

KIC 010031808

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})
010031808-01	OBS	7278.01	8.589558	132.004805	270138.7	5.000	1585.6	-1.0	2.19	6331	11.73	941.12
010031808-02	OBS	No	8.589620	136.206892	80697.2	12.943	491.4	1153.4	2.19	6331	103.01	941.12
010031808-03	OBS	No	171.996086	131.531427	997.1	15.000	169.3	-1.0	2.19	6331	6.96	17.31
010031808-04	OBS	No	163.199823	149.810888	3848.3	7.053	190.3	20.1	2.19	6331	24.72	18.56
010031808-05	OBS	No	273.630792	374.404276	1189.4	4.505	160.7	6.4	2.19	6331	13.88	9.32
010031808-06	OBS	No	17.180044	140.850779	923.4	2.000	96.7	-1.0	2.19	6331	6.71	373.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010031808-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_SATURATED
010031808-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
010031808-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010031808-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_SATURATED
010031808-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010031808-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_SATURATED

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 010031808-01

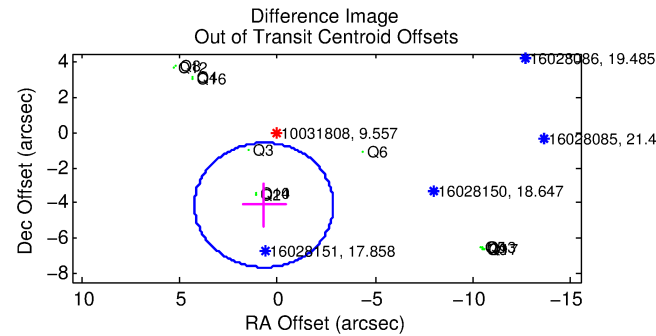
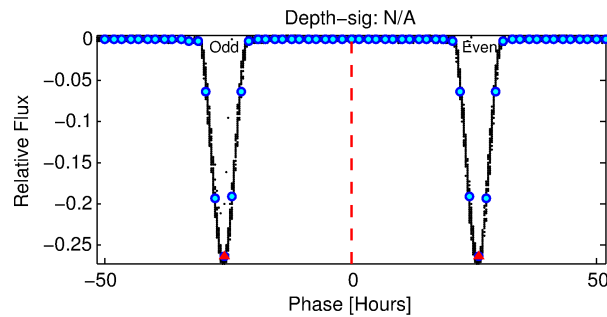
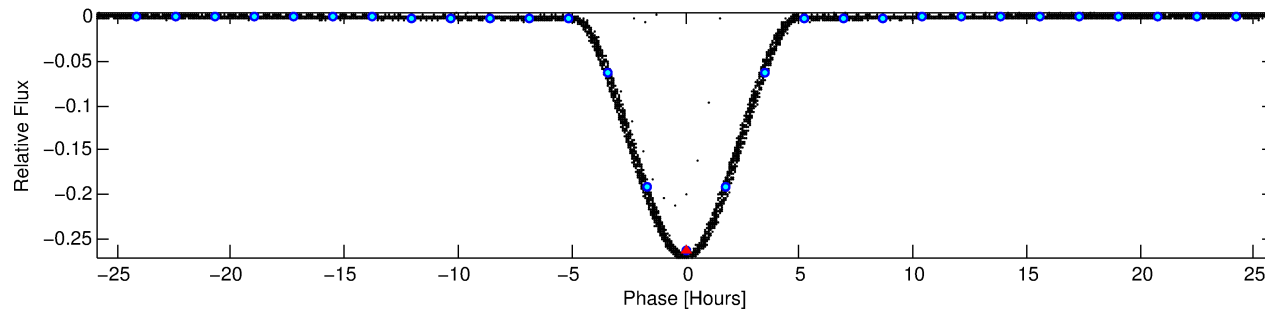
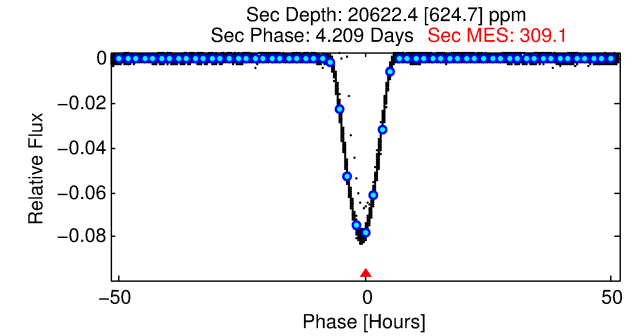
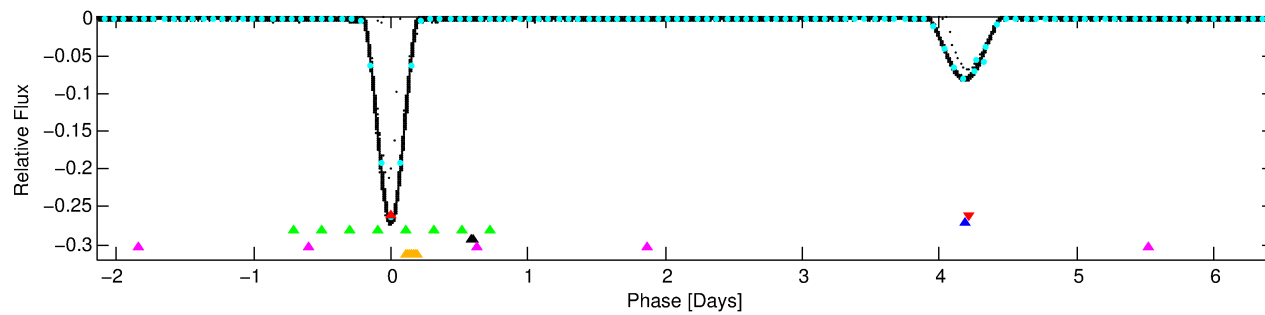
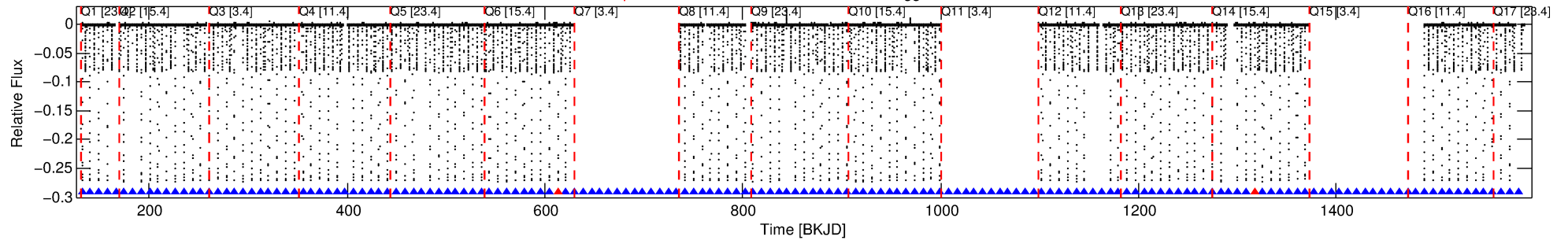
No Significant Match Found

DV One-Page Summary

KIC: 10031808 Candidate: 1 of 6 Period: 8.590 d

KOI: K07278 Corr: No Ephemeris Match

Kp: 9.56 R*: 2.19 Rs Teff: 6331.0 K Logg: 3.81 Fe/H: -0.560



TPS TCE Results:

Period = 8.58956 d
Epoch = 132.0048 BKJD

DV fit results are unavailable

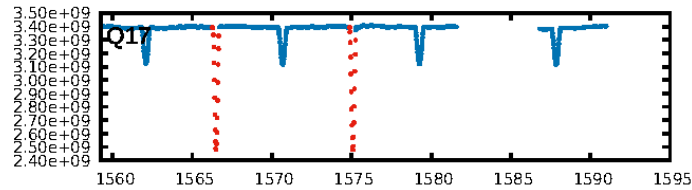
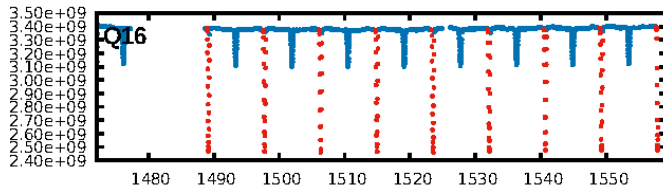
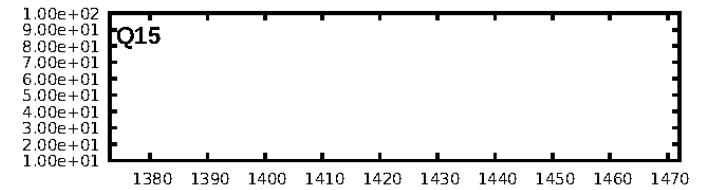
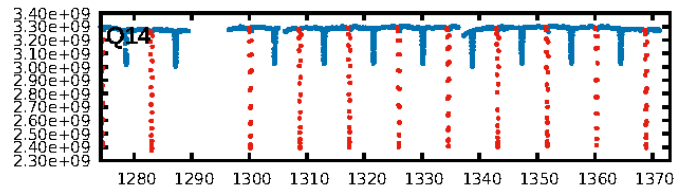
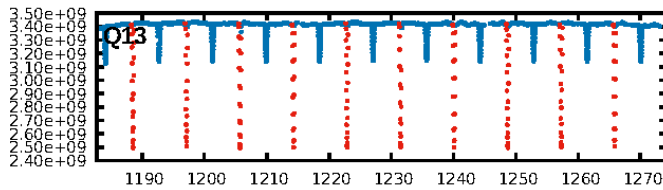
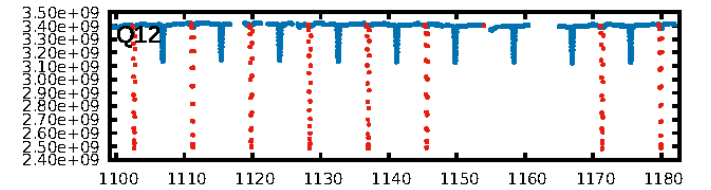
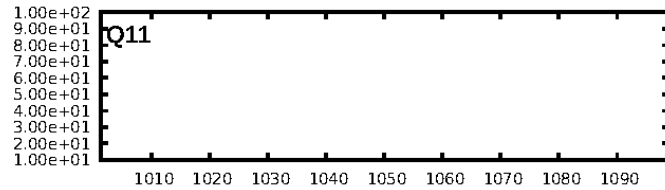
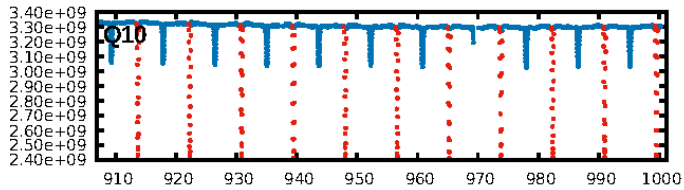
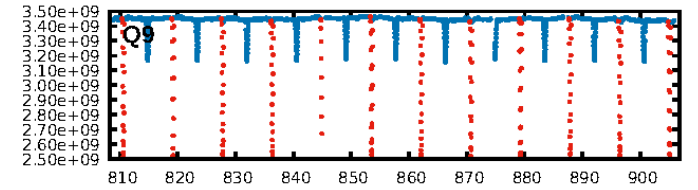
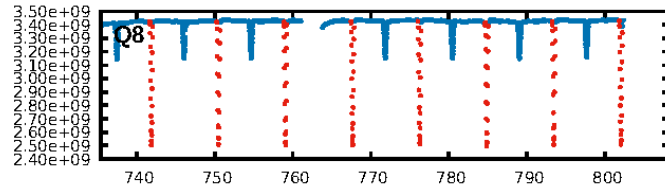
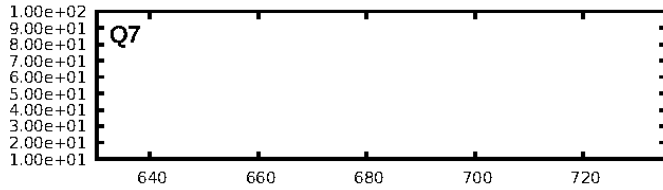
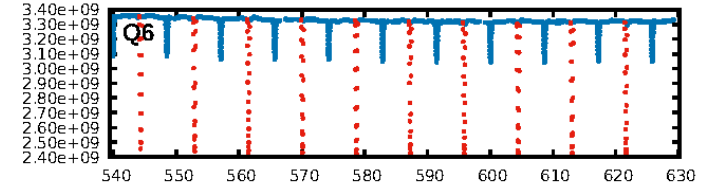
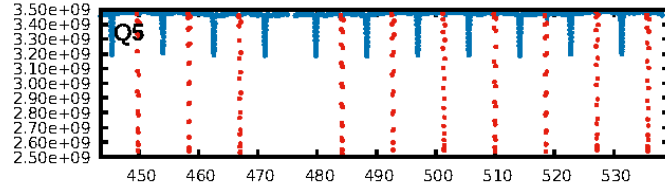
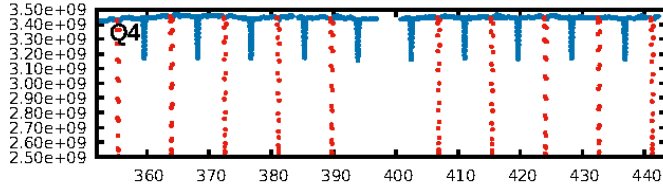
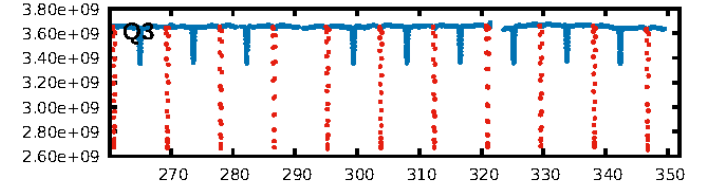
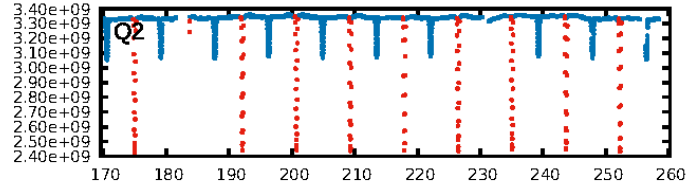
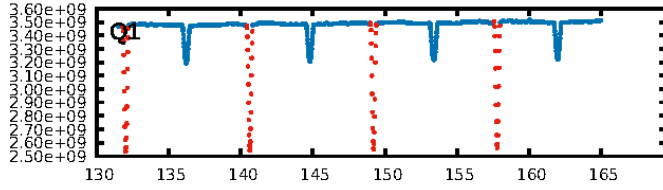
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [118/120]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.106 arcsec [411.09σ]
OotOffset-rm: 4.184 arcsec [3.54σ]
KicOffset-rm: 6.492 arcsec [3.09σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.93 [13/14]

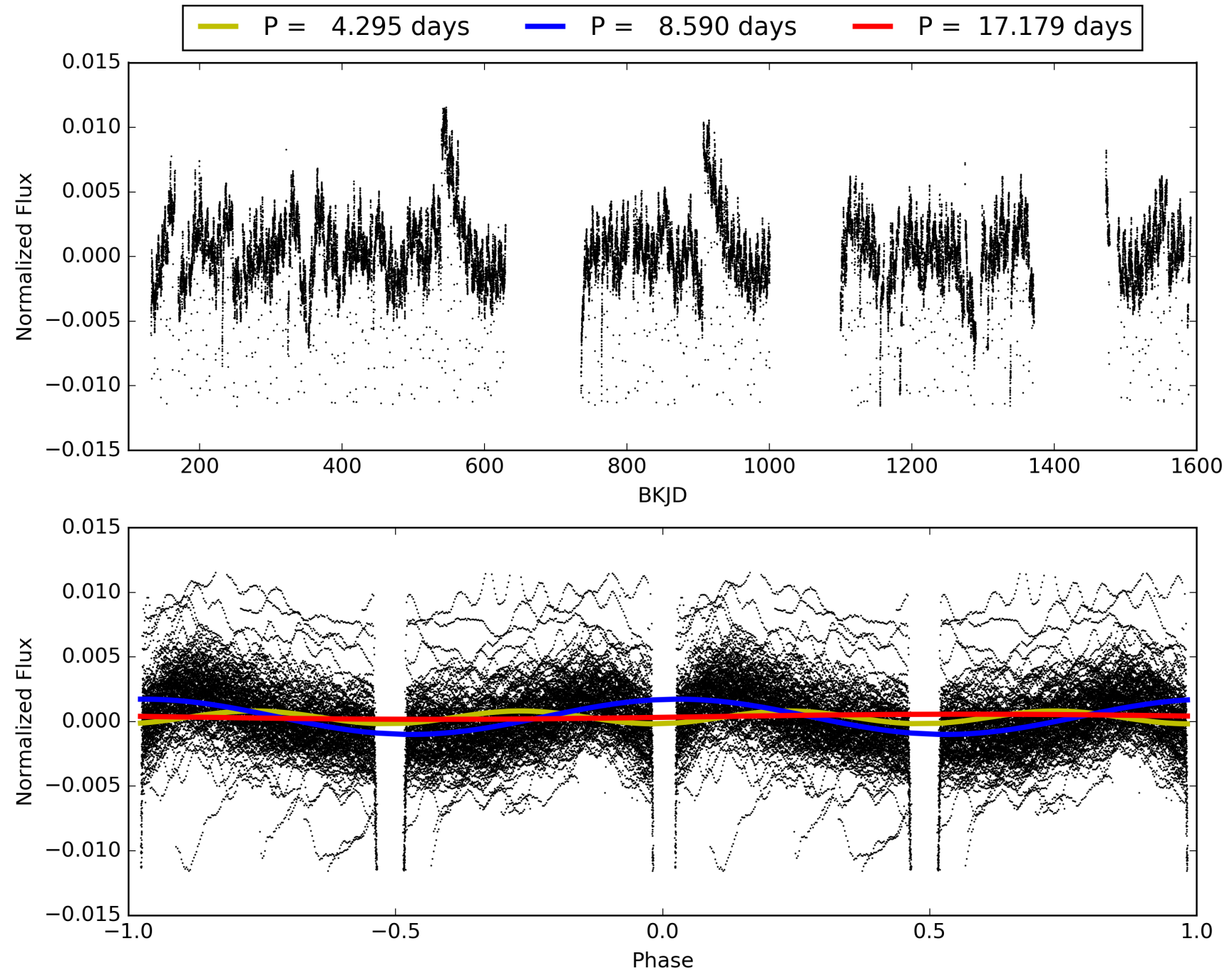
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:25:27 Z

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

TCE 010031808-01, PDC Light Curves

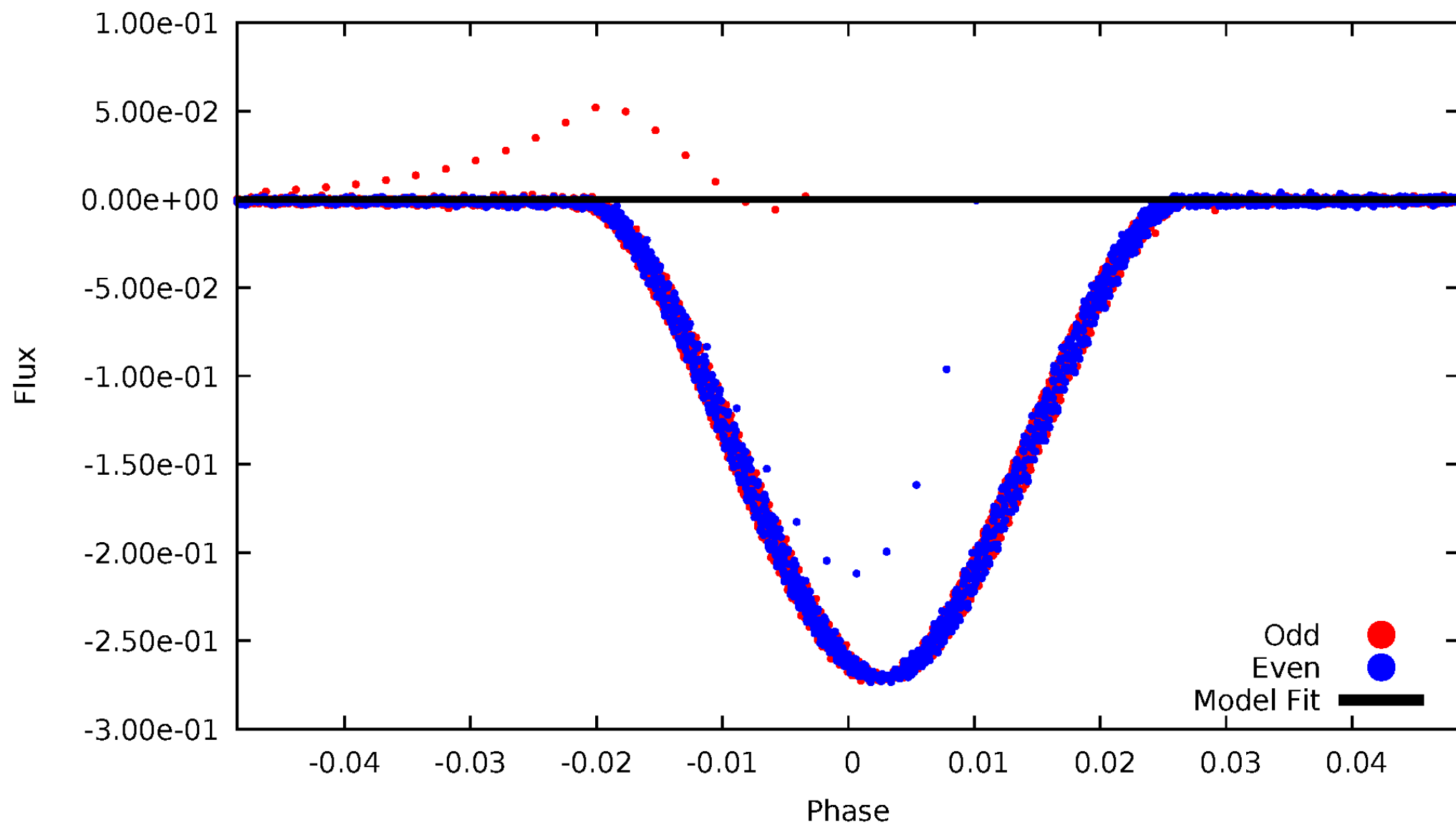


TCE 010031808-01



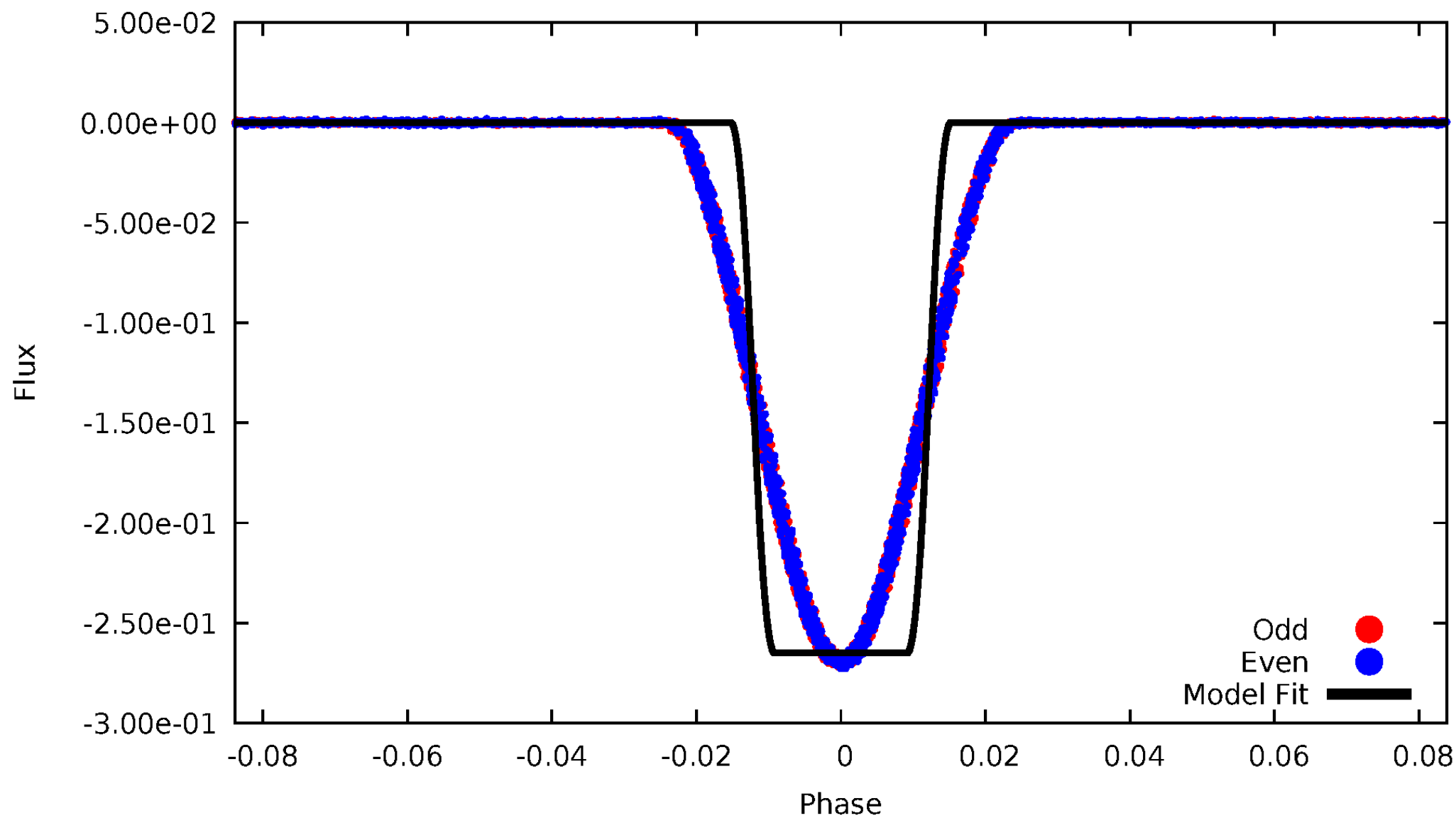
DV Odd/Even

TCE 010031808-01



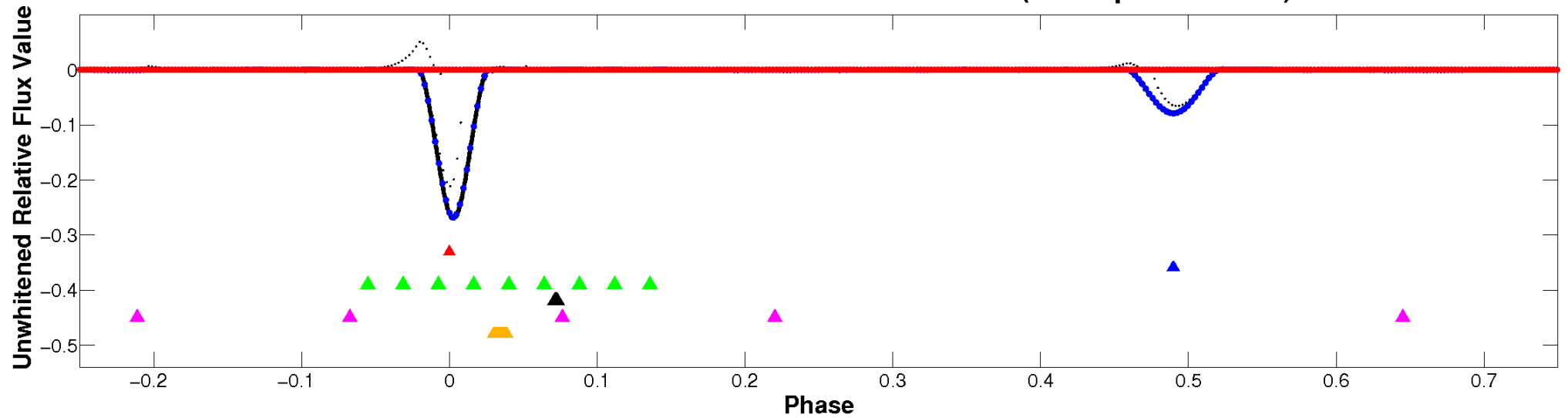
ALT Odd/Even

TCE 010031808-01



Non-Whitened Vs. Whitened Light Curve

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

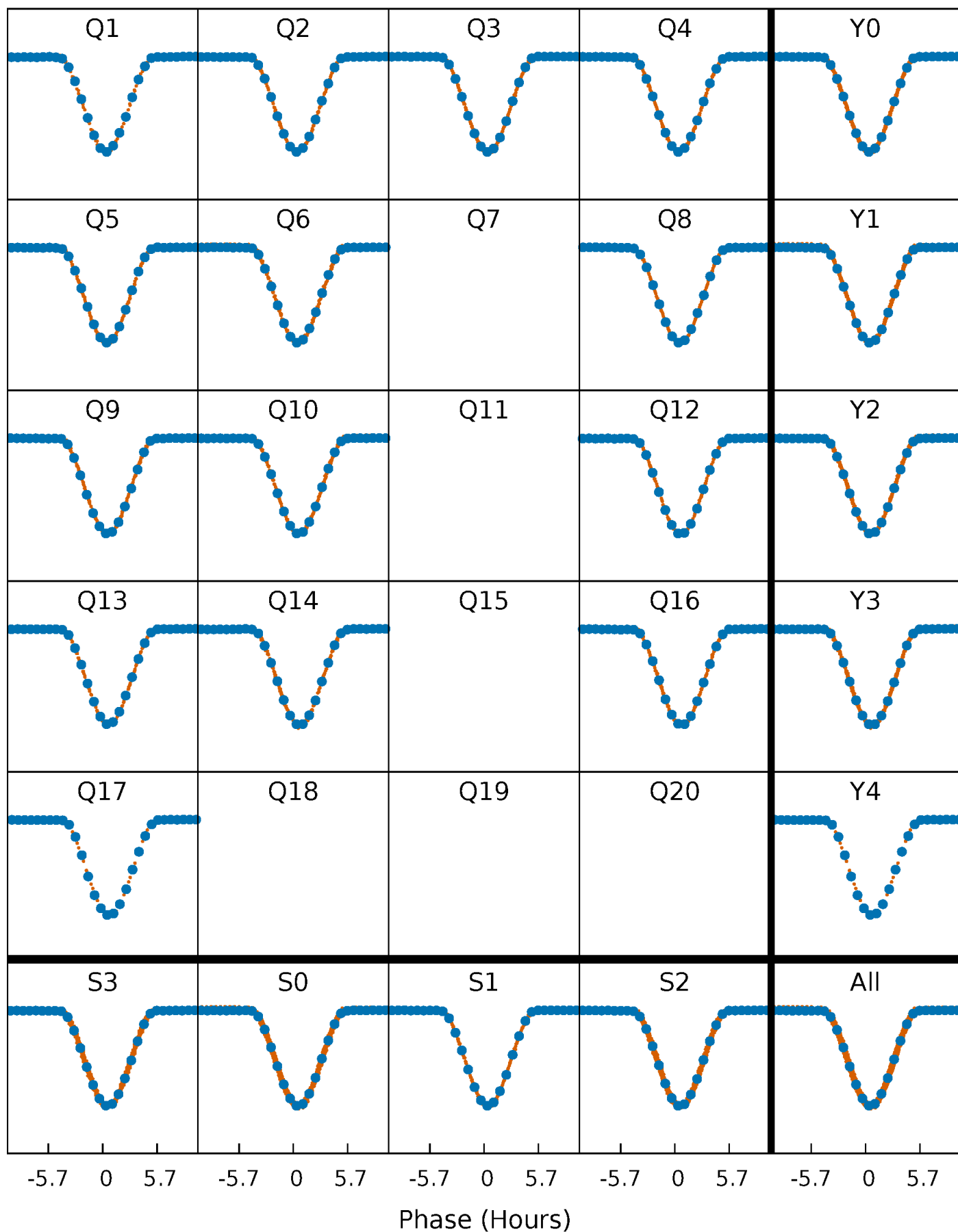


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



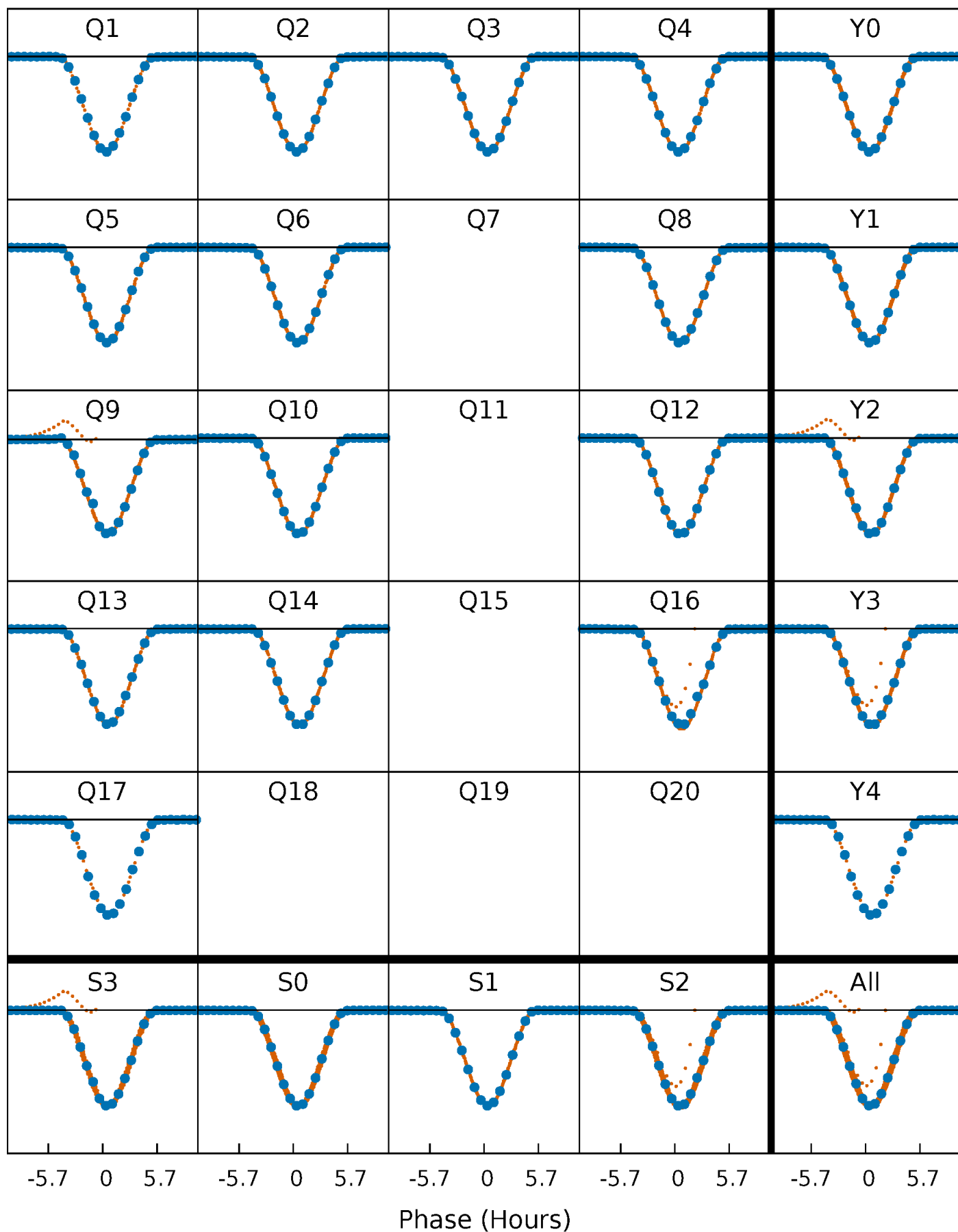
PDC Quarter-Phased Transit Curves

TCE 010031808-01 P= 8.589558 Days $T_0=132.004805$ (BKJD)



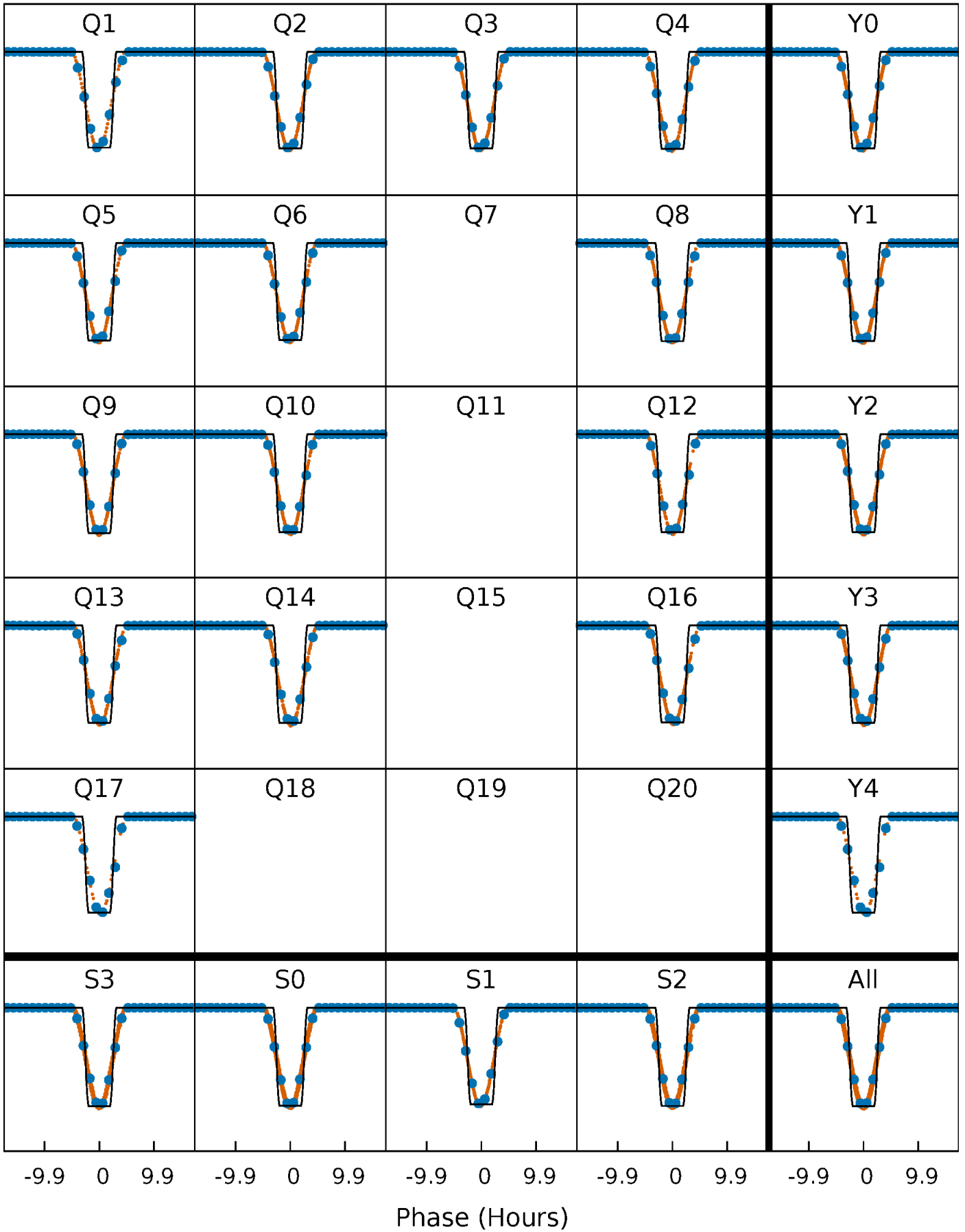
DV Quarter-Phased Transit Curves

TCE 010031808-01 P= 8.589558 Days $T_0=132.004805$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

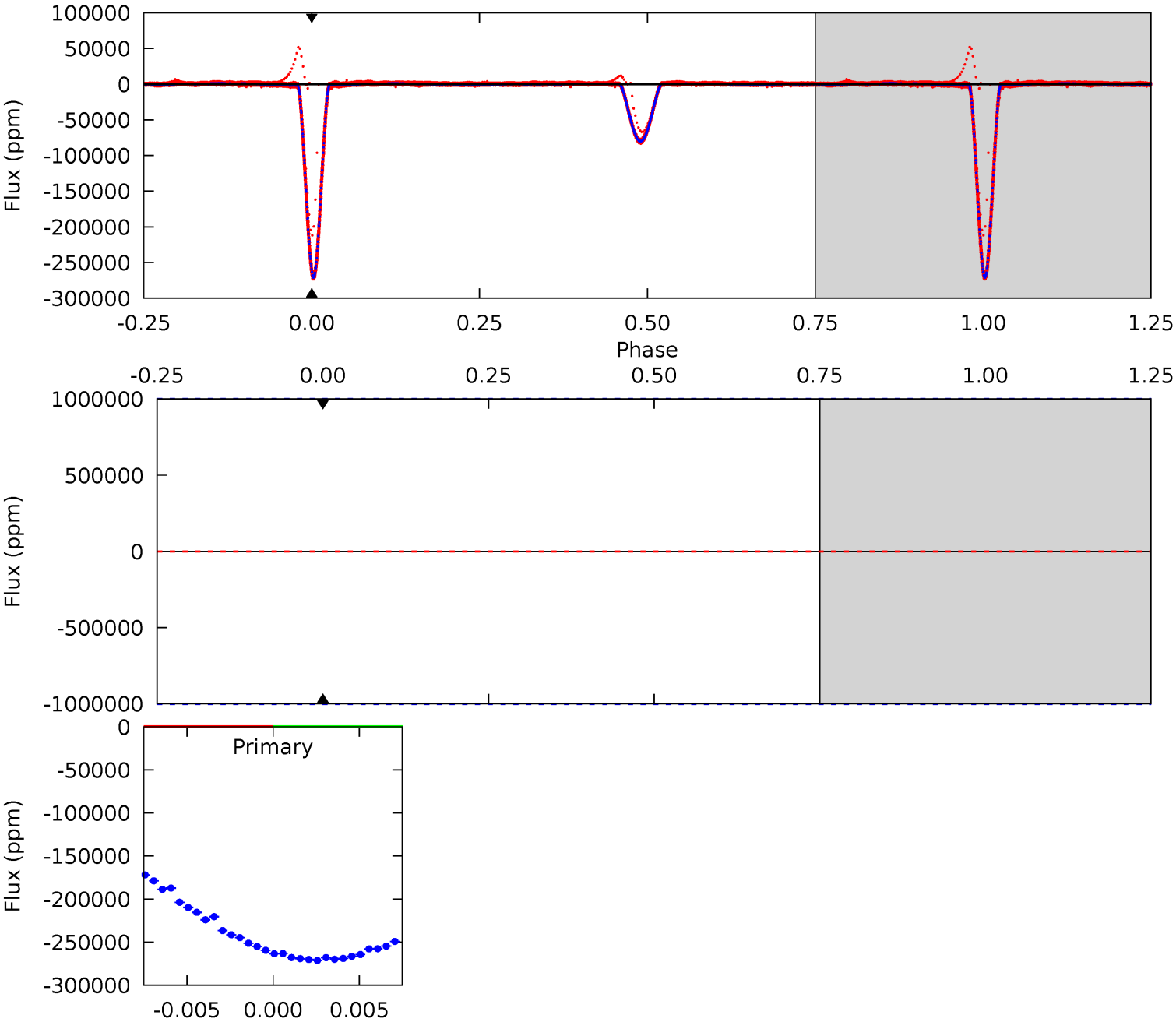
TCE 010031808-01 P= 8.589558 Days $T_0=132.027885$ (BKJD)



DV Model-Shift Uniqueness Test

010031808-01, P = 8.589558 Days, E = 123.415247 Days

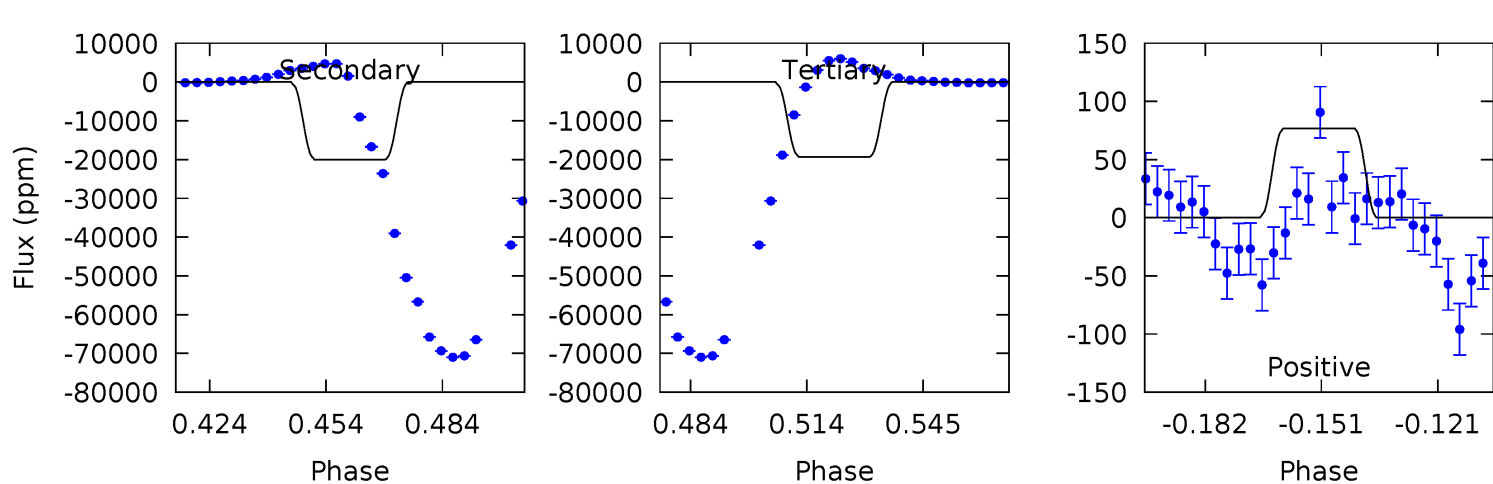
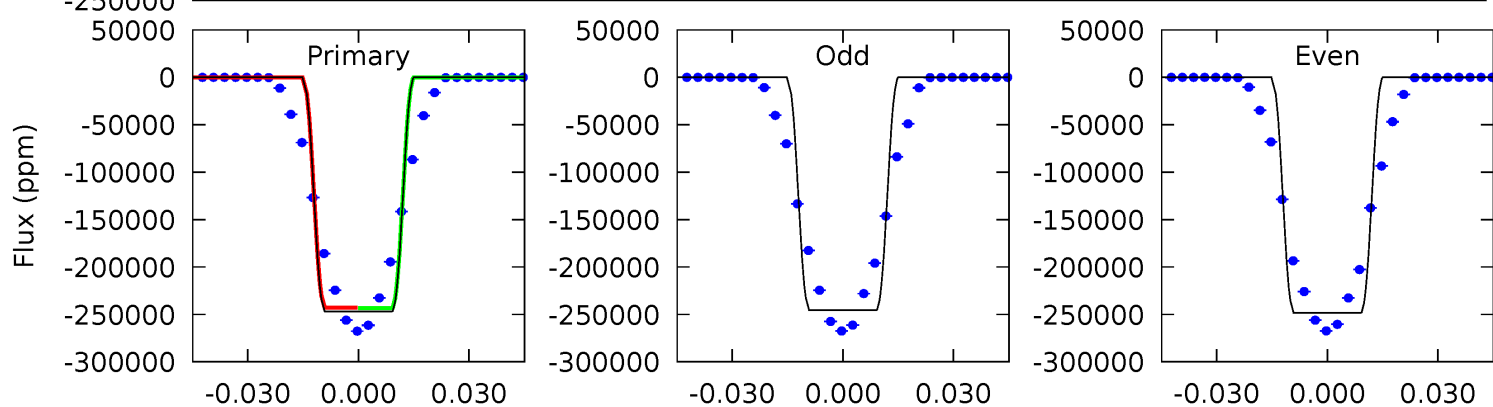
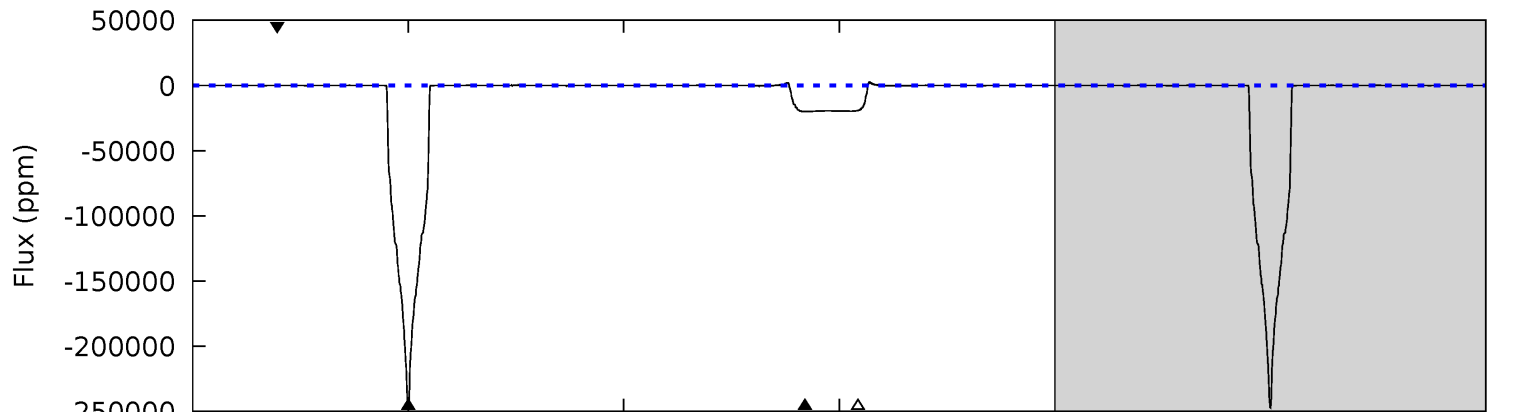
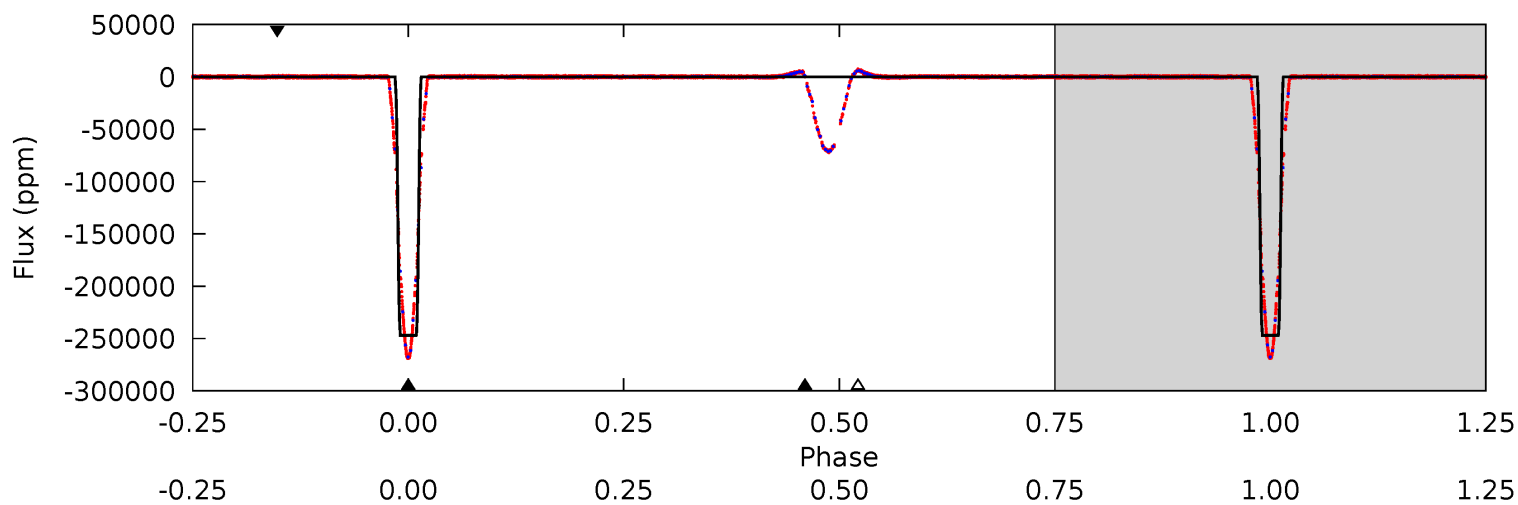
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010031808-01, P = 8.589558 Days, E = 123.438327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3260	264.0	255.0	1.01	4.81	2.17	11.0	3005	3259	8.94	263.0	23.1	1.00	0.01	0



Stellar Parameters For KIC 010031808

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6331^{+204}_{-227}	$3.813^{+0.569}_{-0.134}$	$-0.560^{+0.300}_{-0.300}$	$2.194^{+0.483}_{-1.126}$	$1.142^{+0.161}_{-0.261}$	$0.152^{+0.992}_{-0.062}$
	+3%/-4%	+15%/-4%	+54%/-54%	+22%/-51%	+14%/-23%	+652%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010031808-01 / KOI 7278.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$20.48^{+17.93}_{-14.44}$	1915^{+158}_{-254}	-2120^{+21124}_{-16937}	$0.057^{+1903.330}_{-1652.041}$
Alt.	-20002 ± 76	$111.62^{+35.54}_{-33.37}$	1925^{+157}_{-252}	3706^{+332}_{-226}	$6.628^{+6.667}_{-2.743}$

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

DV Centroid Data

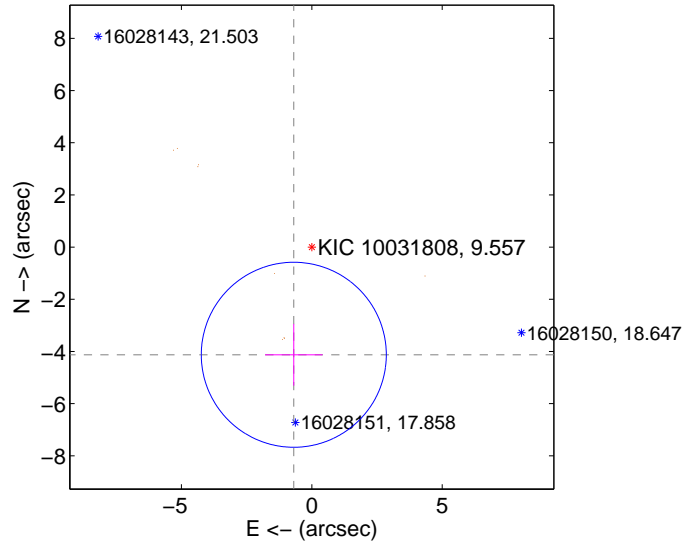
Supplemental centroid analysis for 010031808-01. **Kepler magnitude: 9.56.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

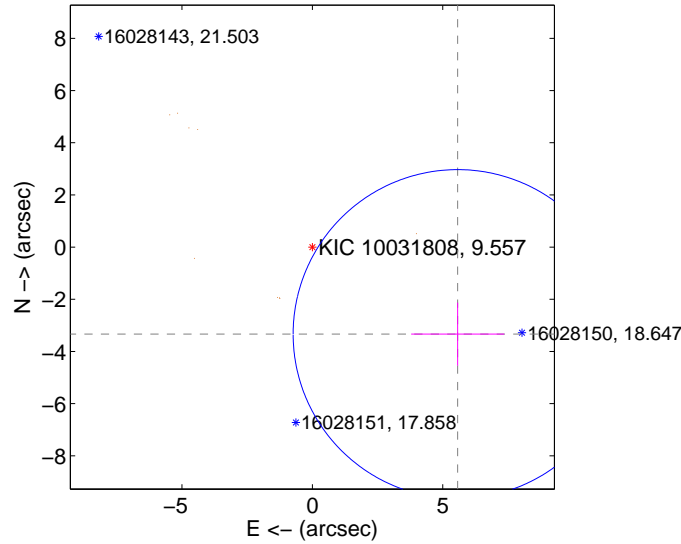
The direct PRF centroid is offset from the target star catalog position by about 1.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.184 ± 1.182	3.54	0.690 ± 1.102	-4.127 ± 1.184
PRF-fit source offset from KIC position	6.492 ± 2.102	3.09	-5.569 ± 1.785	-3.336 ± 1.209
photometric centroid source offset	0.11 ± 0.00	411.09	-0.03 ± 0.00	0.10 ± 0.00

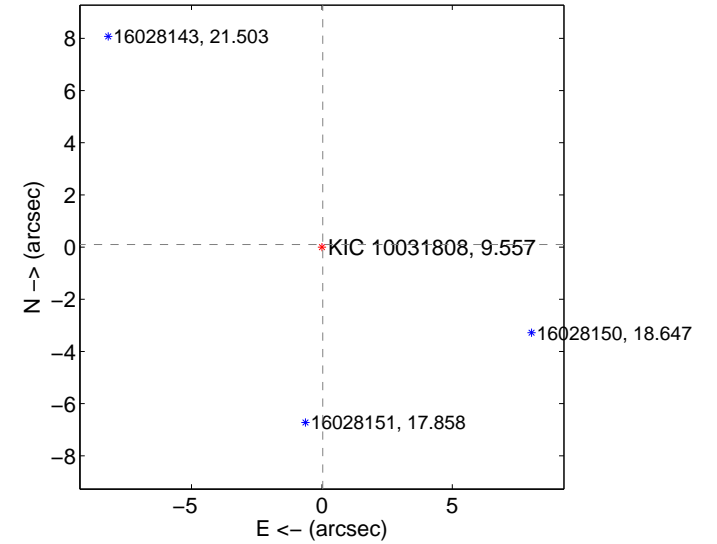
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

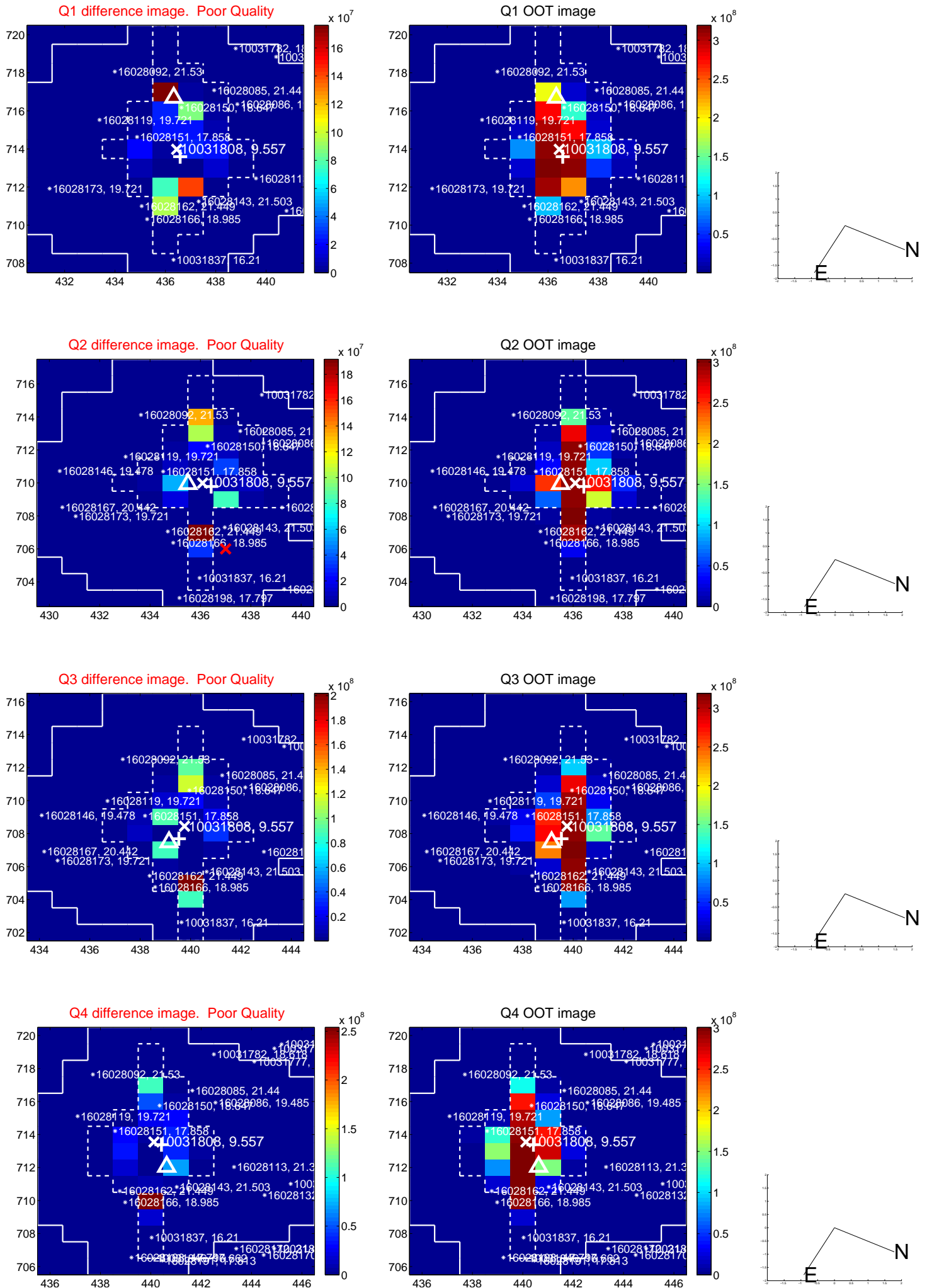


offset from photometric centroids

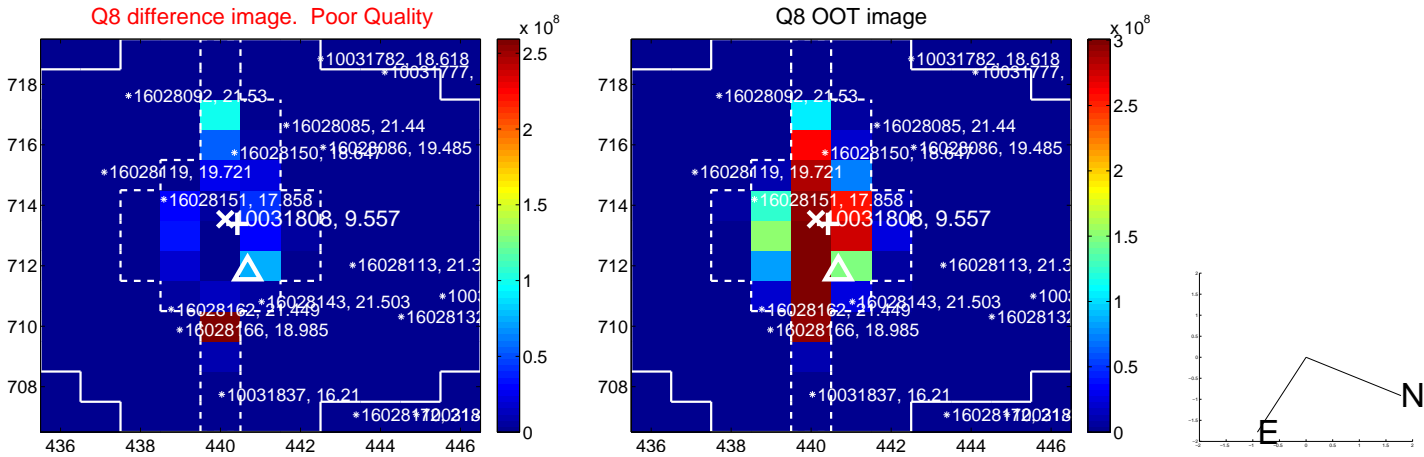
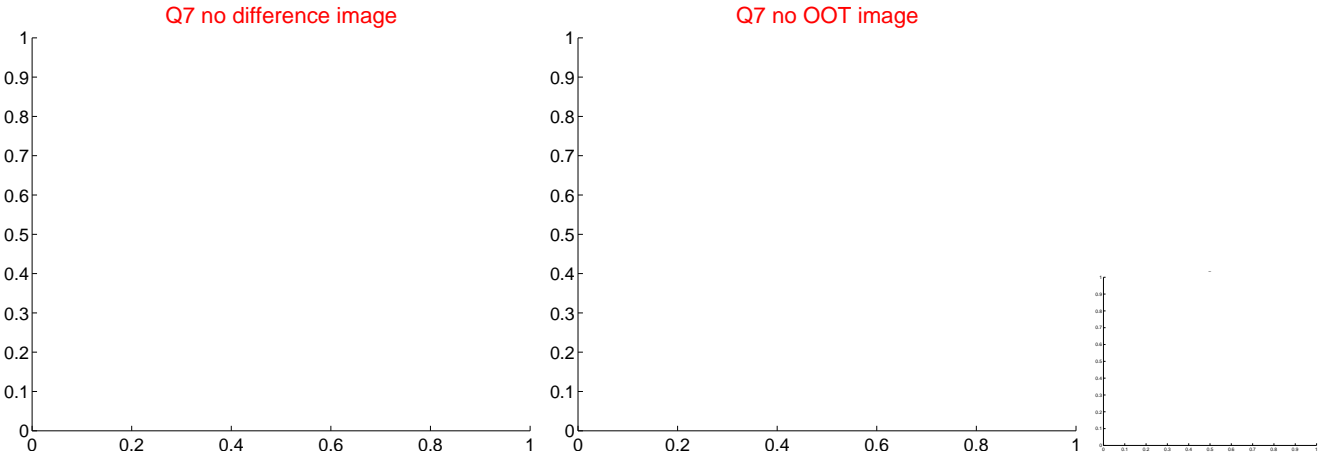
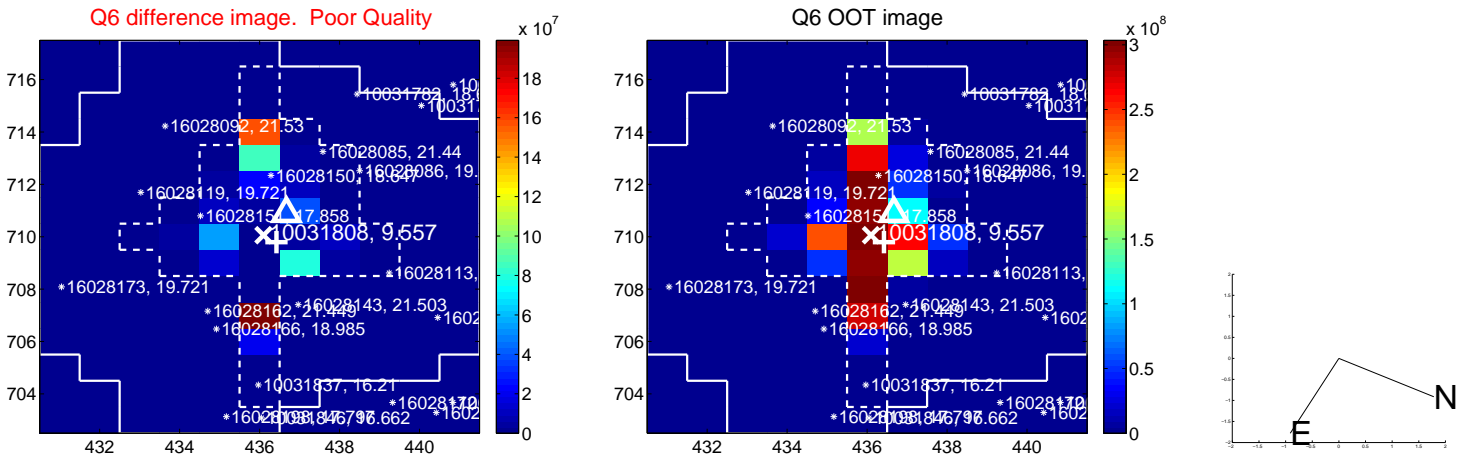
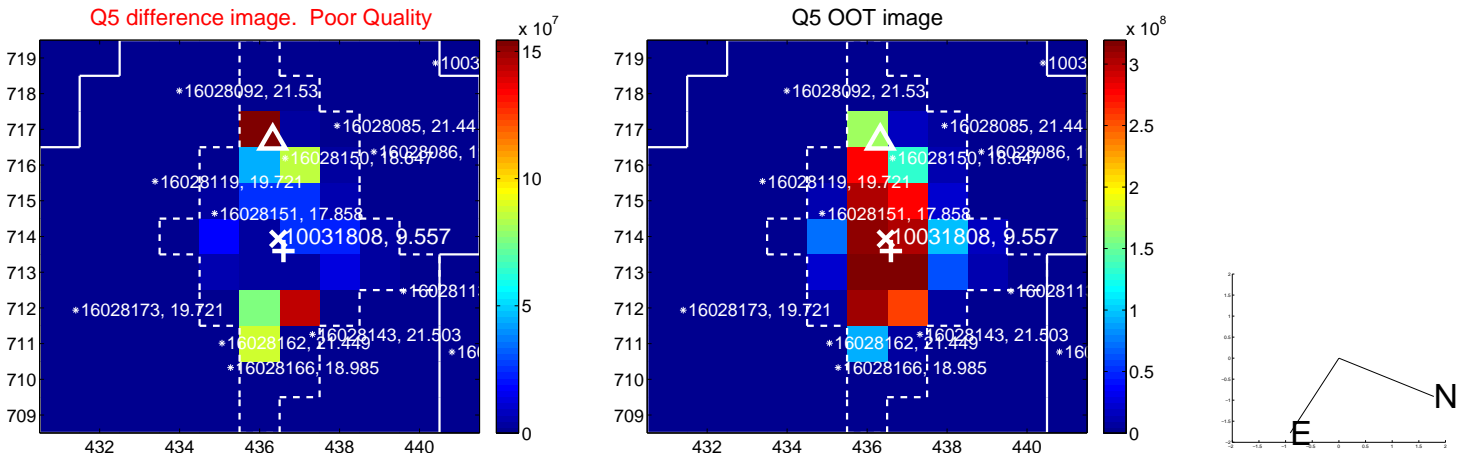


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

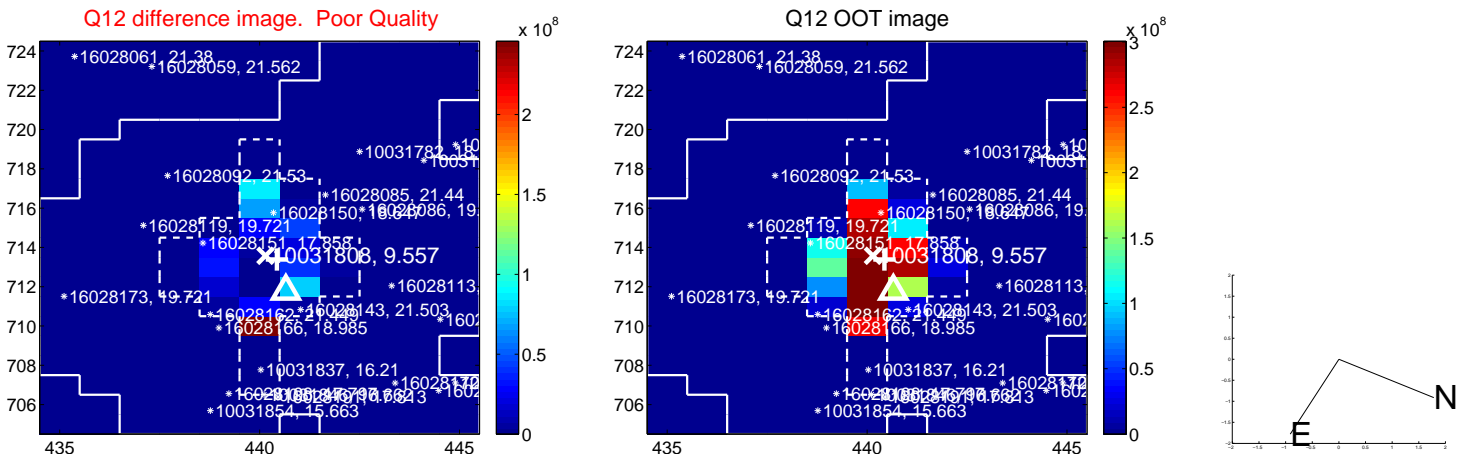
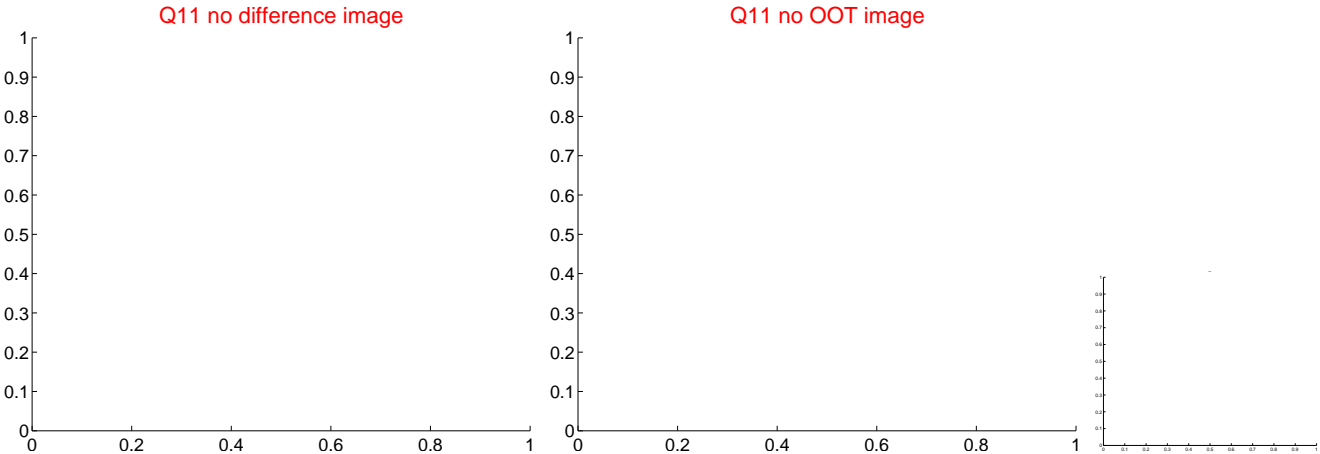
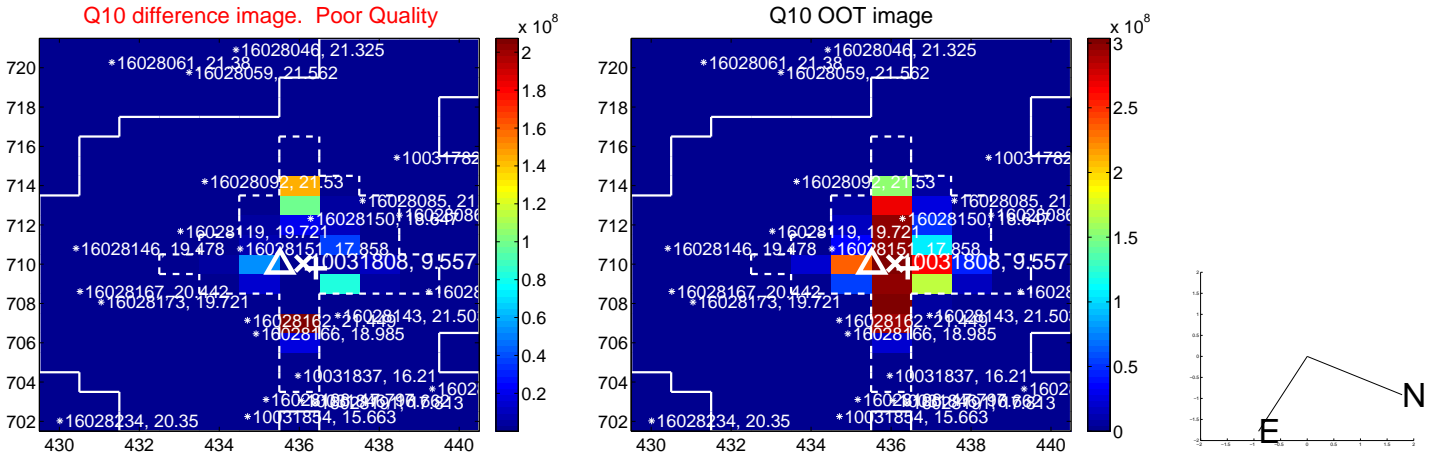
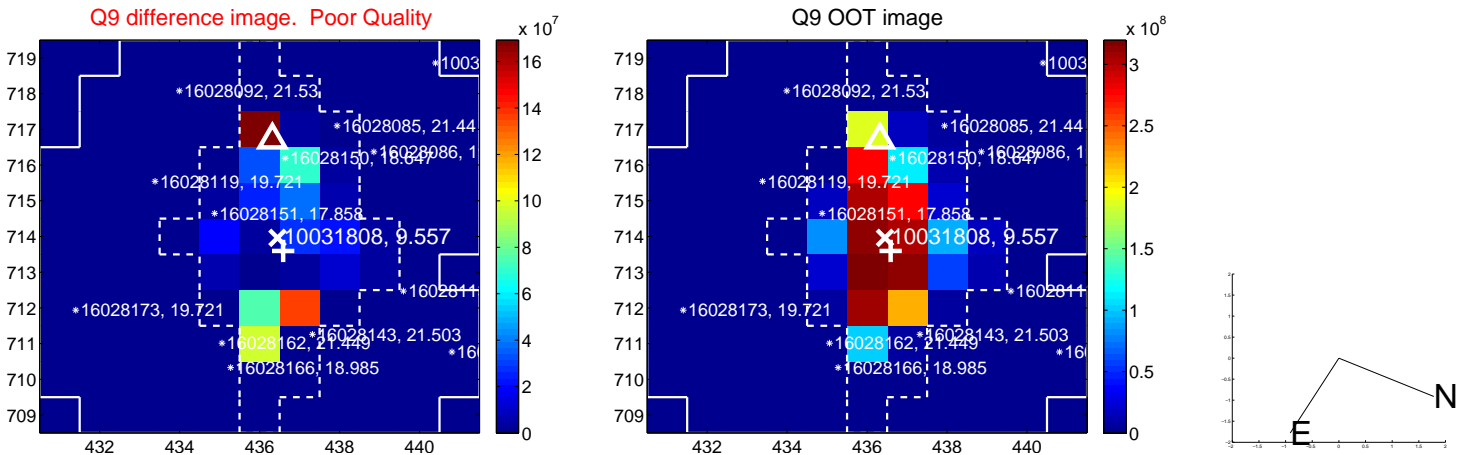
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



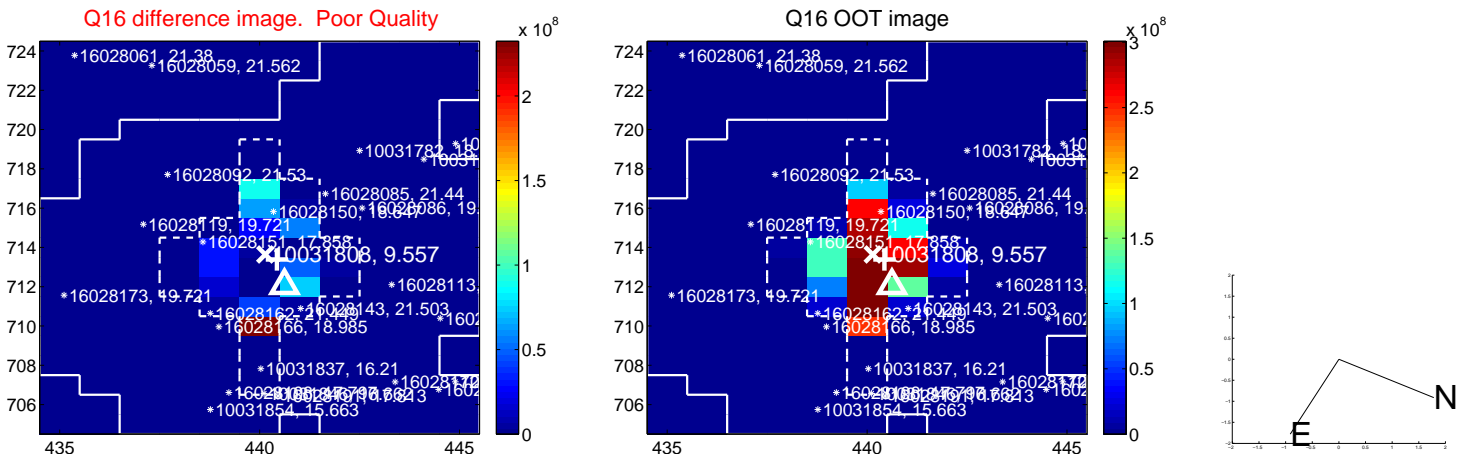
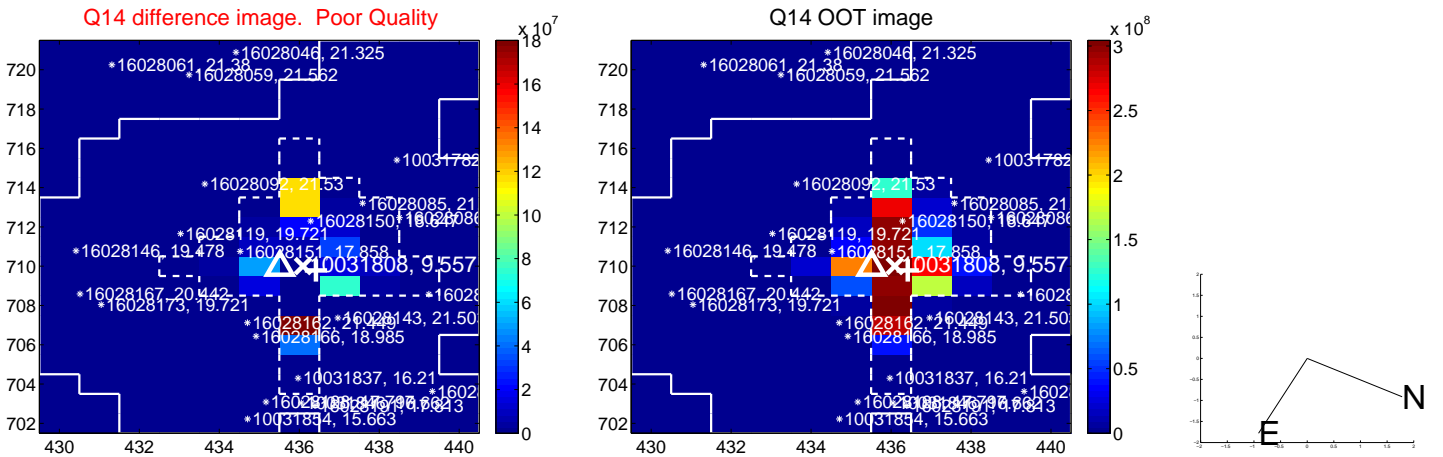
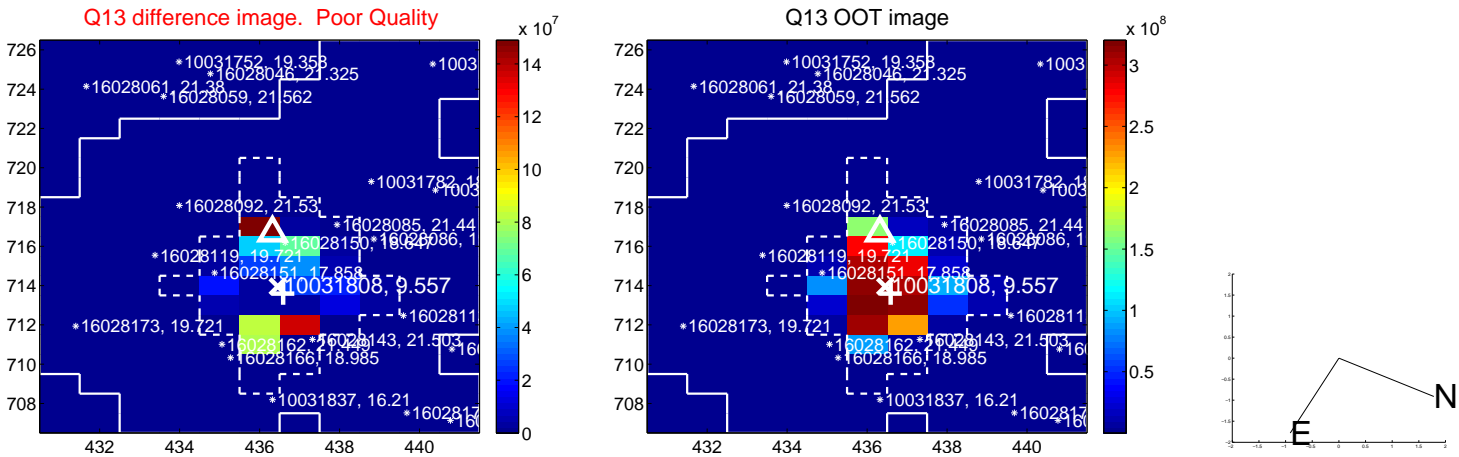
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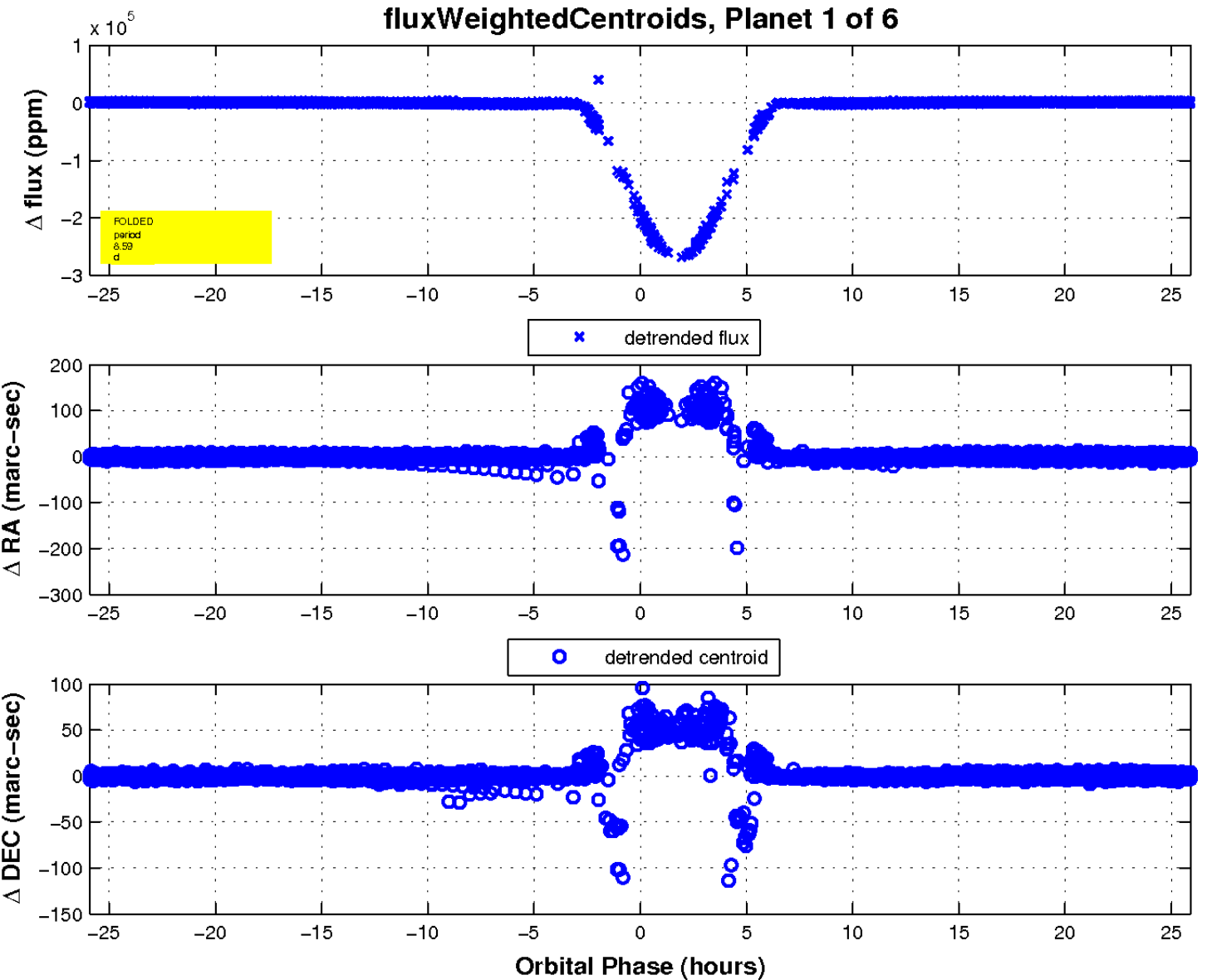
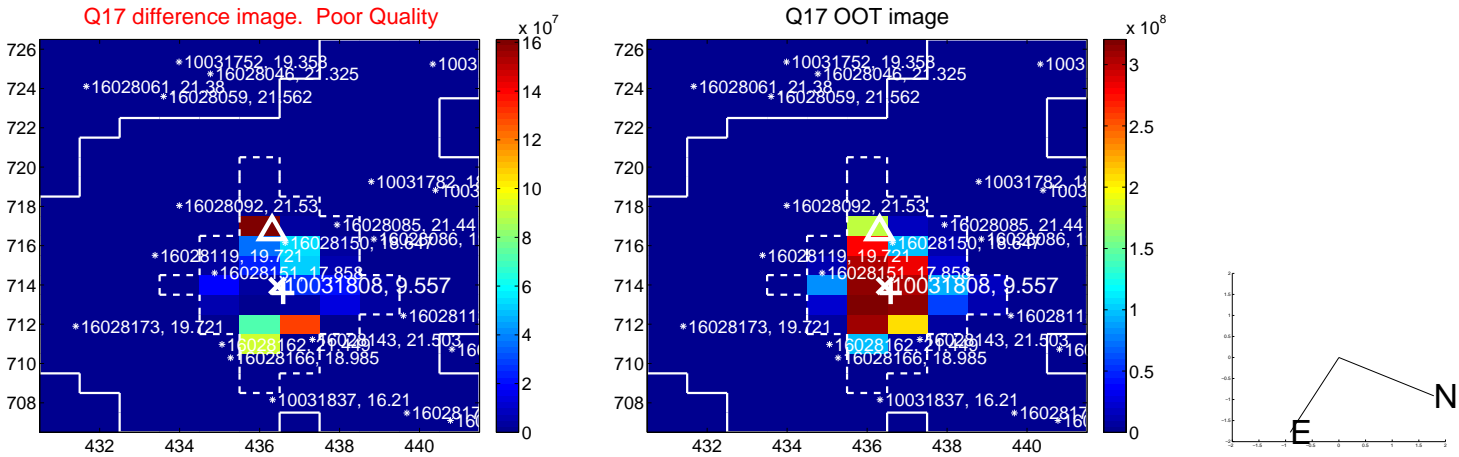
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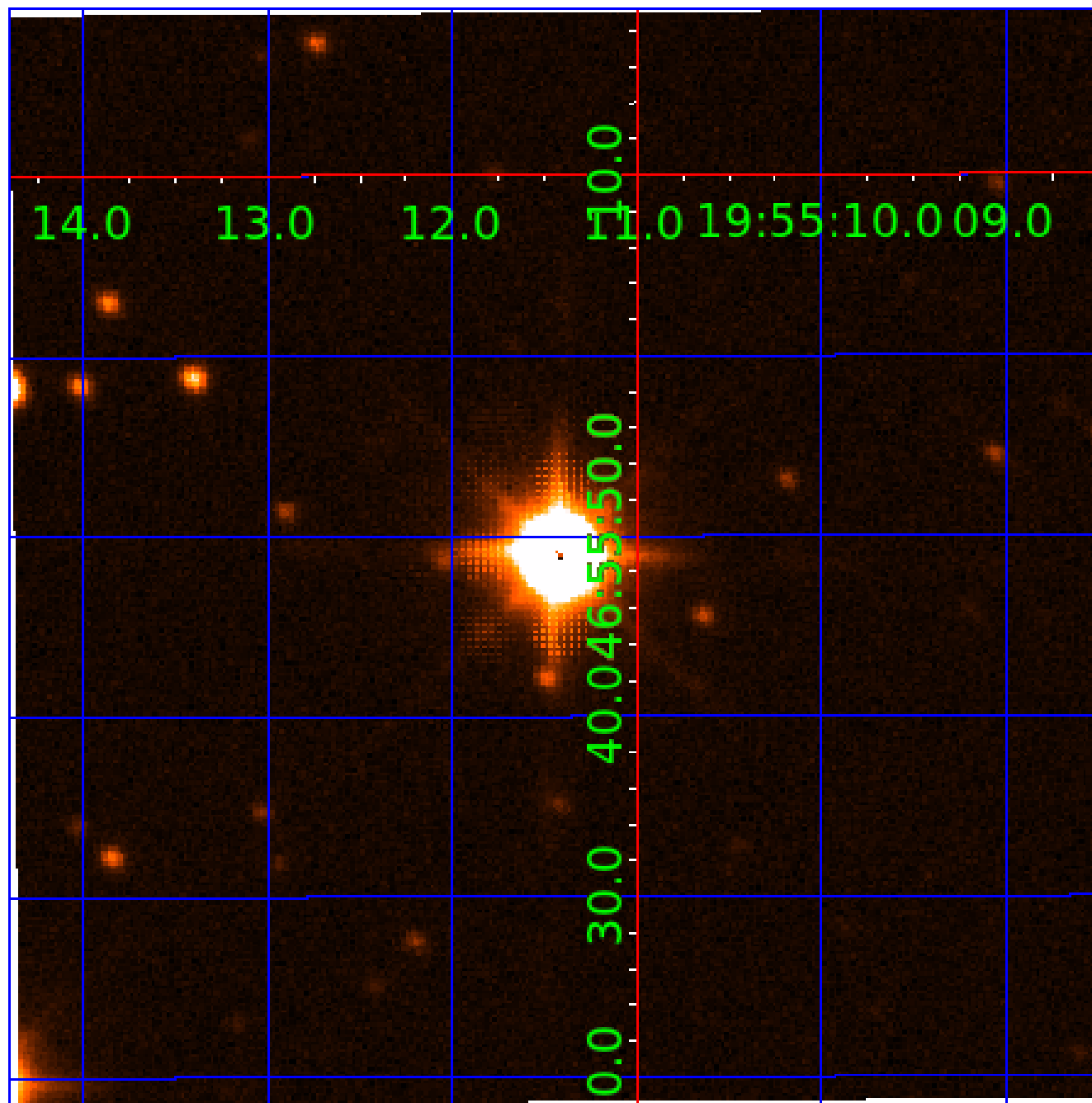


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010031808

Q1-17 DR25 TCE Parameters

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010031808-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
010031808-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010031808-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_SATURATED
010031808-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010031808-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_SATURATED

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 010031808-02

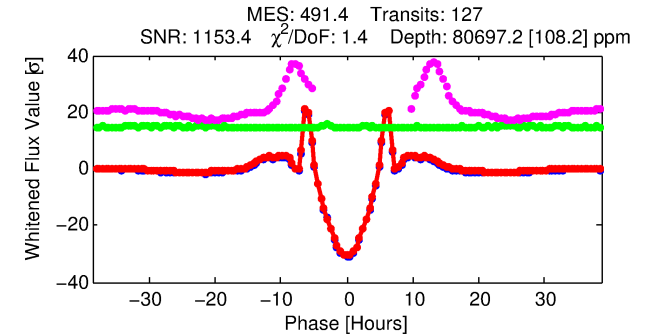
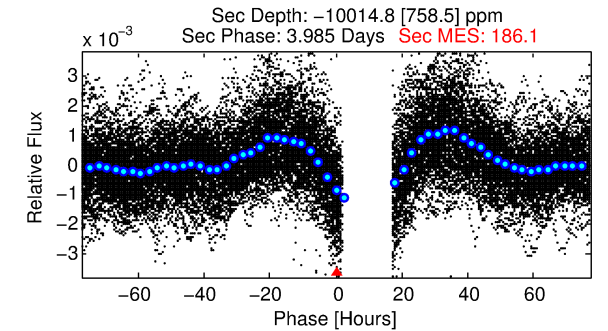
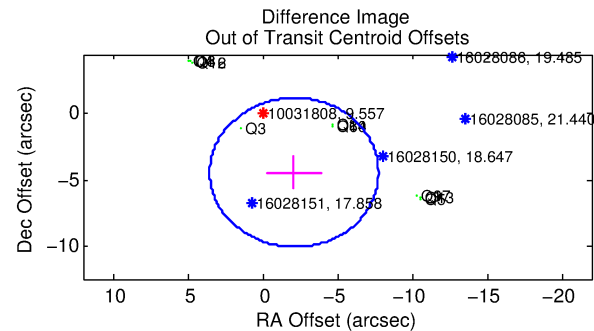
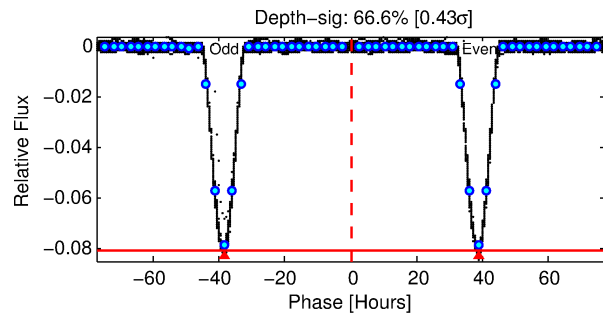
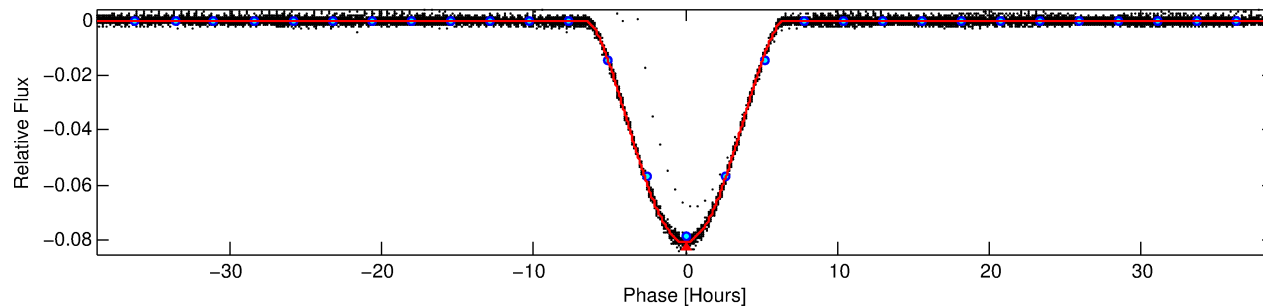
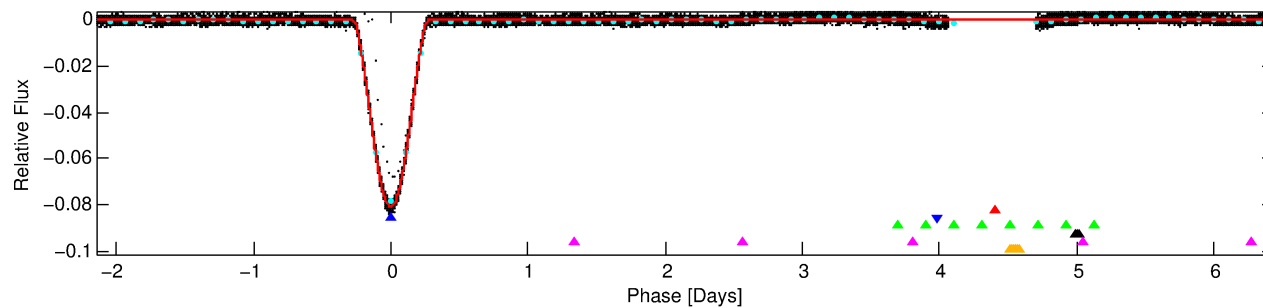
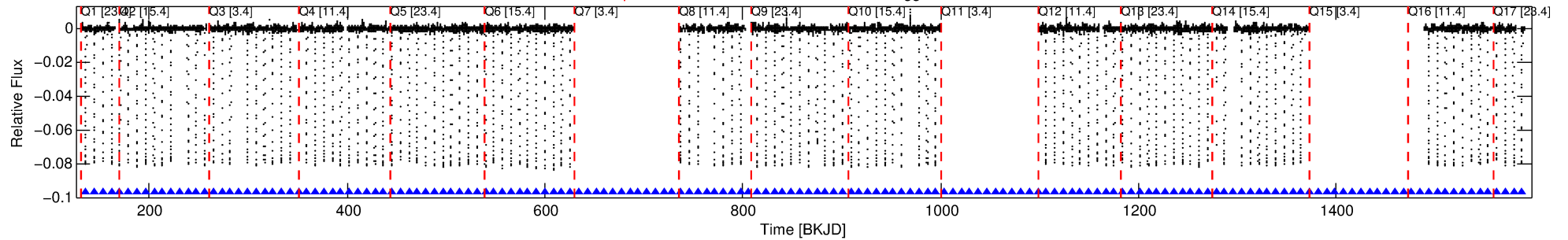
No Significant Match Found

DV One-Page Summary

KIC: 10031808 Candidate: 2 of 6 Period: 8.590 d

KOI: K07278 Corr: No Ephemeris Match

Kp: 9.56 R*: 2.19 Rs Teff: 6331.0 K Logg: 3.81 Fe/H: -0.560



DV Fit Results:

Period = 8.58962 [0.00000] d
Epoch = 136.2069 [0.0001] BKJD
Rp/R* = 0.4302 [0.0173]
a/R* = 5.38 [0.01]
b = 0.99 [0.02]
Seff = 941.12 [893.09]
Teq = 1412 [335] K
Rp = 103.01 [53.03] Re
a = 0.0858 [0.0476] AU
Ag = N/A
Teffp = N/A

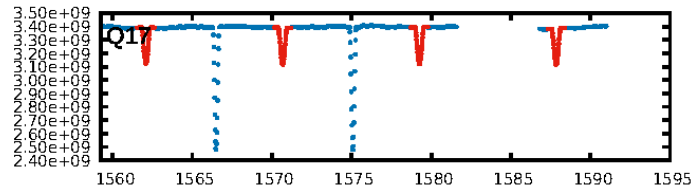
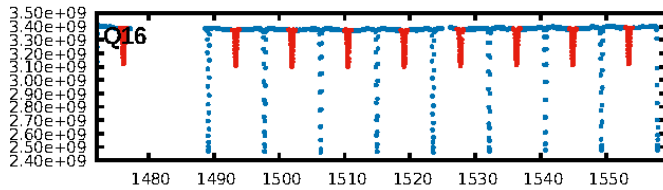
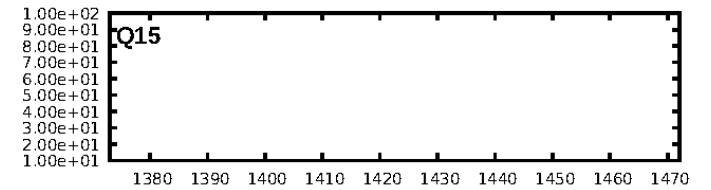
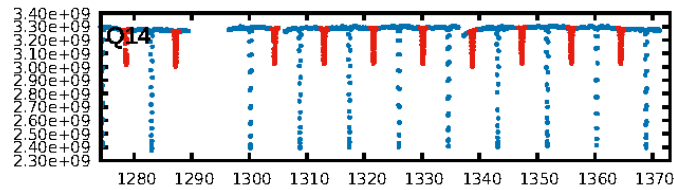
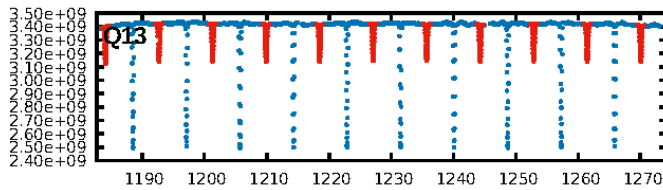
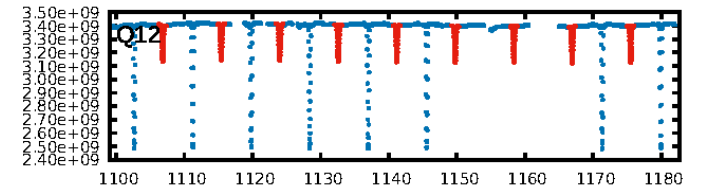
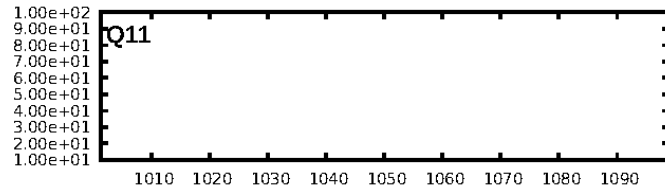
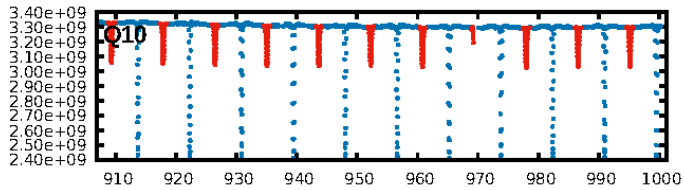
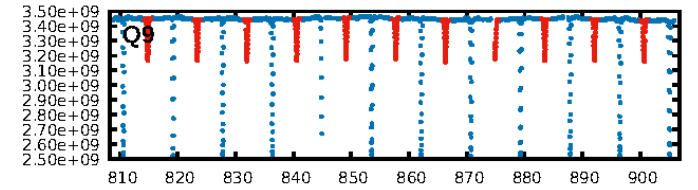
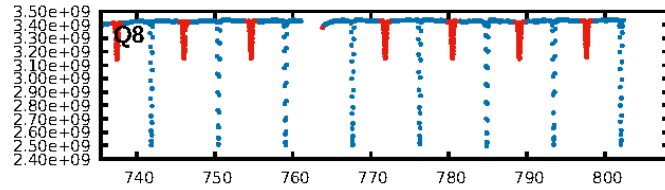
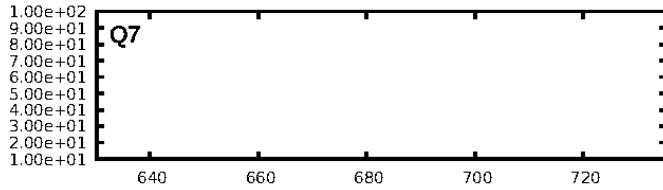
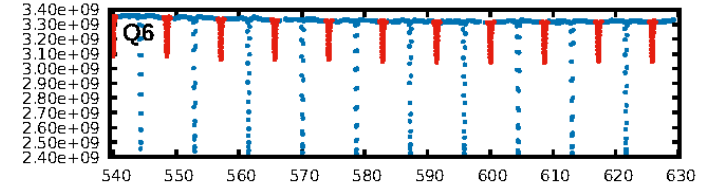
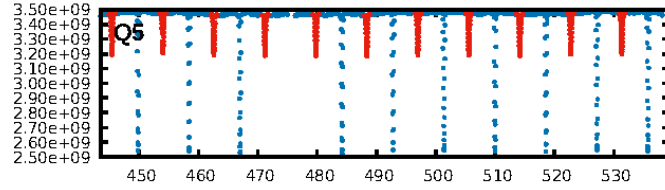
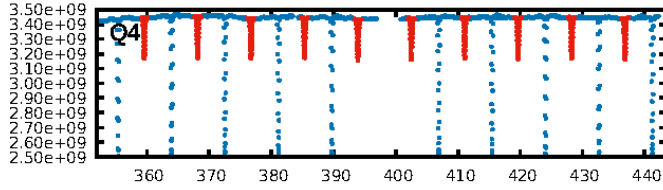
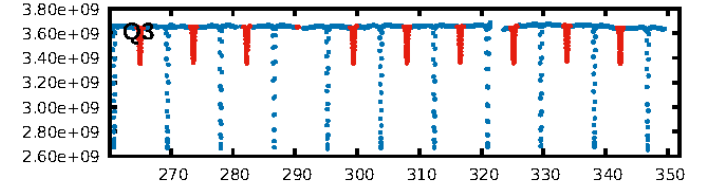
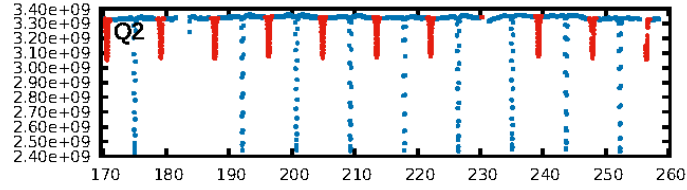
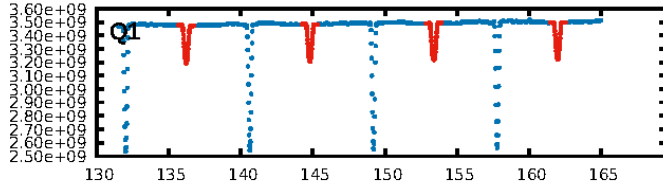
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [15.74σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [119/119]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.250 arcsec [123.91σ]
OotOffset-rm: 4.925 arcsec [2.62σ]
KicOffset-rm: 8.216 arcsec [4.27σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 1.00 [14/14]

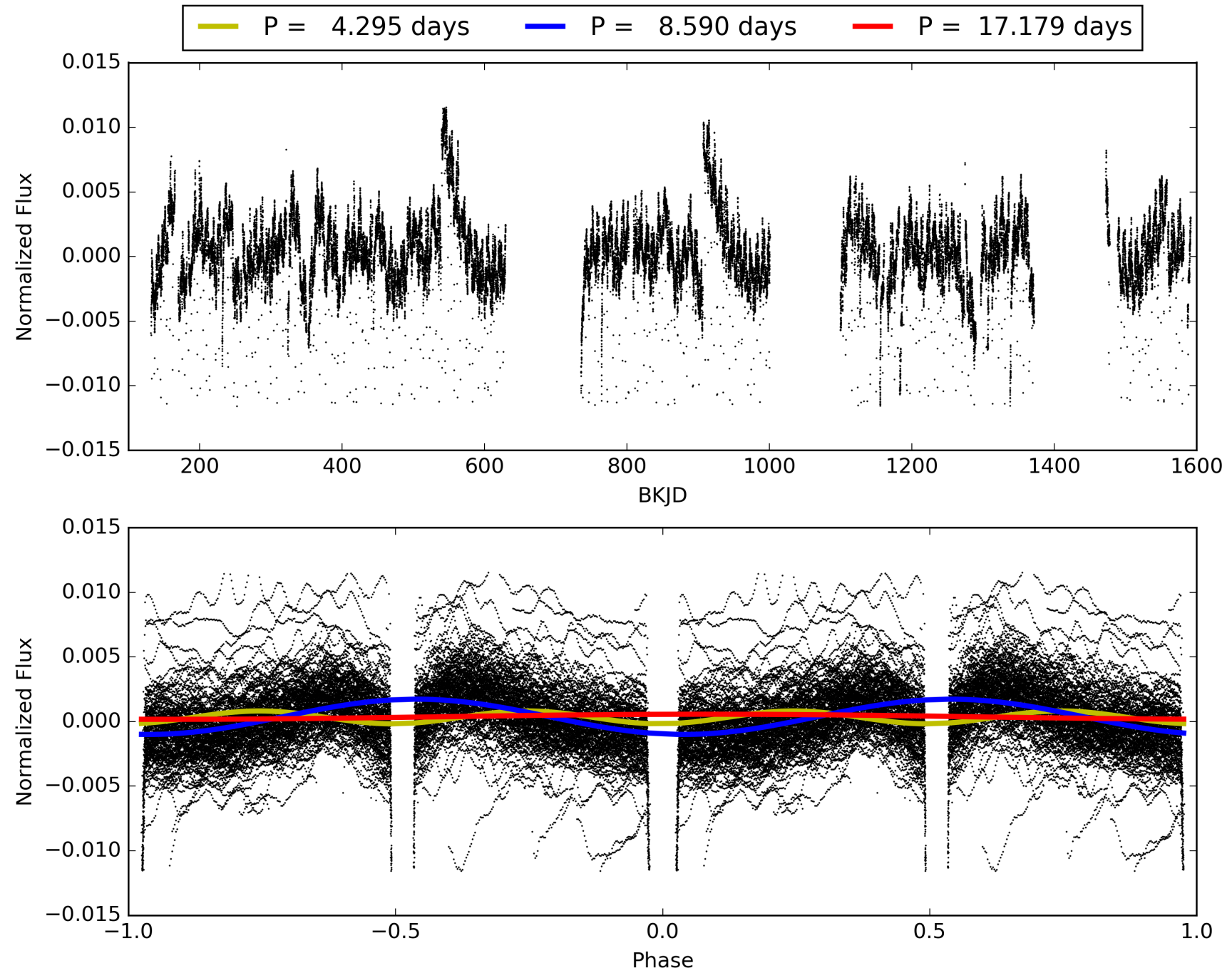
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:25:33 Z

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

TCE 010031808-02, PDC Light Curves

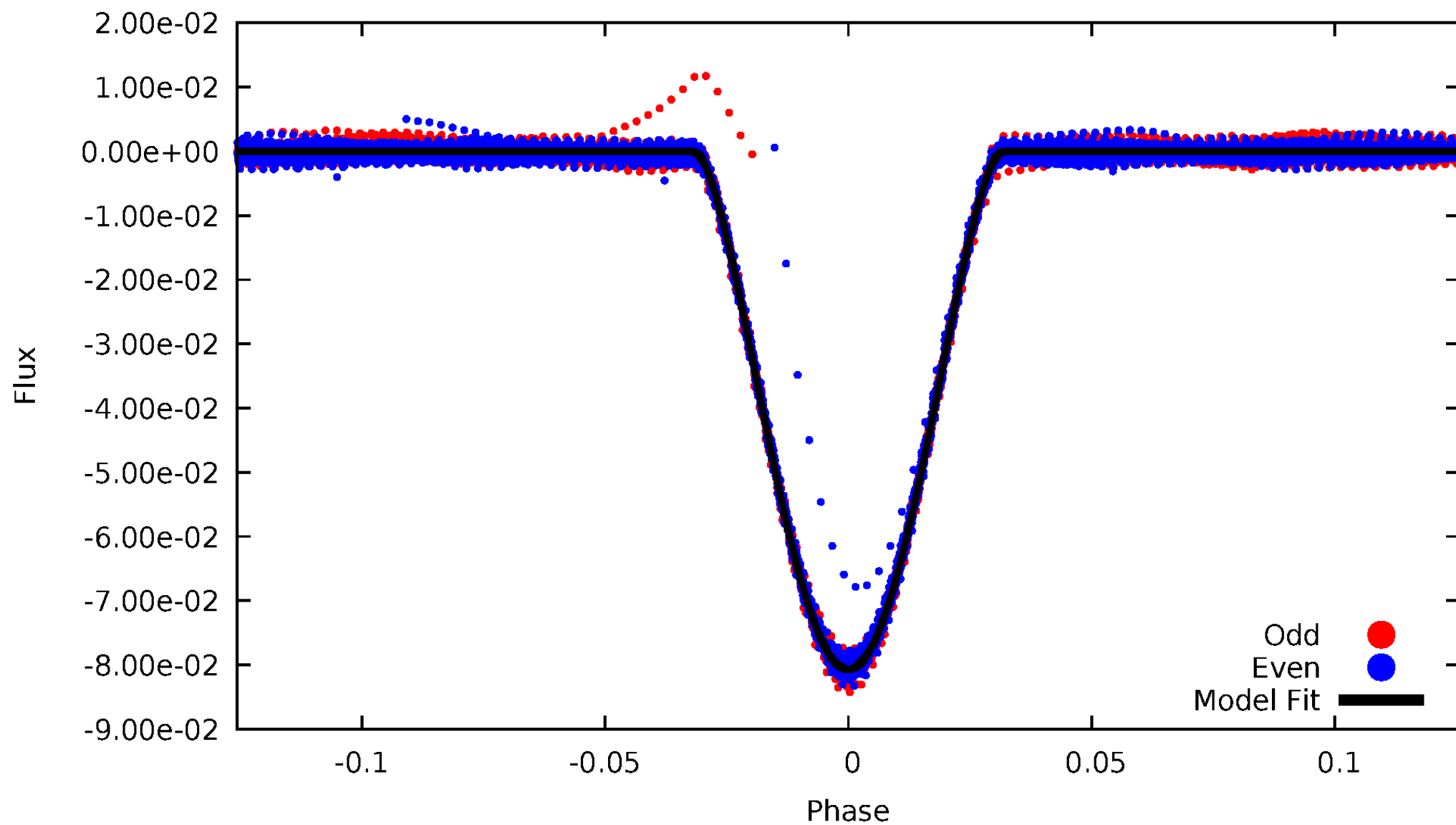


TCE 010031808-02



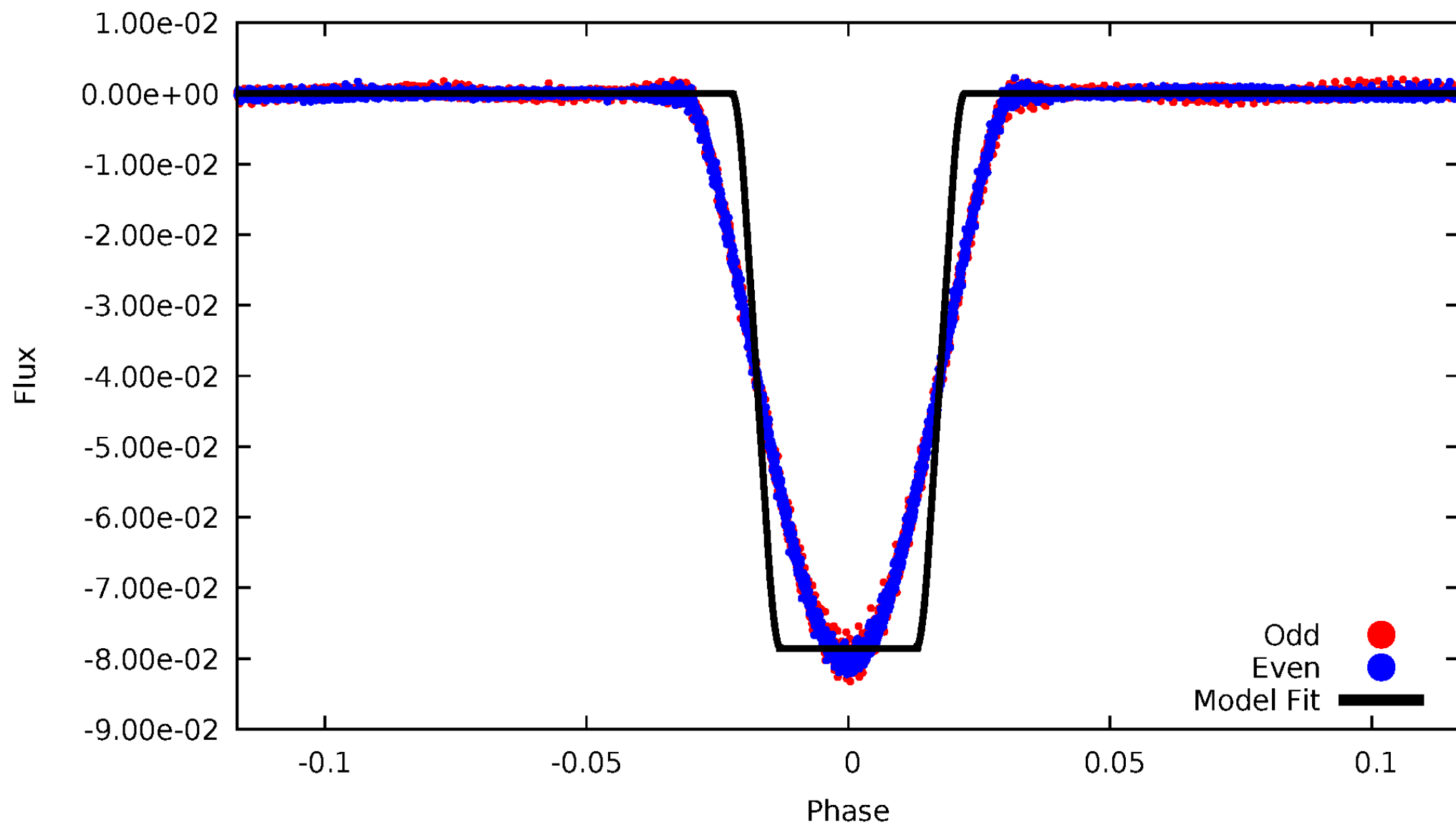
DV Odd/Even

TCE 010031808-02



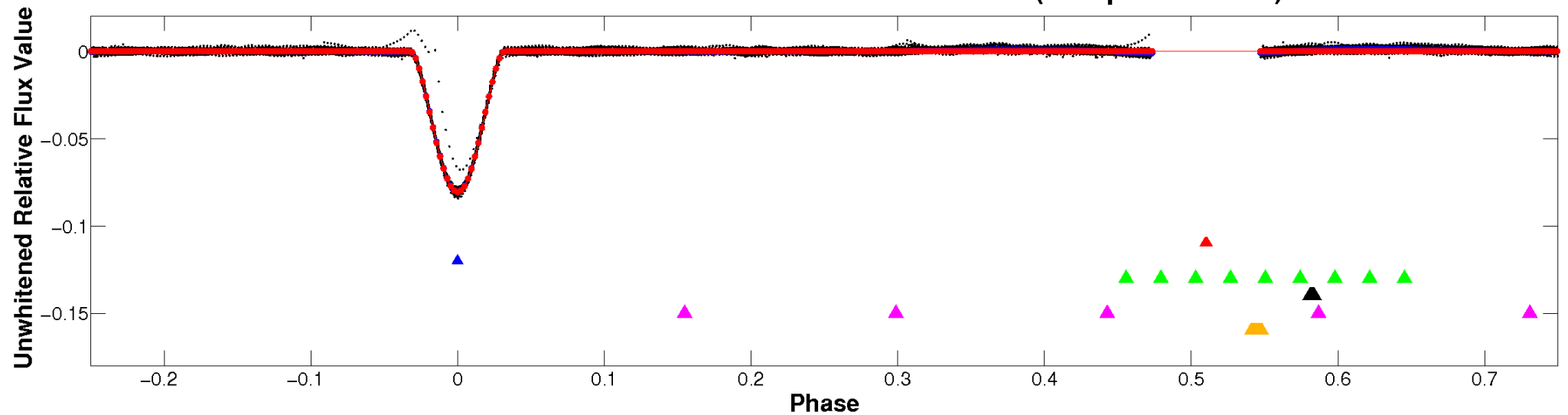
ALT Odd/Even

TCE 010031808-02

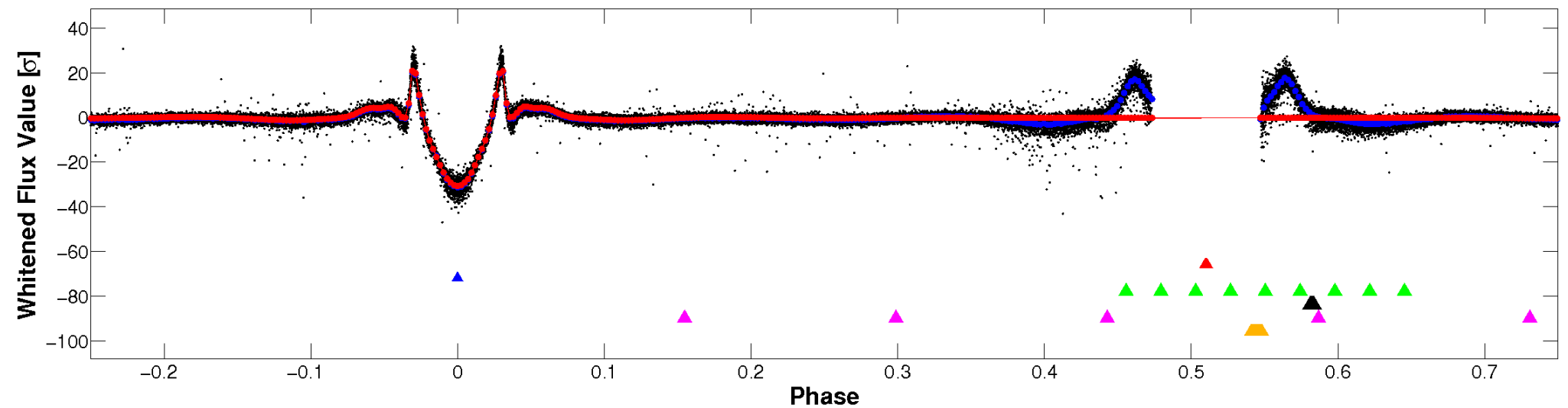


Non-Whitened Vs. Whitened Light Curve

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

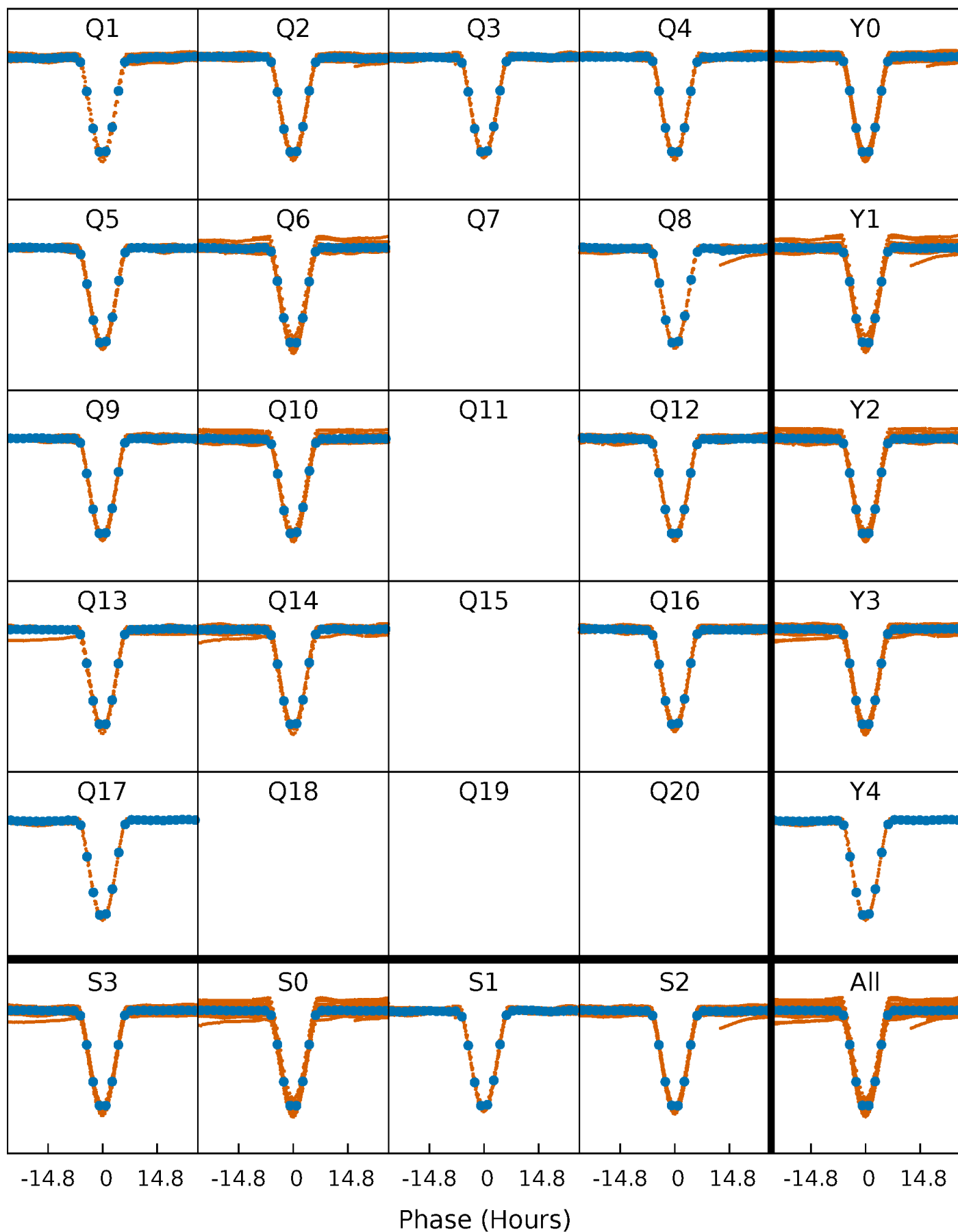


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



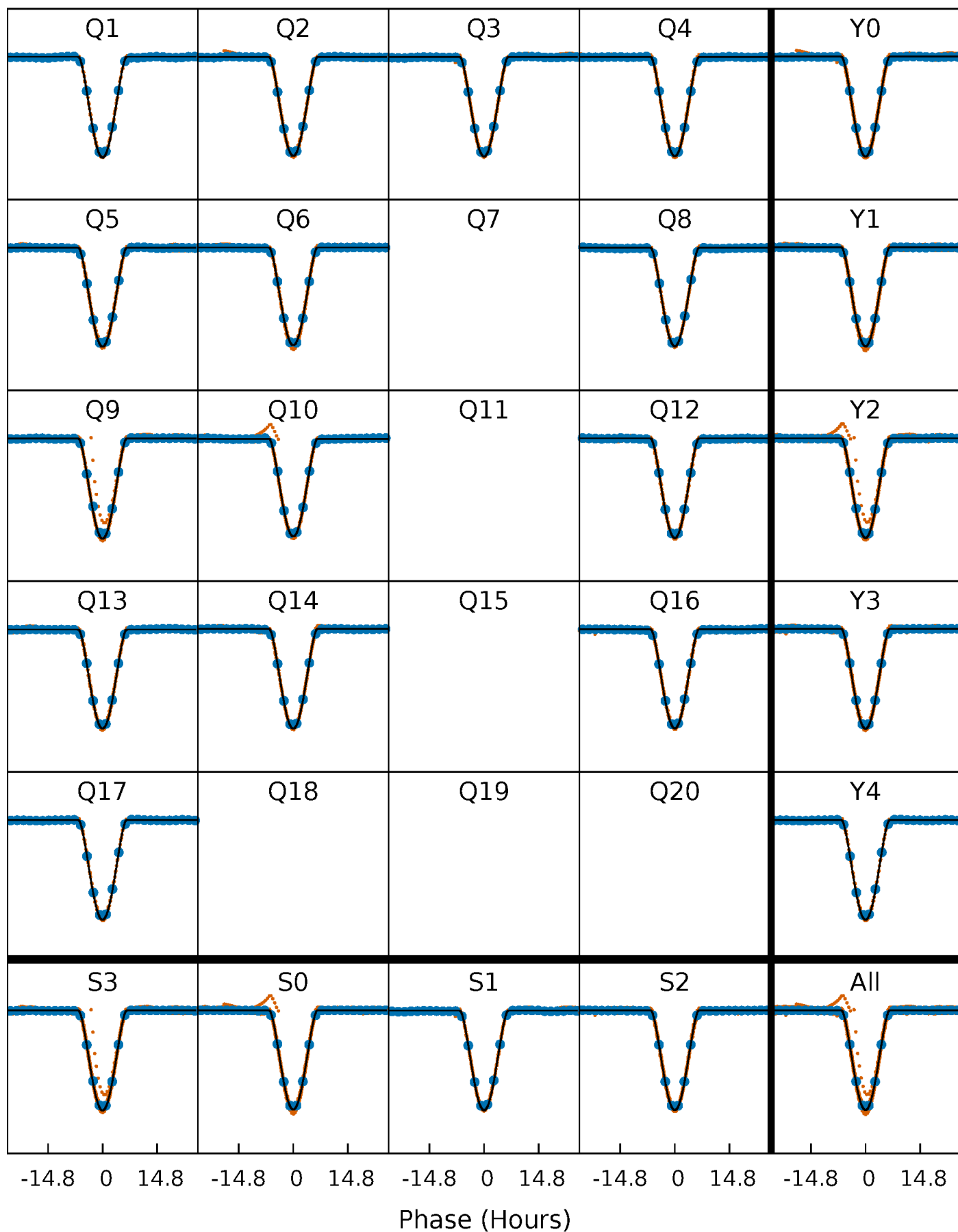
PDC Quarter-Phased Transit Curves

TCE 010031808-02 P= 8.589620 Days $T_0=136.206892$ (BKJD)



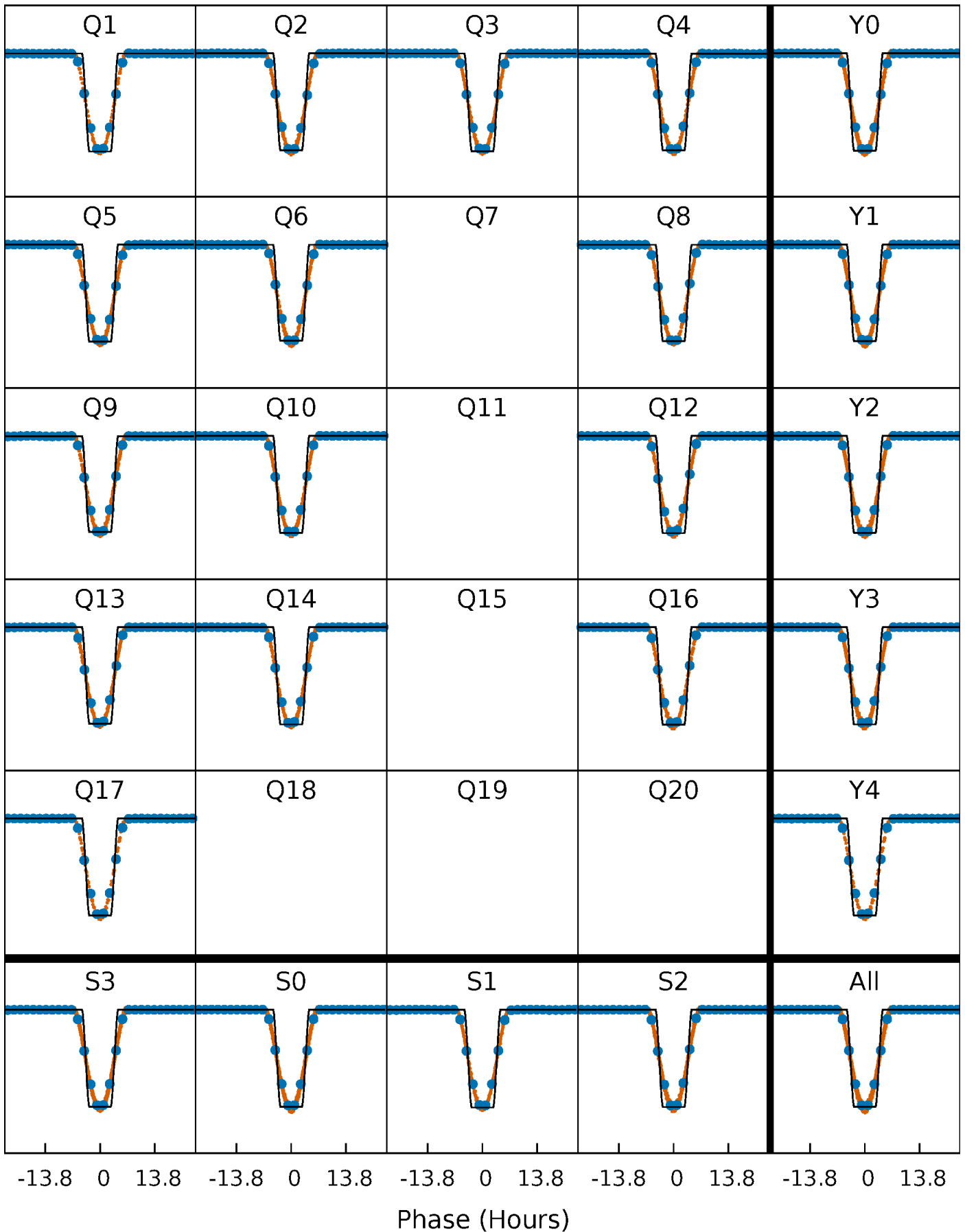
DV Quarter-Phased Transit Curves

TCE 010031808-02 P= 8.589620 Days $T_0=136.206892$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

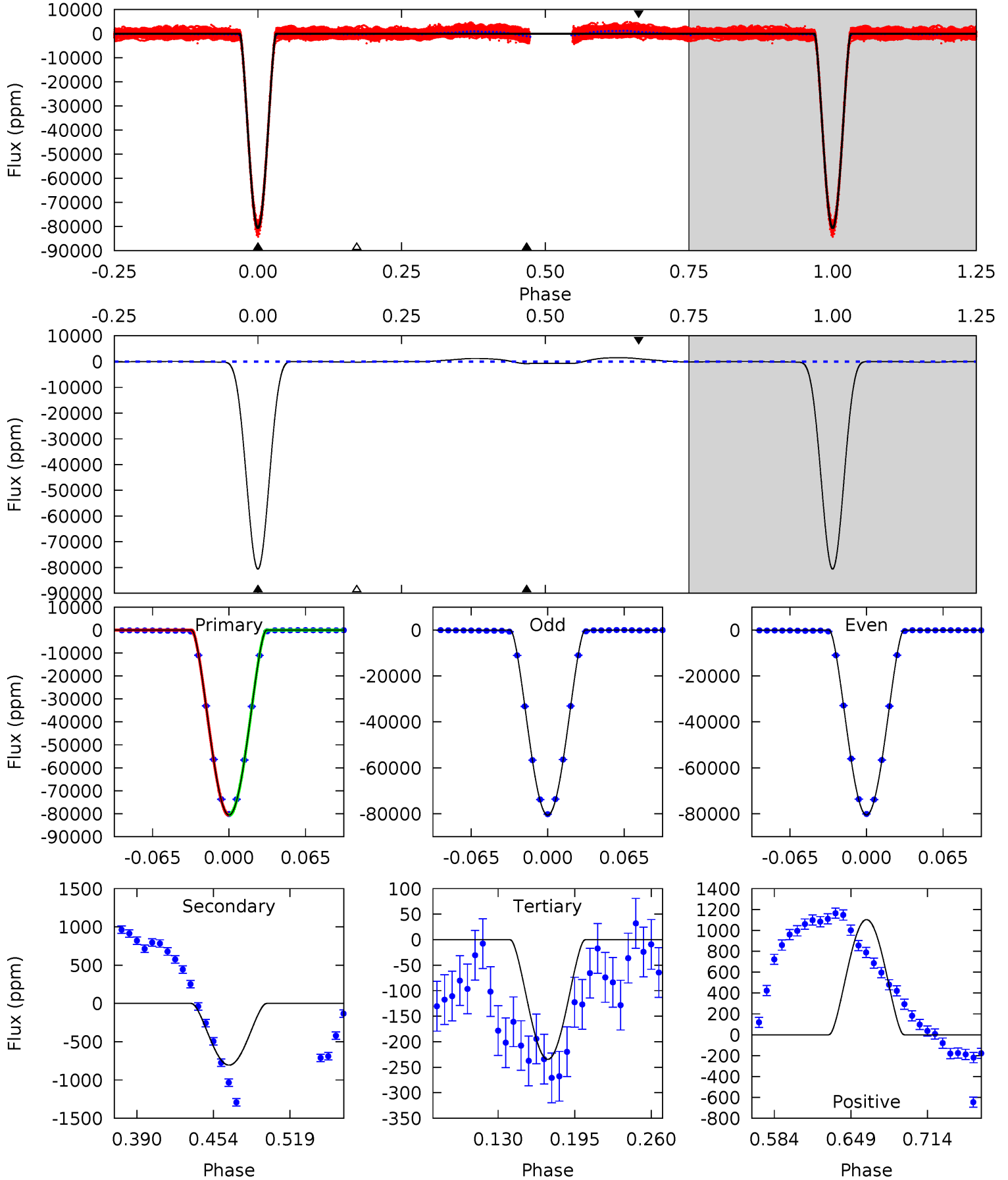
TCE 010031808-02 $P = 8.589638$ Days $T_0 = 136.205576$ (BKJD)



DV Model-Shift Uniqueness Test

010031808-02, P = 8.589620 Days, E = 127.617272 Days

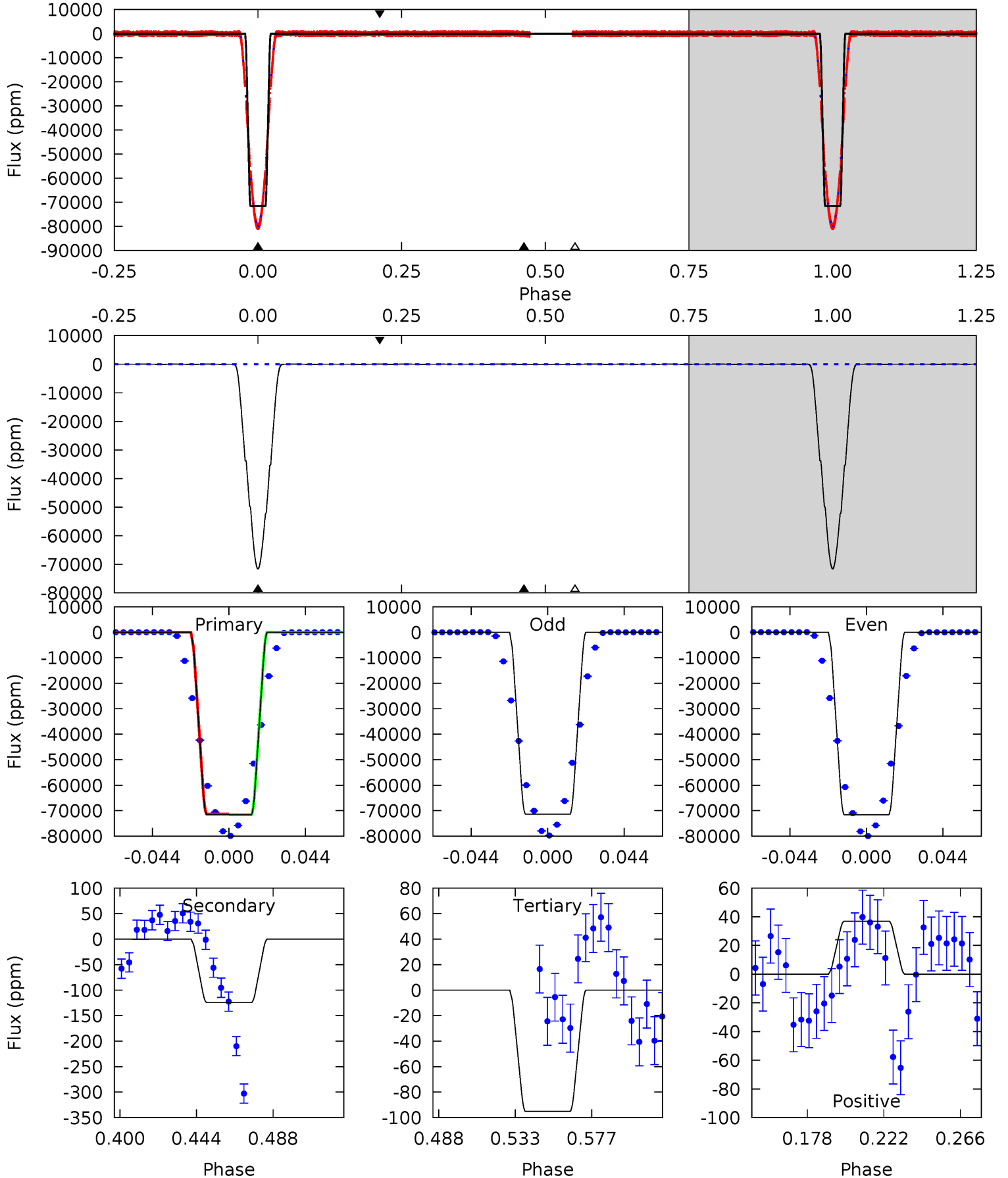
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4512	45.1	13.1	61.8	4.65	1.85	30.1	4499	4450	32.0	-16.6	2.94	0.99	0.02	0.59



Alt Model-Shift Uniqueness Test

010031808-02, P = 8.589638 Days, E = 127.615938 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8805	15.3	11.7	4.55	4.73	2.01	2.51	8793	8801	3.60	10.8	12.5	1.01	0.00	12.6



Stellar Parameters For KIC 010031808

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6331^{+204}_{-227}	$3.813^{+0.569}_{-0.134}$	$-0.560^{+0.300}_{-0.300}$	$2.194^{+0.483}_{-1.126}$	$1.142^{+0.161}_{-0.261}$	$0.152^{+0.992}_{-0.062}$
	+3%/-4%	+15%/-4%	+54%/-54%	+22%/-51%	+14%/-23%	+652%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010031808-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-806 ± 18	$98.97^{+16.37}_{-27.40}$	1922^{+157}_{-254}	1953^{+339}_{-4012}	$0.338^{+0.254}_{-0.086}$
Alt.	-124 ± 8	$63.98^{+11.44}_{-17.38}$	1915^{+164}_{-265}	-2300^{+334}_{-129}	$0.125^{+0.100}_{-0.034}$

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

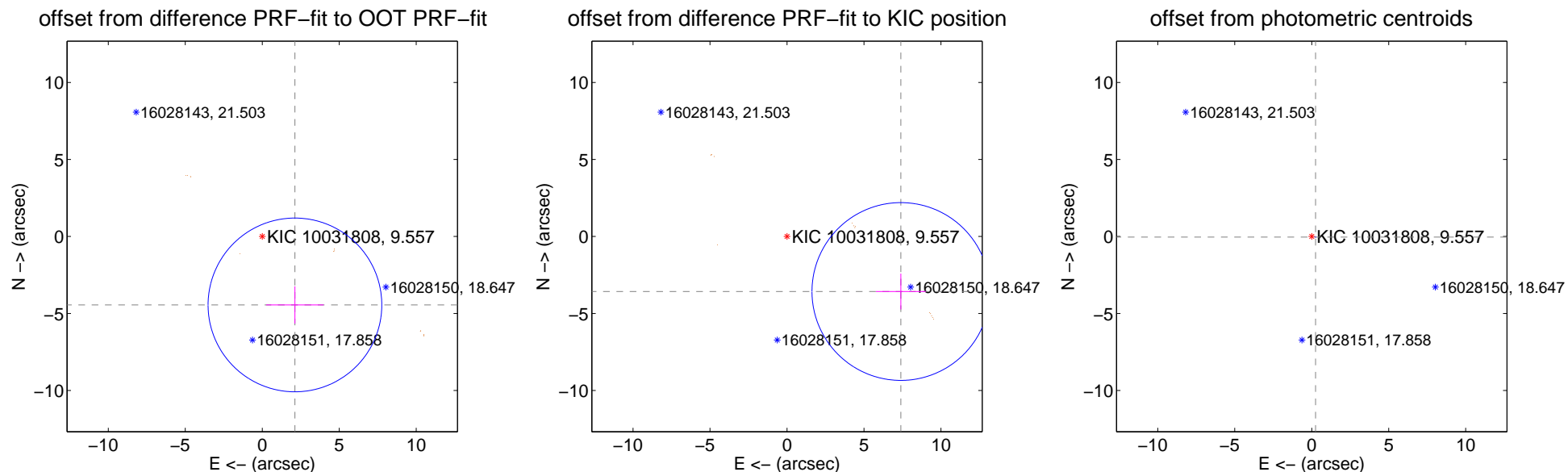
DV Centroid Data

Supplemental centroid analysis for 010031808-02. **Kepler magnitude: 9.56.** Transit SNR 1153.37

There are 0 quarters with good PRF difference image offsets

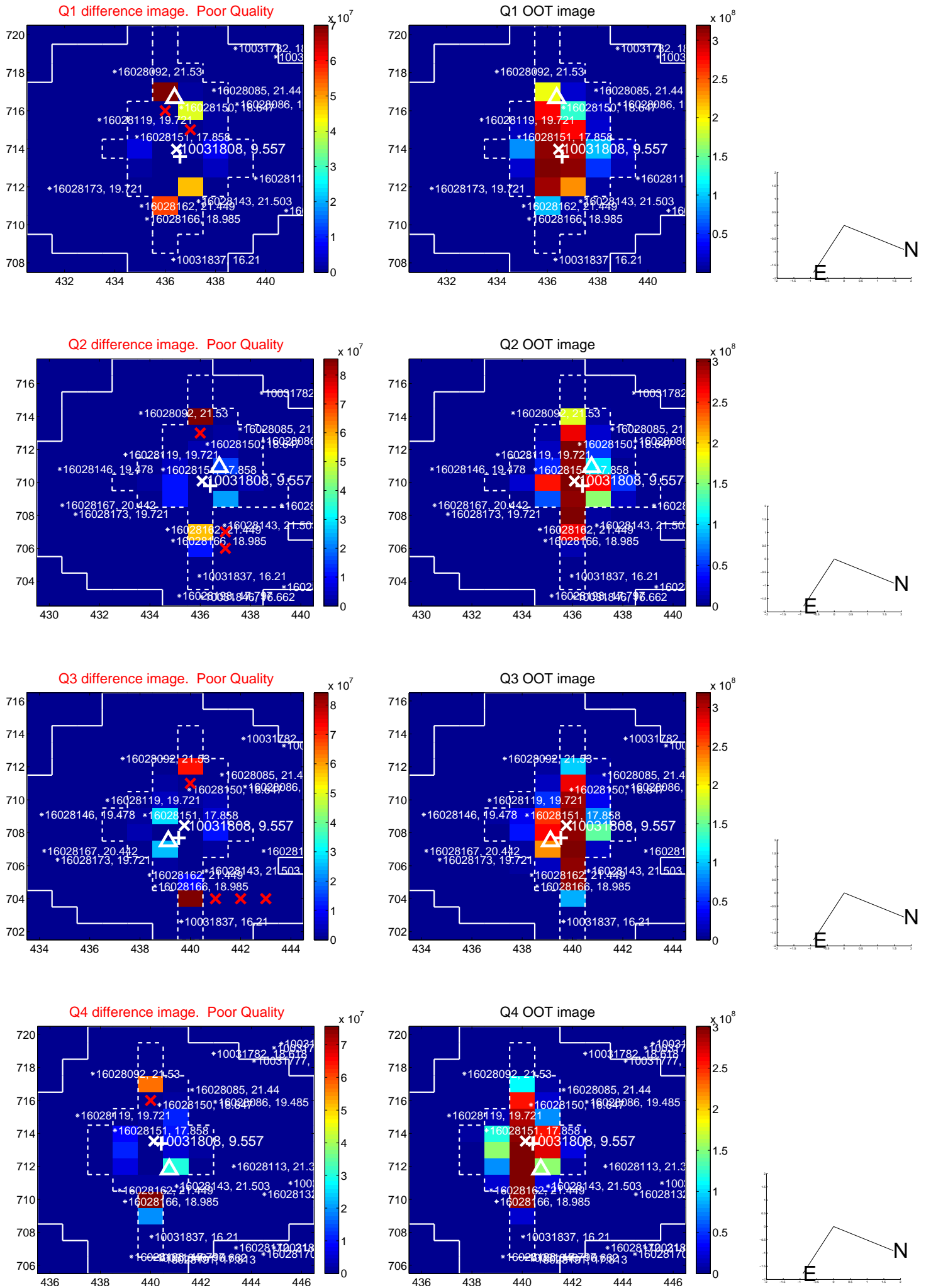
The direct PRF centroid is offset from the target star catalog position by about 1.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.925 ± 1.881	2.62	-2.122 ± 1.865	-4.445 ± 1.210
PRF-fit source offset from KIC position	8.216 ± 1.925	4.27	-7.398 ± 1.621	-3.573 ± 1.164
photometric centroid source offset	0.25 ± 0.00	123.91	-0.25 ± 0.00	-0.04 ± 0.00

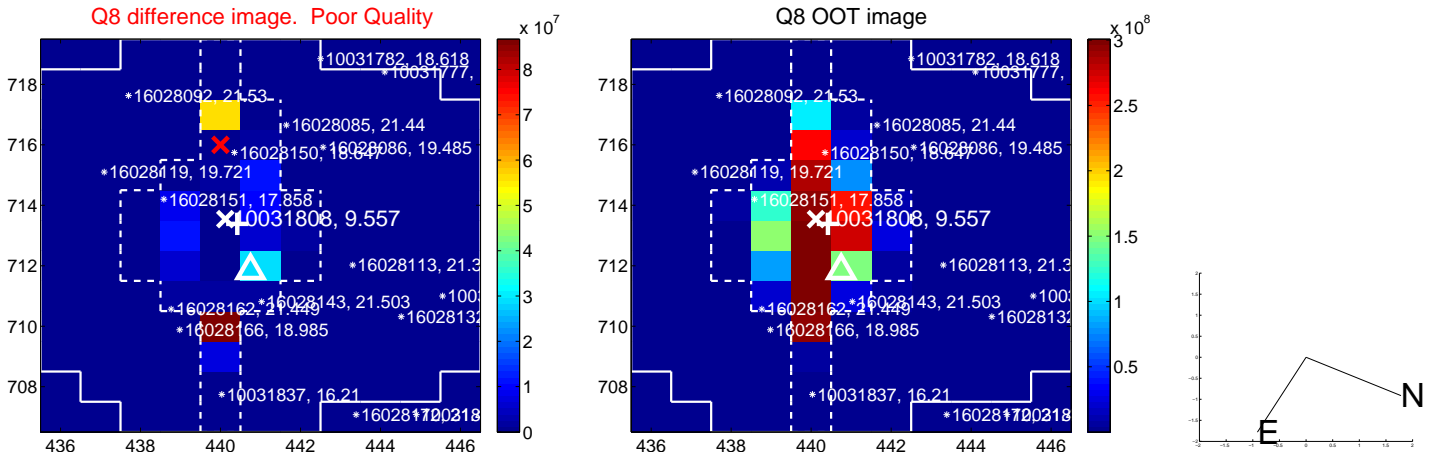
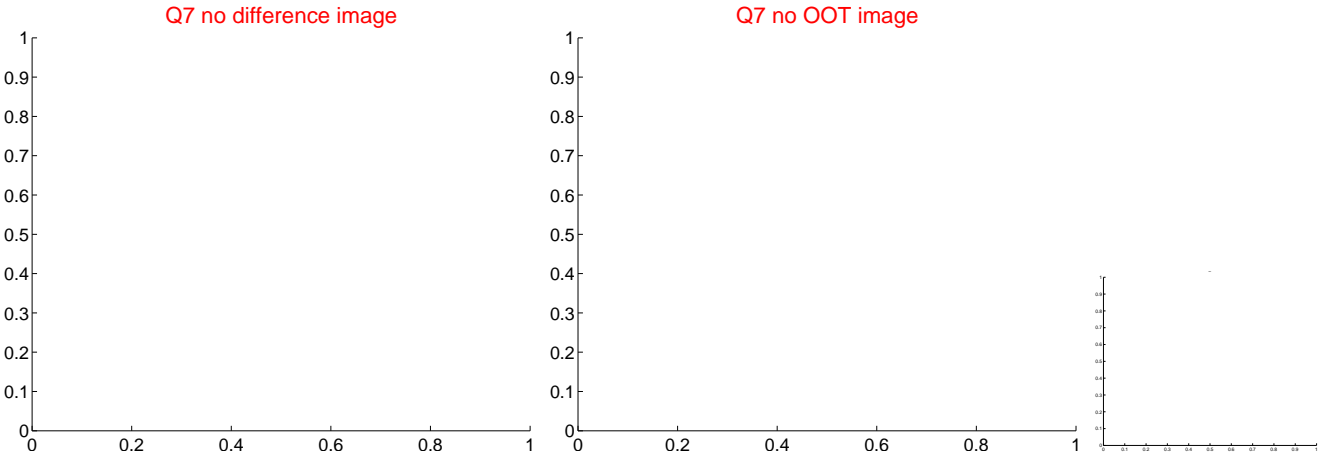
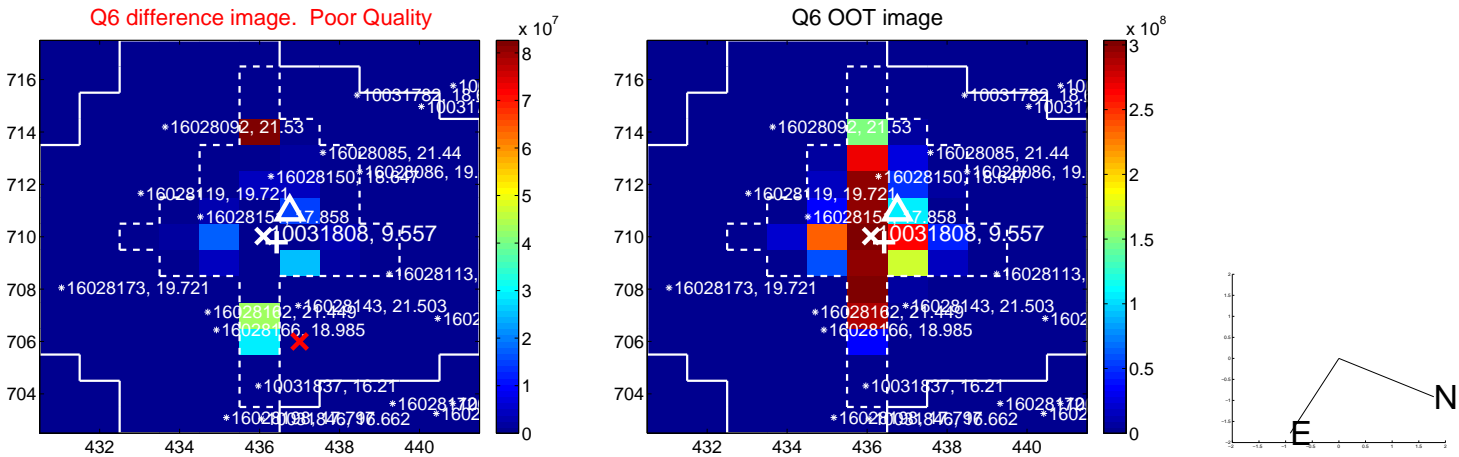
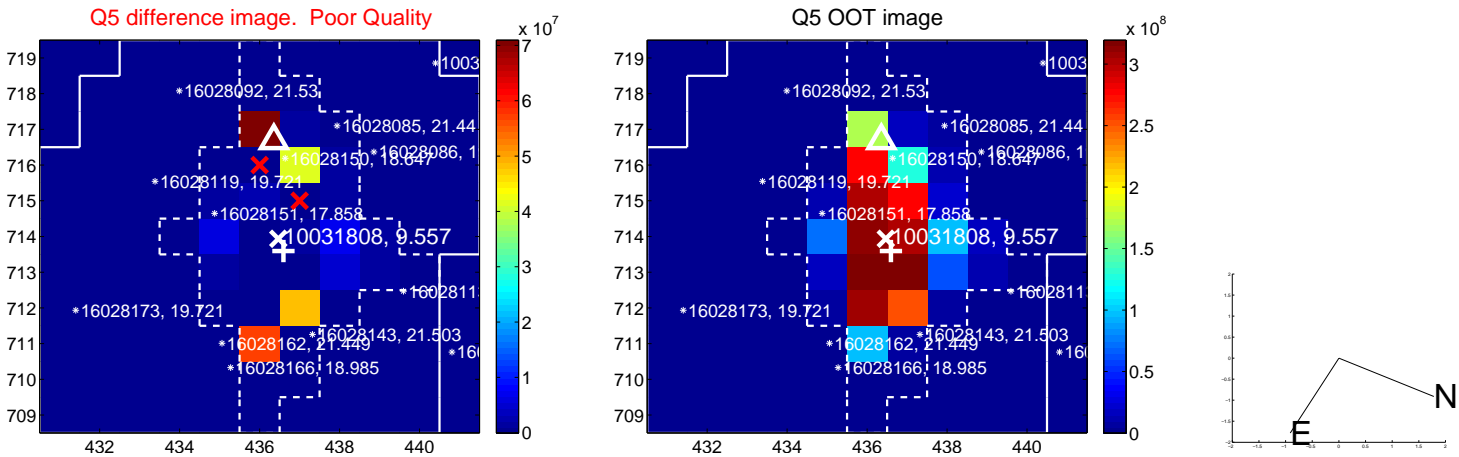


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

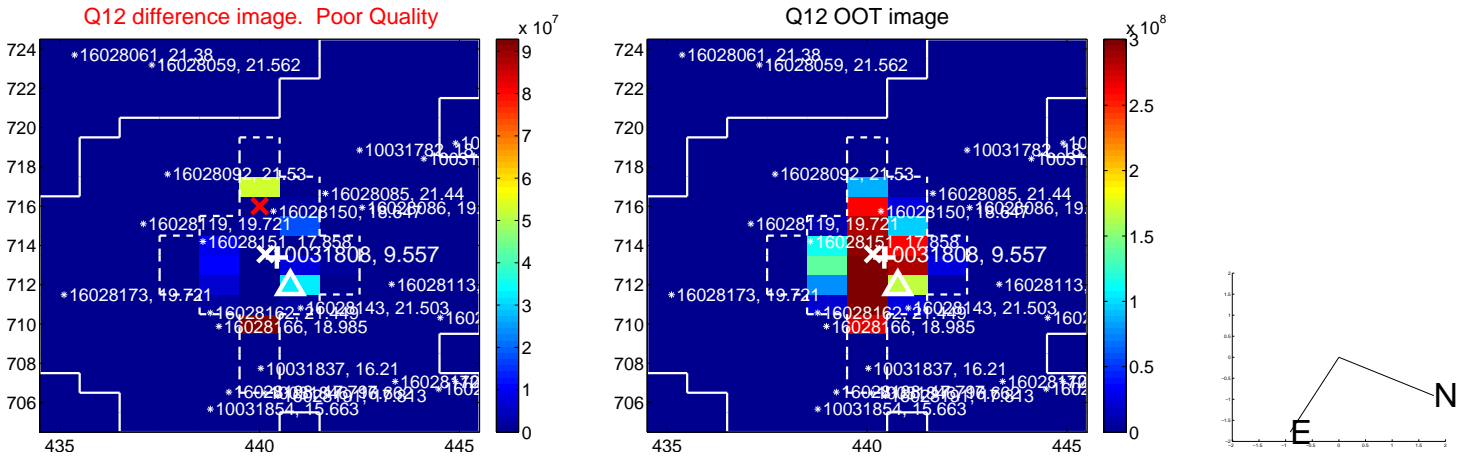
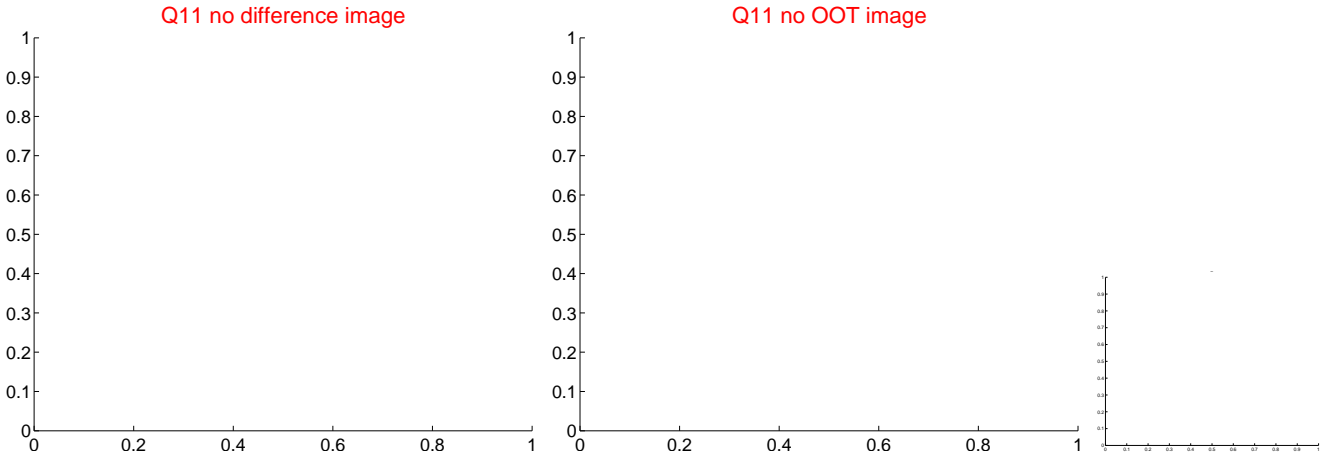
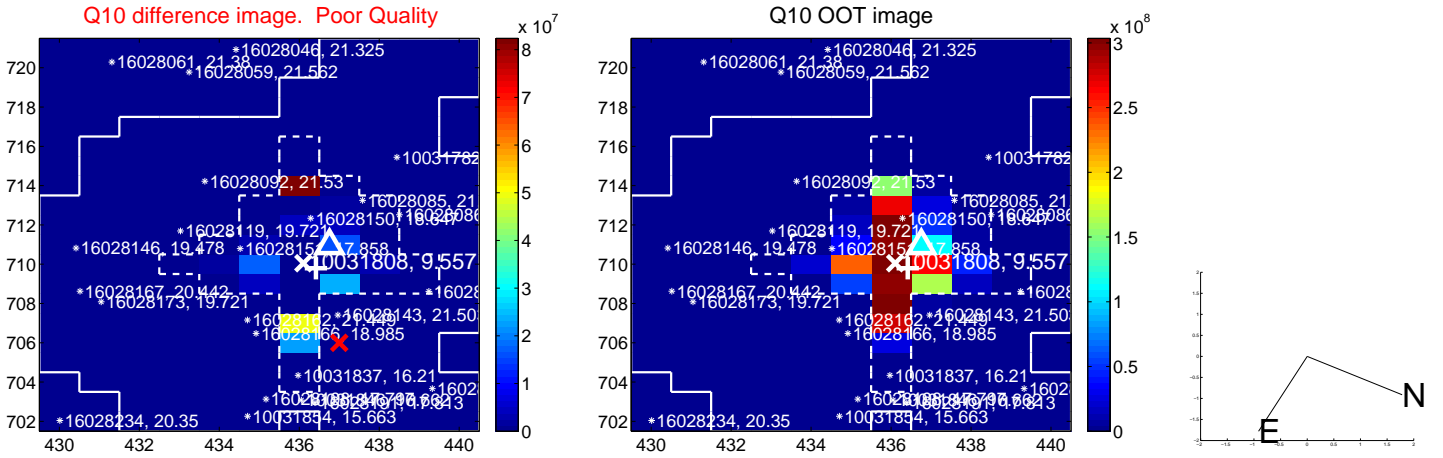
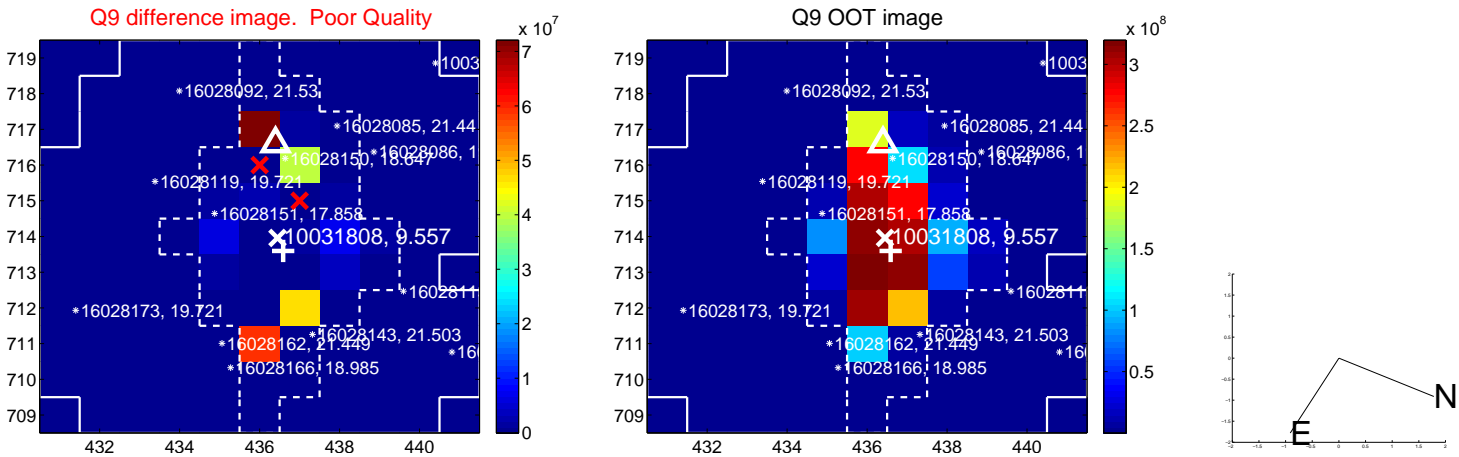
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



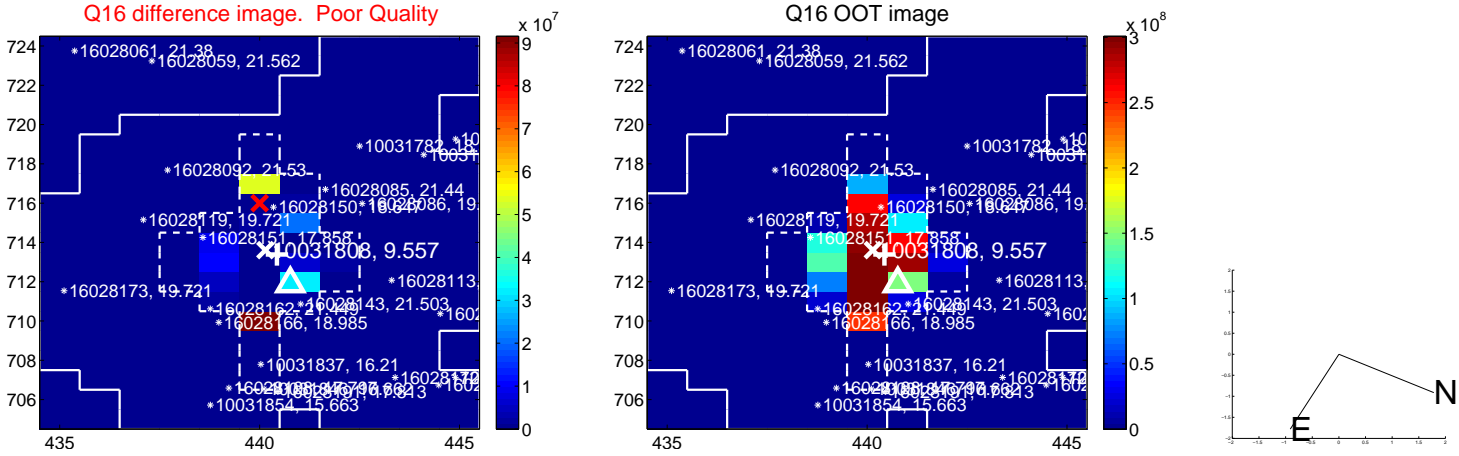
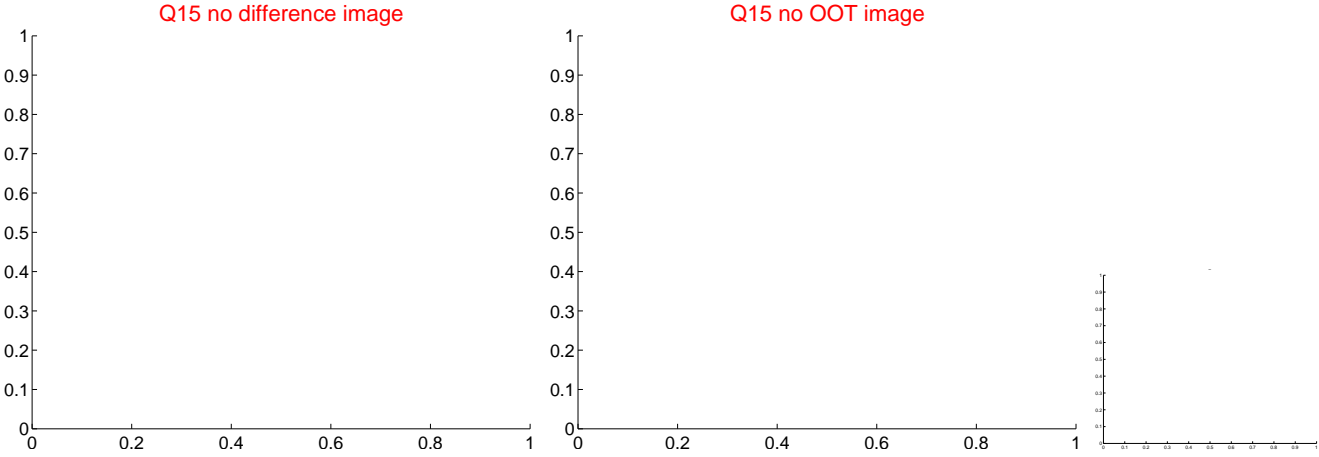
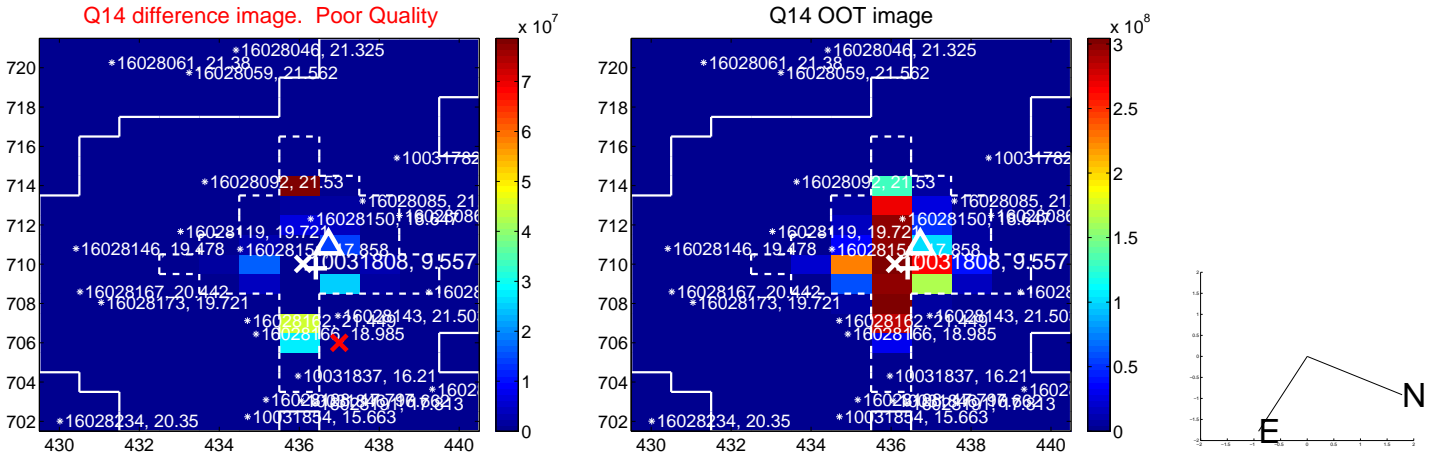
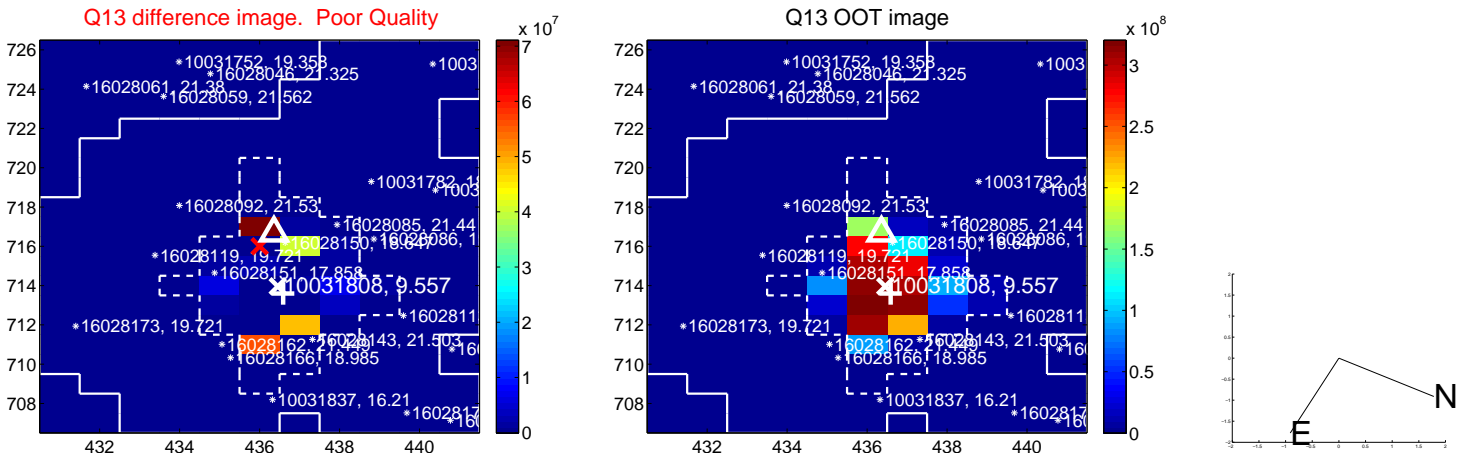
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



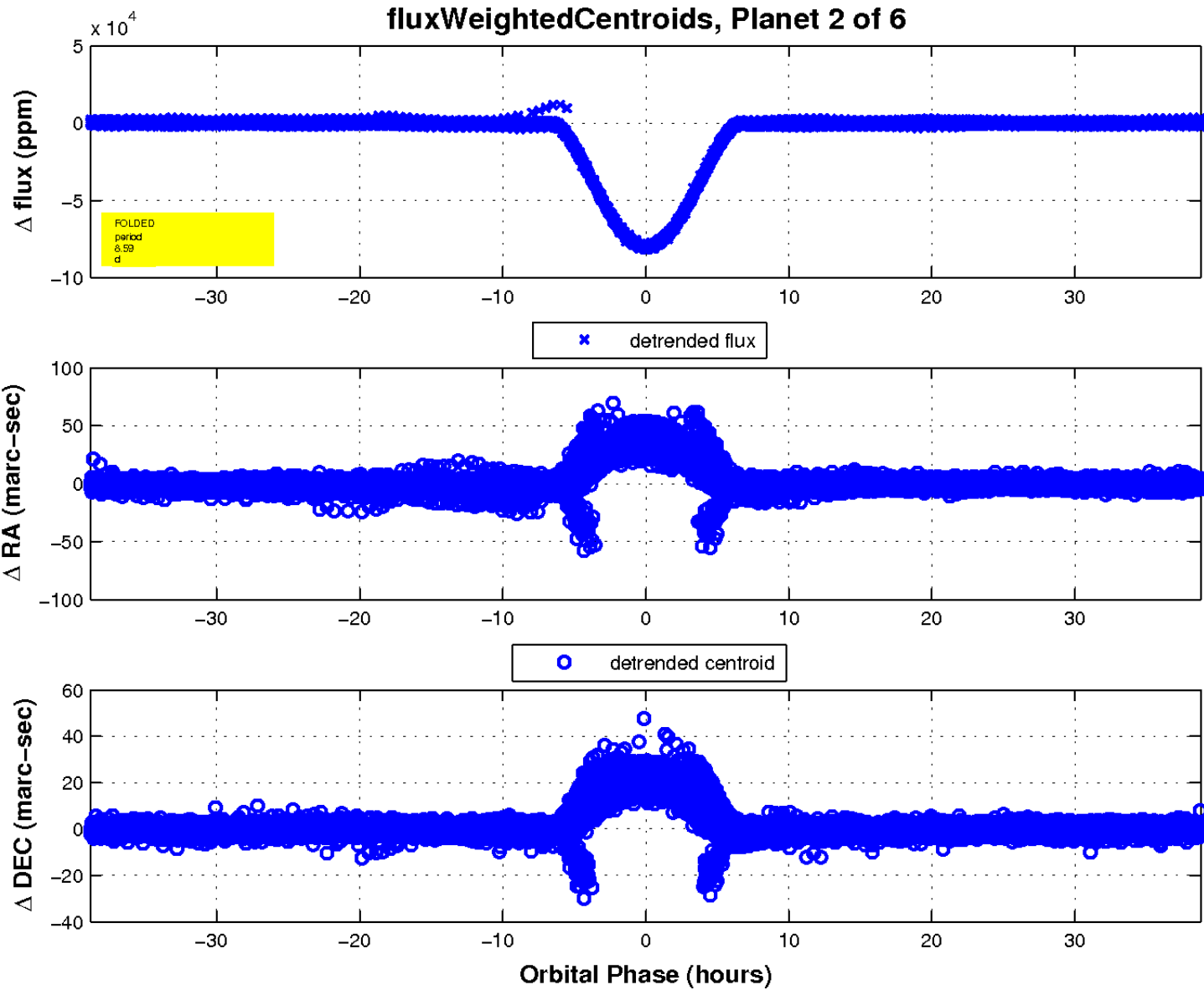
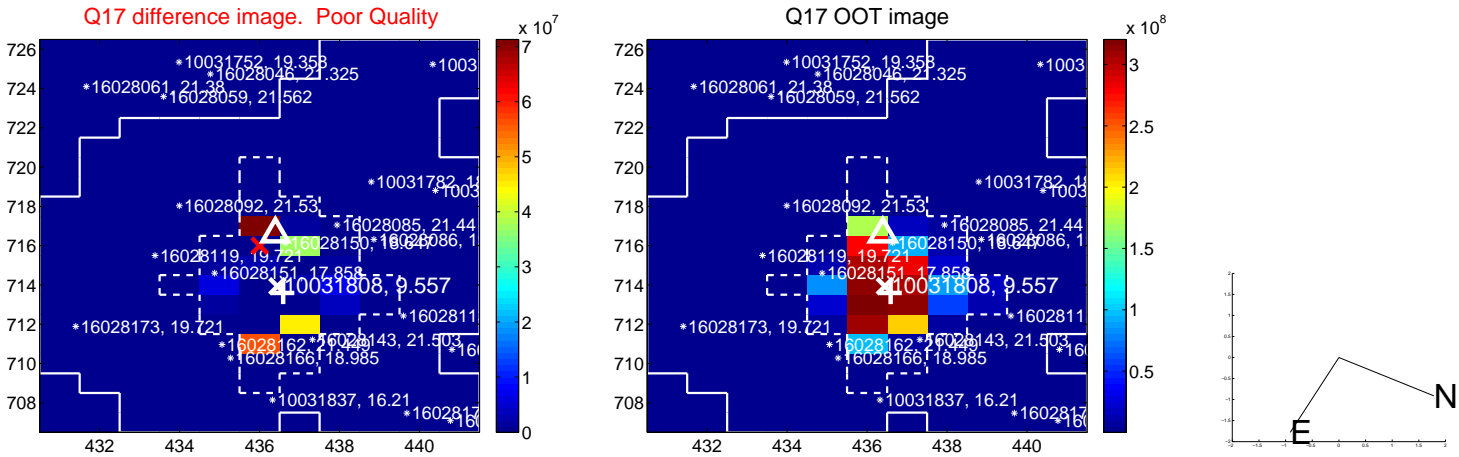
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

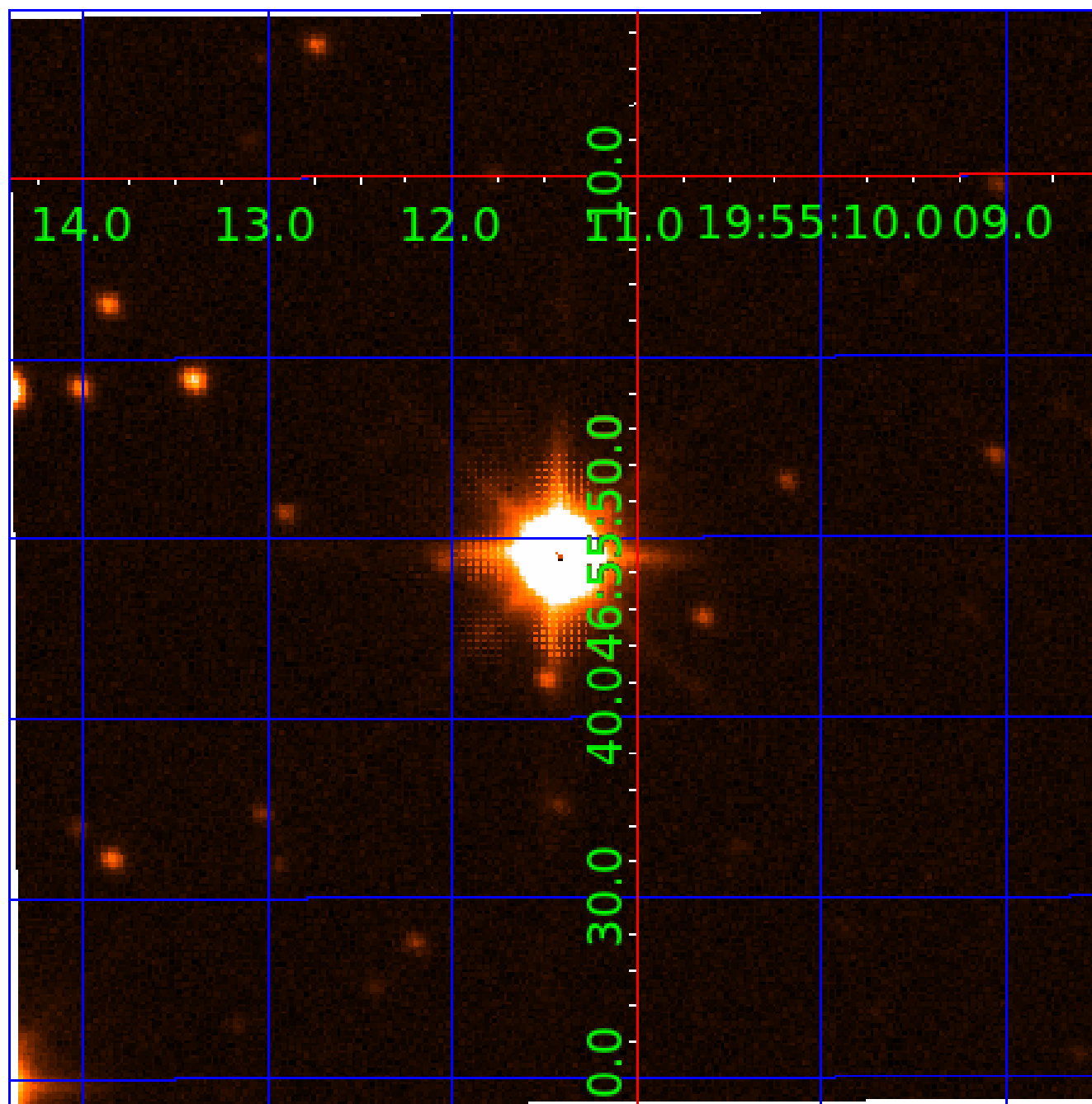


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010031808

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})
010031808-01	OBS	7278.01	8.589558	132.004805	270138.7	5.000	1585.6	-1.0	2.19	6331	11.73	941.12
010031808-02	OBS	No	8.589620	136.206892	80697.2	12.943	491.4	1153.4	2.19	6331	103.01	941.12
010031808-03	OBS	No	171.996086	131.531427	997.1	15.000	169.3	-1.0	2.19	6331	6.96	17.31
010031808-04	OBS	No	163.199823	149.810888	3848.3	7.053	190.3	20.1	2.19	6331	24.72	18.56
010031808-05	OBS	No	273.630792	374.404276	1189.4	4.505	160.7	6.4	2.19	6331	13.88	9.32
010031808-06	OBS	No	17.180044	140.850779	923.4	2.000	96.7	-1.0	2.19	6331	6.71	373.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010031808-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_SATURATED
010031808-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
010031808-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010031808-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_SATURATED
010031808-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010031808-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_SATURATED

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.

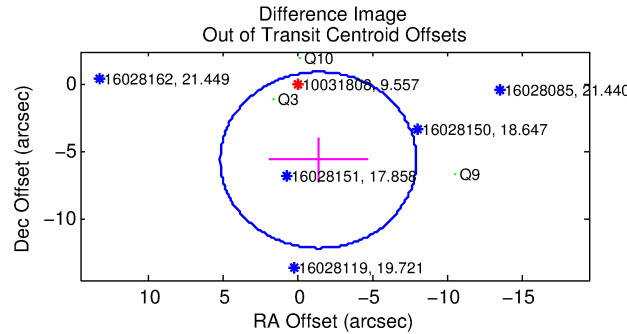
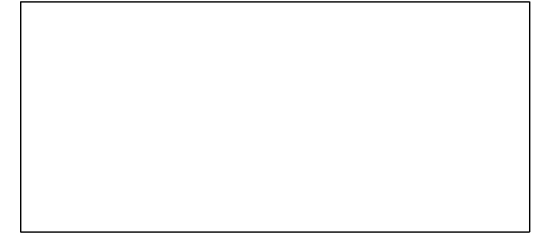
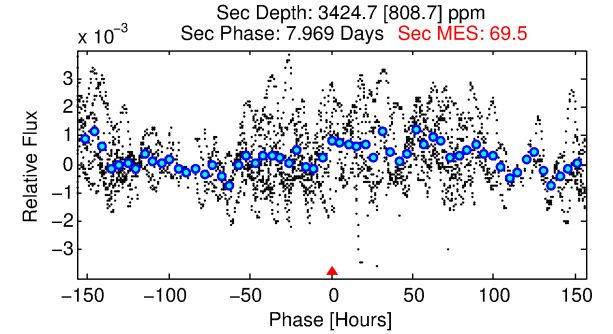
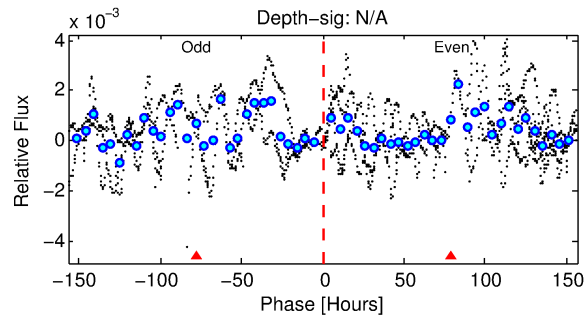
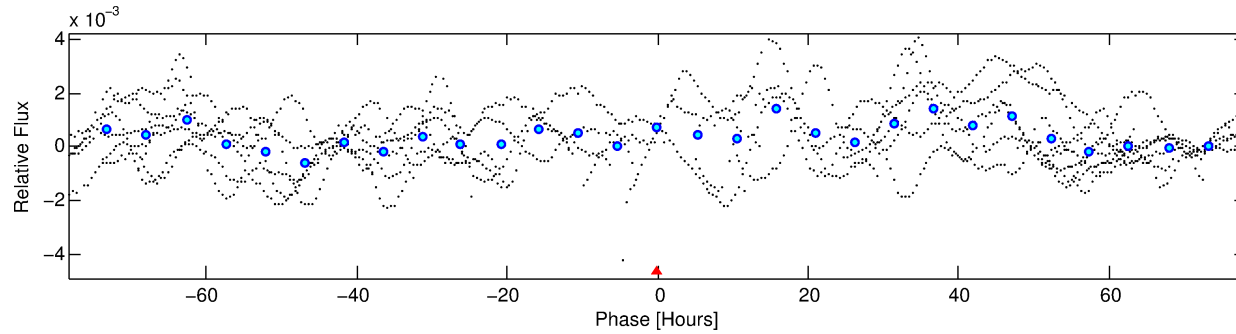
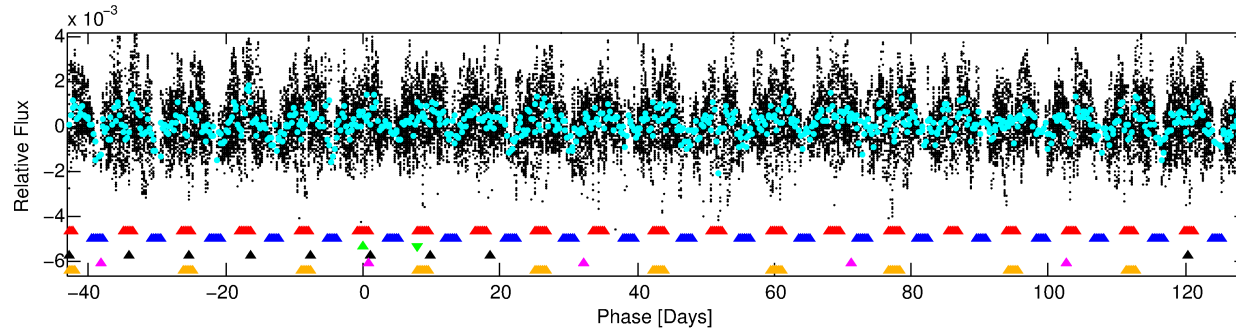
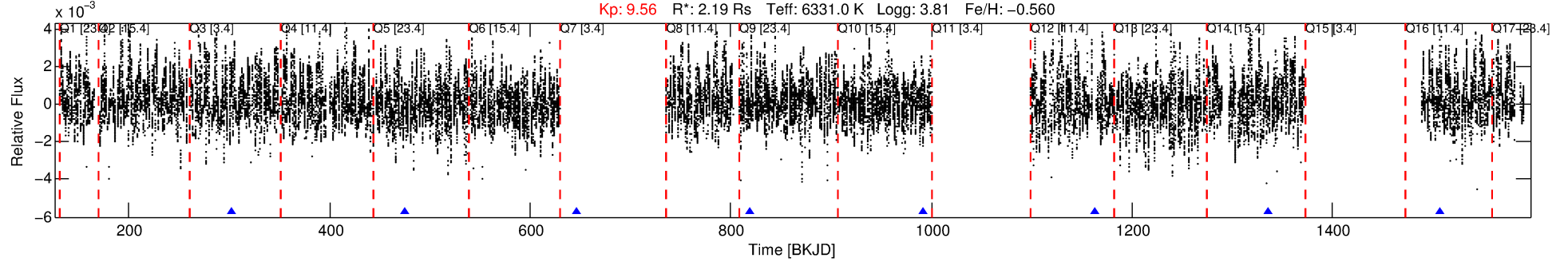
Ephemeris Match Information For 010031808-03

No Significant Match Found

DV One-Page Summary

KIC: 10031808 Candidate: 3 of 6 Period: 171.996 d
KOI: K07278 Corr: No Ephemeris Match

Kp: 9.56 R*: 2.19 Rs Teff: 6331.0 K Logg: 3.81 Fe/H: -0.560



TPS TCE Results:

Period = 171.99609 d
Epoch = 131.5314 BKJD

DV fit results are unavailable

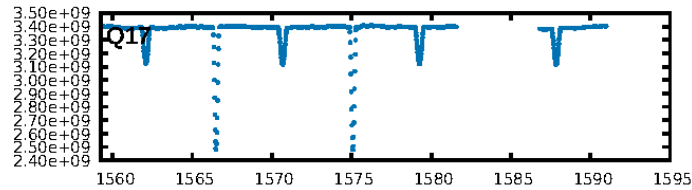
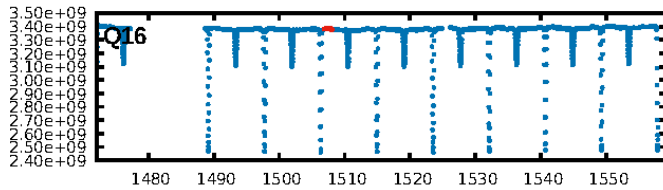
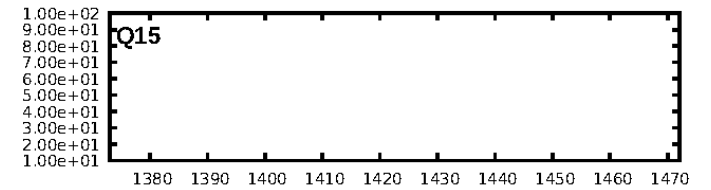
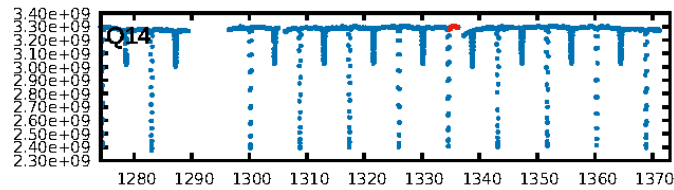
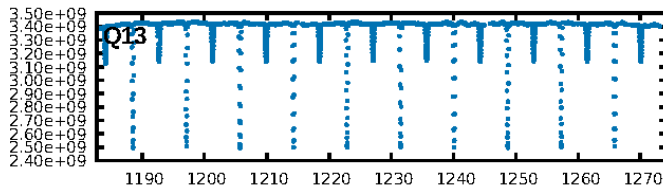
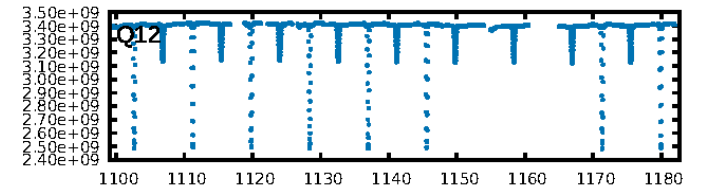
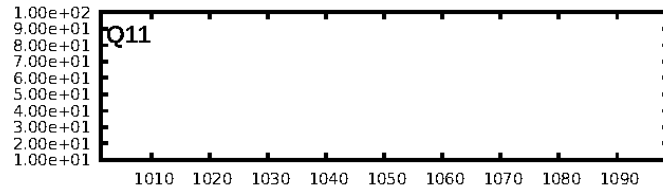
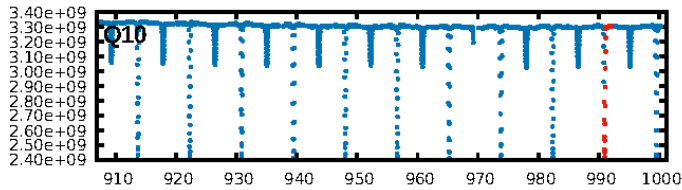
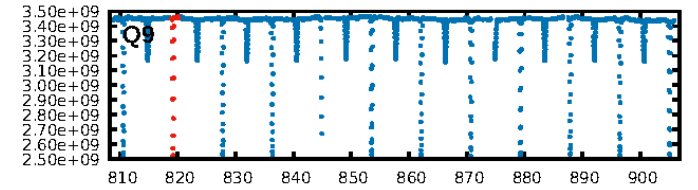
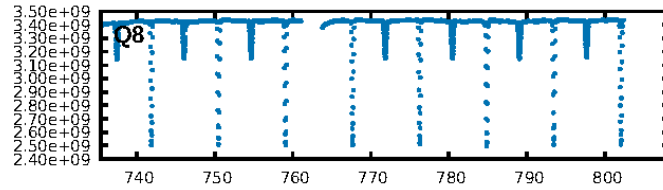
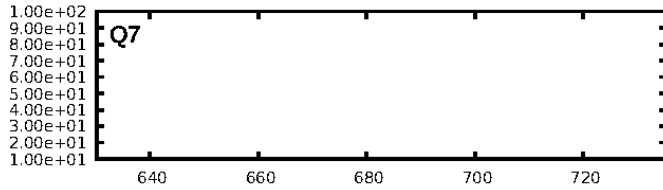
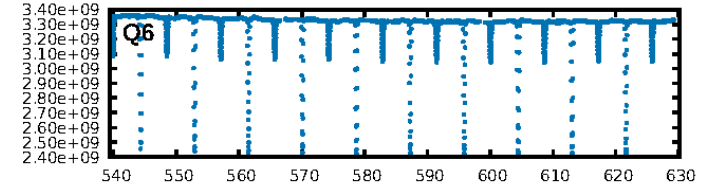
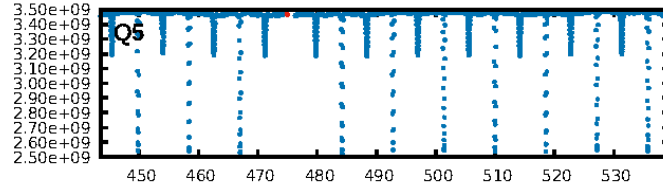
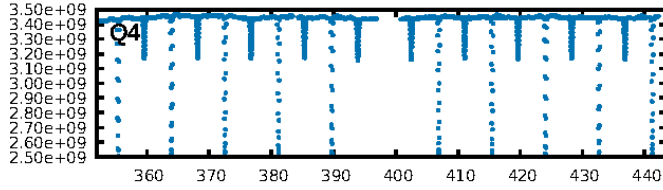
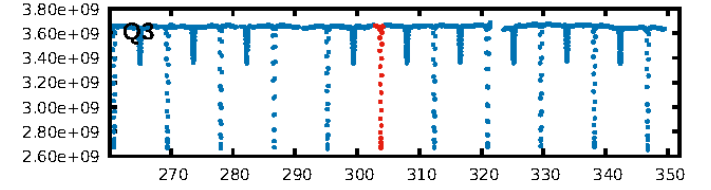
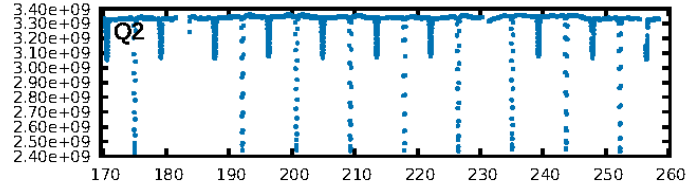
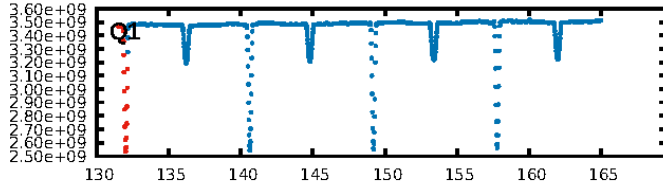
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.74 σ]
LongPeriod-sig: 100.0% [155.74 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 2.167 arcsec [1.90 σ]
OotOffset-rm: 5.755 arcsec [2.63 σ]
KicOffset-rm: 7.996 arcsec [2.69 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/3]

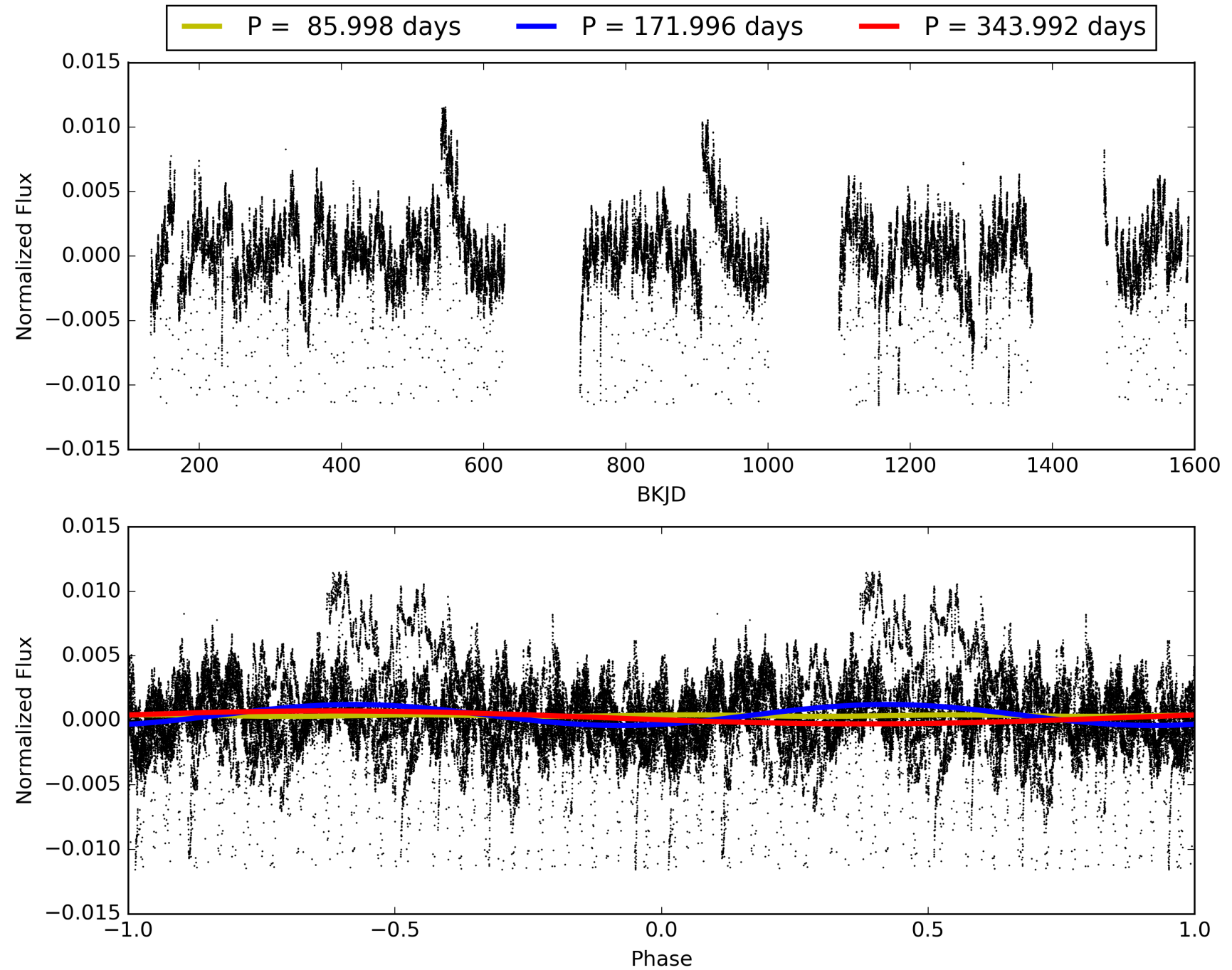
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:25:39 Z

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

TCE 010031808-03, PDC Light Curves

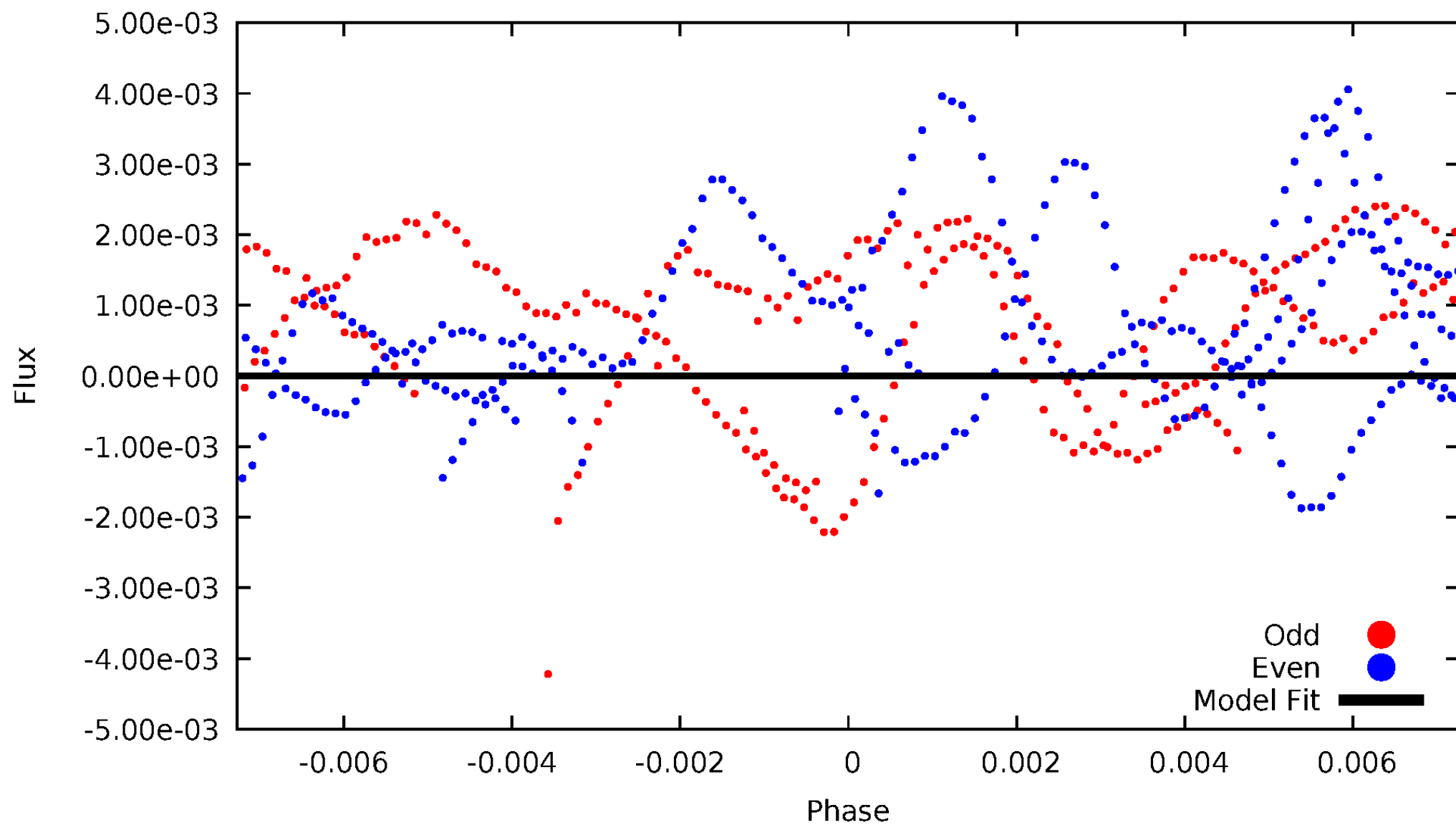


TCE 010031808-03



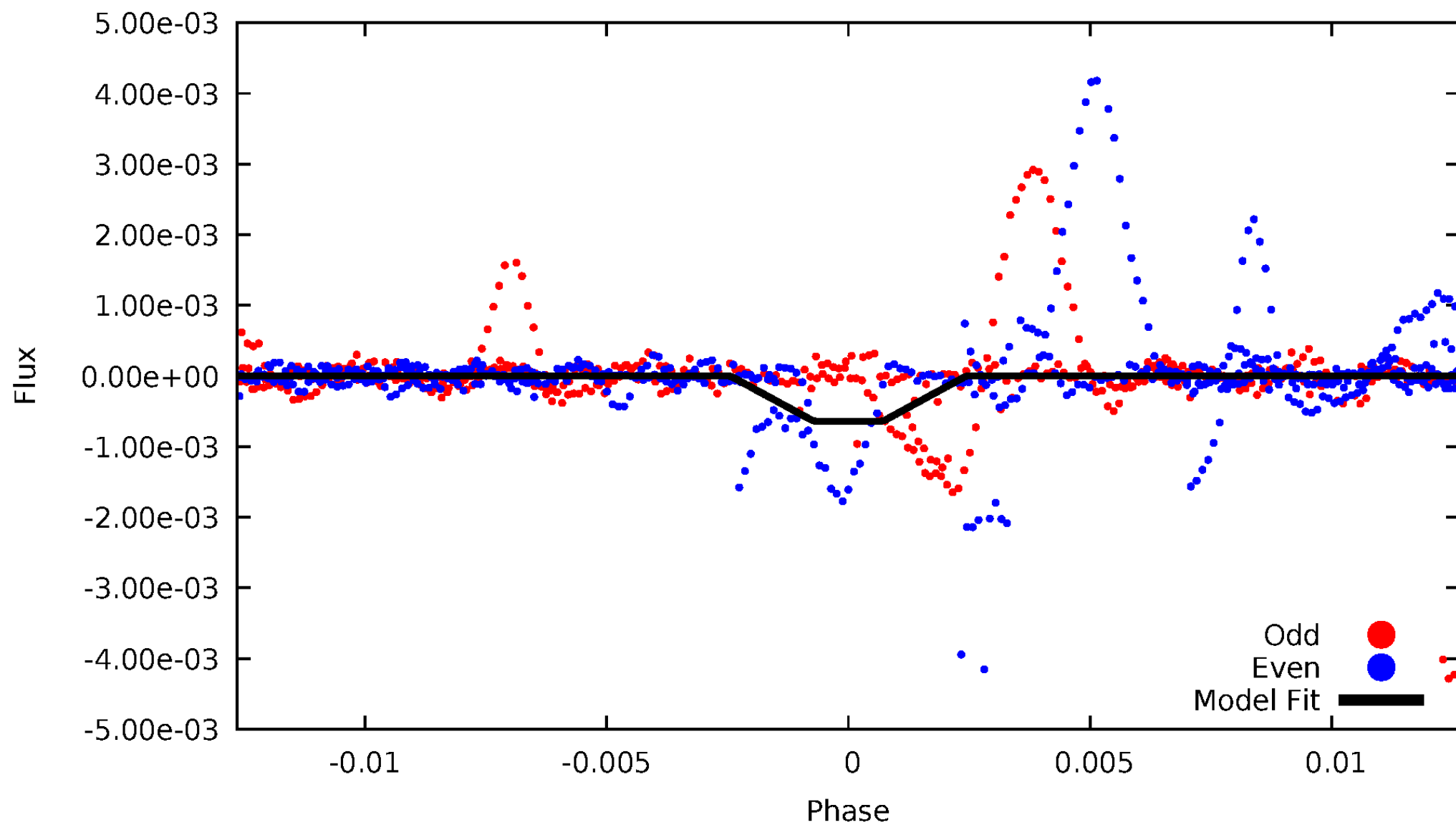
DV Odd/Even

TCE 010031808-03



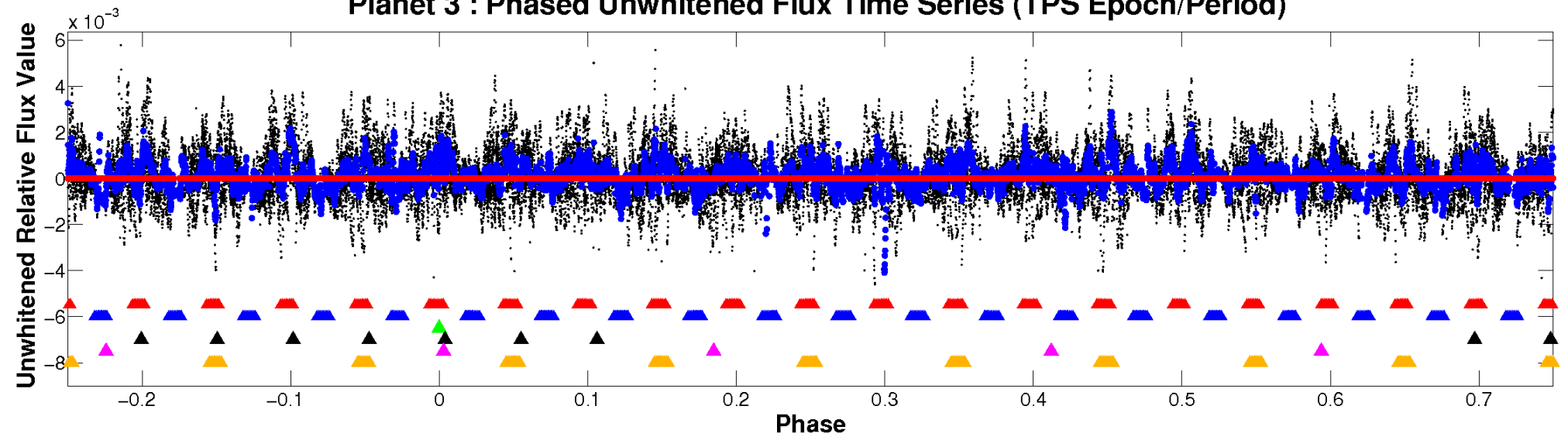
ALT Odd/Even

TCE 010031808-03

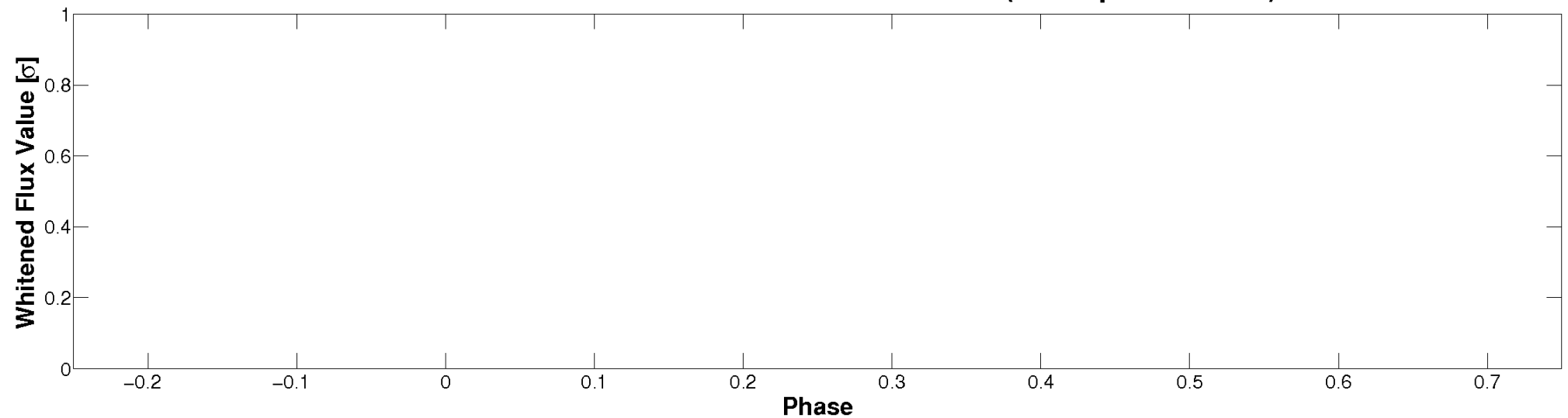


Non-Whitened Vs. Whitened Light Curve

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

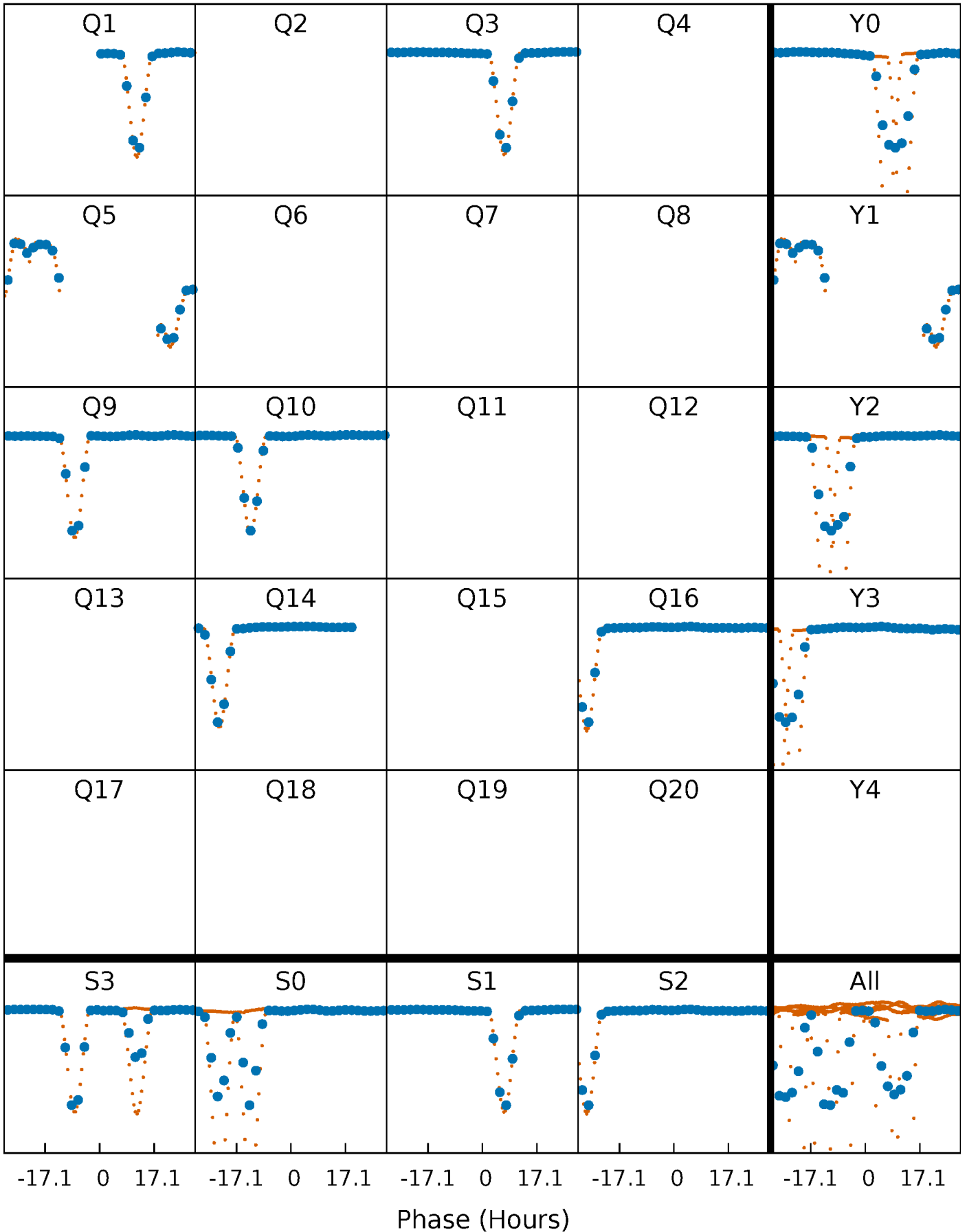


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



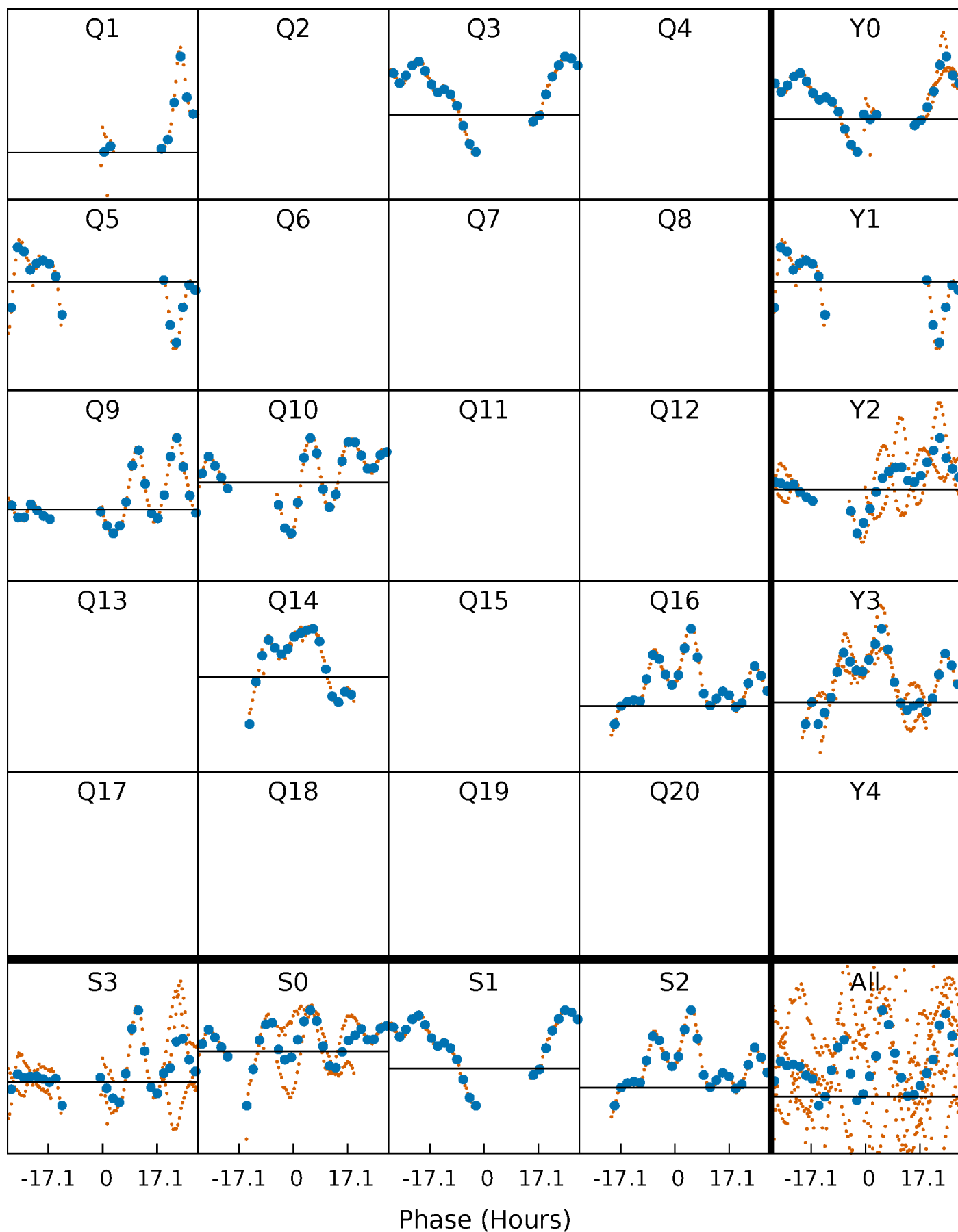
PDC Quarter-Phased Transit Curves

TCE 010031808-03 $P=171.996086$ Days $T_0=131.531427$ (BKJD)



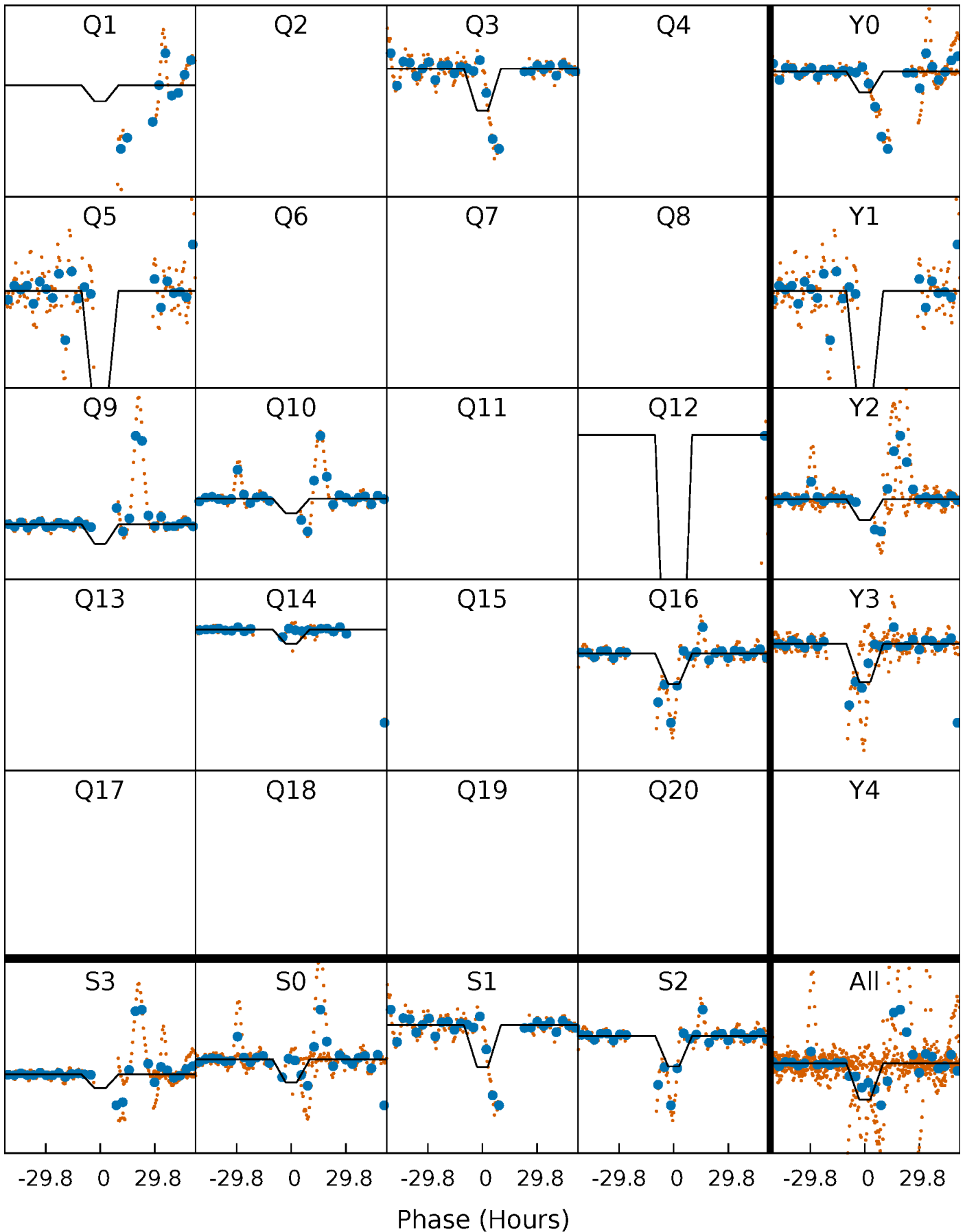
DV Quarter-Phased Transit Curves

TCE 010031808-03 P=171.996086 Days $T_0=131.531427$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

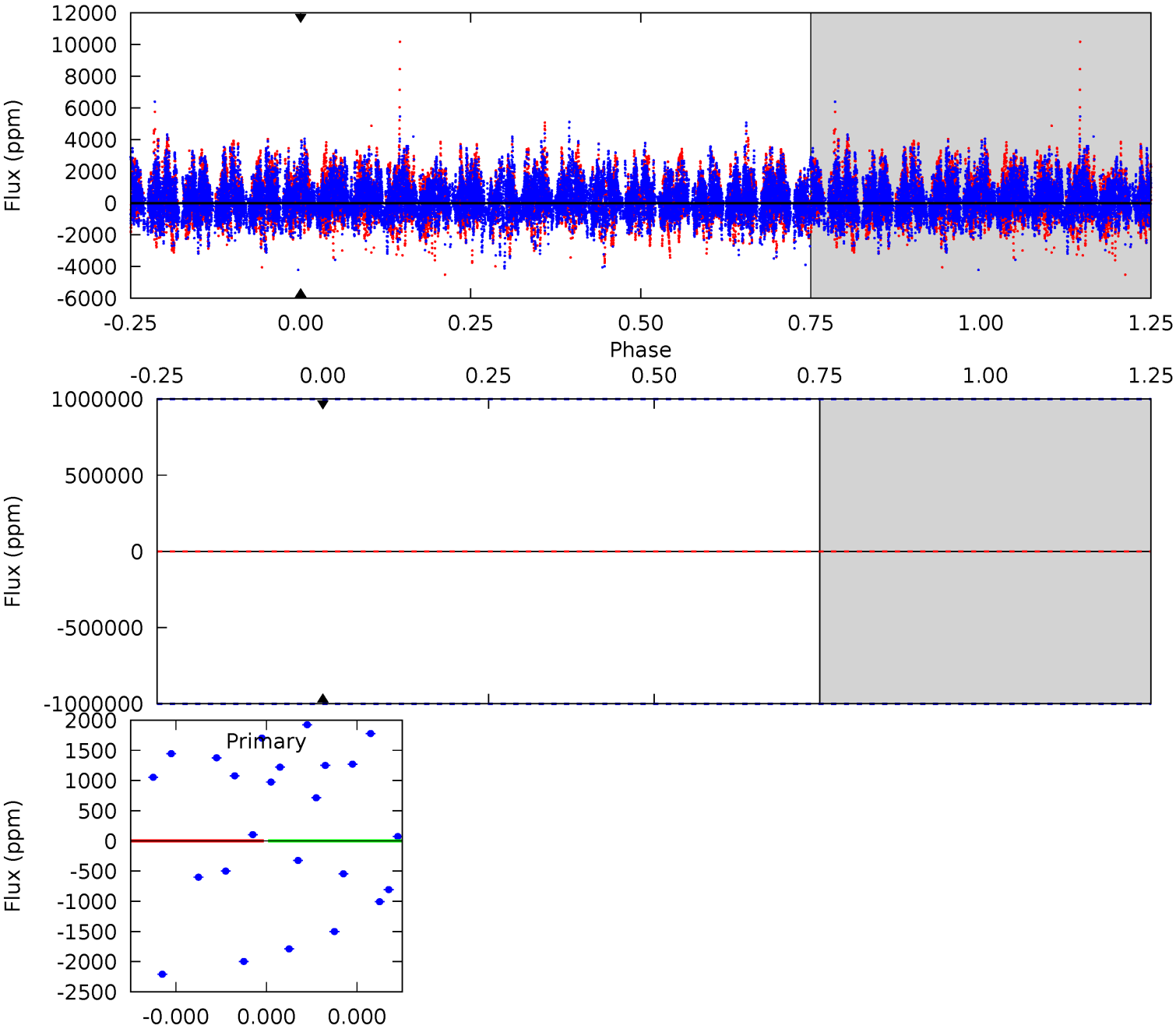
TCE 010031808-03 $P=171.996086$ Days $T_0=303.106278$ (BKJD)



DV Model-Shift Uniqueness Test

010031808-03, P = 171.996086 Days, E = 131.531427 Days

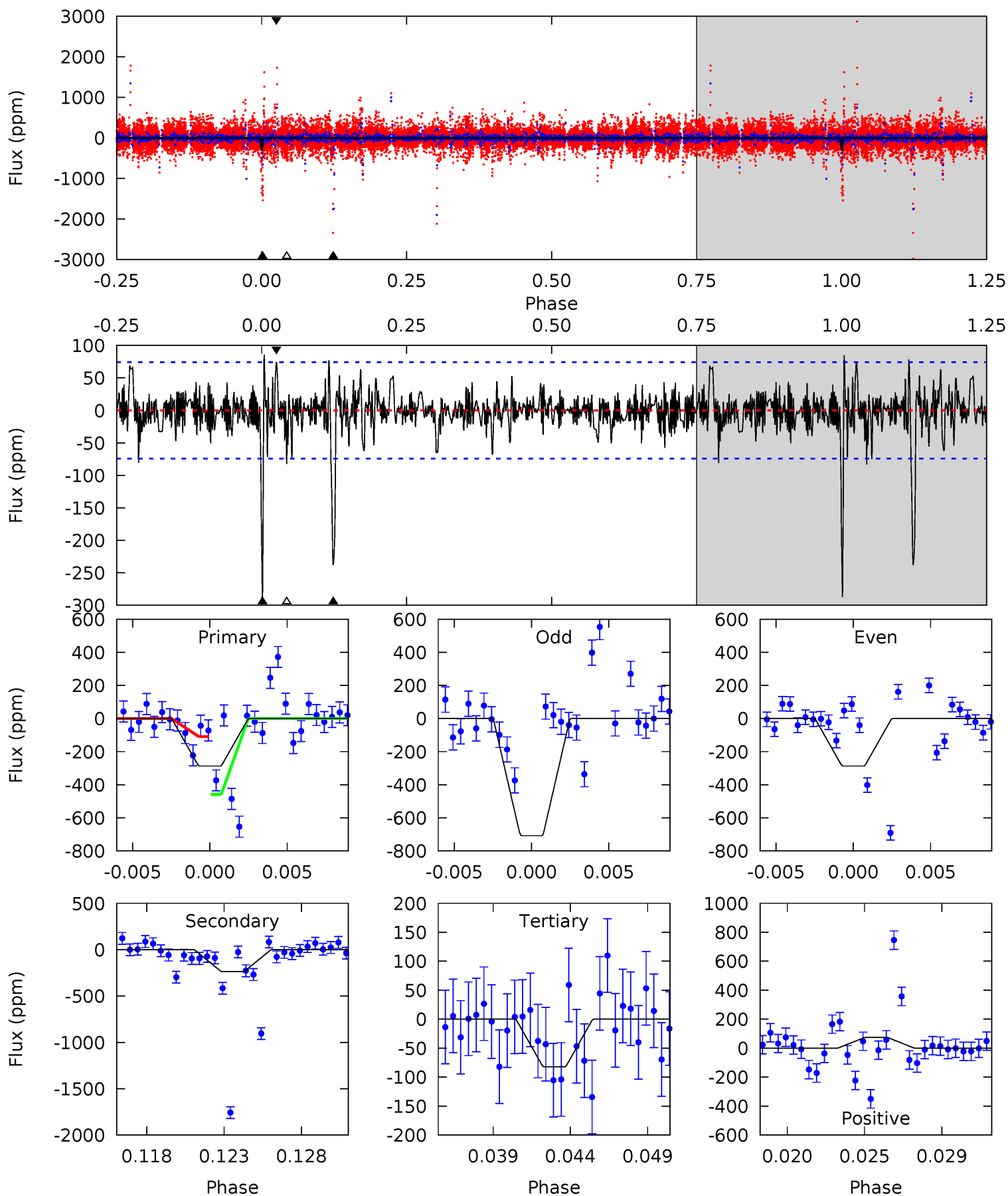
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010031808-03, P = 171.996086 Days, E = 131.110192 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	16.5	5.72	5.15	5.16	2.81	1.28	14.3	14.8	10.8	11.4	13.7	29.4	0.23	0



Stellar Parameters For KIC 010031808

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6331^{+204}_{-227}	$3.813^{+0.569}_{-0.134}$	$-0.560^{+0.300}_{-0.300}$	$2.194^{+0.483}_{-1.126}$	$1.142^{+0.161}_{-0.261}$	$0.152^{+0.992}_{-0.062}$
	+3%/-4%	+15%/-4%	+54%/-54%	+22%/-51%	+14%/-23%	+652%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010031808-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$16.53^{+18.51}_{-11.28}$	712^{+53}_{-98}	-4108^{+34682}_{-18511}	$-441.560^{+240468.211}_{-124532.329}$
Alt.	-238 ± 14	$16.50^{+17.64}_{-11.40}$	699^{+65}_{-103}	3326^{+1709}_{-603}	192^{+1721}_{-149}

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

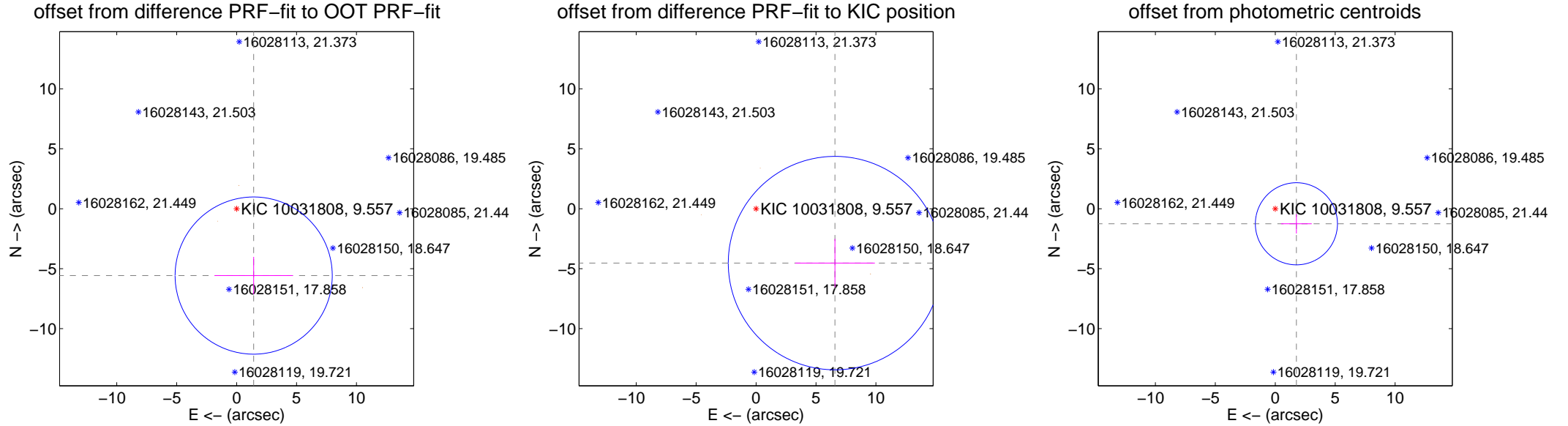
DV Centroid Data

Supplemental centroid analysis for 010031808-03. **Kepler magnitude: 9.56.** 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 1.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.755 ± 2.186	2.63	-1.424 ± 3.264	-5.576 ± 1.556
PRF-fit source offset from KIC position	7.996 ± 2.968	2.69	-6.585 ± 3.324	-4.536 ± 2.019
photometric centroid source offset	2.17 ± 1.14	1.90	-1.77 ± 1.28	-1.26 ± 0.81



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.

Q1 no difference image



Q1 no OOT image



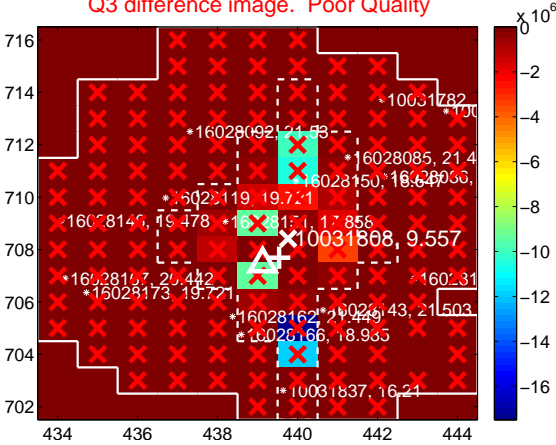
Q2 no difference image



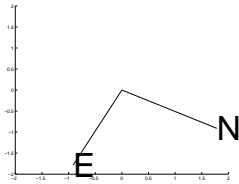
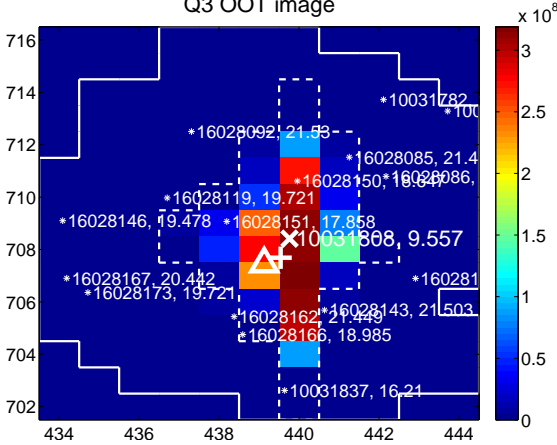
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



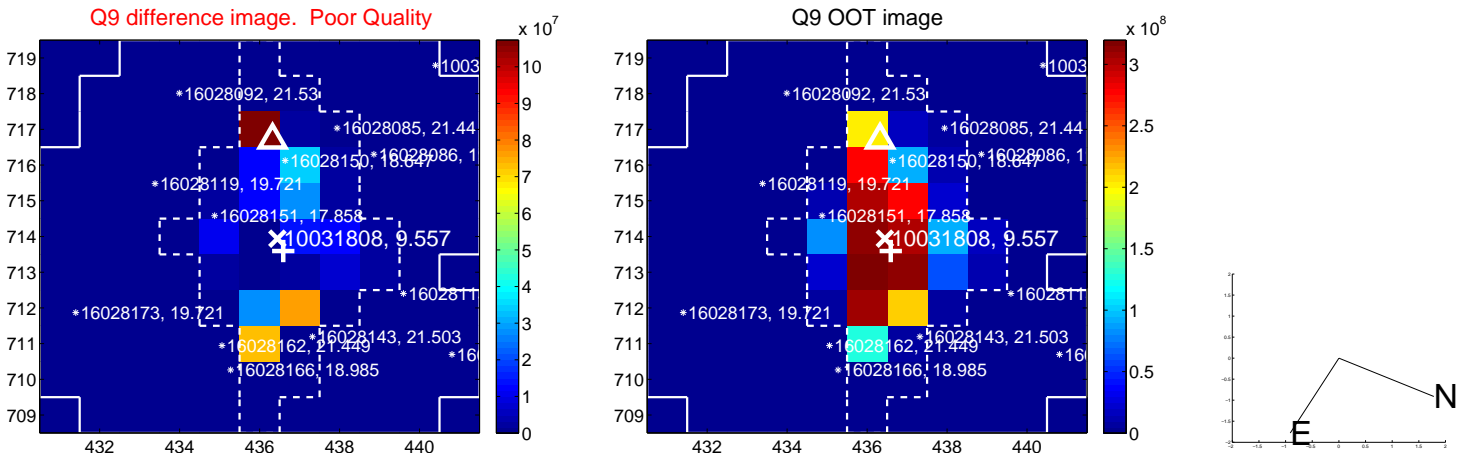
Q4 no OOT image



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



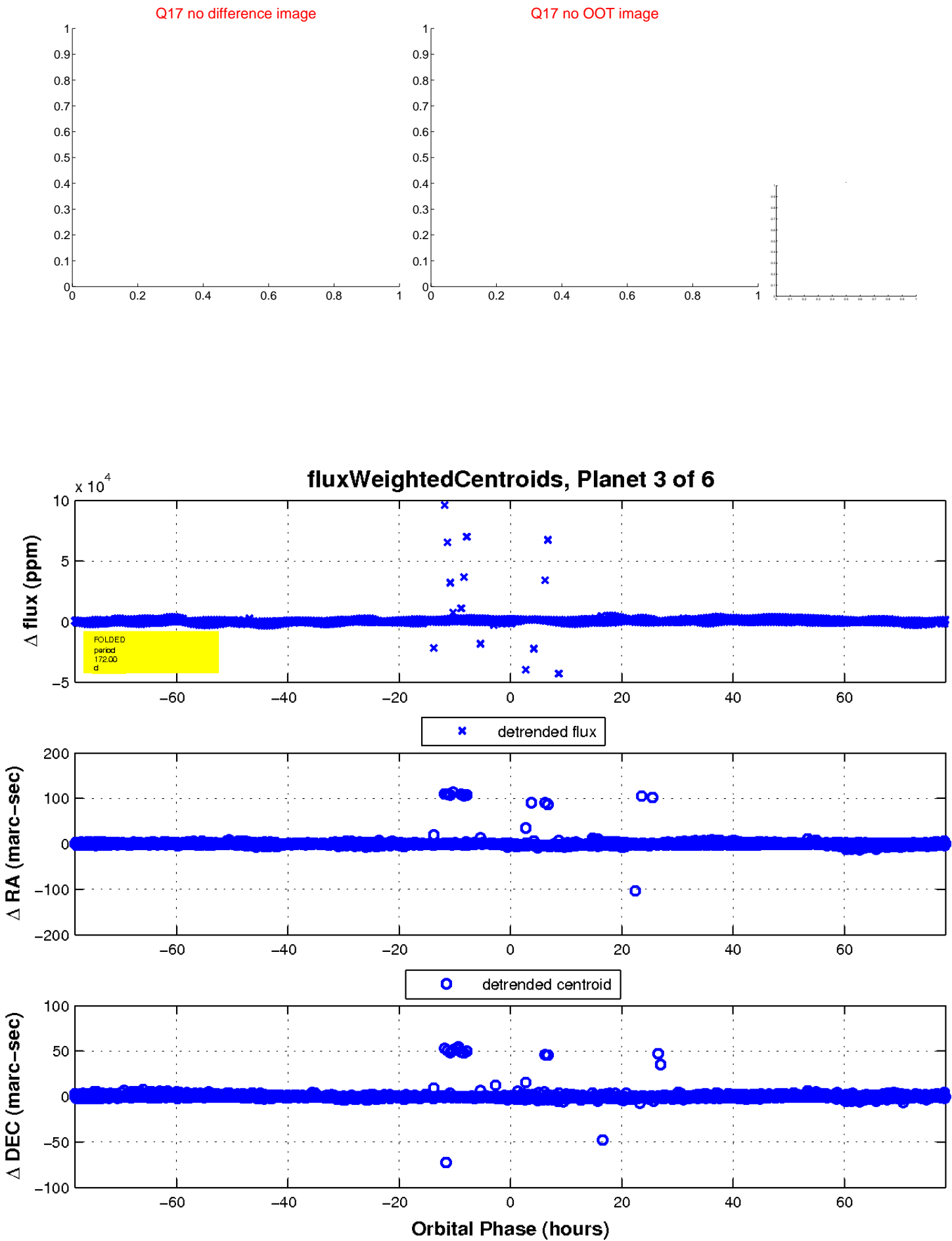
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

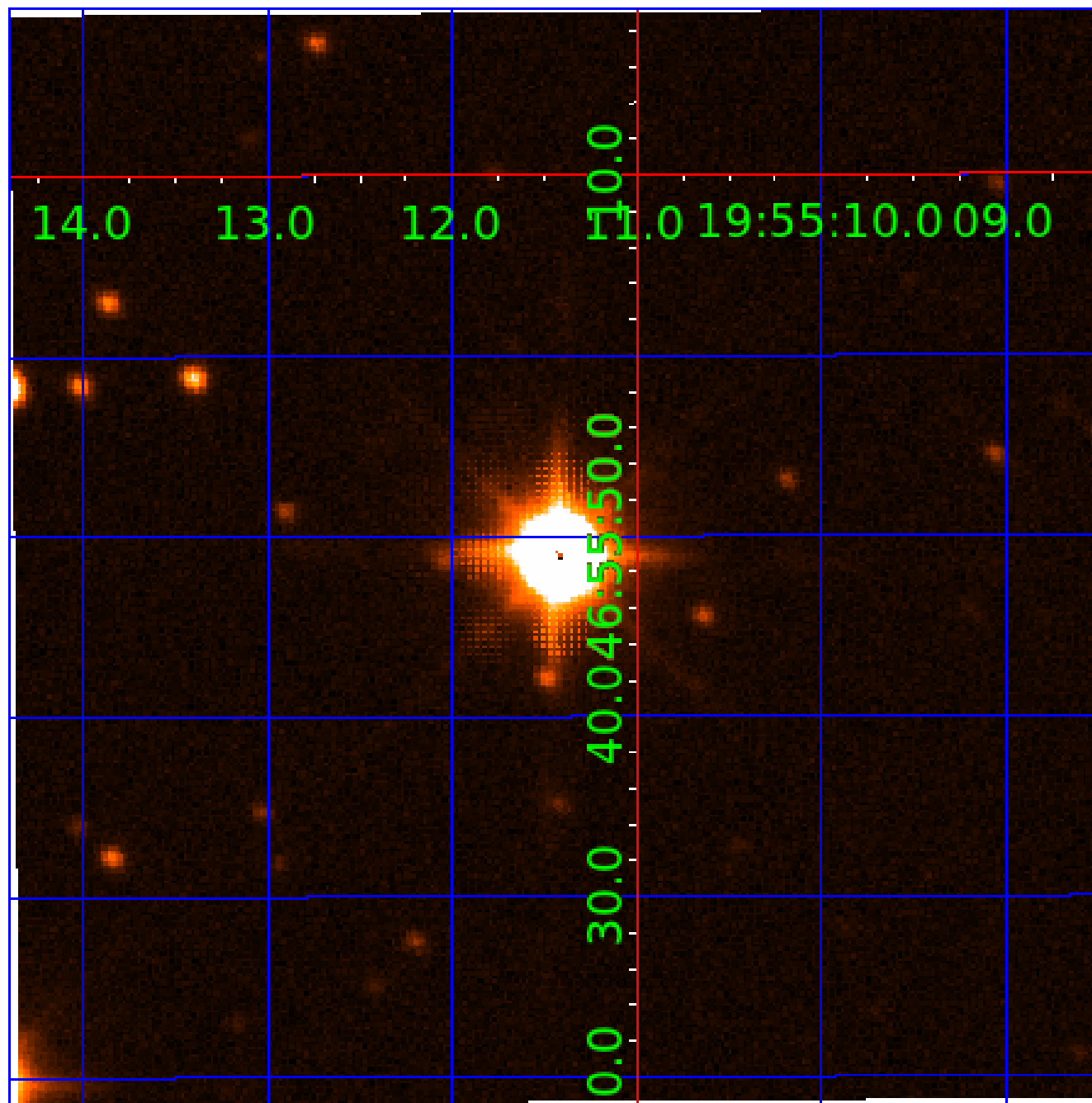


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010031808

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})
010031808-01	OBS	7278.01	8.589558	132.004805	270138.7	5.000	1585.6	-1.0	2.19	6331	11.73	941.12
010031808-02	OBS	No	8.589620	136.206892	80697.2	12.943	491.4	1153.4	2.19	6331	103.01	941.12
010031808-03	OBS	No	171.996086	131.531427	997.1	15.000	169.3	-1.0	2.19	6331	6.96	17.31
010031808-04	OBS	No	163.199823	149.810888	3848.3	7.053	190.3	20.1	2.19	6331	24.72	18.56
010031808-05	OBS	No	273.630792	374.404276	1189.4	4.505	160.7	6.4	2.19	6331	13.88	9.32
010031808-06	OBS	No	17.180044	140.850779	923.4	2.000	96.7	-1.0	2.19	6331	6.71	373.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010031808-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_SATURATED
010031808-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
010031808-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010031808-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_SATURATED
010031808-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010031808-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_SATURATED

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.

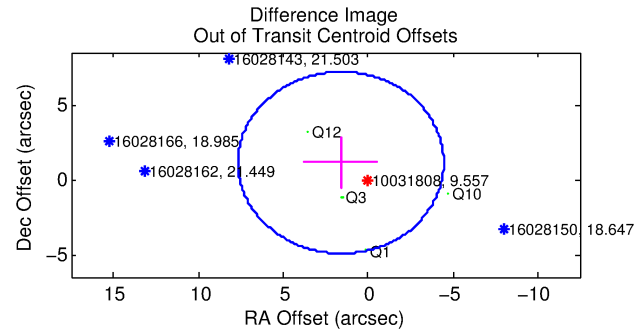
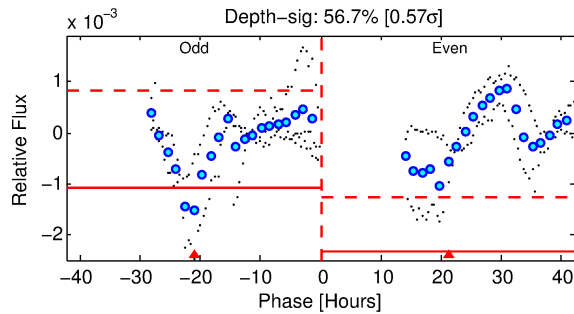
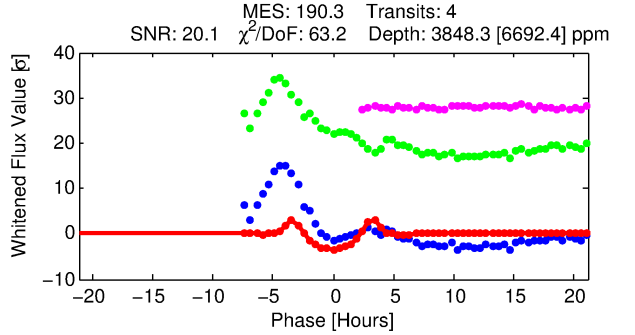
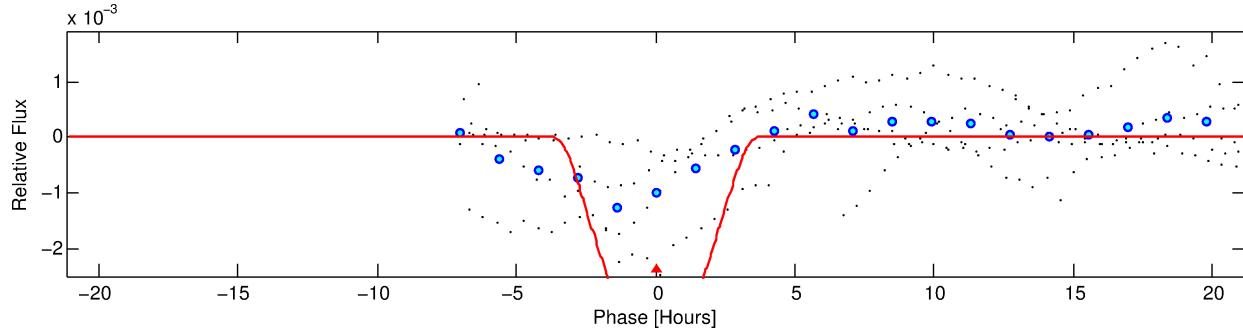
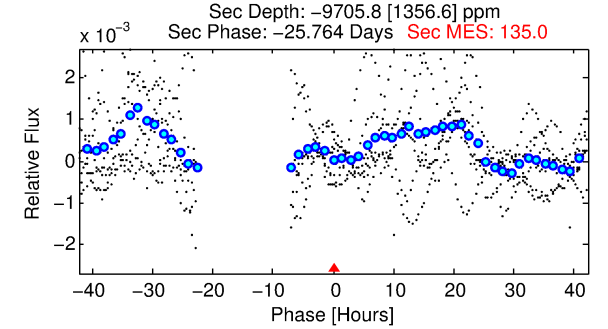
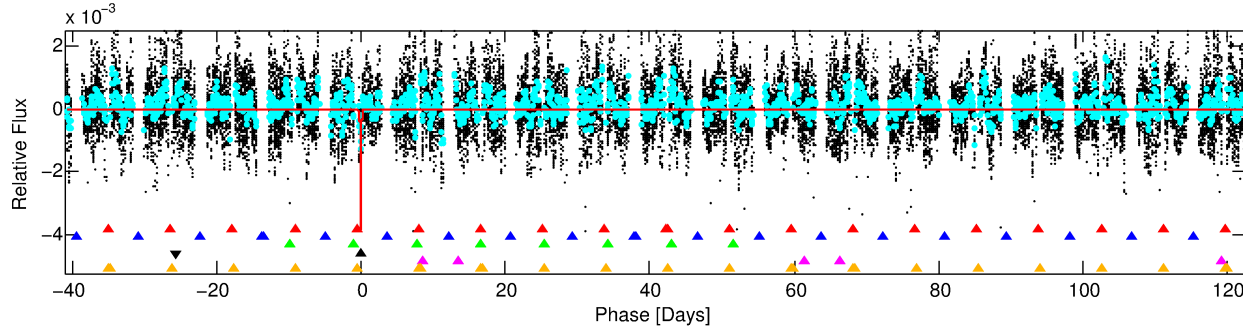
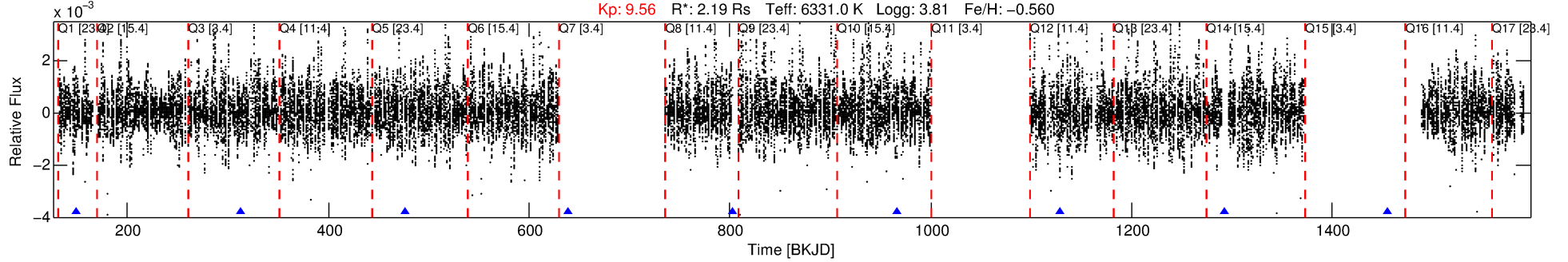
Ephemeris Match Information For 010031808-04

No Significant Match Found

DV One-Page Summary

KIC: 10031808 Candidate: 4 of 6 Period: 163.200 d
KOI: K07278 Corr: No Ephemeris Match

Kp: 9.56 R*: 2.19 Rs Teff: 6331.0 K Logg: 3.81 Fe/H: -0.560



DV Fit Results:

Period = 163.19982 [0.00675] d
Epoch = 149.8109 [0.0244] BKJD
Rp/R* = 0.1032 [0.3537]
a/R* = 82.38 [51.92]
b = 1.00 [0.39]
Seff = 18.56 [17.62]
Teq = 529 [126] K
Rp = 24.72 [85.63] Re
a = 0.6109 [0.3389] AU
Ag = N/A
Teffp = N/A

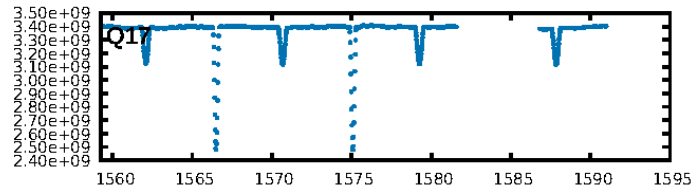
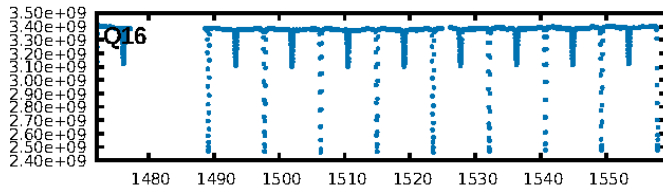
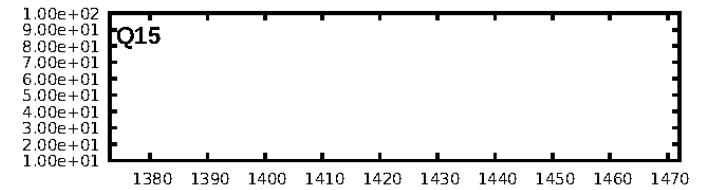
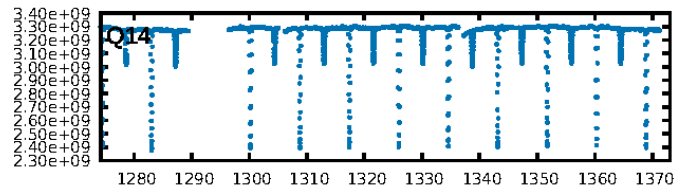
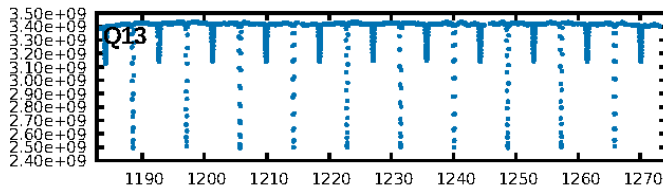
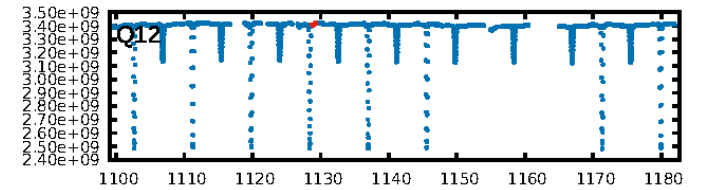
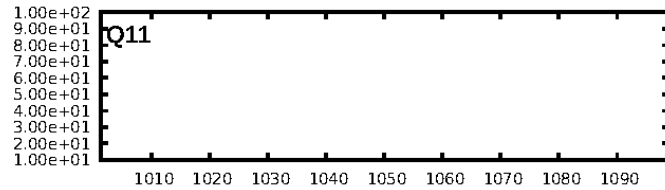
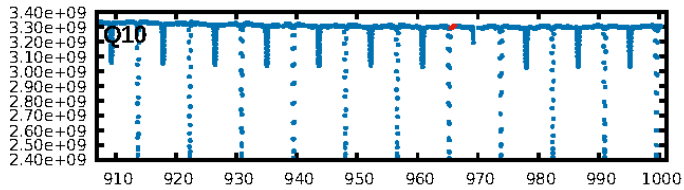
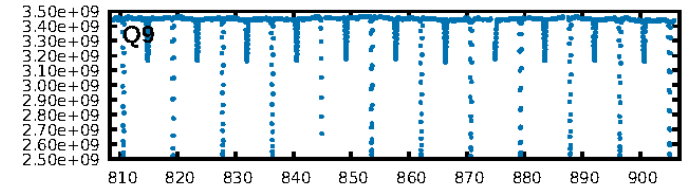
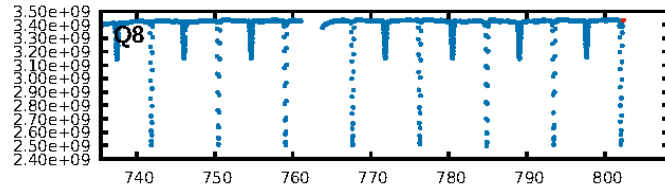
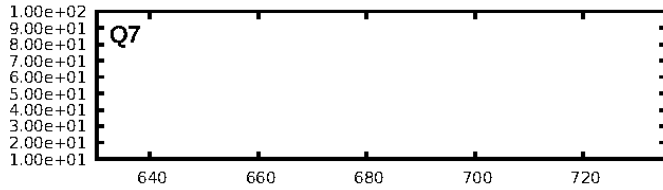
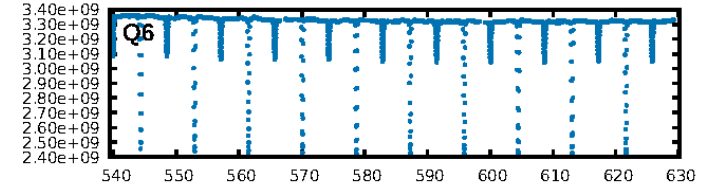
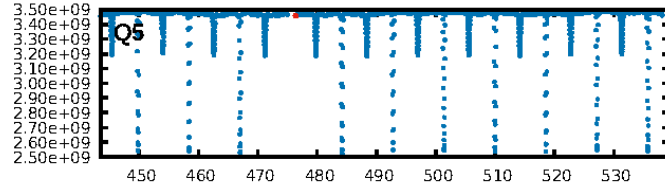
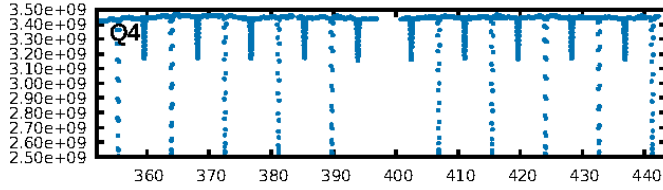
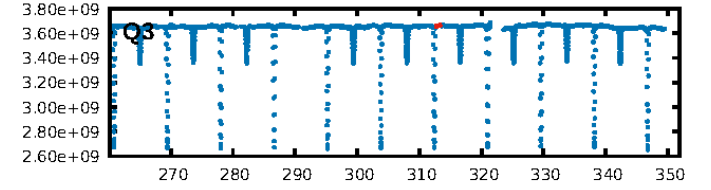
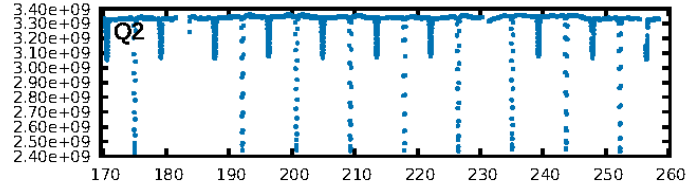
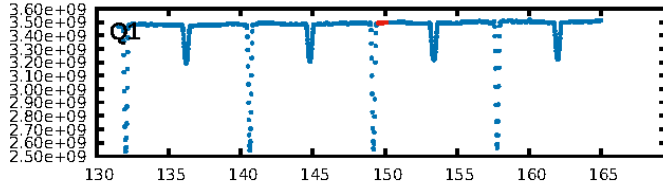
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [478.02σ]
LongPeriod-sig: 100.0% [12.74σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.570 arcsec [5.07σ]
OotOffset-rm: 1.955 arcsec [0.97σ]
KicOffset-rm: 4.326 arcsec [2.78σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/4]

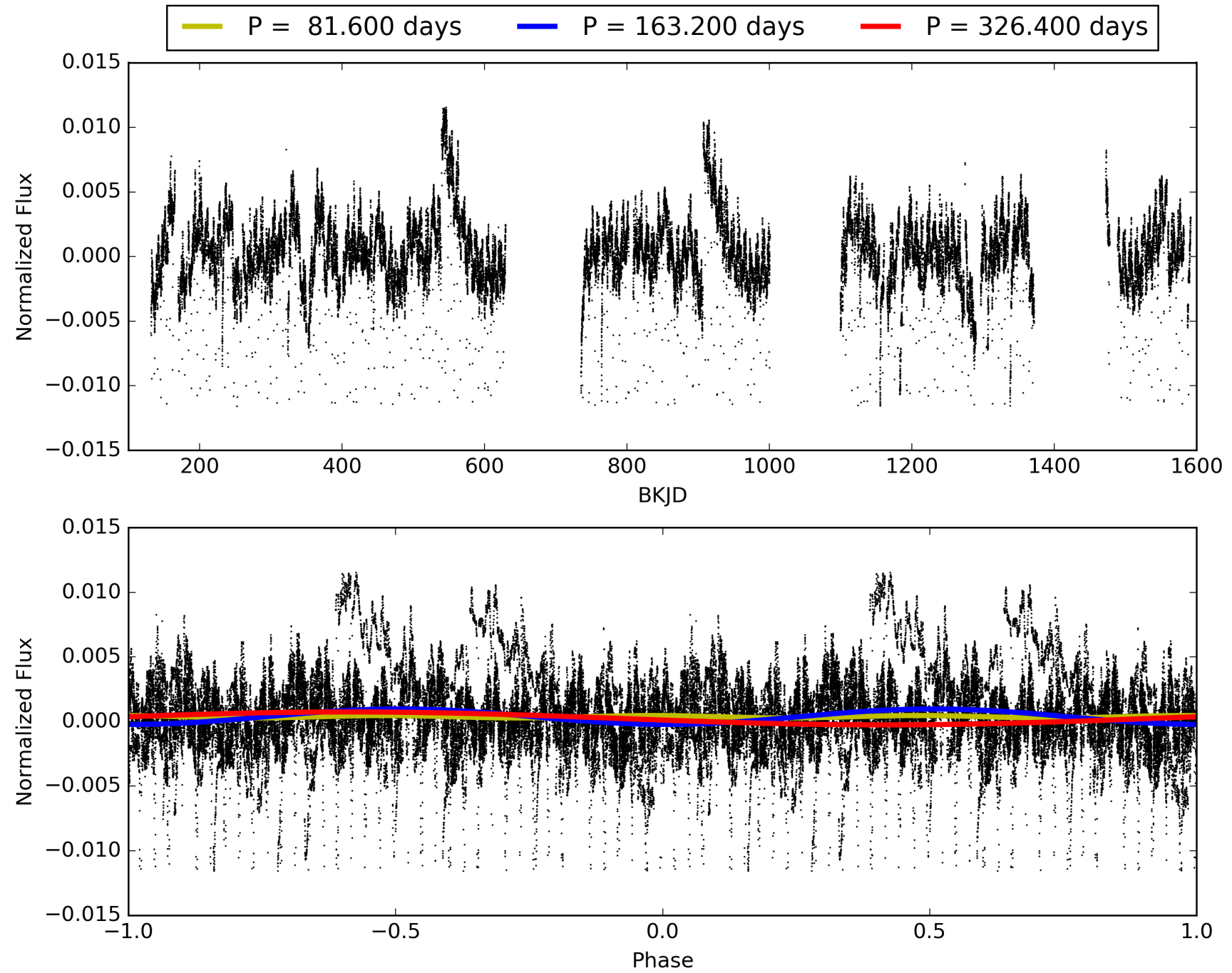
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:25:45 Z

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

TCE 010031808-04, PDC Light Curves

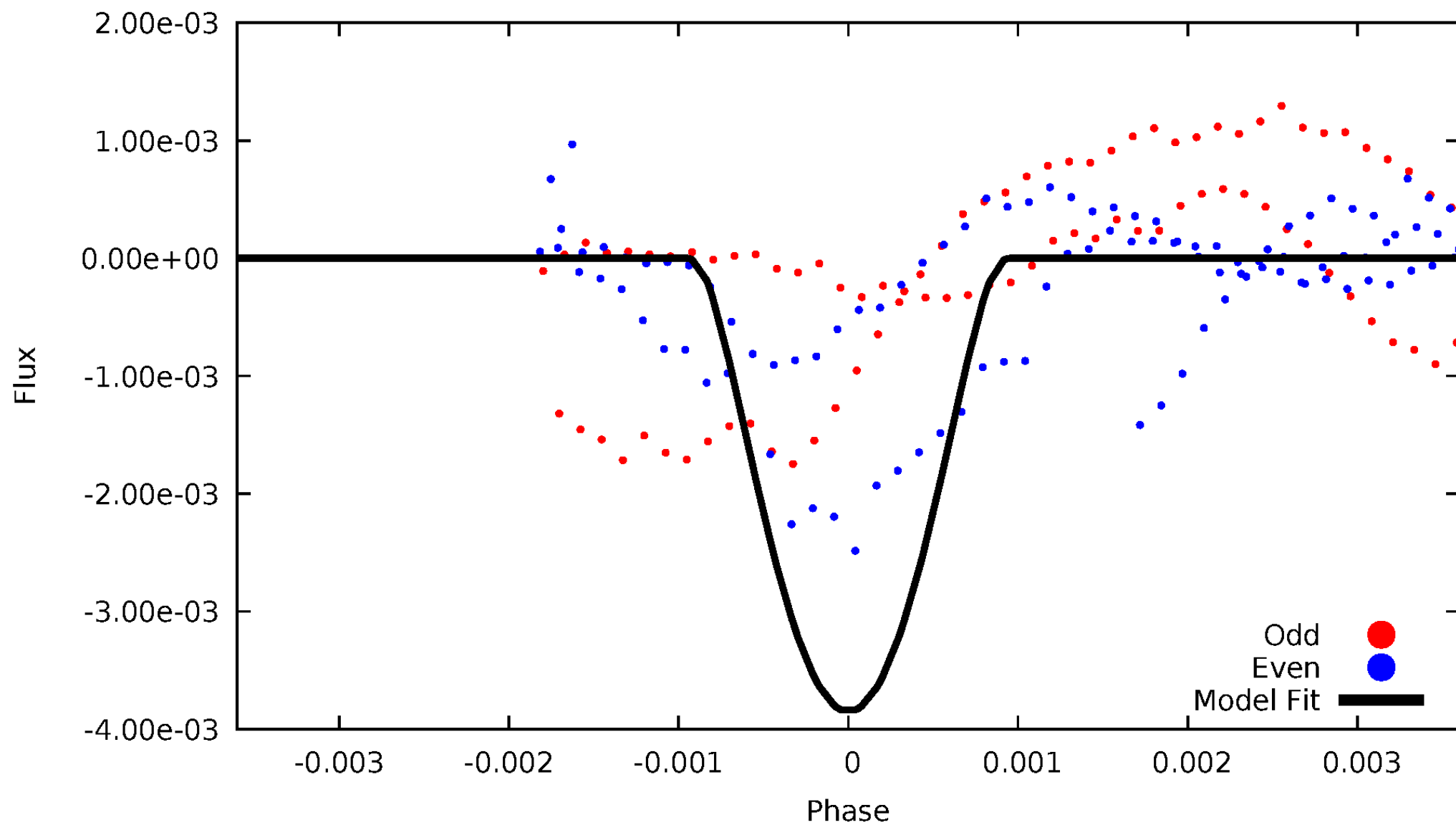


TCE 010031808-04



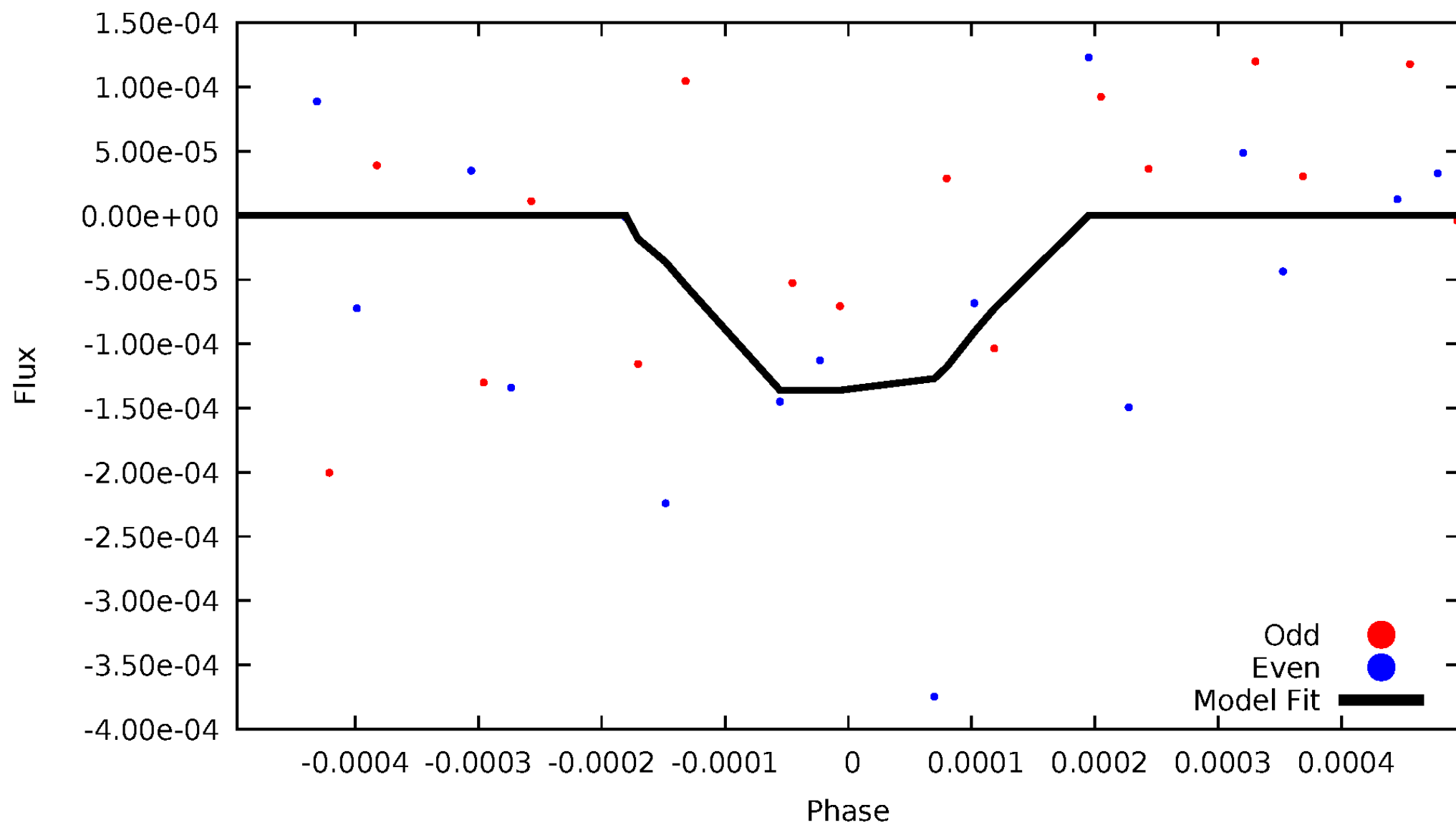
DV Odd/Even

TCE 010031808-04



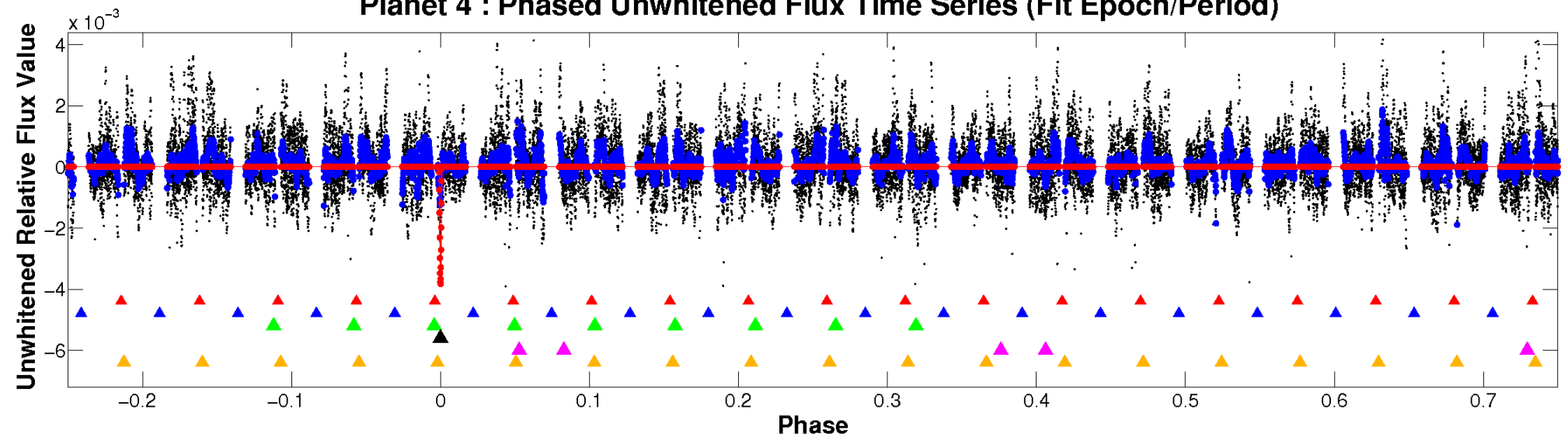
ALT Odd/Even

TCE 010031808-04

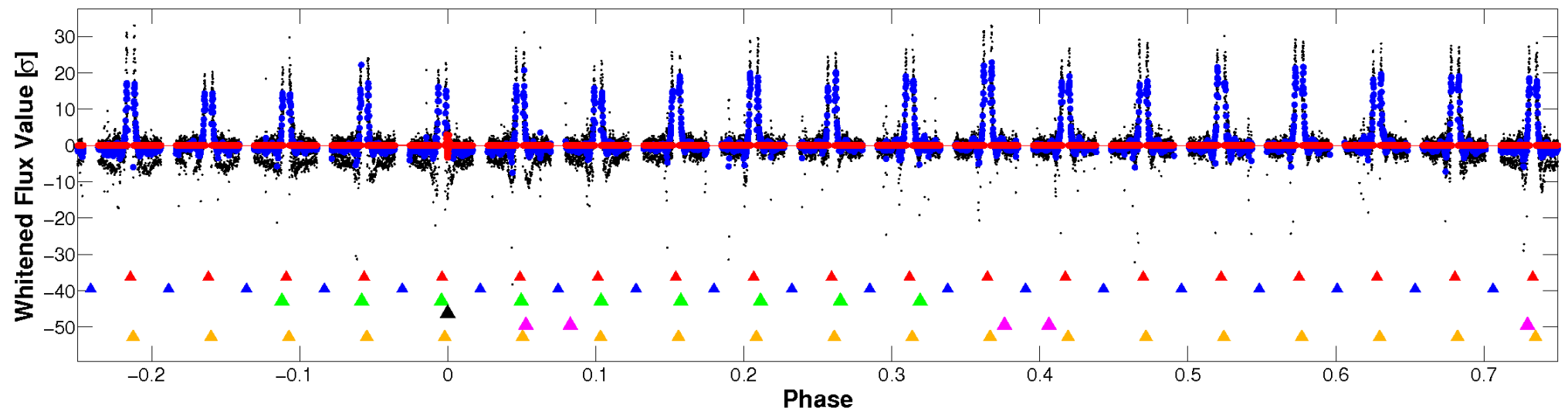


Non-Whitened Vs. Whitened Light Curve

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

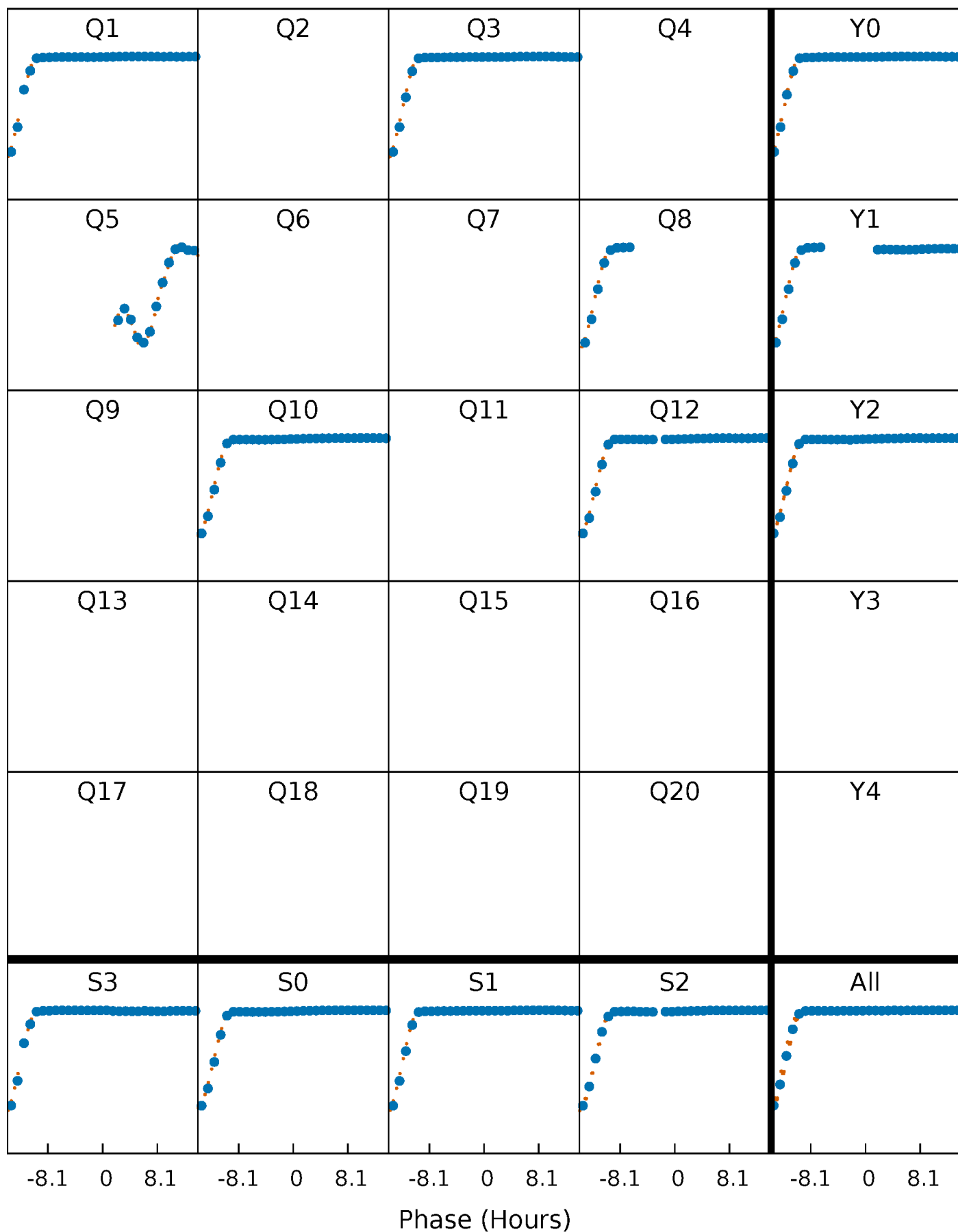


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



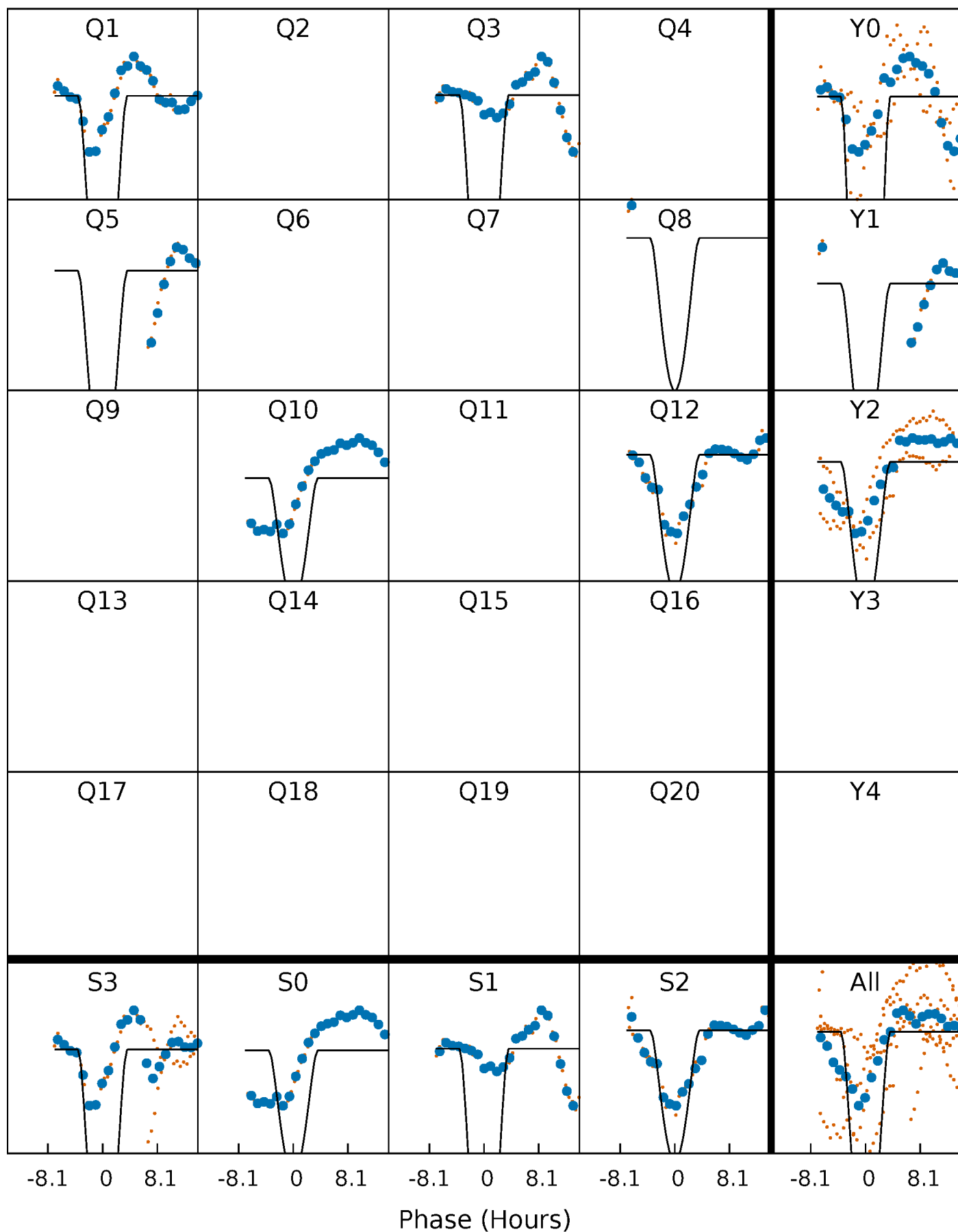
PDC Quarter-Phased Transit Curves

TCE 010031808-04 $P=163.199823$ Days $T_0=149.810888$ (BKJD)



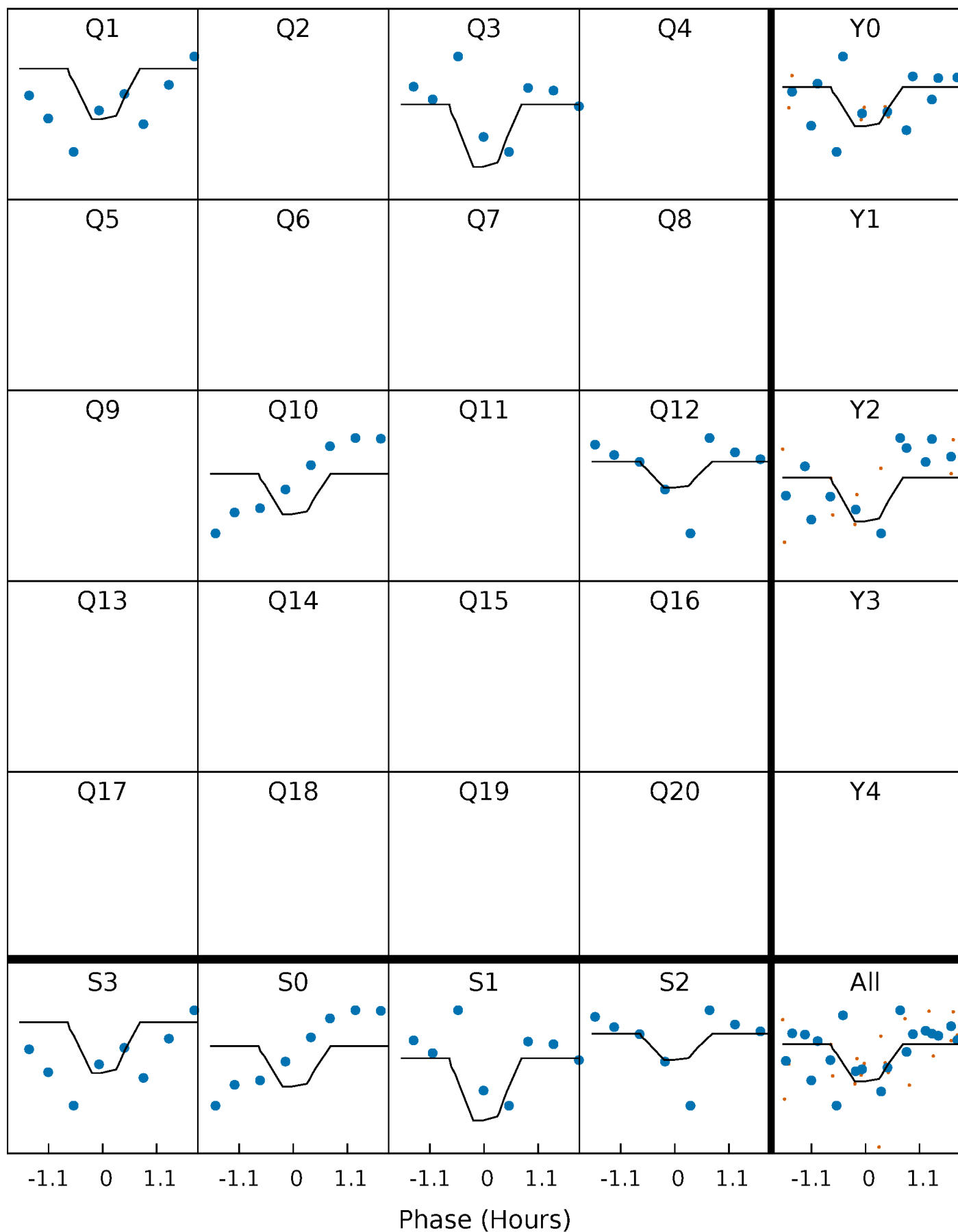
DV Quarter-Phased Transit Curves

TCE 010031808-04 $P=163.199823$ Days $T_0=149.810888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

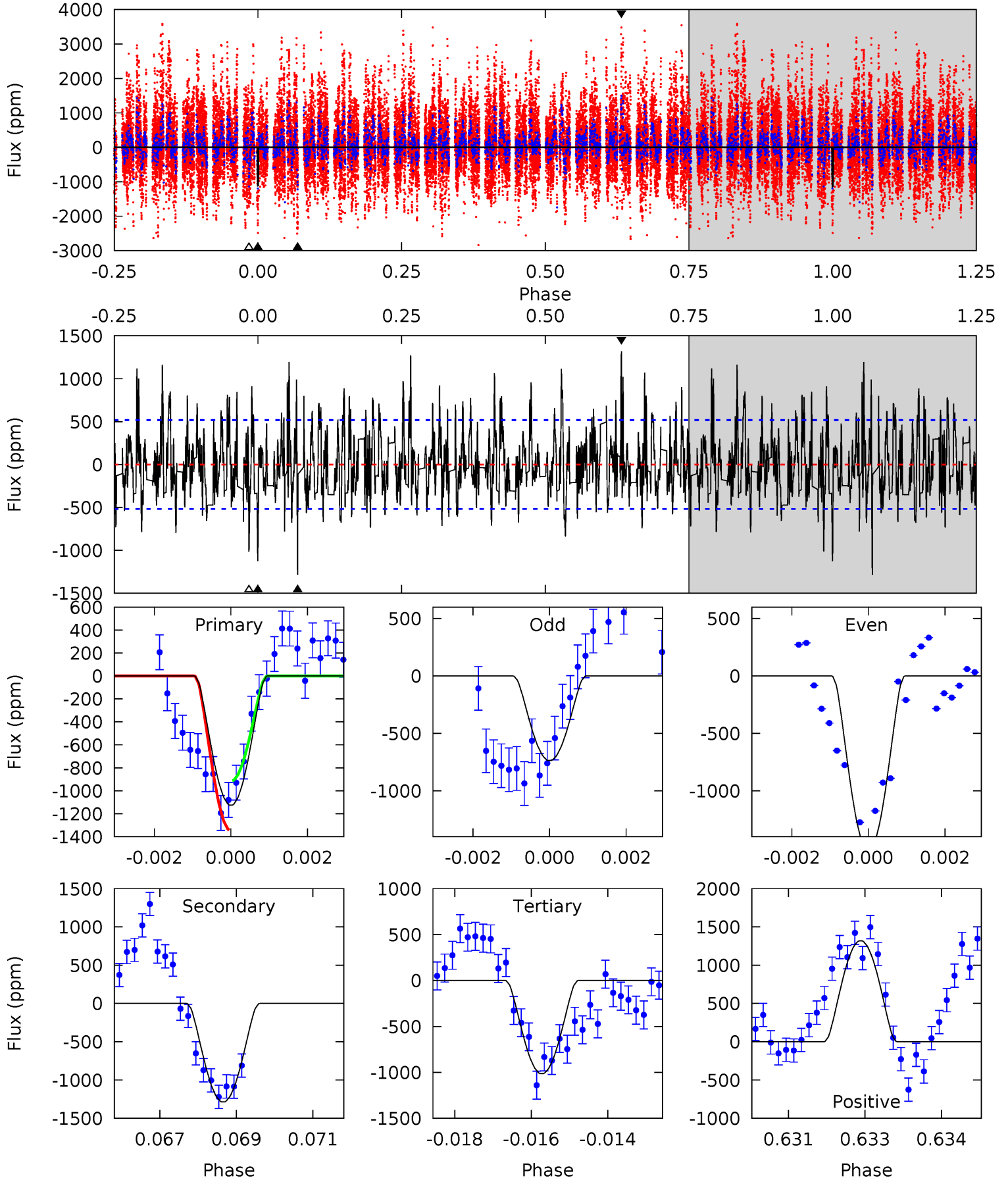
TCE 010031808-04 P=163.200148 Days $T_0=149.804268$ (BKJD)



DV Model-Shift Uniqueness Test

010031808-04, P = 163.199823 Days, E = 149.810888 Days

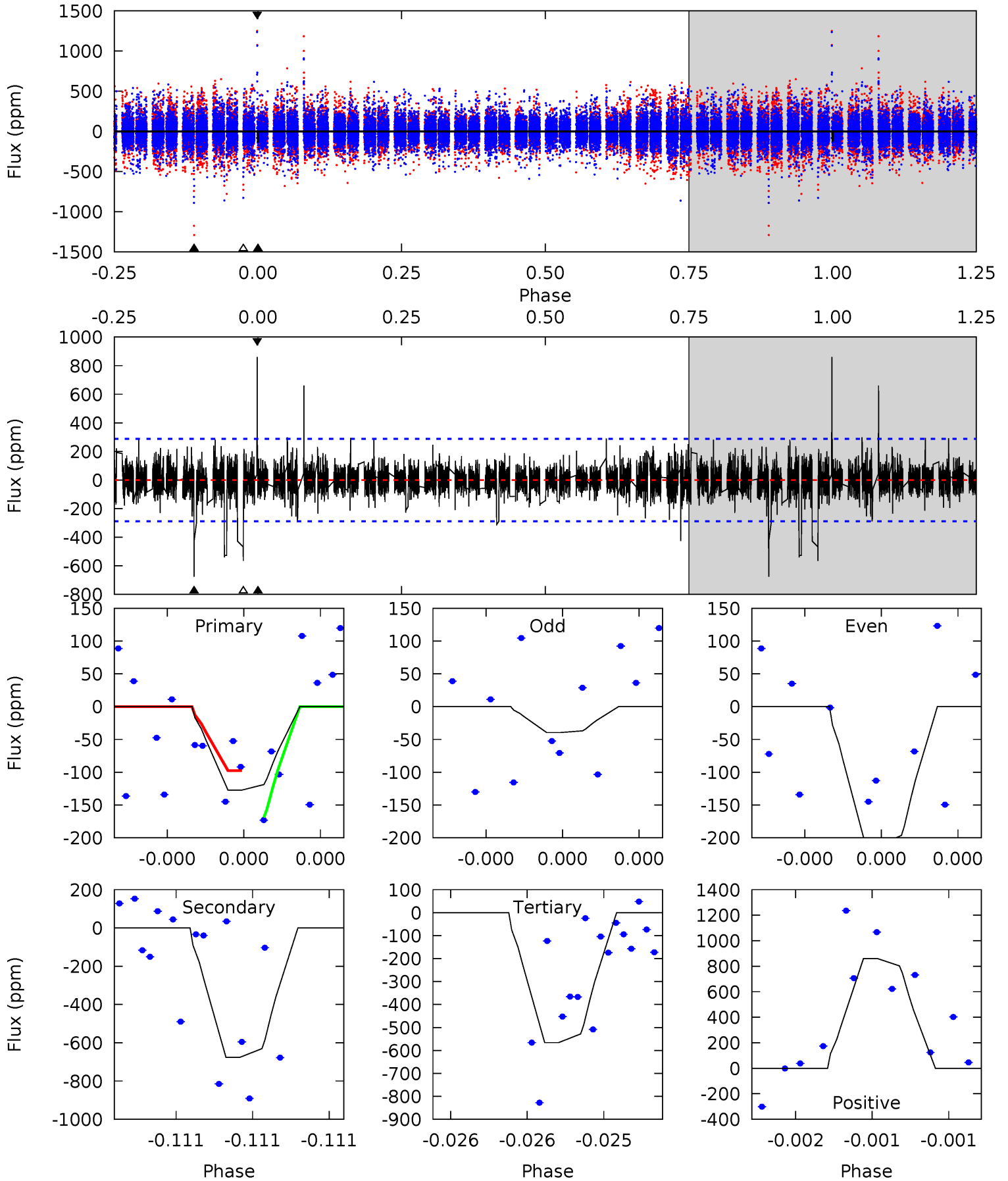
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	13.2	10.4	13.6	5.33	3.09	3.52	1.15	-1.98	2.80	-0.33	4.04	1.23	0.51	2.22



Alt Model-Shift Uniqueness Test

010031808-04, P = 163.200148 Days, E = 149.804268 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.51	13.3	11.2	17.0	5.68	3.65	1.35	-8.65	-14.5	2.17	-3.63	1.57	1.21	0.56	0.70



Stellar Parameters For KIC 010031808

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6331^{+204}_{-227}	$3.813^{+0.569}_{-0.134}$	$-0.560^{+0.300}_{-0.300}$	$2.194^{+0.483}_{-1.126}$	$1.142^{+0.161}_{-0.261}$	$0.152^{+0.992}_{-0.062}$
	+3%/-4%	+15%/-4%	+54%/-54%	+22%/-51%	+14%/-23%	+652%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010031808-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1286 ± 97	$57.20^{+70.10}_{-42.14}$	718^{+63}_{-110}	2945^{+1601}_{-482}	78^{+1092}_{-61}
Alt.	-676 ± 51	$52.64^{+60.17}_{-37.11}$	714^{+64}_{-98}	2793^{+1228}_{-467}	50^{+525}_{-39}

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

DV Centroid Data

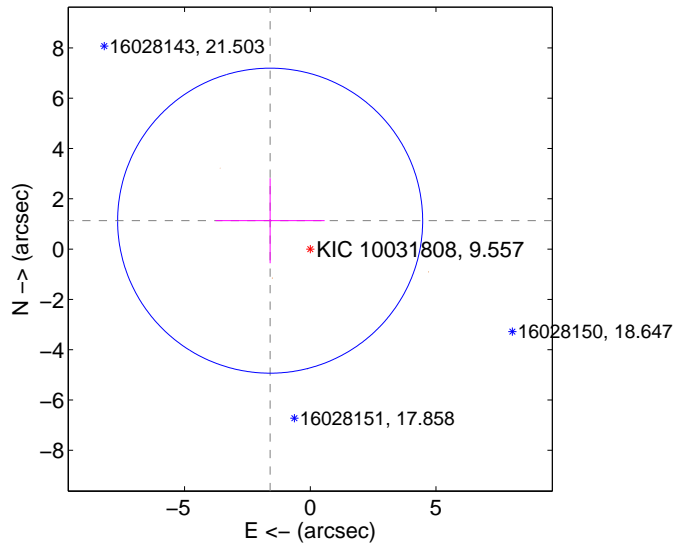
Supplemental centroid analysis for 010031808-04. **Kepler magnitude: 9.56.** Transit SNR 20.10

There are 0 quarters with good PRF difference image offsets

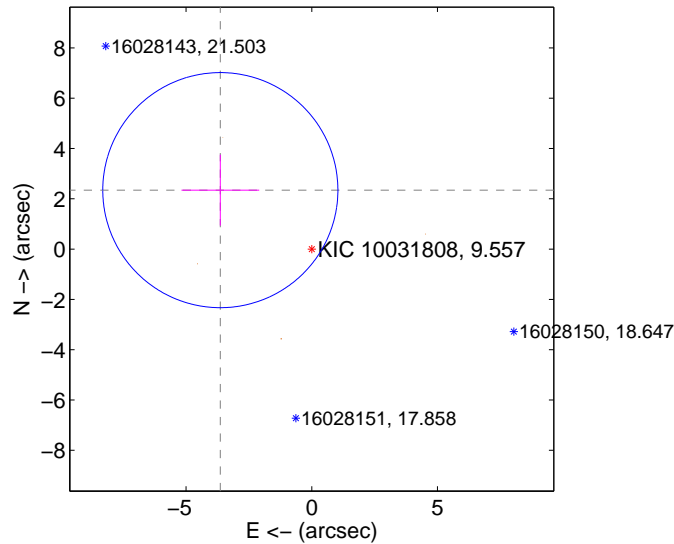
The direct PRF centroid is offset from the target star catalog position by about 1.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.955 ± 2.022	0.97	1.596 ± 2.168	1.130 ± 1.691
PRF-fit source offset from KIC position	4.326 ± 1.558	2.78	3.635 ± 1.547	2.345 ± 1.409
photometric centroid source offset	0.57 ± 0.11	5.07	0.34 ± 0.15	0.45 ± 0.08

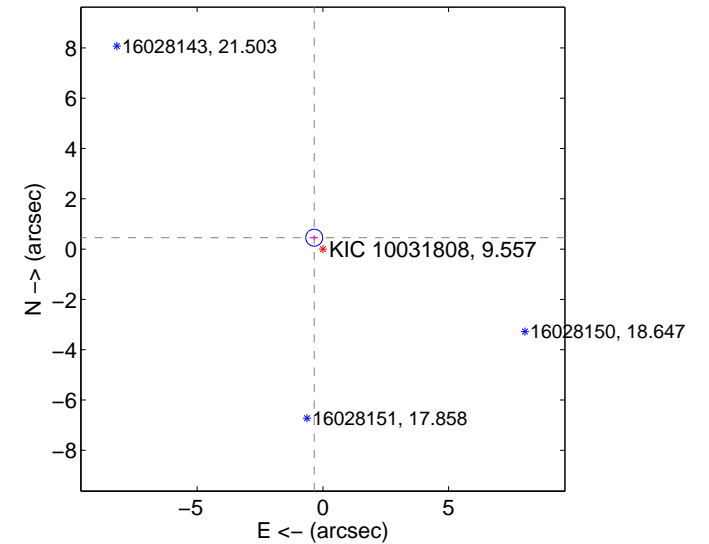
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

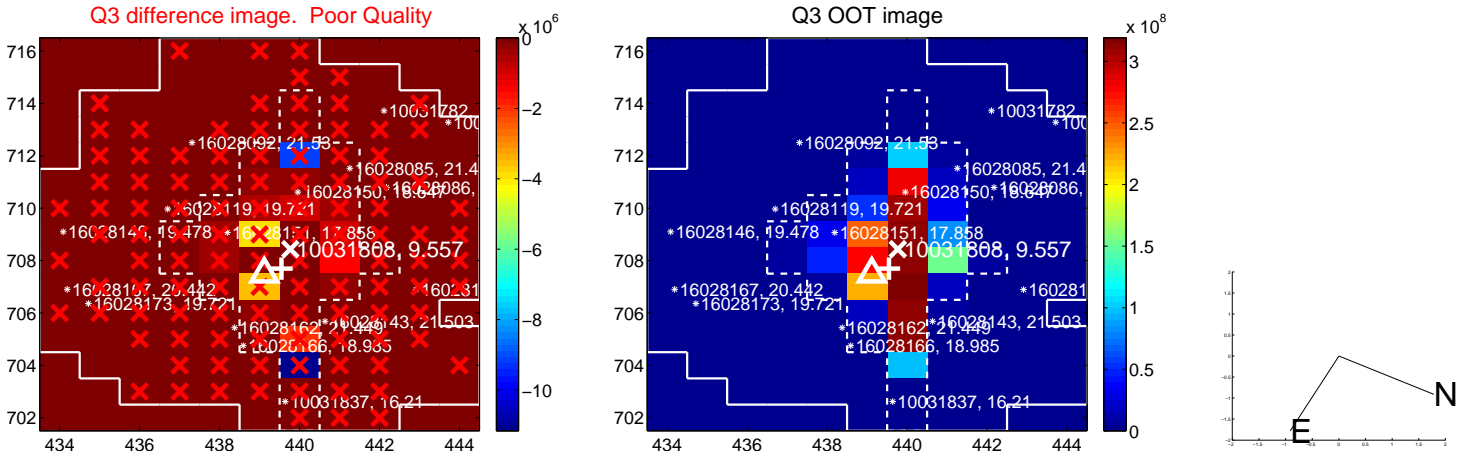
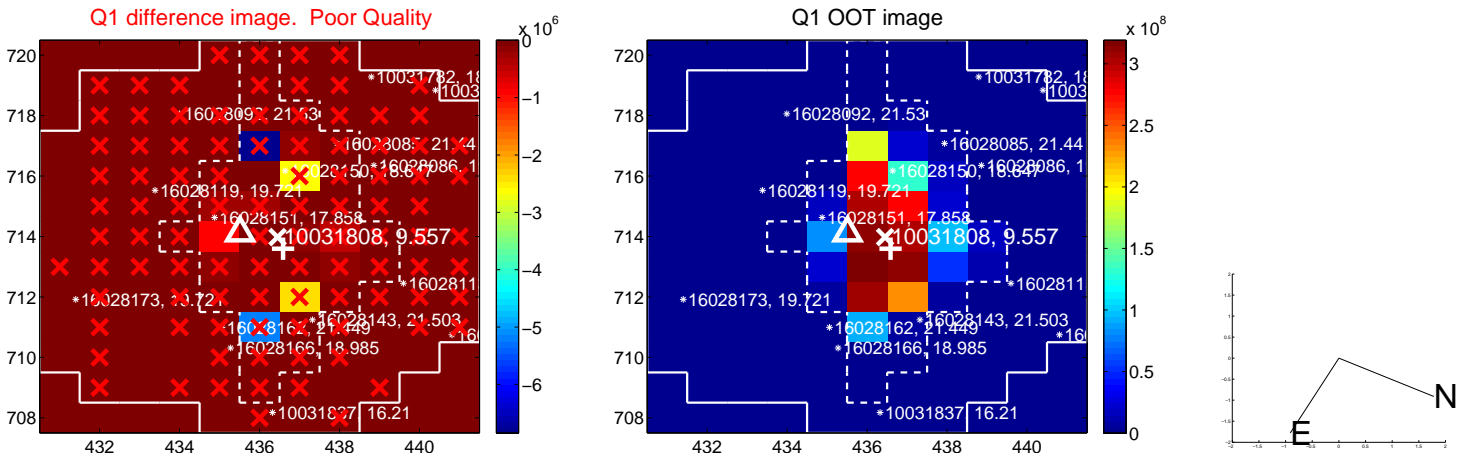


offset from photometric centroids



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; Δ : 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.

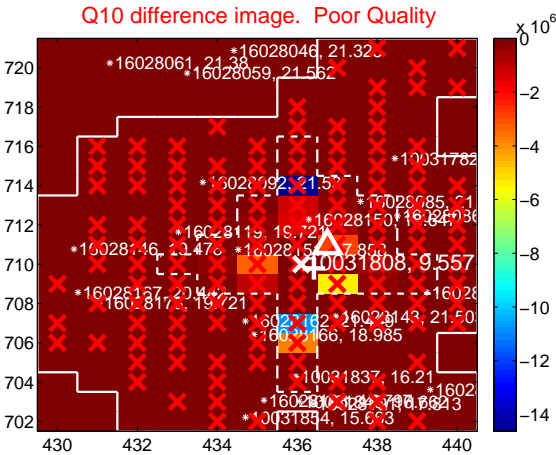
Q9 no difference image



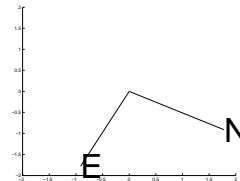
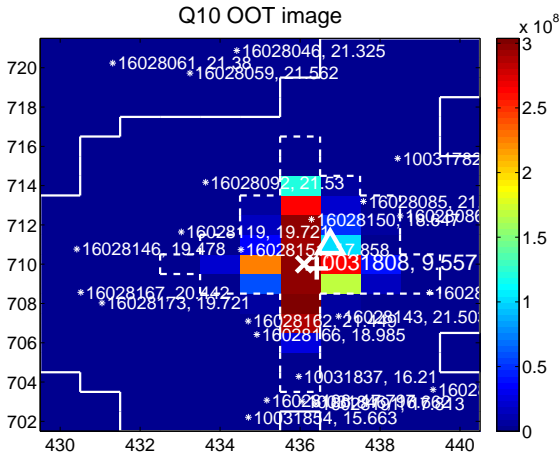
Q9 no OOT image



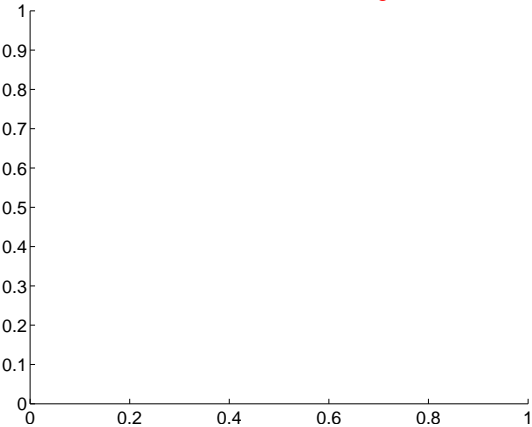
Q10 difference image. Poor Quality



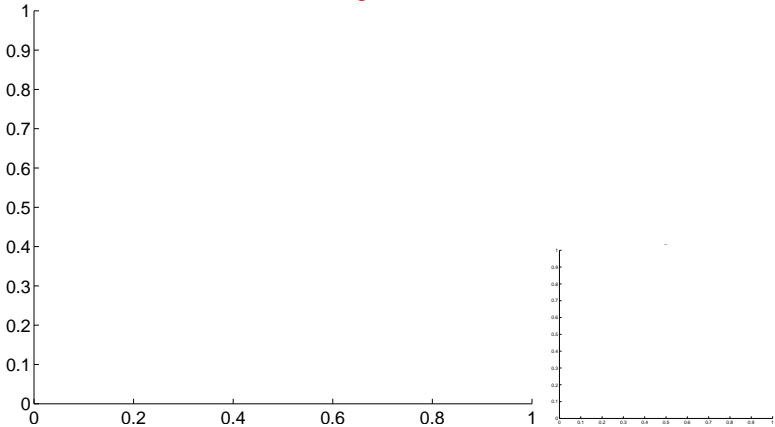
Q10 OOT image



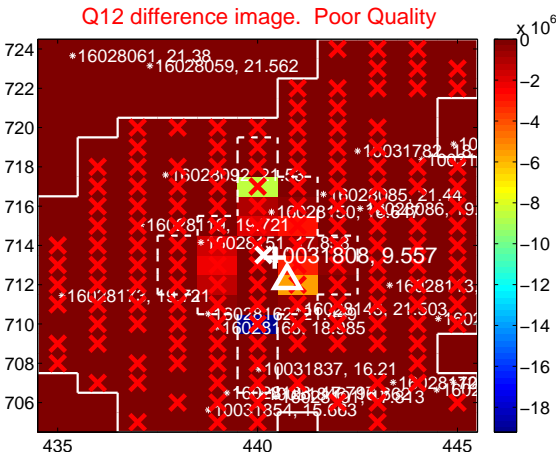
Q11 no difference image



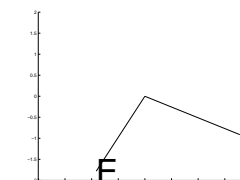
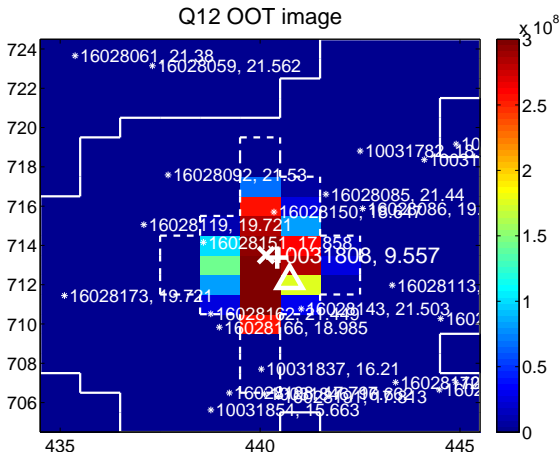
Q11 no OOT image



Q12 difference image. Poor Quality



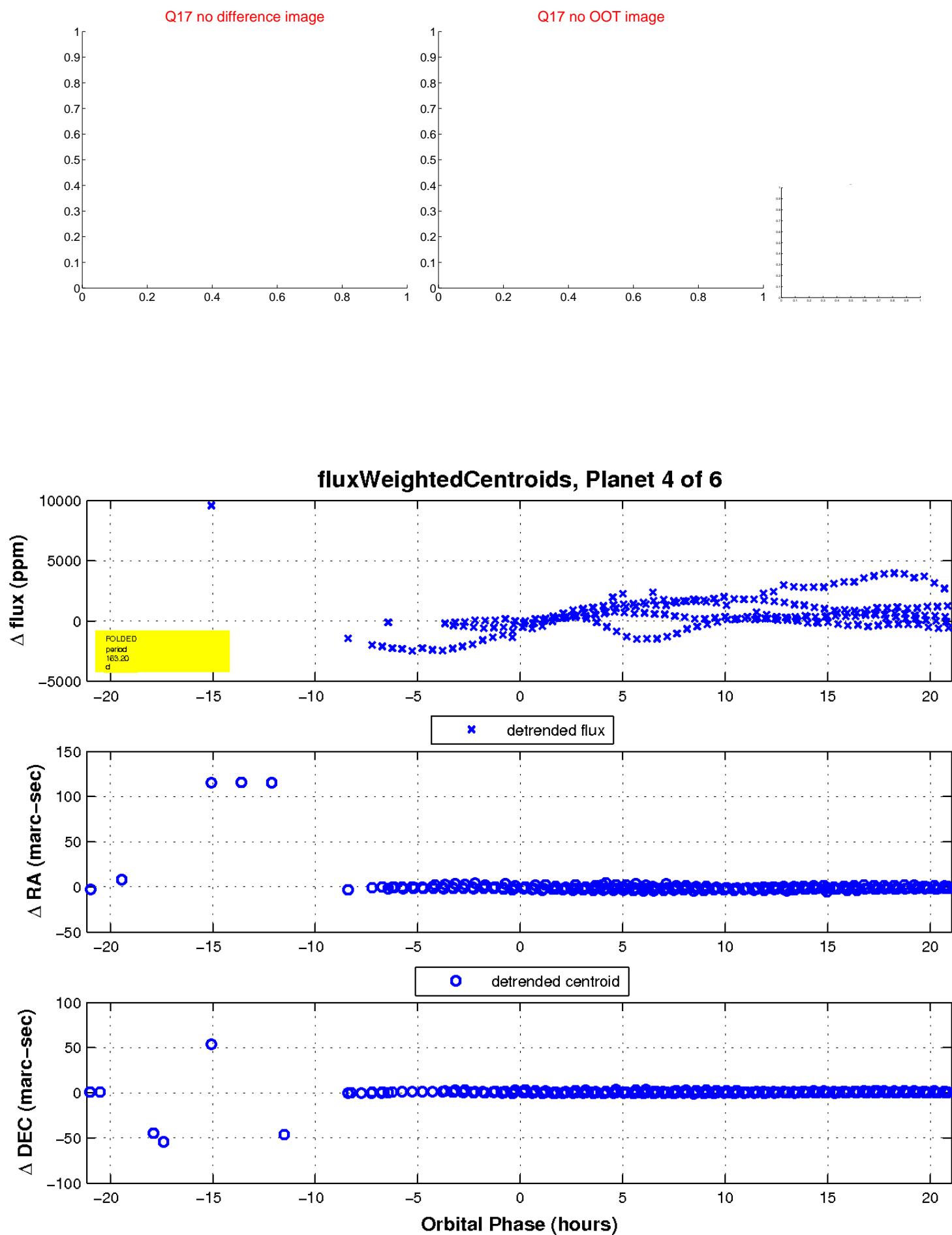
Q12 OOT image



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

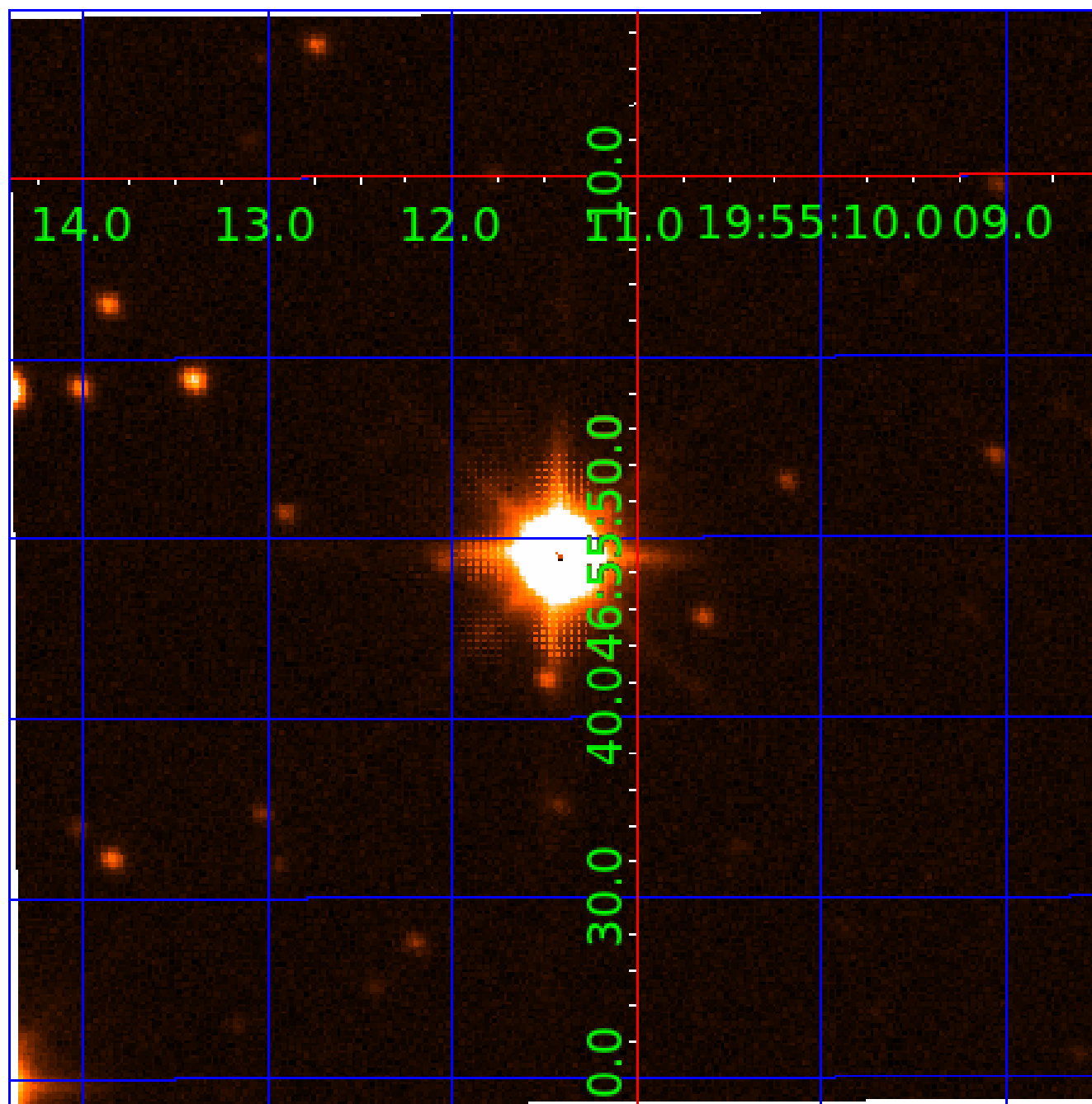


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010031808

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})
010031808-01	OBS	7278.01	8.589558	132.004805	270138.7	5.000	1585.6	-1.0	2.19	6331	11.73	941.12
010031808-02	OBS	No	8.589620	136.206892	80697.2	12.943	491.4	1153.4	2.19	6331	103.01	941.12
010031808-03	OBS	No	171.996086	131.531427	997.1	15.000	169.3	-1.0	2.19	6331	6.96	17.31
010031808-04	OBS	No	163.199823	149.810888	3848.3	7.053	190.3	20.1	2.19	6331	24.72	18.56
010031808-05	OBS	No	273.630792	374.404276	1189.4	4.505	160.7	6.4	2.19	6331	13.88	9.32
010031808-06	OBS	No	17.180044	140.850779	923.4	2.000	96.7	-1.0	2.19	6331	6.71	373.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010031808-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_SATURATED
010031808-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
010031808-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010031808-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_SATURATED
010031808-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010031808-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_SATURATED

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.

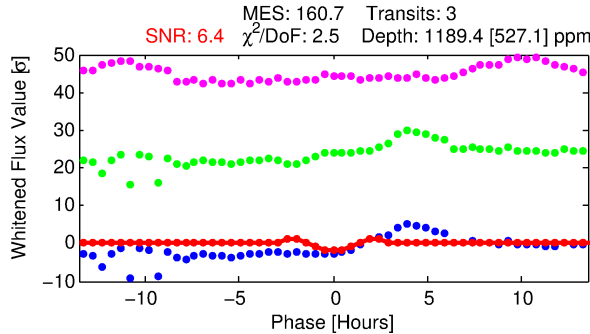
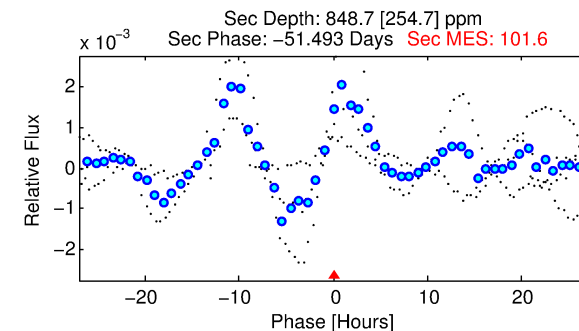
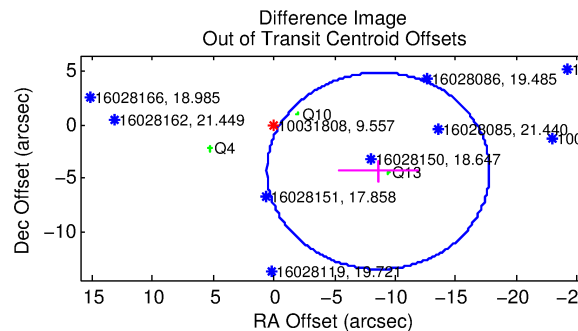
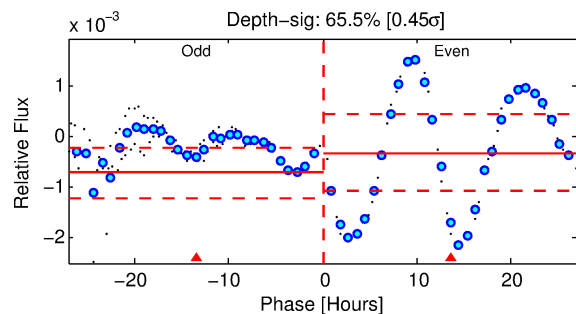
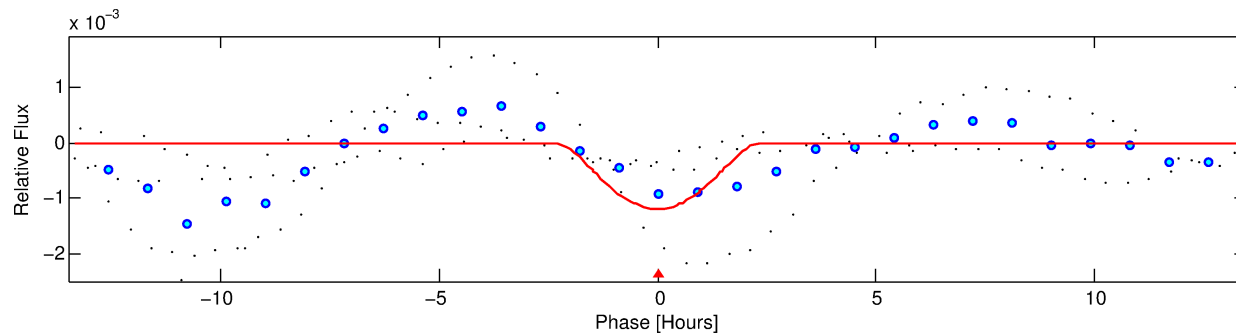
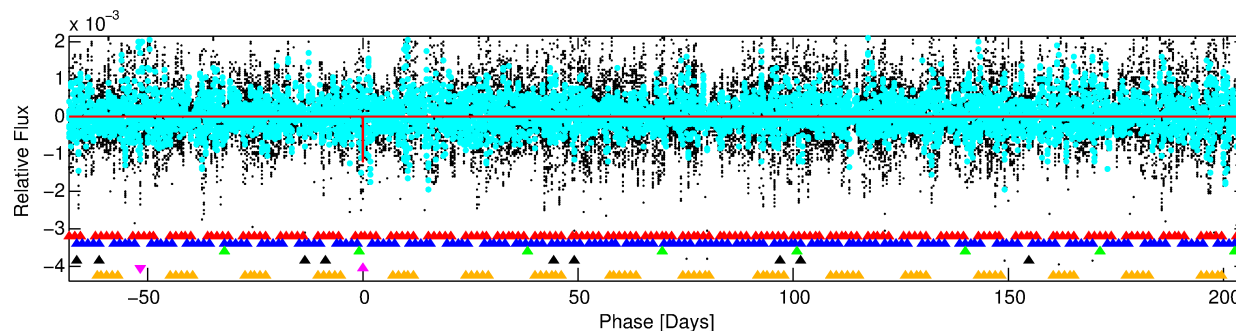
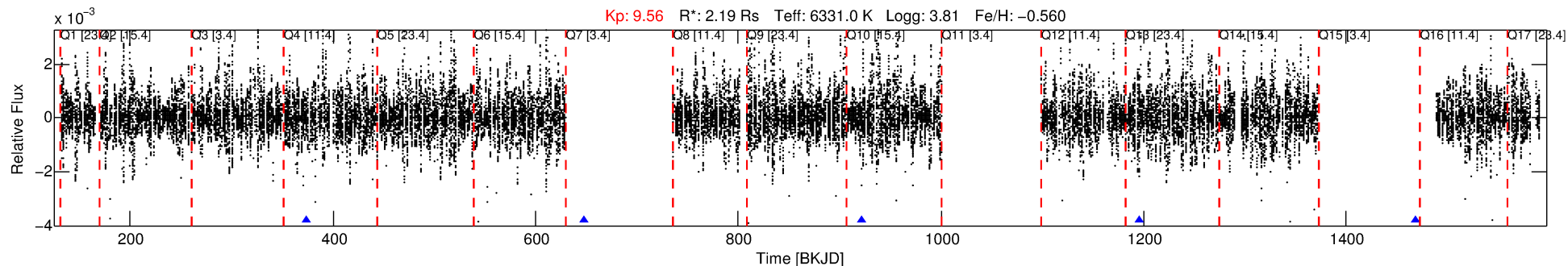
Ephemeris Match Information For 010031808-05

No Significant Match Found

DV One-Page Summary

KIC: 10031808 Candidate: 5 of 6 Period: 273.631 d
KOI: K07278 Corr: No Ephemeris Match

Kp: 9.56 R*: 2.19 Rs Teff: 6331.0 K Logg: 3.81 Fe/H: -0.560



DV Fit Results:

Period = 273.63079 [0.00909] d
Epoch = 374.4043 [0.0182] BKJD
Rp/R* = 0.0580 [0.1981]
a/R* = 163.33 [134.25]
b = 1.00 [0.29]
Seff = 9.32 [8.84]
Teq = 446 [106] K
Rp = 13.88 [47.96] Re
a = 0.8622 [0.4784] AU
Ag = 1802.85 [12451.49] [0.14σ]
Teffp = 4489 [7680] K [0.53σ]

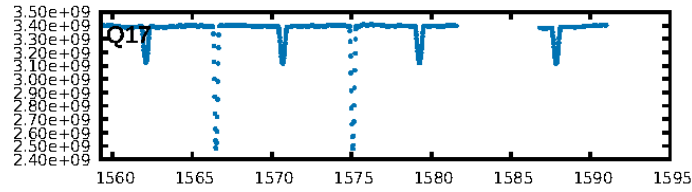
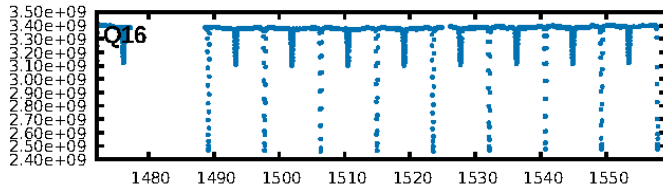
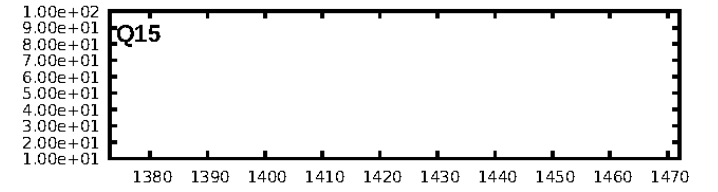
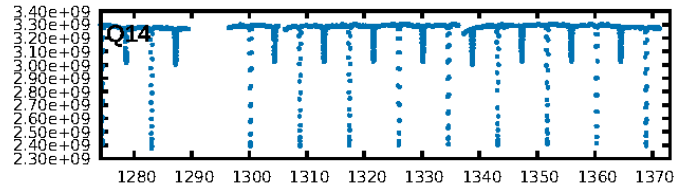
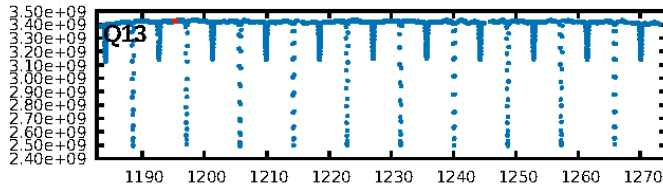
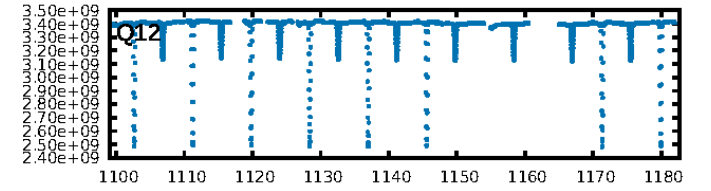
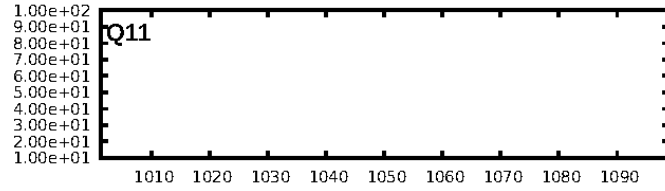
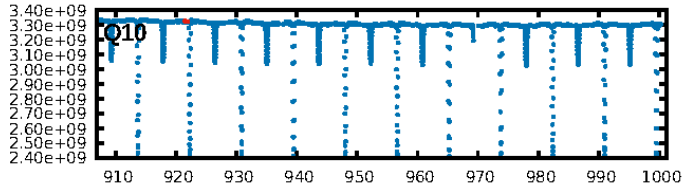
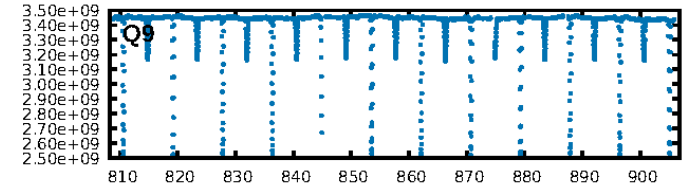
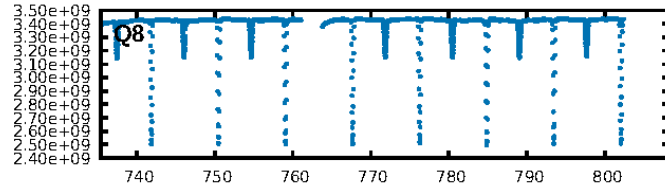
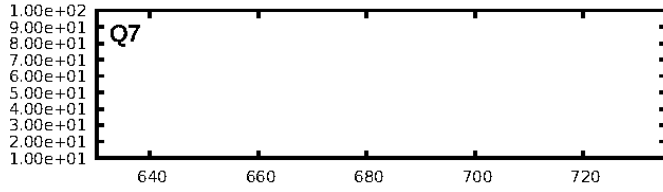
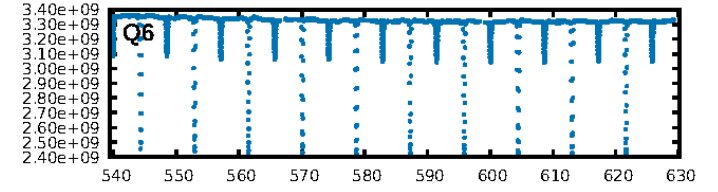
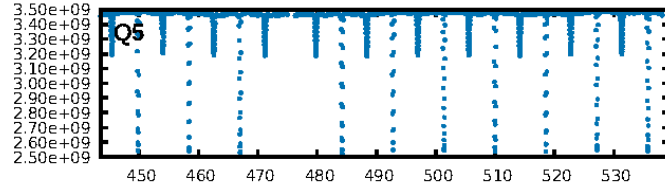
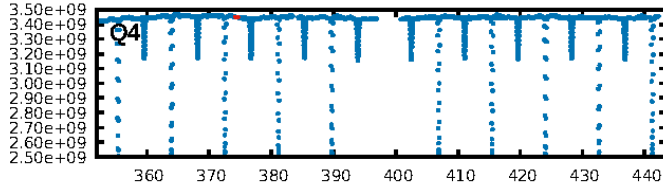
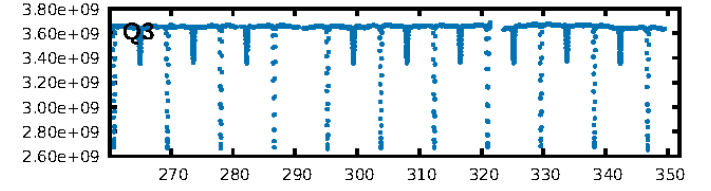
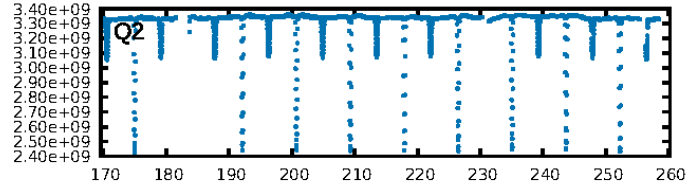
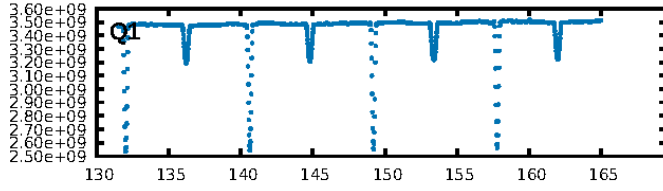
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [155.74σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 1.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.266 arcsec [0.32σ]
OotOffset-rm: 9.640 arcsec [3.15σ]
KicOffset-rm: 8.465 arcsec [2.66σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

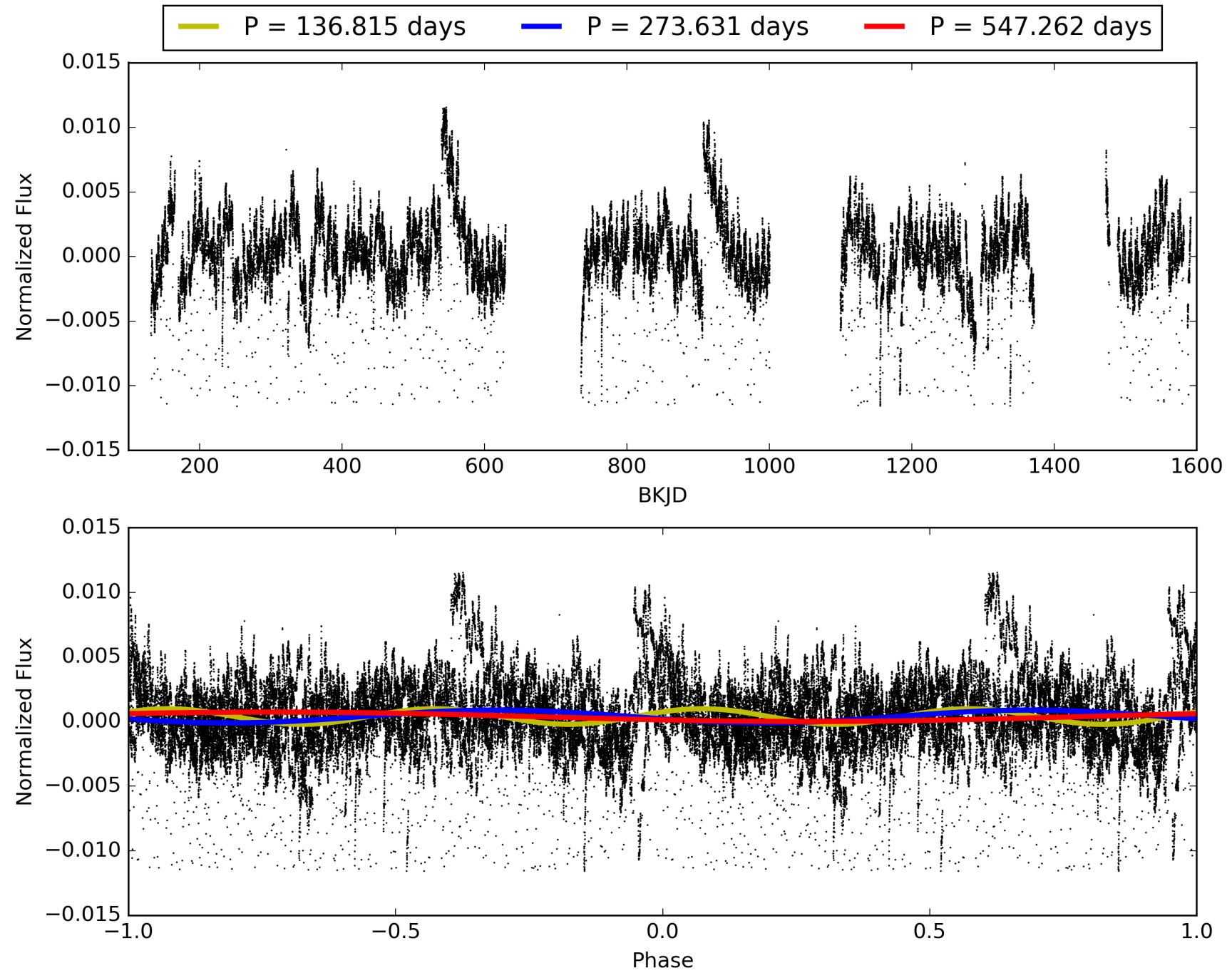
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:25:53 Z

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

TCE 010031808-05, PDC Light Curves

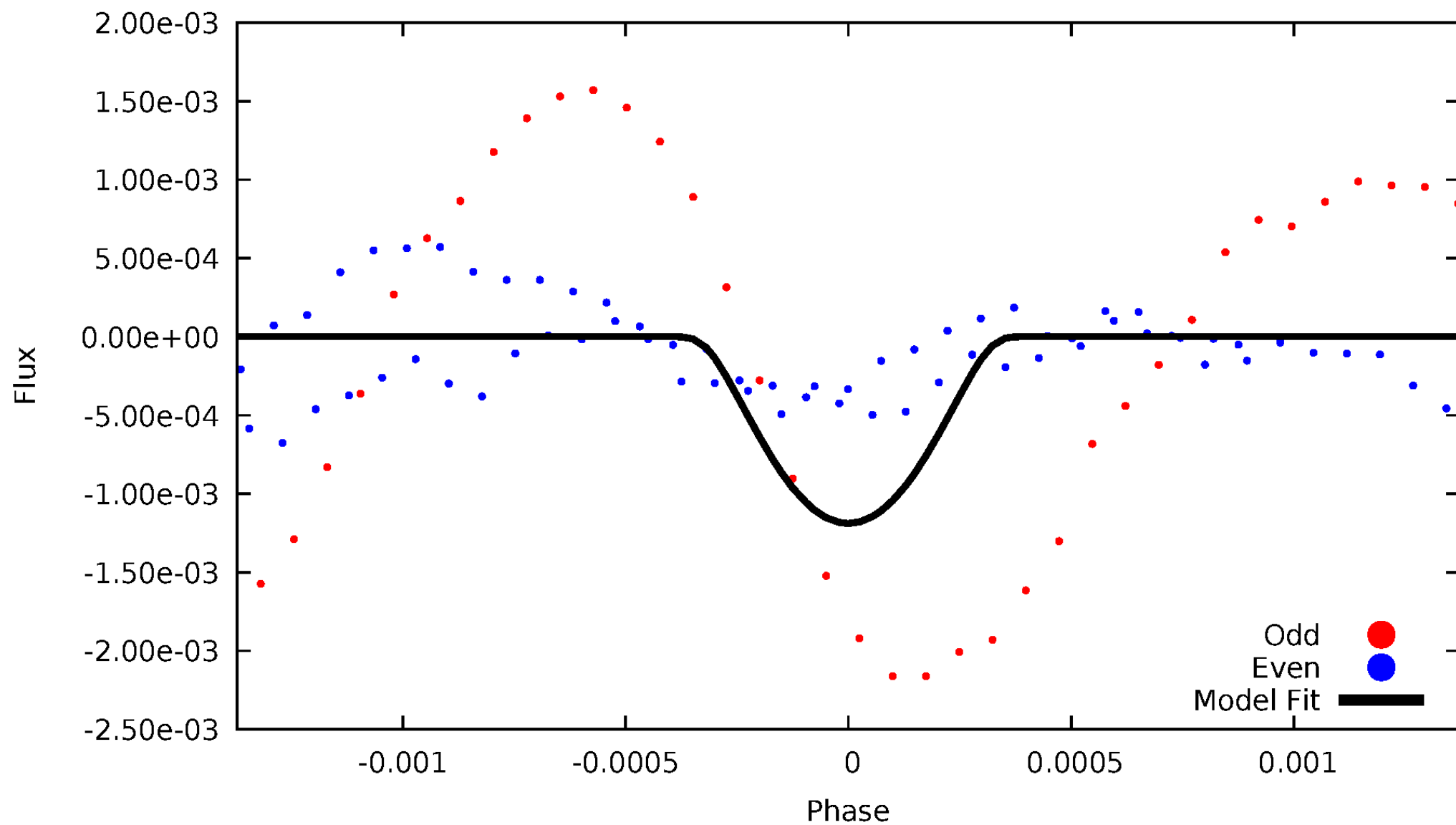


TCE 010031808-05



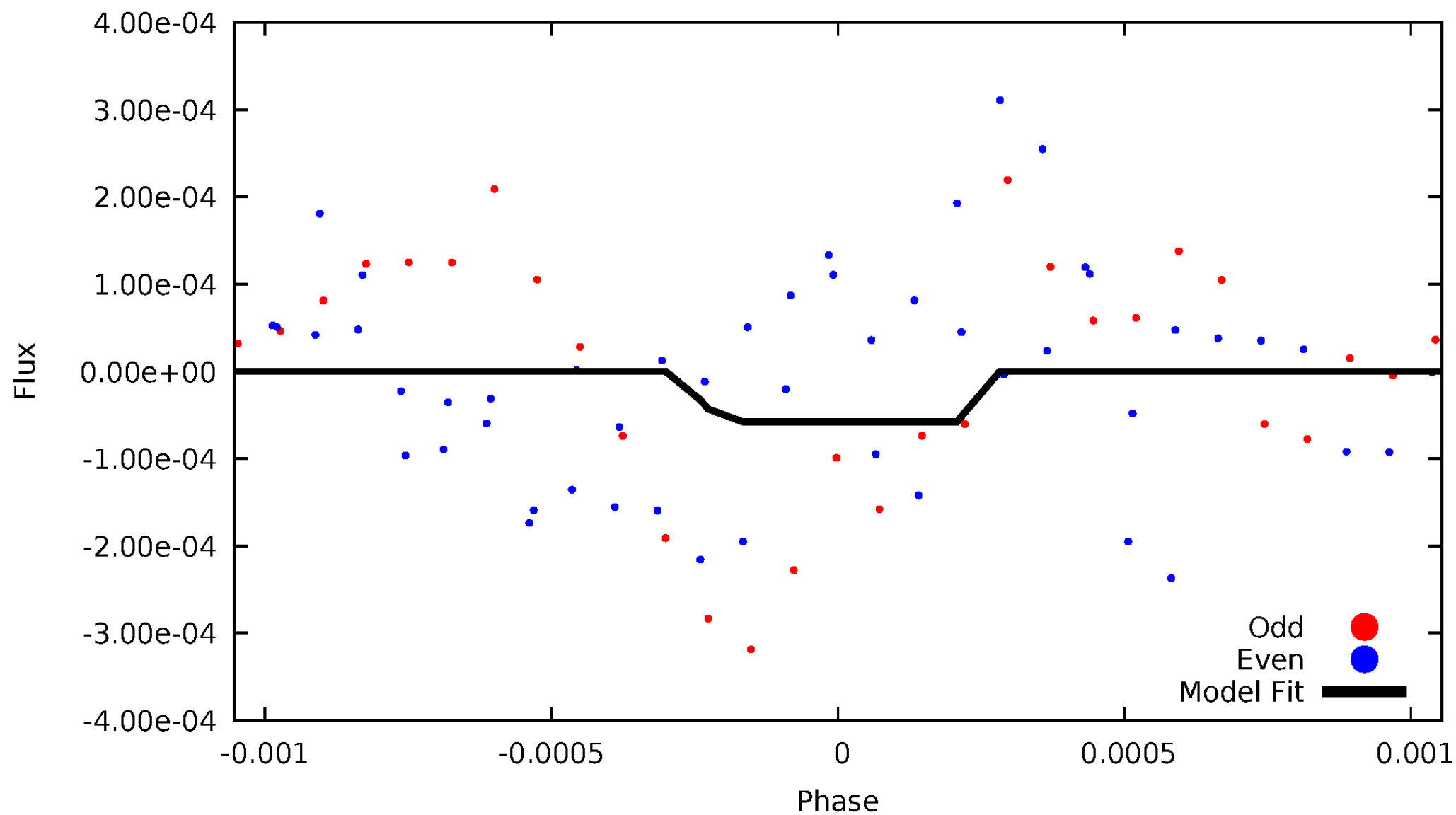
DV Odd/Even

TCE 010031808-05



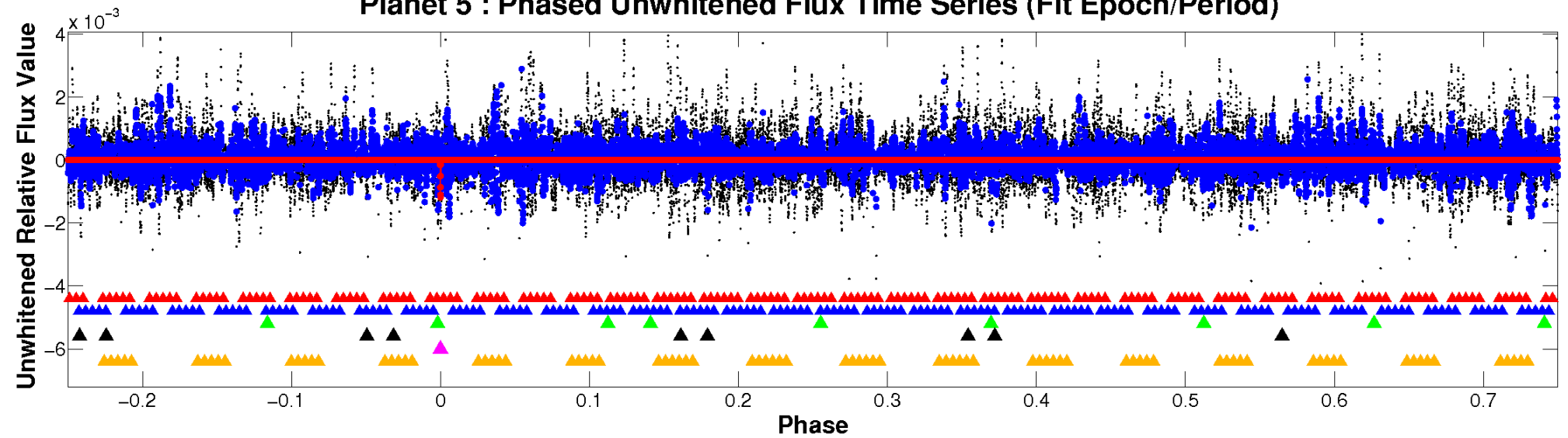
ALT Odd/Even

TCE 010031808-05

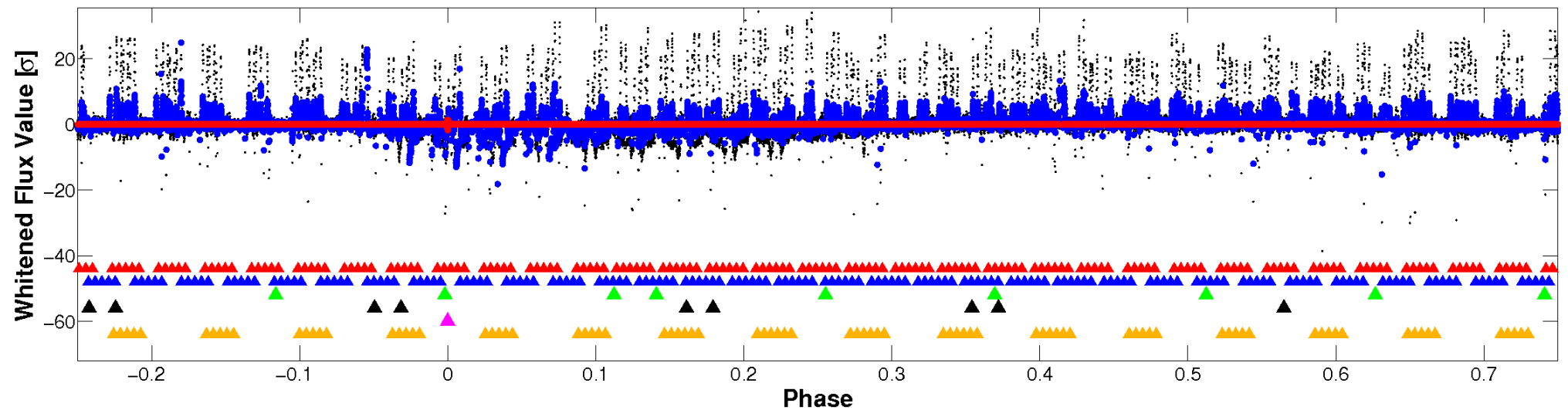


Non-Whitened Vs. Whitened Light Curve

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

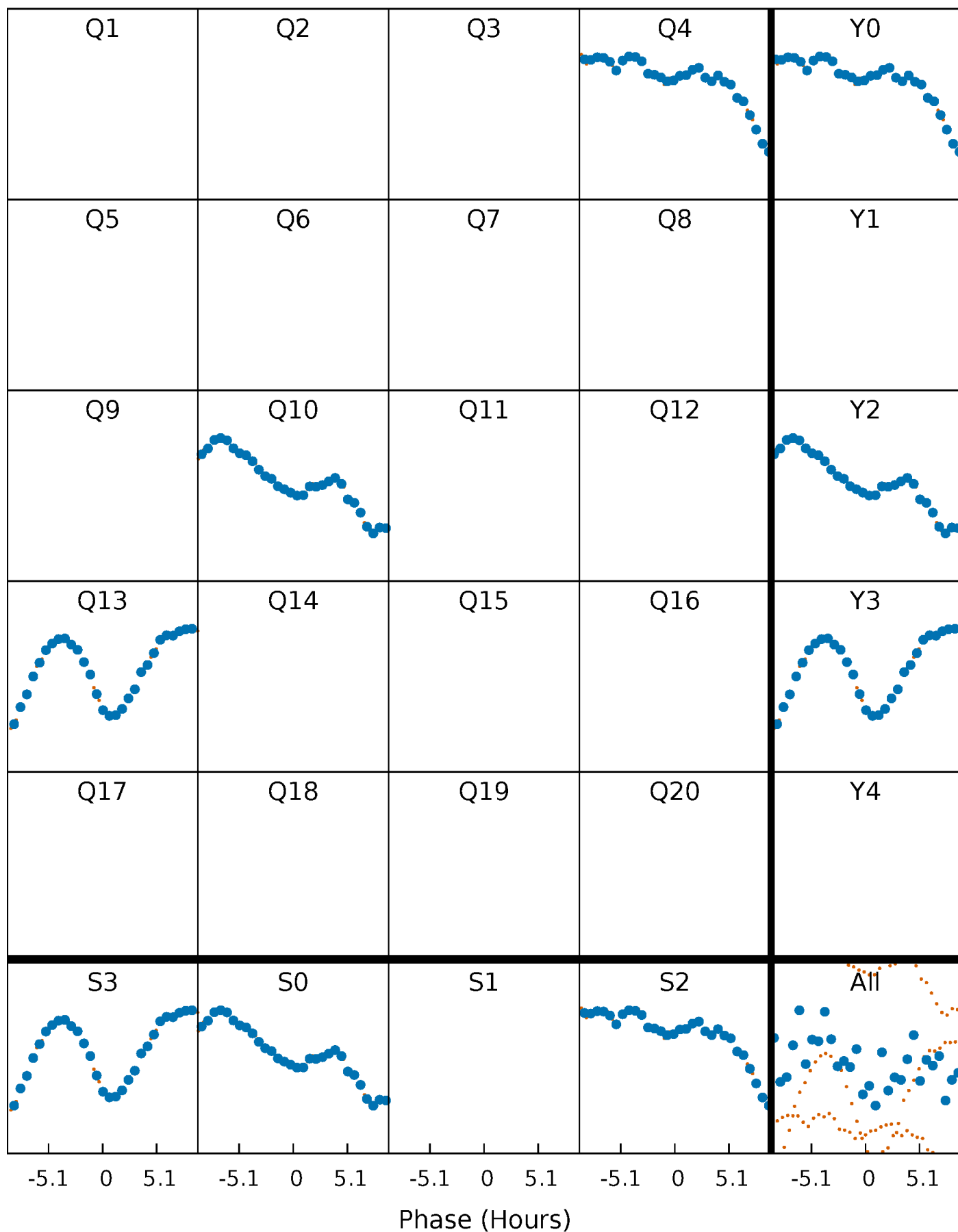


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



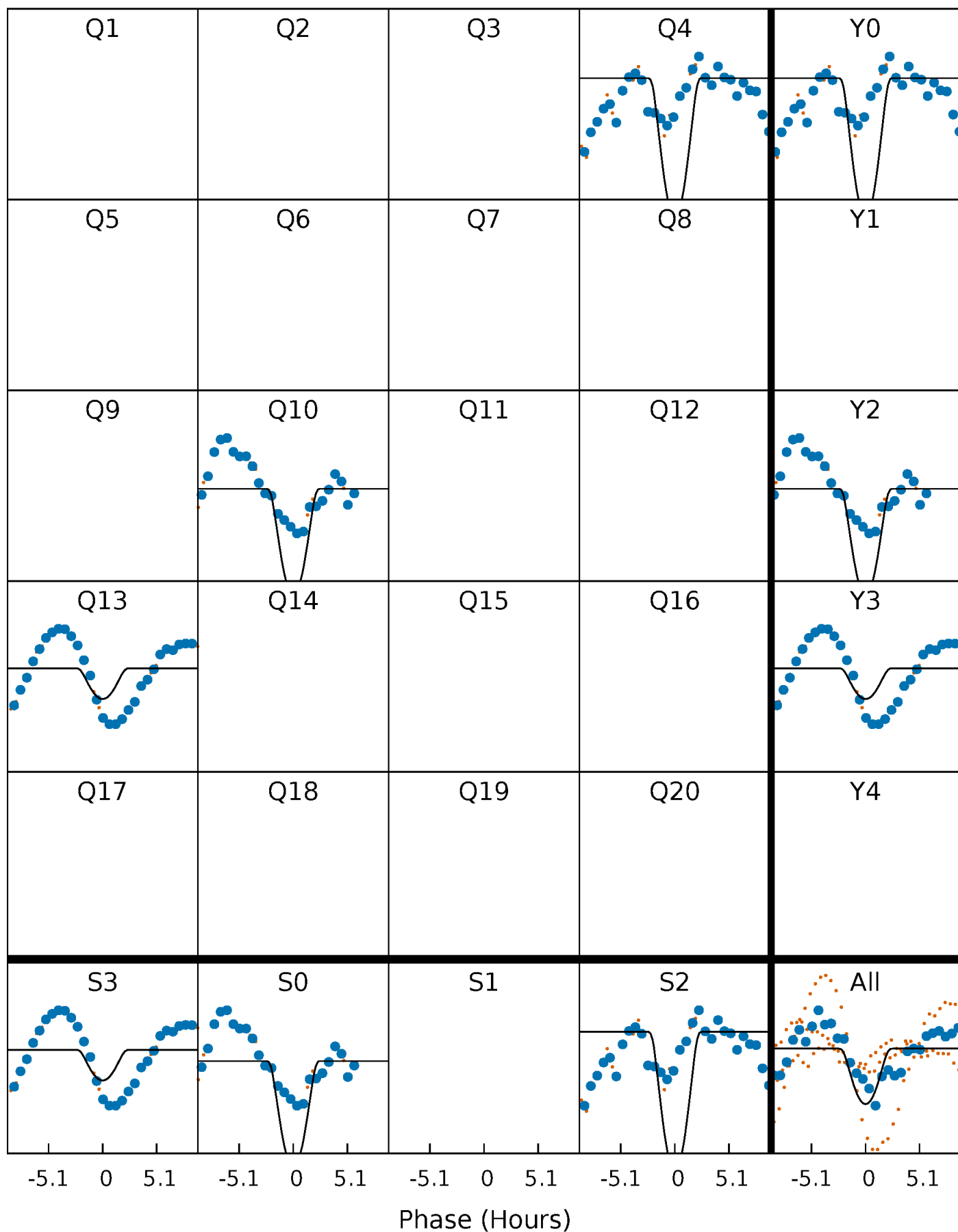
PDC Quarter-Phased Transit Curves

TCE 010031808-05 $P=273.630791$ Days $T_0=374.404276$ (BKJD)



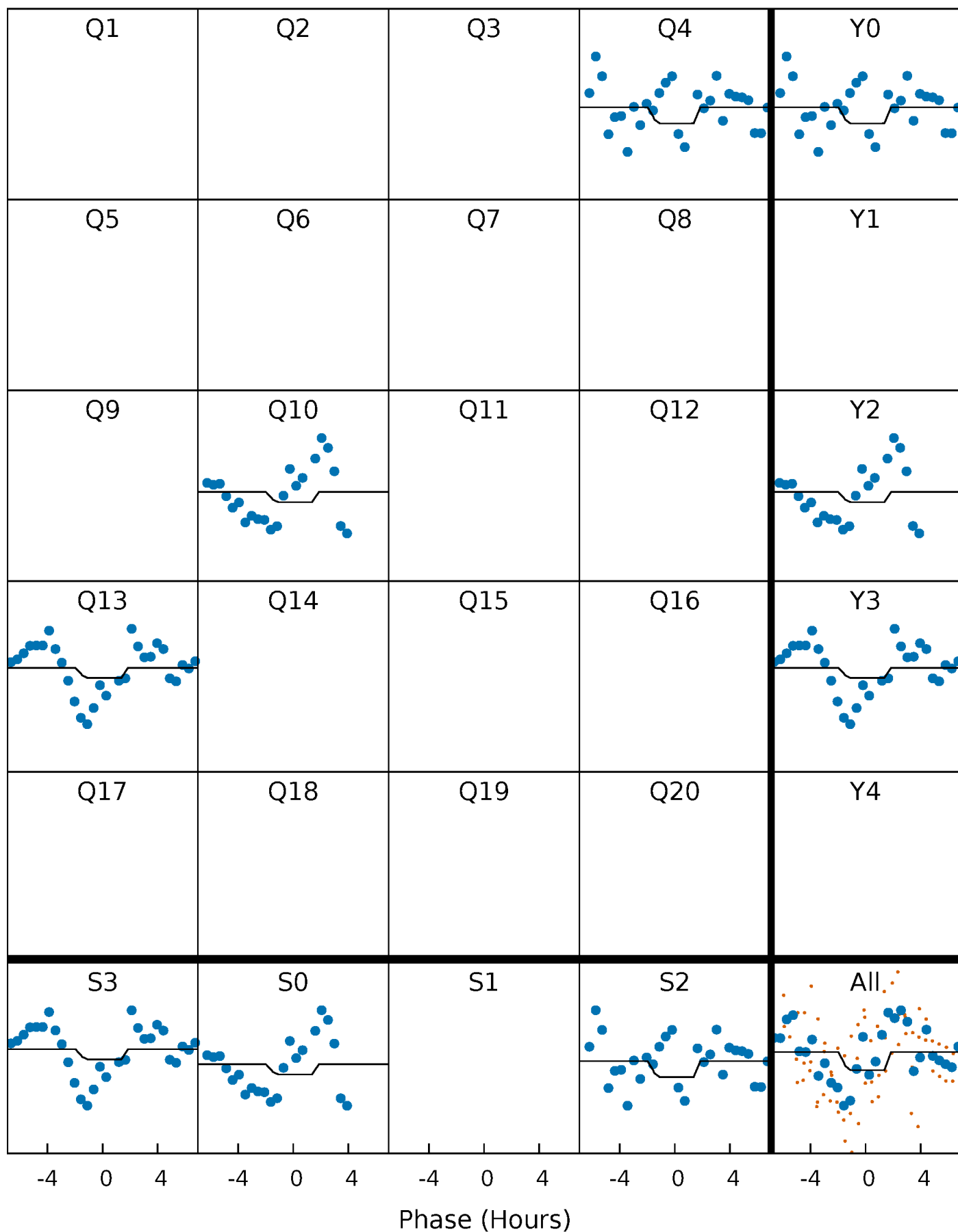
DV Quarter-Phased Transit Curves

TCE 010031808-05 $P=273.630791$ Days $T_0=374.404276$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

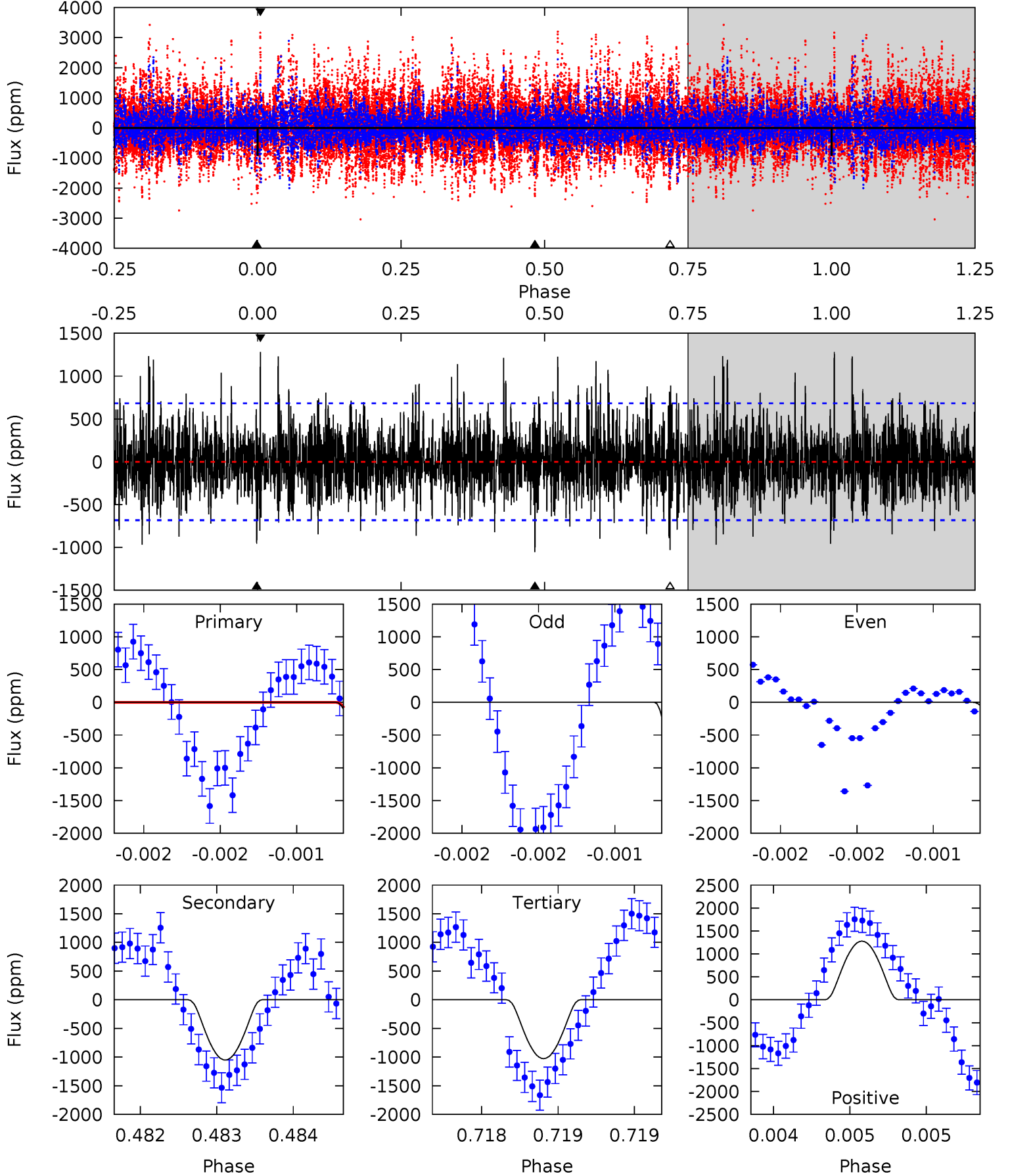
TCE 010031808-05 $P=273.618991$ Days $T_0=374.508467$ (BKJD)



DV Model-Shift Uniqueness Test

010031808-05, P = 273.630791 Days, E = 100.773485 Days

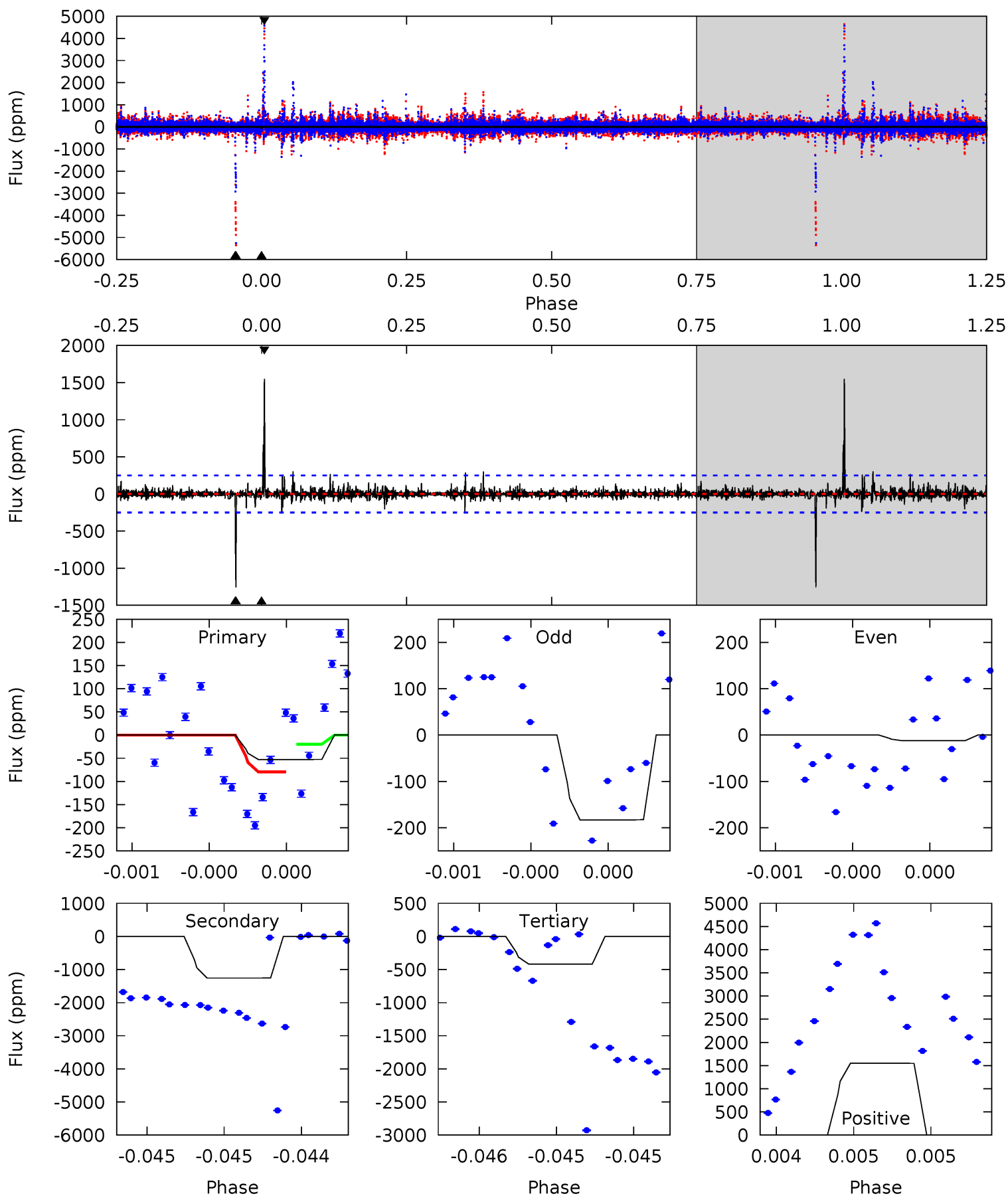
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.46	8.49	8.29	10.3	5.50	3.36	2.29	-0.83	-2.86	0.20	-1.83	5.58	1.84	0.55	2.31



Alt Model-Shift Uniqueness Test

010031808-05, P = 273.618991 Days, E = 100.889476 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.17	28.1	9.34	34.6	5.59	3.51	1.18	-8.16	-33.4	18.7	-6.55	1.33	-7.55	0.55	0.65



Stellar Parameters For KIC 010031808

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6331^{+204}_{-227}	$3.813^{+0.569}_{-0.134}$	$-0.560^{+0.300}_{-0.300}$	$2.194^{+0.483}_{-1.126}$	$1.142^{+0.161}_{-0.261}$	$0.152^{+0.992}_{-0.062}$
	+3%/-4%	+15%/-4%	+54%/-54%	+22%/-51%	+14%/-23%	+652%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010031808-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1053 ± 124	$34.60^{+39.03}_{-23.81}$	608^{+47}_{-79}	3358^{+1774}_{-603}	359^{+3379}_{-277}
Alt.	-1257 ± 45	$30.35^{+33.24}_{-21.07}$	606^{+47}_{-92}	3627^{+1904}_{-721}	561^{+5197}_{-439}

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

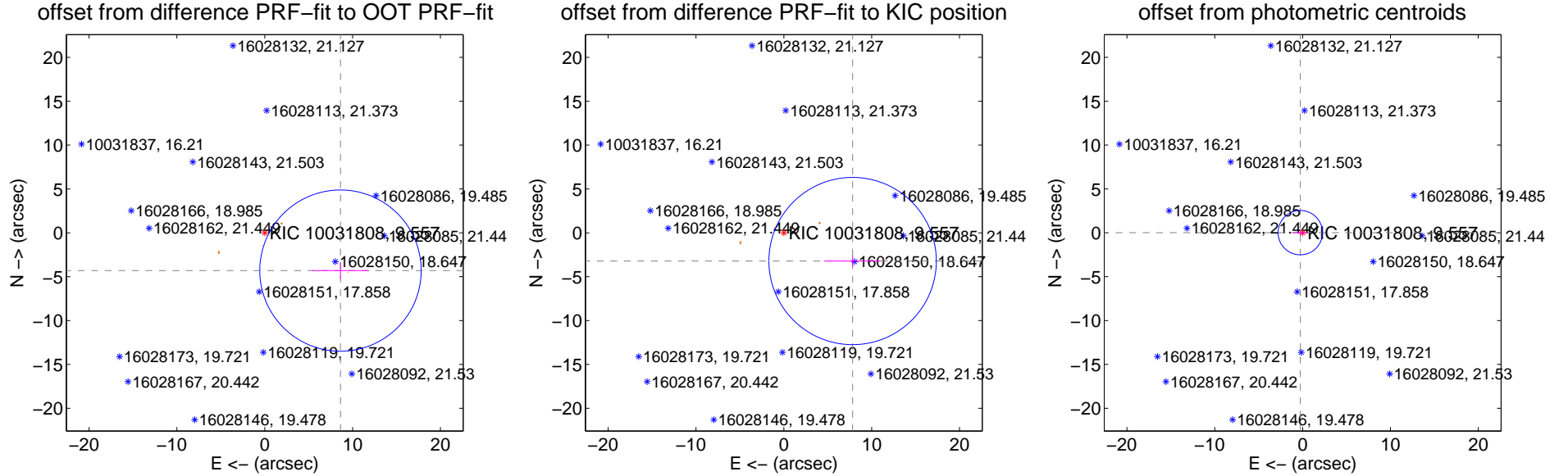
DV Centroid Data

Supplemental centroid analysis for 010031808-05. **Kepler magnitude: 9.56.** Transit SNR 6.41

There are 0 quarters with good PRF difference image offsets

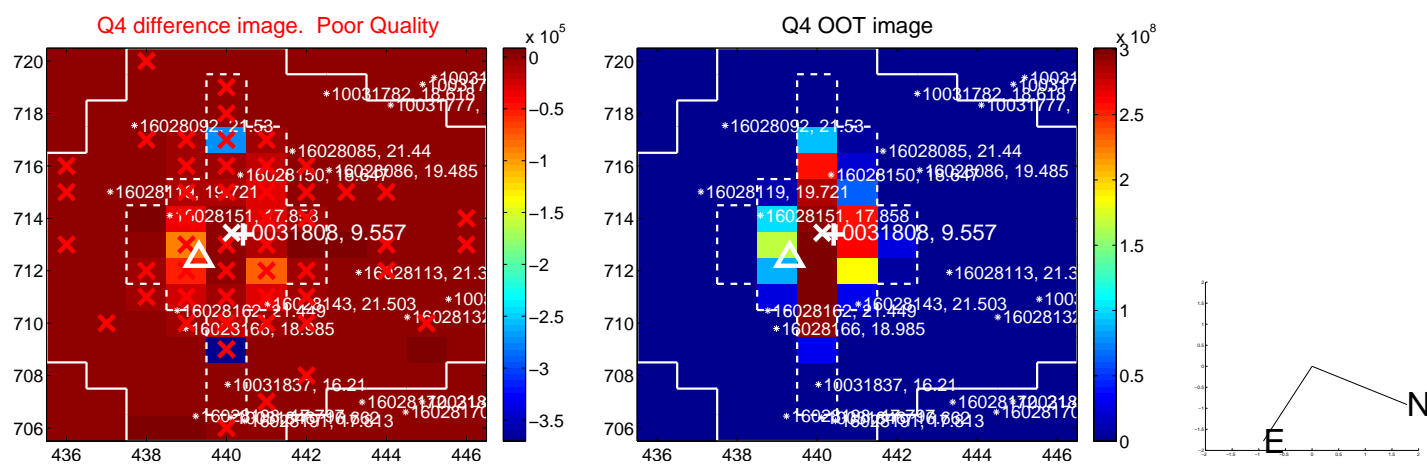
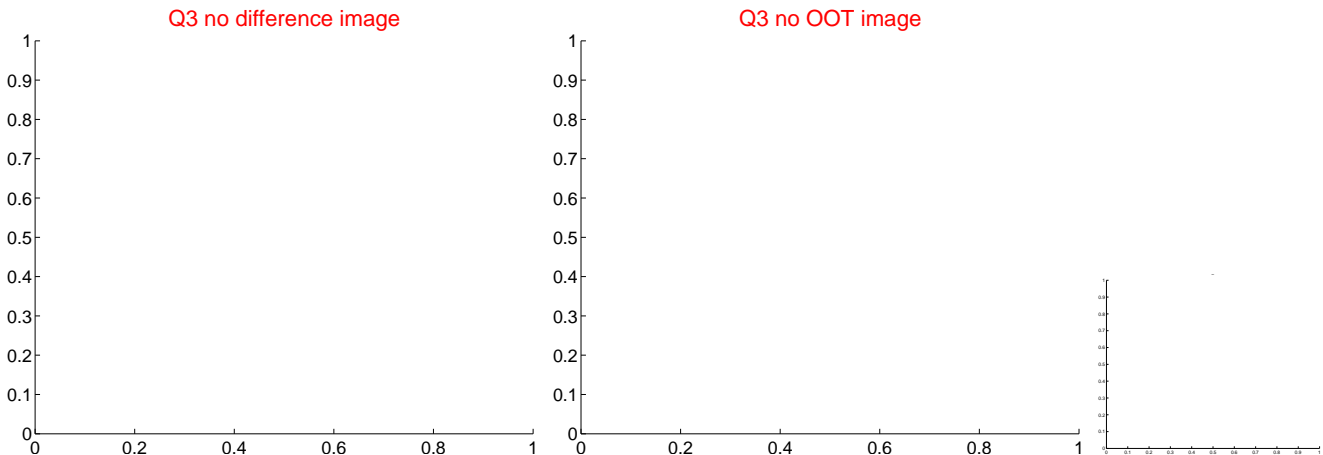
The direct PRF centroid is offset from the target star catalog position by about 1.49 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.640 ± 3.063	3.15	-8.624 ± 3.234	-4.307 ± 0.927
PRF-fit source offset from KIC position	8.465 ± 3.177	2.66	-7.831 ± 3.265	-3.216 ± 0.667
photometric centroid source offset	0.27 ± 0.84	0.32	0.27 ± 0.84	0.02 ± 0.38

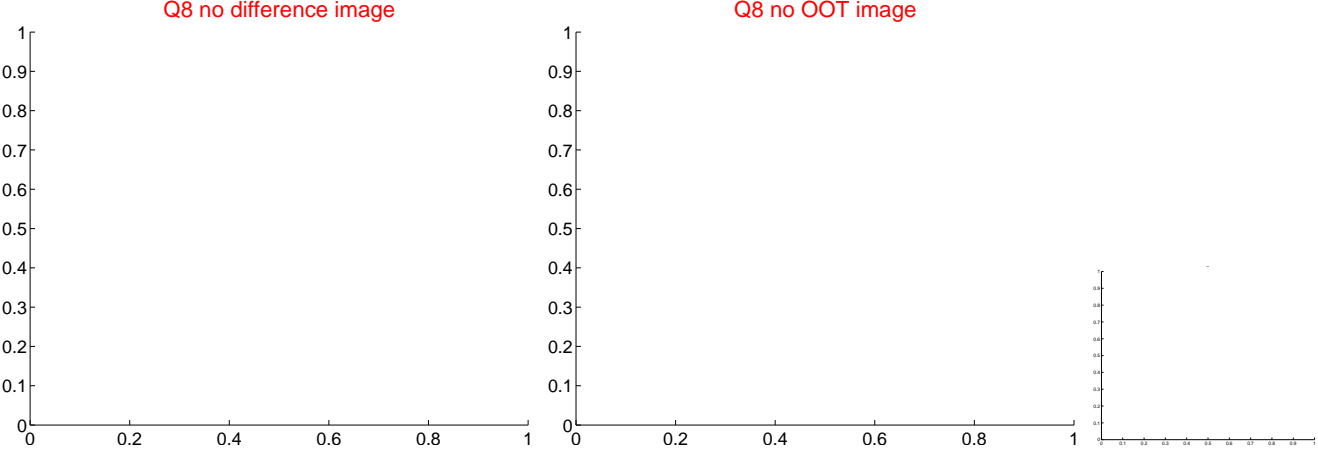
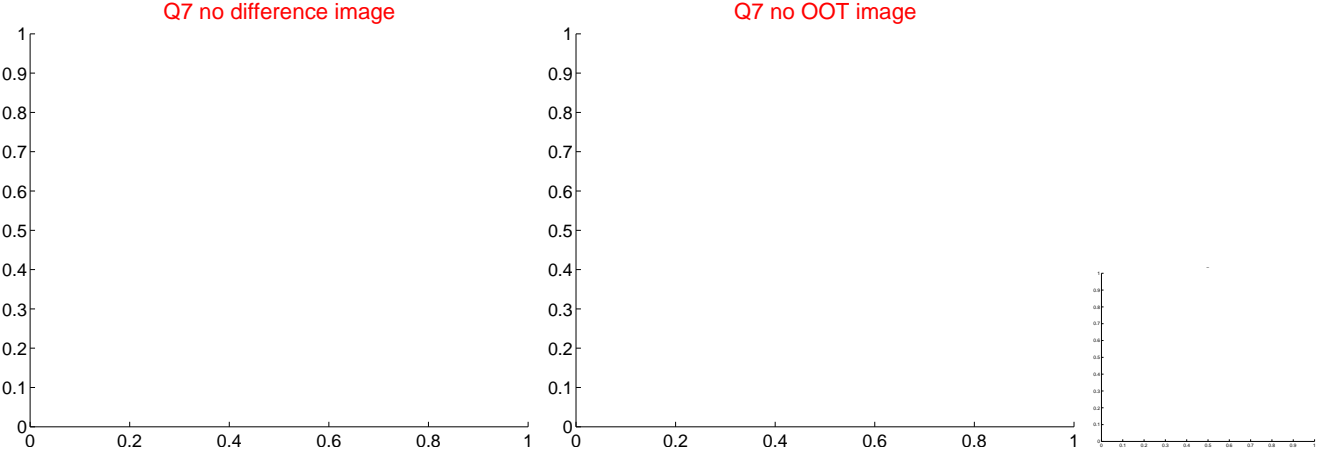


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

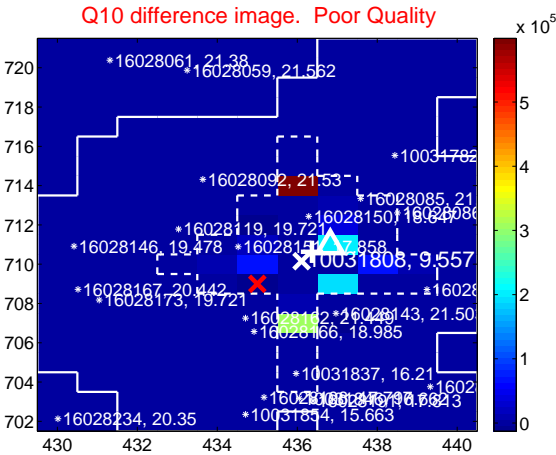
Q9 no difference image



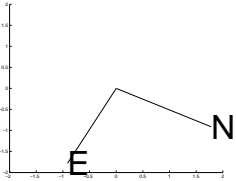
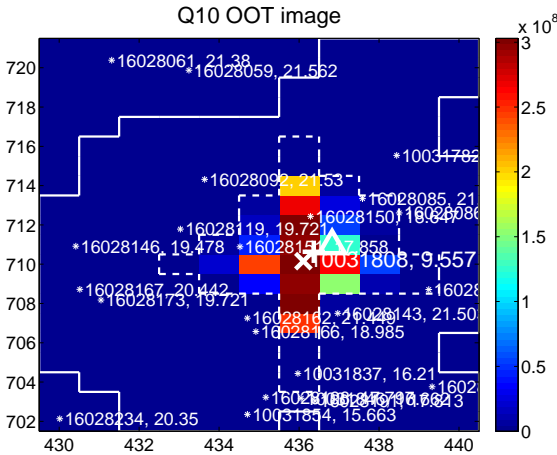
Q9 no OOT image



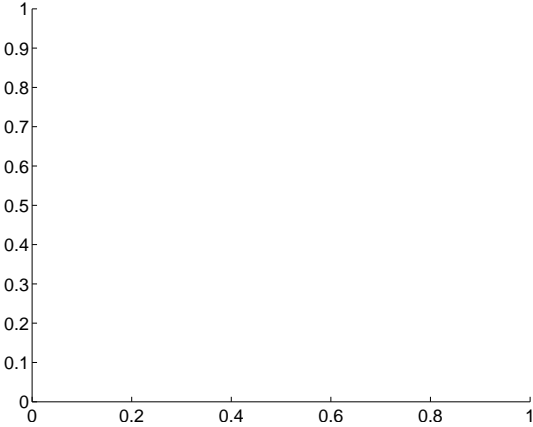
Q10 difference image. Poor Quality



Q10 OOT image



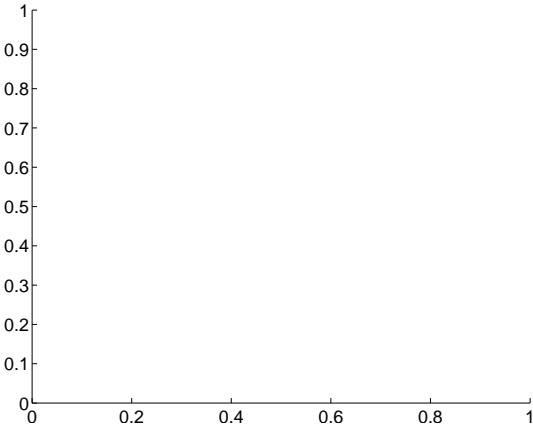
Q11 no difference image



Q11 no OOT image



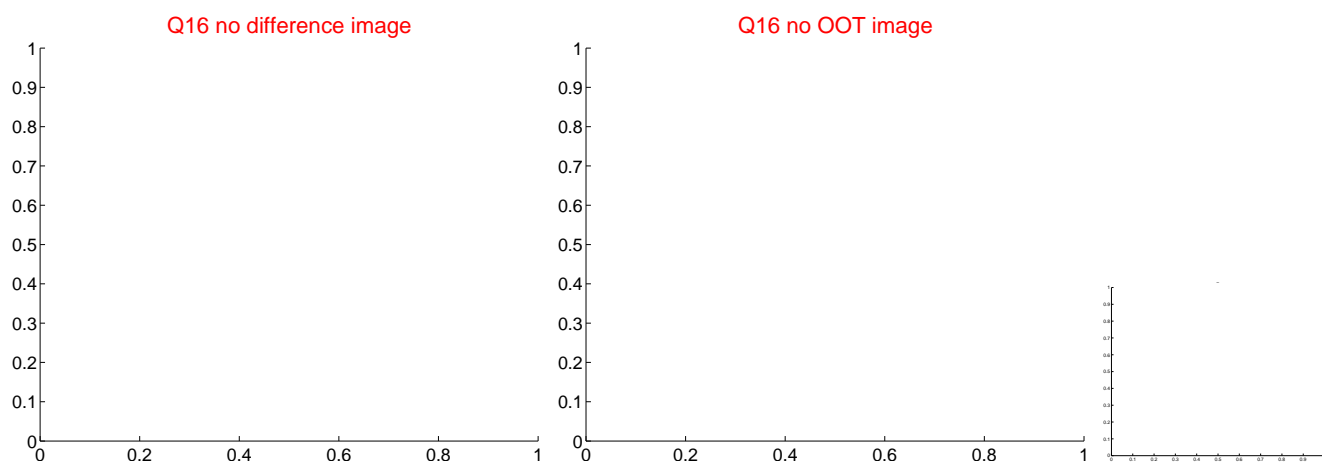
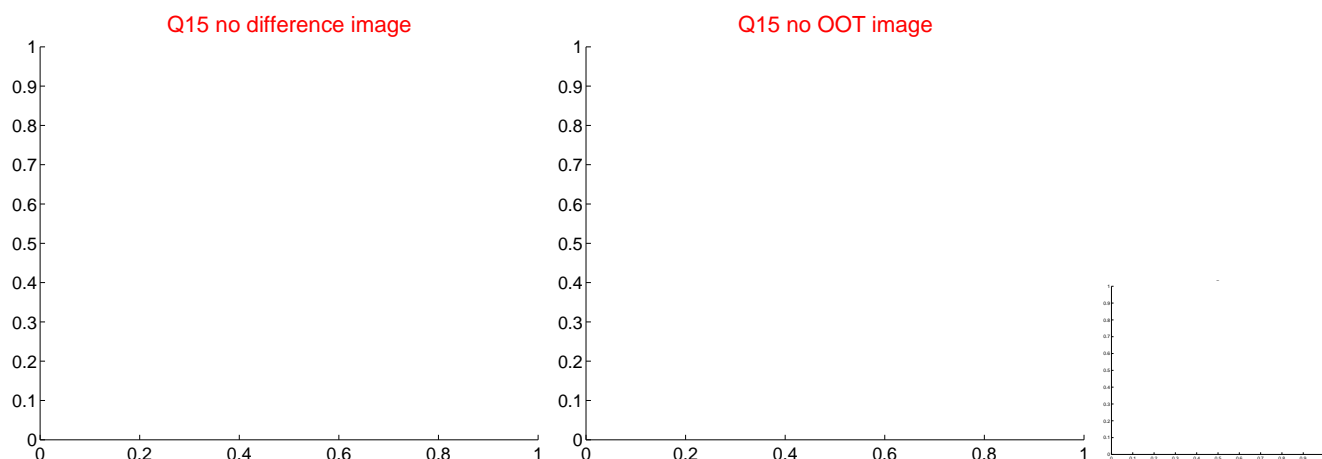
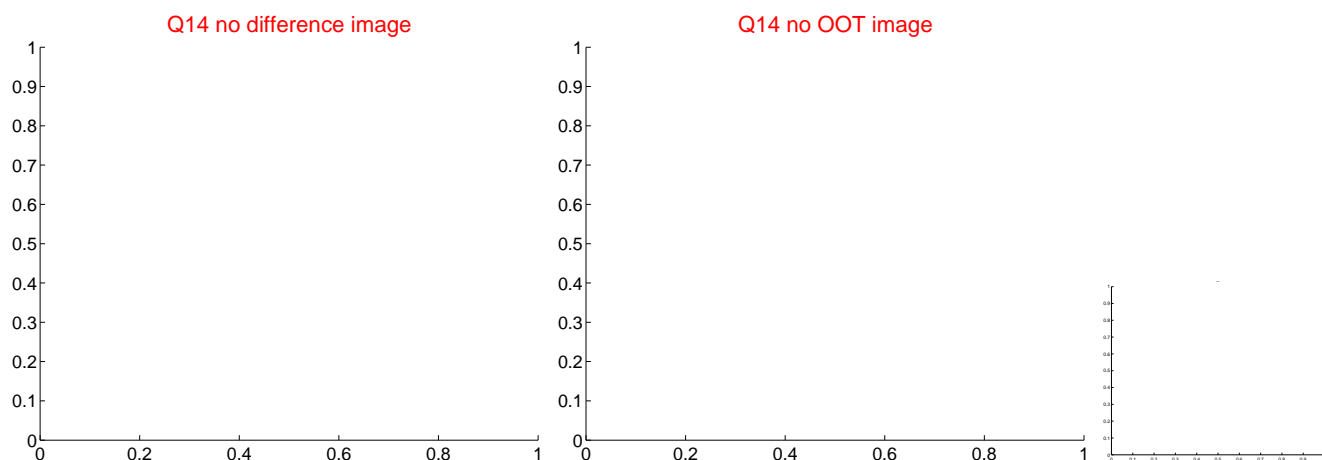
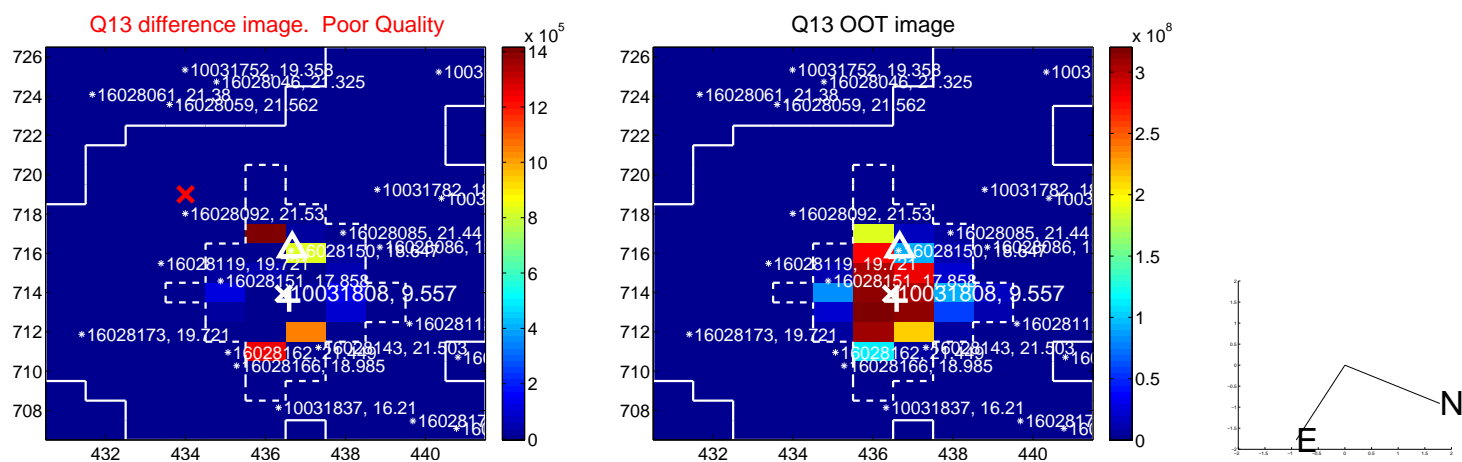
Q12 no difference image



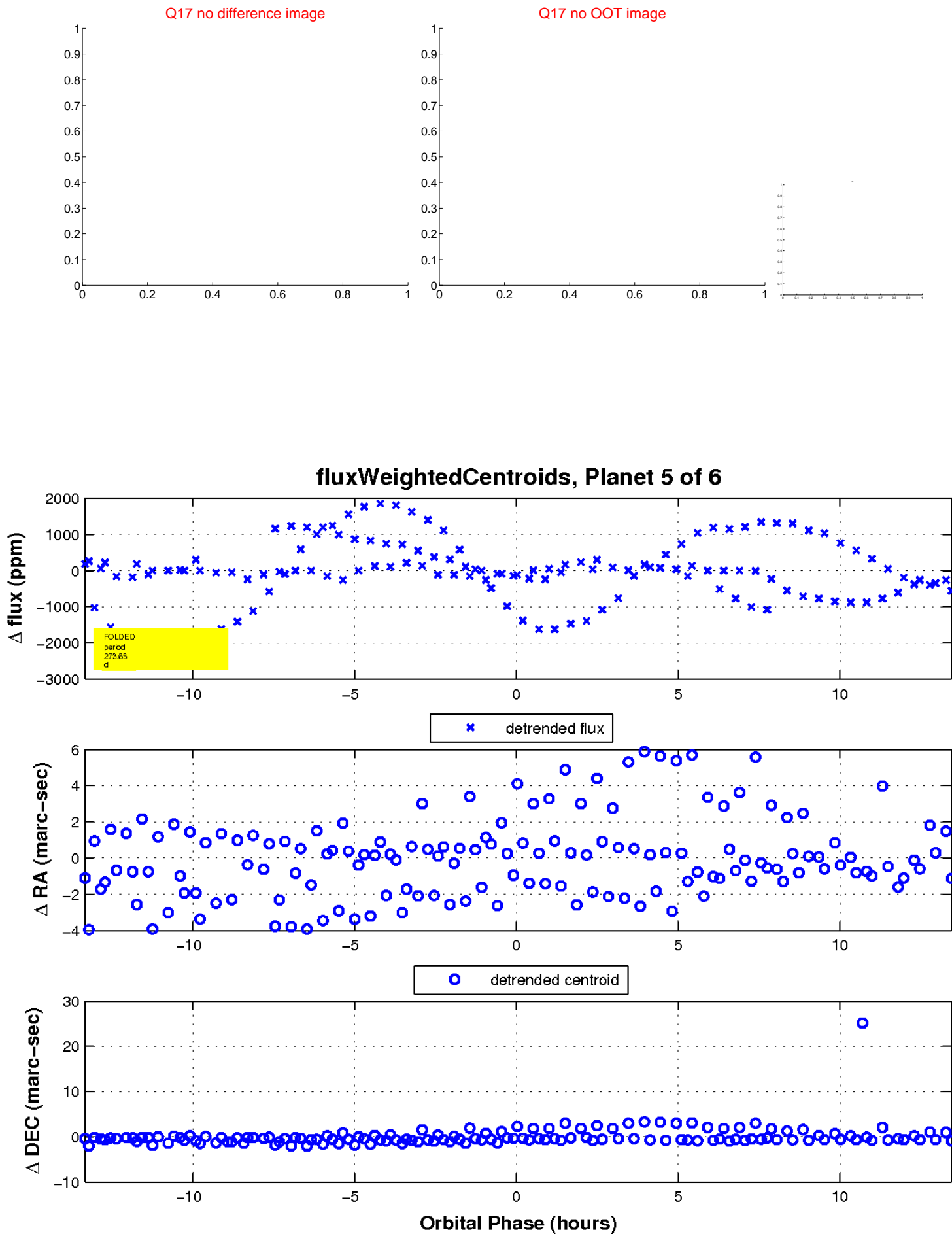
Q12 no OOT image



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

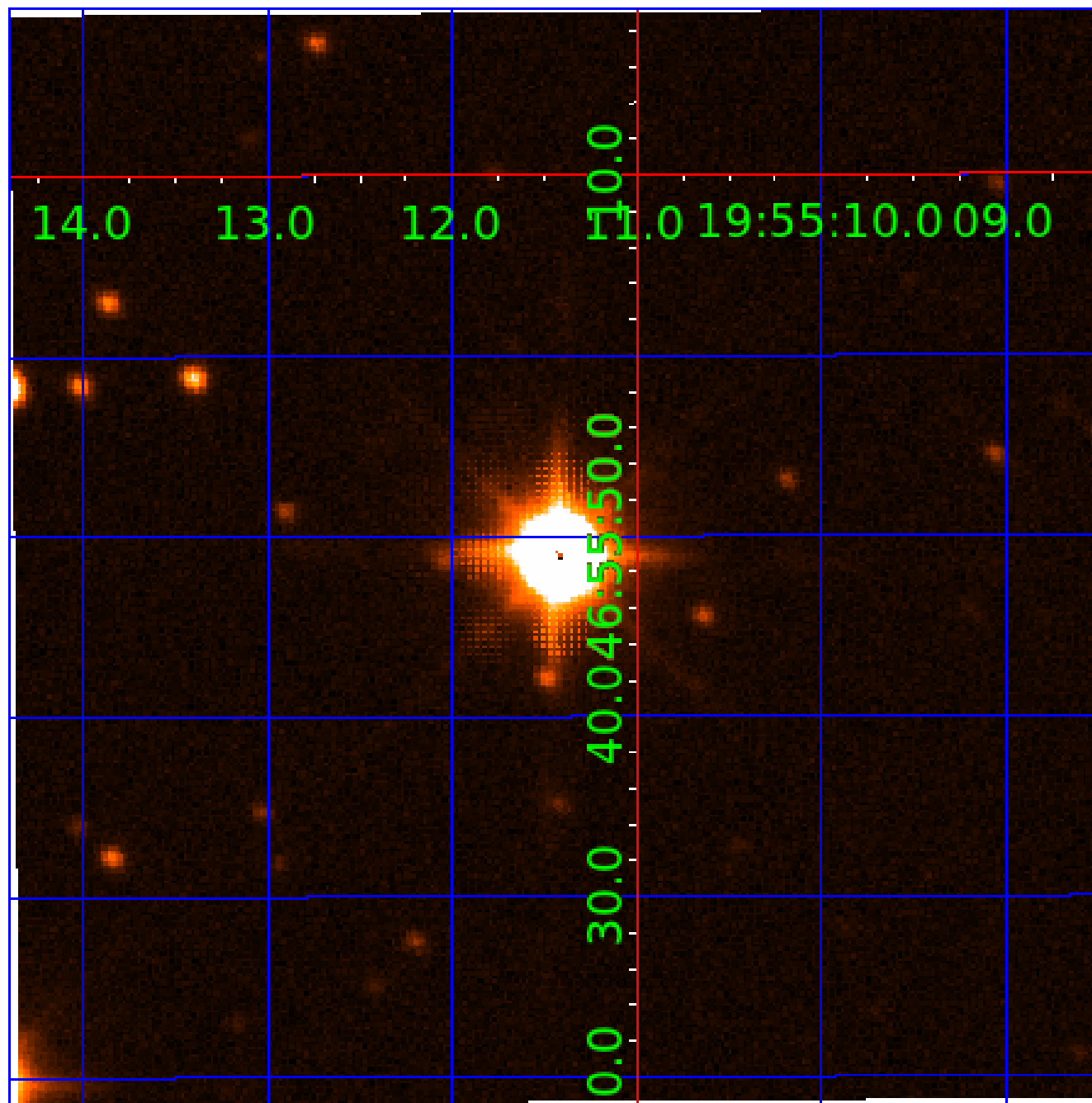


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010031808

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})
010031808-01	OBS	7278.01	8.589558	132.004805	270138.7	5.000	1585.6	-1.0	2.19	6331	11.73	941.12
010031808-02	OBS	No	8.589620	136.206892	80697.2	12.943	491.4	1153.4	2.19	6331	103.01	941.12
010031808-03	OBS	No	171.996086	131.531427	997.1	15.000	169.3	-1.0	2.19	6331	6.96	17.31
010031808-04	OBS	No	163.199823	149.810888	3848.3	7.053	190.3	20.1	2.19	6331	24.72	18.56
010031808-05	OBS	No	273.630792	374.404276	1189.4	4.505	160.7	6.4	2.19	6331	13.88	9.32
010031808-06	OBS	No	17.180044	140.850779	923.4	2.000	96.7	-1.0	2.19	6331	6.71	373.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010031808-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_SATURATED
010031808-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
010031808-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010031808-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_SATURATED
010031808-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010031808-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_SATURATED

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.

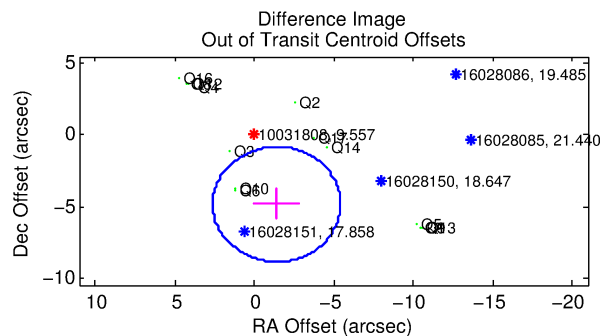
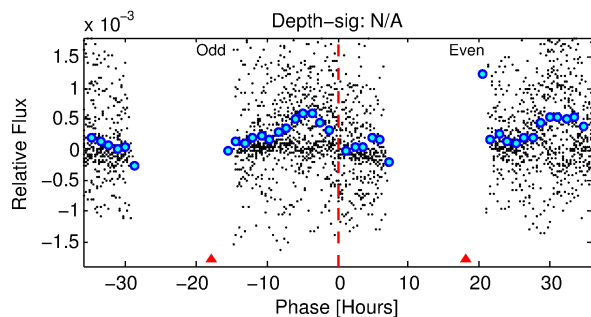
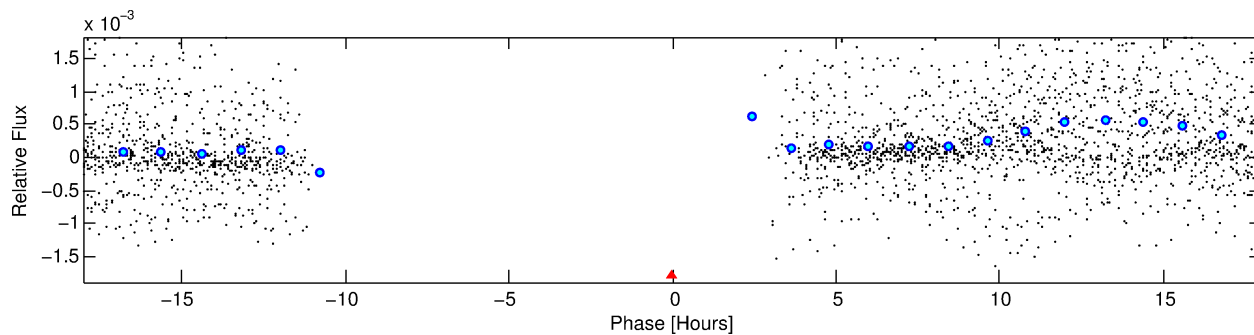
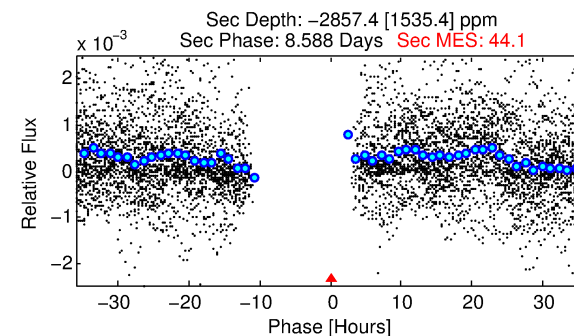
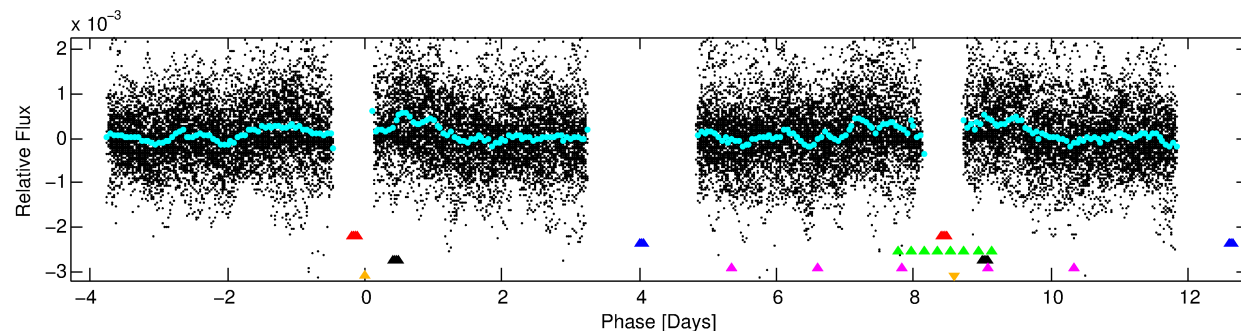
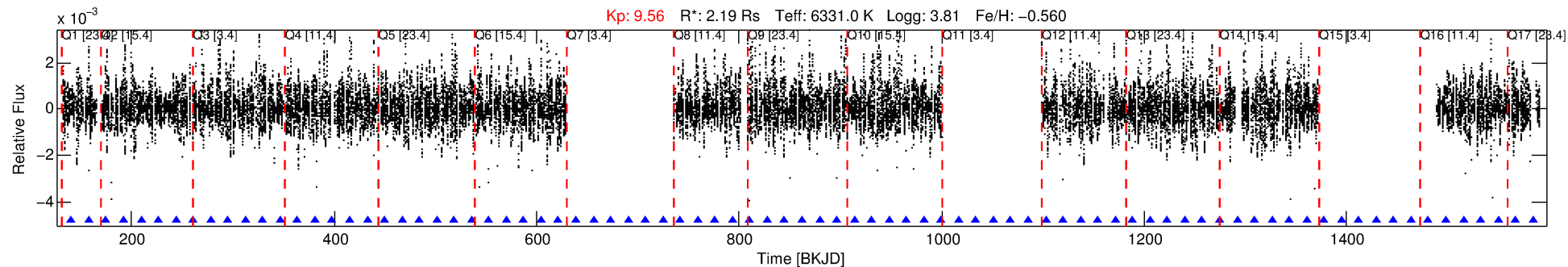
Ephemeris Match Information For 010031808-06

No Significant Match Found

DV One-Page Summary

KIC: 10031808 Candidate: 6 of 6 Period: 17.180 d
KOI: K07278 Corr: No Ephemeris Match

Kp: 9.56 R*: 2.19 Rs Teff: 6331.0 K Logg: 3.81 Fe/H: -0.560



TPS TCE Results:

Period = 17.18004 d
Epoch = 140.8508 BKJD

DV fit results are unavailable

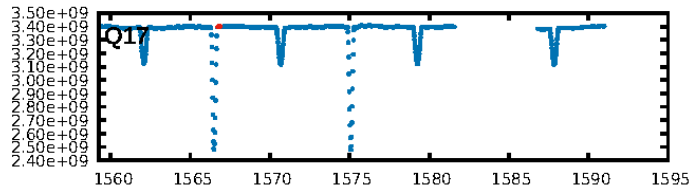
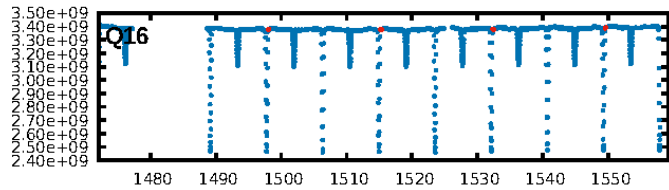
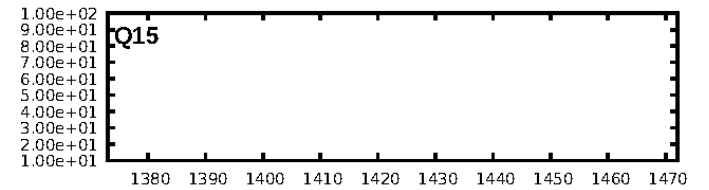
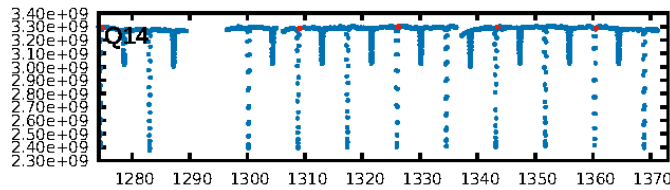
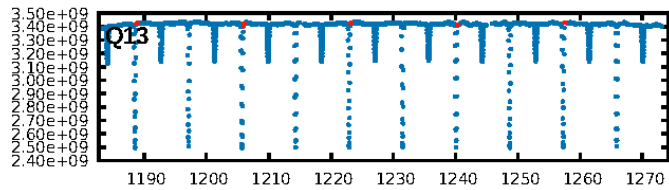
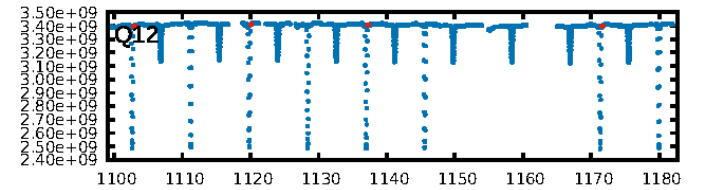
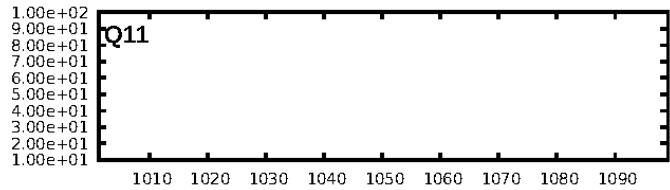
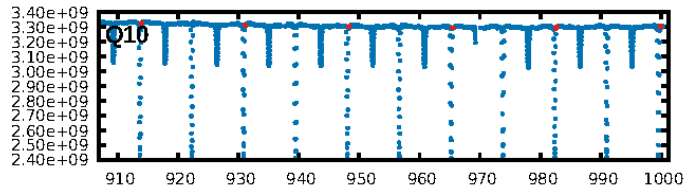
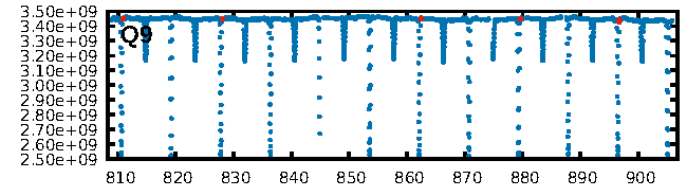
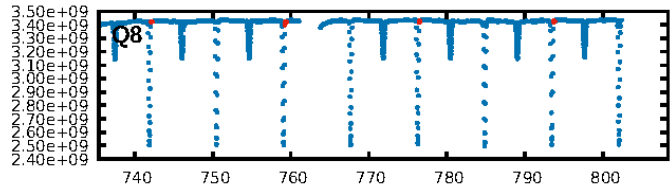
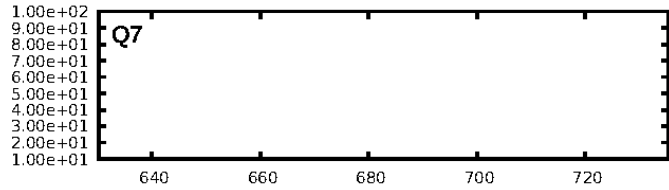
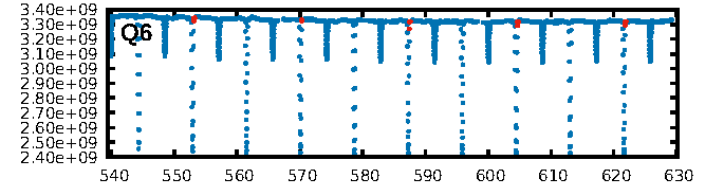
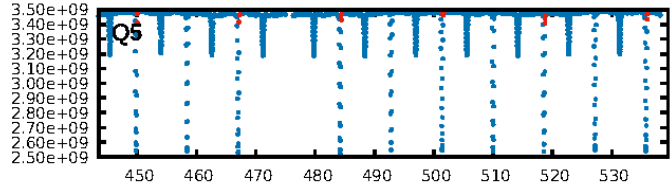
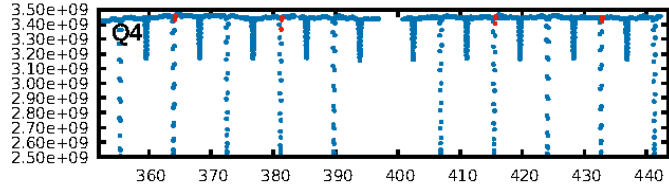
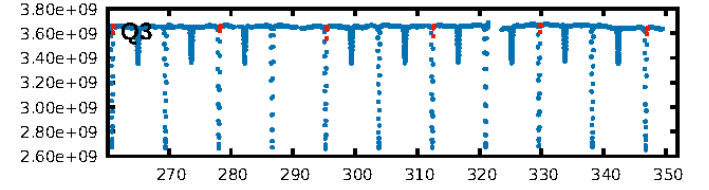
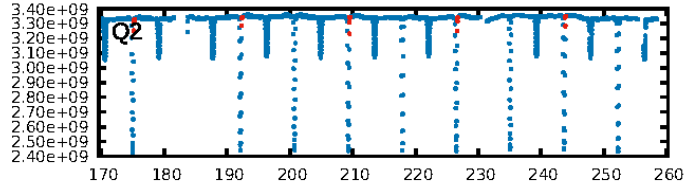
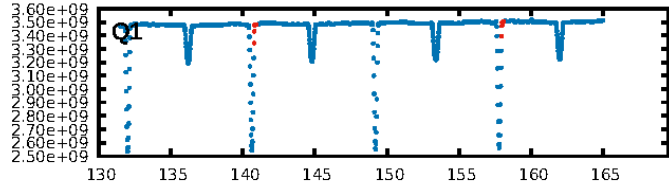
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.74 σ]
LongPeriod-sig: 100.0% [478.02 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 184.206 arcsec [108.53 σ]
OotOffset-rm: 5.052 arcsec [3.77 σ]
KicOffset-rm: 7.591 arcsec [4.27 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

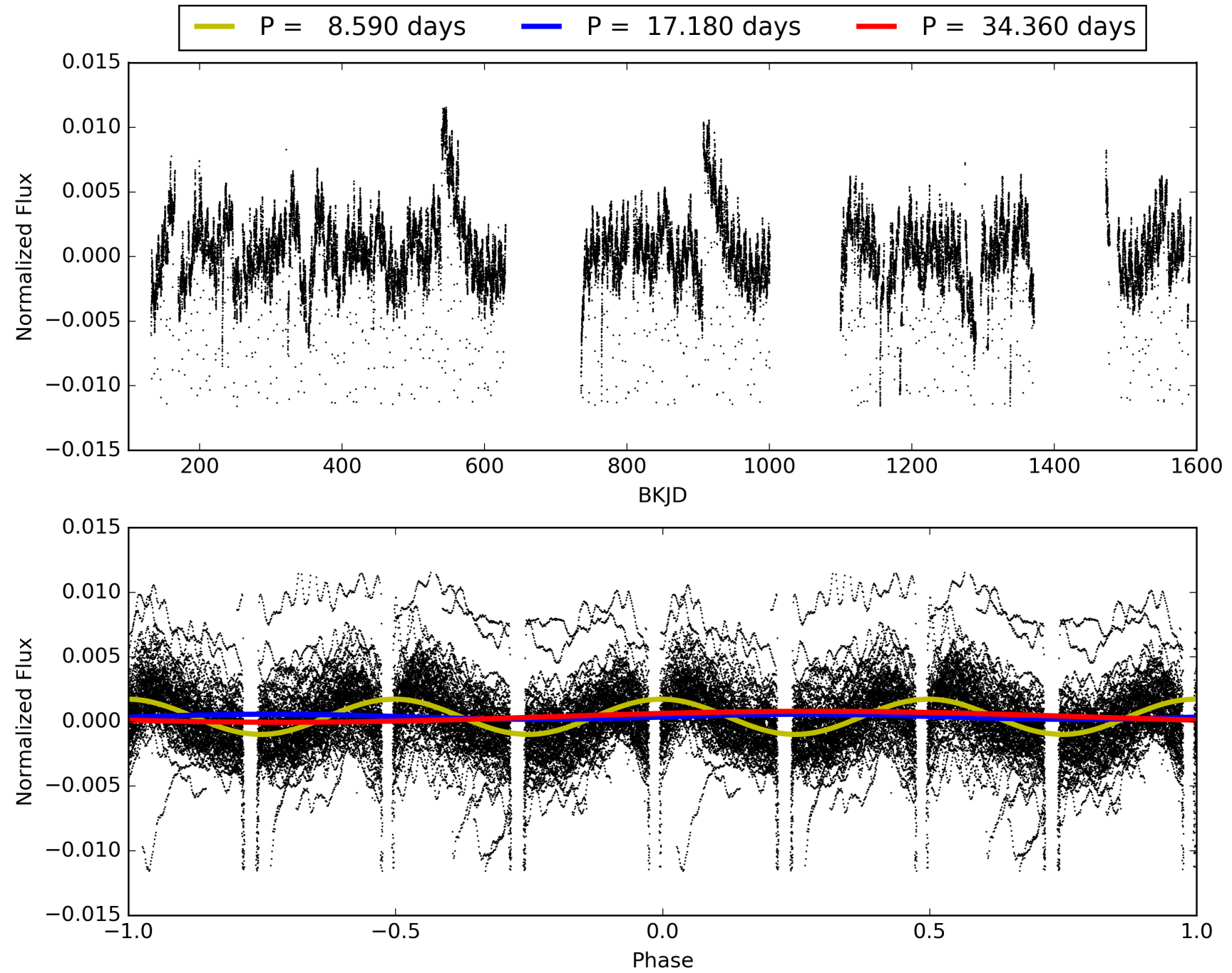
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:25:58 Z

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

TCE 010031808-06, PDC Light Curves

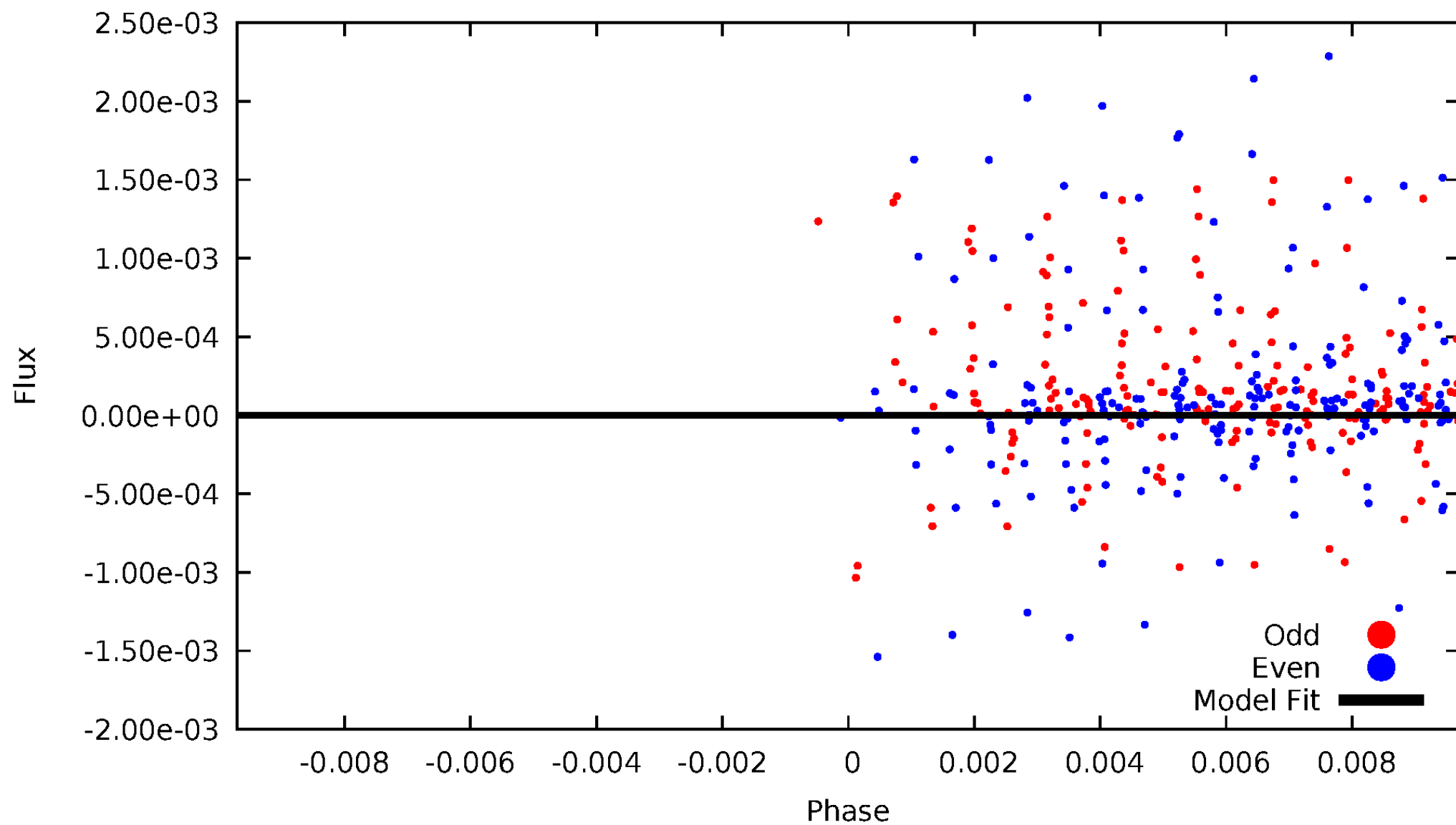


TCE 010031808-06



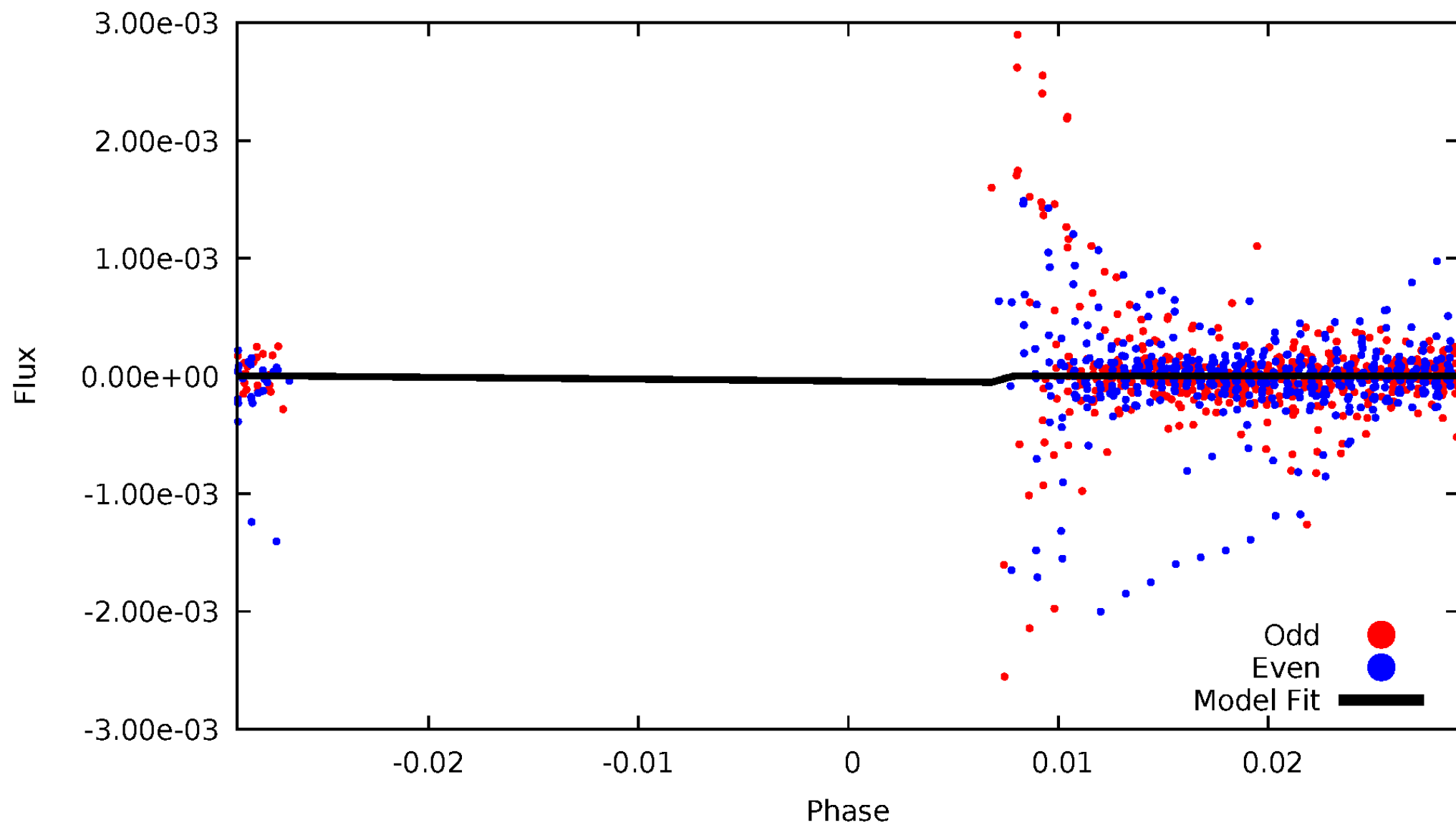
DV Odd/Even

TCE 010031808-06



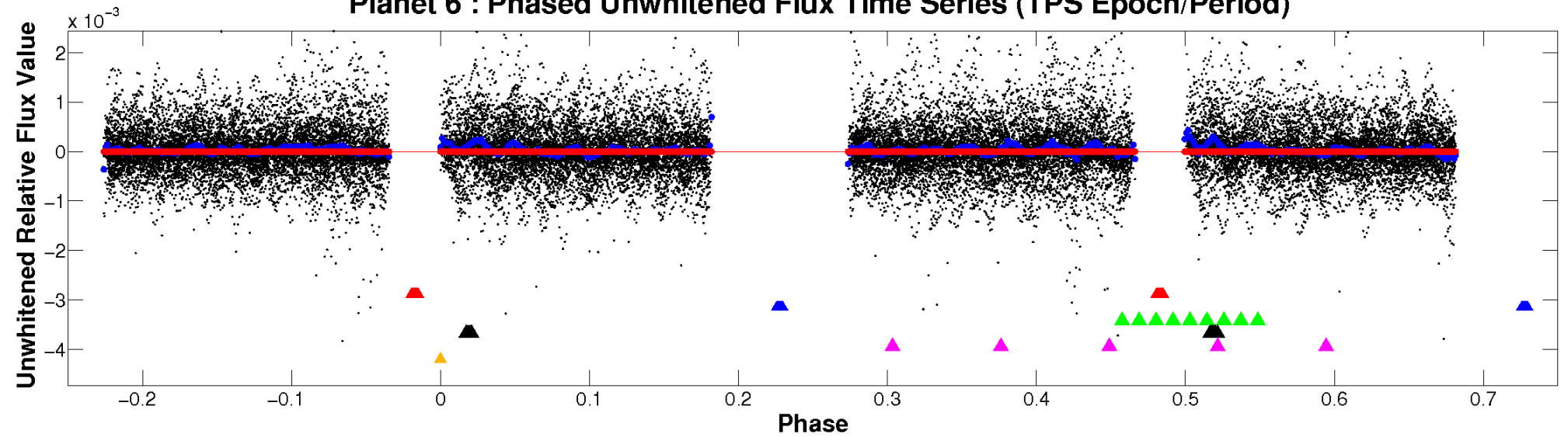
ALT Odd/Even

TCE 010031808-06

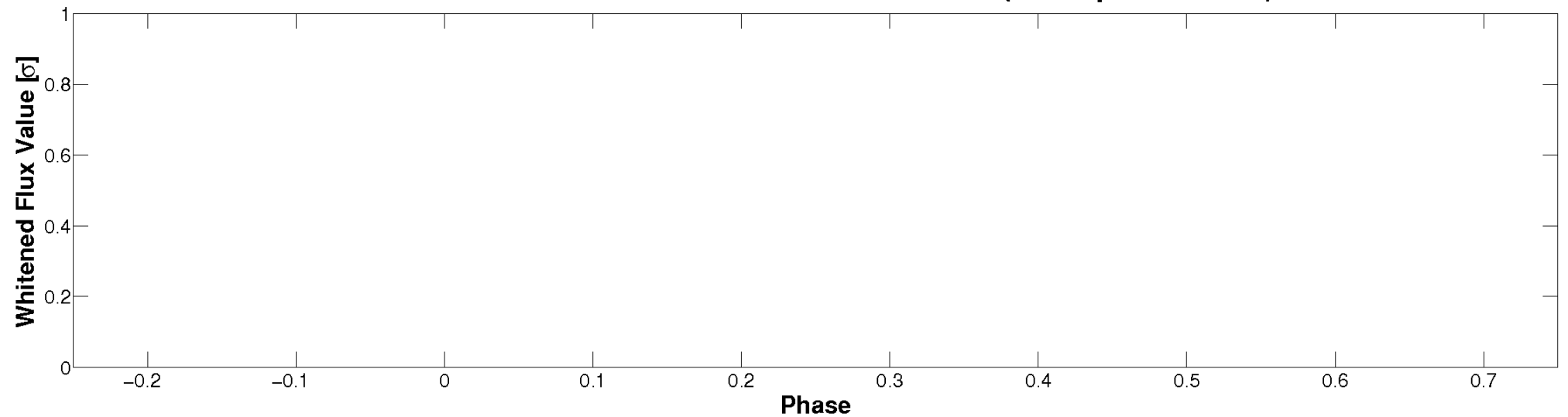


Non-Whitened Vs. Whitened Light Curve

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

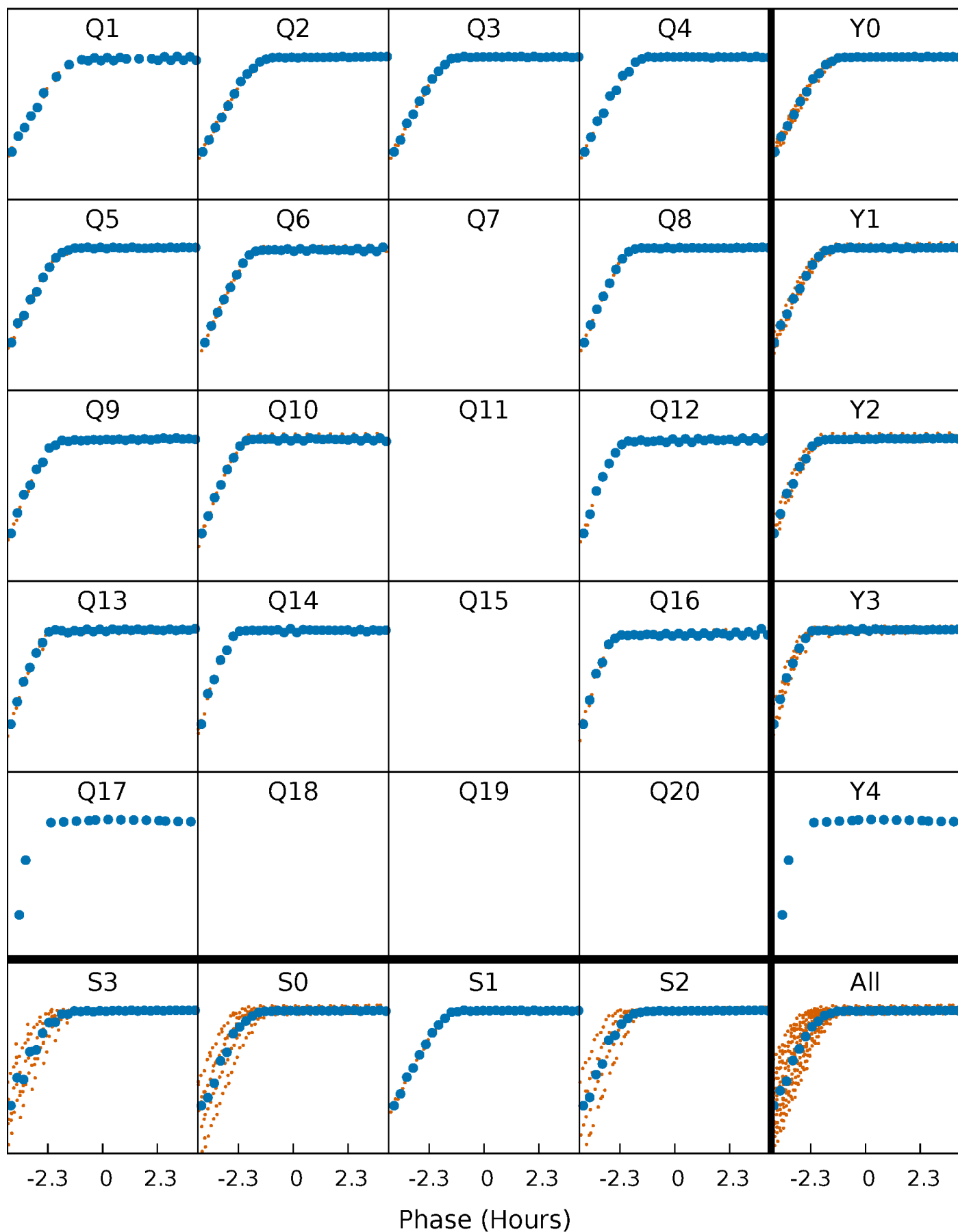


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



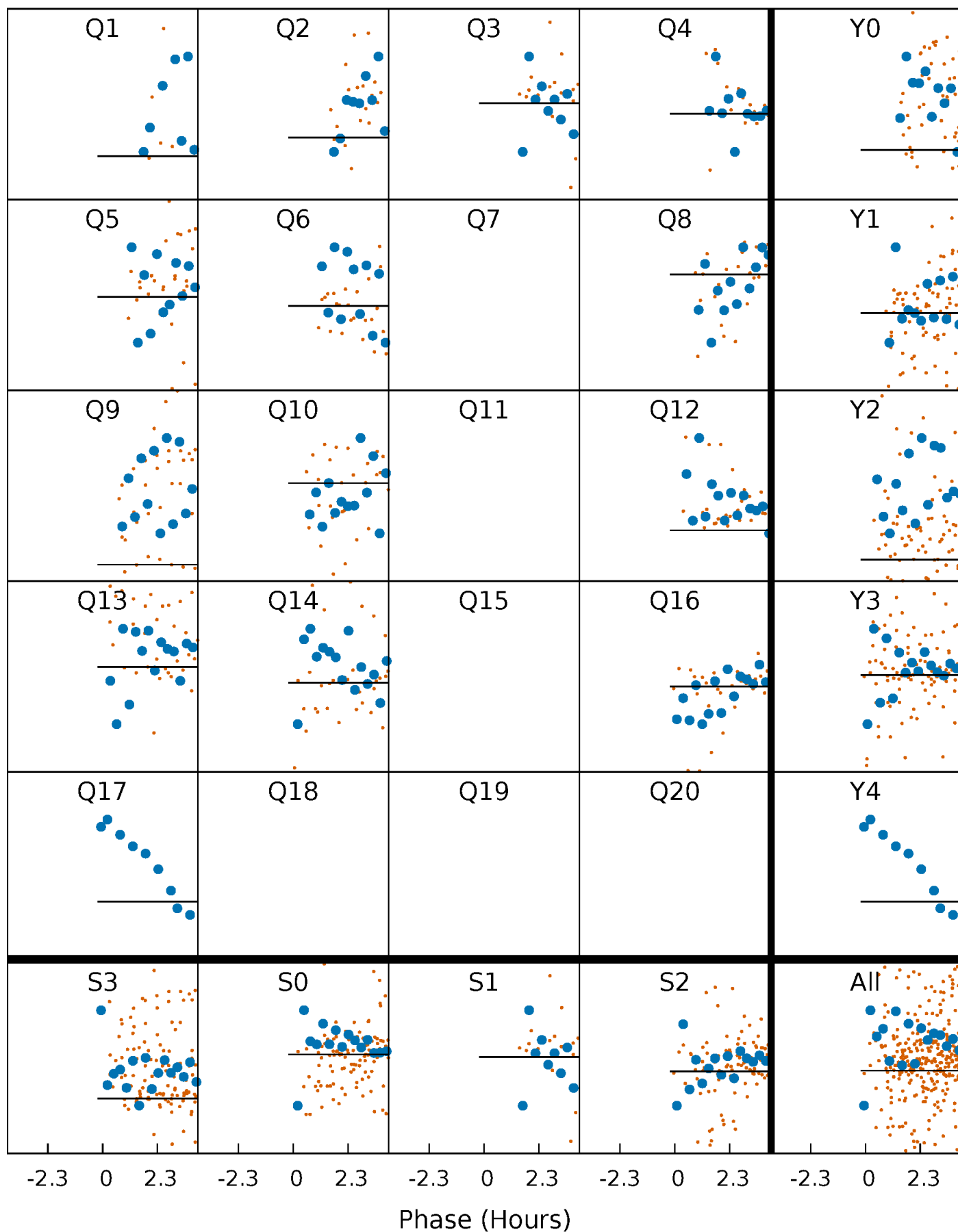
PDC Quarter-Phased Transit Curves

TCE 010031808-06 P= 17.180044 Days $T_0=140.850779$ (BKJD)



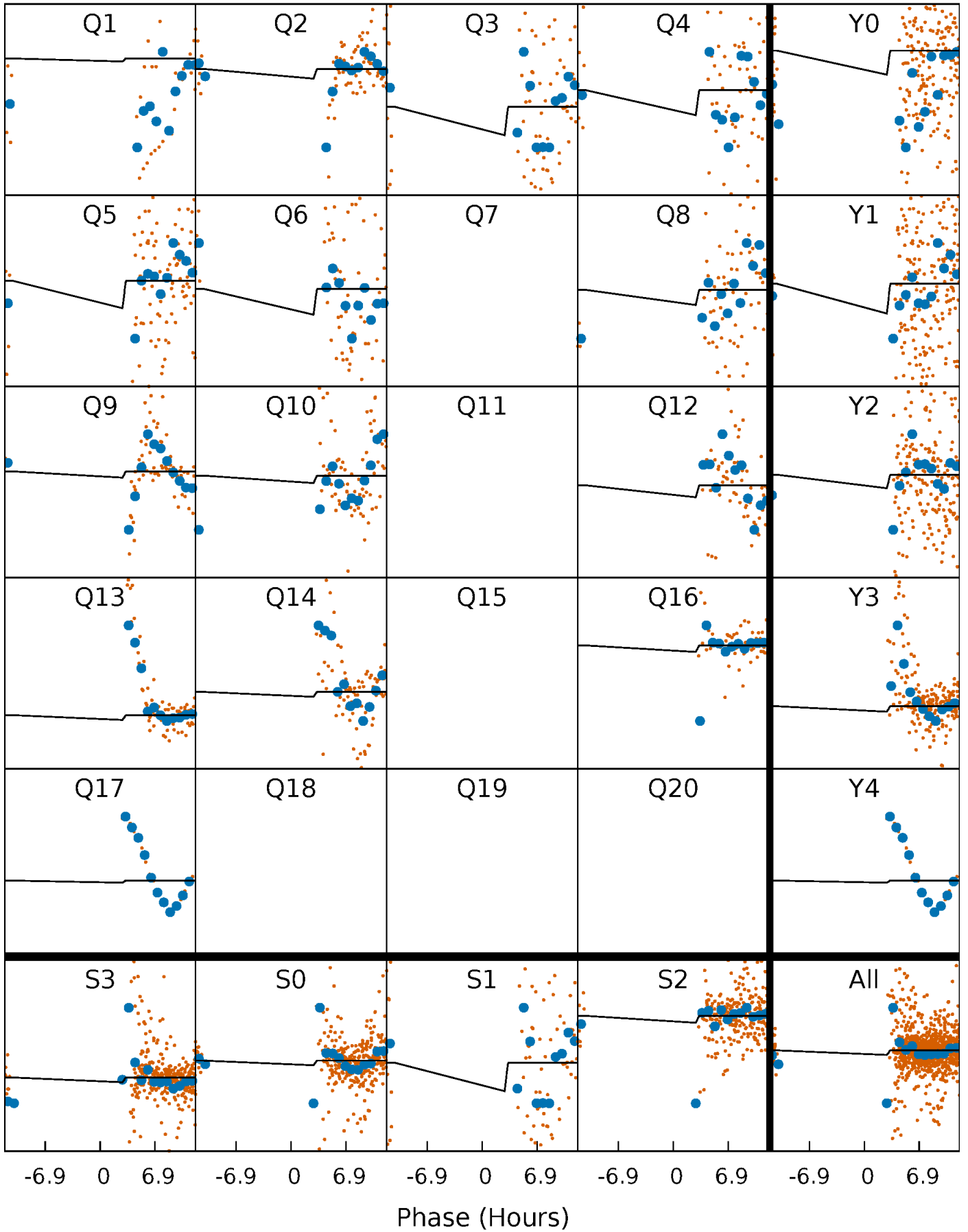
DV Quarter-Phased Transit Curves

TCE 010031808-06 $P = 17.180044$ Days $T_0 = 140.850779$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

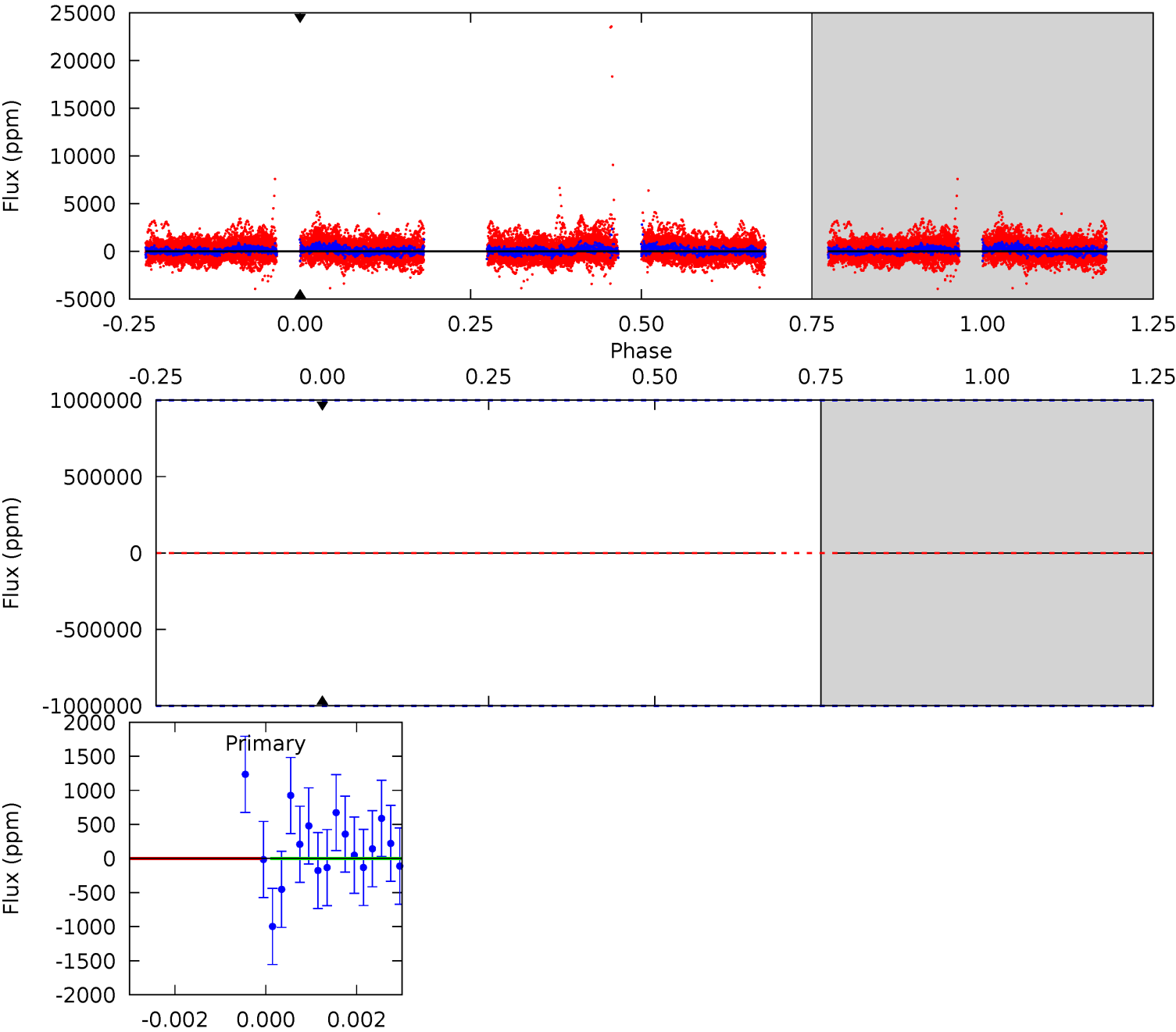
TCE 010031808-06 P= 17.180044 Days $T_0=140.725466$ (BKJD)



DV Model-Shift Uniqueness Test

010031808-06, P = 17.180044 Days, E = 123.670735 Days

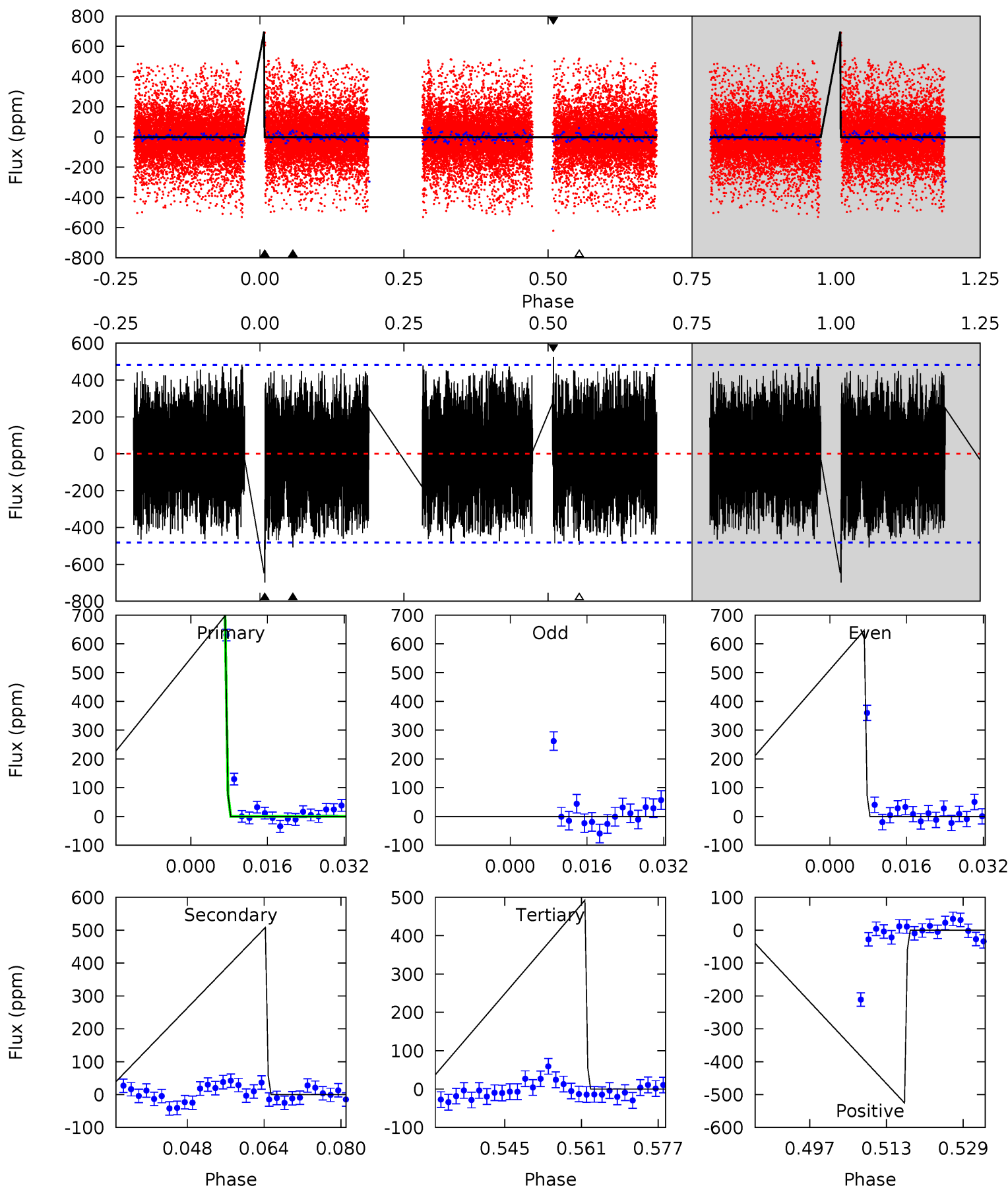
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010031808-06, P = 17.180044 Days, E = 123.545422 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.15	5.21	5.05	5.39	4.94	2.41	1.30	2.11	1.76	0.16	-0.18	0	0	0.43	0



Stellar Parameters For KIC 010031808

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6331^{+204}_{-227}	$3.813^{+0.569}_{-0.134}$	$-0.560^{+0.300}_{-0.300}$	$2.194^{+0.483}_{-1.126}$	$1.142^{+0.161}_{-0.261}$	$0.152^{+0.992}_{-0.062}$
	+3%/-4%	+15%/-4%	+54%/-54%	+22%/-51%	+14%/-23%	+652%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010031808-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$15.19^{+18.97}_{-10.91}$	1520^{+125}_{-214}	-4168^{+29747}_{-21267}	$-37.925^{+8459.073}_{-6886.048}$
Alt.	-508 ± 98	$14.47^{+16.82}_{-9.88}$	1519^{+126}_{-203}	3913^{+2270}_{-846}	24^{+205}_{-19}

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

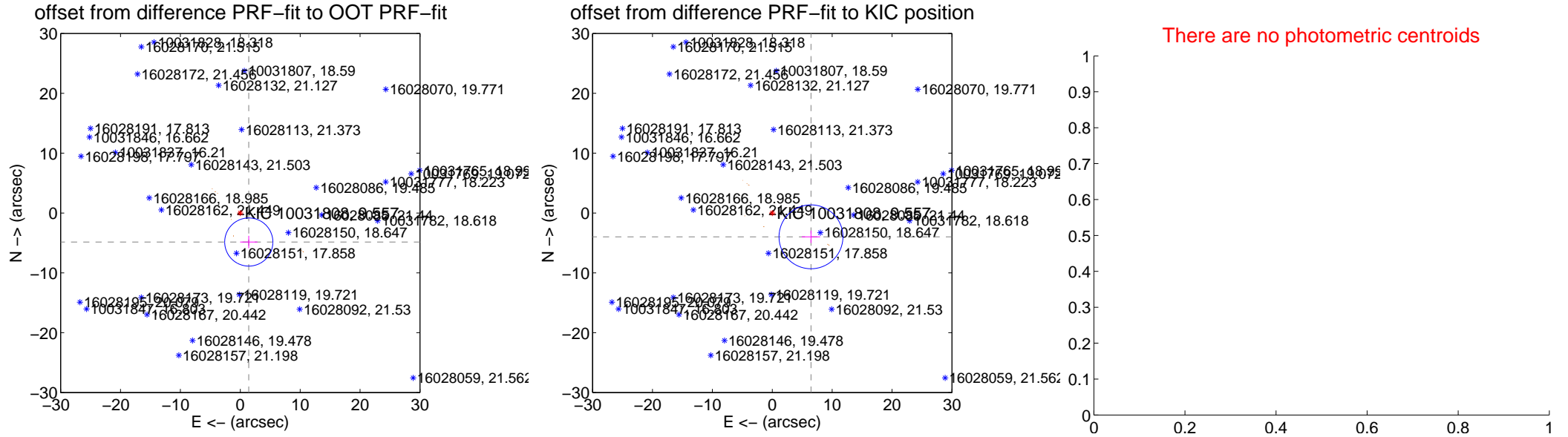
DV Centroid Data

Supplemental centroid analysis for 010031808-06. **Kepler magnitude: 9.56.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

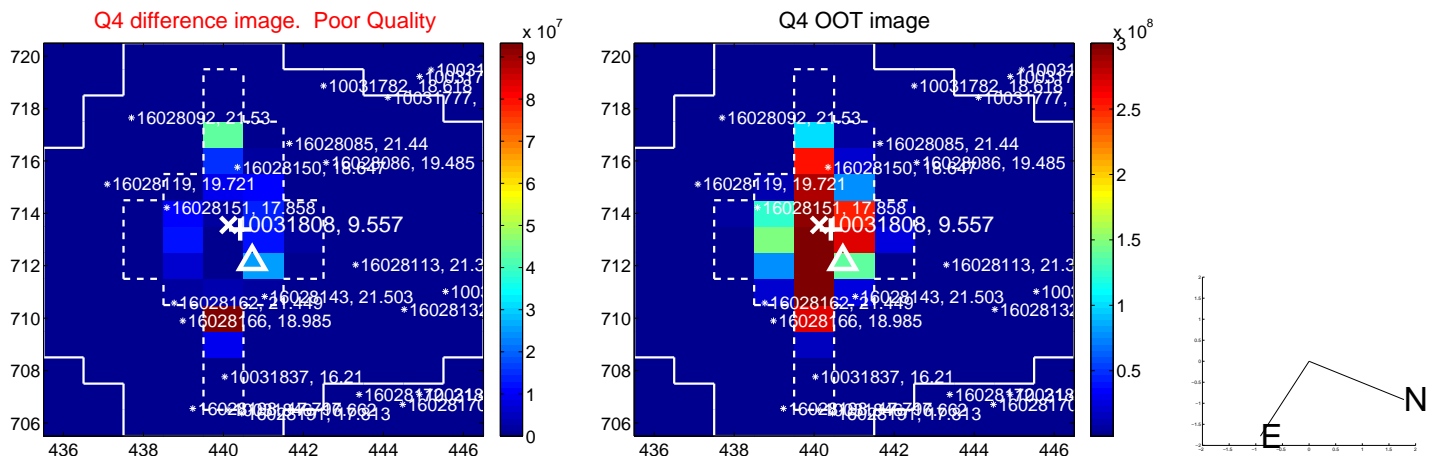
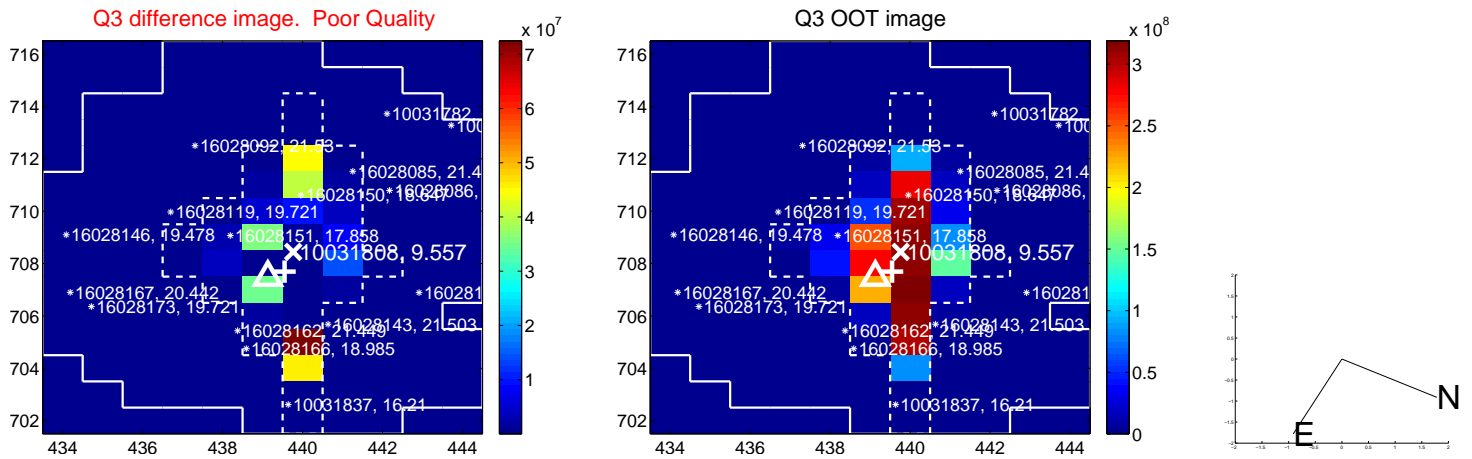
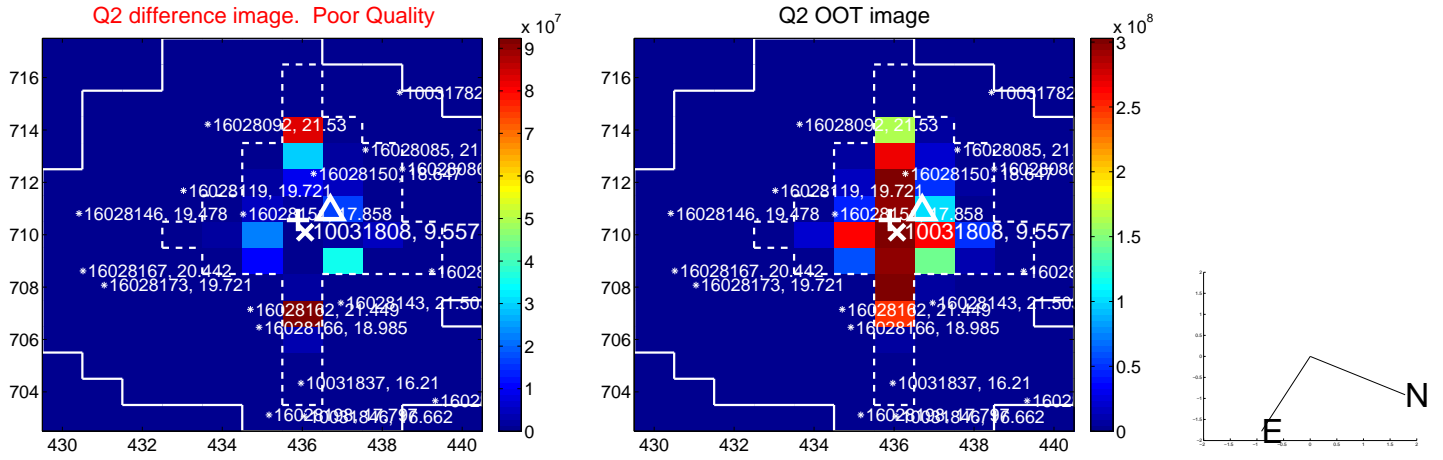
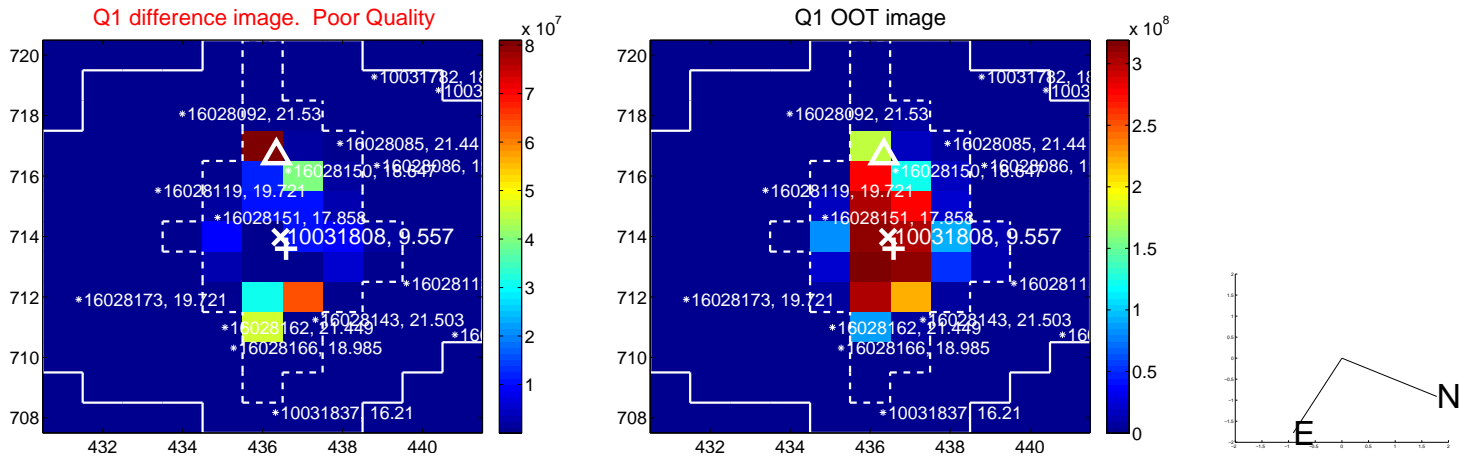
The direct PRF centroid is offset from the target star catalog position by about 1.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.052 \pm 1.341	3.77	-1.420 \pm 1.448	-4.849 \pm 1.041
PRF-fit source offset from KIC position	7.591 \pm 1.779	4.27	-6.466 \pm 1.530	-3.977 \pm 1.024
photometric centroid source offset	—	—	—	—

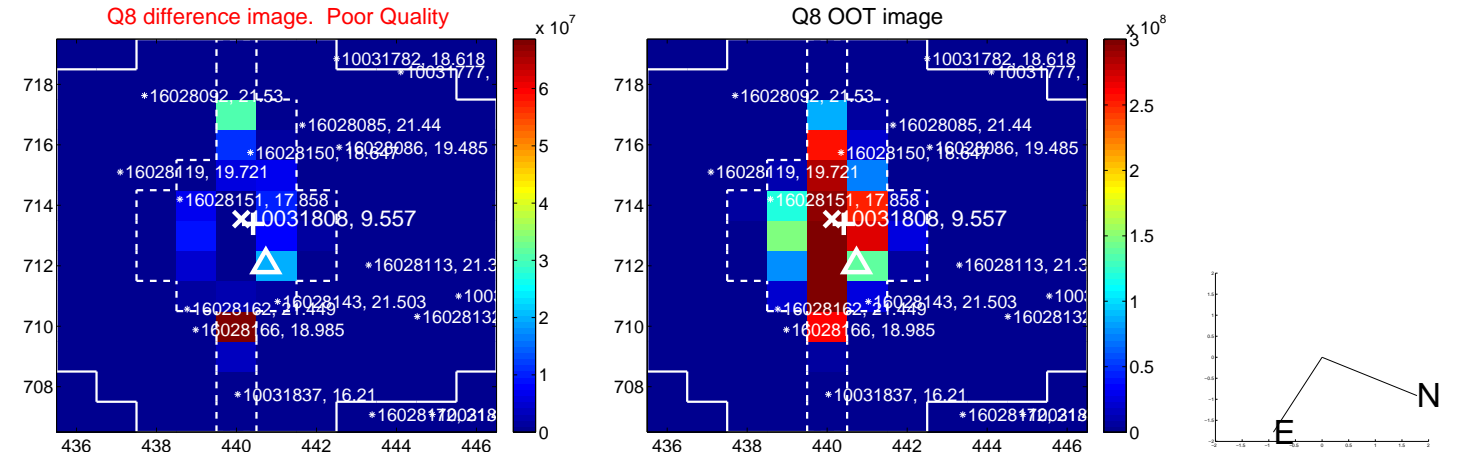
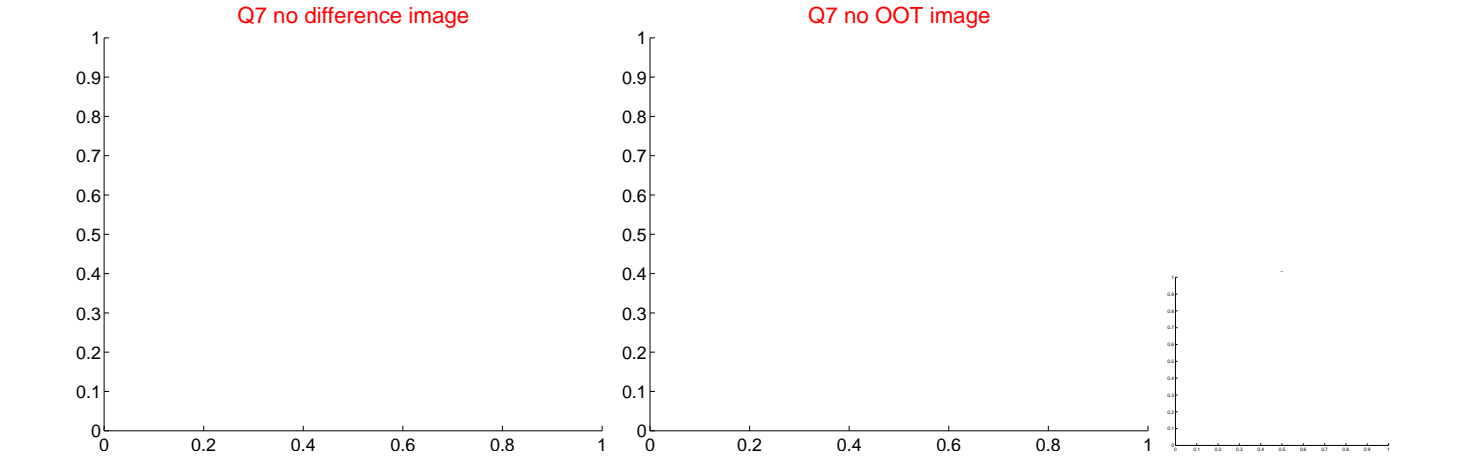
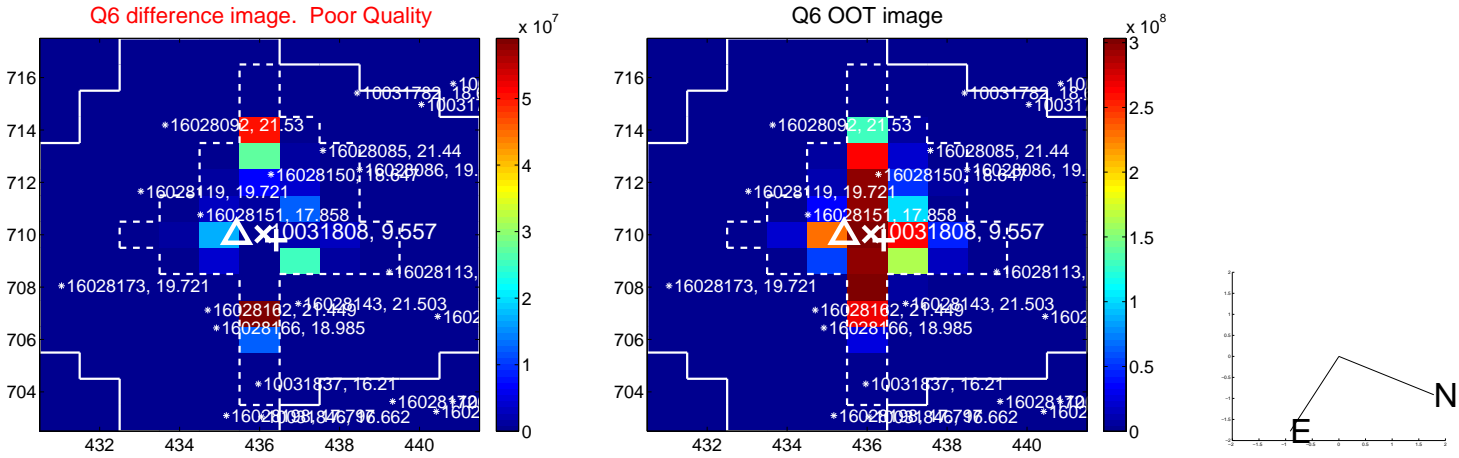
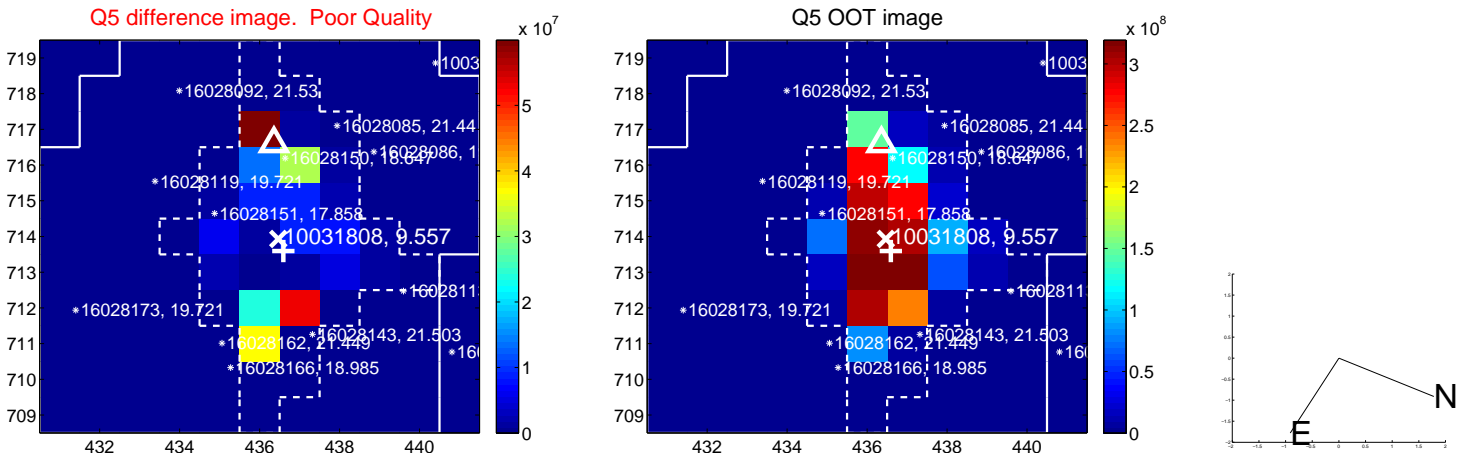


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

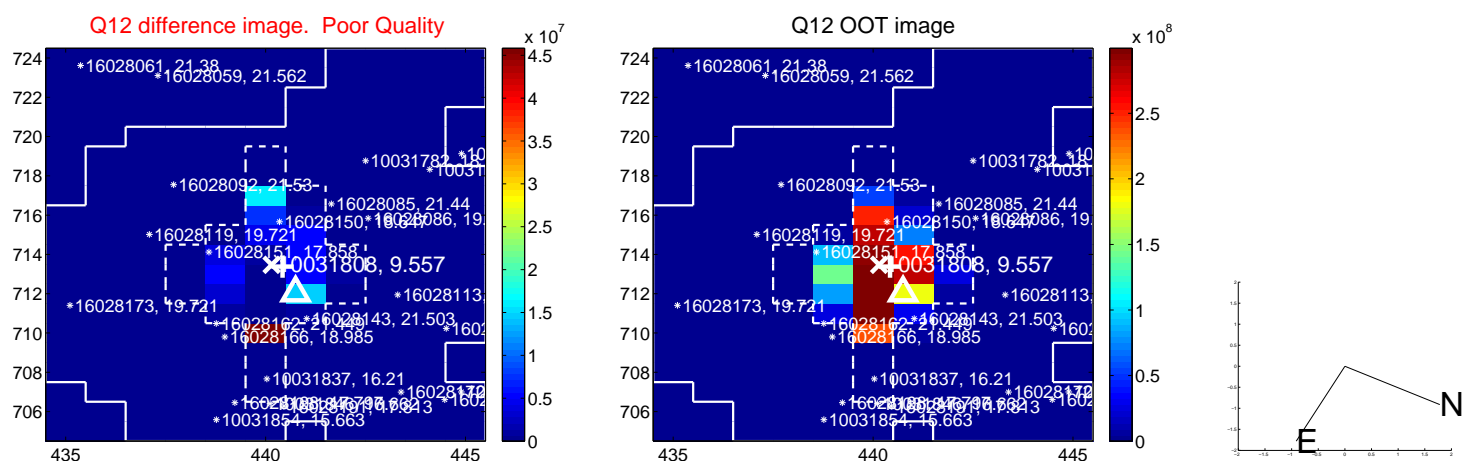
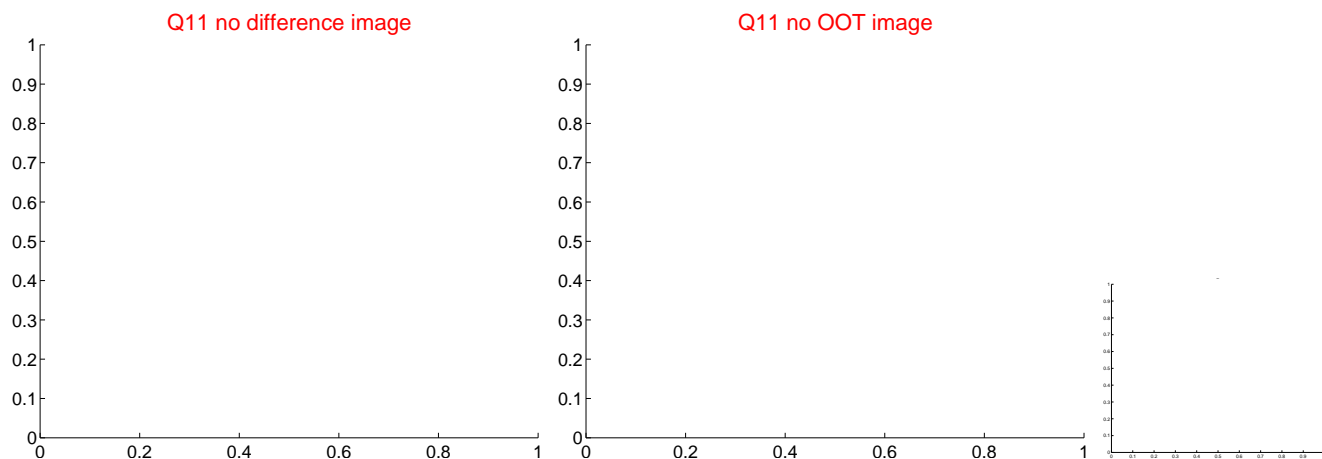
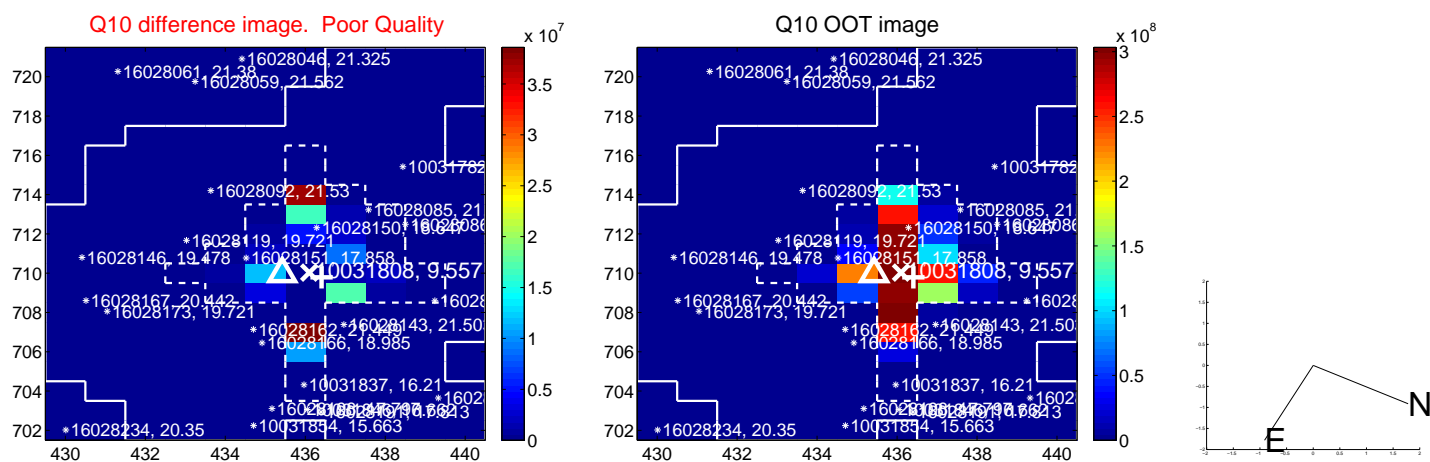
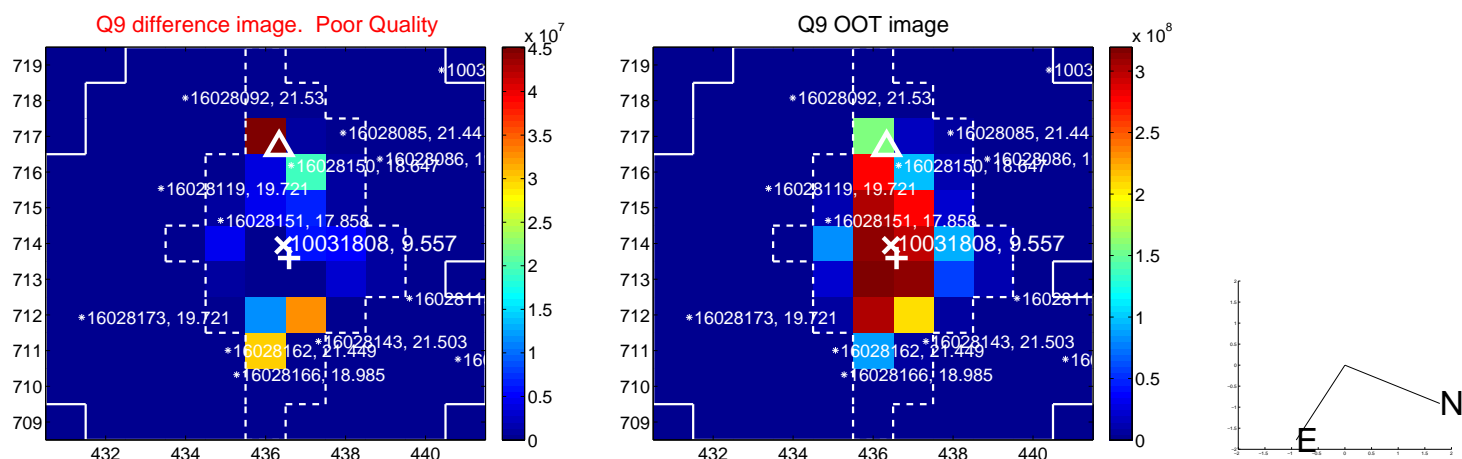
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



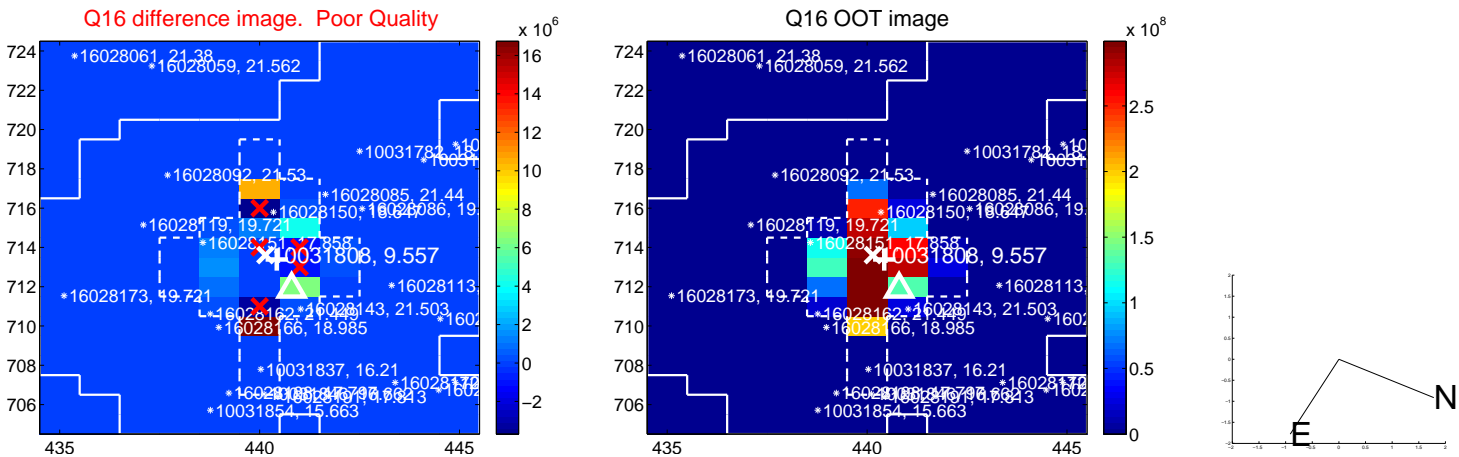
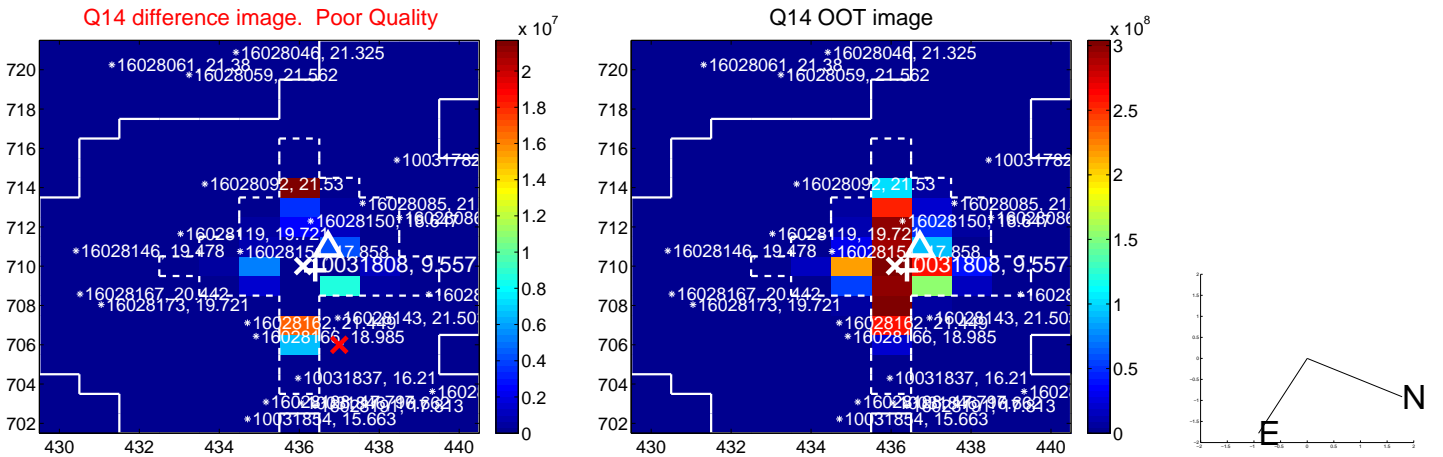
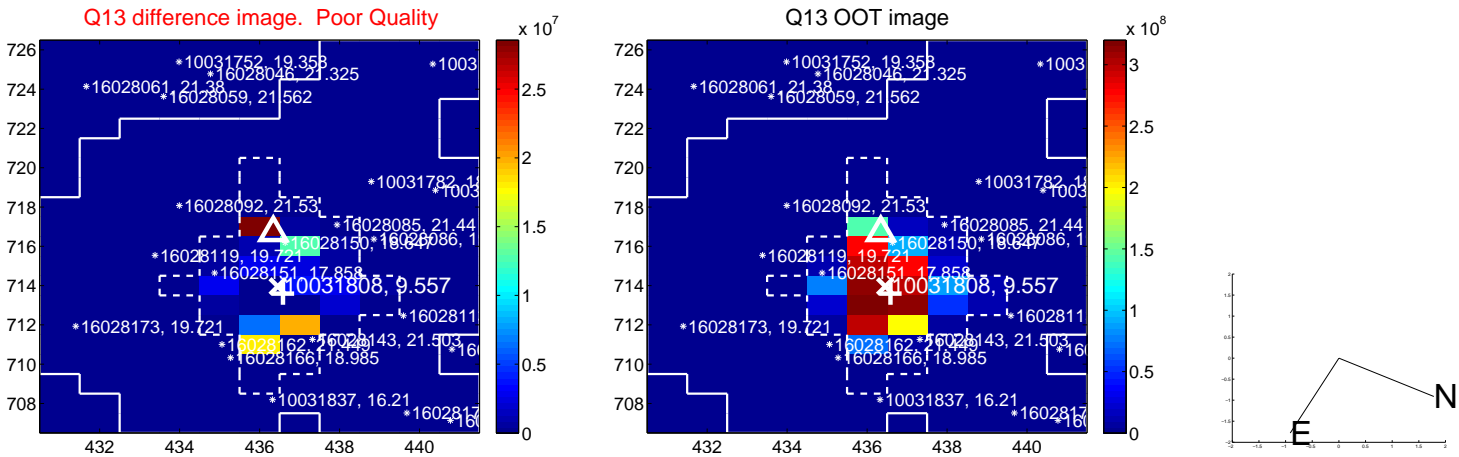
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



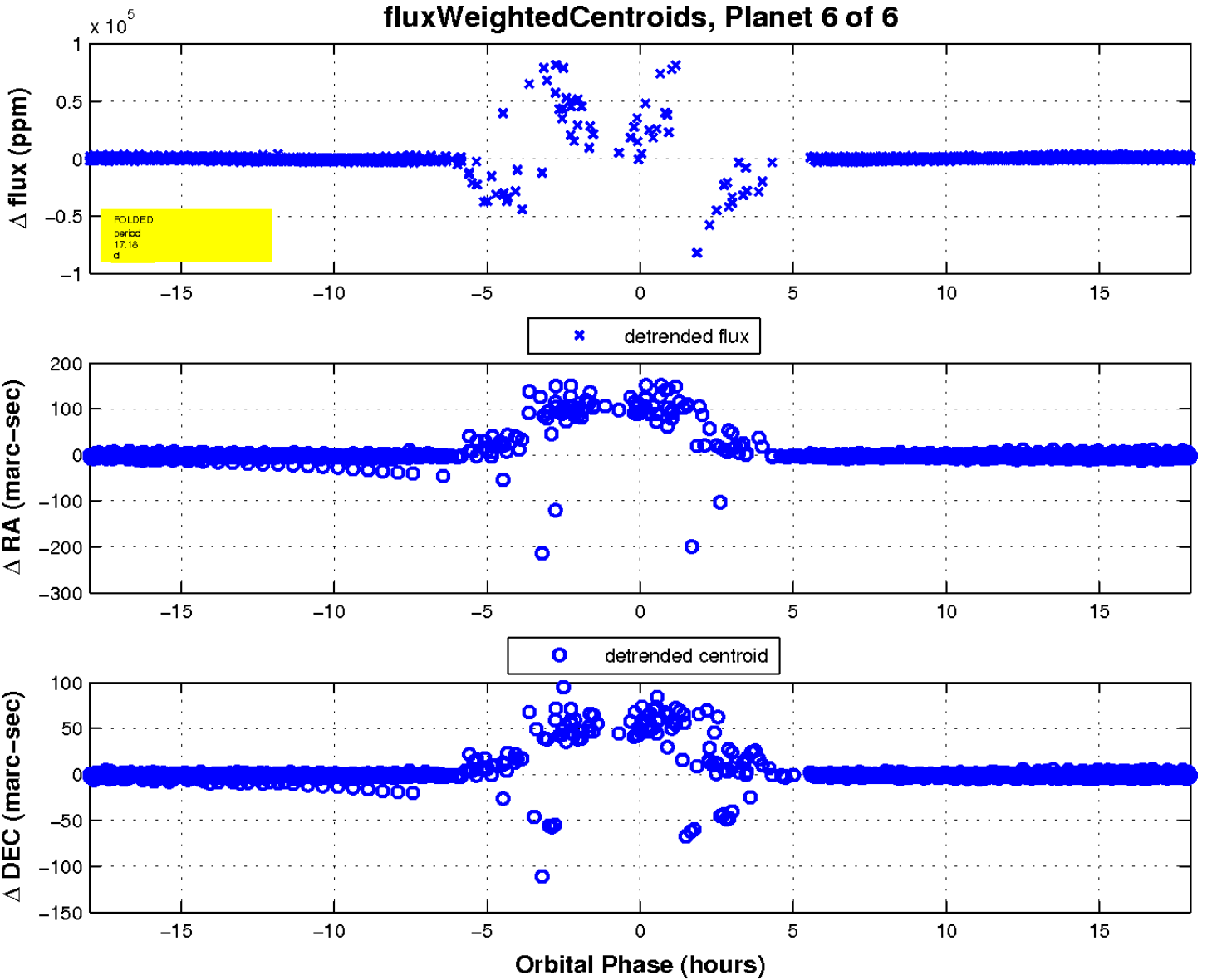
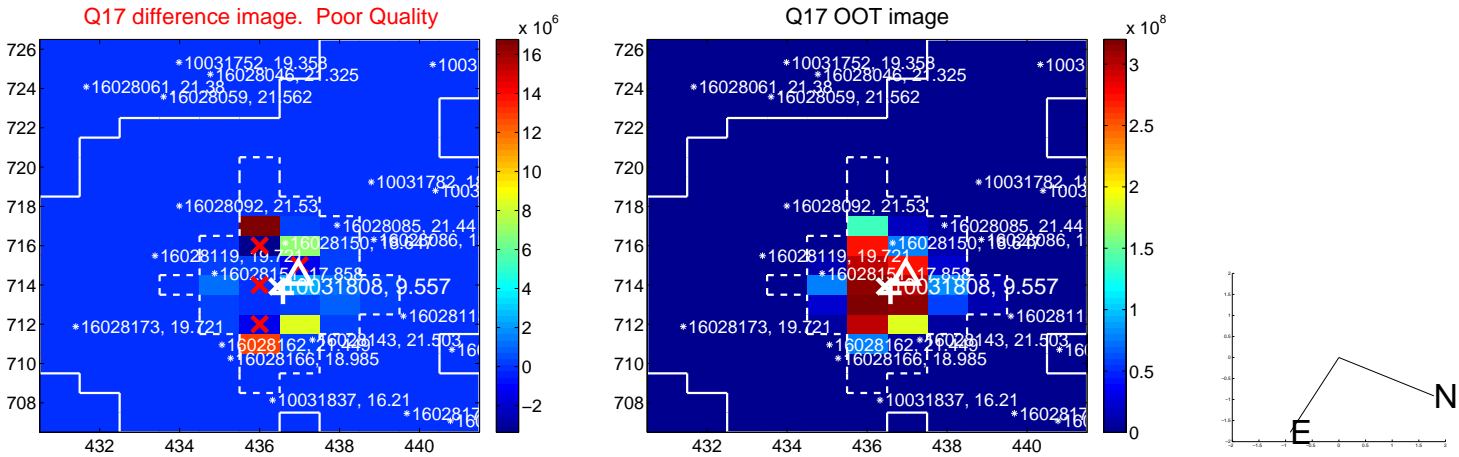
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

