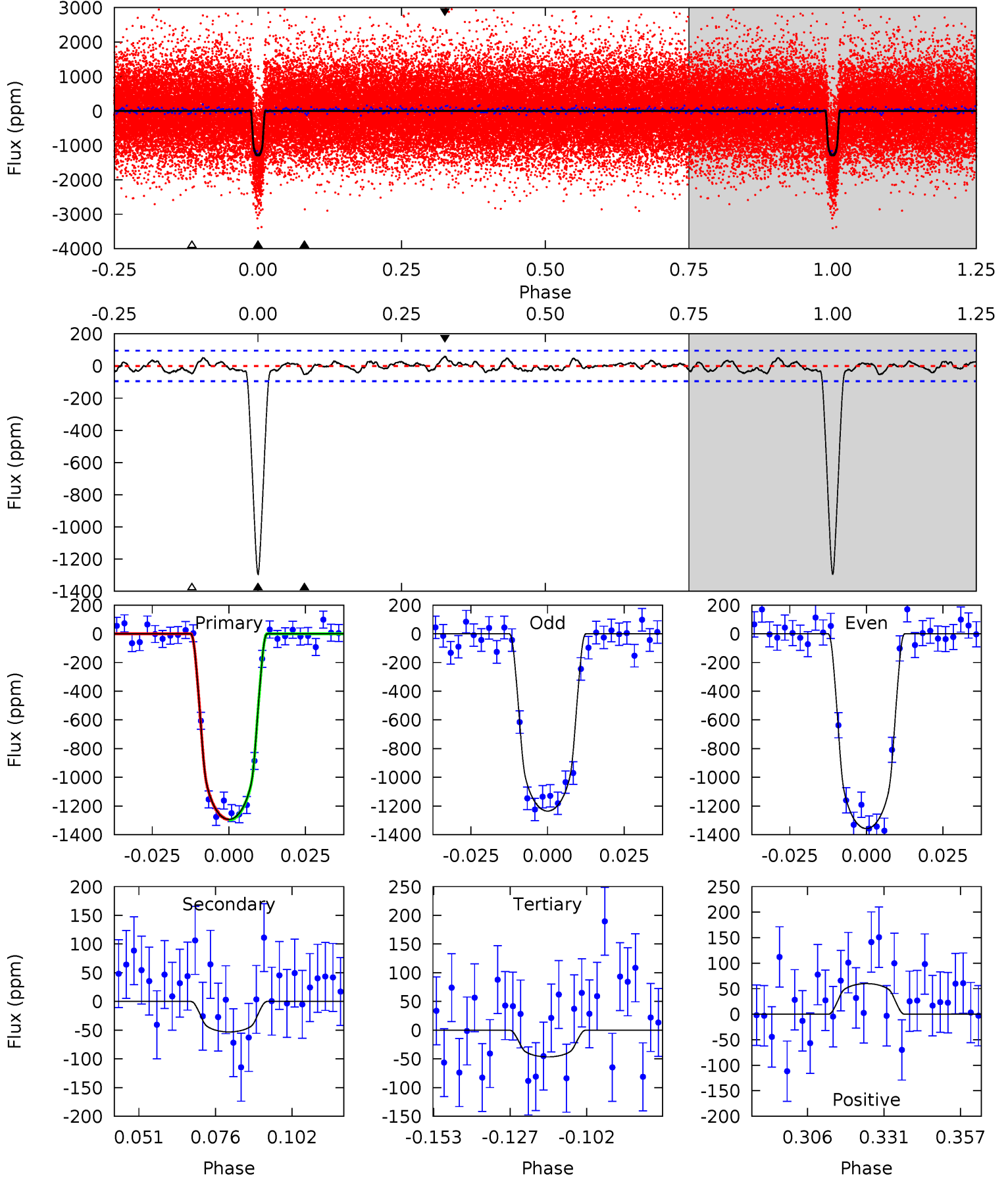
TCE 005219234-01 P= 5.487096 Days $T_0=136.595650$ (BKJD)



DV Model-Shift Uniqueness Test

005219234-01, P = 5.487089 Days, E = 136.596077 Days

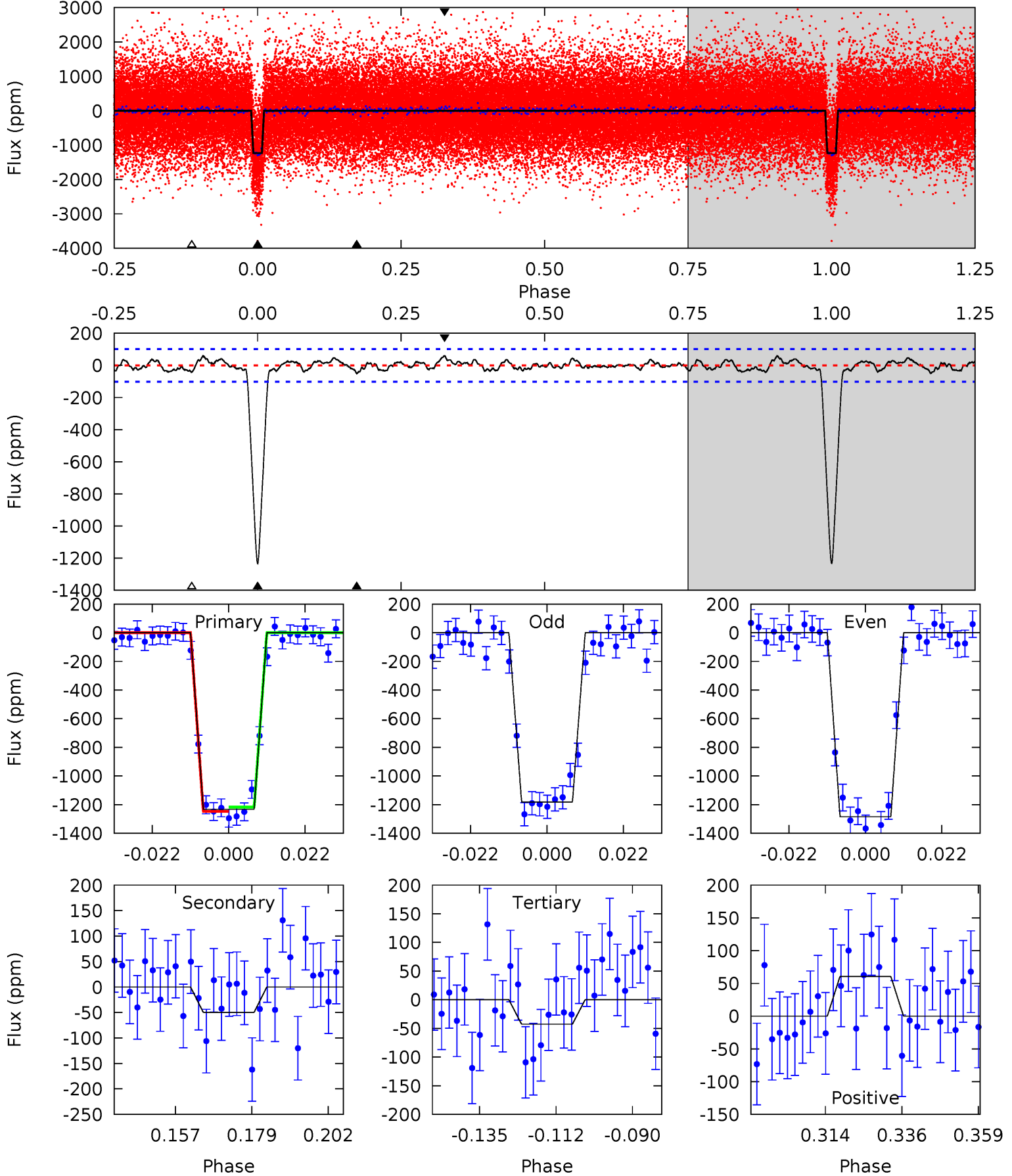
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.9	2.70	2.37	3.05	4.84	2.23	1.08	63.5	62.8	0.33	-0.35	3.11	1.00	0.04	0.11



Alt Model-Shift Uniqueness Test

005219234-01, P = 5.487096 Days, E = 136.595650 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.1	2.38	2.04	2.90	4.87	2.28	1.02	57.0	56.2	0.34	-0.52	2.47	1.00	0.05	0.73



Stellar Parameters For KIC 005219234

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005219234-01 / KOI 1563.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-53 ± 20	$3.21^{+0.48}_{-0.53}$	1170^{+31}_{-28}	2913^{+216}_{-209}	$9.387^{+5.328}_{-4.015}$
Alt.	-50 ± 21	$3.00^{+0.57}_{-0.50}$	1172^{+29}_{-27}	2937^{+244}_{-266}	$9.676^{+7.202}_{-4.628}$

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

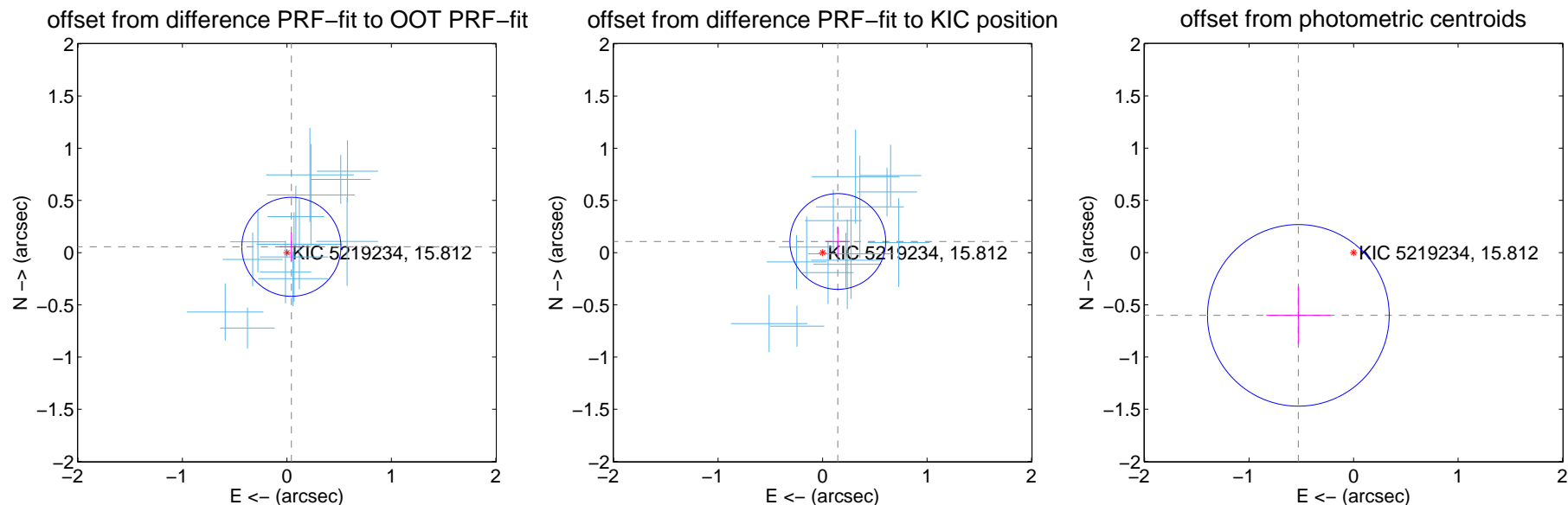
DV Centroid Data

Supplemental centroid analysis for 005219234-01. Kepler magnitude: 15.81. Transit SNR 45.80

There are 14 quarters with good PRF difference image offsets

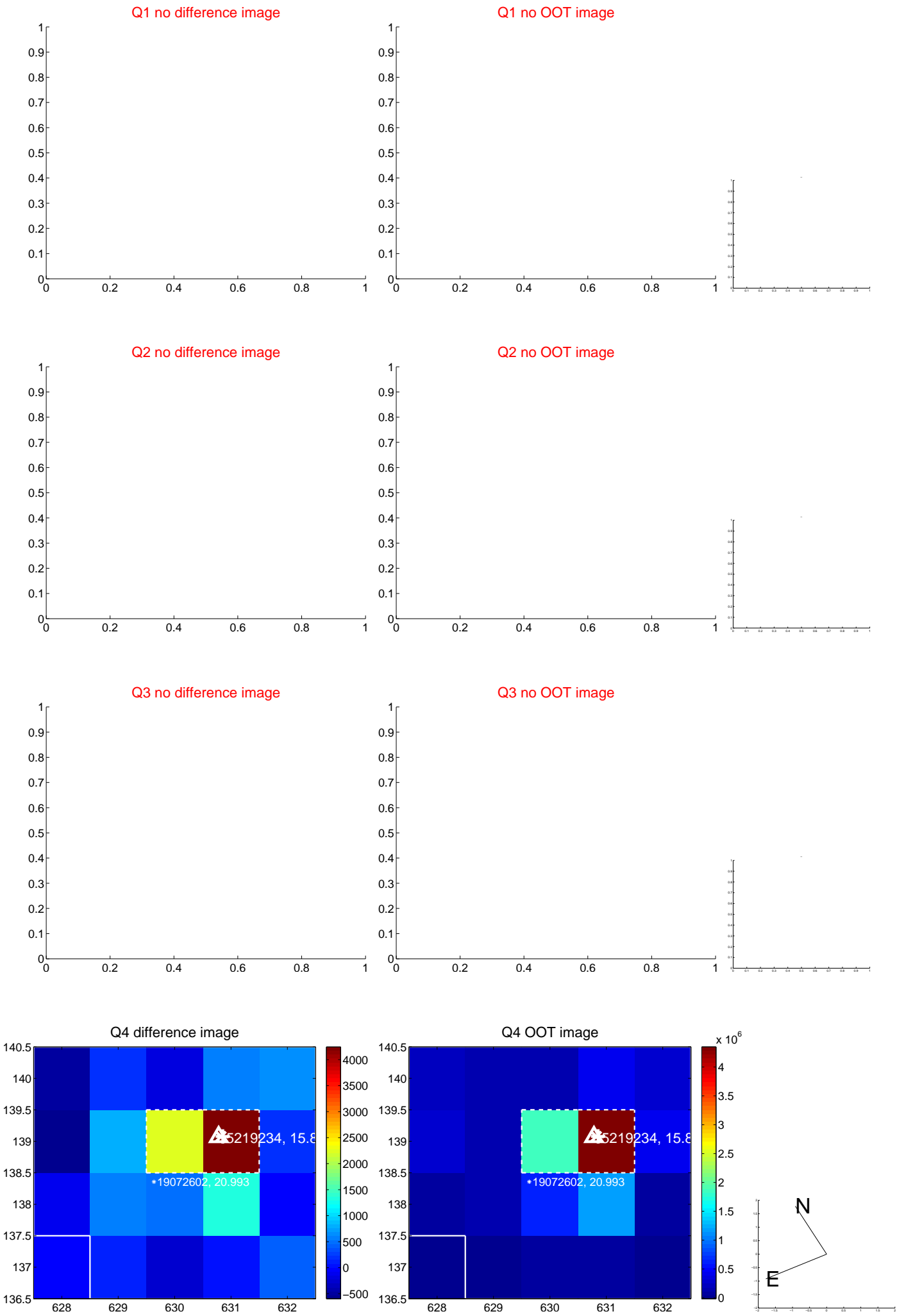
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.070 ± 0.158	0.45	-0.043 ± 0.113	0.056 ± 0.137
PRF-fit source offset from KIC position	0.181 ± 0.153	1.18	-0.146 ± 0.114	0.107 ± 0.139
photometric centroid source offset	0.80 ± 0.29	2.76	0.53 ± 0.31	-0.60 ± 0.28

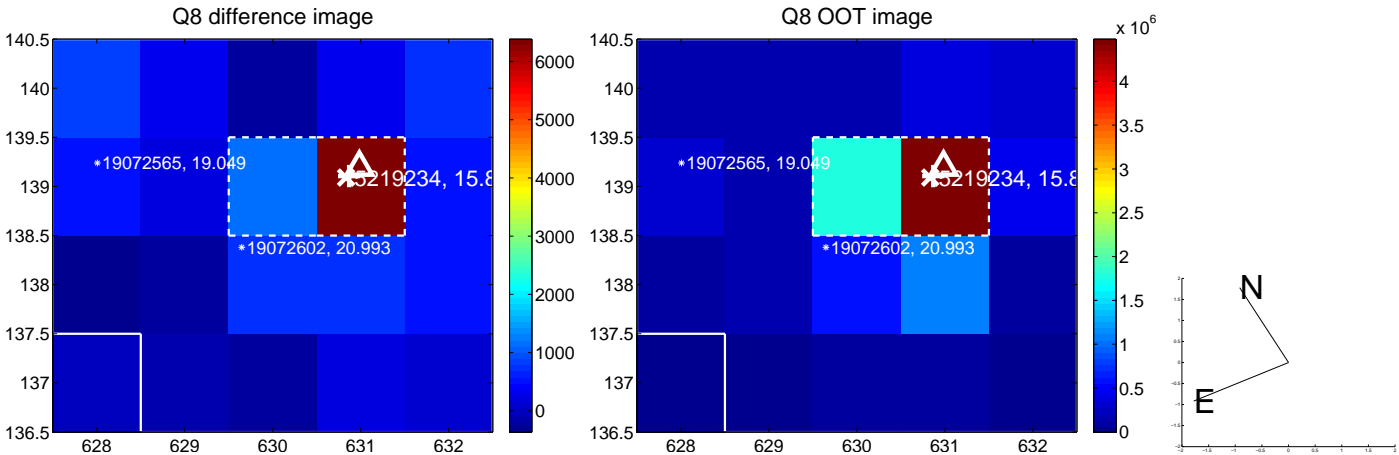
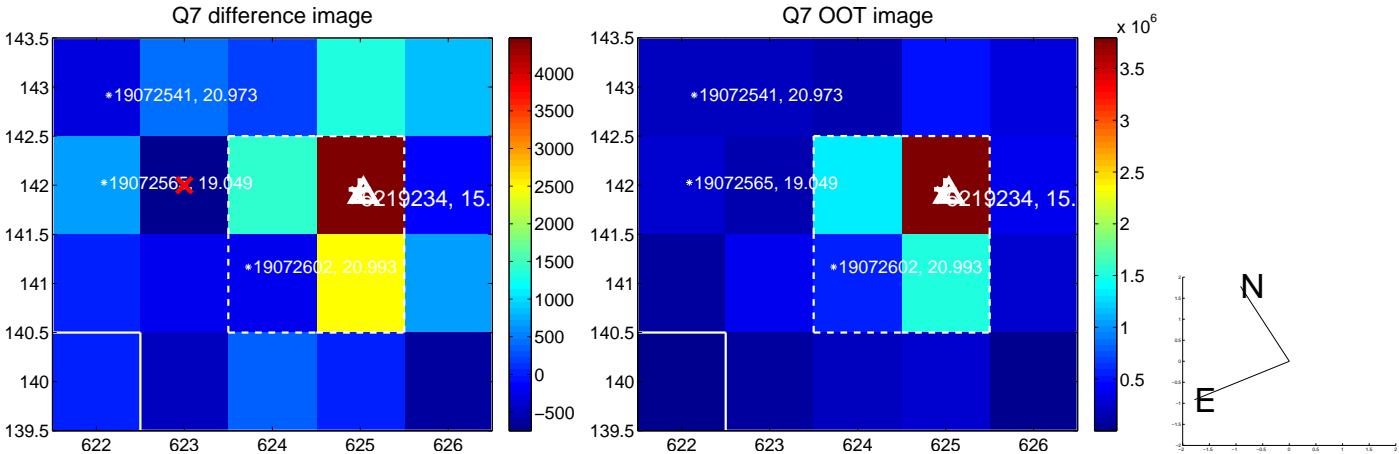
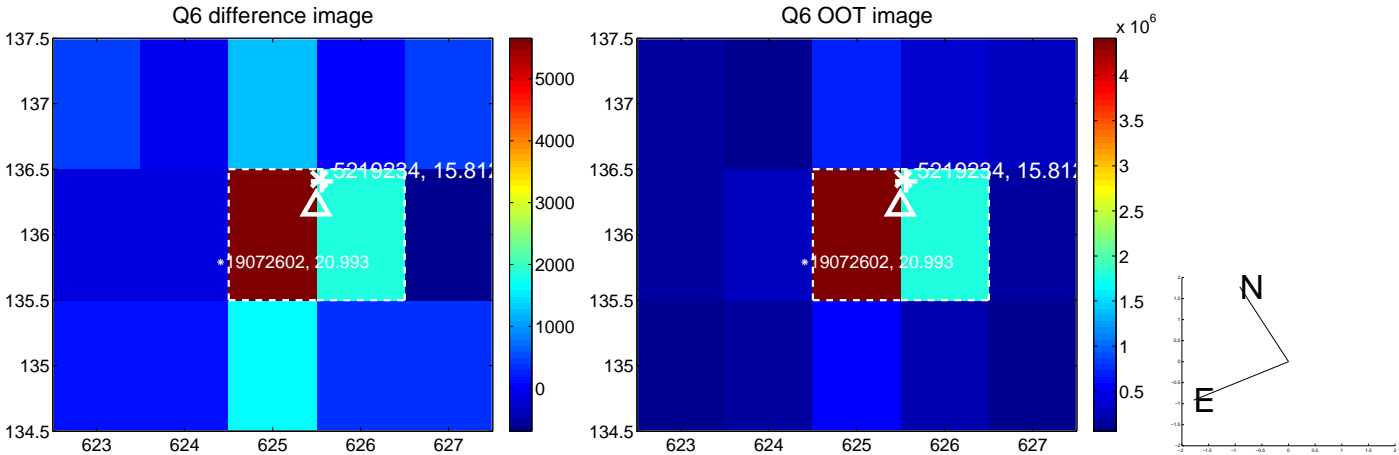
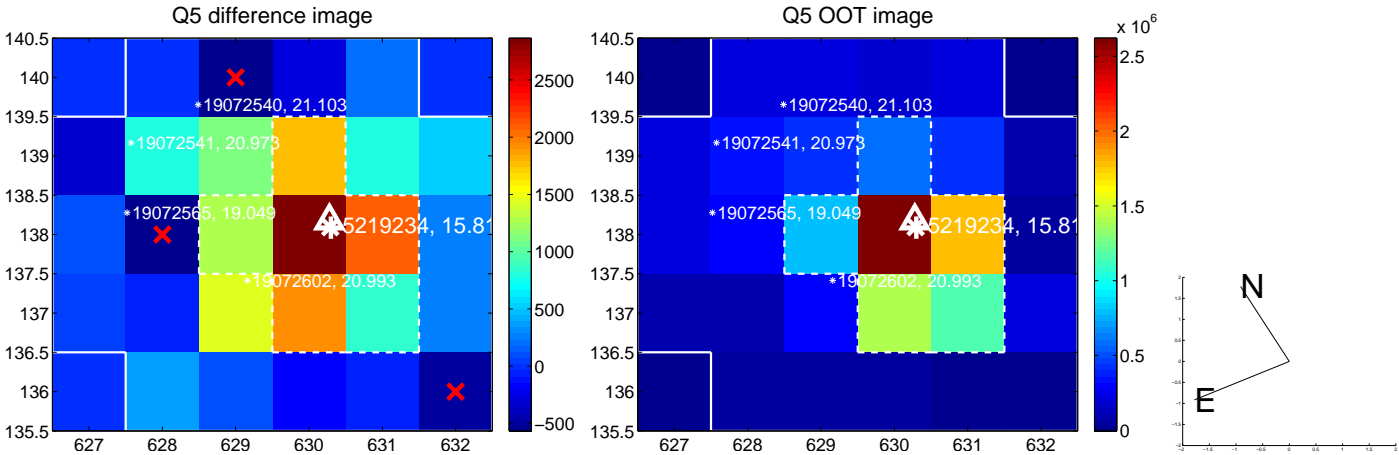


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

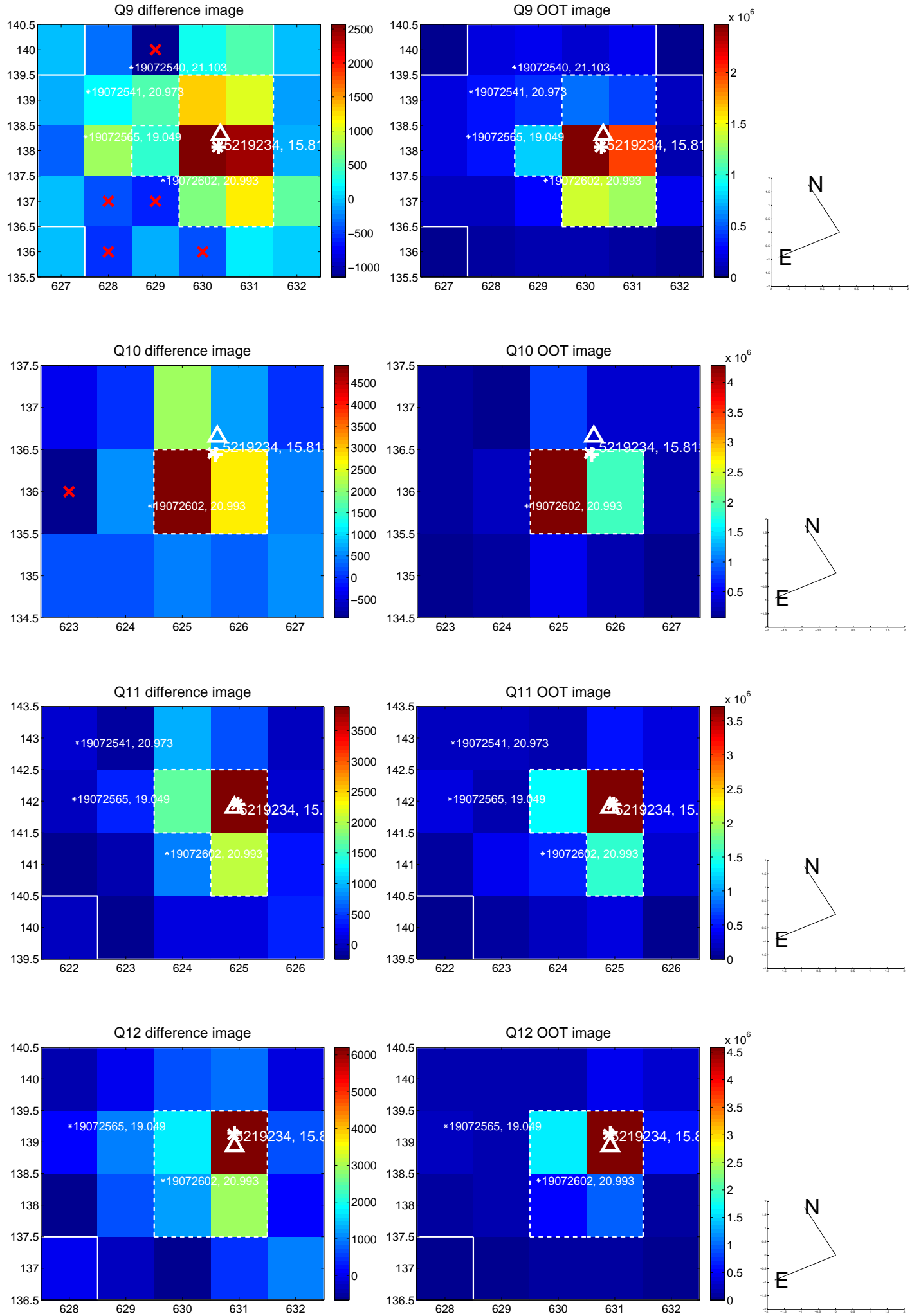
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



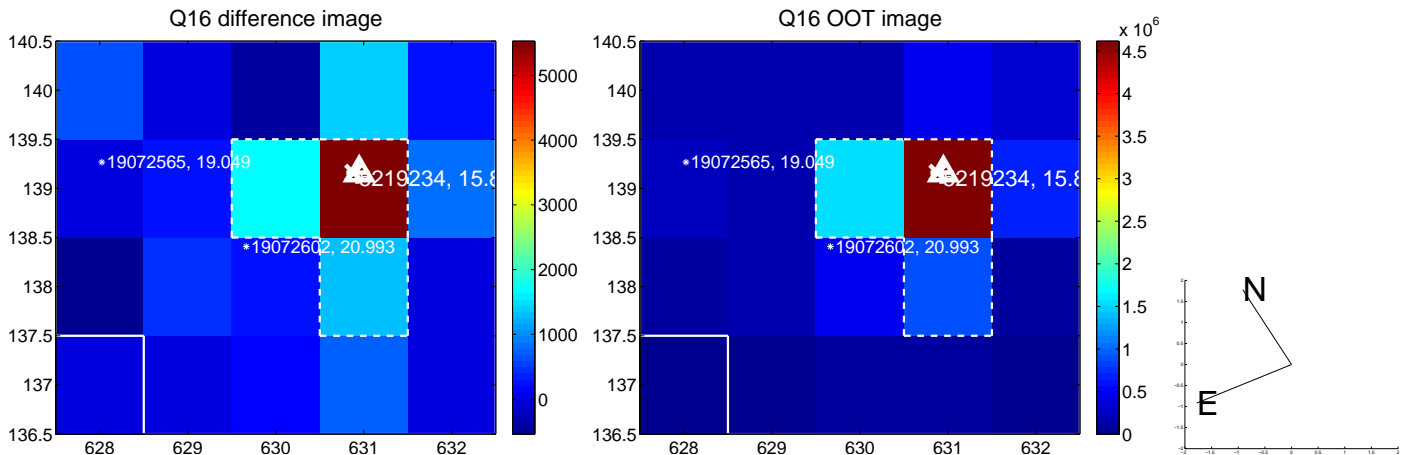
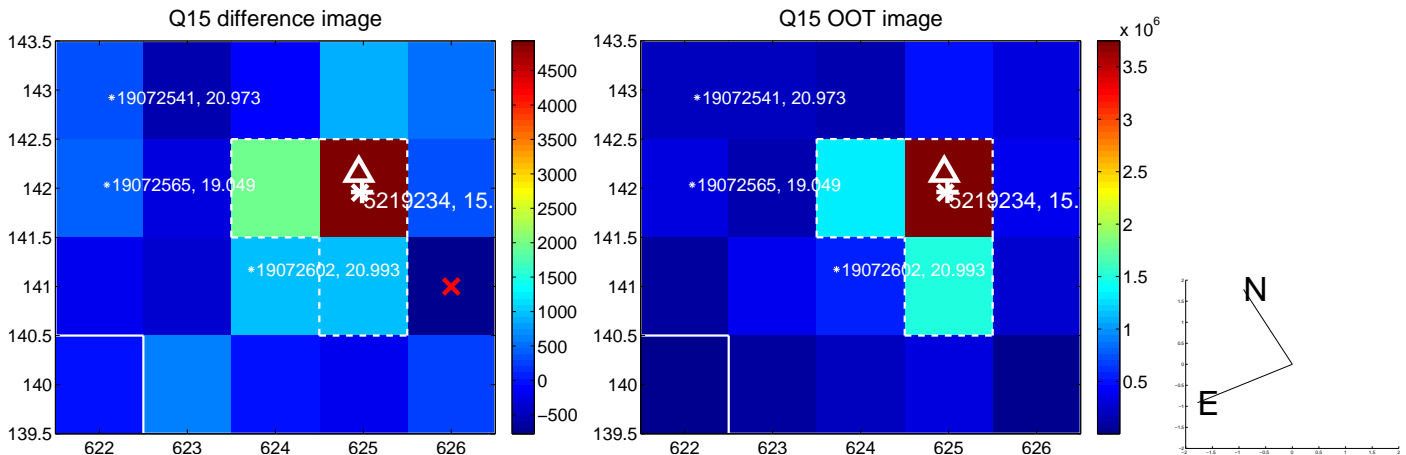
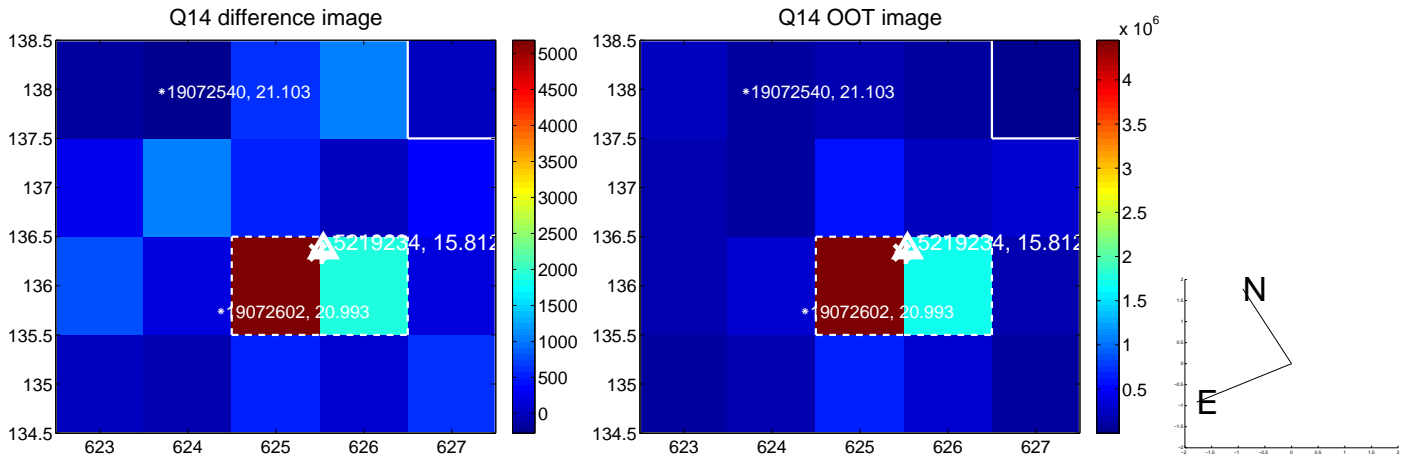
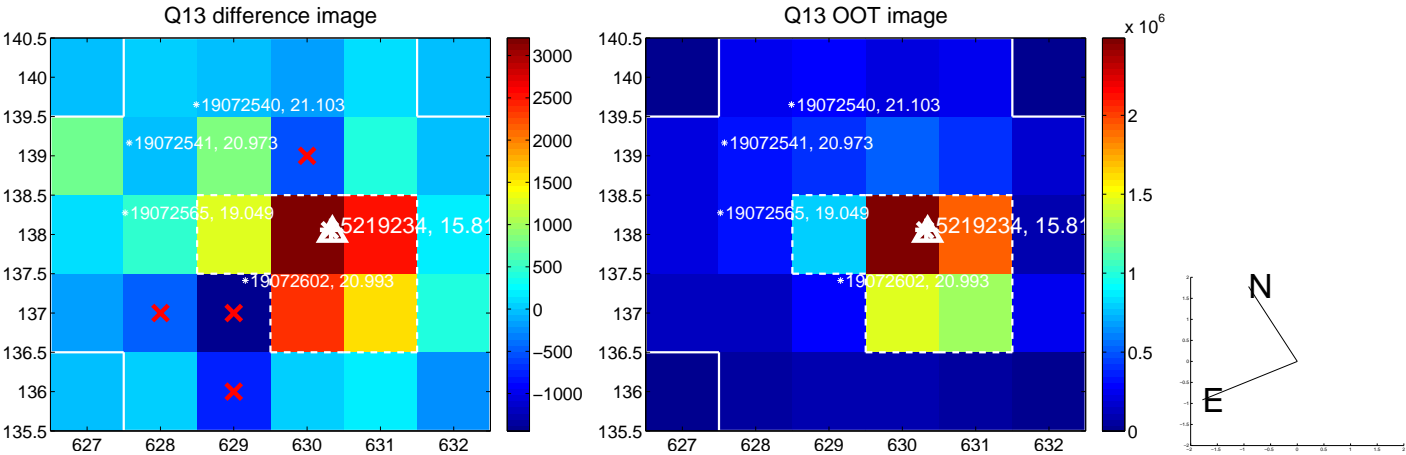
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



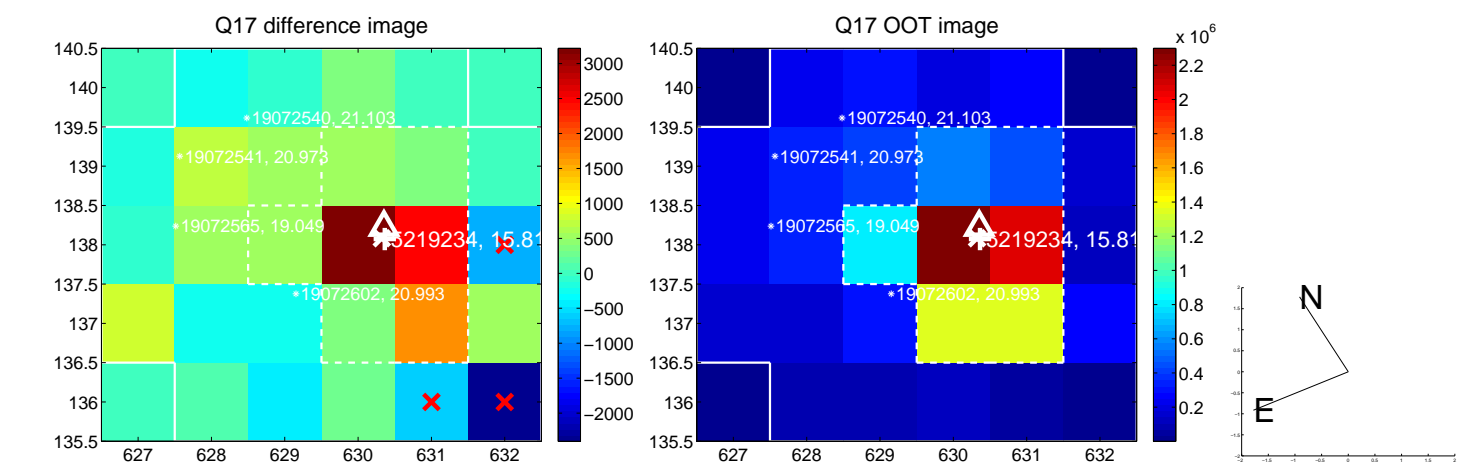
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



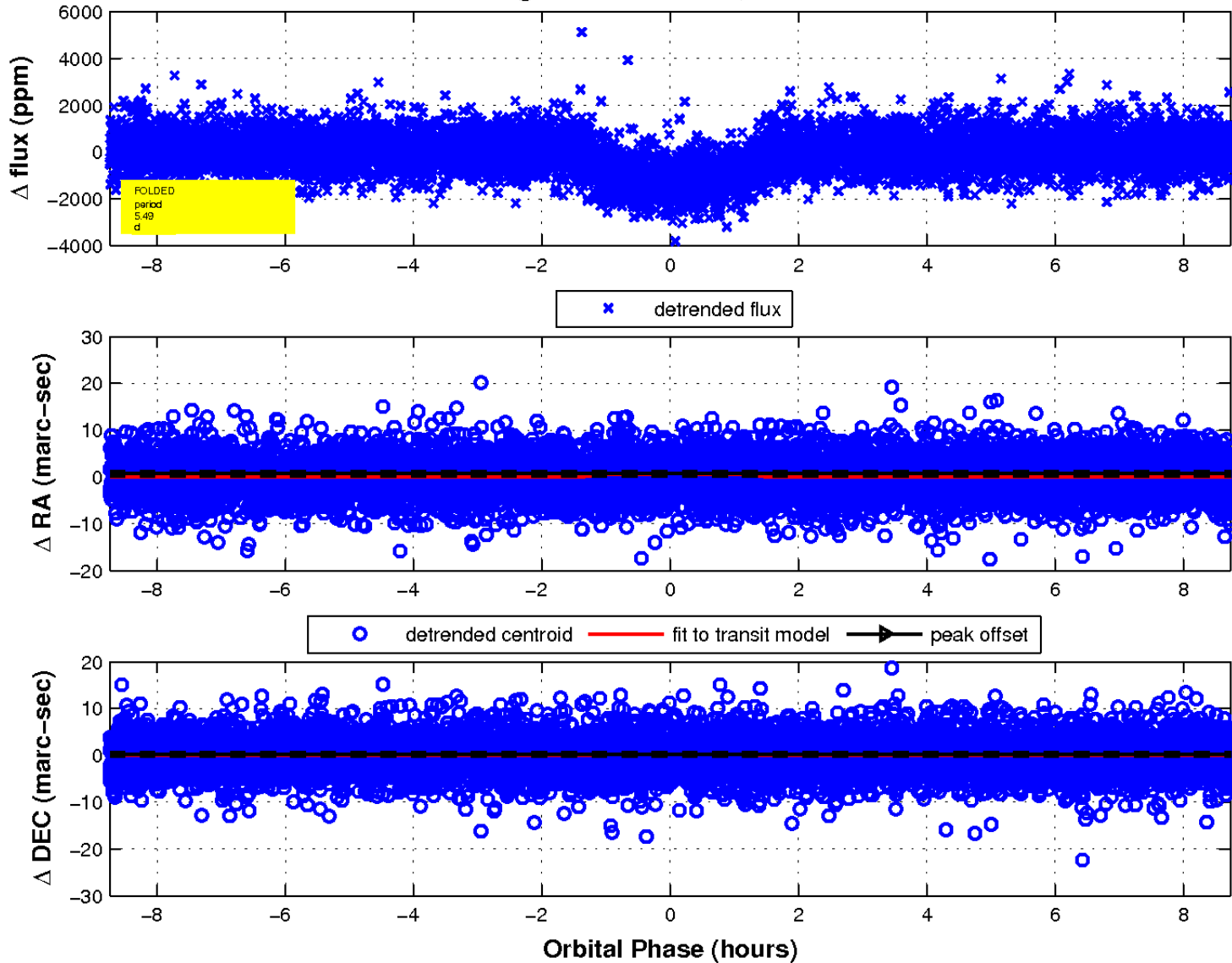
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

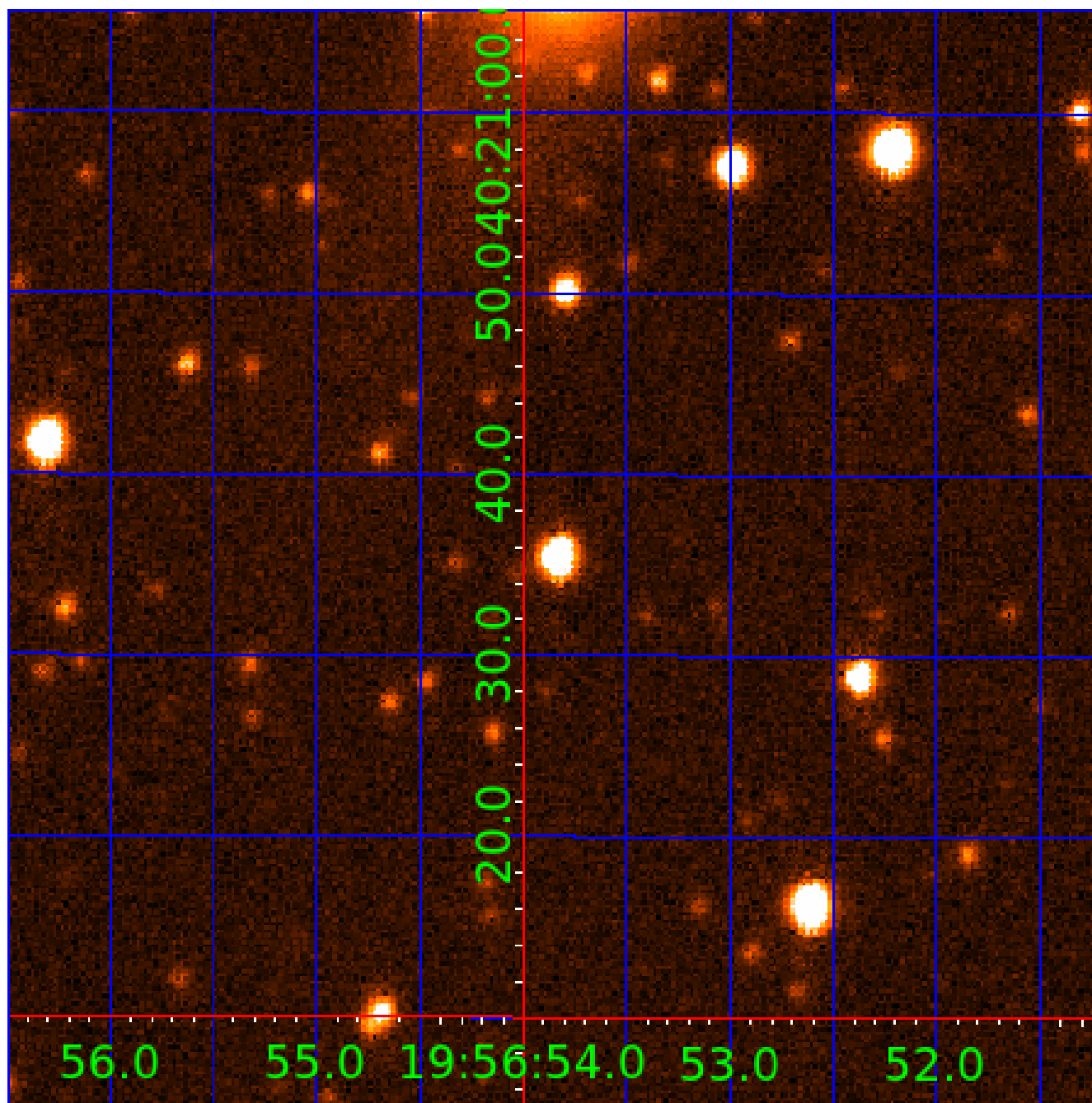


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 005219234

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})
005219234-01	OBS	1563.01	5.487089	136.596077	1319.5	2.912	40.3	45.8	0.79	5103	3.18	115.45
005219234-02	OBS	1563.02	8.290834	135.784748	1030.4	3.590	27.0	30.4	0.79	5103	3.15	66.59
005219234-03	OBS	1563.03	3.205382	133.461456	445.9	2.091	15.5	17.6	0.79	5103	1.80	236.41
005219234-04	OBS	1563.04	16.738566	141.819015	999.4	2.388	13.8	16.3	0.79	5103	3.03	26.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005219234-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

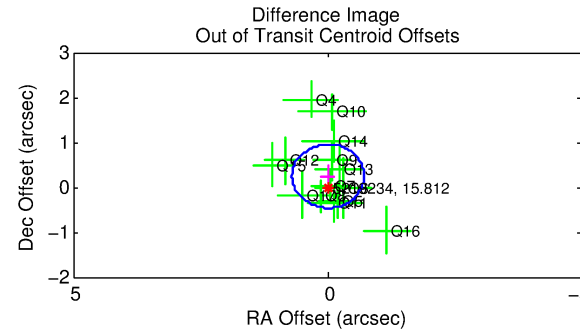
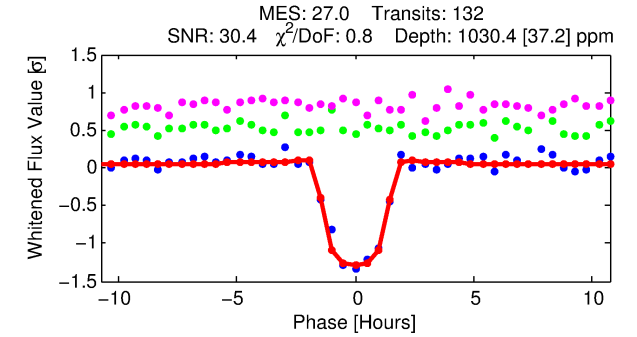
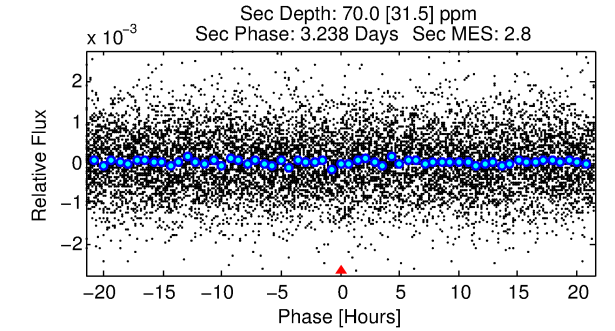
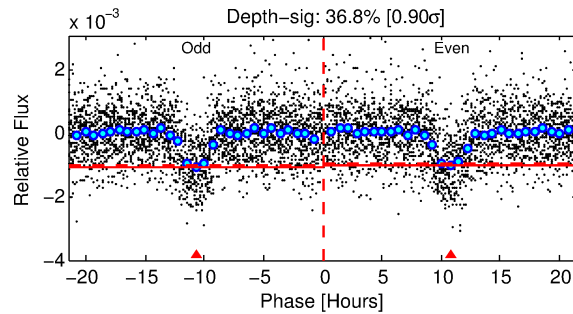
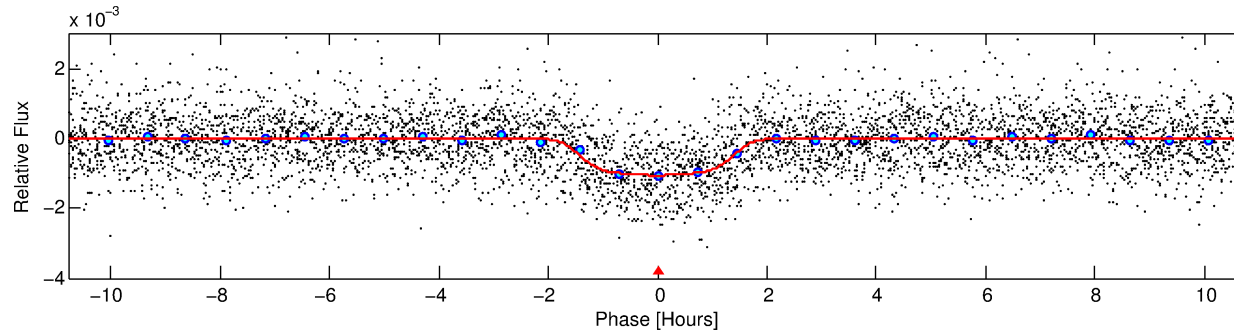
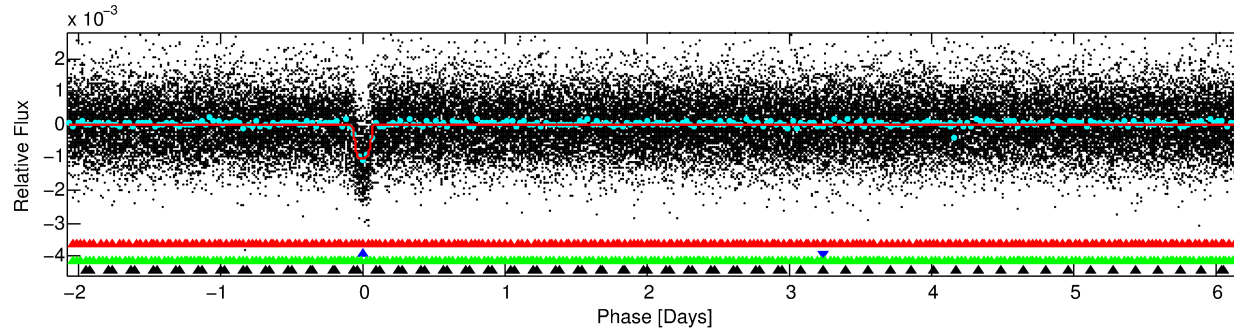
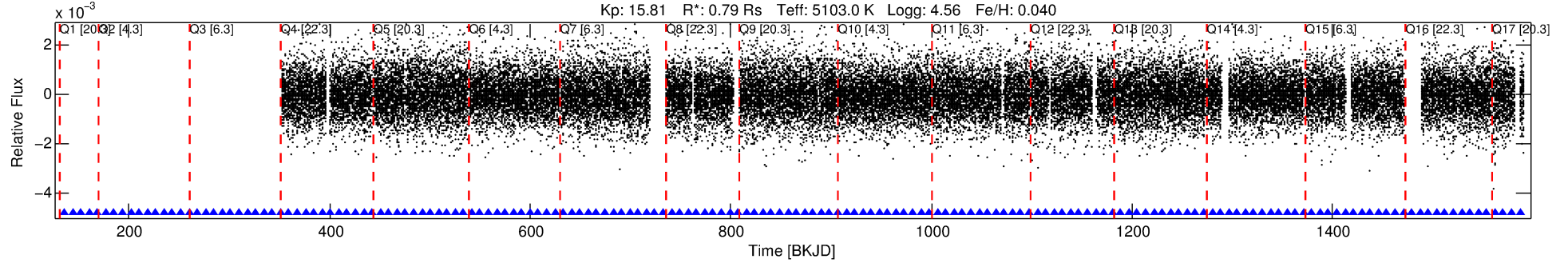
Ephemeris Match Information For 005219234-02

No Significant Match Found

DV One-Page Summary

KIC: 5219234 Candidate: 2 of 4 Period: 8.291 d
KOI: K01563.02 Name: Kepler-305c Corr: 0.974

Kp: 15.81 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 8.29083 [0.00003] d
Epoch = 135.7847 [0.0032] BKJD
Rp/R* = 0.0367 [0.0019]
a/R* = 8.50 [1.49]
b = 0.92 [0.03]
Seff = 66.59 [7.75]
Teq = 728 [21] K
Rp = 3.15 [0.26] Re
a = 0.0752 [0.0043] AU
Ag = 21.89 [10.28] [2.03σ]
Teffp = 2436 [285] K [5.97σ]

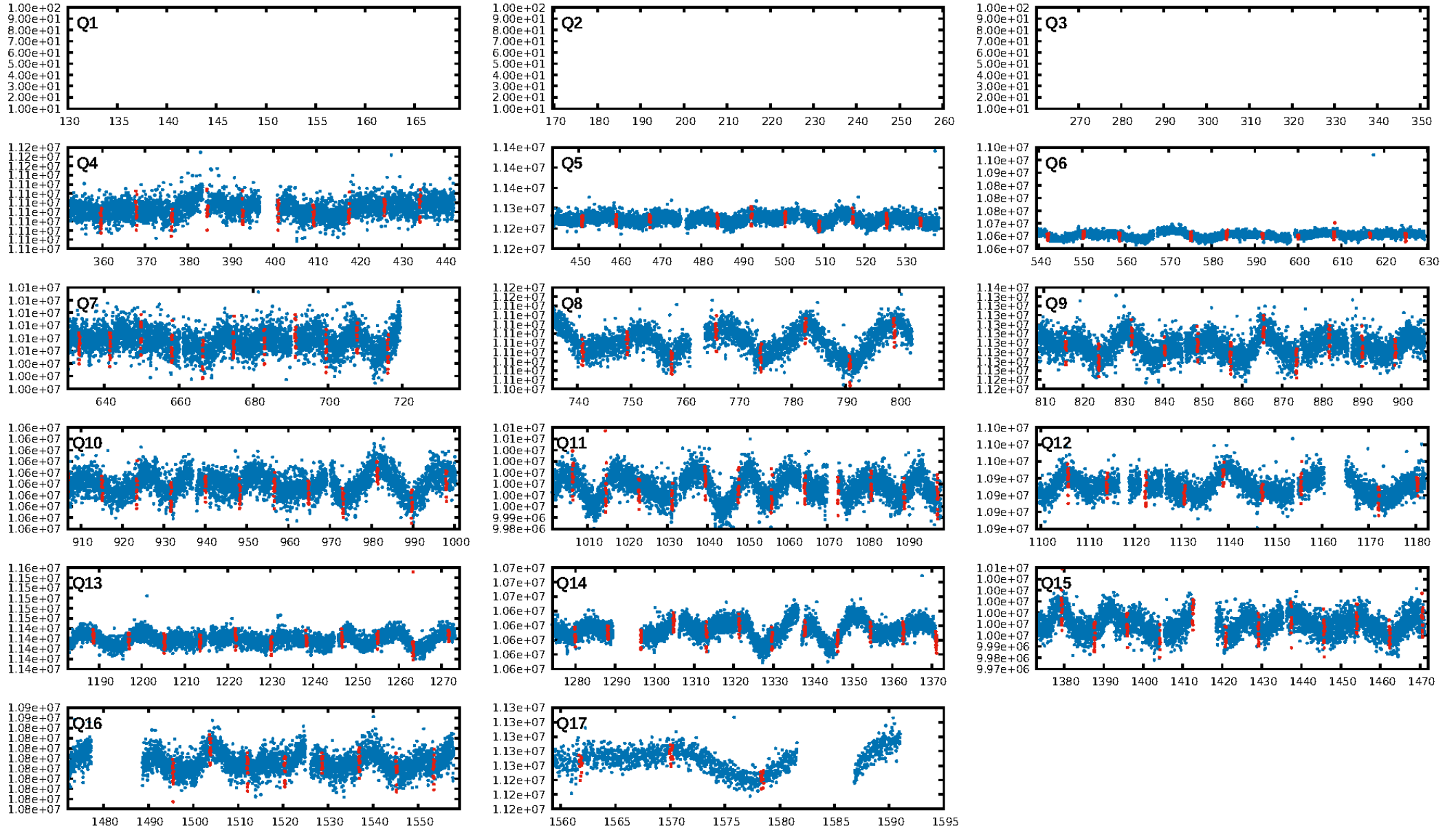
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.56σ]
LongPeriod-sig: 100.0% [47.02σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.12e-157
RollingBand-fgt: 1.00 [129/129]
GhostDiagnostic-chr: 4.863
Centroid-sig: 53.5%
Centroid-so: 0.804 arcsec [1.82σ]
OotOffset-rm: 0.244 arcsec [1.03σ]
KicOffset-rm: 0.314 arcsec [1.50σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 1.00 [14/14]

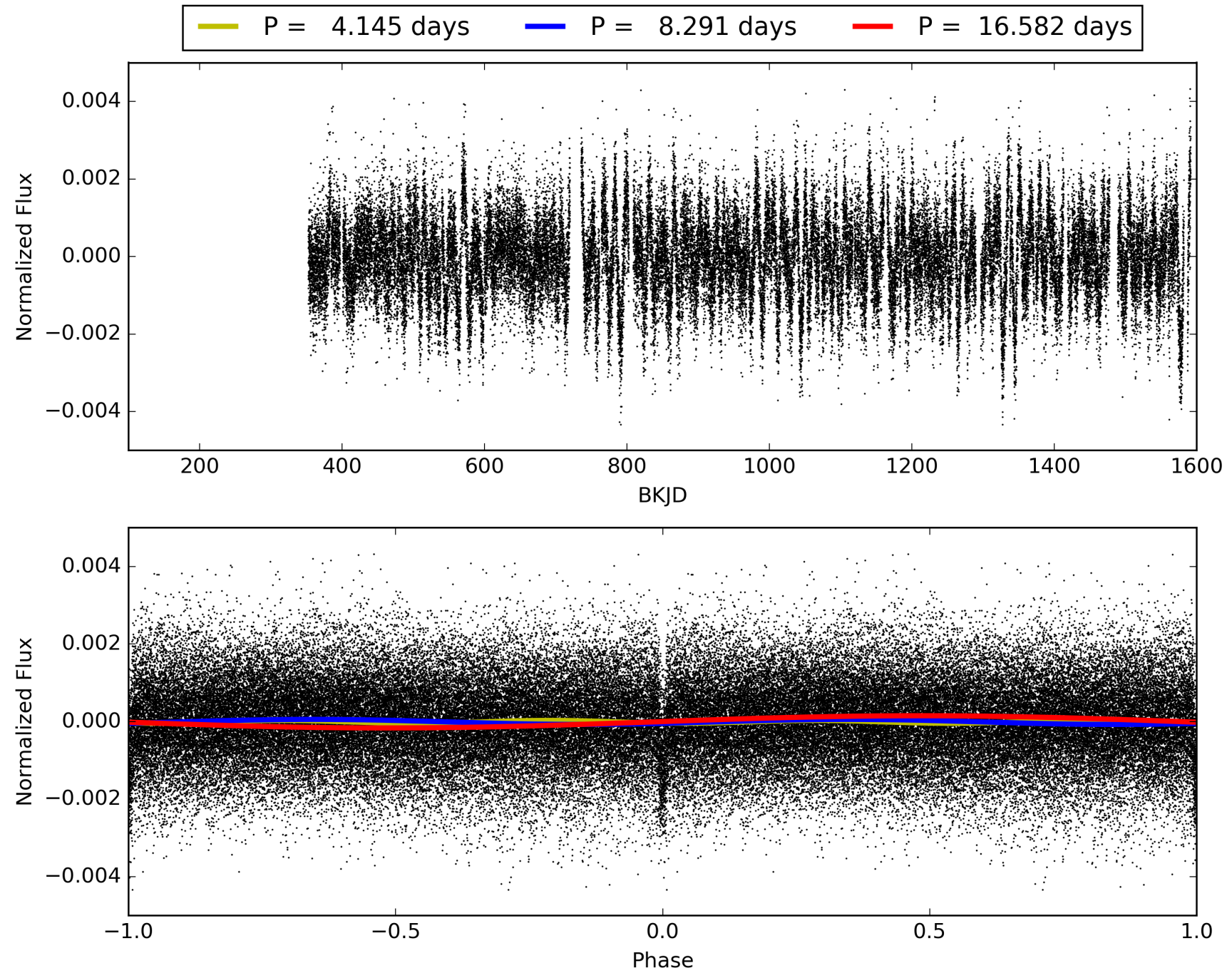
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:16:13 Z

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

TCE 005219234-02, PDC Light Curves

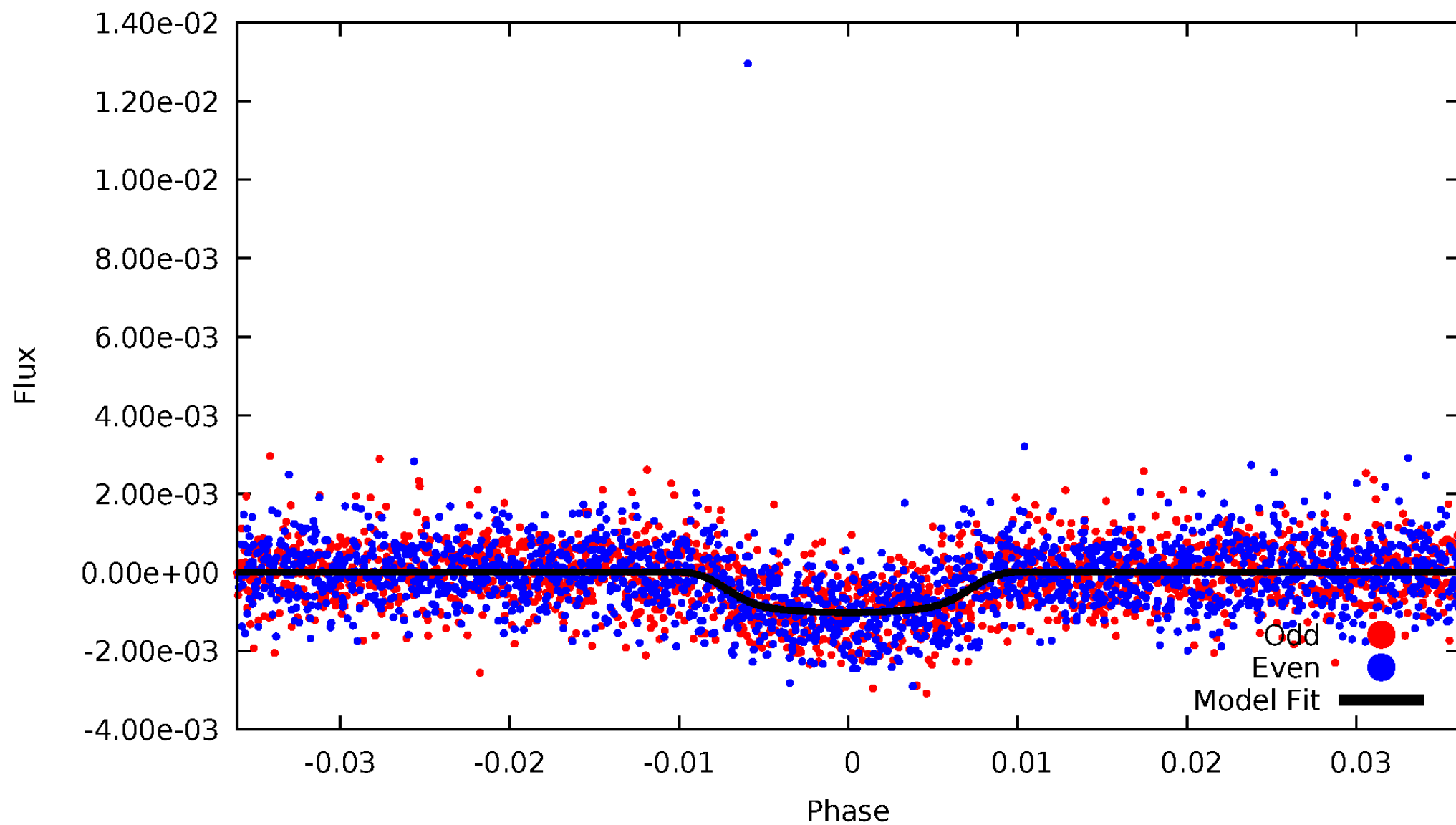


TCE 005219234-02



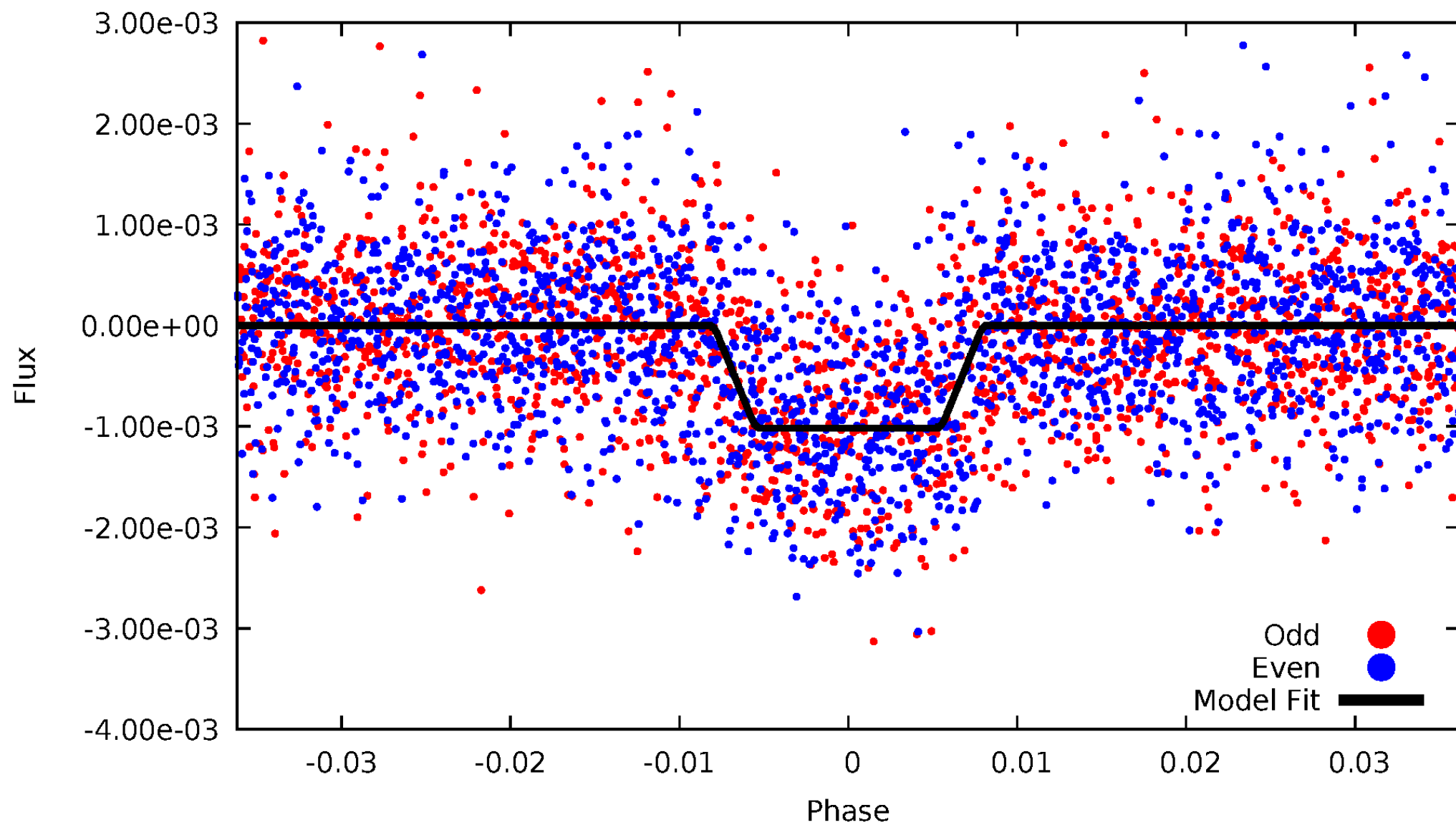
DV Odd/Even

TCE 005219234-02



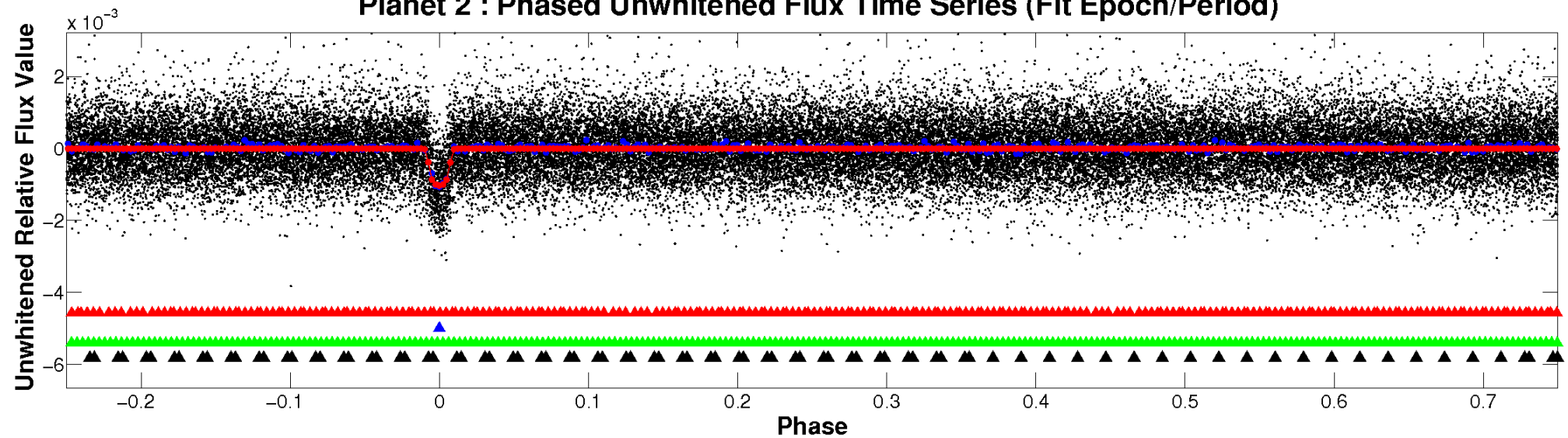
ALT Odd/Even

TCE 005219234-02

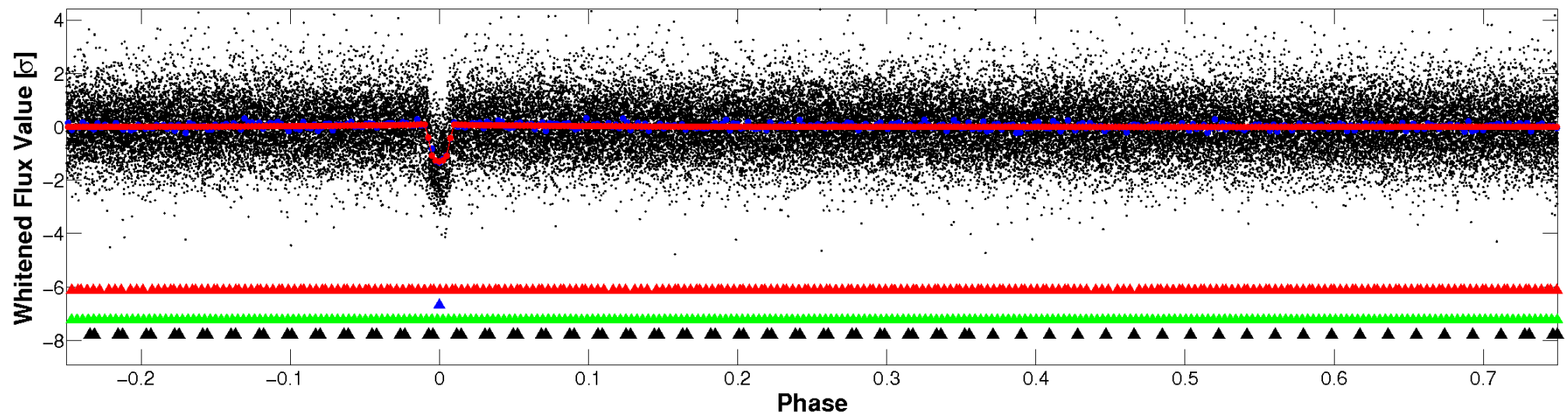


Non-Whitened Vs. Whitened Light Curve

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

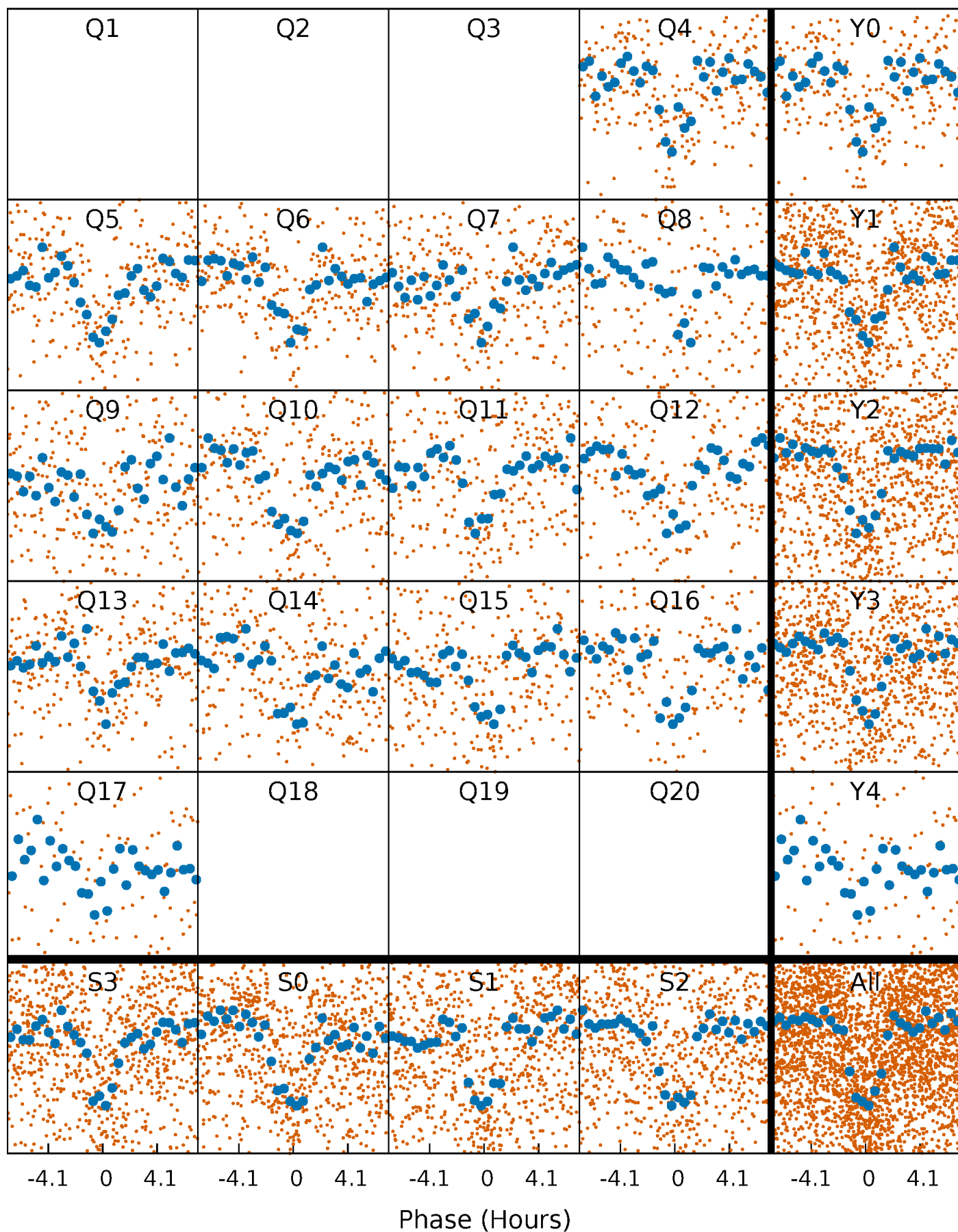


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



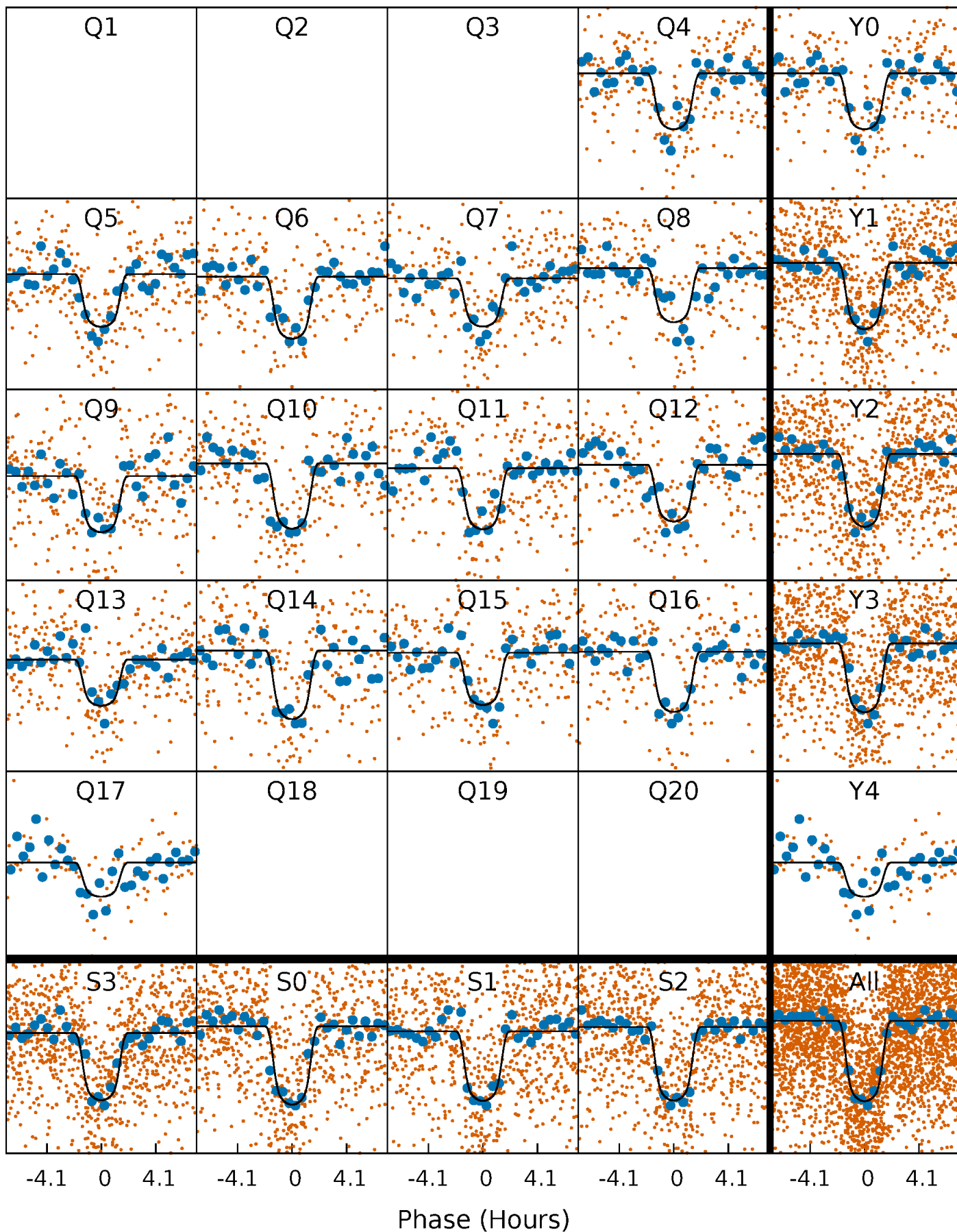
PDC Quarter-Phased Transit Curves

TCE 005219234-02 P= 8.290834 Days $T_0=135.784748$ (BKJD)



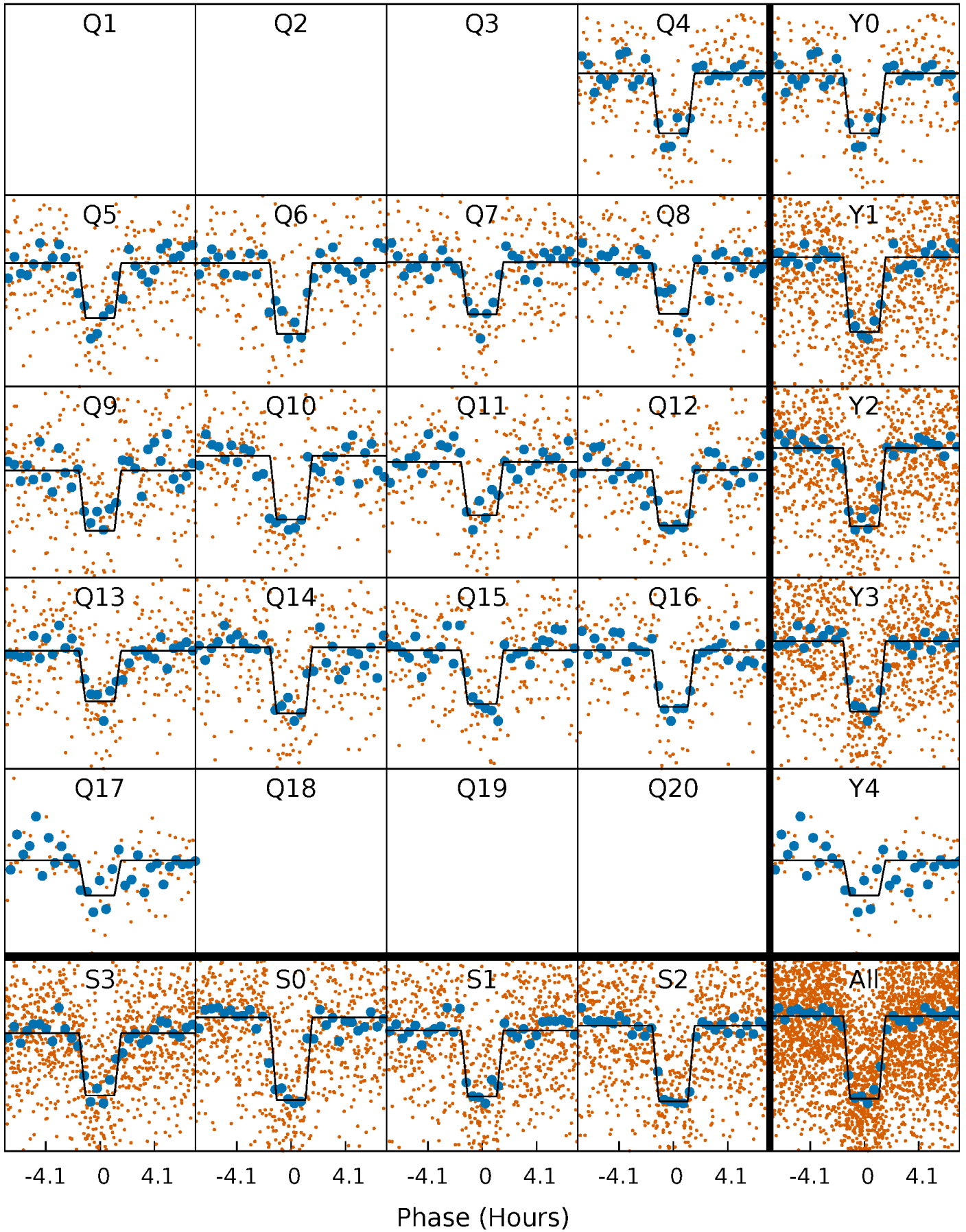
DV Quarter-Phased Transit Curves

TCE 005219234-02 P= 8.290834 Days $T_0=135.784748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

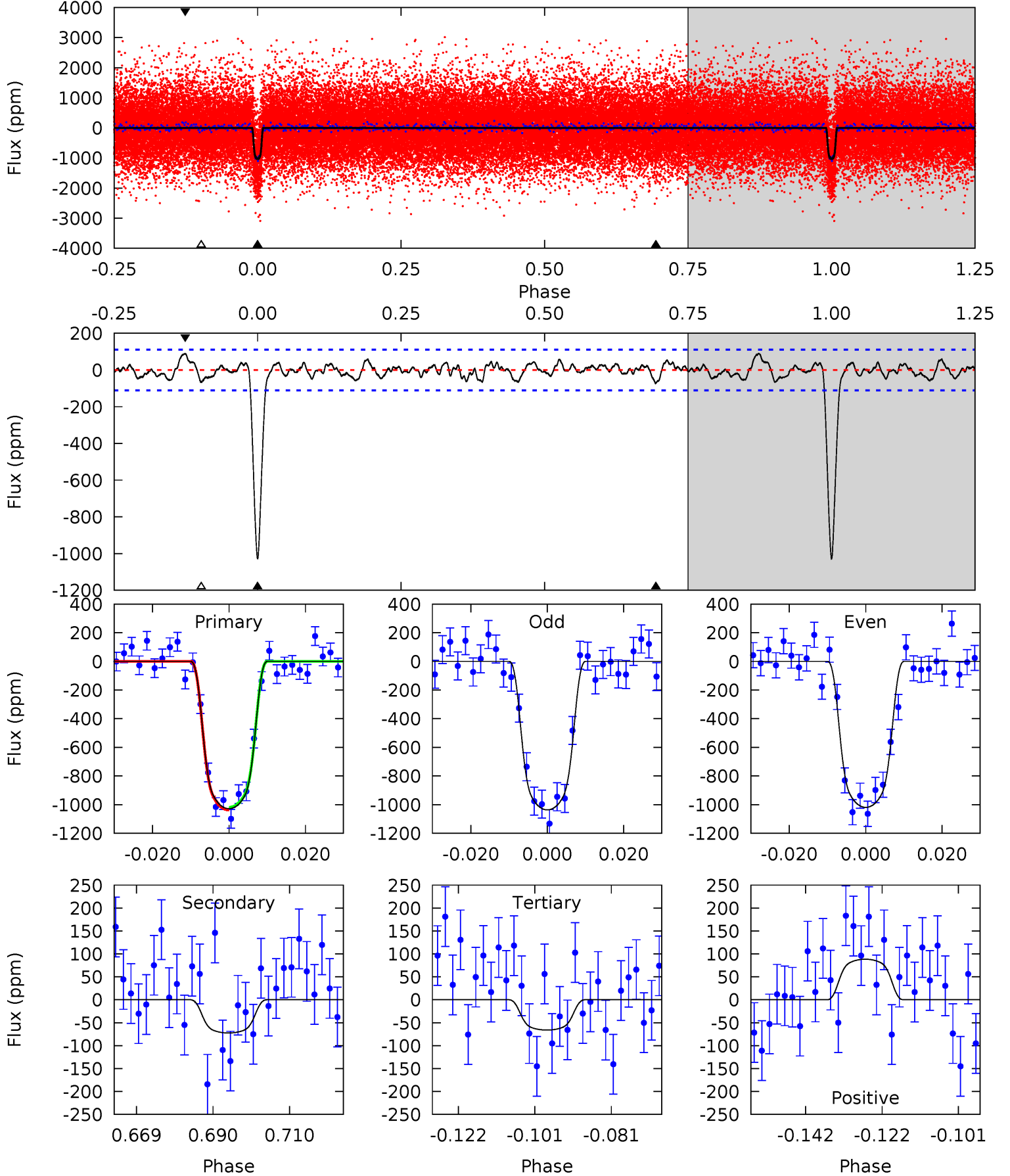
TCE 005219234-02 P= 8.290781 Days $T_0=135.790632$ (BKJD)



DV Model-Shift Uniqueness Test

005219234-02, P = 8.290834 Days, E = 135.784748 Days

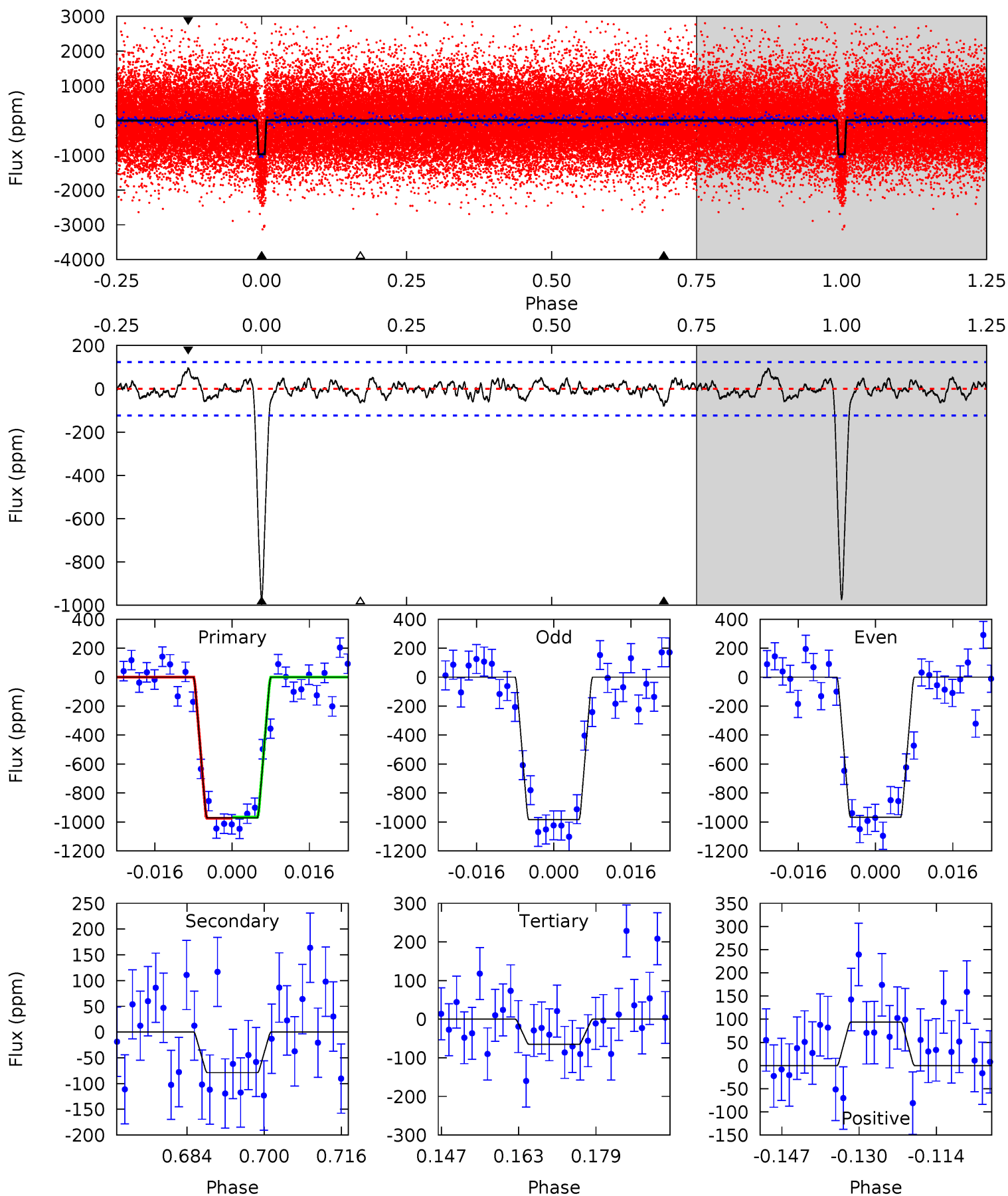
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.5	3.20	2.92	3.91	4.89	2.32	1.24	42.5	41.6	0.28	-0.70	0.39	0.95	0.08	0.37



Alt Model-Shift Uniqueness Test

005219234-02, P = 8.290781 Days, E = 135.790632 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.9	3.15	2.61	3.76	4.93	2.40	1.06	36.3	35.1	0.54	-0.60	0.34	0.97	0.09	0.15



Stellar Parameters For KIC 005219234

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005219234-02 / KOI 1563.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-72 ± 23	$3.15^{+0.20}_{-0.19}$	1021^{+26}_{-24}	3071^{+137}_{-162}	23^{+8}_{-7}
Alt.	-79 ± 25	$2.74^{+0.19}_{-0.19}$	1020^{+26}_{-24}	3227^{+166}_{-178}	32^{+12}_{-11}

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 $A_{obs} \gg 1.0$

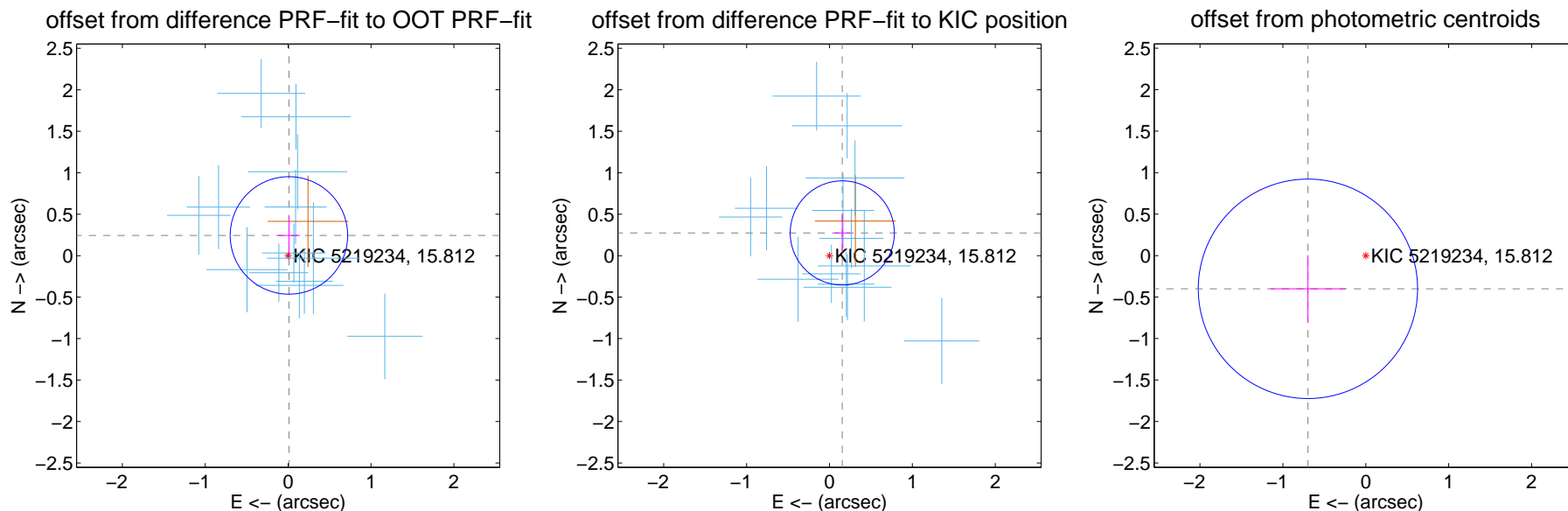
DV Centroid Data

Supplemental centroid analysis for 005219234-02. Kepler magnitude: 15.81. Transit SNR 30.43

There are 13 quarters with good PRF difference image offsets

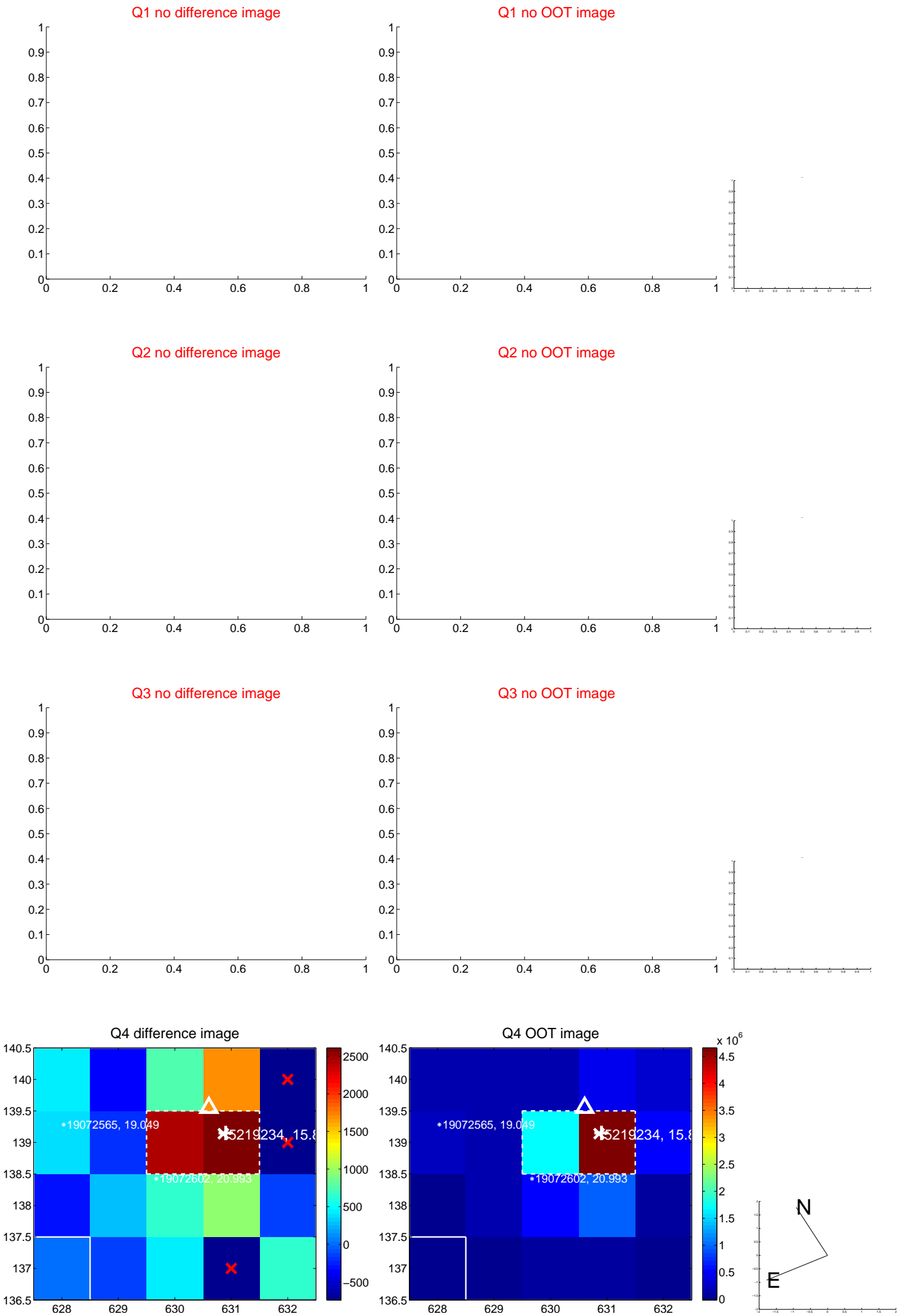
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.244 ± 0.236	1.03	-0.010 ± 0.131	0.244 ± 0.236
PRF-fit source offset from KIC position	0.314 ± 0.209	1.50	-0.154 ± 0.098	0.274 ± 0.234
photometric centroid source offset	0.80 ± 0.44	1.82	0.70 ± 0.45	-0.40 ± 0.41

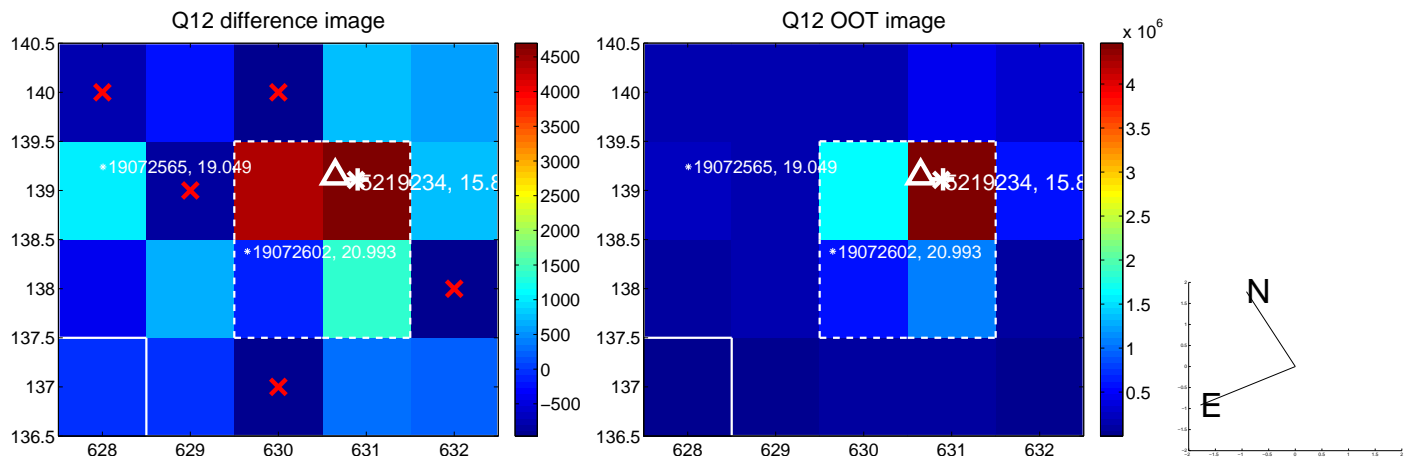
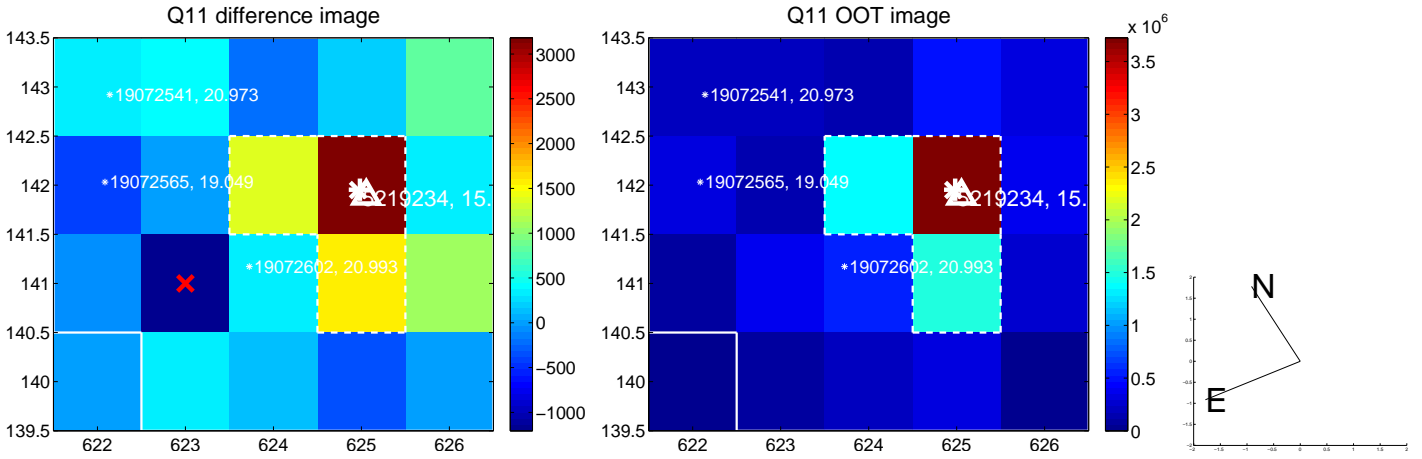
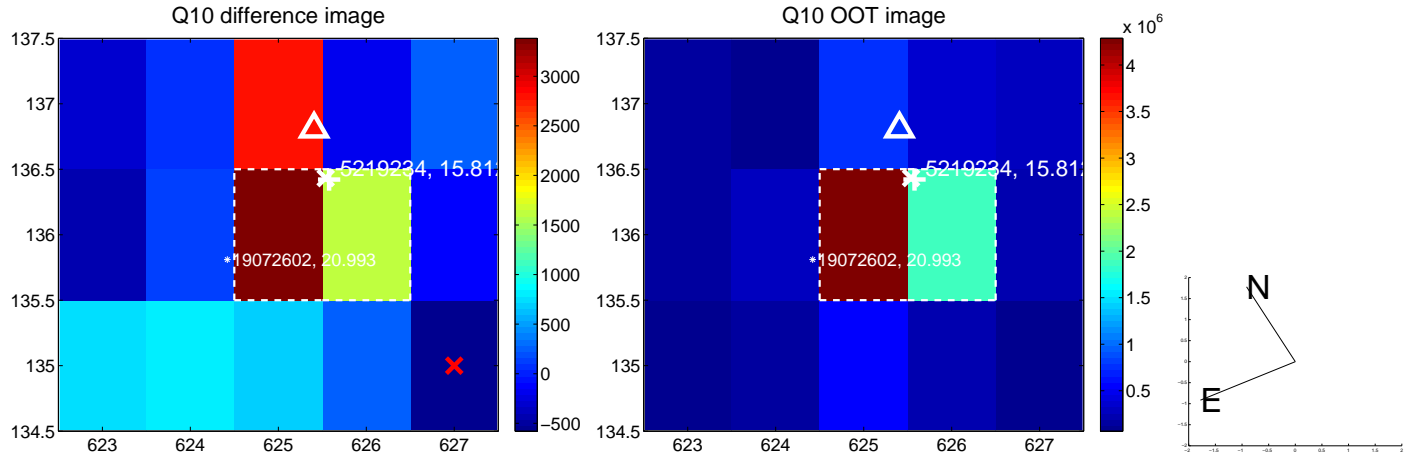
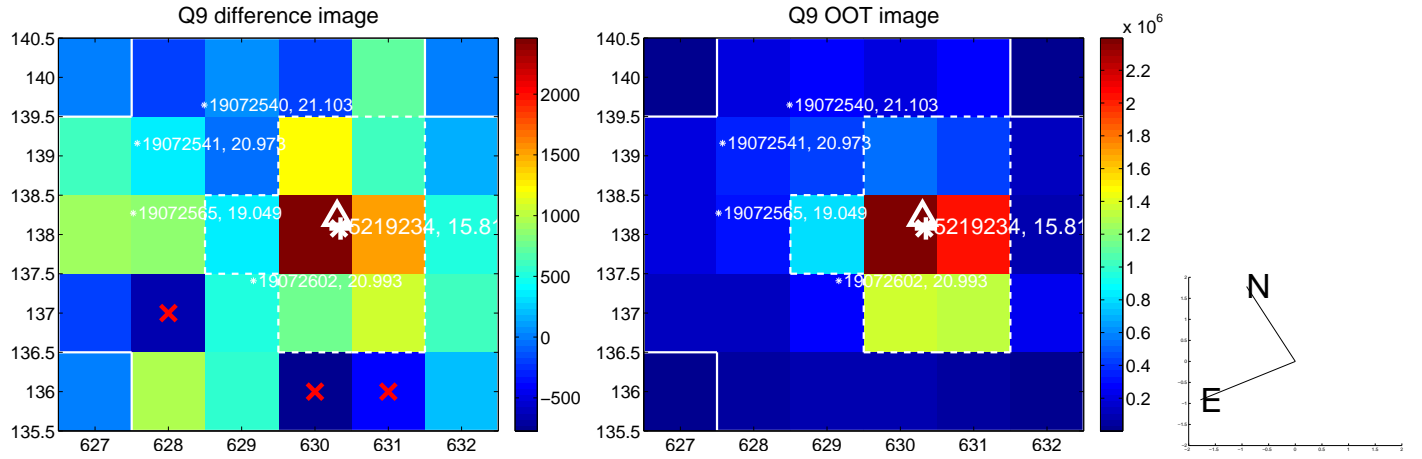


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

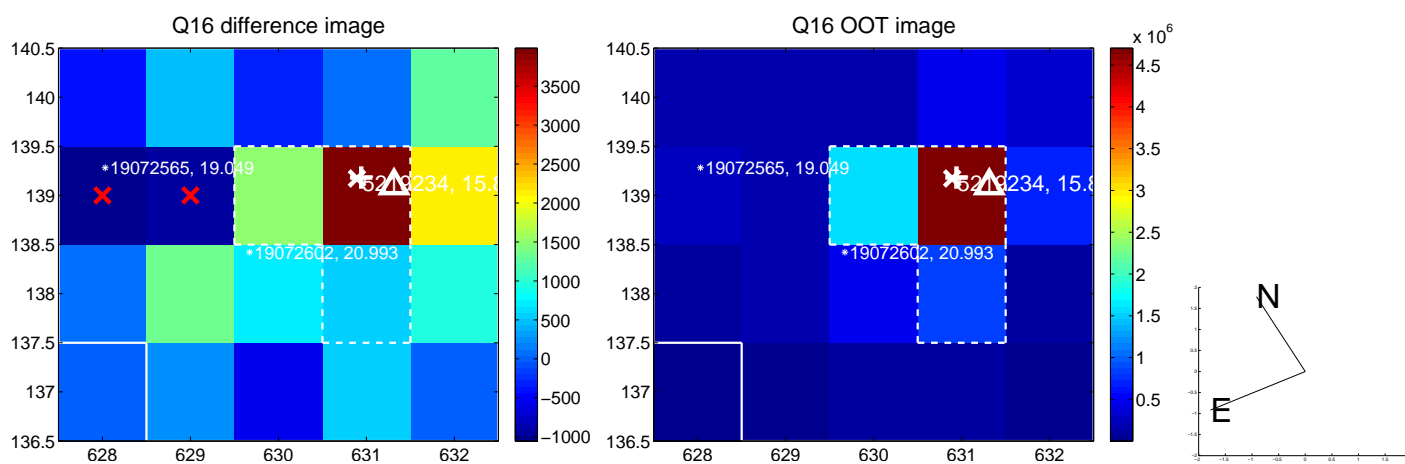
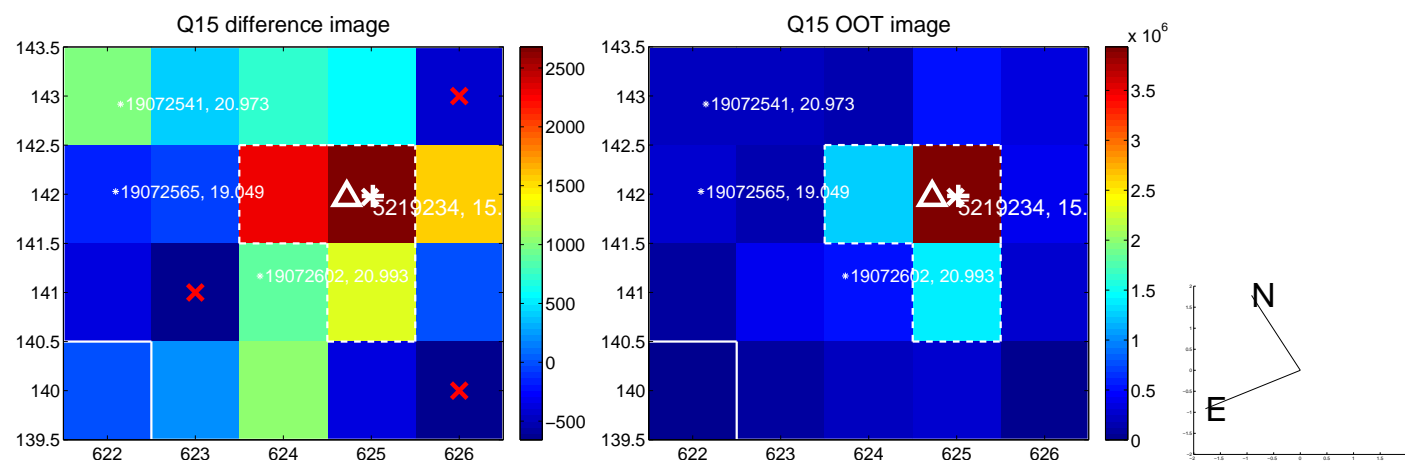
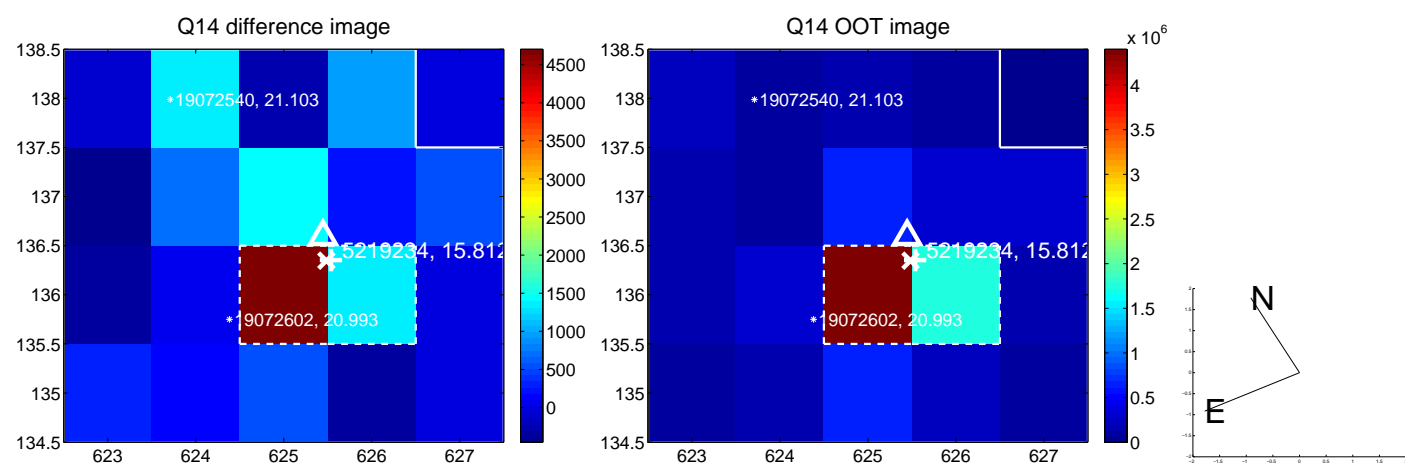
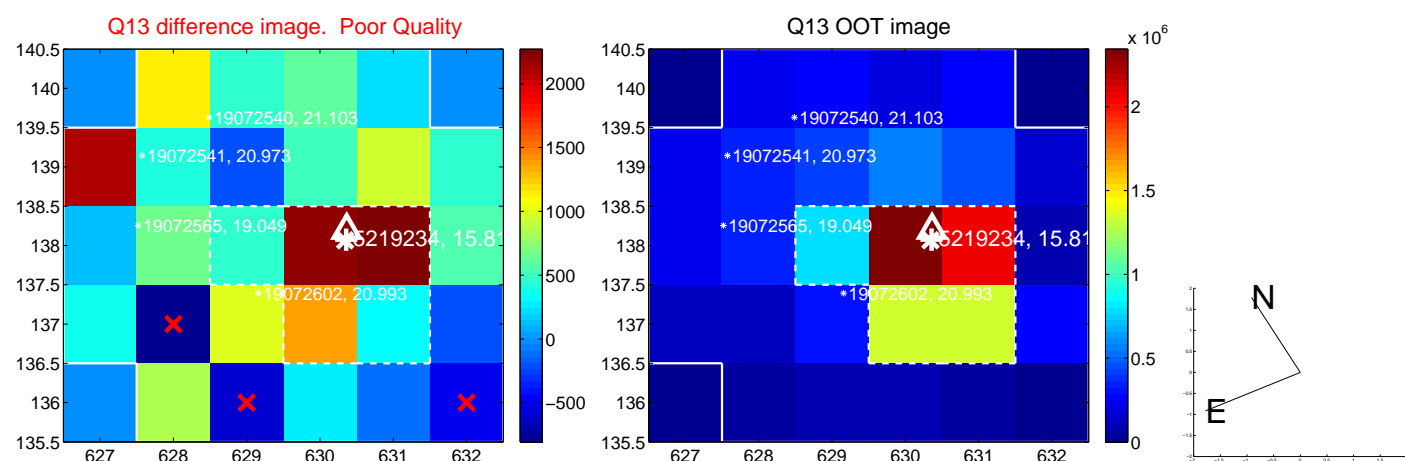
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



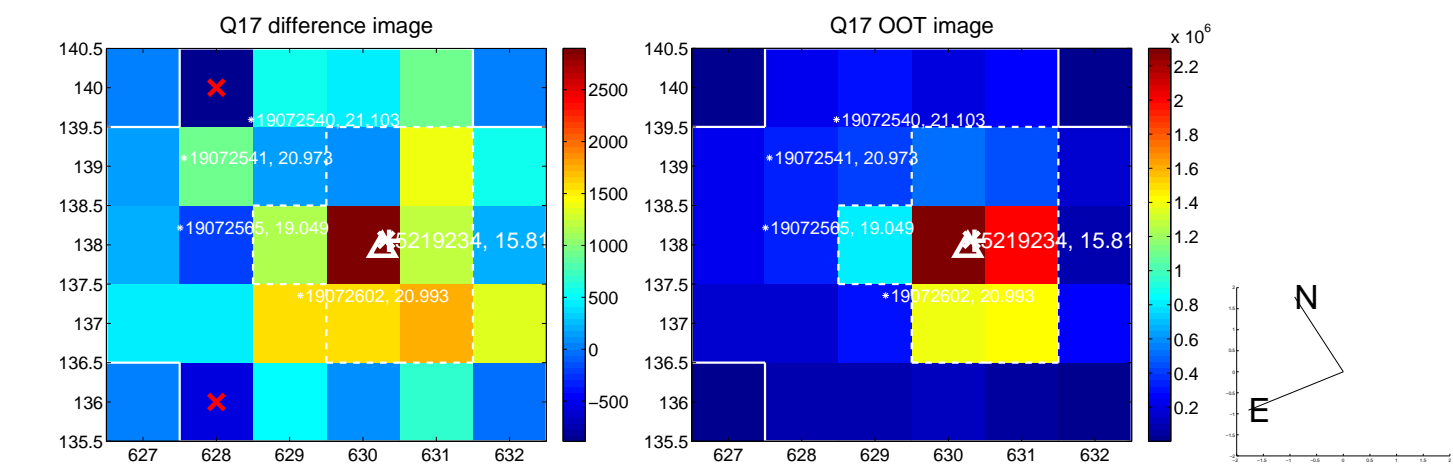
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



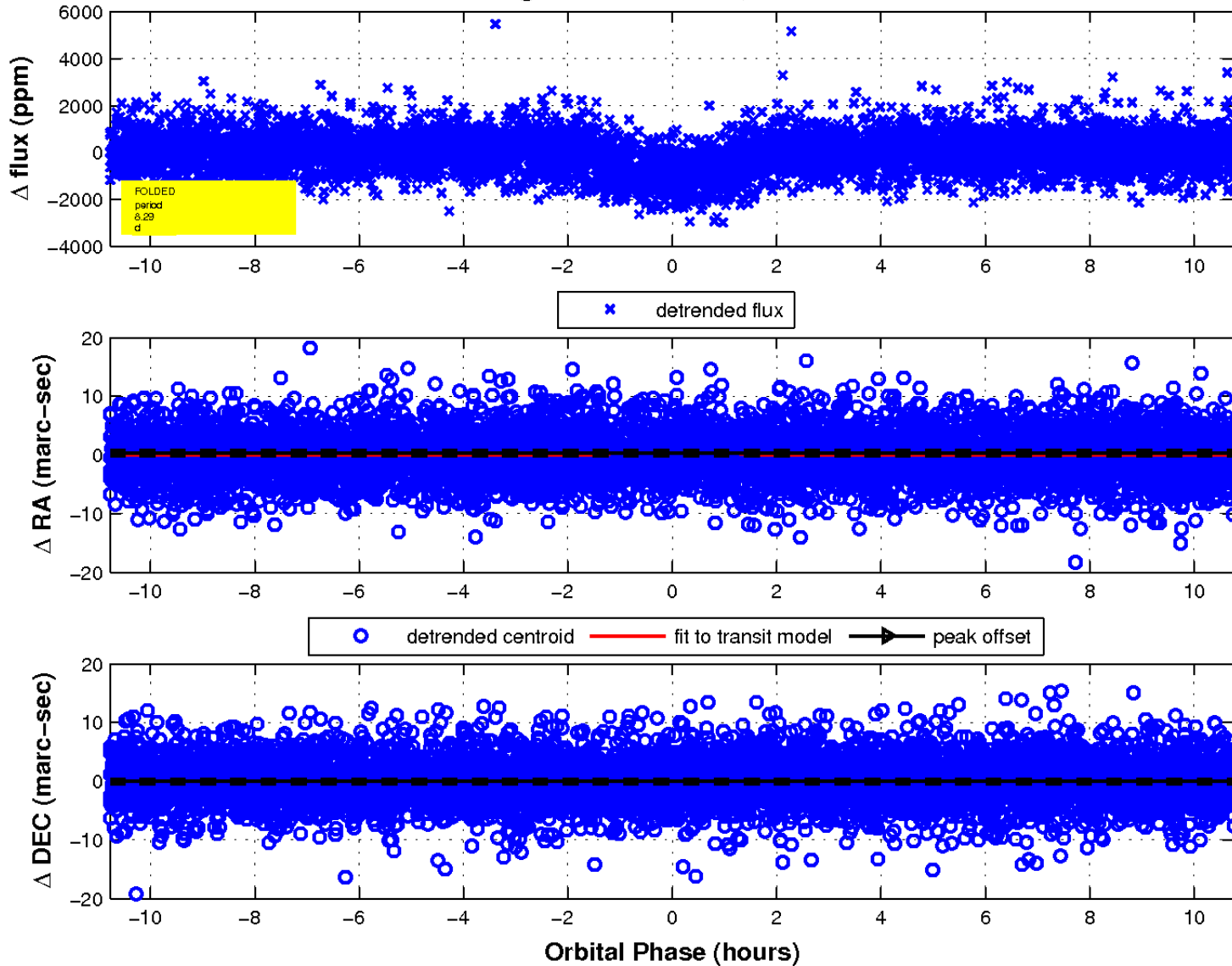
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

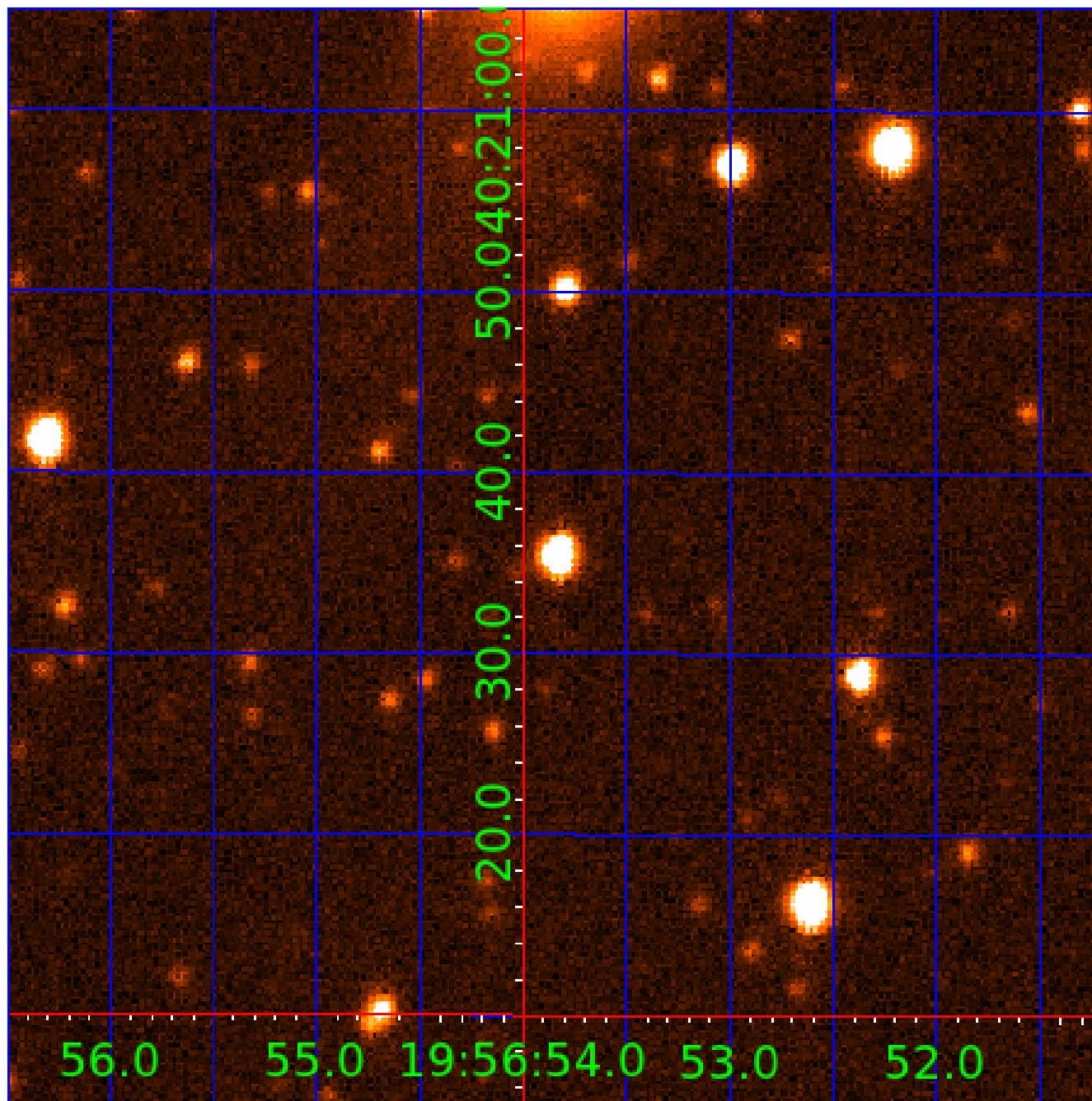


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 005219234

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})
005219234-01	OBS	1563.01	5.487089	136.596077	1319.5	2.912	40.3	45.8	0.79	5103	3.18	115.45
005219234-02	OBS	1563.02	8.290834	135.784748	1030.4	3.590	27.0	30.4	0.79	5103	3.15	66.59
005219234-03	OBS	1563.03	3.205382	133.461456	445.9	2.091	15.5	17.6	0.79	5103	1.80	236.41
005219234-04	OBS	1563.04	16.738566	141.819015	999.4	2.388	13.8	16.3	0.79	5103	3.03	26.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005219234-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

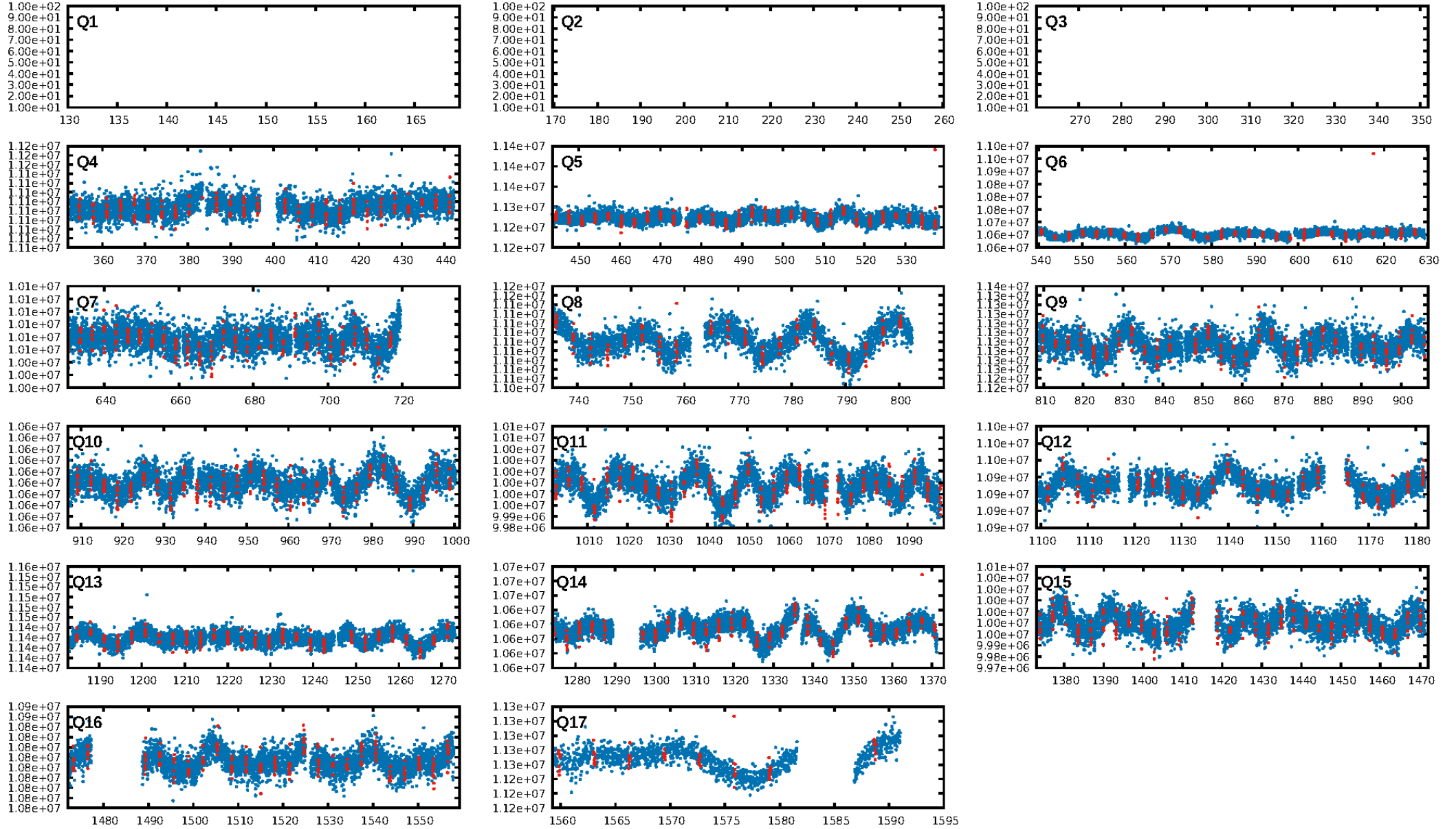
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005219234-03

No Significant Match Found

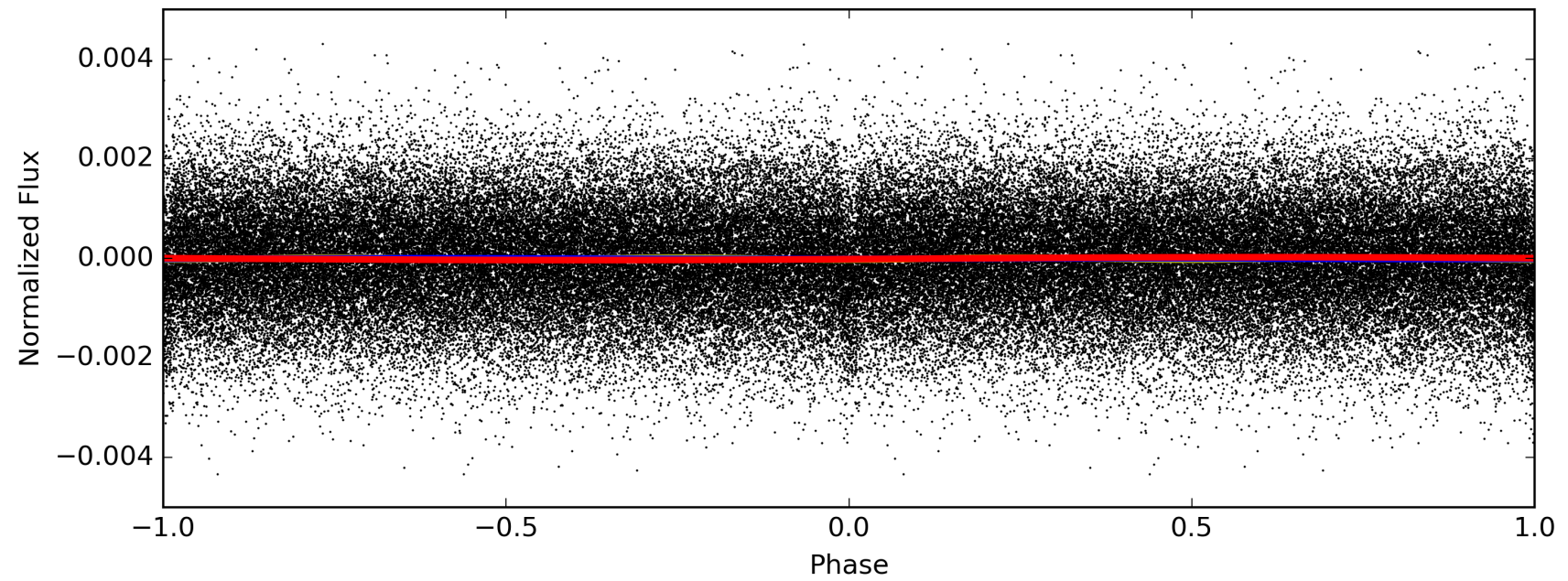
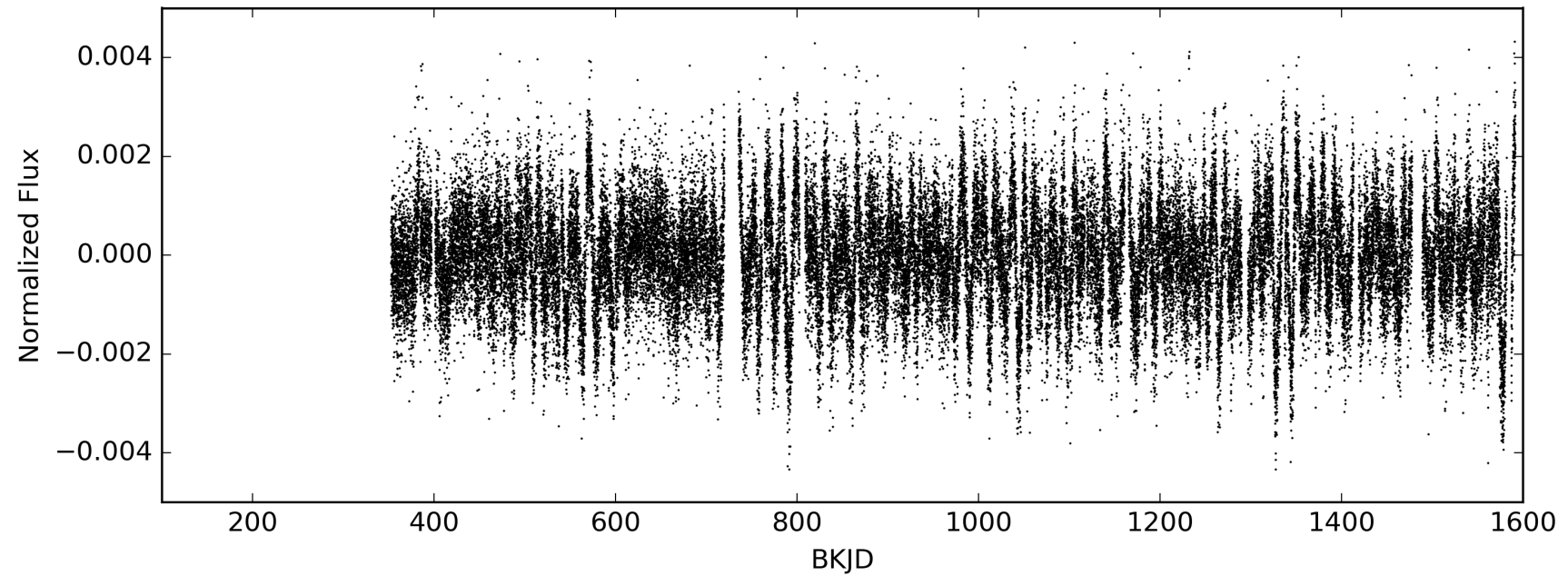
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005219234-03, PDC Light Curves



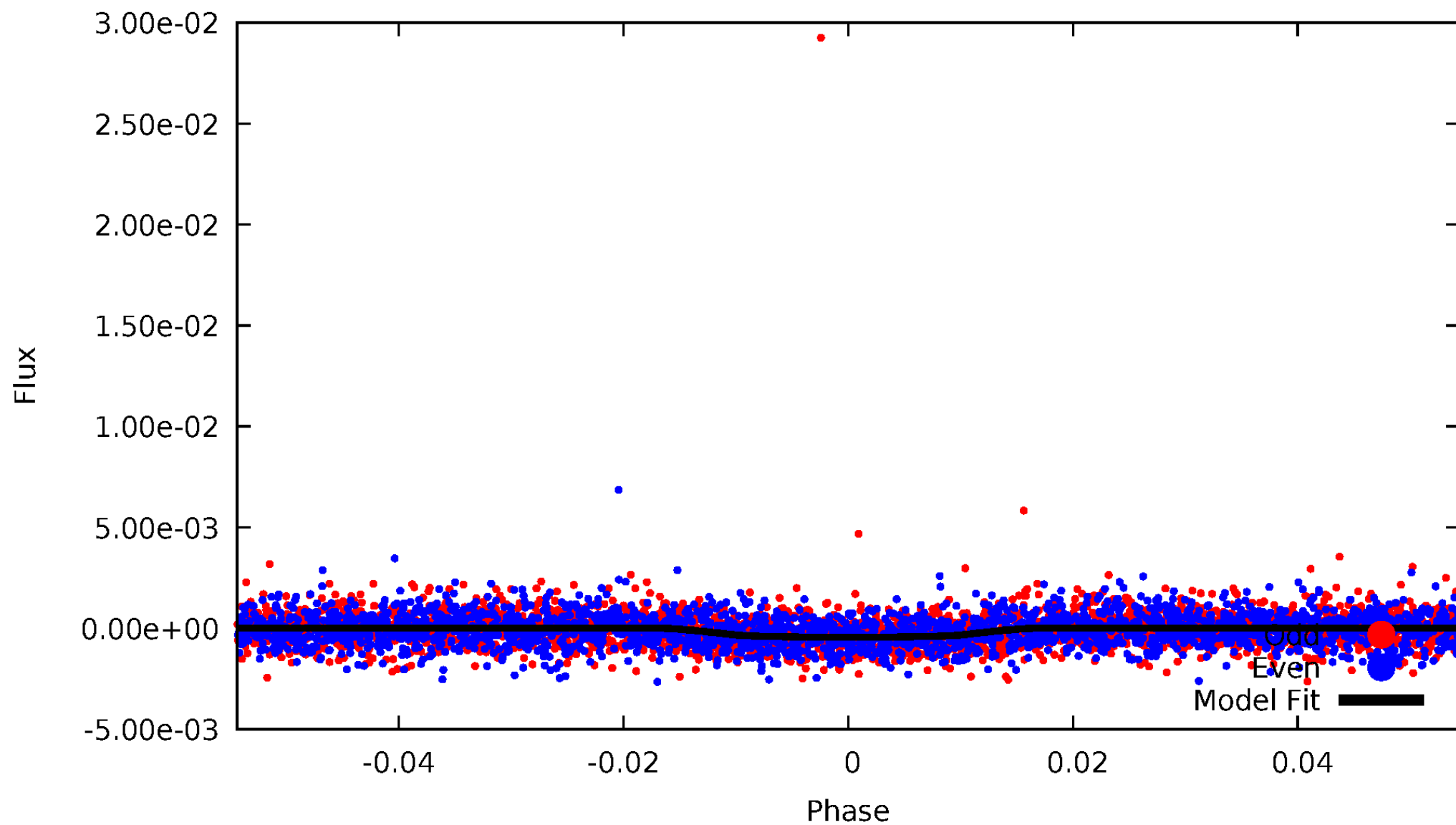
TCE 005219234-03

— P = 1.603 days — P = 3.205 days — P = 6.411 days



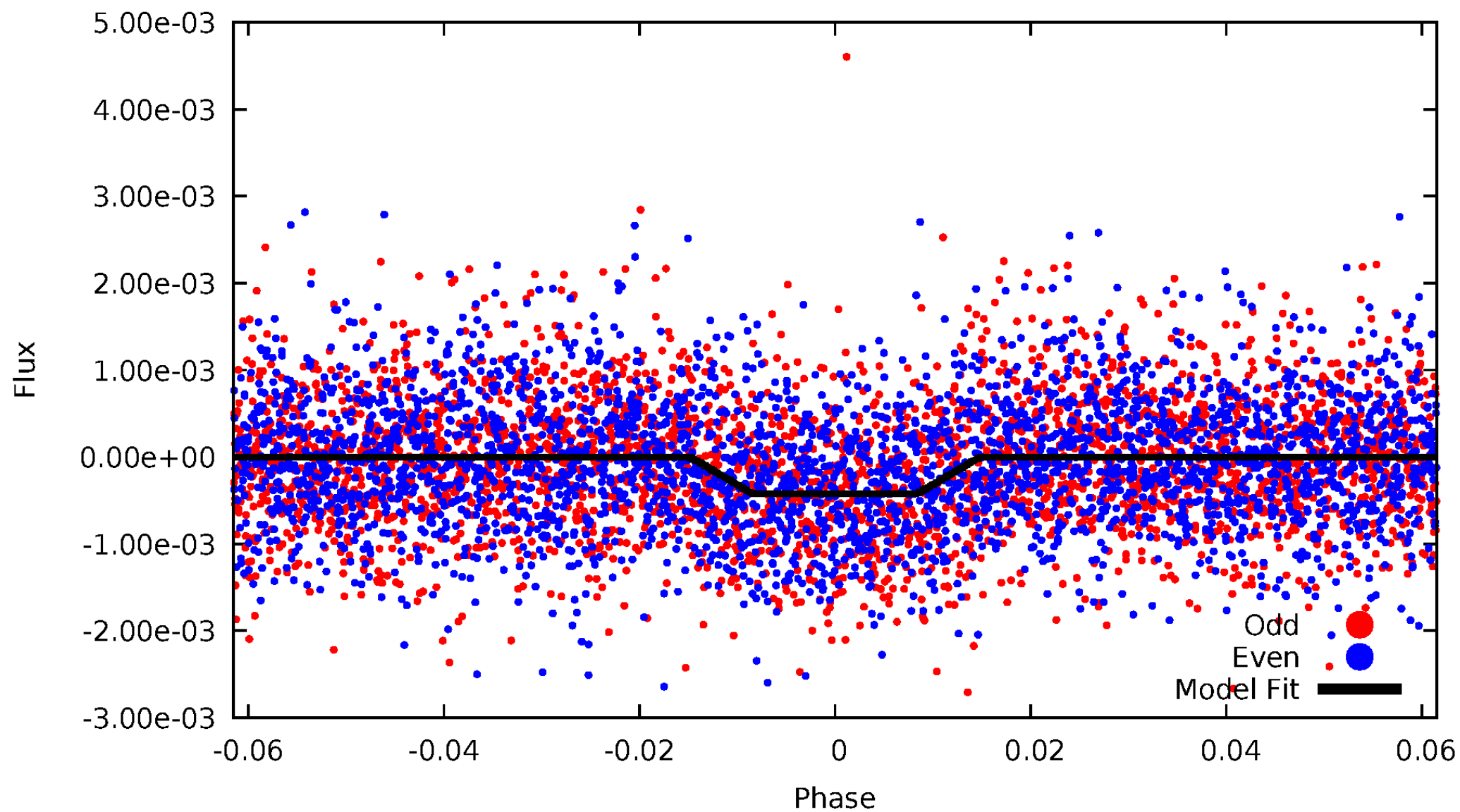
DV Odd/Even

TCE 005219234-03



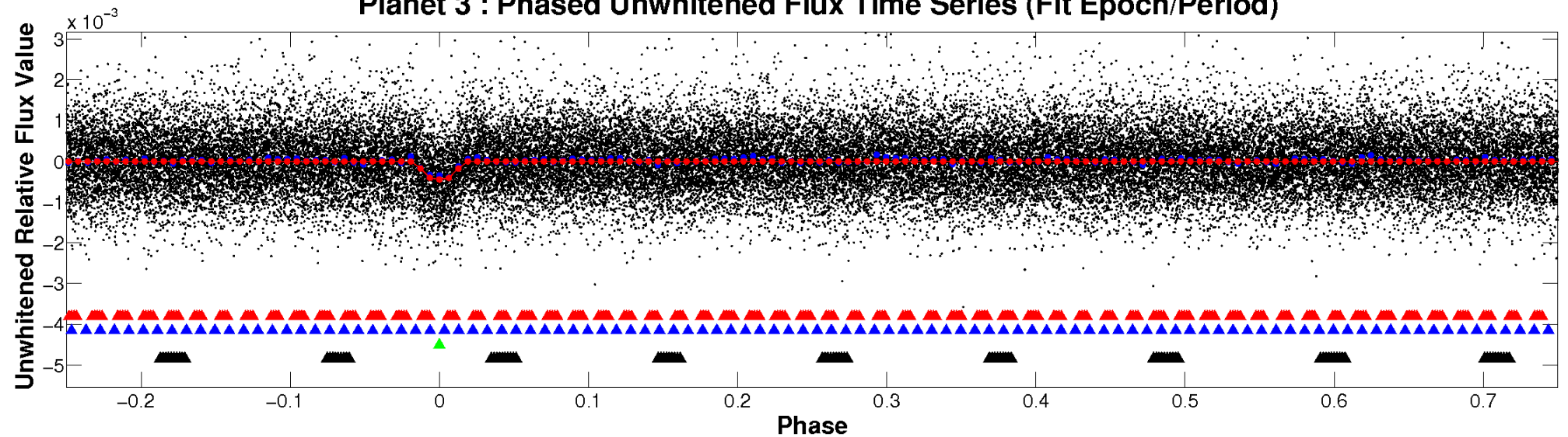
ALT Odd/Even

TCE 005219234-03

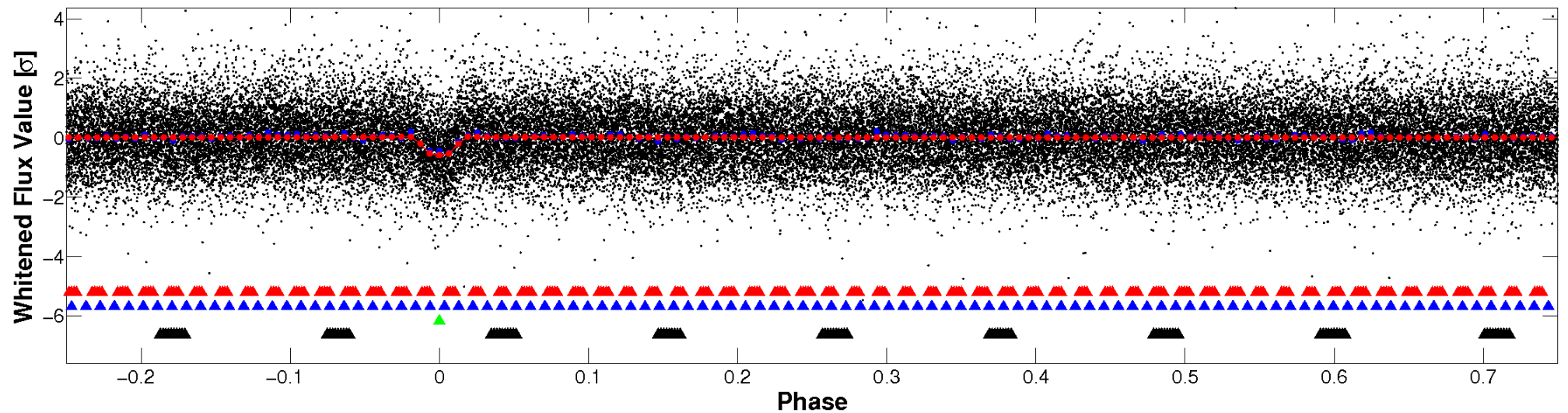


Non-Whitened Vs. Whitened Light Curve

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

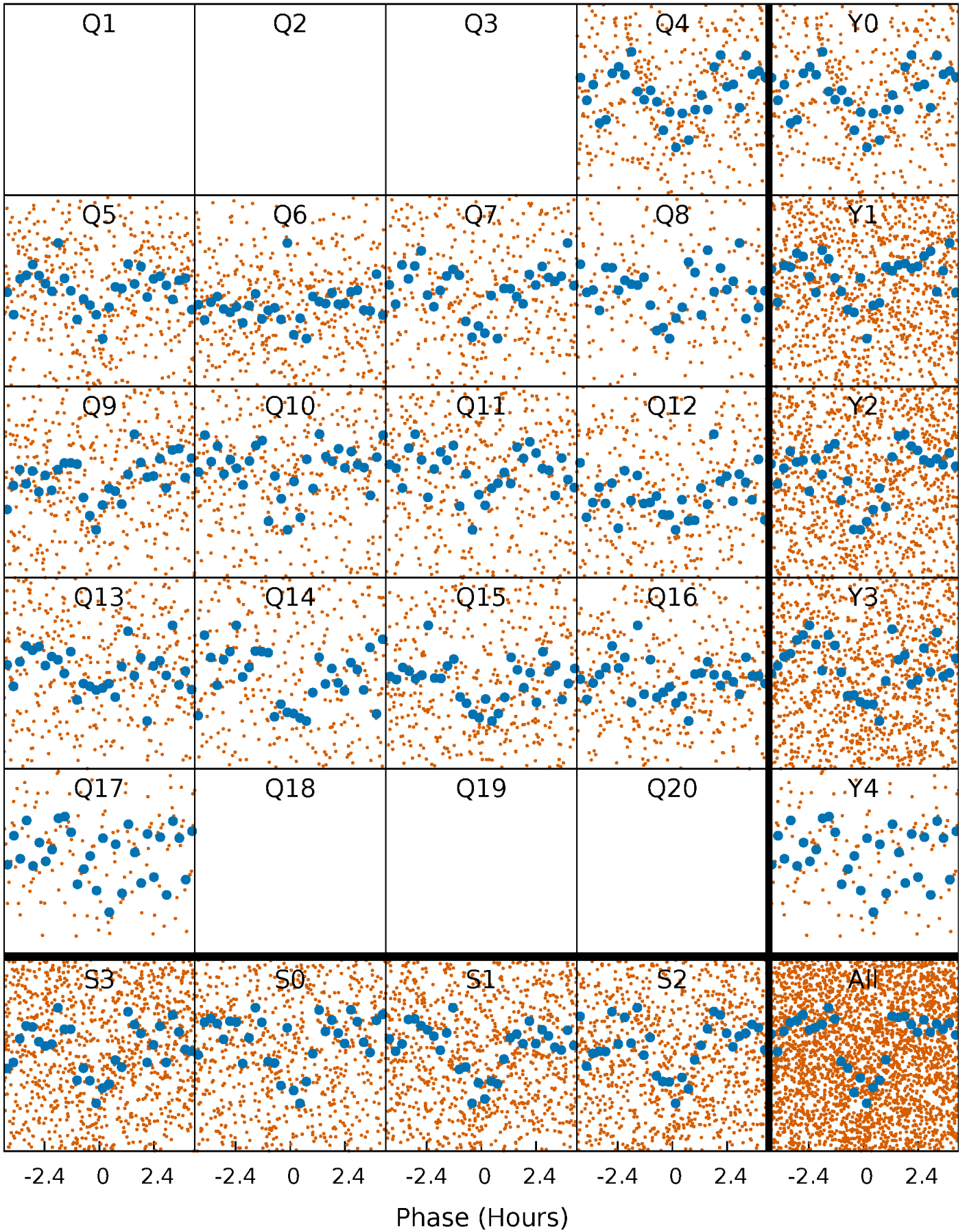


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



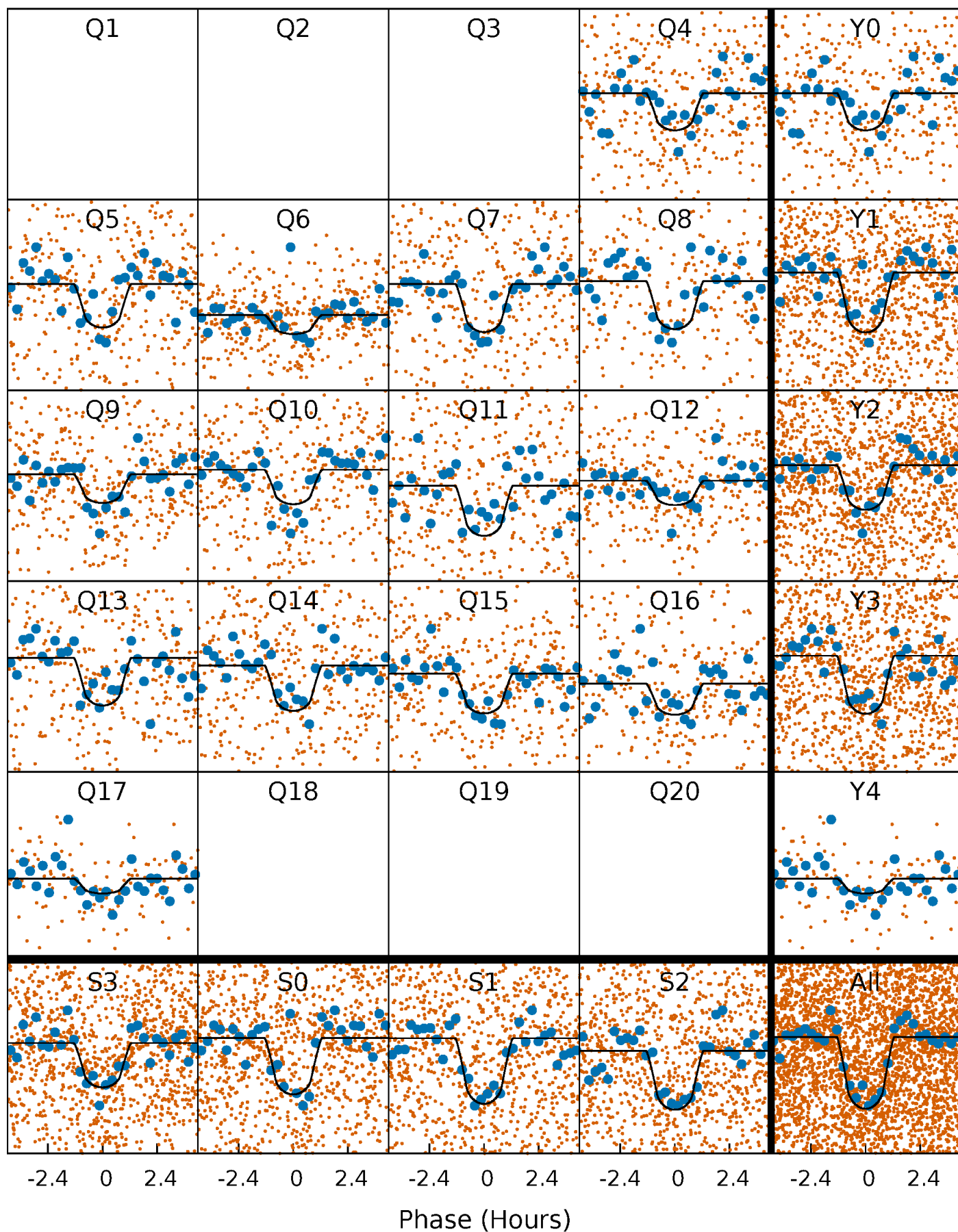
PDC Quarter-Phased Transit Curves

TCE 005219234-03 P= 3.205382 Days $T_0=133.461456$ (BKJD)



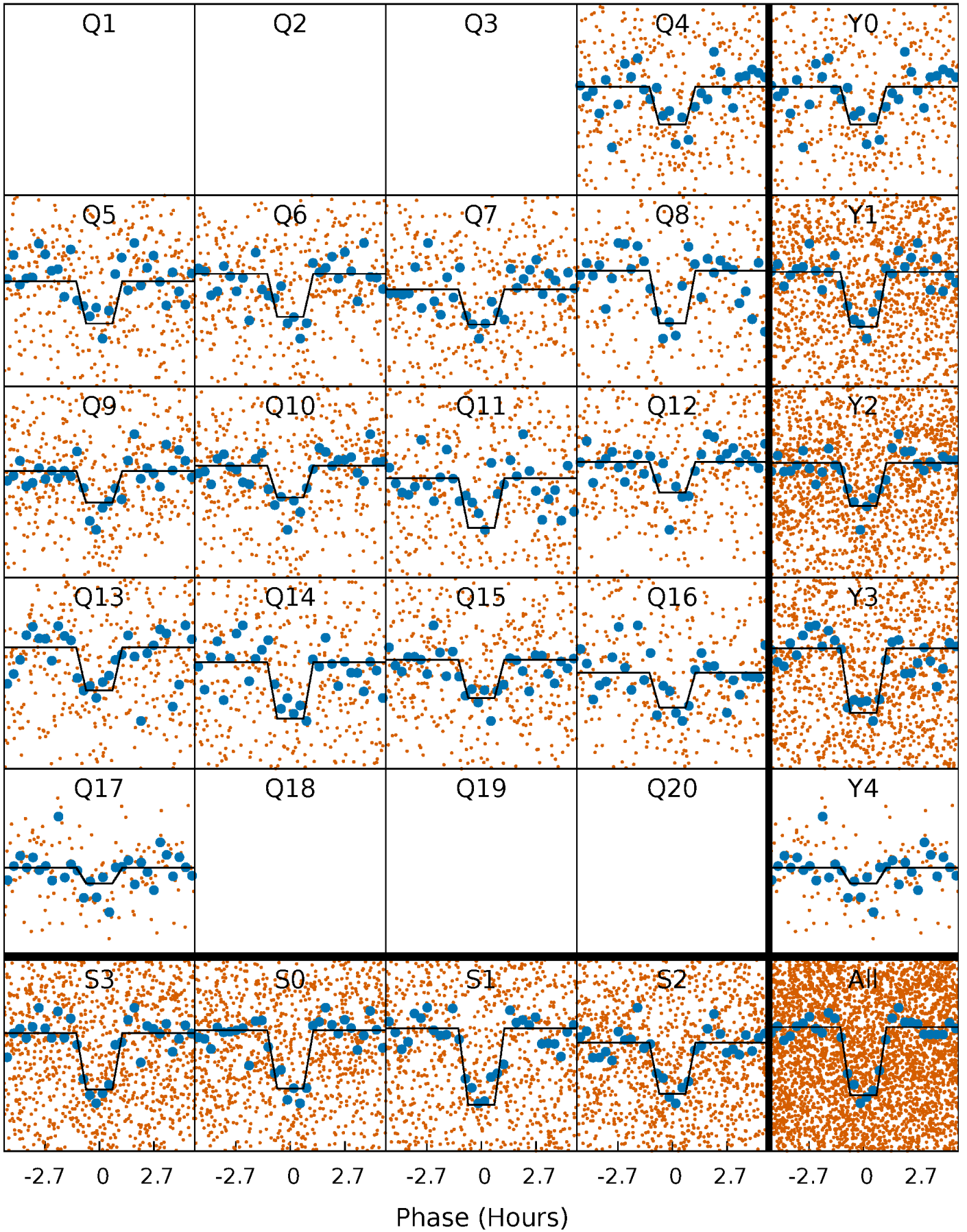
DV Quarter-Phased Transit Curves

TCE 005219234-03 P= 3.205382 Days $T_0=133.461456$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

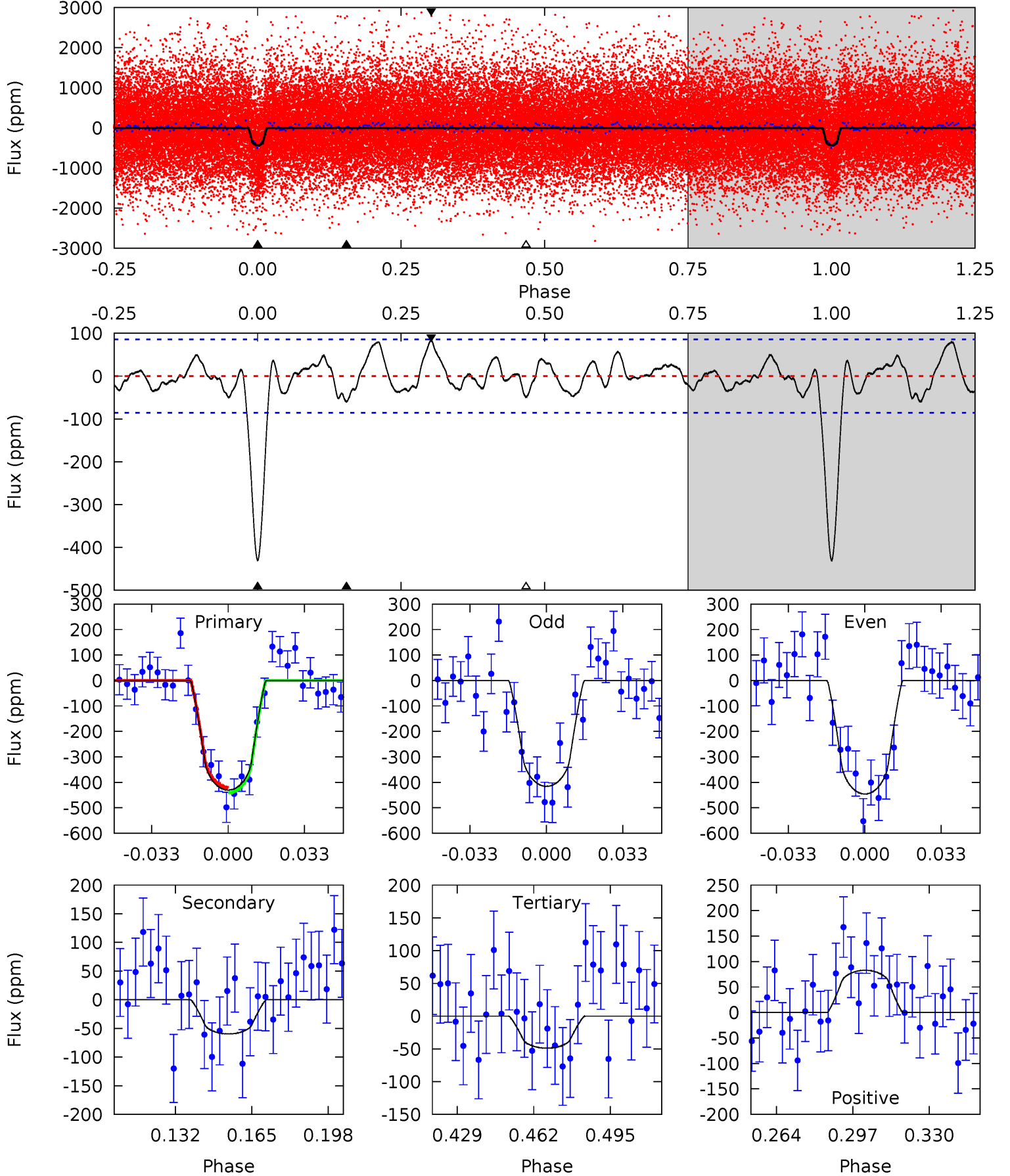
TCE 005219234-03 P= 3.205395 Days $T_0=133.457989$ (BKJD)



DV Model-Shift Uniqueness Test

005219234-03, P = 3.205382 Days, E = 133.461456 Days

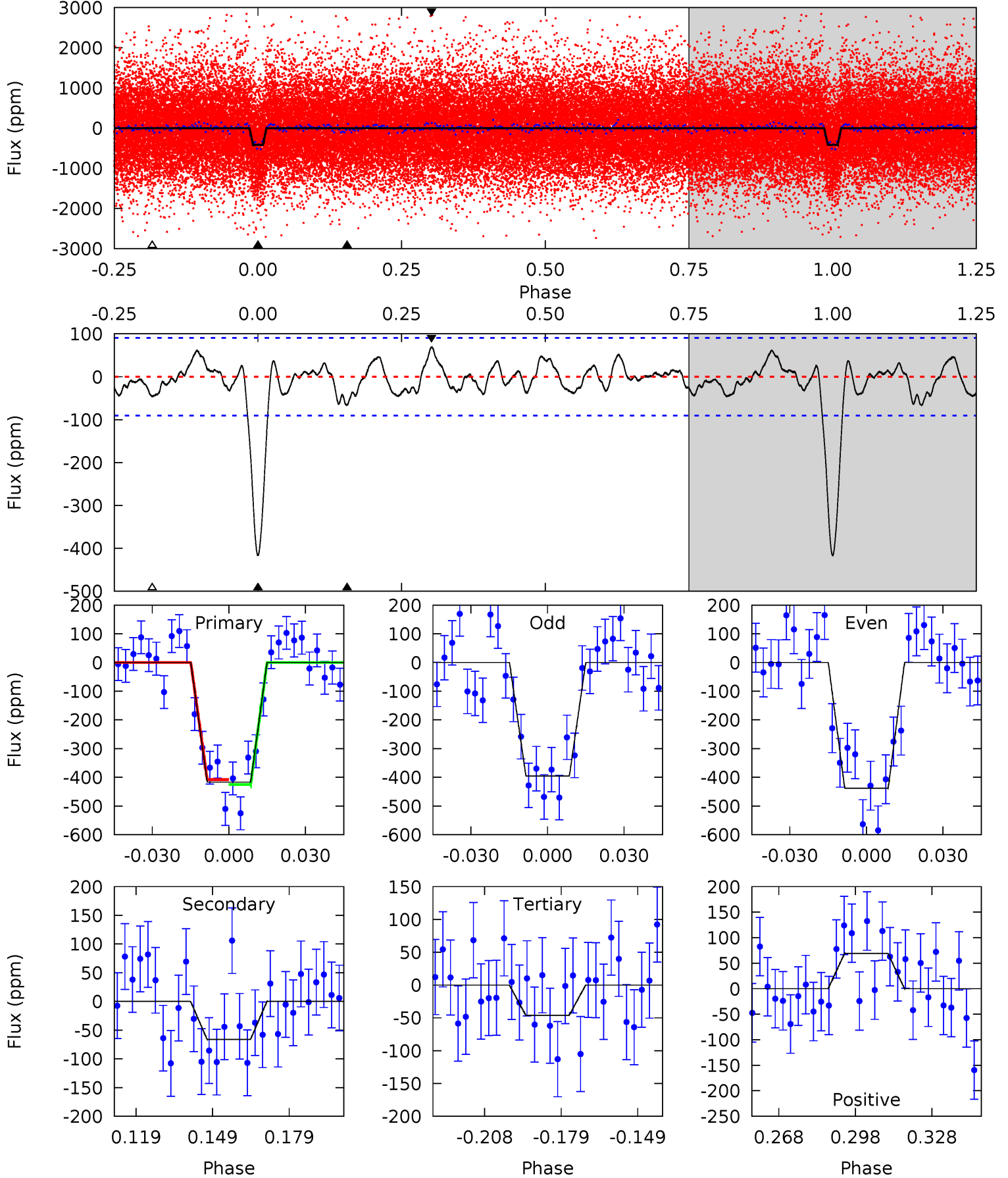
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	3.33	2.73	4.63	4.79	2.13	1.62	21.3	19.4	0.60	-1.30	0.84	0.88	0.16	0.57



Alt Model-Shift Uniqueness Test

005219234-03, P = 3.205395 Days, E = 133.457989 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	3.51	2.45	3.68	4.81	2.17	1.36	19.7	18.5	1.06	-0.17	1.14	1.00	0.14	0.46



Stellar Parameters For KIC 005219234

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005219234-03 / KOI 1563.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-60 ± 18	$1.93^{+1.26}_{-1.13}$	1402^{+33}_{-34}	3456^{+1218}_{-530}	14^{+62}_{-9}
Alt.	-66 ± 19	$1.89^{+1.27}_{-1.02}$	1401^{+37}_{-34}	3528^{+1144}_{-585}	15^{+60}_{-10}

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

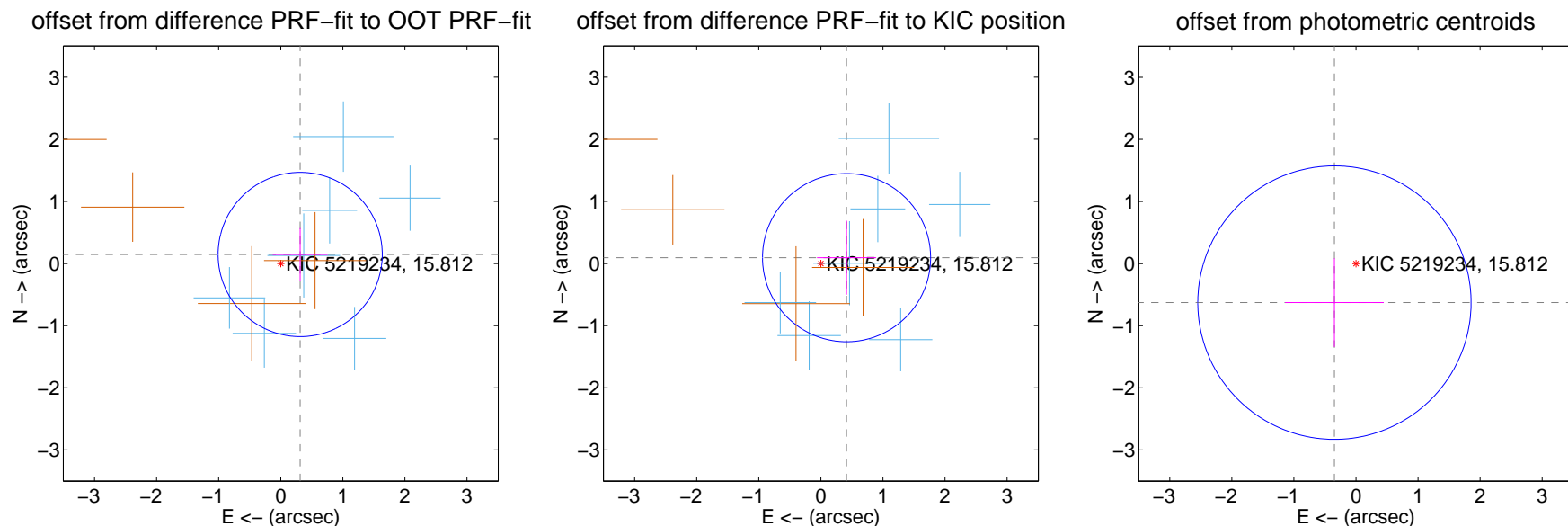
DV Centroid Data

Supplemental centroid analysis for 005219234-03. Kepler magnitude: 15.81. Transit SNR 17.57

There are 7 quarters with good PRF difference image offsets

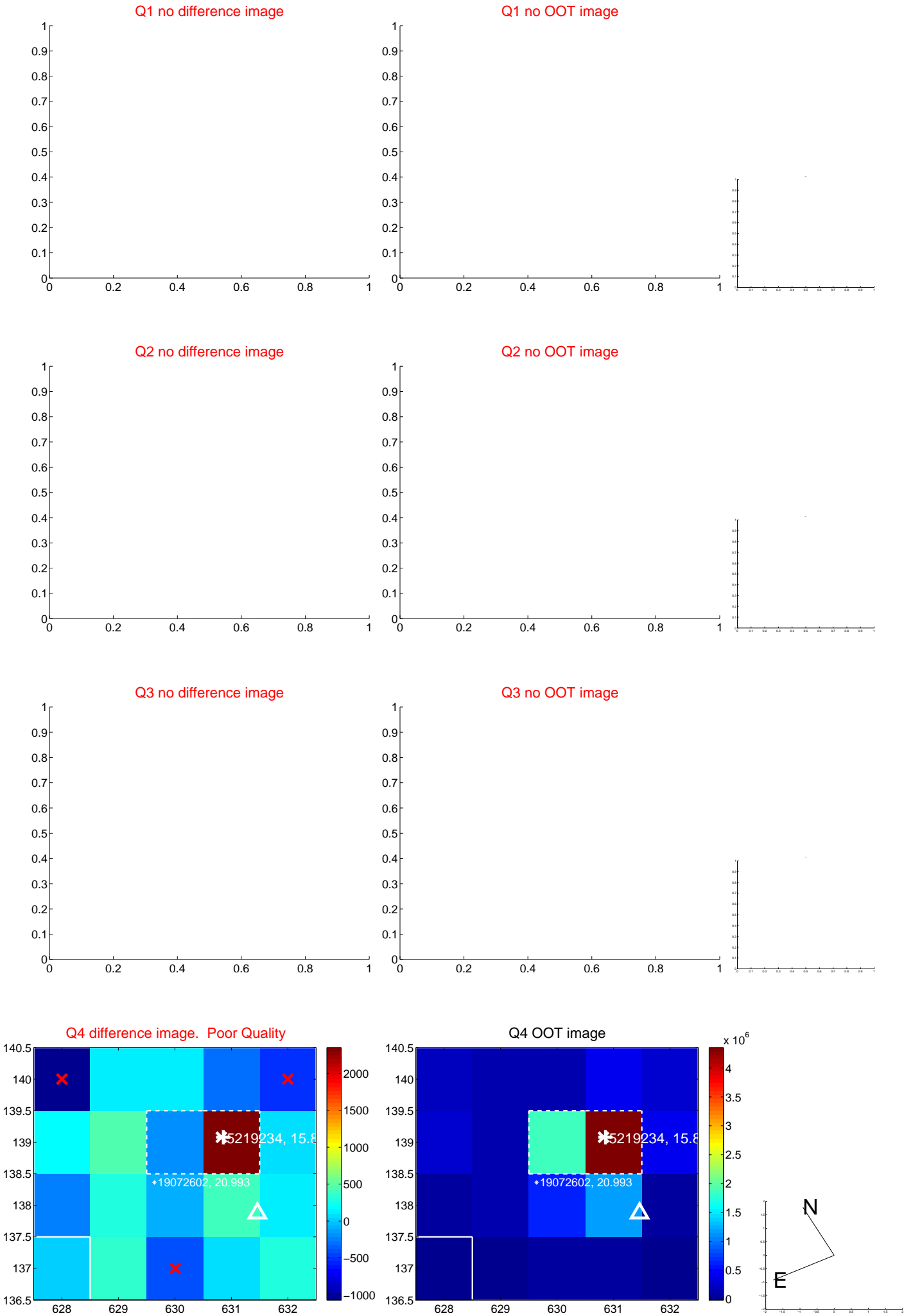
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.345 ± 0.441	0.78	-0.313 ± 0.444	0.146 ± 0.426
PRF-fit source offset from KIC position	0.425 ± 0.451	0.94	-0.414 ± 0.476	0.094 ± 0.596
photometric centroid source offset	0.72 ± 0.73	0.98	0.35 ± 0.79	-0.63 ± 0.71

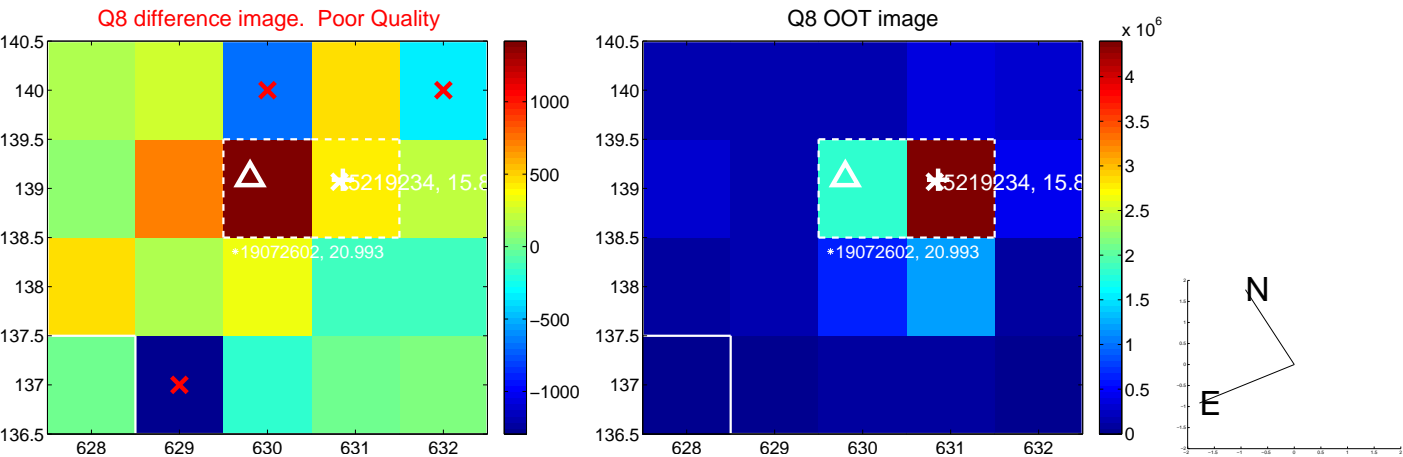
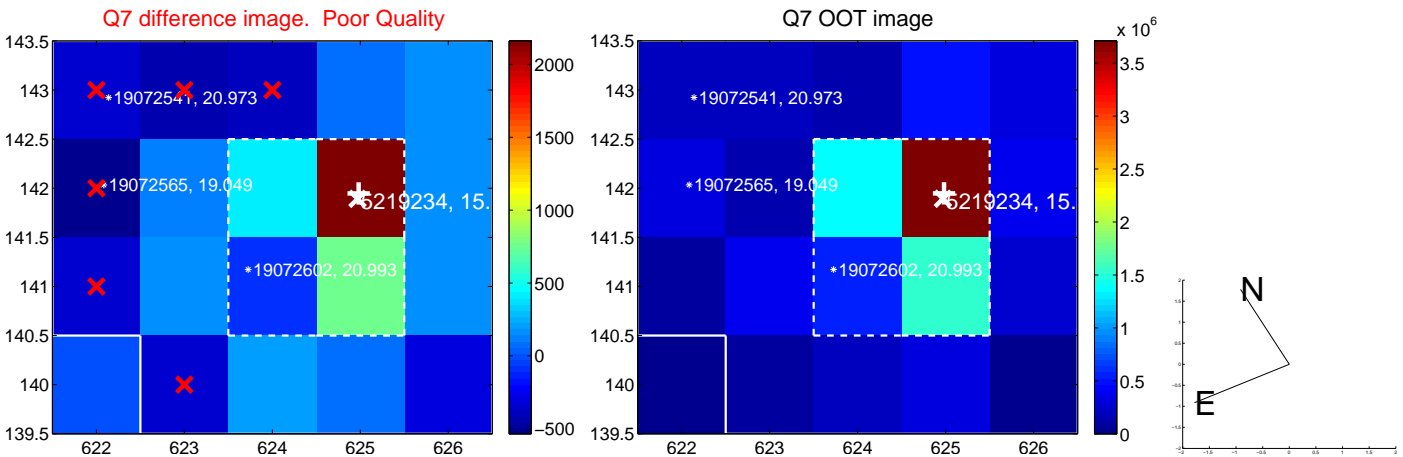
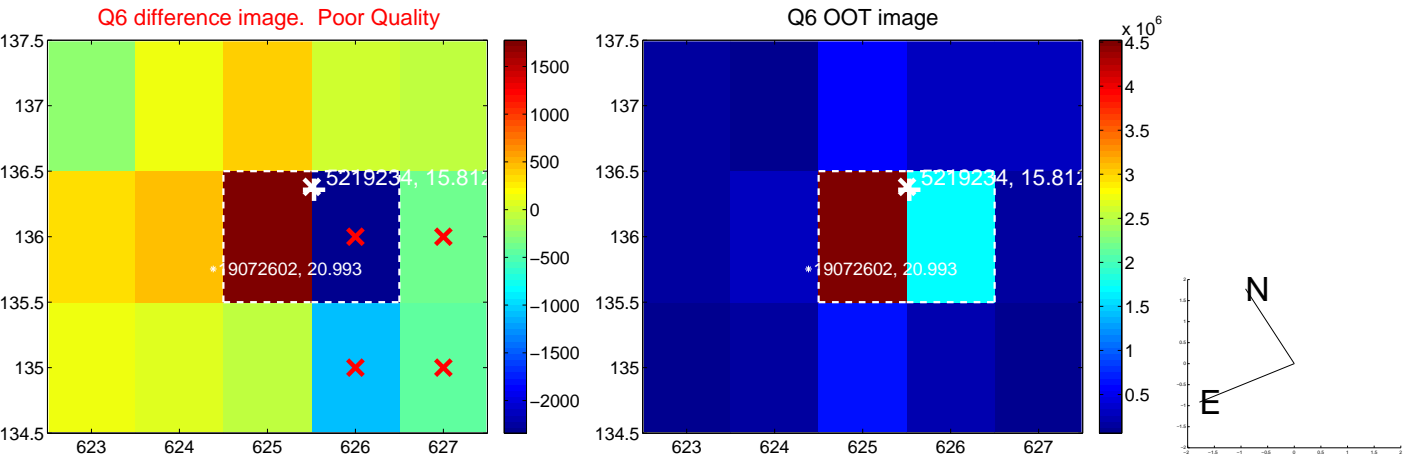
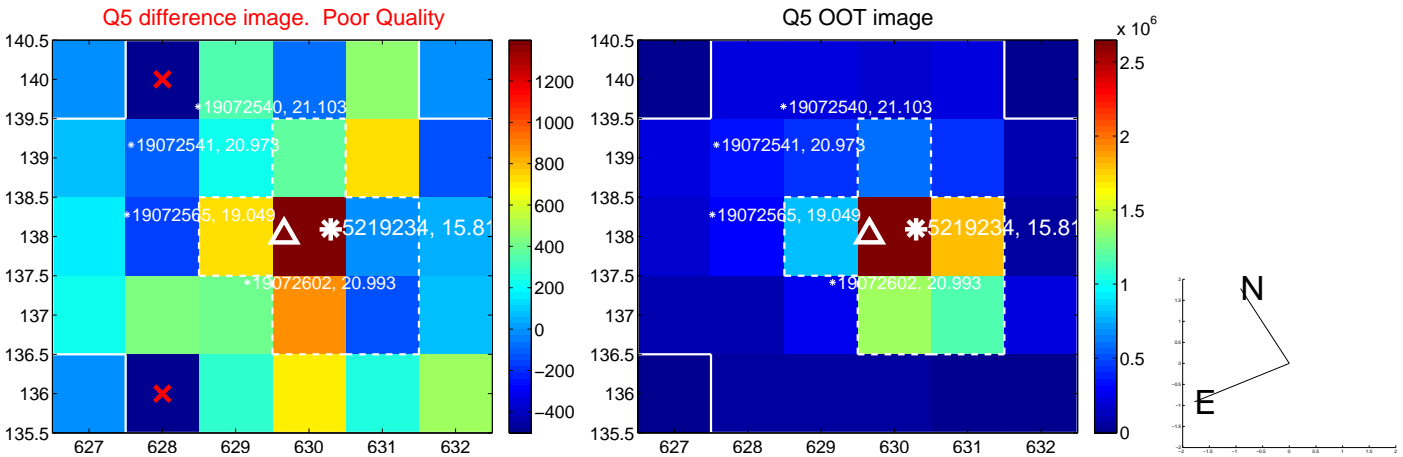


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

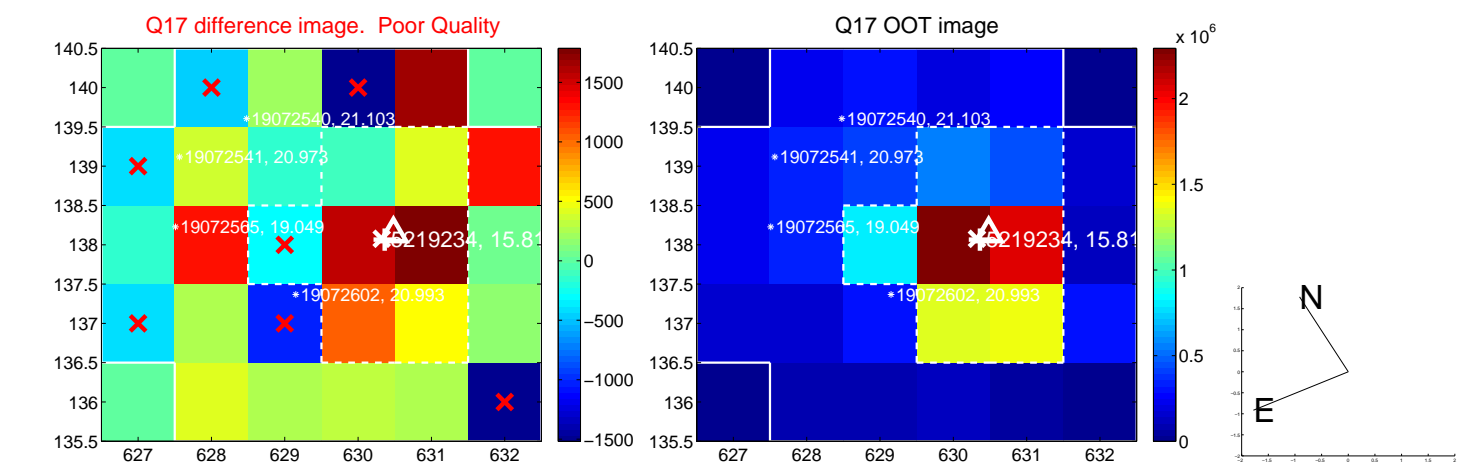
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



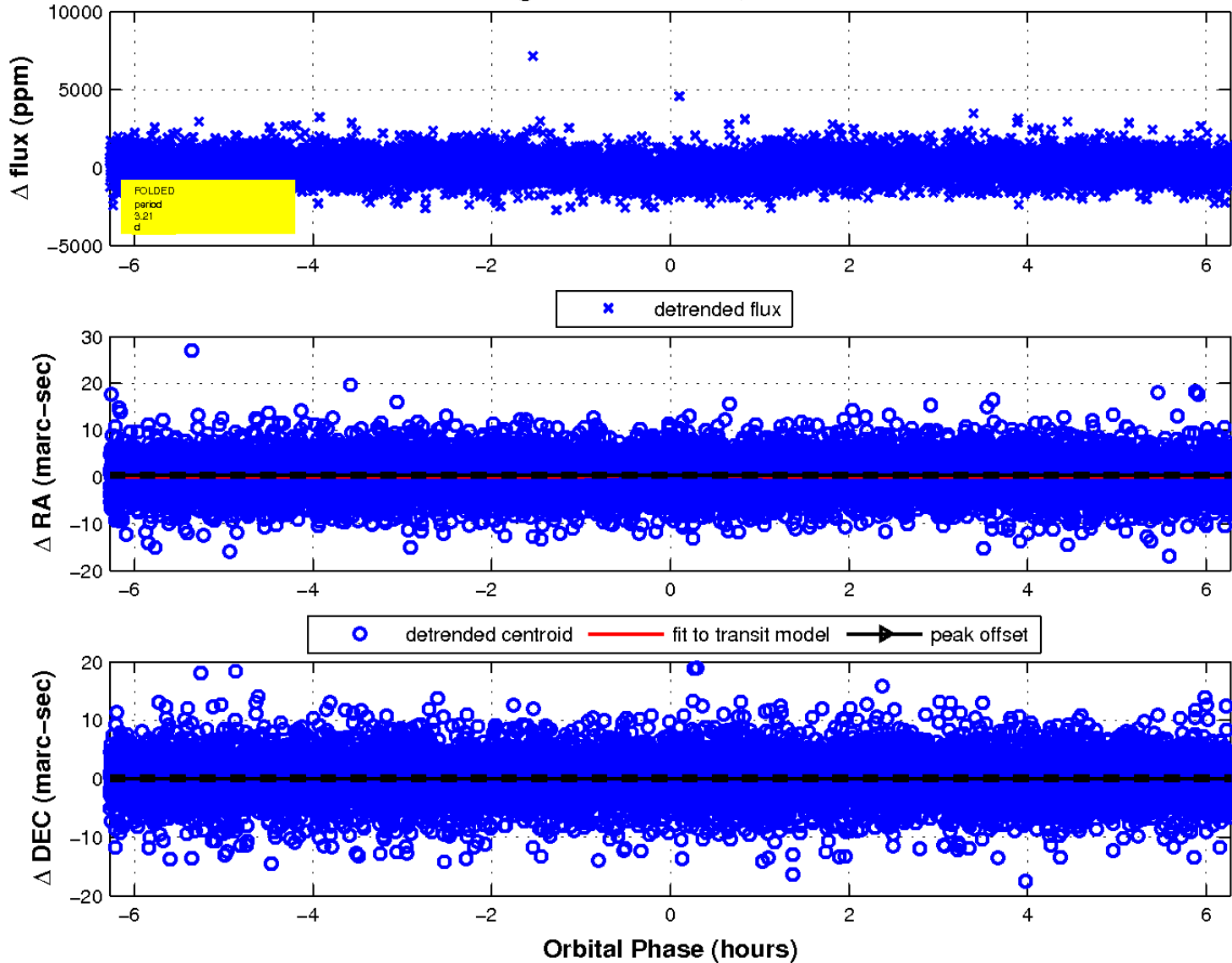
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

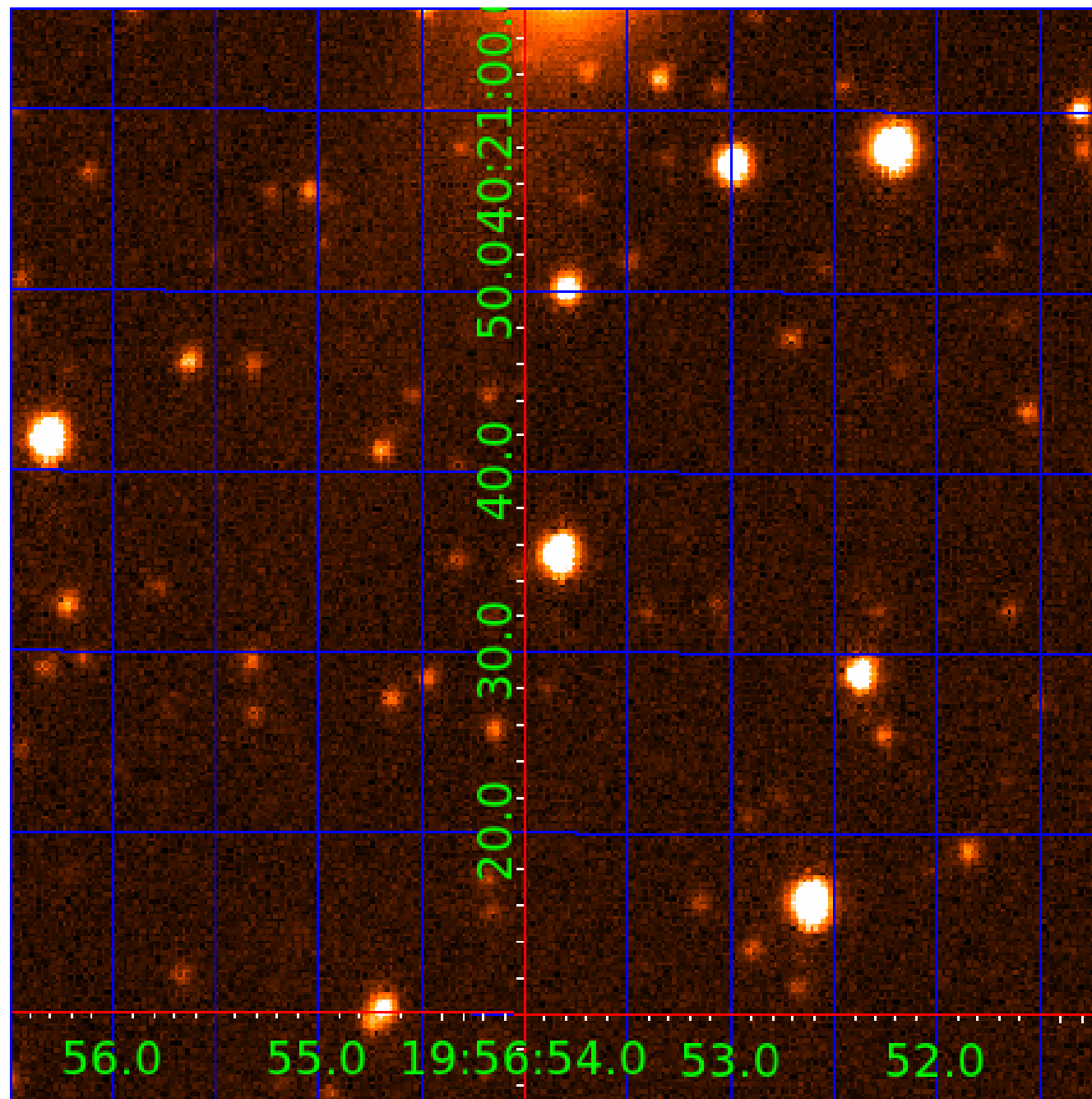


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 005219234

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})
005219234-01	OBS	1563.01	5.487089	136.596077	1319.5	2.912	40.3	45.8	0.79	5103	3.18	115.45
005219234-02	OBS	1563.02	8.290834	135.784748	1030.4	3.590	27.0	30.4	0.79	5103	3.15	66.59
005219234-03	OBS	1563.03	3.205382	133.461456	445.9	2.091	15.5	17.6	0.79	5103	1.80	236.41
005219234-04	OBS	1563.04	16.738566	141.819015	999.4	2.388	13.8	16.3	0.79	5103	3.03	26.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005219234-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005219234-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

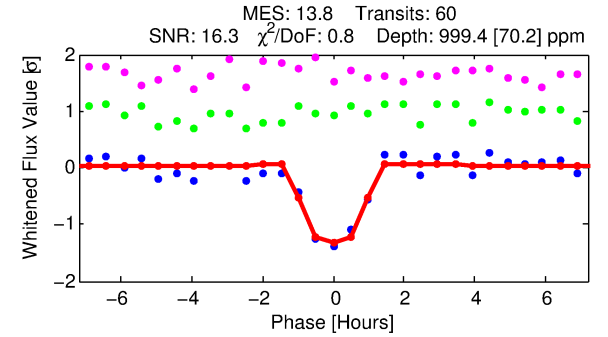
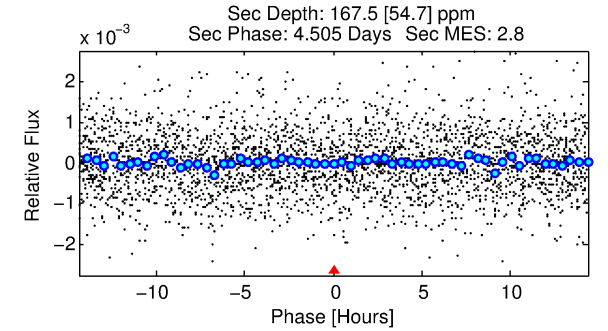
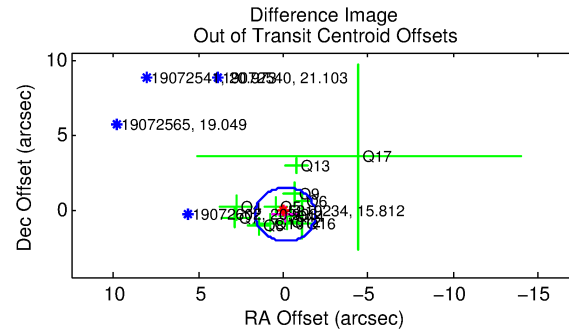
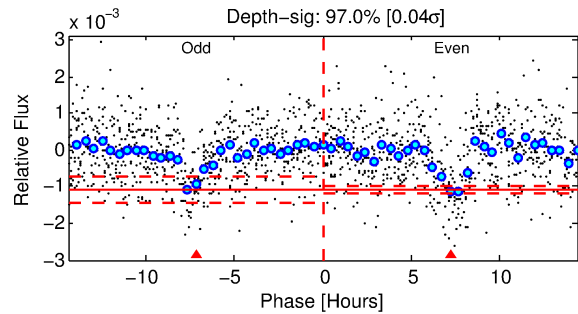
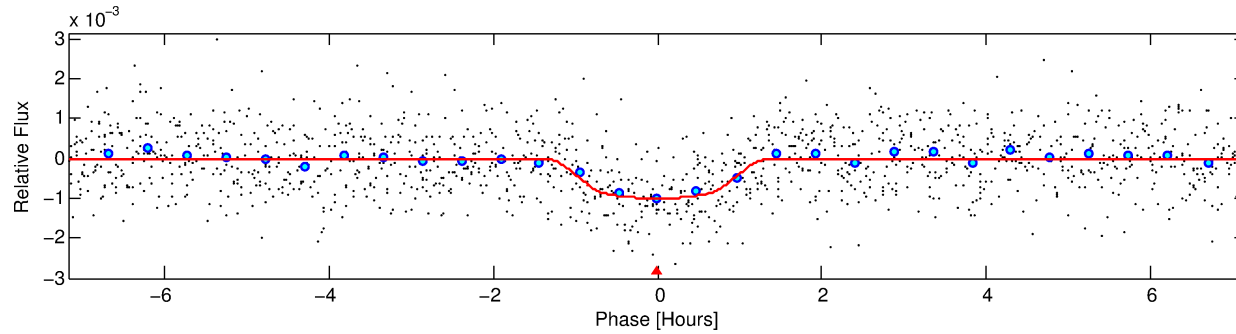
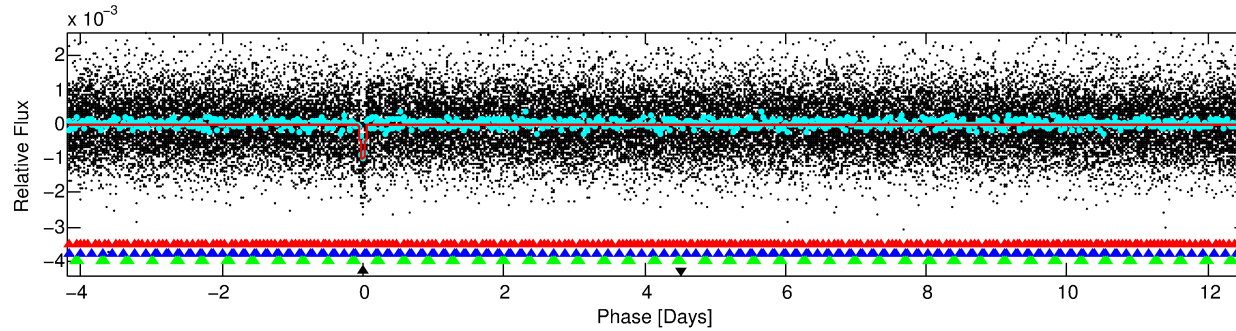
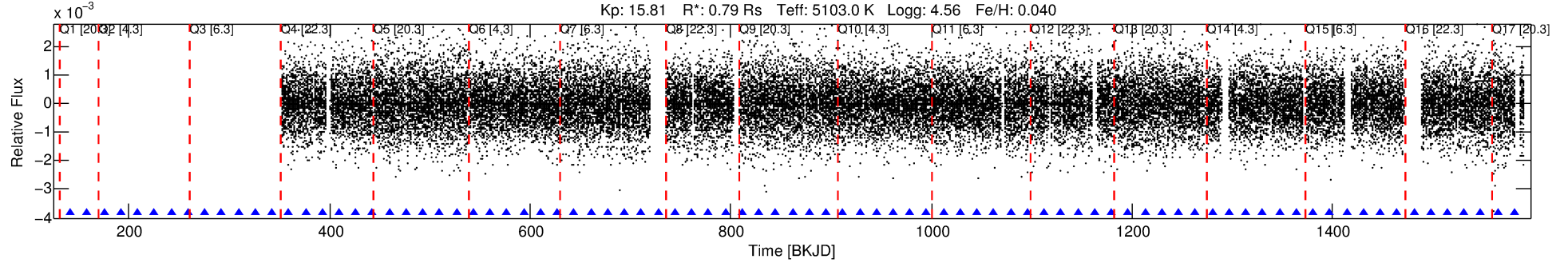
Ephemeris Match Information For 005219234-04

No Significant Match Found

DV One-Page Summary

KIC: 5219234 Candidate: 4 of 4 Period: 16.739 d
KOI: K01563.04 Name: Kepler-305d Corr: 0.979

Kp: 15.81 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 16.73857 [0.00009] d
Epoch = 141.8190 [0.0050] BKJD
Rp/R* = 0.0352 [0.0066]
a/R* = 27.51 [18.99]
b = 0.90 [0.15]
Seff = 26.09 [3.04]
Teq = 576 [17] K
Rp = 3.03 [0.60] Re
a = 0.1201 [0.0068] AU
Ag = 145.08 [73.41] [1.96σ]
Teffp = 3092 [390] K [6.44σ]

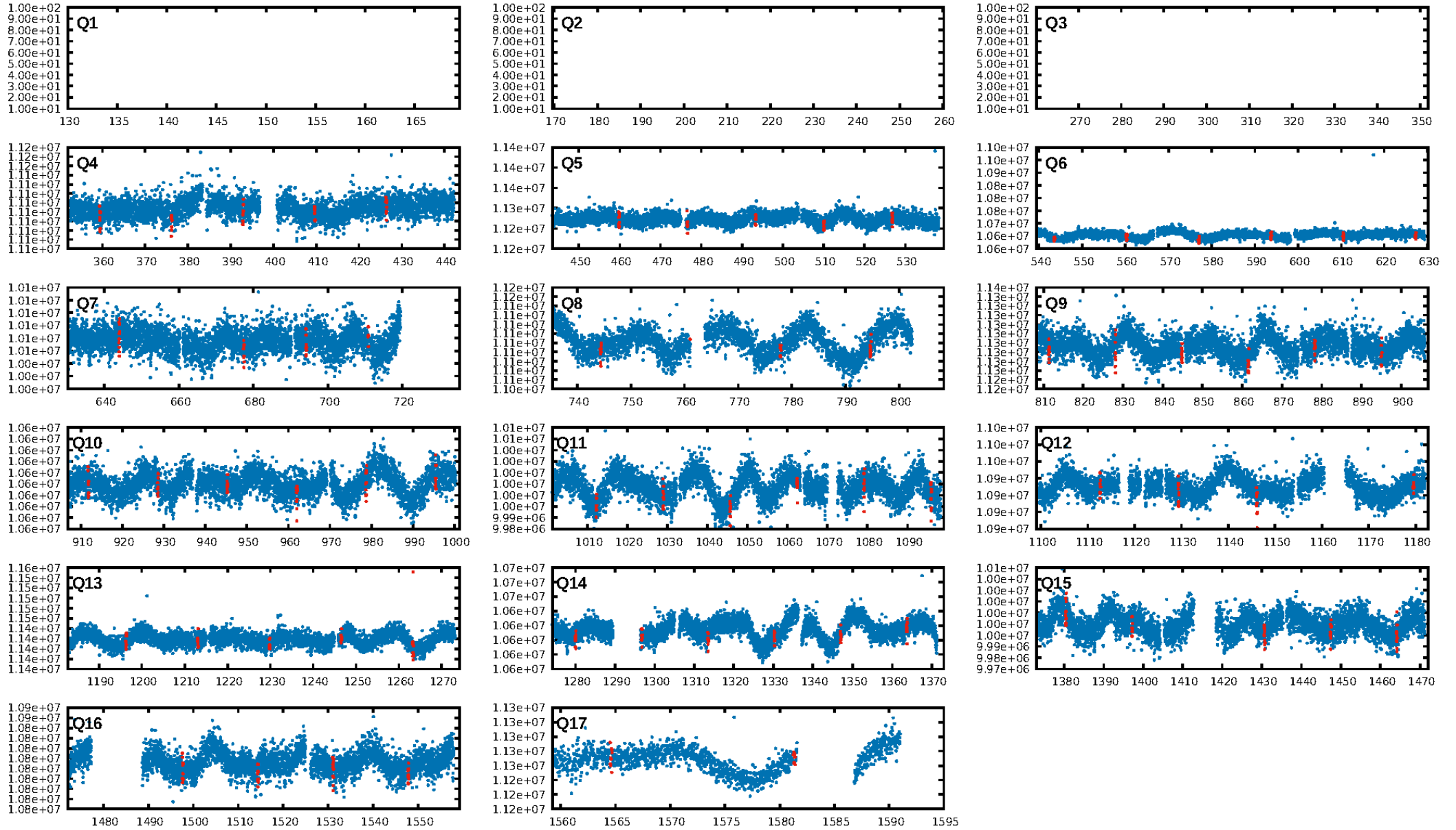
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.02σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 90.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.99e-43
RollingBand-fgt: 1.00 [58/58]
GhostDiagnostic-chr: 1.732
Centroid-sig: 68.2%
Centroid-so: 1.037 arcsec [1.35σ]
OotOffset-rm: 0.346 arcsec [0.58σ]
KicOffset-rm: 0.431 arcsec [0.67σ]
OotOffset-st: 3/1/4/4 [12]
KicOffset-st: 3/1/4/4 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [14/14]

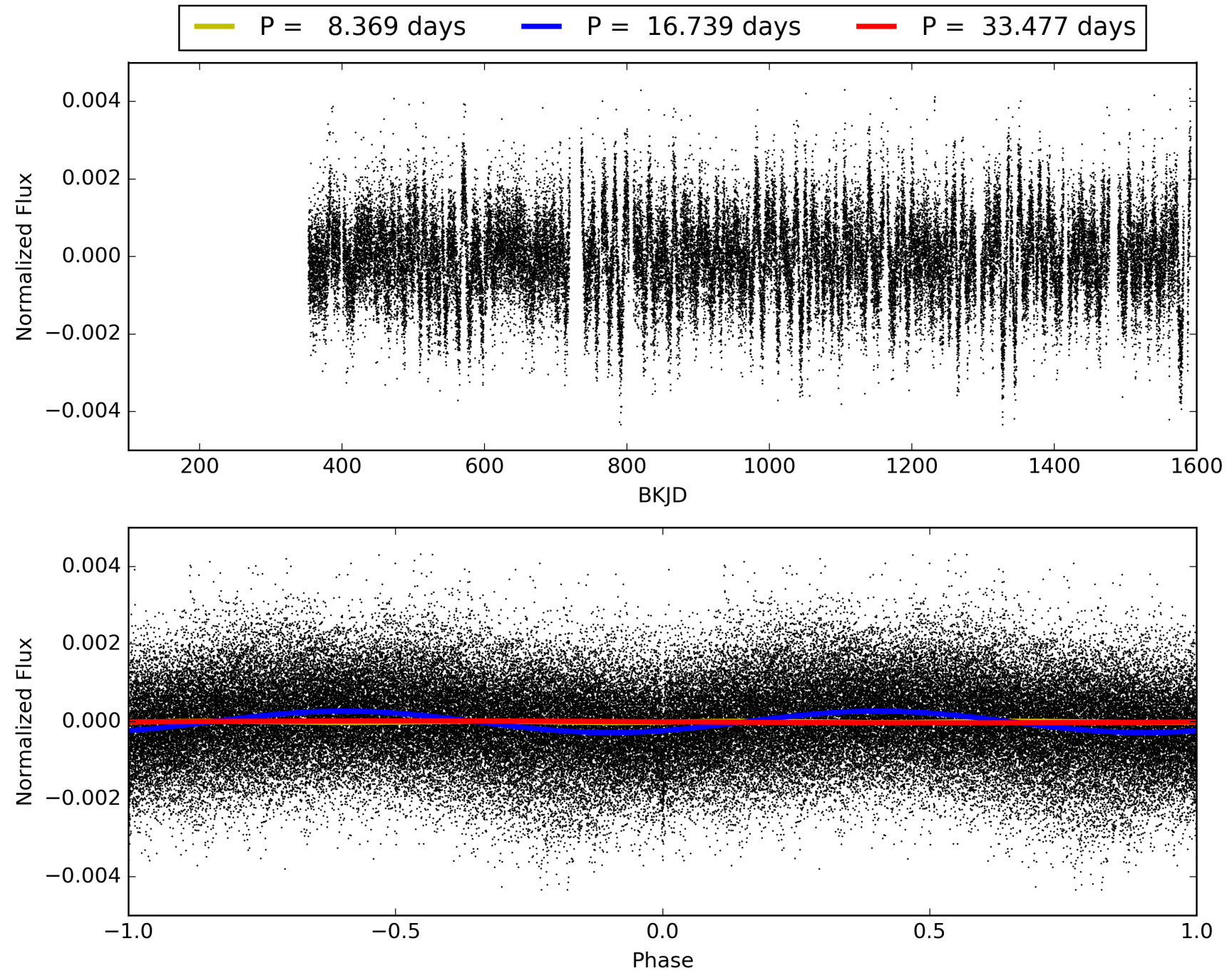
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:16:26 Z

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

TCE 005219234-04, PDC Light Curves

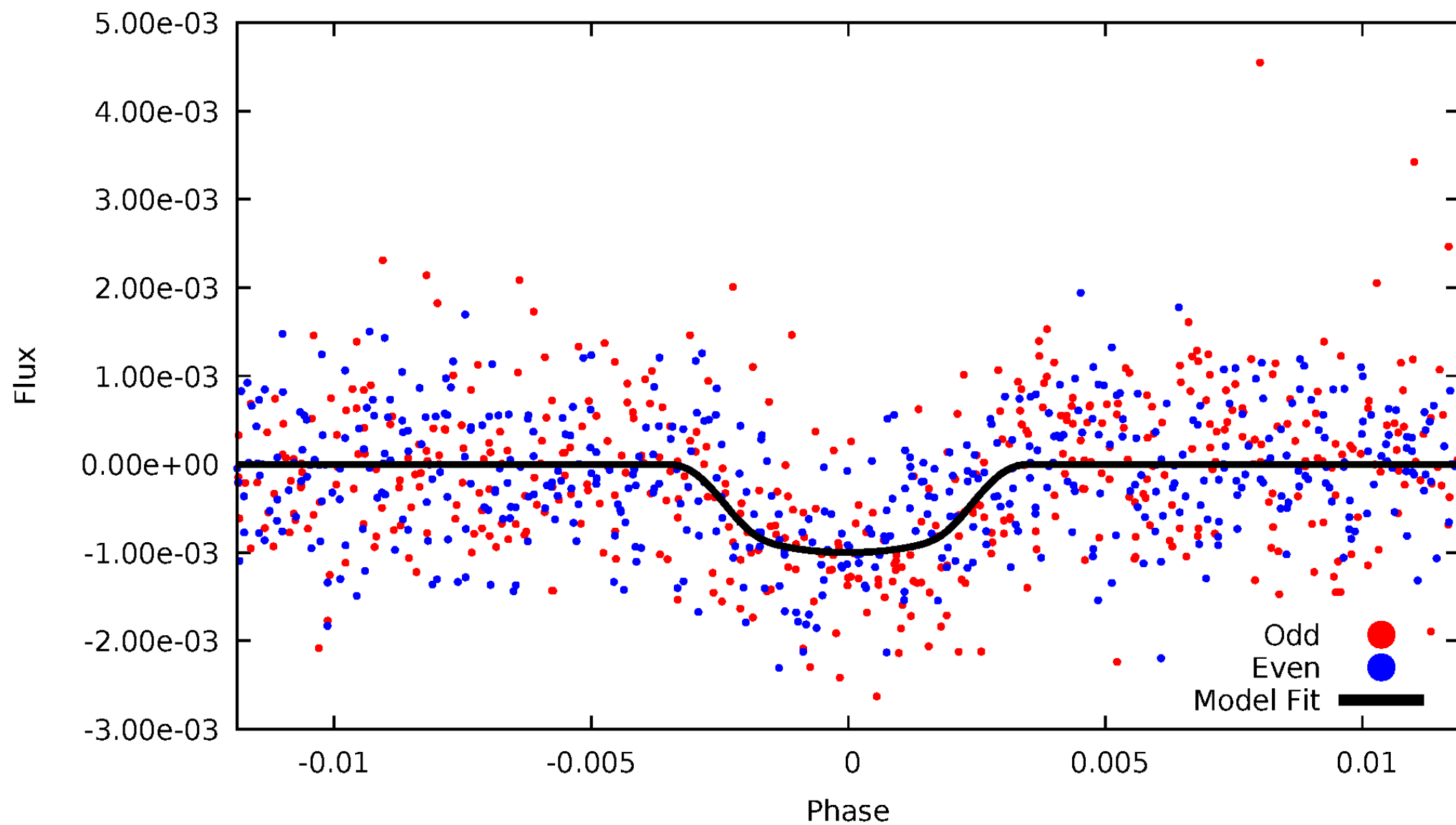


TCE 005219234-04



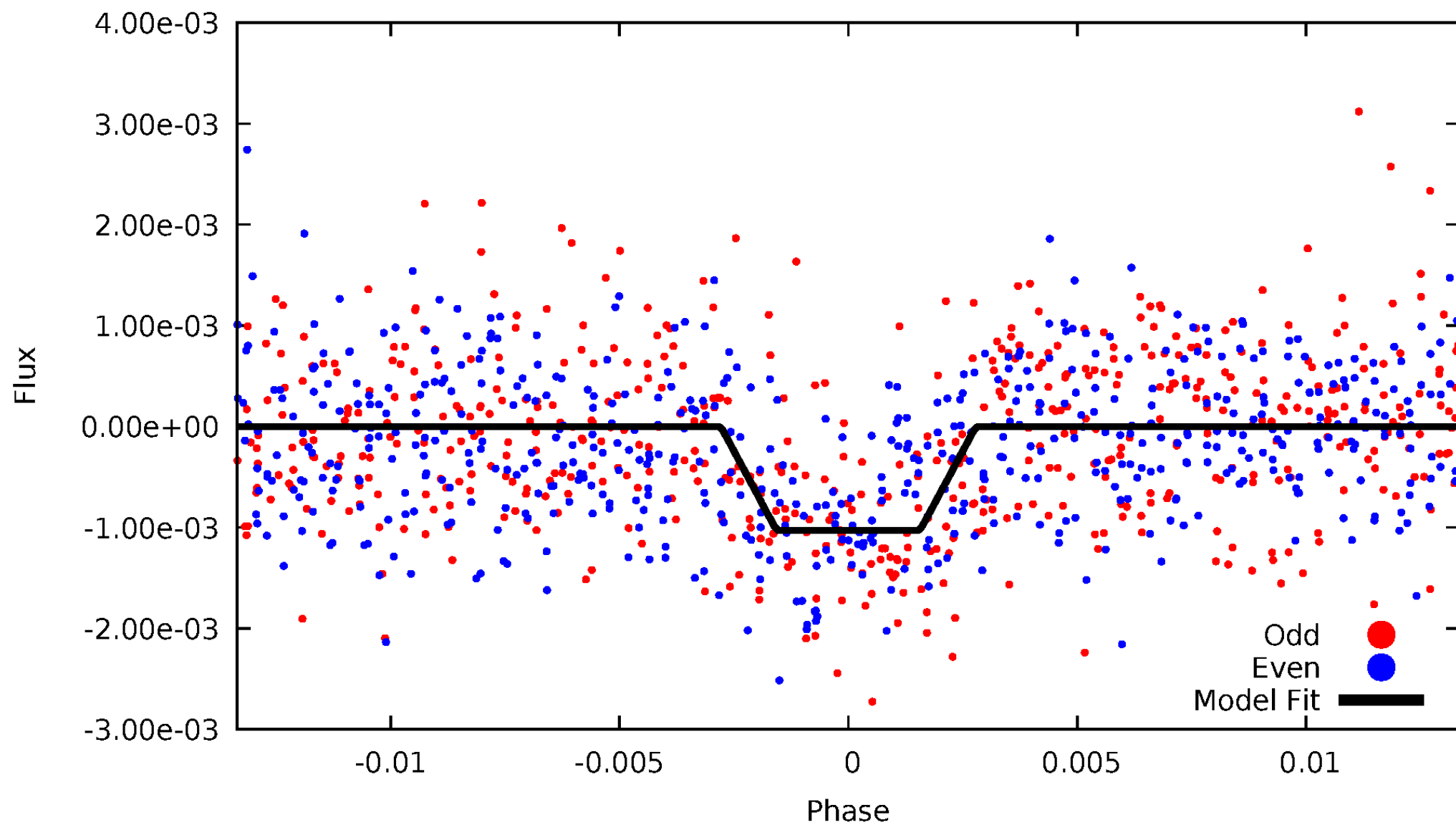
DV Odd/Even

TCE 005219234-04



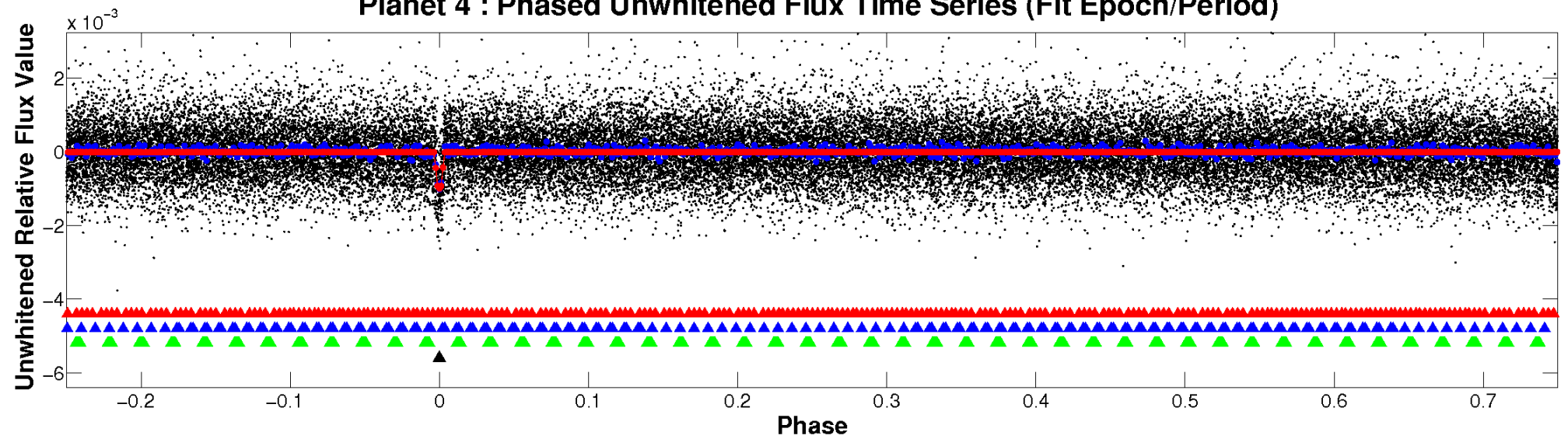
ALT Odd/Even

TCE 005219234-04

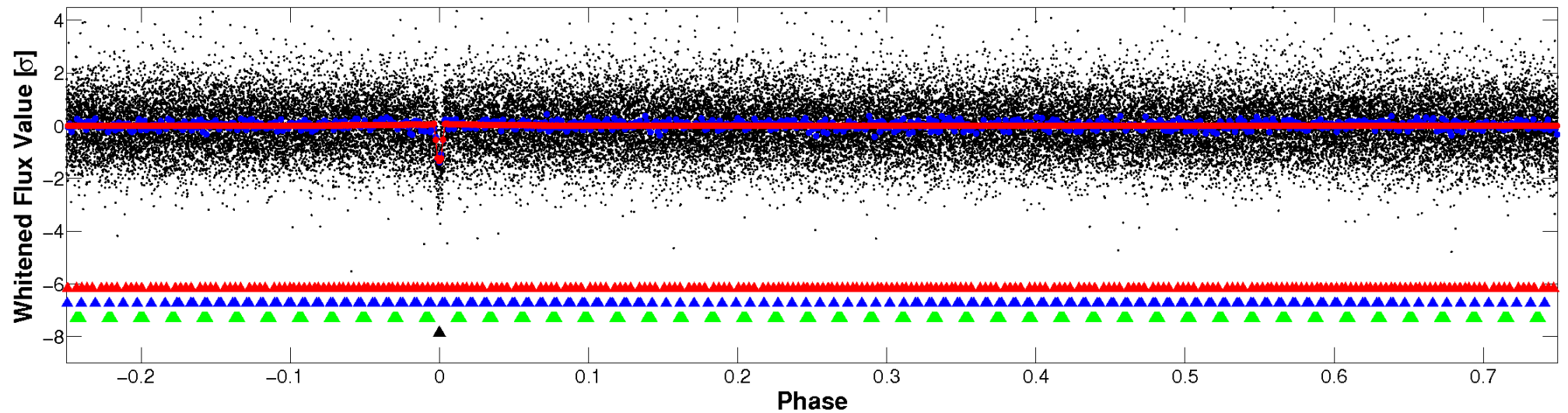


Non-Whitened Vs. Whitened Light Curve

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

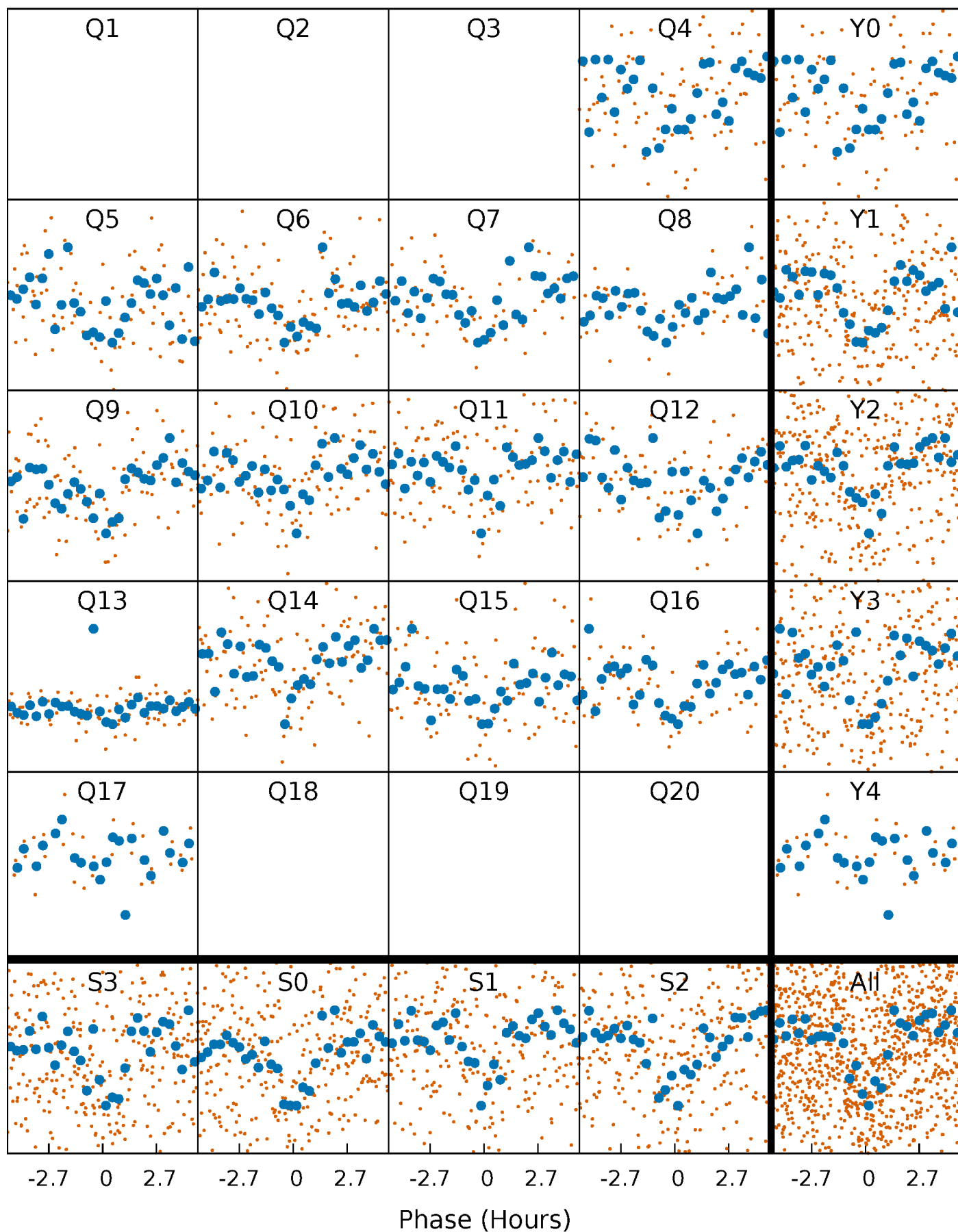


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



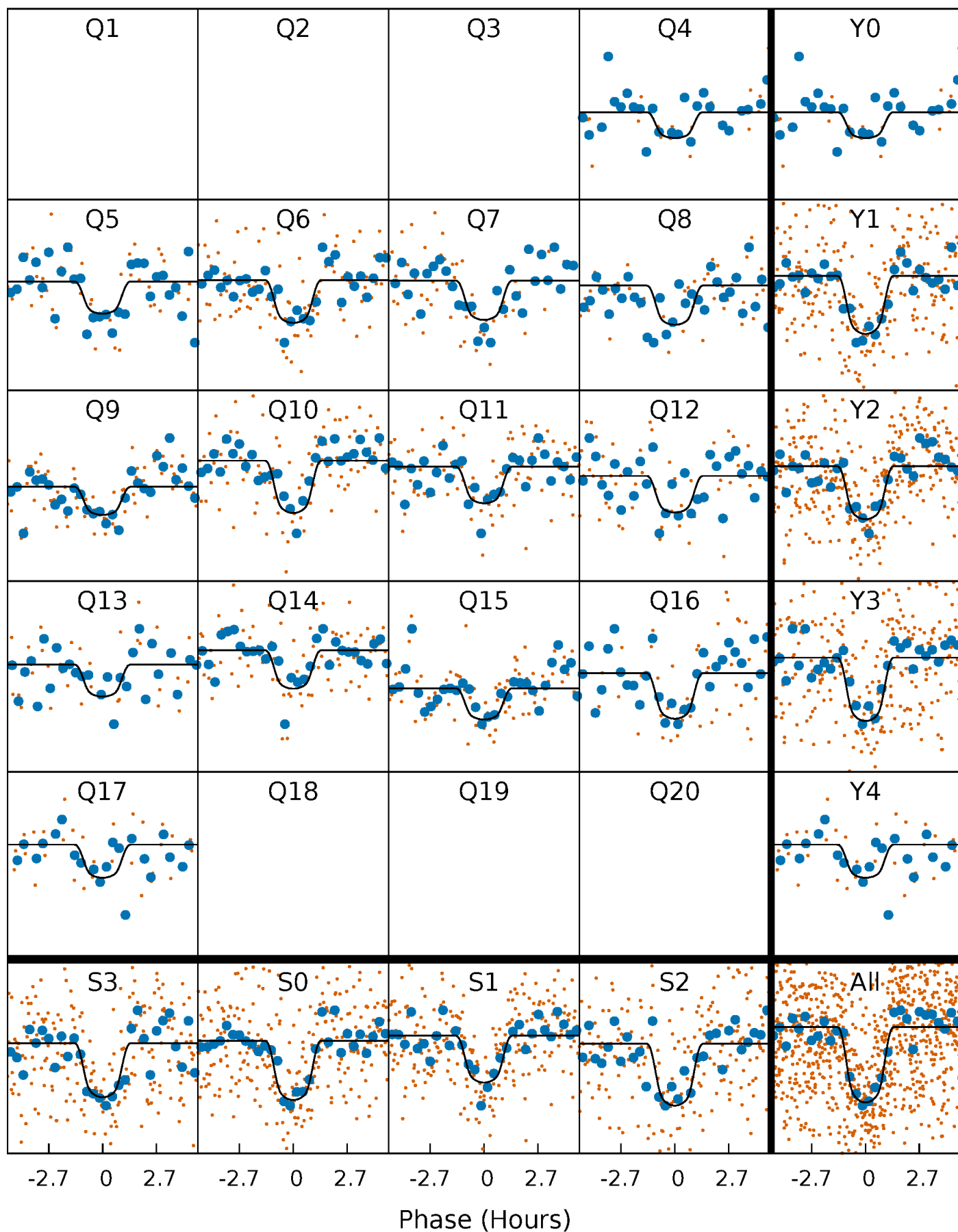
PDC Quarter-Phased Transit Curves

TCE 005219234-04 P= 16.738566 Days $T_0=141.819015$ (BKJD)



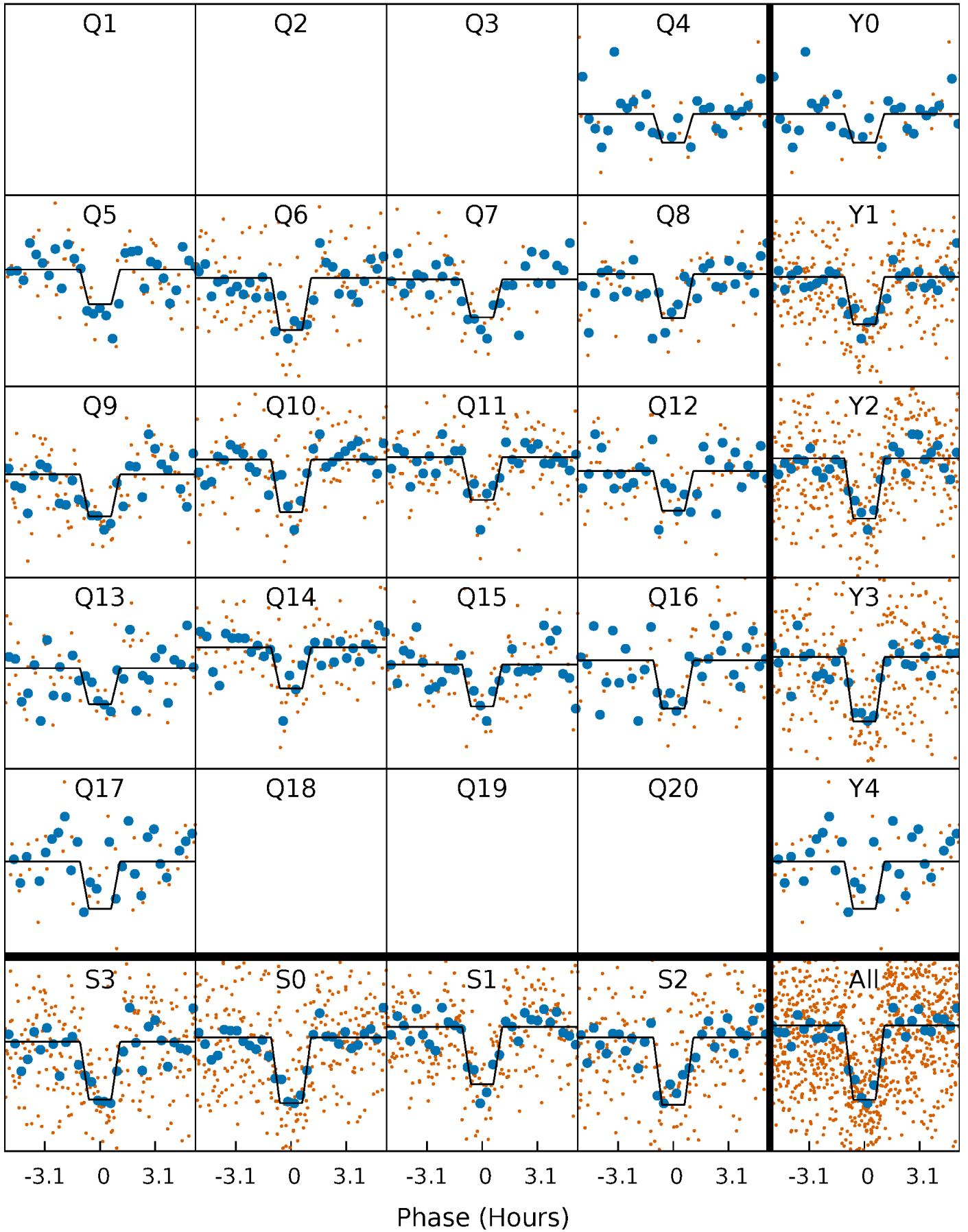
DV Quarter-Phased Transit Curves

TCE 005219234-04 P= 16.738566 Days $T_0=141.819015$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

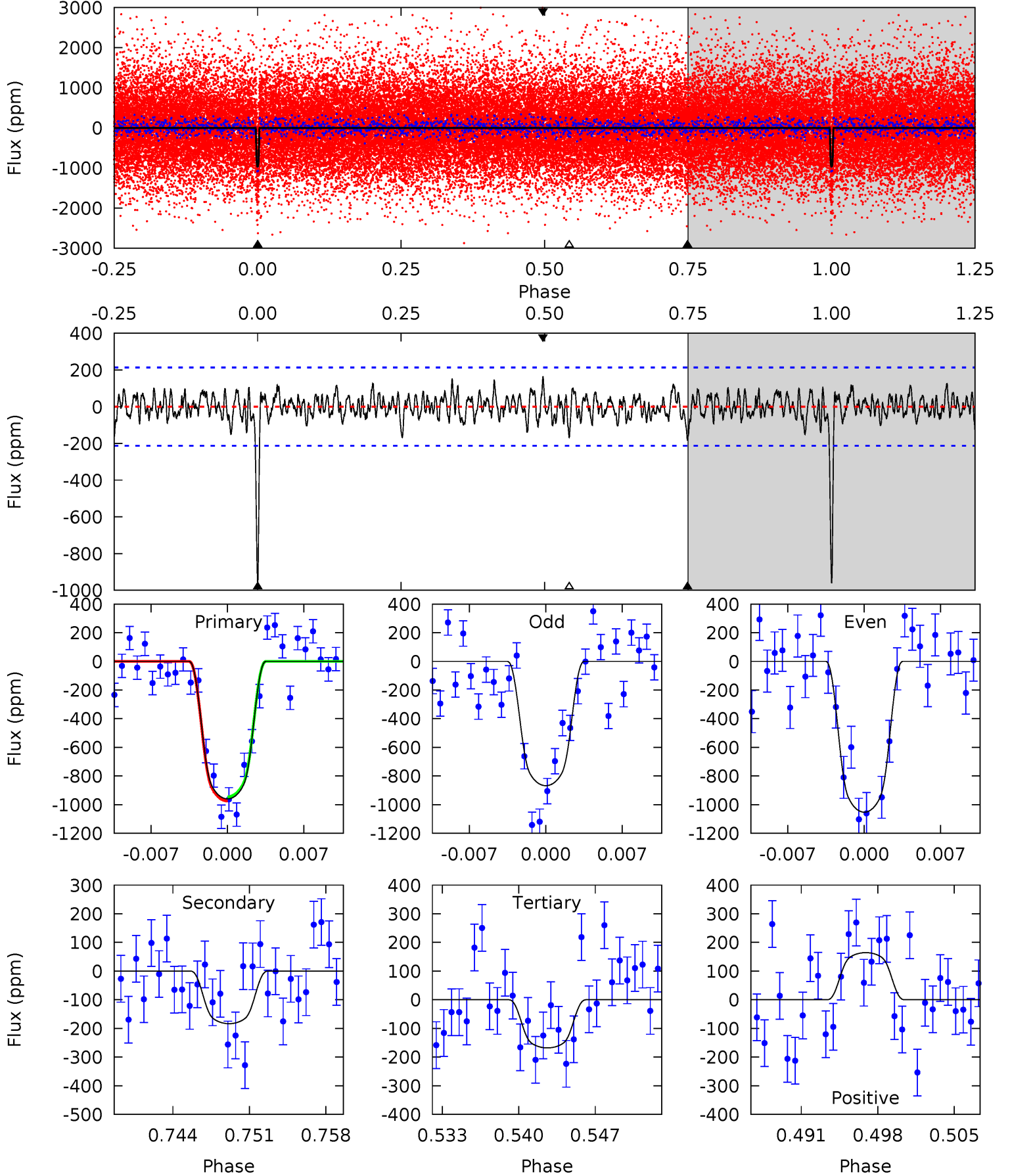
TCE 005219234-04 P= 16.738670 Days $T_0=141.814403$ (BKJD)



DV Model-Shift Uniqueness Test

005219234-04, P = 16.738566 Days, E = 141.819015 Days

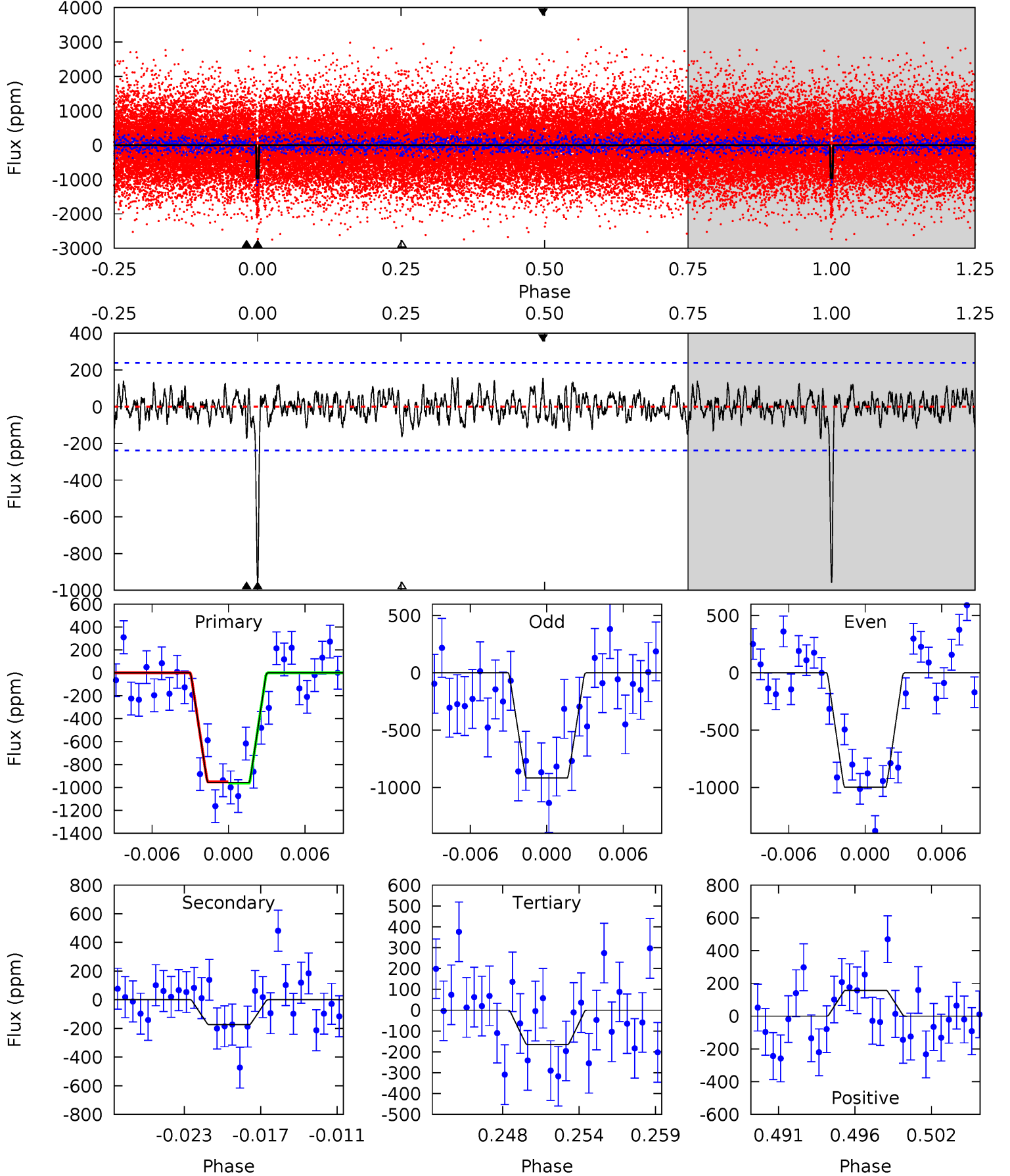
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	4.38	4.01	3.92	5.09	2.70	1.26	18.9	19.0	0.37	0.45	2.21	0.97	0.15	0.35



Alt Model-Shift Uniqueness Test

005219234-04, P = 16.738670 Days, E = 141.814403 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	3.72	3.53	3.38	5.14	2.77	1.18	17.0	17.2	0.18	0.33	0.88	0.95	0.14	0.13



Stellar Parameters For KIC 005219234

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005219234-04 / KOI 1563.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-183±42	$3.04^{+0.63}_{-0.58}$	808^{+22}_{-22}	3569^{+319}_{-249}	157^{+93}_{-60}
Alt.	-173±47	$2.75^{+0.57}_{-0.55}$	808^{+21}_{-21}	3664^{+329}_{-282}	181^{+115}_{-69}

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 $A_{obs} \gg 1.0$

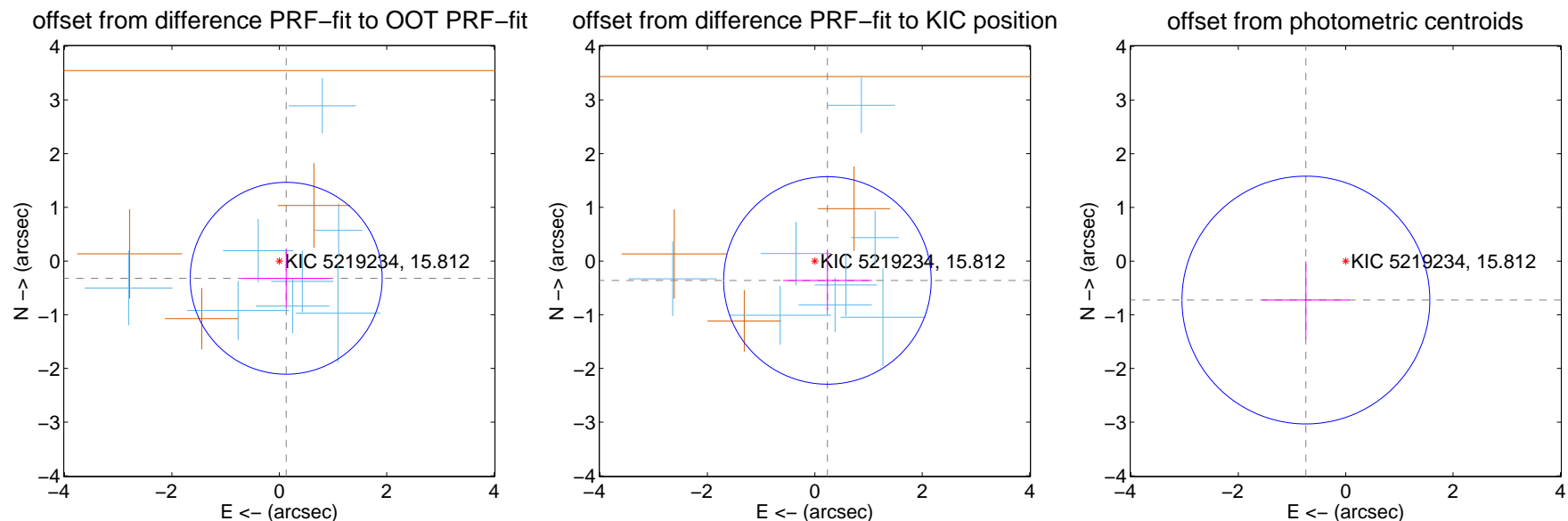
DV Centroid Data

Supplemental centroid analysis for 005219234-04. Kepler magnitude: 15.81. Transit SNR 16.35

There are 8 quarters with good PRF difference image offsets

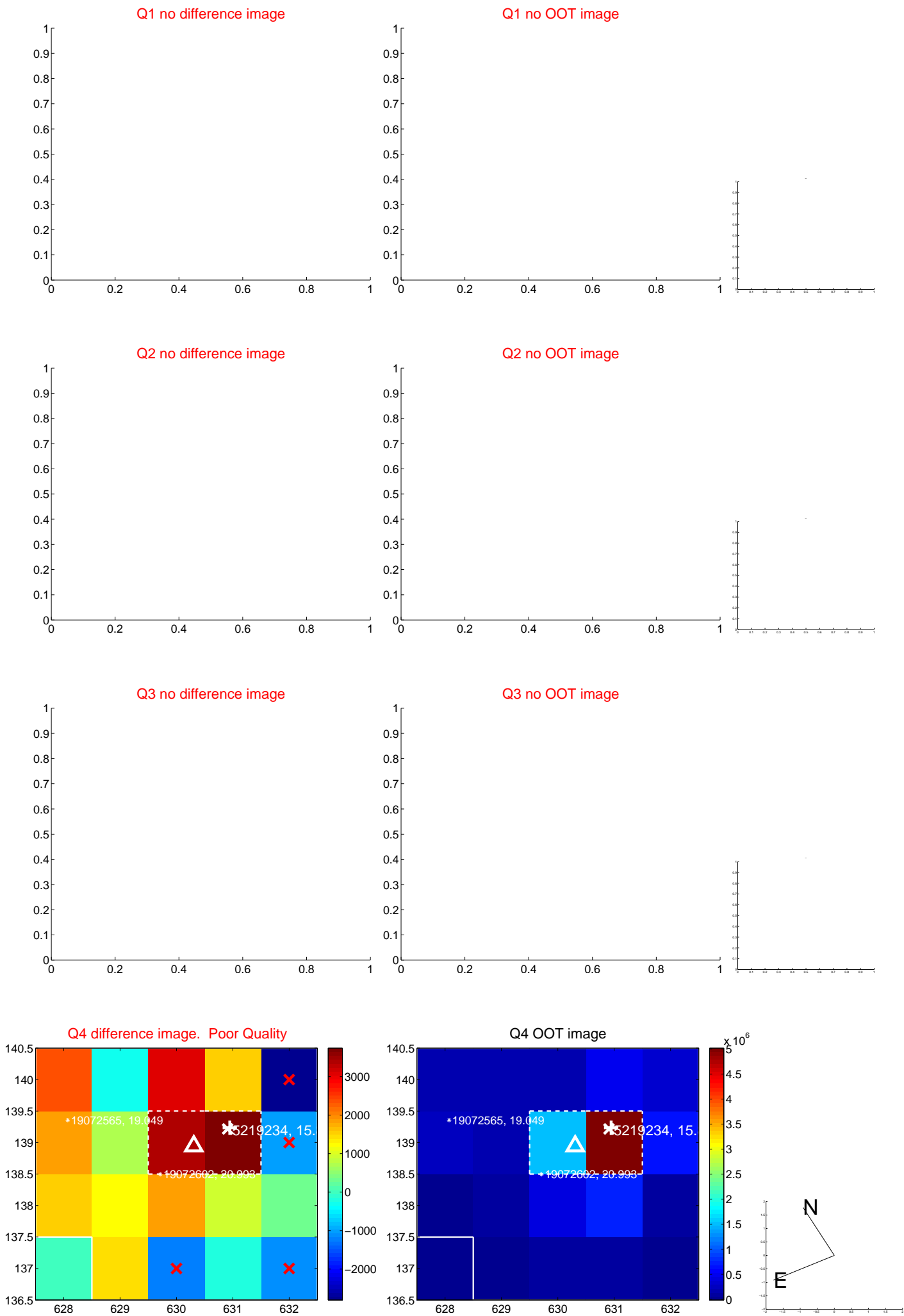
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.346 ± 0.596	0.58	-0.128 ± 0.825	-0.321 ± 0.550
PRF-fit source offset from KIC position	0.431 ± 0.644	0.67	-0.235 ± 0.825	-0.361 ± 0.550
photometric centroid source offset	1.04 ± 0.77	1.35	0.74 ± 0.81	-0.73 ± 0.72

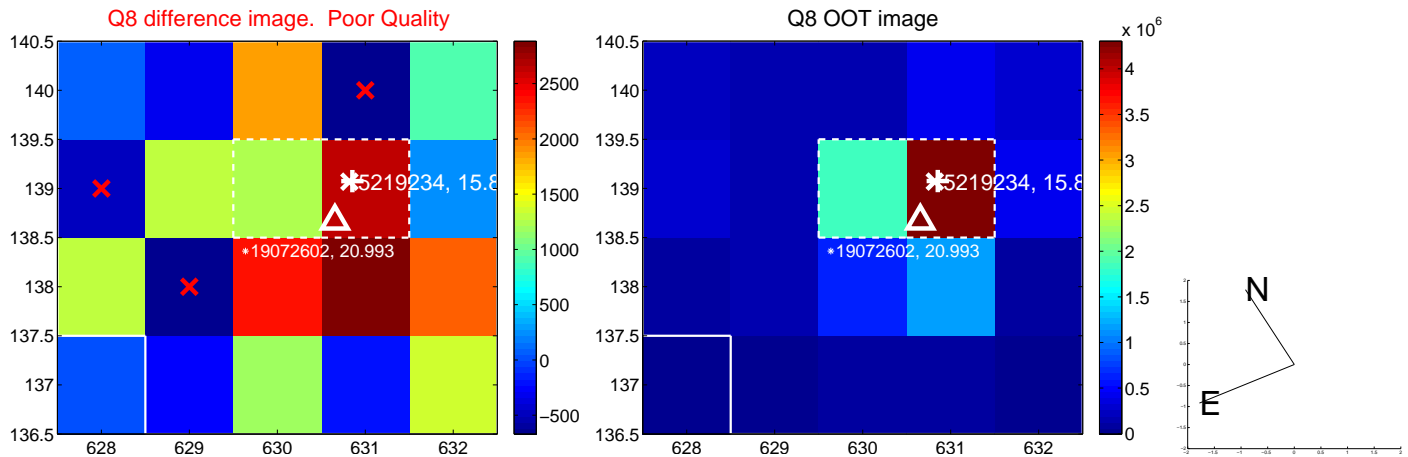
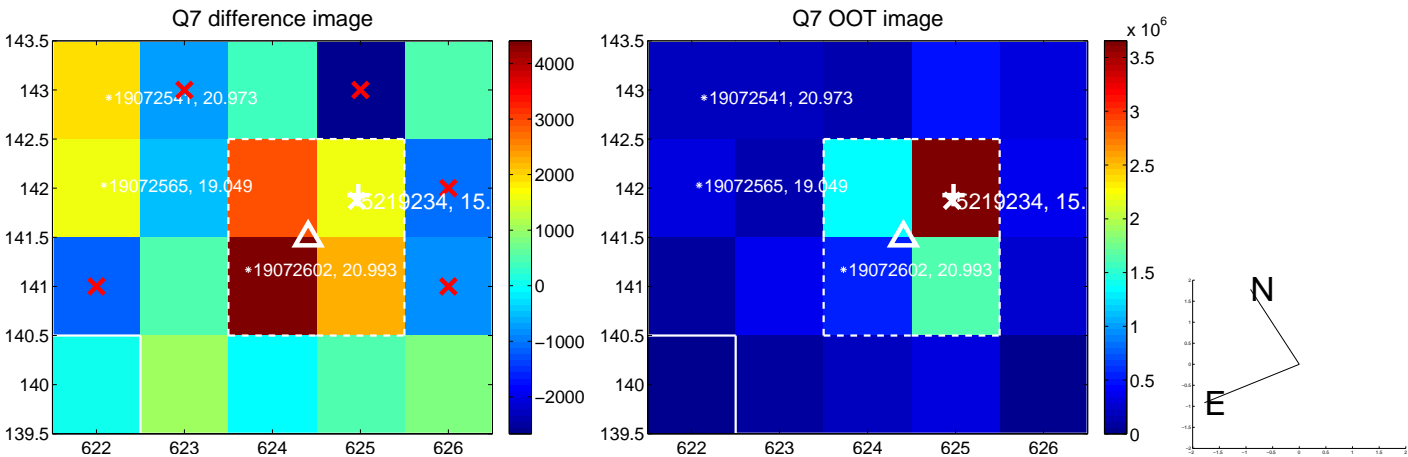
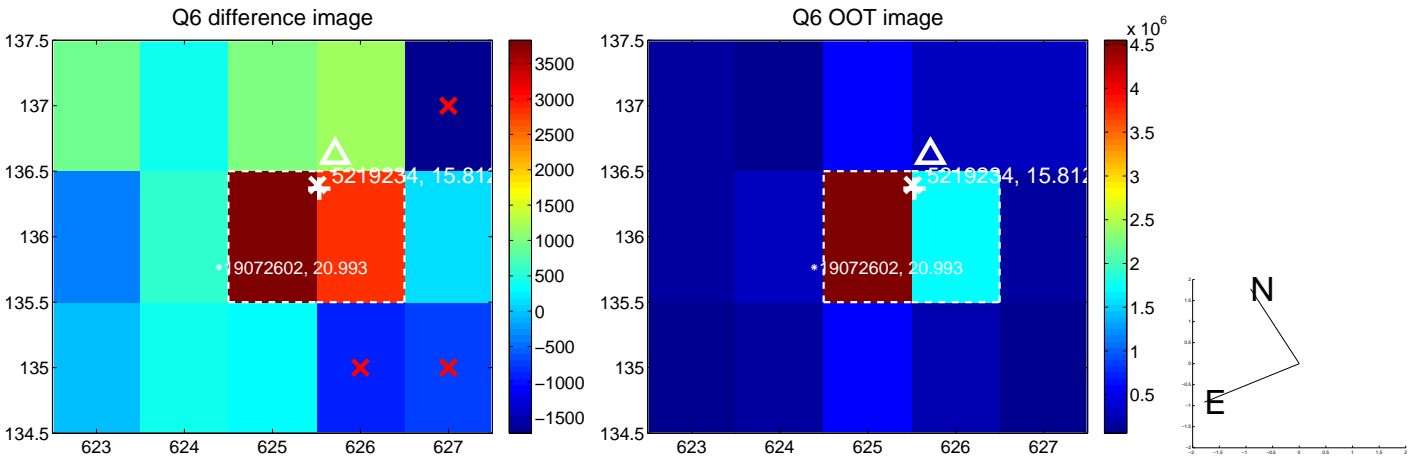
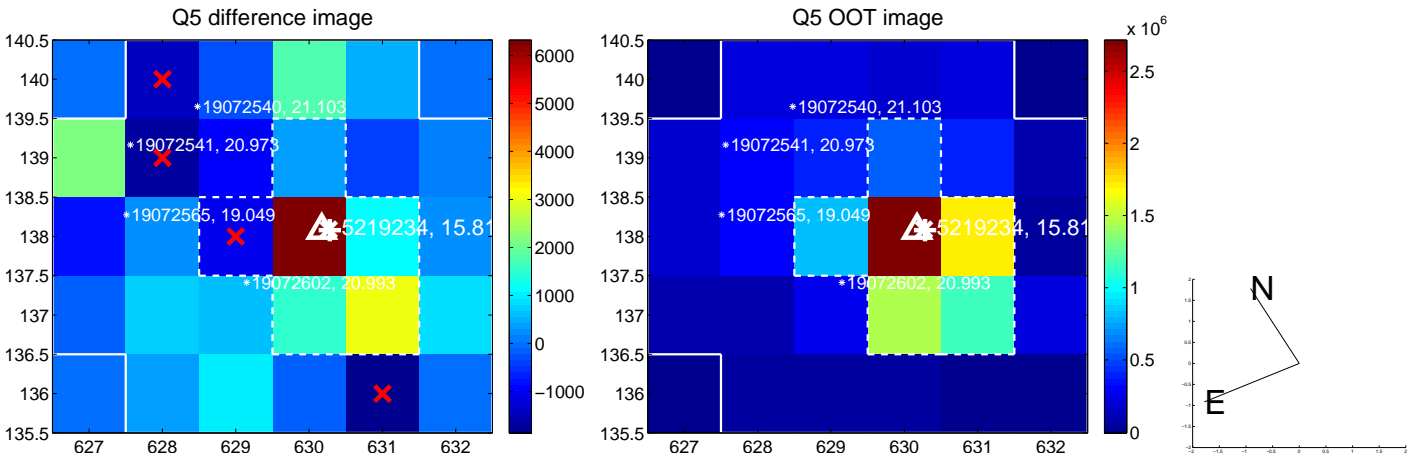


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

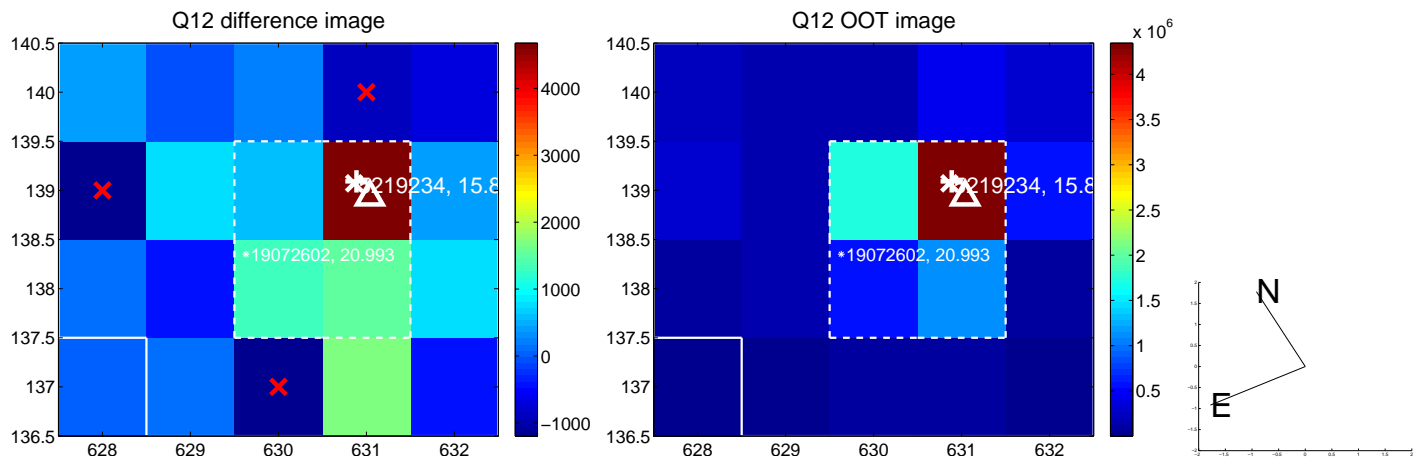
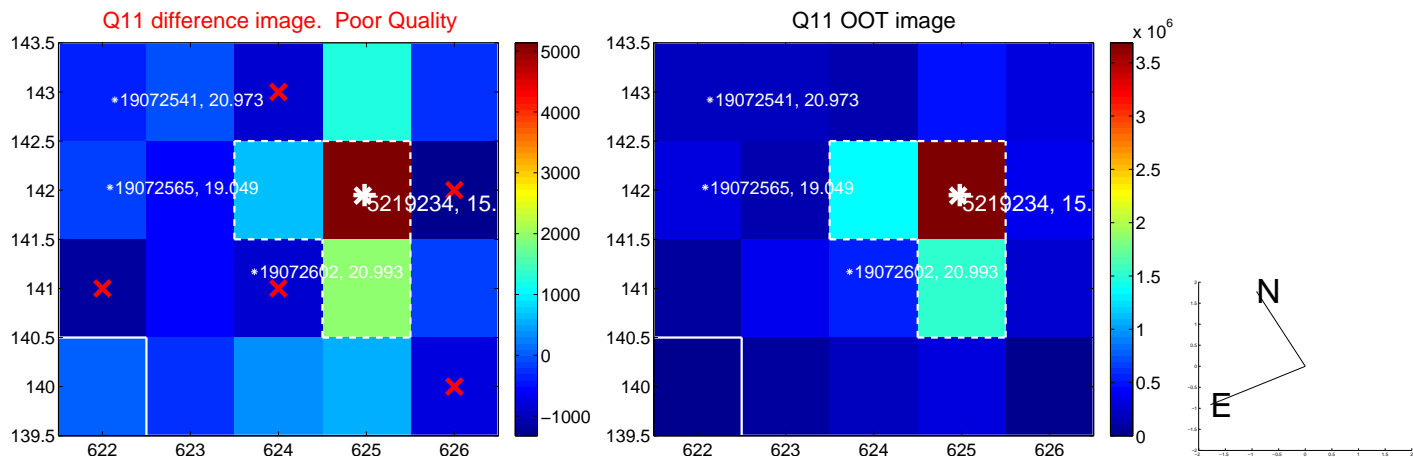
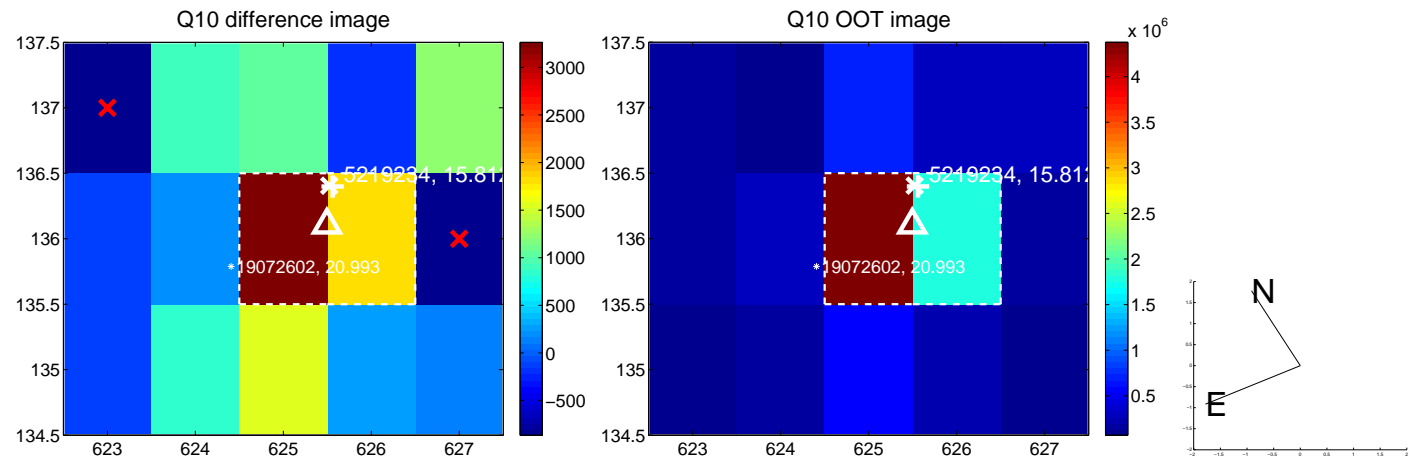
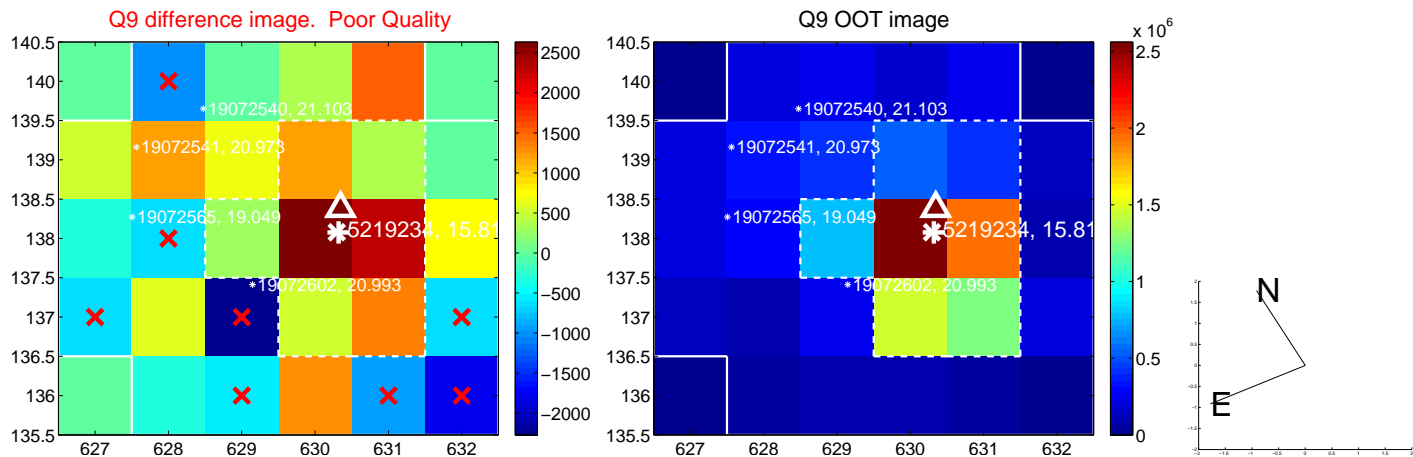
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



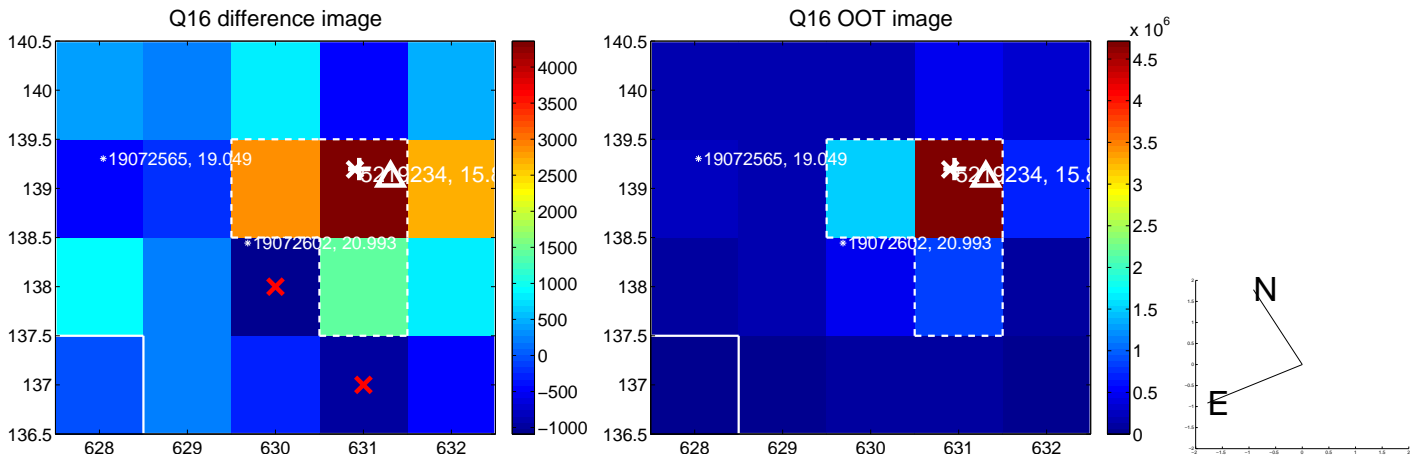
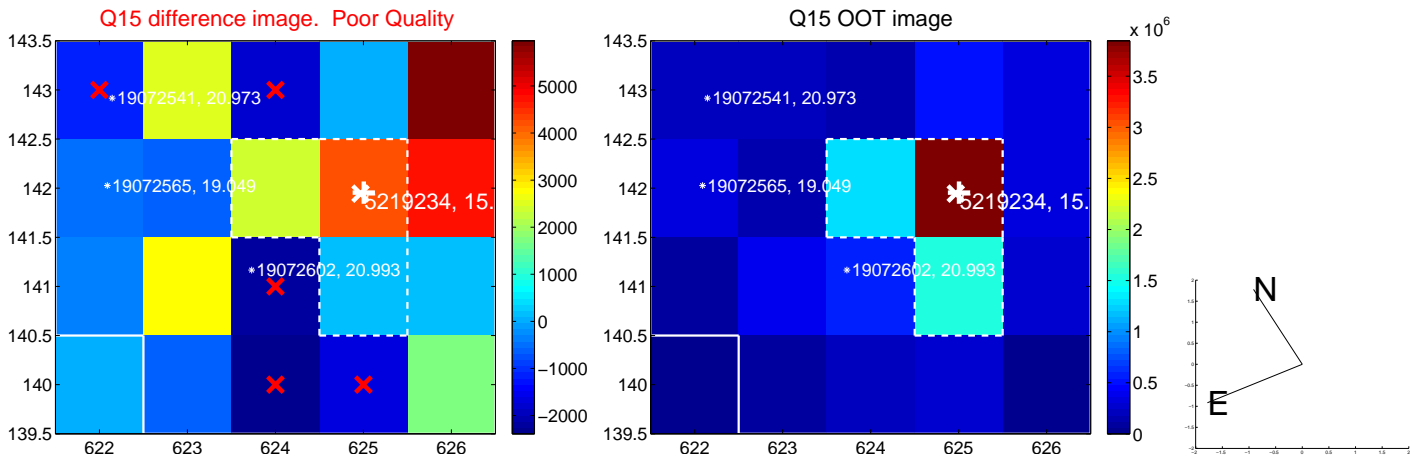
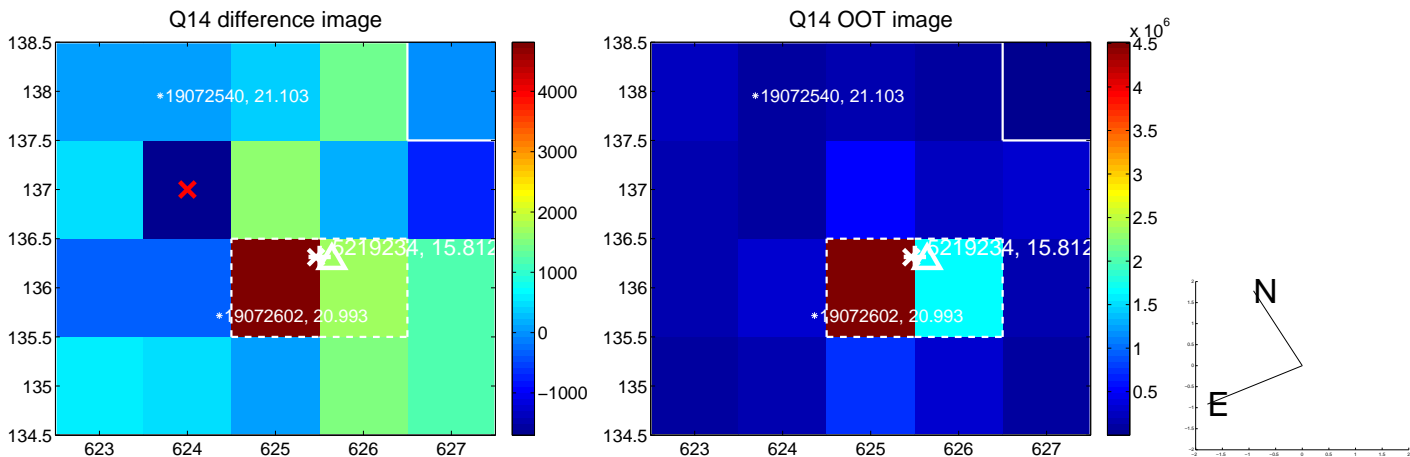
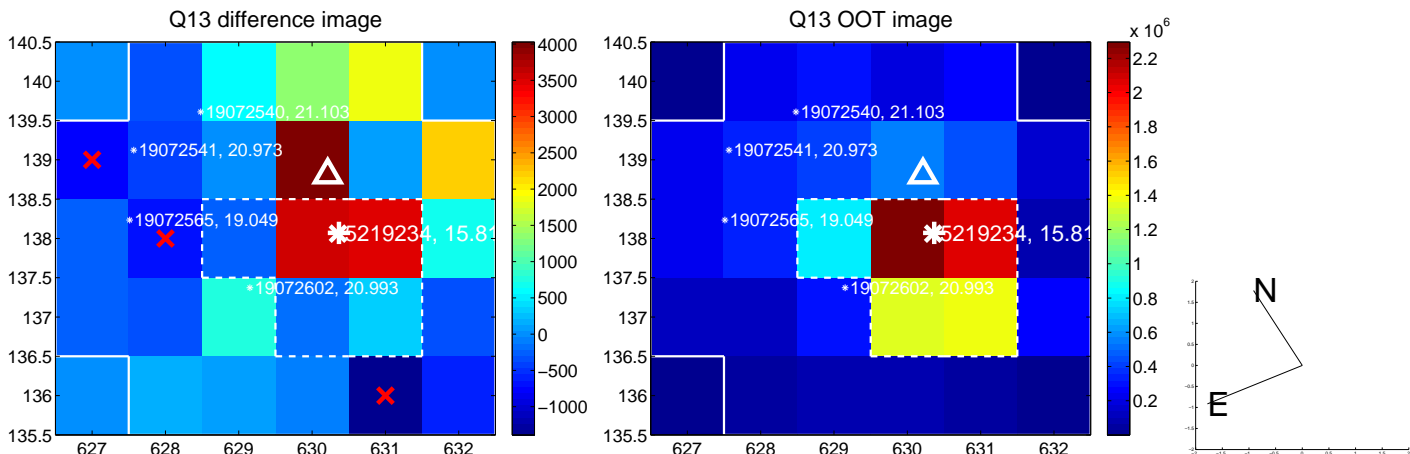
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



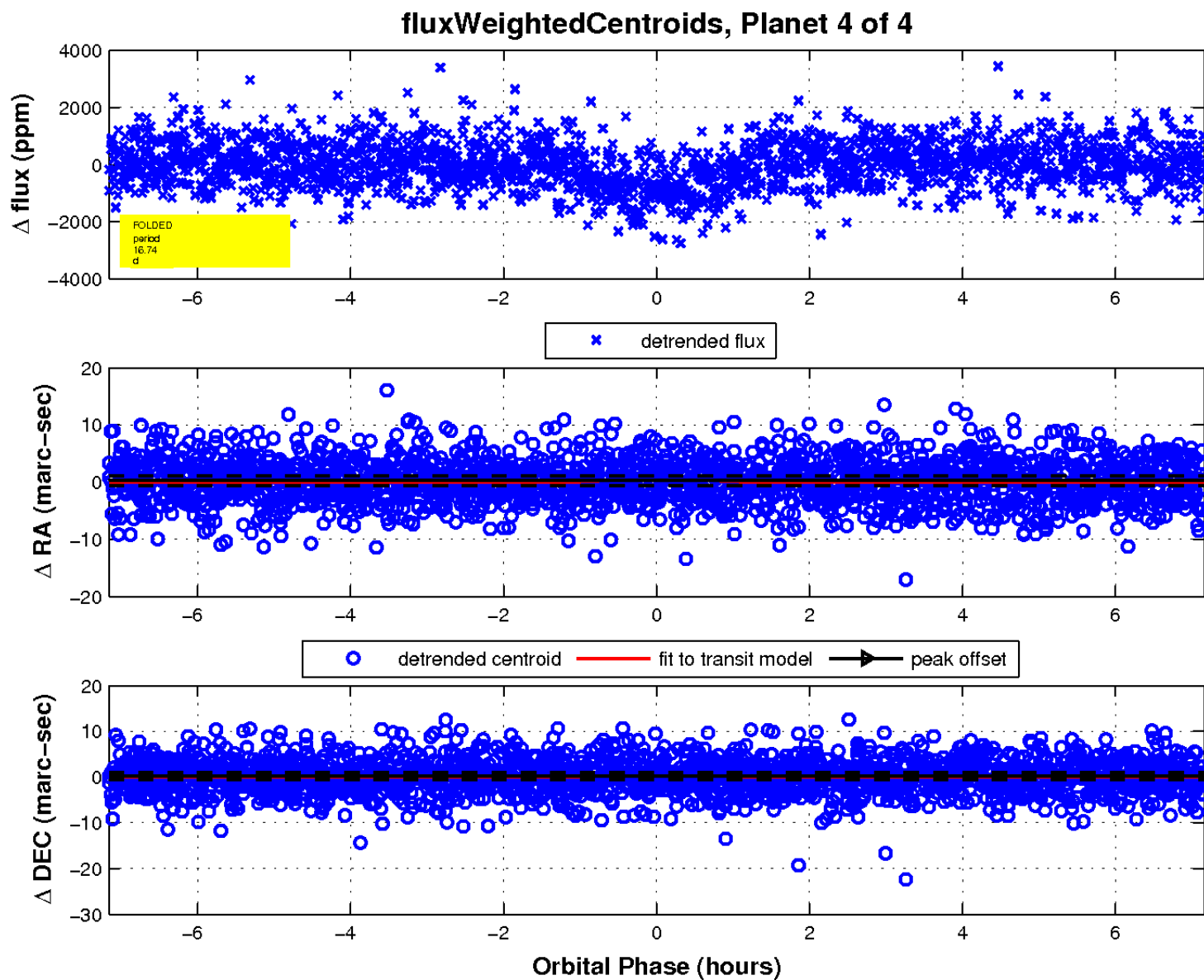
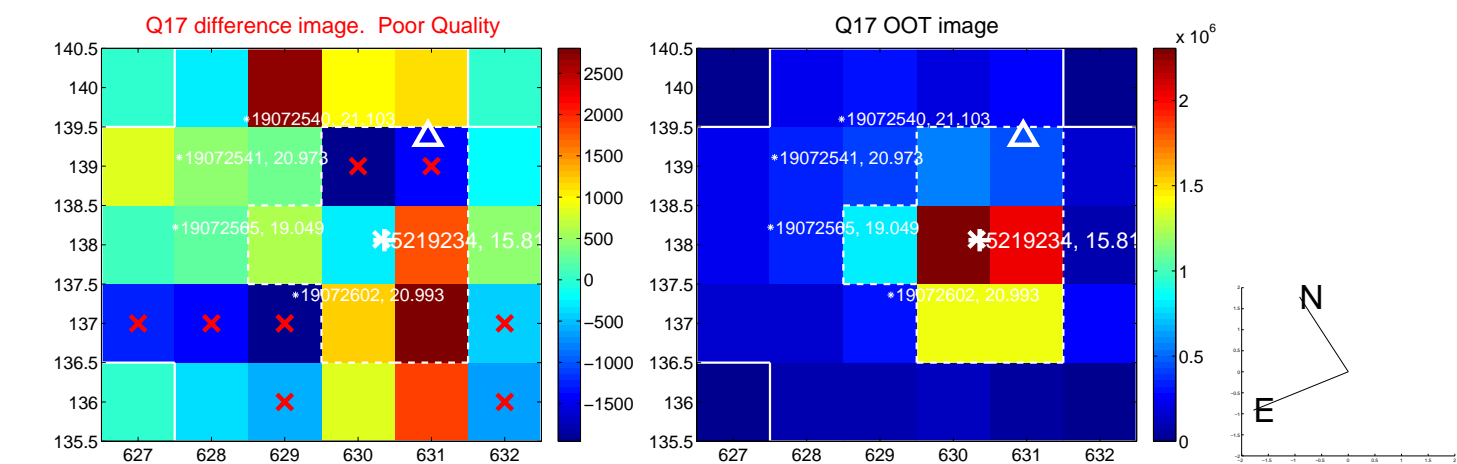
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

