

KIC 002299738

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})
002299738-01	OBS	7628.01	1.813427	132.709451	61.6	7.712	8.6	8.0	0.70	5094	0.66	425.79
002299738-02	OBS	No	170.070119	171.645443	1196.1	17.845	15.3	7.3	0.70	5094	2.83	1.00
002299738-03	OBS	No	265.359944	309.158225	808.3	5.899	13.1	5.8	0.70	5094	2.13	0.55
002299738-04	OBS	No	222.455558	311.562691	601.7	4.668	11.3	5.2	0.70	5094	1.90	0.70
002299738-05	OBS	No	131.805518	134.938561	721.8	9.135	9.3	6.4	0.70	5094	1.94	1.40
002299738-06	OBS	No	87.049996	160.962523	52.0	2.020	8.7	1.1	0.70	5094	0.57	2.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002299738-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT
002299738-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
002299738-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_FEW_DIFFS
002299738-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES
002299738-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
002299738-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

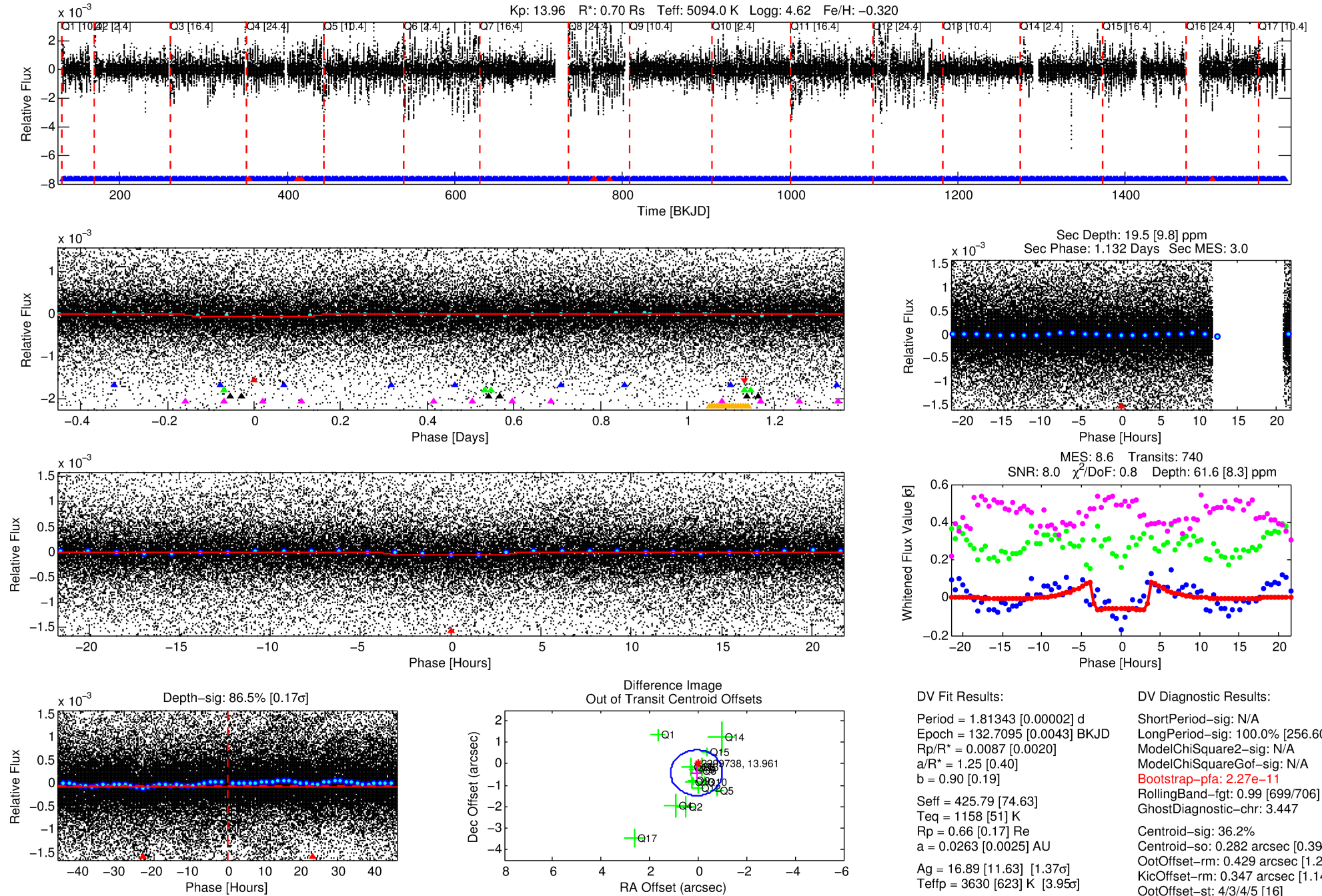
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002299738-01

No Significant Match Found

DV One-Page Summary

KIC: 2299738 Candidate: 1 of 6 Period: 1.813 d



DV Fit Results:

Period = 1.81343 [0.00002] d
Epoch = 132.7095 [0.0043] BKJD
Rp/R* = 0.0087 [0.0020]
a/R* = 1.25 [0.40]
b = 0.90 [0.19]
Seff = 425.79 [74.63]
Teff = 1158 [51] K
Rp = 0.66 [0.17] Re
a = 0.0263 [0.0025] AU
Ag = 16.89 [11.63] [1.37 σ]
Teffp = 3630 [623] K [3.95 σ]

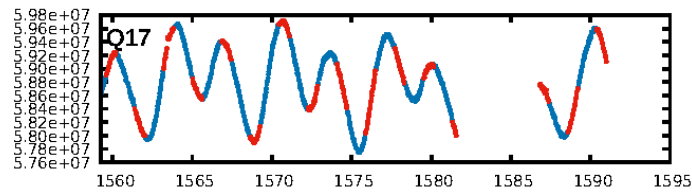
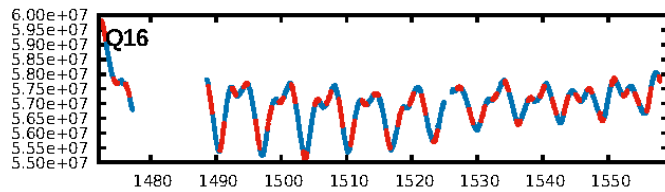
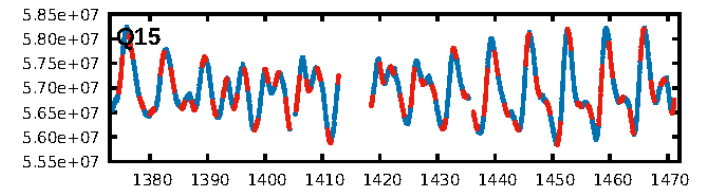
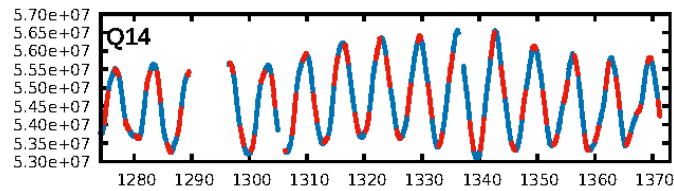
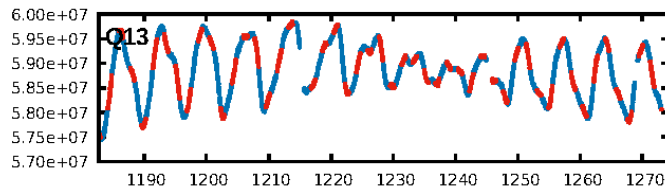
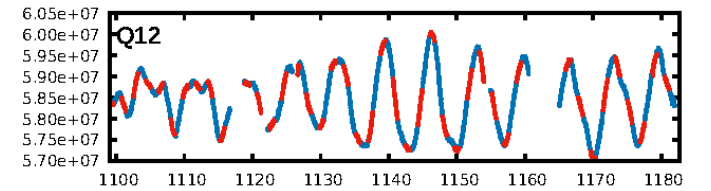
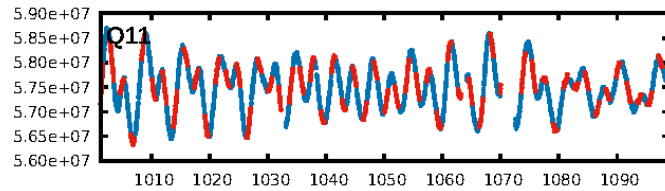
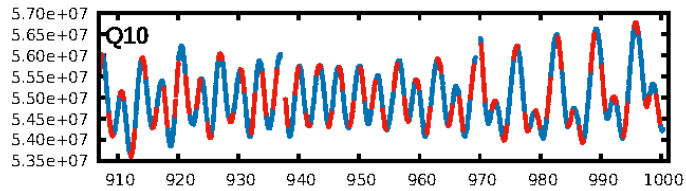
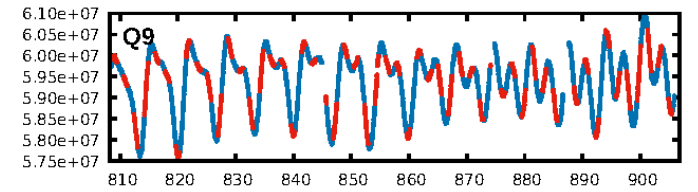
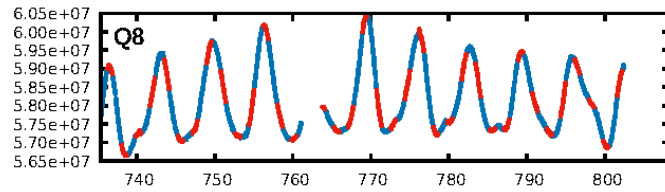
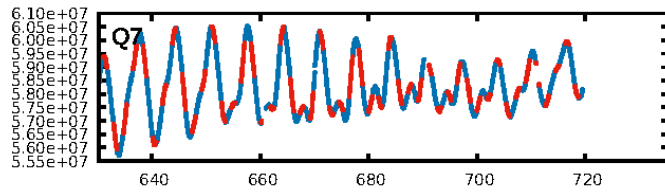
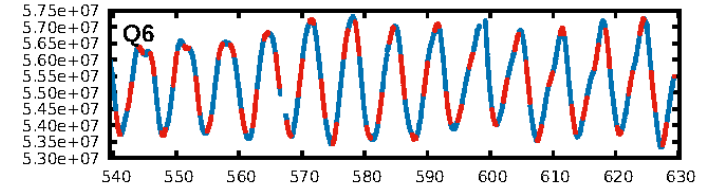
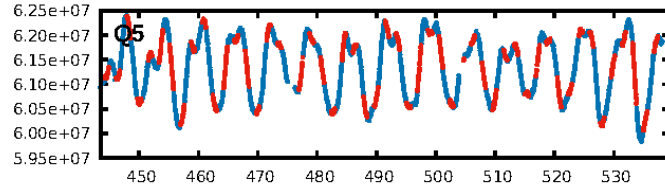
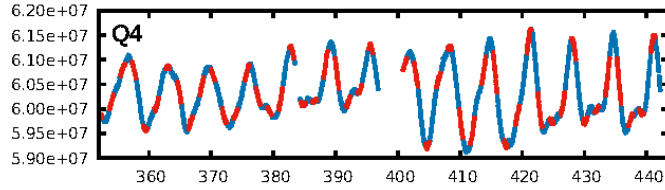
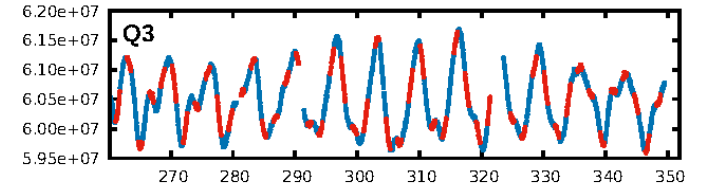
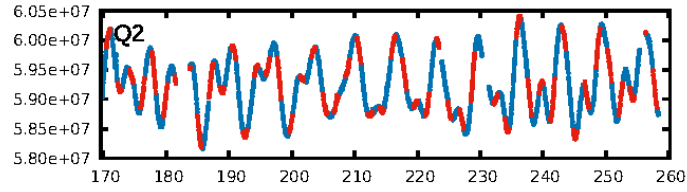
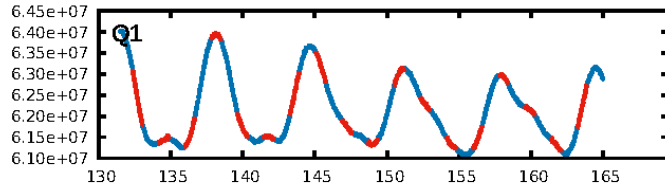
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [256.60 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.27e-11
RollingBand-fgt: 0.99 [699/706]
GhostDiagnostic-chr: 3.447
Centroid-sig: 36.2%
Centroid-so: 0.282 arcsec [0.39 σ]
OotOffset-rm: 0.429 arcsec [1.21 σ]
KicOffset-rm: 0.347 arcsec [1.14 σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [17/17]

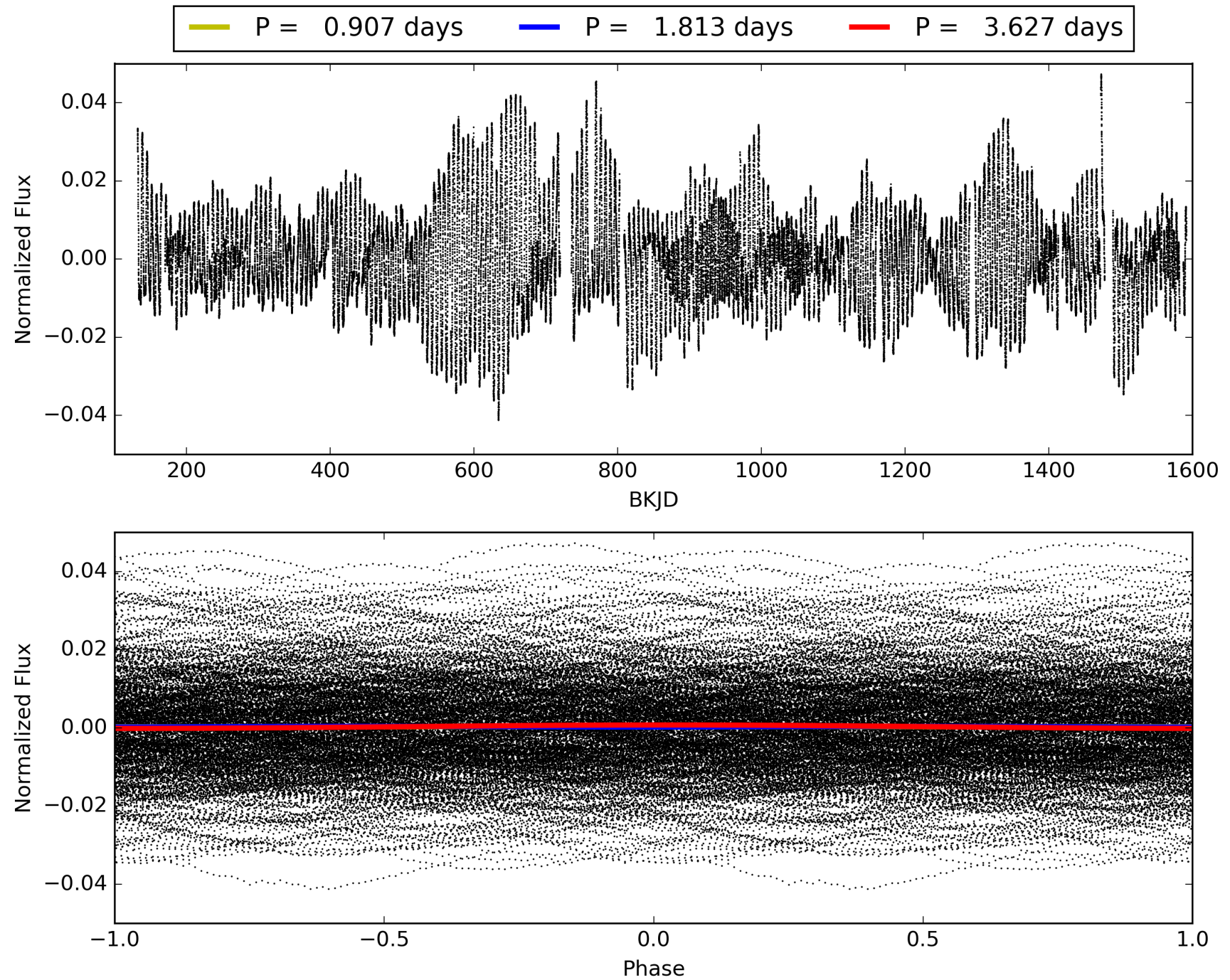
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:02 Z

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

TCE 002299738-01, PDC Light Curves

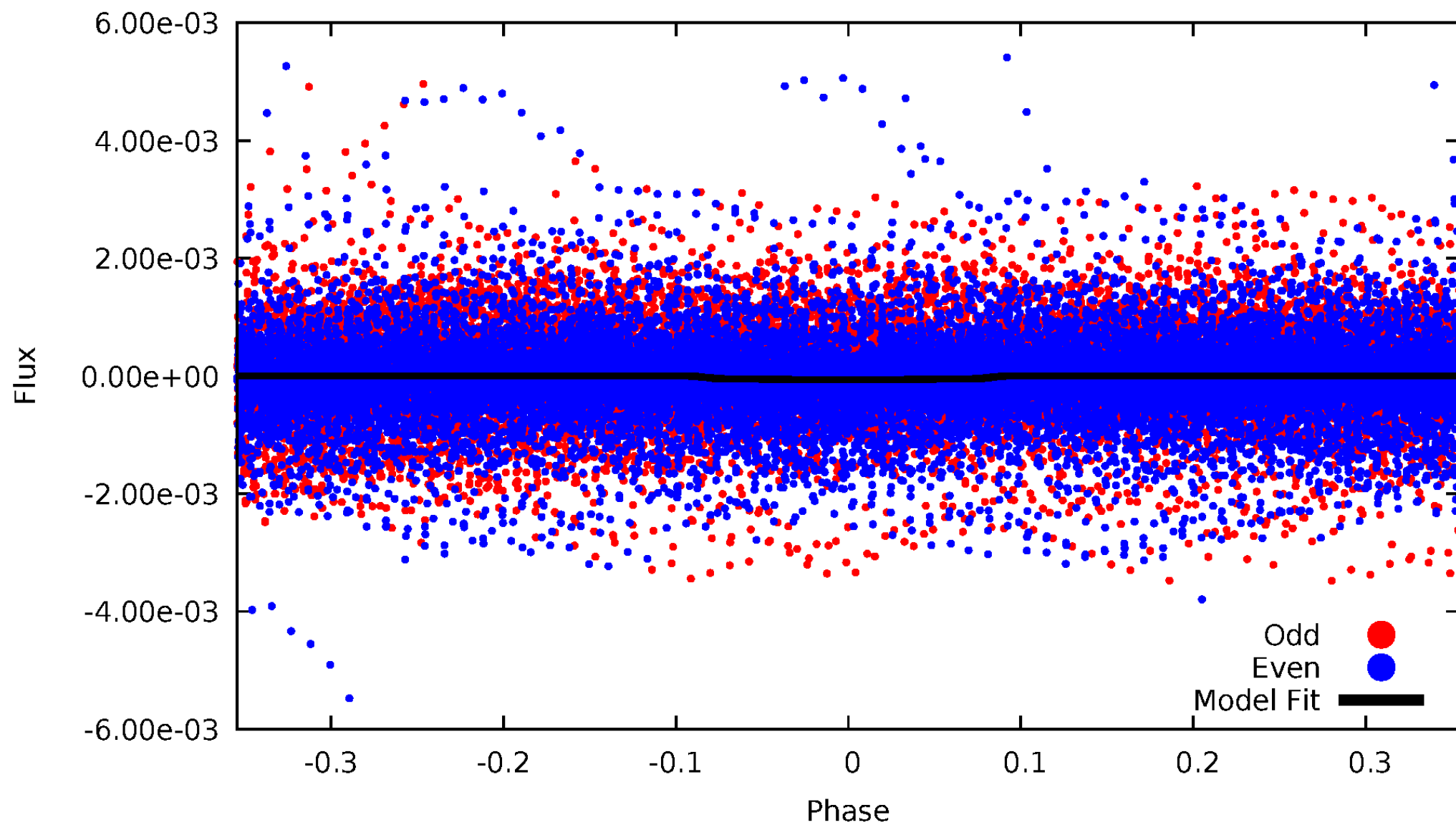


TCE 002299738-01



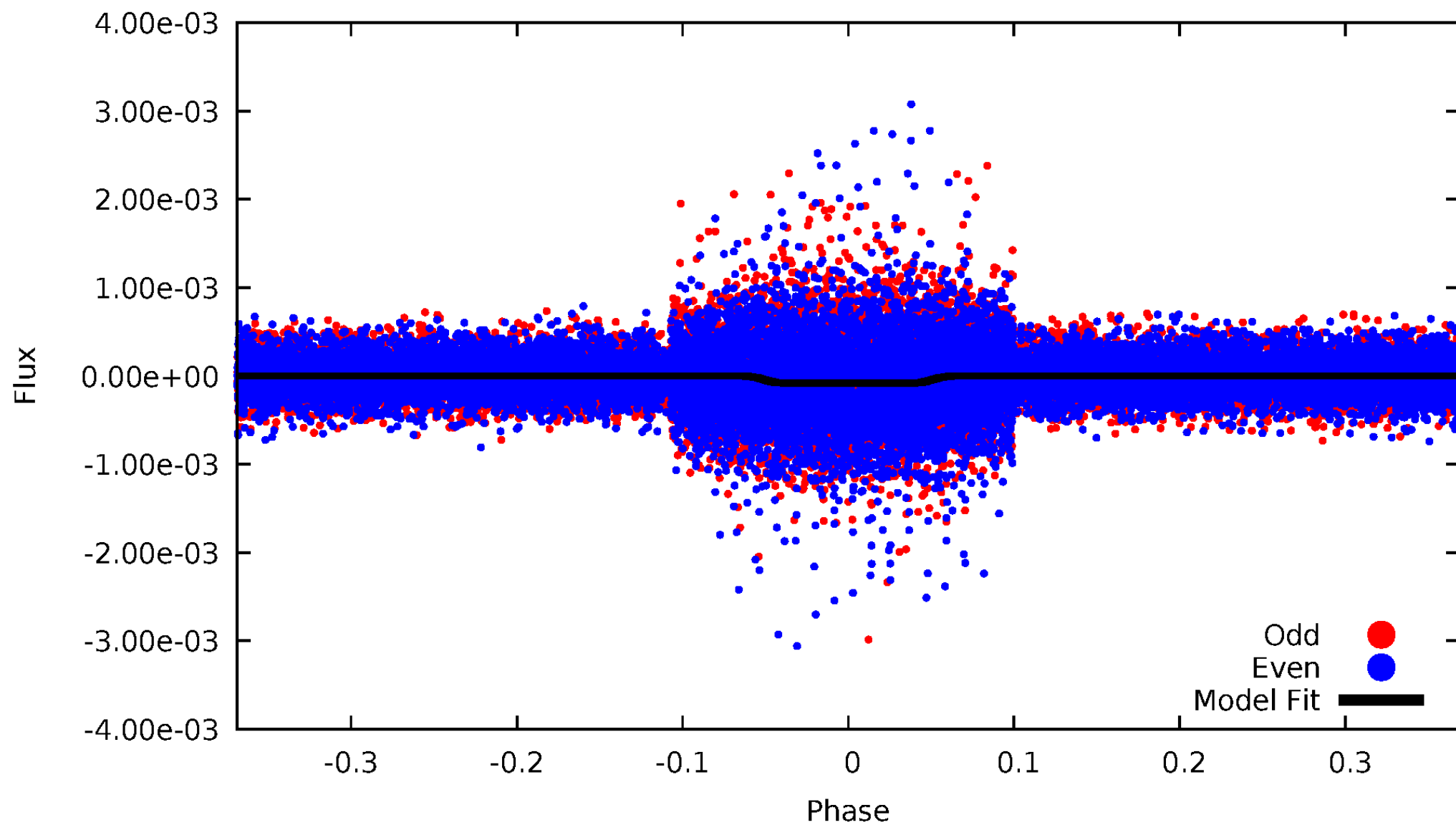
DV Odd/Even

TCE 002299738-01



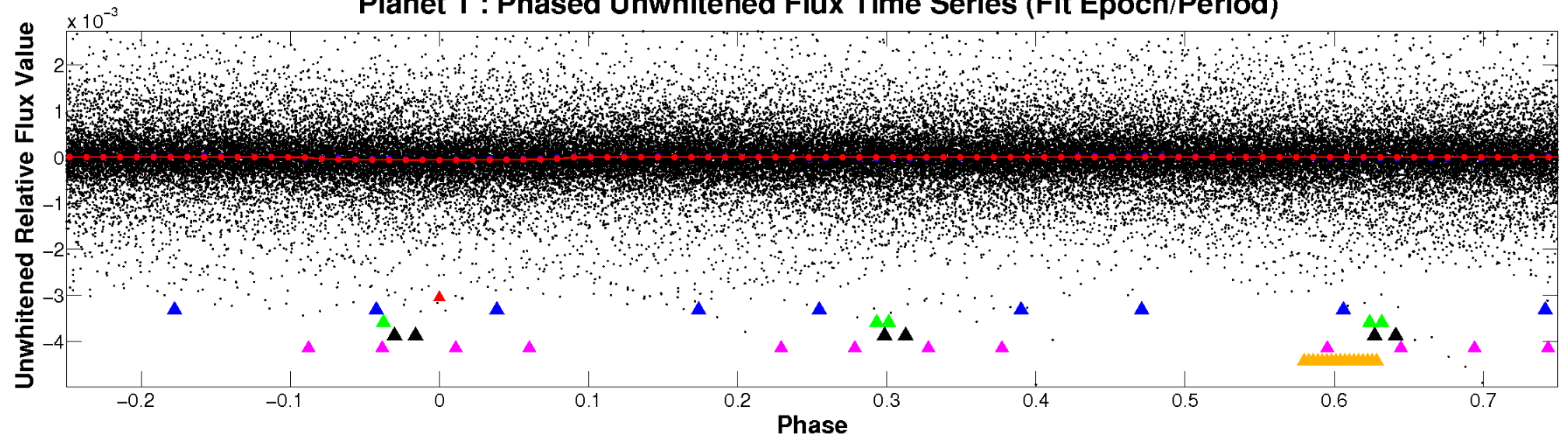
ALT Odd/Even

TCE 002299738-01

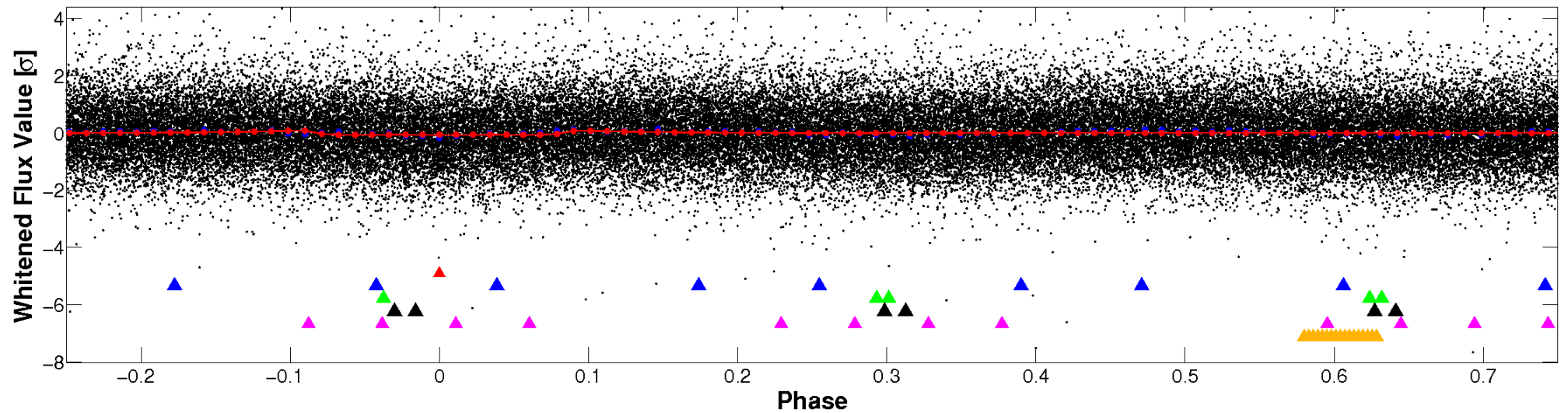


Non-Whitened Vs. Whitened Light Curve

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

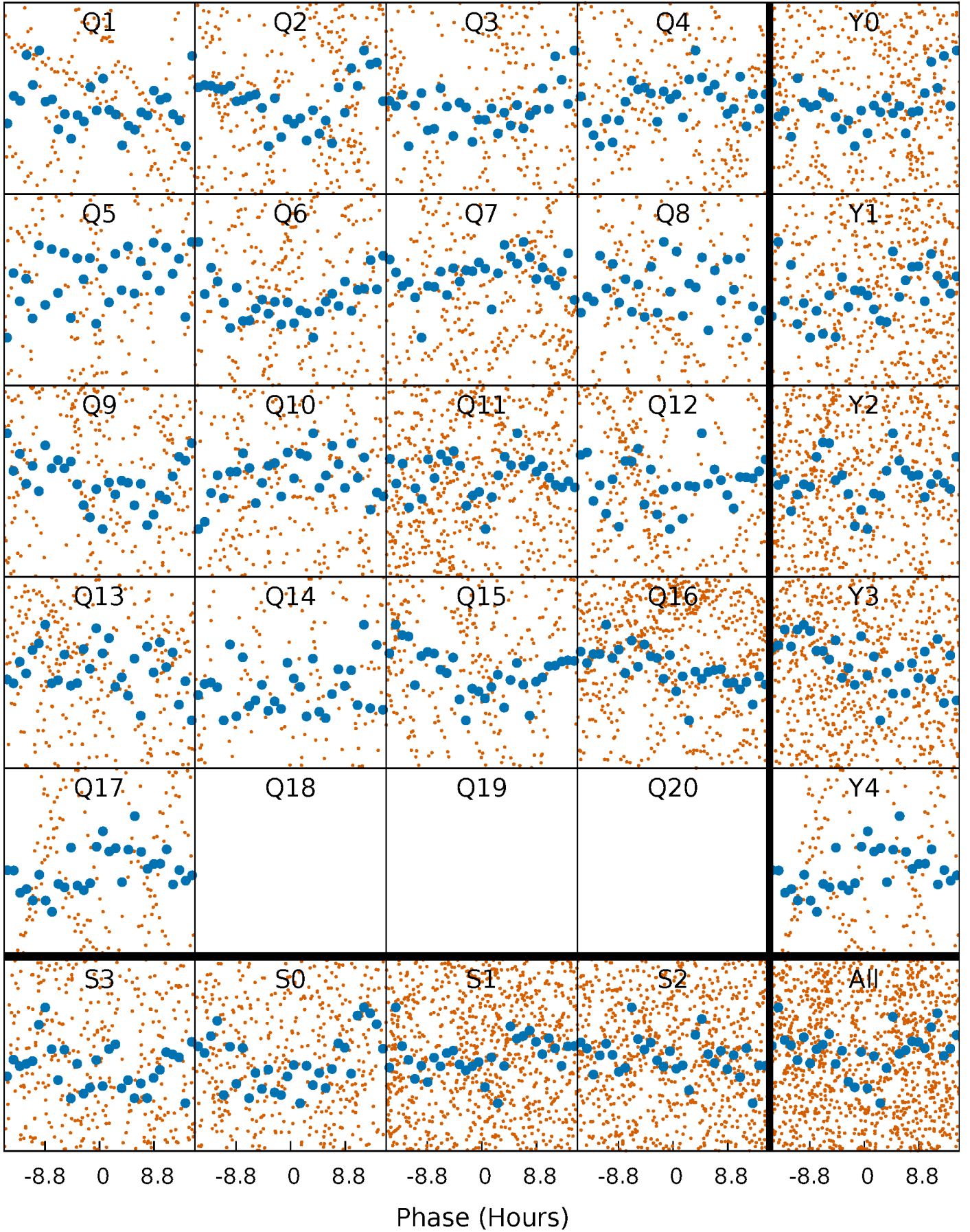


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



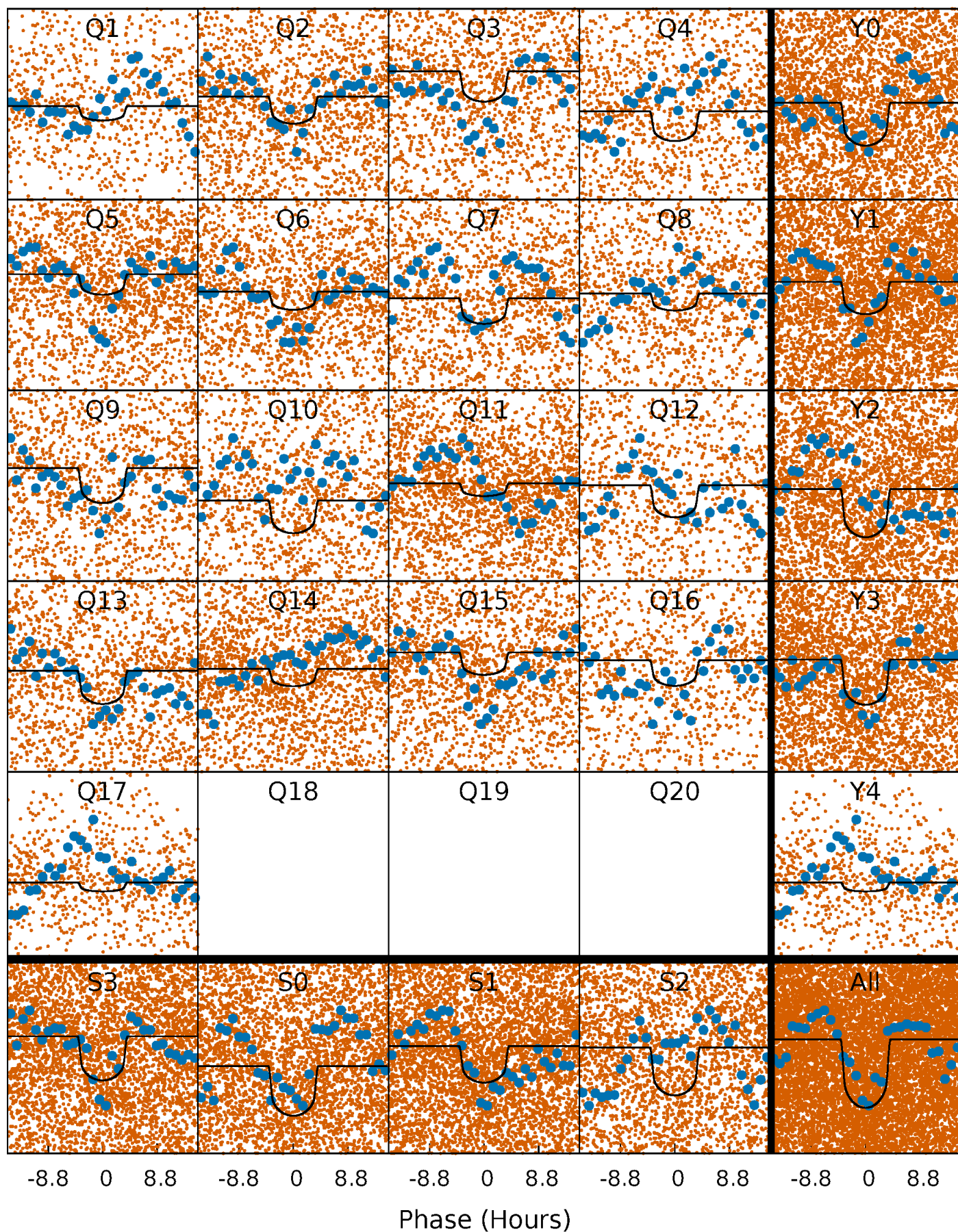
PDC Quarter-Phased Transit Curves

TCE 002299738-01 P= 1.813427 Days $T_0=132.709451$ (BKJD)



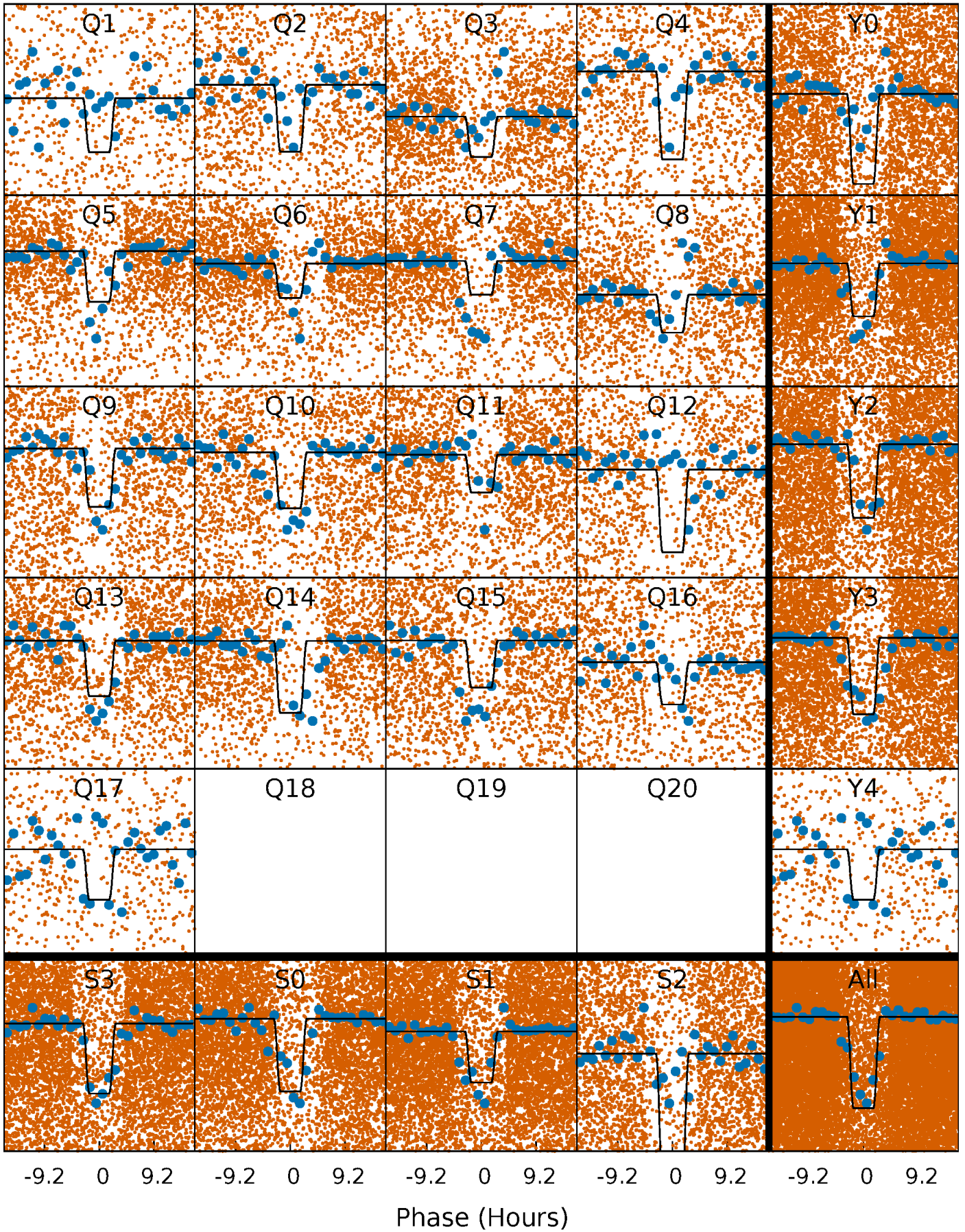
DV Quarter-Phased Transit Curves

TCE 002299738-01 P= 1.813427 Days $T_0=132.709451$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

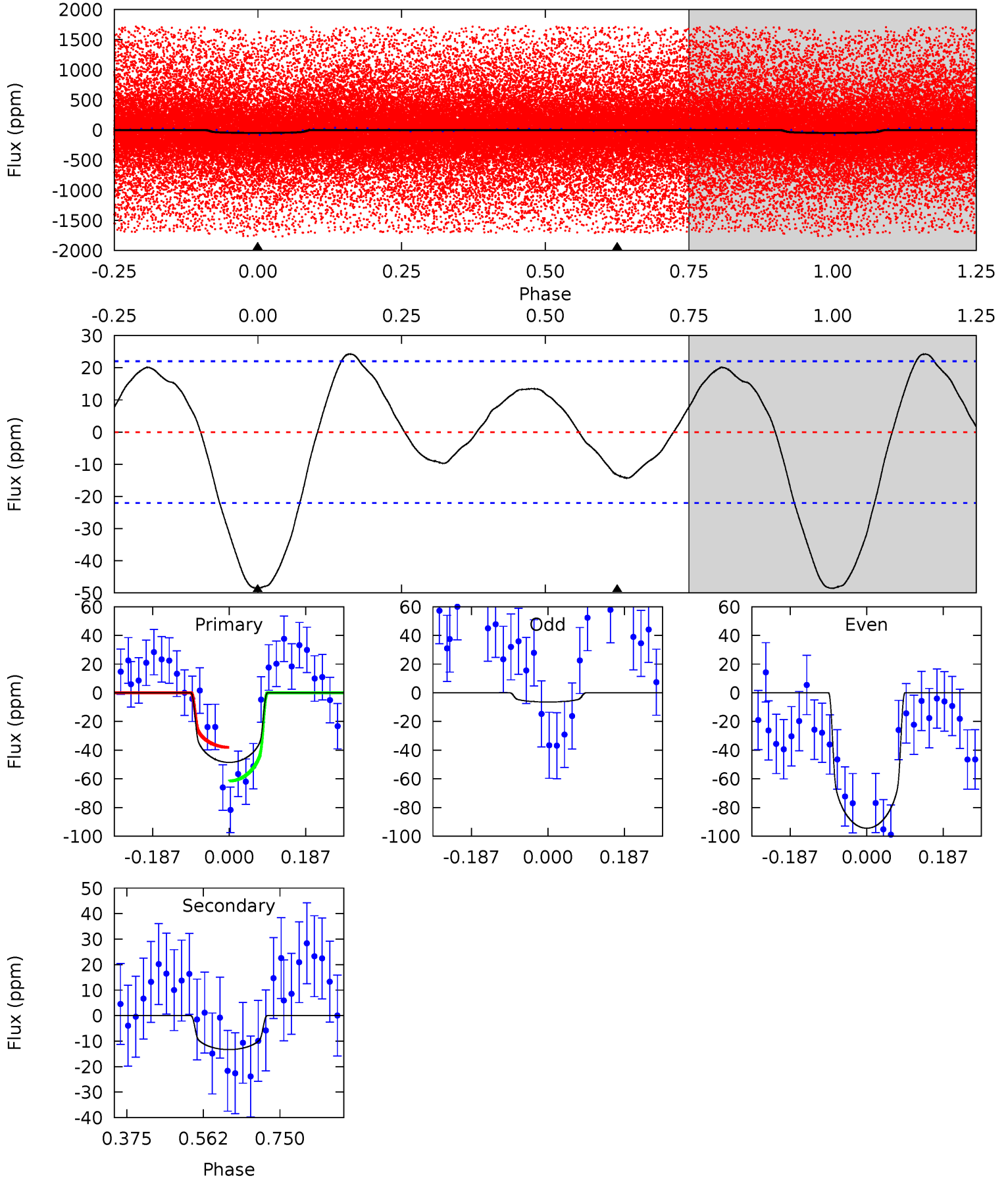
TCE 002299738-01 P= 1.813370 Days $T_0=132.725226$ (BKJD)



DV Model-Shift Uniqueness Test

002299738-01, P = 1.813427 Days, E = 130.896024 Days

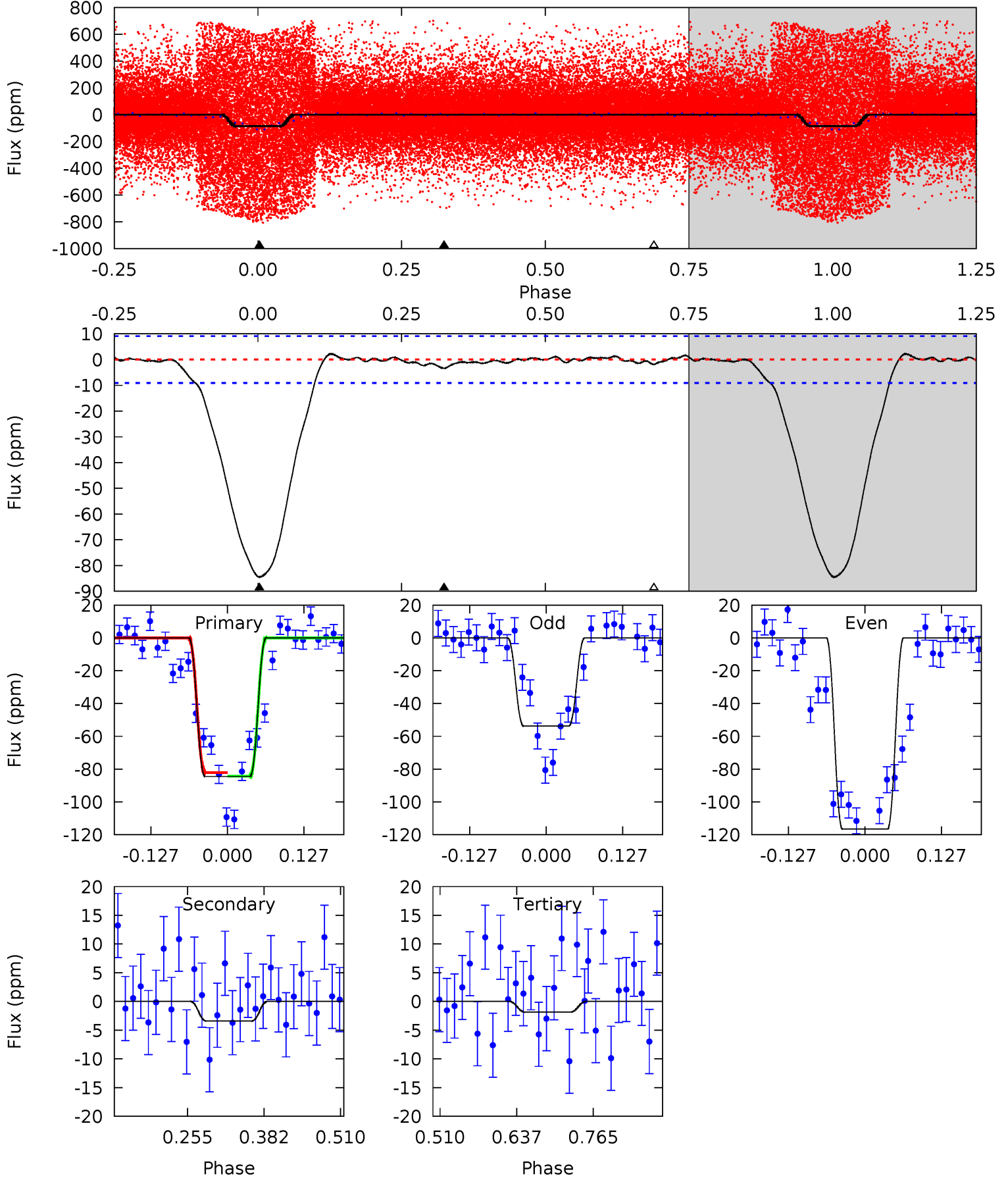
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.77	2.68	0	0	4.43	1.32	1.72	9.77	9.77	2.68	2.68	8.68	0.74	0.33	2.36



Alt Model-Shift Uniqueness Test

002299738-01, P = 1.813370 Days, E = 130.911856 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.8	1.69	0.91	0	4.51	1.52	0.45	40.9	41.8	0.78	1.69	15.5	0.76	0.03	0



Stellar Parameters For KIC 002299738

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5094^{+151}_{-136}	$4.618^{+0.040}_{-0.065}$	$-0.320^{+0.300}_{-0.300}$	$0.700^{+0.086}_{-0.058}$	$0.743^{+0.078}_{-0.071}$	$3.051^{+0.555}_{-0.726}$
	+3%/-3%	+1%/-1%	+94%/-94%	+12%/-8%	+10%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 002299738-01 / KOI 7628.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13 ± 5	$0.67^{+0.15}_{-0.16}$	1629^{+54}_{-61}	3637^{+413}_{-328}	11^{+9}_{-5}
Alt.	-3 ± 2	$0.70^{+0.16}_{-0.16}$	1625^{+63}_{-54}	2874^{+365}_{-404}	$2.501^{+2.704}_{-1.524}$

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 $A_{obs} \gg 1.0$

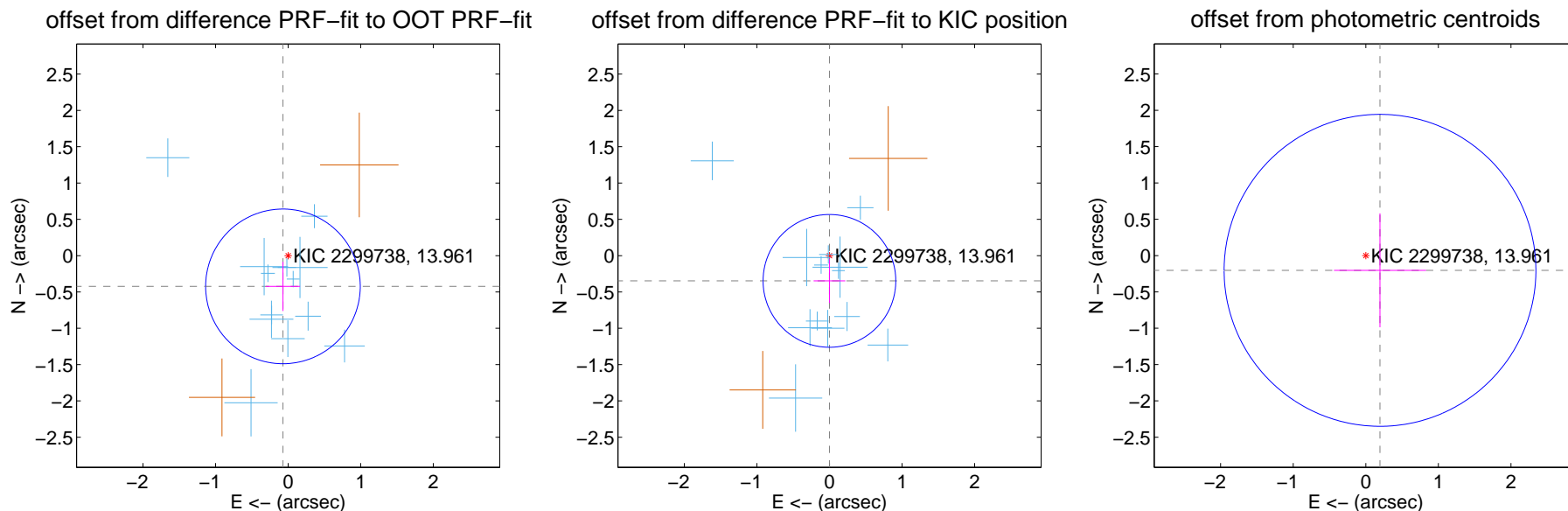
DV Centroid Data

Supplemental centroid analysis for 002299738-01. Kepler magnitude: 13.96. Transit SNR 8.03

There are 13 quarters with good PRF difference image offsets

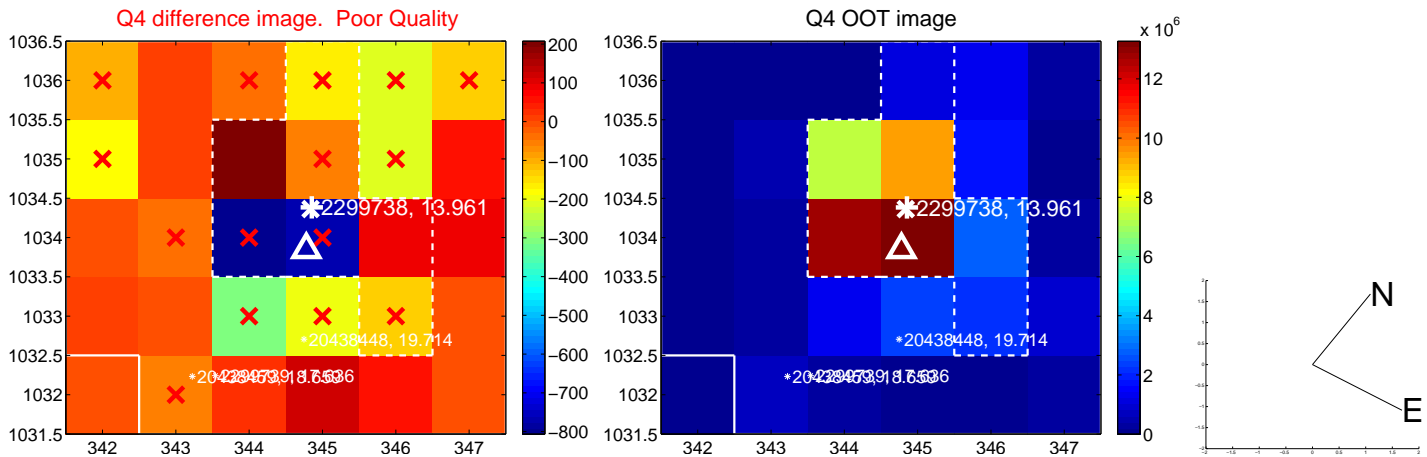
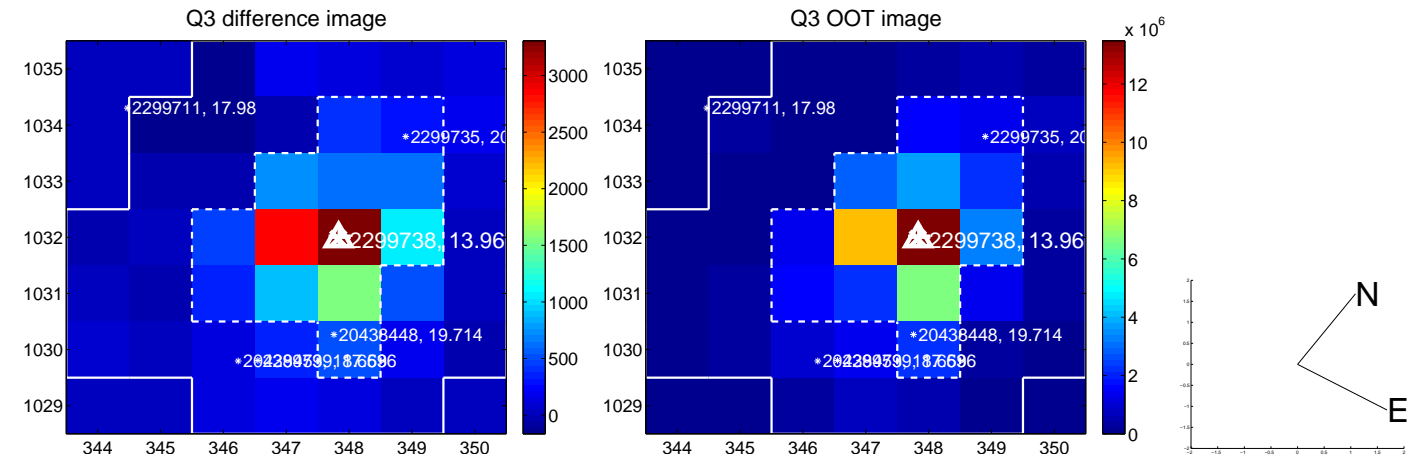
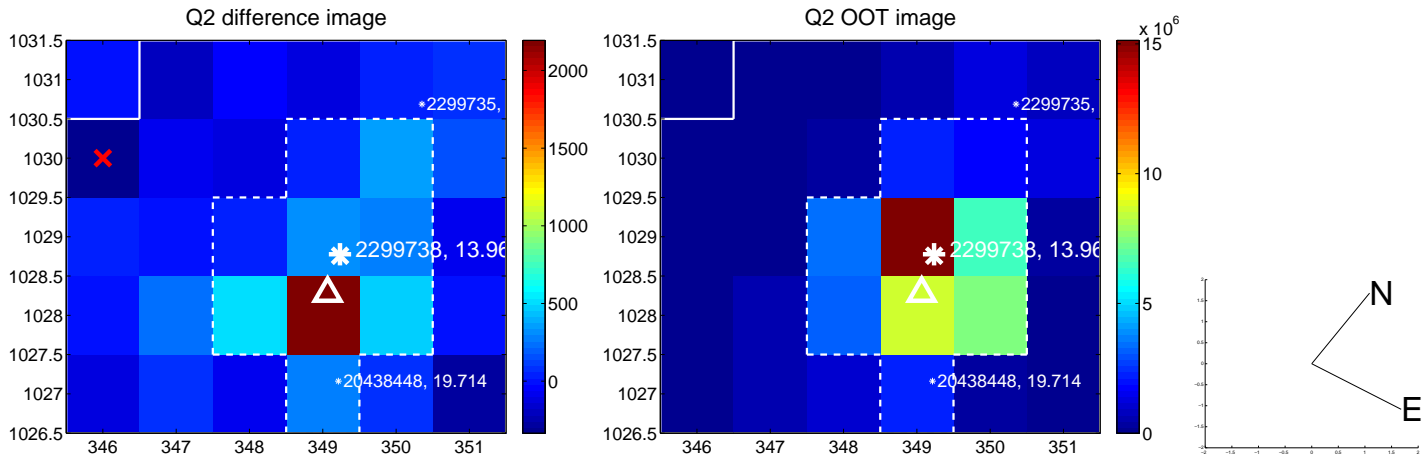
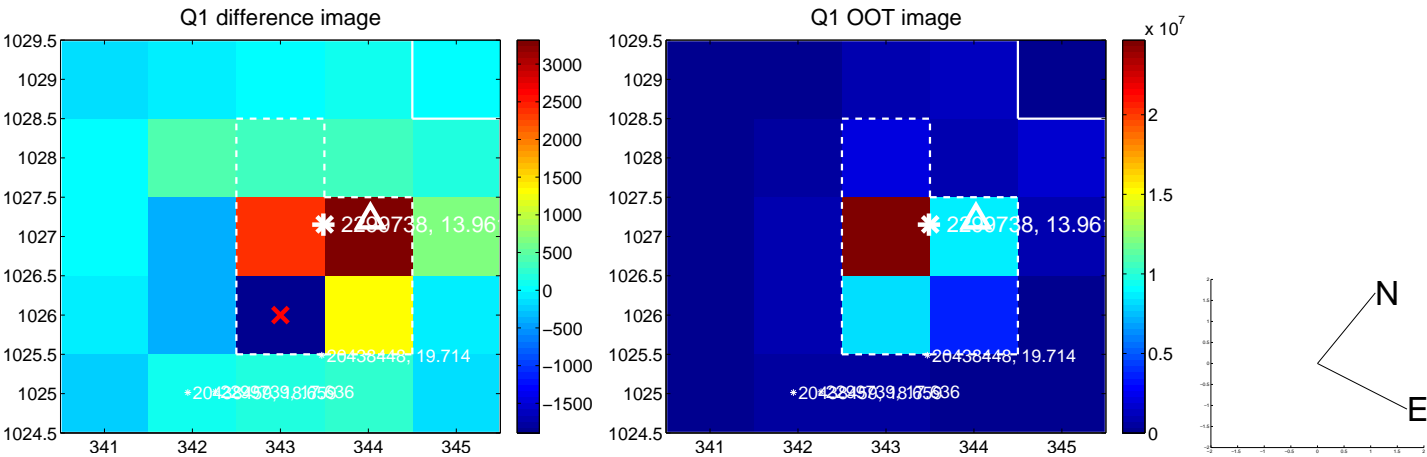
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.429 ± 0.355	1.21	0.071 ± 0.237	-0.423 ± 0.338
PRF-fit source offset from KIC position	0.347 ± 0.305	1.14	0.001 ± 0.219	-0.347 ± 0.304
photometric centroid source offset	0.28 ± 0.72	0.39	-0.20 ± 0.63	-0.20 ± 0.78

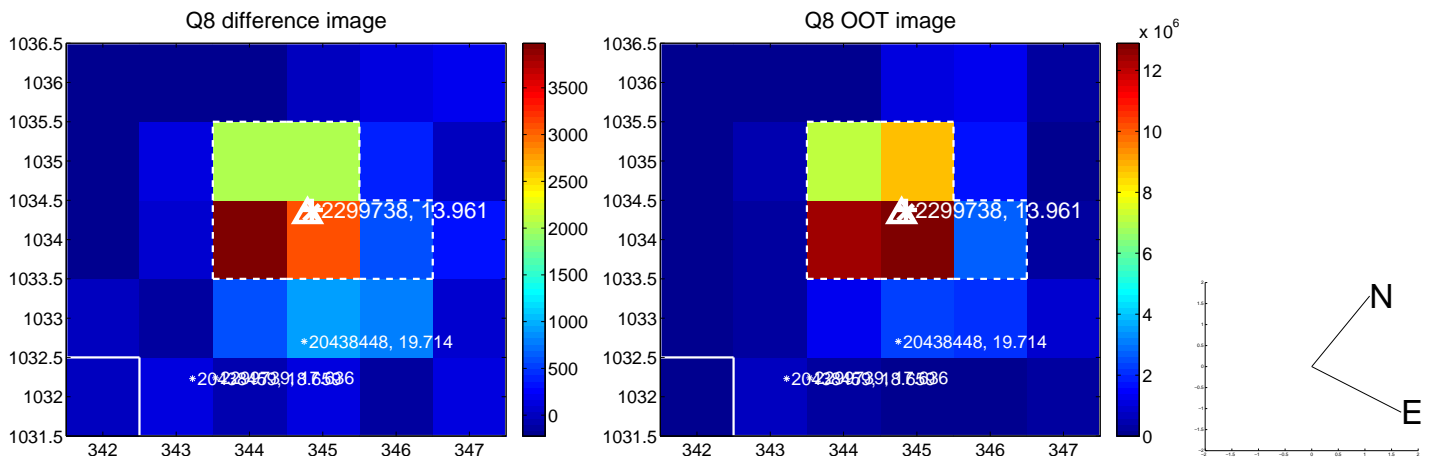
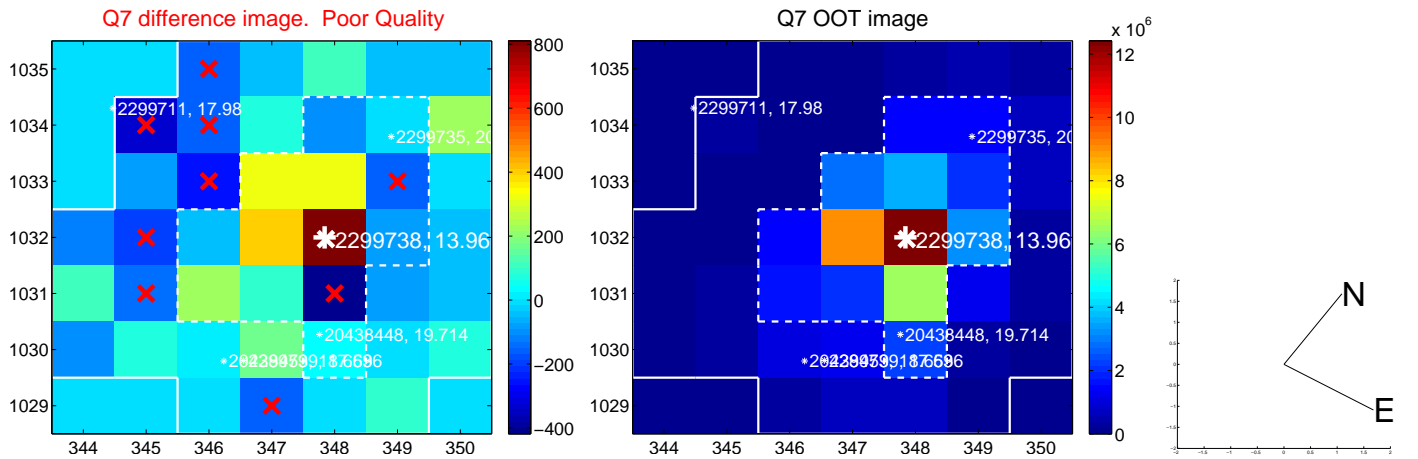
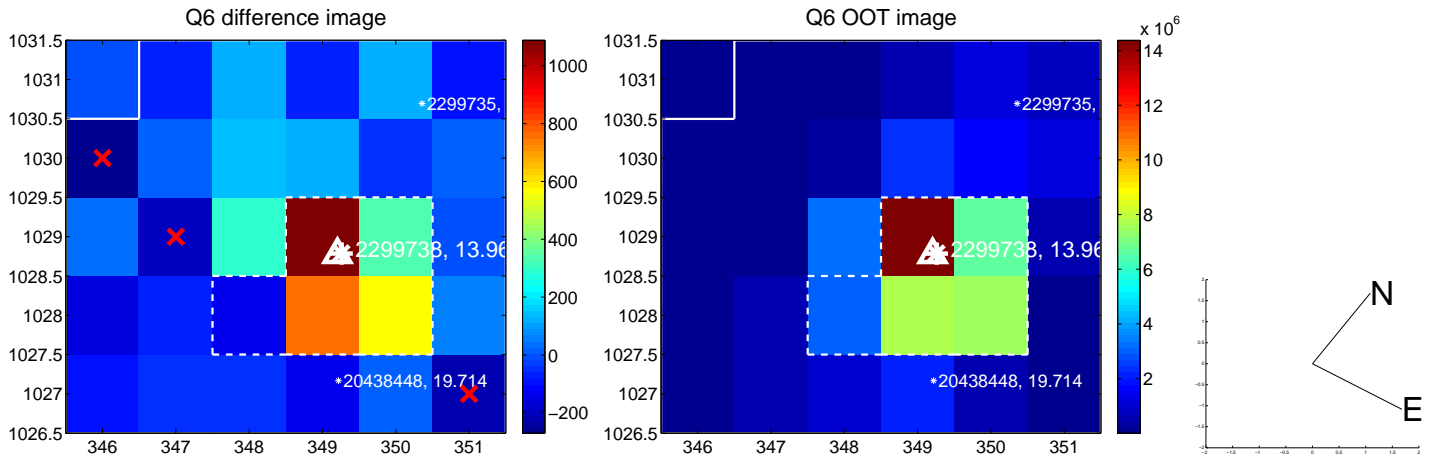
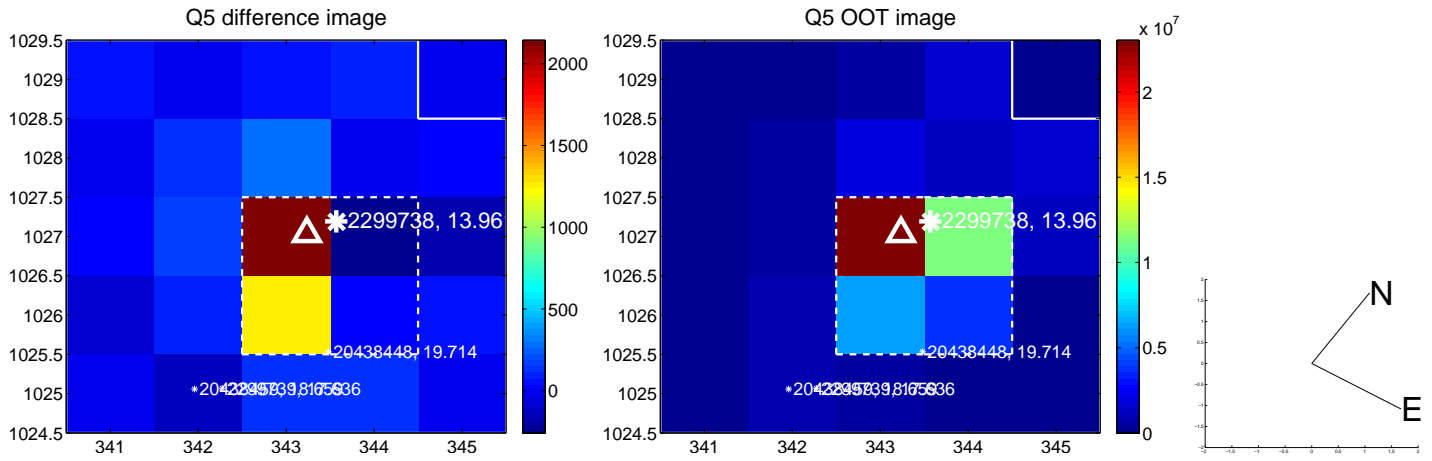


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

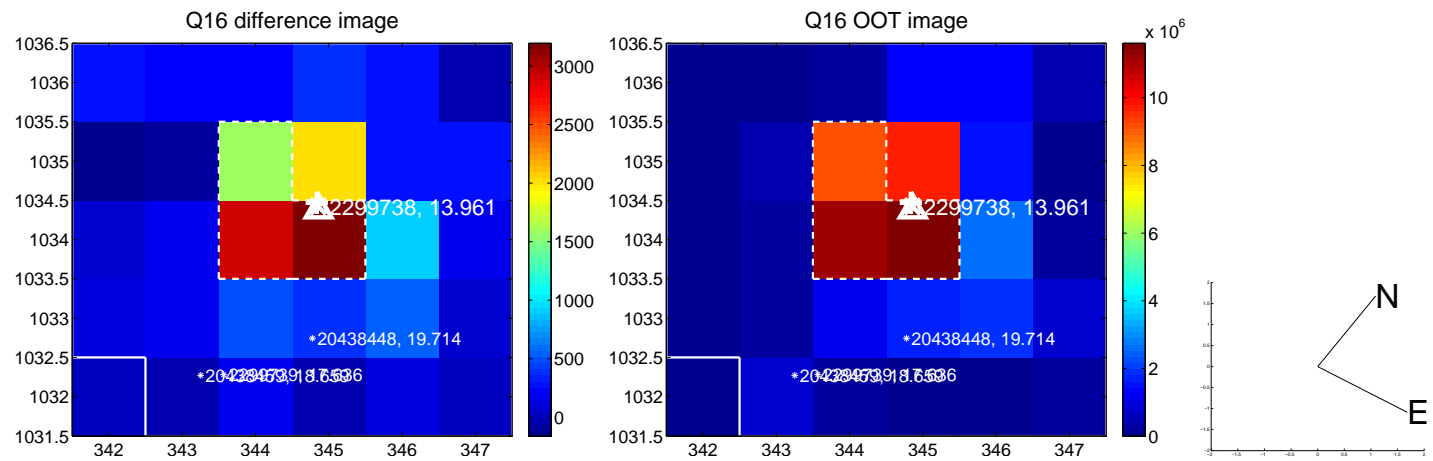
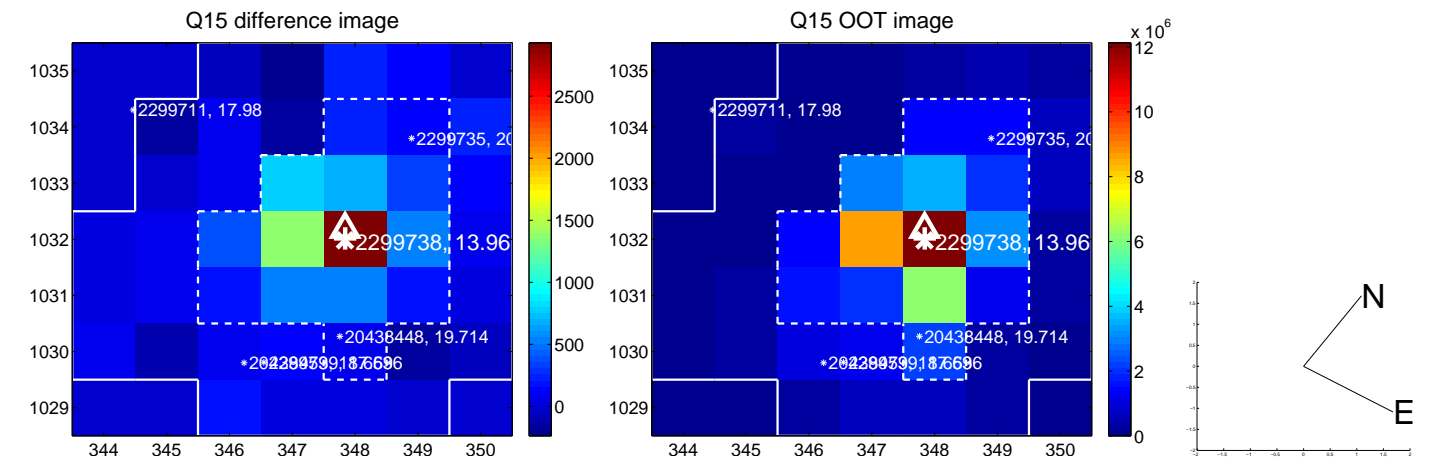
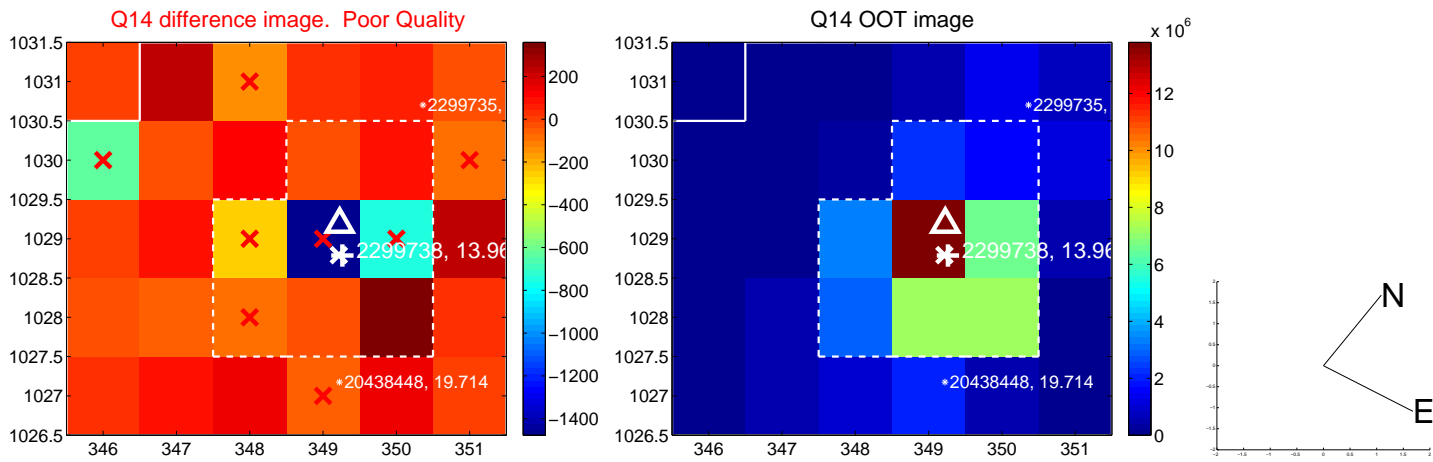
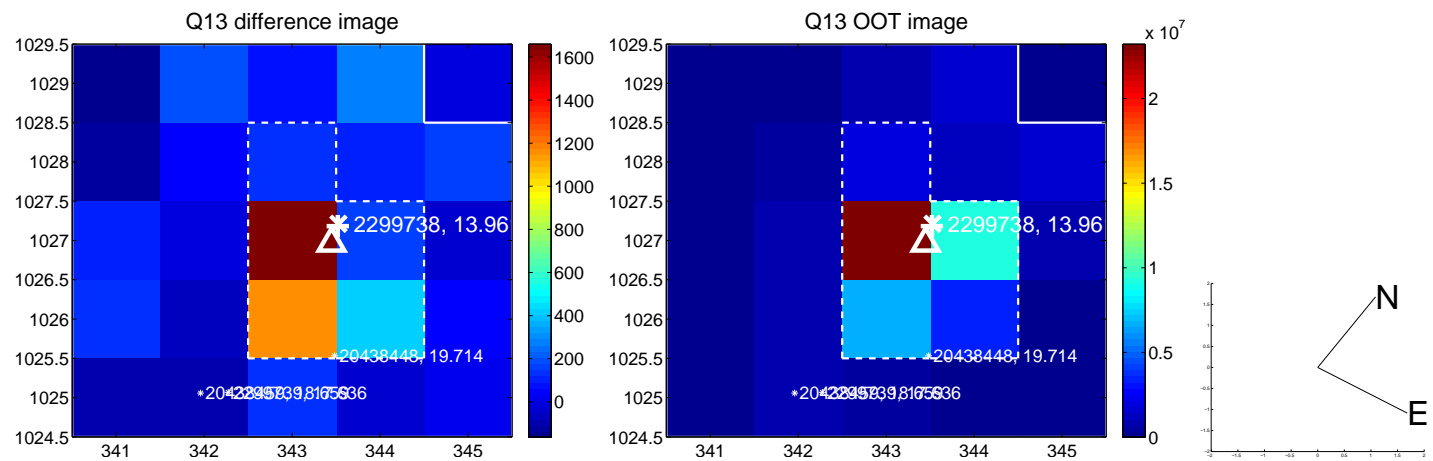
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

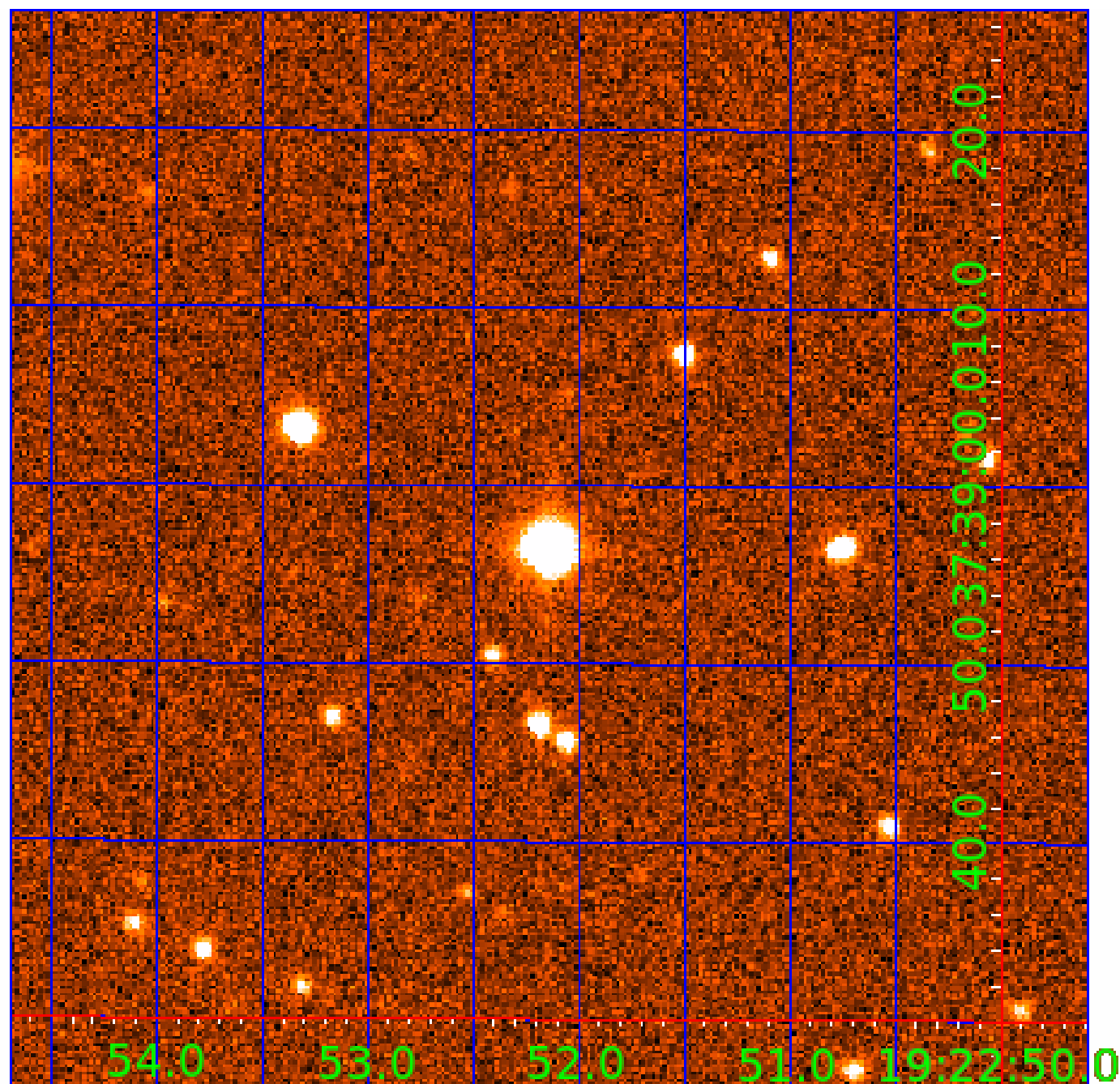


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002299738

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})
002299738-01	OBS	7628.01	1.813427	132.709451	61.6	7.712	8.6	8.0	0.70	5094	0.66	425.79
002299738-02	OBS	No	170.070119	171.645443	1196.1	17.845	15.3	7.3	0.70	5094	2.83	1.00
002299738-03	OBS	No	265.359944	309.158225	808.3	5.899	13.1	5.8	0.70	5094	2.13	0.55
002299738-04	OBS	No	222.455558	311.562691	601.7	4.668	11.3	5.2	0.70	5094	1.90	0.70
002299738-05	OBS	No	131.805518	134.938561	721.8	9.135	9.3	6.4	0.70	5094	1.94	1.40
002299738-06	OBS	No	87.049996	160.962523	52.0	2.020	8.7	1.1	0.70	5094	0.57	2.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002299738-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT
002299738-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
002299738-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_FEW_DIFFS
002299738-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES
002299738-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
002299738-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

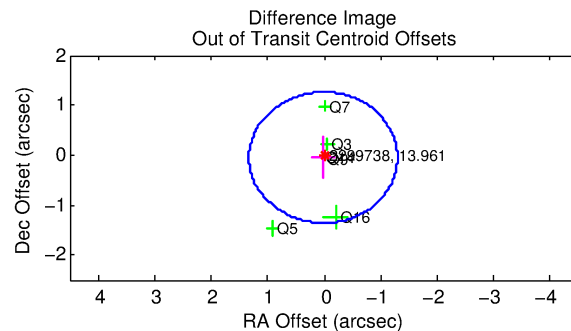
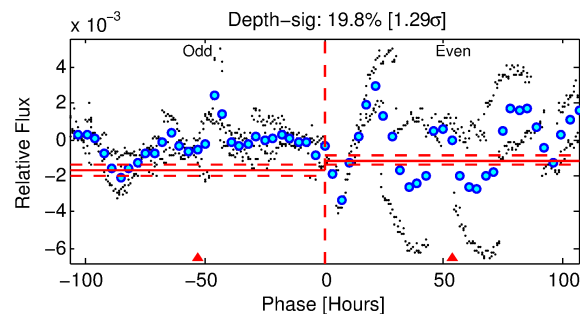
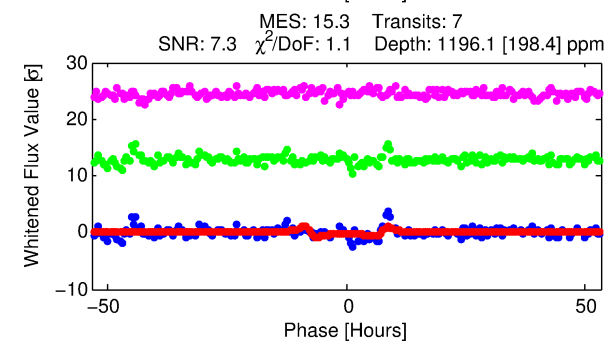
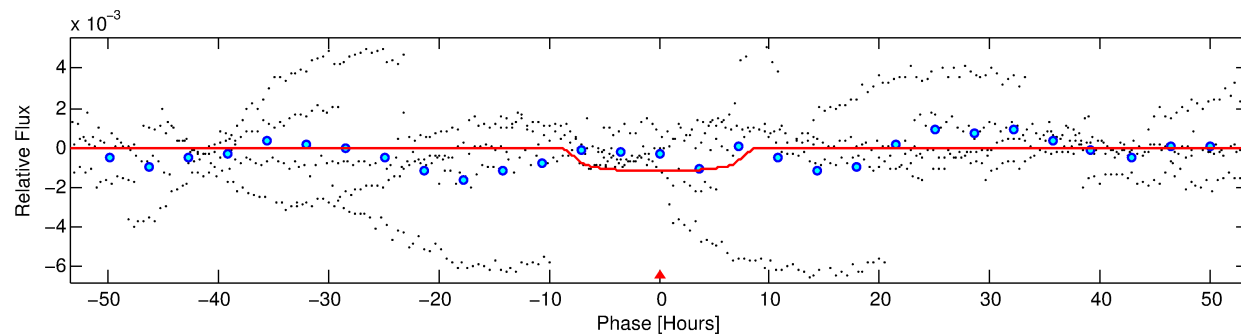
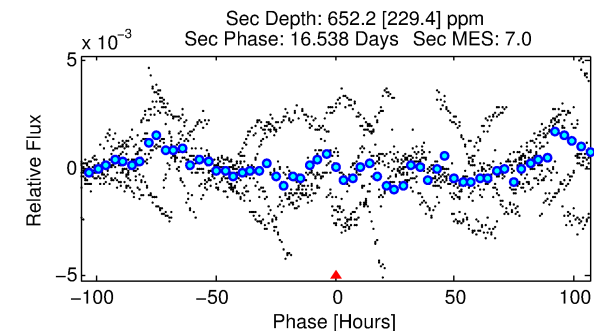
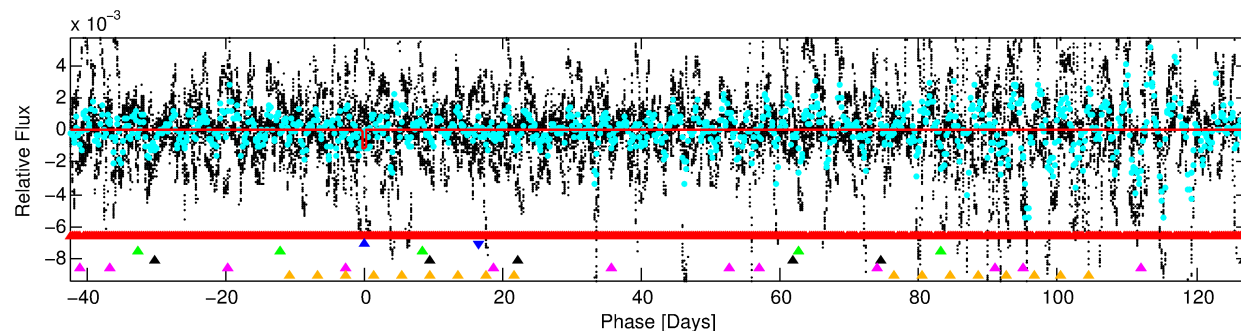
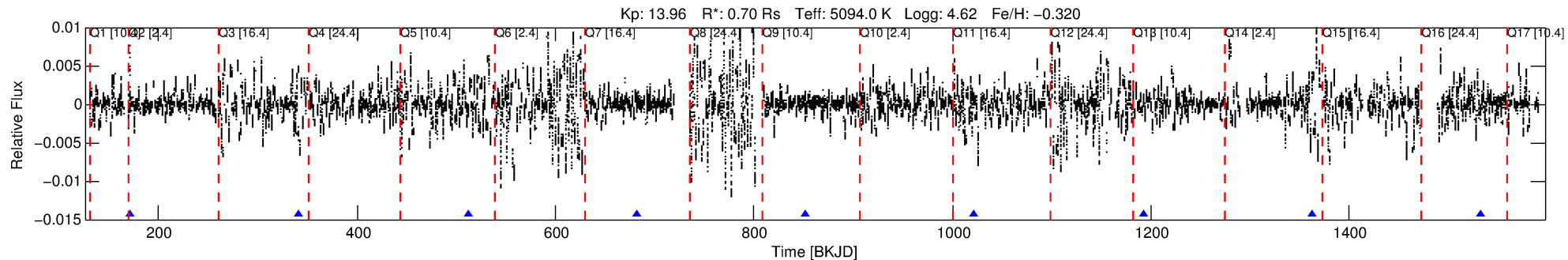
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002299738-02

No Significant Match Found

DV One-Page Summary

KIC: 2299738 Candidate: 2 of 6 Period: 170.070 d



DV Fit Results:

Period = 170.07012 [0.00309] d
Epoch = 171.6454 [0.0139] BKJD
Rp/R* = 0.0370 [0.0036]
a/R* = 41.68 [6.36]
b = 0.86 [0.05]
Seff = 1.00 [0.18]
Teq = 255 [11] K
Rp = 2.83 [0.45] Re
a = 0.5439 [0.0522] AU
Ag = 13261.34 [5610.77] [2.36σ]
Teff = 4230 [444] K [8.95σ]

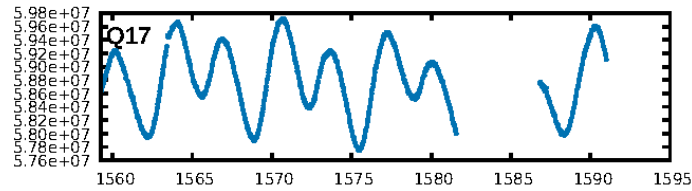
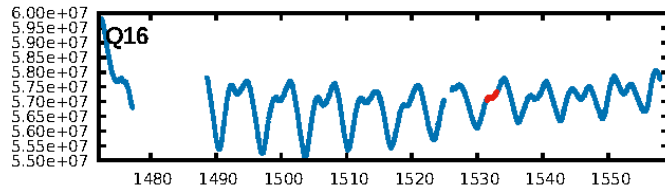
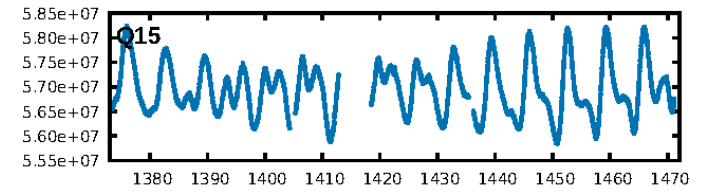
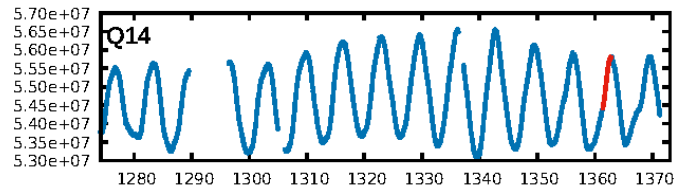
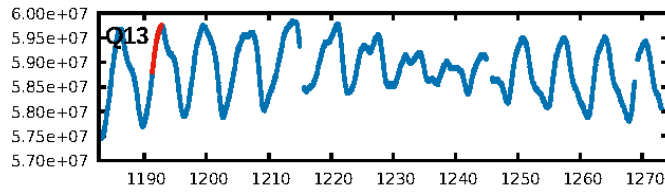
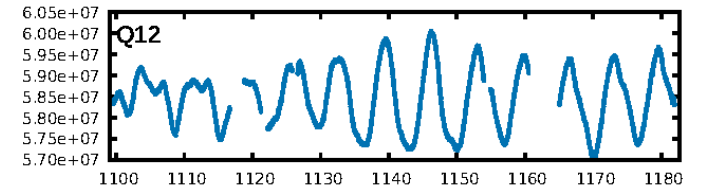
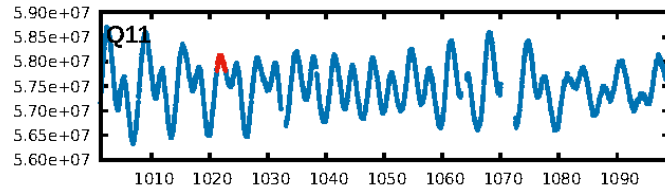
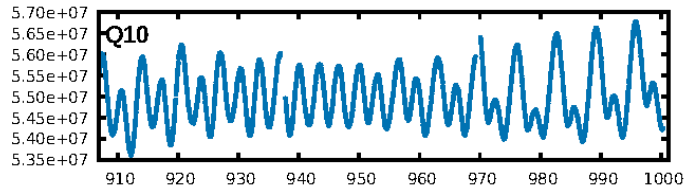
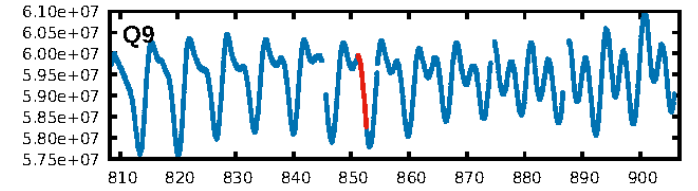
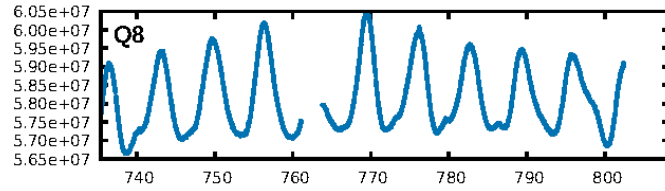
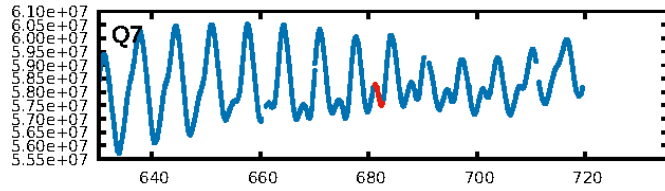
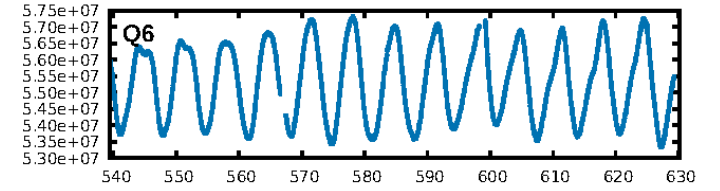
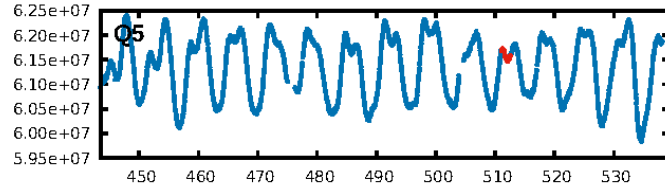
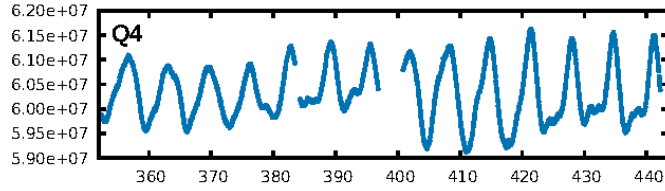
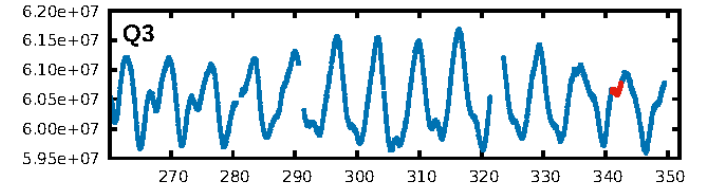
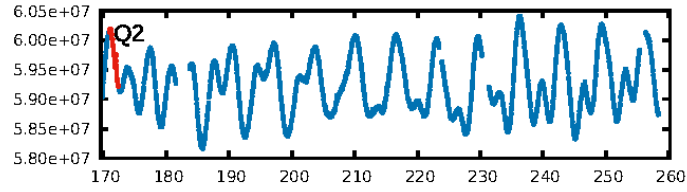
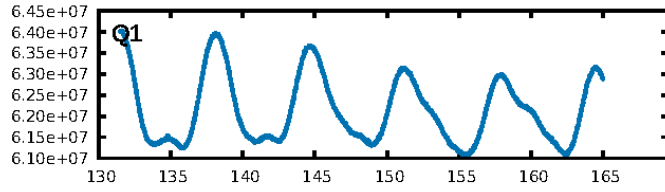
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.81σ]
LongPeriod-sig: 100.0% [68.16σ]
ModelChiSquare2-sig: 7.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.56e-17
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 4.631
Centroid-sig: 32.1%
Centroid-so: 0.922 arcsec [2.54σ]
OotOffset-rm: 0.050 arcsec [0.11σ]
KicOffset-rm: 0.076 arcsec [0.20σ]
OotOffset-st: 1/2/1/2 [6]
KicOffset-st: 1/2/1/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.00 [0/6]

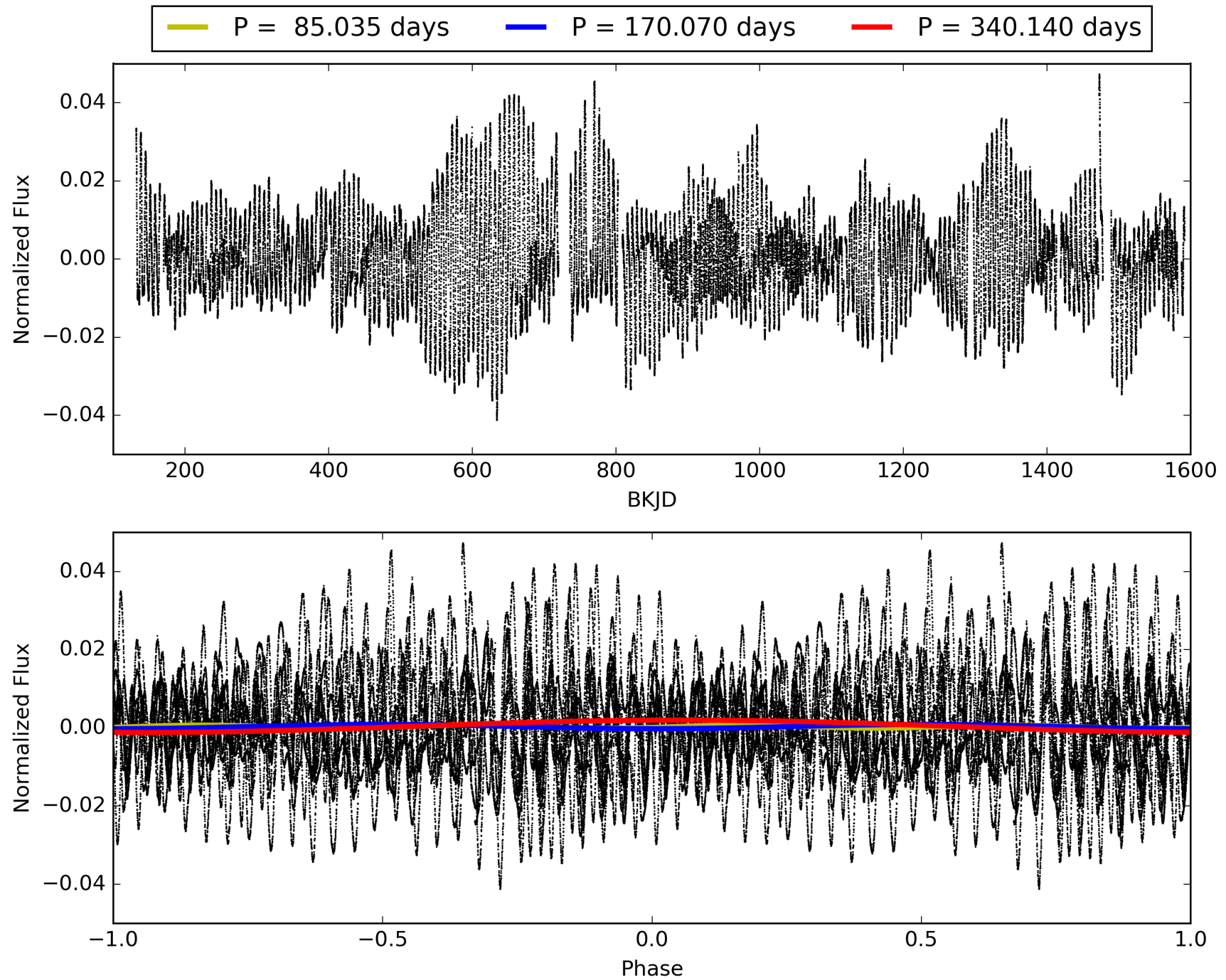
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:13 Z

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

TCE 002299738-02, PDC Light Curves

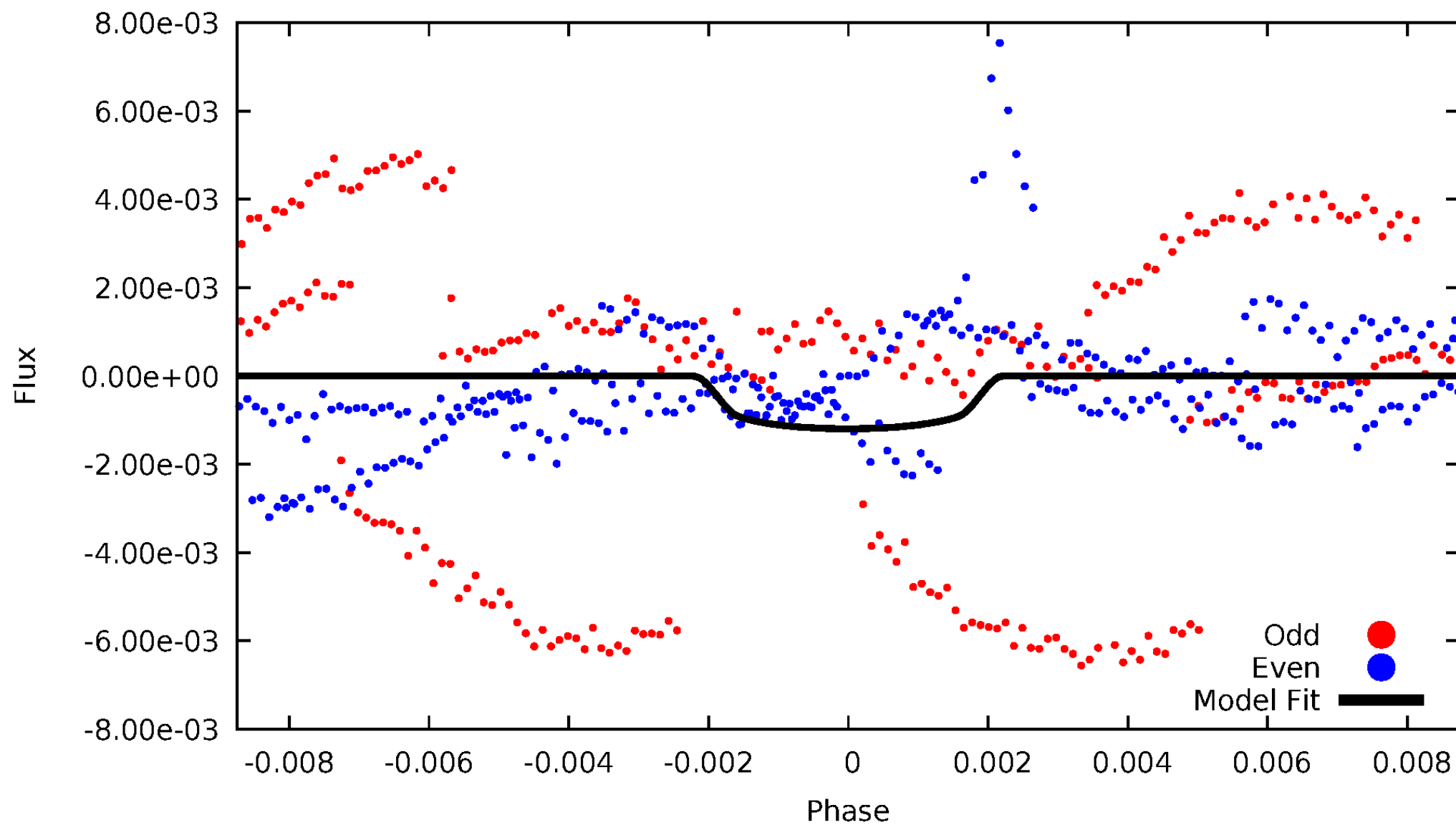


TCE 002299738-02



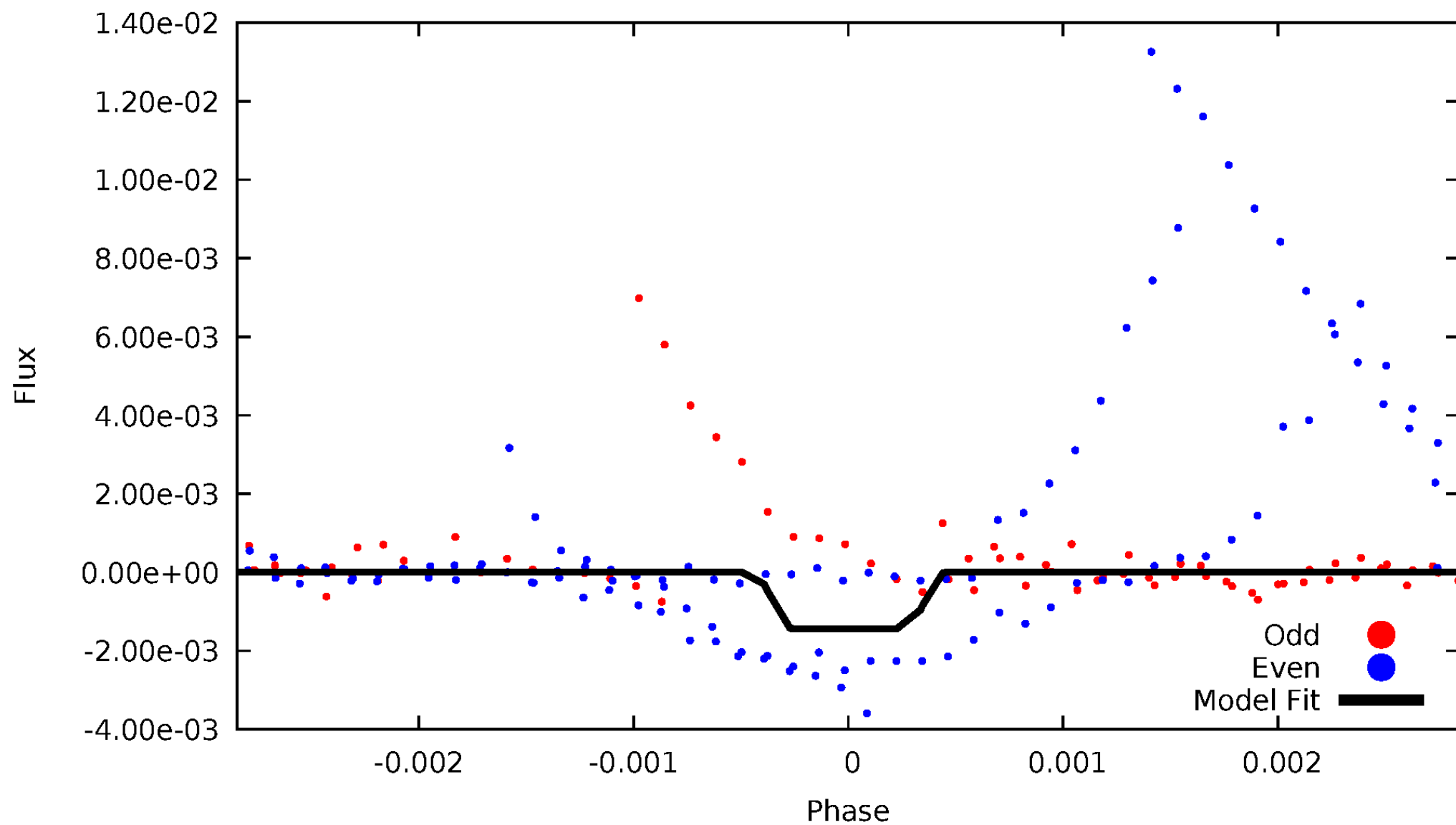
DV Odd/Even

TCE 002299738-02



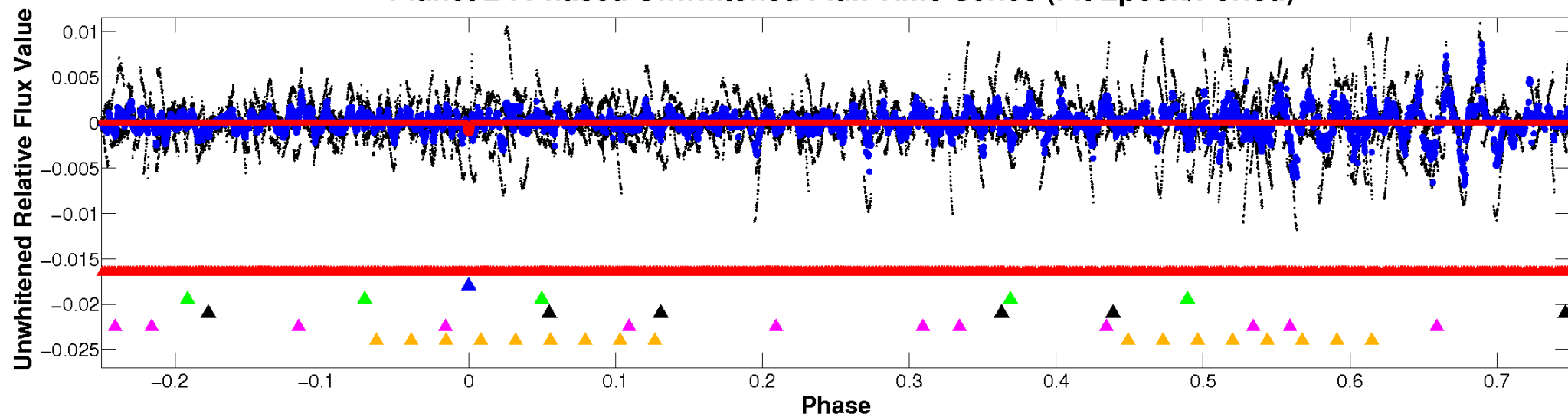
ALT Odd/Even

TCE 002299738-02

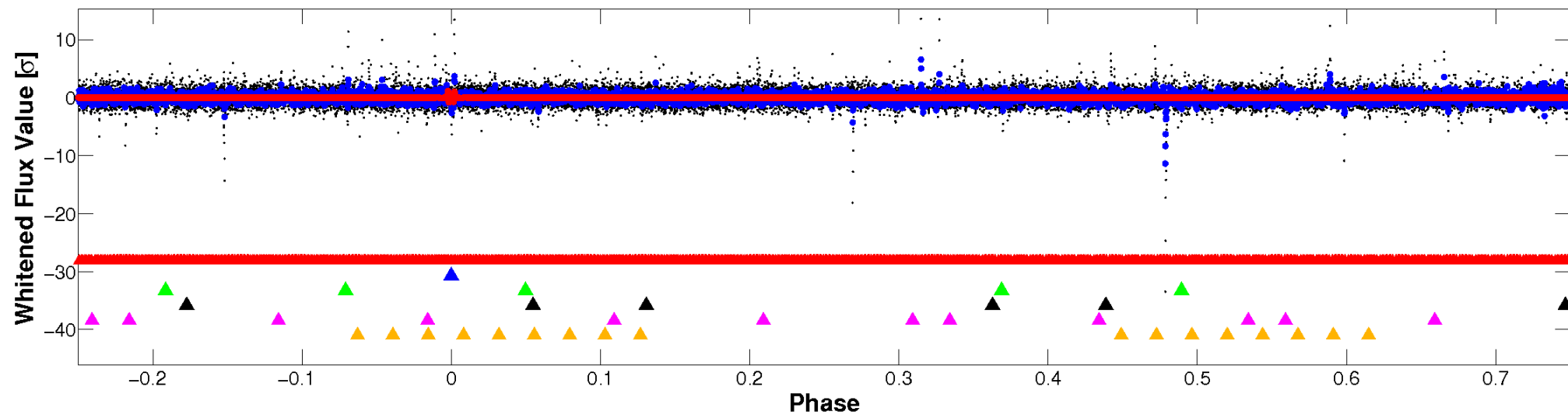


Non-Whitened Vs. Whitened Light Curve

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

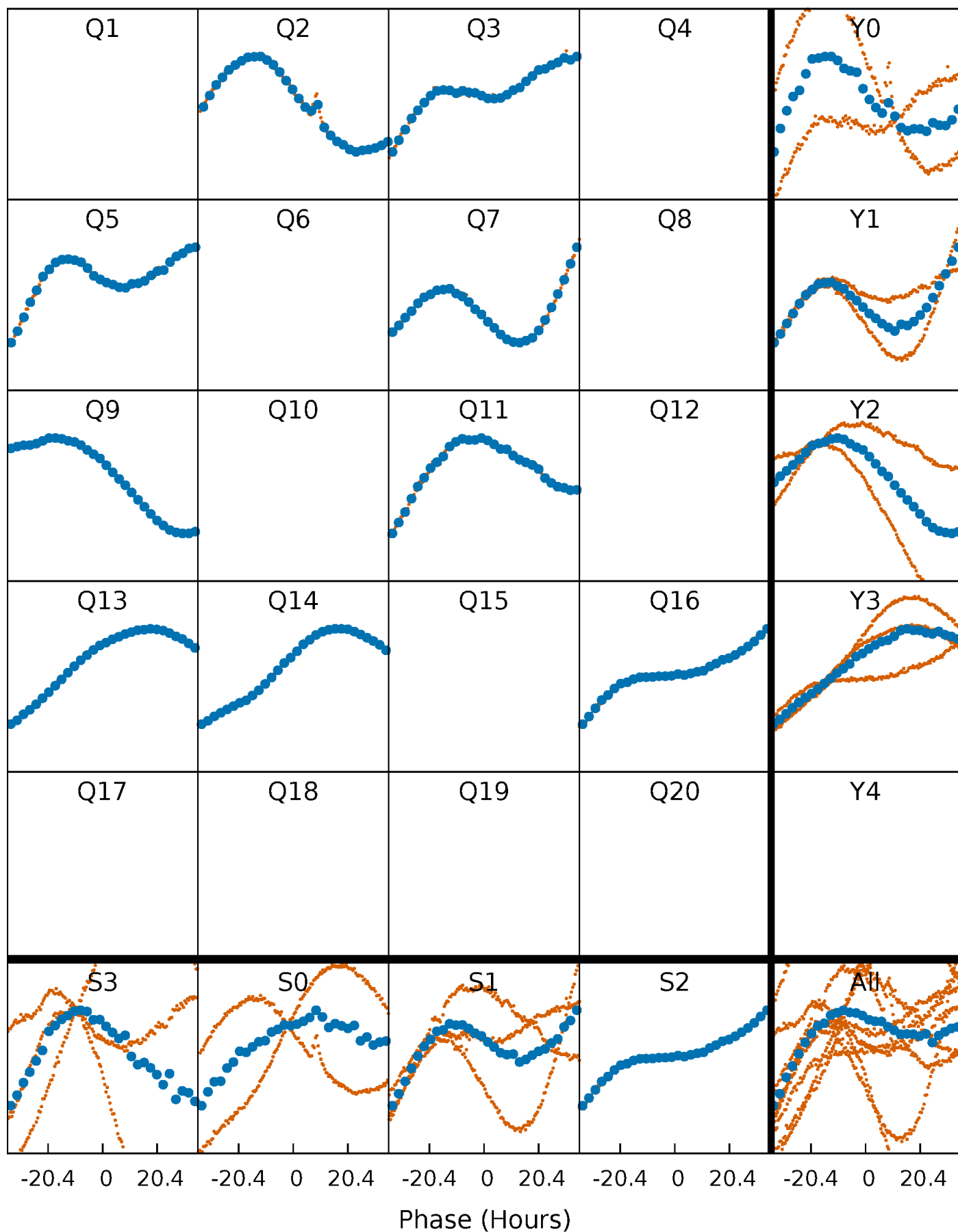


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



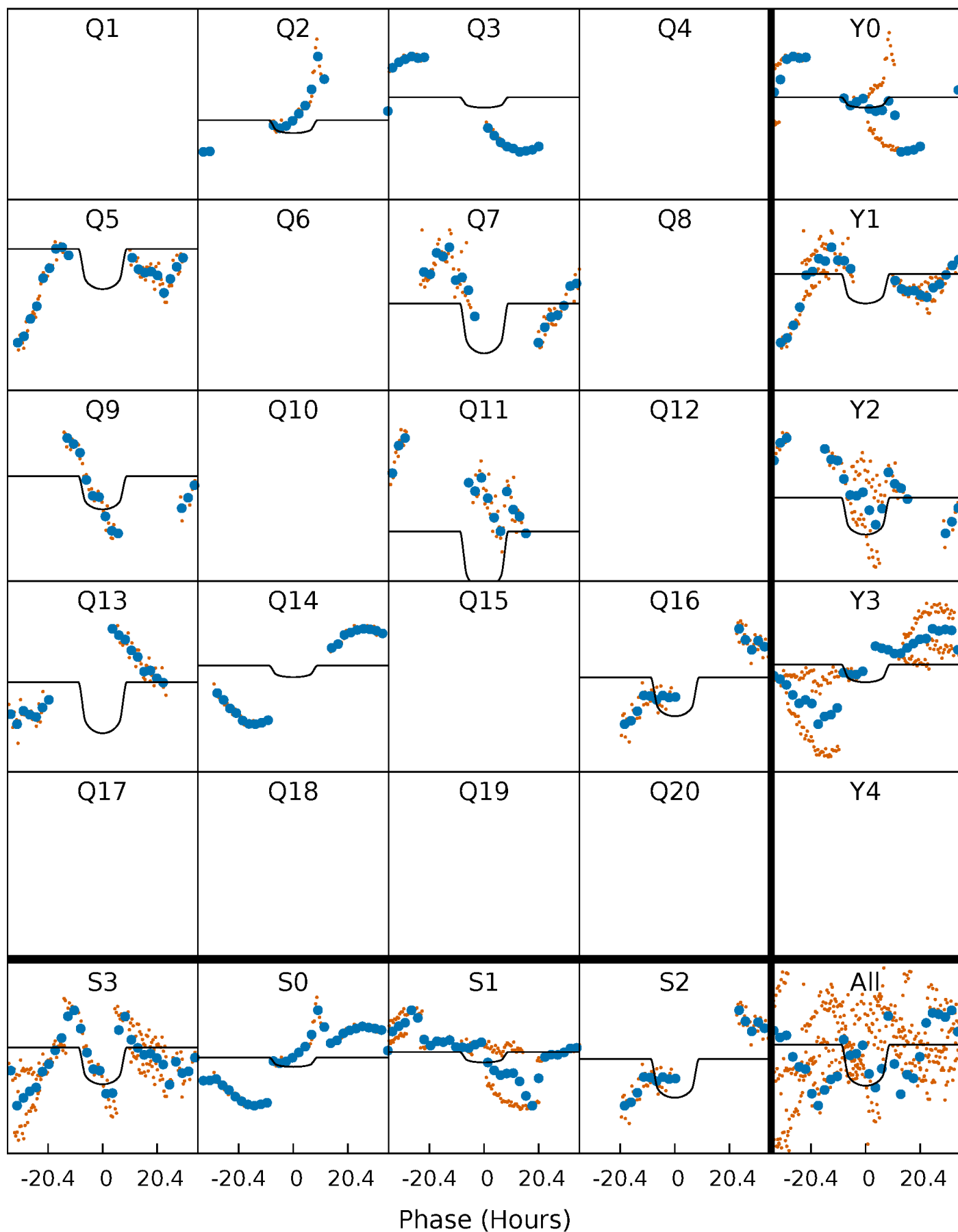
PDC Quarter-Phased Transit Curves

TCE 002299738-02 P=170.070119 Days $T_0=171.645443$ (BKJD)



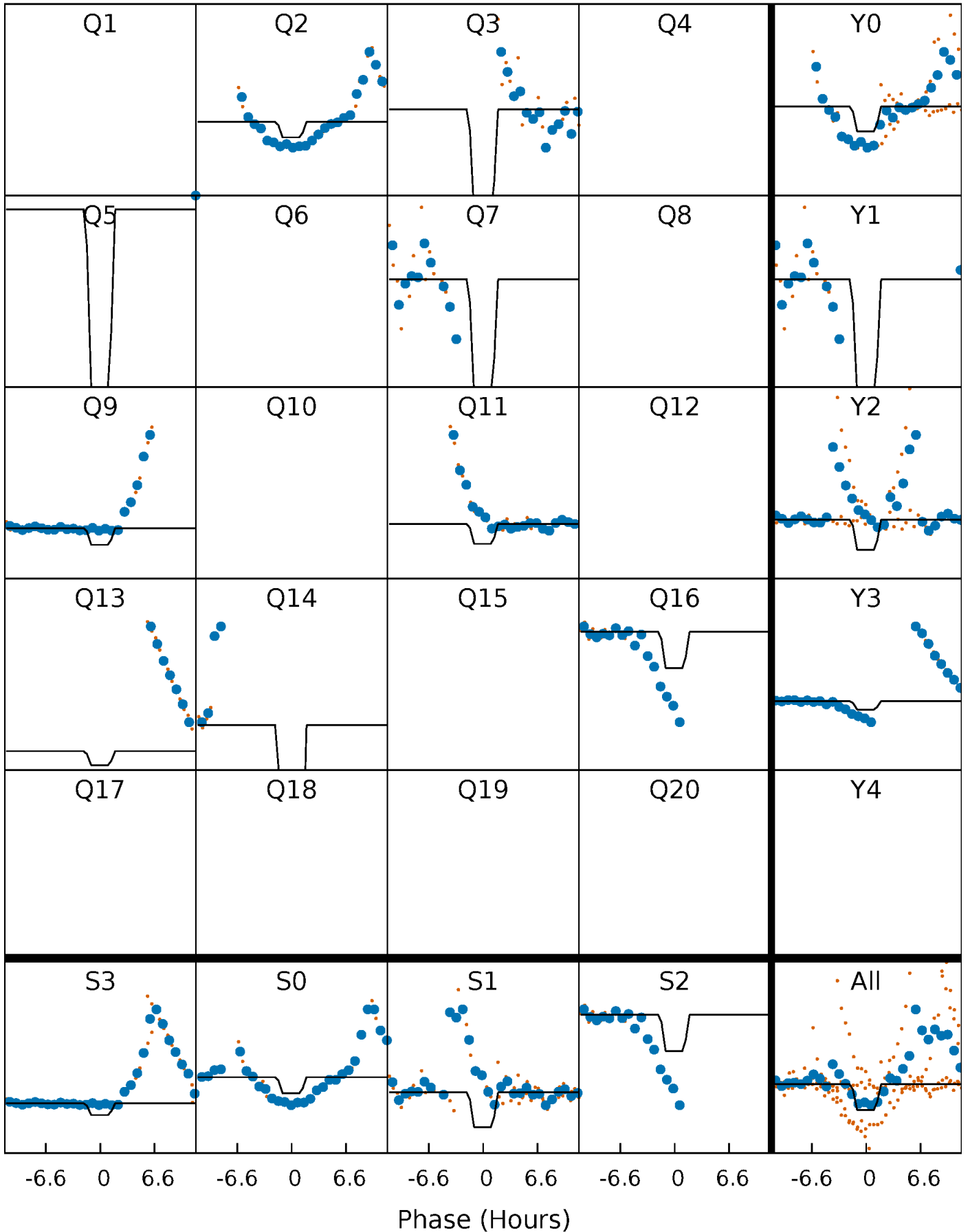
DV Quarter-Phased Transit Curves

TCE 002299738-02 $P=170.070119$ Days $T_0=171.645443$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

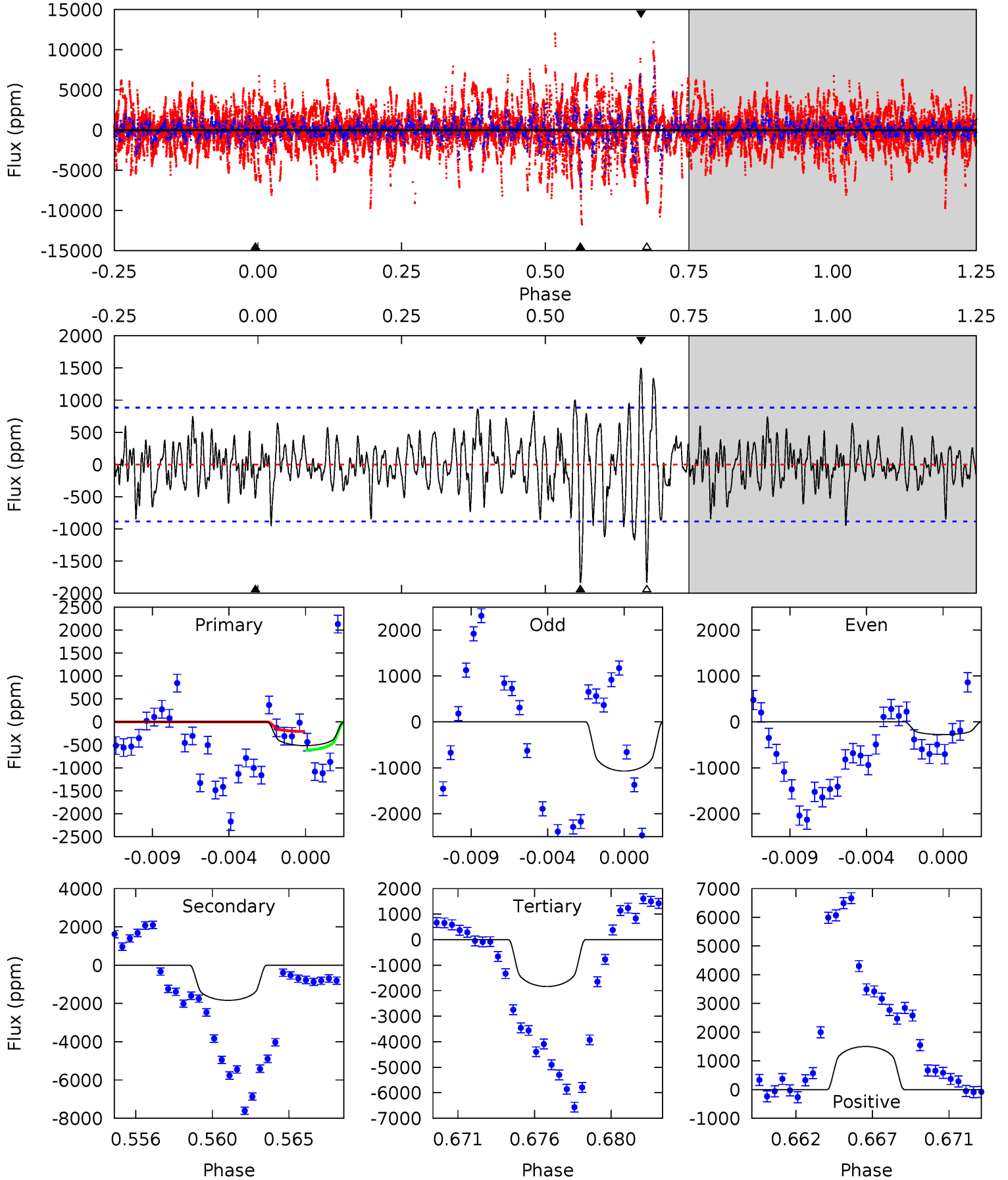
TCE 002299738-02 P=170.068520 Days $T_0=171.607845$ (BKJD)



DV Model-Shift Uniqueness Test

002299738-02, P = 170.070119 Days, E = 1.575324 Days

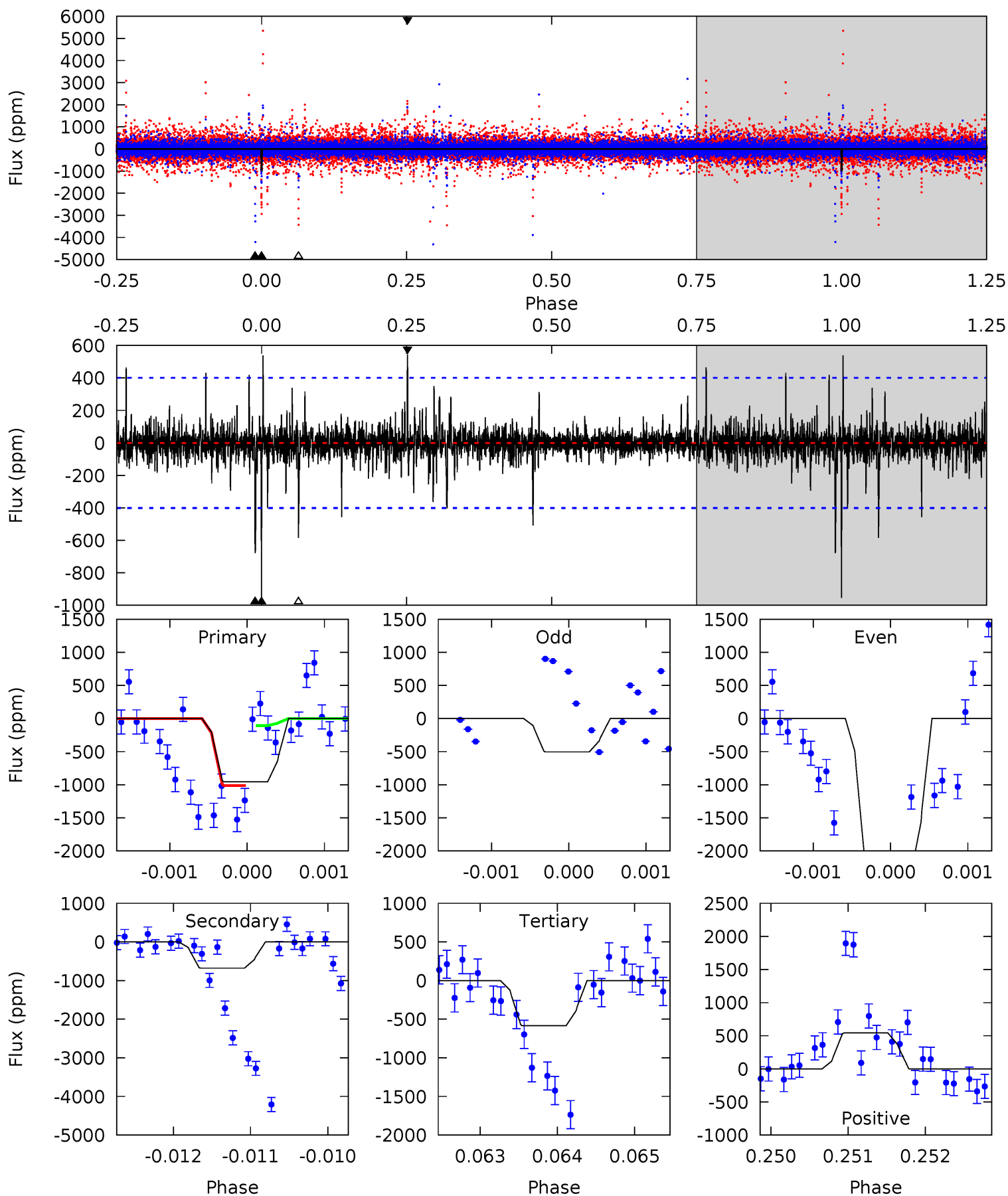
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.02	10.8	10.8	8.80	5.18	2.84	2.16	-7.73	-5.77	0.01	1.97	2.05	-1.87	0.45	1.18



Alt Model-Shift Uniqueness Test

002299738-02, P = 170.068520 Days, E = 1.539325 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	9.28	7.98	7.40	5.48	3.34	0.95	5.07	5.65	1.30	1.88	6.61	0.99	0.36	5.63



Stellar Parameters For KIC 002299738

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5094^{+151}_{-136}	$4.618^{+0.040}_{-0.065}$	$-0.320^{+0.300}_{-0.300}$	$0.700^{+0.086}_{-0.058}$	$0.743^{+0.078}_{-0.071}$	$3.051^{+0.555}_{-0.726}$
	+3%/-3%	+1%/-1%	+94%/-94%	+12%/-8%	+10%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 002299738-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1838 ± 171	$2.86^{+0.31}_{-0.33}$	359^{+13}_{-13}	5427^{+367}_{-278}	36437^{+10141}_{-7282}
Alt.	-679 ± 73	$2.93^{+0.33}_{-0.32}$	358^{+13}_{-12}	4386^{+237}_{-195}	12901^{+3722}_{-2657}

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 $A_{obs} \gg 1.0$

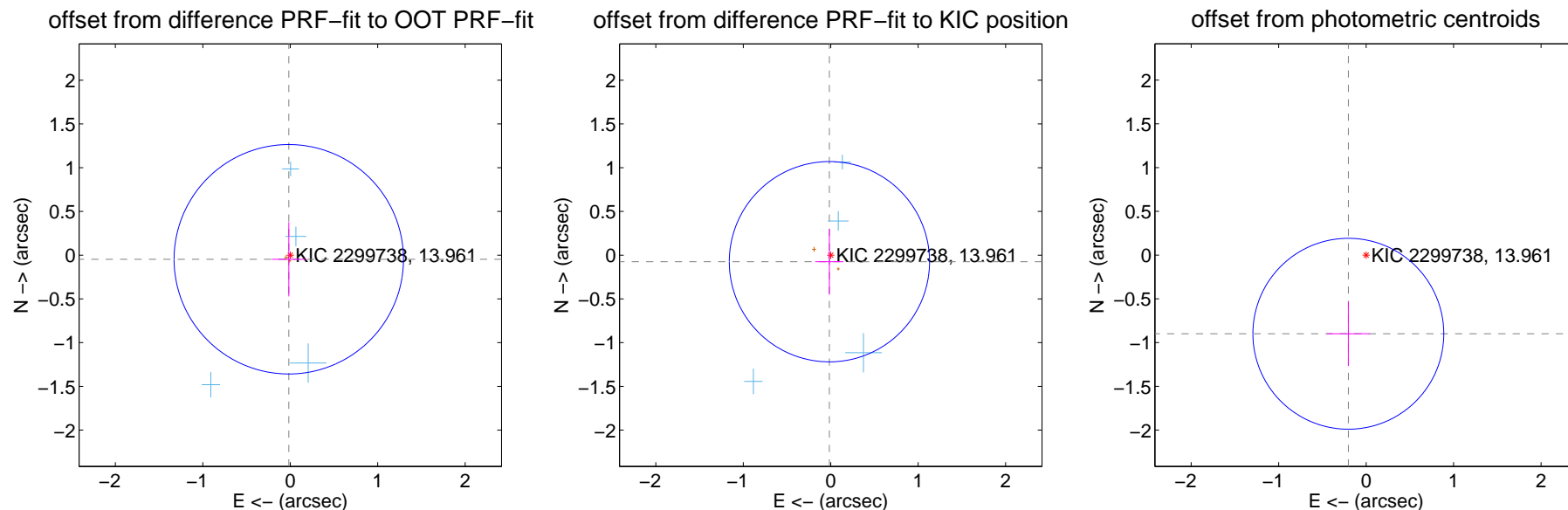
DV Centroid Data

Supplemental centroid analysis for 002299738-02. Kepler magnitude: 13.96. Transit SNR 7.33

There are 4 quarters with good PRF difference image offsets

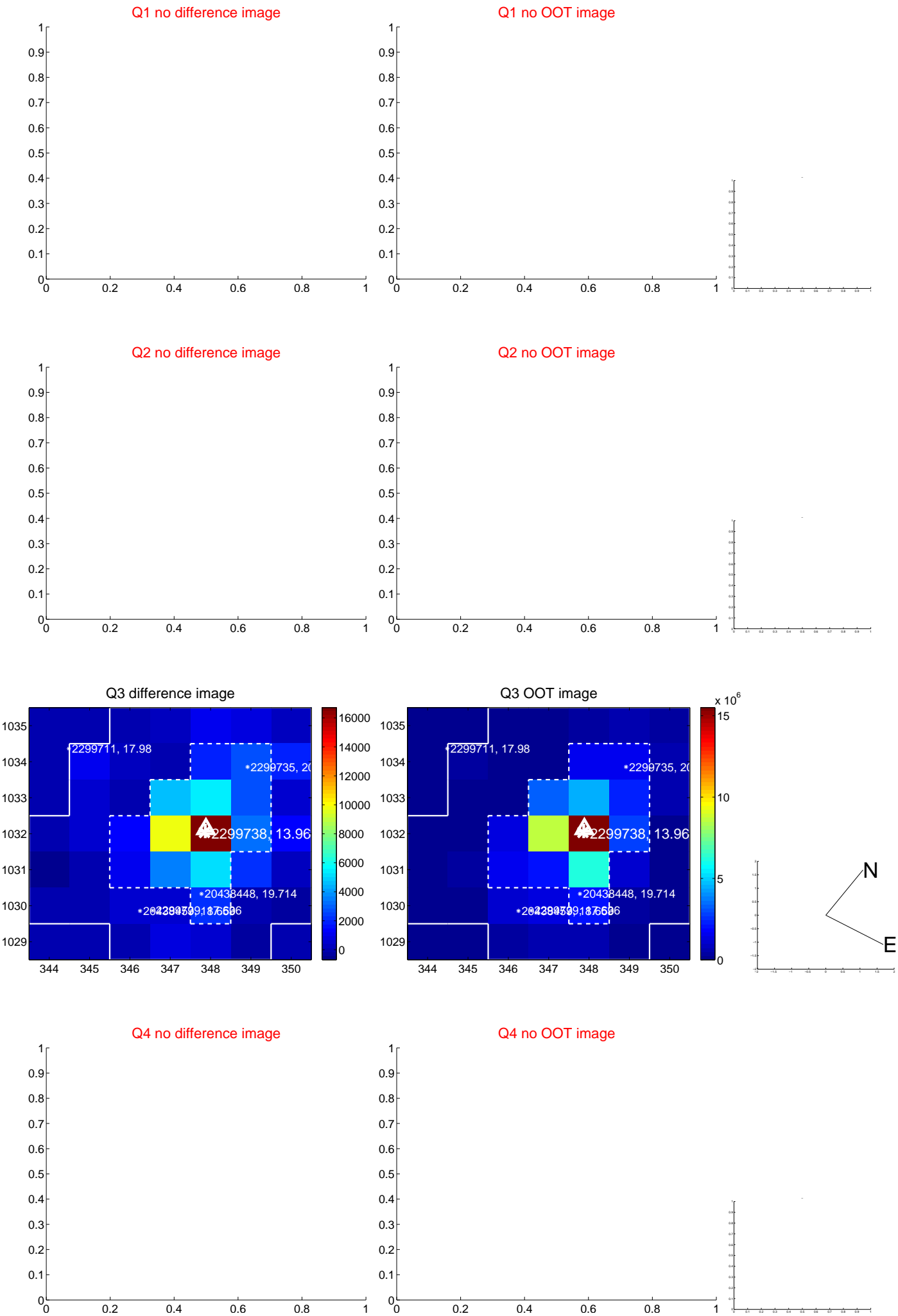
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.437	0.11	0.017 ± 0.193	-0.047 ± 0.424
PRF-fit source offset from KIC position	0.076 ± 0.382	0.20	0.015 ± 0.162	-0.075 ± 0.376
photometric centroid source offset	0.92 ± 0.36	2.54	0.20 ± 0.25	-0.90 ± 0.37

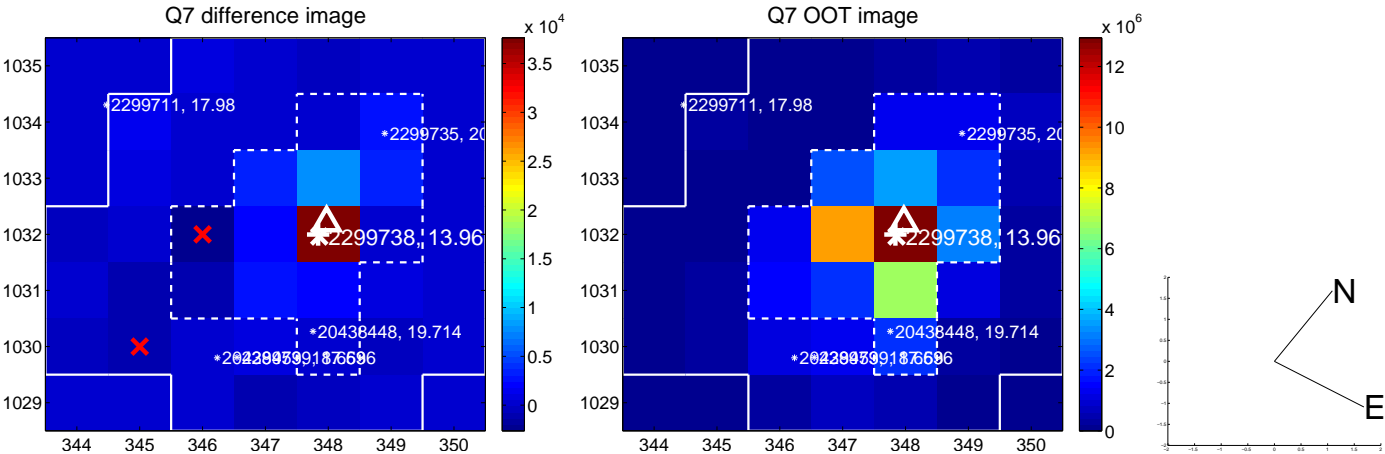
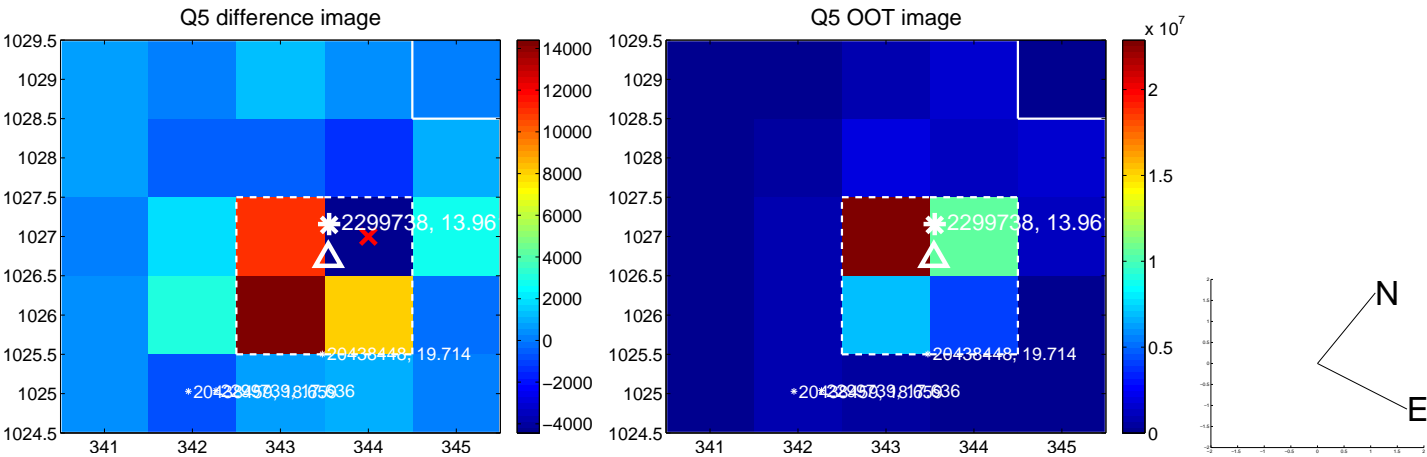


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

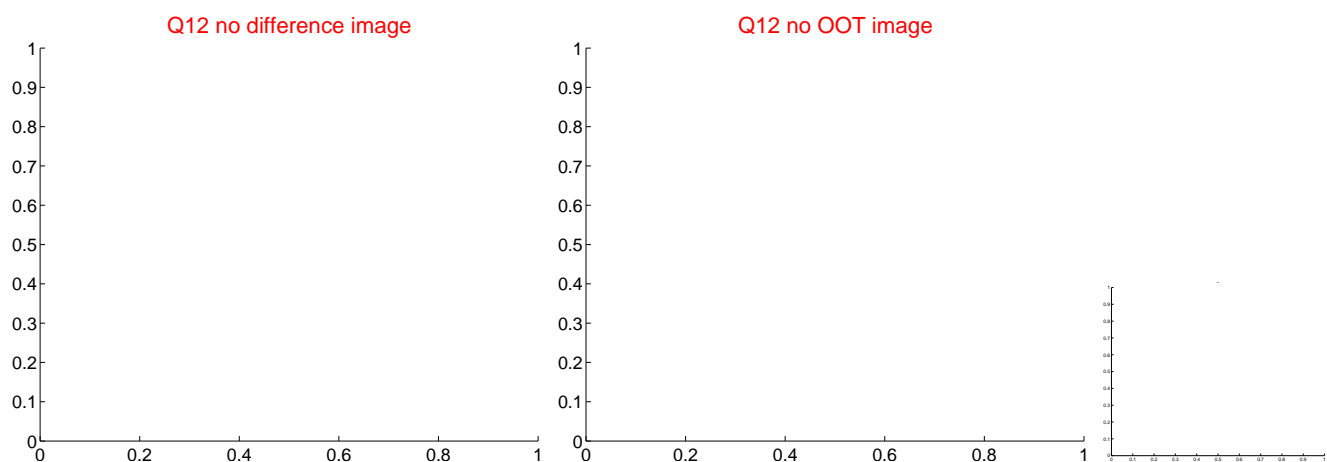
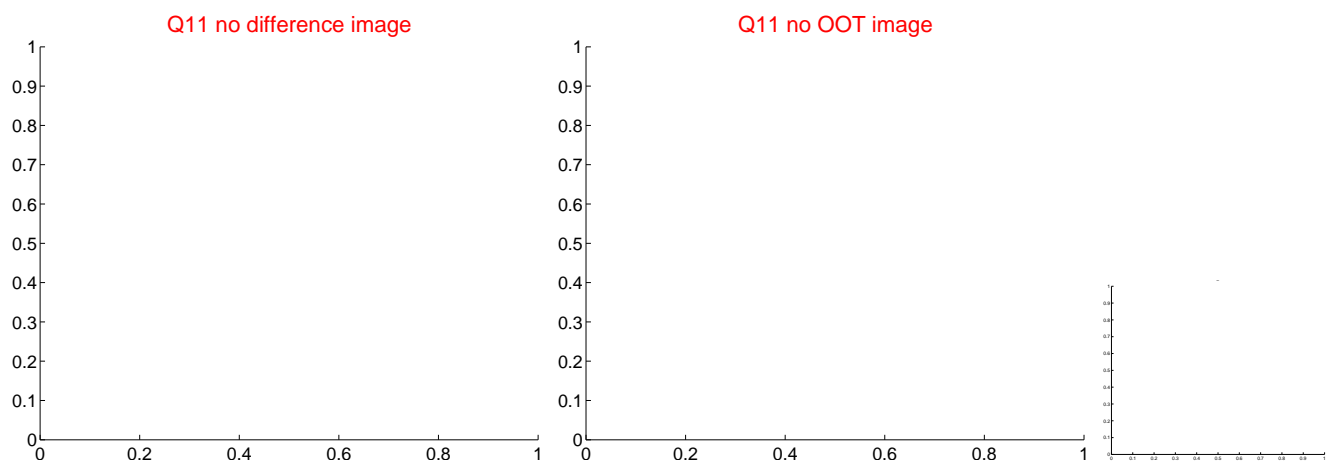
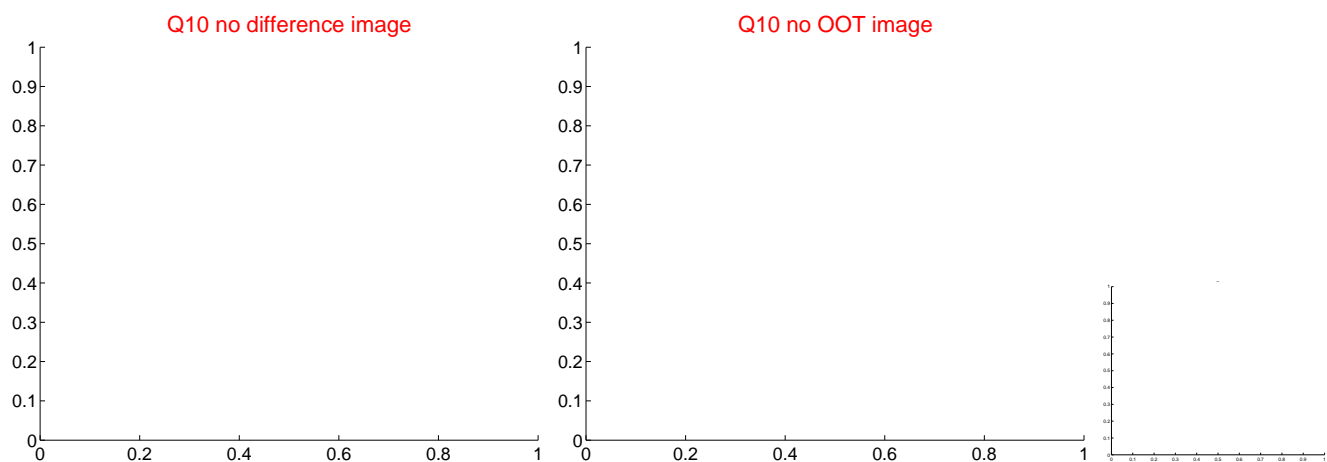
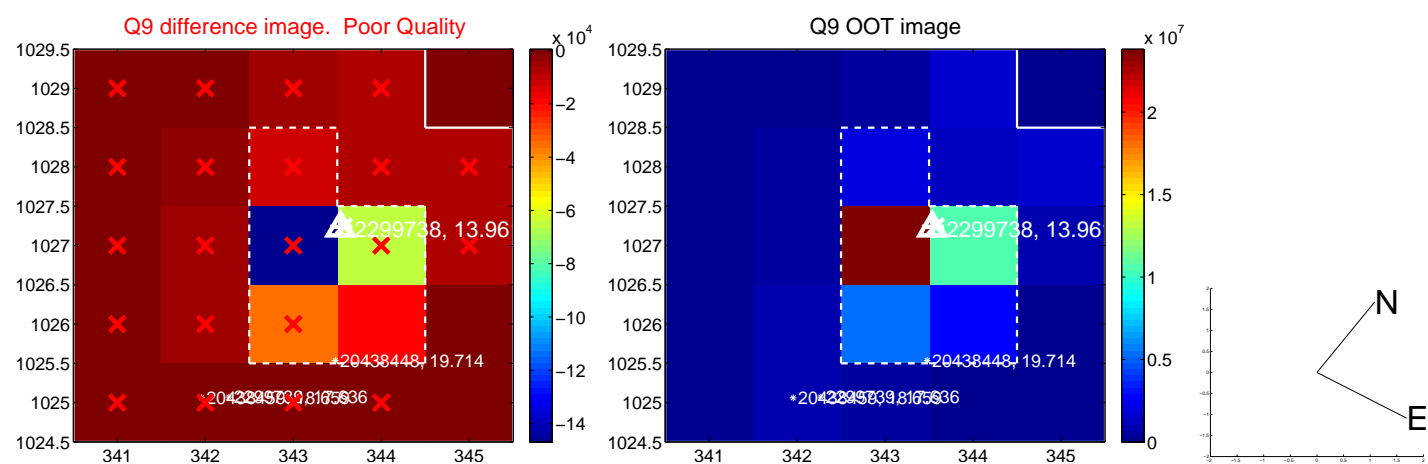
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



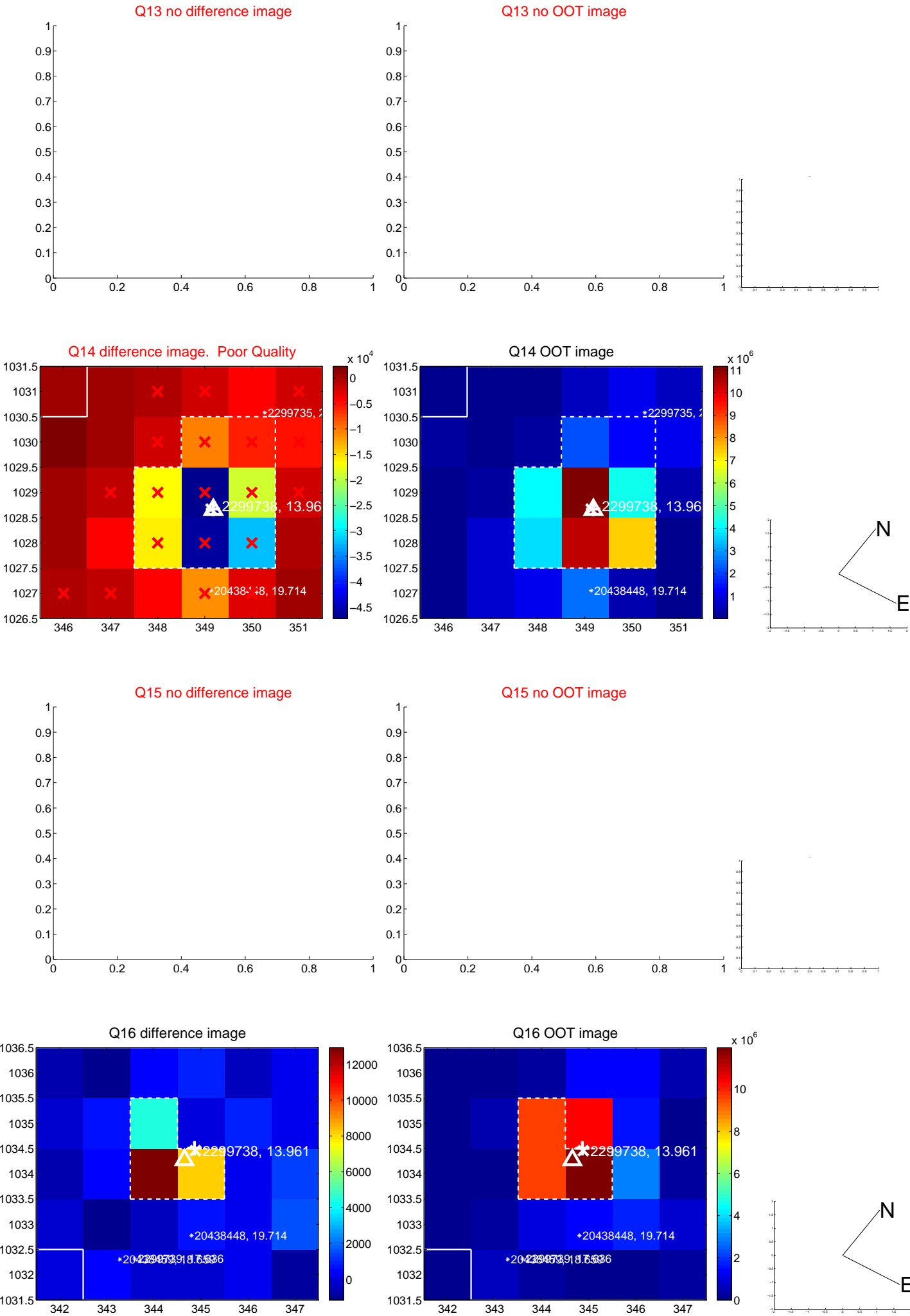
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



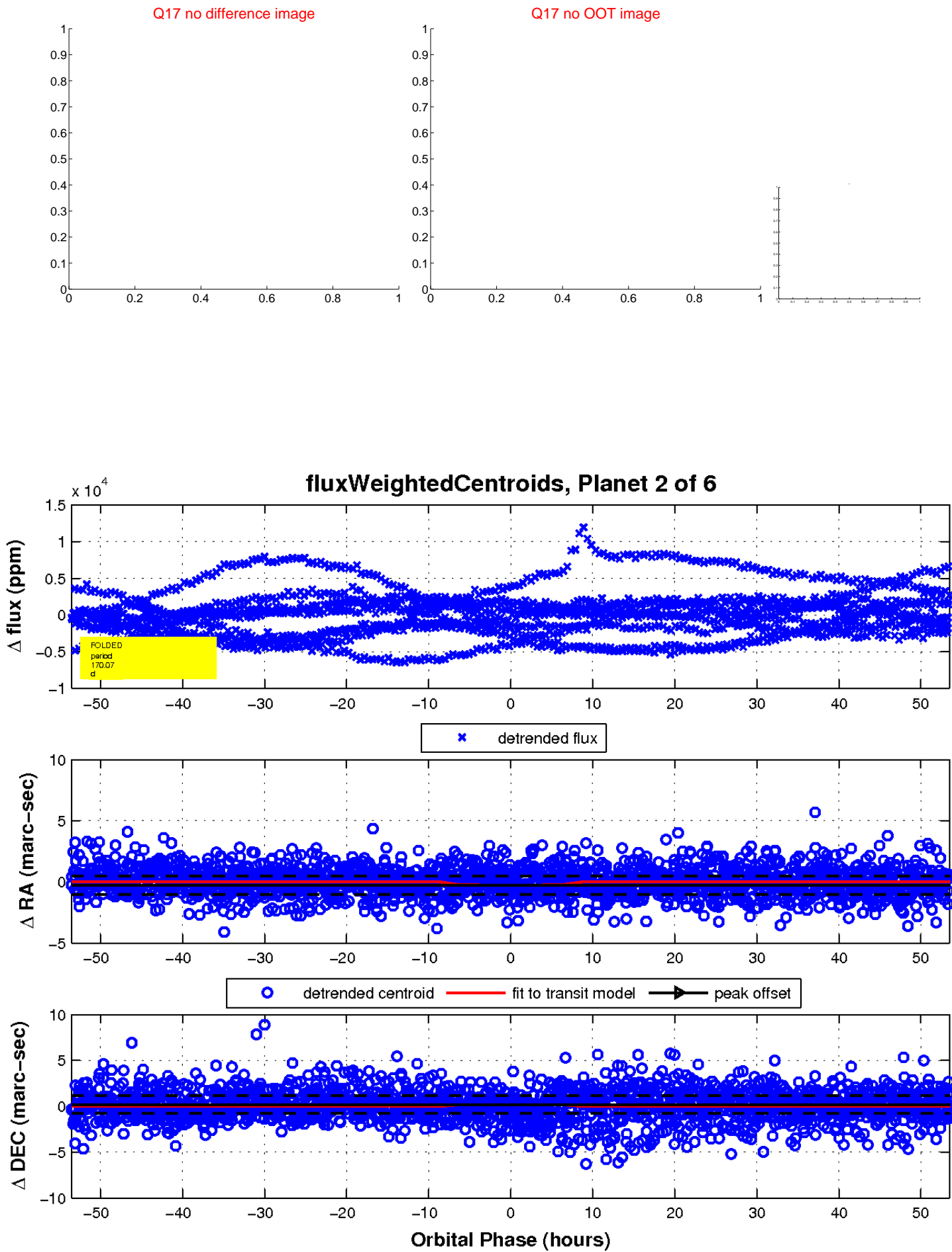
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

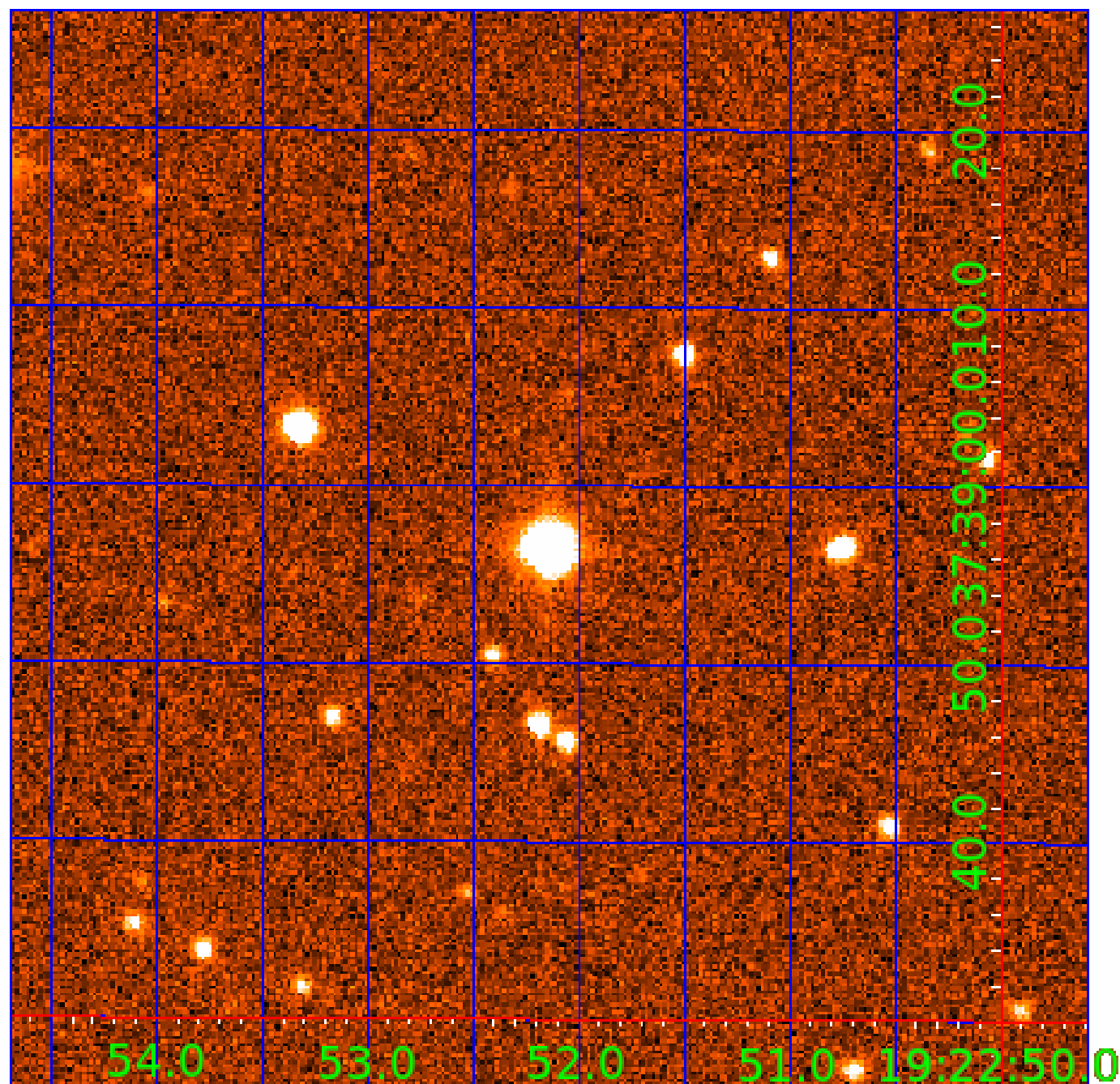


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002299738

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})
002299738-01	OBS	7628.01	1.813427	132.709451	61.6	7.712	8.6	8.0	0.70	5094	0.66	425.79
002299738-02	OBS	No	170.070119	171.645443	1196.1	17.845	15.3	7.3	0.70	5094	2.83	1.00
002299738-03	OBS	No	265.359944	309.158225	808.3	5.899	13.1	5.8	0.70	5094	2.13	0.55
002299738-04	OBS	No	222.455558	311.562691	601.7	4.668	11.3	5.2	0.70	5094	1.90	0.70
002299738-05	OBS	No	131.805518	134.938561	721.8	9.135	9.3	6.4	0.70	5094	1.94	1.40
002299738-06	OBS	No	87.049996	160.962523	52.0	2.020	8.7	1.1	0.70	5094	0.57	2.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002299738-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT
002299738-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
002299738-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_FEW_DIFFS
002299738-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES
002299738-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
002299738-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

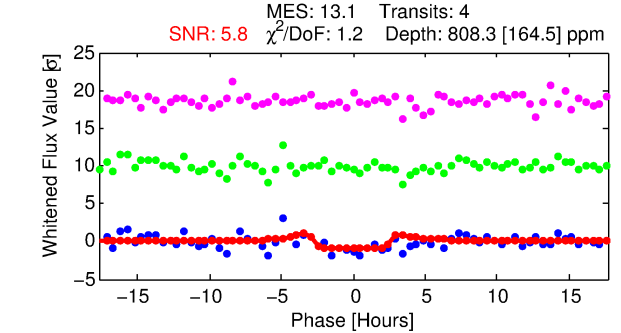
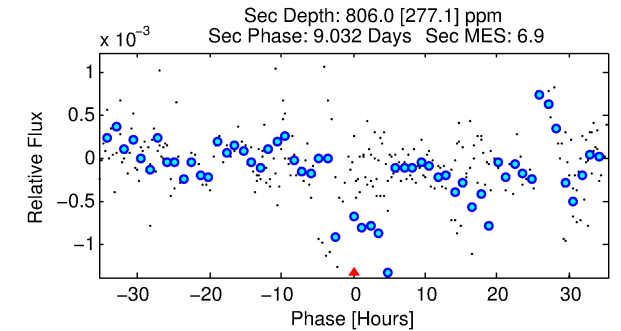
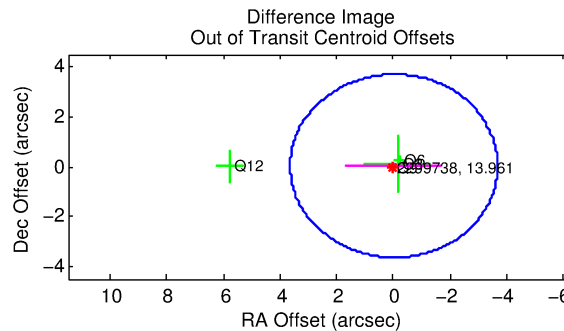
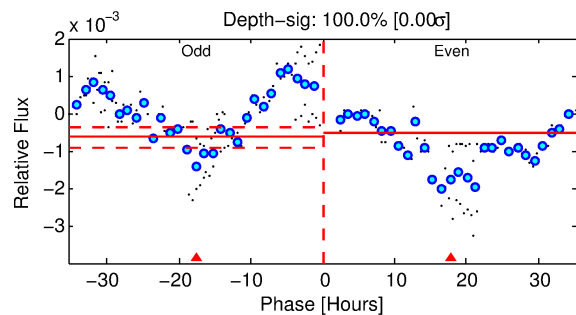
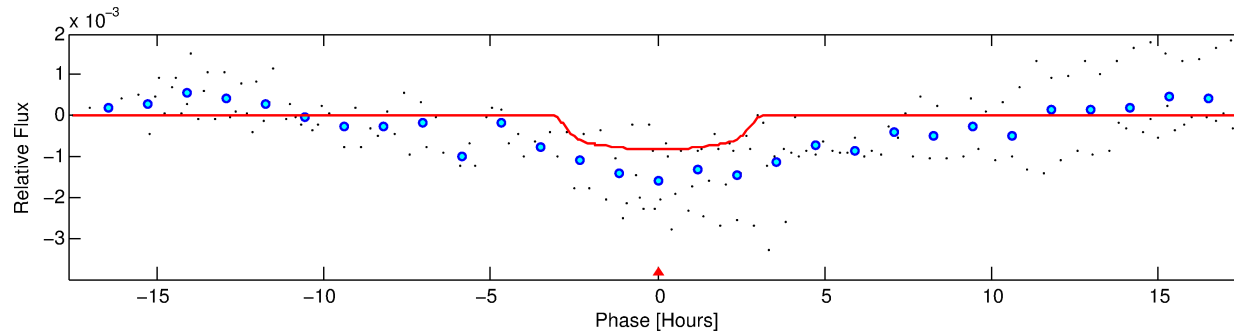
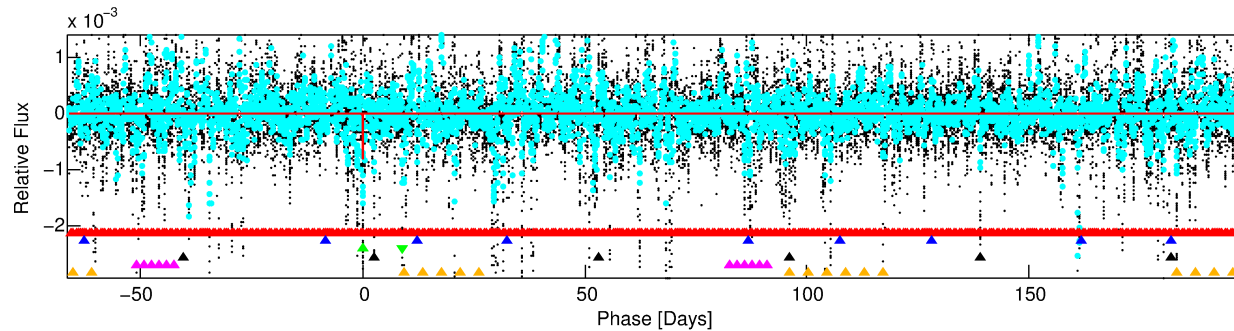
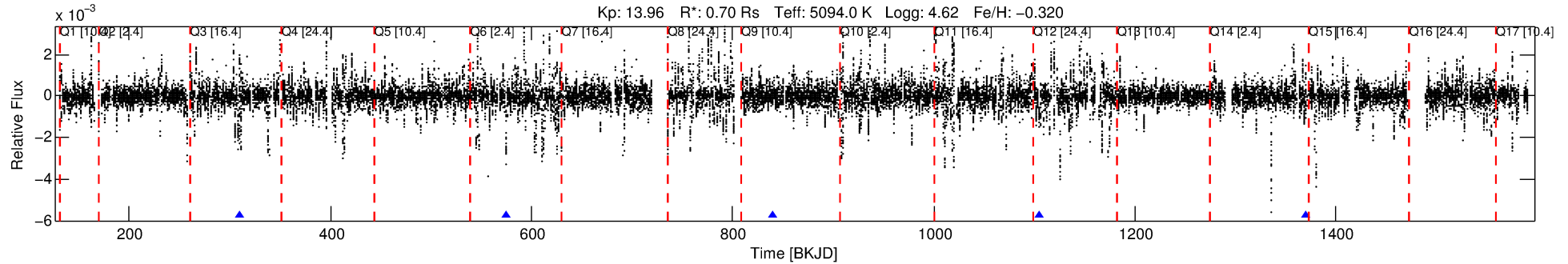
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002299738-03

No Significant Match Found

DV One-Page Summary

KIC: 2299738 Candidate: 3 of 6 Period: 265.360 d



DV Fit Results:

Period = 265.35994 [0.00405] d
Epoch = 309.1582 [0.0124] BKJD
Rp/R* = 0.0279 [0.0212]
a/R* = 254.12 [702.00]
b = 0.71 [1.93]
Seff = 0.55 [0.10]
Teq = 220 [10] K
Rp = 2.13 [1.64] Re
a = 0.7317 [0.0702] AU
Ag = 52146.26 [81464.22] [0.64 σ]
Teffp = 5136 [2005] K [2.45 σ]

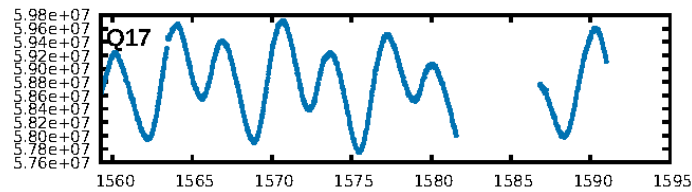
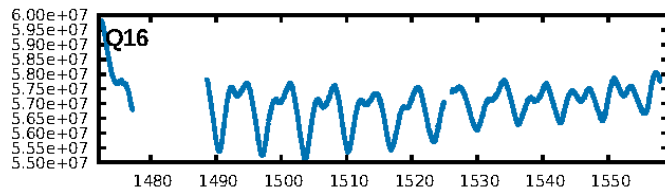
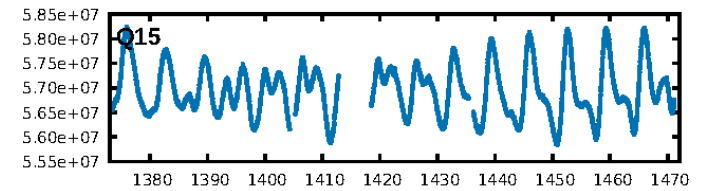
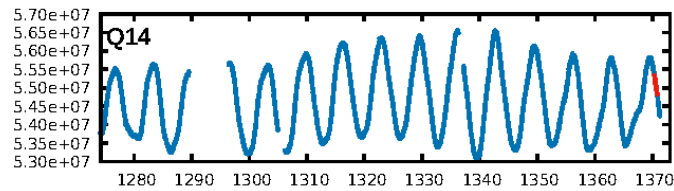
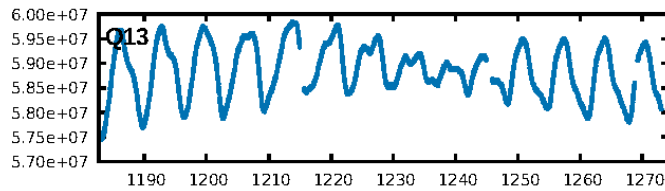
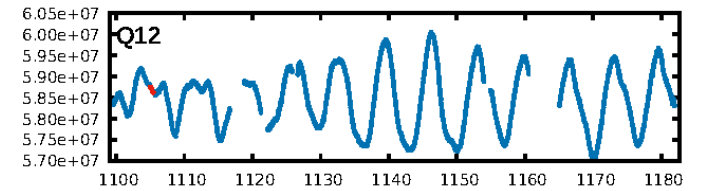
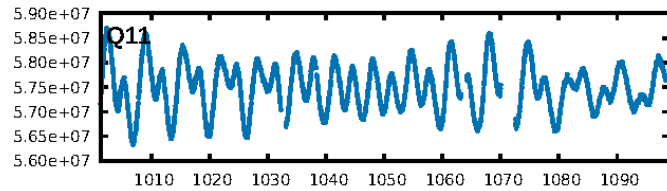
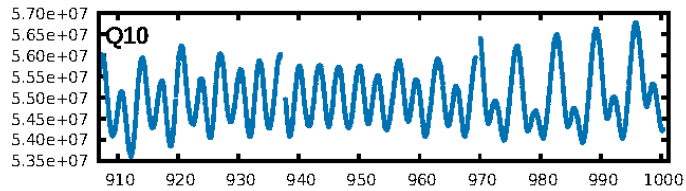
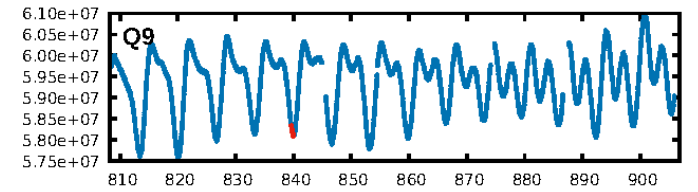
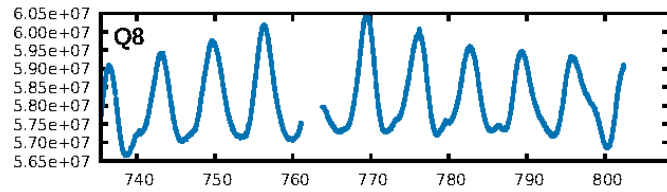
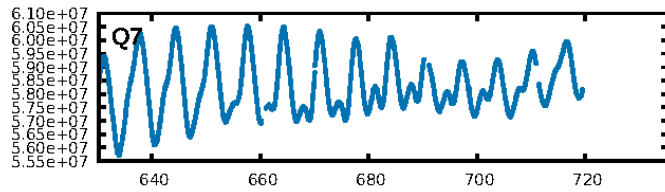
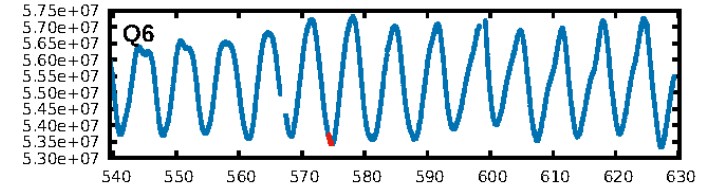
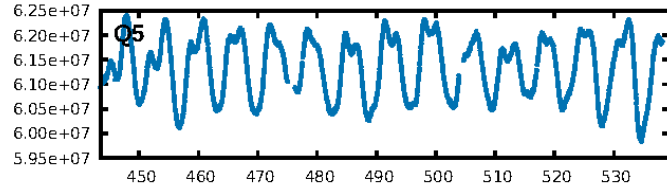
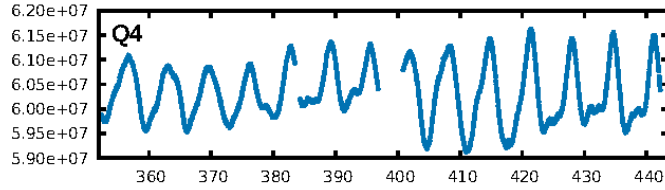
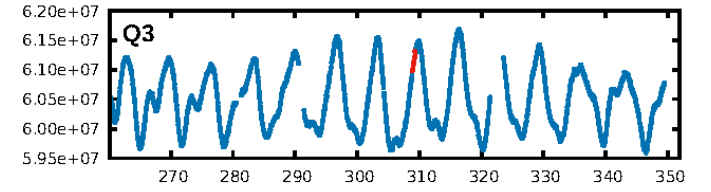
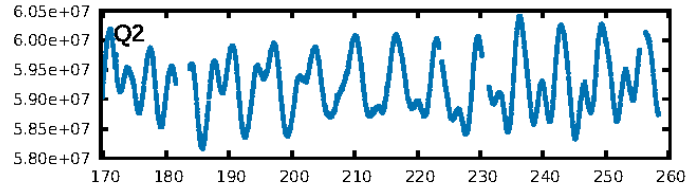
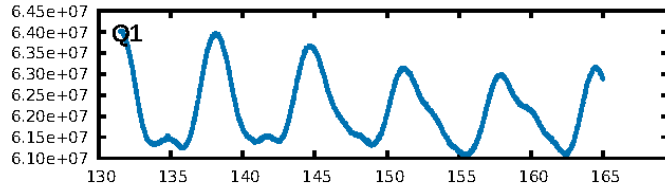
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [136.88 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 91.2%
Bootstrap-pfa: 8.54e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.587
Centroid-sig: 68.9%
Centroid-so: 1.191 arcsec [1.26 σ]
OotOffset-rm: 0.041 arcsec [0.03 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 0.116 arcsec [0.10 σ]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.25 [1/4]

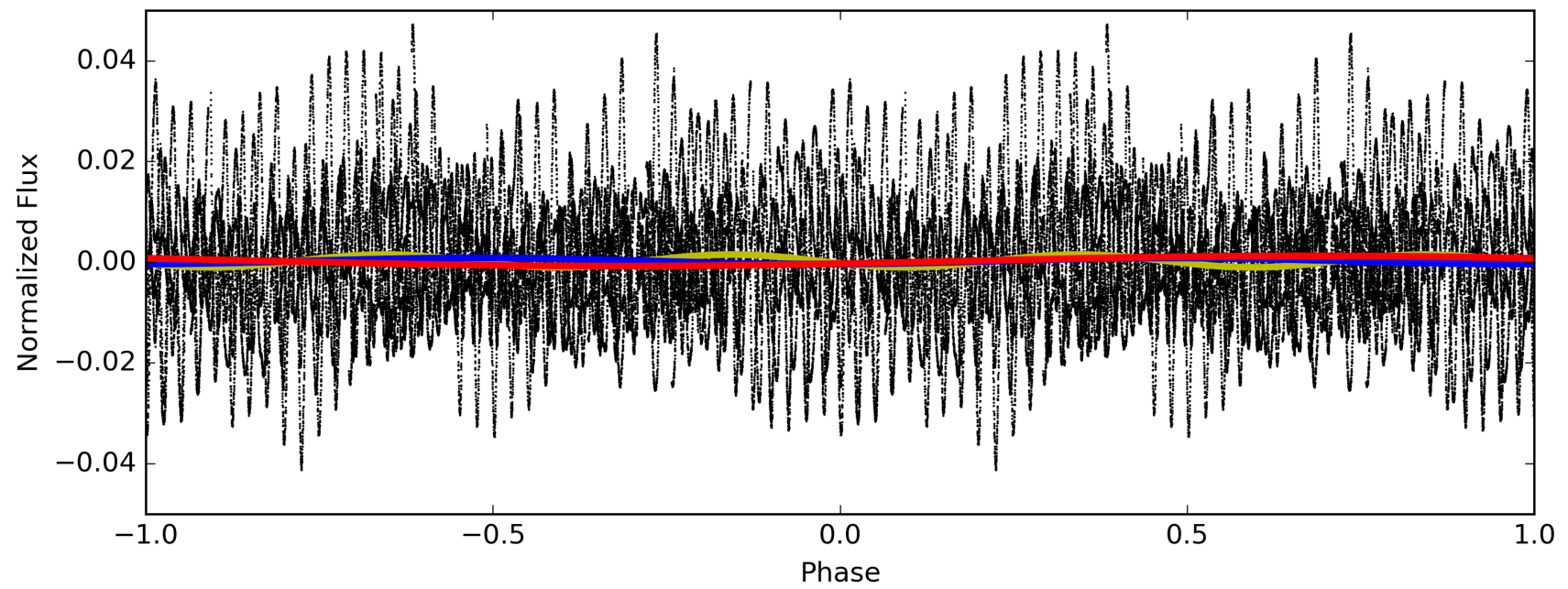
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:20 Z

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

TCE 002299738-03, PDC Light Curves

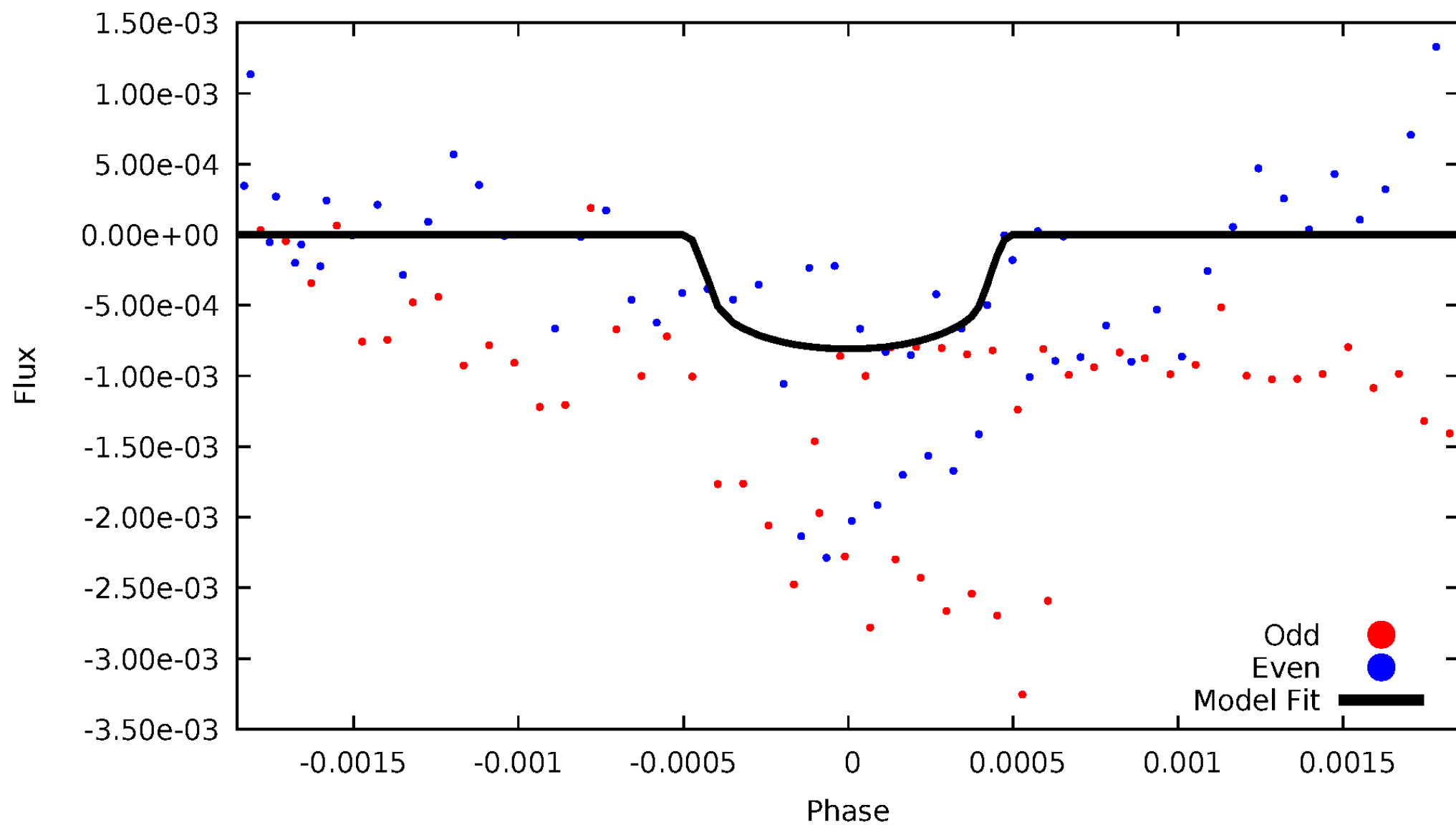


— P = 132.680 days — P = 265.360 days — P = 530.720 days



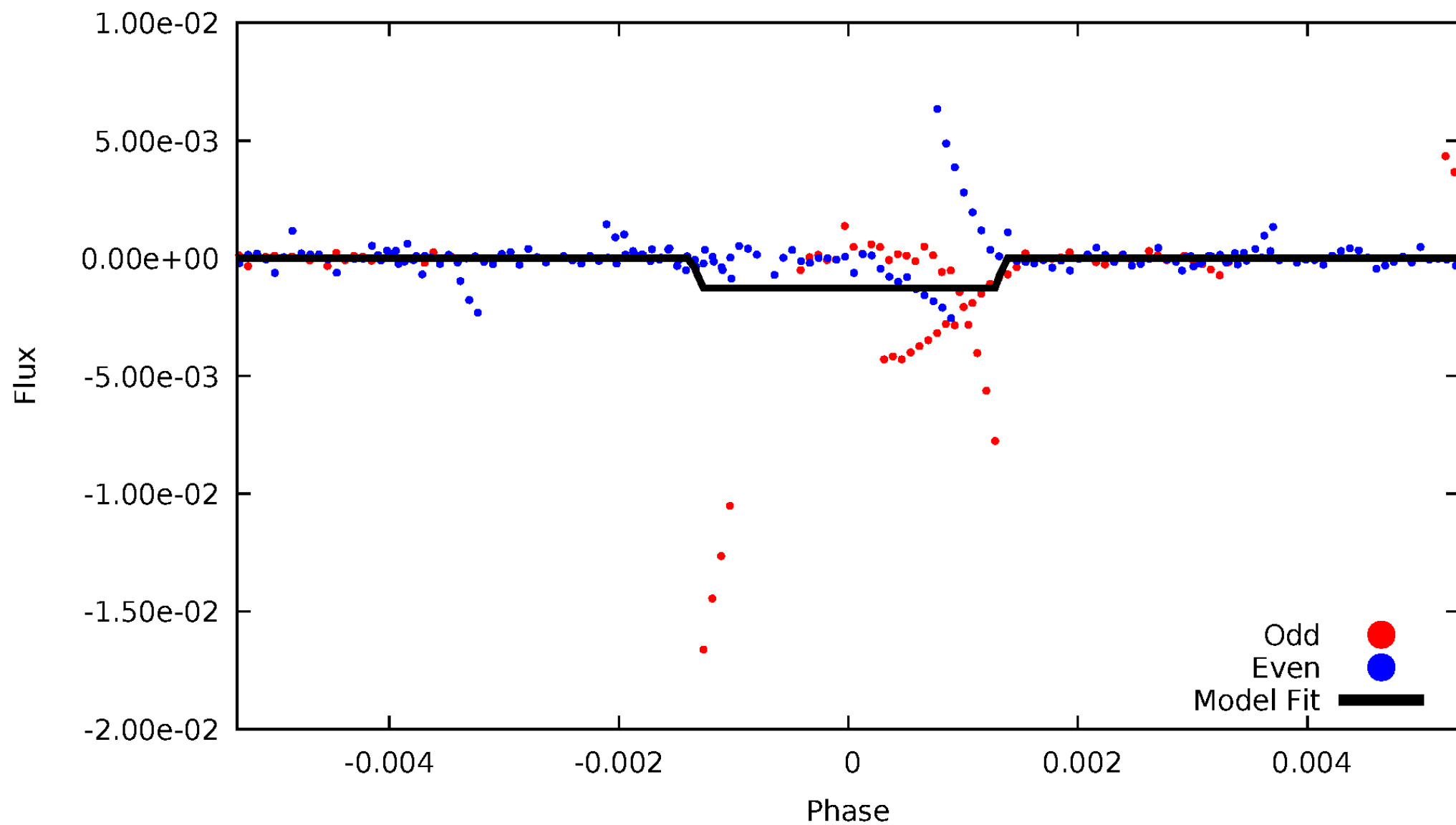
DV Odd/Even

TCE 002299738-03



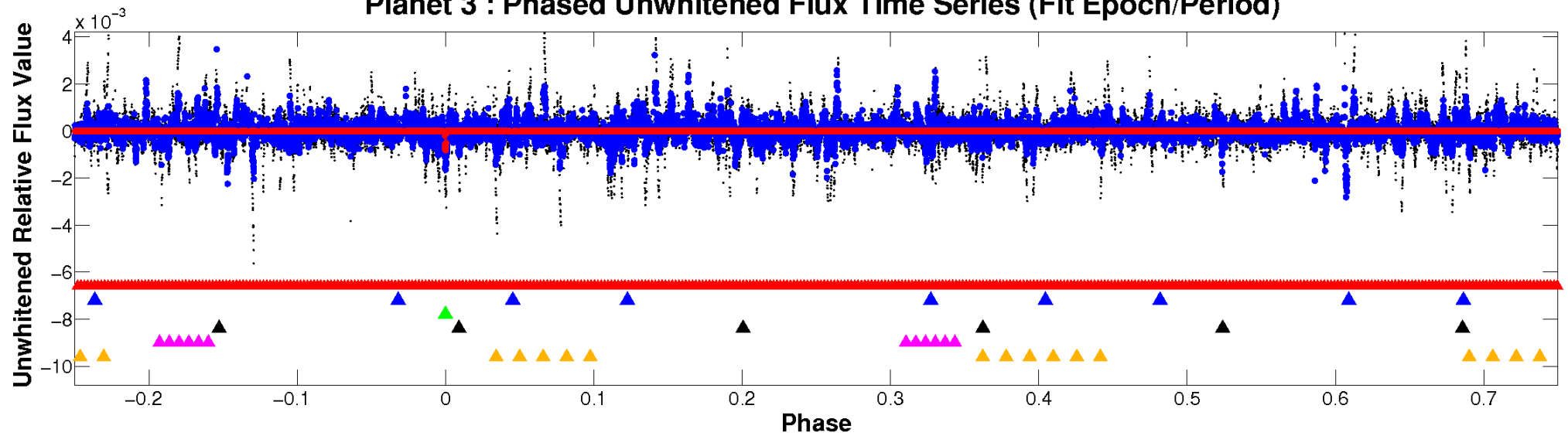
ALT Odd/Even

TCE 002299738-03

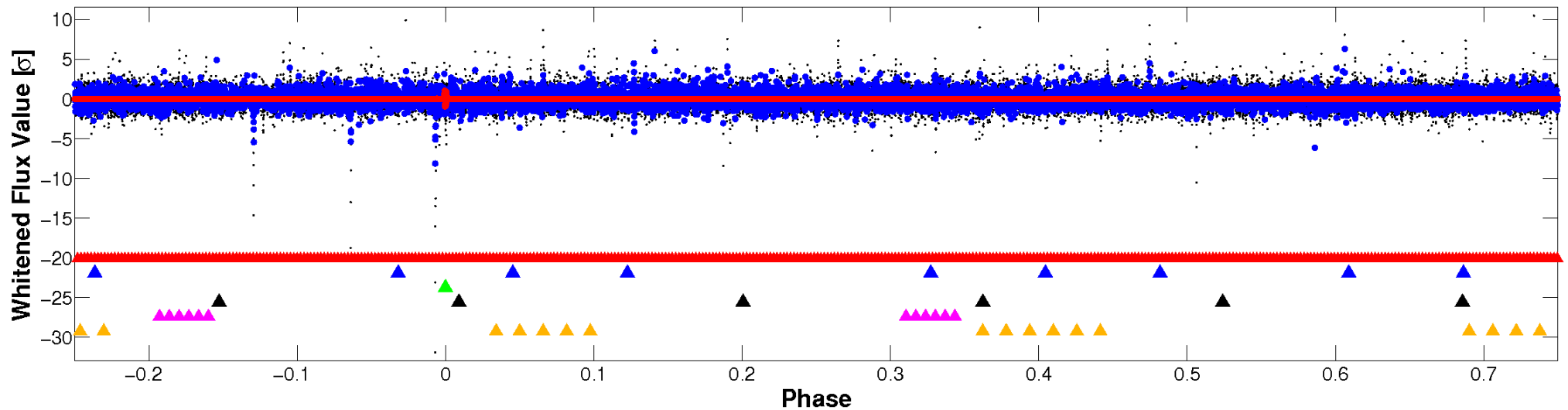


Non-Whitened Vs. Whitened Light Curve

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

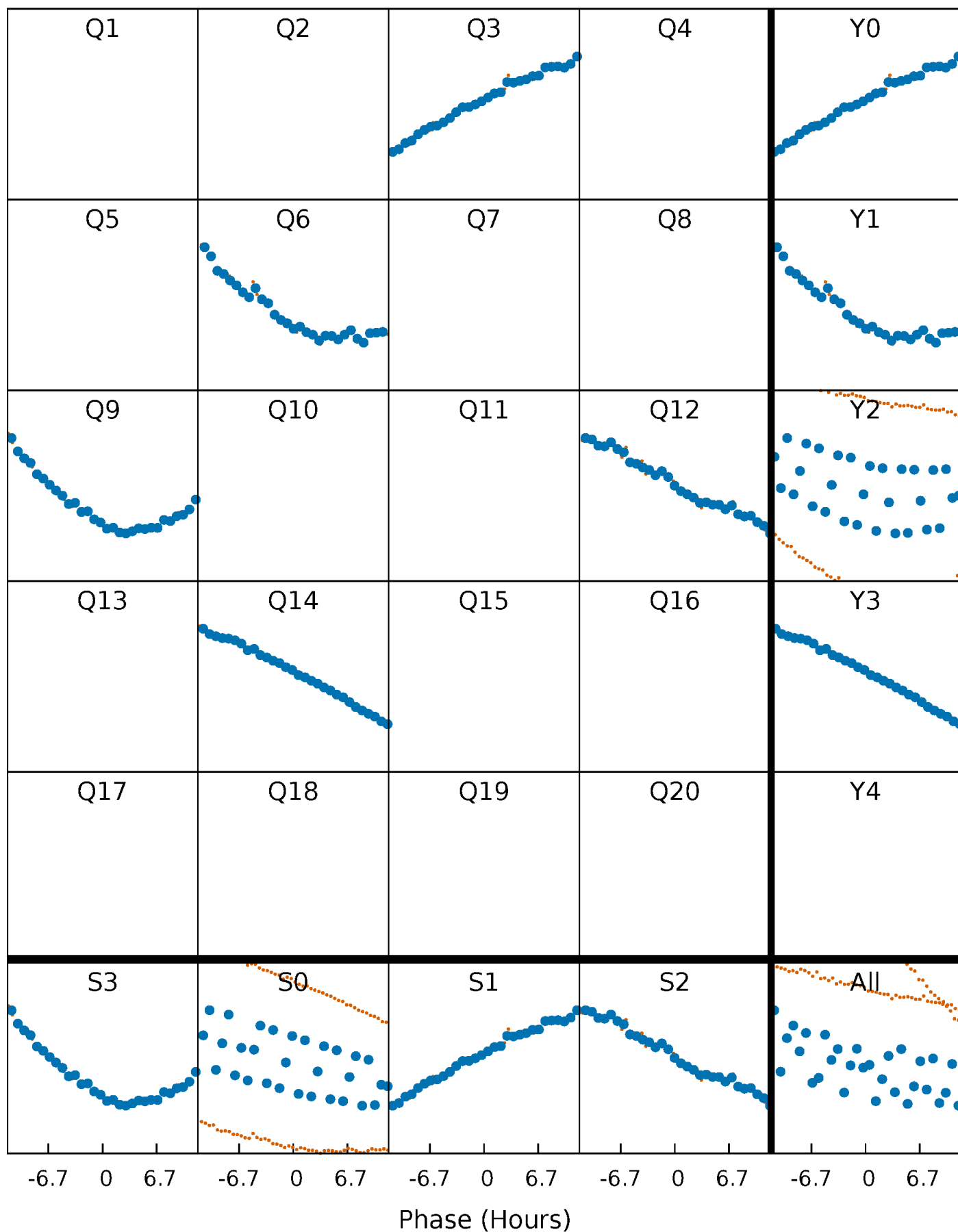


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



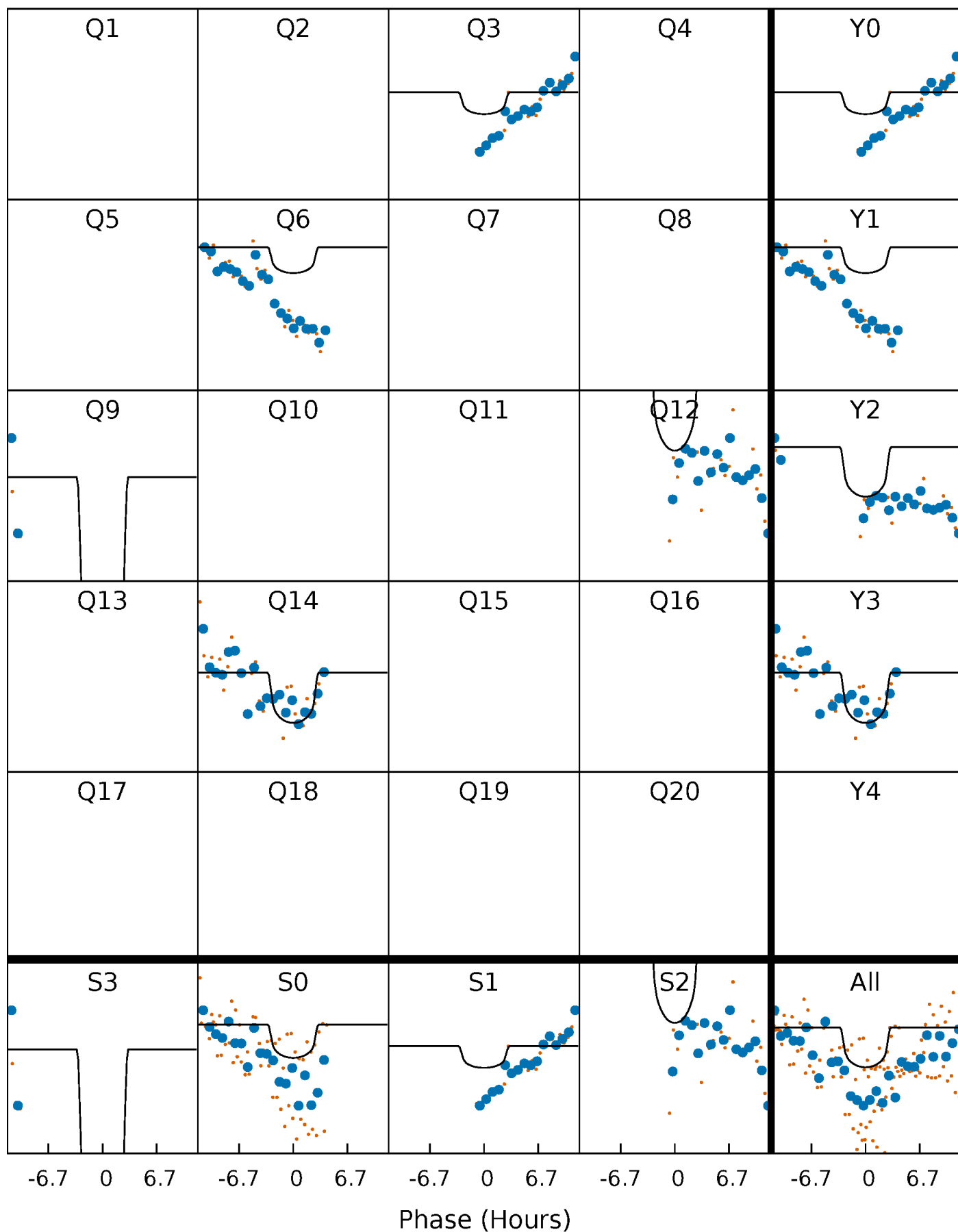
PDC Quarter-Phased Transit Curves

TCE 002299738-03 $P=265.359944$ Days $T_0=309.158225$ (BKJD)



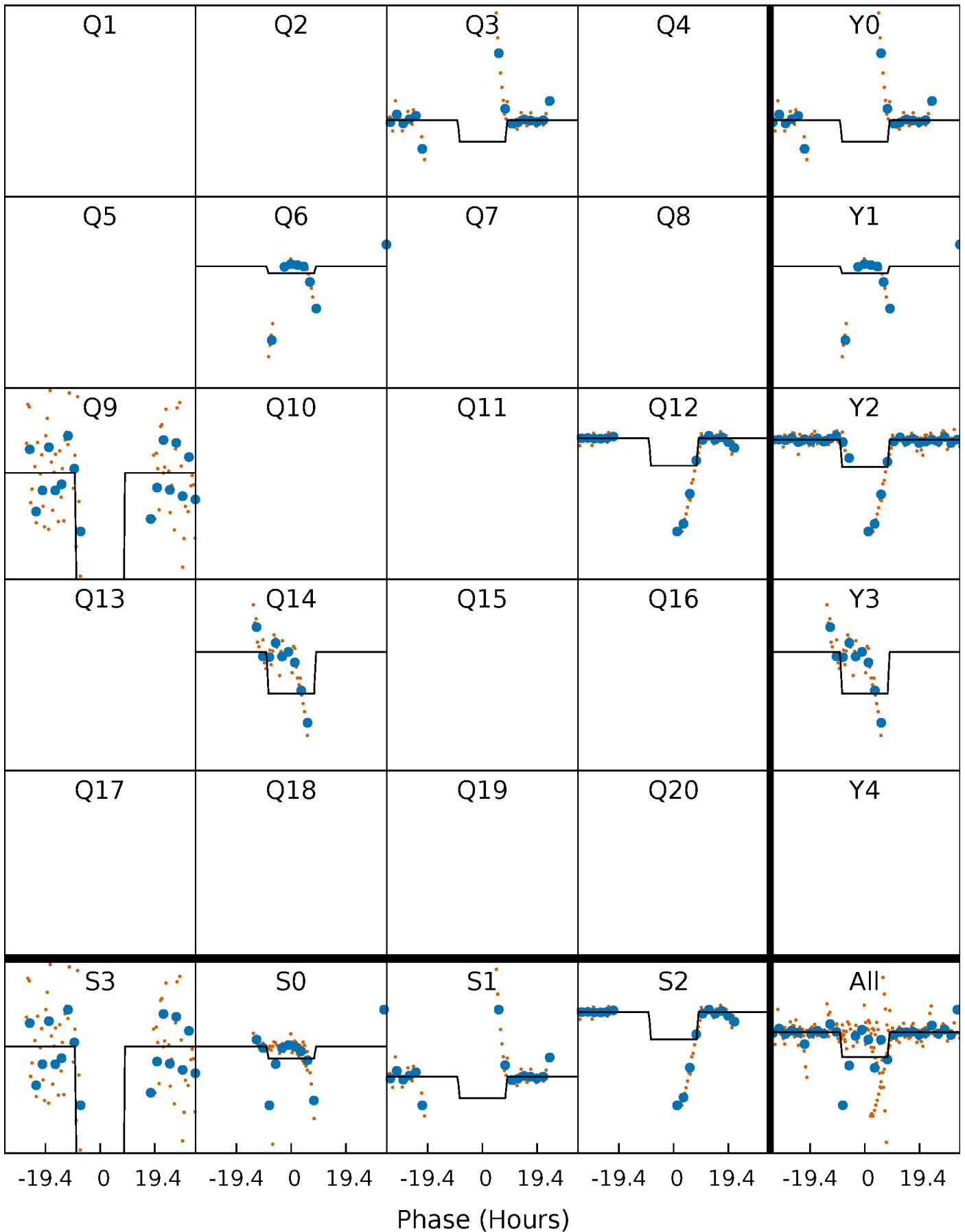
DV Quarter-Phased Transit Curves

TCE 002299738-03 $P=265.359944$ Days $T_0=309.158225$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

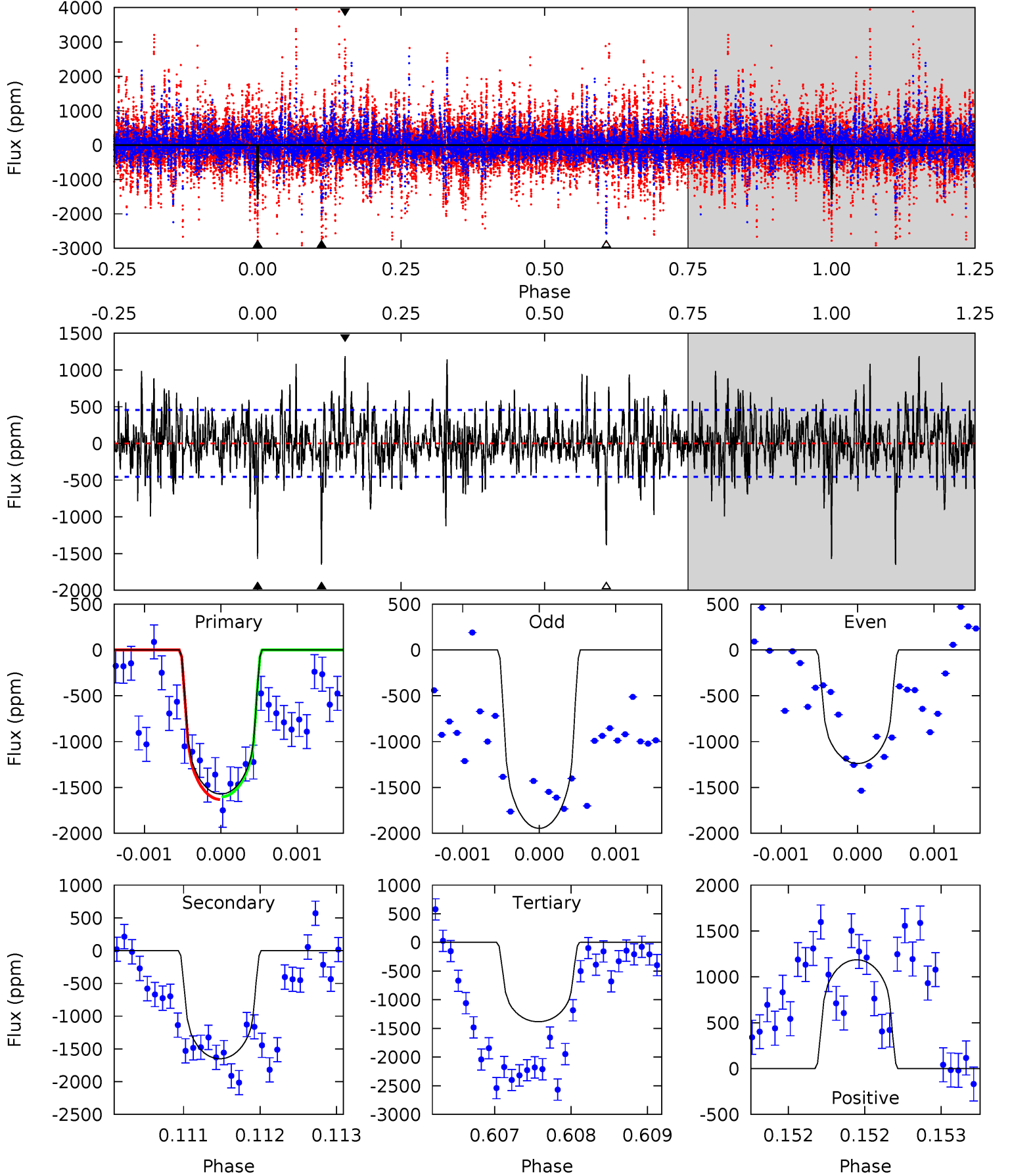
TCE 002299738-03 P=265.404700 Days $T_0=308.914357$ (BKJD)



DV Model-Shift Uniqueness Test

002299738-03, P = 265.359944 Days, E = 43.798281 Days

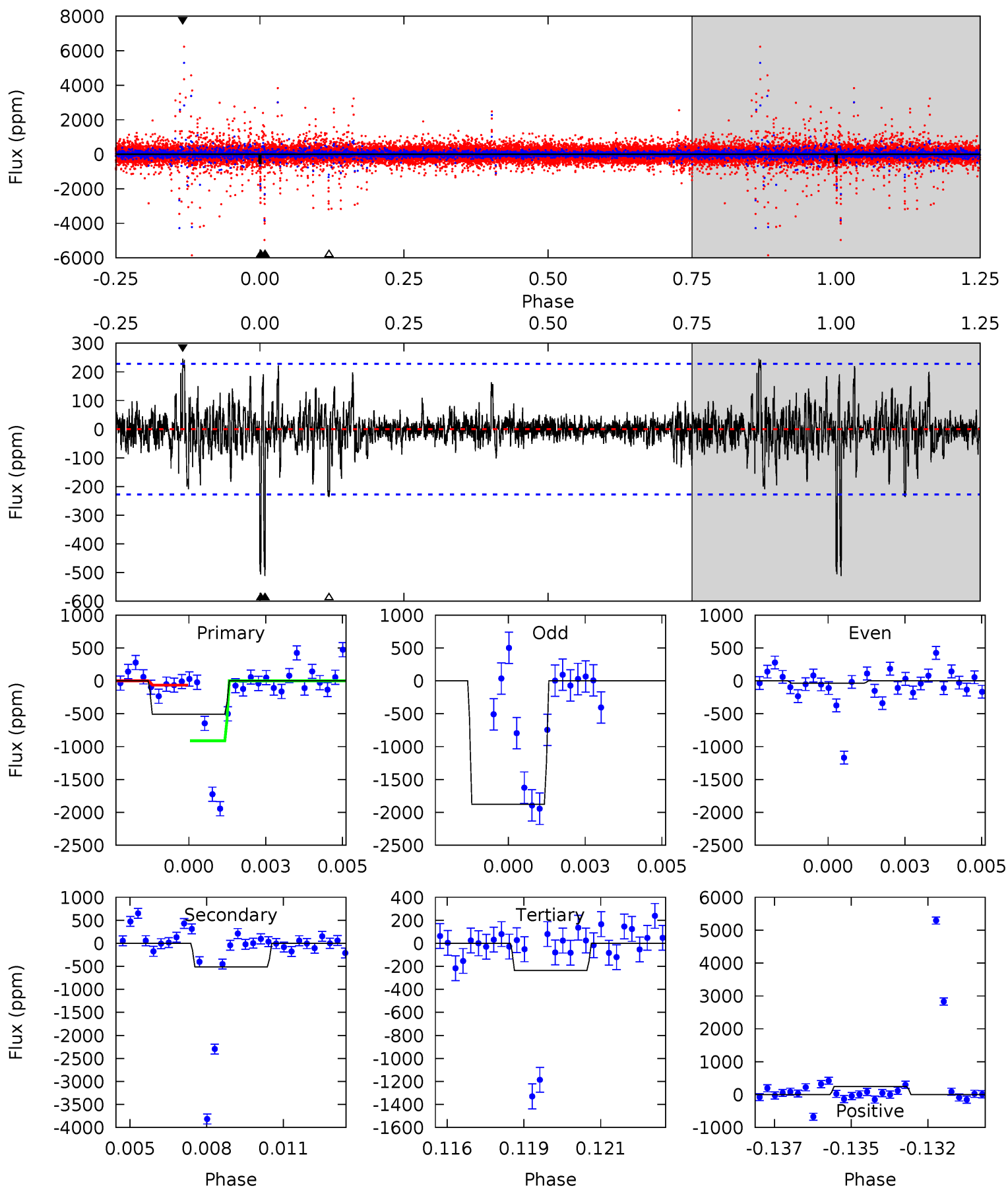
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	19.9	16.6	14.3	5.47	3.31	3.28	2.27	4.65	3.21	5.59	3.62	1.03	0.42	0.17



Alt Model-Shift Uniqueness Test

002299738-03, P = 265.404700 Days, E = 43.509657 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	11.9	5.47	5.69	5.28	3.01	0.99	6.25	6.03	6.39	6.17	14.9	1.56	0.32	9.86



Stellar Parameters For KIC 002299738

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5094^{+151}_{-136}	$4.618^{+0.040}_{-0.065}$	$-0.320^{+0.300}_{-0.300}$	$0.700^{+0.086}_{-0.058}$	$0.743^{+0.078}_{-0.071}$	$3.051^{+0.555}_{-0.726}$
	+3%/-3%	+1%/-1%	+94%/-94%	+12%/-8%	+10%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 002299738-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1650 ± 83	$2.41^{+1.50}_{-1.44}$	309^{+12}_{-11}	5737^{+3898}_{-1069}	$83825^{+417528}_{-52281}$
Alt.	-512 ± 43	$2.91^{+1.60}_{-1.53}$	308^{+11}_{-10}	4173^{+1510}_{-597}	17673^{+59855}_{-10227}

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 $A_{obs} \gg 1.0$

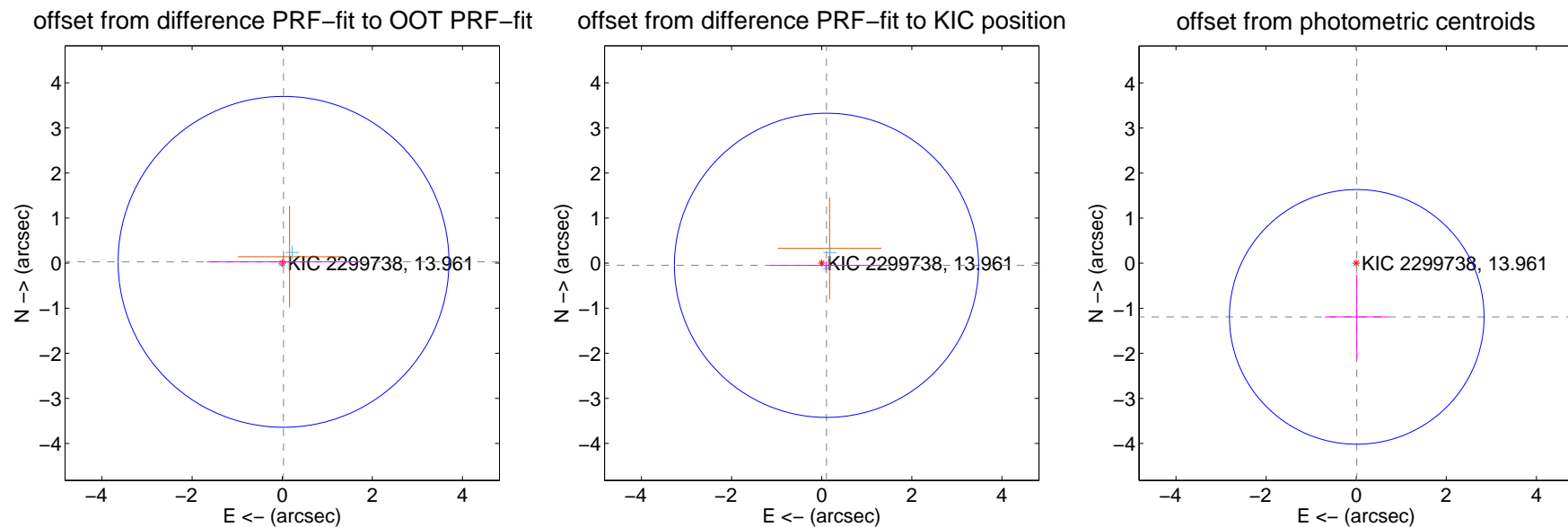
DV Centroid Data

Supplemental centroid analysis for 002299738-03. Kepler magnitude: 13.96. Transit SNR 5.82

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.041 ± 1.223	0.03	-0.029 ± 1.699	0.029 ± 0.089
PRF-fit source offset from KIC position	0.116 ± 1.125	0.10	-0.105 ± 1.240	-0.048 ± 0.095
photometric centroid source offset	1.19 ± 0.94	1.26	-0.01 ± 0.71	-1.19 ± 0.94



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.

Q1 no difference image



Q1 no OOT image



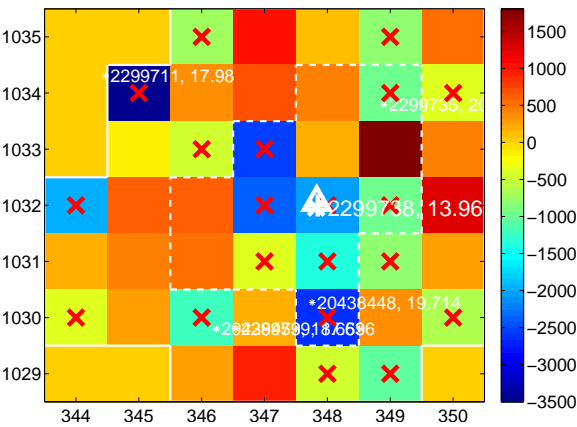
Q2 no difference image



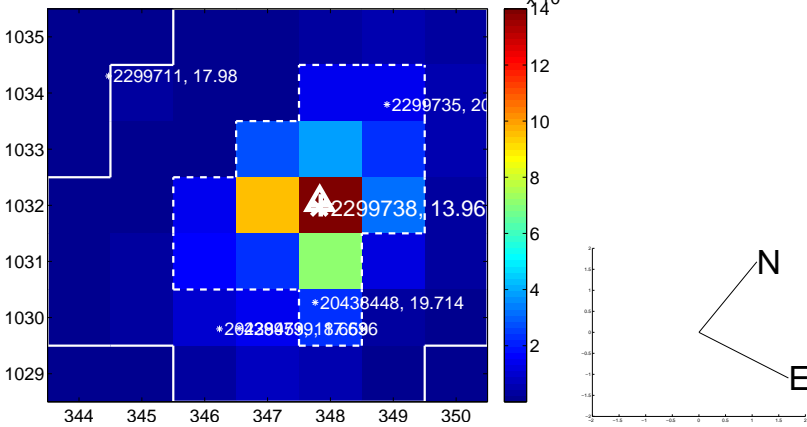
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image

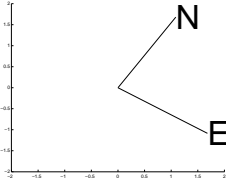
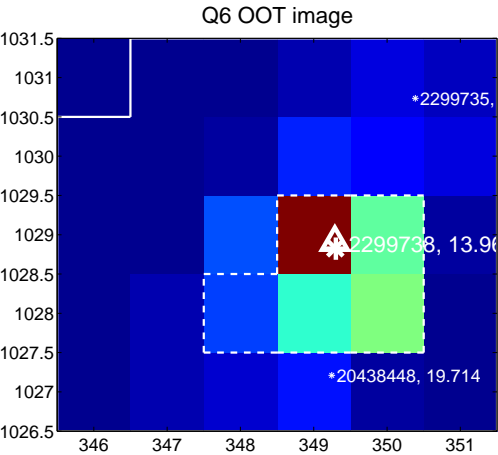
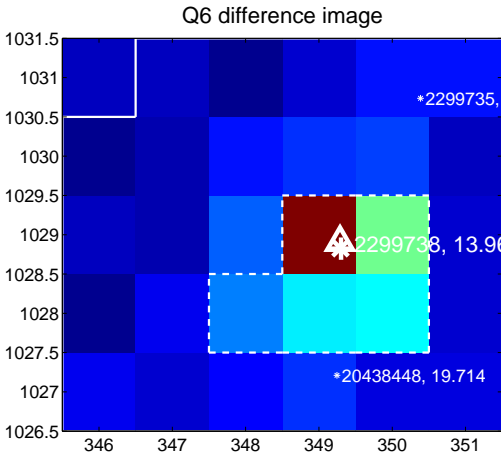


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

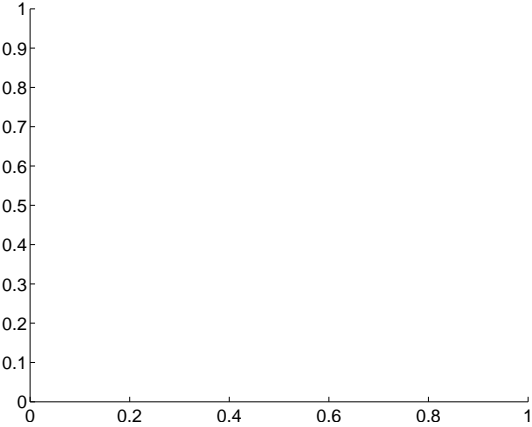
Q5 no difference image



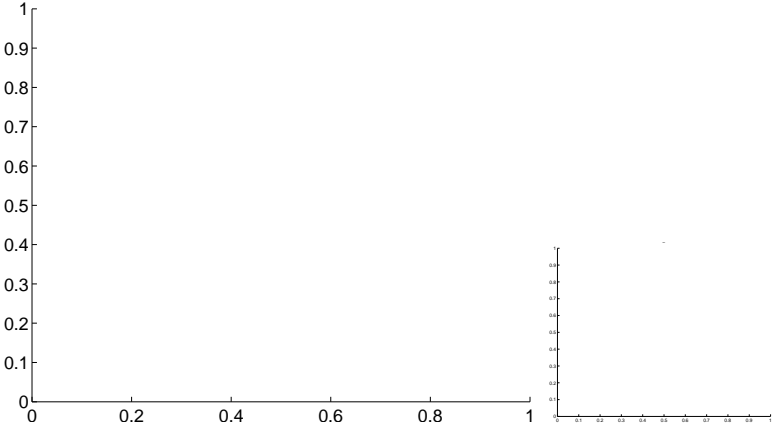
Q5 no OOT image



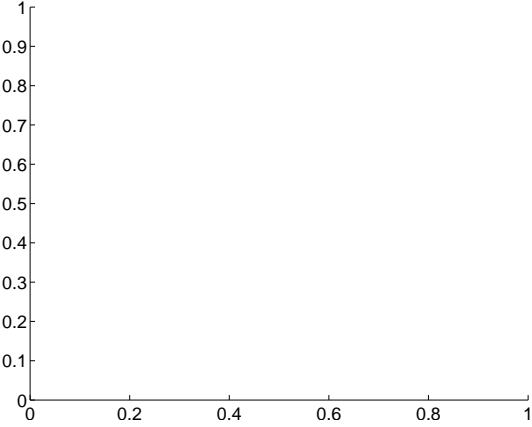
Q7 no difference image



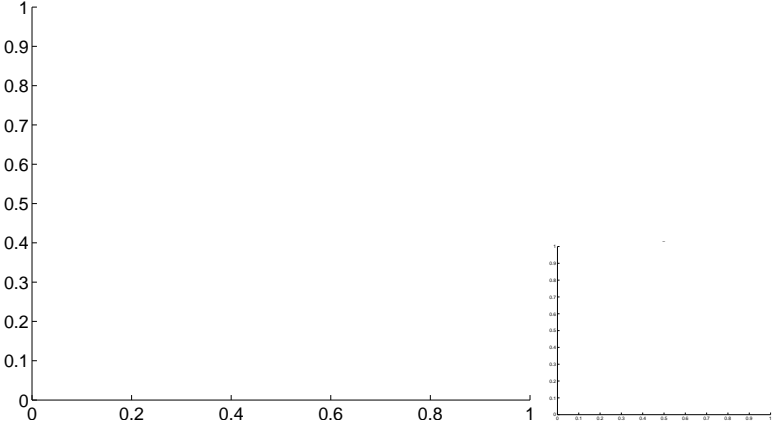
Q7 no OOT image



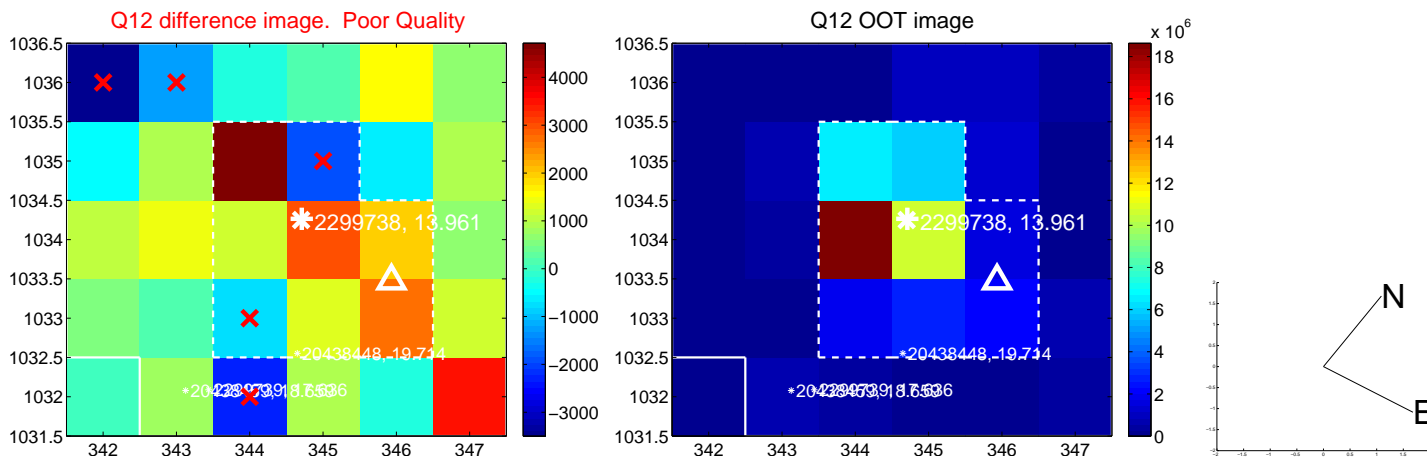
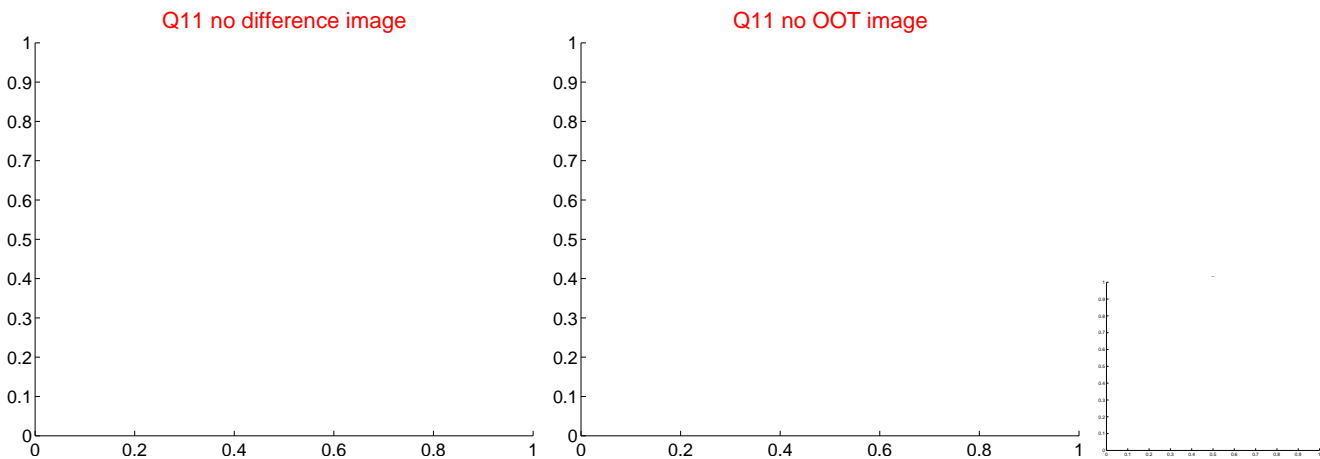
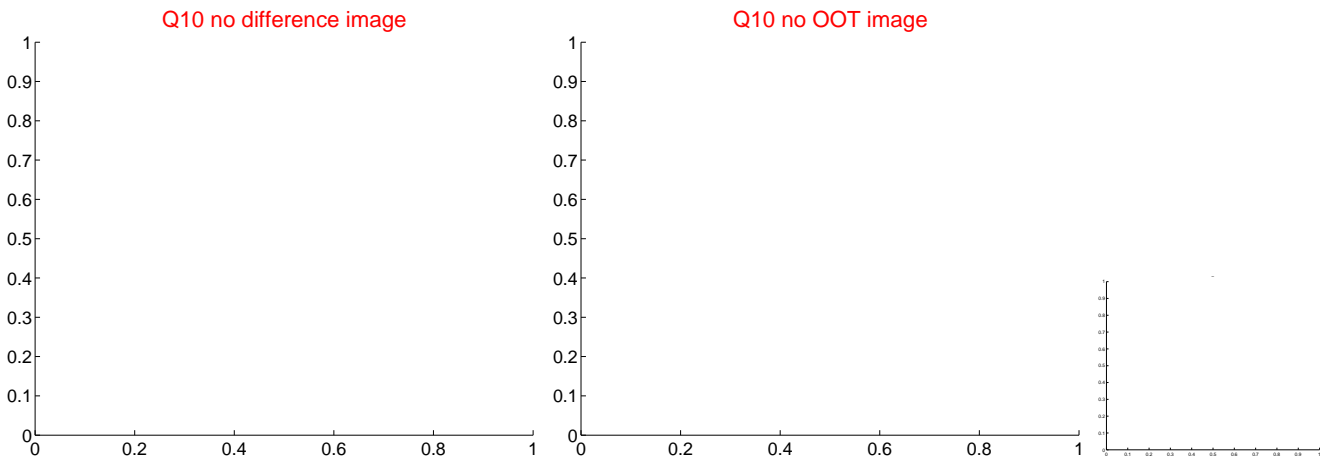
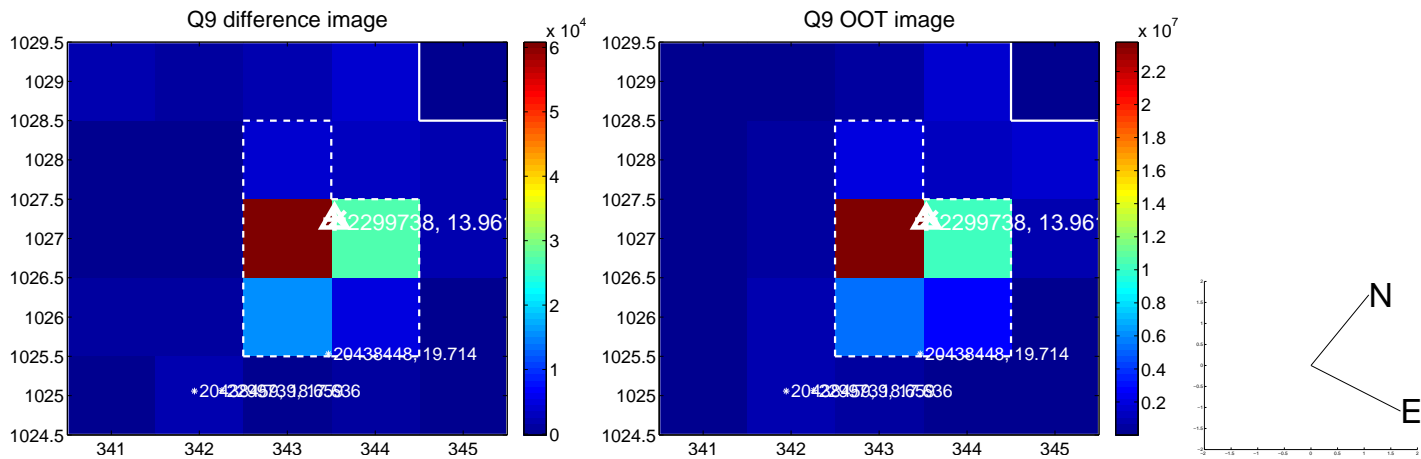
Q8 no difference image



Q8 no OOT image



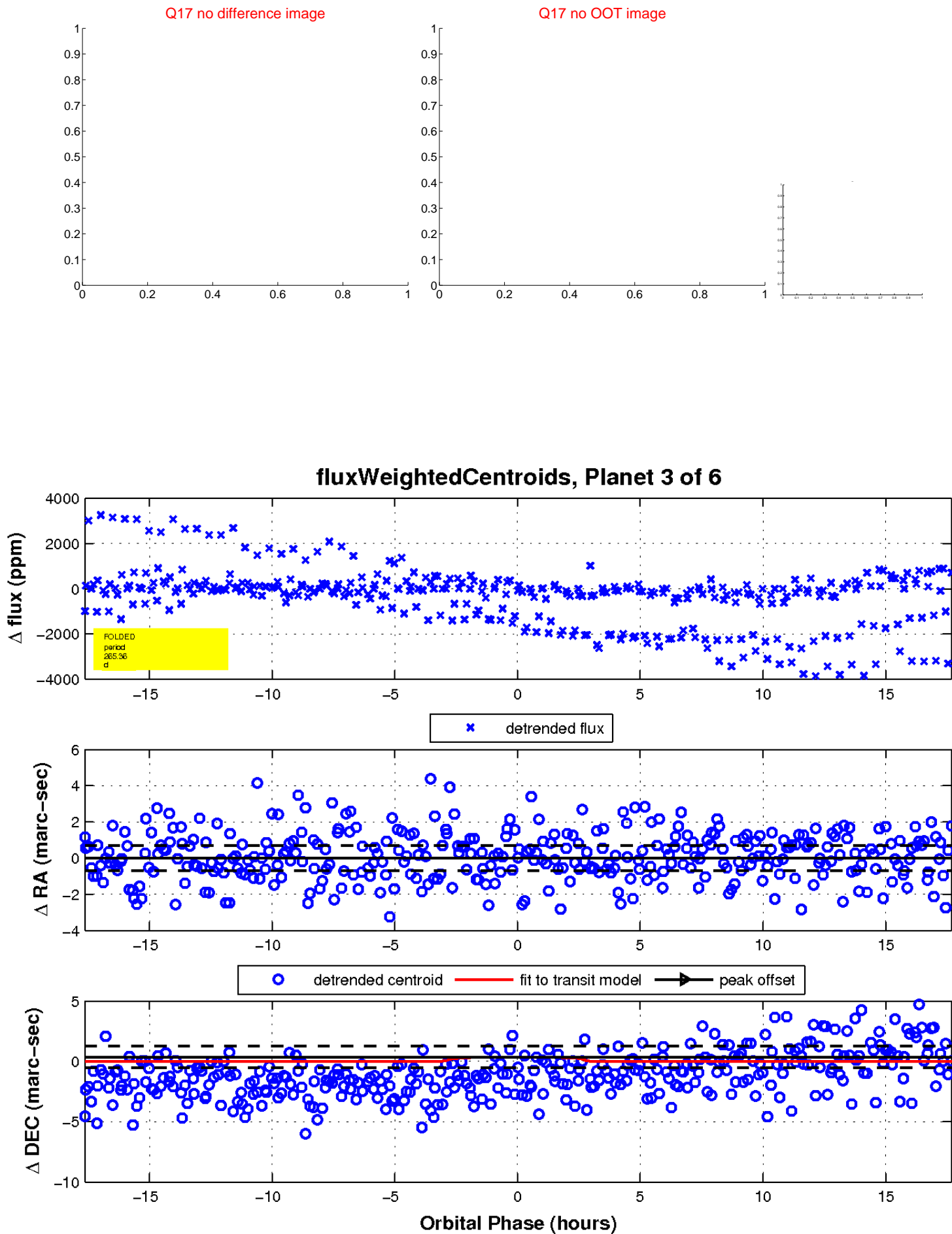
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

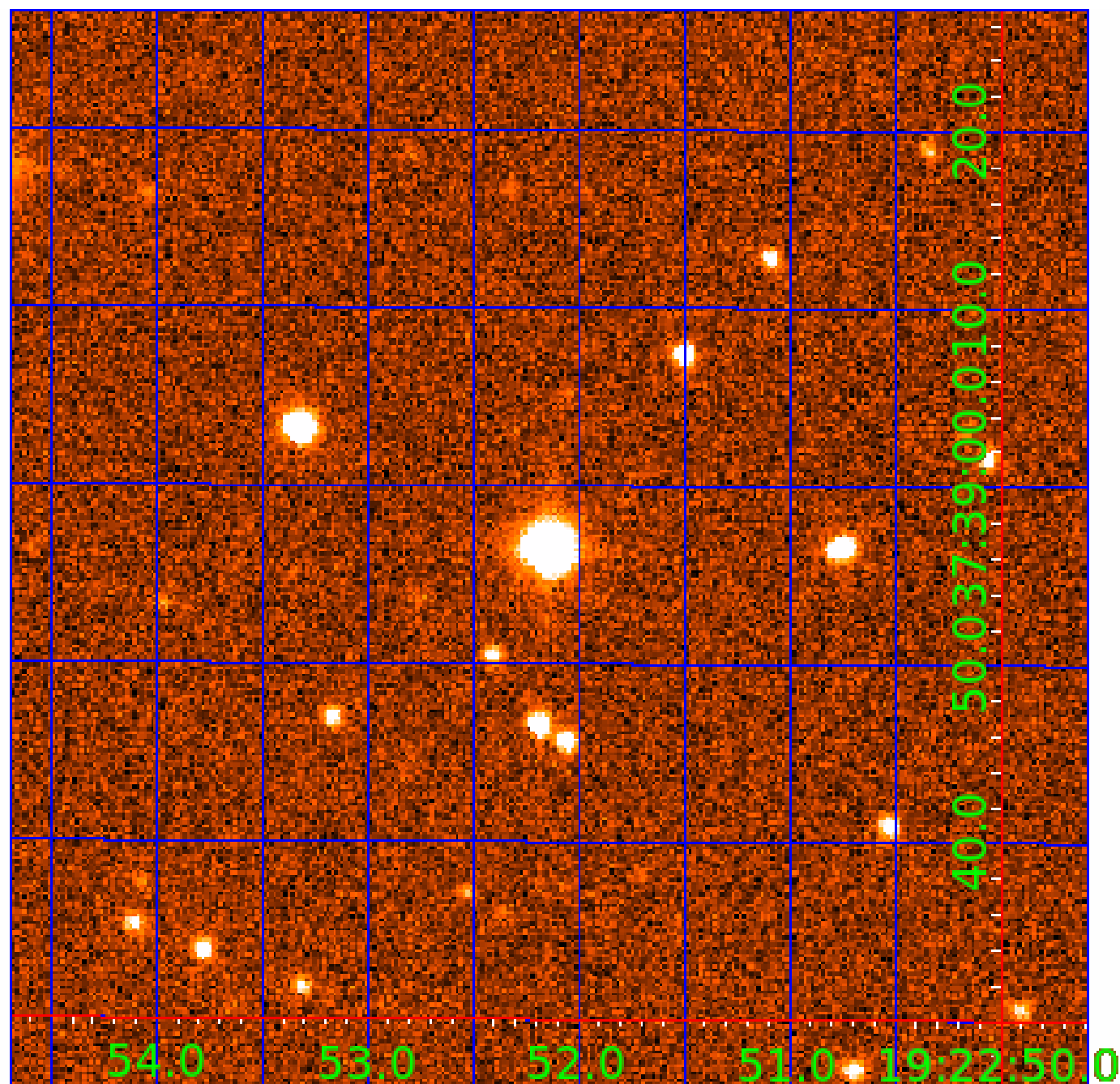


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002299738

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})
002299738-01	OBS	7628.01	1.813427	132.709451	61.6	7.712	8.6	8.0	0.70	5094	0.66	425.79
002299738-02	OBS	No	170.070119	171.645443	1196.1	17.845	15.3	7.3	0.70	5094	2.83	1.00
002299738-03	OBS	No	265.359944	309.158225	808.3	5.899	13.1	5.8	0.70	5094	2.13	0.55
002299738-04	OBS	No	222.455558	311.562691	601.7	4.668	11.3	5.2	0.70	5094	1.90	0.70
002299738-05	OBS	No	131.805518	134.938561	721.8	9.135	9.3	6.4	0.70	5094	1.94	1.40
002299738-06	OBS	No	87.049996	160.962523	52.0	2.020	8.7	1.1	0.70	5094	0.57	2.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002299738-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT
002299738-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
002299738-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_FEW_DIFFS
002299738-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES
002299738-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
002299738-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

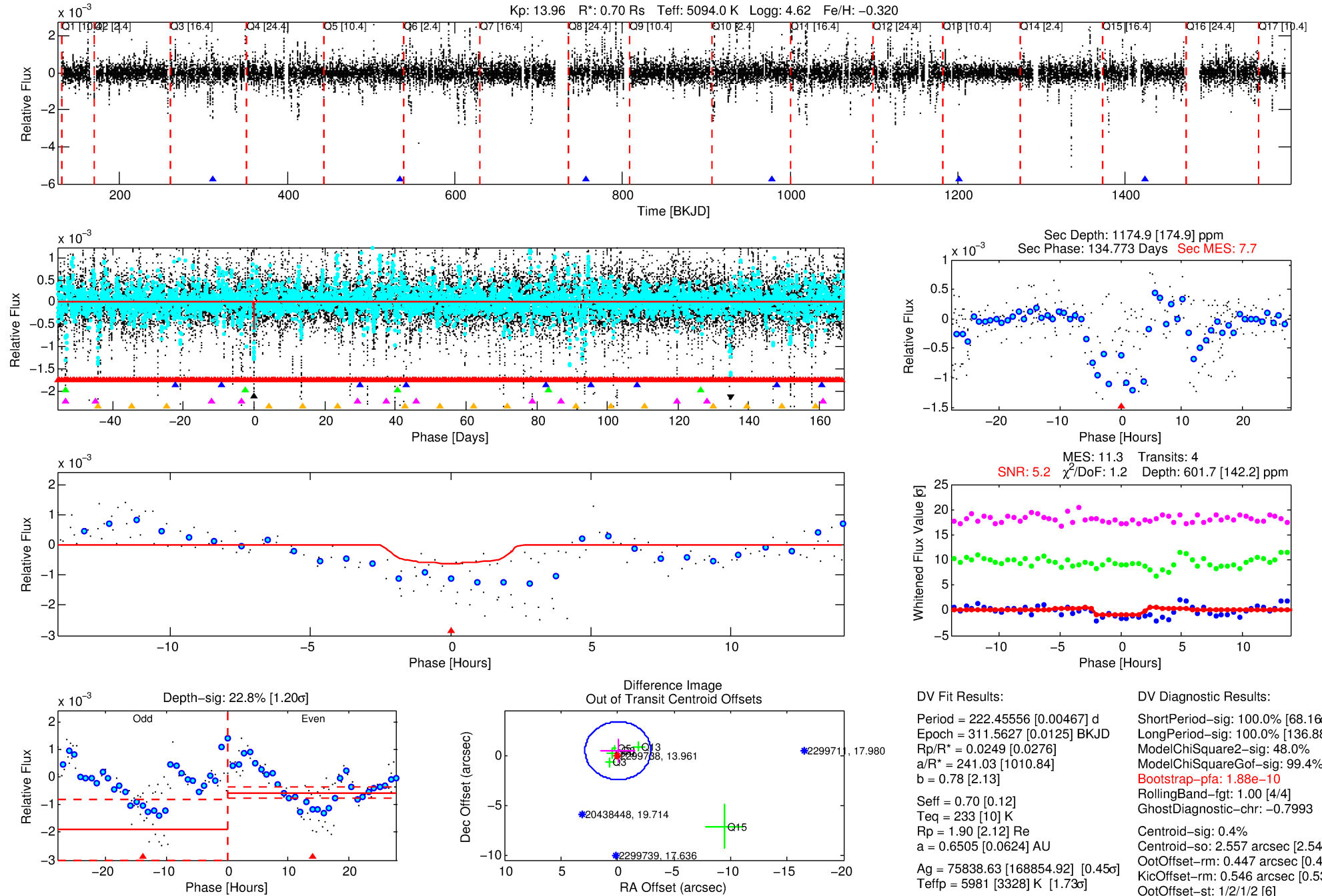
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002299738-04

No Significant Match Found

DV One-Page Summary

KIC: 2299738 Candidate: 4 of 6 Period: 222.456 d



DV Fit Results:

Period = 222.45556 [0.00467] d
Epoch = 311.5627 [0.0125] BKJD
Rp/R* = 0.0249 [0.0276]
a/R* = 241.03 [1010.84]
b = 0.78 [2.13]
Seff = 0.70 [0.12]
Teq = 233 [10] K
Rp = 1.90 [2.12] Re
a = 0.6505 [0.0624] AU
Ag = 75838.63 [168854.92] [0.45 σ]
Teffp = 5981 [3328] K [1.73 σ]

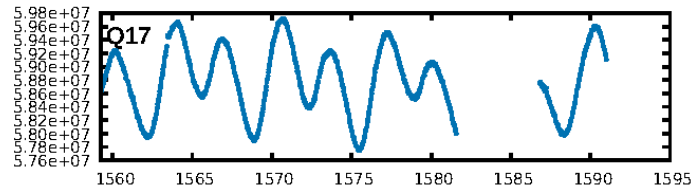
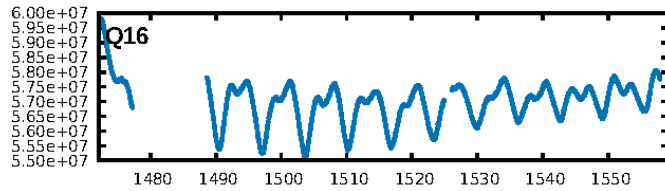
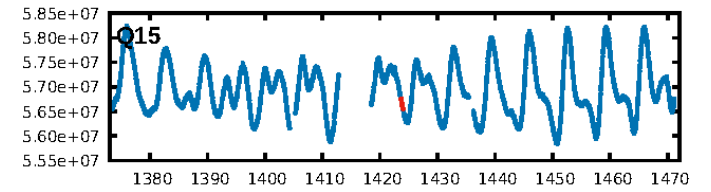
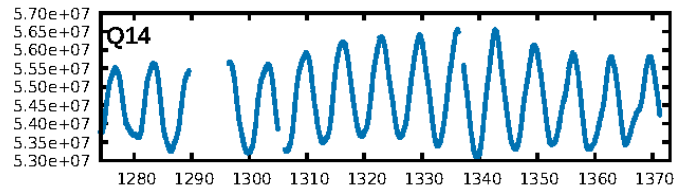
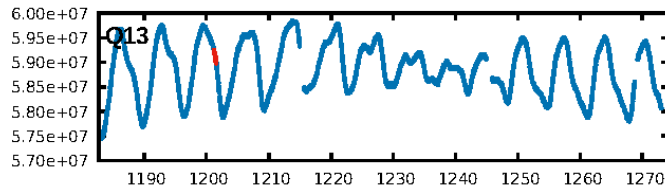
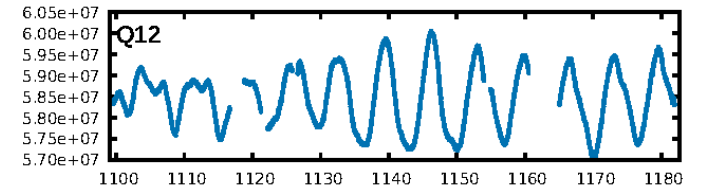
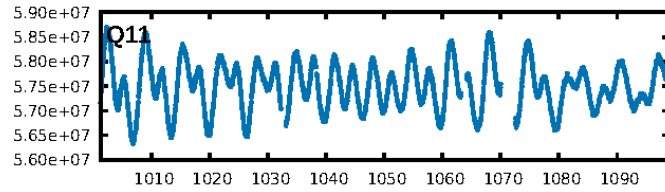
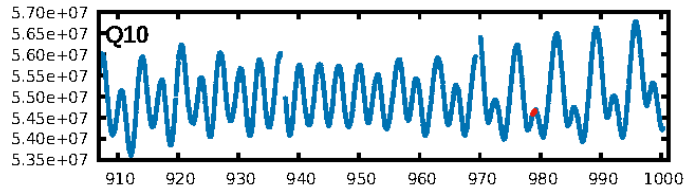
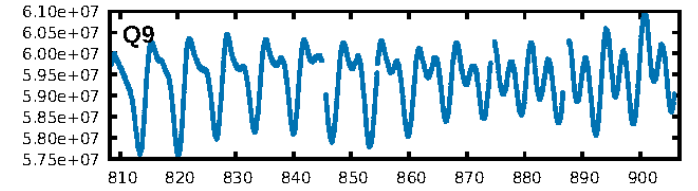
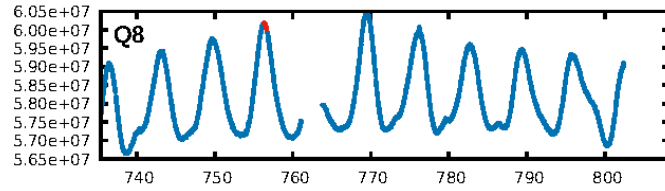
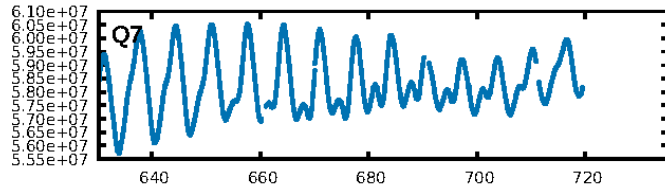
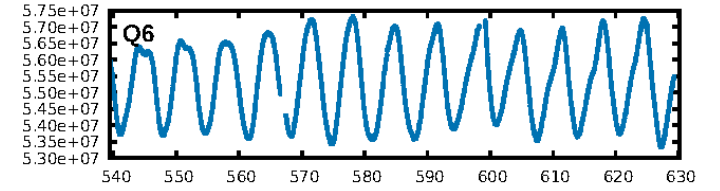
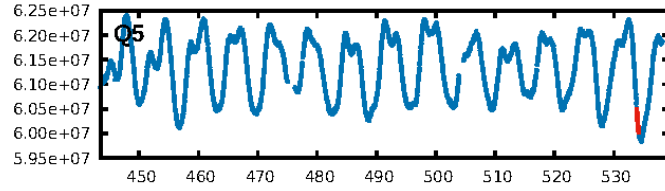
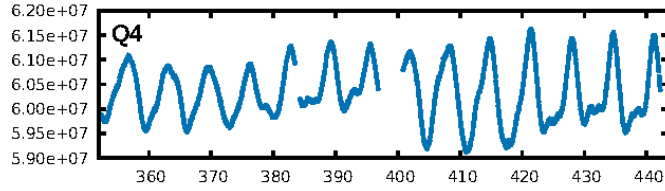
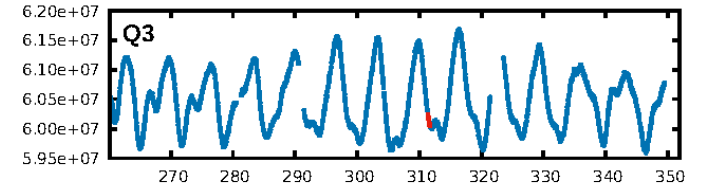
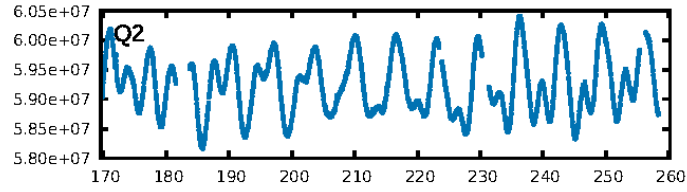
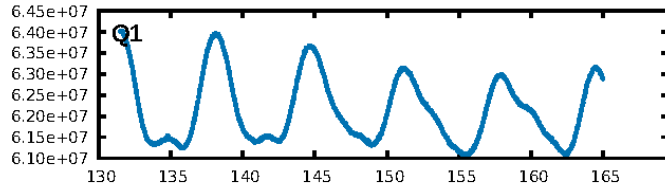
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.16 σ]
LongPeriod-sig: 100.0% [136.88 σ]
ModelChiSquare2-sig: 48.0%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: 1.88e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.7993
Centroid-sig: 0.4%
Centroid-so: 2.557 arcsec [2.54 σ]
OotOffset-rm: 0.447 arcsec [0.46 σ]
KicOffset-rm: 0.546 arcsec [0.53 σ]
OotOffset-st: 1/2/1/2 [6]
KicOffset-st: 1/2/1/2 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.33 [2/6]

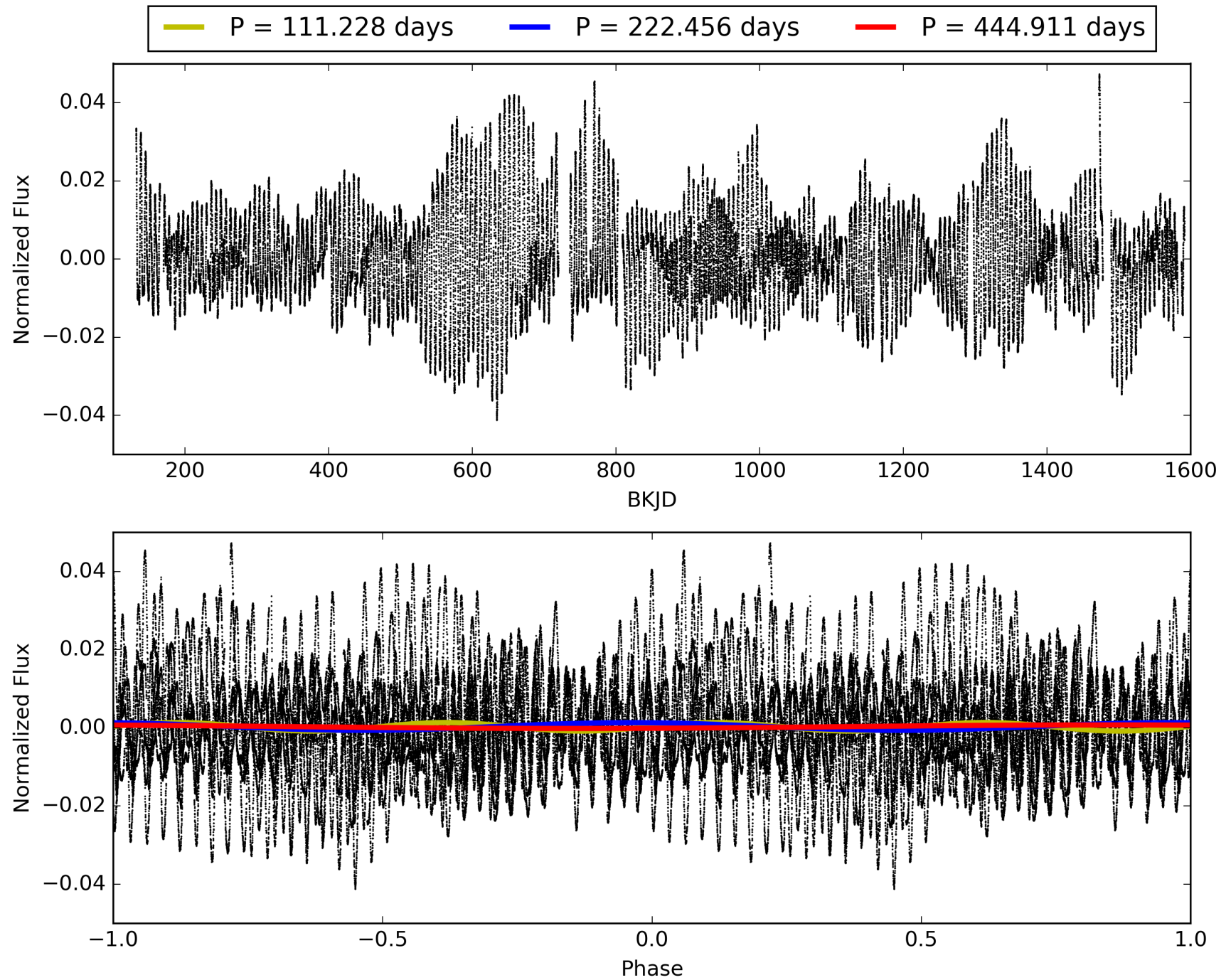
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:26 Z

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

TCE 002299738-04, PDC Light Curves

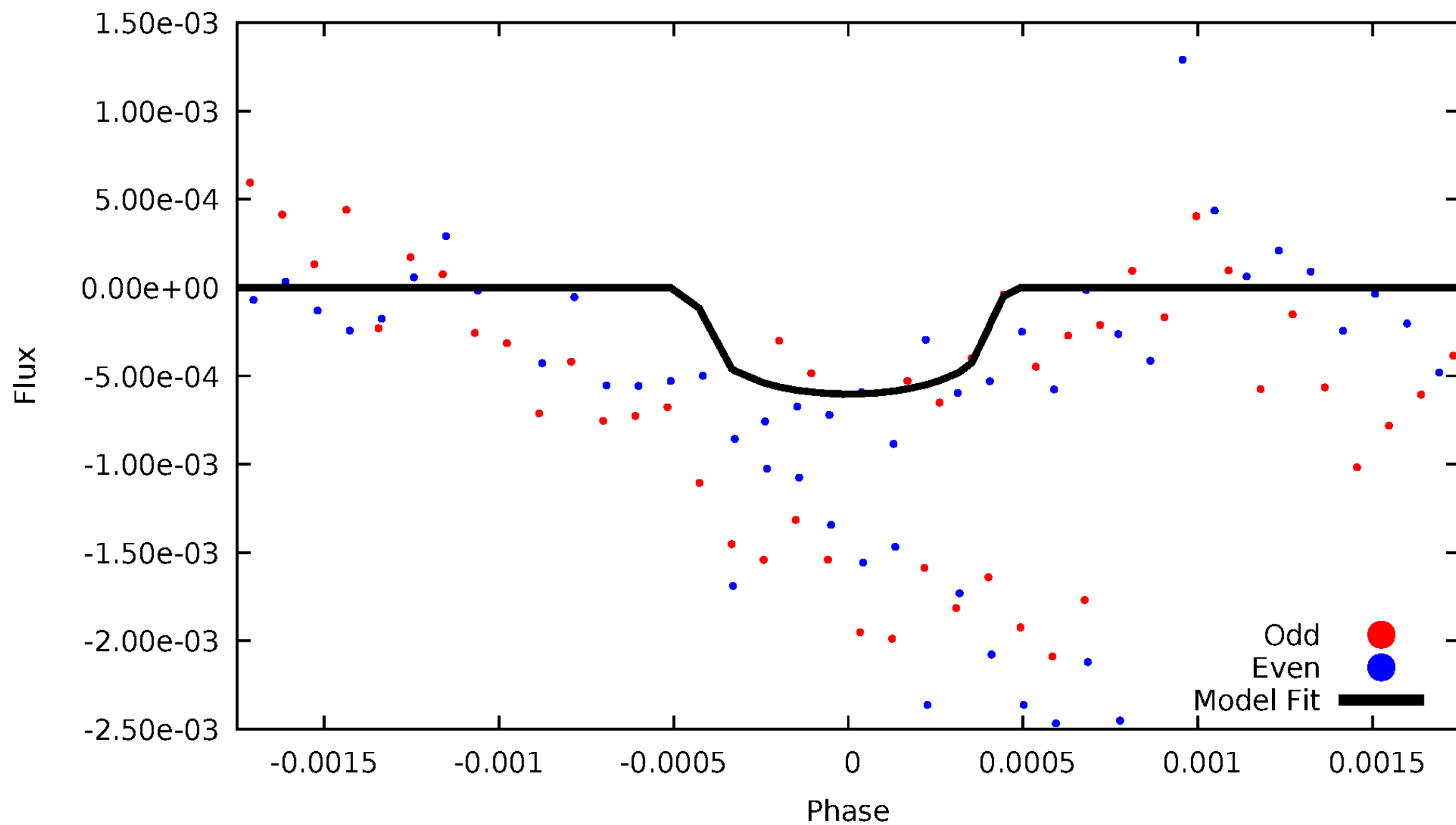


TCE 002299738-04



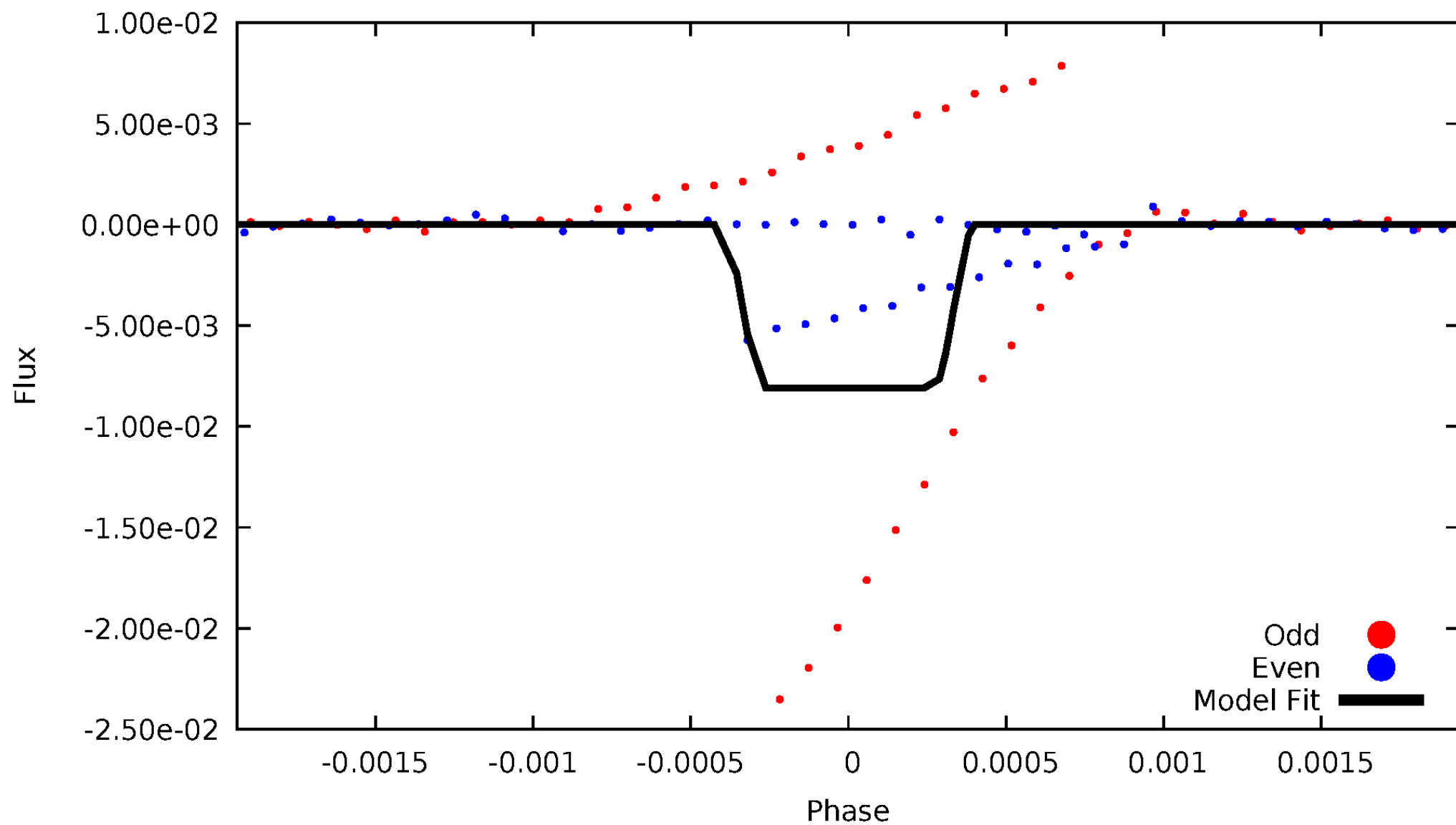
DV Odd/Even

TCE 002299738-04



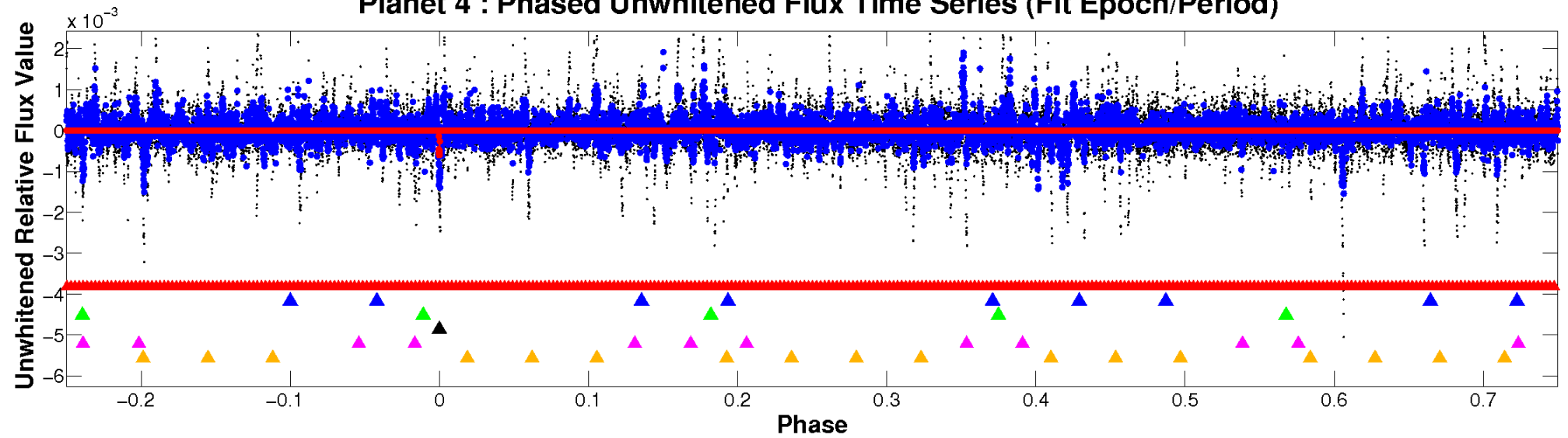
ALT Odd/Even

TCE 002299738-04

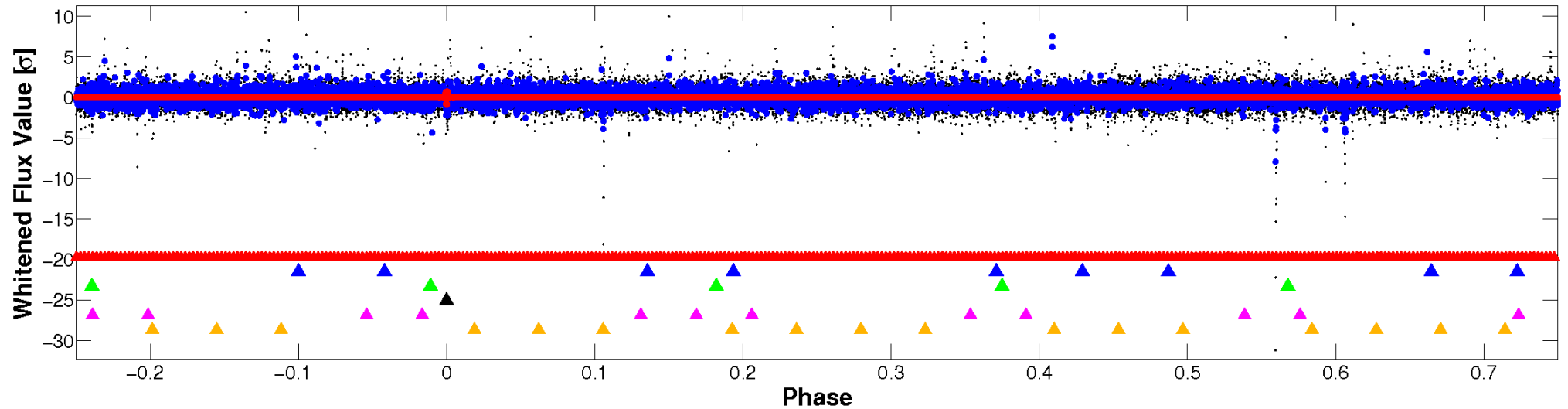


Non-Whitened Vs. Whitened Light Curve

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

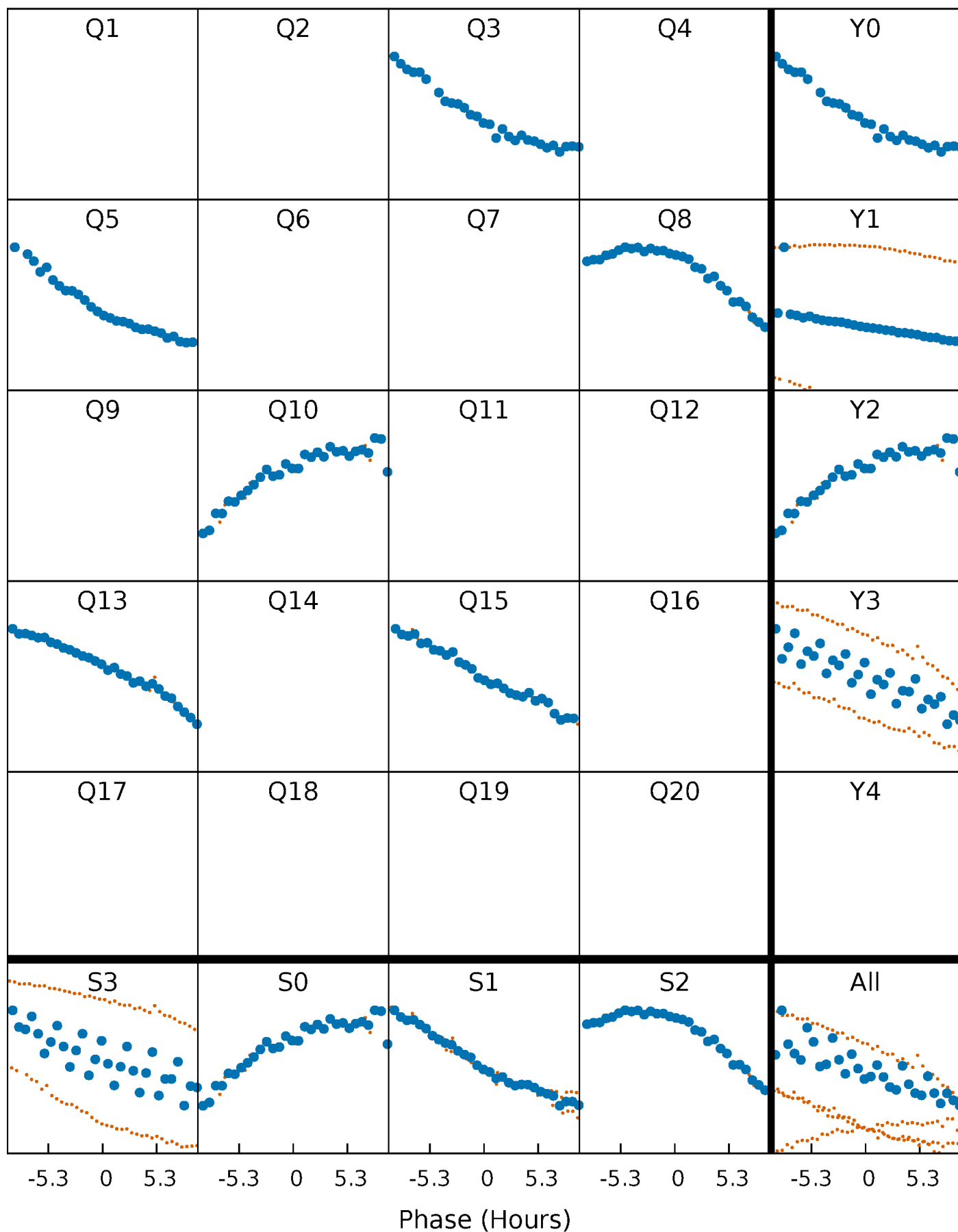


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



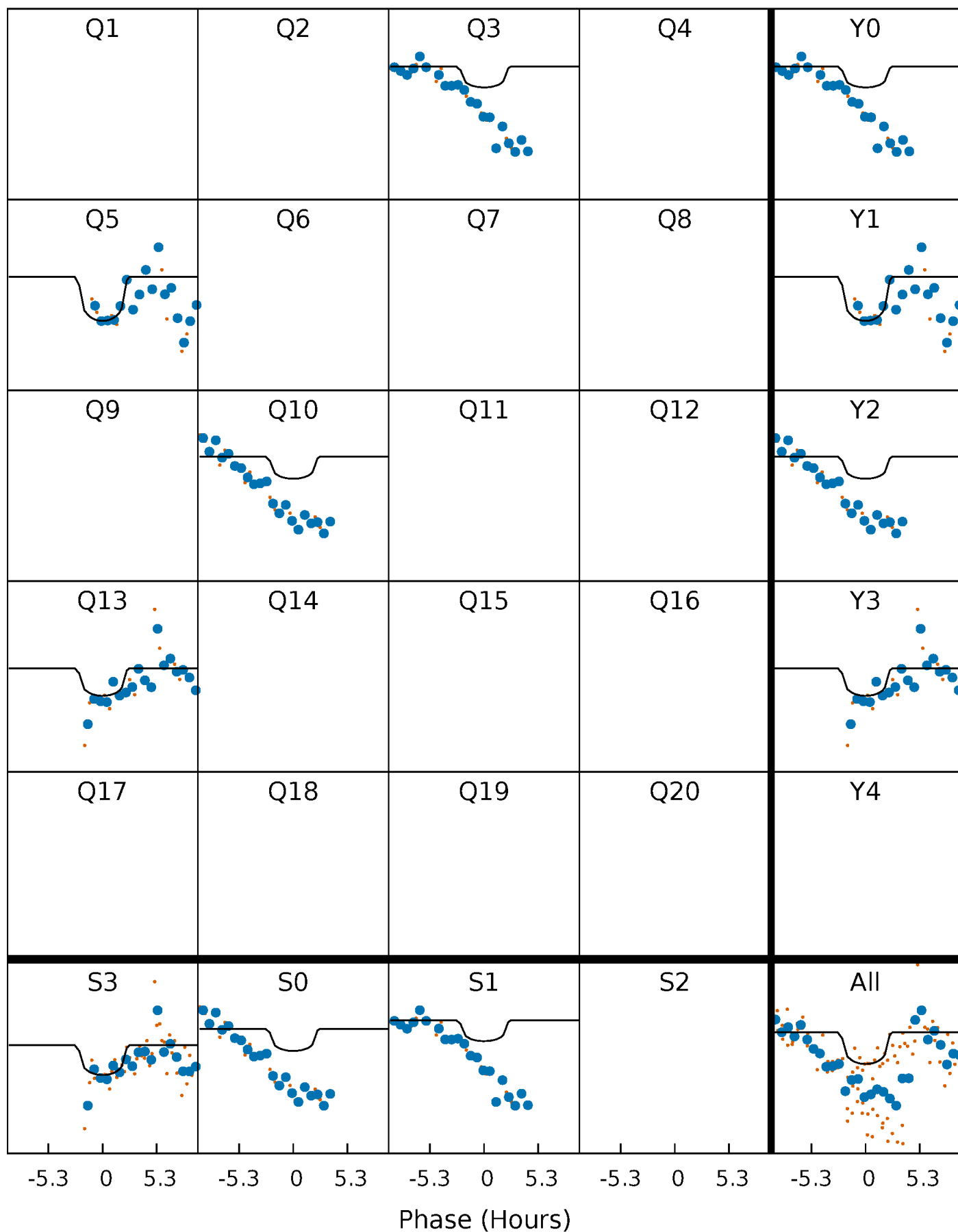
PDC Quarter-Phased Transit Curves

TCE 002299738-04 P=222.455558 Days $T_0=311.562691$ (BKJD)



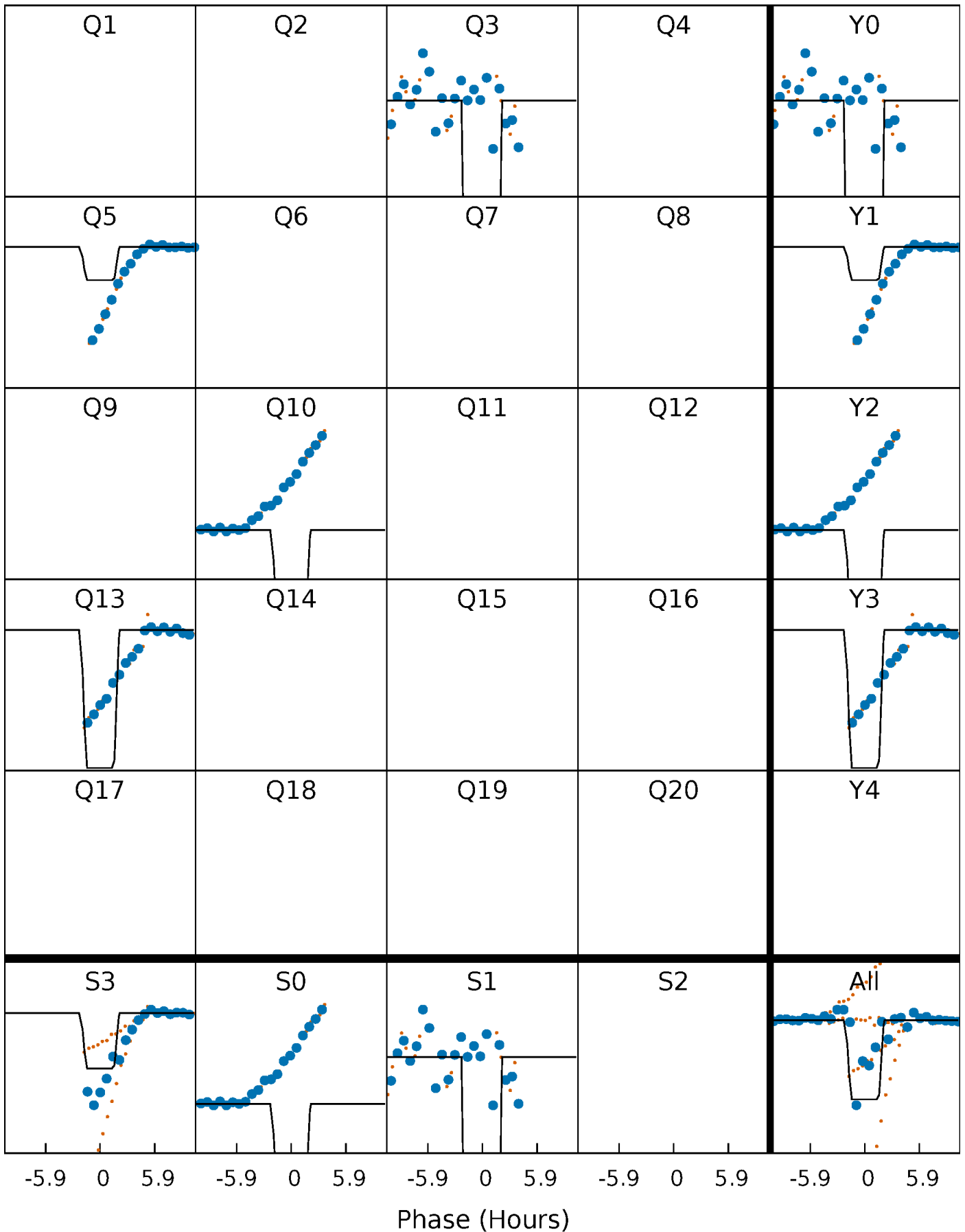
DV Quarter-Phased Transit Curves

TCE 002299738-04 $P=222.455558$ Days $T_0=311.562691$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

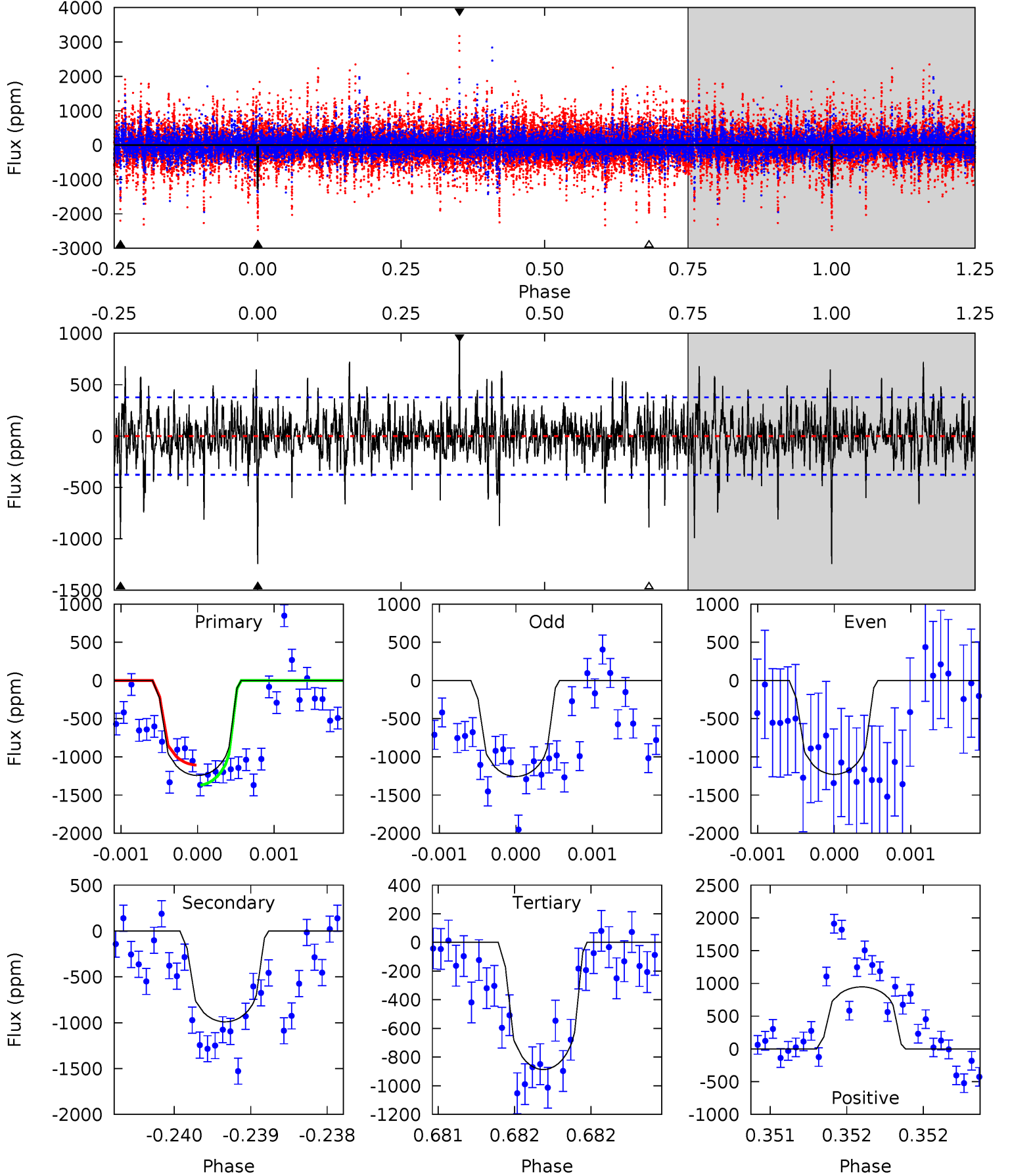
TCE 002299738-04 $P=222.453357$ Days $T_0=311.569245$ (BKJD)



DV Model-Shift Uniqueness Test

002299738-04, P = 222.455558 Days, E = 89.107133 Days

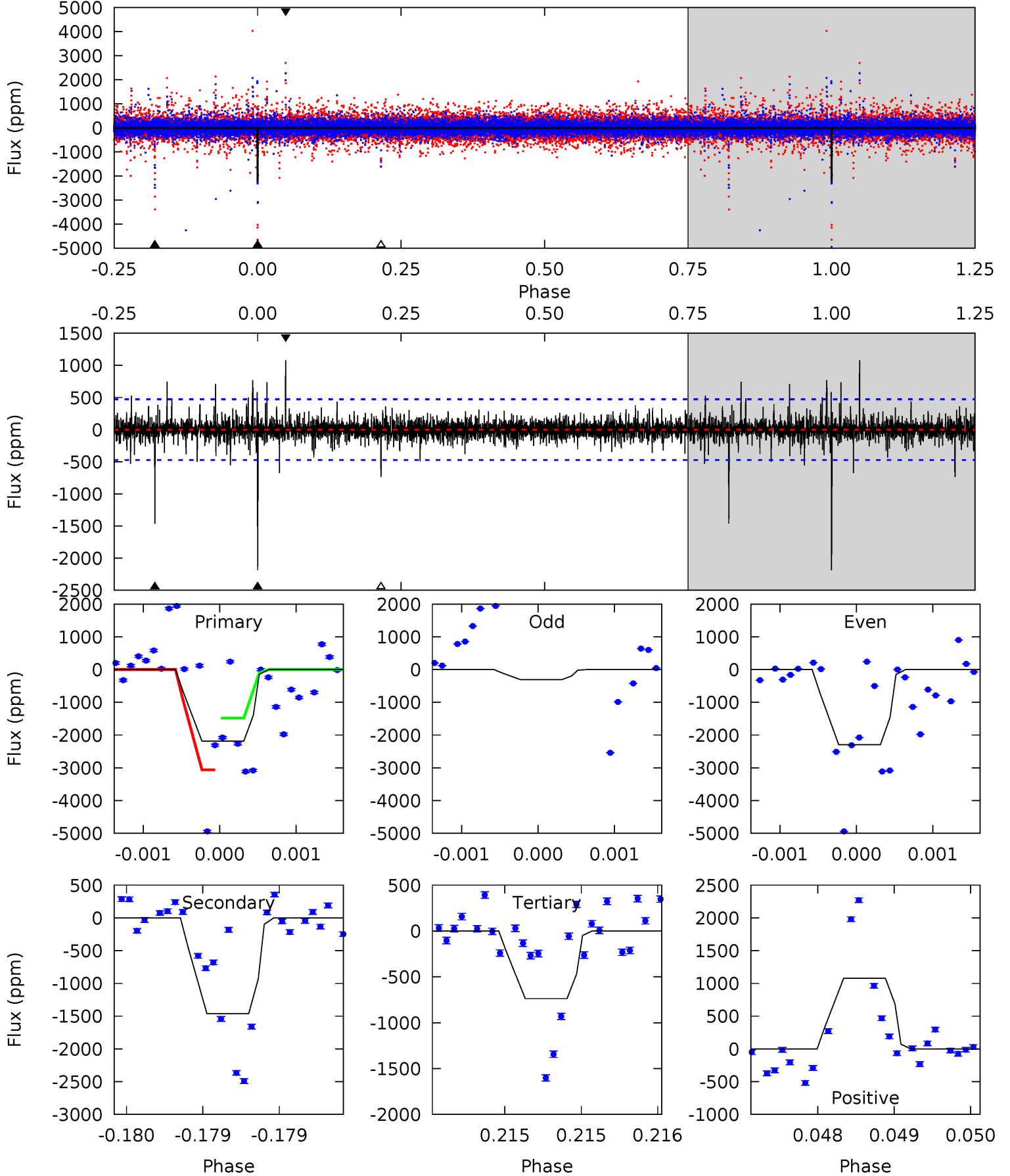
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	14.4	12.9	13.8	5.48	3.33	2.55	5.19	4.33	1.51	0.65	0.17	0.99	0.43	1.91



Alt Model-Shift Uniqueness Test

002299738-04, P = 222.453357 Days, E = 89.115888 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.4	17.0	8.58	12.5	5.51	3.38	1.16	16.9	12.9	8.42	4.47	9.22	2.05	0.33	0



Stellar Parameters For KIC 002299738

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5094^{+151}_{-136}	$4.618^{+0.040}_{-0.065}$	$-0.320^{+0.300}_{-0.300}$	$0.700^{+0.086}_{-0.058}$	$0.743^{+0.078}_{-0.071}$	$3.051^{+0.555}_{-0.726}$
	+3%/-3%	+1%/-1%	+94%/-94%	+12%/-8%	+10%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 002299738-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-991 ± 69	$2.43^{+1.99}_{-1.62}$	327^{+13}_{-11}	5126^{+3952}_{-1074}	$39221^{+311374}_{-27152}$
Alt.	-1461 ± 86	$6.98^{+2.14}_{-2.20}$	328^{+13}_{-11}	3694^{+498}_{-319}	6995^{+7777}_{-2980}

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 $A_{obs} \gg 1.0$

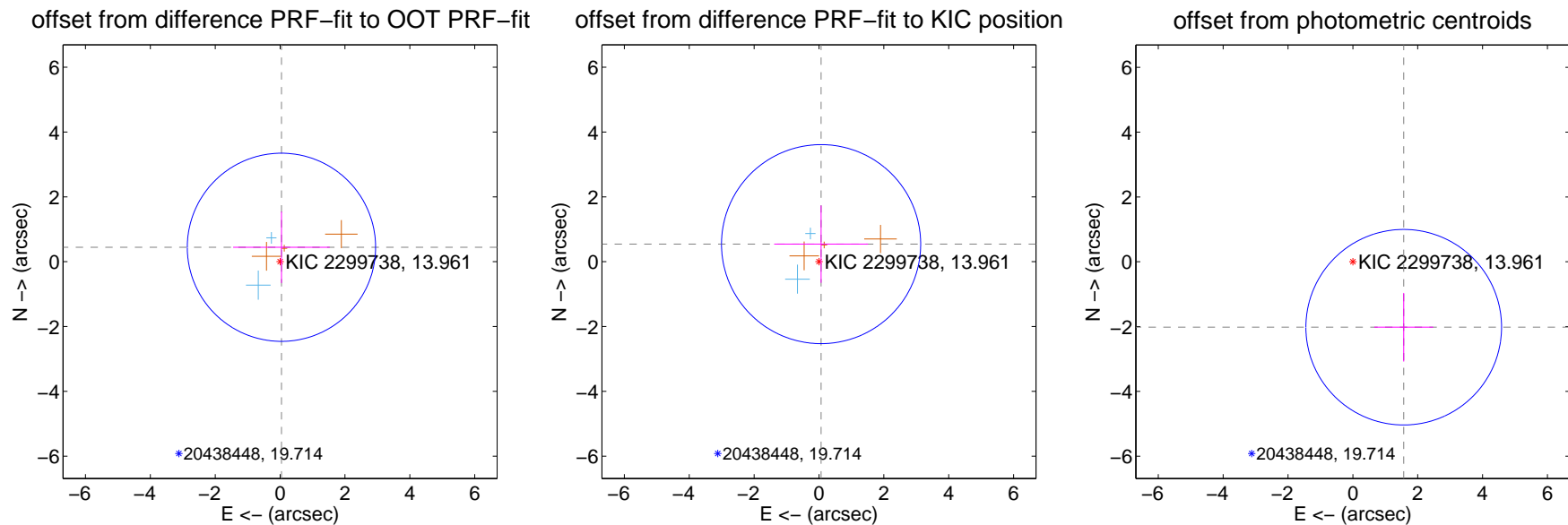
DV Centroid Data

Supplemental centroid analysis for 002299738-04. Kepler magnitude: 13.96. Transit SNR 5.20

There are 2 quarters with good PRF difference image offsets

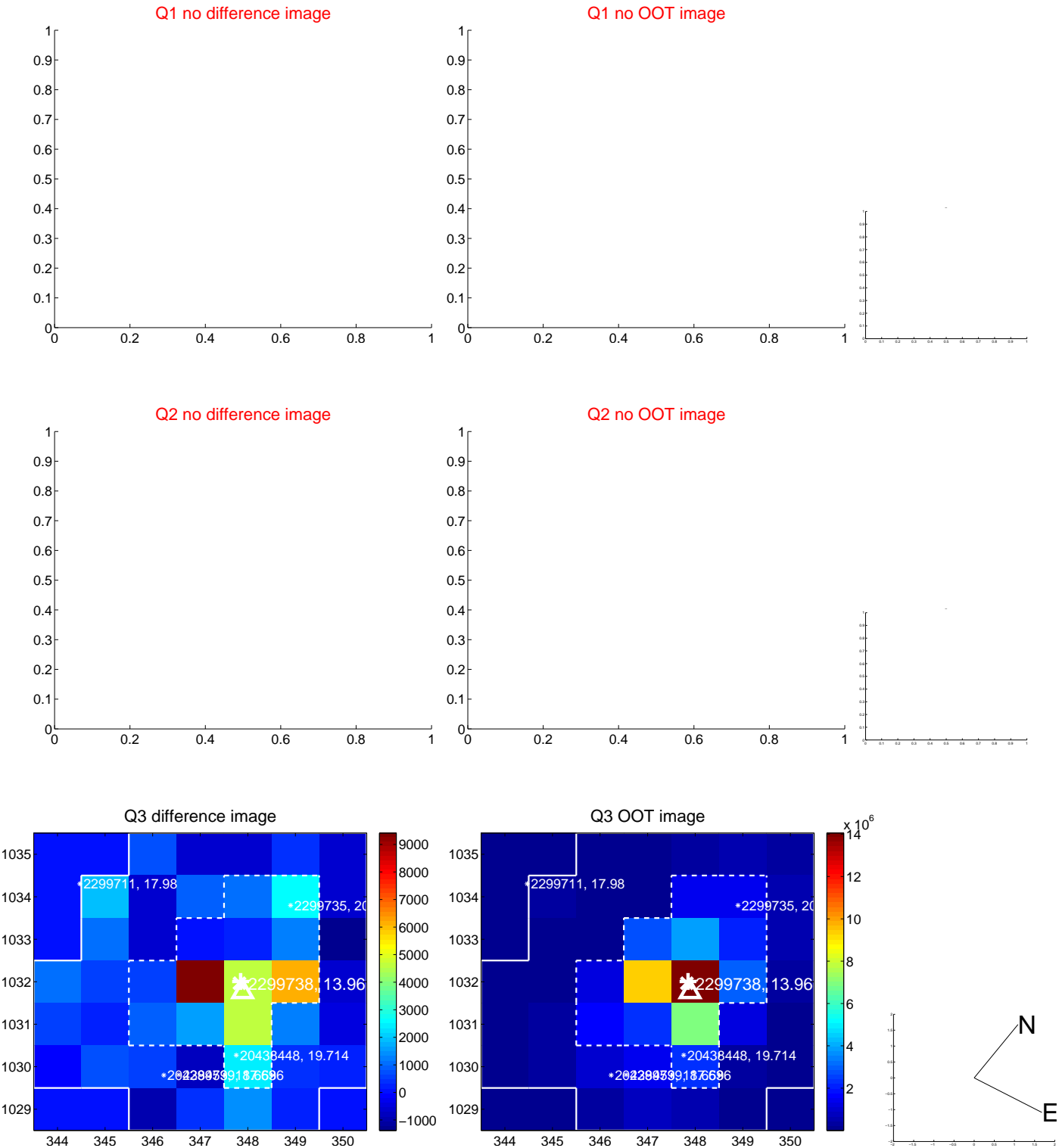
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.447 ± 0.968	0.46	-0.041 ± 1.489	0.445 ± 1.100
PRF-fit source offset from KIC position	0.546 ± 1.023	0.53	-0.065 ± 1.446	0.542 ± 1.192
photometric centroid source offset	2.56 ± 1.01	2.54	-1.57 ± 0.91	-2.02 ± 1.06

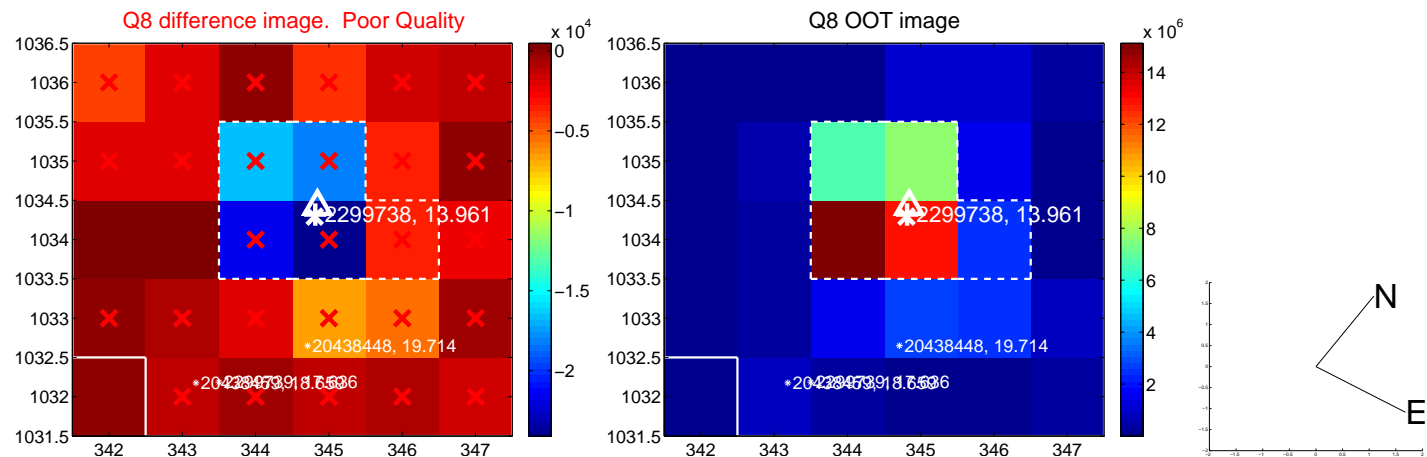
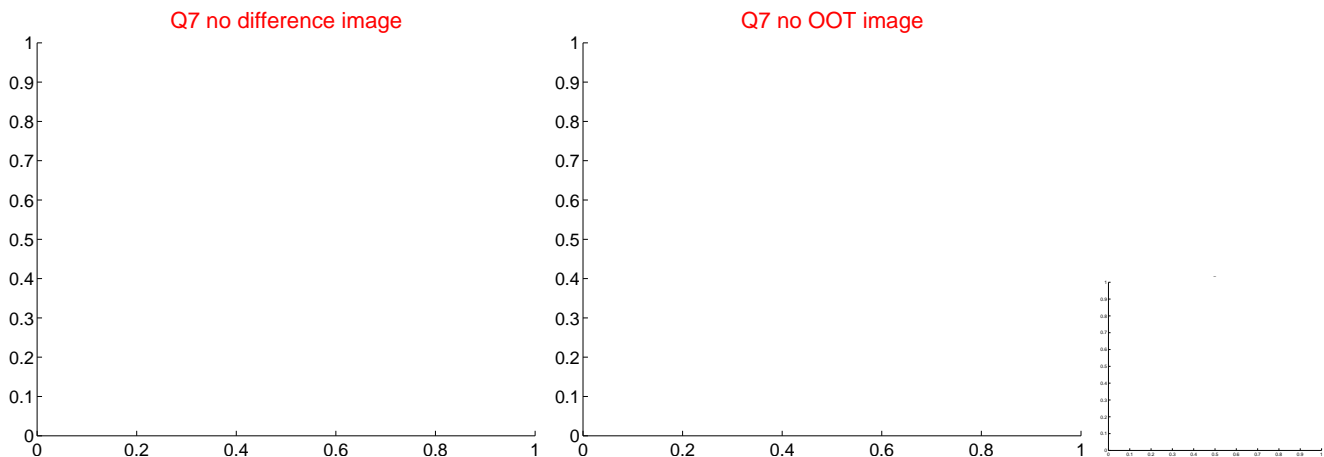
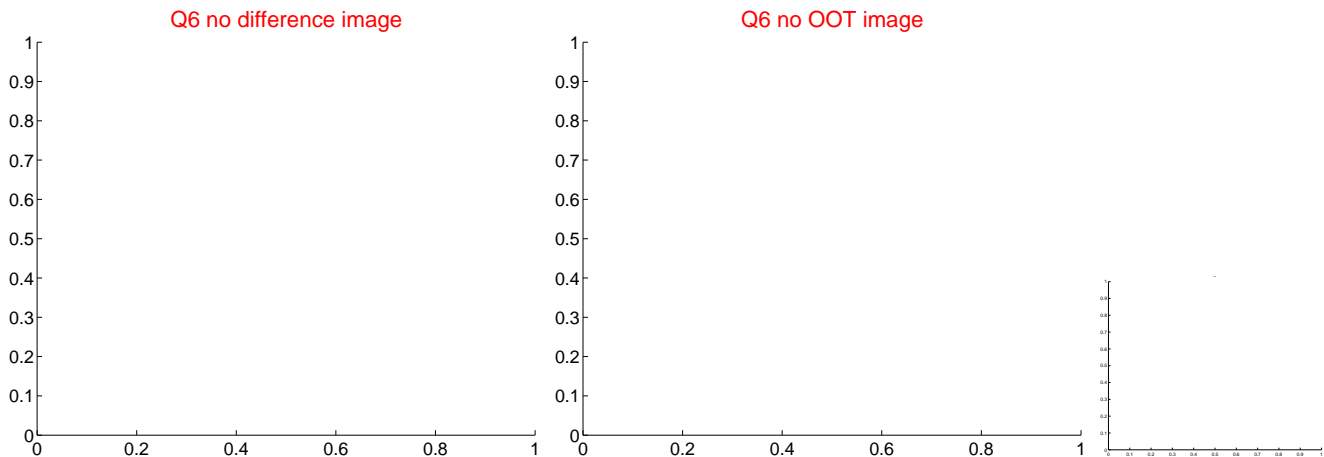
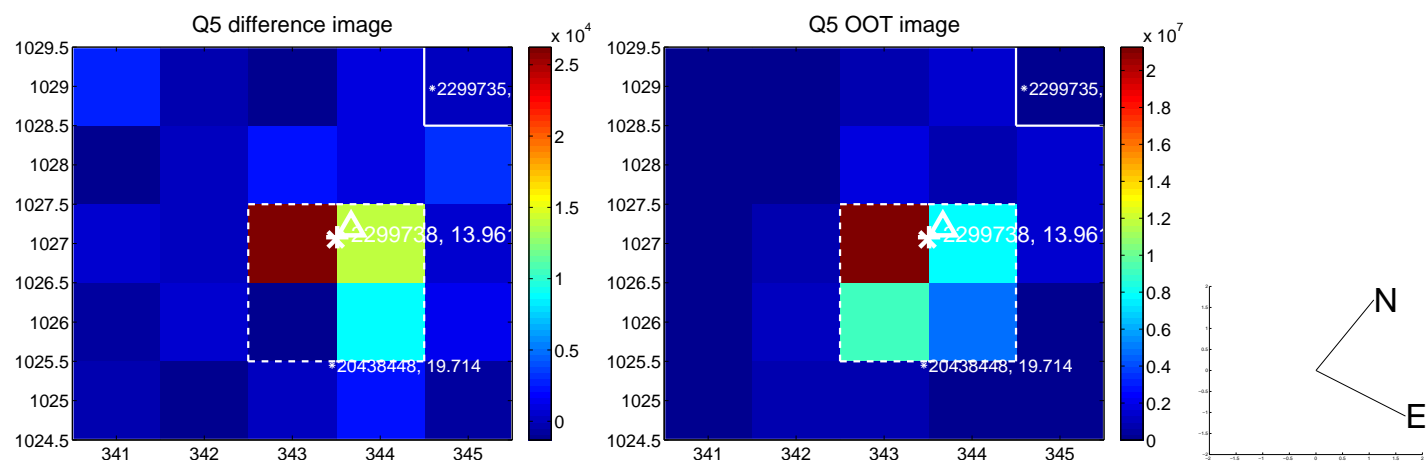


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

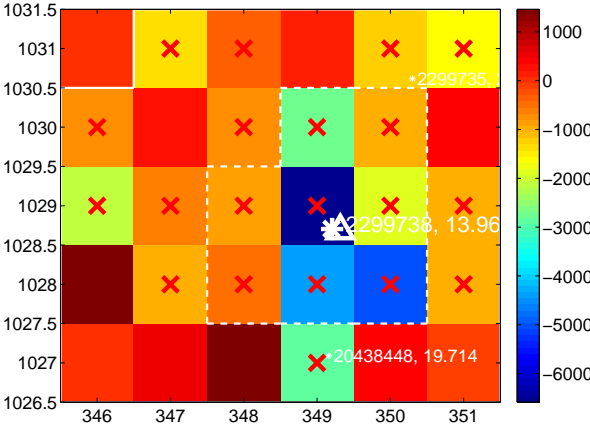
Q9 no difference image



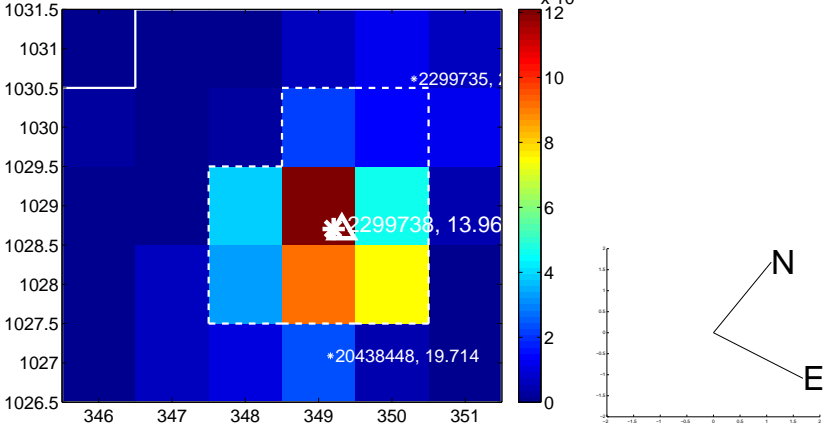
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



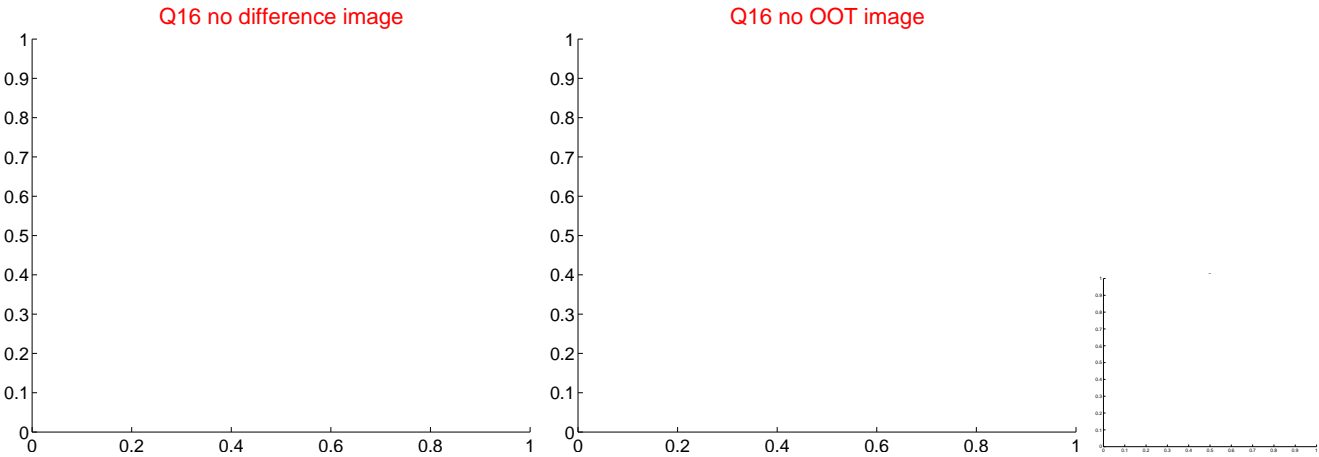
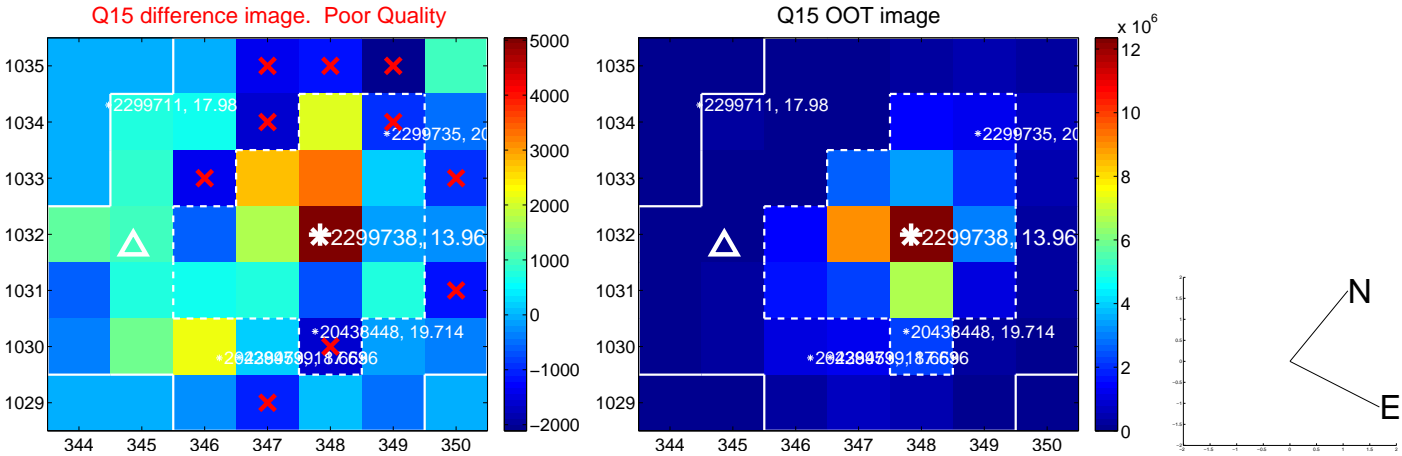
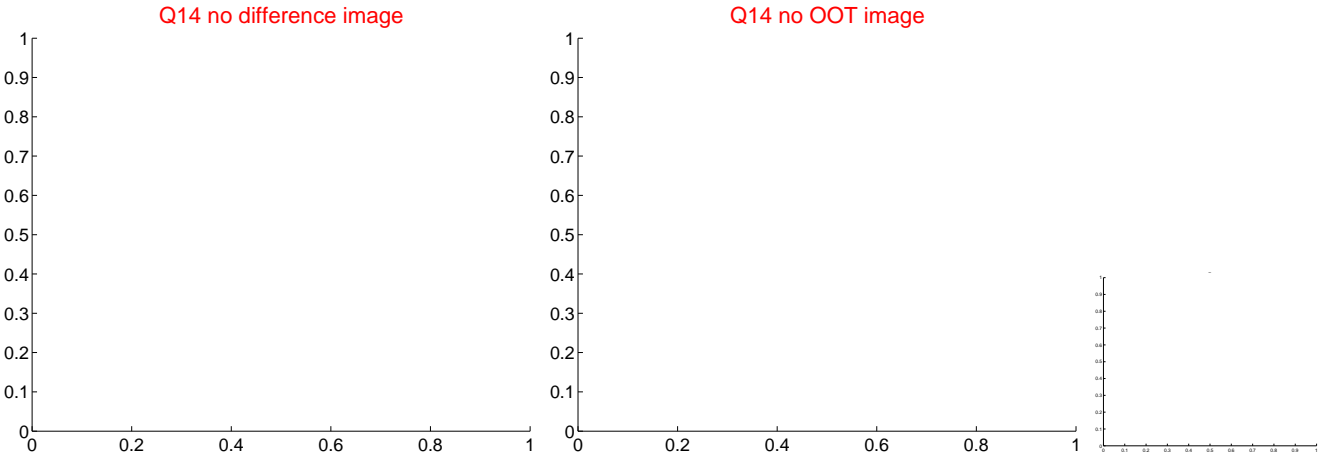
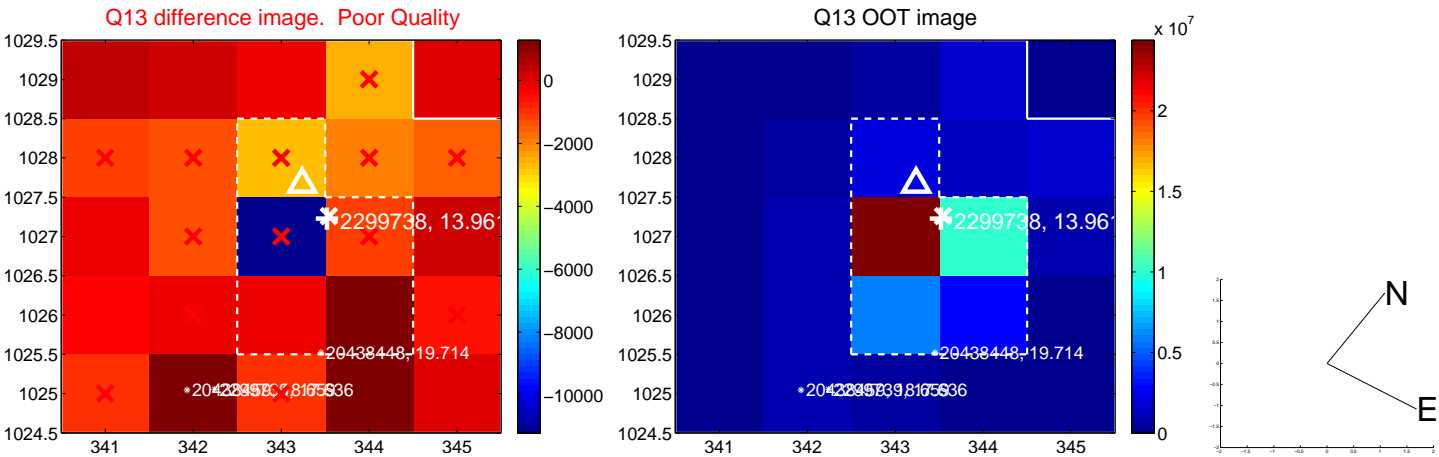
Q12 no difference image



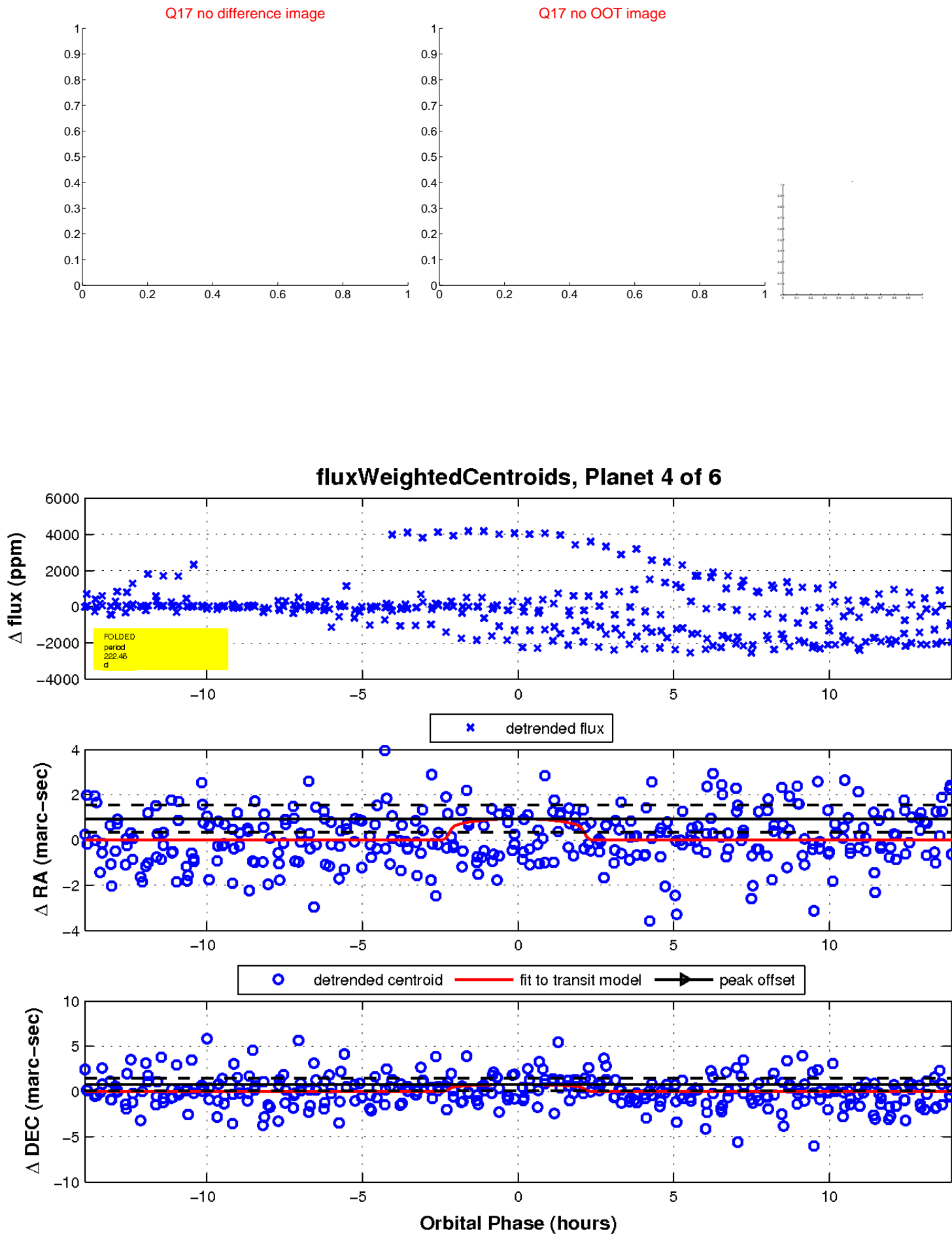
Q12 no OOT image



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

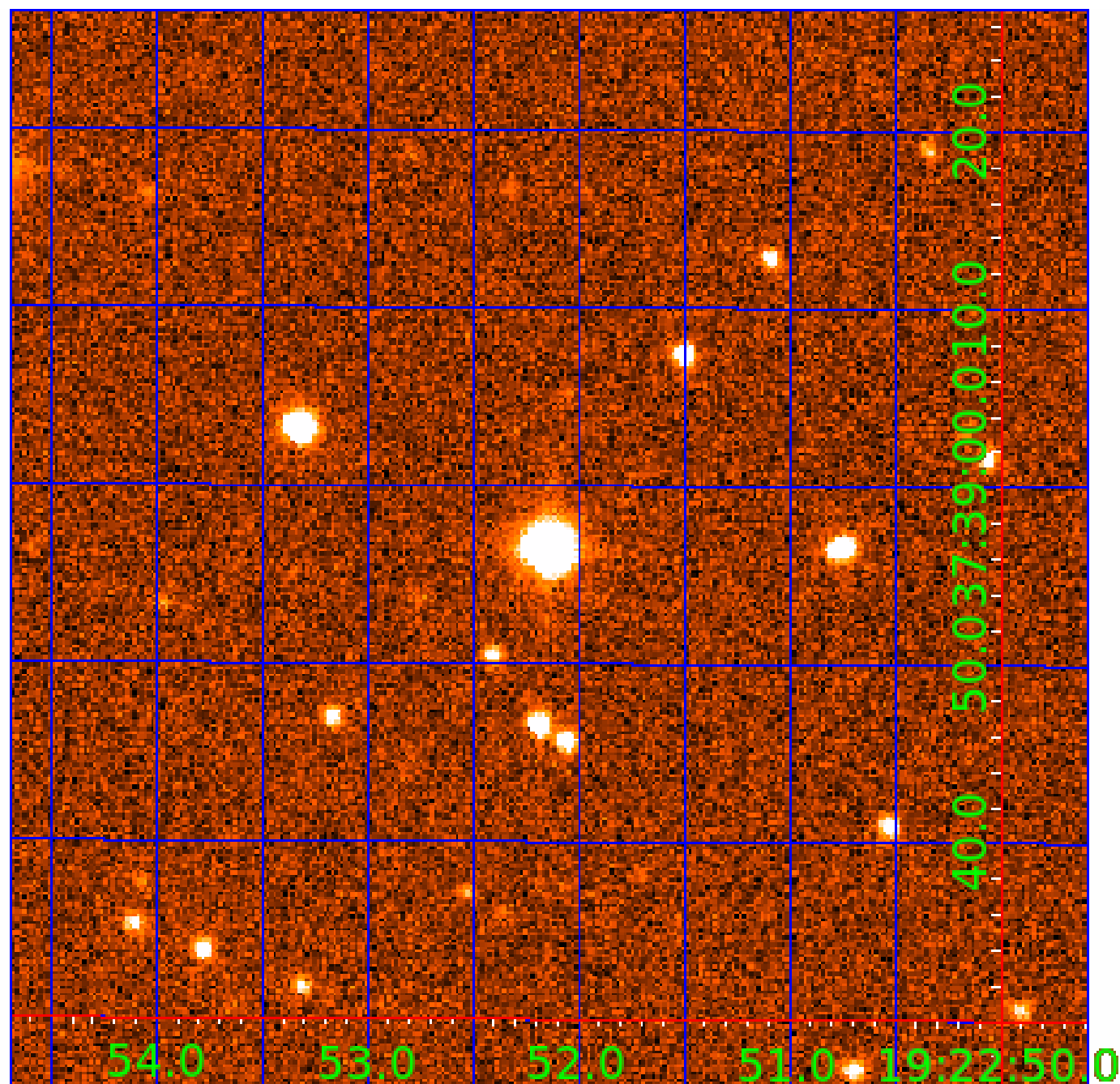


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002299738

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})
002299738-01	OBS	7628.01	1.813427	132.709451	61.6	7.712	8.6	8.0	0.70	5094	0.66	425.79
002299738-02	OBS	No	170.070119	171.645443	1196.1	17.845	15.3	7.3	0.70	5094	2.83	1.00
002299738-03	OBS	No	265.359944	309.158225	808.3	5.899	13.1	5.8	0.70	5094	2.13	0.55
002299738-04	OBS	No	222.455558	311.562691	601.7	4.668	11.3	5.2	0.70	5094	1.90	0.70
002299738-05	OBS	No	131.805518	134.938561	721.8	9.135	9.3	6.4	0.70	5094	1.94	1.40
002299738-06	OBS	No	87.049996	160.962523	52.0	2.020	8.7	1.1	0.70	5094	0.57	2.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002299738-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT
002299738-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
002299738-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_FEW_DIFFS
002299738-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES
002299738-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
002299738-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

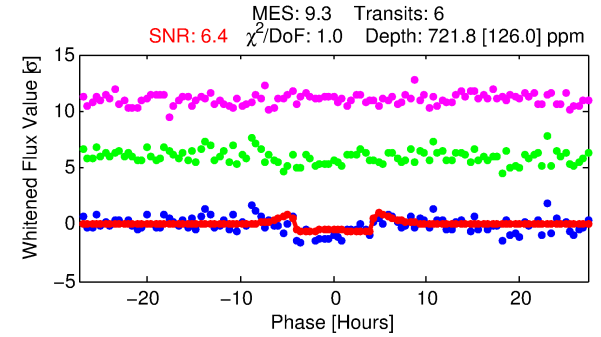
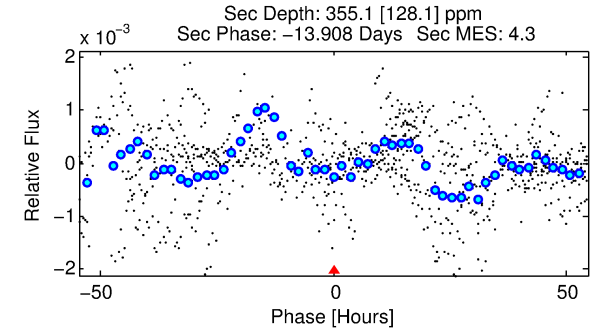
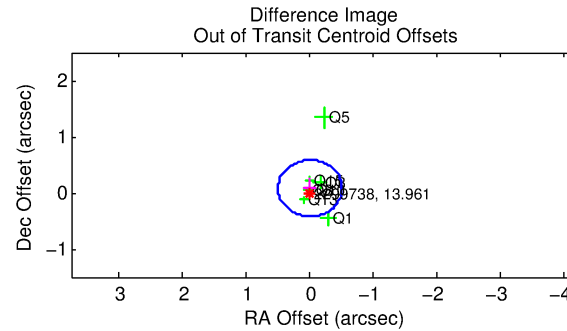
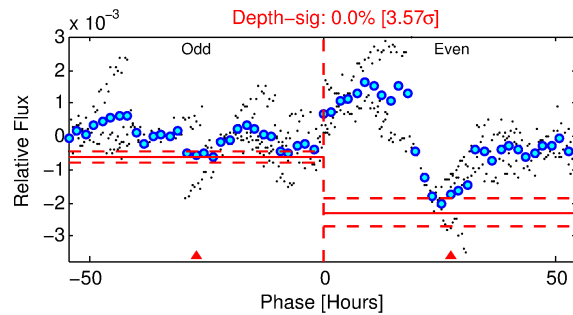
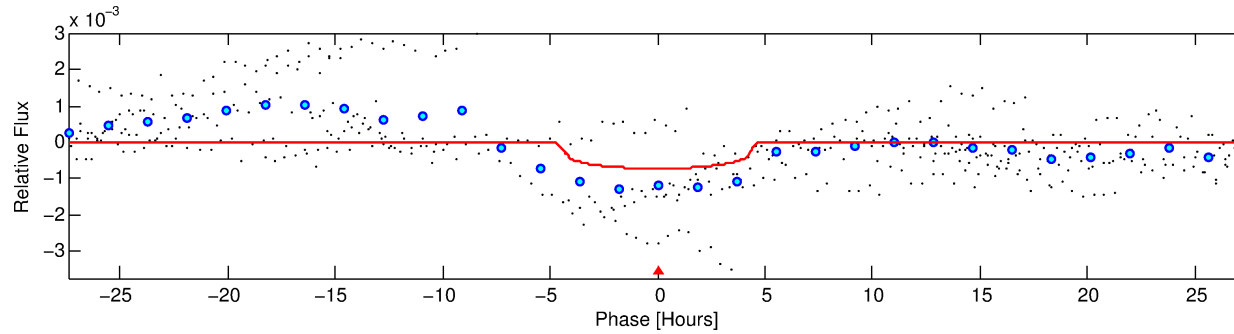
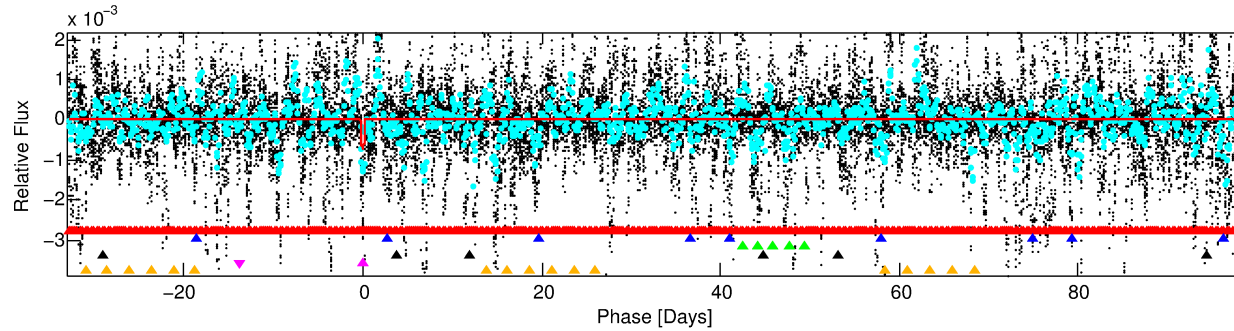
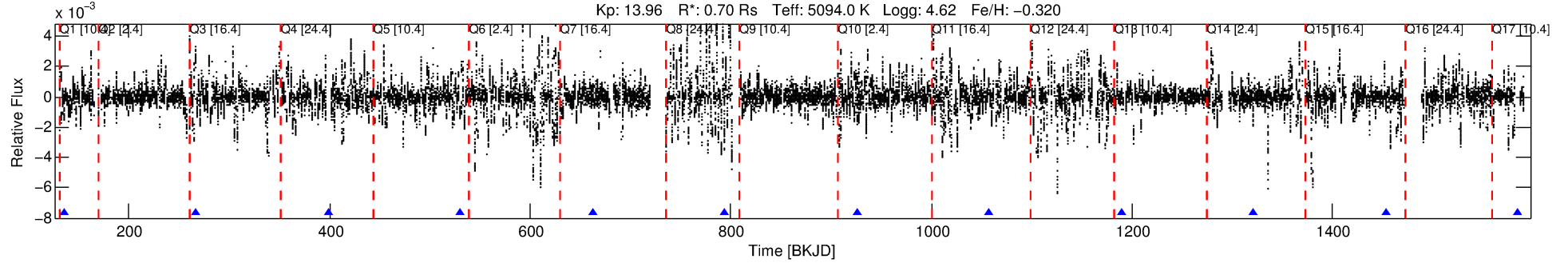
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002299738-05

No Significant Match Found

DV One-Page Summary

KIC: 2299738 Candidate: 5 of 6 Period: 131.806 d



DV Fit Results:

Period = 131.80552 [0.00223] d
Epoch = 134.9386 [0.0138] BKJD
Rp/R* = 0.0254 [0.0154]
a/R* = 92.58 [203.75]
b = 0.59 [2.47]
Seff = 1.40 [0.25]
Teq = 278 [12] K
Rp = 1.94 [1.20] Re
a = 0.4589 [0.0440] AU
Ag = 10942.54 [13954.05] [0.78 σ]
Teffp = 4389 [1398] K [2.94 σ]

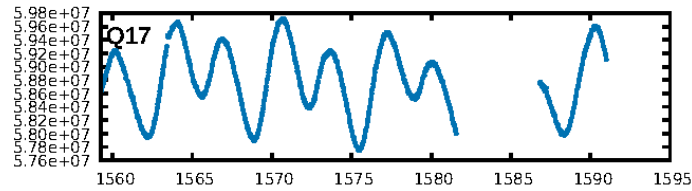
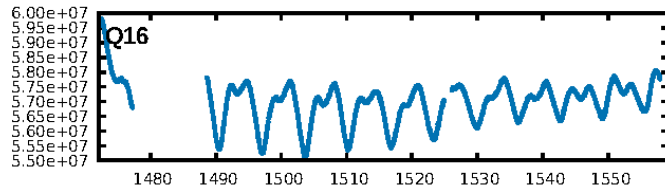
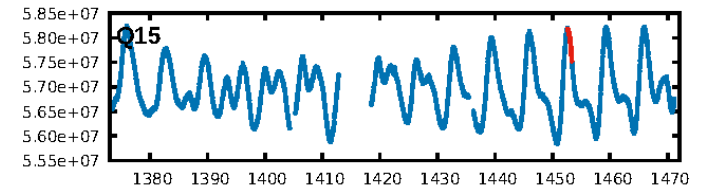
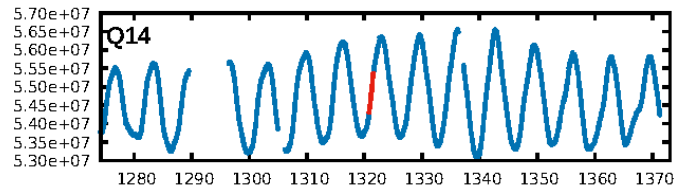
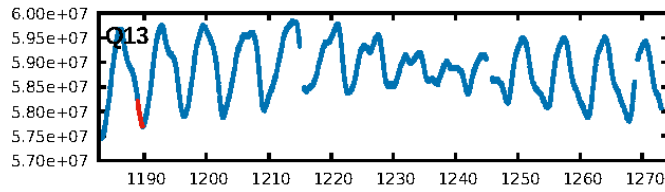
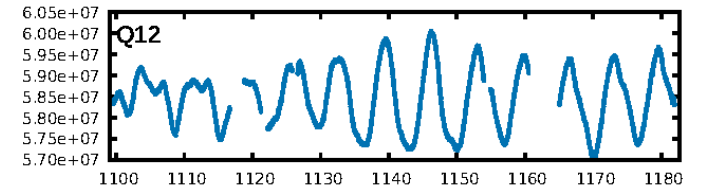
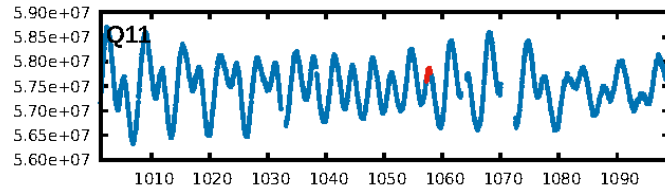
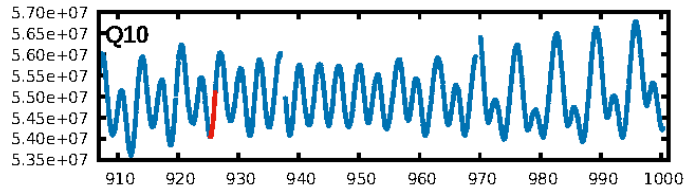
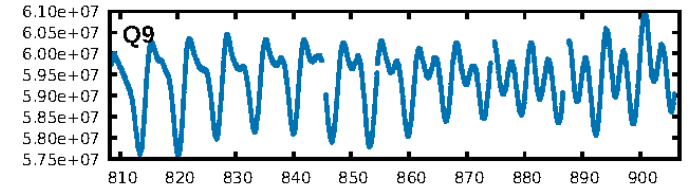
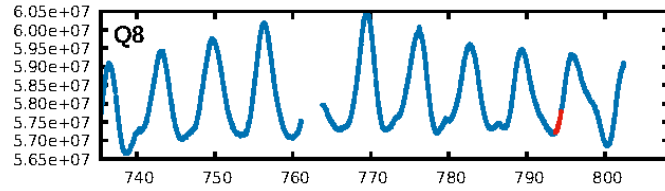
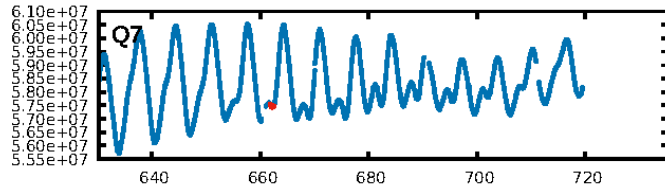
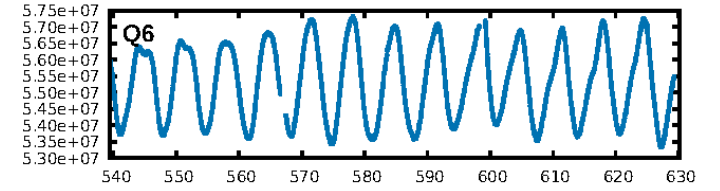
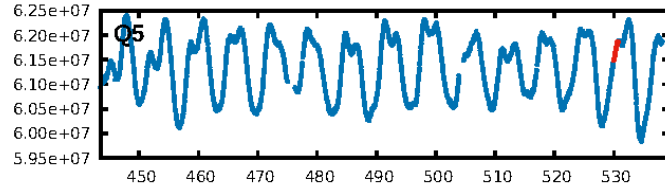
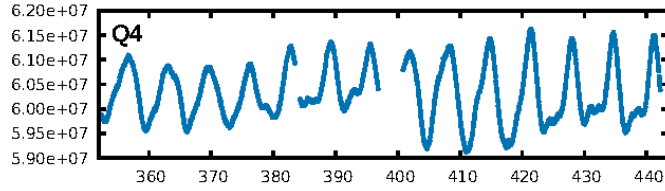
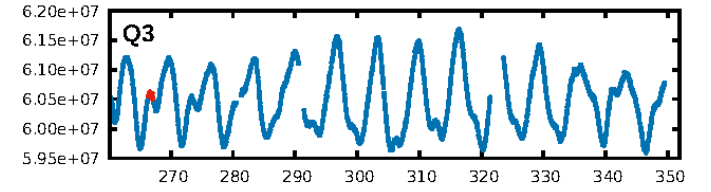
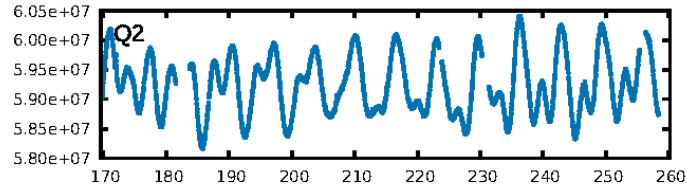
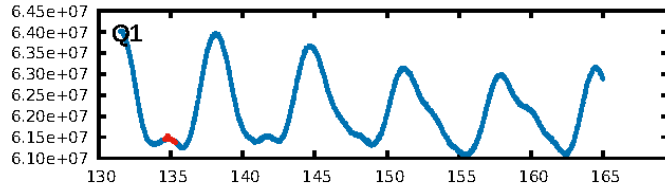
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [114.81 σ]
LongPeriod-sig: 100.0% [45.81 σ]
ModelChiSquare2-sig: 55.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.10e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.5212
Centroid-sig: 15.8%
Centroid-so: 0.389 arcsec [0.74 σ]
OotOffset-rm: 0.078 arcsec [0.47 σ]
OotOffset-st: 1/3/1/3 [8]
KicOffset-rm: 0.154 arcsec [0.70 σ]
KicOffset-st: 1/3/1/3 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.00 [0/9]

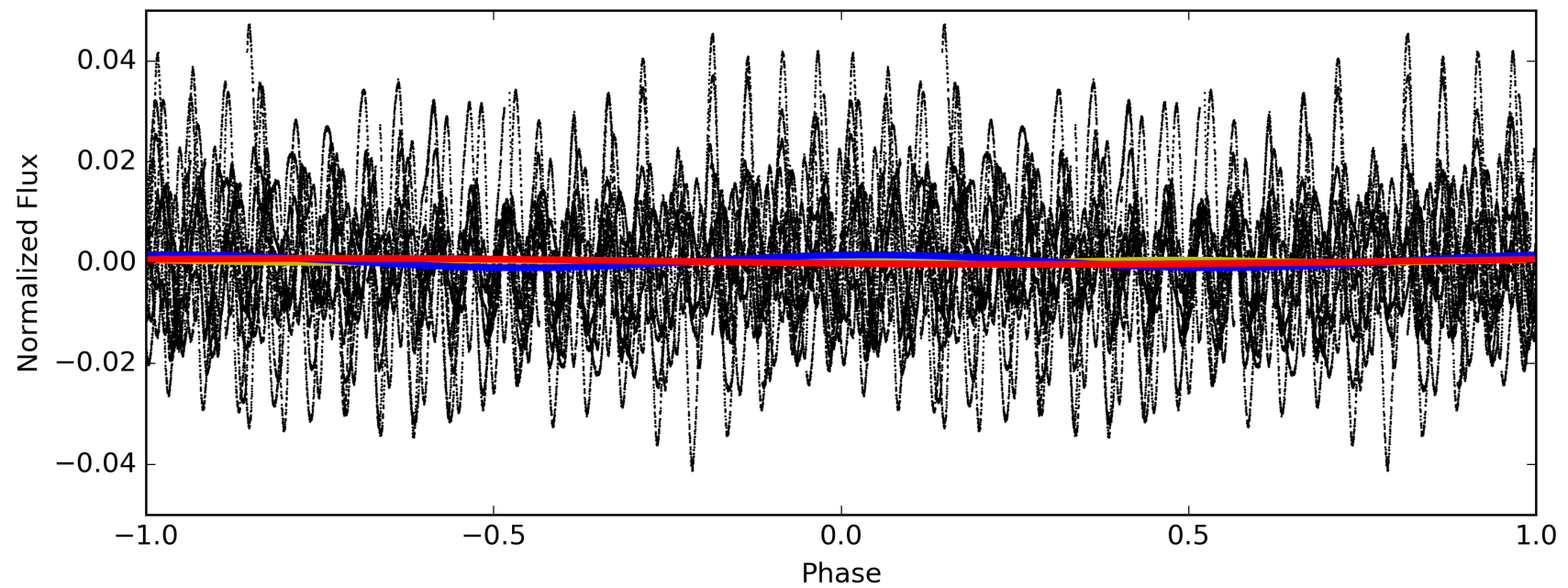
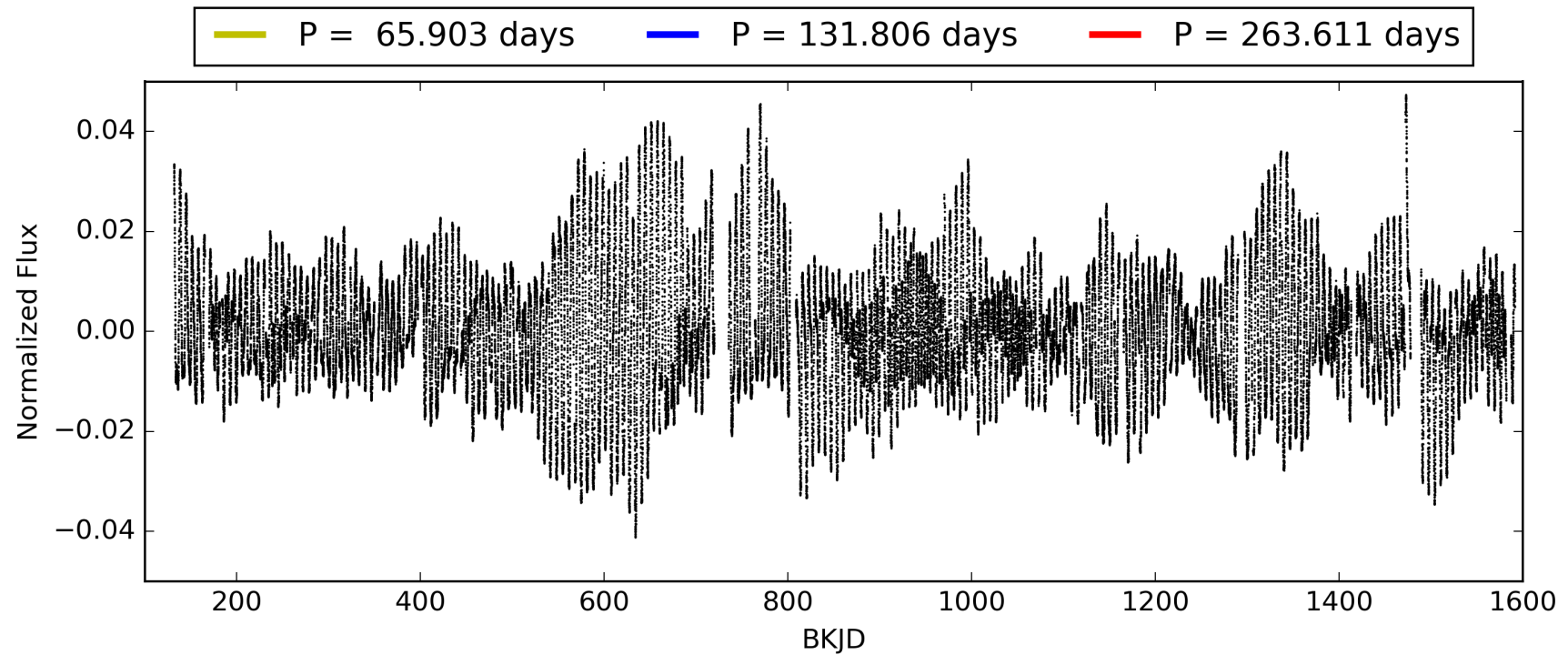
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:31 Z

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

TCE 002299738-05, PDC Light Curves

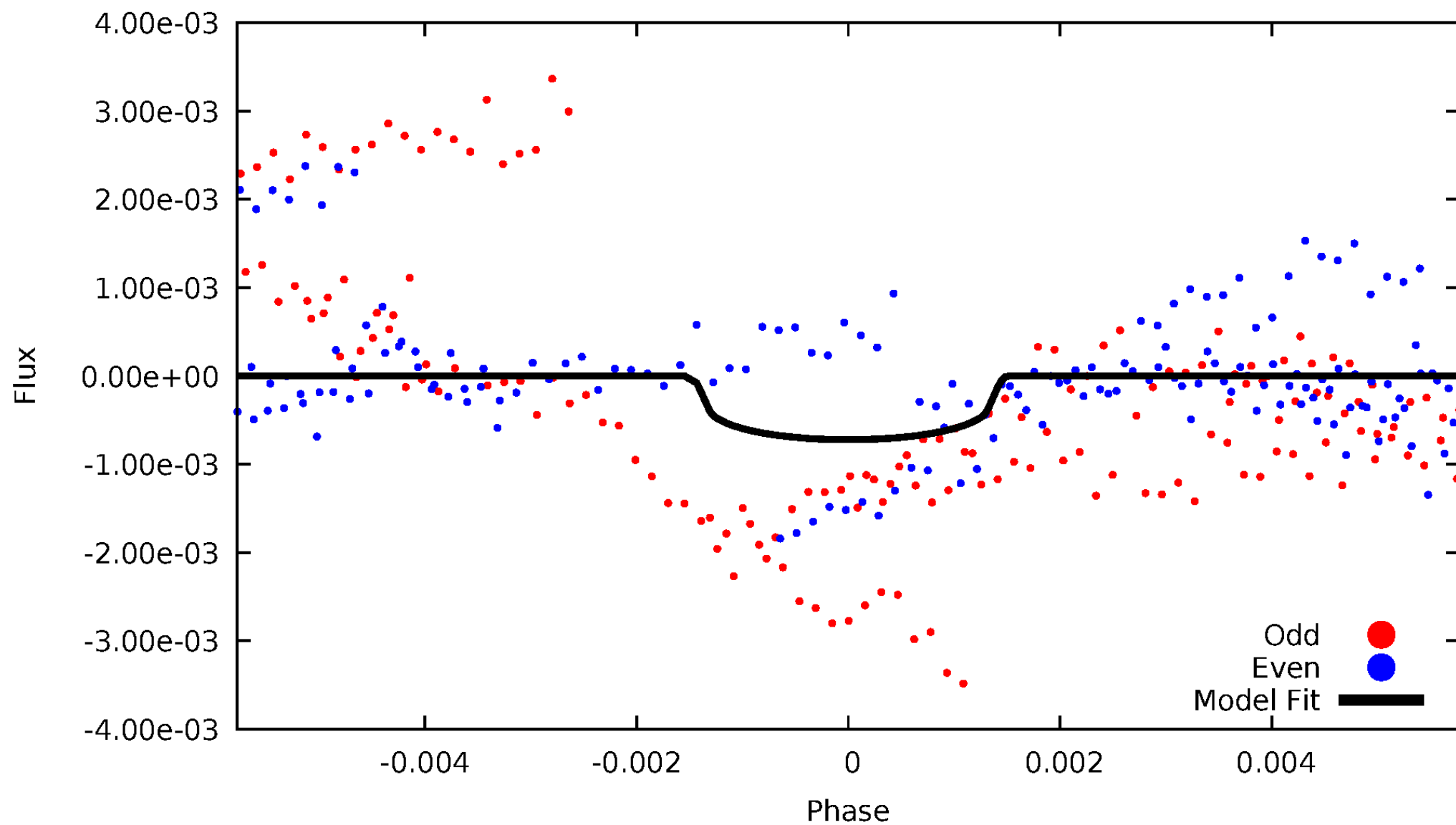


TCE 002299738-05



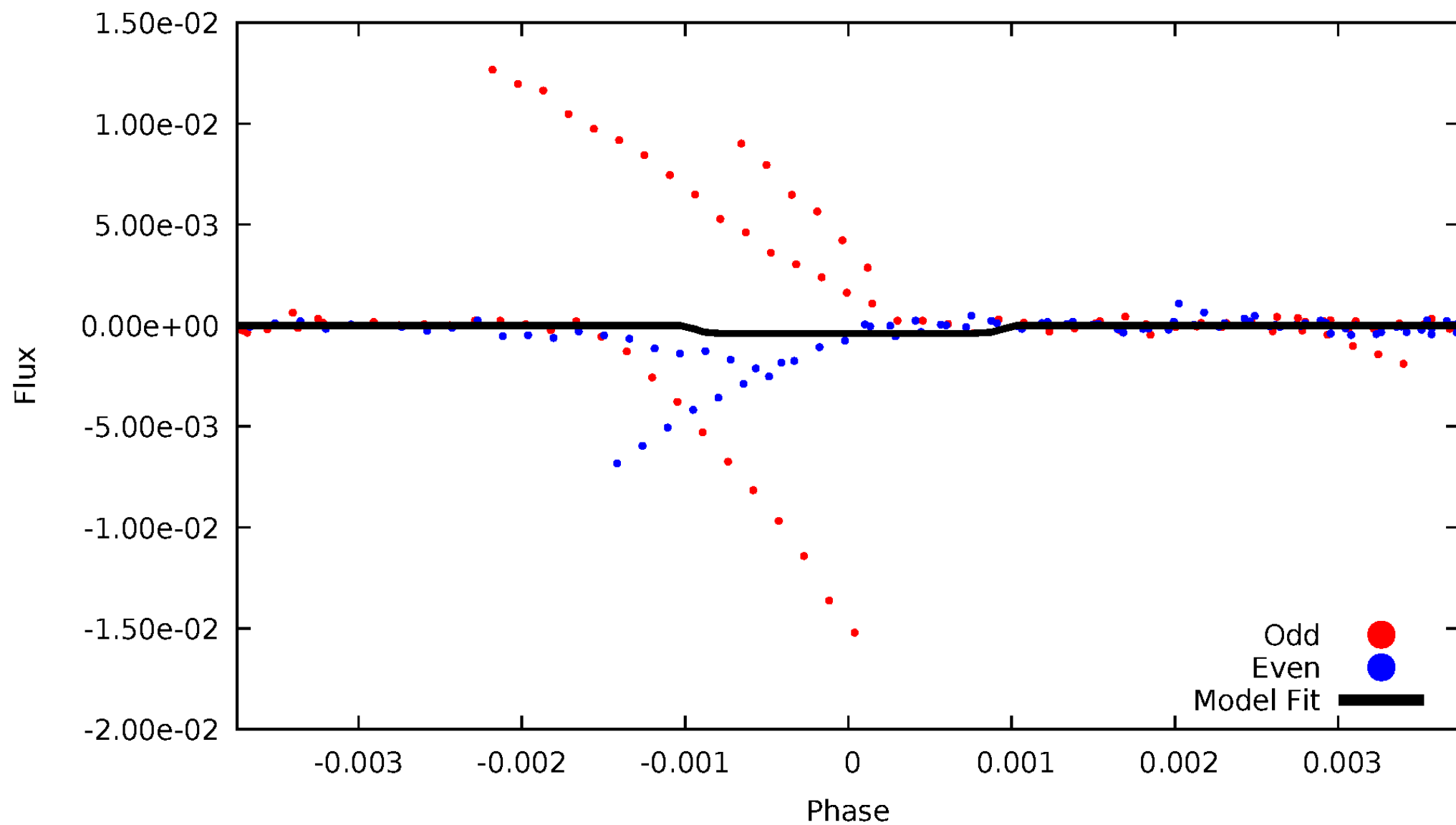
DV Odd/Even

TCE 002299738-05



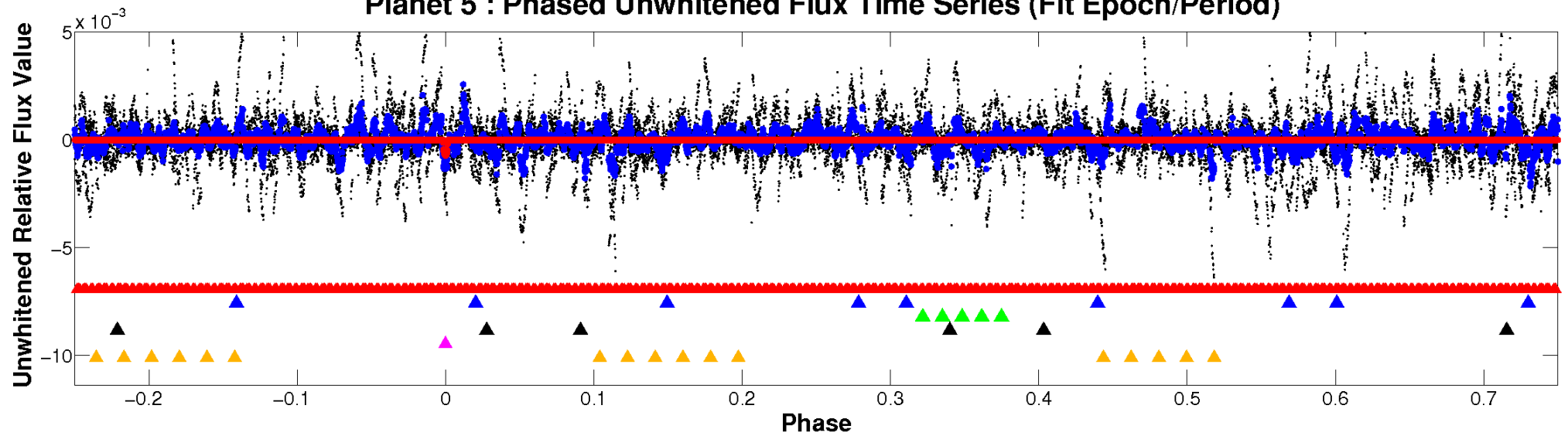
ALT Odd/Even

TCE 002299738-05

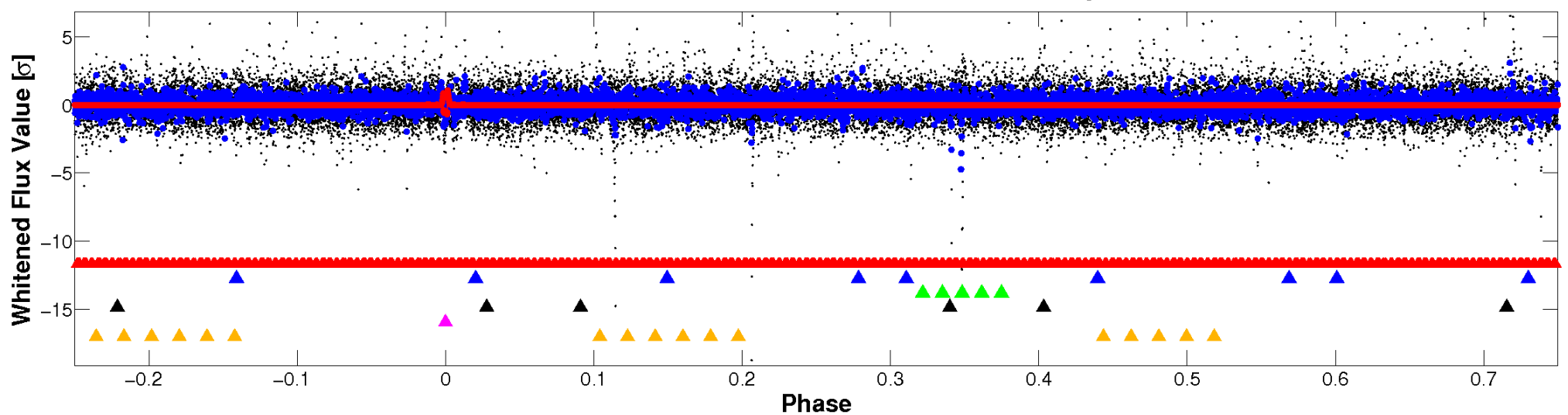


Non-Whitened Vs. Whitened Light Curve

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

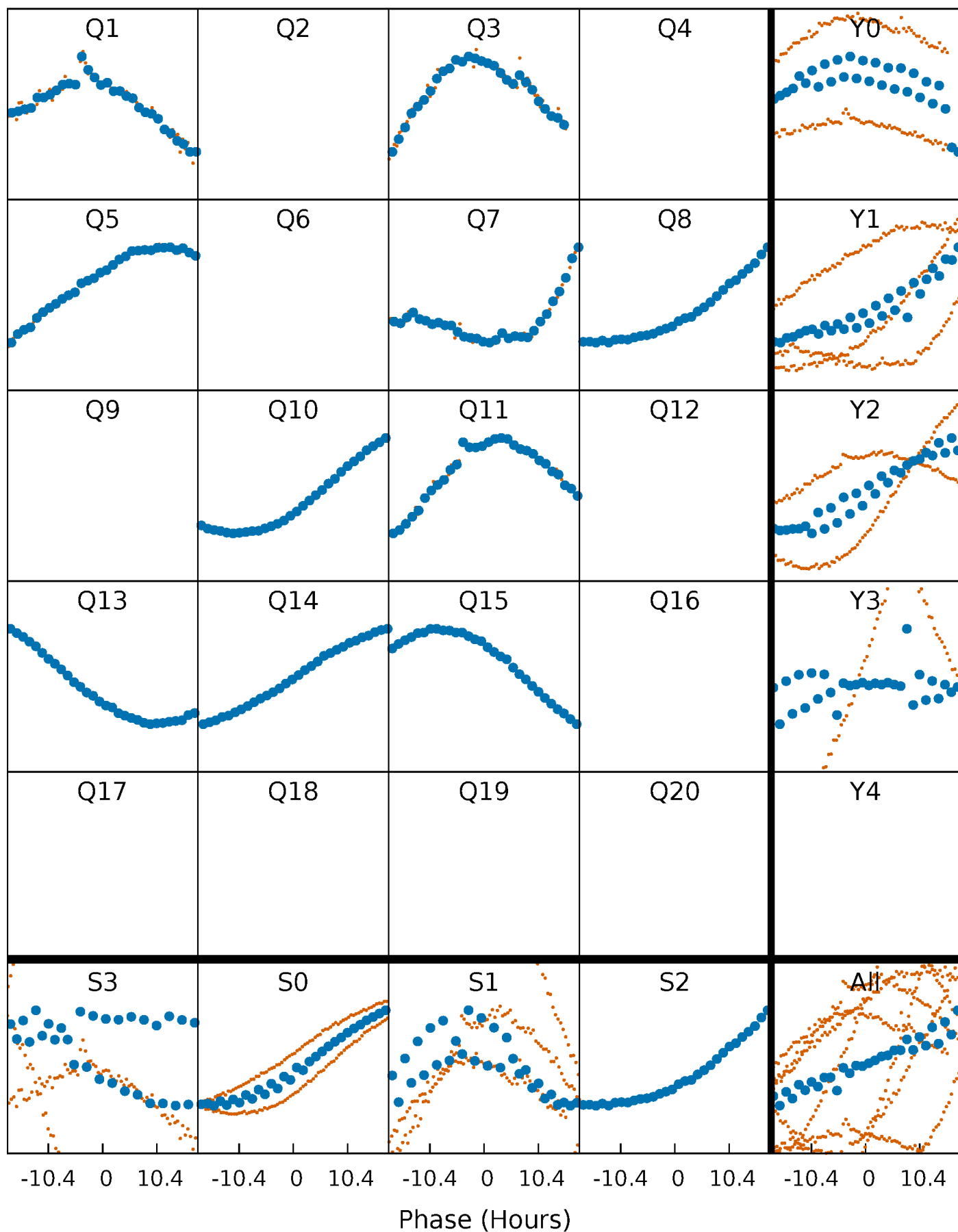


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



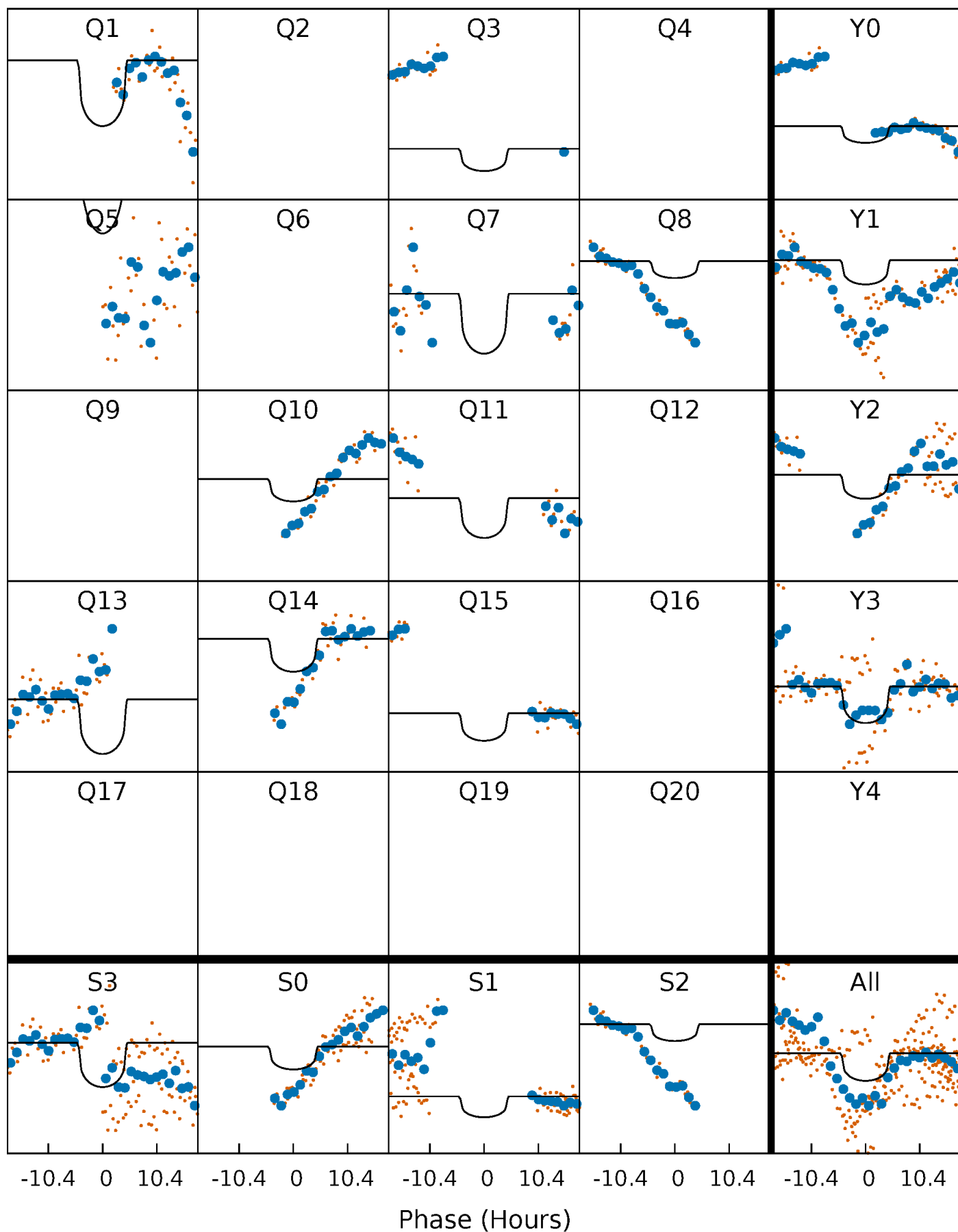
PDC Quarter-Phased Transit Curves

TCE 002299738-05 $P=131.805518$ Days $T_0=134.938561$ (BKJD)



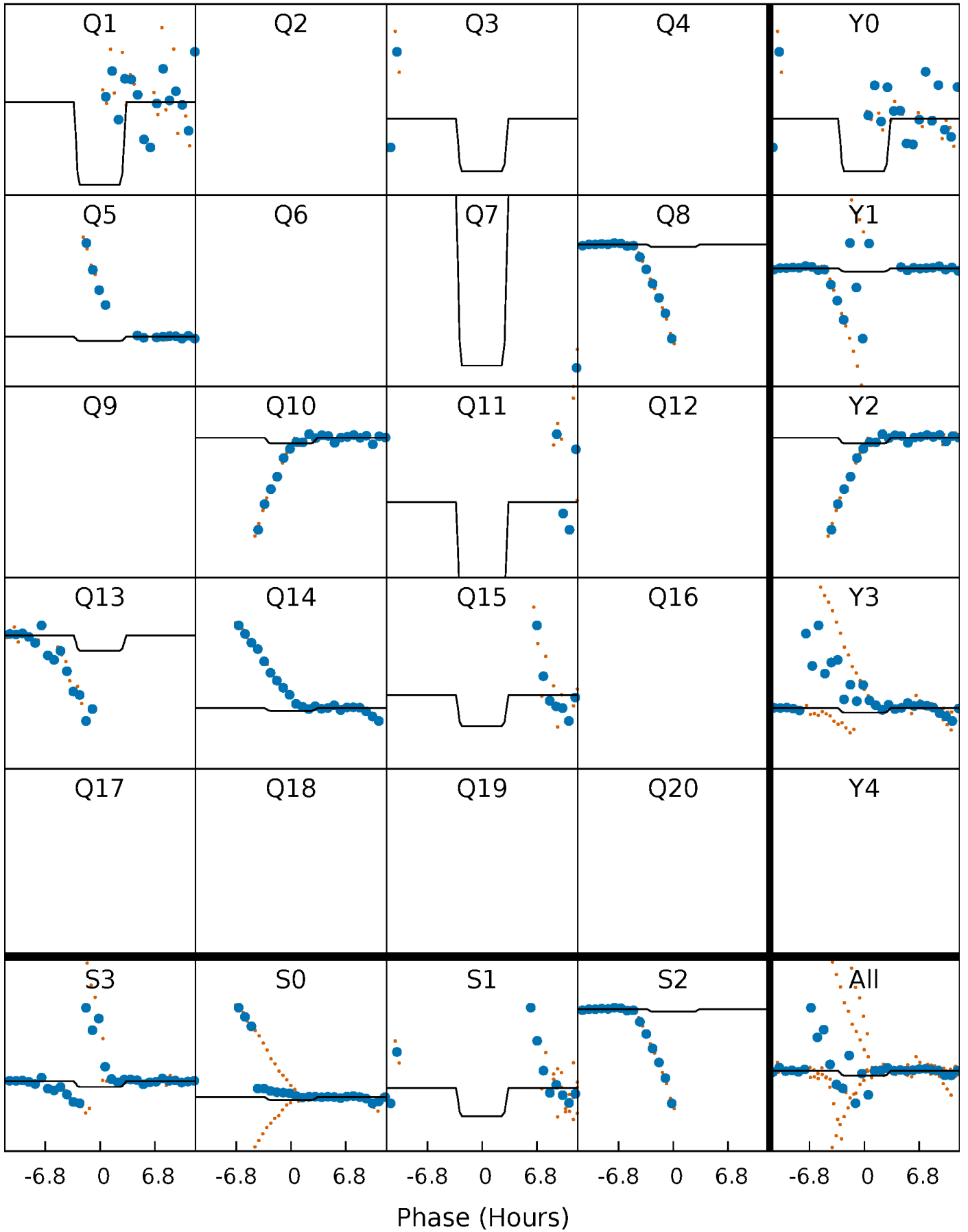
DV Quarter-Phased Transit Curves

TCE 002299738-05 $P=131.805518$ Days $T_0=134.938561$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

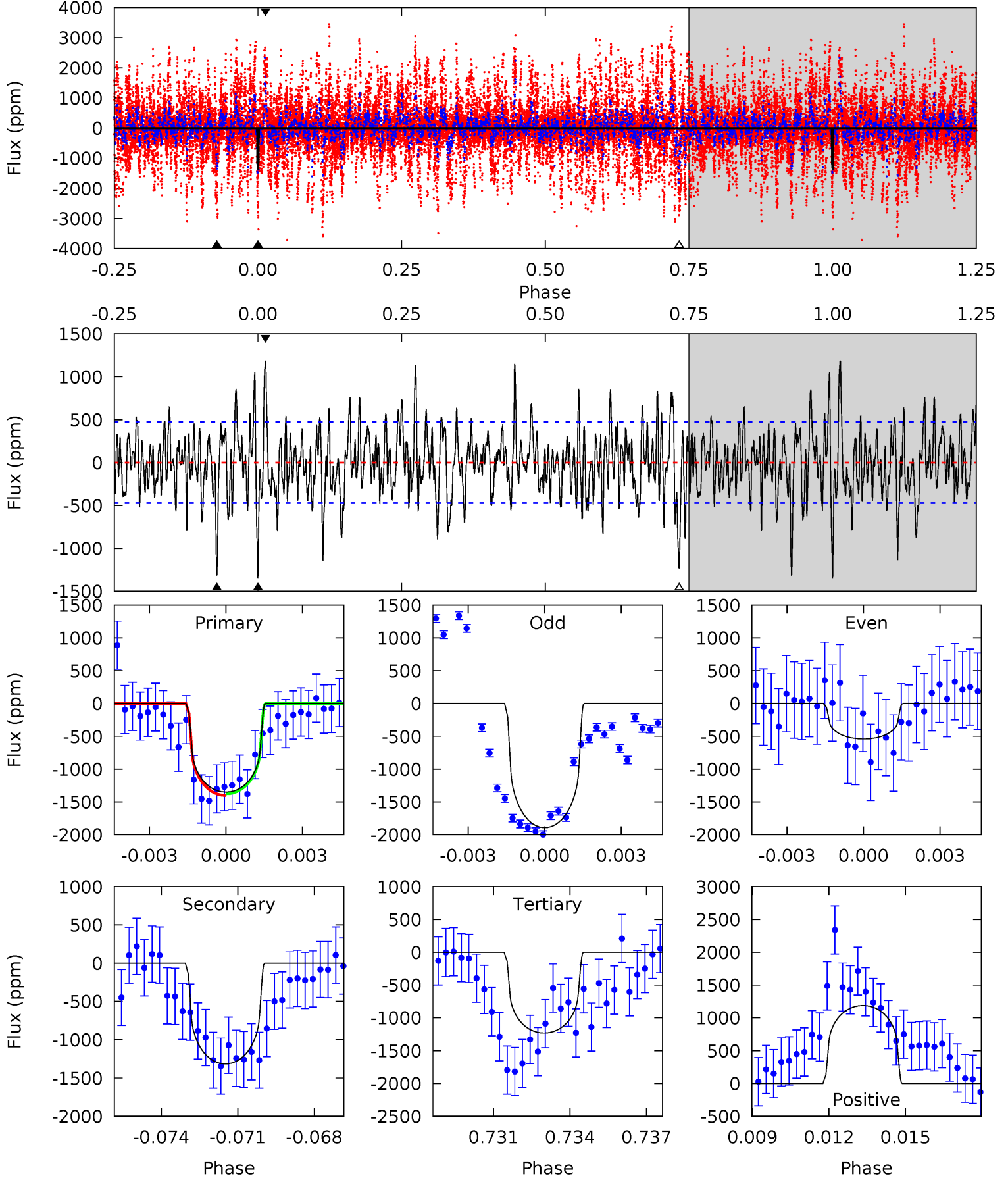
TCE 002299738-05 $P=131.809901$ Days $T_0=135.014088$ (BKJD)



DV Model-Shift Uniqueness Test

002299738-05, P = 131.805518 Days, E = 3.133043 Days

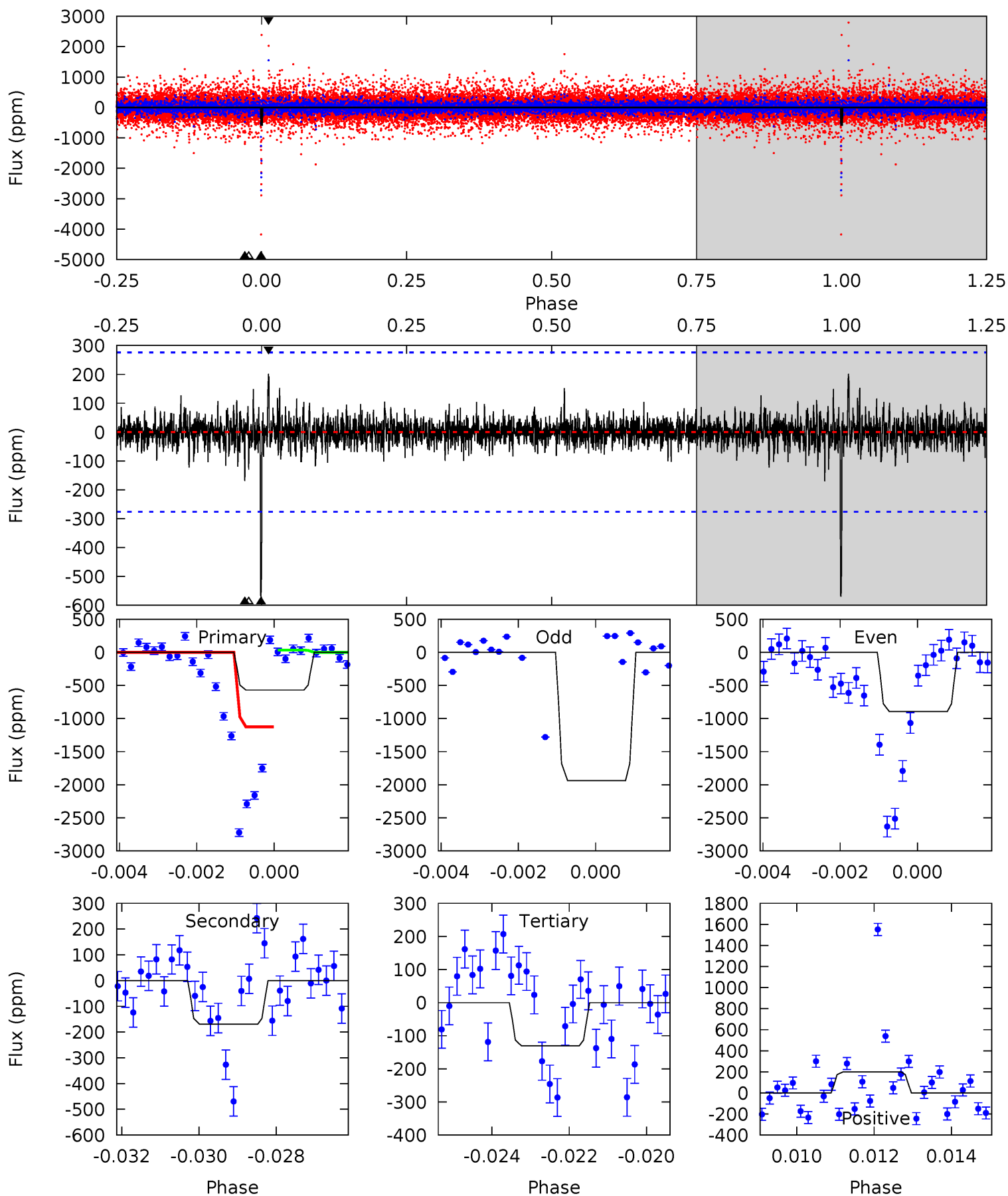
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	14.6	13.7	13.2	5.26	2.97	3.70	1.32	1.81	0.93	1.42	6.60	0.85	0.47	0.13



Alt Model-Shift Uniqueness Test

002299738-05, P = 131.809901 Days, E = 3.204187 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	3.28	2.51	3.87	5.33	3.09	0.64	8.49	7.13	0.76	-0.59	9.09	1.47	0.26	10.4



Stellar Parameters For KIC 002299738

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5094^{+151}_{-136}	$4.618^{+0.040}_{-0.065}$	$-0.320^{+0.300}_{-0.300}$	$0.700^{+0.086}_{-0.058}$	$0.743^{+0.078}_{-0.071}$	$3.051^{+0.555}_{-0.726}$
	+3%/-3%	+1%/-1%	+94%/-94%	+12%/-8%	+10%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 002299738-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1315 ± 90	$2.02^{+1.29}_{-1.07}$	390^{+15}_{-14}	5894^{+3236}_{-1138}	$37145^{+134123}_{-23286}$
Alt.	-170 ± 52	$1.62^{+1.24}_{-0.92}$	390^{+15}_{-14}	4157^{+1833}_{-740}	7099^{+33006}_{-4836}

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 $A_{obs} \gg 1.0$

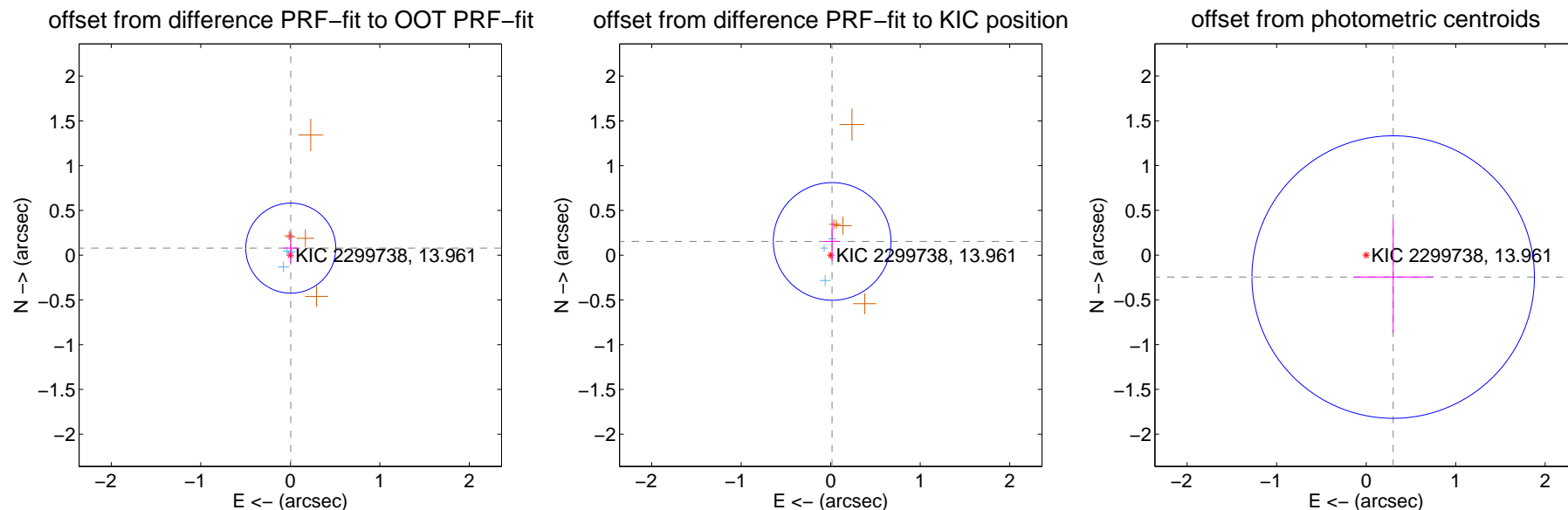
DV Centroid Data

Supplemental centroid analysis for 002299738-05. Kepler magnitude: 13.96. Transit SNR 6.42

There are 3 quarters with good PRF difference image offsets

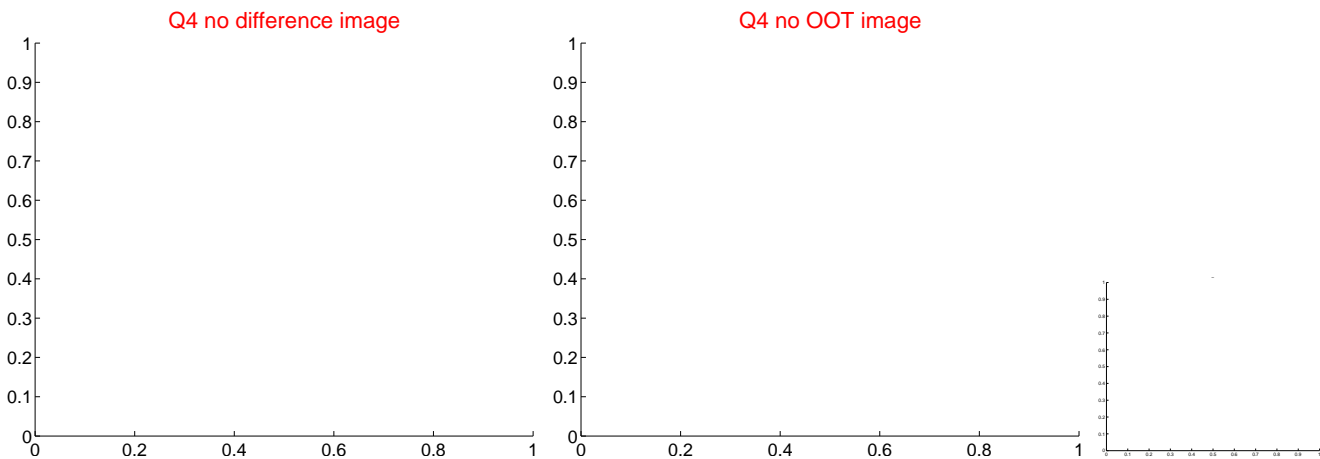
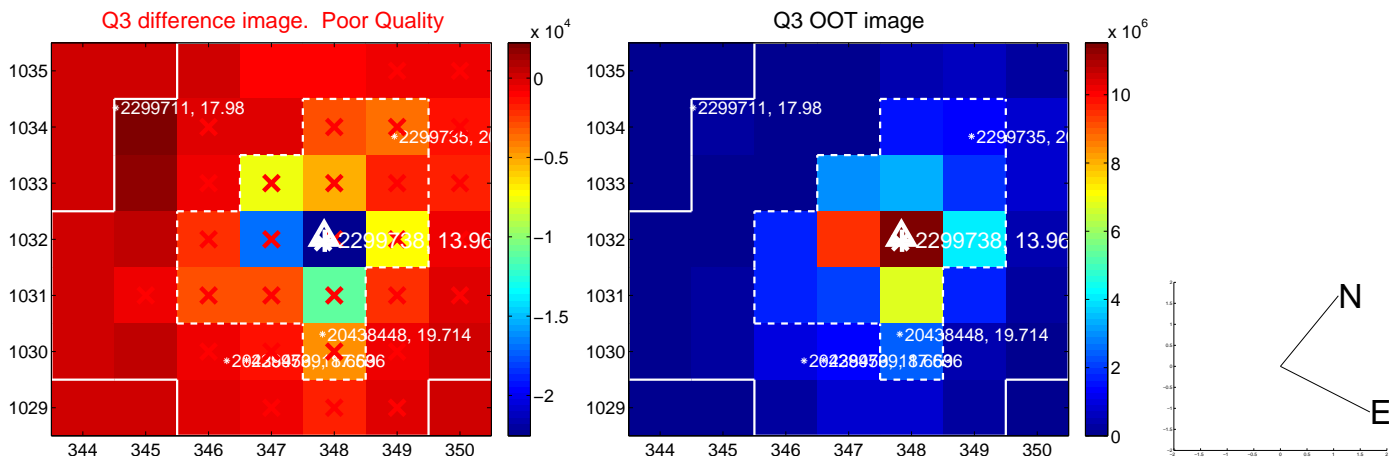
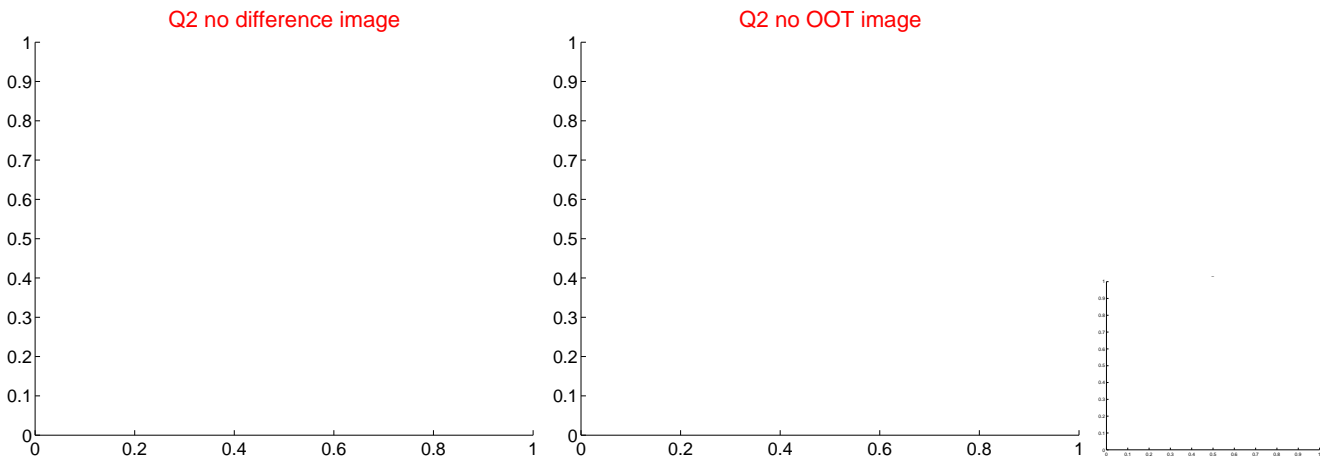
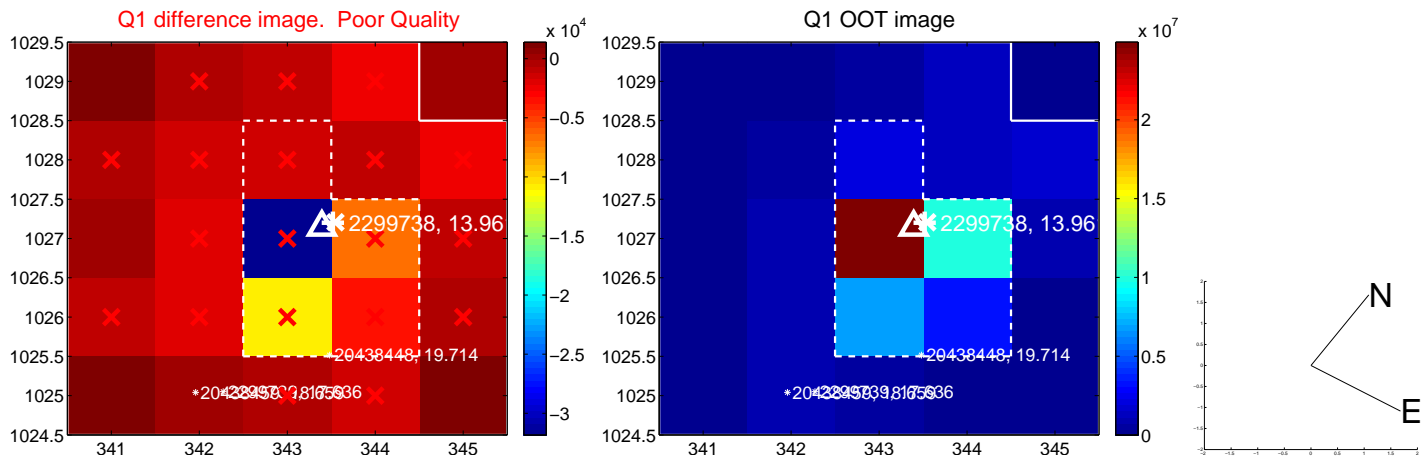
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.078 ± 0.168	0.47	-0.006 ± 0.081	0.078 ± 0.167
PRF-fit source offset from KIC position	0.154 ± 0.219	0.70	-0.016 ± 0.086	0.153 ± 0.220
photometric centroid source offset	0.39 ± 0.53	0.74	-0.30 ± 0.45	-0.25 ± 0.62

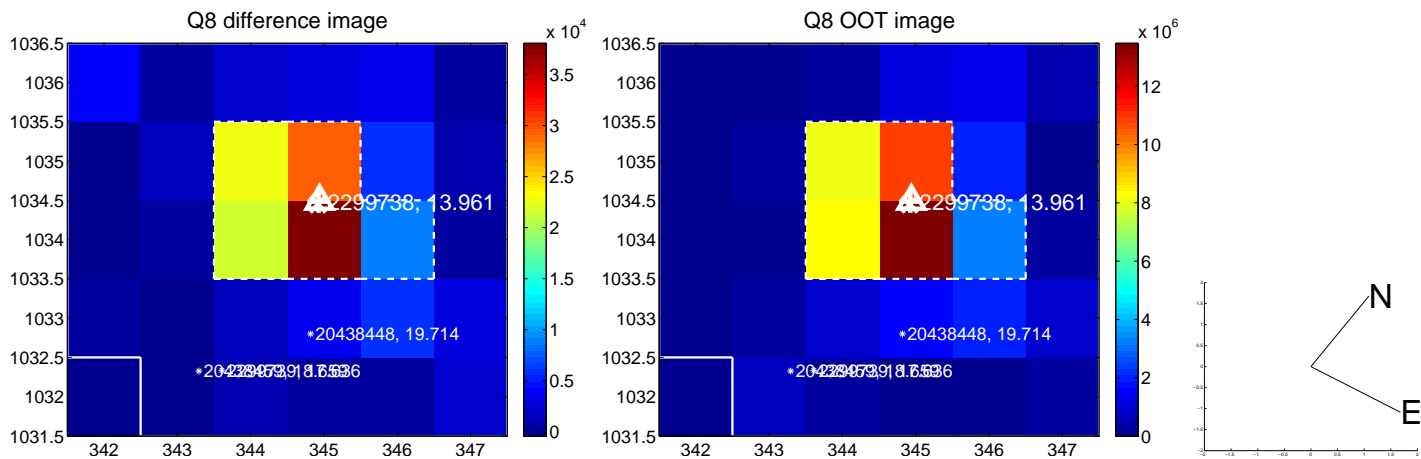
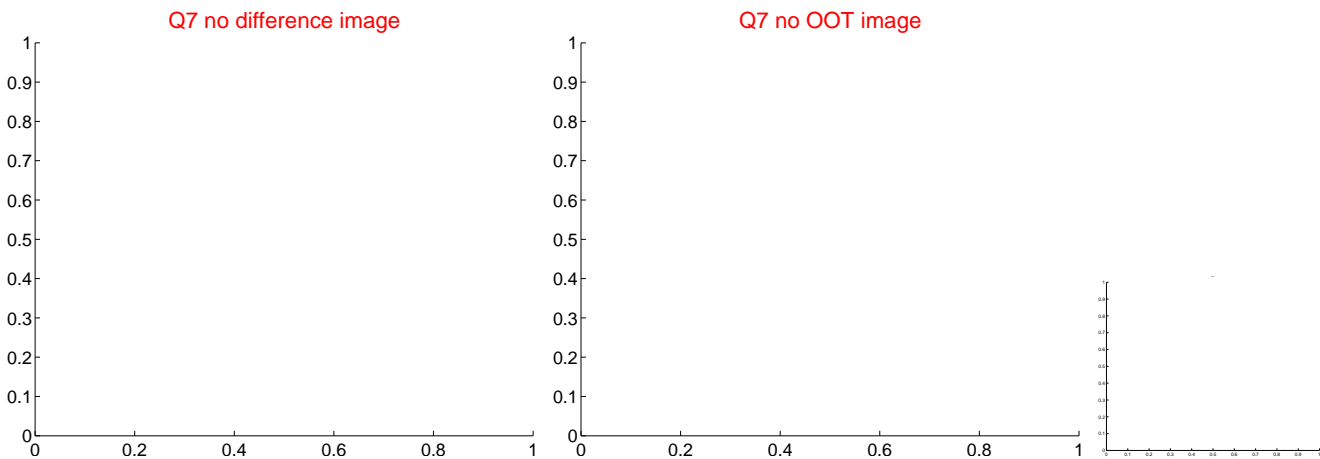
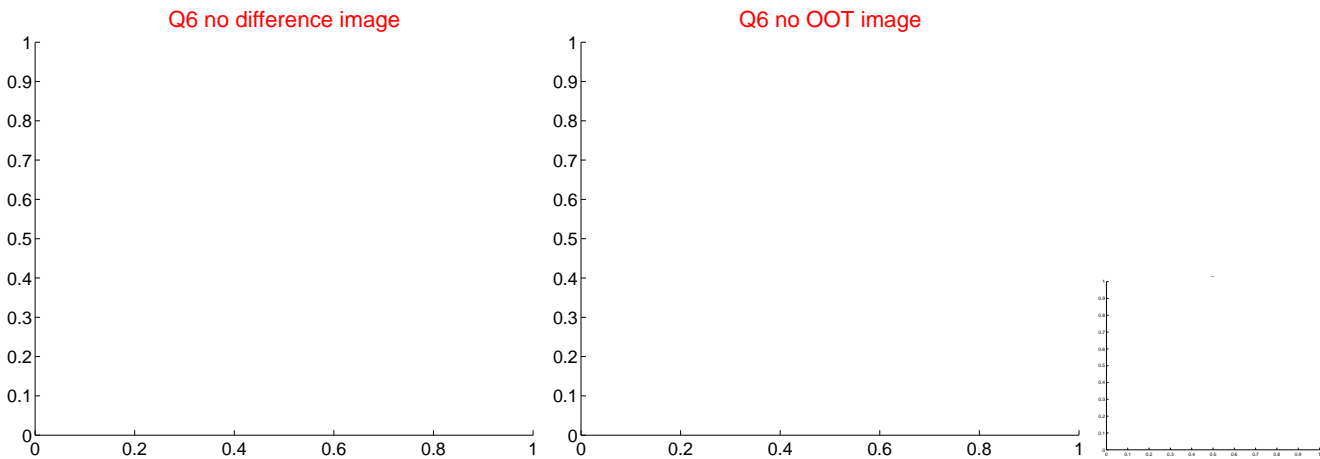
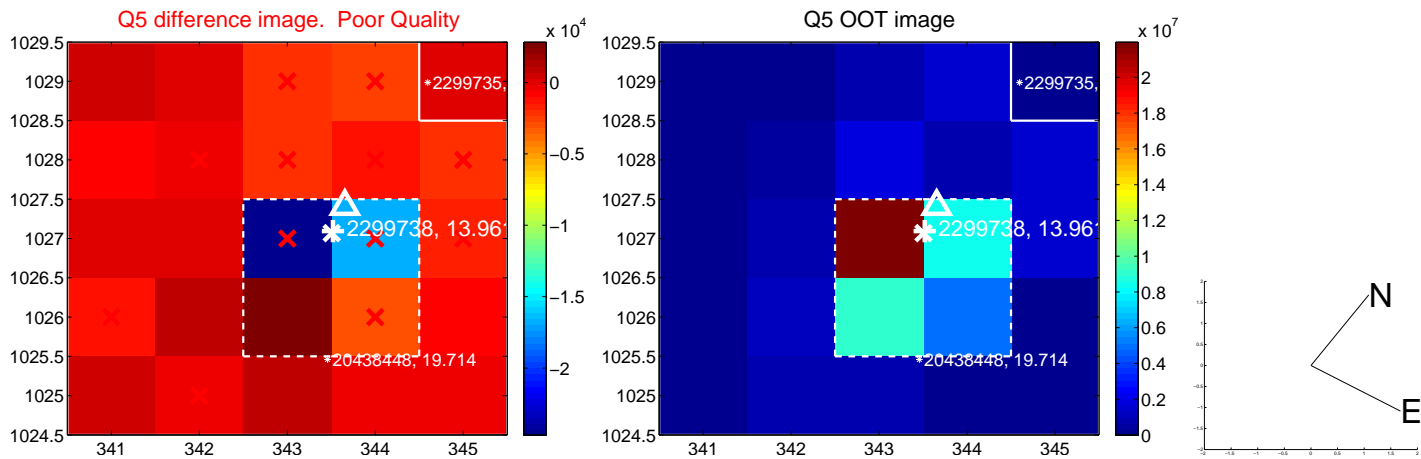


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

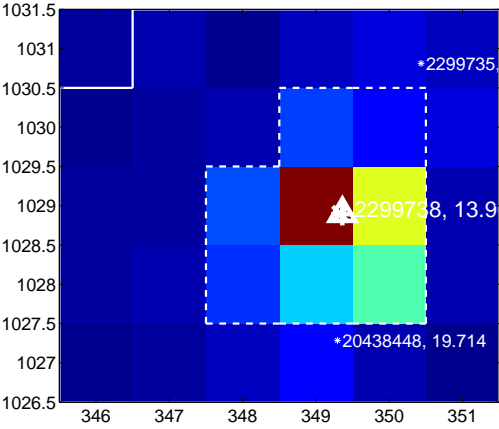
Q9 no difference image



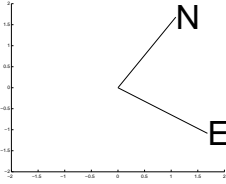
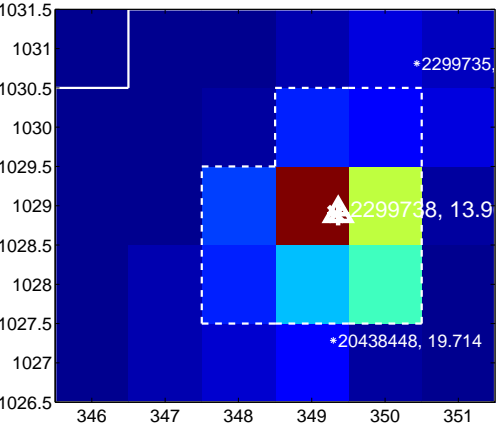
Q9 no OOT image



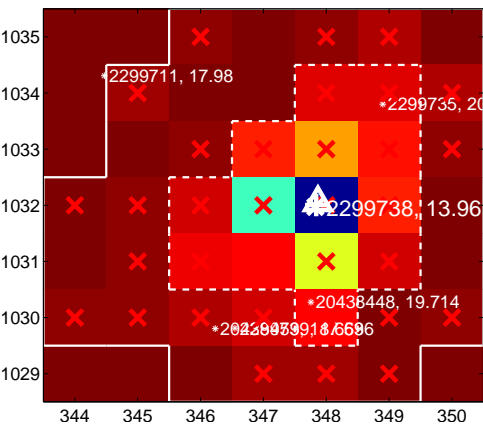
Q10 difference image



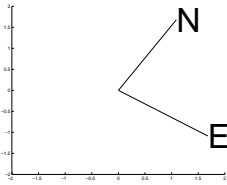
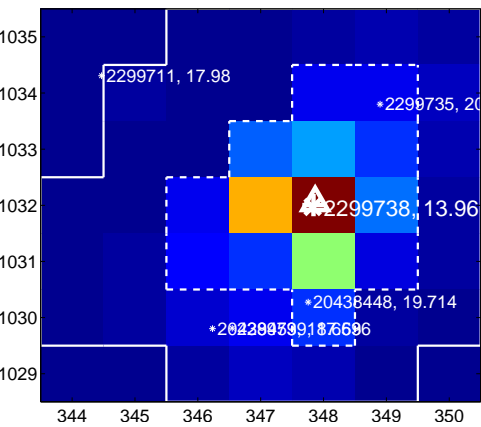
Q10 OOT image



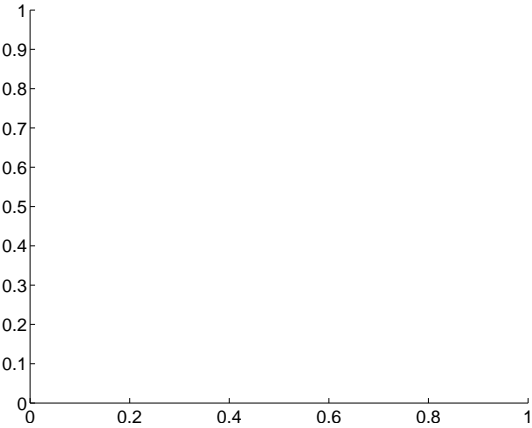
Q11 difference image. Poor Quality



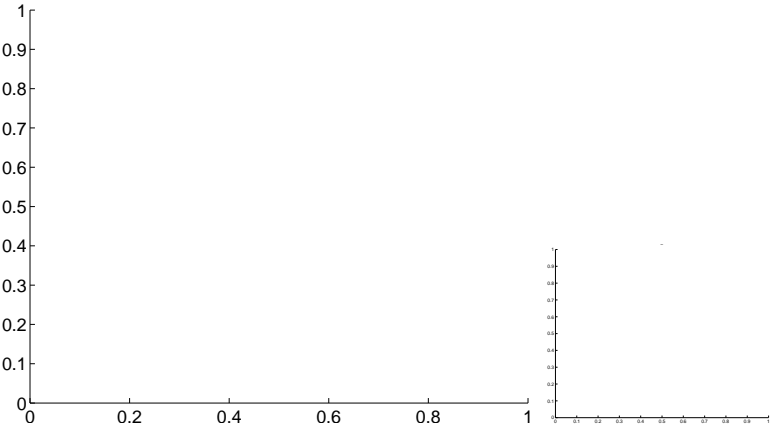
Q11 OOT image



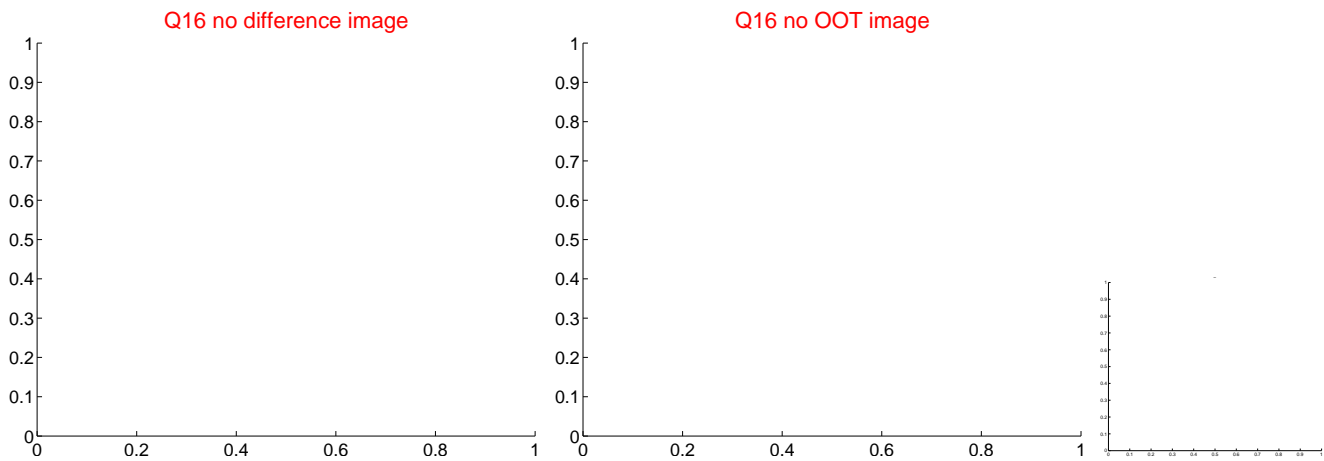
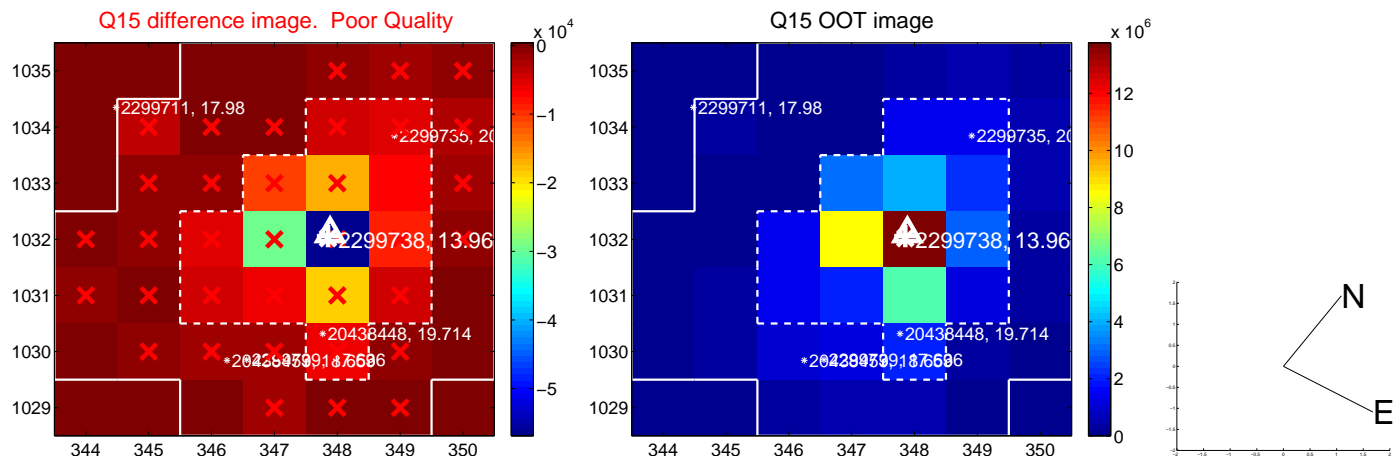
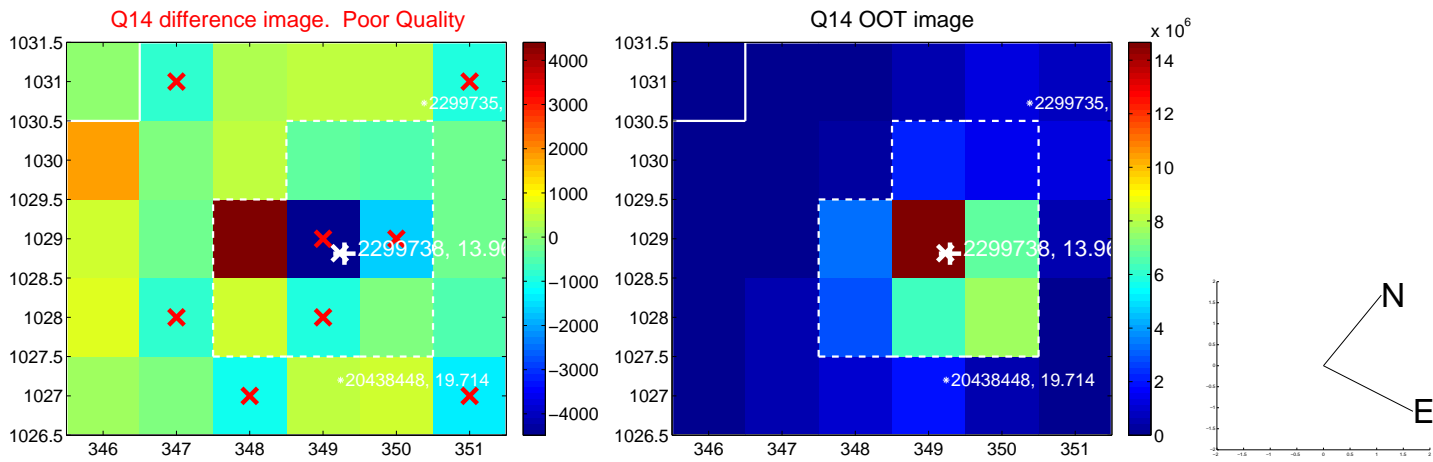
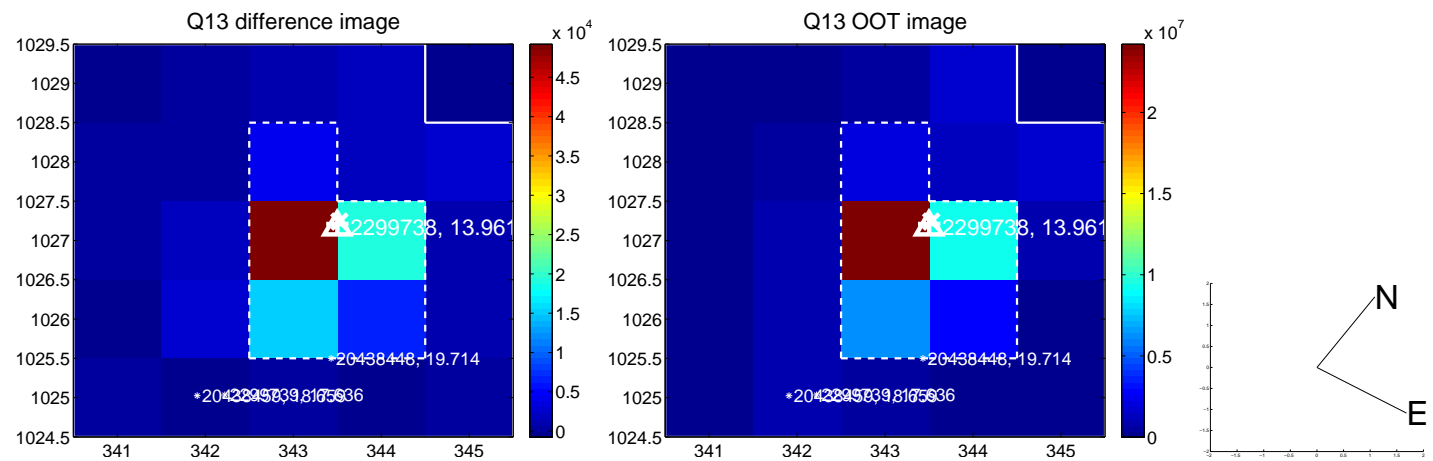
Q12 no difference image



Q12 no OOT image



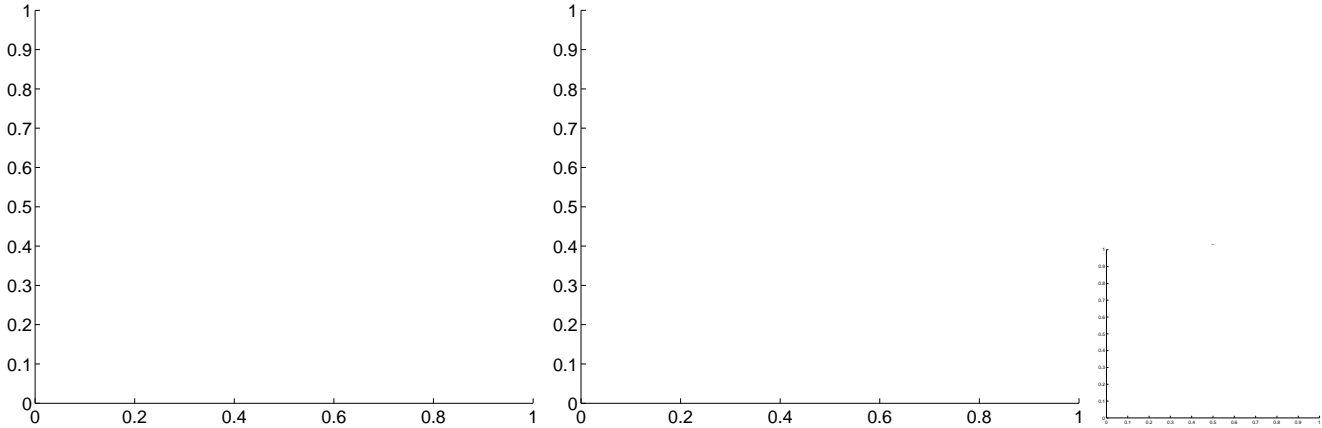
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



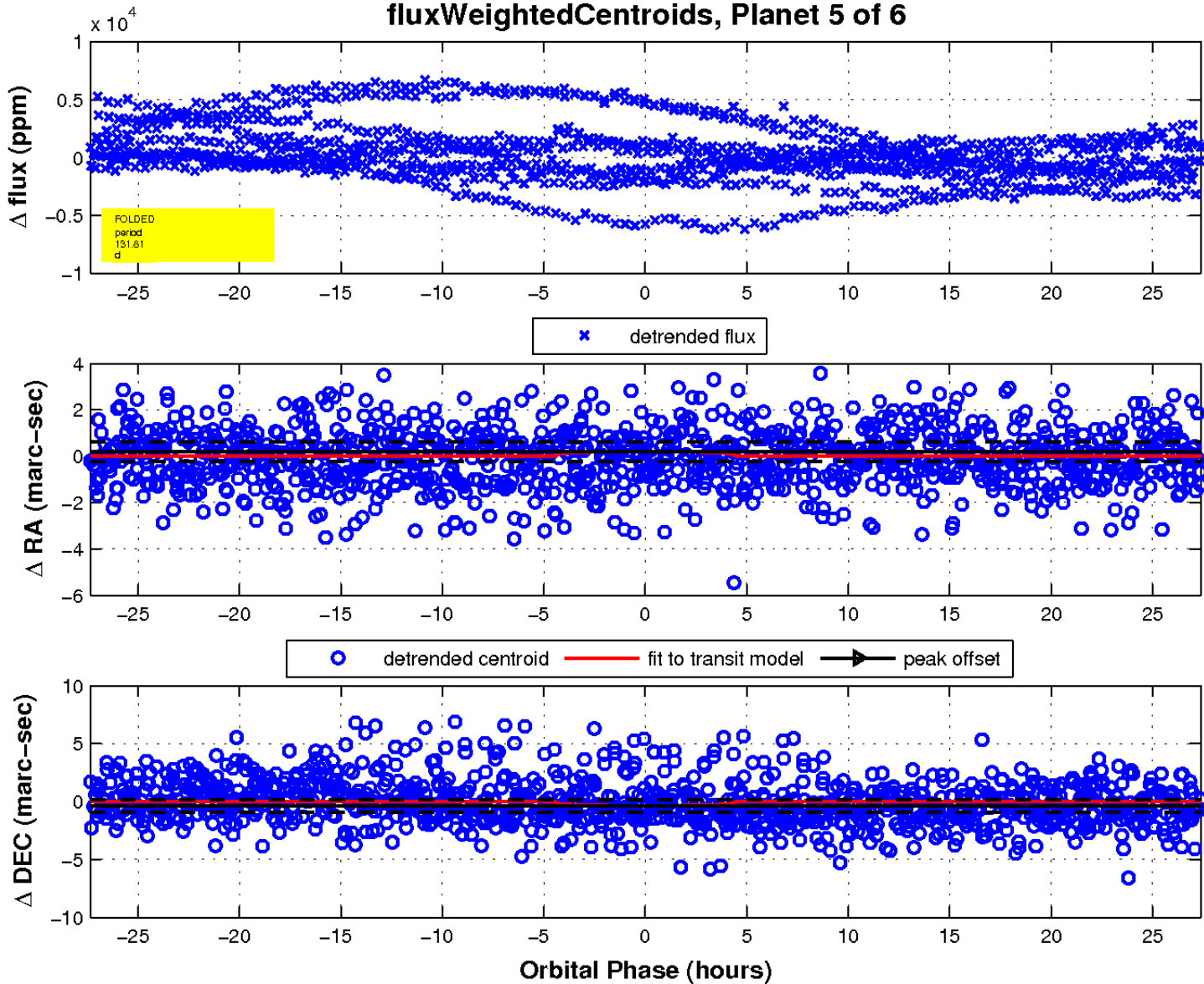
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

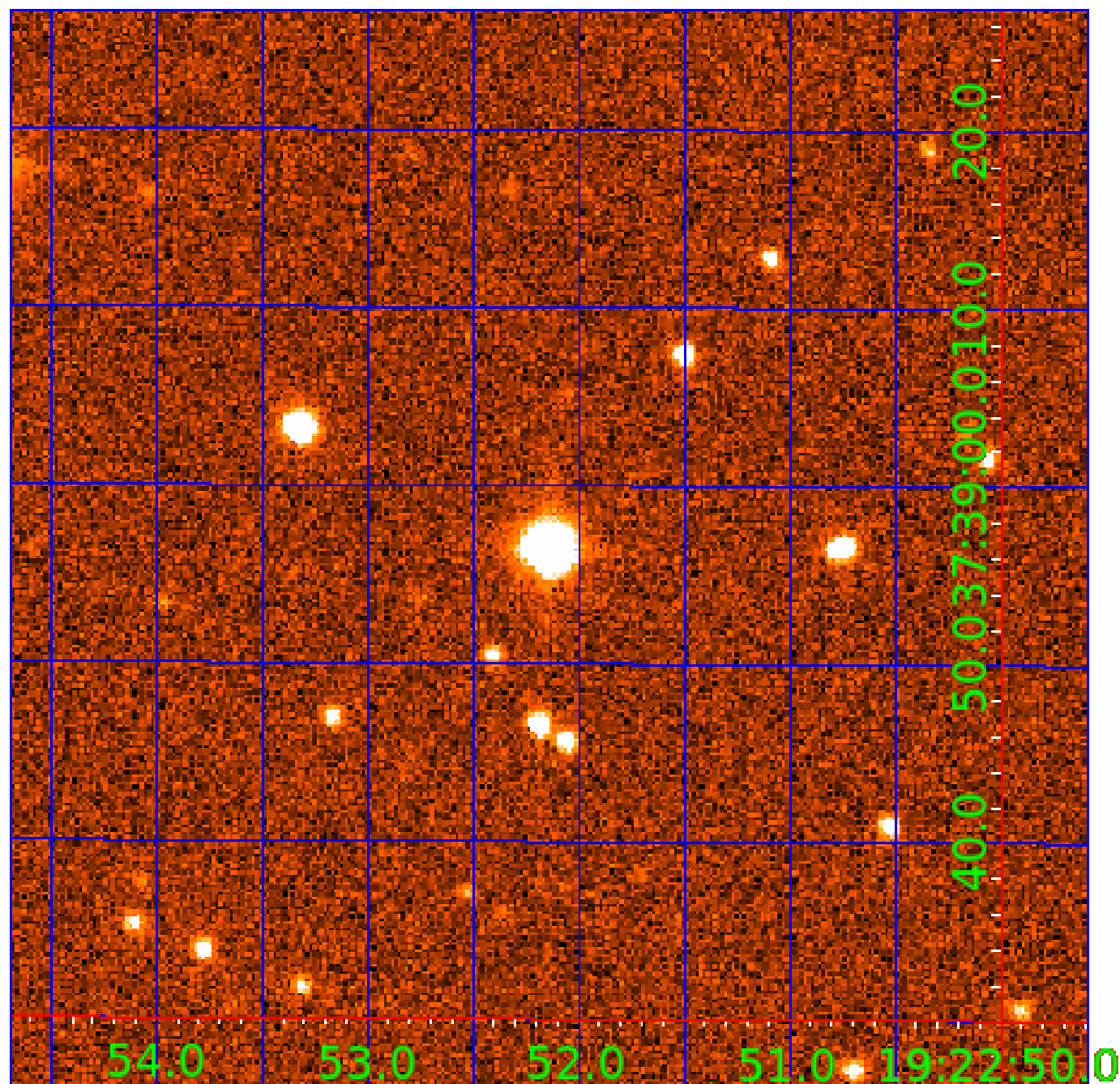


fluxWeightedCentroids, Planet 5 of 6



UKIRT Image

Declination



KIC 002299738

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})
002299738-01	OBS	7628.01	1.813427	132.709451	61.6	7.712	8.6	8.0	0.70	5094	0.66	425.79
002299738-02	OBS	No	170.070119	171.645443	1196.1	17.845	15.3	7.3	0.70	5094	2.83	1.00
002299738-03	OBS	No	265.359944	309.158225	808.3	5.899	13.1	5.8	0.70	5094	2.13	0.55
002299738-04	OBS	No	222.455558	311.562691	601.7	4.668	11.3	5.2	0.70	5094	1.90	0.70
002299738-05	OBS	No	131.805518	134.938561	721.8	9.135	9.3	6.4	0.70	5094	1.94	1.40
002299738-06	OBS	No	87.049996	160.962523	52.0	2.020	8.7	1.1	0.70	5094	0.57	2.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002299738-01	OBS	PC	0.90	0	0	0	0	NO_COMMENT
002299738-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
002299738-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_FEW_DIFFS
002299738-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES
002299738-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES
002299738-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

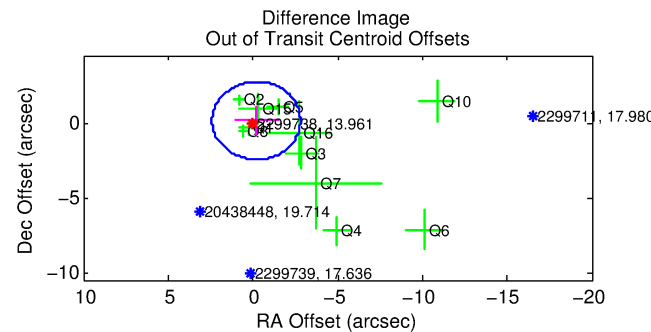
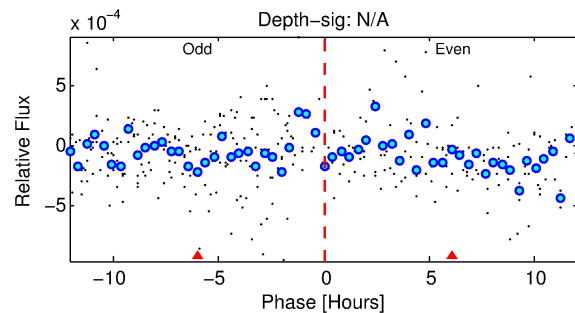
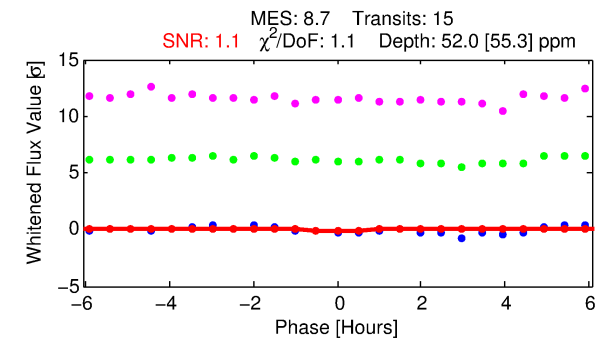
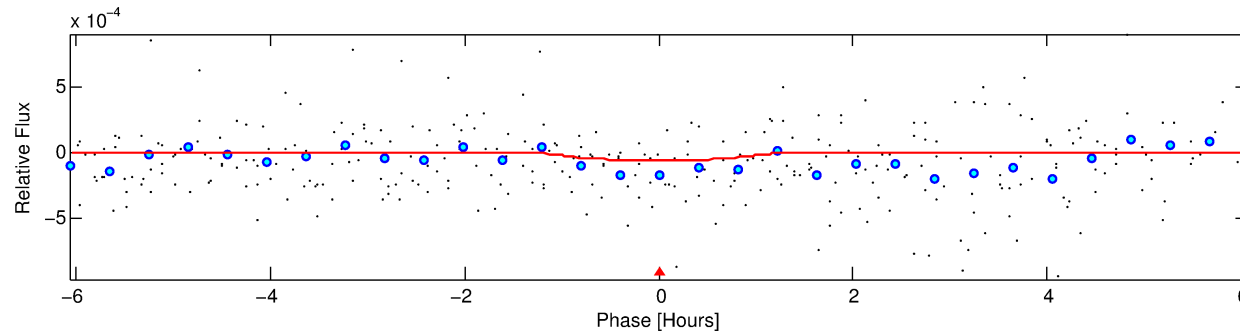
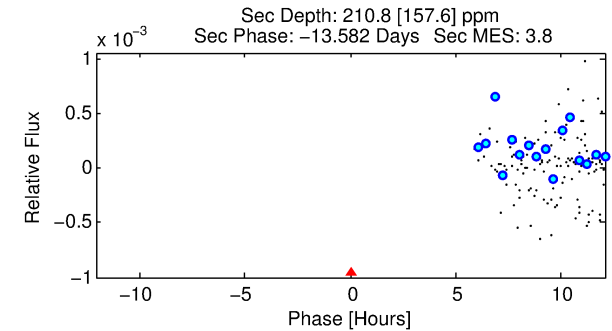
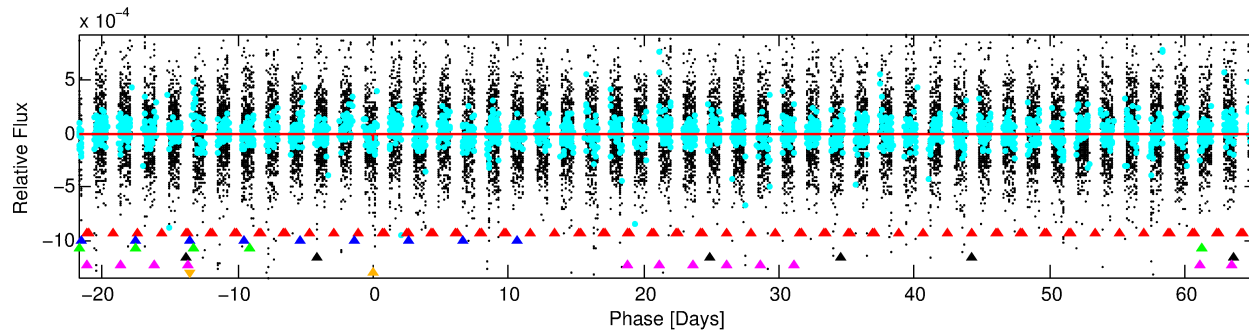
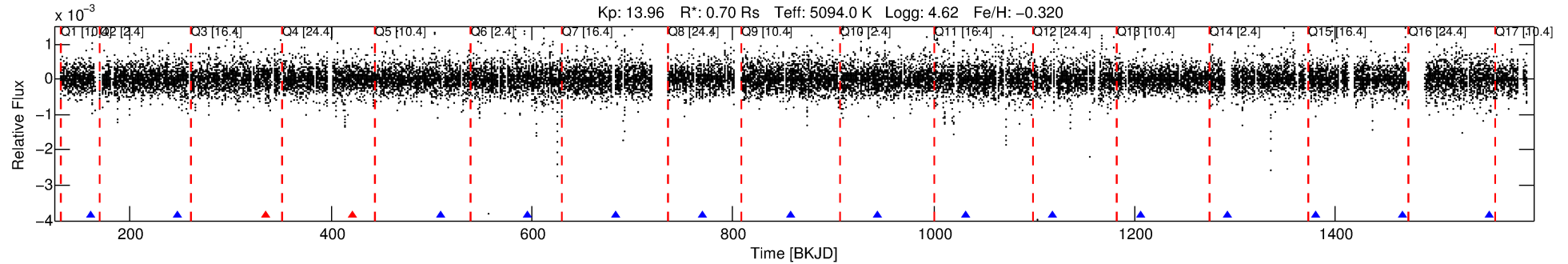
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002299738-06

No Significant Match Found

DV One-Page Summary

KIC: 2299738 Candidate: 6 of 6 Period: 87.050 d



DV Fit Results:

Period = 87.05000 [0.00440] d
Epoch = 160.9625 [0.0397] BKJD
Rp/R* = 0.0075 [0.0305]
a/R* = 192.02 [3033.99]
b = 0.82 [6.43]
Seff = 2.44 [0.43]
Teq = 319 [14] K
Rp = 0.57 [2.33] Re
a = 0.3480 [0.0334] AU
Ag = 42915.28 [351192.69] [0.12σ]
Teffp = 7092 [14510] K [0.47σ]

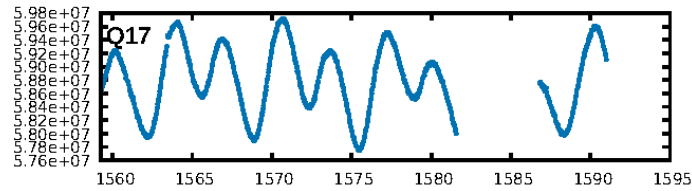
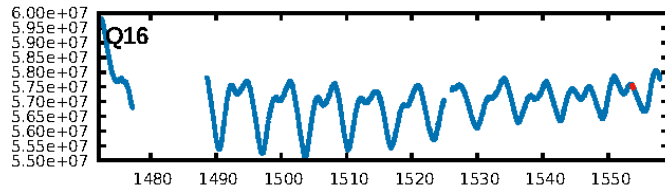
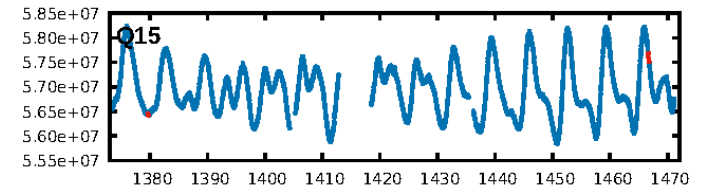
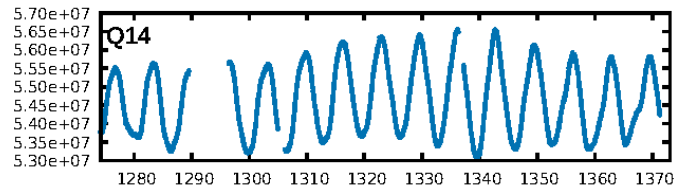
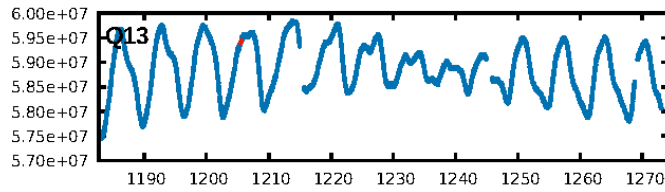
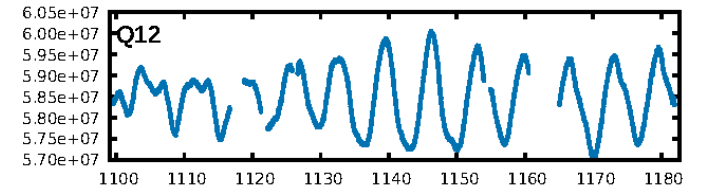
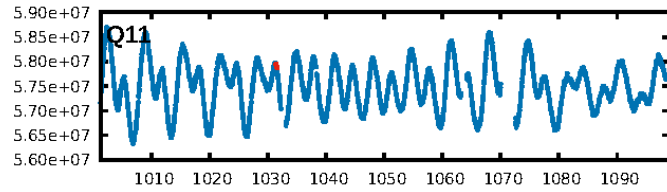
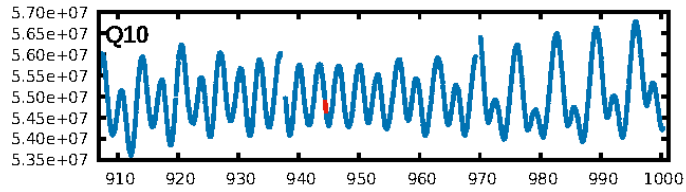
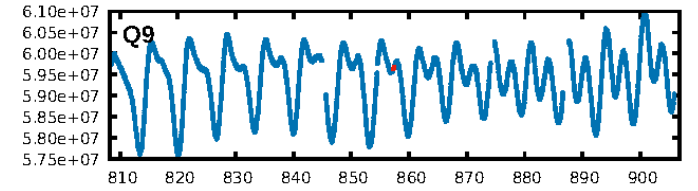
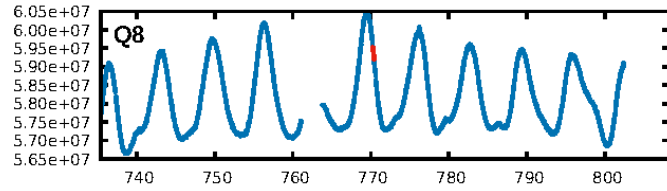
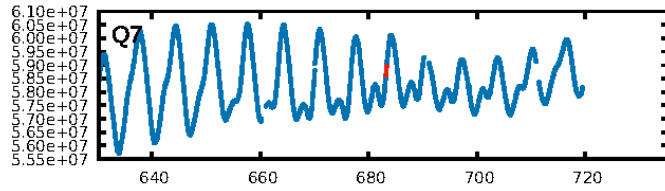
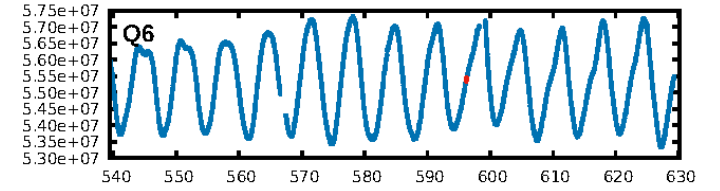
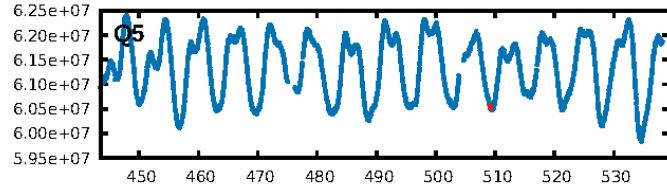
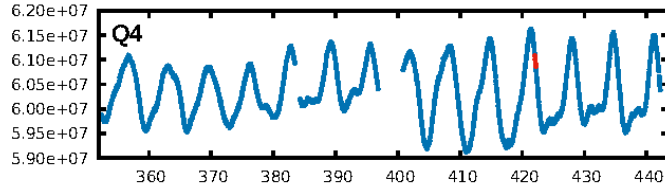
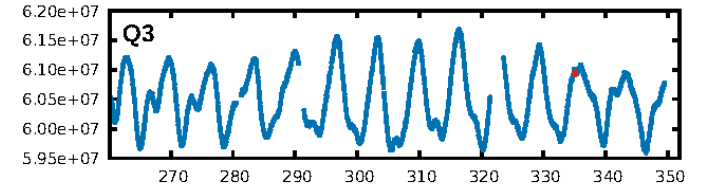
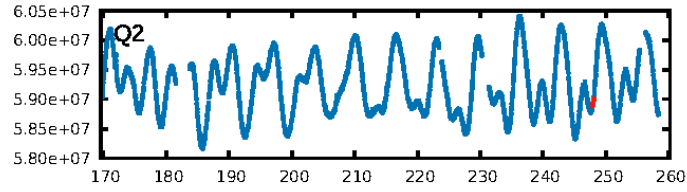
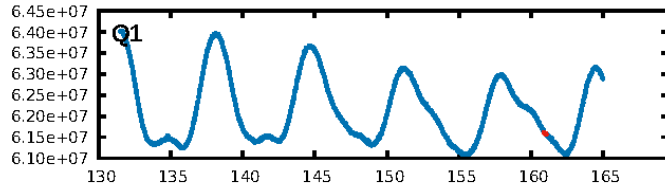
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [256.60σ]
LongPeriod-sig: 100.0% [114.81σ]
ModelChiSquare2-sig: 25.5%
ModelChiSquareGof-sig: 98.3%
Bootstrap-pfa: 4.38e-09
RollingBand-fgt: 0.86 [12/14]
GhostDiagnostic-chr: 1.715
Centroid-sig: 1.9%
Centroid-so: 18.707 arcsec [1.92σ]
OotOffset-rm: 0.245 arcsec [0.28σ]
KicOffset-rm: 0.310 arcsec [0.39σ]
OotOffset-st: 3/3/3/2 [11]
KicOffset-st: 3/3/3/2 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 1.00 [14/14]

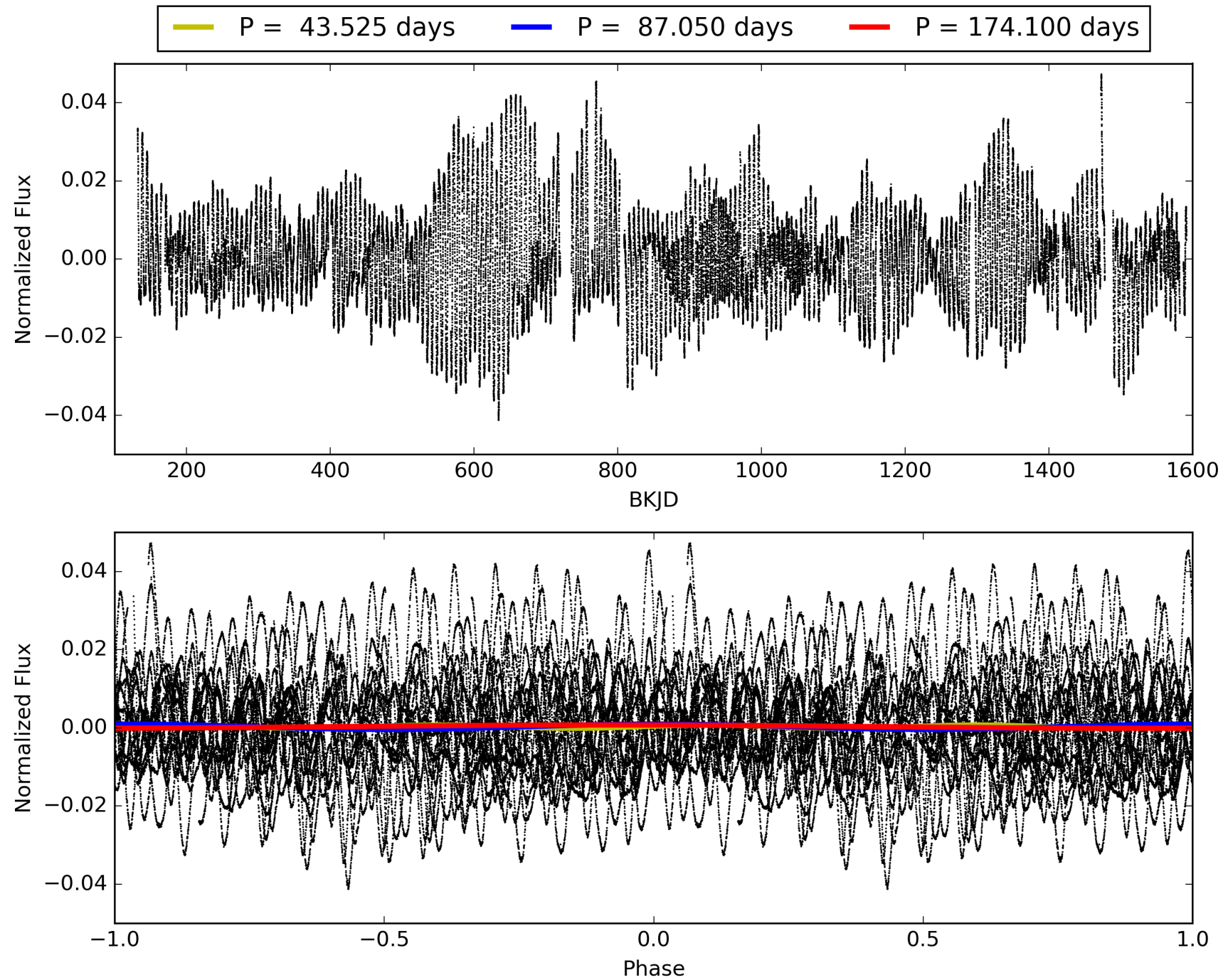
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:37 Z

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

TCE 002299738-06, PDC Light Curves

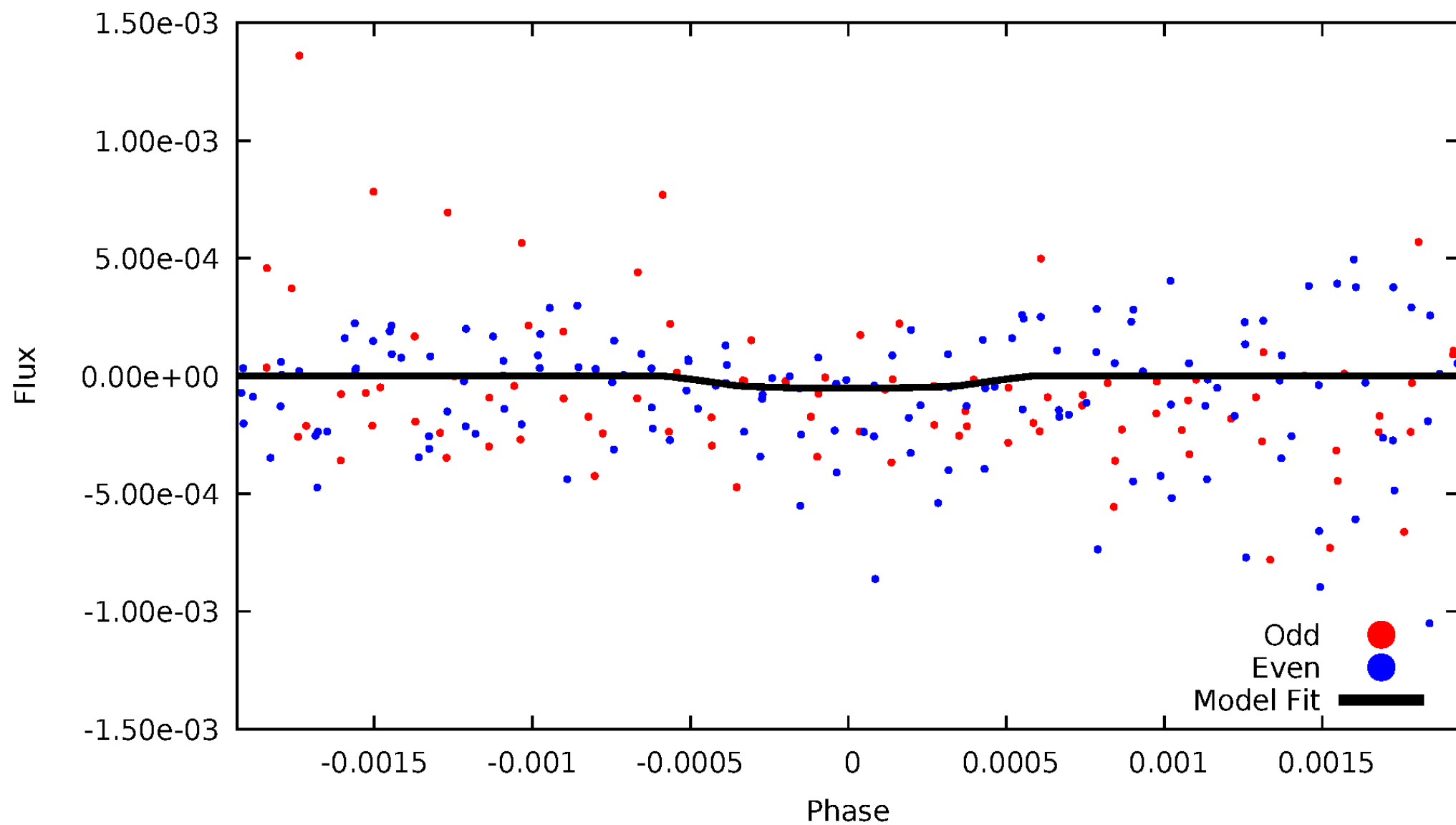


TCE 002299738-06



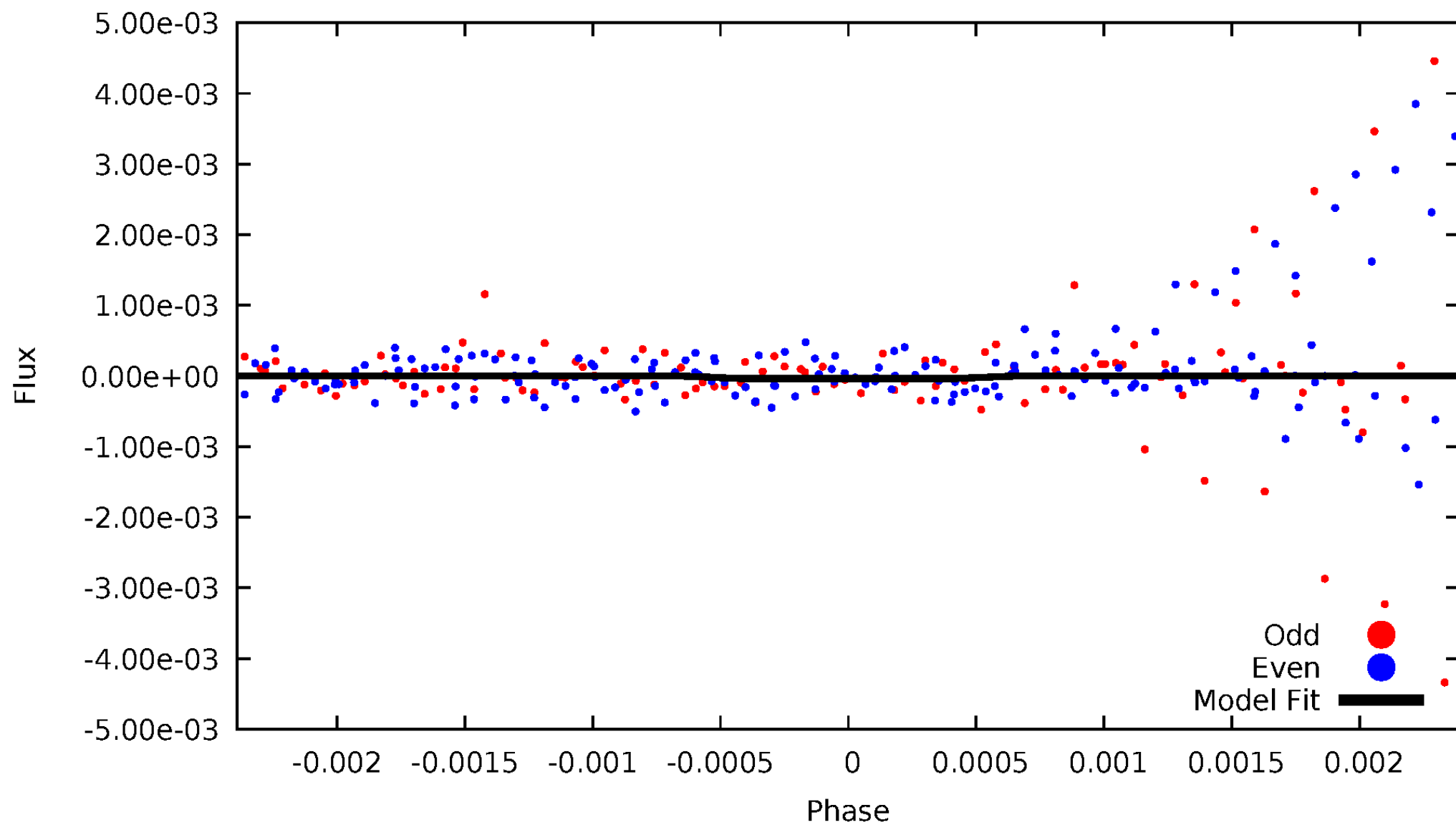
DV Odd/Even

TCE 002299738-06



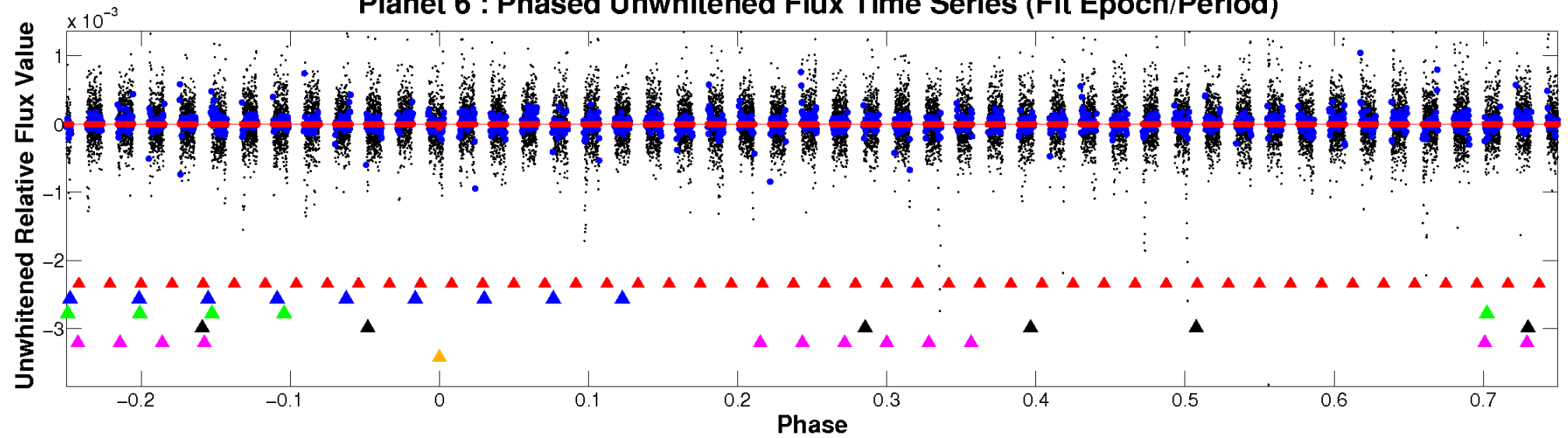
ALT Odd/Even

TCE 002299738-06

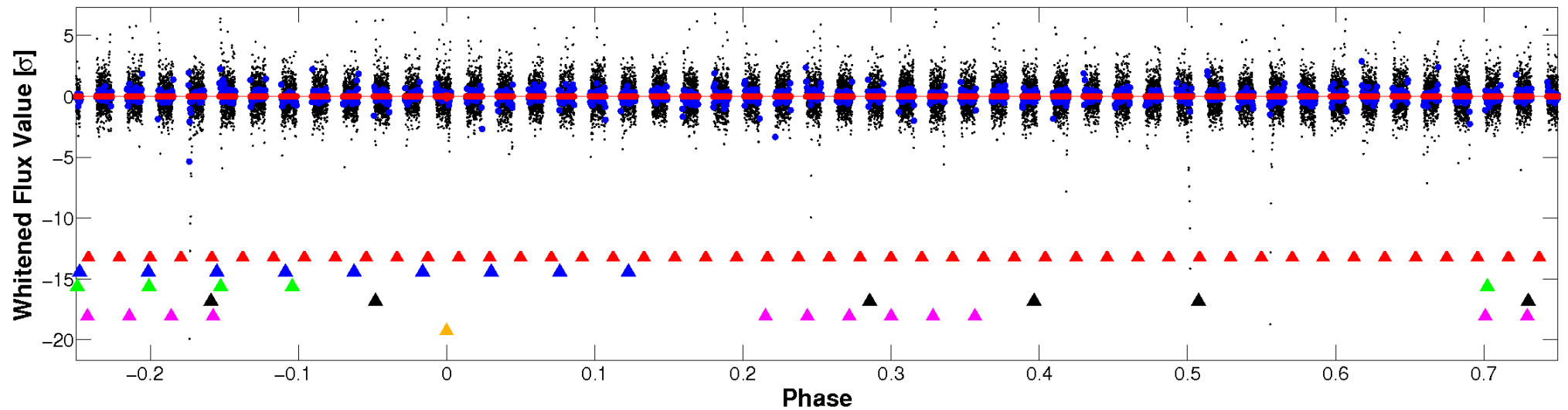


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

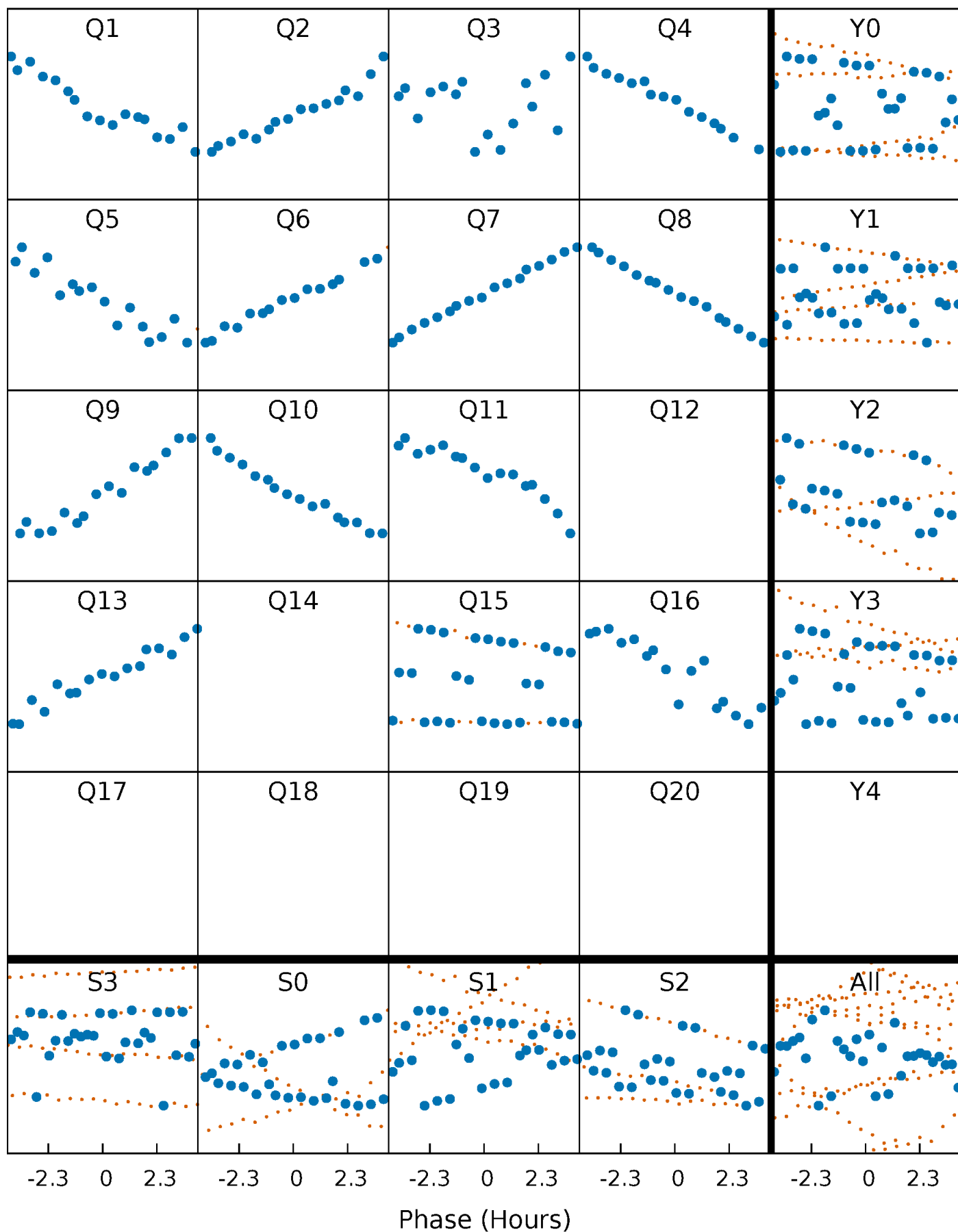


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



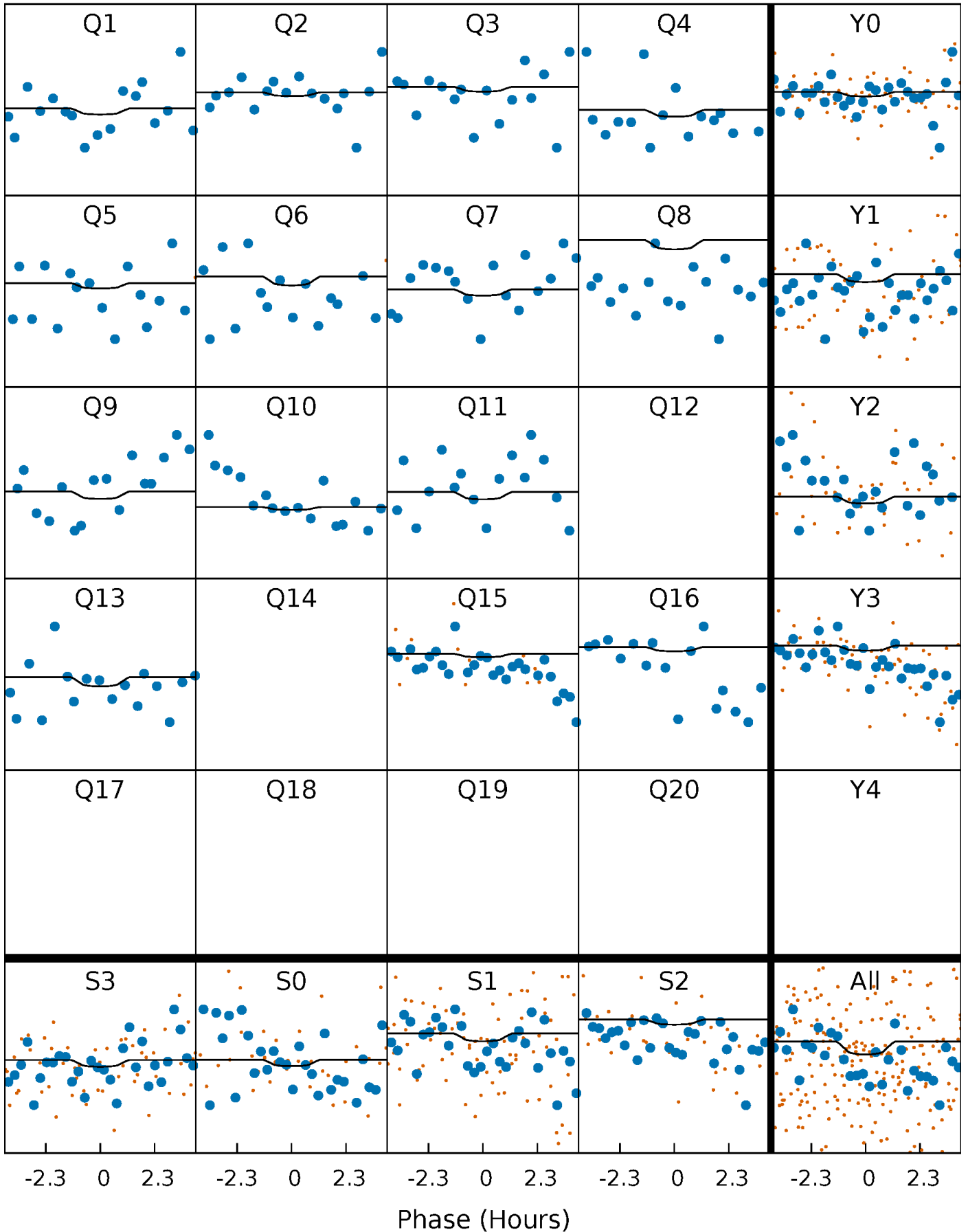
PDC Quarter-Phased Transit Curves

TCE 002299738-06 P= 87.049996 Days $T_0=160.962523$ (BKJD)



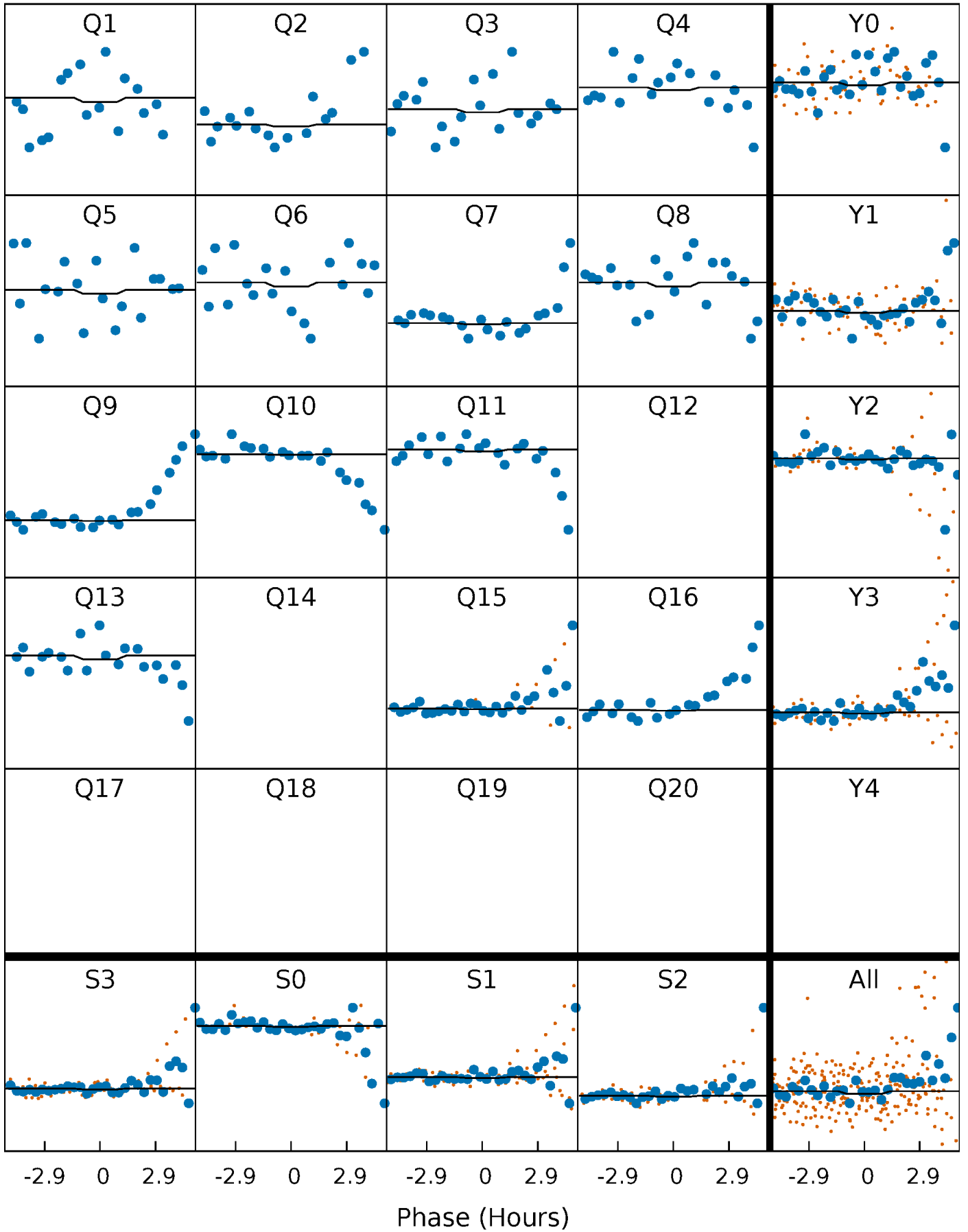
DV Quarter-Phased Transit Curves

TCE 002299738-06 P= 87.049996 Days $T_0=160.962523$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

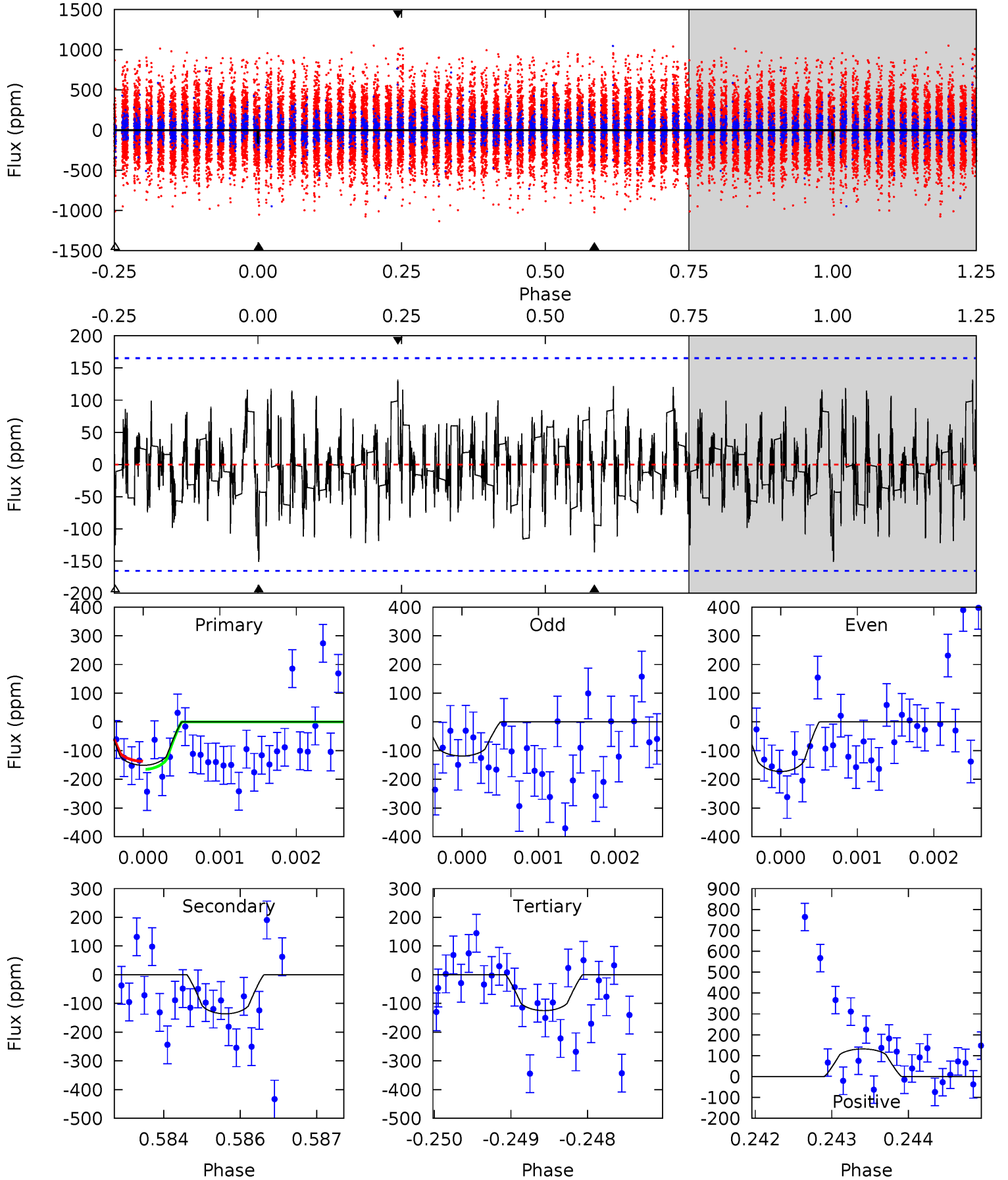
TCE 002299738-06 P= 87.033209 Days $T_0=161.086192$ (BKJD)



DV Model-Shift Uniqueness Test

002299738-06, P = 87.049996 Days, E = 73.912527 Days

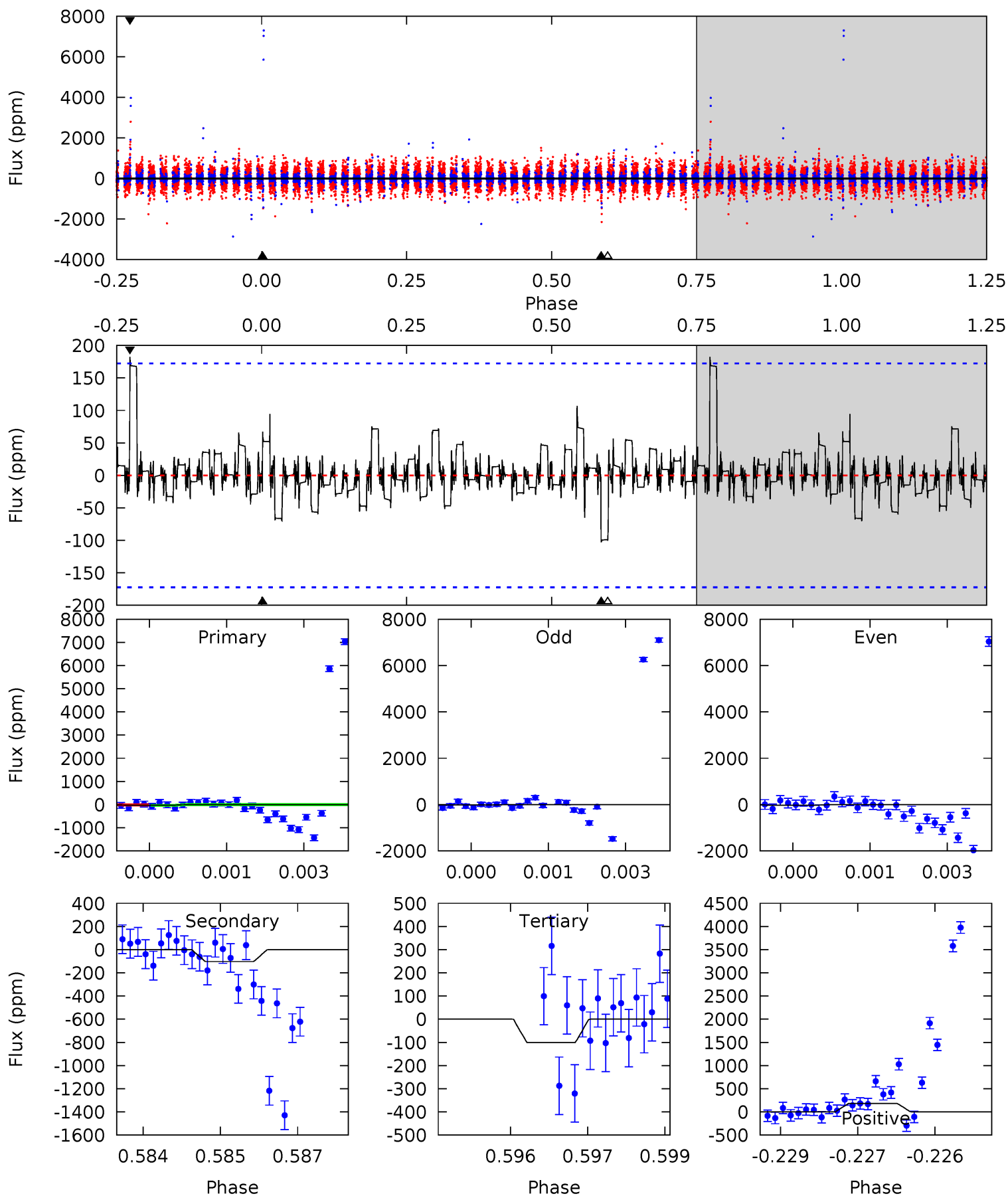
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.96	4.47	4.10	4.34	5.42	3.25	1.35	0.86	0.62	0.37	0.13	0.87	1.01	0.47	0.47



Alt Model-Shift Uniqueness Test

002299738-06, P = 87.033209 Days, E = 74.052983 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.78	3.22	3.14	5.71	5.40	3.21	0.60	-2.37	-4.94	0.07	-2.50	0.11	5.37	0.64	0.31



Stellar Parameters For KIC 002299738

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5094^{+151}_{-136}	$4.618^{+0.040}_{-0.065}$	$-0.320^{+0.300}_{-0.300}$	$0.700^{+0.086}_{-0.058}$	$0.743^{+0.078}_{-0.071}$	$3.051^{+0.555}_{-0.726}$
	+3%/-3%	+1%/-1%	+94%/-94%	+12%/-8%	+10%/-10%	+18%/-24%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 002299738-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-136 ± 30	$1.77^{+1.72}_{-1.27}$	447^{+17}_{-14}	3932^{+2688}_{-792}	2895^{+32204}_{-2164}
Alt.	-103 ± 32	$1.84^{+1.81}_{-1.23}$	449^{+16}_{-16}	3655^{+1911}_{-683}	1915^{+14990}_{-1450}

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 $A_{obs} \gg 1.0$

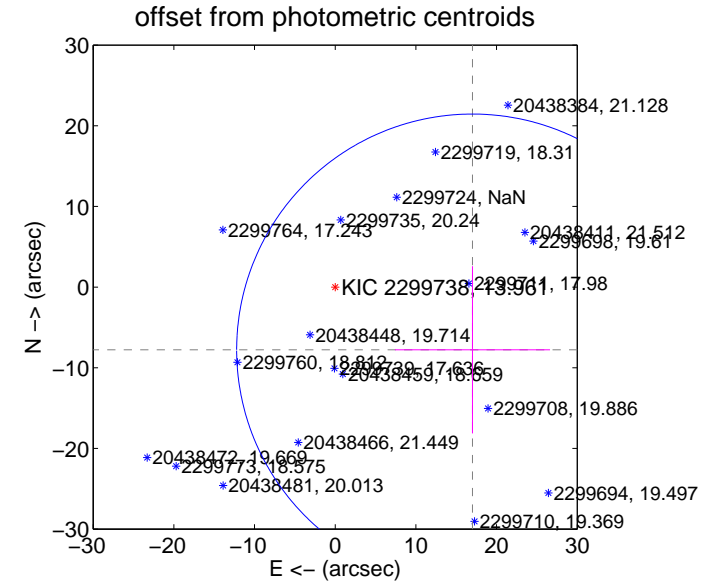
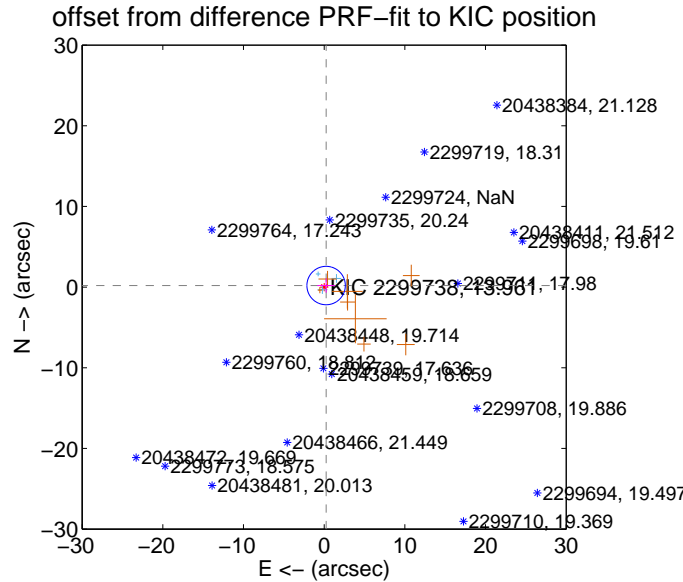
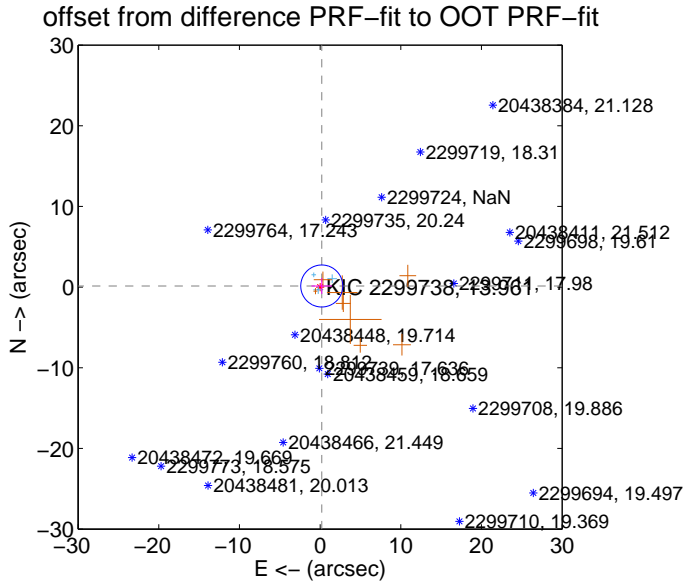
DV Centroid Data

Supplemental centroid analysis for 002299738-06. Kepler magnitude: 13.96. Transit SNR 1.06

There are 3 quarters with good PRF difference image offsets

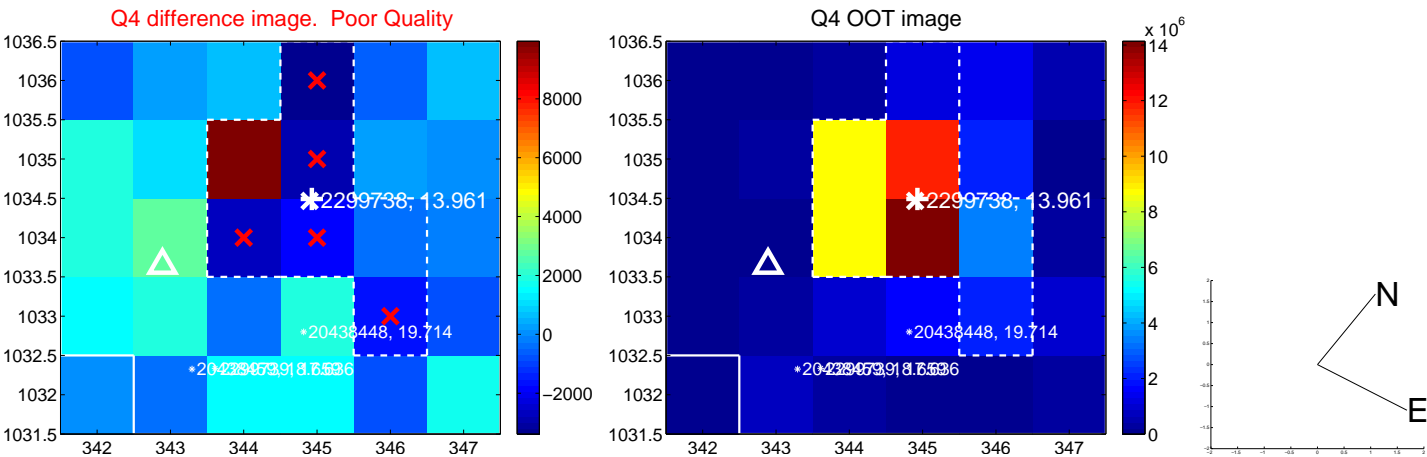
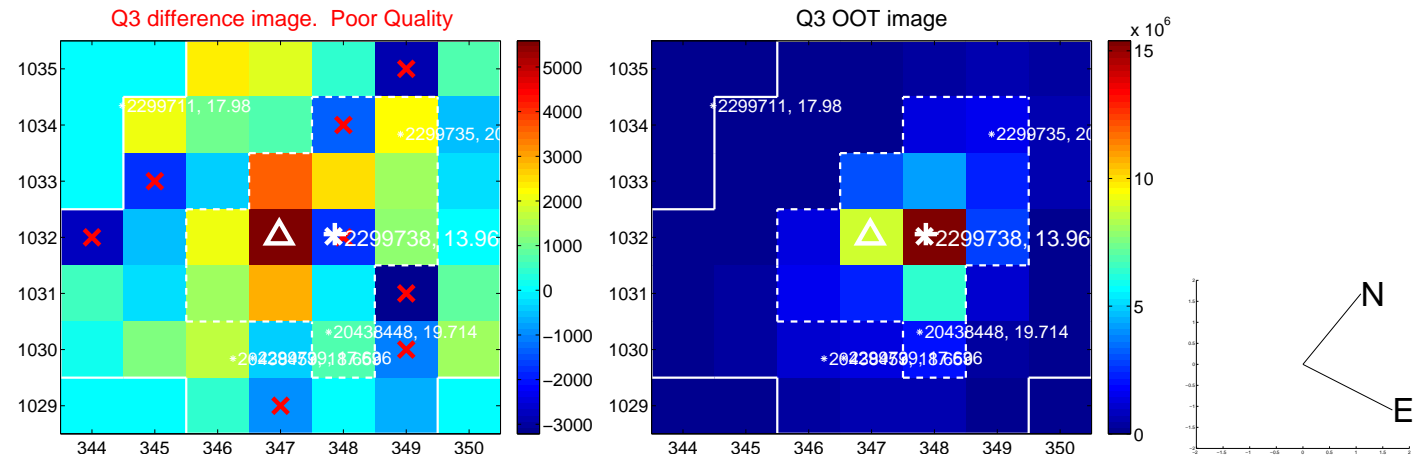
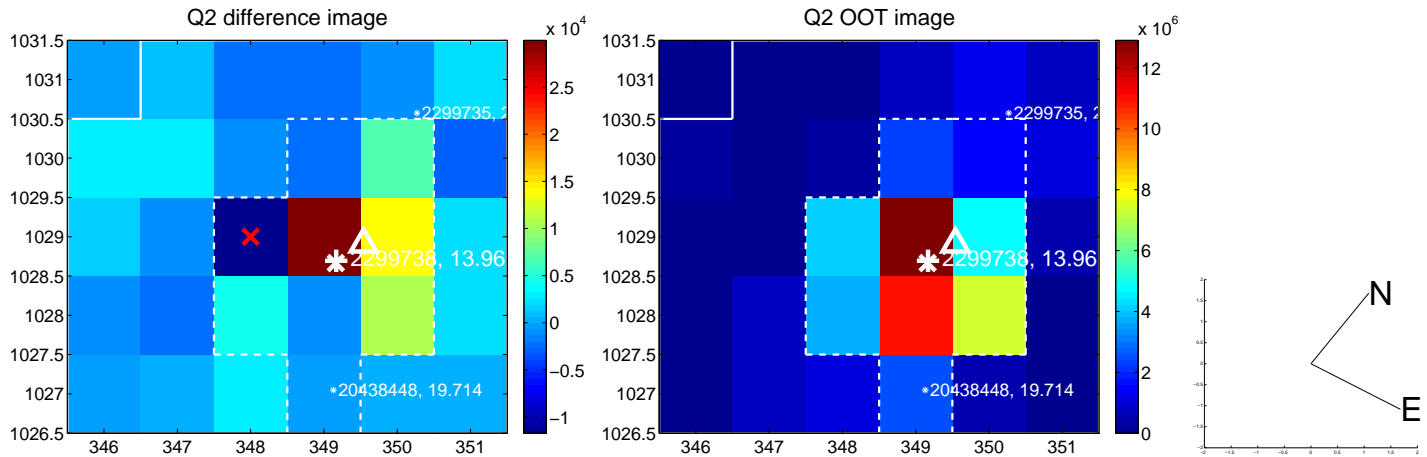
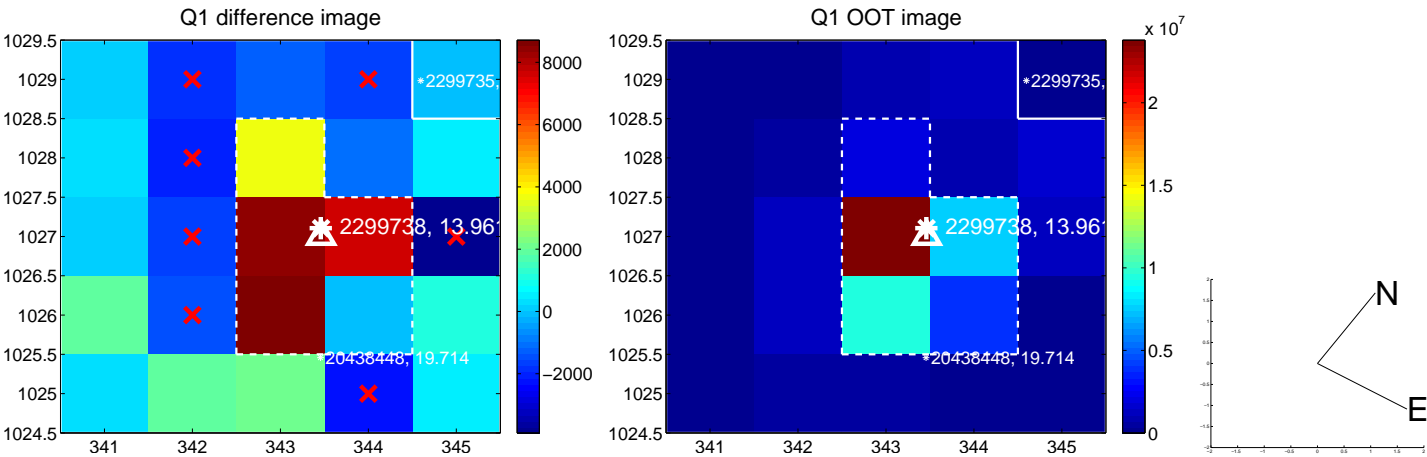
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.245 ± 0.868	0.28	-0.203 ± 1.268	0.137 ± 0.984
PRF-fit source offset from KIC position	0.310 ± 0.794	0.39	-0.242 ± 1.083	0.193 ± 0.889
photometric centroid source offset	18.71 ± 9.74	1.92	-17.01 ± 9.61	-7.78 ± 10.36

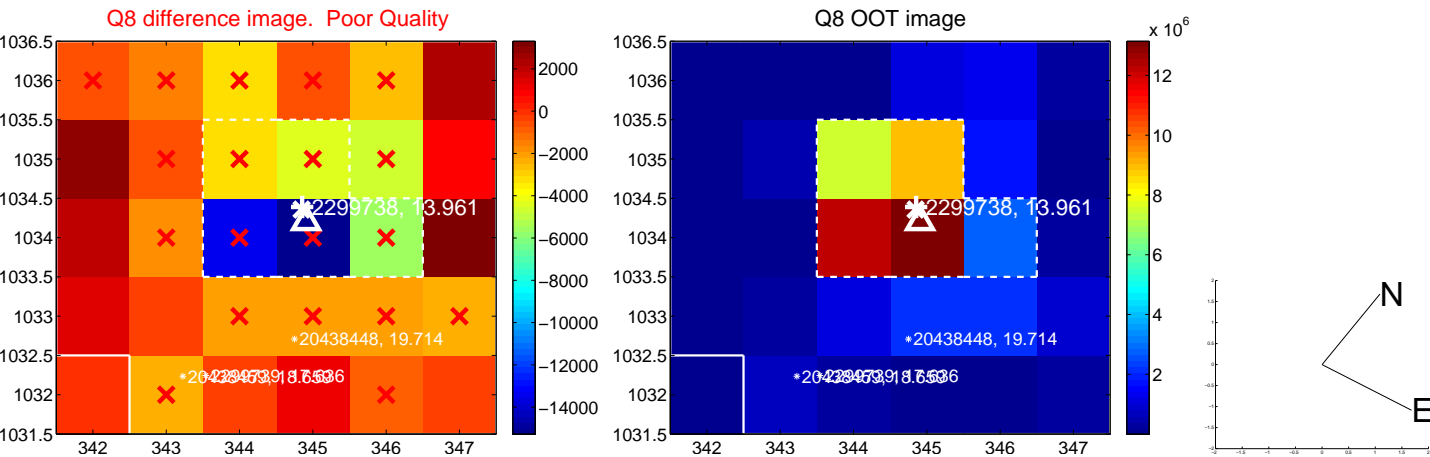
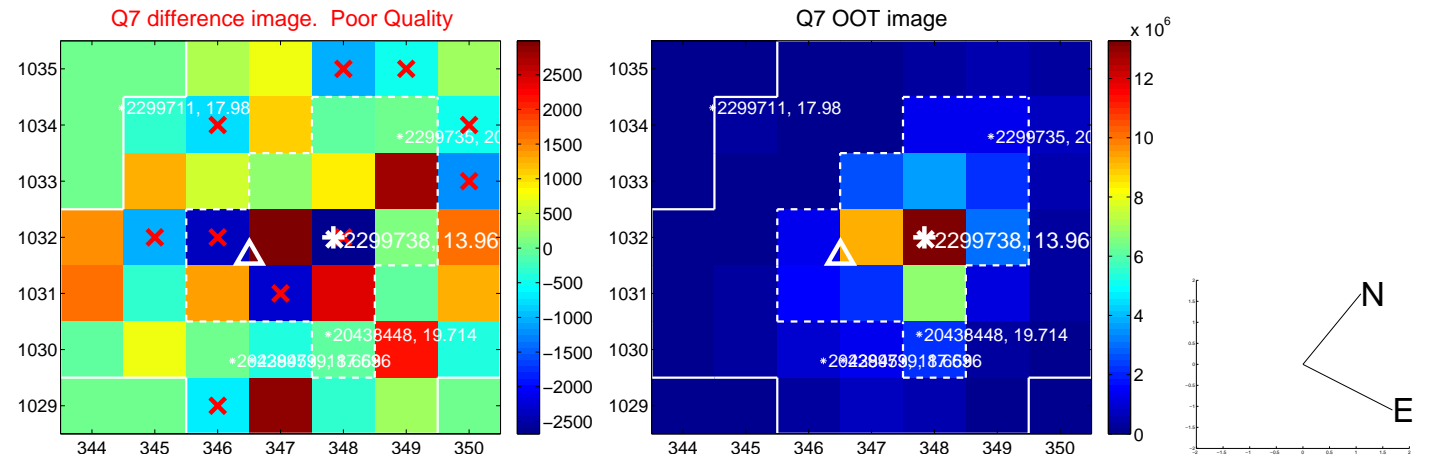
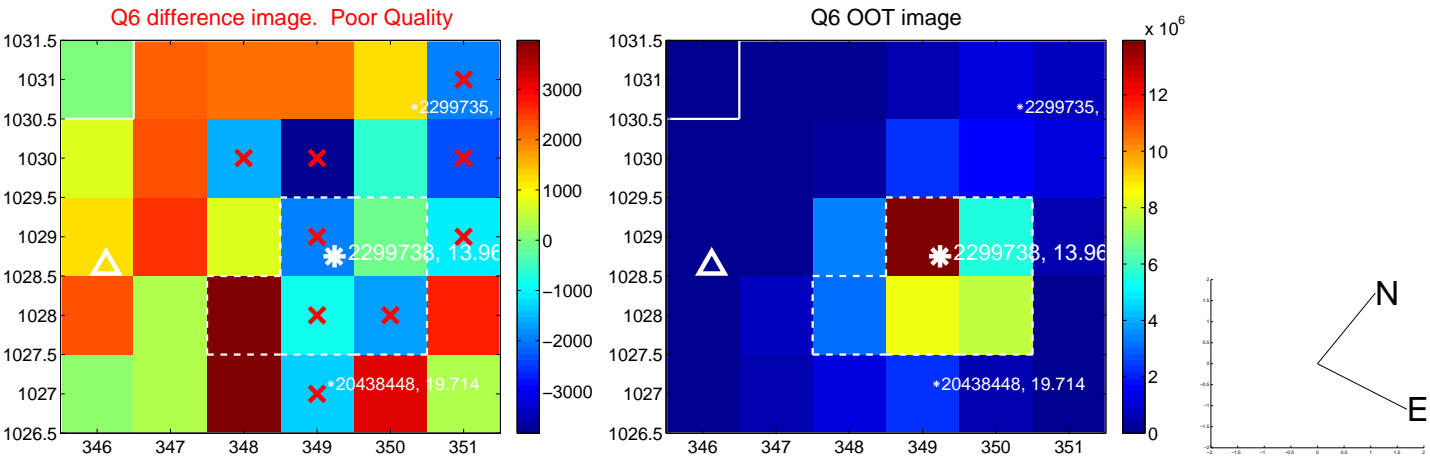
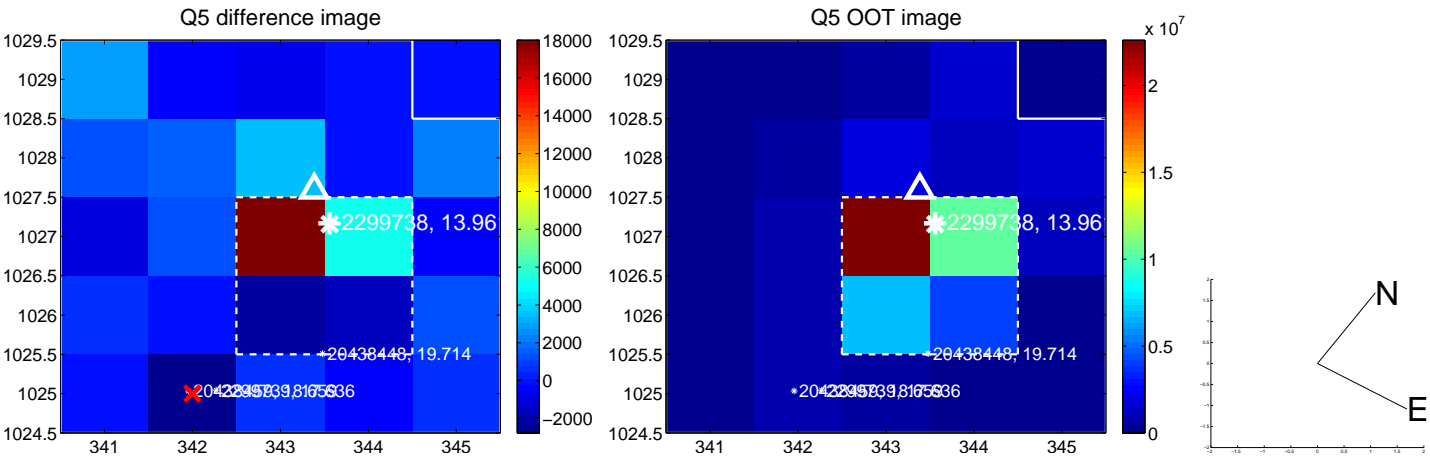


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

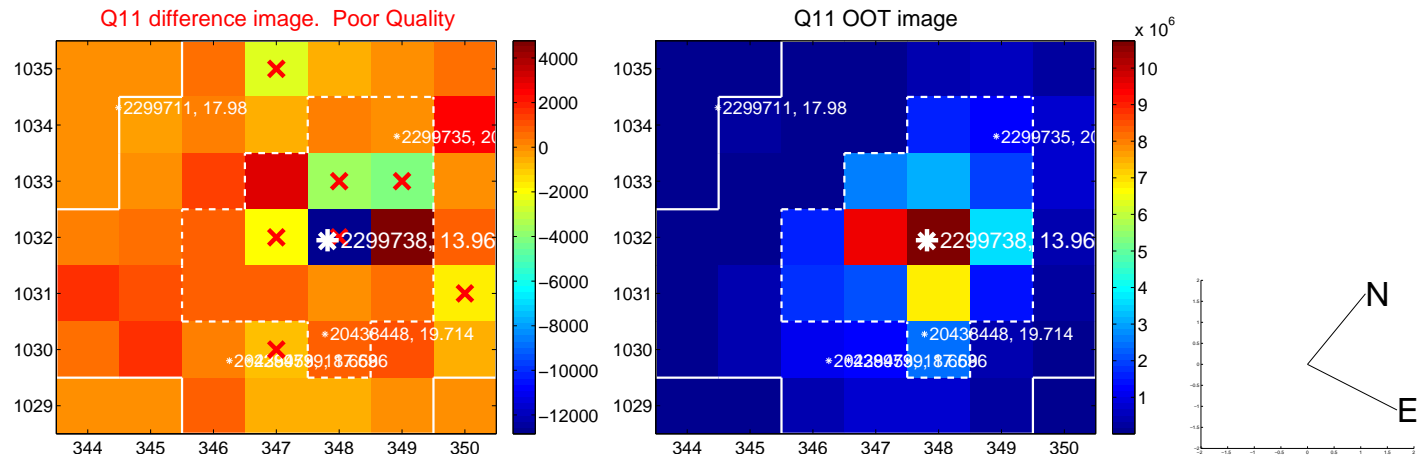
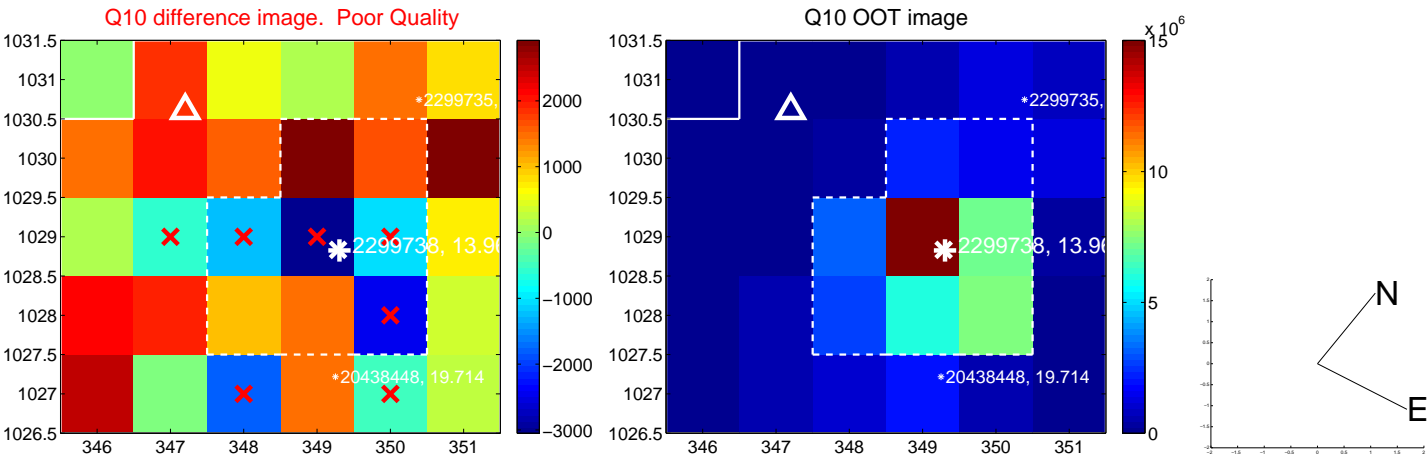
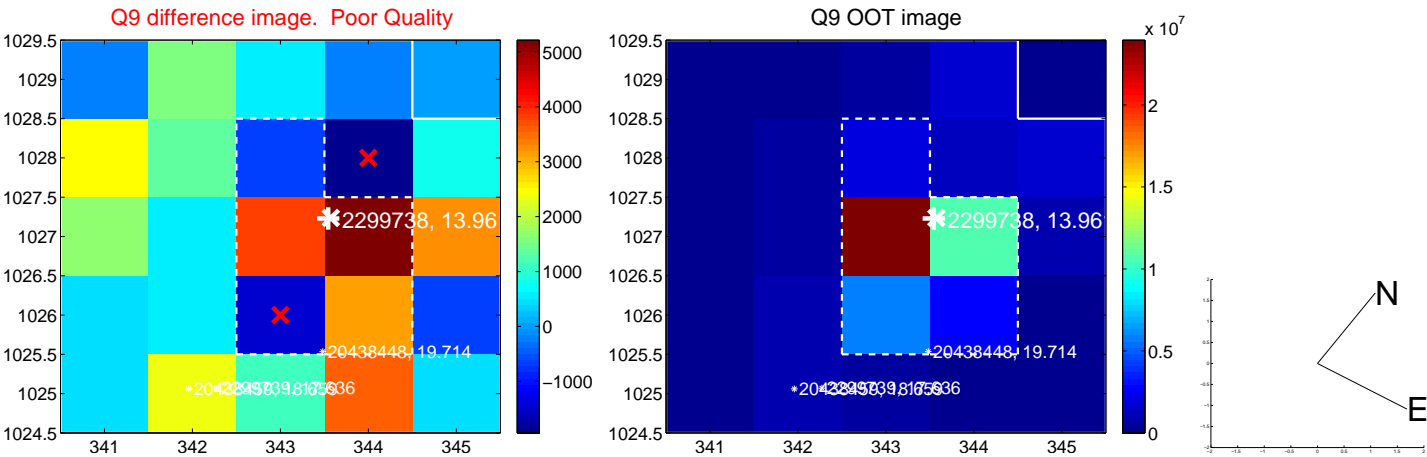
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



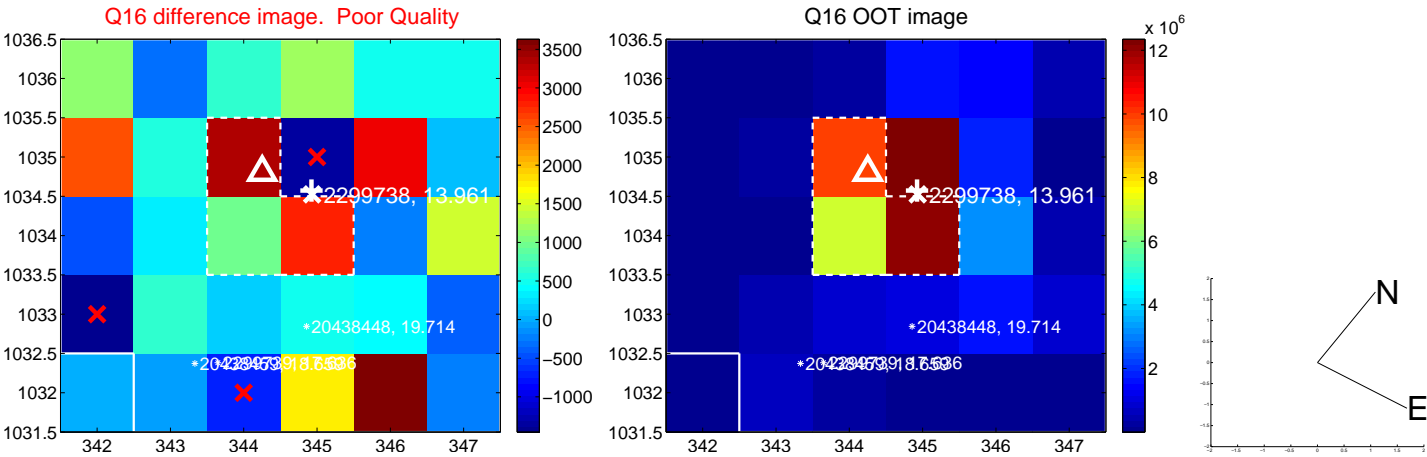
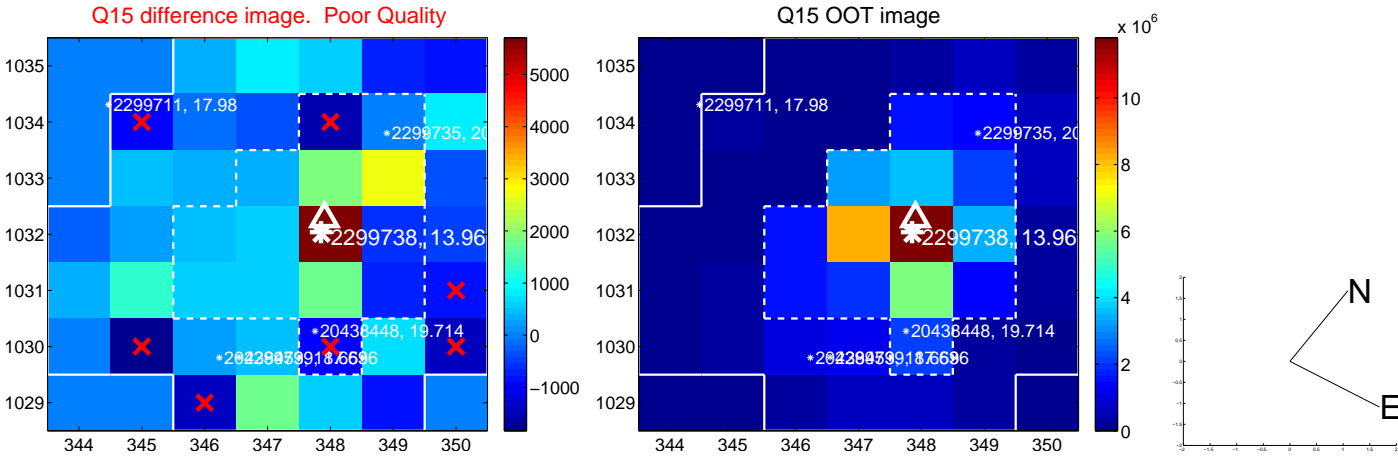
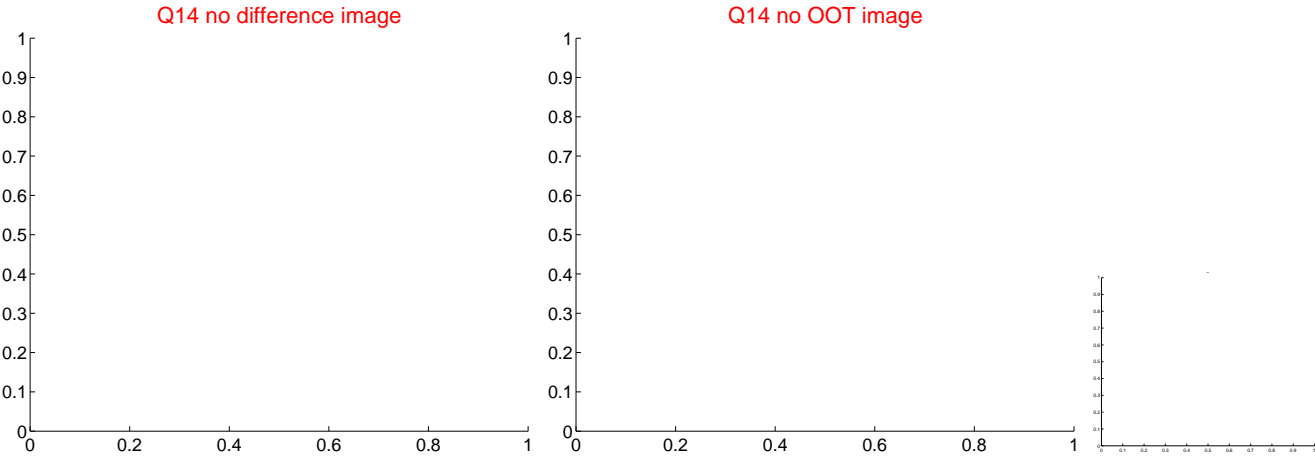
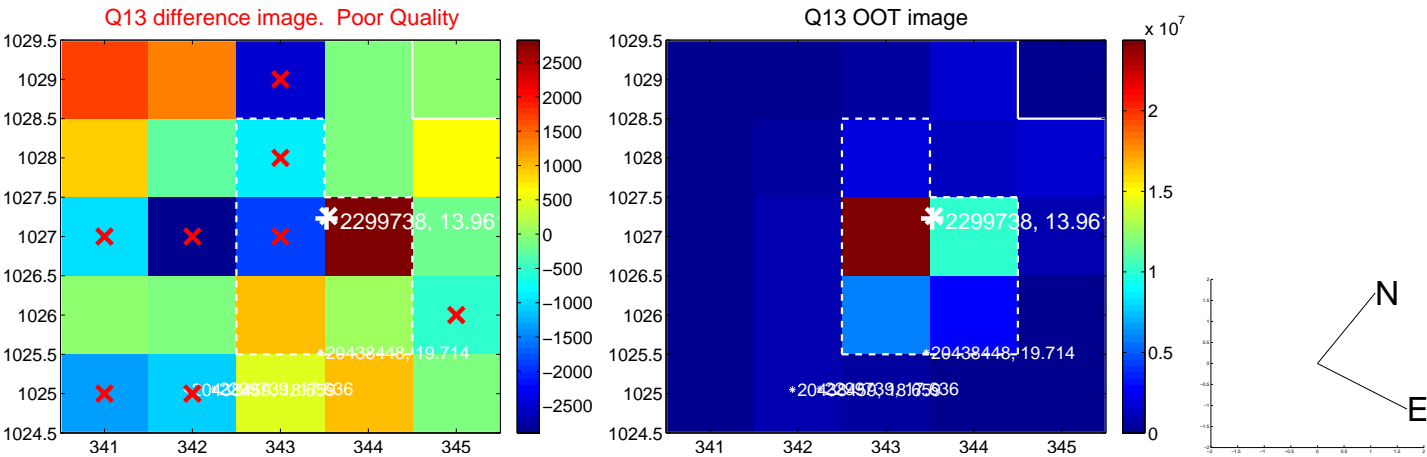
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



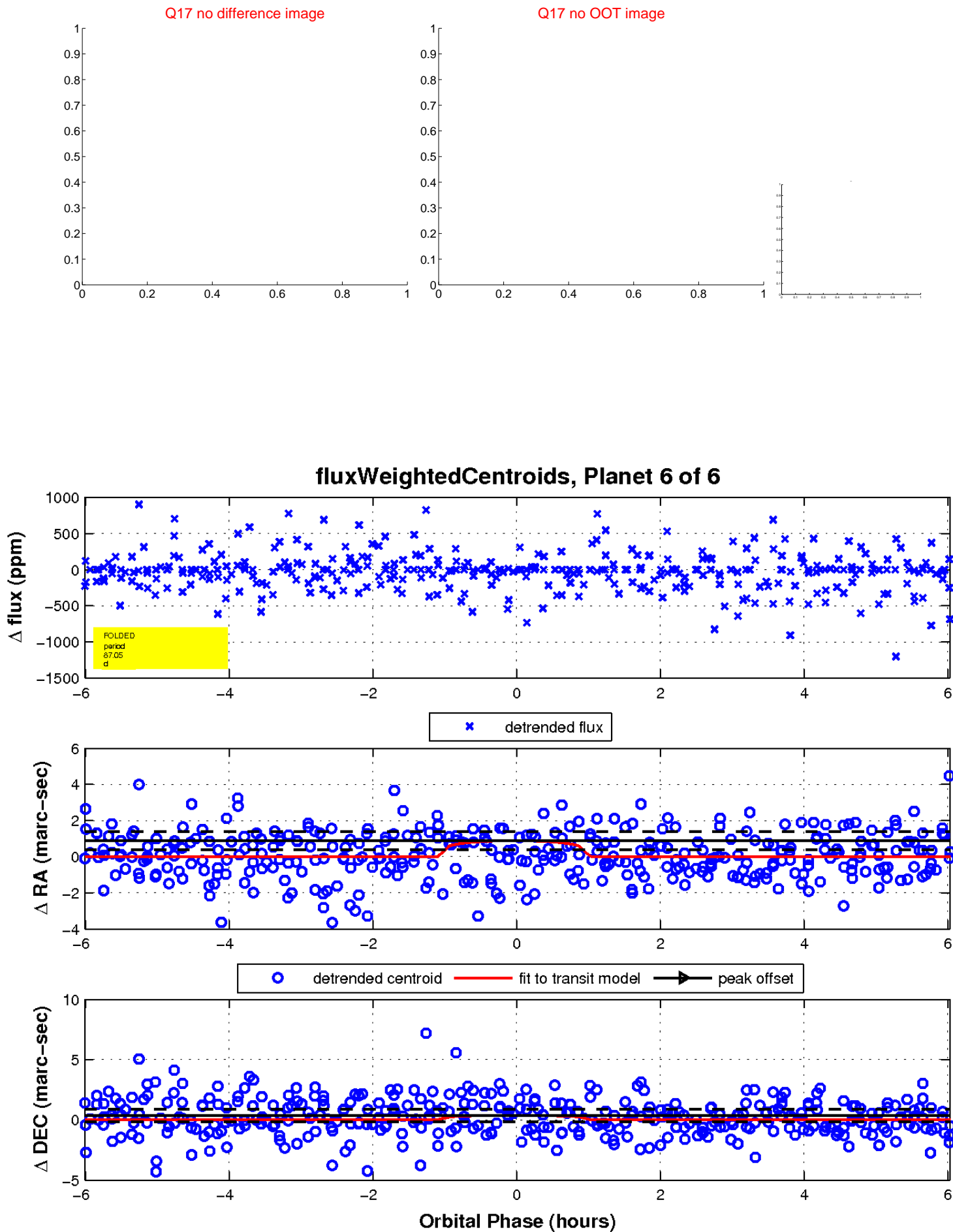
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

