

KIC 005641933

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})
005641933-01	OBS	No	578.695940	270.656429	470.6	4.208	14.1	4.2	2.47	5494	5.50	2.59
005641933-02	OBS	No	555.190932	328.827127	2158.1	9.305	16.9	11.7	2.47	5494	21.77	2.73
005641933-03	OBS	No	363.351822	422.823349	613.1	4.373	15.7	6.8	2.47	5494	6.57	4.81
005641933-04	OBS	No	447.093104	302.117597	413.6	3.500	13.5	-1.0	2.47	5494	4.97	3.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005641933-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005641933-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005641933-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
005641933-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

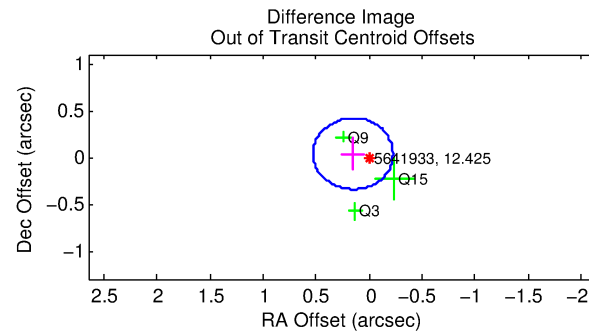
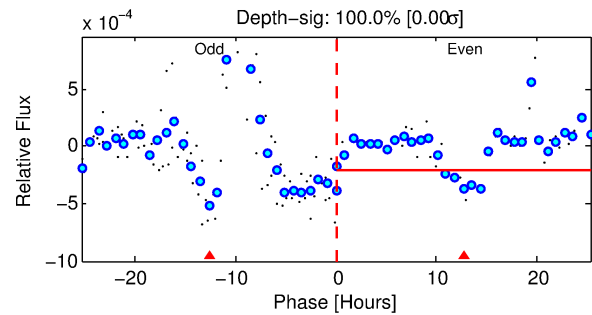
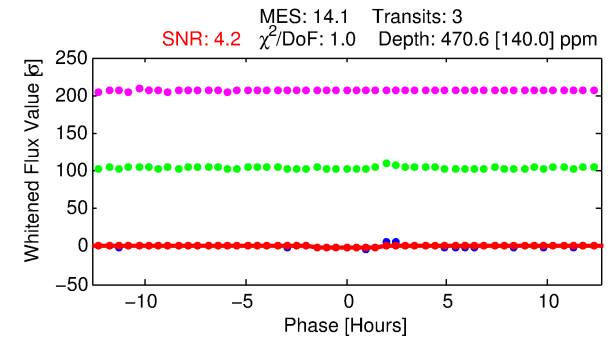
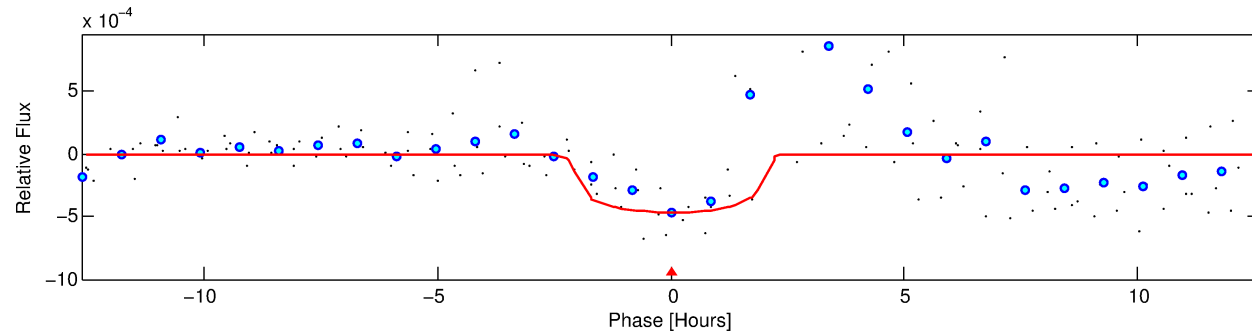
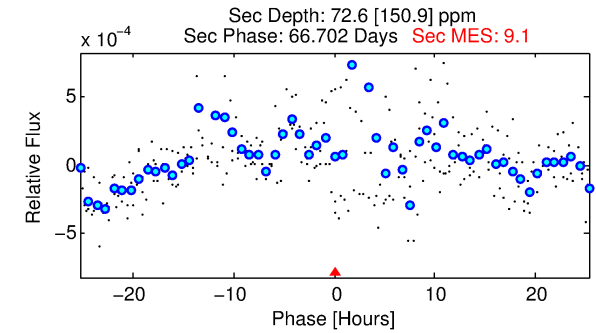
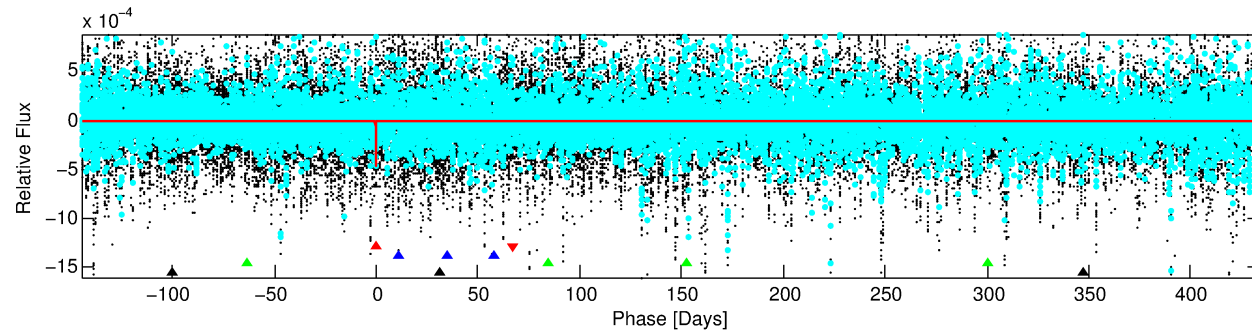
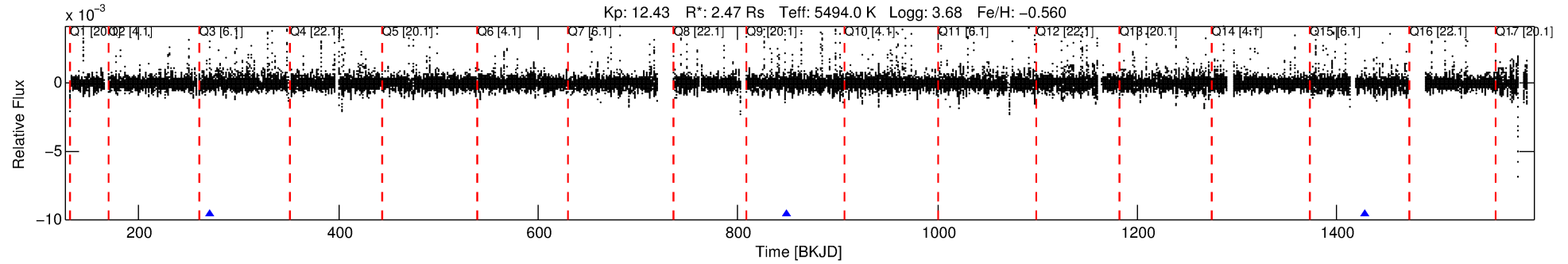
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005641933-01

No Significant Match Found

DV One-Page Summary

KIC: 5641933 Candidate: 1 of 4 Period: 578.696 d



DV Fit Results:

Period = 578.69594 [0.00520] d
Epoch = 270.6564 [0.0091] BKJD
Rp/R* = 0.0204 [0.0555]
a/R* = 916.38 [11196.85]
b = 0.53 [16.74]
Seff = 2.59 [3.55]
Teq = 323 [111] K
Rp = 5.50 [15.38] Re
a = 1.3860 [1.0850] AU
Ag = 2536.46 [15146.59] [0.17 σ]
Teffp = 3548 [5158] K [0.62 σ]

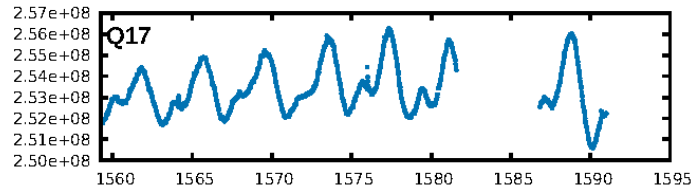
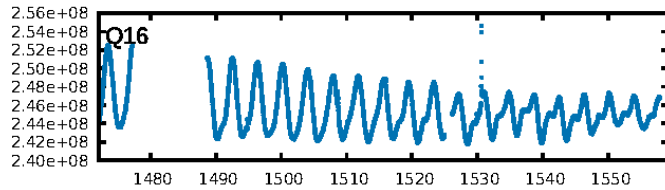
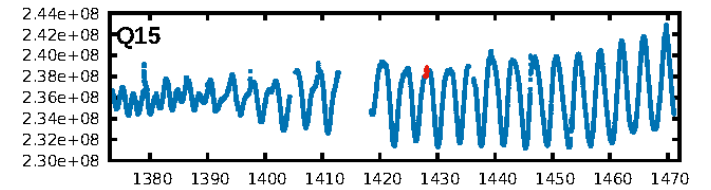
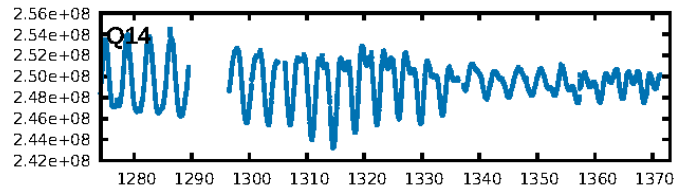
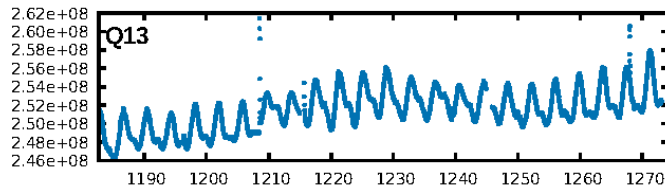
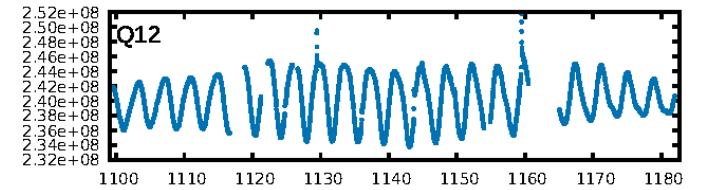
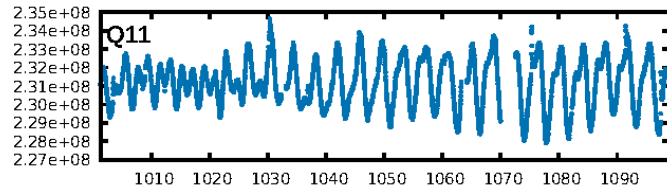
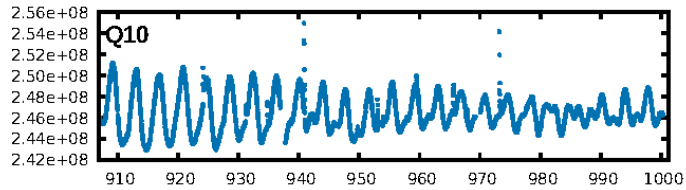
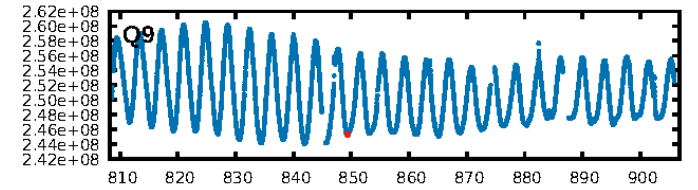
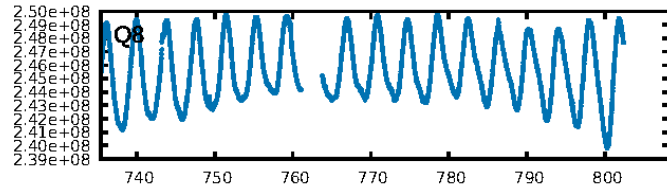
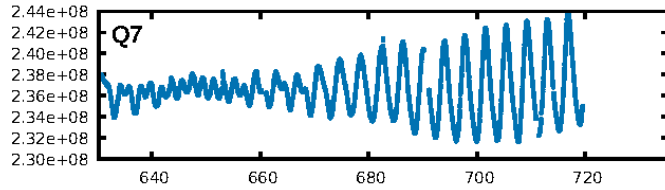
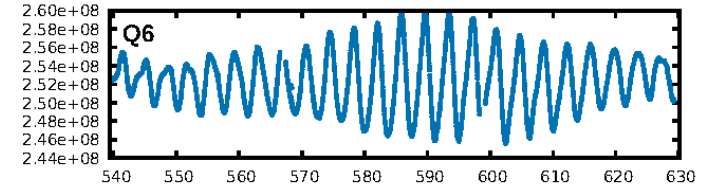
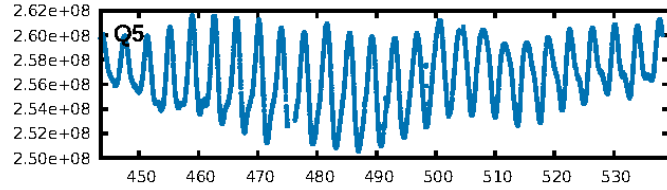
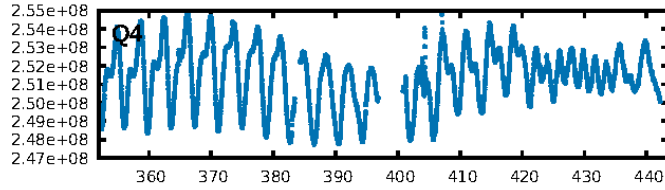
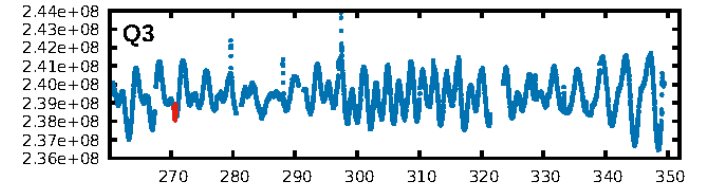
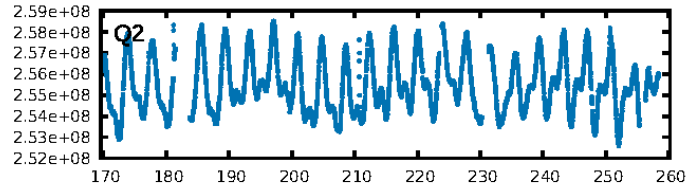
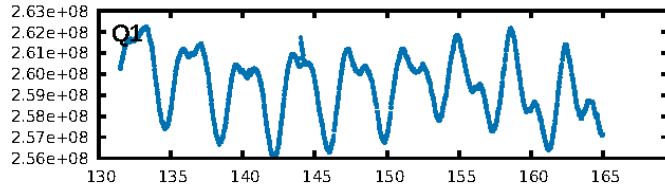
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.24 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.0%
ModelChiSquareGof-sig: 85.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.486
Centroid-sig: 18.9%
Centroid-so: 0.804 arcsec [1.09 σ]
OotOffset-rm: 0.157 arcsec [1.24 σ]
OotOffset-st: 0/2/0/1 [3]
KicOffset-rm: 0.096 arcsec [0.56 σ]
KicOffset-st: 0/2/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

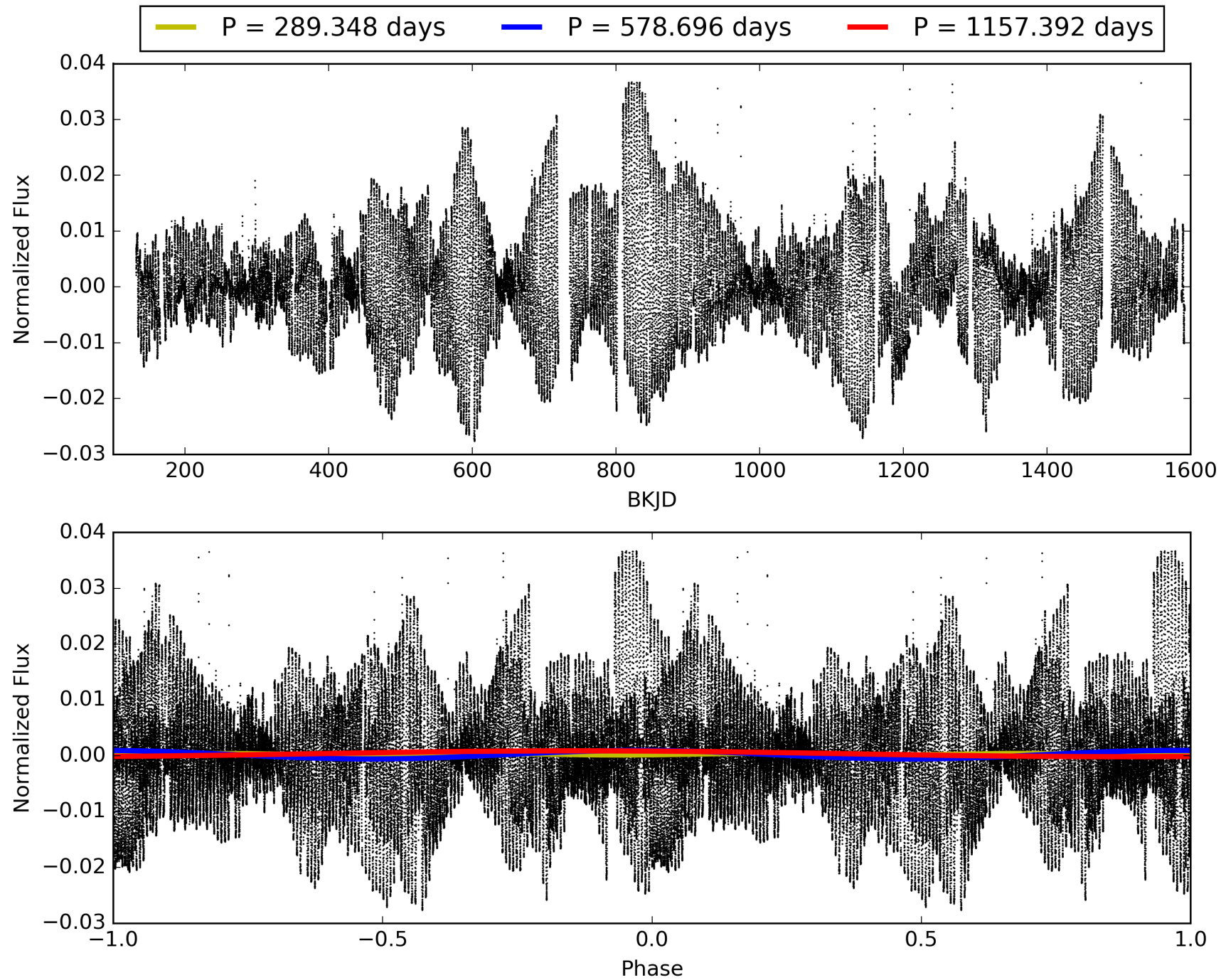
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:20:49 Z

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

TCE 005641933-01, PDC Light Curves

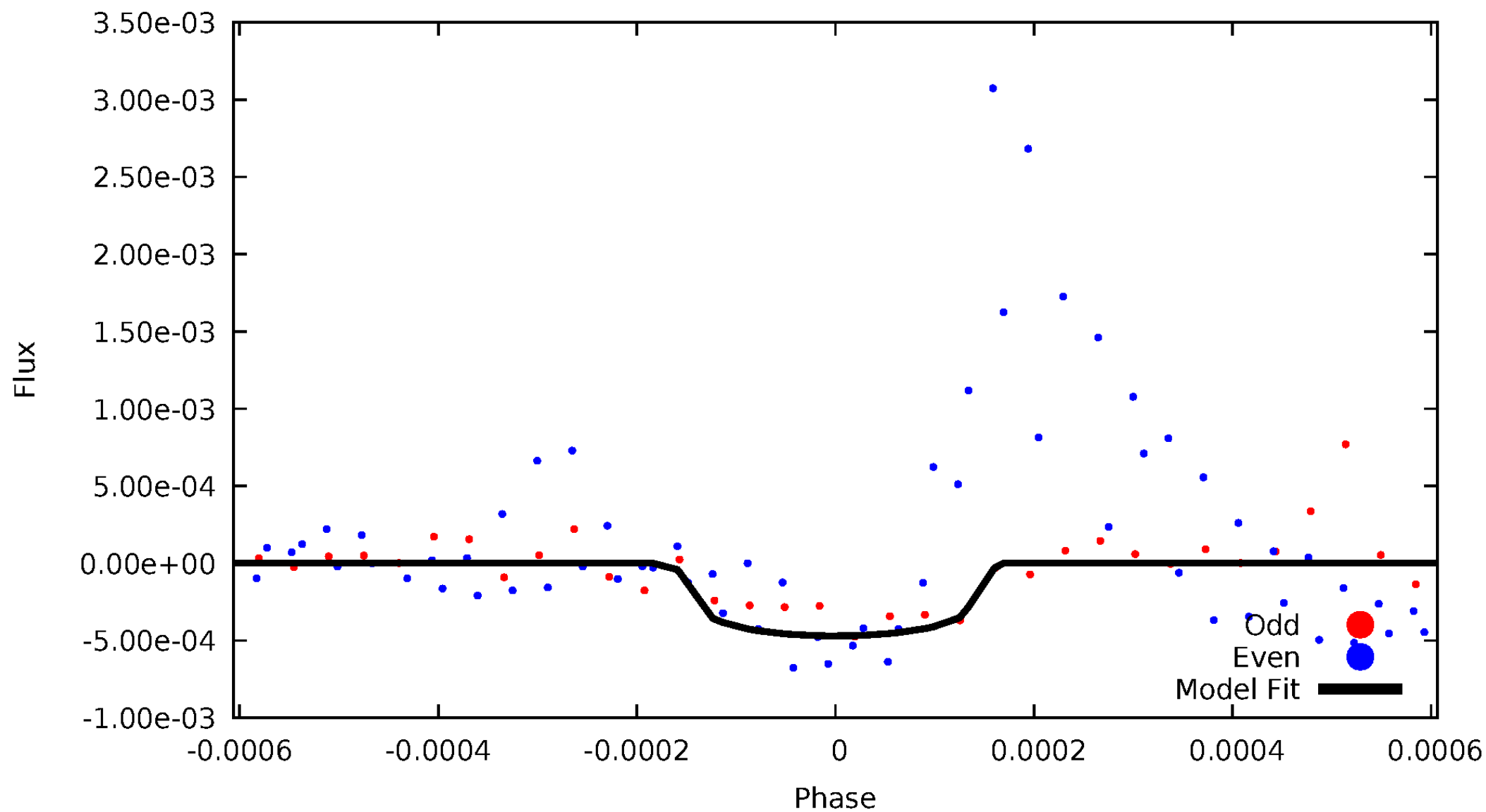


TCE 005641933-01



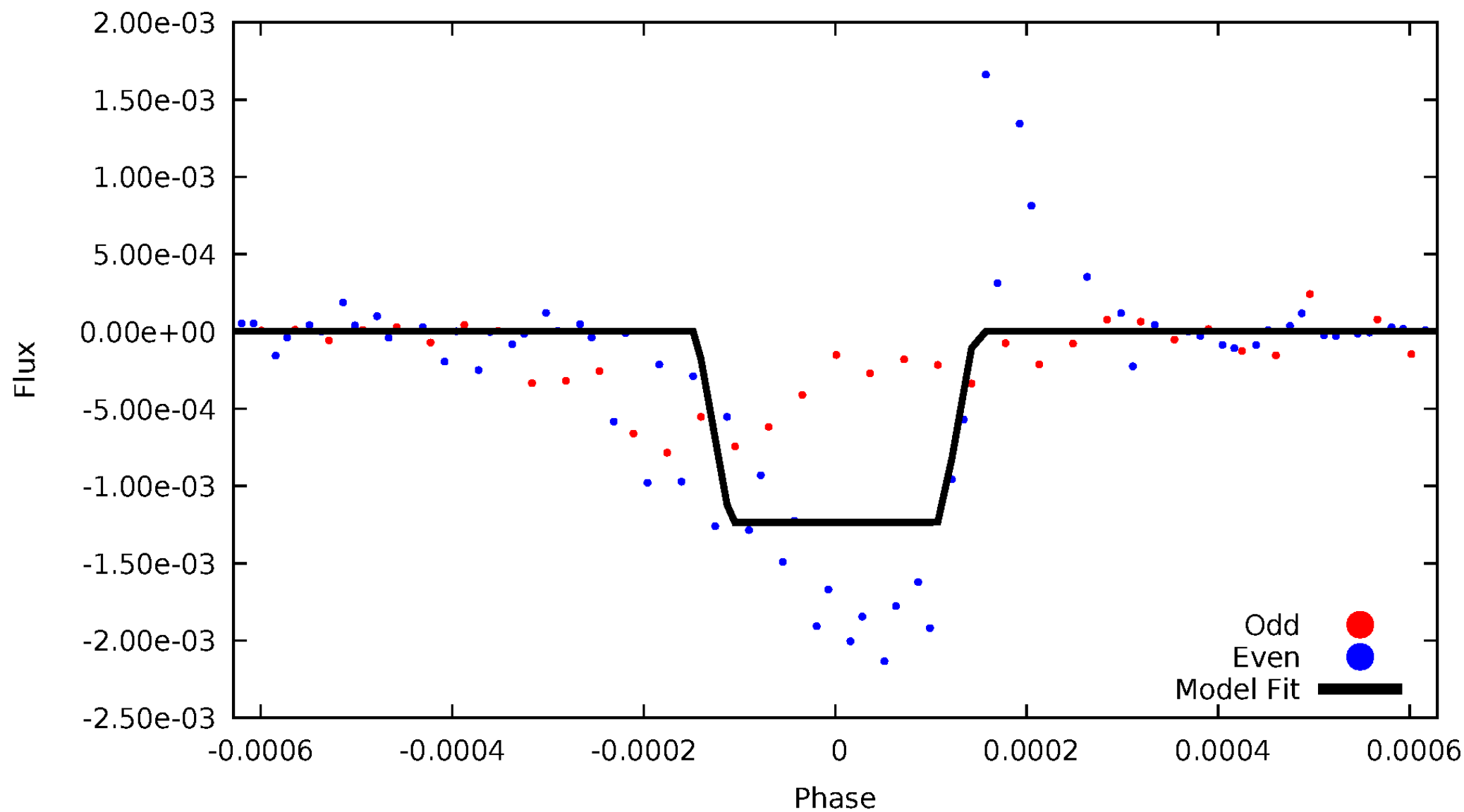
DV Odd/Even

TCE 005641933-01



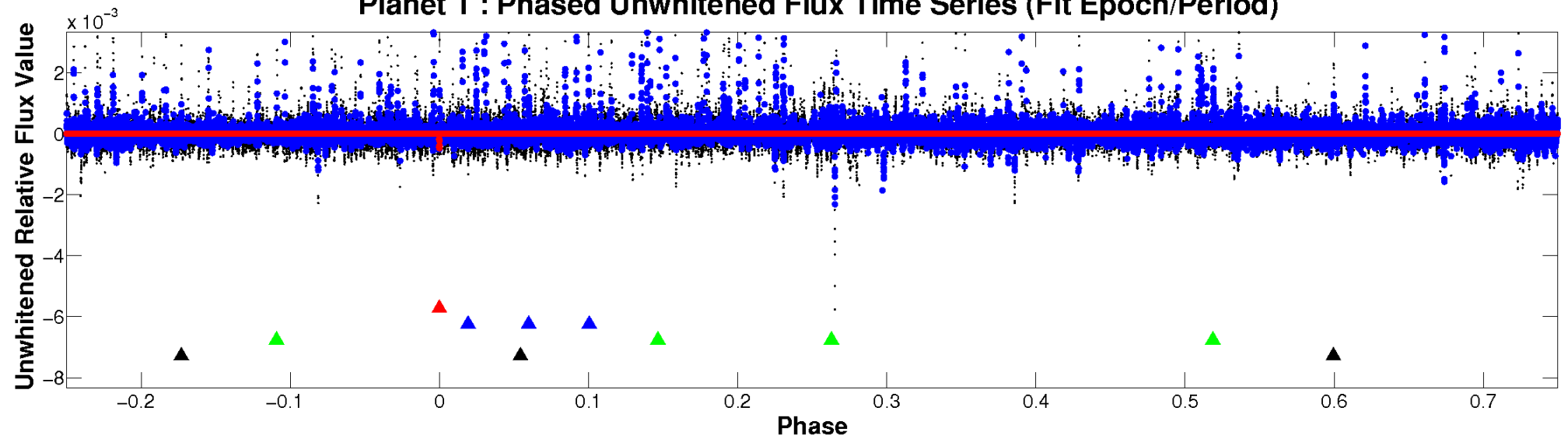
ALT Odd/Even

TCE 005641933-01

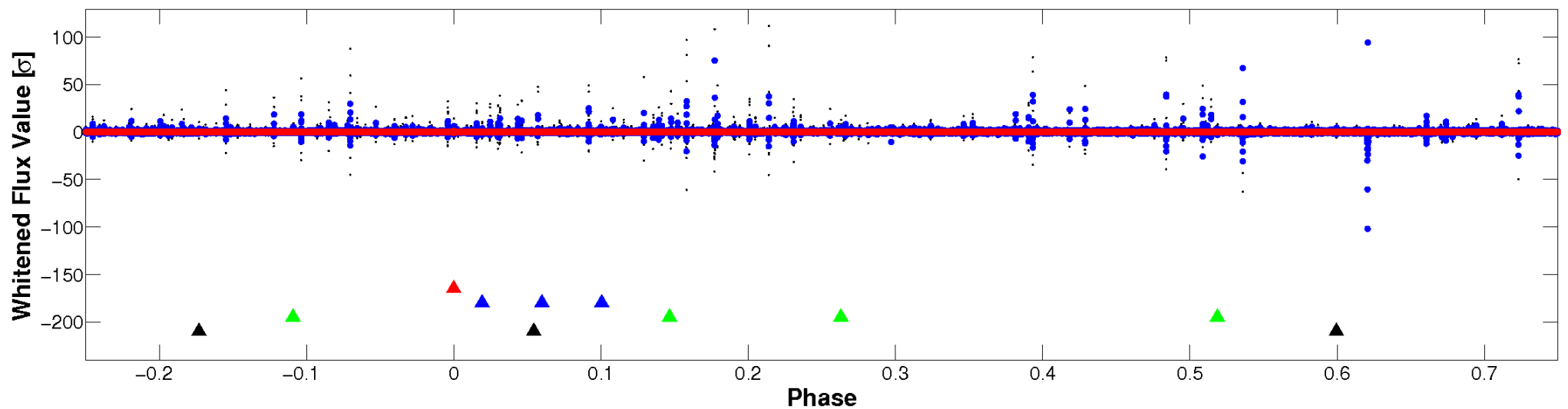


Non-Whitened Vs. Whitened Light Curve

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

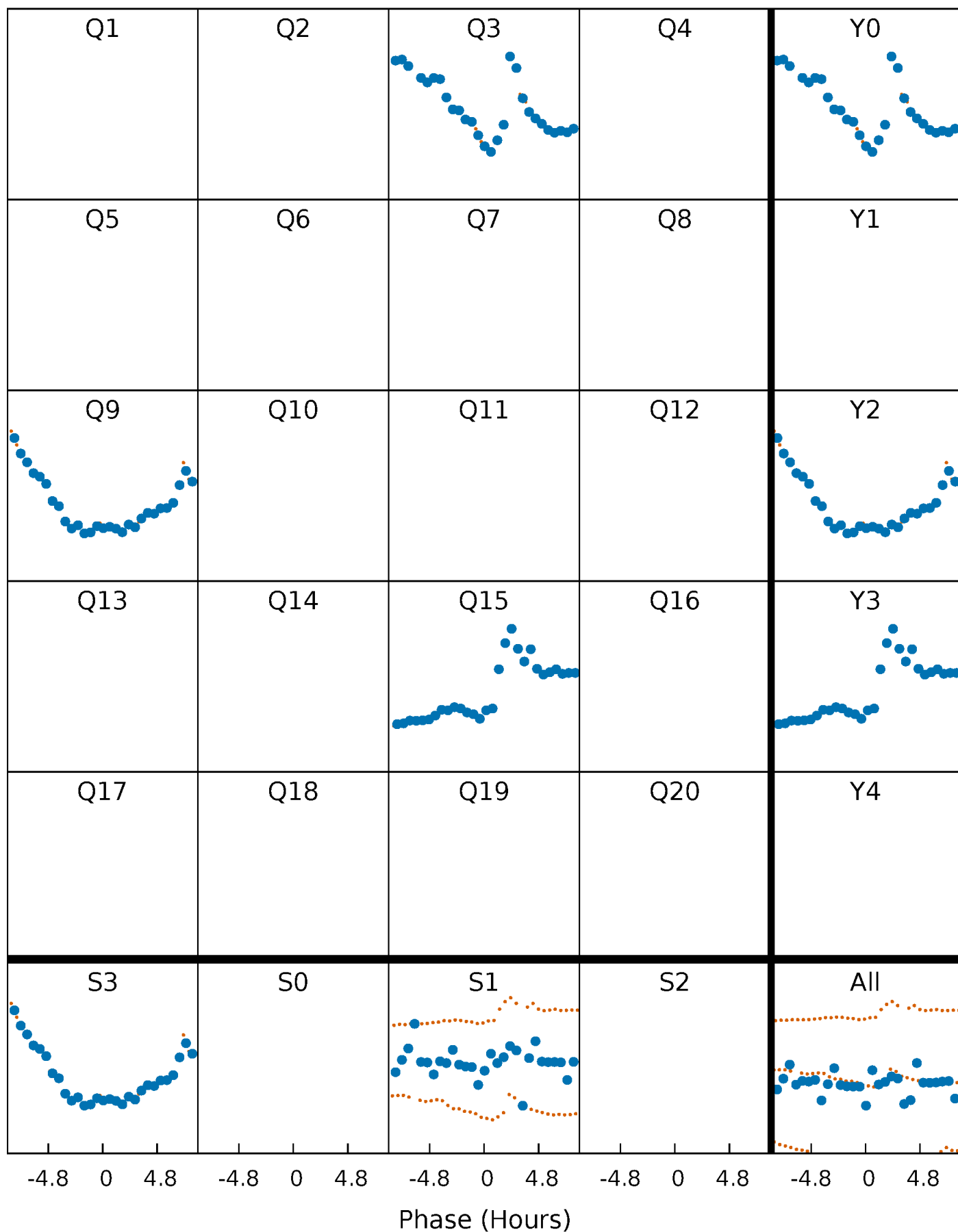


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



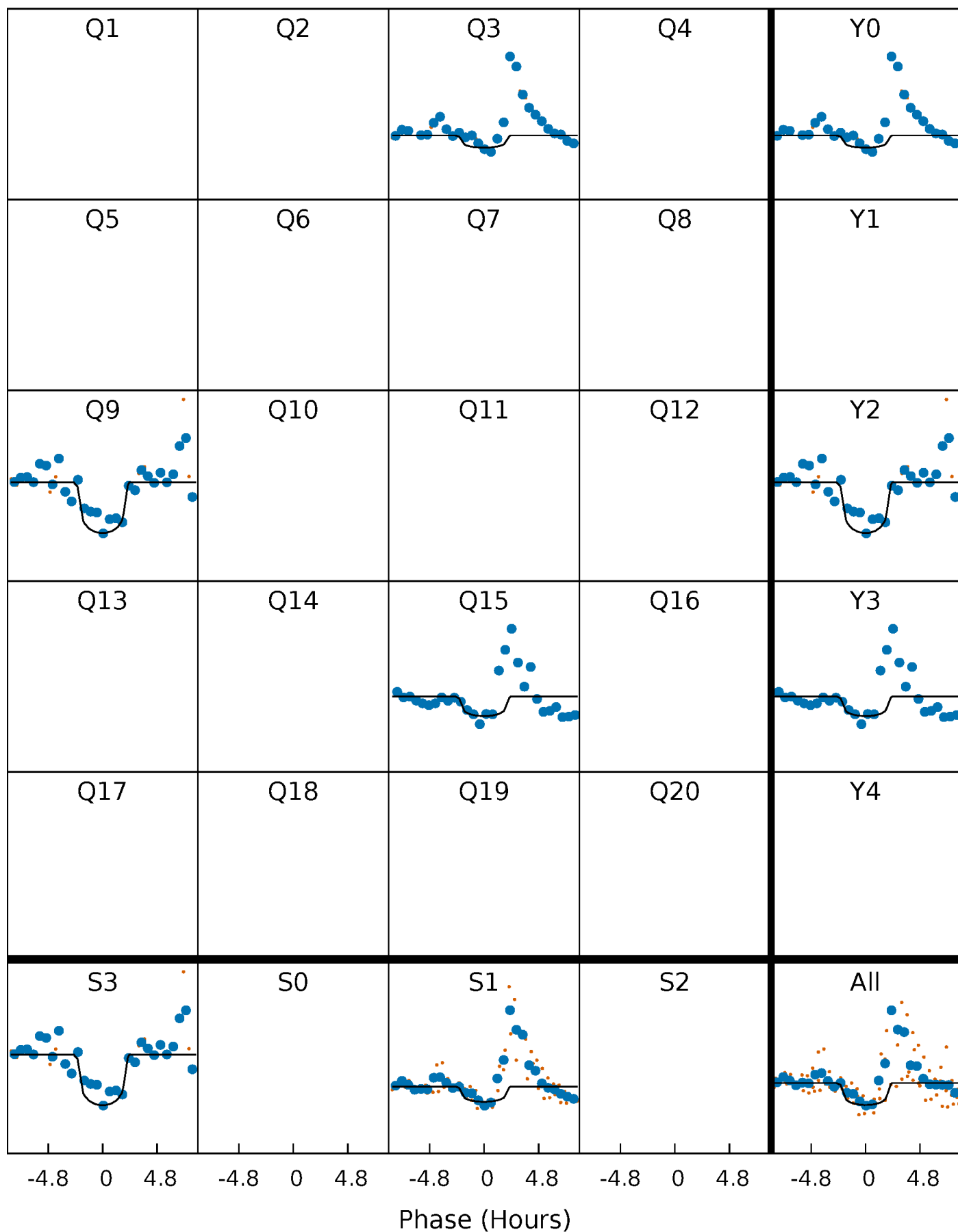
PDC Quarter-Phased Transit Curves

TCE 005641933-01 P=578.695941 Days $T_0=270.656429$ (BKJD)



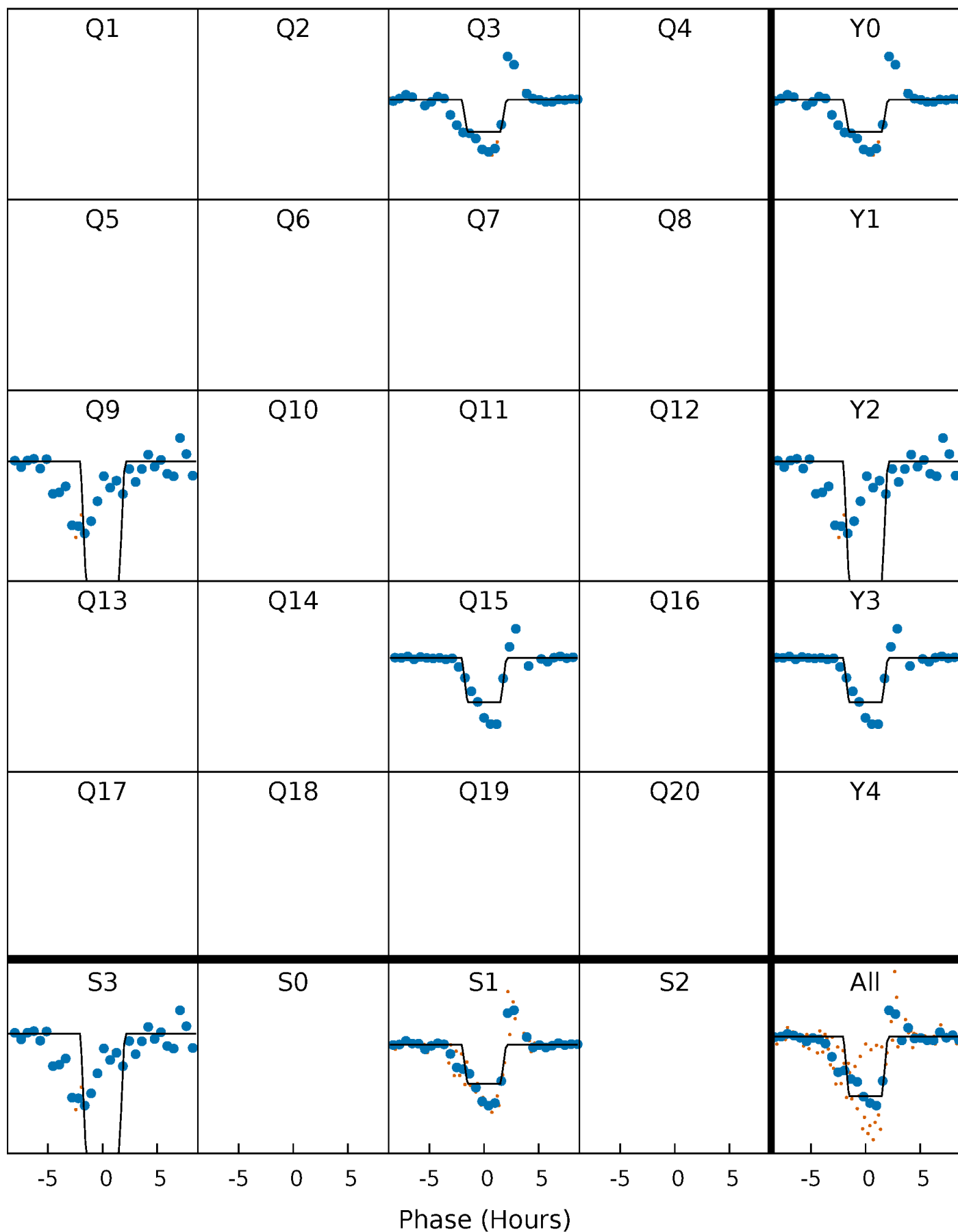
DV Quarter-Phased Transit Curves

TCE 005641933-01 P=578.695941 Days $T_0=270.656429$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

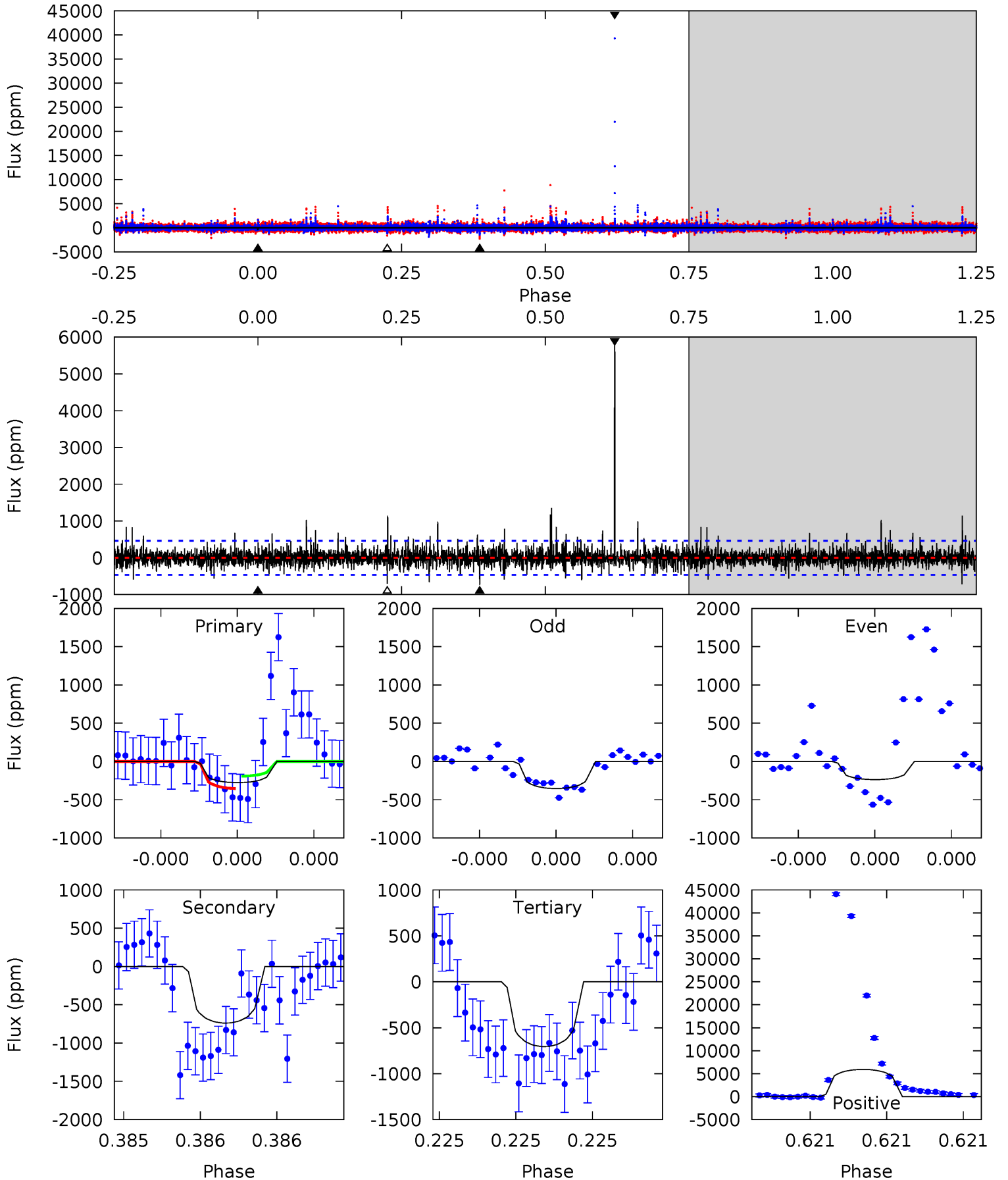
TCE 005641933-01 P=578.685230 Days $T_0=270.657393$ (BKJD)



DV Model-Shift Uniqueness Test

005641933-01, P = 578.695941 Days, E = 270.656429 Days

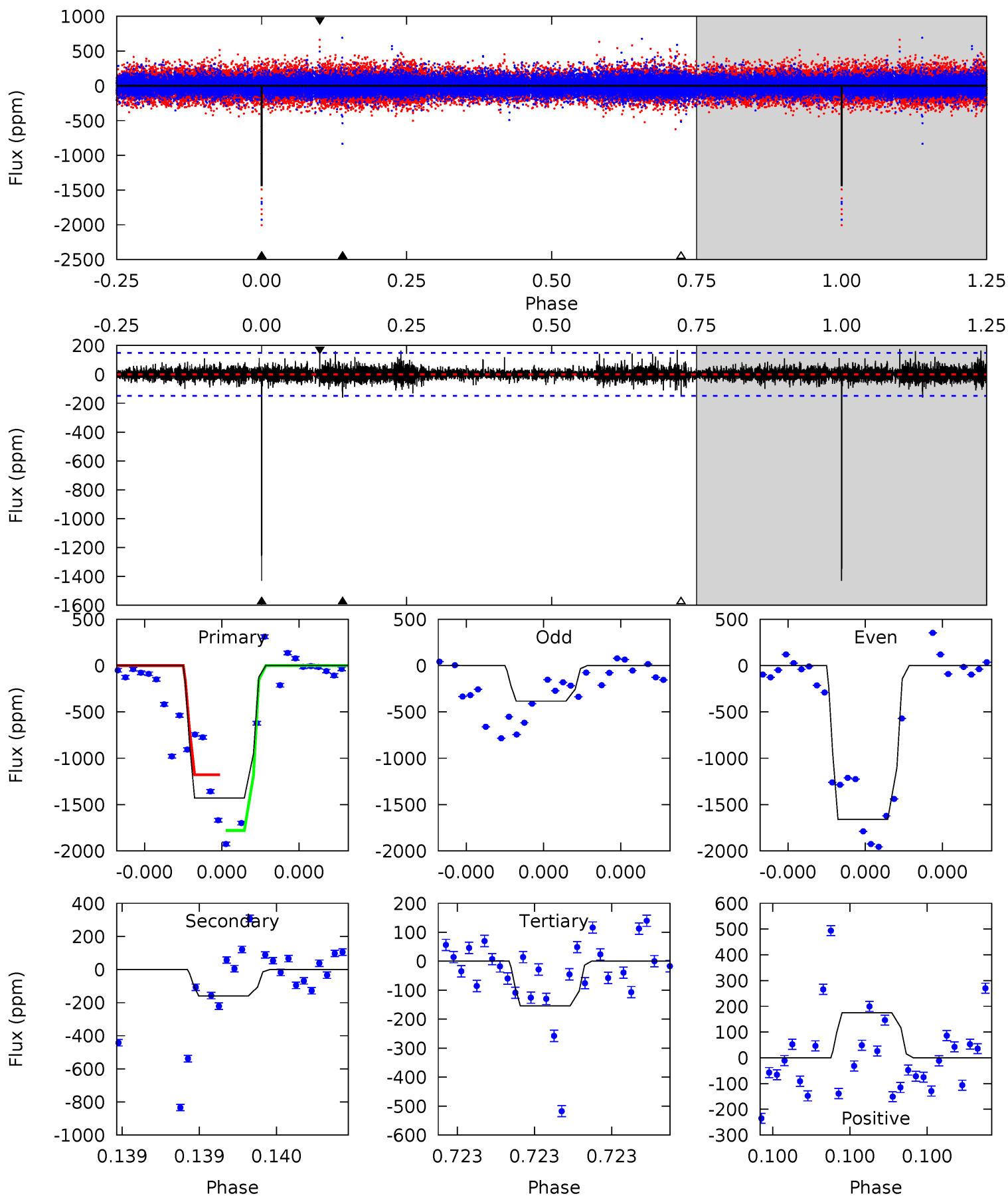
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.37	9.02	8.60	72.3	5.65	3.59	2.22	-5.23	-69.0	0.42	-63.3	0.44	1.07	0.89	0.99



Alt Model-Shift Uniqueness Test

005641933-01, P = 578.685230 Days, E = 270.657393 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.3	6.05	5.86	6.65	5.66	3.62	0.90	48.5	47.7	0.19	-0.60	26.0	0.82	0.11	11.5



Stellar Parameters For KIC 005641933

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5494^{+197}_{-180}	$3.679^{+0.840}_{-0.280}$	$-0.560^{+0.350}_{-0.300}$	$2.467^{+1.095}_{-1.643}$	$1.060^{+0.217}_{-0.265}$	$0.099^{+2.165}_{-0.069}$
	+4%/-3%	+23%/-8%	+62%/-54%	+44%/-67%	+20%/-25%	+2178%/-70%
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 005641933-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-739 ± 82	$10.96^{+12.21}_{-8.03}$	438^{+61}_{-82}	4355^{+3342}_{-894}	6335^{+76366}_{-4840}
Alt.	-159 ± 26	$12.67^{+14.20}_{-8.56}$	442^{+62}_{-84}	3229^{+1379}_{-505}	1018^{+9205}_{-786}

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

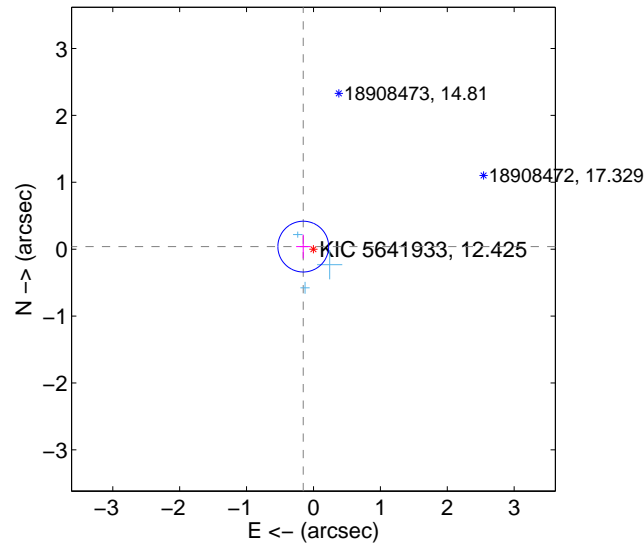
Supplemental centroid analysis for 005641933-01. Kepler magnitude: 12.43. Transit SNR 4.23

There are 3 quarters with good PRF difference image offsets

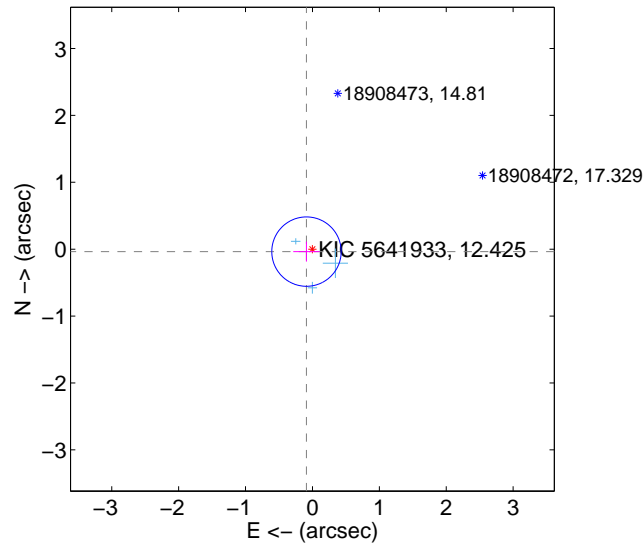
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.157 ± 0.127	1.24	0.153 ± 0.106	0.038 ± 0.178
PRF-fit source offset from KIC position	0.096 ± 0.173	0.56	0.089 ± 0.197	-0.036 ± 0.150
photometric centroid source offset	0.80 ± 0.74	1.09	-0.51 ± 0.59	-0.62 ± 0.82

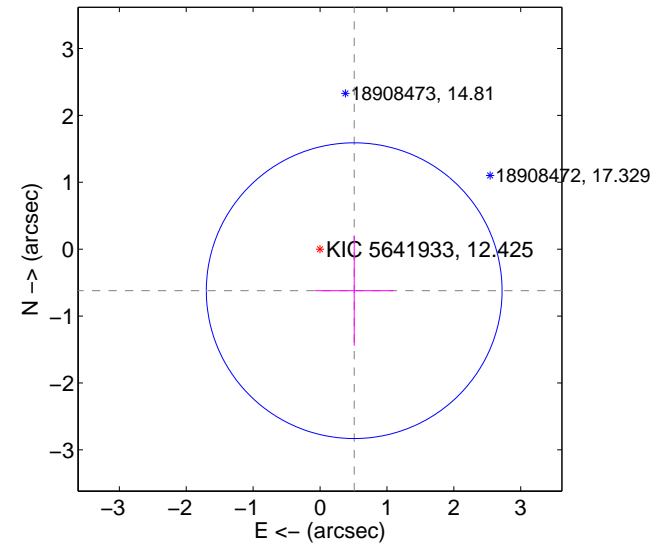
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

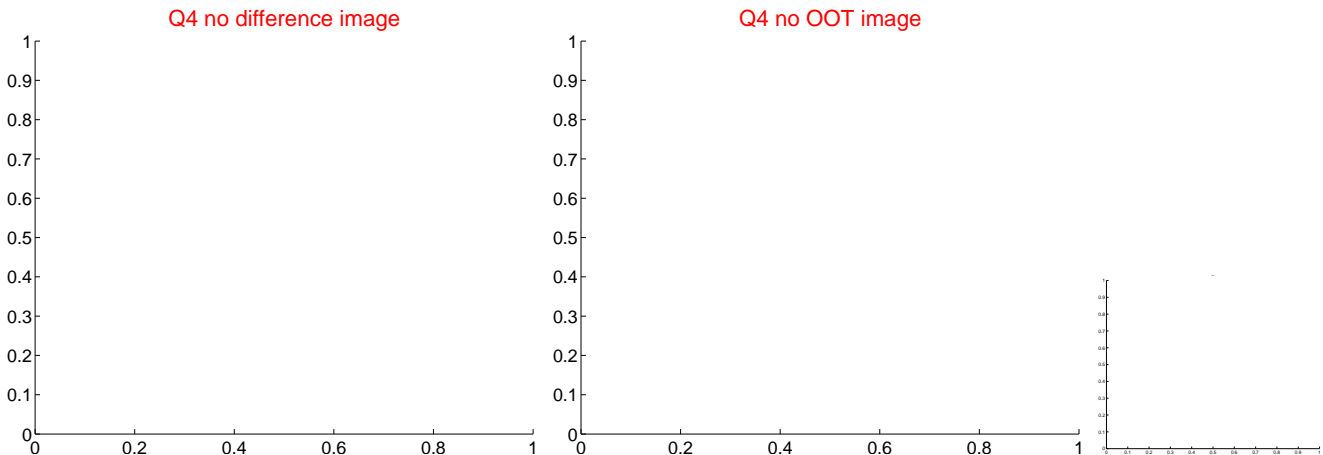
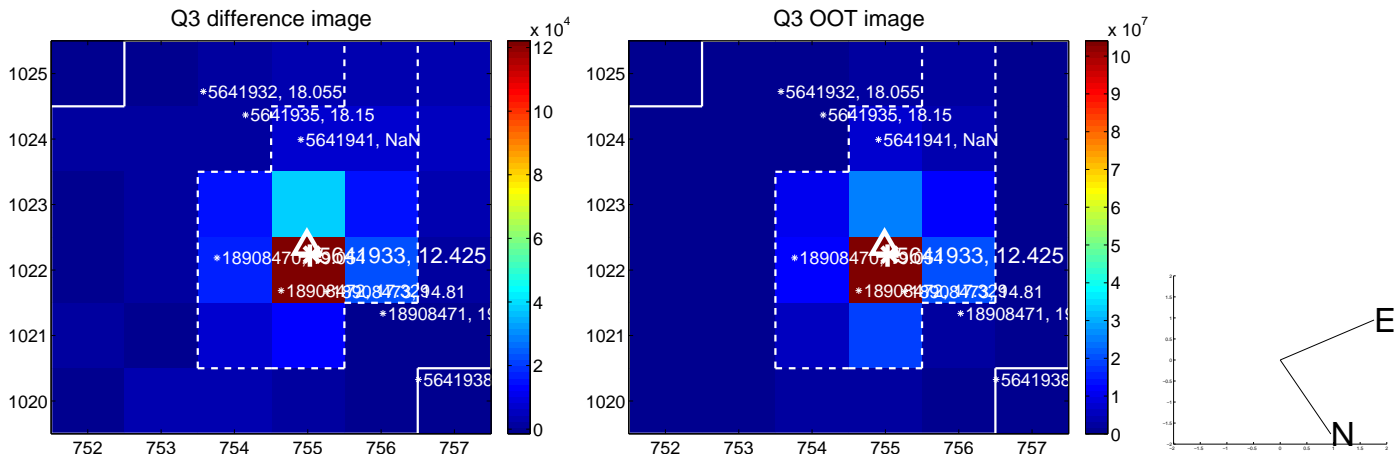


offset from photometric centroids



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.

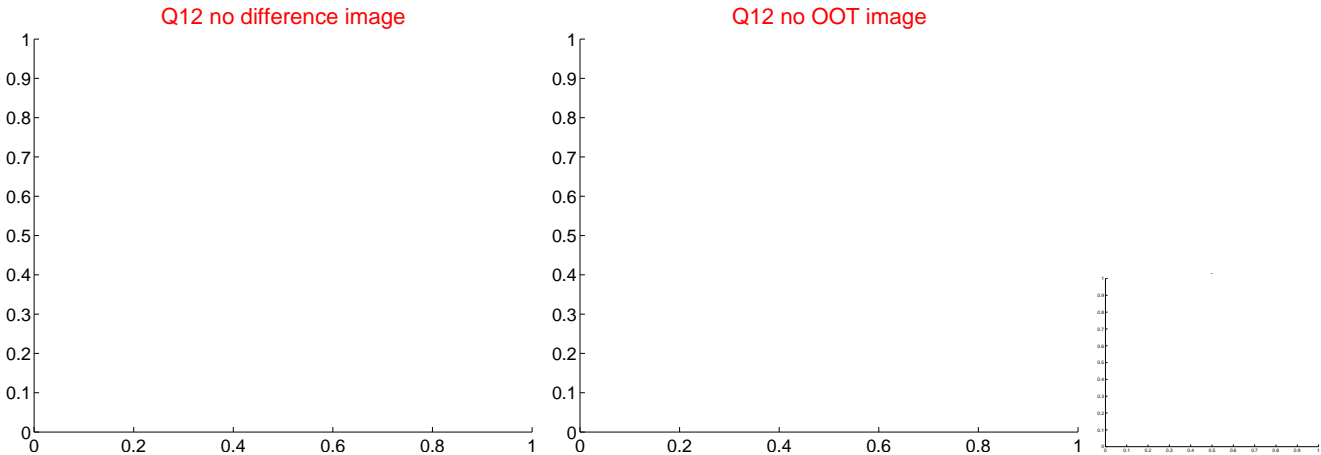
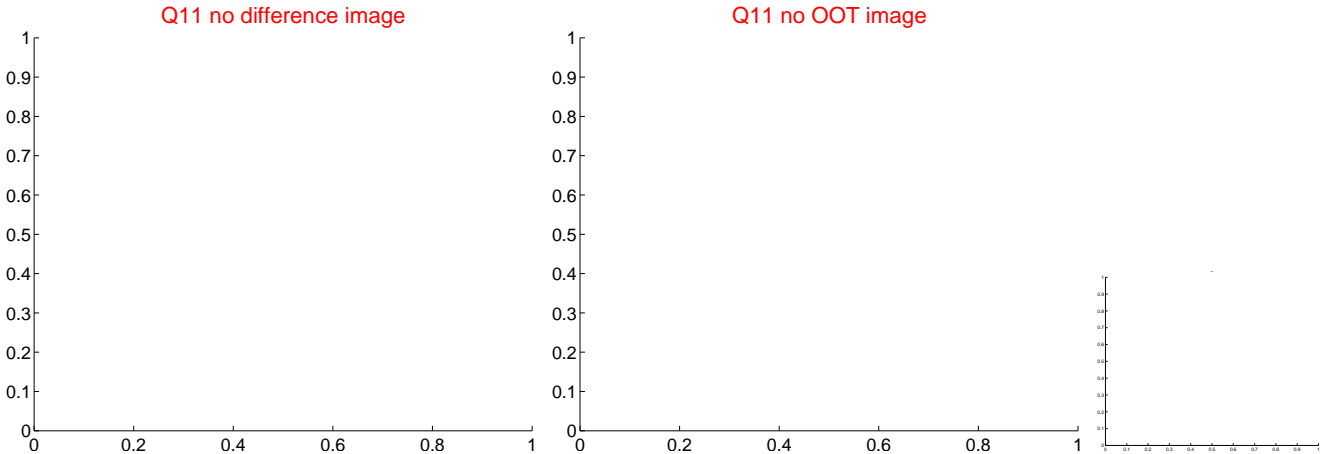
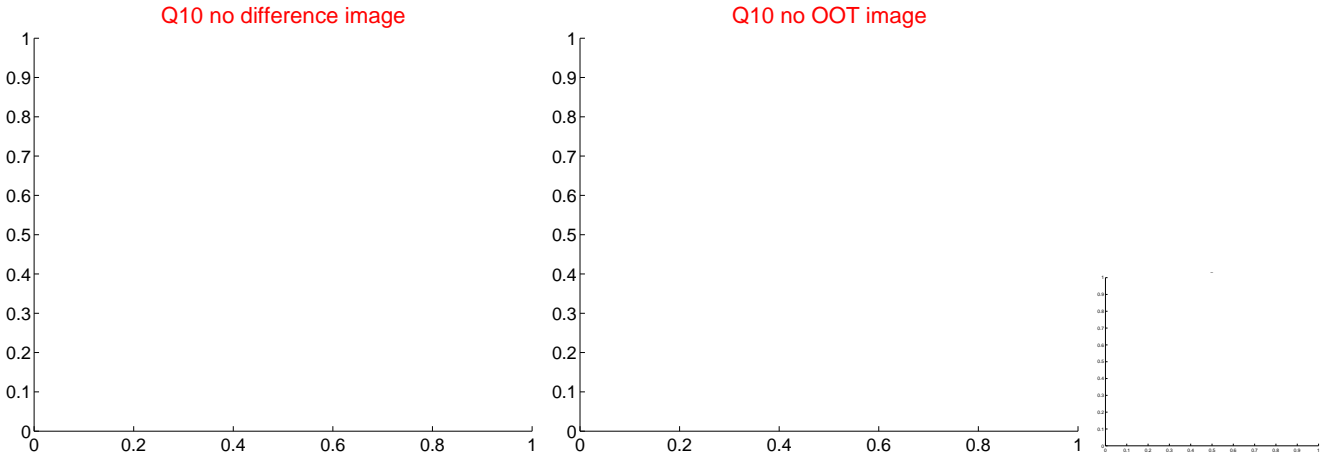
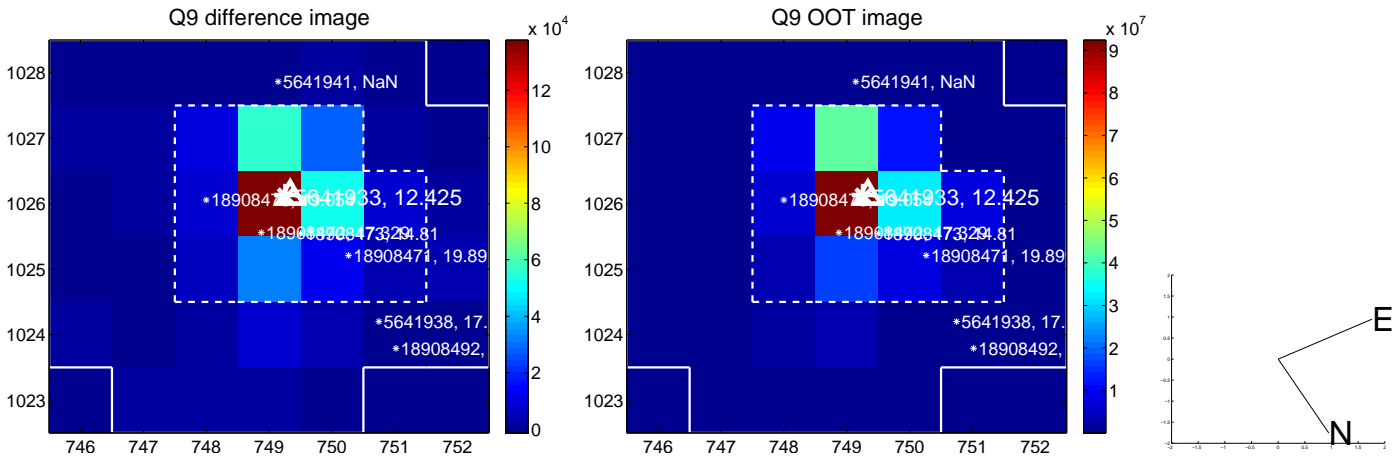
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



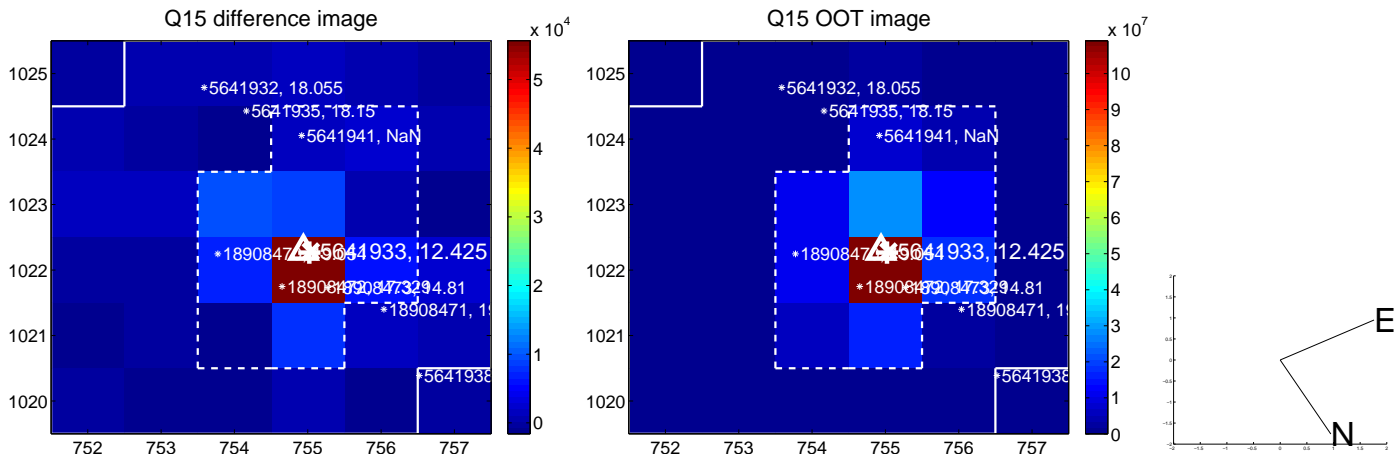
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



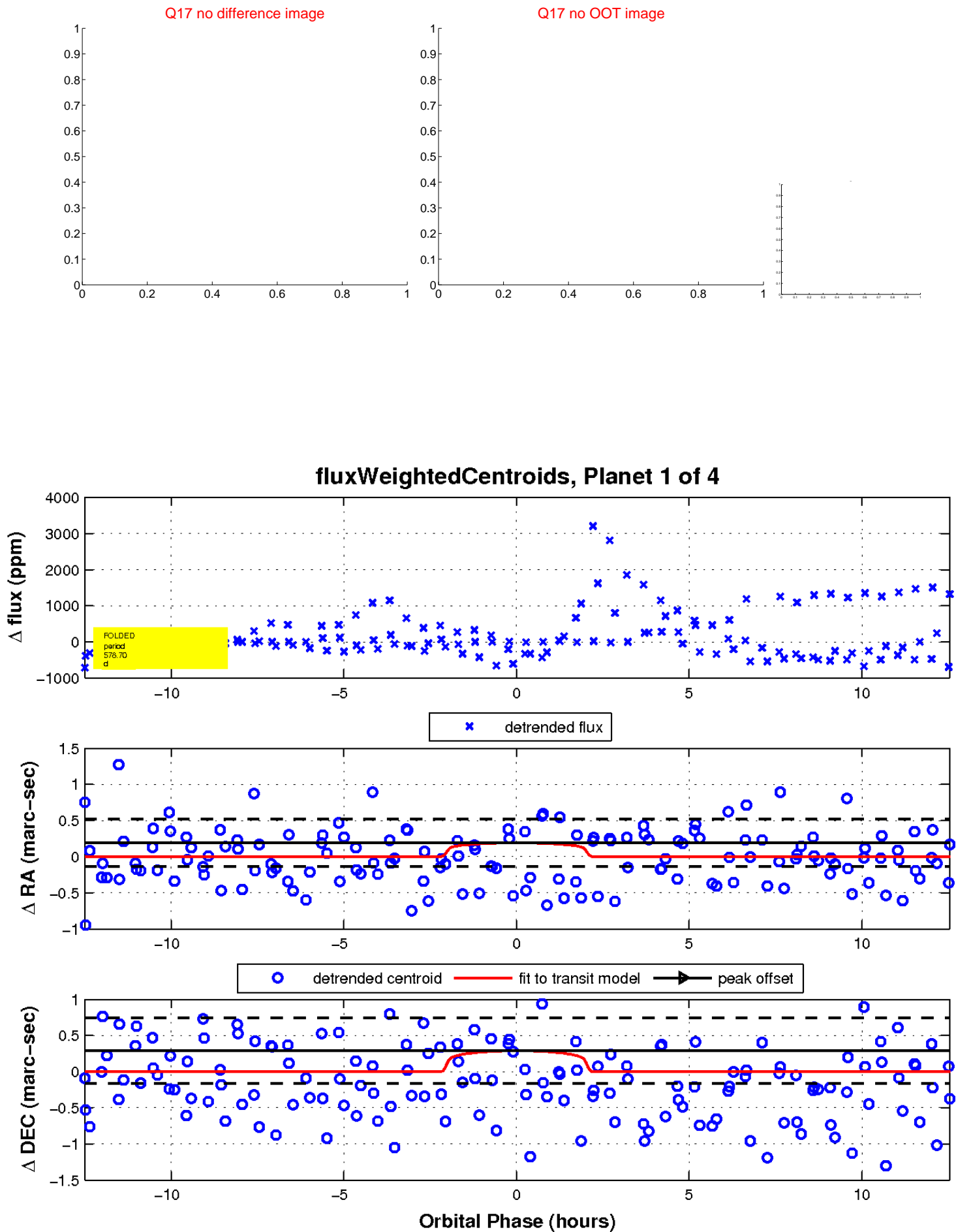
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



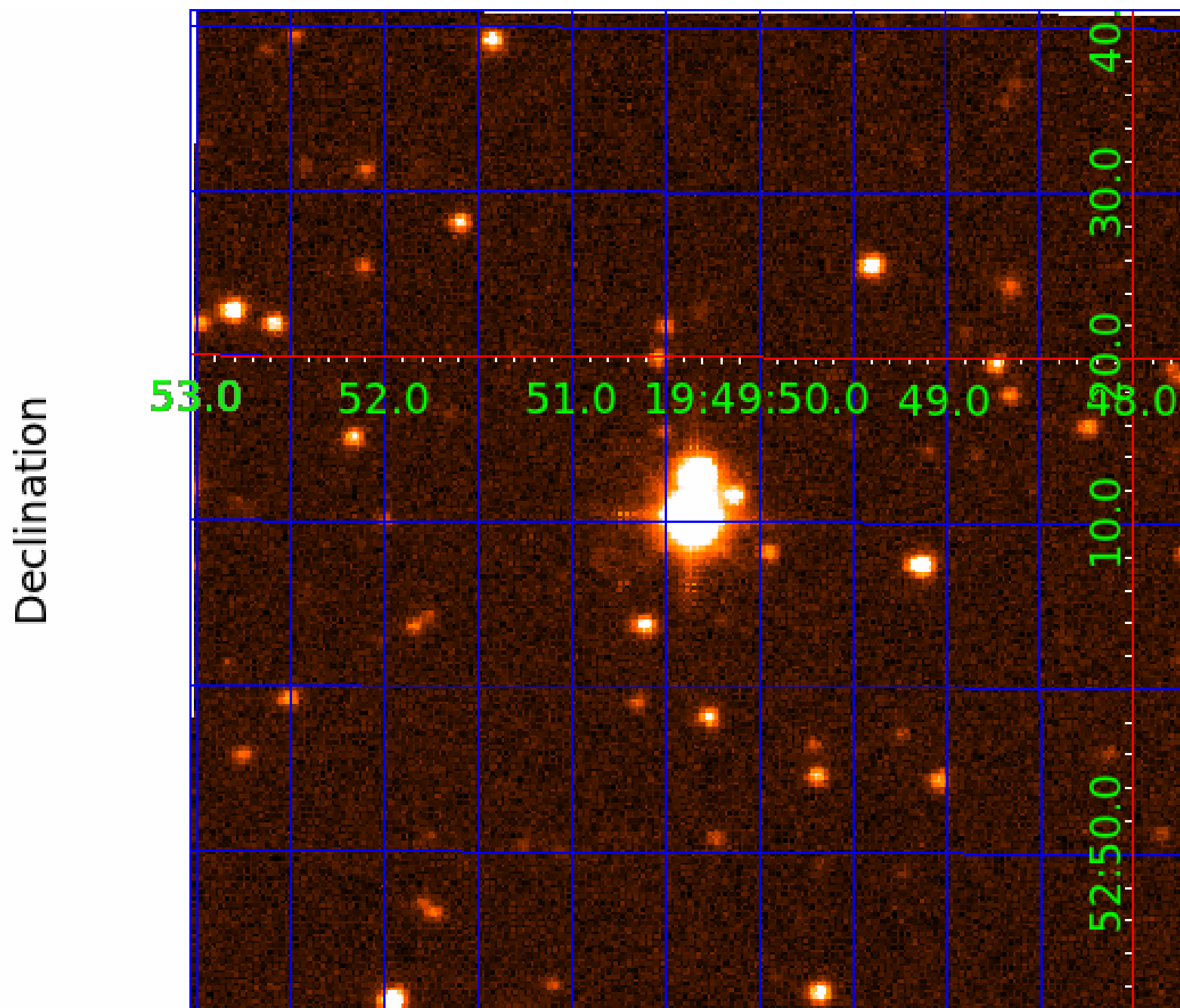
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image



KIC 005641933

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})
005641933-01	OBS	No	578.695940	270.656429	470.6	4.208	14.1	4.2	2.47	5494	5.50	2.59
005641933-02	OBS	No	555.190932	328.827127	2158.1	9.305	16.9	11.7	2.47	5494	21.77	2.73
005641933-03	OBS	No	363.351822	422.823349	613.1	4.373	15.7	6.8	2.47	5494	6.57	4.81
005641933-04	OBS	No	447.093104	302.117597	413.6	3.500	13.5	-1.0	2.47	5494	4.97	3.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005641933-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005641933-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005641933-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
005641933-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

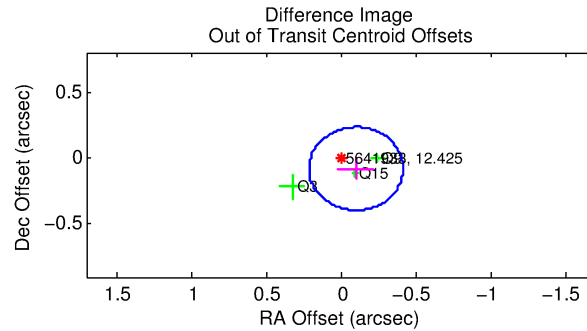
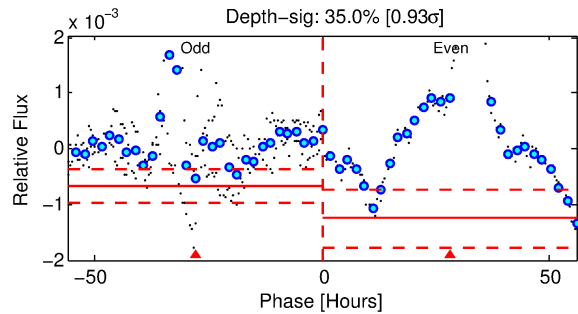
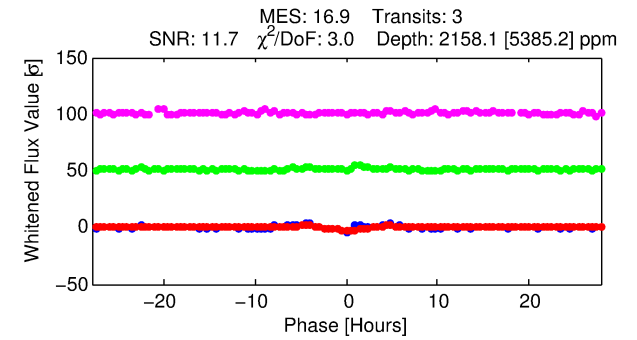
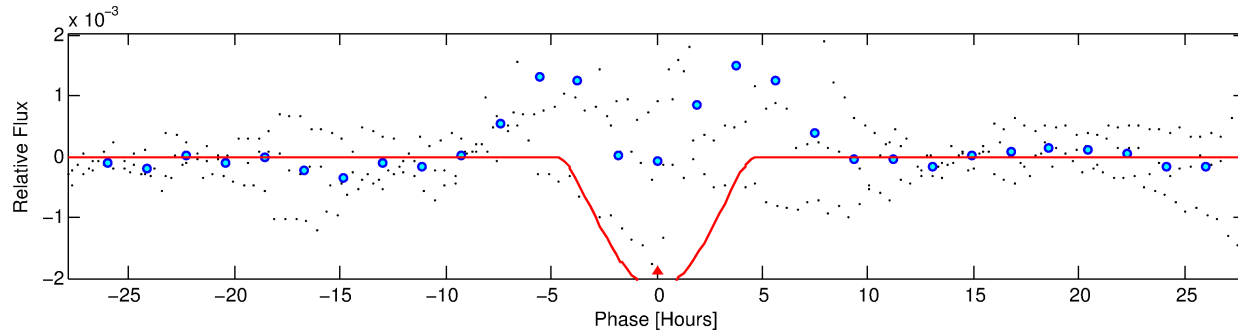
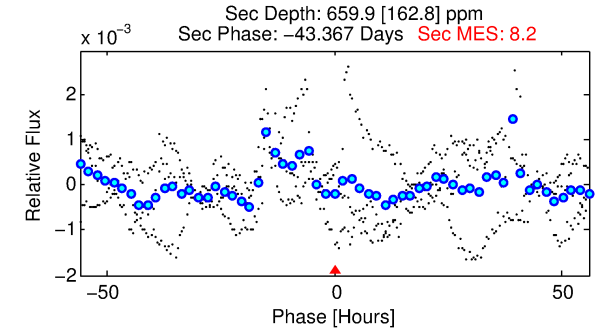
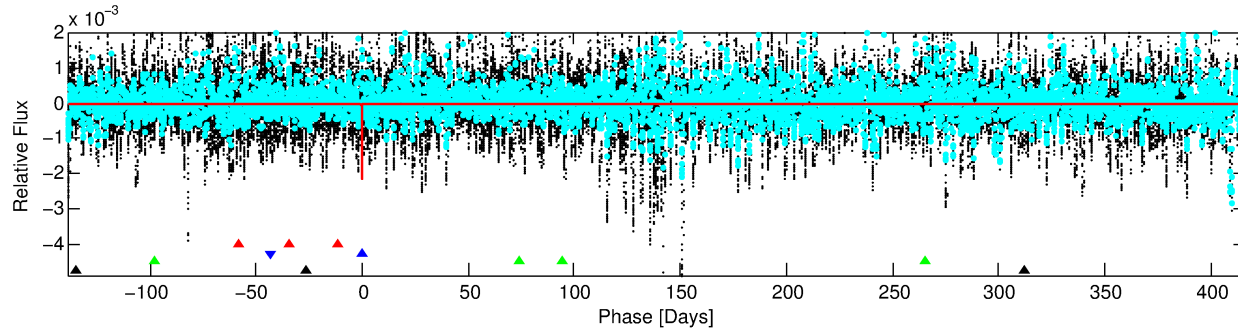
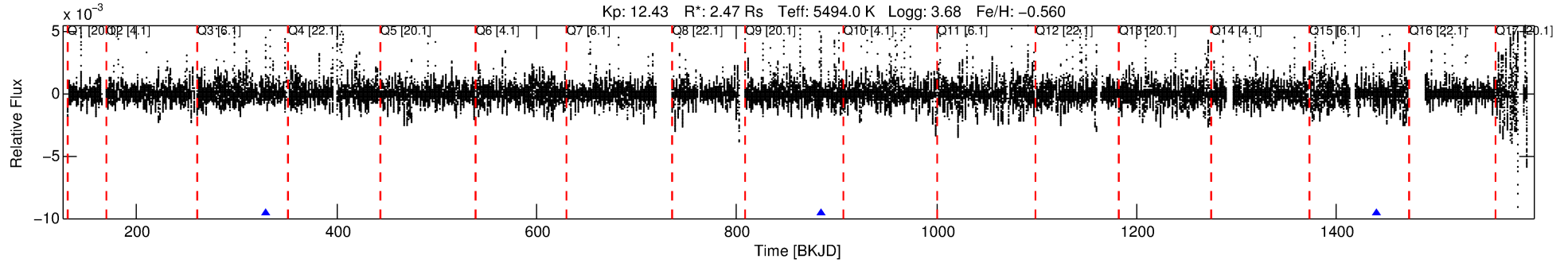
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005641933-02

No Significant Match Found

DV One-Page Summary

KIC: 5641933 Candidate: 2 of 4 Period: 555.191 d



DV Fit Results:

Period = 555.19093 [0.01301] d
Epoch = 328.8271 [0.0167] BKJD
Rp/R* = 0.0809 [0.1640]
a/R* = 186.98 [78.27]
b = 1.00 [0.37]
Seff = 2.73 [3.75]
Teq = 328 [112] K
Rp = 21.77 [46.46] Re
a = 1.3483 [1.0554] AU
Ag = 1392.41 [5967.57] [0.23 σ]
Teffp = 3096 [3147] K [0.88 σ]

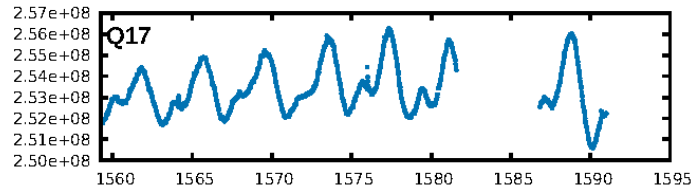
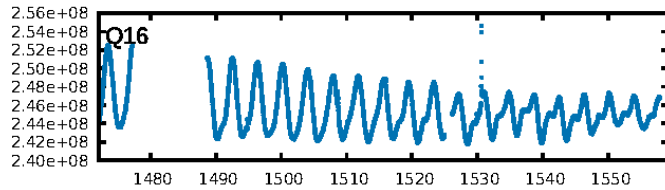
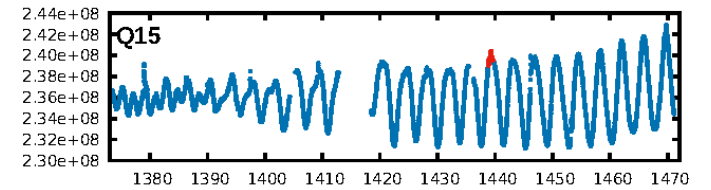
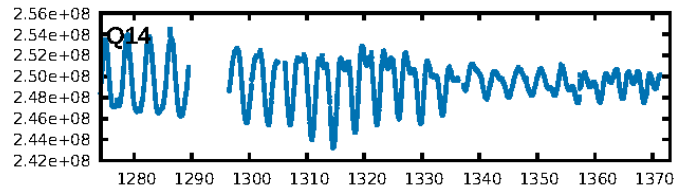
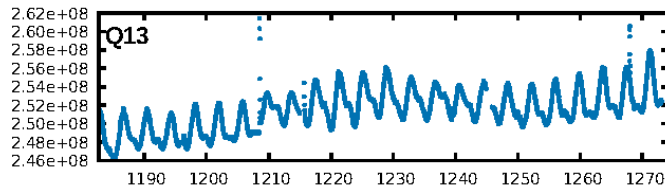
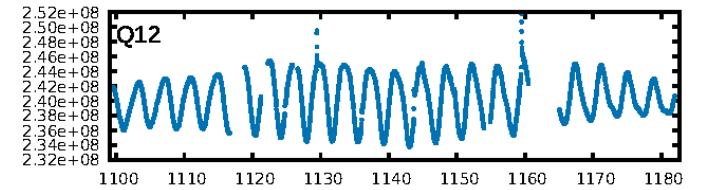
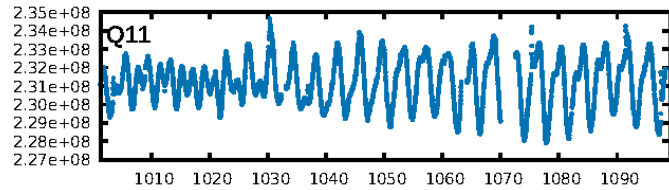
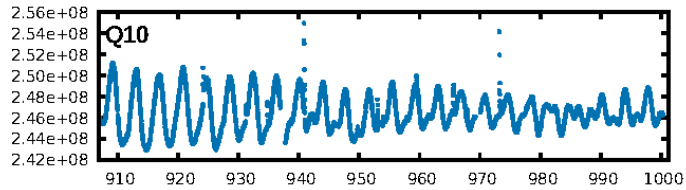
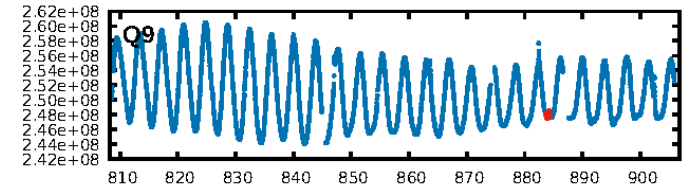
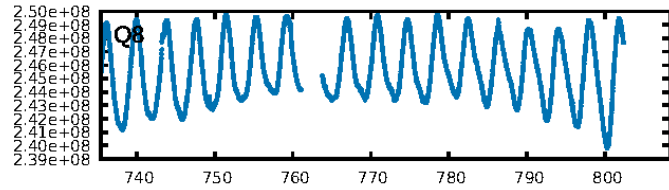
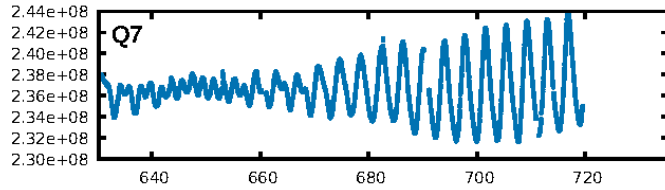
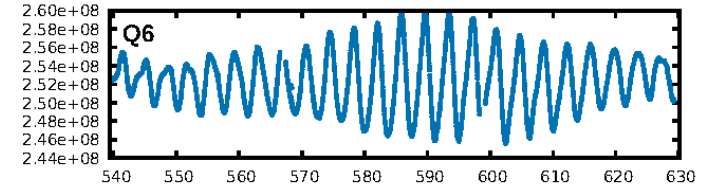
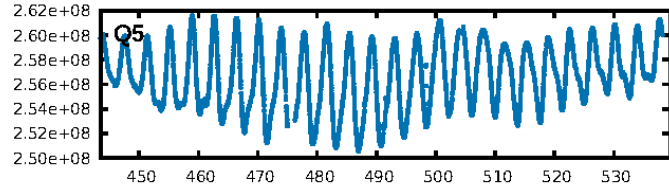
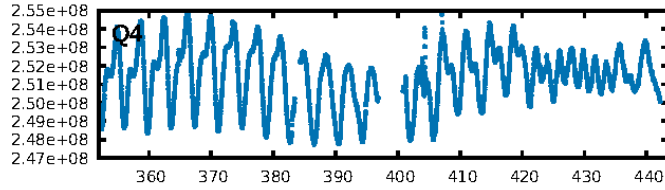
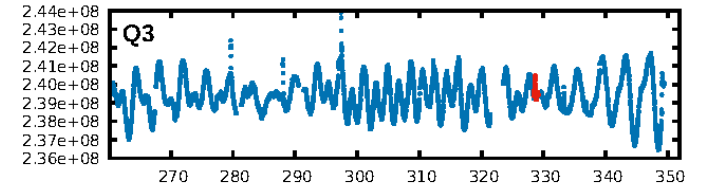
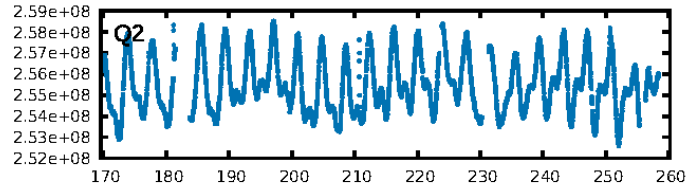
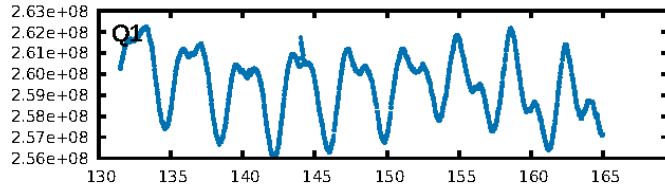
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [260.95 σ]
LongPeriod-sig: 100.0% [55.24 σ]
ModelChiSquare2-sig: 88.4%
ModelChiSquareGof-sig: 0.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.244
Centroid-sig: 21.2%
Centroid-so: 0.282 arcsec [1.97 σ]
OotOffset-rm: 0.131 arcsec [1.24 σ]
OotOffset-st: 0.2/0/1 [3]
KicOffset-rm: 0.224 arcsec [2.02 σ]
KicOffset-st: 0.2/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

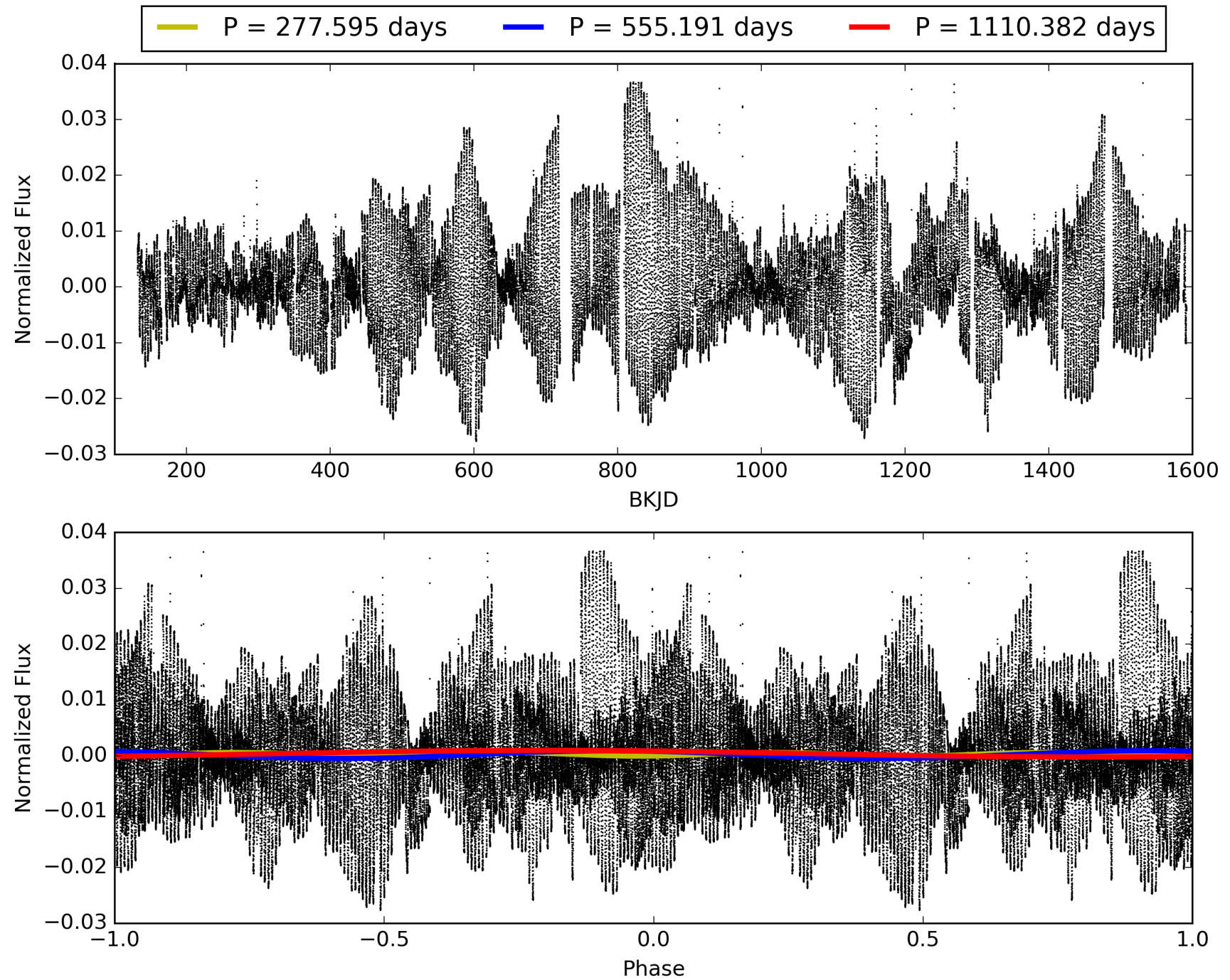
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:21:01 Z

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

TCE 005641933-02, PDC Light Curves

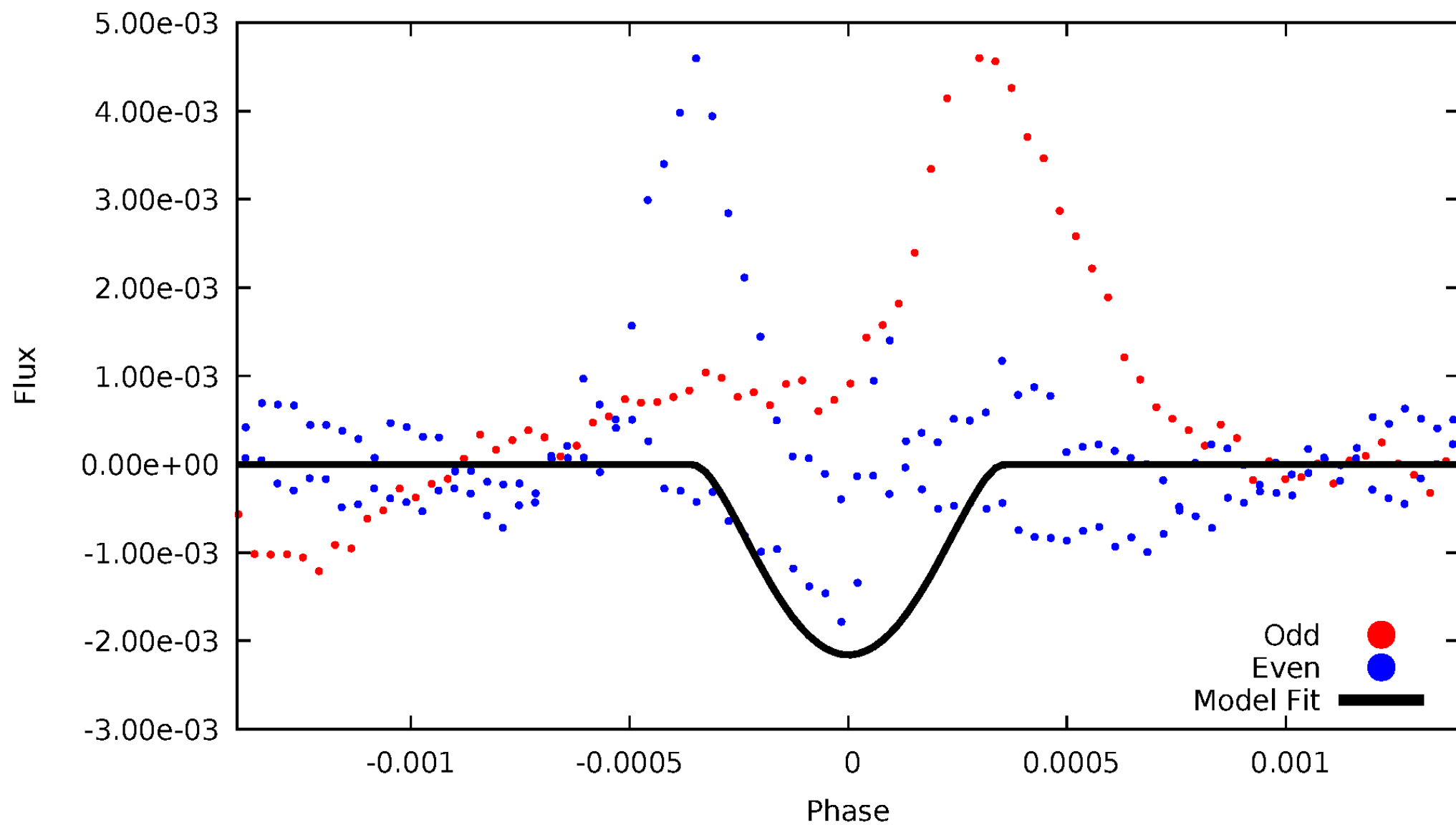


TCE 005641933-02



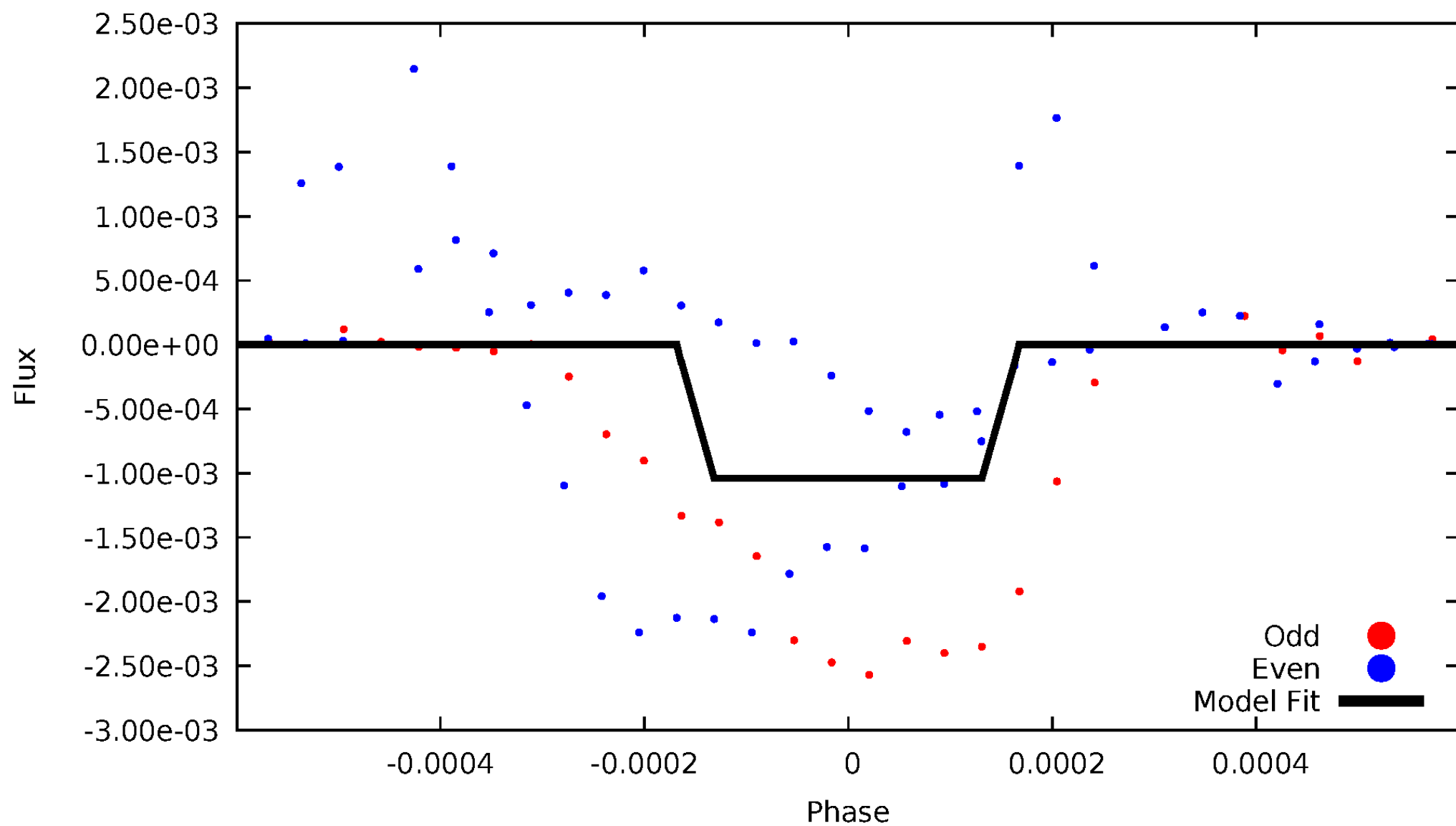
DV Odd/Even

TCE 005641933-02



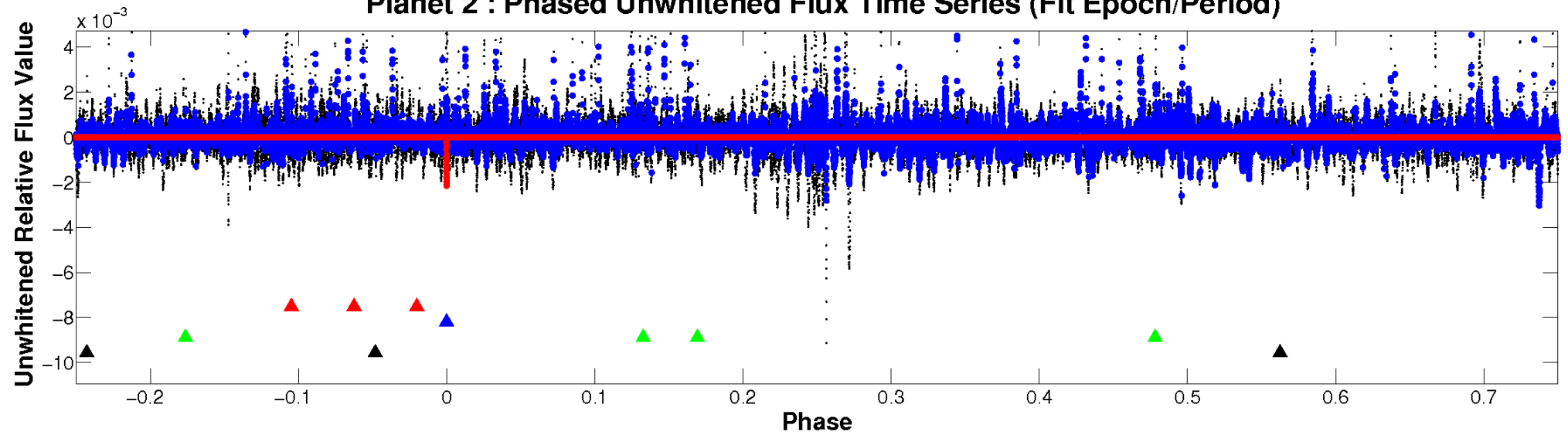
ALT Odd/Even

TCE 005641933-02

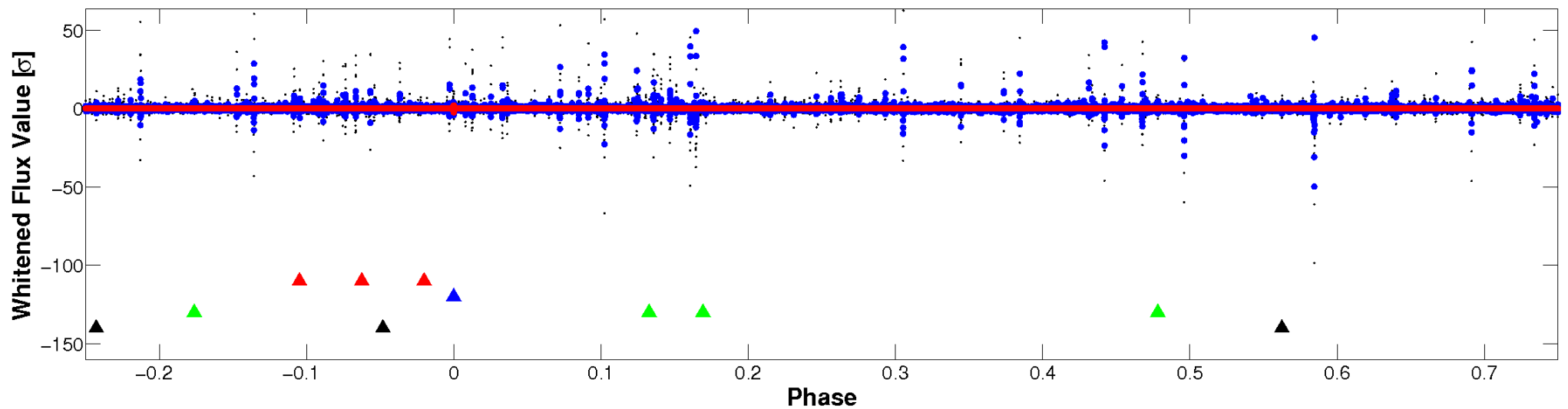


Non-Whitened Vs. Whitened Light Curve

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

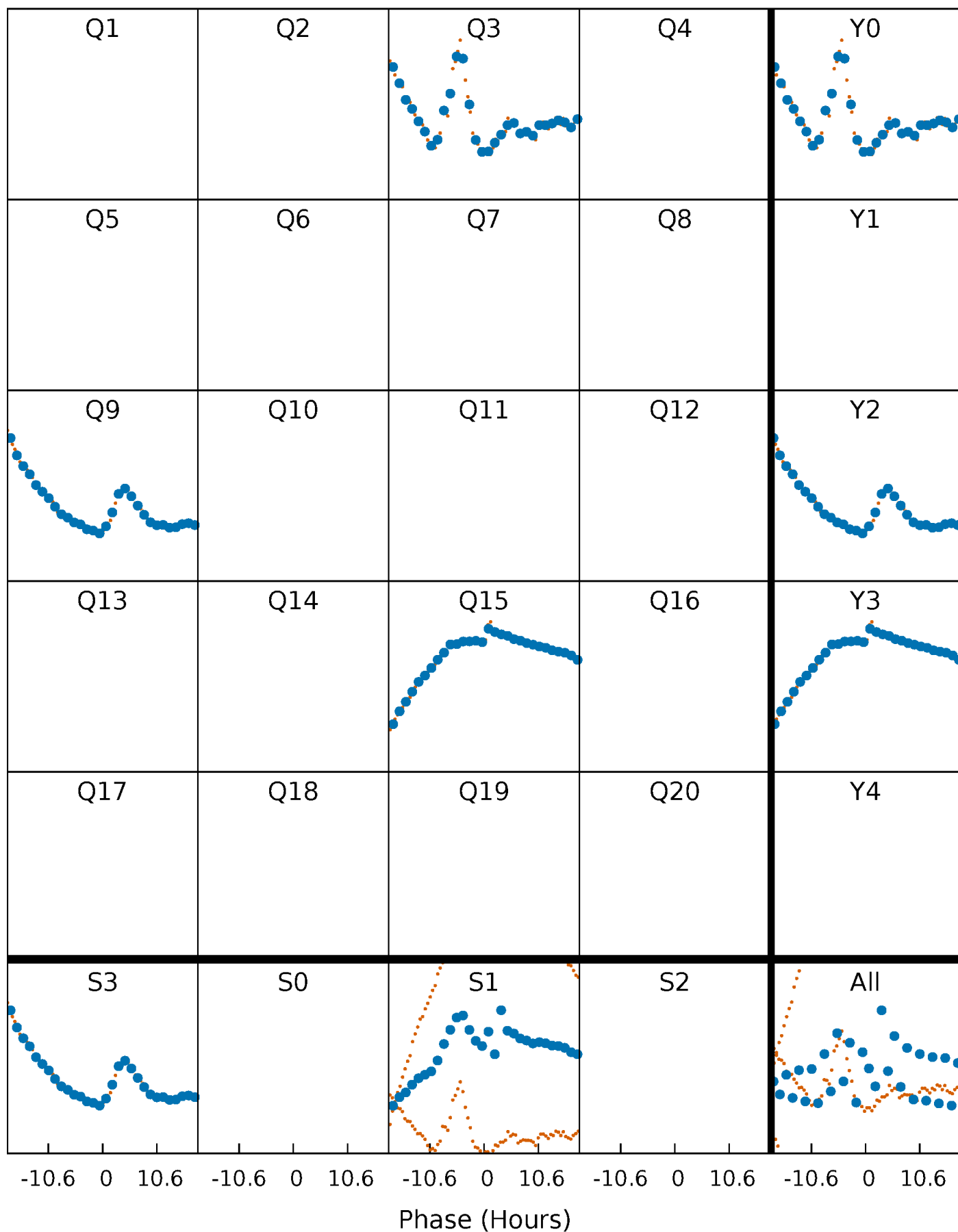


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



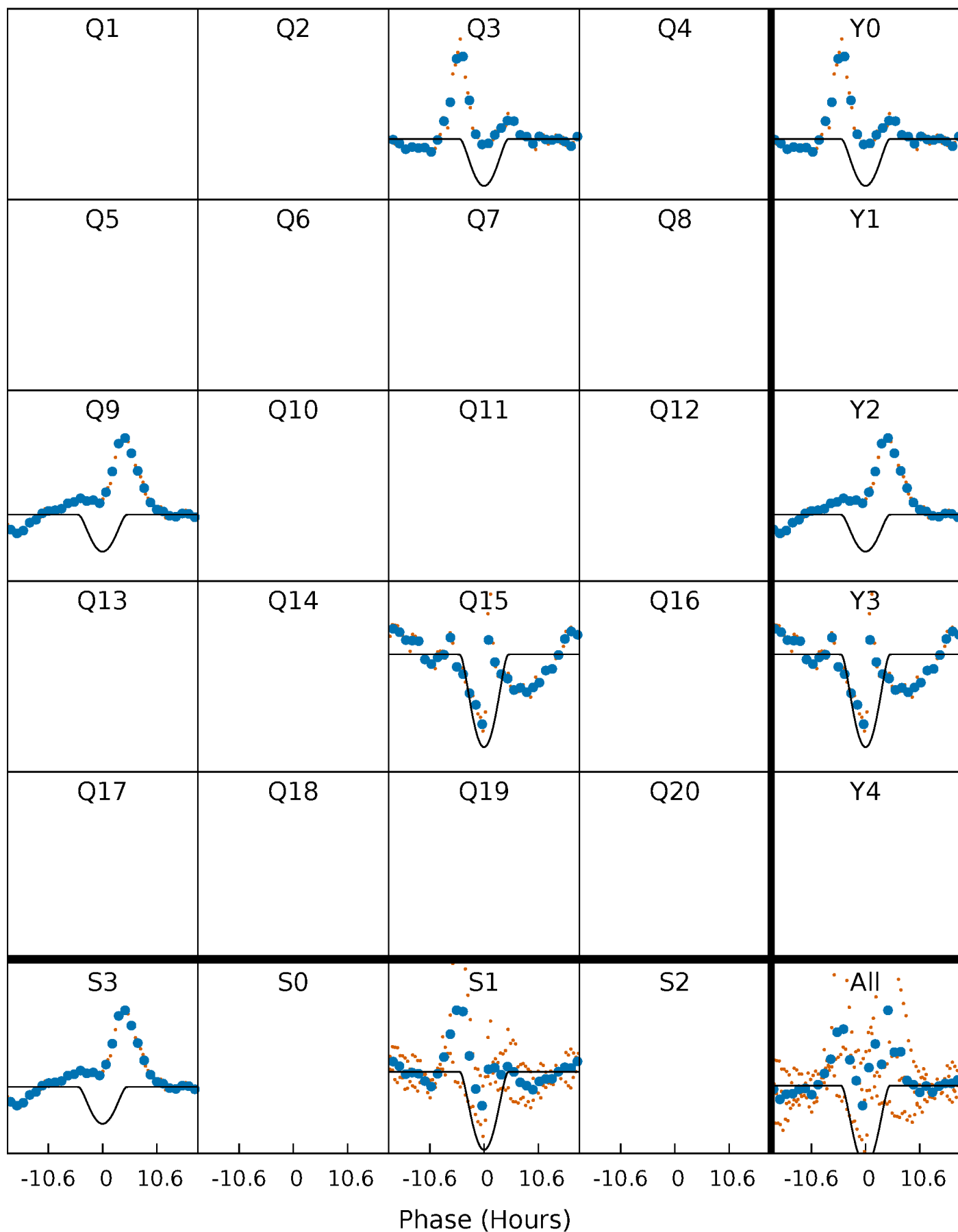
PDC Quarter-Phased Transit Curves

TCE 005641933-02 P=555.190932 Days $T_0=328.827127$ (BKJD)



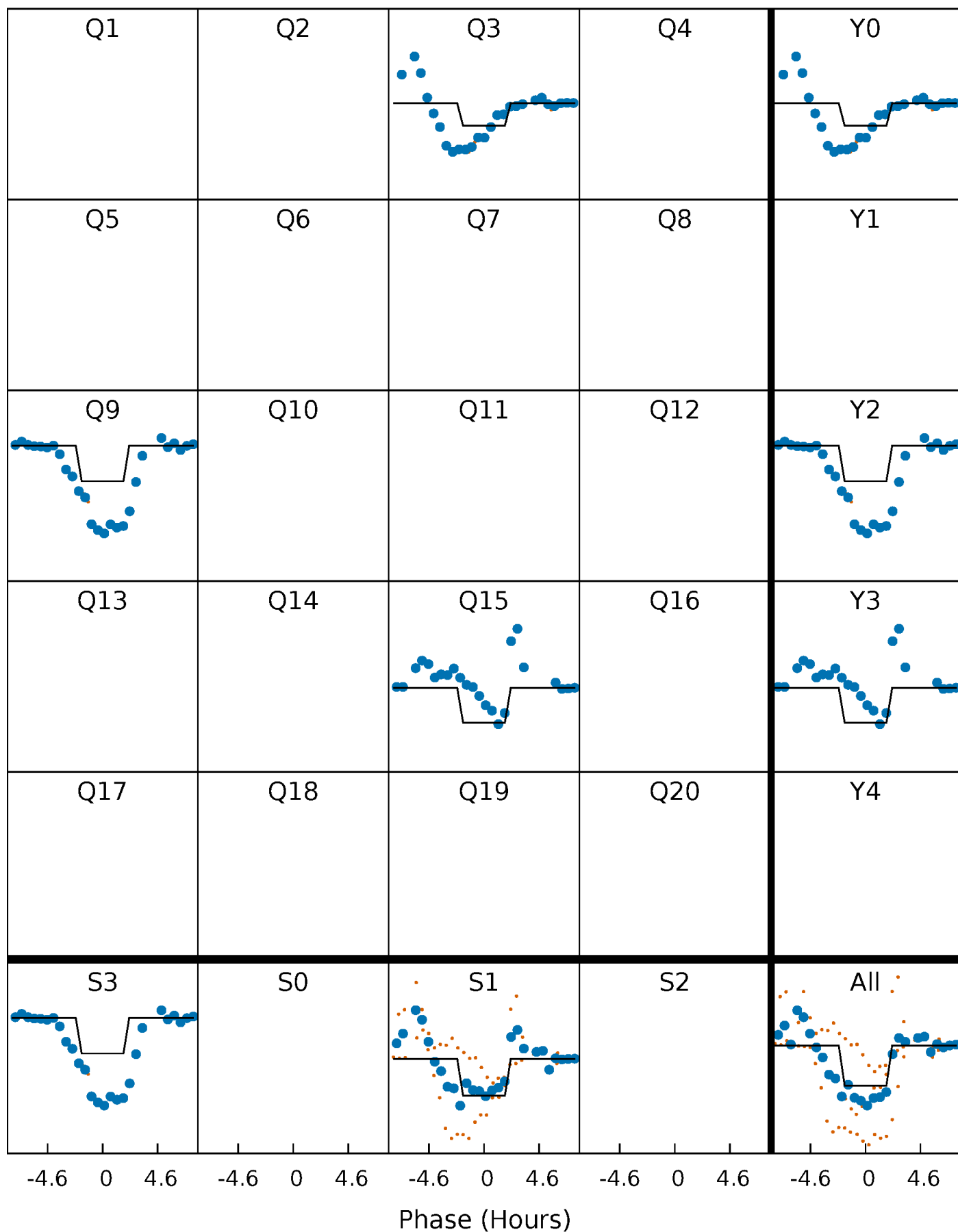
DV Quarter-Phased Transit Curves

TCE 005641933-02 $P=555.190932$ Days $T_0=328.827127$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

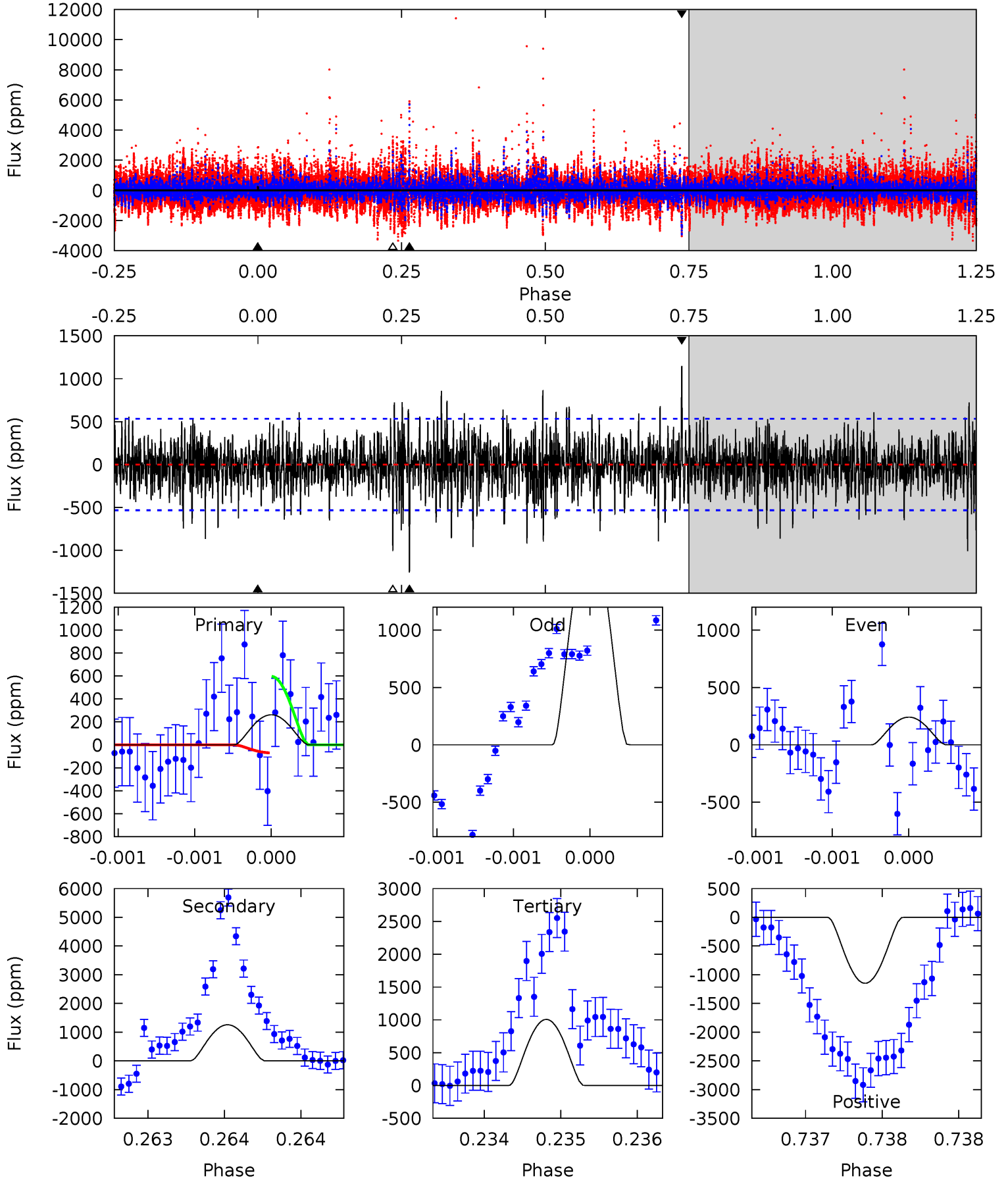
TCE 005641933-02 P=555.138958 Days $T_0=328.870364$ (BKJD)



DV Model-Shift Uniqueness Test

005641933-02, P = 555.190932 Days, E = 328.827127 Days

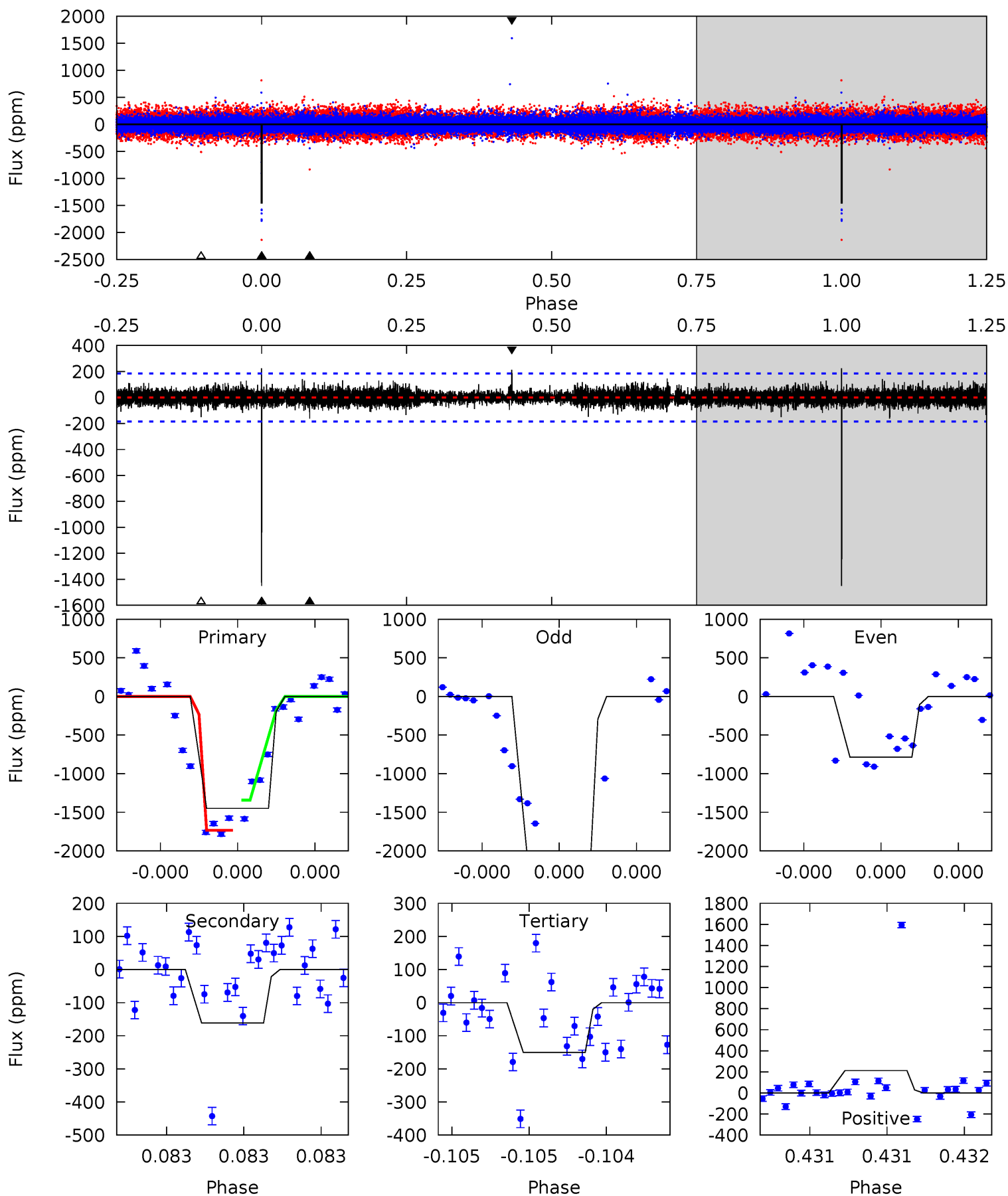
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.70	13.0	10.4	11.8	5.51	3.38	2.28	-7.68	-9.15	2.59	1.12	5.78	1.45	0.48	2.73



Alt Model-Shift Uniqueness Test

005641933-02, P = 555.138958 Days, E = 328.870364 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.2	4.93	4.58	6.48	5.65	3.59	0.87	39.6	37.7	0.34	-1.55	22.1	0.93	0.13	0



Stellar Parameters For KIC 005641933

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5494^{+197}_{-180}	$3.679^{+0.840}_{-0.280}$	$-0.560^{+0.350}_{-0.300}$	$2.467^{+1.095}_{-1.643}$	$1.060^{+0.217}_{-0.265}$	$0.099^{+2.165}_{-0.069}$
	+4%/-3%	+23%/-8%	+62%/-54%	+44%/-67%	+20%/-25%	+2178%/-70%
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 005641933-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1258 ± 97	$35.17^{+40.02}_{-25.42}$	455^{+59}_{-86}	3266^{+1714}_{-542}	1023^{+12722}_{-793}
Alt.	-161 ± 33	$30.17^{+39.22}_{-22.19}$	453^{+54}_{-88}	2581^{+1111}_{-419}	178^{+2173}_{-143}

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 $A_{obs} \gg 1.0$

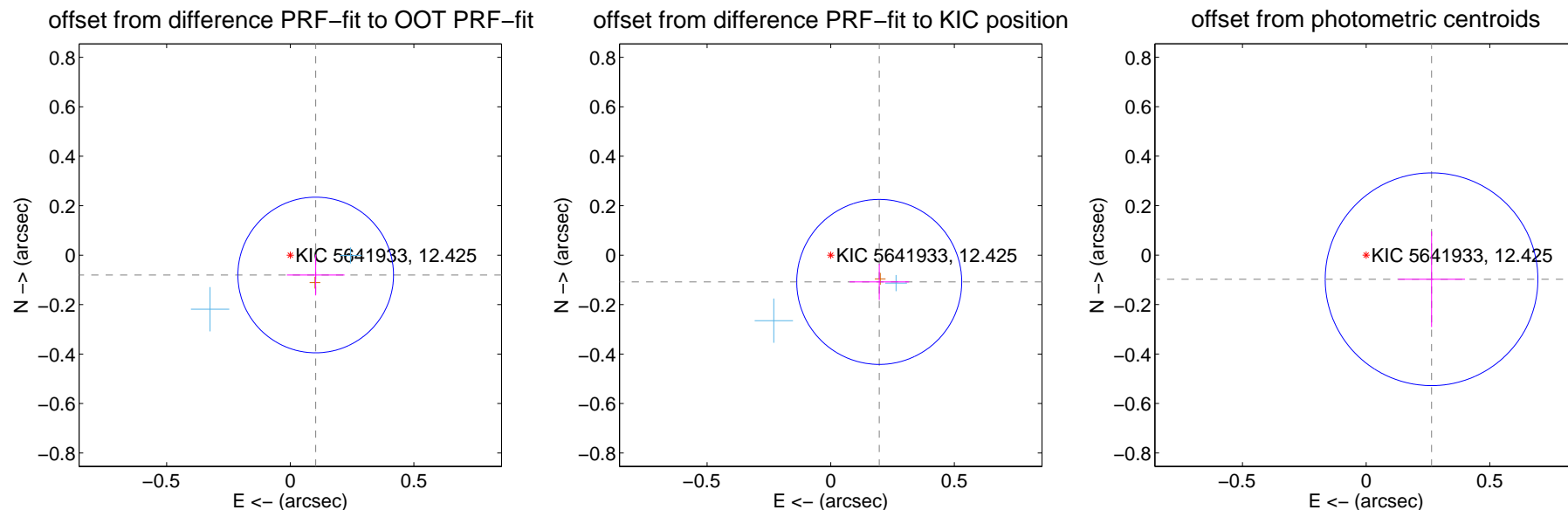
DV Centroid Data

Supplemental centroid analysis for 005641933-02. Kepler magnitude: 12.43. Transit SNR 11.68

There are 2 quarters with good PRF difference image offsets

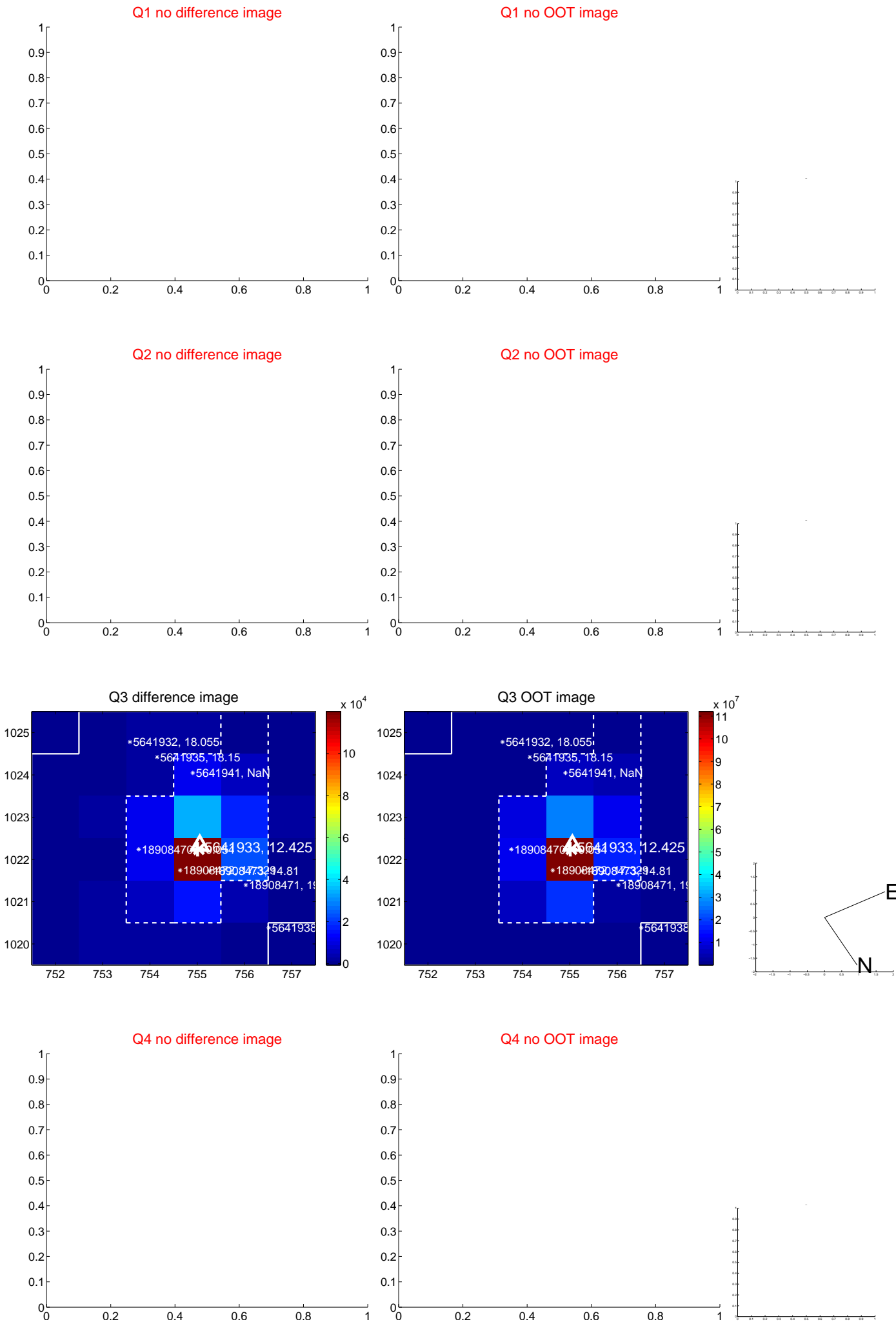
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.131 ± 0.105	1.24	-0.103 ± 0.116	-0.080 ± 0.083
PRF-fit source offset from KIC position	0.224 ± 0.111	2.02	-0.196 ± 0.121	-0.108 ± 0.073
photometric centroid source offset	0.28 ± 0.14	1.97	-0.26 ± 0.14	-0.10 ± 0.19



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

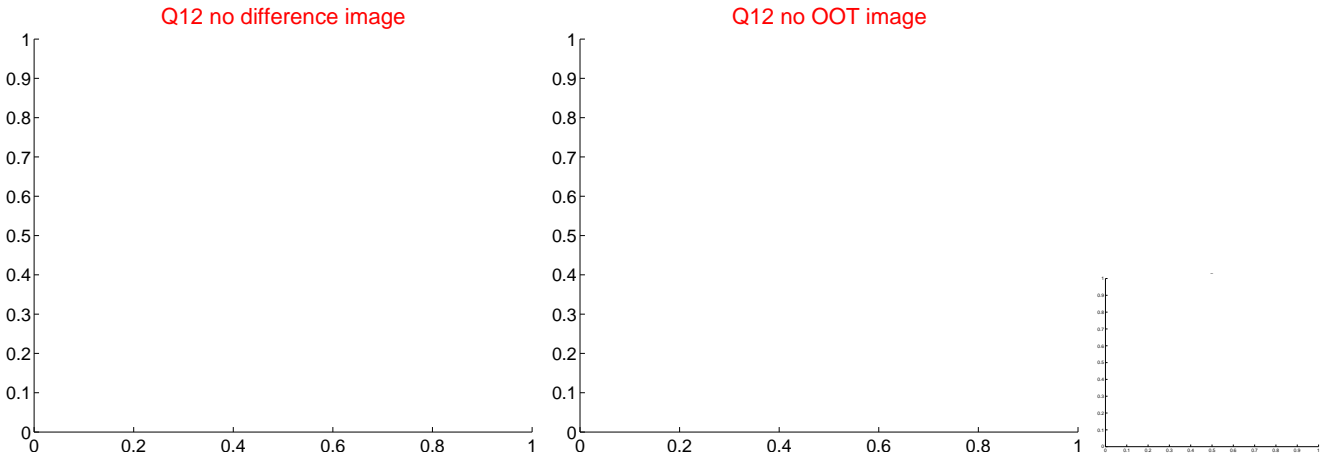
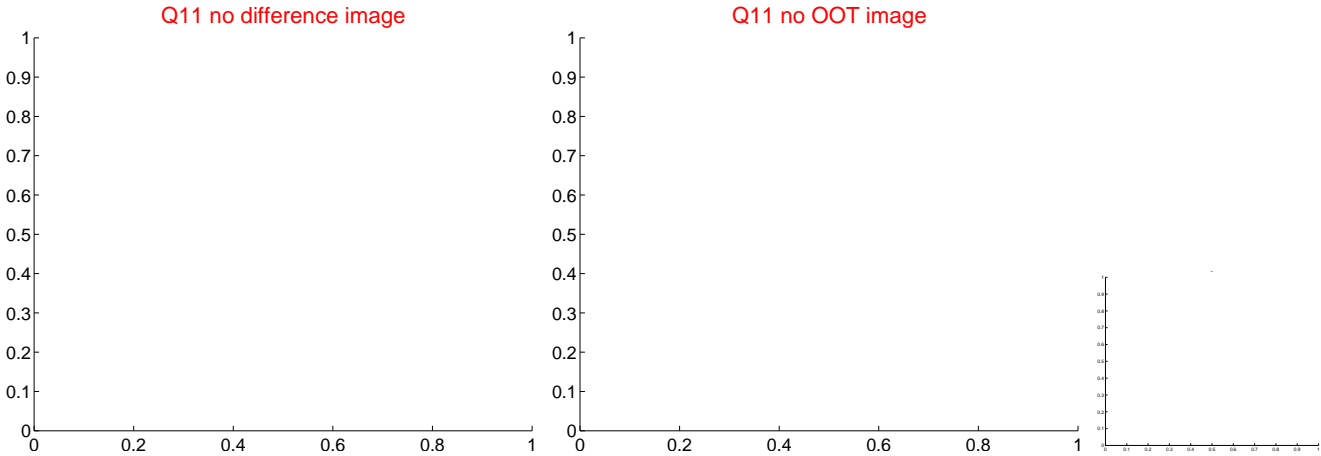
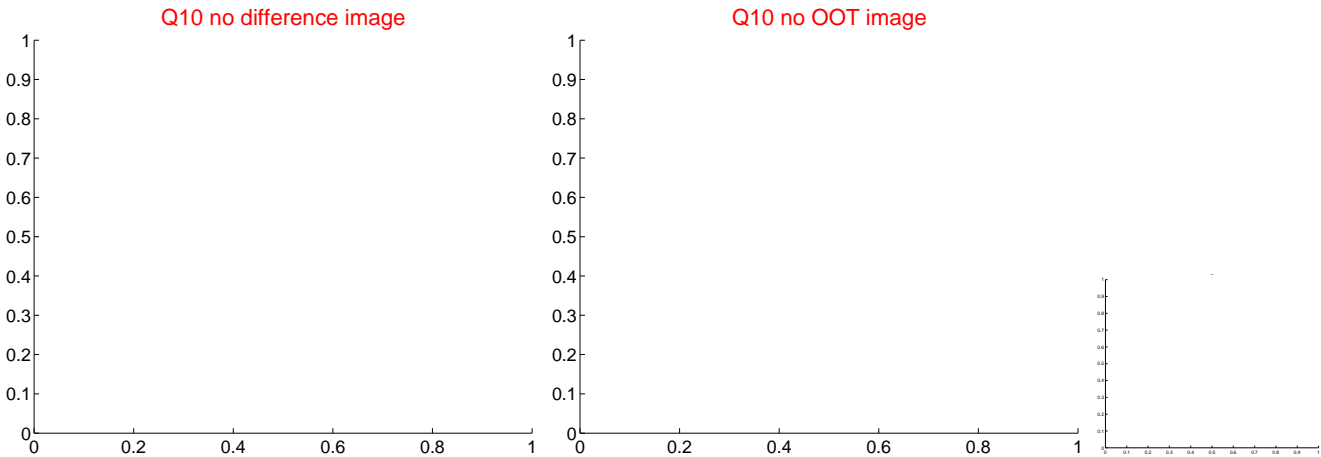
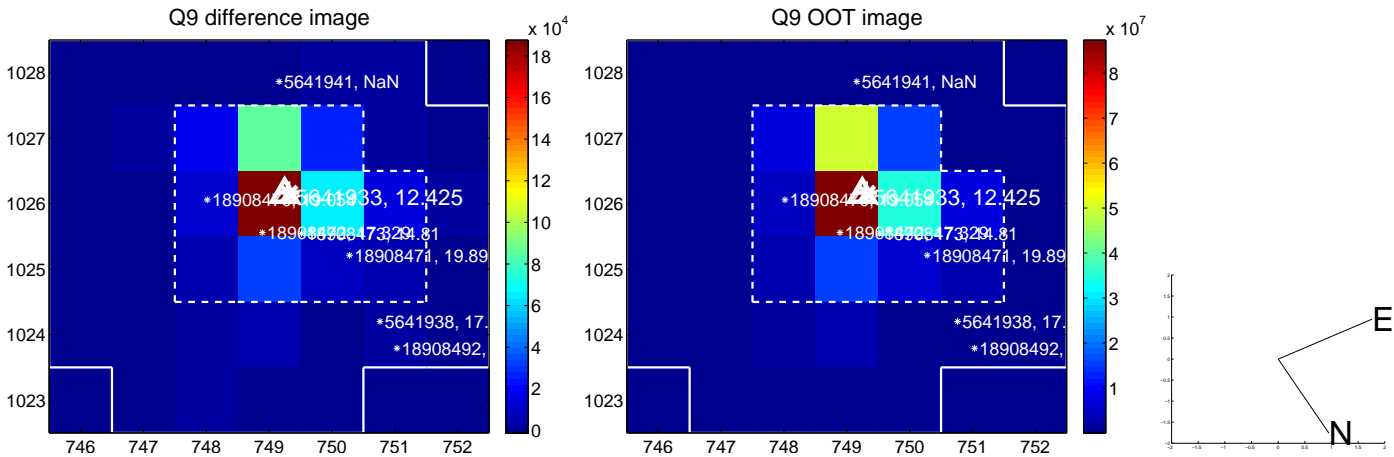
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



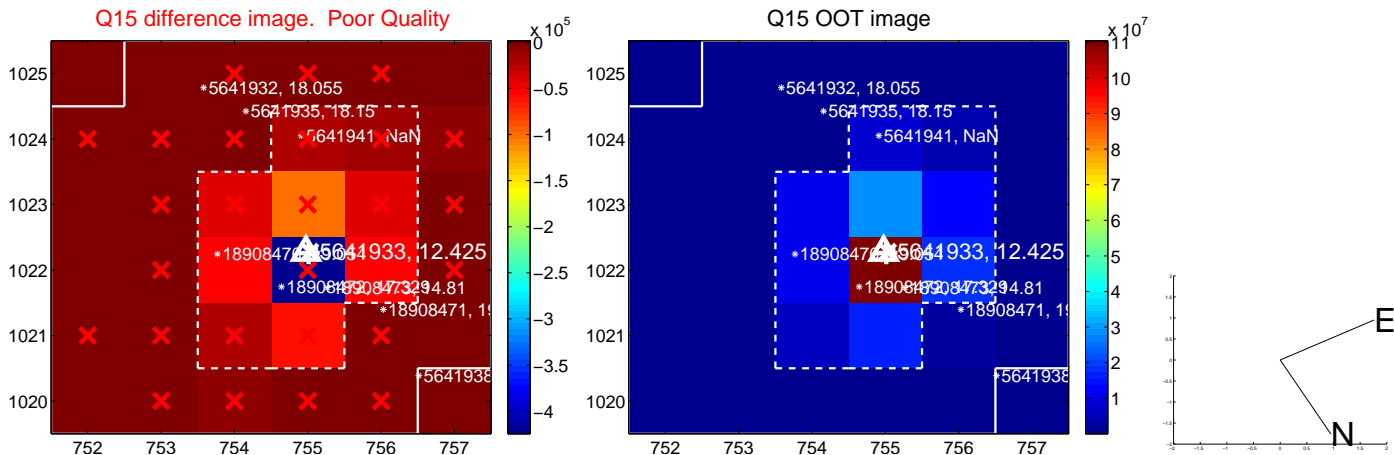
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



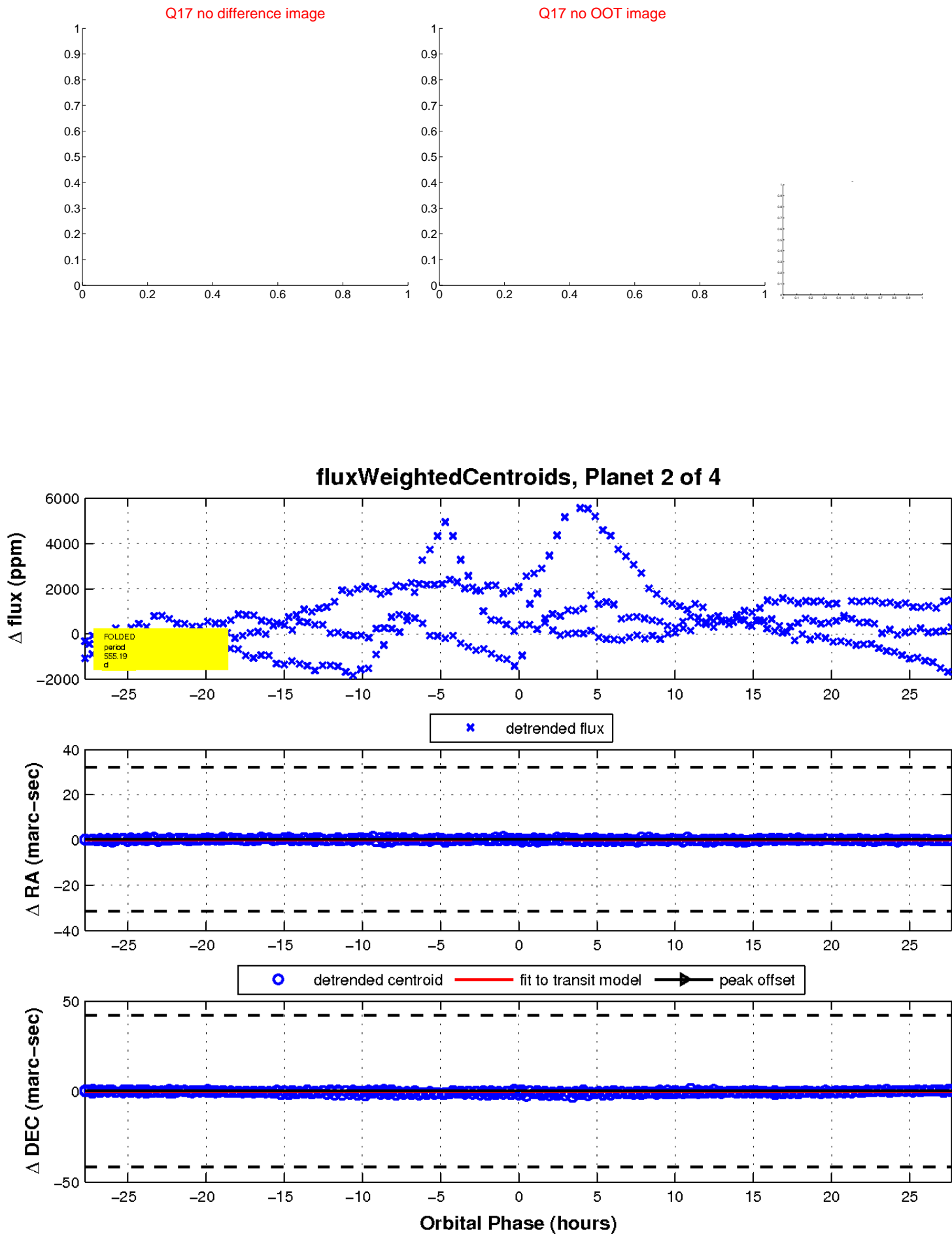
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



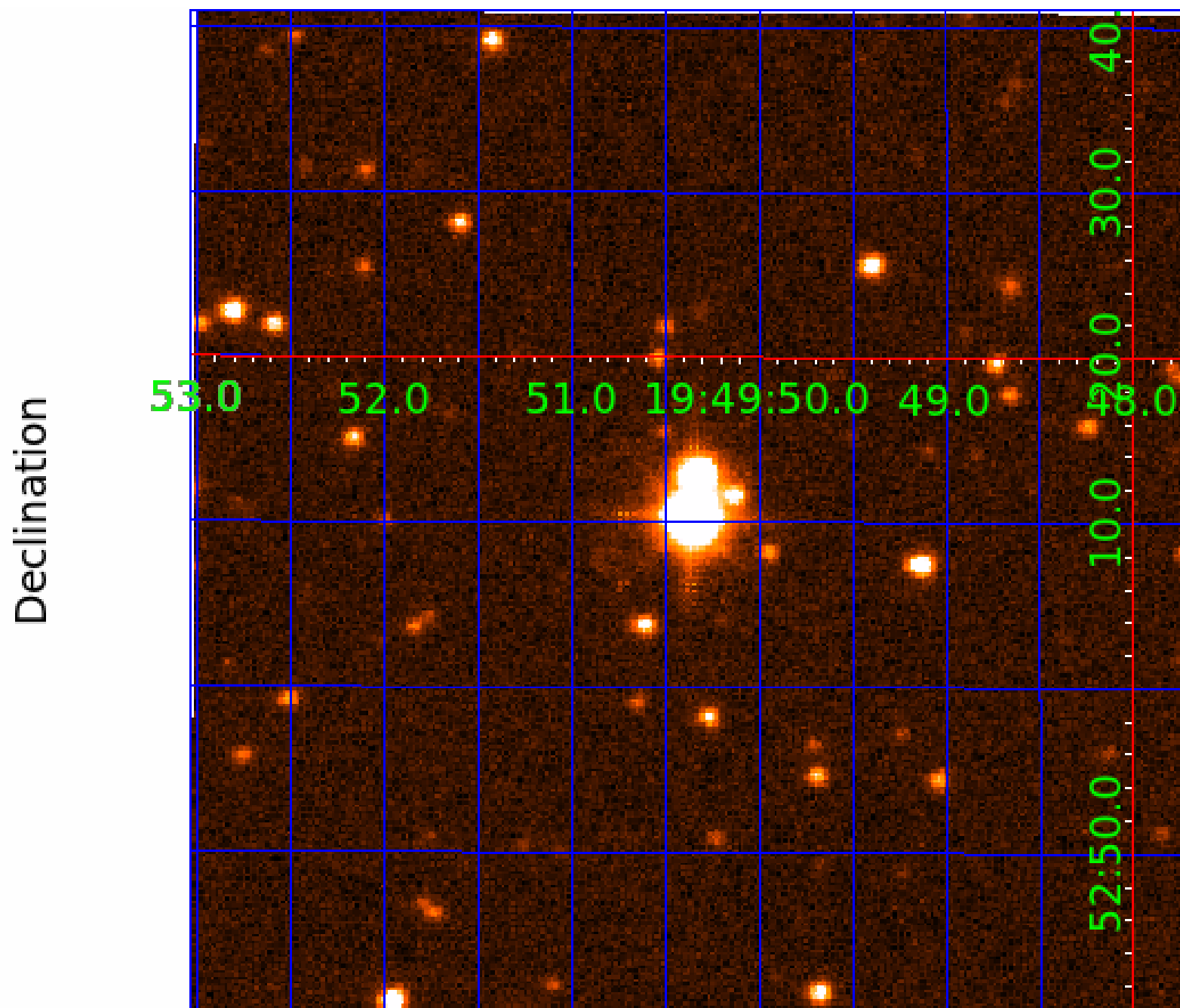
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image



KIC 005641933

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})
005641933-01	OBS	No	578.695940	270.656429	470.6	4.208	14.1	4.2	2.47	5494	5.50	2.59
005641933-02	OBS	No	555.190932	328.827127	2158.1	9.305	16.9	11.7	2.47	5494	21.77	2.73
005641933-03	OBS	No	363.351822	422.823349	613.1	4.373	15.7	6.8	2.47	5494	6.57	4.81
005641933-04	OBS	No	447.093104	302.117597	413.6	3.500	13.5	-1.0	2.47	5494	4.97	3.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005641933-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005641933-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005641933-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
005641933-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

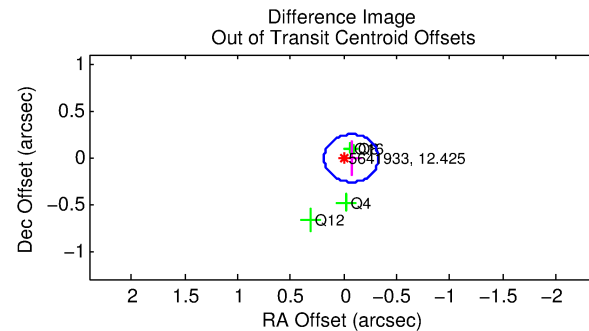
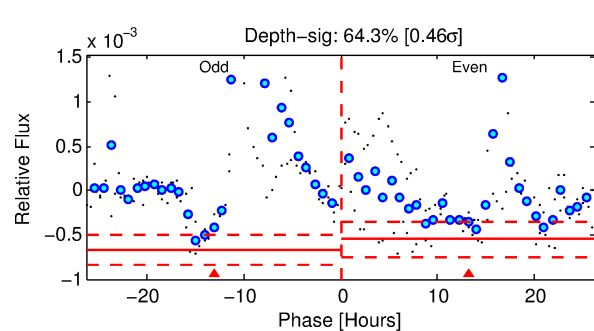
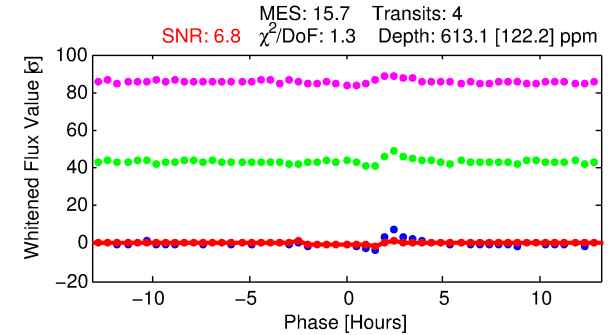
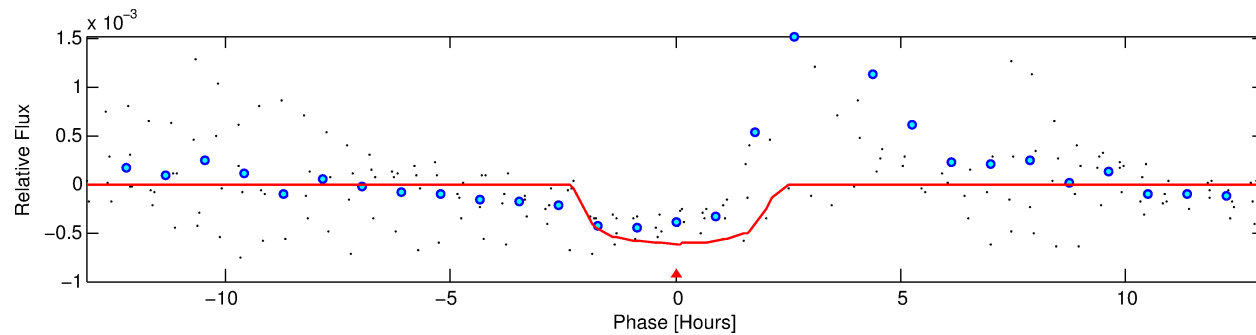
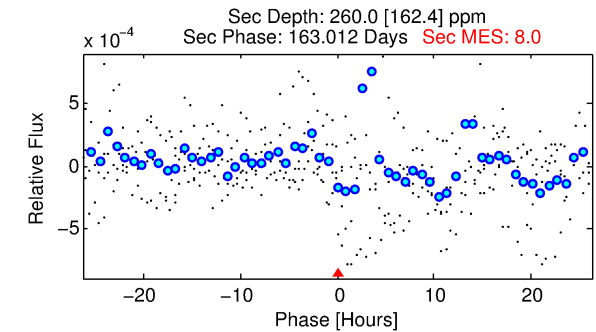
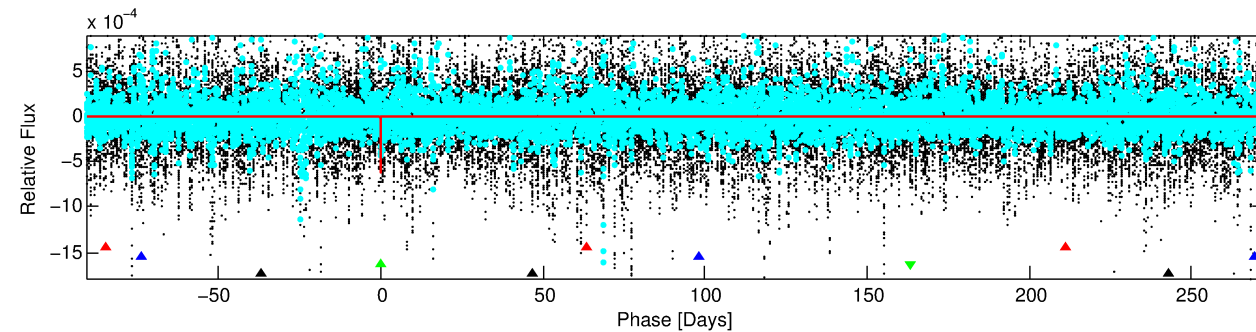
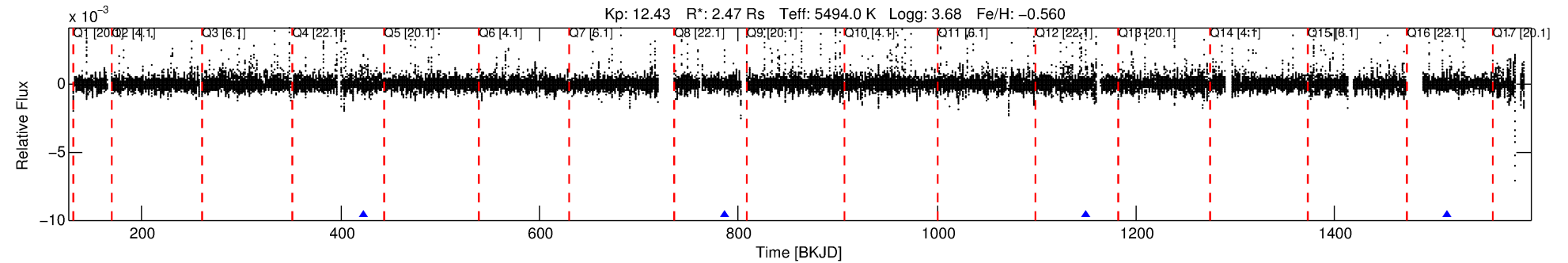
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005641933-03

No Significant Match Found

DV One-Page Summary

KIC: 5641933 Candidate: 3 of 4 Period: 363.352 d



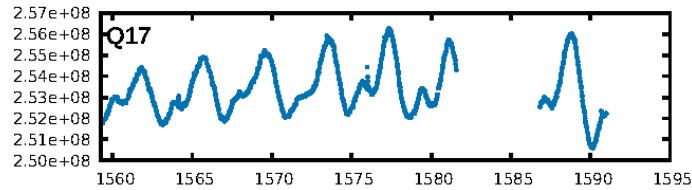
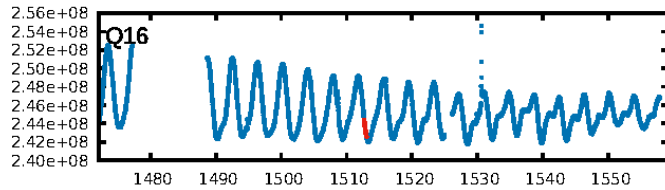
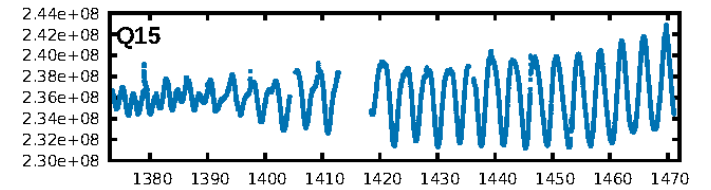
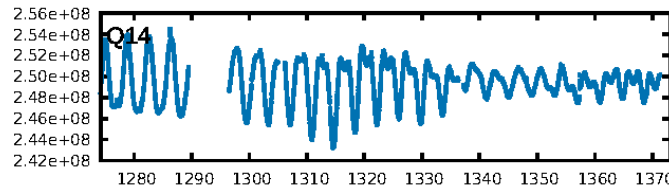
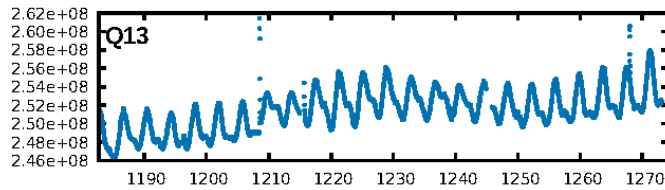
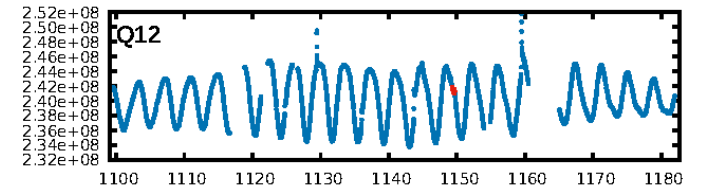
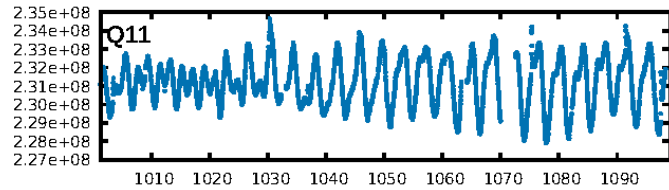
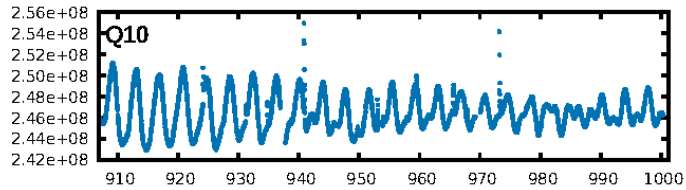
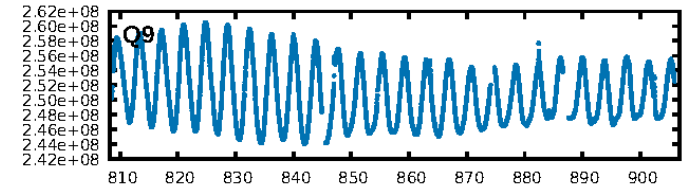
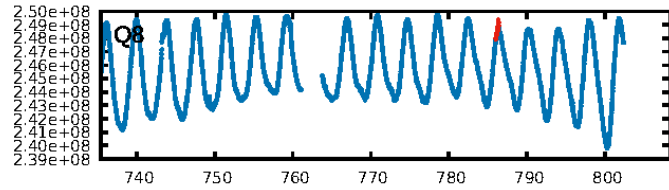
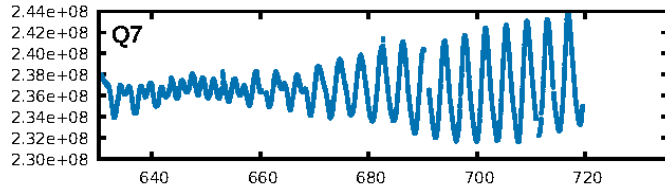
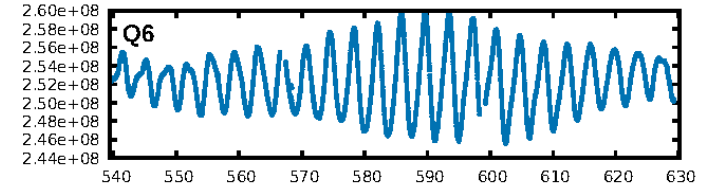
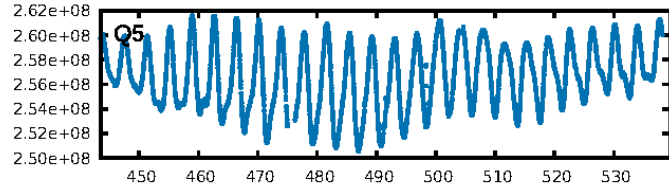
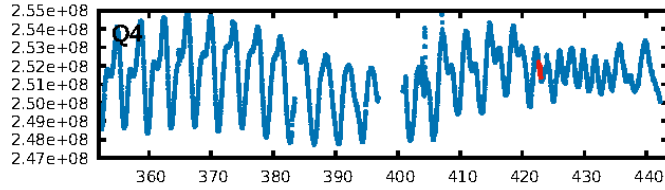
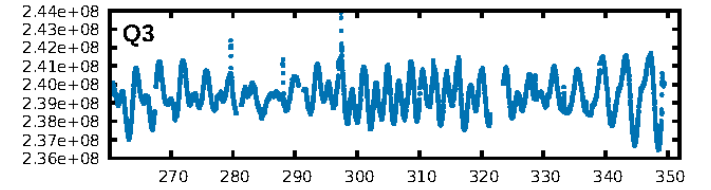
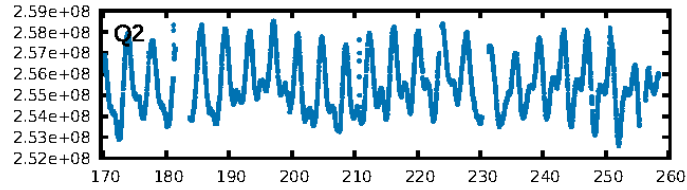
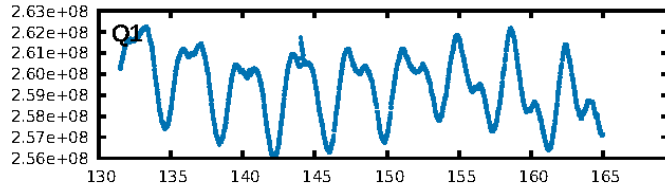
DV Fit Results:

Period = 363.35182 [0.00263] d
Epoch = 422.8233 [0.0055] BKJD
Rp/R* = 0.0244 [0.0115]
a/R* = 460.77 [902.51]
b = 0.72 [1.30]
Seff = 4.81 [6.60]
Teq = 378 [129] K
Rp = 6.57 [5.37] Re
a = 1.0163 [0.7956] AU
Ag = 3420.47 [6065.23] [0.56σ]
Teffp = 4465 [1275] K [3.19σ]

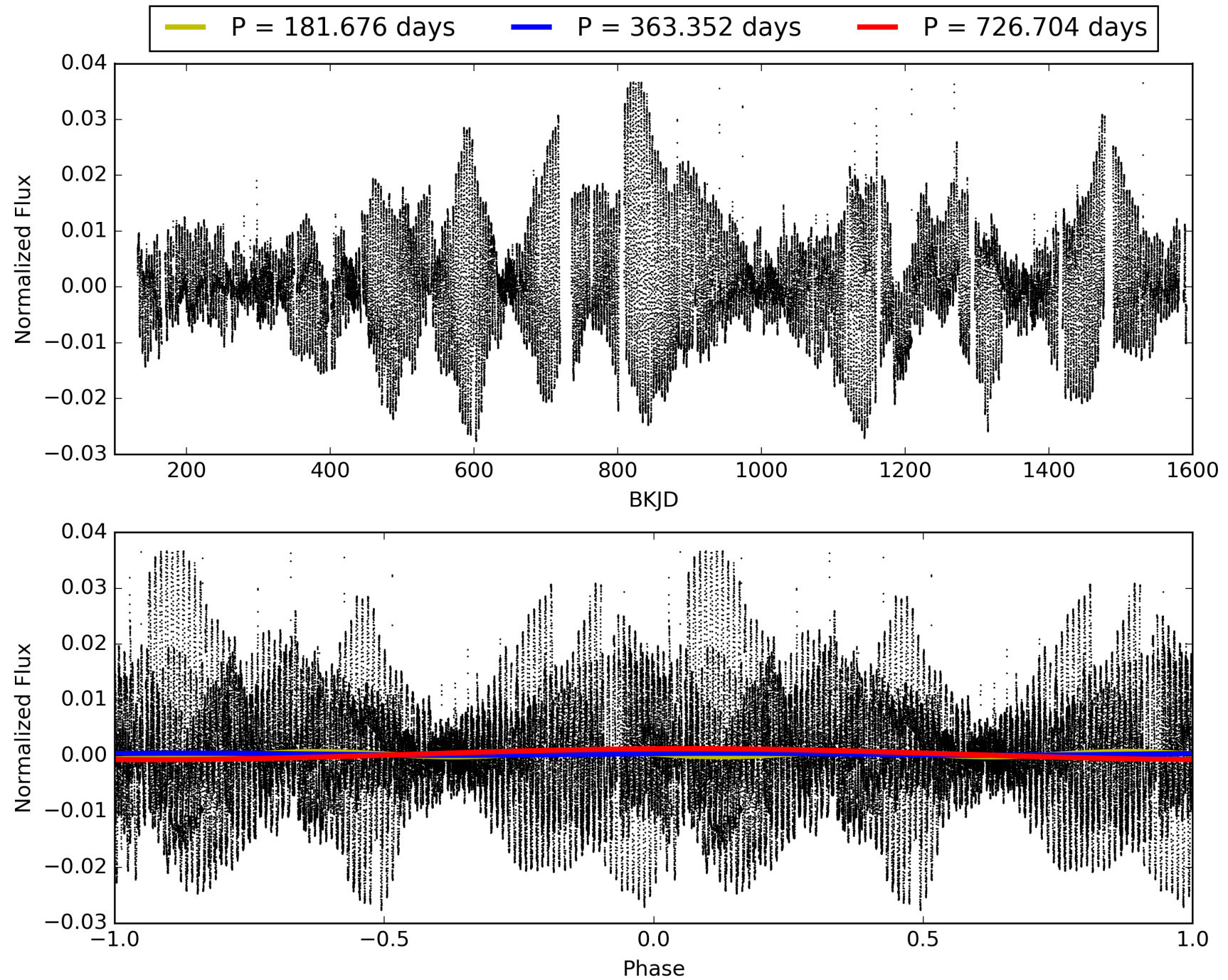
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [358.80σ]
ModelChiSquare2-sig: 14.3%
ModelChiSquareGof-sig: 77.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.711
Centroid-sig: 27.3%
Centroid-so: 0.503 arcsec [0.83σ]
OotOffset-rm: 0.073 arcsec [0.86σ]
OotOffset-st: 0/0/4/0 [4]
KicOffset-rm: 0.191 arcsec [1.36σ]
KicOffset-st: 0/0/4/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 005641933-03, PDC Light Curves

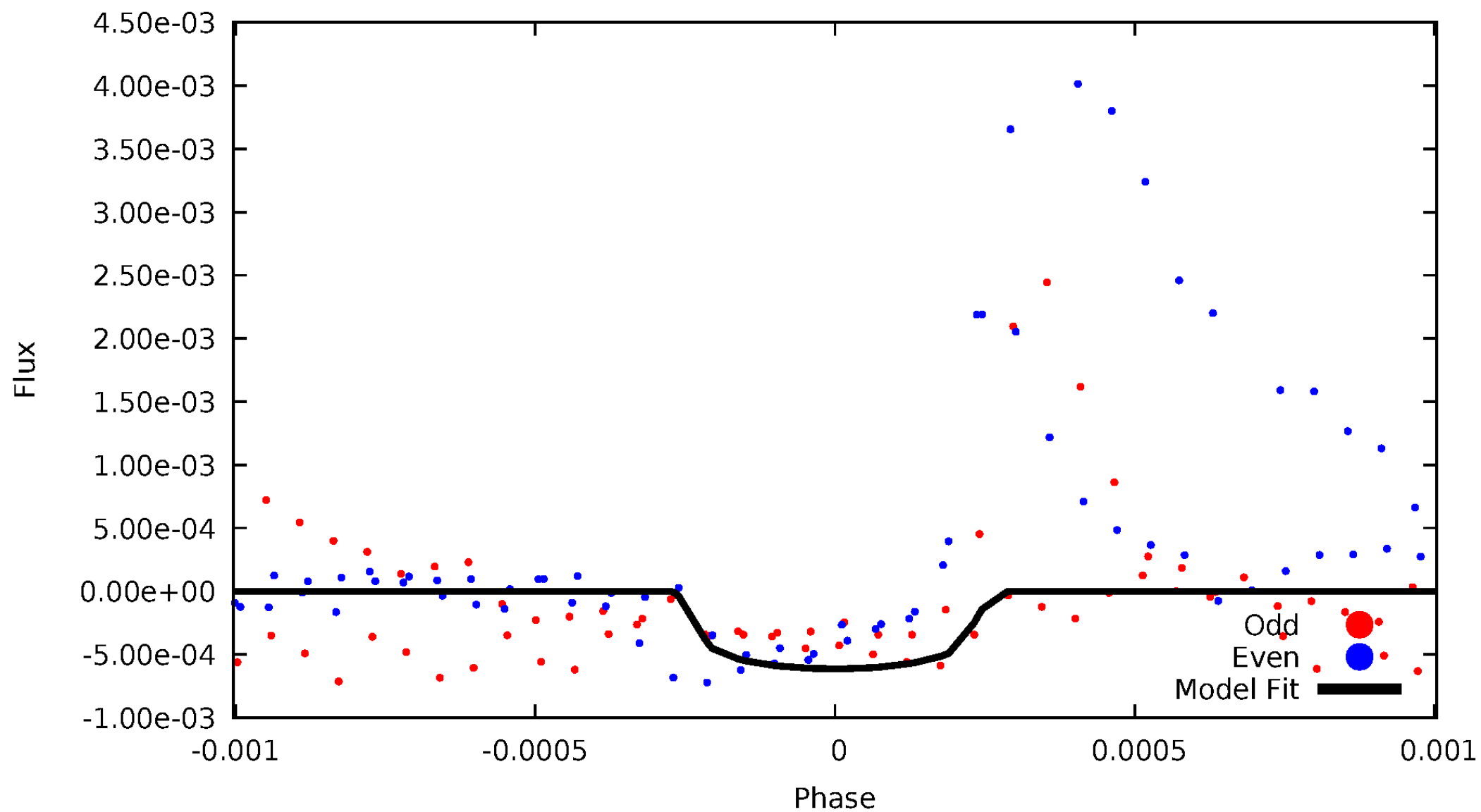


TCE 005641933-03



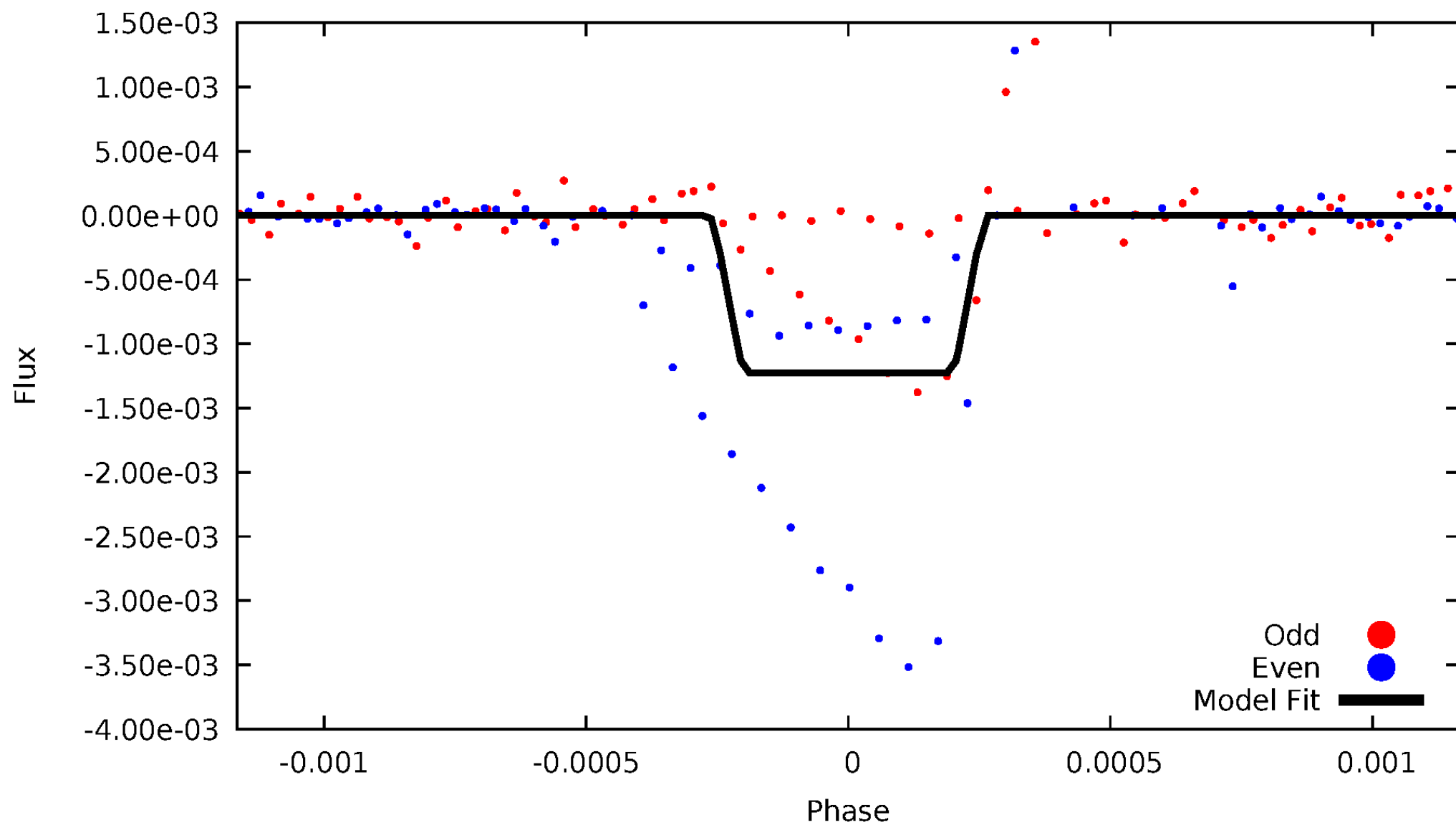
DV Odd/Even

TCE 005641933-03



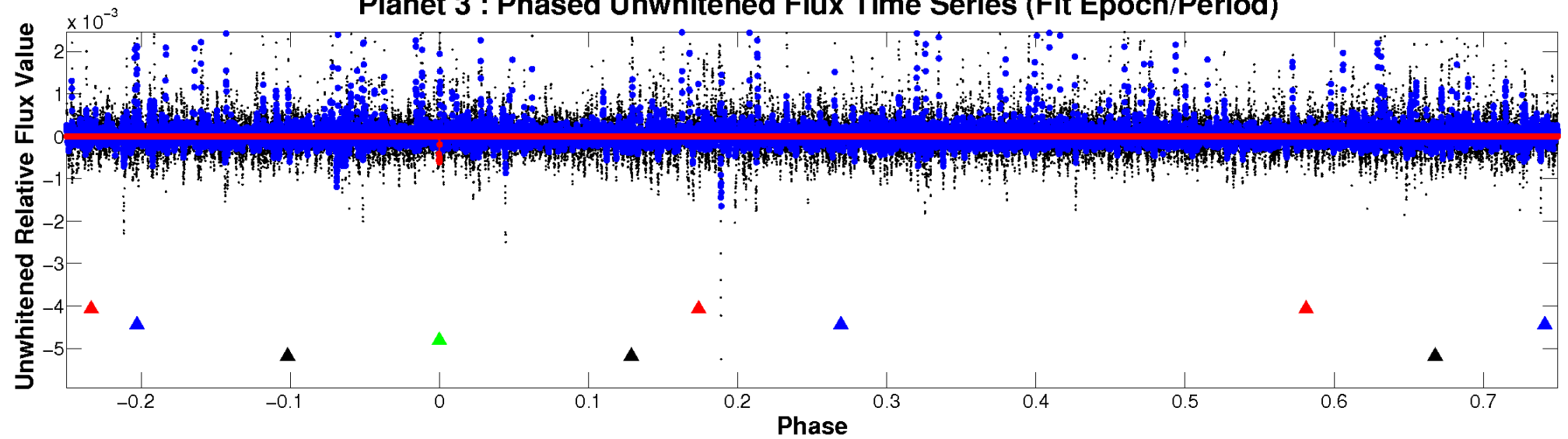
ALT Odd/Even

TCE 005641933-03

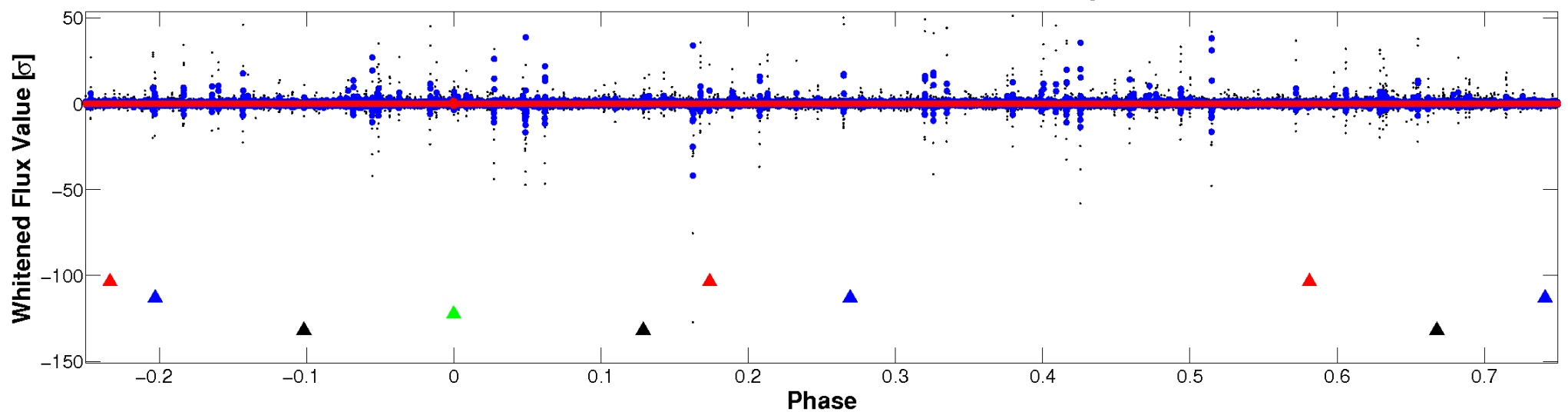


Non-Whitened Vs. Whitened Light Curve

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

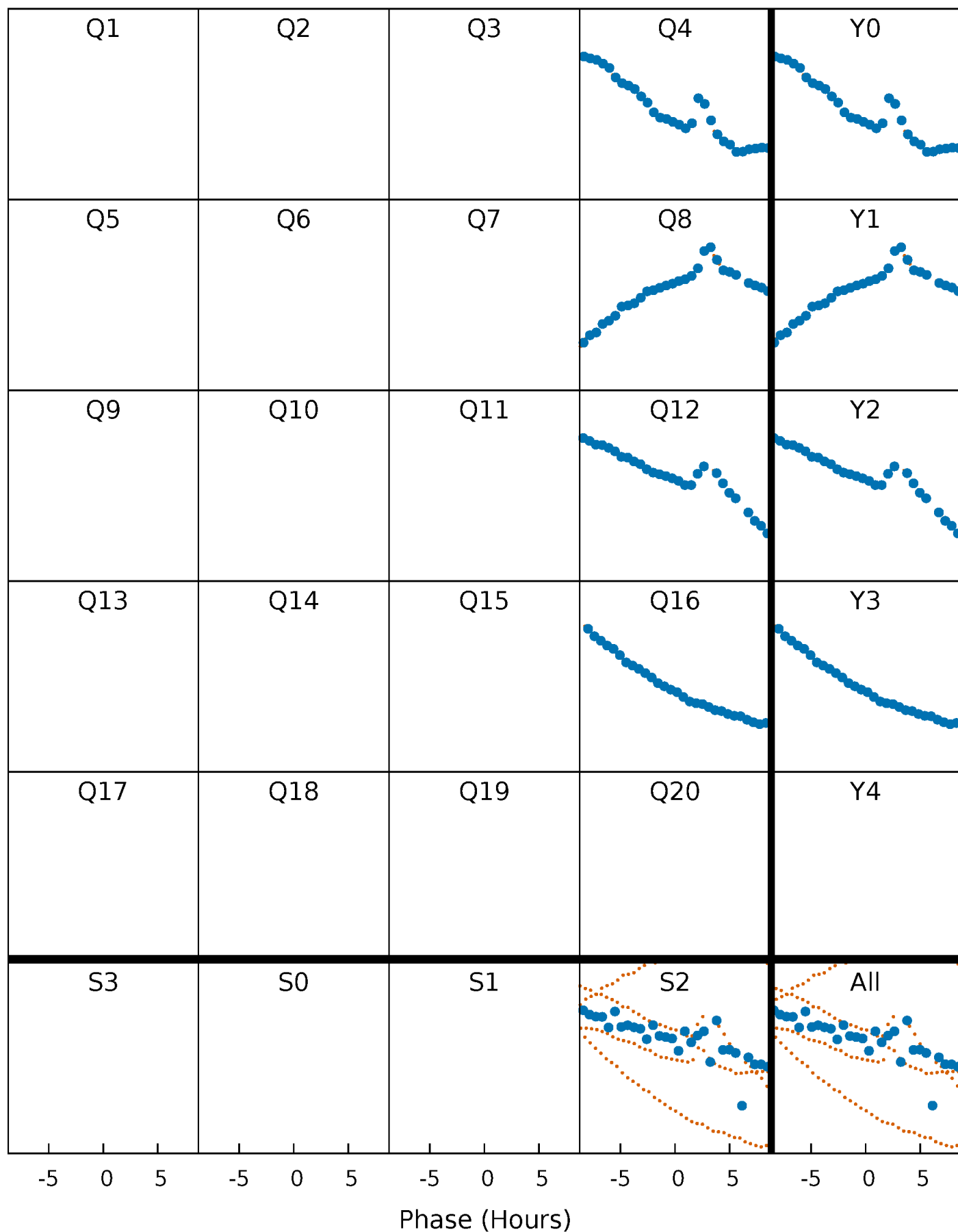


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



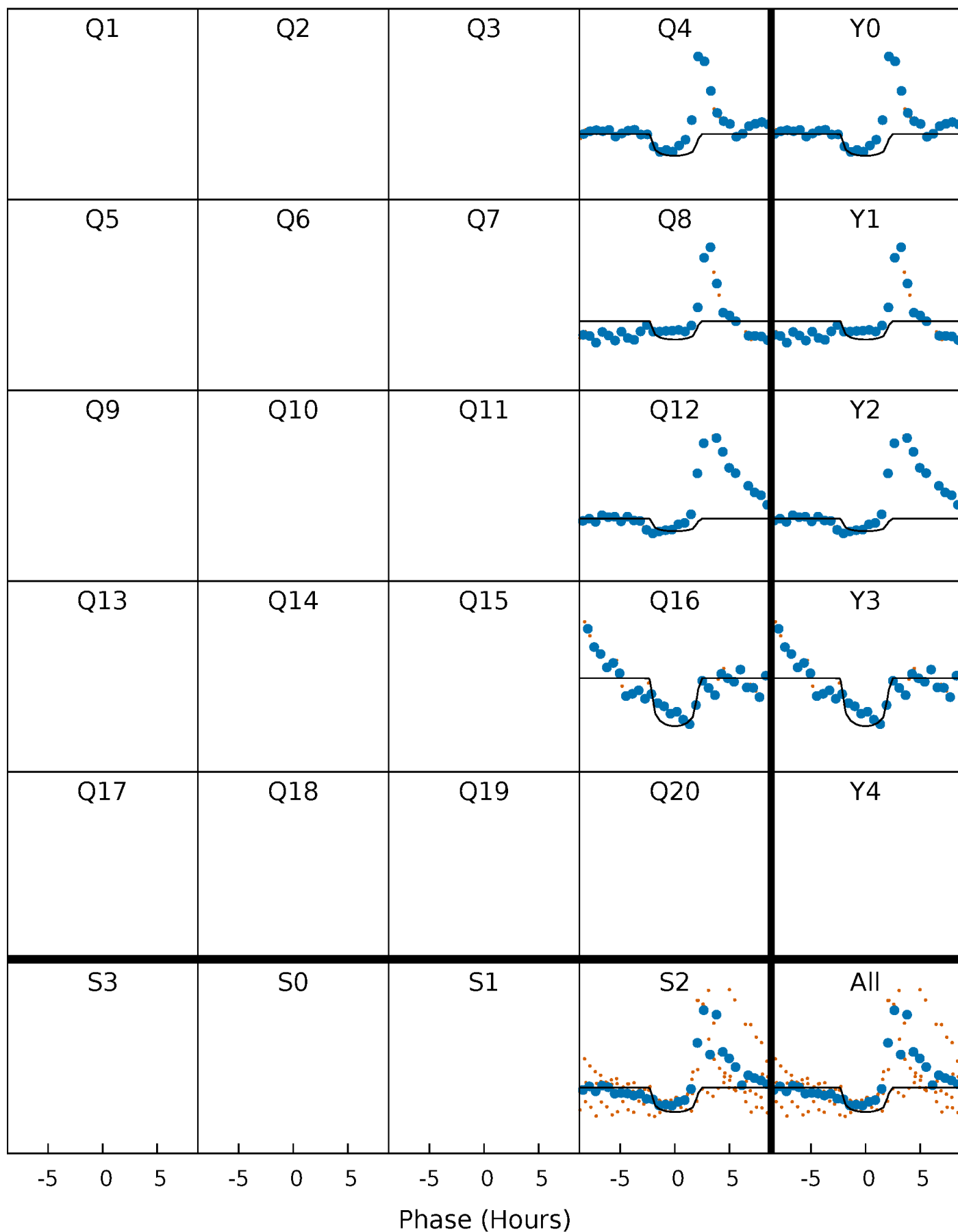
PDC Quarter-Phased Transit Curves

TCE 005641933-03 P=363.351822 Days $T_0=422.823349$ (BKJD)



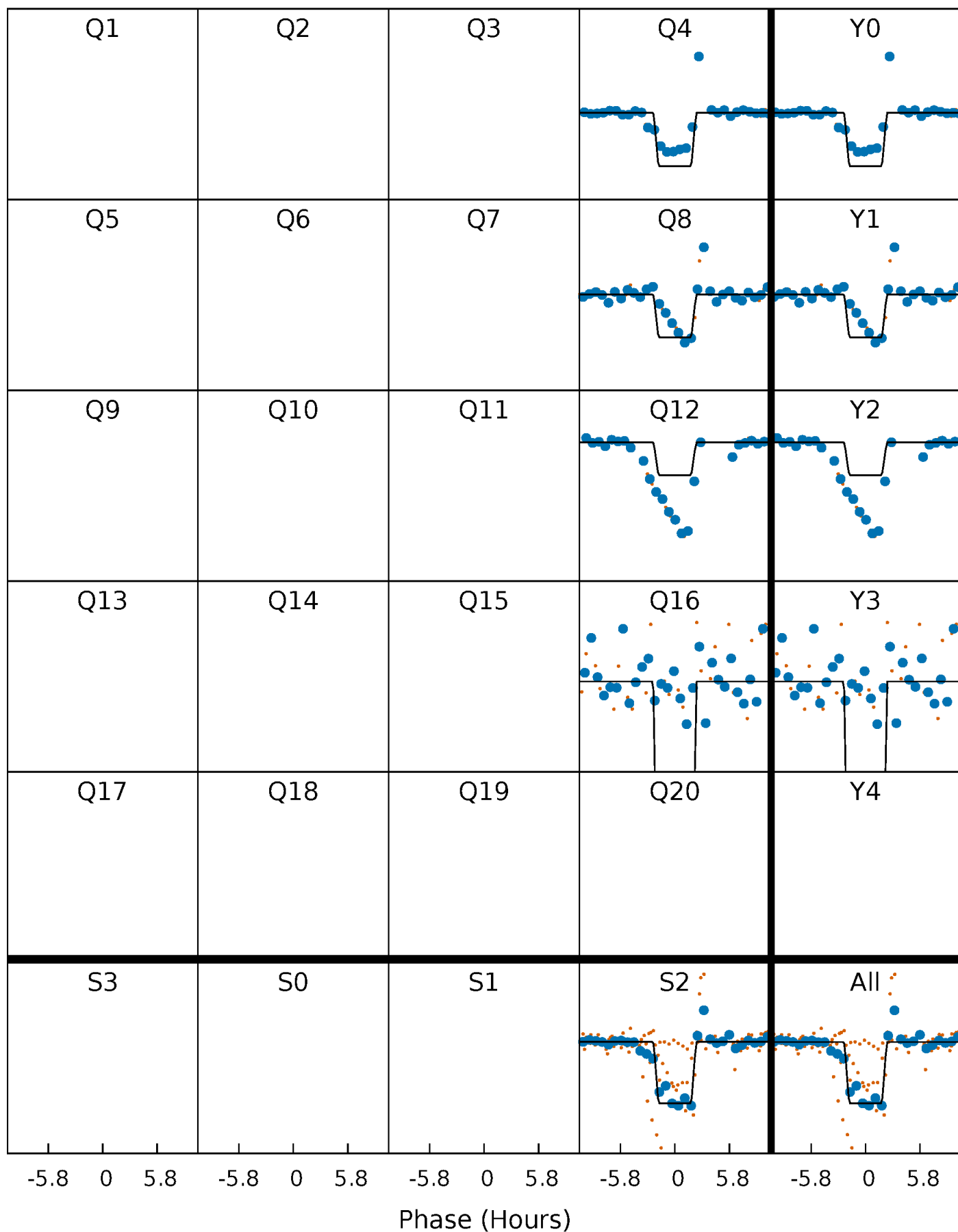
DV Quarter-Phased Transit Curves

TCE 005641933-03 $P=363.351822$ Days $T_0=422.823349$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

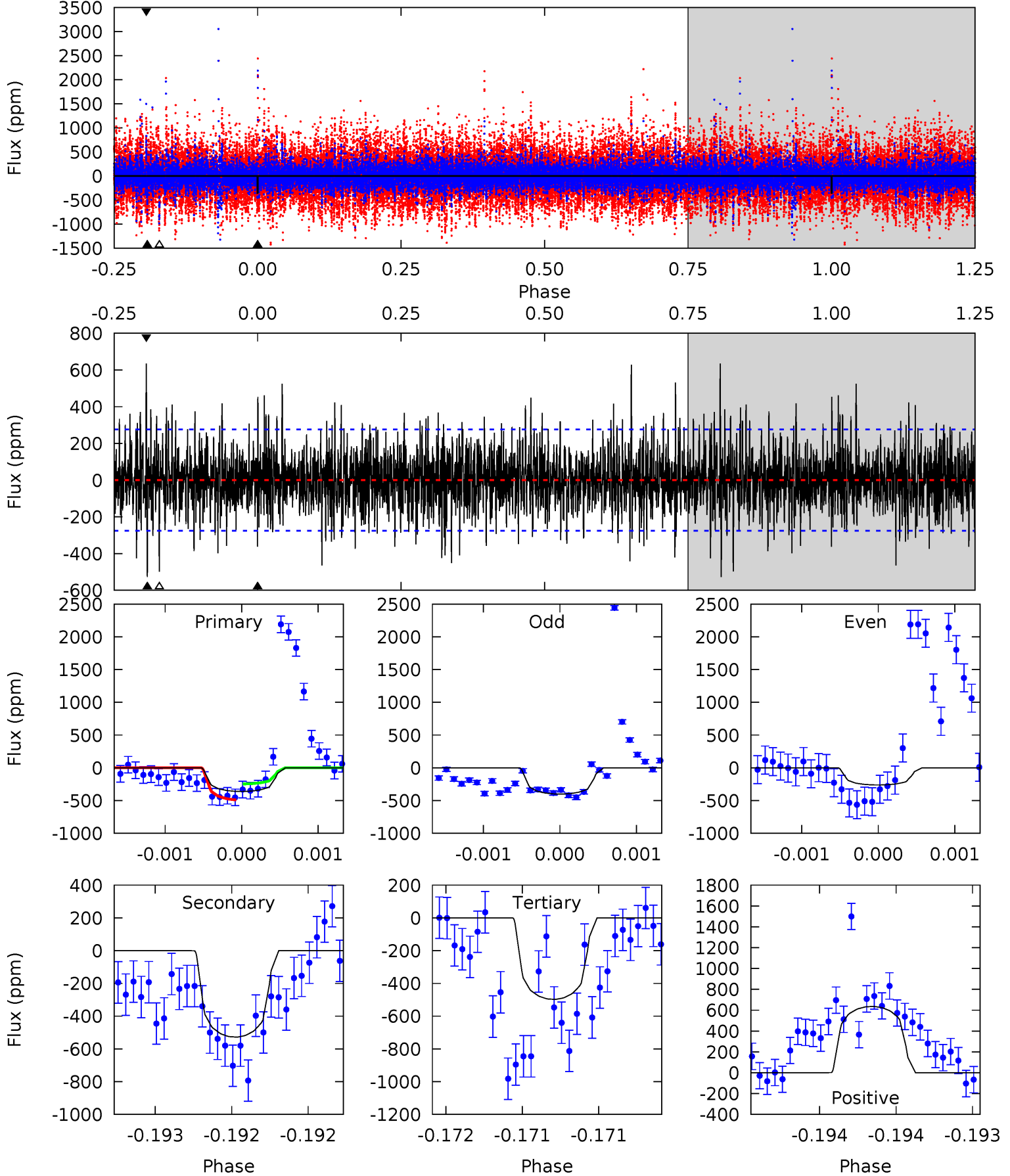
TCE 005641933-03 $P=363.356375$ Days $T_0=422.817538$ (BKJD)



DV Model-Shift Uniqueness Test

005641933-03, $P = 363.351822$ Days, $E = 59.471527$ Days

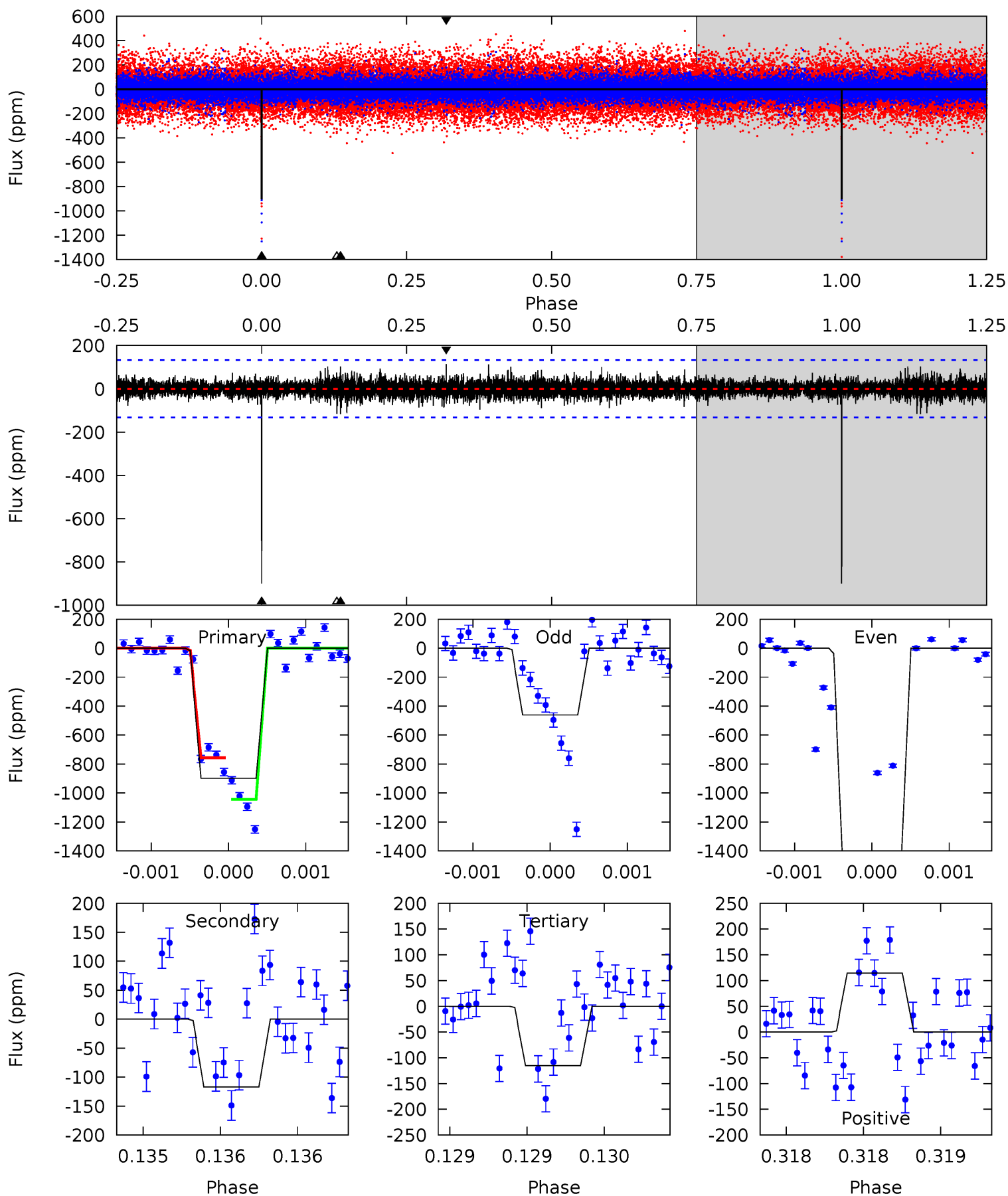
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.30	10.7	10.1	12.8	5.57	3.47	2.55	-2.75	-5.53	0.61	-2.17	1.04	1.12	0.55	2.48



Alt Model-Shift Uniqueness Test

005641933-03, P = 363.356375 Days, E = 59.461163 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.8	4.91	4.83	4.81	5.56	3.47	0.90	32.9	33.0	0.08	0.10	34.8	1.36	0.11	0



Stellar Parameters For KIC 005641933

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5494^{+197}_{-180}	$3.679^{+0.840}_{-0.280}$	$-0.560^{+0.350}_{-0.300}$	$2.467^{+1.095}_{-1.643}$	$1.060^{+0.217}_{-0.265}$	$0.099^{+2.165}_{-0.069}$
	+4%/-3%	+23%/-8%	+62%/-54%	+44%/-67%	+20%/-25%	+2178%/-70%
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 005641933-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-528 ± 50	$5.96^{+3.92}_{-3.10}$	515^{+67}_{-90}	5312^{+1810}_{-803}	8708^{+26750}_{-5589}
Alt.	-117 ± 24	$8.52^{+4.97}_{-3.82}$	520^{+70}_{-96}	3529^{+517}_{-336}	917^{+2051}_{-552}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

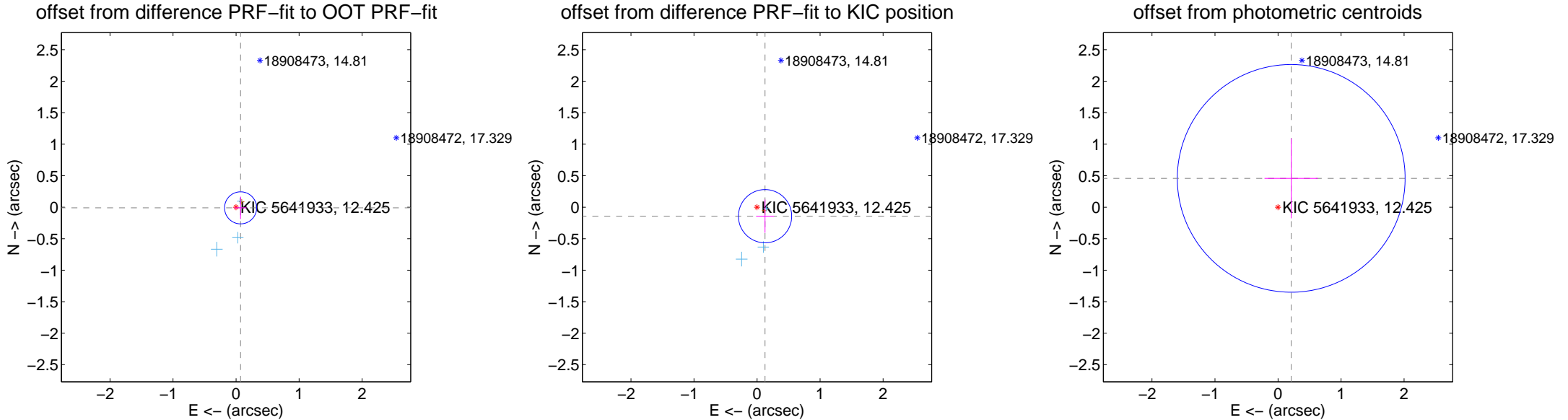
DV Centroid Data

Supplemental centroid analysis for 005641933-03. Kepler magnitude: 12.43. Transit SNR 6.83

There are 3 quarters with good PRF difference image offsets

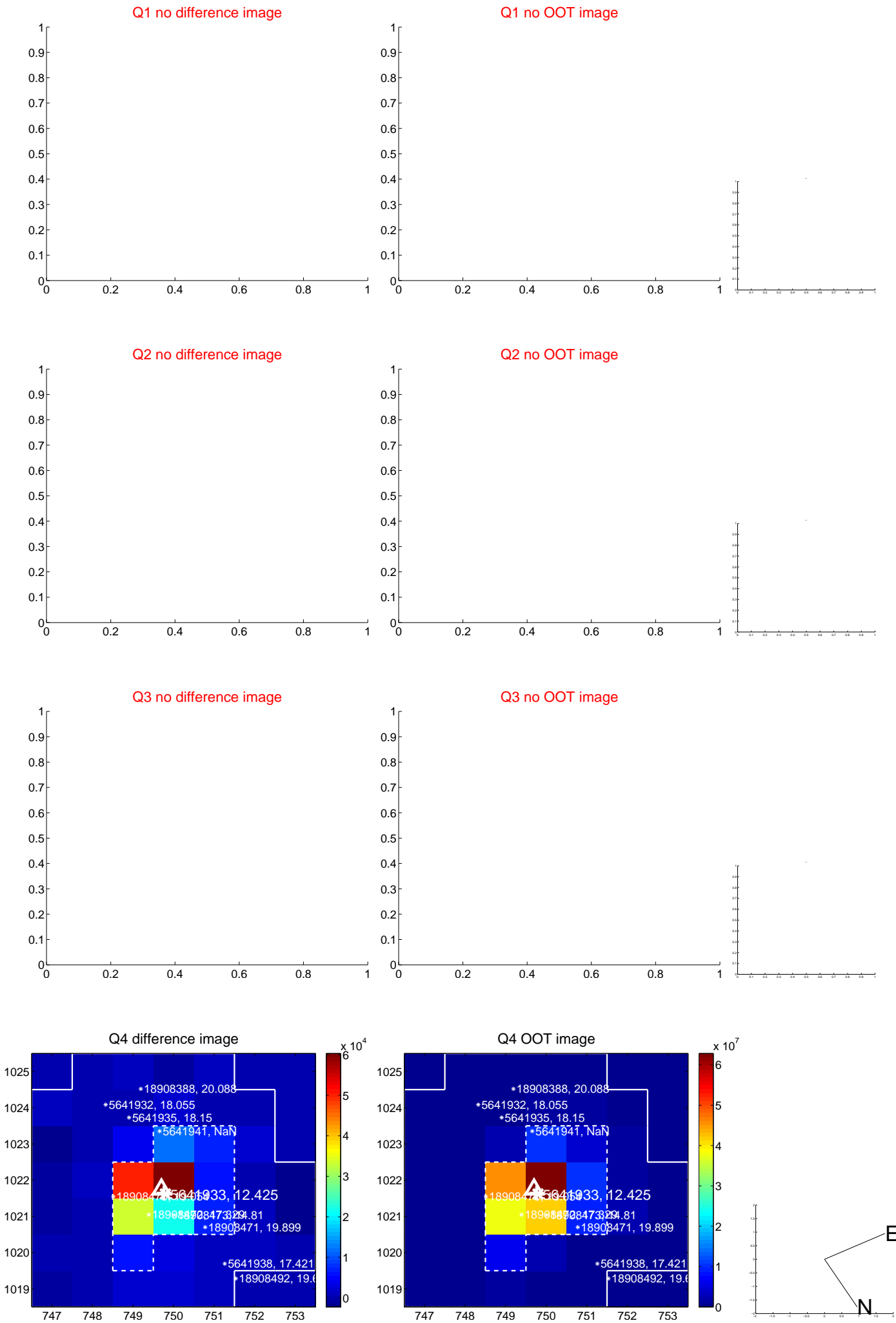
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.073 ± 0.085	0.86	-0.072 ± 0.096	-0.010 ± 0.178
PRF-fit source offset from KIC position	0.191 ± 0.141	1.36	-0.127 ± 0.142	-0.143 ± 0.264
photometric centroid source offset	0.50 ± 0.60	0.83	-0.21 ± 0.42	0.46 ± 0.63

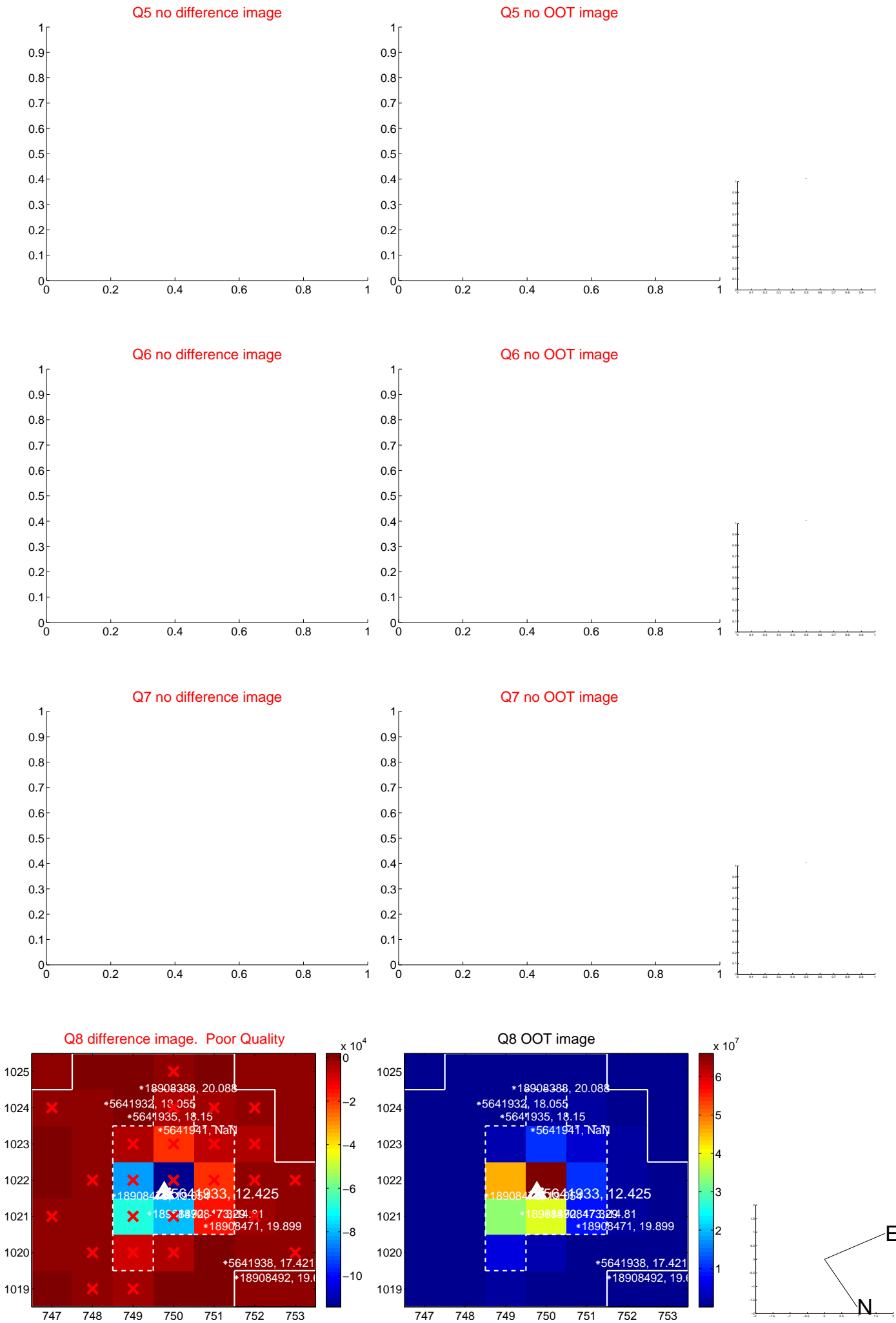


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

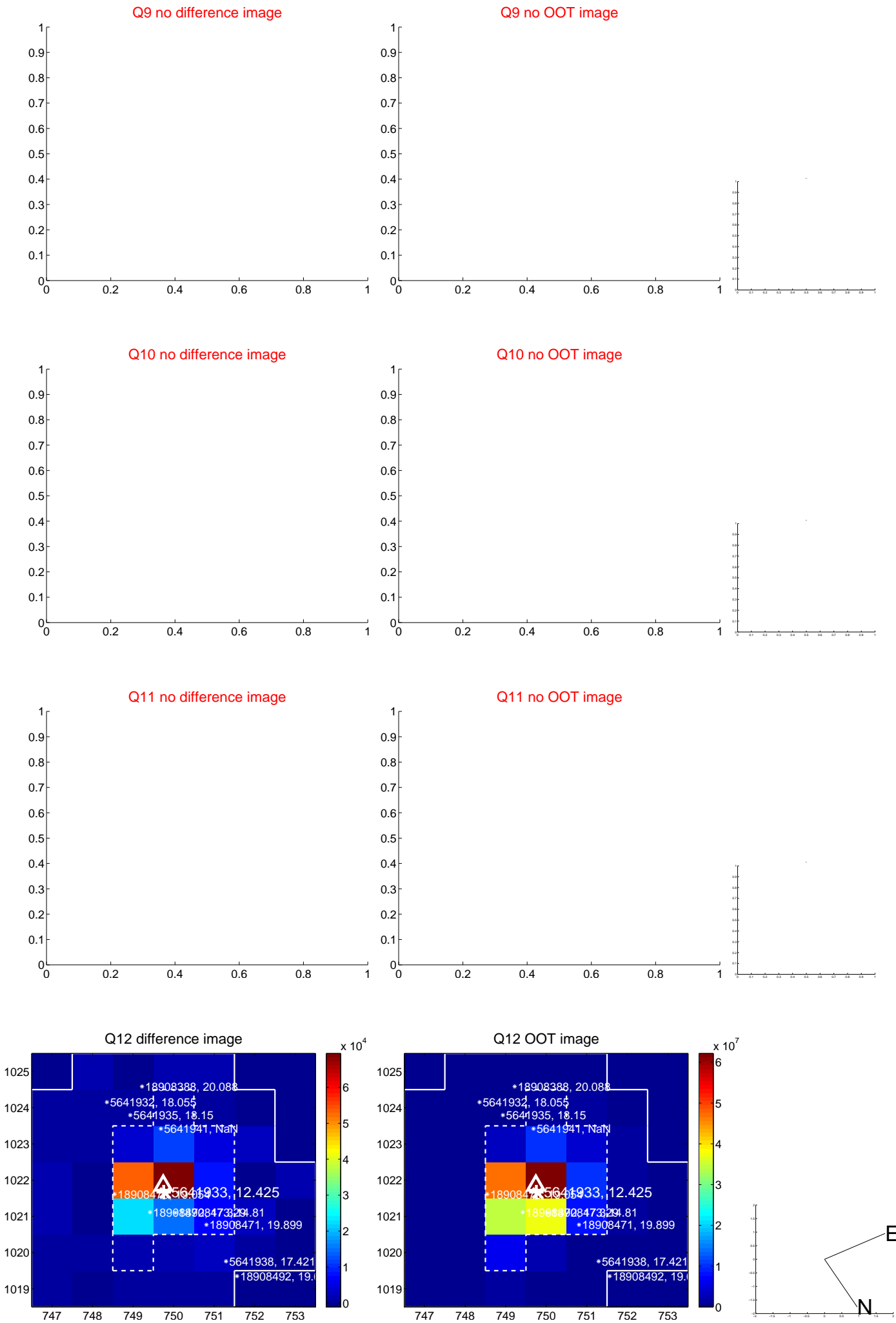
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



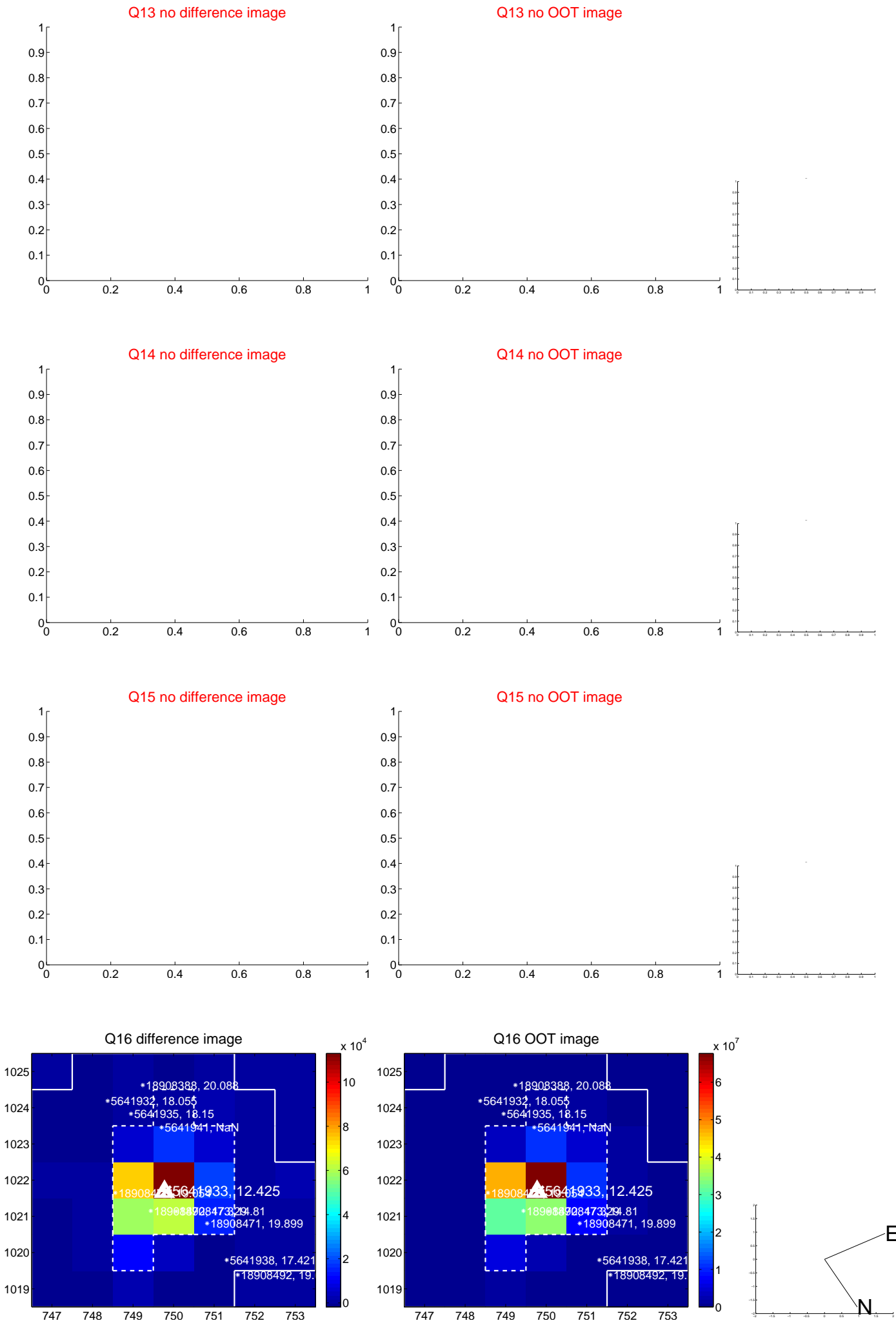
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



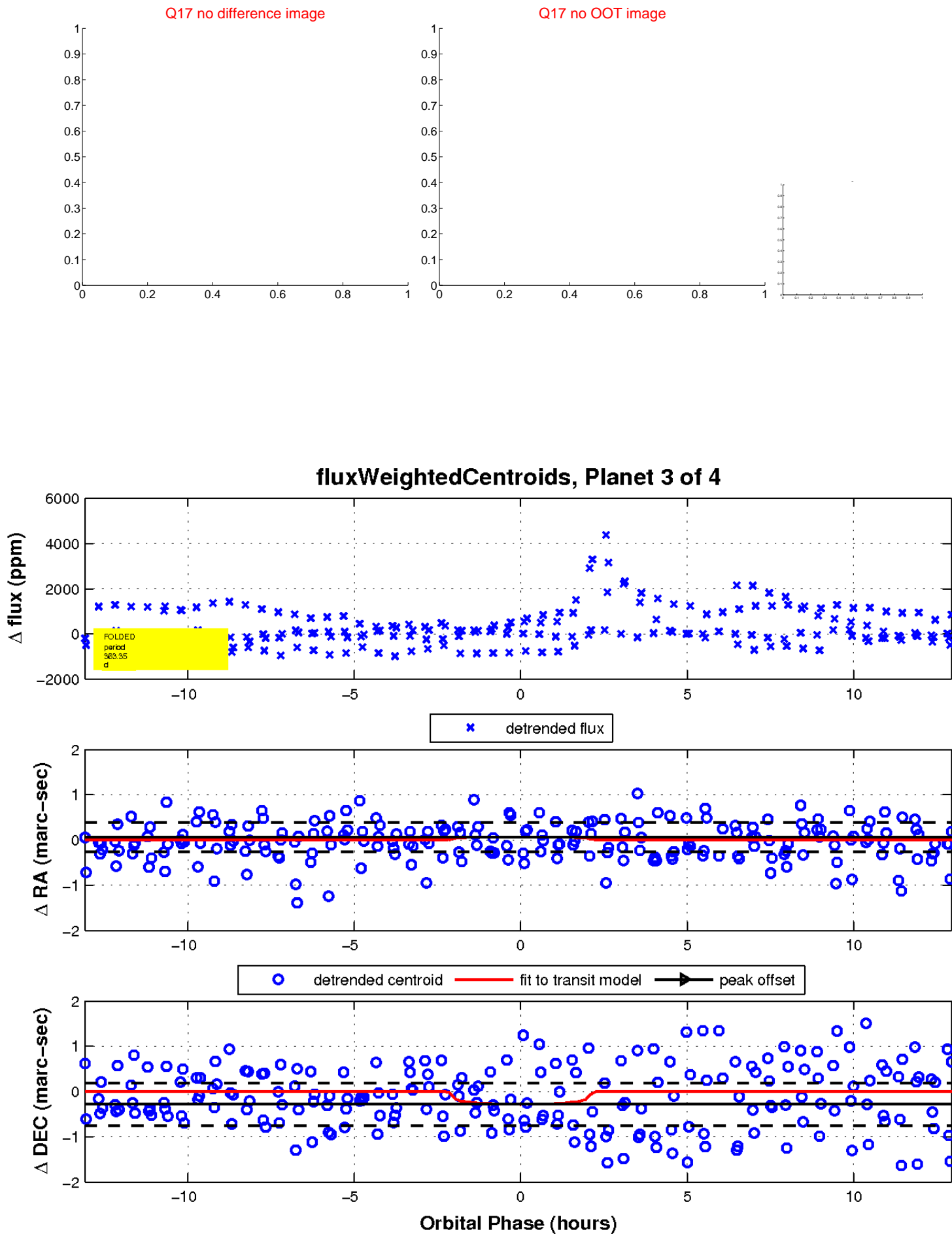
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



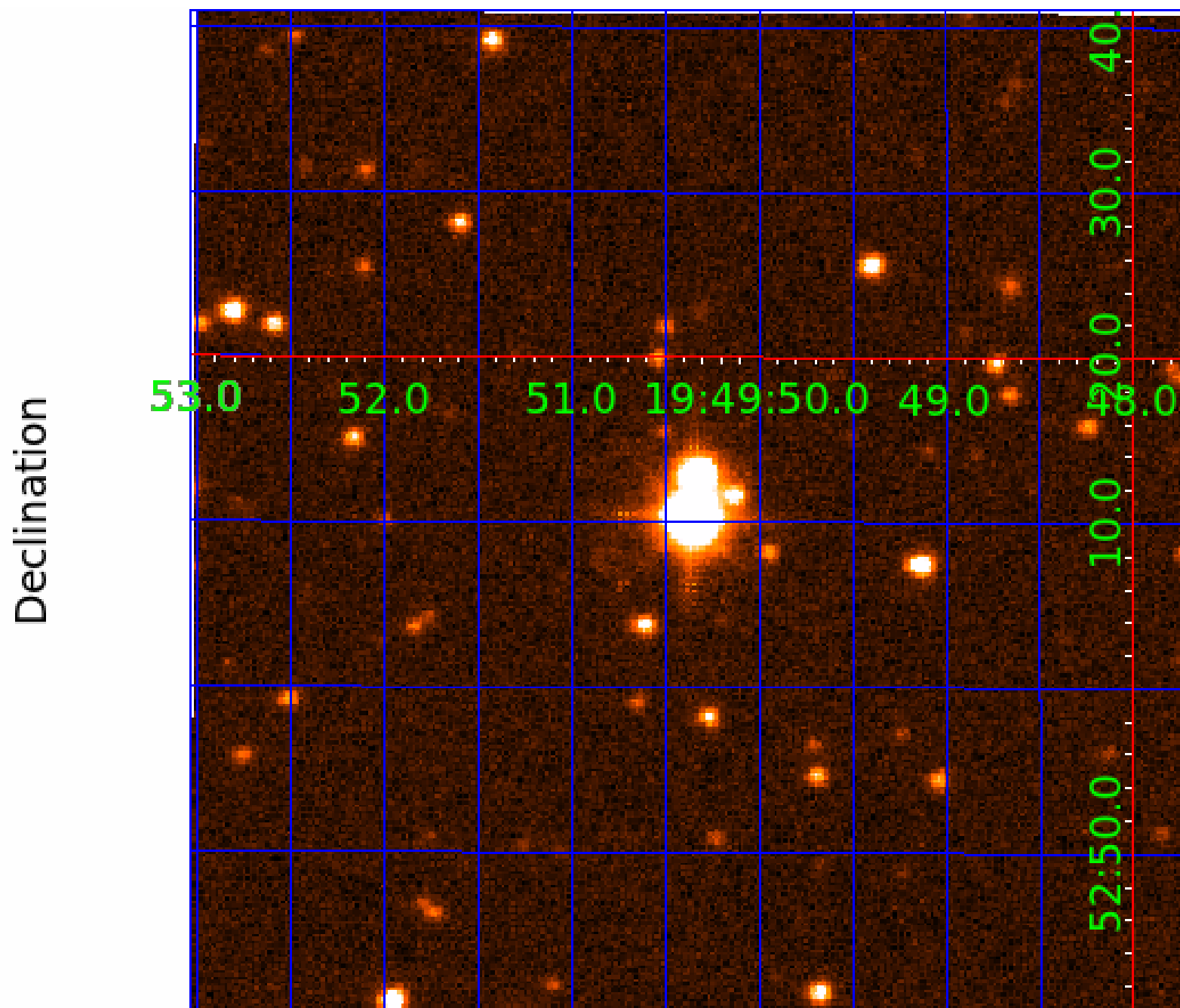
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005641933

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})
005641933-01	OBS	No	578.695940	270.656429	470.6	4.208	14.1	4.2	2.47	5494	5.50	2.59
005641933-02	OBS	No	555.190932	328.827127	2158.1	9.305	16.9	11.7	2.47	5494	21.77	2.73
005641933-03	OBS	No	363.351822	422.823349	613.1	4.373	15.7	6.8	2.47	5494	6.57	4.81
005641933-04	OBS	No	447.093104	302.117597	413.6	3.500	13.5	-1.0	2.47	5494	4.97	3.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005641933-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005641933-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005641933-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
005641933-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

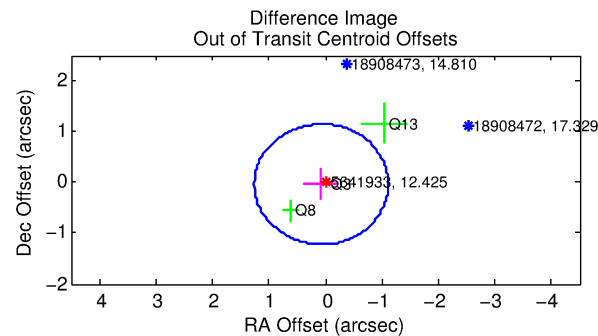
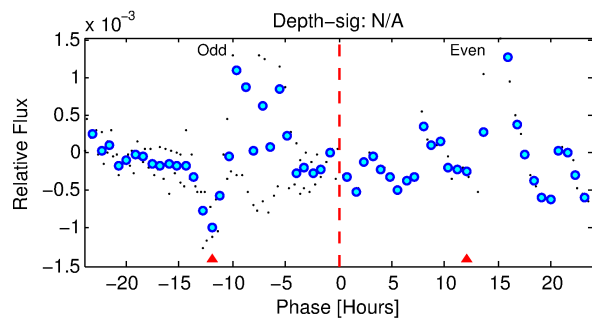
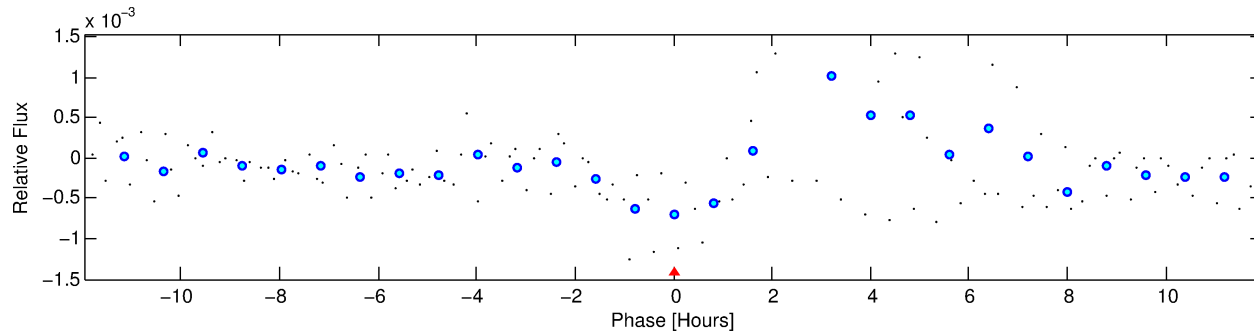
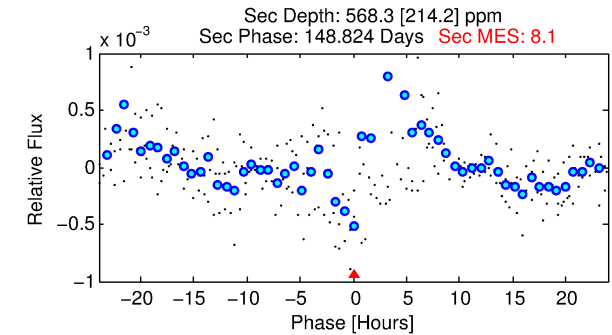
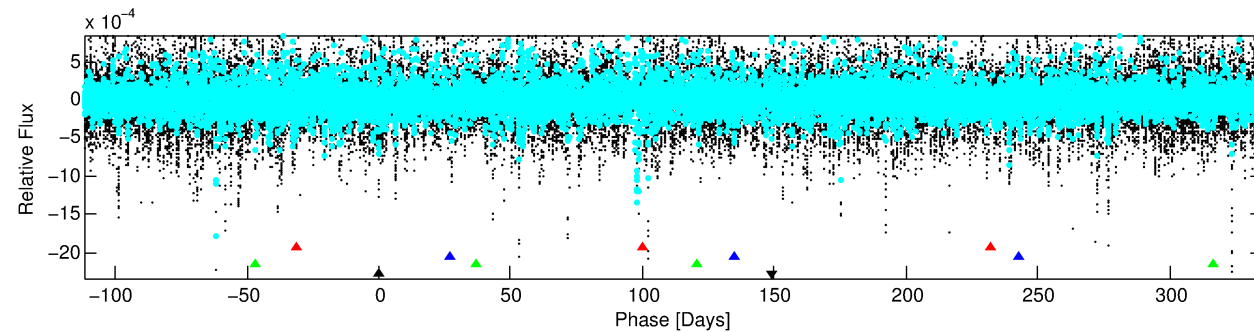
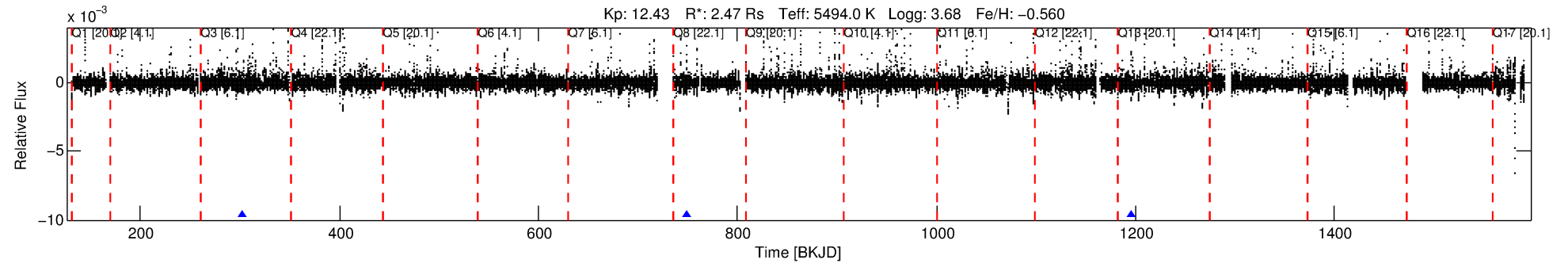
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005641933-04

No Significant Match Found

DV One-Page Summary

KIC: 5641933 Candidate: 4 of 4 Period: 447.093 d



TPS TCE Results:

Period = 447.09310 d
Epoch = 302.1176 BKJD

DV fit results are unavailable

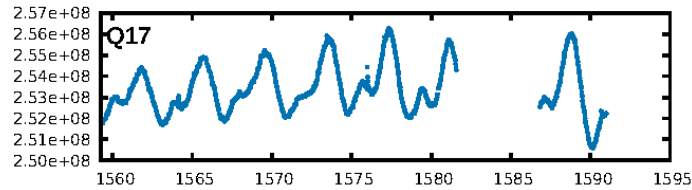
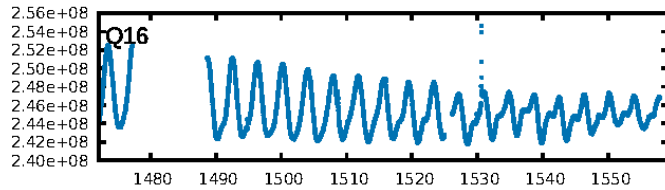
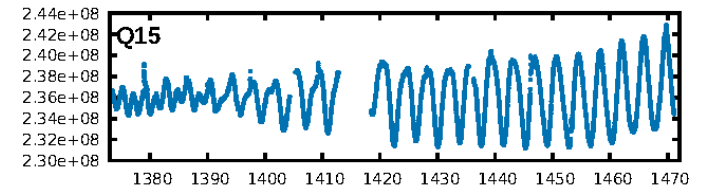
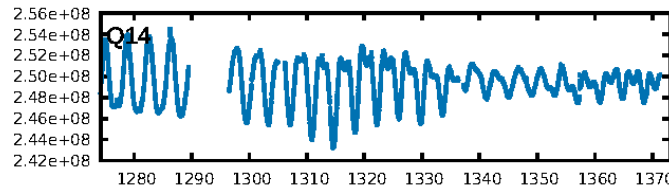
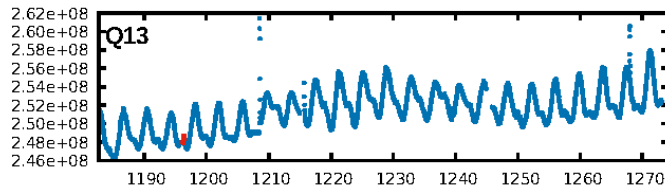
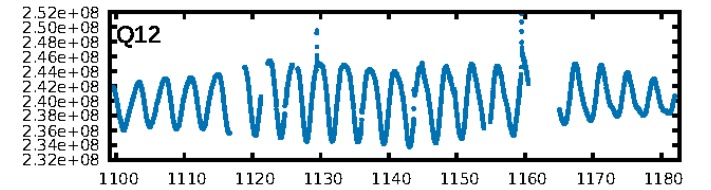
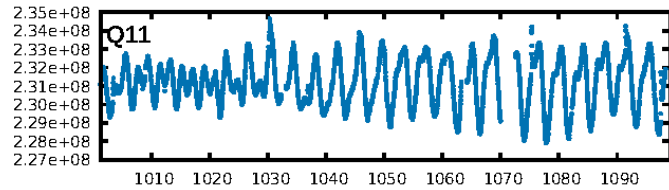
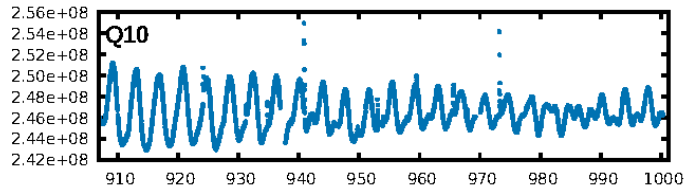
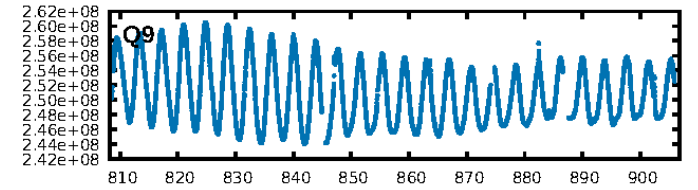
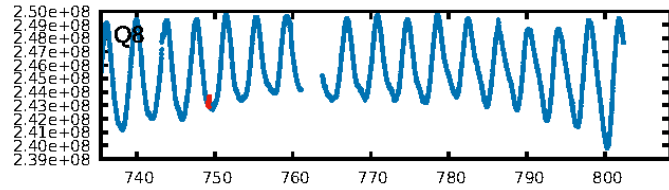
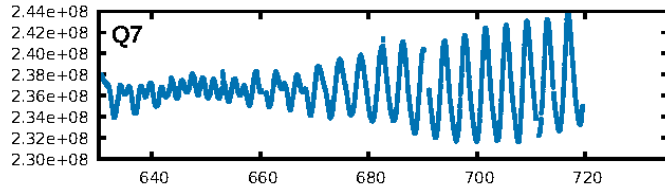
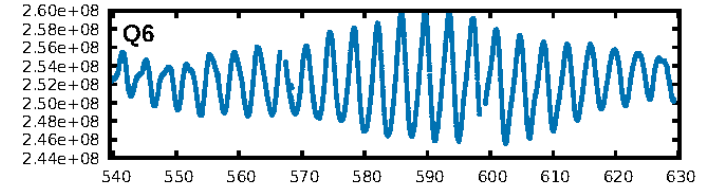
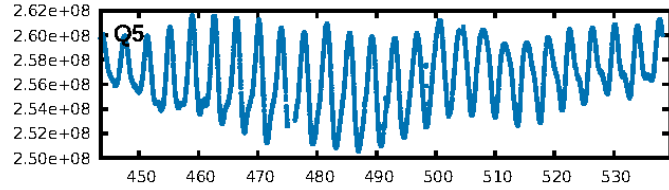
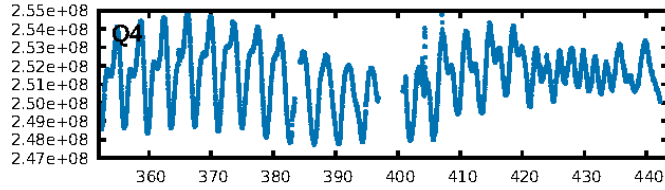
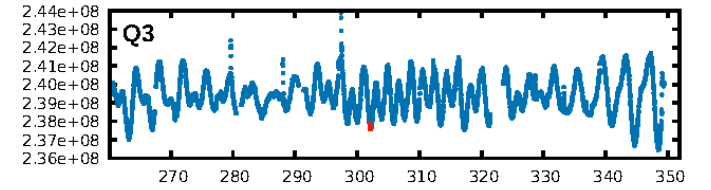
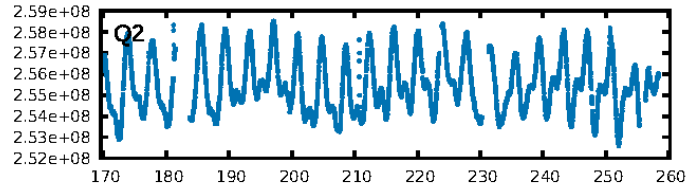
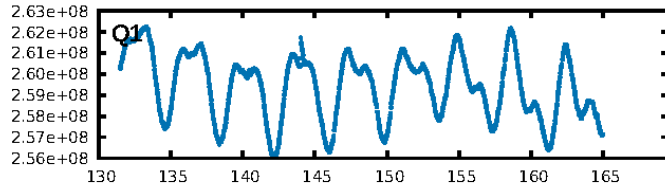
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [358.80 σ]
LongPeriod-sig: 100.0% [260.95 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3564
Centroid-sig: 37.2%
Centroid-so: 0.246 arcsec [0.76 σ]
OotOffset-rm: 0.082 arcsec [0.21 σ]
KicOffset-rm: 0.063 arcsec [0.25 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

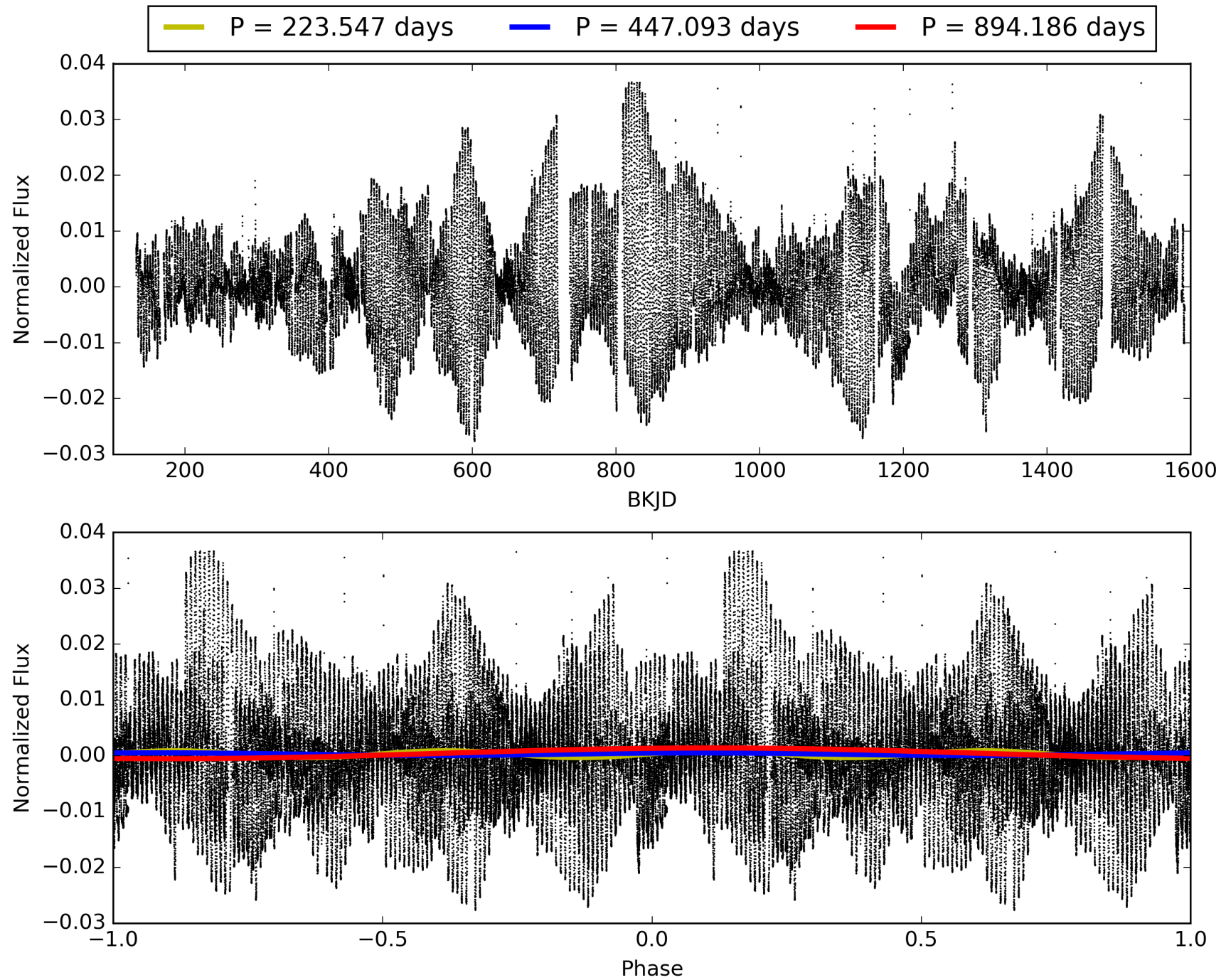
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:21:31 Z

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

TCE 005641933-04, PDC Light Curves

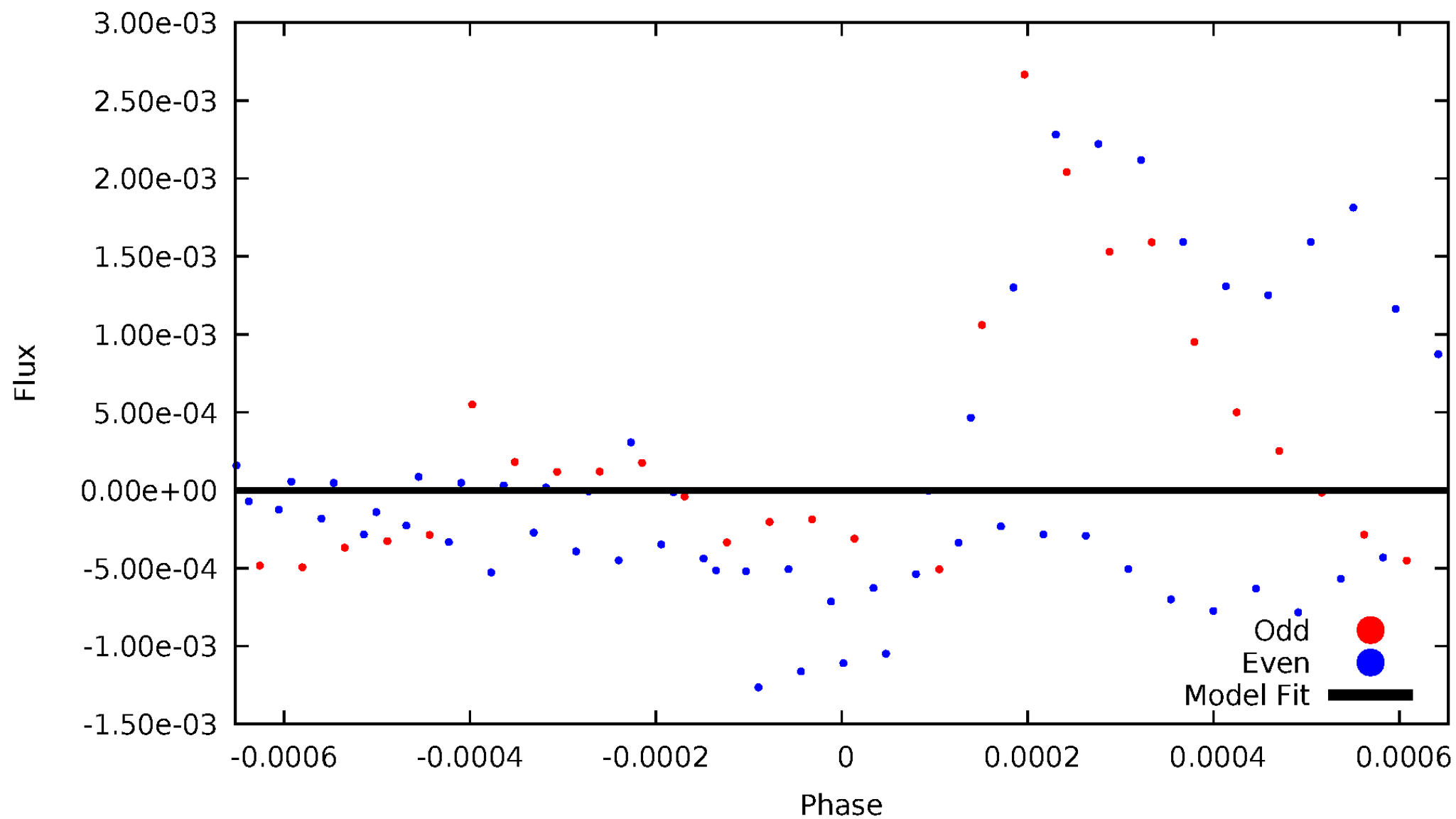


TCE 005641933-04



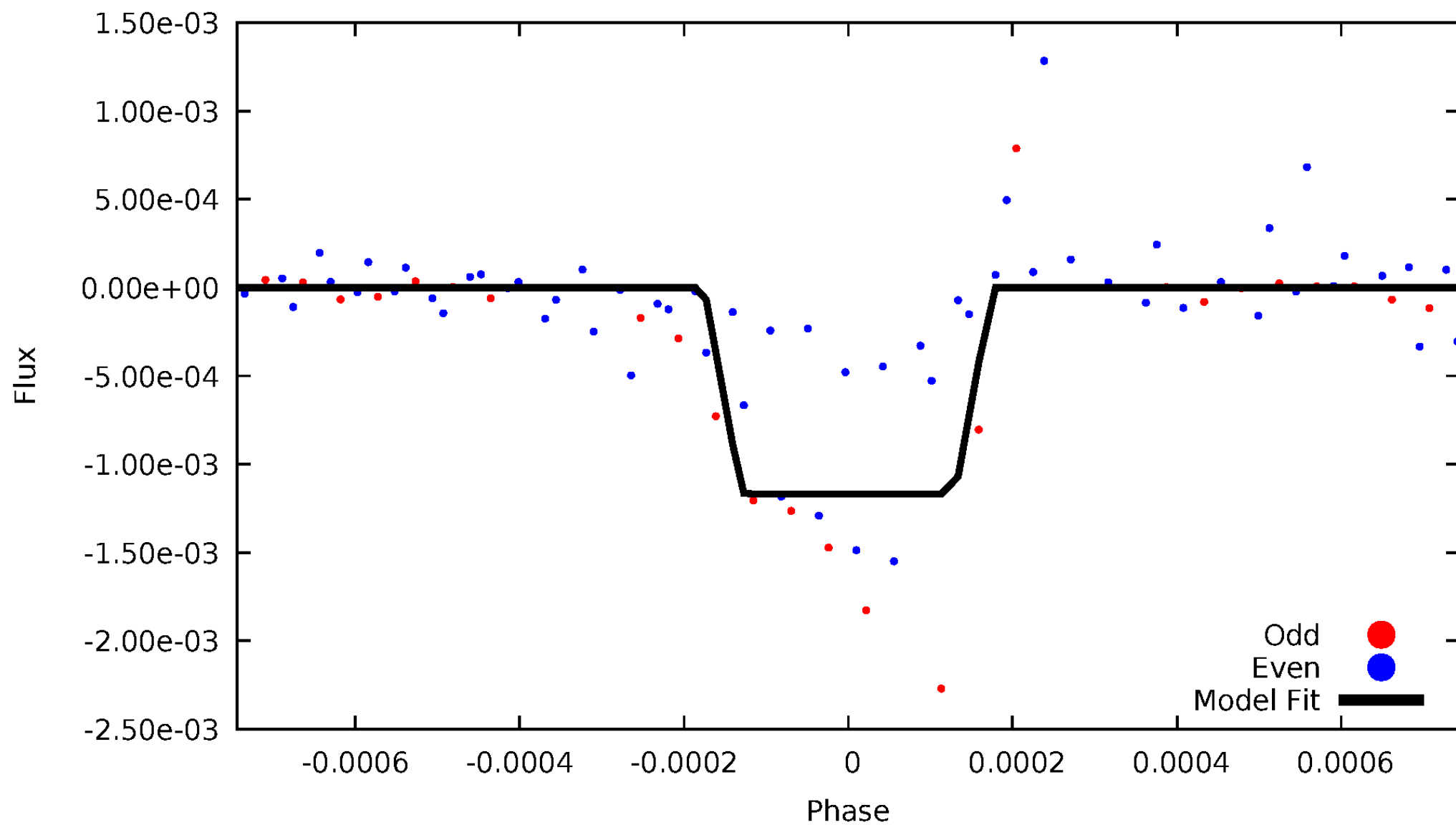
DV Odd/Even

TCE 005641933-04



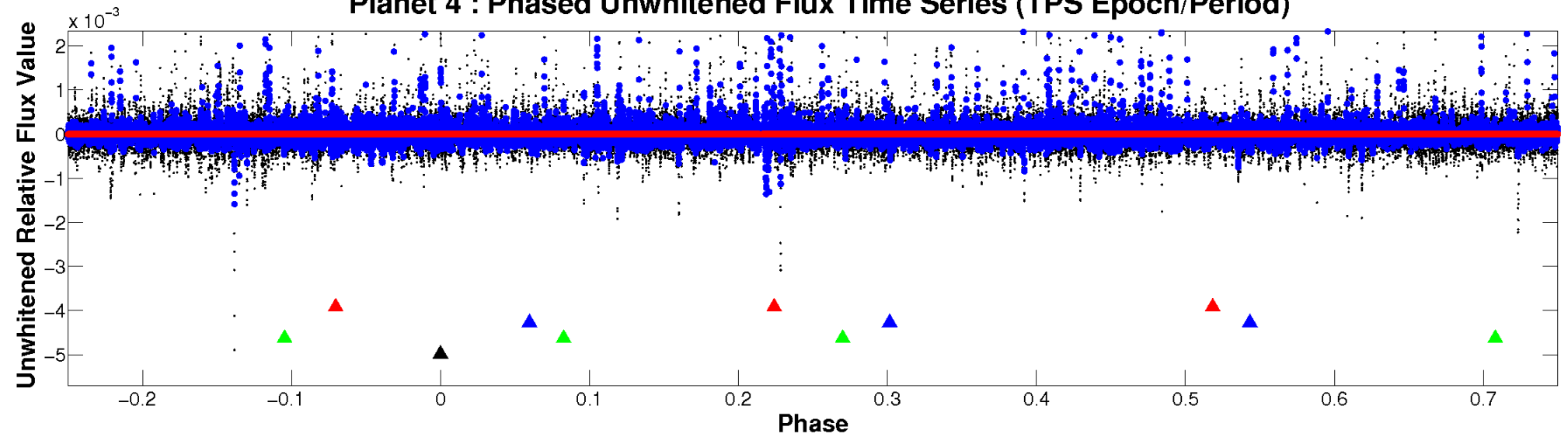
ALT Odd/Even

TCE 005641933-04

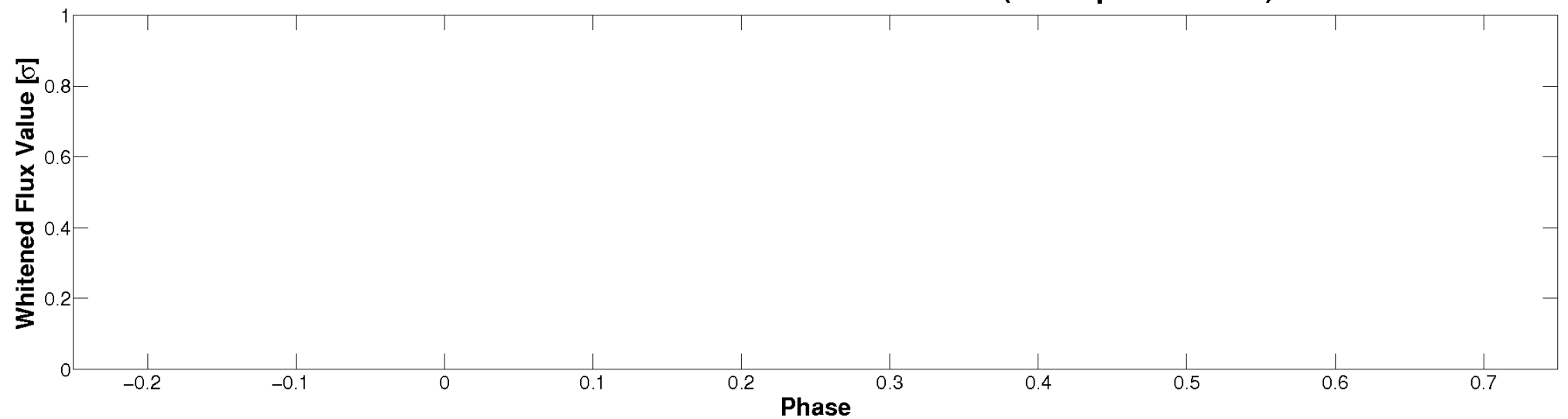


Non-Whitened Vs. Whitened Light Curve

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

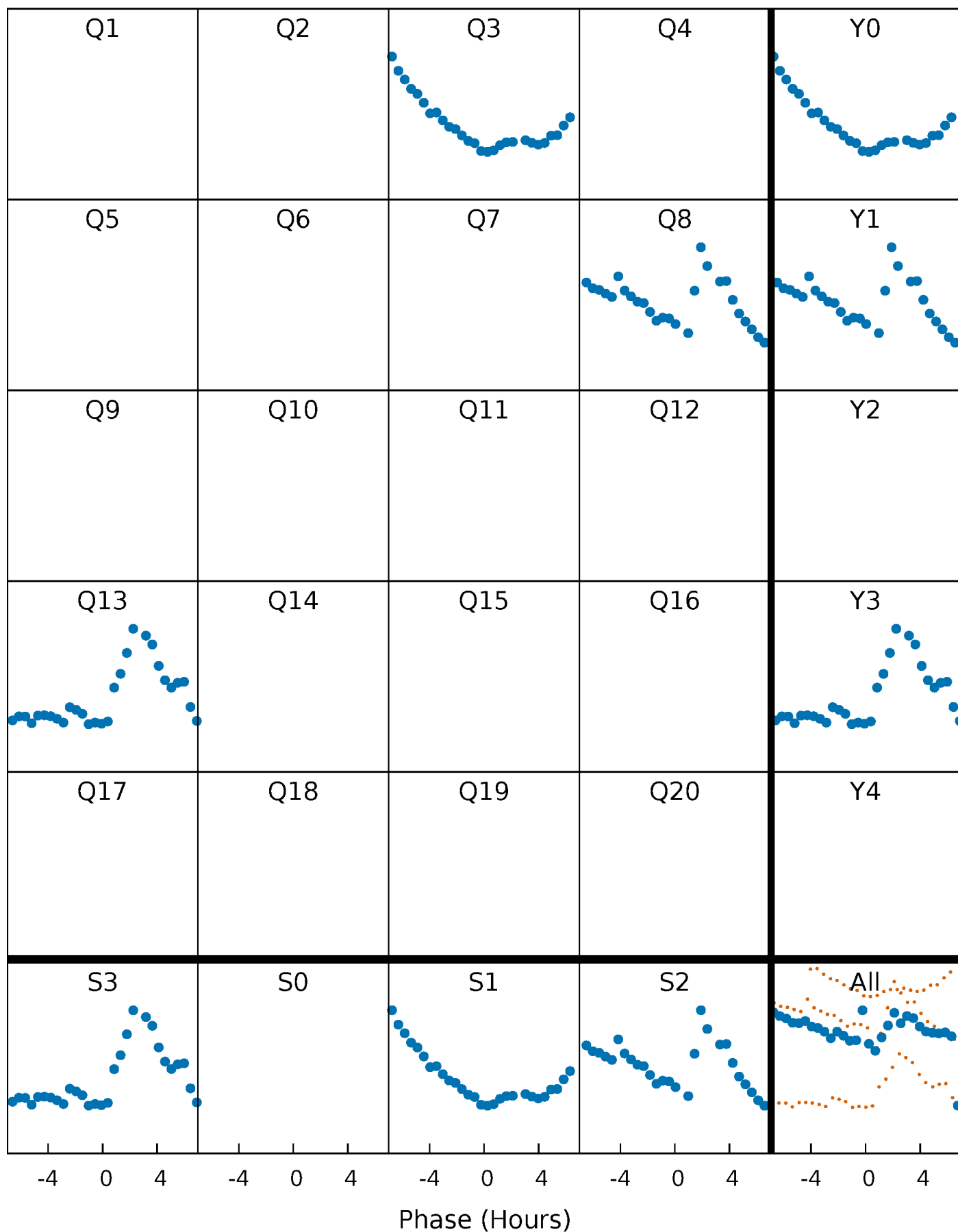


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



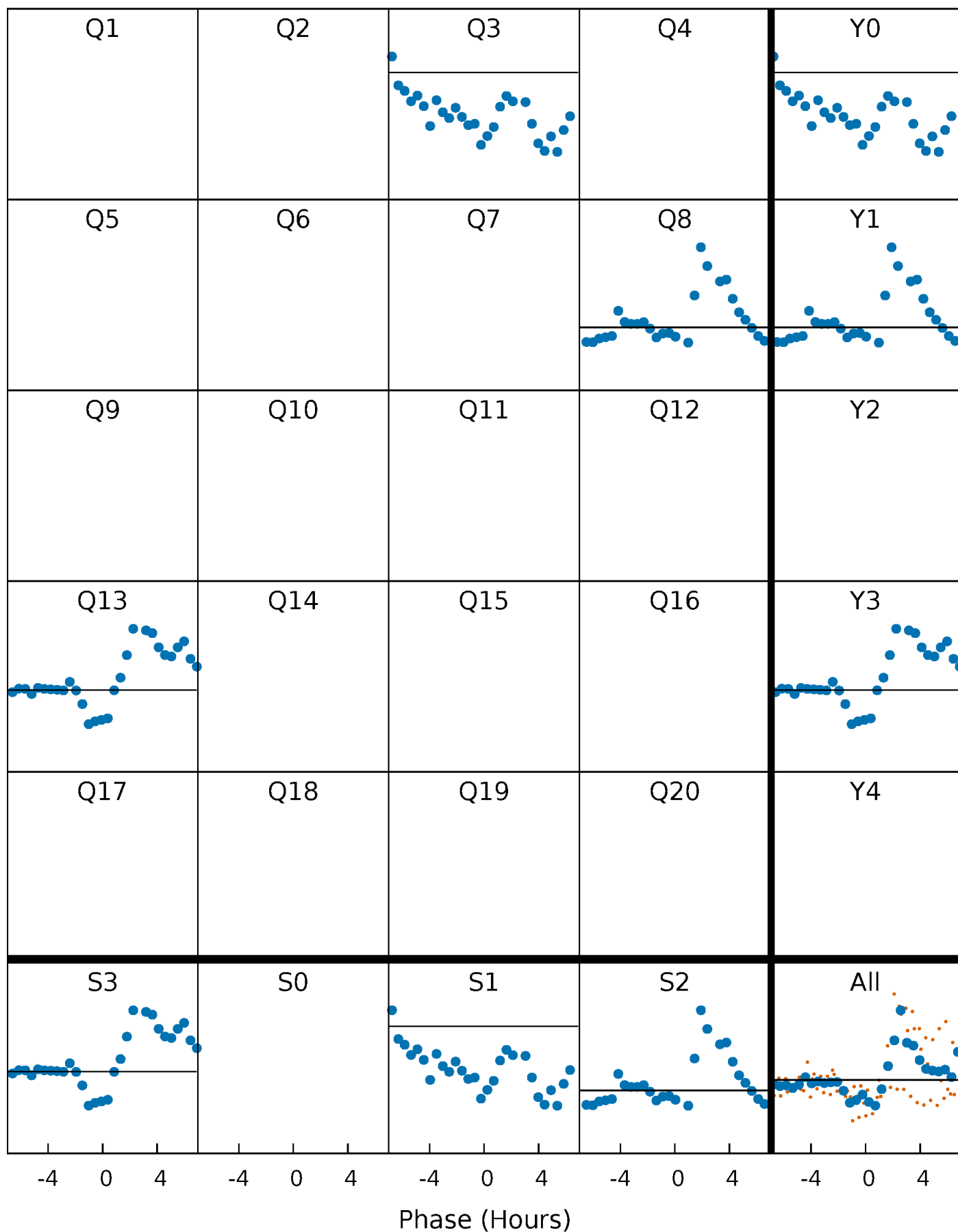
PDC Quarter-Phased Transit Curves

TCE 005641933-04 $P=447.093104$ Days $T_0=302.117597$ (BKJD)



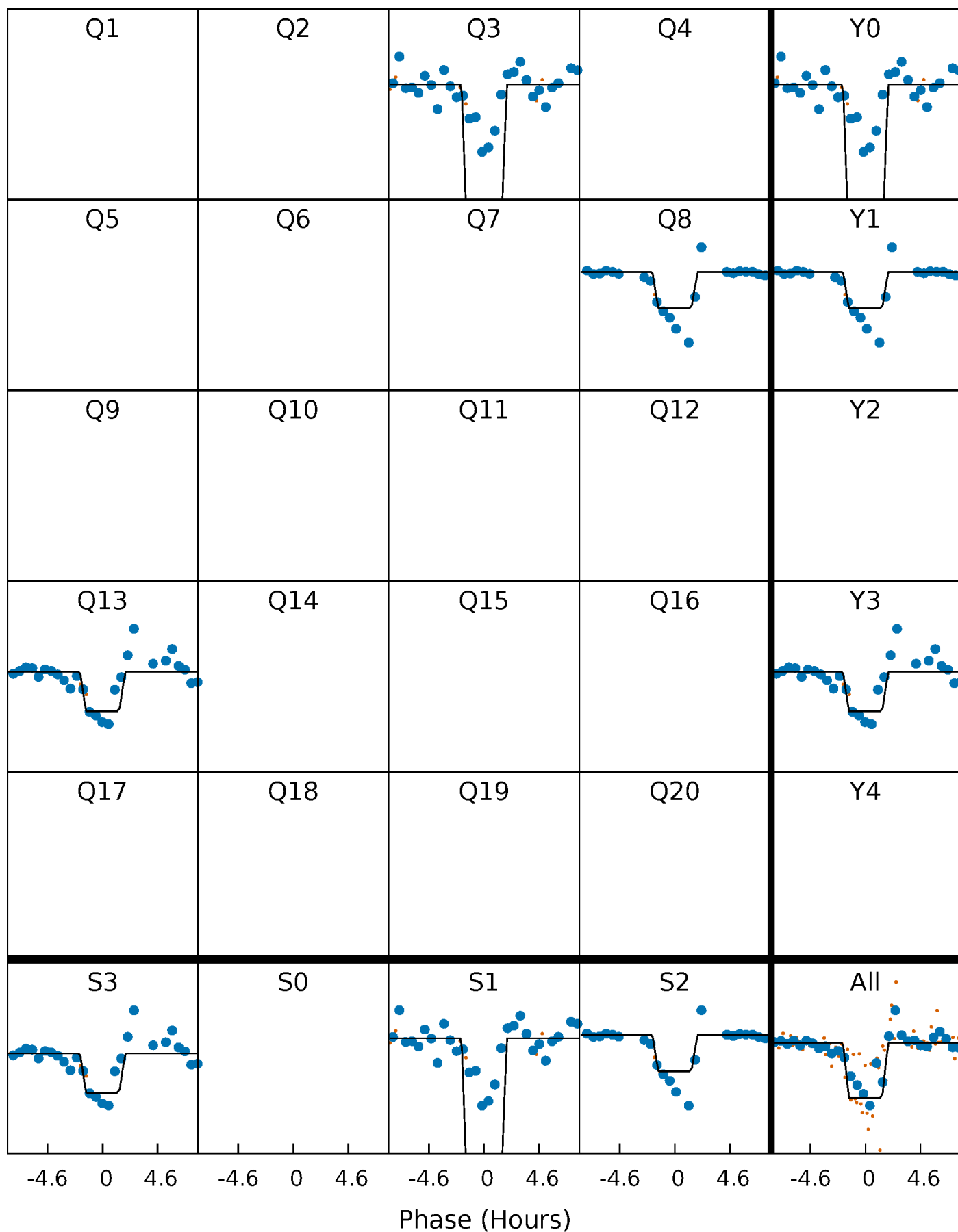
DV Quarter-Phased Transit Curves

TCE 005641933-04 $P=447.093104$ Days $T_0=302.117597$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

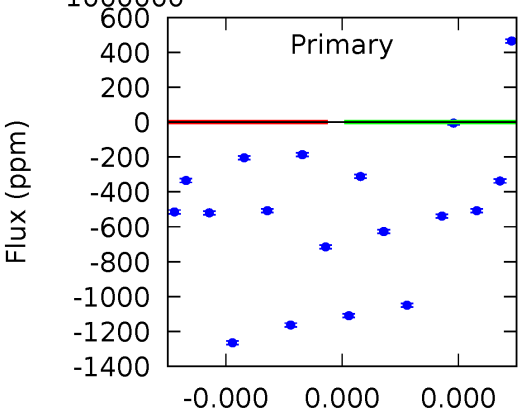
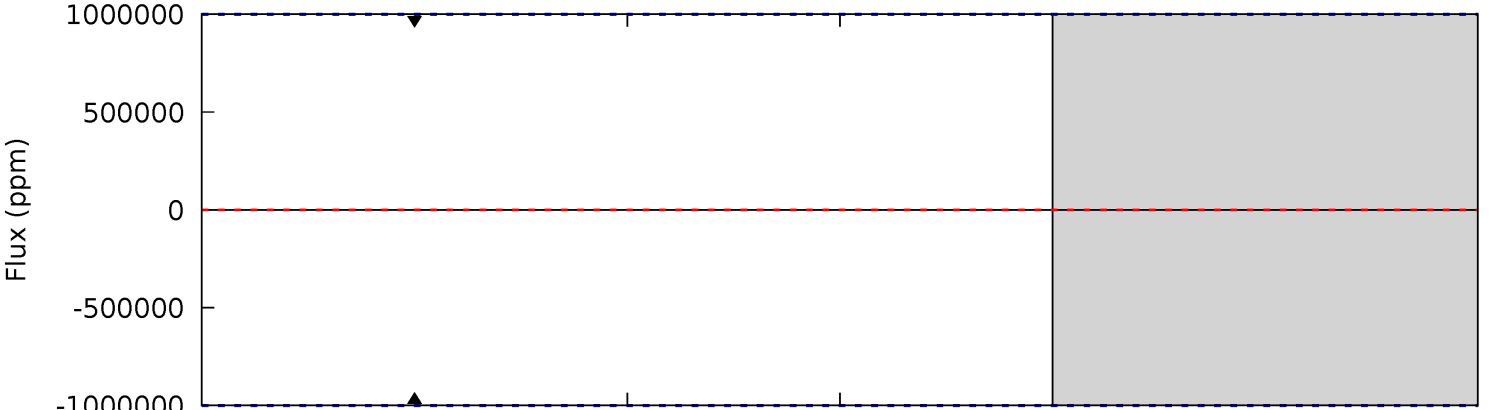
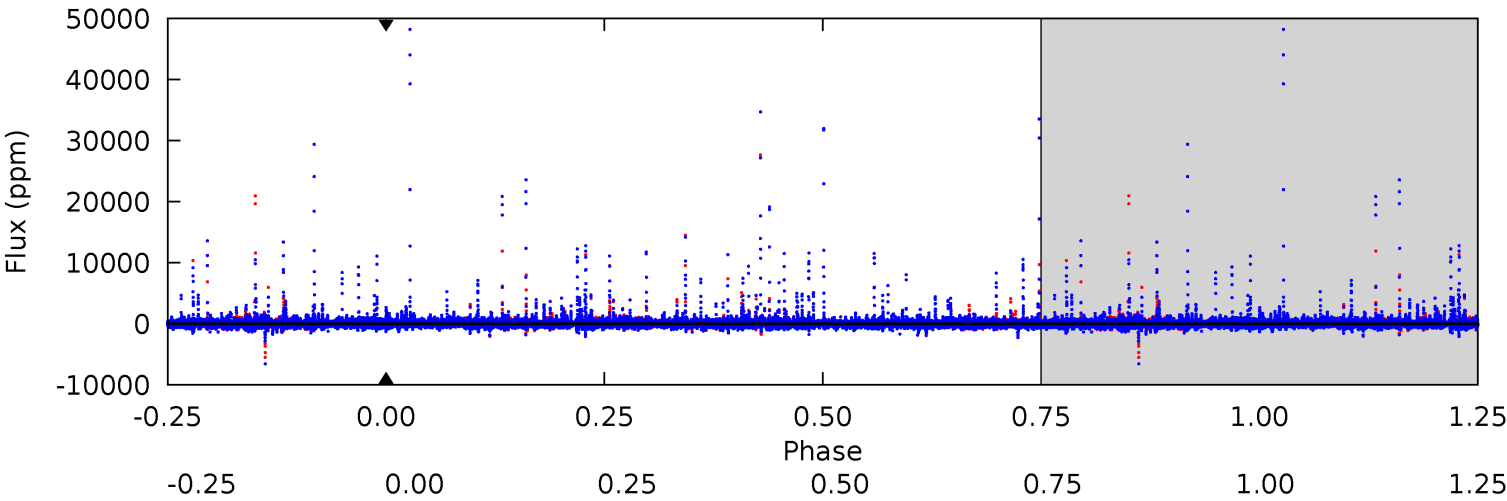
TCE 005641933-04 $P=447.093104$ Days $T_0=302.114051$ (BKJD)



DV Model-Shift Uniqueness Test

005641933-04, P = 447.093104 Days, E = 302.117597 Days

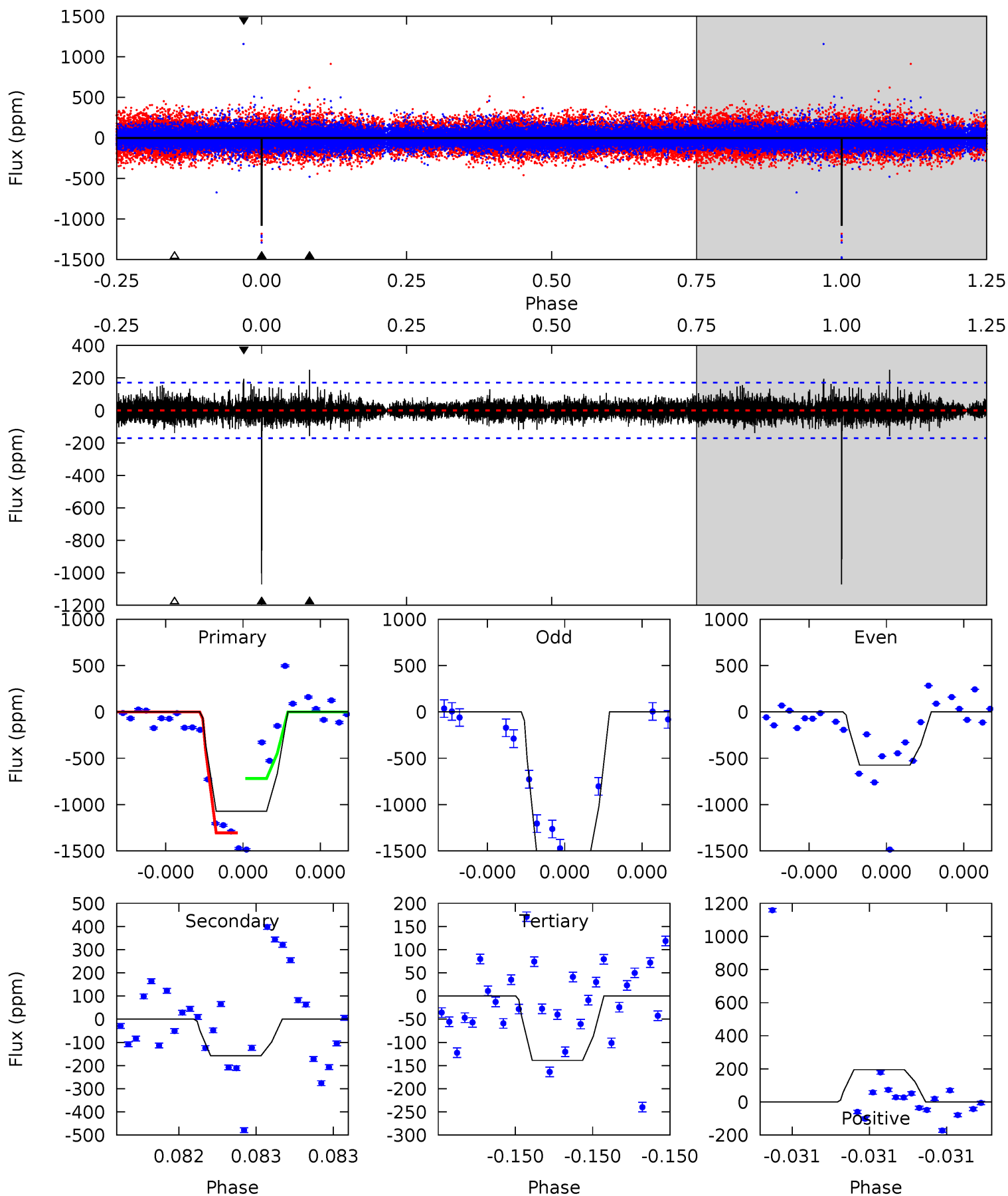
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005641933-04, P = 447.093104 Days, E = 302.114051 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.4	5.21	4.59	6.44	5.64	3.59	0.95	30.8	29.0	0.62	-1.23	19.8	0.94	0.19	0



Stellar Parameters For KIC 005641933

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5494^{+197}_{-180}	$3.679^{+0.840}_{-0.280}$	$-0.560^{+0.350}_{-0.300}$	$2.467^{+1.095}_{-1.643}$	$1.060^{+0.217}_{-0.265}$	$0.099^{+2.165}_{-0.069}$
	+4%/-3%	+23%/-8%	+62%/-54%	+44%/-67%	+20%/-25%	+2178%/-70%
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 005641933-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$17.78^{+21.22}_{-13.23}$	485^{+62}_{-102}	-3755^{+26965}_{-13405}	$-3066.151^{+591080.926}_{-421674.208}$
Alt.	-158 ± 30	$18.64^{+22.81}_{-13.20}$	484^{+66}_{-93}	2864^{+1174}_{-474}	315^{+3290}_{-249}

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 $A_{obs} \gg 1.0$

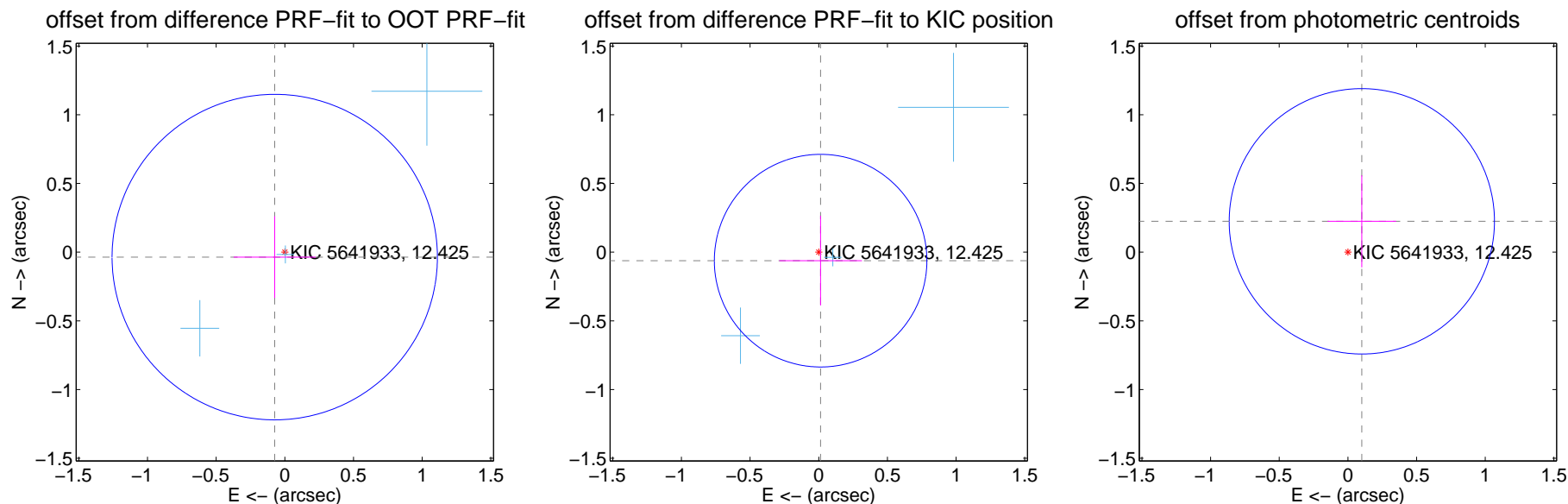
DV Centroid Data

Supplemental centroid analysis for 005641933-04. Kepler magnitude: 12.43. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

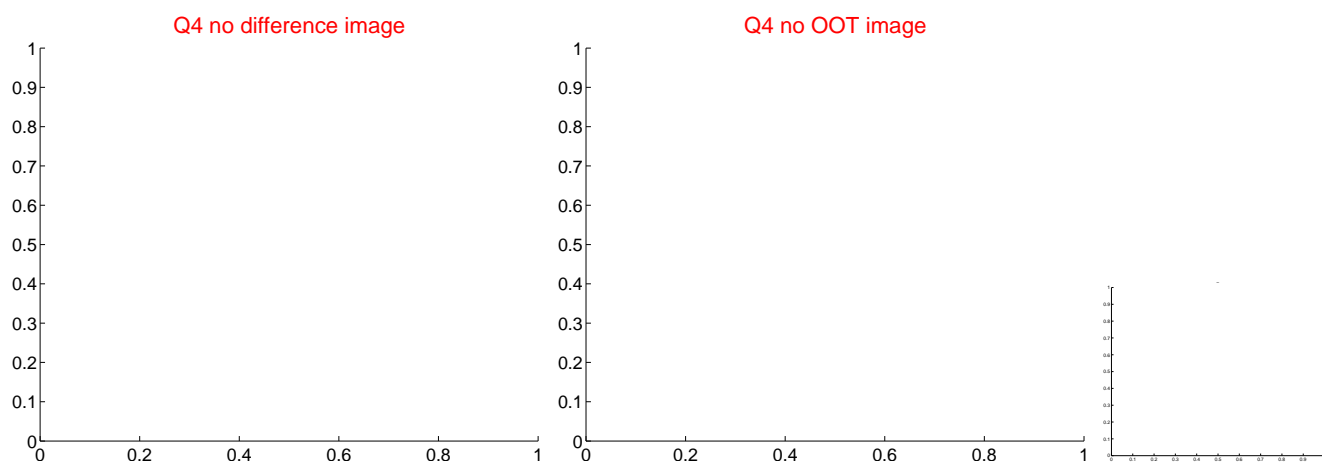
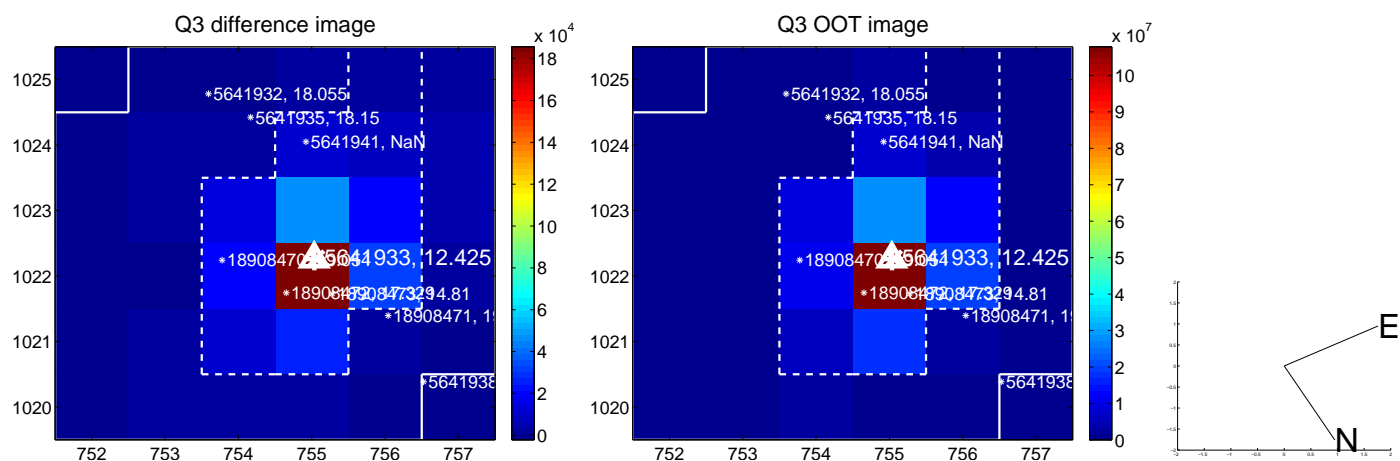
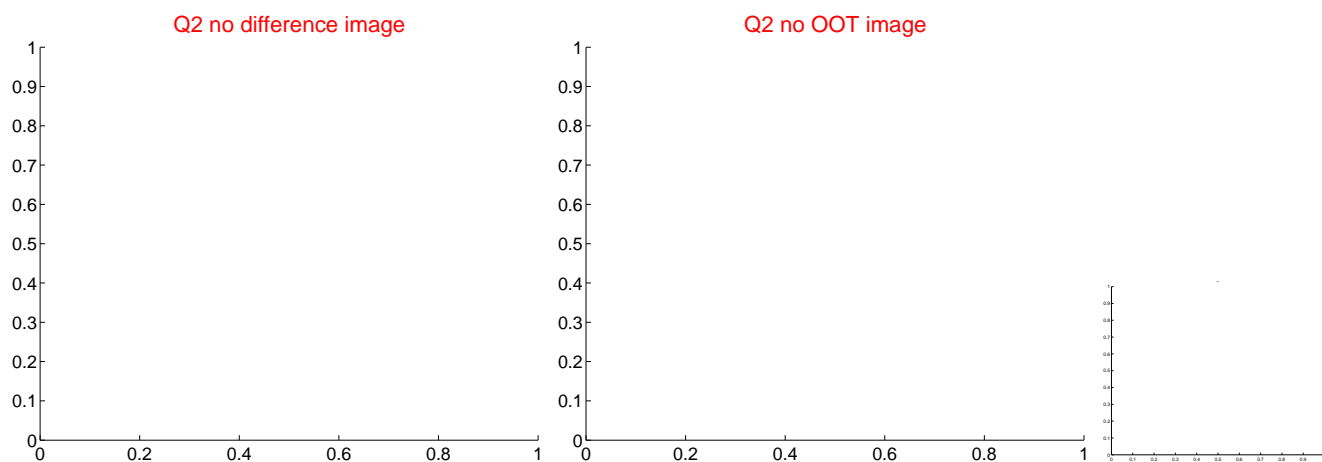
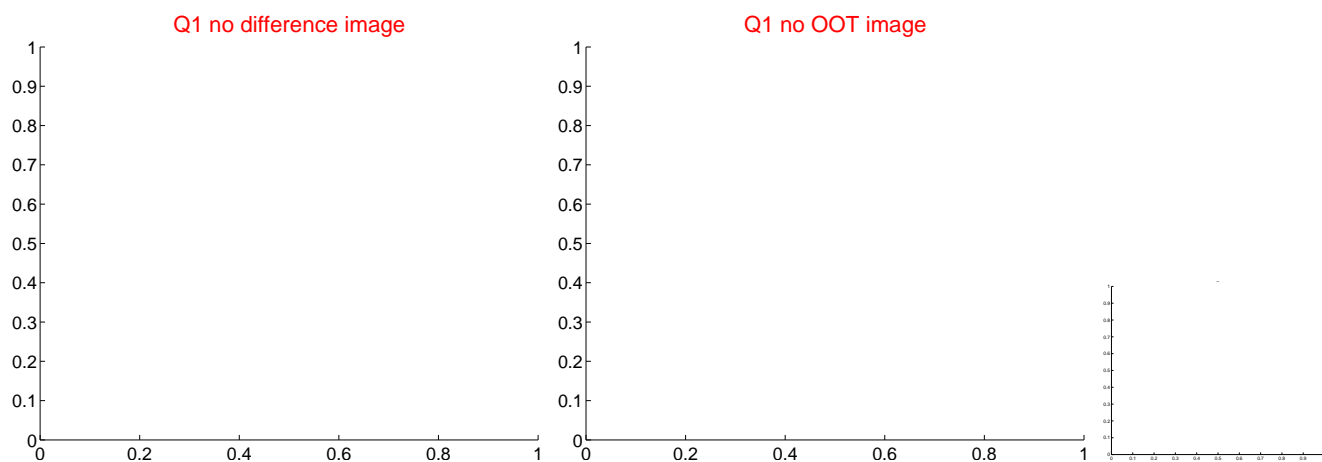
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.082 ± 0.395	0.21	0.073 ± 0.299	-0.036 ± 0.298
PRF-fit source offset from KIC position	0.063 ± 0.258	0.25	-0.014 ± 0.301	-0.062 ± 0.326
photometric centroid source offset	0.25 ± 0.32	0.76	-0.10 ± 0.25	0.22 ± 0.33

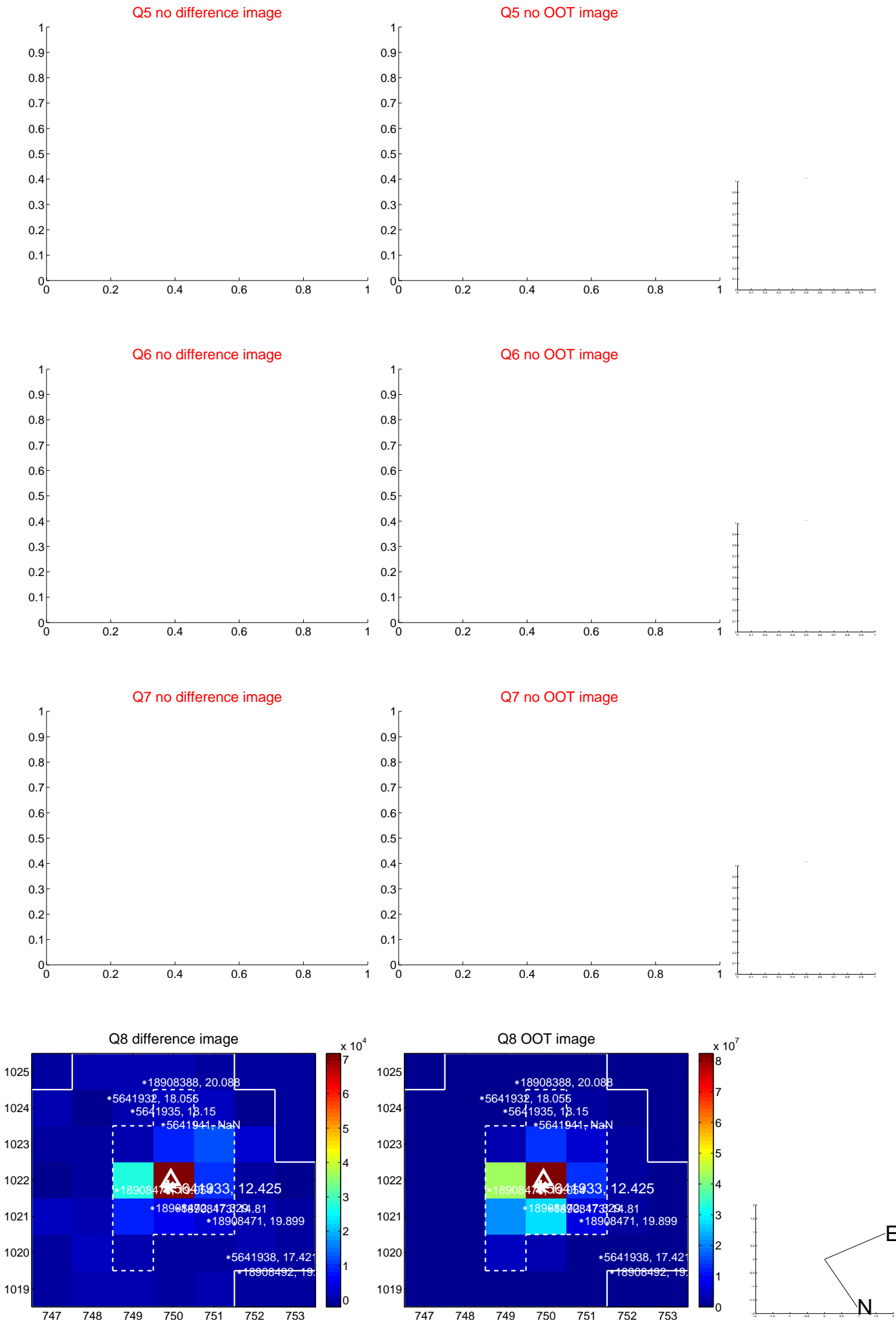


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



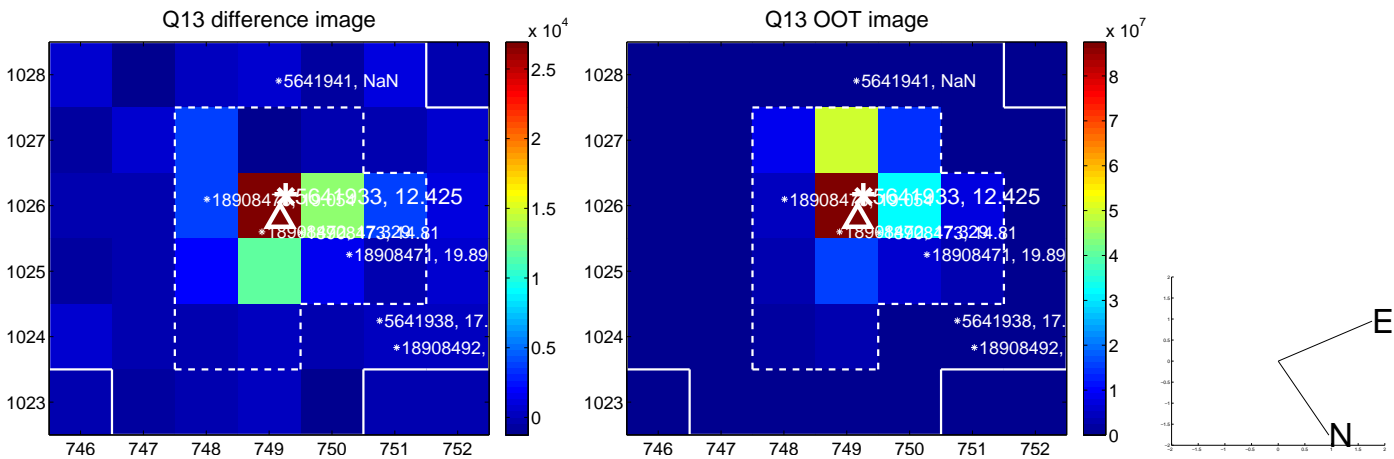
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



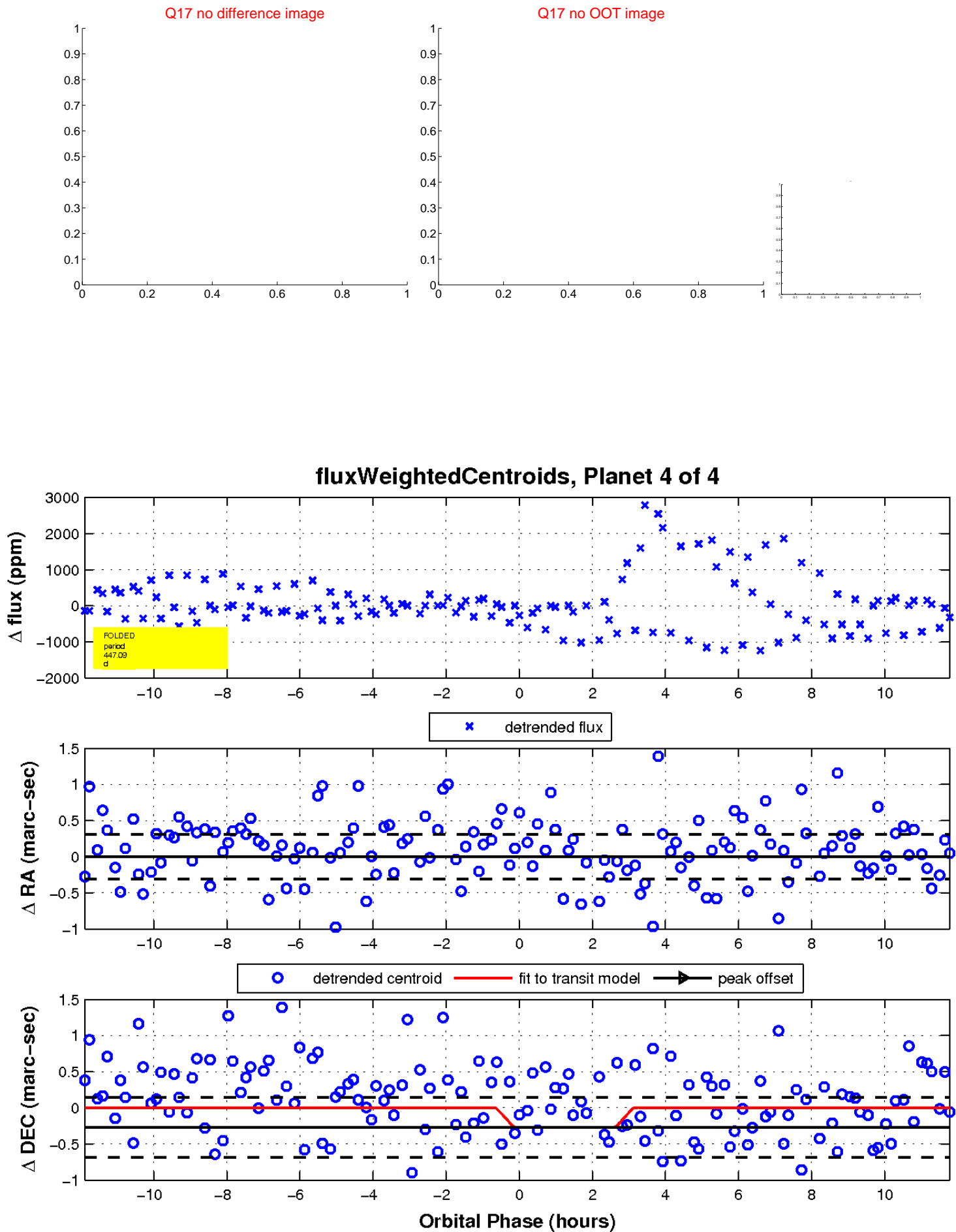
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

