

KIC 008565683

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})
008565683-01	OBS	No	392.746005	457.395785	1812.3	10.274	14.3	5.3	1.84	5162	7.73	2.15
008565683-03	OBS	No	521.359048	518.594150	3892.3	15.980	10.8	6.2	1.84	5162	14.01	1.47
008565683-04	OBS	No	464.051849	163.280682	1571.3	6.914	11.1	6.0	1.84	5162	7.21	1.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008565683-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008565683-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008565683-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

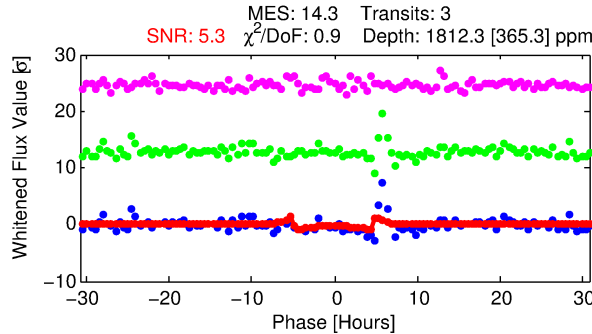
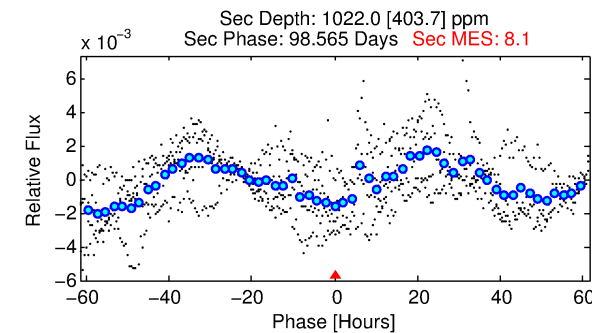
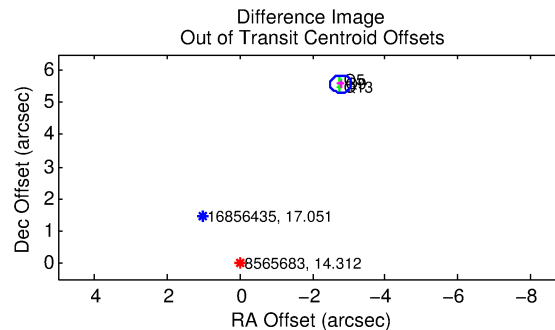
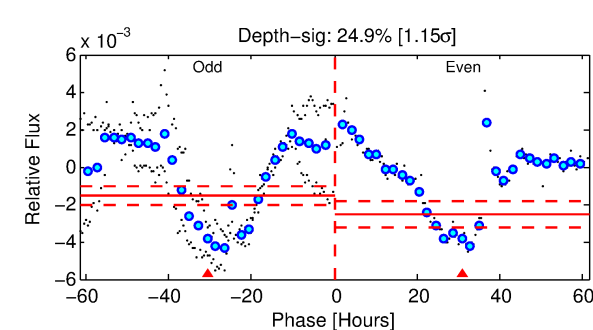
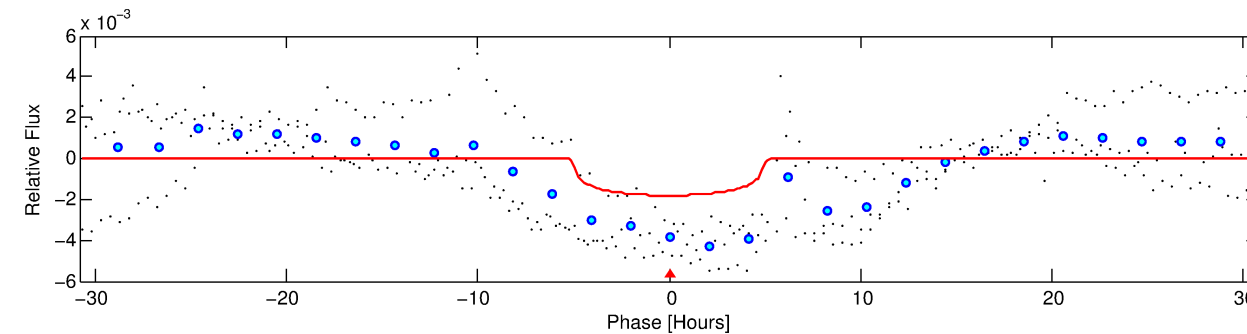
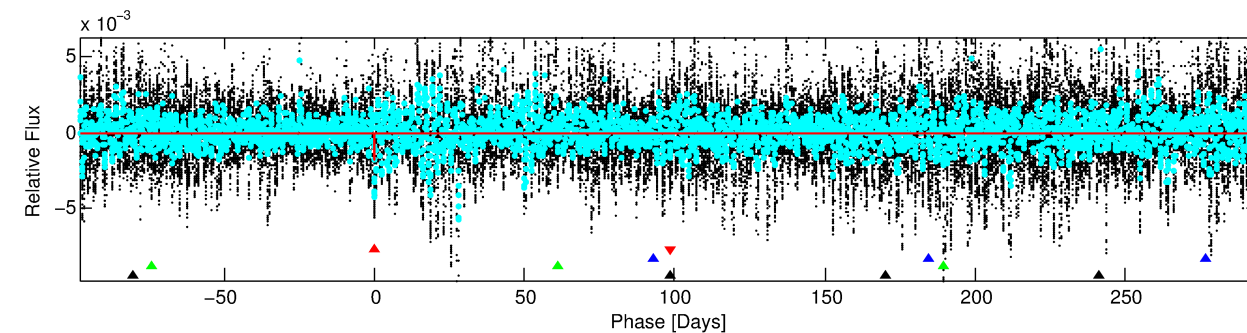
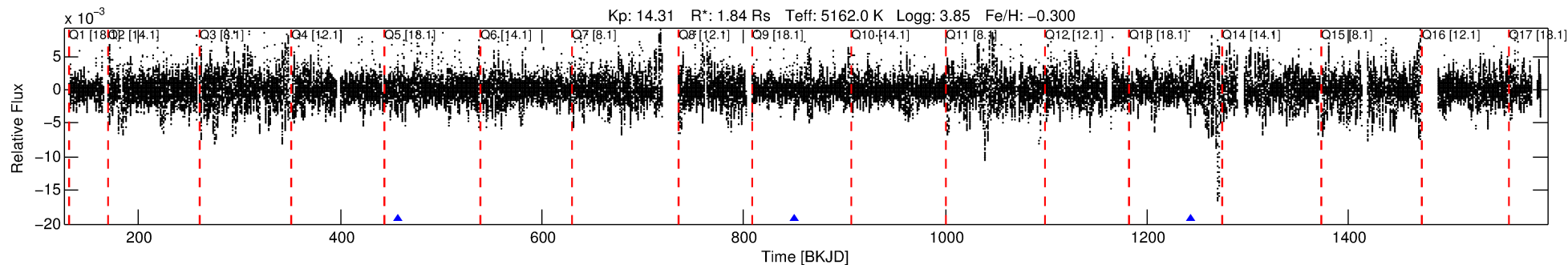
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008565683-01

No Significant Match Found

DV One-Page Summary

KIC: 8565683 Candidate: 1 of 4 Period: 392.746 d



DV Fit Results:

Period = 392.74601 [0.00621] d
Epoch = 457.3958 [0.0086] BKJD
Rp/R* = 0.0386 [0.0114]
a/R* = 289.42 [272.55]
b = 0.31 [2.76]
Seff = 2.15 [2.84]
Teq = 309 [102] K
Rp = 7.73 [5.21] Re
a = 0.9993 [0.7455] AU
Ag = 9392.59 [14058.81] [0.67 σ]
Teffp = 4698 [846] K [5.15 σ]

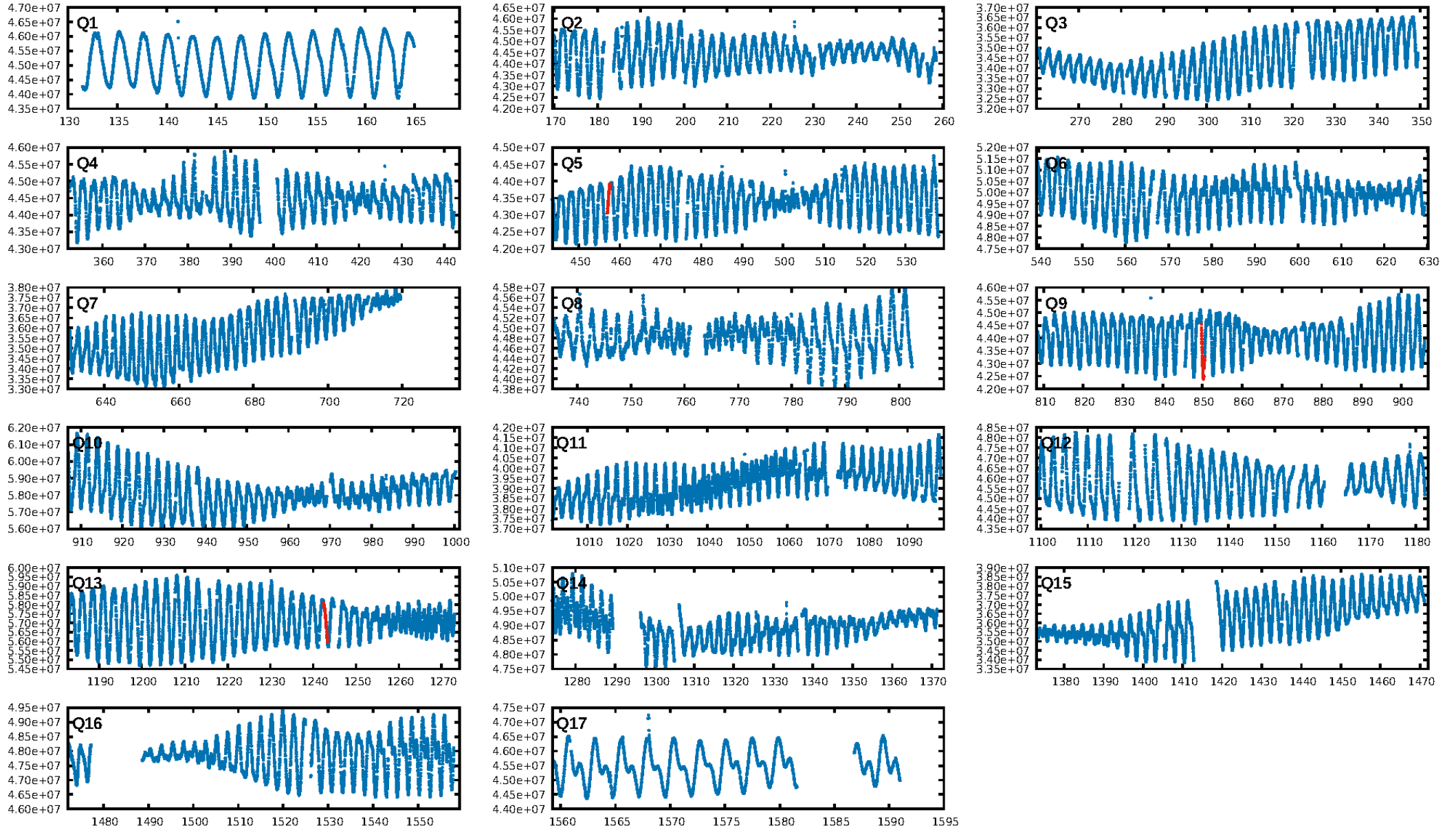
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [138.20 σ]
ModelChiSquare2-sig: 27.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 7.39e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7869
Centroid-sig: 100.0%
Centroid-so: 2.548 arcsec [15.38 σ]
OotOffset-rm: 6.224 arcsec [66.35 σ]
KicOffset-rm: 0.115 arcsec [1.65 σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

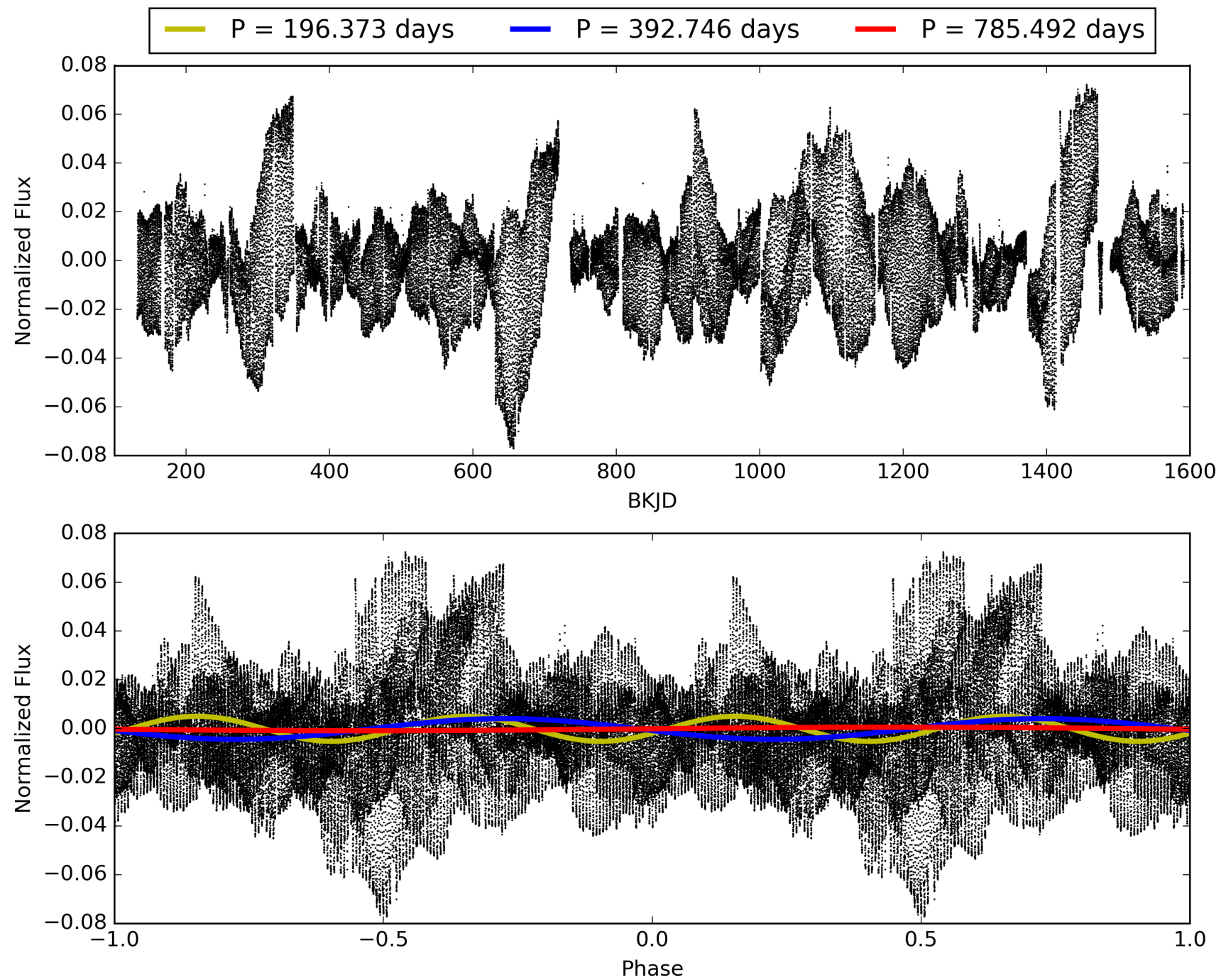
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:01:42 Z

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

TCE 008565683-01, PDC Light Curves

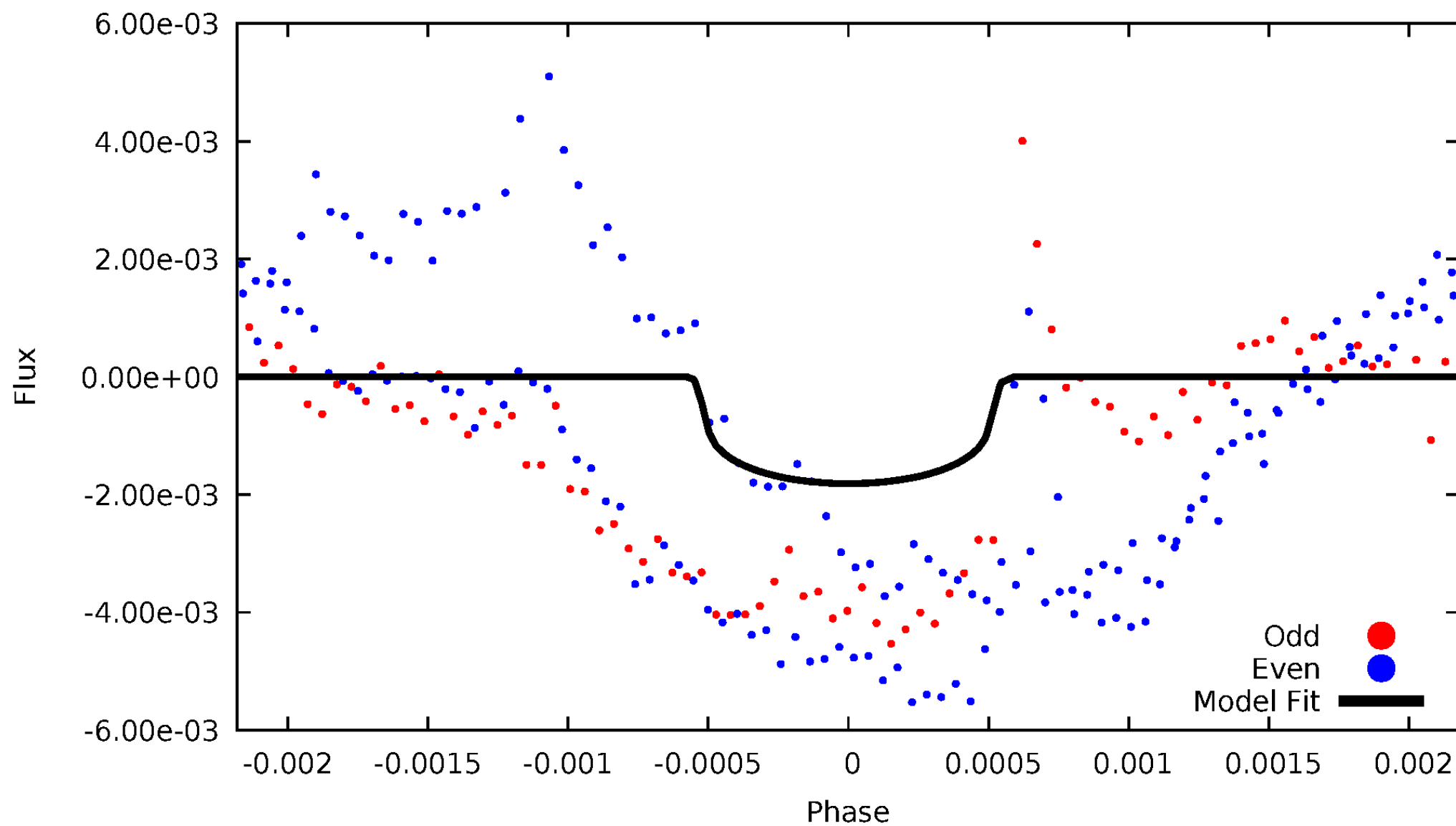


TCE 008565683-01



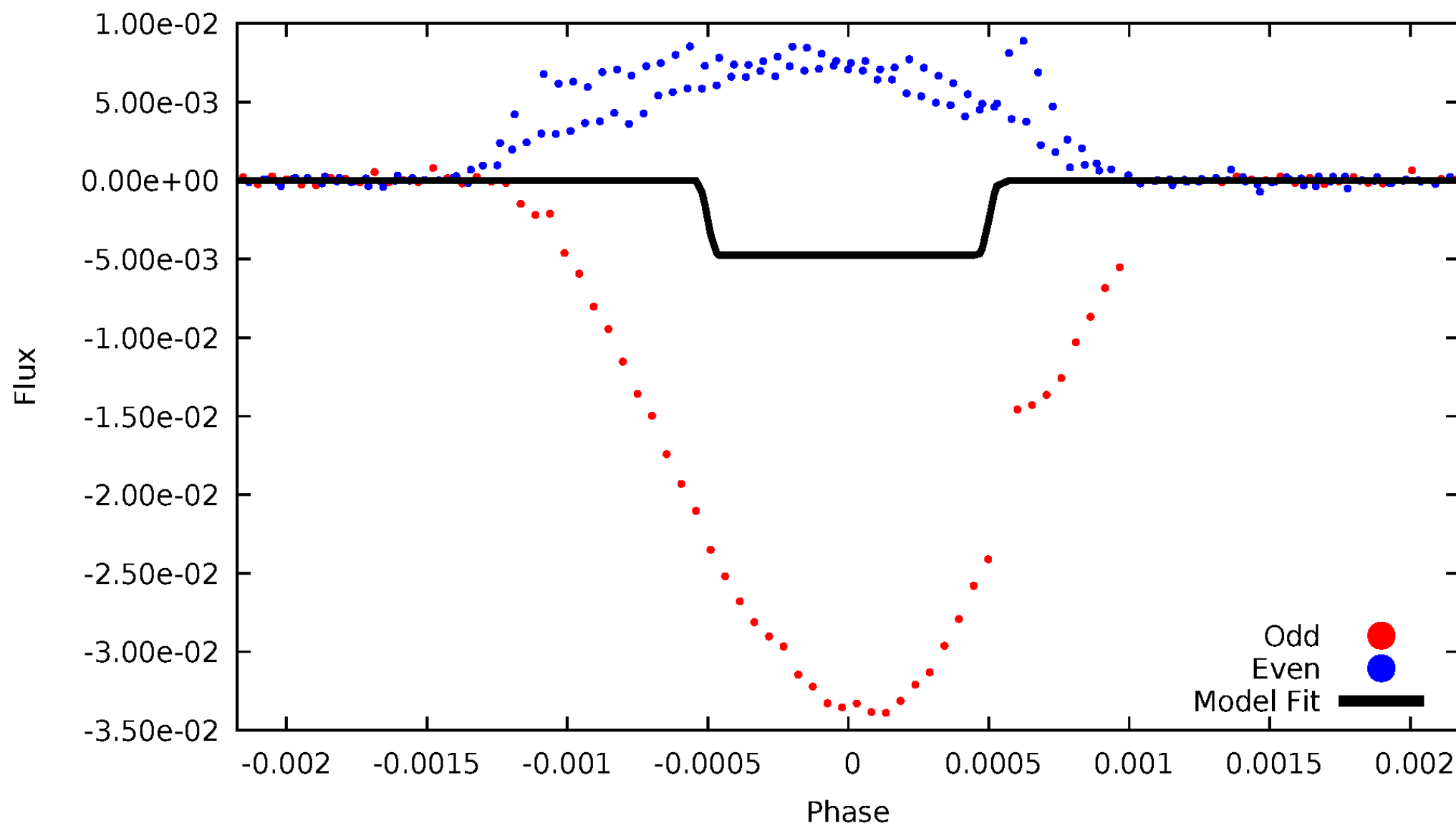
DV Odd/Even

TCE 008565683-01



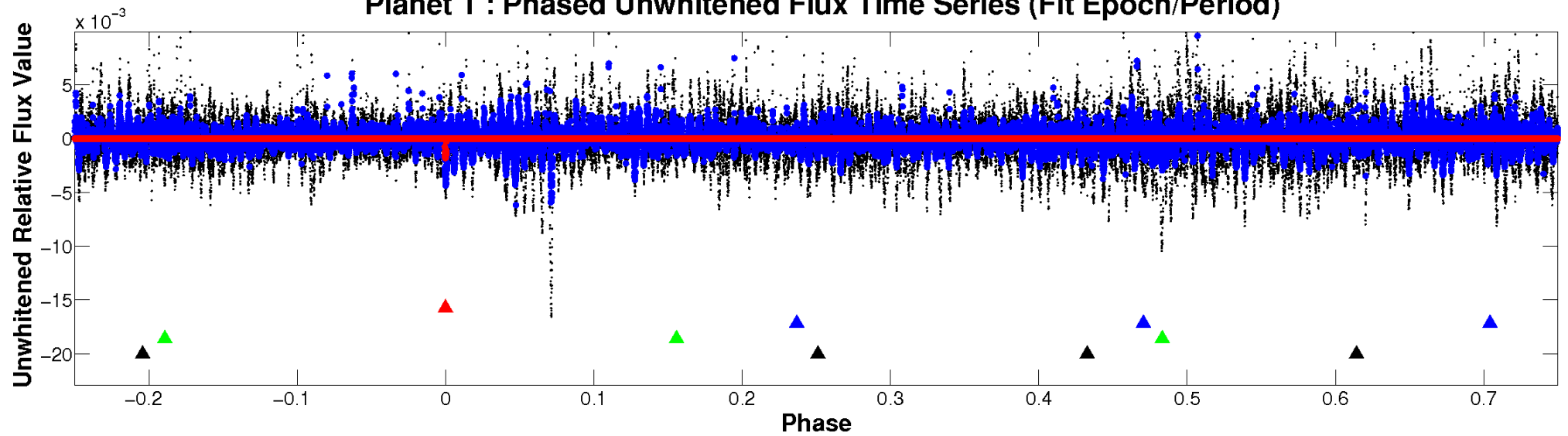
ALT Odd/Even

TCE 008565683-01

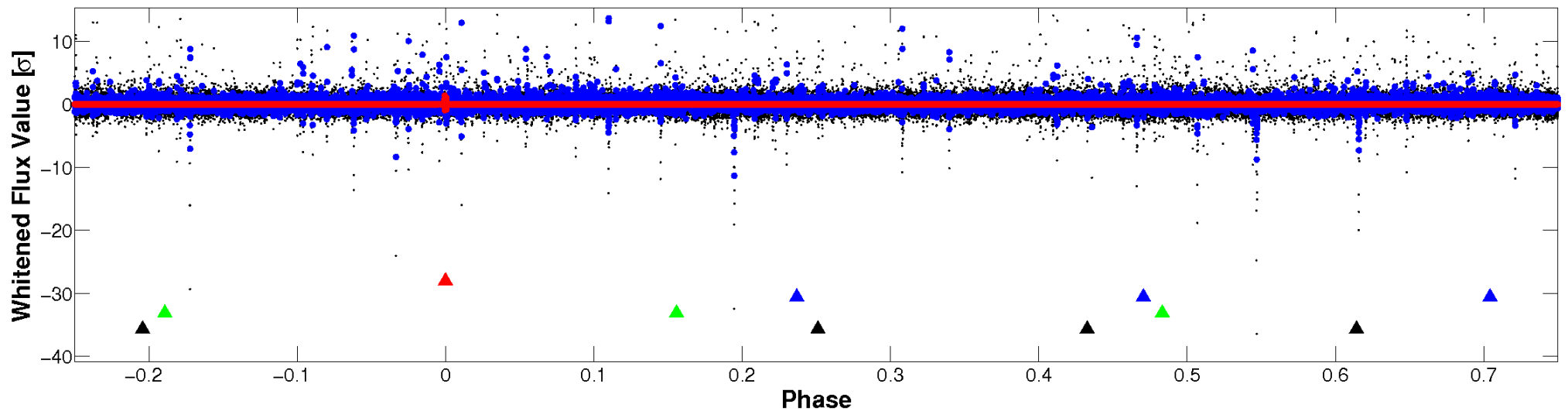


Non-Whitened Vs. Whitened Light Curve

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

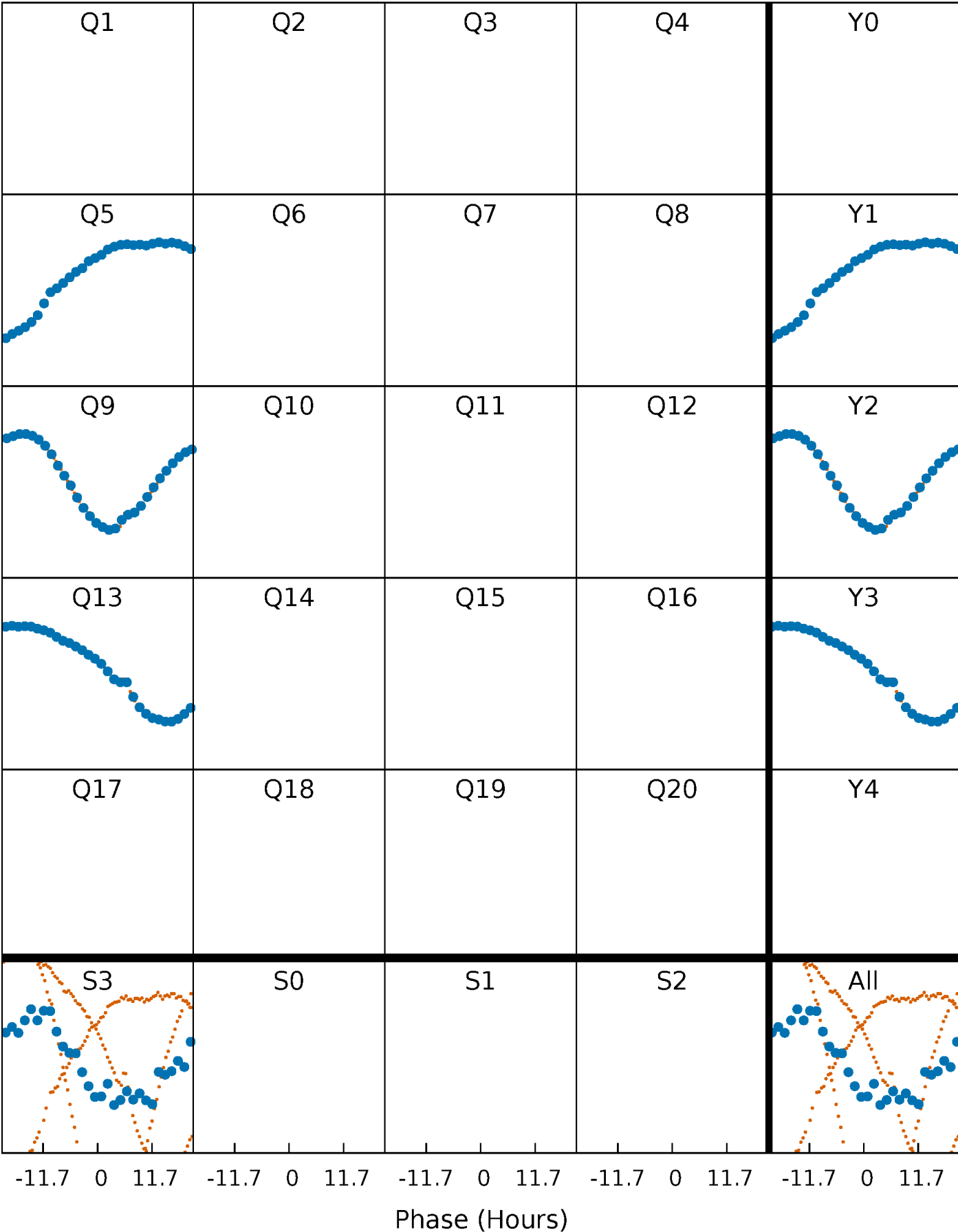


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



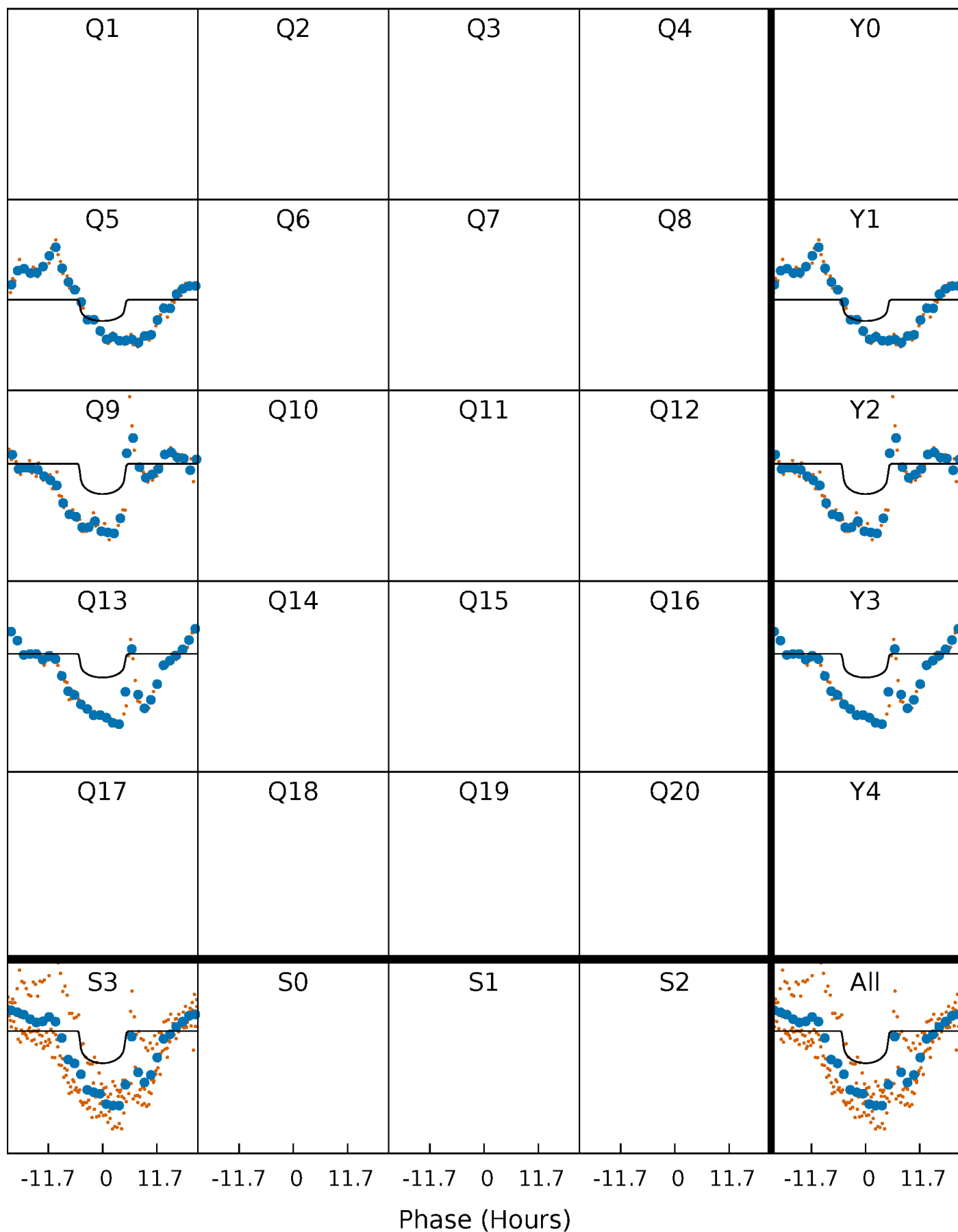
PDC Quarter-Phased Transit Curves

TCE 008565683-01 P=392.746005 Days T₀=457.395784 (BKJD)



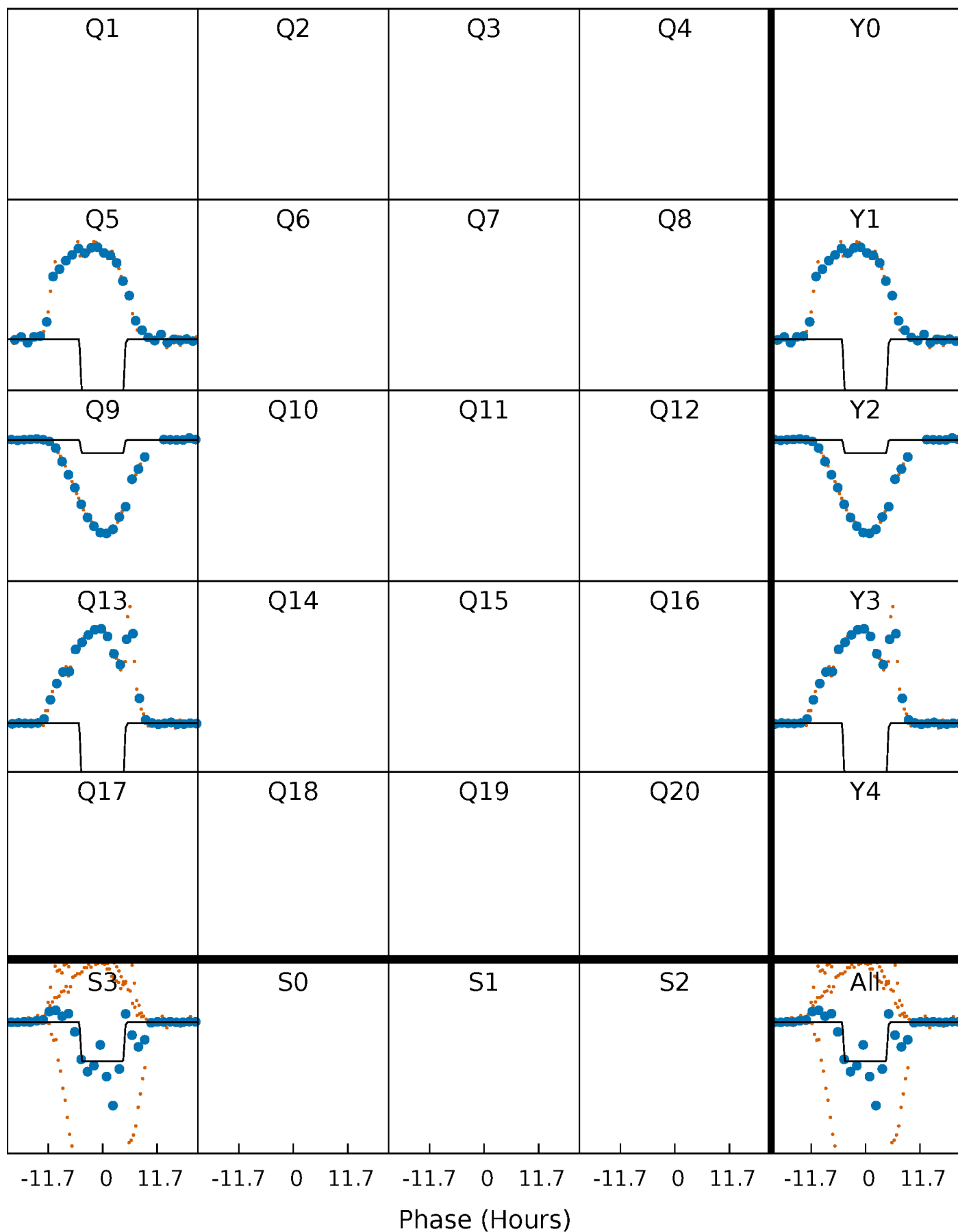
DV Quarter-Phased Transit Curves

TCE 008565683-01 $P=392.746005$ Days $T_0=457.395784$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

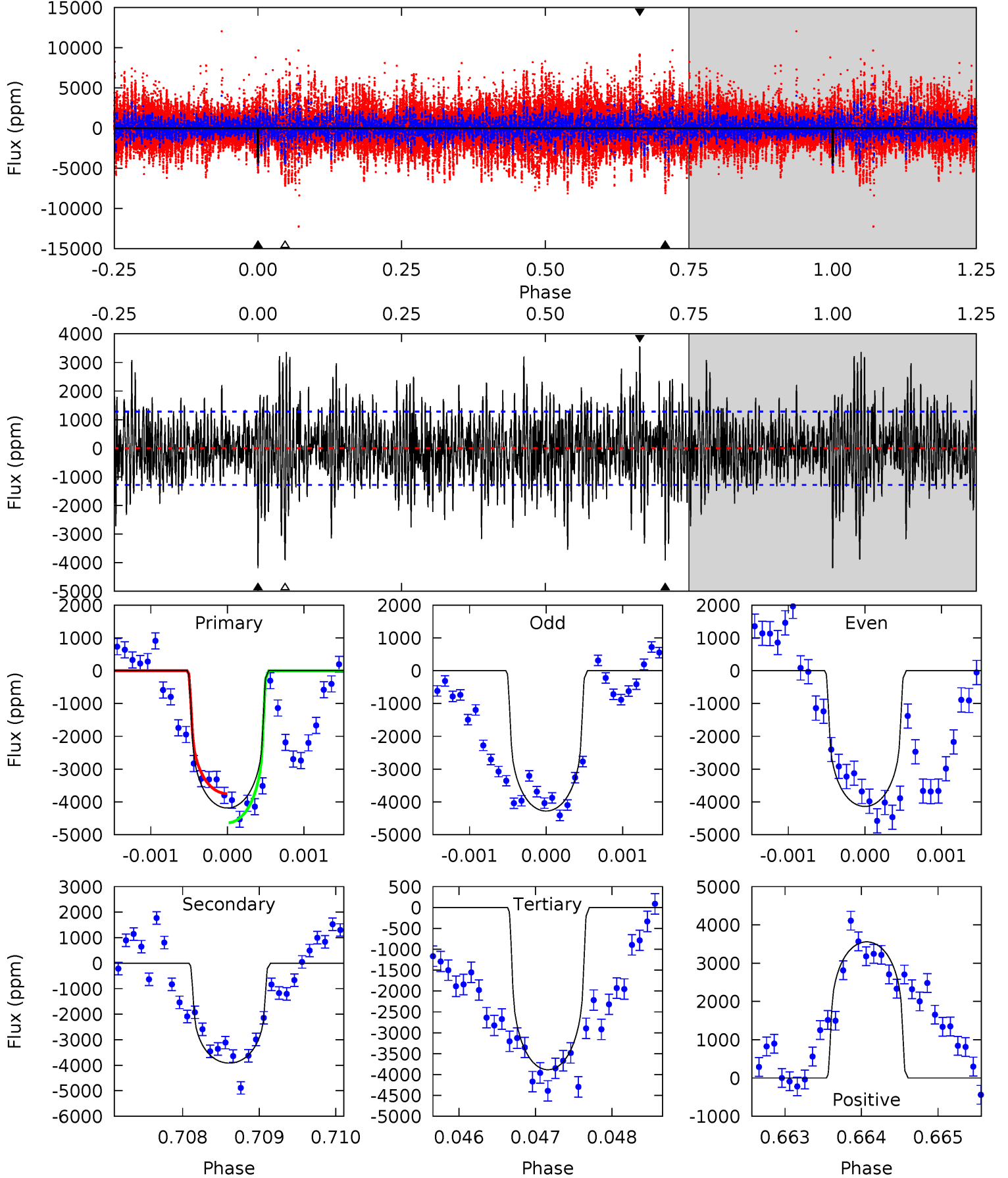
TCE 008565683-01 P=392.746646 Days $T_0=457.402412$ (BKJD)



DV Model-Shift Uniqueness Test

008565683-01, P = 392.746005 Days, E = 64.649779 Days

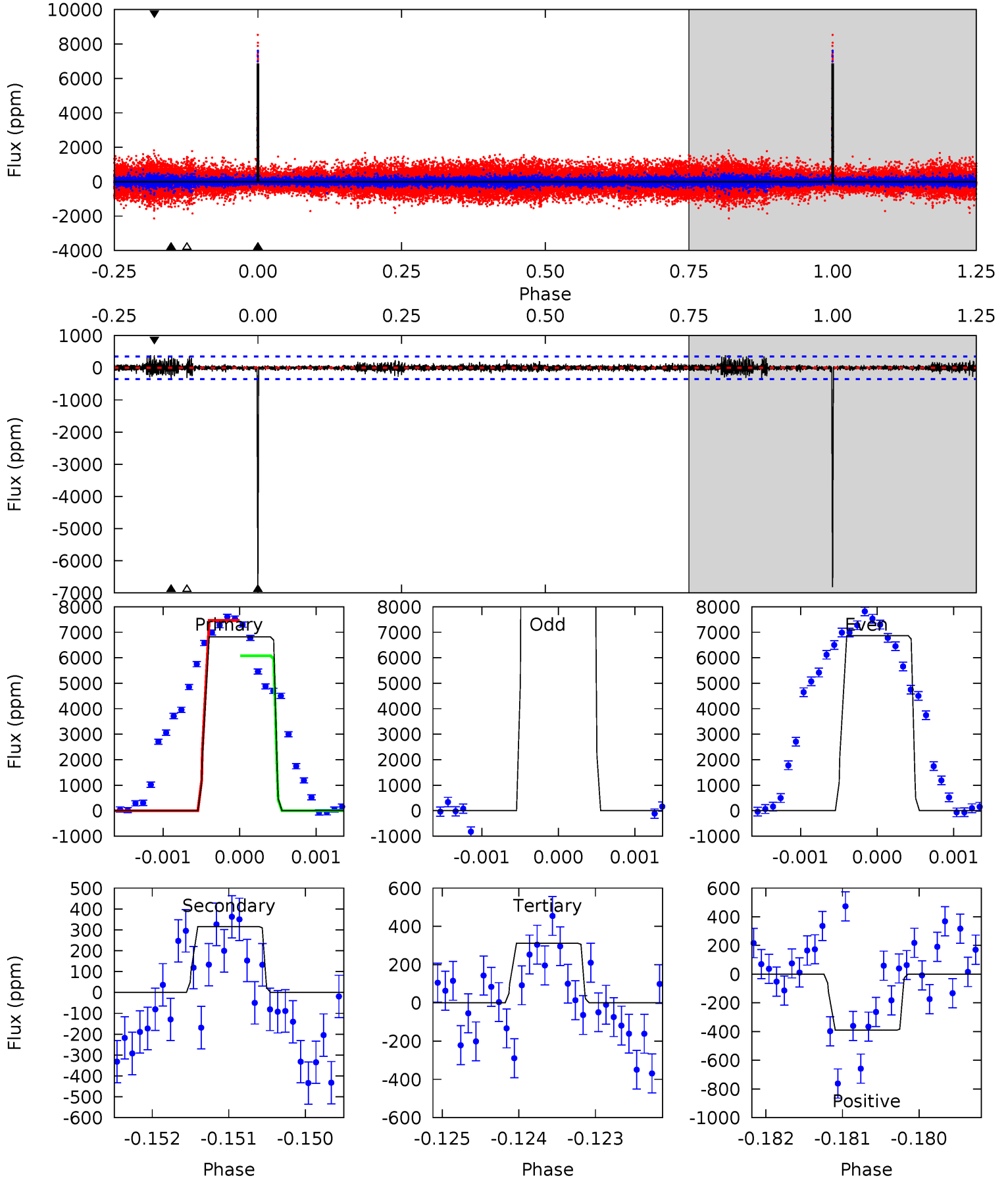
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	16.6	16.5	15.1	5.44	3.27	4.24	1.28	2.67	0.13	1.52	0.27	0.98	0.46	1.88



Alt Model-Shift Uniqueness Test

008565683-01, P = 392.746646 Days, E = 64.655766 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.0	4.86	4.80	6.02	5.44	3.28	0.89	100.2	99.0	0.06	-1.16	207.7	-0.91	0.05	10.7



Stellar Parameters For KIC 008565683

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5162^{+138}_{-153}	$3.846^{+0.817}_{-0.327}$	$-0.300^{+0.300}_{-0.300}$	$1.836^{+1.113}_{-1.113}$	$0.862^{+0.139}_{-0.155}$	$0.196^{+3.163}_{-0.147}$
	+3%/-3%	+21%/-9%	+100%/-100%	+61%/-61%	+16%/-18%	+1611%/-75%
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 008565683-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3916 ± 236	$6.89^{+3.61}_{-2.63}$	417^{+70}_{-72}	6504^{+1455}_{-820}	45444^{+72634}_{-25870}
Alt.	-316 ± 65	$12.84^{+5.35}_{-4.27}$	418^{+68}_{-71}	3178^{+228}_{-190}	1057^{+1330}_{-571}

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

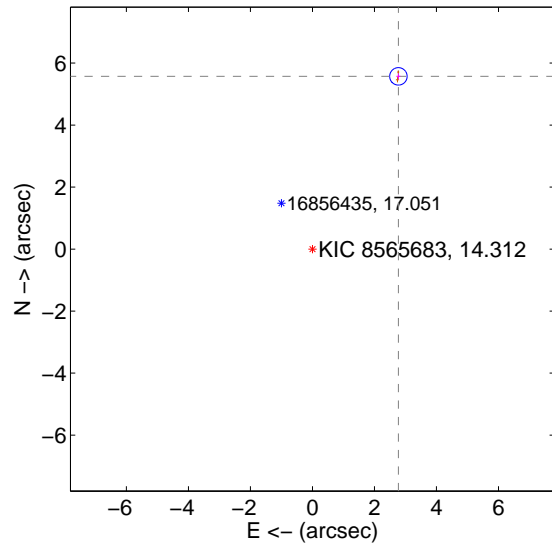
Supplemental centroid analysis for 008565683-01. Kepler magnitude: 14.31. Transit SNR 5.29

There are 1 quarters with good PRF difference image offsets

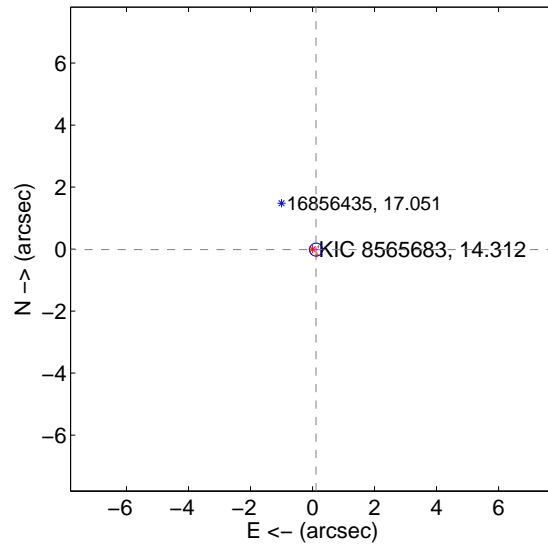
The OOT PRF centroid is offset from the target star catalog position by about 6.21 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.224 ± 0.094	66.35	-2.773 ± 0.067	5.572 ± 0.097
PRF-fit source offset from KIC position	0.115 ± 0.070	1.65	-0.114 ± 0.070	-0.017 ± 0.074
photometric centroid source offset	2.55 ± 0.17	15.38	1.40 ± 0.08	-2.13 ± 0.19

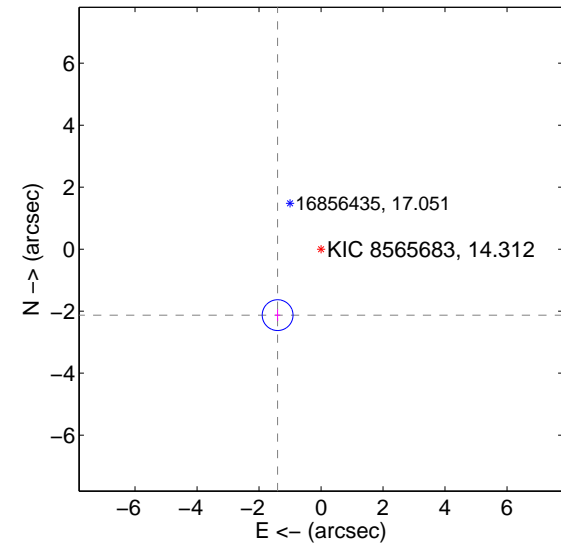
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

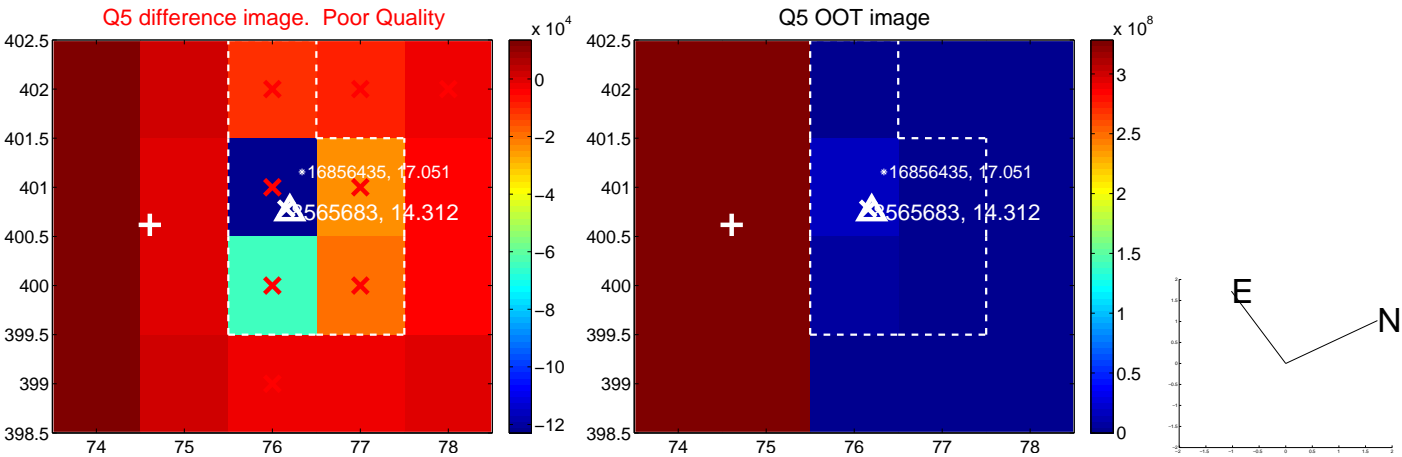


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

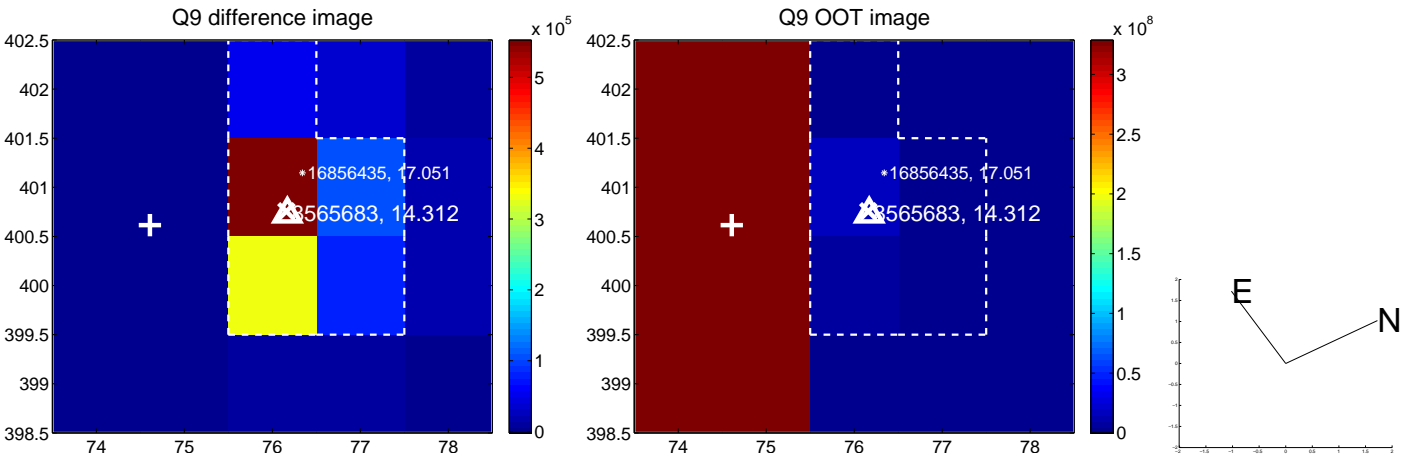
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



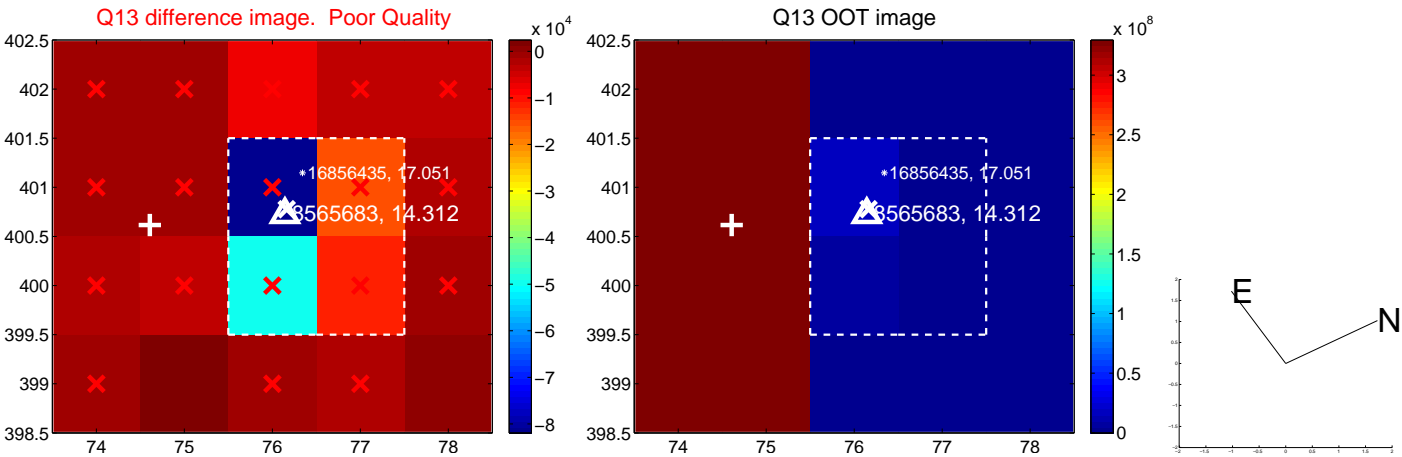
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



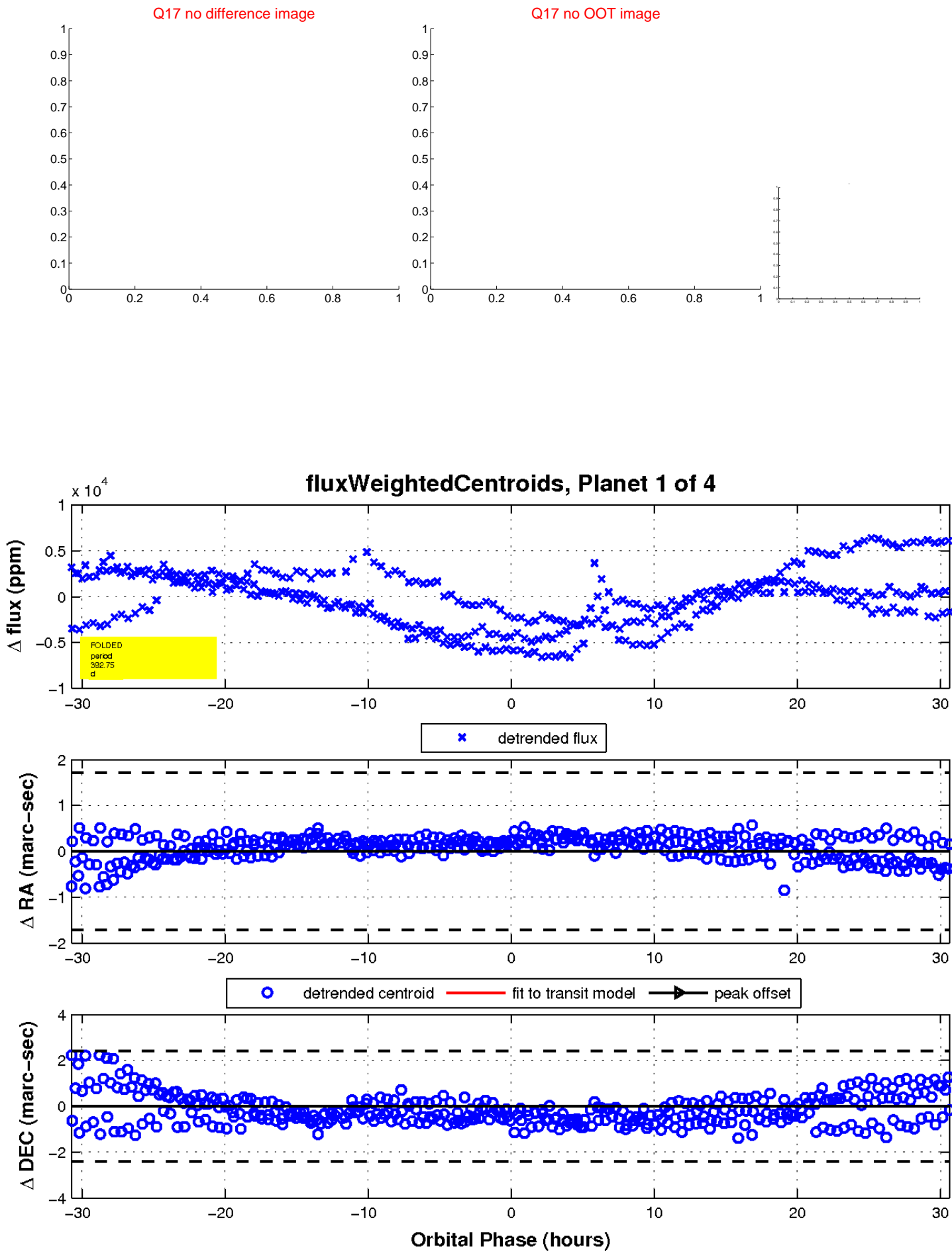
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

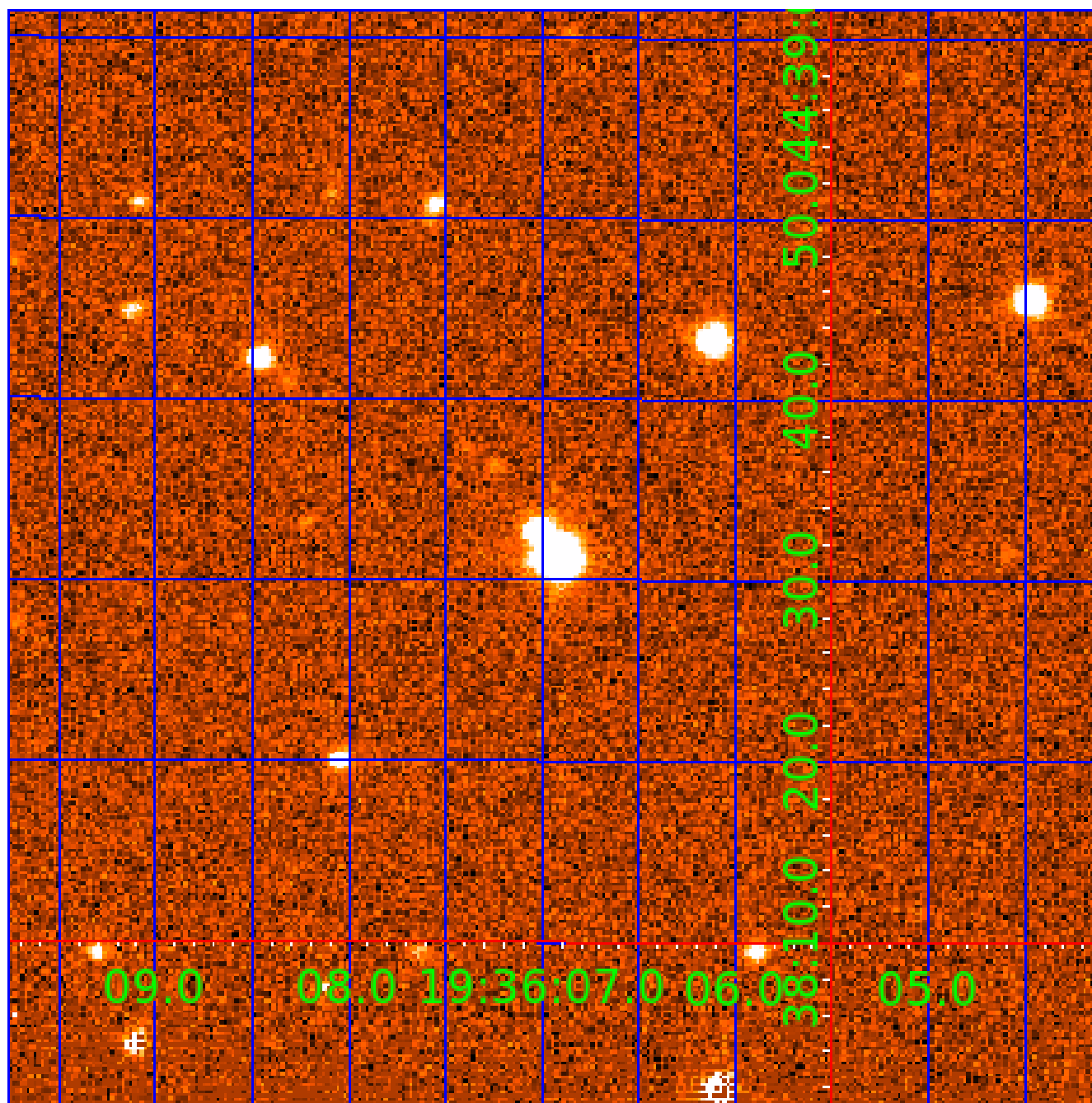


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008565683

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})
008565683-01	OBS	No	392.746005	457.395785	1812.3	10.274	14.3	5.3	1.84	5162	7.73	2.15
008565683-03	OBS	No	521.359048	518.594150	3892.3	15.980	10.8	6.2	1.84	5162	14.01	1.47
008565683-04	OBS	No	464.051849	163.280682	1571.3	6.914	11.1	6.0	1.84	5162	7.21	1.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008565683-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008565683-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008565683-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

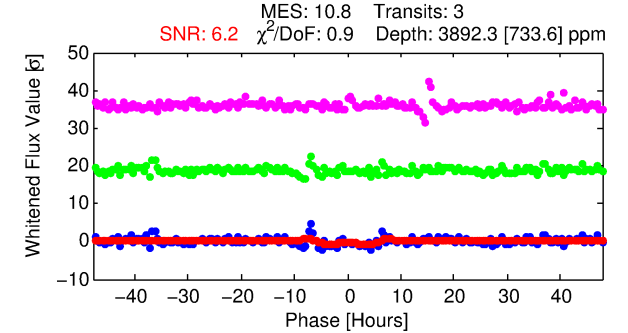
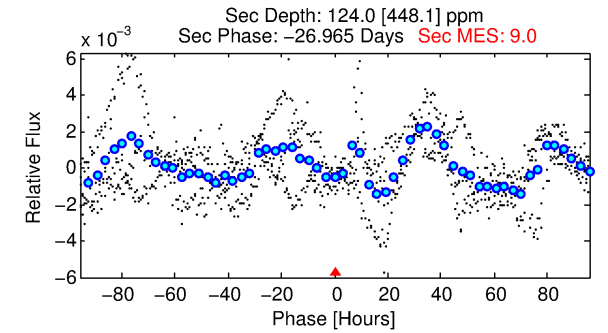
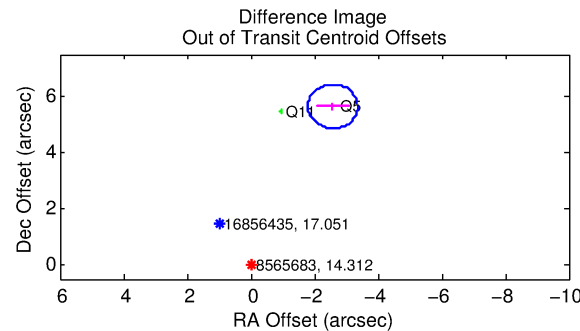
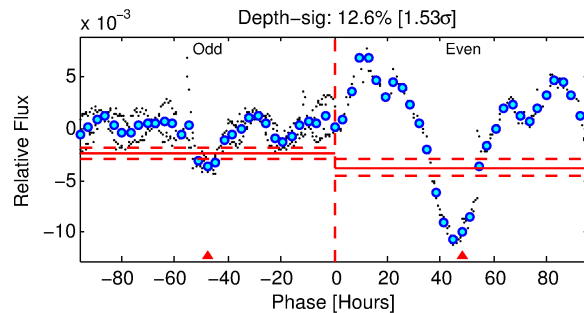
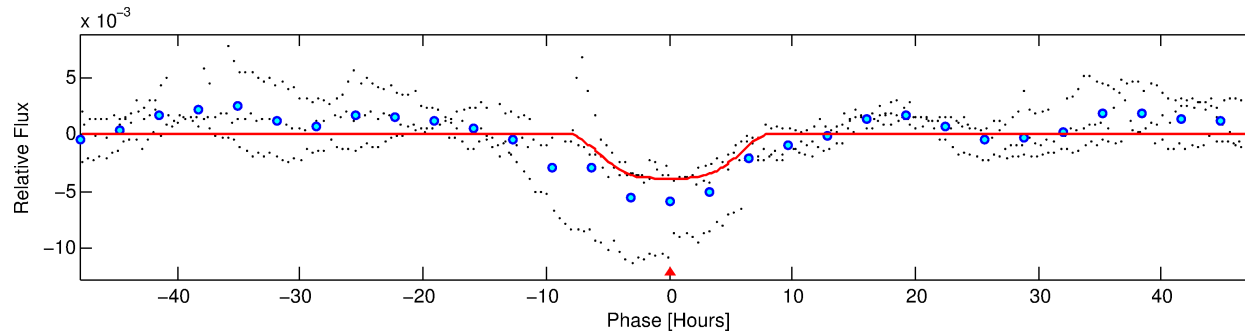
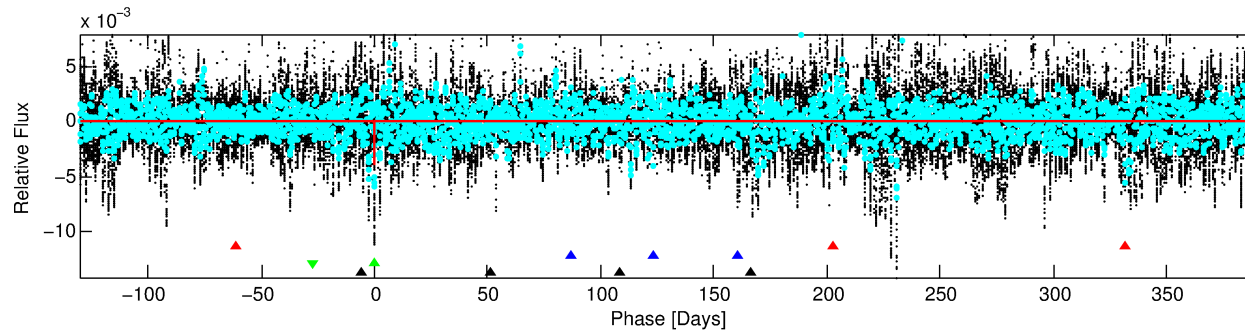
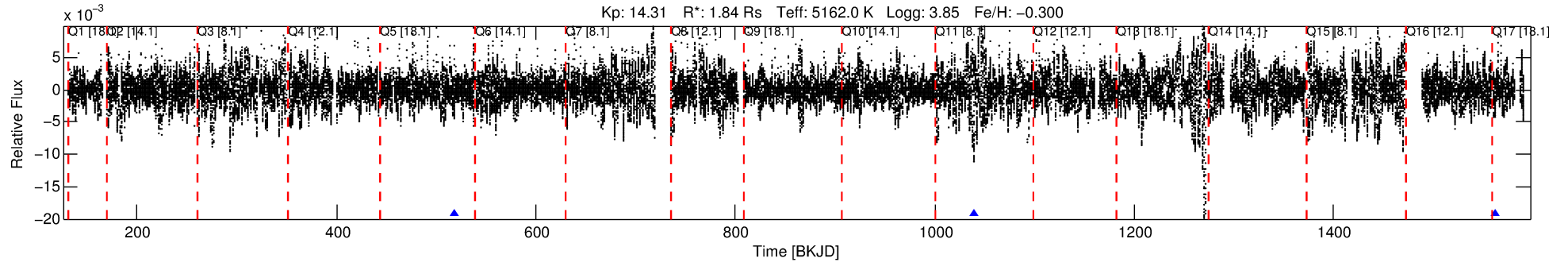
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008565683-03

No Significant Match Found

DV One-Page Summary

KIC: 8565683 Candidate: 3 of 4 Period: 521.359 d



DV Fit Results:

Period = 521.35905 [0.01218] d
Epoch = 518.5942 [0.0169] BKJD
Rp/R* = 0.0699 [0.0069]
a/R* = 141.25 [8.56]
b = 0.91 [0.02]
Seff = 1.47 [1.95]
Teq = 281 [93] K
Rp = 14.01 [8.60] Re
a = 1.2070 [0.9004] AU
Ag = 506.44 [1949.95] [0.26 σ]
Teffp = 2060 [1864] K [0.95 σ]

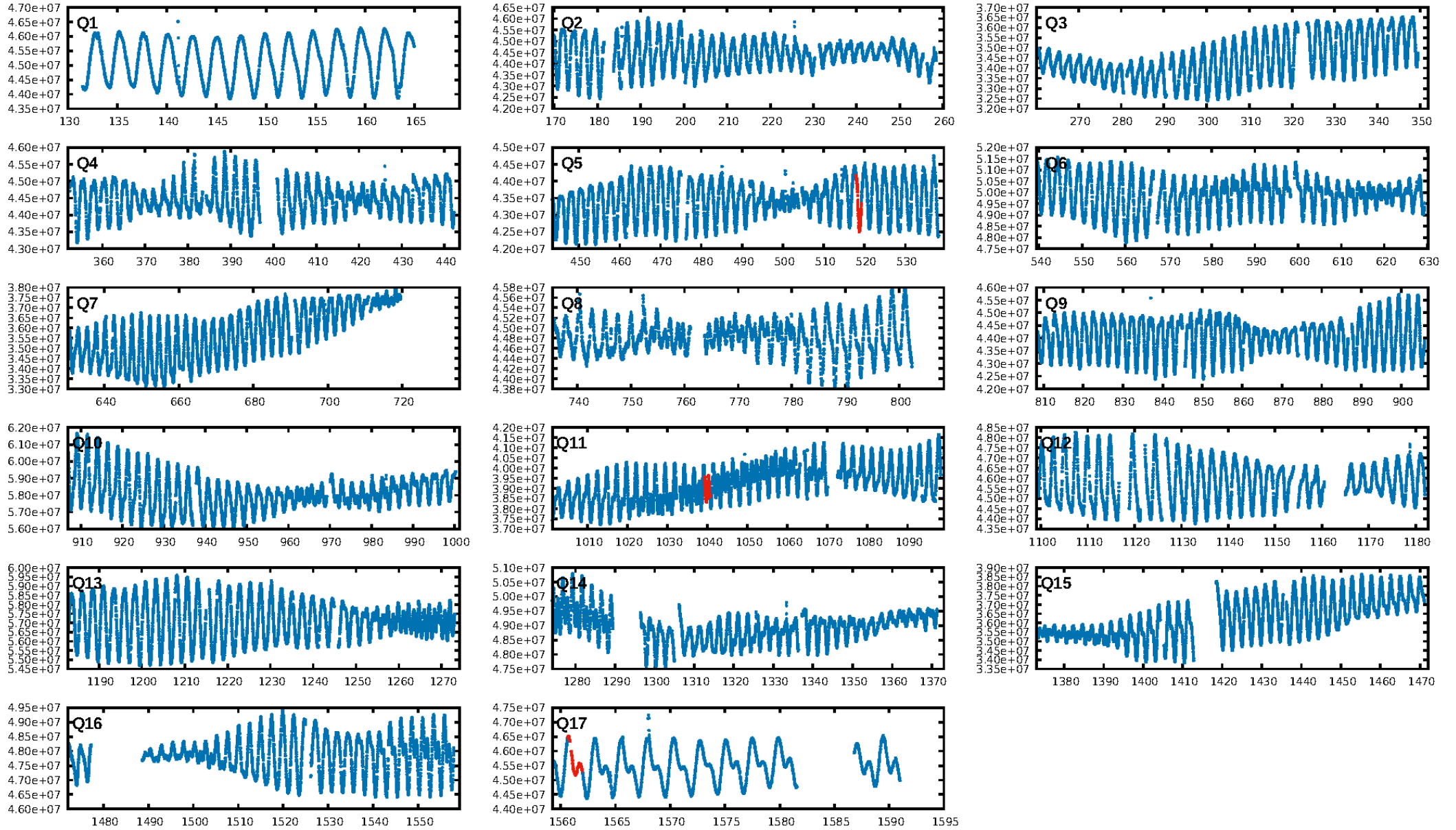
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.45 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 34.3%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 4.72e-07
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.7258
Centroid-sig: 70.8%
Centroid-so: 2.512 arcsec [34.57 σ]
OotOffset-rm: 6.205 arcsec [23.80 σ]
KicOffset-rm: 0.148 arcsec [1.47 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

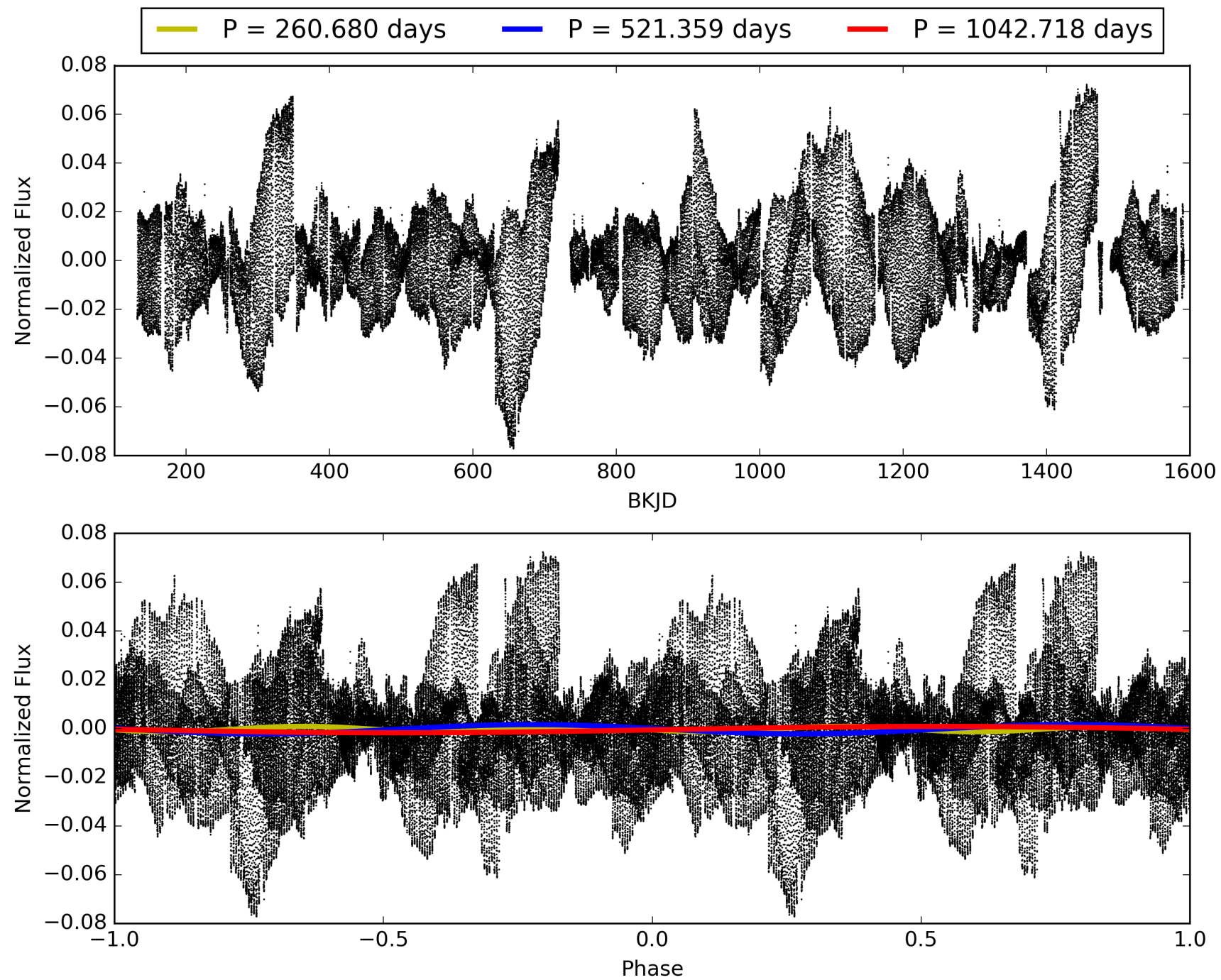
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:02:14 Z

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

TCE 008565683-03, PDC Light Curves

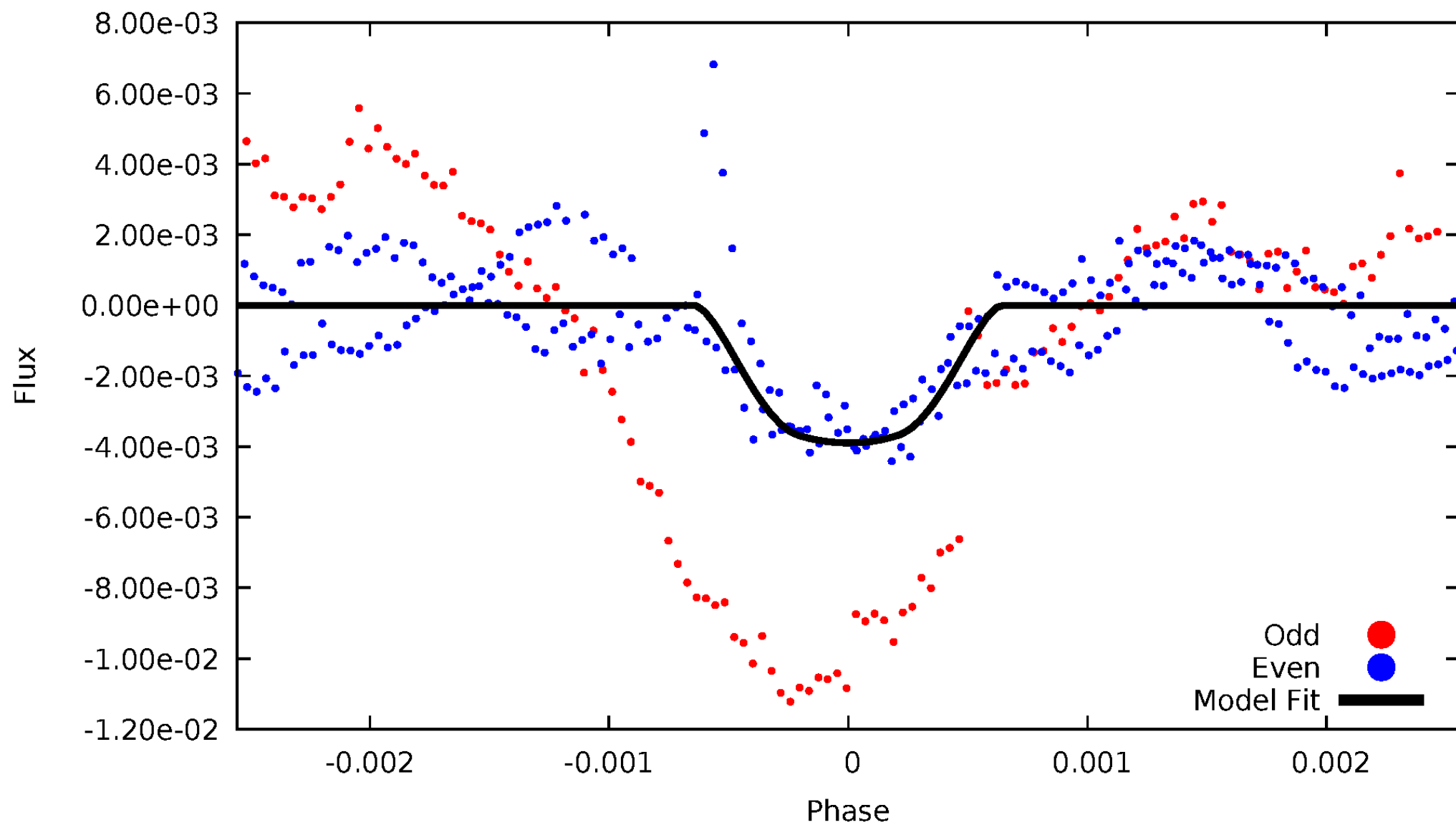


TCE 008565683-03



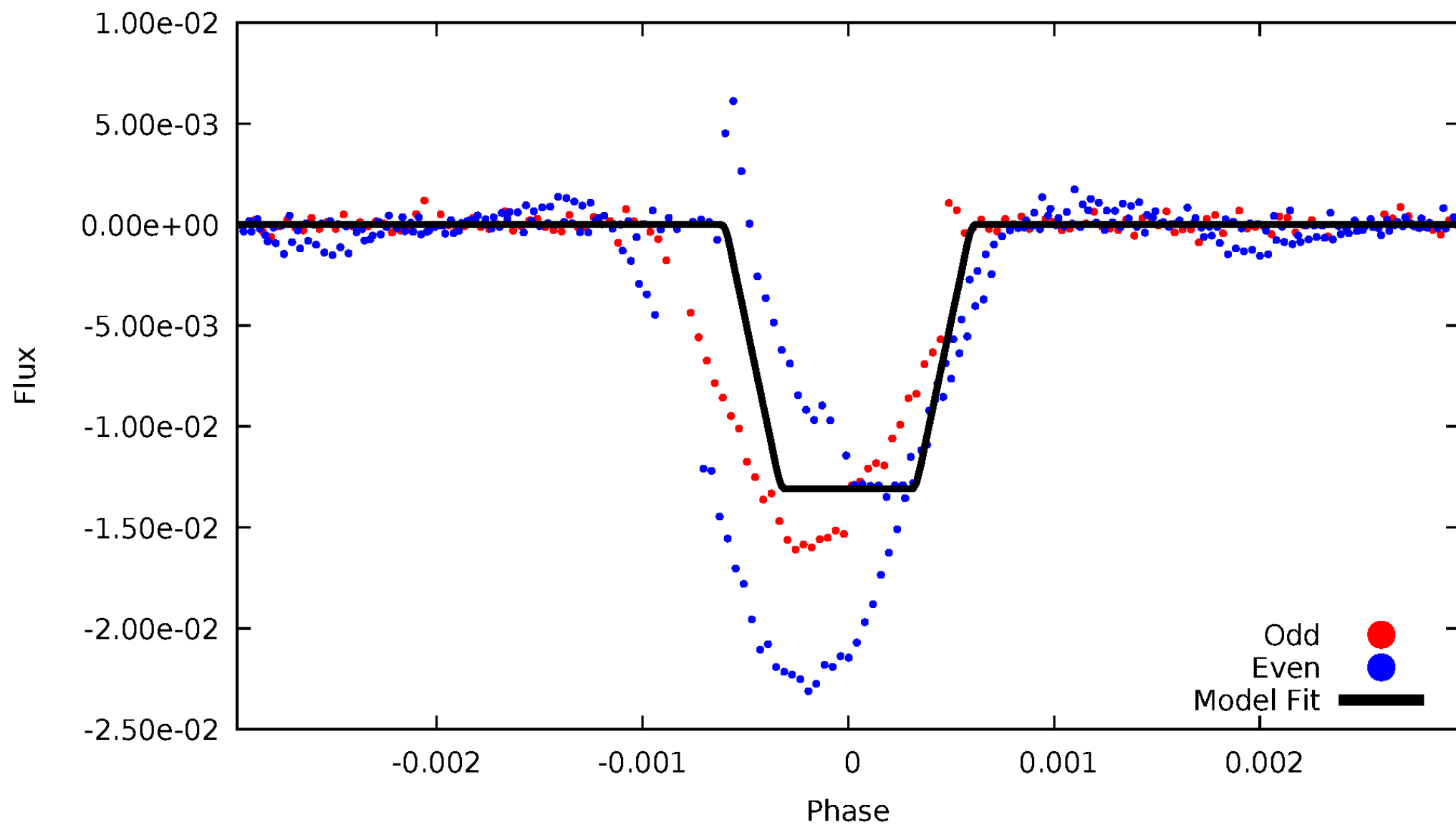
DV Odd/Even

TCE 008565683-03



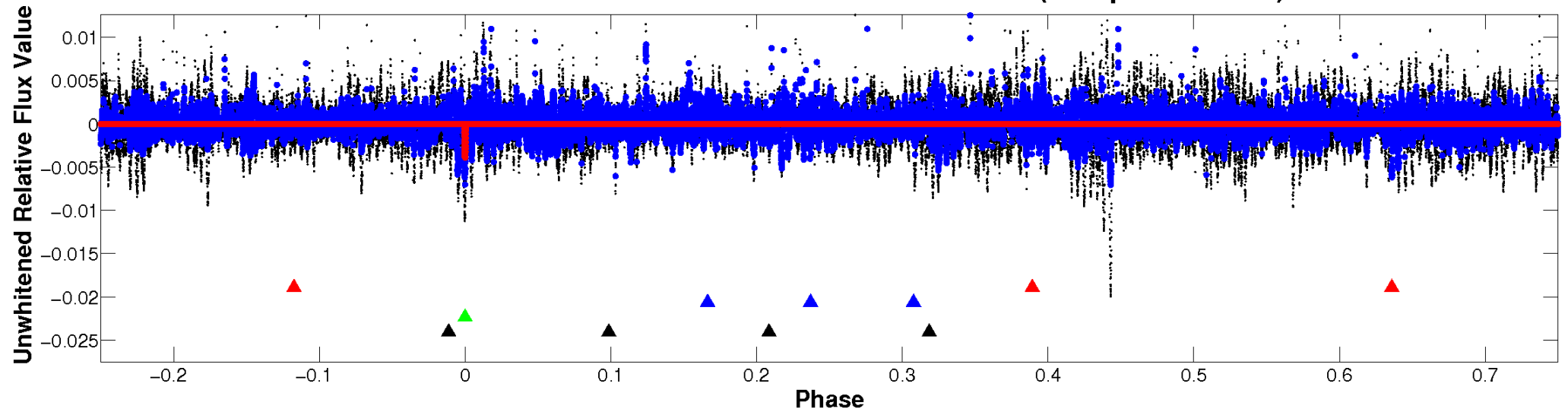
ALT Odd/Even

TCE 008565683-03

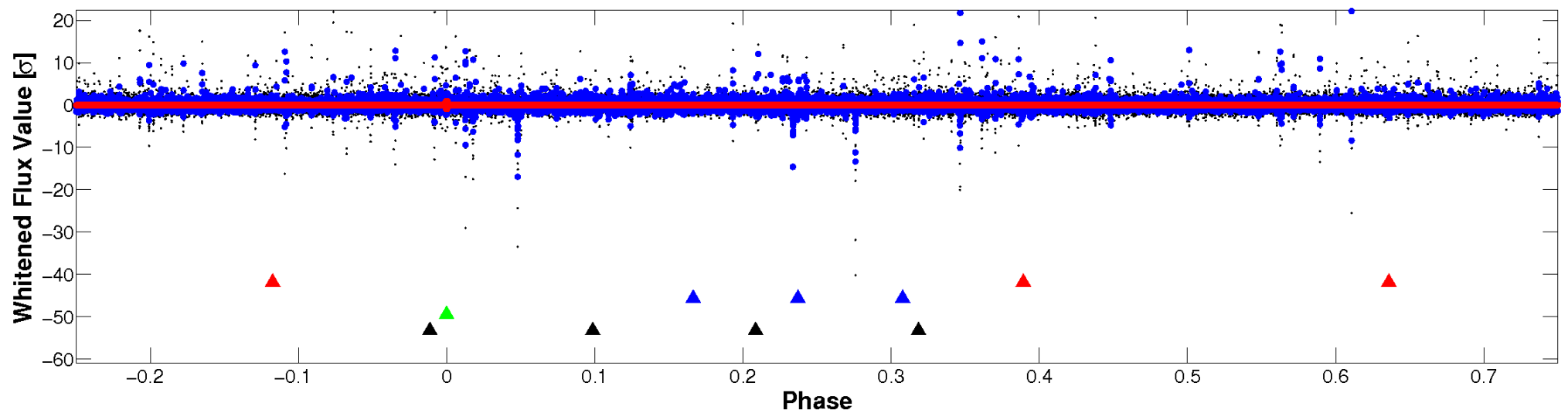


Non-Whitened Vs. Whitened Light Curve

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

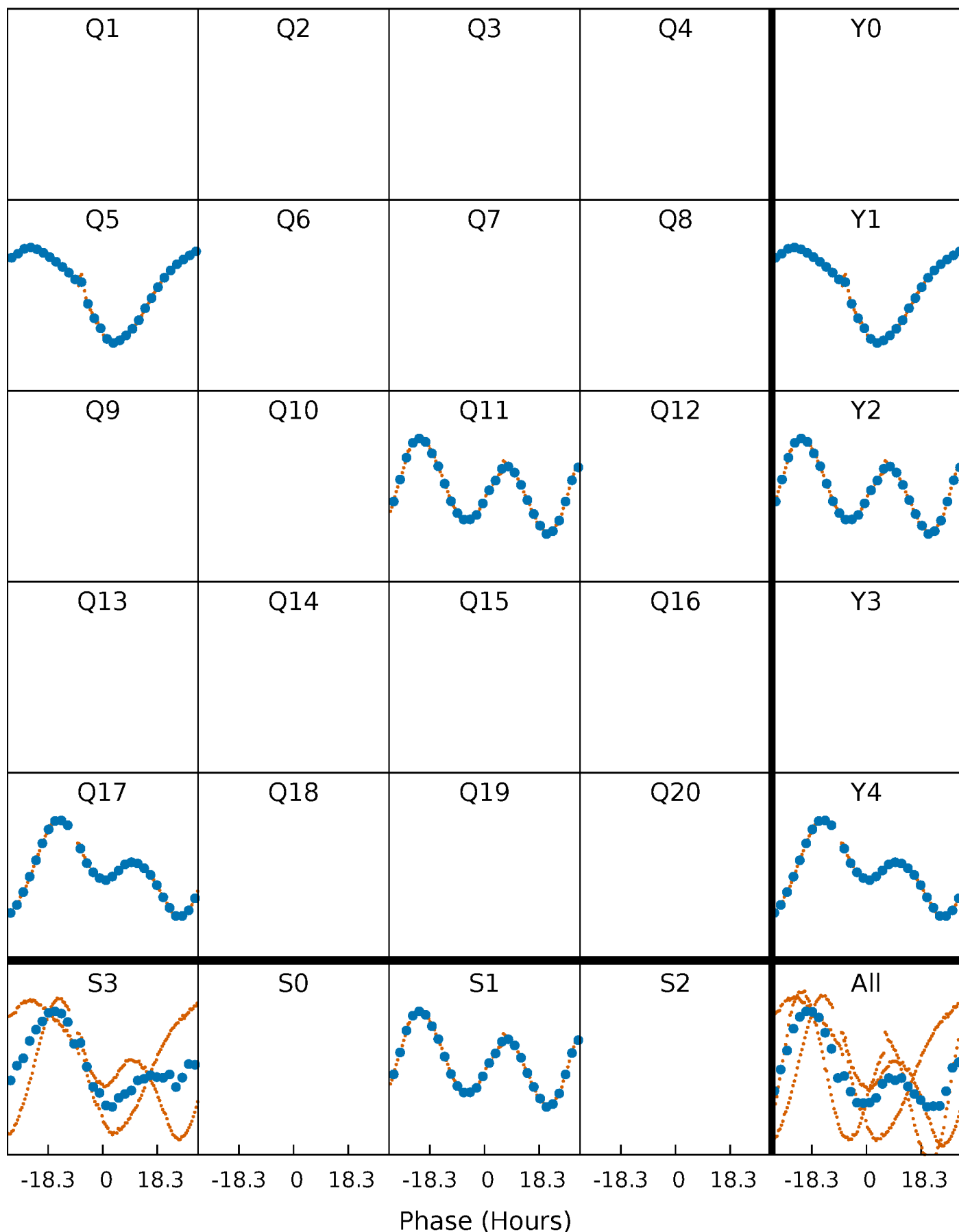


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



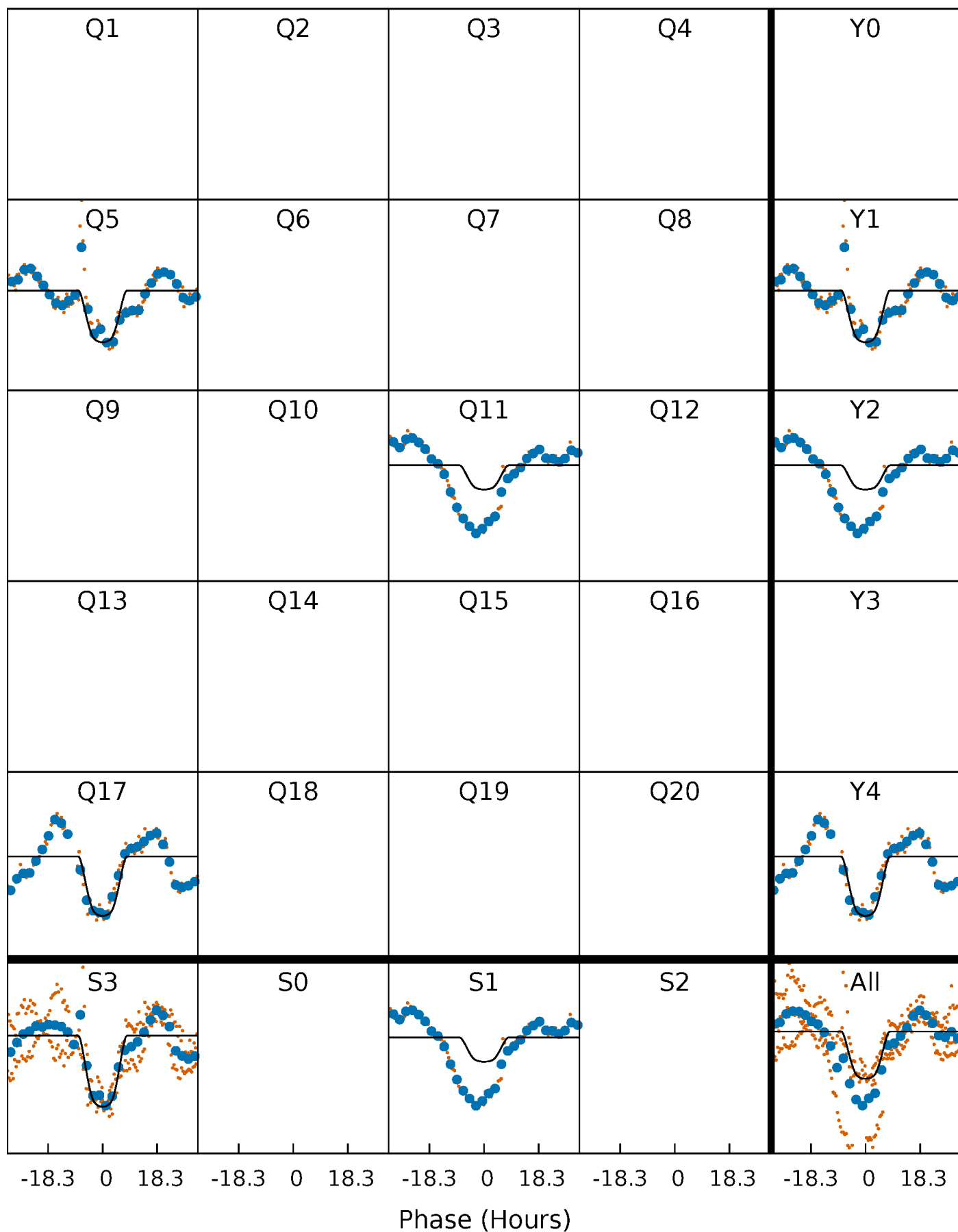
PDC Quarter-Phased Transit Curves

TCE 008565683-03 P=521.359048 Days $T_0=518.594150$ (BKJD)



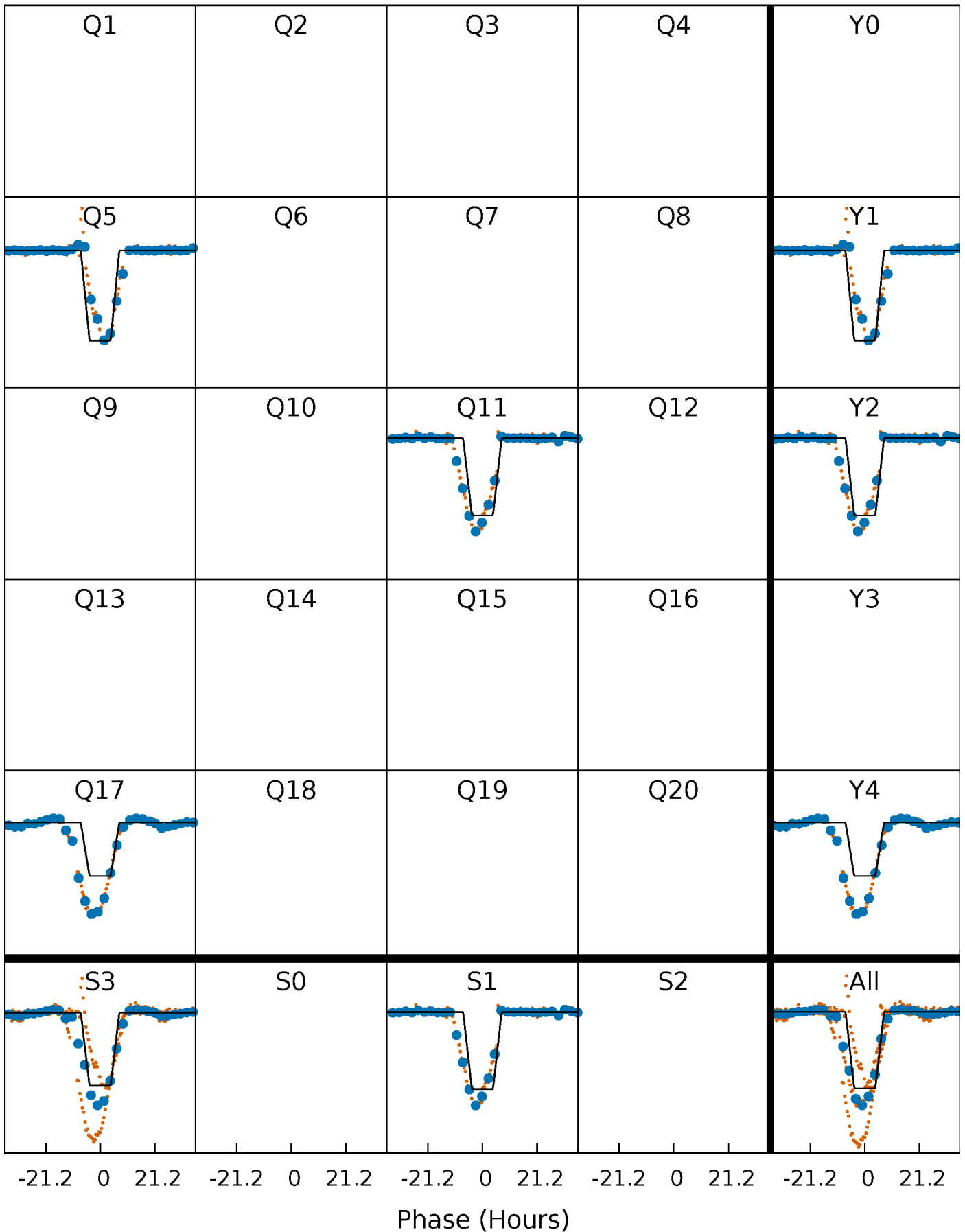
DV Quarter-Phased Transit Curves

TCE 008565683-03 $P=521.359048$ Days $T_0=518.594150$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

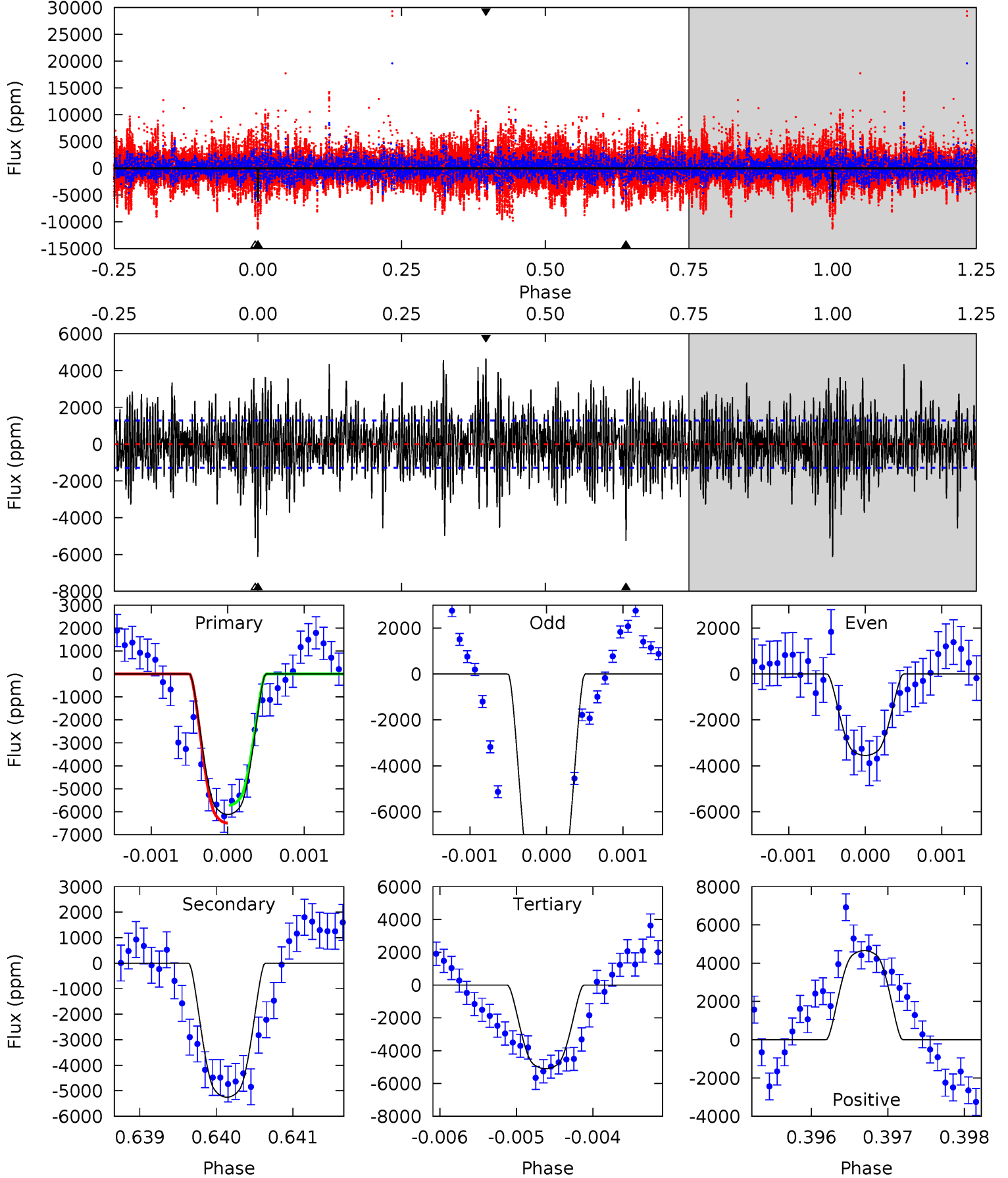
TCE 008565683-03 $P=521.369095$ Days $T_0=518.591542$ (BKJD)



DV Model-Shift Uniqueness Test

008565683-03, P = 521.359048 Days, E = 518.594150 Days

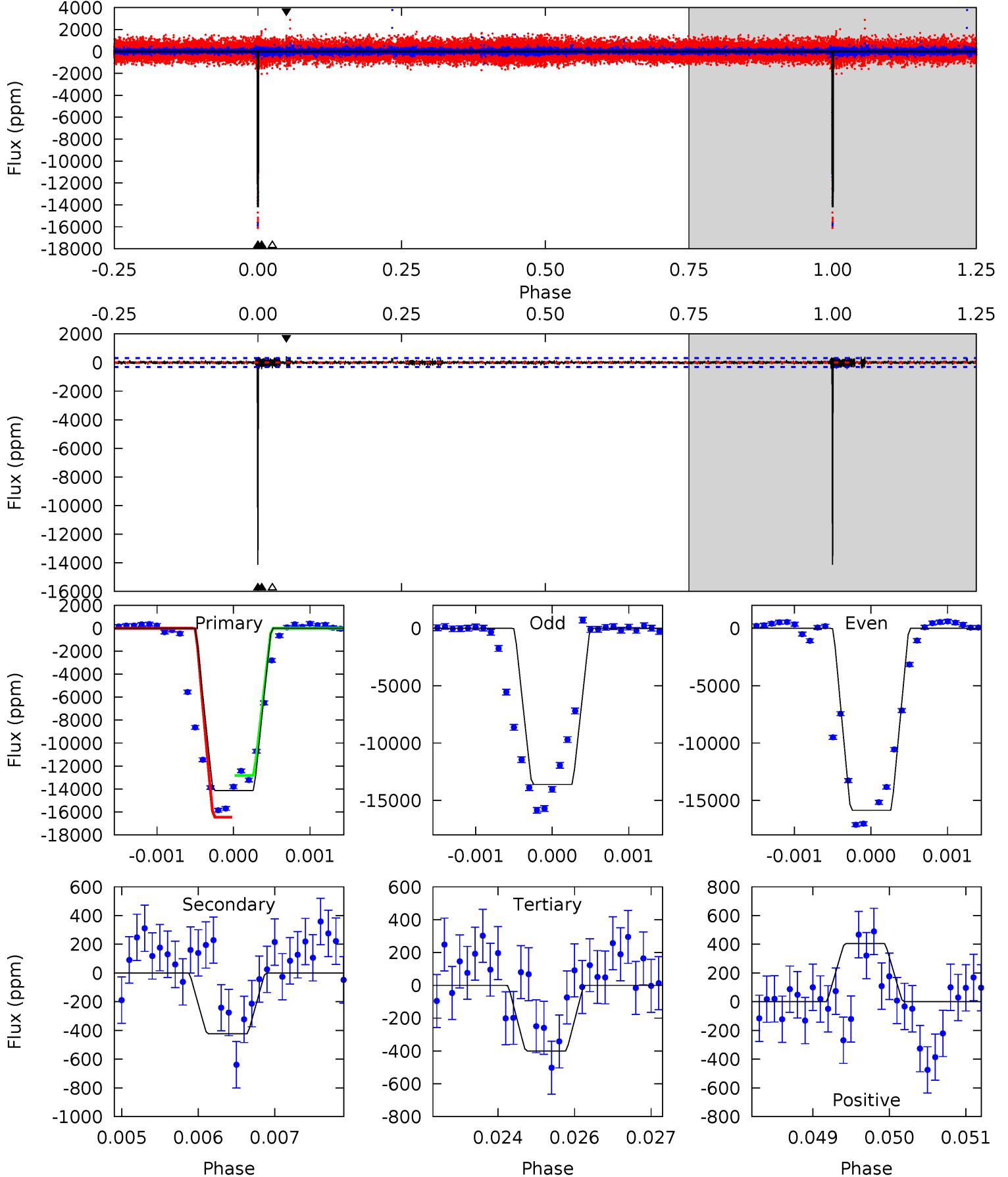
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.7	22.1	21.4	19.6	5.41	3.22	5.76	4.30	6.14	0.66	2.50	14.4	1.64	0.43	1.62



Alt Model-Shift Uniqueness Test

008565683-03, P = 521.369095 Days, E = 518.591542 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
243.8	7.31	6.91	6.99	5.42	3.24	0.96	236.9	236.8	0.40	0.32	25.6	1.09	0.03	0



Stellar Parameters For KIC 008565683

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5162^{+138}_{-153}	$3.846^{+0.817}_{-0.327}$	$-0.300^{+0.300}_{-0.300}$	$1.836^{+1.113}_{-1.113}$	$0.862^{+0.139}_{-0.155}$	$0.196^{+3.163}_{-0.147}$
	+3%/-3%	+21%/-9%	+100%/-100%	+61%/-61%	+16%/-18%	+1611%/-75%
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 008565683-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5253 ± 238	$12.97^{+5.11}_{-4.26}$	380^{+63}_{-69}	5261^{+278}_{-279}	24379^{+29583}_{-10960}
Alt.	-424 ± 58	$21.59^{+8.34}_{-6.71}$	383^{+65}_{-64}	2877^{+92}_{-80}	707^{+841}_{-330}

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

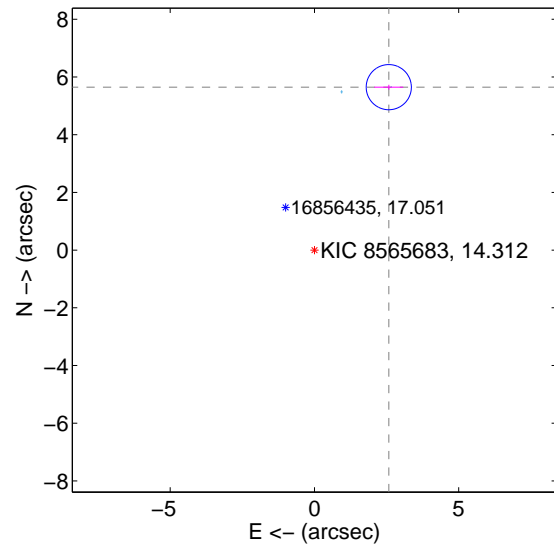
Supplemental centroid analysis for 008565683-03. Kepler magnitude: 14.31. Transit SNR 6.16

There are 2 quarters with good PRF difference image offsets

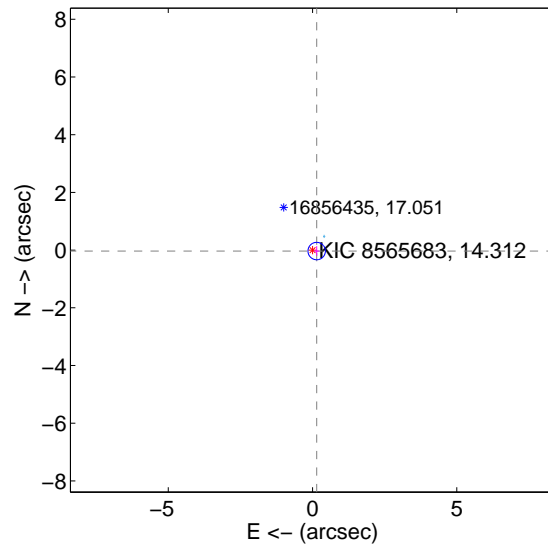
The OOT PRF centroid is offset from the target star catalog position by about 5.04 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.205 ± 0.261	23.80	-2.576 ± 0.501	5.646 ± 0.084
PRF-fit source offset from KIC position	0.148 ± 0.101	1.47	-0.144 ± 0.096	-0.033 ± 0.169
photometric centroid source offset	2.51 ± 0.07	34.57	1.38 ± 0.06	-2.10 ± 0.08

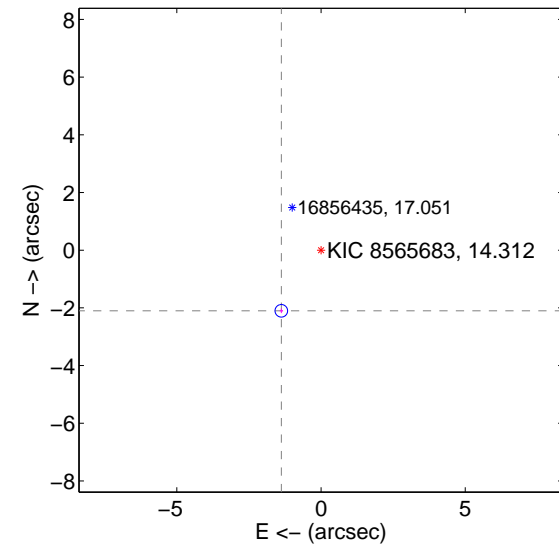
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

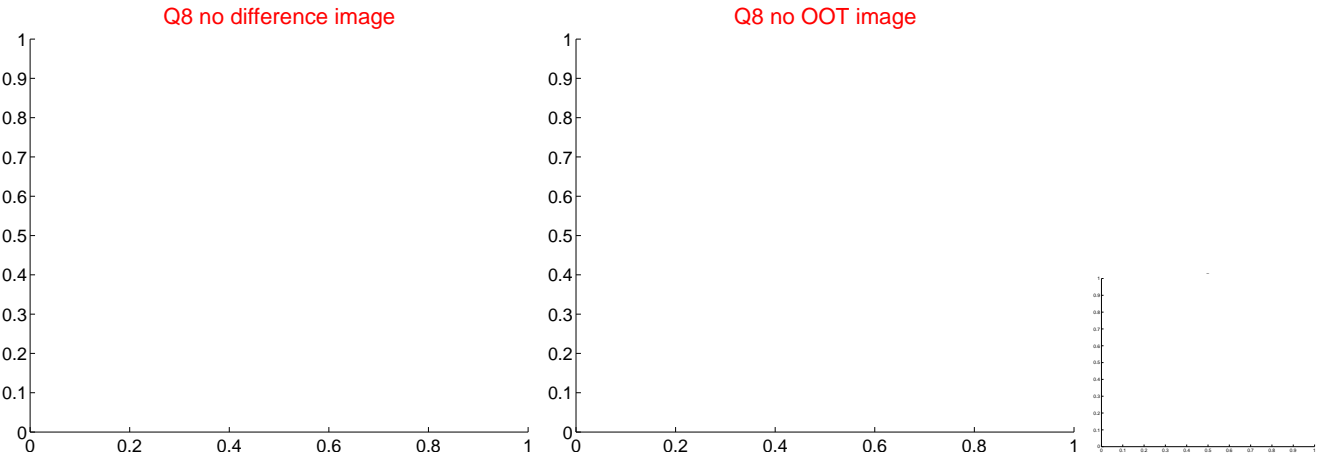
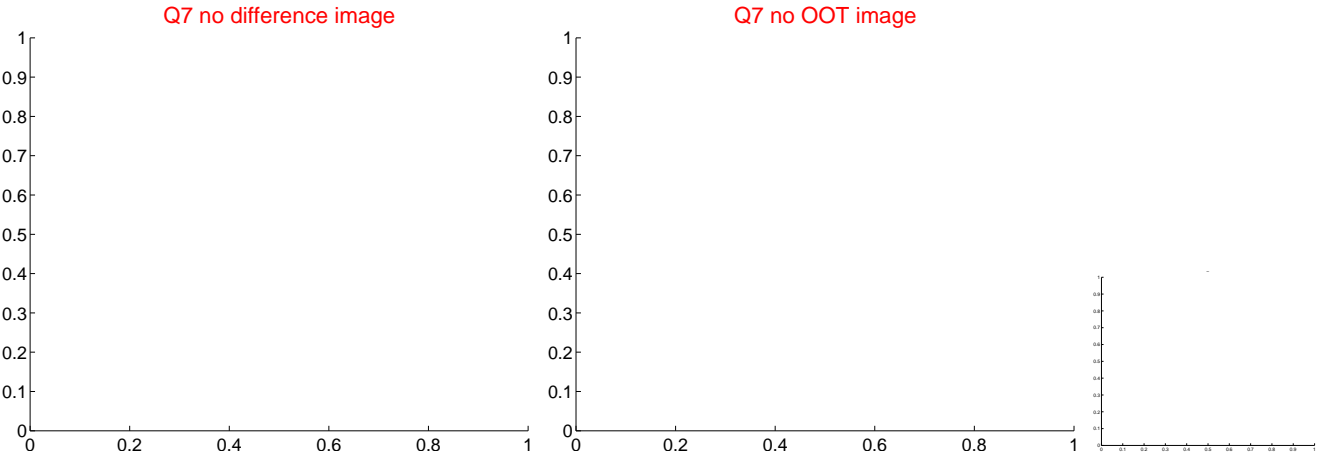
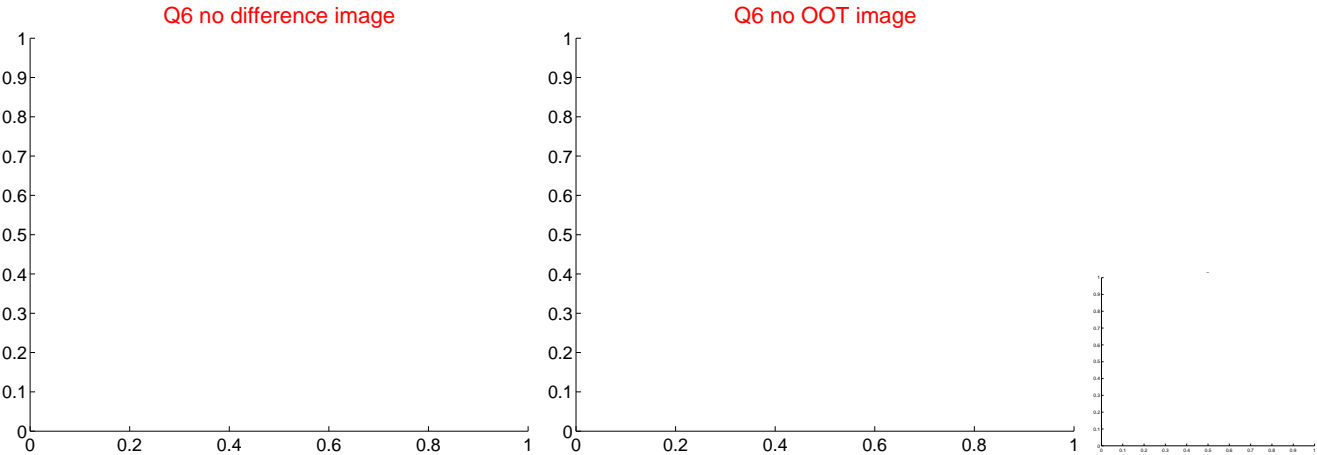
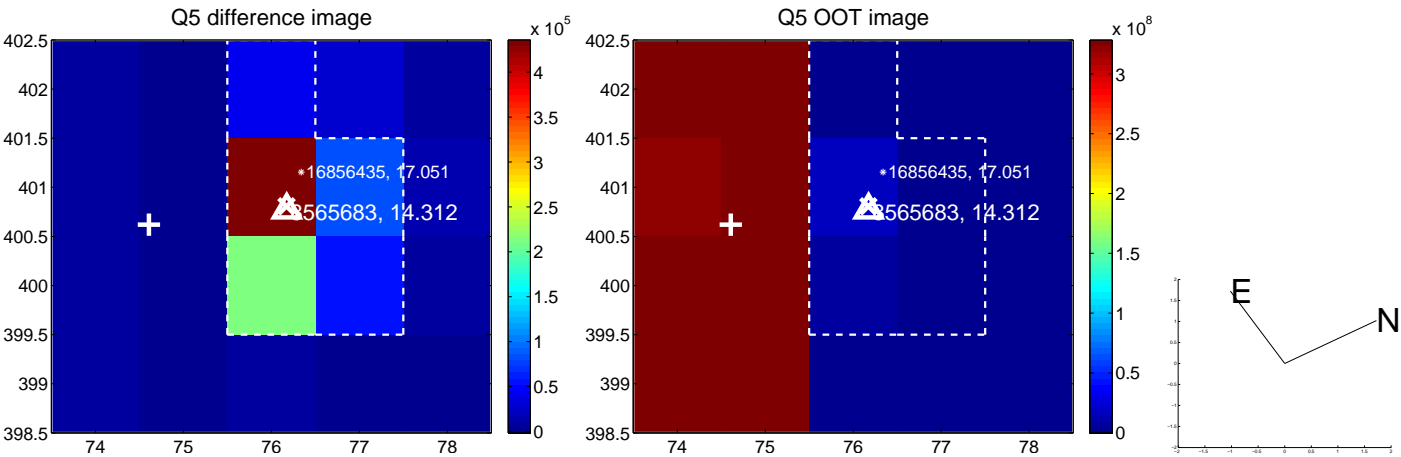


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

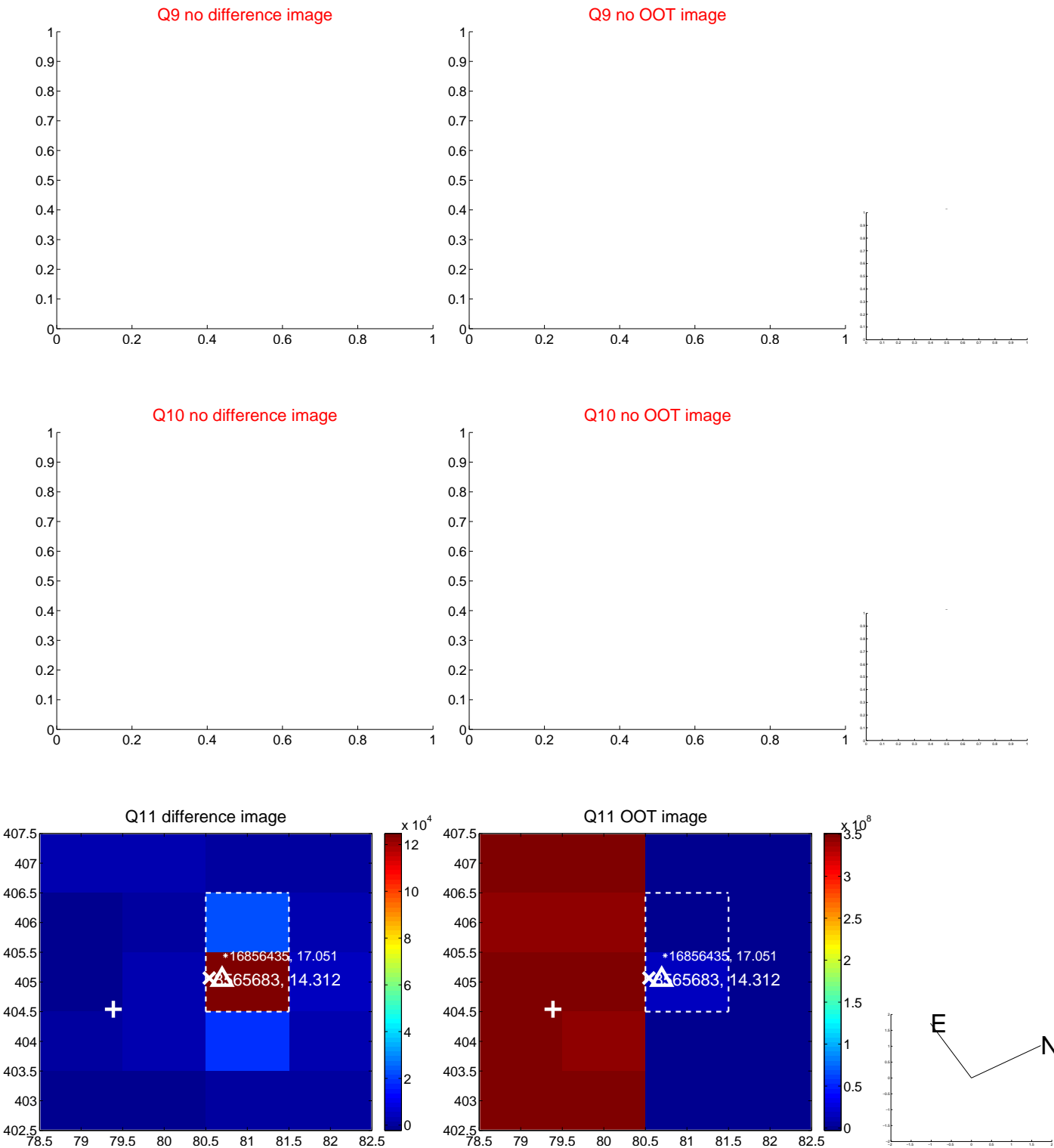
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



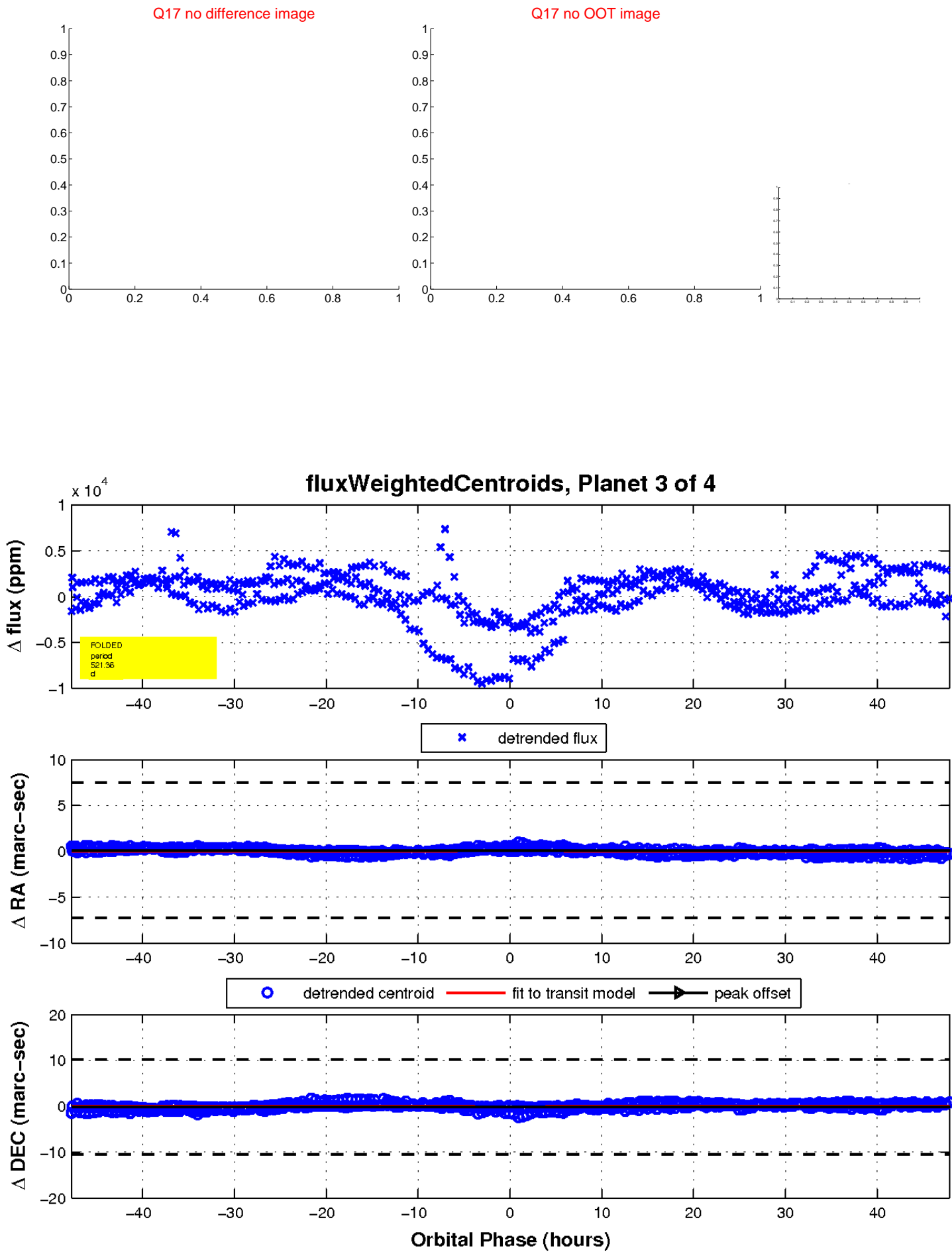
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

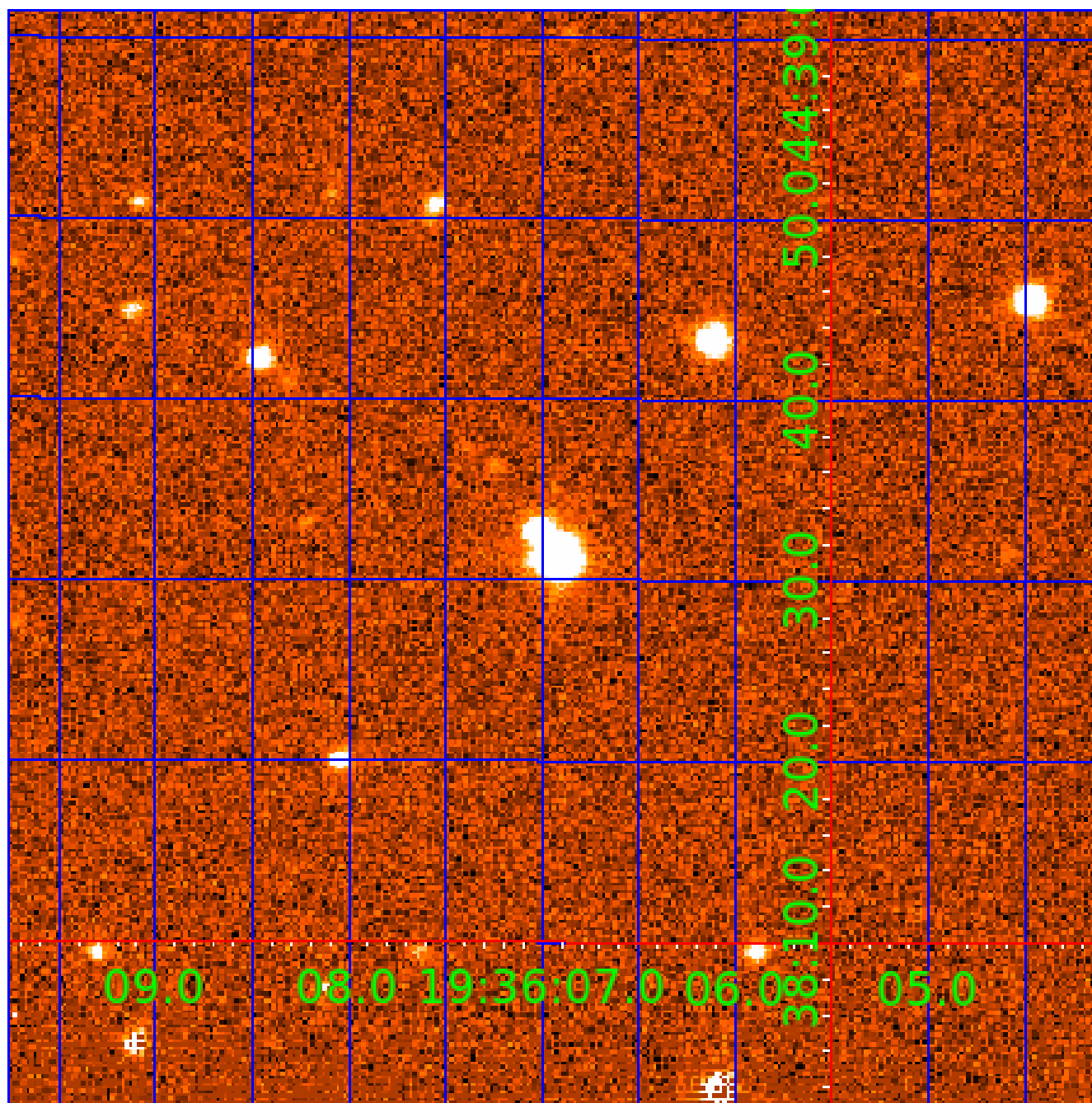


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008565683

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})
008565683-01	OBS	No	392.746005	457.395785	1812.3	10.274	14.3	5.3	1.84	5162	7.73	2.15
008565683-03	OBS	No	521.359048	518.594150	3892.3	15.980	10.8	6.2	1.84	5162	14.01	1.47
008565683-04	OBS	No	464.051849	163.280682	1571.3	6.914	11.1	6.0	1.84	5162	7.21	1.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008565683-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008565683-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008565683-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS

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

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

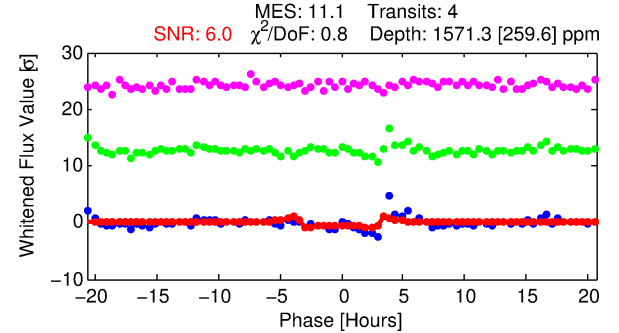
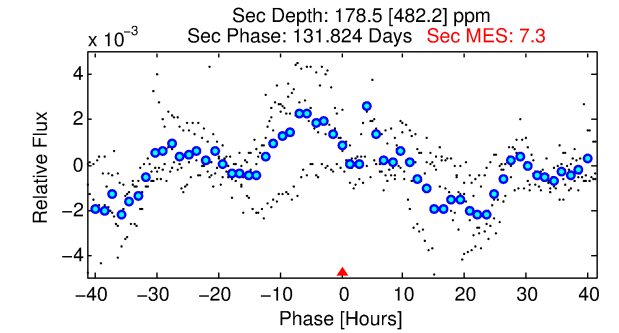
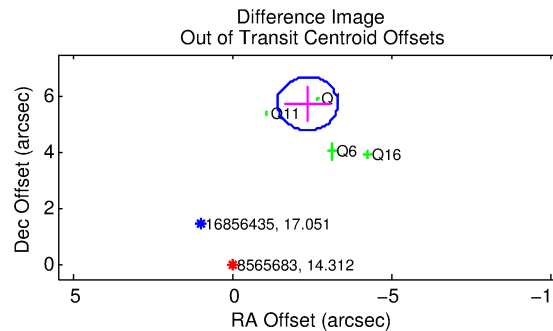
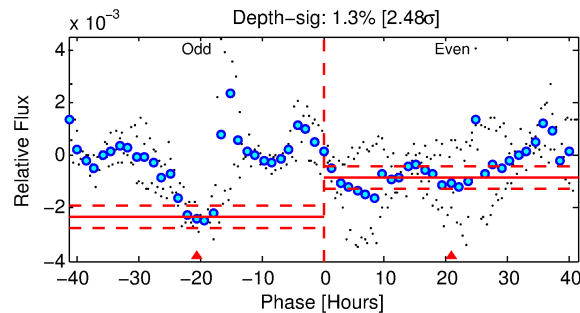
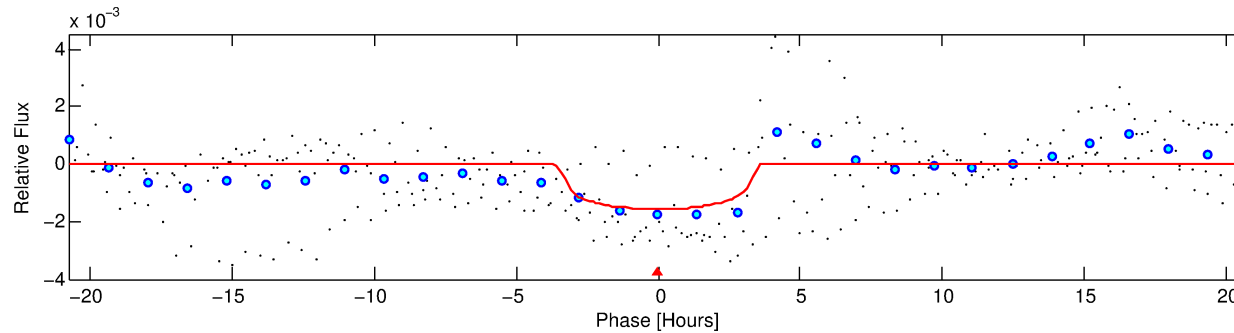
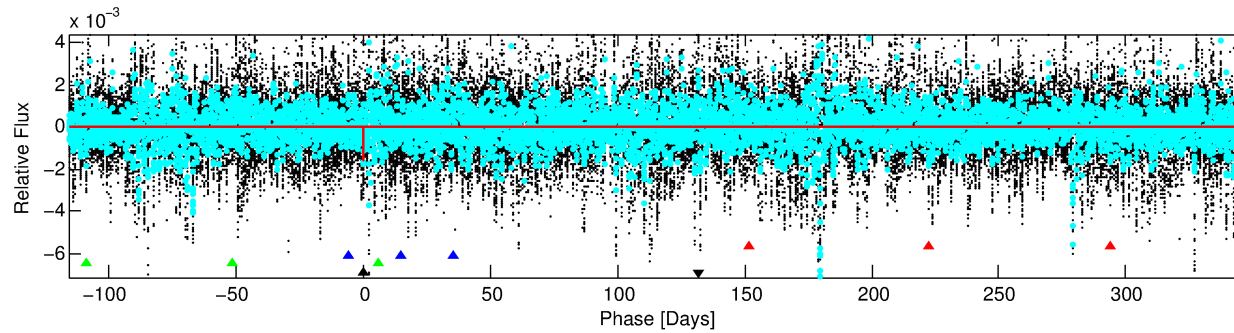
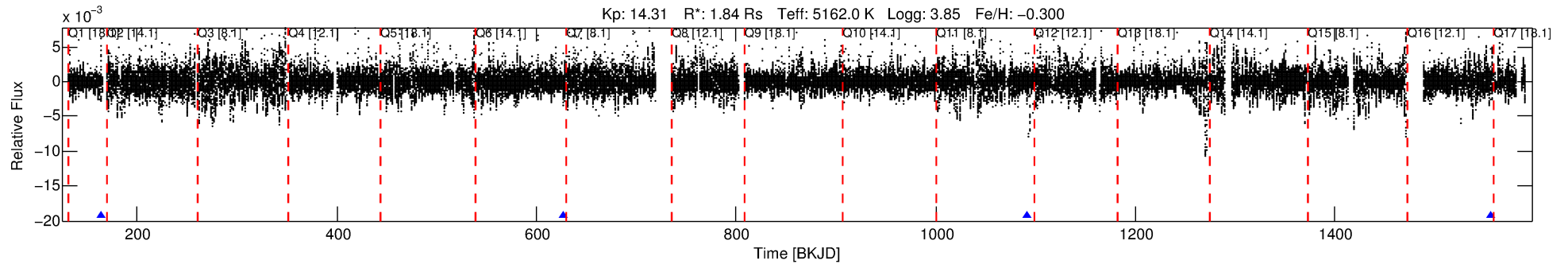
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008565683-04

No Significant Match Found

DV One-Page Summary

KIC: 8565683 Candidate: 4 of 4 Period: 464.052 d



DV Fit Results:

Period = 464.05185 [0.00310] d
Epoch = 163.2807 [0.0056] BKJD
Rp/R* = 0.0360 [0.0222]
a/R* = 503.13 [1124.43]
b = 0.33 [6.04]
Seff = 1.72 [2.27]
Teq = 292 [97] K
Rp = 7.21 [6.24] Re
a = 1.1168 [0.8332] AU
Ag = 2353.29 [7645.95] [0.31 σ]
Teffp = 3144 [2336] K [1.22 σ]

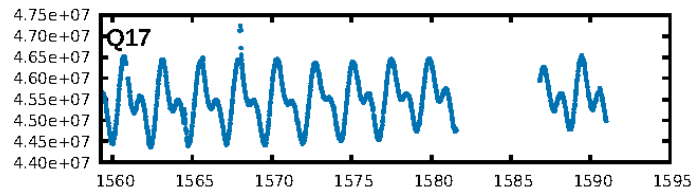
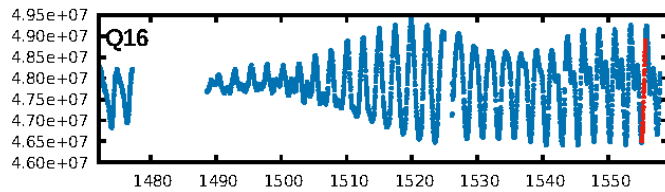
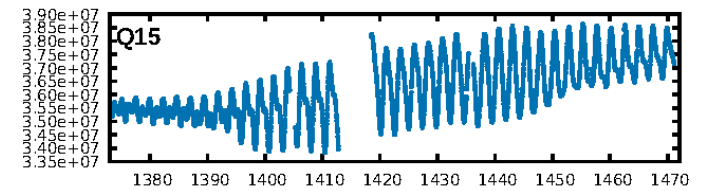
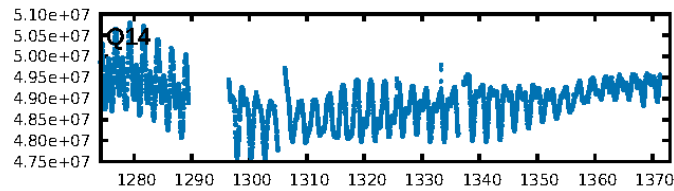
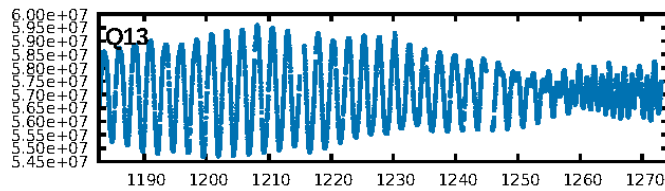
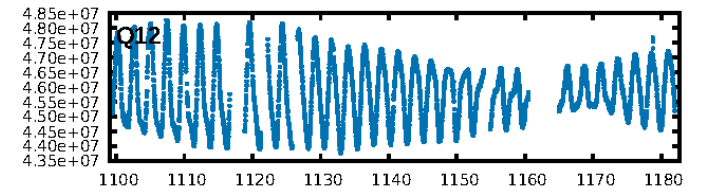
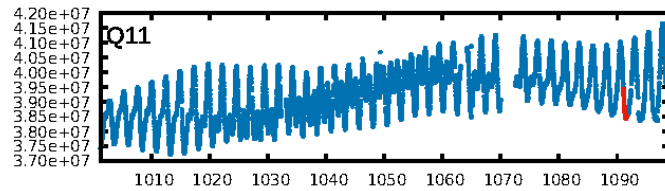
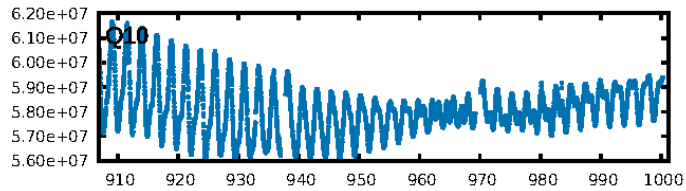
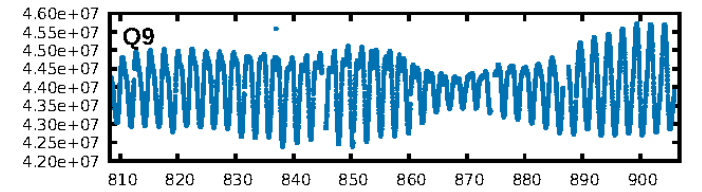
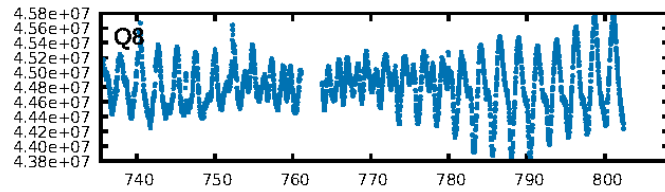
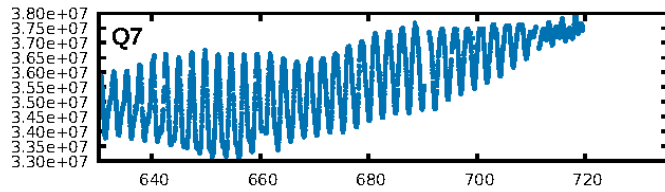
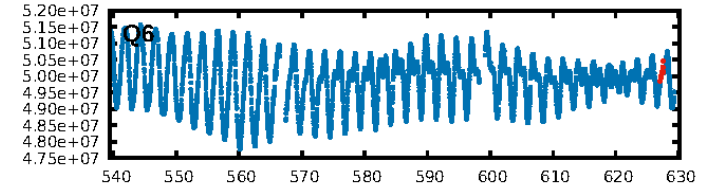
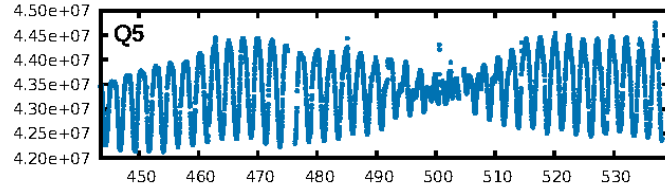
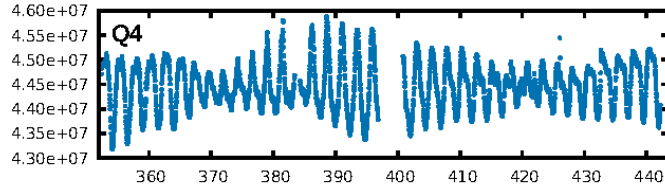
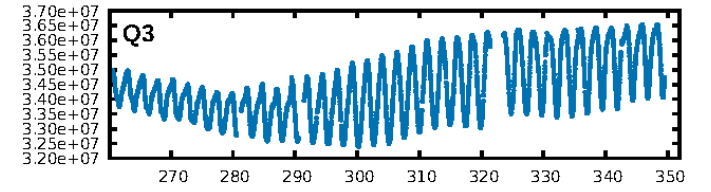
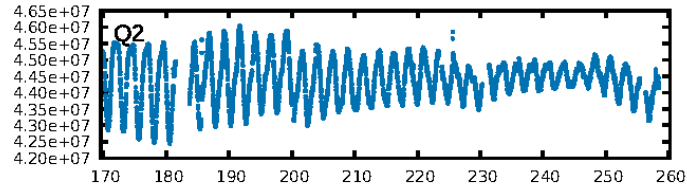
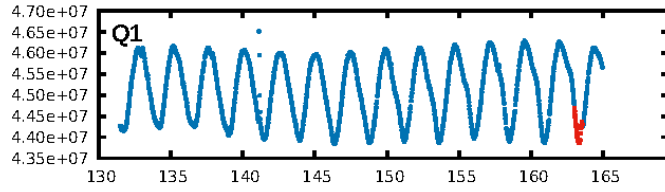
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [138.20 σ]
LongPeriod-sig: 100.0% [65.64 σ]
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: 4.05e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.6299
Centroid-sig: 0.6%
Centroid-so: 2.420 arcsec [31.00 σ]
OotOffset-rm: 6.206 arcsec [19.60 σ]
KicOffset-rm: 0.352 arcsec [1.13 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

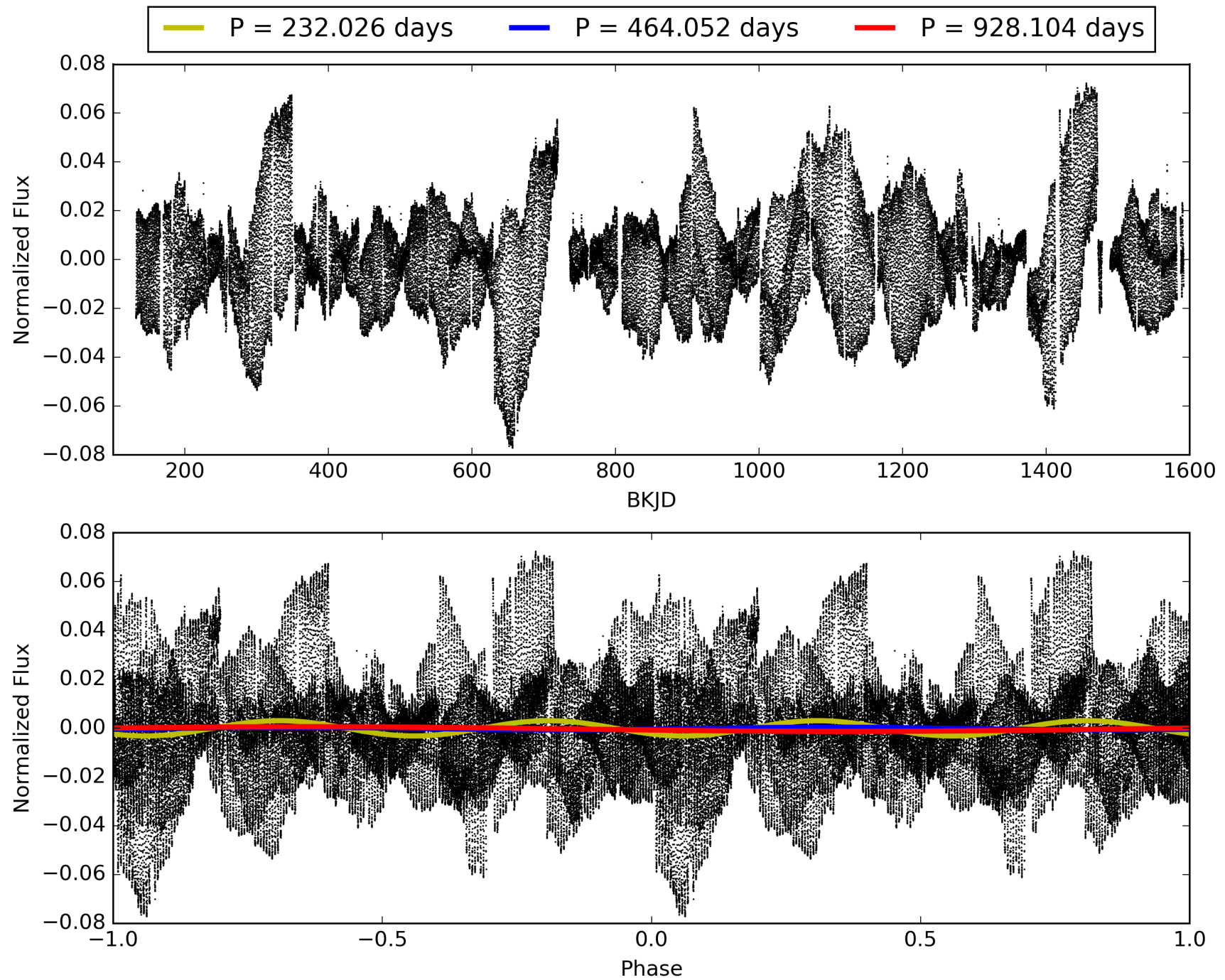
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:02:26 Z

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

TCE 008565683-04, PDC Light Curves

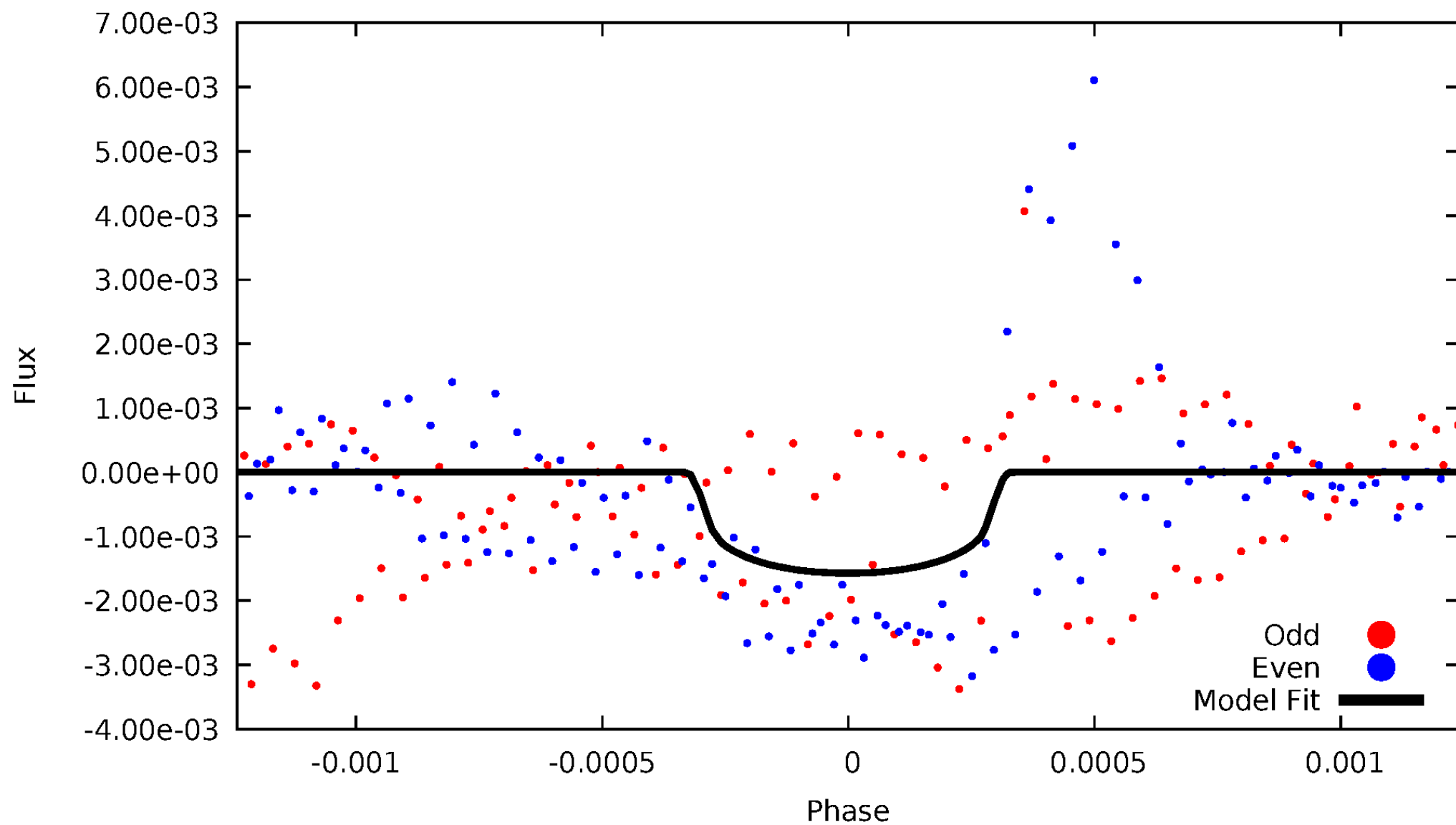


TCE 008565683-04



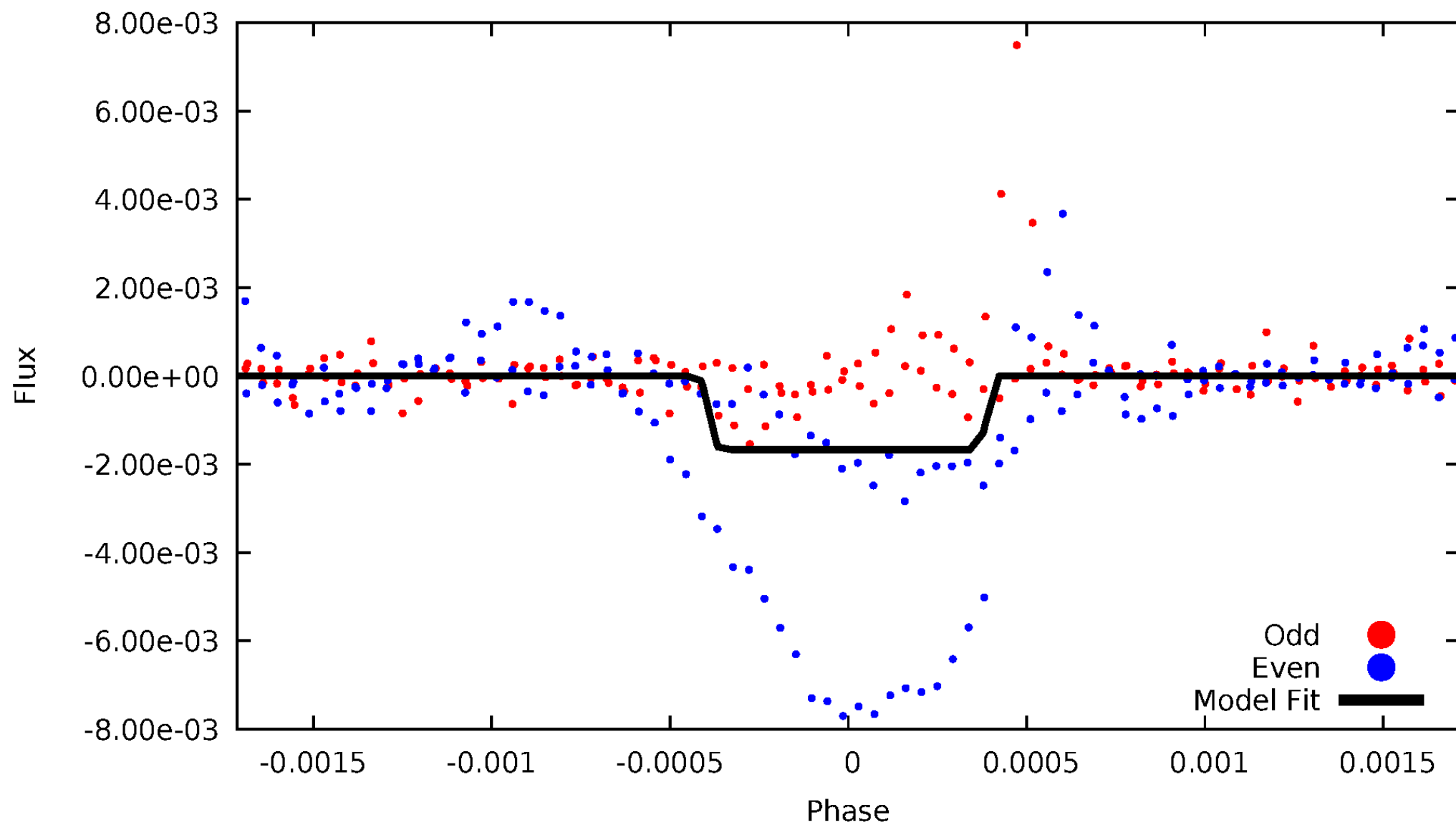
DV Odd/Even

TCE 008565683-04



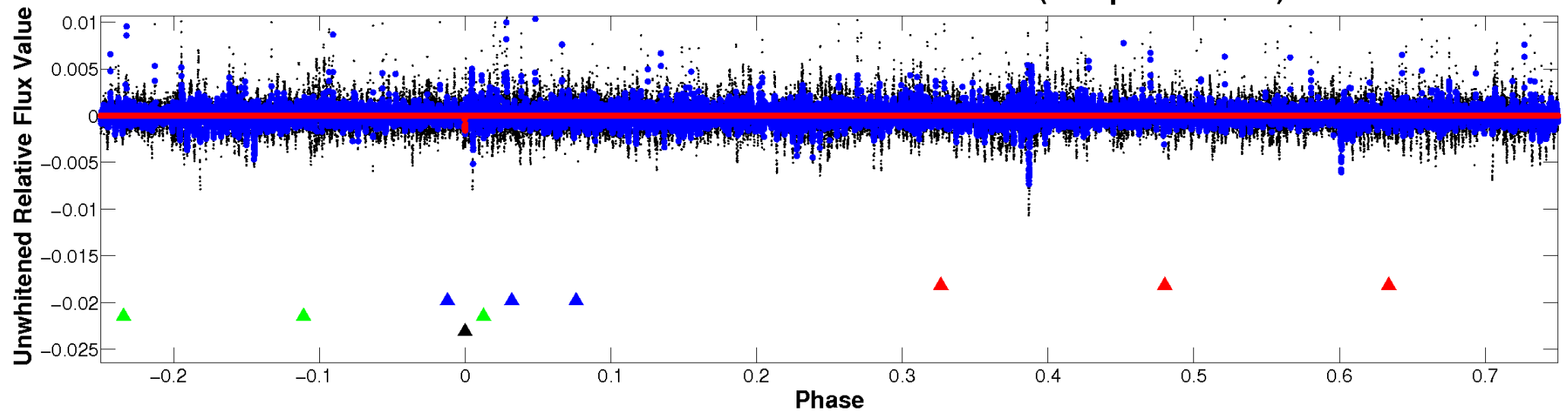
ALT Odd/Even

TCE 008565683-04

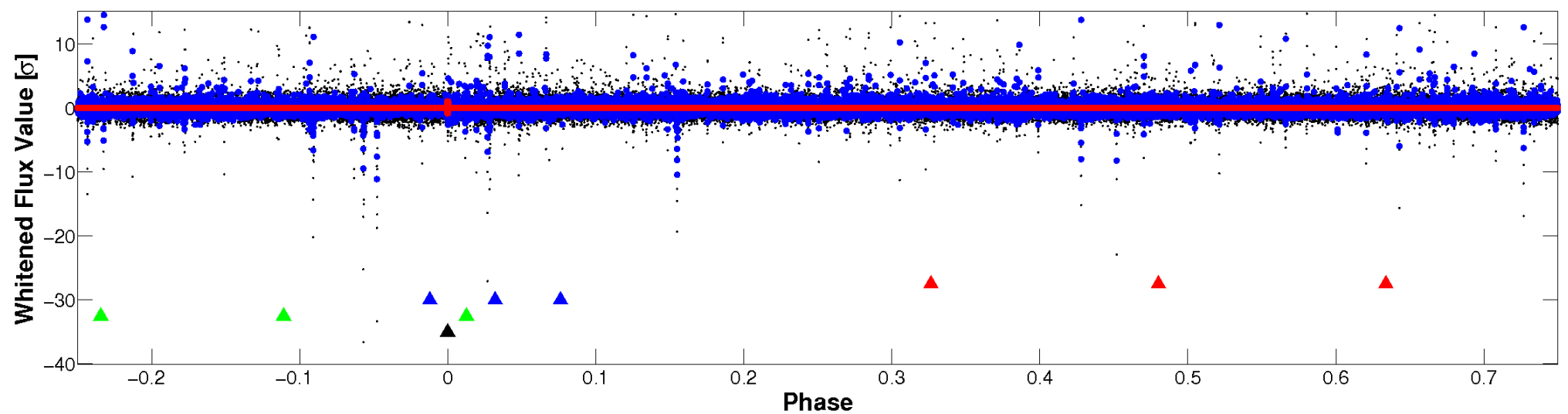


Non-Whitened Vs. Whitened Light Curve

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

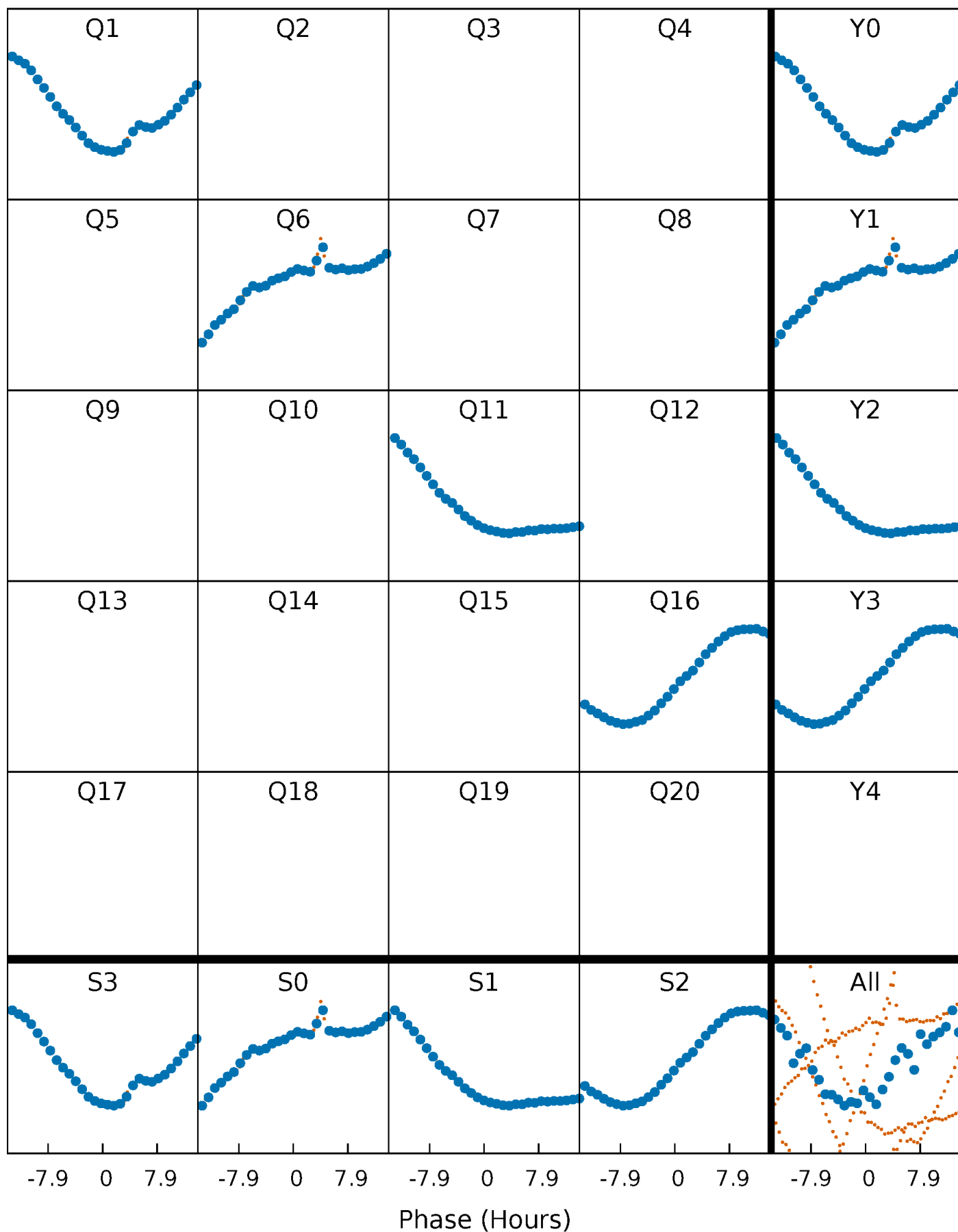


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



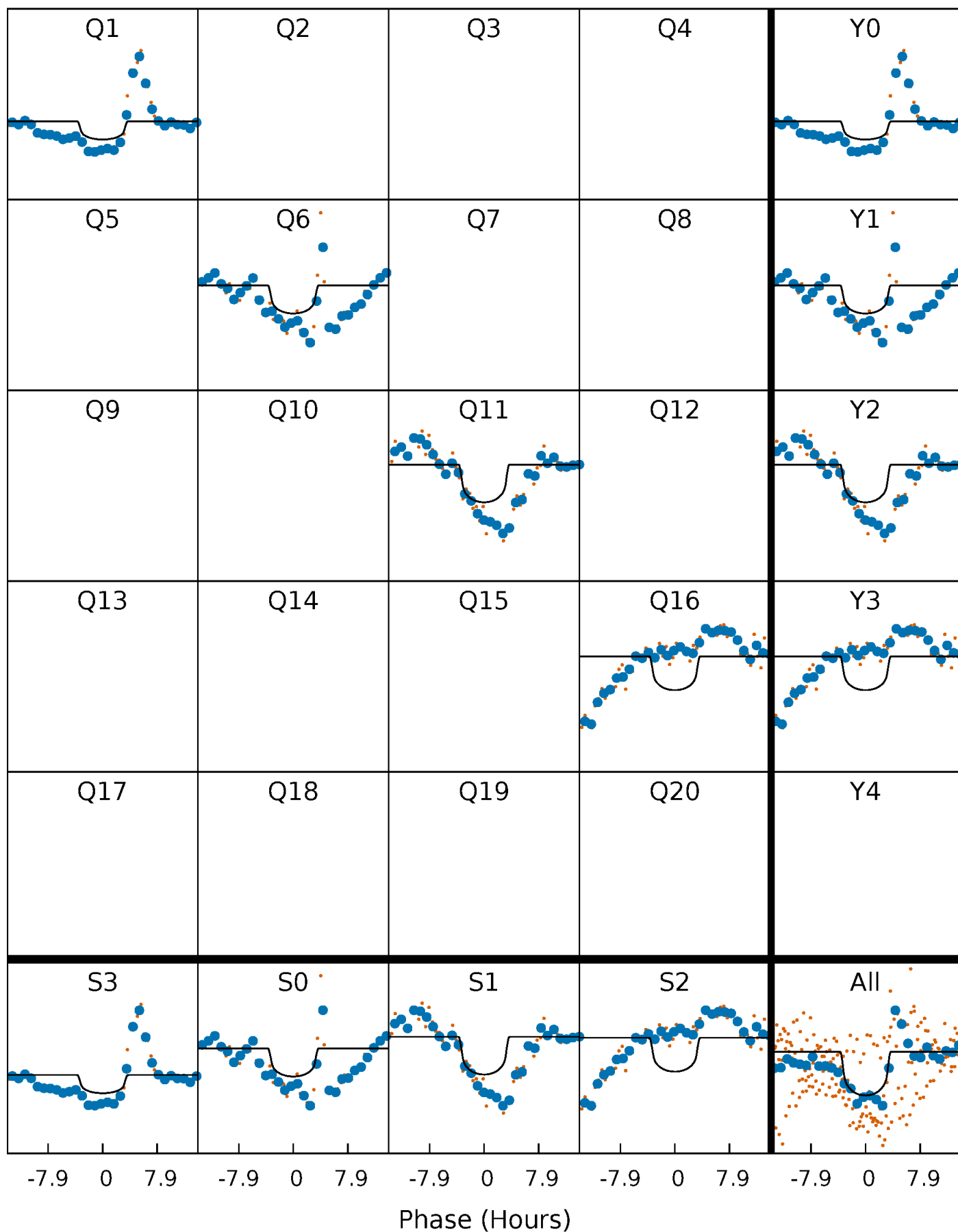
PDC Quarter-Phased Transit Curves

TCE 008565683-04 P=464.051849 Days $T_0=163.280682$ (BKJD)



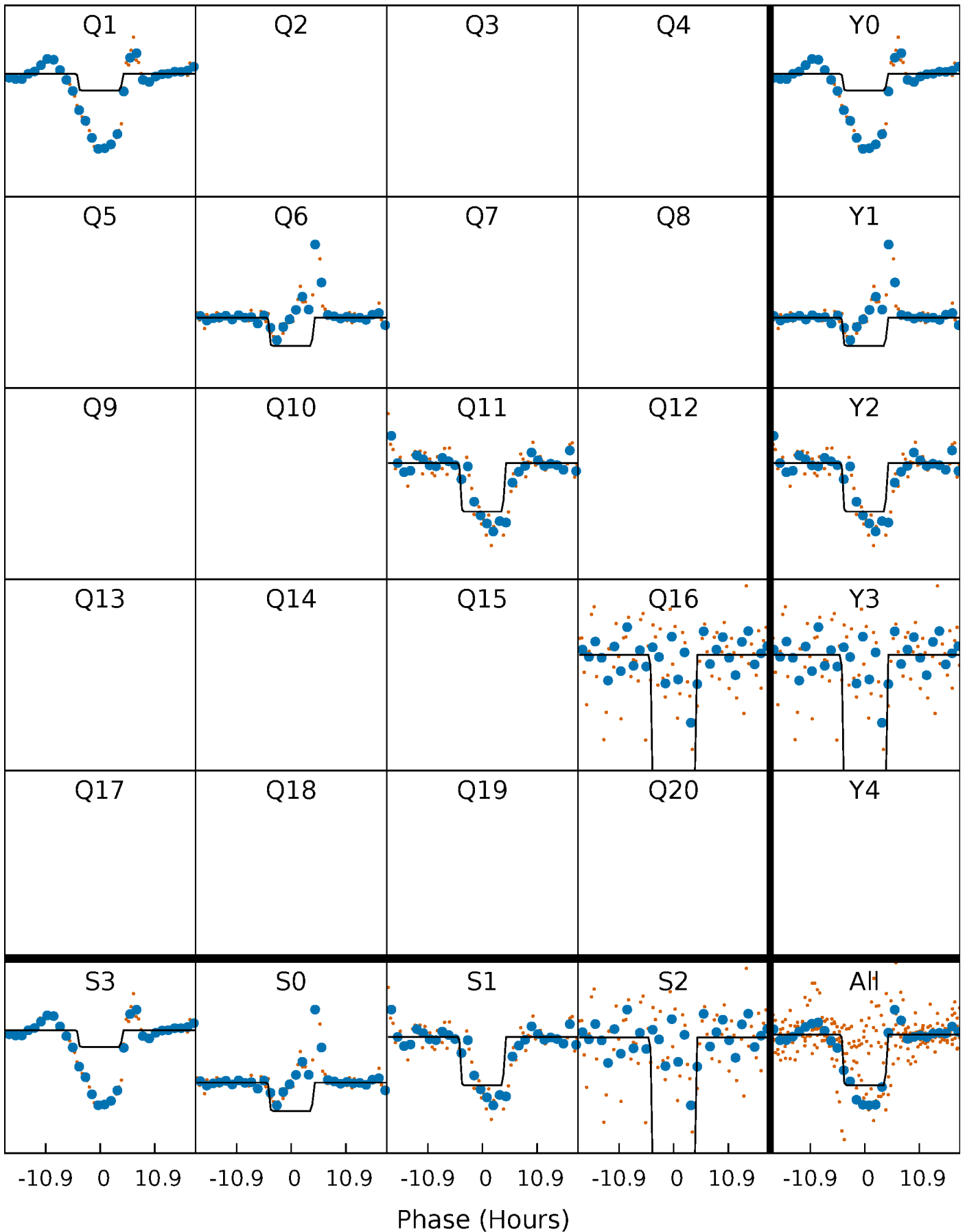
DV Quarter-Phased Transit Curves

TCE 008565683-04 P=464.051849 Days $T_0=163.280682$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

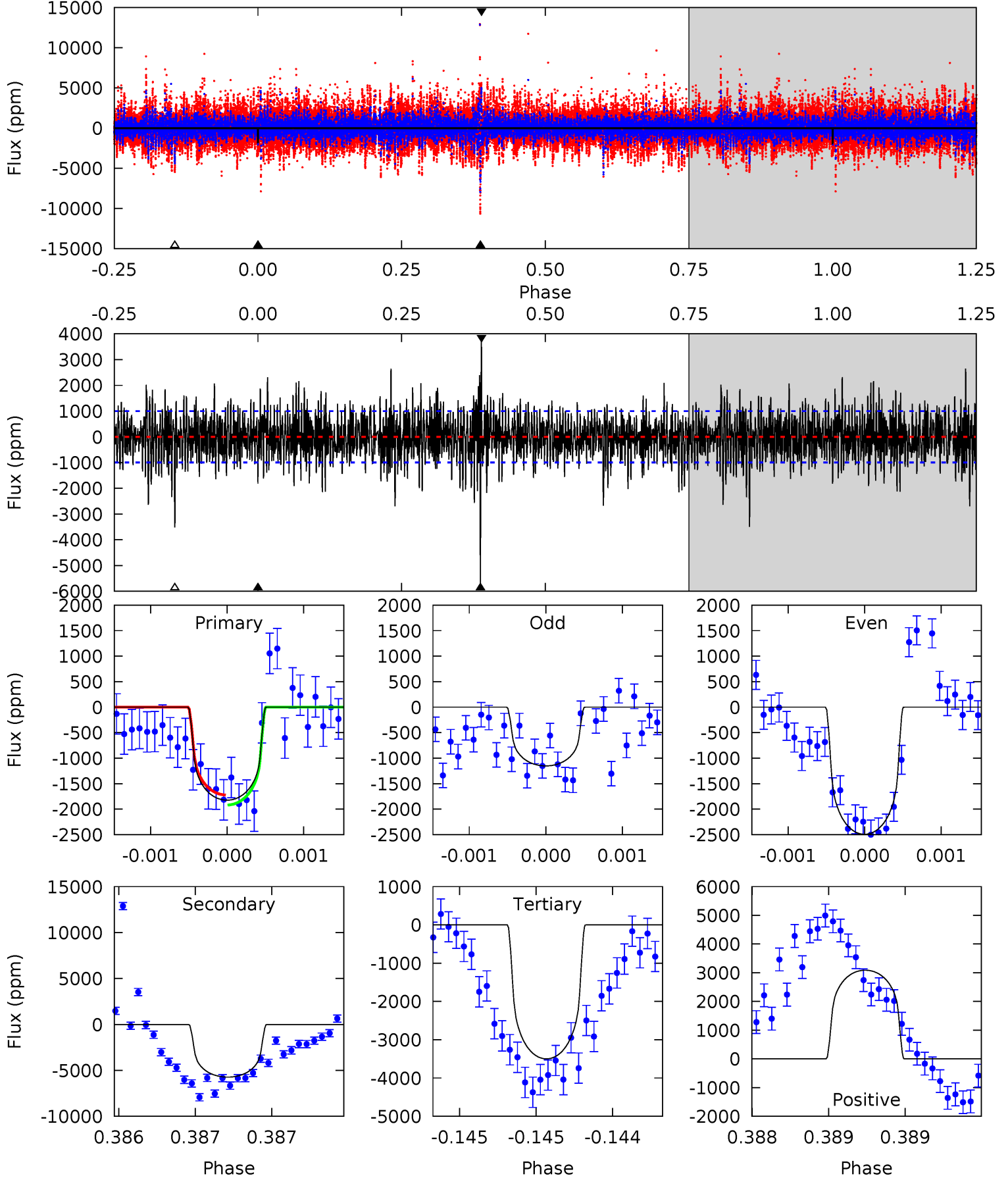
TCE 008565683-04 P=464.046148 Days $T_0=163.233193$ (BKJD)



DV Model-Shift Uniqueness Test

008565683-04, P = 464.051849 Days, E = 163.280682 Days

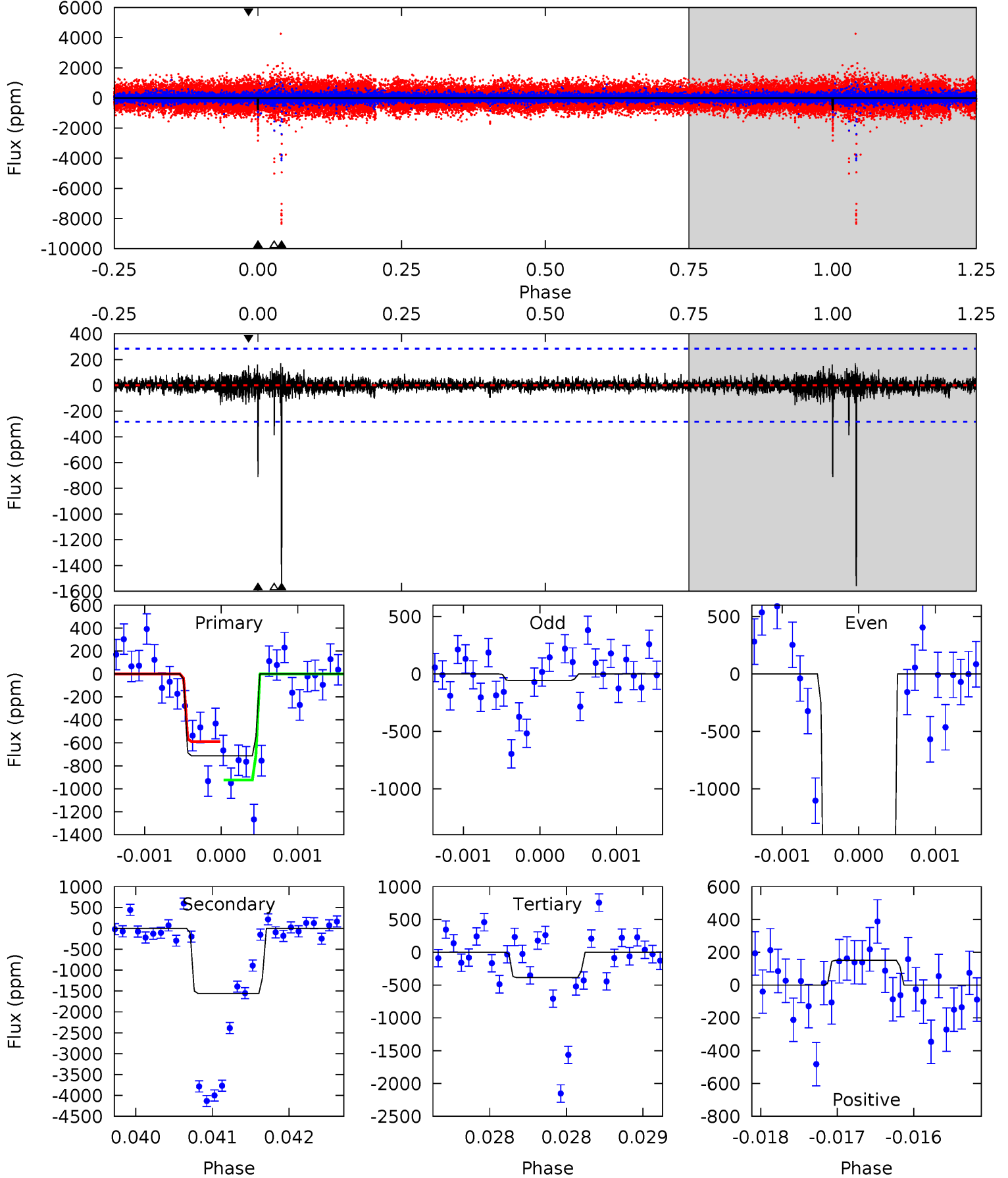
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	31.8	19.4	17.1	5.53	3.41	3.95	-9.29	-7.01	12.4	14.7	3.55	0.74	0.40	0.54



Alt Model-Shift Uniqueness Test

008565683-04, P = 464.046148 Days, E = 163.233193 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	30.1	7.45	2.91	5.48	3.34	0.56	6.33	10.9	22.6	27.2	23.9	2.31	0.10	3.14



Stellar Parameters For KIC 008565683

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5162^{+138}_{-153}	$3.846^{+0.817}_{-0.327}$	$-0.300^{+0.300}_{-0.300}$	$1.836^{+1.113}_{-1.113}$	$0.862^{+0.139}_{-0.155}$	$0.196^{+3.163}_{-0.147}$
	+3%/-3%	+21%/-9%	+100%/-100%	+61%/-61%	+16%/-18%	+1611%/-75%
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 008565683-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5737 ± 181	$6.42^{+4.98}_{-3.66}$	396^{+65}_{-76}	7561^{+4947}_{-1754}	$94645^{+416160}_{-63859}$
Alt.	-1559 ± 52	$7.45^{+5.19}_{-4.07}$	398^{+63}_{-71}	5021^{+2053}_{-761}	18670^{+76120}_{-12001}

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

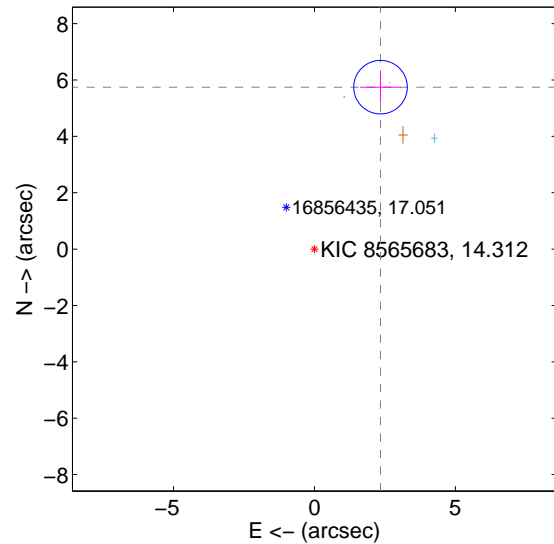
Supplemental centroid analysis for 008565683-04. Kepler magnitude: 14.31. Transit SNR 5.98

There are 3 quarters with good PRF difference image offsets

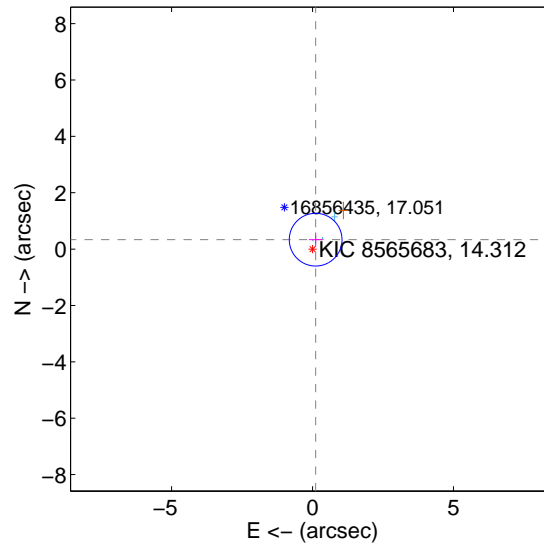
The OOT PRF centroid is offset from the target star catalog position by about 4.46 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.206 ± 0.317	19.60	-2.345 ± 0.726	5.746 ± 0.581
PRF-fit source offset from KIC position	0.352 ± 0.312	1.13	-0.110 ± 0.240	0.335 ± 0.256
photometric centroid source offset	2.42 ± 0.08	31.00	1.35 ± 0.09	-2.01 ± 0.07

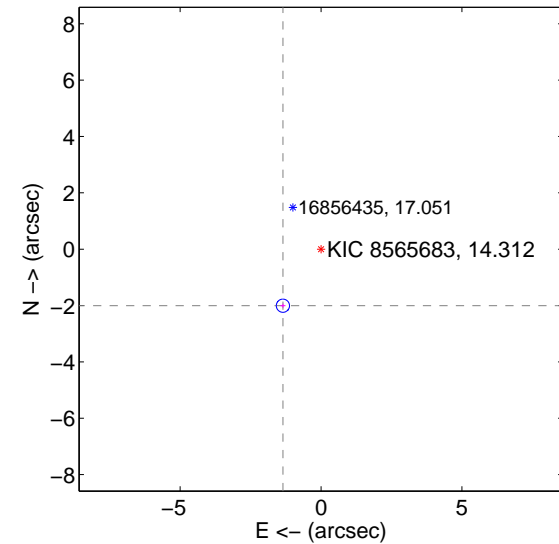
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

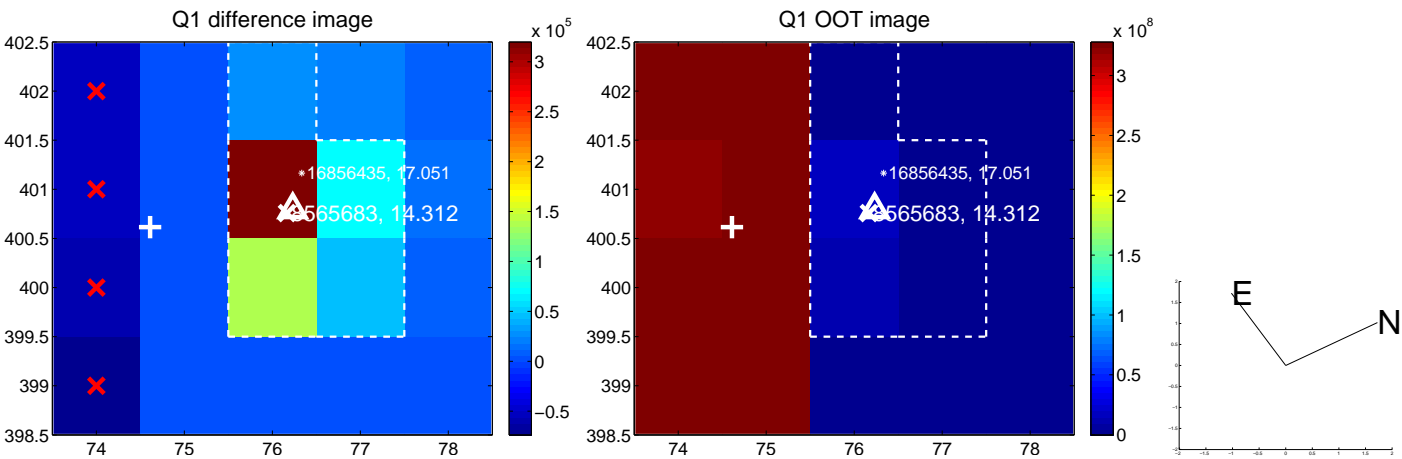


offset from photometric centroids

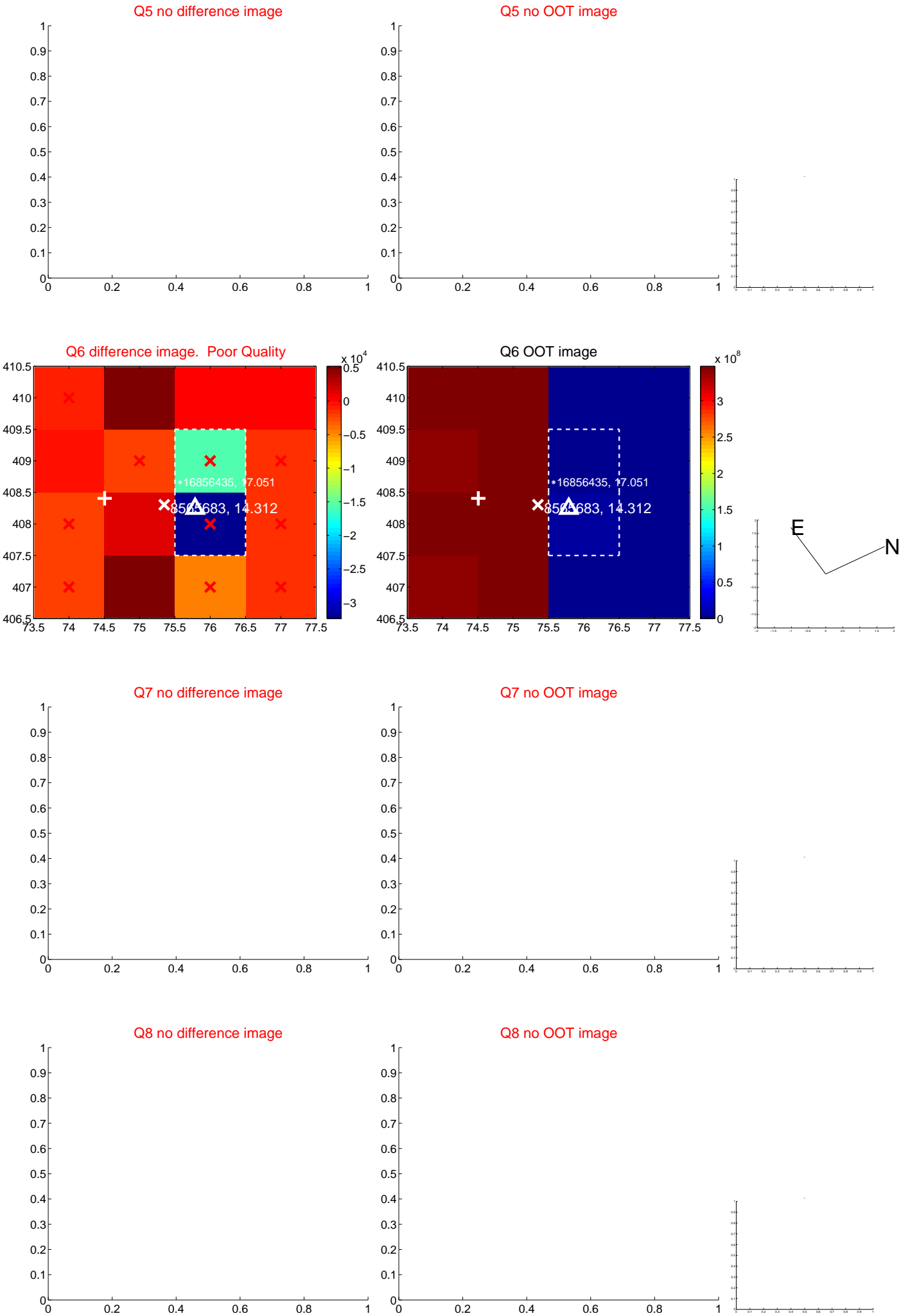


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

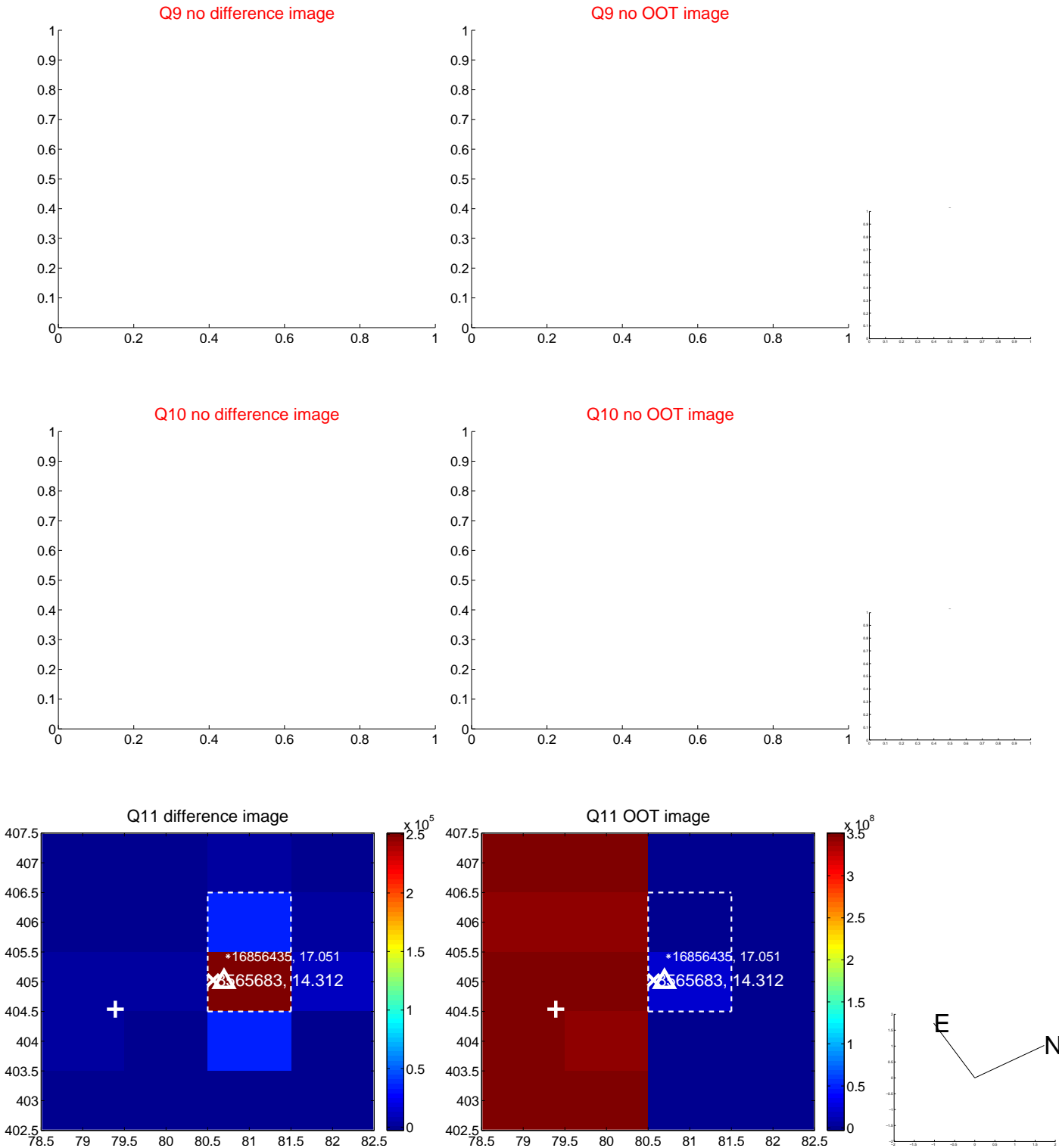
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



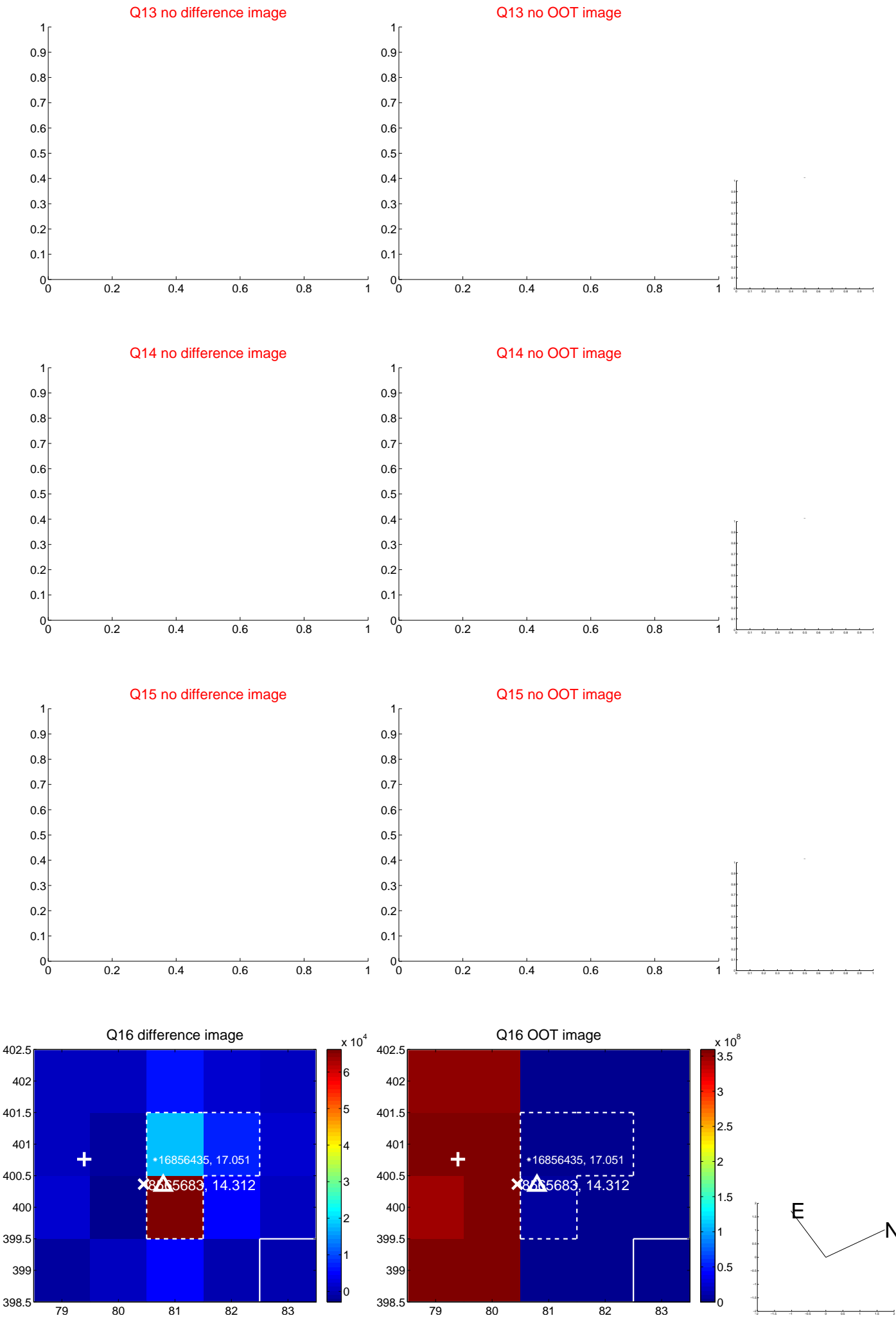
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



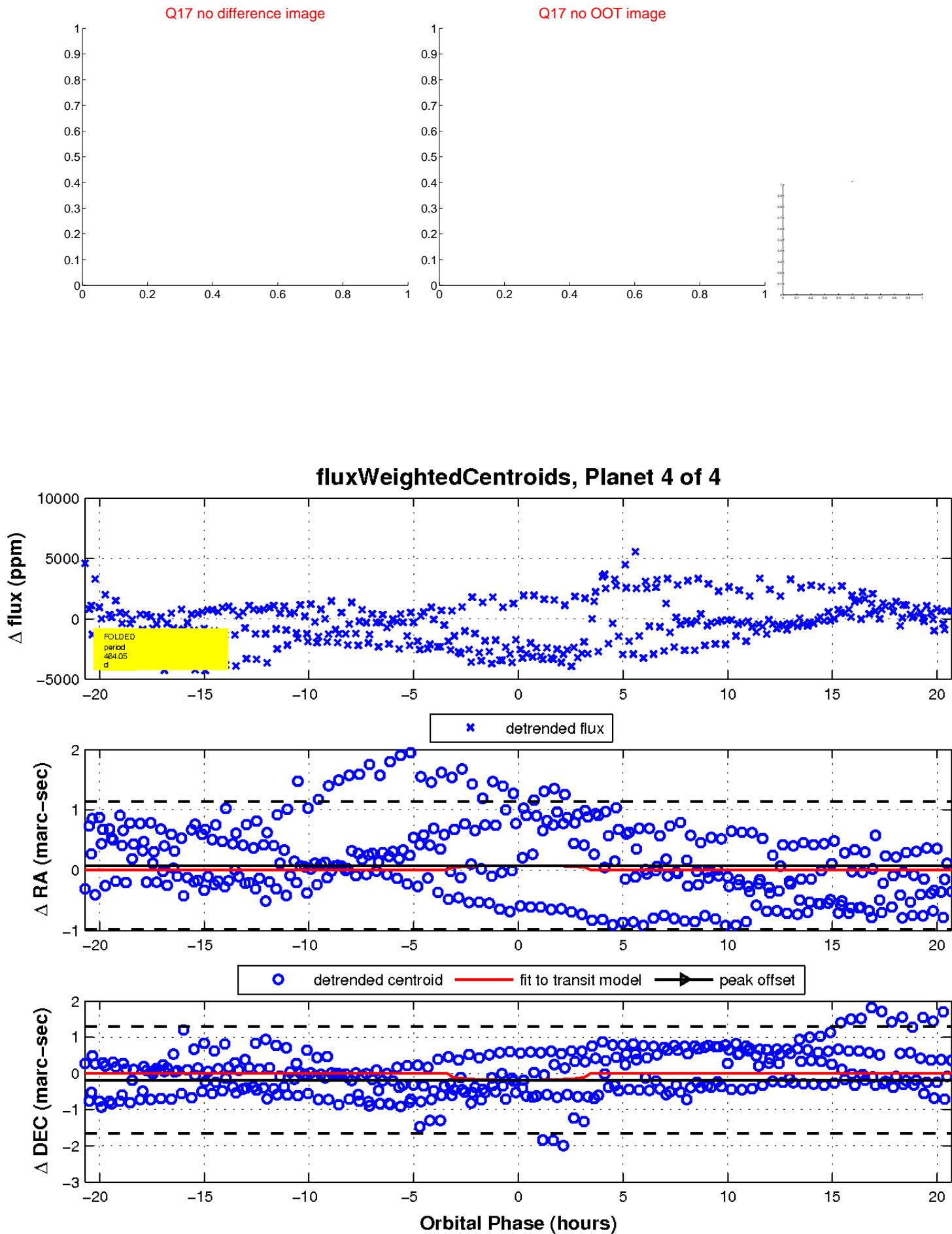
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

