

KIC 003231341

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})
003231341-01	OBS	1102.01	12.333473	137.586001	542.2	6.407	26.8	27.7	1.24	5896	4.07	165.69
003231341-02	OBS	1102.02	8.145181	132.420647	446.3	5.255	24.3	28.6	1.24	5896	3.41	288.10
003231341-03	OBS	1102.03	18.998447	144.743195	400.1	3.406	15.2	16.0	1.24	5896	3.02	93.14
003231341-04	OBS	No	330.912918	167.281321	501.9	9.785	12.2	7.1	1.24	5896	2.99	2.06
003231341-05	OBS	1102.04	4.244399	132.822247	194.7	3.104	12.2	15.3	1.24	5896	1.93	687.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003231341-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003231341-05	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.

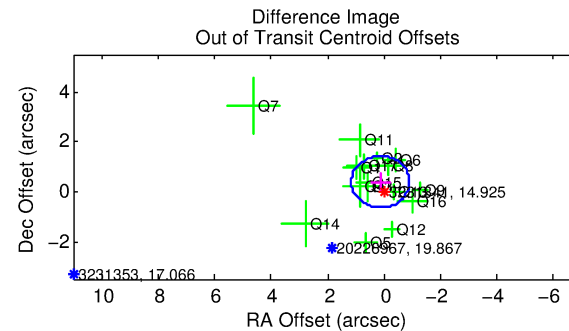
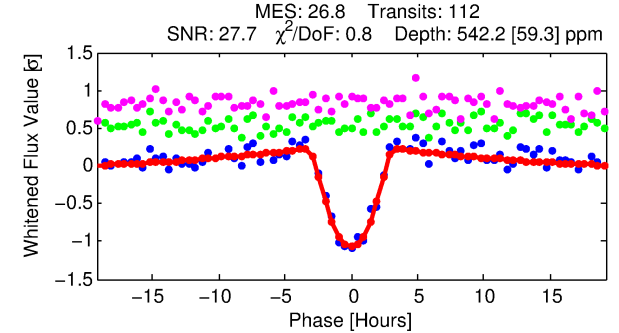
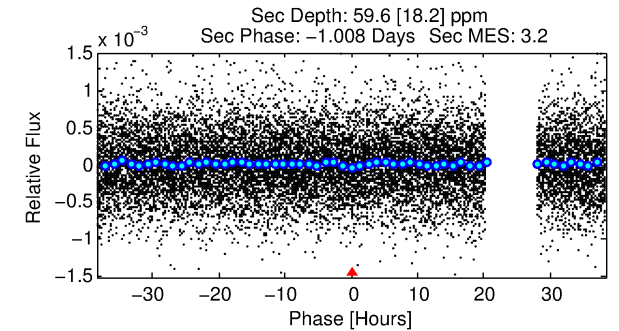
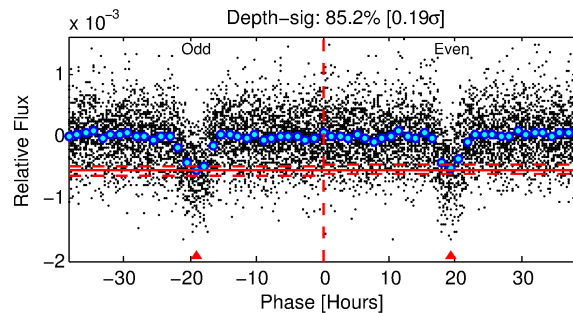
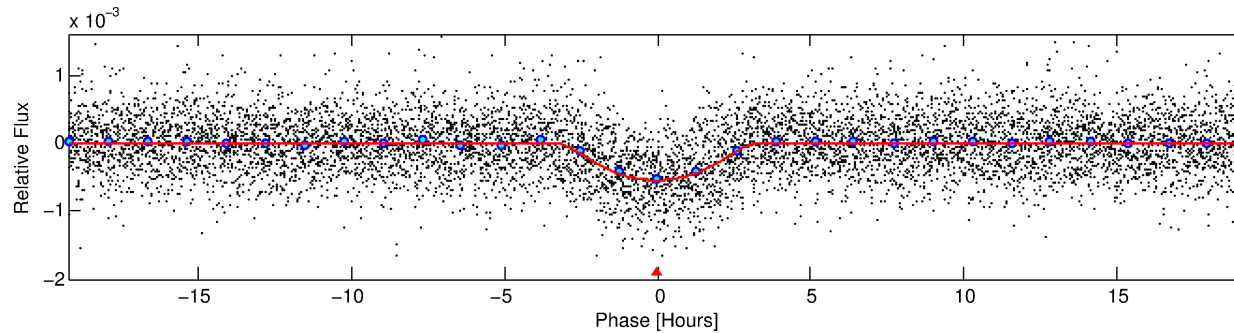
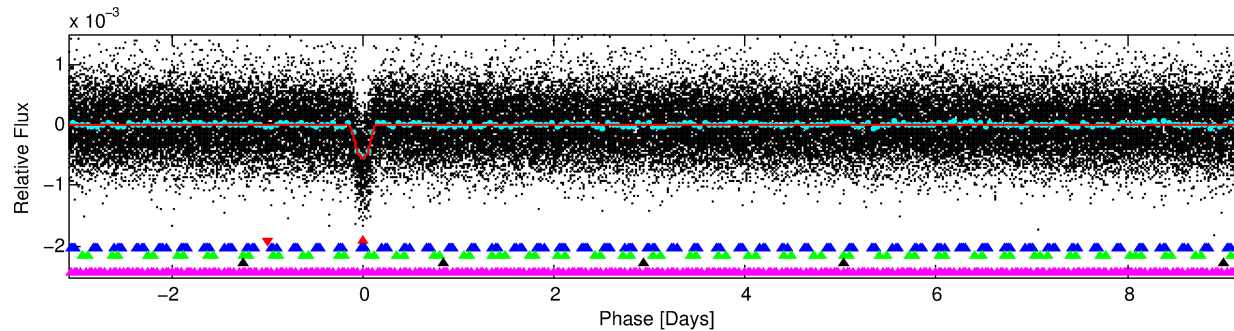
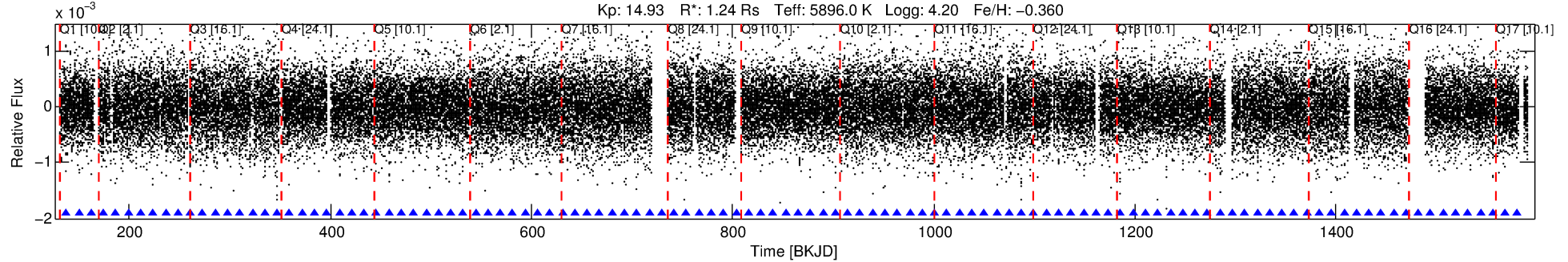
Ephemeris Match Information For 003231341-01

No Significant Match Found

DV One-Page Summary

KIC: 3231341 Candidate: 1 of 5 Period: 12.333 d
KOI: K01102.01 Name: Kepler-24c Corr: 0.991

Kp: 14.93 R*: 1.24 Rs Teff: 5896.0 K Logg: 4.20 Fe/H: -0.360



DV Fit Results:

Period = 12.33347 [0.00007] d
Epoch = 137.5860 [0.0048] BKJD
Rp/R* = 0.0301 [0.0060]
a/R* = 4.84 [0.56]
b = 0.98 [0.01]
Seff = 165.69 [55.97]
Teff = 915 [77] K
Rp = 4.07 [1.16] Re
a = 0.1002 [0.0202] AU
Ag = 19.87 [11.94] [1.58σ]
Teffp = 2986 [380] K [5.34σ]

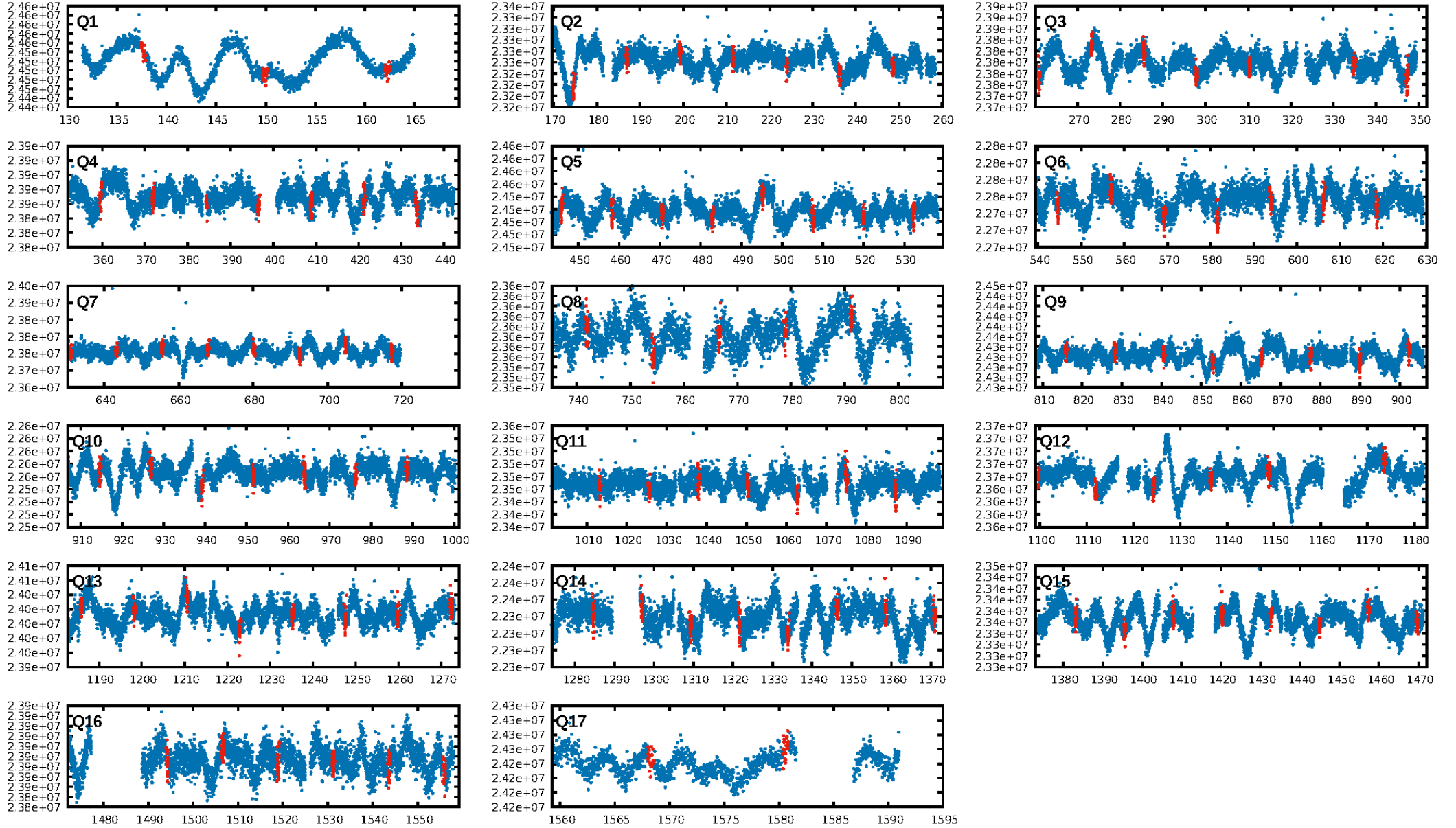
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.13σ]
LongPeriod-sig: 100.0% [22.04σ]
ModelChiSquare2-sig: 98.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.38e-158
RollingBand-fgt: 1.00 [107/107]
GhostDiagnostic-chr: 2.928
Centroid-sig: 51.5%
Centroid-so: 0.270 arcsec [0.74σ]
OotOffset-rm: 0.411 arcsec [1.20σ]
KicOffset-rm: 0.441 arcsec [1.18σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.94 [16/17]

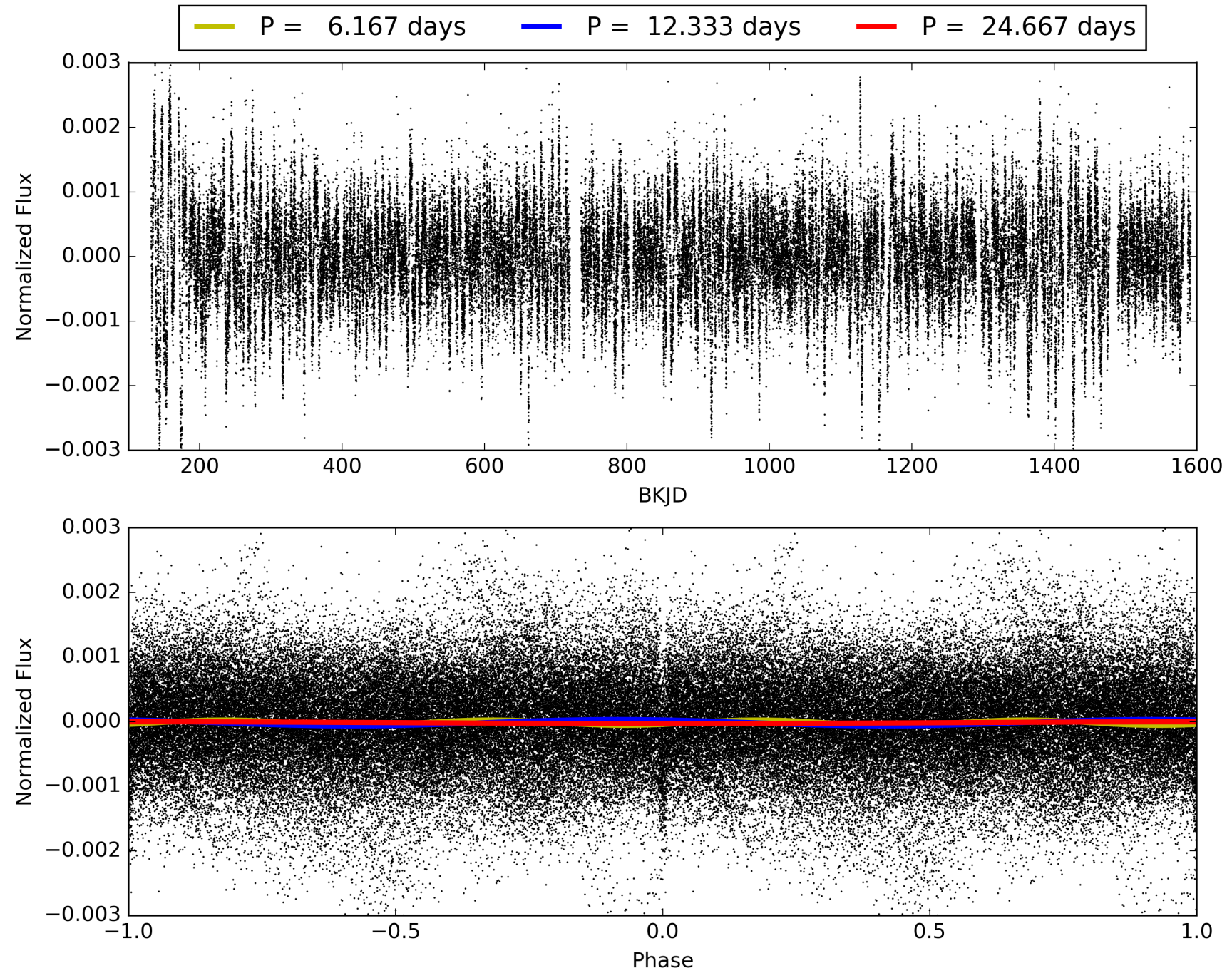
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:59:13 Z

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

TCE 003231341-01, PDC Light Curves

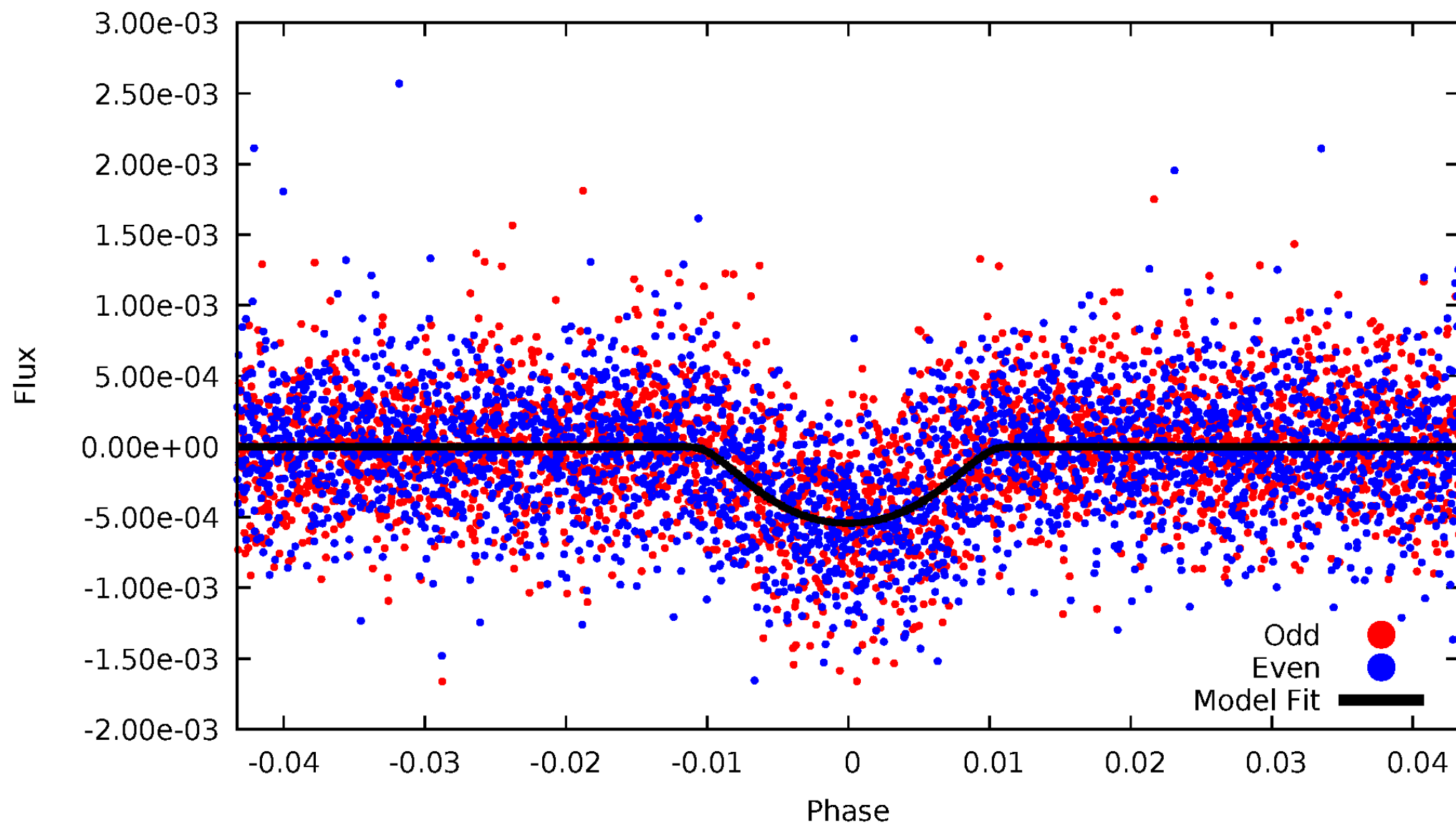


TCE 003231341-01



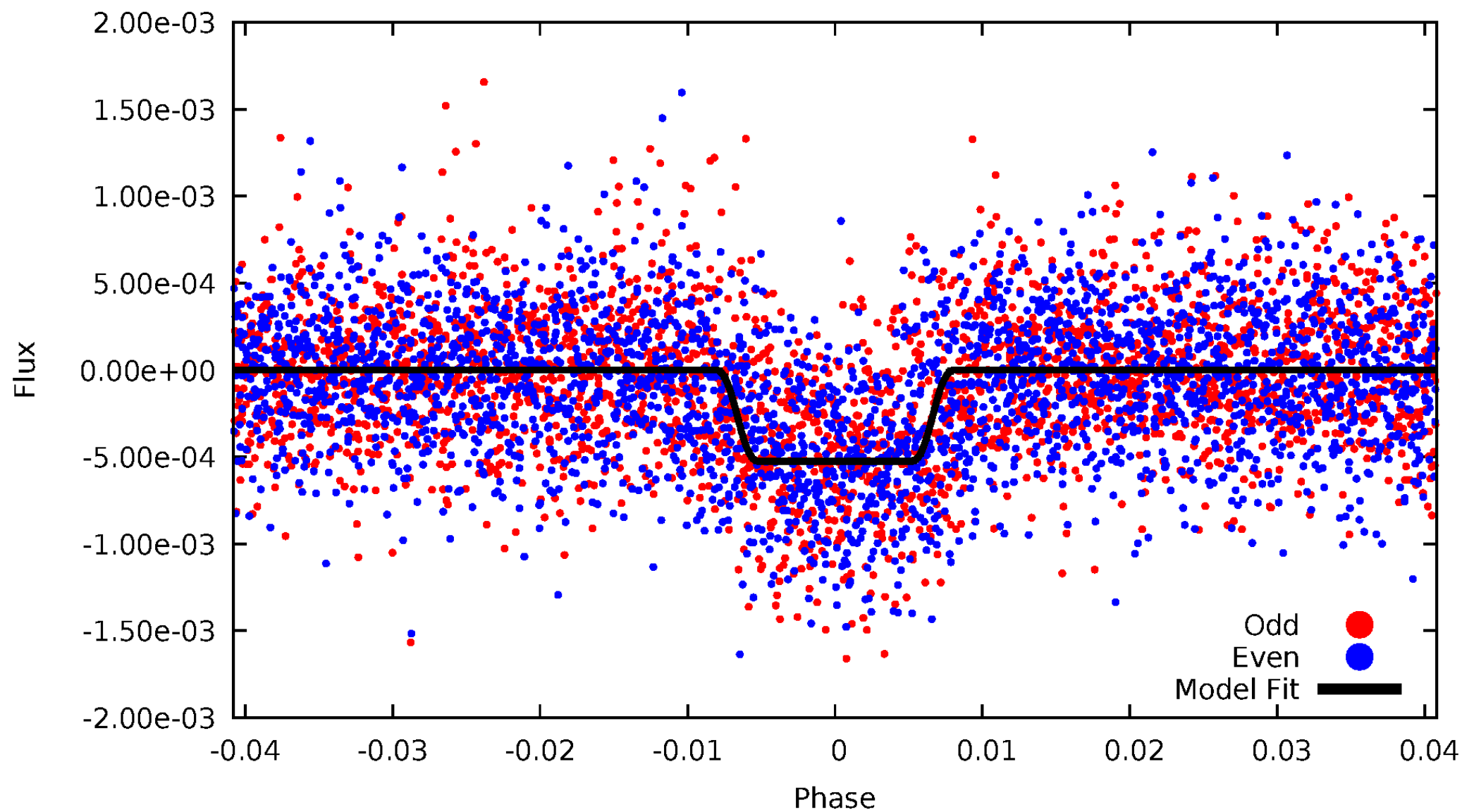
DV Odd/Even

TCE 003231341-01

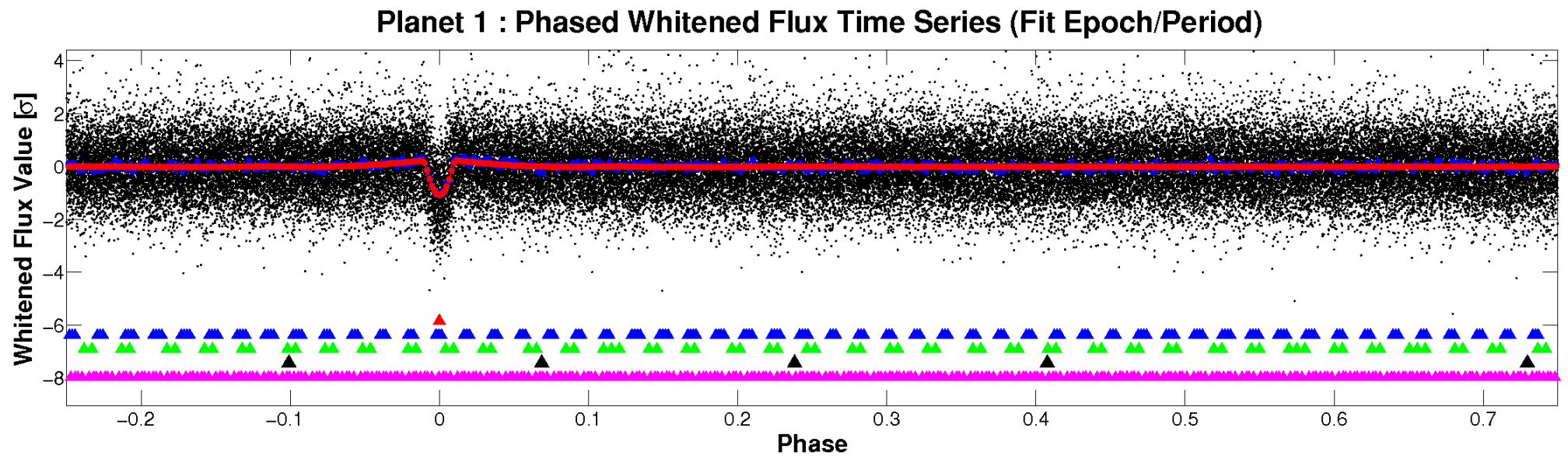
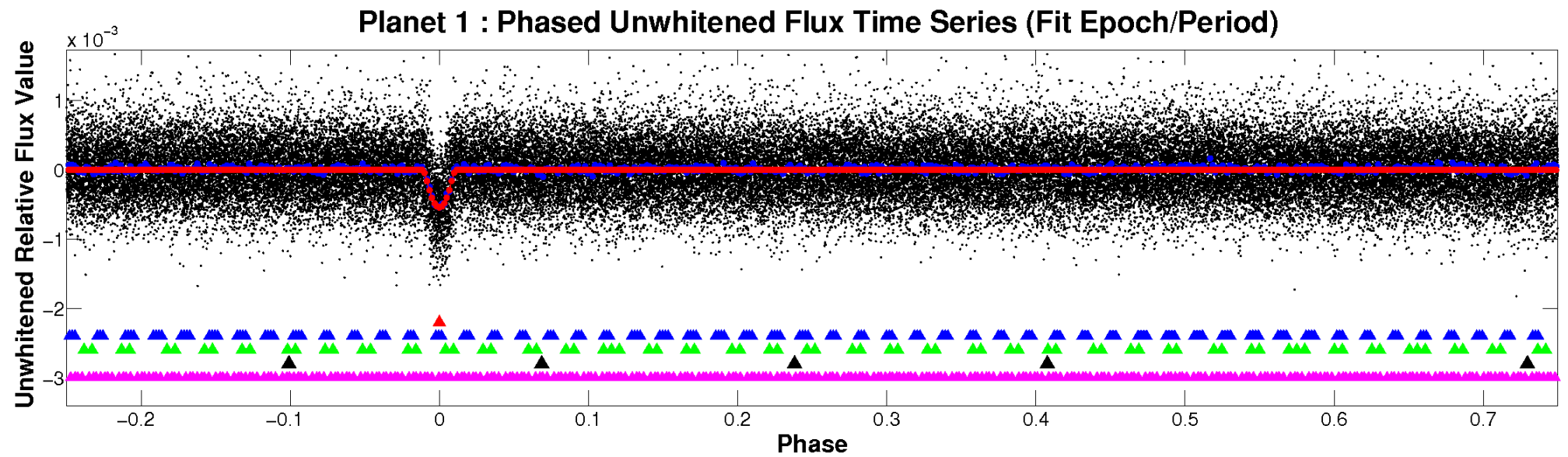


ALT Odd/Even

TCE 003231341-01

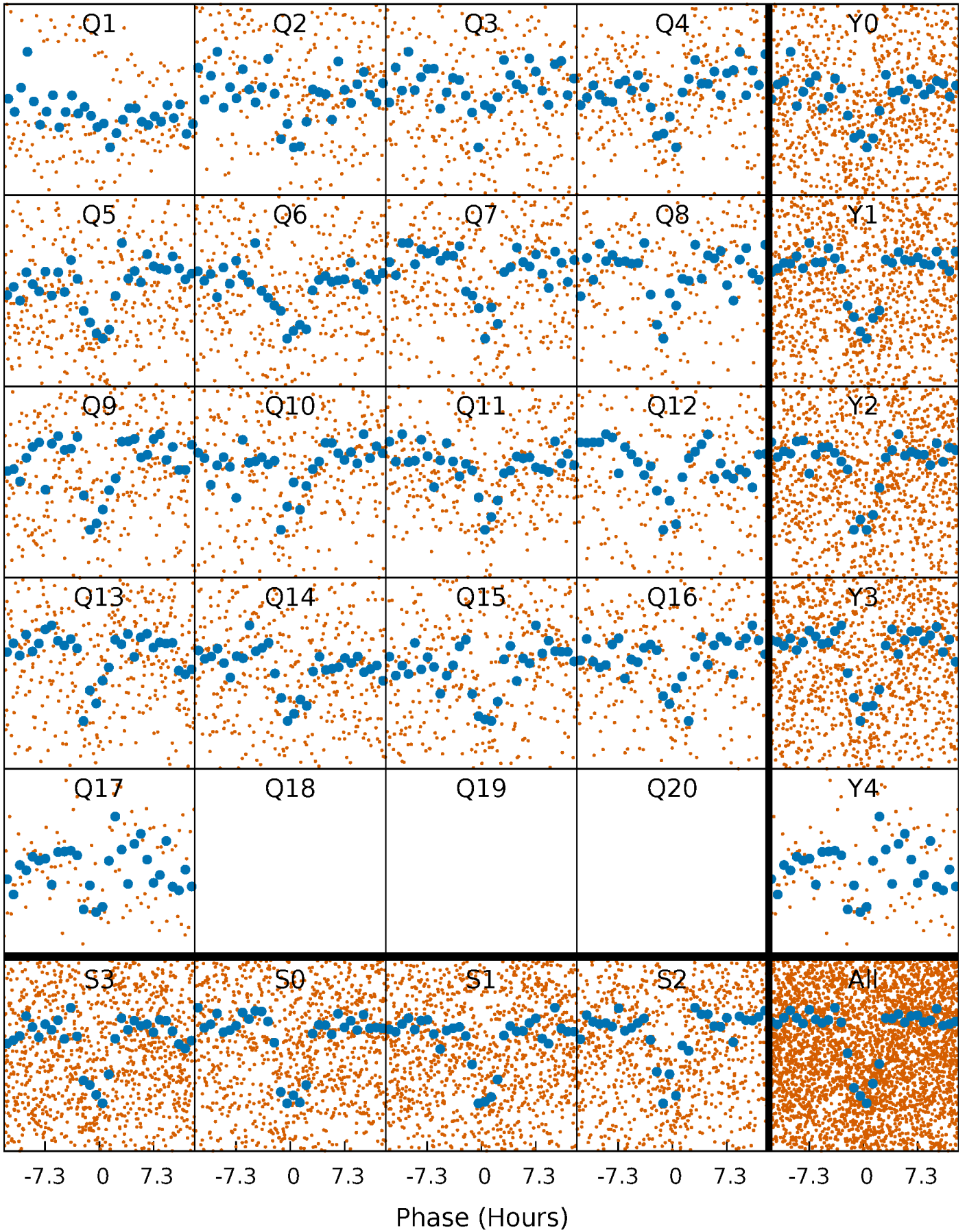


Non-Whitened Vs. Whitened Light Curve



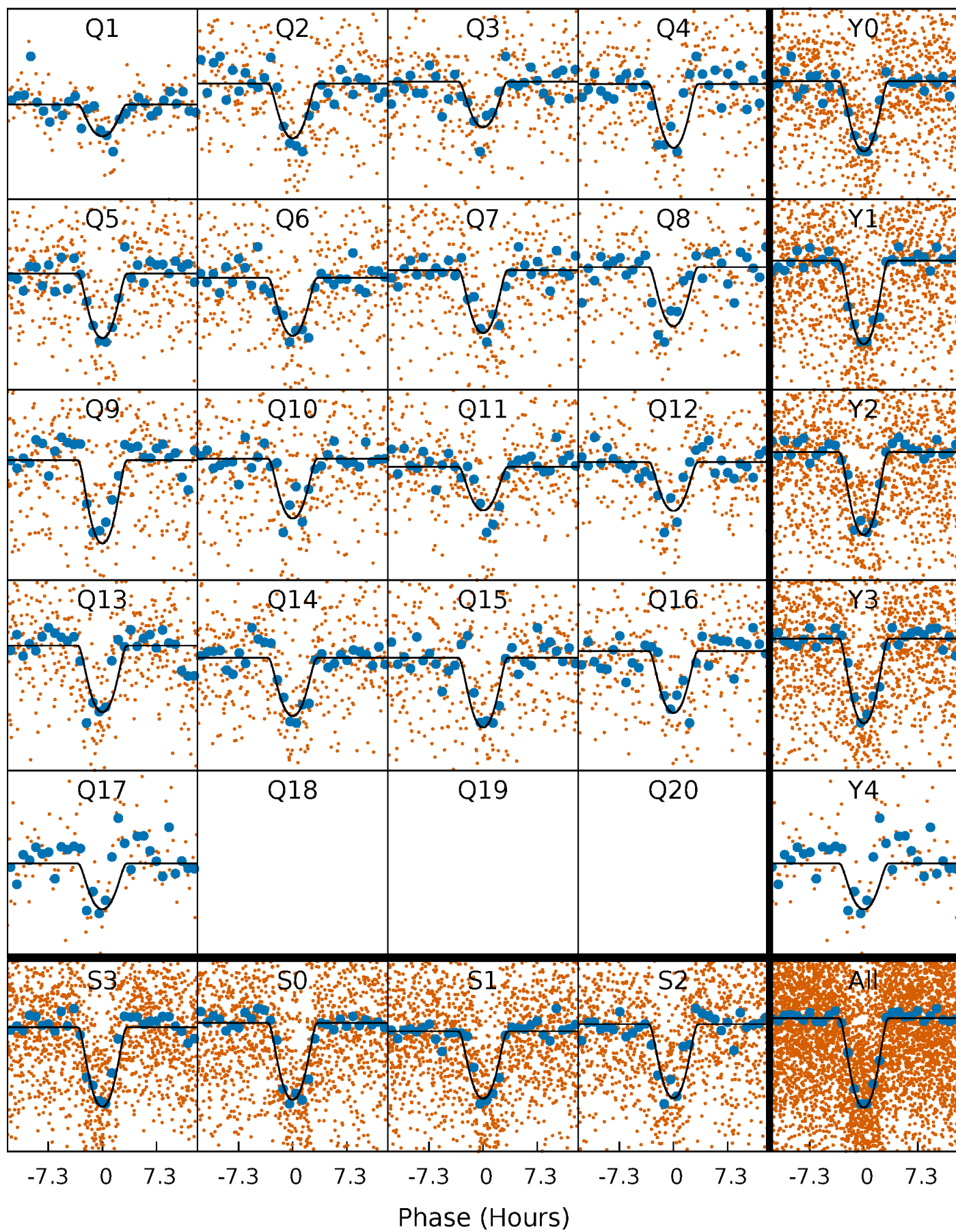
PDC Quarter-Phased Transit Curves

TCE 003231341-01 P= 12.333473 Days $T_0=137.586001$ (BKJD)



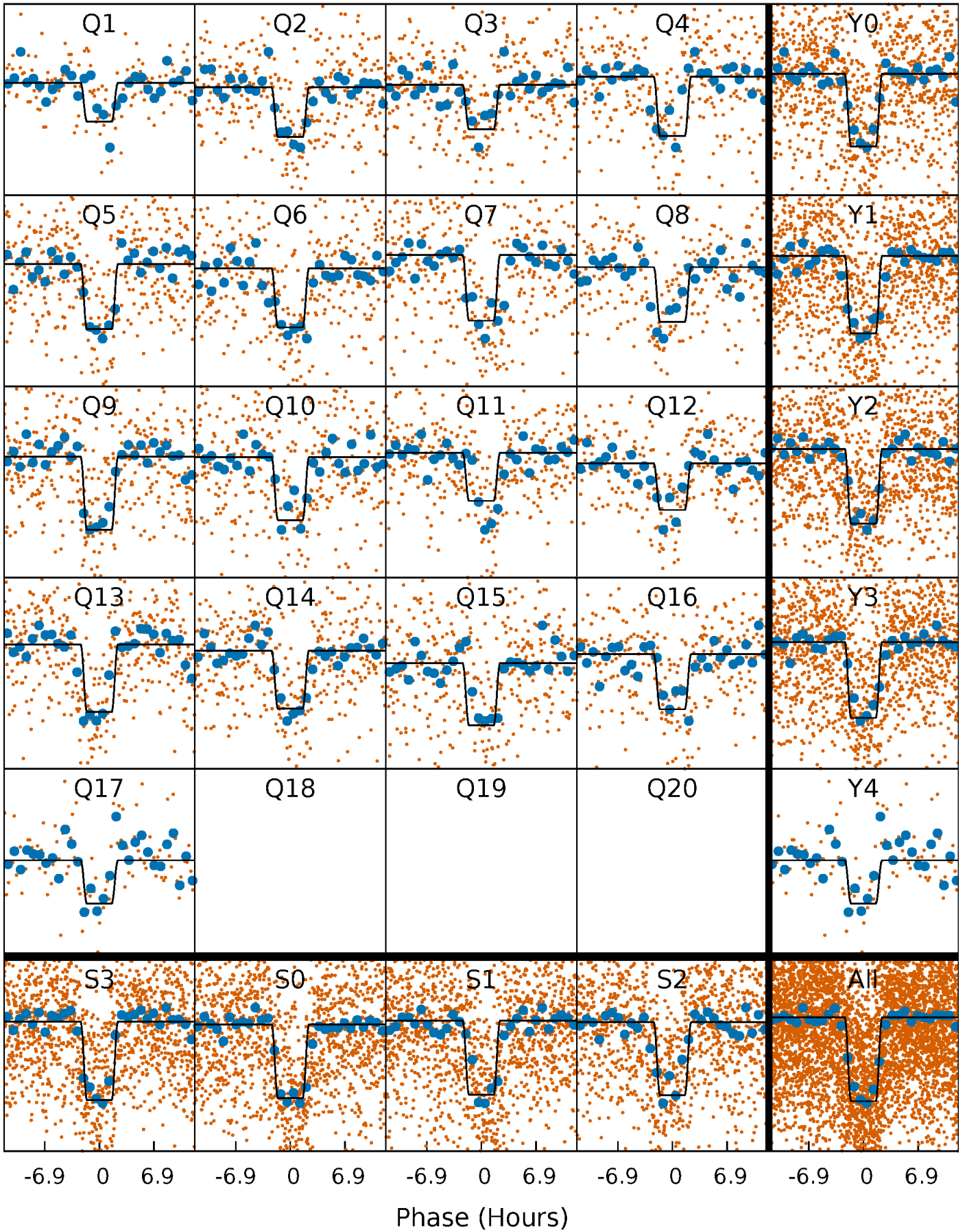
DV Quarter-Phased Transit Curves

TCE 003231341-01 P= 12.333473 Days $T_0=137.586001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

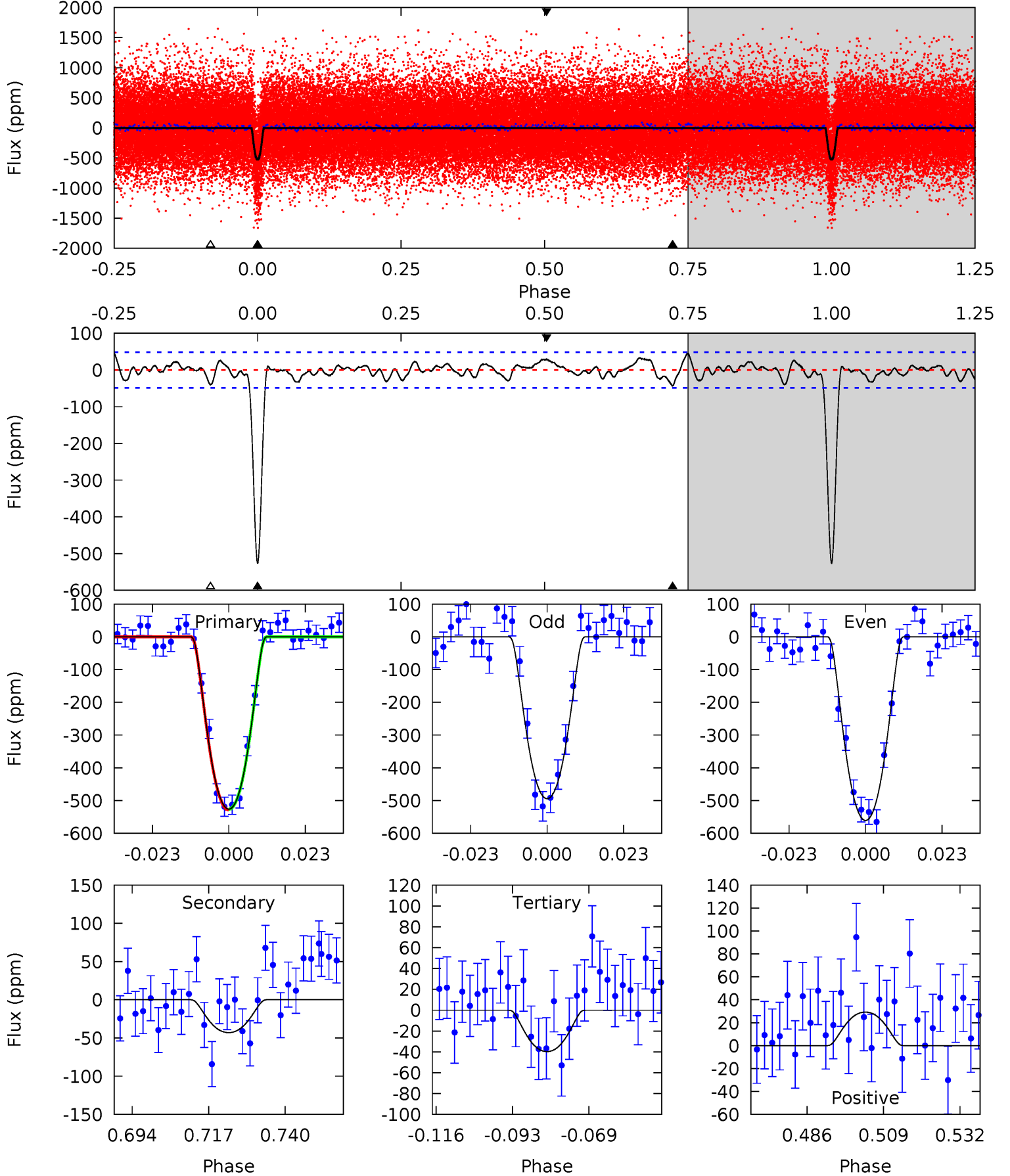
TCE 003231341-01 P= 12.333437 Days $T_0=137.586718$ (BKJD)



DV Model-Shift Uniqueness Test

003231341-01, P = 12.333473 Days, E = 125.252528 Days

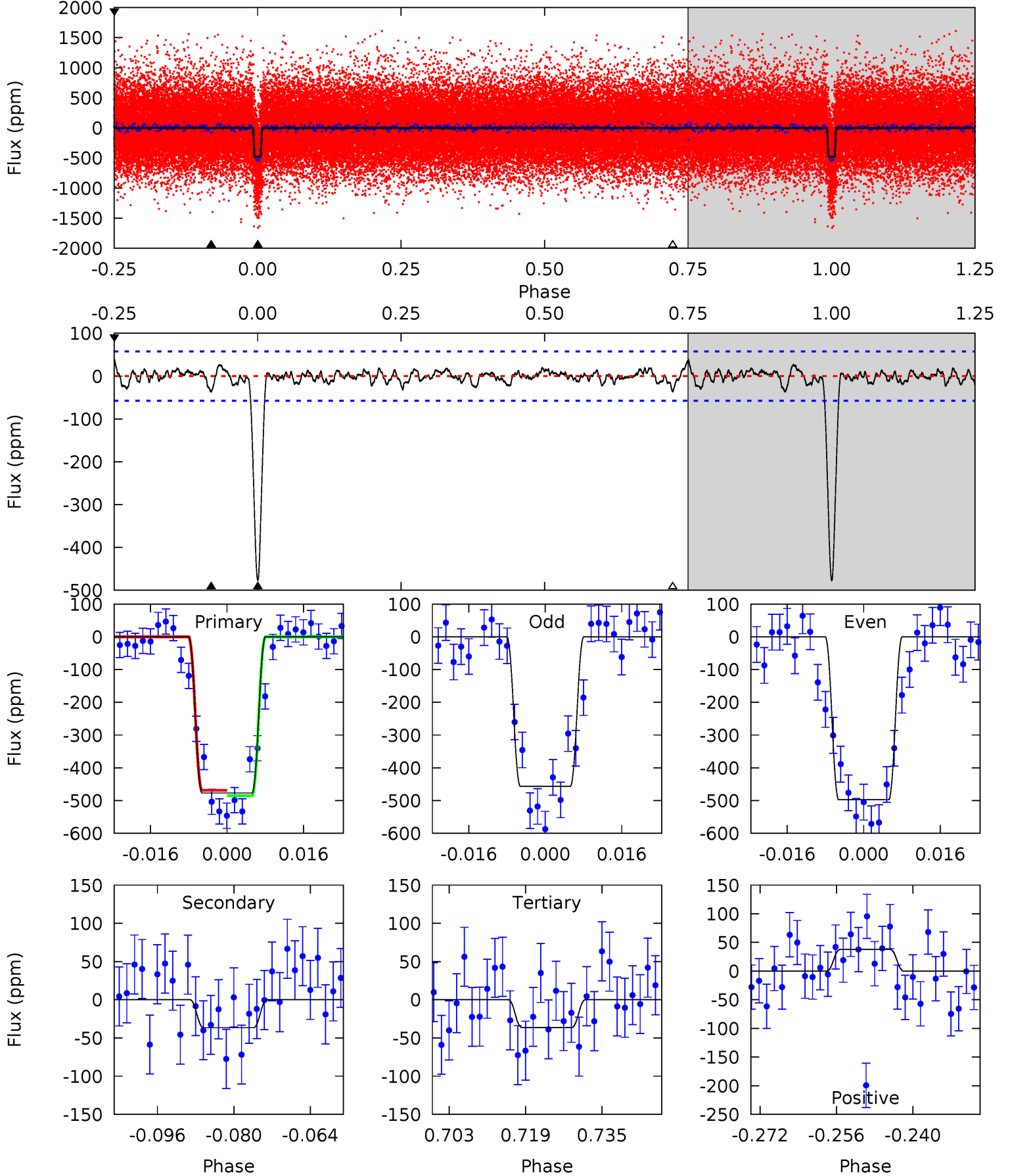
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.7	4.31	3.98	2.93	4.86	2.27	1.47	48.7	49.8	0.33	1.38	3.33	1.01	0.08	0.10



Alt Model-Shift Uniqueness Test

003231341-01, P = 12.333437 Days, E = 125.253281 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.0	3.15	3.11	3.25	4.94	2.41	0.94	37.9	37.7	0.03	-0.10	1.77	1.03	0.07	0.70



Stellar Parameters For KIC 003231341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+117}_{-105}	$4.197^{+0.195}_{-0.105}$	$-0.360^{+0.150}_{-0.150}$	$1.240^{+0.183}_{-0.251}$	$0.884^{+0.073}_{-0.054}$	$0.653^{+0.670}_{-0.207}$
	+2%/-2%	+5%/-3%	+42%/-42%	+15%/-20%	+8%/-6%	+103%/-32%
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 003231341-01 / KOI 1102.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-43 ± 10	$3.97^{+0.96}_{-0.85}$	1271^{+63}_{-80}	3289^{+263}_{-224}	15^{+11}_{-6}
Alt.	-37 ± 12	$2.98^{+0.93}_{-0.84}$	1275^{+59}_{-76}	3508^{+395}_{-335}	22^{+21}_{-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 $A_{obs} \gg 1.0$

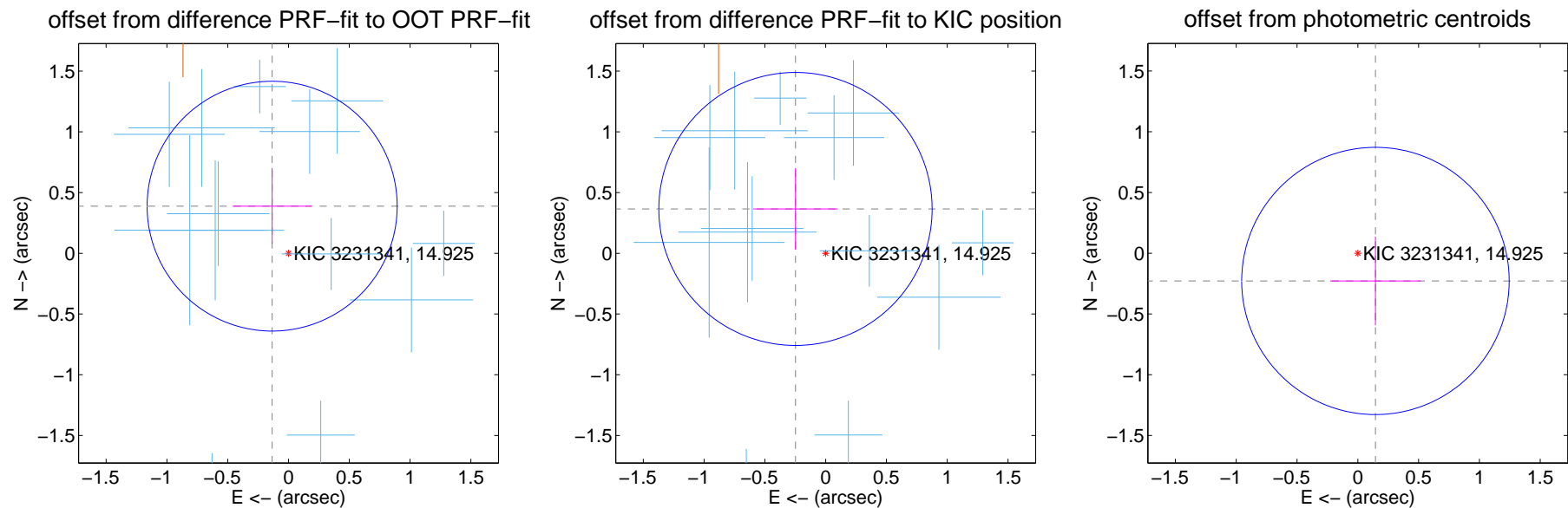
DV Centroid Data

Supplemental centroid analysis for 003231341-01. Kepler magnitude: 14.93. Transit SNR 27.70

There are 13 quarters with good PRF difference image offsets

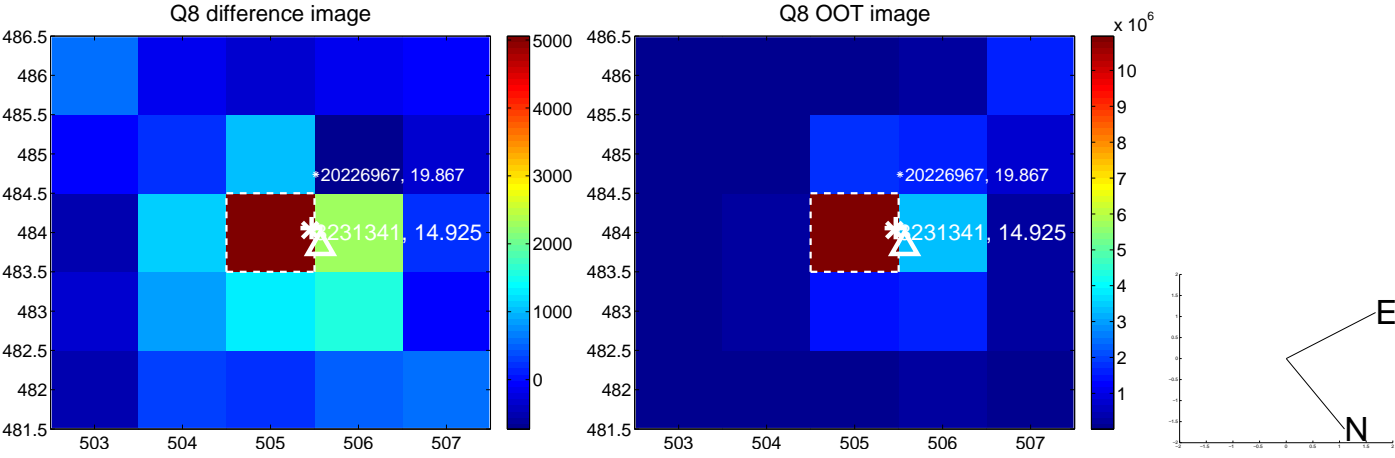
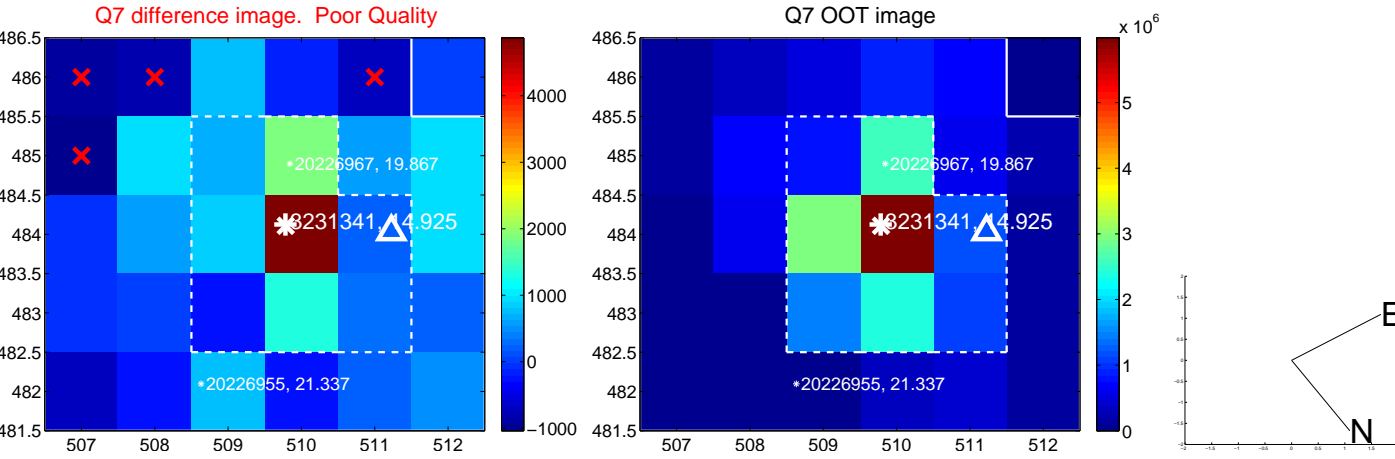
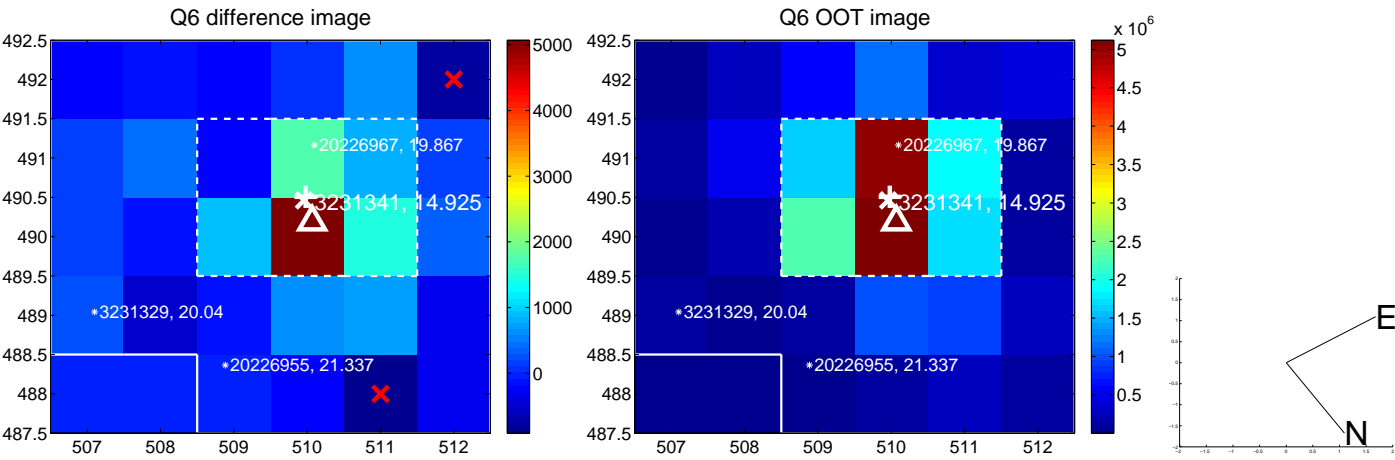
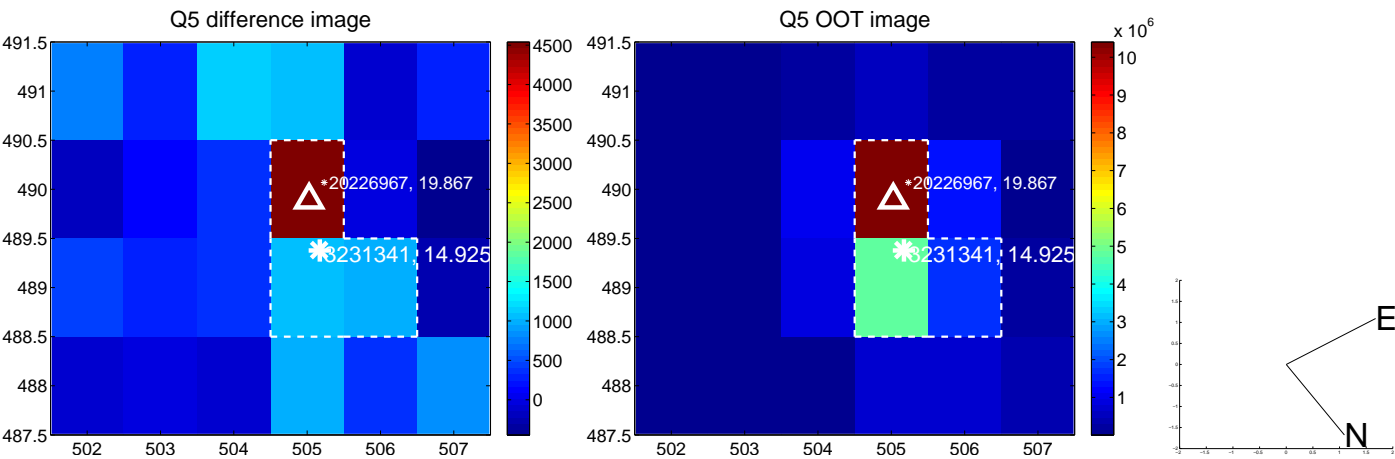
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.411 ± 0.343	1.20	0.134 ± 0.324	0.388 ± 0.313
PRF-fit source offset from KIC position	0.441 ± 0.375	1.18	0.248 ± 0.347	0.365 ± 0.336
photometric centroid source offset	0.27 ± 0.37	0.74	-0.14 ± 0.37	-0.23 ± 0.36

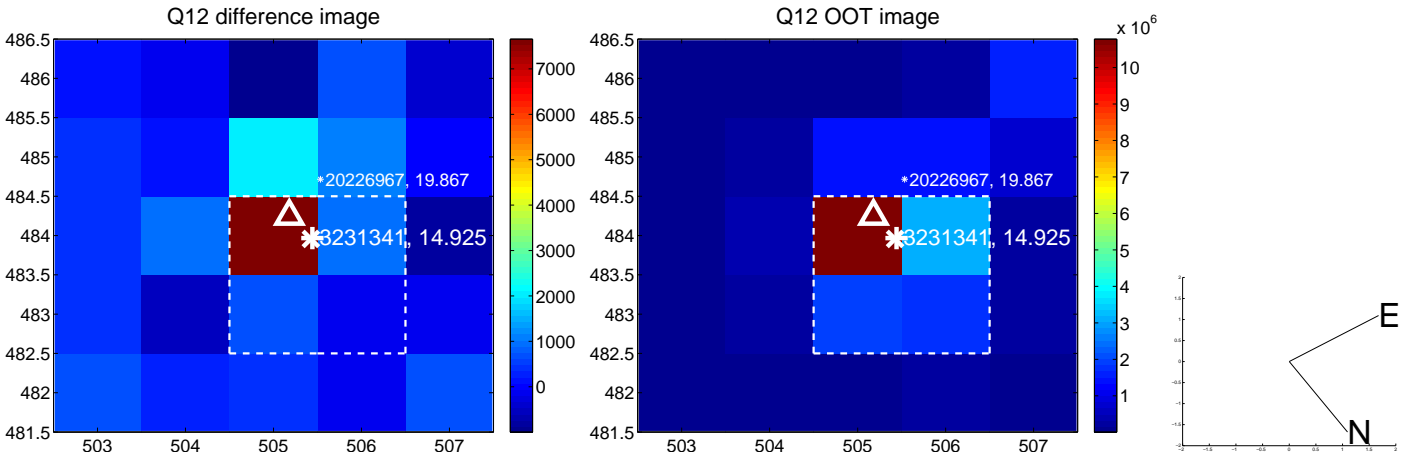
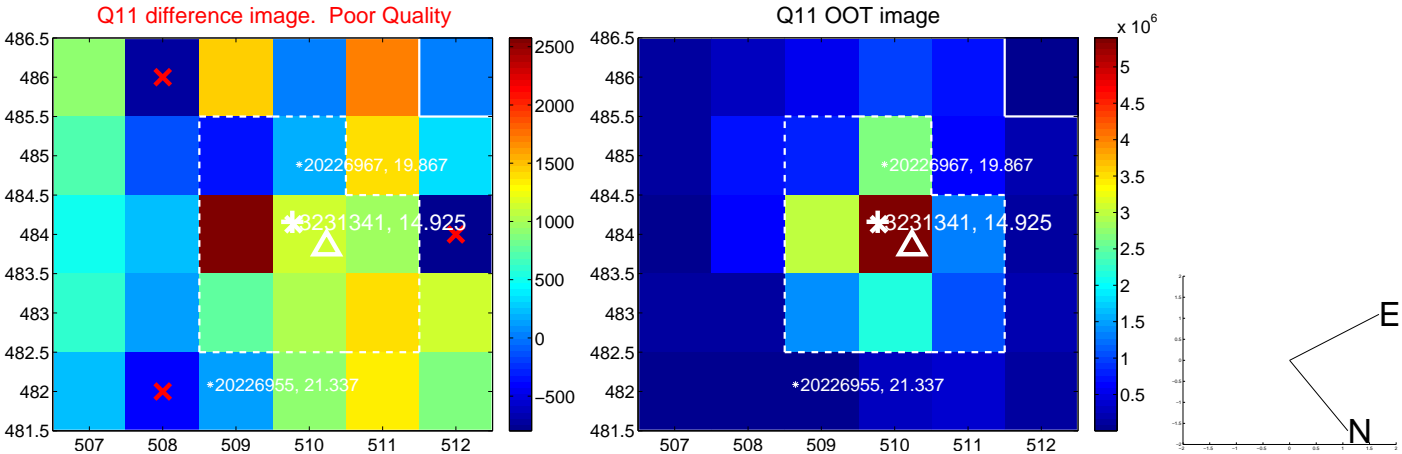
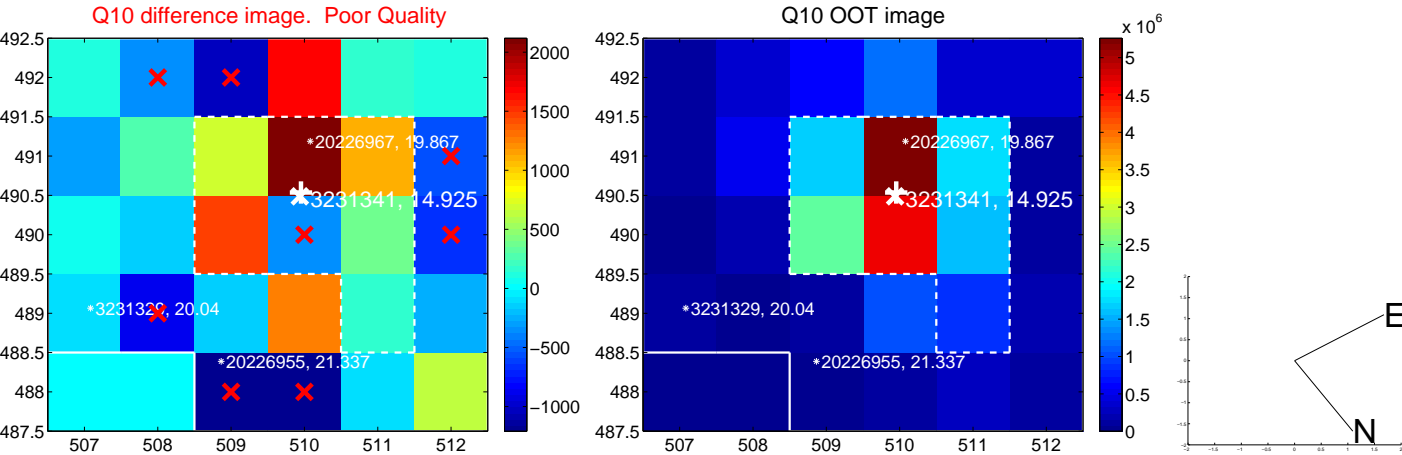
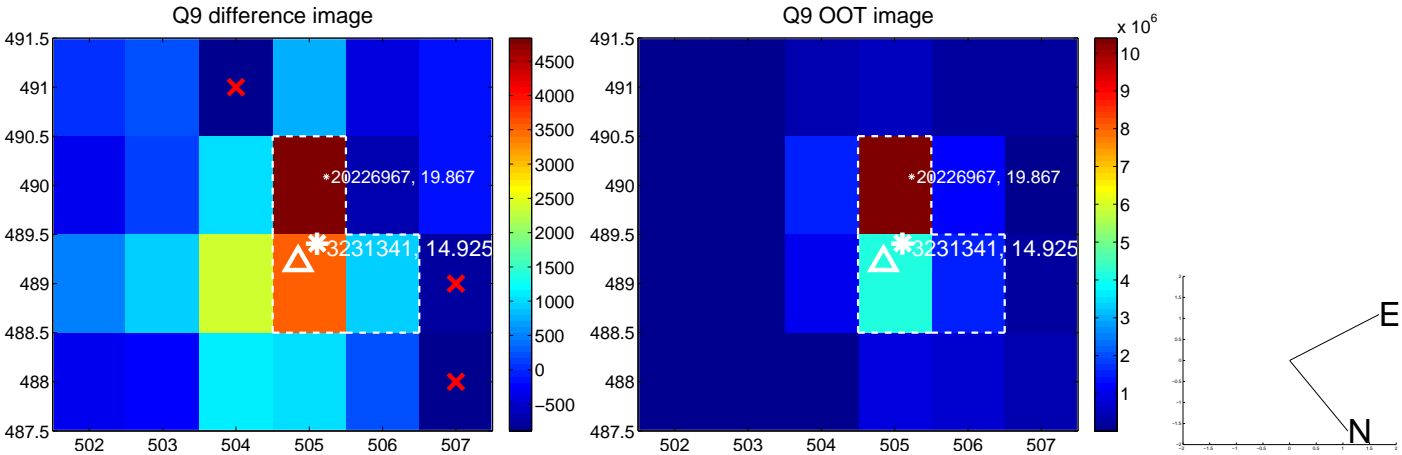


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

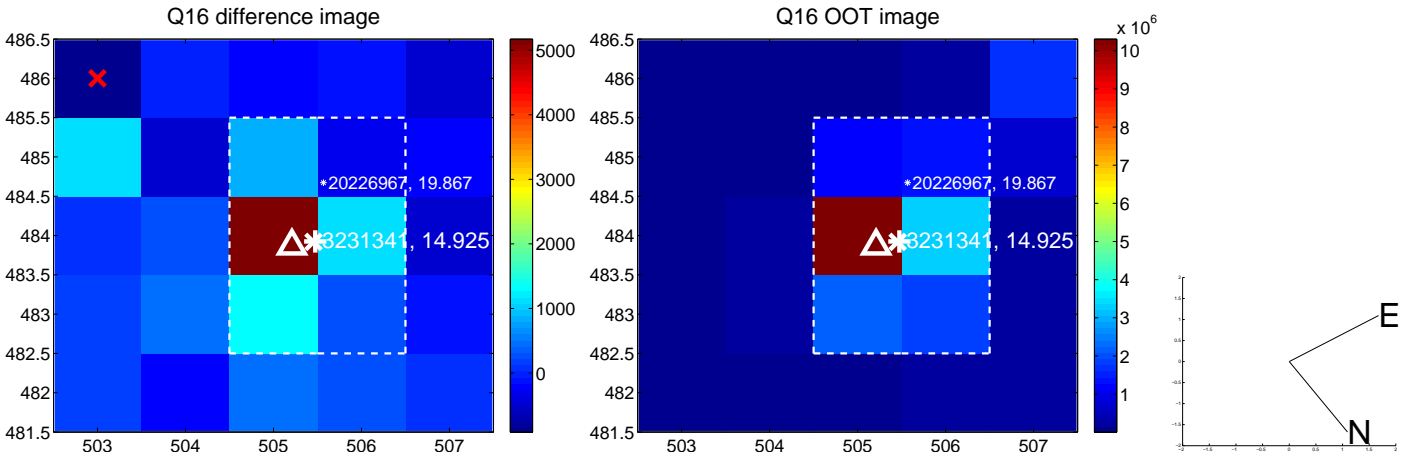
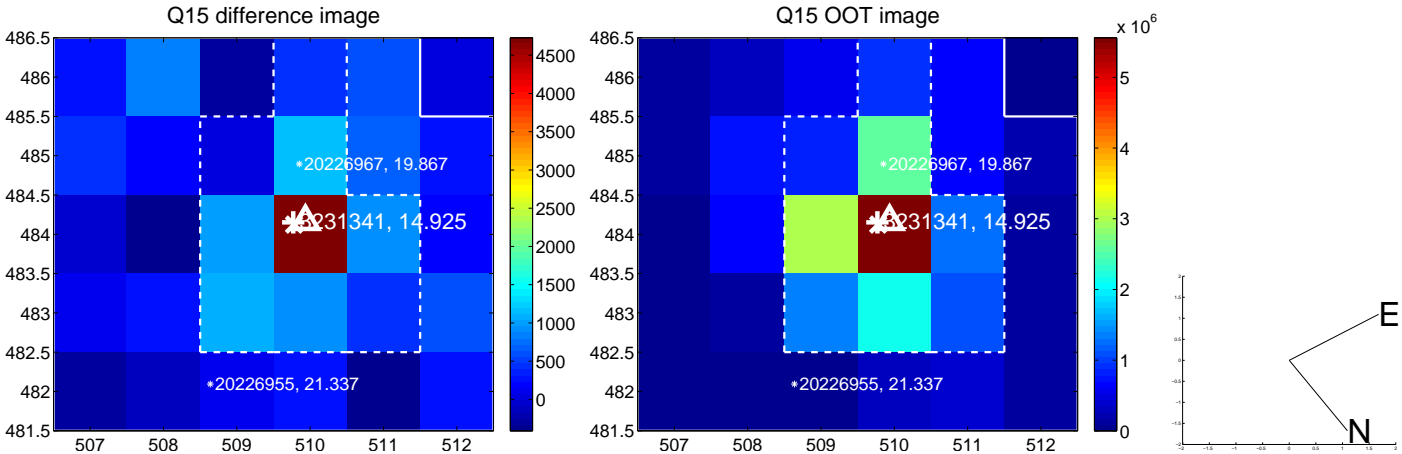
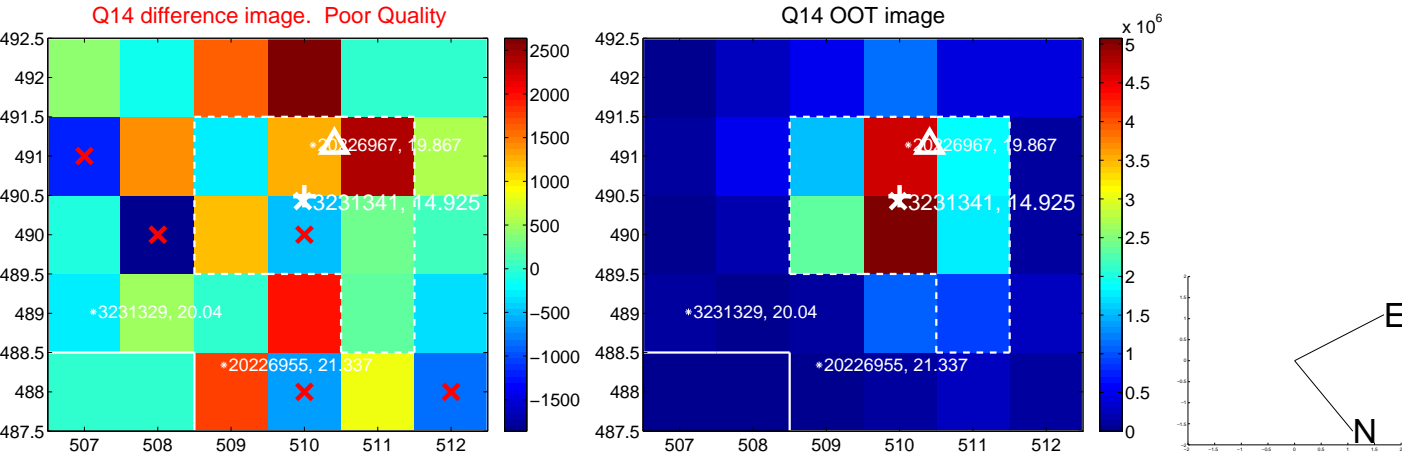
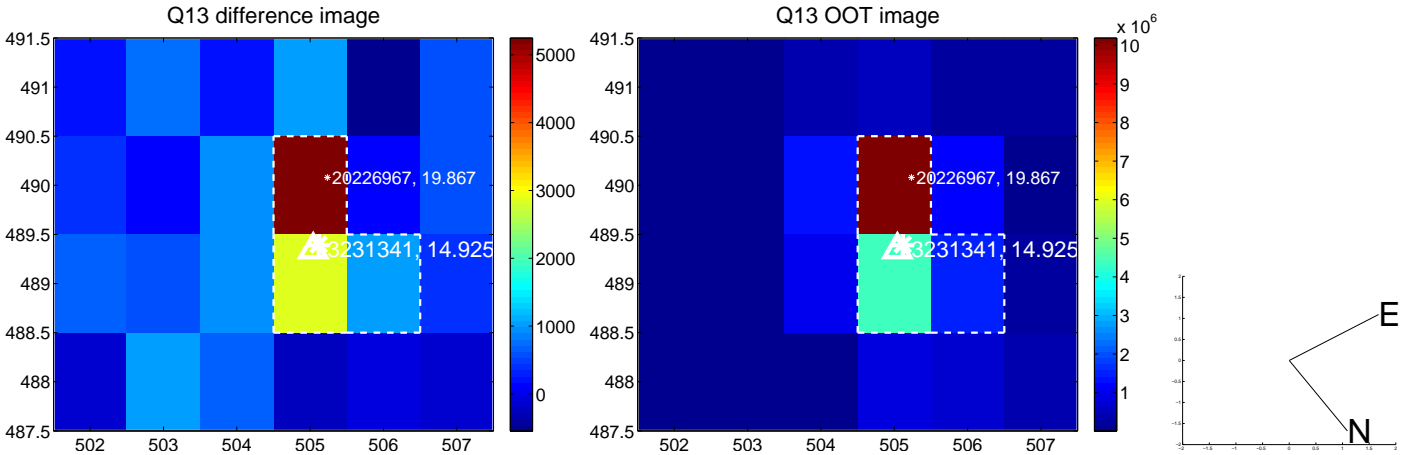
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



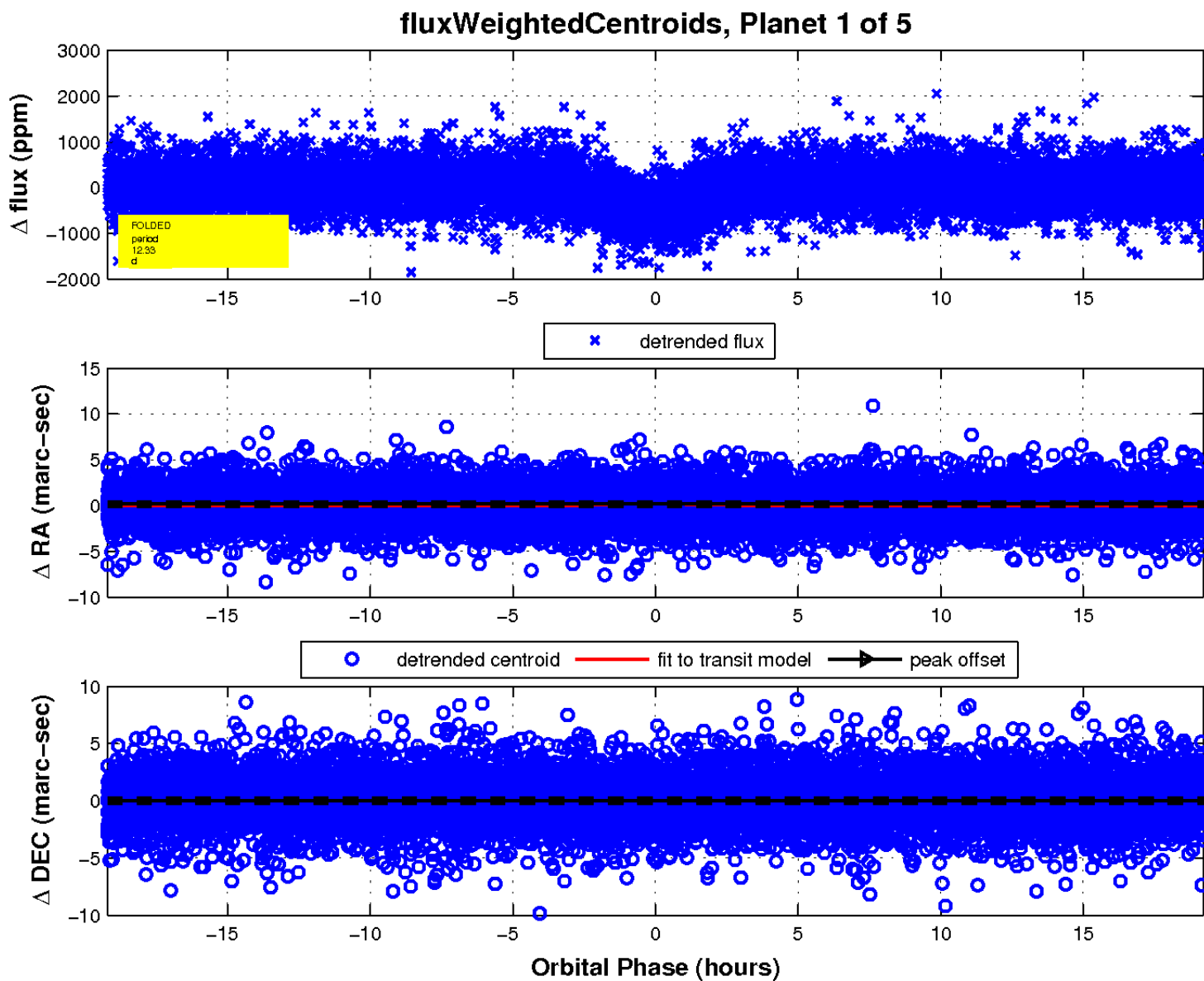
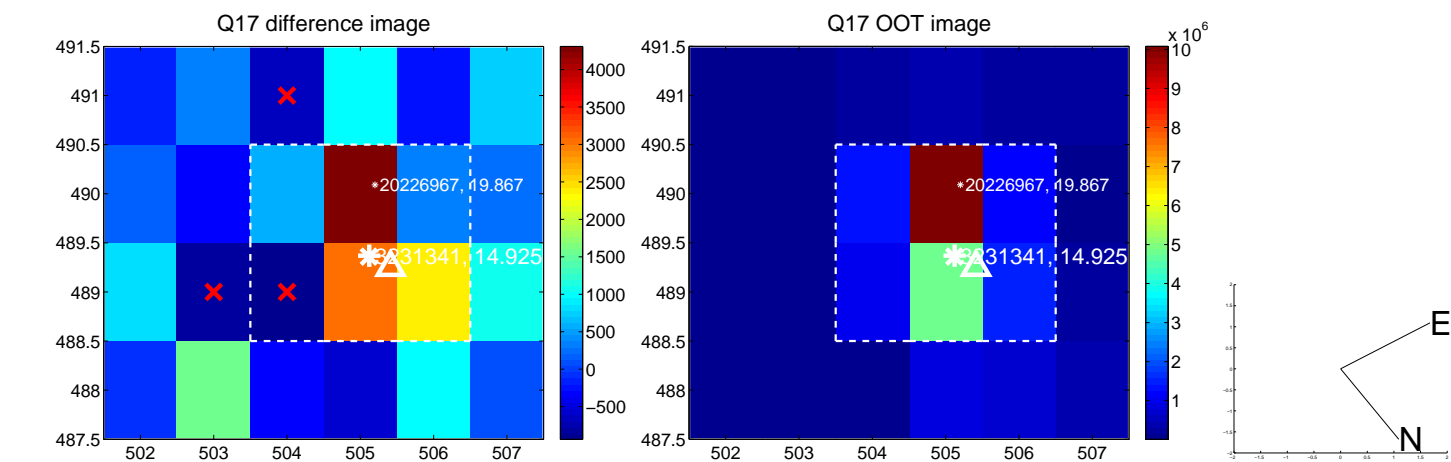
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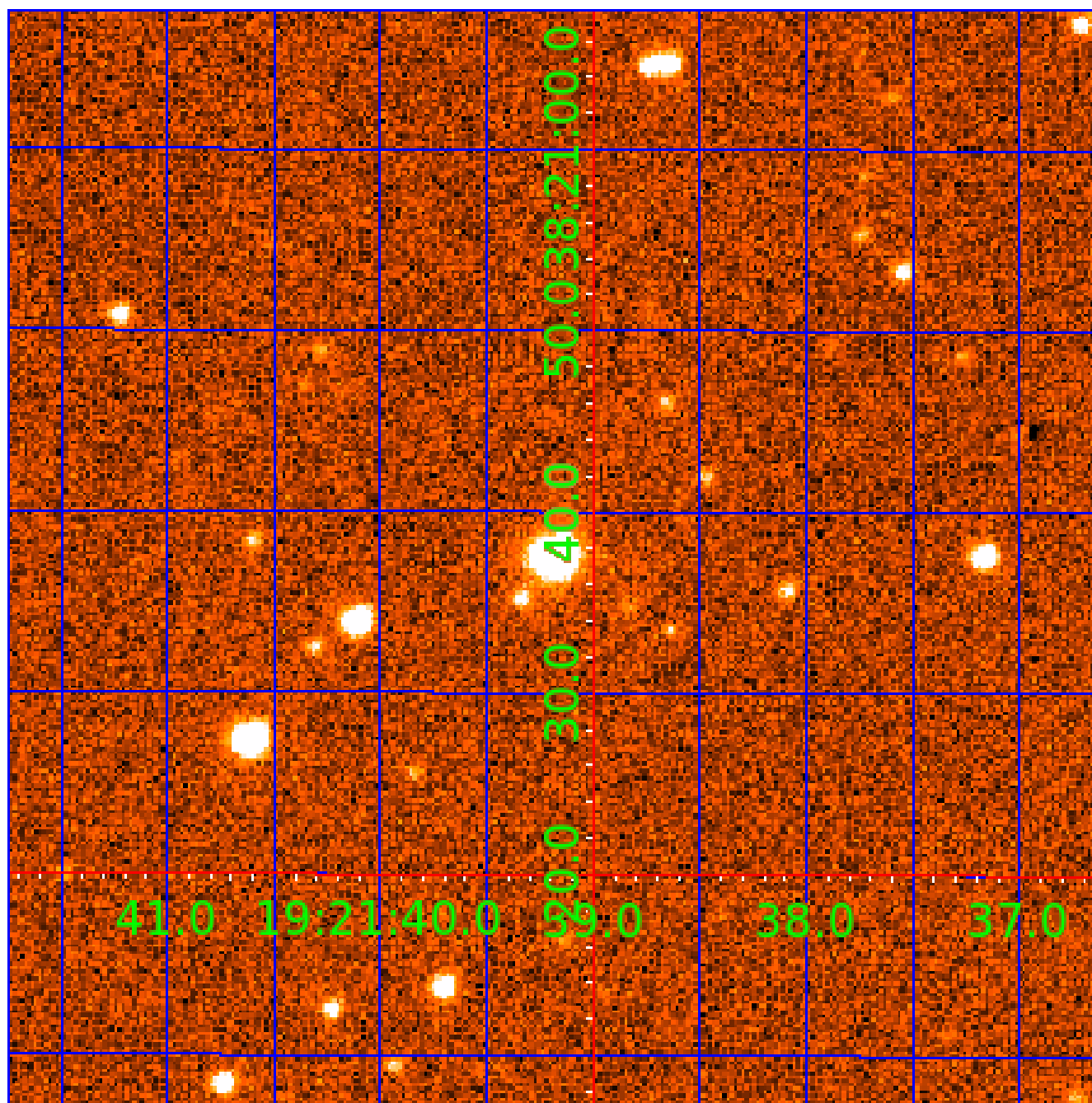


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003231341

Q1-17 DR25 TCE Parameters

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003231341-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003231341-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

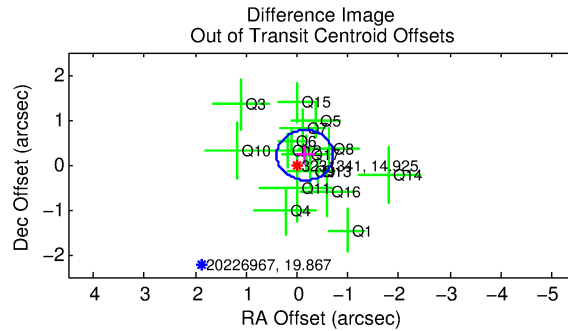
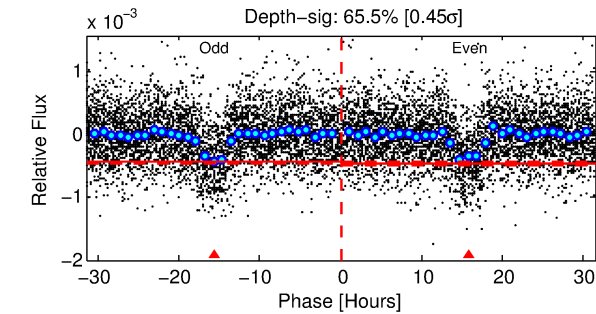
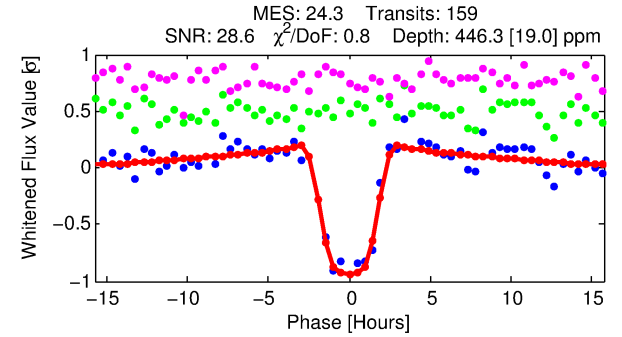
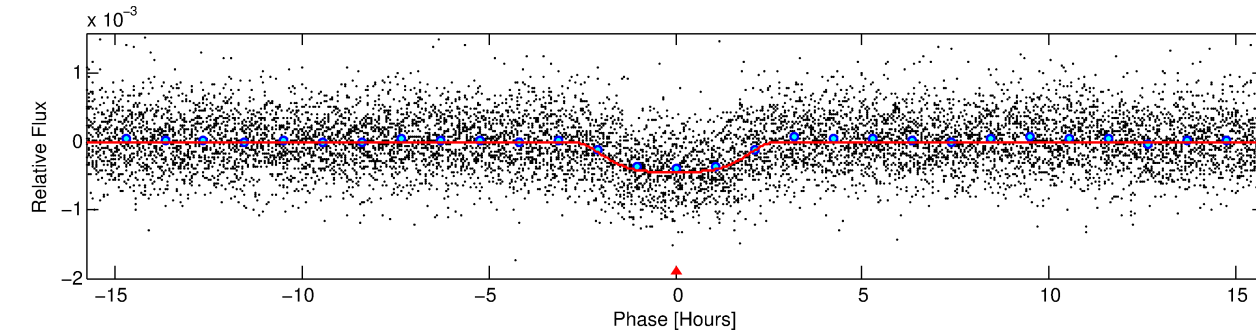
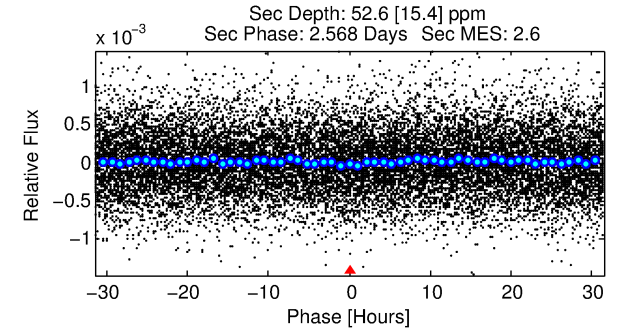
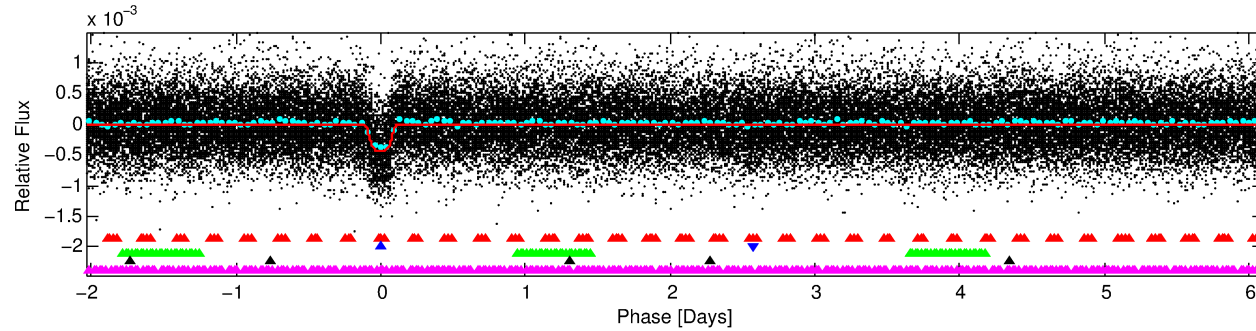
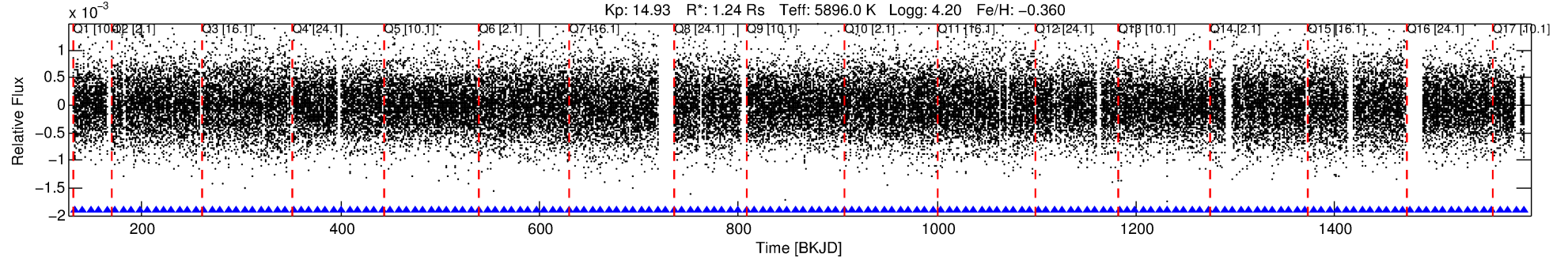
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003231341-02

No Significant Match Found

DV One-Page Summary

KIC: 3231341 Candidate: 2 of 5 Period: 8.145 d
KOI: K01102.02 Name: Kepler-24b Corr: 0.953



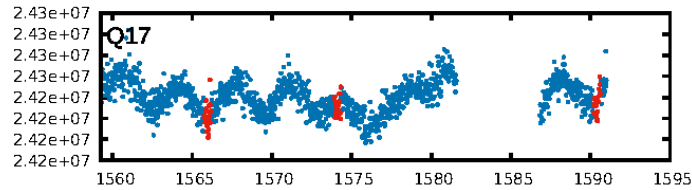
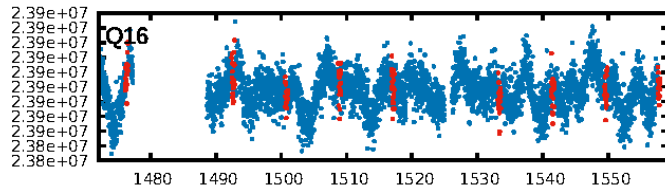
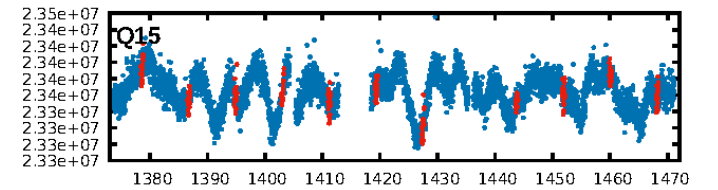
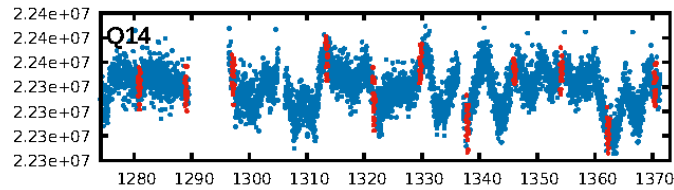
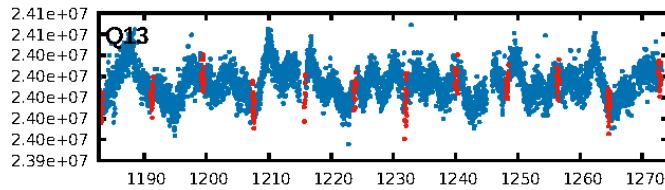
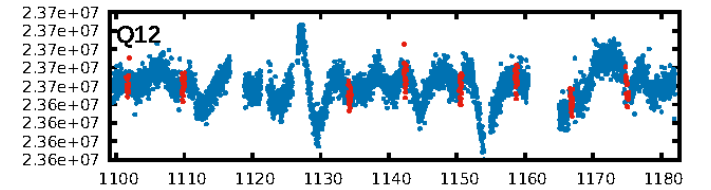
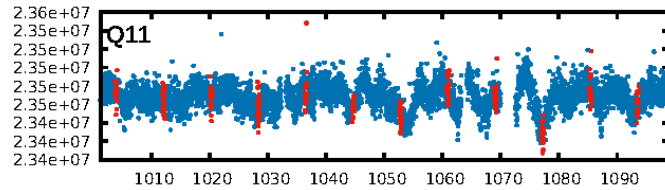
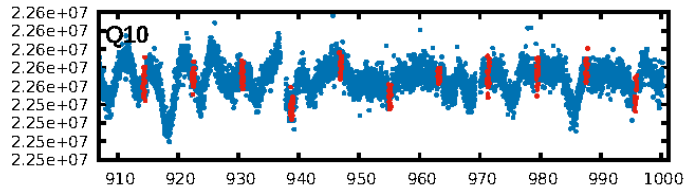
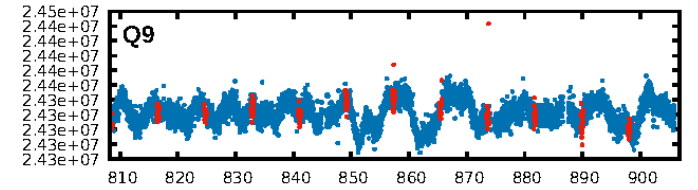
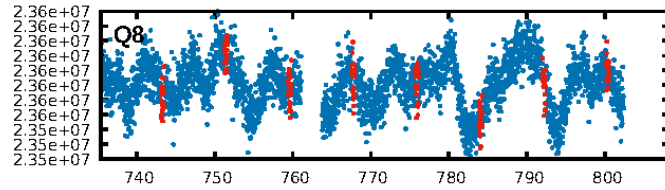
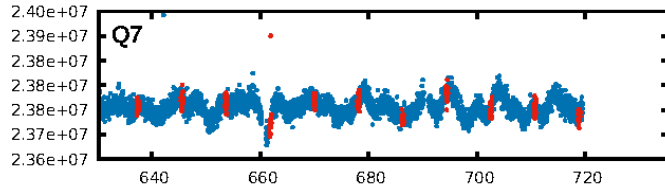
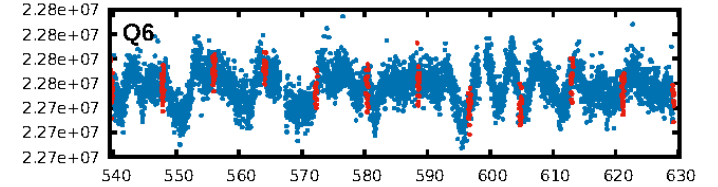
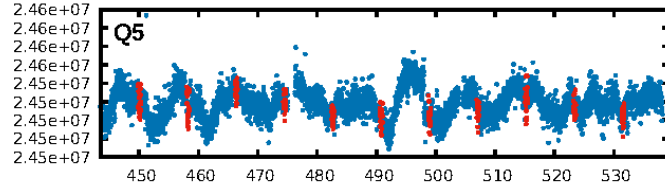
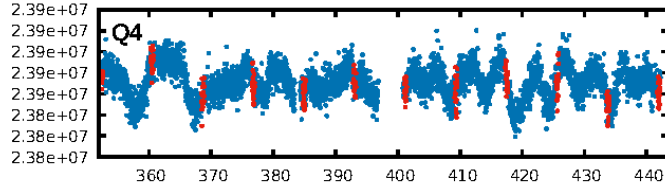
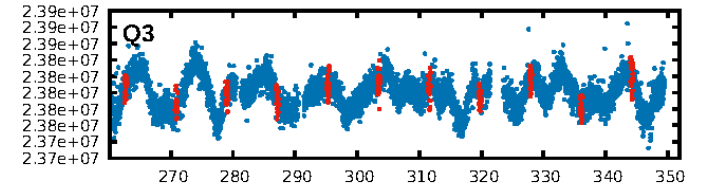
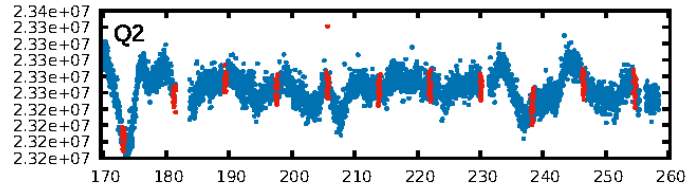
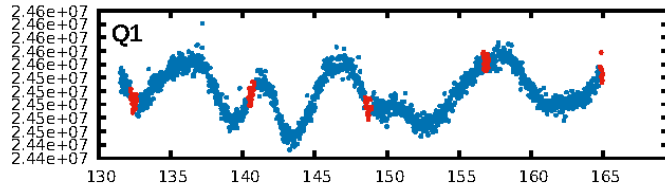
DV Fit Results:

Period = 8.14518 [0.00004] d
Epoch = 132.4206 [0.0037] BKJD
Rp/R* = 0.0252 [0.0008]
a/R* = 4.16 [0.31]
b = 0.97 [0.01]
Seff = 288.10 [97.32]
Teff = 1051 [89] K
Rp = 3.41 [0.70] Re
a = 0.0760 [0.0153] AU
Ag = 14.36 [6.38] [2.09σ]
Teffp = 3162 [245] K [8.11σ]

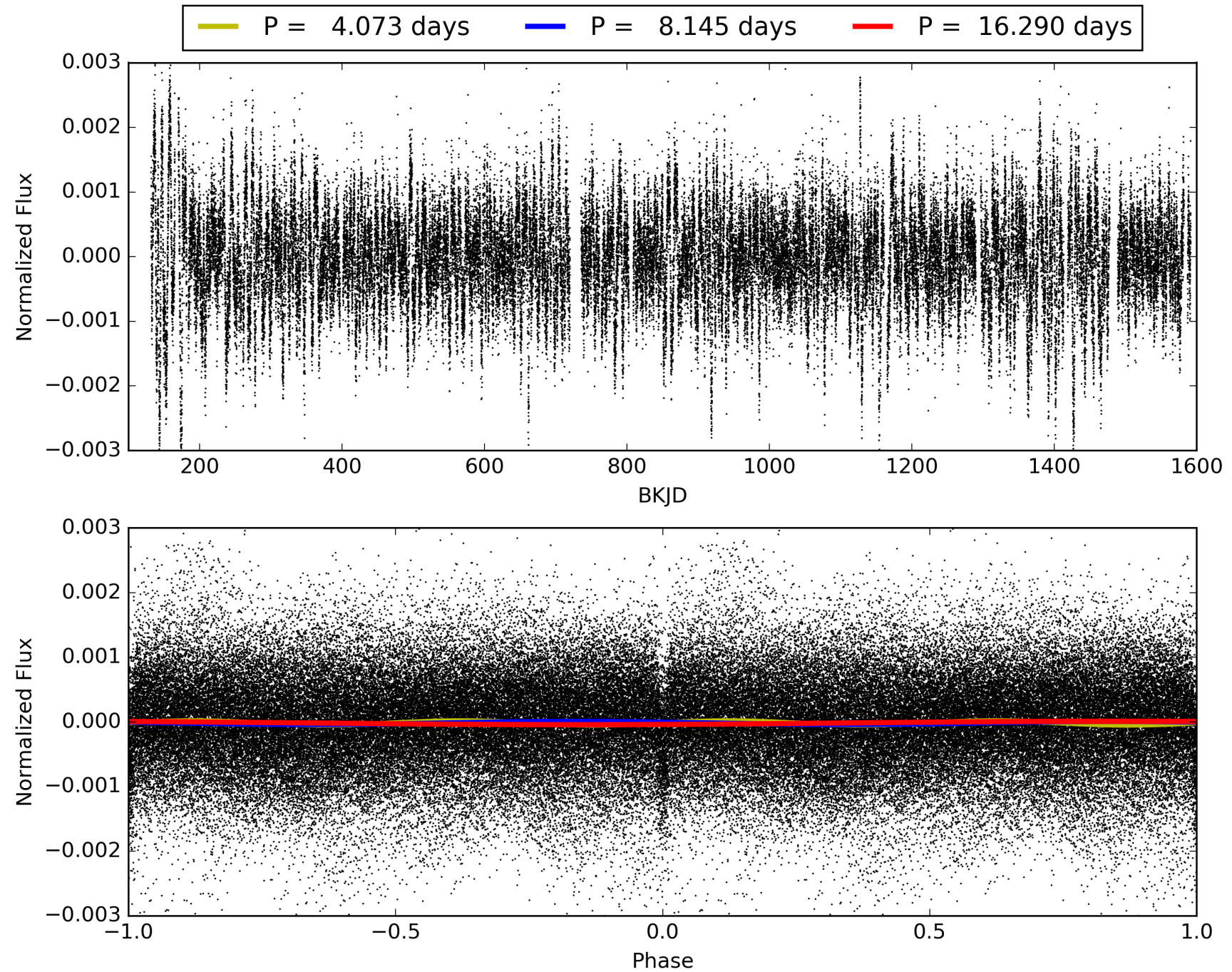
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.34σ]
LongPeriod-sig: 100.0% [12.13σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.00e-131
RollingBand-fgt: 1.00 [151/151]
GhostDiagnostic-chr: 1.932
Centroid-sig: 0.1%
Centroid-so: 0.550 arcsec [1.51σ]
OotOffset-rm: 0.264 arcsec [1.42σ]
KicOffset-rm: 0.197 arcsec [1.02σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 003231341-02, PDC Light Curves

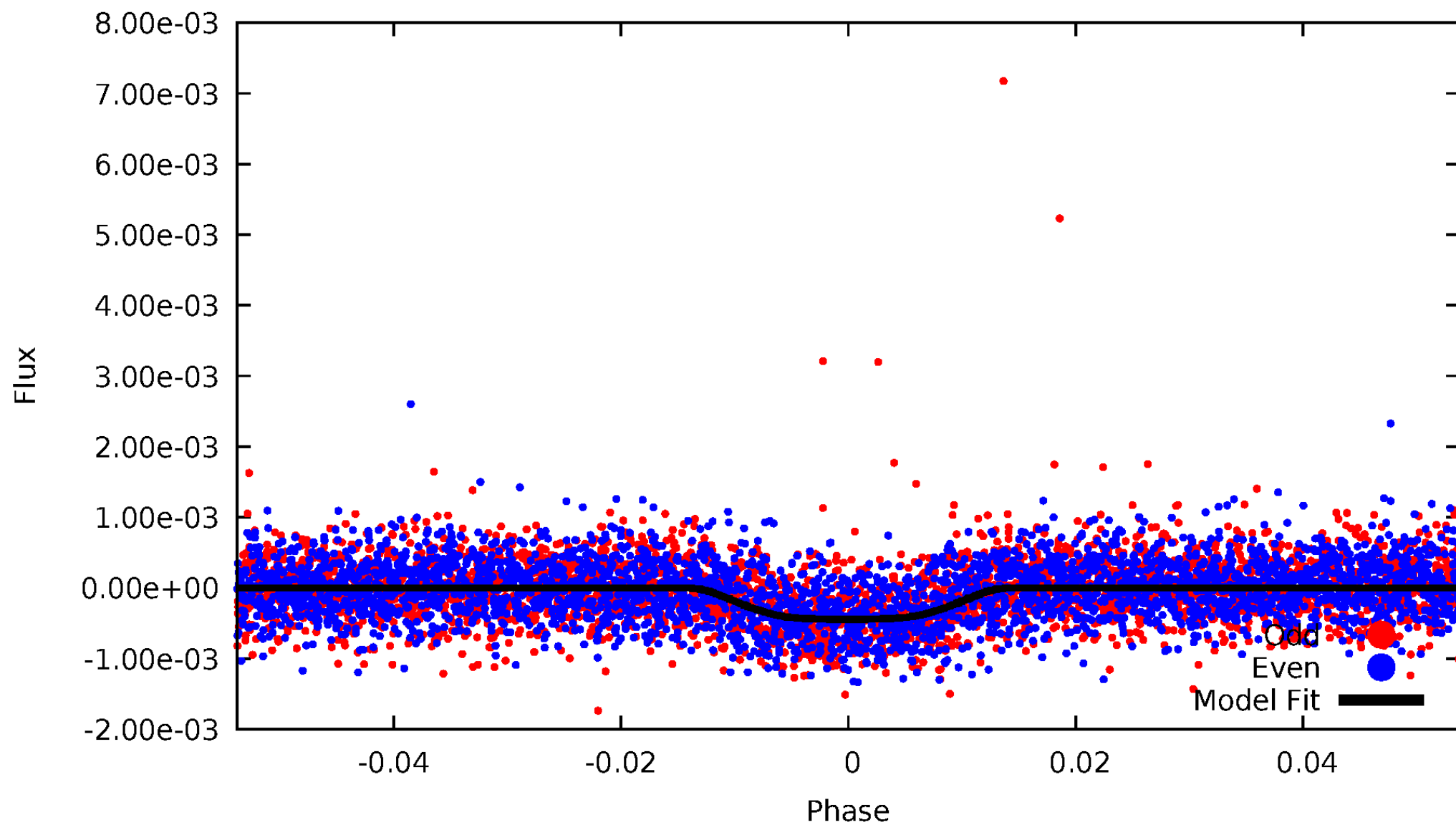


TCE 003231341-02



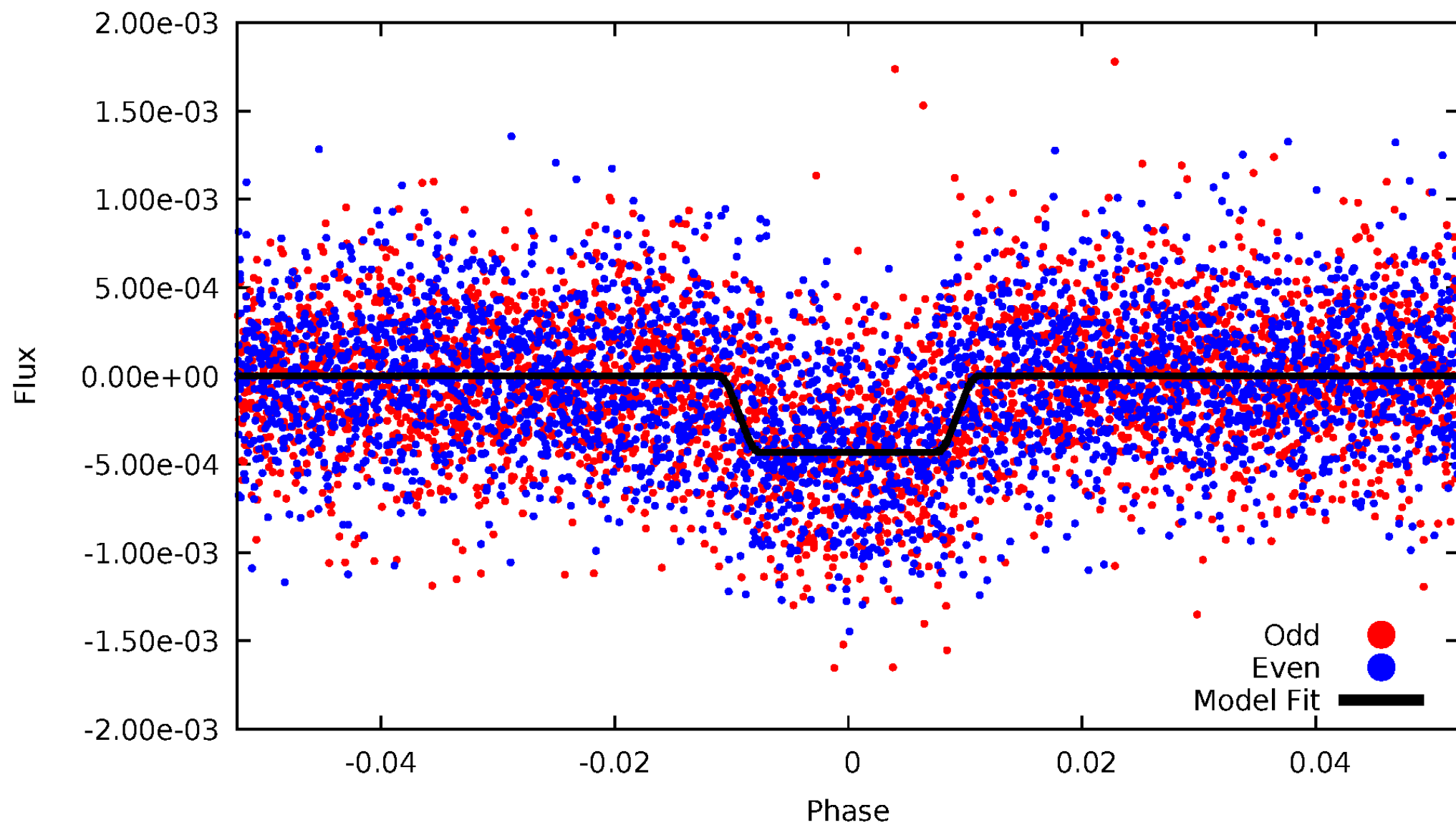
DV Odd/Even

TCE 003231341-02



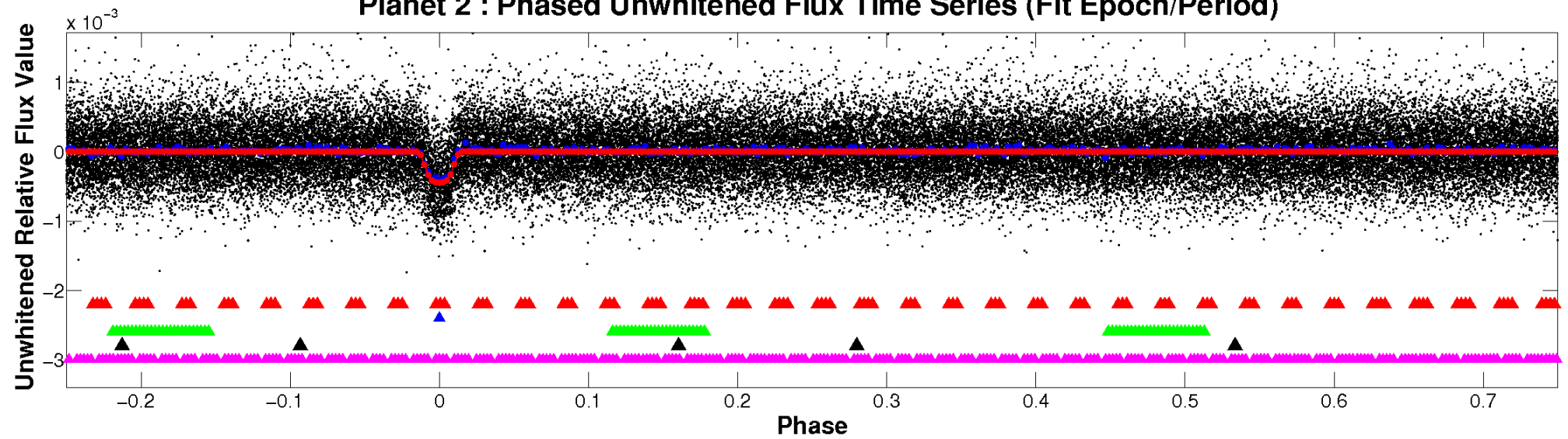
ALT Odd/Even

TCE 003231341-02

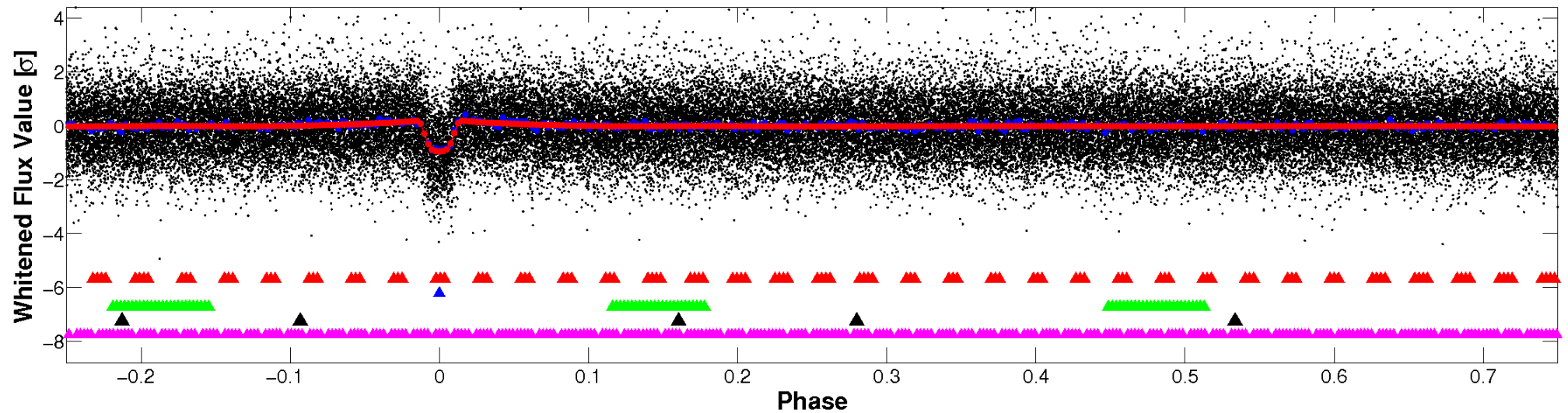


Non-Whitened Vs. Whitened Light Curve

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

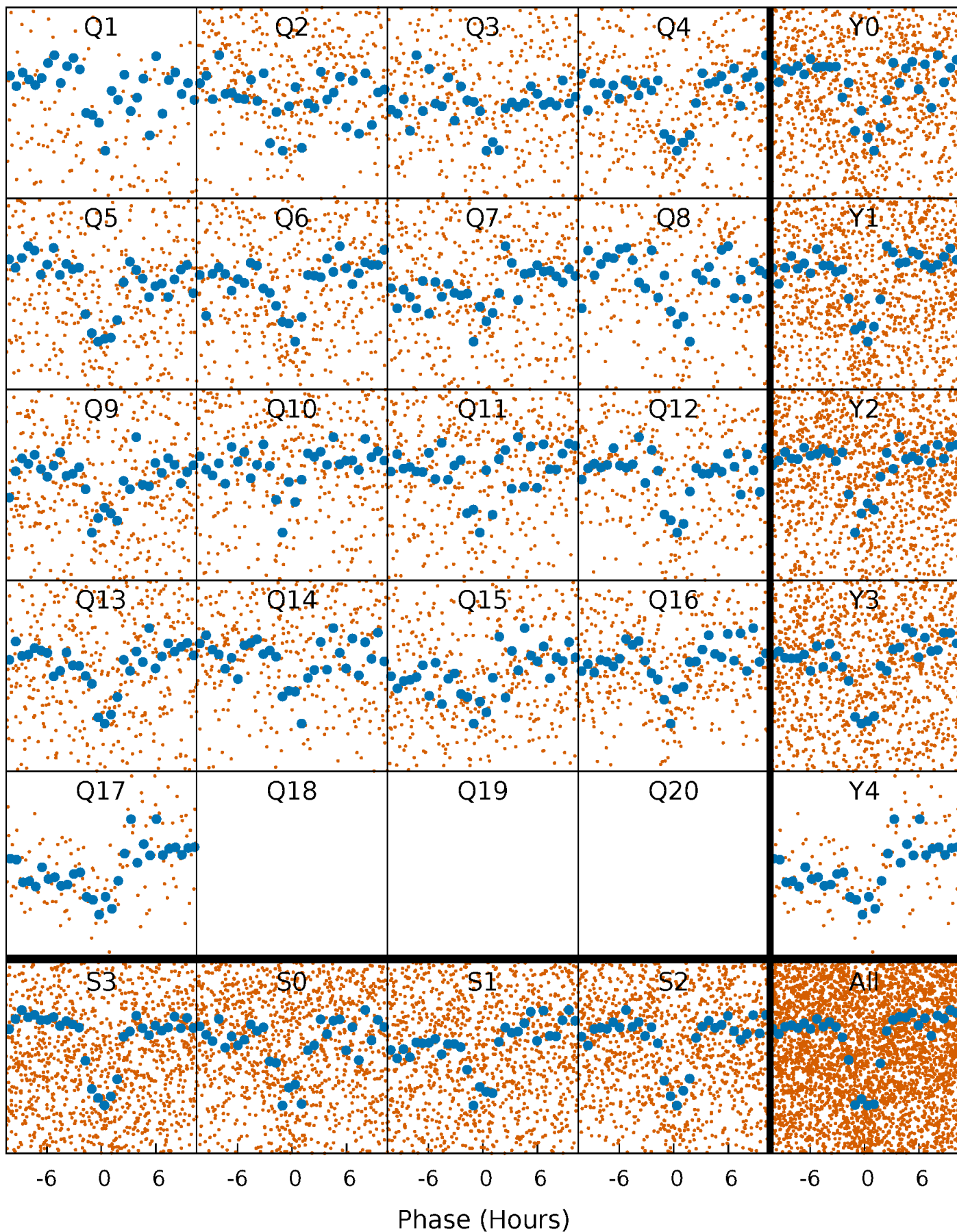


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



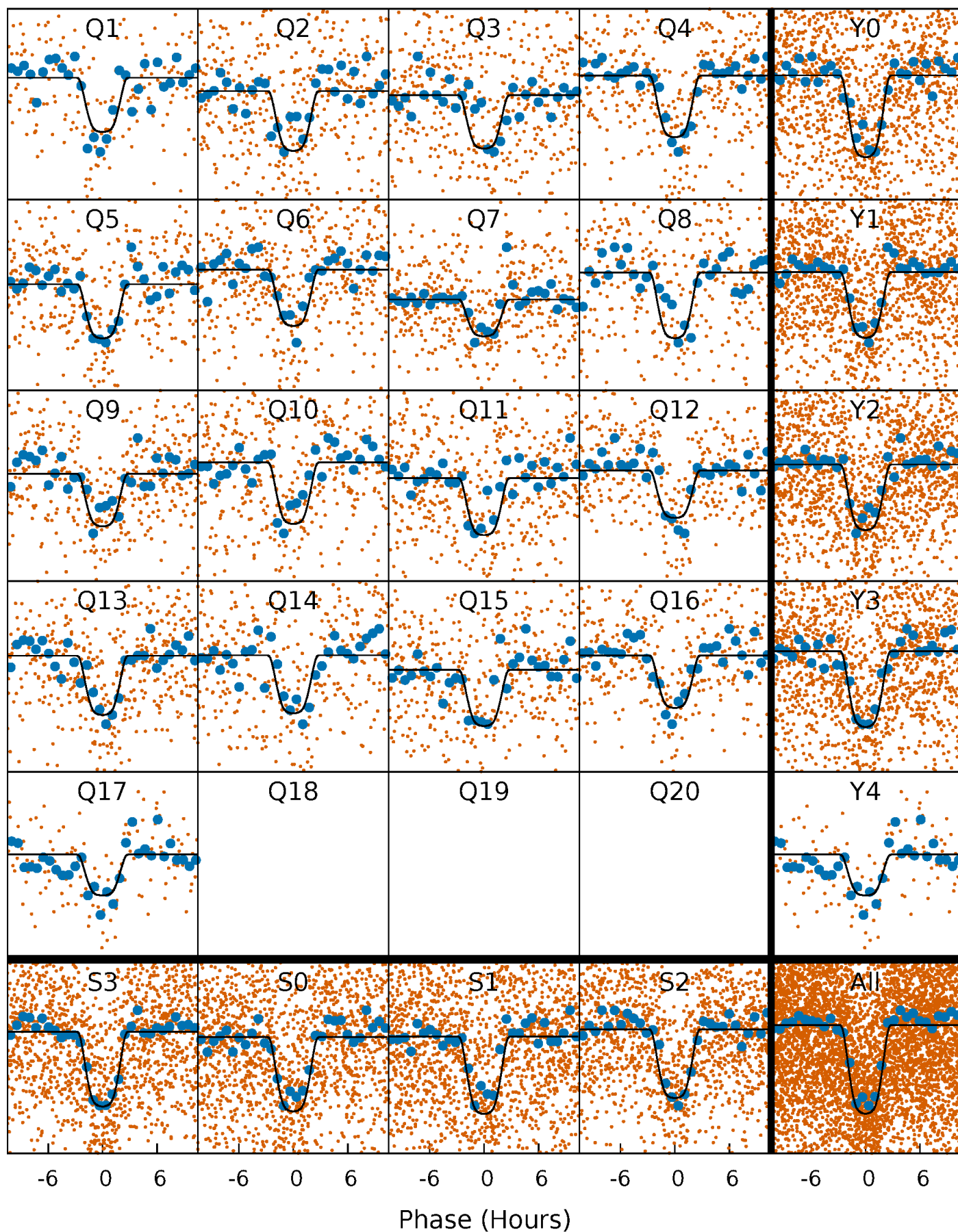
PDC Quarter-Phased Transit Curves

TCE 003231341-02 P= 8.145181 Days $T_0=132.420647$ (BKJD)



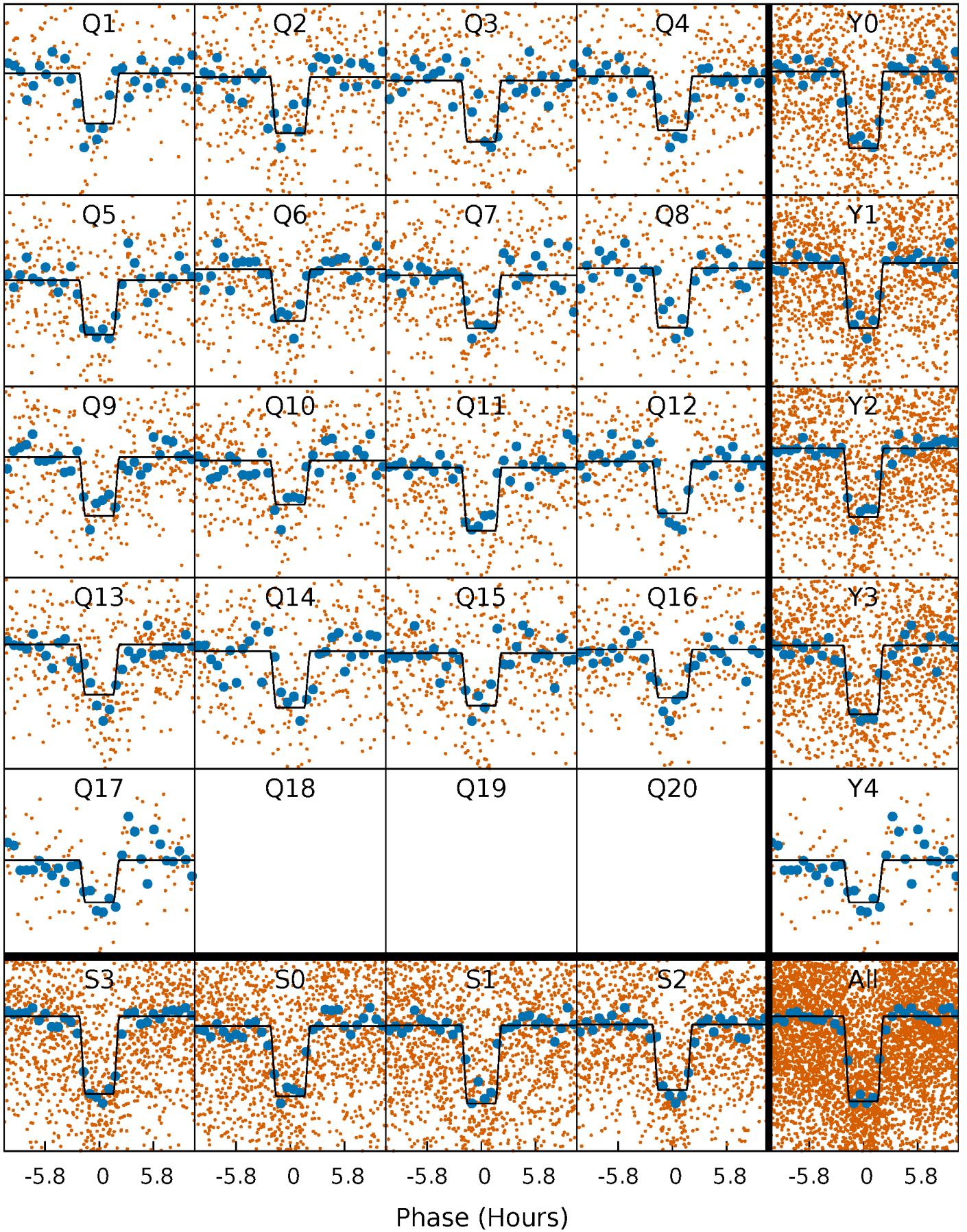
DV Quarter-Phased Transit Curves

TCE 003231341-02 P= 8.145181 Days $T_0=132.420647$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

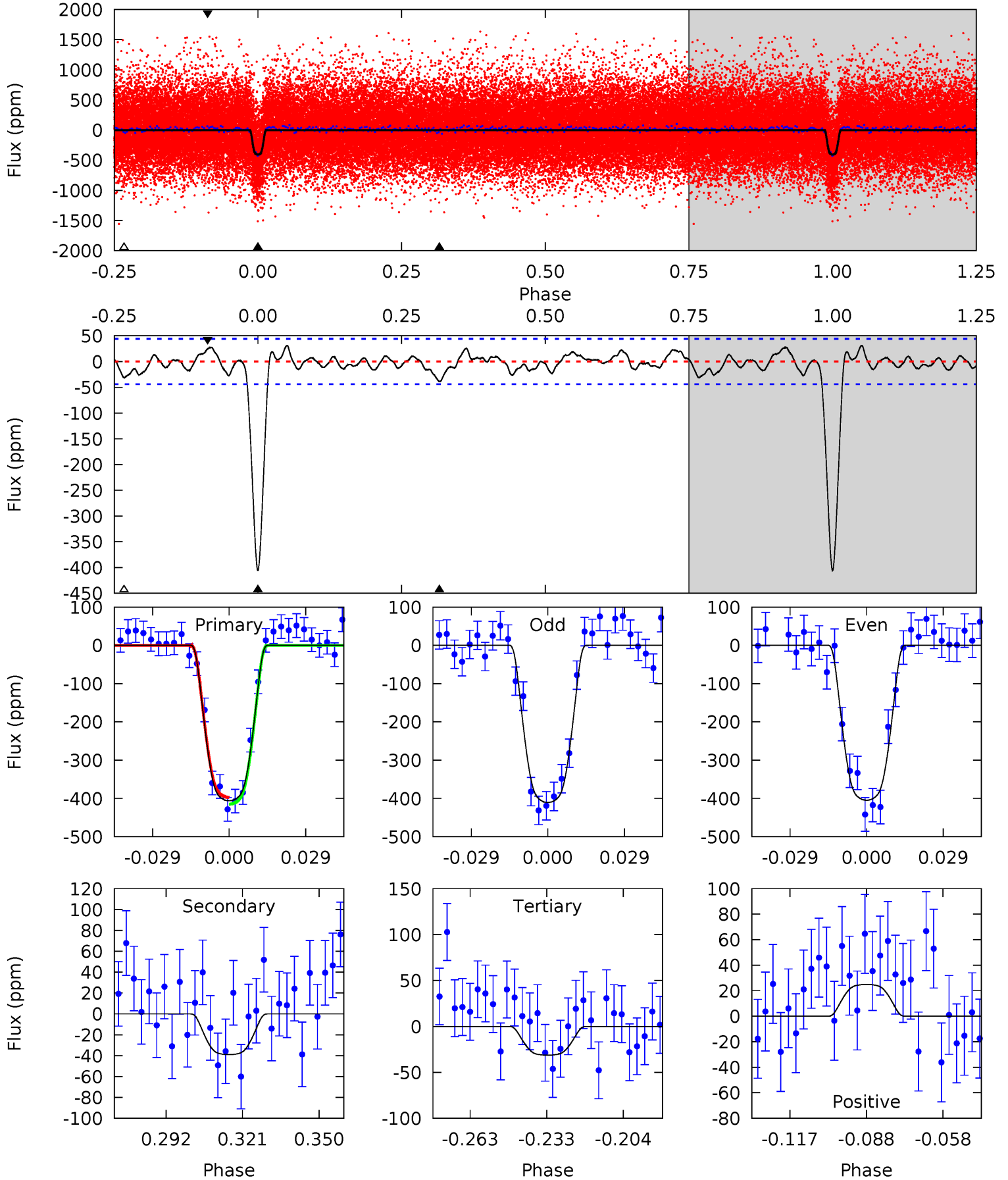
TCE 003231341-02 P= 8.145128 Days $T_0=132.425677$ (BKJD)



DV Model-Shift Uniqueness Test

003231341-02, P = 8.145181 Days, E = 124.275466 Days

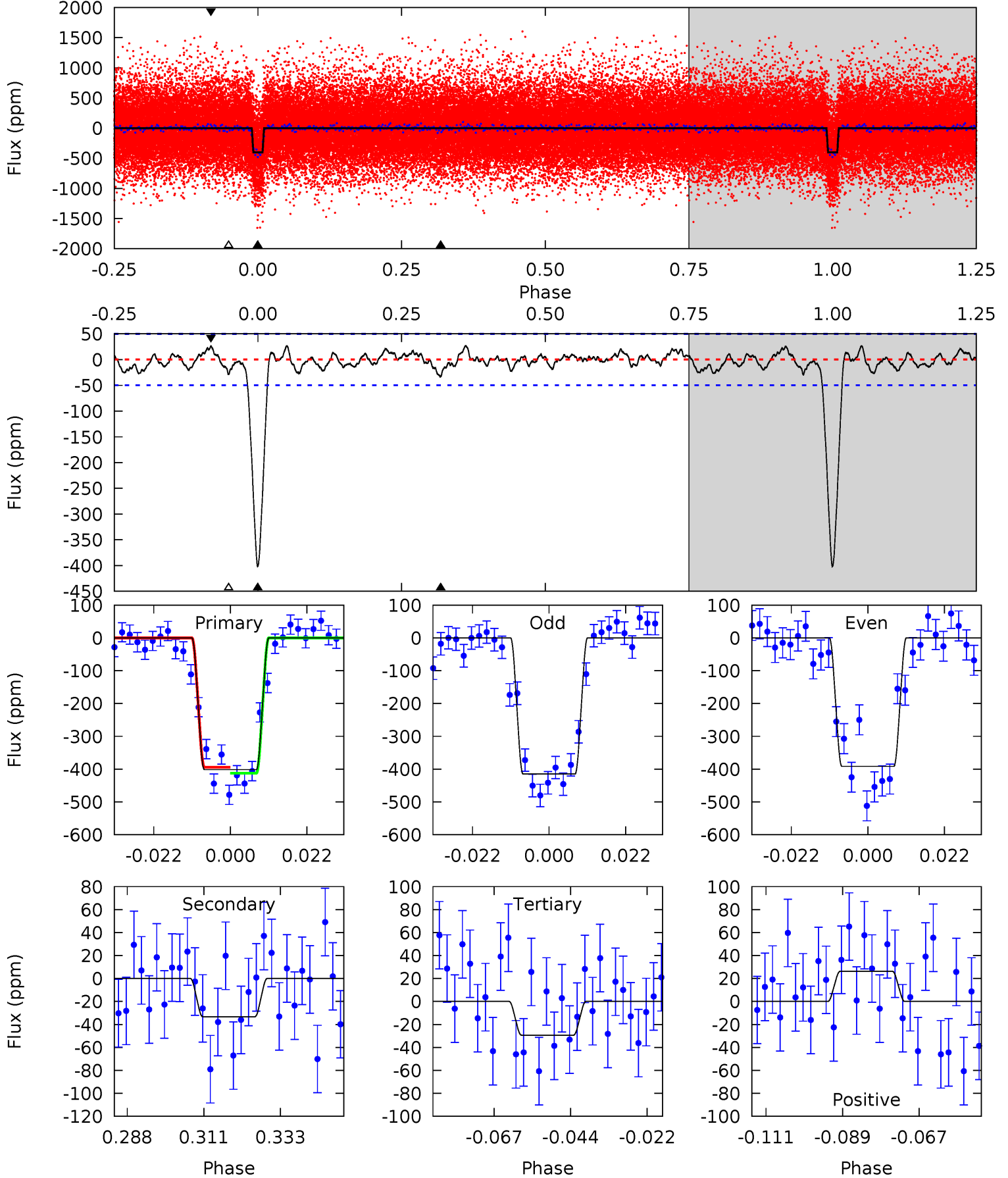
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.4	4.27	3.42	2.72	4.82	2.18	1.35	41.0	41.7	0.85	1.55	0.32	0.99	0.07	0.97



Alt Model-Shift Uniqueness Test

003231341-02, P = 8.145128 Days, E = 124.280549 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.2	3.25	2.86	2.57	4.87	2.29	1.08	36.3	36.6	0.39	0.69	1.14	1.03	0.06	0.89



Stellar Parameters For KIC 003231341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+117}_{-105}	$4.197^{+0.195}_{-0.105}$	$-0.360^{+0.150}_{-0.150}$	$1.240^{+0.183}_{-0.251}$	$0.884^{+0.073}_{-0.054}$	$0.653^{+0.670}_{-0.207}$
	+2%/-2%	+5%/-3%	+42%/-42%	+15%/-20%	+8%/-6%	+103%/-32%
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 003231341-02 / KOI 1102.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-39 ± 9	$3.38^{+0.34}_{-0.38}$	1458^{+75}_{-86}	3428^{+131}_{-148}	11^{+4}_{-3}
Alt.	-33 ± 10	$2.79^{+0.29}_{-0.36}$	1457^{+74}_{-92}	3570^{+170}_{-227}	14^{+6}_{-5}

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

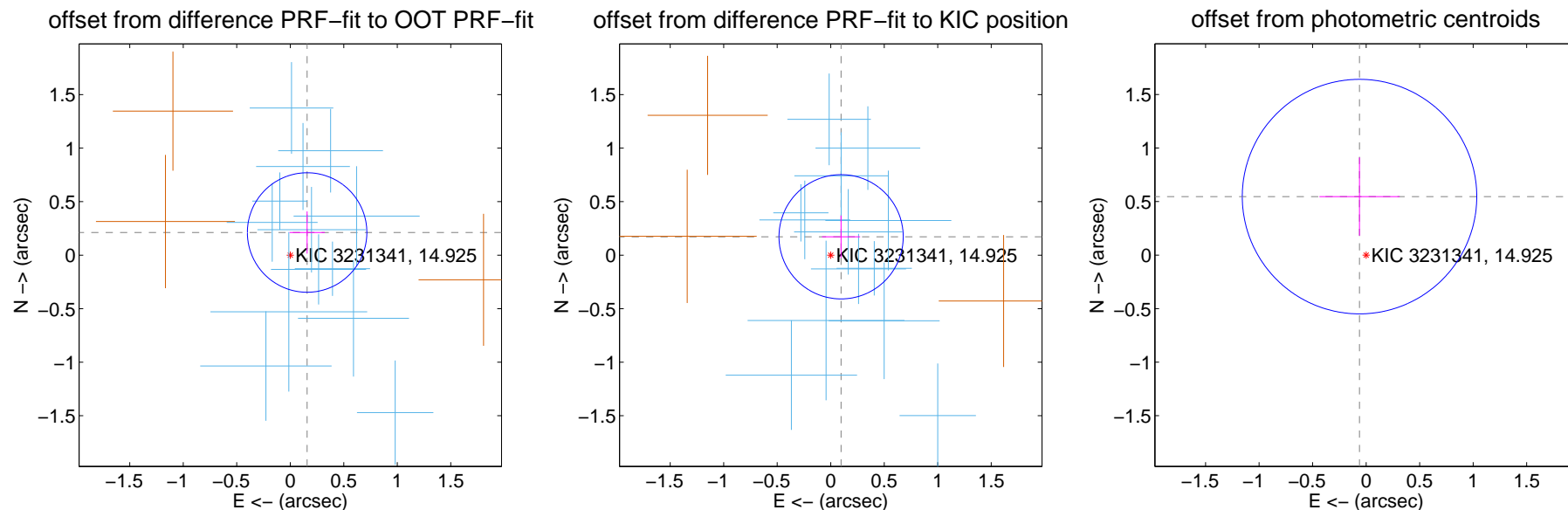
DV Centroid Data

Supplemental centroid analysis for 003231341-02. Kepler magnitude: 14.93. Transit SNR 28.60

There are 13 quarters with good PRF difference image offsets

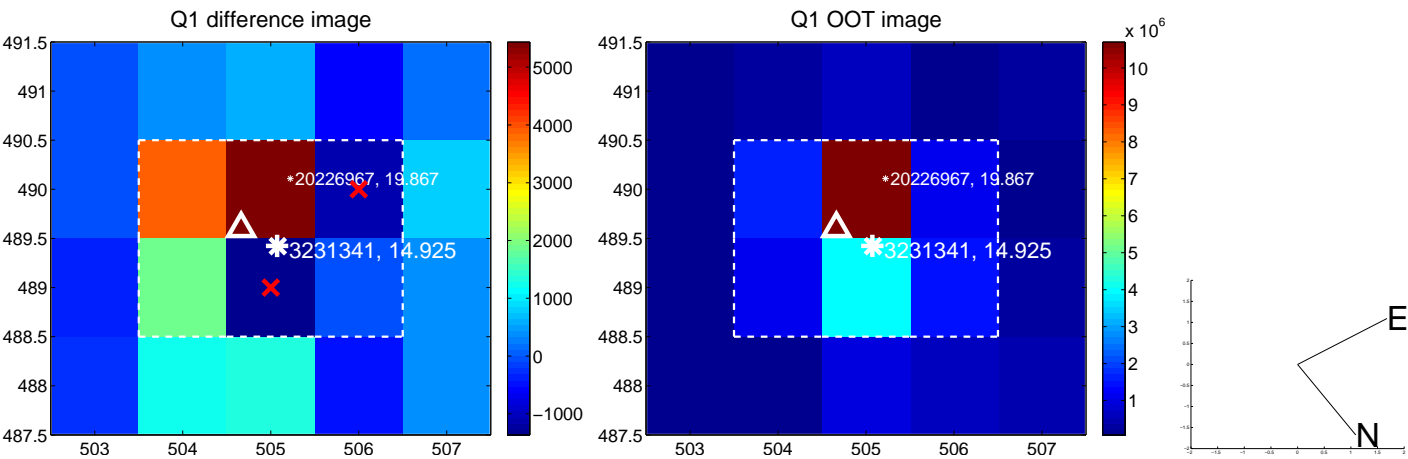
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.264 ± 0.186	1.42	-0.157 ± 0.165	0.212 ± 0.197
PRF-fit source offset from KIC position	0.197 ± 0.193	1.02	-0.097 ± 0.178	0.172 ± 0.198
photometric centroid source offset	0.55 ± 0.37	1.51	0.06 ± 0.38	0.55 ± 0.36

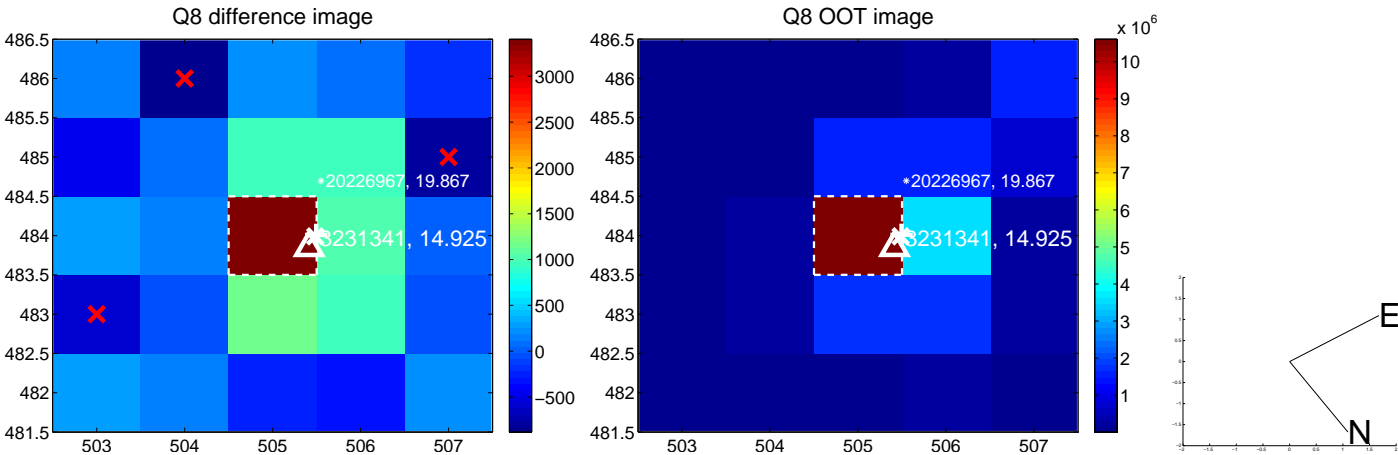
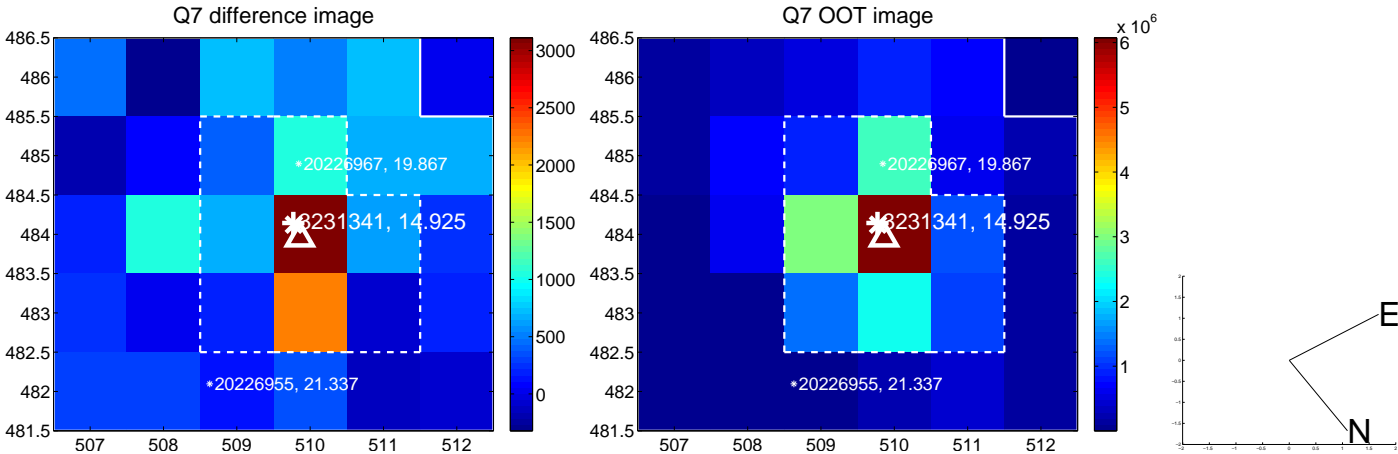
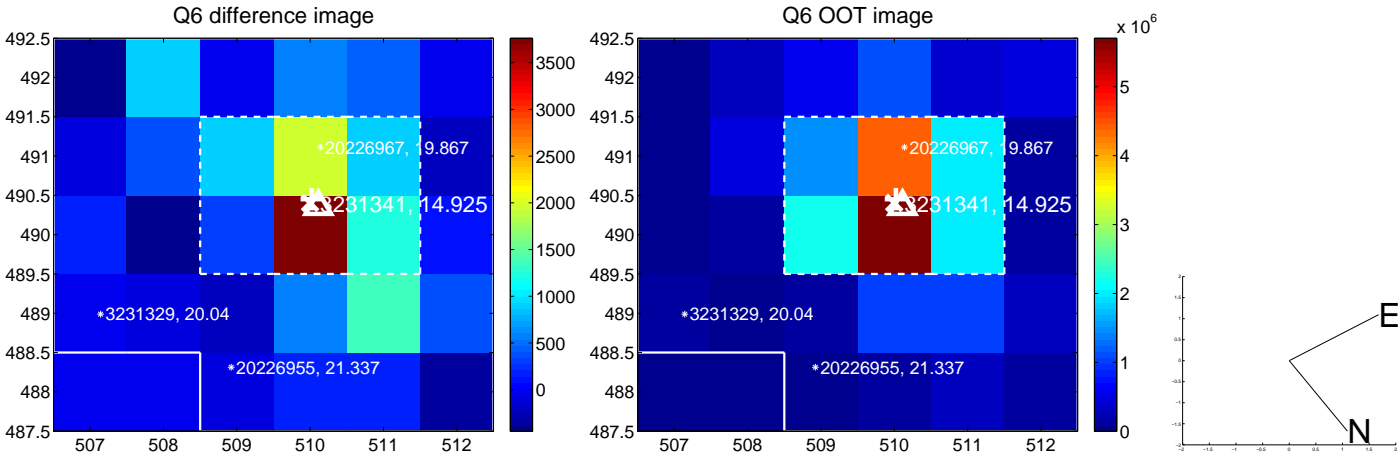
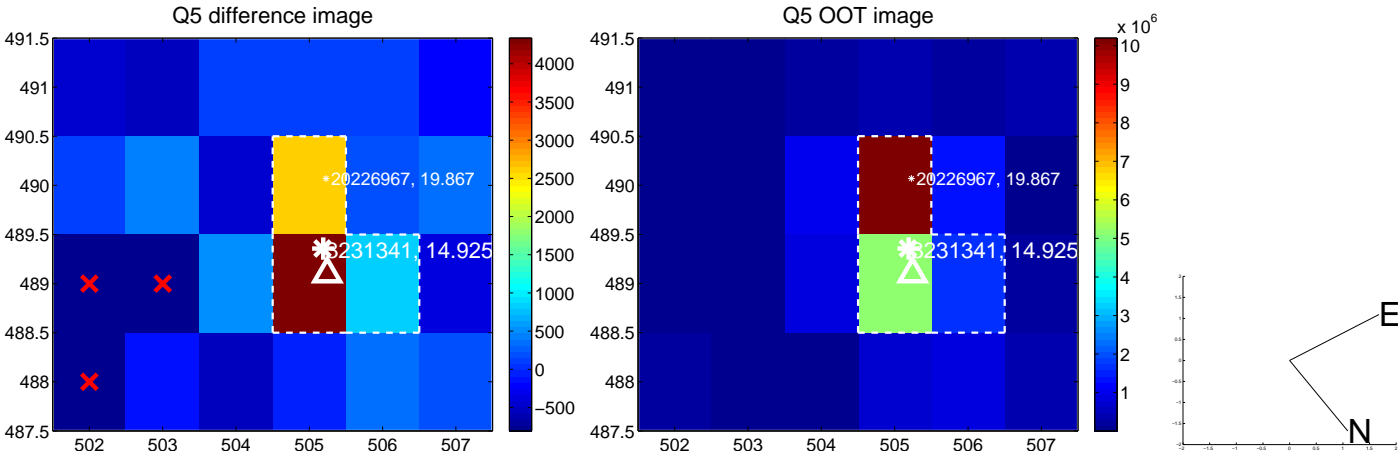


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

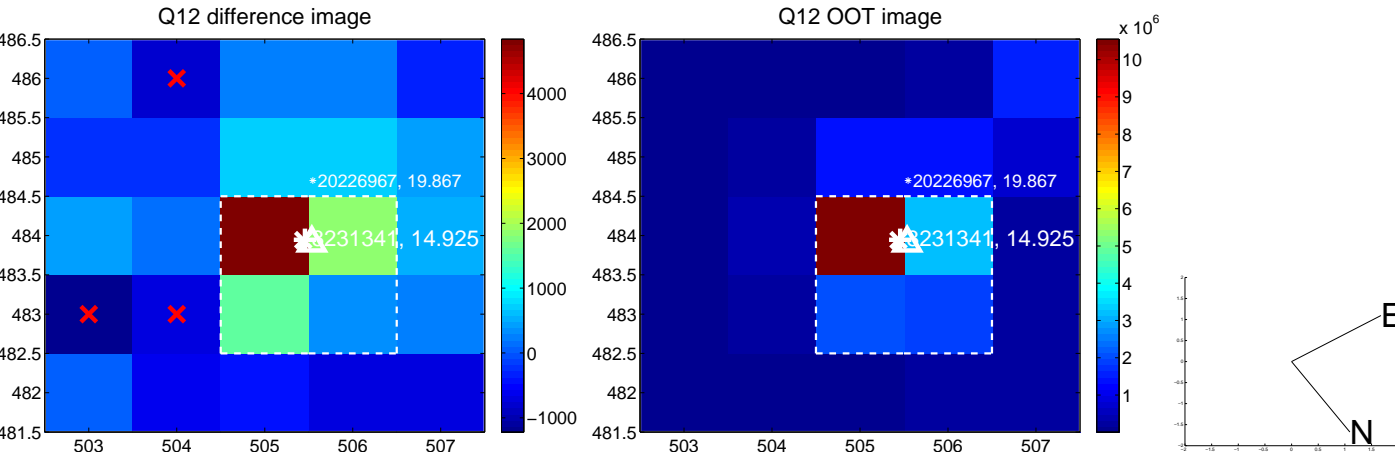
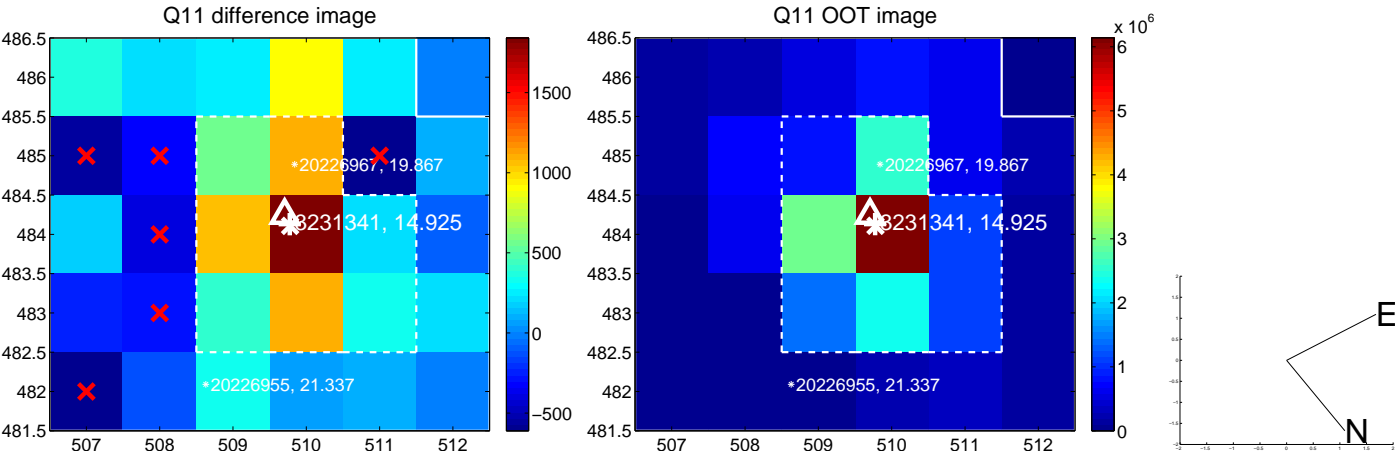
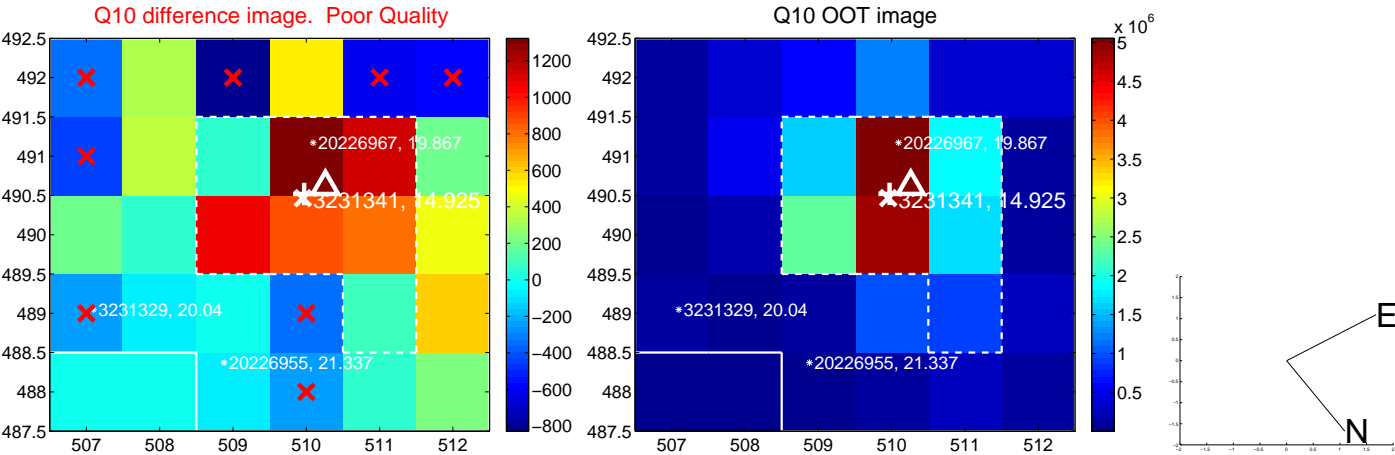
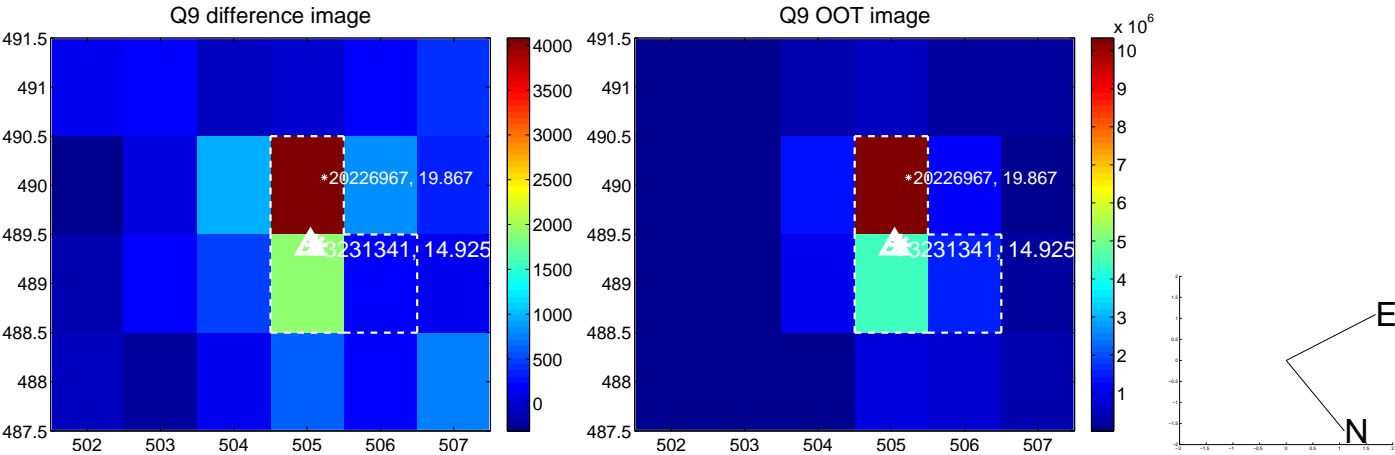
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



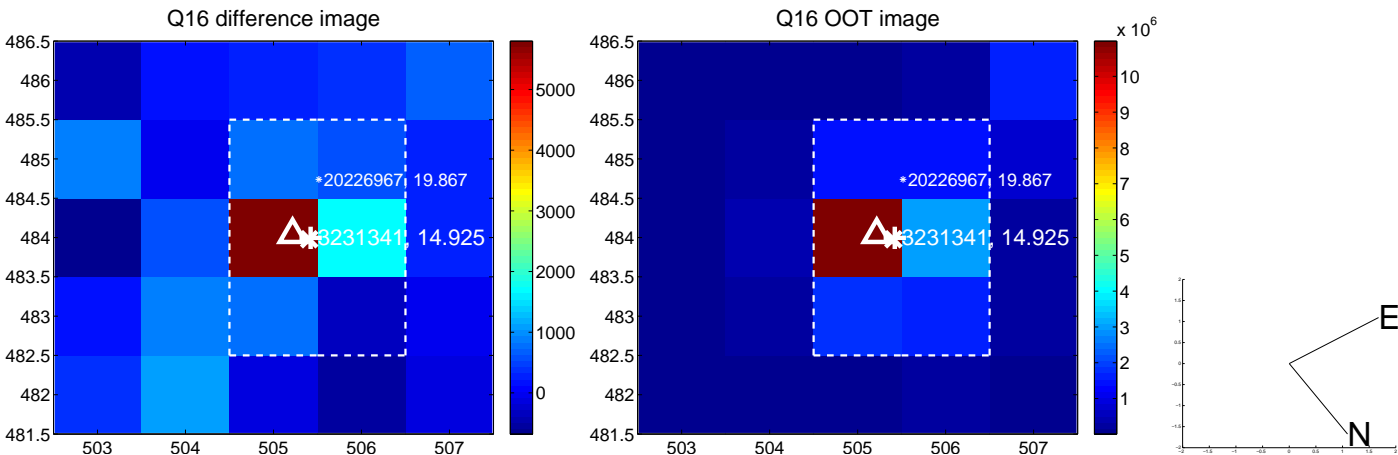
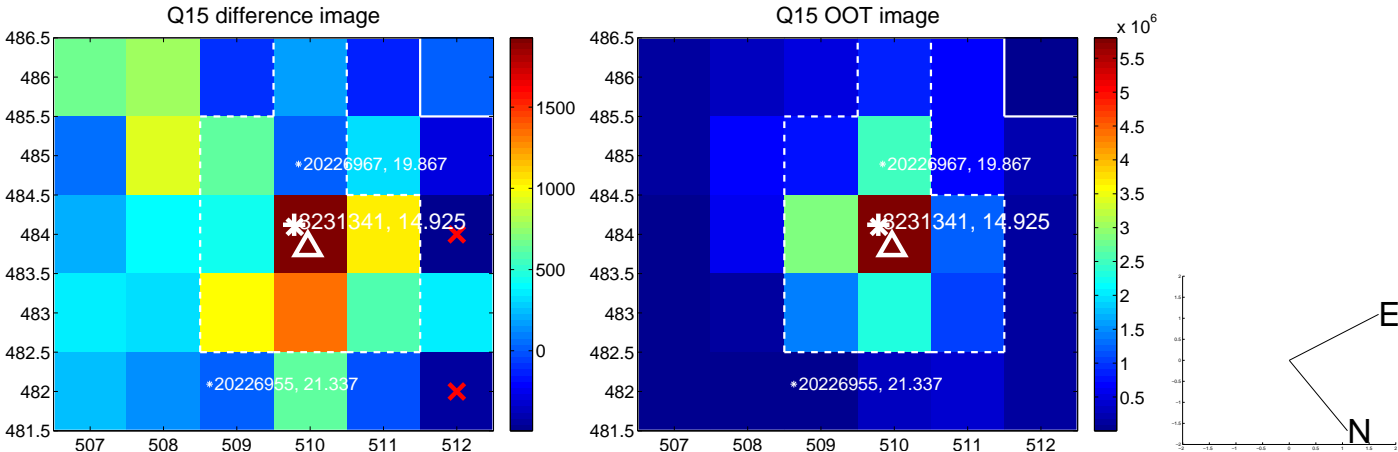
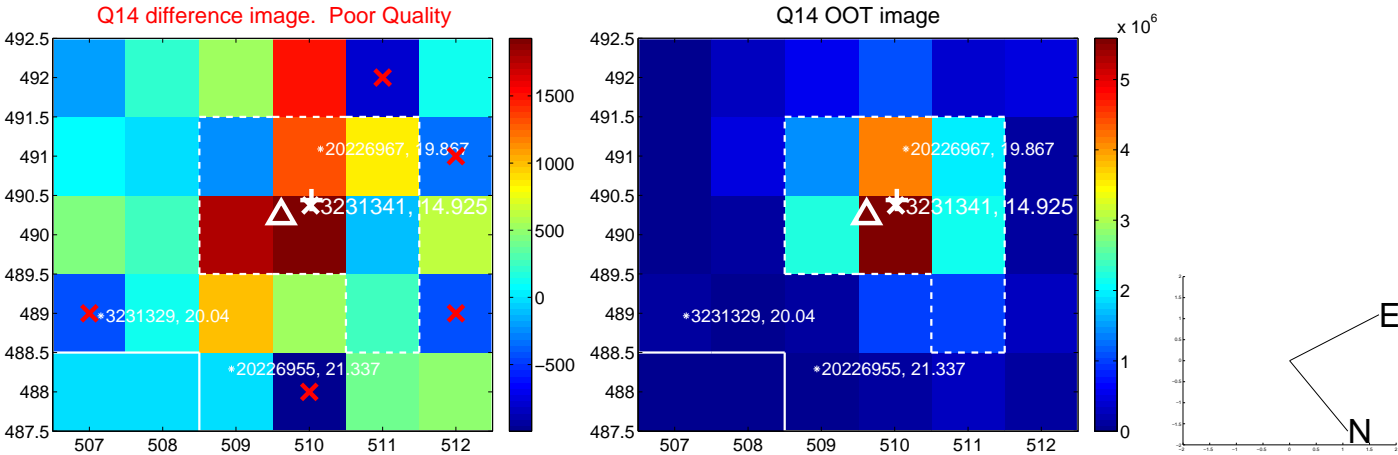
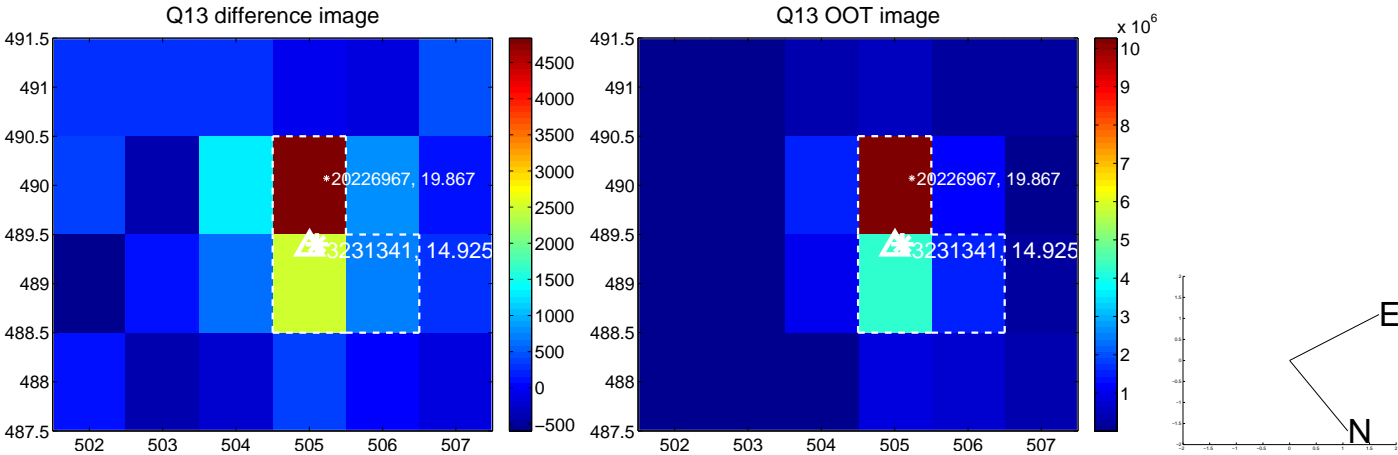
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



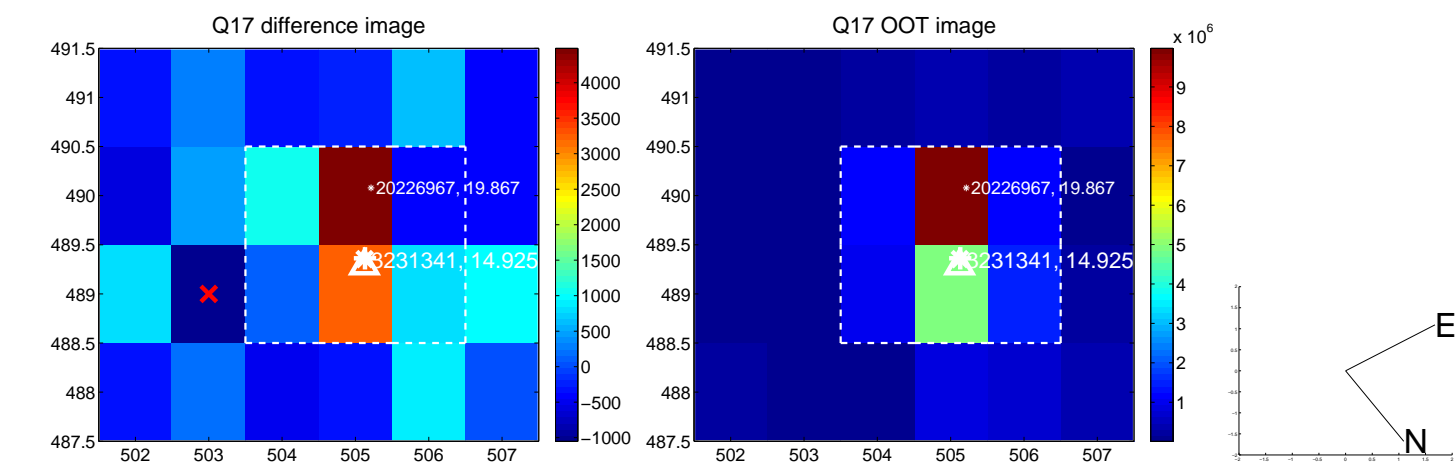
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



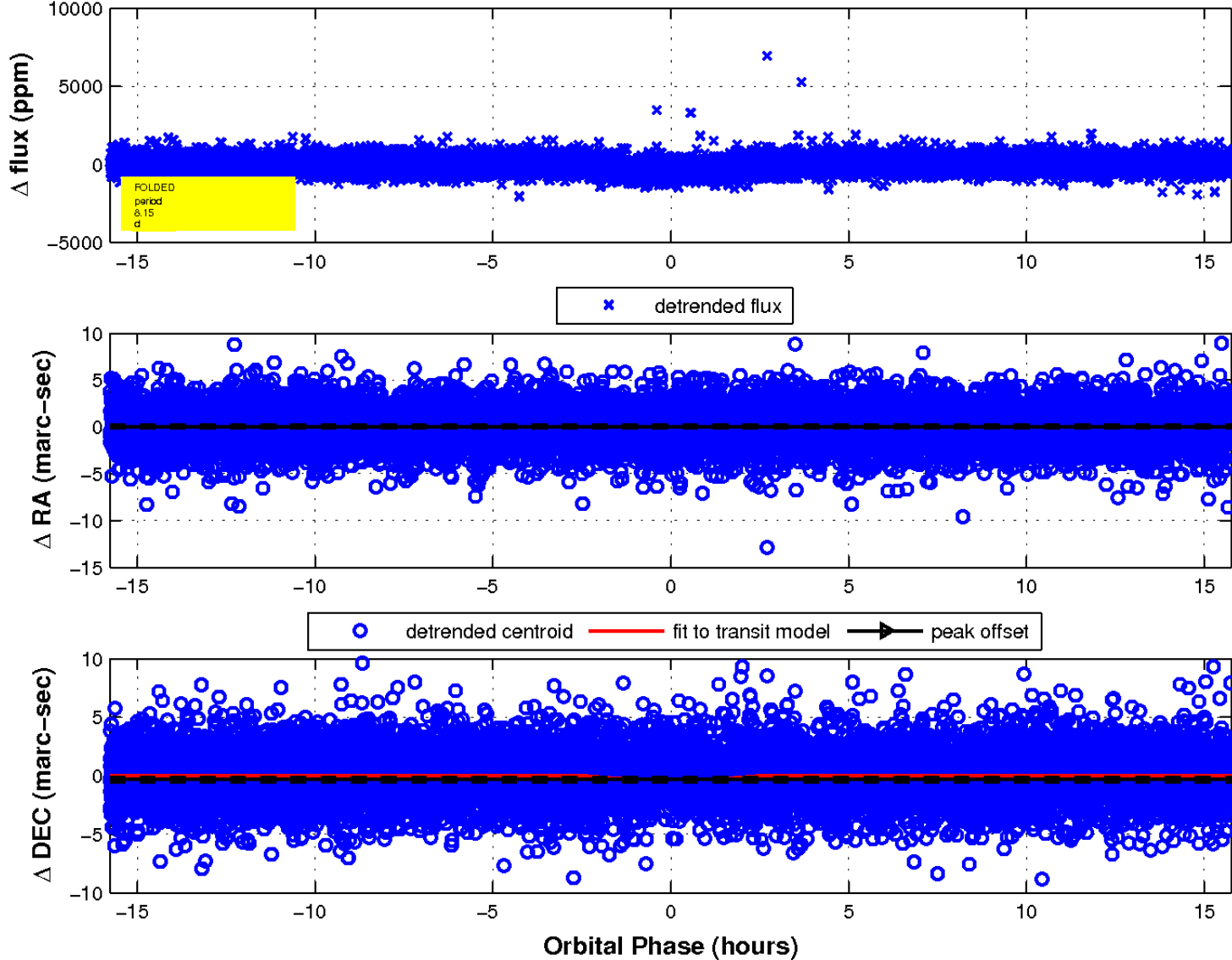
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

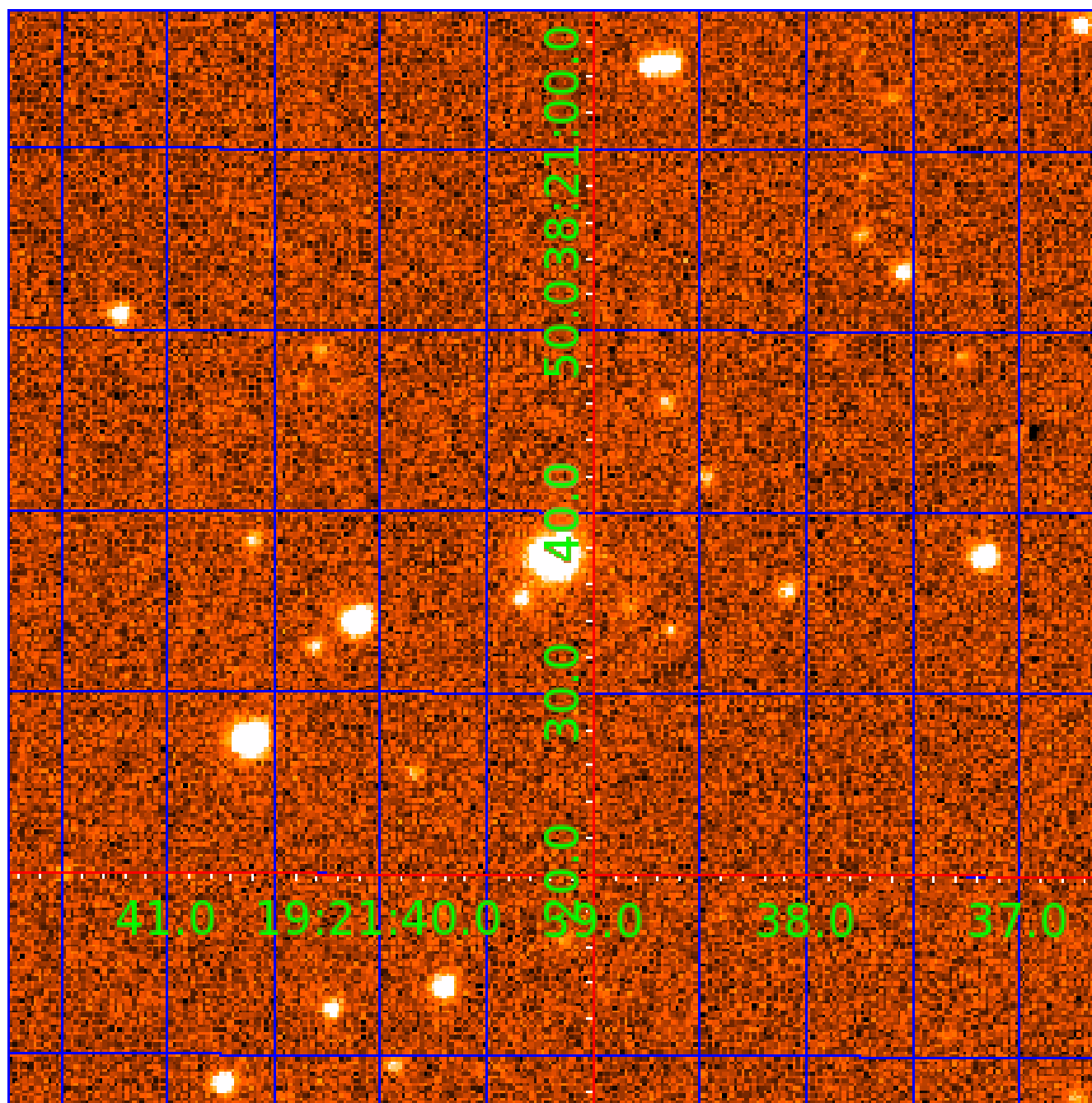


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 003231341

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})
003231341-01	OBS	1102.01	12.333473	137.586001	542.2	6.407	26.8	27.7	1.24	5896	4.07	165.69
003231341-02	OBS	1102.02	8.145181	132.420647	446.3	5.255	24.3	28.6	1.24	5896	3.41	288.10
003231341-03	OBS	1102.03	18.998447	144.743195	400.1	3.406	15.2	16.0	1.24	5896	3.02	93.14
003231341-04	OBS	No	330.912918	167.281321	501.9	9.785	12.2	7.1	1.24	5896	2.99	2.06
003231341-05	OBS	1102.04	4.244399	132.822247	194.7	3.104	12.2	15.3	1.24	5896	1.93	687.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003231341-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003231341-05	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.

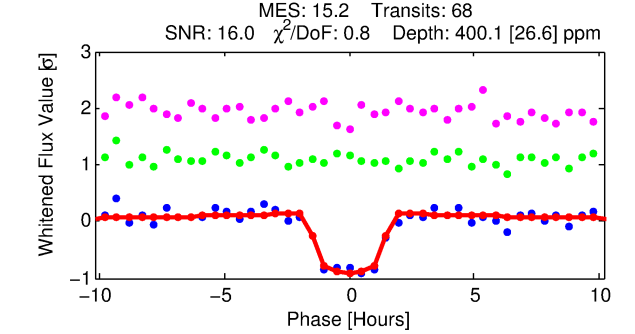
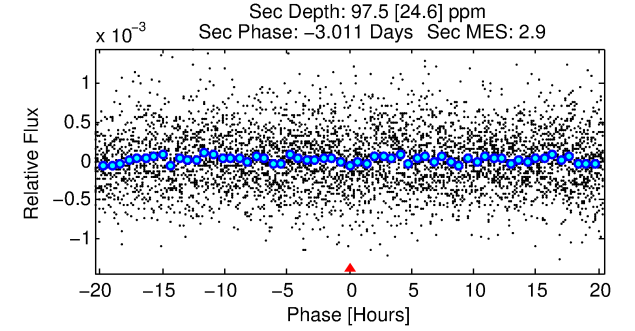
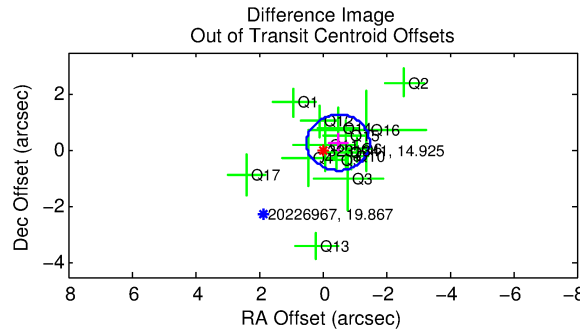
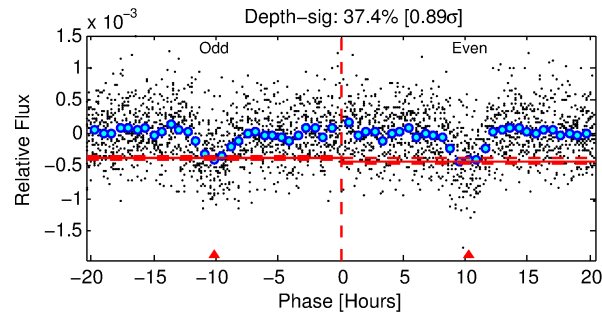
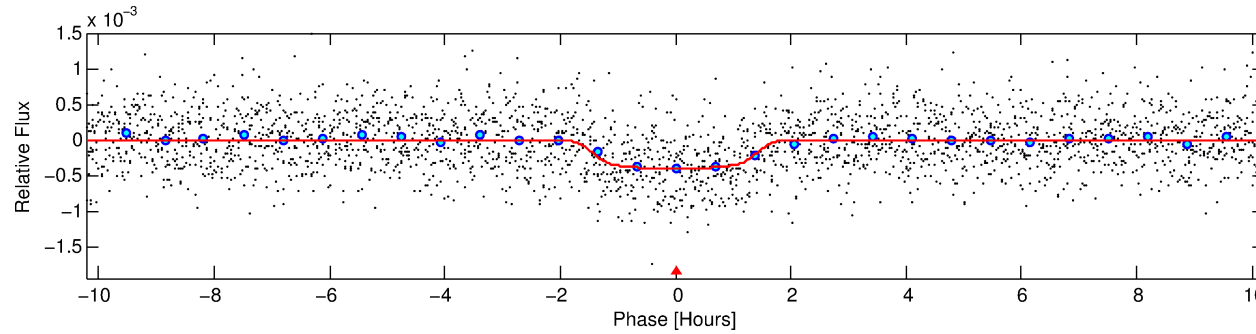
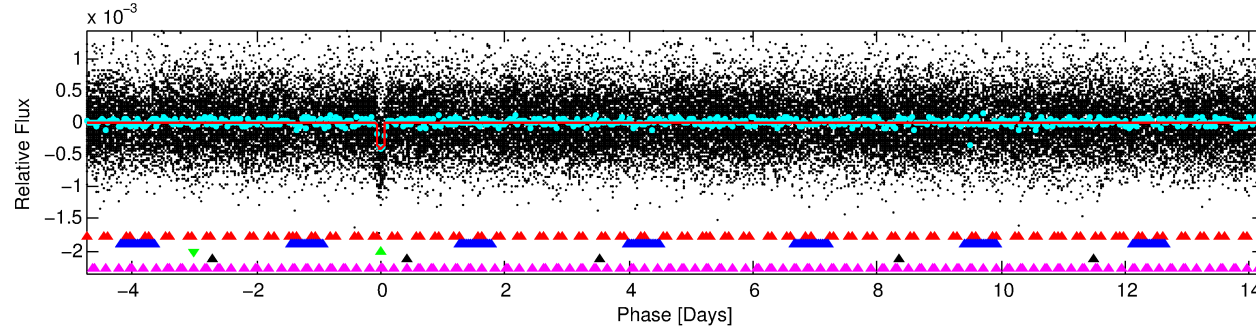
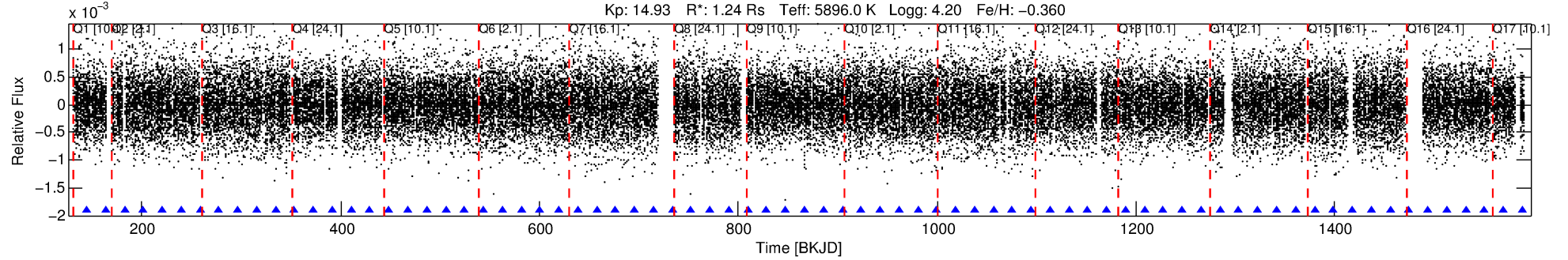
Ephemeris Match Information For 003231341-03

No Significant Match Found

DV One-Page Summary

KIC: 3231341 Candidate: 3 of 5 Period: 18.998 d
KOI: K01102.03 Name: Kepler-24e Corr: 0.929

Kp: 14.93 R*: 1.24 Rs Teff: 5896.0 K Logg: 4.20 Fe/H: -0.360



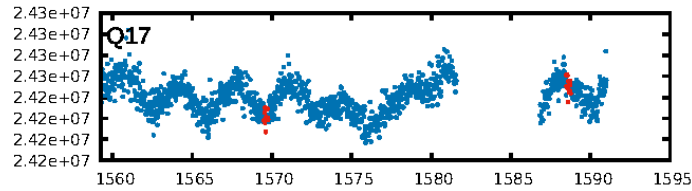
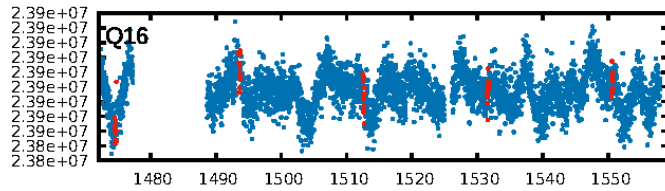
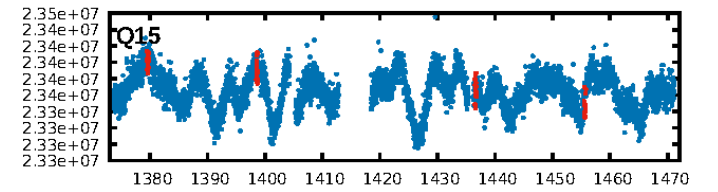
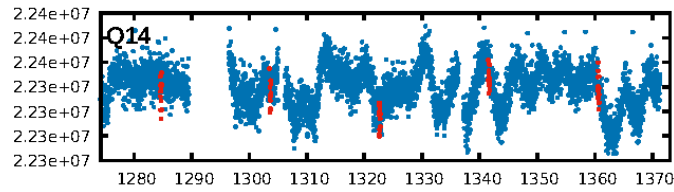
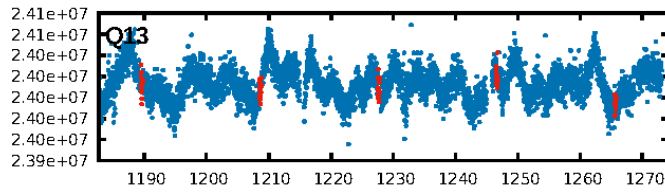
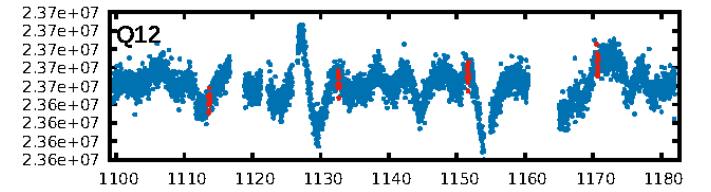
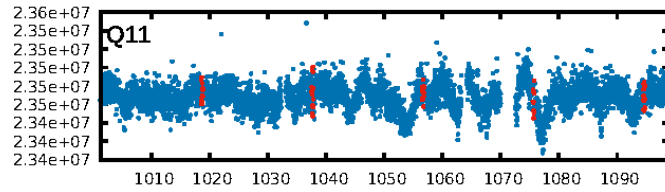
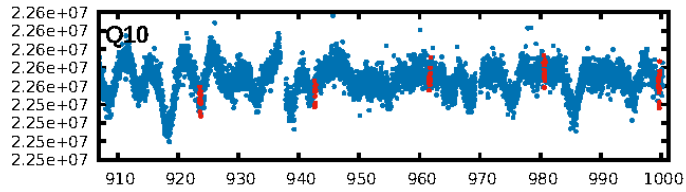
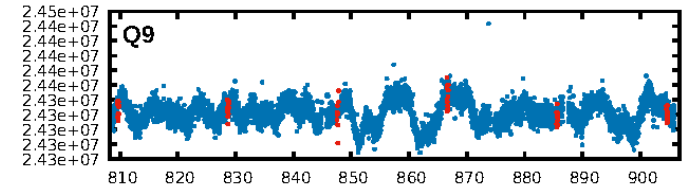
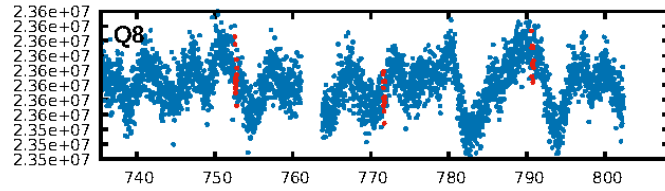
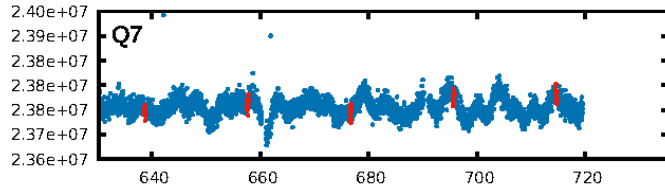
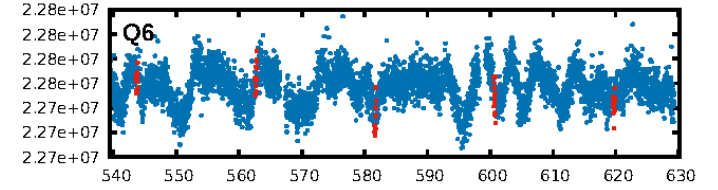
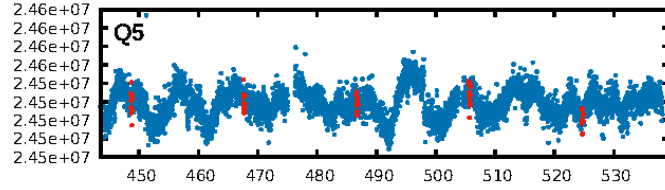
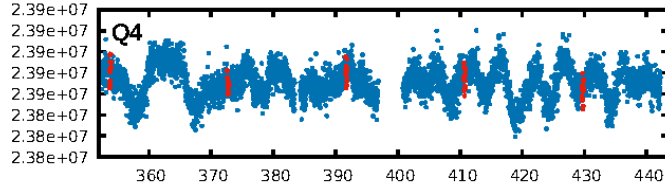
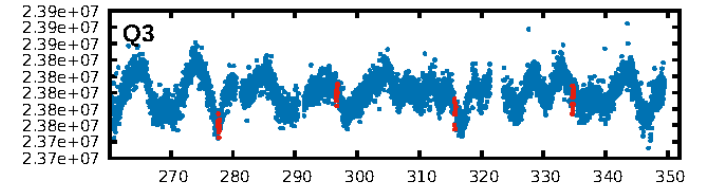
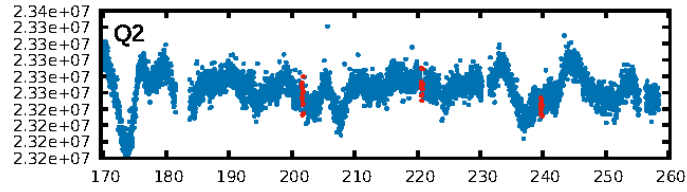
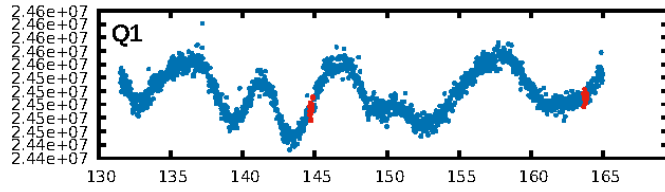
DV Fit Results:

Period = 18.99845 [0.00010] d
Epoch = 144.7432 [0.0046] BKJD
Rp/R* = 0.0223 [0.0023]
a/R* = 18.19 [8.71]
b = 0.93 [0.07]
Seff = 93.14 [31.46]
Teff = 792 [67] K
Rp = 3.02 [0.69] Re
a = 0.1337 [0.0269] AU
Ag = 105.26 [48.79] [2.14σ]
Teffp = 3923 [330] K [9.29σ]

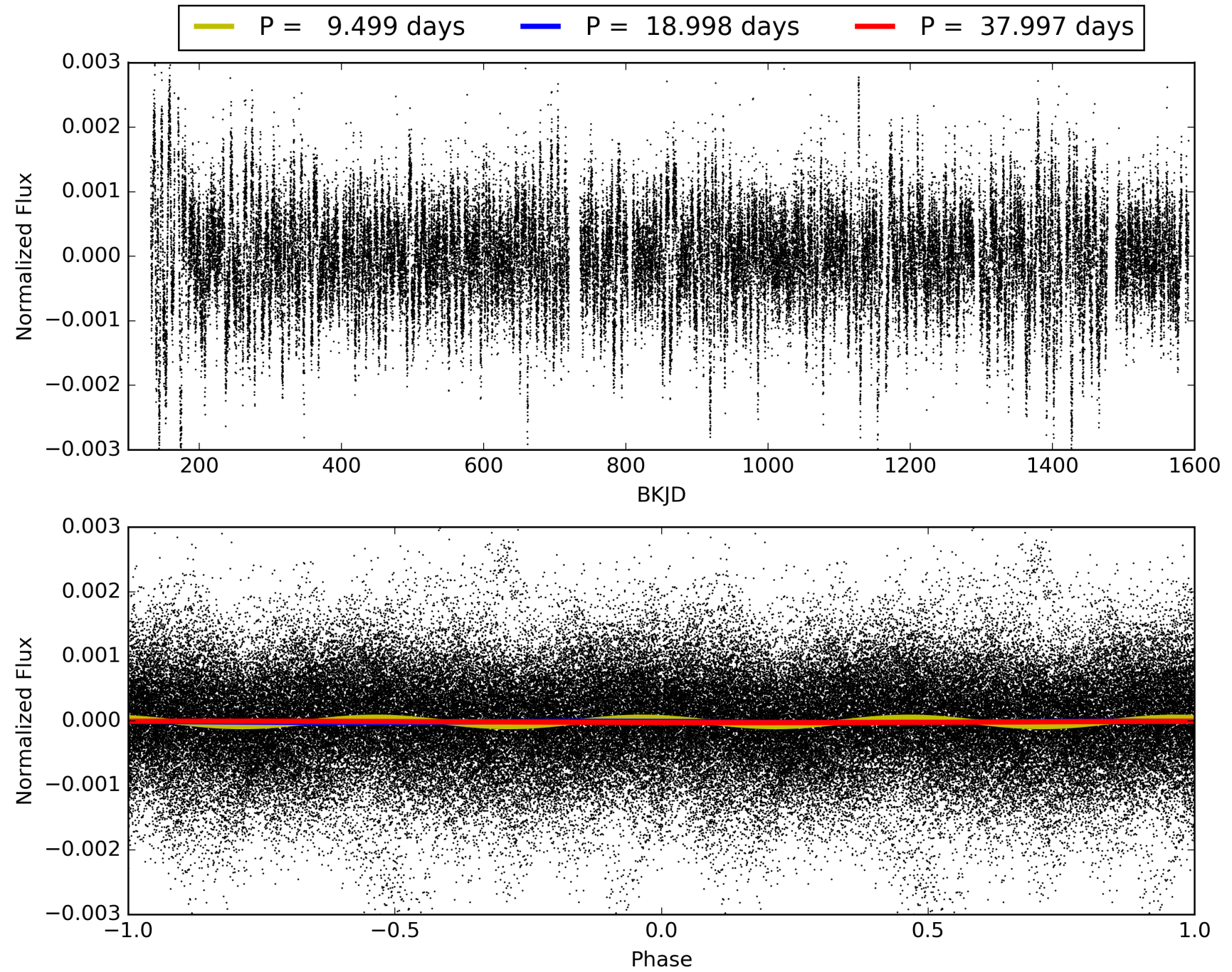
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.04σ]
LongPeriod-sig: 100.0% [722.53σ]
ModelChiSquare2-sig: 95.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.69e-53
RollingBand-fgt: 1.00 [64/64]
GhostDiagnostic-chr: 2.951
Centroid-sig: 1.0%
Centroid-so: 1.329 arcsec [1.85σ]
OotOffset-rm: 0.567 arcsec [1.72σ]
KicOffset-rm: 0.464 arcsec [1.33σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 003231341-03, PDC Light Curves

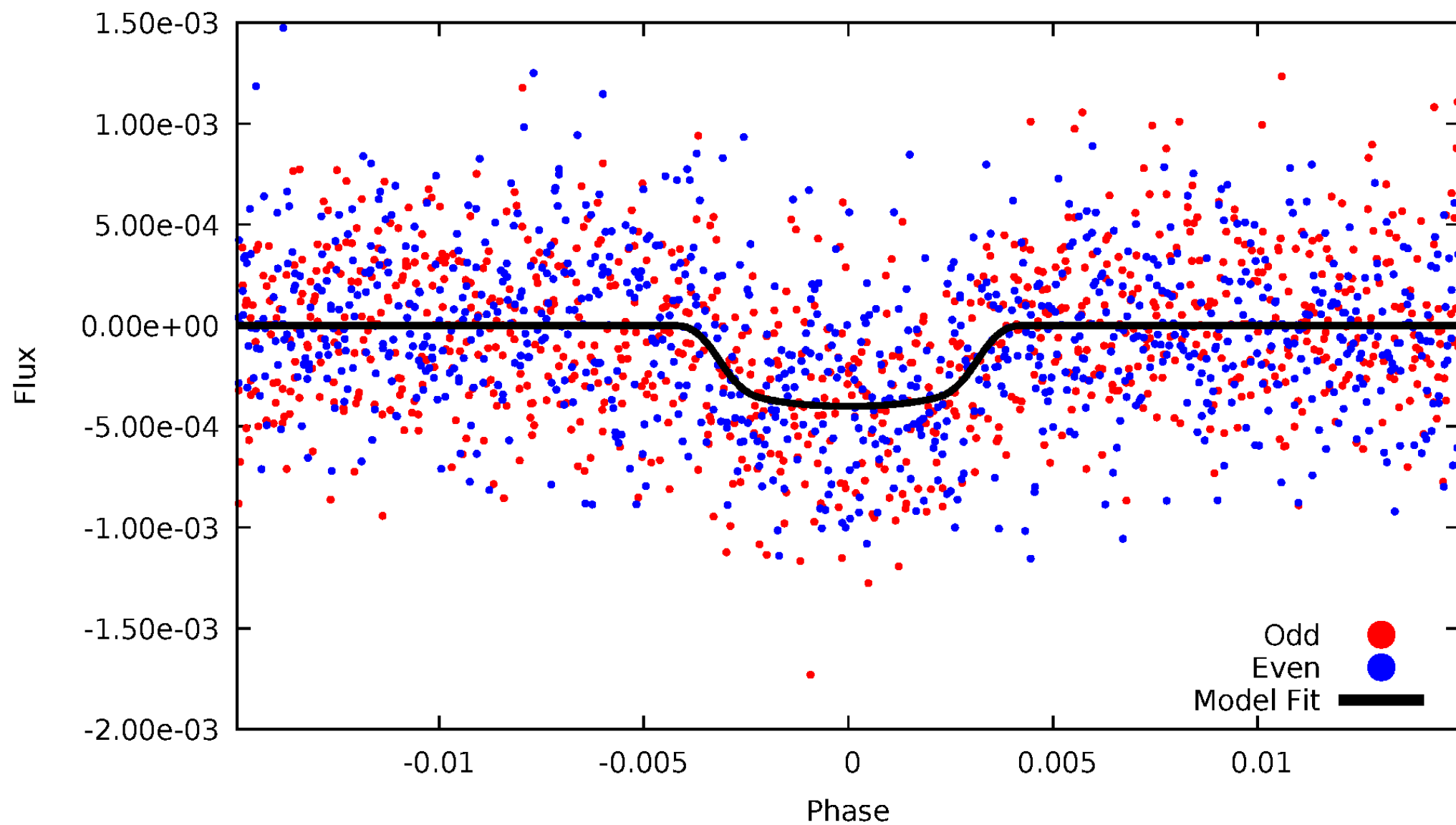


TCE 003231341-03



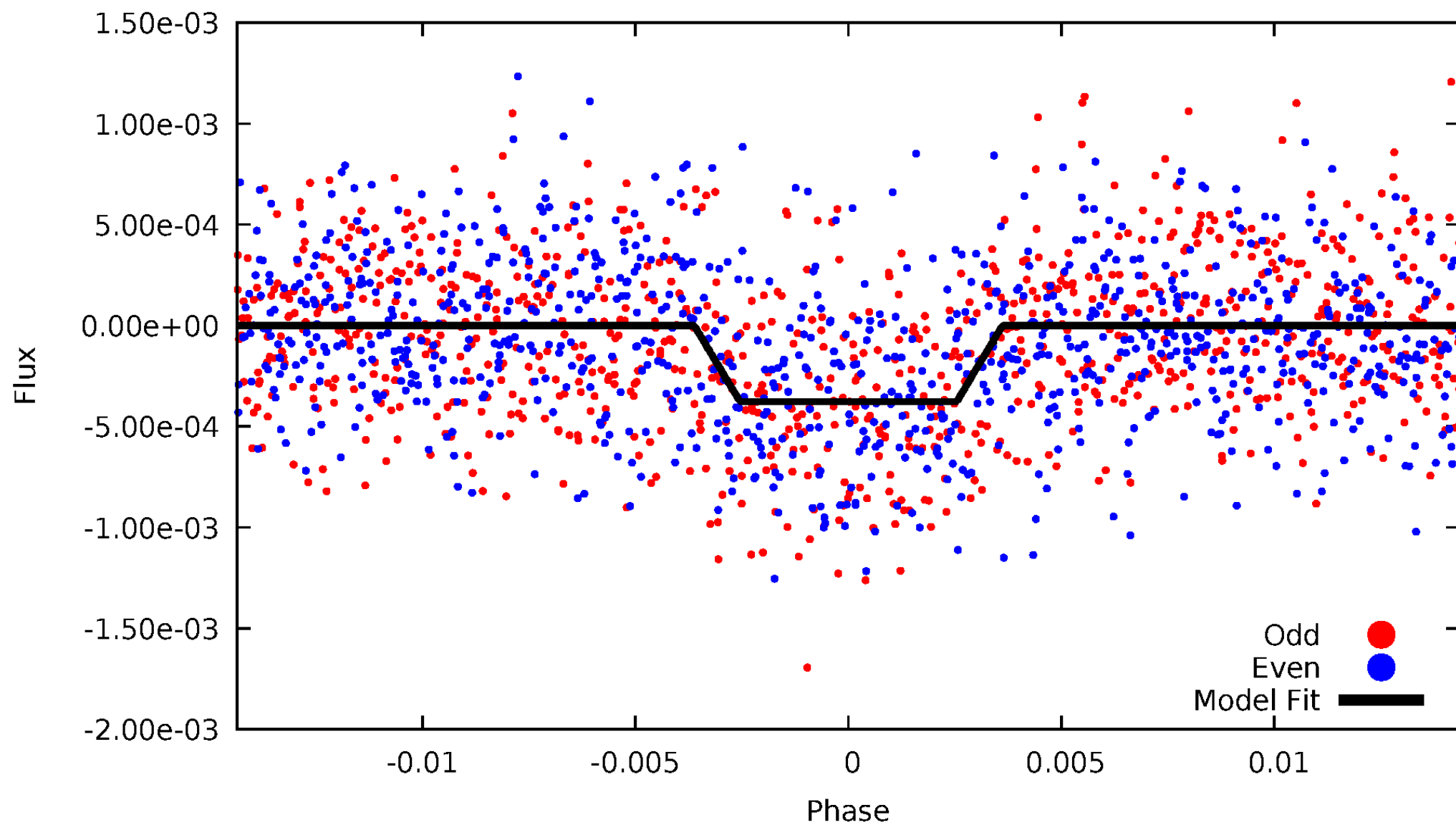
DV Odd/Even

TCE 003231341-03



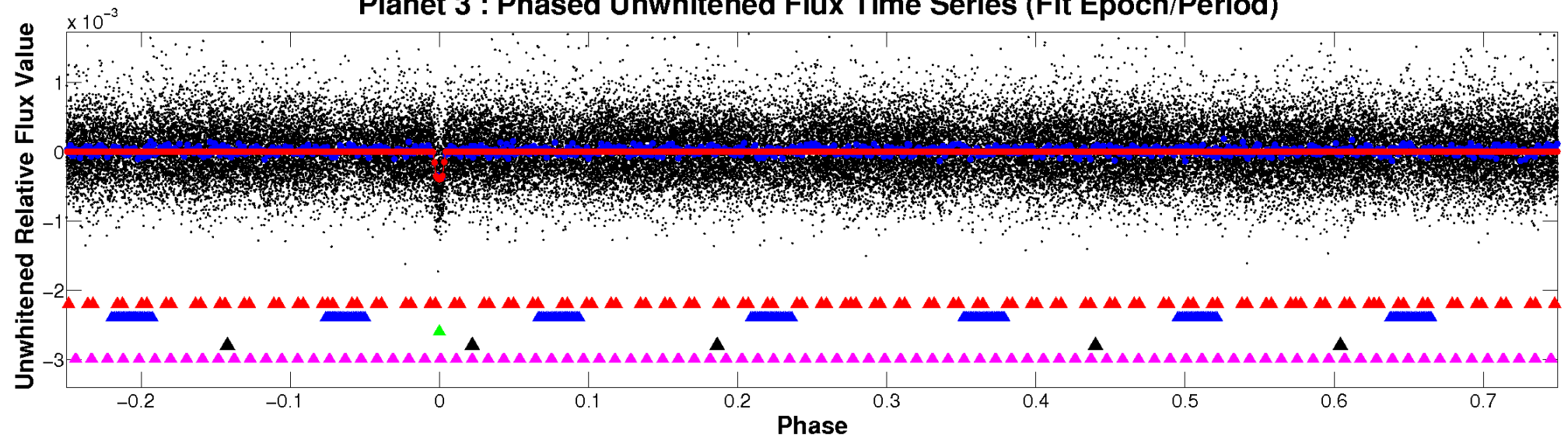
ALT Odd/Even

TCE 003231341-03

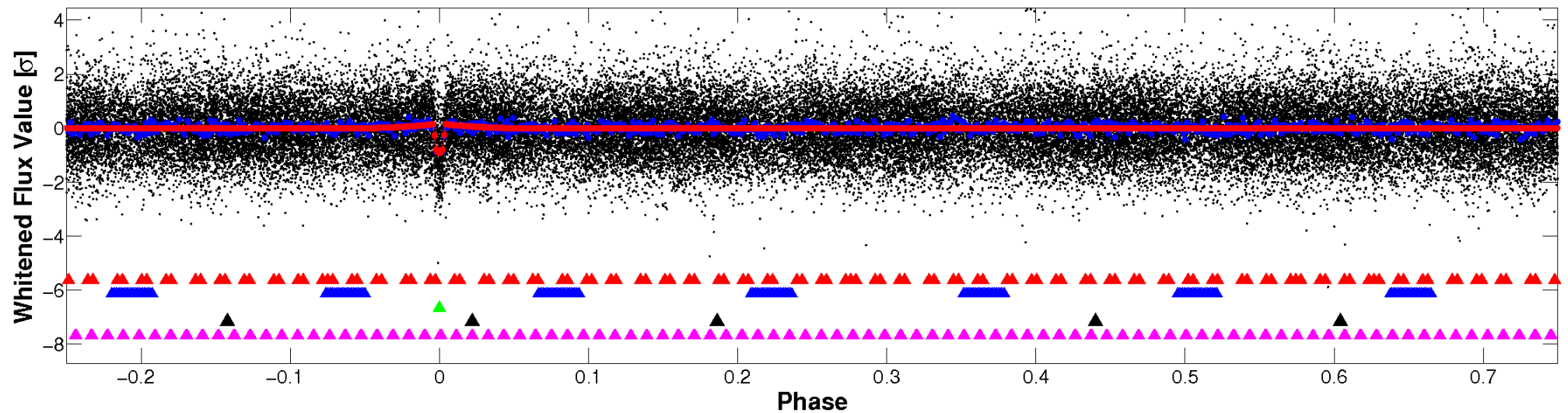


Non-Whitened Vs. Whitened Light Curve

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

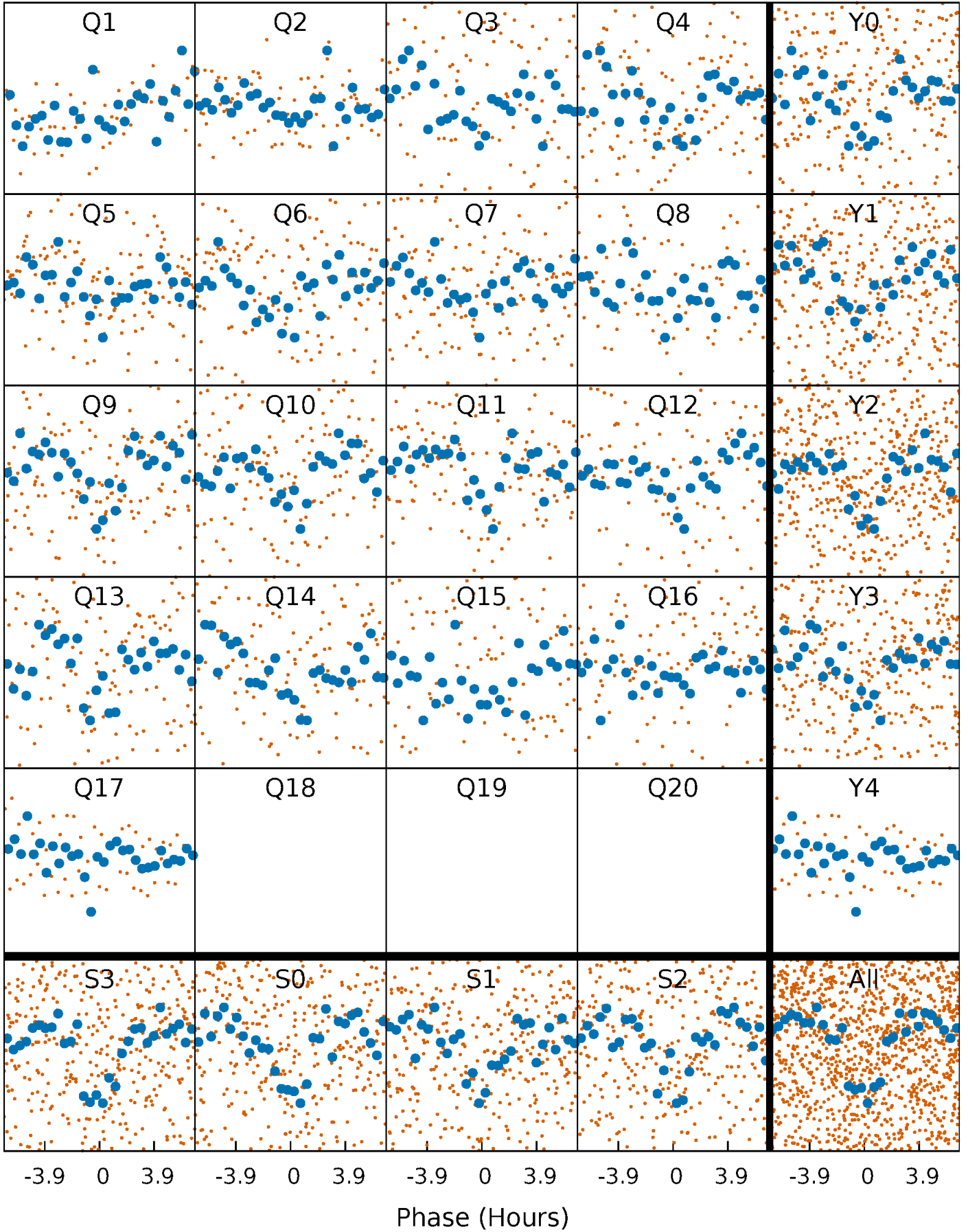


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



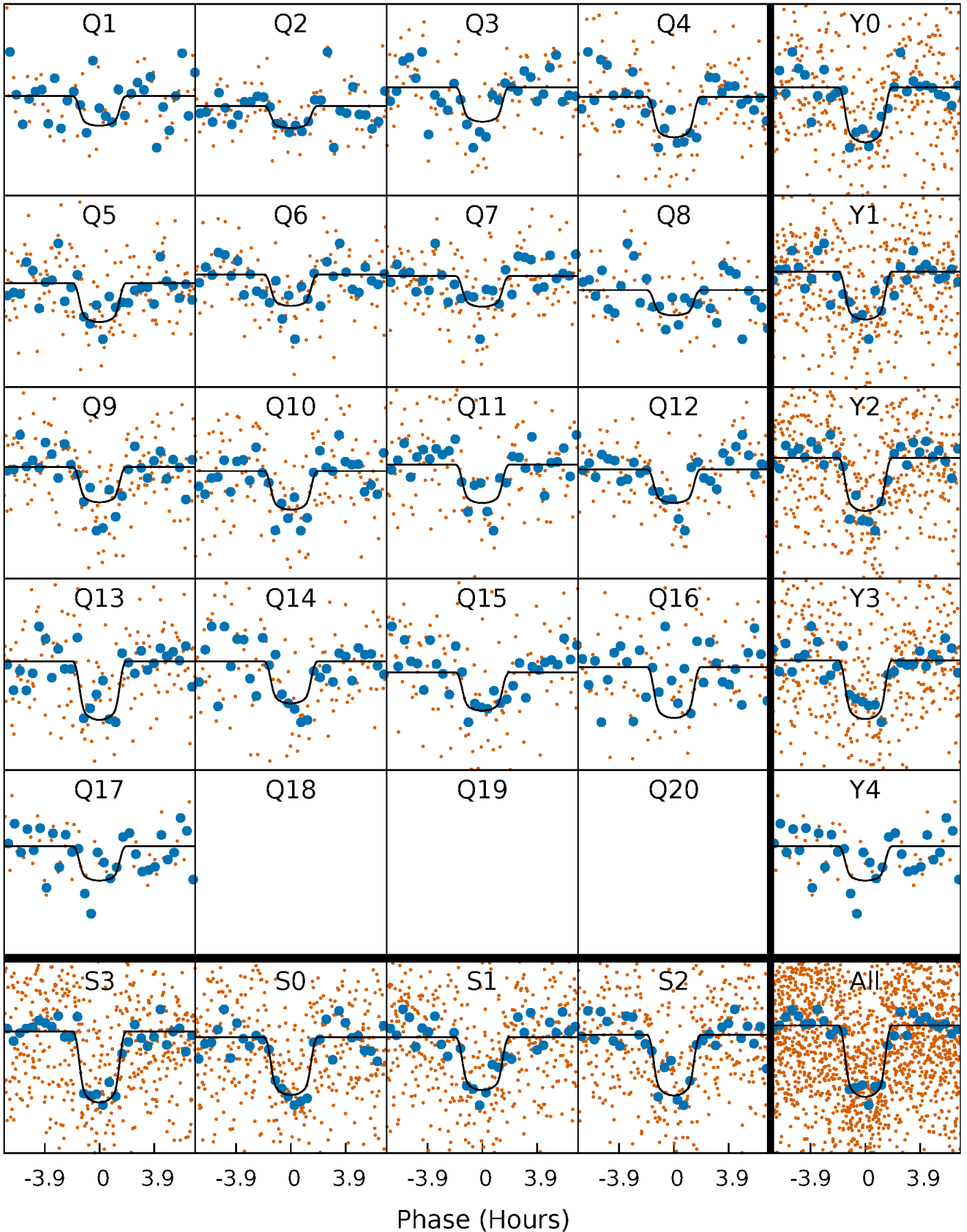
PDC Quarter-Phased Transit Curves

TCE 003231341-03 P= 18.998447 Days $T_0=144.743195$ (BKJD)



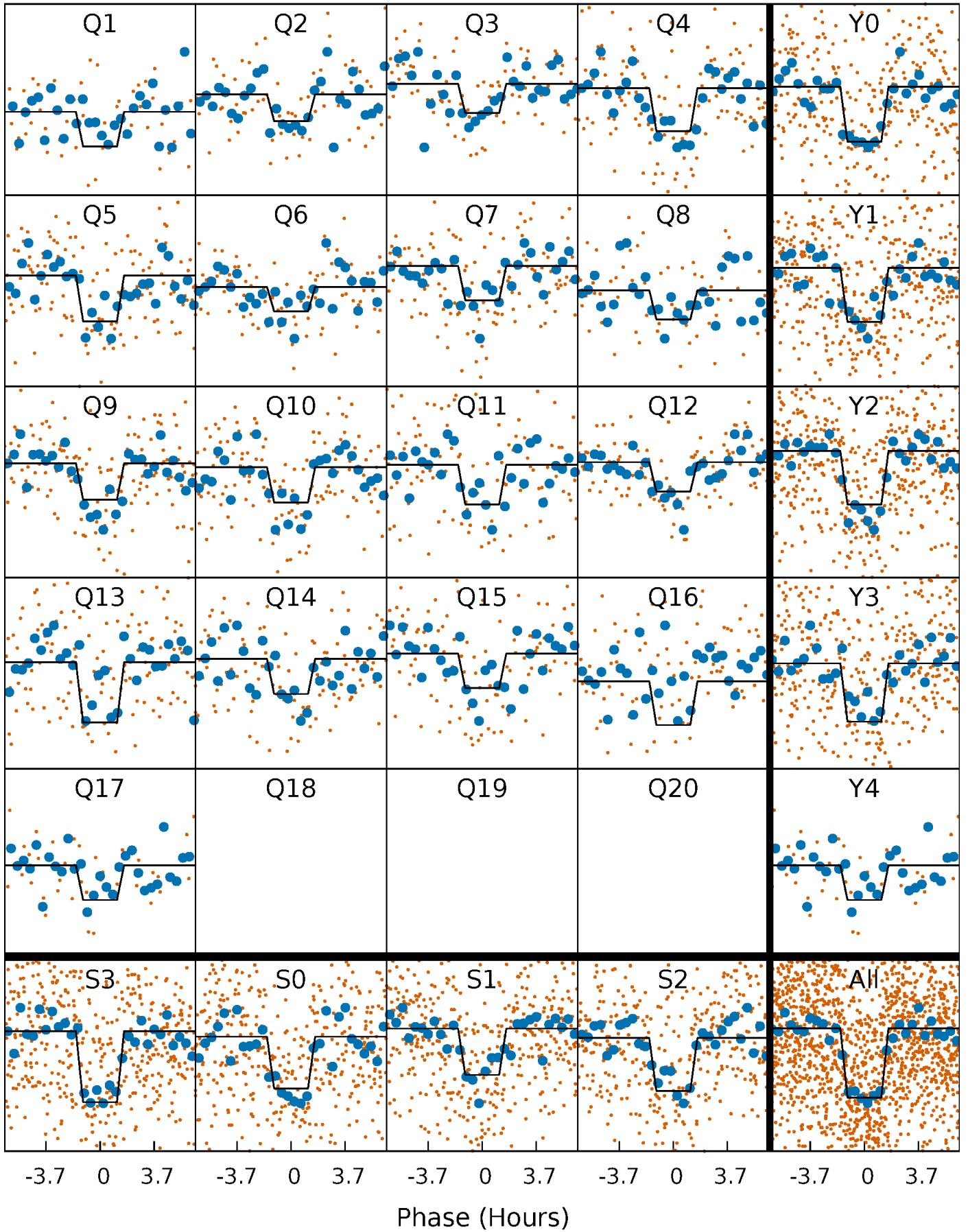
DV Quarter-Phased Transit Curves

TCE 003231341-03 P= 18.998447 Days $T_0=144.743195$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

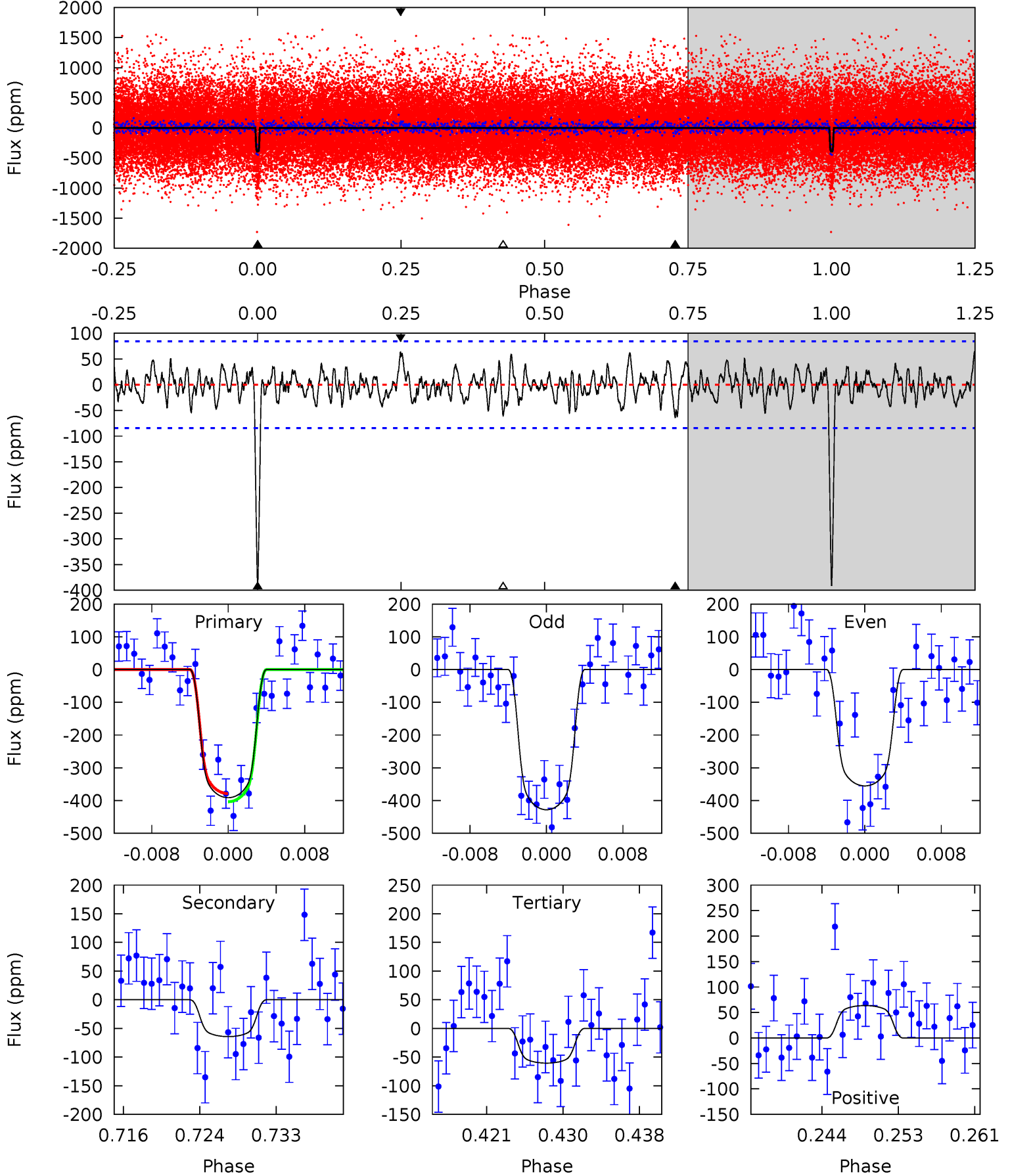
TCE 003231341-03 P= 18.998371 Days $T_0=144.746728$ (BKJD)



DV Model-Shift Uniqueness Test

003231341-03, P = 18.998447 Days, E = 125.744748 Days

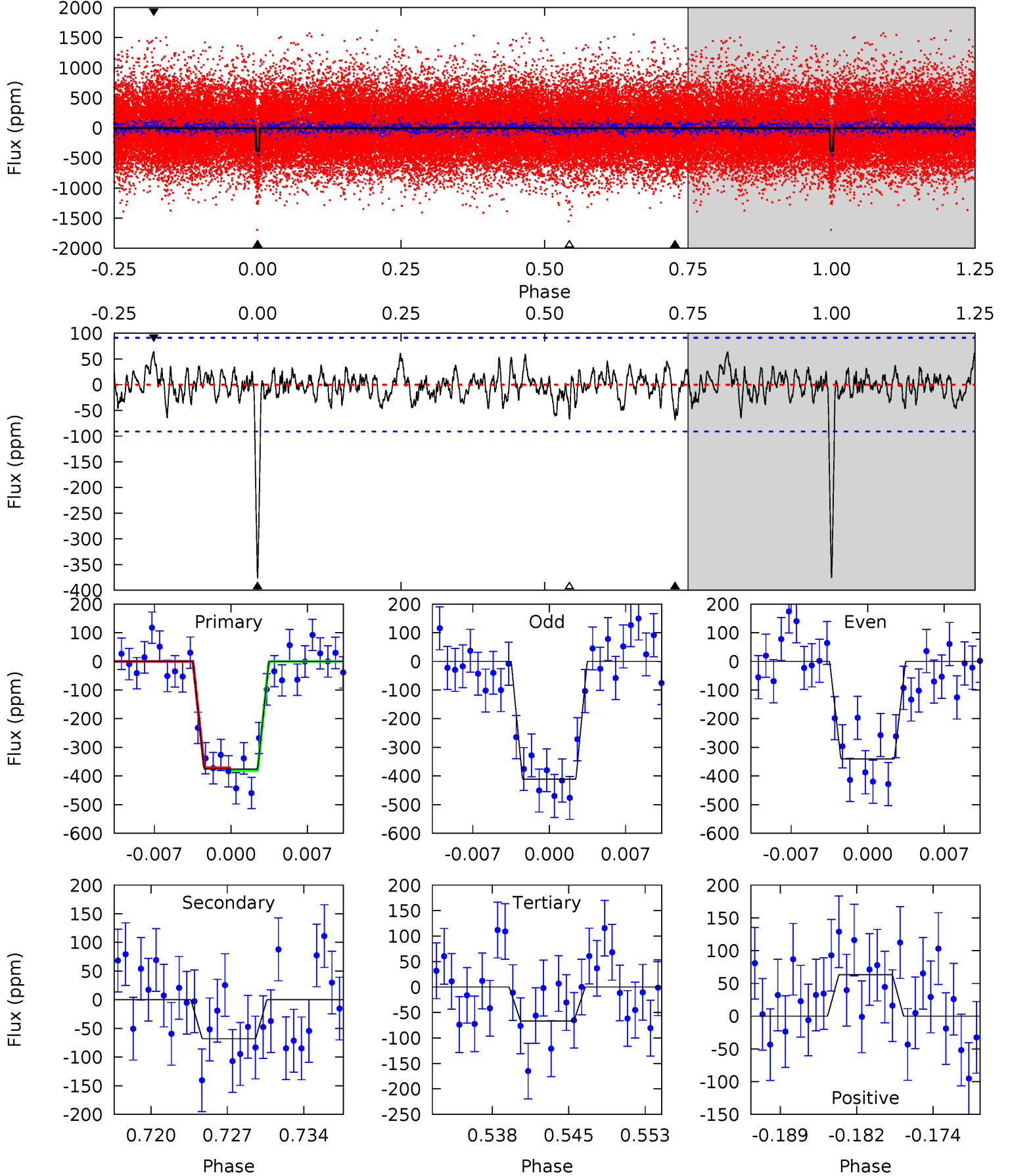
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	3.86	3.64	3.82	5.06	2.63	1.30	19.9	19.7	0.22	0.04	2.19	1.04	0.14	0.75



Alt Model-Shift Uniqueness Test

003231341-03, P = 18.998371 Days, E = 125.748357 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	3.79	3.72	3.53	5.09	2.68	1.19	17.2	17.4	0.07	0.26	1.96	1.04	0.14	0.26



Stellar Parameters For KIC 003231341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+117}_{-105}	$4.197^{+0.195}_{-0.105}$	$-0.360^{+0.150}_{-0.150}$	$1.240^{+0.183}_{-0.251}$	$0.884^{+0.073}_{-0.054}$	$0.653^{+0.670}_{-0.207}$
	+2%/-2%	+5%/-3%	+42%/-42%	+15%/-20%	+8%/-6%	+103%/-32%
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 003231341-03 / KOI 1102.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-64 ± 17	$2.97^{+0.46}_{-0.42}$	1104^{+53}_{-66}	3888^{+250}_{-221}	71^{+36}_{-24}
Alt.	-68 ± 18	$2.58^{+0.43}_{-0.40}$	1100^{+50}_{-68}	4112^{+299}_{-254}	100^{+56}_{-33}

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 $A_{obs} \gg 1.0$

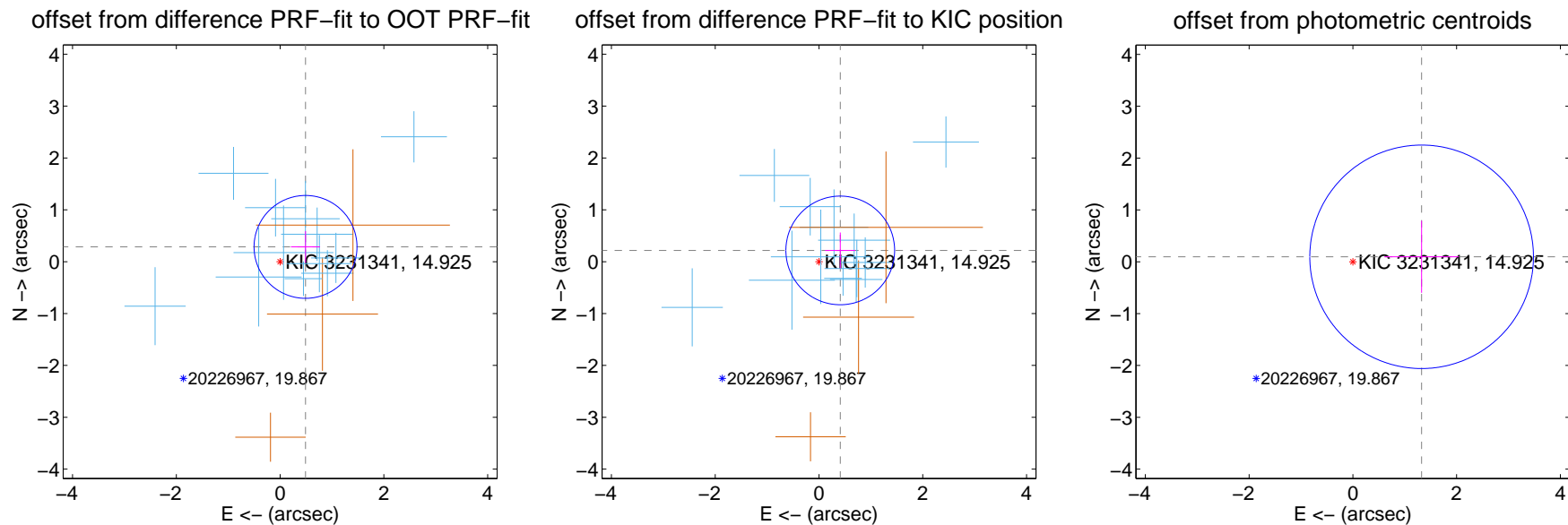
DV Centroid Data

Supplemental centroid analysis for 003231341-03. Kepler magnitude: 14.93. Transit SNR 15.97

There are 12 quarters with good PRF difference image offsets

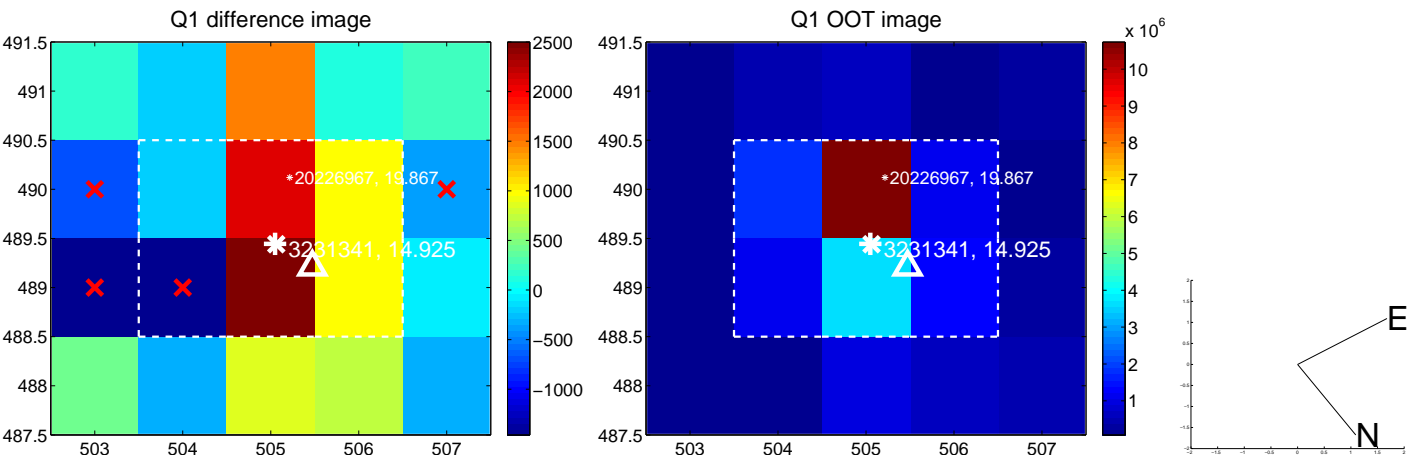
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.567 ± 0.331	1.72	-0.490 ± 0.280	0.285 ± 0.306
PRF-fit source offset from KIC position	0.464 ± 0.349	1.33	-0.410 ± 0.290	0.217 ± 0.346
photometric centroid source offset	1.33 ± 0.72	1.85	-1.33 ± 0.72	0.10 ± 0.70

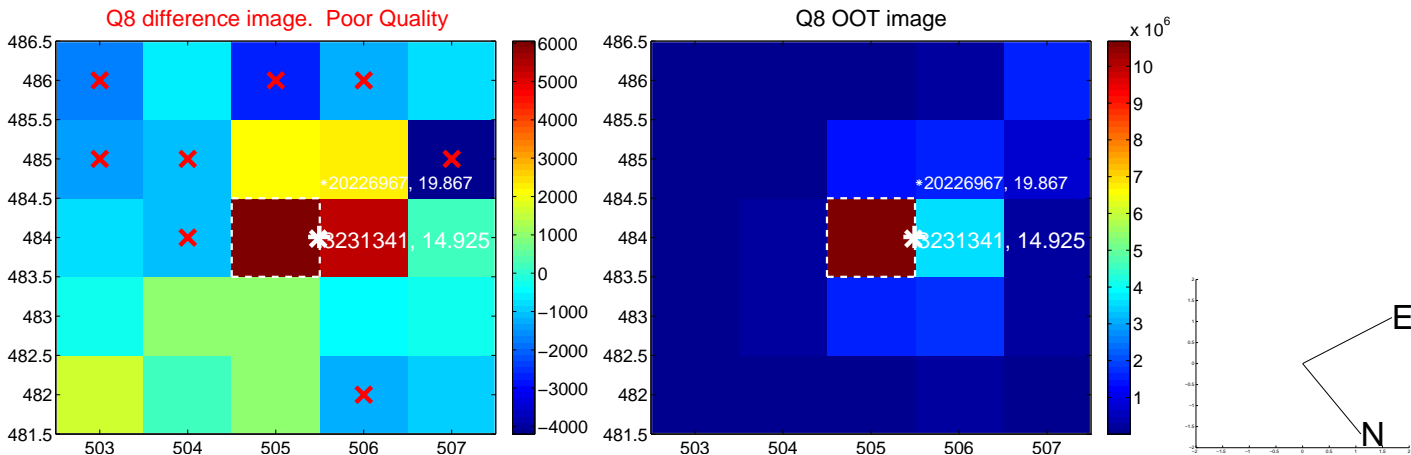
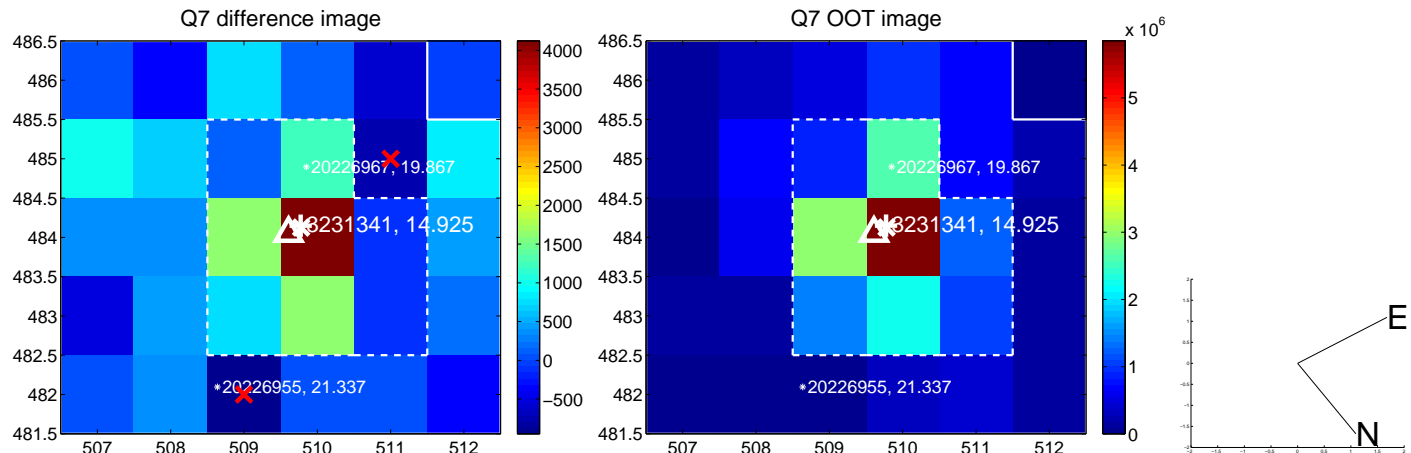
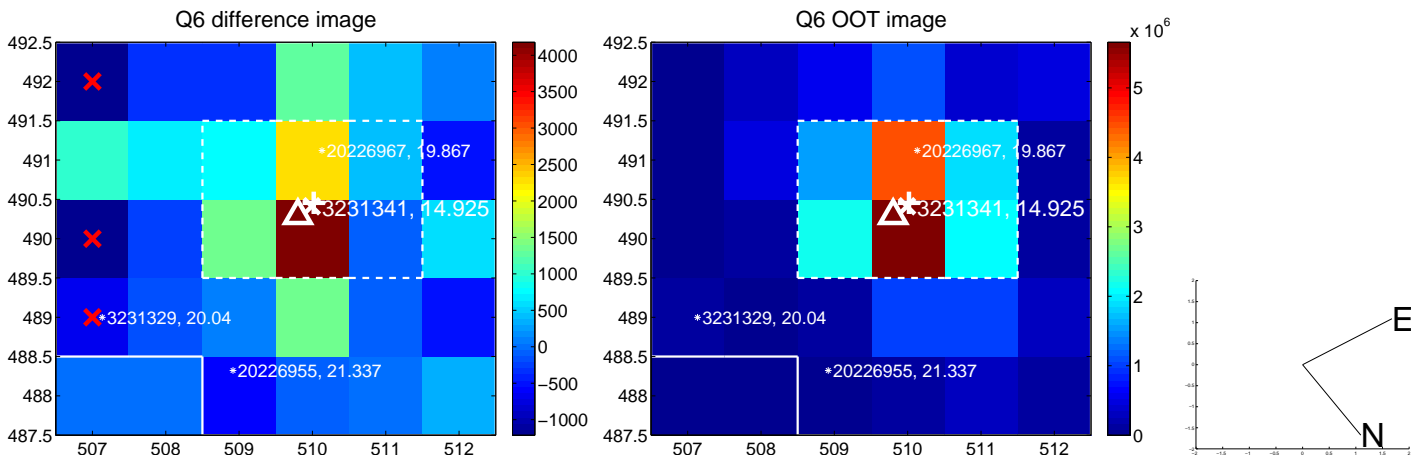
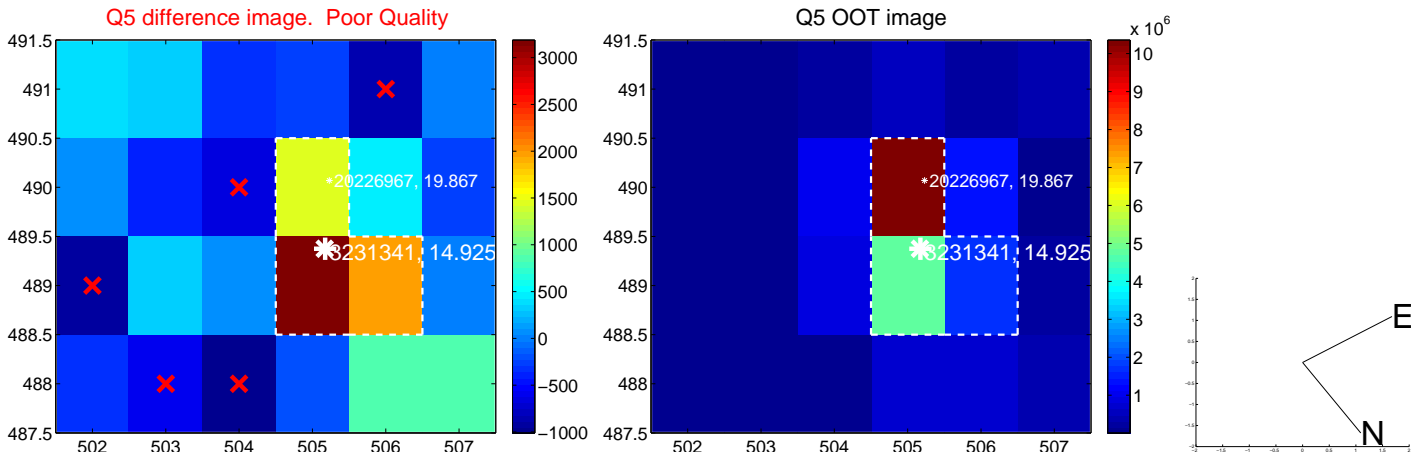


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

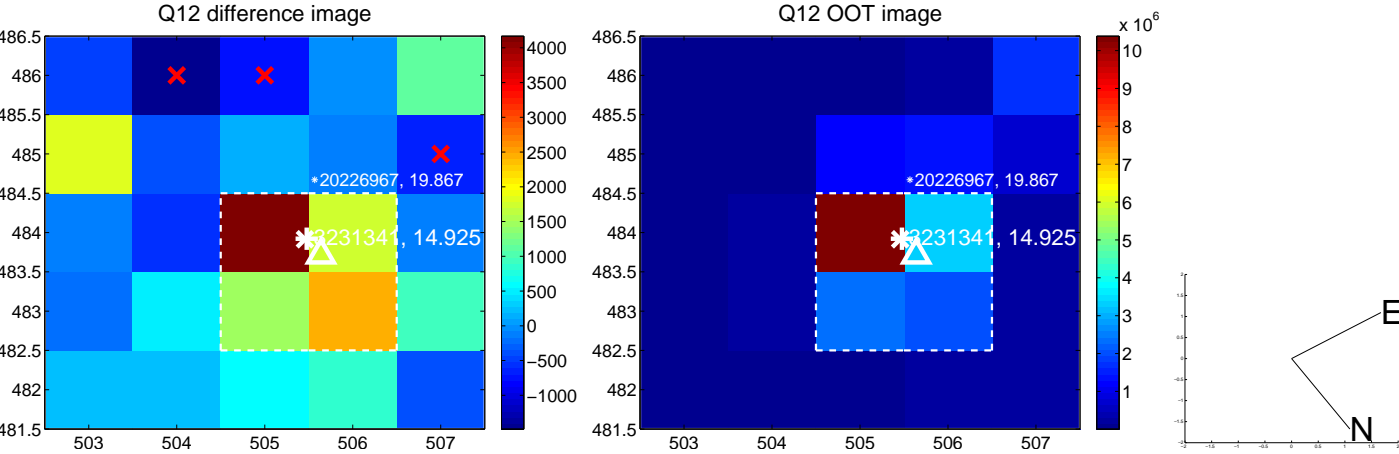
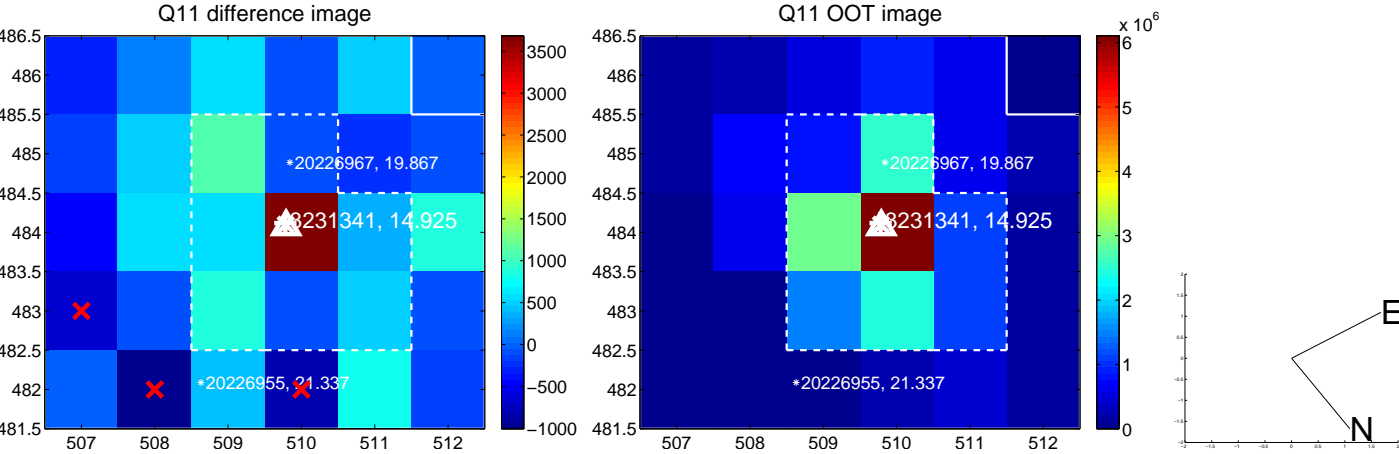
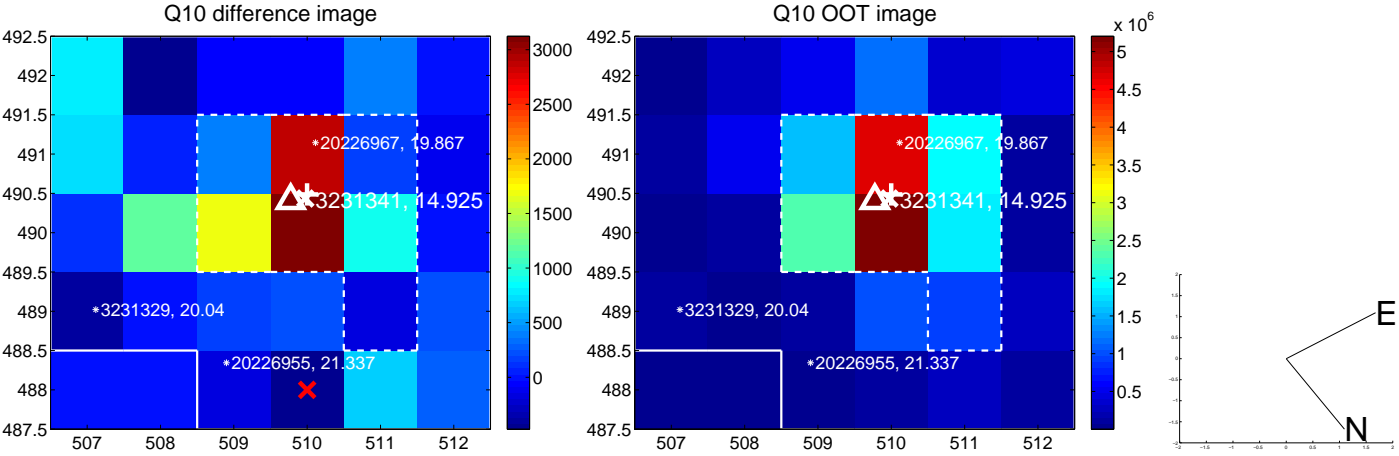
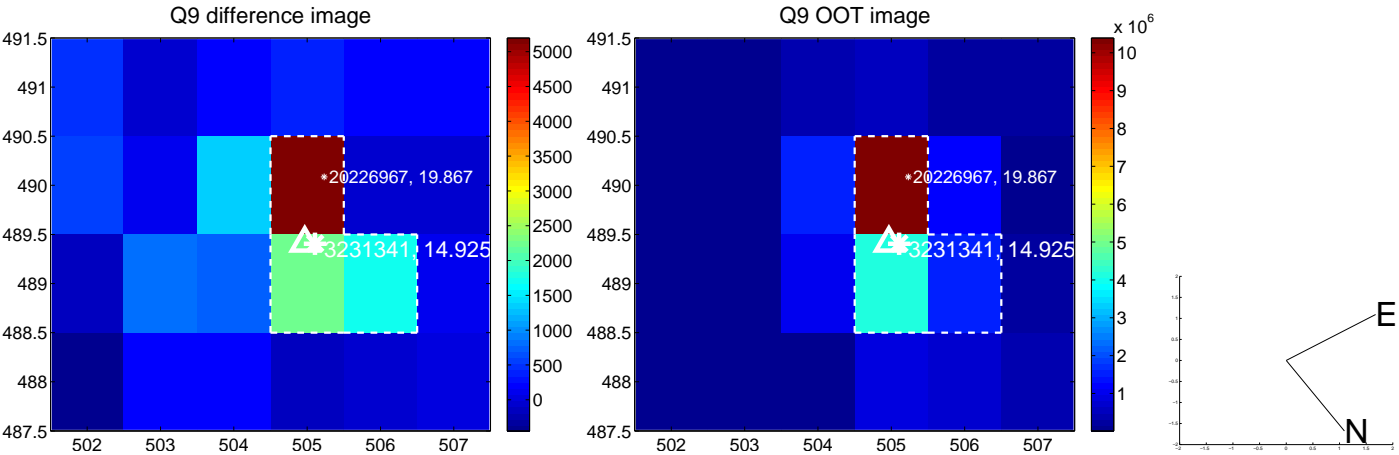
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



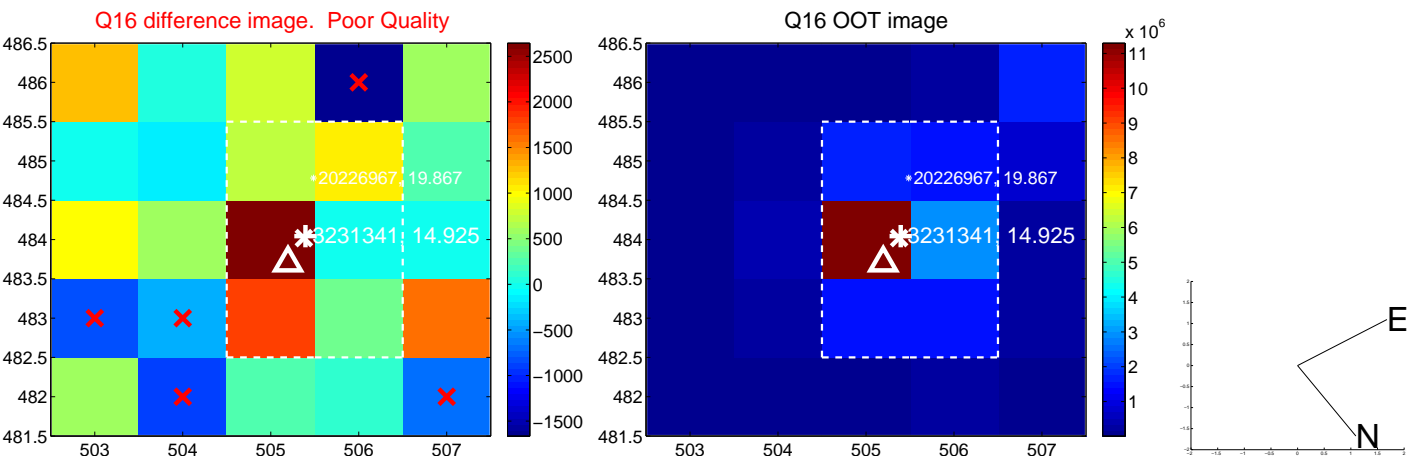
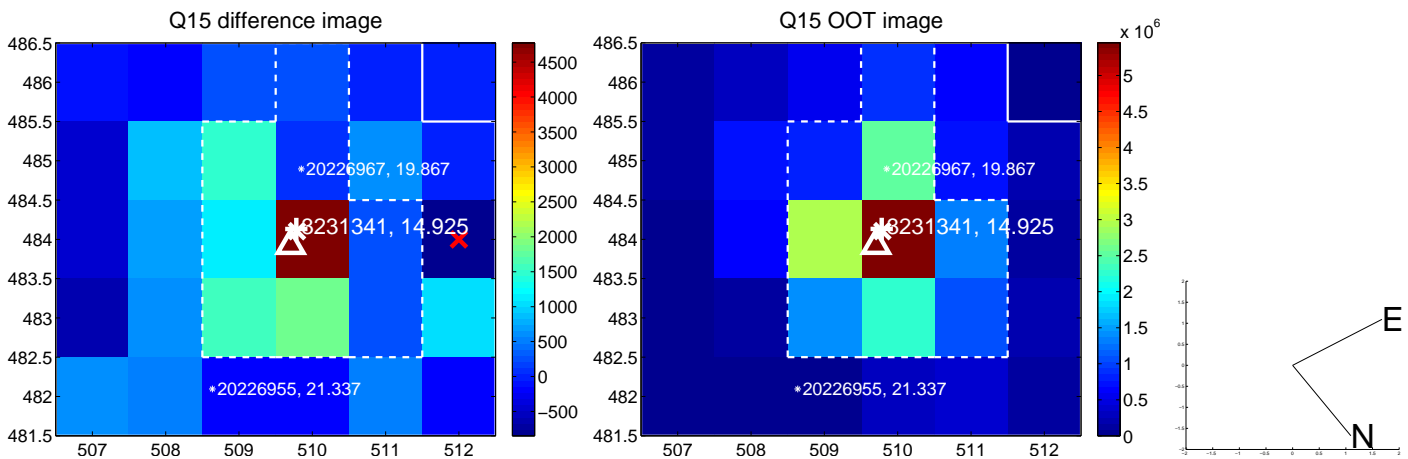
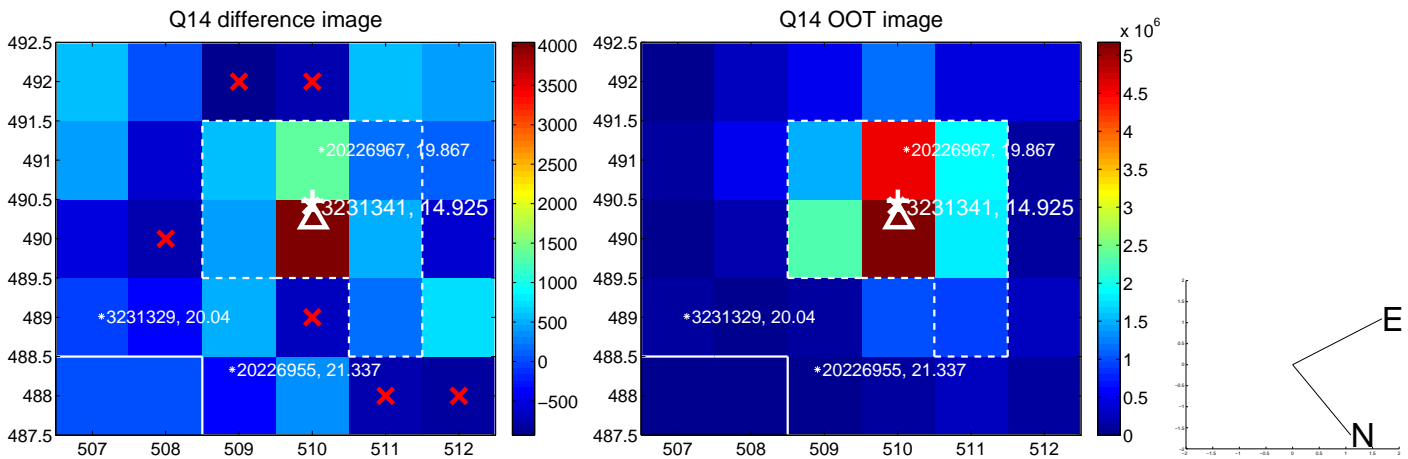
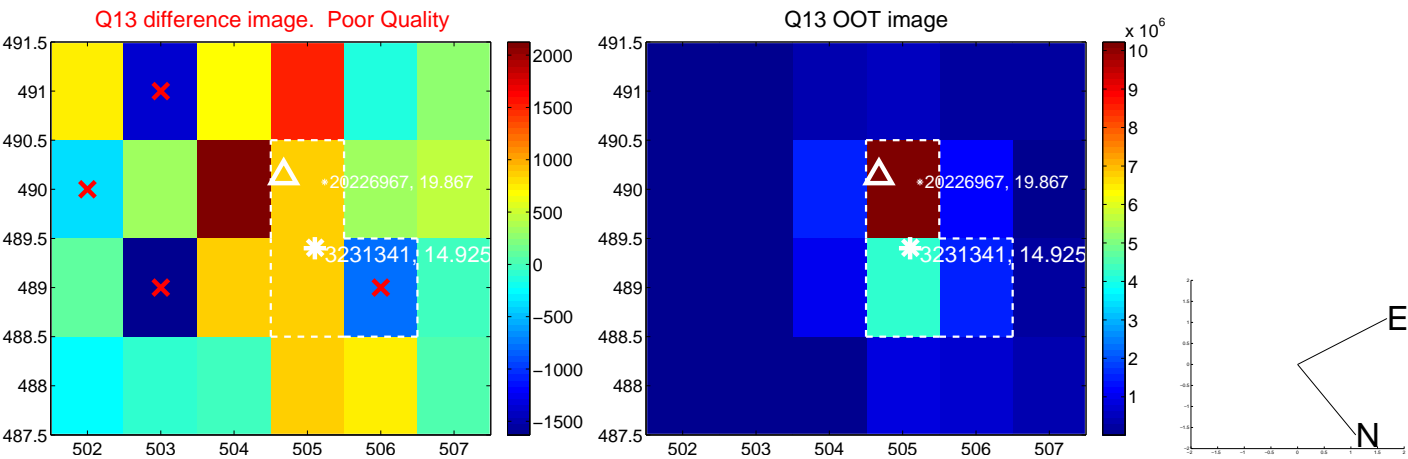
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



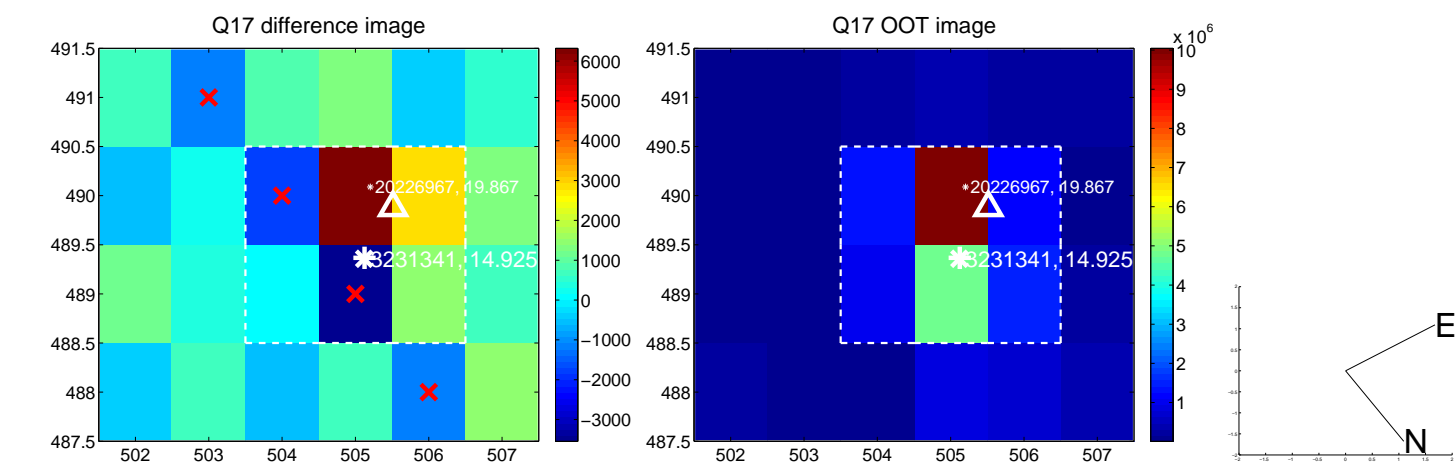
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



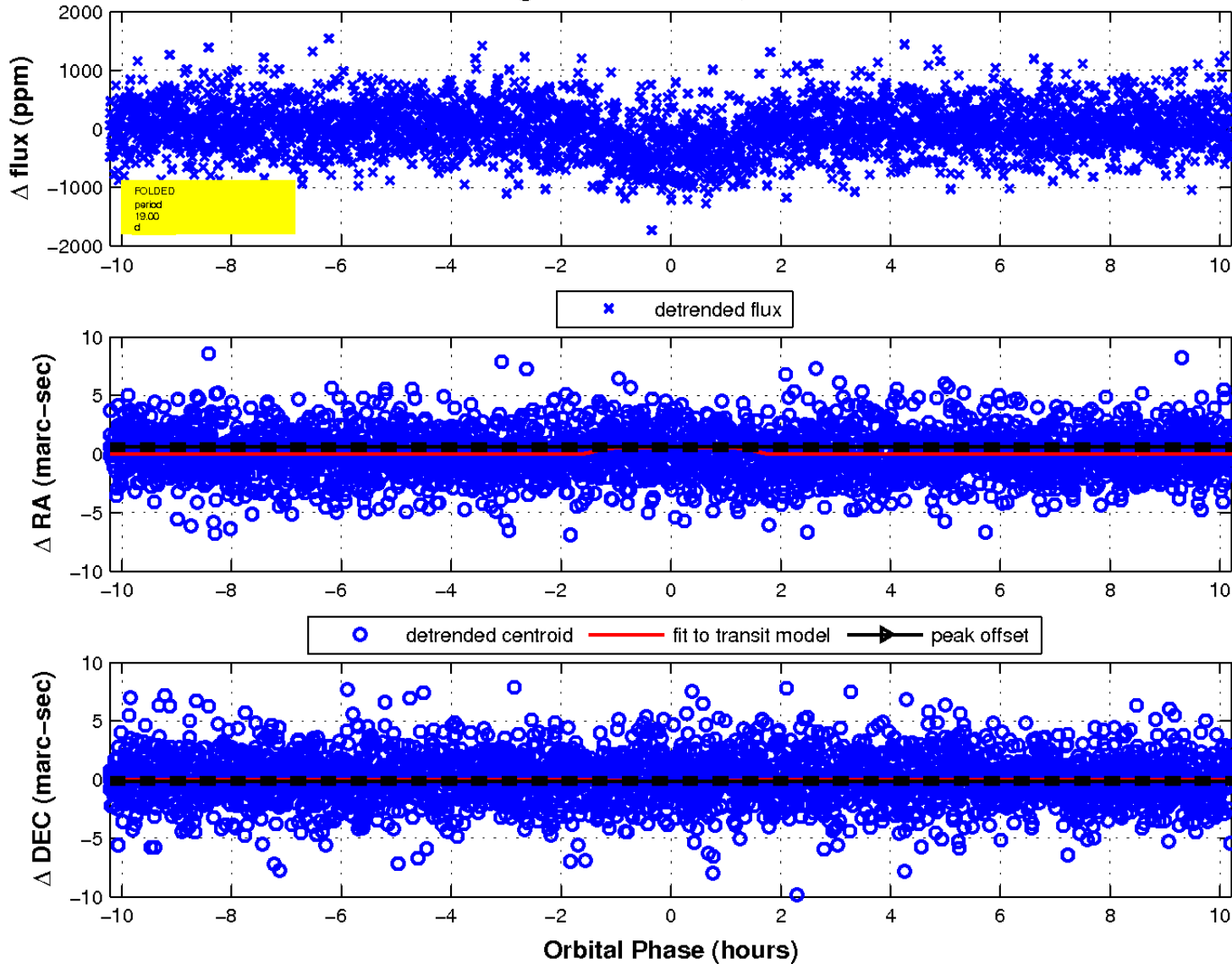
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

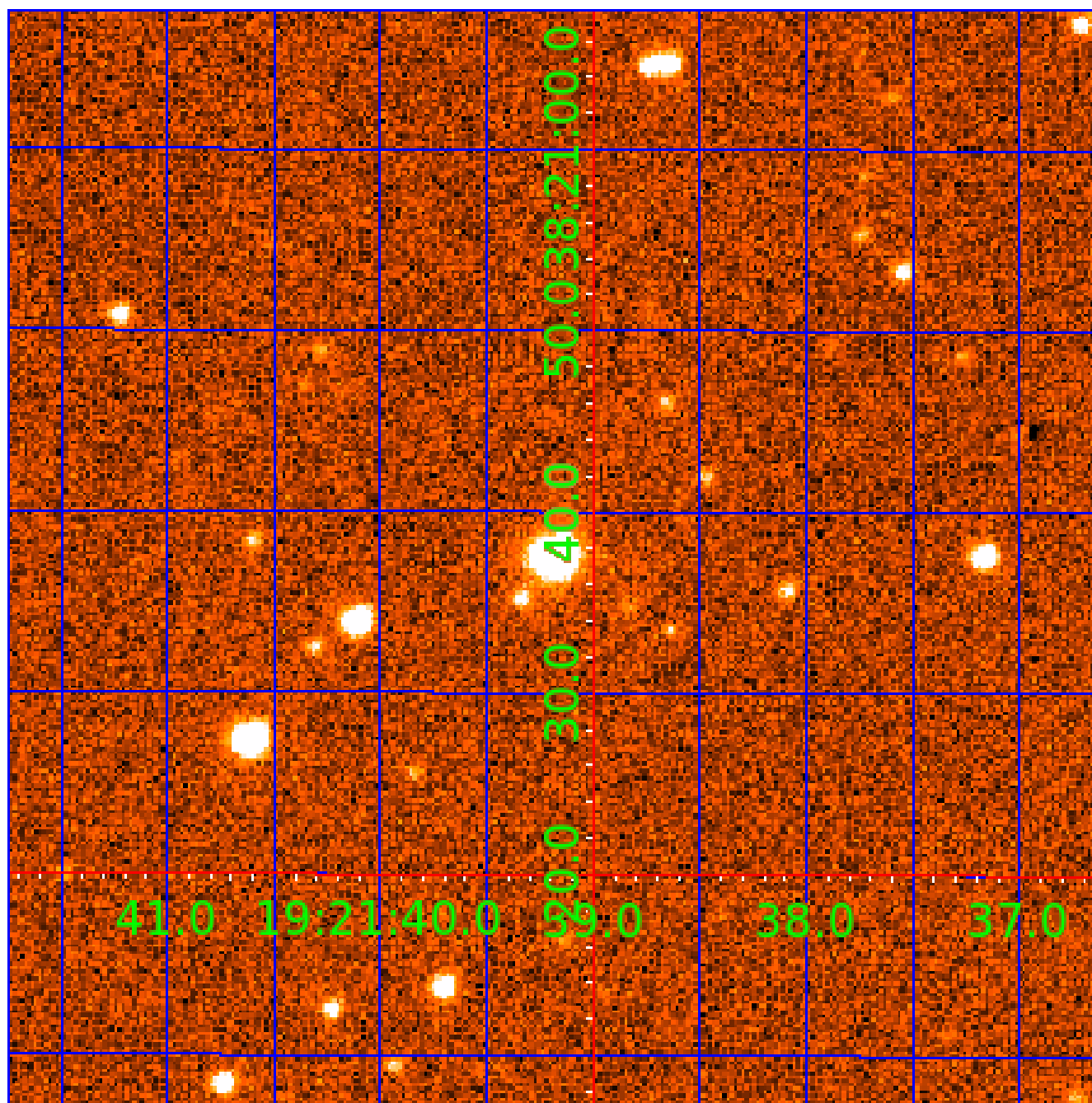


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 003231341

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})
003231341-01	OBS	1102.01	12.333473	137.586001	542.2	6.407	26.8	27.7	1.24	5896	4.07	165.69
003231341-02	OBS	1102.02	8.145181	132.420647	446.3	5.255	24.3	28.6	1.24	5896	3.41	288.10
003231341-03	OBS	1102.03	18.998447	144.743195	400.1	3.406	15.2	16.0	1.24	5896	3.02	93.14
003231341-04	OBS	No	330.912918	167.281321	501.9	9.785	12.2	7.1	1.24	5896	2.99	2.06
003231341-05	OBS	1102.04	4.244399	132.822247	194.7	3.104	12.2	15.3	1.24	5896	1.93	687.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003231341-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003231341-05	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.

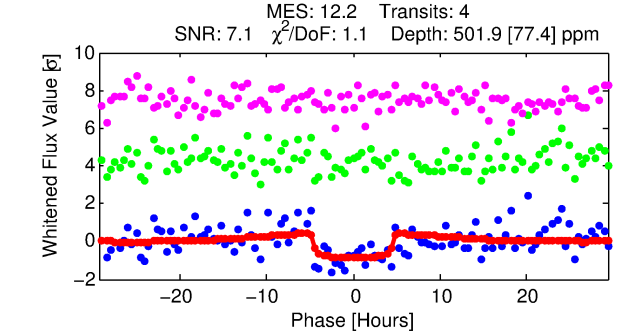
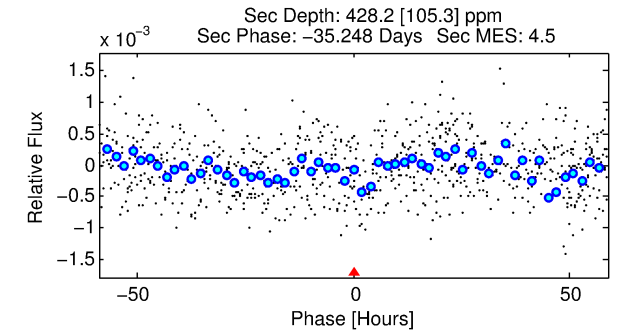
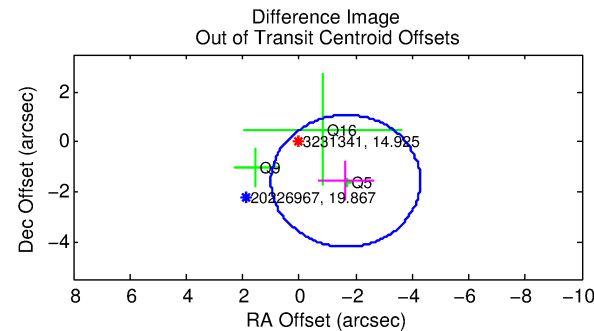
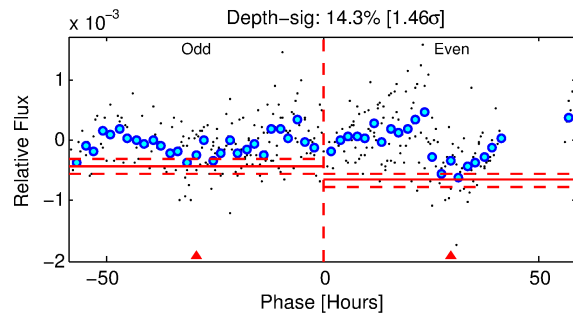
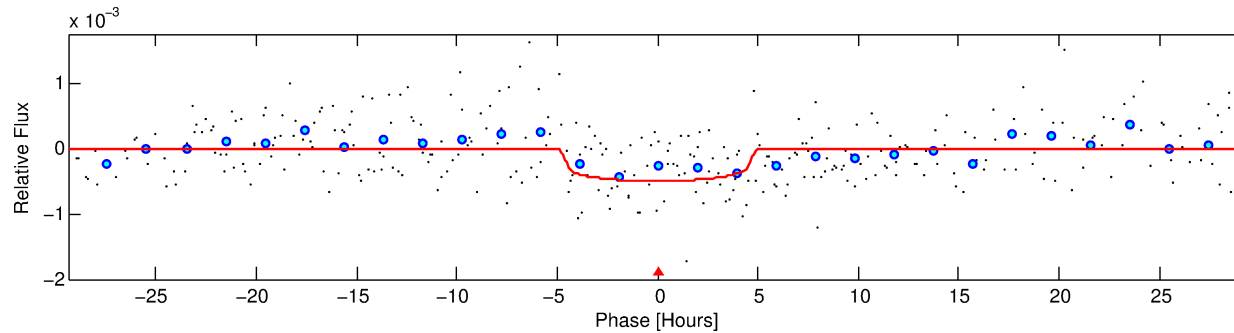
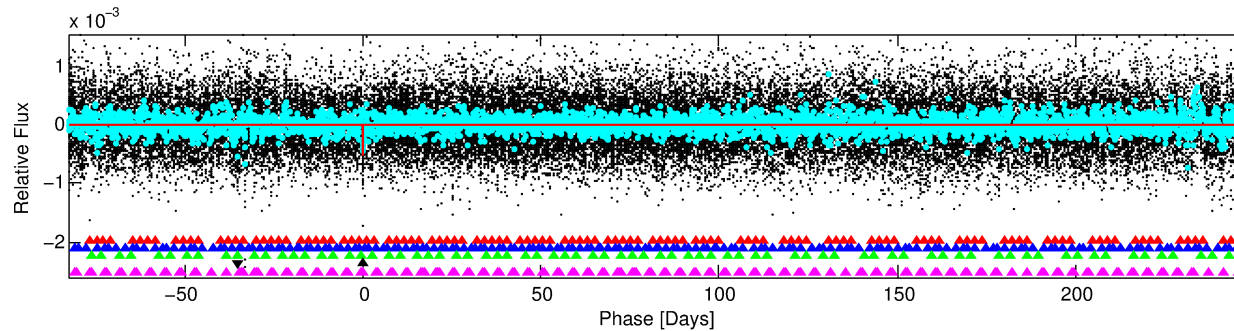
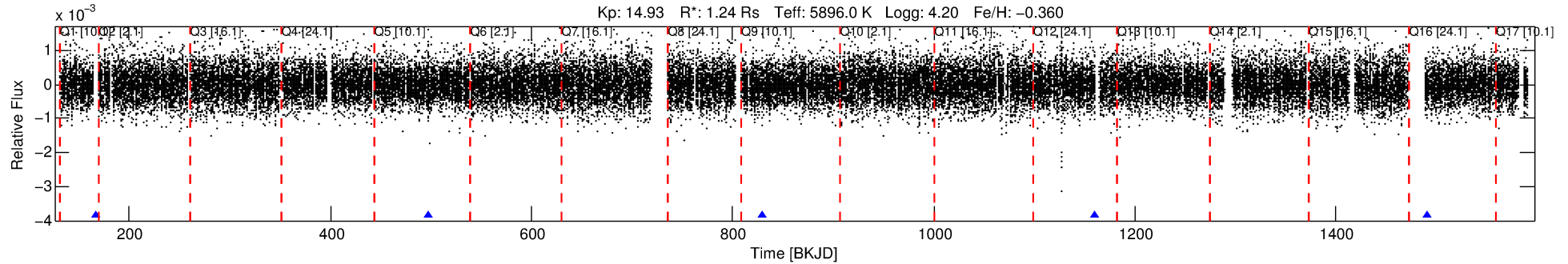
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003231341-04

No Significant Match Found

DV One-Page Summary

KIC: 3231341 Candidate: 4 of 5 Period: 330.913 d
KOI: K01102 Name: Kepler-24 Corr: No Ephemeris Match



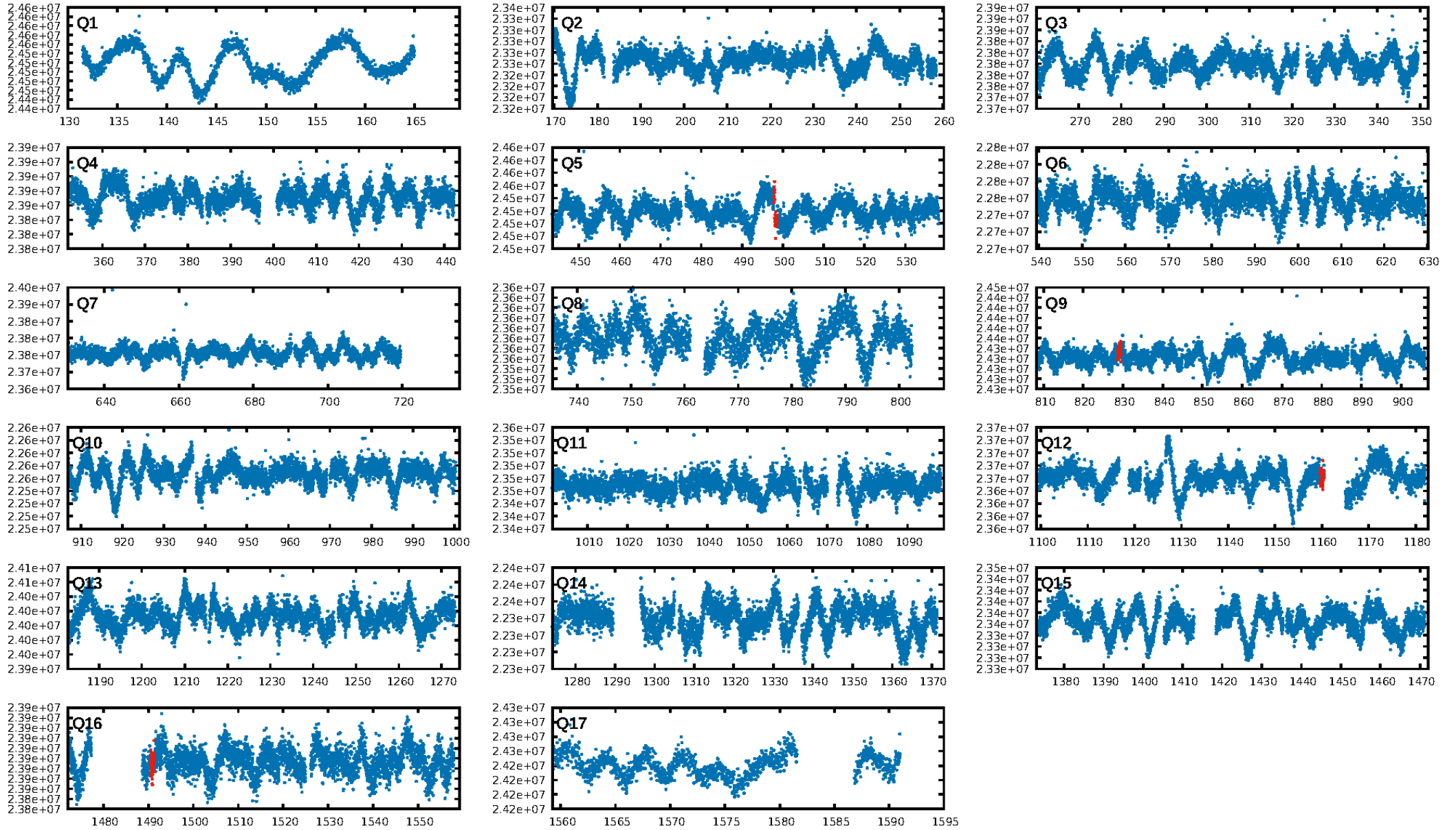
DV Fit Results:

Period = 330.91292 [0.00985] d
Epoch = 167.2813 [0.0277] BKJD
Rp/R* = 0.0221 [0.0106]
a/R* = 185.73 [424.99]
b = 0.73 [1.50]
Seff = 2.06 [0.70]
Teq = 306 [26] K
Rp = 2.99 [1.56] Re
a = 0.8984 [0.1810] AU
Ag = 21240.34 [22210.49] [0.96 σ]
Teffp = 5704 [1420] K [3.80 σ]

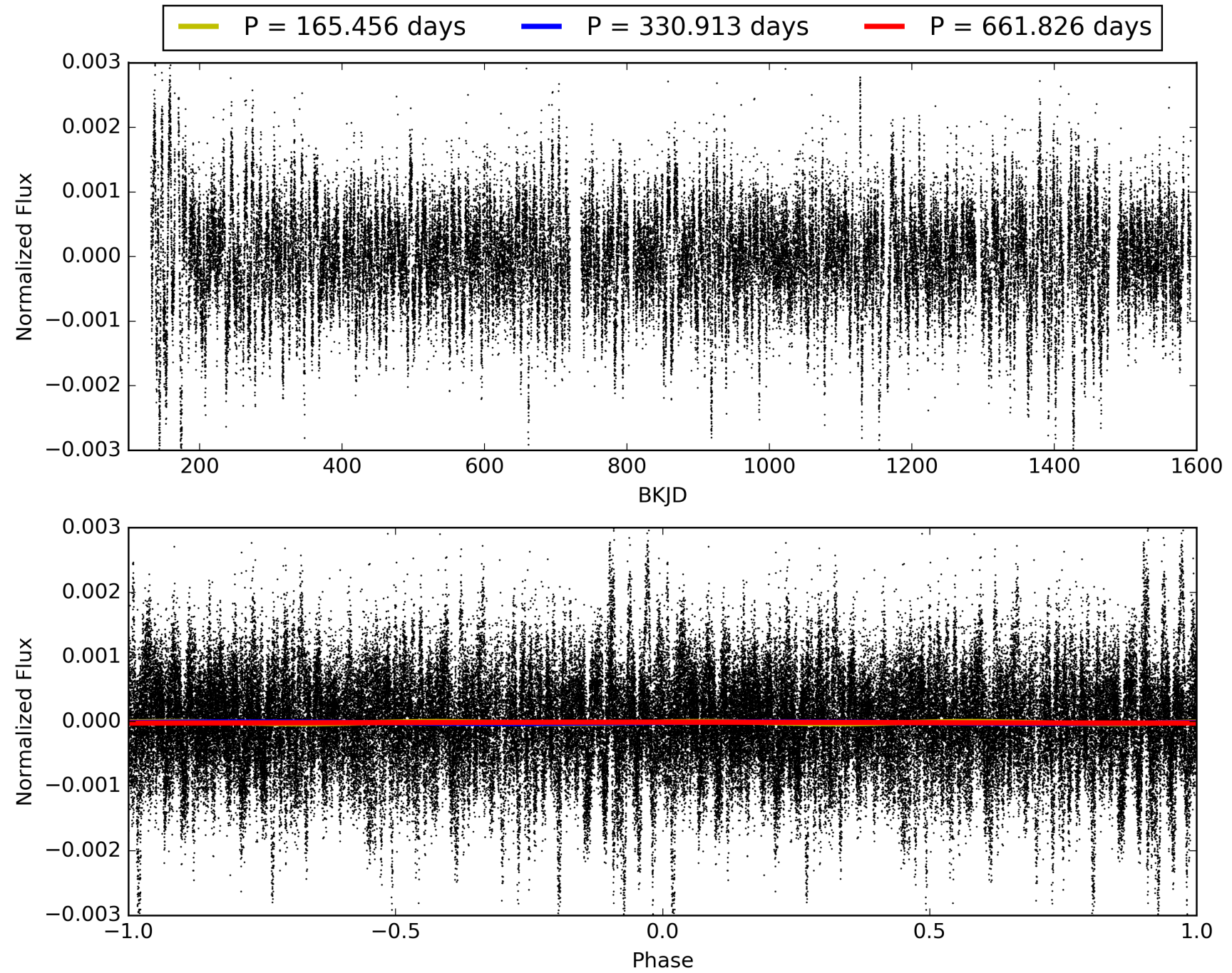
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [722.53 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 93.2%
Bootstrap-pfa: 5.70e-19
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.7142
Centroid-sig: 8.6%
Centroid-so: 1.890 arcsec [1.46 σ]
OotOffset-rm: 2.276 arcsec [2.59 σ]
KicOffset-rm: 2.237 arcsec [2.54 σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

TCE 003231341-04, PDC Light Curves

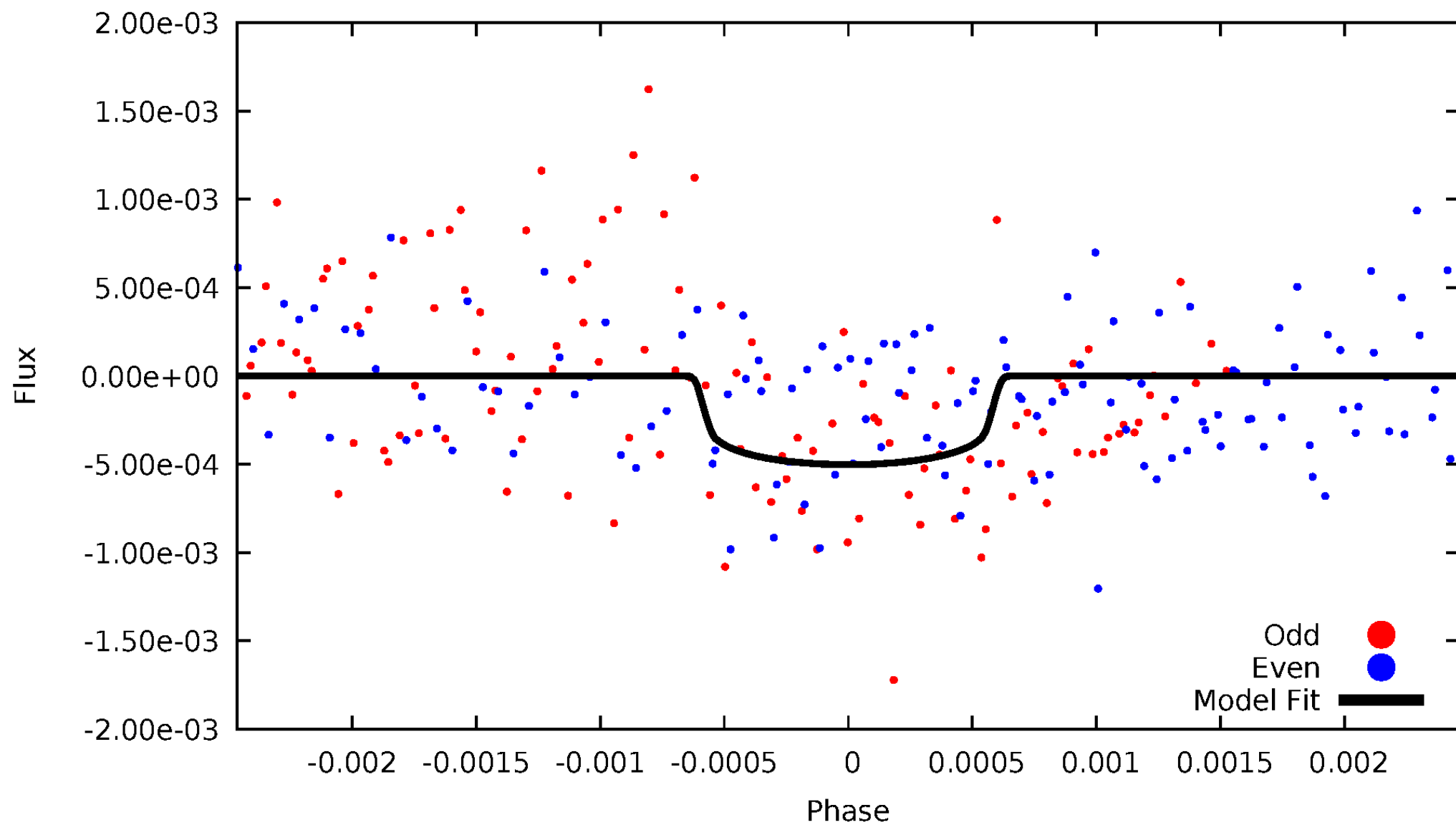


TCE 003231341-04



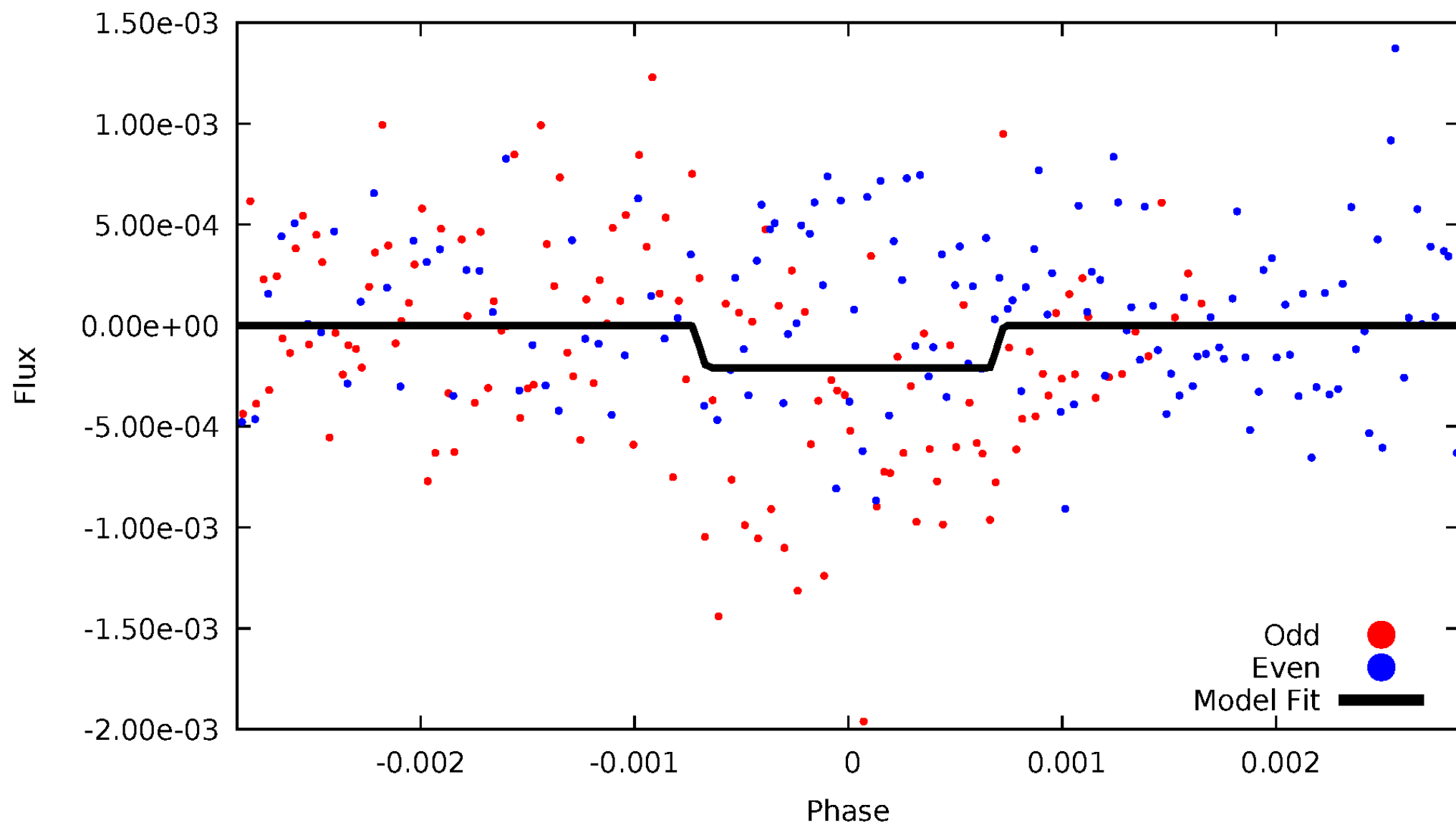
DV Odd/Even

TCE 003231341-04



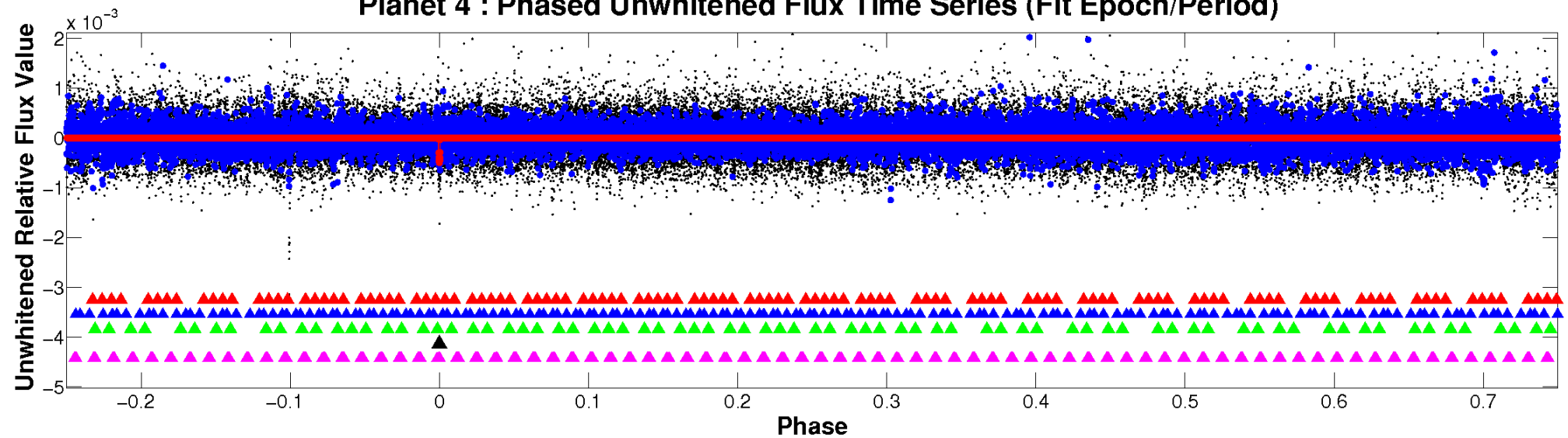
ALT Odd/Even

TCE 003231341-04

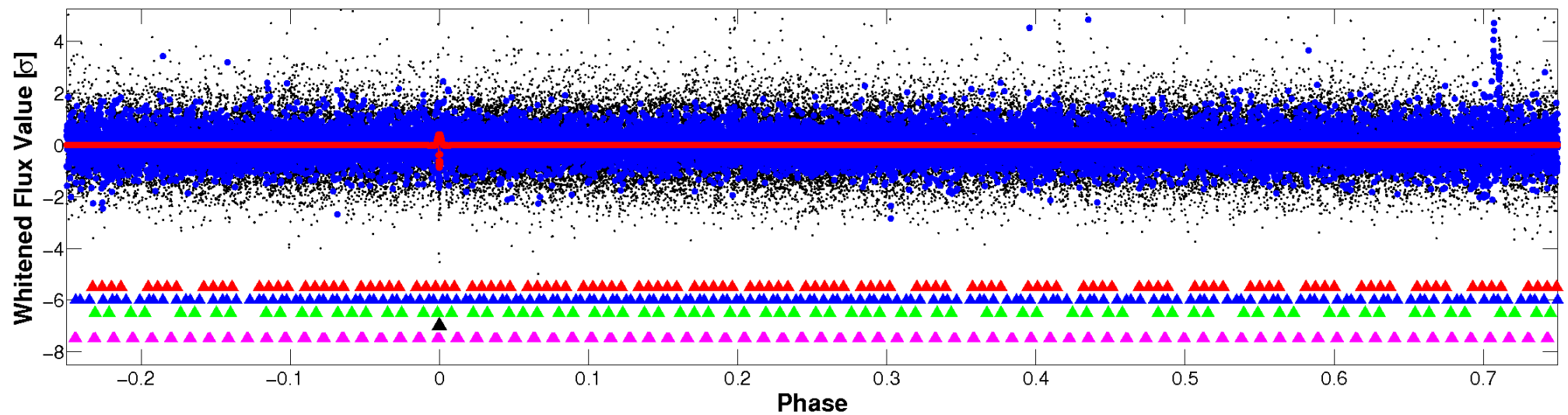


Non-Whitened Vs. Whitened Light Curve

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

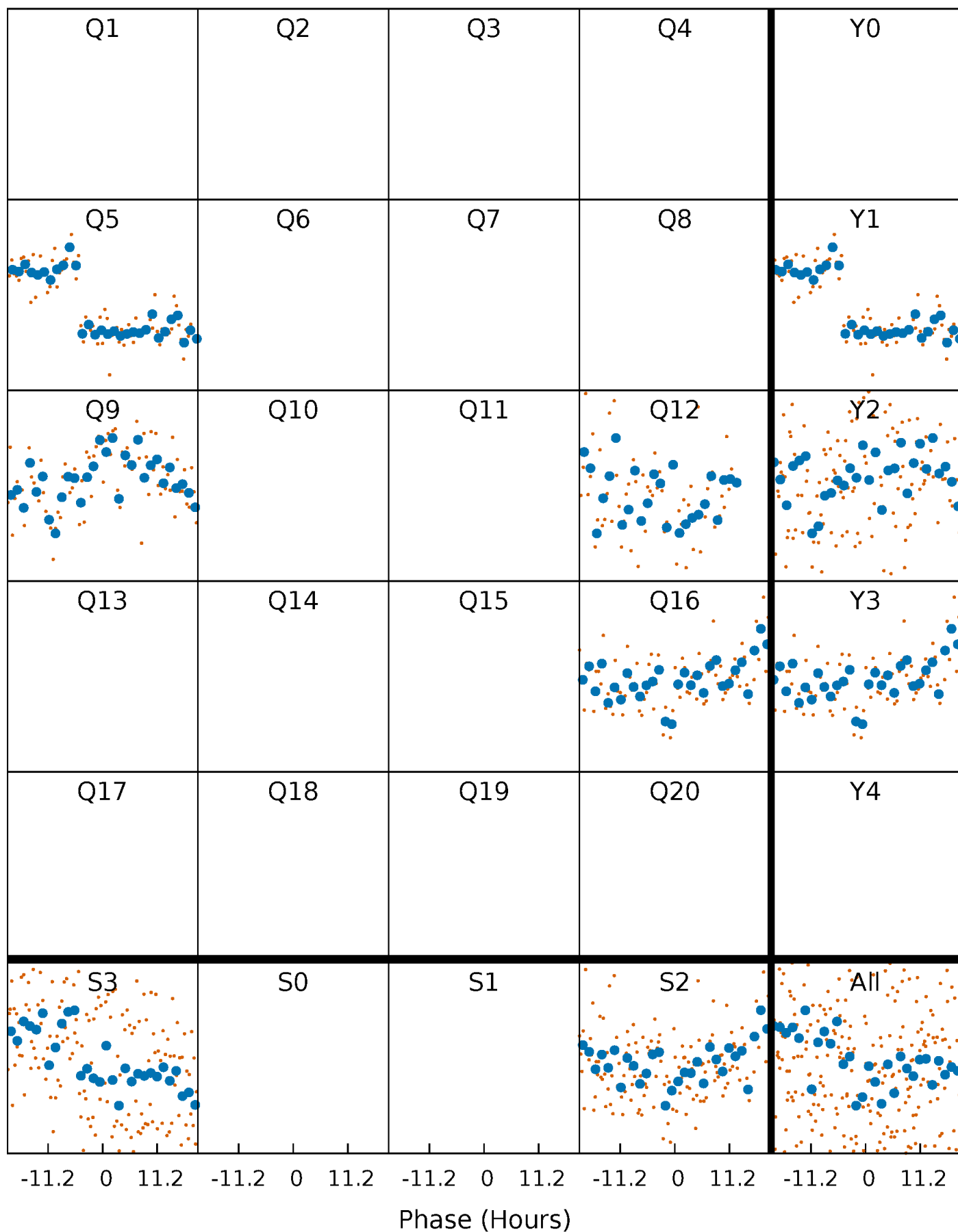


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 003231341-04 $P=330.912918$ Days $T_0=167.281321$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 003231341-04 $P=330.912918$ Days $T_0=167.281321$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

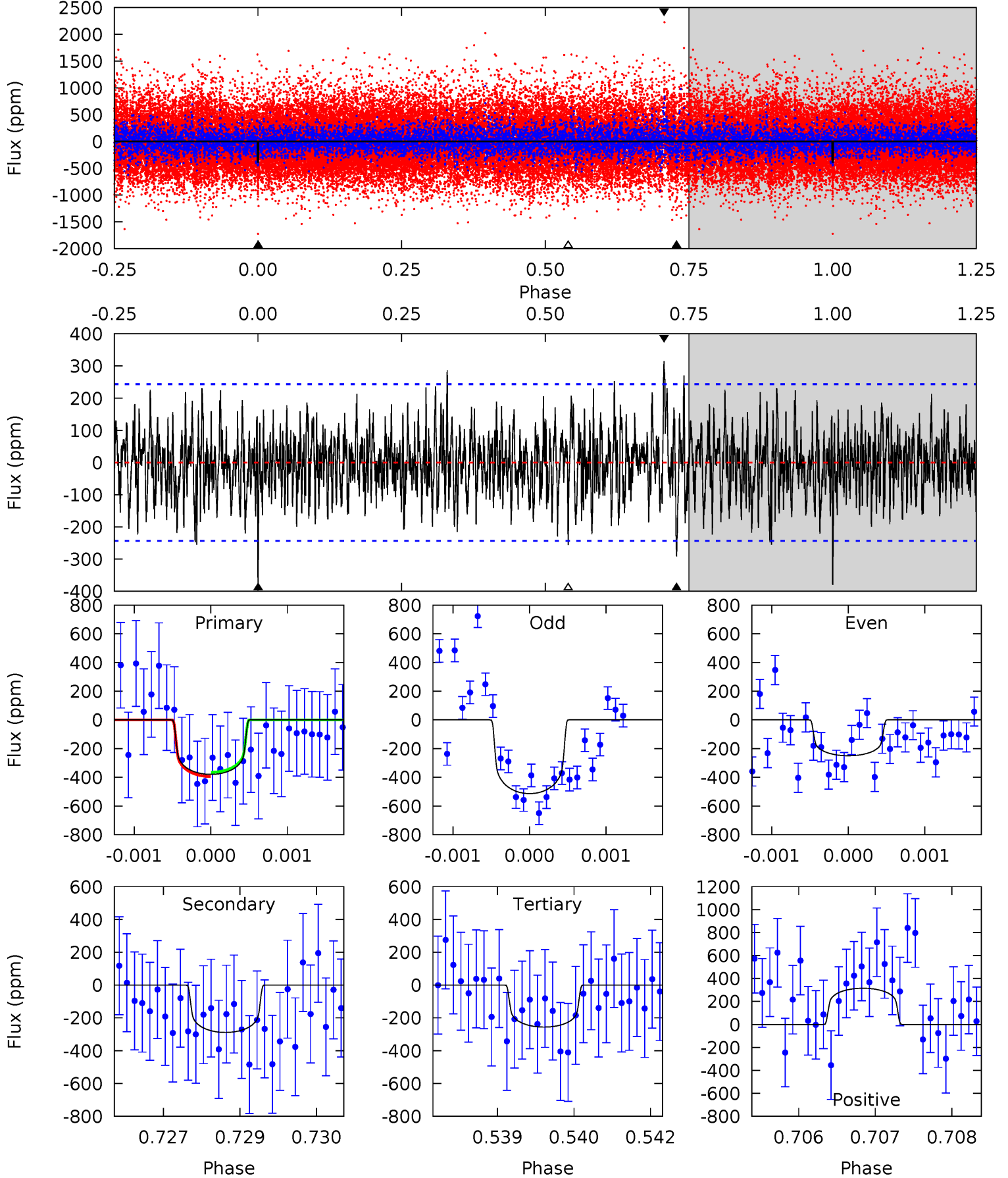
TCE 003231341-04 $P=330.873826$ Days $T_0=167.357116$ (BKJD)



DV Model-Shift Uniqueness Test

003231341-04, P = 330.912918 Days, E = 167.281321 Days

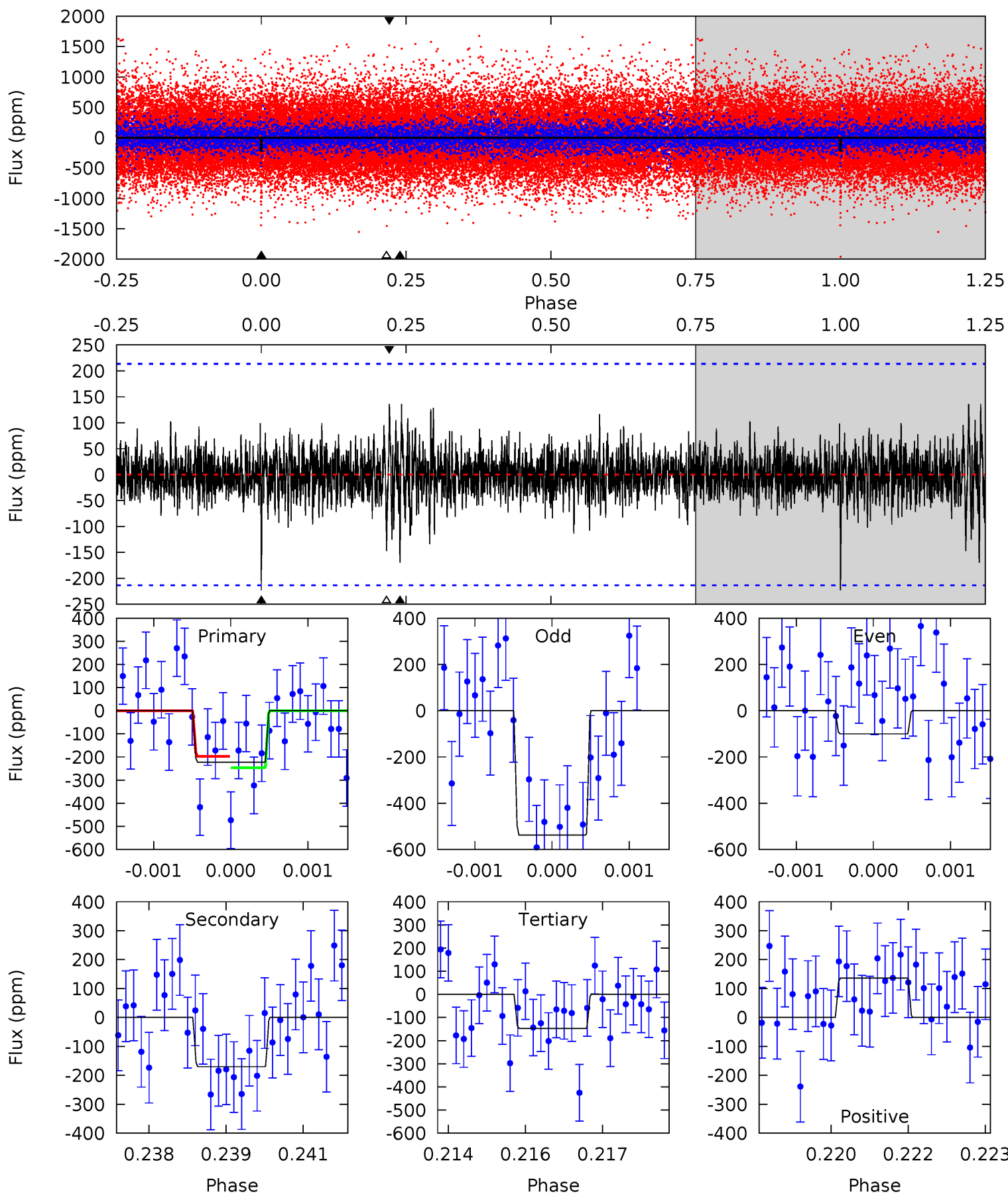
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.43	6.41	5.69	6.99	5.41	3.22	1.86	2.74	1.44	0.72	-0.58	2.93	1.26	0.45	0.33



Alt Model-Shift Uniqueness Test

003231341-04, P = 330.873826 Days, E = 167.357116 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.62	4.29	3.71	3.43	5.38	3.18	0.84	1.90	2.19	0.57	0.86	5.55	1.41	0.38	0.61



Stellar Parameters For KIC 003231341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+117}_{-105}	$4.197^{+0.195}_{-0.105}$	$-0.360^{+0.150}_{-0.150}$	$1.240^{+0.183}_{-0.251}$	$0.884^{+0.073}_{-0.054}$	$0.653^{+0.670}_{-0.207}$
	+2%/-2%	+5%/-3%	+42%/-42%	+15%/-20%	+8%/-6%	+103%/-32%
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 003231341-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-289 ± 45	$2.99^{+1.43}_{-1.36}$	425^{+20}_{-24}	5214^{+1783}_{-796}	14737^{+33973}_{-8300}
Alt.	-170 ± 40	$2.12^{+1.30}_{-1.24}$	425^{+22}_{-28}	5366^{+2911}_{-1016}	16334^{+78697}_{-10340}

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 $A_{obs} \gg 1.0$

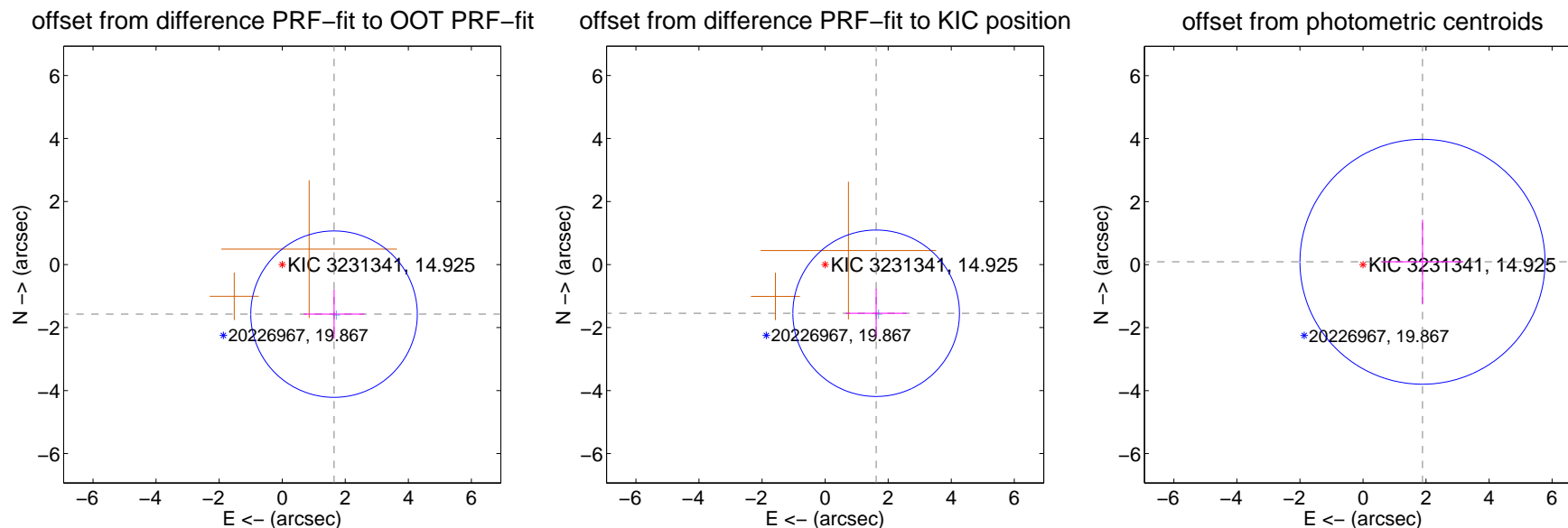
DV Centroid Data

Supplemental centroid analysis for 003231341-04. Kepler magnitude: 14.93. Transit SNR 7.14

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.276 ± 0.880	2.59	-1.644 ± 0.967	-1.574 ± 0.775
PRF-fit source offset from KIC position	2.237 ± 0.880	2.54	-1.618 ± 0.967	-1.546 ± 0.775
photometric centroid source offset	1.89 ± 1.30	1.46	-1.89 ± 1.30	0.09 ± 1.33

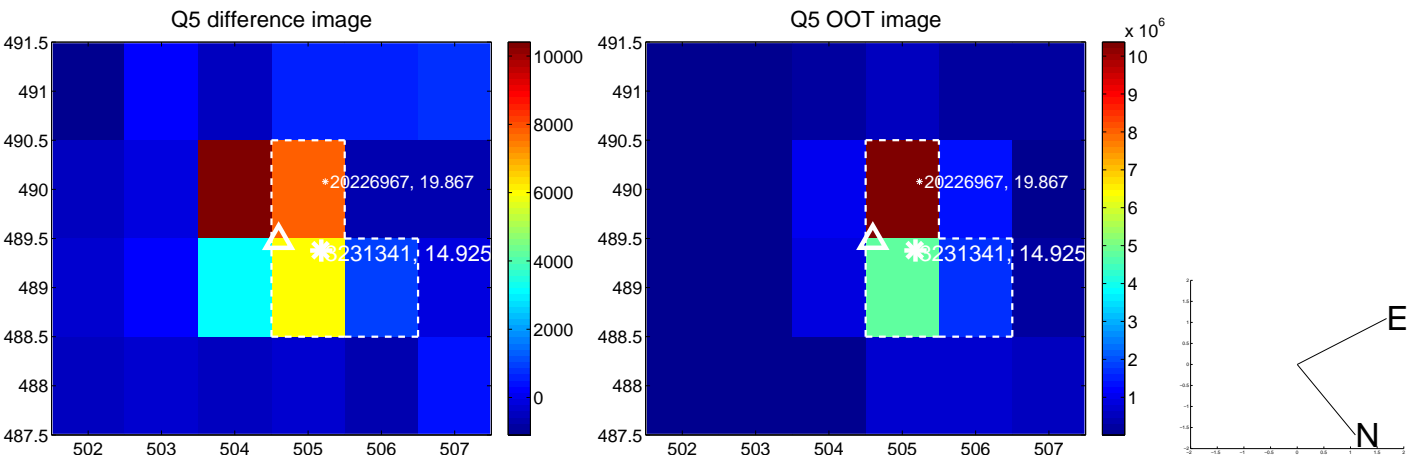


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

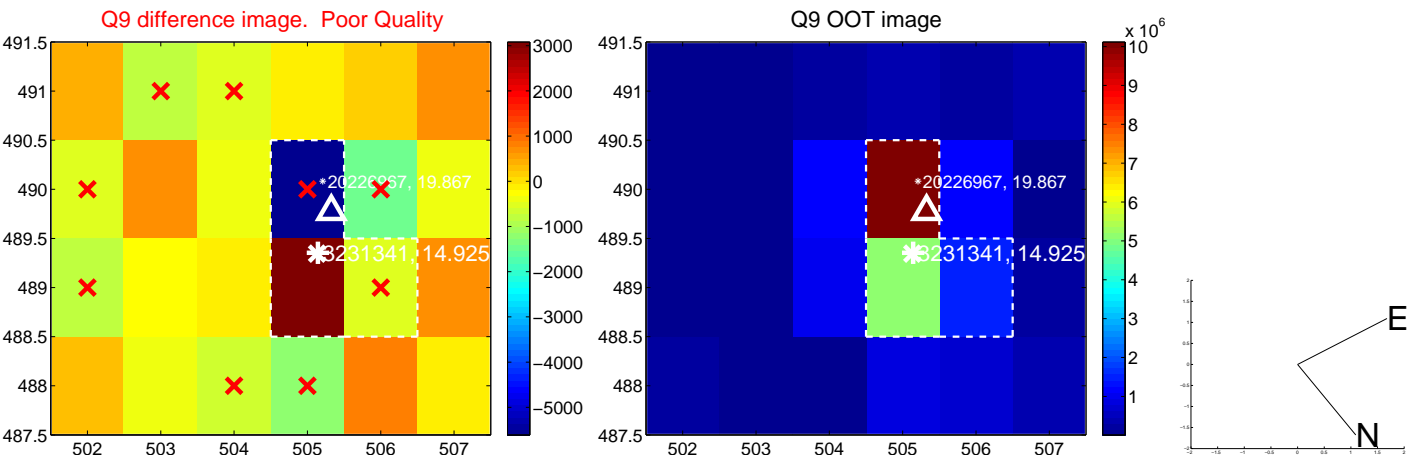
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



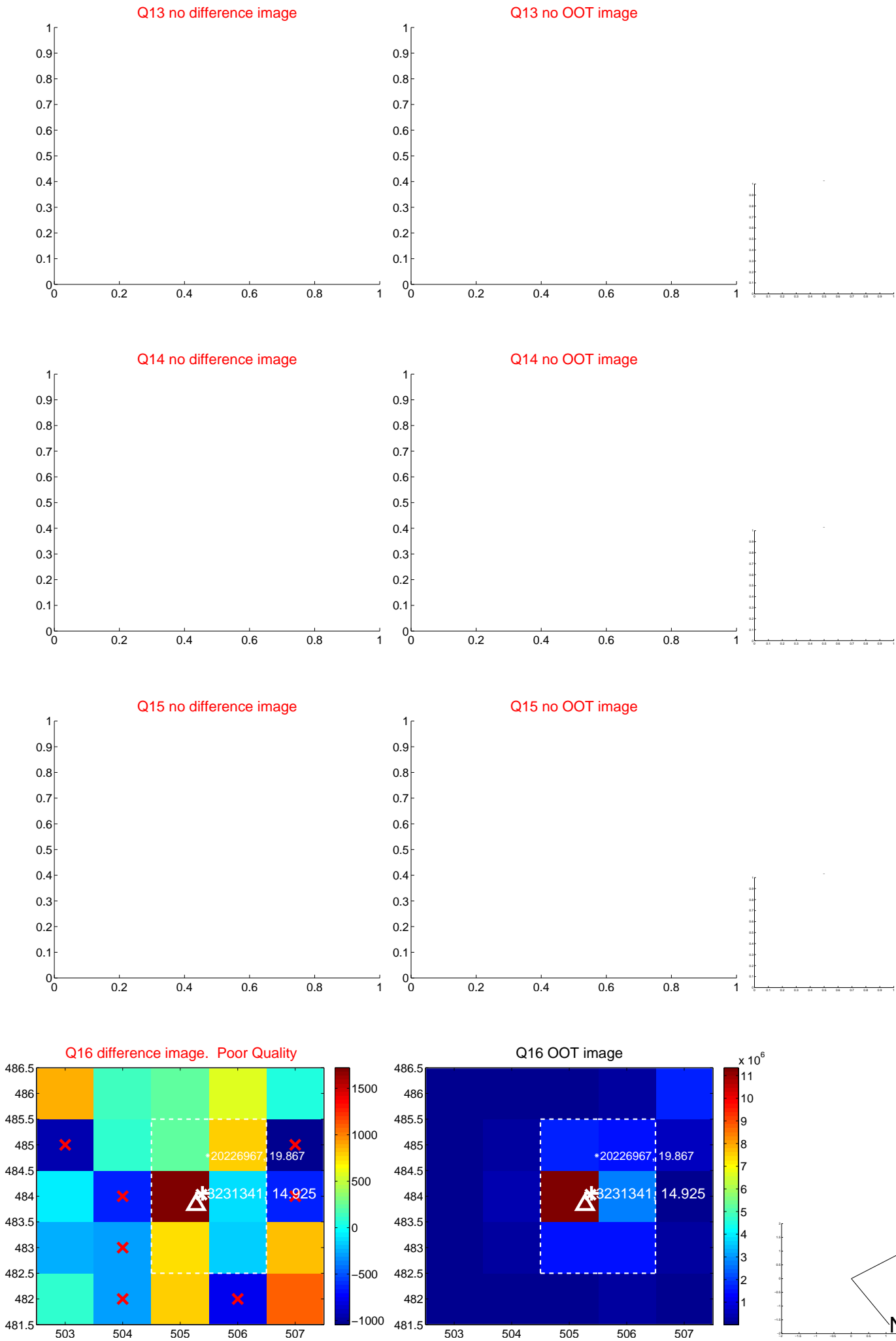
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



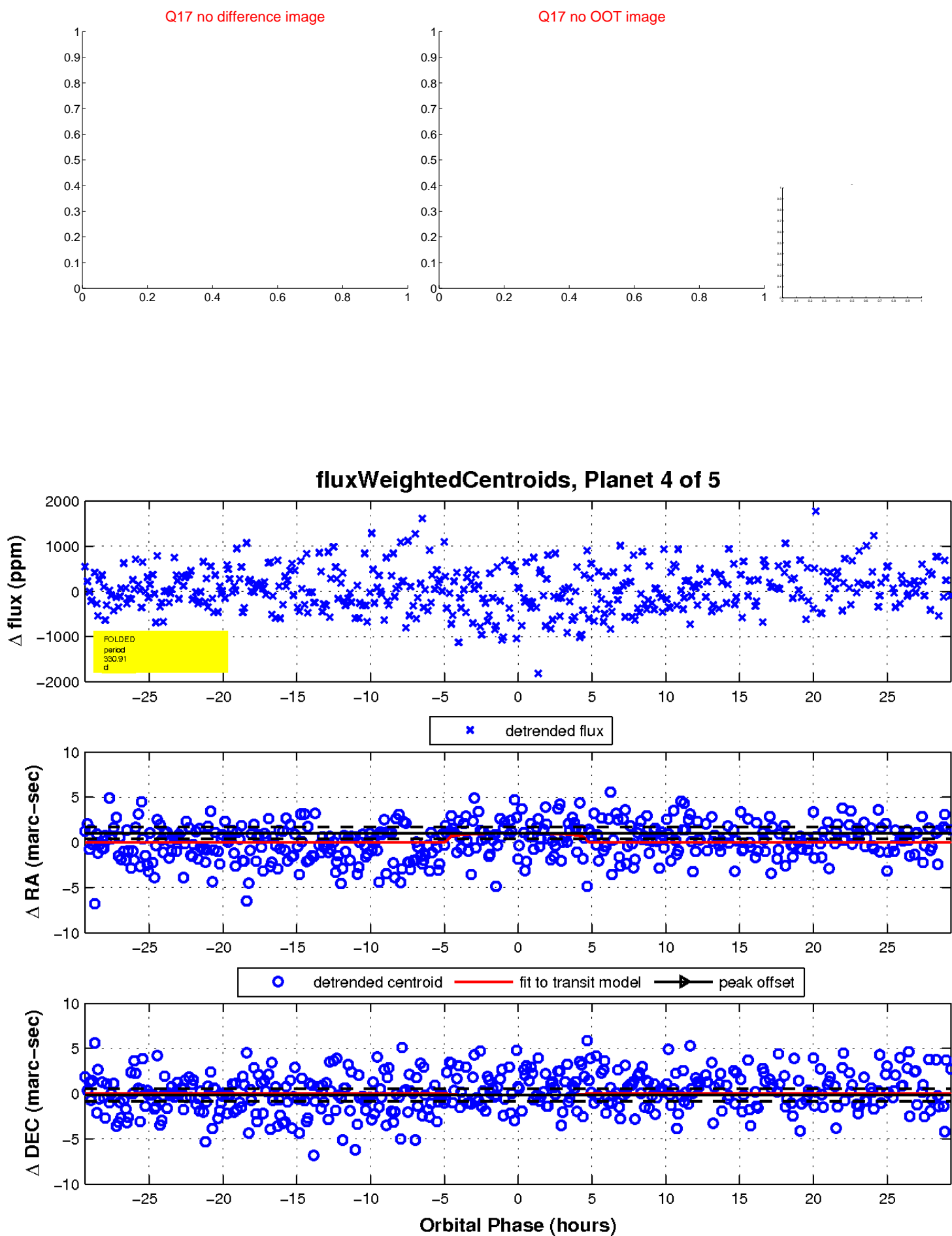
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

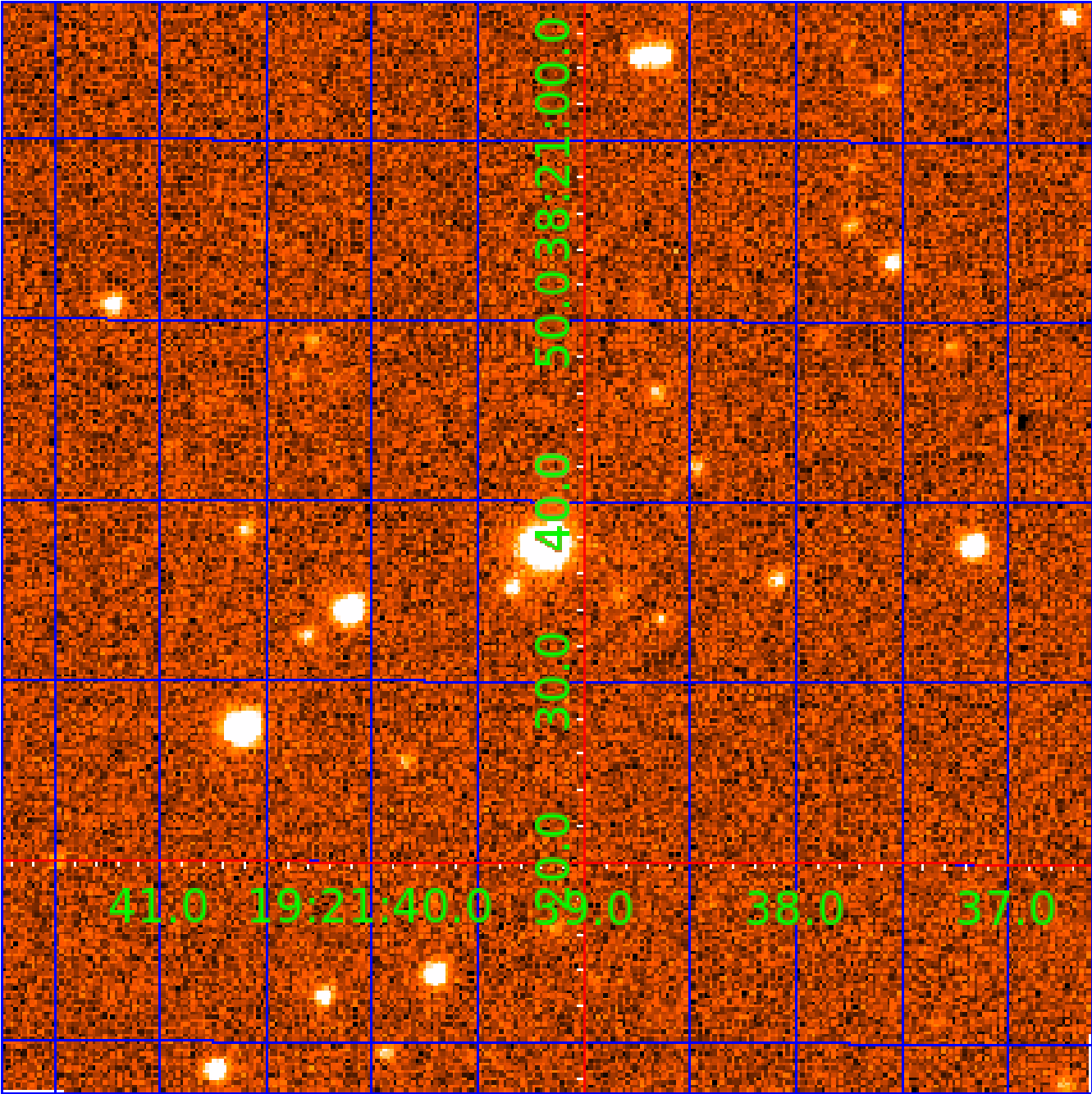


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003231341

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})
003231341-01	OBS	1102.01	12.333473	137.586001	542.2	6.407	26.8	27.7	1.24	5896	4.07	165.69
003231341-02	OBS	1102.02	8.145181	132.420647	446.3	5.255	24.3	28.6	1.24	5896	3.41	288.10
003231341-03	OBS	1102.03	18.998447	144.743195	400.1	3.406	15.2	16.0	1.24	5896	3.02	93.14
003231341-04	OBS	No	330.912918	167.281321	501.9	9.785	12.2	7.1	1.24	5896	2.99	2.06
003231341-05	OBS	1102.04	4.244399	132.822247	194.7	3.104	12.2	15.3	1.24	5896	1.93	687.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003231341-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003231341-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003231341-05	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.

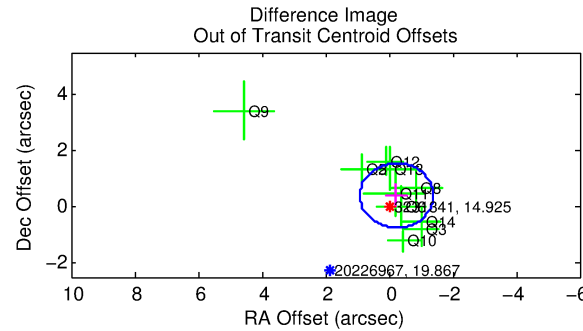
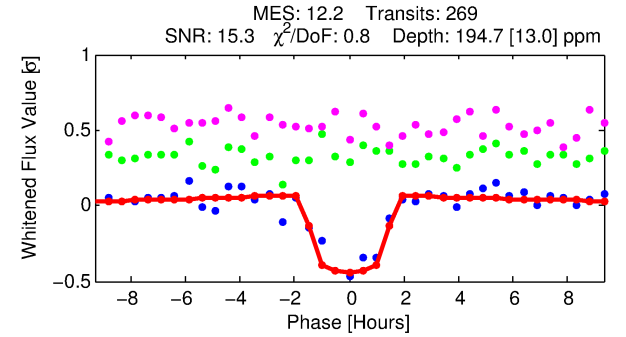
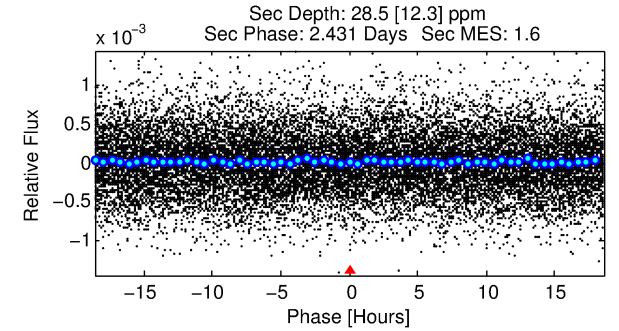
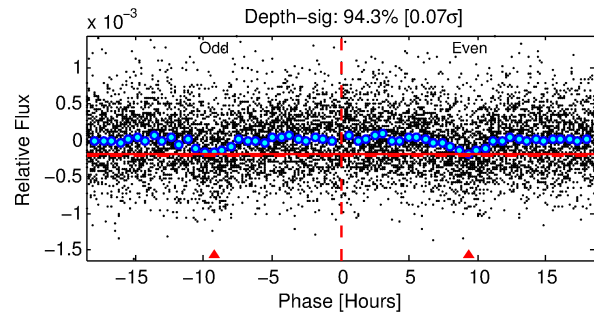
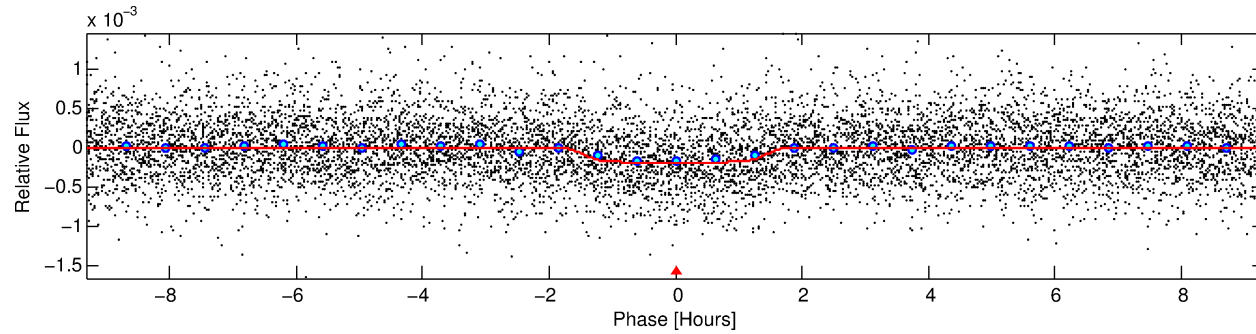
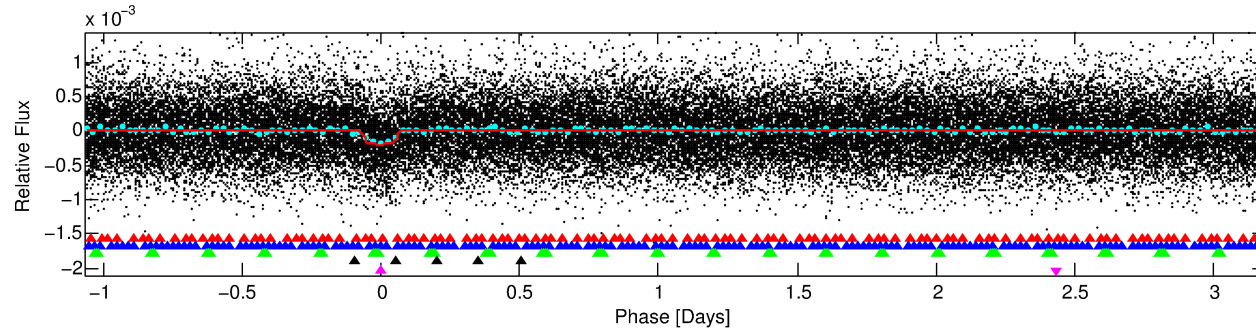
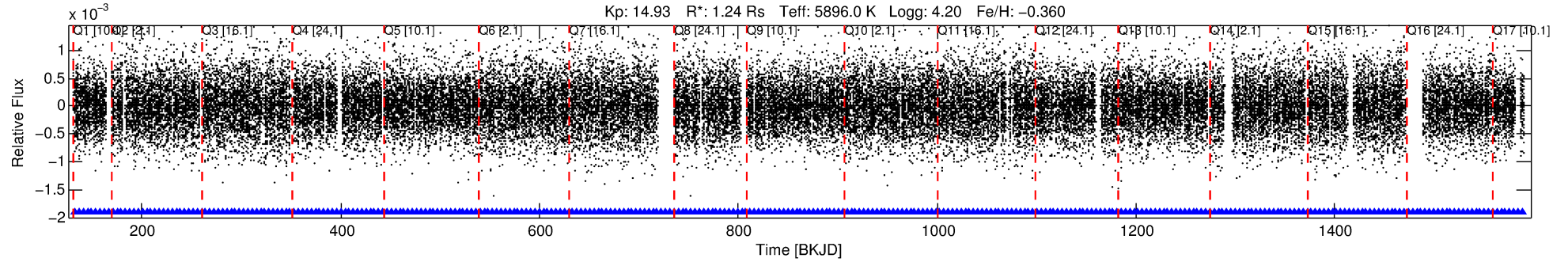
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003231341-05

No Significant Match Found

DV One-Page Summary

KIC: 3231341 Candidate: 5 of 5 Period: 4.244 d
KOI: K01102.04 Name: Kepler-24d Corr: 0.978



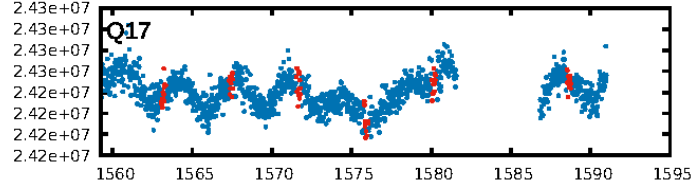
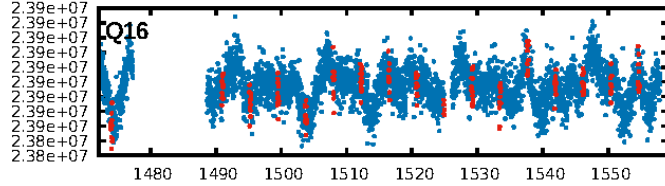
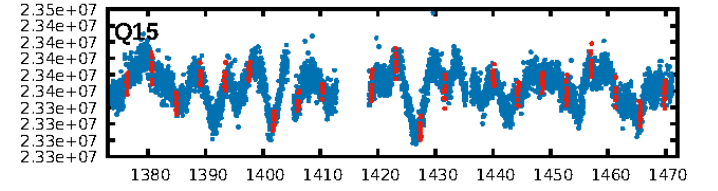
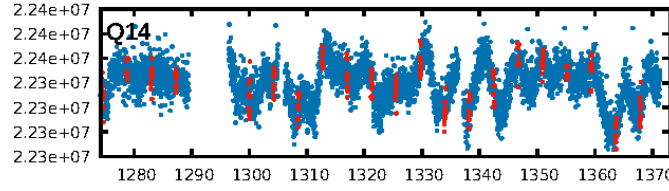
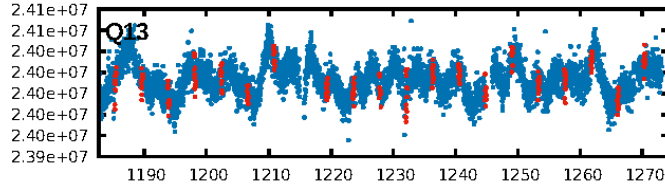
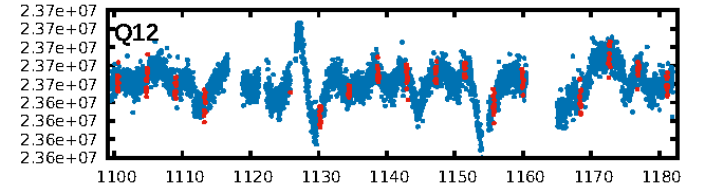
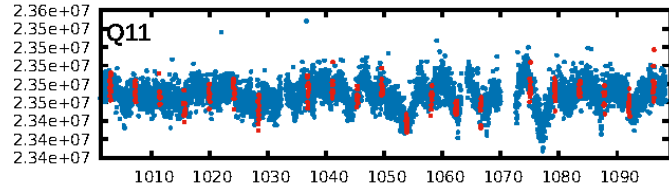
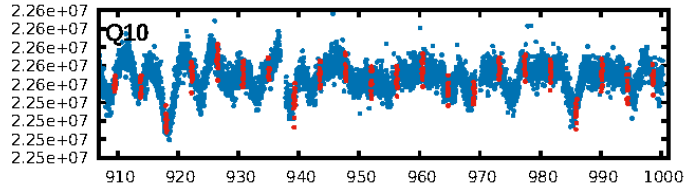
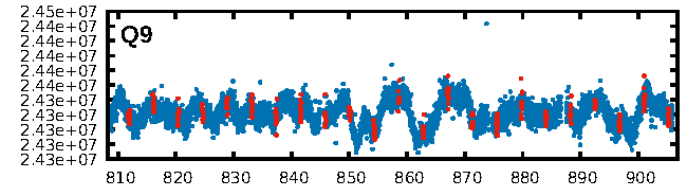
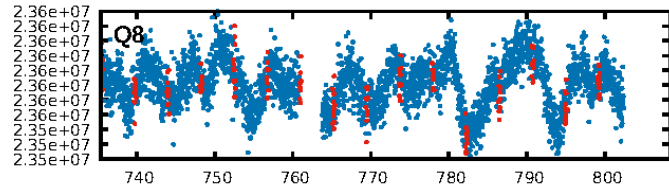
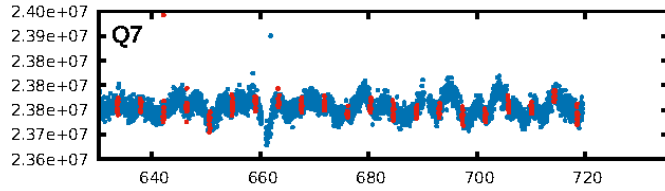
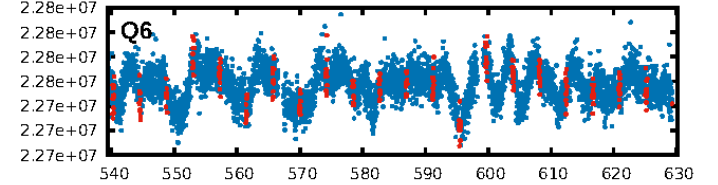
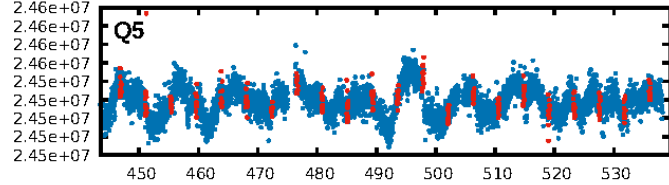
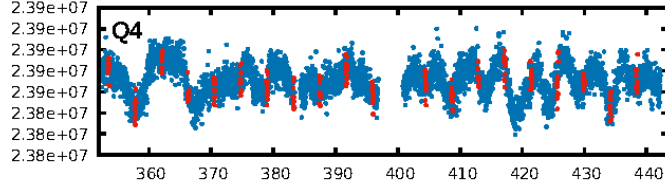
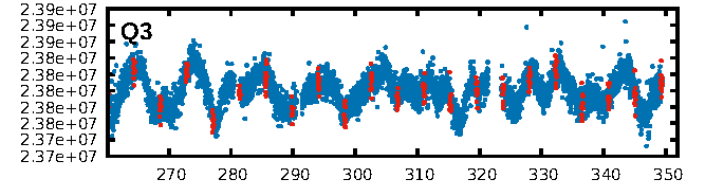
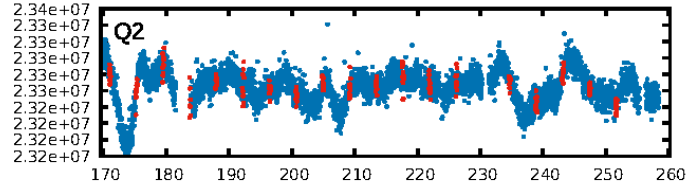
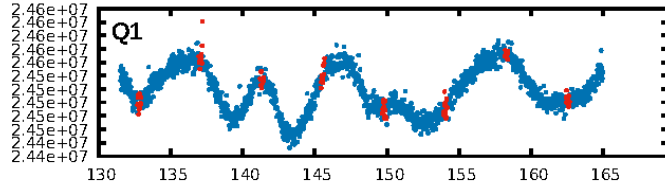
DV Fit Results:

Period = 4.24440 [0.00002] d
Epoch = 132.8222 [0.0031] BKJD
Rp/R* = 0.0142 [0.0073]
a/R* = 6.42 [15.84]
b = 0.81 [1.08]
Seff = 687.04 [232.09]
Teq = 1305 [110] K
Rp = 1.93 [1.06] Re
a = 0.0492 [0.0099] AU
Ag = 10.21 [11.80] [0.78 σ]
Teffp = 3608 [1002] K [2.29 σ]

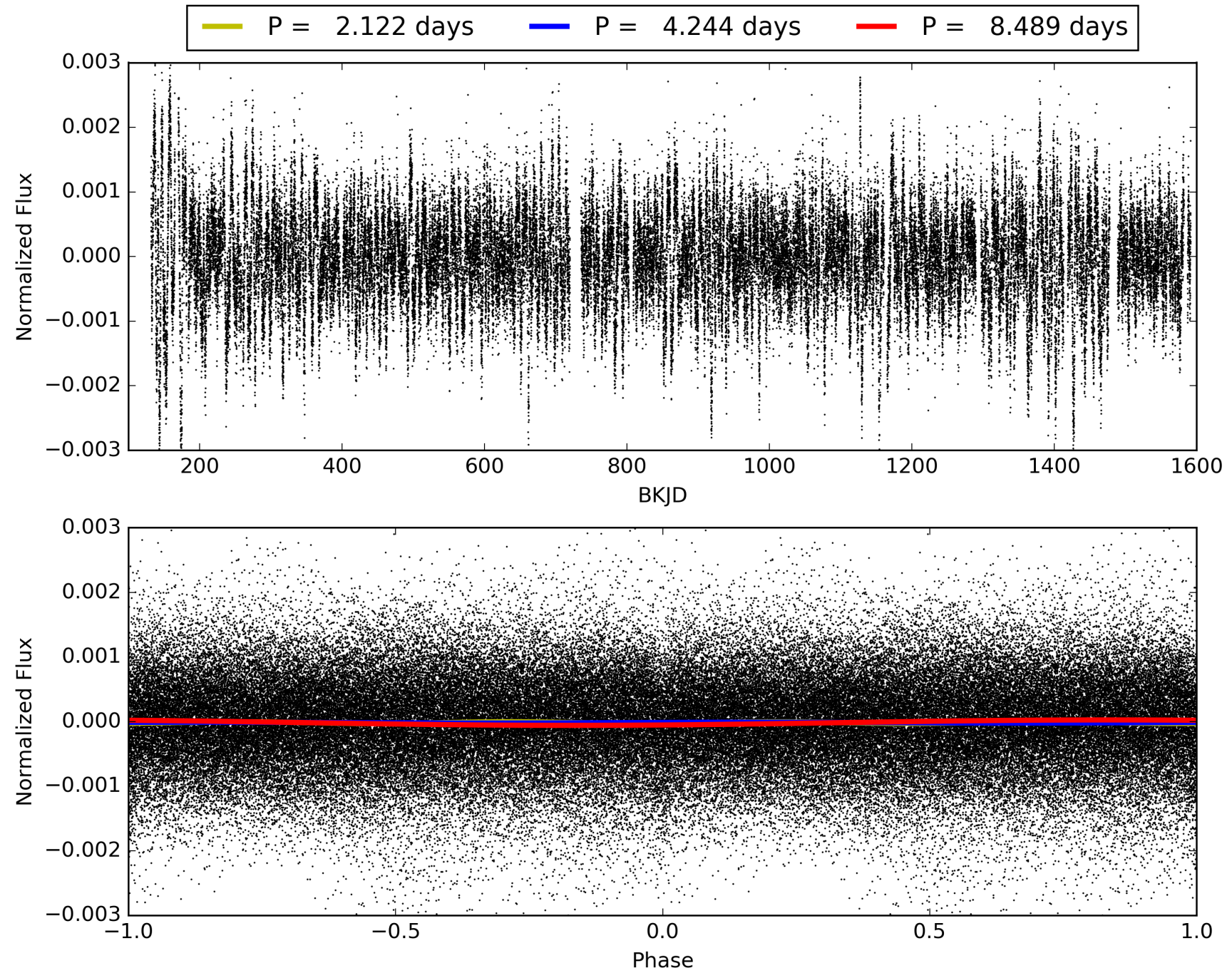
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [15.34 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.77e-35
RollingBand-fgt: 1.00 [258/258]
GhostDiagnostic-chr: 1.895
Centroid-sig: 33.3%
Centroid-so: 0.548 arcsec [0.78 σ]
OotOffset-rm: 0.460 arcsec [1.20 σ]
KicOffset-rm: 0.347 arcsec [0.83 σ]
OotOffset-st: 4/2/2/3 [11]
KicOffset-st: 4/2/2/3 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 003231341-05, PDC Light Curves

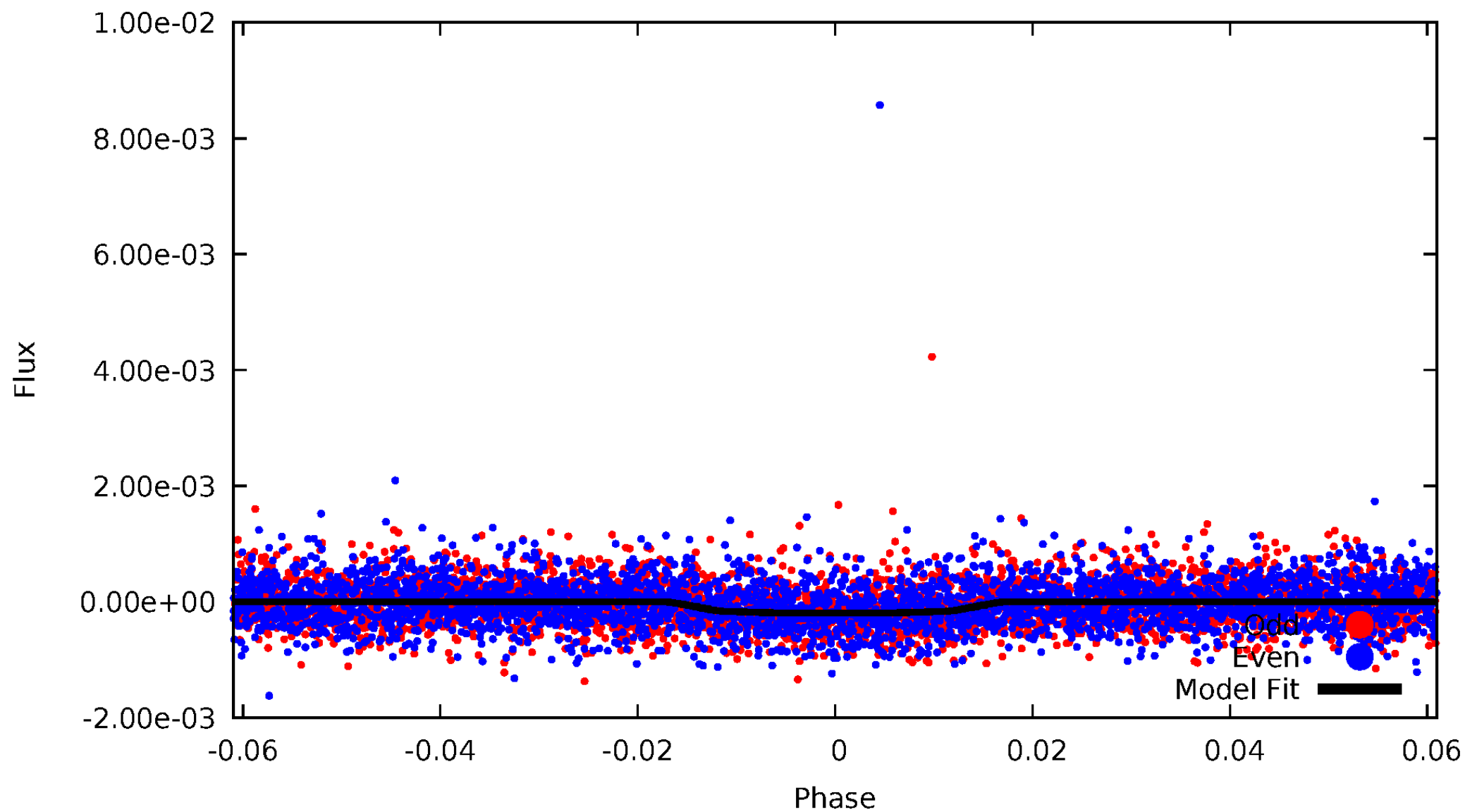


TCE 003231341-05



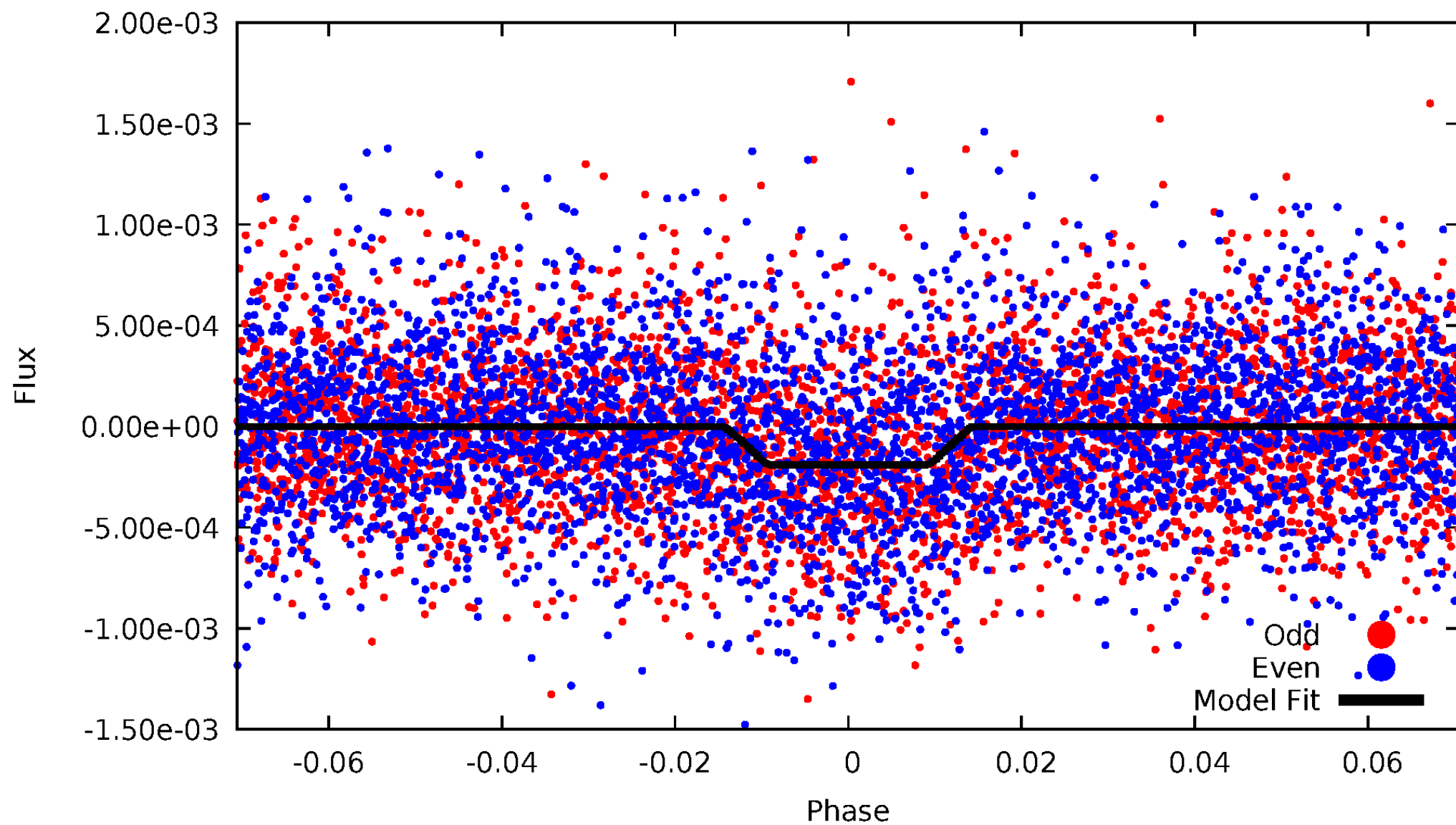
DV Odd/Even

TCE 003231341-05

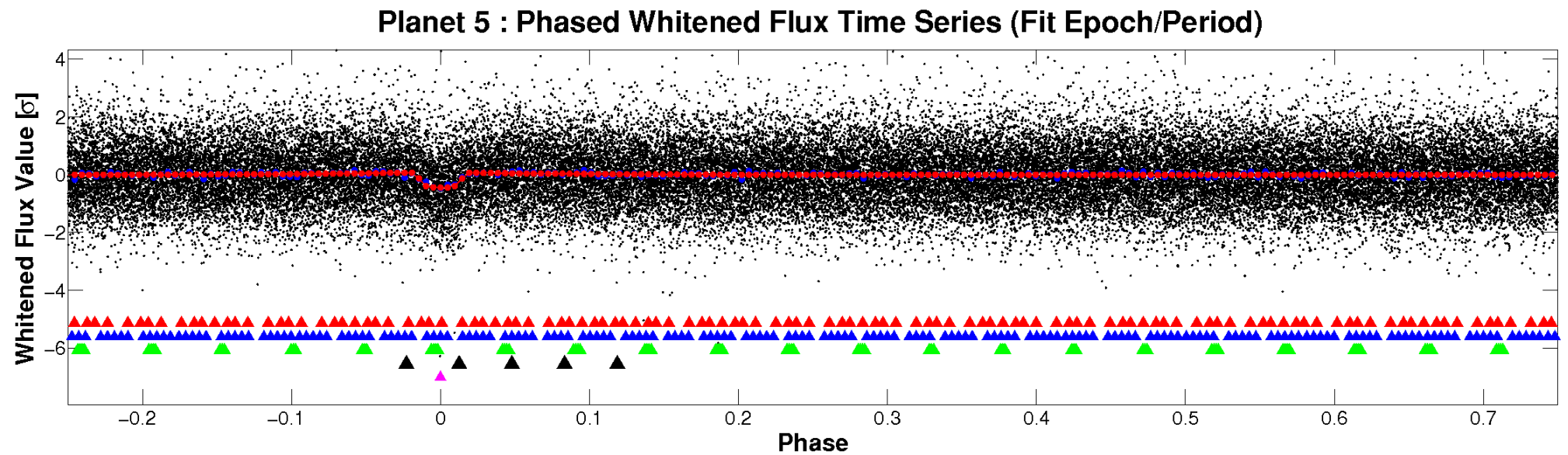
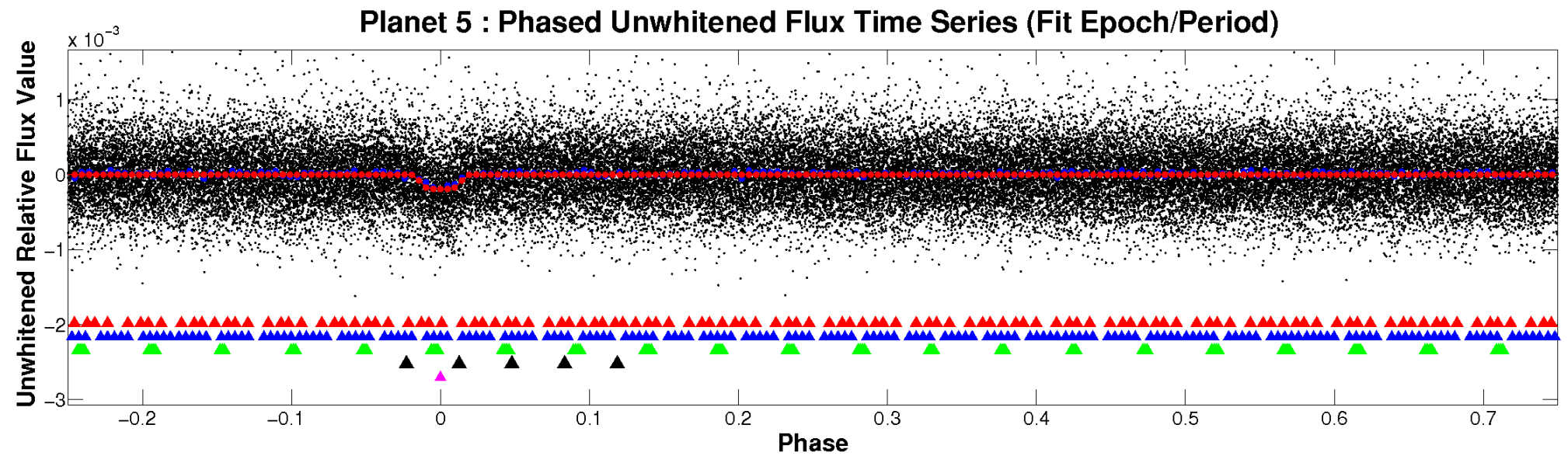


ALT Odd/Even

TCE 003231341-05

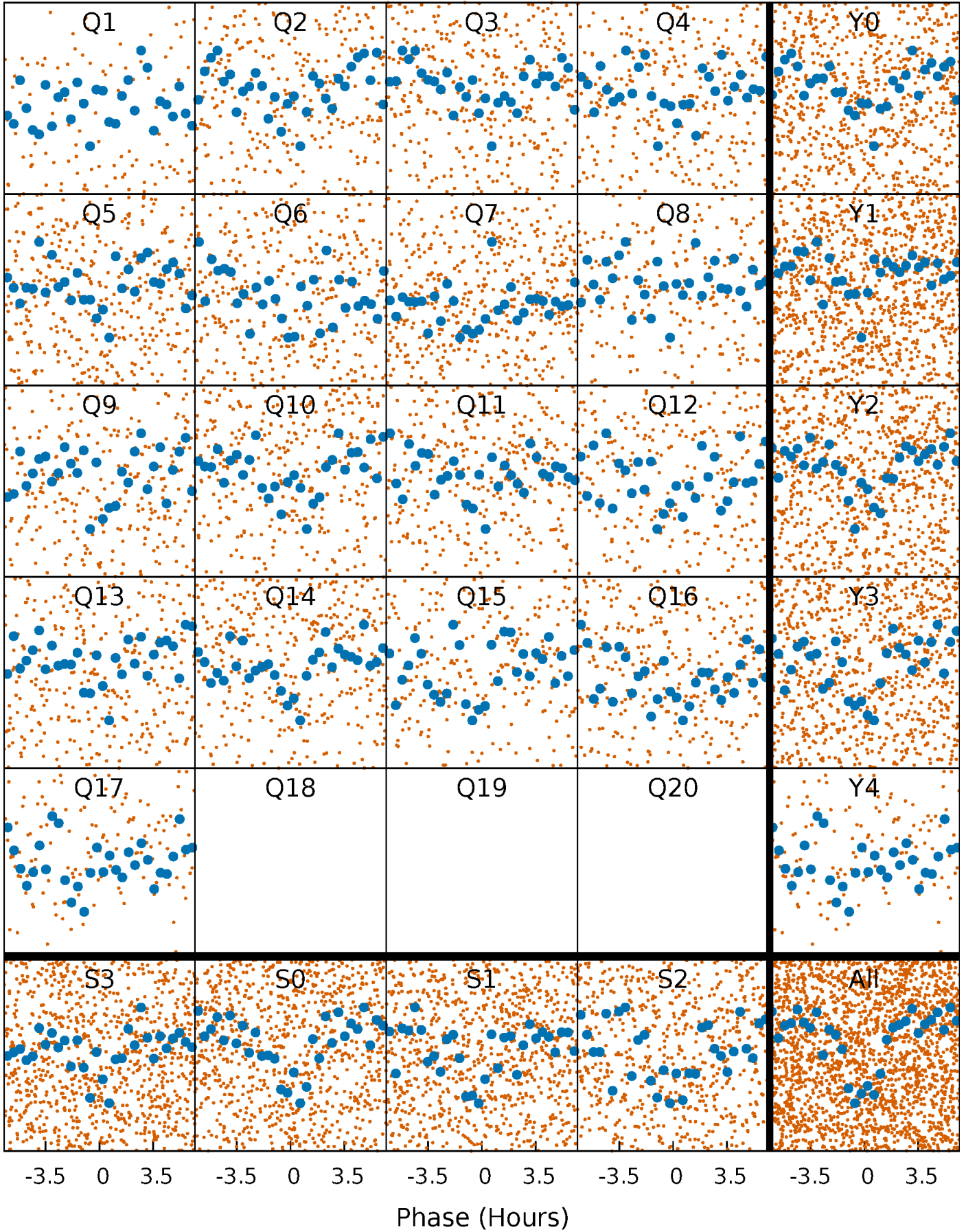


Non-Whitened Vs. Whitened Light Curve



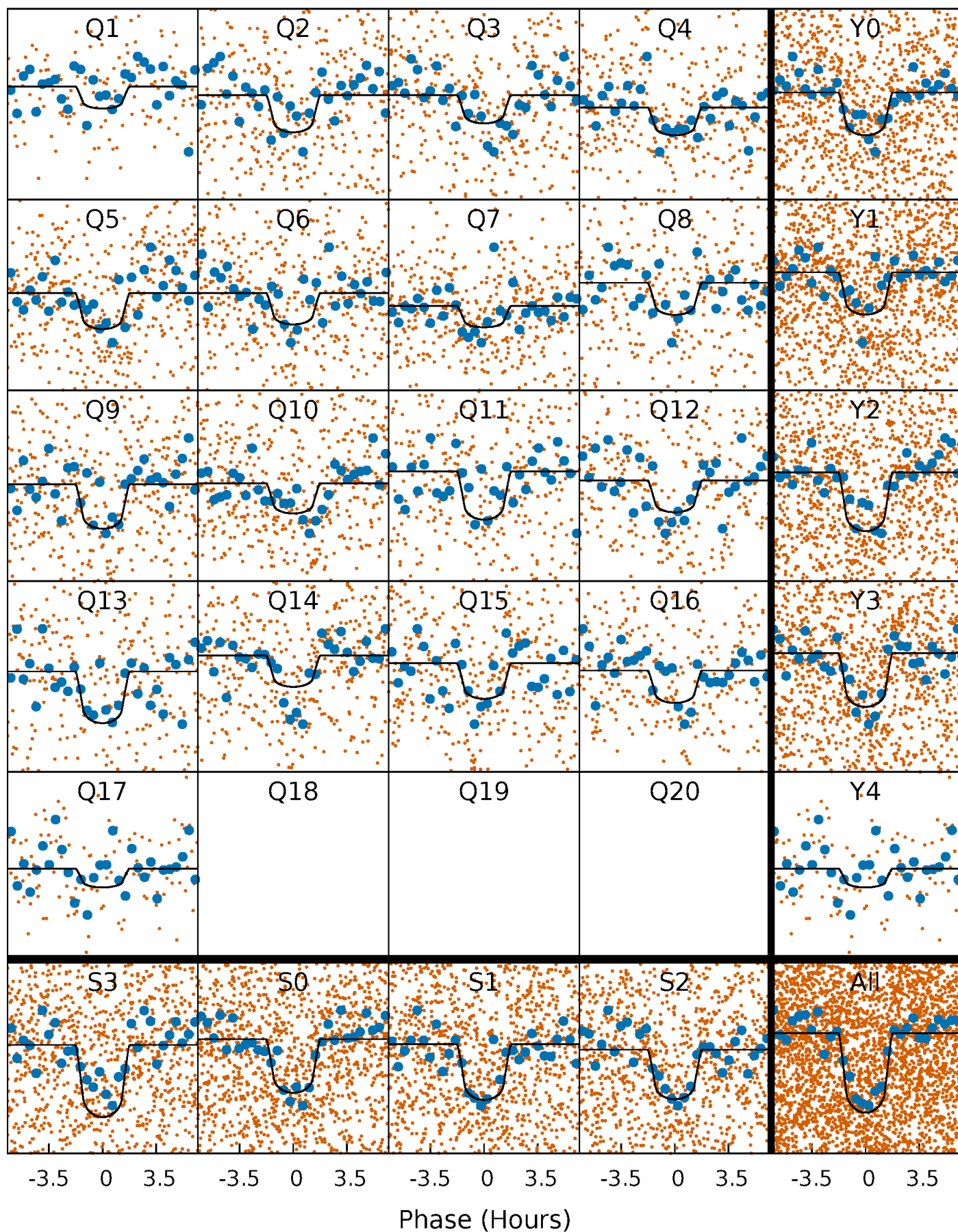
PDC Quarter-Phased Transit Curves

TCE 003231341-05 P= 4.244399 Days $T_0=132.822247$ (BKJD)



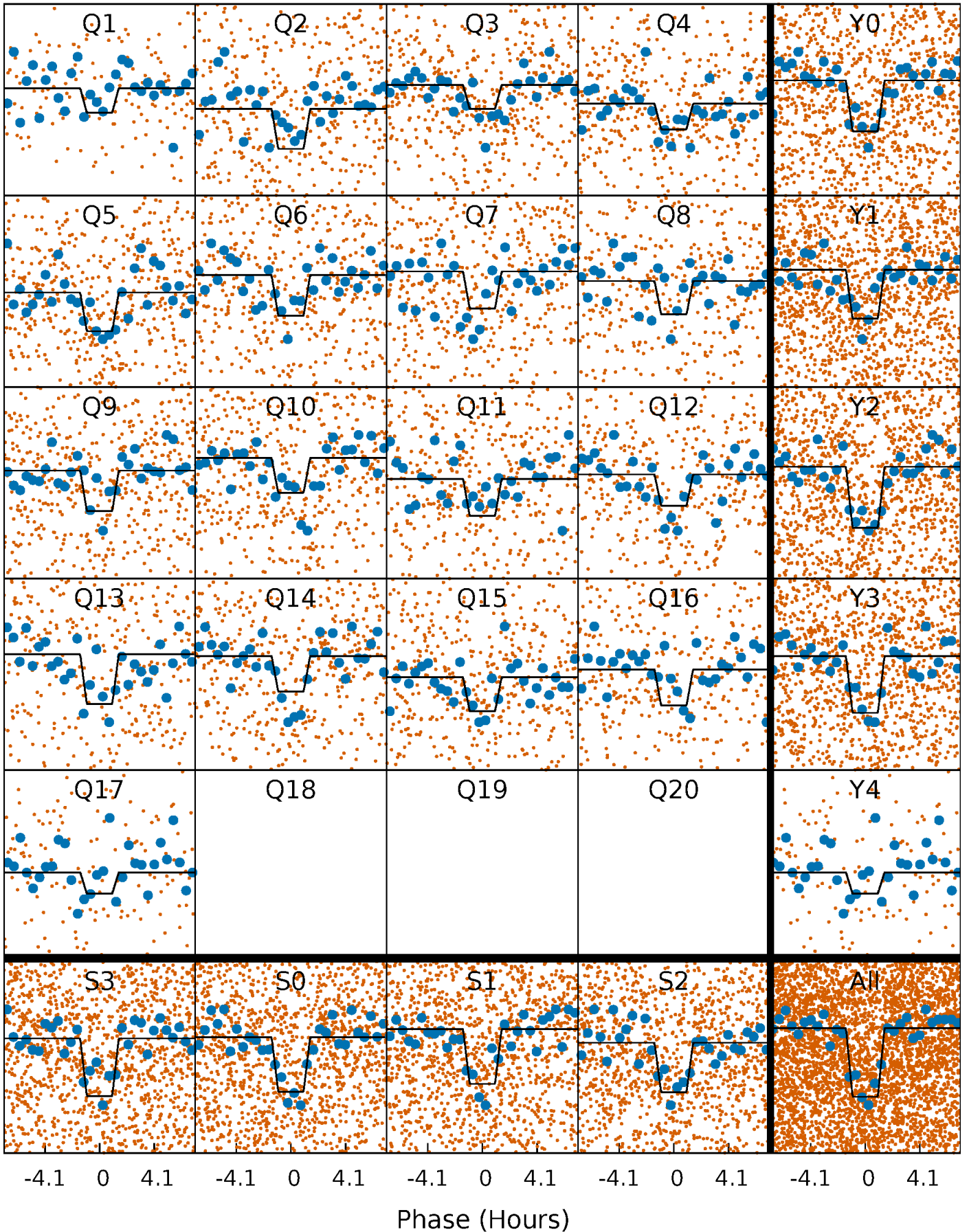
DV Quarter-Phased Transit Curves

TCE 003231341-05 $P = 4.244399$ Days $T_0 = 132.822247$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

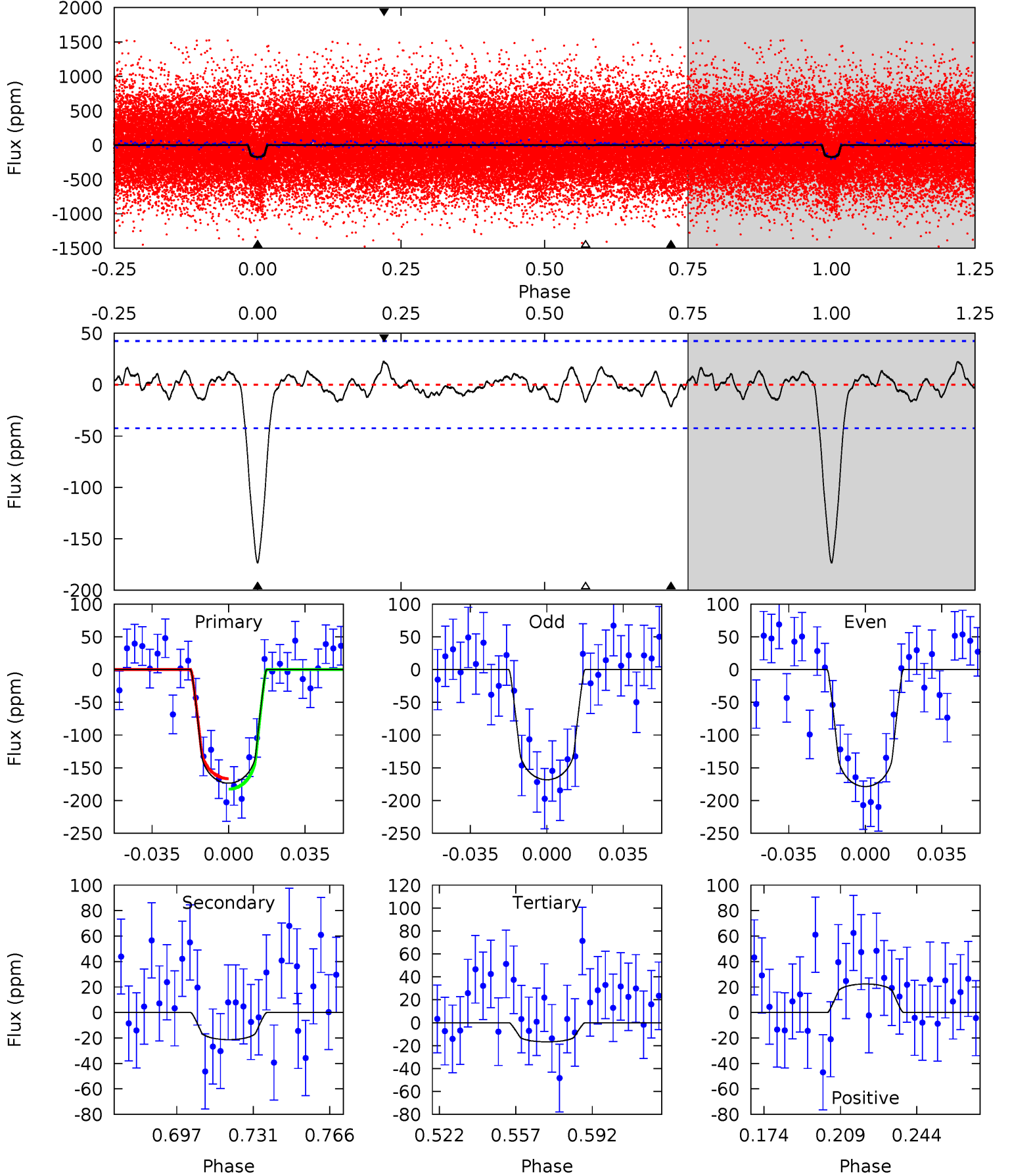
TCE 003231341-05 P= 4.244365 Days $T_0=132.830195$ (BKJD)



DV Model-Shift Uniqueness Test

003231341-05, P = 4.244399 Days, E = 128.577848 Days

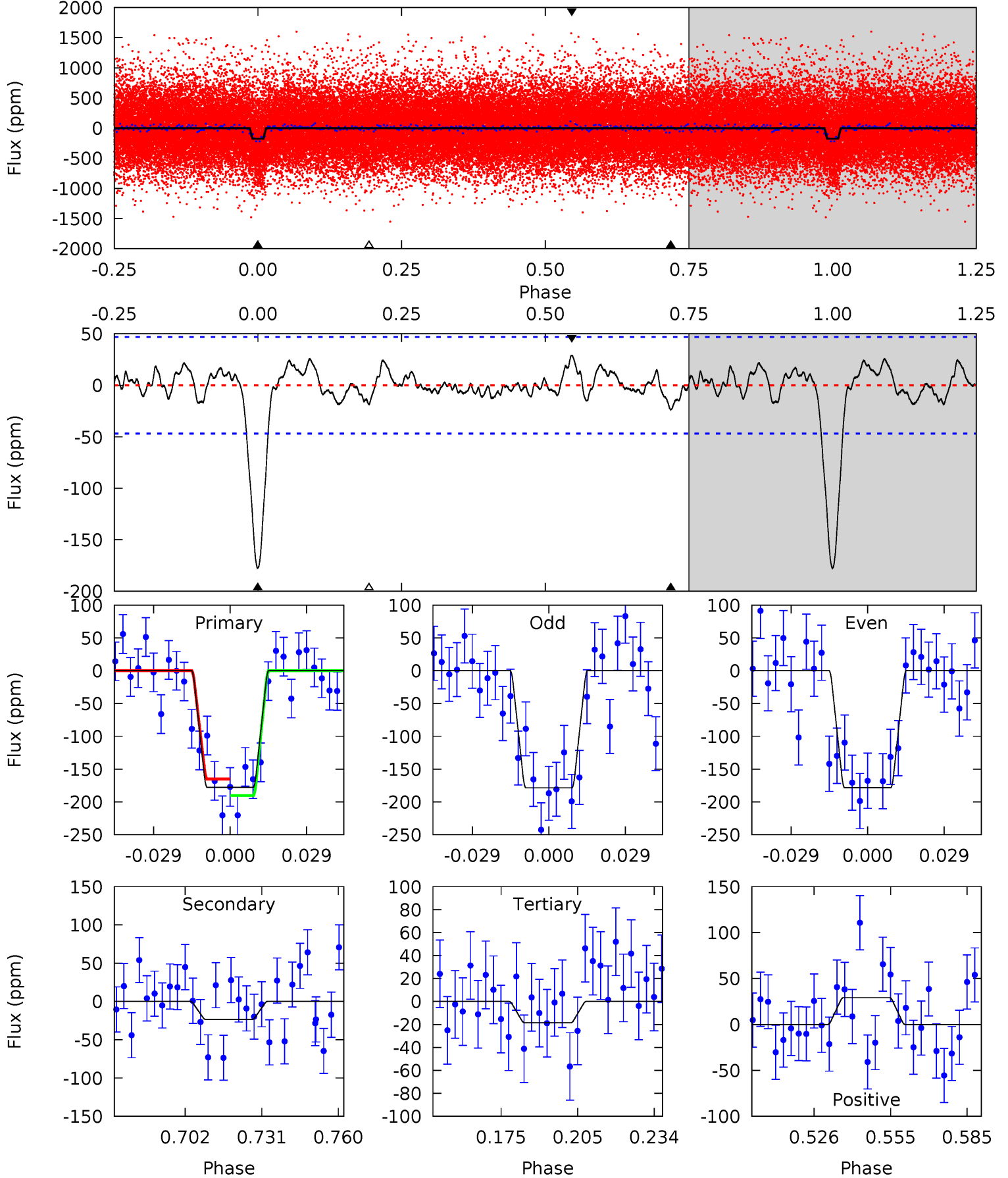
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	2.40	1.89	2.52	4.78	2.11	0.91	17.7	17.0	0.52	-0.12	0.59	0.89	0.11	0.91



Alt Model-Shift Uniqueness Test

003231341-05, P = 4.244365 Days, E = 128.585830 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	2.43	1.91	3.00	4.82	2.18	1.03	16.3	15.3	0.52	-0.56	0.01	0.91	0.14	1.29



Stellar Parameters For KIC 003231341

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+117}_{-105}	$4.197^{+0.195}_{-0.105}$	$-0.360^{+0.150}_{-0.150}$	$1.240^{+0.183}_{-0.251}$	$0.884^{+0.073}_{-0.054}$	$0.653^{+0.670}_{-0.207}$
	+2%/-2%	+5%/-3%	+42%/-42%	+15%/-20%	+8%/-6%	+103%/-32%
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 003231341-05 / KOI 1102.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-21 ± 9	$1.91^{+0.98}_{-0.95}$	1810^{+88}_{-105}	3697^{+1109}_{-508}	$7.695^{+24.099}_{-4.498}$
Alt.	-24 ± 10	$1.84^{+0.96}_{-0.90}$	1811^{+93}_{-98}	3784^{+1119}_{-617}	$8.723^{+26.341}_{-5.683}$

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 $A_{obs} \gg 1.0$

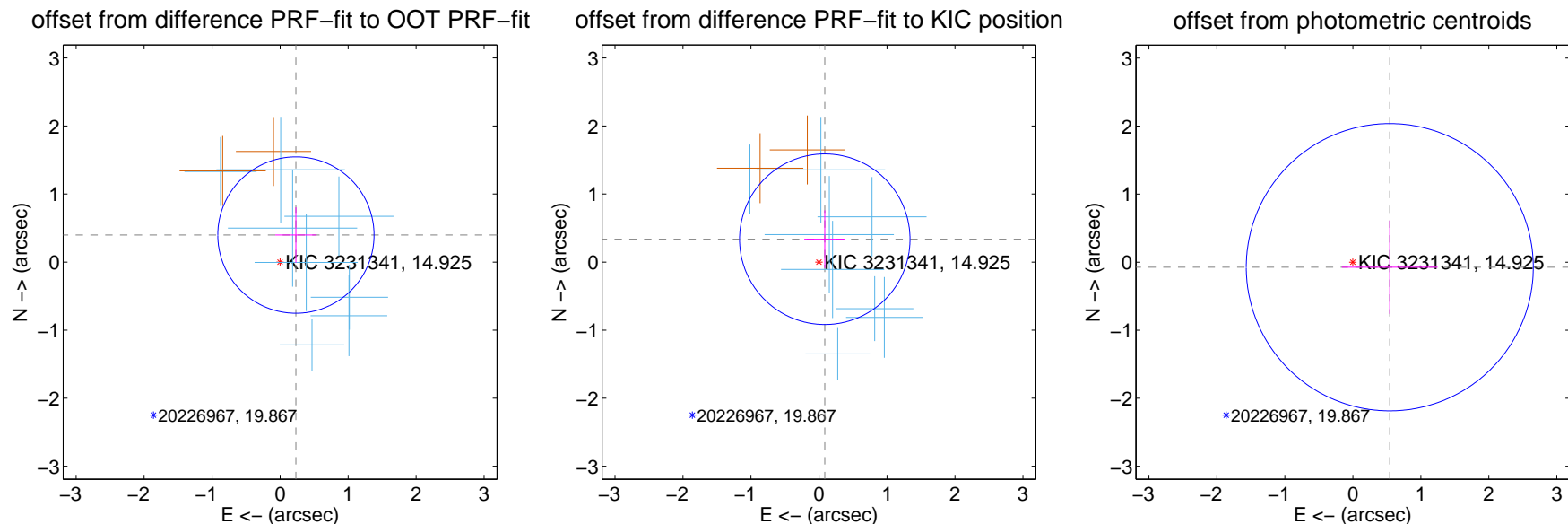
DV Centroid Data

Supplemental centroid analysis for 003231341-05. Kepler magnitude: 14.93. Transit SNR 15.33

There are 8 quarters with good PRF difference image offsets

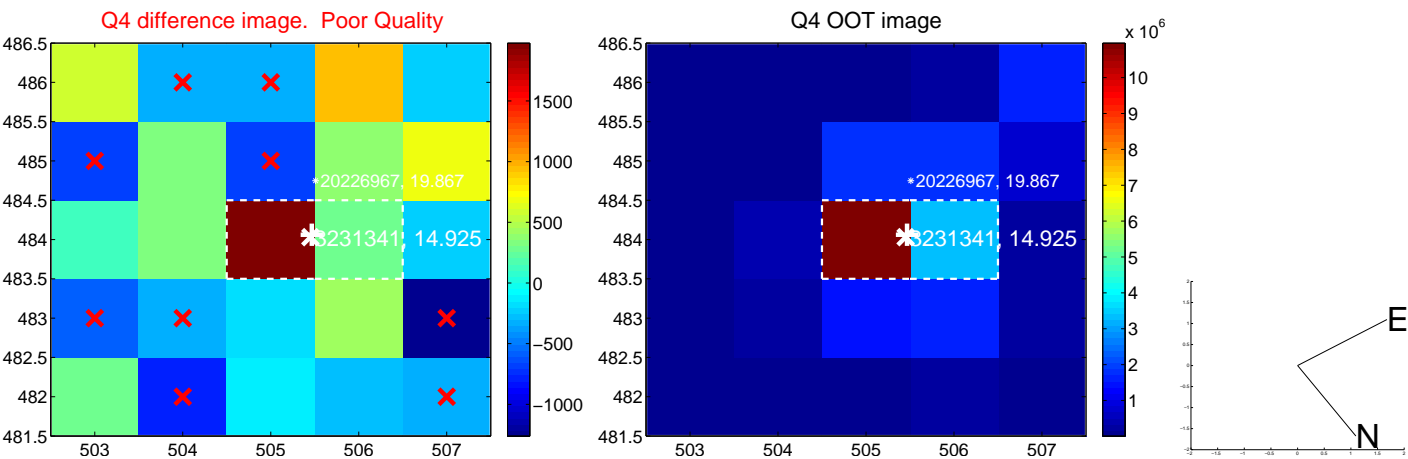
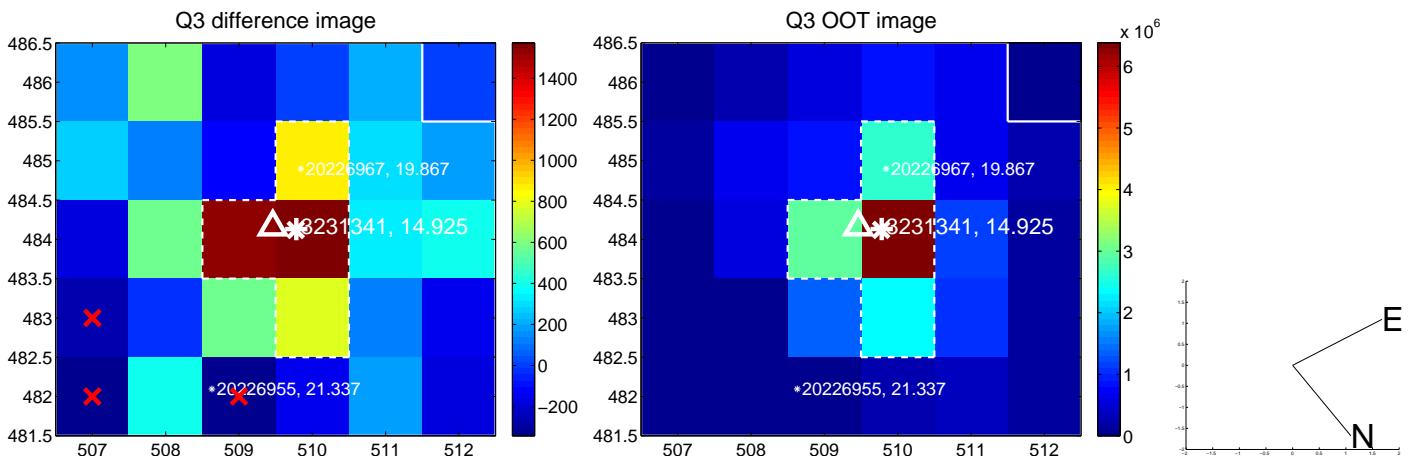
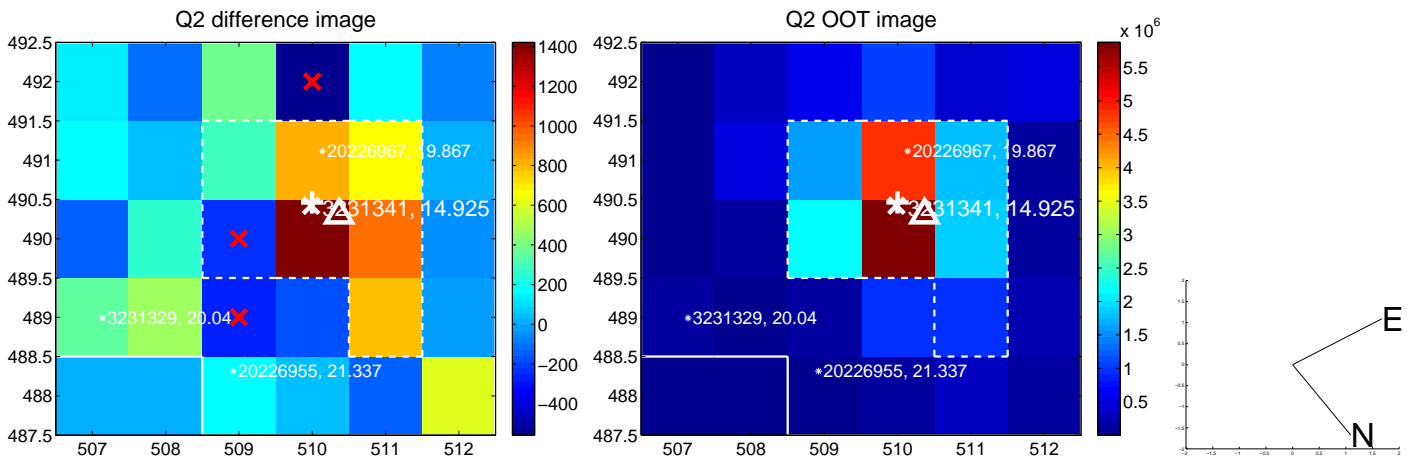
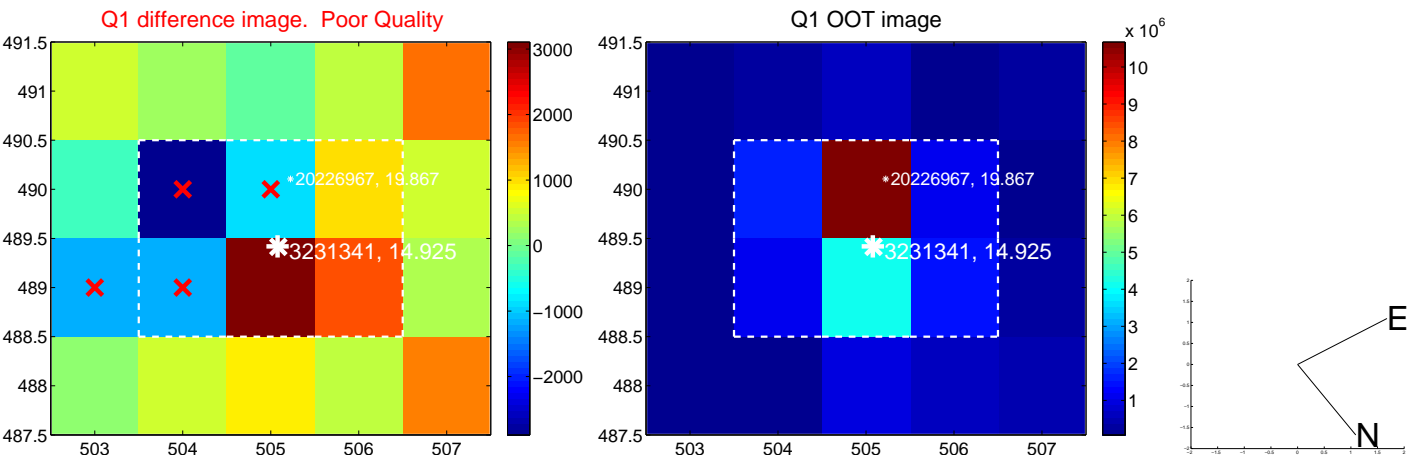
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.460 ± 0.383	1.20	-0.233 ± 0.304	0.397 ± 0.407
PRF-fit source offset from KIC position	0.347 ± 0.418	0.83	-0.085 ± 0.302	0.336 ± 0.424
photometric centroid source offset	0.55 ± 0.70	0.78	-0.54 ± 0.70	-0.07 ± 0.69

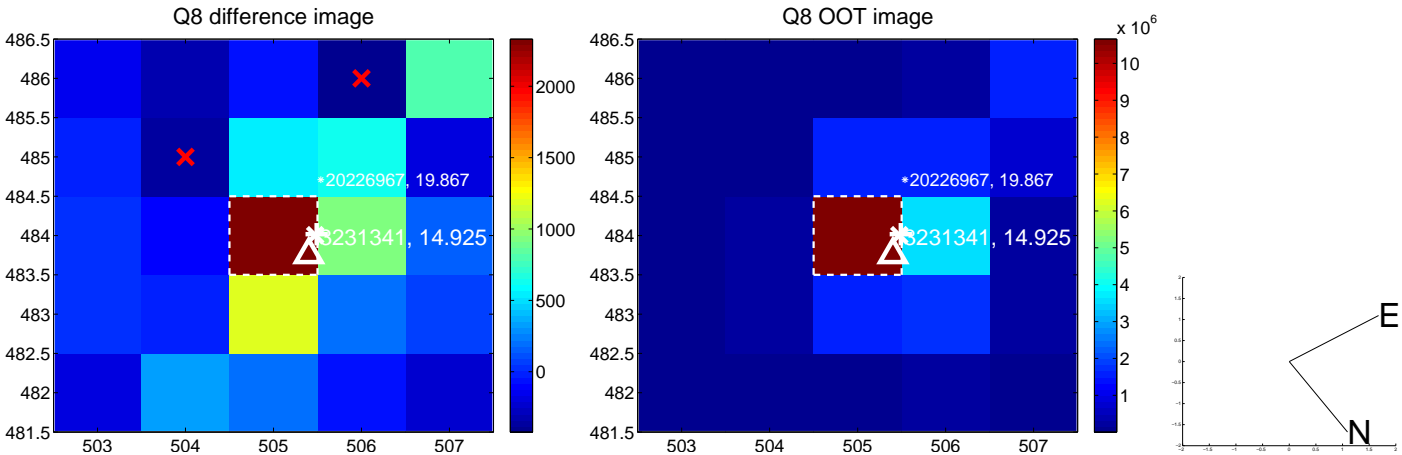
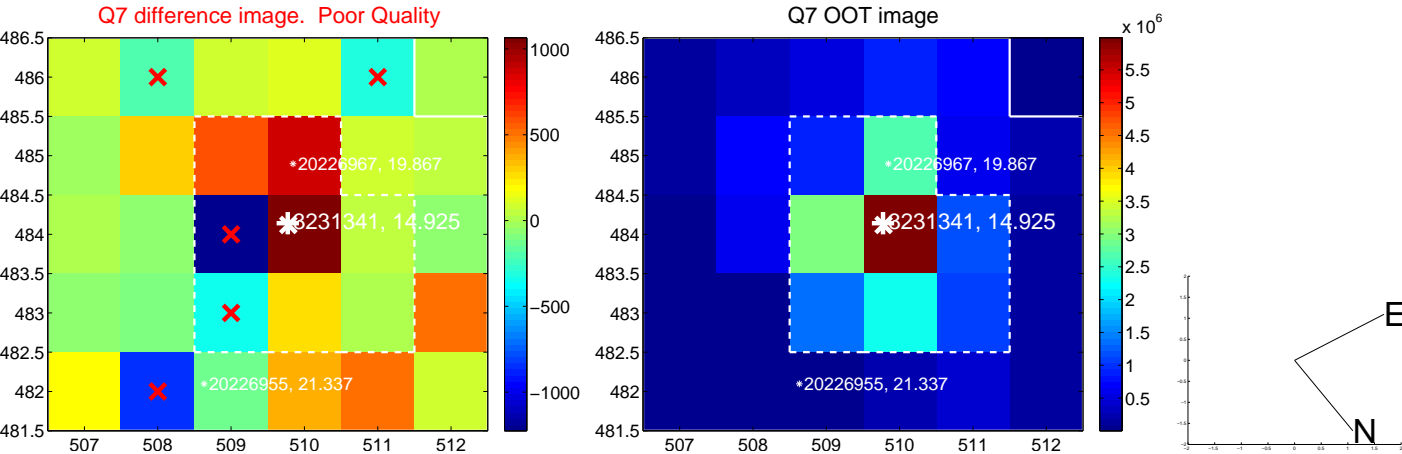
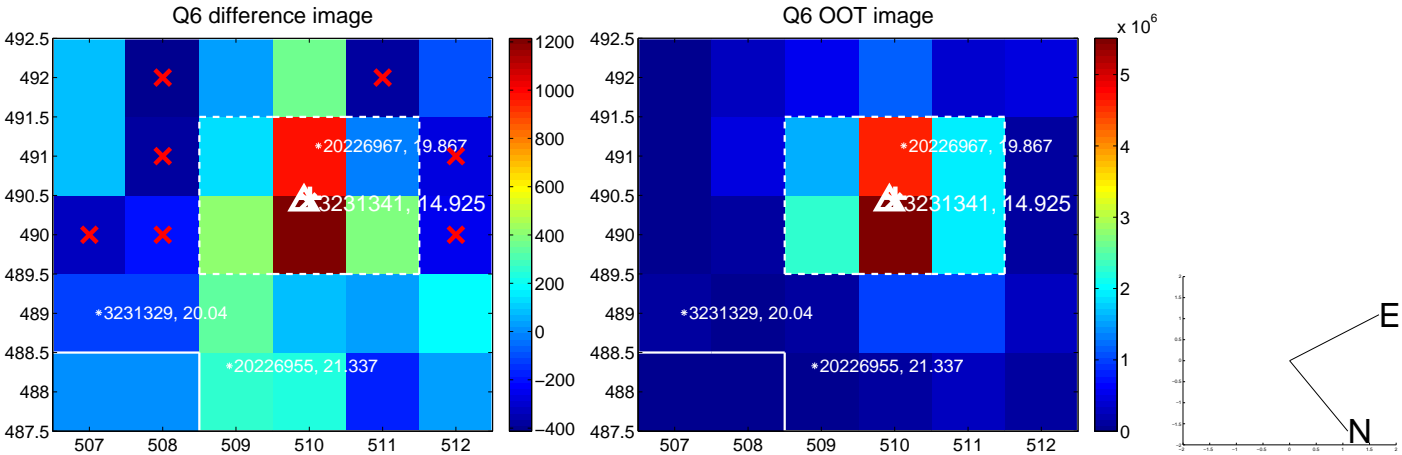
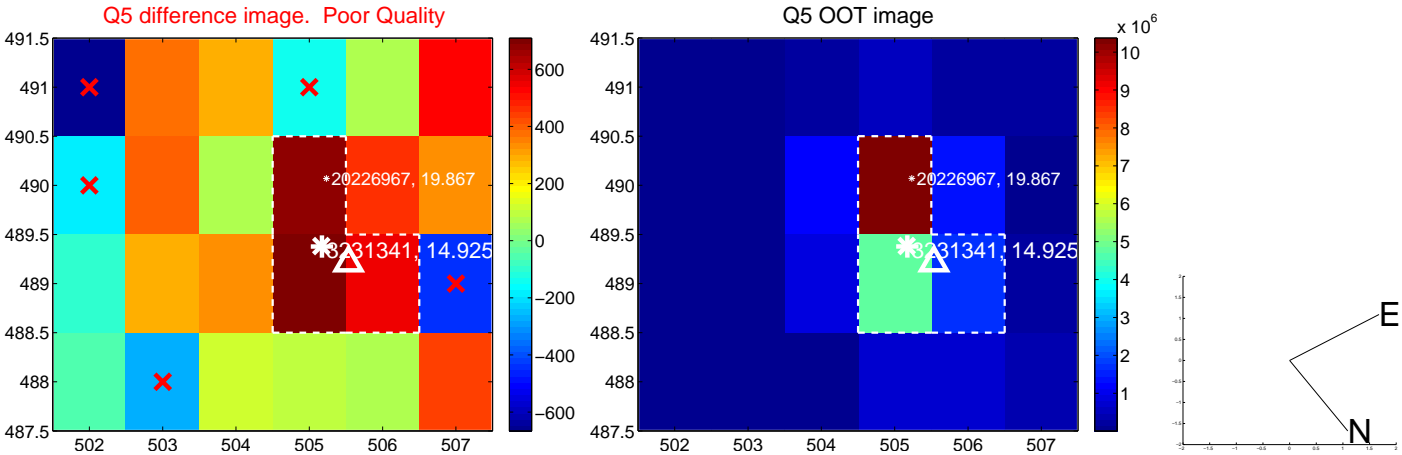


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

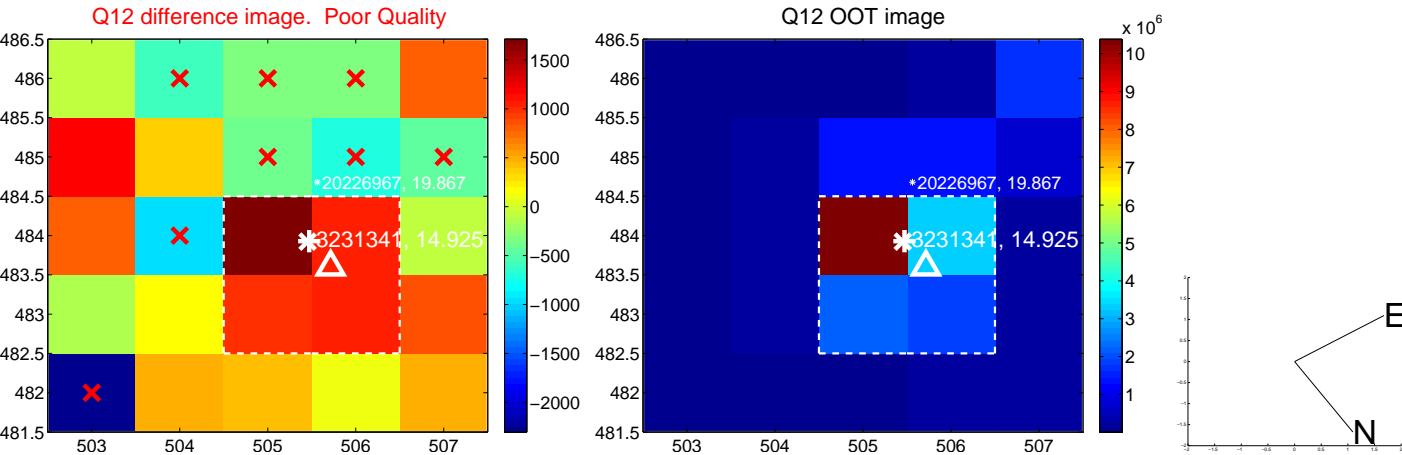
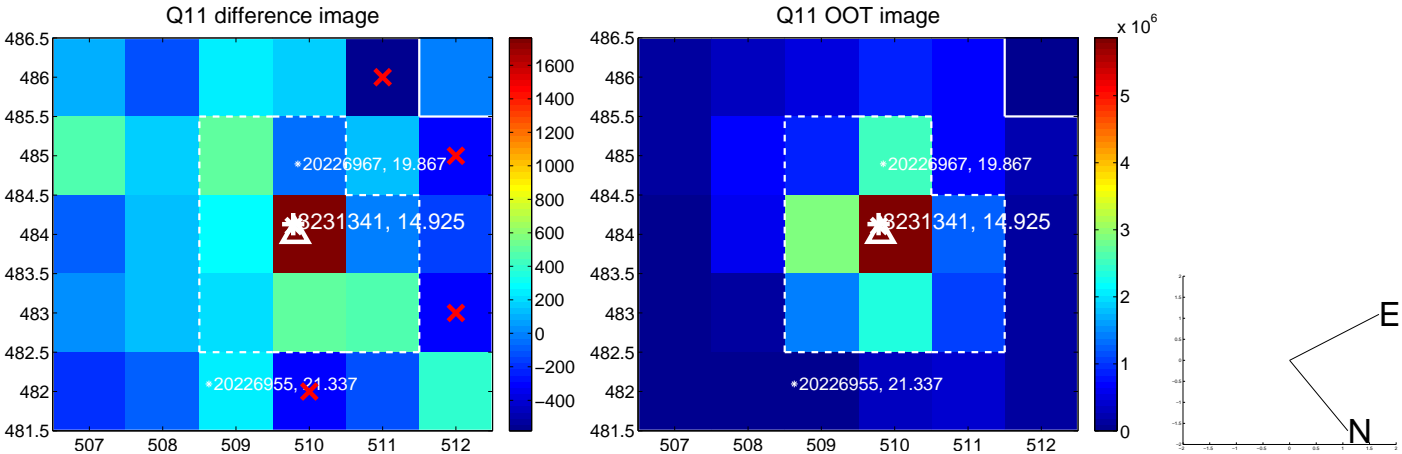
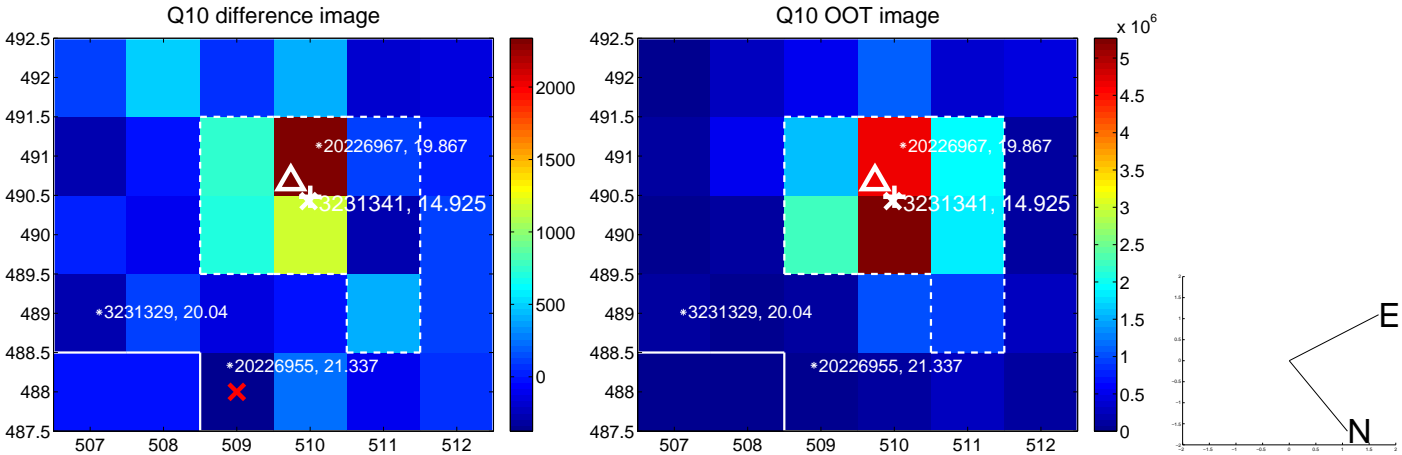
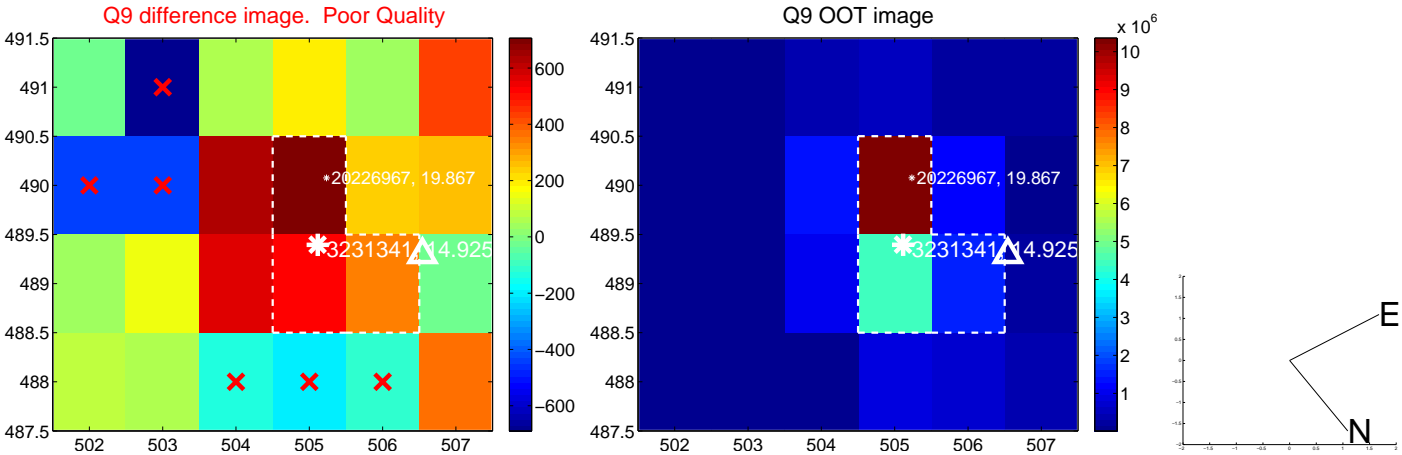
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



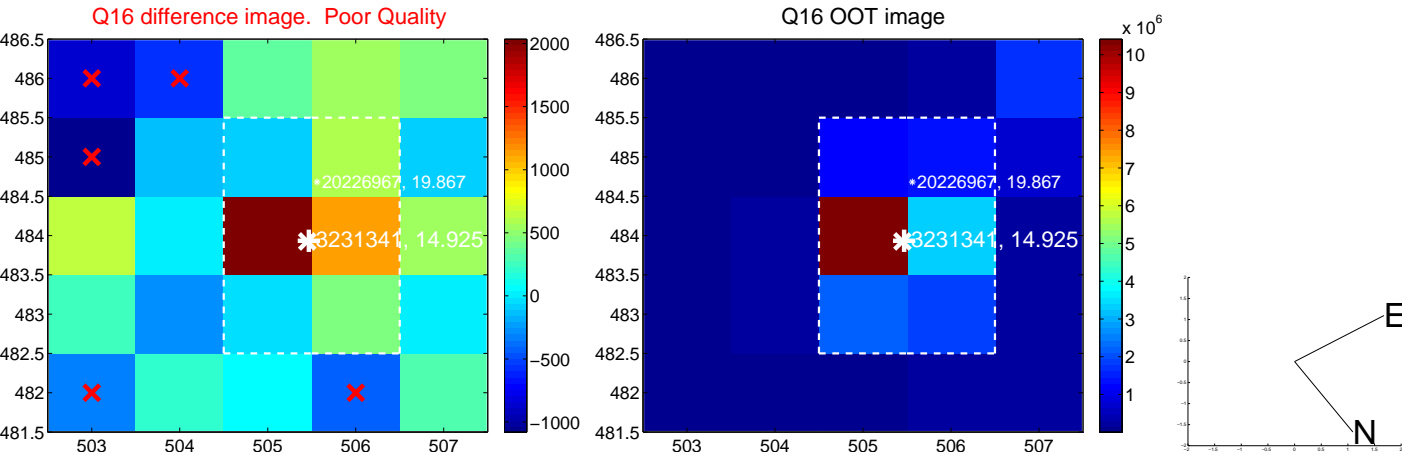
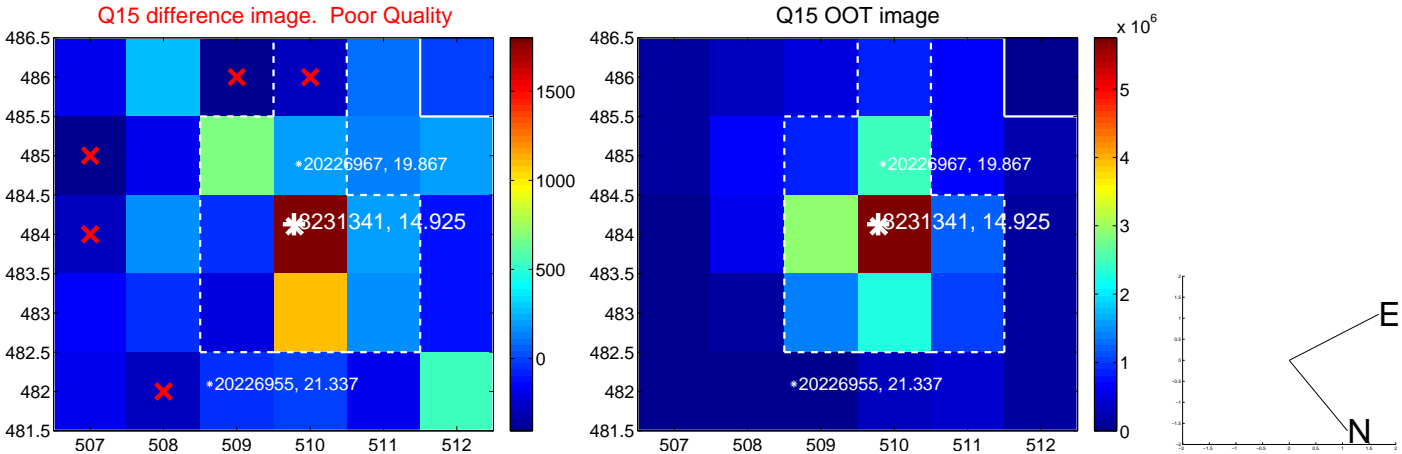
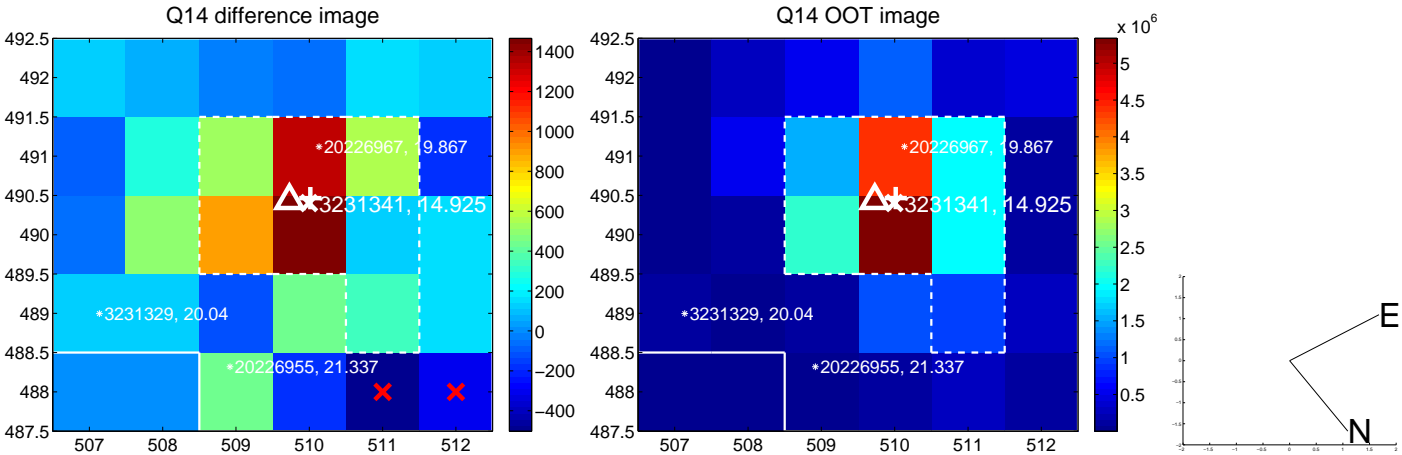
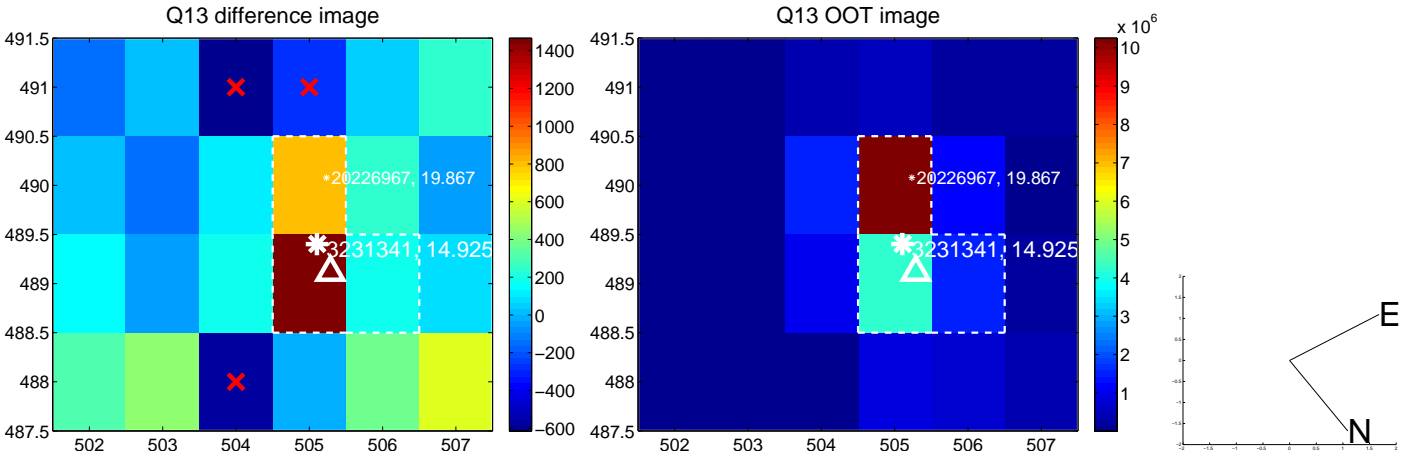
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



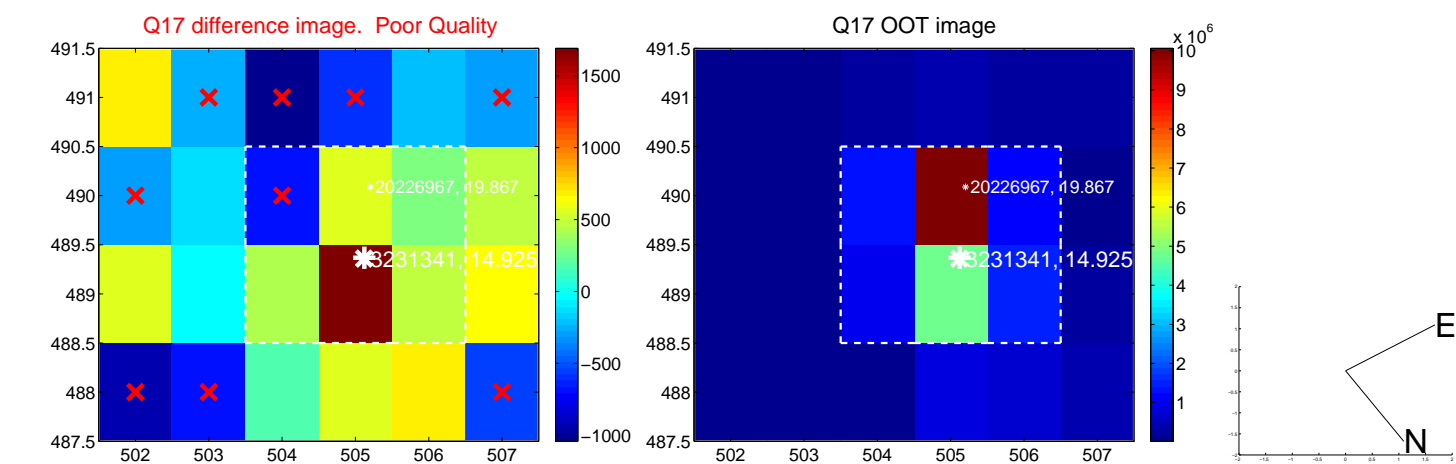
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



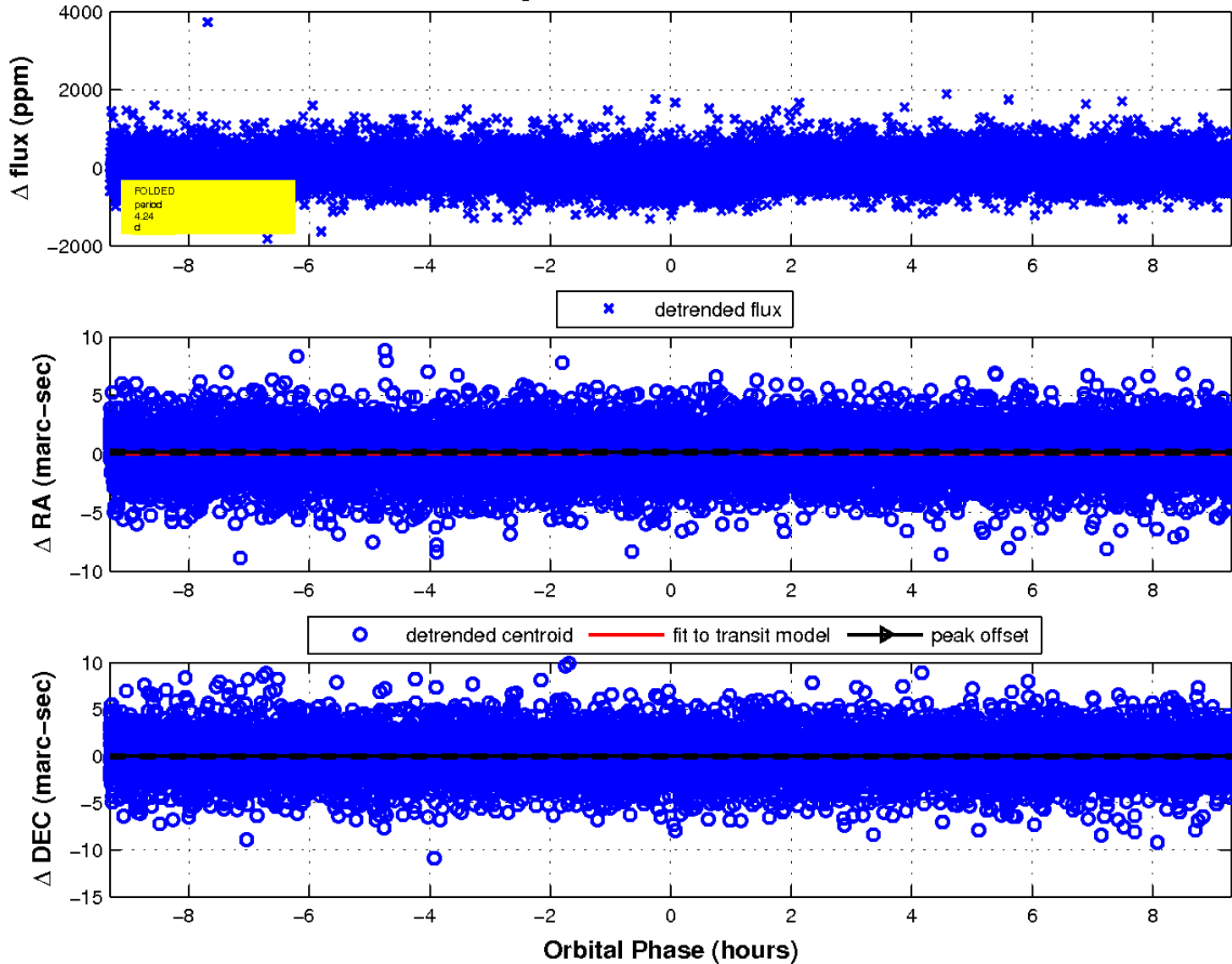
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

