

KIC 008365058

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})
008365058-02	OBS	No	415.414275	545.127115	1287.3	12.500	13.0	-1.0	0.74	4565	2.54	0.22
008365058-03	OBS	No	581.433231	407.829194	2633.1	7.851	10.1	8.7	0.74	4565	4.57	0.14
008365058-04	OBS	No	642.017023	139.932047	2277.7	4.686	11.8	7.1	0.74	4565	3.65	0.12
008365058-05	OBS	No	371.025771	199.275490	2372.7	3.500	10.3	-1.0	0.74	4565	3.45	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365058-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365058-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008365058-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
008365058-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

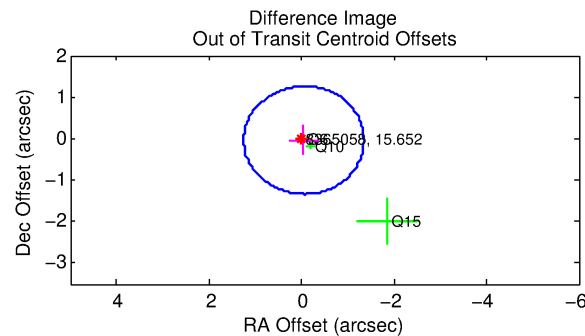
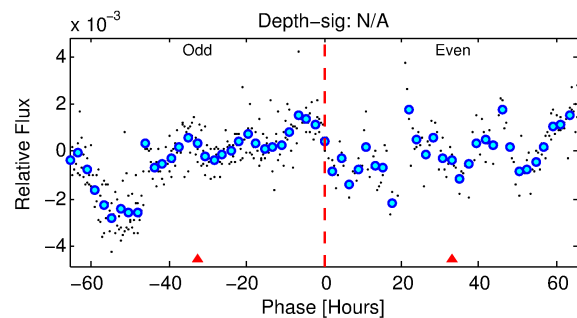
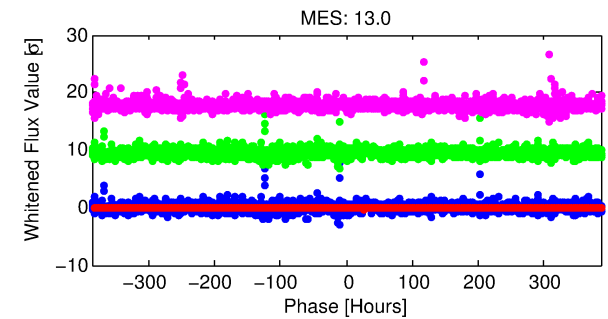
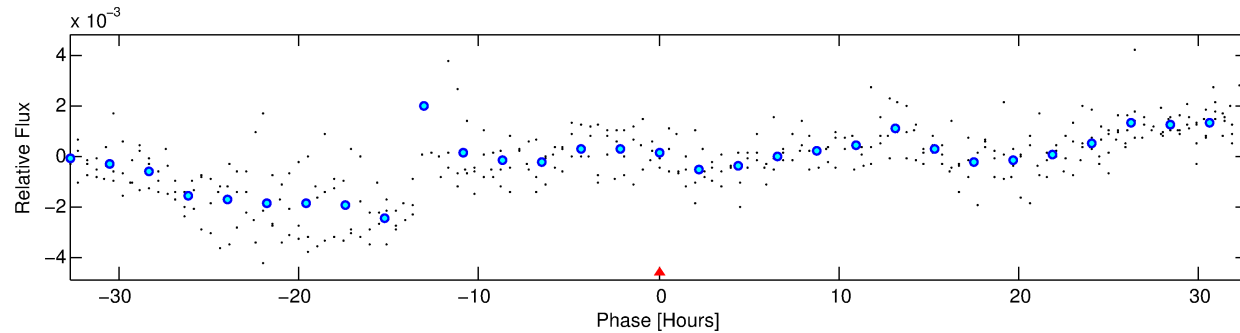
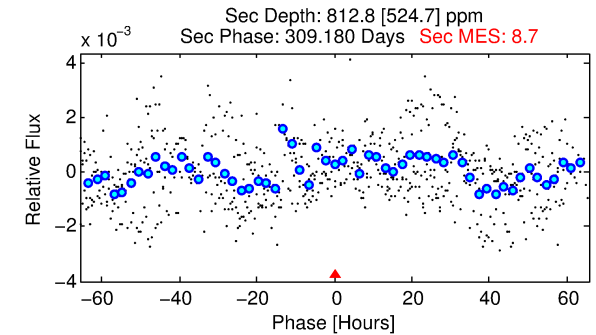
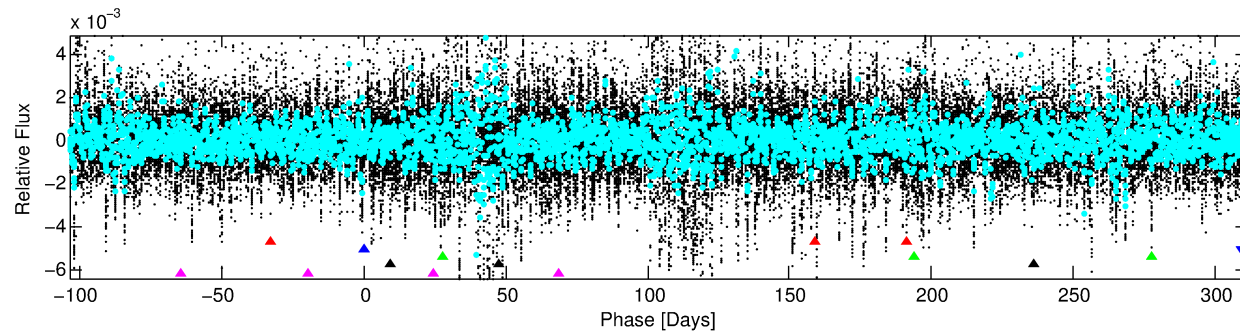
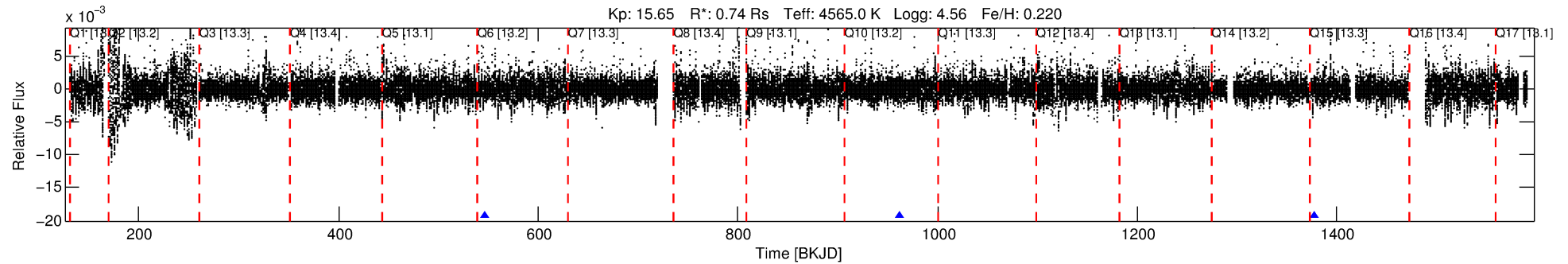
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008365058-02

No Significant Match Found

DV One-Page Summary

KIC: 8365058 Candidate: 2 of 5 Period: 415.414 d



TPS TCE Results:

Period = 415.41427 d
Epoch = 545.1271 BKJD

DV fit results are unavailable

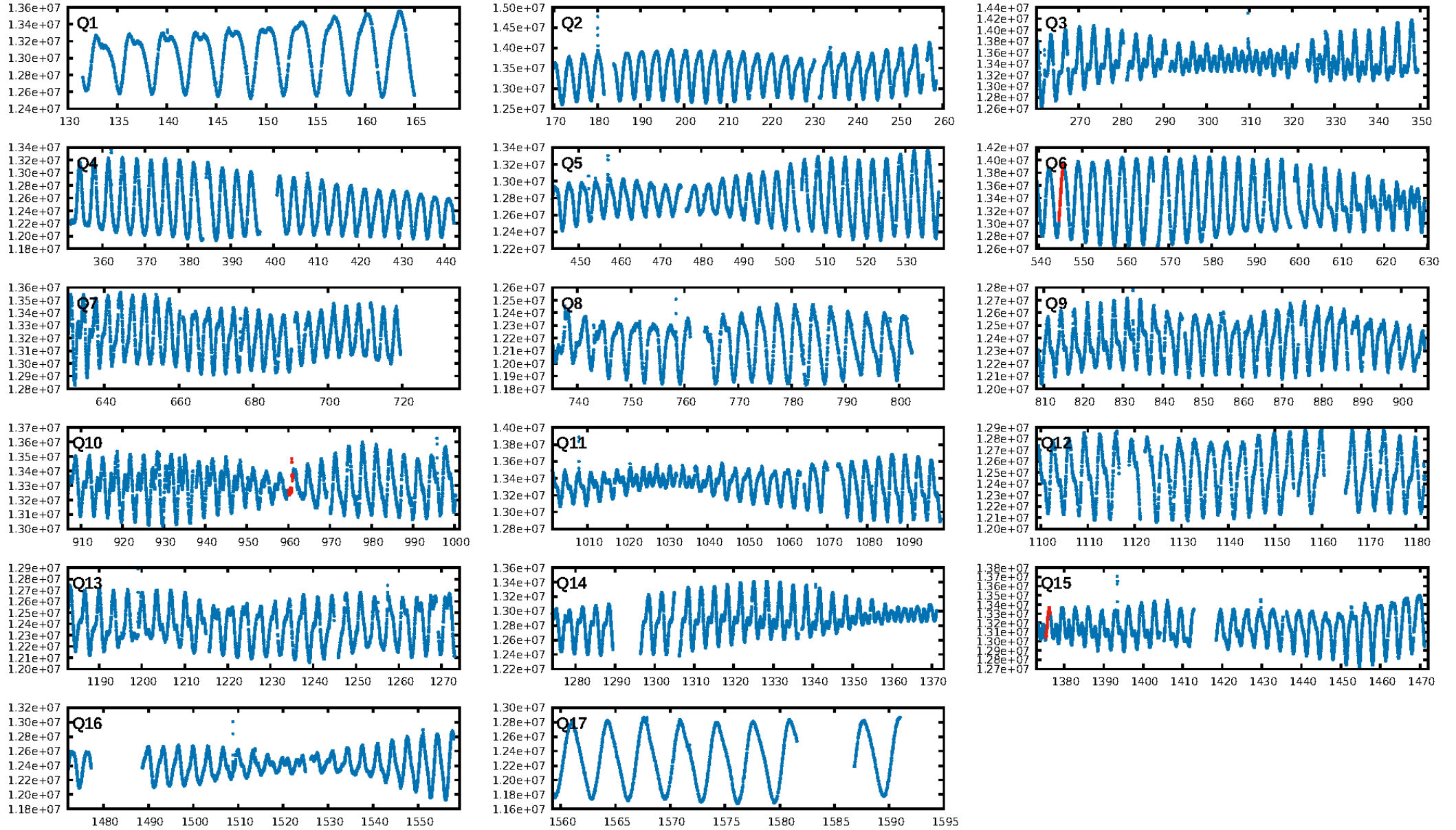
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [82.07σ]
LongPeriod-sig: 100.0% [269.93σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.758
Centroid-sig: 8.3%
Centroid-so: 69.194 arcsec [1.13σ]
OotOffset-rm: 0.063 arcsec [0.14σ]
KicOffset-rm: 0.224 arcsec [1.05σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

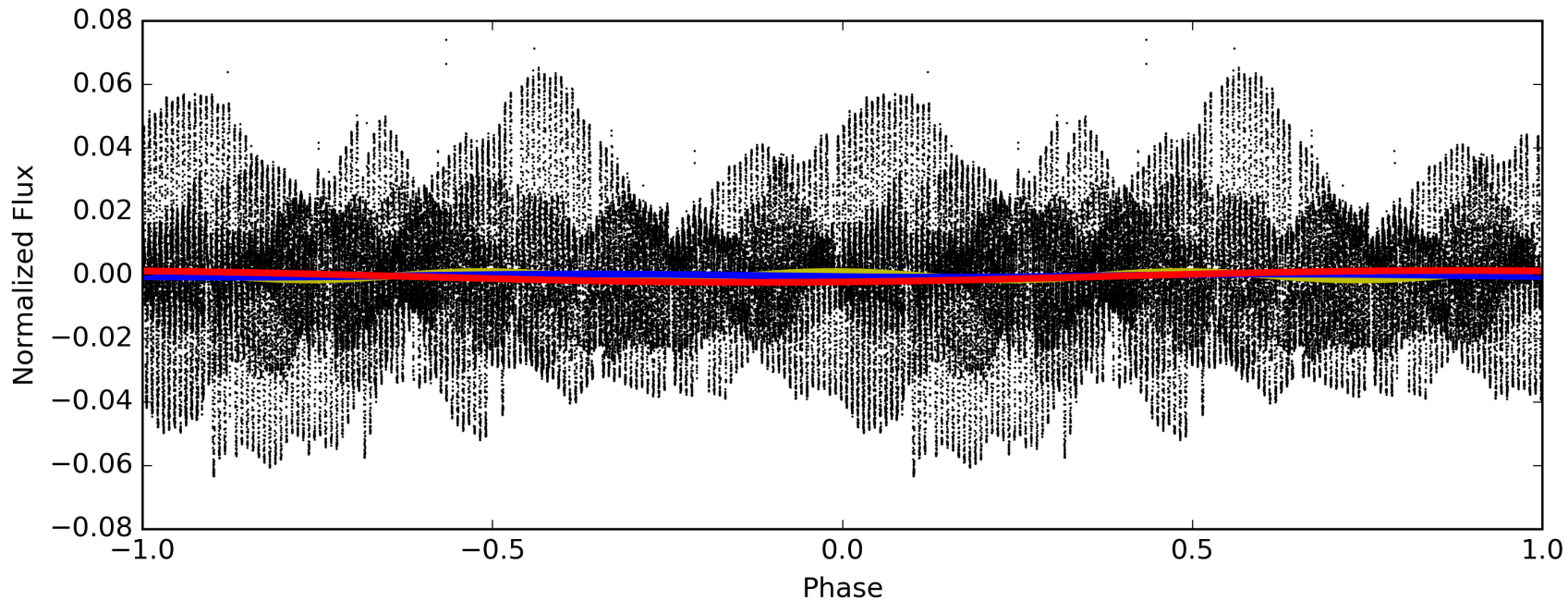
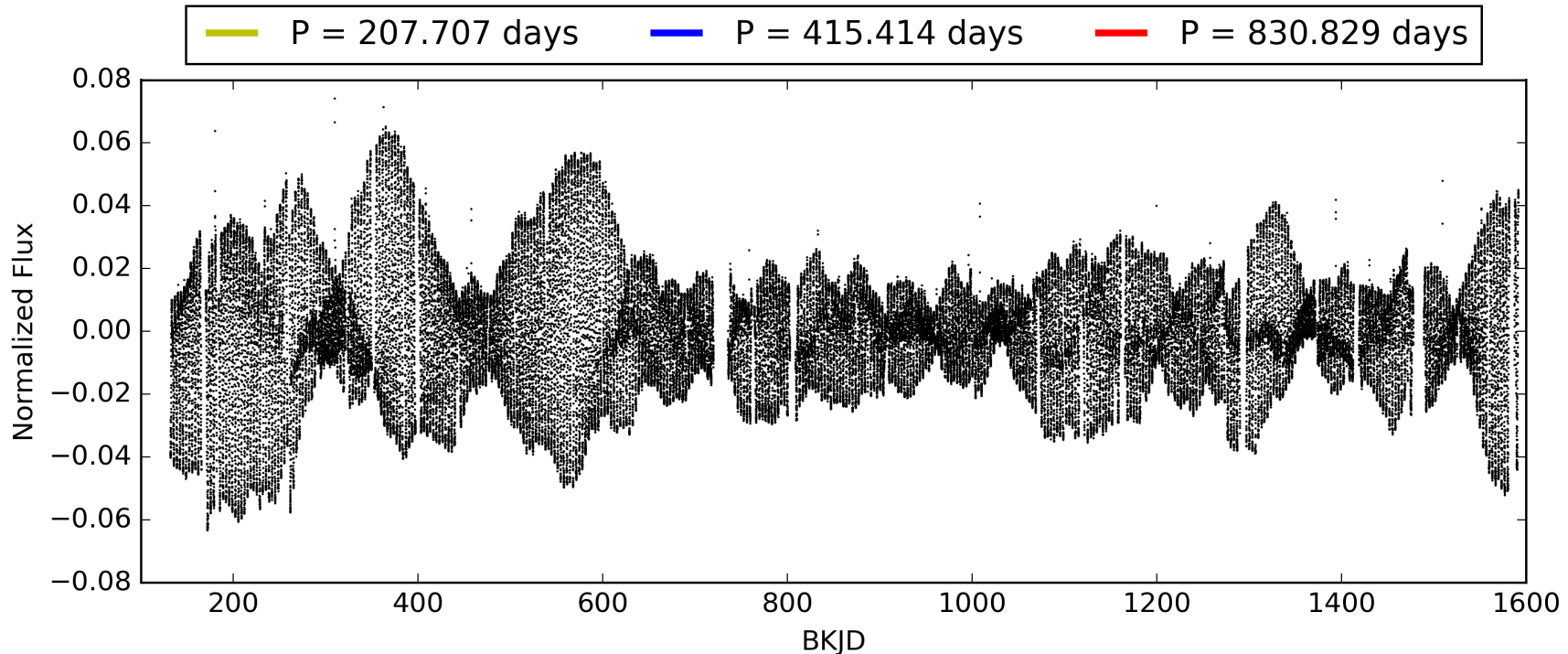
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:35:33 Z

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

TCE 008365058-02, PDC Light Curves

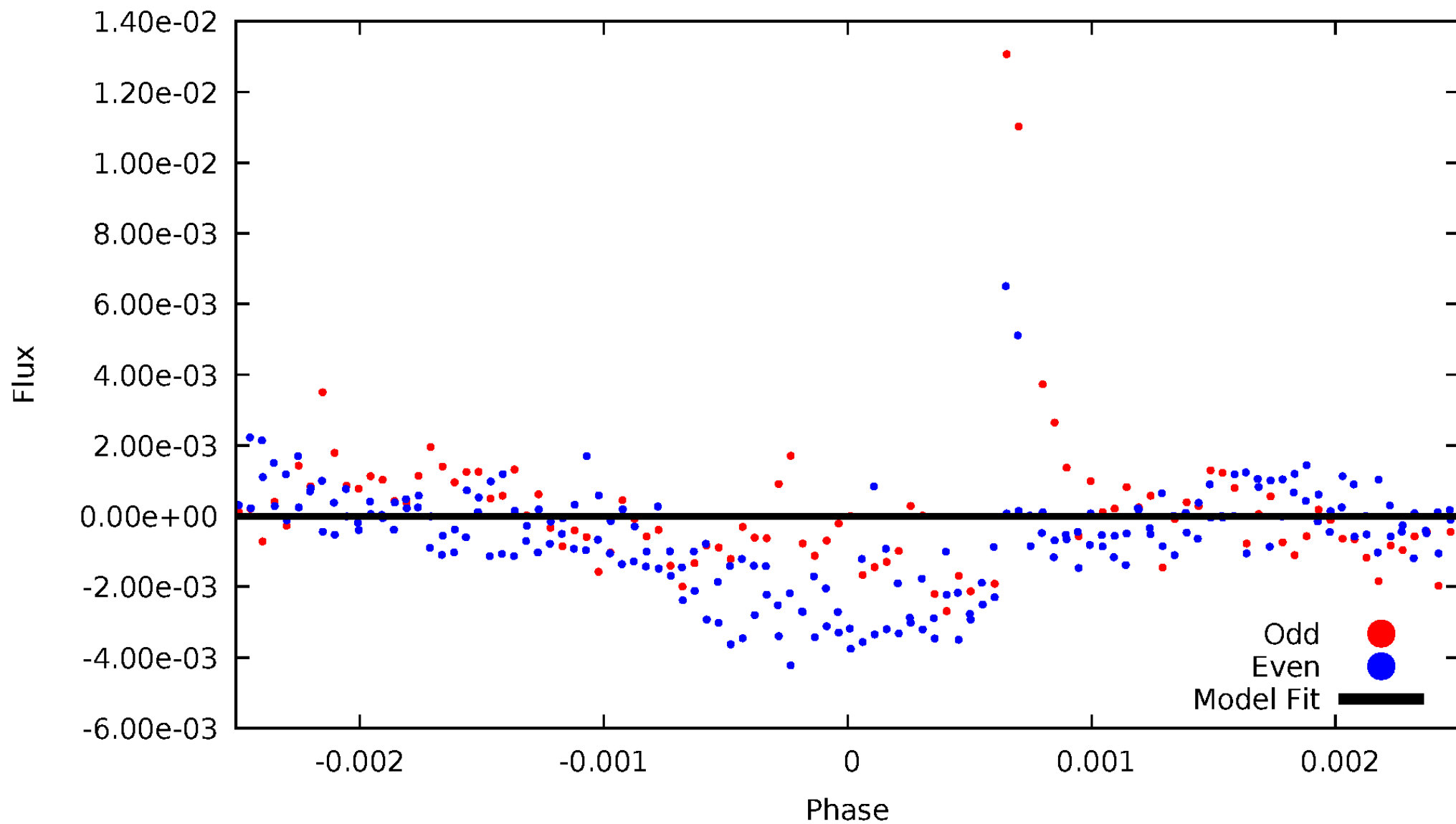


TCE 008365058-02



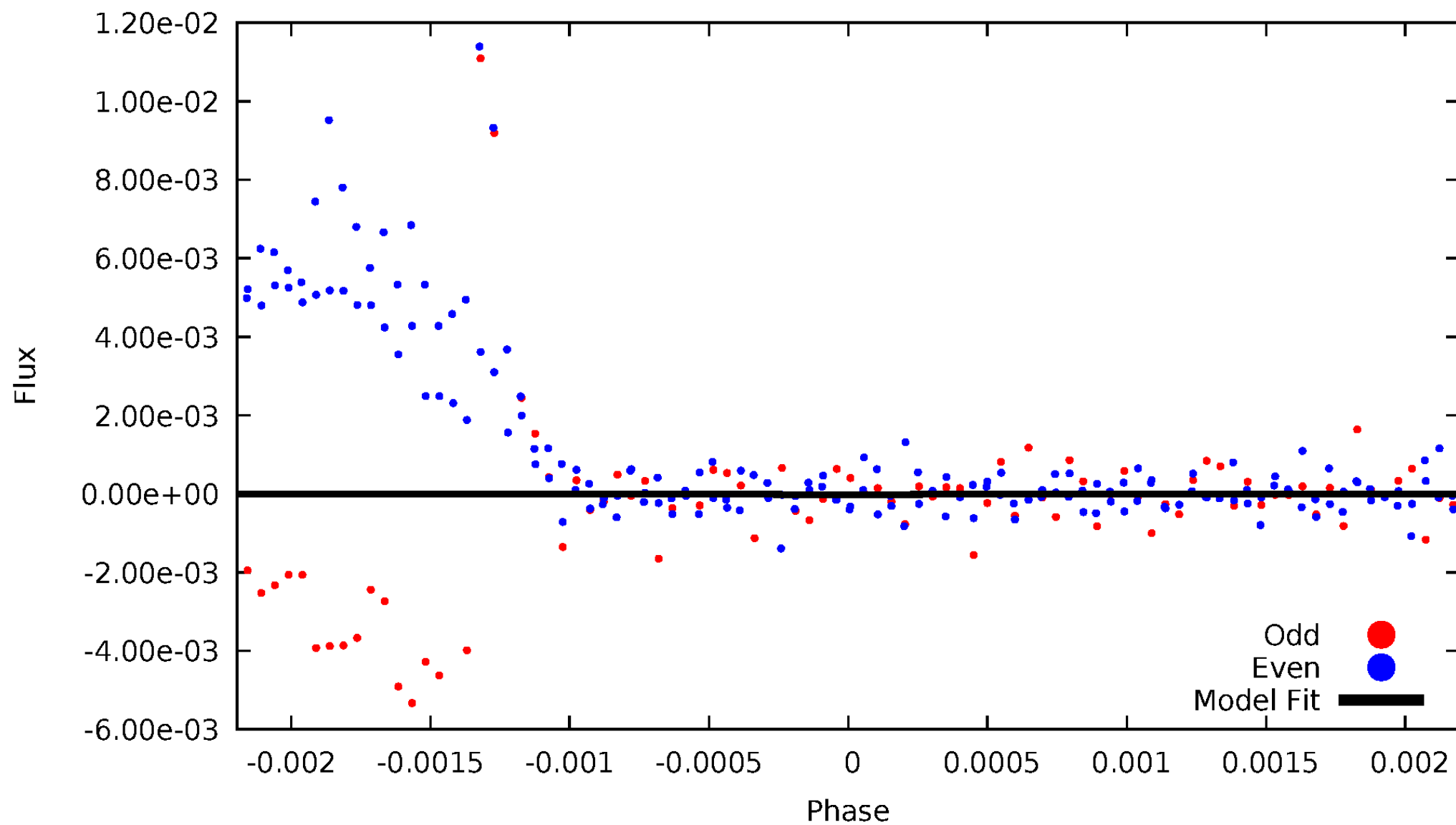
DV Odd/Even

TCE 008365058-02



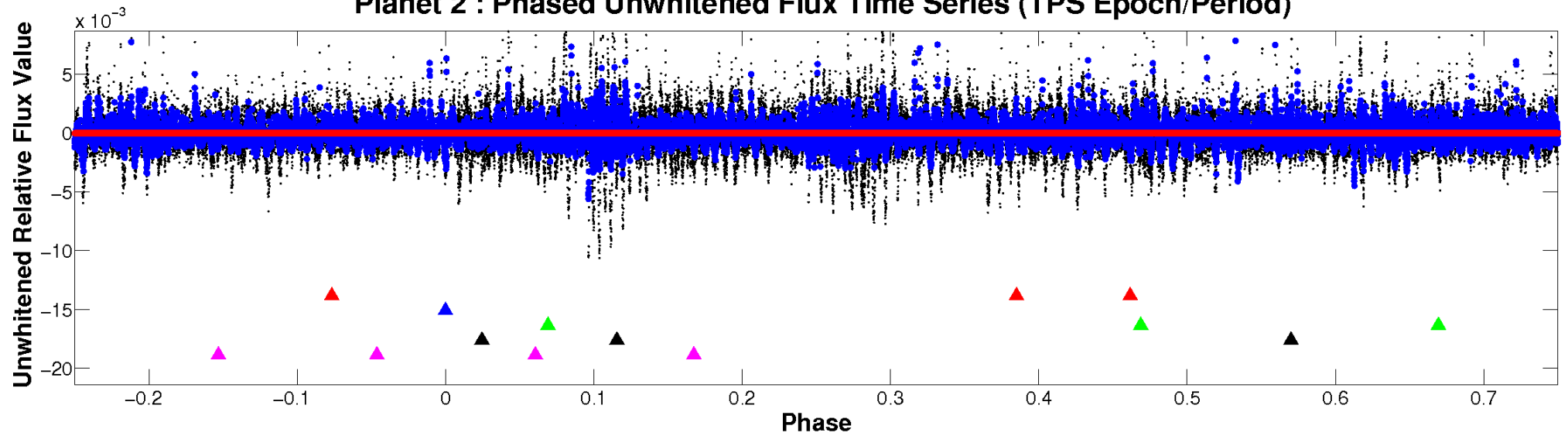
ALT Odd/Even

TCE 008365058-02



Non-Whitened Vs. Whitened Light Curve

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

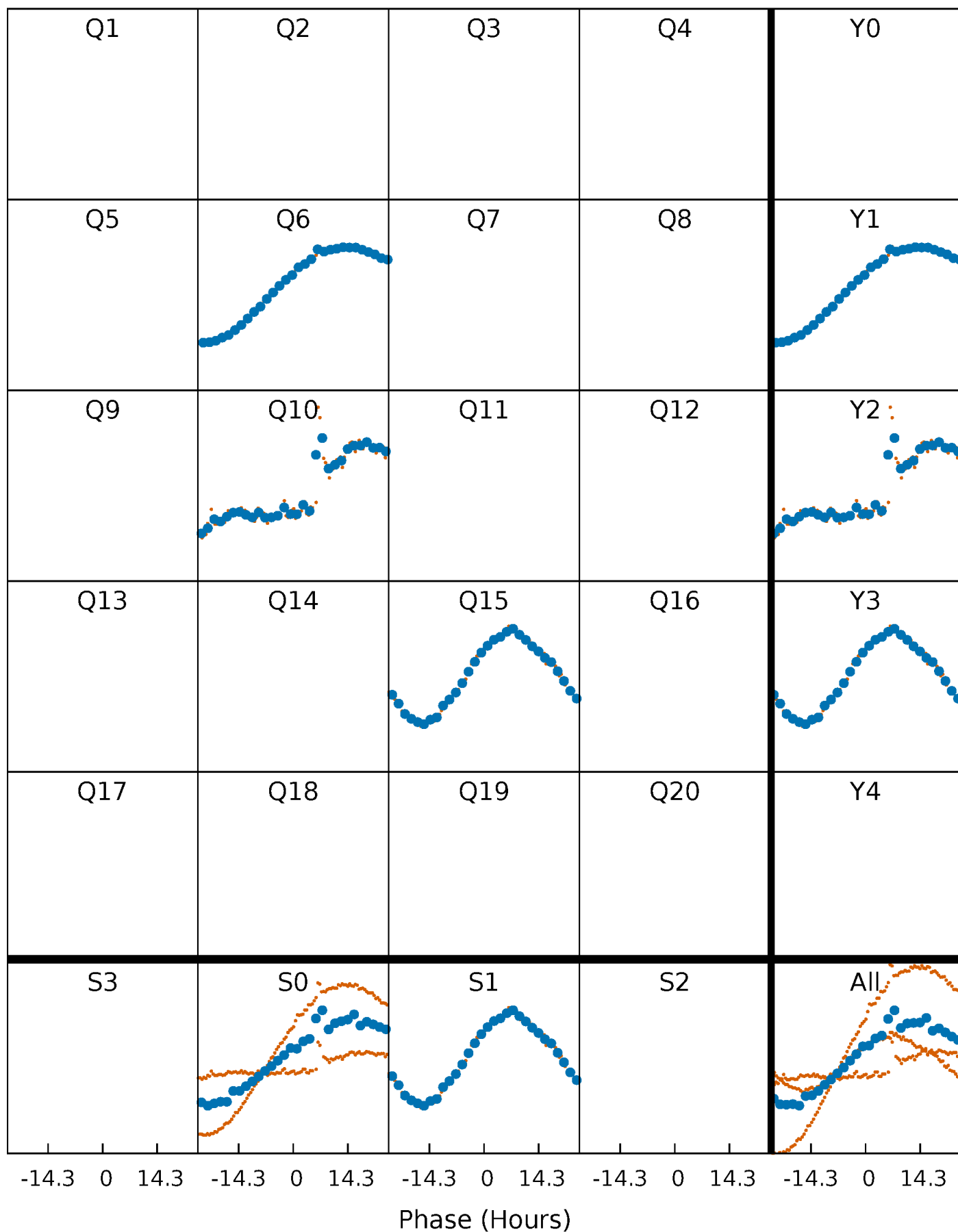


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



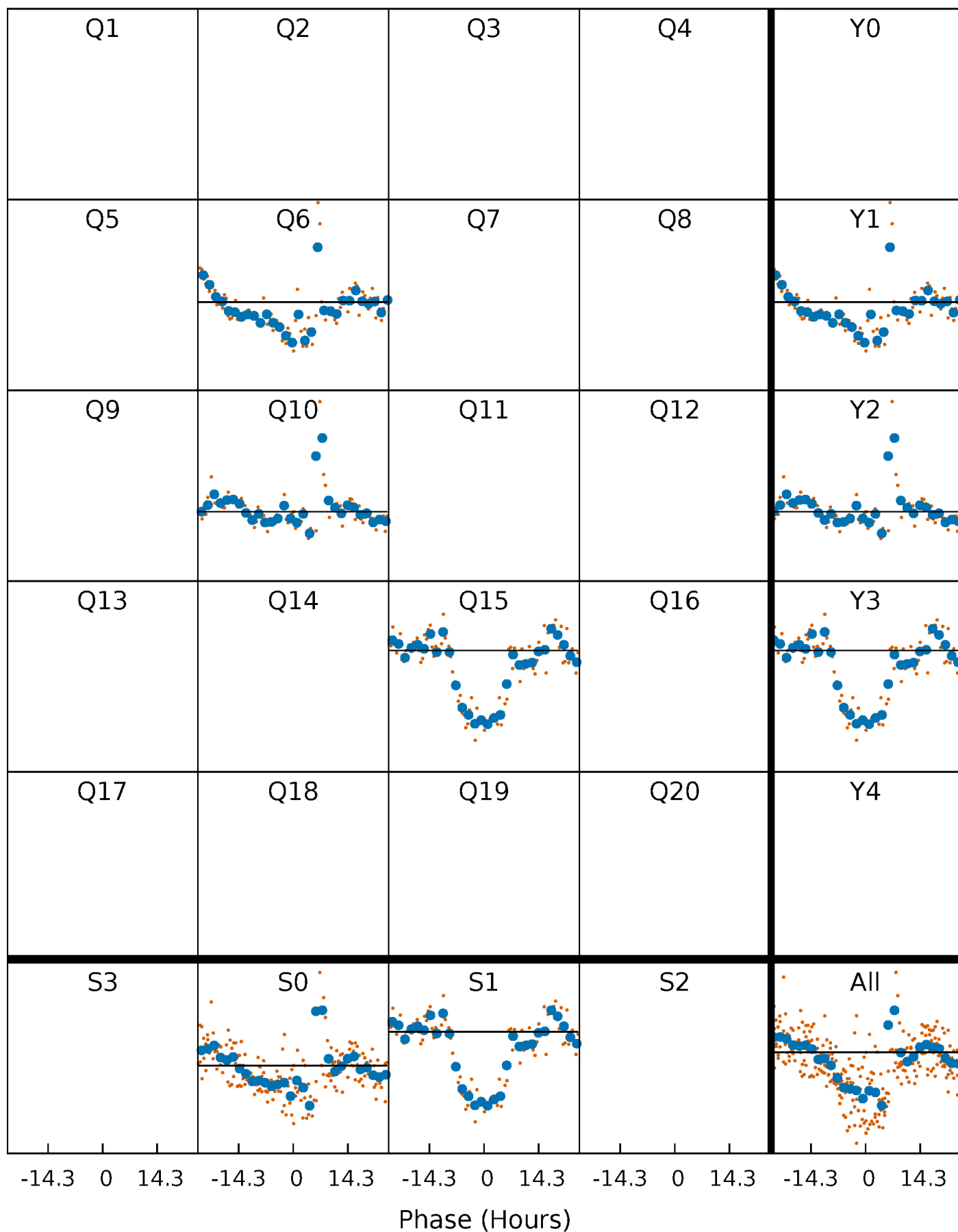
PDC Quarter-Phased Transit Curves

TCE 008365058-02 P=415.414275 Days $T_0=545.127115$ (BKJD)



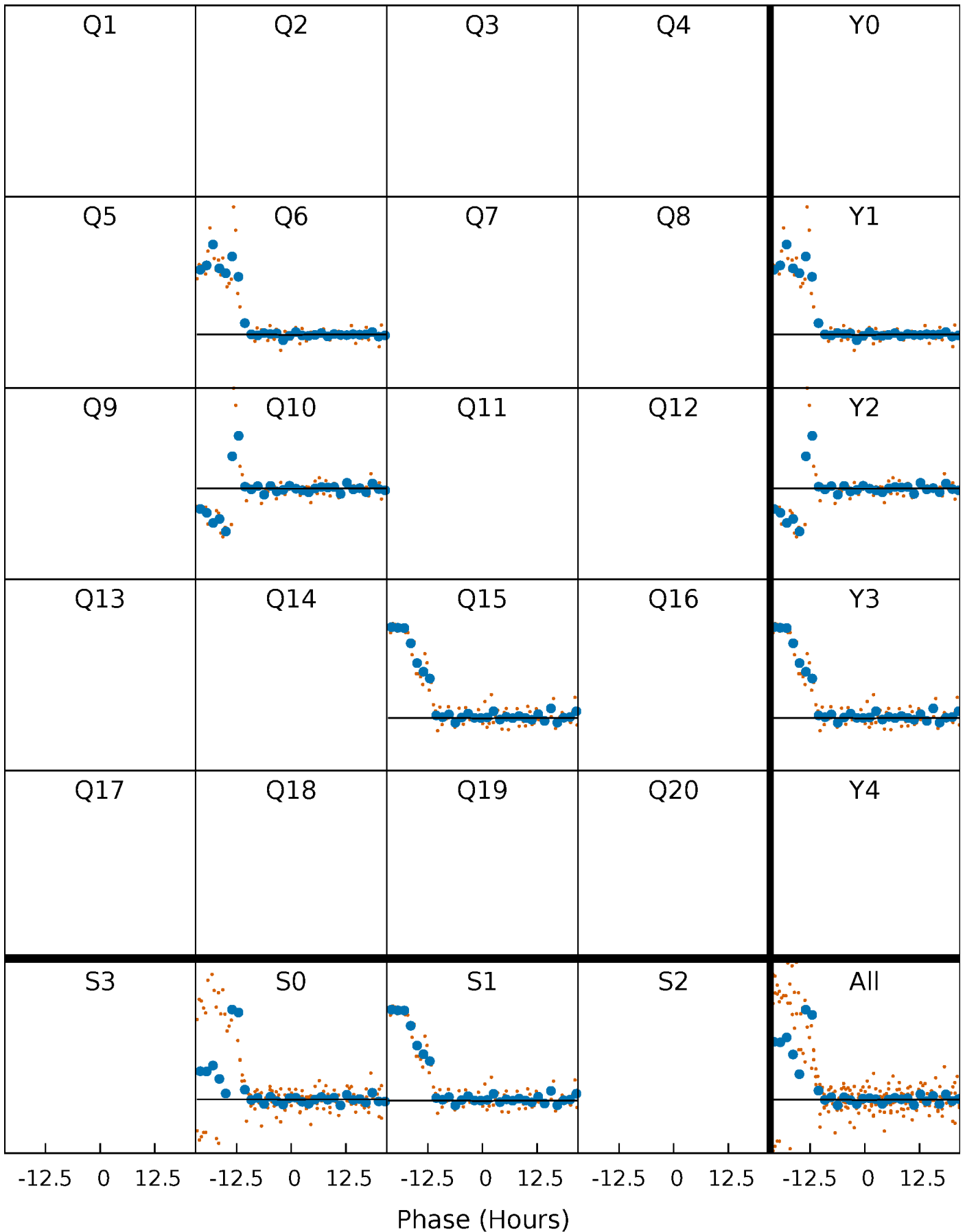
DV Quarter-Phased Transit Curves

TCE 008365058-02 P=415.414275 Days $T_0=545.127115$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

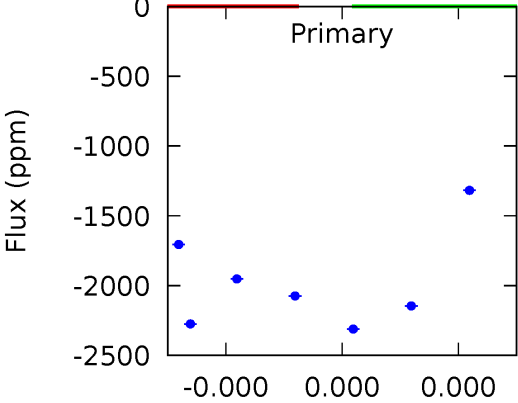
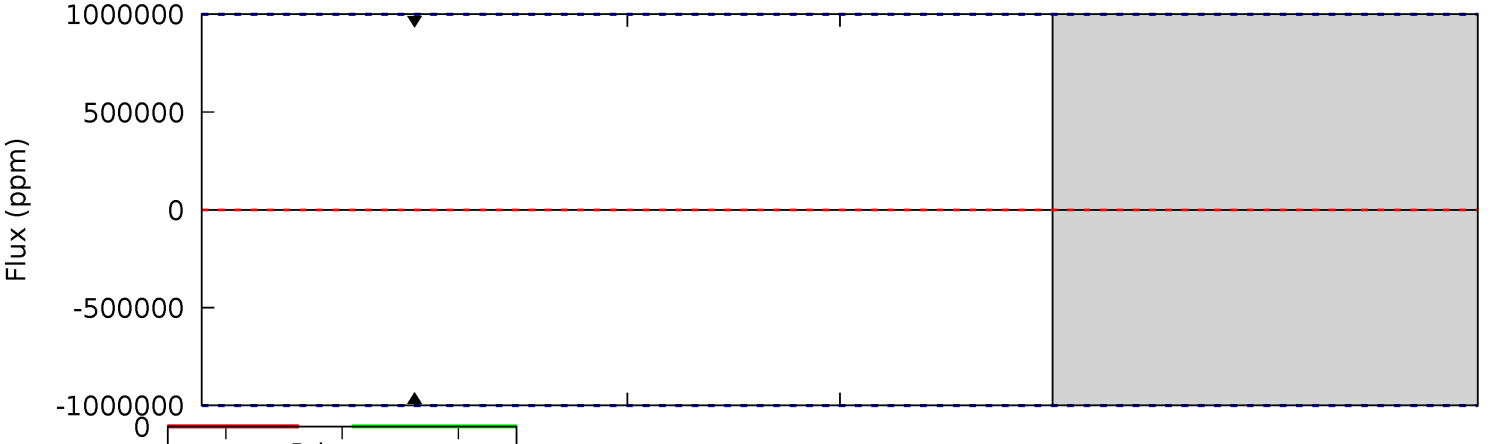
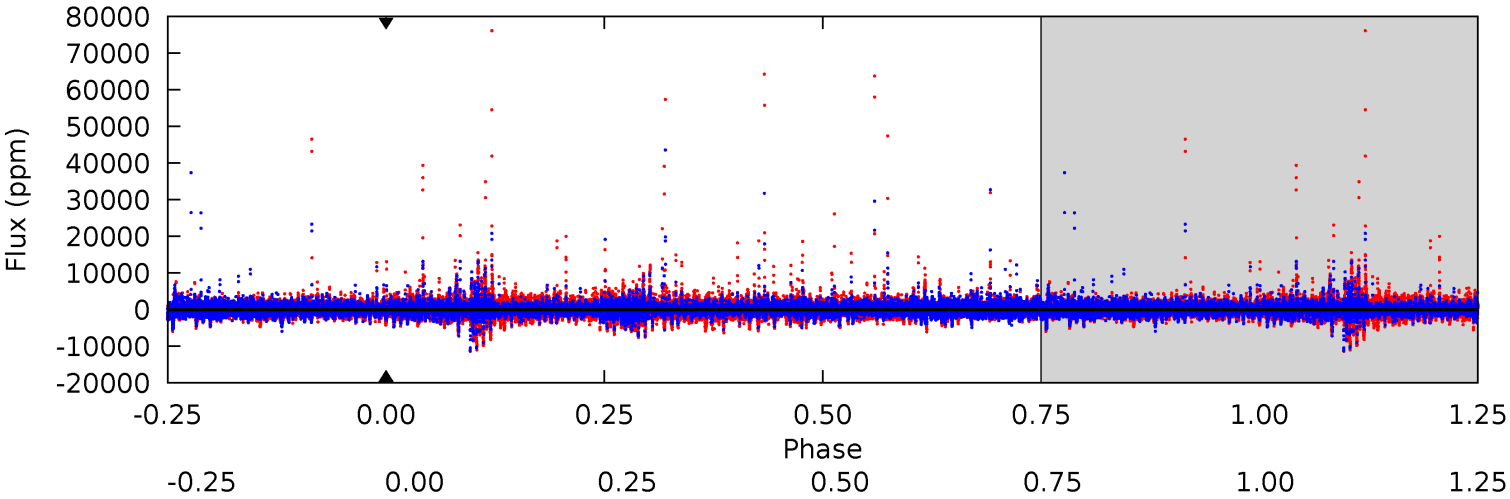
TCE 008365058-02 $P=415.414275$ Days $T_0=545.946237$ (BKJD)



DV Model-Shift Uniqueness Test

008365058-02, P = 415.414275 Days, E = 129.712840 Days

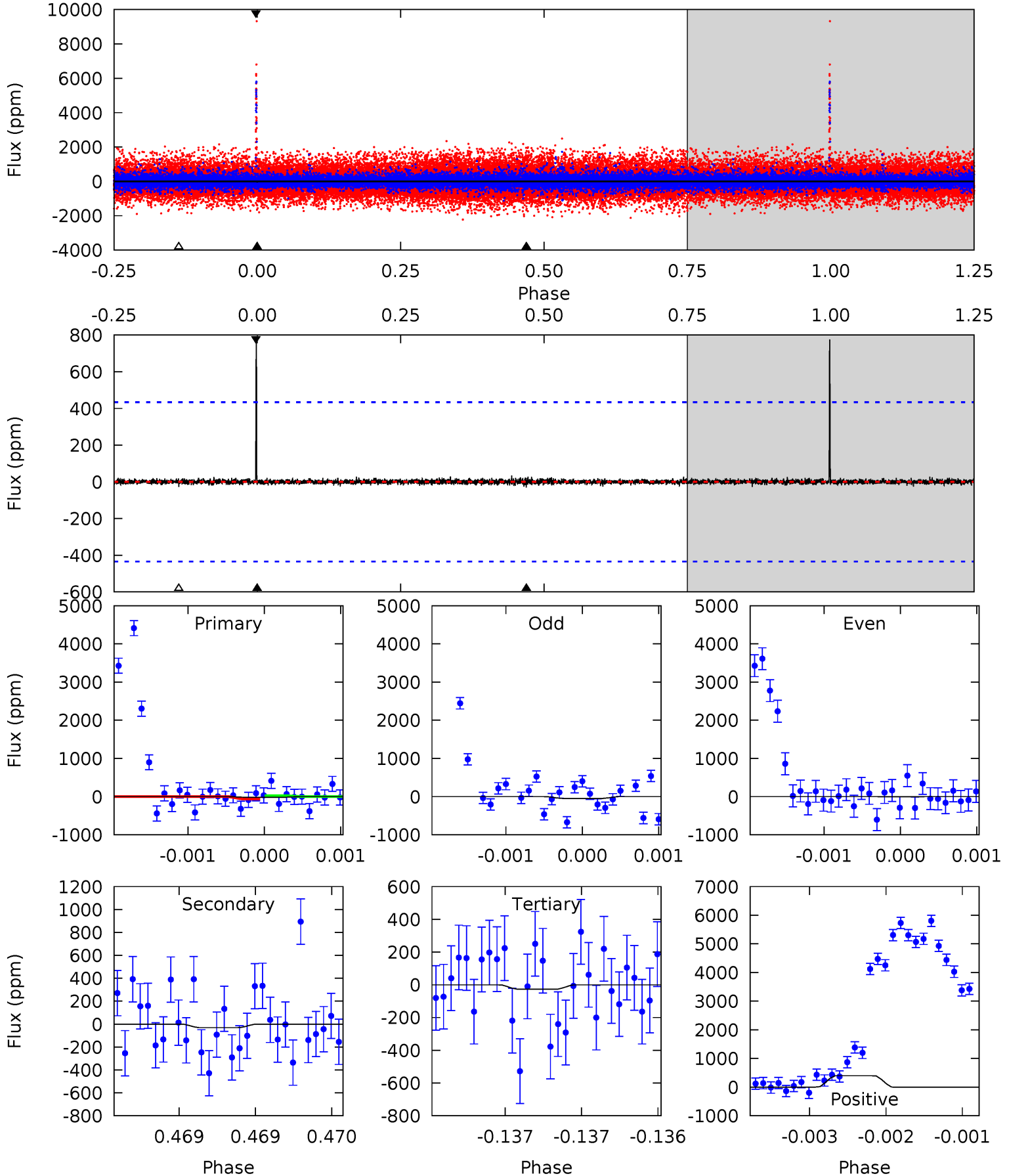
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008365058-02, P = 415.414275 Days, E = 130.531962 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.21	0.39	0.34	5.04	5.51	3.38	0.24	-0.13	-4.83	0.05	-4.65	0.28	0.34	0.96	0.24



Stellar Parameters For KIC 008365058

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4565^{+150}_{-150}	$4.562^{+0.060}_{-0.020}$	$0.220^{+0.200}_{-0.300}$	$0.741^{+0.031}_{-0.062}$	$0.731^{+0.050}_{-0.050}$	$2.528^{+0.638}_{-0.195}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+7%/-7%	+25%/-8%
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 008365058-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.97^{+6.42}_{-4.83}$	243^{+8}_{-10}	-3700^{+14009}_{-7247}	$-24025.489^{+1713443.137}_{-2084673.976}$
Alt.	-31 ± 79	$5.39^{+6.44}_{-3.85}$	242^{+9}_{-8}	1998^{+942}_{-4353}	217^{+5622}_{-1197}

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

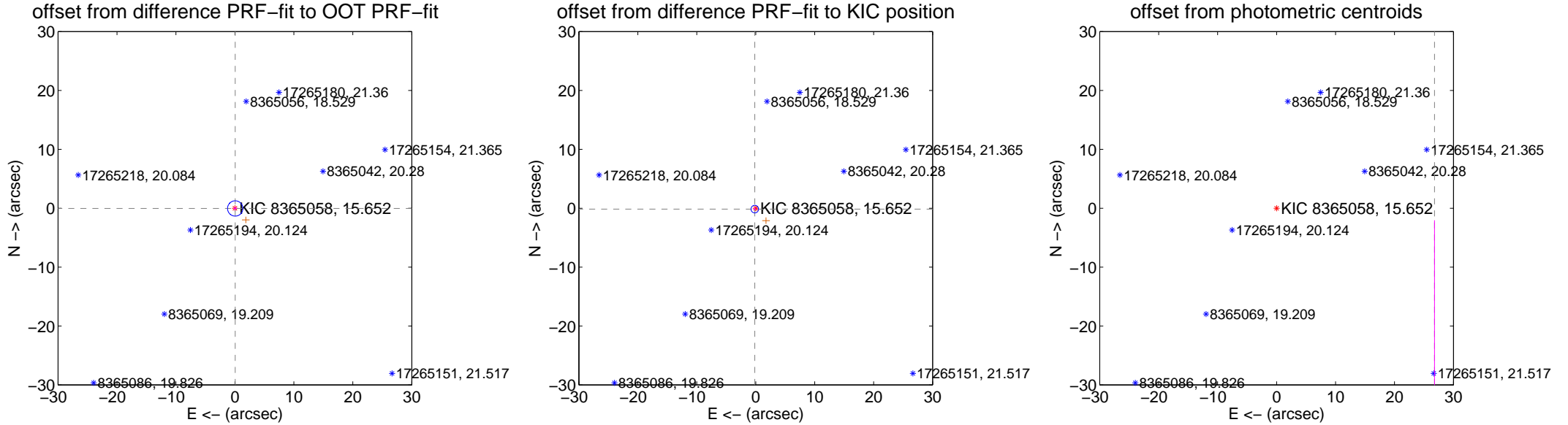
DV Centroid Data

Supplemental centroid analysis for 008365058-02. Kepler magnitude: 15.65. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.063 ± 0.433	0.14	-0.051 ± 0.304	-0.036 ± 0.328
PRF-fit source offset from KIC position	0.224 ± 0.214	1.05	0.167 ± 0.227	-0.149 ± 0.196
photometric centroid source offset	69.20 ± 61.32	1.13	-26.79 ± 58.74	-63.80 ± 61.77

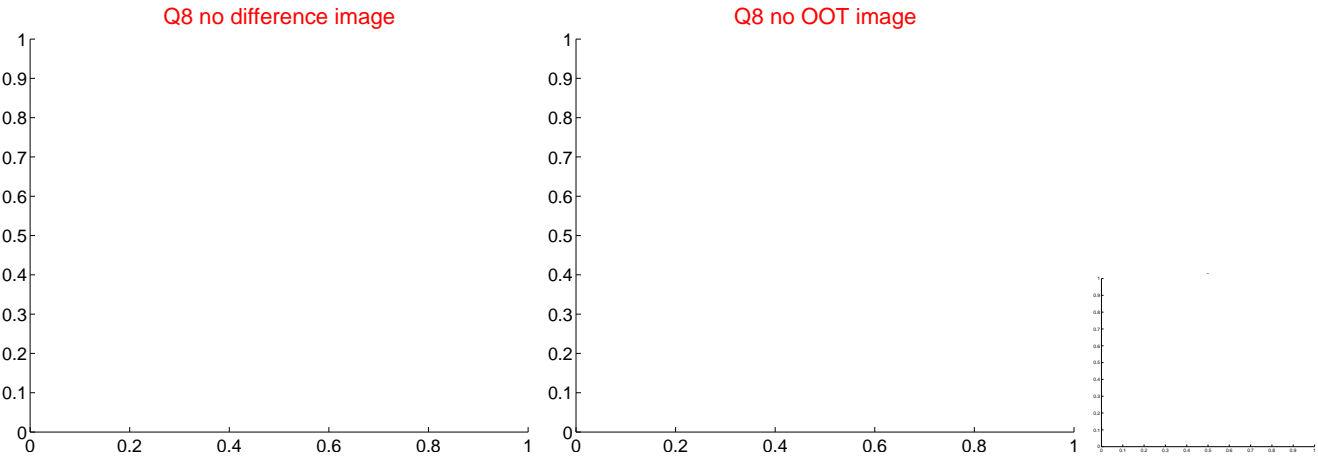
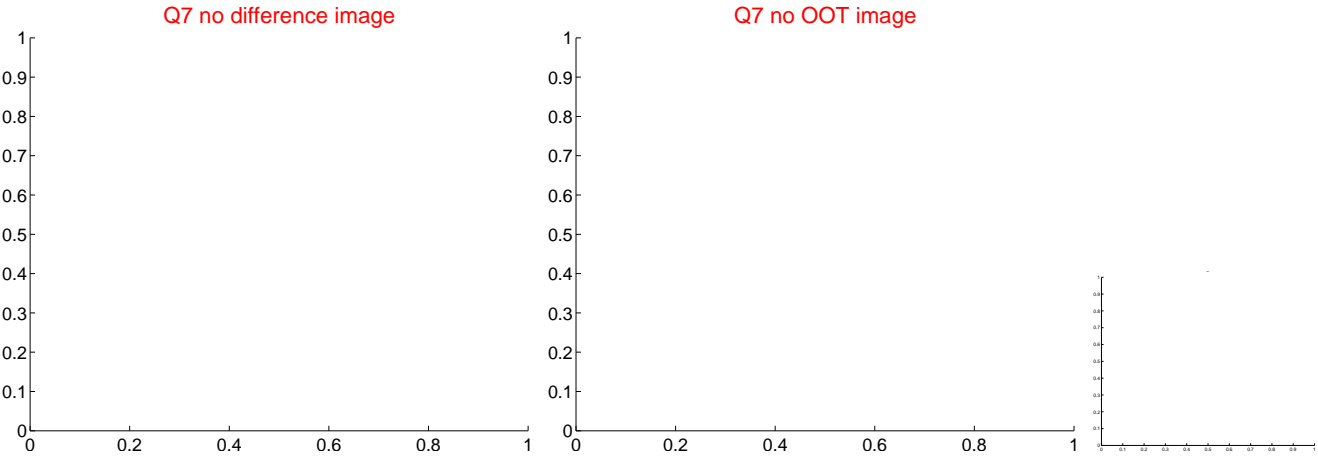
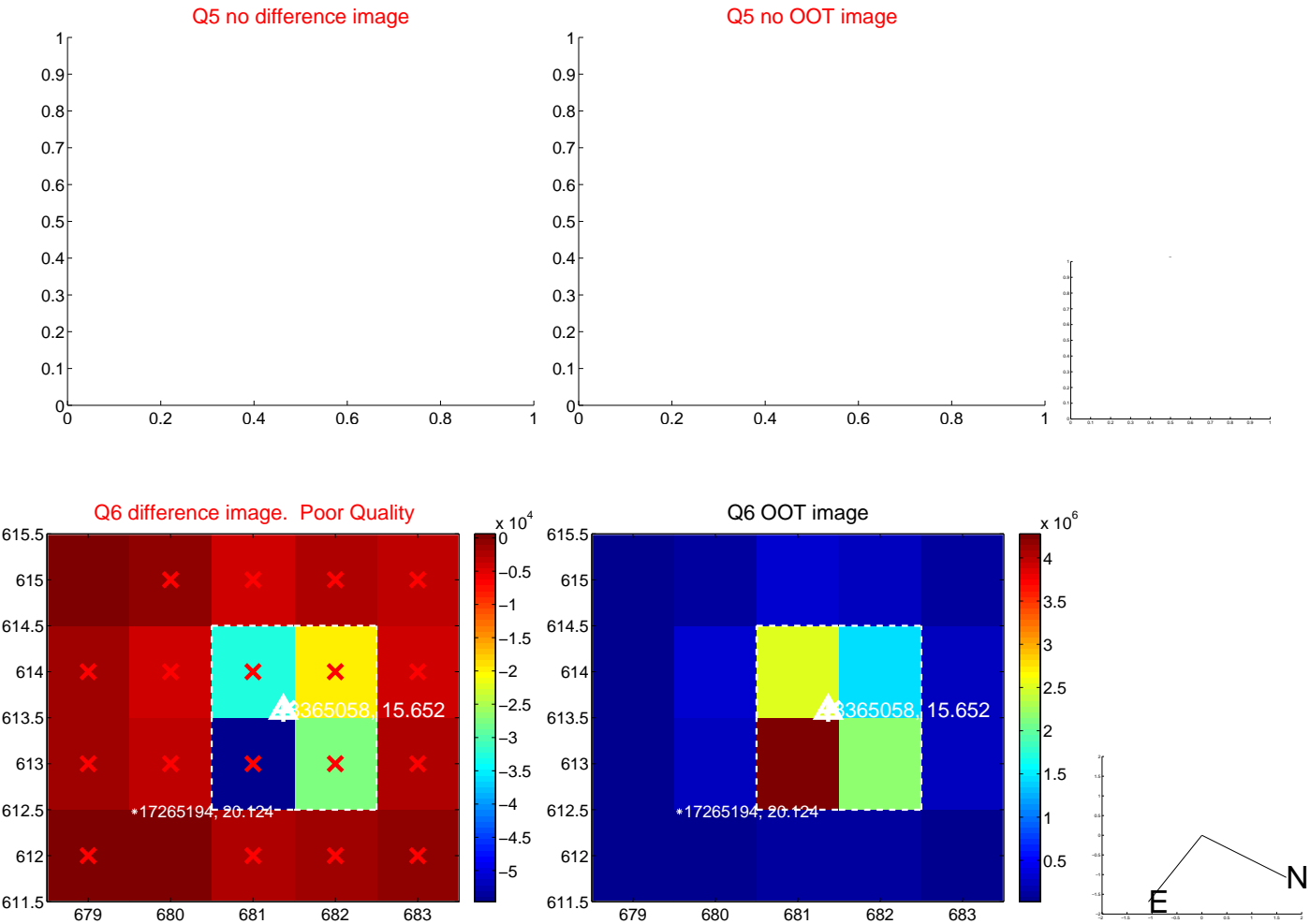


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

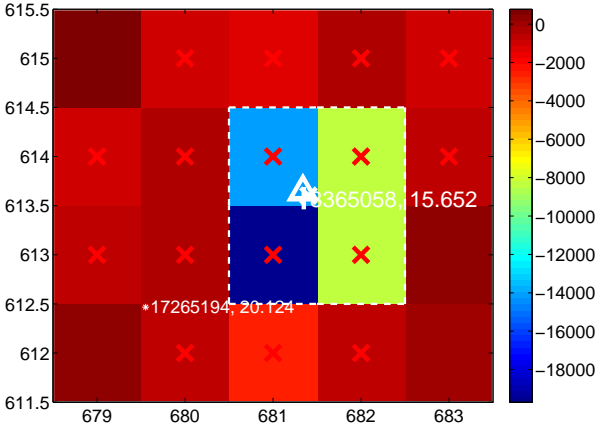
Q9 no difference image



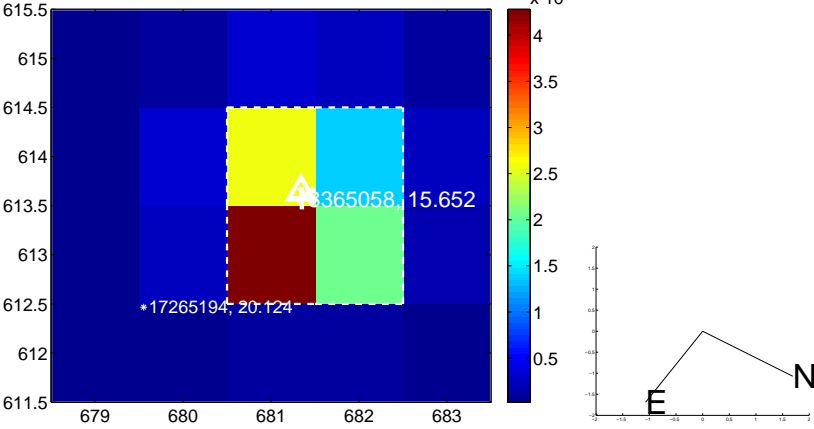
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



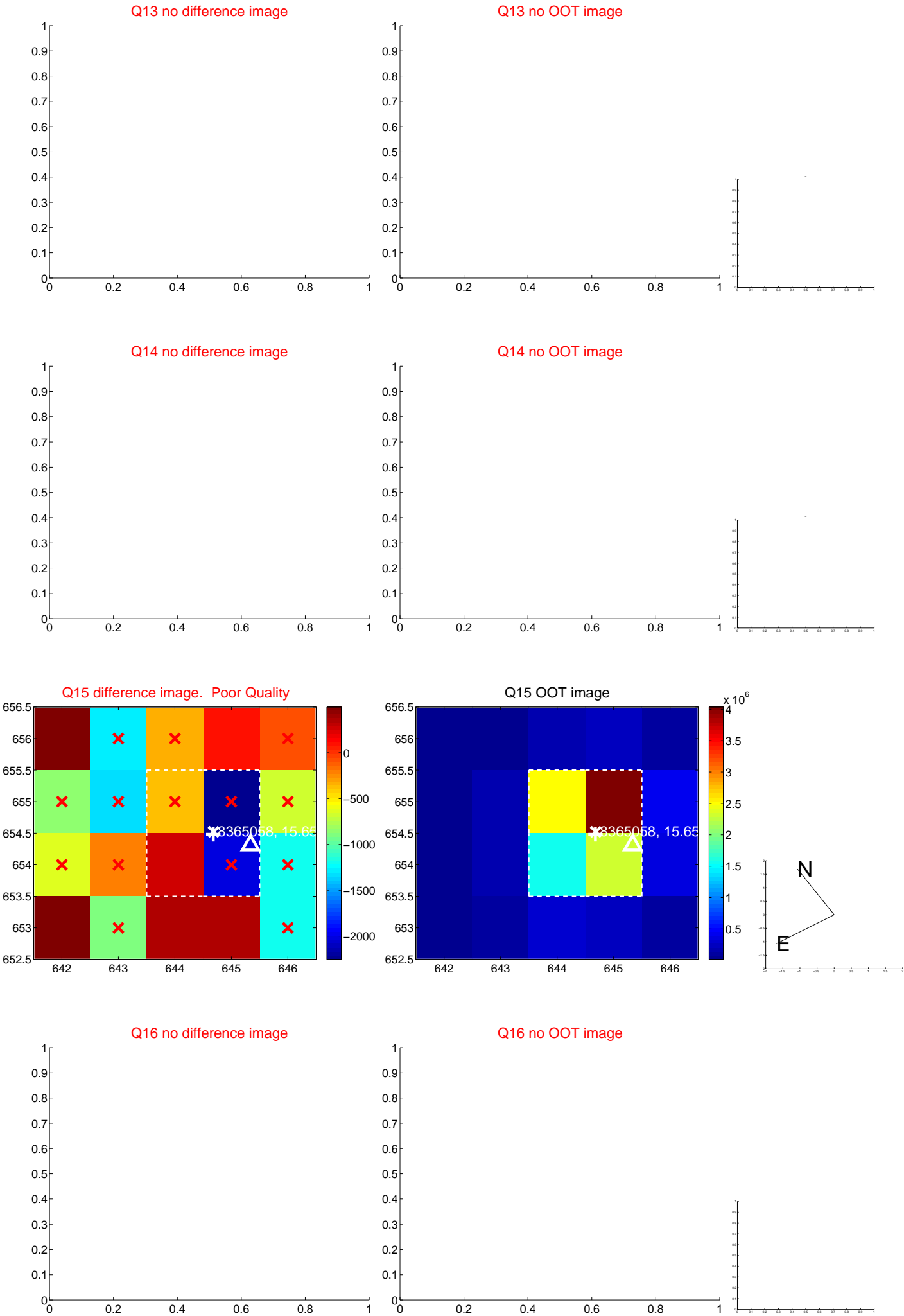
Q12 no difference image



Q12 no OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



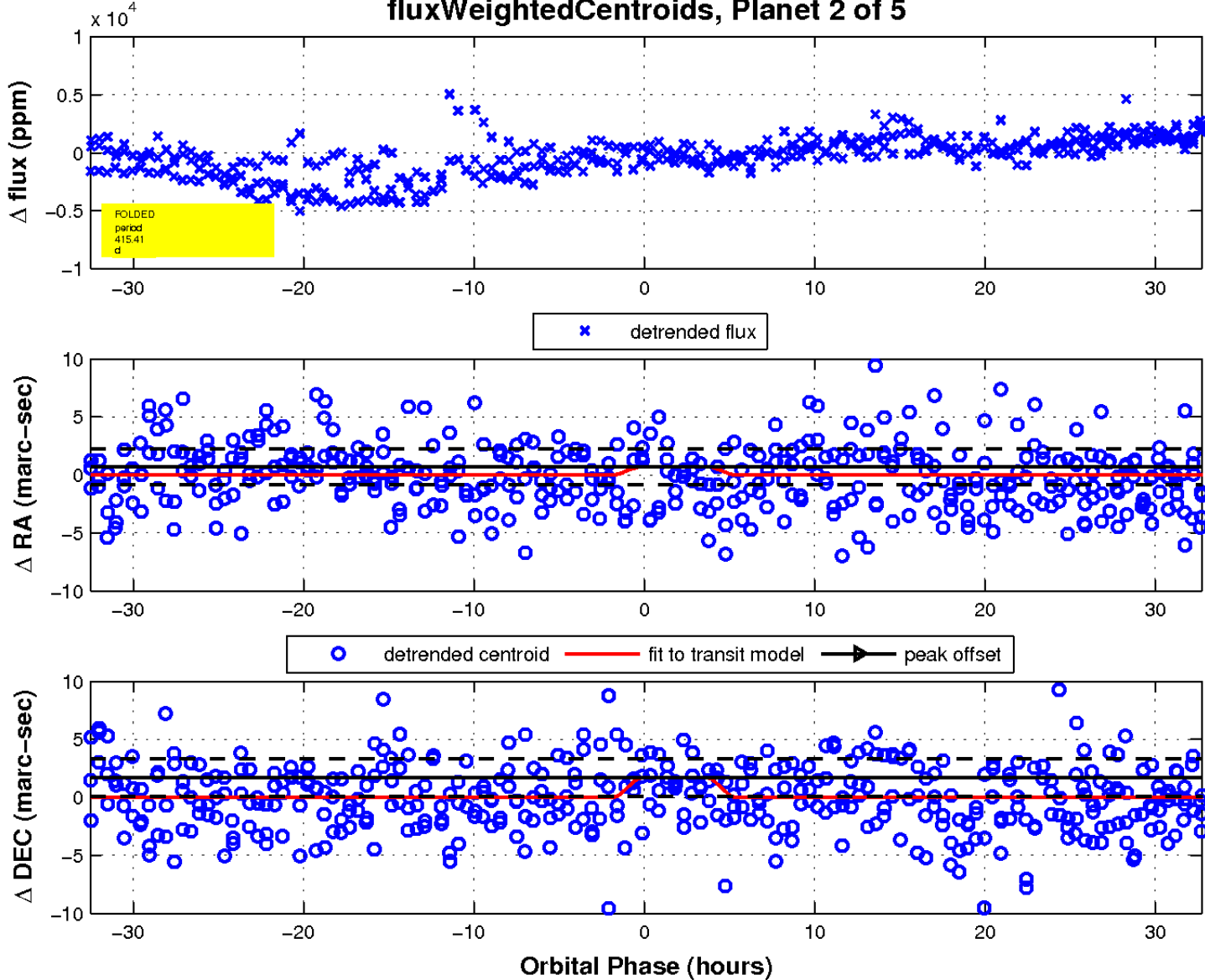
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

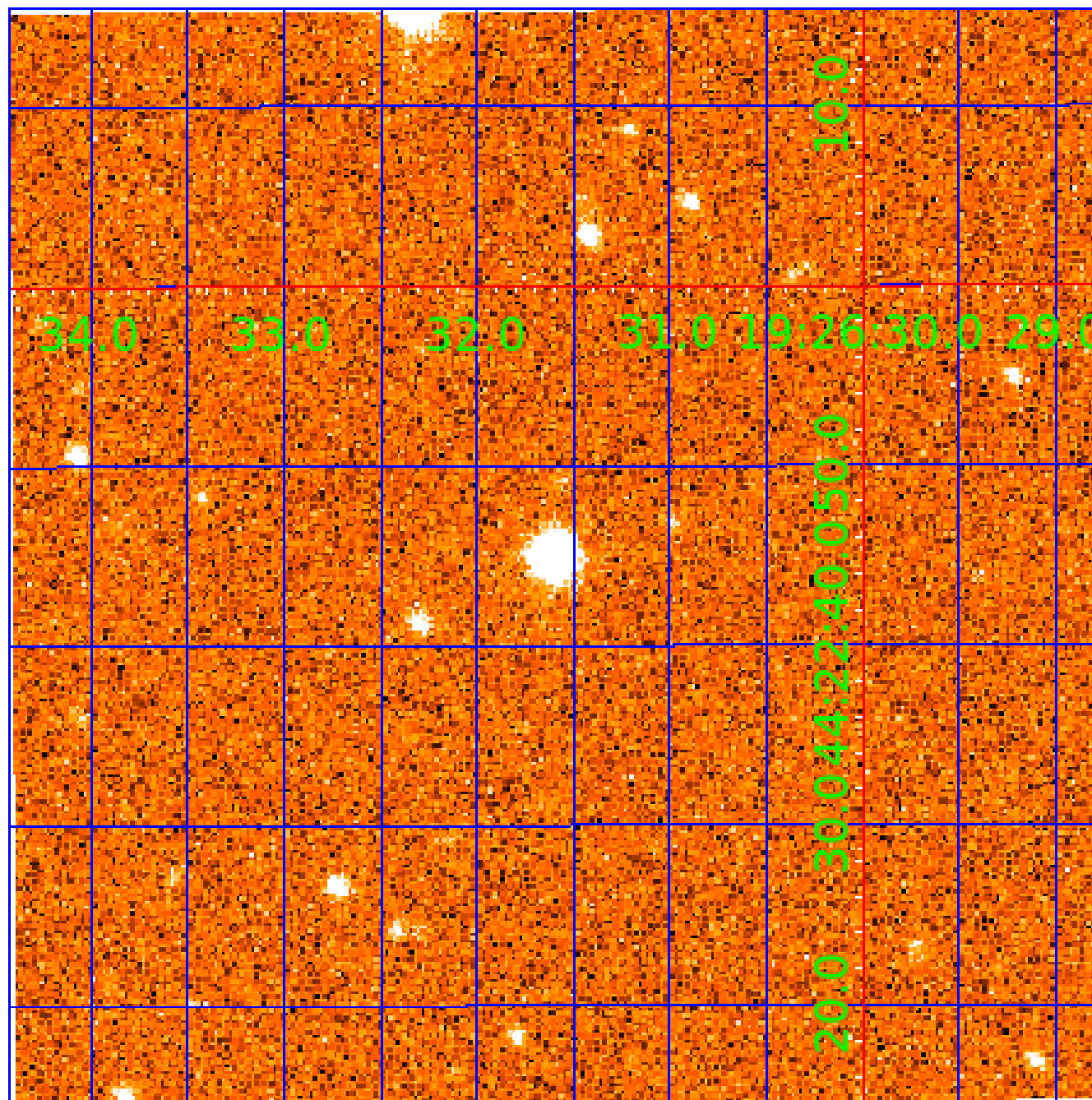


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 008365058

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})
008365058-02	OBS	No	415.414275	545.127115	1287.3	12.500	13.0	-1.0	0.74	4565	2.54	0.22
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365058-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365058-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008365058-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
008365058-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

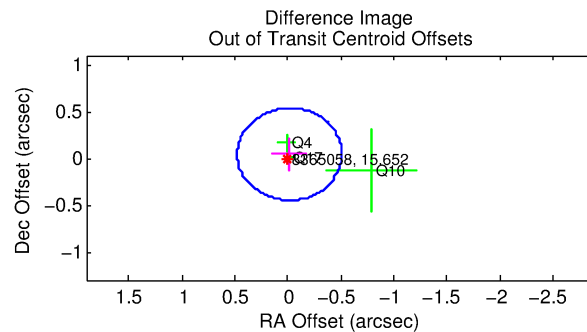
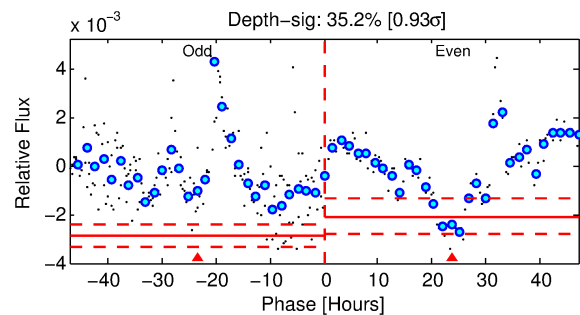
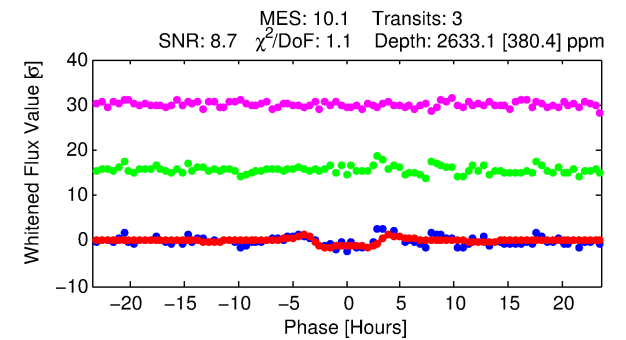
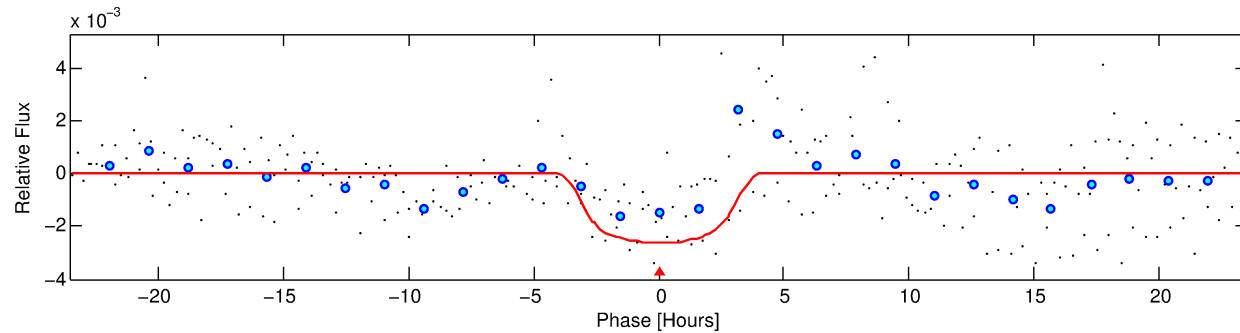
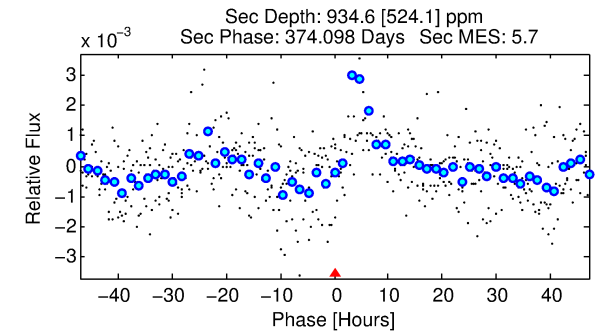
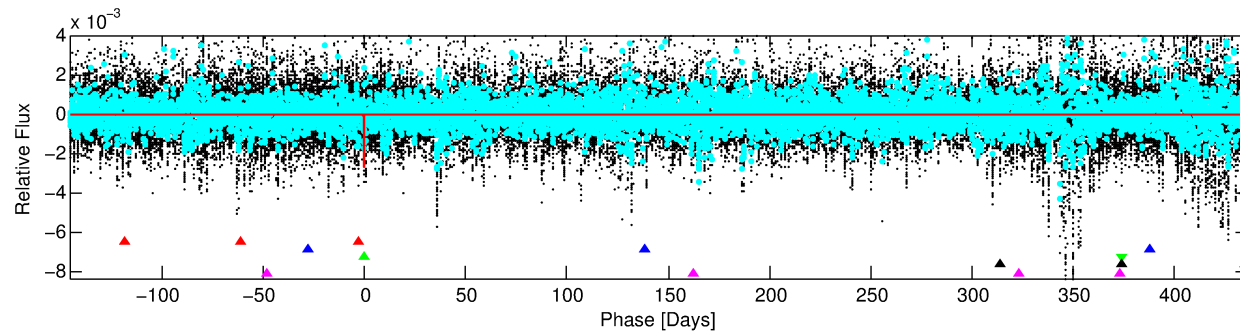
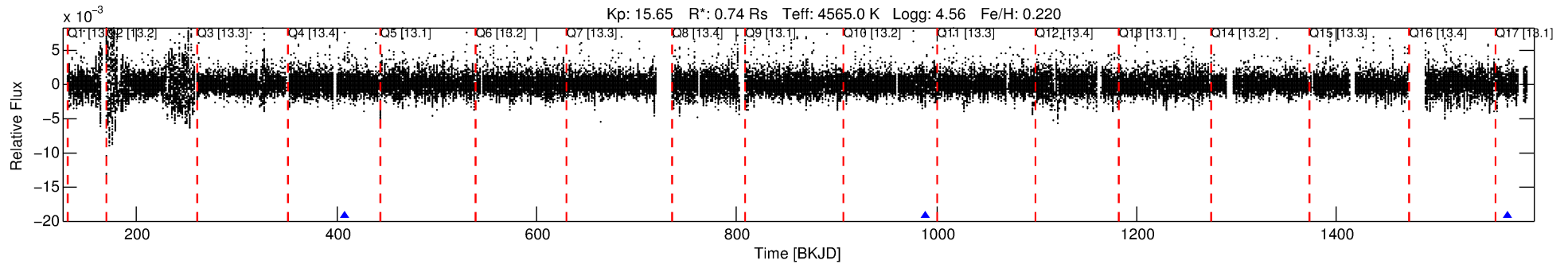
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008365058-03

No Significant Match Found

DV One-Page Summary

KIC: 8365058 Candidate: 3 of 5 Period: 581.433 d



DV Fit Results:

Period = 581.43323 [0.00883] d
Epoch = 407.8292 [0.0128] BKJD
Rp/R* = 0.0565 [0.0061]
a/R* = 335.81 [73.74]
b = 0.87 [0.06]
Seff = 0.14 [0.02]
Teq = 156 [7] K
Rp = 4.57 [0.63] Re
a = 1.2281 [0.0888] AU
Ag = 37137.65 [22679.15] [1.64 σ]
Teffp = 3358 [516] K [6.20 σ]

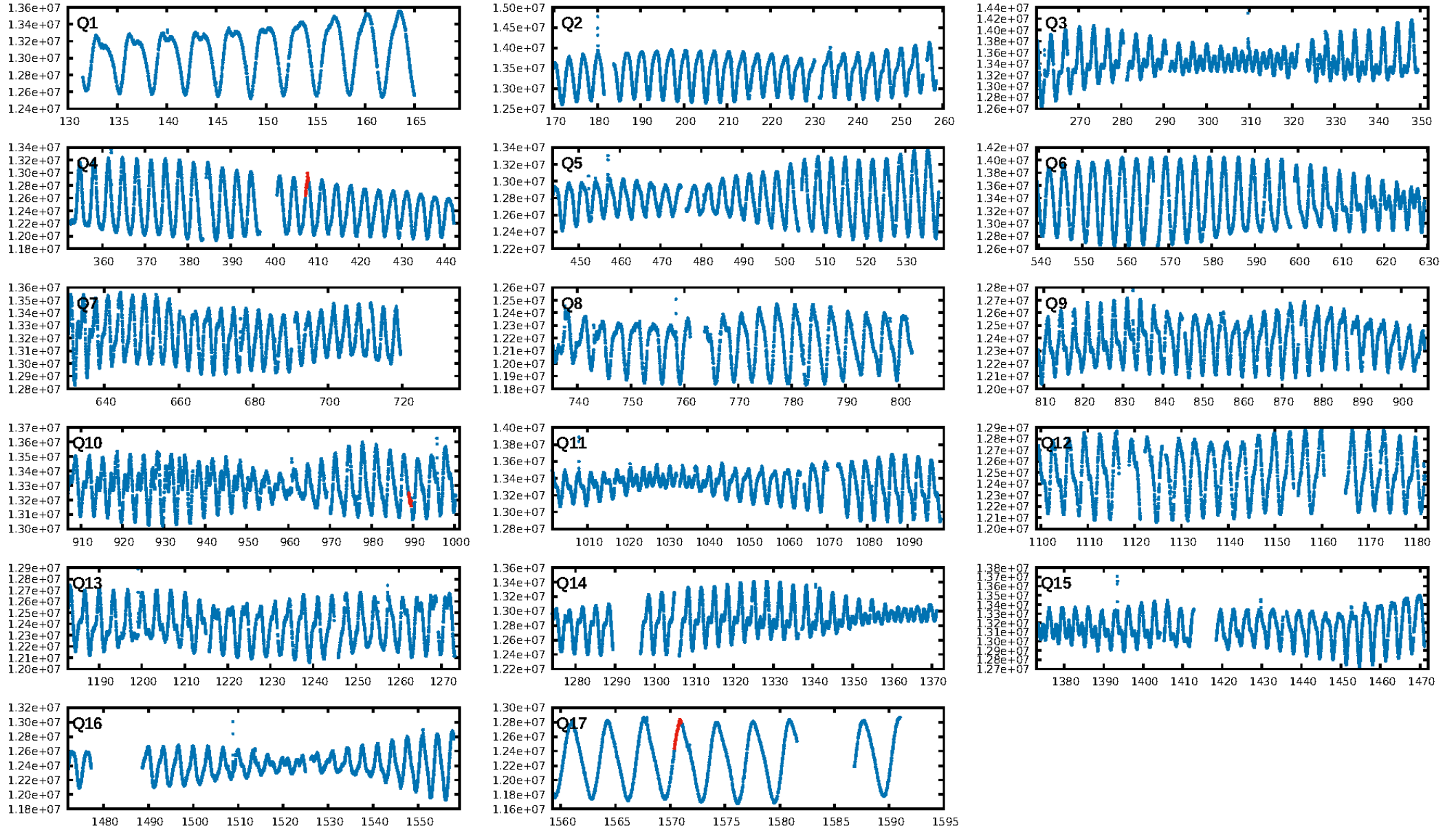
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [269.93 σ]
LongPeriod-sig: 100.0% [141.78 σ]
ModelChiSquare2-sig: 19.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.4027
Centroid-sig: 21.8%
Centroid-so: 0.988 arcsec [1.51 σ]
OotOffset-rm: 0.047 arcsec [0.29 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-rm: 0.268 arcsec [1.64 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

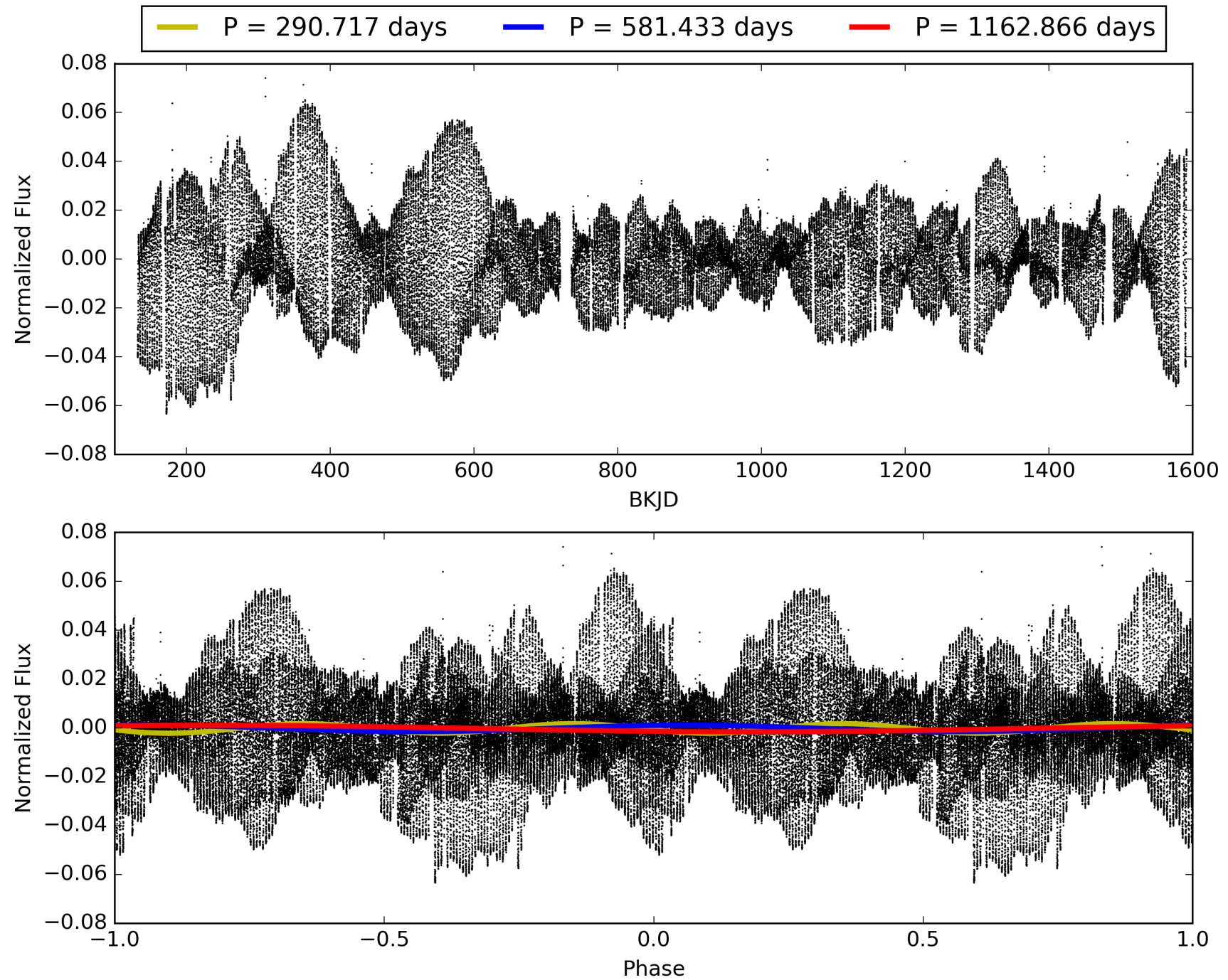
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:35:46 Z

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

TCE 008365058-03, PDC Light Curves

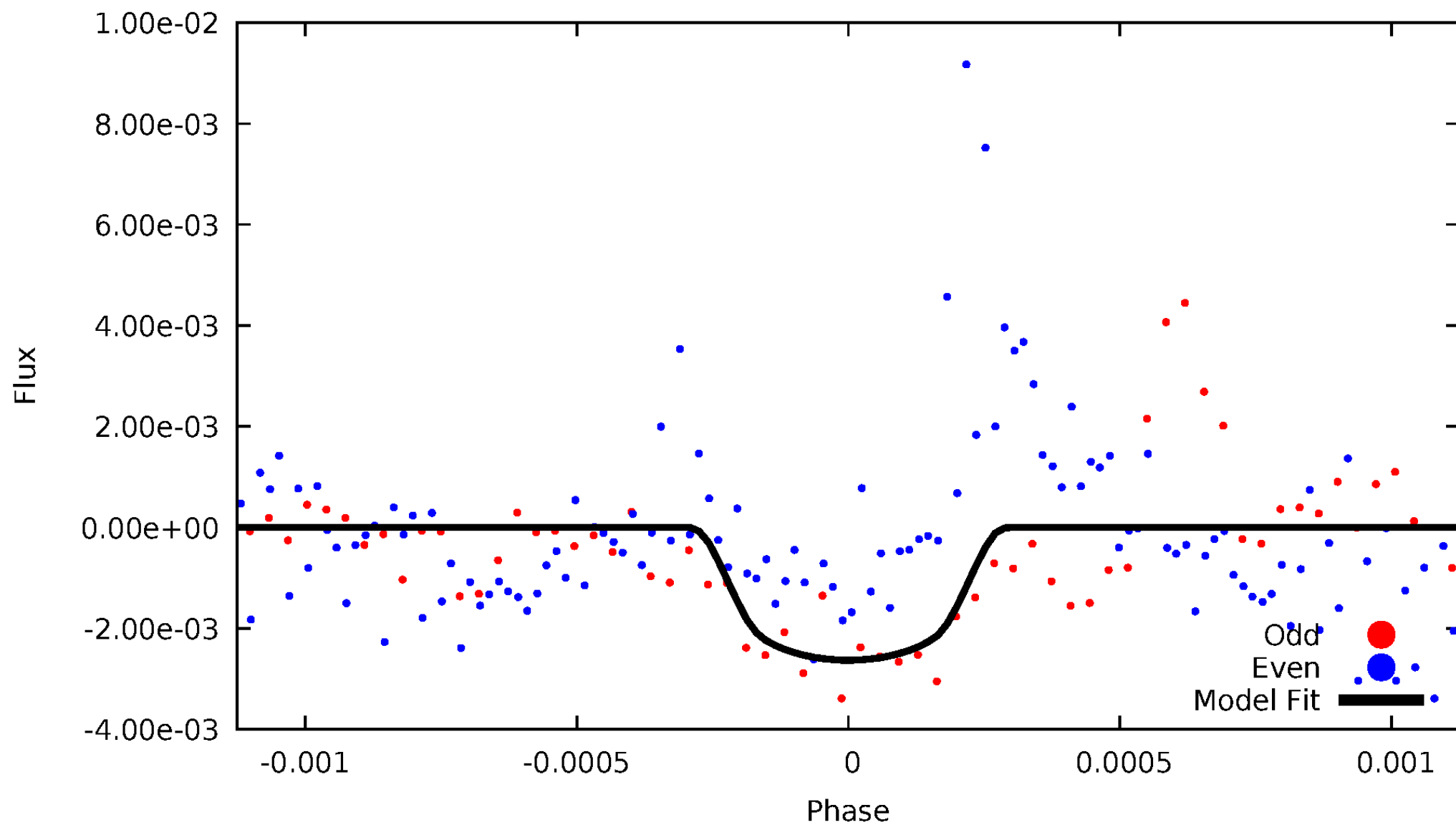


TCE 008365058-03



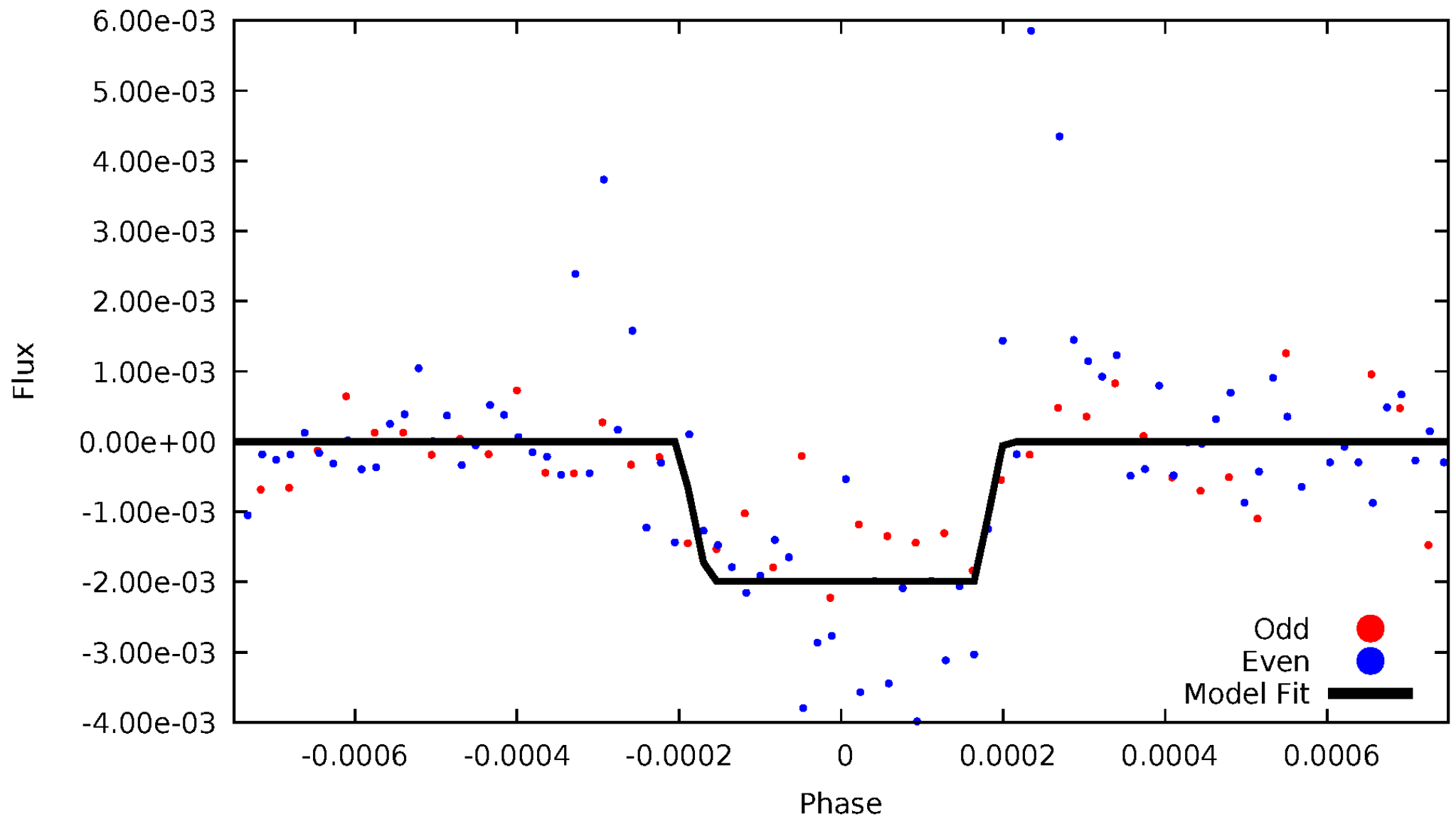
DV Odd/Even

TCE 008365058-03



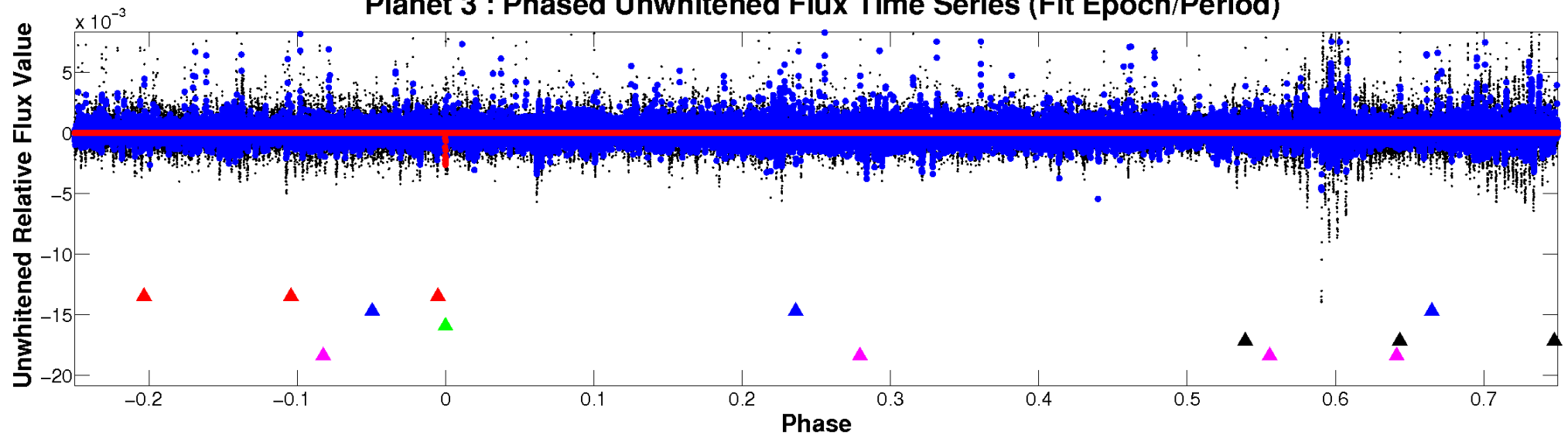
ALT Odd/Even

TCE 008365058-03

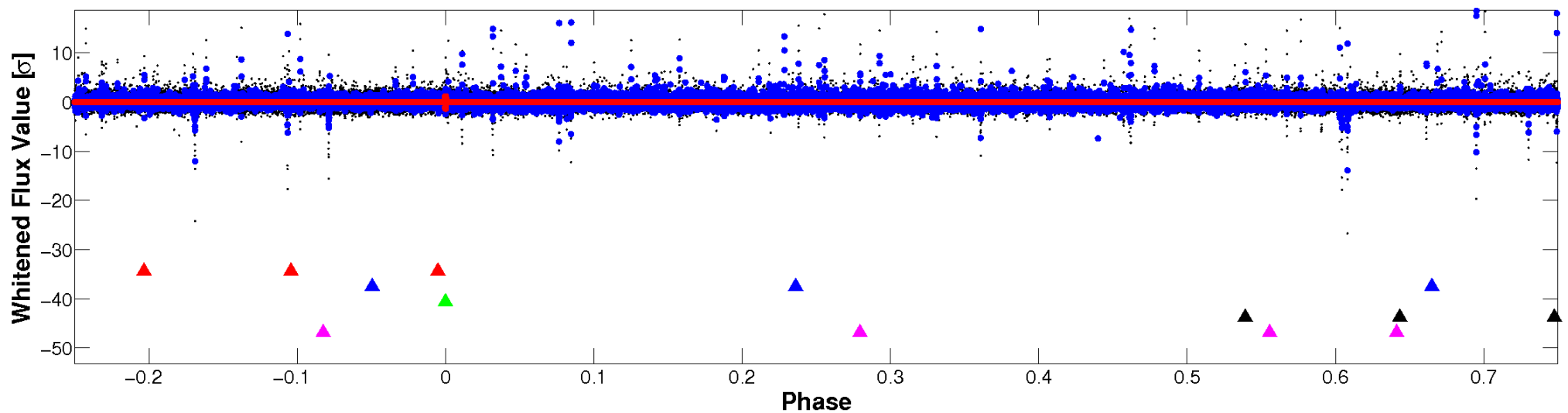


Non-Whitened Vs. Whitened Light Curve

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

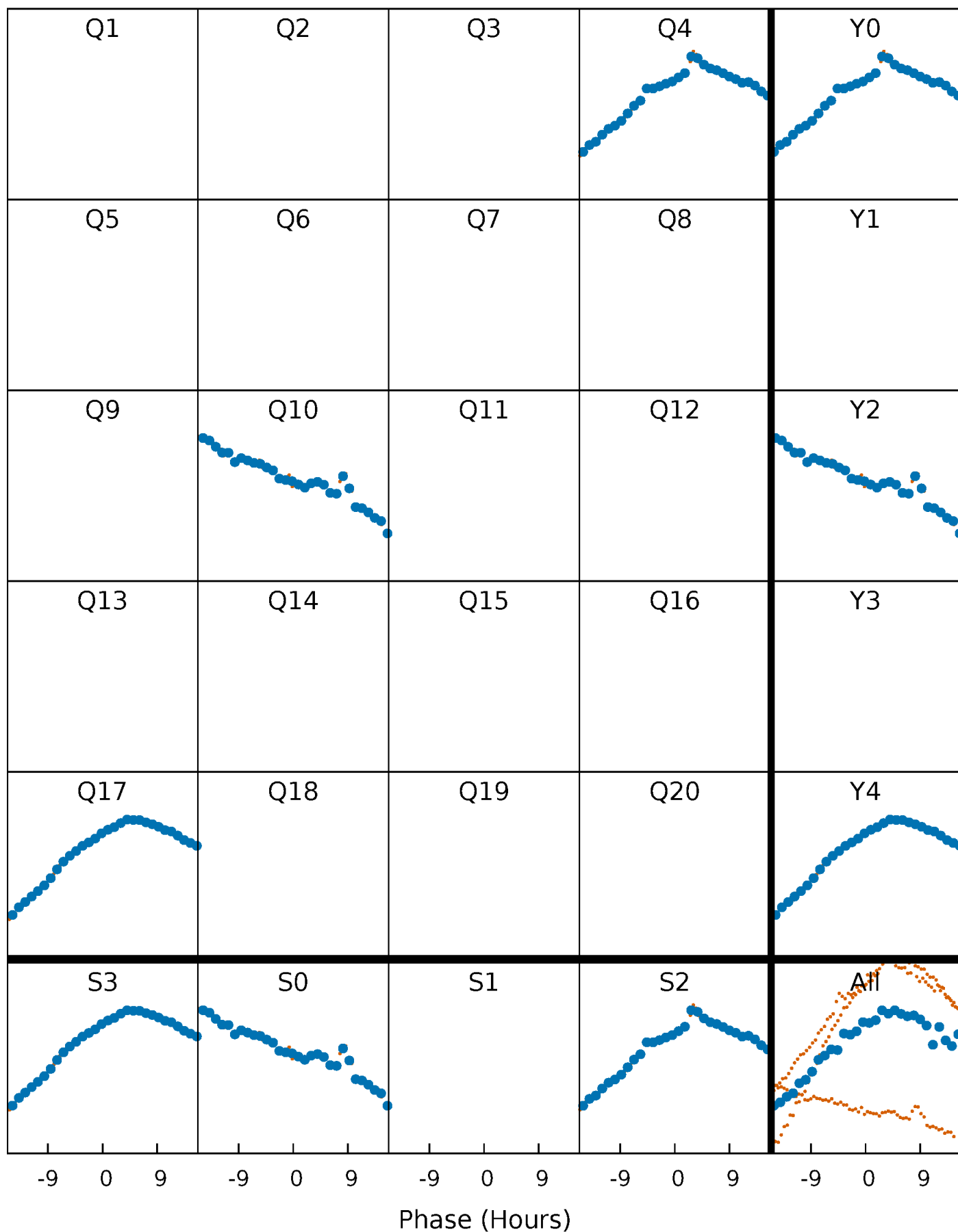


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



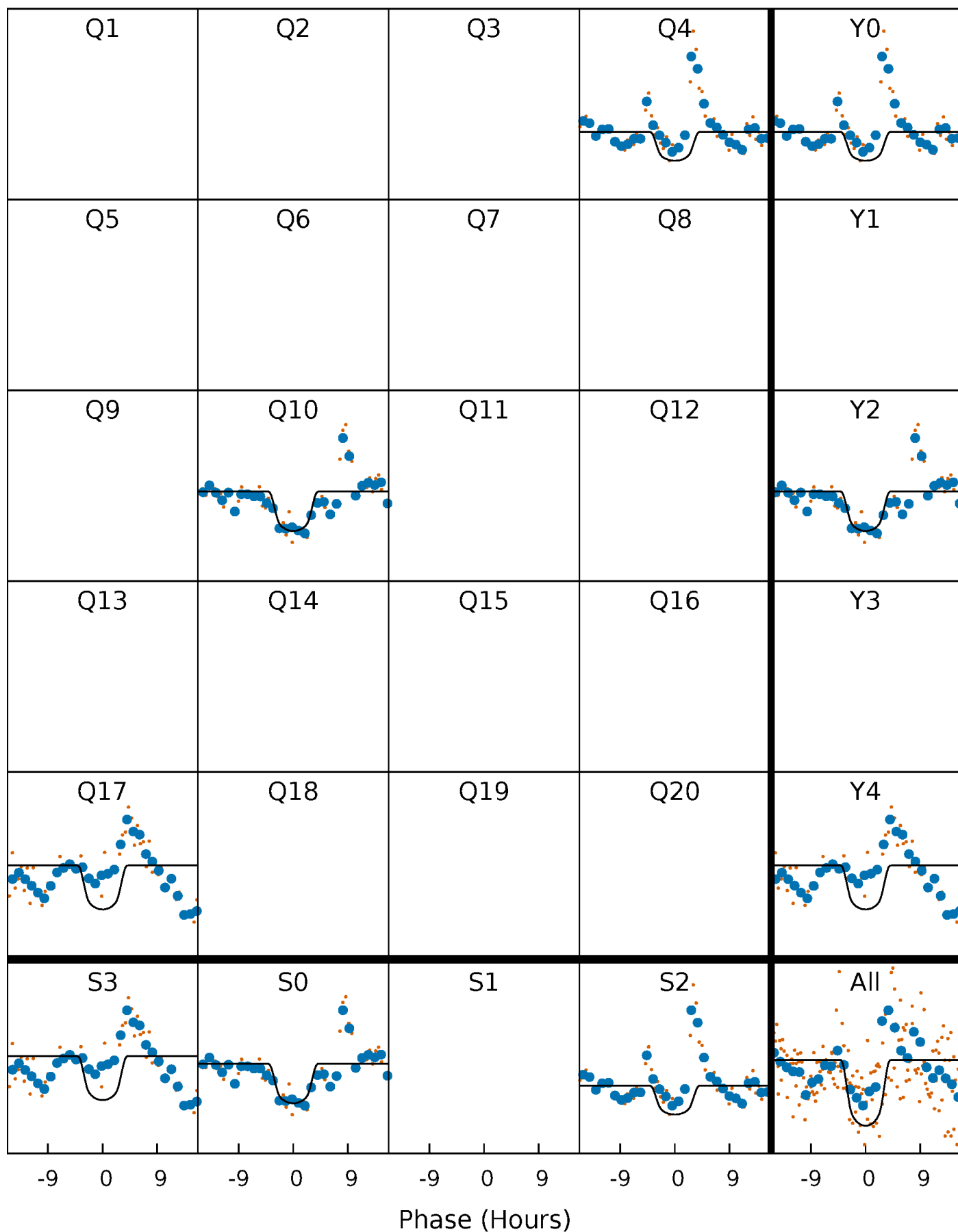
PDC Quarter-Phased Transit Curves

TCE 008365058-03 $P=581.433231$ Days $T_0=407.829194$ (BKJD)



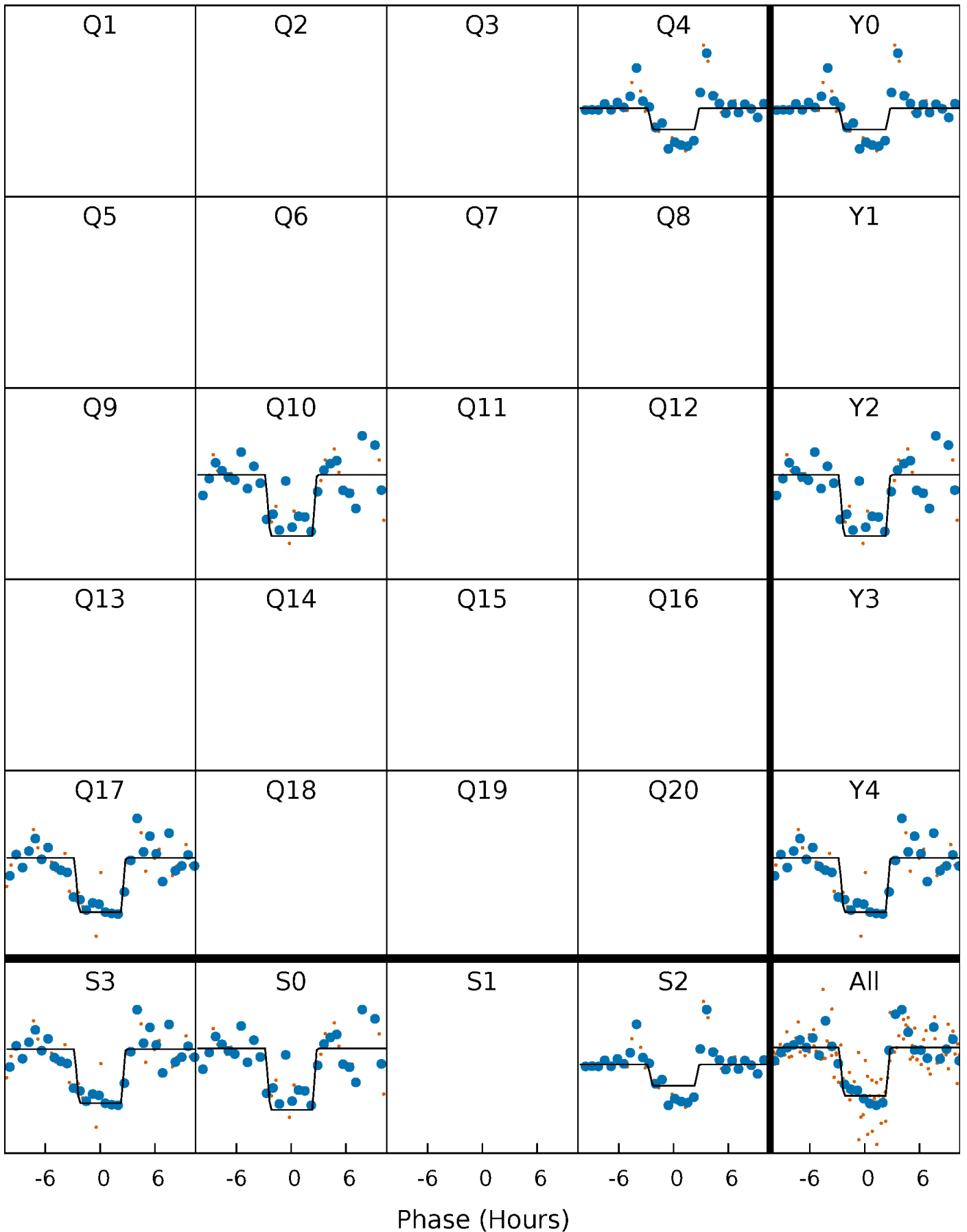
DV Quarter-Phased Transit Curves

TCE 008365058-03 $P=581.433231$ Days $T_0=407.829194$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

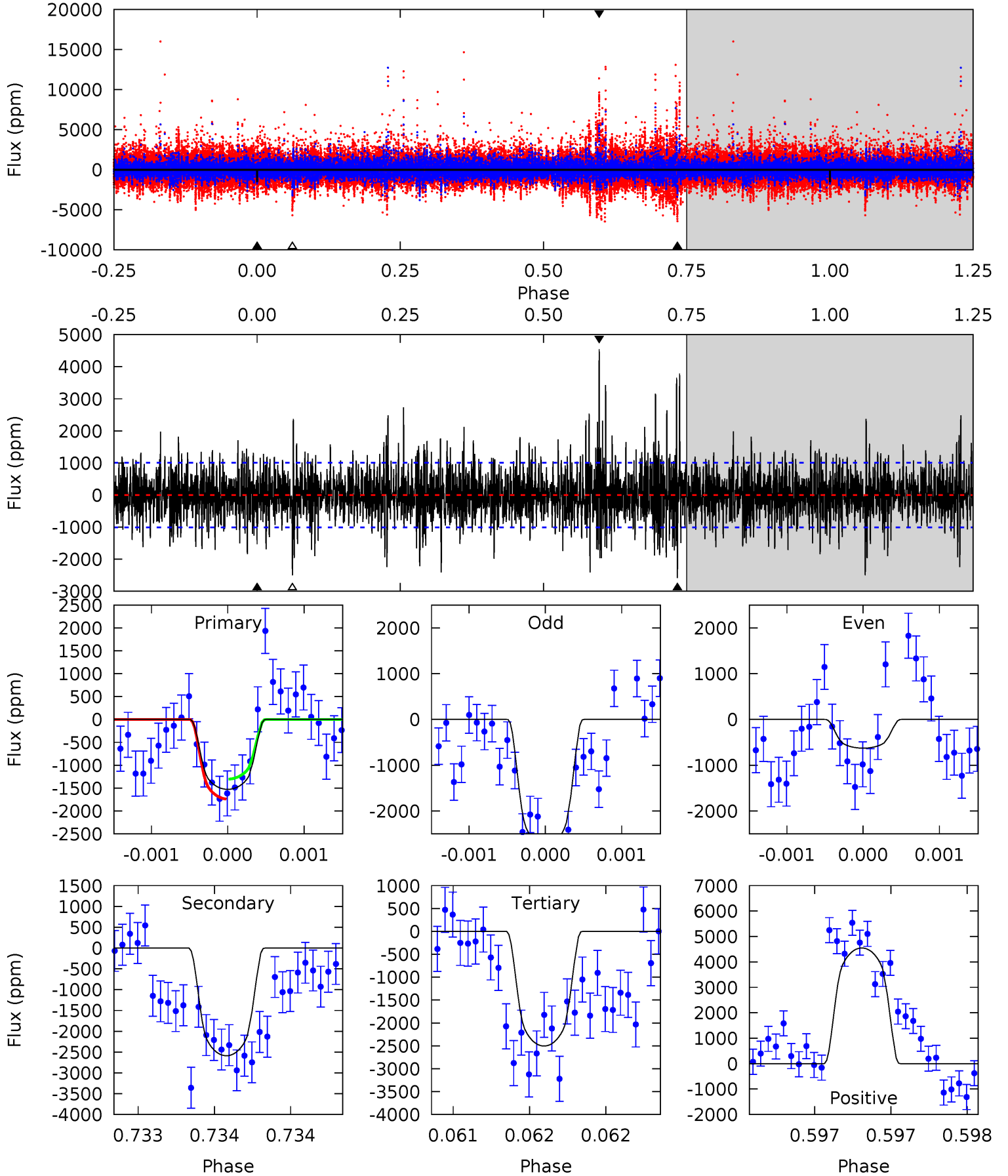
TCE 008365058-03 P=581.443761 Days $T_0=407.819140$ (BKJD)



DV Model-Shift Uniqueness Test

008365058-03, P = 581.433231 Days, E = 407.829194 Days

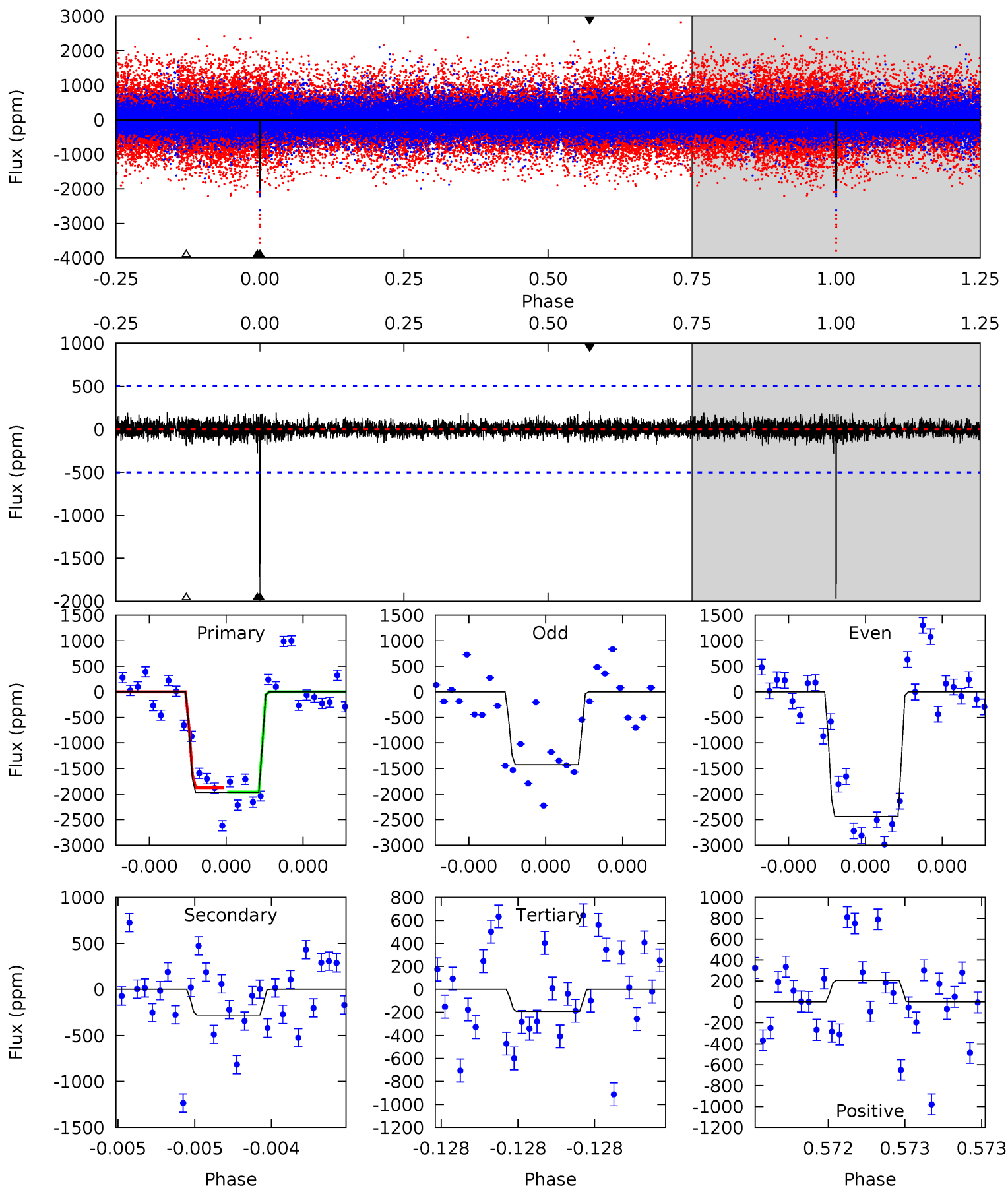
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.41	14.3	13.8	25.0	5.54	3.43	3.64	-5.38	-16.6	0.46	-10.8	5.12	2.12	0.64	1.22



Alt Model-Shift Uniqueness Test

008365058-03, P = 581.443761 Days, E = 407.819140 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	3.13	2.16	2.31	5.62	3.55	0.50	19.9	19.7	0.97	0.81	5.39	1.10	0.10	0.46



Stellar Parameters For KIC 008365058

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4565^{+150}_{-150}	$4.562^{+0.060}_{-0.020}$	$0.220^{+0.200}_{-0.300}$	$0.741^{+0.031}_{-0.062}$	$0.731^{+0.050}_{-0.050}$	$2.528^{+0.638}_{-0.195}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+7%/-7%	+25%/-8%
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 008365058-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2588 ± 182	$4.53^{+0.53}_{-0.53}$	217^{+9}_{-8}	4383^{+251}_{-216}	106073^{+29081}_{-21374}
Alt.	-280 ± 89	$3.56^{+0.54}_{-0.51}$	217^{+7}_{-8}	3262^{+223}_{-213}	18284^{+9156}_{-6343}

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

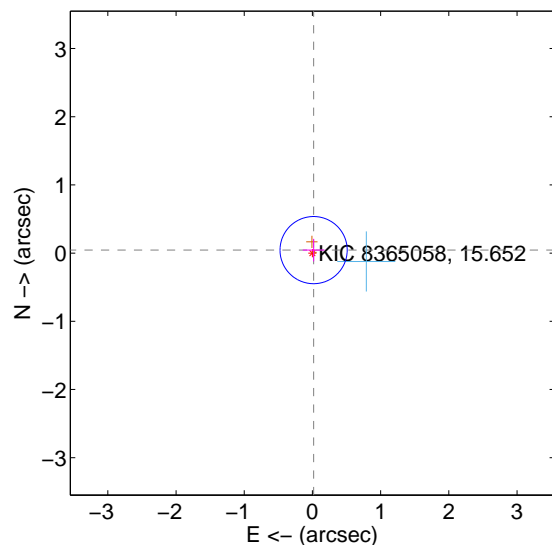
Supplemental centroid analysis for 008365058-03. Kepler magnitude: 15.65. Transit SNR 8.70

There are 1 quarters with good PRF difference image offsets

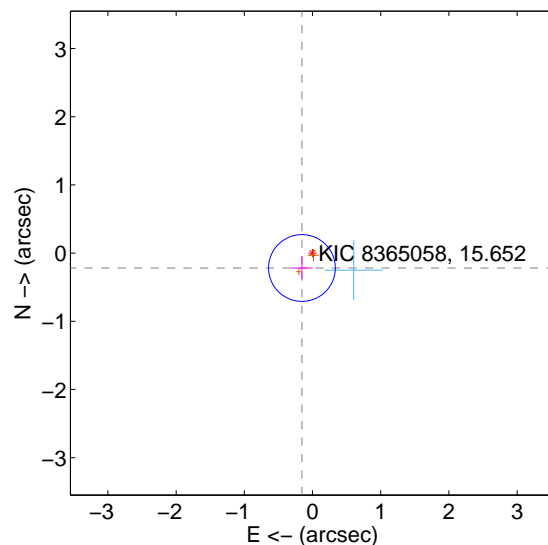
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.047 ± 0.164	0.29	-0.017 ± 0.160	0.044 ± 0.165
PRF-fit source offset from KIC position	0.268 ± 0.163	1.64	0.155 ± 0.160	-0.219 ± 0.165
photometric centroid source offset	0.99 ± 0.66	1.51	0.69 ± 0.65	-0.70 ± 0.66

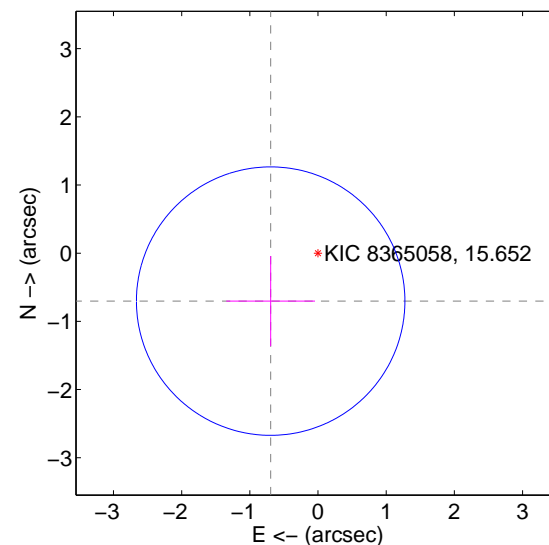
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

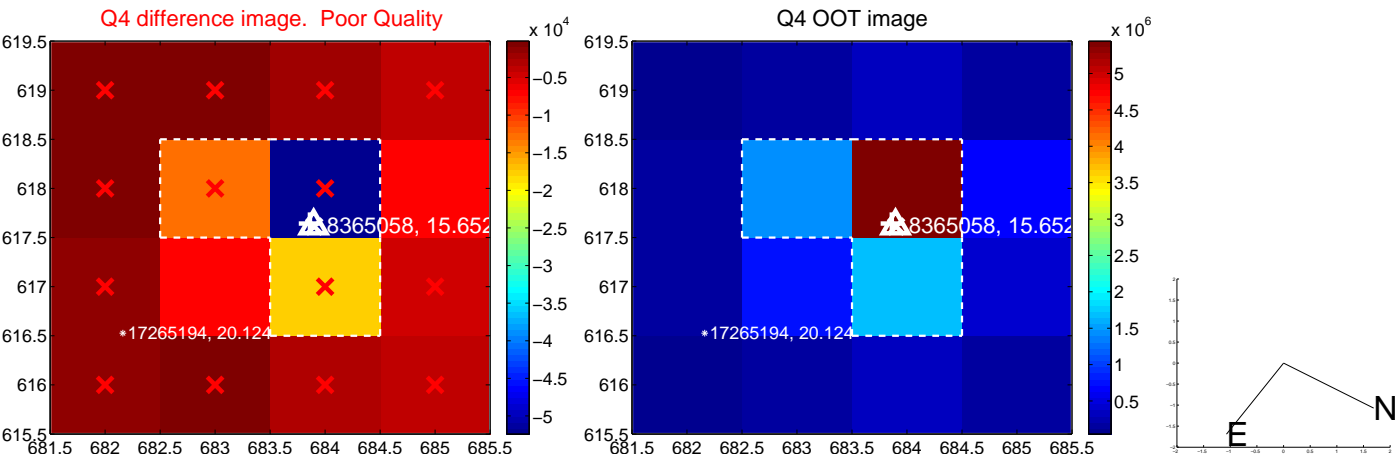
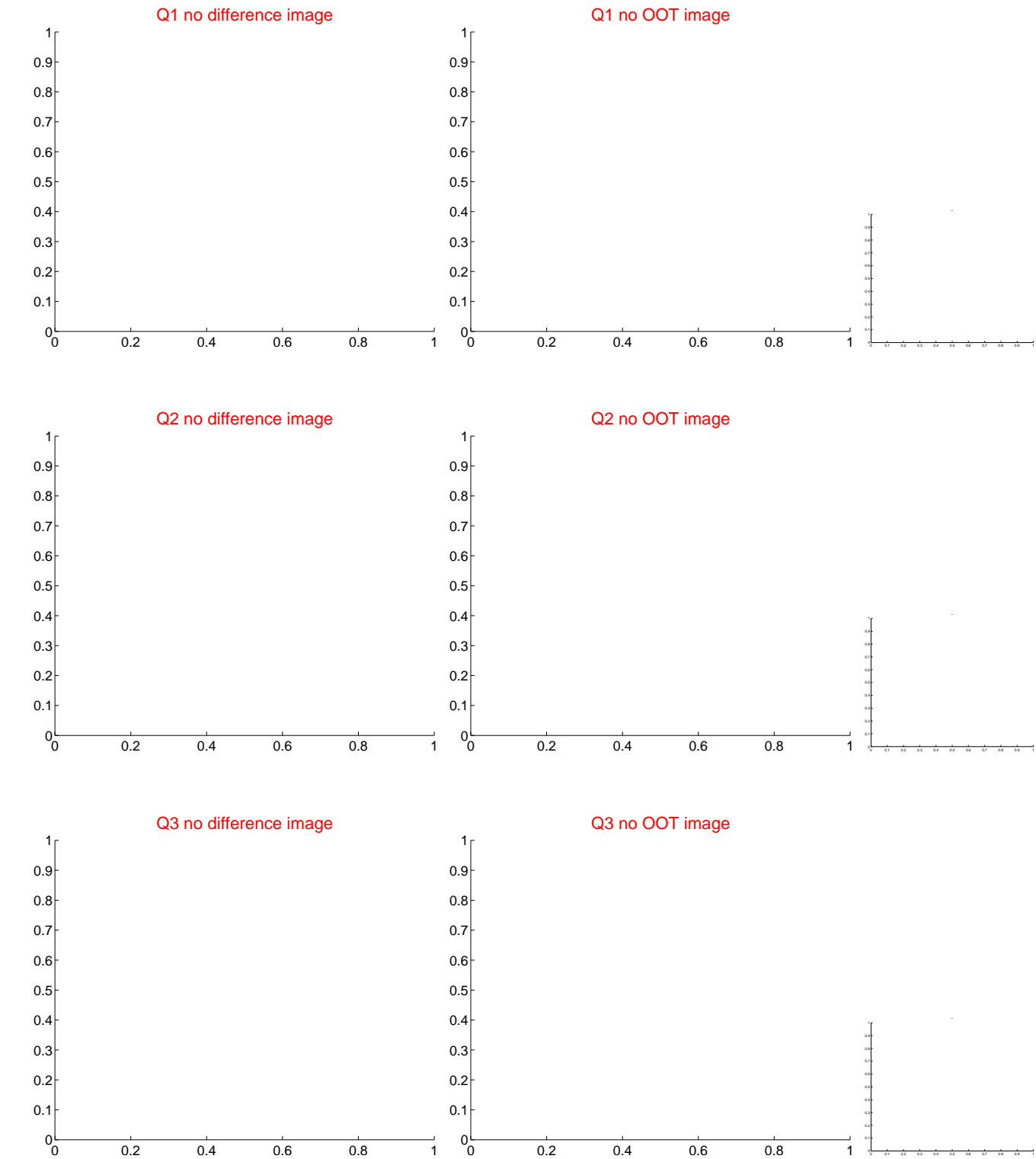


offset from photometric centroids



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.

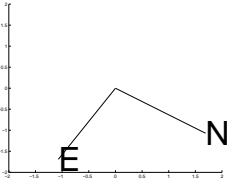
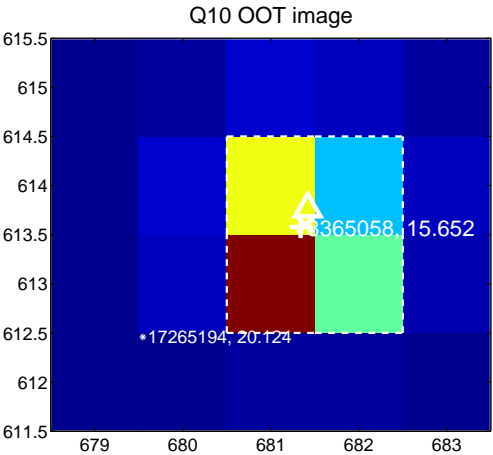
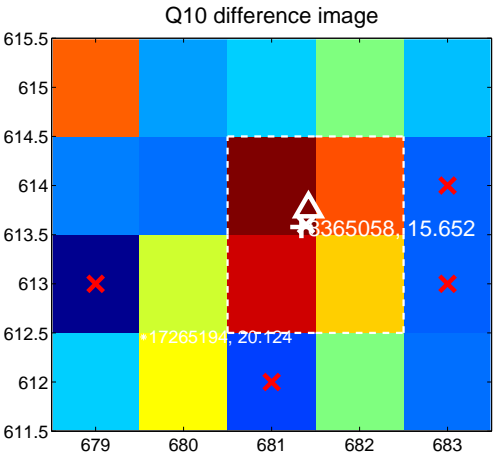


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

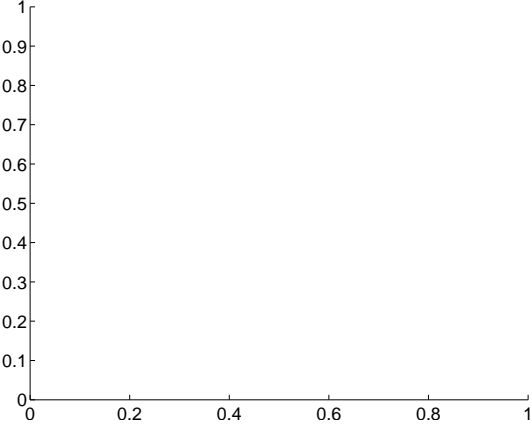
Q9 no difference image



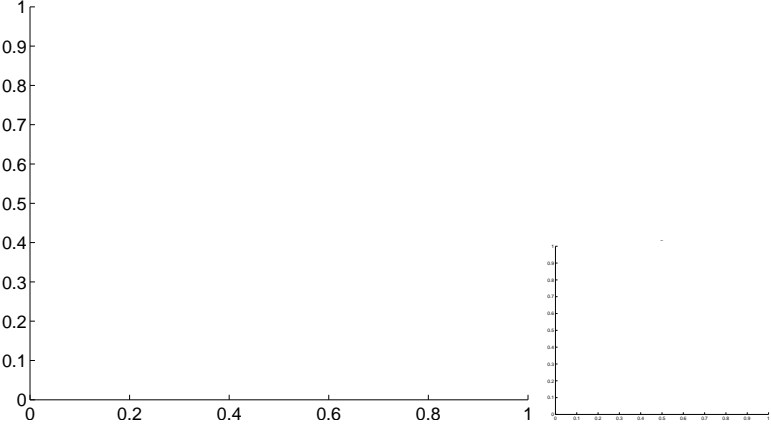
Q9 no OOT image



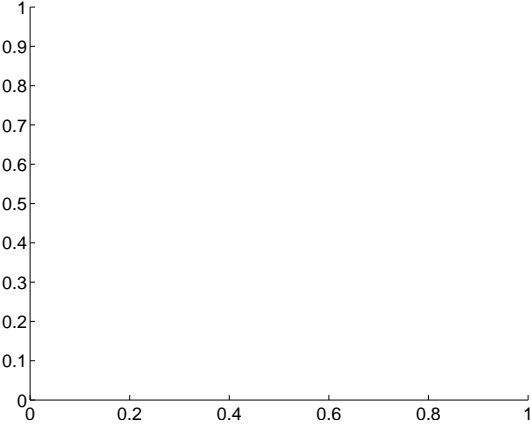
Q11 no difference image



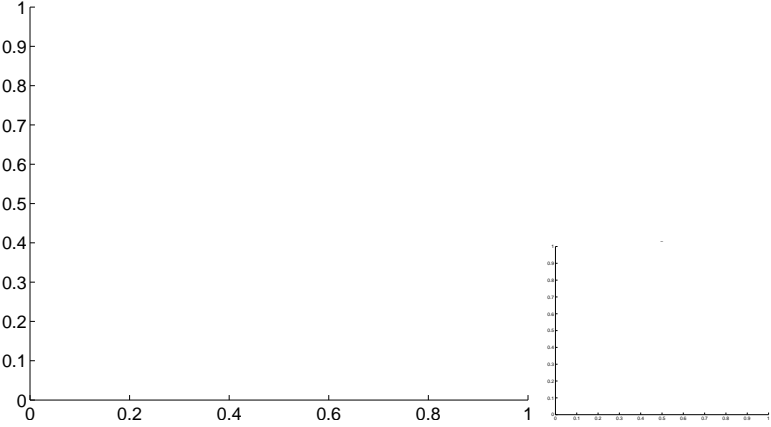
Q11 no OOT image



Q12 no difference image



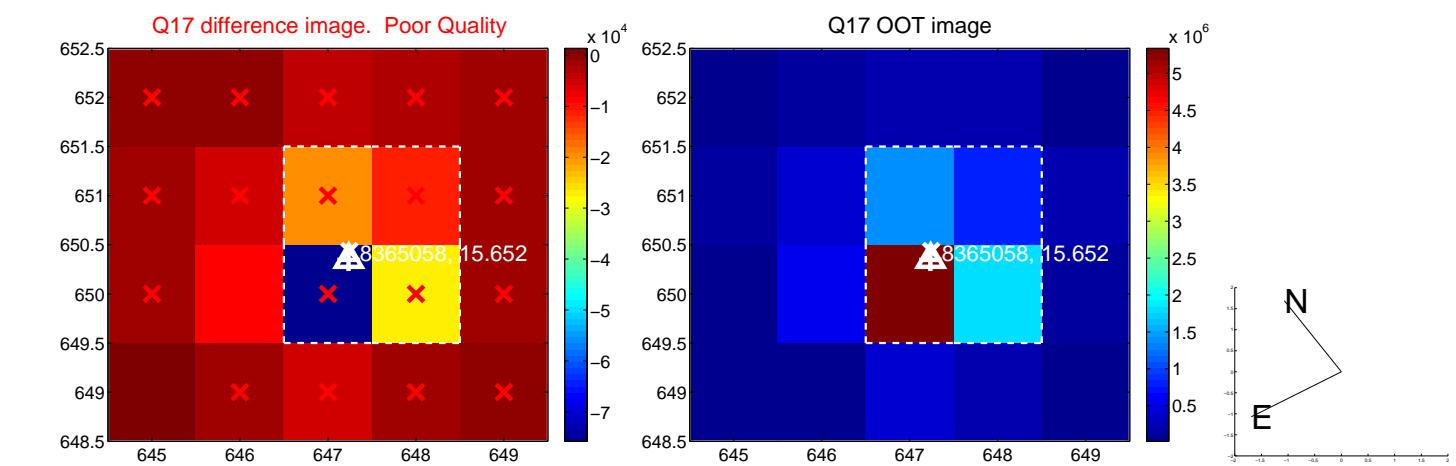
Q12 no OOT image



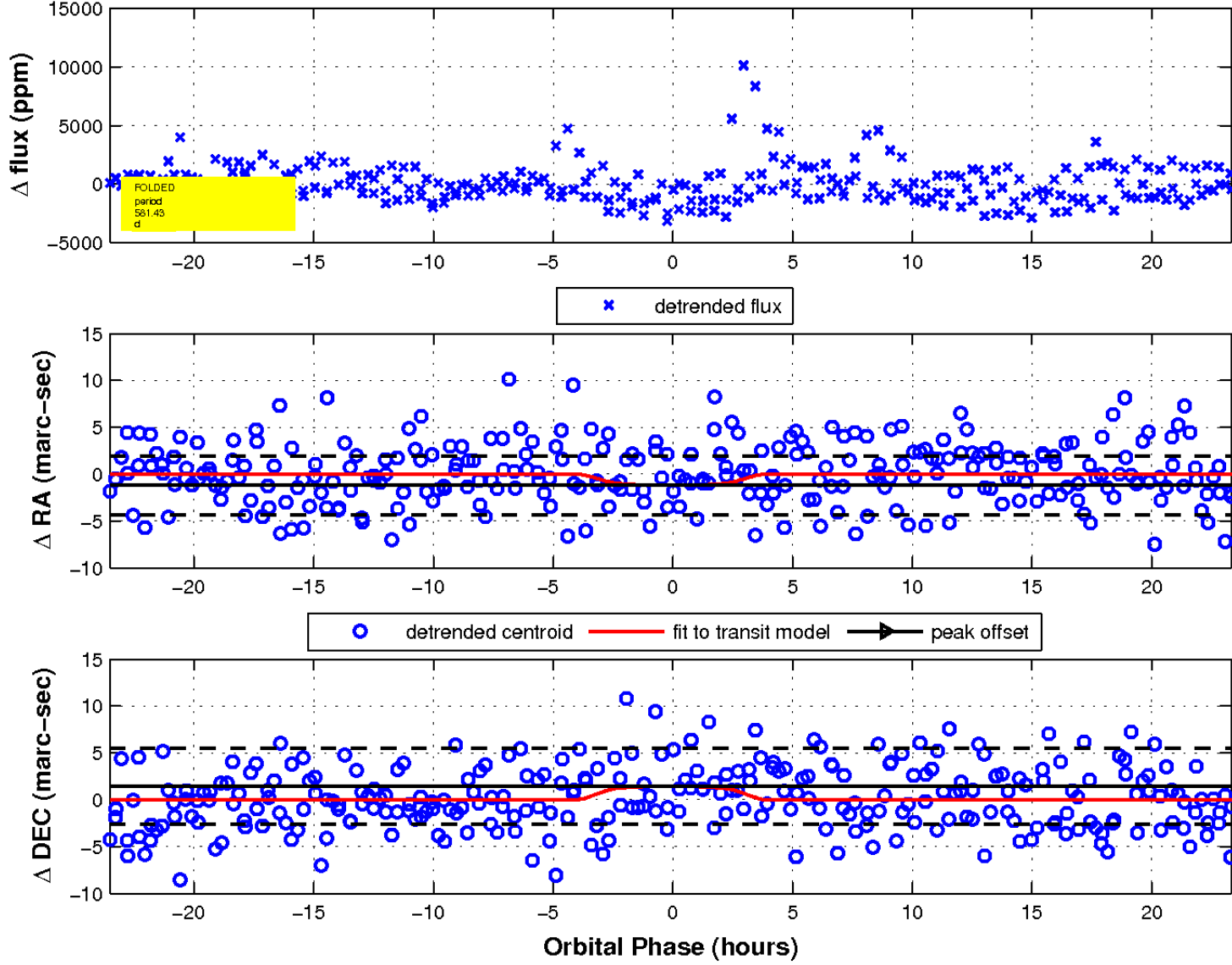
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

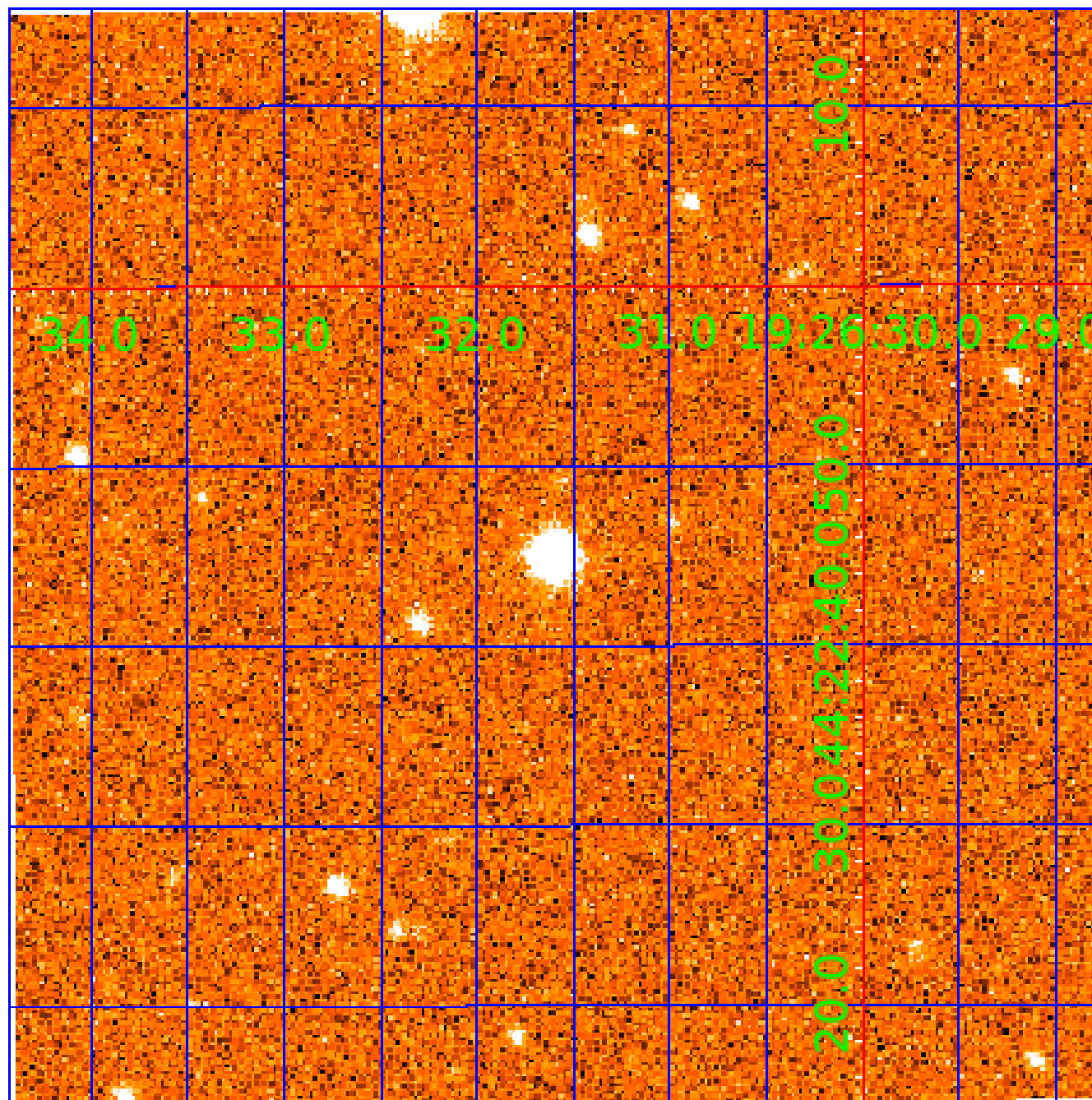


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 008365058

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})
008365058-02	OBS	No	415.414275	545.127115	1287.3	12.500	13.0	-1.0	0.74	4565	2.54	0.22
008365058-03	OBS	No	581.433231	407.829194	2633.1	7.851	10.1	8.7	0.74	4565	4.57	0.14
008365058-04	OBS	No	642.017023	139.932047	2277.7	4.686	11.8	7.1	0.74	4565	3.65	0.12
008365058-05	OBS	No	371.025771	199.275490	2372.7	3.500	10.3	-1.0	0.74	4565	3.45	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365058-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365058-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008365058-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
008365058-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

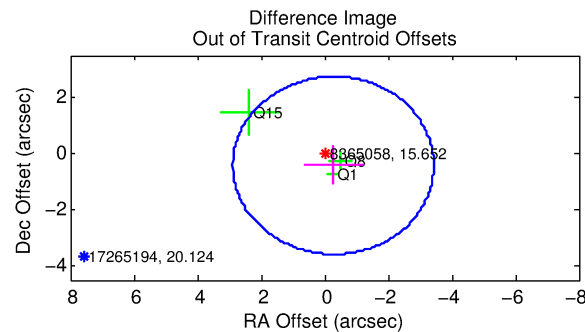
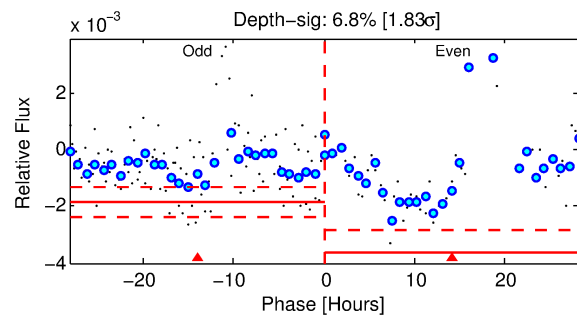
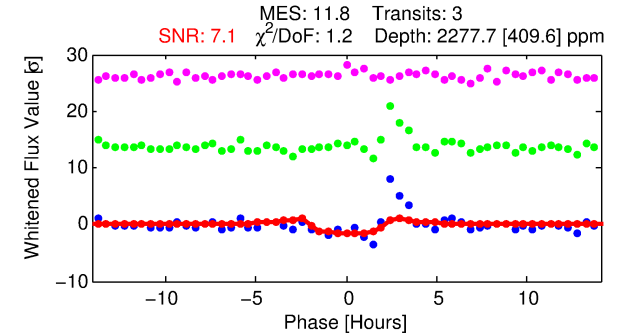
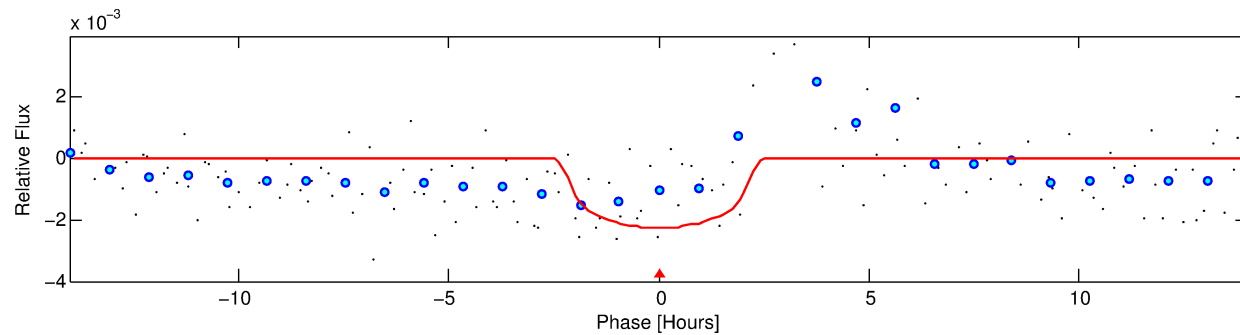
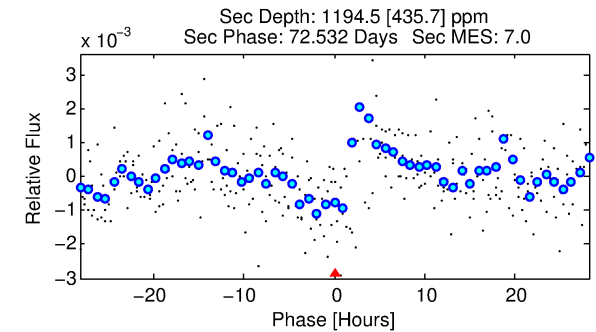
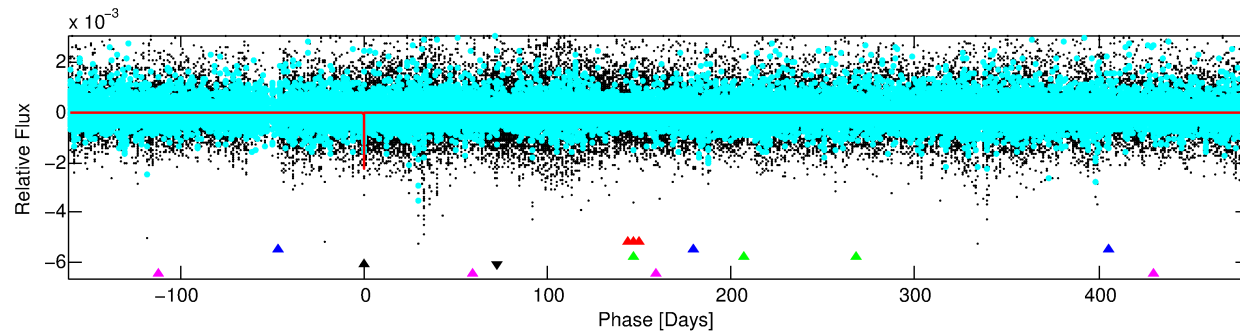
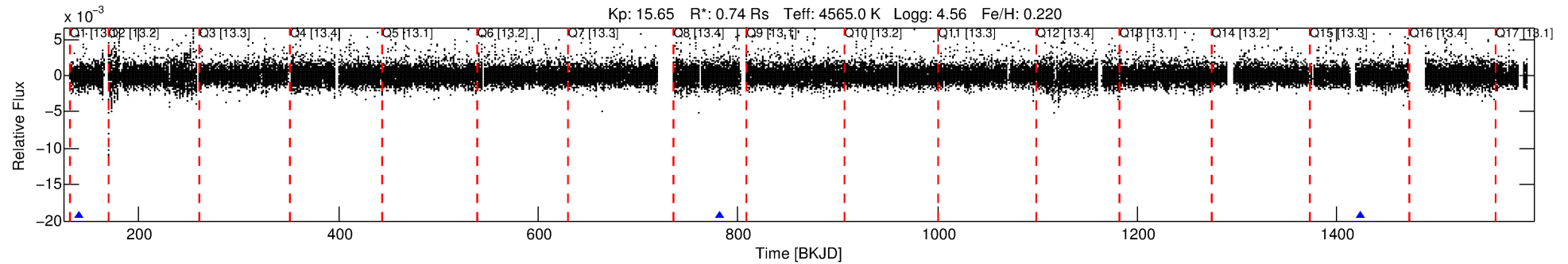
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008365058-04

No Significant Match Found

DV One-Page Summary

KIC: 8365058 Candidate: 4 of 5 Period: 642.017 d



DV Fit Results:

Period = 642.01702 [0.00700] d
Epoch = 139.9320 [0.0098] BKJD
Rp/R* = 0.0451 [0.0439]
a/R* = 887.39 [2517.90]
b = 0.61 [2.98]
Seff = 0.12 [0.02]
Teq = 151 [6] K
Rp = 3.65 [3.56] Re
a = 1.3120 [0.0949] AU
Ag = 84915.71 [168126.60] [0.51 σ]
Teffp = 3995 [1979] K [1.94 σ]

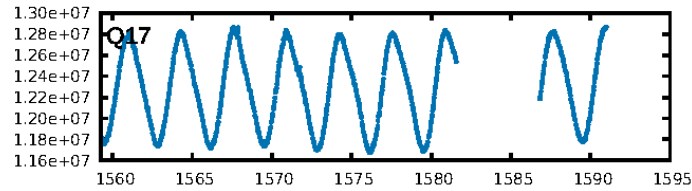
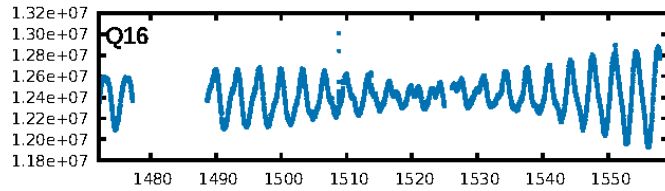
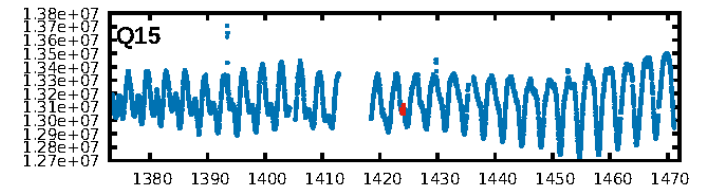
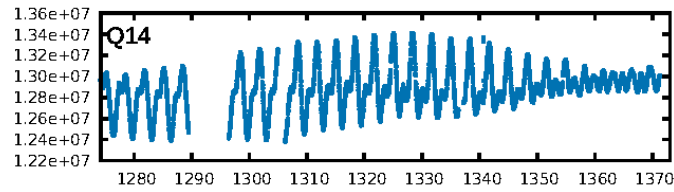
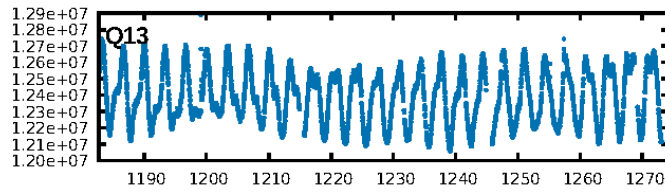
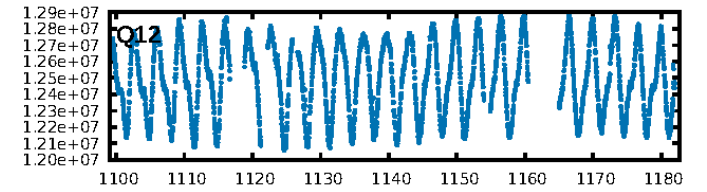
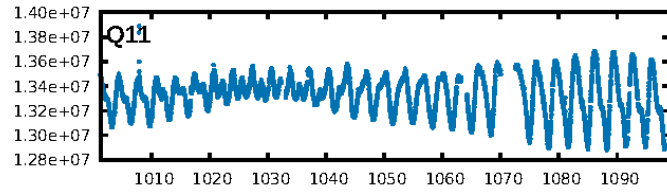
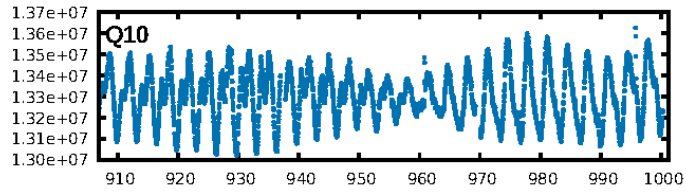
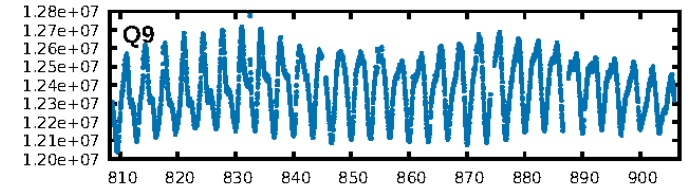
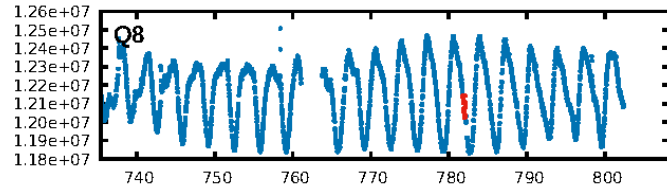
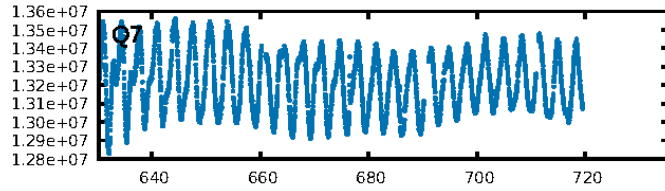
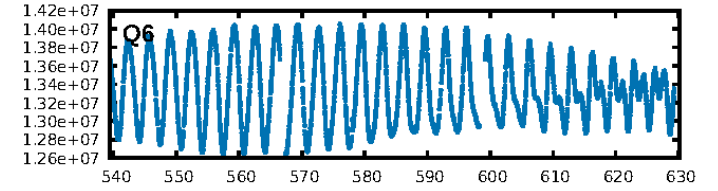
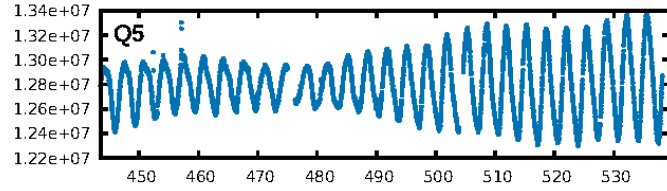
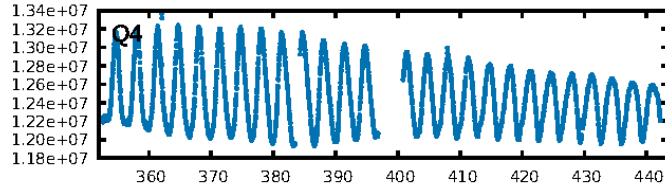
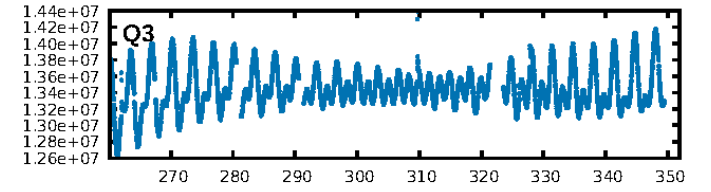
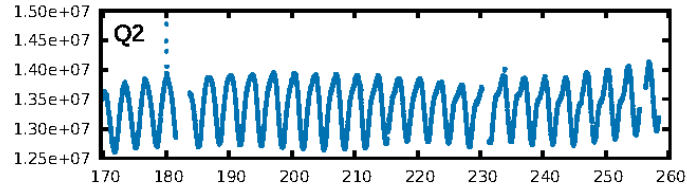
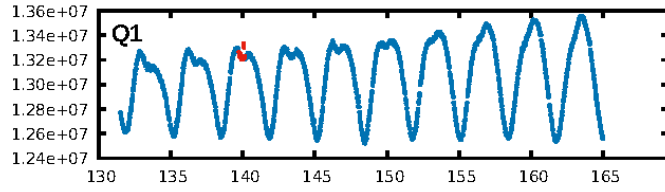
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.59 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.7%
ModelChiSquareGof-sig: 89.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.532
Centroid-sig: 99.6%
Centroid-so: 0.294 arcsec [0.35 σ]
OotOffset-rm: 0.503 arcsec [0.48 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.624 arcsec [1.06 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

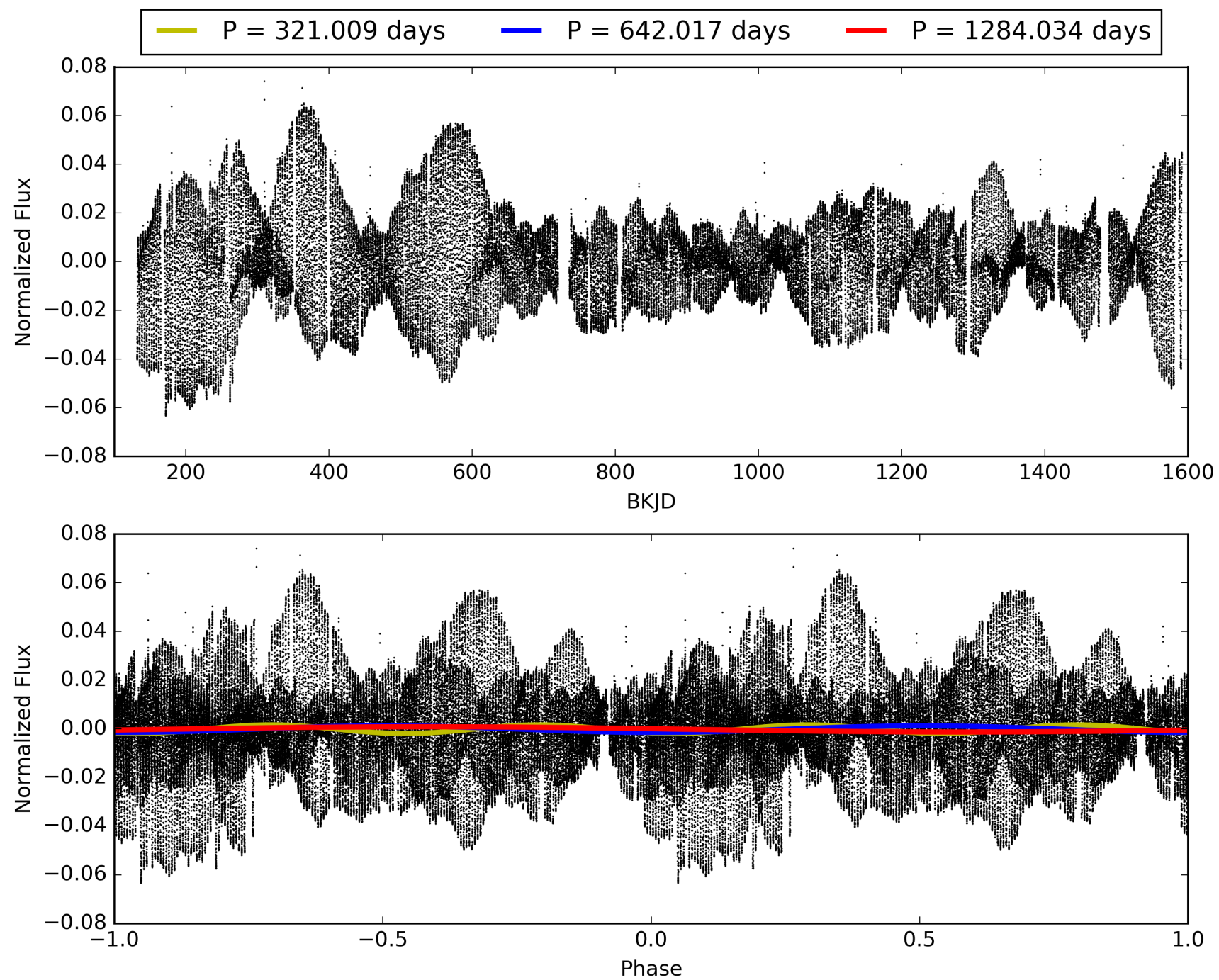
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:36:05 Z

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

TCE 008365058-04, PDC Light Curves

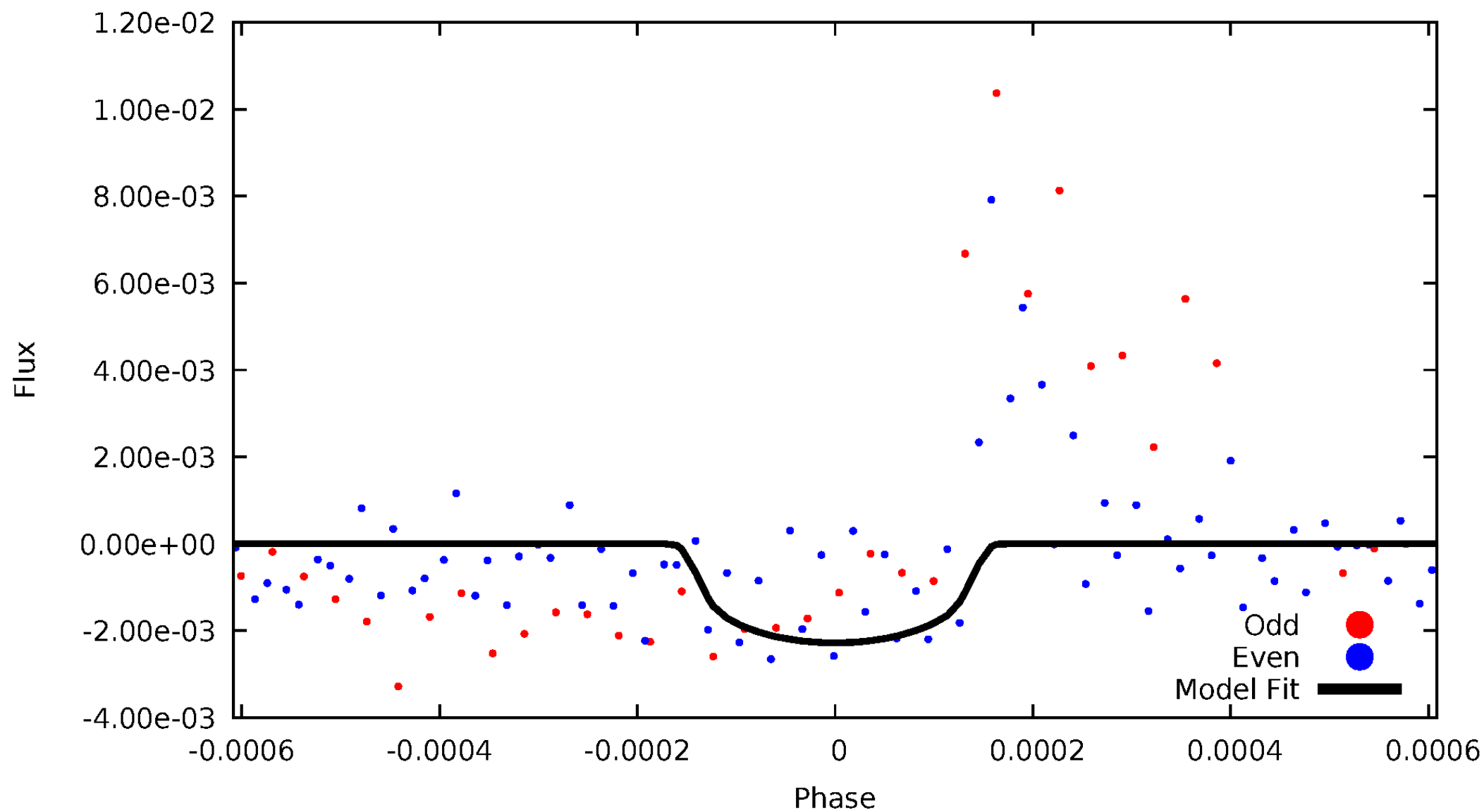


TCE 008365058-04



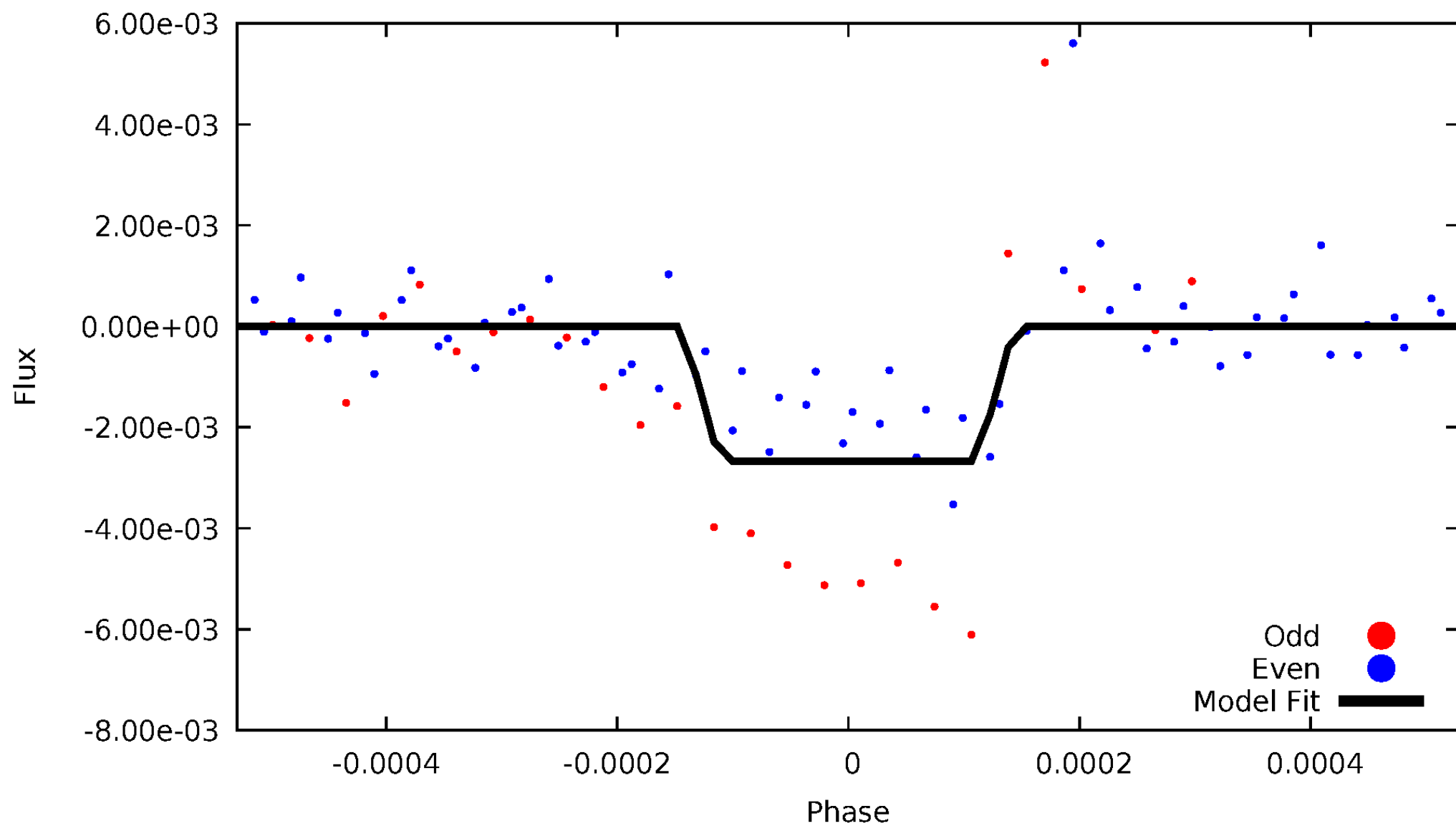
DV Odd/Even

TCE 008365058-04



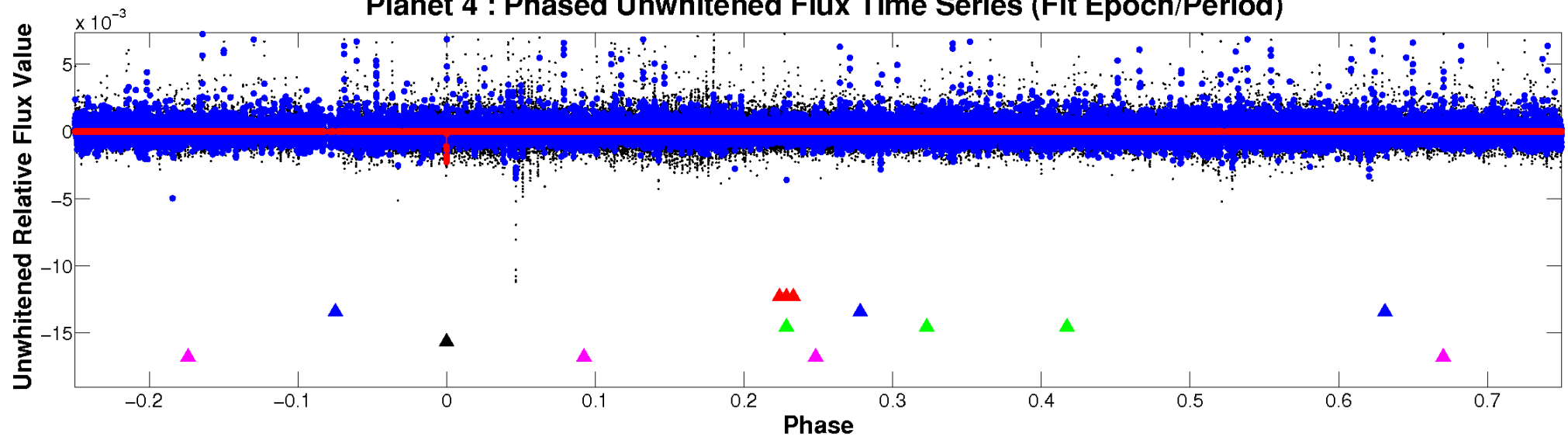
ALT Odd/Even

TCE 008365058-04

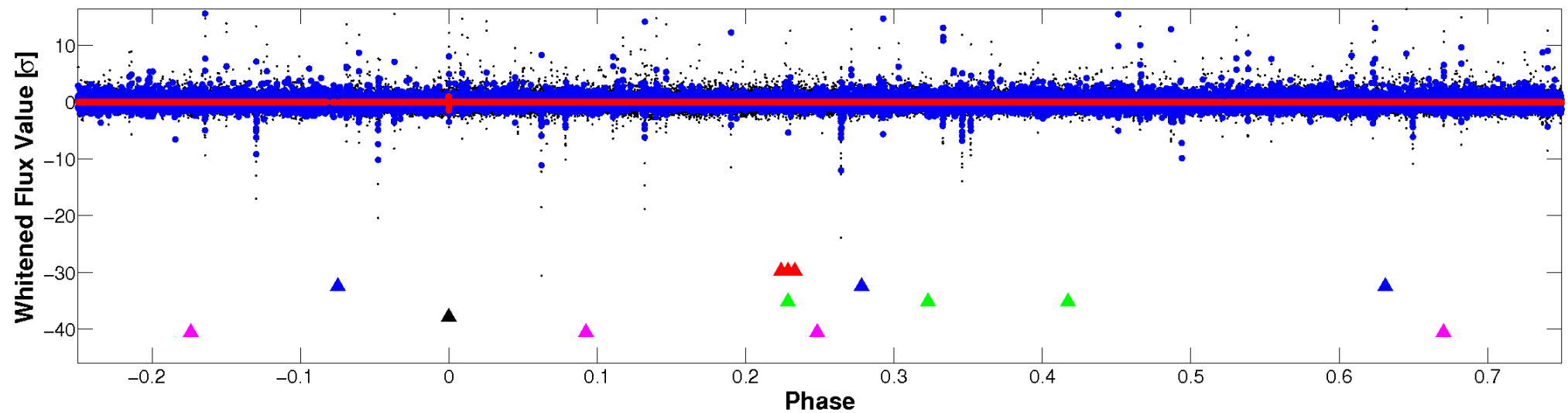


Non-Whitened Vs. Whitened Light Curve

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

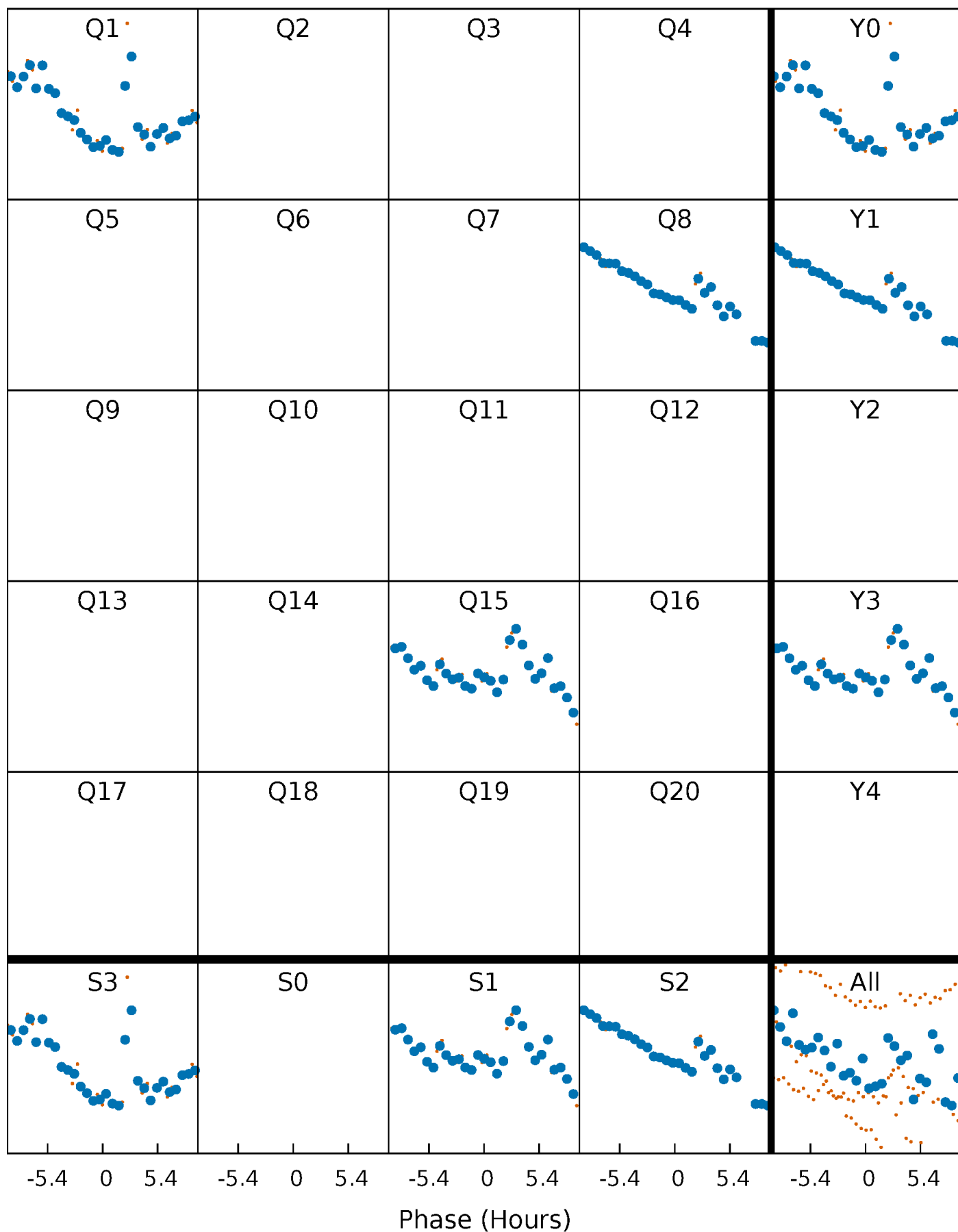


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



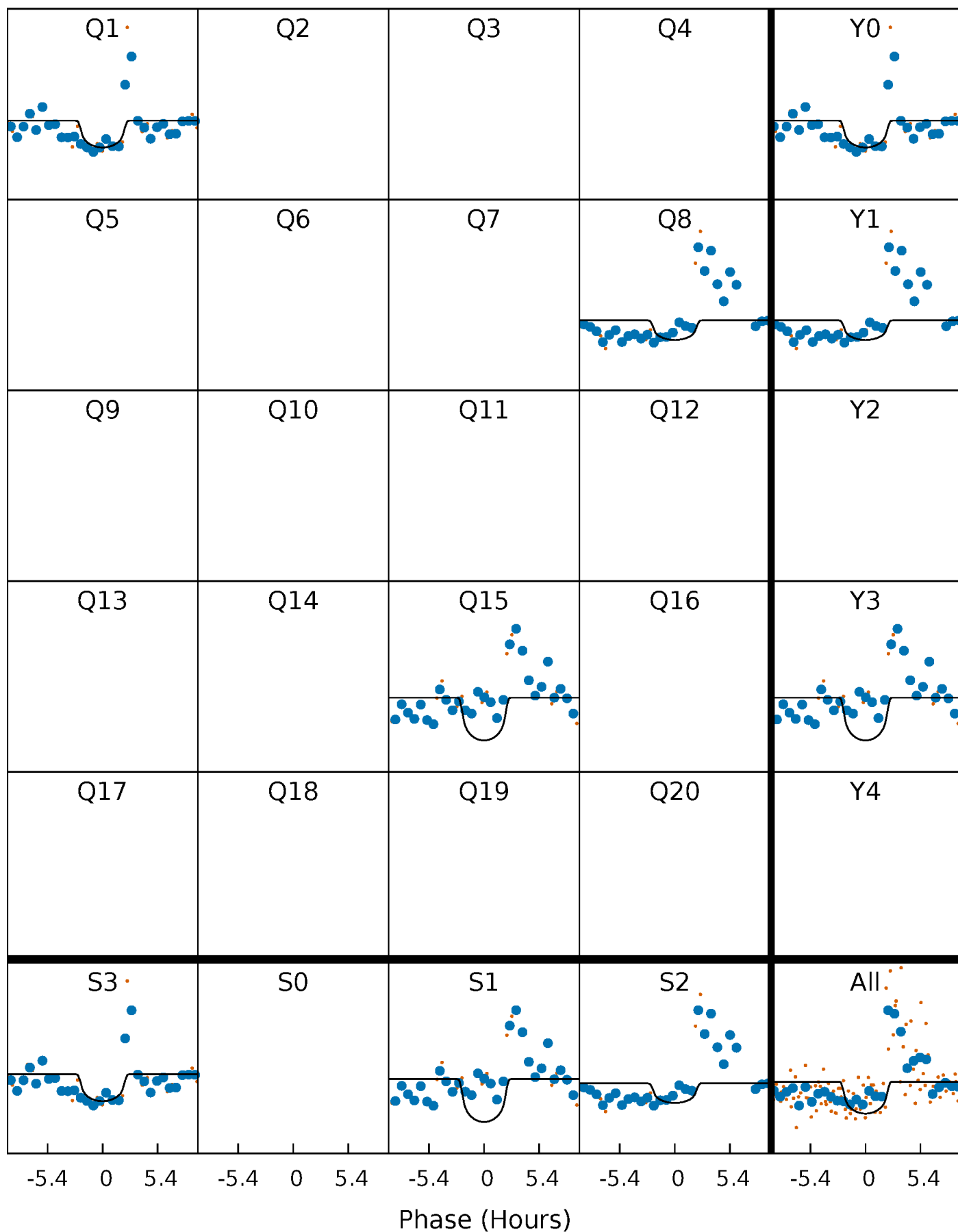
PDC Quarter-Phased Transit Curves

TCE 008365058-04 $P=642.017023$ Days $T_0=139.932047$ (BKJD)



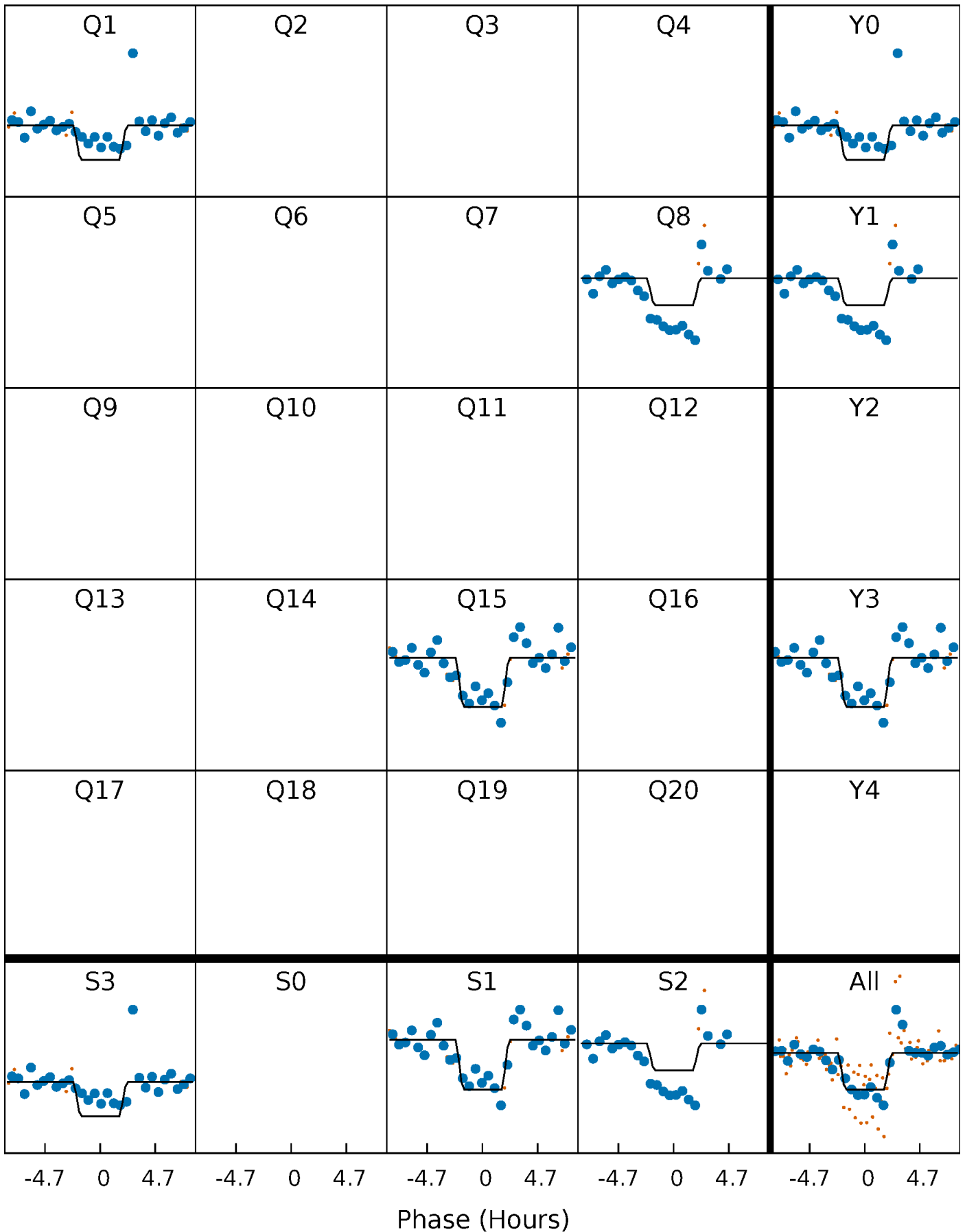
DV Quarter-Phased Transit Curves

TCE 008365058-04 $P=642.017023$ Days $T_0=139.932047$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

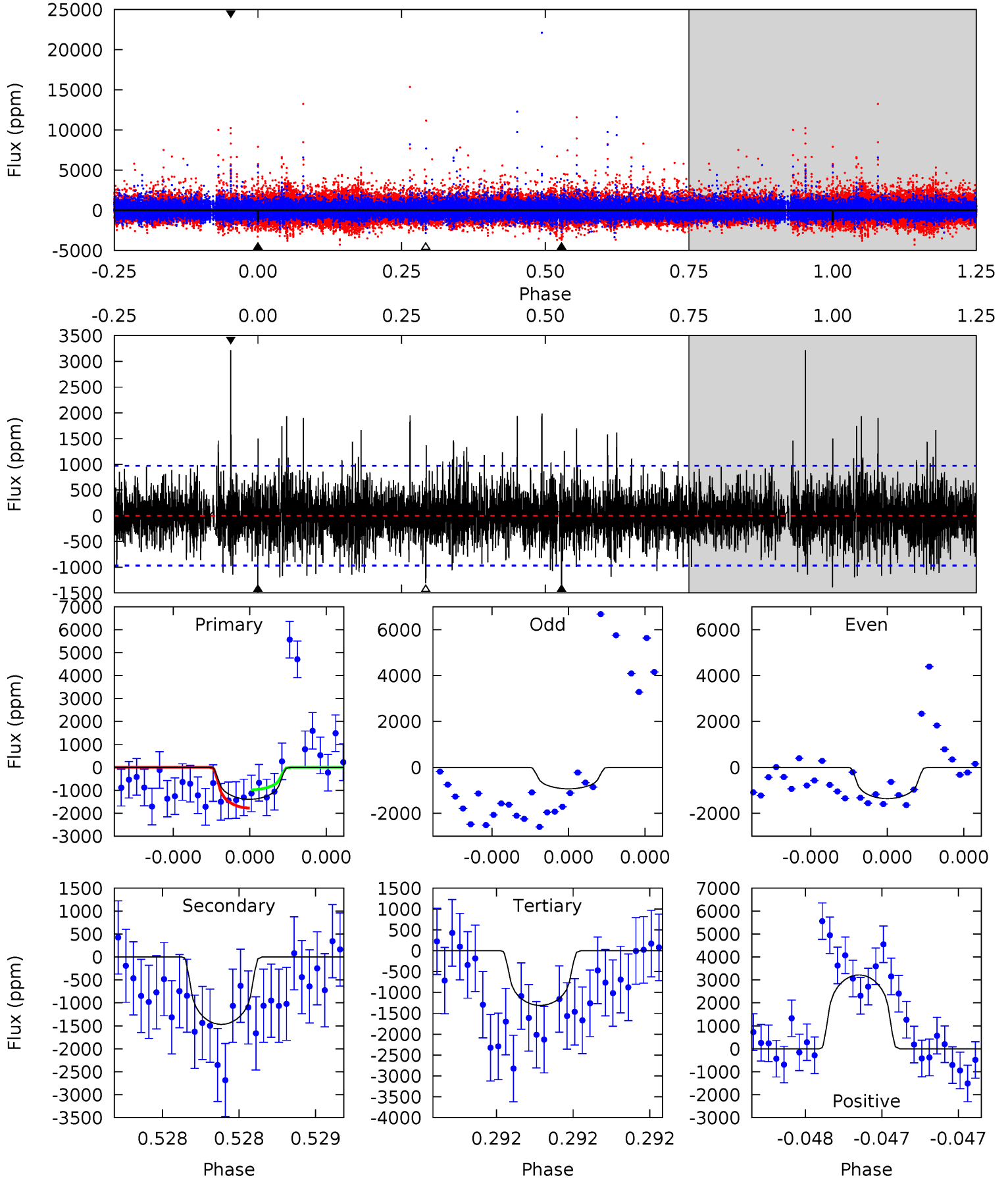
TCE 008365058-04 P=642.015644 Days $T_0=139.928961$ (BKJD)



DV Model-Shift Uniqueness Test

008365058-04, P = 642.017023 Days, E = 139.932047 Days

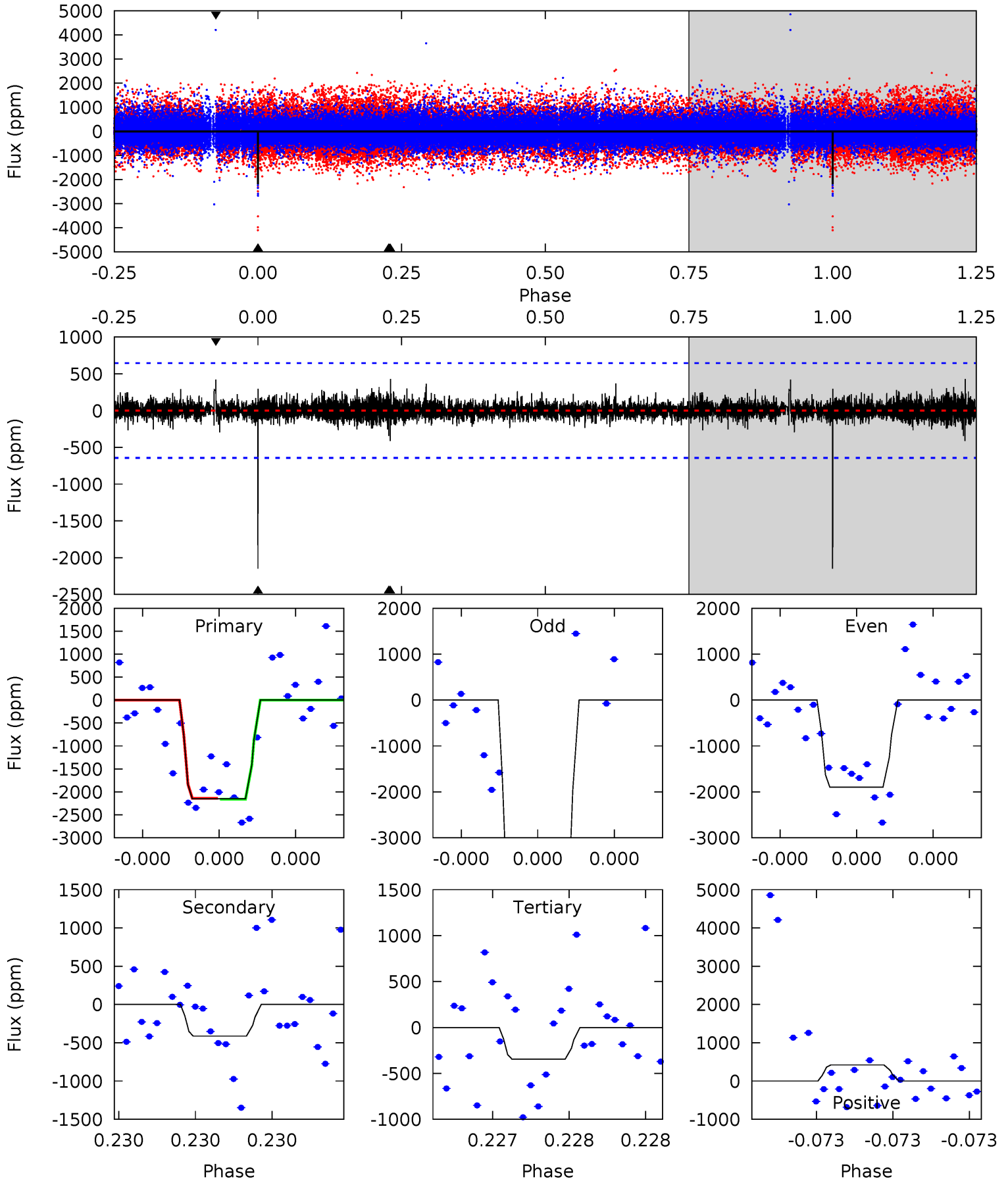
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.08	8.54	7.62	18.7	5.64	3.59	2.11	0.46	-10.6	0.92	-10.2	0.98	1.30	0.69	2.32



Alt Model-Shift Uniqueness Test

008365058-04, P = 642.015644 Days, E = 139.928961 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	3.62	3.04	3.71	5.67	3.63	0.55	15.9	15.2	0.59	-0.09	15.1	1.19	0.17	0.08



Stellar Parameters For KIC 008365058

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4565^{+150}_{-150}	$4.562^{+0.060}_{-0.020}$	$0.220^{+0.200}_{-0.300}$	$0.741^{+0.031}_{-0.062}$	$0.731^{+0.050}_{-0.050}$	$2.528^{+0.638}_{-0.195}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+7%/-7%	+25%/-8%
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 008365058-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1469 ± 172	$4.32^{+3.60}_{-2.50}$	209^{+8}_{-8}	4020^{+1824}_{-723}	$75070^{+348457}_{-52598}$
Alt.	-412 ± 114	$4.80^{+3.28}_{-2.78}$	210^{+8}_{-7}	3153^{+1054}_{-463}	16377^{+80624}_{-11235}

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

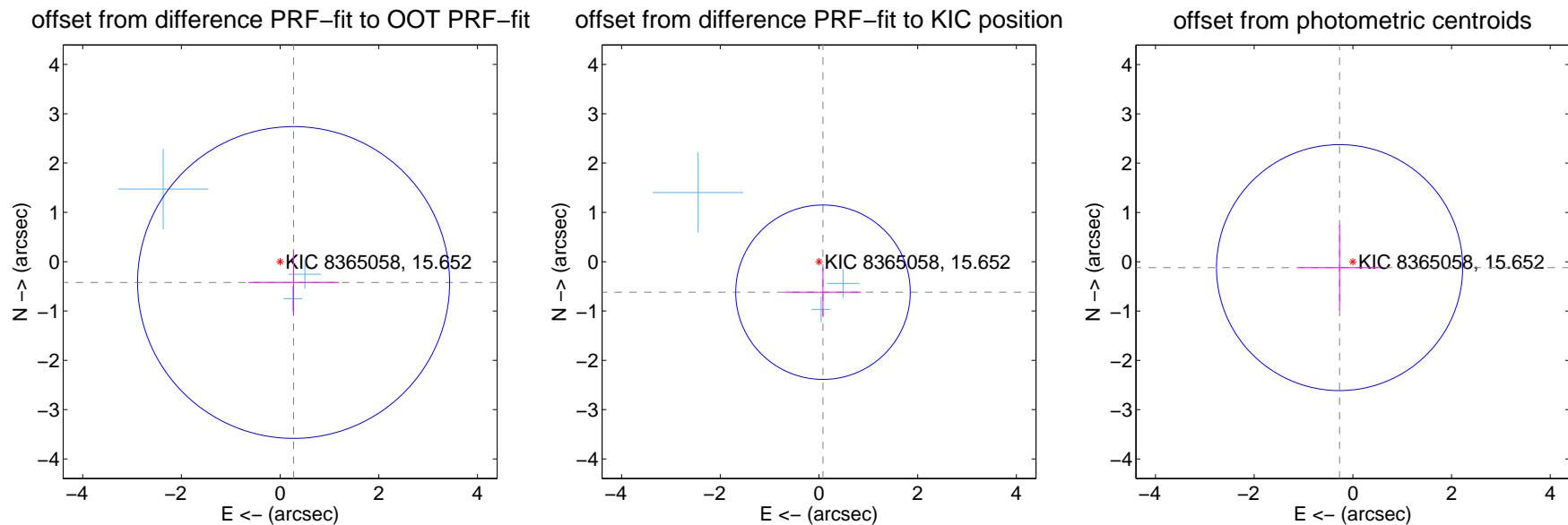
DV Centroid Data

Supplemental centroid analysis for 008365058-04. Kepler magnitude: 15.65. Transit SNR 7.08

There are 3 quarters with good PRF difference image offsets

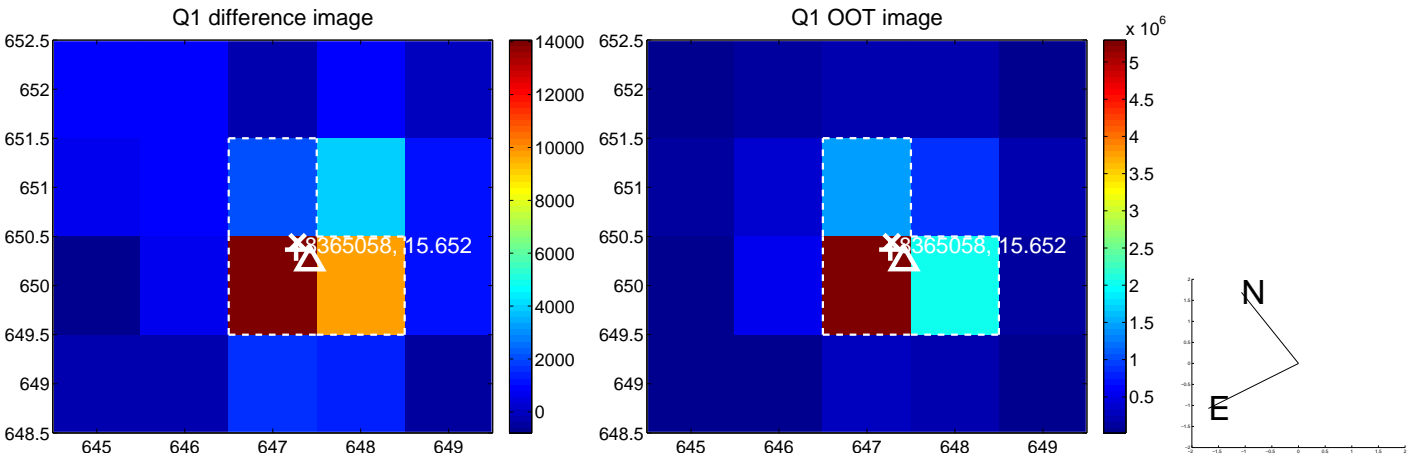
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.503 ± 1.054	0.48	-0.273 ± 0.920	-0.422 ± 0.667
PRF-fit source offset from KIC position	0.624 ± 0.590	1.06	-0.081 ± 0.776	-0.619 ± 0.500
photometric centroid source offset	0.29 ± 0.83	0.35	0.27 ± 0.83	-0.12 ± 0.86



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q5 no difference image



Q5 no OOT image



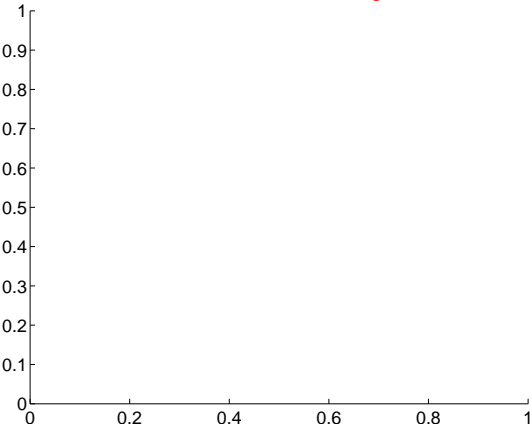
Q6 no difference image



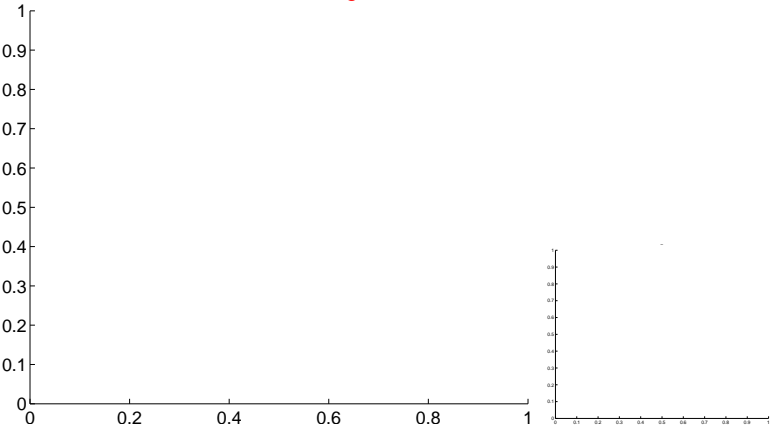
Q6 no OOT image



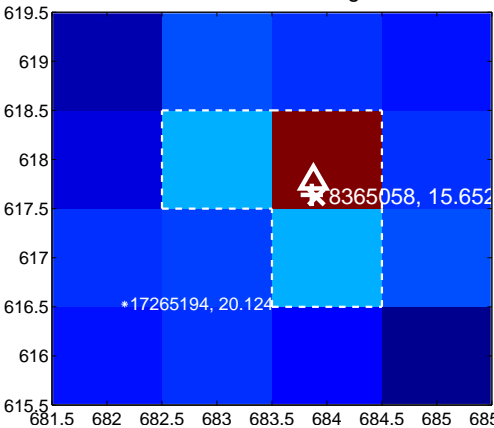
Q7 no difference image



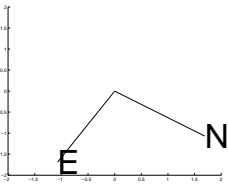
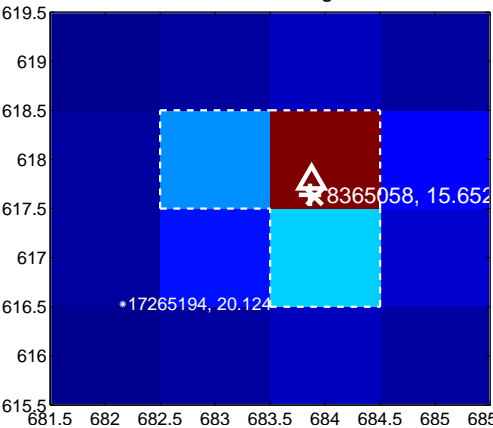
Q7 no OOT image



Q8 difference image



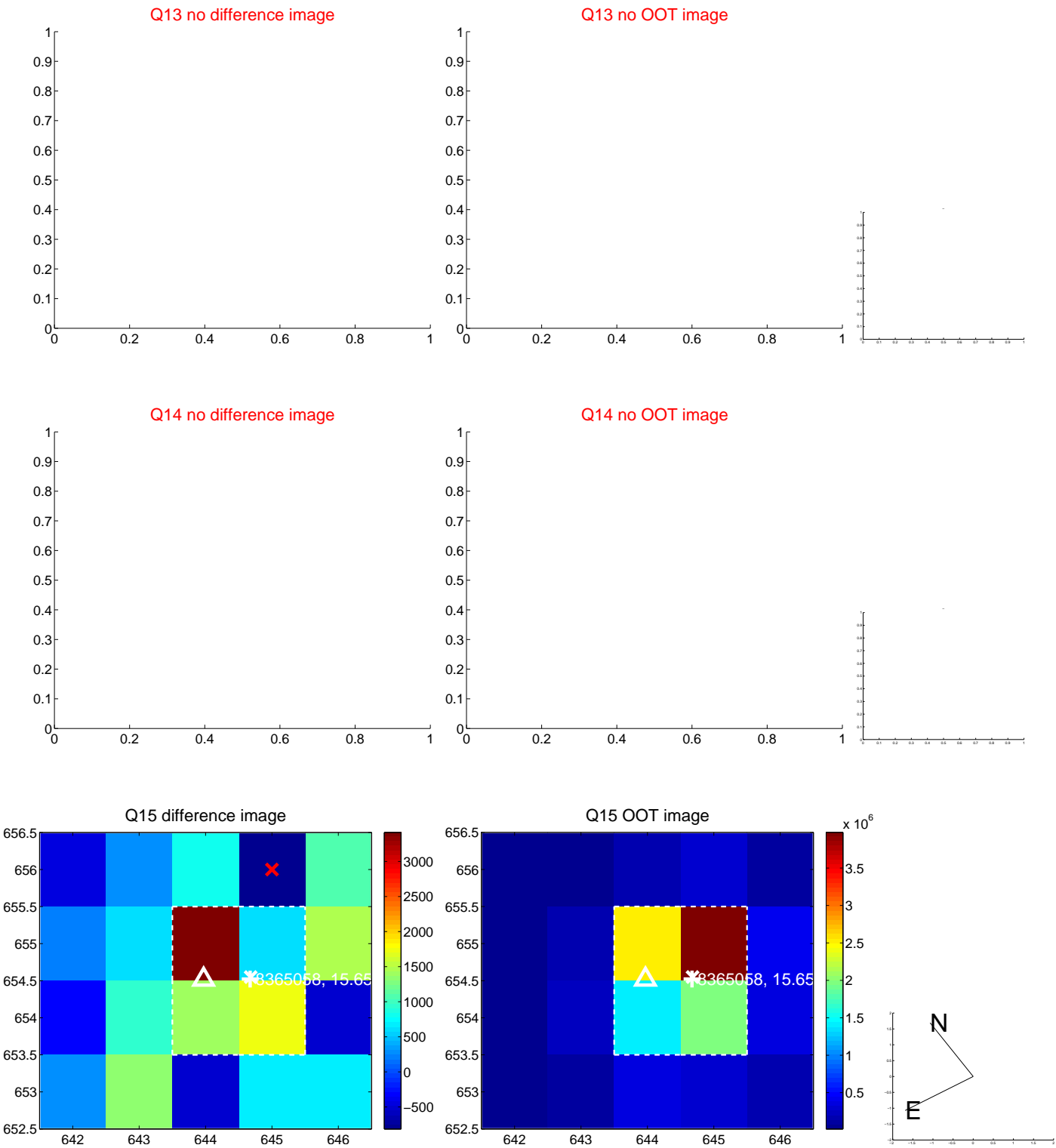
Q8 OOT image



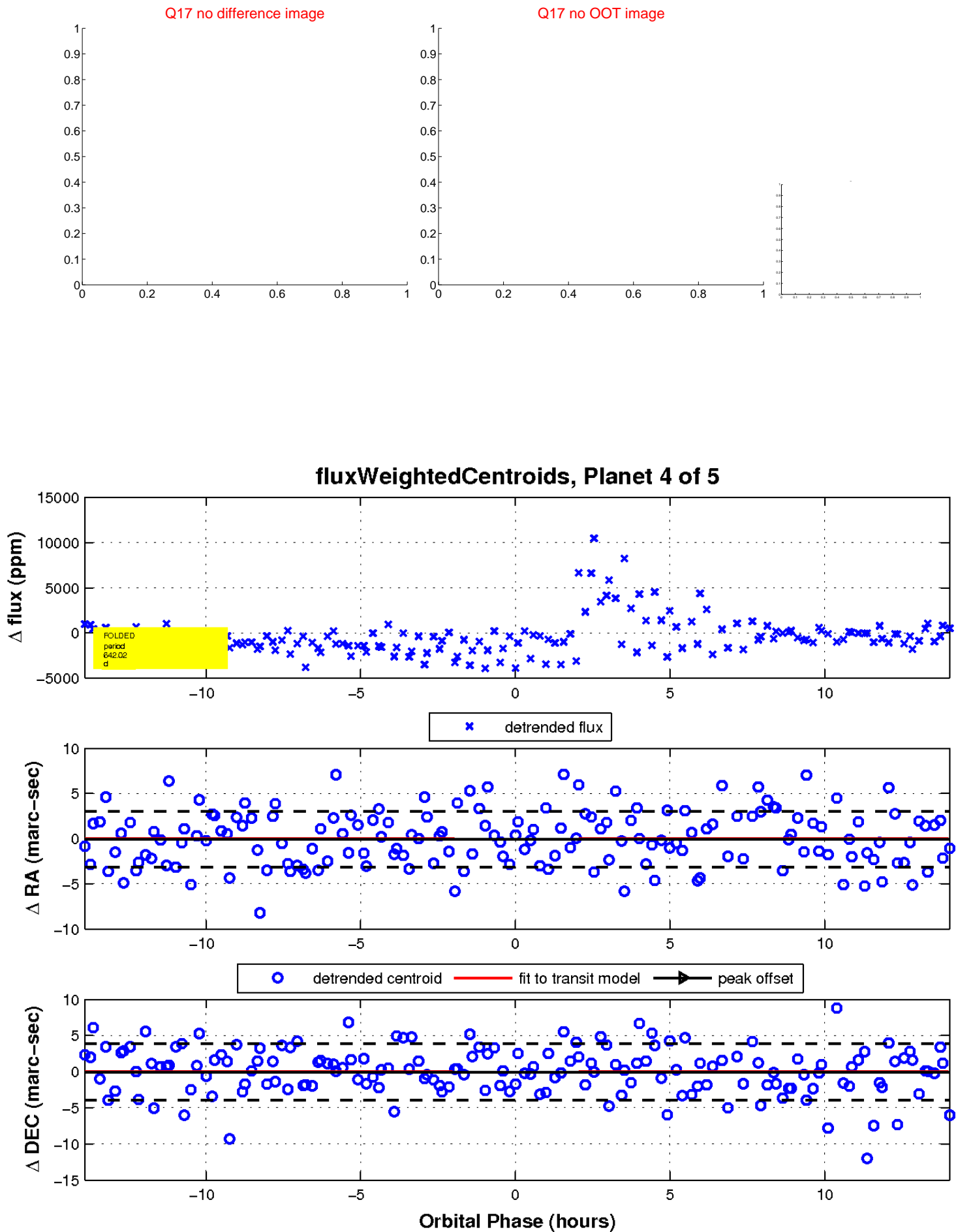
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

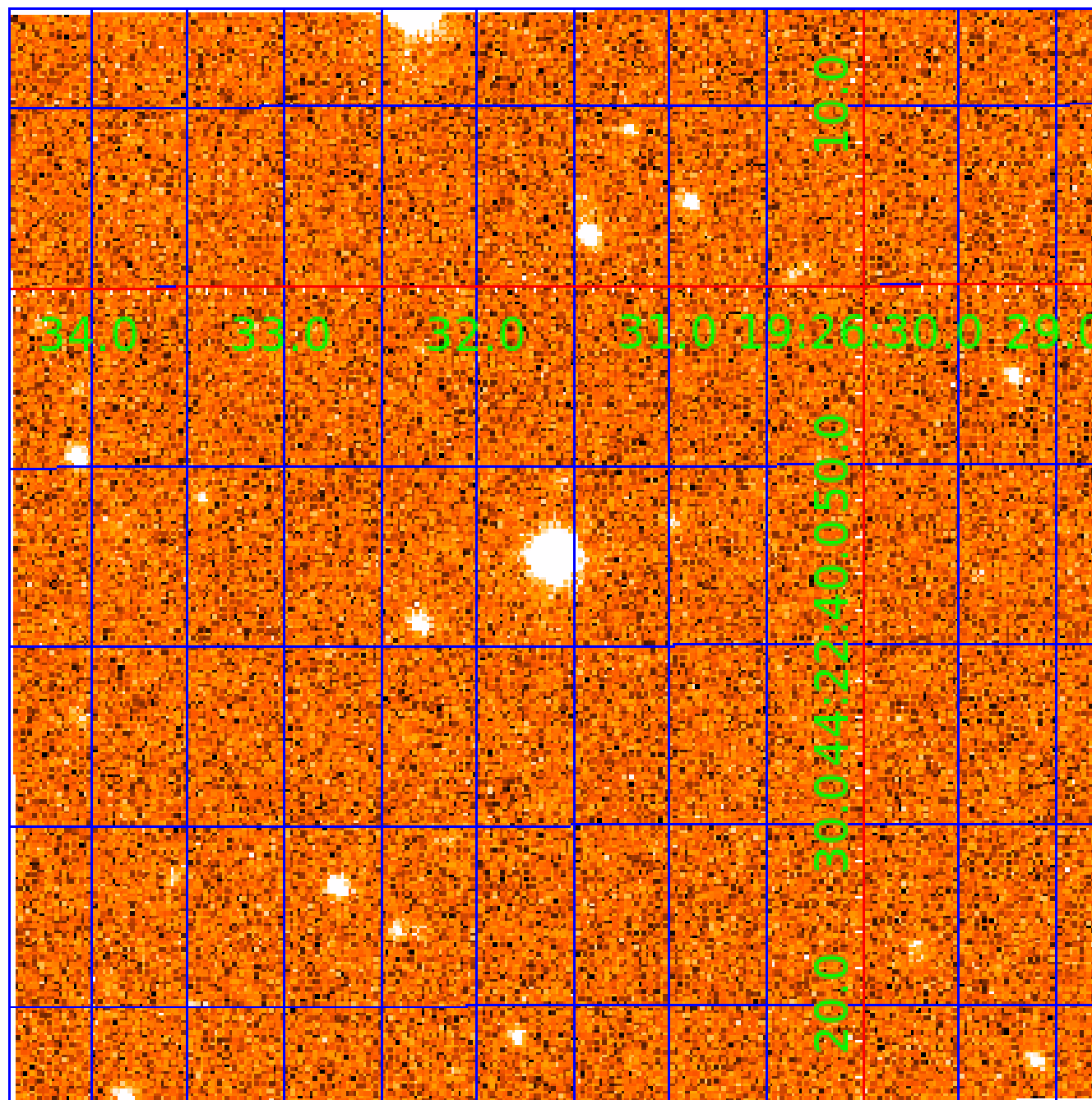


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008365058

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})
008365058-02	OBS	No	415.414275	545.127115	1287.3	12.500	13.0	-1.0	0.74	4565	2.54	0.22
008365058-03	OBS	No	581.433231	407.829194	2633.1	7.851	10.1	8.7	0.74	4565	4.57	0.14
008365058-04	OBS	No	642.017023	139.932047	2277.7	4.686	11.8	7.1	0.74	4565	3.65	0.12
008365058-05	OBS	No	371.025771	199.275490	2372.7	3.500	10.3	-1.0	0.74	4565	3.45	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008365058-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
008365058-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008365058-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
008365058-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

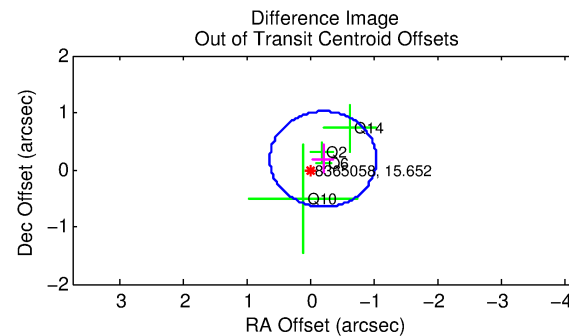
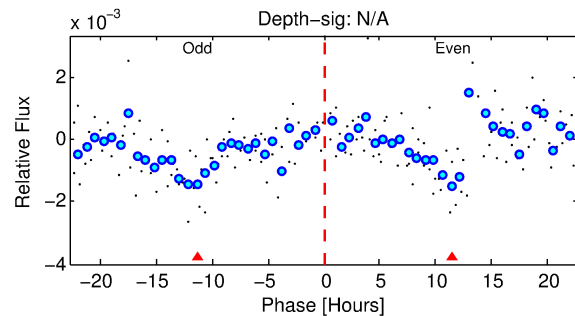
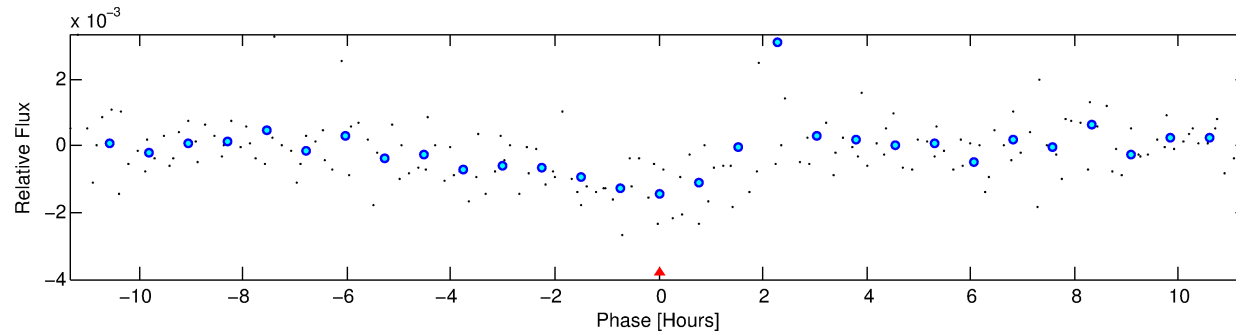
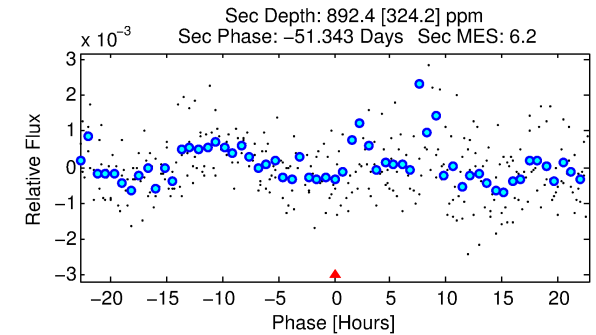
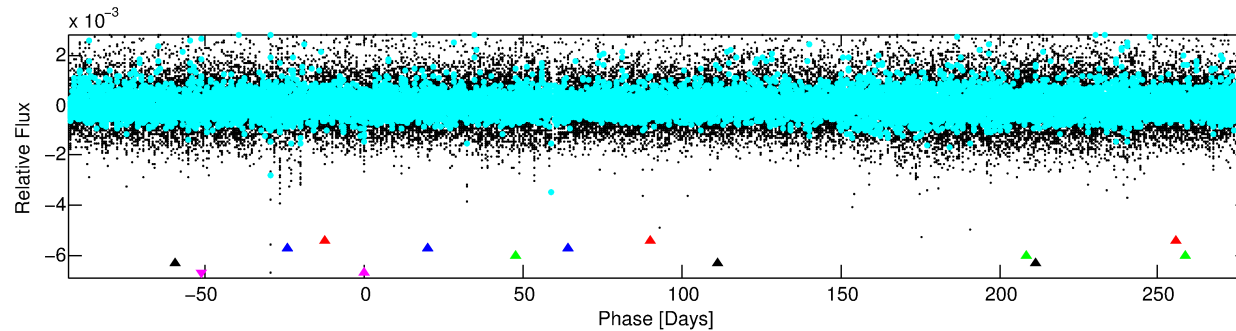
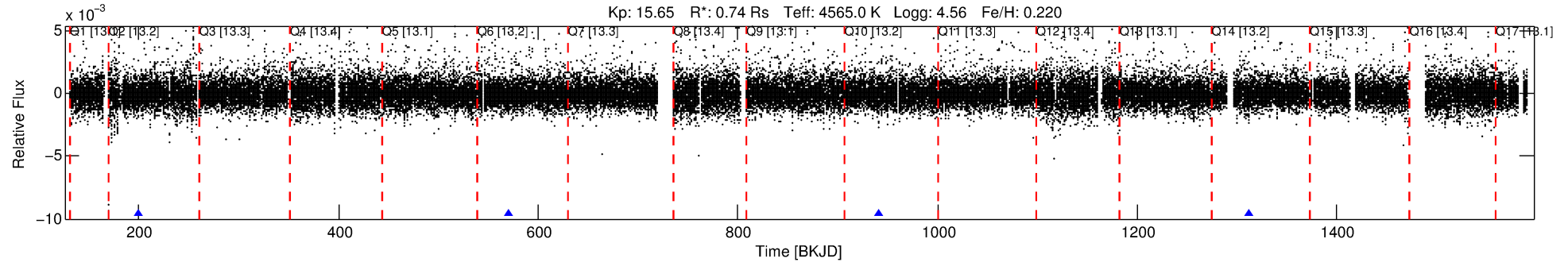
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008365058-05

No Significant Match Found

DV One-Page Summary

KIC: 8365058 Candidate: 5 of 5 Period: 371.026 d



TPS TCE Results:

Period = 371.02577 d
Epoch = 199.2755 BKJD

DV fit results are unavailable

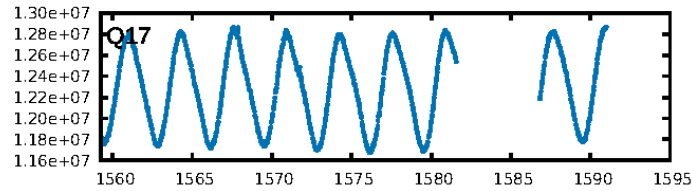
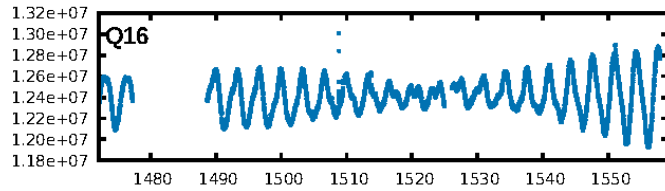
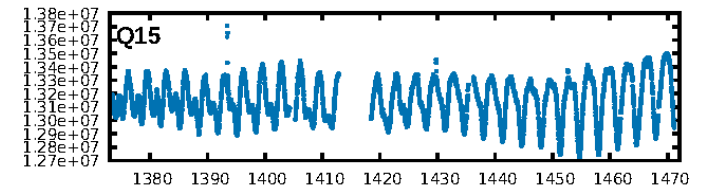
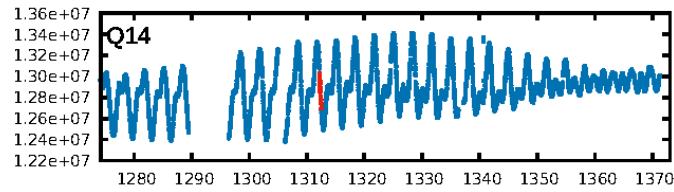
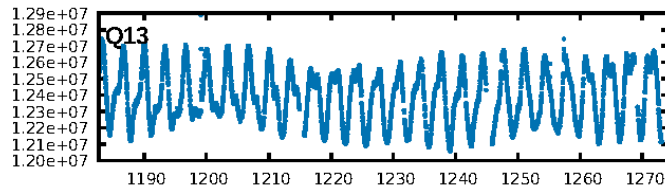
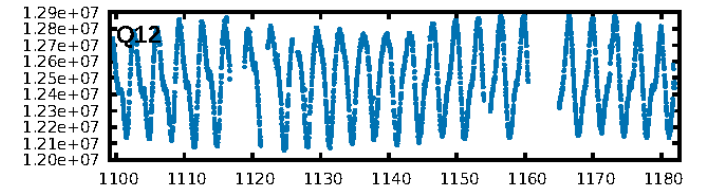
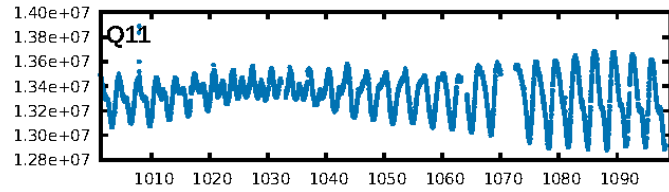
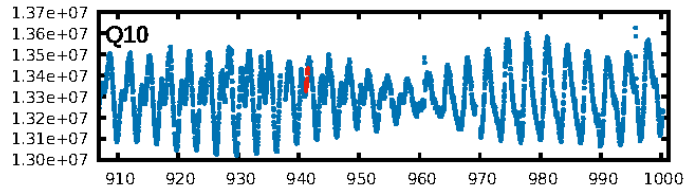
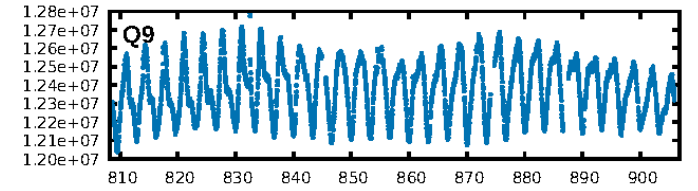
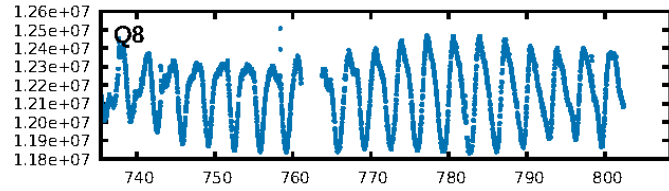
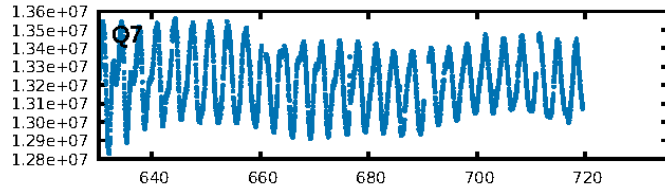
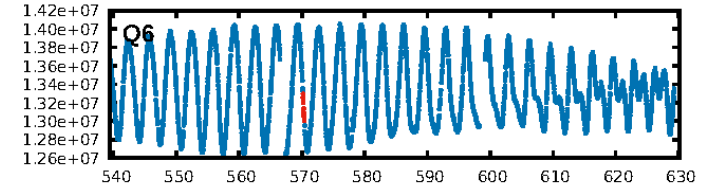
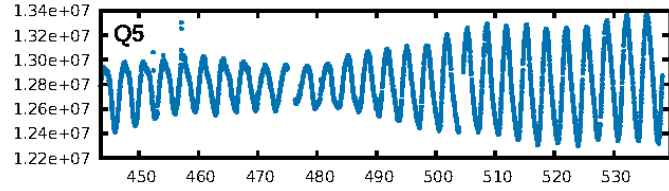
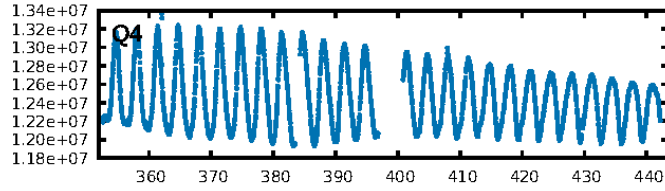
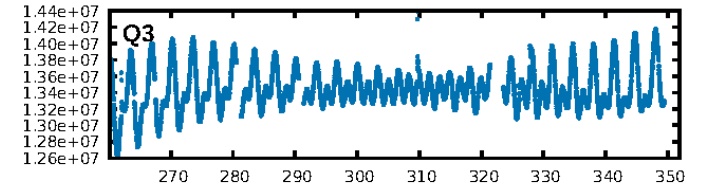
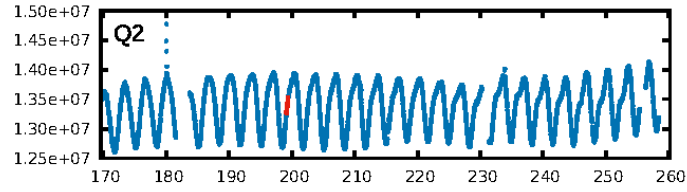
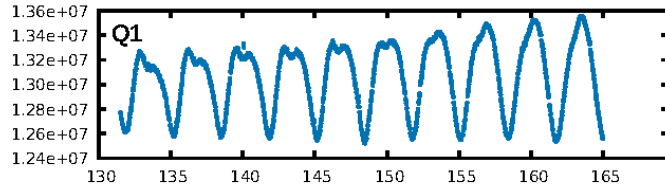
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [82.07 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -31.58
Centroid-sig: 80.6%
Centroid-so: 0.436 arcsec [0.68 σ]
OotOffset-rm: 0.269 arcsec [0.96 σ]
KicOffset-rm: 0.068 arcsec [0.25 σ]
OotOffset-st: 4/0/0 [4]
KicOffset-st: 4/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

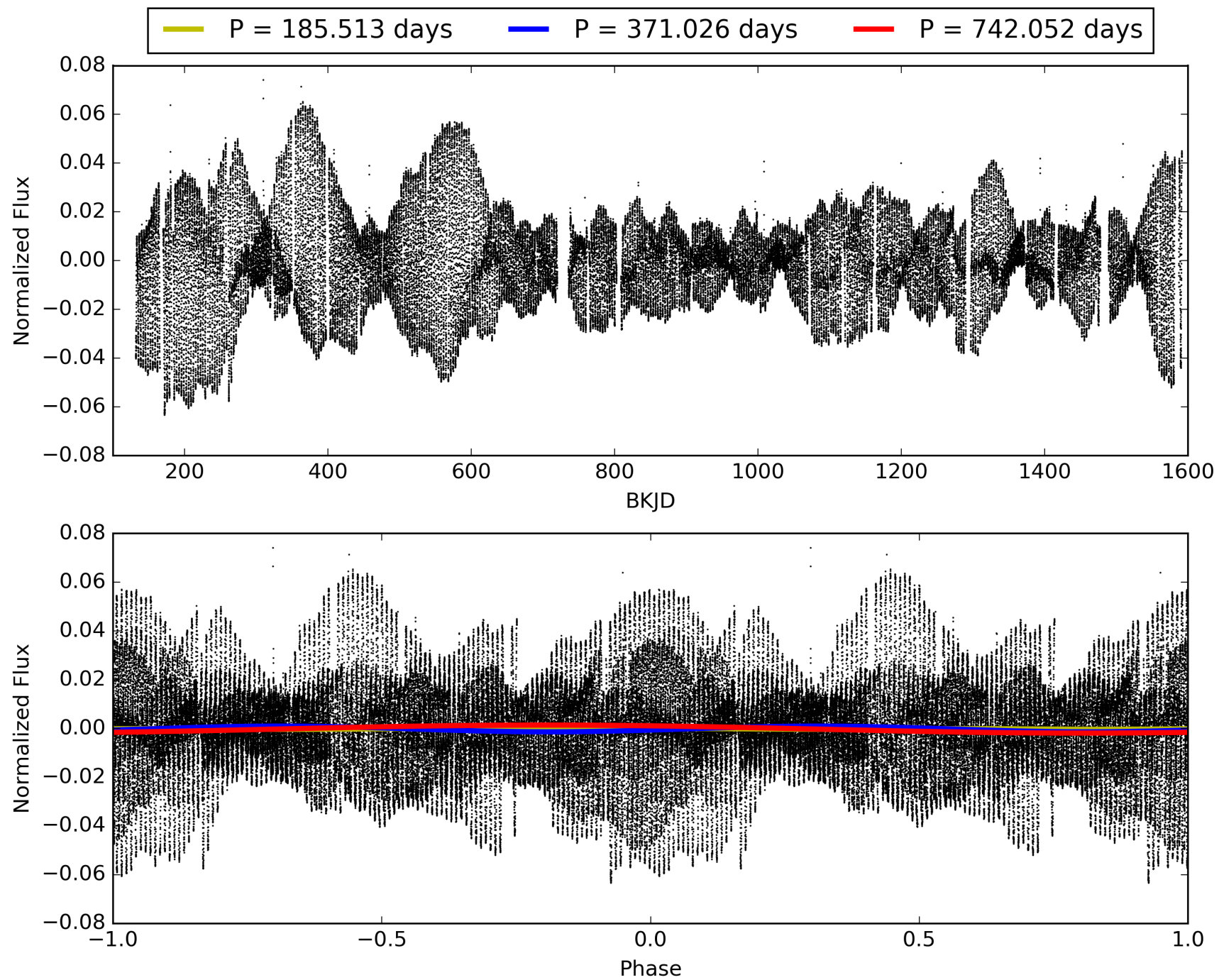
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:36:21 Z

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

TCE 008365058-05, PDC Light Curves

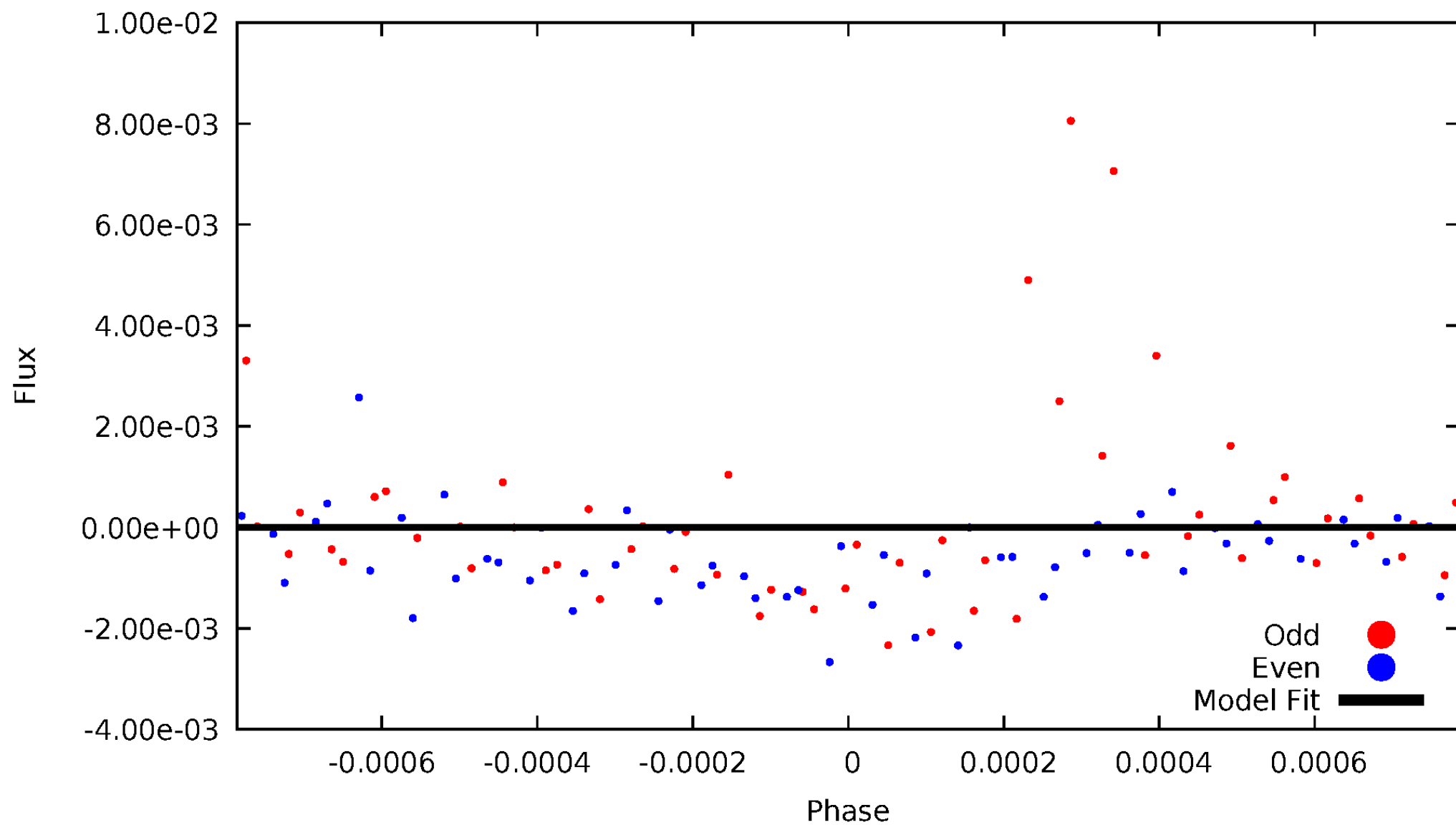


TCE 008365058-05



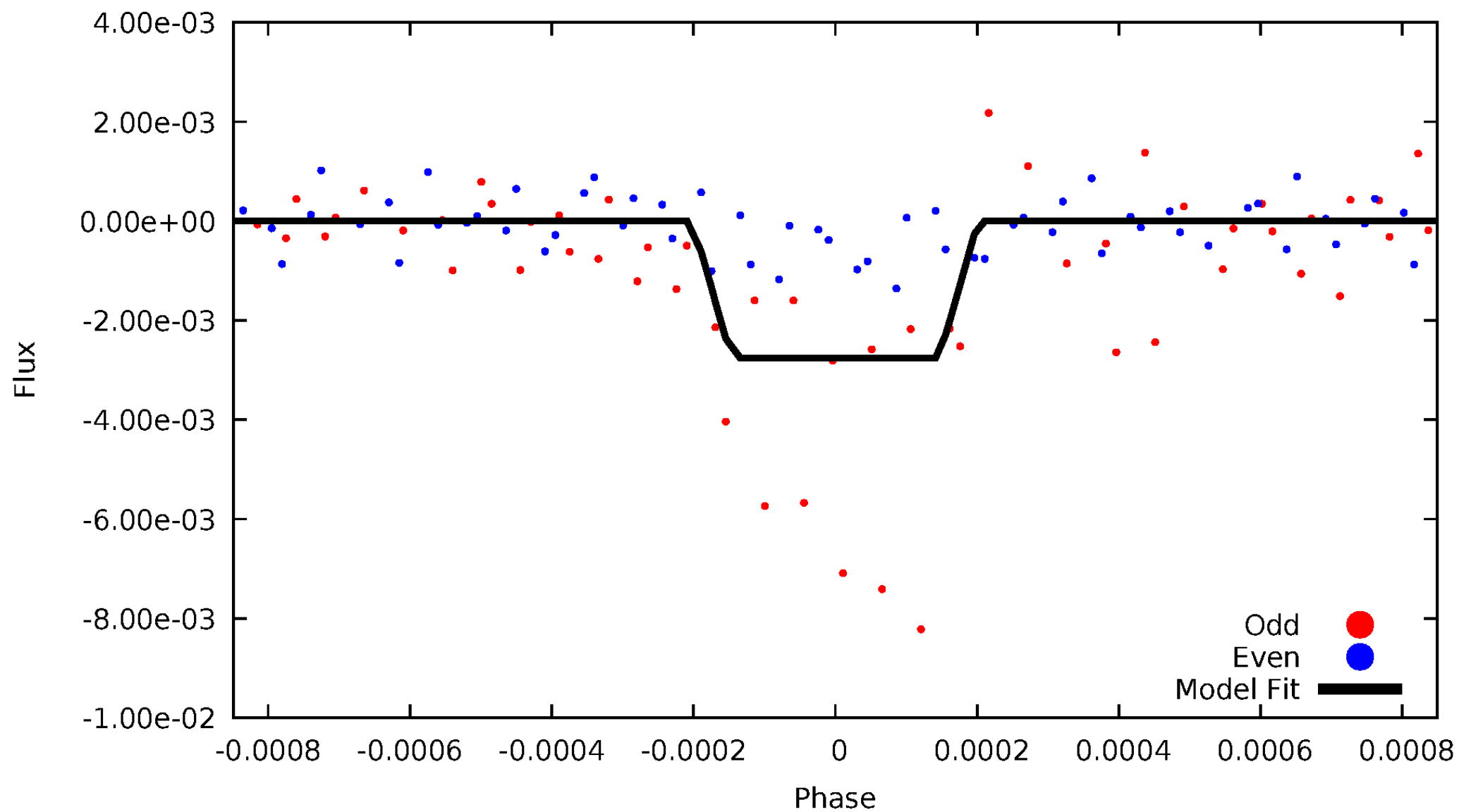
DV Odd/Even

TCE 008365058-05

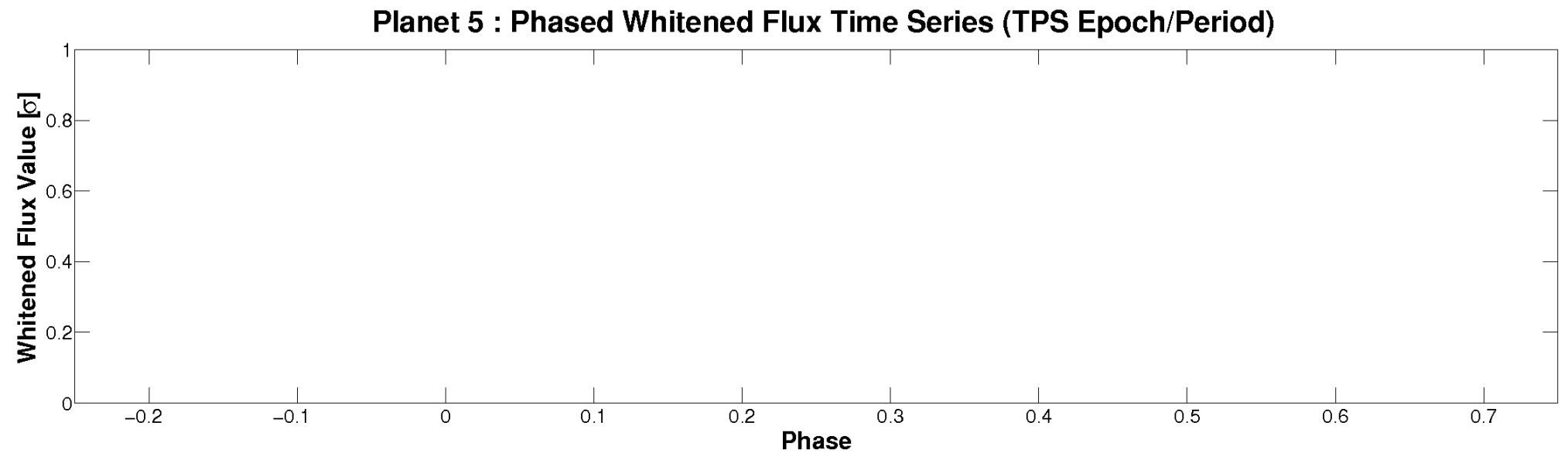
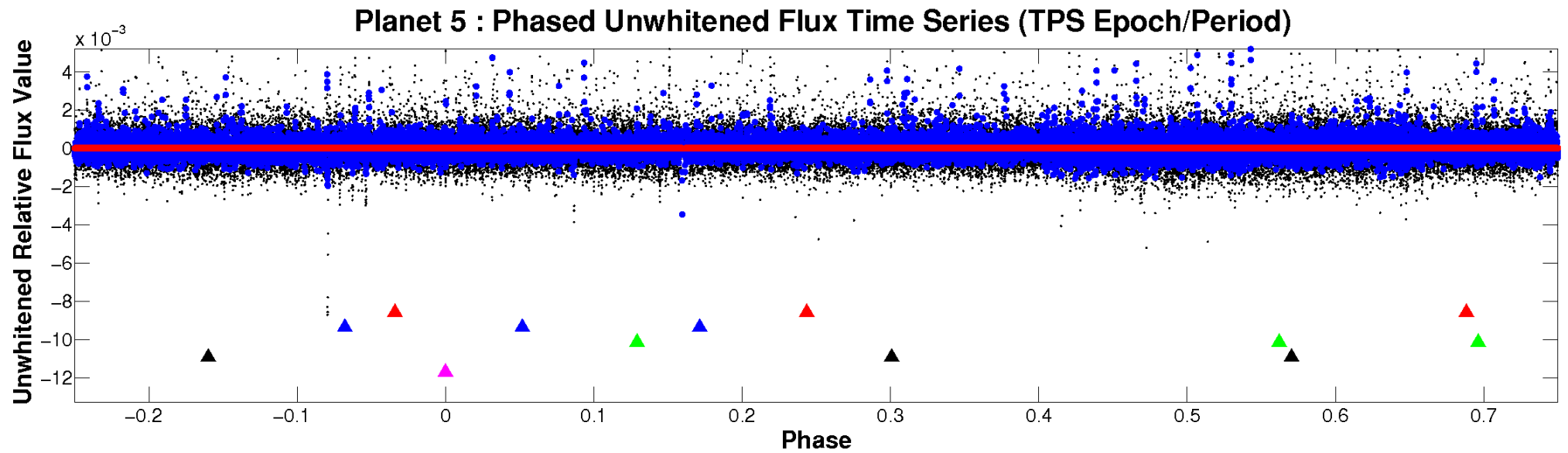


ALT Odd/Even

TCE 008365058-05

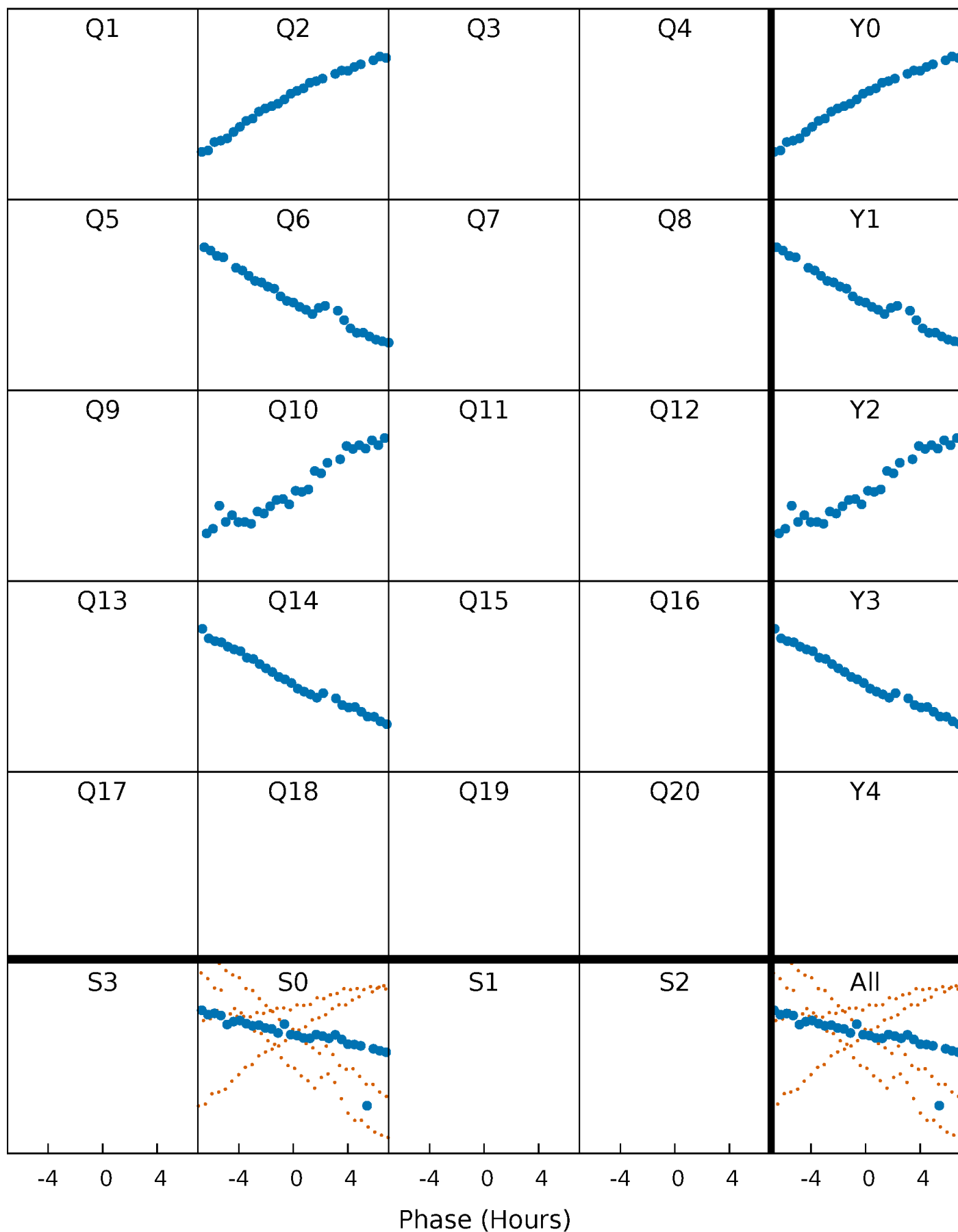


Non-Whitened Vs. Whitened Light Curve



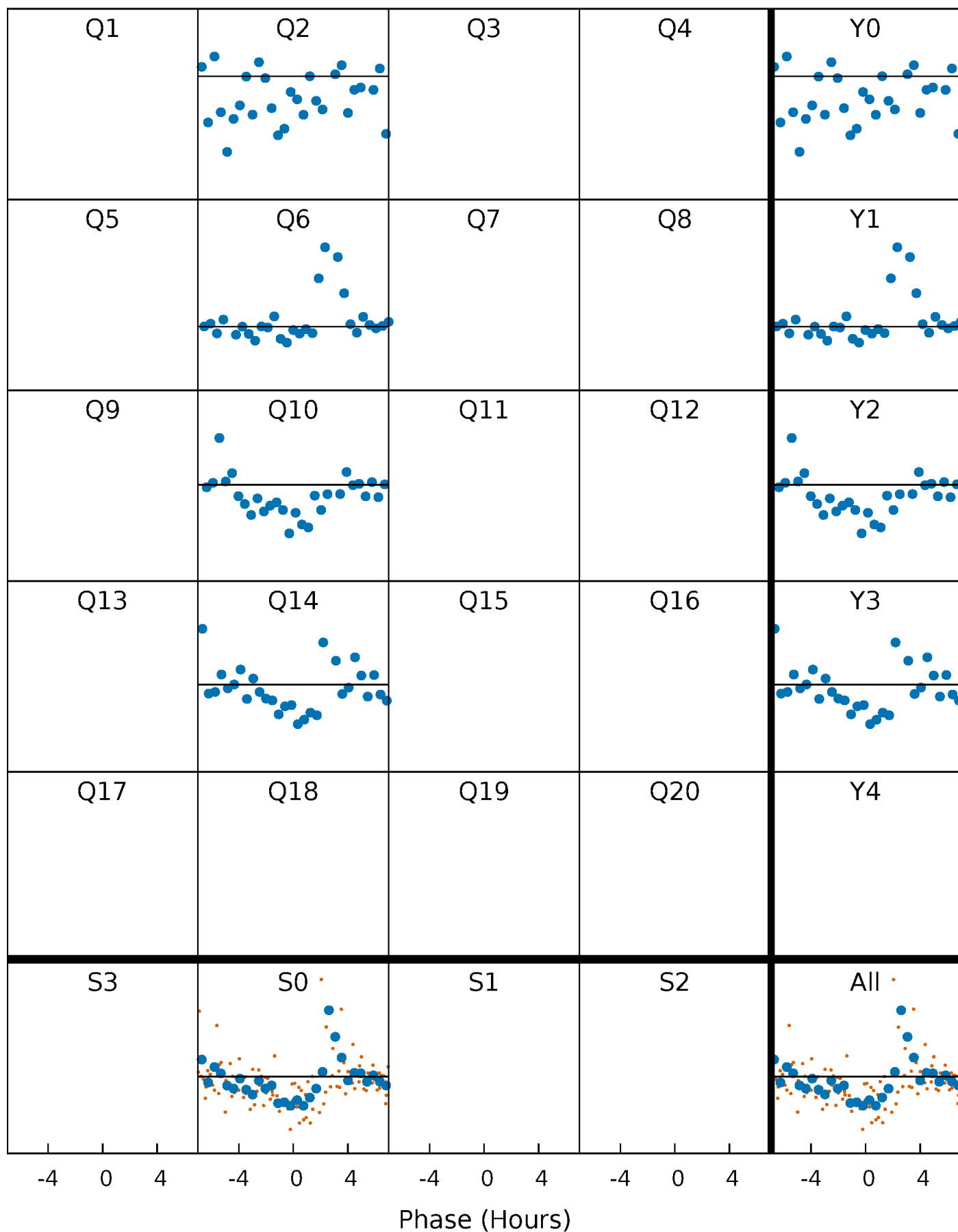
PDC Quarter-Phased Transit Curves

TCE 008365058-05 P=371.025771 Days $T_0=199.275490$ (BKJD)



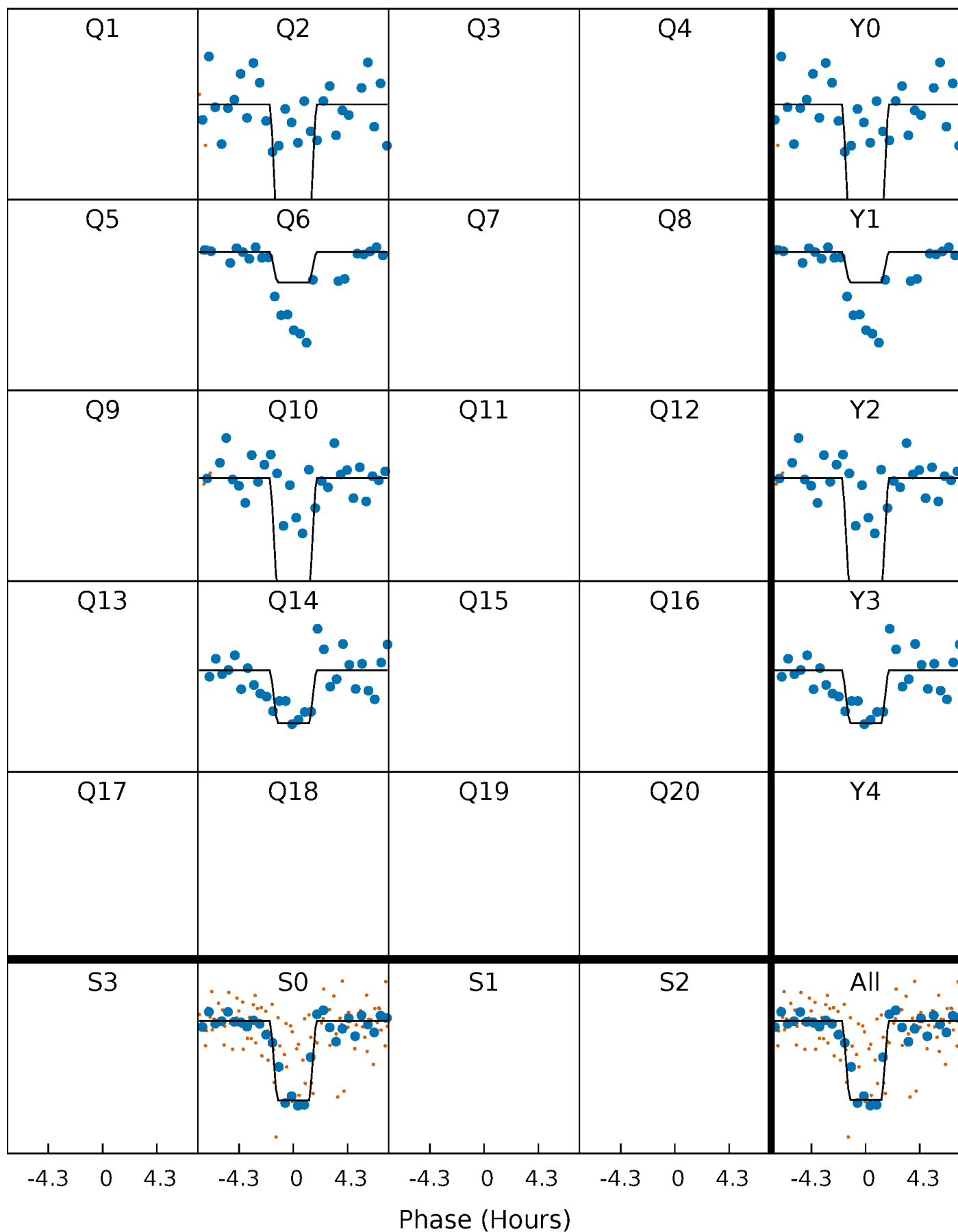
DV Quarter-Phased Transit Curves

TCE 008365058-05 $P=371.025771$ Days $T_0=199.275490$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

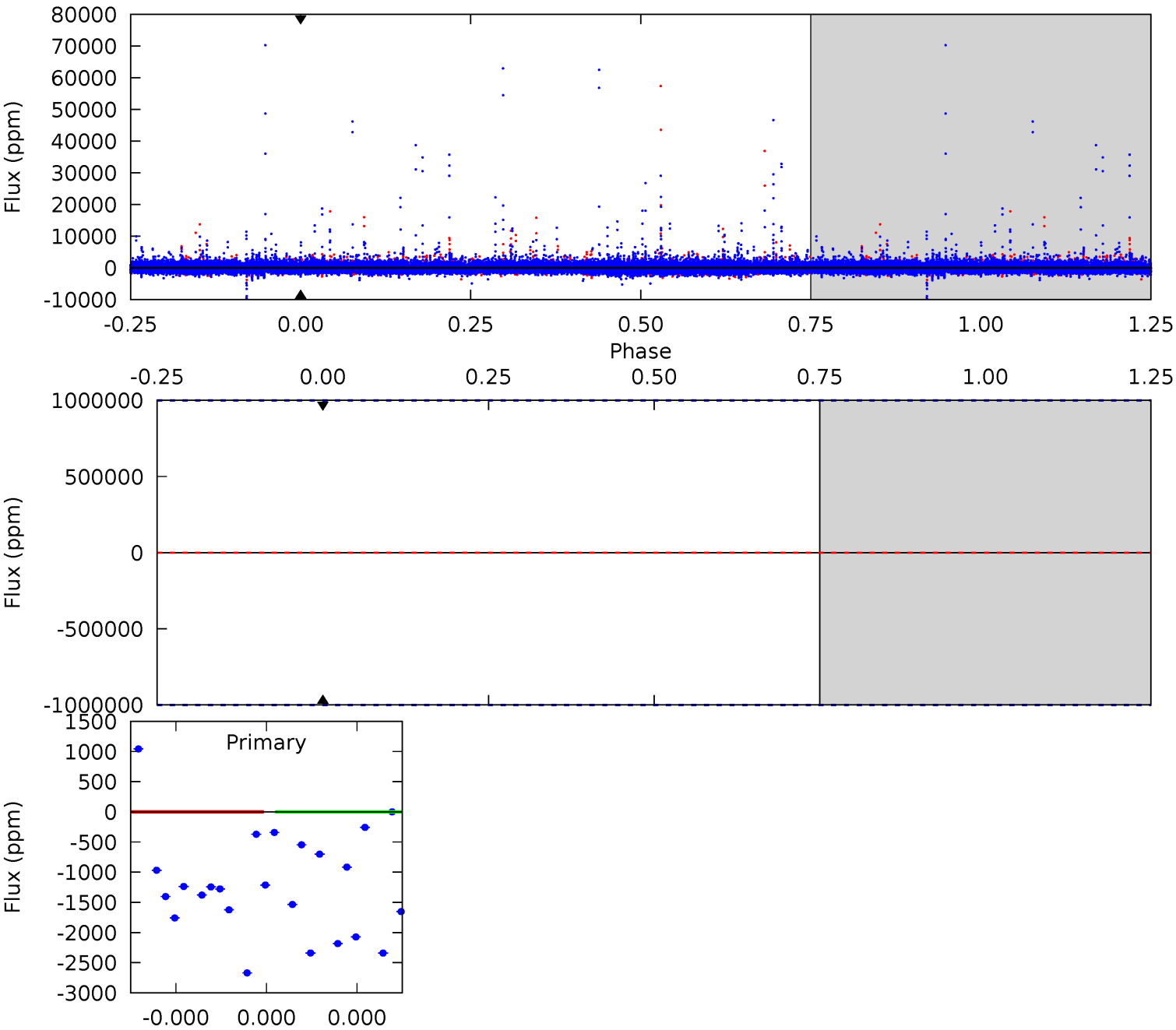
TCE 008365058-05 P=371.025771 Days $T_0=199.295934$ (BKJD)



DV Model-Shift Uniqueness Test

008365058-05, P = 371.025771 Days, E = 199.275490 Days

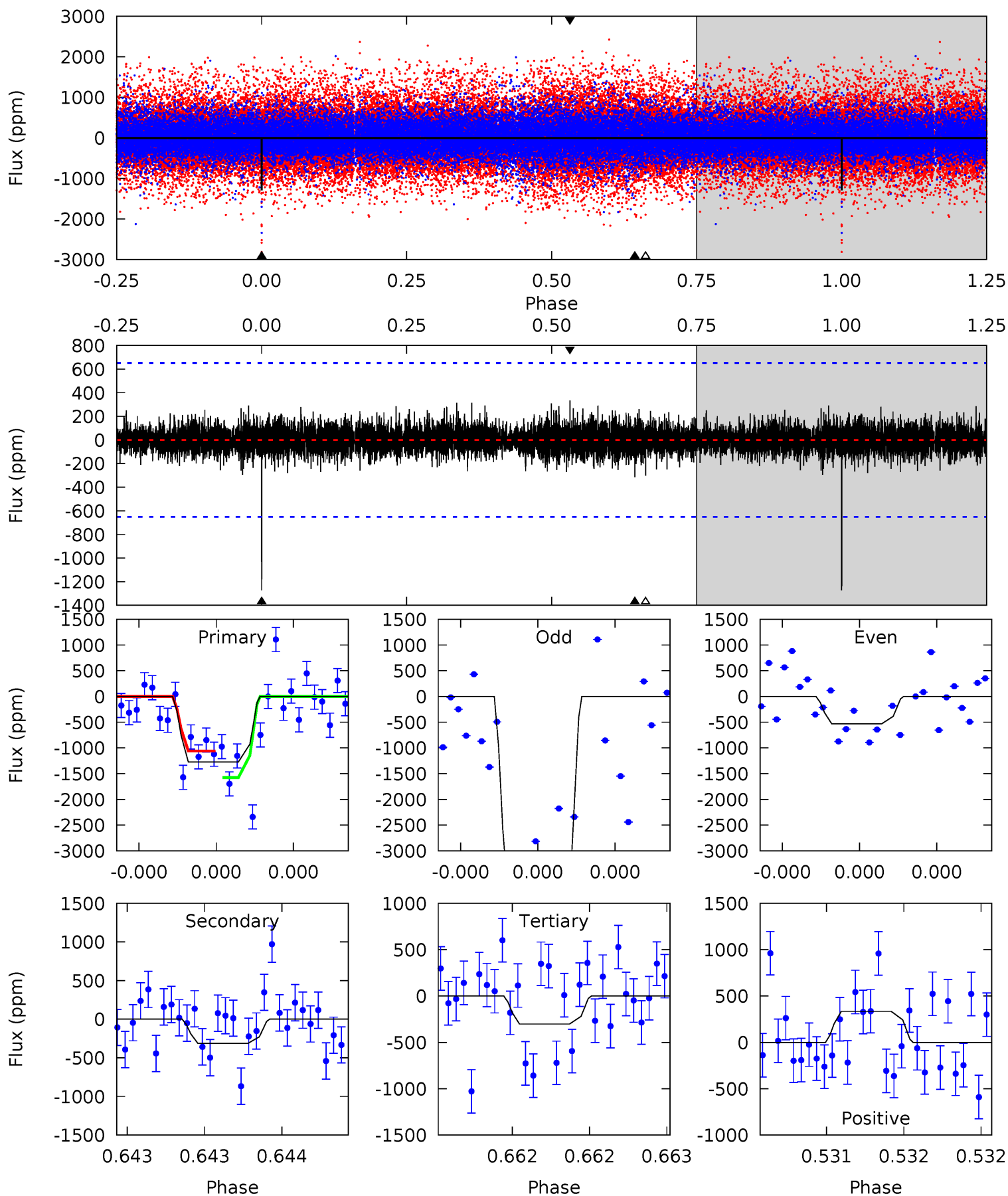
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008365058-05, P = 371.025771 Days, E = 199.295934 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	2.70	2.60	2.88	5.63	3.56	0.62	8.38	8.10	0.10	-0.18	19.2	1.73	0.21	2.23



Stellar Parameters For KIC 008365058

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4565^{+150}_{-150}	$4.562^{+0.060}_{-0.020}$	$0.220^{+0.200}_{-0.300}$	$0.741^{+0.031}_{-0.062}$	$0.731^{+0.050}_{-0.050}$	$2.528^{+0.638}_{-0.195}$
	+3%/-3%	+1%/-0%	+91%/-136%	+4%/-8%	+7%/-7%	+25%/-8%
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 008365058-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.72^{+6.89}_{-4.64}$	252^{+9}_{-10}	-3409^{+13583}_{-8606}	$-14793.229^{+1519543.700}_{-2167847.789}$
Alt.	-313 ± 116	$7.74^{+6.30}_{-5.45}$	252^{+10}_{-10}	2658^{+1150}_{-379}	2229^{+24999}_{-1595}

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

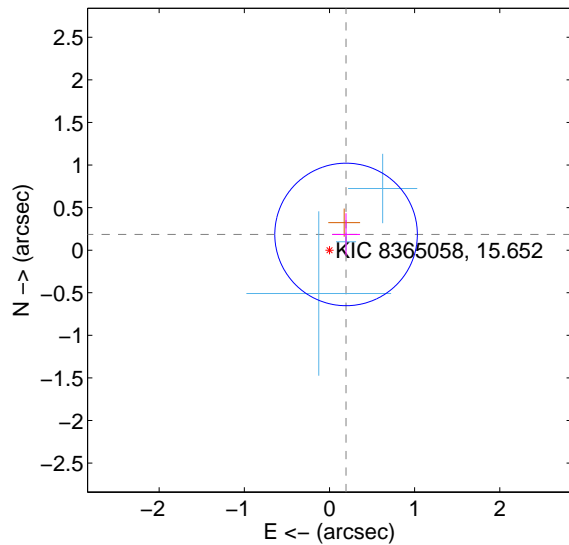
Supplemental centroid analysis for 008365058-05. Kepler magnitude: 15.65. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

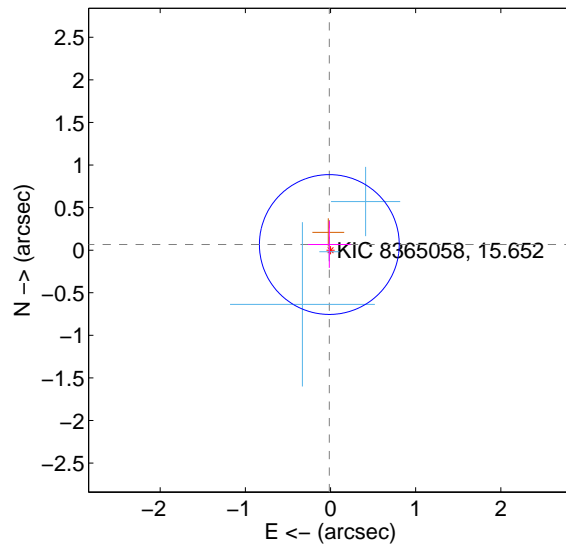
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.269 ± 0.279	0.96	-0.195 ± 0.164	0.185 ± 0.249
PRF-fit source offset from KIC position	0.068 ± 0.274	0.25	0.014 ± 0.251	0.066 ± 0.275
photometric centroid source offset	0.44 ± 0.64	0.68	0.19 ± 0.63	-0.39 ± 0.65

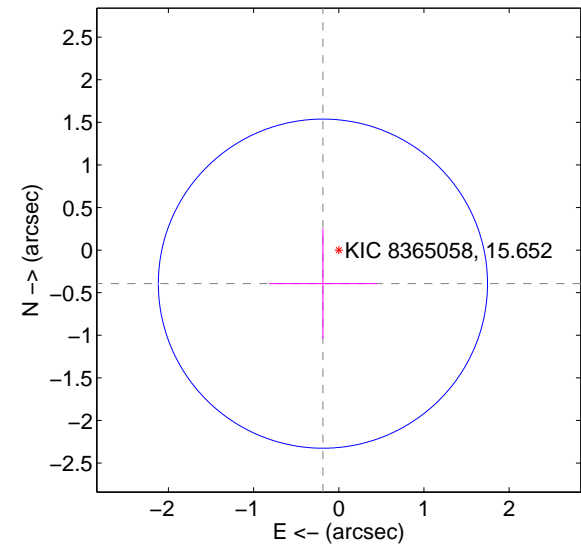
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

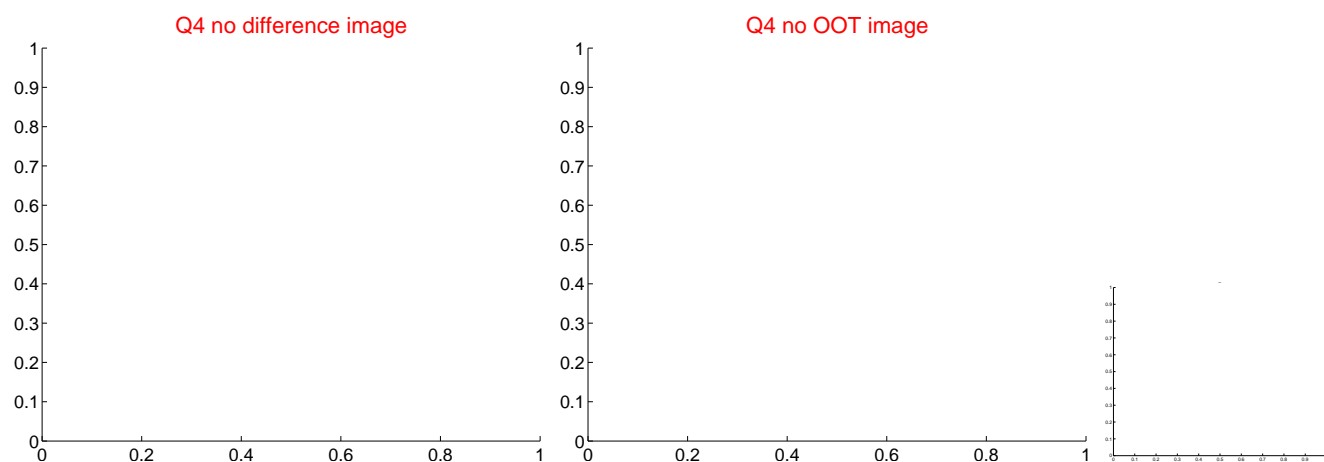
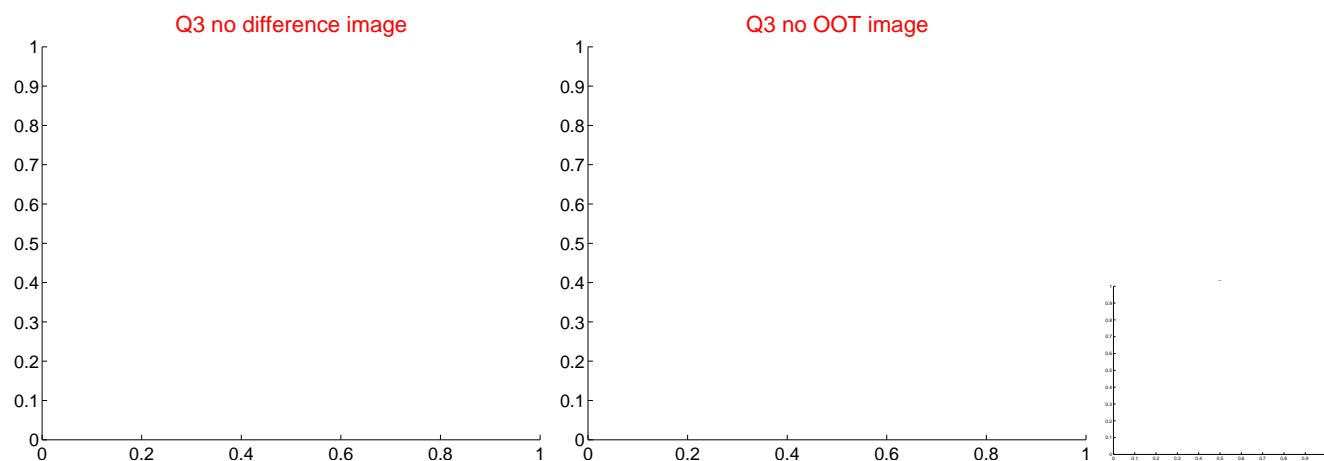
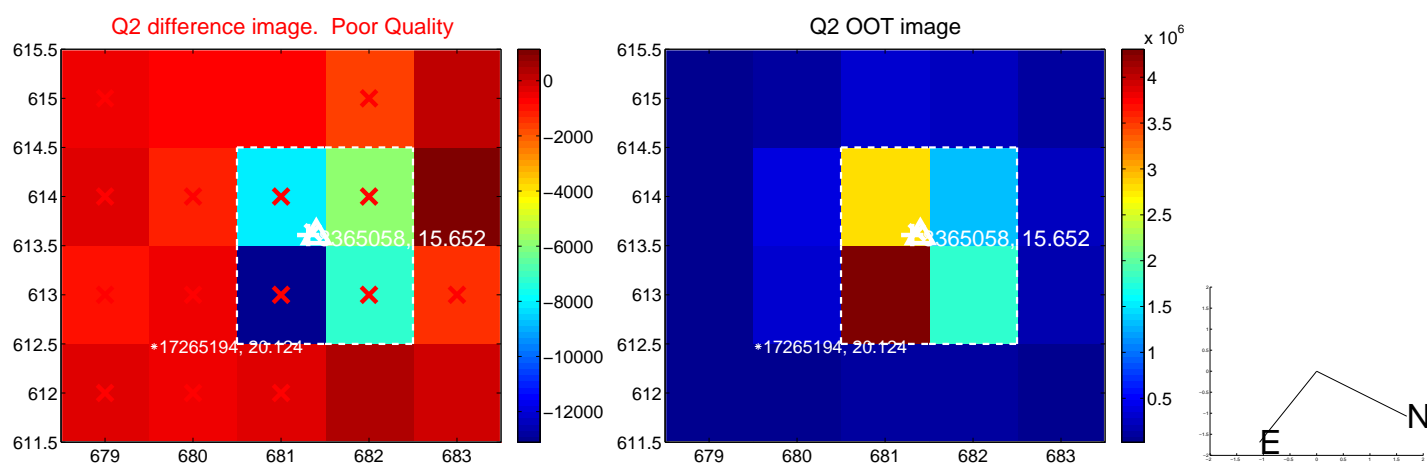
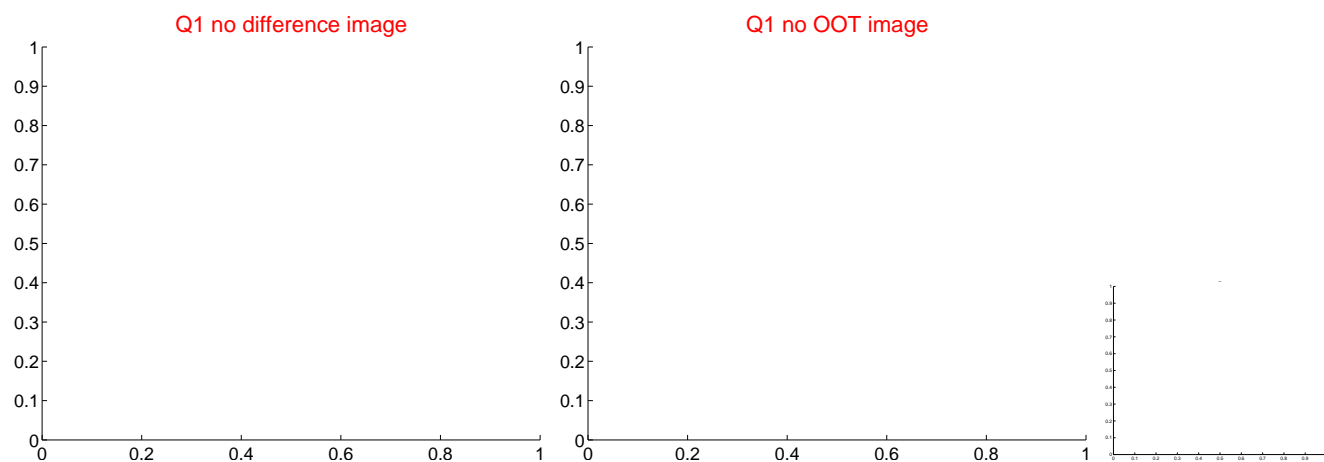


offset from photometric centroids



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.

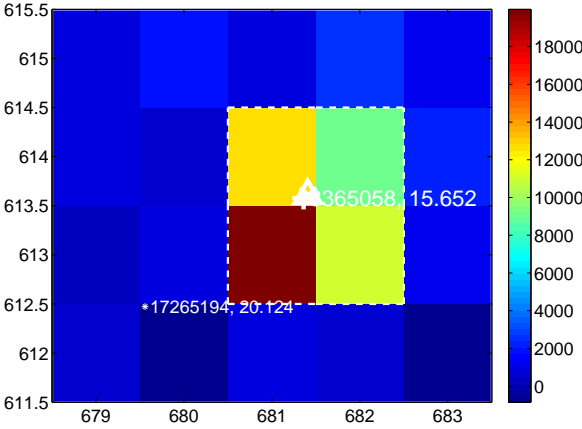
Q5 no difference image



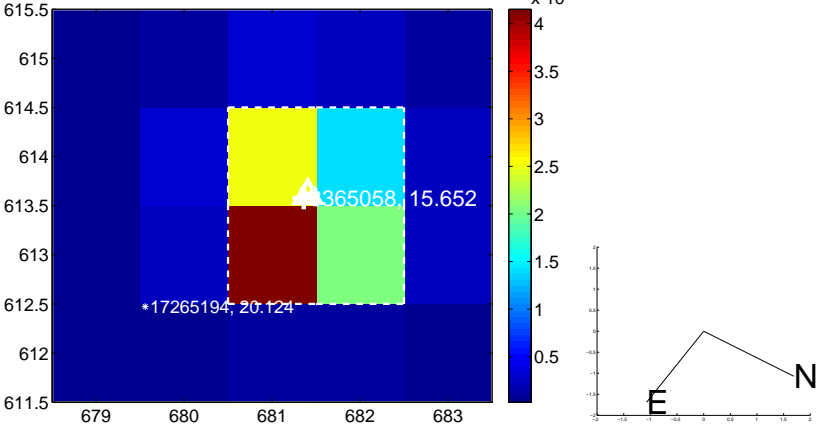
Q5 no OOT image



Q6 difference image



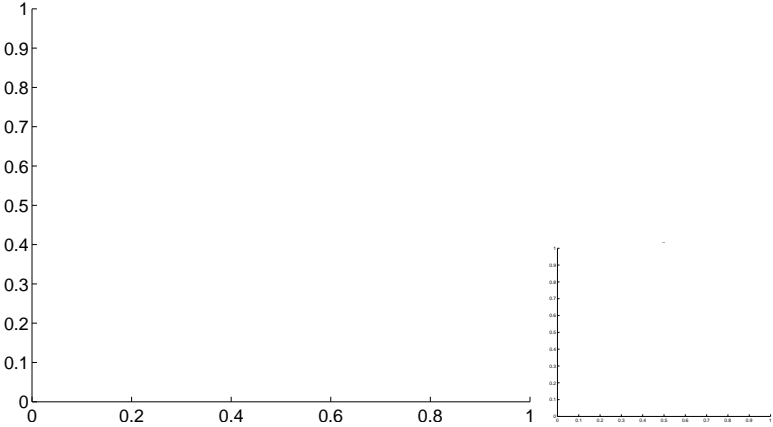
Q6 OOT image



Q7 no difference image



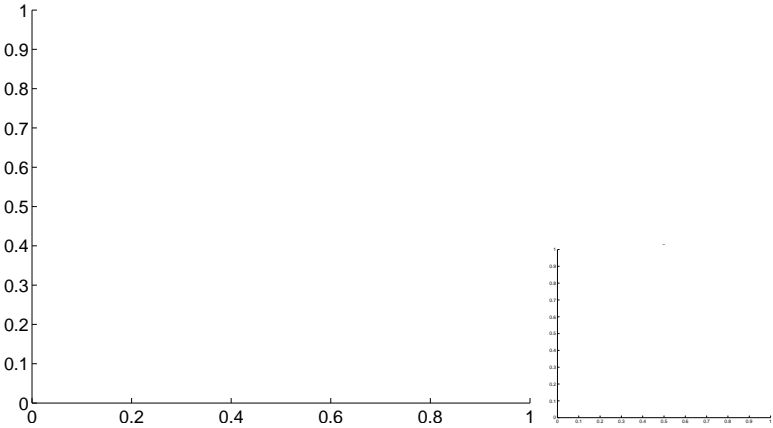
Q7 no OOT image



Q8 no difference image



Q8 no OOT image

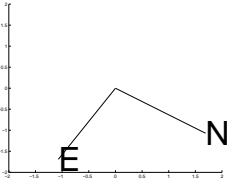
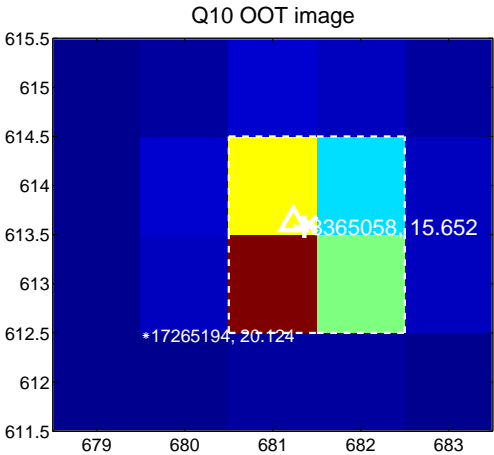
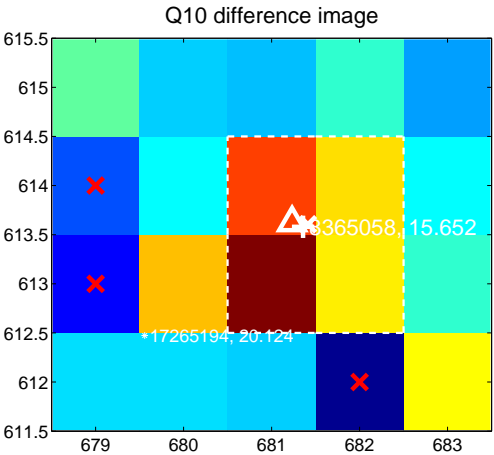


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

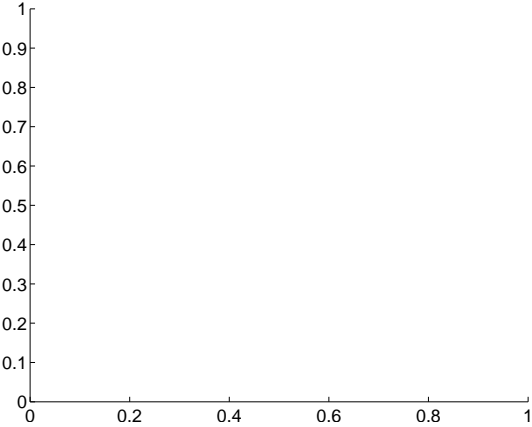
Q9 no difference image



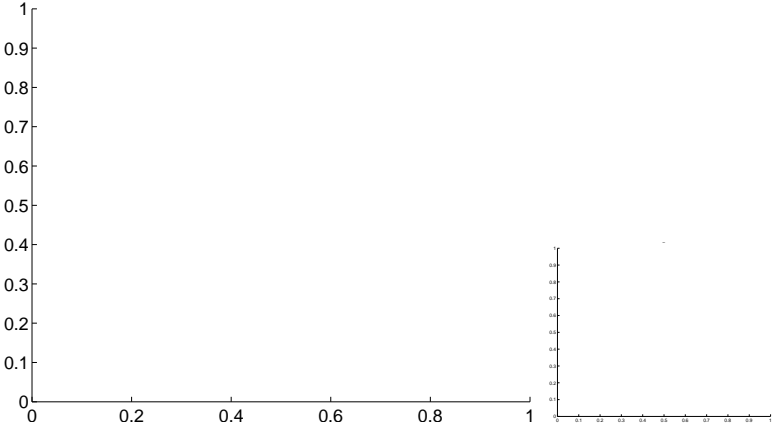
Q9 no OOT image



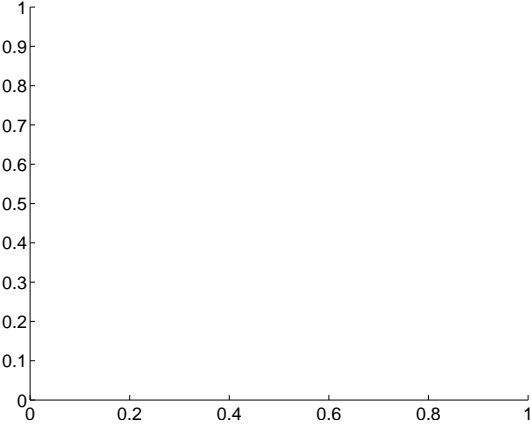
Q11 no difference image



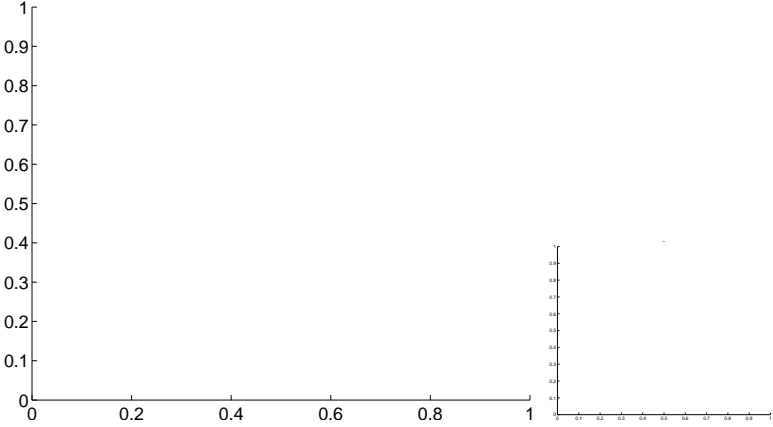
Q11 no OOT image



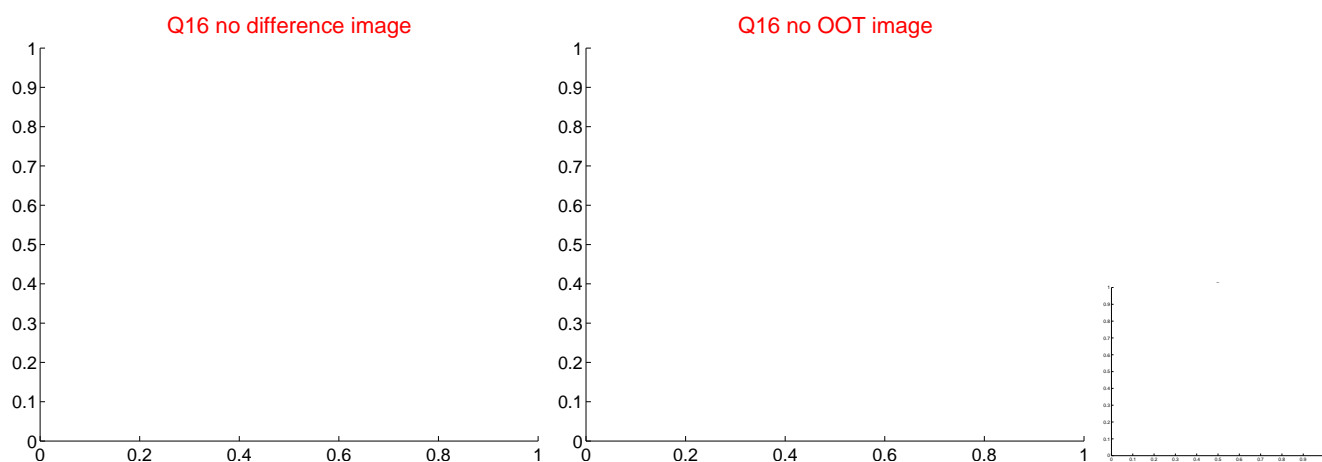
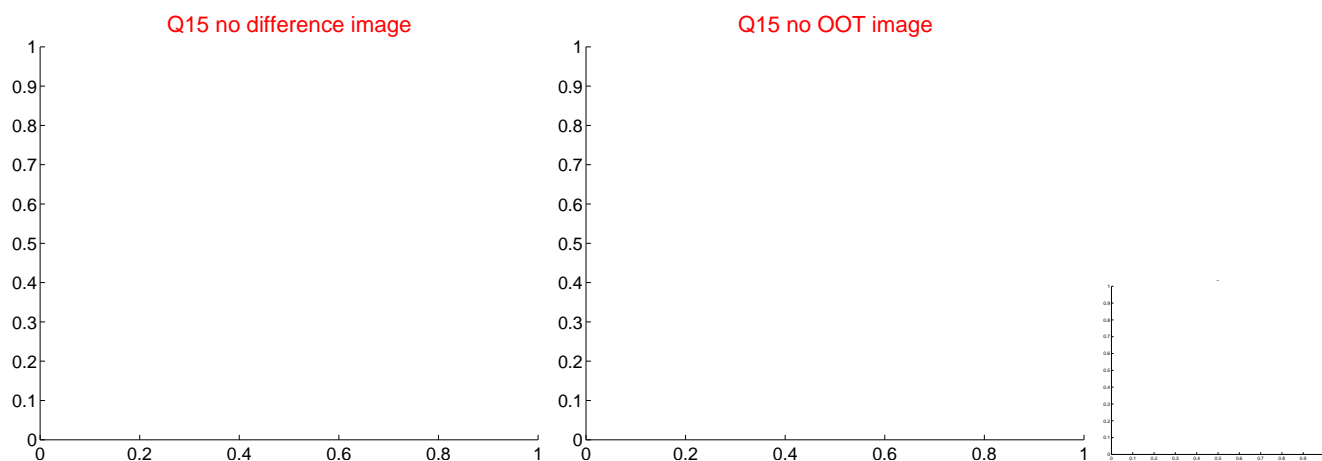
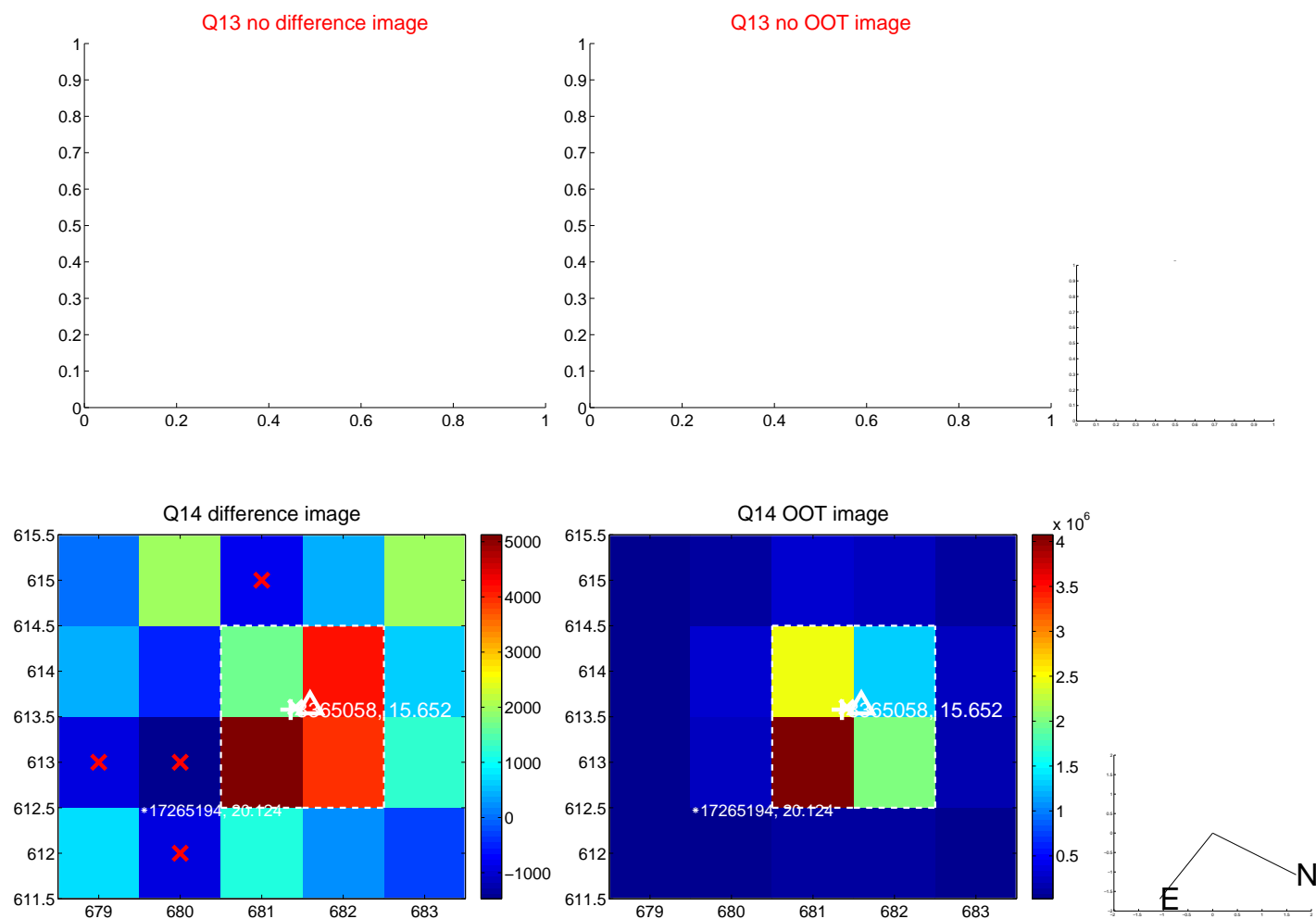
Q12 no difference image



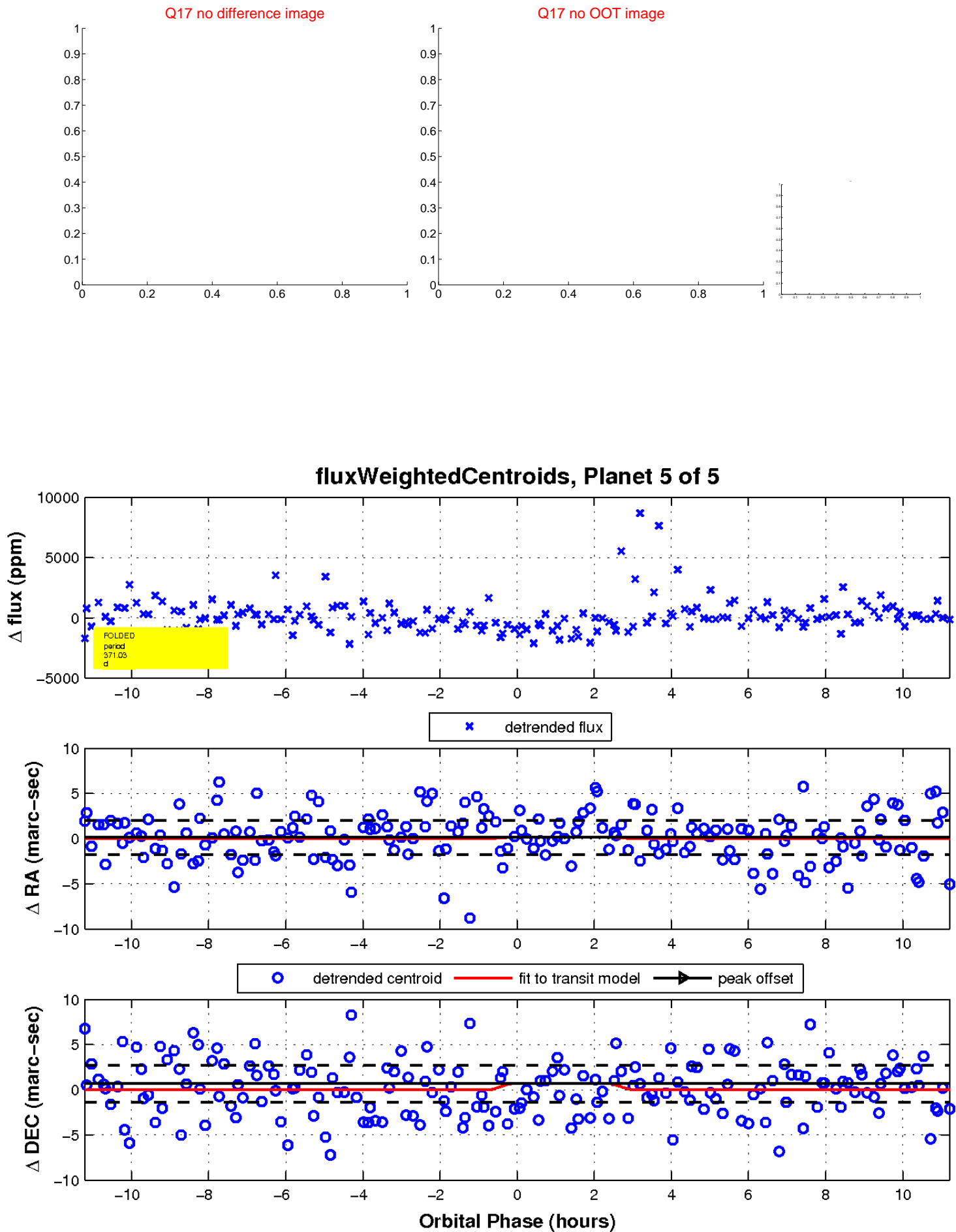
Q12 no OOT image



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



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



UKIRT Image

Declination

