

KIC 001573138

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})
001573138-01	OBS	No	275.711098	182.562142	942.5	5.466	28.7	5.3	2.87	4838	11.64	6.22
001573138-02	OBS	No	450.554838	467.713189	934.6	5.025	19.4	5.9	2.87	4838	8.55	3.23
001573138-03	OBS	No	330.887559	225.493479	232.6	0.787	17.4	1.6	2.87	4838	5.38	4.88
001573138-04	OBS	No	344.849883	404.840630	785.2	4.533	20.2	5.5	2.87	4838	7.75	4.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001573138-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

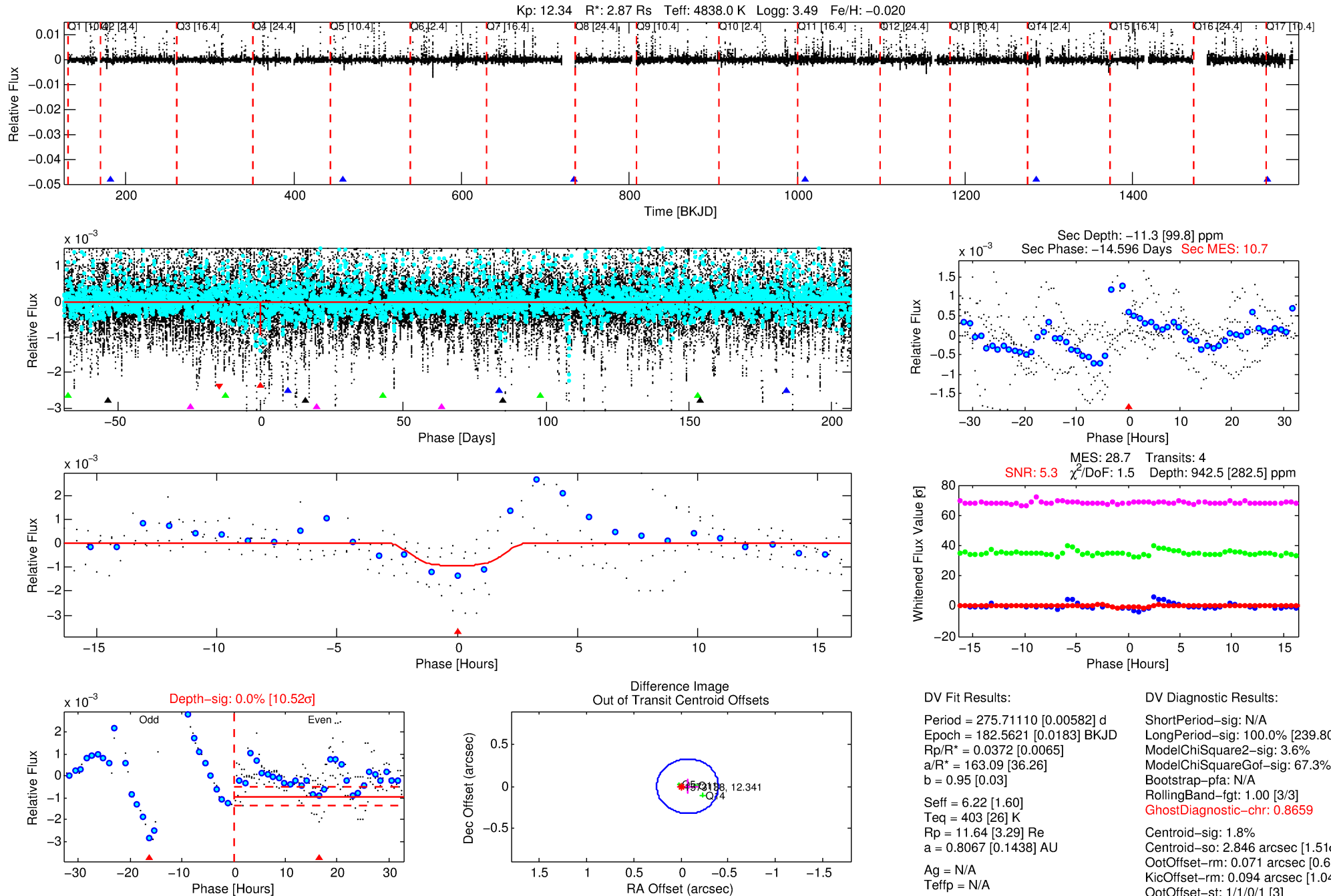
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 001573138-01

No Significant Match Found

DV One-Page Summary

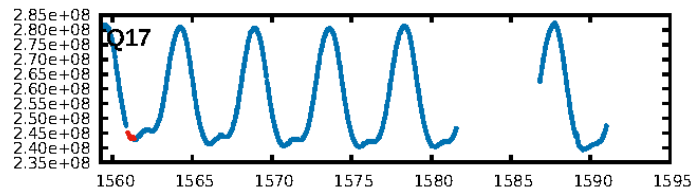
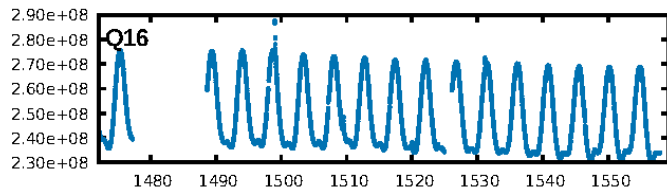
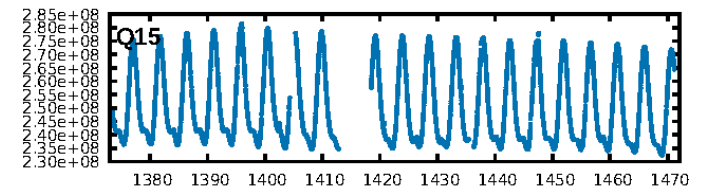
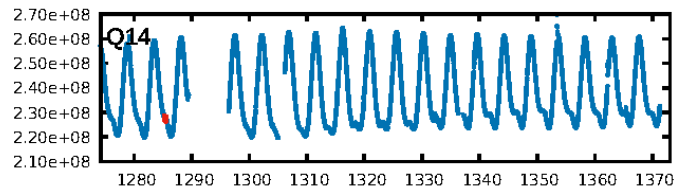
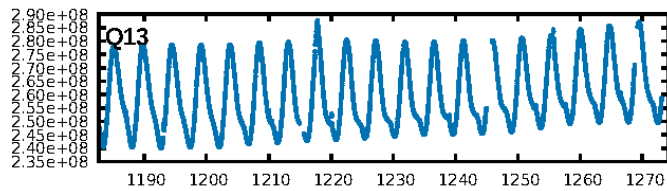
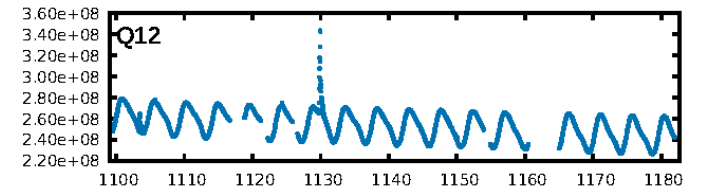
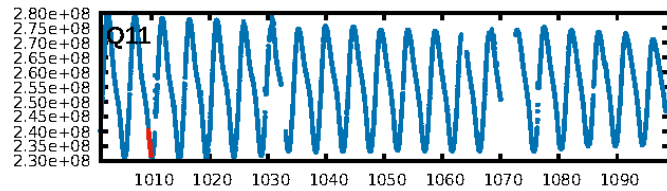
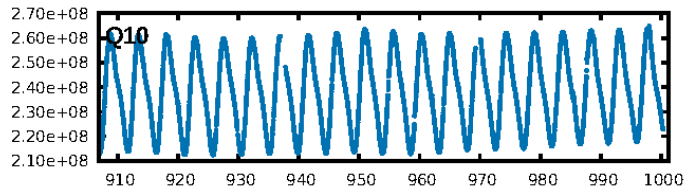
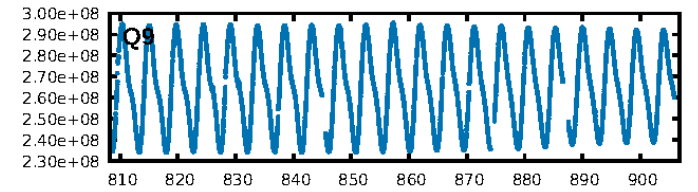
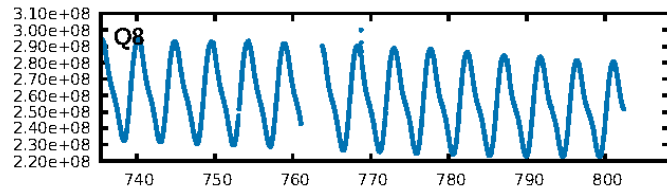
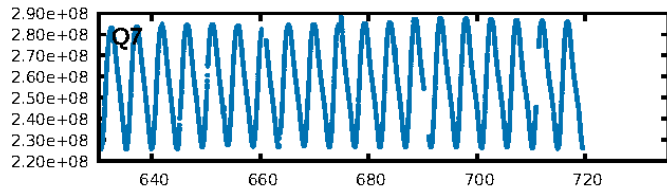
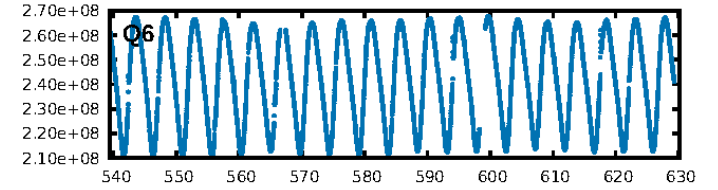
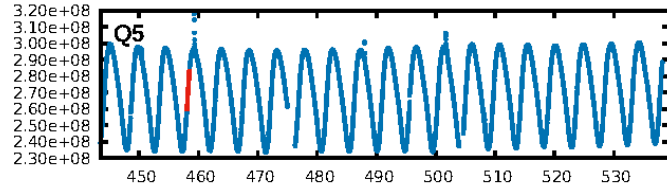
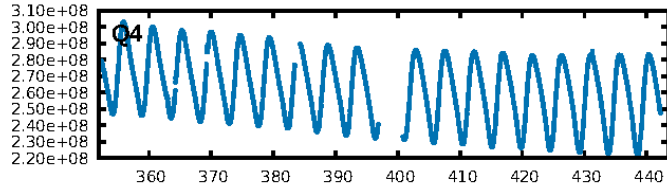
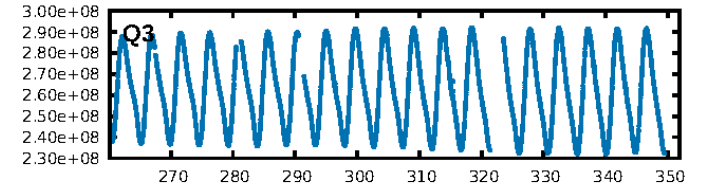
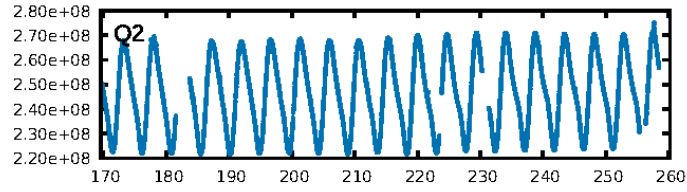
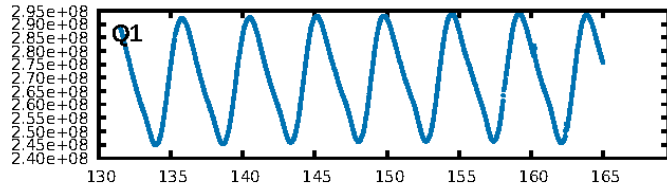
KIC: 1573138 Candidate: 1 of 5 Period: 275.711 d



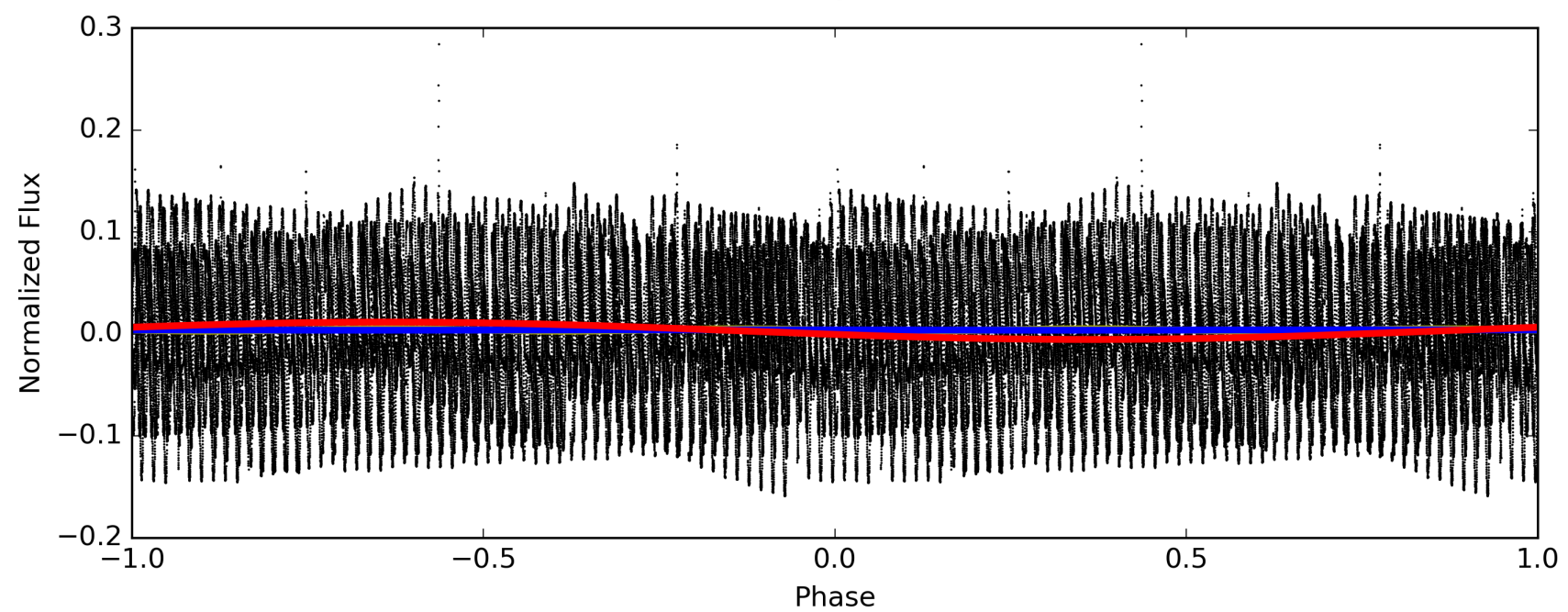
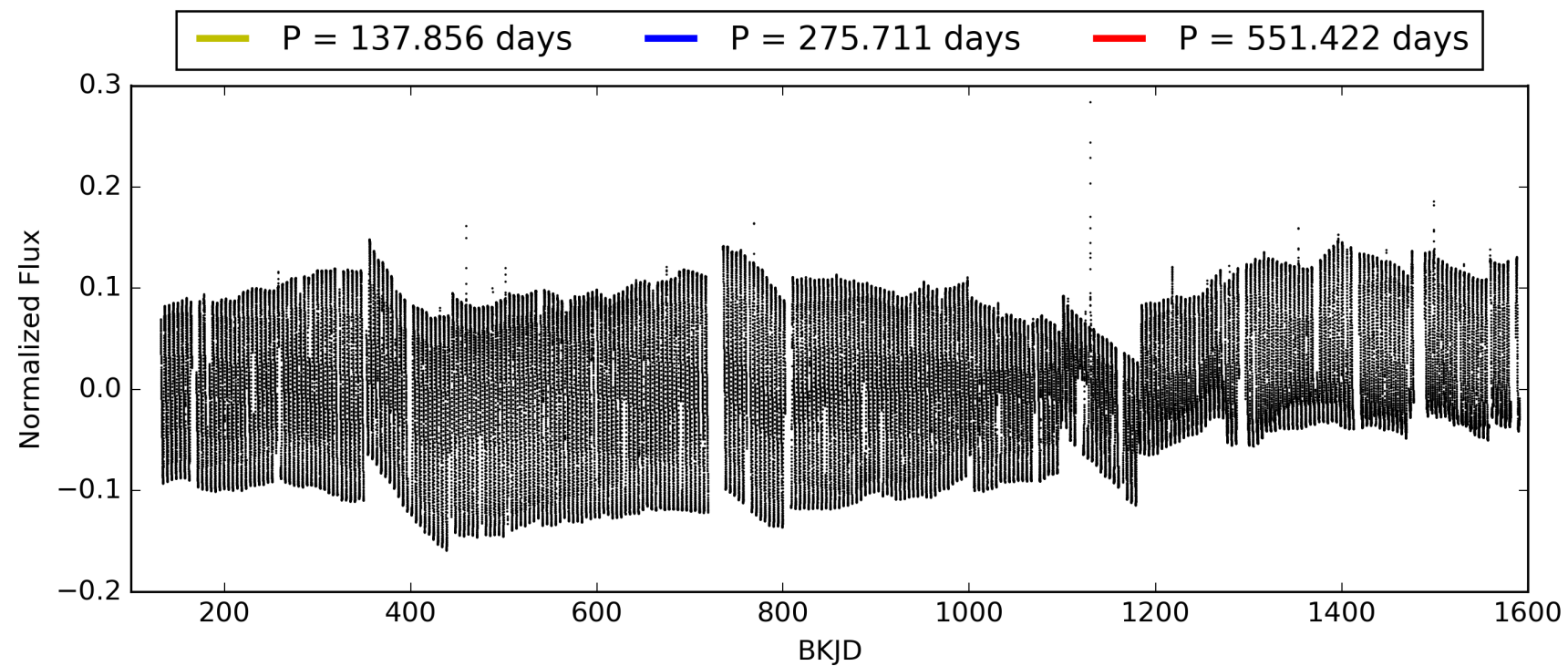
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 001573138-01, PDC Light Curves

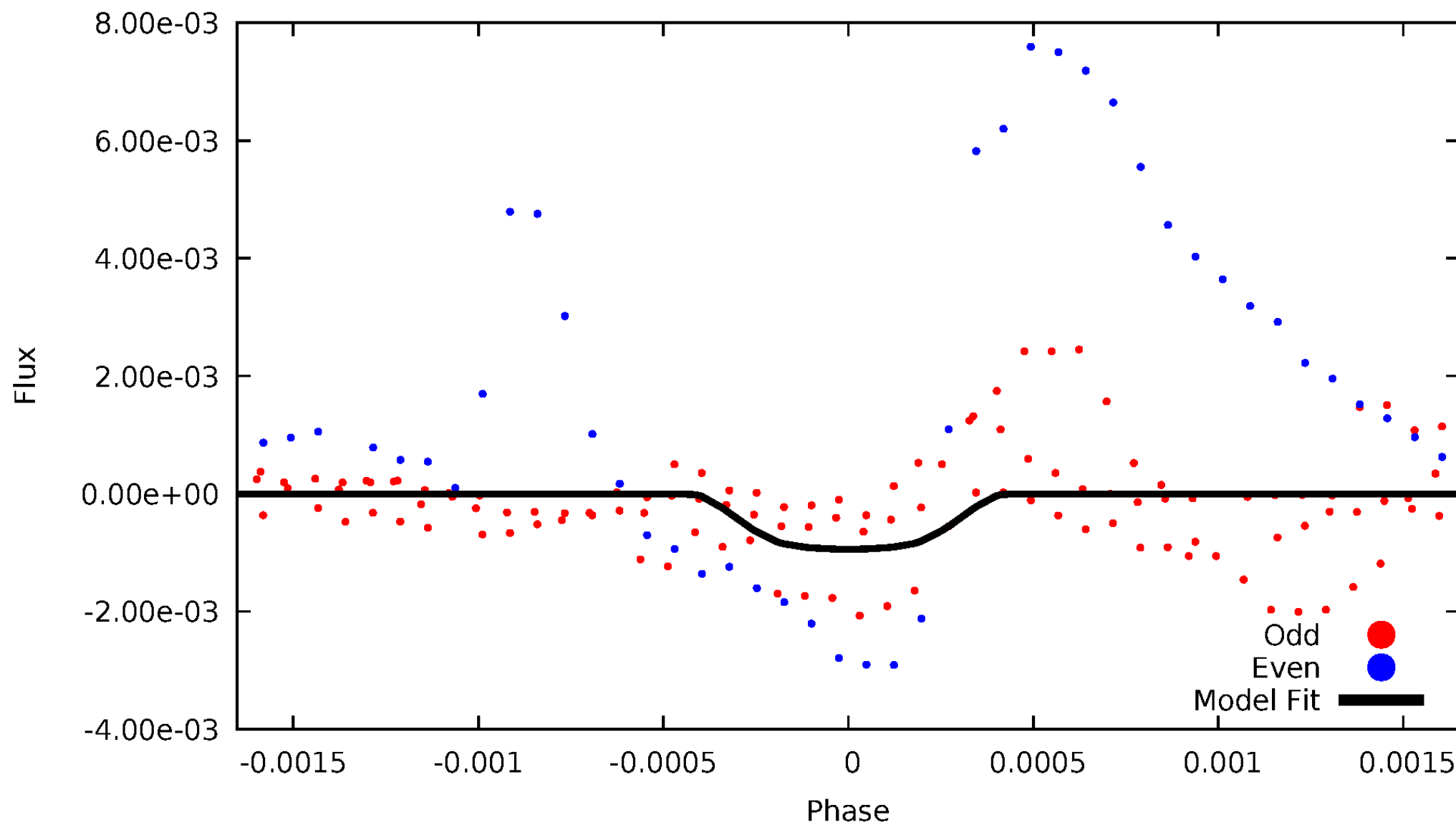


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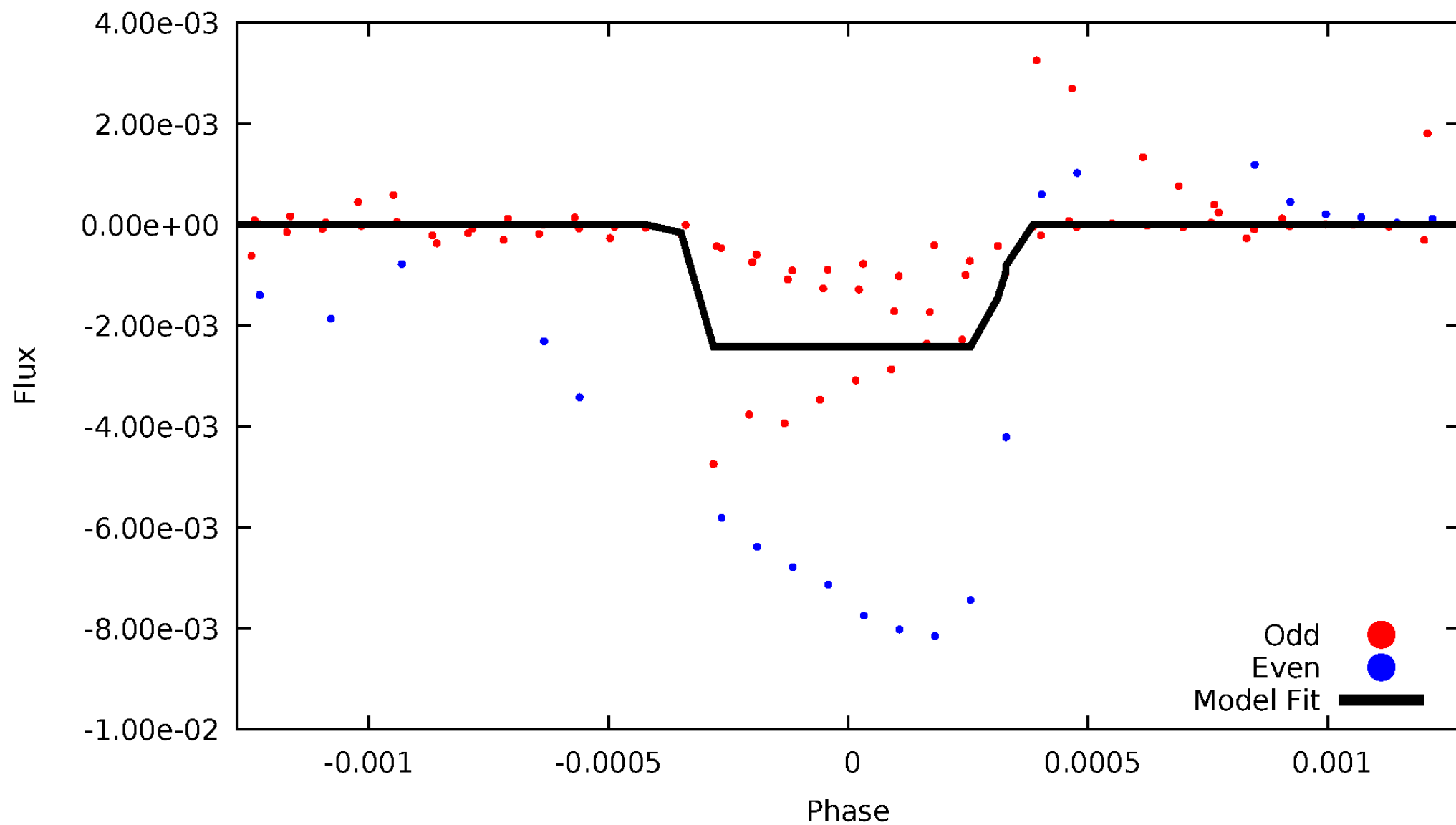
DV Odd/Even

TCE 001573138-01



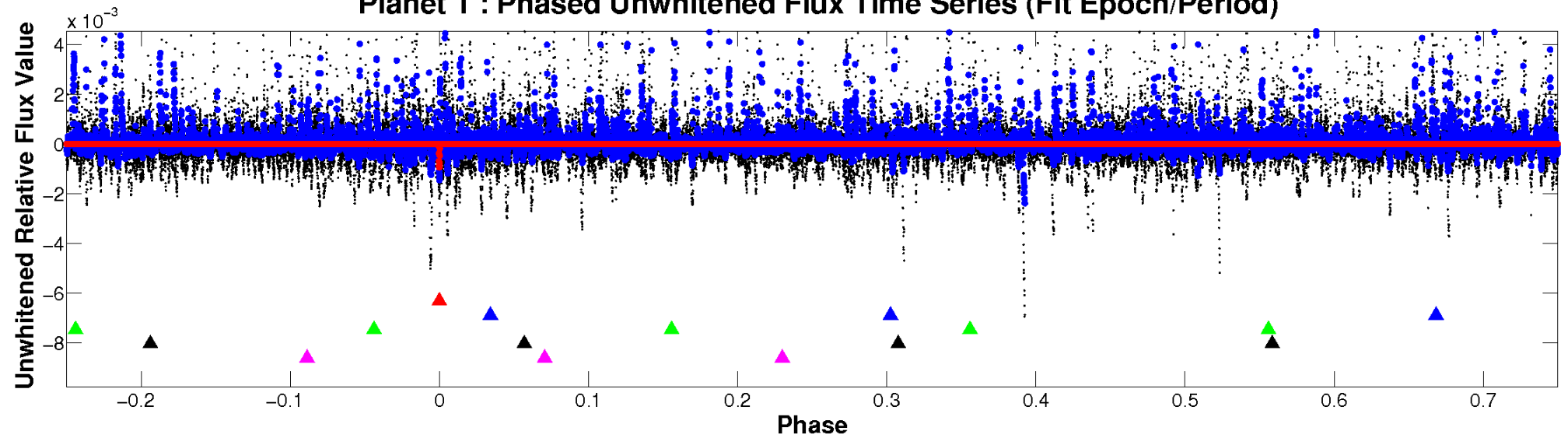
ALT Odd/Even

TCE 001573138-01

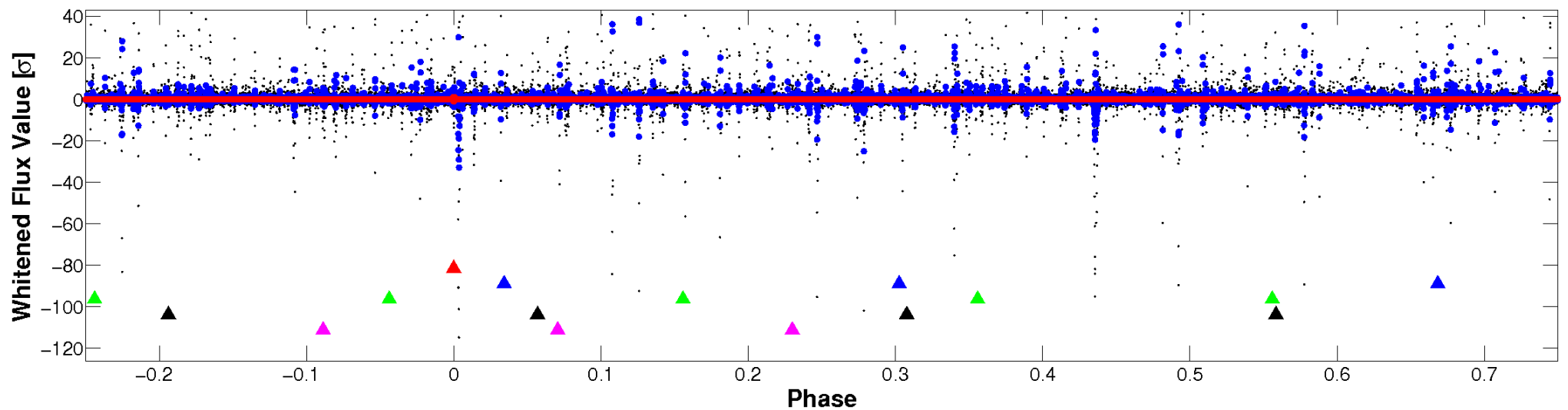


Non-Whitened Vs. Whitened Light Curve

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

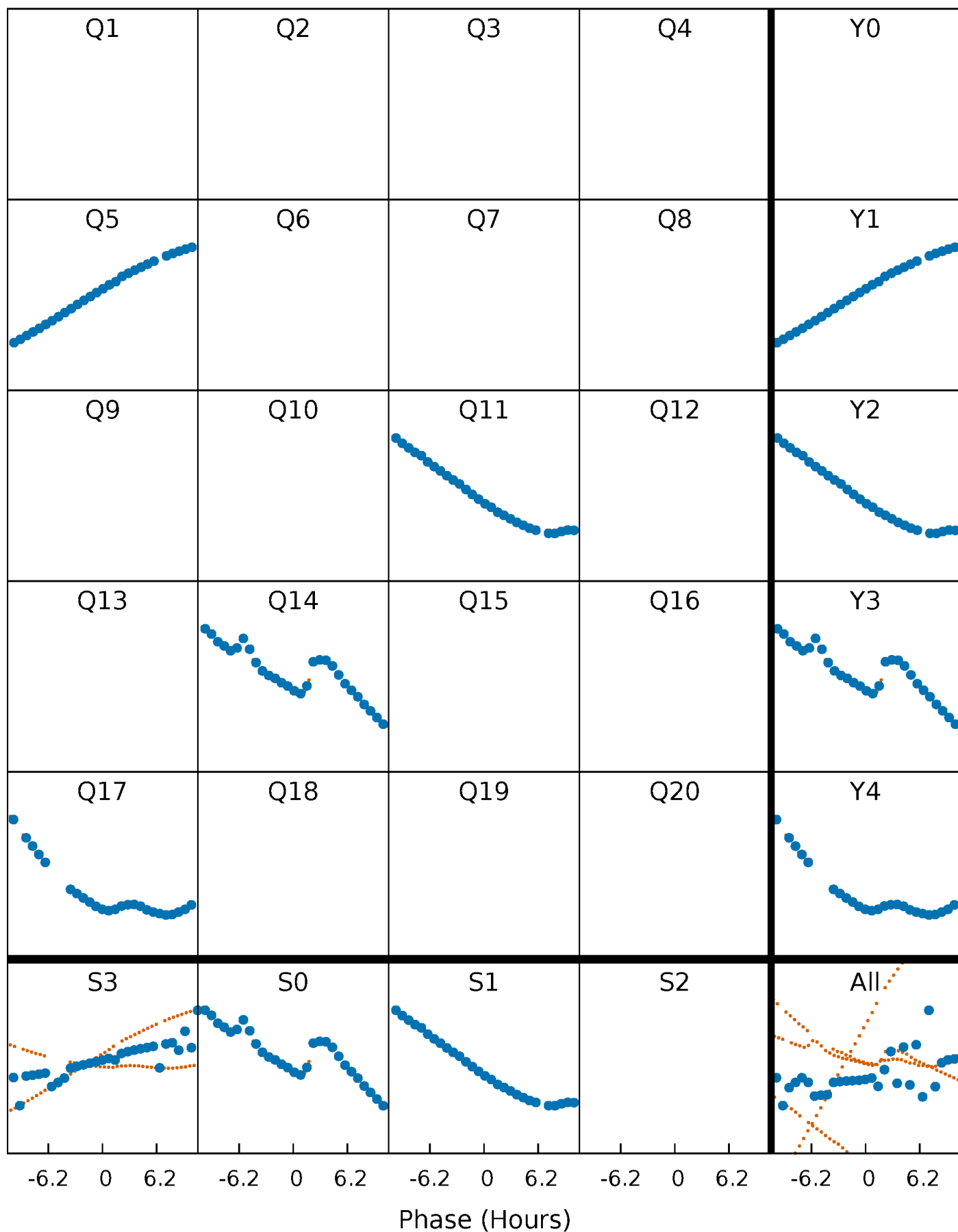


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



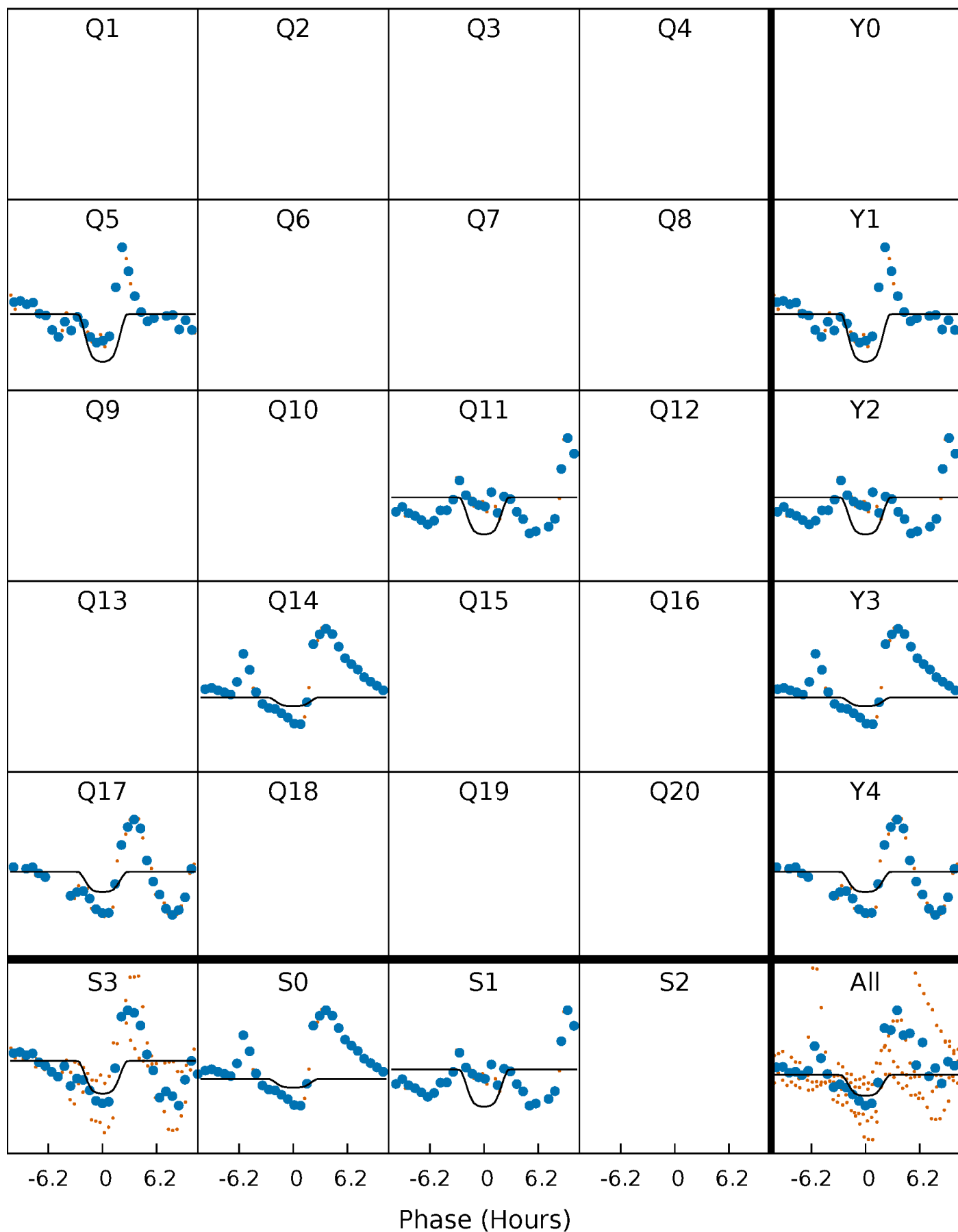
PDC Quarter-Phased Transit Curves

TCE 001573138-01 P=275.711098 Days $T_0=182.562142$ (BKJD)



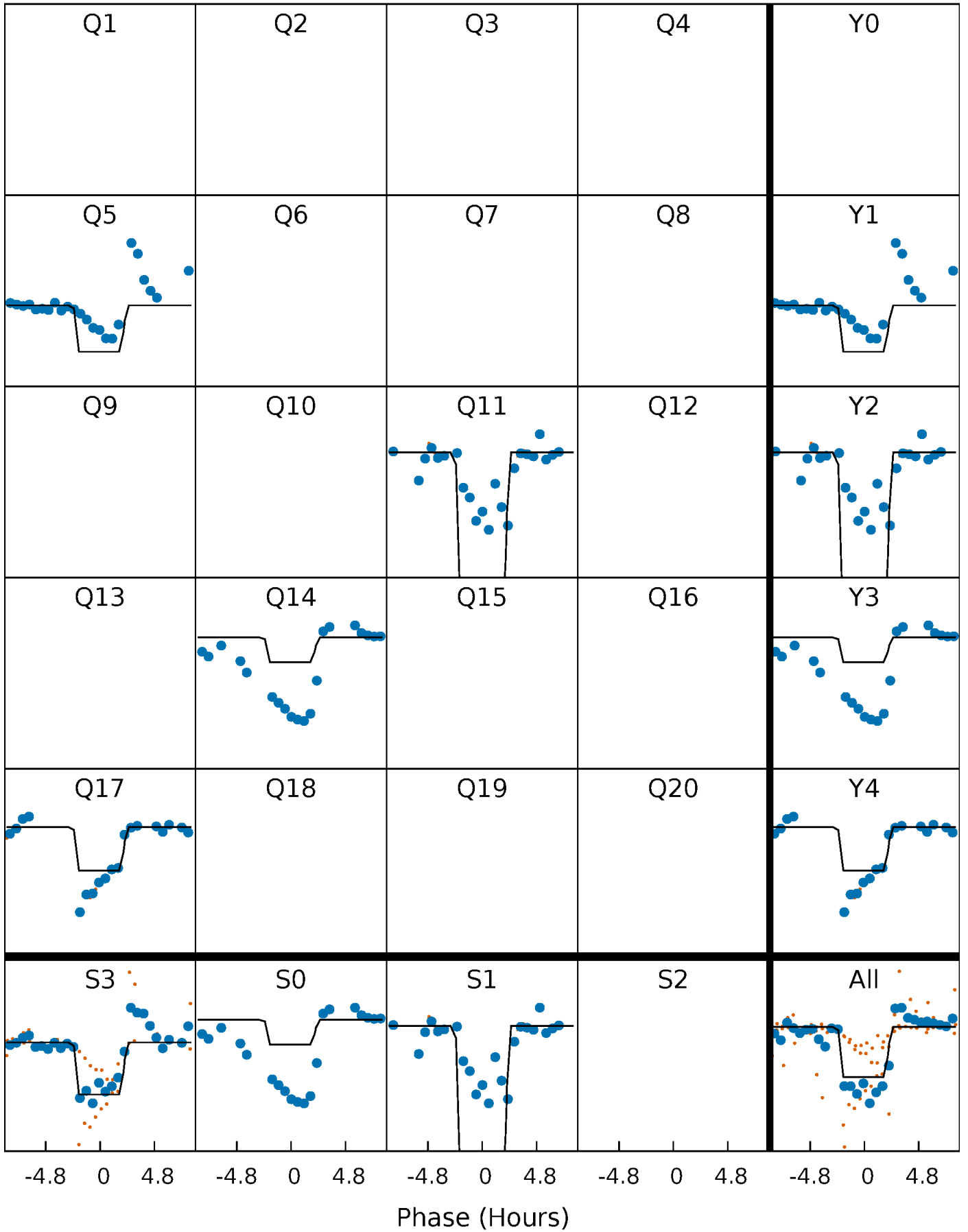
DV Quarter-Phased Transit Curves

TCE 001573138-01 P=275.711098 Days $T_0=182.562142$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

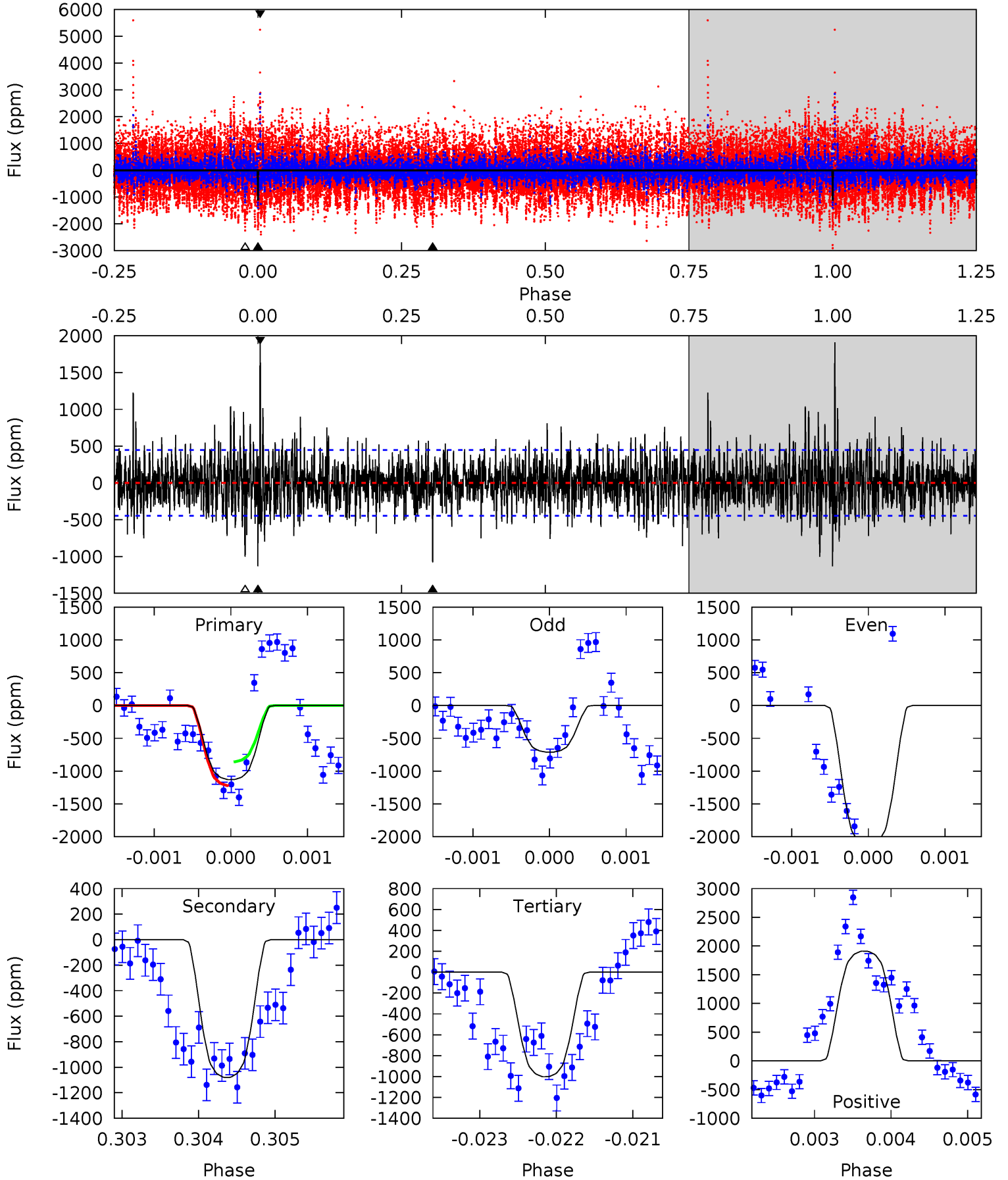
TCE 001573138-01 P=275.710864 Days $T_0=182.547211$ (BKJD)



DV Model-Shift Uniqueness Test

001573138-01, $P = 275.711098$ Days, $E = 182.562142$ Days

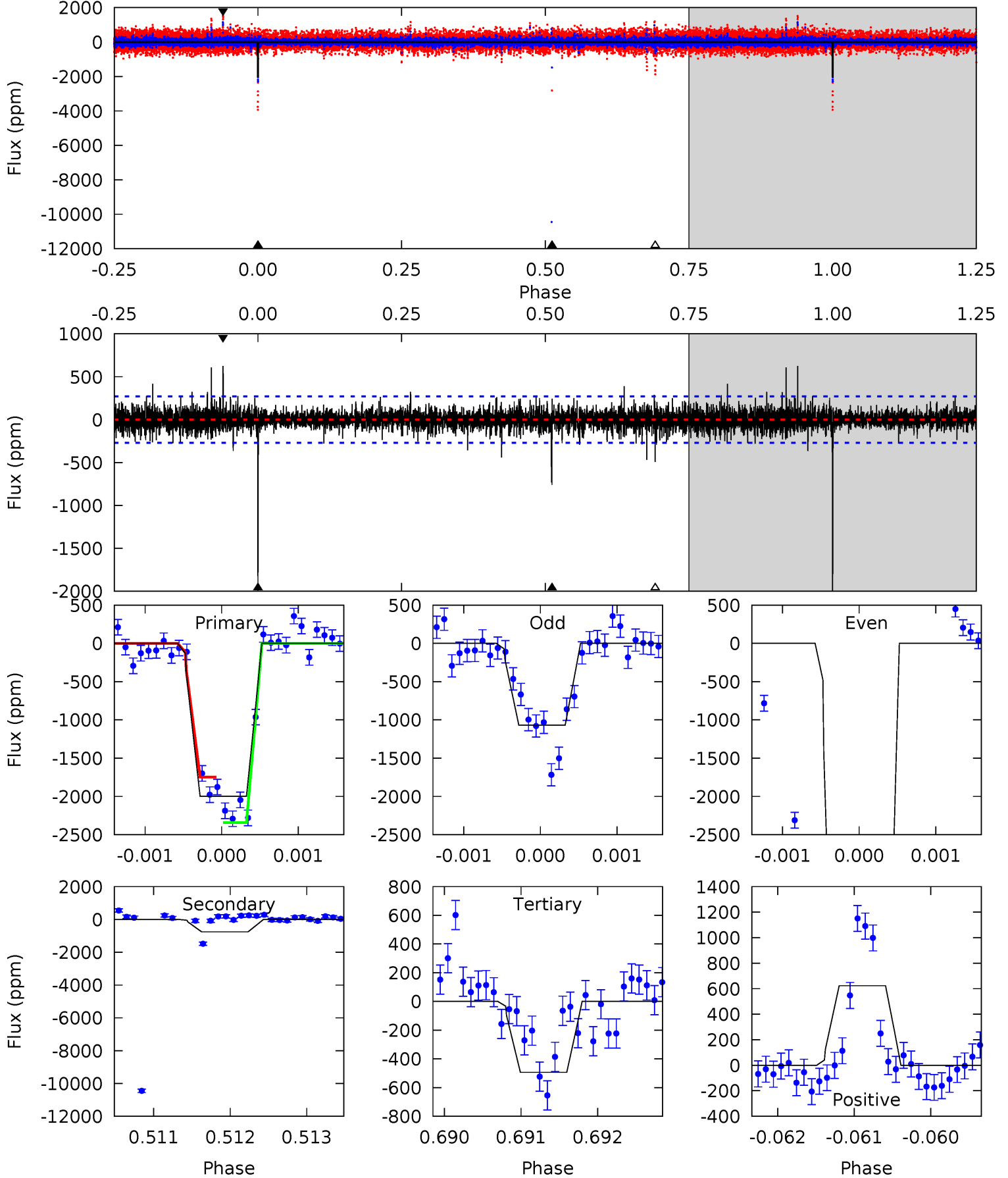
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	13.2	12.3	23.4	5.49	3.34	3.10	1.57	-9.58	0.96	-10.2	5.70	1.10	0.63	2.23



Alt Model-Shift Uniqueness Test

001573138-01, P = 275.710864 Days, E = 182.547211 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.7	15.4	10.0	12.7	5.51	3.38	1.53	30.7	28.0	5.40	2.75	48.0	1.42	0.24	0



Stellar Parameters For KIC 001573138

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4838^{+79}_{-43}	$3.486^{+0.130}_{-0.130}$	$-0.020^{+0.150}_{-0.100}$	$2.871^{+0.636}_{-0.343}$	$0.920^{+0.142}_{-0.017}$	$0.055^{+0.028}_{-0.023}$
	+2%/-1%	+4%/-4%	+750%/-500%	+22%/-12%	+15%/-2%	+51%/-42%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 001573138-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1080 ± 82	$11.76^{+2.43}_{-2.26}$	562^{+29}_{-22}	4611^{+410}_{-289}	2867^{+1538}_{-882}
Alt.	-758 ± 49	$15.60^{+2.62}_{-2.59}$	563^{+28}_{-24}	3892^{+208}_{-160}	1123^{+502}_{-280}

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 $A_{obs} \gg 1.0$

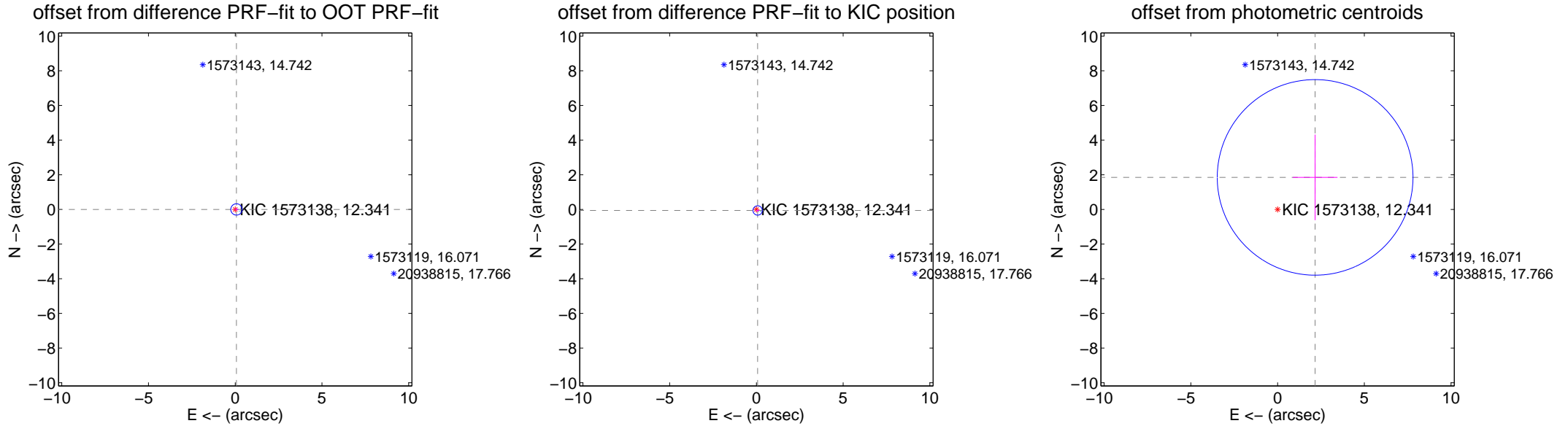
DV Centroid Data

Supplemental centroid analysis for 001573138-01. Kepler magnitude: 12.34. Transit SNR 5.31

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.071 ± 0.109	0.65	-0.071 ± 0.109	-0.000 ± 0.076
PRF-fit source offset from KIC position	0.094 ± 0.090	1.04	-0.072 ± 0.098	-0.060 ± 0.076
photometric centroid source offset	2.85 ± 1.88	1.51	-2.16 ± 1.29	1.85 ± 2.47

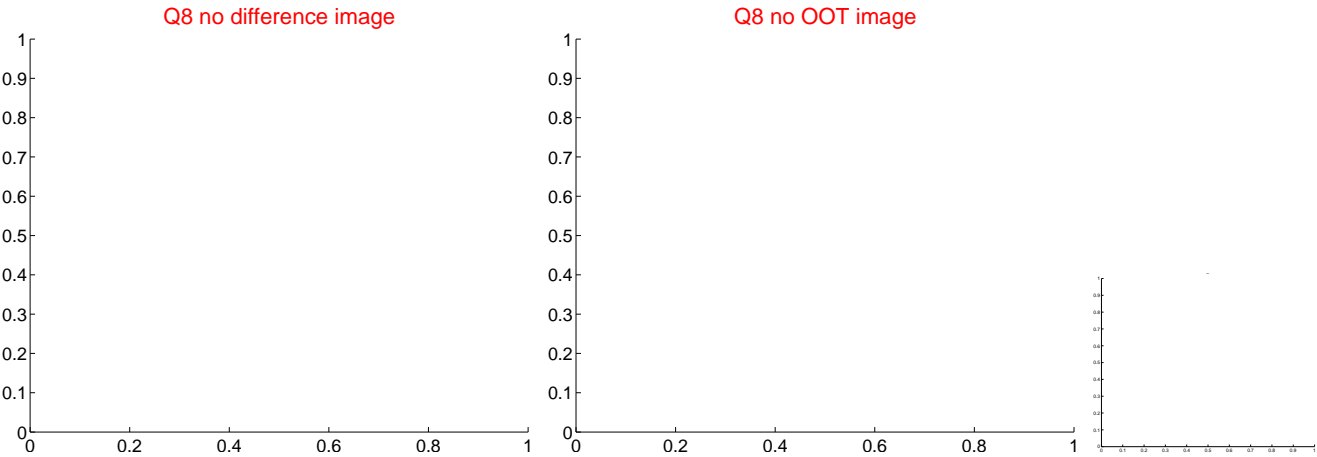
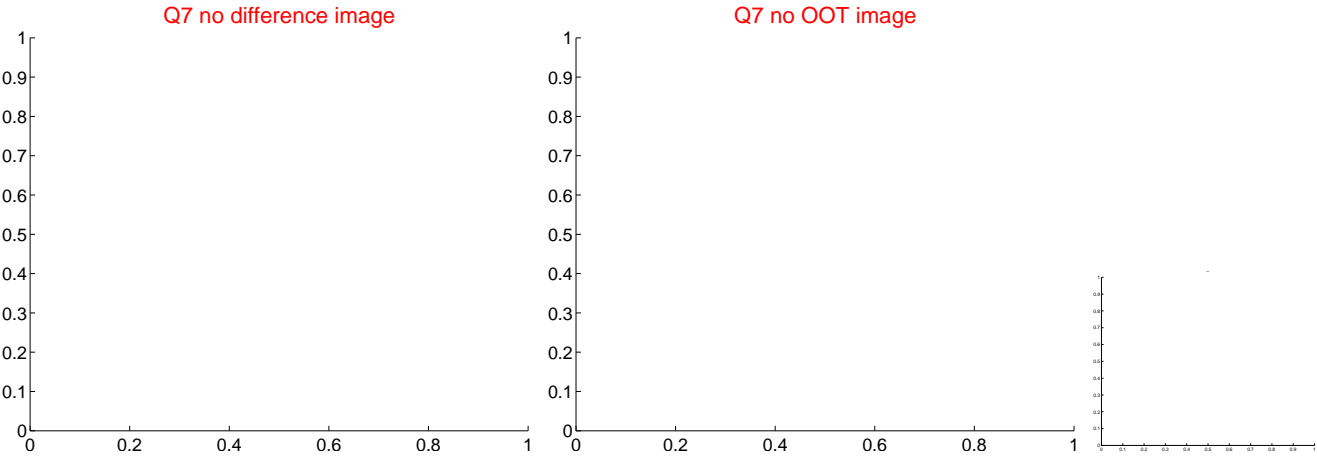
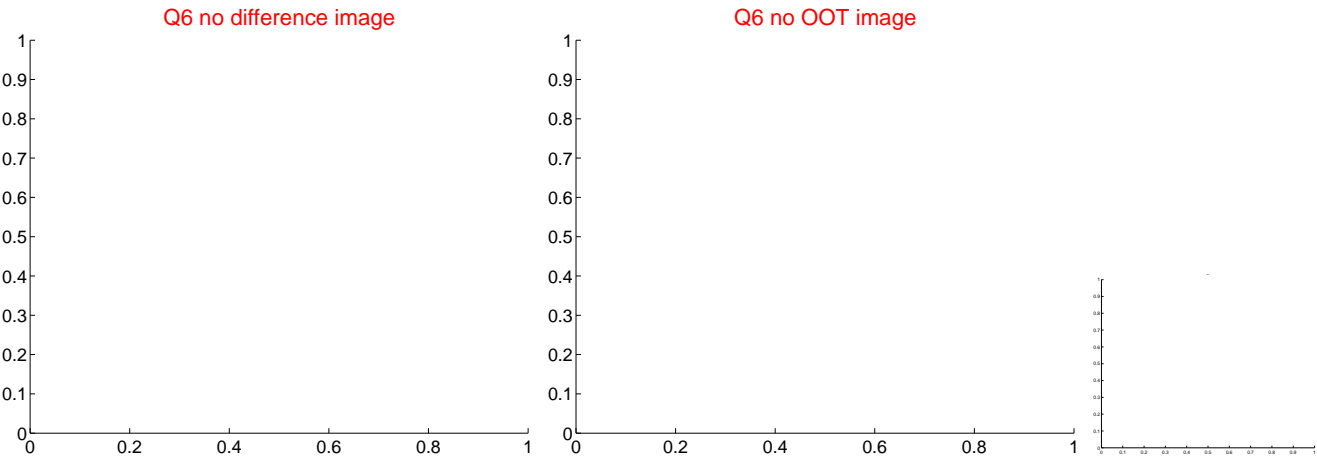
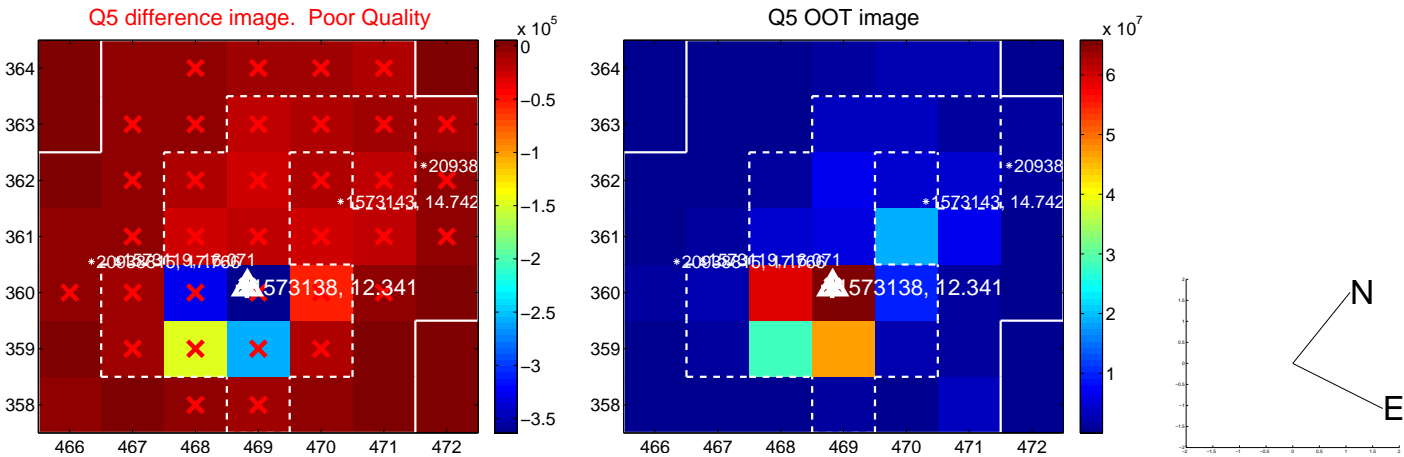


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

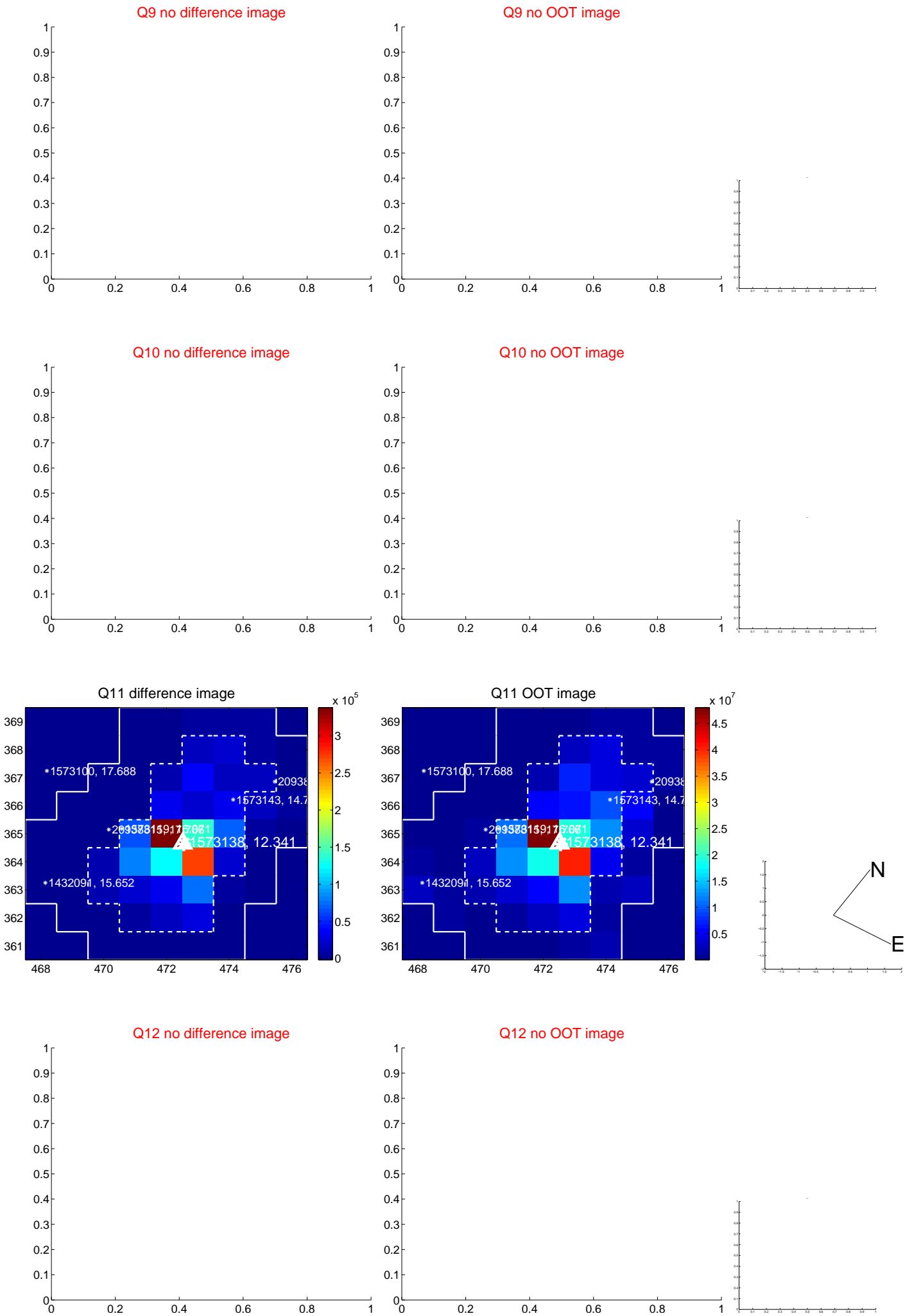
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



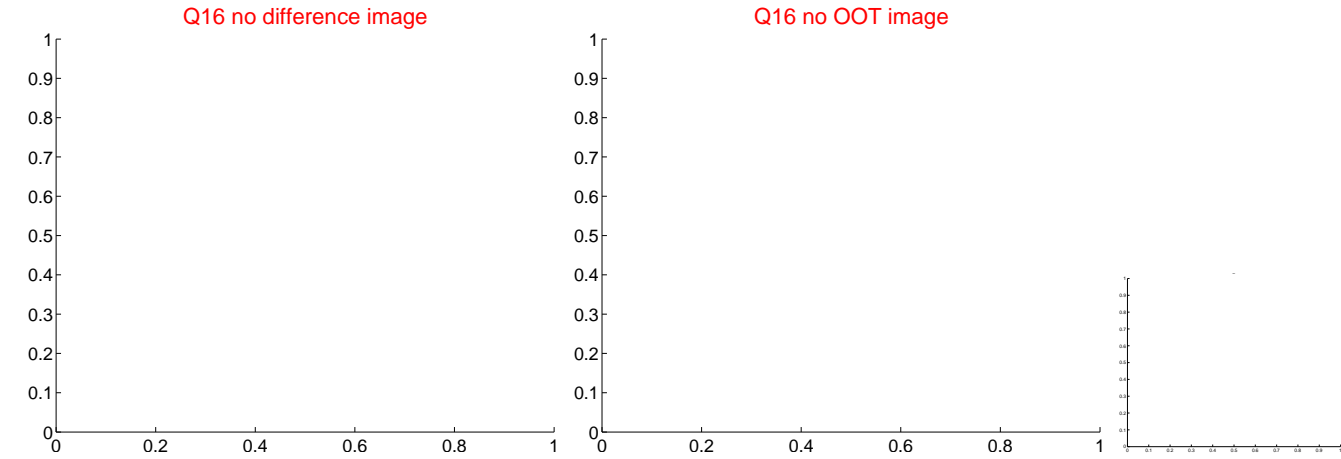
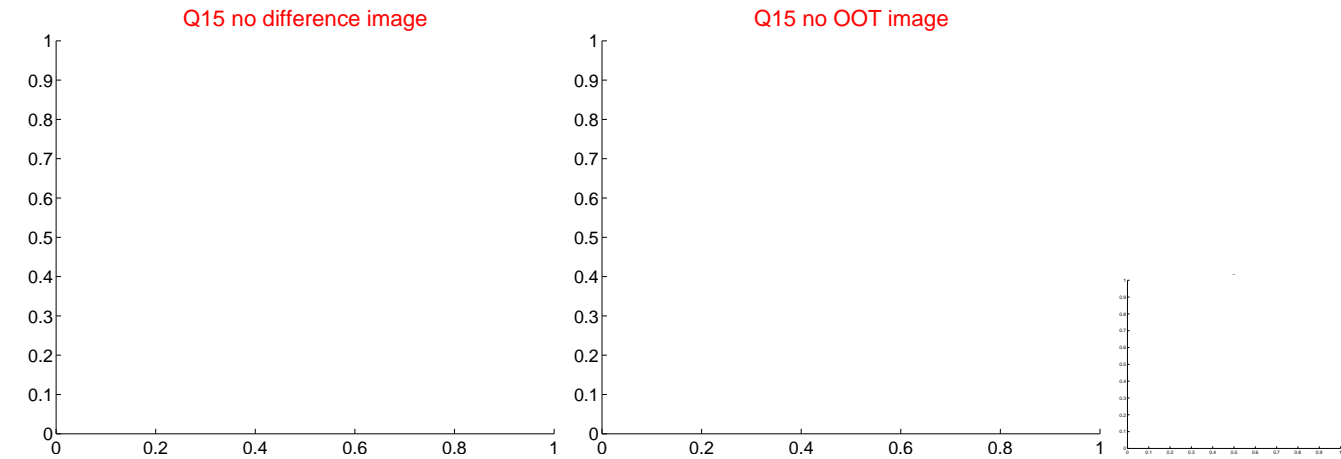
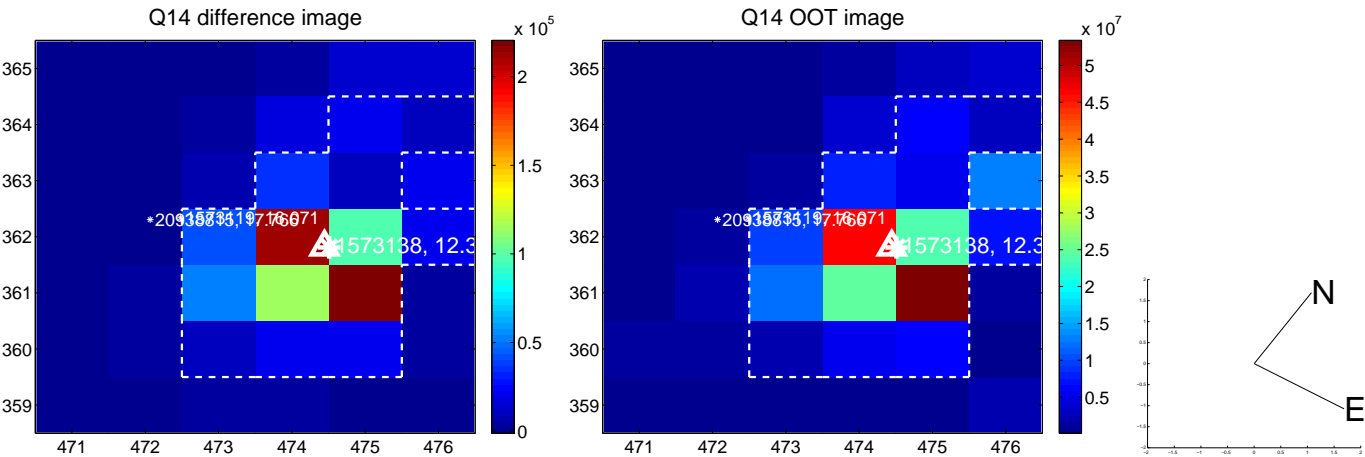
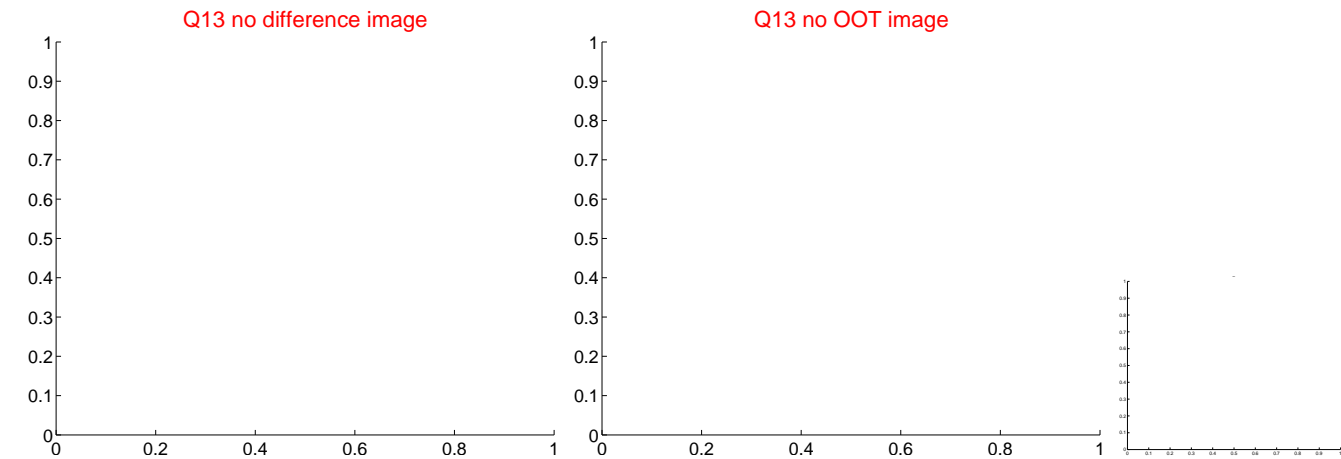
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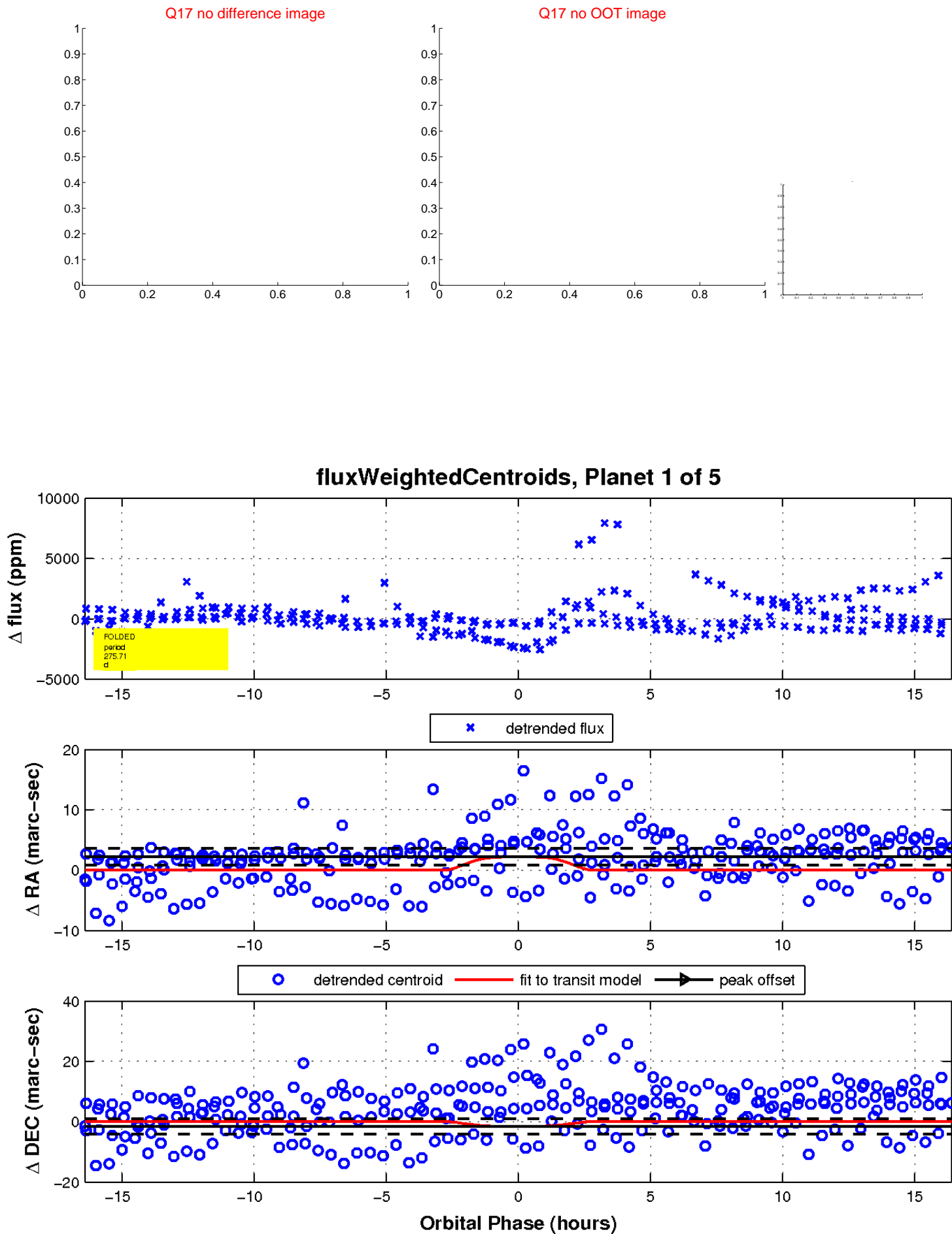
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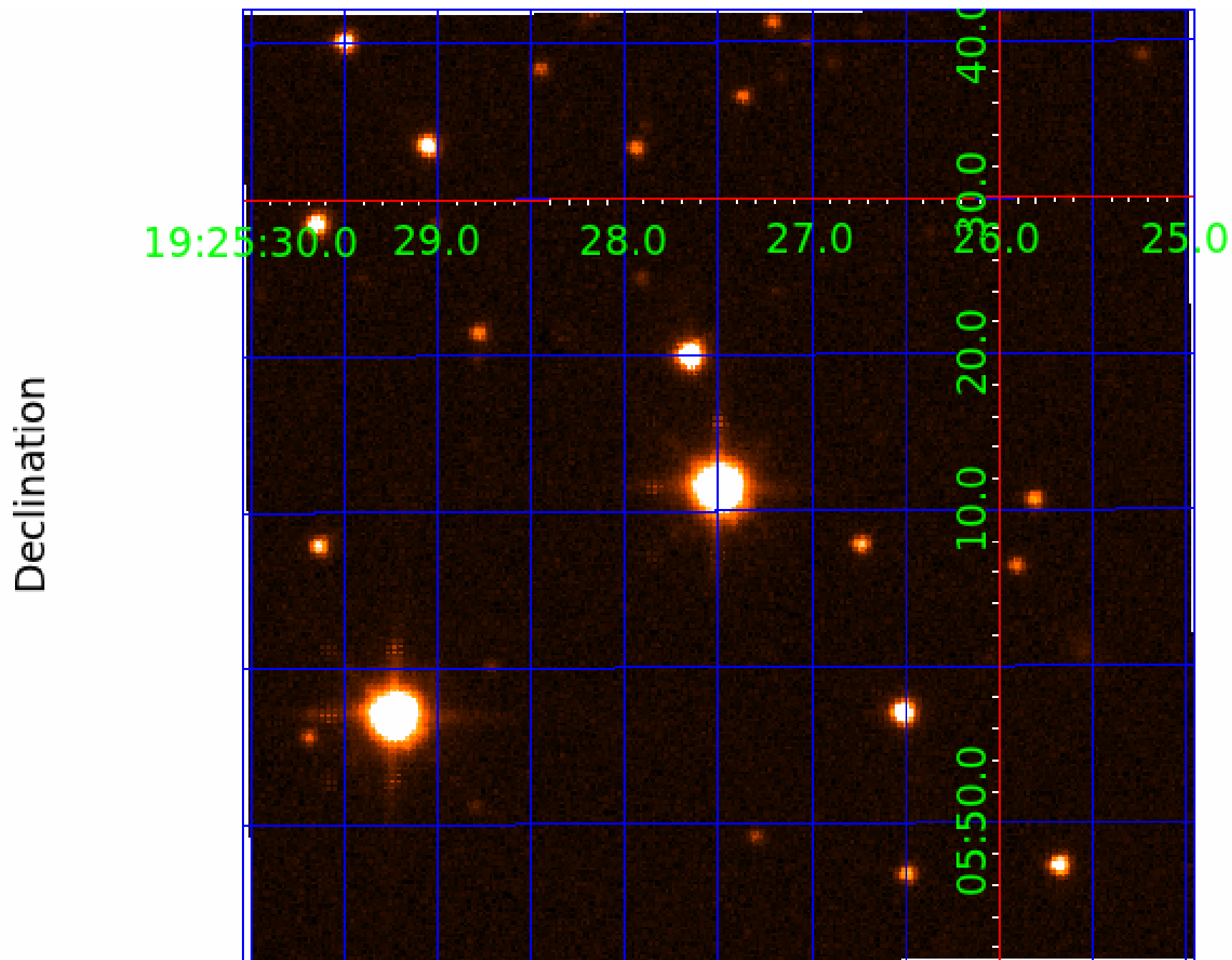
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image



KIC 001573138

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})
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001573138-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

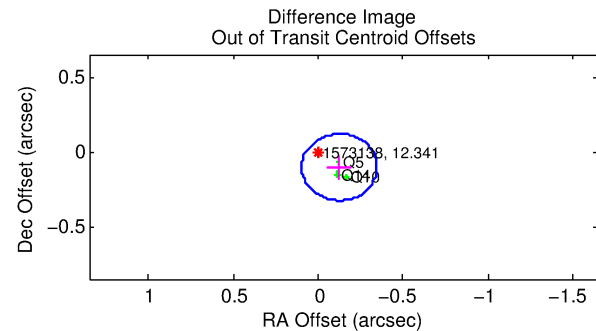
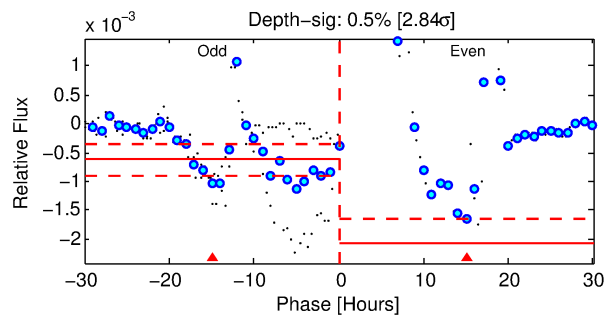
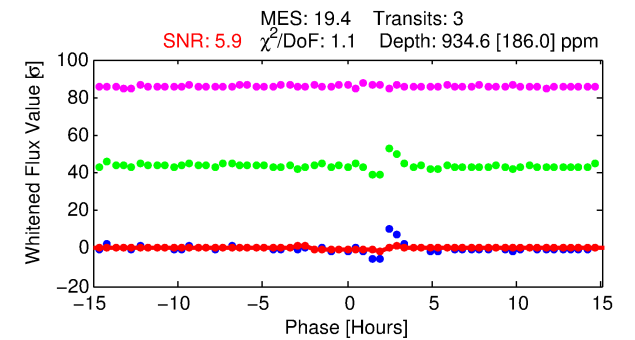
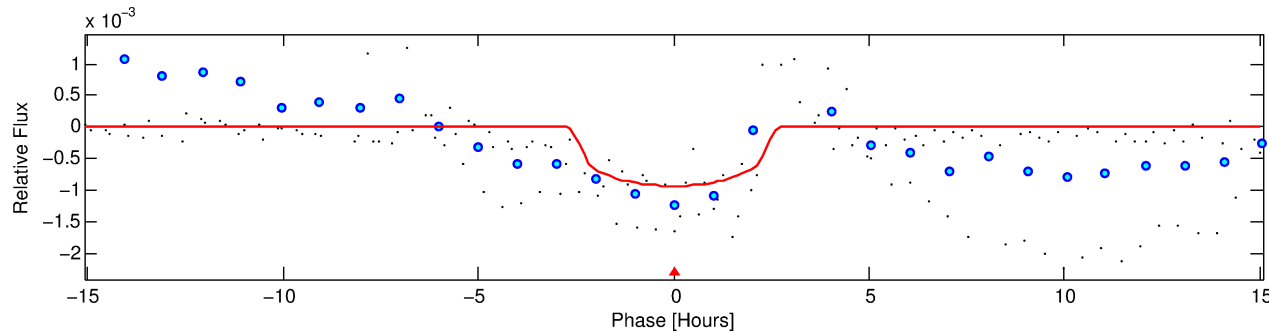
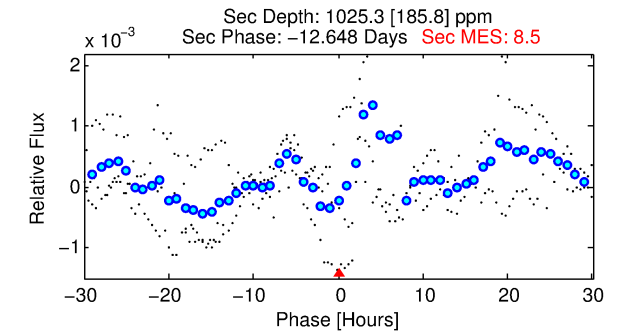
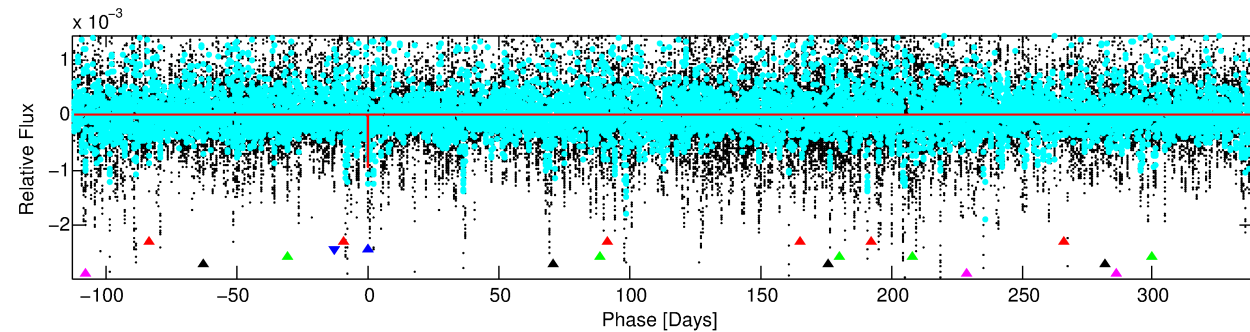
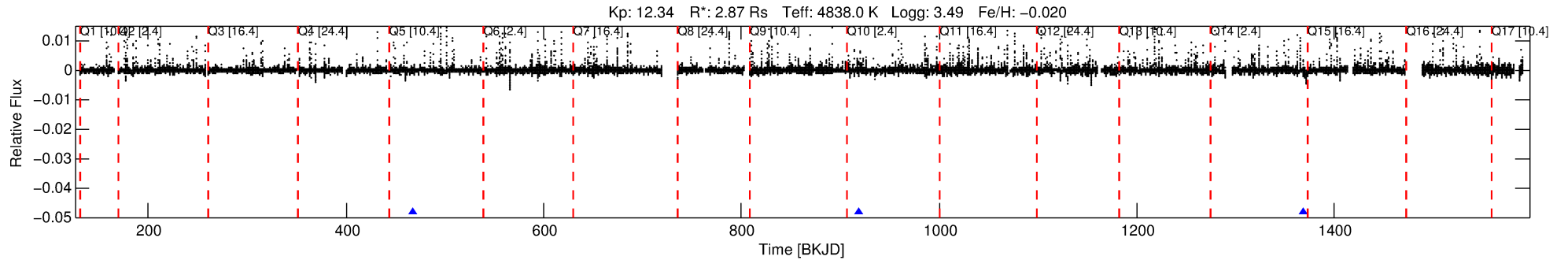
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 001573138-02

No Significant Match Found

DV One-Page Summary

KIC: 1573138 Candidate: 2 of 5 Period: 450.555 d



DV Fit Results:

Period = 450.55484 [0.00437] d
Epoch = 467.7132 [0.0050] BKJD
Rp/R* = 0.0273 [0.0371]
a/R* = 677.49 [3031.93]
b = 0.28 [15.10]
Seff = 3.23 [0.83]
Teq = 342 [22] K
Rp = 8.55 [11.79] Re
a = 1.1191 [0.1995] AU
Ag = 9653.51 [26430.80] [0.37σ]
Teffp = 5239 [3572] K [1.37σ]

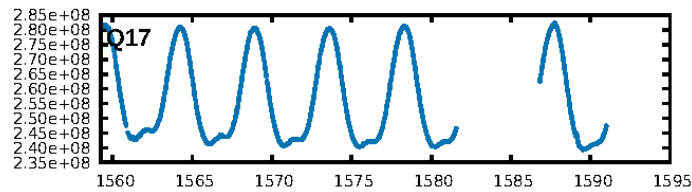
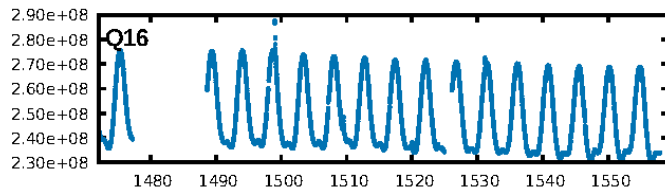
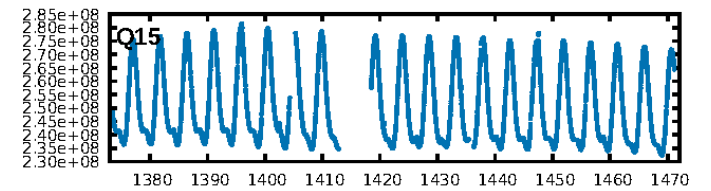
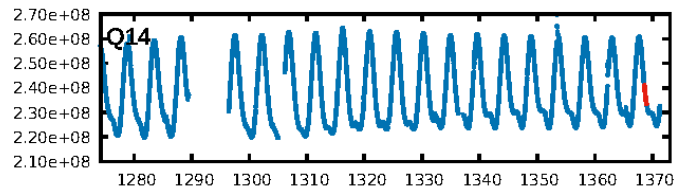
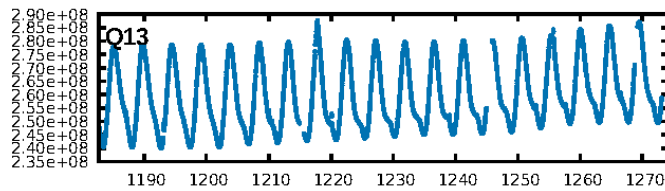
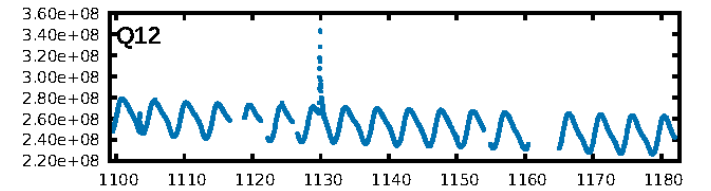
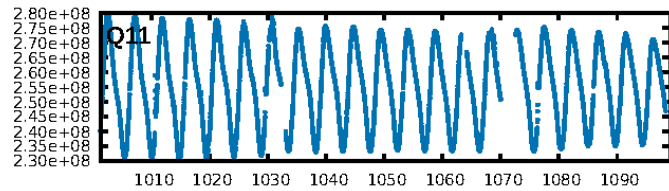
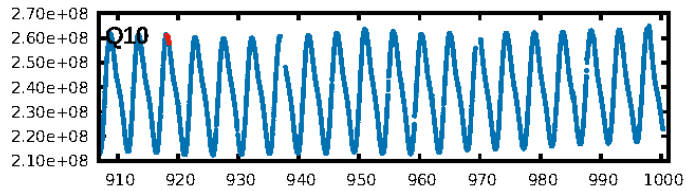
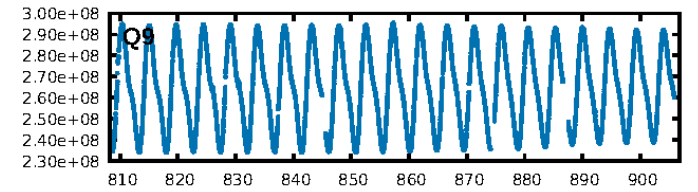
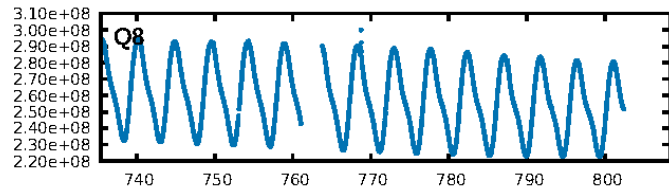
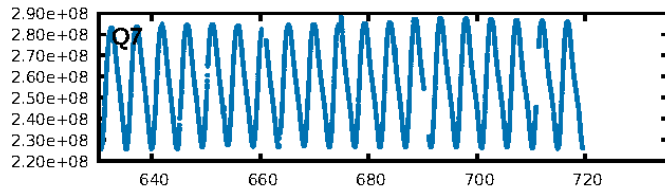
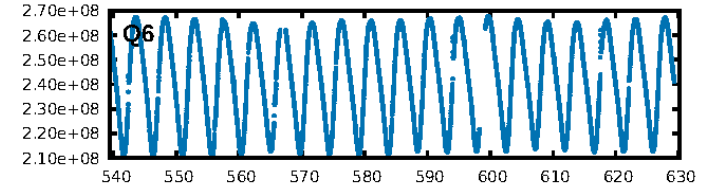
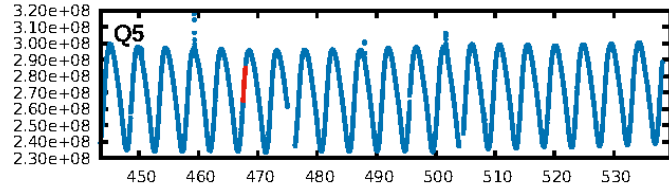
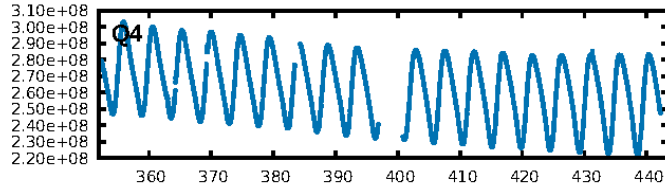
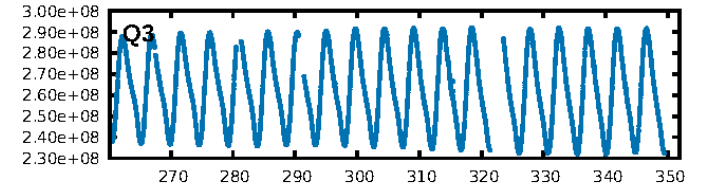
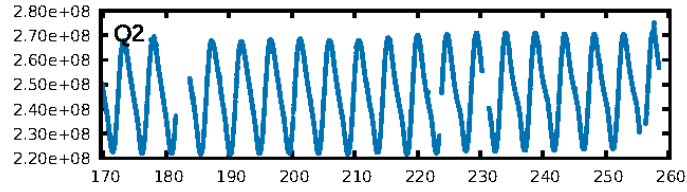
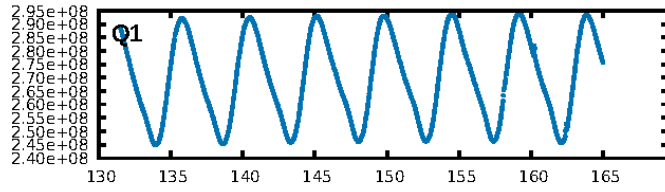
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [374.89σ]
LongPeriod-sig: 100.0% [202.57σ]
ModelChiSquare2-sig: 69.1%
ModelChiSquareGof-sig: 93.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3784
Centroid-sig: 23.9%
Centroid-so: 1.836 arcsec [0.94σ]
OotOffset-rm: 0.163 arcsec [2.20σ]
KicOffset-rm: 0.179 arcsec [2.53σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

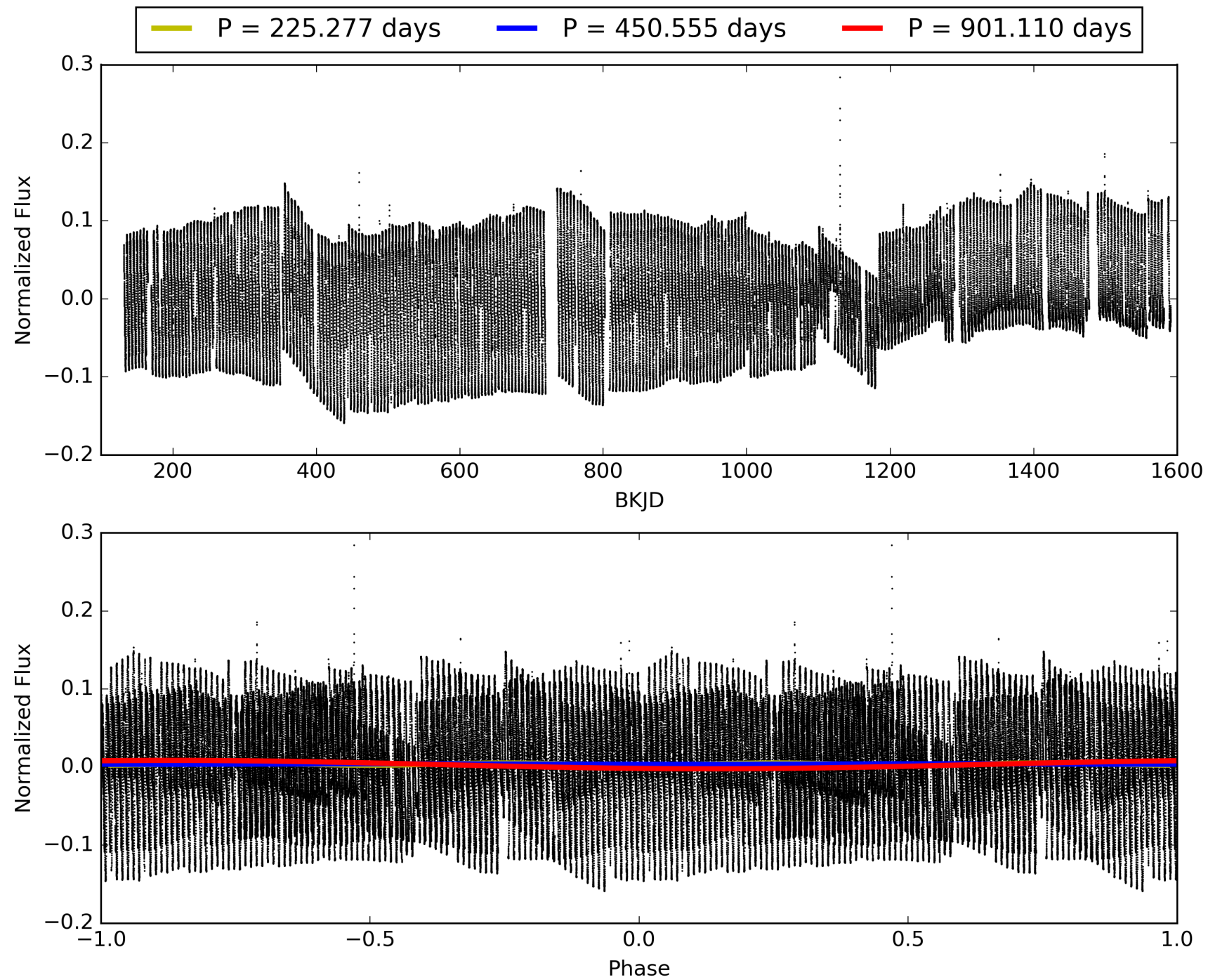
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:21:50 Z

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

TCE 001573138-02, PDC Light Curves

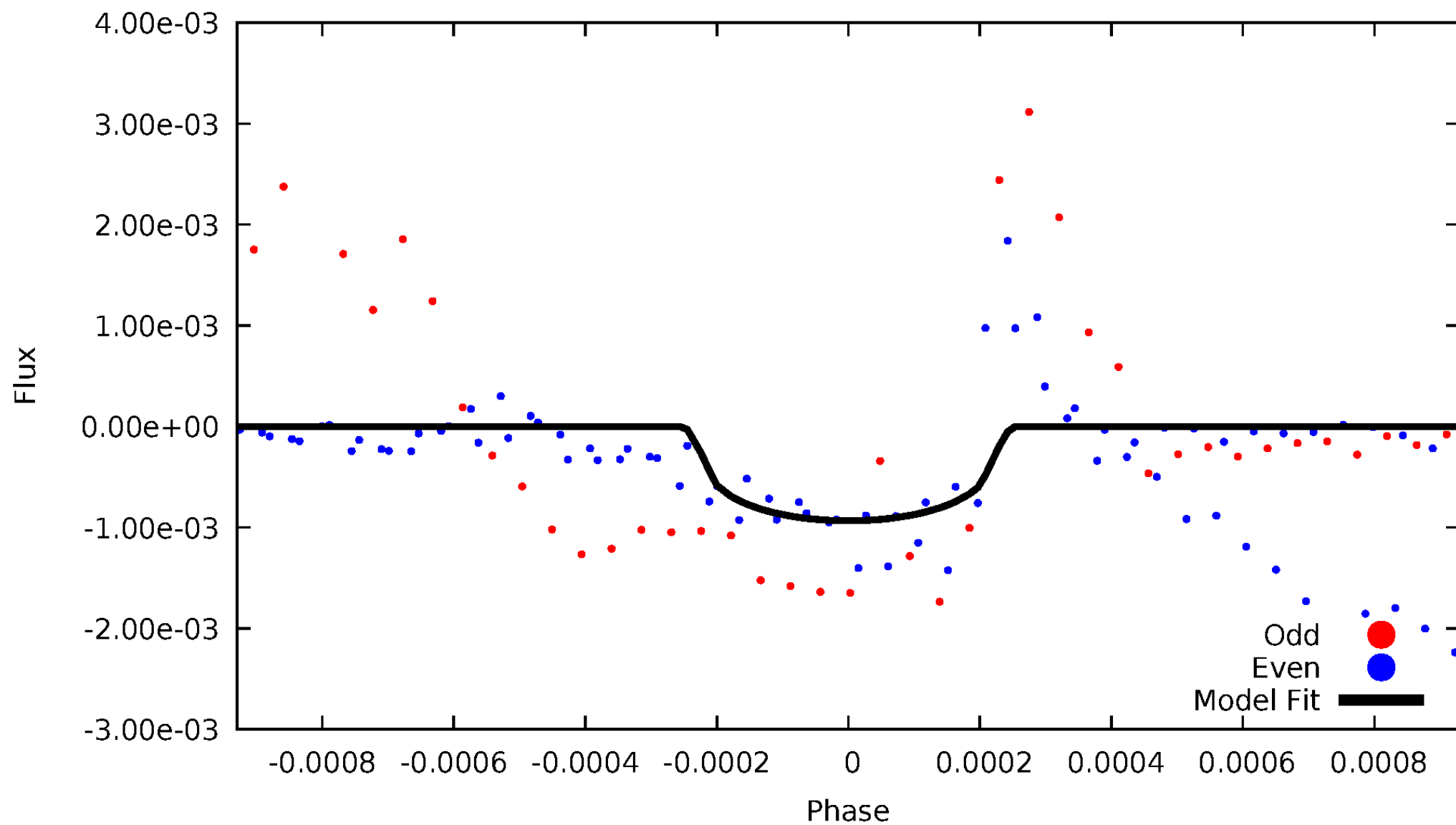


TCE 001573138-02



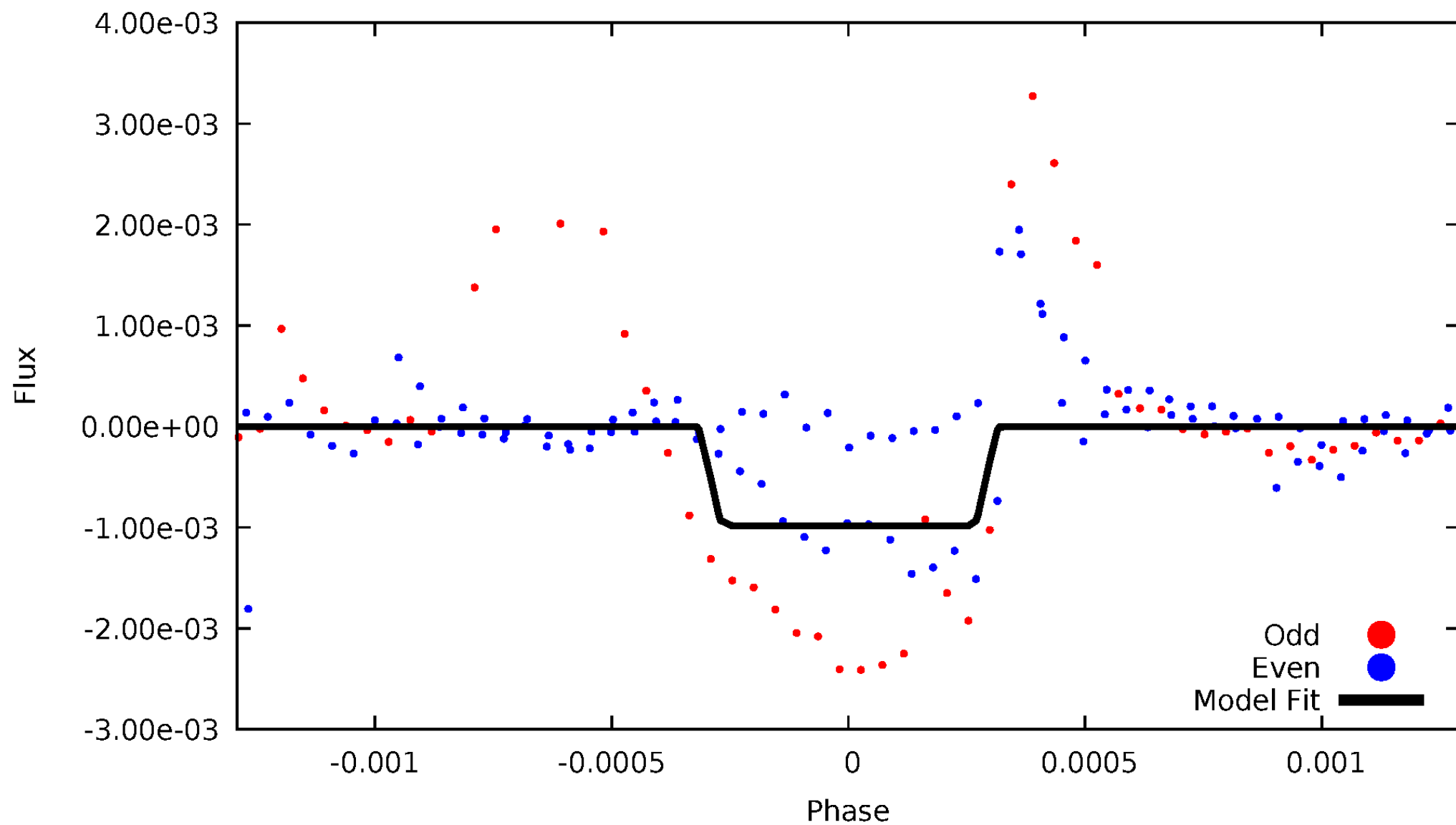
DV Odd/Even

TCE 001573138-02



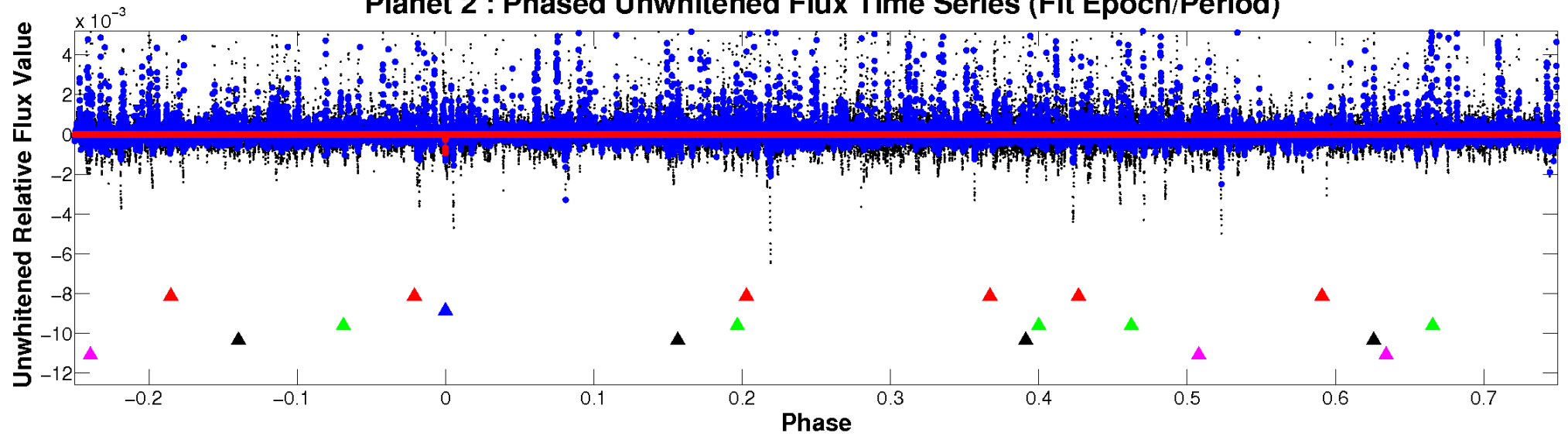
ALT Odd/Even

TCE 001573138-02

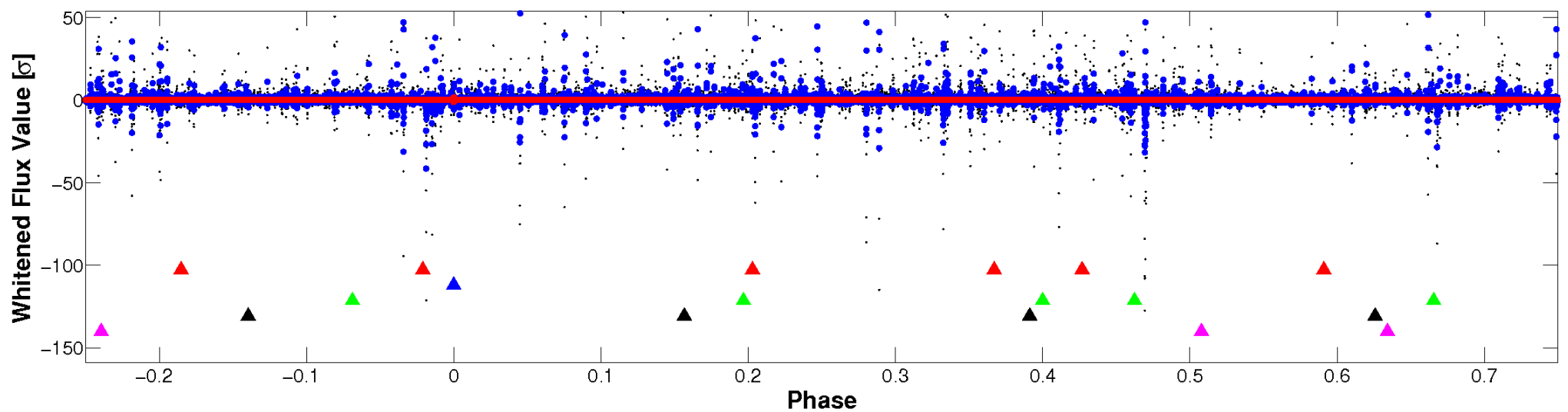


Non-Whitened Vs. Whitened Light Curve

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

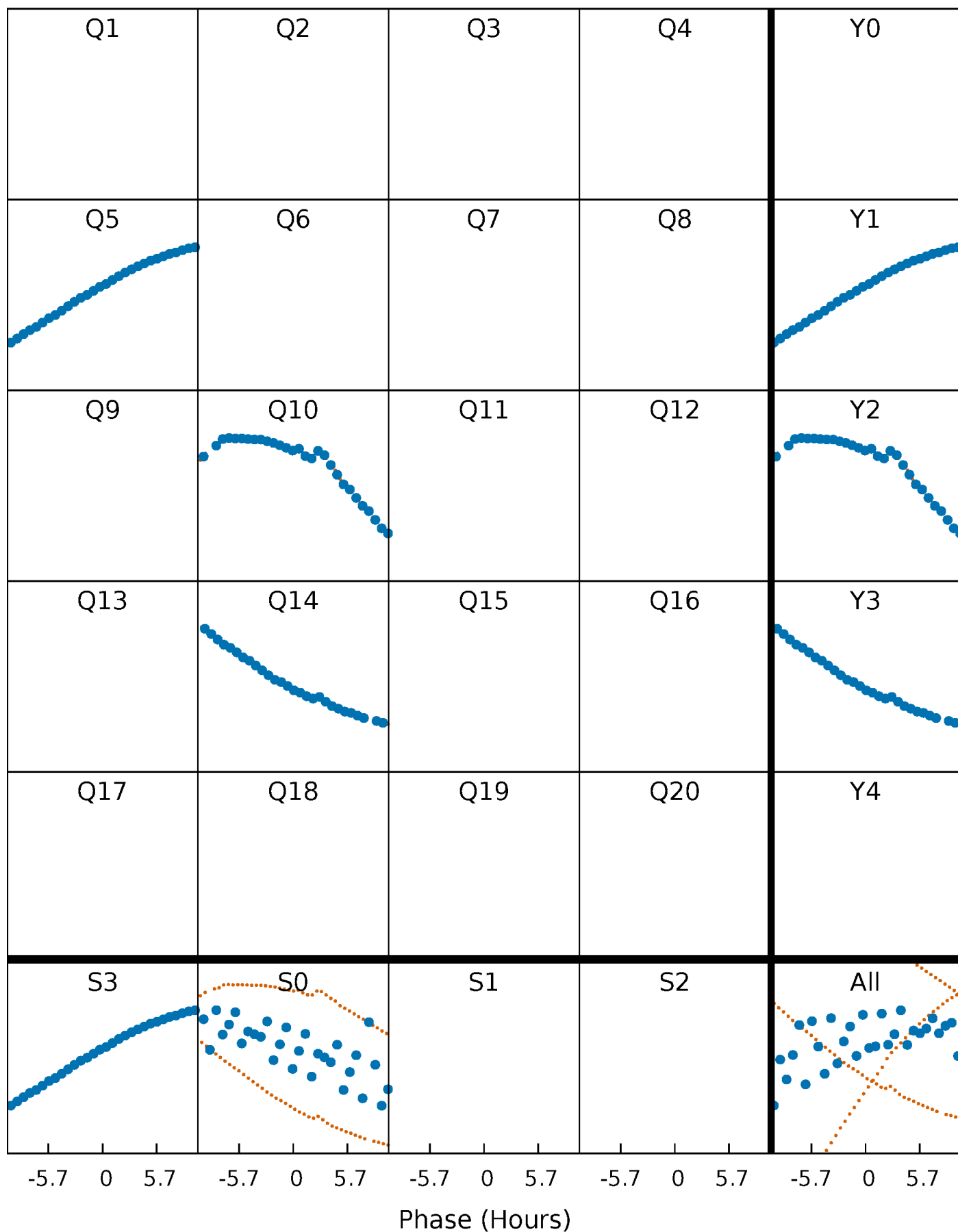


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



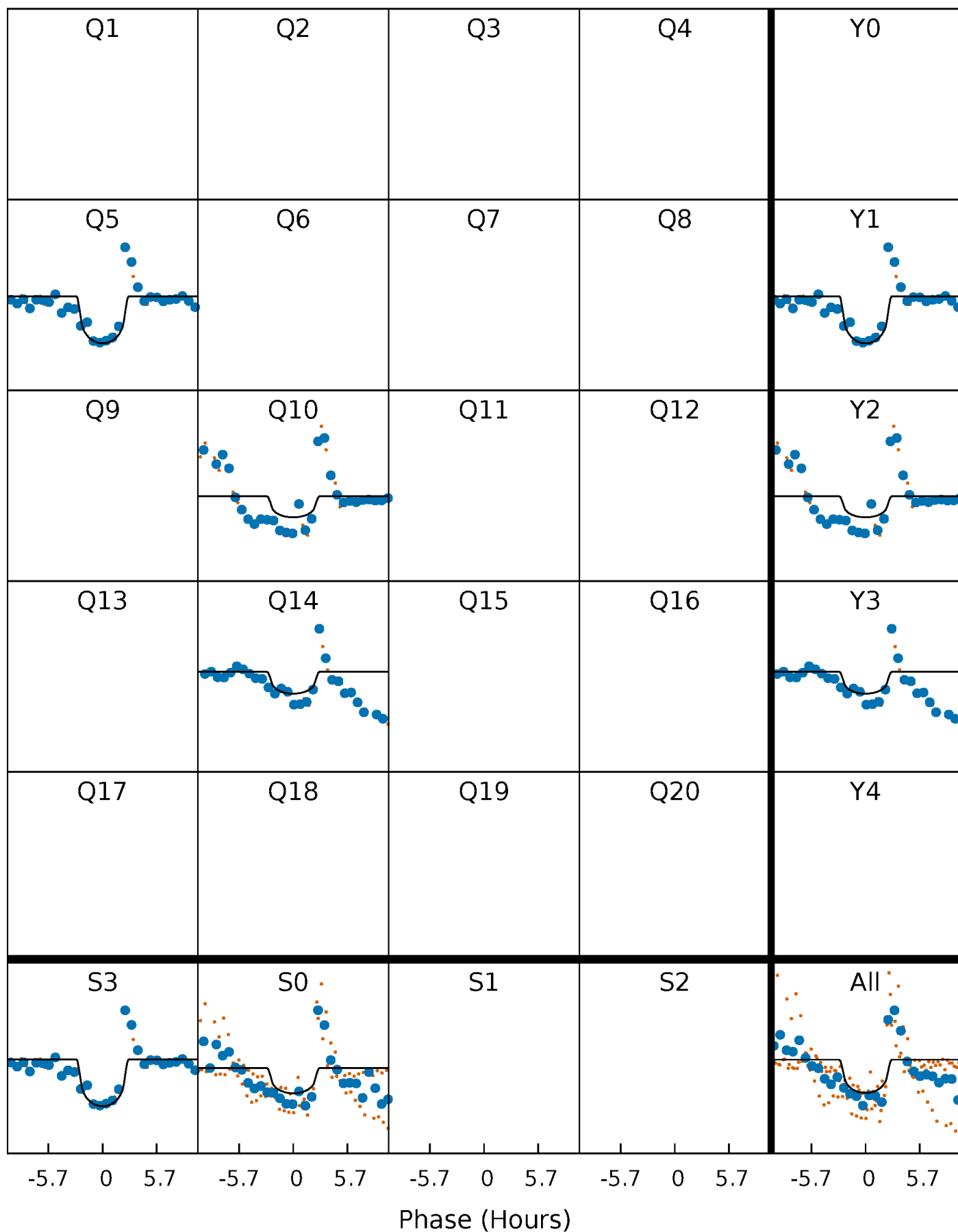
PDC Quarter-Phased Transit Curves

TCE 001573138-02 P=450.554838 Days $T_0=467.713189$ (BKJD)



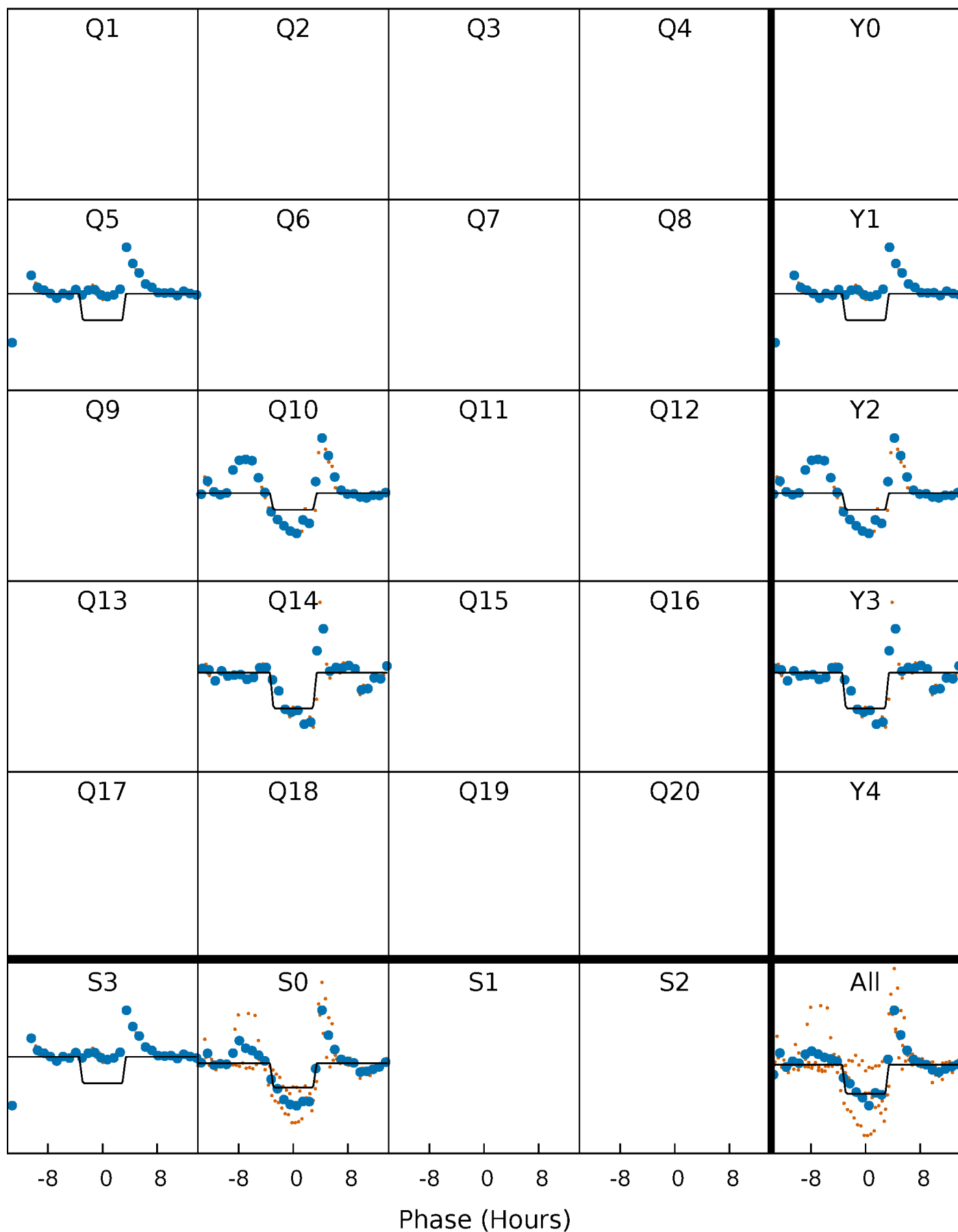
DV Quarter-Phased Transit Curves

TCE 001573138-02 P=450.554838 Days $T_0=467.713189$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

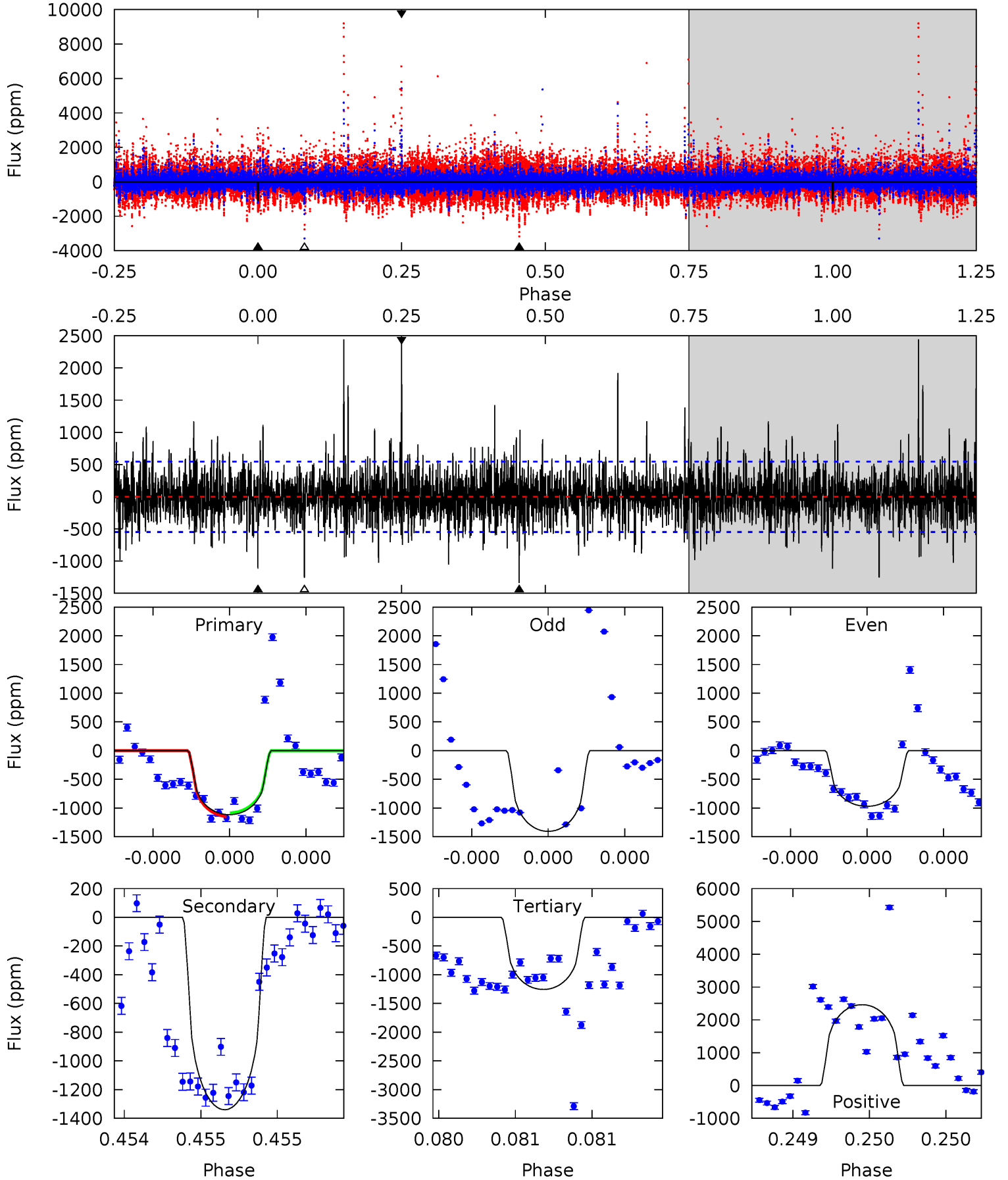
TCE 001573138-02 P=450.553187 Days $T_0=467.663185$ (BKJD)



DV Model-Shift Uniqueness Test

001573138-02, P = 450.554838 Days, E = 17.158351 Days

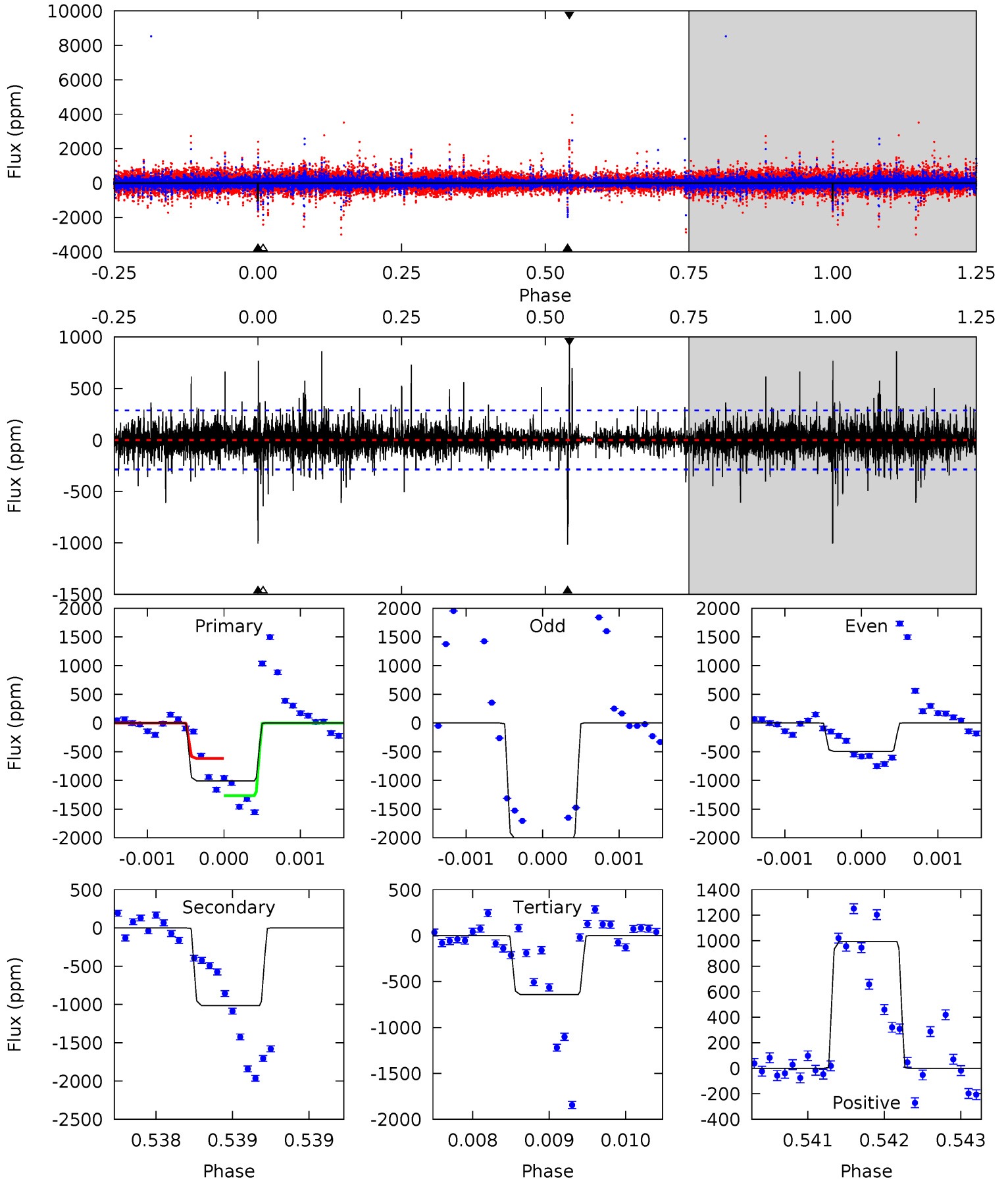
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	13.7	12.8	25.2	5.59	3.50	2.86	-1.43	-13.8	0.86	-11.5	1.01	0.95	0.65	0.35



Alt Model-Shift Uniqueness Test

001573138-02, P = 450.553187 Days, E = 17.109998 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	19.6	12.4	19.1	5.53	3.41	1.69	7.03	0.28	7.18	0.43	13.5	0.95	0.49	6.46



Stellar Parameters For KIC 001573138

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4838^{+79}_{-43}	$3.486^{+0.130}_{-0.130}$	$-0.020^{+0.150}_{-0.100}$	$2.871^{+0.636}_{-0.343}$	$0.920^{+0.142}_{-0.017}$	$0.055^{+0.028}_{-0.023}$
	+2%/-1%	+4%/-4%	+750%/-500%	+22%/-12%	+15%/-2%	+51%/-42%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 001573138-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1341 ± 98	$12.54^{+9.74}_{-8.23}$	477^{+23}_{-19}	4723^{+3474}_{-912}	6089^{+47520}_{-4183}
Alt.	-1015 ± 52	$12.84^{+10.44}_{-7.96}$	477^{+24}_{-20}	4417^{+2327}_{-836}	4394^{+26778}_{-3092}

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 $A_{obs} \gg 1.0$

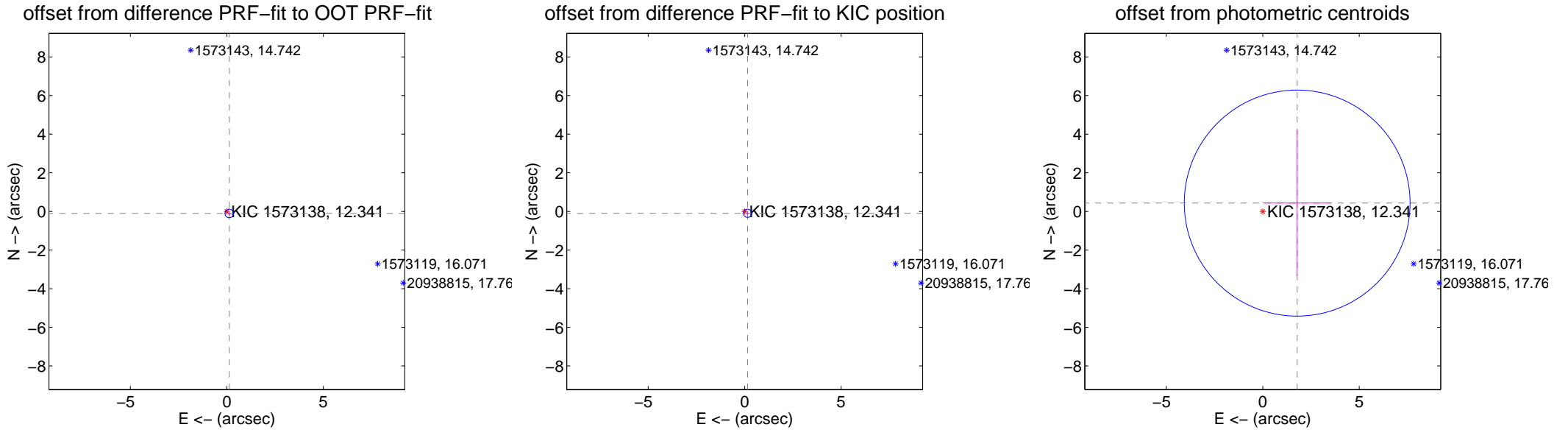
DV Centroid Data

Supplemental centroid analysis for 001573138-02. Kepler magnitude: 12.34. Transit SNR 5.86

There are 1 quarters with good PRF difference image offsets

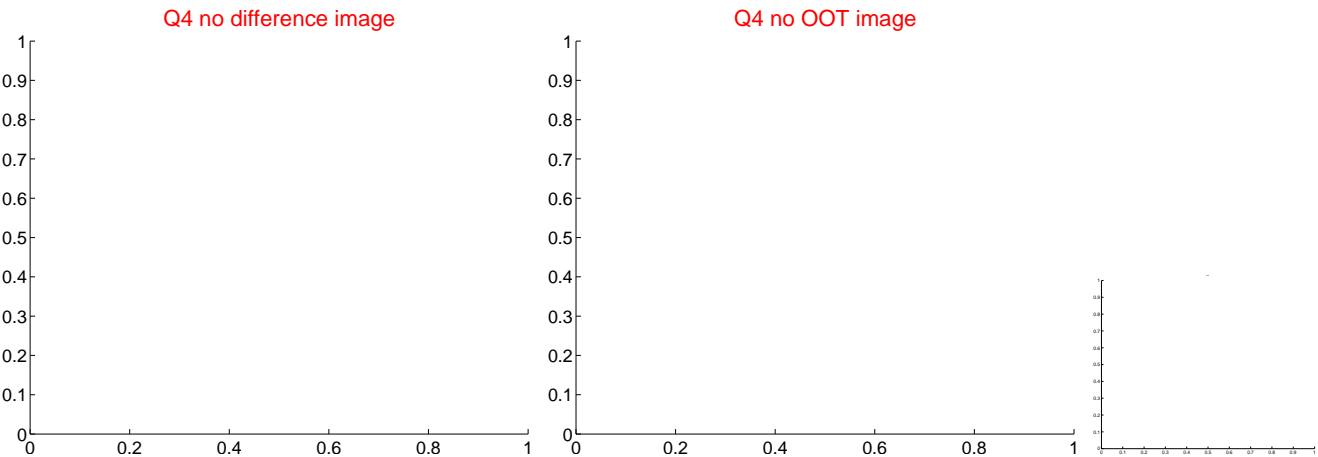
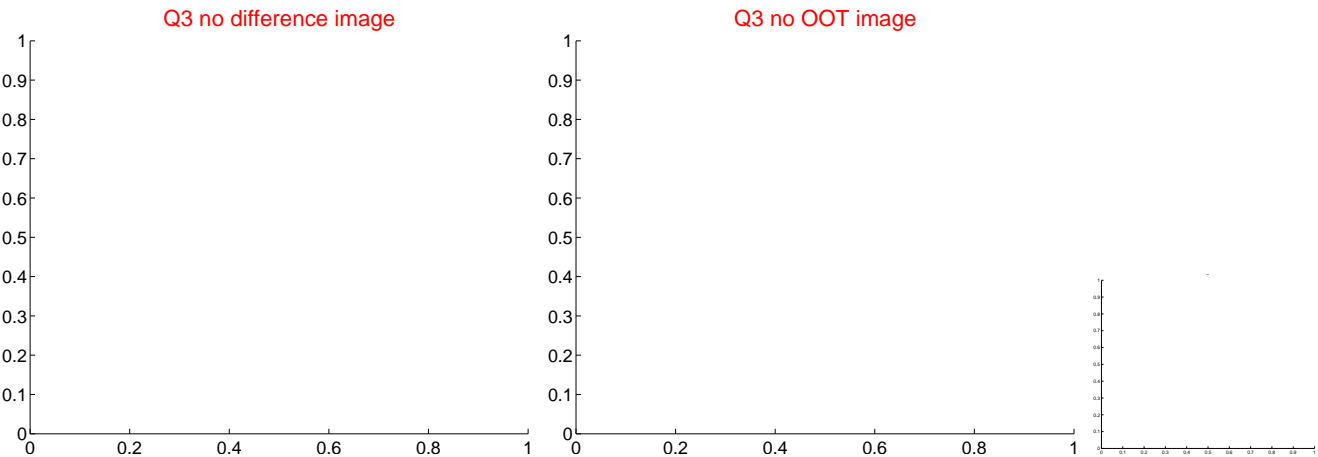
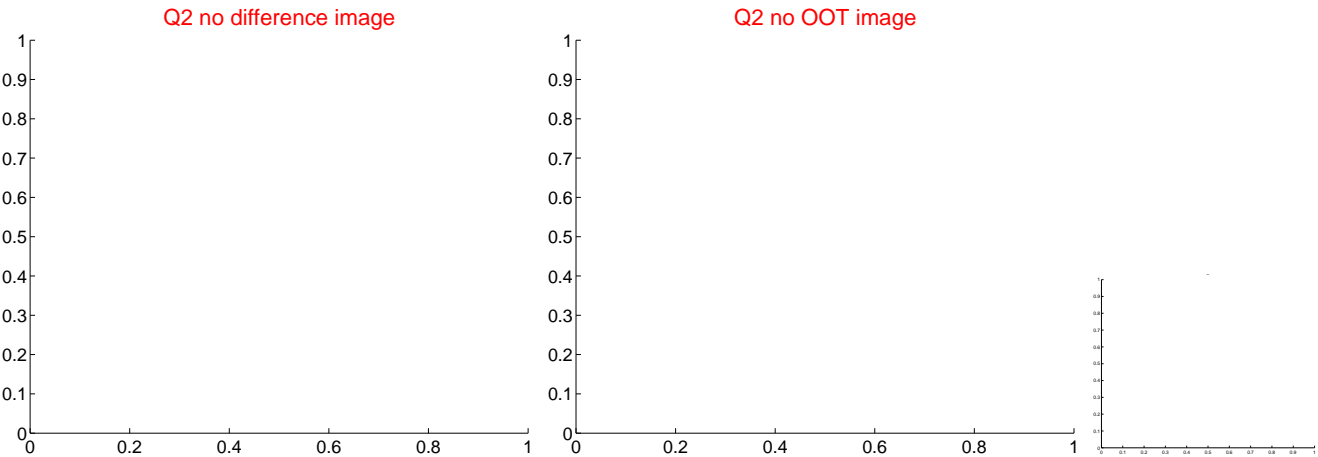
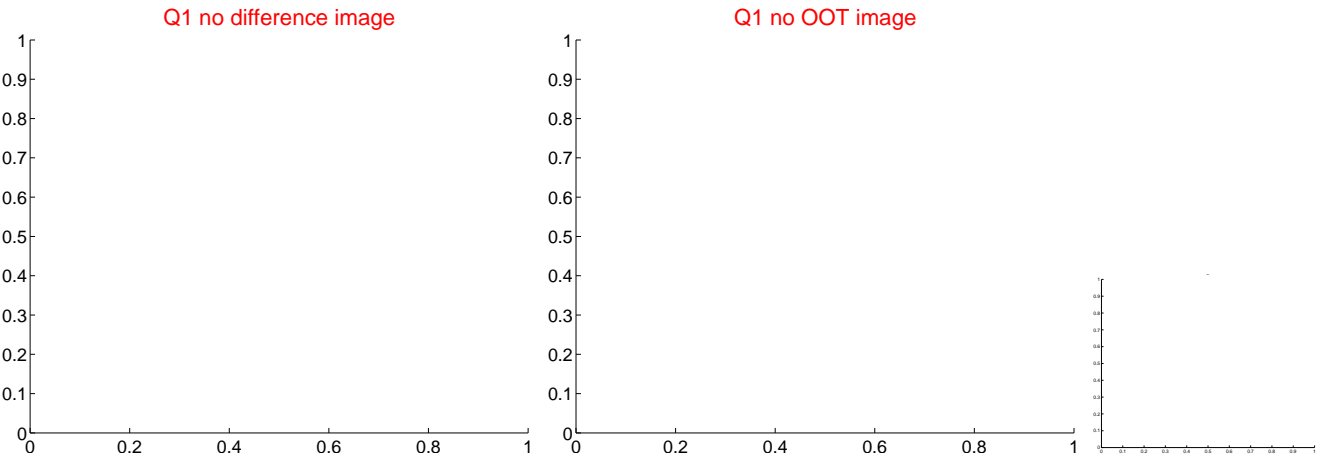
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.163 ± 0.074	2.20	-0.125 ± 0.069	-0.104 ± 0.074
PRF-fit source offset from KIC position	0.179 ± 0.071	2.53	-0.151 ± 0.068	-0.097 ± 0.078
photometric centroid source offset	1.84 ± 1.95	0.94	-1.78 ± 1.79	0.43 ± 3.78

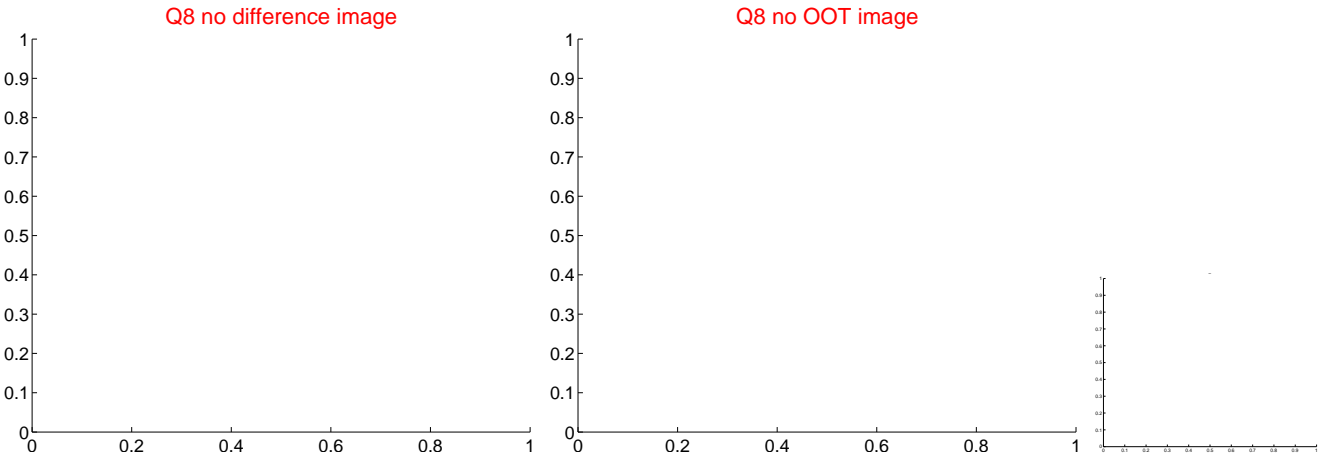
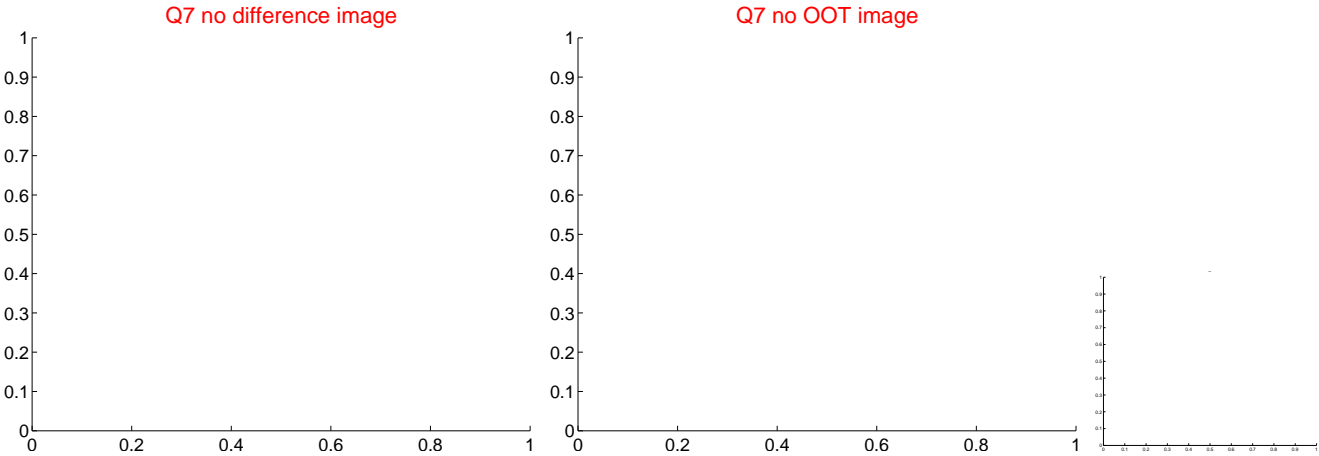
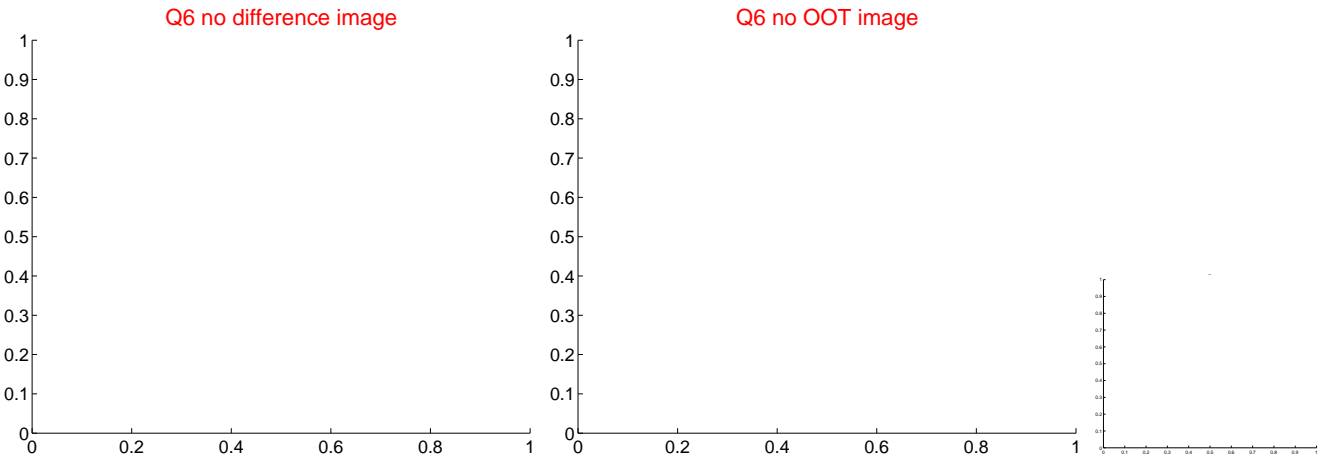
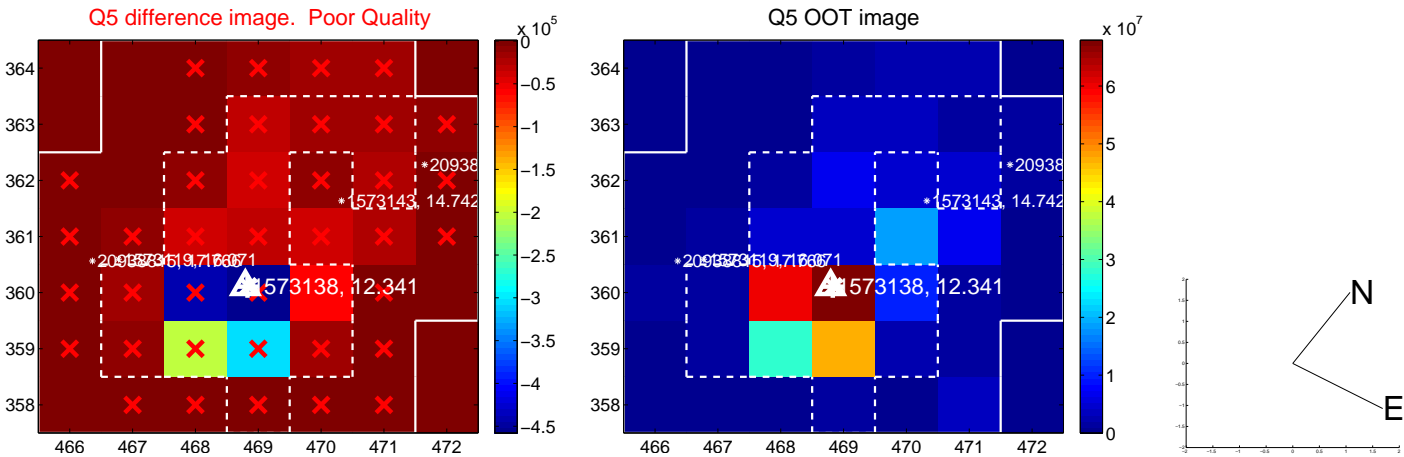


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

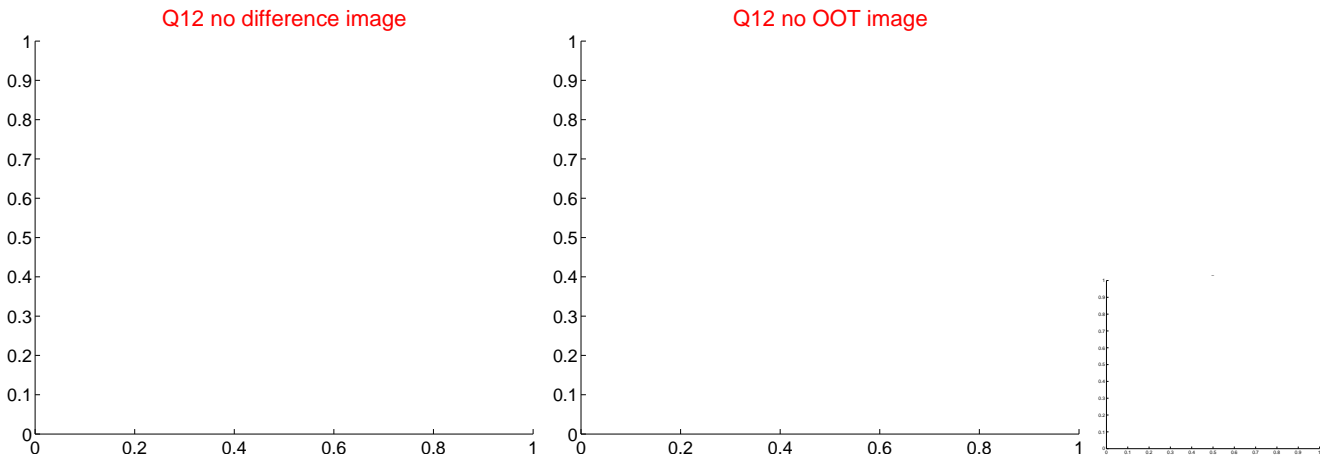
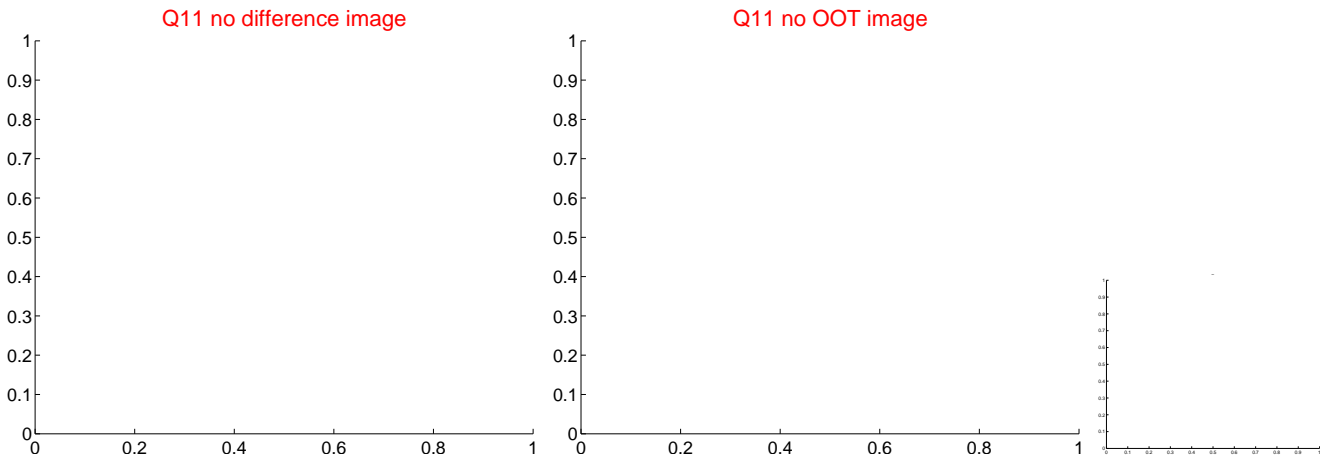
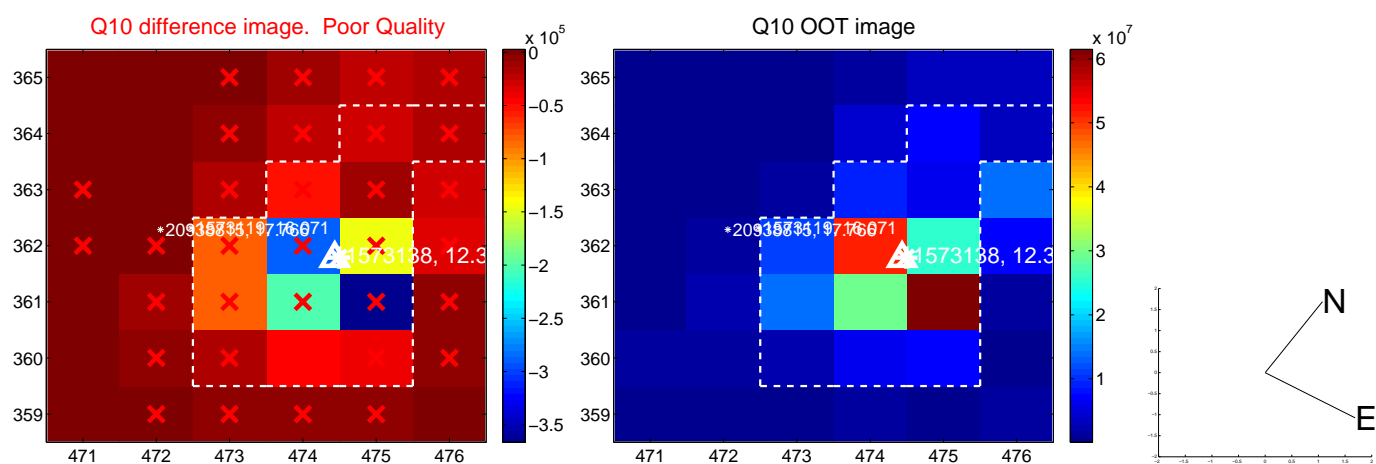
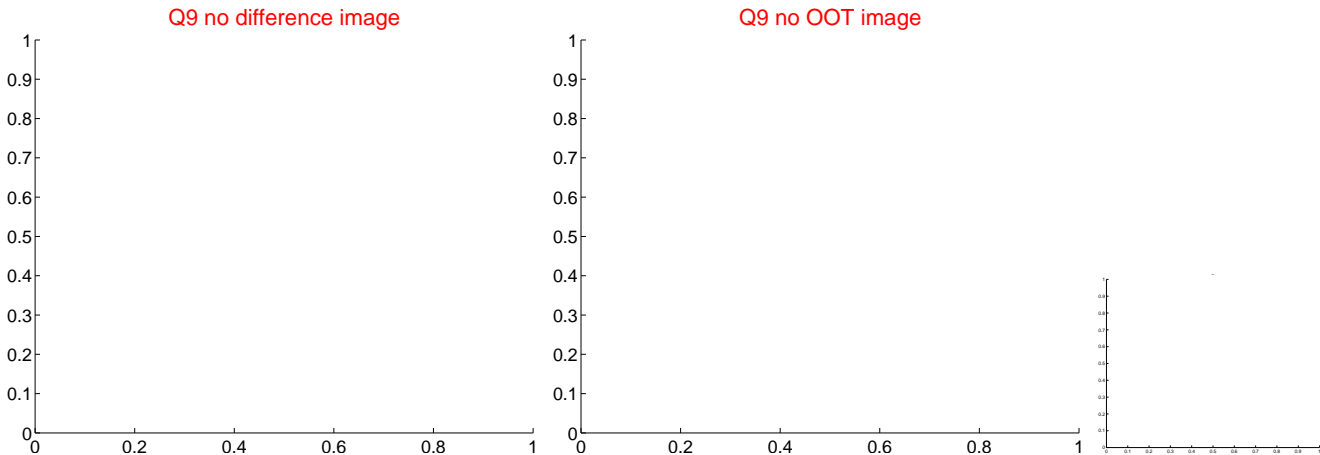
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

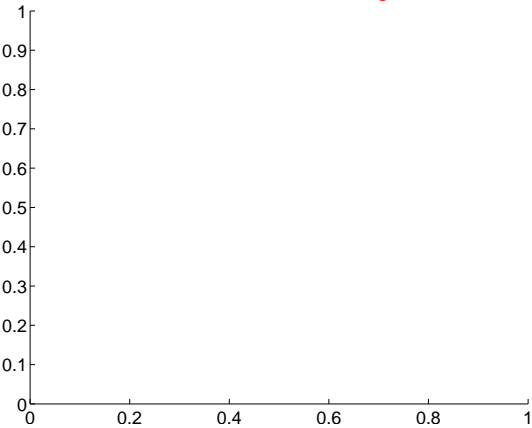


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value

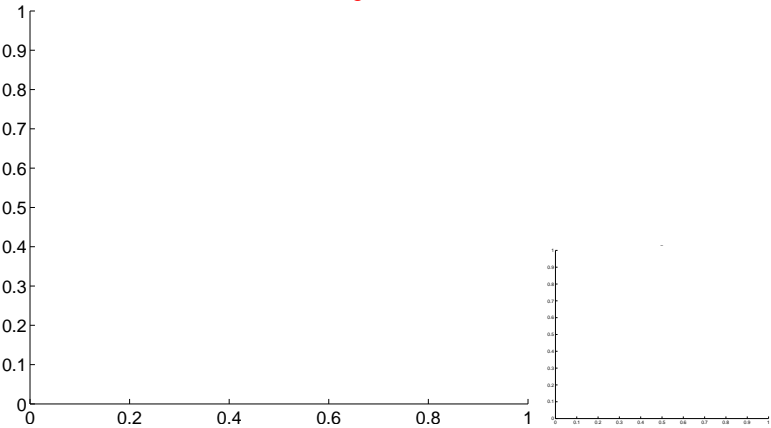


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

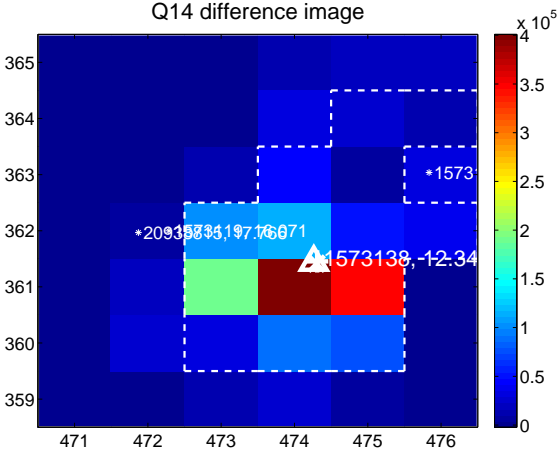
Q13 no difference image



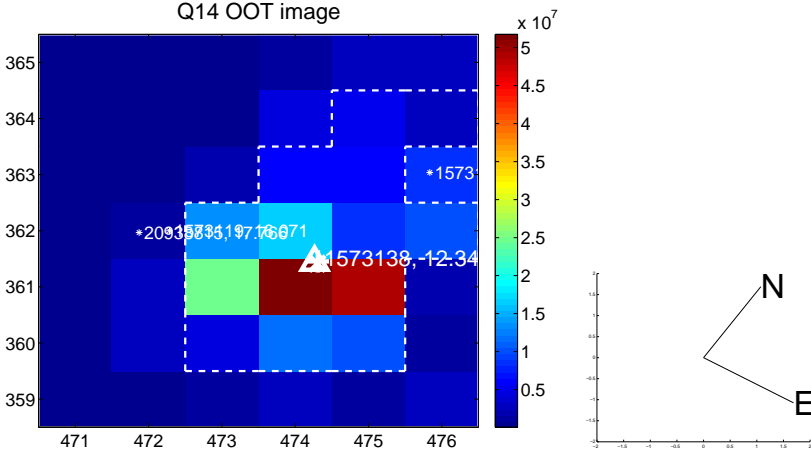
Q13 no OOT image



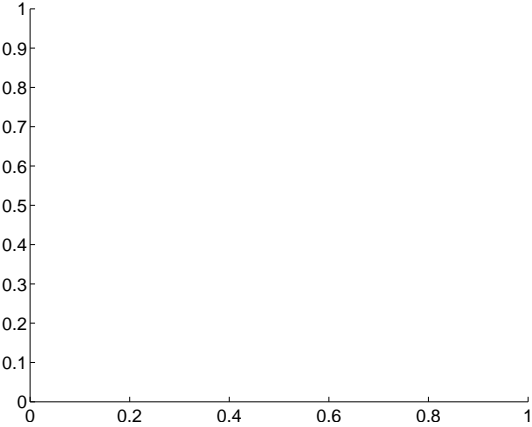
Q14 difference image



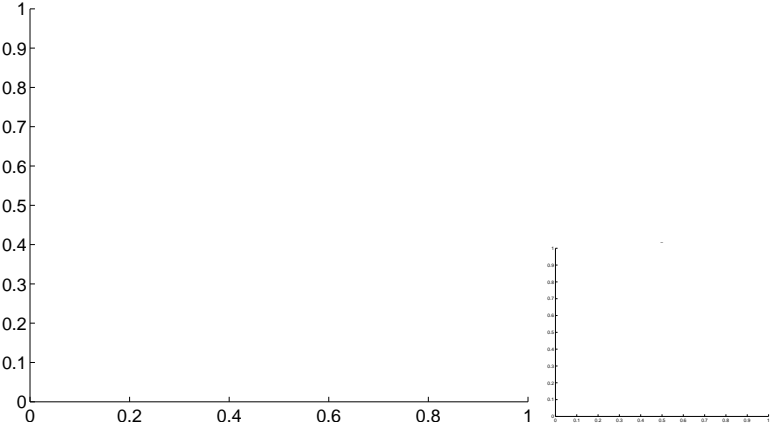
Q14 OOT image



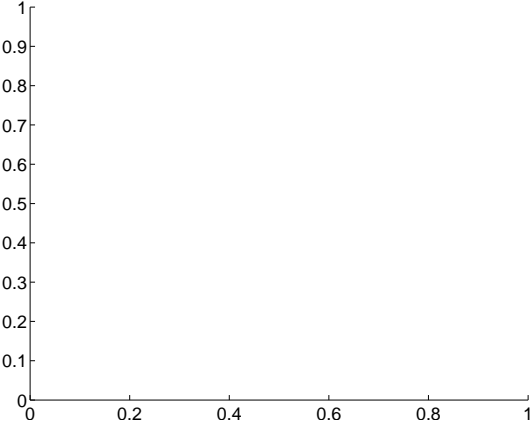
Q15 no difference image



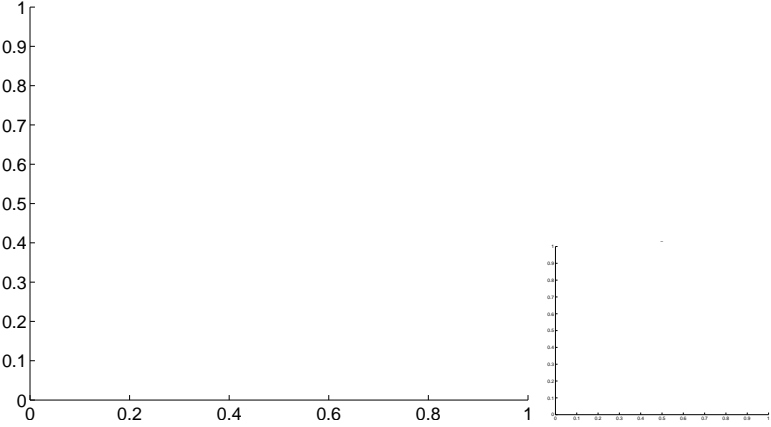
Q15 no OOT image



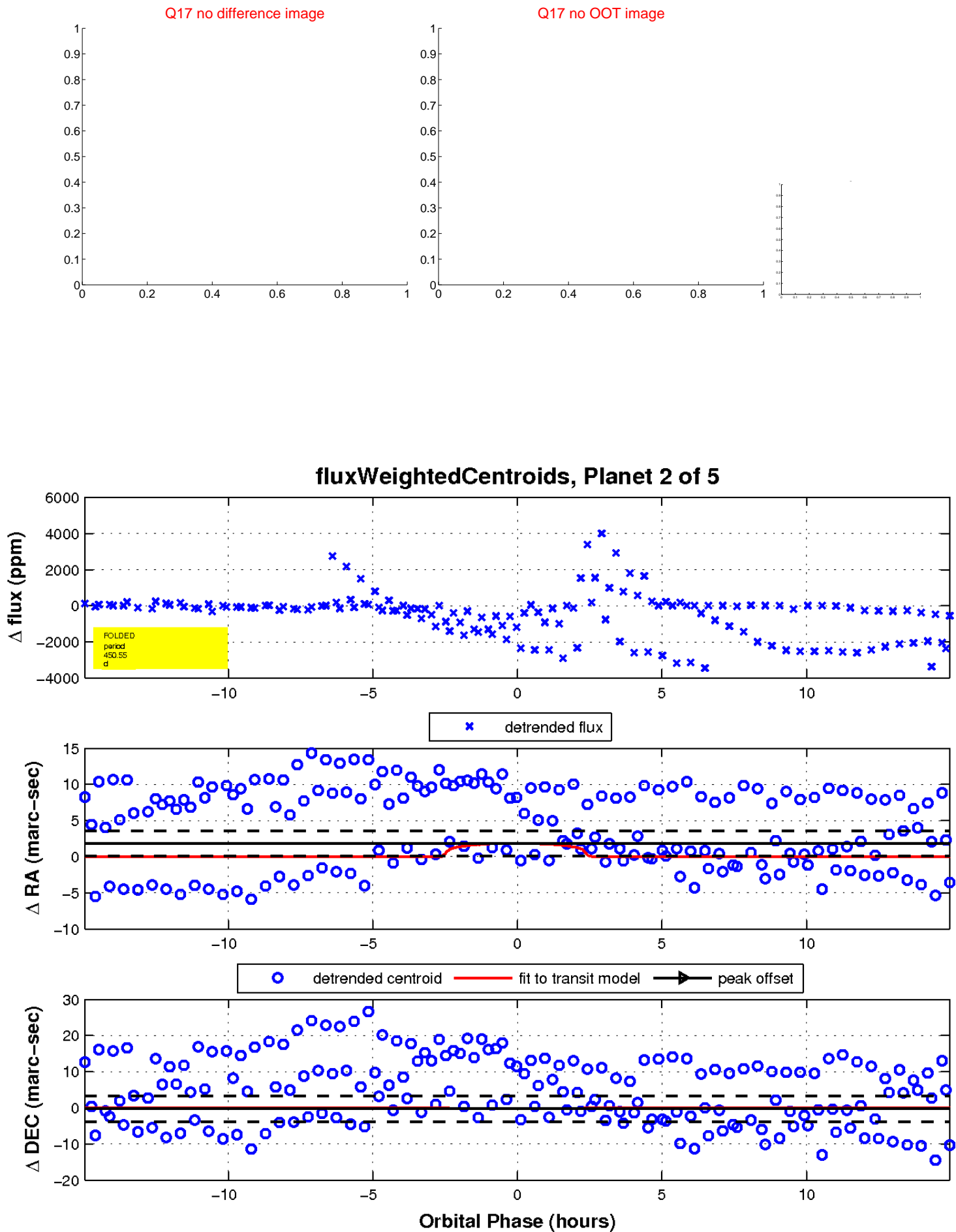
Q16 no difference image



Q16 no OOT image



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



KIC 001573138

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})
001573138-01	OBS	No	275.711098	182.562142	942.5	5.466	28.7	5.3	2.87	4838	11.64	6.22
001573138-02	OBS	No	450.554838	467.713189	934.6	5.025	19.4	5.9	2.87	4838	8.55	3.23
001573138-03	OBS	No	330.887559	225.493479	232.6	0.787	17.4	1.6	2.87	4838	5.38	4.88
001573138-04	OBS	No	344.849883	404.840630	785.2	4.533	20.2	5.5	2.87	4838	7.75	4.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001573138-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS— CENT_FEW_DIFFS

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

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

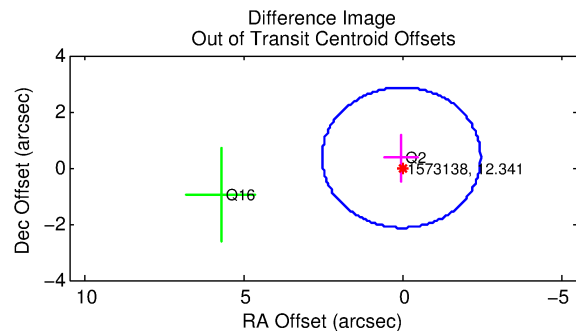
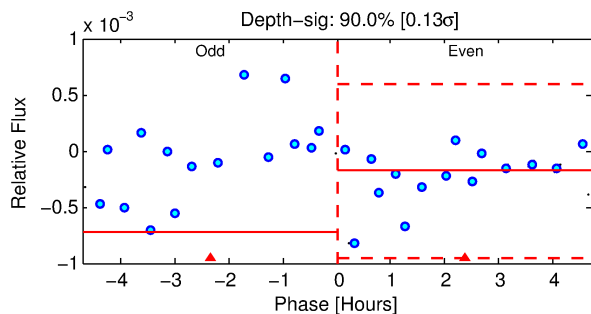
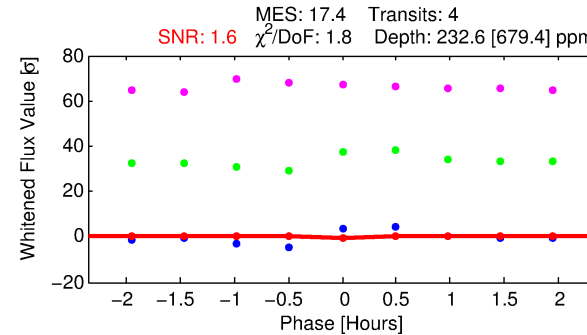
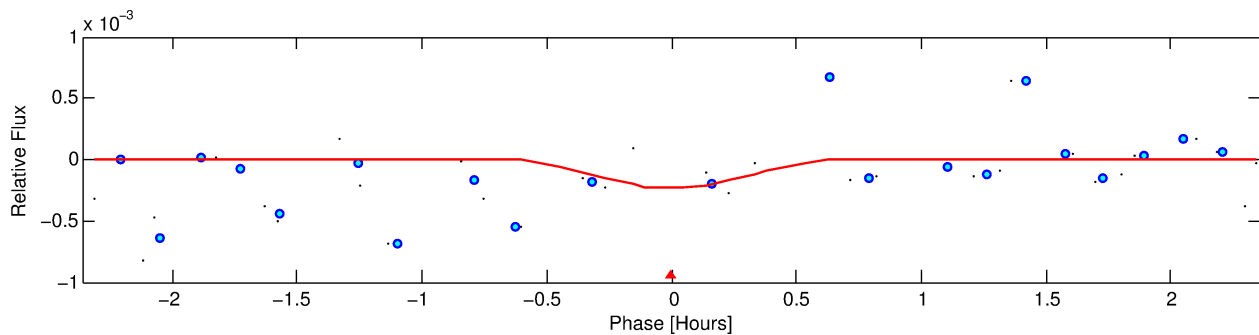
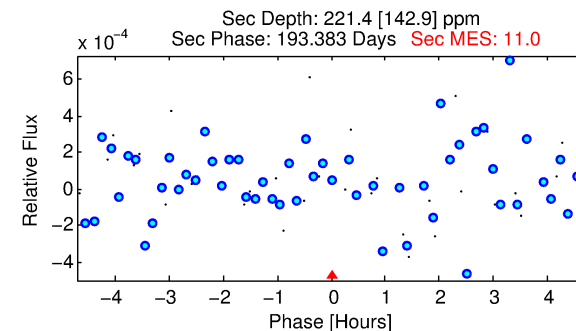
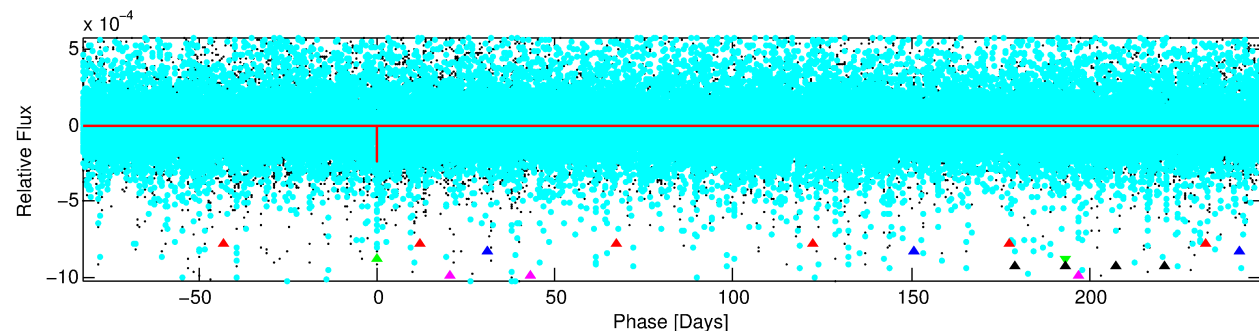
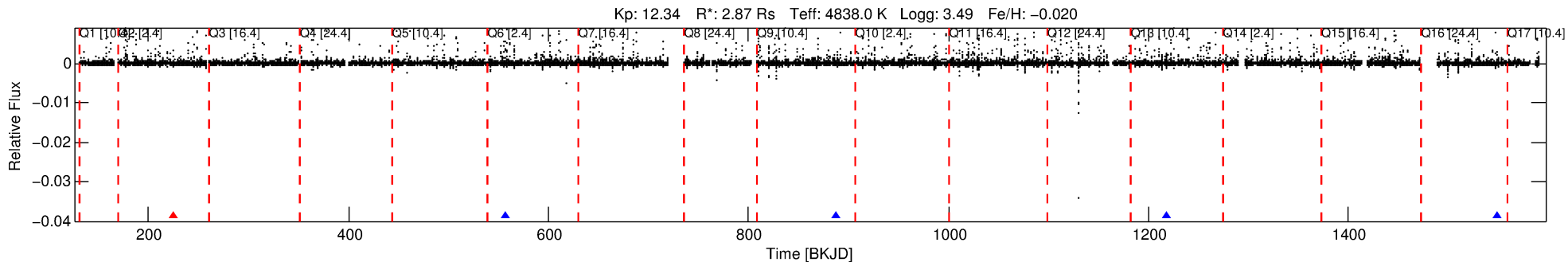
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 001573138-03

No Significant Match Found

DV One-Page Summary

KIC: 1573138 Candidate: 3 of 5 Period: 330.888 d



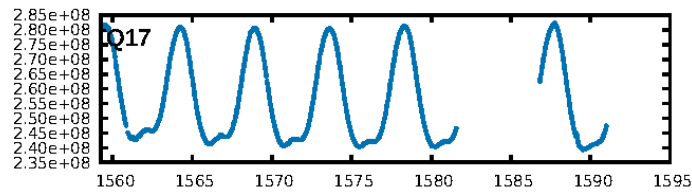
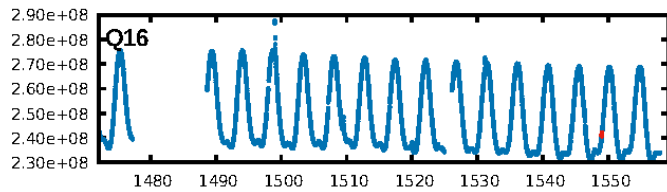
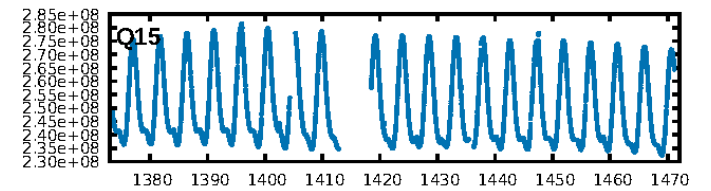
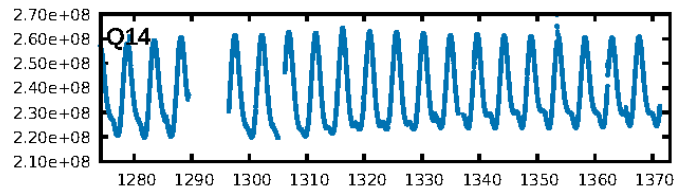
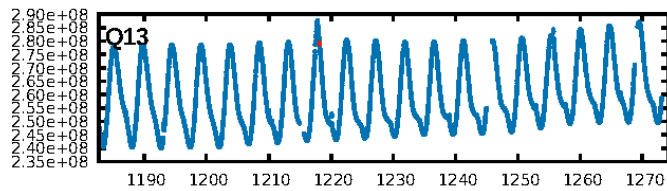
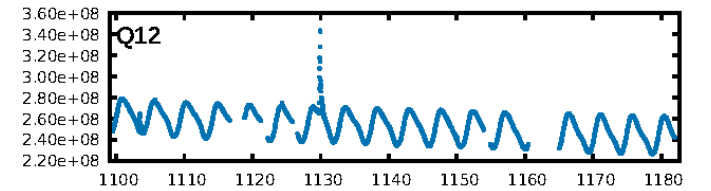
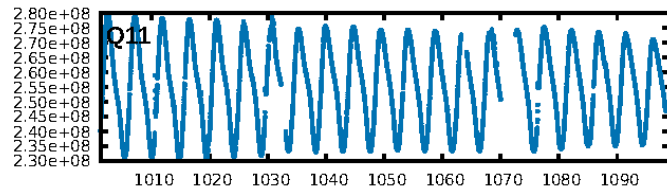
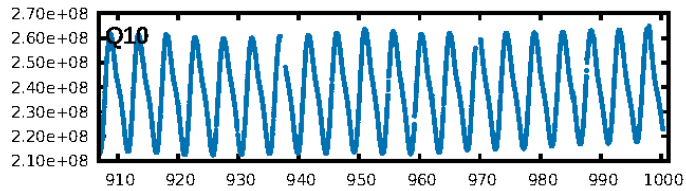
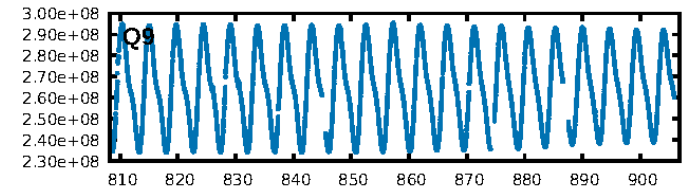
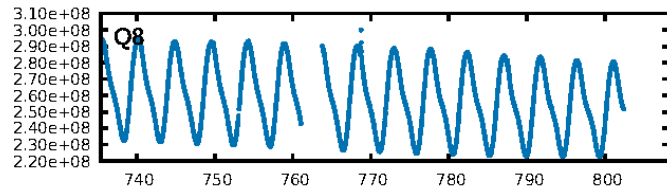
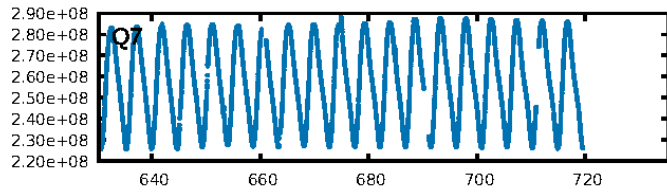
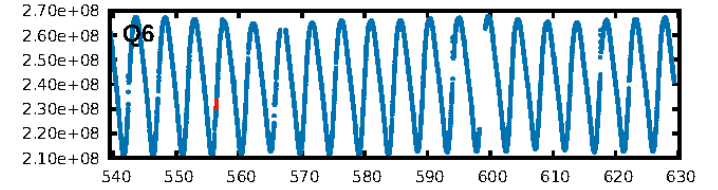
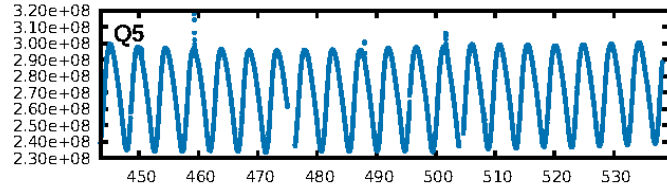
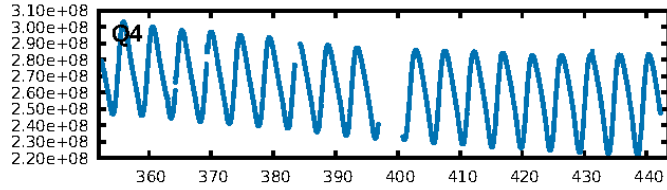
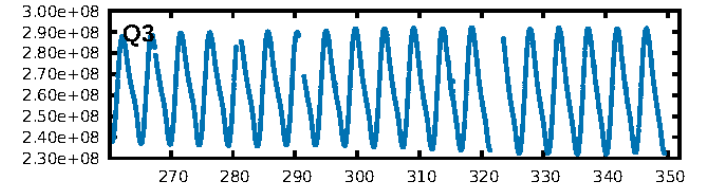
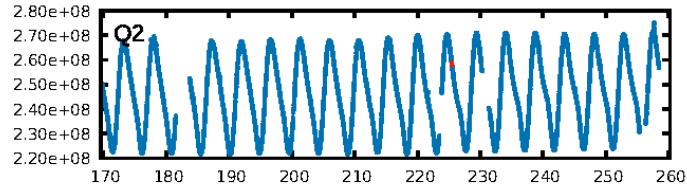
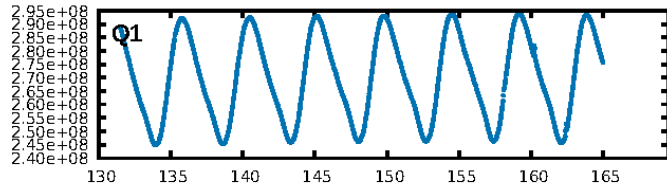
DV Fit Results:

Period = 330.88756 [0.01083] d
Epoch = 225.4935 [0.0247] BKJD
Rp/R* = 0.0172 [0.2717]
a/R* = 1617.63 [91981.15]
b = 0.88 [14.76]
Seff = 4.88 [1.25]
Teq = 379 [24] K
Rp = 5.38 [85.12] Re
a = 0.9110 [0.1624] AU
Ag = 3487.85 [110305.79] [0.03σ]
Teffp = 4502 [35594] K [0.12σ]

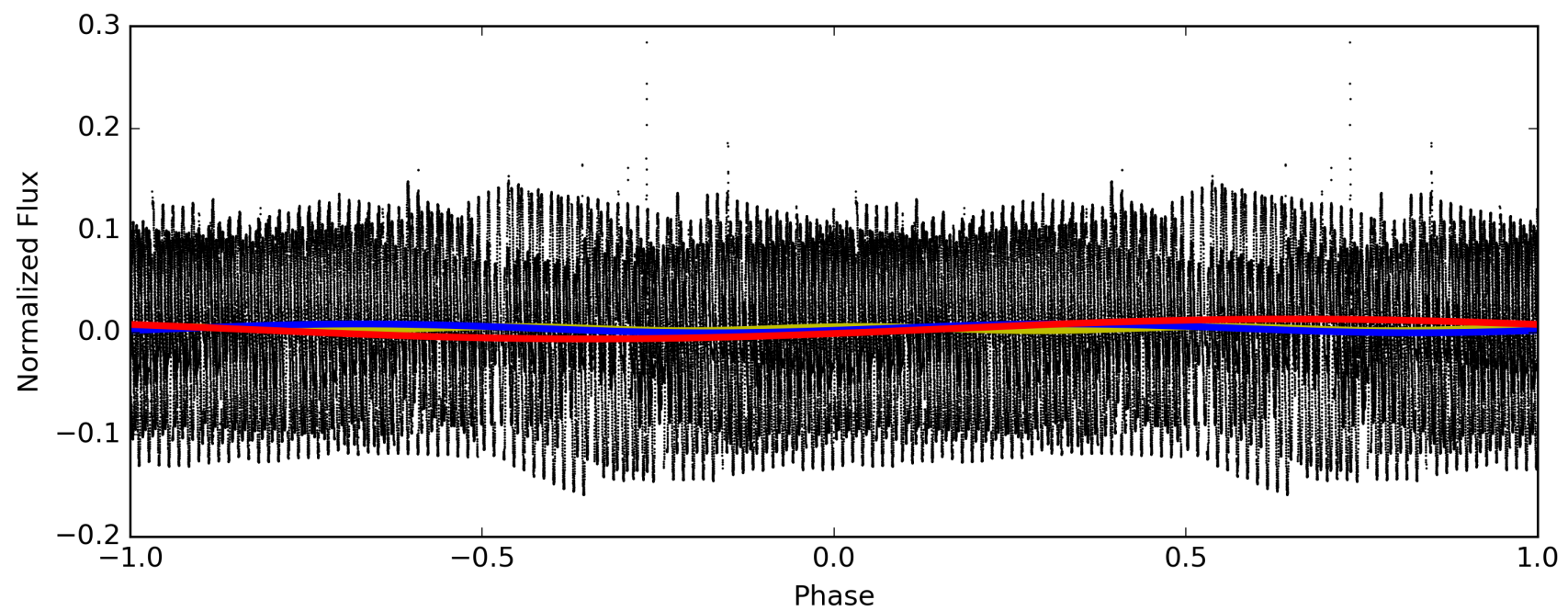
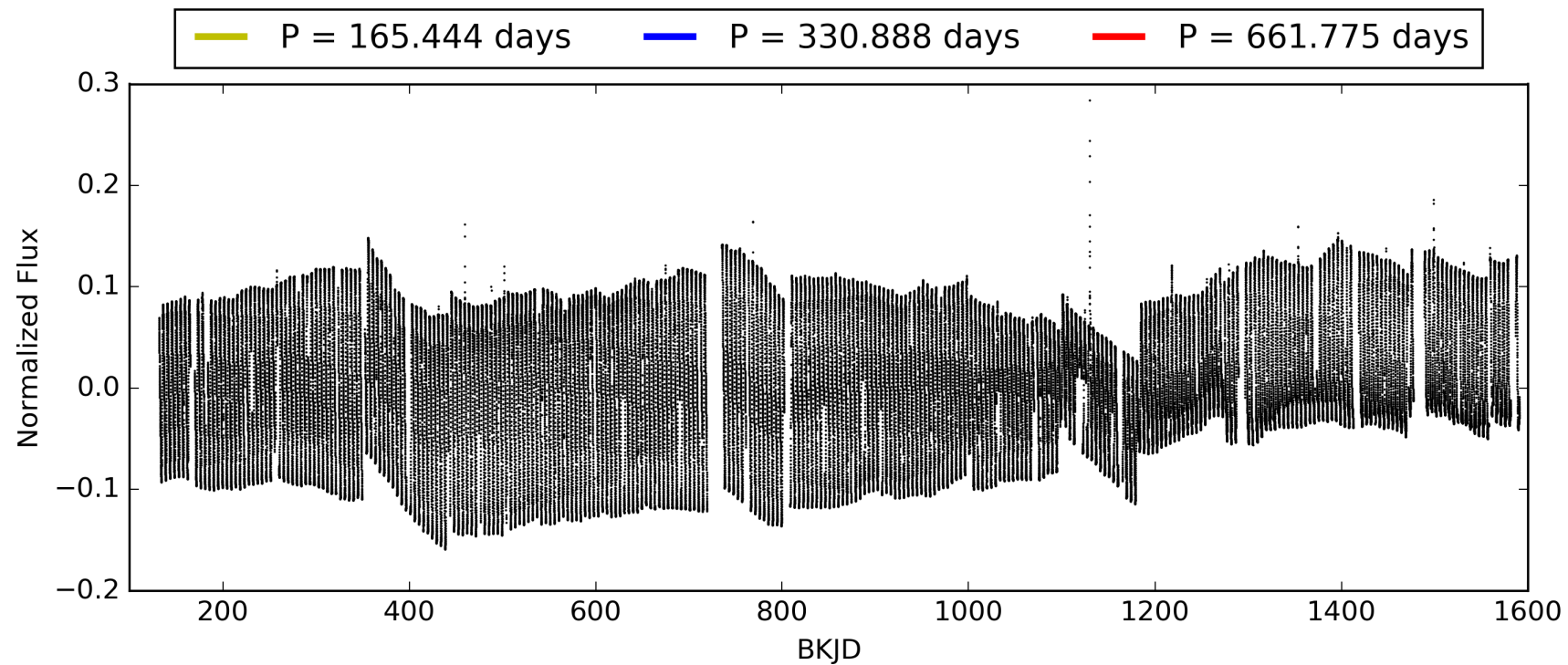
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [239.80σ]
LongPeriod-sig: 100.0% [72.84σ]
ModelChiSquare2-sig: 77.2%
ModelChiSquareGof-sig: 82.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 1.282
Centroid-sig: 17.0%
Centroid-so: 12.272 arcsec [0.87σ]
OotOffset-rm: 0.362 arcsec [0.43σ]
KicOffset-rm: 0.526 arcsec [0.63σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 001573138-03, PDC Light Curves

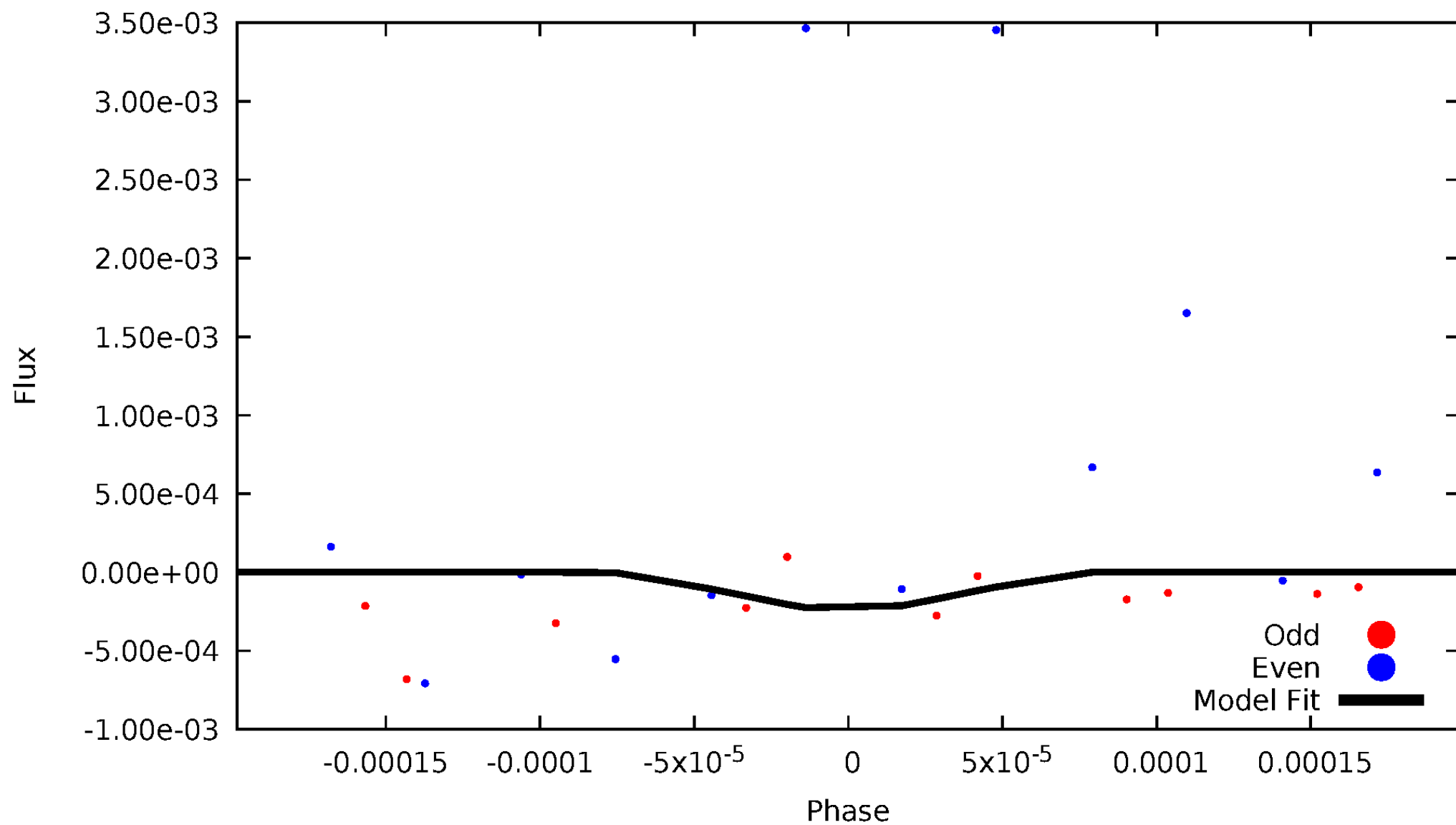


TCE 001573138-03



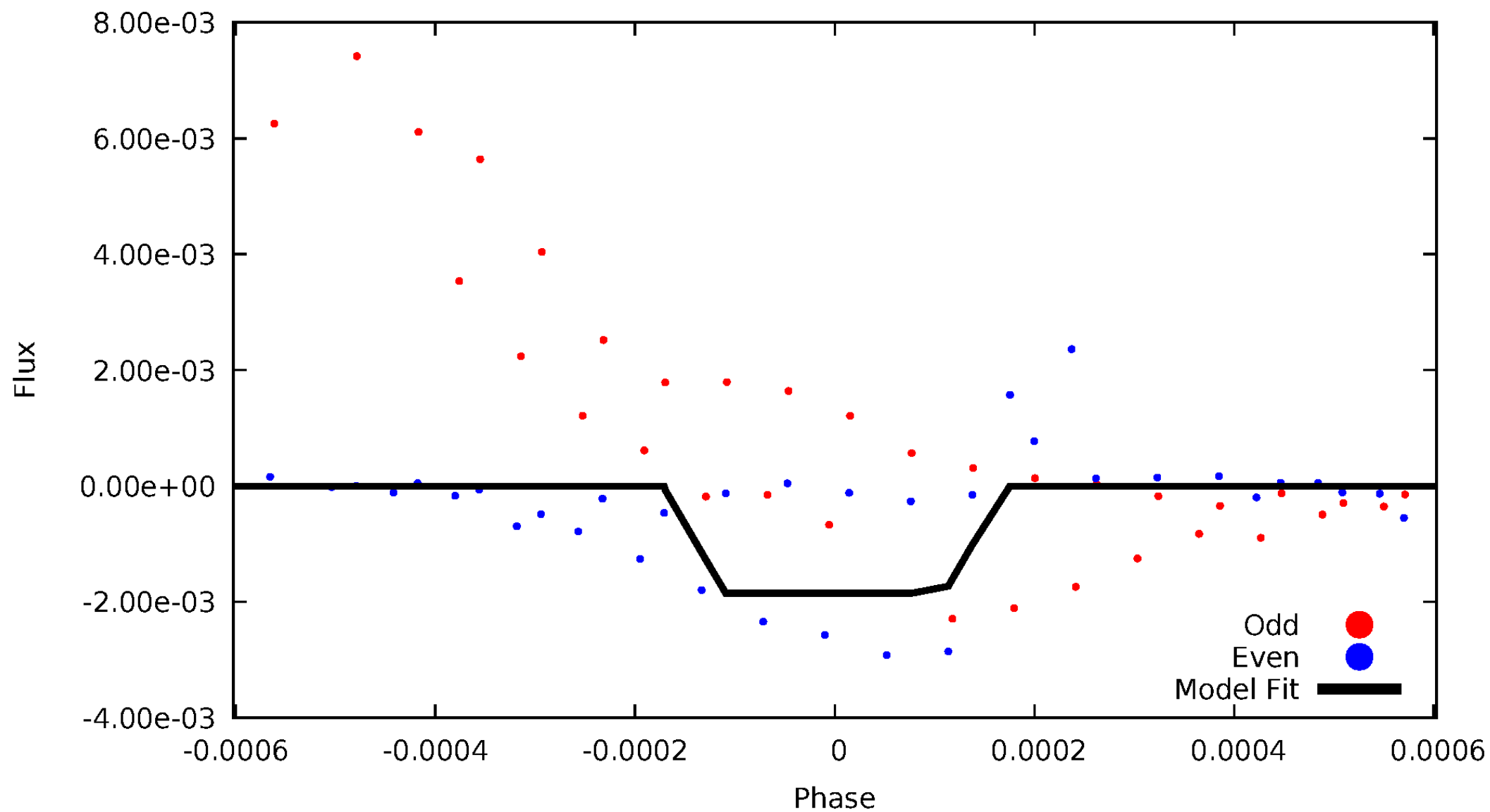
DV Odd/Even

TCE 001573138-03



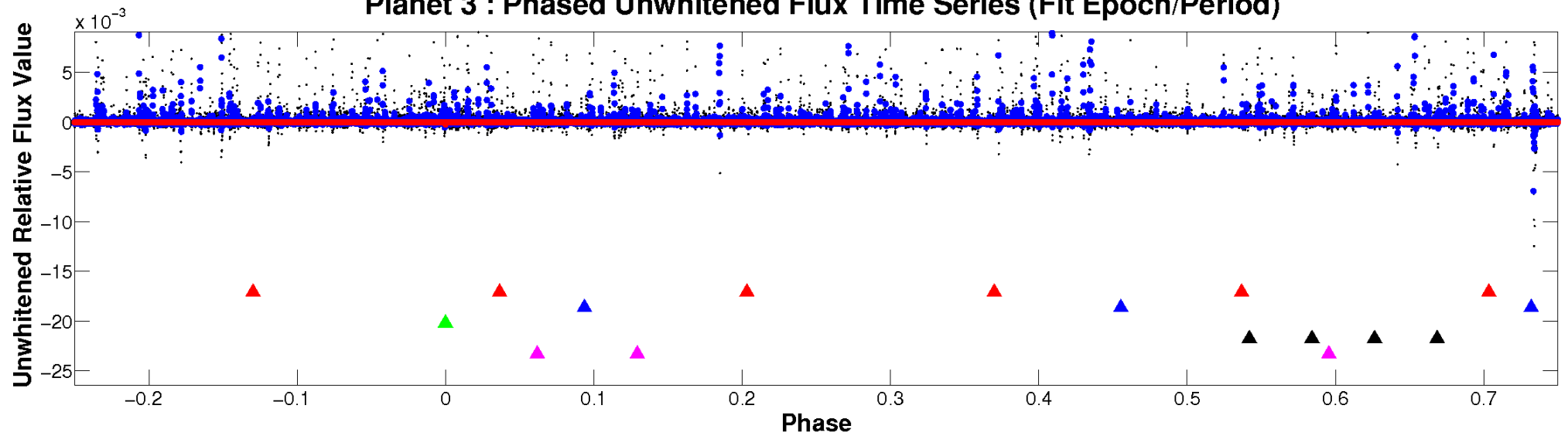
ALT Odd/Even

TCE 001573138-03

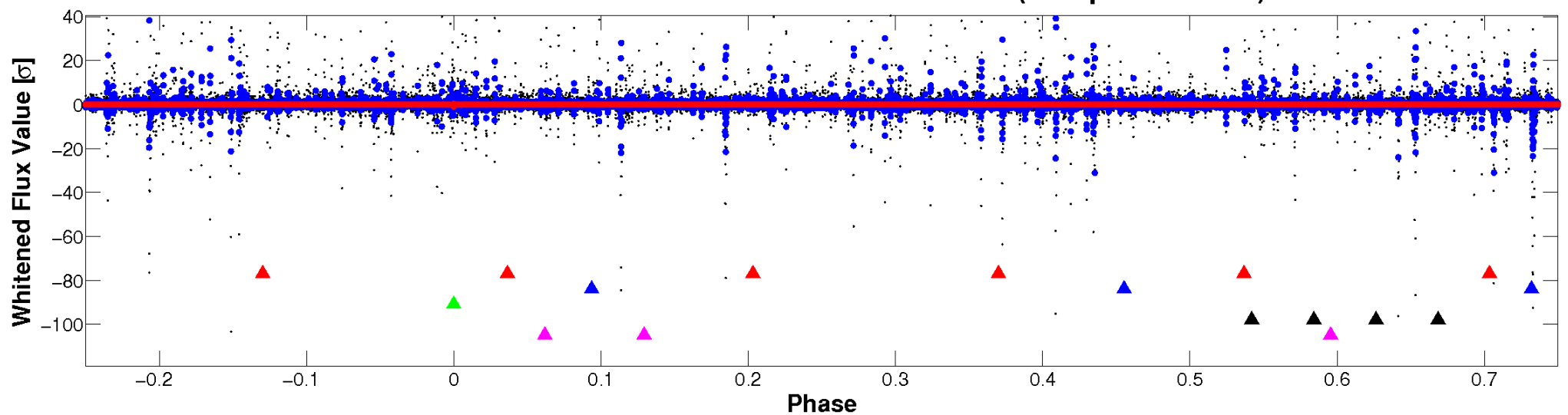


Non-Whitened Vs. Whitened Light Curve

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

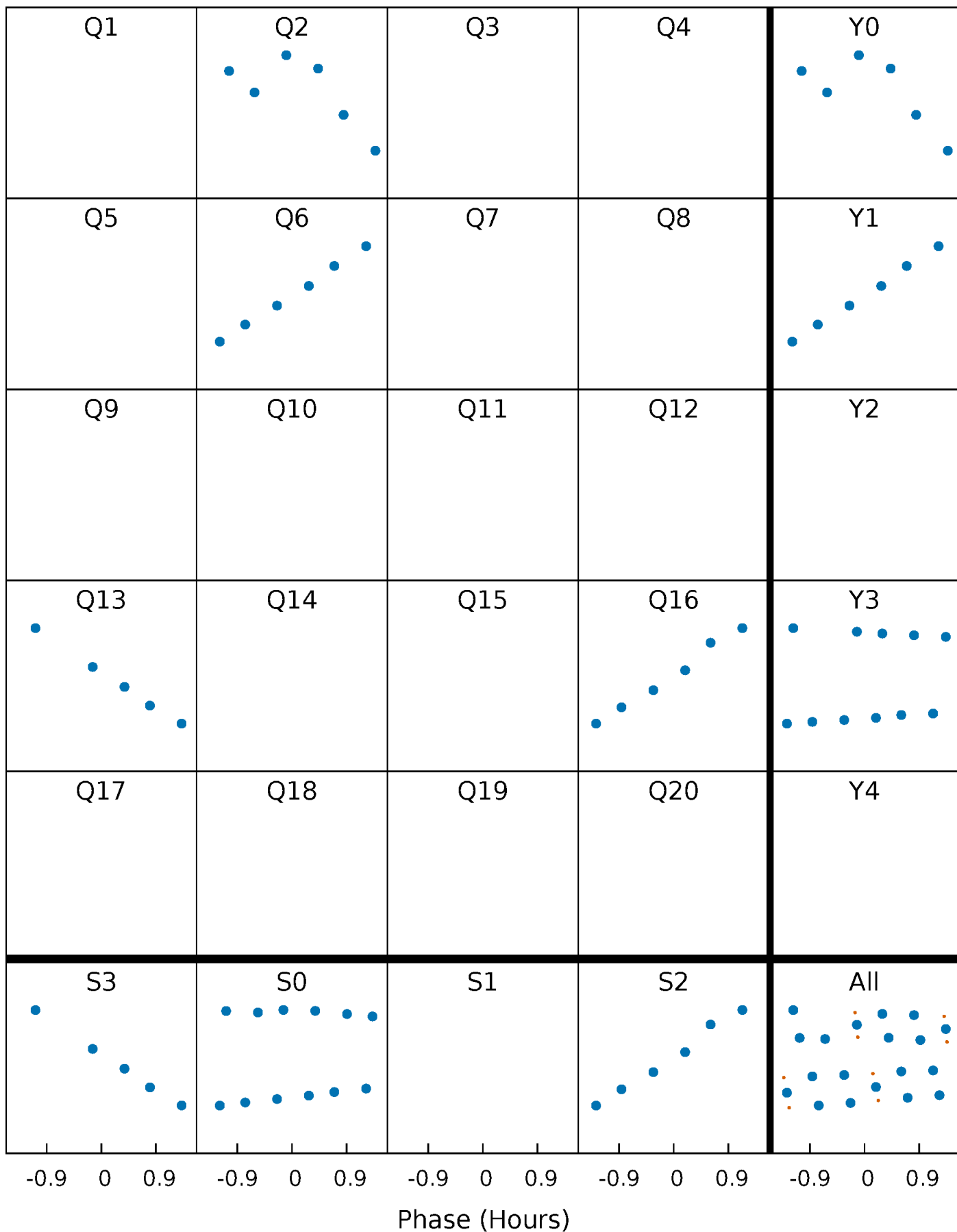


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



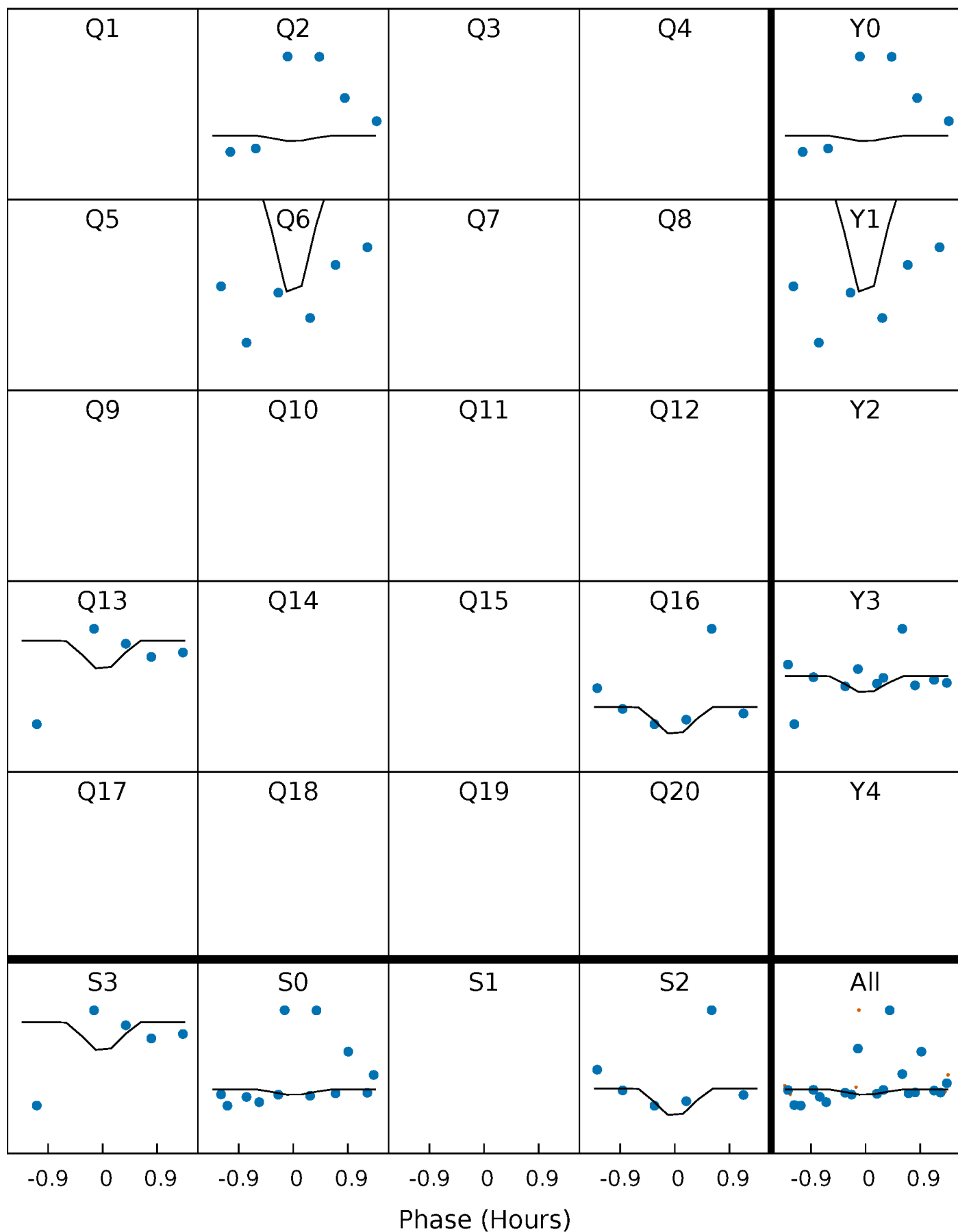
PDC Quarter-Phased Transit Curves

TCE 001573138-03 P=330.887559 Days $T_0=225.493479$ (BKJD)



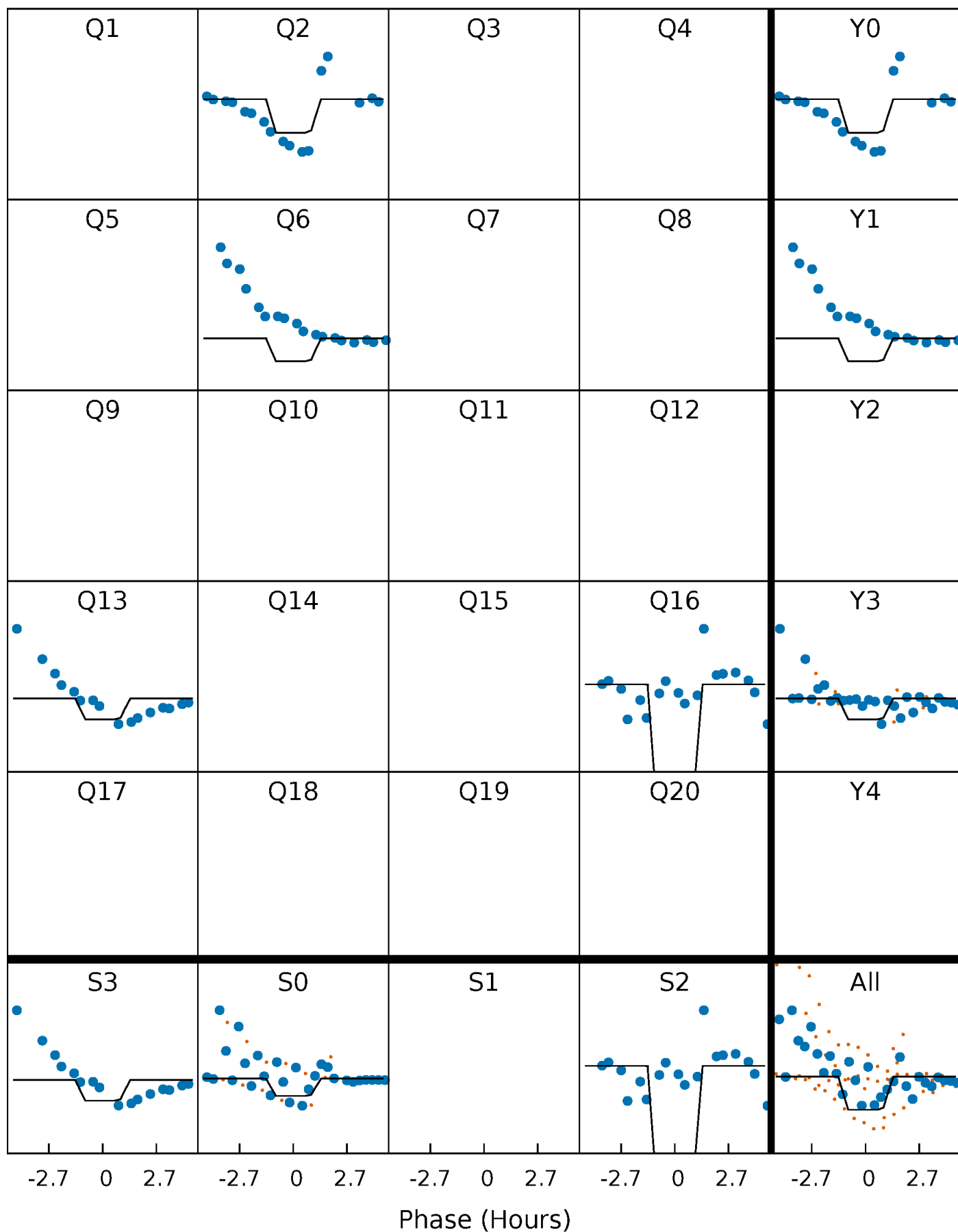
DV Quarter-Phased Transit Curves

TCE 001573138-03 P=330.887559 Days $T_0=225.493479$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

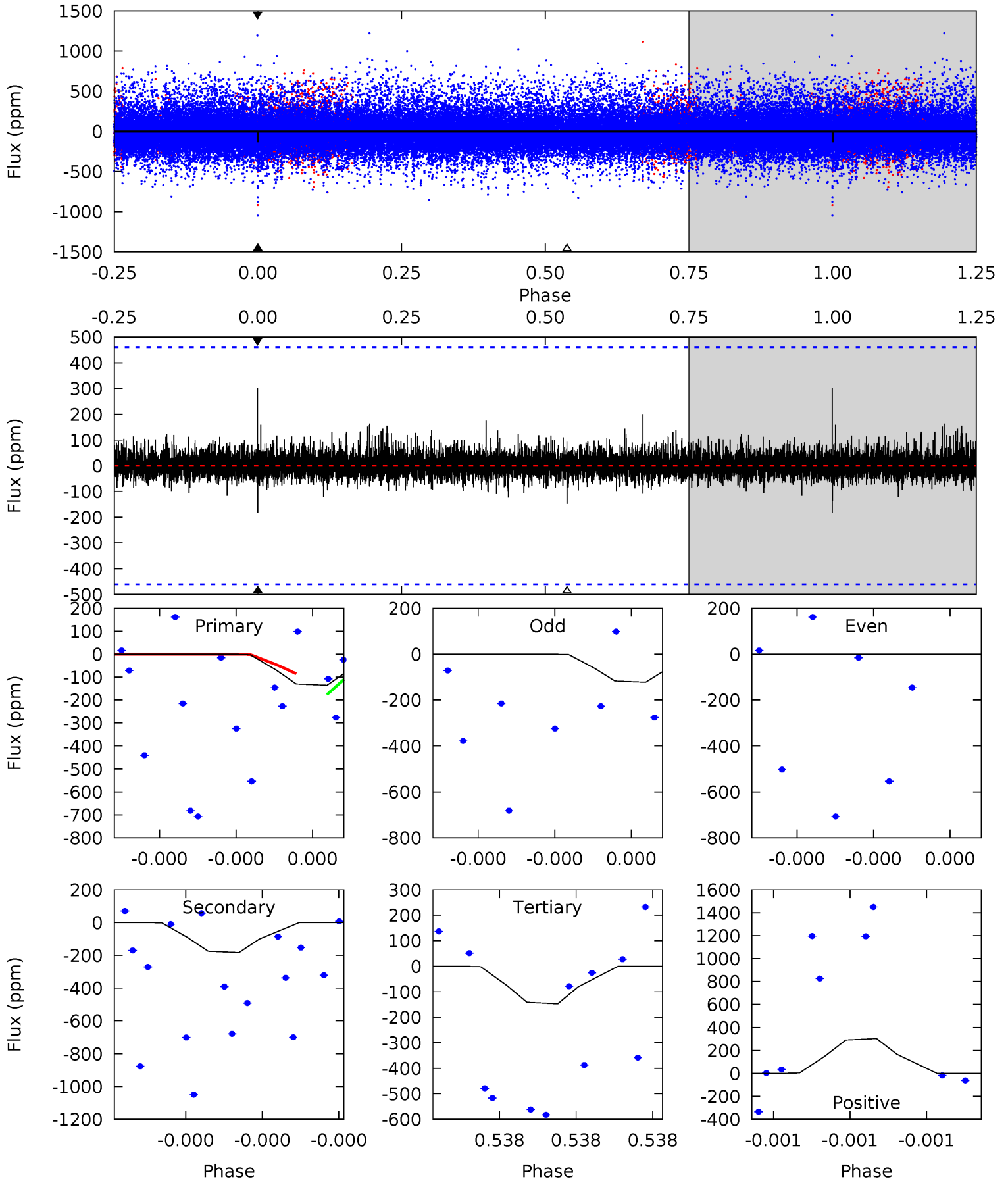
TCE 001573138-03 P=330.893239 Days $T_0=225.430911$ (BKJD)



DV Model-Shift Uniqueness Test

001573138-03, P = 330.887559 Days, E = 225.493479 Days

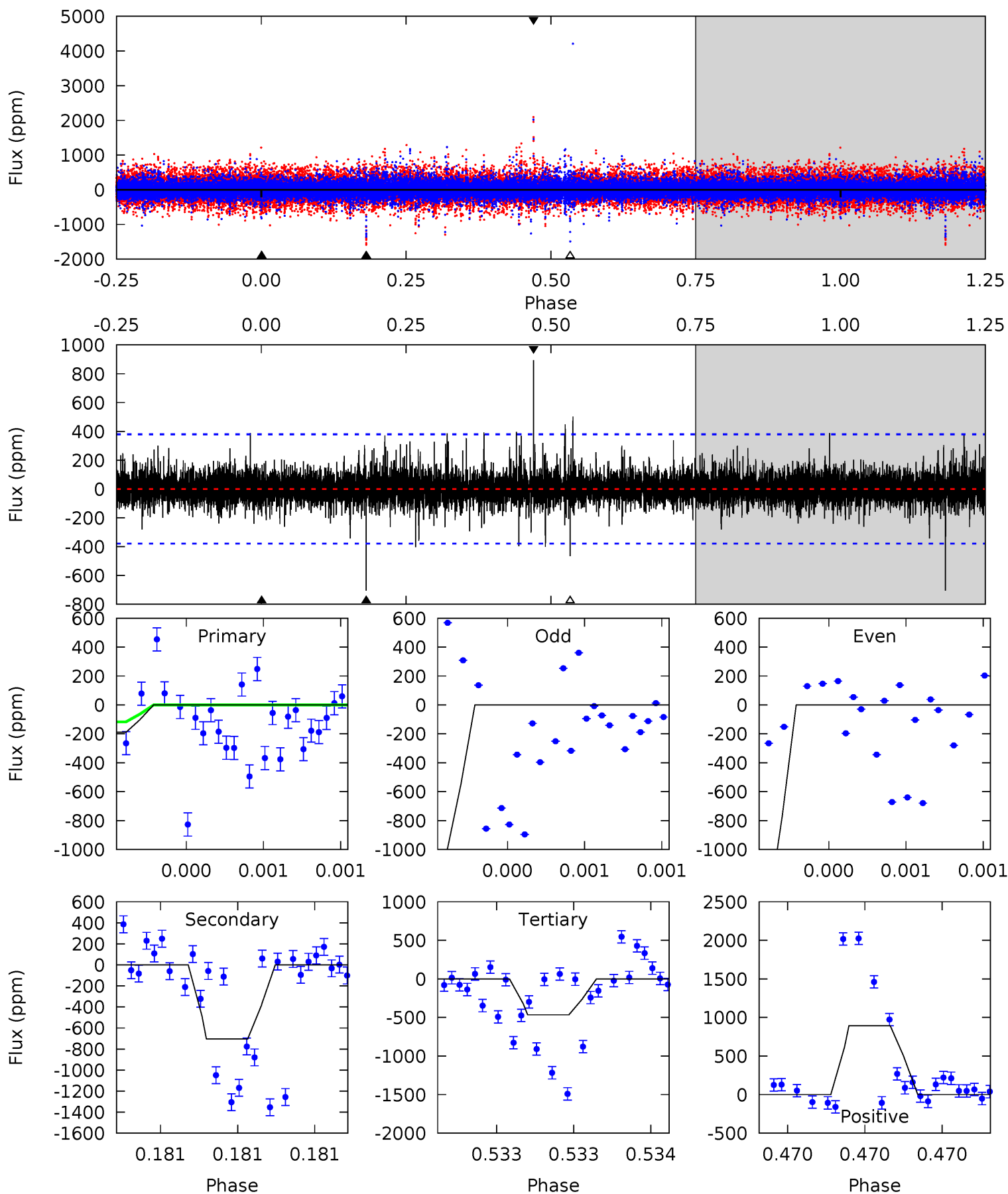
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.73	2.34	1.88	3.87	5.86	3.91	0.36	-0.15	-2.14	0.46	-1.53	0	-22.7	0.62	0



Alt Model-Shift Uniqueness Test

001573138-03, P = 330.893239 Days, E = 225.430911 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.81	10.5	6.93	13.3	5.64	3.58	1.01	-4.12	-10.5	3.56	-2.81	2.62	1.20	0.56	0.84



Stellar Parameters For KIC 001573138

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4838^{+79}_{-43}	$3.486^{+0.130}_{-0.130}$	$-0.020^{+0.150}_{-0.100}$	$2.871^{+0.636}_{-0.343}$	$0.920^{+0.142}_{-0.017}$	$0.055^{+0.028}_{-0.023}$
	+2%/-1%	+4%/-4%	+750%/-500%	+22%/-12%	+15%/-2%	+51%/-42%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 001573138-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-183 ± 79	$60.07^{+69.57}_{-40.35}$	530^{+28}_{-20}	2170^{+731}_{-321}	20^{+191}_{-16}
Alt.	-705 ± 67	$64.37^{+63.31}_{-45.50}$	527^{+26}_{-21}	2551^{+1073}_{-377}	79^{+912}_{-59}

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 $A_{obs} \gg 1.0$

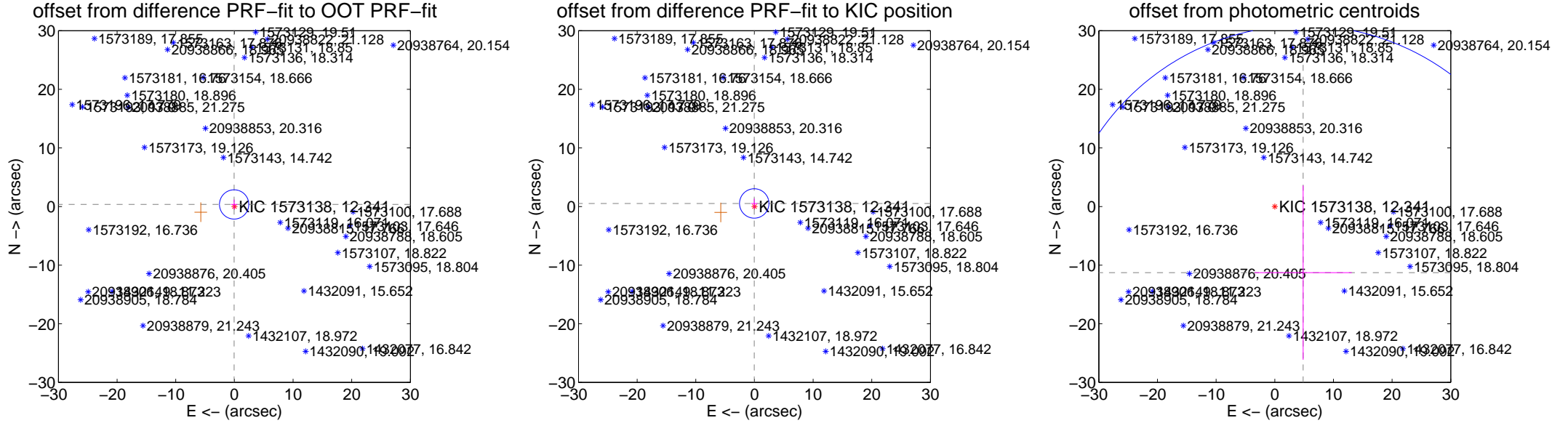
DV Centroid Data

Supplemental centroid analysis for 001573138-03. Kepler magnitude: 12.34. Transit SNR 1.56

There are 0 quarters with good PRF difference image offsets

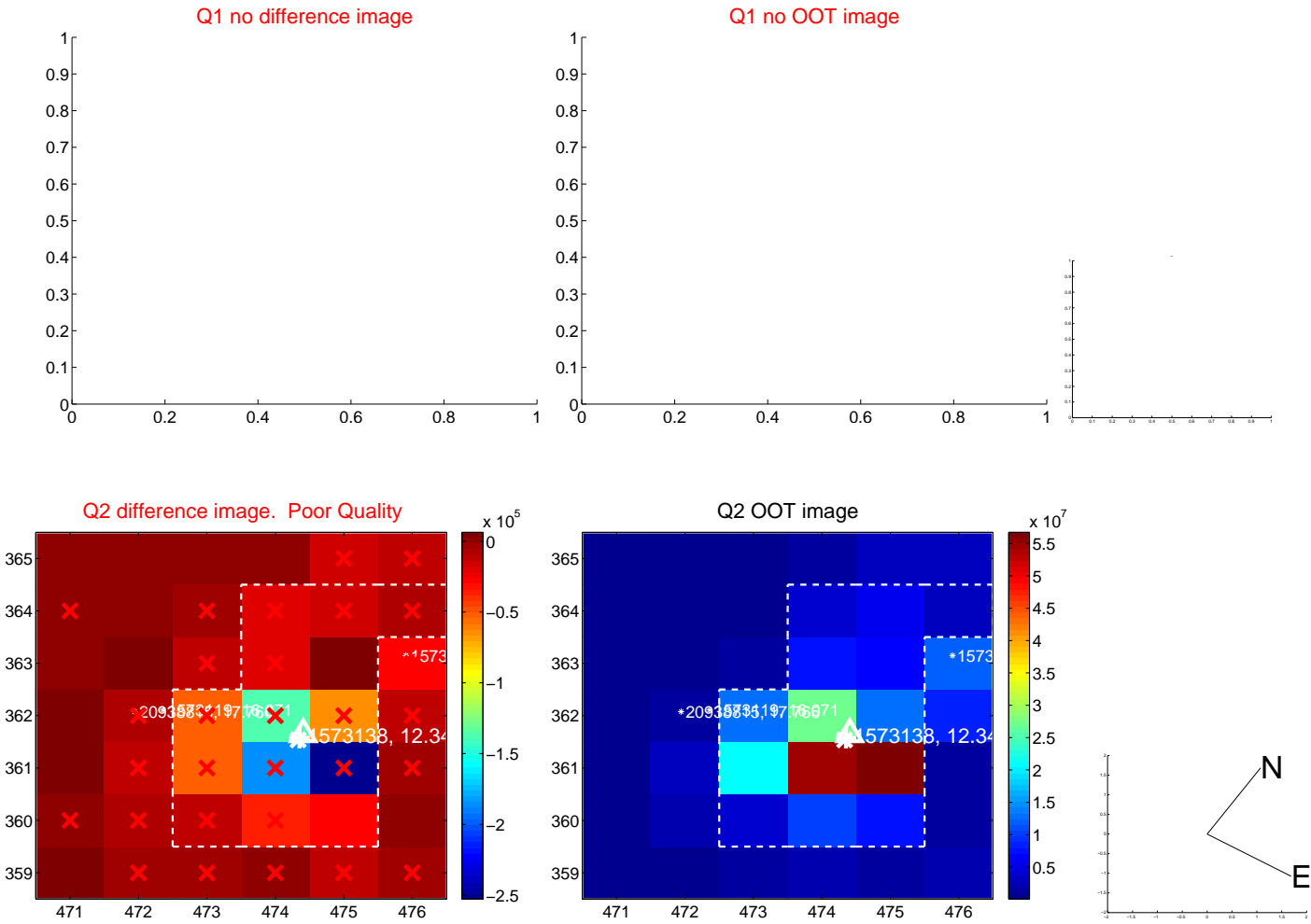
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.362 ± 0.833	0.43	0.050 ± 0.541	0.359 ± 0.837
PRF-fit source offset from KIC position	0.526 ± 0.836	0.63	0.038 ± 0.541	0.524 ± 0.837
photometric centroid source offset	12.27 ± 14.05	0.87	-4.83 ± 8.29	-11.28 ± 14.87

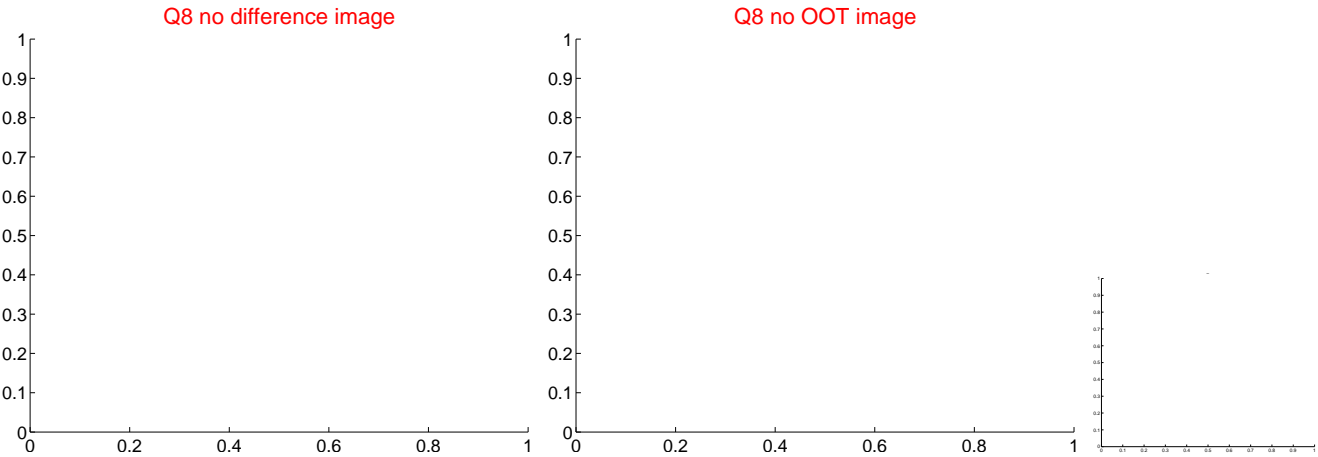
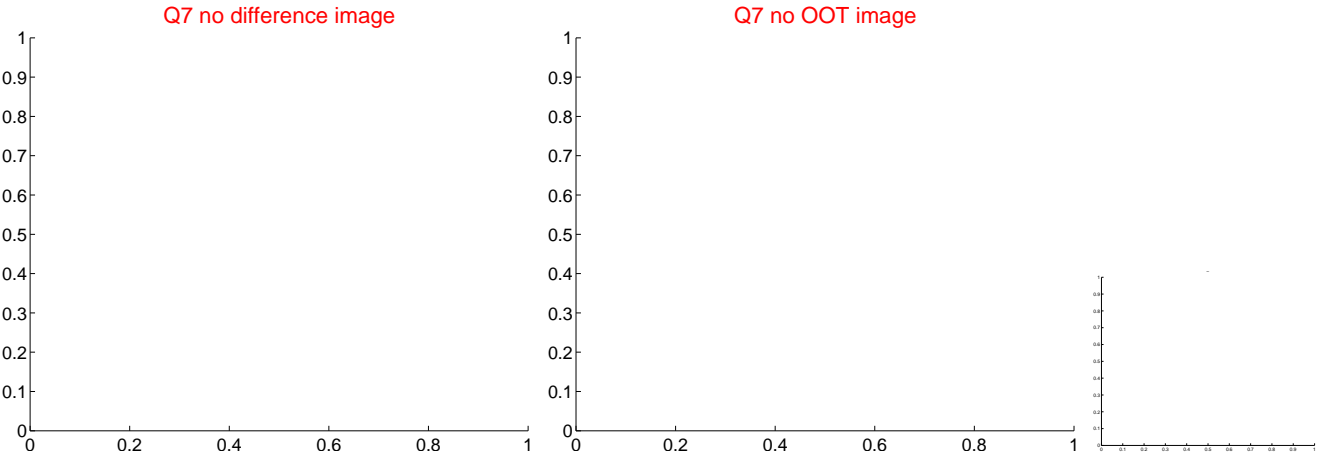
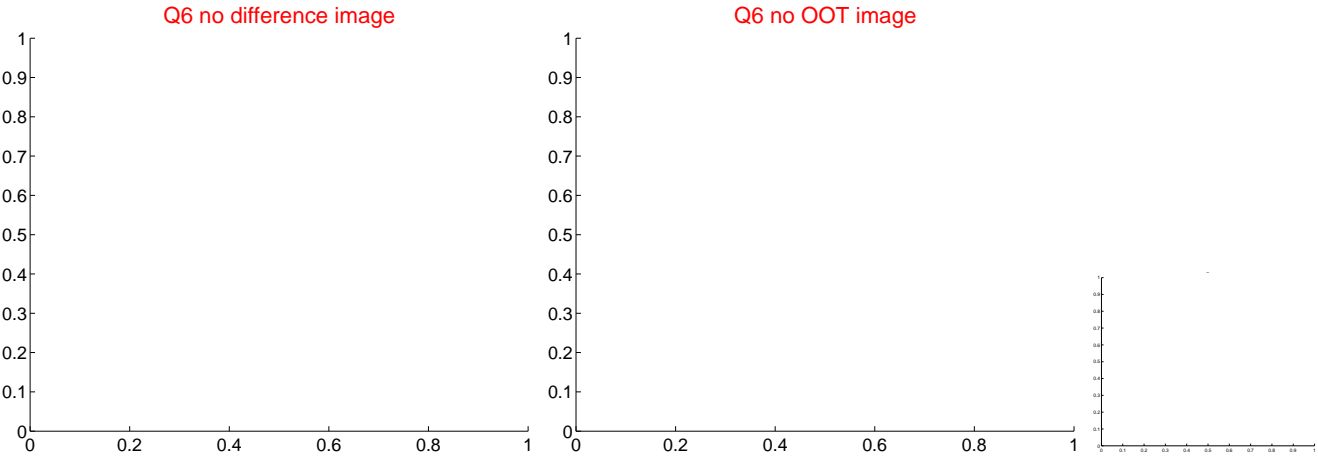
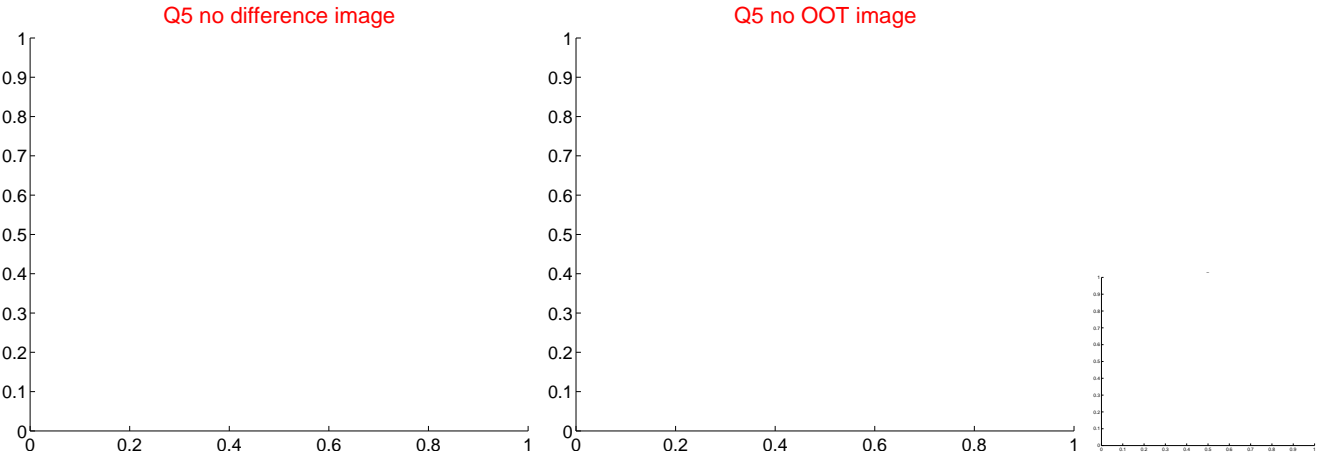


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

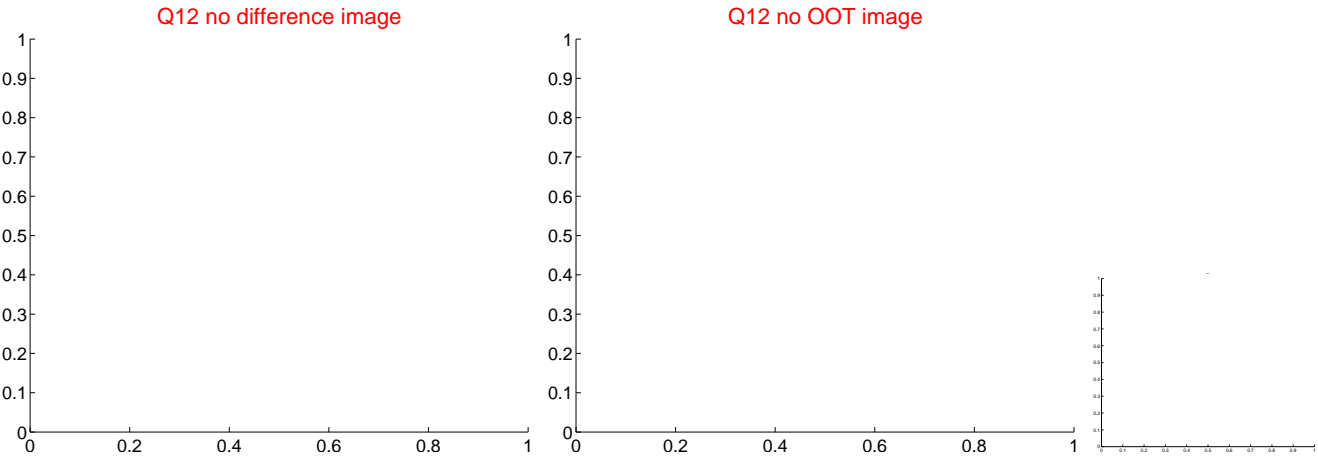
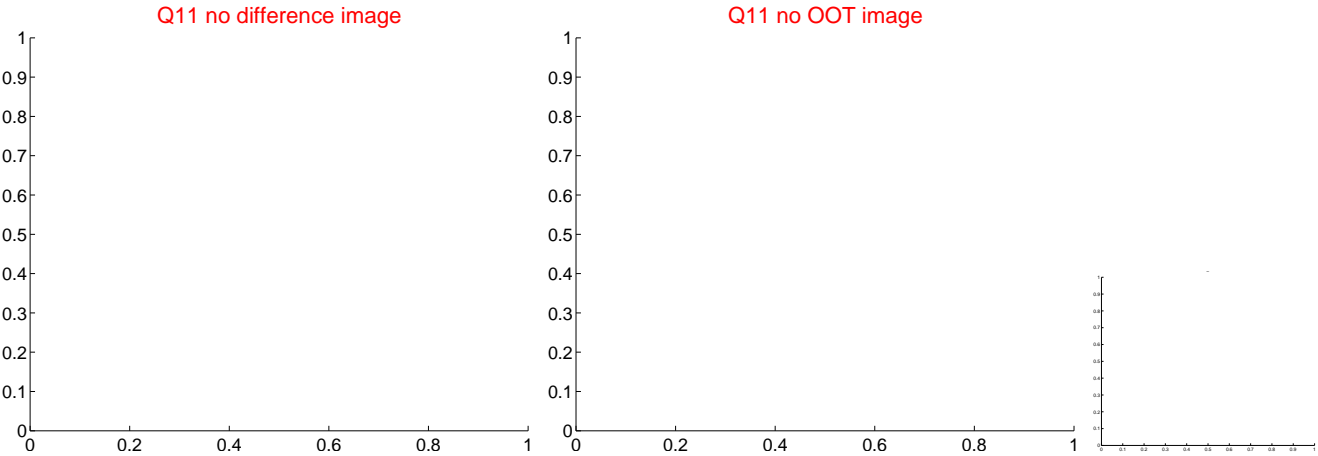
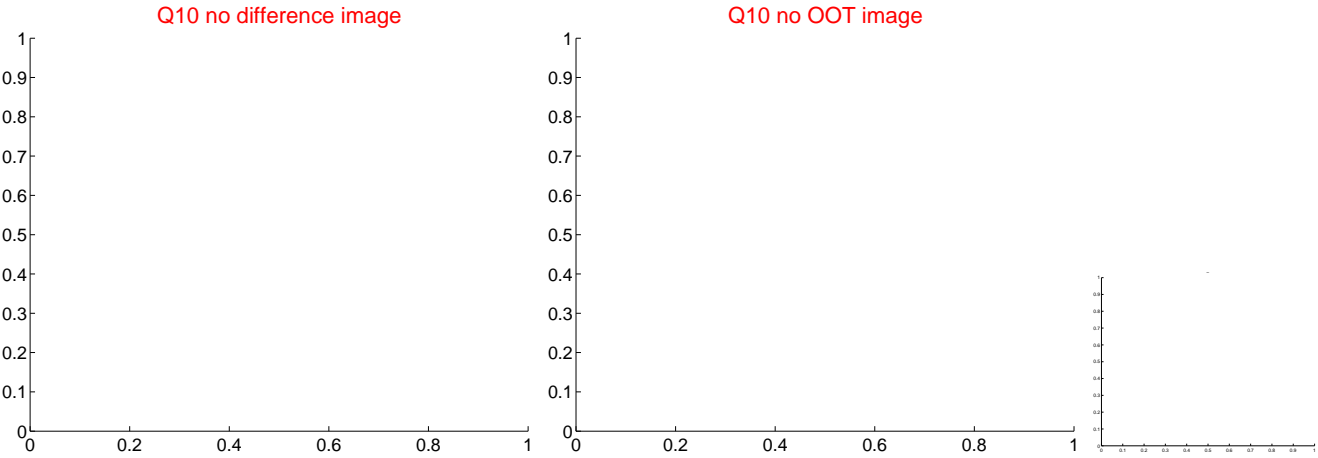
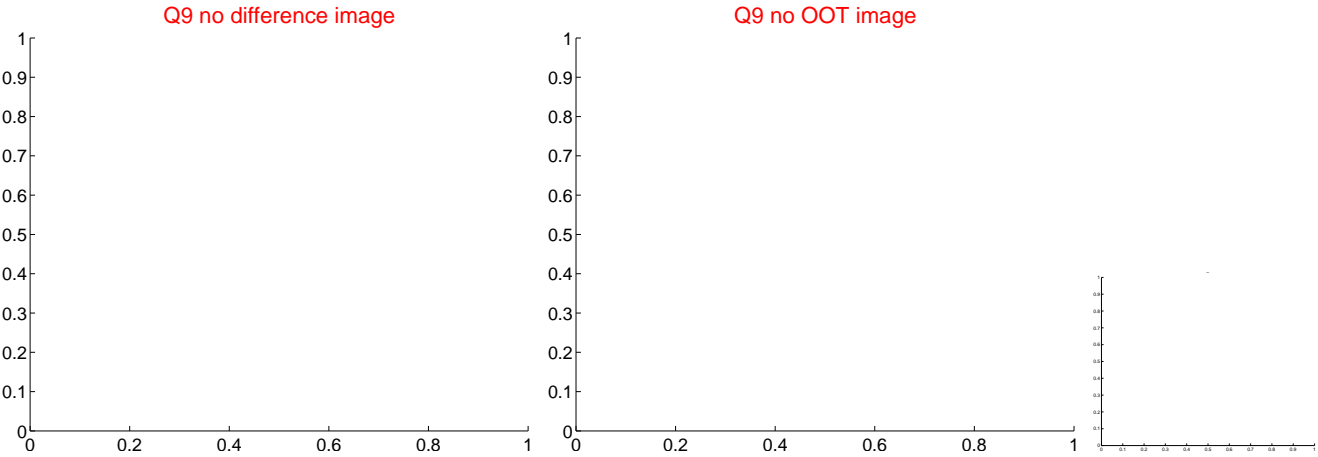
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



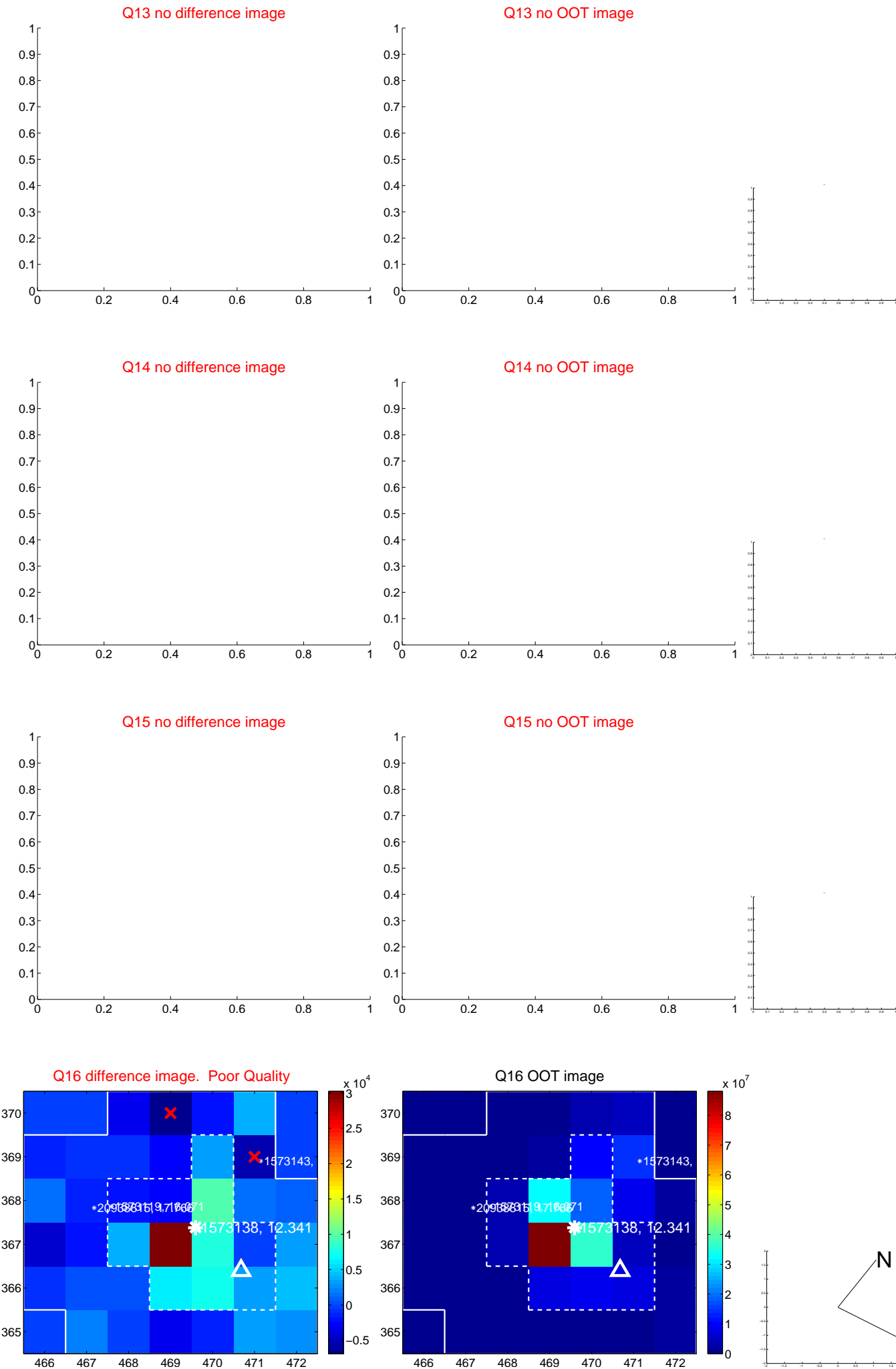
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



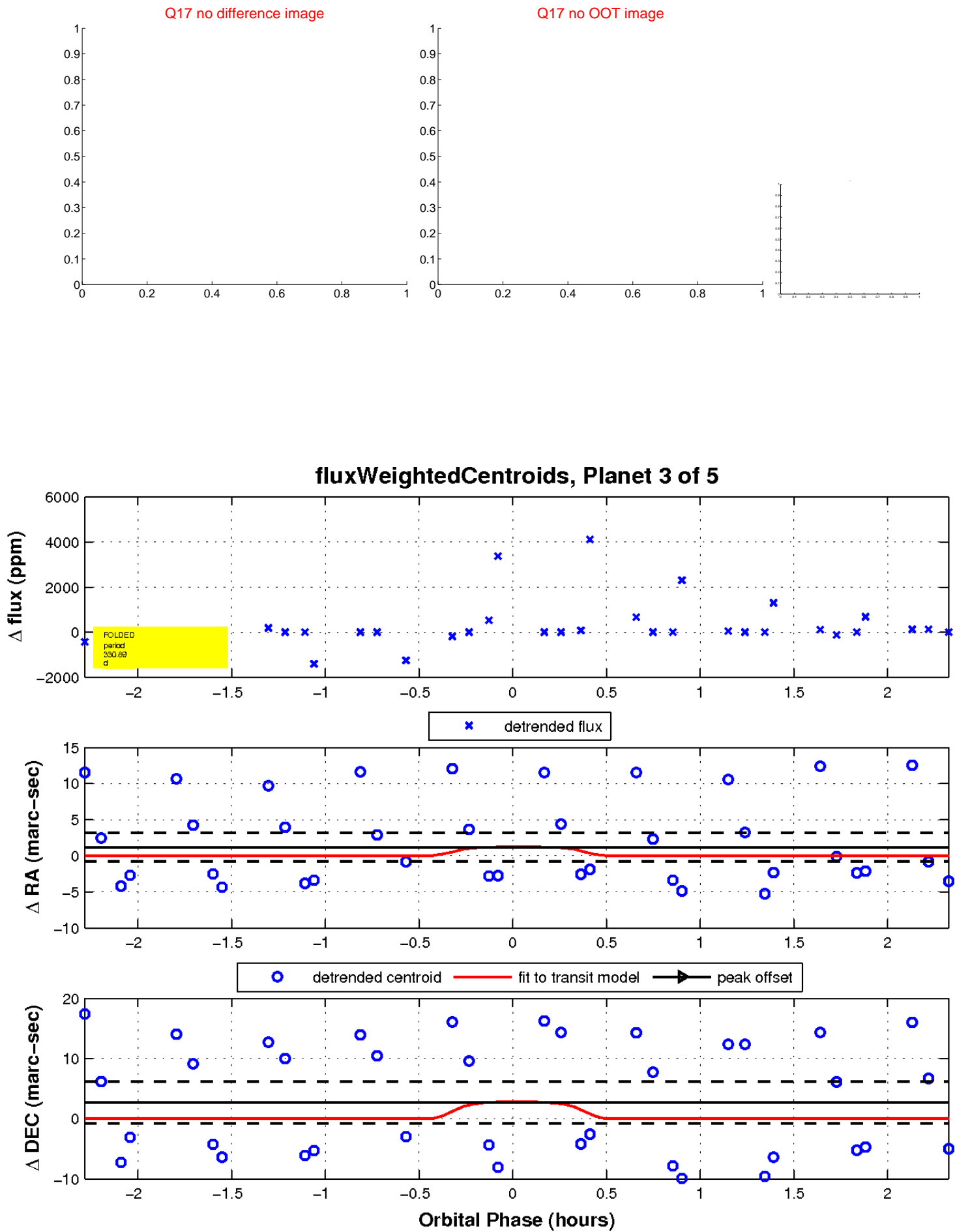
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



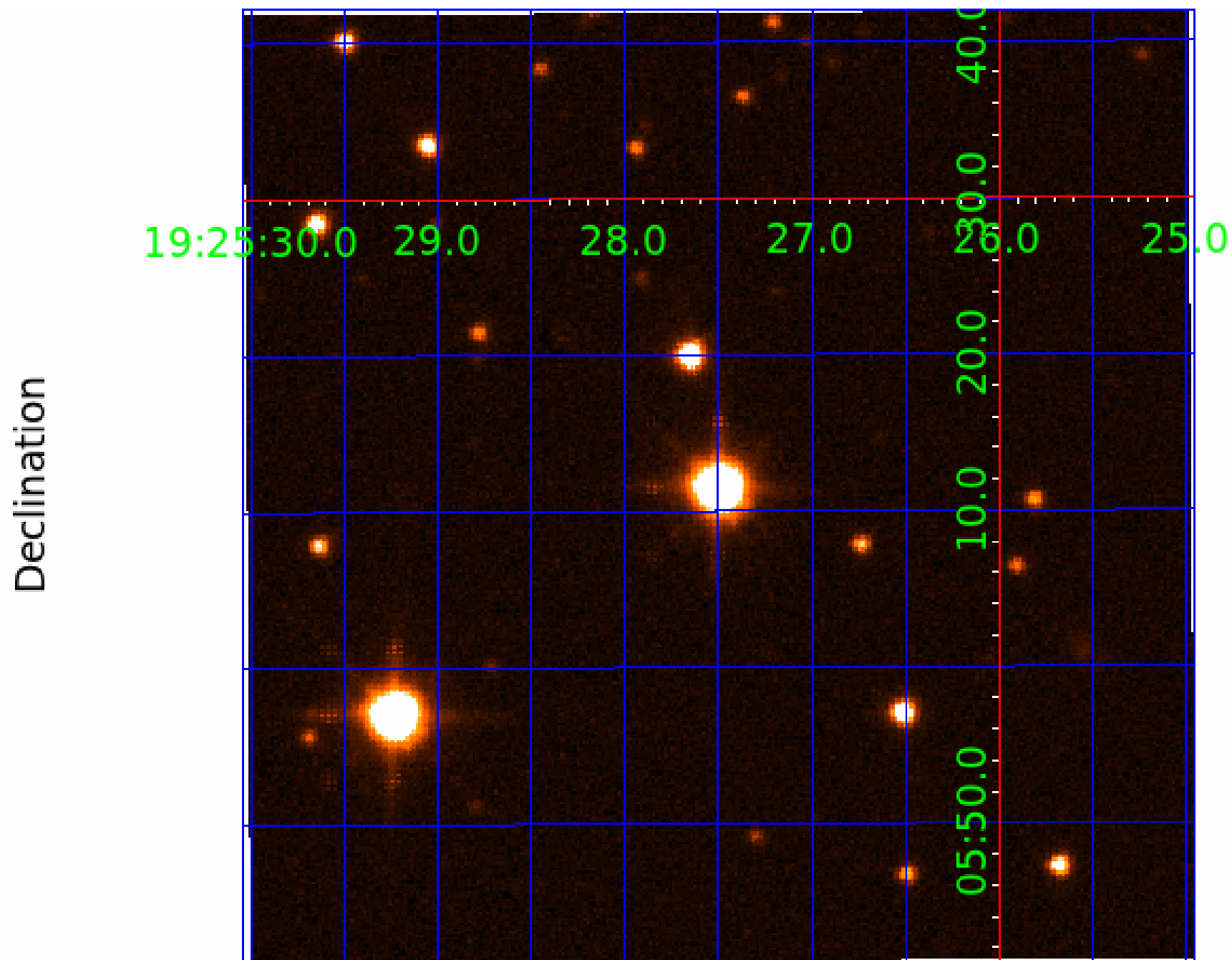
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 001573138

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})
001573138-01	OBS	No	275.711098	182.562142	942.5	5.466	28.7	5.3	2.87	4838	11.64	6.22
001573138-02	OBS	No	450.554838	467.713189	934.6	5.025	19.4	5.9	2.87	4838	8.55	3.23
001573138-03	OBS	No	330.887559	225.493479	232.6	0.787	17.4	1.6	2.87	4838	5.38	4.88
001573138-04	OBS	No	344.849883	404.840630	785.2	4.533	20.2	5.5	2.87	4838	7.75	4.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001573138-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
001573138-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

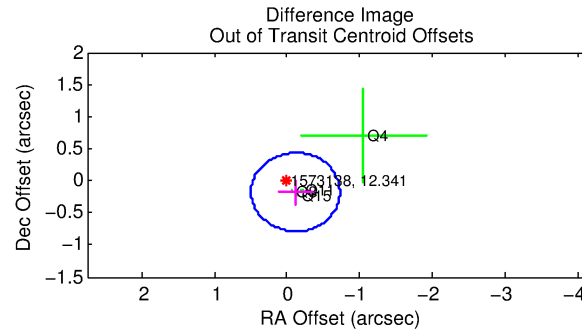
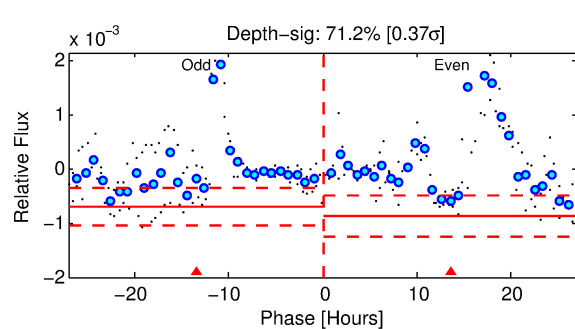
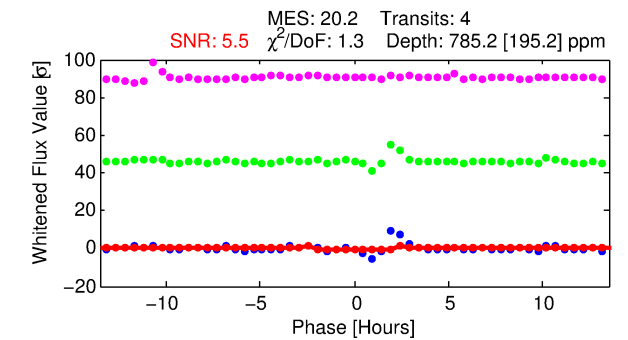
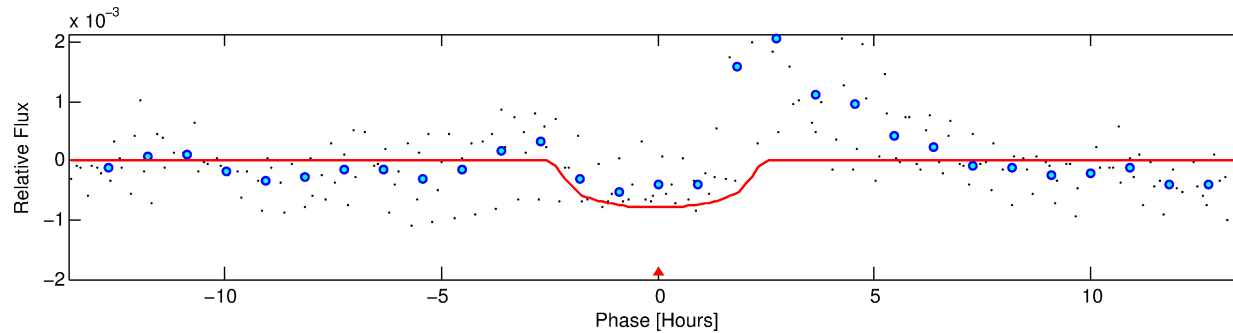
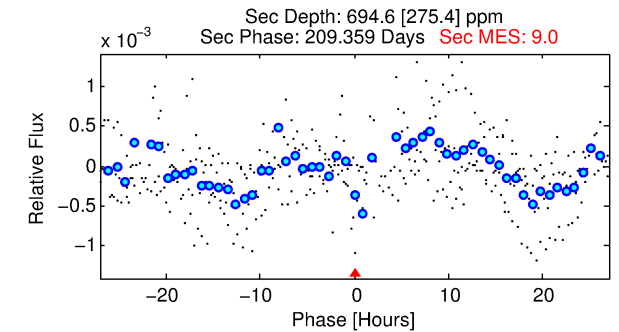
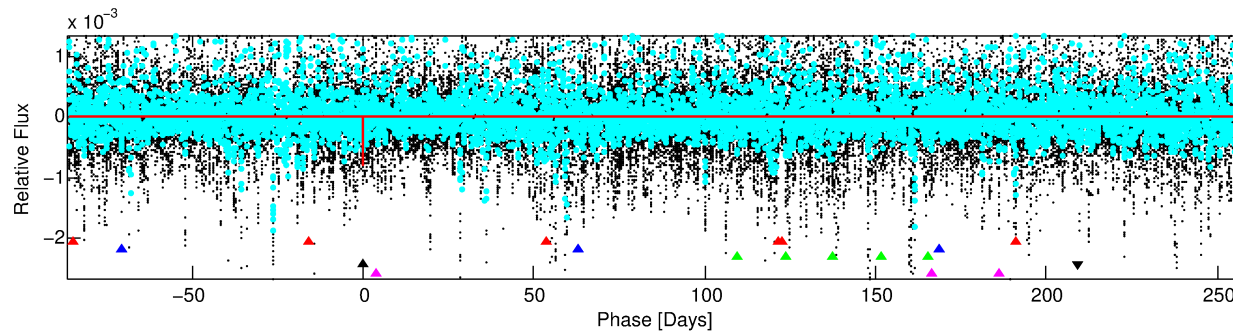
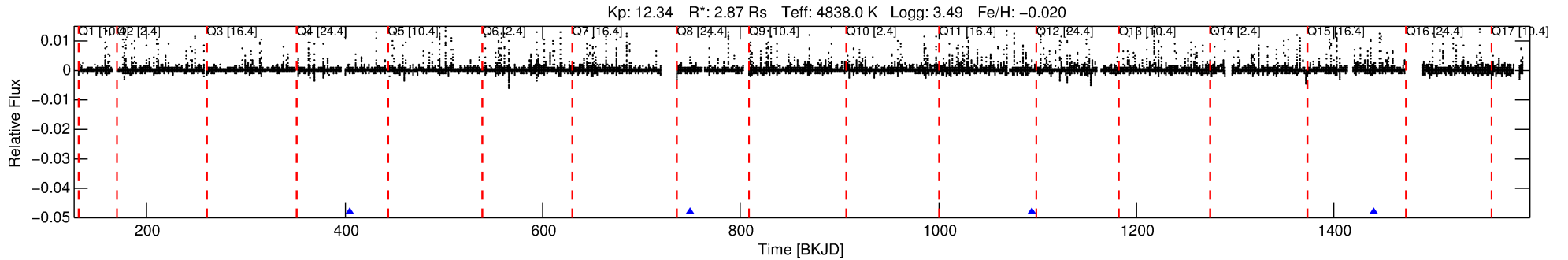
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 001573138-04

No Significant Match Found

DV One-Page Summary

KIC: 1573138 Candidate: 4 of 5 Period: 344.850 d



DV Fit Results:

Period = 344.84988 [0.00351] d
Epoch = 404.8406 [0.0051] BKJD
Rp/R* = 0.0247 [0.0327]
a/R* = 595.17 [2617.01]
b = 0.04 [116.94]
Seff = 4.61 [1.18]
Teff = 374 [24] K
Rp = 7.75 [10.38] Re
a = 0.9364 [0.1669] AU
Ag = 5579.45 [14967.39] [0.37σ]
Teffp = 4994 [3336] K [1.39σ]

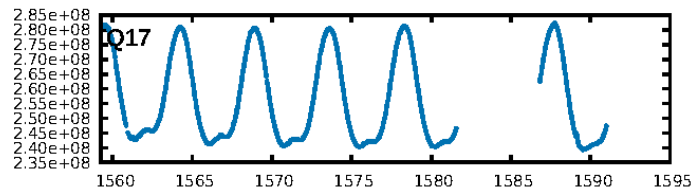
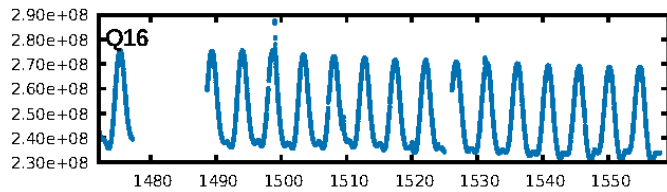
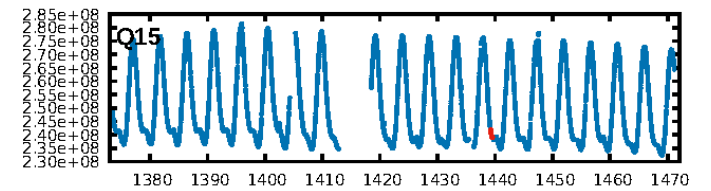
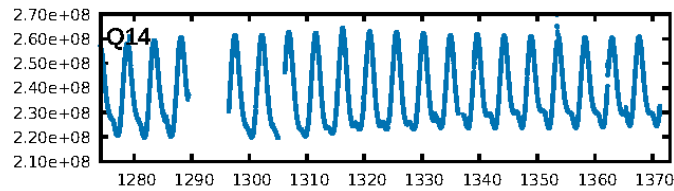
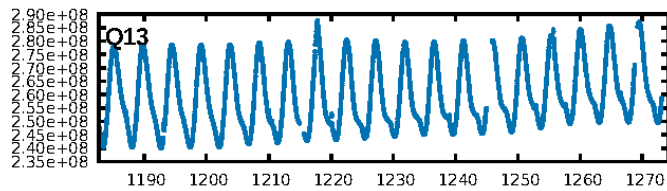
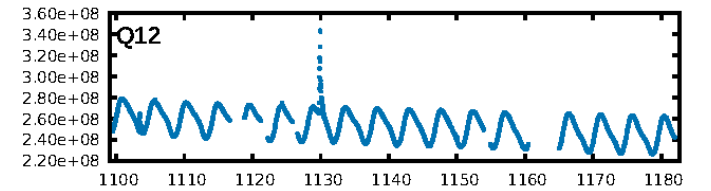
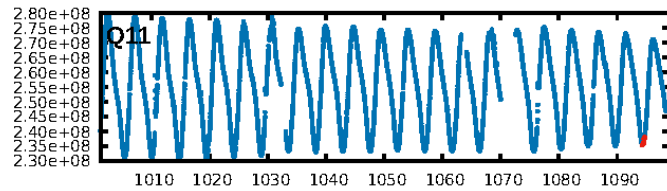
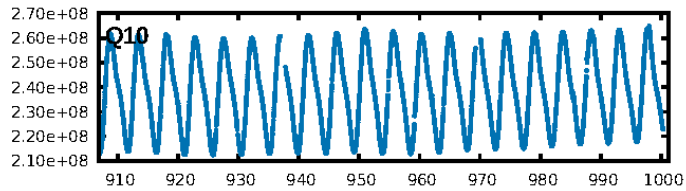
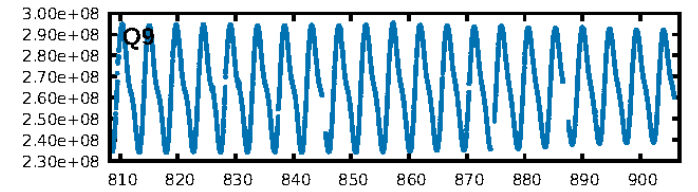
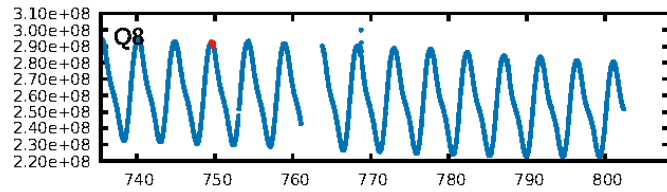
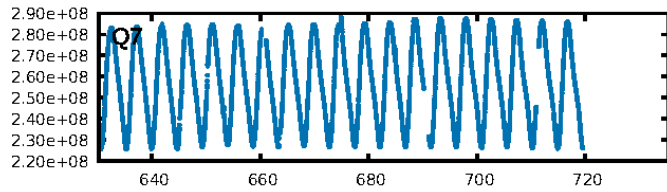
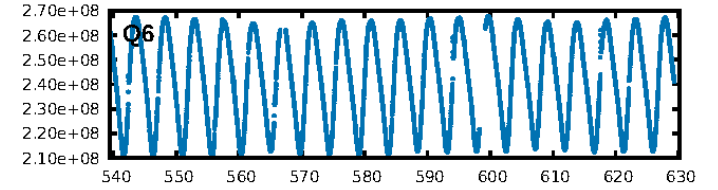
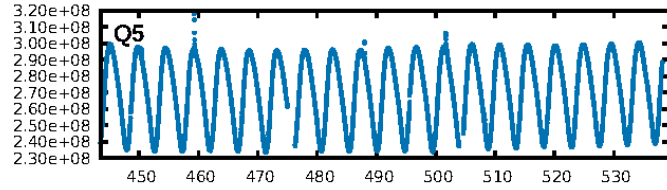
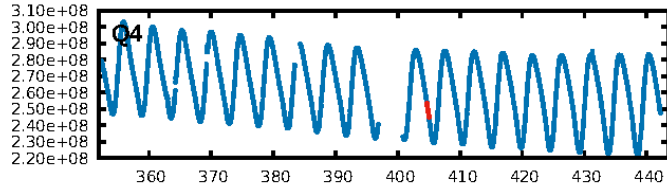
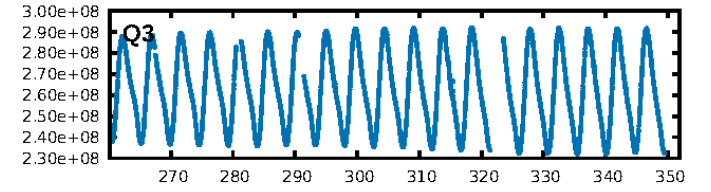
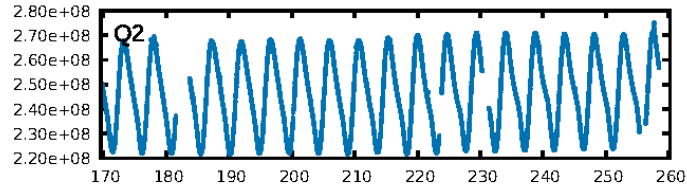
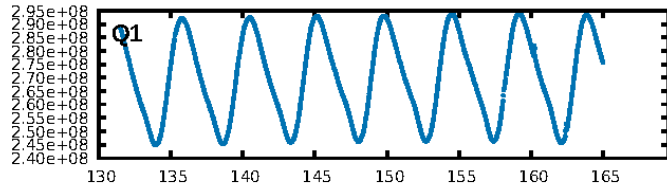
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [72.84σ]
LongPeriod-sig: 100.0% [374.89σ]
ModelChiSquare2-sig: 95.4%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.333
Centroid-sig: 1.6%
Centroid-so: 4.208 arcsec [1.45σ]
OotOffset-rm: 0.211 arcsec [1.04σ]
KicOffset-rm: 0.185 arcsec [0.93σ]
OotOffset-st: 0/2/2/0 [4]
KicOffset-st: 0/2/2/0 [4]
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DiffImageOverlap-fno: 1.00 [4/4]

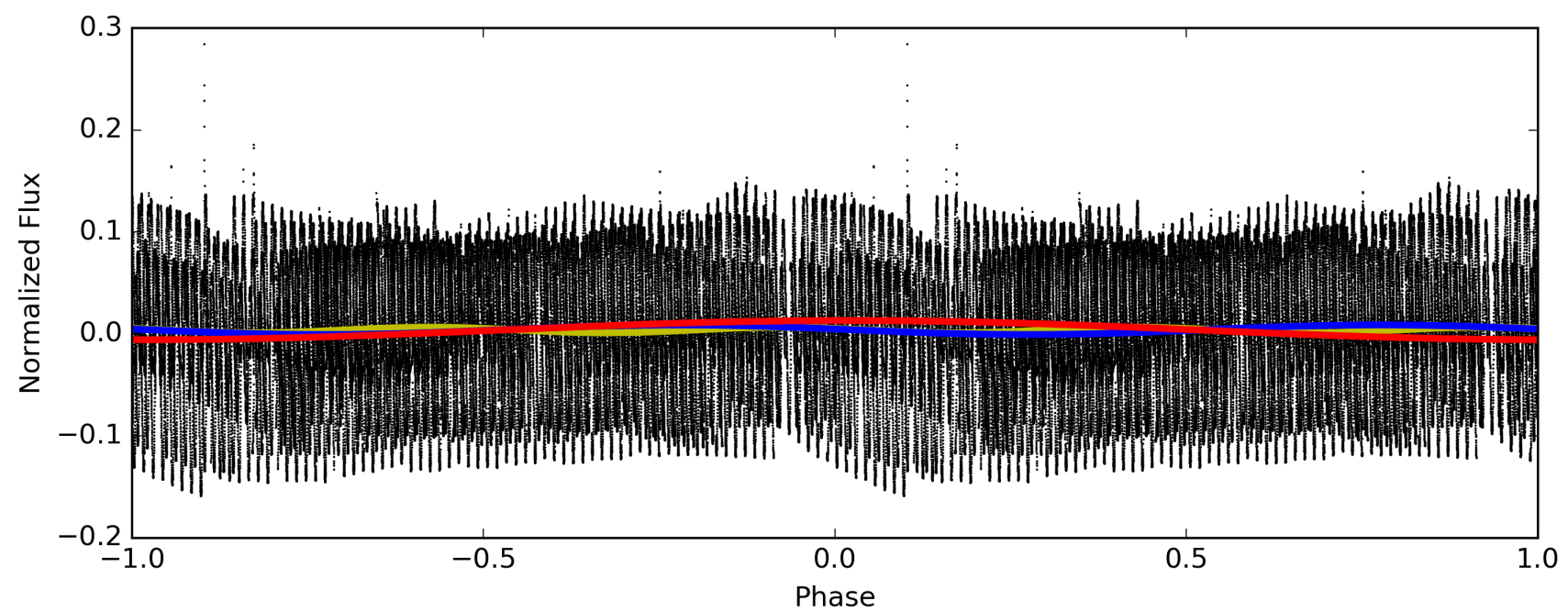
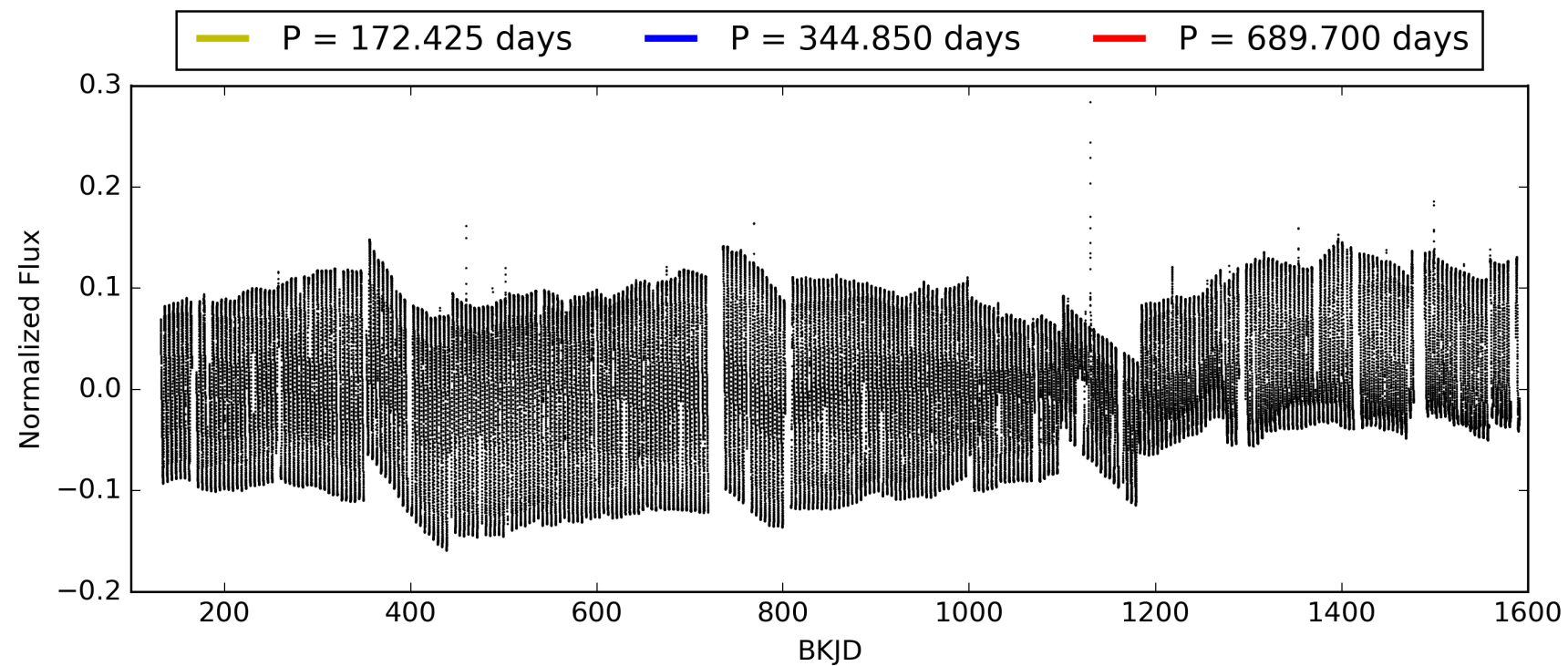
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:22:50 Z

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

TCE 001573138-04, PDC Light Curves

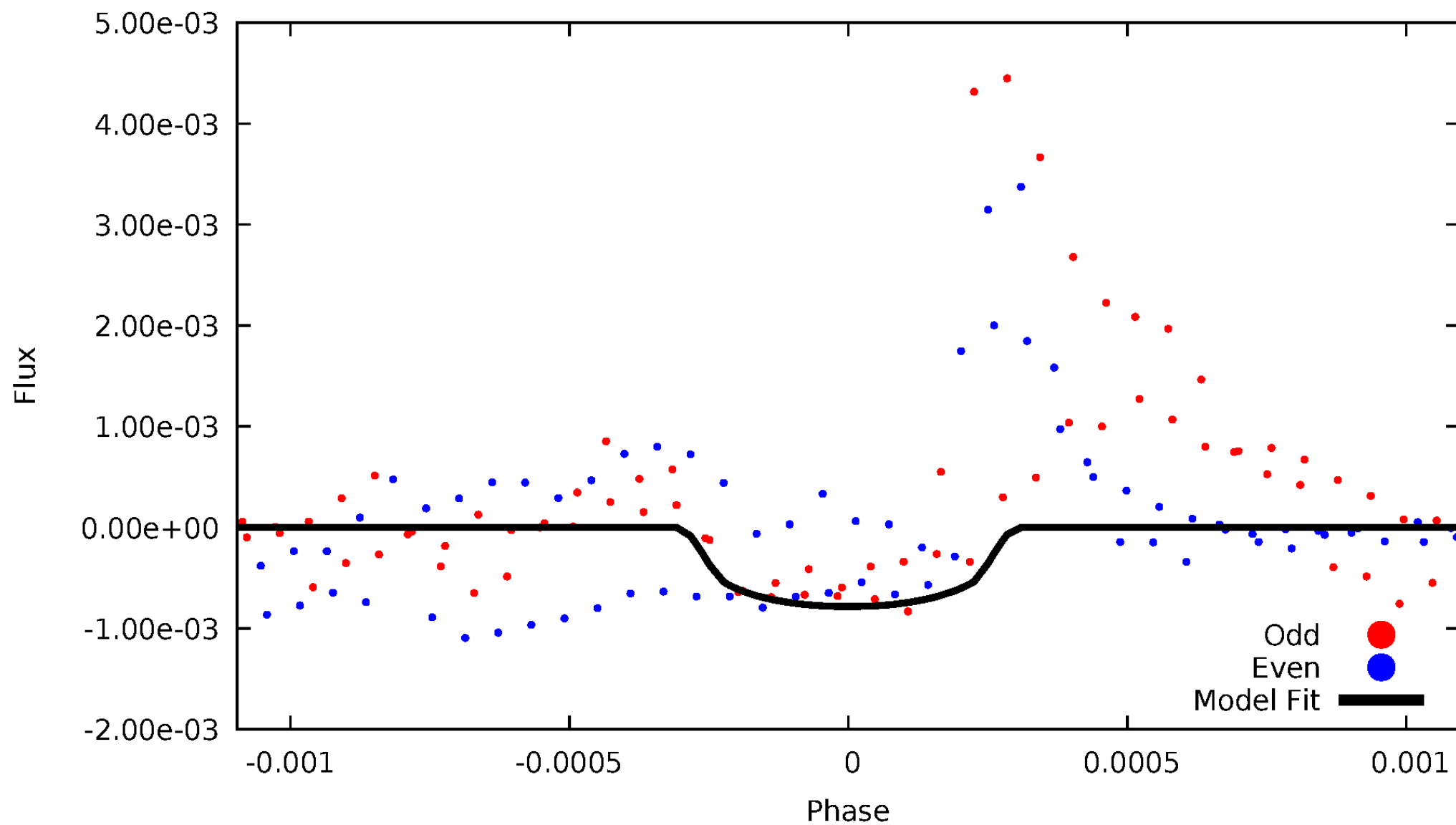


TCE 001573138-04



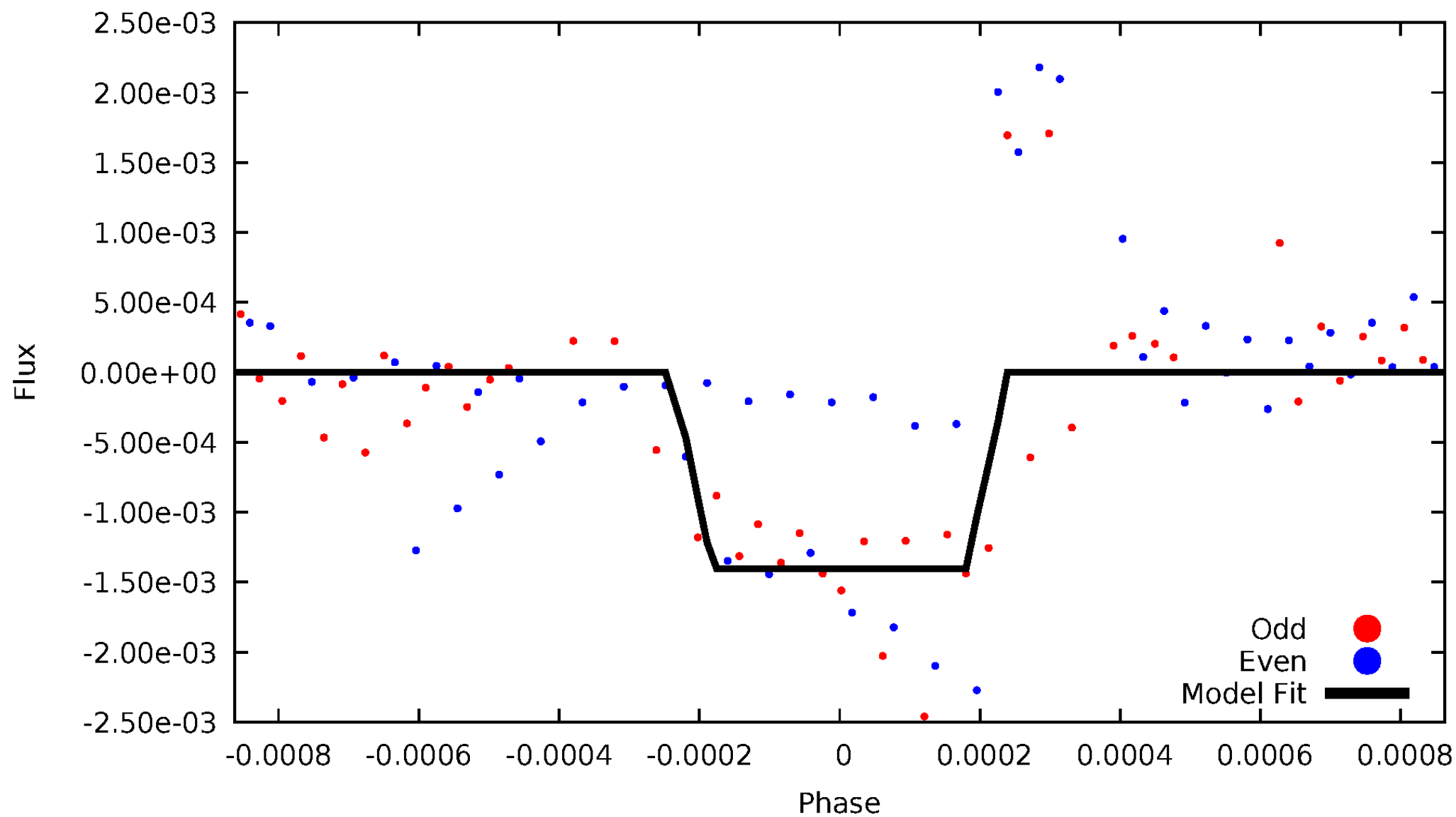
DV Odd/Even

TCE 001573138-04



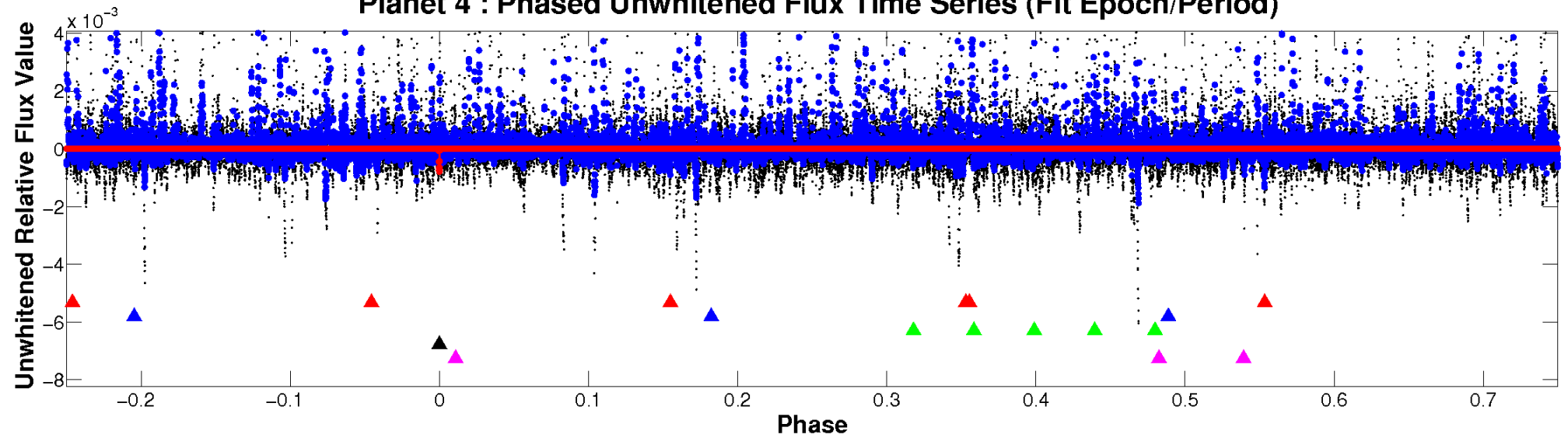
ALT Odd/Even

TCE 001573138-04

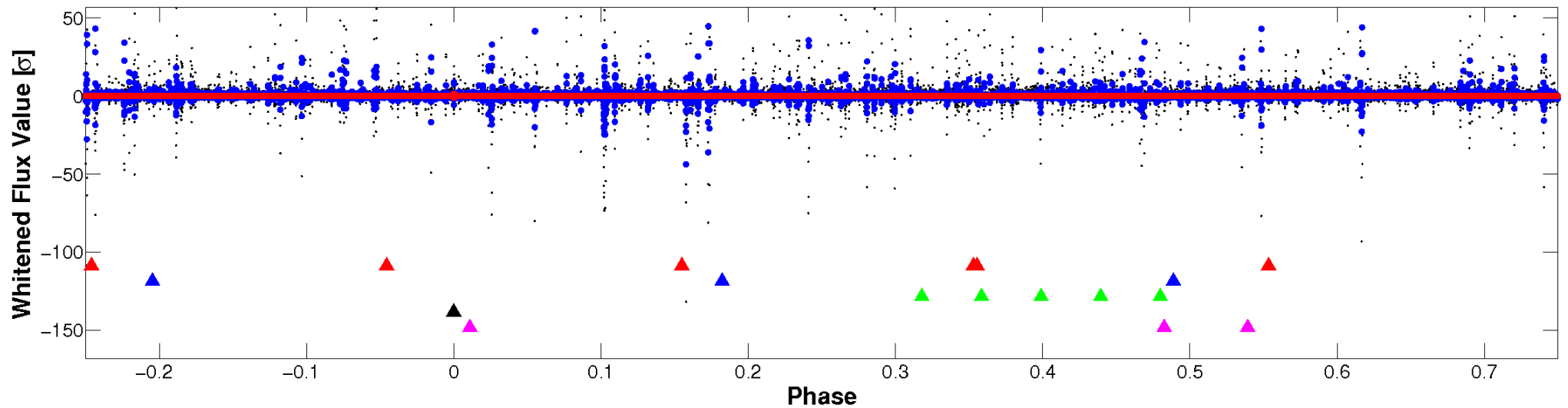


Non-Whitened Vs. Whitened Light Curve

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

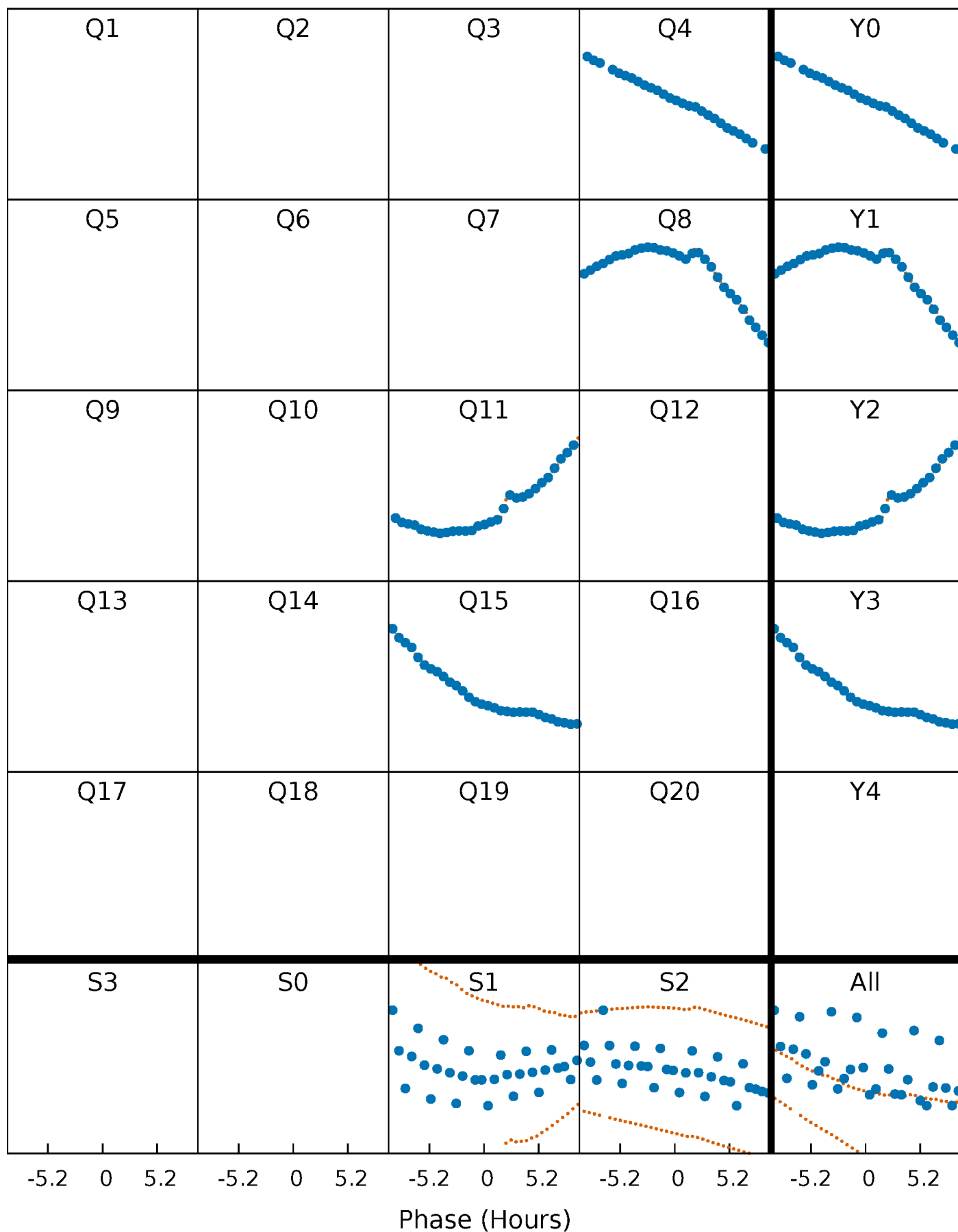


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



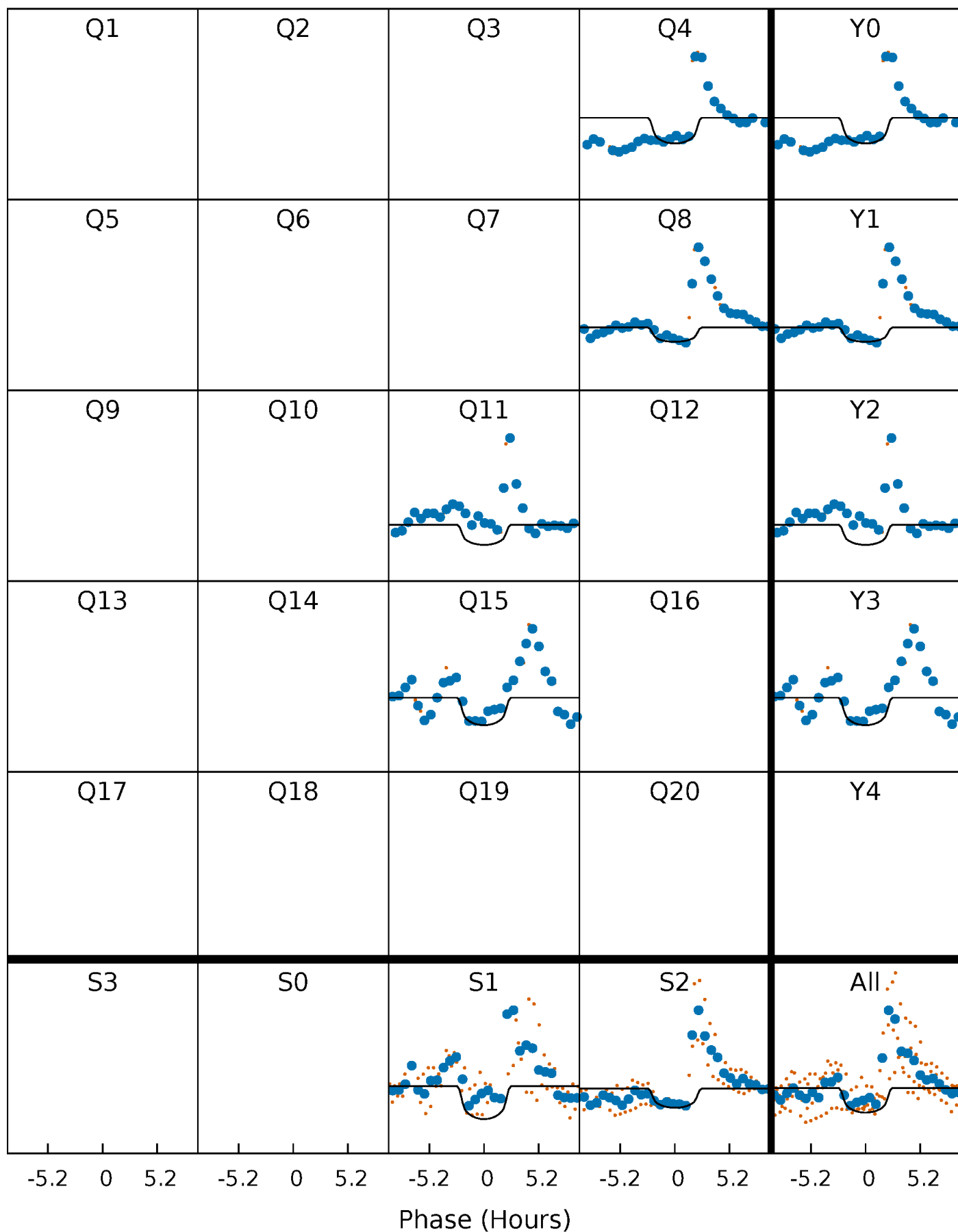
PDC Quarter-Phased Transit Curves

TCE 001573138-04 P=344.849883 Days $T_0=404.840630$ (BKJD)



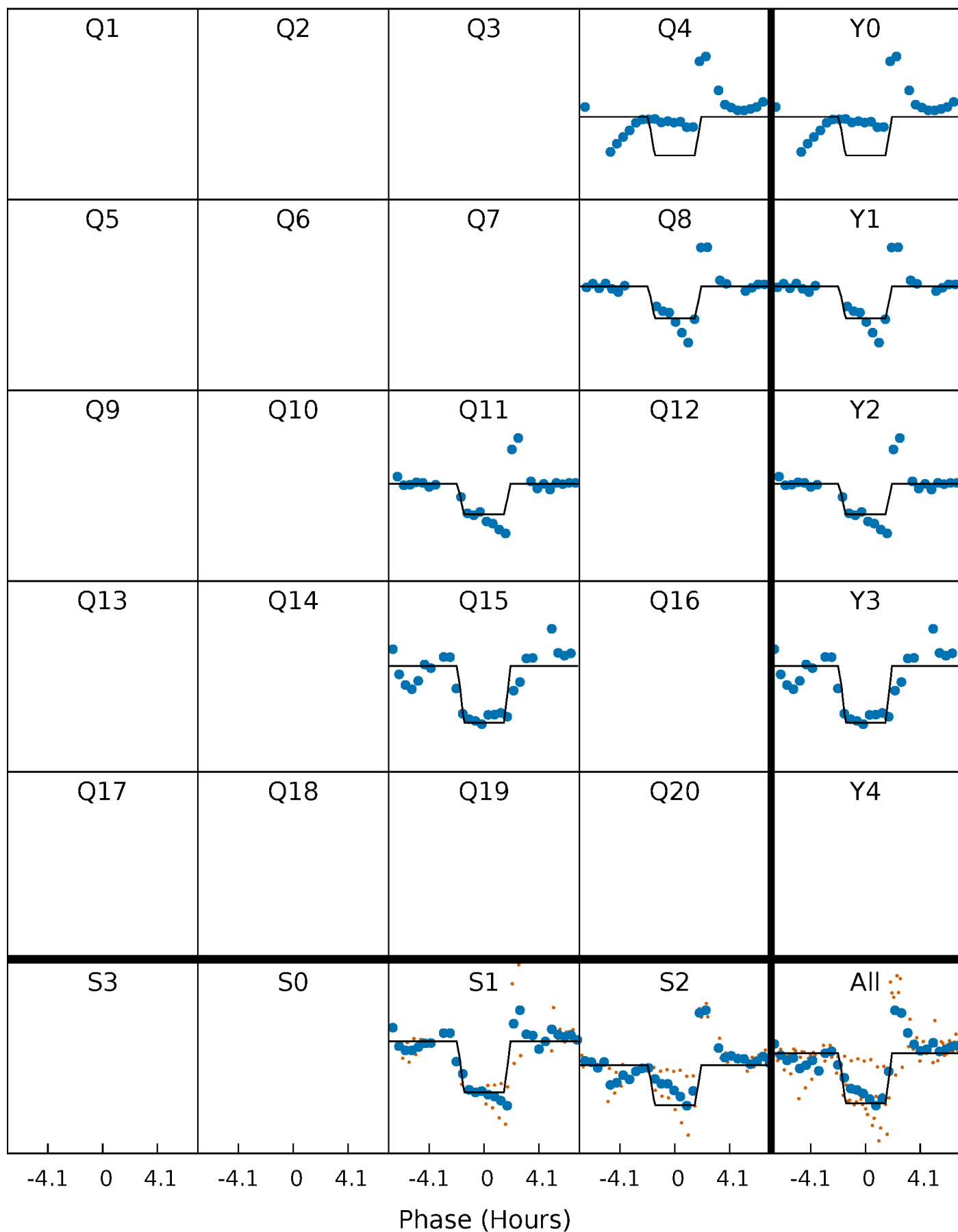
DV Quarter-Phased Transit Curves

TCE 001573138-04 $P=344.849883$ Days $T_0=404.840630$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

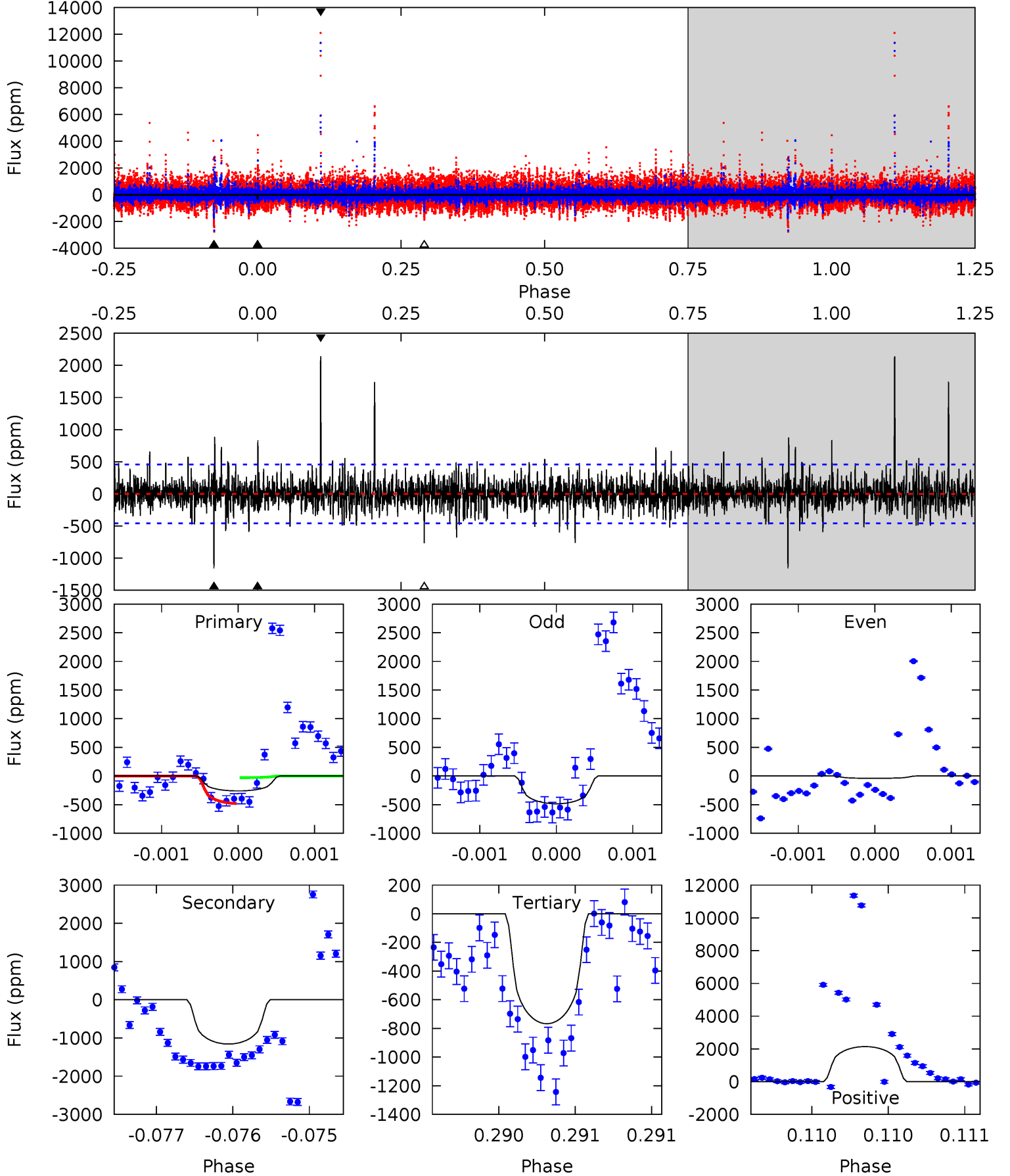
TCE 001573138-04 P=344.853182 Days $T_0=404.832492$ (BKJD)



DV Model-Shift Uniqueness Test

001573138-04, $P = 344.849883$ Days, $E = 59.990747$ Days

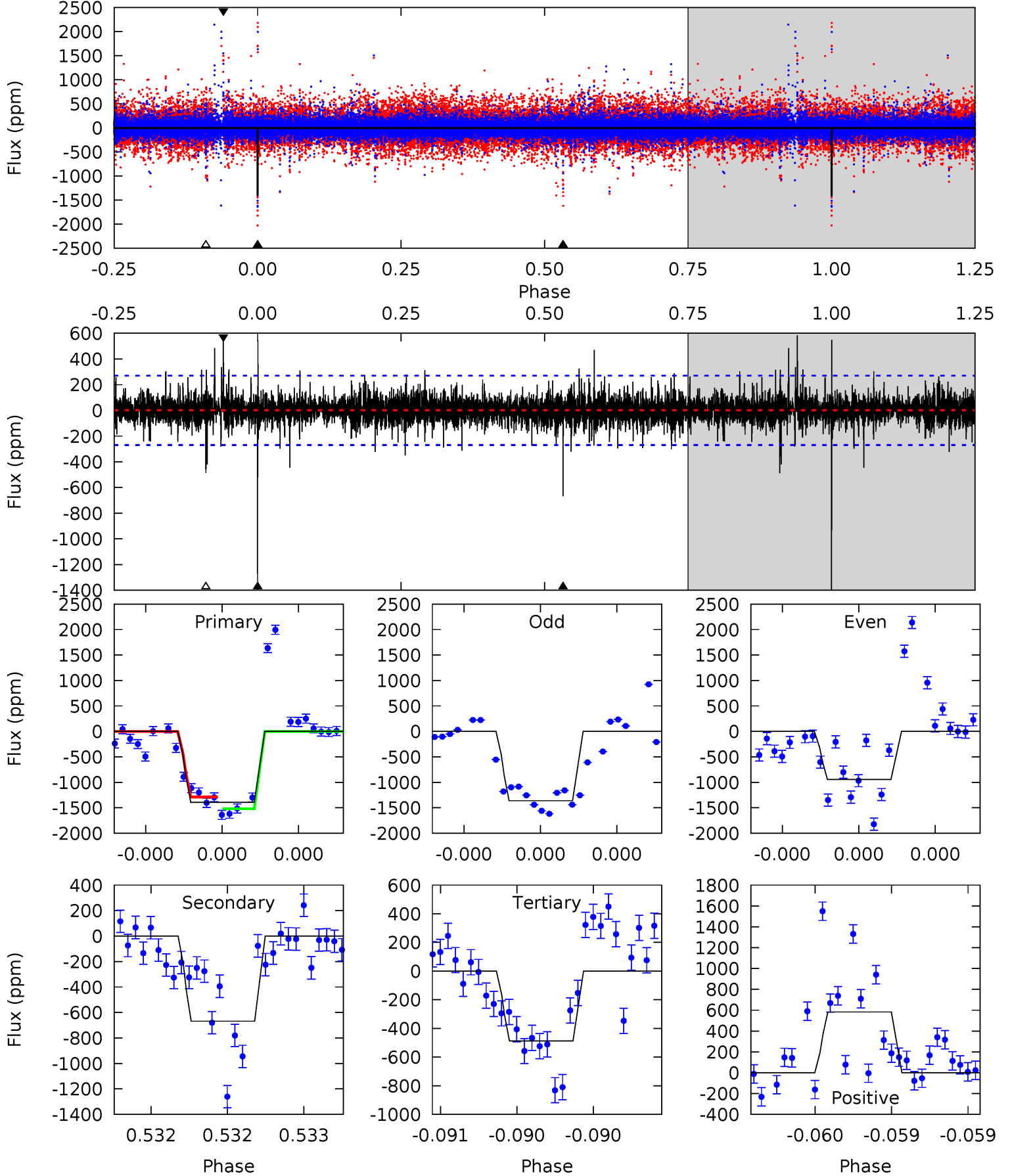
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.17	14.0	9.29	25.9	5.55	3.45	2.05	-6.13	-22.8	4.74	-11.9	1.81	0.94	0.65	2.76



Alt Model-Shift Uniqueness Test

001573138-04, $P = 344.853182$ Days, $E = 59.979310$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	13.9	10.1	12.1	5.60	3.52	1.46	18.8	16.8	3.74	1.78	3.85	0.83	0.29	0



Stellar Parameters For KIC 001573138

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4838^{+79}_{-43}	$3.486^{+0.130}_{-0.130}$	$-0.020^{+0.150}_{-0.100}$	$2.871^{+0.636}_{-0.343}$	$0.920^{+0.142}_{-0.017}$	$0.055^{+0.028}_{-0.023}$
	+2%/-1%	+4%/-4%	+750%/-500%	+22%/-12%	+15%/-2%	+51%/-42%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 001573138-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1158 ± 83	$10.56^{+9.77}_{-6.94}$	522^{+28}_{-22}	4930^{+3525}_{-1099}	5125^{+38926}_{-3748}
Alt.	-668 ± 48	$14.22^{+9.67}_{-8.92}$	522^{+27}_{-22}	3921^{+1954}_{-586}	1657^{+10191}_{-1080}

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 $A_{obs} \gg 1.0$

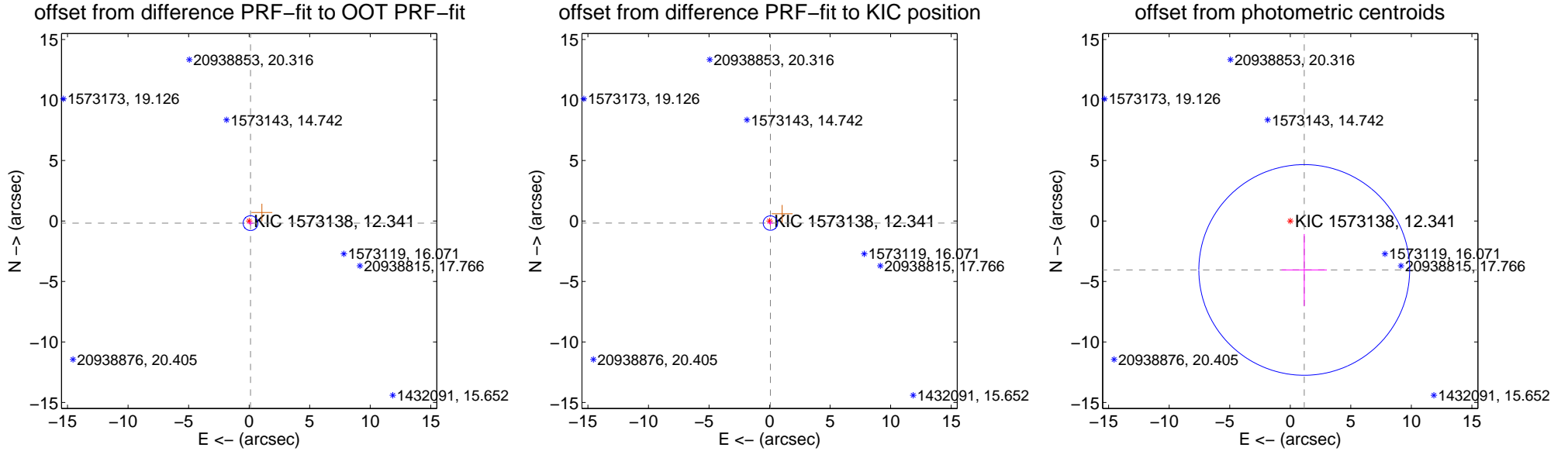
DV Centroid Data

Supplemental centroid analysis for 001573138-04. Kepler magnitude: 12.34. Transit SNR 5.49

There are 2 quarters with good PRF difference image offsets

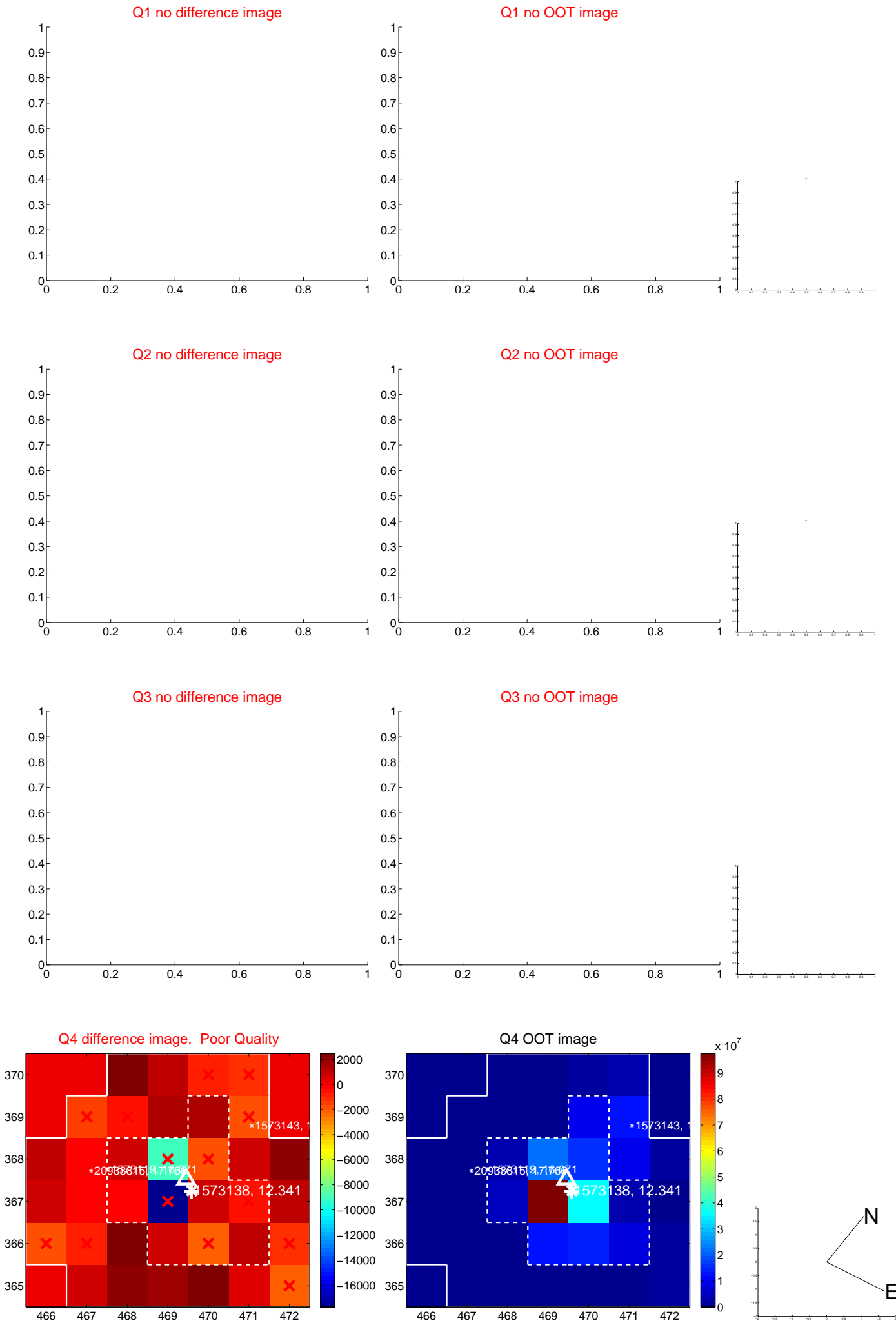
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.211 ± 0.204	1.04	-0.115 ± 0.226	-0.177 ± 0.194
PRF-fit source offset from KIC position	0.185 ± 0.199	0.93	-0.071 ± 0.226	-0.171 ± 0.194
photometric centroid source offset	4.21 ± 2.90	1.45	-1.16 ± 1.87	-4.05 ± 2.97

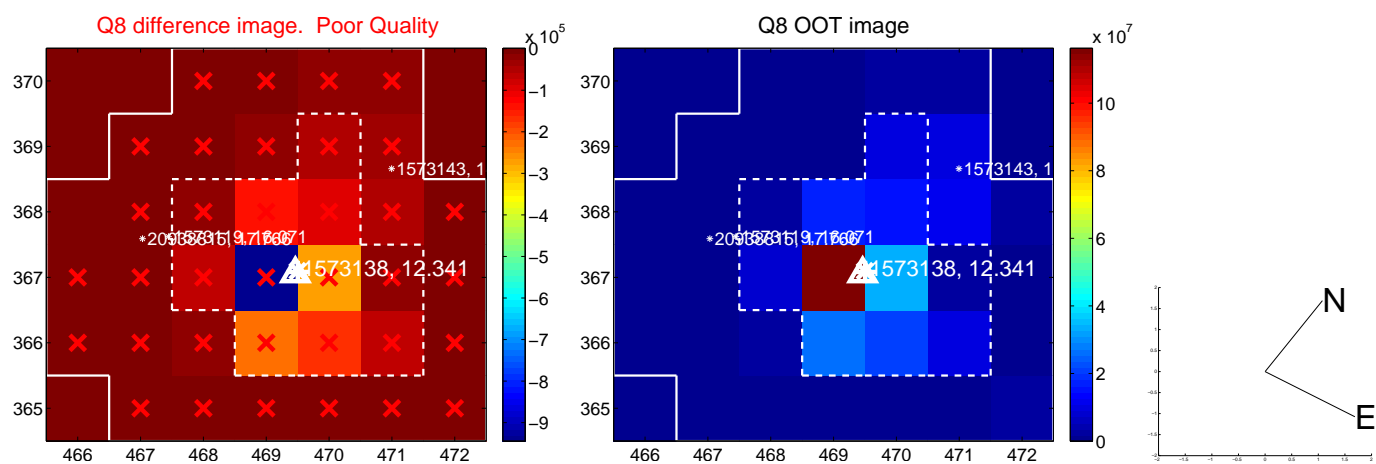
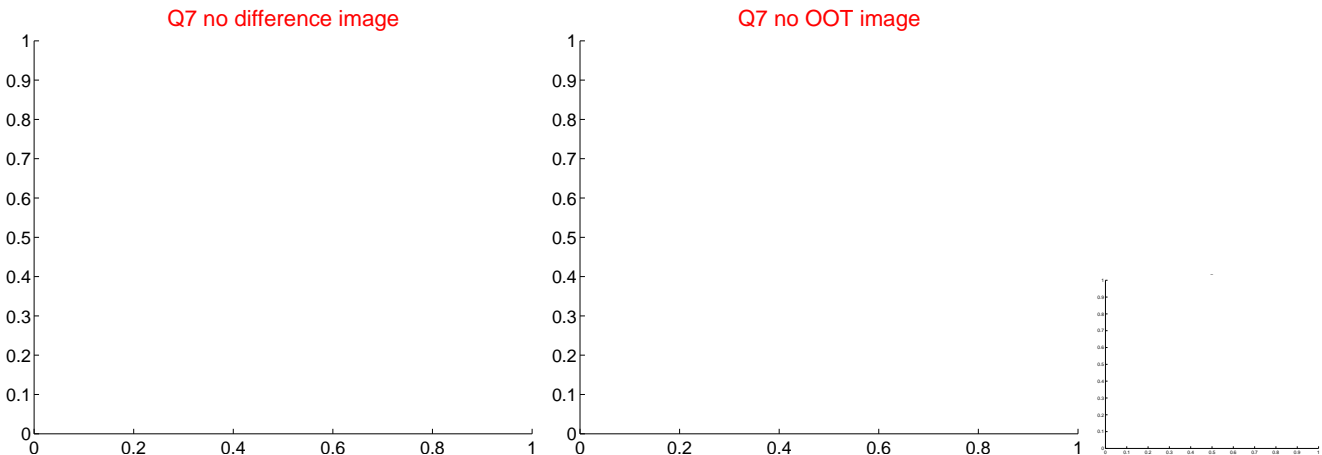
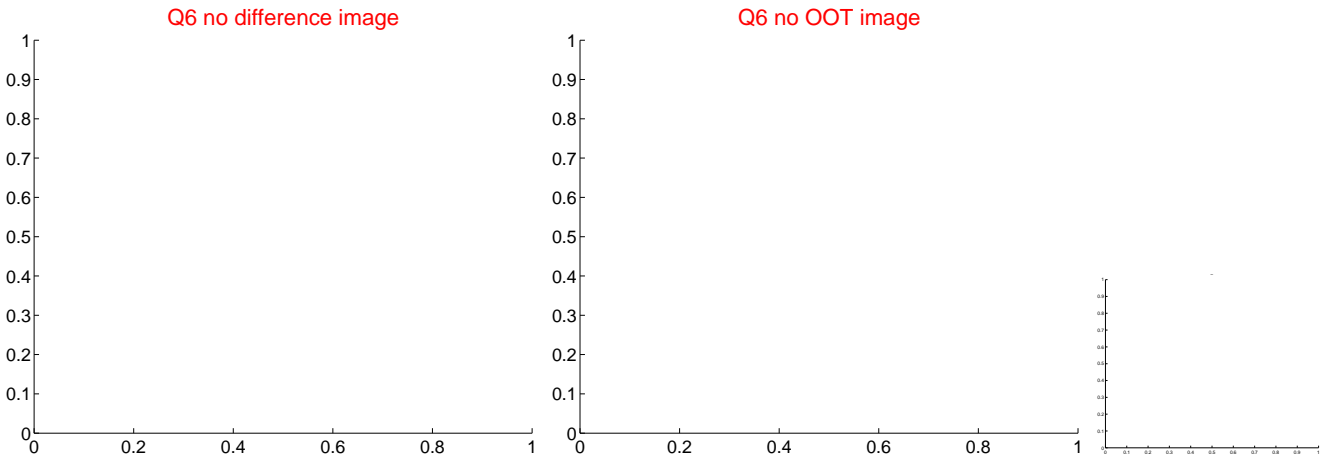
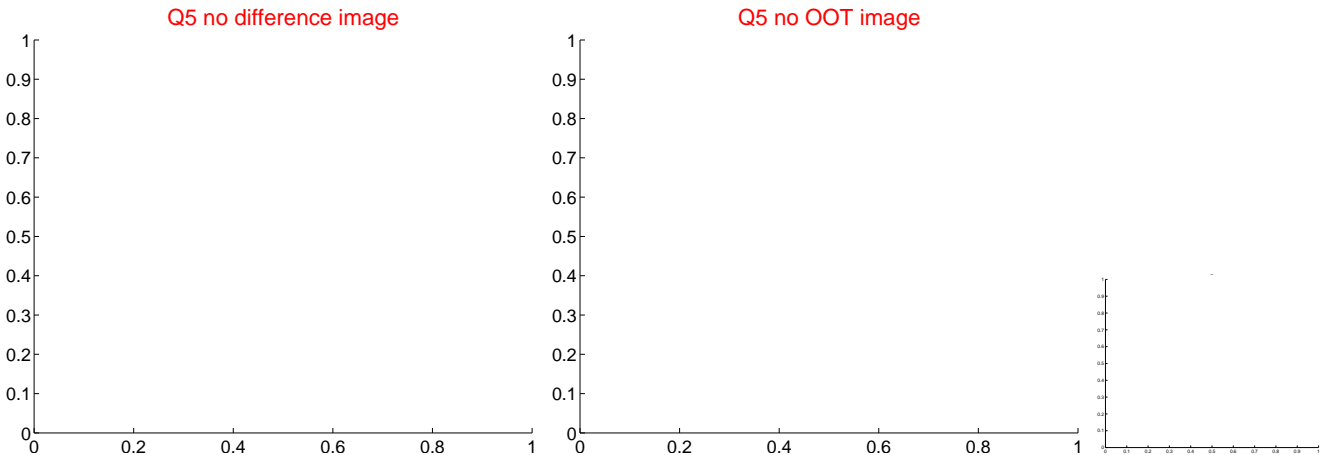


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

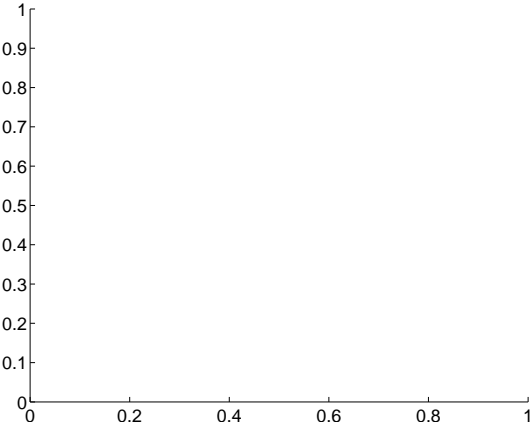


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value

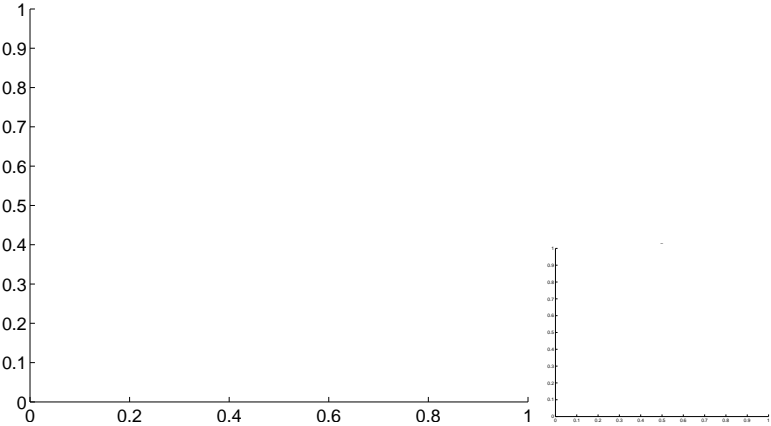


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

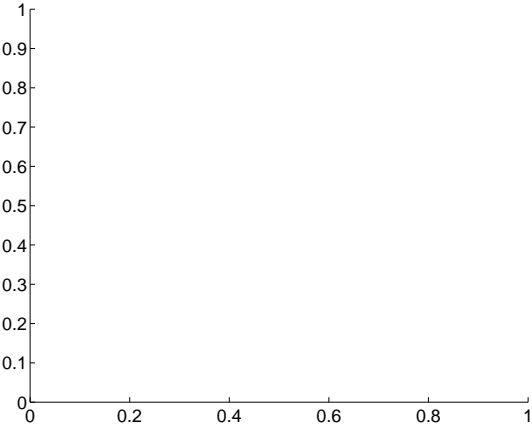
Q9 no difference image



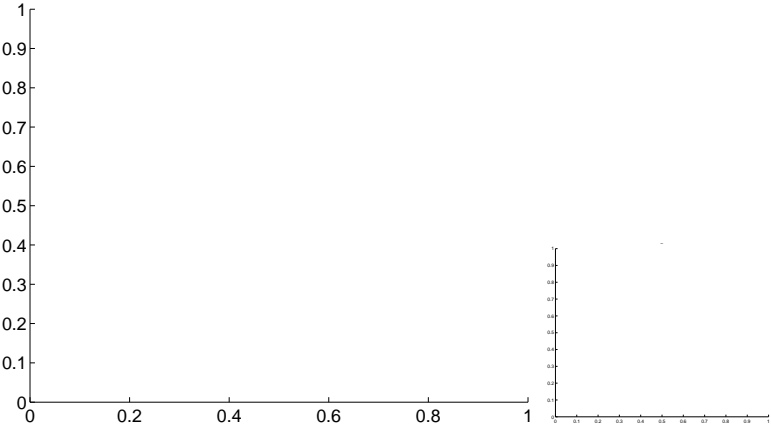
Q9 no OOT image



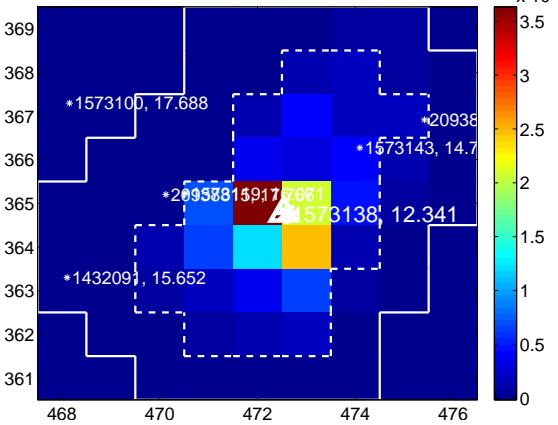
Q10 no difference image



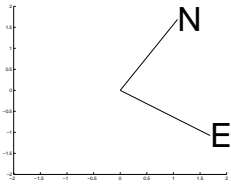
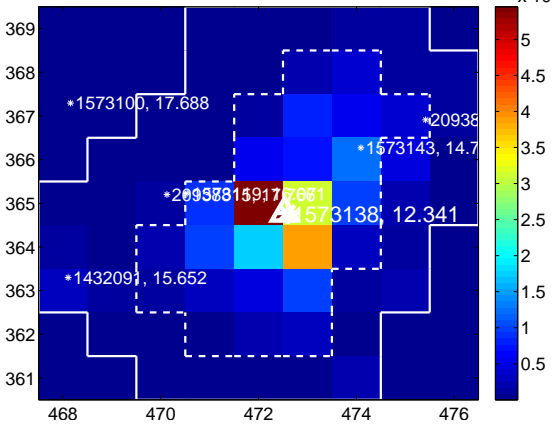
Q10 no OOT image



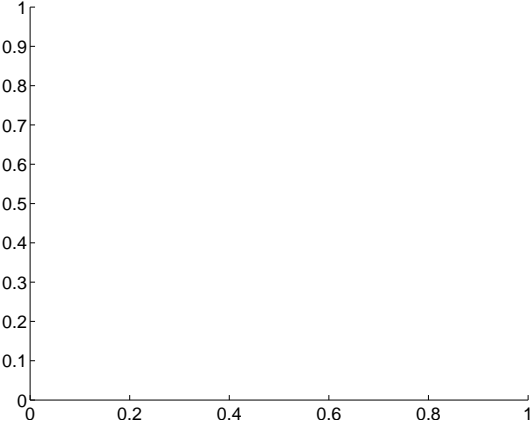
Q11 difference image



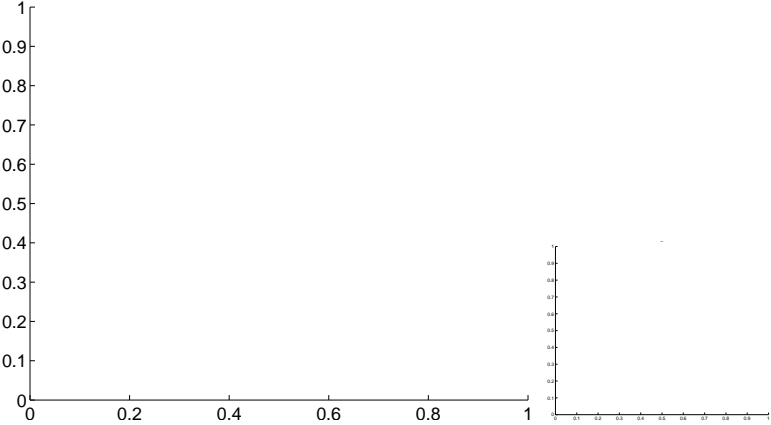
Q11 OOT image



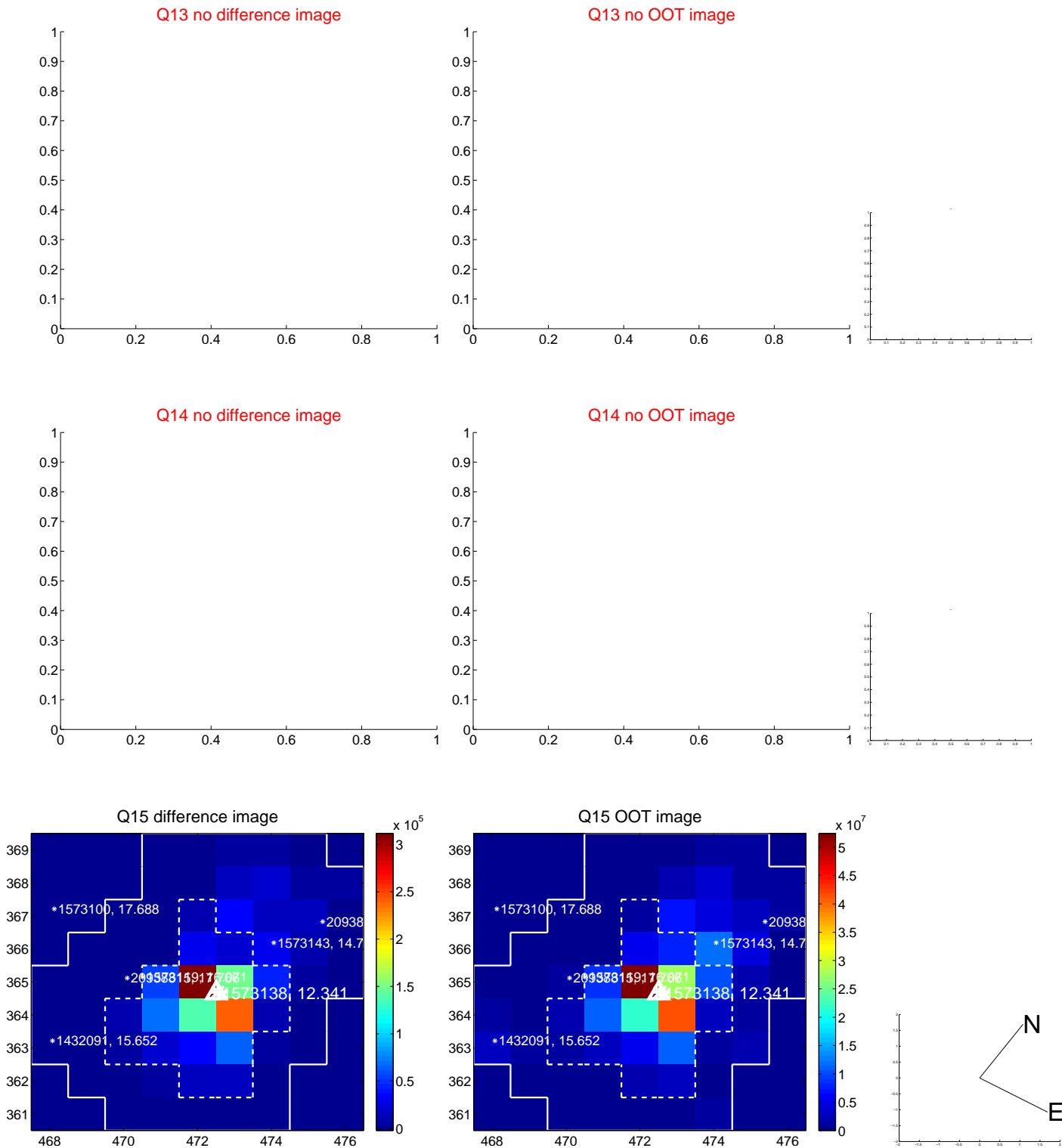
Q12 no difference image



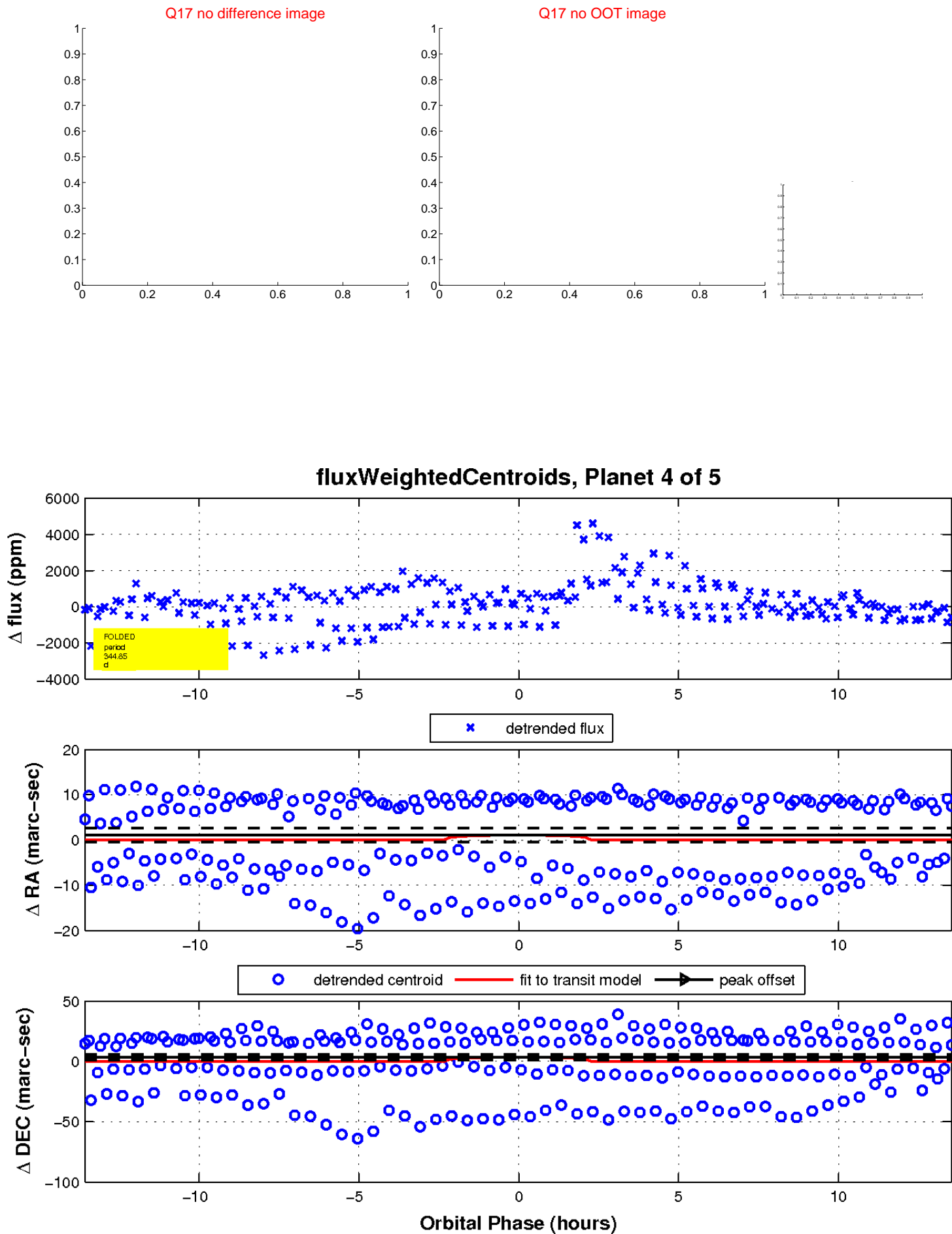
Q12 no OOT image



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.



UKIRT Image

