

KIC 004851304

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})
004851304-02	OBS	No	296.247338	256.257470	734.6	2.305	15.4	7.6	0.94	5604	2.56	1.09
004851304-03	OBS	No	444.720028	196.900520	609.5	3.066	16.0	7.3	0.94	5604	2.51	0.64
004851304-04	OBS	No	542.067233	463.944058	823.3	18.250	14.9	5.3	0.94	5604	2.65	0.49
004851304-05	OBS	No	590.023864	250.051876	797.8	4.734	12.7	7.6	0.94	5604	2.90	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS
004851304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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
004851304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004851304-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST

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

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

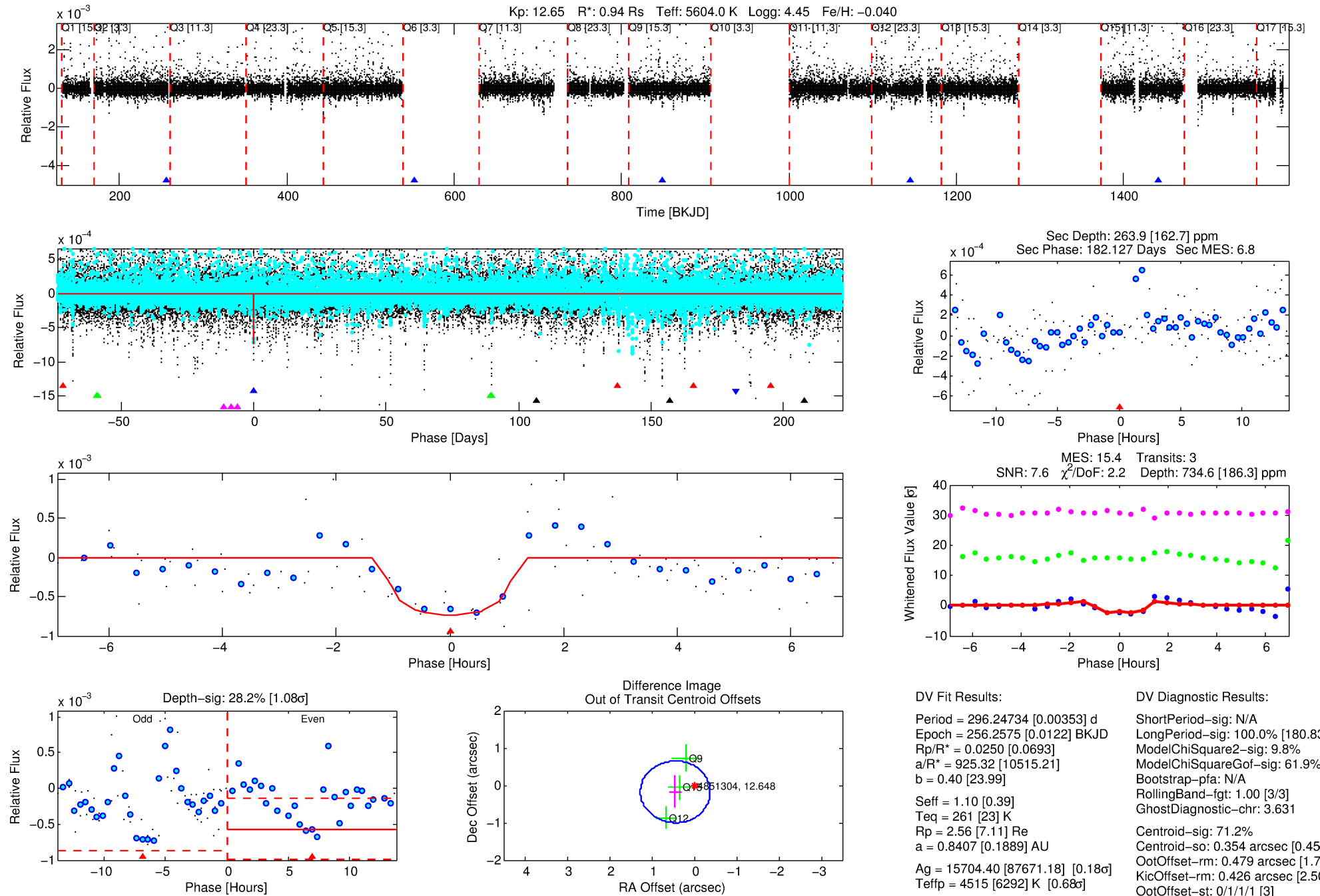
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004851304-02

No Significant Match Found

DV One-Page Summary

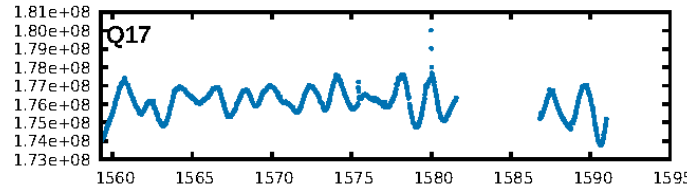
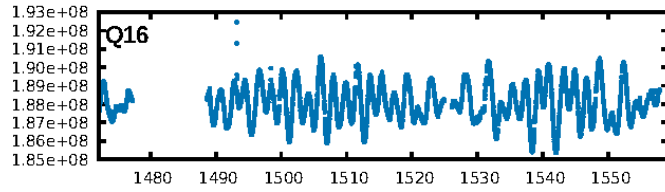
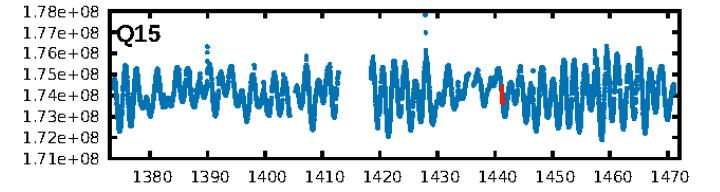
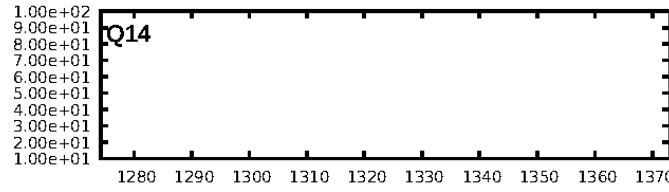
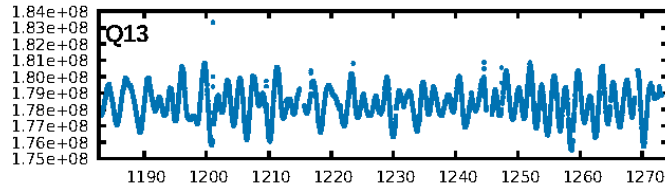
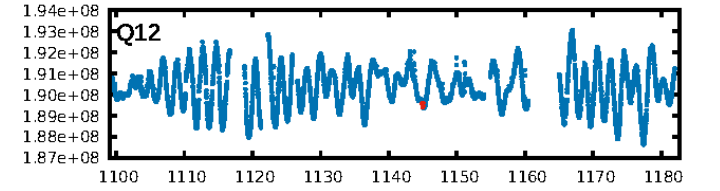
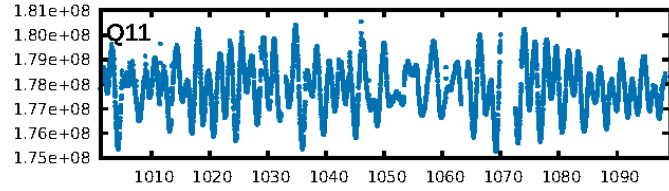
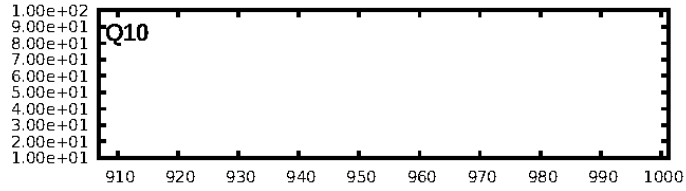
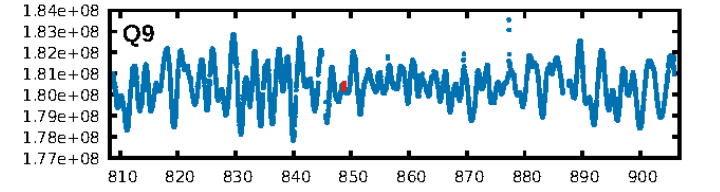
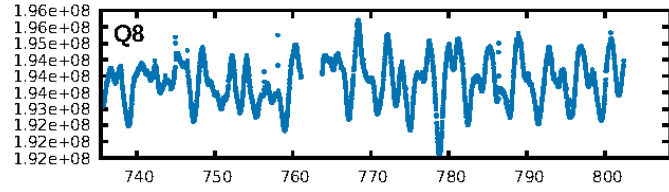
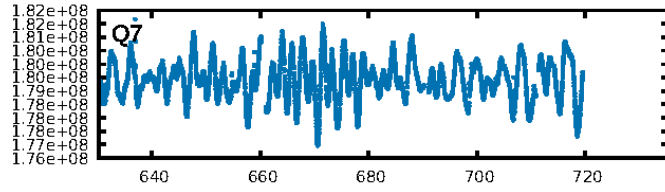
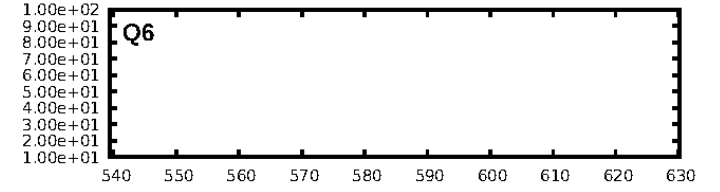
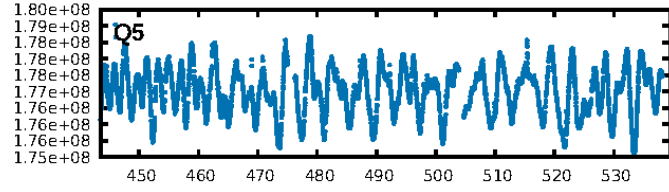
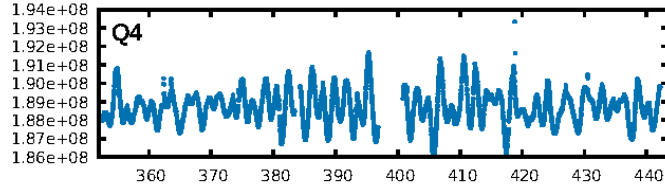
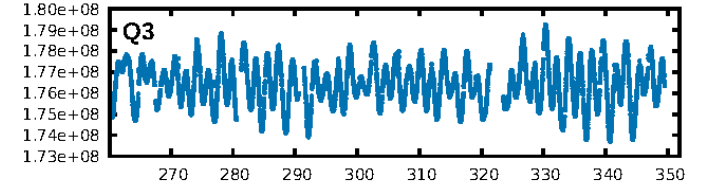
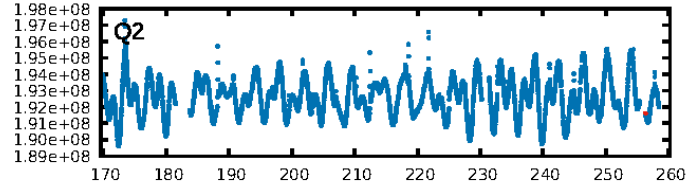
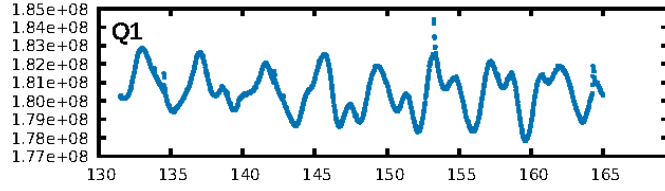
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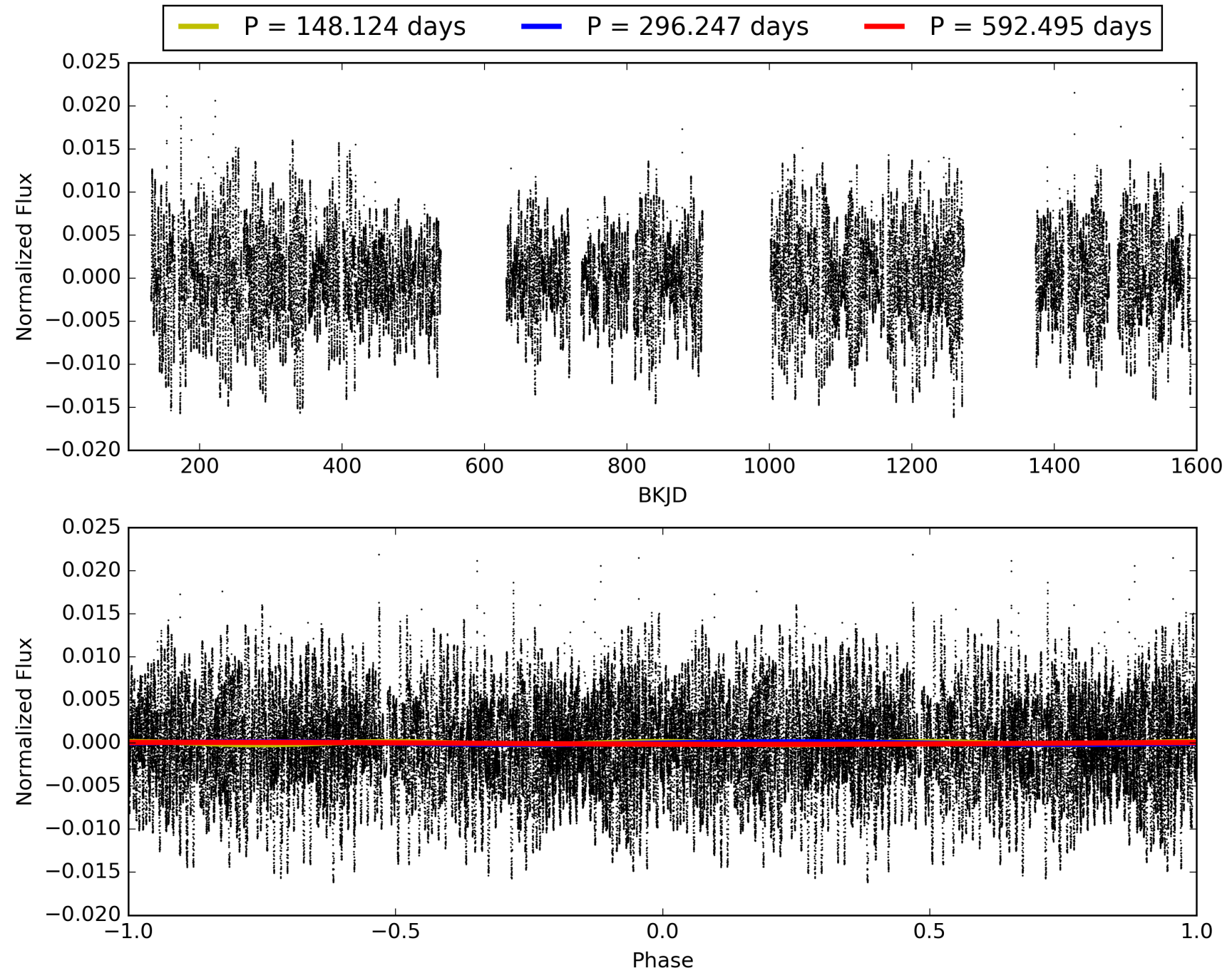
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004851304-02, PDC Light Curves

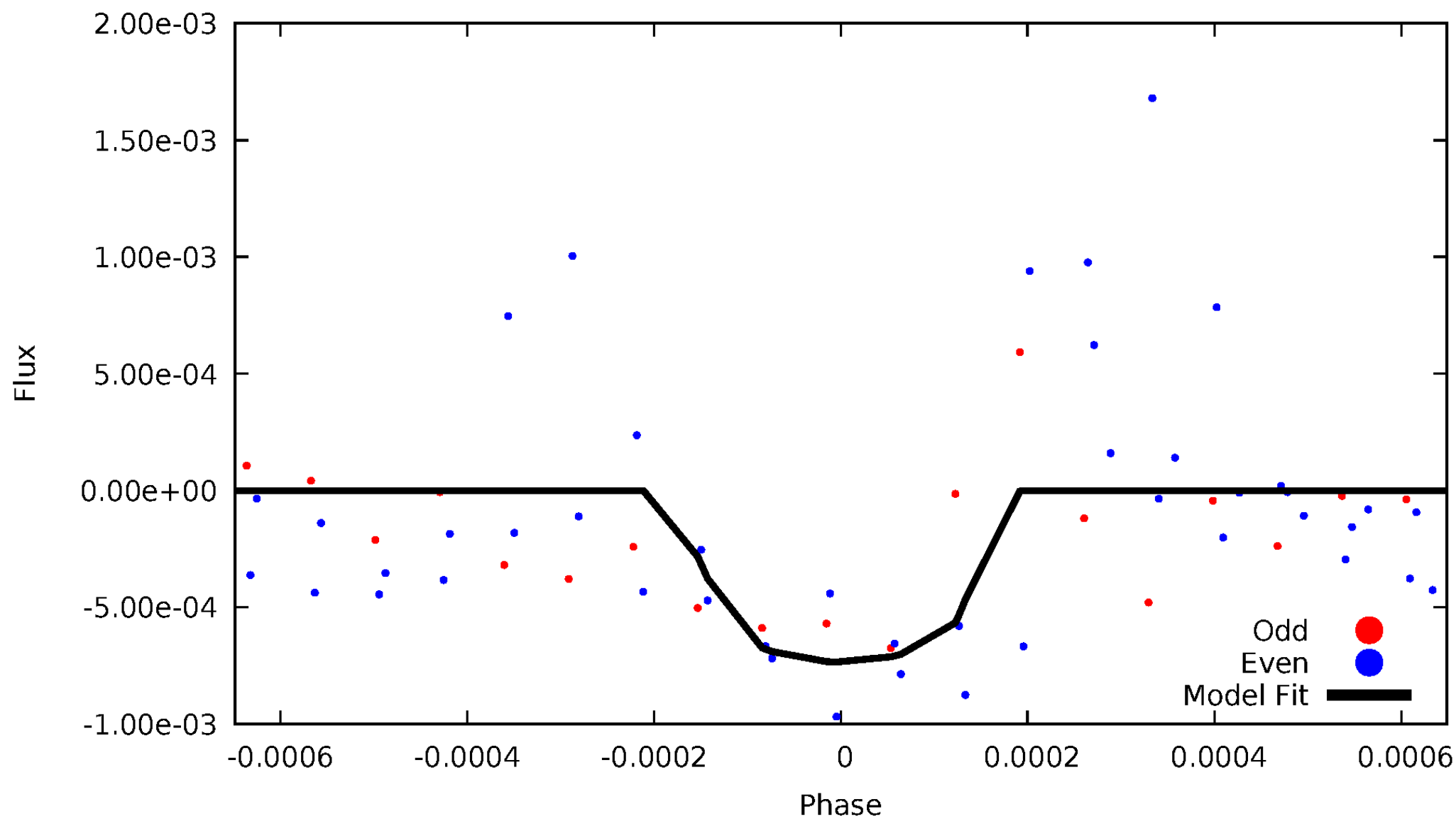


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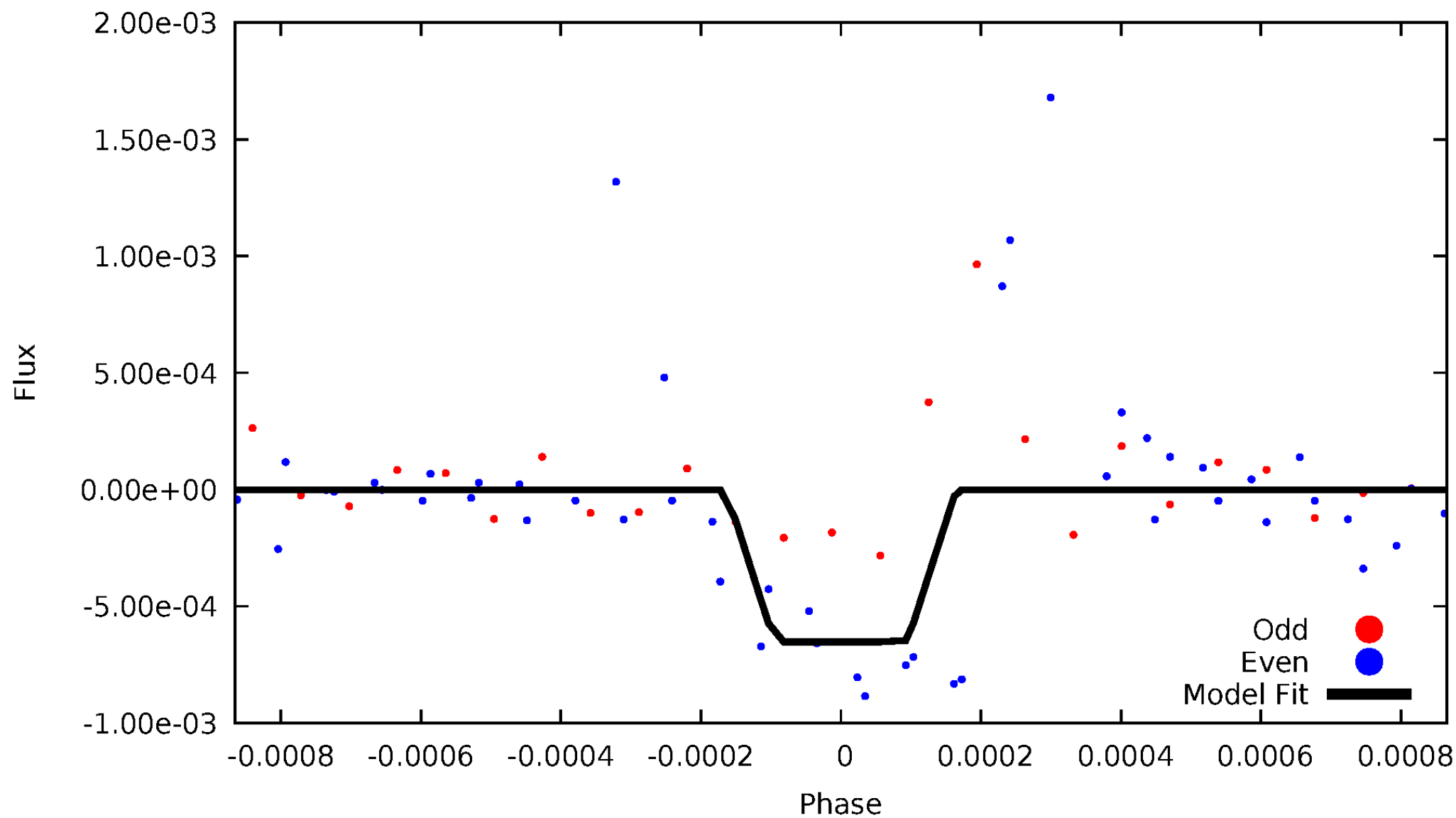
DV Odd/Even

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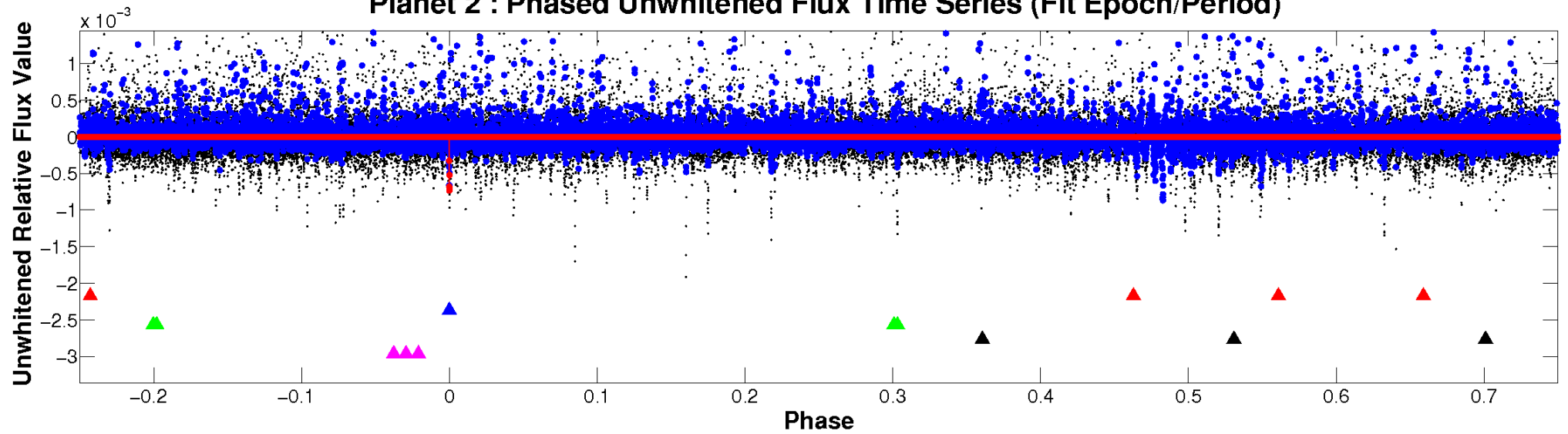
ALT Odd/Even

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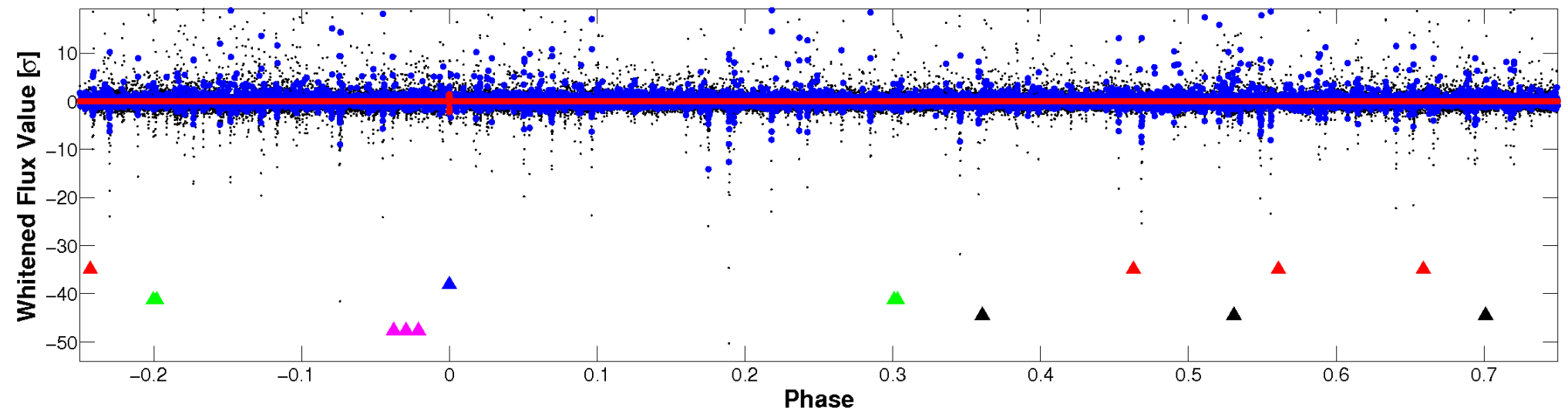


Non-Whitened Vs. Whitened Light Curve

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

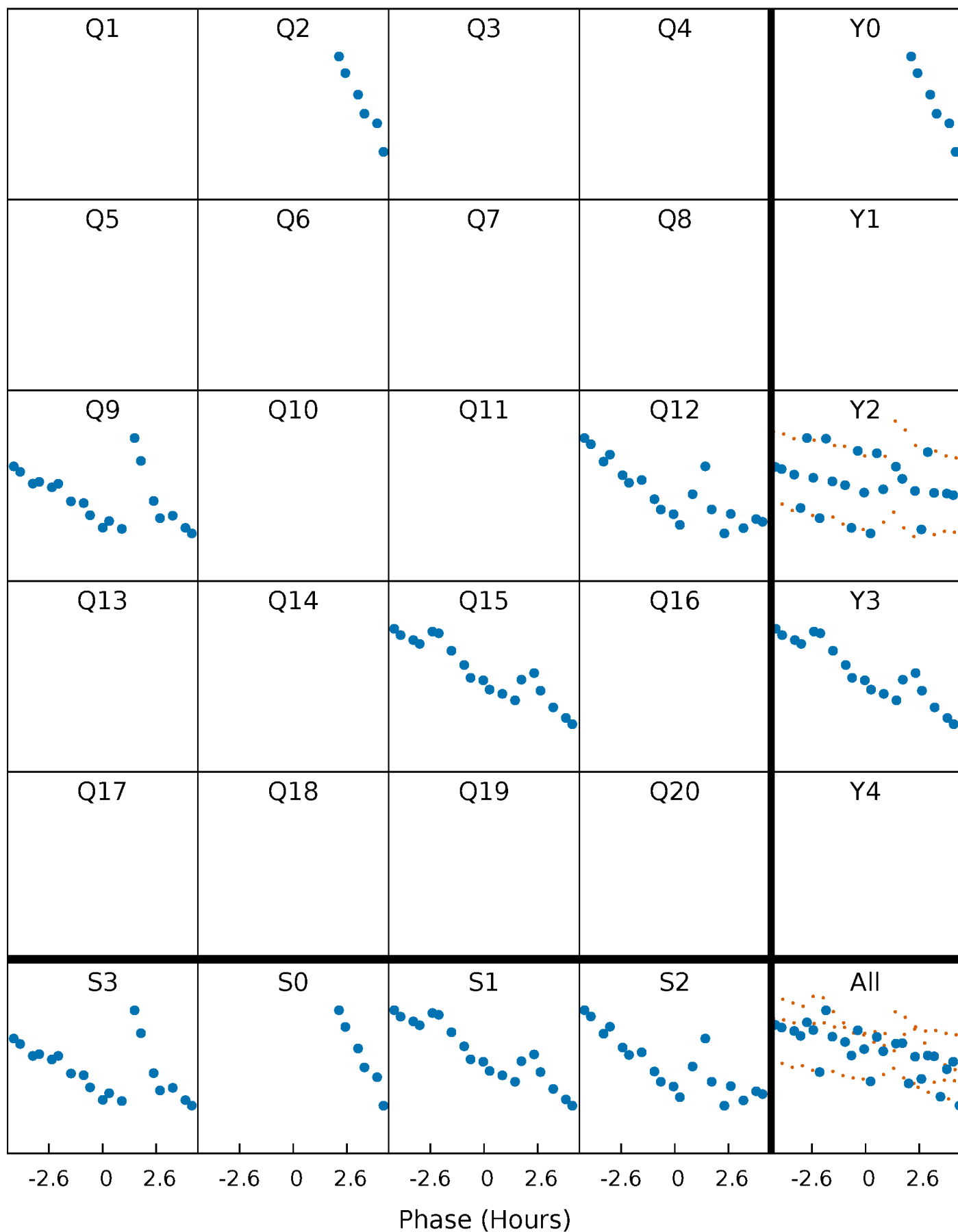


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



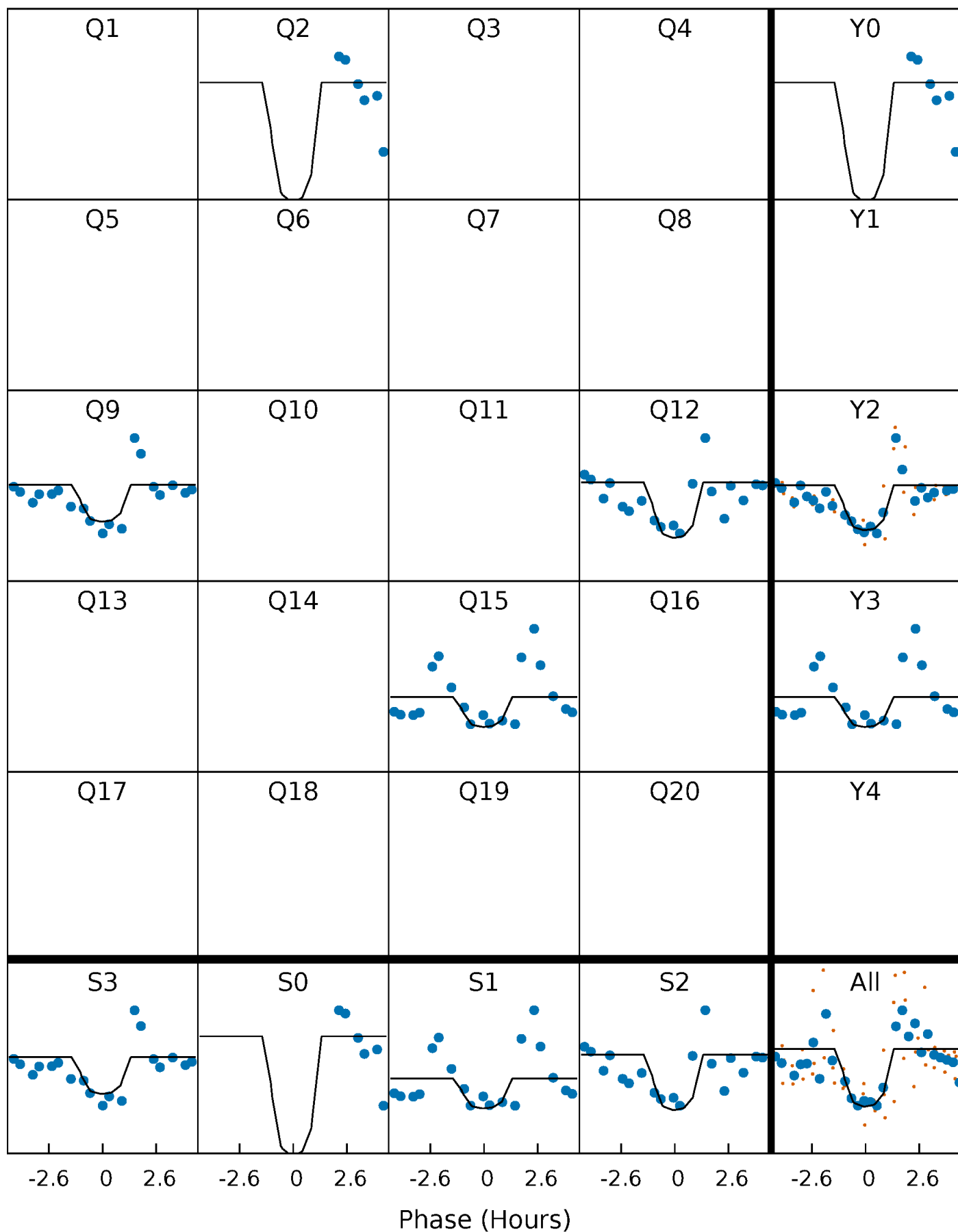
PDC Quarter-Phased Transit Curves

TCE 004851304-02 $P=296.247338$ Days $T_0=256.257470$ (BKJD)



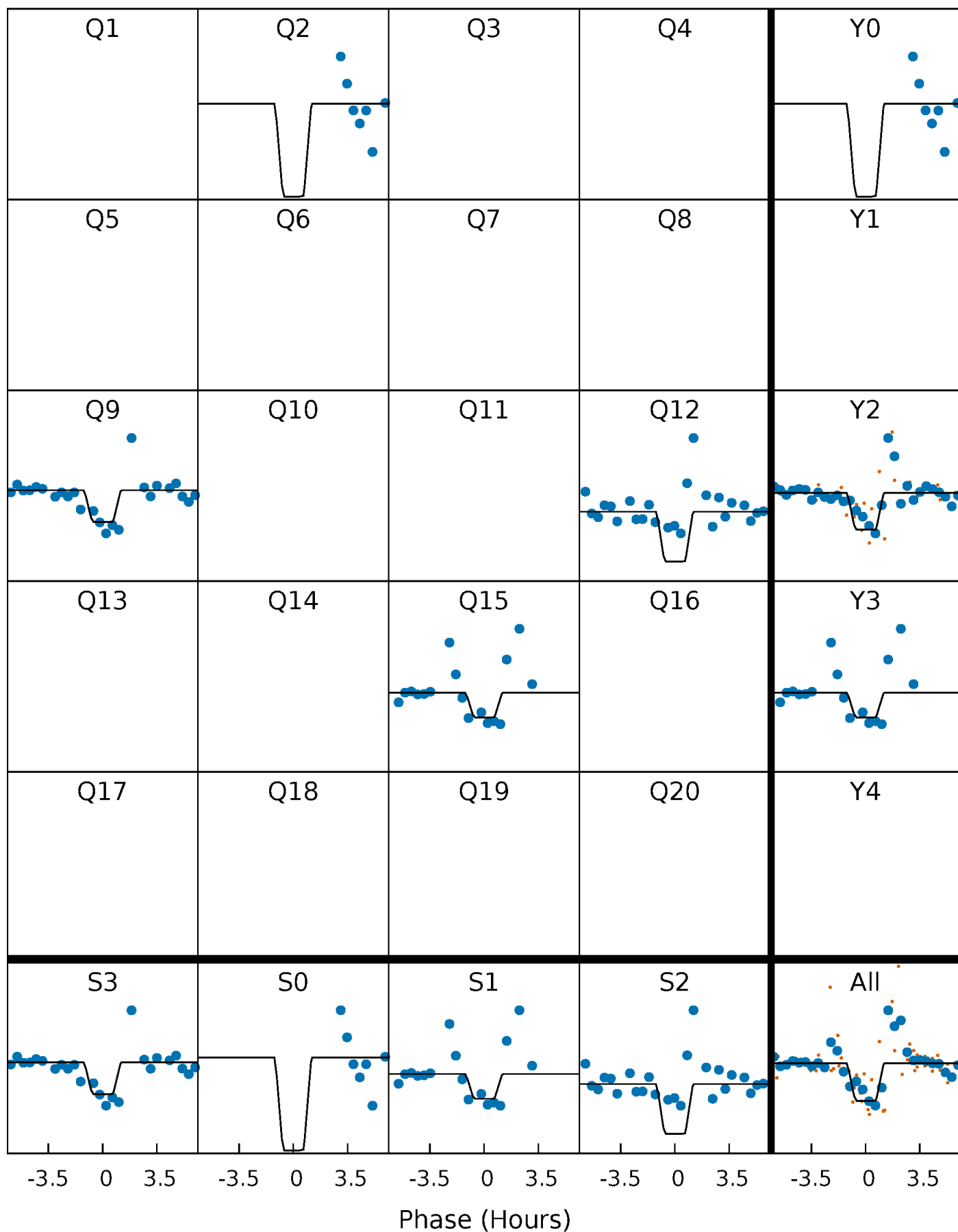
DV Quarter-Phased Transit Curves

TCE 004851304-02 $P=296.247338$ Days $T_0=256.257470$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

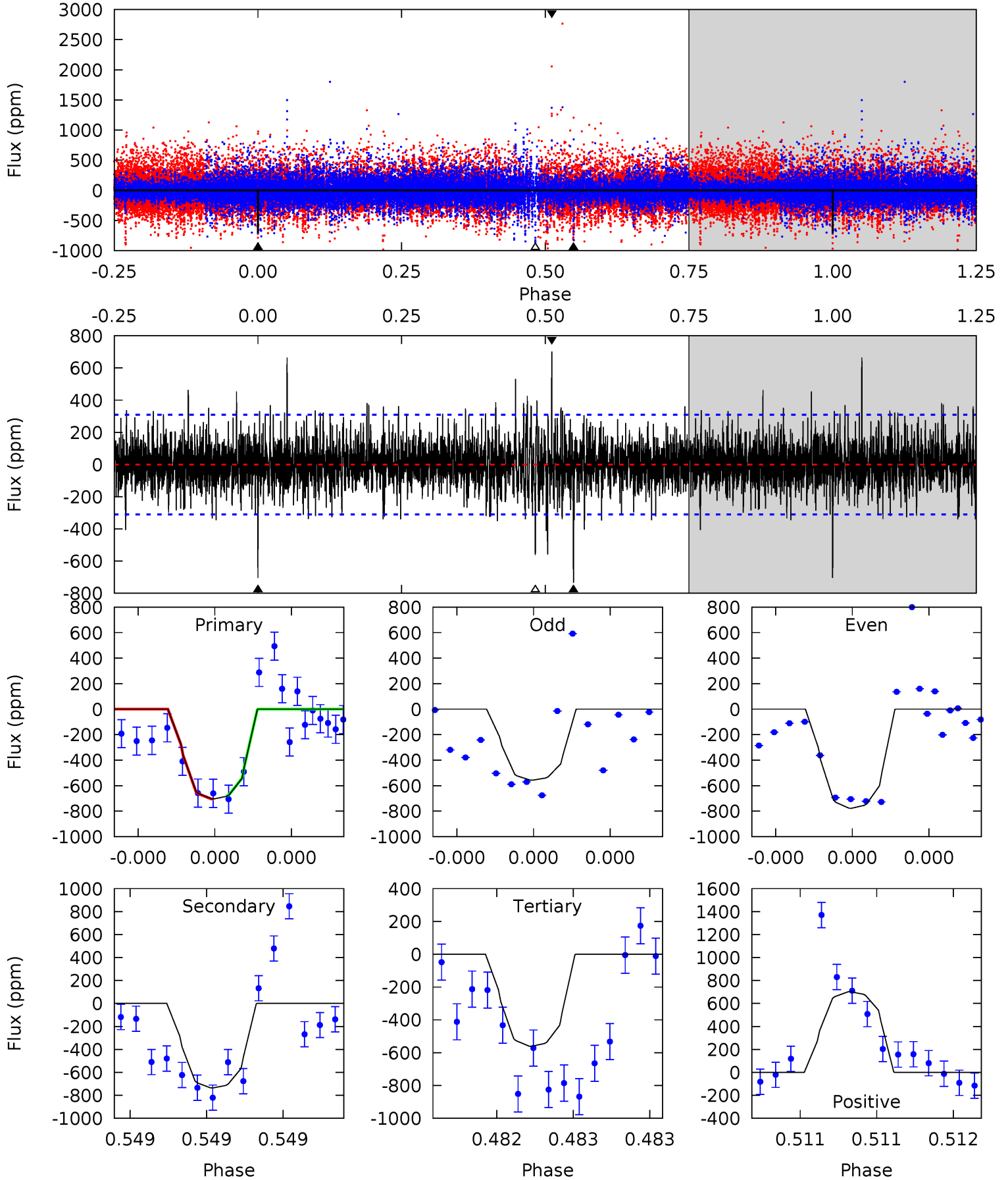
TCE 004851304-02 P=296.258170 Days $T_0=256.224161$ (BKJD)



DV Model-Shift Uniqueness Test

004851304-02, P = 296.247338 Days, E = 256.257470 Days

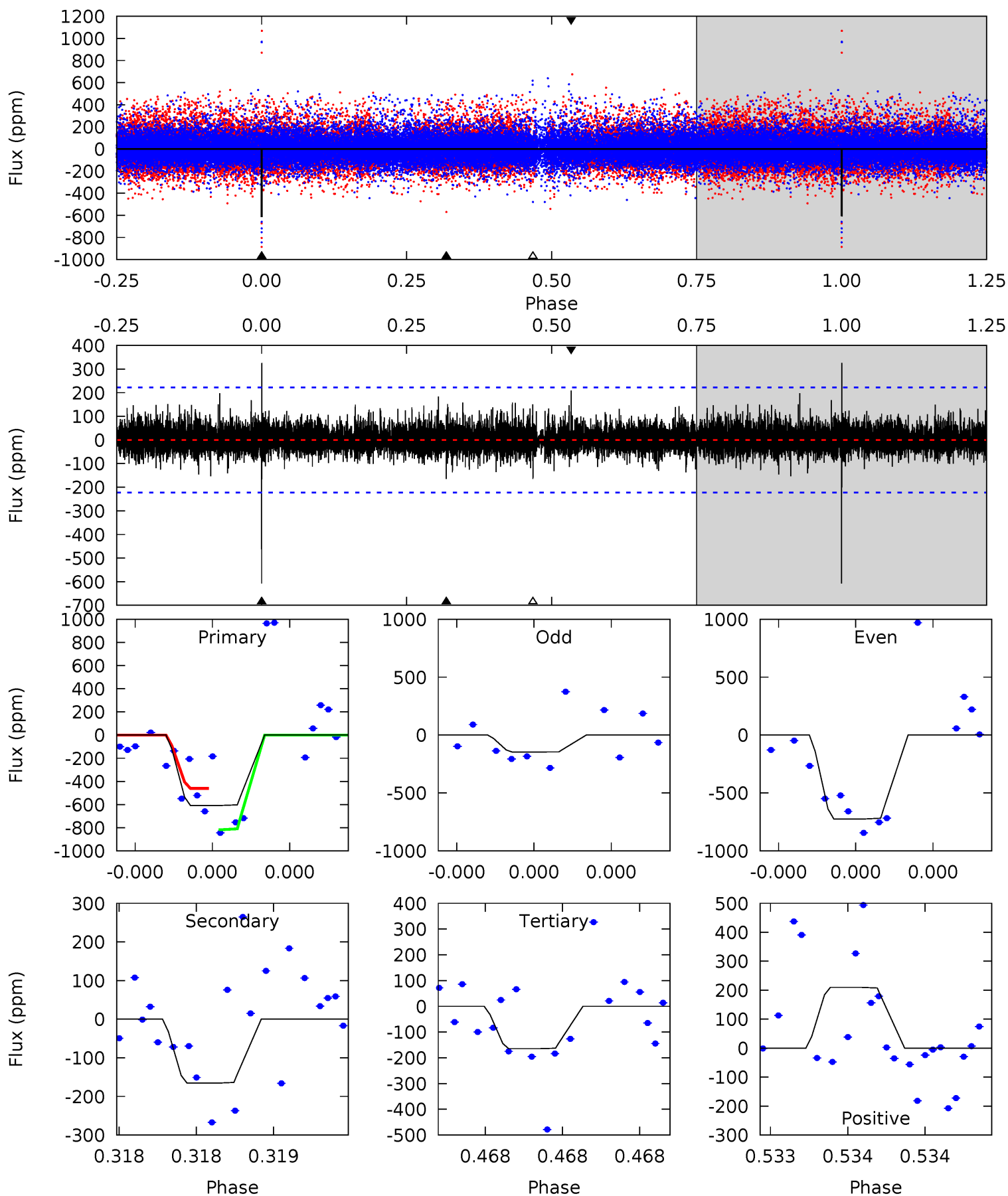
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	13.4	10.2	12.8	5.64	3.58	1.84	2.60	0.04	3.18	0.62	1.33	1.11	0.49	0.23



Alt Model-Shift Uniqueness Test

004851304-02, P = 296.258170 Days, E = 256.224161 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	4.21	4.19	5.34	5.67	3.63	0.94	11.3	10.1	0.02	-1.13	7.64	0.74	0.35	4.55



Stellar Parameters For KIC 004851304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5604^{+197}_{-197}	$4.451^{+0.098}_{-0.182}$	$-0.040^{+0.300}_{-0.300}$	$0.936^{+0.247}_{-0.133}$	$0.902^{+0.115}_{-0.094}$	$1.550^{+0.635}_{-0.728}$
	+4%/-4%	+2%/-4%	+750%/-750%	+26%/-14%	+13%/-10%	+41%/-47%
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 004851304-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-736 ± 55	$5.97^{+6.12}_{-3.92}$	370^{+28}_{-23}	4151^{+2529}_{-846}	7937^{+59817}_{-5990}
Alt.	-165 ± 39	$6.33^{+5.47}_{-4.31}$	368^{+26}_{-19}	3181^{+1580}_{-538}	1588^{+14585}_{-1174}

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 $A_{obs} \gg 1.0$

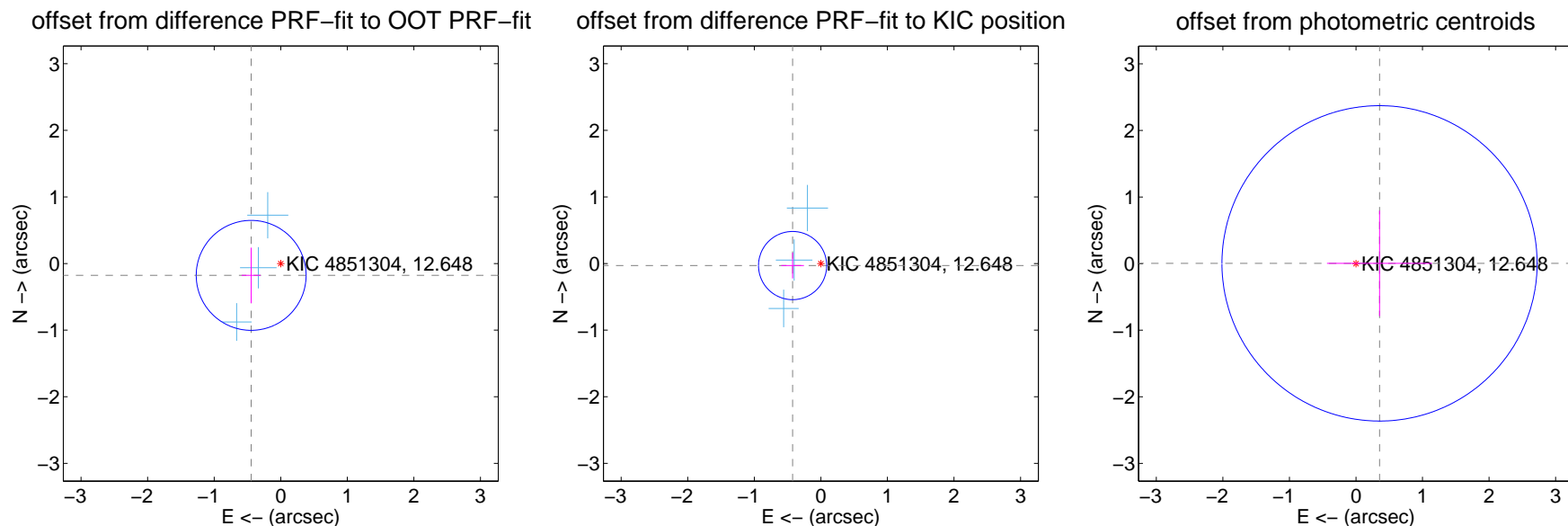
DV Centroid Data

Supplemental centroid analysis for 004851304-02. Kepler magnitude: 12.65. Transit SNR 7.60

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	0.479 ± 0.275	1.74	0.444 ± 0.142	-0.178 ± 0.416
PRF-fit source offset from KIC position	0.426 ± 0.171	2.50	0.425 ± 0.170	-0.030 ± 0.193
photometric centroid source offset	0.35 ± 0.79	0.45	-0.35 ± 0.79	0.00 ± 0.79



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.

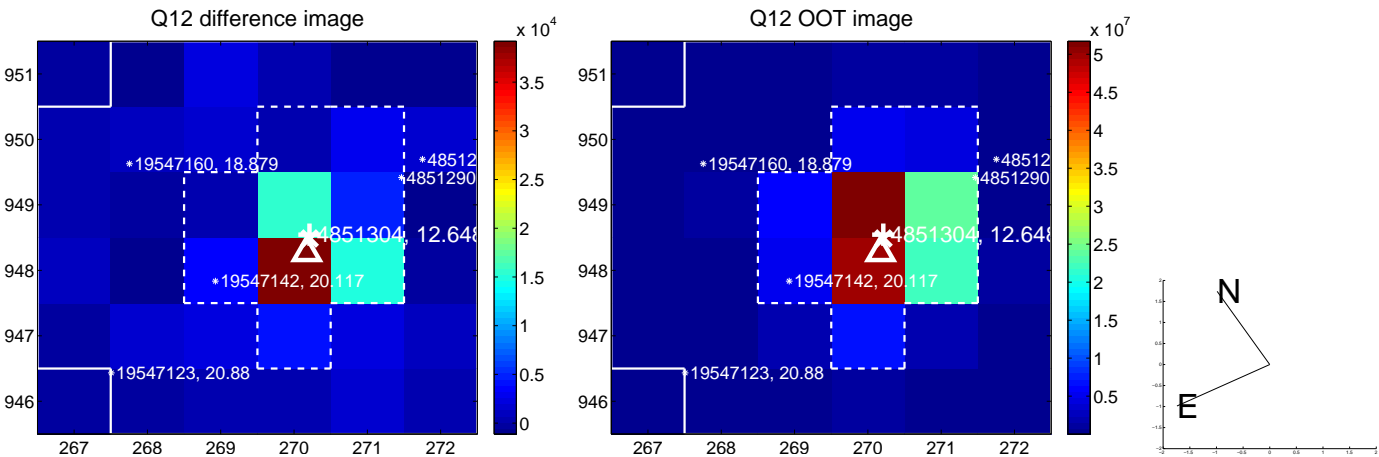
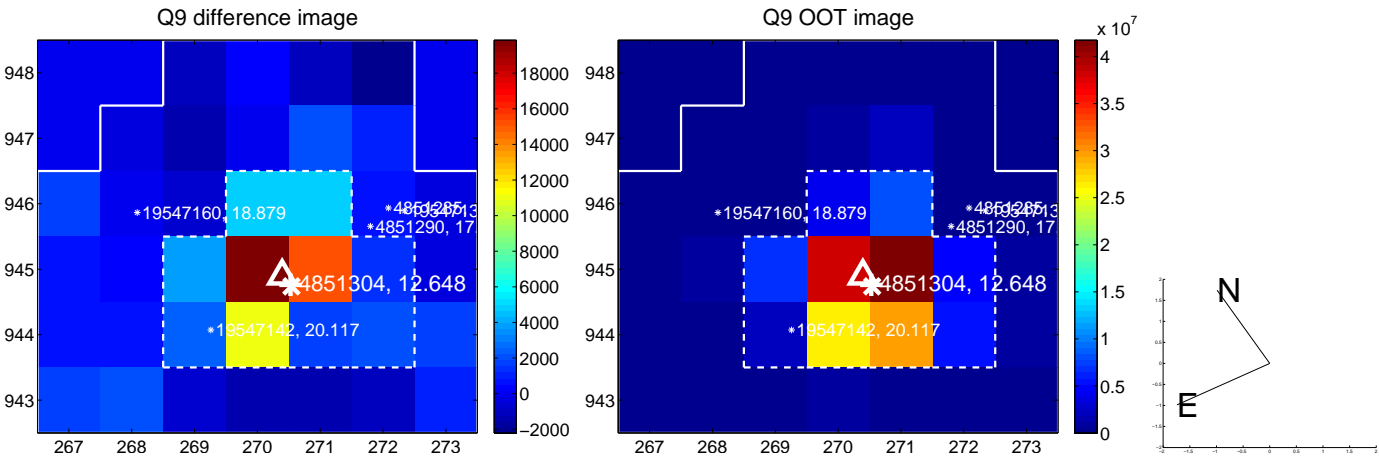
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



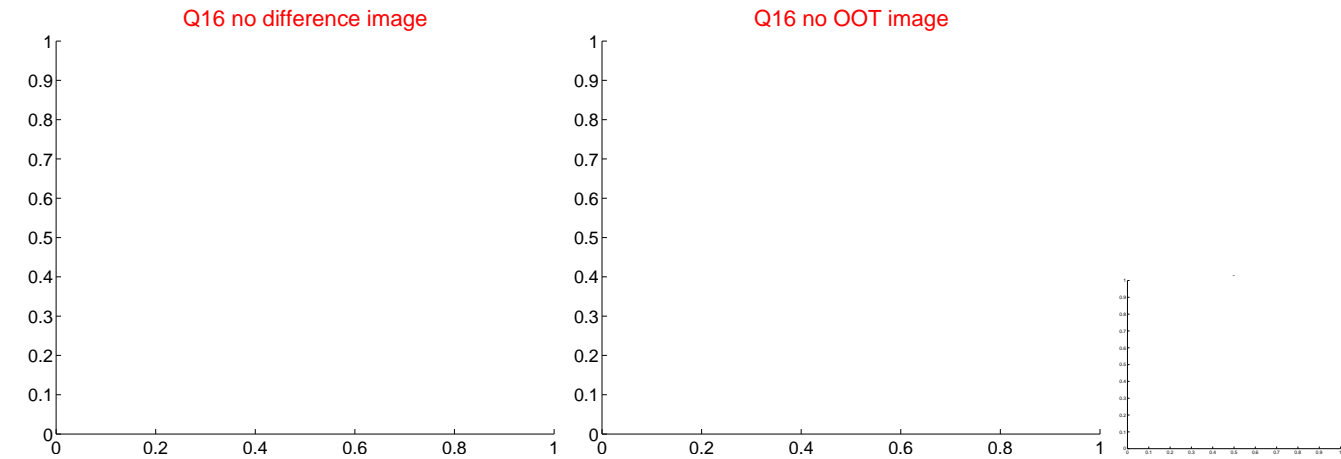
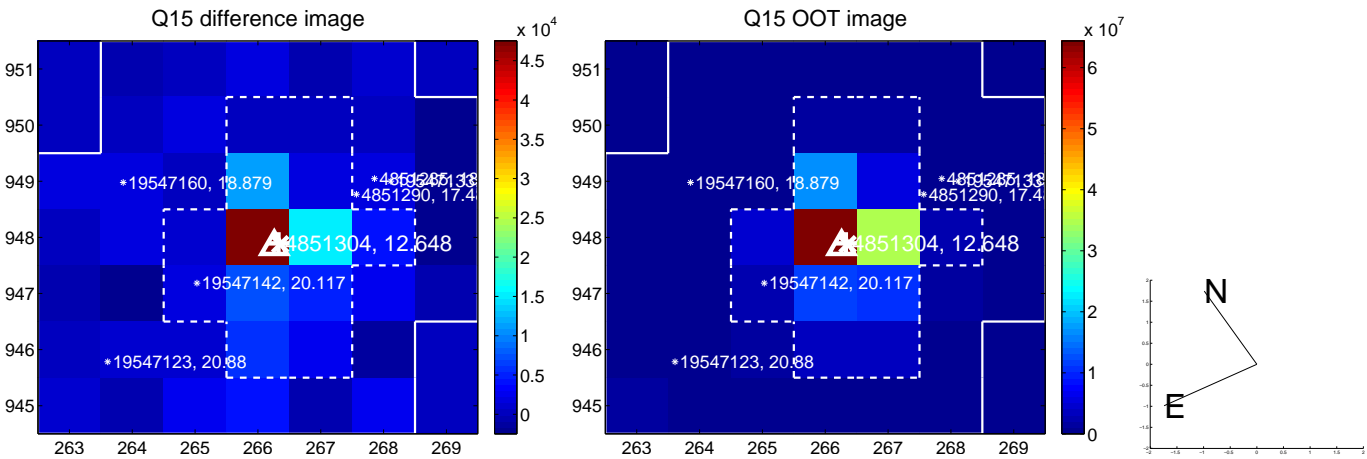
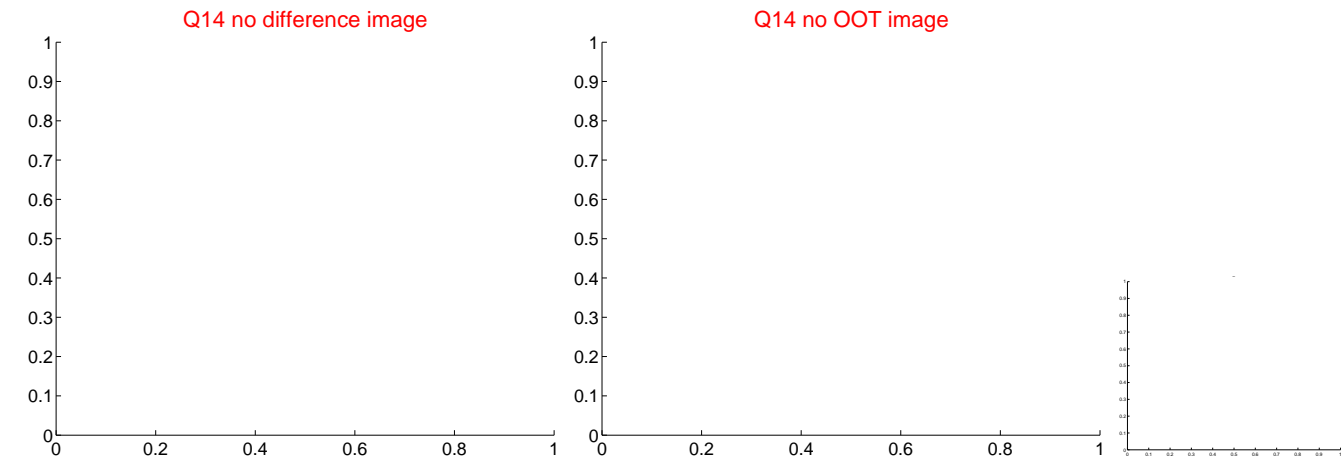
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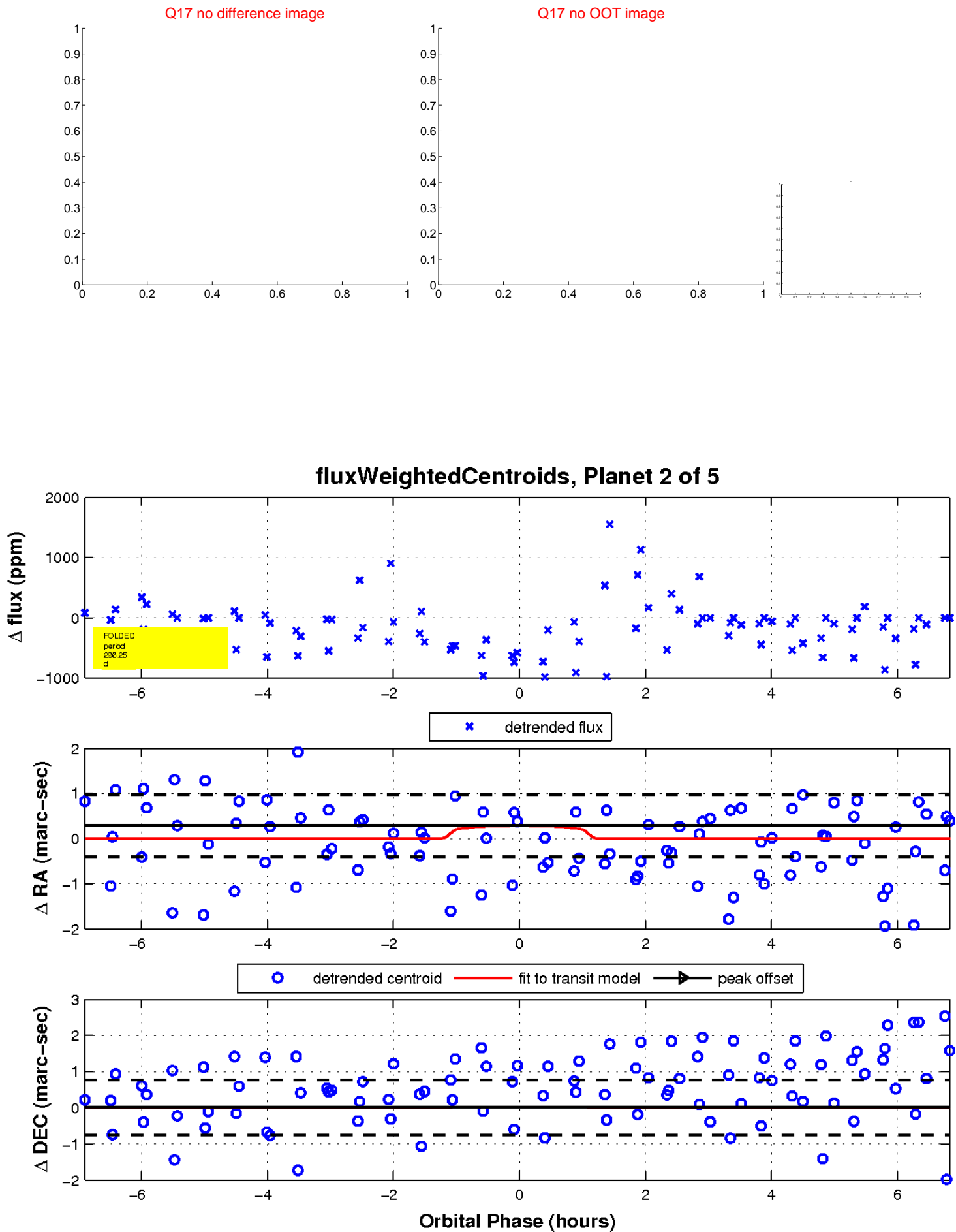
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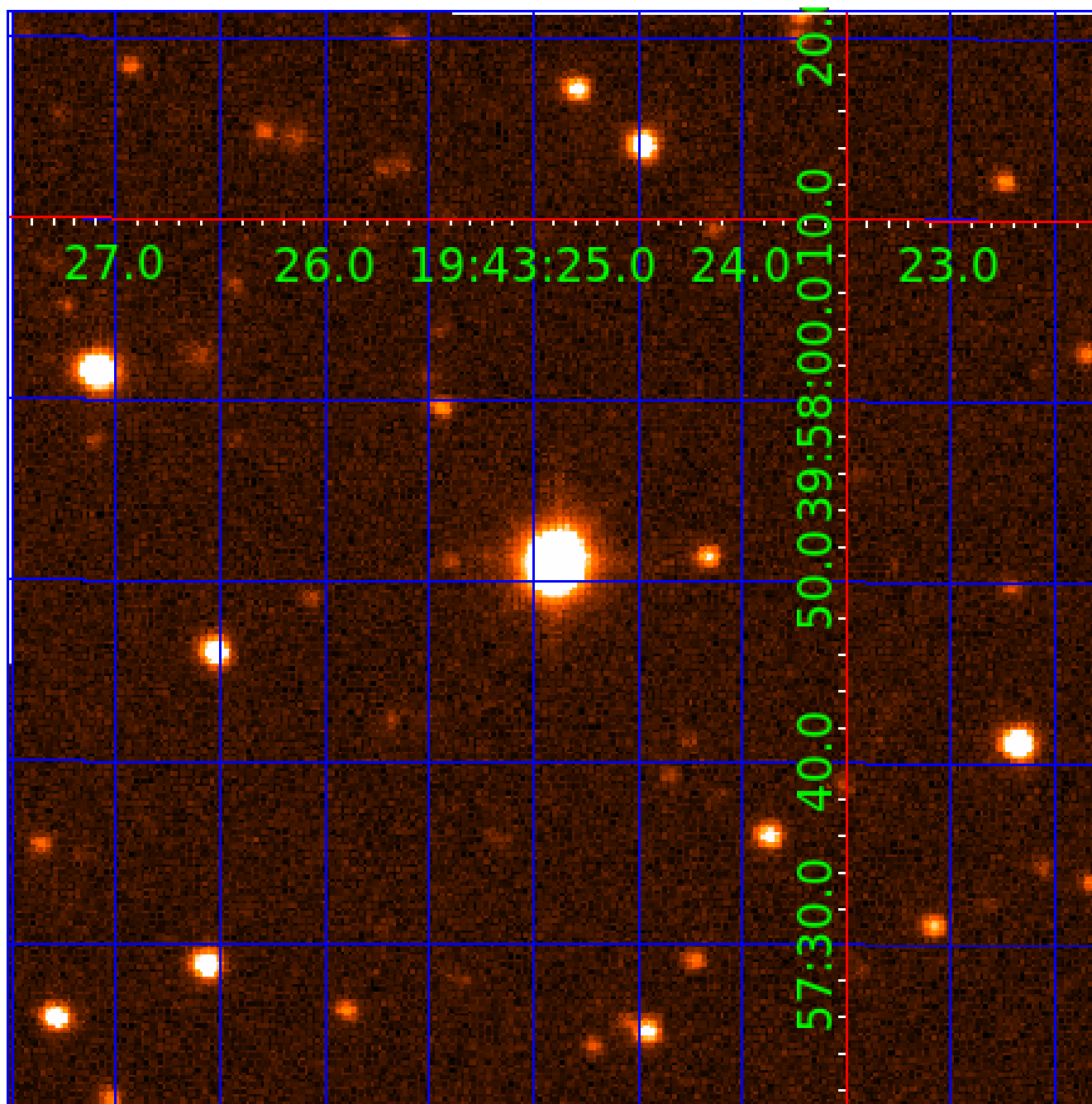


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UKIRT Image

Declination



KIC 004851304

Q1-17 DR25 TCE Parameters

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004851304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
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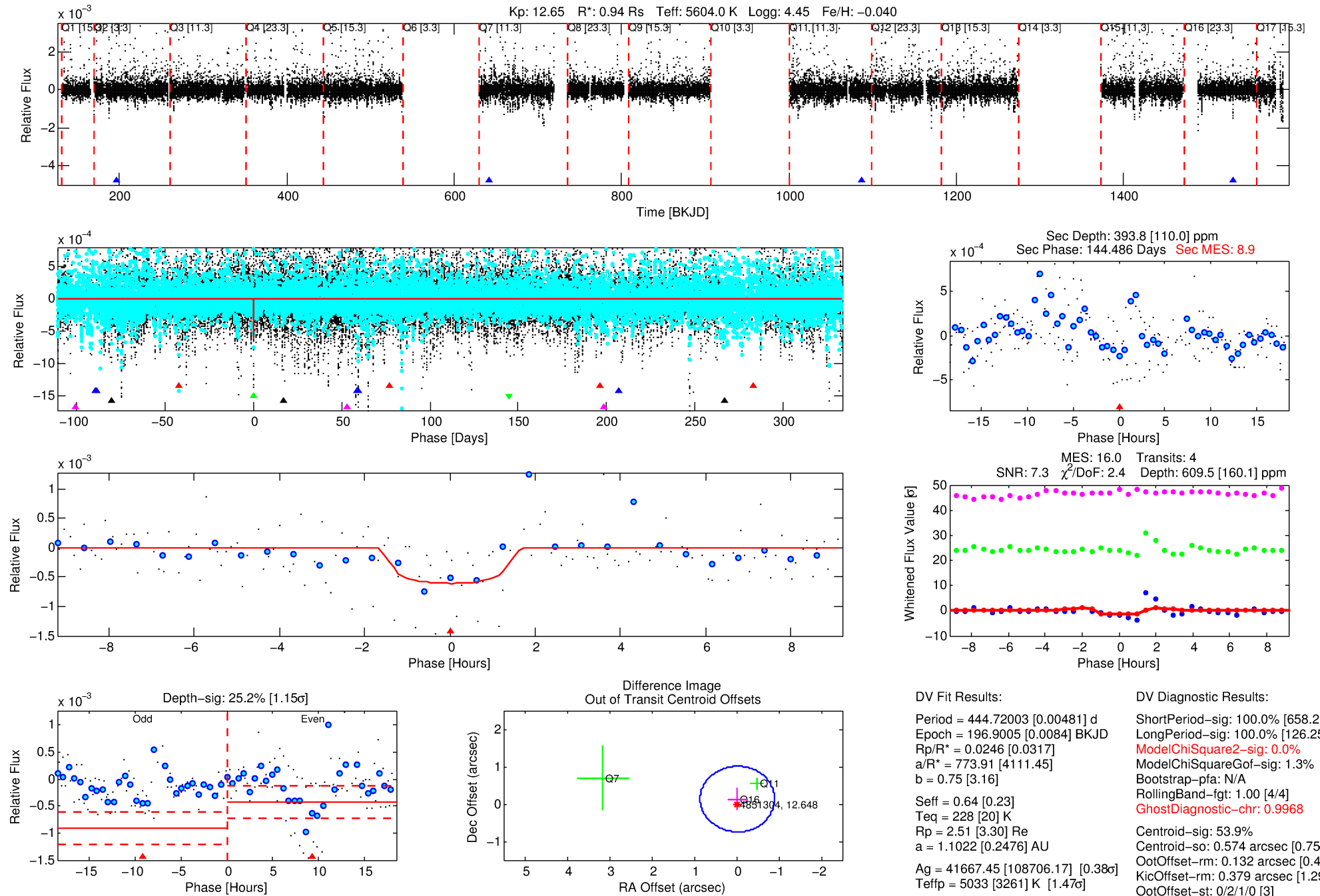
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004851304-03

No Significant Match Found

DV One-Page Summary

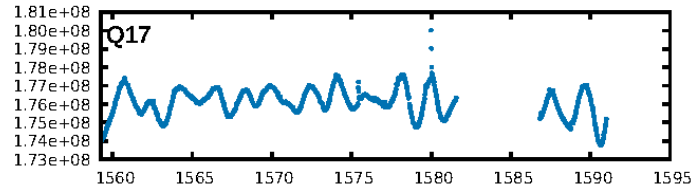
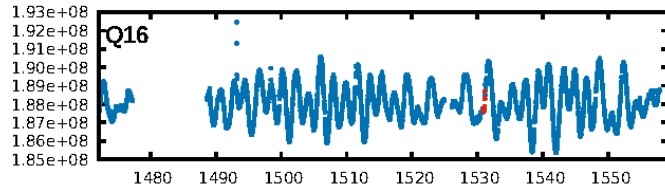
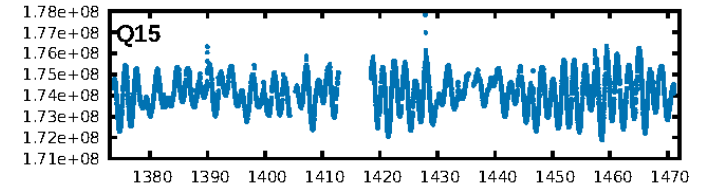
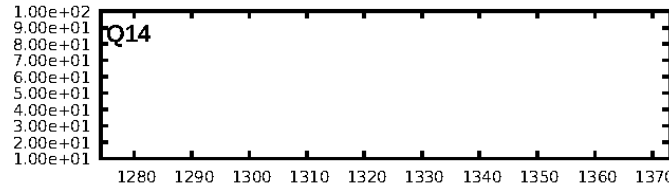
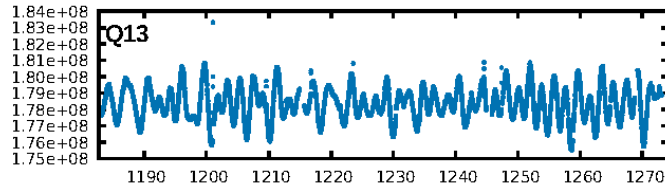
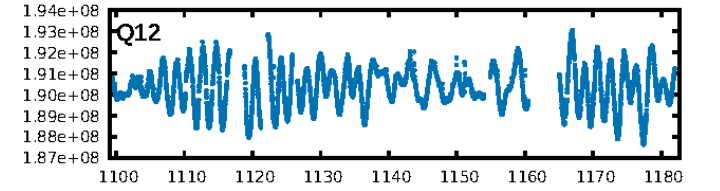
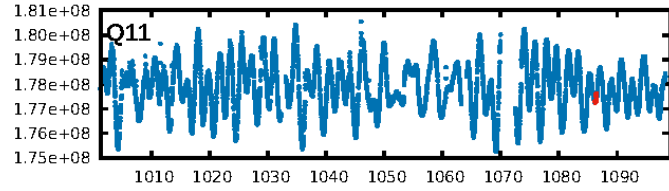
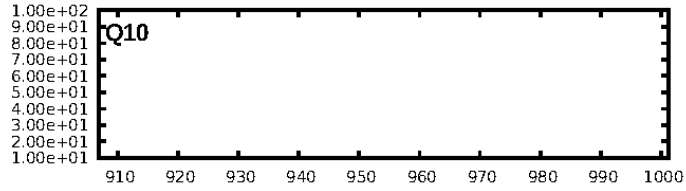
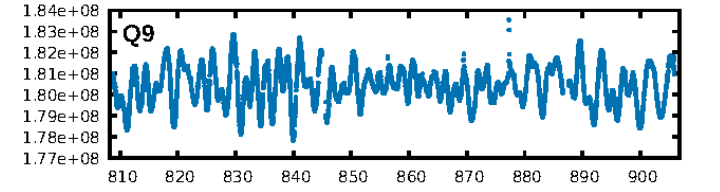
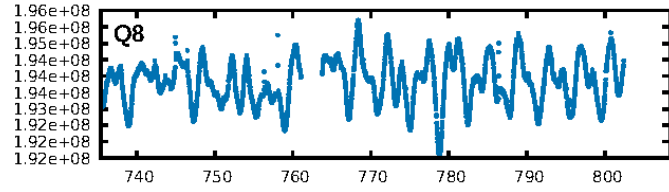
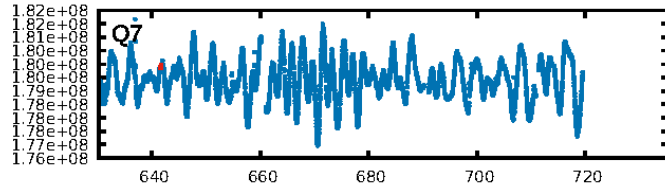
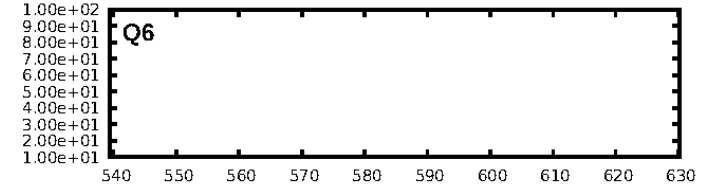
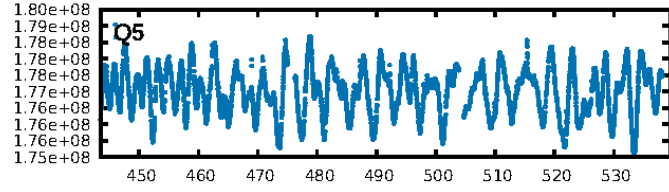
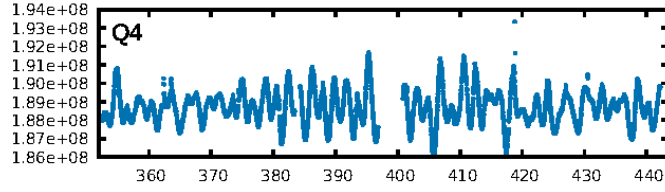
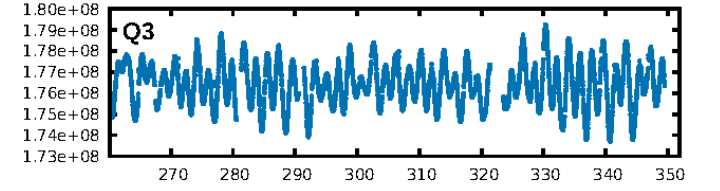
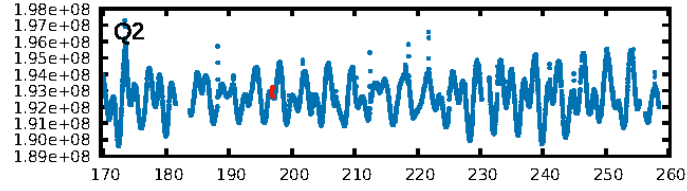
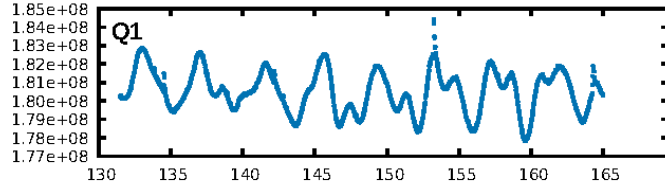
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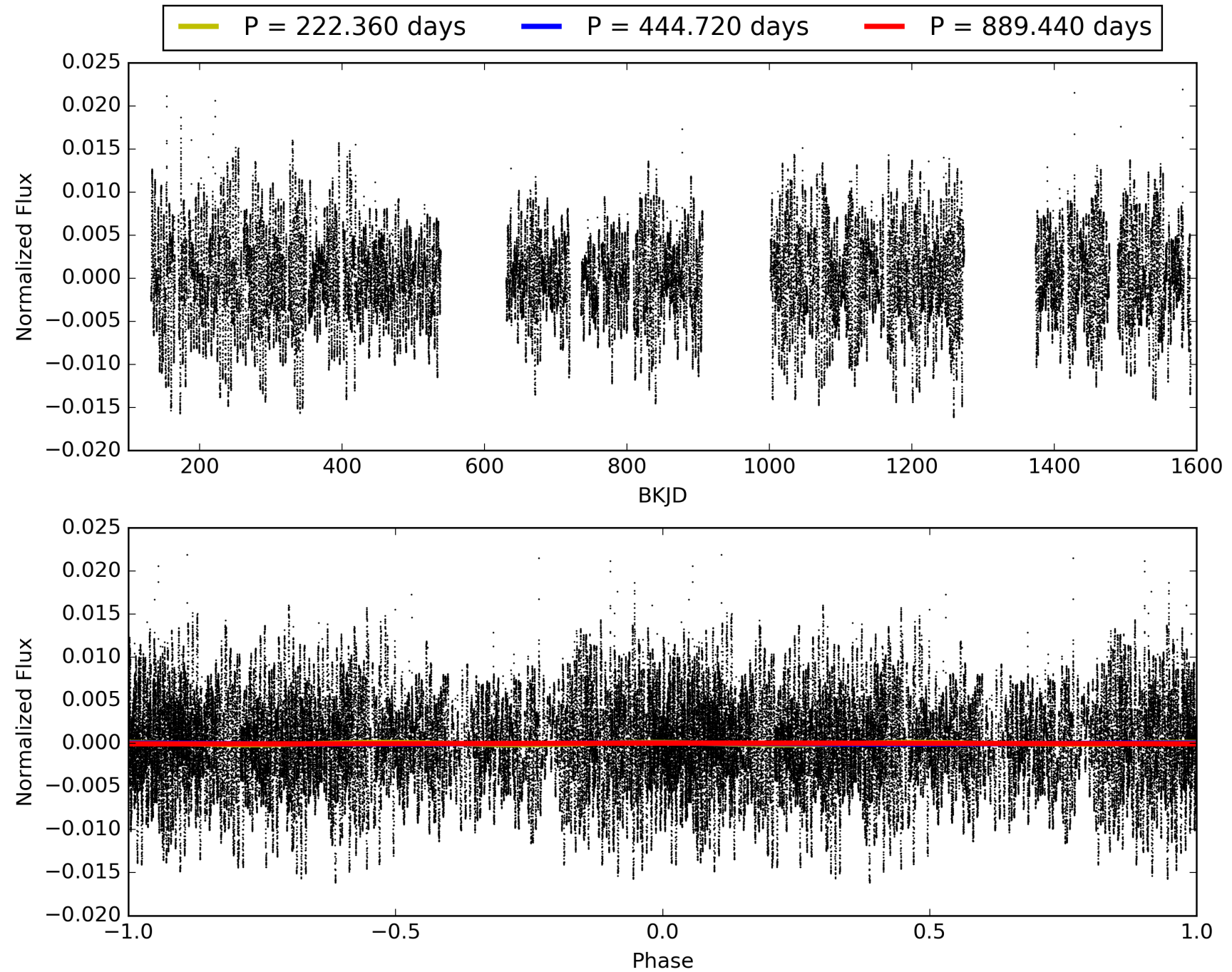
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TCE 004851304-03, PDC Light Curves

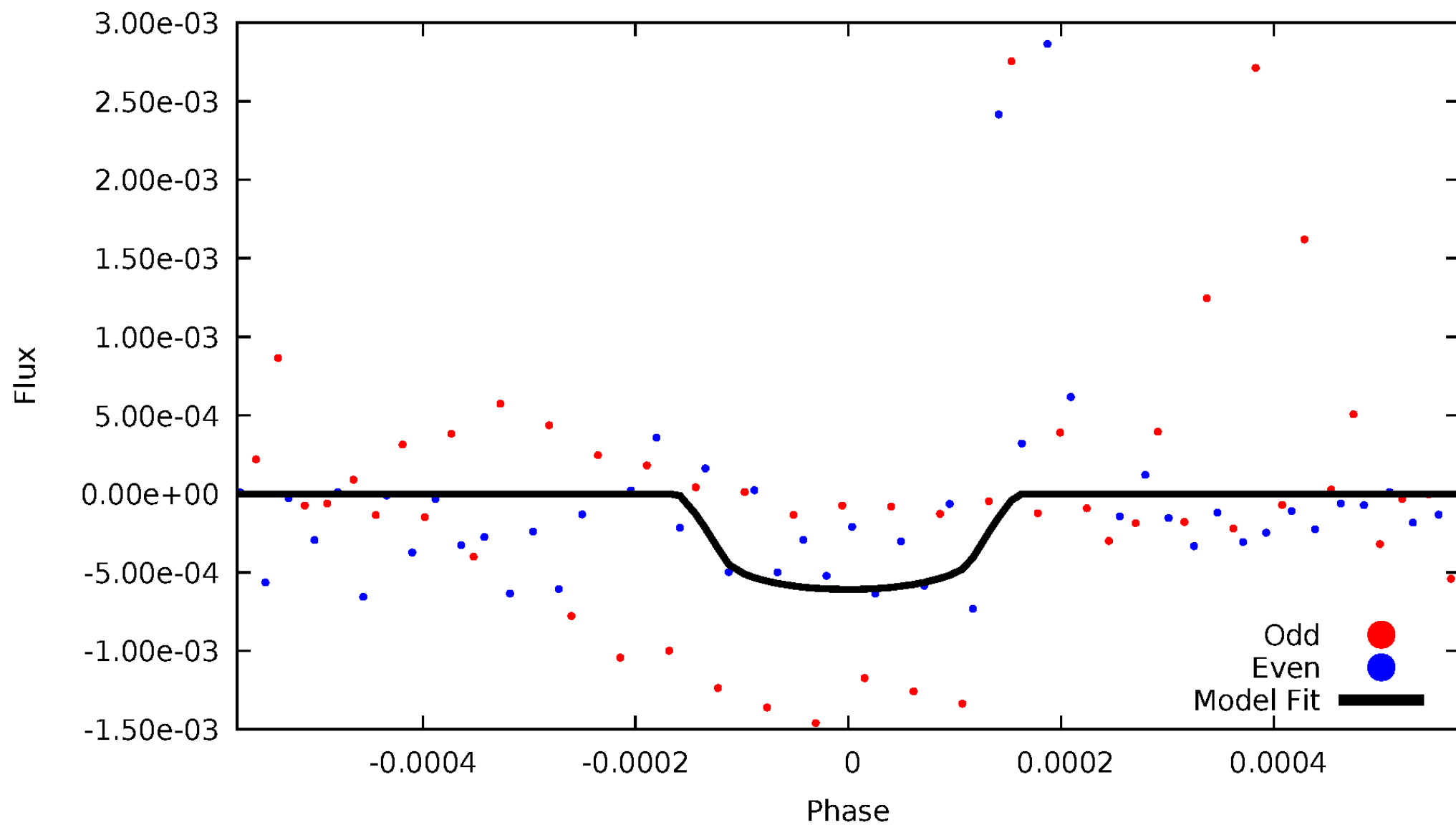


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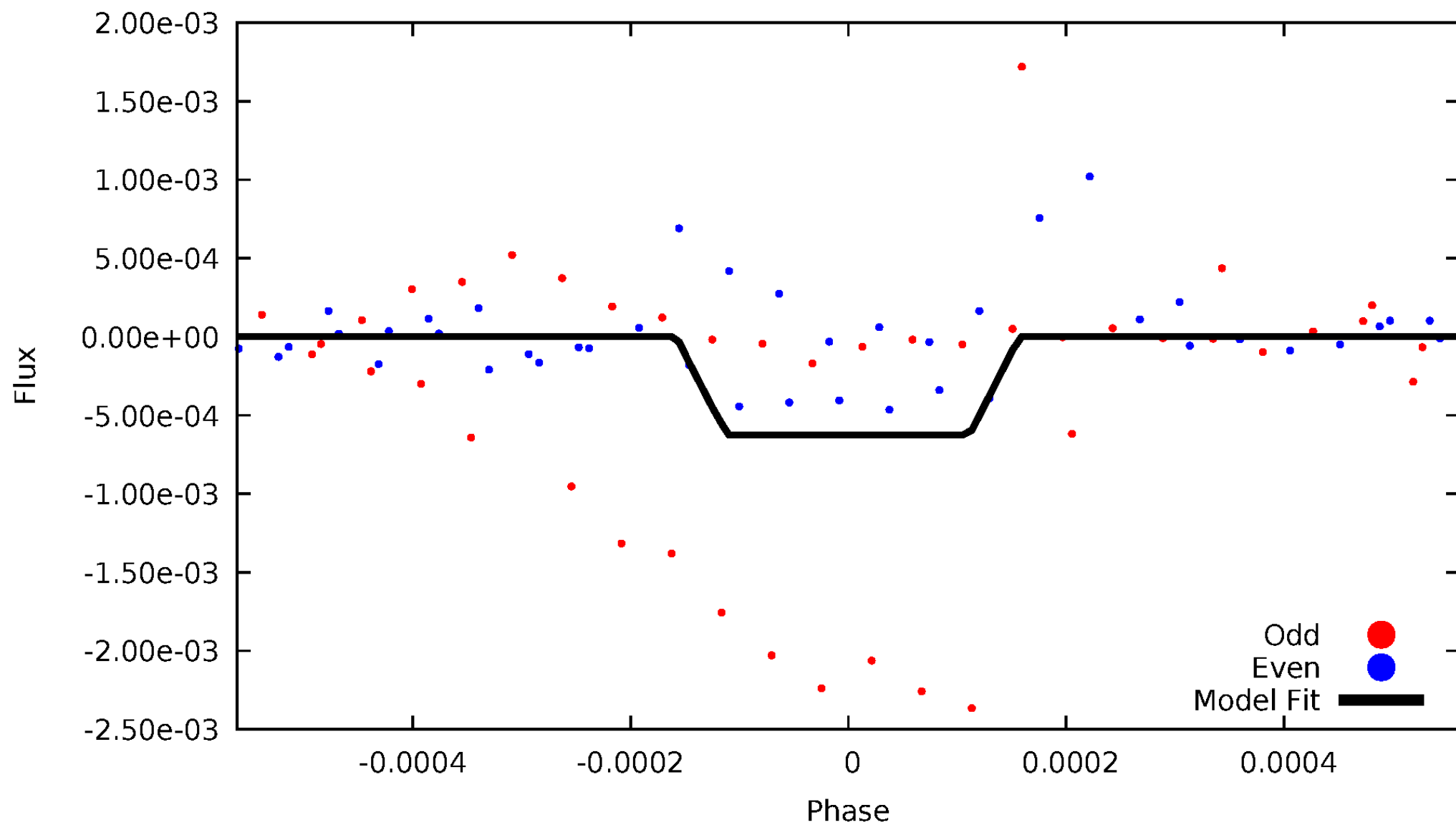
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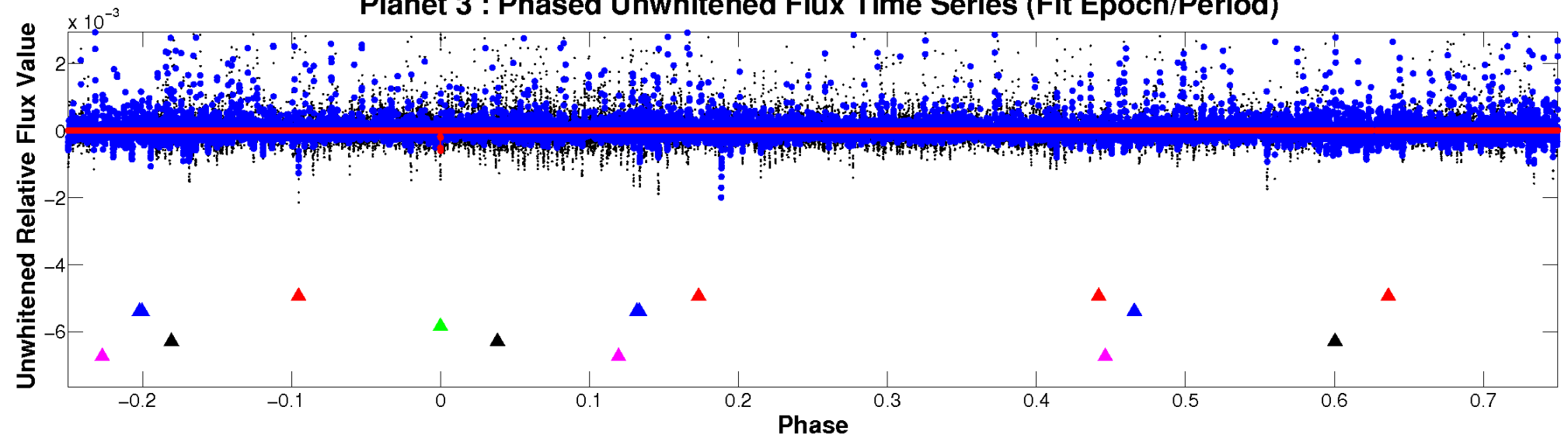
ALT Odd/Even

TCE 004851304-03

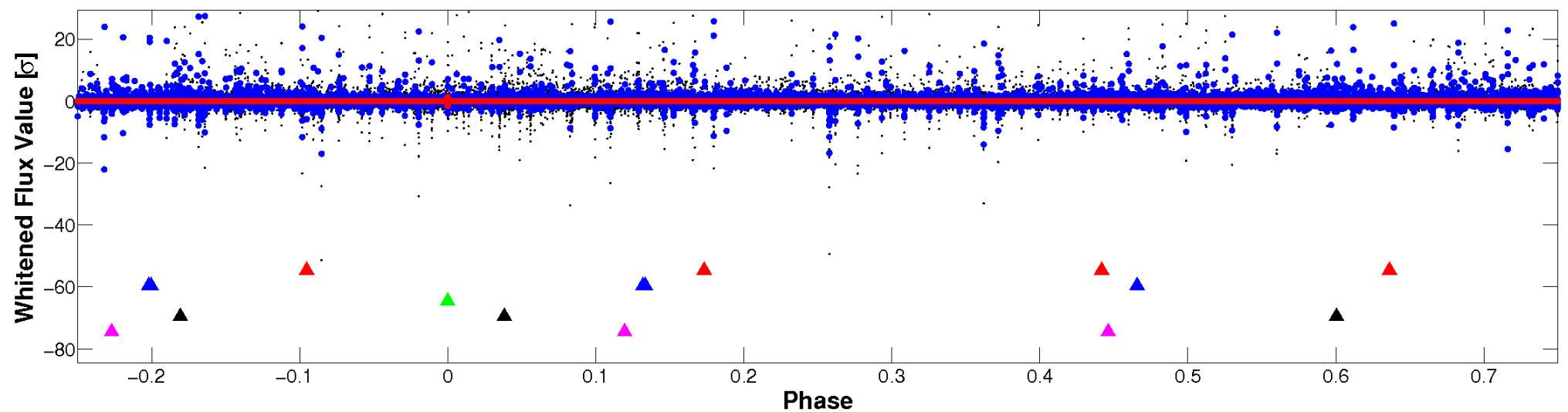


Non-Whitened Vs. Whitened Light Curve

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

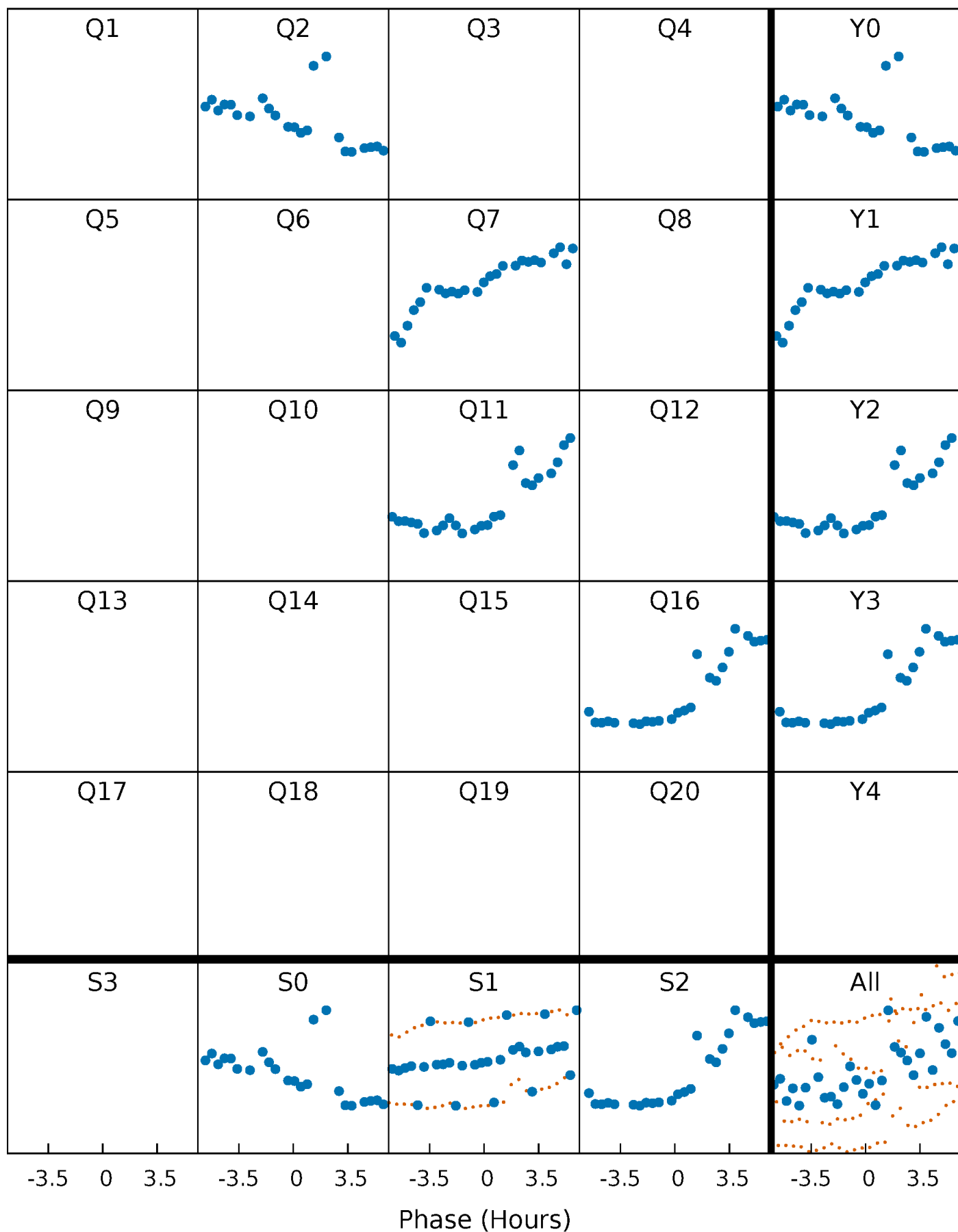


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



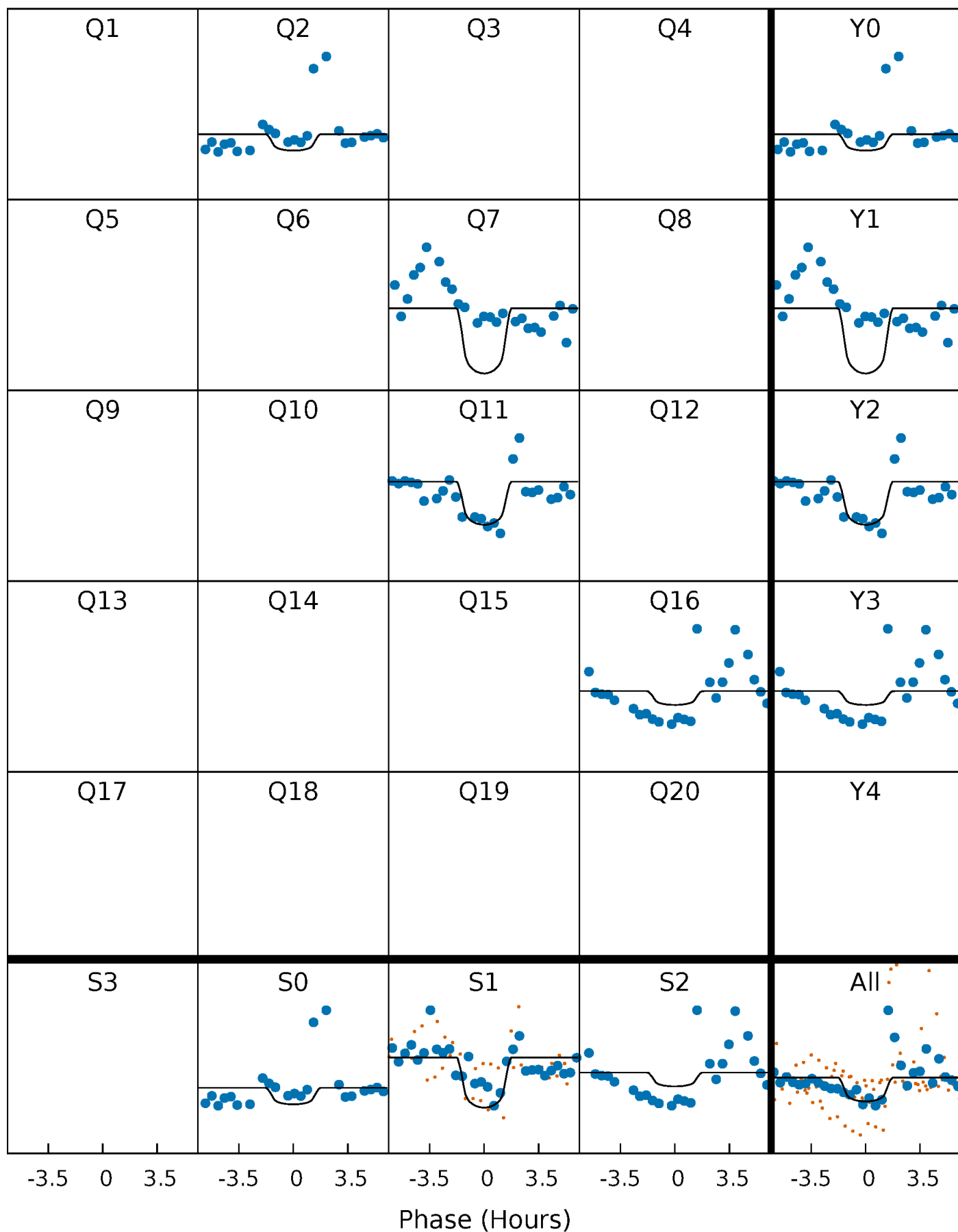
PDC Quarter-Phased Transit Curves

TCE 004851304-03 P=444.720028 Days $T_0=196.900520$ (BKJD)



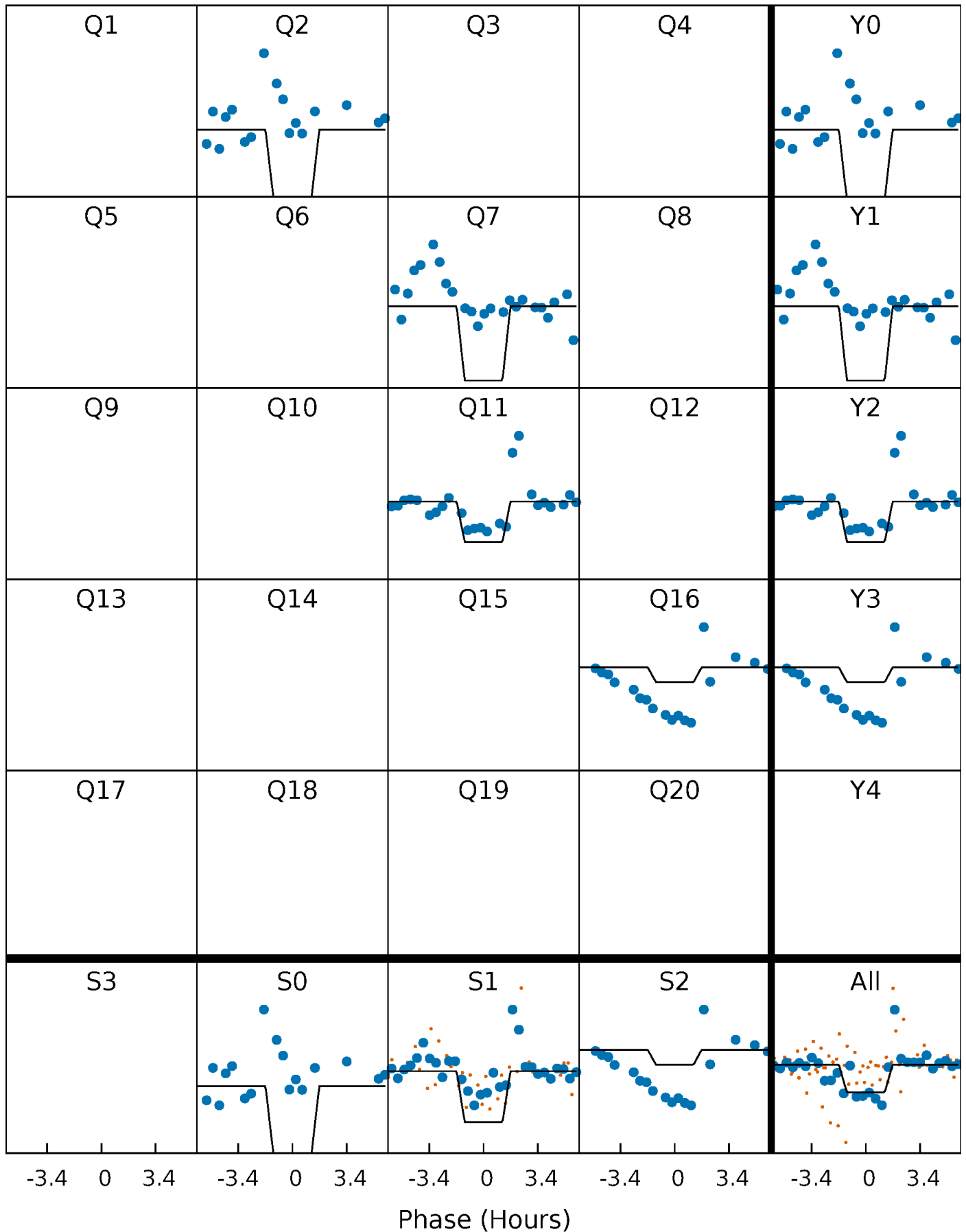
DV Quarter-Phased Transit Curves

TCE 004851304-03 $P=444.720028$ Days $T_0=196.900520$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

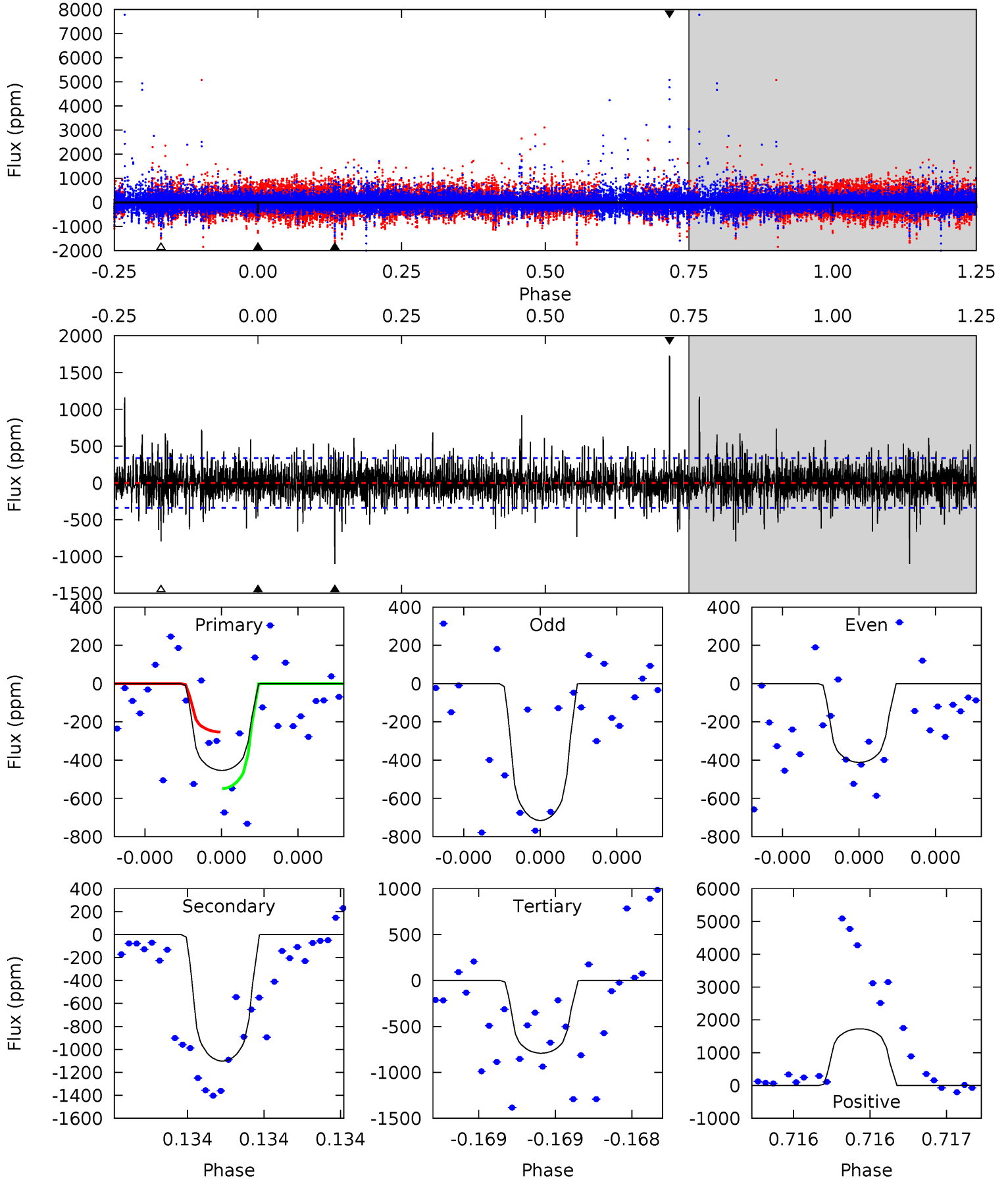
TCE 004851304-03 P=444.722811 Days $T_0=196.889455$ (BKJD)



DV Model-Shift Uniqueness Test

004851304-03, P = 444.720028 Days, E = 196.900520 Days

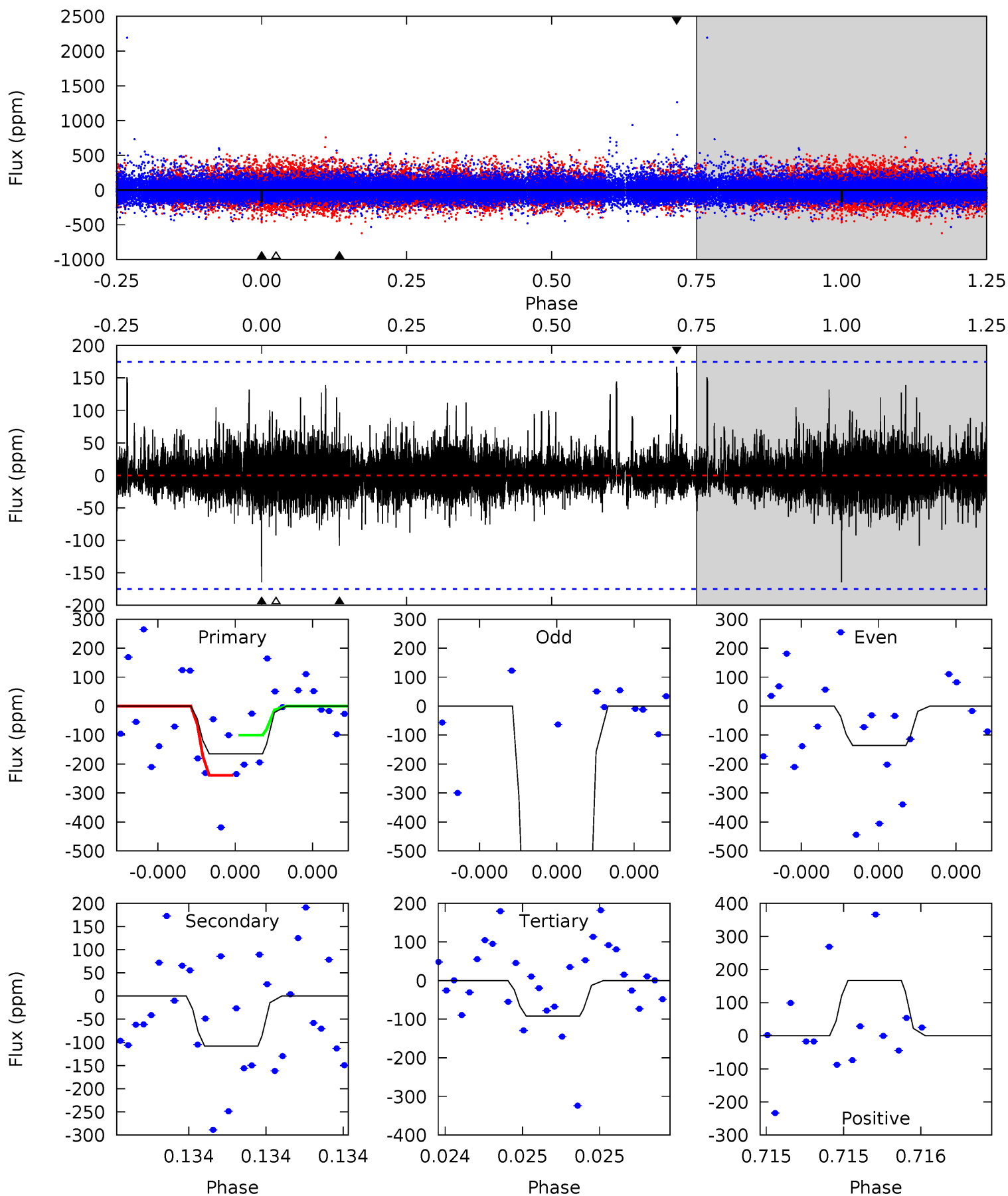
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.58	18.4	13.2	28.9	5.64	3.59	2.67	-5.65	-21.3	5.18	-10.5	2.16	1.50	0.61	2.39



Alt Model-Shift Uniqueness Test

004851304-03, P = 444.722811 Days, E = 196.889455 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.33	3.50	2.99	5.41	5.66	3.62	0.72	2.35	-0.08	0.51	-1.91	19.5	2.54	0.50	2.26



Stellar Parameters For KIC 004851304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5604^{+197}_{-197}	$4.451^{+0.098}_{-0.182}$	$-0.040^{+0.300}_{-0.300}$	$0.936^{+0.247}_{-0.133}$	$0.902^{+0.115}_{-0.094}$	$1.550^{+0.635}_{-0.728}$
	+4%/-4%	+2%/-4%	+750%/-750%	+26%/-14%	+13%/-10%	+41%/-47%
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 004851304-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1102 ± 60	$3.64^{+2.96}_{-2.33}$	322^{+23}_{-18}	5489^{+4335}_{-1184}	$54808^{+373152}_{-37948}$
Alt.	-108 ± 31	$3.53^{+3.16}_{-2.25}$	322^{+24}_{-18}	3561^{+1624}_{-612}	5575^{+36586}_{-3997}

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 $A_{obs} \gg 1.0$

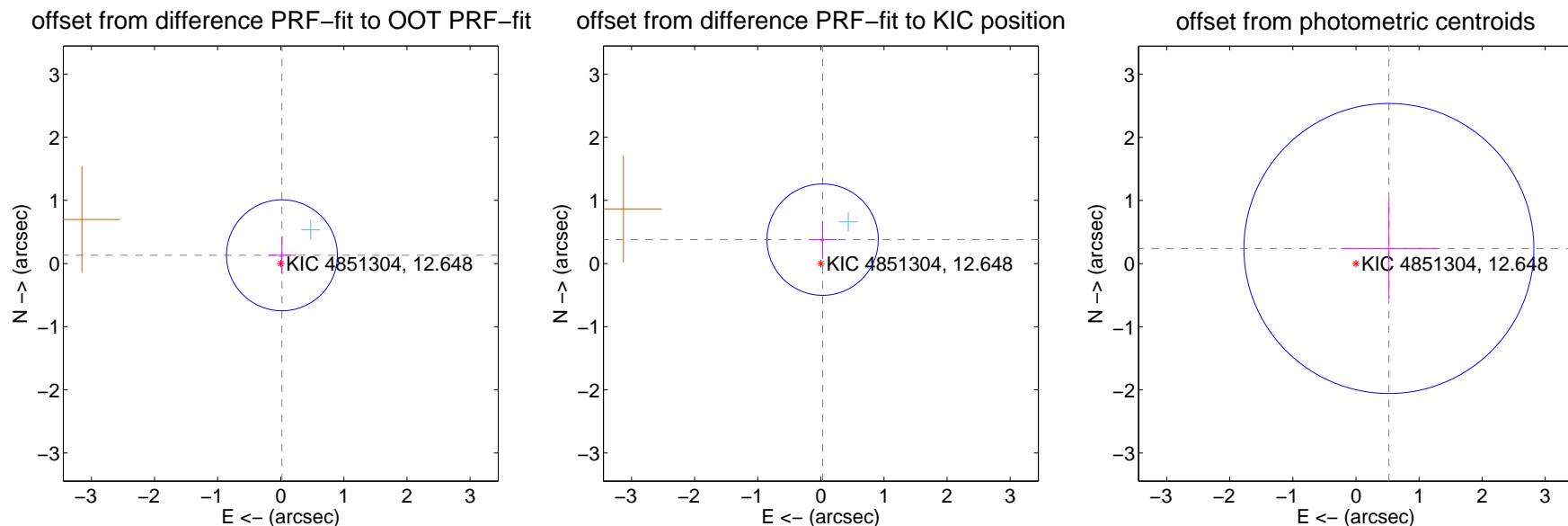
DV Centroid Data

Supplemental centroid analysis for 004851304-03. Kepler magnitude: 12.65. Transit SNR 7.30

There are 2 quarters with good PRF difference image offsets

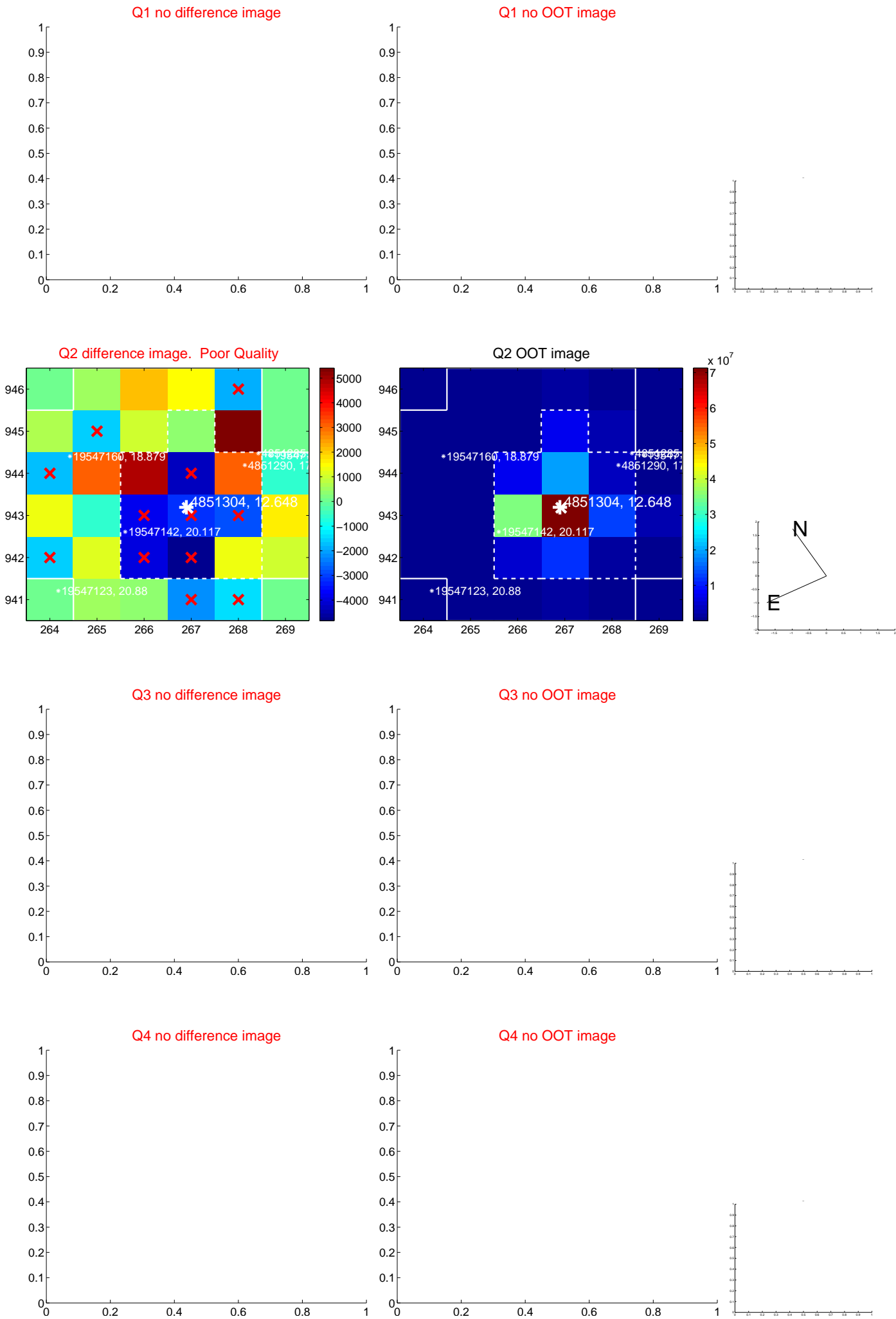
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.132 ± 0.293	0.45	-0.019 ± 0.219	0.131 ± 0.294
PRF-fit source offset from KIC position	0.379 ± 0.294	1.29	-0.028 ± 0.219	0.378 ± 0.294
photometric centroid source offset	0.57 ± 0.77	0.75	-0.52 ± 0.76	0.24 ± 0.79

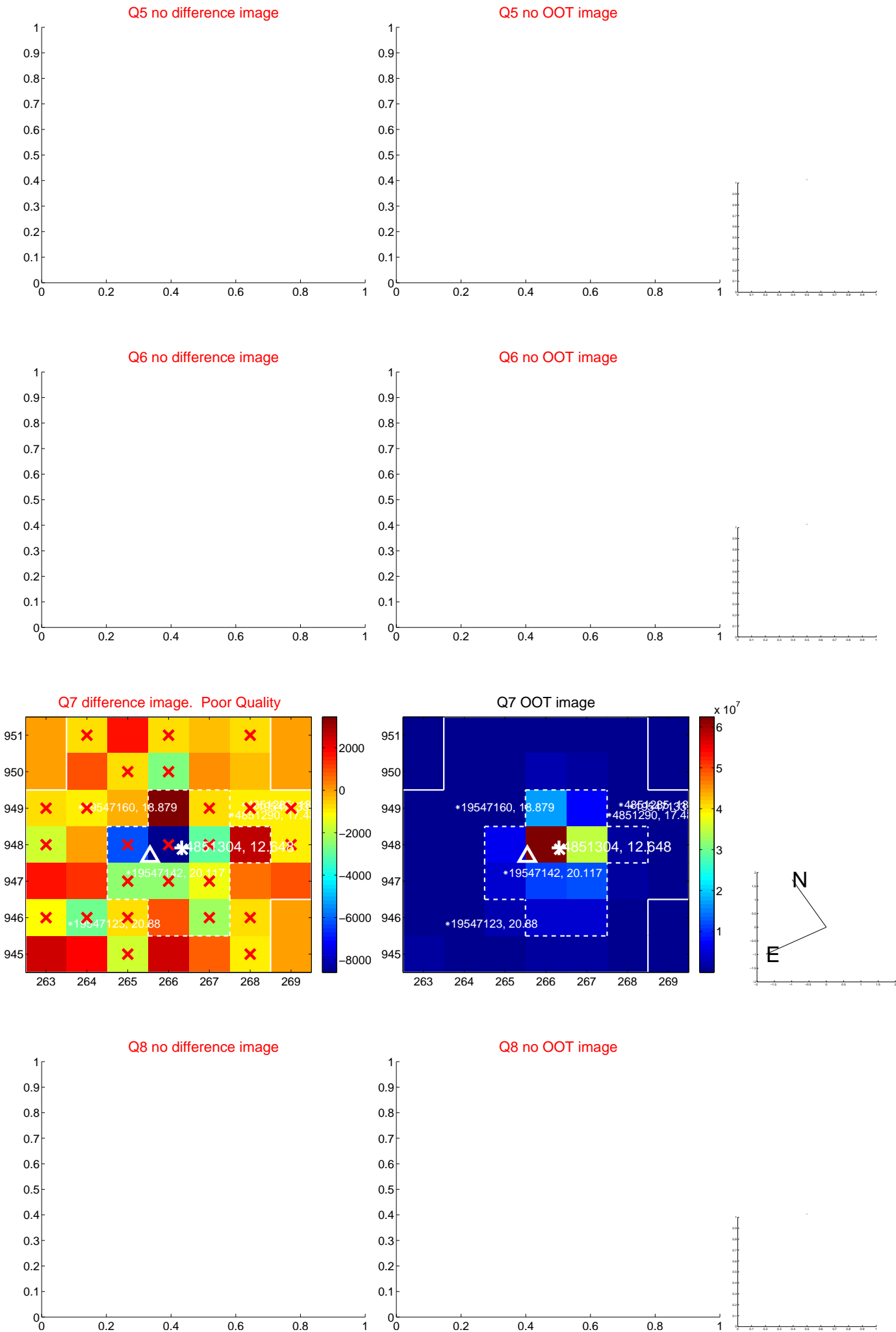


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

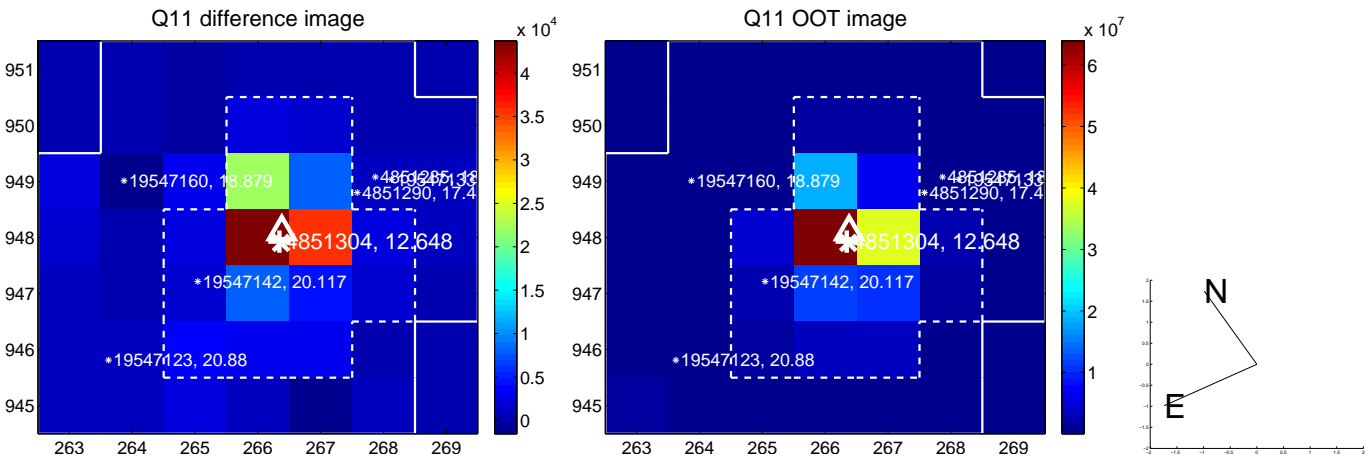
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



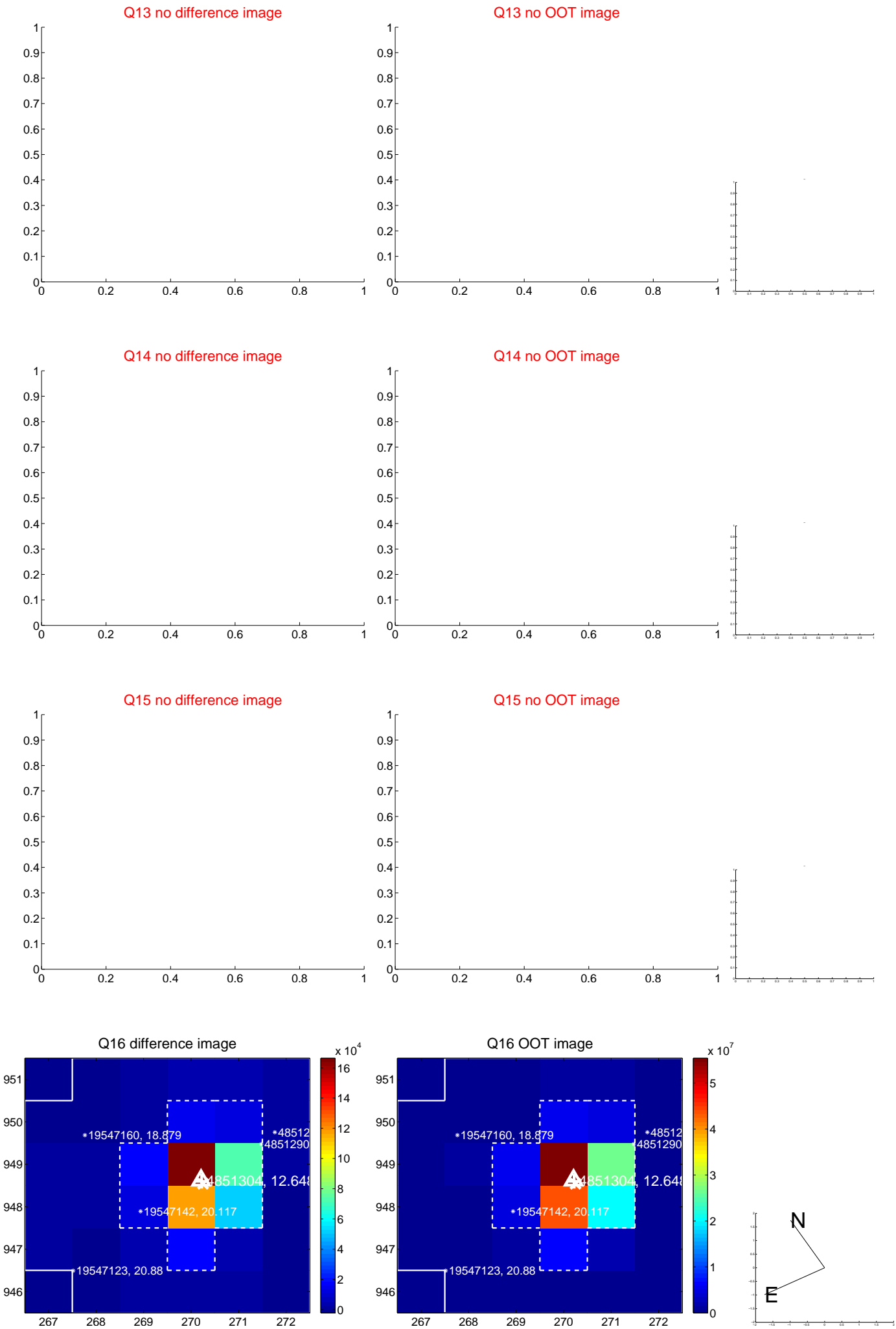
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



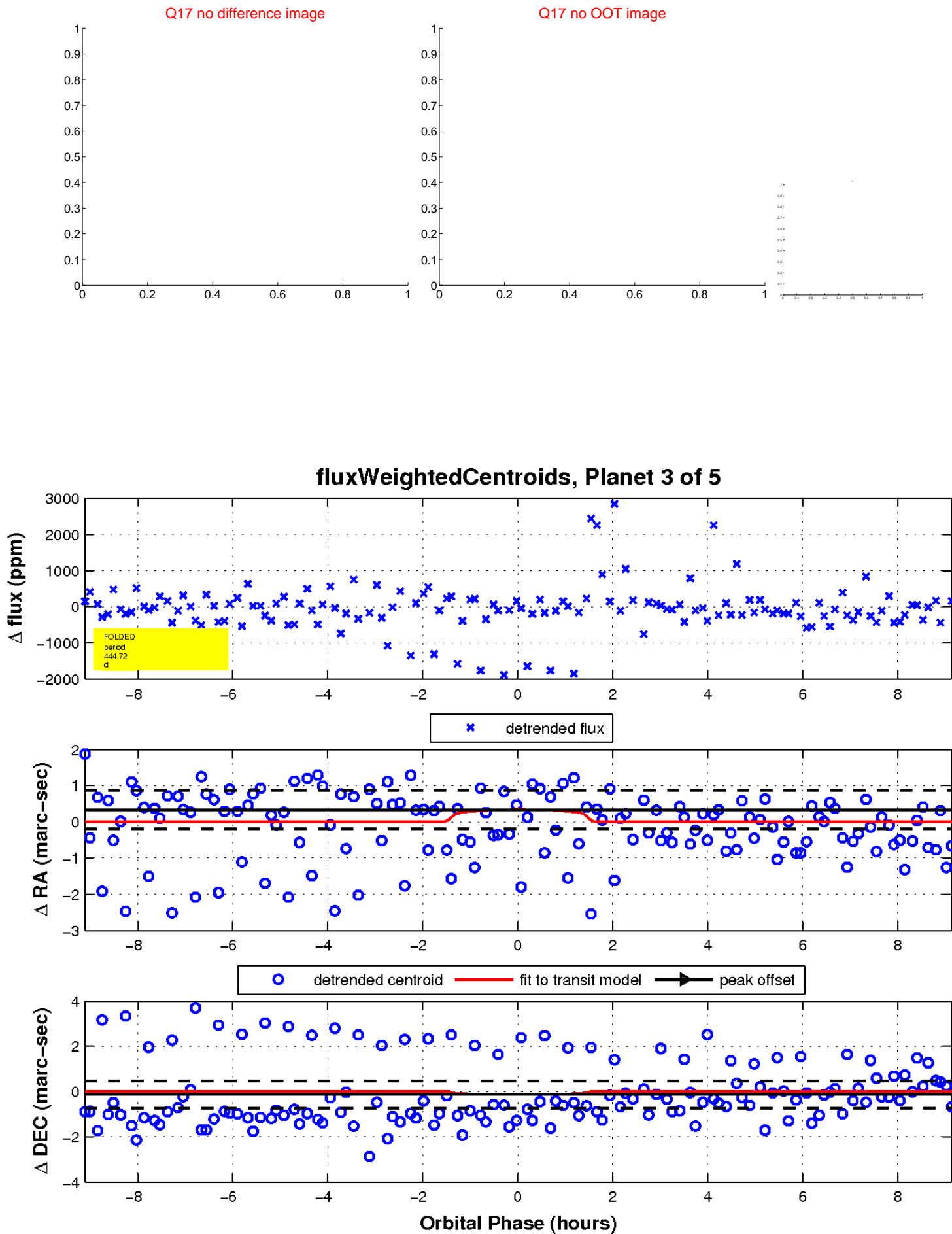
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

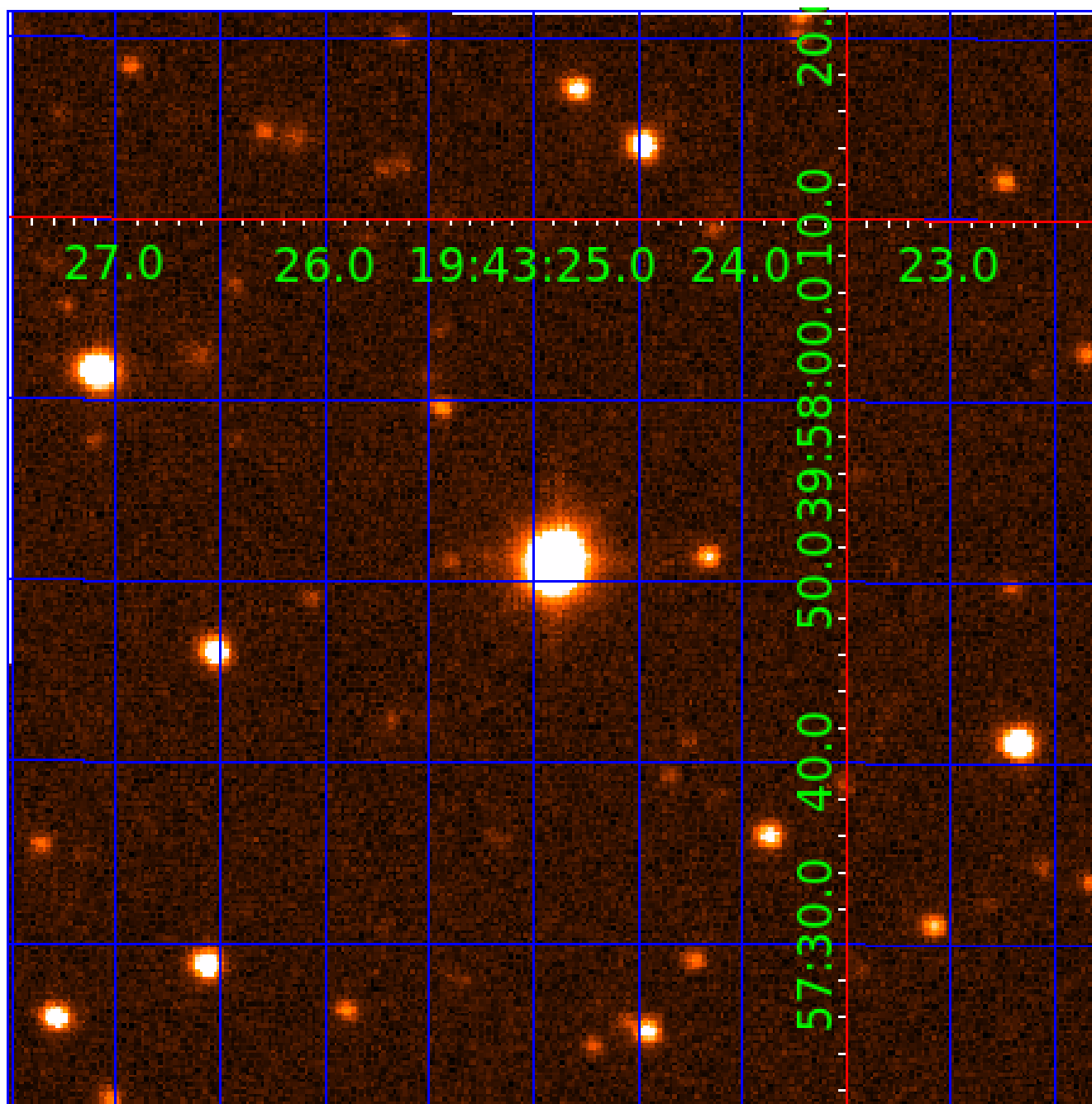


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004851304

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})
004851304-02	OBS	No	296.247338	256.257470	734.6	2.305	15.4	7.6	0.94	5604	2.56	1.09
004851304-03	OBS	No	444.720028	196.900520	609.5	3.066	16.0	7.3	0.94	5604	2.51	0.64
004851304-04	OBS	No	542.067233	463.944058	823.3	18.250	14.9	5.3	0.94	5604	2.65	0.49
004851304-05	OBS	No	590.023864	250.051876	797.8	4.734	12.7	7.6	0.94	5604	2.90	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS
004851304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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
004851304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004851304-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST

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

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

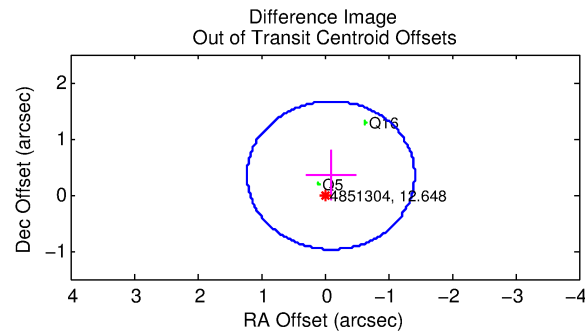
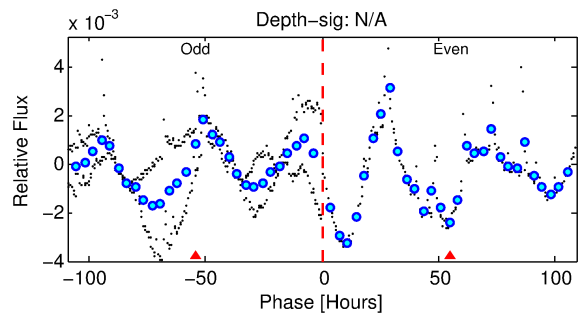
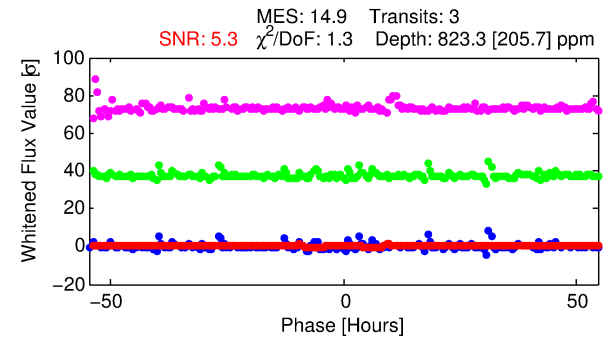
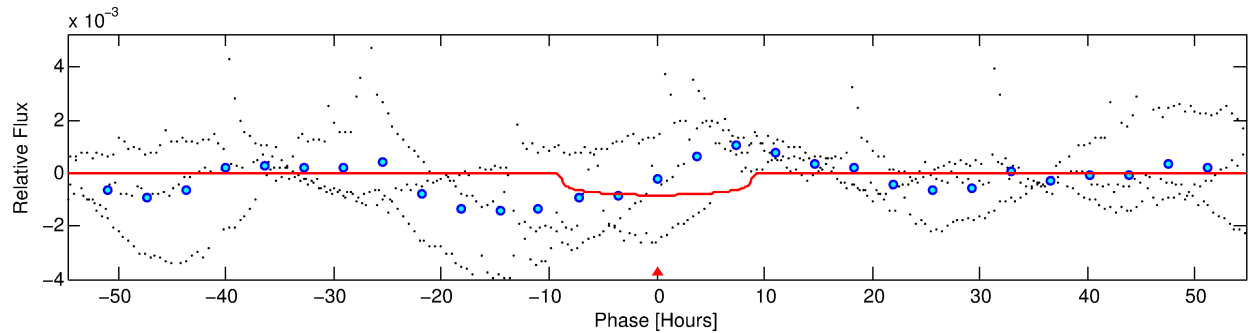
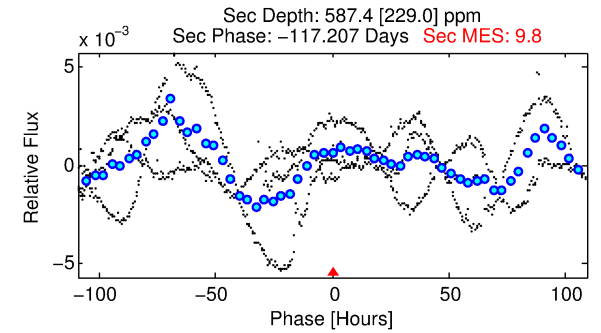
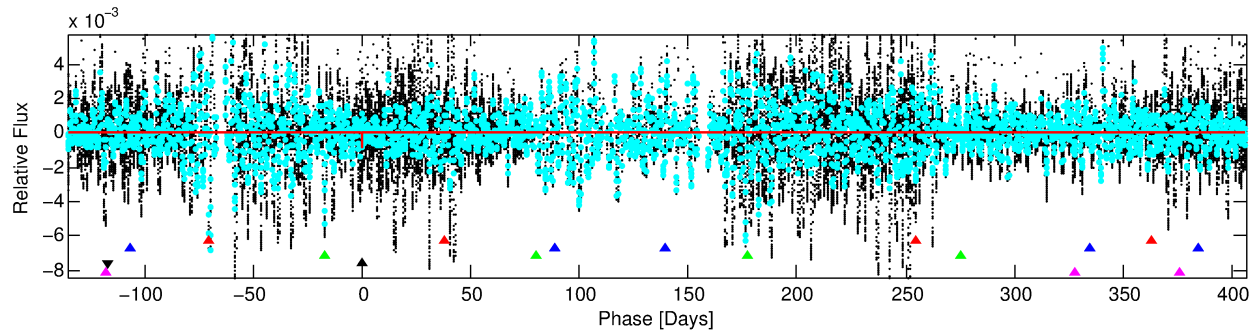
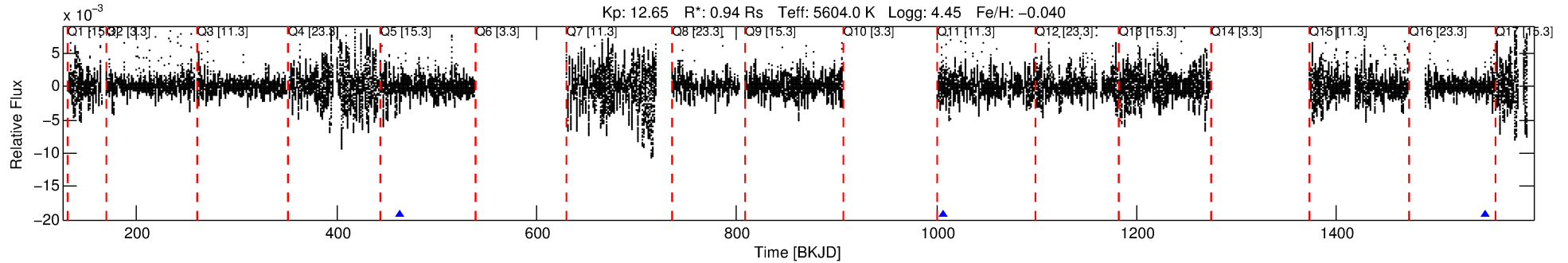
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004851304-04

No Significant Match Found

DV One-Page Summary

KIC: 4851304 Candidate: 4 of 5 Period: 542.067 d



DV Fit Results:

Period = 542.06723 [0.00653] d
Epoch = 463.9441 [0.0076] BKJD
Rp/R* = 0.0259 [0.0090]
a/R* = 231.75 [297.45]
b = 0.10 [13.21]
Seff = 0.49 [0.18]
Teq = 213 [19] K
Rp = 2.65 [1.16] Re
a = 1.2577 [0.2825] AU
Ag = 72914.97 [63010.63] [1.16] σ
Teffp = 5419 [1098] K [4.74] σ

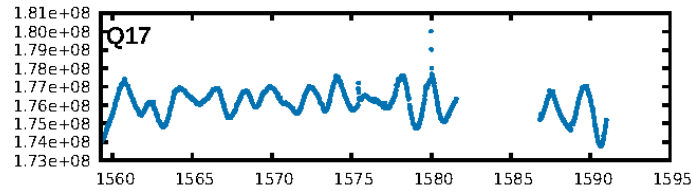
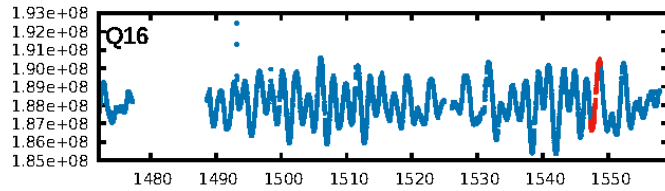
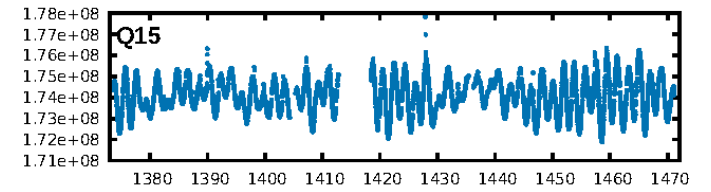
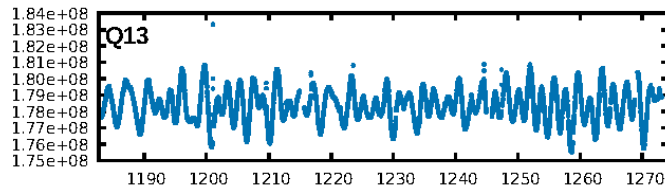
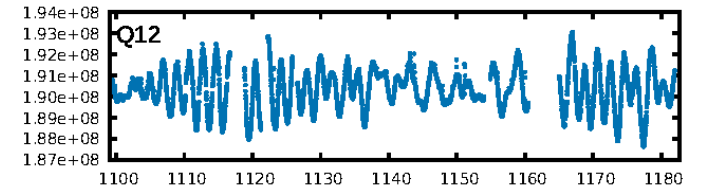
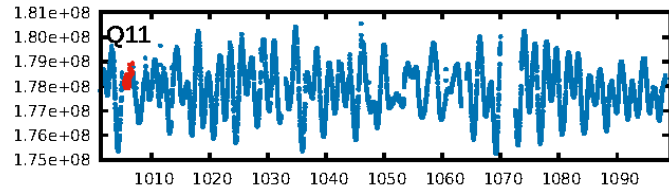
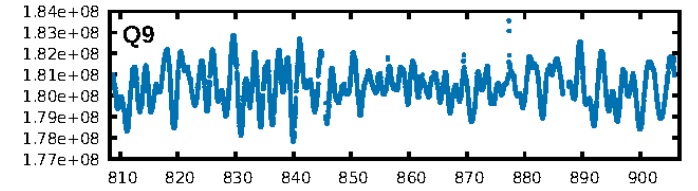
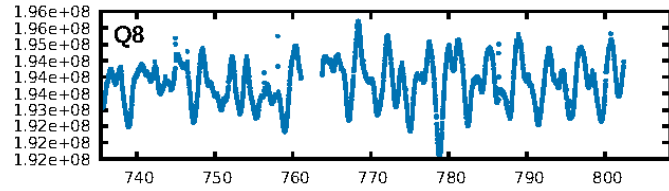
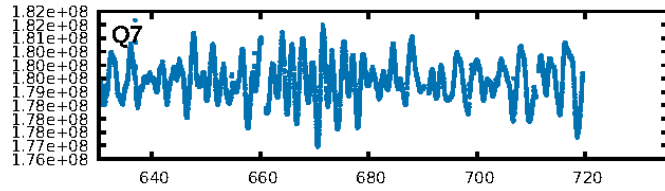
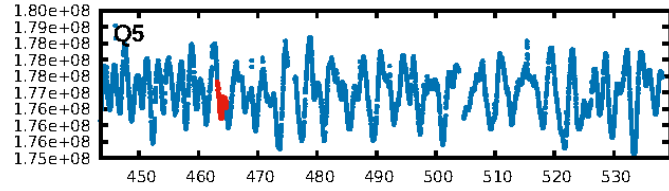
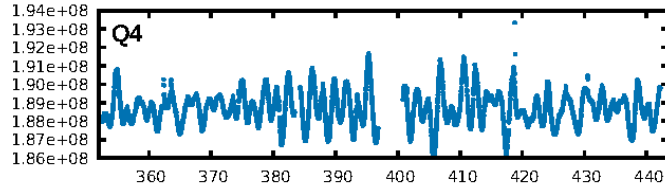
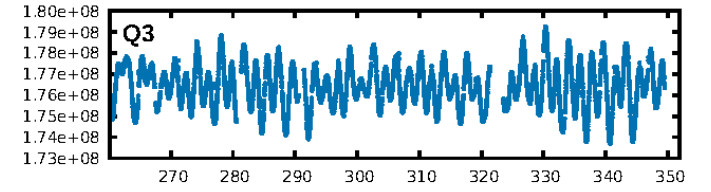
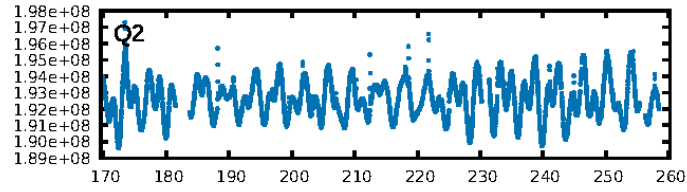
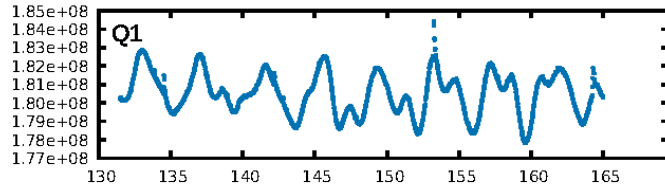
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [126.25] σ
LongPeriod-sig: 100.0% [61.05] σ
ModelChiSquare2-sig: 3.1%
ModelChiSquareGof-sig: 80.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.844
Centroid-sig: 95.8%
Centroid-so: 0.140 arcsec [0.24] σ
OotOffset-rm: 0.359 arcsec [0.82] σ
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.447 arcsec [0.87] σ
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

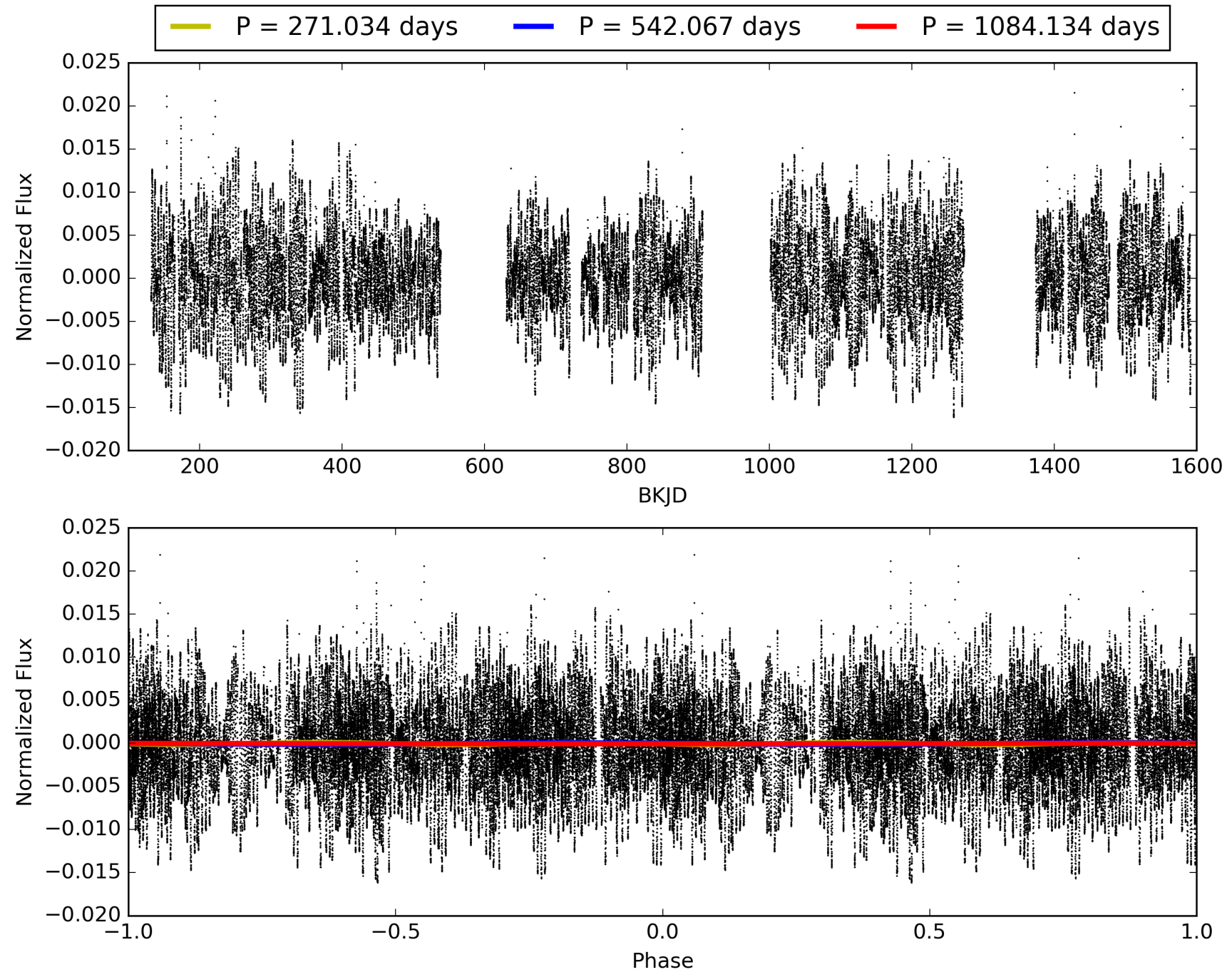
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:24:10 Z

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

TCE 004851304-04, PDC Light Curves

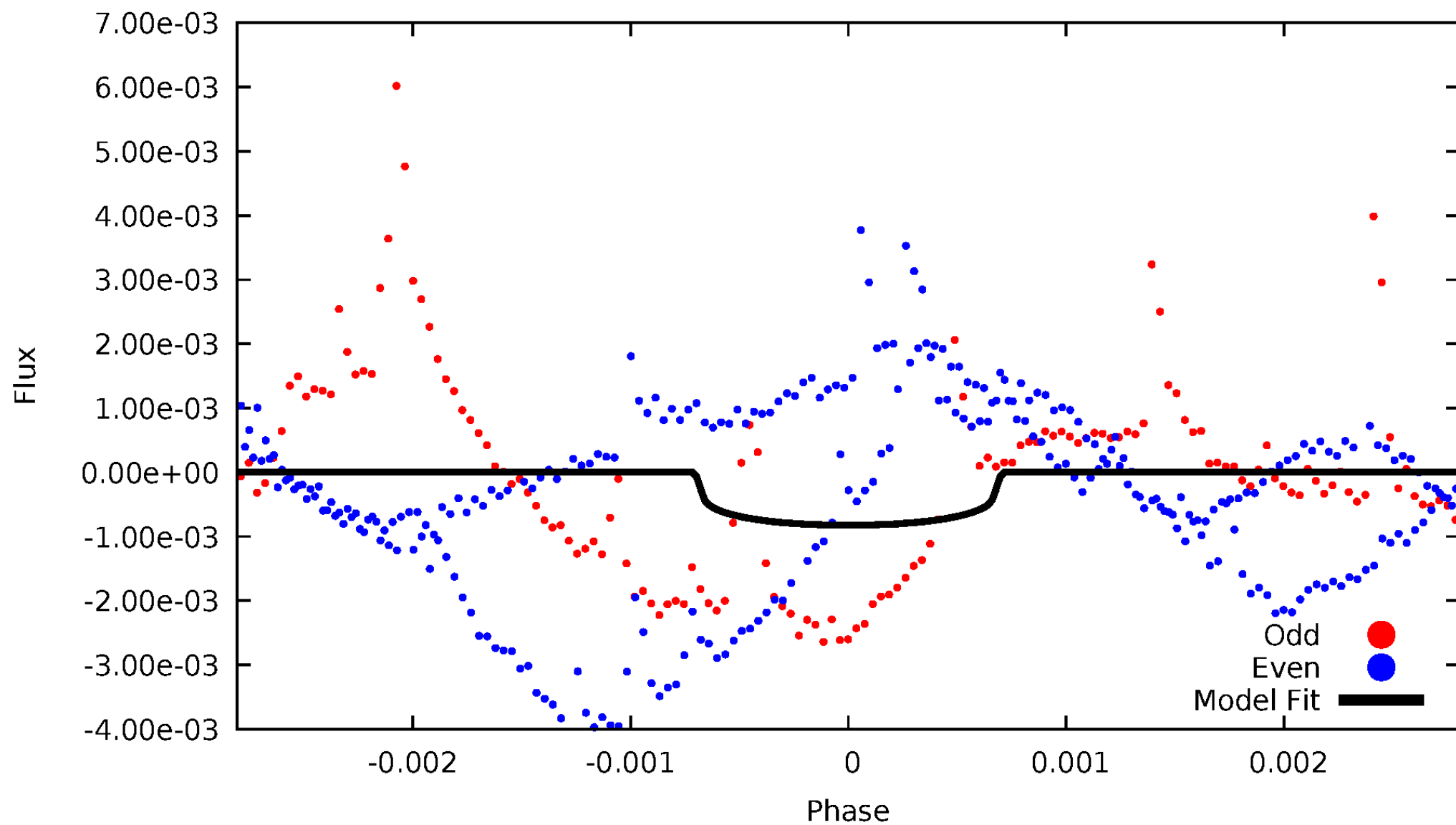


TCE 004851304-04



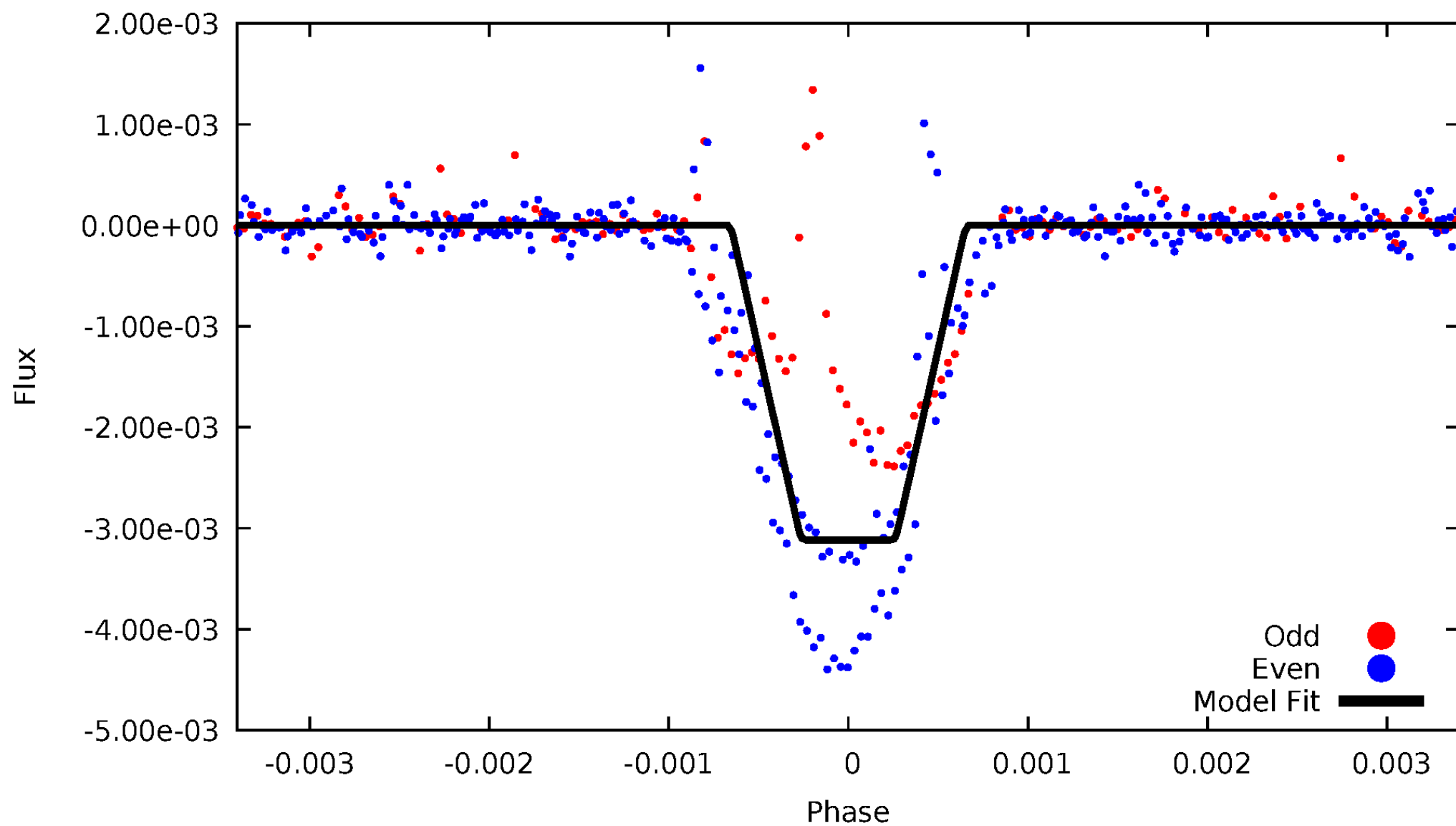
DV Odd/Even

TCE 004851304-04



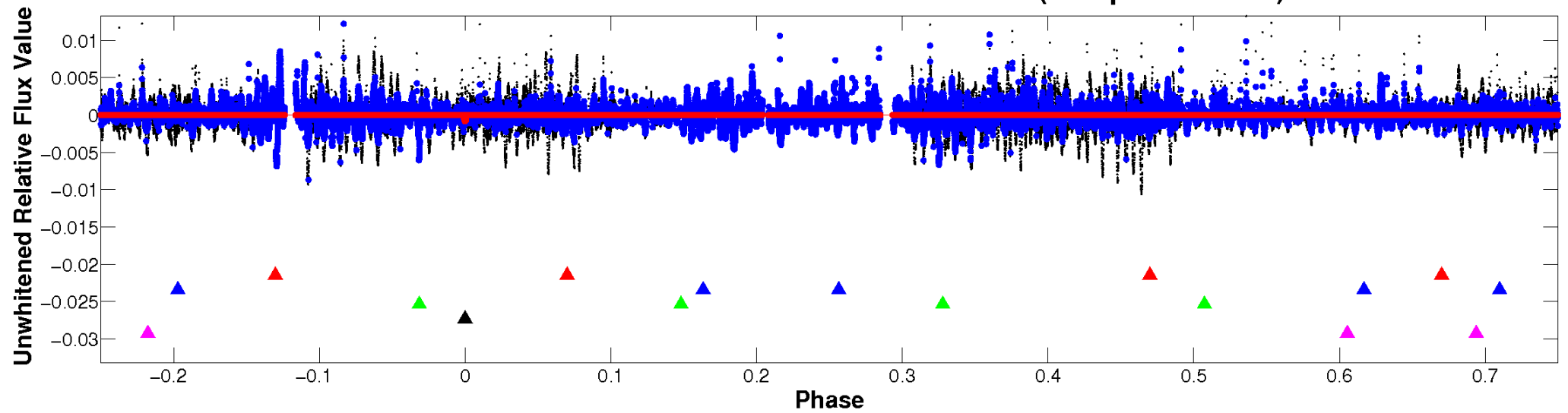
ALT Odd/Even

TCE 004851304-04

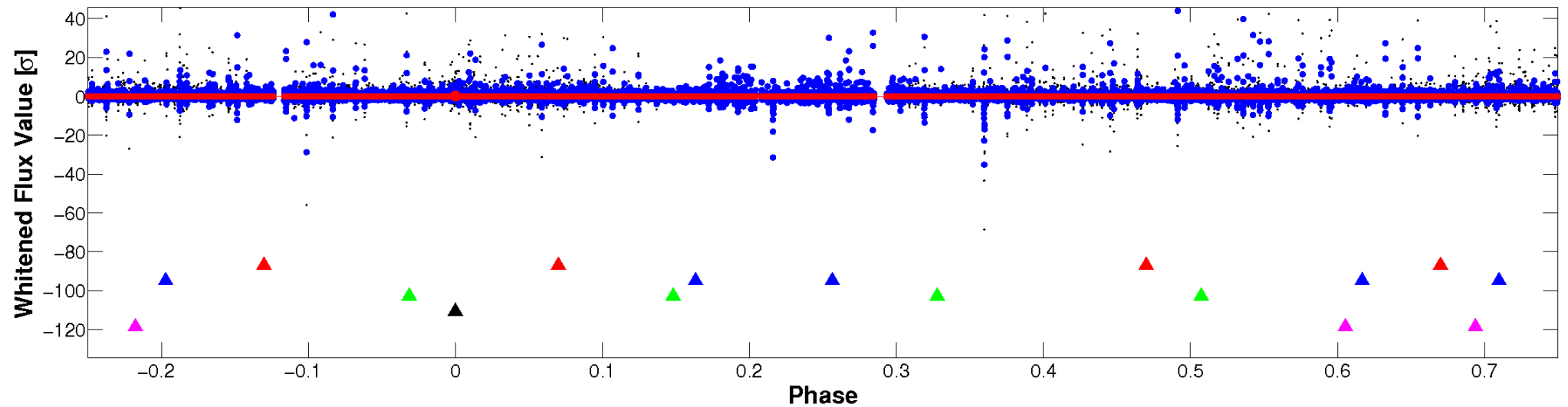


Non-Whitened Vs. Whitened Light Curve

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

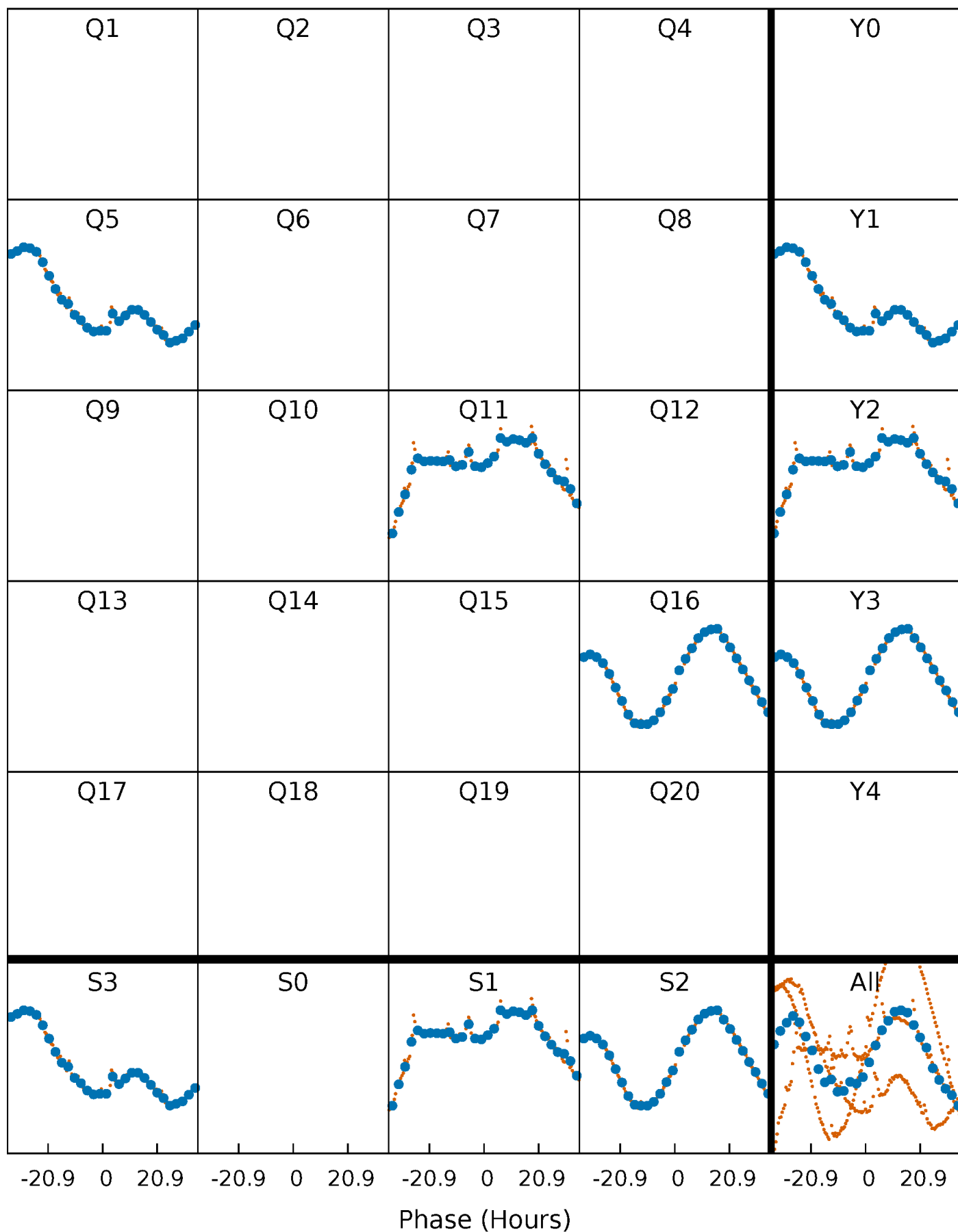


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



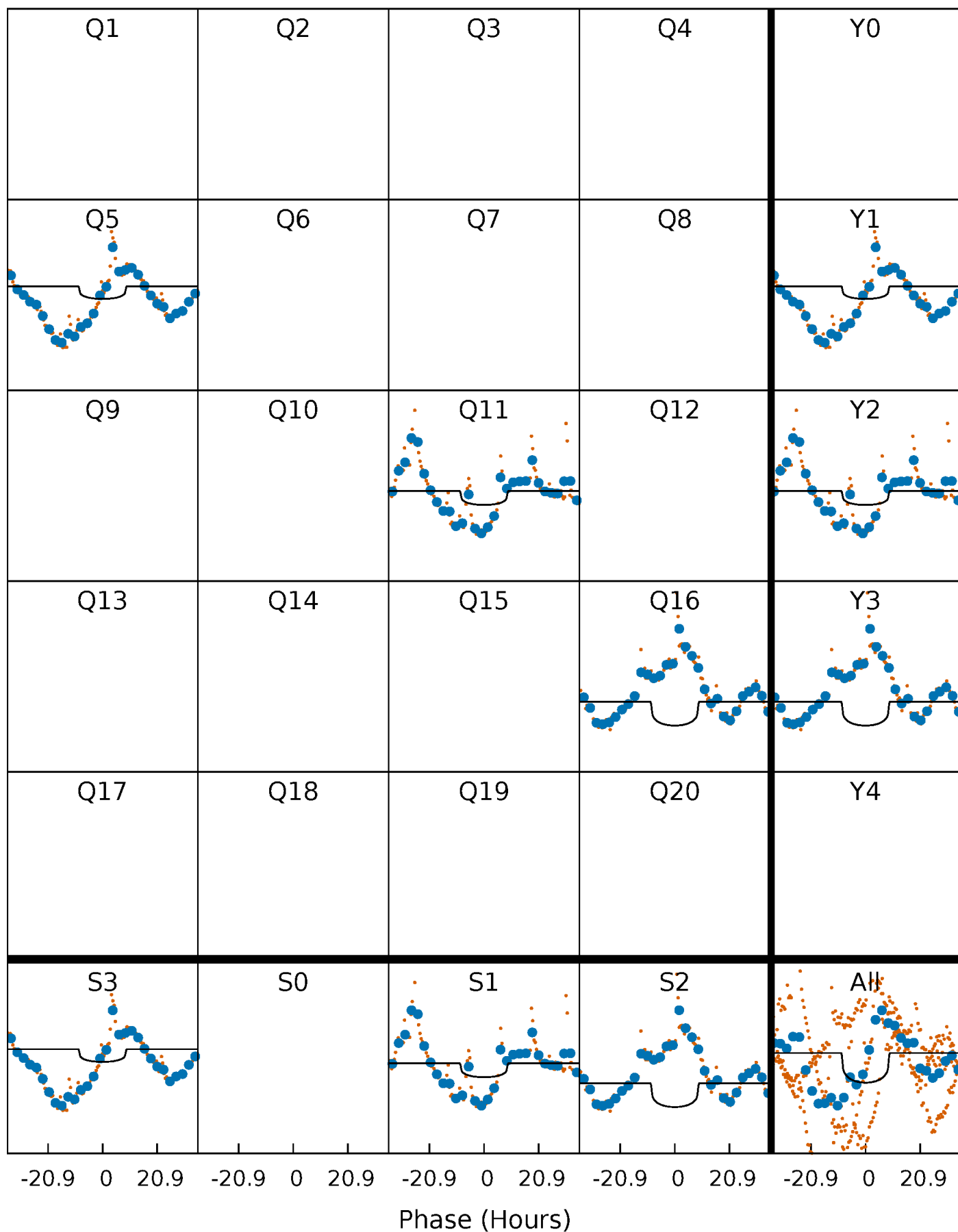
PDC Quarter-Phased Transit Curves

TCE 004851304-04 $P=542.067233$ Days $T_0=463.944058$ (BKJD)



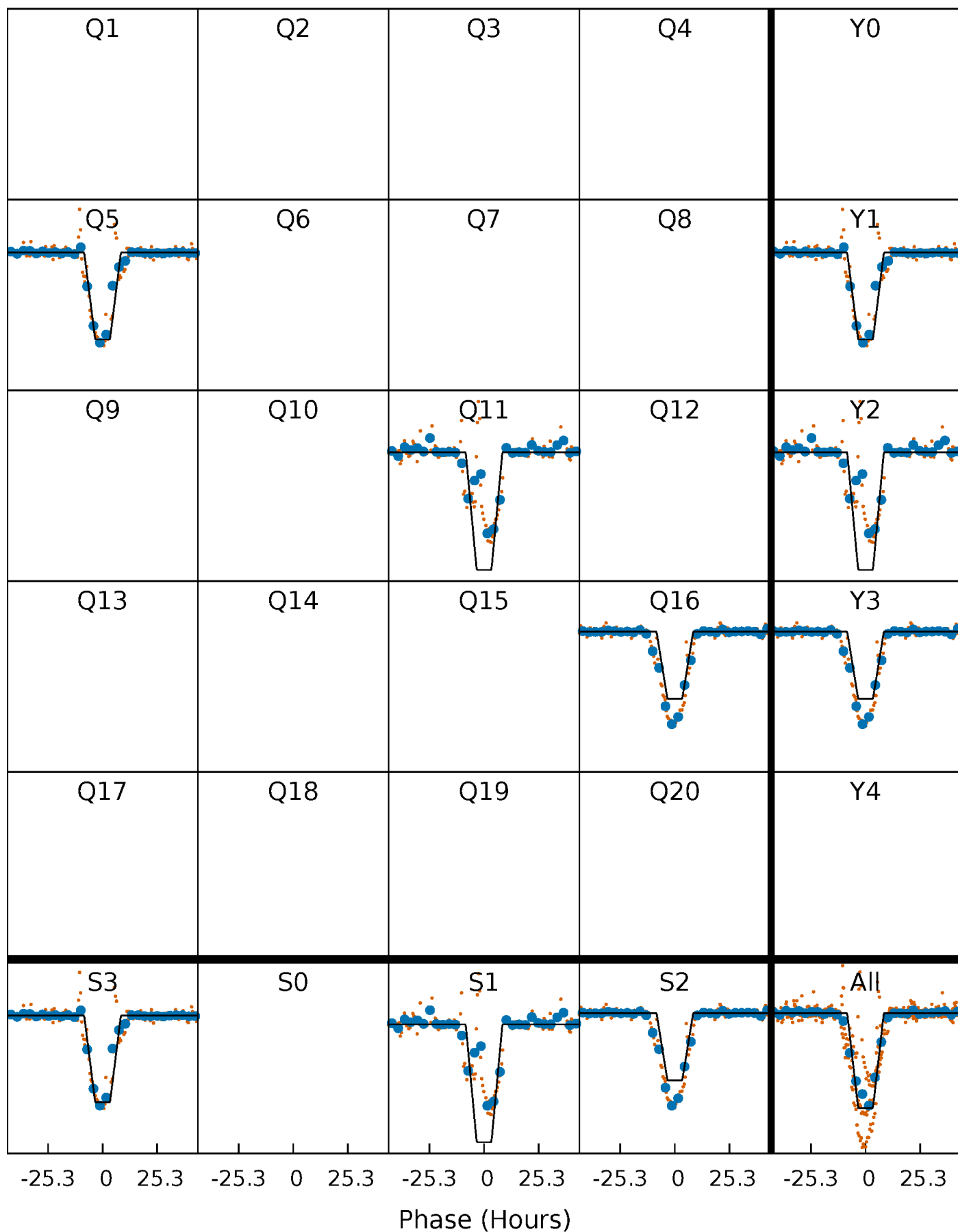
DV Quarter-Phased Transit Curves

TCE 004851304-04 $P=542.067233$ Days $T_0=463.944058$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

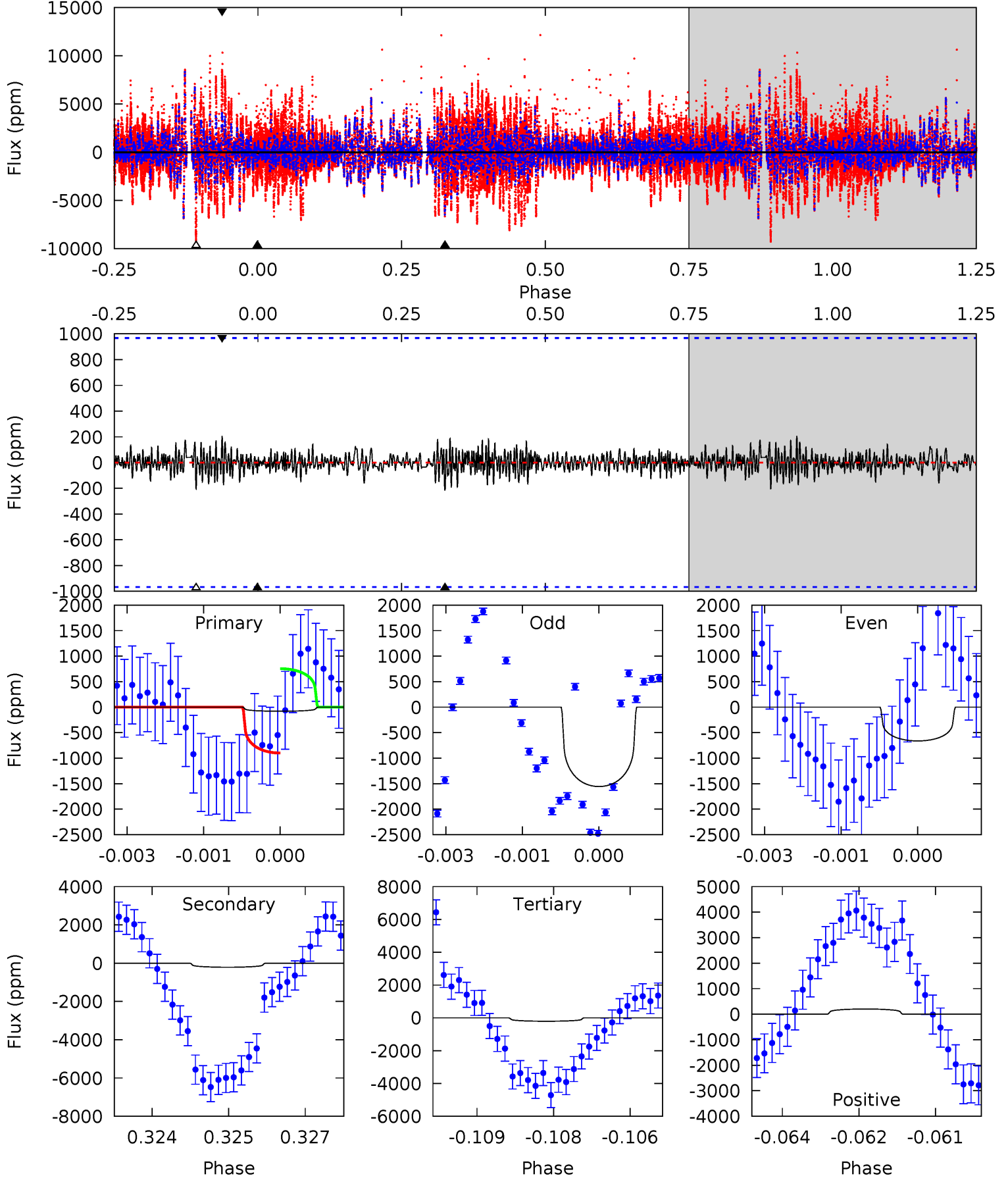
TCE 004851304-04 P=542.013801 Days $T_0=463.859207$ (BKJD)



DV Model-Shift Uniqueness Test

004851304-04, P = 542.067233 Days, E = 463.944058 Days

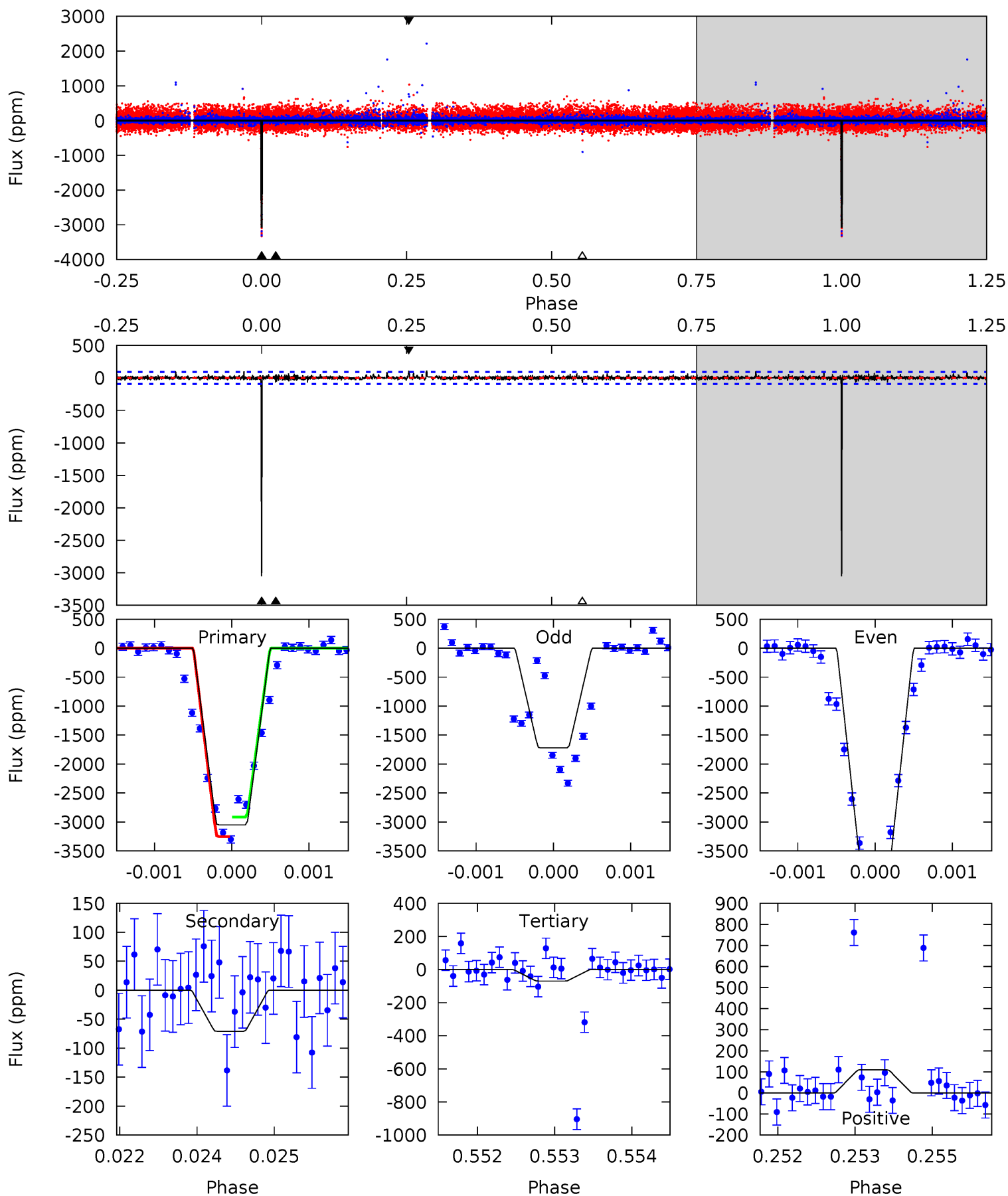
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.45	1.18	1.14	1.13	5.38	3.18	0.32	-0.69	-0.68	0.04	0.05	2.40	0.22	0.49	0.40



Alt Model-Shift Uniqueness Test

004851304-04, P = 542.013801 Days, E = 463.859207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
177.1	4.11	4.04	6.36	5.40	3.21	0.77	173.1	170.8	0.07	-2.25	69.2	0.99	0.03	0



Stellar Parameters For KIC 004851304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5604^{+197}_{-197}	$4.451^{+0.098}_{-0.182}$	$-0.040^{+0.300}_{-0.300}$	$0.936^{+0.247}_{-0.133}$	$0.902^{+0.115}_{-0.094}$	$1.550^{+0.635}_{-0.728}$
	+4%/-4%	+2%/-4%	+750%/-750%	+26%/-14%	+13%/-10%	+41%/-47%
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 004851304-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-212±180	$2.82^{+1.00}_{-1.01}$	302^{+22}_{-17}	4286^{+1024}_{-1130}	21787^{+42955}_{-18691}
Alt.	-71±17	$5.77^{+1.24}_{-1.03}$	300^{+21}_{-15}	2880^{+184}_{-160}	1791^{+999}_{-671}

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

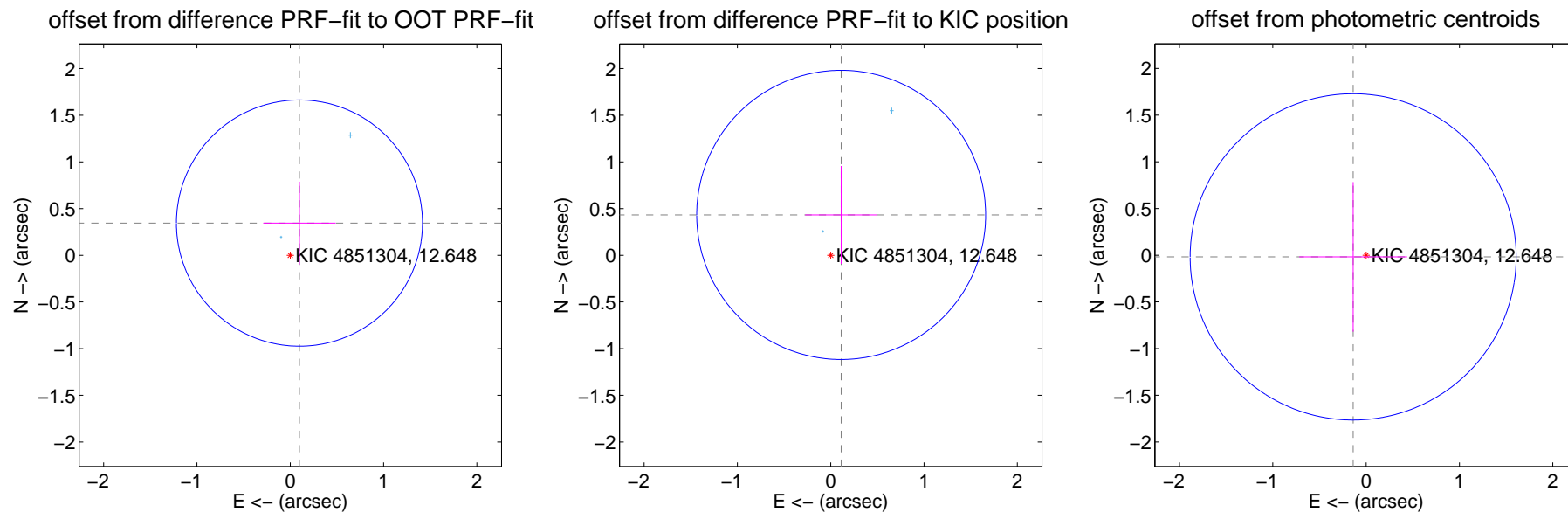
DV Centroid Data

Supplemental centroid analysis for 004851304-04. Kepler magnitude: 12.65. Transit SNR 5.27

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.359 ± 0.440	0.82	-0.098 ± 0.388	0.345 ± 0.444
PRF-fit source offset from KIC position	0.447 ± 0.516	0.87	-0.112 ± 0.386	0.433 ± 0.524
photometric centroid source offset	0.14 ± 0.58	0.24	0.14 ± 0.58	-0.02 ± 0.80

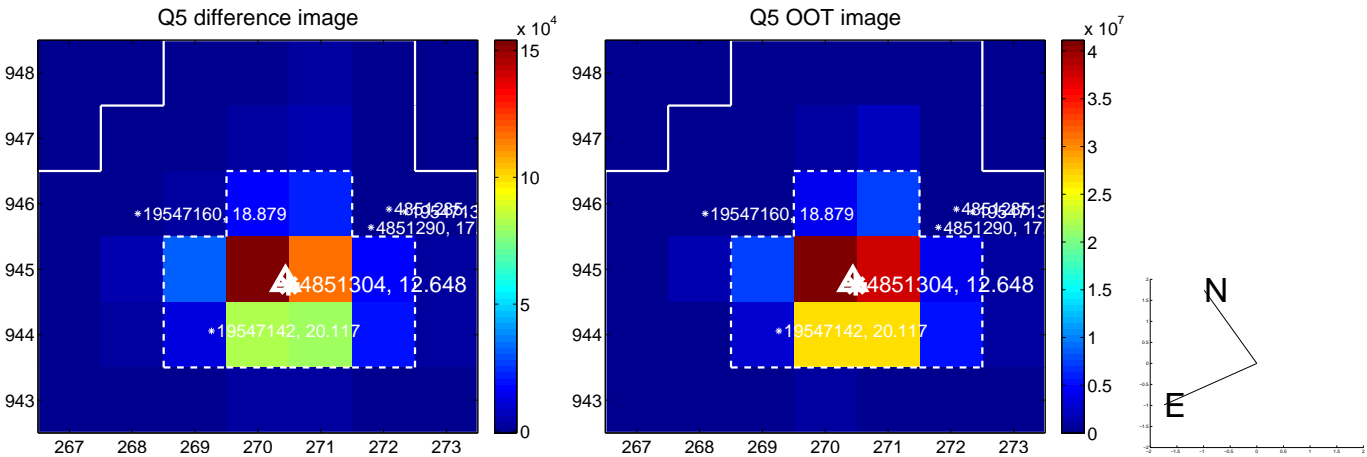


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

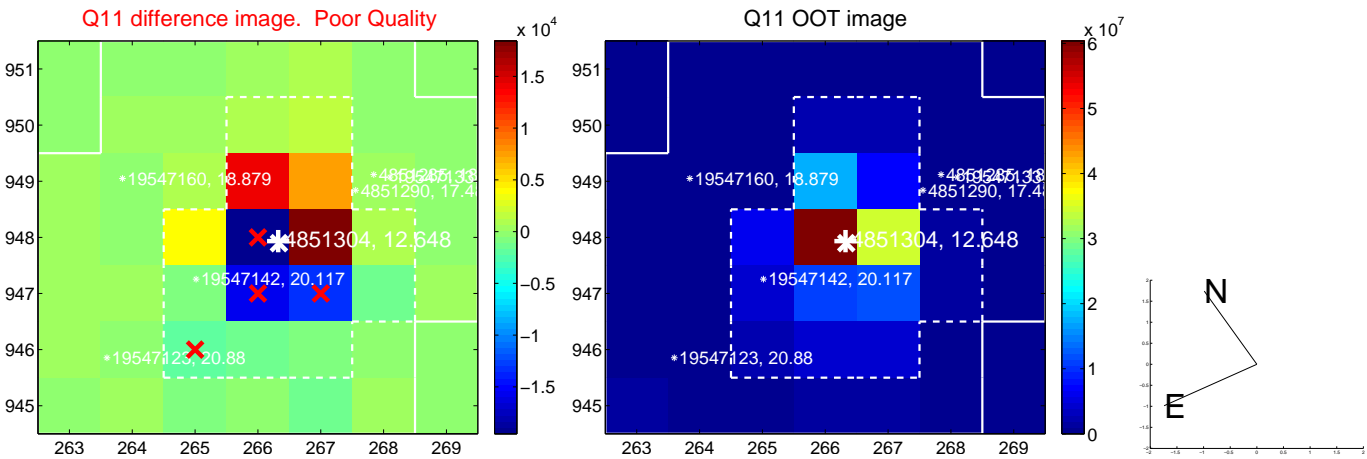
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



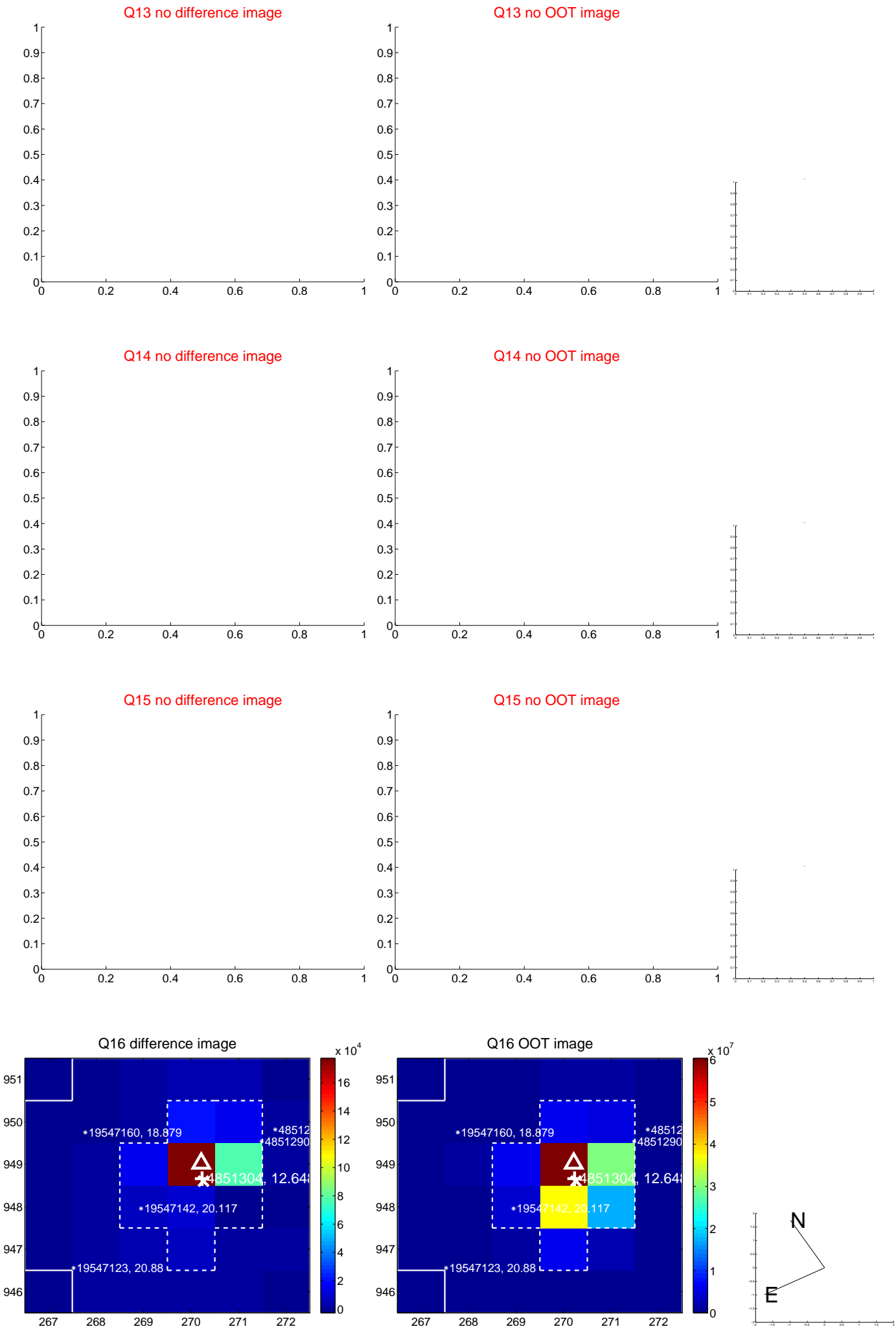
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



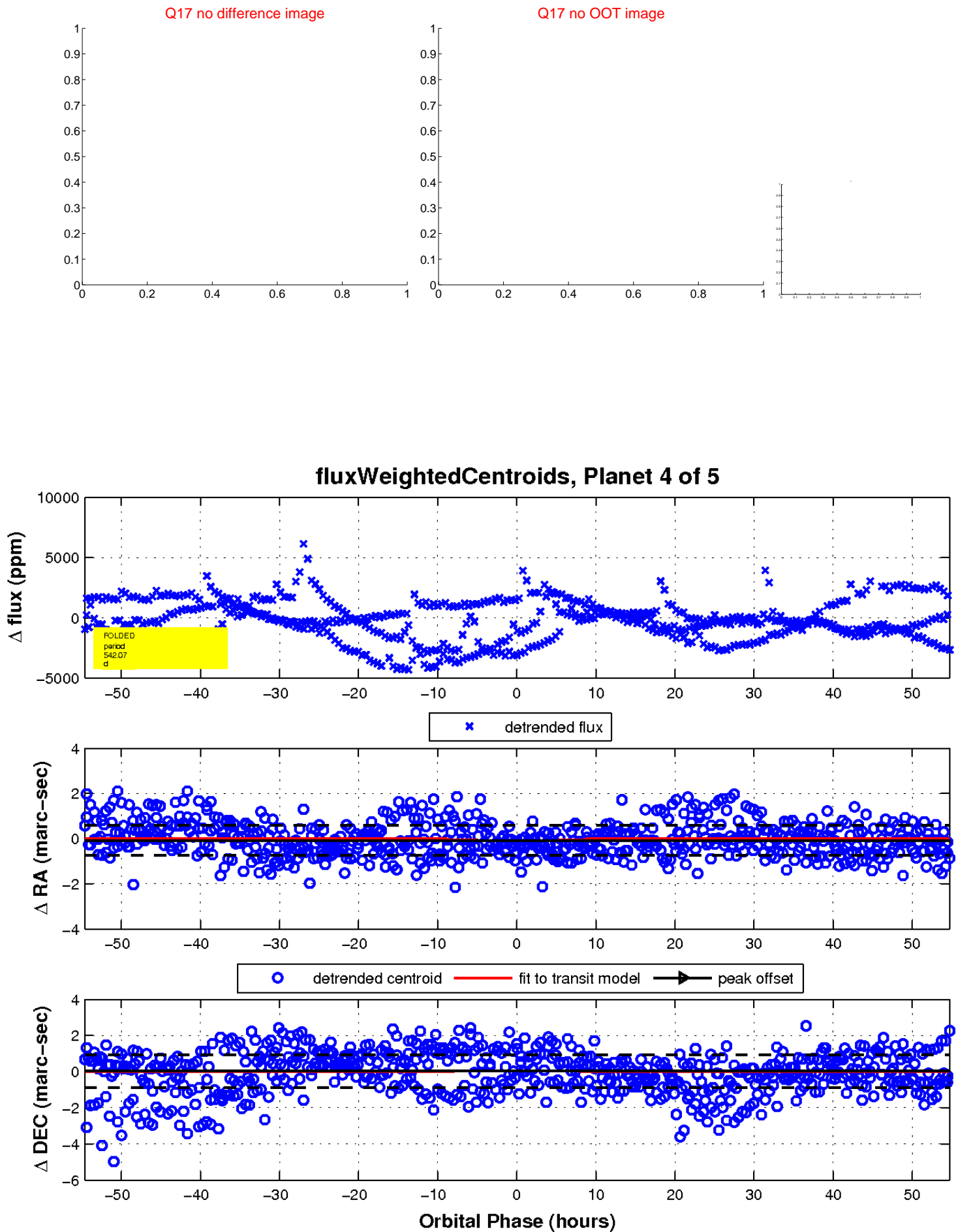
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

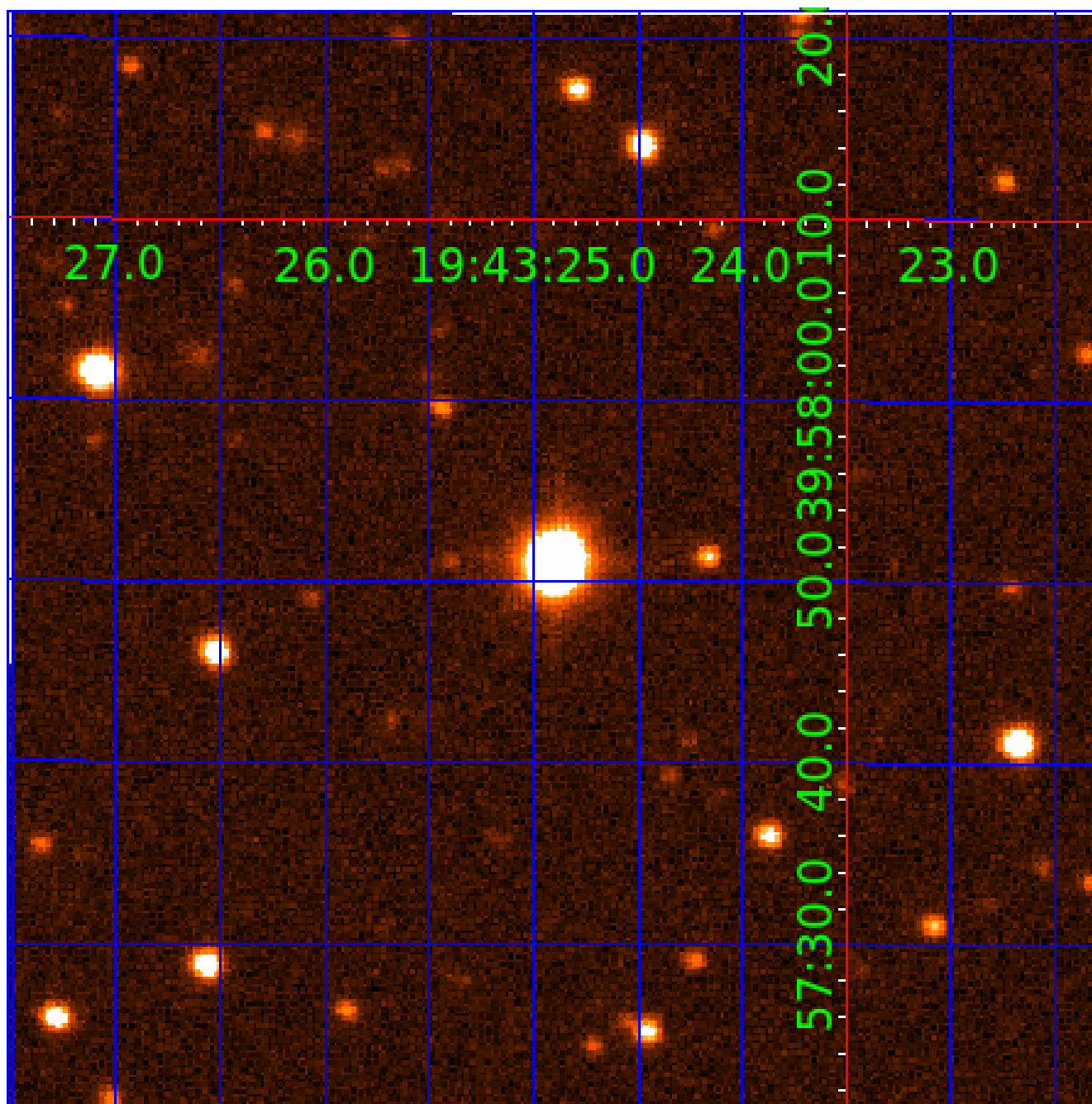


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004851304

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})
004851304-02	OBS	No	296.247338	256.257470	734.6	2.305	15.4	7.6	0.94	5604	2.56	1.09
004851304-03	OBS	No	444.720028	196.900520	609.5	3.066	16.0	7.3	0.94	5604	2.51	0.64
004851304-04	OBS	No	542.067233	463.944058	823.3	18.250	14.9	5.3	0.94	5604	2.65	0.49
004851304-05	OBS	No	590.023864	250.051876	797.8	4.734	12.7	7.6	0.94	5604	2.90	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS
004851304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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
004851304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004851304-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST

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

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

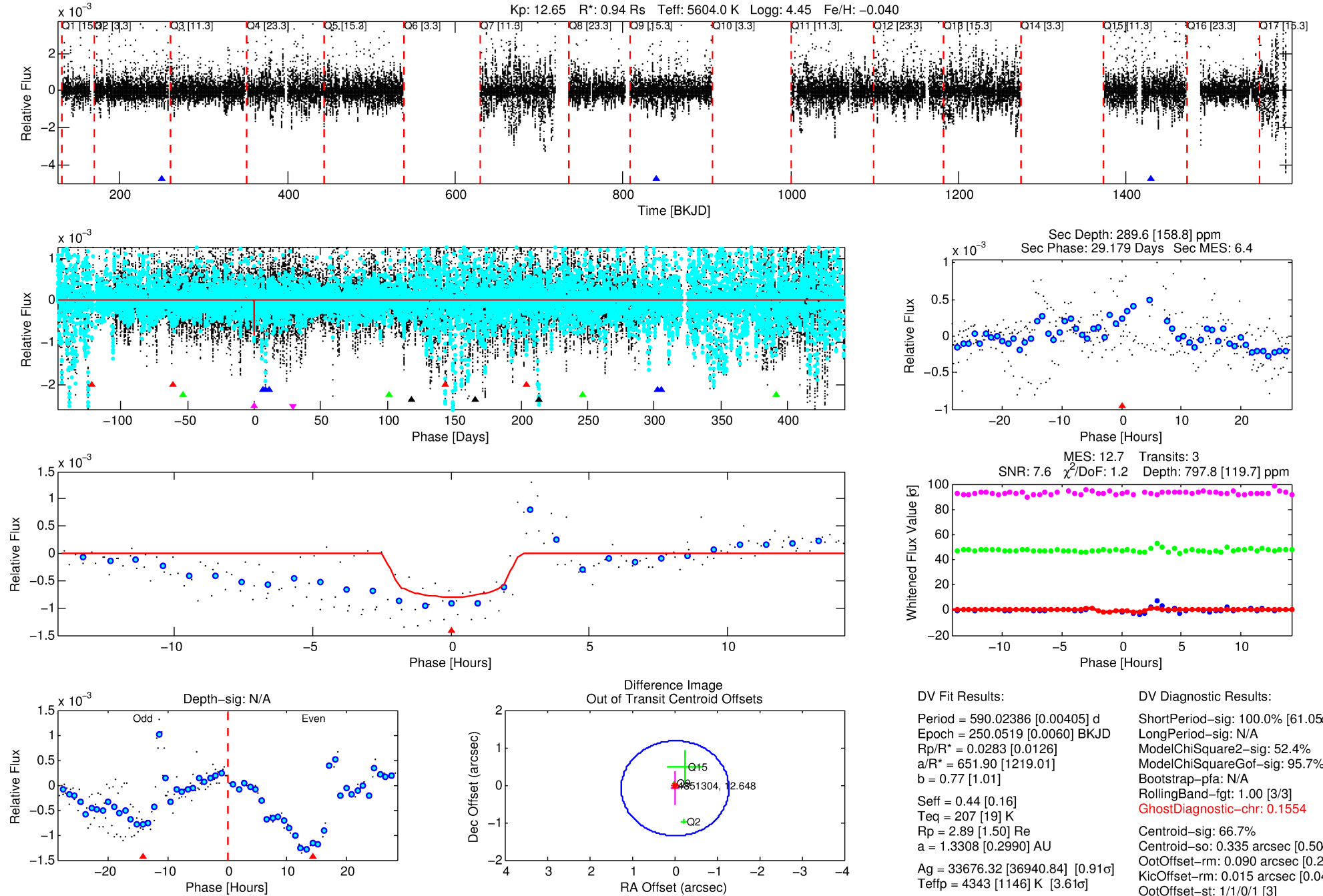
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004851304-05

No Significant Match Found

DV One-Page Summary

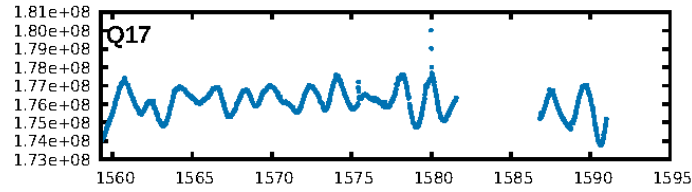
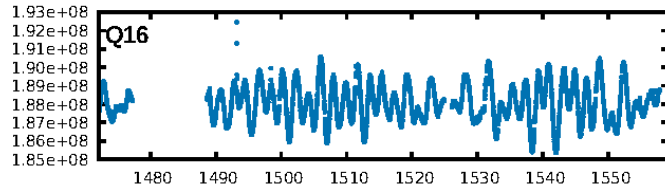
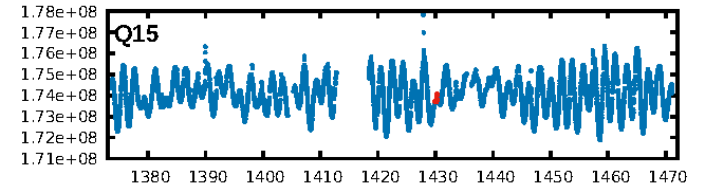
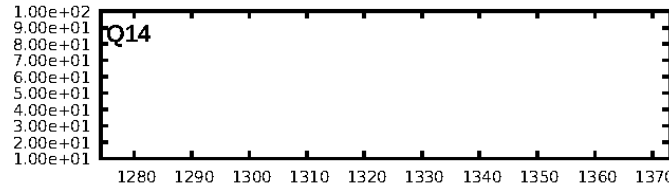
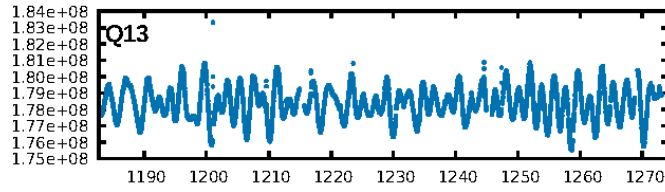
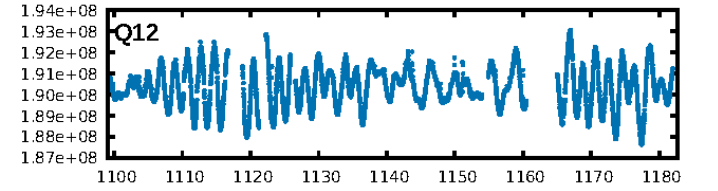
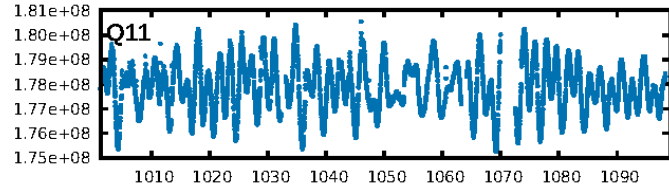
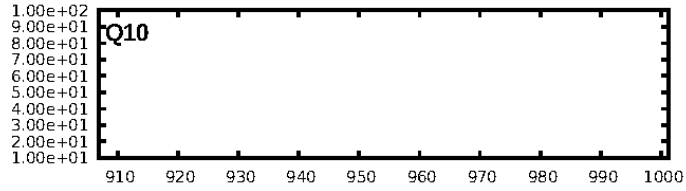
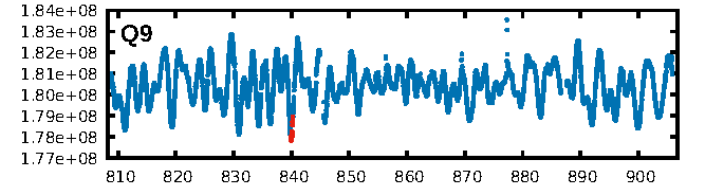
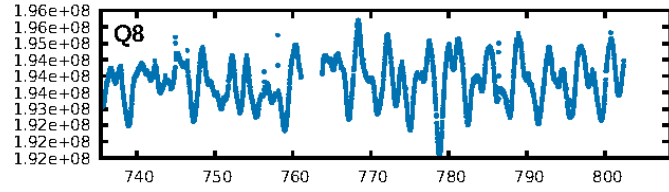
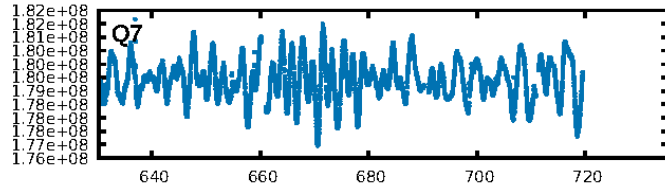
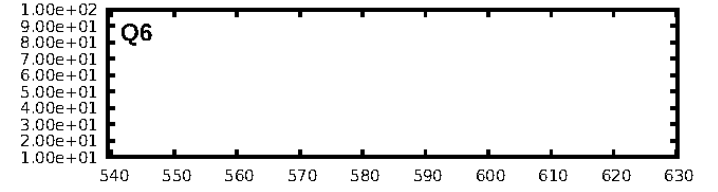
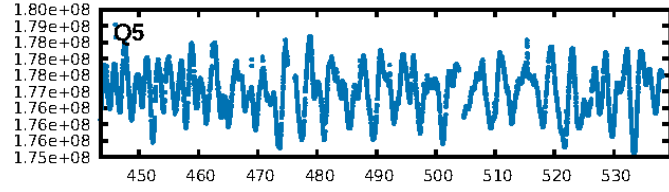
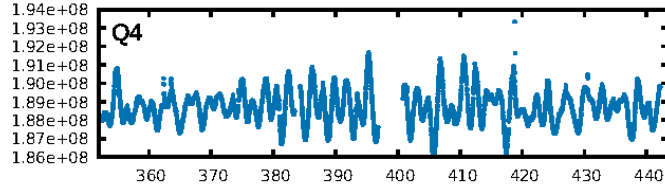
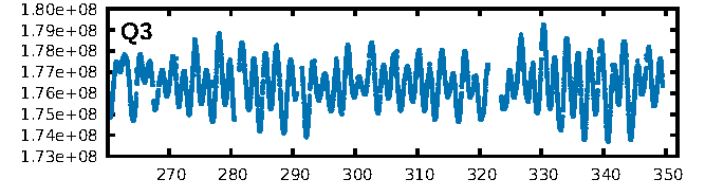
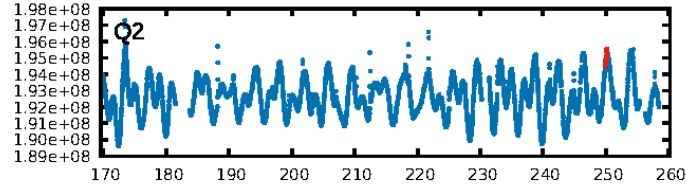
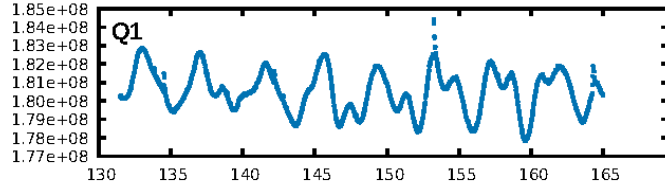
KIC: 4851304 Candidate: 5 of 5 Period: 590.024 d



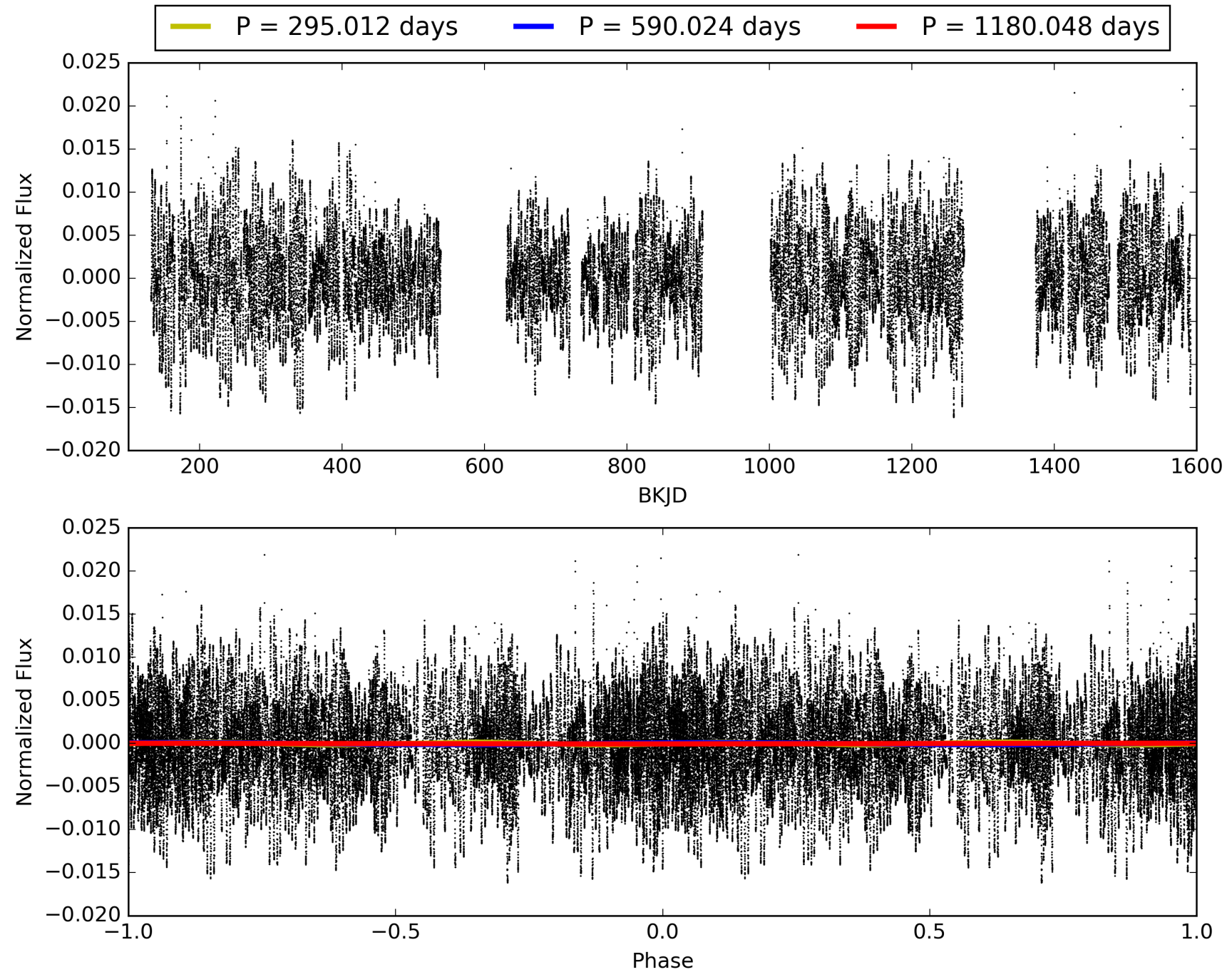
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:24:22 Z

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

TCE 004851304-05, PDC Light Curves

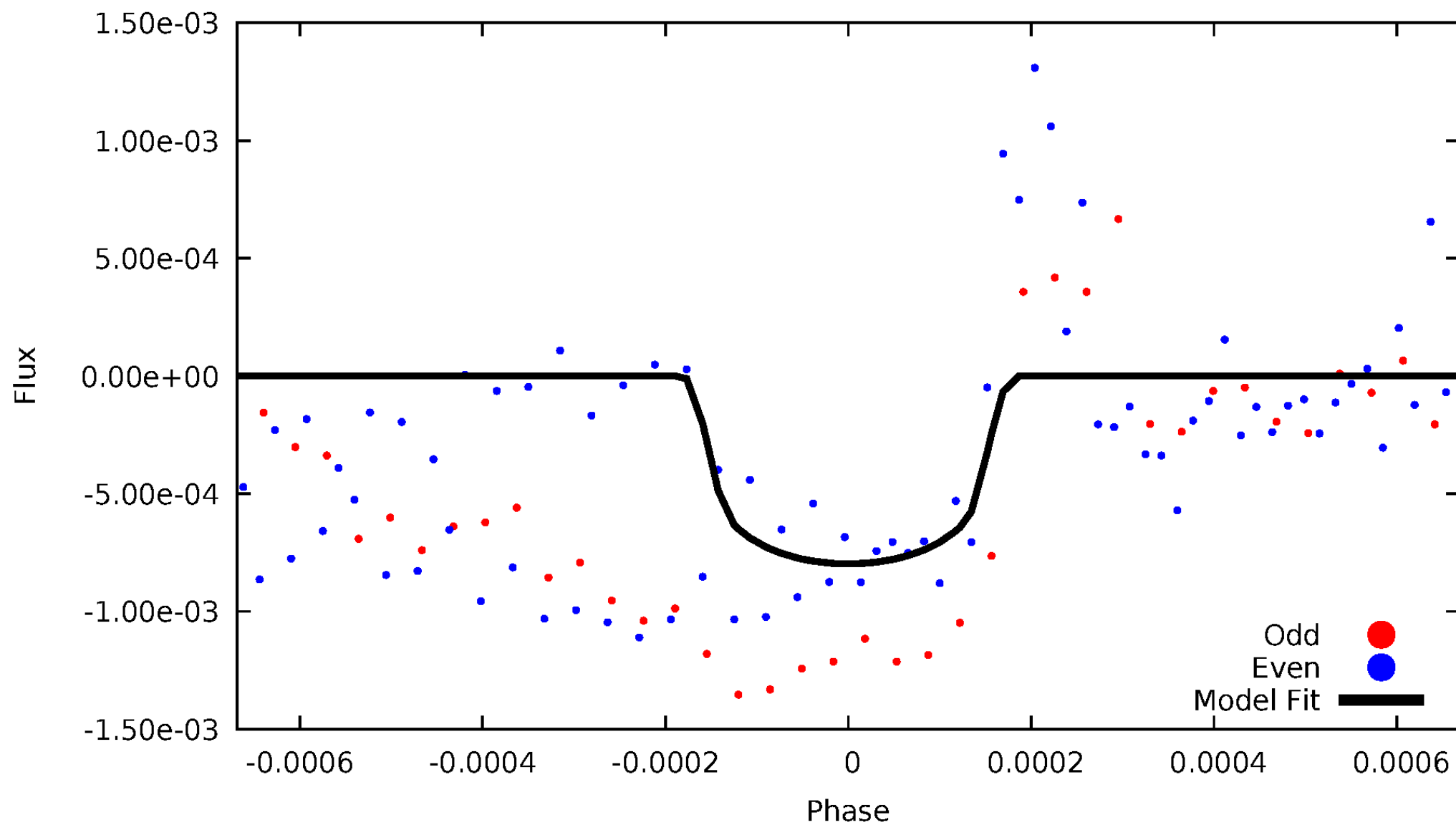


TCE 004851304-05



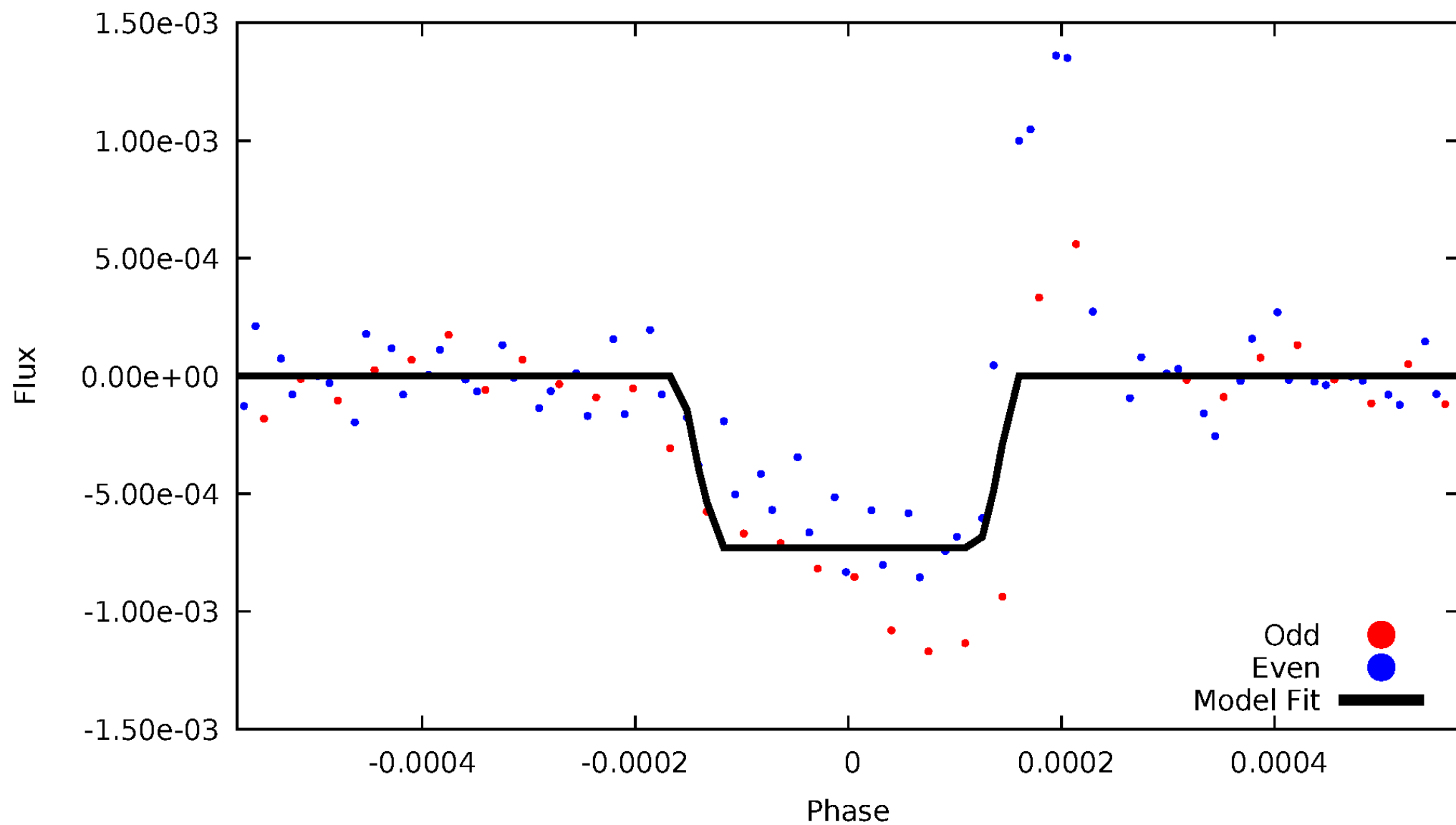
DV Odd/Even

TCE 004851304-05



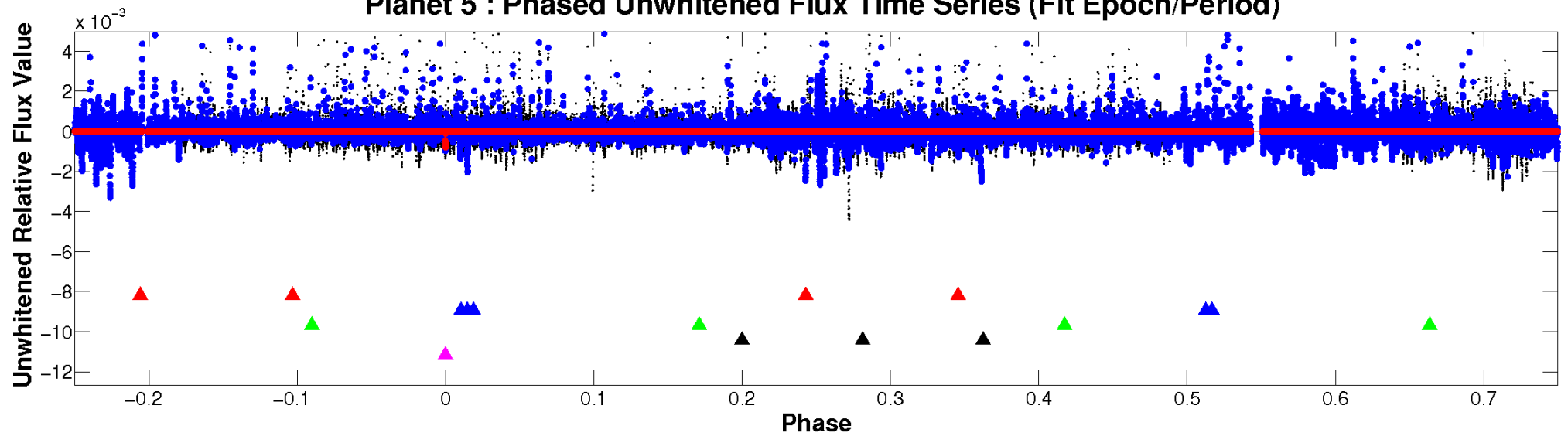
ALT Odd/Even

TCE 004851304-05

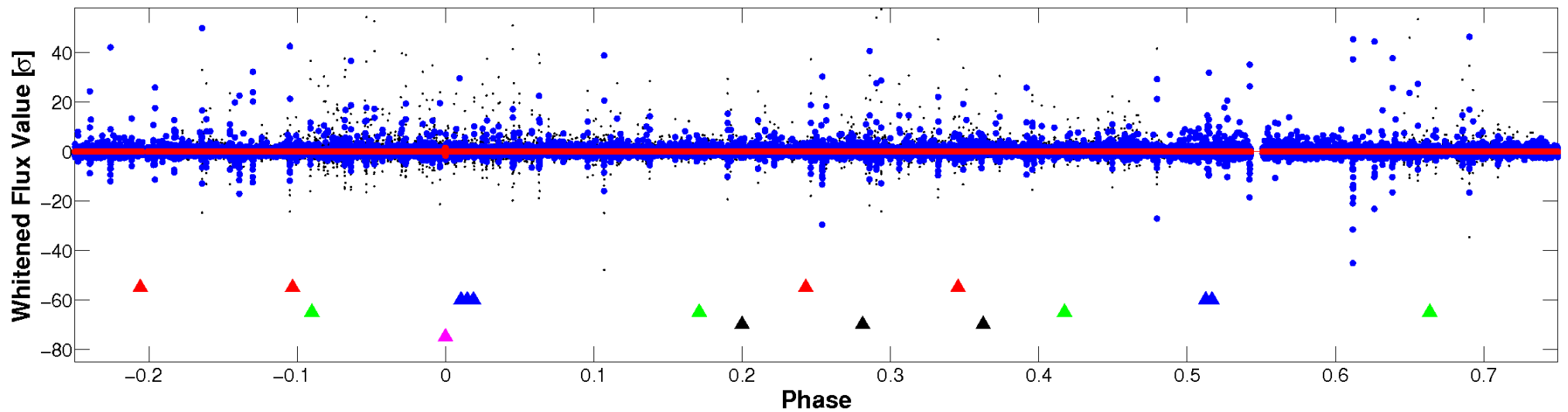


Non-Whitened Vs. Whitened Light Curve

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

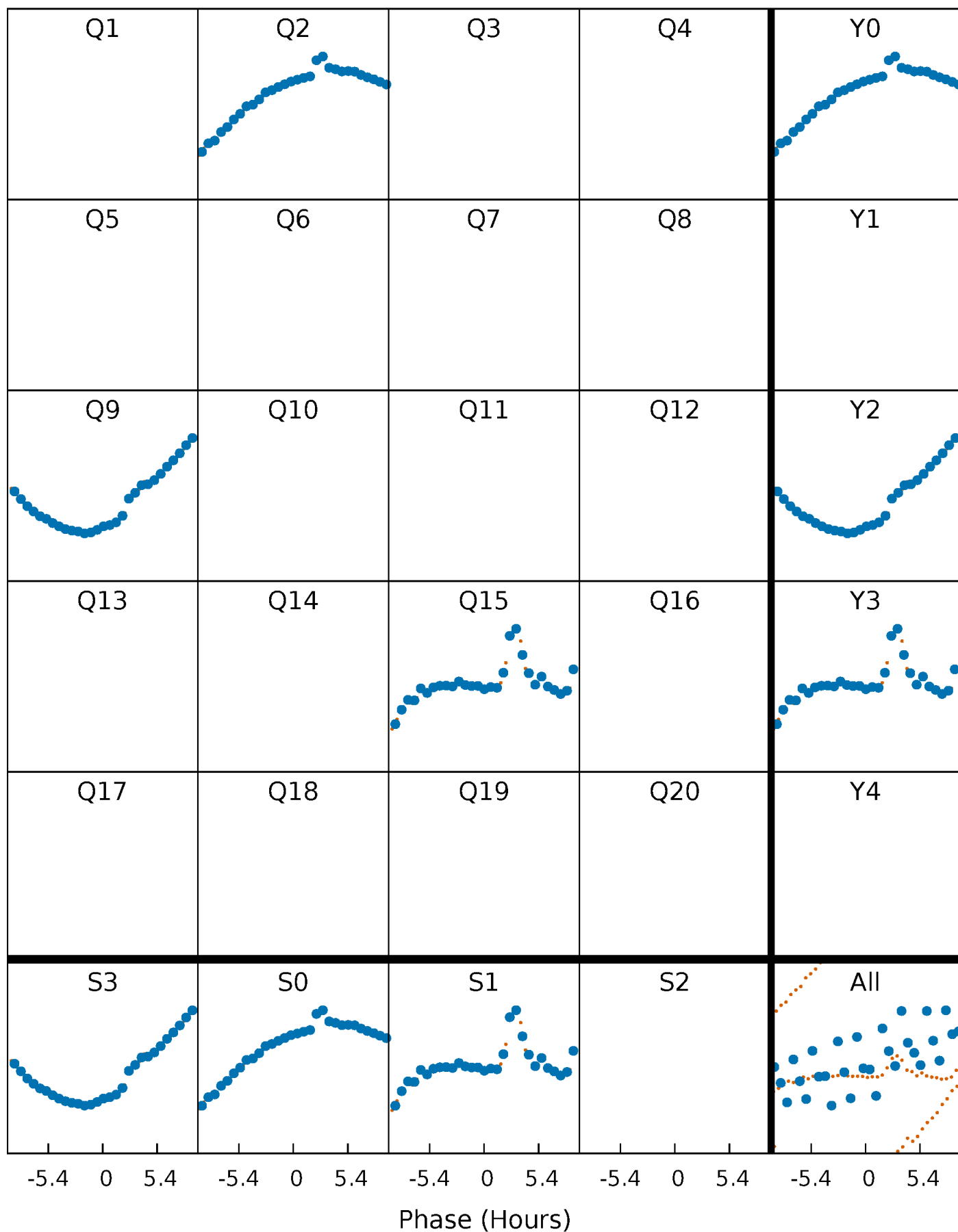


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



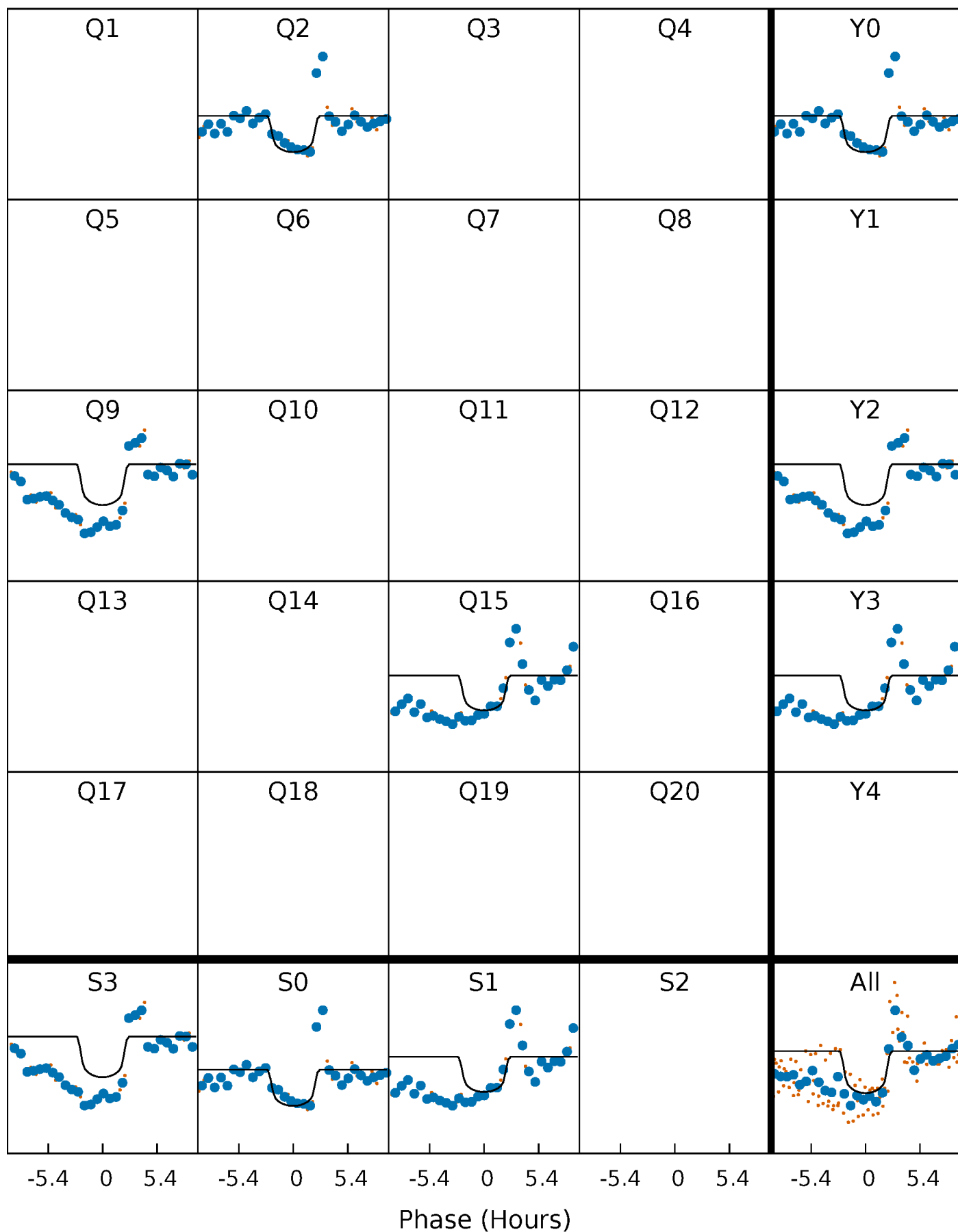
PDC Quarter-Phased Transit Curves

TCE 004851304-05 $P=590.023864$ Days $T_0=250.051876$ (BKJD)



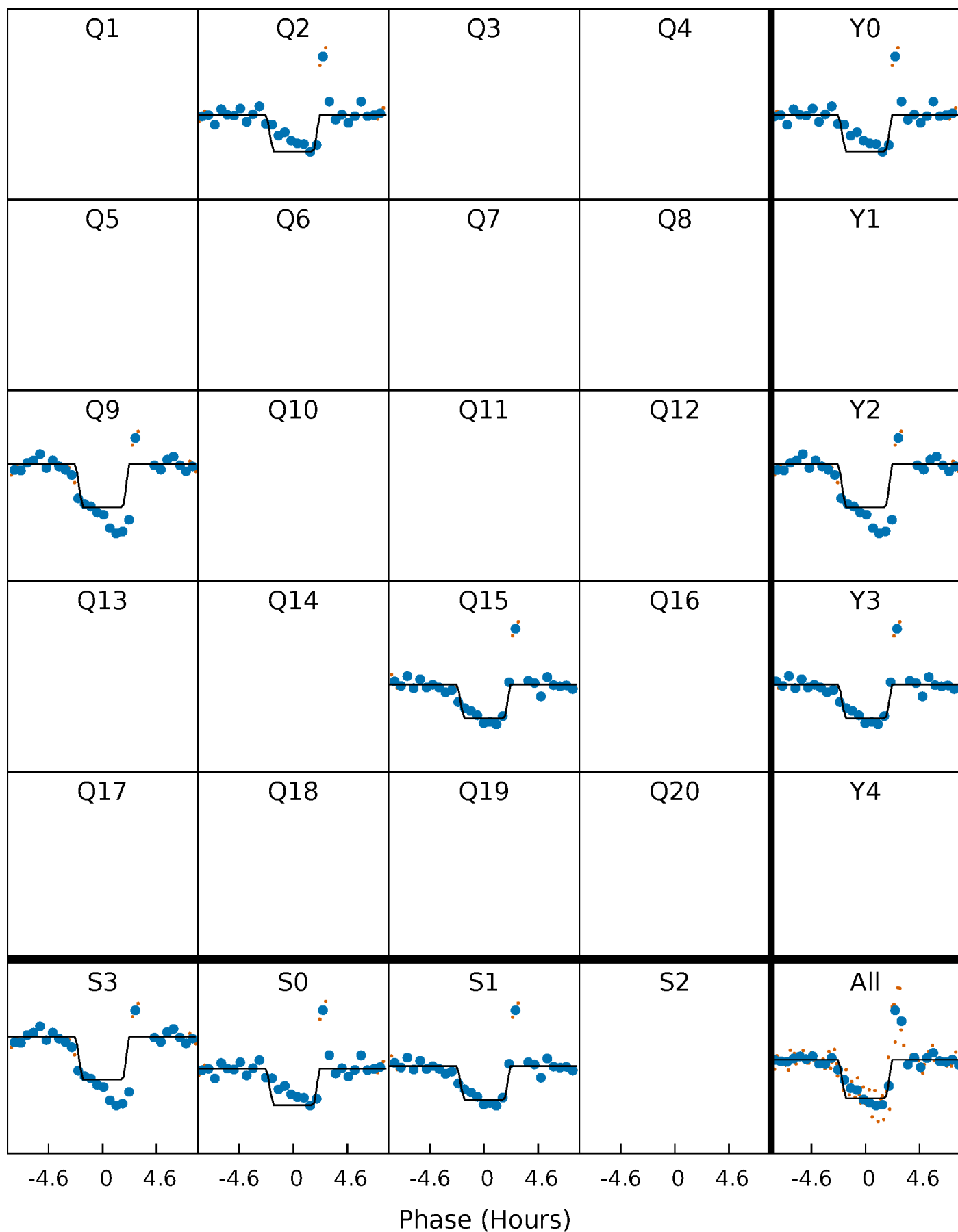
DV Quarter-Phased Transit Curves

TCE 004851304-05 $P=590.023864$ Days $T_0=250.051876$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

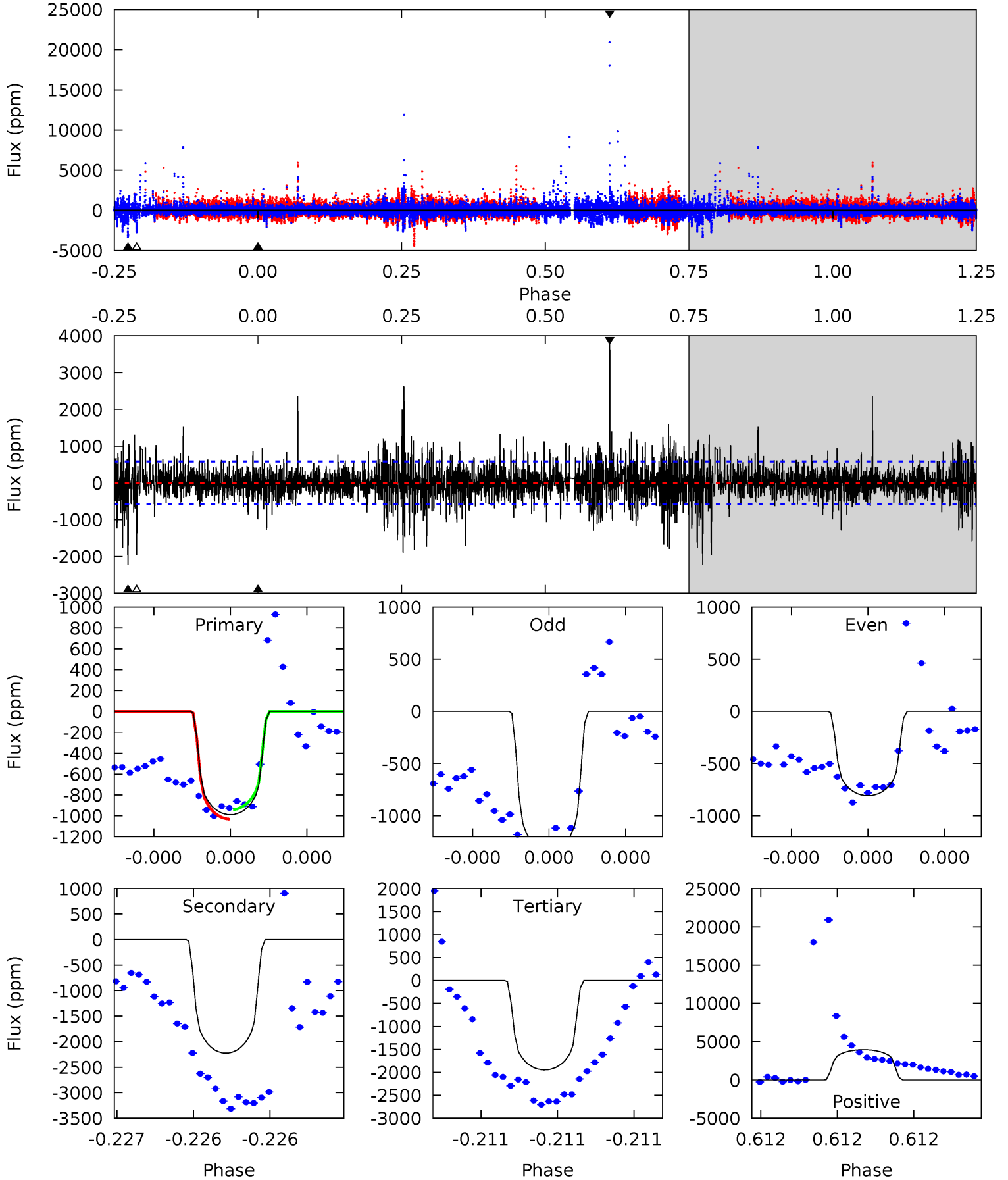
TCE 004851304-05 $P=590.025856$ Days $T_0=250.057221$ (BKJD)



DV Model-Shift Uniqueness Test

004851304-05, P = 590.023864 Days, E = 250.051876 Days

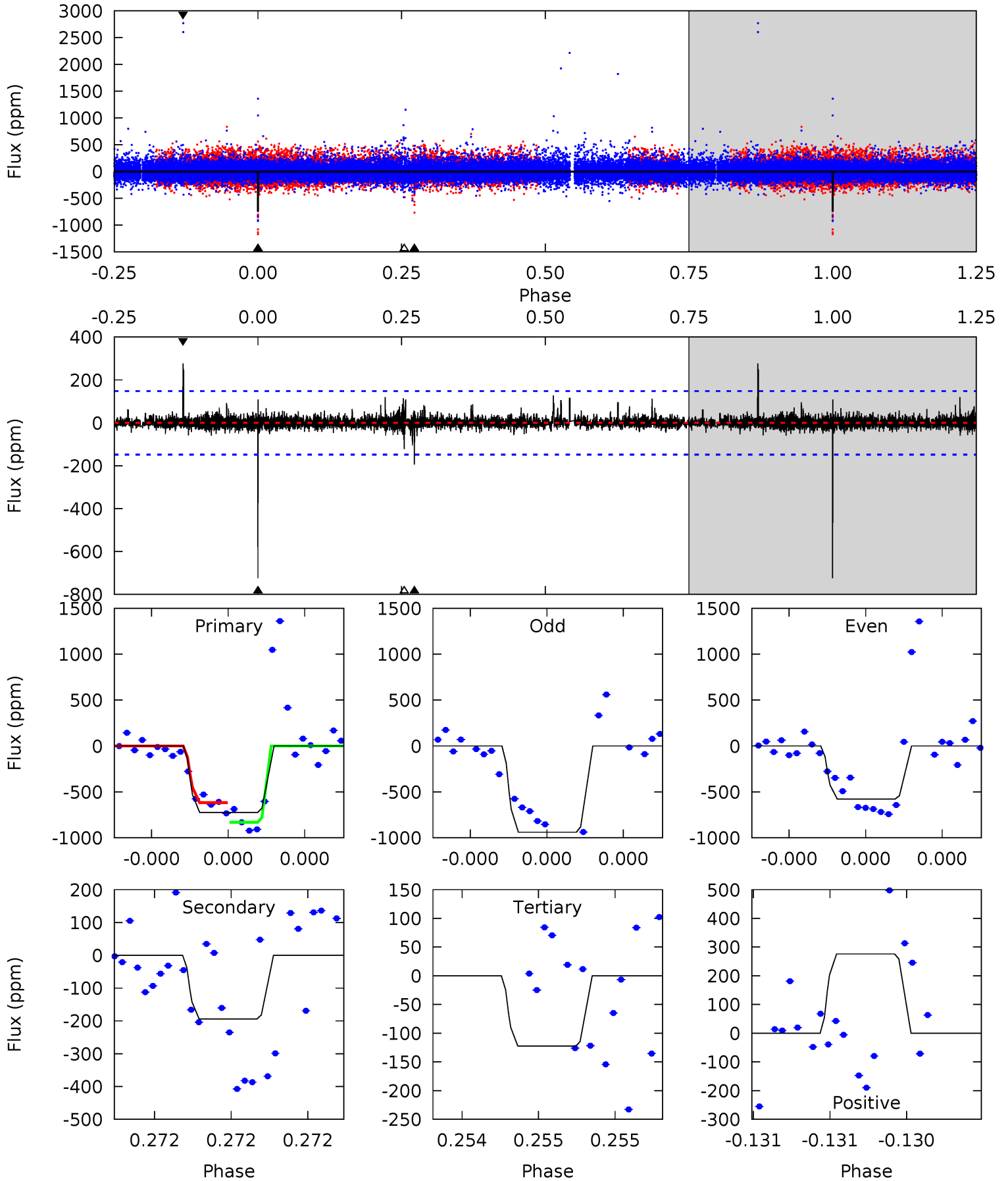
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.54	21.5	18.8	38.2	5.63	3.57	3.71	-9.24	-28.6	2.68	-16.7	2.38	1.10	0.64	0.44



Alt Model-Shift Uniqueness Test

004851304-05, P = 590.025856 Days, E = 250.057221 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	7.43	4.69	10.6	5.67	3.63	0.65	23.1	17.2	2.74	-3.15	6.89	1.06	0.28	4.11



Stellar Parameters For KIC 004851304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5604^{+197}_{-197}	$4.451^{+0.098}_{-0.182}$	$-0.040^{+0.300}_{-0.300}$	$0.936^{+0.247}_{-0.133}$	$0.902^{+0.115}_{-0.094}$	$1.550^{+0.635}_{-0.728}$
	+4%/-4%	+2%/-4%	+750%/-750%	+26%/-14%	+13%/-10%	+41%/-47%
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 004851304-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2224 ± 104	$3.02^{+1.39}_{-1.35}$	294^{+19}_{-17}	7251^{+3335}_{-1250}	$234984^{+532981}_{-124519}$
Alt.	-194 ± 26	$2.86^{+1.44}_{-1.33}$	293^{+21}_{-16}	4254^{+1193}_{-559}	23352^{+54022}_{-13329}

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

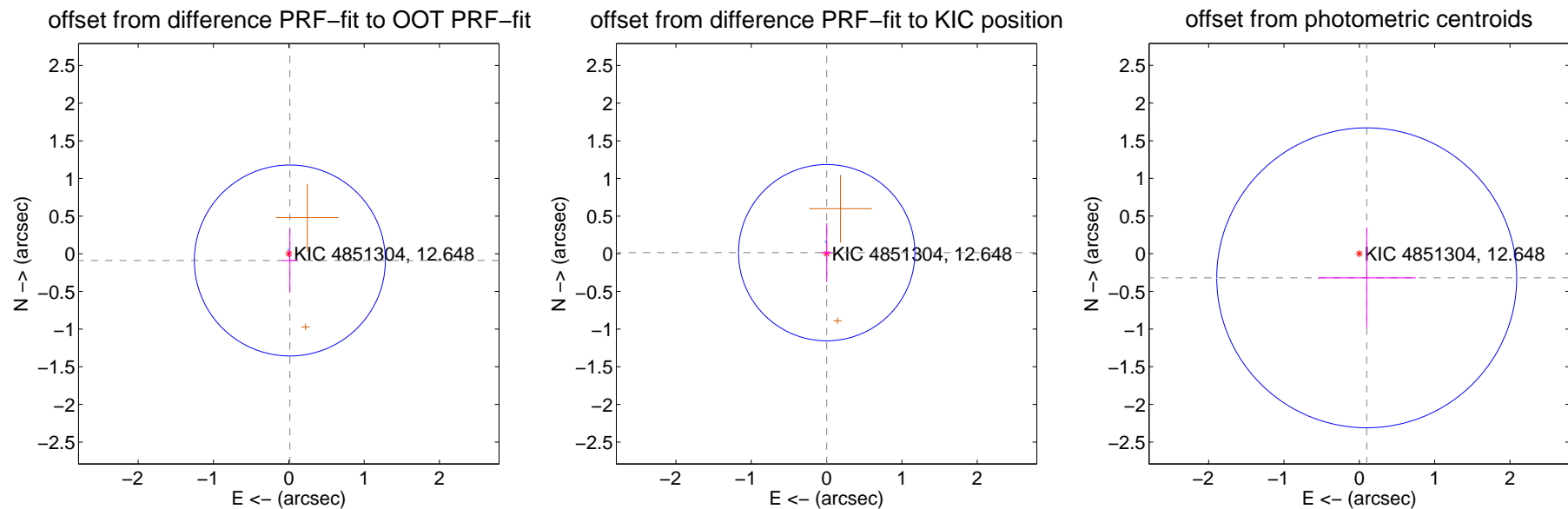
DV Centroid Data

Supplemental centroid analysis for 004851304-05. Kepler magnitude: 12.65. Transit SNR 7.61

There are 1 quarters with good PRF difference image offsets

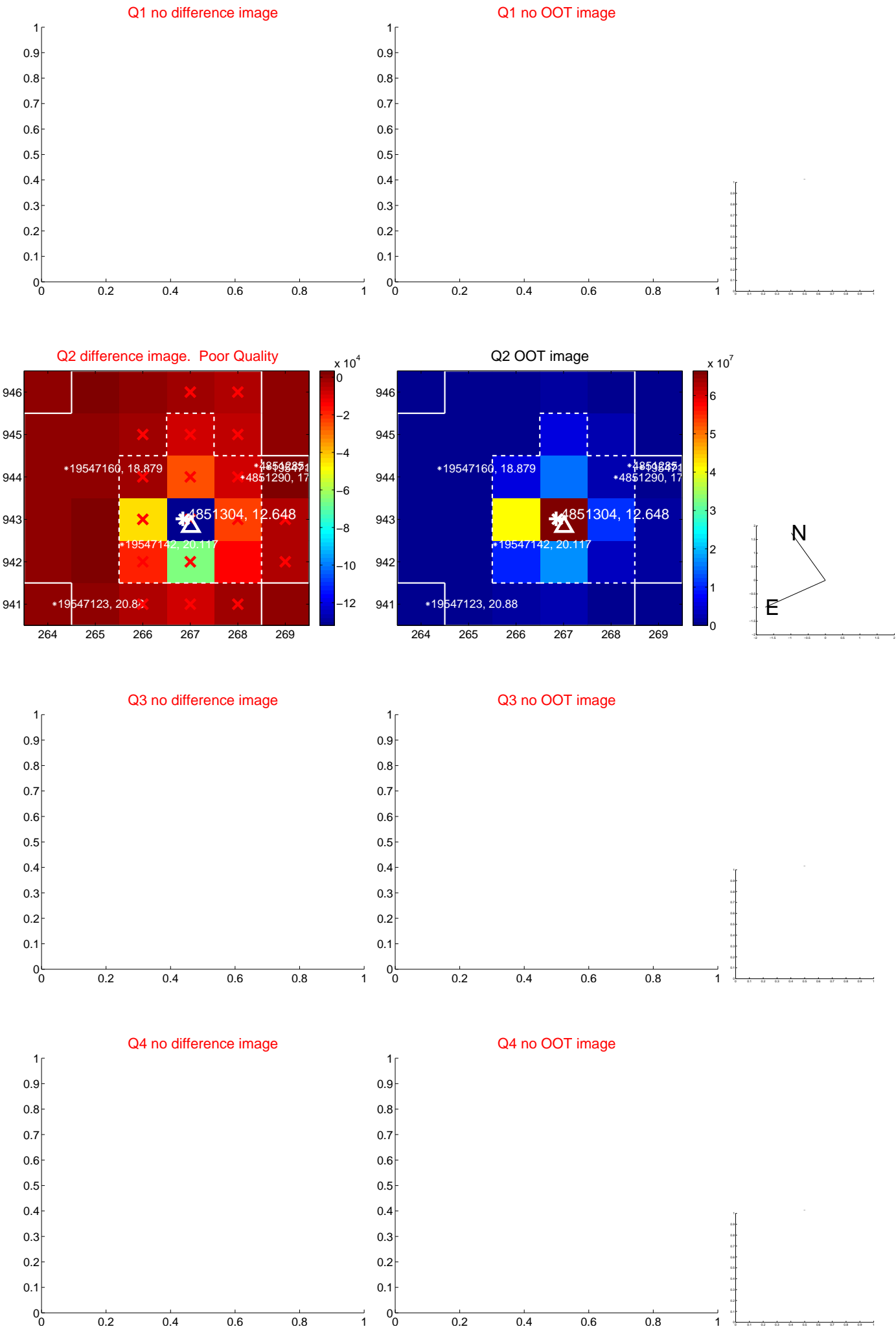
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.090 ± 0.423	0.21	-0.014 ± 0.096	-0.089 ± 0.424
PRF-fit source offset from KIC position	0.015 ± 0.390	0.04	-0.002 ± 0.079	0.015 ± 0.390
photometric centroid source offset	0.33 ± 0.66	0.50	-0.10 ± 0.65	-0.32 ± 0.66



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

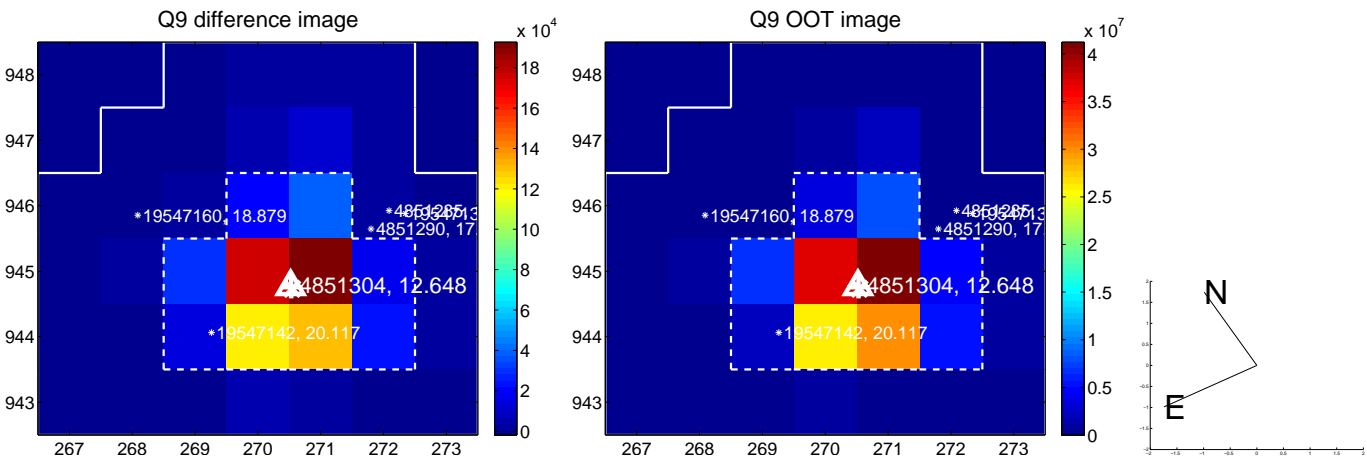
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



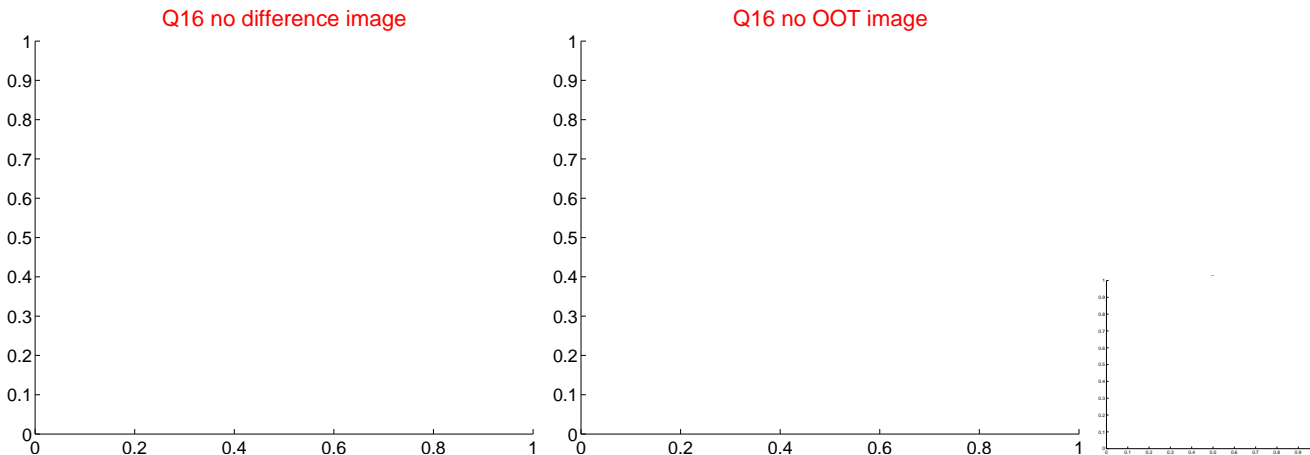
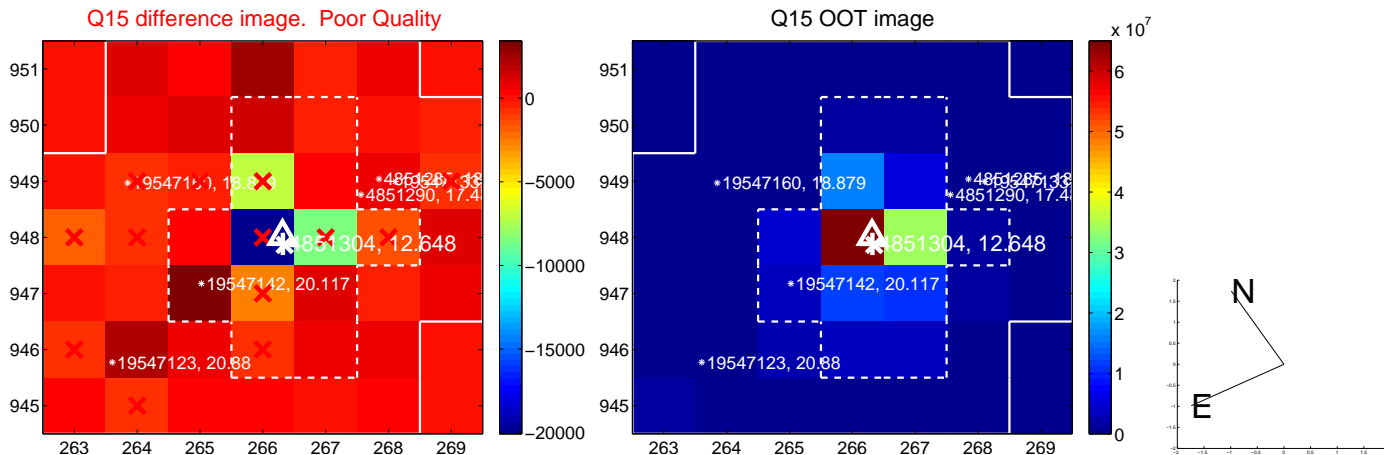
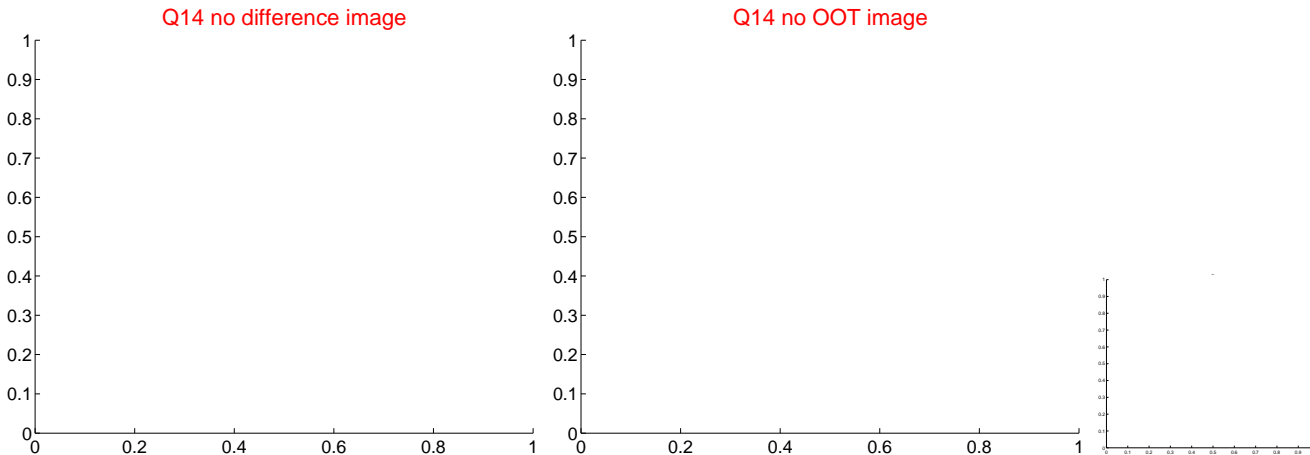
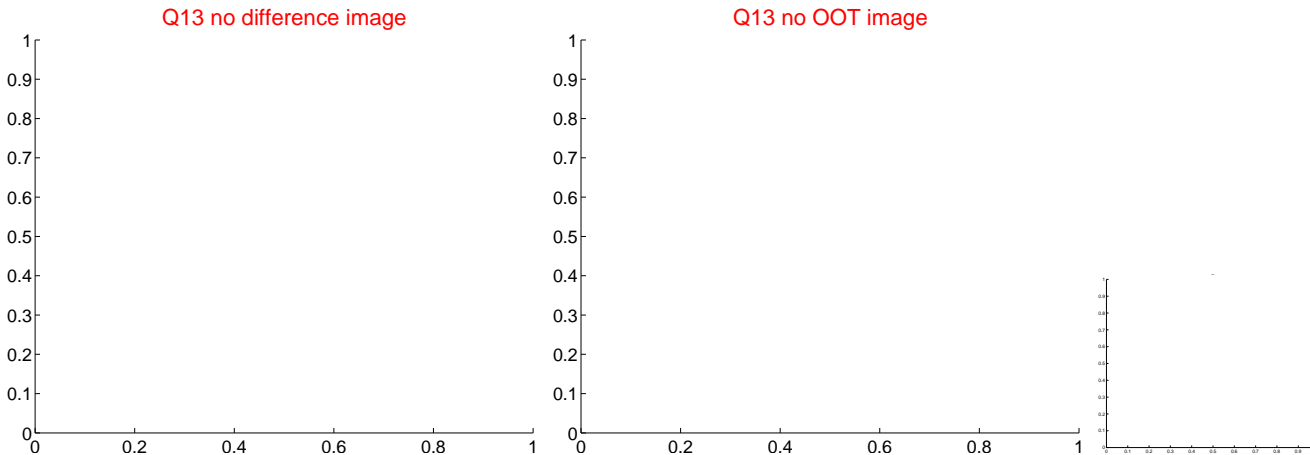
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



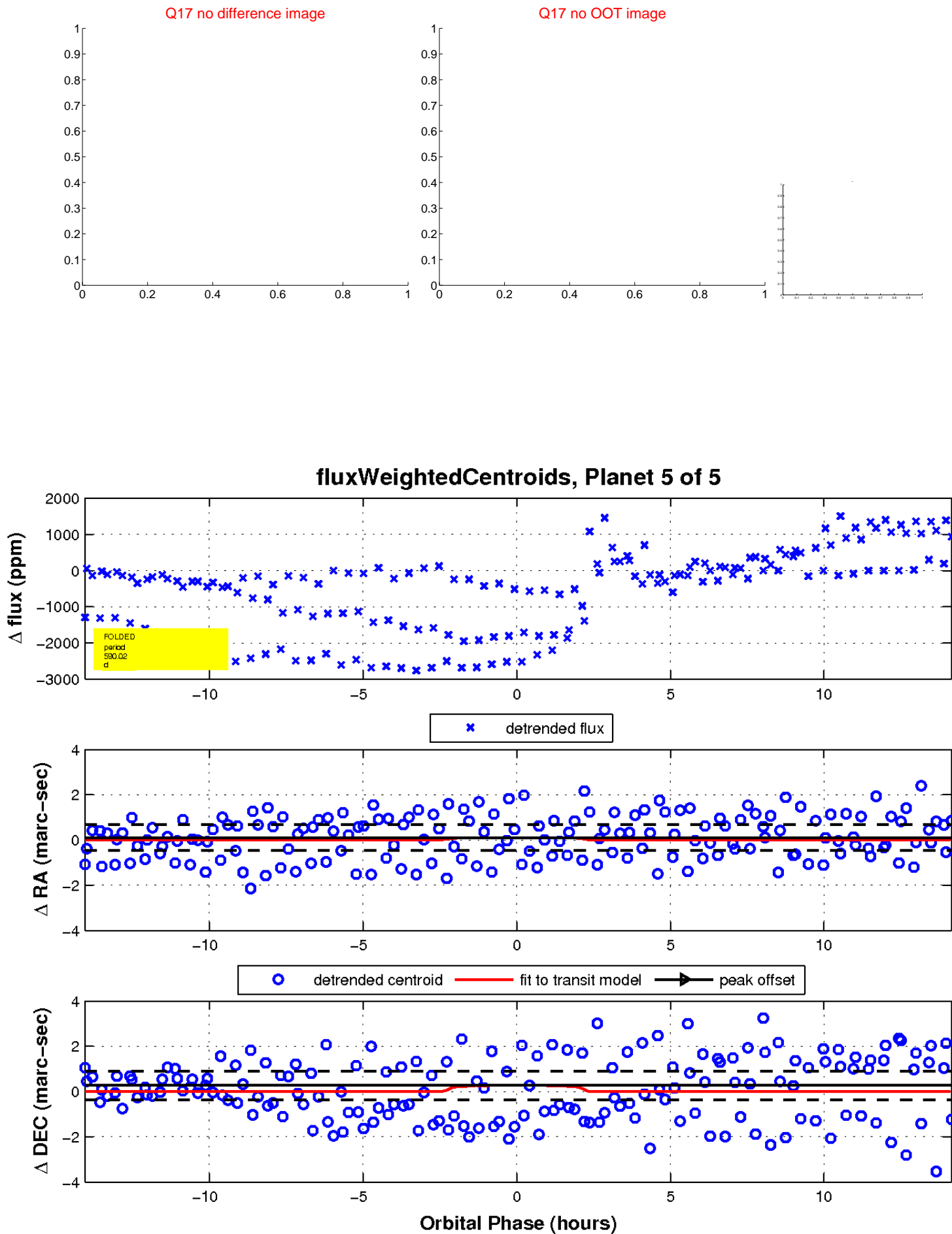
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

