

KIC 011565170

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})
011565170-01	OBS	No	93.326859	194.498438	4099.1	2.246	11.3	5.9	1.00	5780	6.38	6.17
011565170-02	OBS	No	0.718473	131.906827	764.8	2.500	10.8	-1.0	1.00	5780	2.74	4055.63
011565170-03	OBS	No	3.917539	133.752277	0.1	14.795	9.4	0.0	1.00	5780	0.04	422.59
011565170-04	OBS	No	30.591590	160.871355	2387.2	19.028	9.0	4.9	1.00	5780	5.09	27.28
011565170-05	OBS	No	31.098987	149.834602	731.8	1.222	8.8	1.1	1.00	5780	3.29	26.69
011565170-06	OBS	No	31.100962	149.795628	1618.6	5.658	7.9	1.8	1.00	5780	4.06	26.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011565170-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011565170-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
011565170-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
011565170-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
011565170-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011565170-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

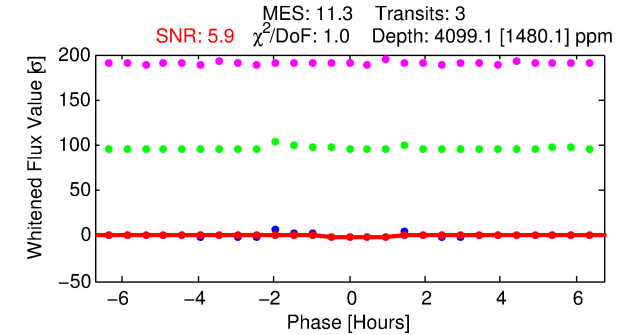
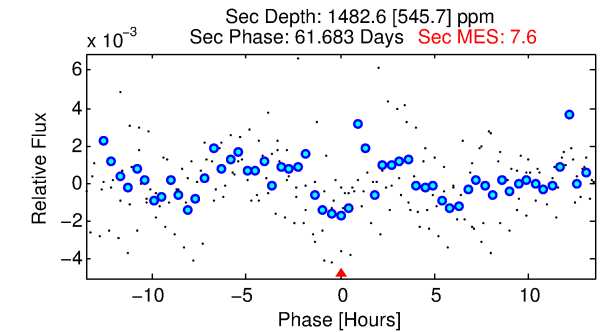
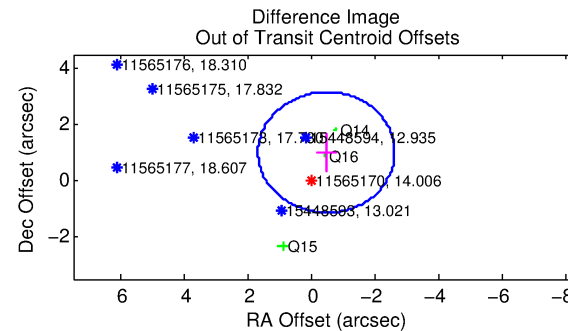
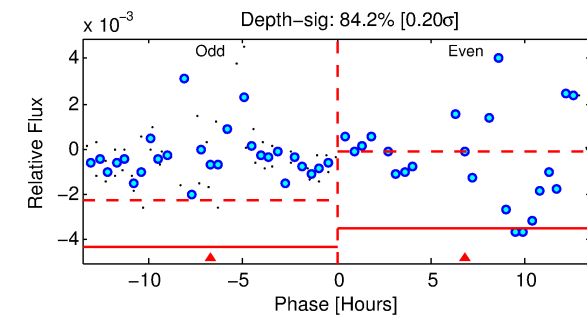
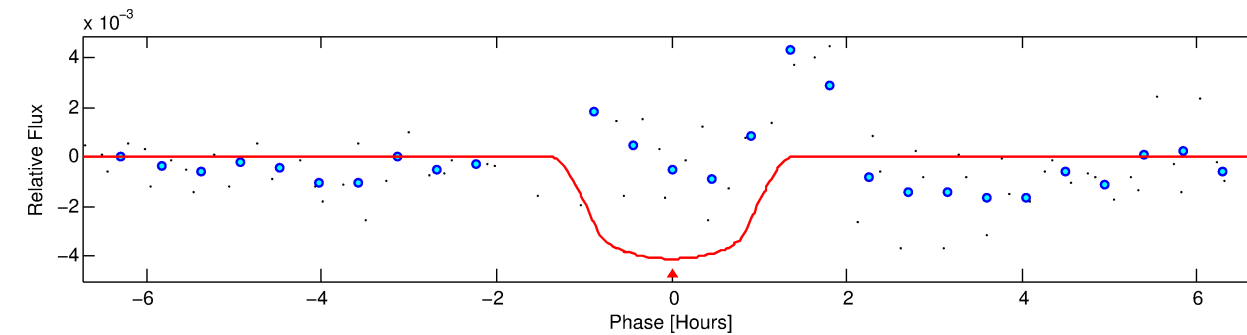
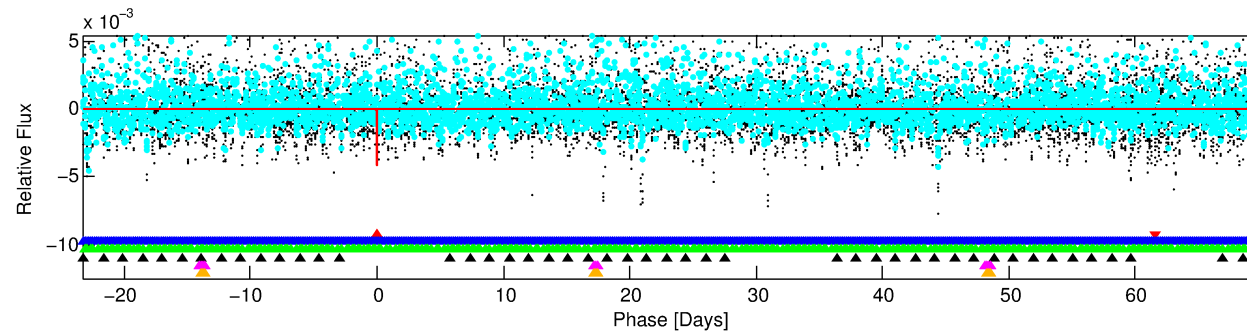
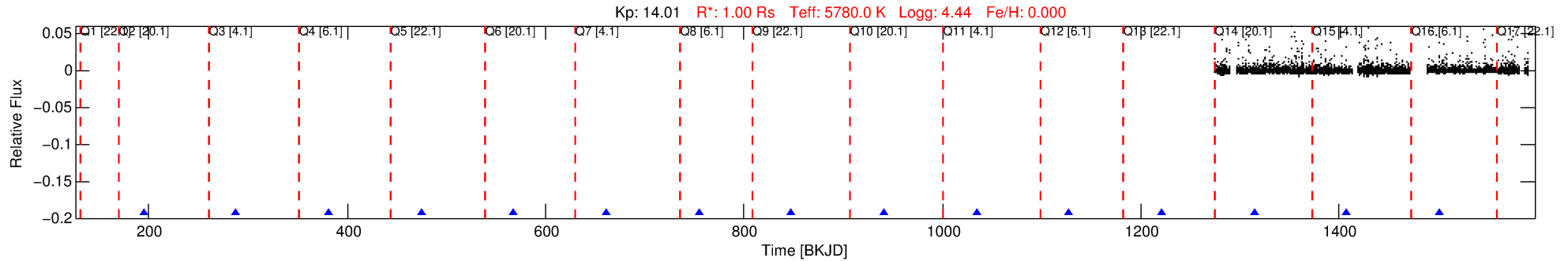
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011565170-01

No Significant Match Found

DV One-Page Summary

KIC: 11565170 Candidate: 1 of 6 Period: 93.327 d



DV Fit Results:

Period = 93.32686 [0.00368] d
 Epoch = 194.4984 [0.0491] BKJD
 Rp/R* = 0.0584 [0.1824]
 a/R* = 329.93 [4471.95]
 b = 0.20 [65.09]
 Seff = 6.16 [0.00]
 Teq = 402 [0] K
 Rp = 6.37 [19.91] Re
 a = 0.4027 [0.0000] AU
 Ag = 3255.93 [20371.39] [0.16σ]
 Tefp = 4693 [7340] K [0.58σ]

DV Diagnostic Results:

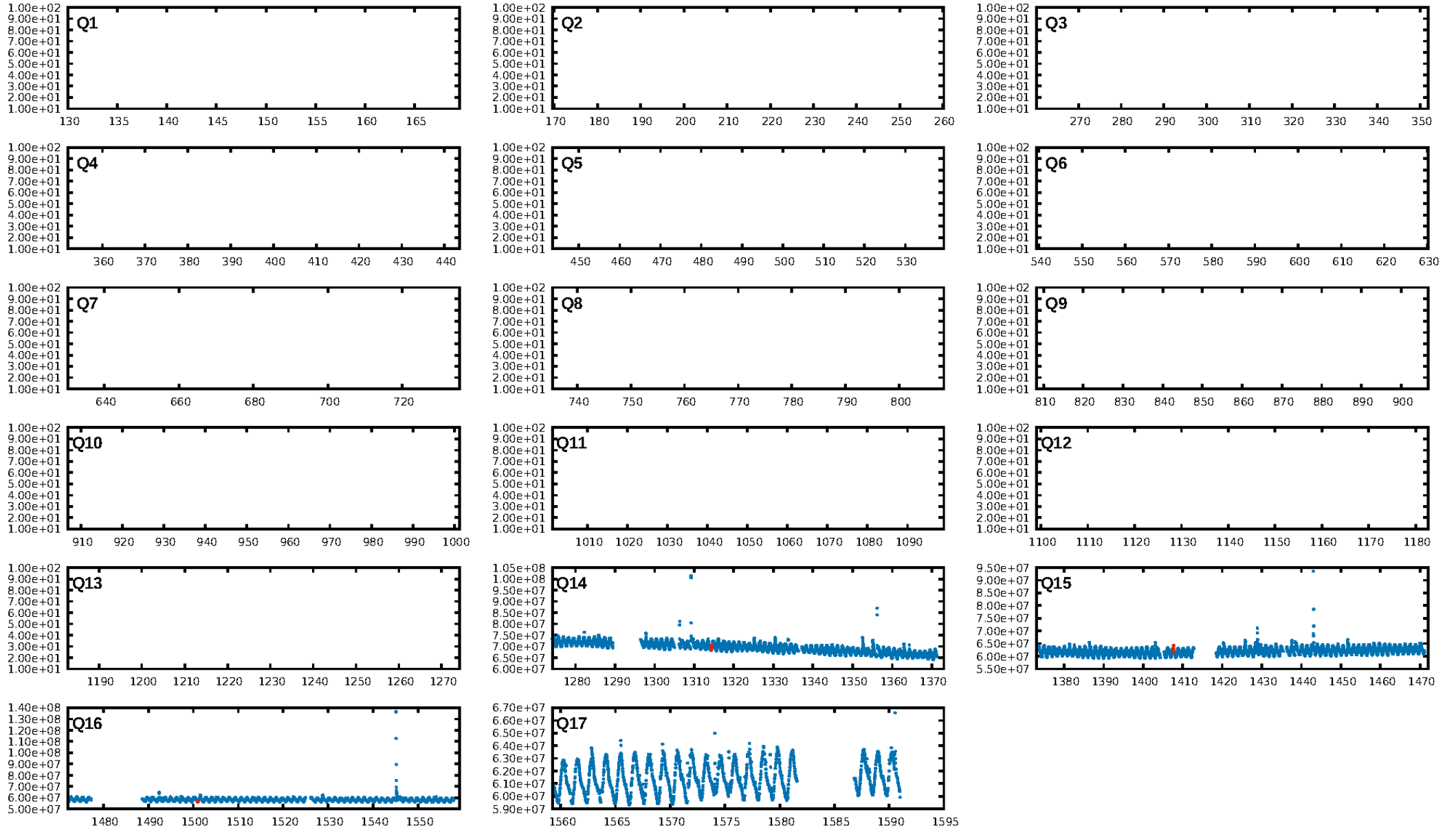
ShortPeriod-sig: 100.0% [245.34σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 22.2%
ModelChiSquareGof-sig: 85.4%
Bootstrap-pfa: 6.66e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.174

Centroid-sig: 18.2%
Centroid-so: 0.770 arcsec [1.42σ]
OotOffset-rm: 1.110 arcsec [1.55σ]
KicOffset-rm: 1.748 arcsec [2.26σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/3]

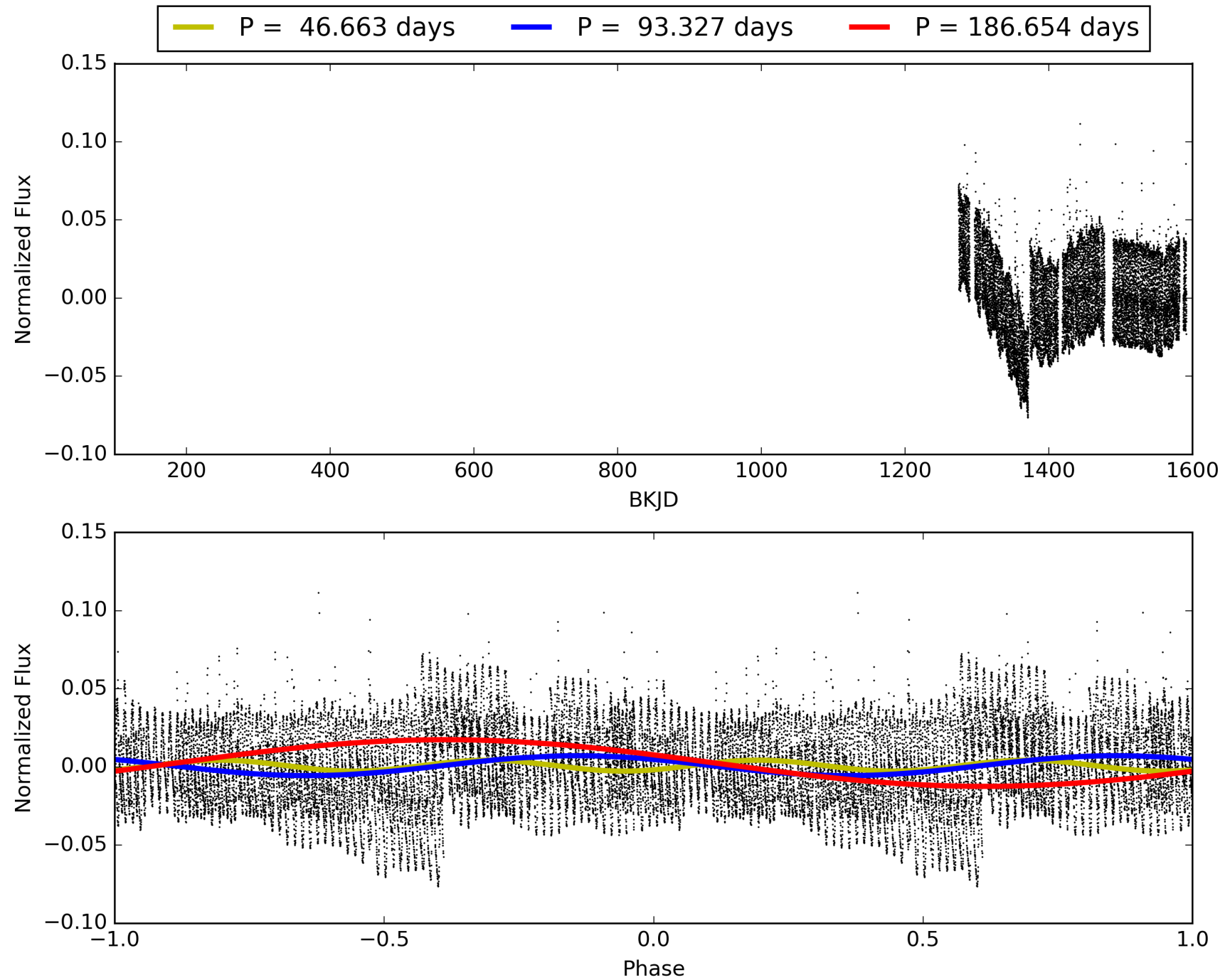
Software Revision: <svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958> -- Date Generated: 29-Jan-2016 21:07:44 Z

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

TCE 011565170-01, PDC Light Curves

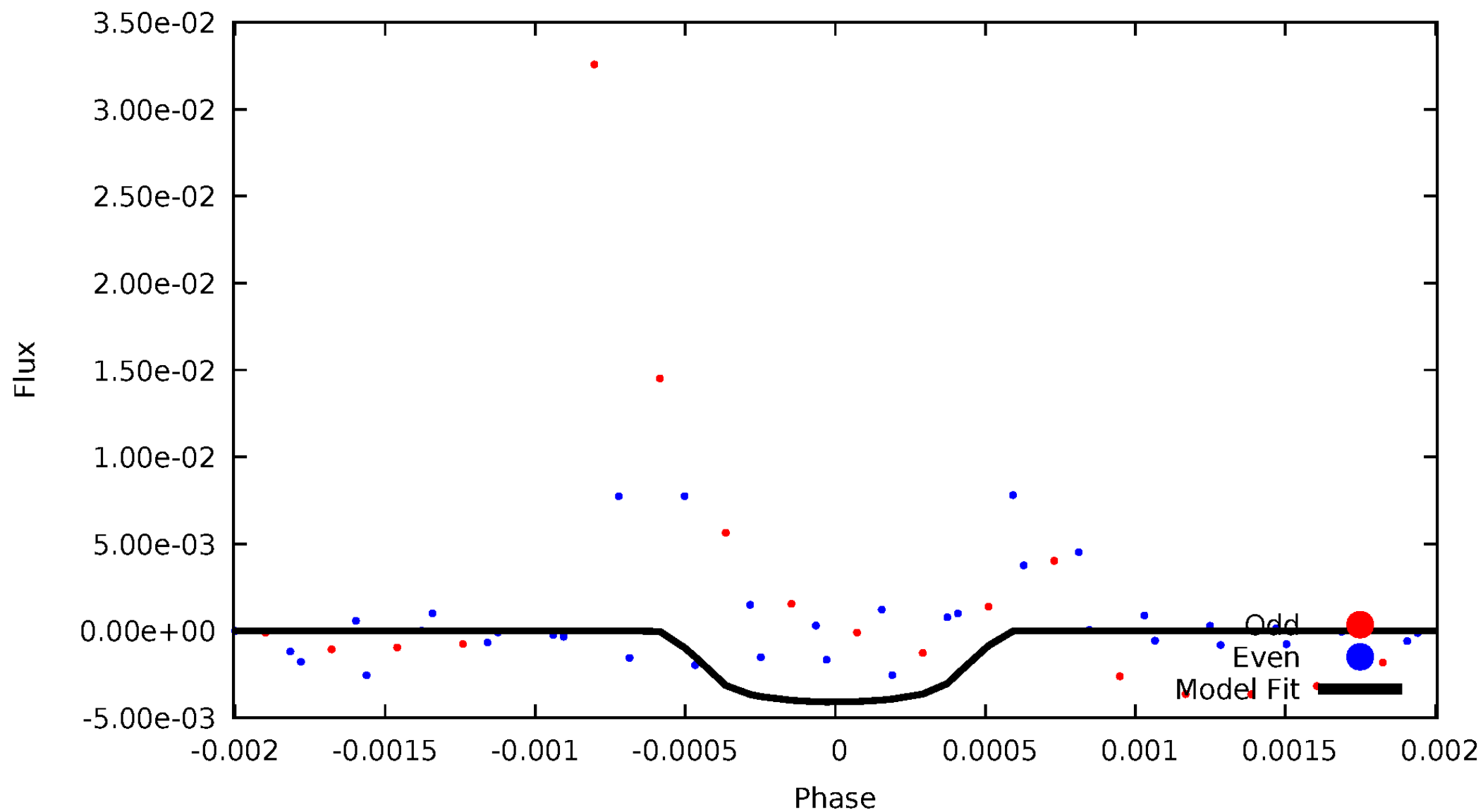


TCE 011565170-01



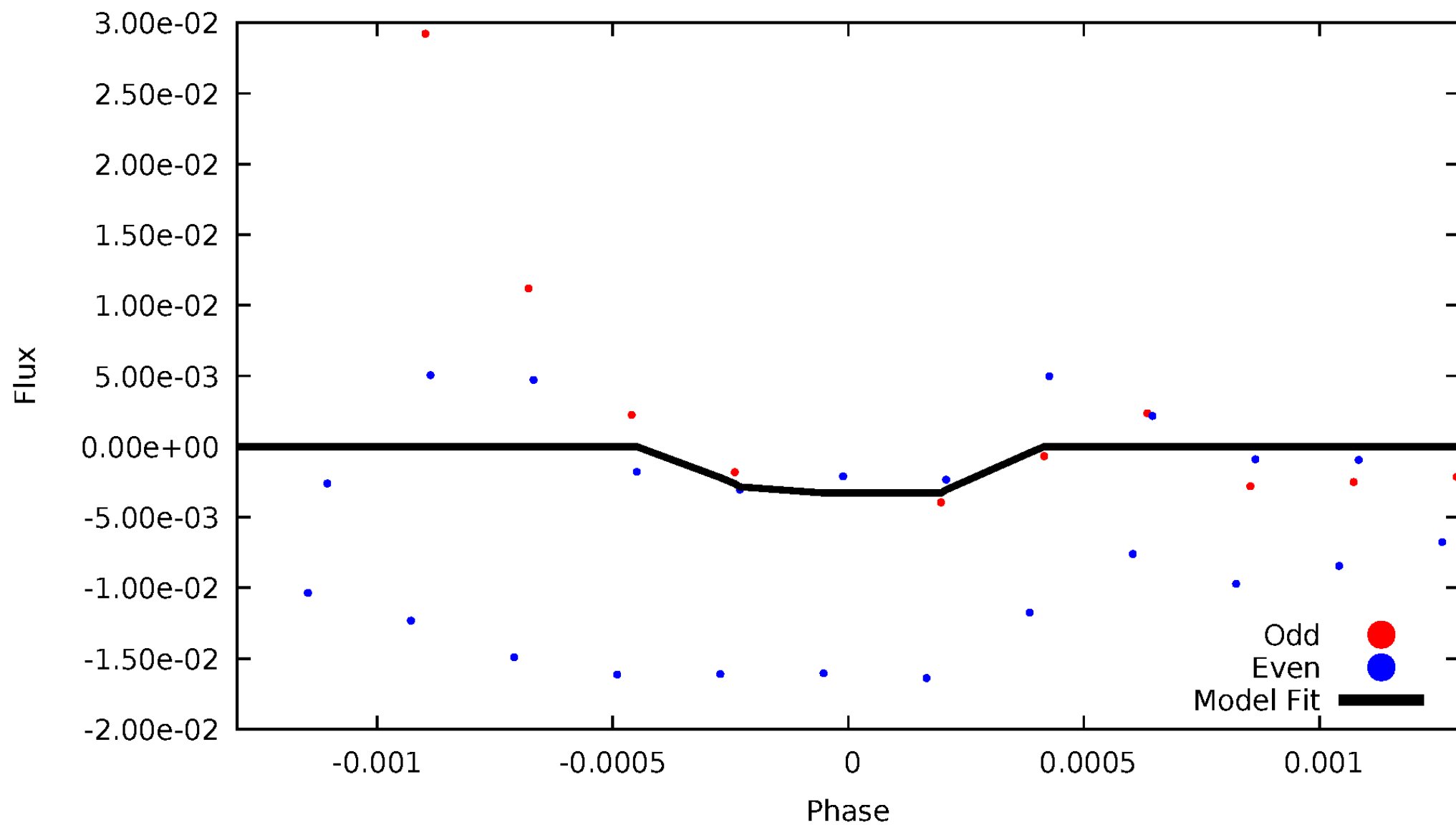
DV Odd/Even

TCE 011565170-01



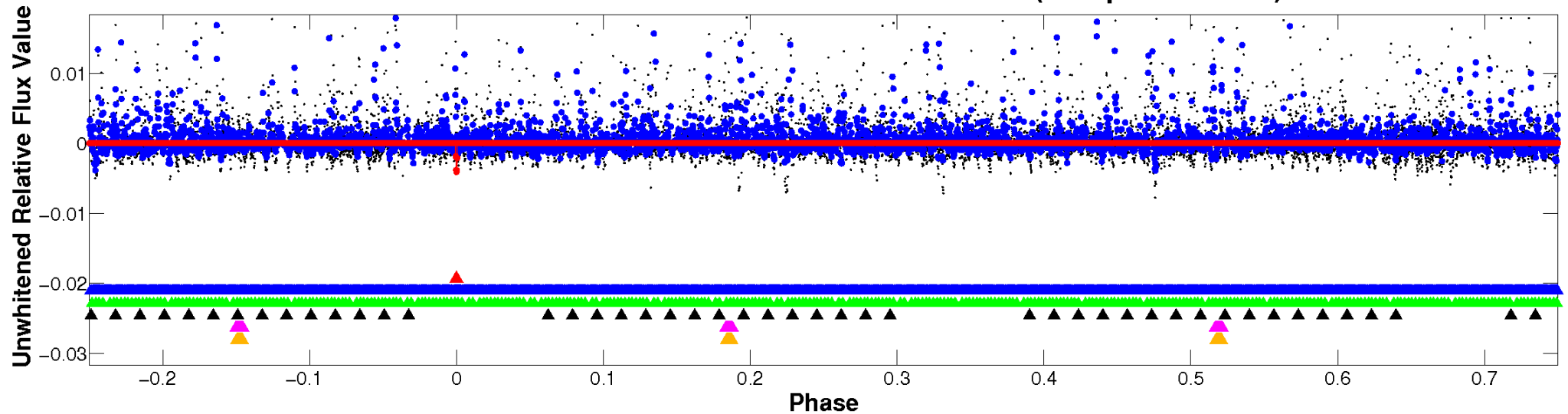
ALT Odd/Even

TCE 011565170-01

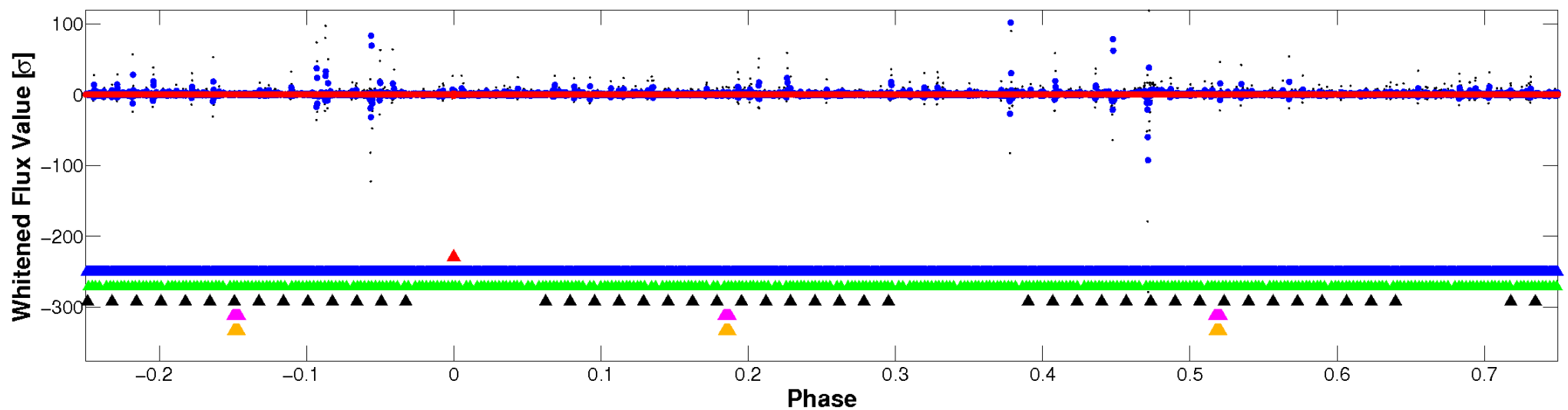


Non-Whitened Vs. Whitened Light Curve

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

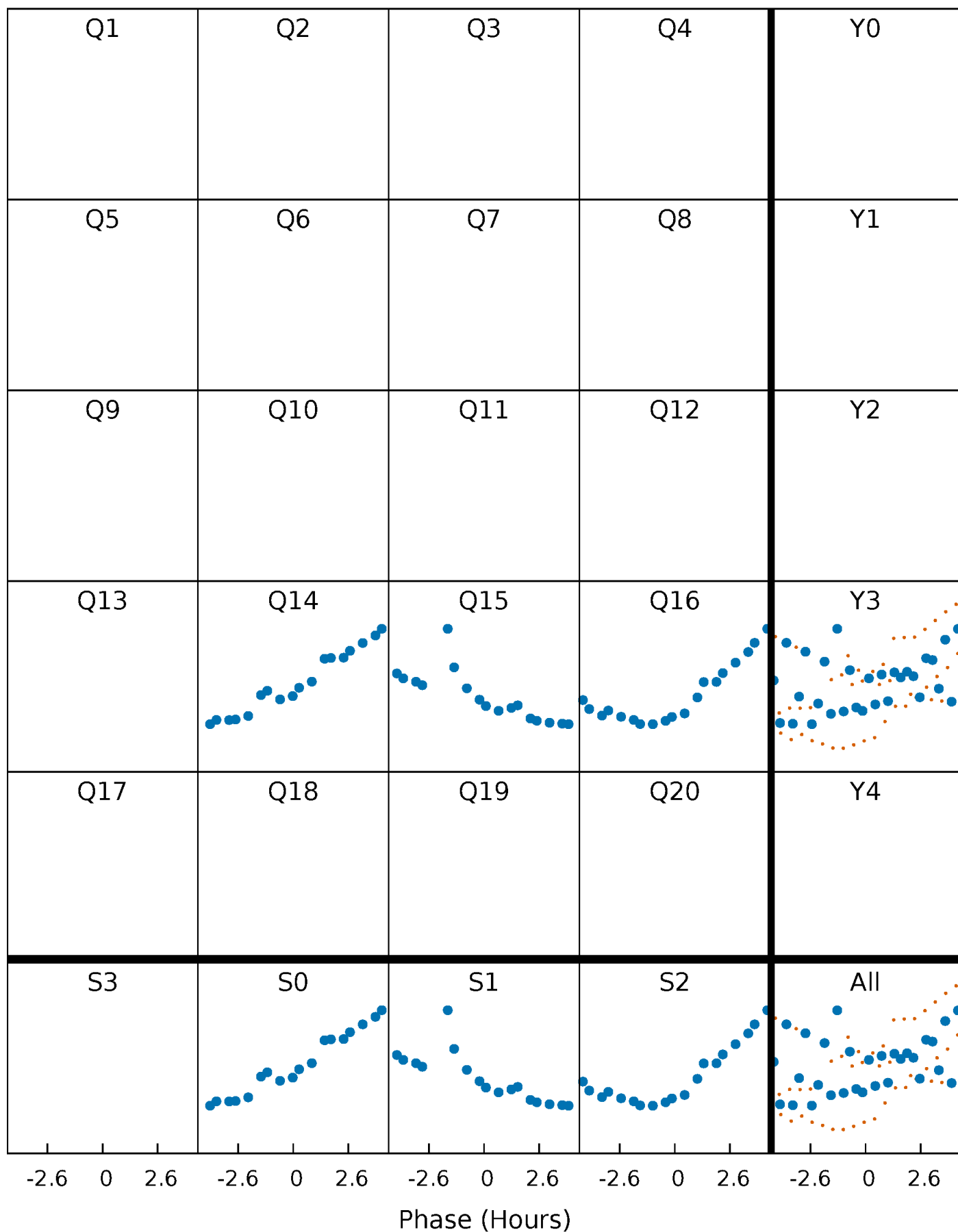


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



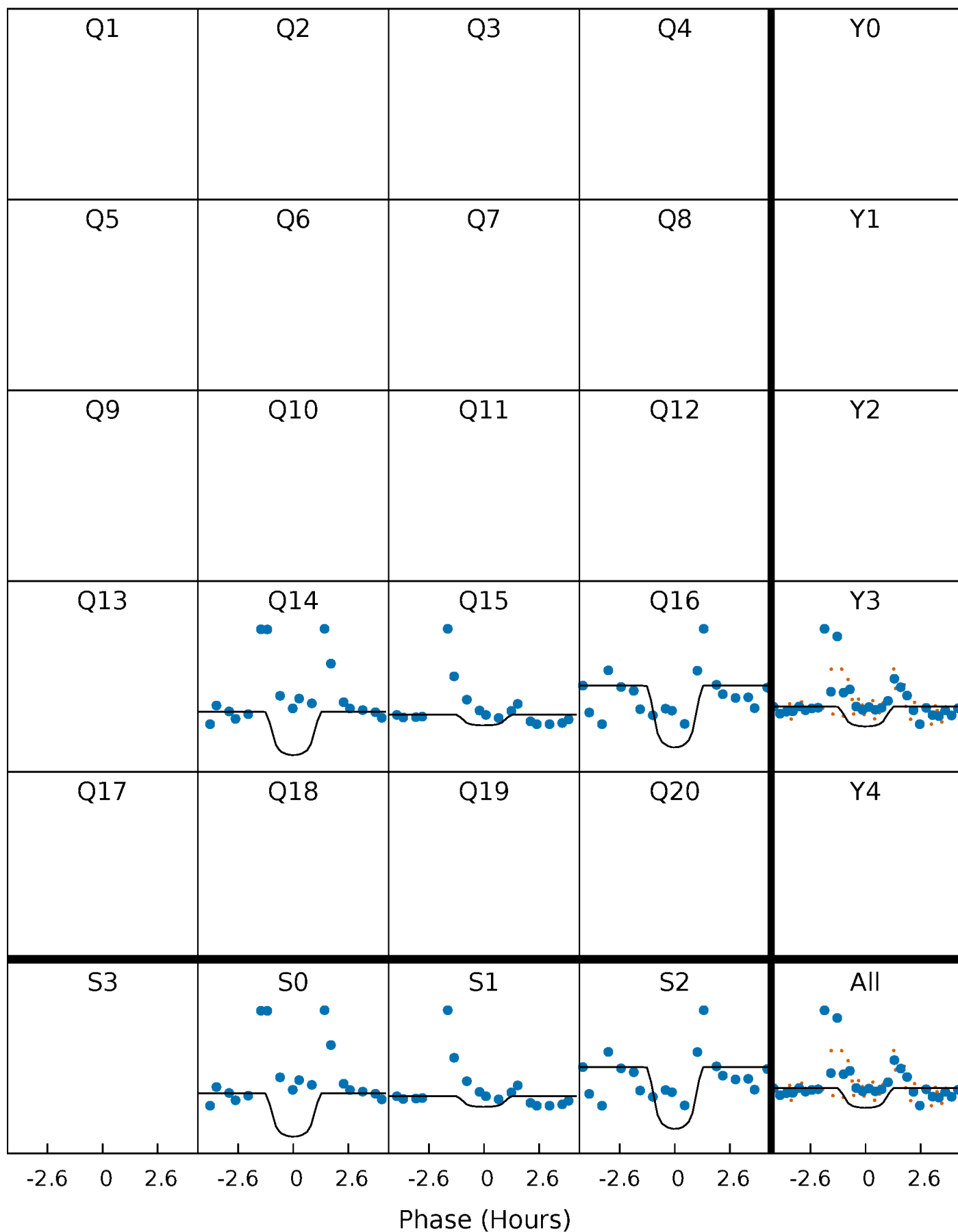
PDC Quarter-Phased Transit Curves

TCE 011565170-01 P= 93.326859 Days $T_0=194.498438$ (BKJD)



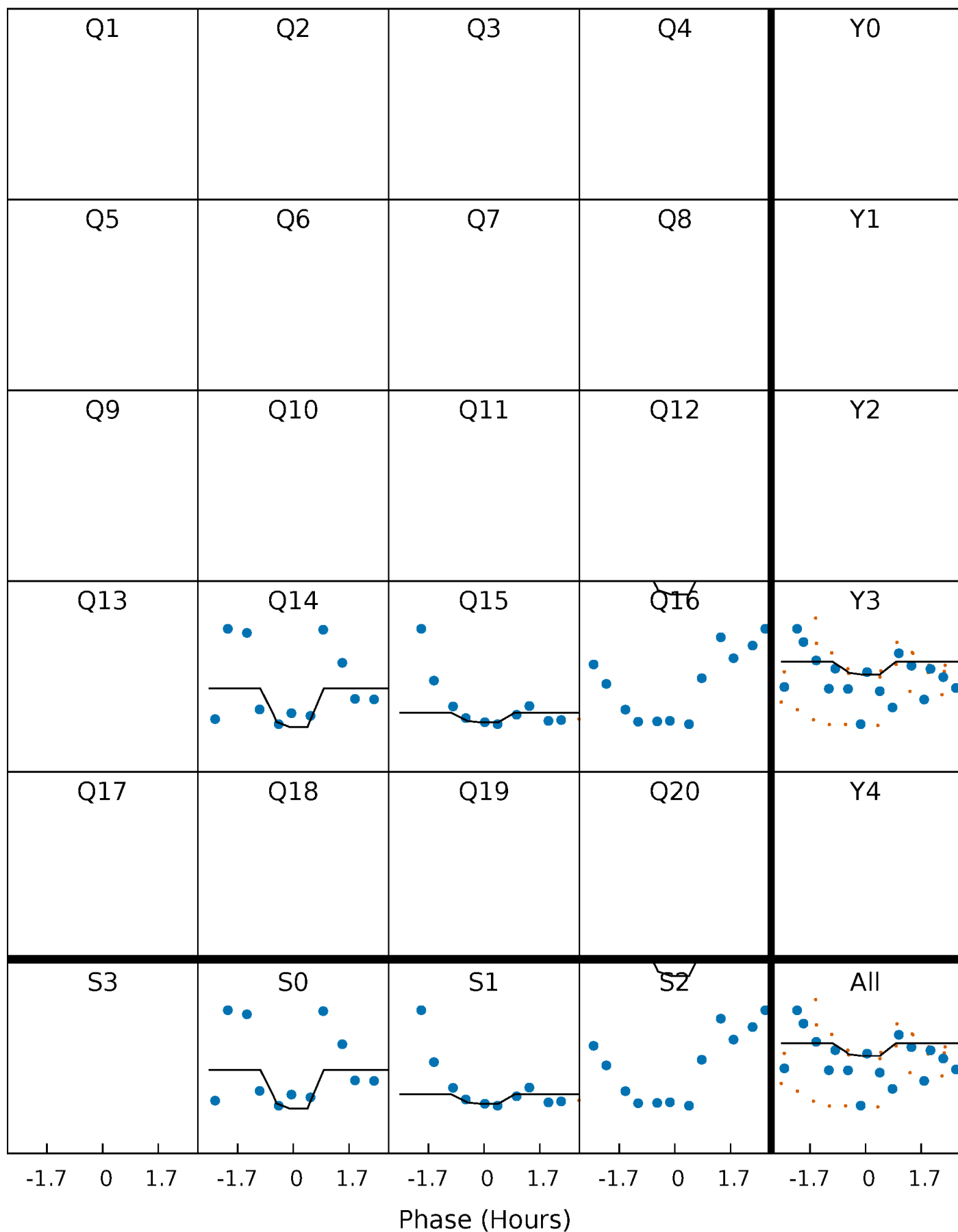
DV Quarter-Phased Transit Curves

TCE 011565170-01 P= 93.326859 Days $T_0=194.498438$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

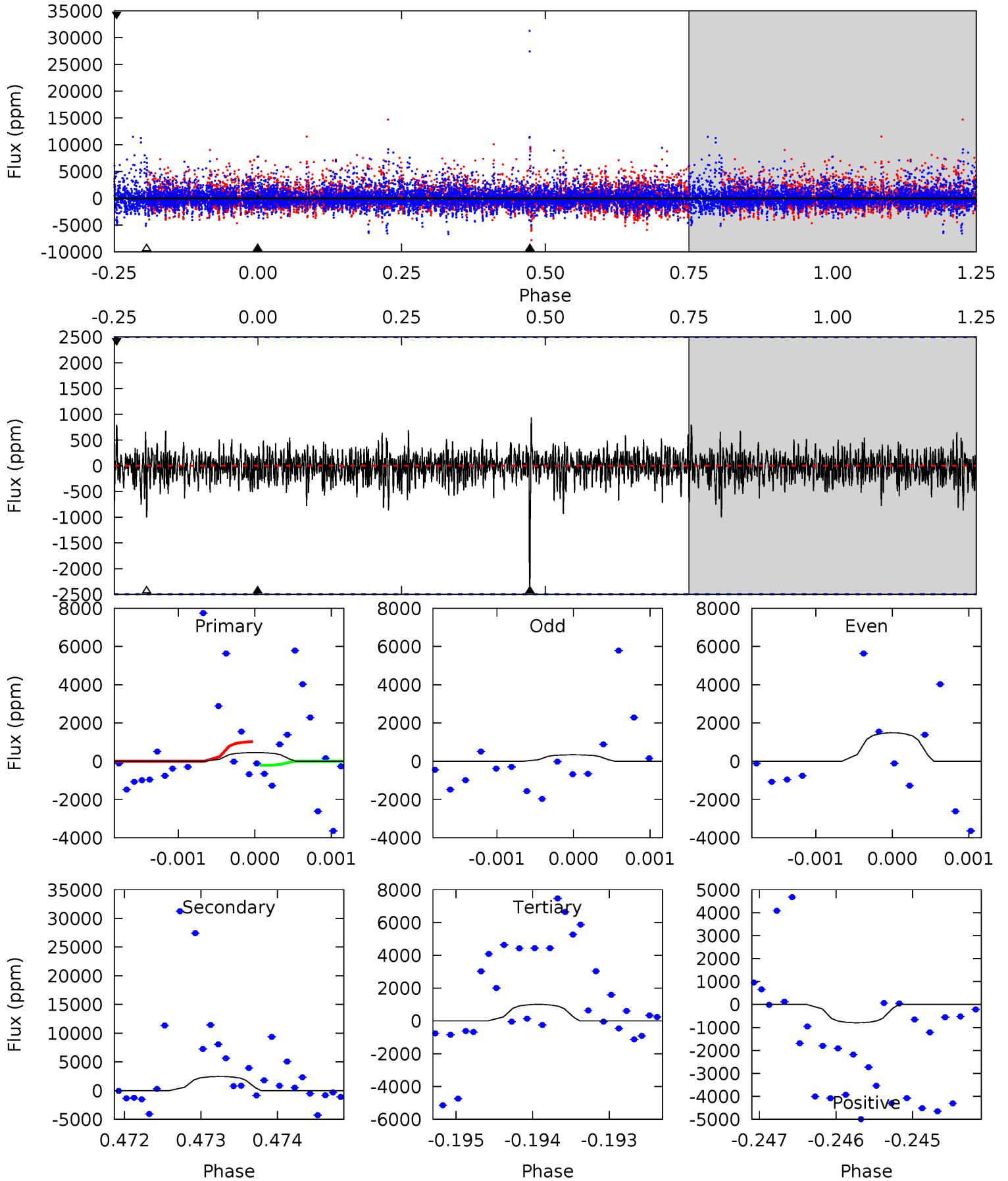
TCE 011565170-01 P= 93.320219 Days $T_0=194.593591$ (BKJD)



DV Model-Shift Uniqueness Test

011565170-01, P = 93.326859 Days, E = 194.498438 Days

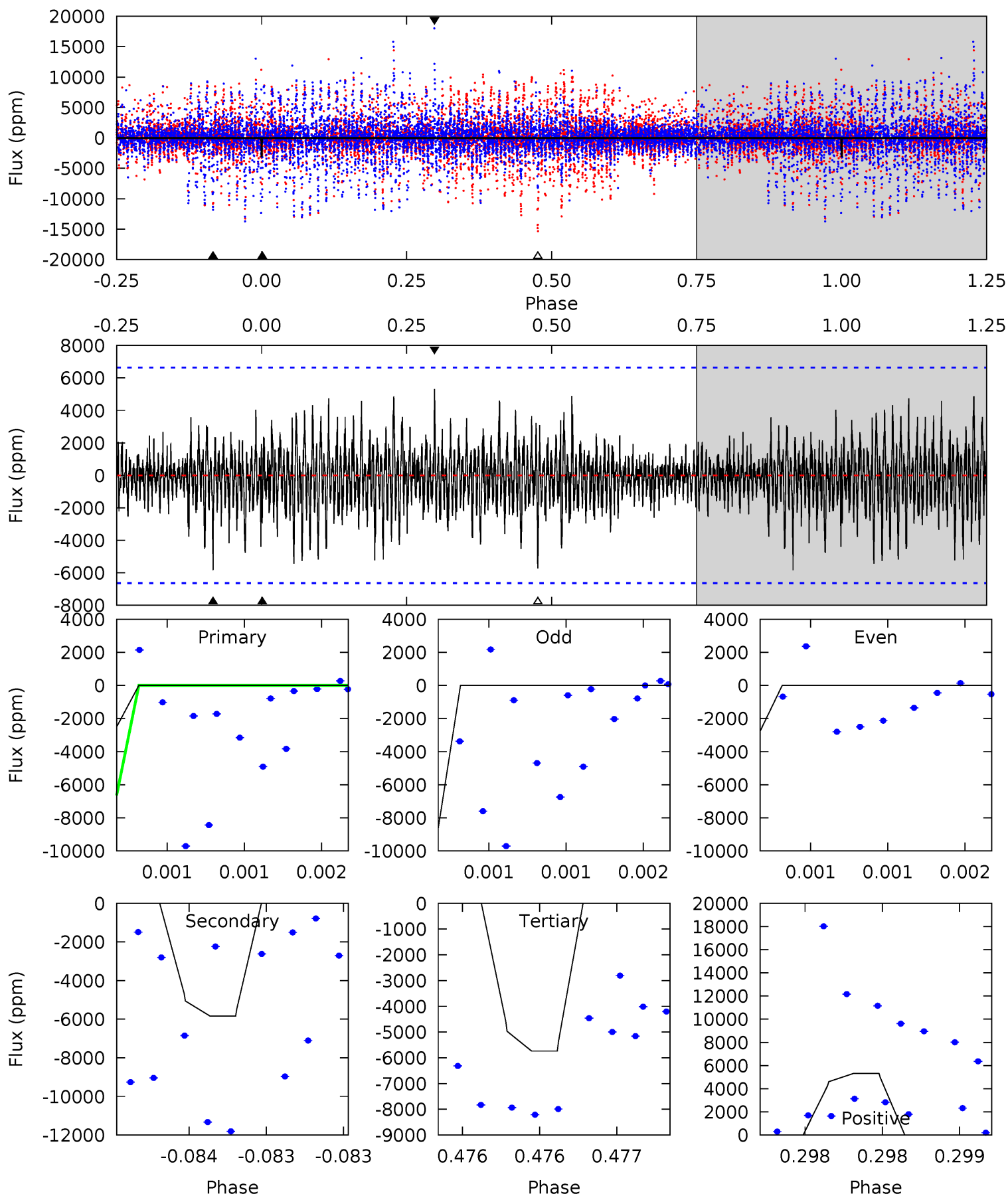
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.98	5.35	2.18	1.73	5.44	3.26	0.48	-1.20	-0.75	3.17	3.62	0.71	0.30	0.28	0.87



Alt Model-Shift Uniqueness Test

011565170-01, P = 93.320219 Days, E = 194.593591 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.46	4.86	4.77	4.42	5.53	3.41	1.15	-2.31	-1.96	0.08	0.43	2.74	2.45	0.48	2.19



Stellar Parameters For KIC 011565170

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 011565170-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2457 ± 459	$16.71^{+15.65}_{-12.32}$	562^{+24}_{-26}	3701^{+2721}_{-694}	771^{+11145}_{-569}
Alt.	-5836 ± 1201	$15.72^{+15.94}_{-10.82}$	562^{+27}_{-27}	4428^{+3190}_{-1004}	2214^{+19859}_{-1726}

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

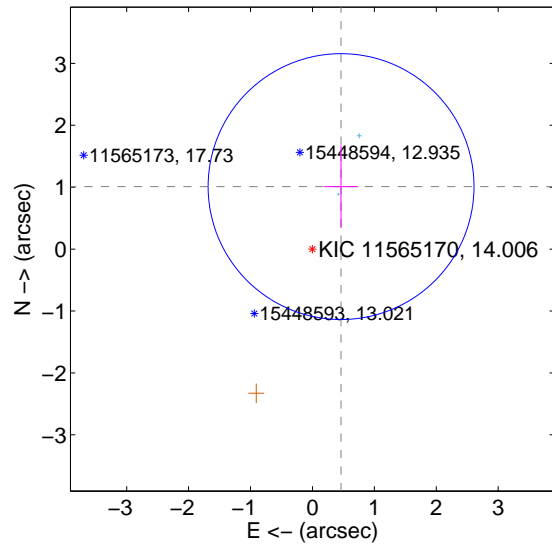
Supplemental centroid analysis for 011565170-01. Kepler magnitude: 14.01. Transit SNR 5.91

There are 2 quarters with good PRF difference image offsets

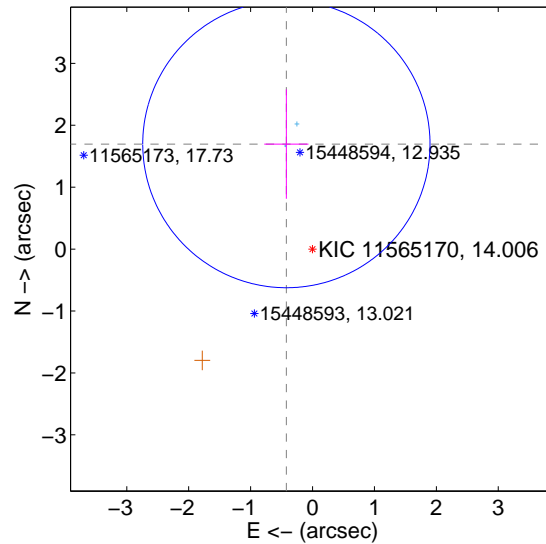
The direct PRF centroid is offset from the target star catalog position by about 1.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.110 ± 0.716	1.55	-0.462 ± 0.275	1.010 ± 0.665
PRF-fit source offset from KIC position	1.748 ± 0.773	2.26	0.422 ± 0.357	1.696 ± 0.884
photometric centroid source offset	0.77 ± 0.54	1.42	0.69 ± 0.35	-0.34 ± 0.98

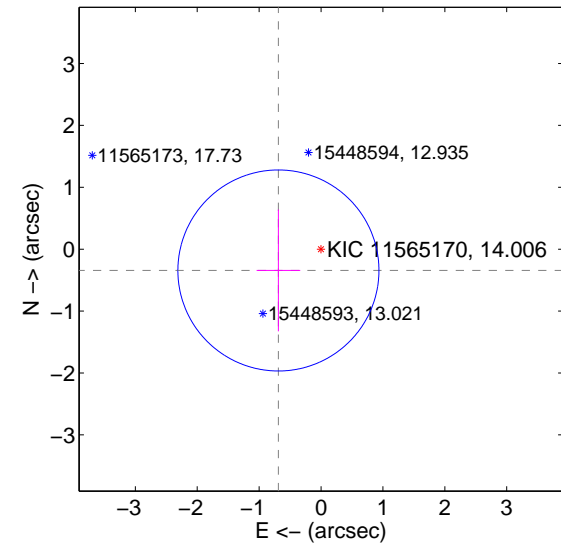
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

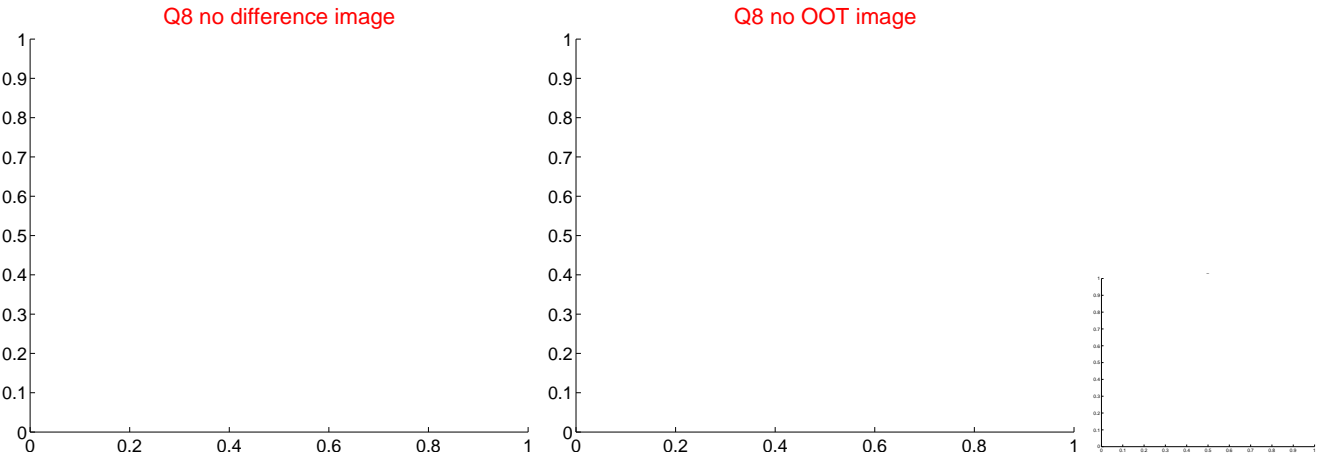
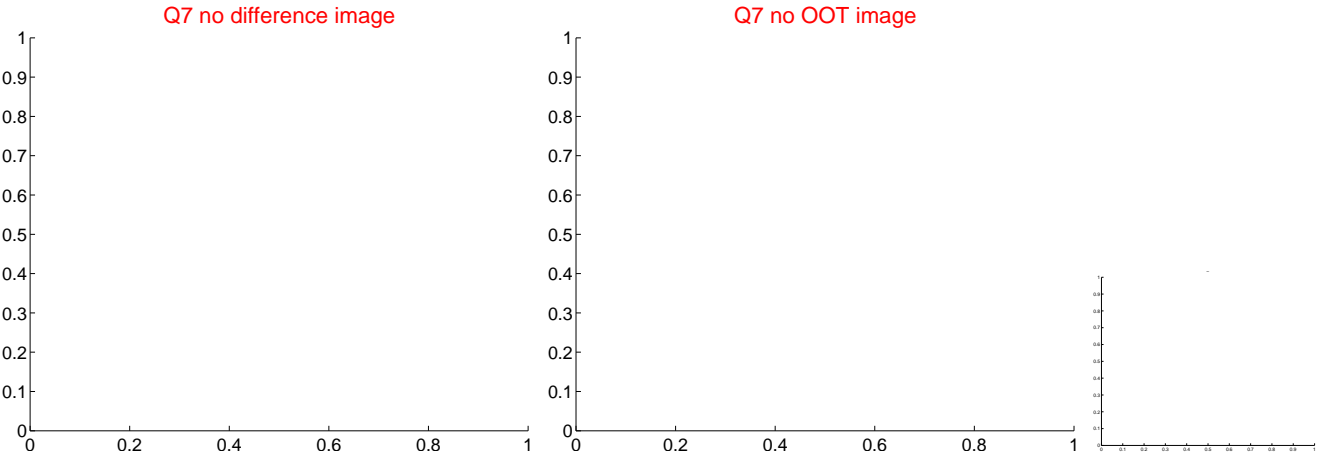
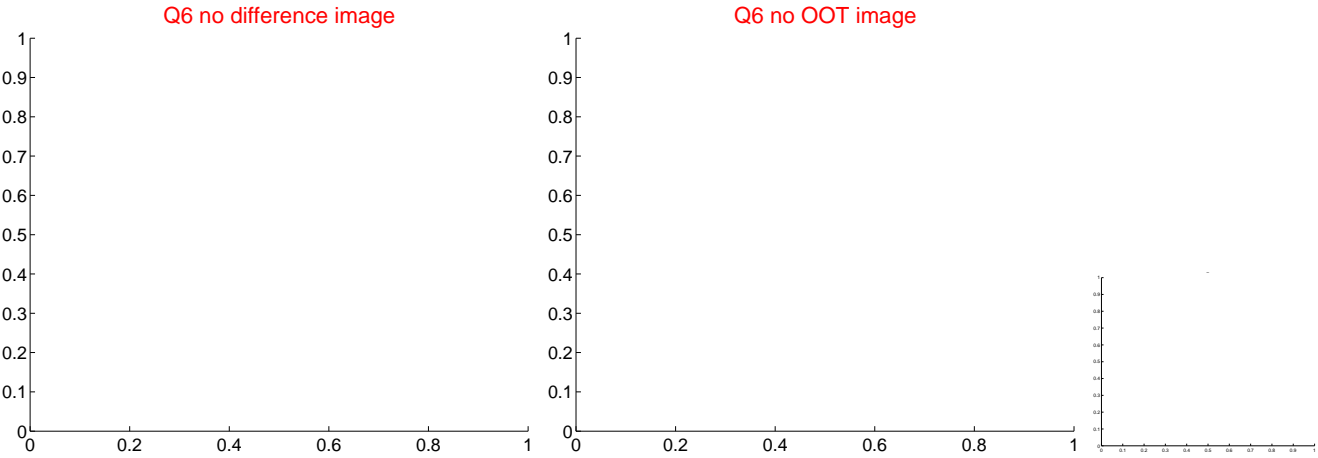
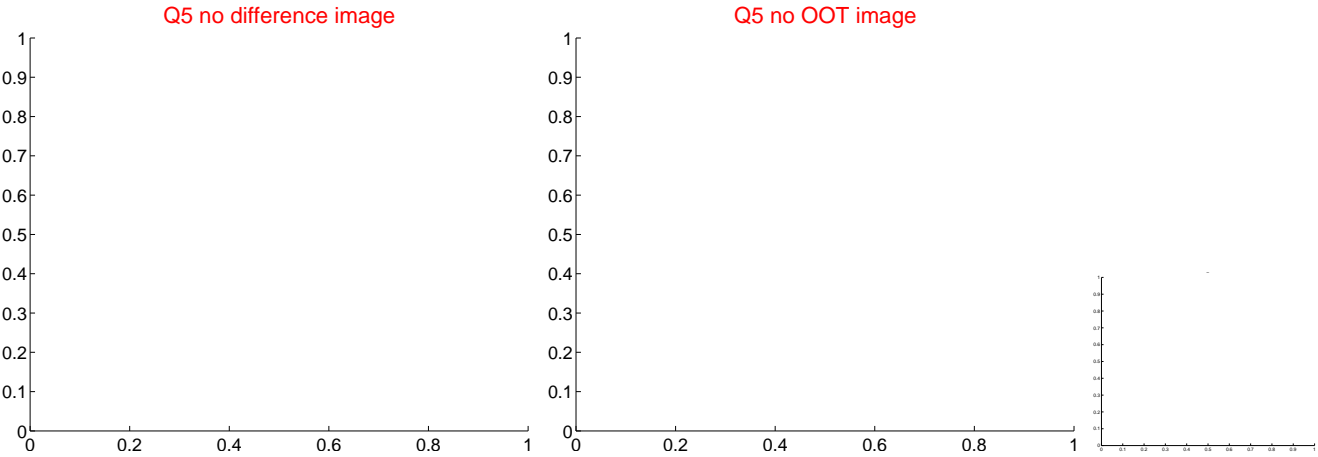


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



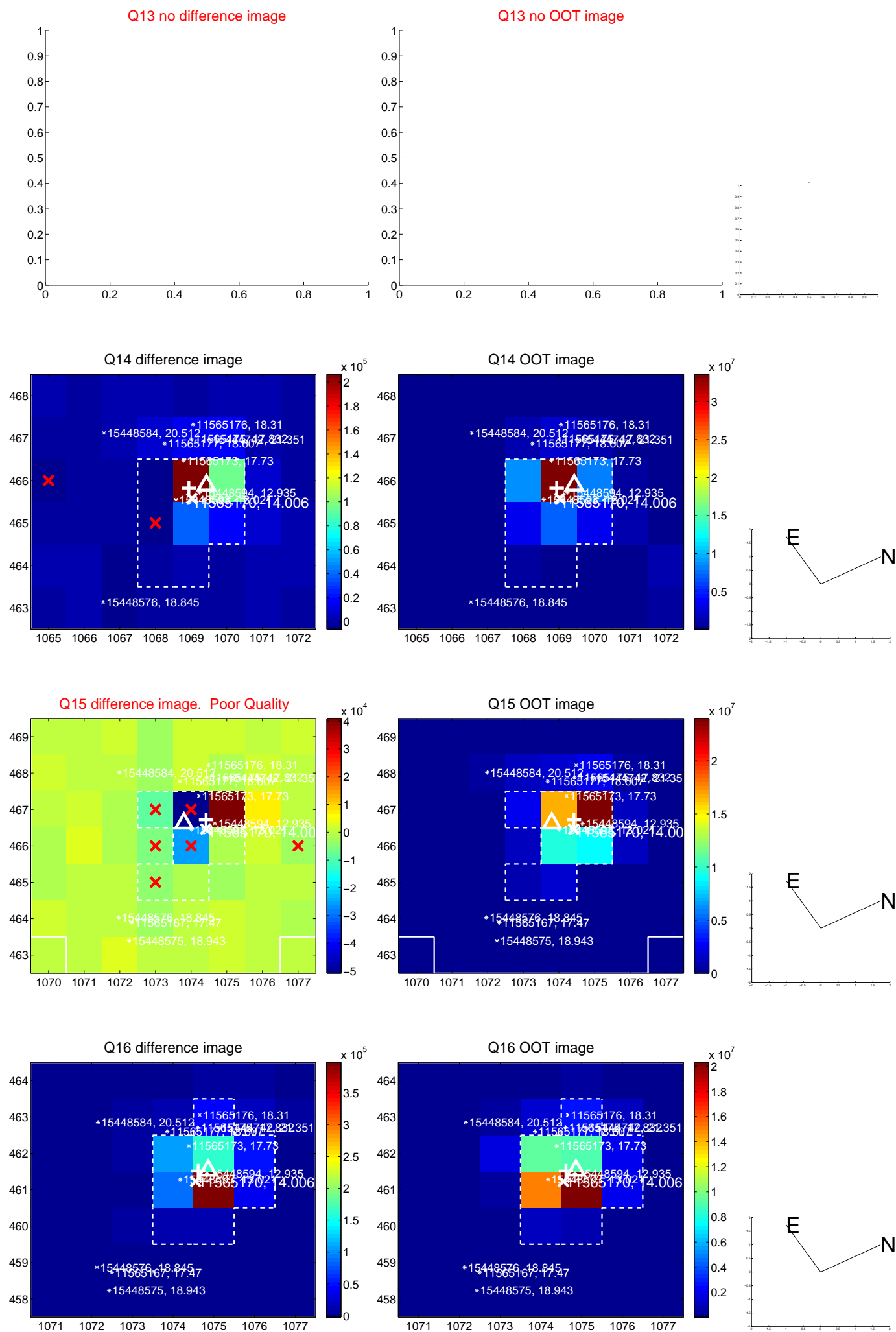
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



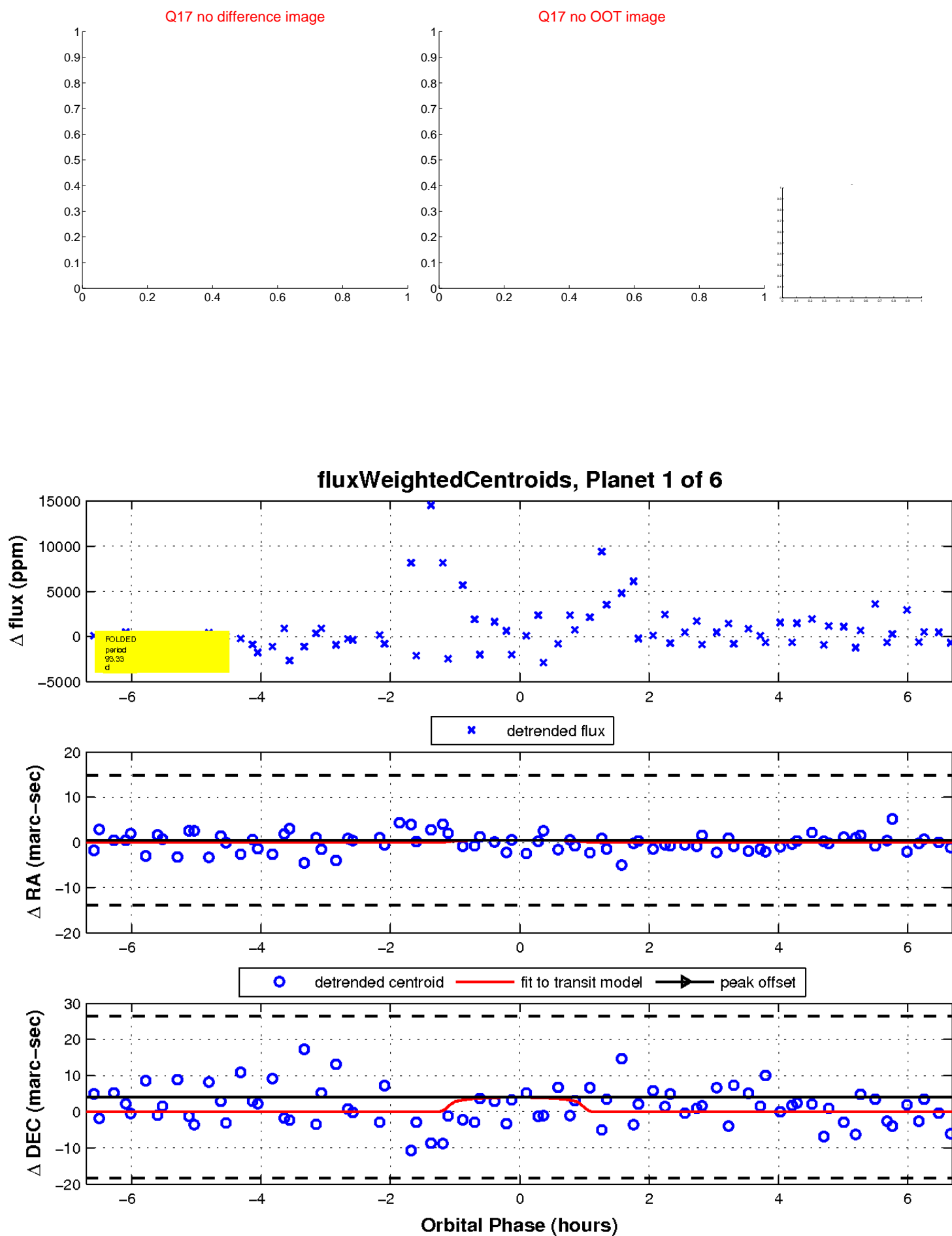
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

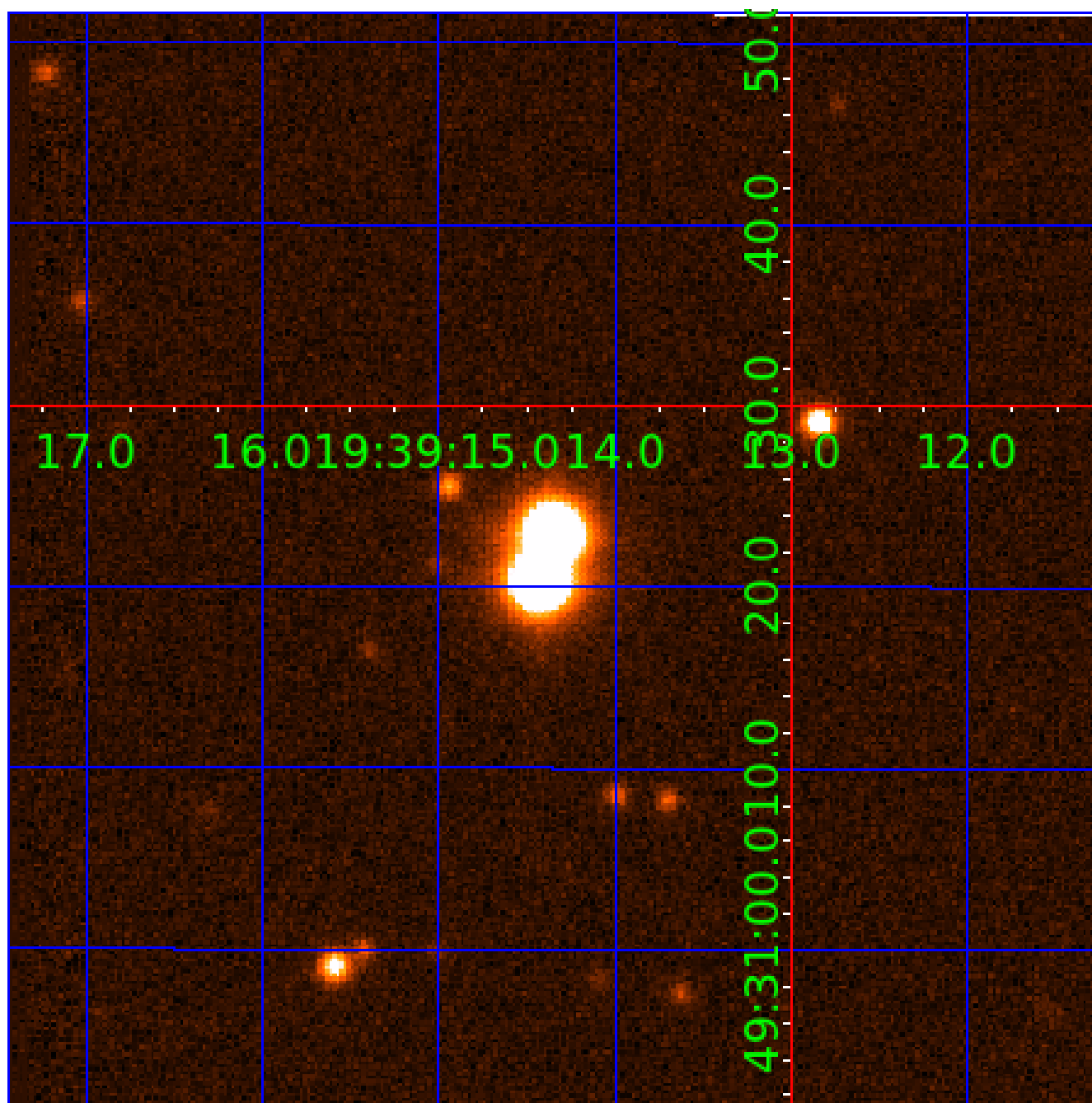


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011565170

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})
011565170-01	OBS	No	93.326859	194.498438	4099.1	2.246	11.3	5.9	1.00	5780	6.38	6.17
011565170-02	OBS	No	0.718473	131.906827	764.8	2.500	10.8	-1.0	1.00	5780	2.74	4055.63
011565170-03	OBS	No	3.917539	133.752277	0.1	14.795	9.4	0.0	1.00	5780	0.04	422.59
011565170-04	OBS	No	30.591590	160.871355	2387.2	19.028	9.0	4.9	1.00	5780	5.09	27.28
011565170-05	OBS	No	31.098987	149.834602	731.8	1.222	8.8	1.1	1.00	5780	3.29	26.69
011565170-06	OBS	No	31.100962	149.795628	1618.6	5.658	7.9	1.8	1.00	5780	4.06	26.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011565170-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011565170-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
011565170-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
011565170-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
011565170-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011565170-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

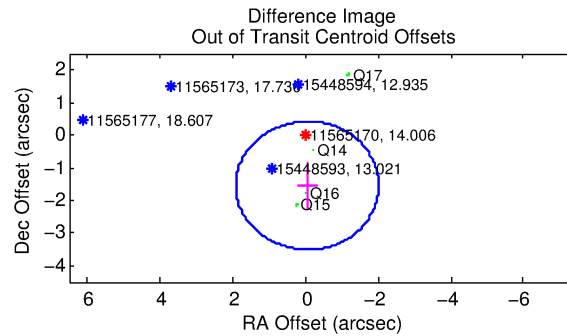
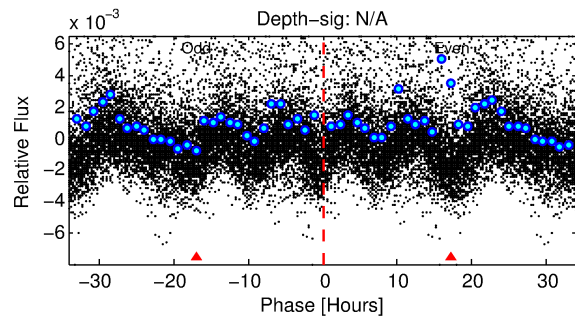
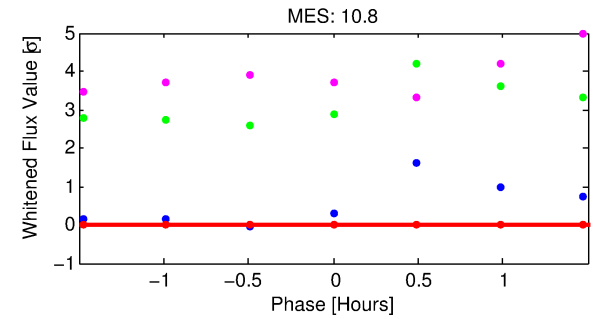
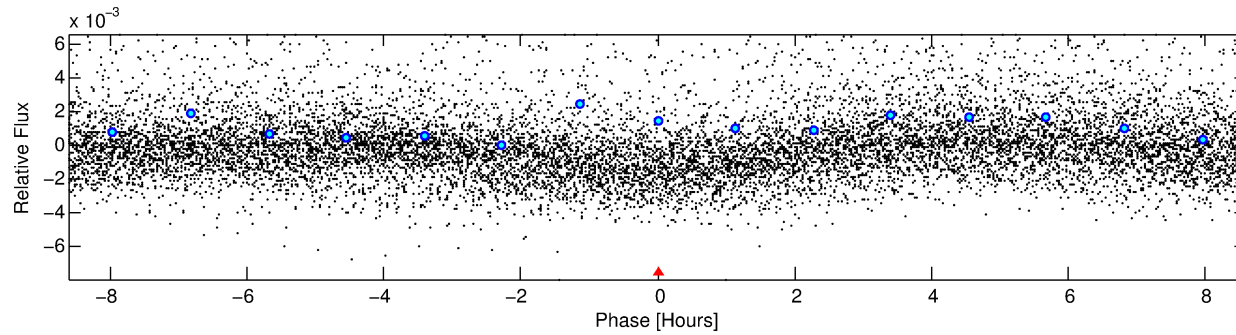
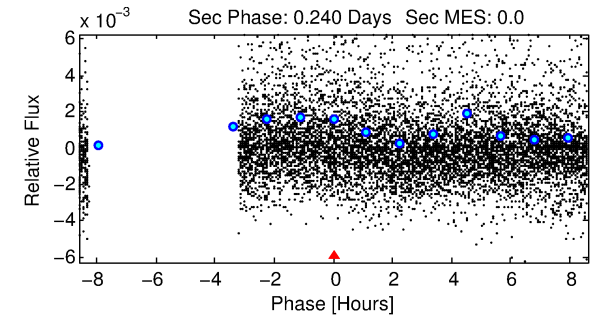
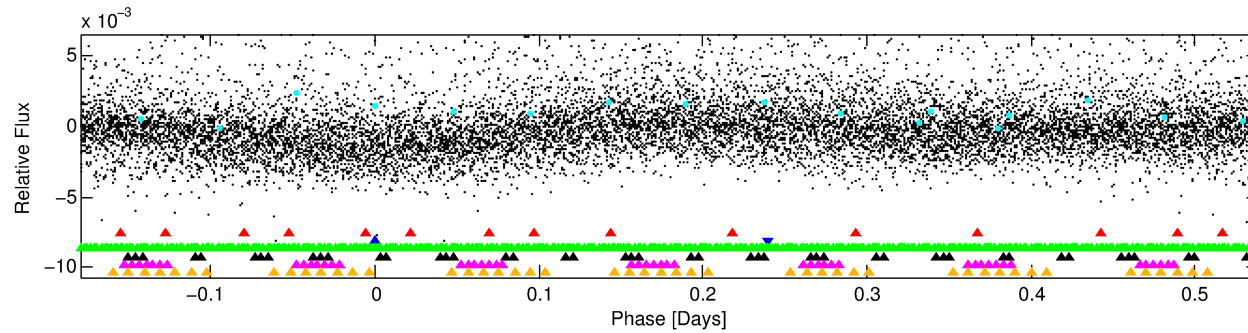
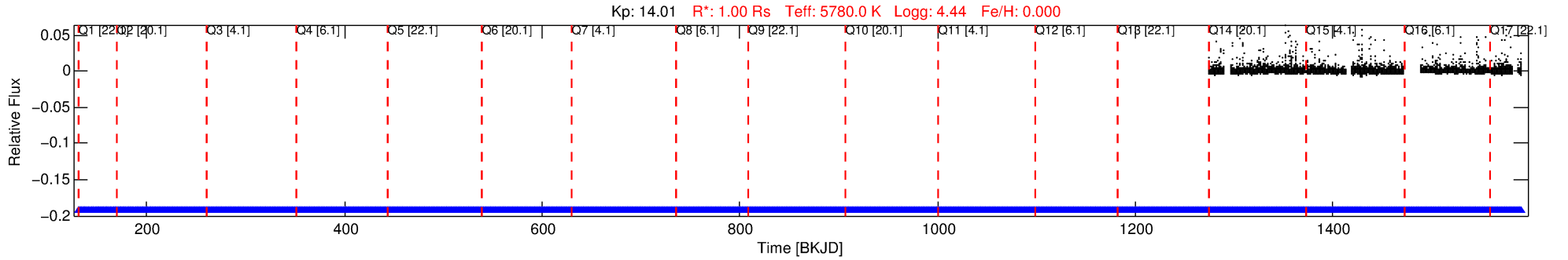
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011565170-02

No Significant Match Found

DV One-Page Summary

KIC: 11565170 Candidate: 2 of 6 Period: 0.718 d



TPS TCE Results:

Period = 0.71847 d
Epoch = 131.9068 BKJD

DV fit results are unavailable

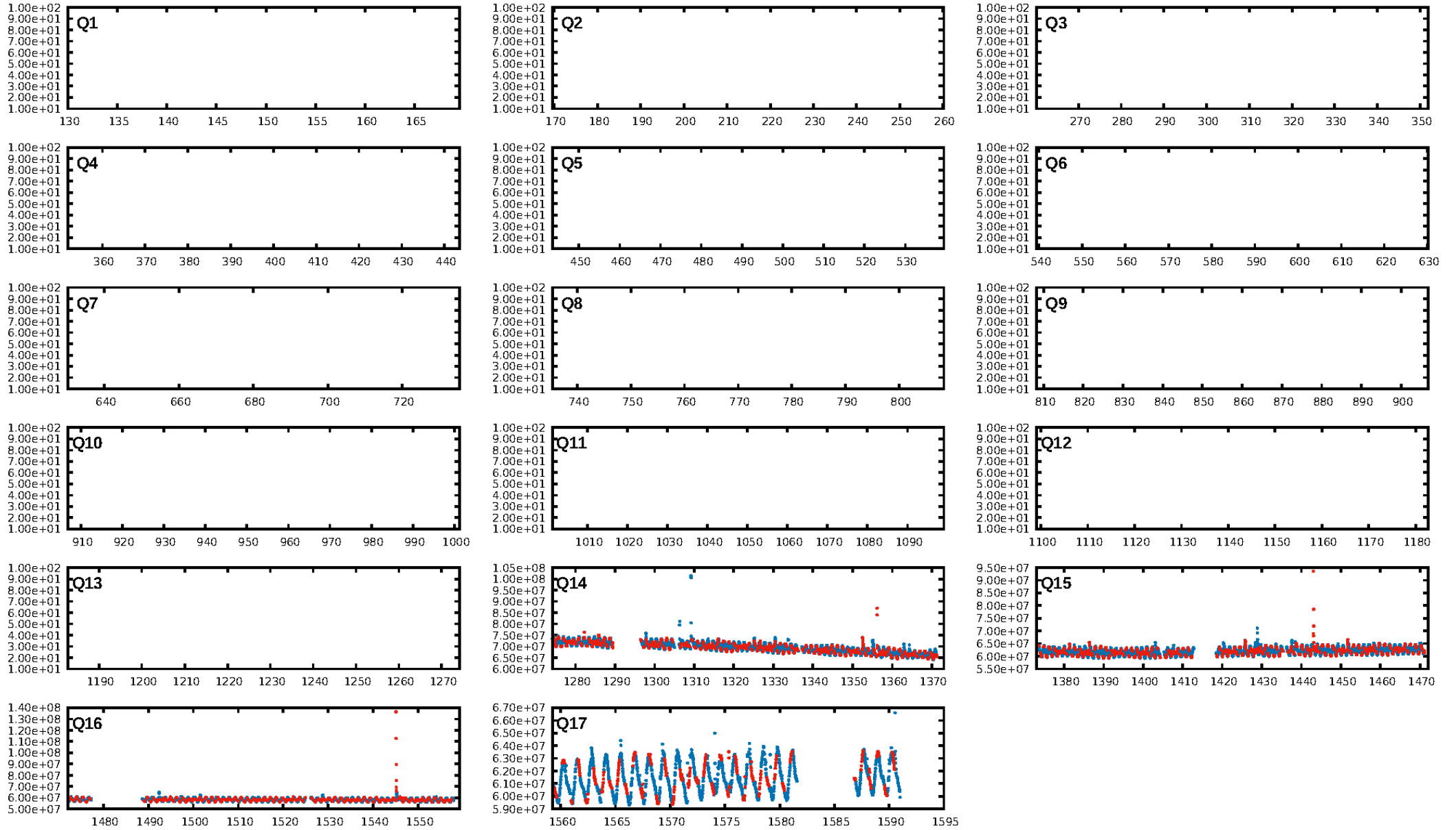
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.12σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.09e-18
RollingBand-fgt: 1.00 [347/347]
GhostDiagnostic-chr: 1.198
Centroid-sig: 0.0%
Centroid-so: 1.277 arcsec [11.79σ]
OotOffset-rm: 1.546 arcsec [2.36σ]
KicOffset-rm: 1.156 arcsec [1.52σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [4/4]

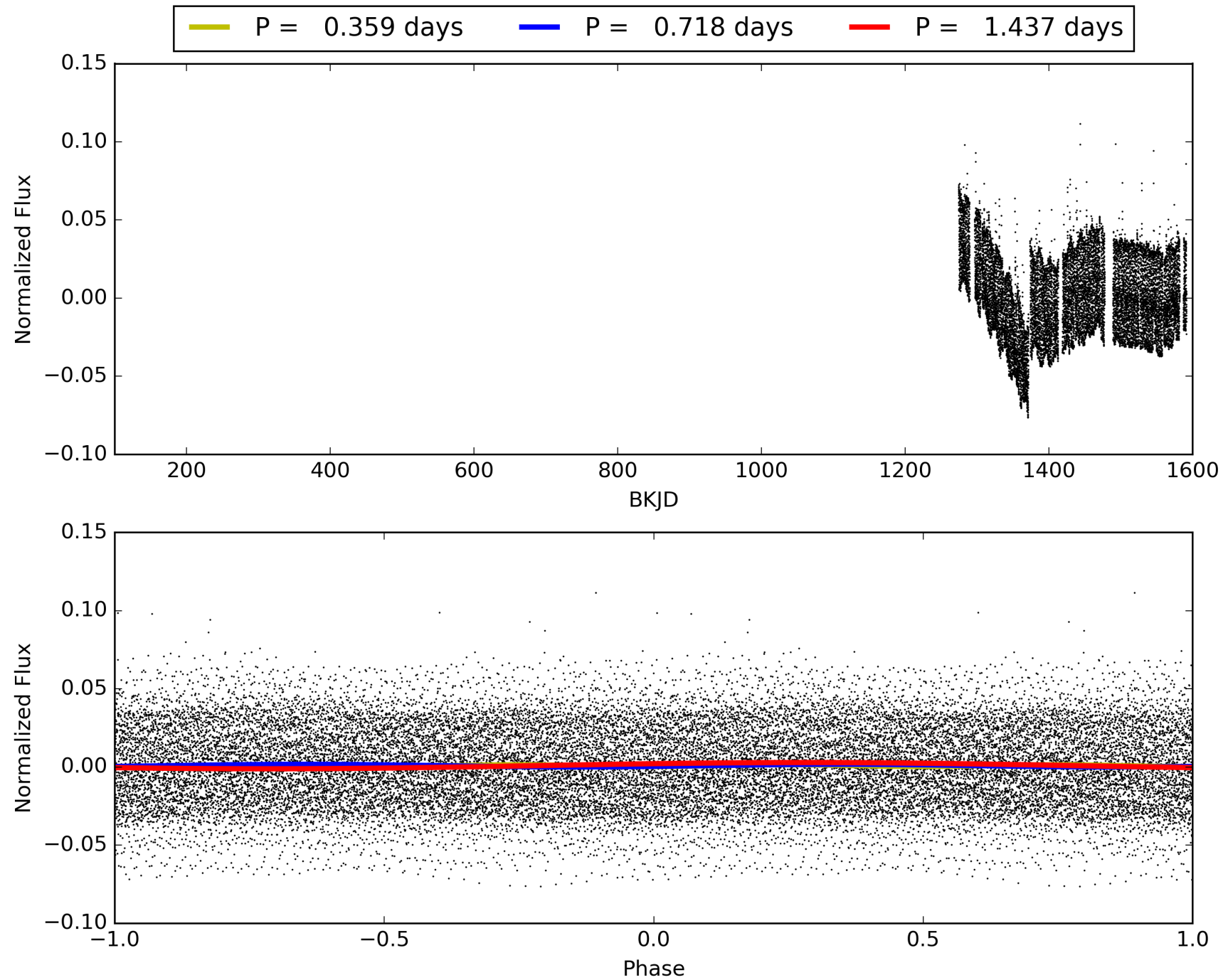
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:07:50 Z

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

TCE 011565170-02, PDC Light Curves

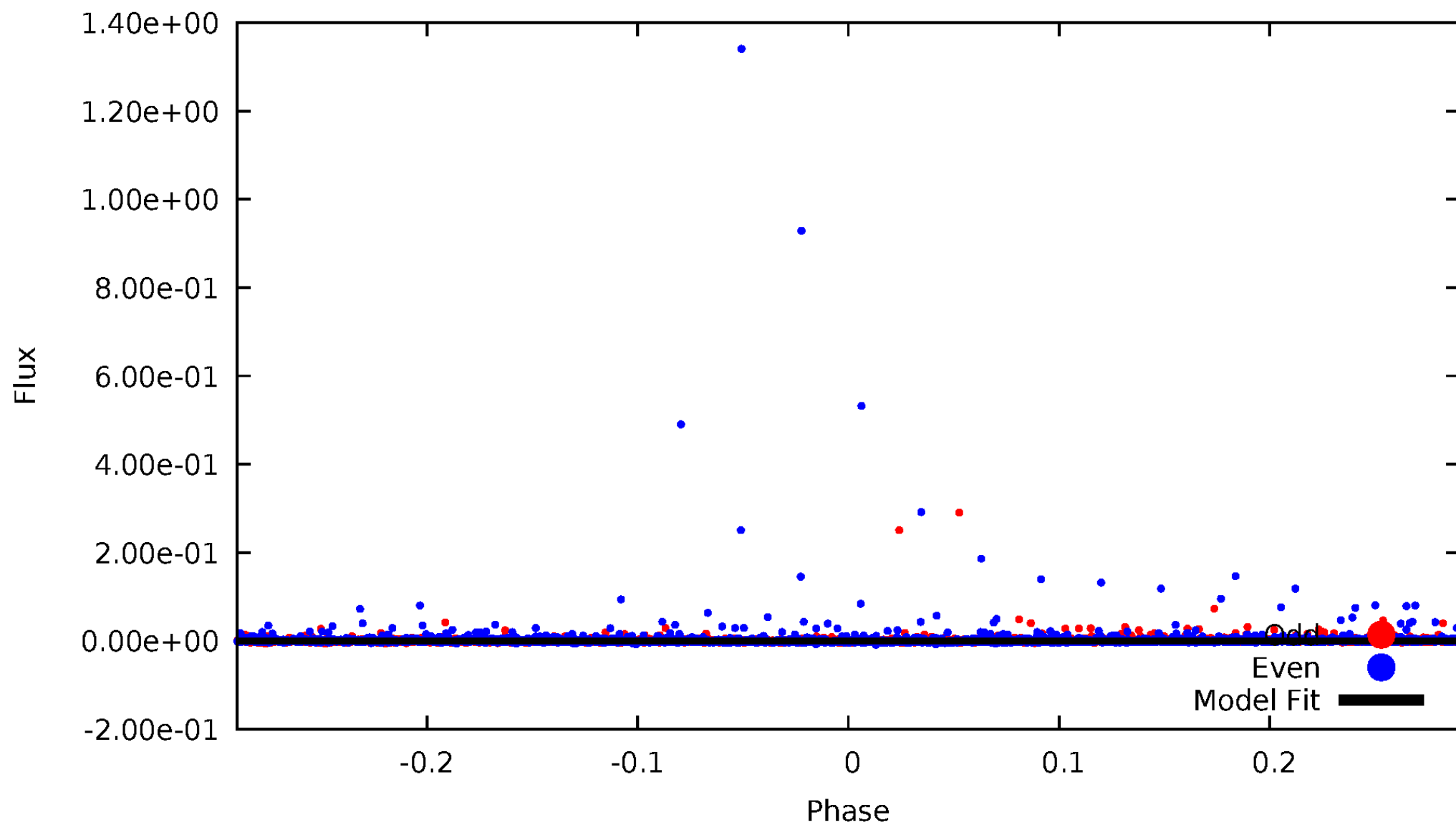


TCE 011565170-02



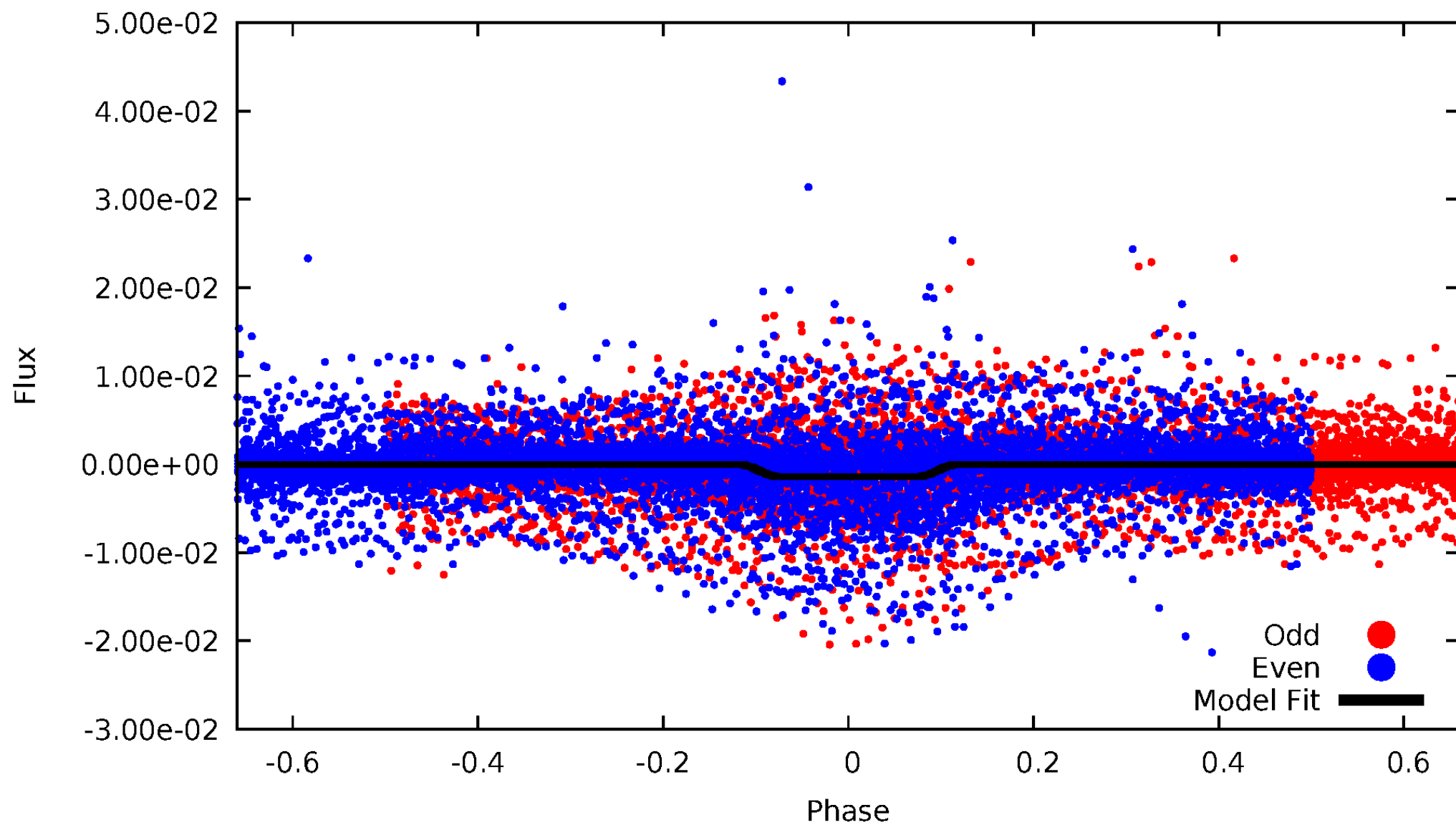
DV Odd/Even

TCE 011565170-02



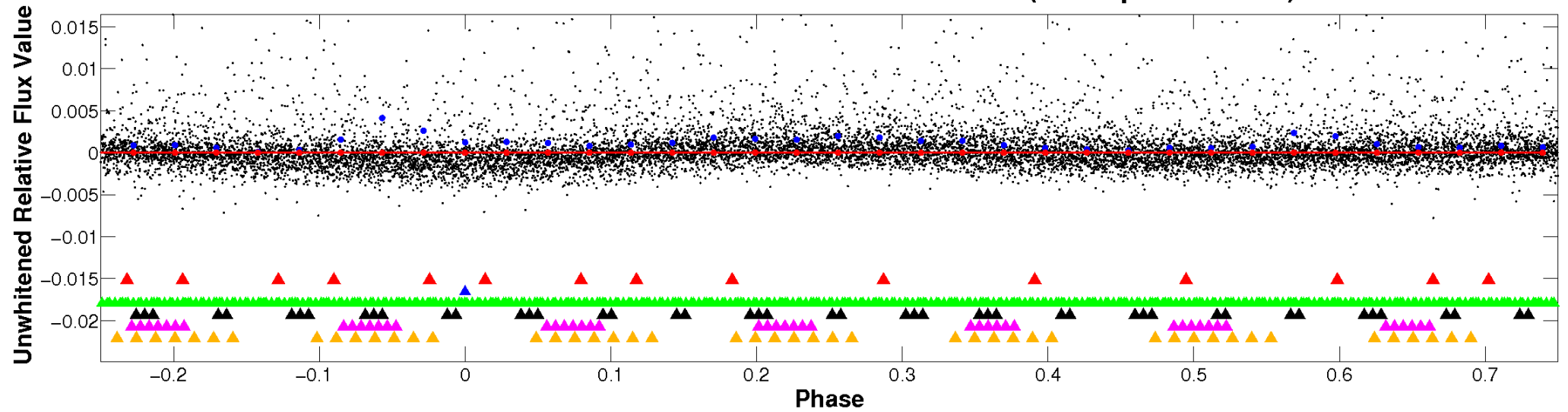
ALT Odd/Even

TCE 011565170-02

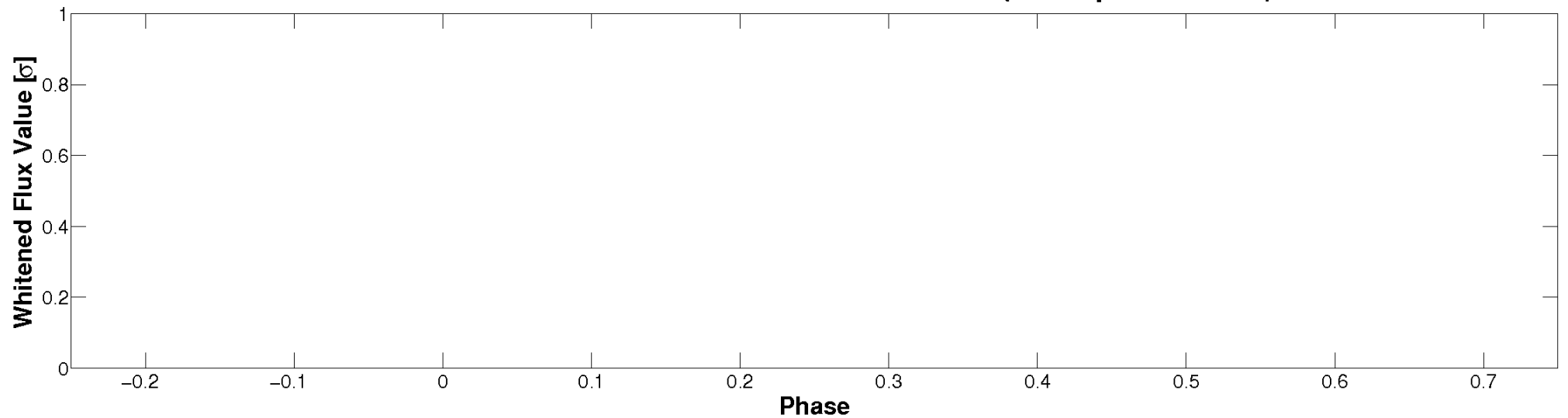


Non-Whitened Vs. Whitened Light Curve

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

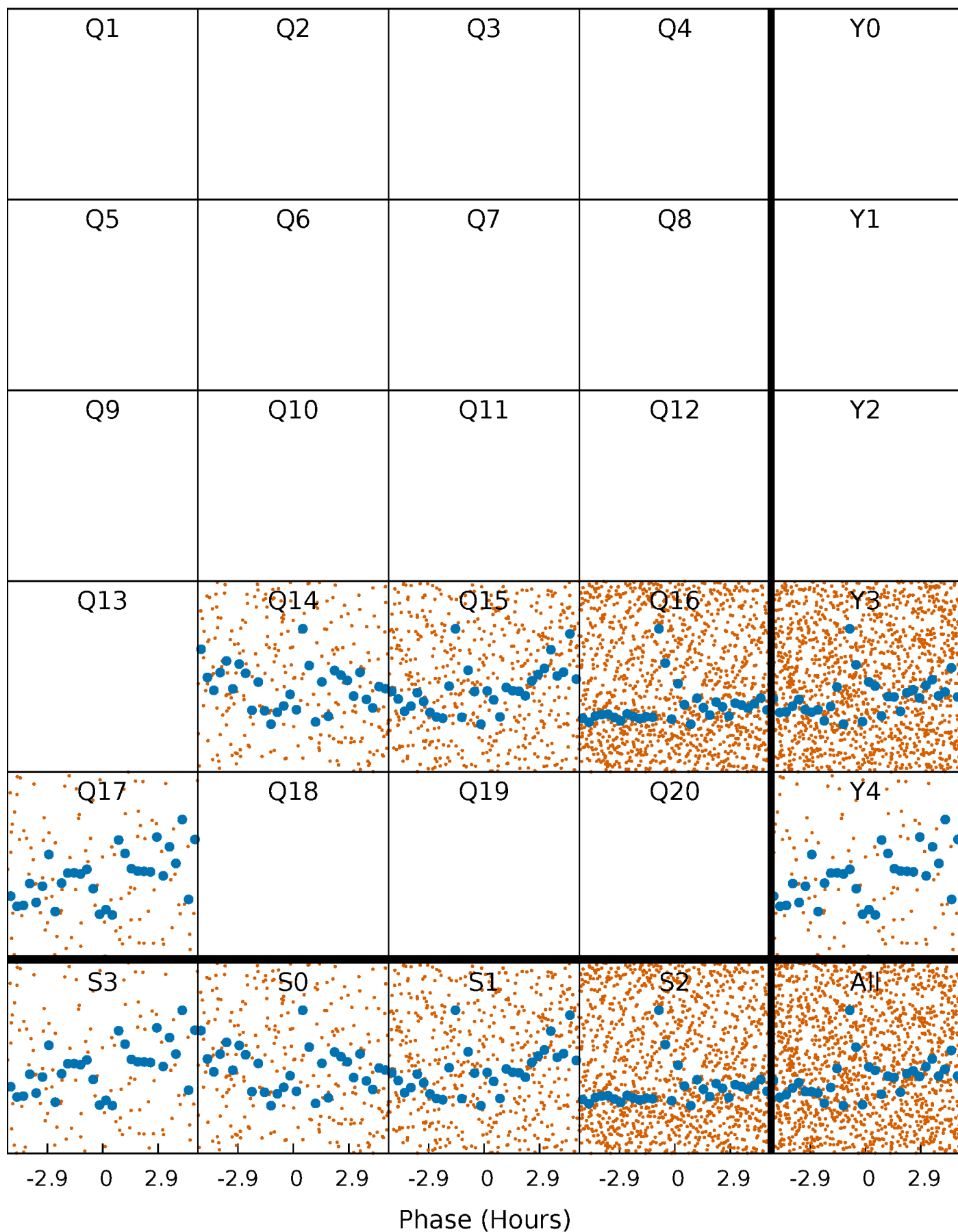


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



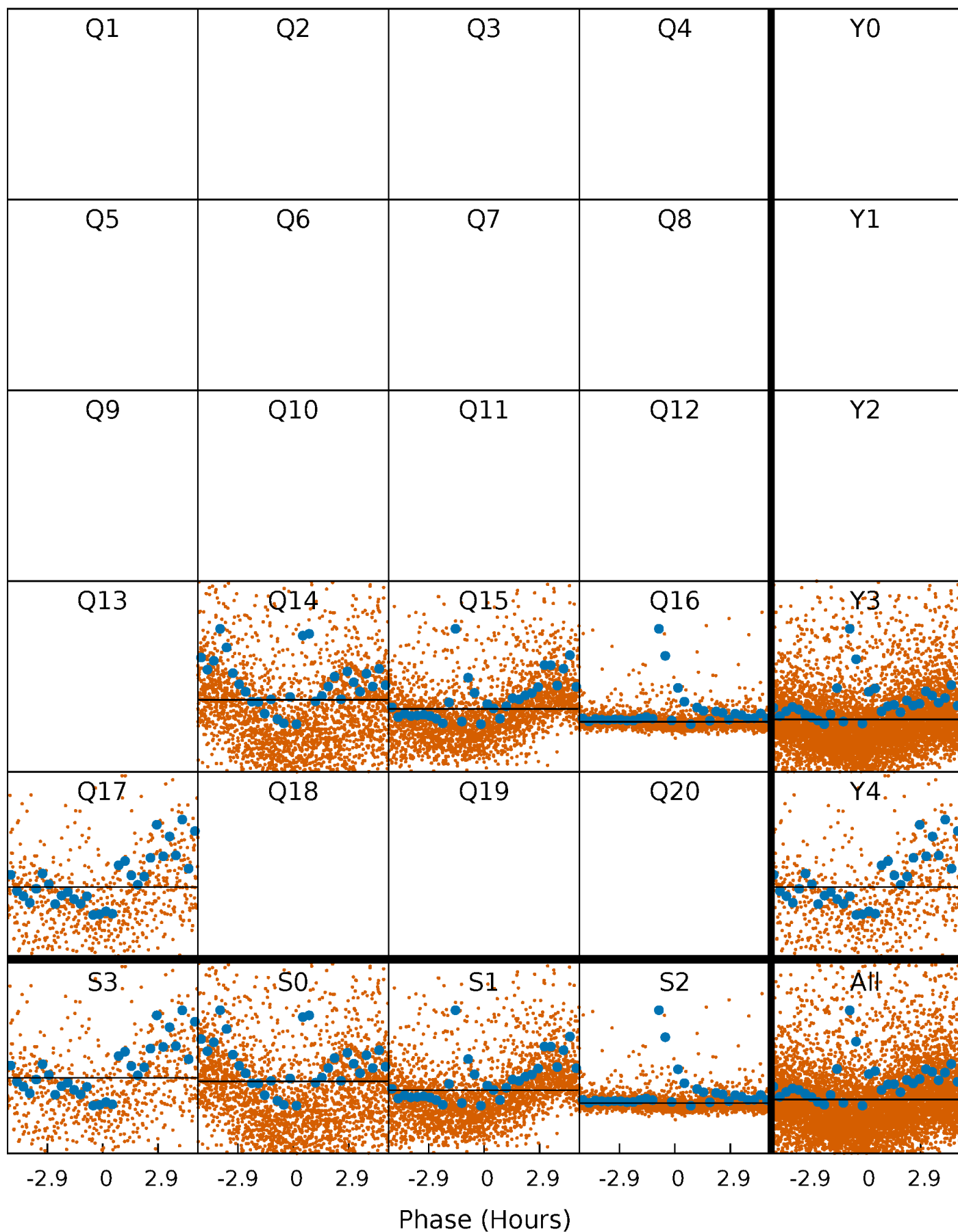
PDC Quarter-Phased Transit Curves

TCE 011565170-02 P= 0.718473 Days $T_0=131.906827$ (BKJD)



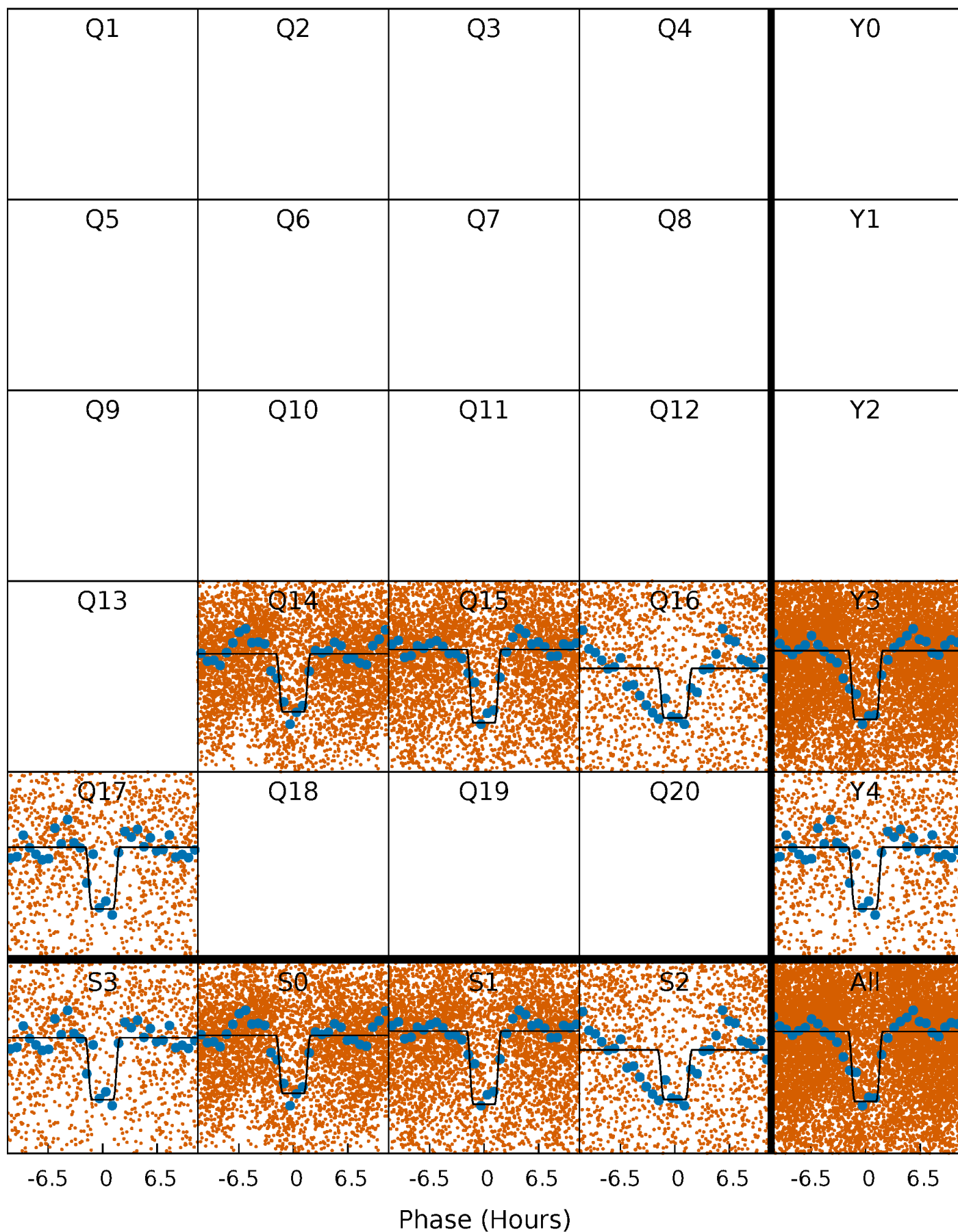
DV Quarter-Phased Transit Curves

TCE 011565170-02 P= 0.718473 Days $T_0=131.906827$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

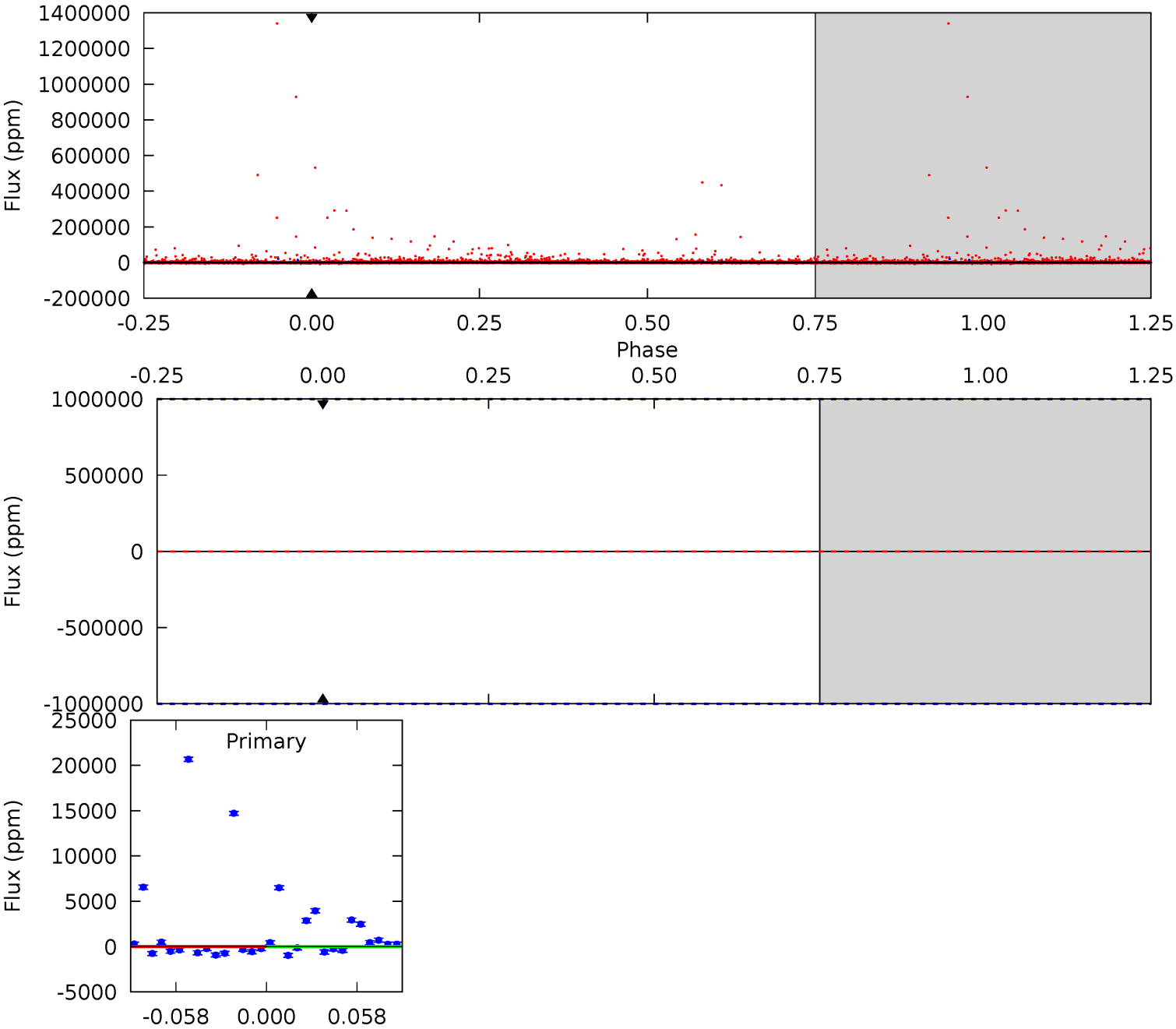
TCE 011565170-02 P= 0.718473 Days $T_0=131.894878$ (BKJD)



DV Model-Shift Uniqueness Test

011565170-02, P = 0.718473 Days, E = 131.906827 Days

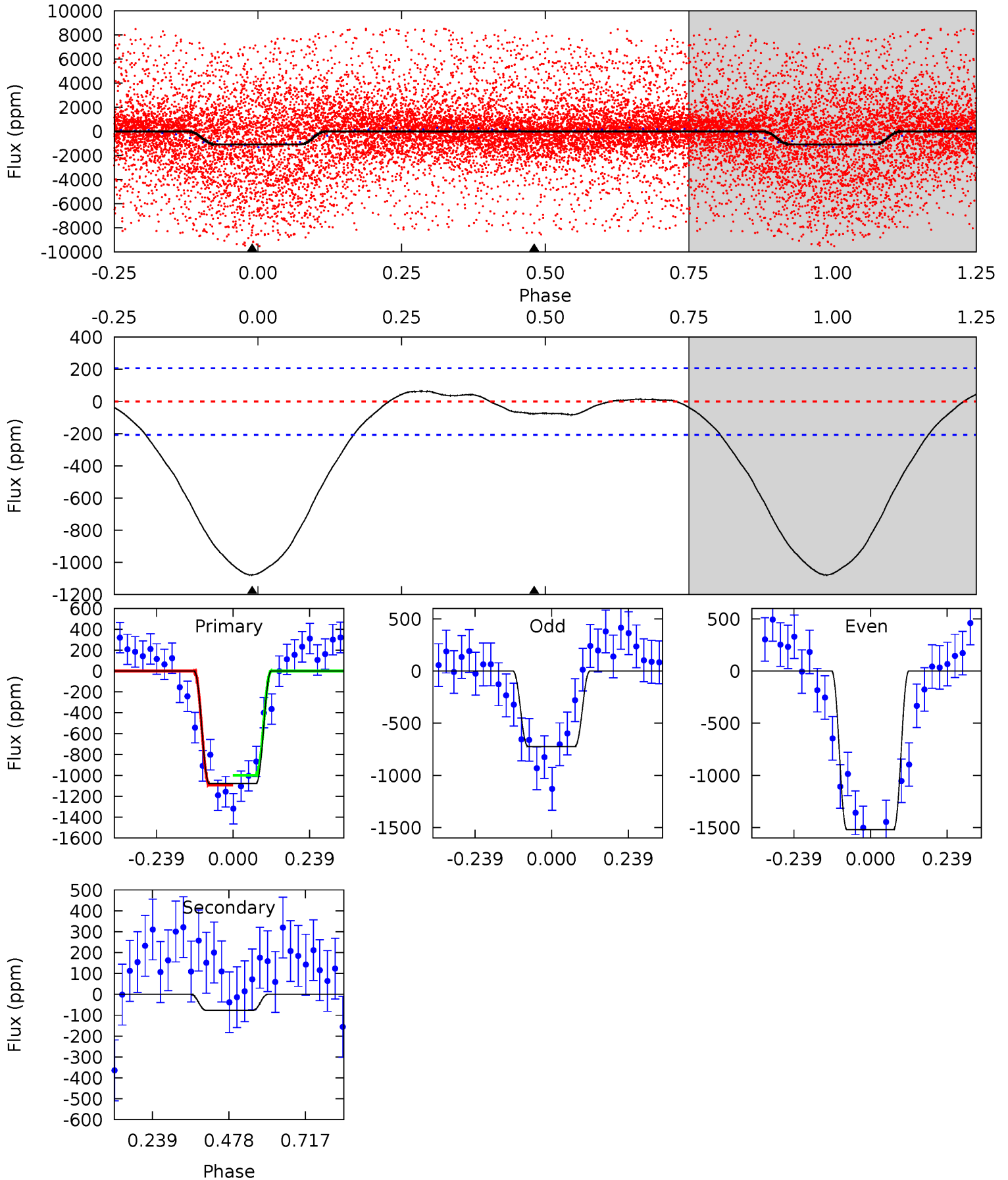
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011565170-02, P = 0.718473 Days, E = 131.894878 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.8	1.62	0	0	4.38	1.18	0.59	22.8	22.8	1.62	1.62	8.80	2.32	0.06	1.01



Stellar Parameters For KIC 011565170

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 011565170-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$8.51^{+8.61}_{-6.24}$	2832^{+133}_{-130}	-4732^{+25555}_{-14534}	$-4.162^{+378.860}_{-323.121}$
Alt.	-76 ± 47	$9.26^{+8.50}_{-5.98}$	2848^{+143}_{-136}	-2813^{+6194}_{-184}	$0.102^{+0.823}_{-0.081}$

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

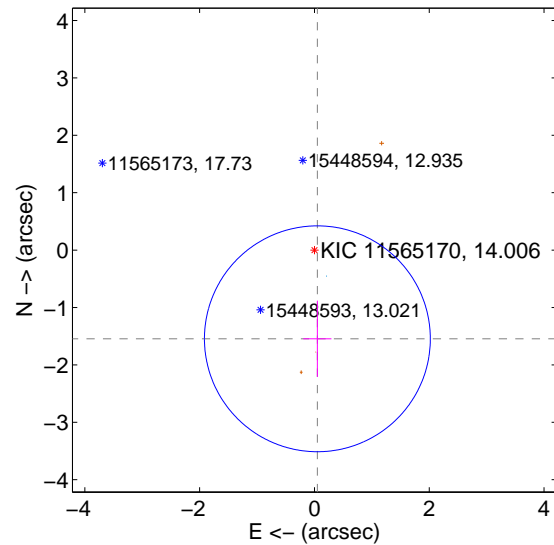
Supplemental centroid analysis for 011565170-02. Kepler magnitude: 14.01. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

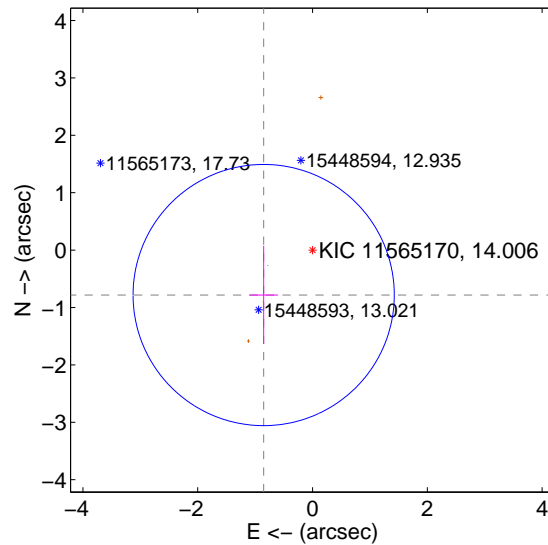
The direct PRF centroid is offset from the target star catalog position by about 1.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.546 ± 0.656	2.36	-0.051 ± 0.246	-1.545 ± 0.664
PRF-fit source offset from KIC position	1.156 ± 0.758	1.52	0.851 ± 0.252	-0.783 ± 0.855
photometric centroid source offset	1.28 ± 0.11	11.79	1.18 ± 0.07	0.48 ± 0.23

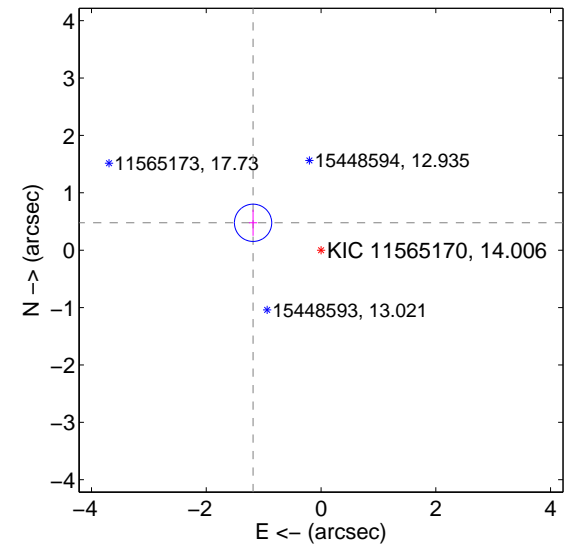
offset from difference PRF-fit to OOT PRF-fit



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.



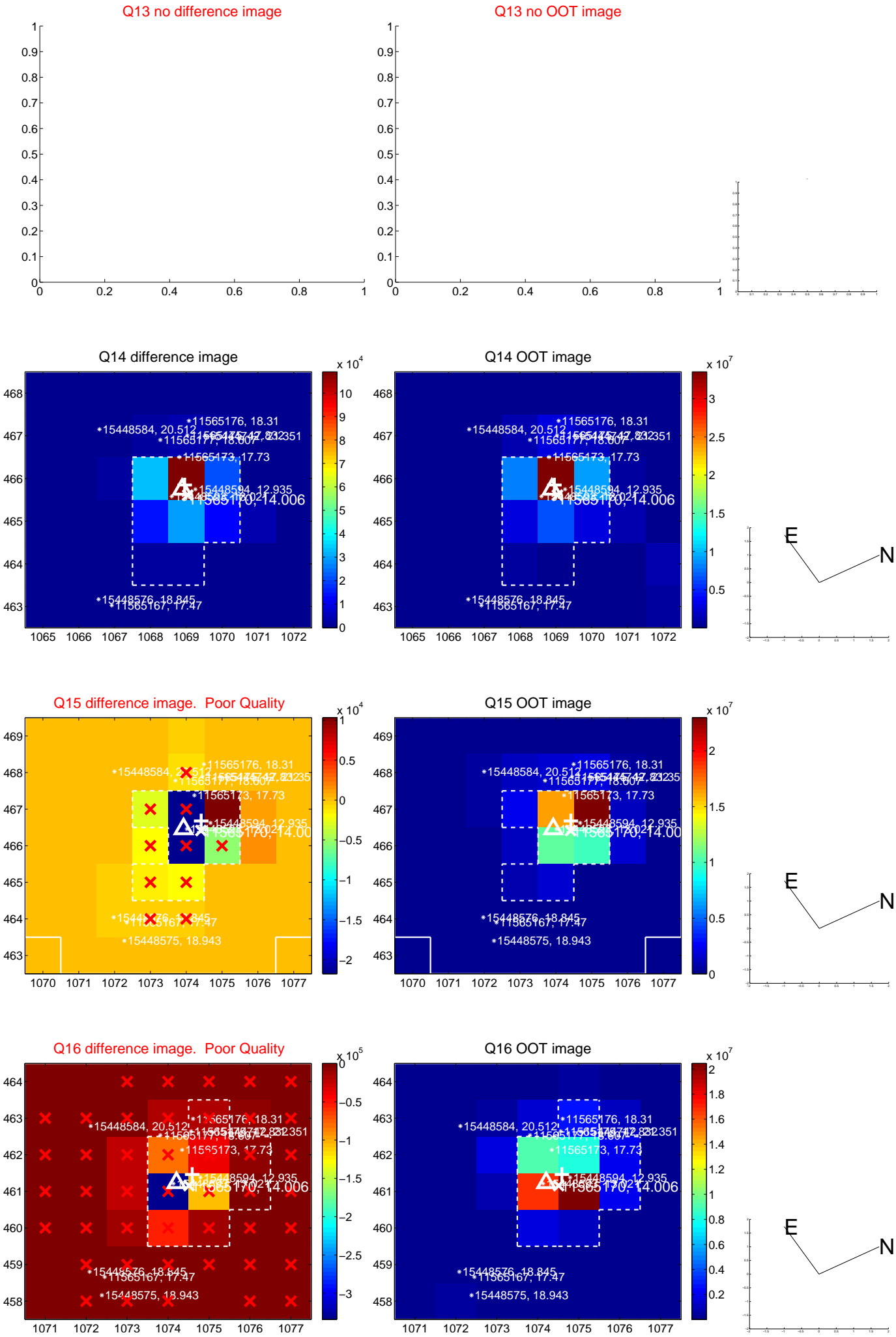
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



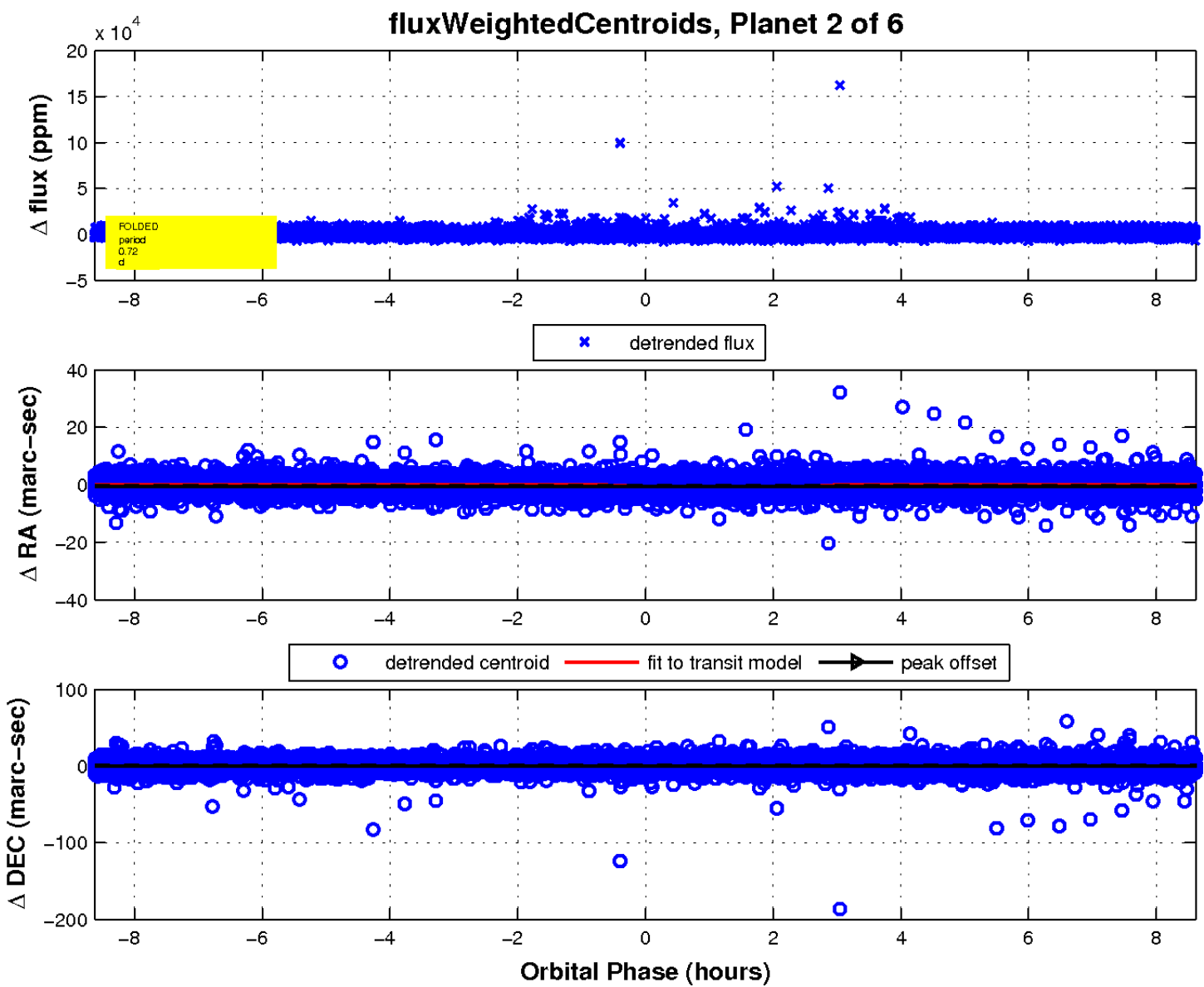
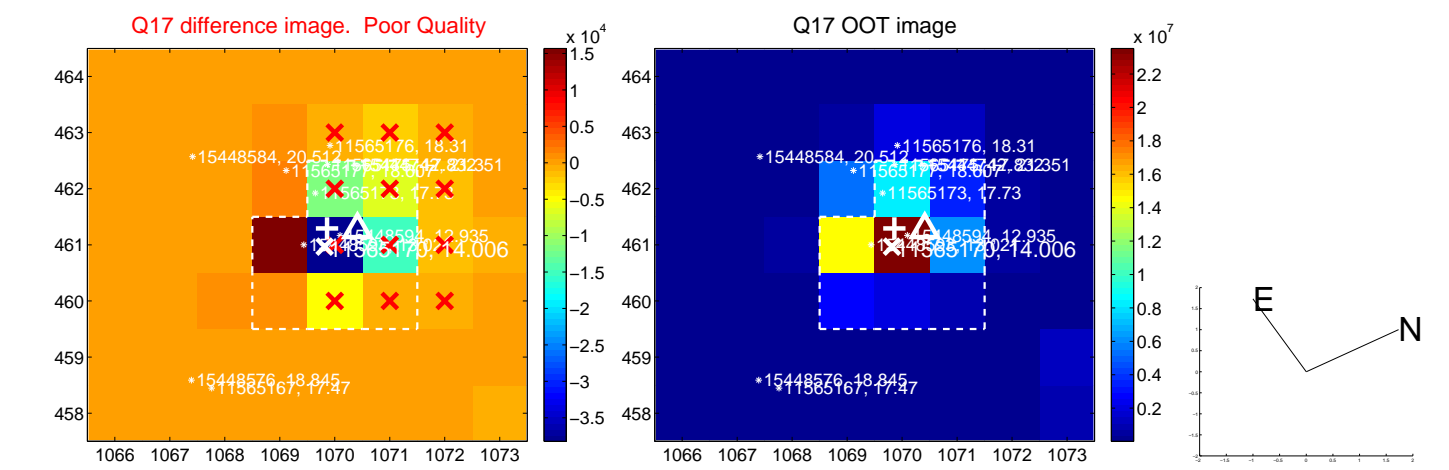
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

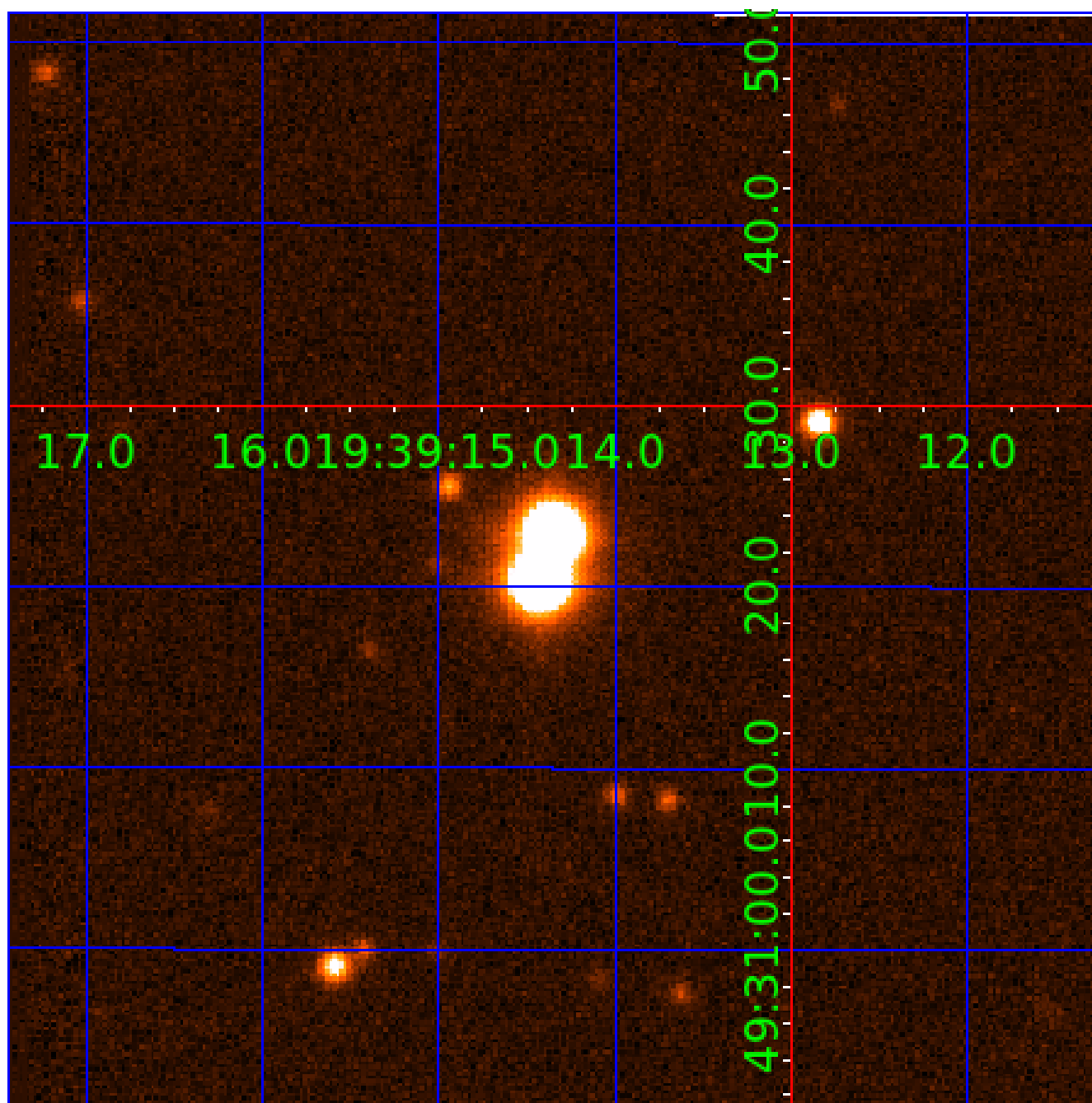


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011565170

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})
011565170-01	OBS	No	93.326859	194.498438	4099.1	2.246	11.3	5.9	1.00	5780	6.38	6.17
011565170-02	OBS	No	0.718473	131.906827	764.8	2.500	10.8	-1.0	1.00	5780	2.74	4055.63
011565170-03	OBS	No	3.917539	133.752277	0.1	14.795	9.4	0.0	1.00	5780	0.04	422.59
011565170-04	OBS	No	30.591590	160.871355	2387.2	19.028	9.0	4.9	1.00	5780	5.09	27.28
011565170-05	OBS	No	31.098987	149.834602	731.8	1.222	8.8	1.1	1.00	5780	3.29	26.69
011565170-06	OBS	No	31.100962	149.795628	1618.6	5.658	7.9	1.8	1.00	5780	4.06	26.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011565170-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011565170-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
011565170-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
011565170-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
011565170-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011565170-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

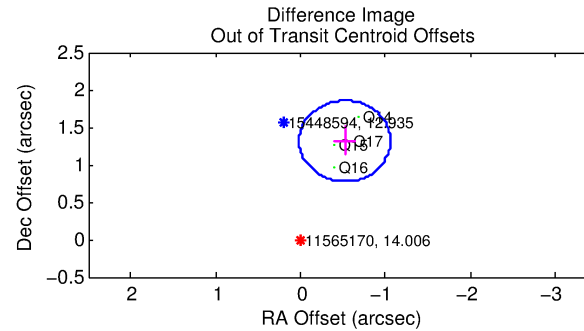
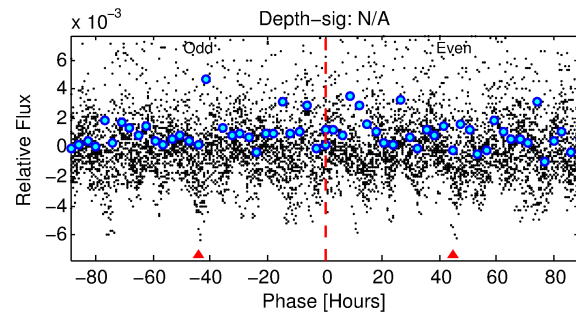
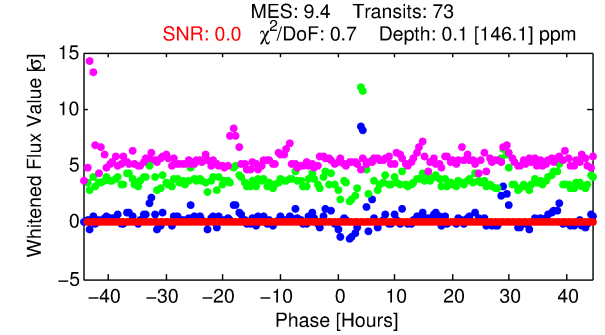
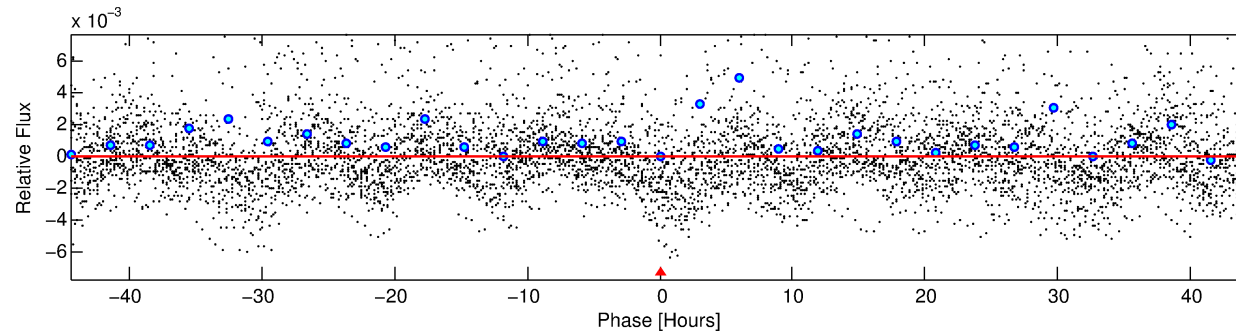
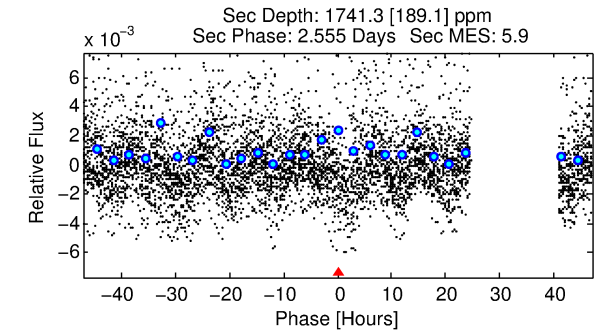
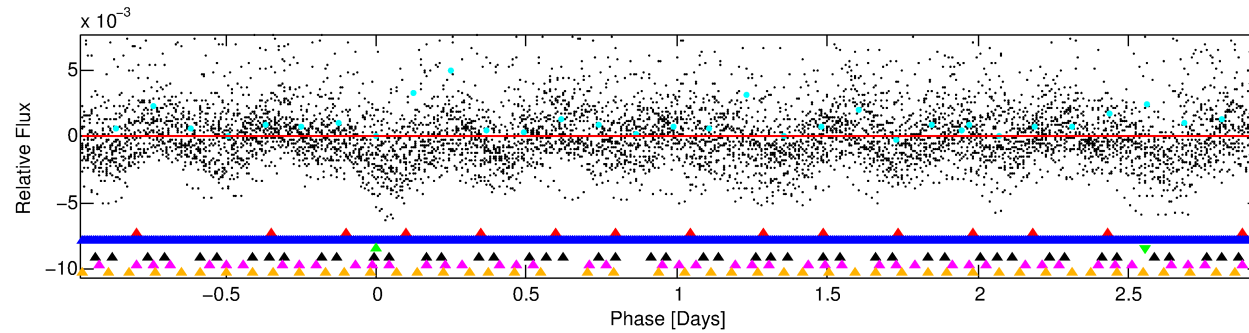
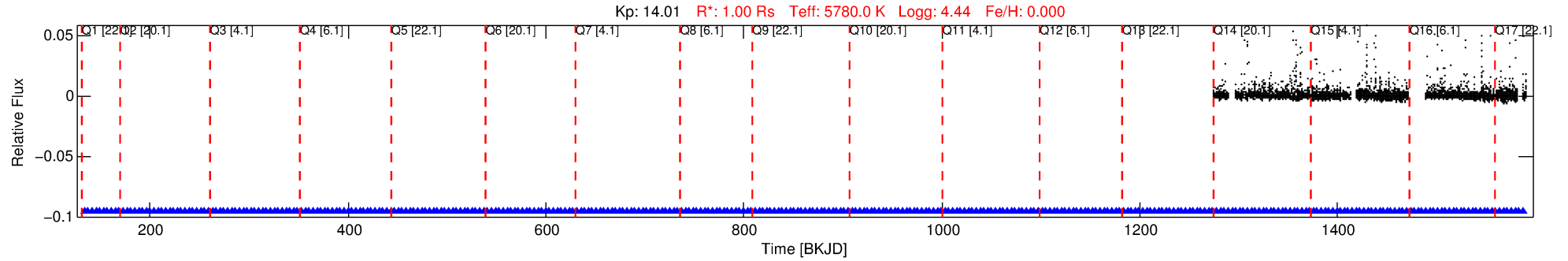
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011565170-03

No Significant Match Found

DV One-Page Summary

KIC: 11565170 Candidate: 3 of 6 Period: 3.918 d



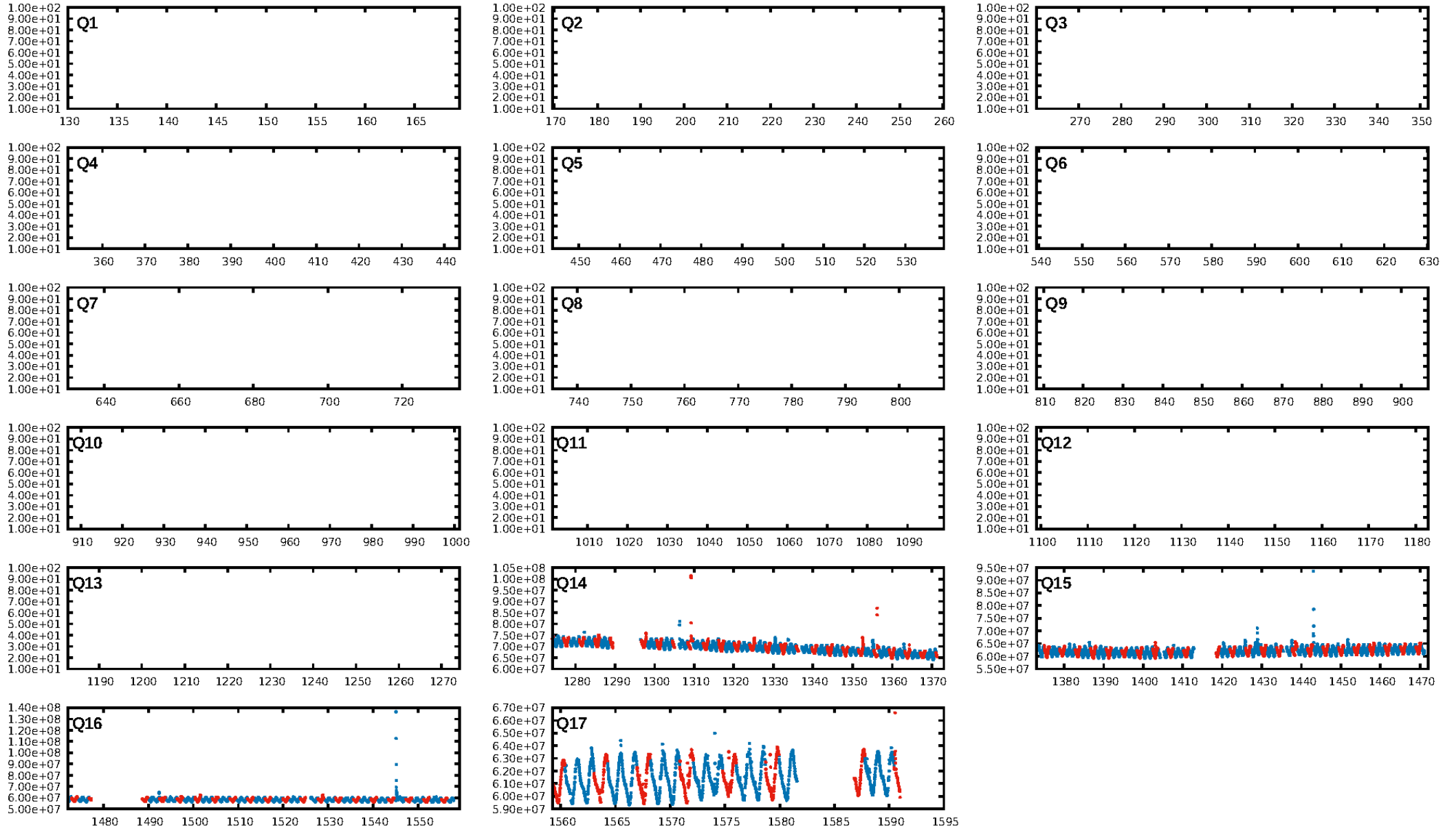
DV Fit Results:

Period = 3.91754 [0.21605] d
Epoch = 133.7523 [45.4815] BKJD
Rp/R* = 0.0003 [0.2370]
a/R* = 2.06 [3115.39]
b = 0.24 [7993.17]
Seff = 422.59 [31.07]
Teq = 1156 [21] K
Rp = 0.04 [25.86] Re
a = 0.0486 [0.0018] AU
Ag = 1617596.41 [2234828820.42] [0.000]
Teff = 63748 [22018228] K [0.000]

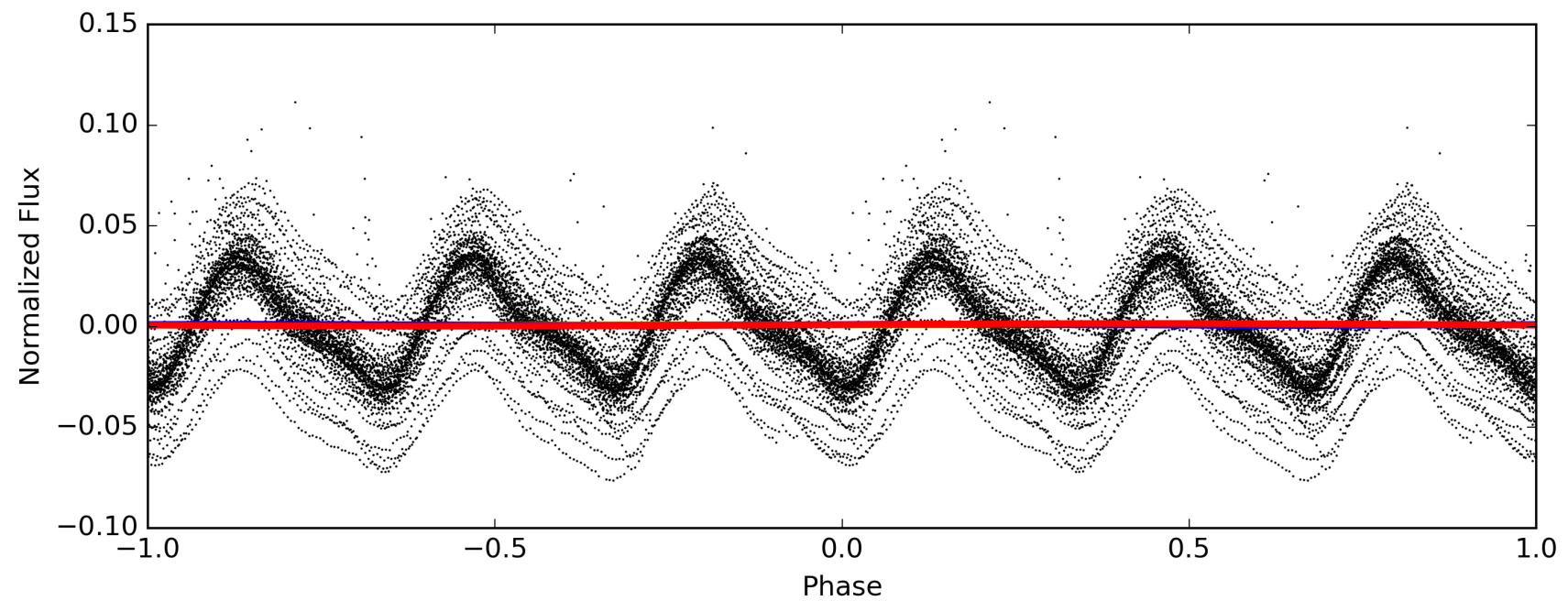
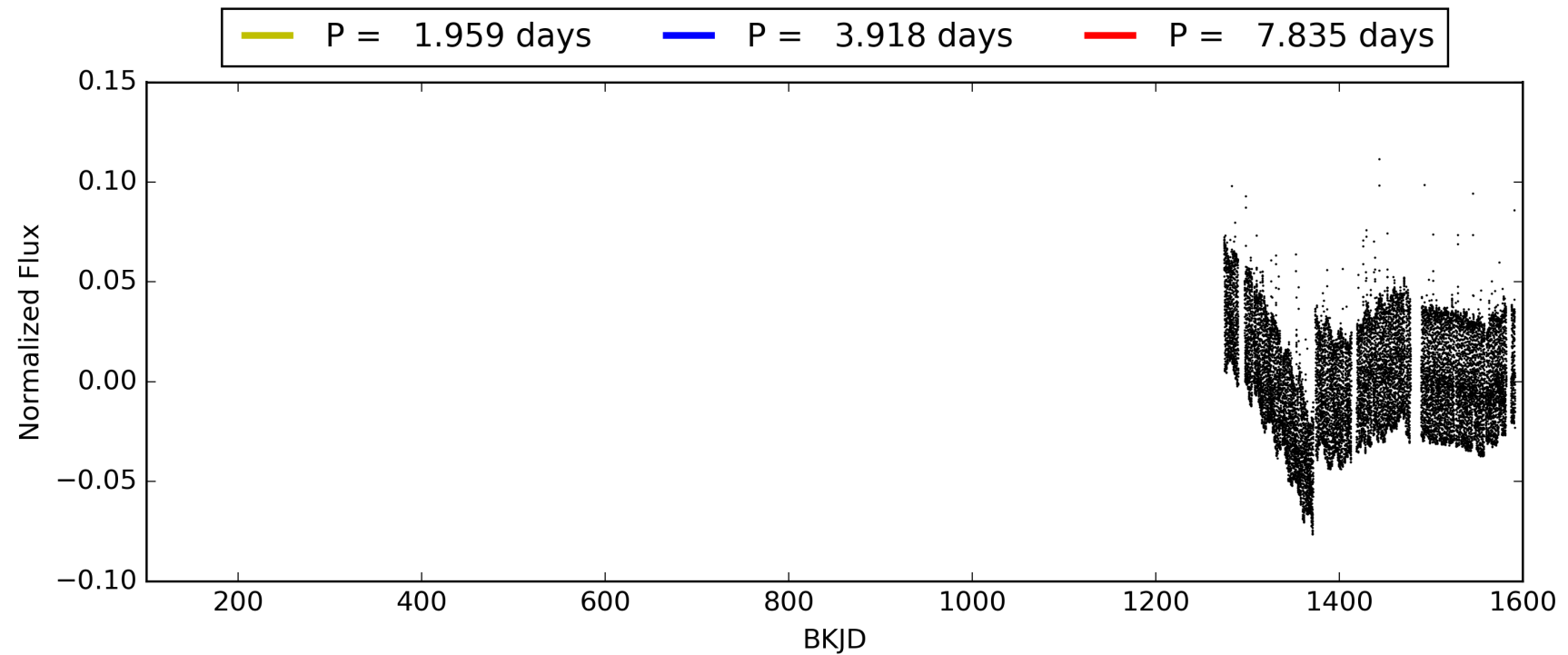
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.12 σ]
LongPeriod-sig: 100.0% [26.56 σ]
ModelChiSquare2-sig: 45.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.11e-10
RollingBand-fgt: 1.00 [65/65]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.416 arcsec [7.88 σ]
KicOffset-rm: 1.883 arcsec [20.20 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 011565170-03, PDC Light Curves

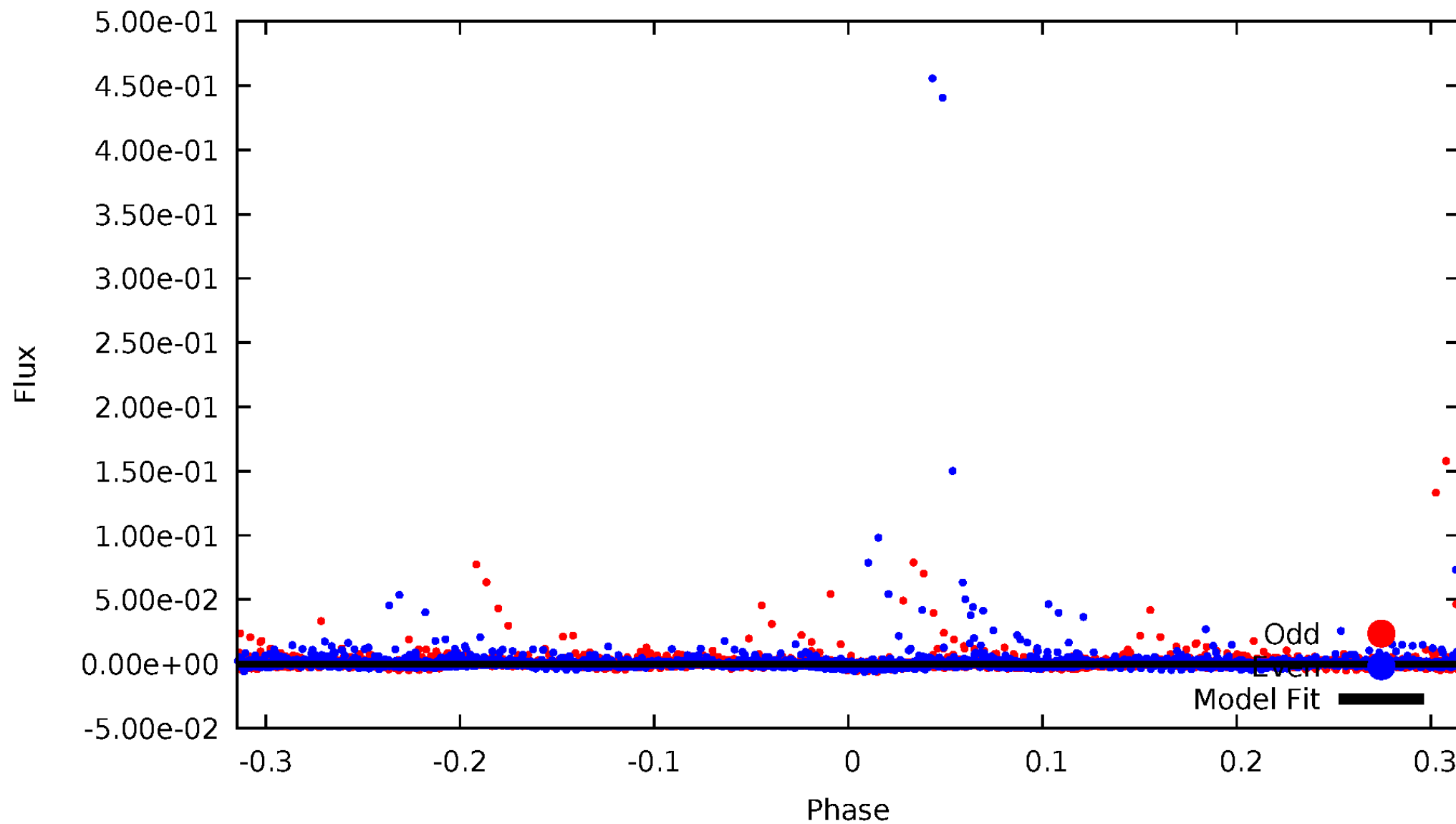


TCE 011565170-03



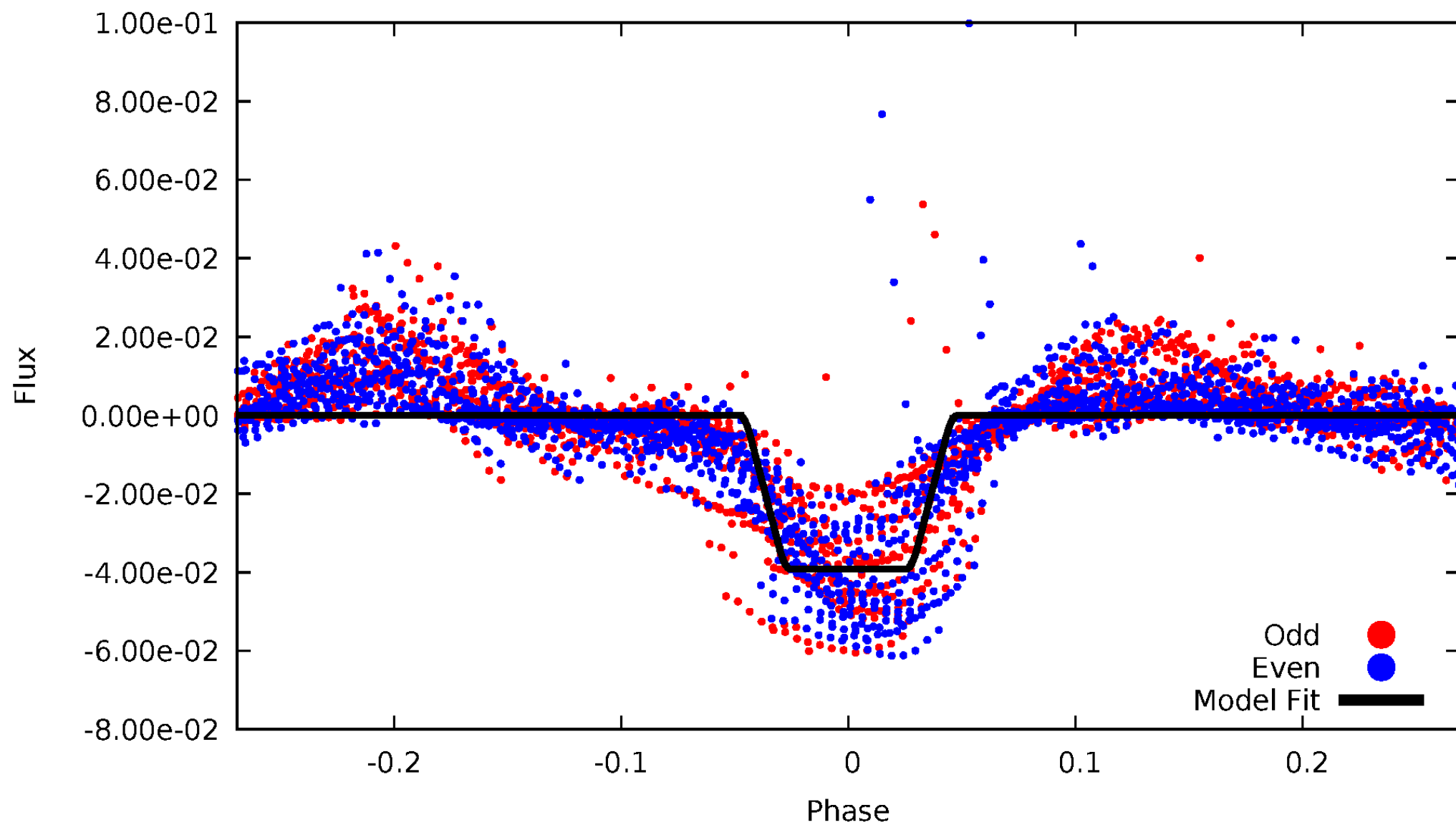
DV Odd/Even

TCE 011565170-03



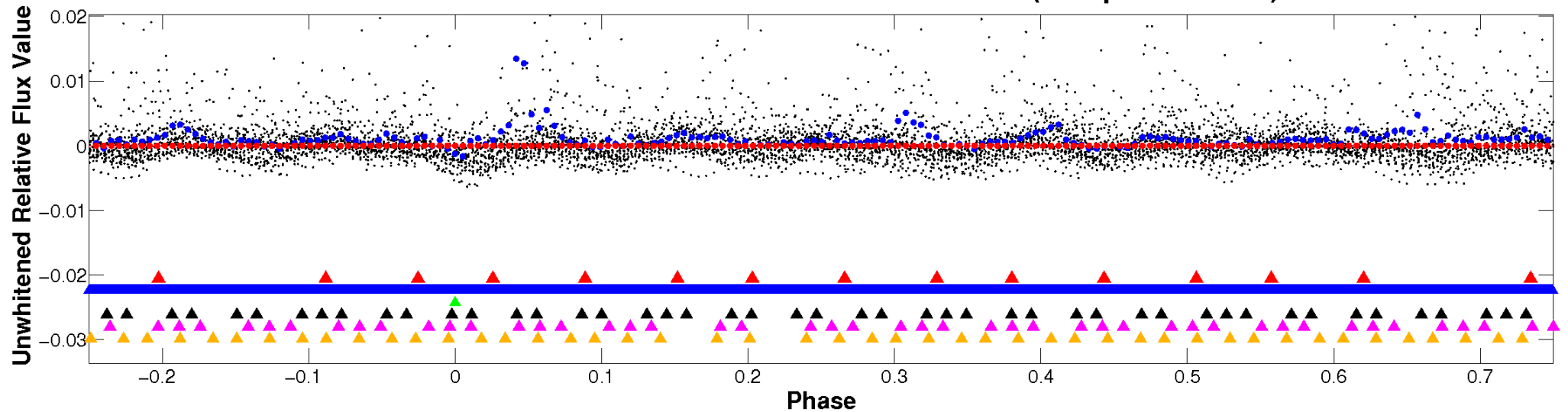
ALT Odd/Even

TCE 011565170-03

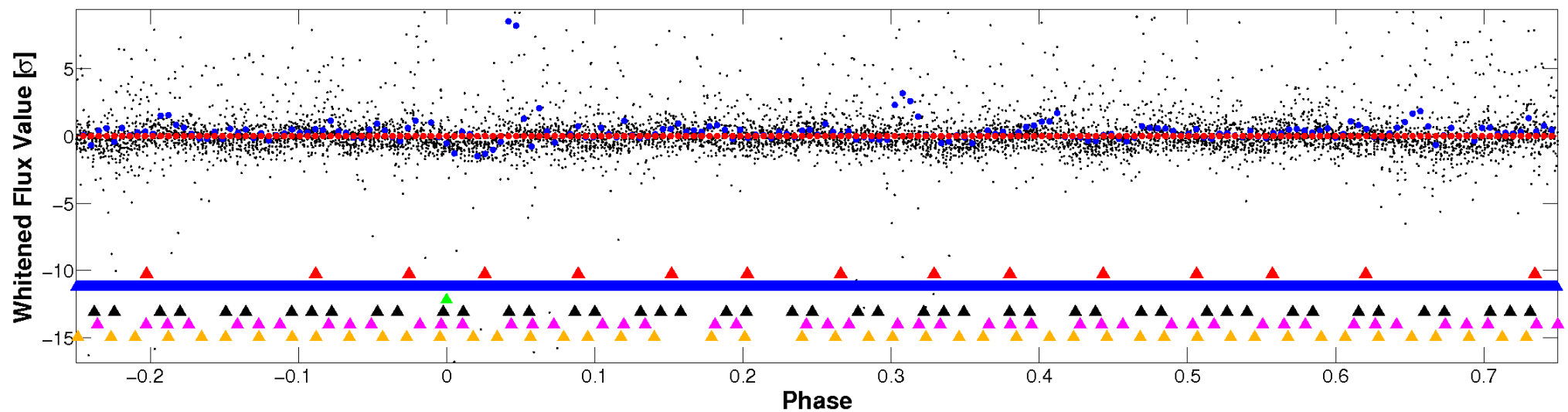


Non-Whitened Vs. Whitened Light Curve

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

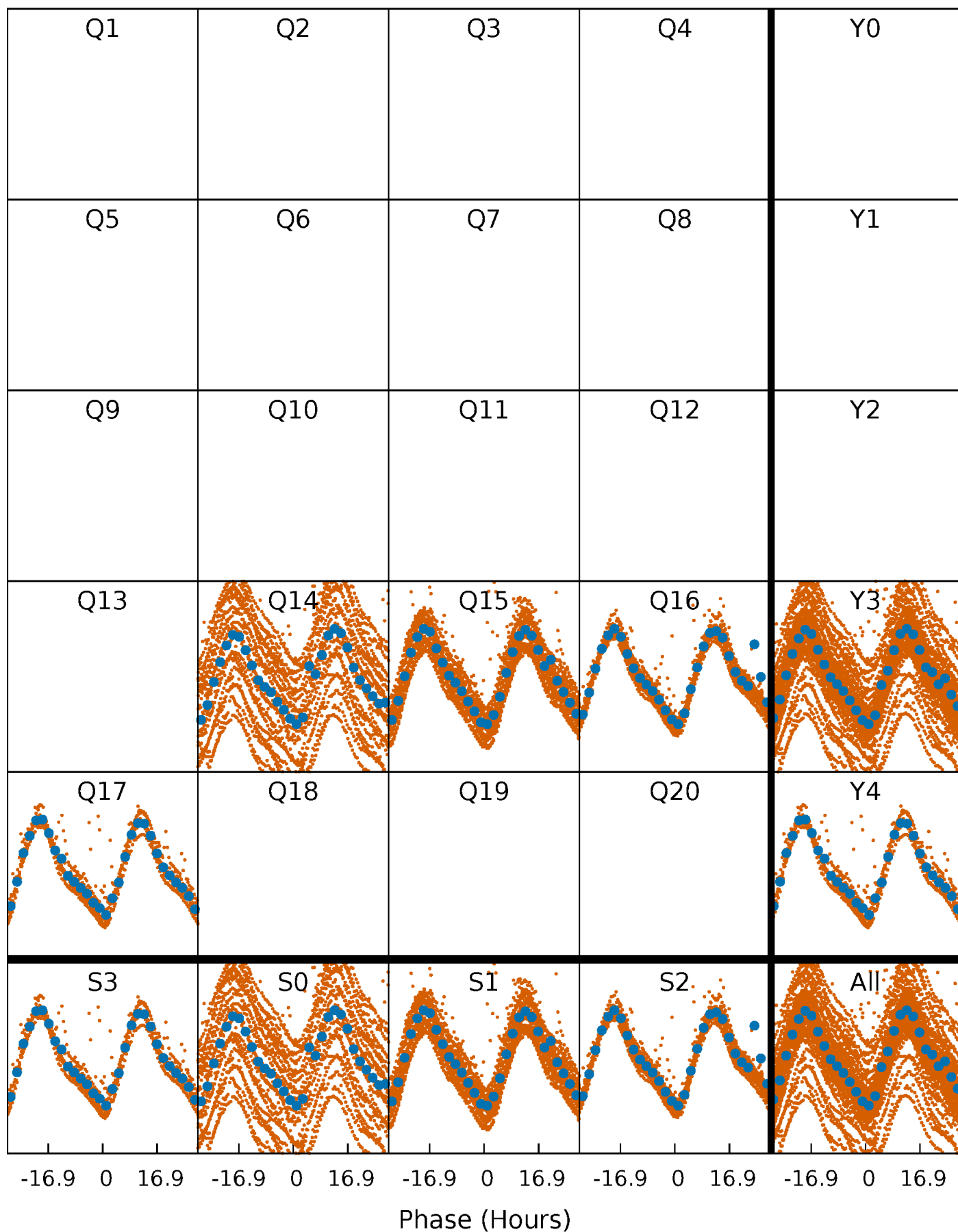


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



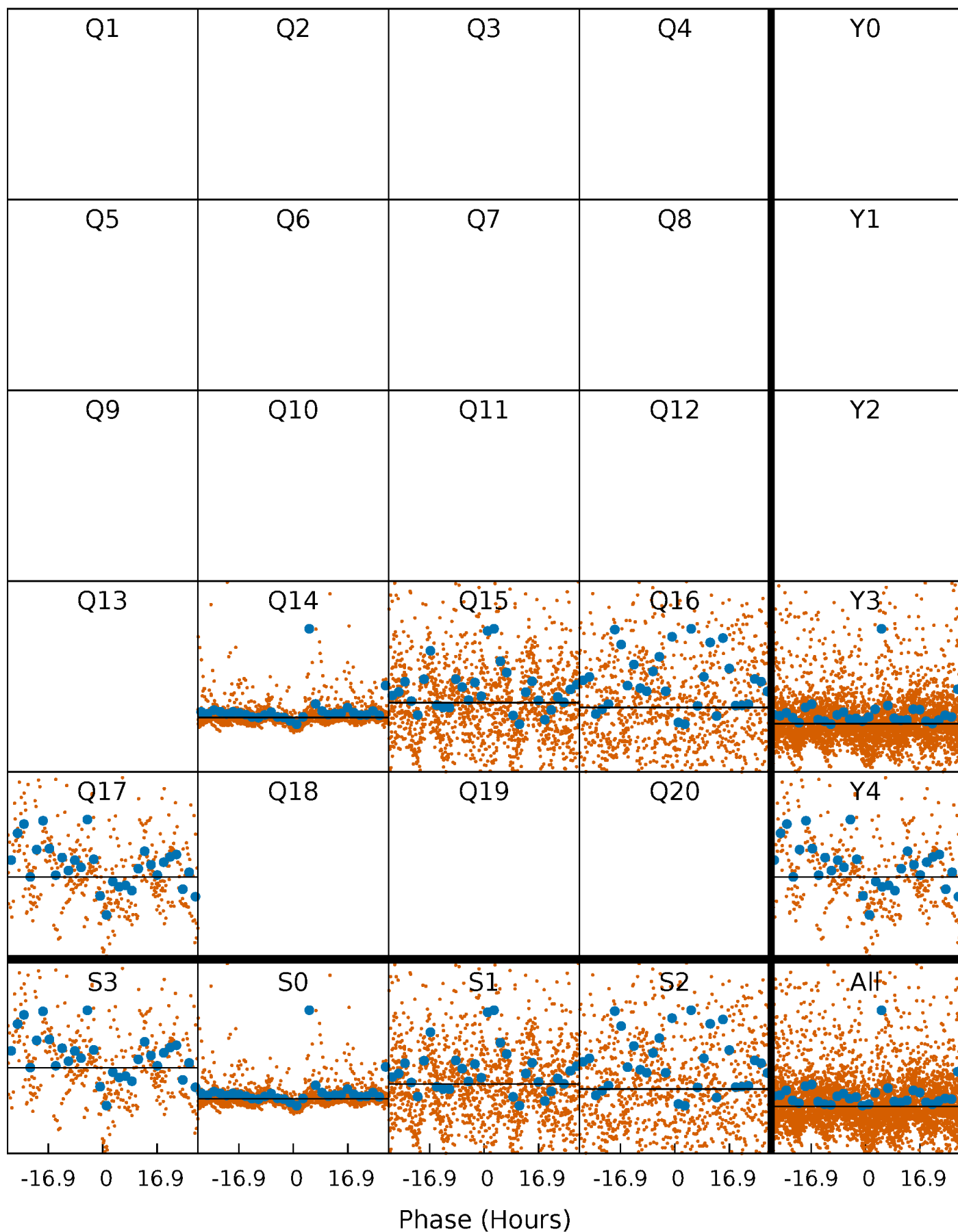
PDC Quarter-Phased Transit Curves

TCE 011565170-03 P= 3.917539 Days $T_0=133.752277$ (BKJD)



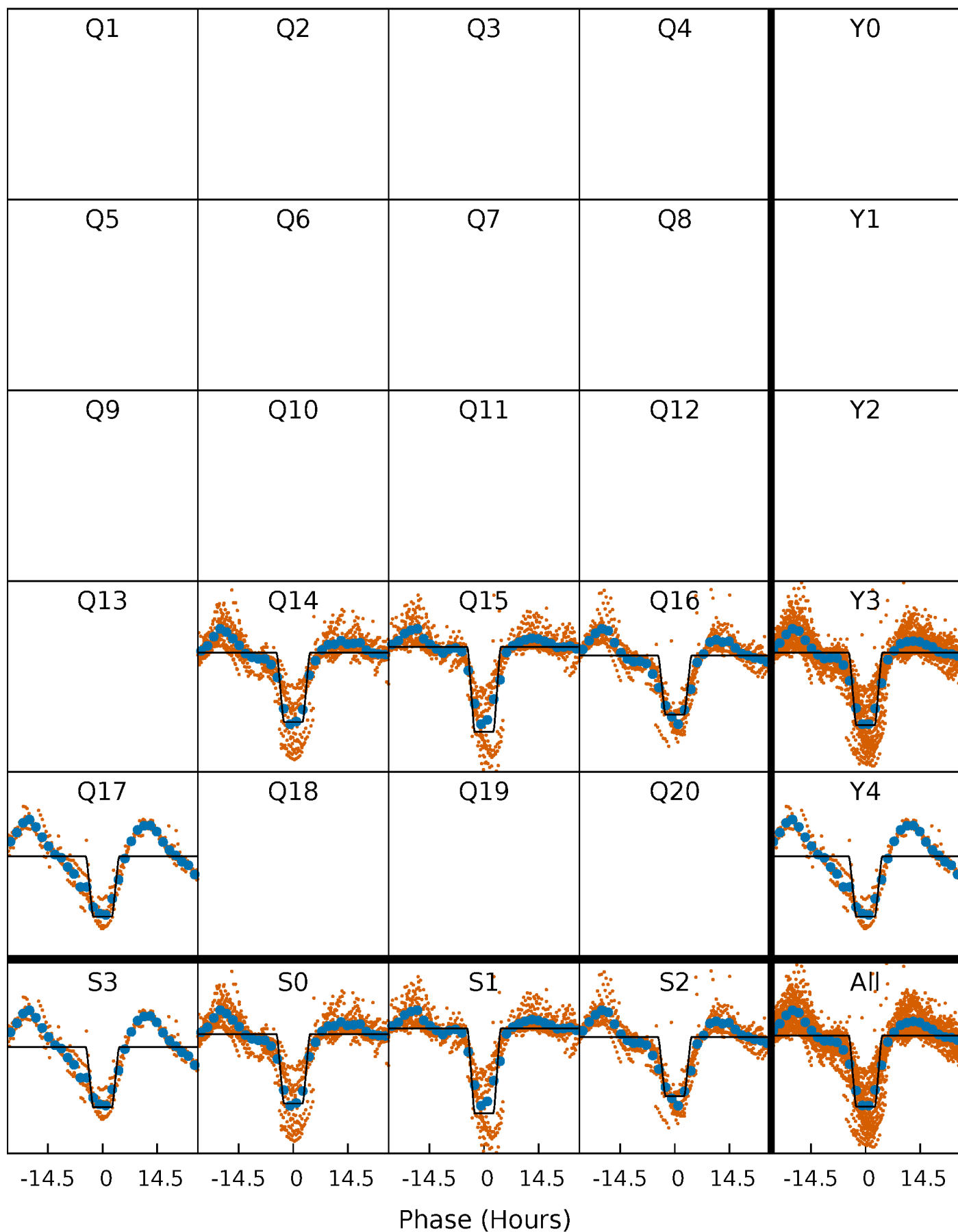
DV Quarter-Phased Transit Curves

TCE 011565170-03 P= 3.917539 Days $T_0=133.752277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

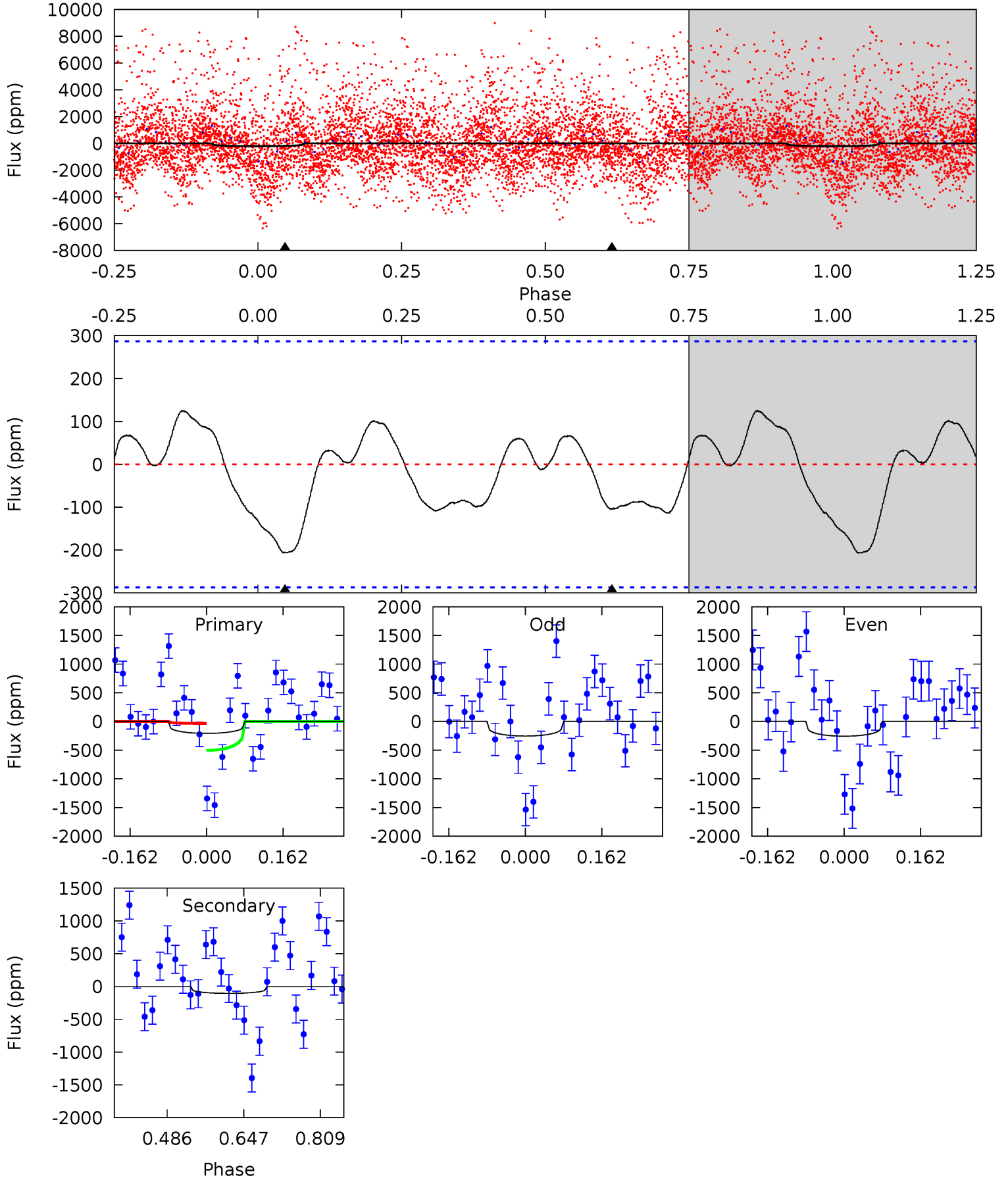
TCE 011565170-03 $P = 3.917552$ Days $T_0 = 133.750577$ (BKJD)



DV Model-Shift Uniqueness Test

011565170-03, P = 3.917539 Days, E = 133.752277 Days

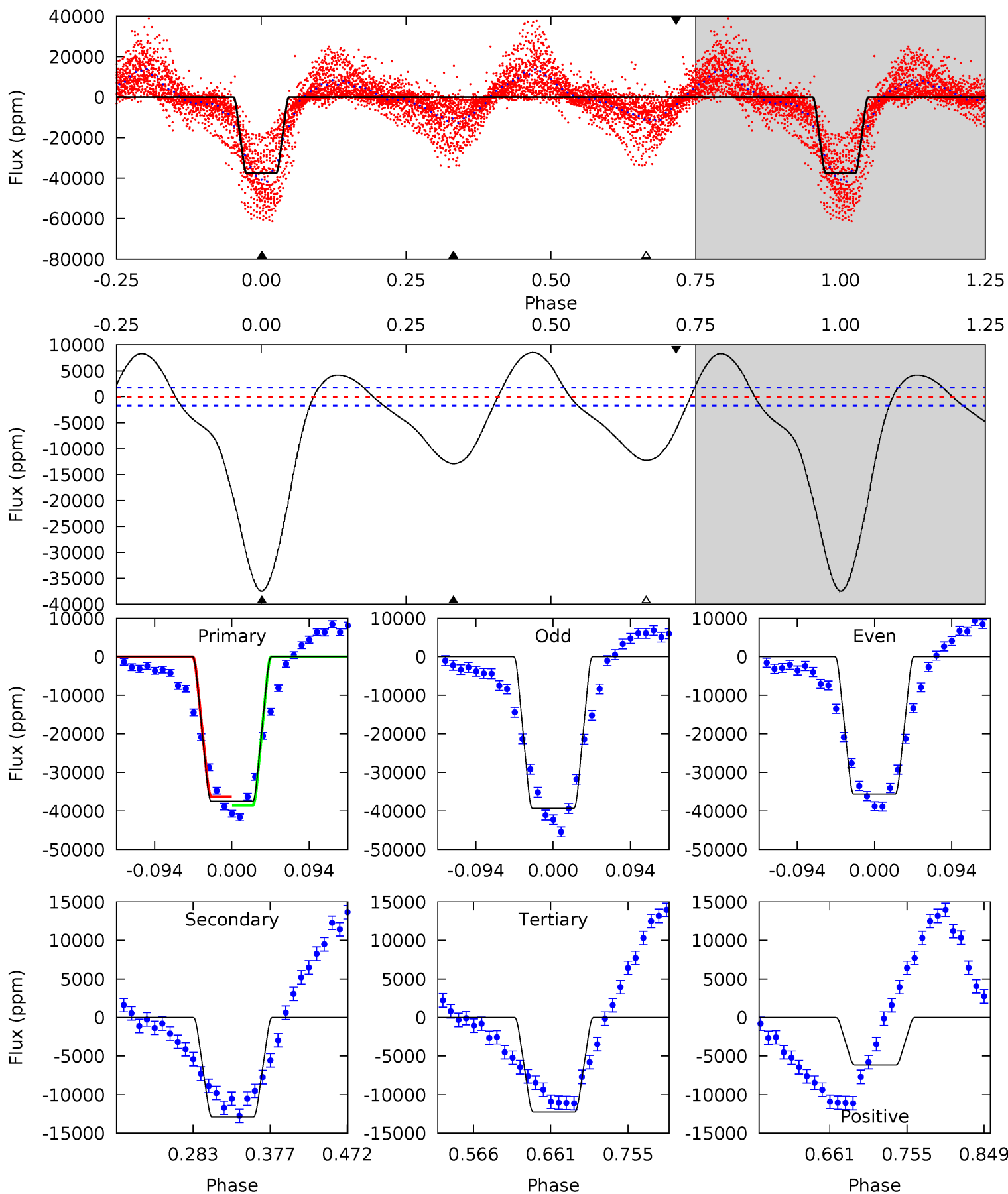
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.21	1.63	0	0	4.46	1.40	1.16	3.21	3.21	1.63	1.63	0.02	-139.8	0.38	3.67



Alt Model-Shift Uniqueness Test

011565170-03, P = 3.917552 Days, E = 133.750577 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.2	33.8	32.1	-16.1	4.58	1.67	15.9	66.1	114.3	1.70	49.9	4.84	1.27	0.19	2.98



Stellar Parameters For KIC 011565170

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 011565170-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-105 ± 64	$17.23^{+17.91}_{-12.21}$	1615^{+81}_{-86}	1854^{+1332}_{-4041}	$0.348^{+4.299}_{-0.279}$
Alt.	-12915 ± 382	$26.39^{+23.03}_{-17.70}$	1621^{+82}_{-87}	4230^{+2673}_{-836}	25^{+201}_{-18}

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 $A_{obs} \gg 1.0$

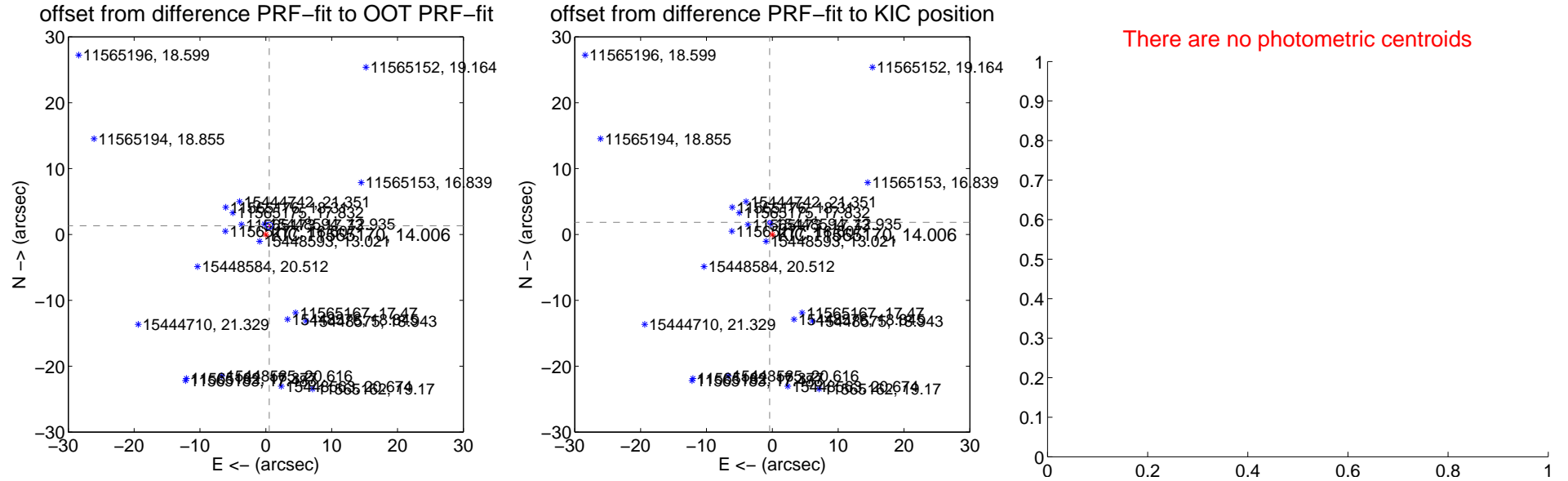
DV Centroid Data

Supplemental centroid analysis for 011565170-03. Kepler magnitude: 14.01. Transit SNR 0.00

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.416 \pm 0.180	7.88	-0.522 \pm 0.111	1.316 \pm 0.188
PRF-fit source offset from KIC position	1.883 \pm 0.093	20.20	0.400 \pm 0.078	1.840 \pm 0.093
photometric centroid source offset	—	—	—	—



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.



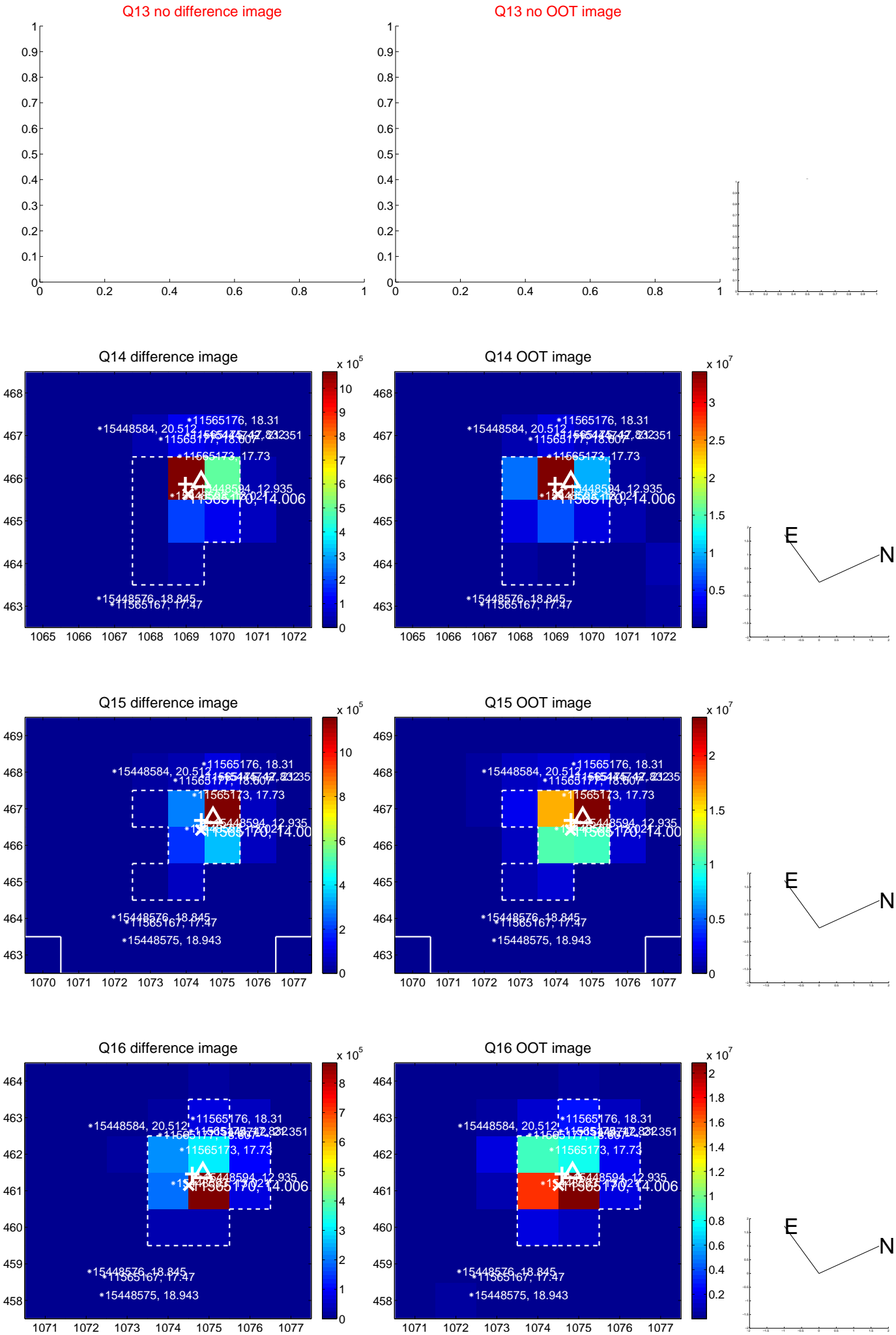
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



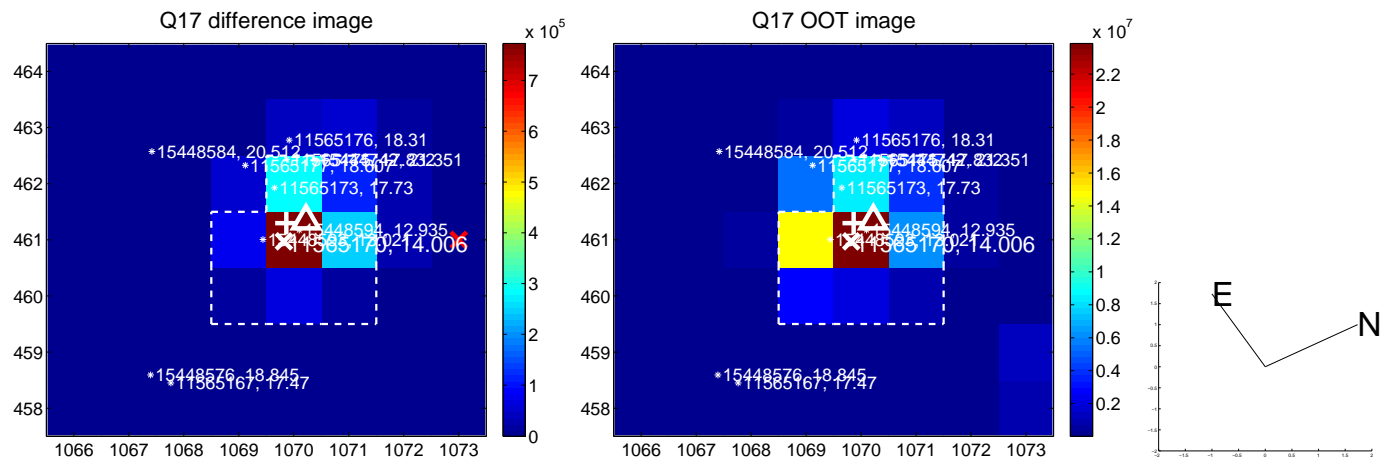
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



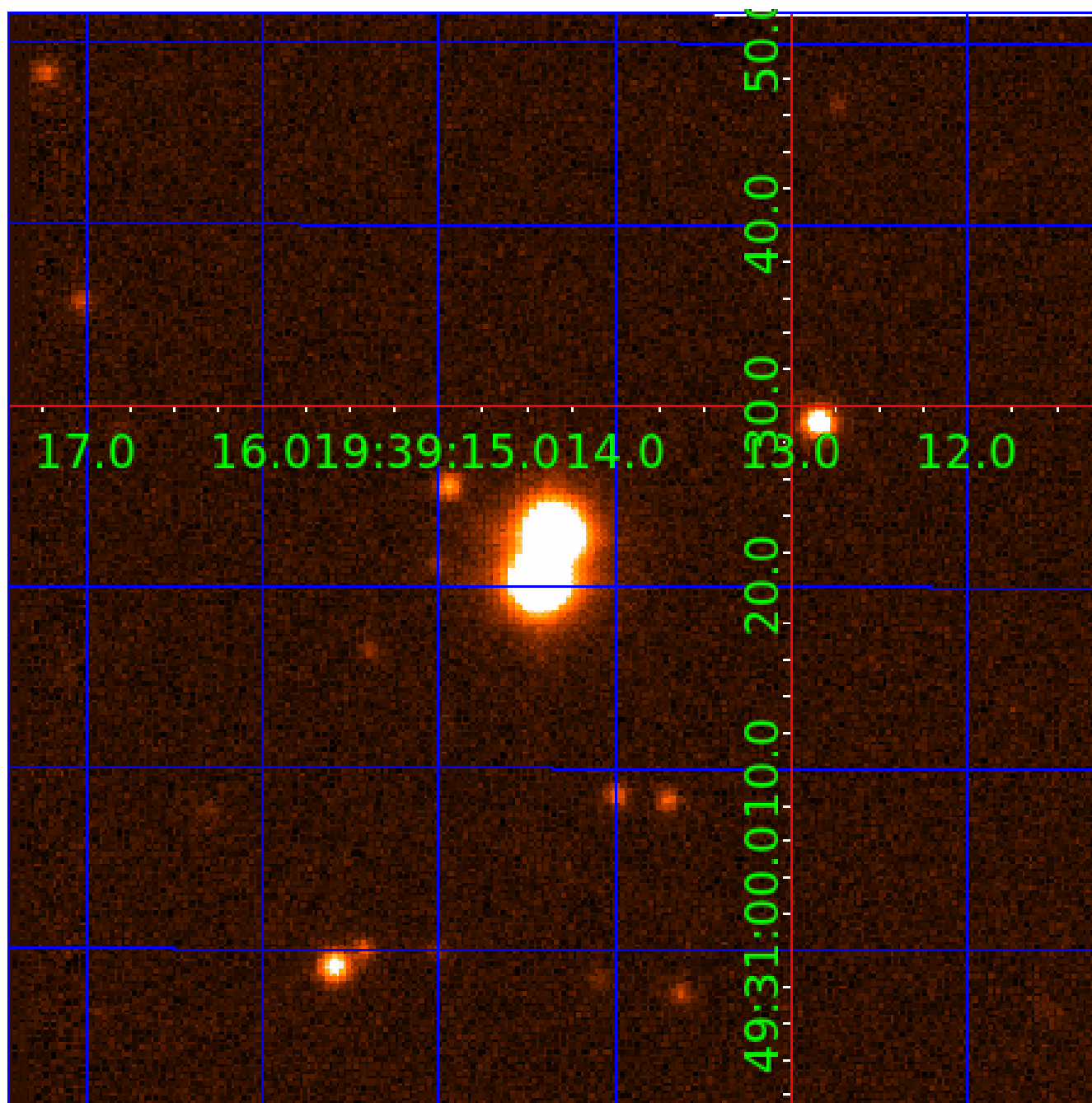
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 011565170

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})
011565170-01	OBS	No	93.326859	194.498438	4099.1	2.246	11.3	5.9	1.00	5780	6.38	6.17
011565170-02	OBS	No	0.718473	131.906827	764.8	2.500	10.8	-1.0	1.00	5780	2.74	4055.63
011565170-03	OBS	No	3.917539	133.752277	0.1	14.795	9.4	0.0	1.00	5780	0.04	422.59
011565170-04	OBS	No	30.591590	160.871355	2387.2	19.028	9.0	4.9	1.00	5780	5.09	27.28
011565170-05	OBS	No	31.098987	149.834602	731.8	1.222	8.8	1.1	1.00	5780	3.29	26.69
011565170-06	OBS	No	31.100962	149.795628	1618.6	5.658	7.9	1.8	1.00	5780	4.06	26.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011565170-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011565170-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
011565170-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
011565170-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
011565170-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011565170-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

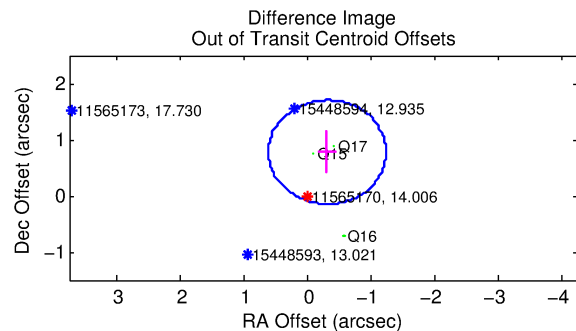
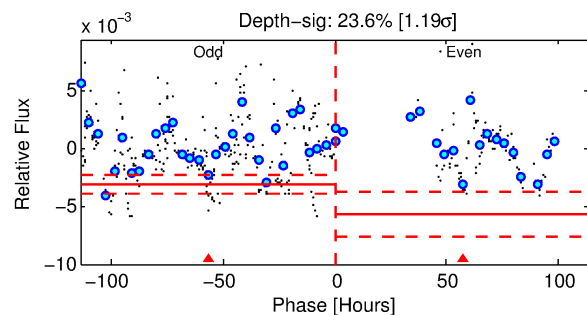
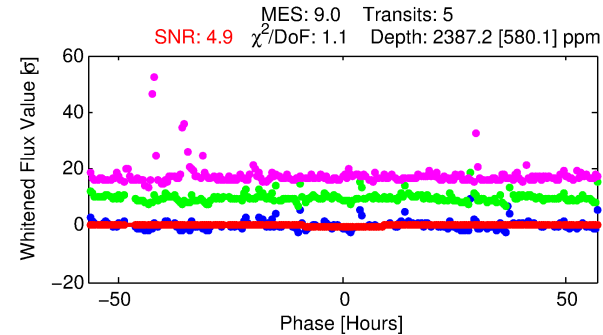
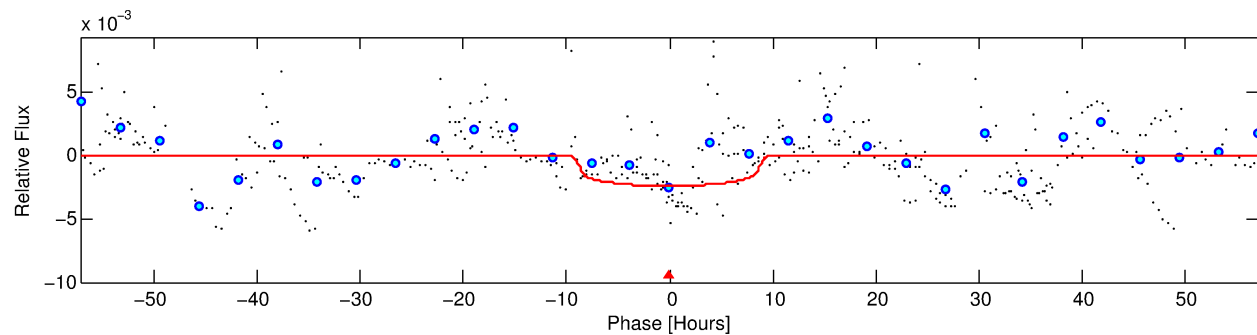
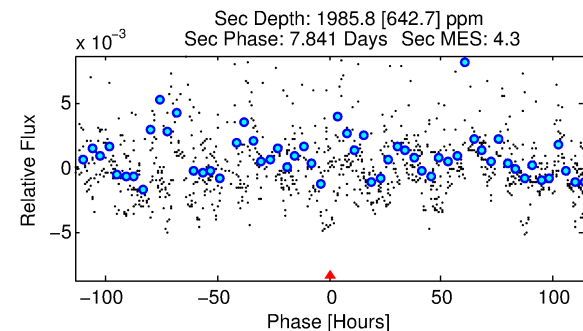
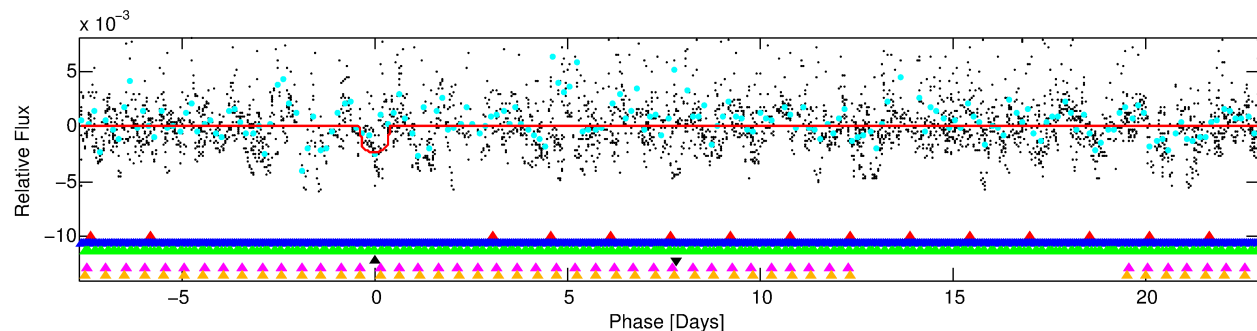
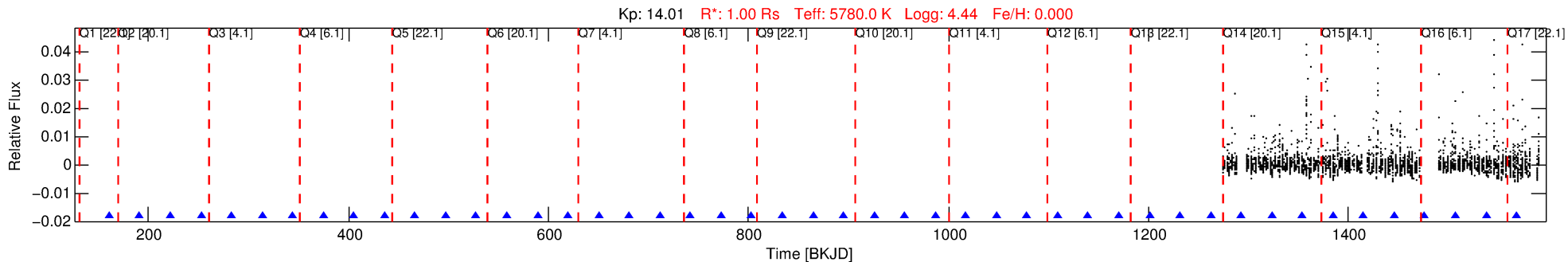
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011565170-04

No Significant Match Found

DV One-Page Summary

KIC: 11565170 Candidate: 4 of 6 Period: 30.592 d



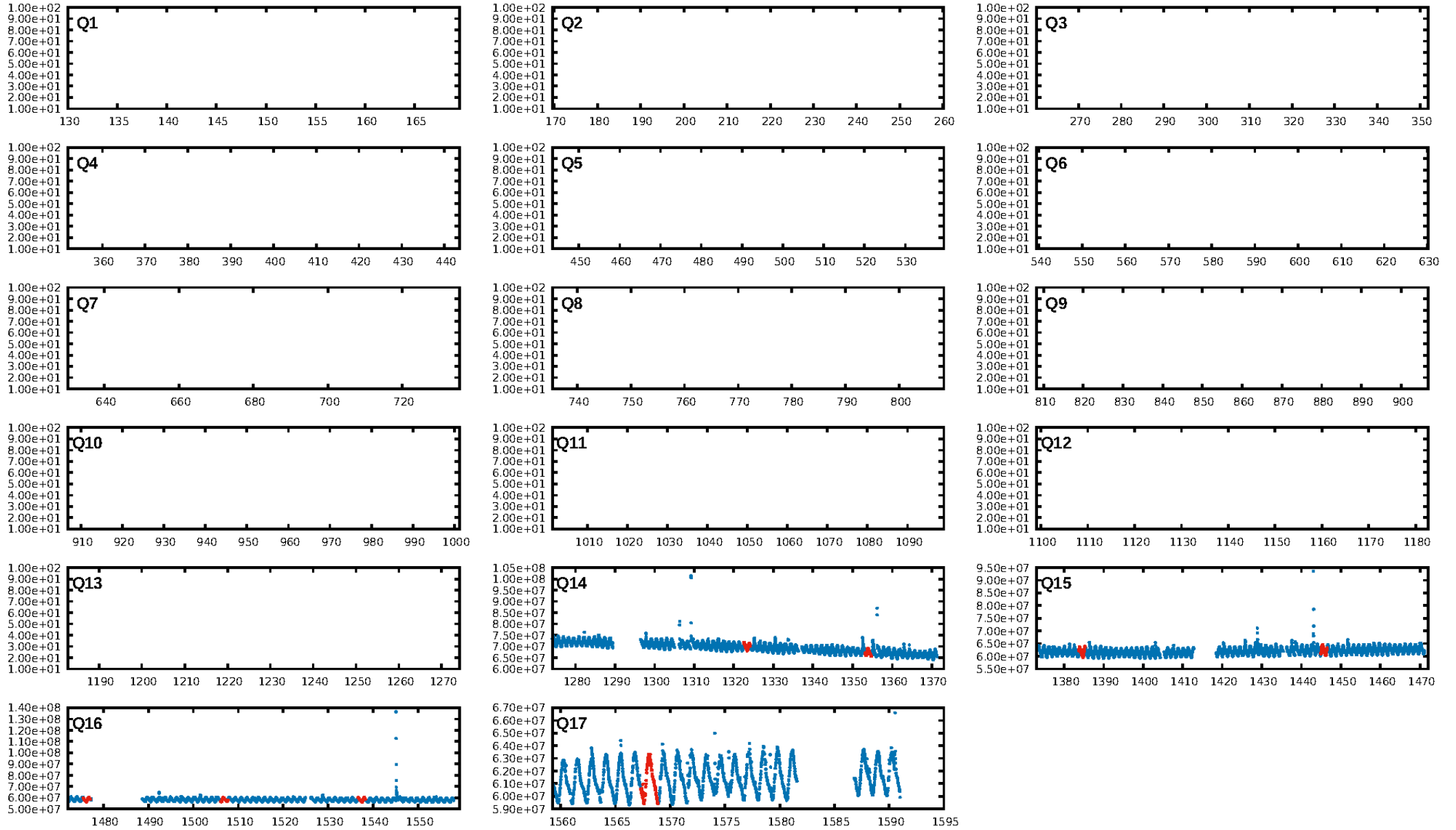
DV Fit Results:

Period = 30.59159 [0.00789] d
Epoch = 160.8714 [0.3229] BKJD
Rp/R* = 0.0467 [0.0103]
a/R* = 10.49 [7.71]
b = 0.61 [0.77]
Seff = 27.28 [0.01]
Teq = 583 [0] K
Rp = 5.09 [1.12] Re
a = 0.1915 [0.0000] AU
Ag = 1544.25 [844.12] [1.83σ]
Teffp = 5648 [772] K [6.56σ]

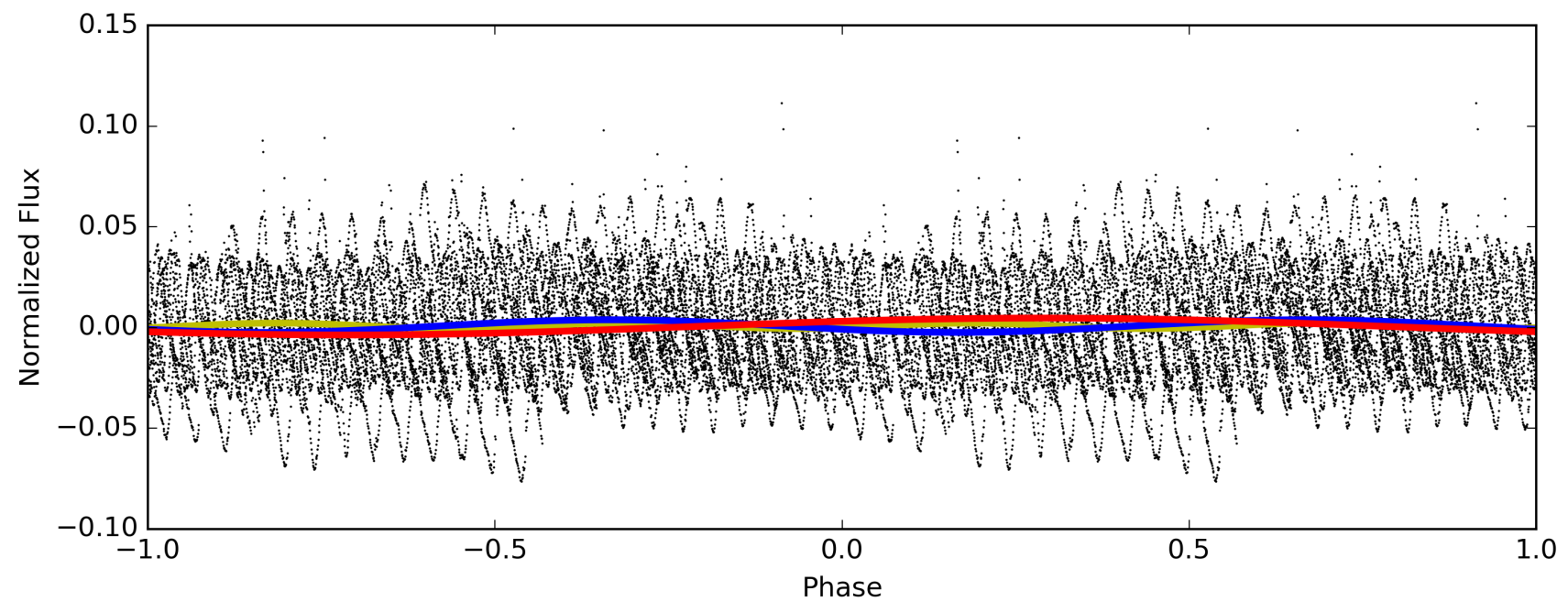
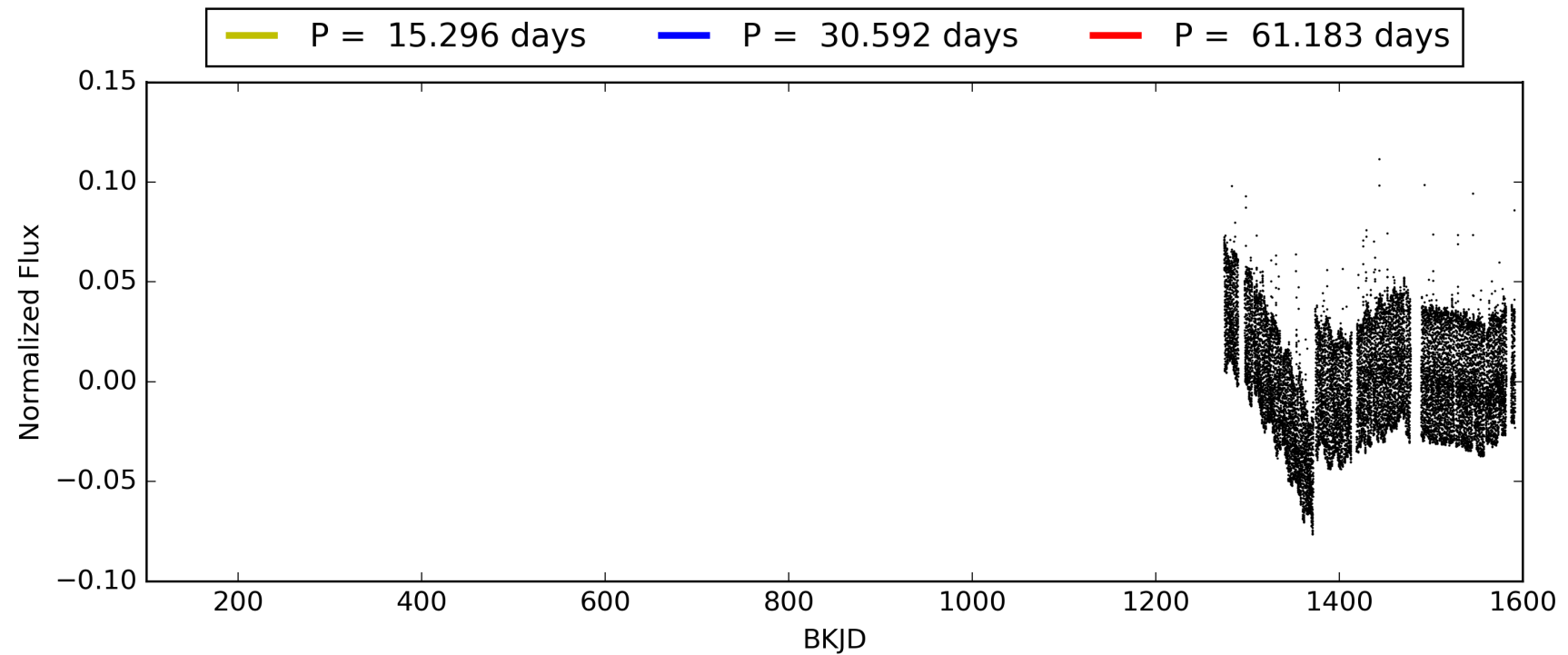
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.56σ]
LongPeriod-sig: 47.7% [0.64σ]
ModelChiSquare2-sig: 93.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.42e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.125
Centroid-sig: 1.2%
Centroid-so: 1.001 arcsec [0.96σ]
OotOffset-rm: 0.835 arcsec [2.71σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 1.620 arcsec [6.06σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 011565170-04, PDC Light Curves

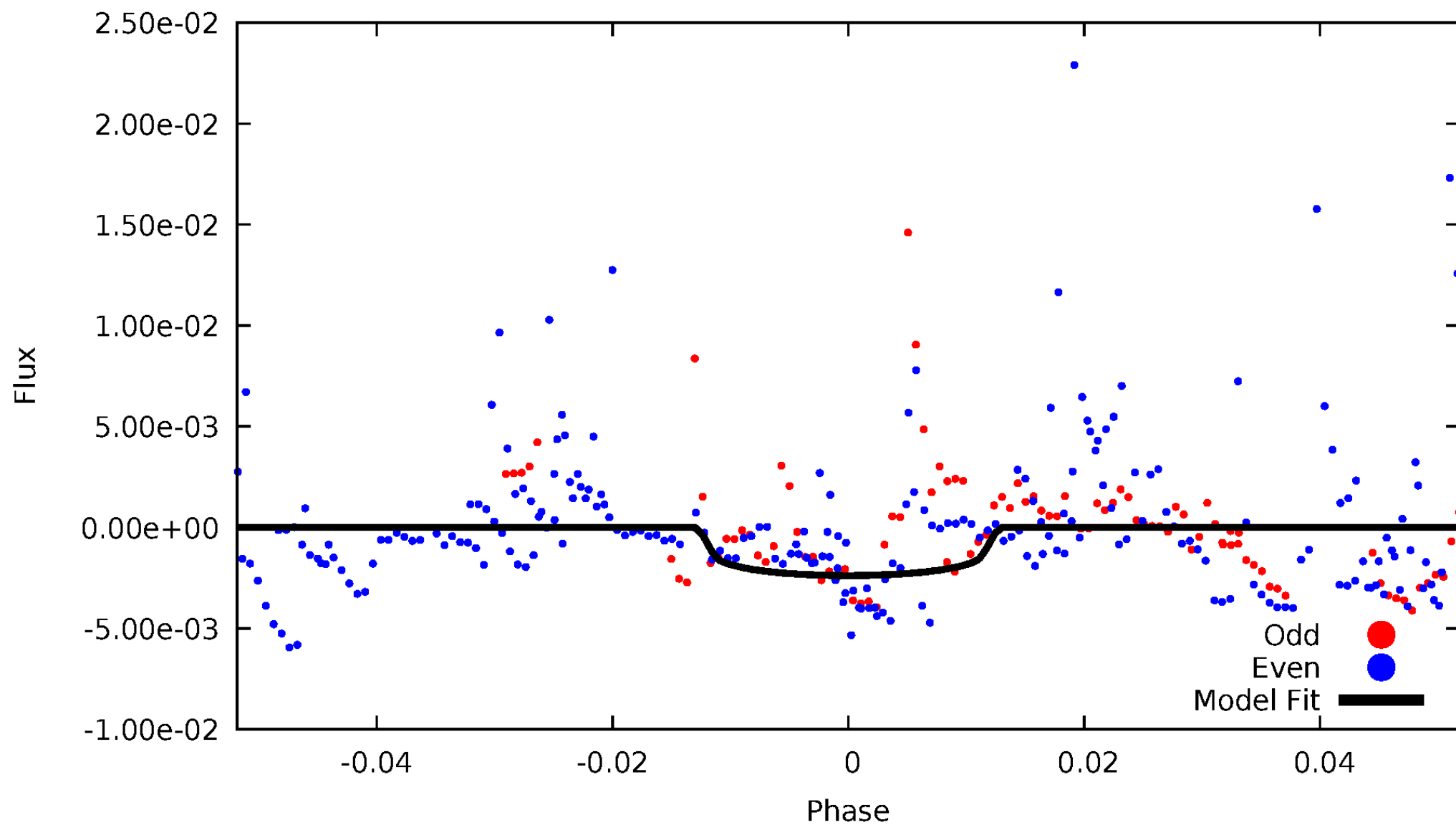


TCE 011565170-04



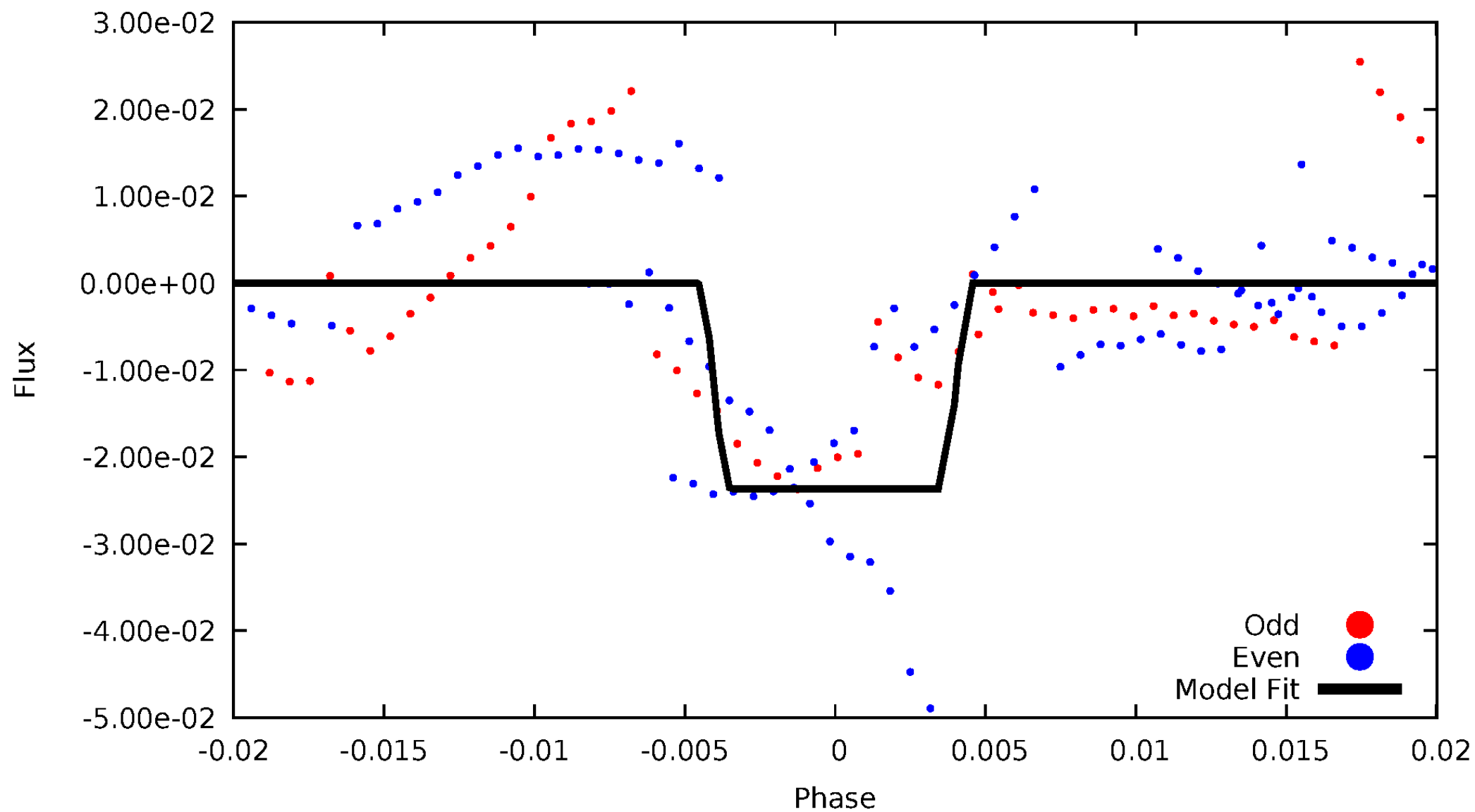
DV Odd/Even

TCE 011565170-04



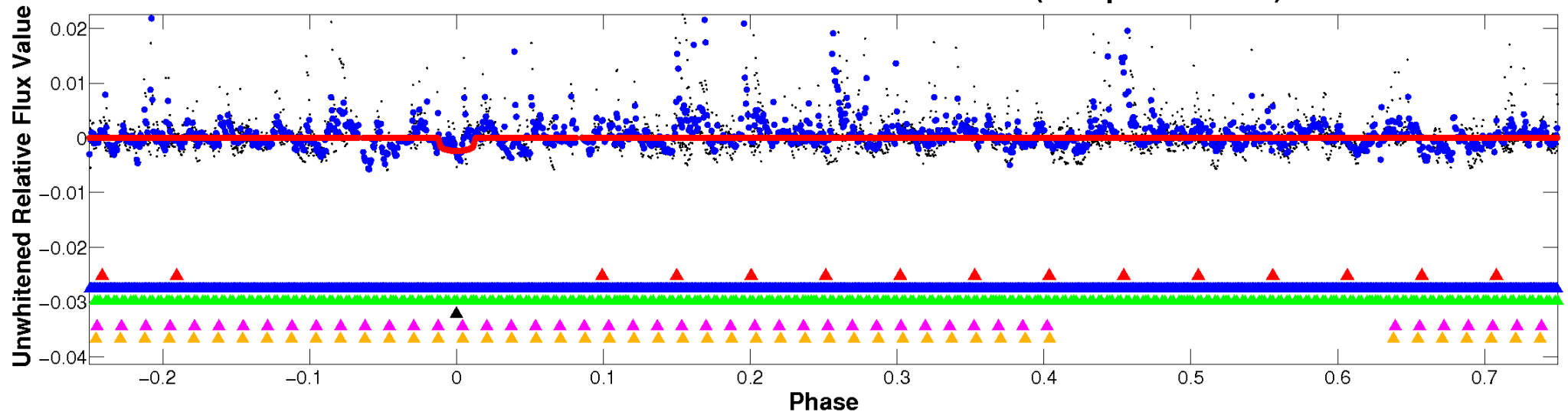
ALT Odd/Even

TCE 011565170-04

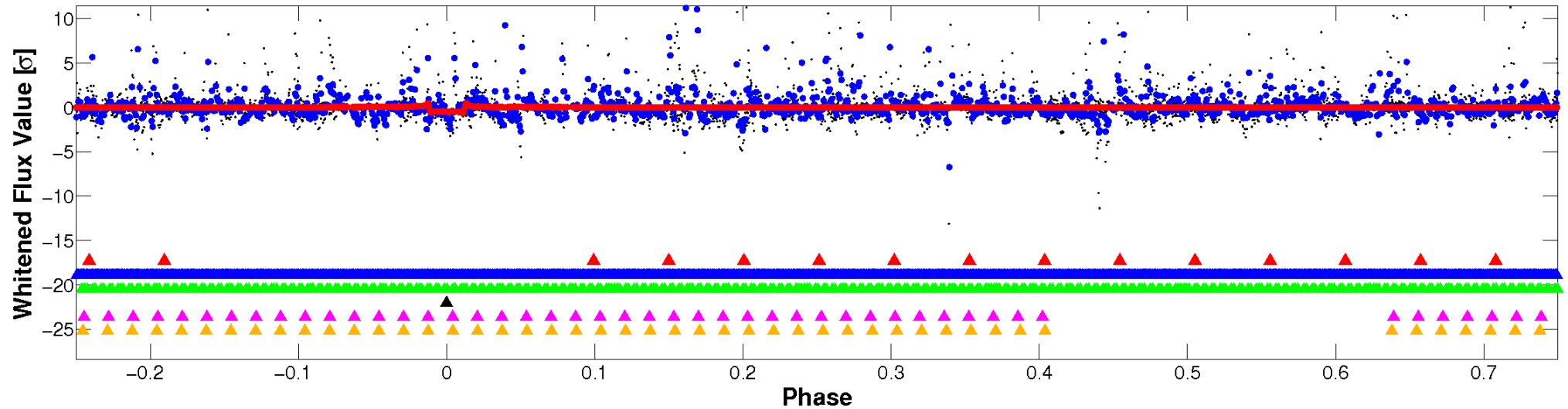


Non-Whitened Vs. Whitened Light Curve

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

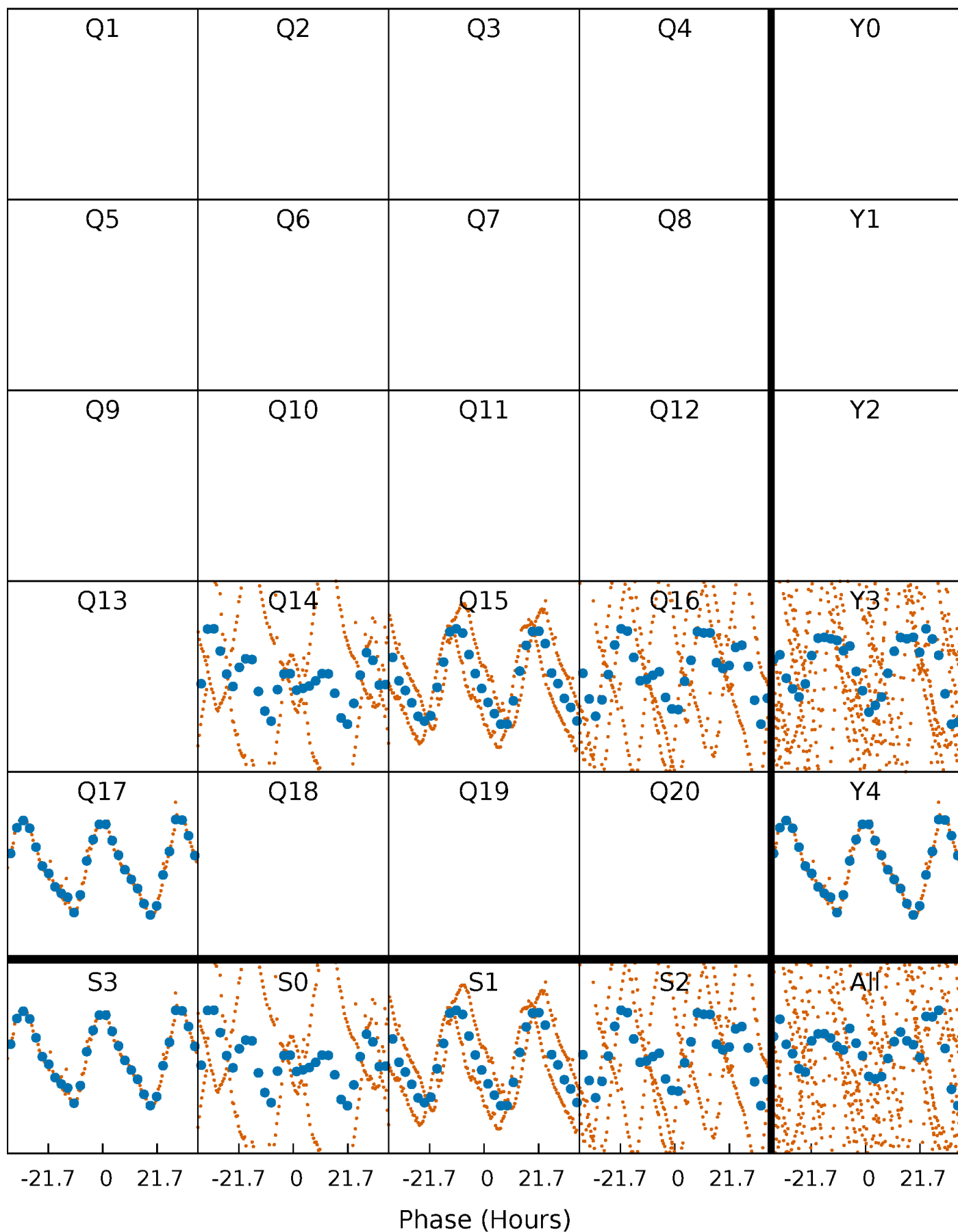


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



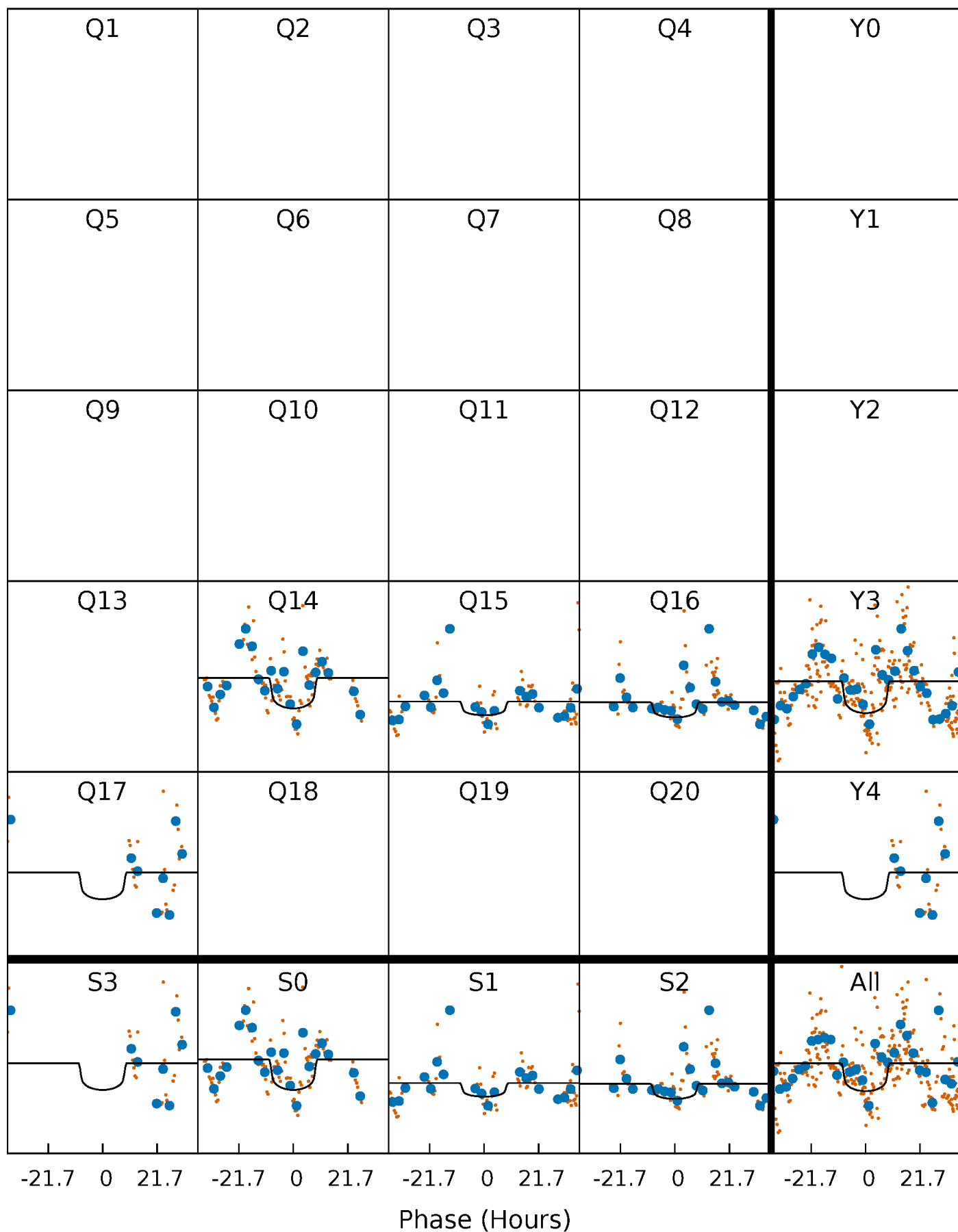
PDC Quarter-Phased Transit Curves

TCE 011565170-04 P= 30.591590 Days $T_0=160.871355$ (BKJD)



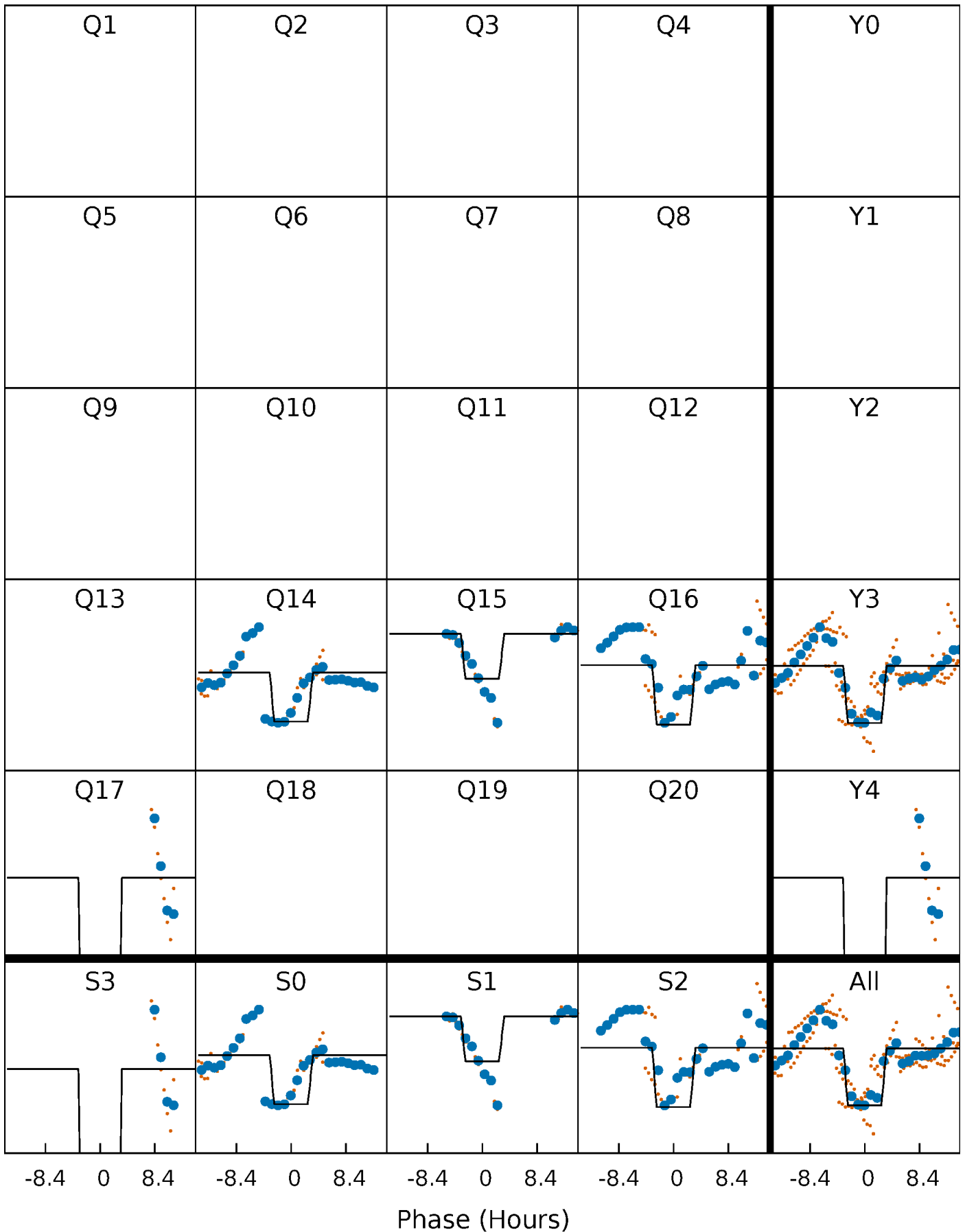
DV Quarter-Phased Transit Curves

TCE 011565170-04 P= 30.591590 Days $T_0=160.871355$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

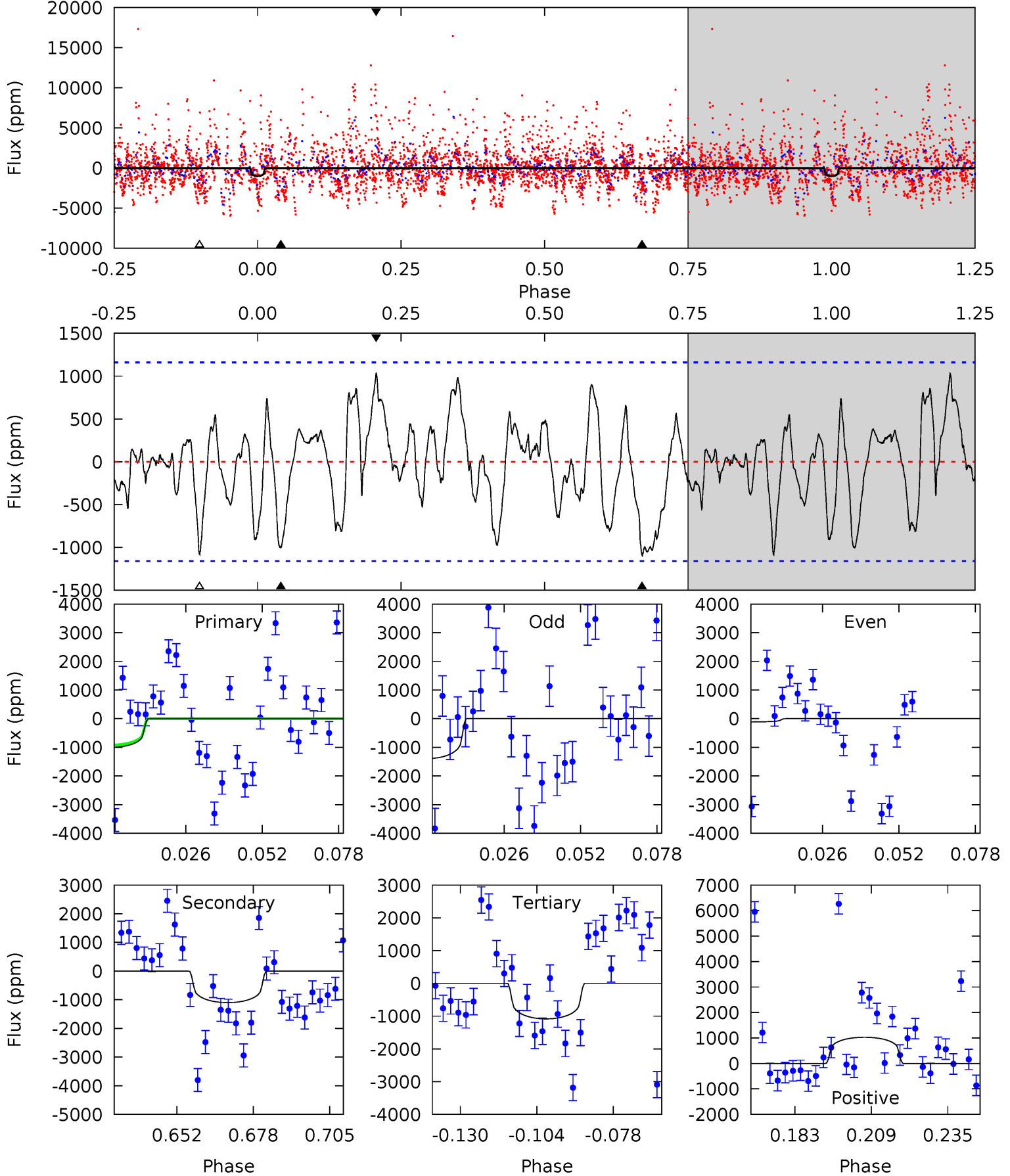
TCE 011565170-04 P= 30.590861 Days $T_0=161.015542$ (BKJD)



DV Model-Shift Uniqueness Test

011565170-04, P = 30.591590 Days, E = 160.871355 Days

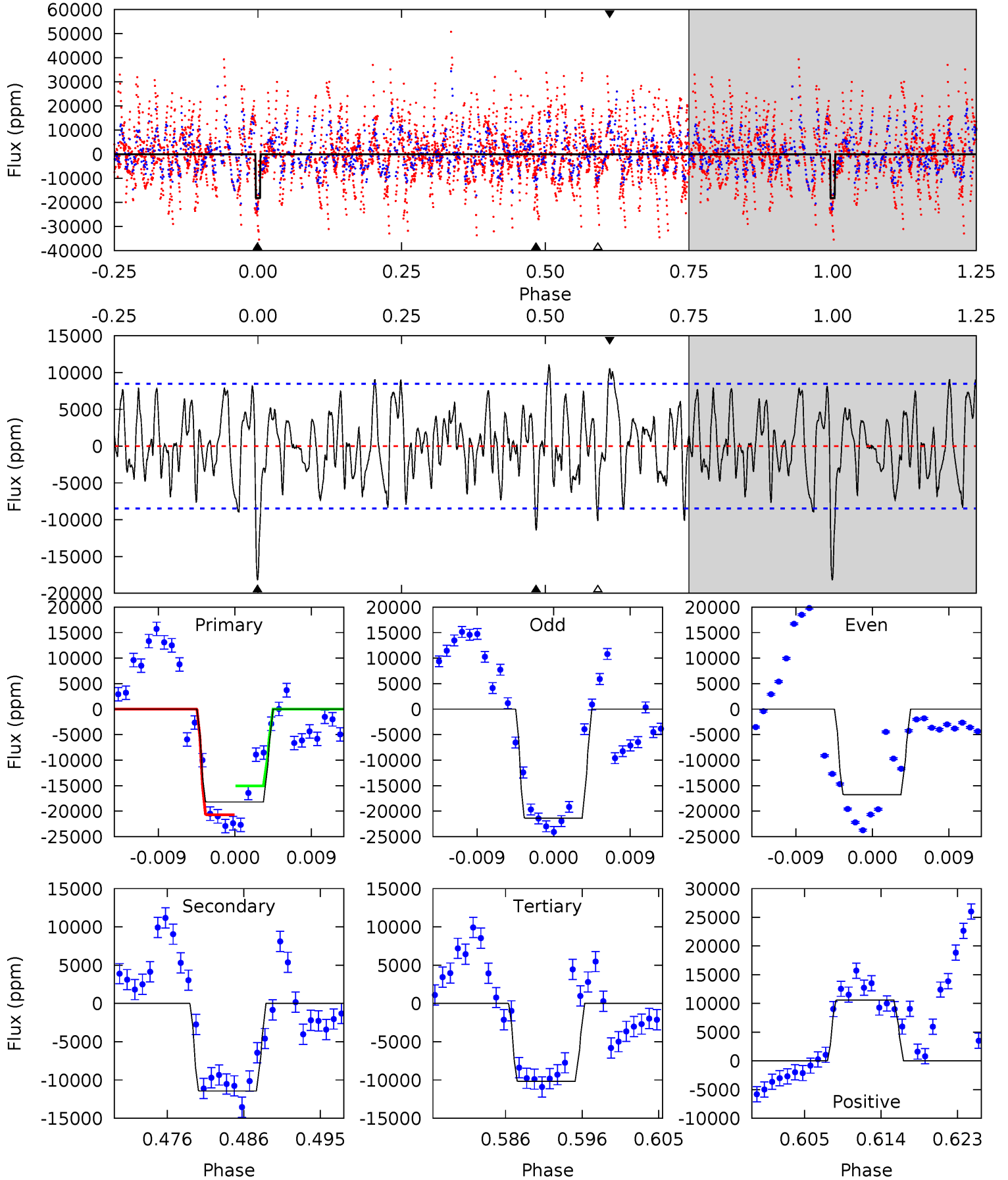
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.19	4.59	4.53	4.29	4.84	2.22	1.82	-0.34	-0.10	0.07	0.30	1.69	0.96	0.48	0.33



Alt Model-Shift Uniqueness Test

011565170-04, P = 30.590861 Days, E = 161.015542 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	6.80	6.06	6.30	5.04	2.61	2.40	4.77	4.53	0.74	0.50	1.28	0.68	0.38	1.70



Stellar Parameters For KIC 011565170

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 011565170-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1100 ± 239	$5.15^{+1.15}_{-1.12}$	817^{+38}_{-39}	4919^{+643}_{-448}	834^{+550}_{-332}
Alt.	-11436 ± 1681	$16.90^{+1.77}_{-1.53}$	816^{+41}_{-37}	4909^{+275}_{-256}	807^{+209}_{-176}

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

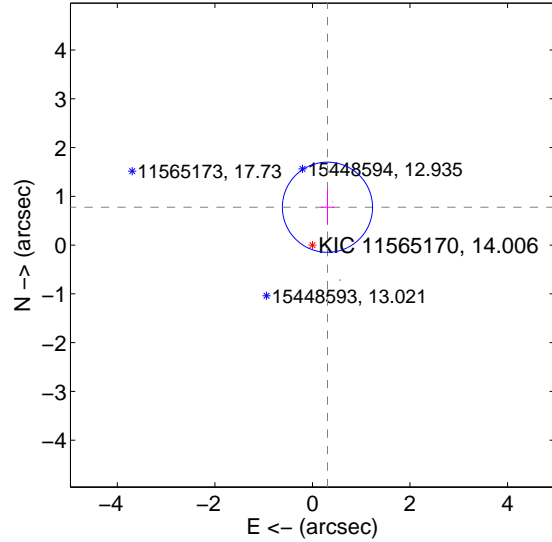
Supplemental centroid analysis for 011565170-04. Kepler magnitude: 14.01. Transit SNR 4.91

There are 2 quarters with good PRF difference image offsets

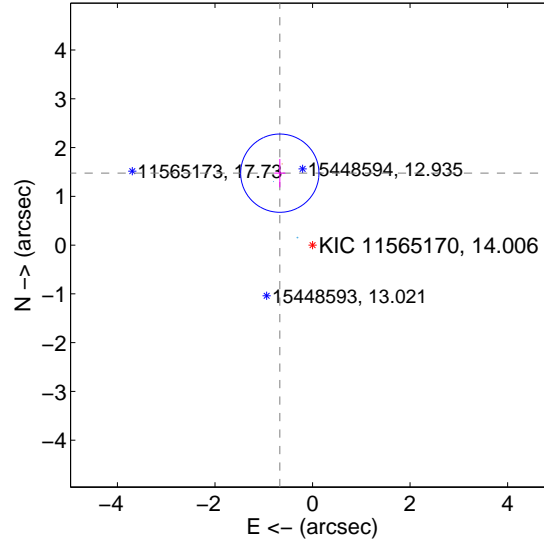
The direct PRF centroid is offset from the target star catalog position by about 1.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.835 ± 0.308	2.71	-0.308 ± 0.138	0.777 ± 0.363
PRF-fit source offset from KIC position	1.620 ± 0.267	6.06	0.671 ± 0.112	1.475 ± 0.289
photometric centroid source offset	1.00 ± 1.04	0.96	0.23 ± 0.32	-0.97 ± 1.07

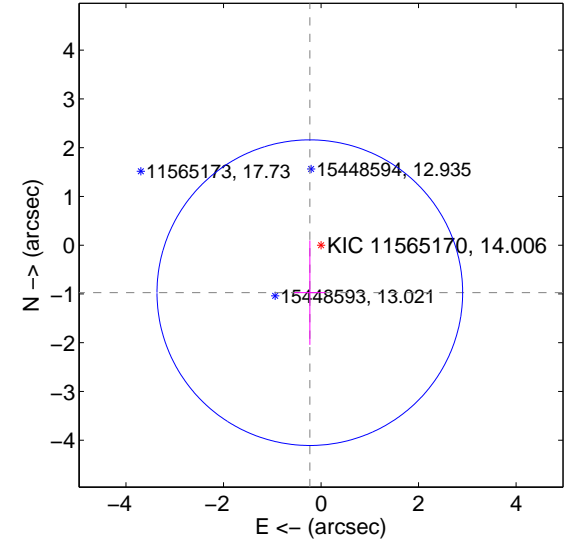
offset from difference PRF-fit to OOT PRF-fit



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.



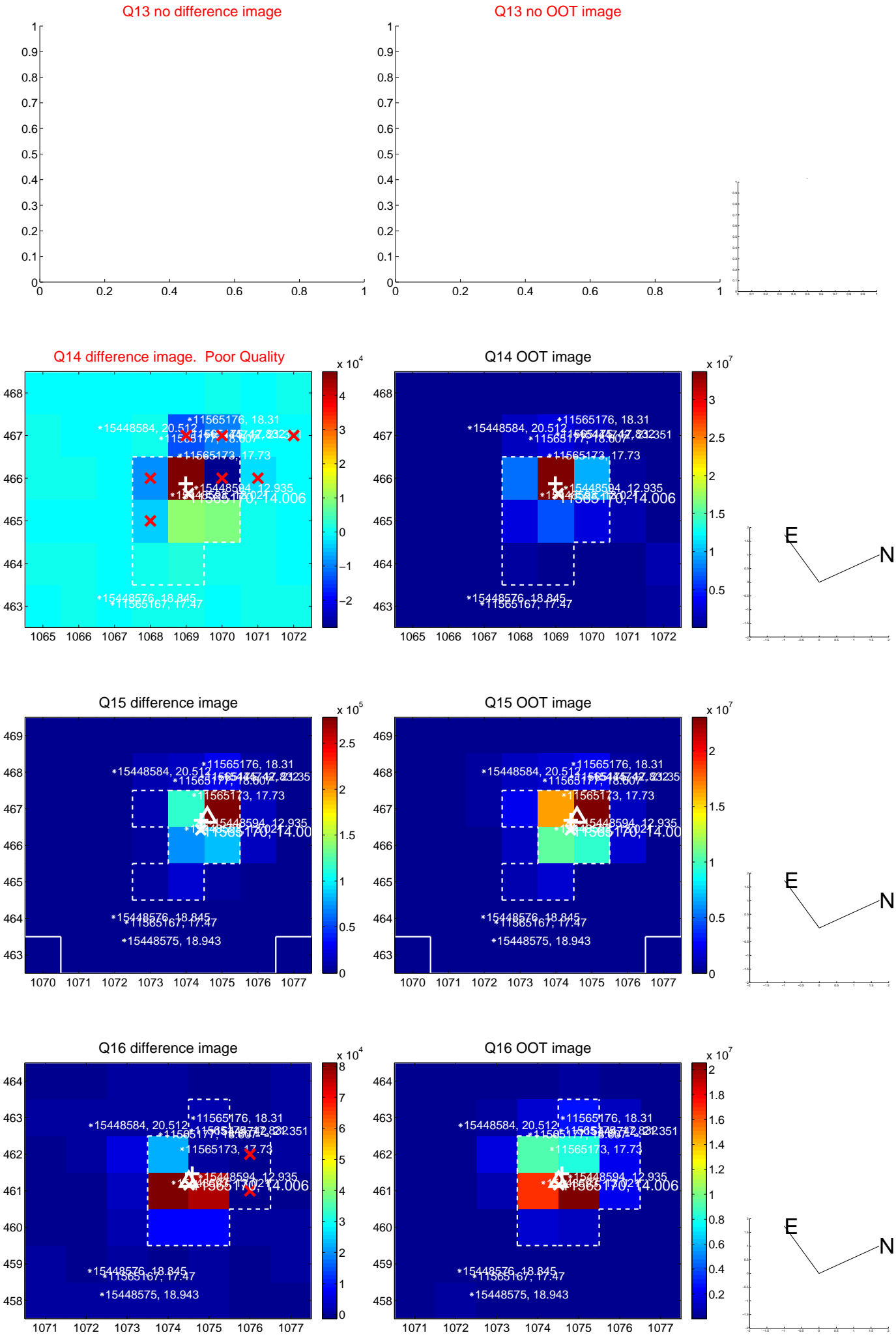
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



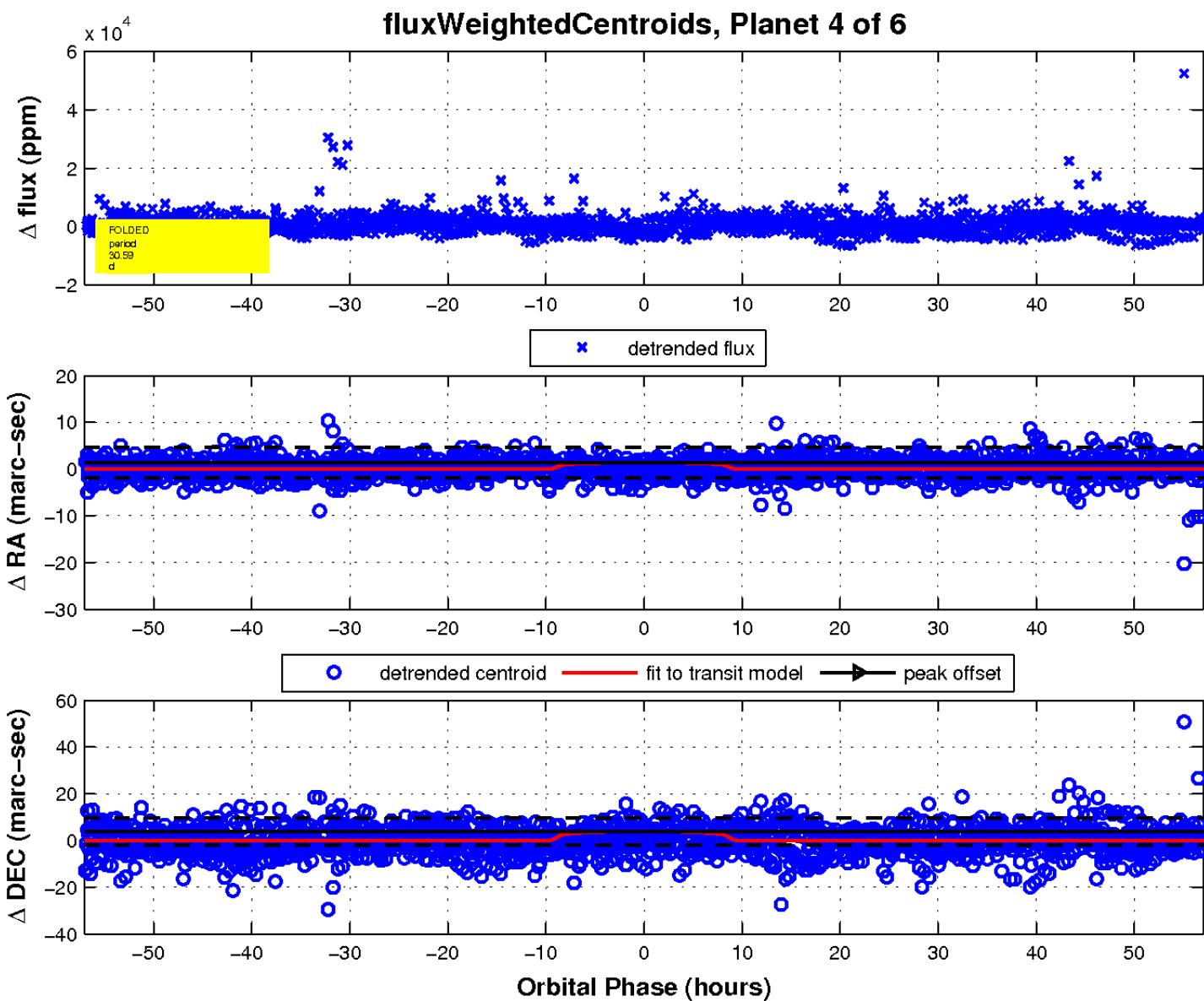
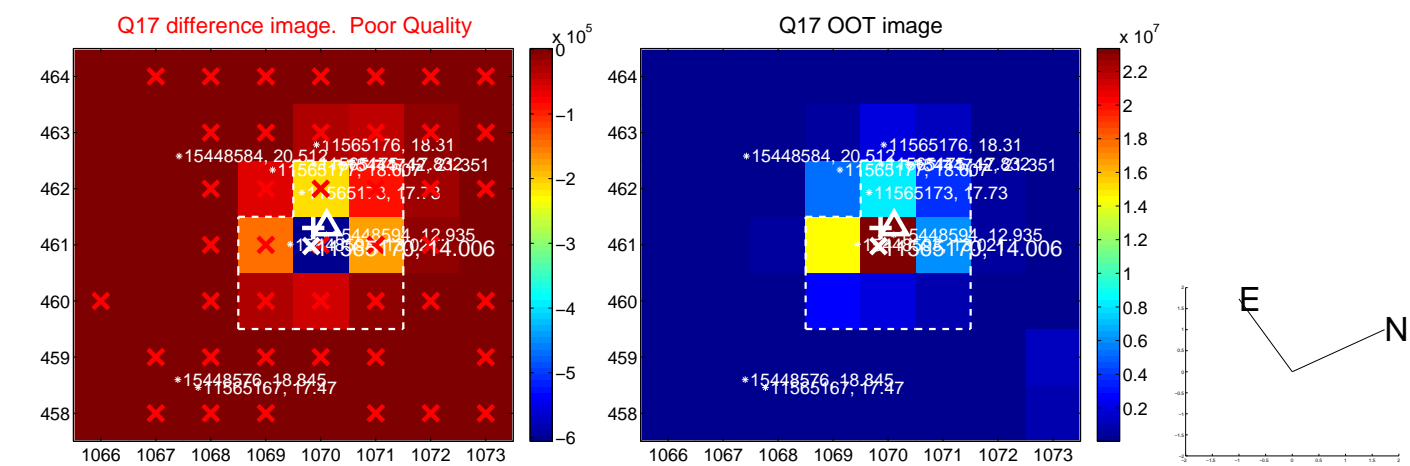
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

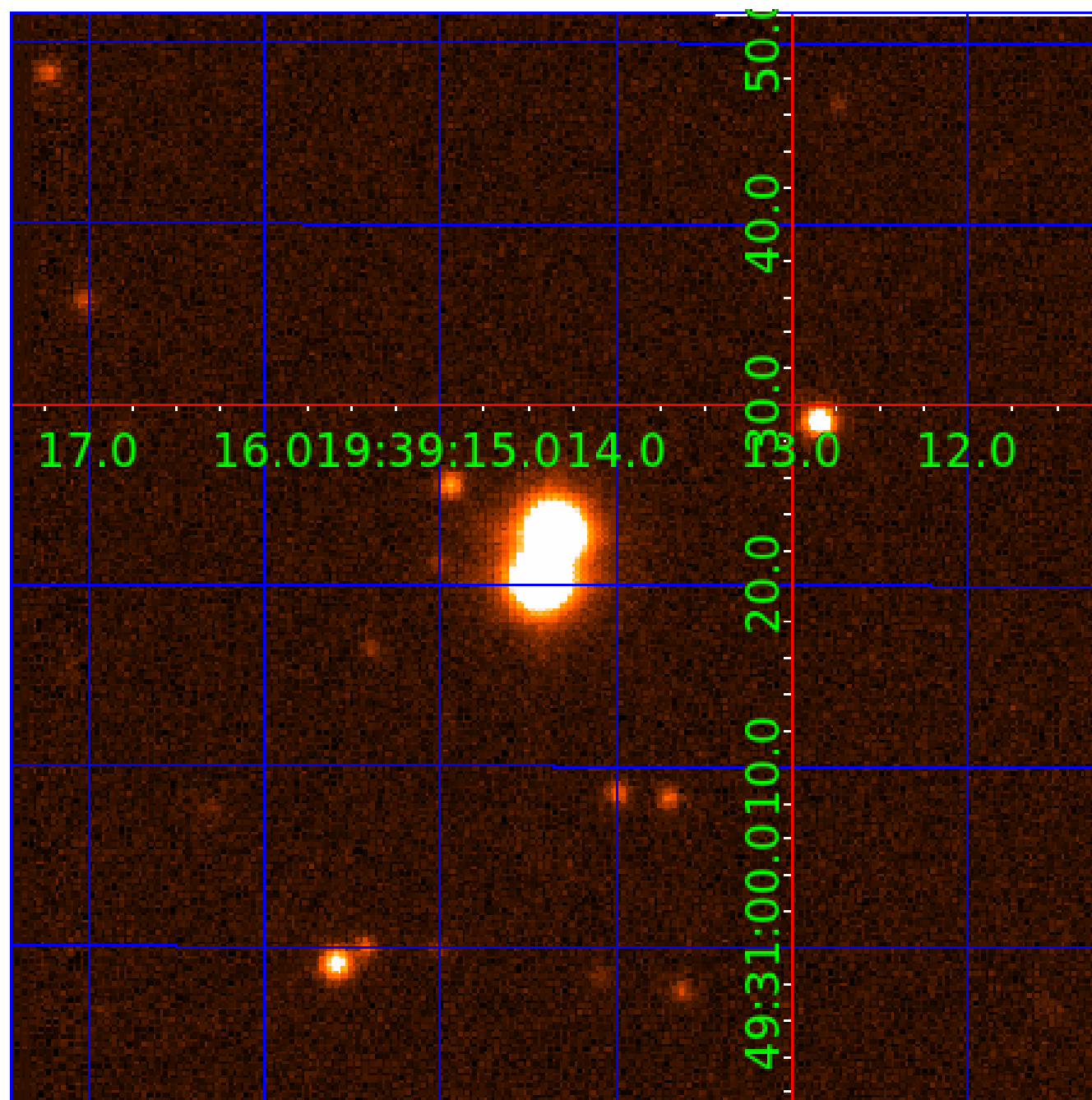


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011565170

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})
011565170-01	OBS	No	93.326859	194.498438	4099.1	2.246	11.3	5.9	1.00	5780	6.38	6.17
011565170-02	OBS	No	0.718473	131.906827	764.8	2.500	10.8	-1.0	1.00	5780	2.74	4055.63
011565170-03	OBS	No	3.917539	133.752277	0.1	14.795	9.4	0.0	1.00	5780	0.04	422.59
011565170-04	OBS	No	30.591590	160.871355	2387.2	19.028	9.0	4.9	1.00	5780	5.09	27.28
011565170-05	OBS	No	31.098987	149.834602	731.8	1.222	8.8	1.1	1.00	5780	3.29	26.69
011565170-06	OBS	No	31.100962	149.795628	1618.6	5.658	7.9	1.8	1.00	5780	4.06	26.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011565170-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011565170-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
011565170-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
011565170-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
011565170-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011565170-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

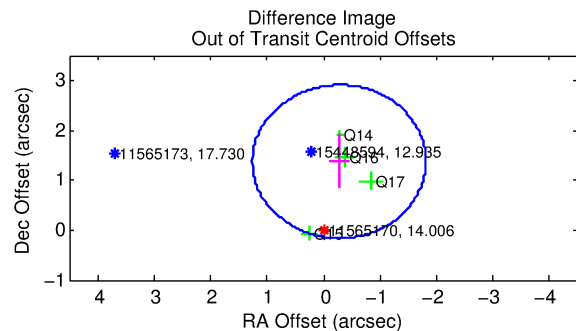
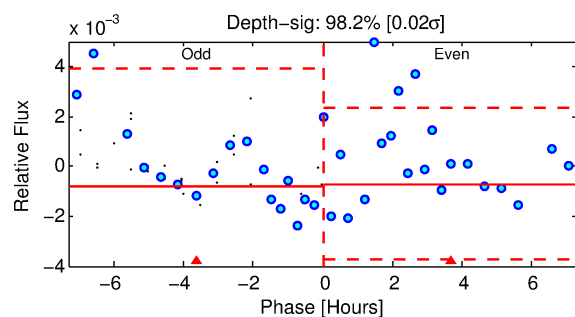
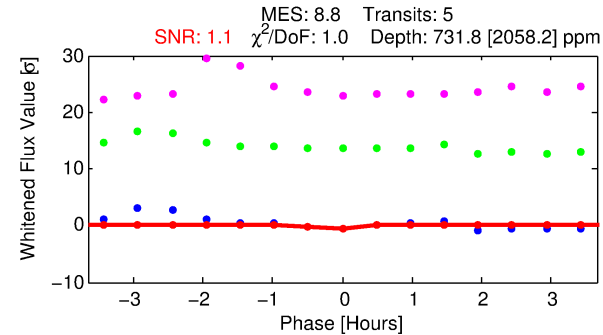
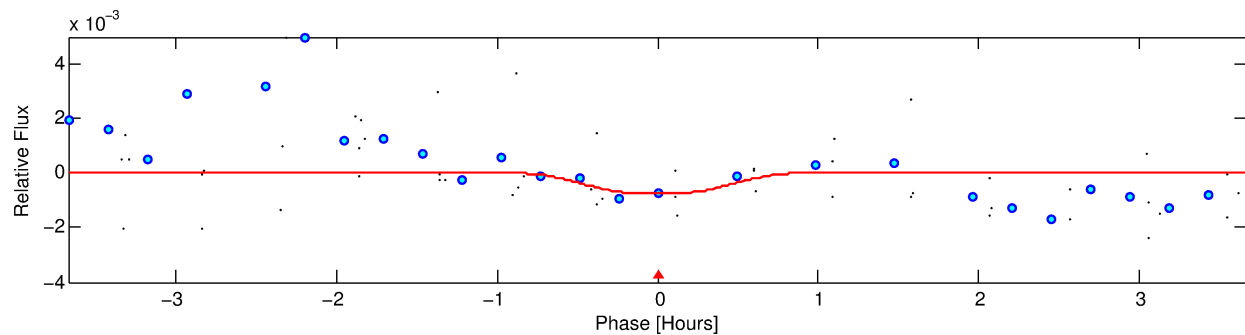
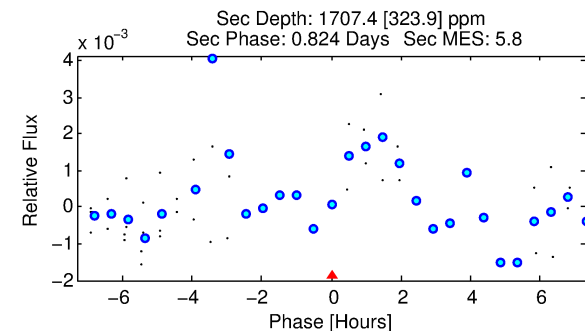
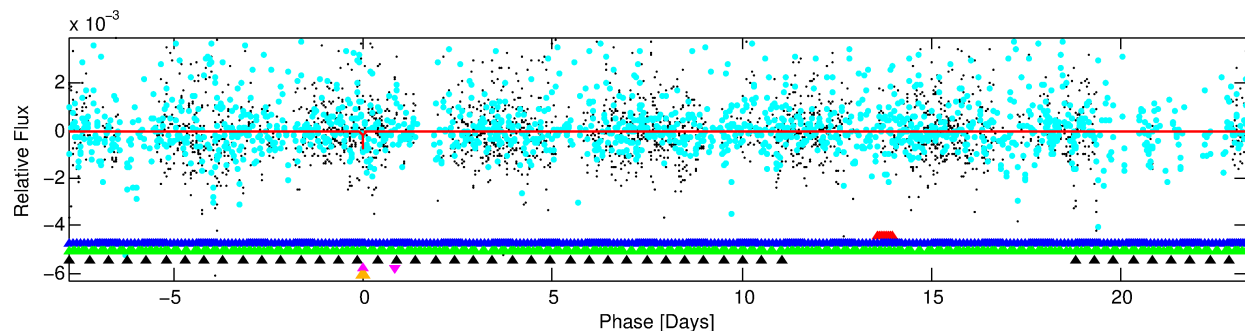
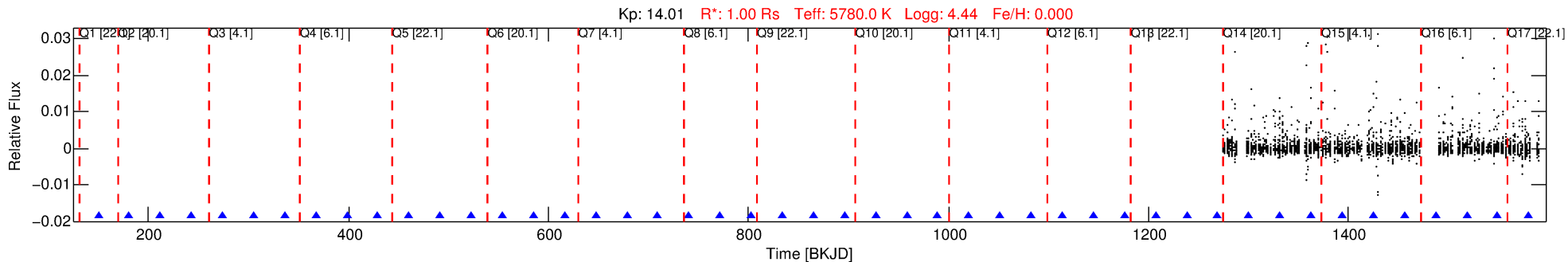
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011565170-05

No Significant Match Found

DV One-Page Summary

KIC: 11565170 Candidate: 5 of 6 Period: 31.099 d



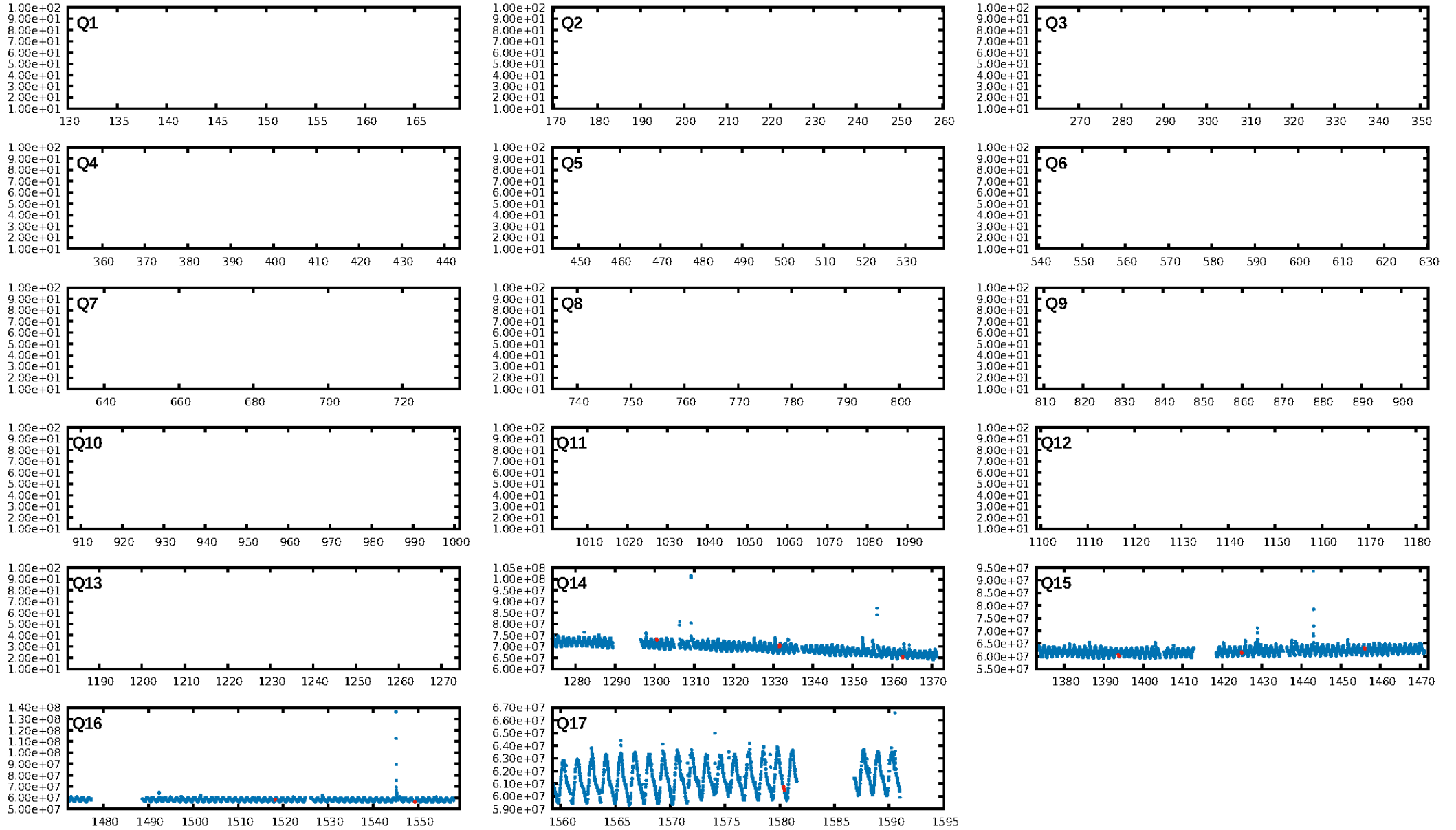
DV Fit Results:

Period = 31.09899 [0.00969] d
Epoch = 149.8346 [0.4006] BKJD
Rp/R* = 0.0302 [0.8889]
a/R* = 92.40 [12948.44]
b = 0.91 [25.85]
Seff = 26.69 [0.01]
Teq = 580 [0] K
Rp = 3.29 [97.00] Re
a = 0.1936 [0.0000] AU
Ag = 3250.68 [191653.50] [0.02σ]
Teffp = 6766 [99726] K [0.06σ]

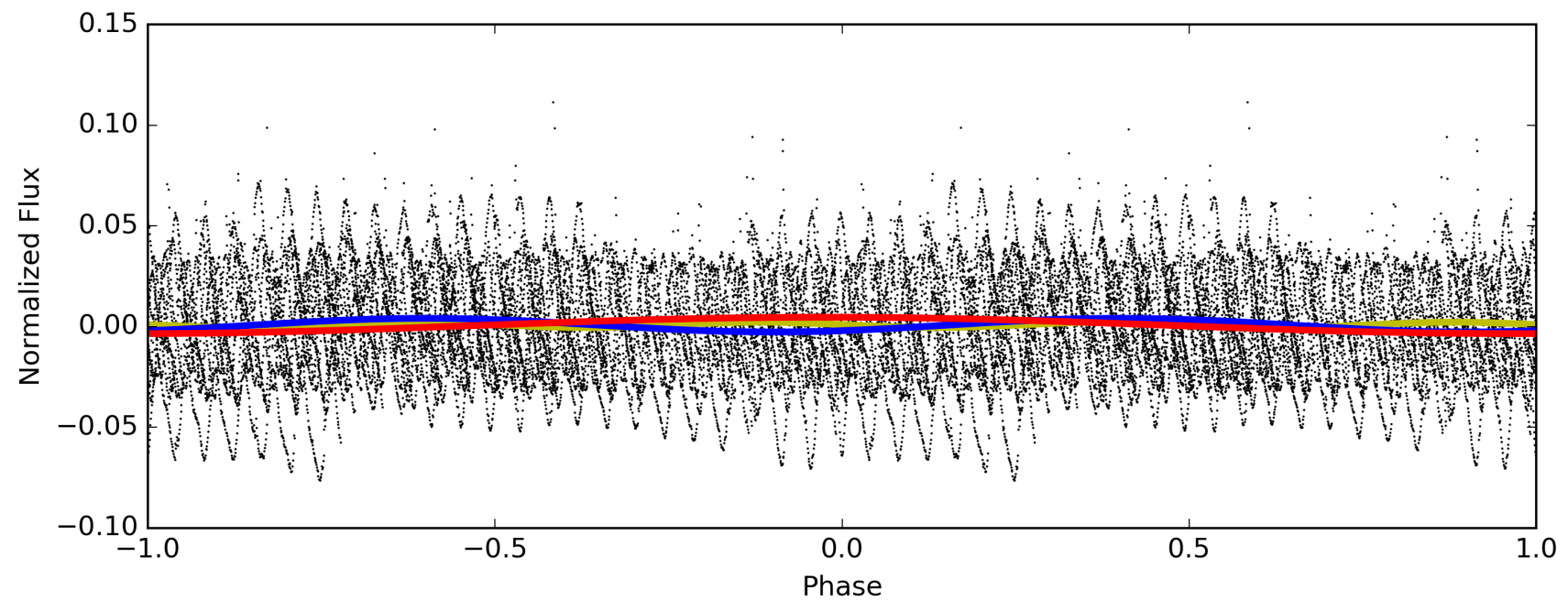
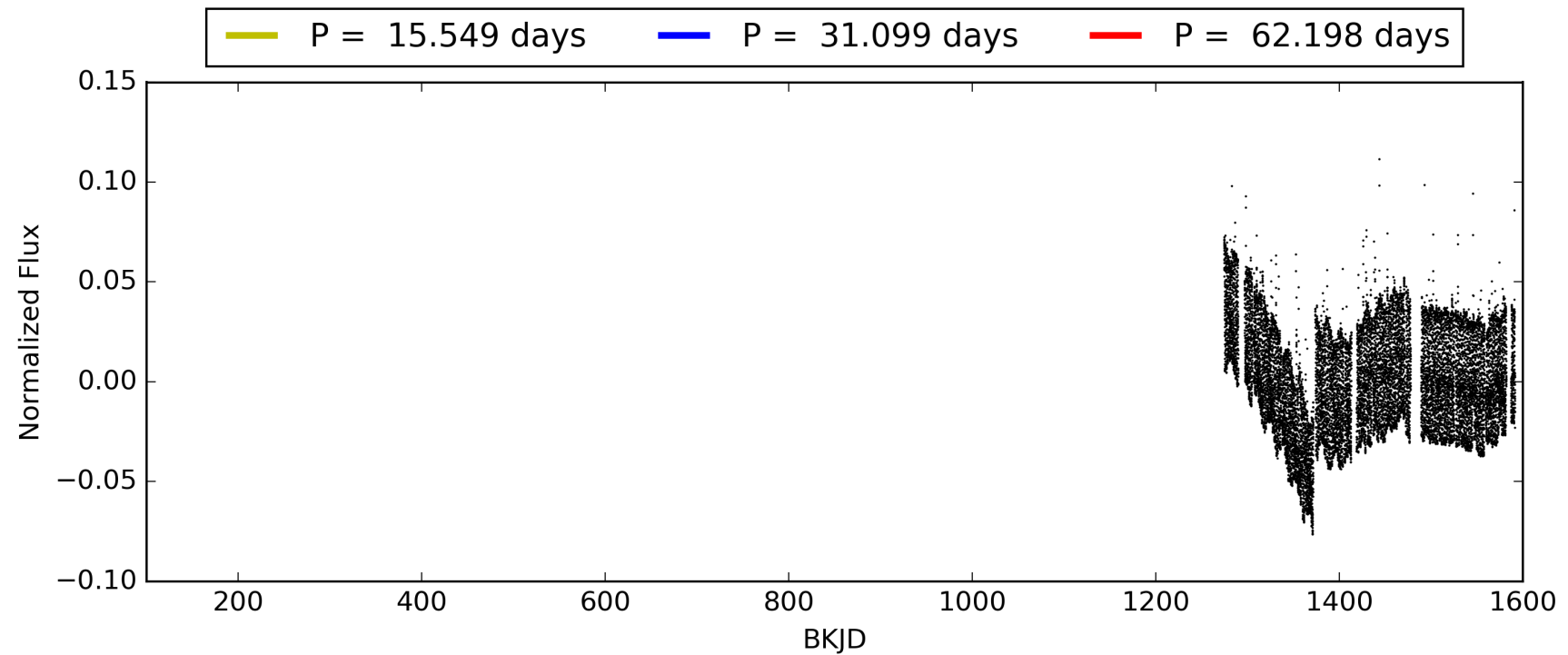
DV Diagnostic Results:

ShortPeriod-sig: 47.7% [0.64σ]
LongPeriod-sig: 0.7% [0.01σ]
ModelChiSquare2-sig: 90.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.96e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.7431
Centroid-sig: 55.6%
Centroid-so: 2.002 arcsec [0.52σ]
OotOffset-rm: 1.398 arcsec [2.73σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 1.935 arcsec [4.63σ]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 011565170-05, PDC Light Curves

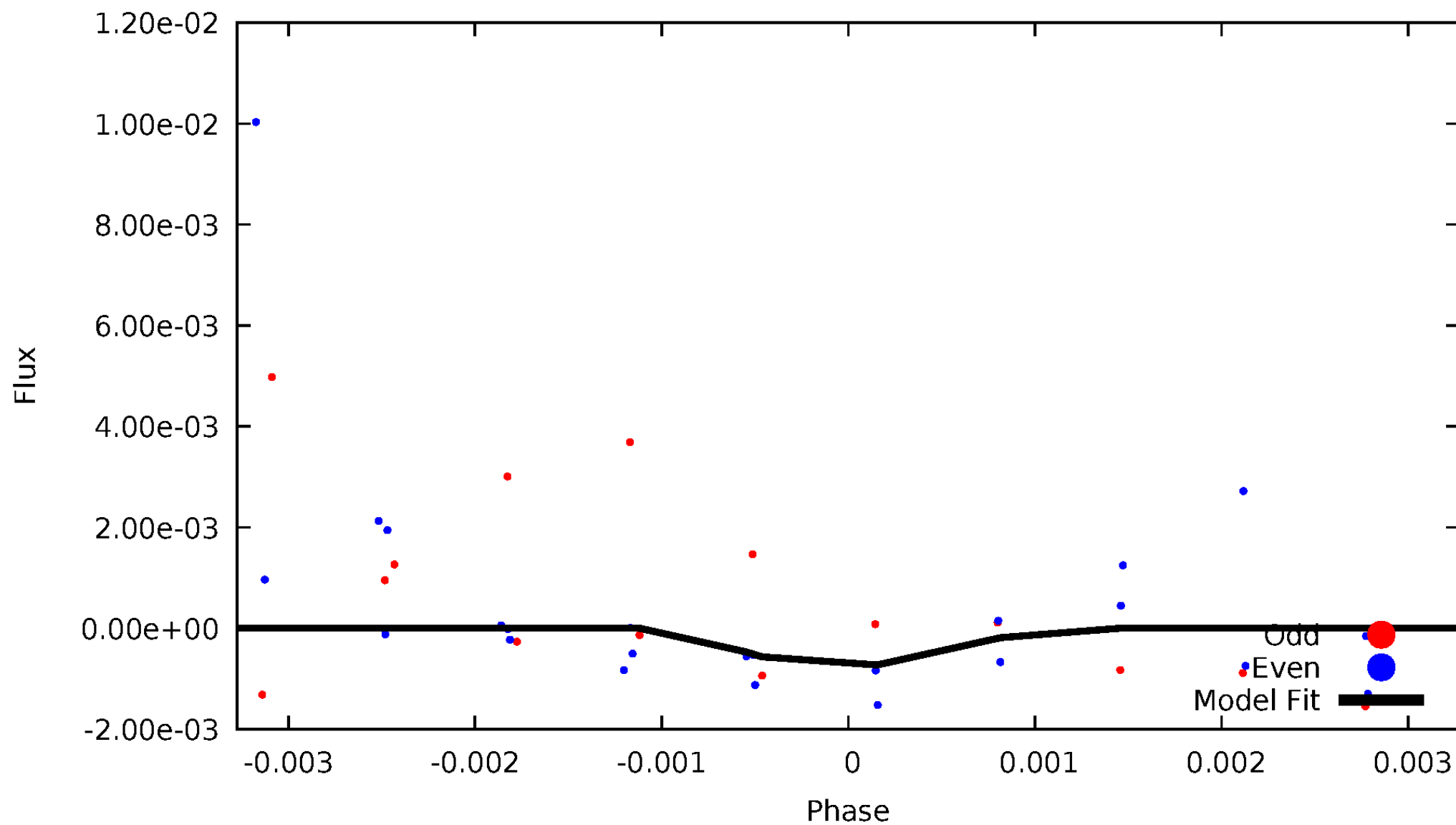


TCE 011565170-05



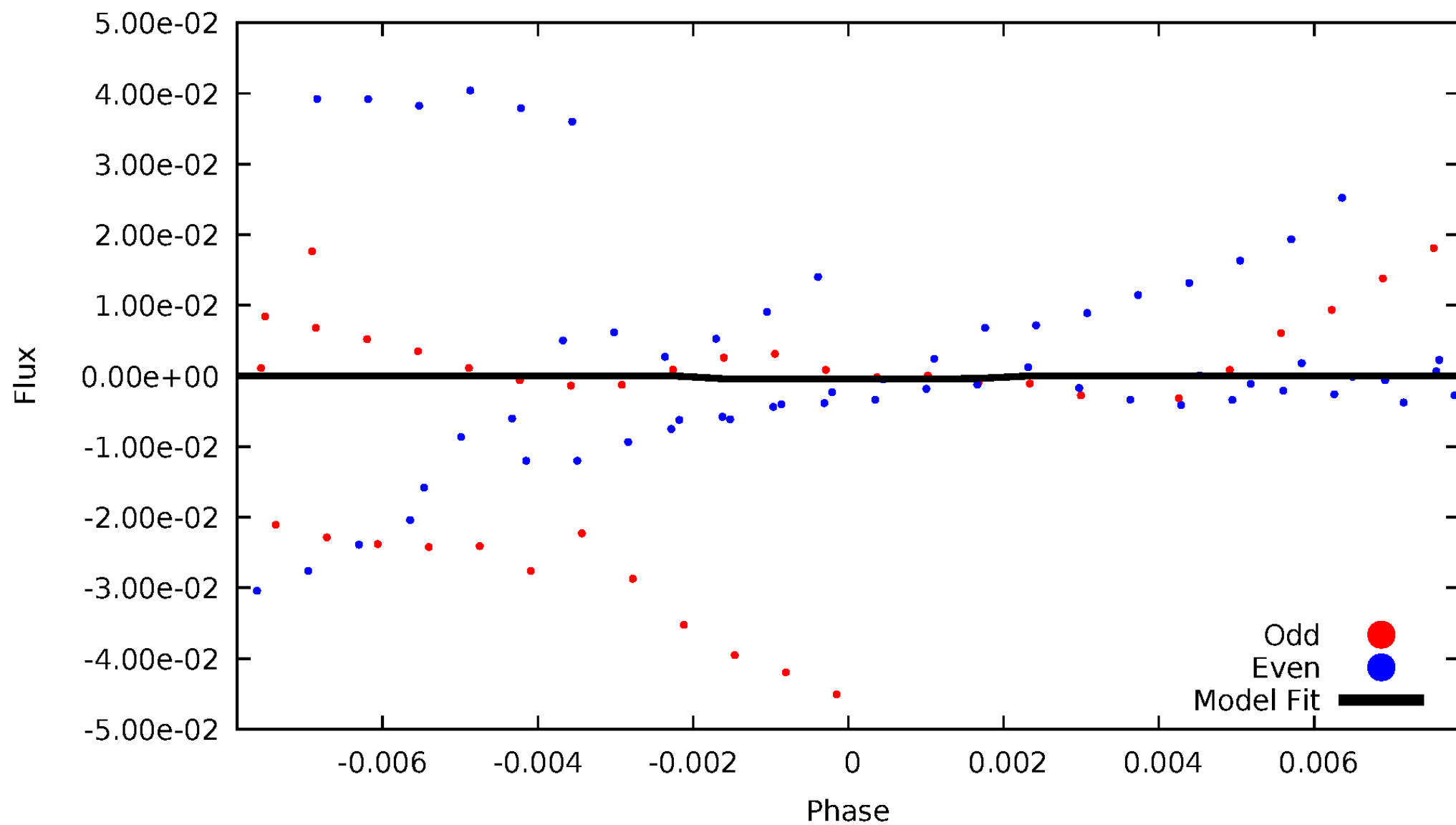
DV Odd/Even

TCE 011565170-05



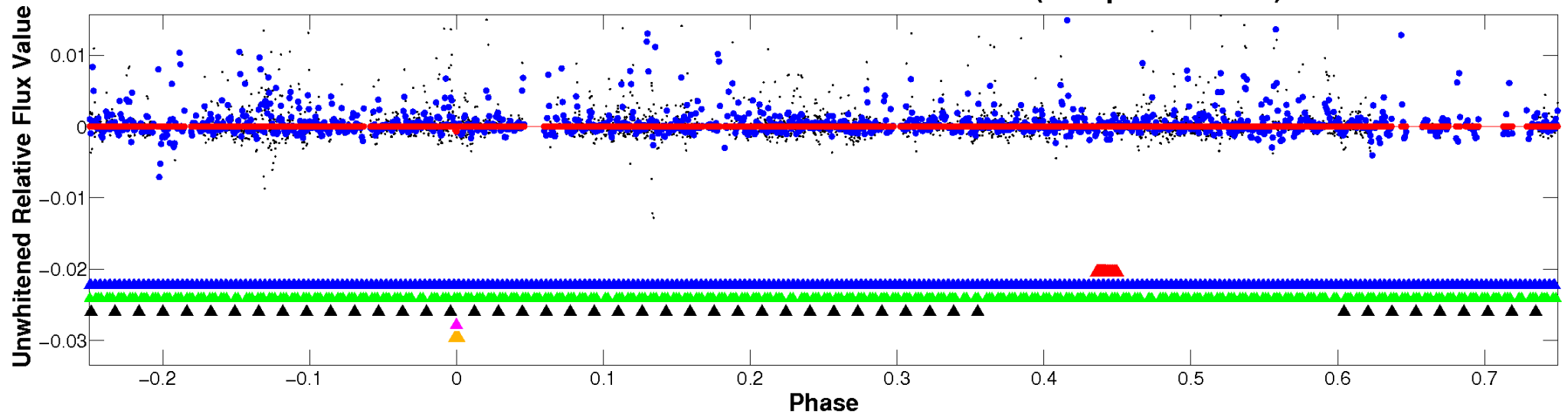
ALT Odd/Even

TCE 011565170-05

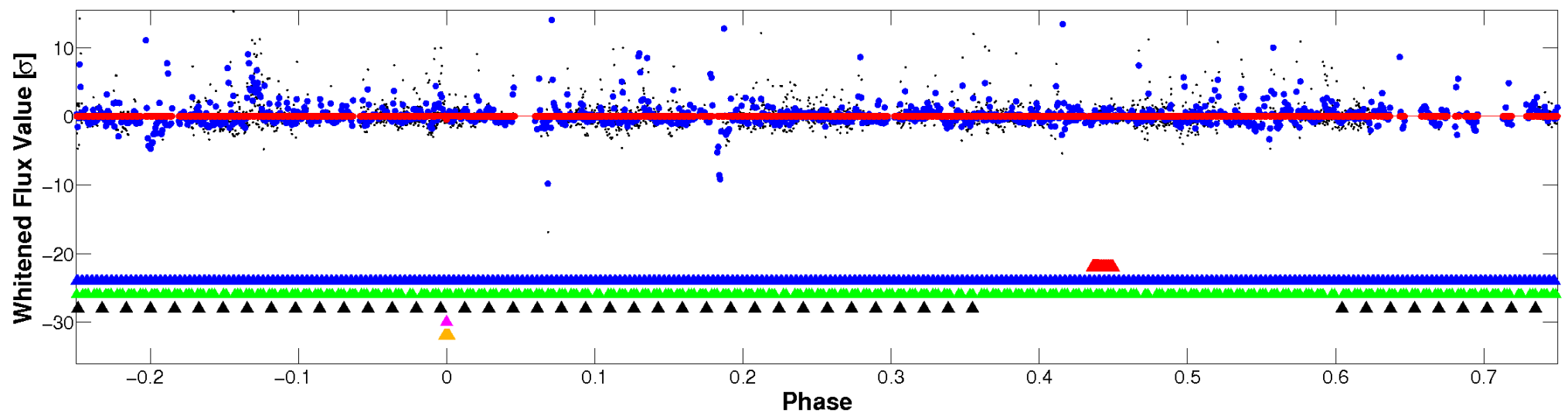


Non-Whitened Vs. Whitened Light Curve

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

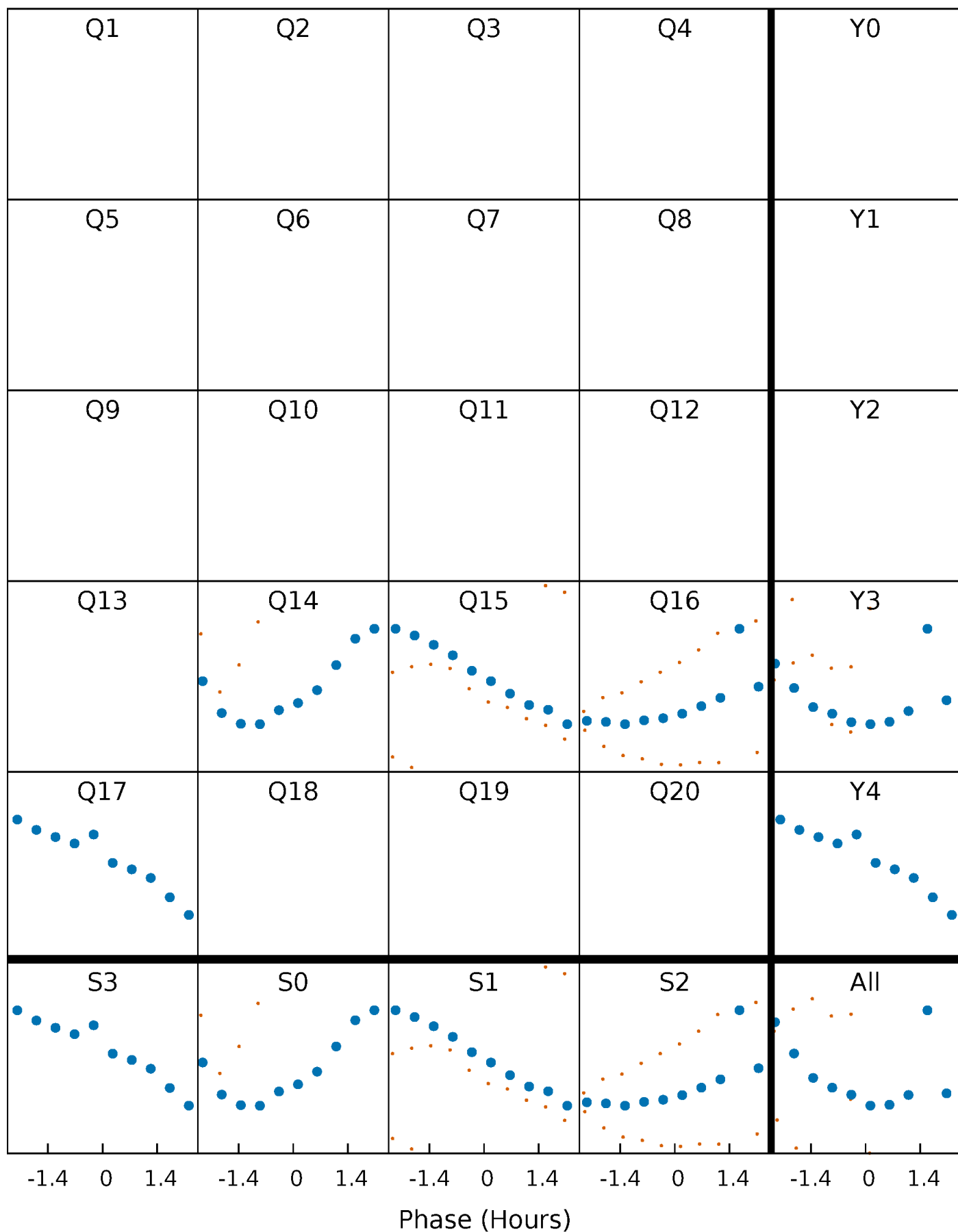


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



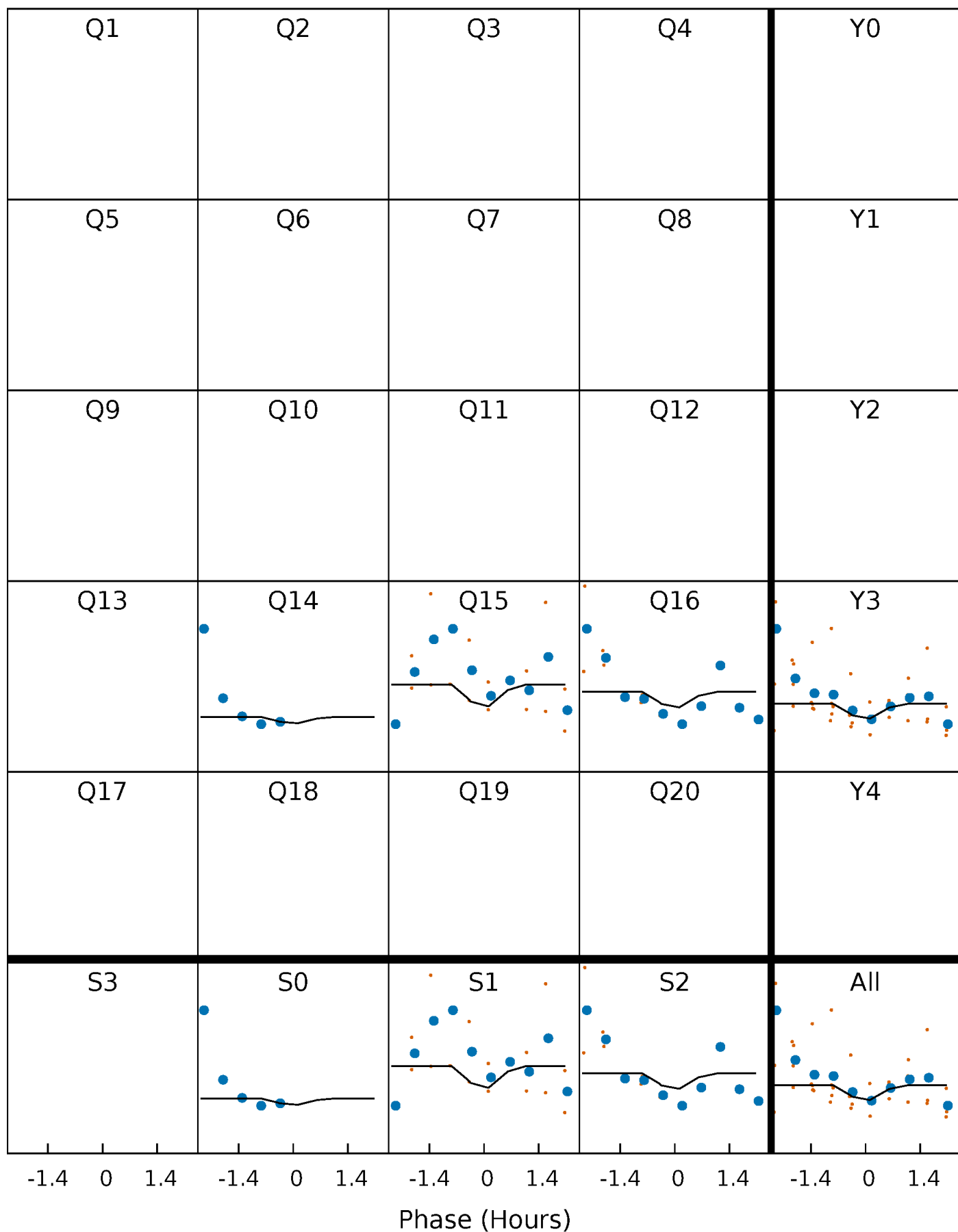
PDC Quarter-Phased Transit Curves

TCE 011565170-05 P= 31.098987 Days $T_0=149.834602$ (BKJD)



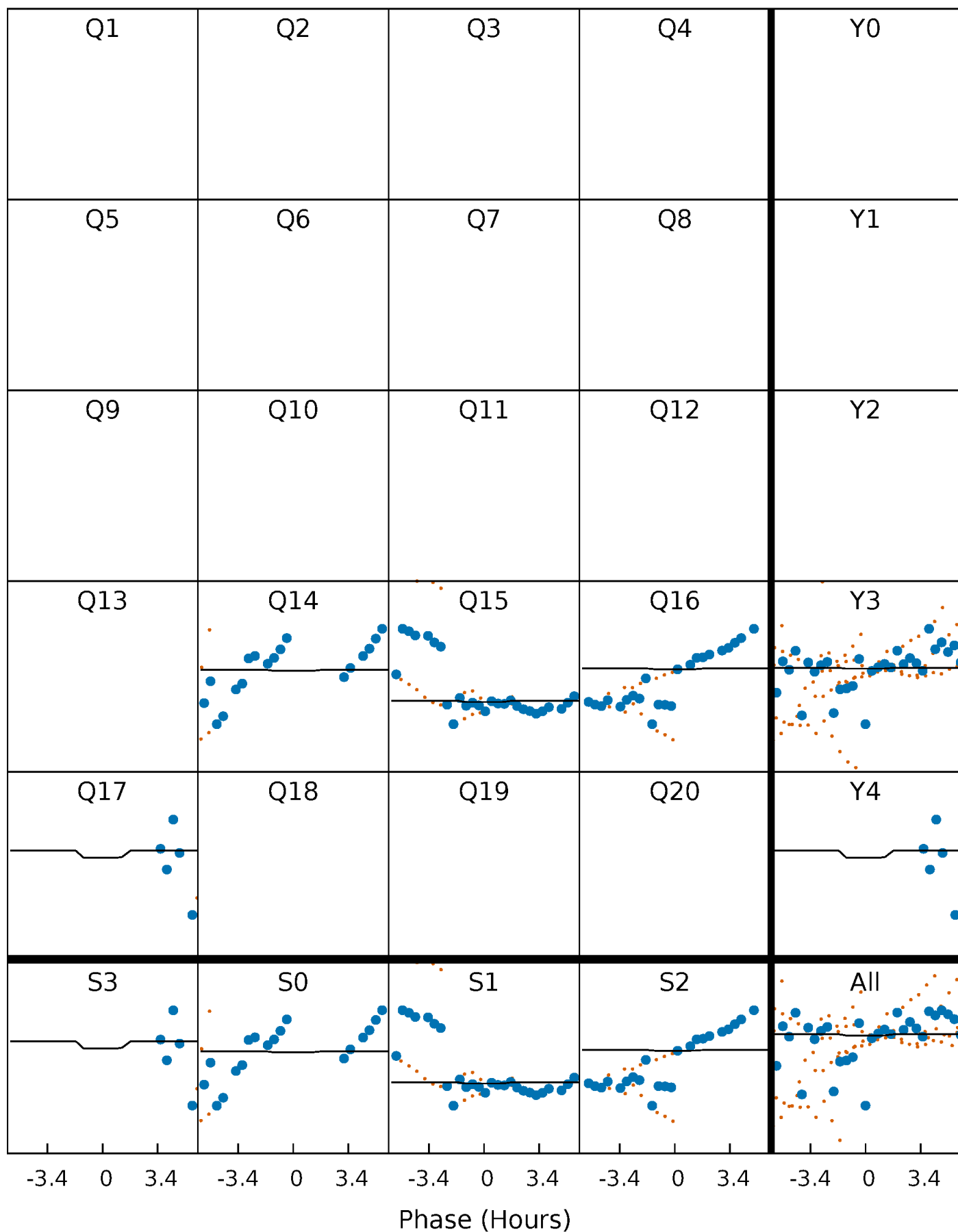
DV Quarter-Phased Transit Curves

TCE 011565170-05 $P = 31.098987$ Days $T_0 = 149.834602$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

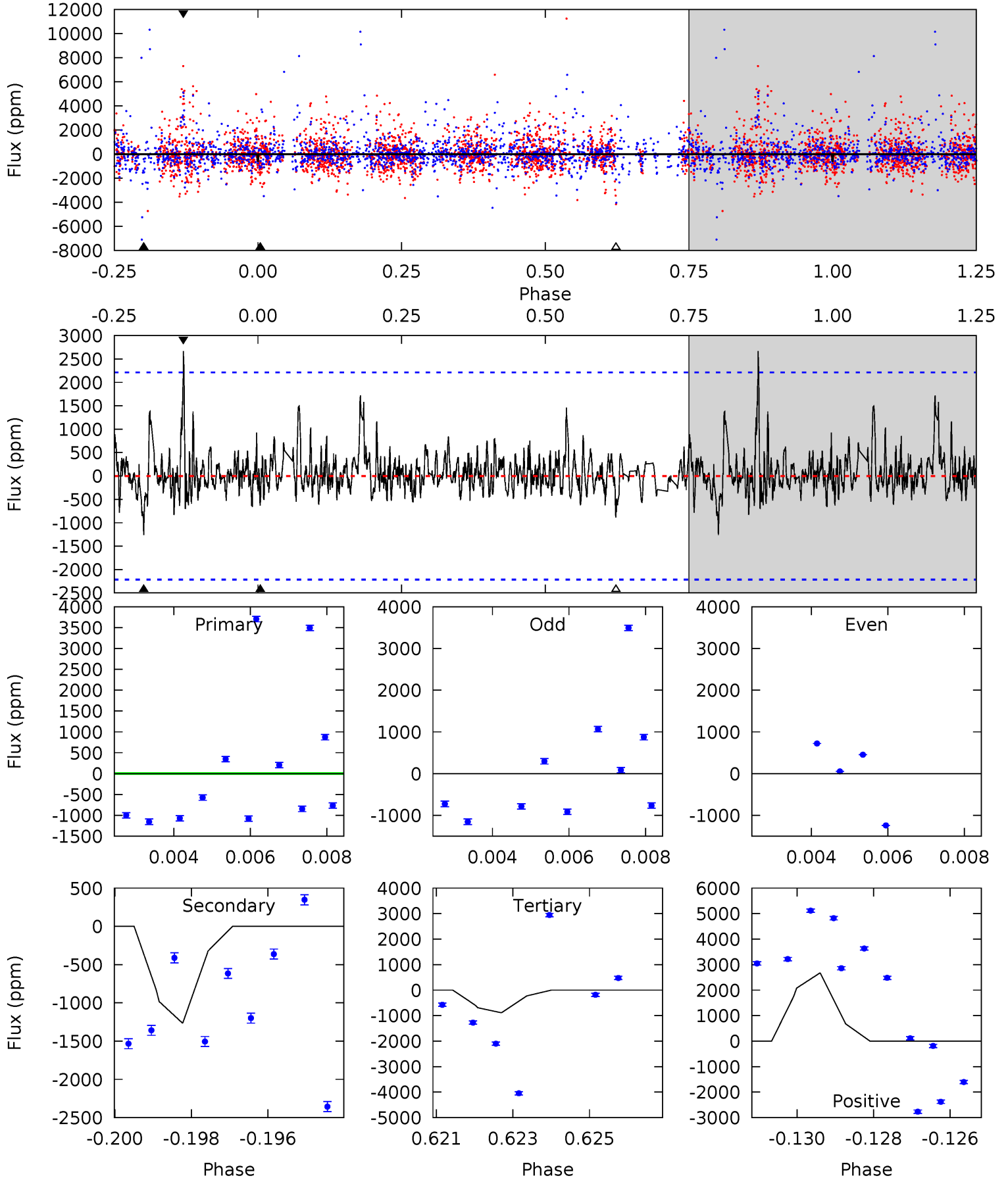
TCE 011565170-05 $P = 31.098288$ Days $T_0 = 149.856322$ (BKJD)



DV Model-Shift Uniqueness Test

011565170-05, P = 31.098987 Days, E = 149.834602 Days

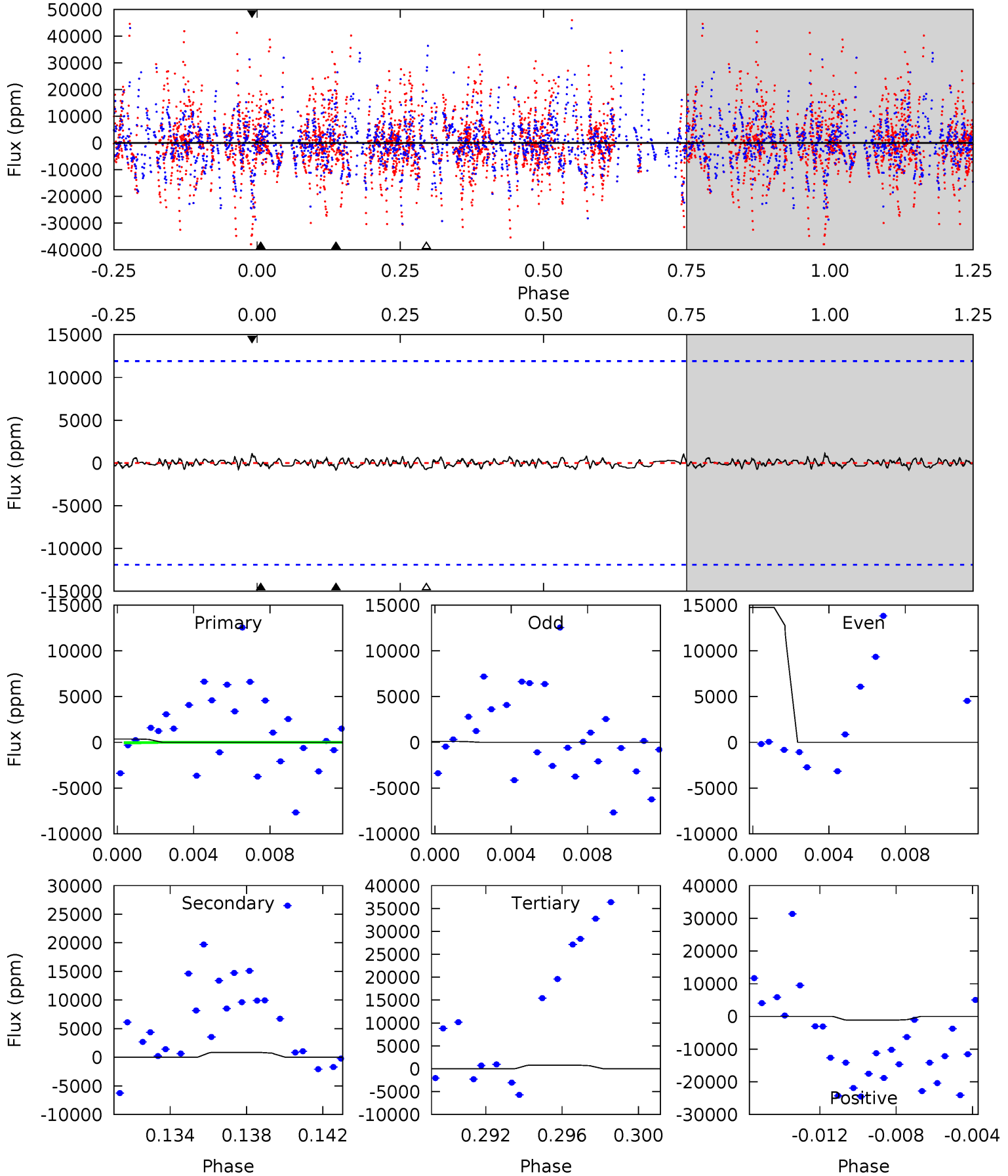
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.51	3.04	2.13	6.42	5.33	3.09	0.84	-0.62	-4.91	0.90	-3.39	0.47	0.71	0.68	0.41



Alt Model-Shift Uniqueness Test

011565170-05, P = 31.098288 Days, E = 149.856322 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.16	0.36	0.33	0.49	5.20	2.88	0.14	-0.18	-0.34	0.03	-0.13	3.30	6.56	0.58	0



Stellar Parameters For KIC 011565170

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 011565170-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1262 ± 416	$67.56^{+66.78}_{-48.81}$	810^{+37}_{-37}	2308^{+862}_{-402}	$5.846^{+61.308}_{-4.575}$
Alt.	-828 ± 2288	$66.42^{+66.41}_{-49.81}$	810^{+39}_{-37}	1991^{+956}_{-4427}	$1.866^{+37.584}_{-10.925}$

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

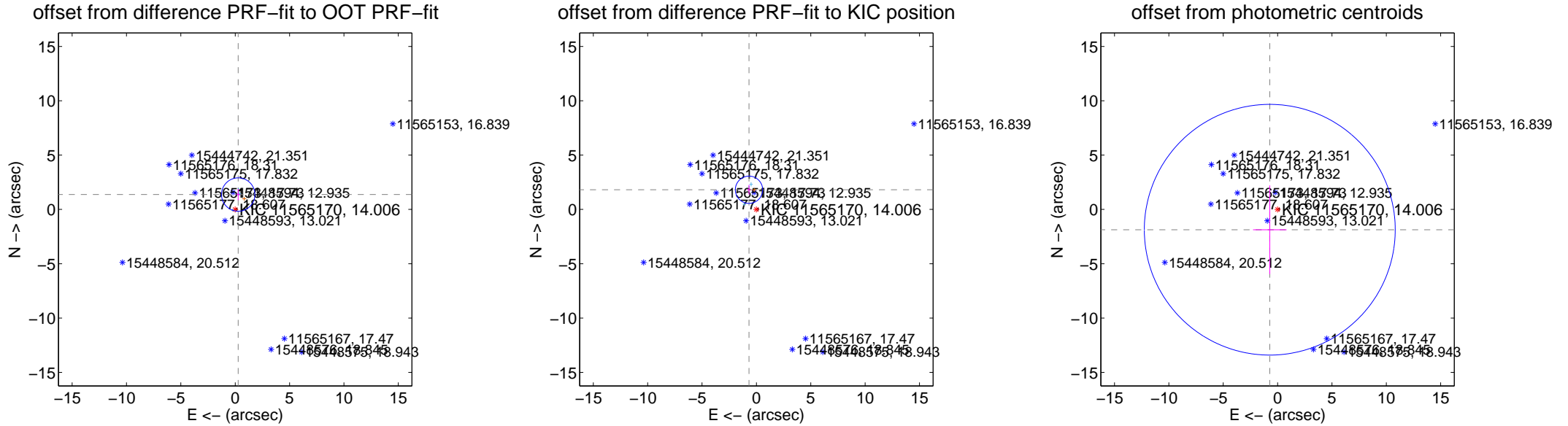
DV Centroid Data

Supplemental centroid analysis for 011565170-05. Kepler magnitude: 14.01. Transit SNR 1.14

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.398 ± 0.512	2.73	-0.276 ± 0.175	1.370 ± 0.521
PRF-fit source offset from KIC position	1.935 ± 0.418	4.63	0.682 ± 0.155	1.811 ± 0.443
photometric centroid source offset	2.00 ± 3.85	0.52	0.72 ± 1.54	-1.87 ± 4.08



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.



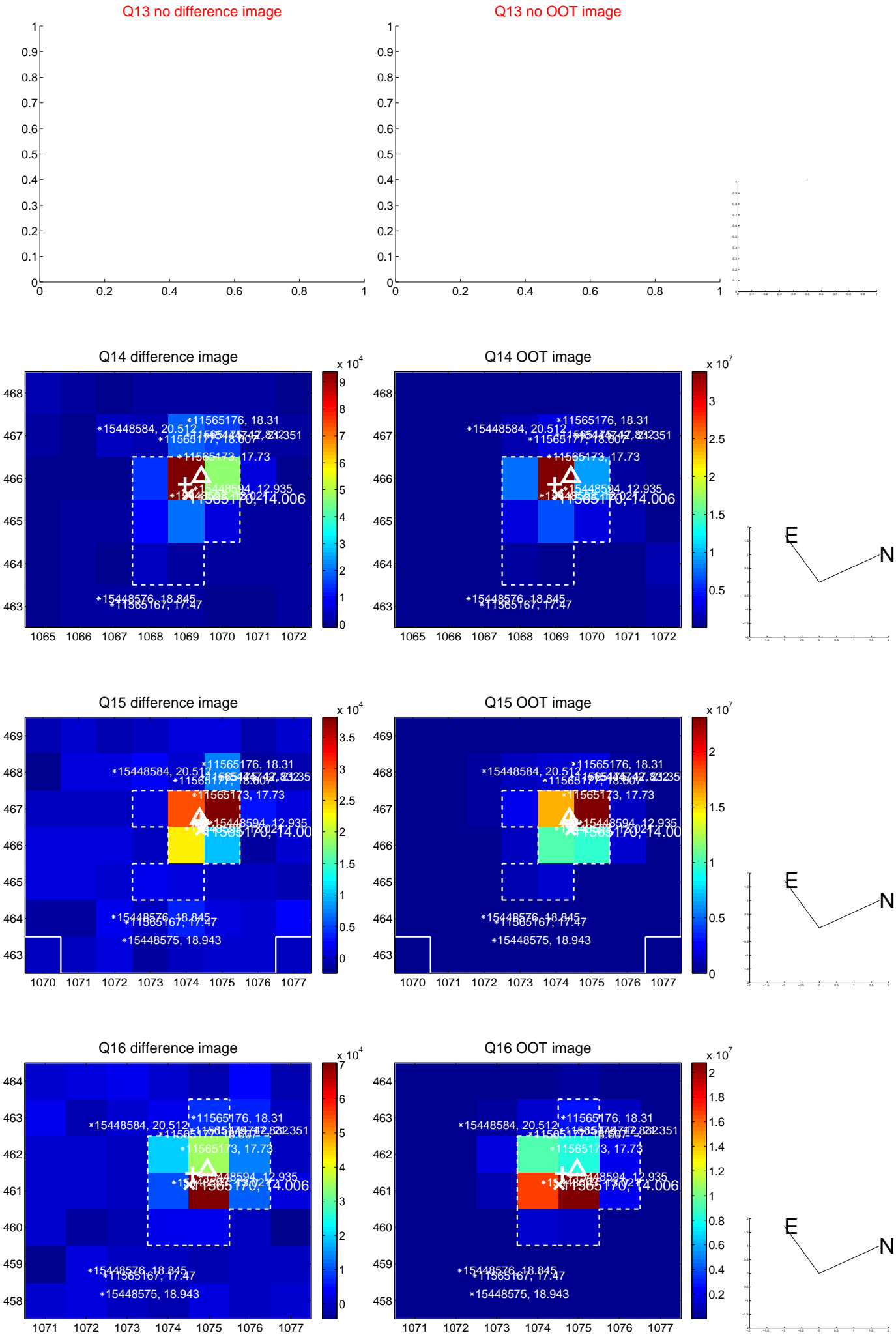
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



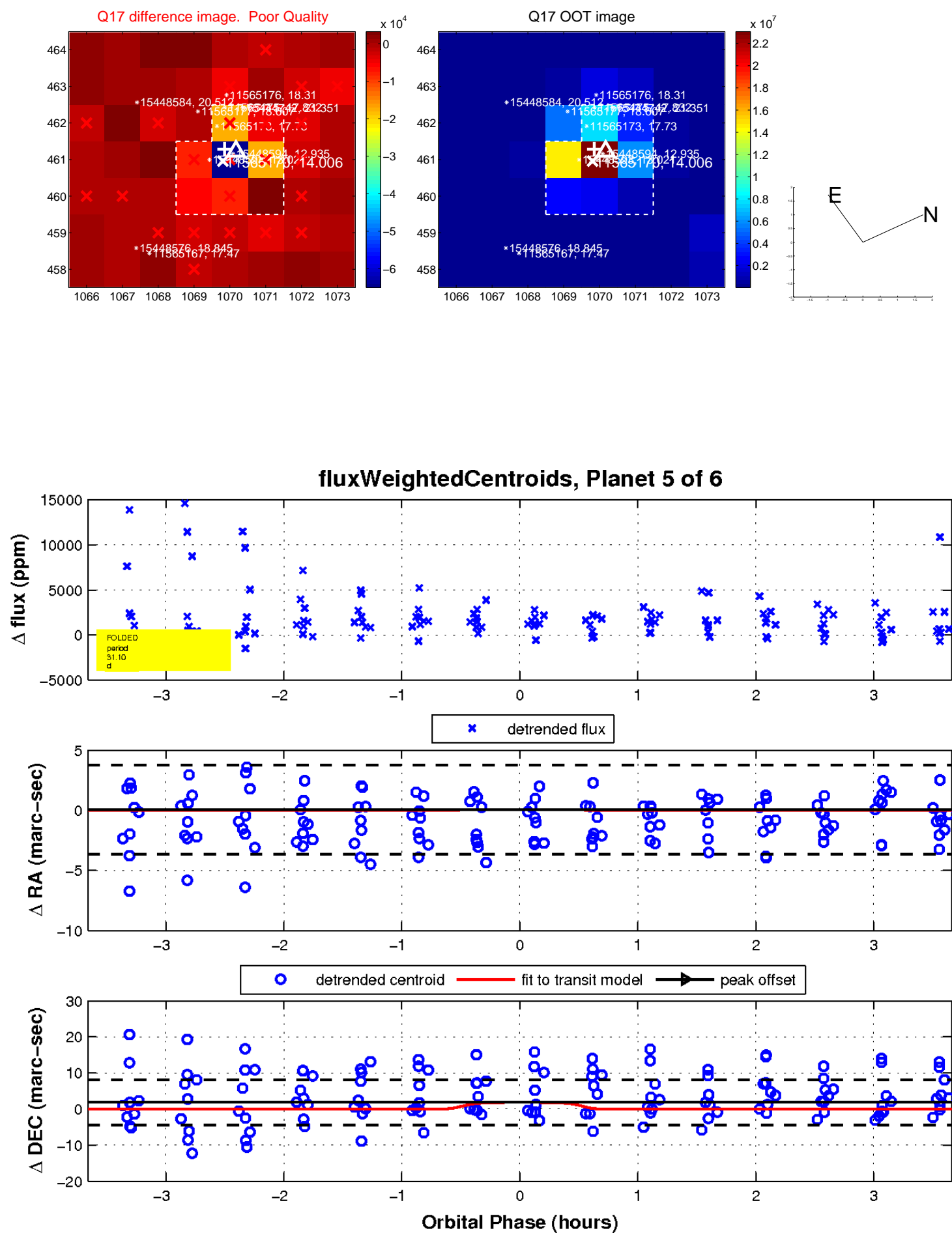
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

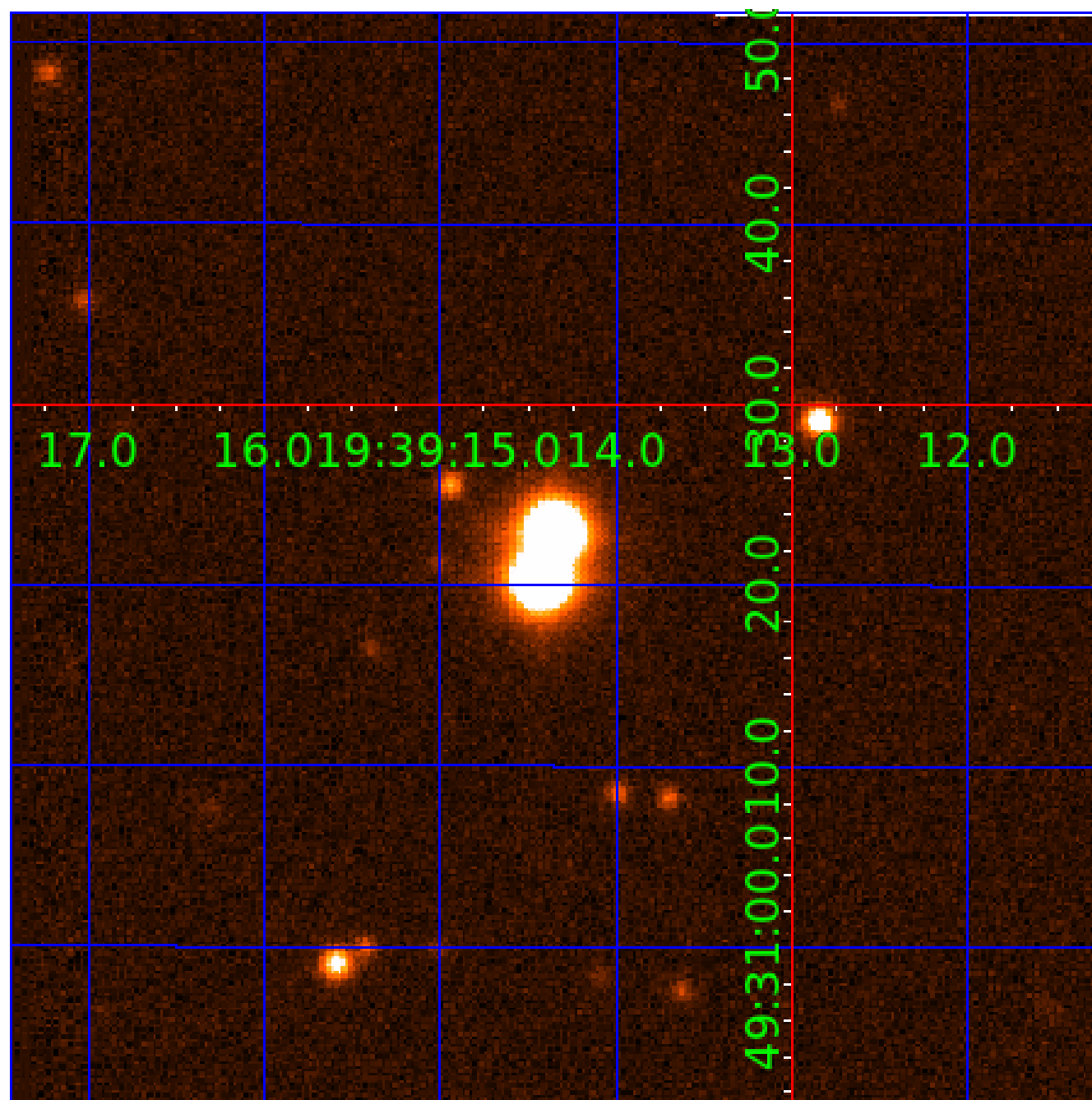


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011565170

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})
011565170-01	OBS	No	93.326859	194.498438	4099.1	2.246	11.3	5.9	1.00	5780	6.38	6.17
011565170-02	OBS	No	0.718473	131.906827	764.8	2.500	10.8	-1.0	1.00	5780	2.74	4055.63
011565170-03	OBS	No	3.917539	133.752277	0.1	14.795	9.4	0.0	1.00	5780	0.04	422.59
011565170-04	OBS	No	30.591590	160.871355	2387.2	19.028	9.0	4.9	1.00	5780	5.09	27.28
011565170-05	OBS	No	31.098987	149.834602	731.8	1.222	8.8	1.1	1.00	5780	3.29	26.69
011565170-06	OBS	No	31.100962	149.795628	1618.6	5.658	7.9	1.8	1.00	5780	4.06	26.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011565170-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011565170-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
011565170-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
011565170-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
011565170-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011565170-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

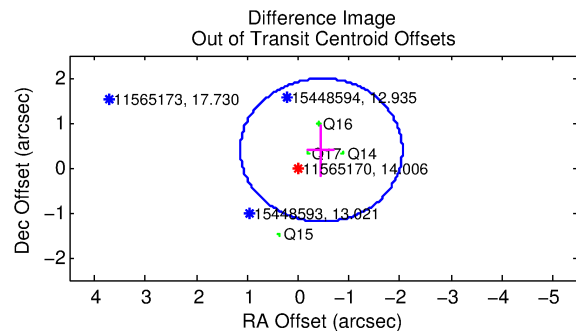
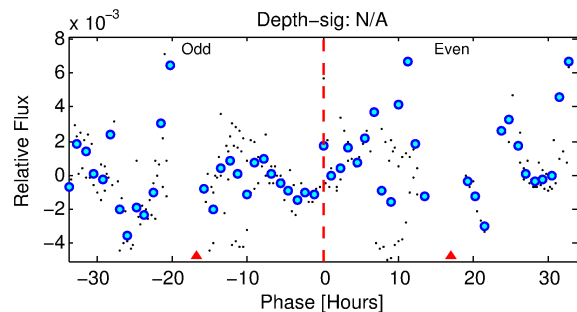
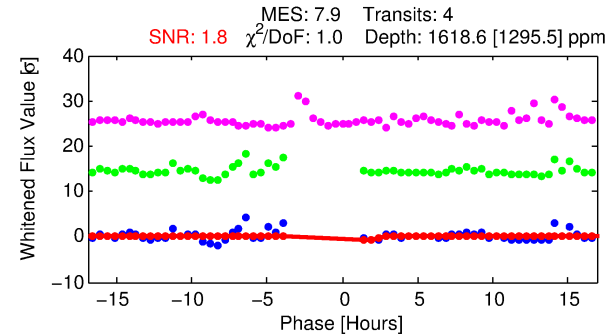
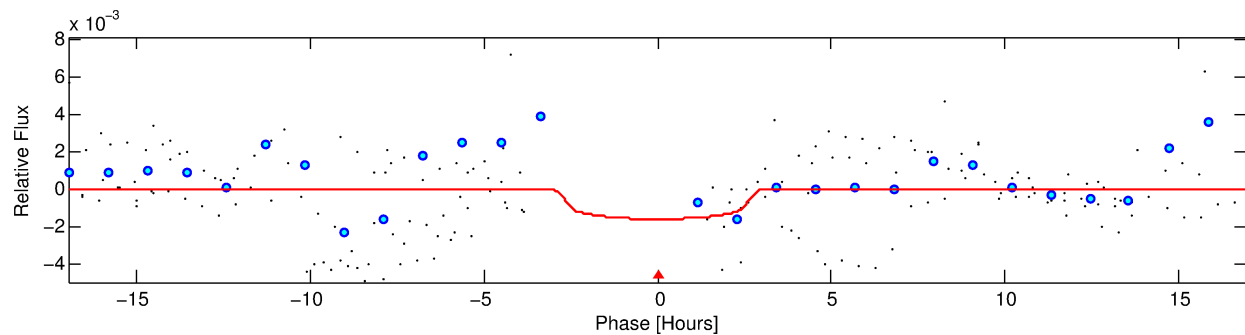
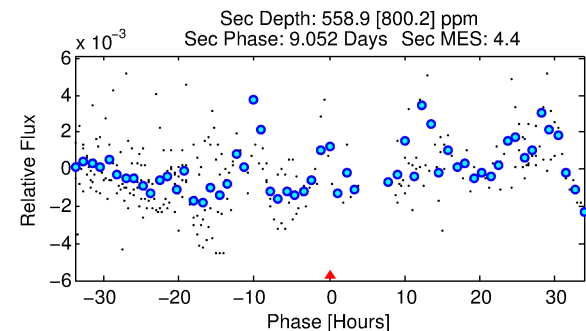
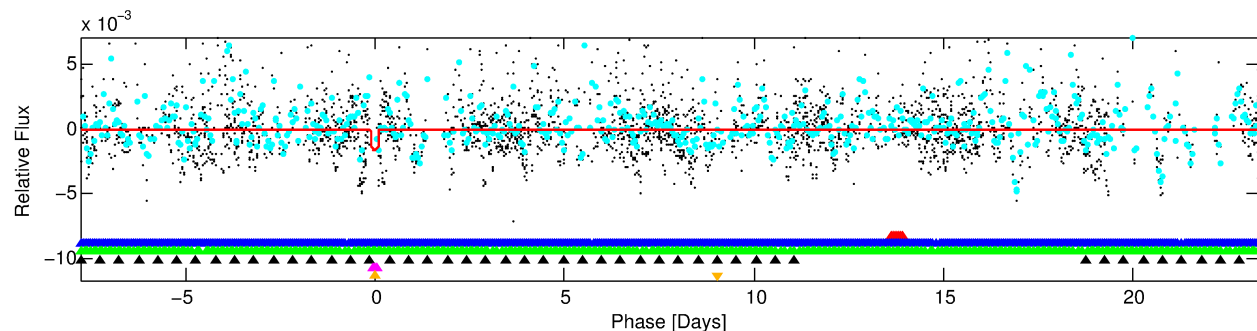
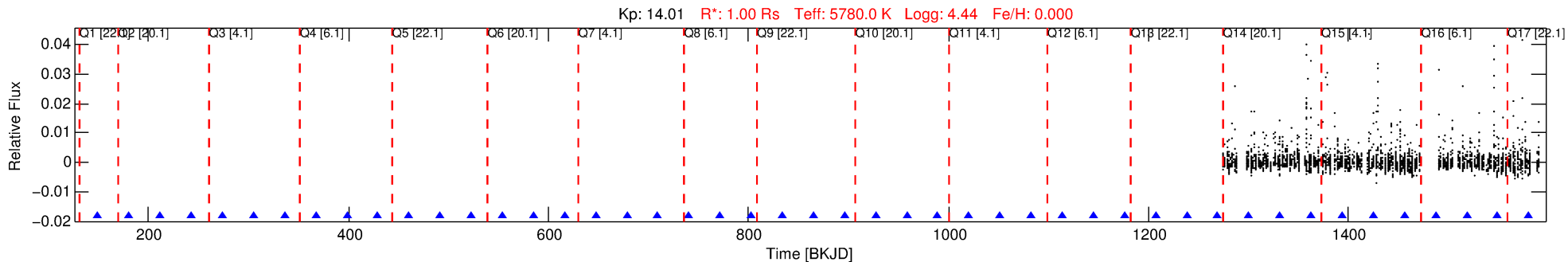
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011565170-06

No Significant Match Found

DV One-Page Summary

KIC: 11565170 Candidate: 6 of 6 Period: 31.101 d



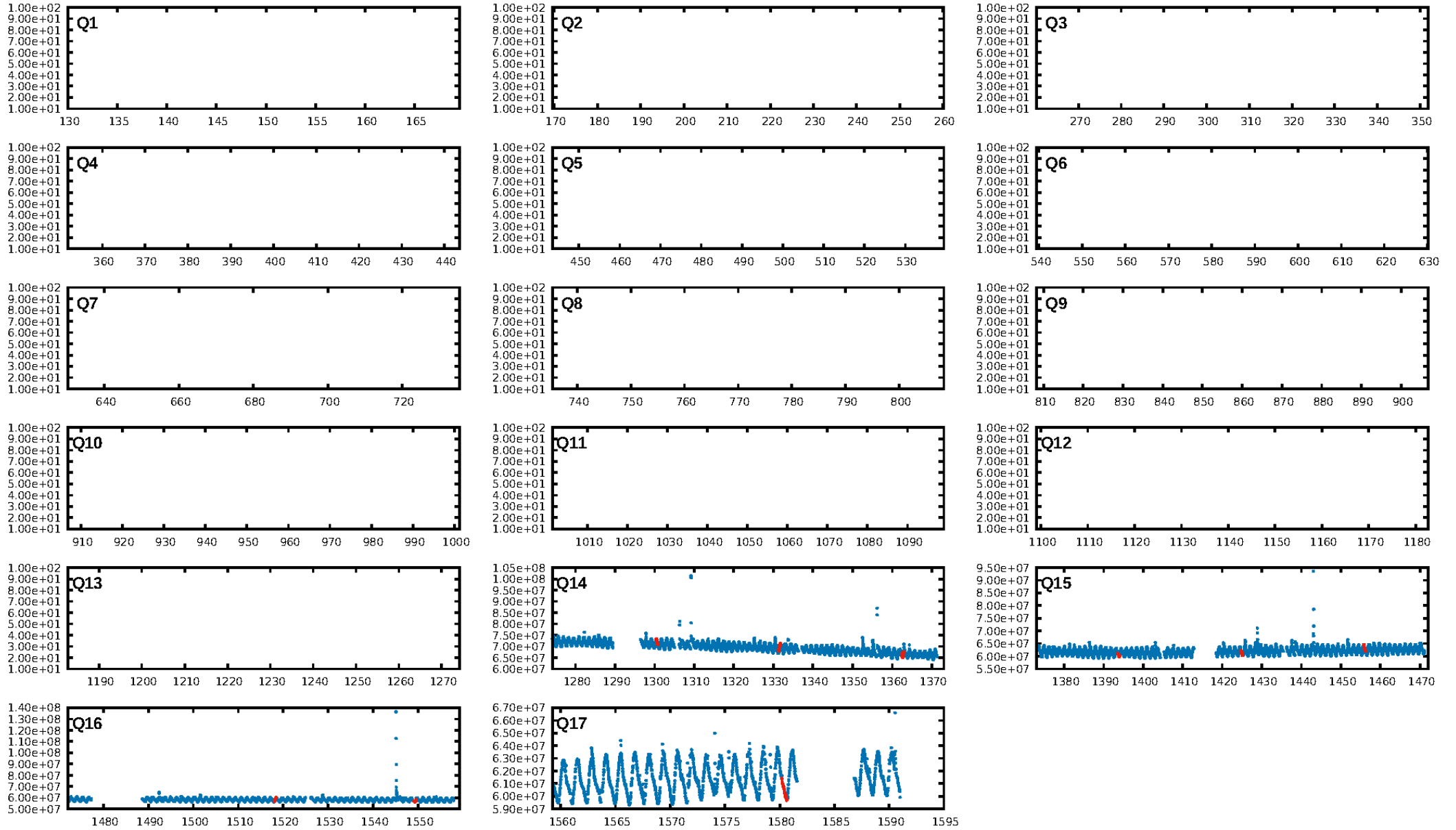
DV Fit Results:

Period = 31.10096 [0.00767] d
Epoch = 149.7956 [0.3292] BKJD
Rp/R* = 0.0372 [0.2153]
a/R* = 40.12 [997.10]
b = 0.40 [51.85]
Seff = 26.68 [0.01]
Teq = 580 [0] K
Rp = 4.06 [23.49] Re
a = 0.1936 [0.0000] AU
Ag = 698.93 [8147.93] [0.09σ]
Teffp = 4607 [13427] K [0.30σ]

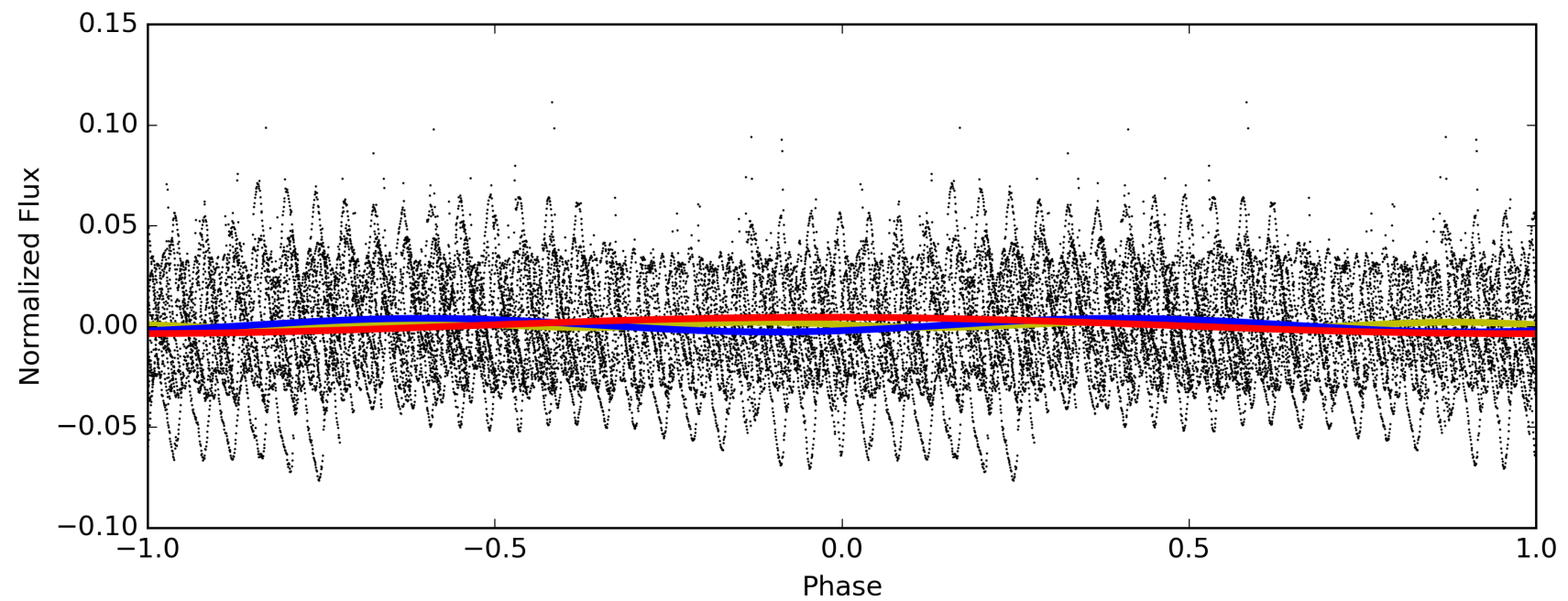
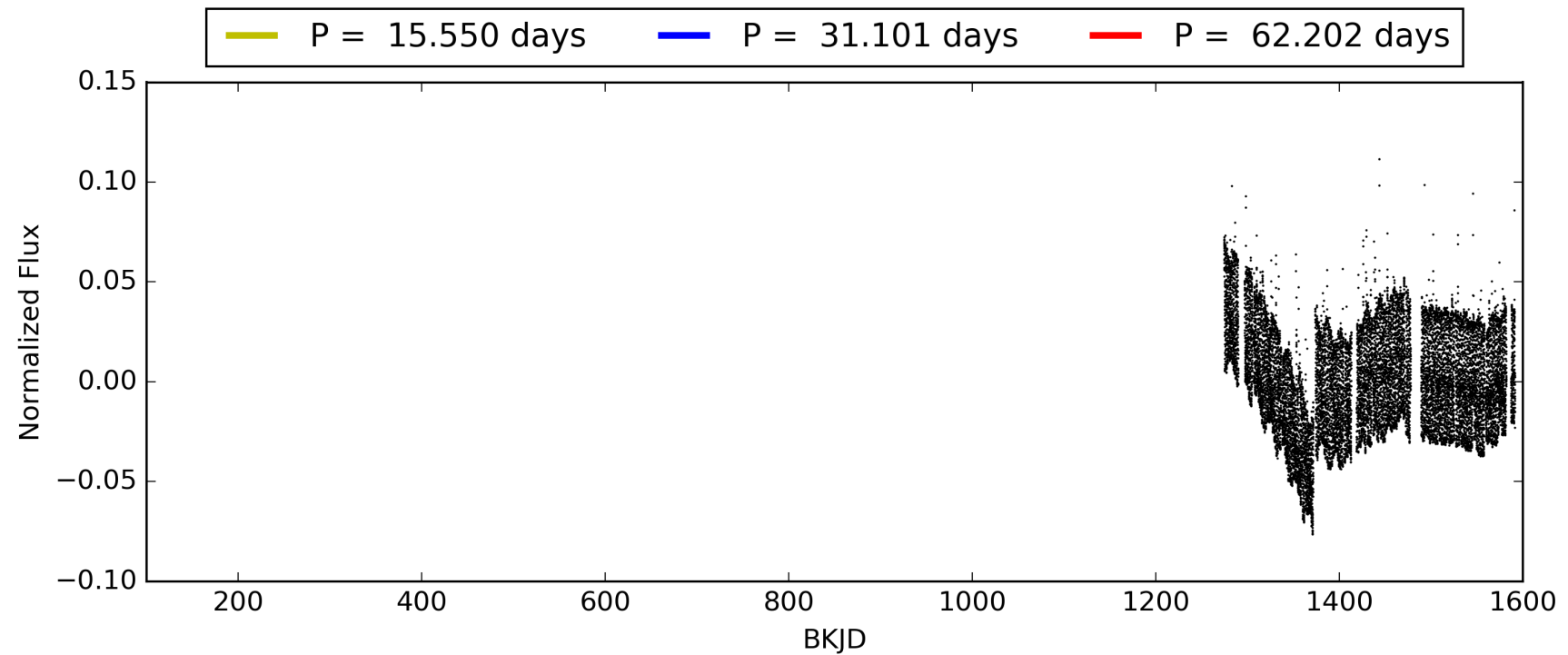
DV Diagnostic Results:

ShortPeriod-sig: 0.7% [0.01σ]
LongPeriod-sig: 100.0% [245.34σ]
ModelChiSquare2-sig: 9.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.48e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.449
Centroid-sig: 77.6%
Centroid-so: 1.497 arcsec [1.20σ]
OotOffset-rm: 0.600 arcsec [1.13σ]
KicOffset-rm: 0.867 arcsec [1.80σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 011565170-06, PDC Light Curves

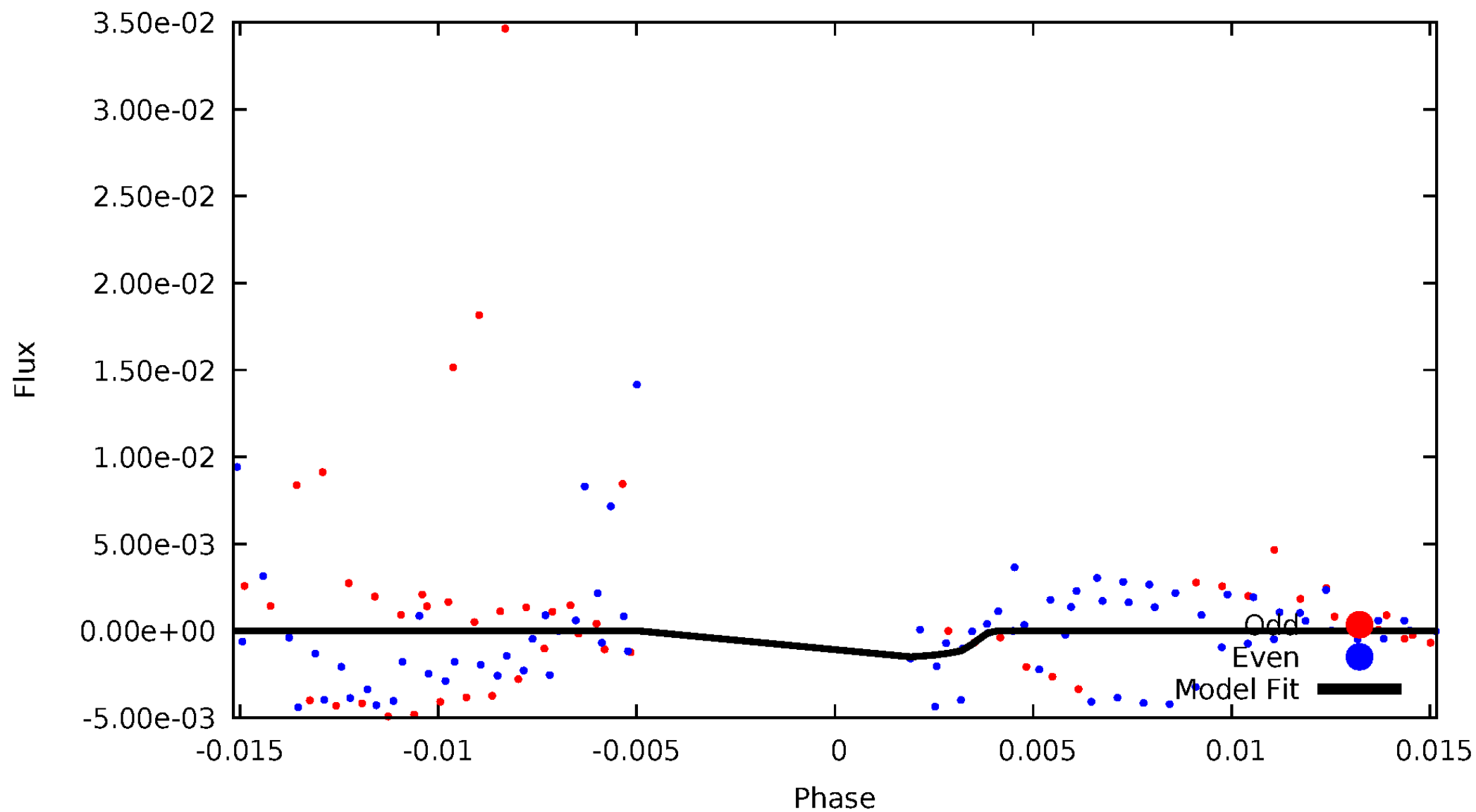


TCE 011565170-06



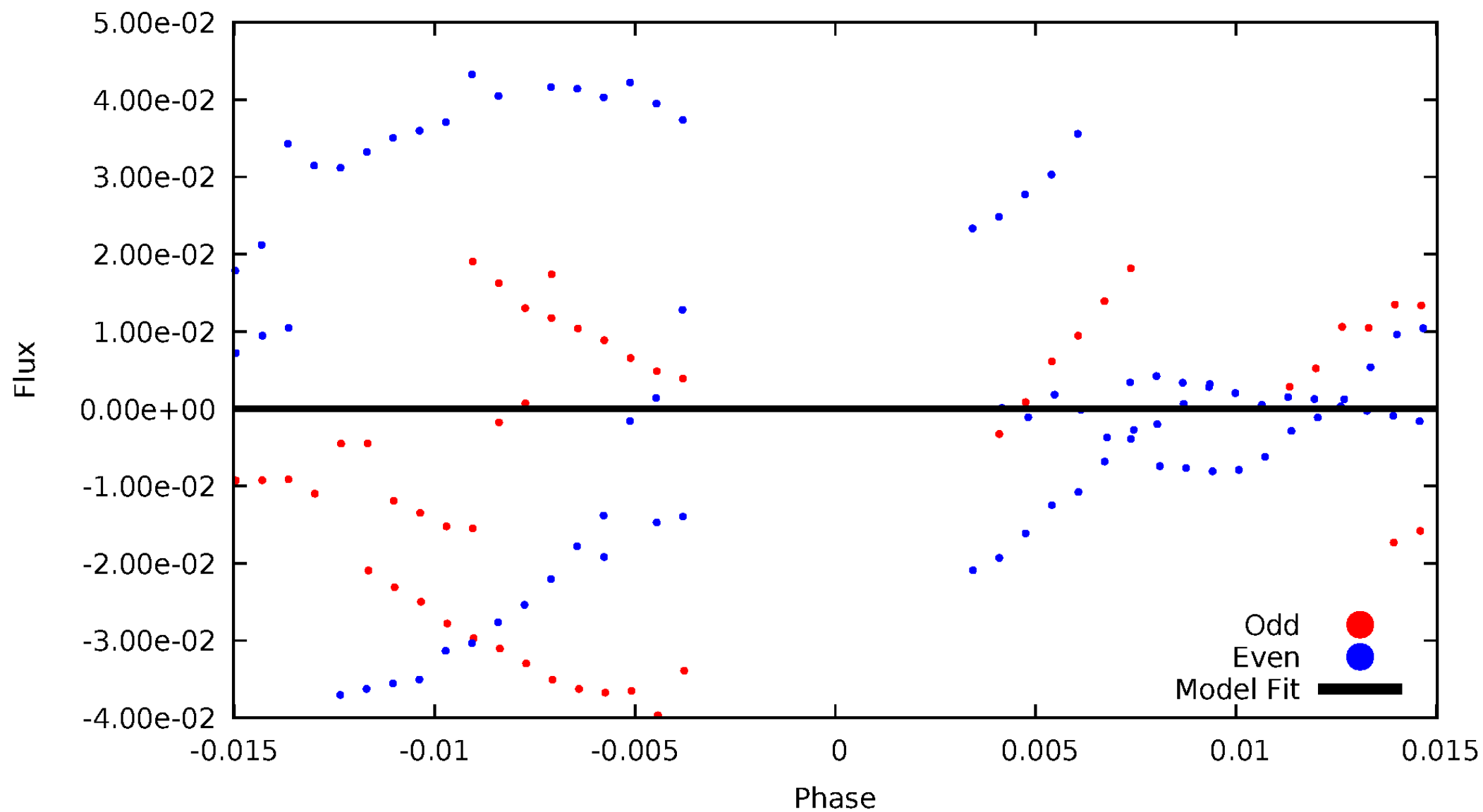
DV Odd/Even

TCE 011565170-06



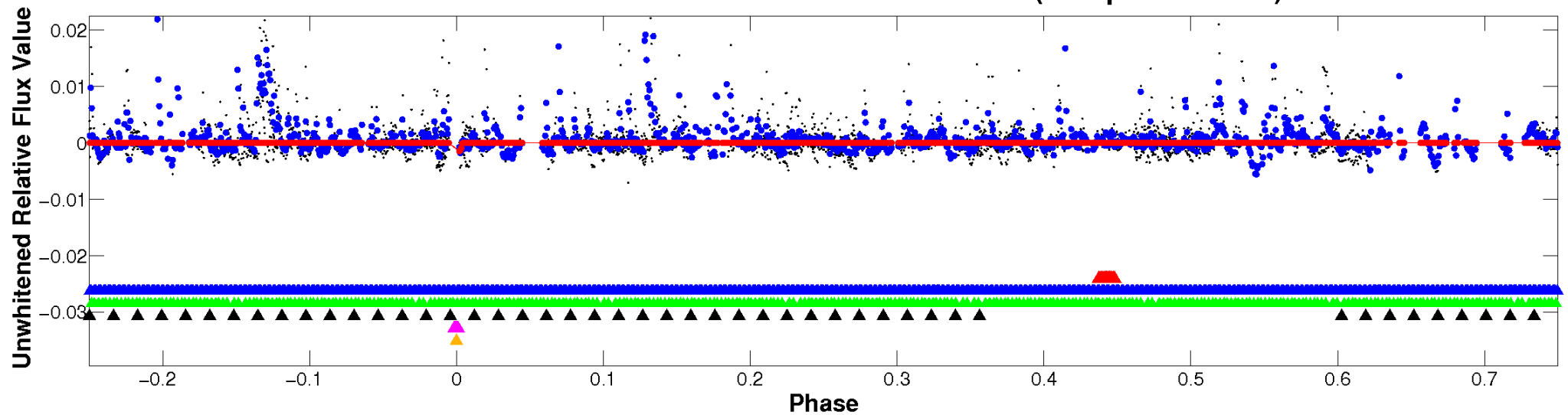
ALT Odd/Even

TCE 011565170-06

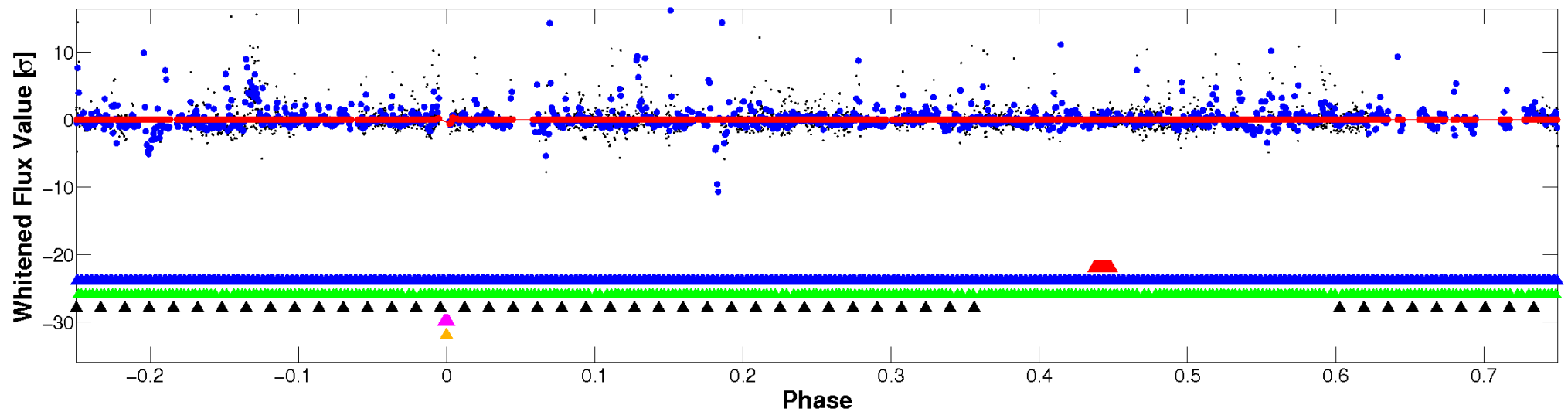


Non-Whitened Vs. Whitened Light Curve

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

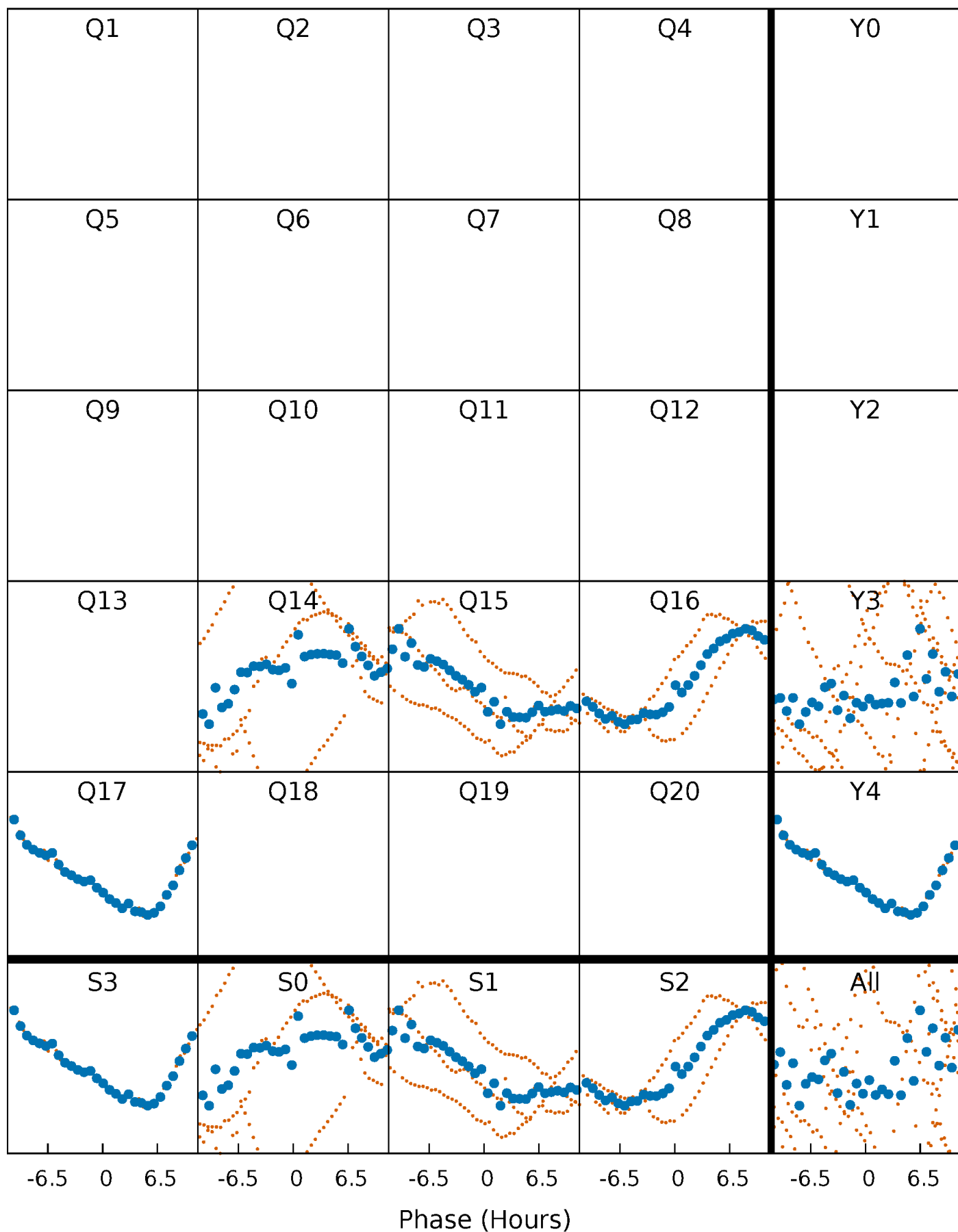


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



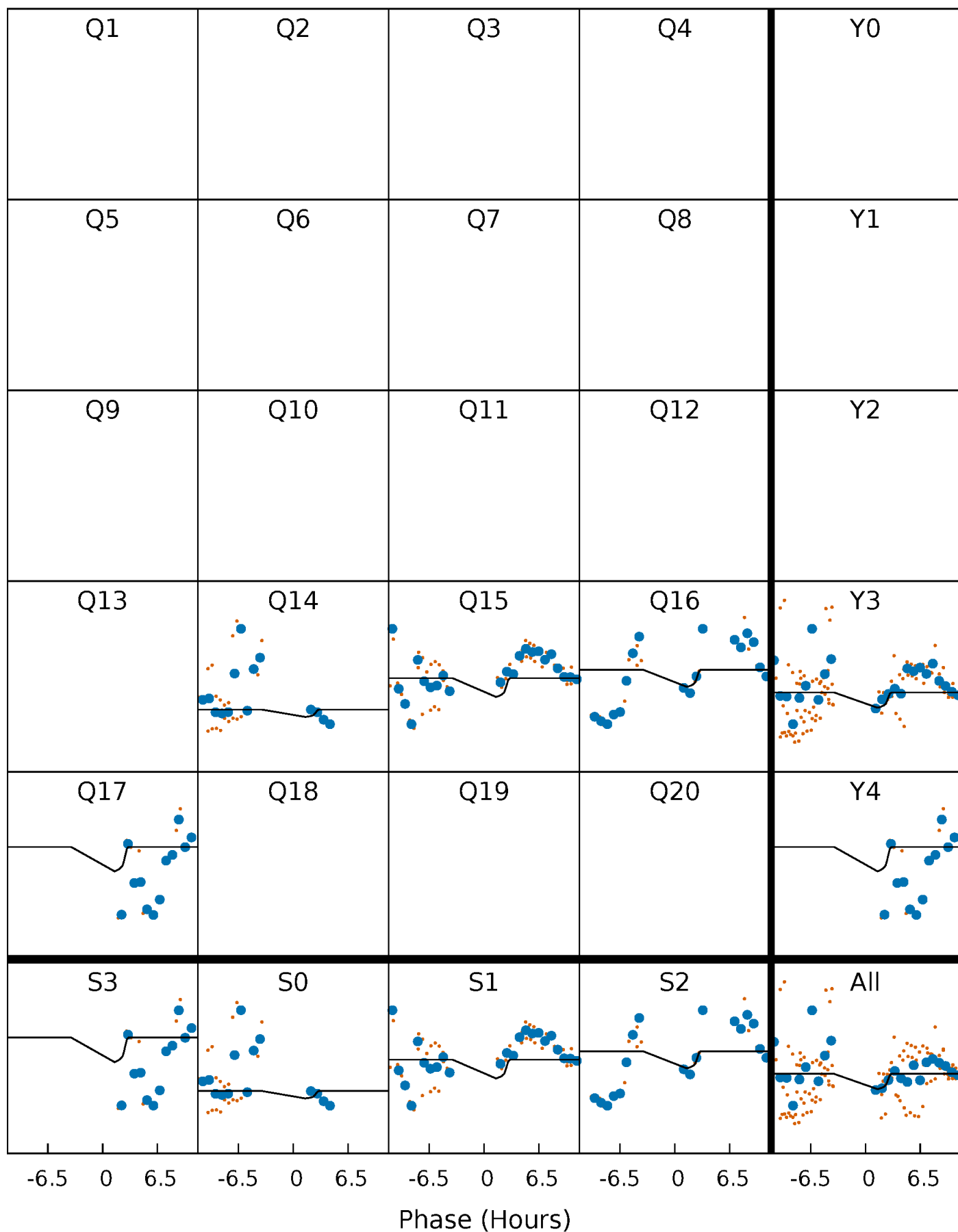
PDC Quarter-Phased Transit Curves

TCE 011565170-06 P= 31.100962 Days $T_0=149.795628$ (BKJD)



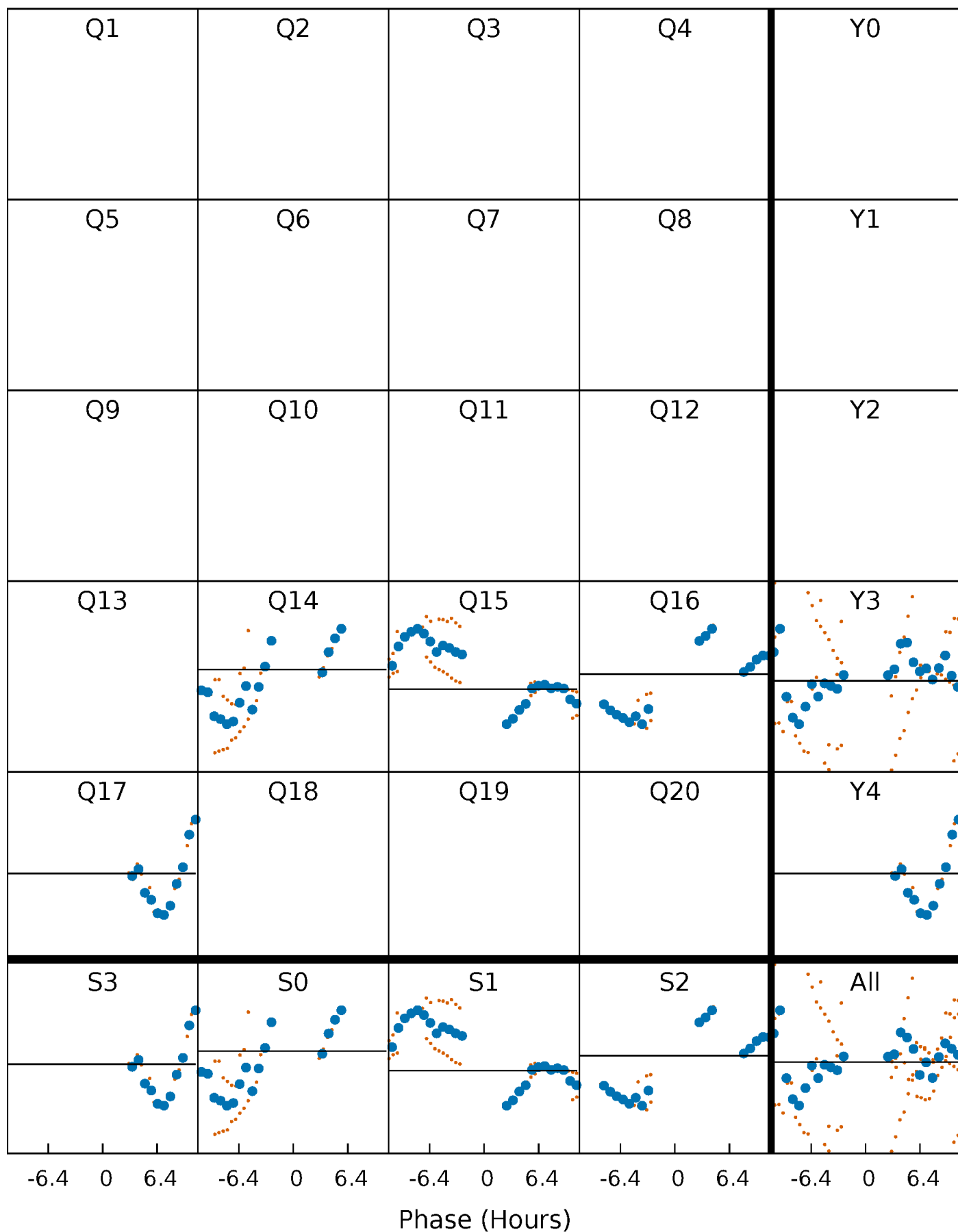
DV Quarter-Phased Transit Curves

TCE 011565170-06 P= 31.100962 Days $T_0=149.795628$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

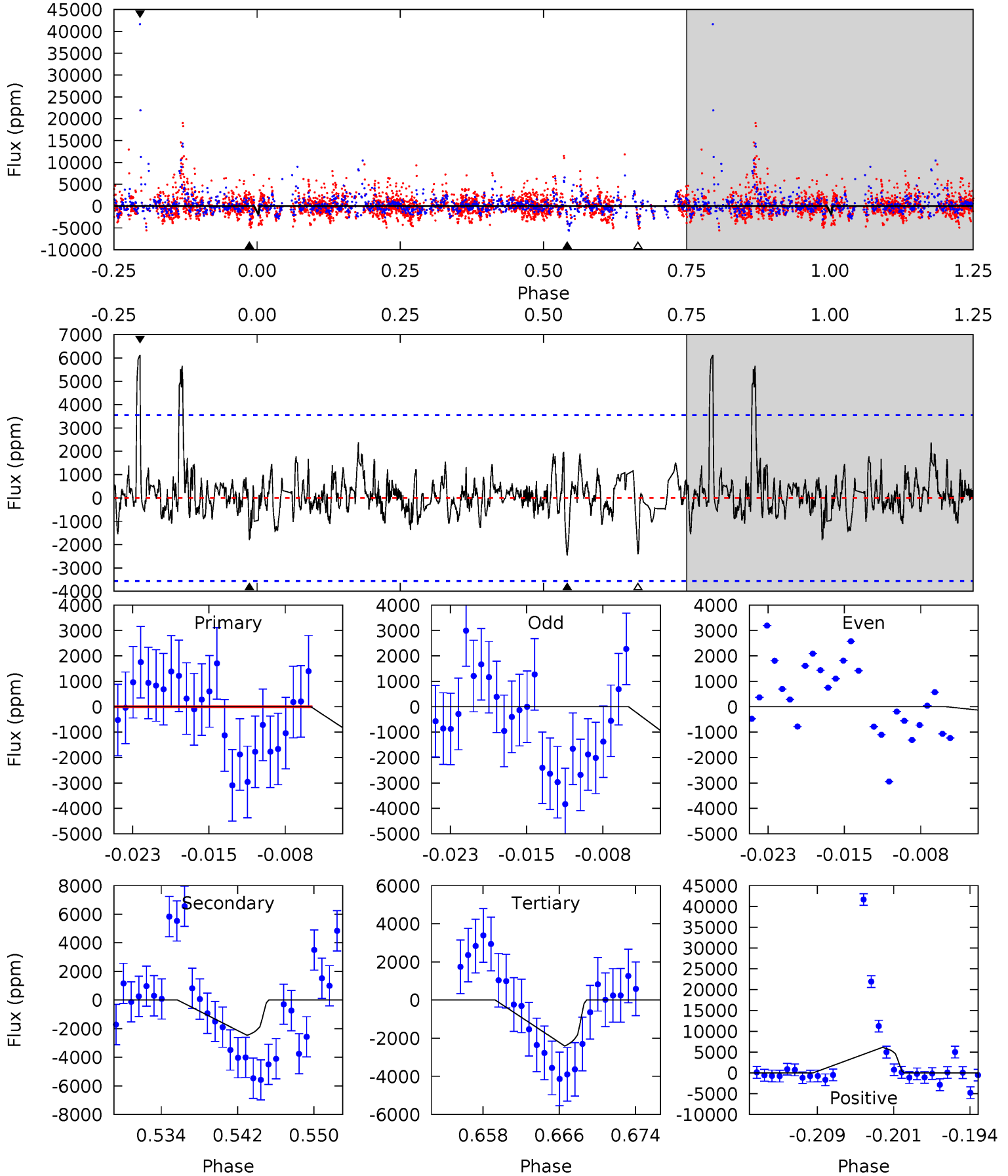
TCE 011565170-06 P= 31.099174 Days $T_0=149.826944$ (BKJD)



DV Model-Shift Uniqueness Test

011565170-06, P = 31.100962 Days, E = 149.795628 Days

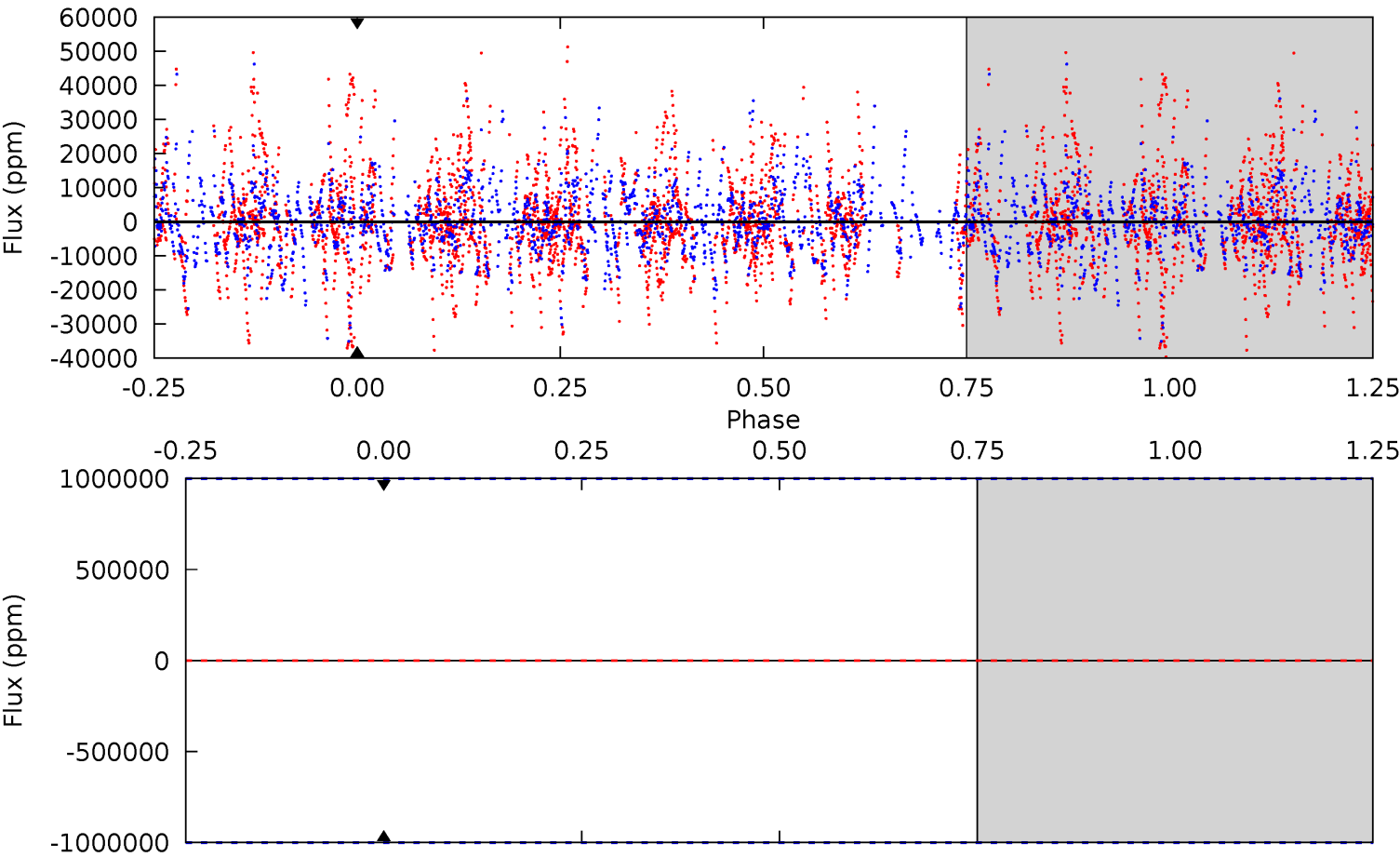
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.57	3.52	3.44	8.75	5.08	2.66	1.12	-0.87	-6.19	0.08	-5.24	0.46	1.72	0.71	0



Alt Model-Shift Uniqueness Test

011565170-06, P = 31.099174 Days, E = 149.826944 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



Stellar Parameters For KIC 011565170

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 011565170-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2462 ± 701	$18.05^{+19.34}_{-13.13}$	811^{+41}_{-38}	3635^{+2319}_{-731}	157^{+1859}_{-121}
Alt.	0 ± 1000000	$19.04^{+20.30}_{-13.01}$	810^{+39}_{-42}	-2899^{+12334}_{-6083}	$-24.705^{+9709.401}_{-8592.570}$

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

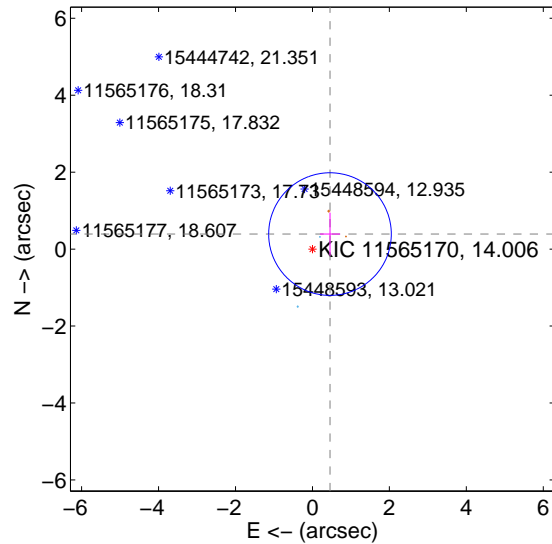
Supplemental centroid analysis for 011565170-06. Kepler magnitude: 14.01. Transit SNR 1.80

There are 2 quarters with good PRF difference image offsets

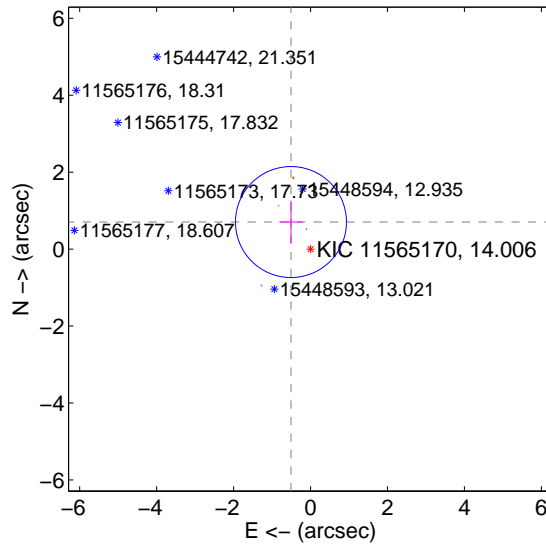
The direct PRF centroid is offset from the target star catalog position by about 1.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.600 ± 0.531	1.13	-0.456 ± 0.262	0.390 ± 0.558
PRF-fit source offset from KIC position	0.867 ± 0.481	1.80	0.508 ± 0.304	0.703 ± 0.551
photometric centroid source offset	1.50 ± 1.25	1.20	0.84 ± 0.49	1.24 ± 1.47

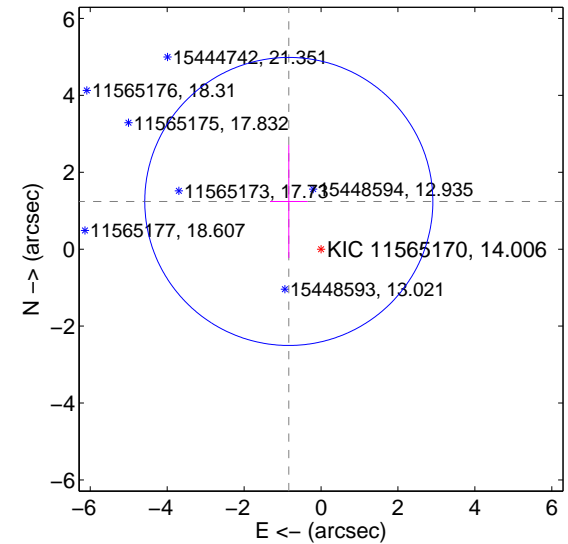
offset from difference PRF-fit to OOT PRF-fit



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.



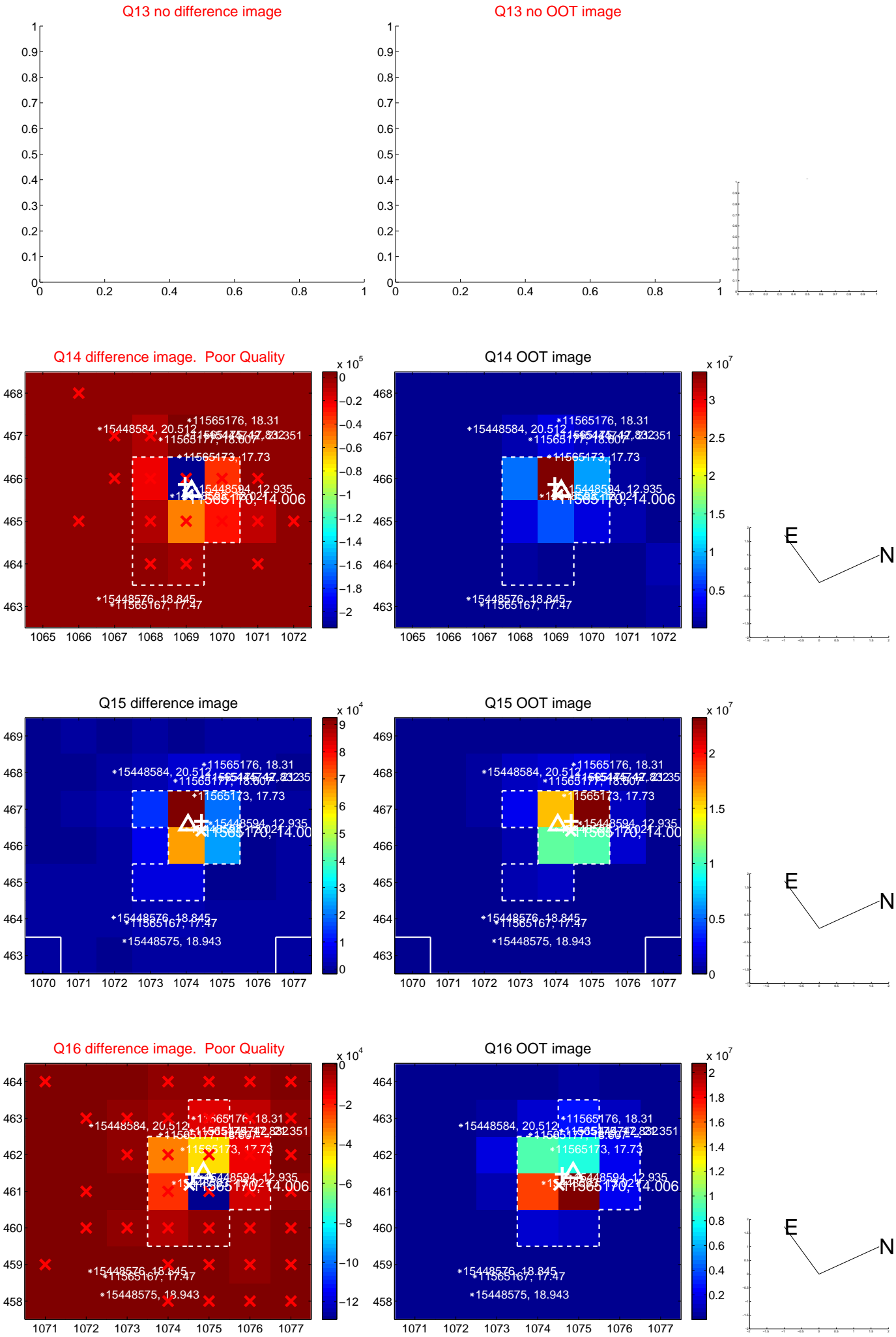
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



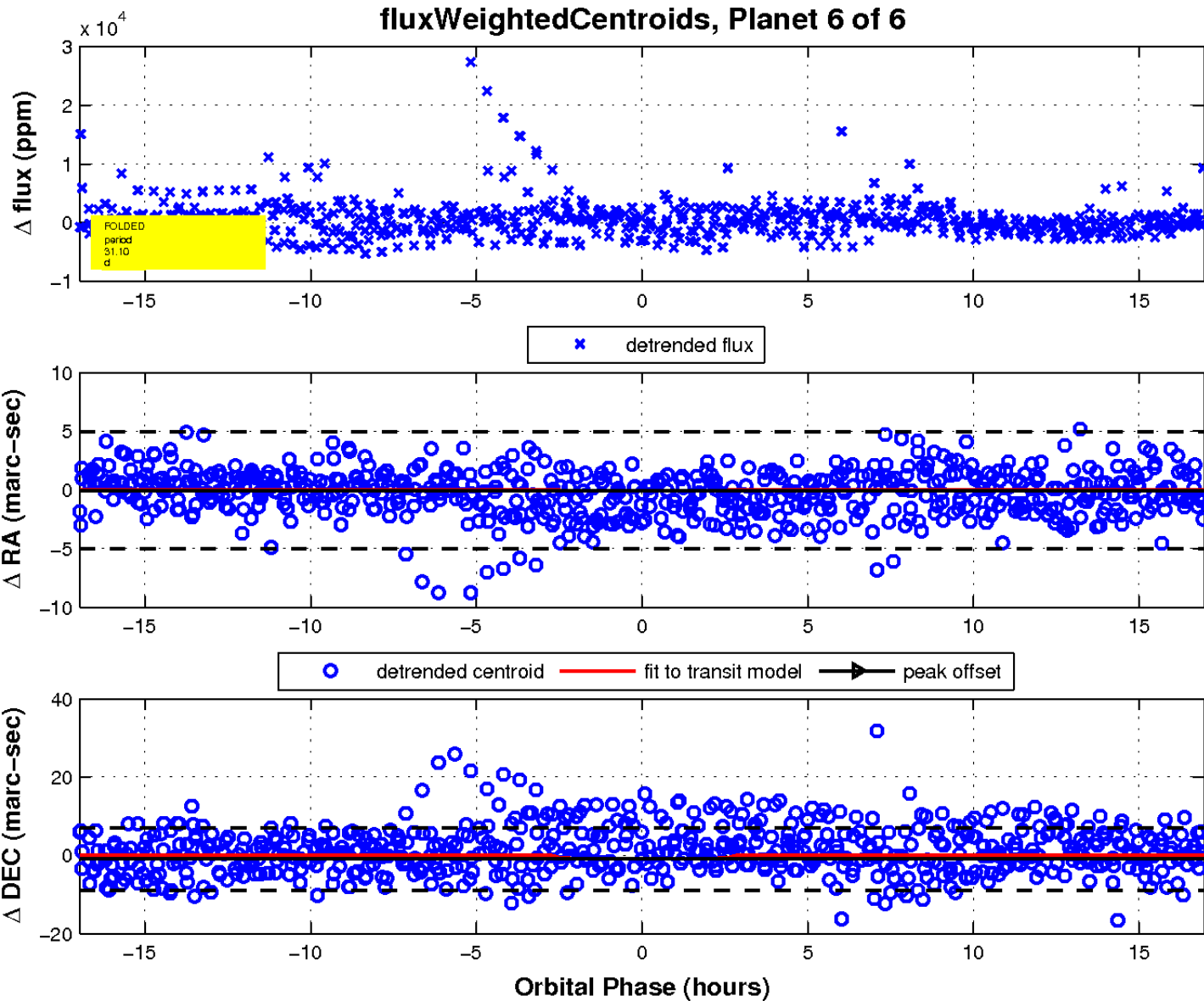
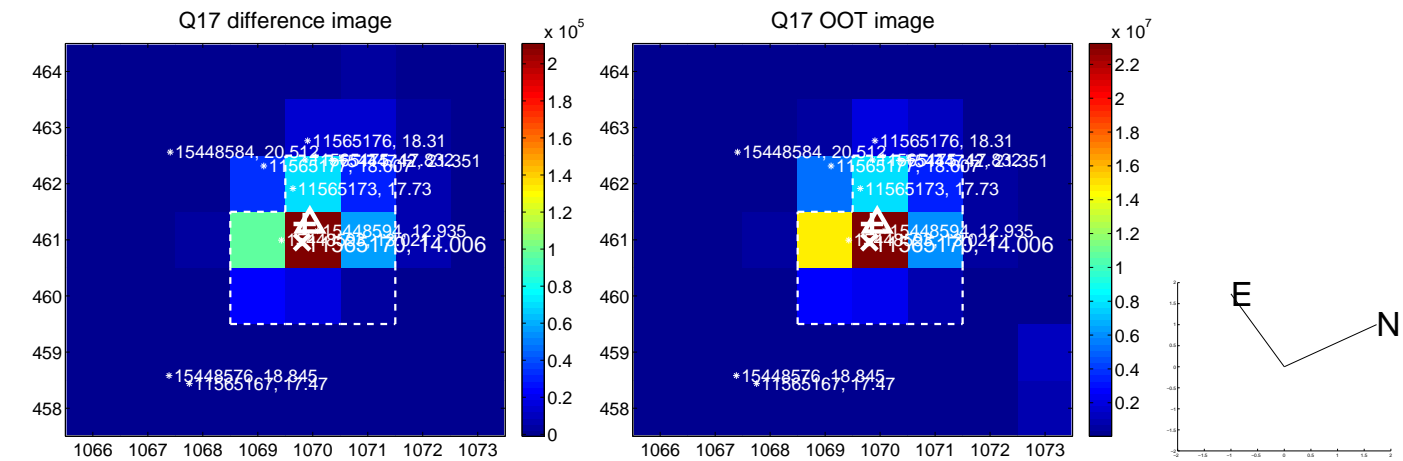
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

