

KIC 009291748

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})
009291748-01	OBS	7156.01	15.926994	144.452447	398829.8	11.728	8702.4	5383.6	0.65	5191	71.12	24.23
009291748-02	OBS	No	15.927023	136.309798	19447.9	13.126	472.7	363.0	0.65	5191	14.89	24.23
009291748-03	OBS	No	437.049433	264.647067	1587.6	6.565	13.5	8.1	0.65	5191	2.62	0.29
009291748-04	OBS	No	533.124931	388.224803	1776.8	13.593	13.0	8.8	0.65	5191	2.70	0.23
009291748-05	OBS	No	246.060930	208.334368	1165.3	10.500	12.2	-1.0	0.65	5191	2.19	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291748-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009291748-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009291748-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

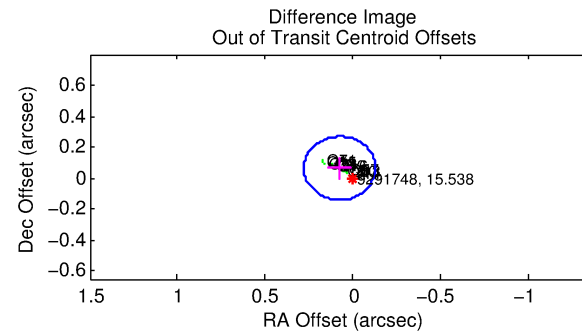
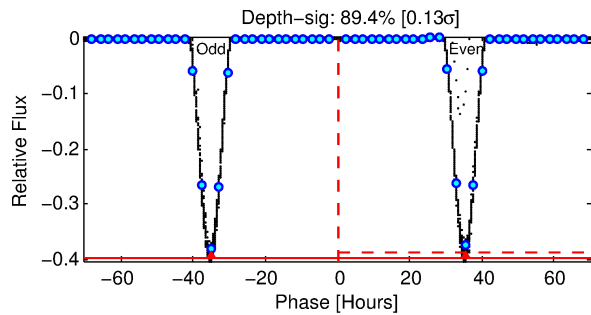
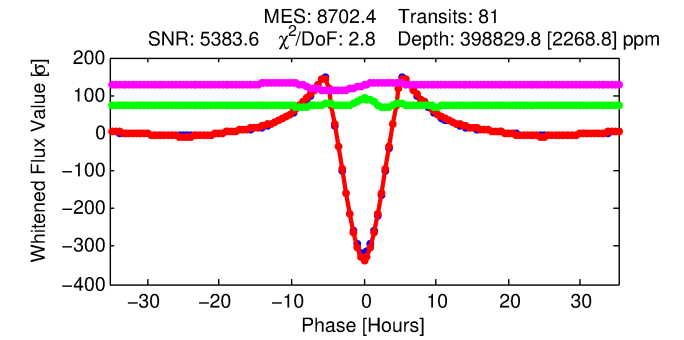
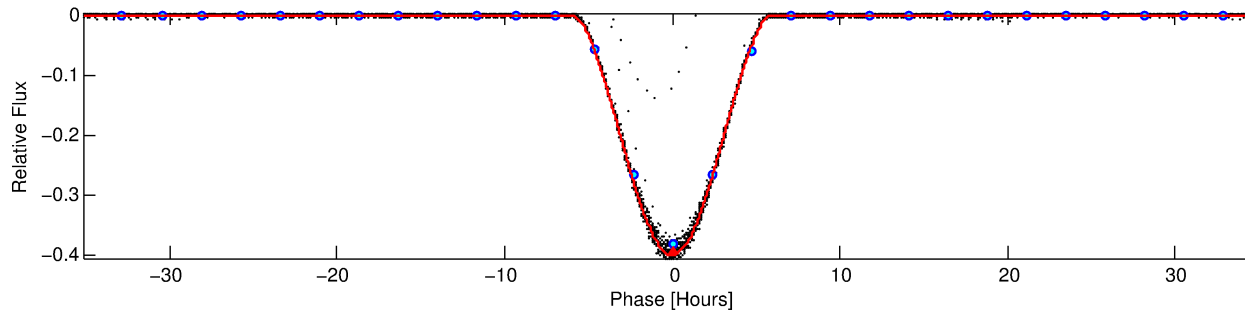
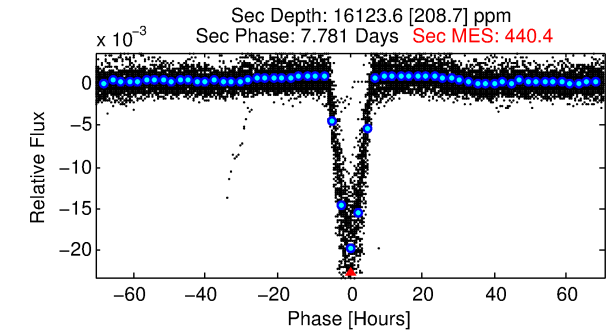
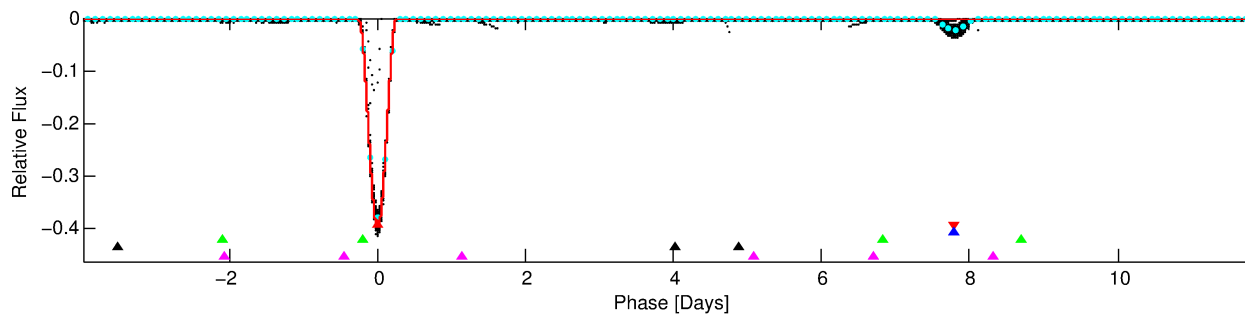
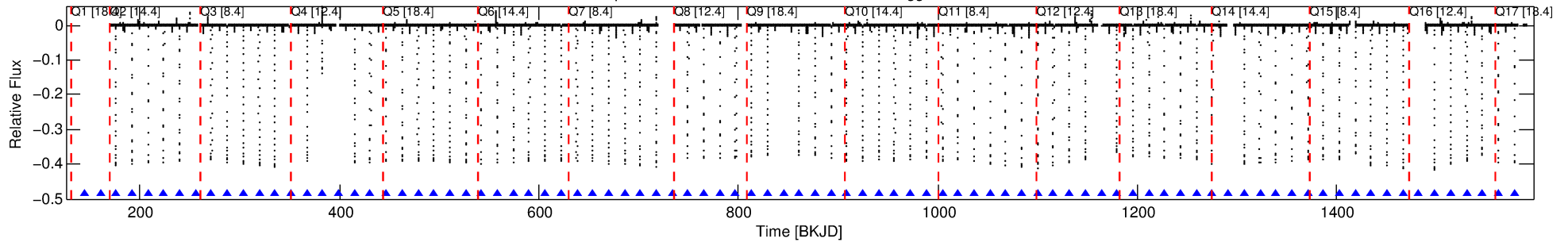
Ephemeris Match Information For 009291748-01

No Significant Match Found

DV One-Page Summary

KIC: 9291748 Candidate: 1 of 5 Period: 15.927 d
KOI: K07156.01 Corr: 0.990

Kp: 15.54 R*: 0.65 Rs Teff: 5191.0 K Logg: 4.62 Fe/H: -0.840



DV Fit Results:

Period = 15.92699 [0.00000] d
Epoch = 144.4524 [0.0000] BKJD
Rp/R* = 1.0027 [0.0035]
a/R* = 18.06 [0.02]
b = 1.00 [0.01]
Seff = 24.23 [4.18]
Teq = 566 [24] K
Rp = 71.12 [6.24] Re
a = 0.1065 [0.0085] AU
Ag = 19.90 [2.48] [7.63σ]
Teffp = 1847 [56] K [21.00σ]

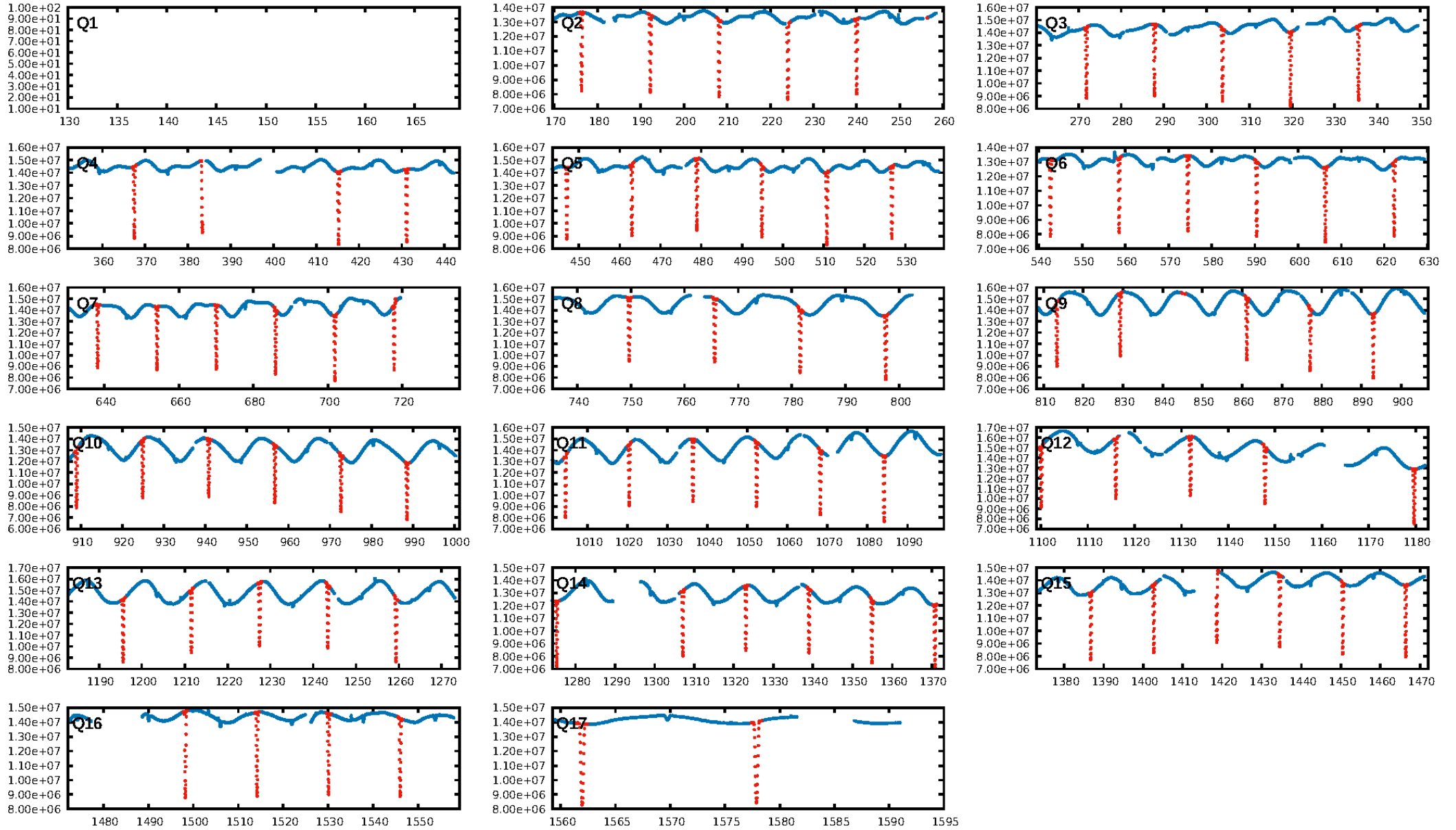
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [79/79]
GhostDiagnostic-chr: 1.45
Centroid-sig: 0.0%
Centroid-so: 0.175 arcsec [160.20σ]
OotOffset-rm: 0.101 arcsec [1.47σ]
KicOffset-rm: 0.066 arcsec [0.97σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

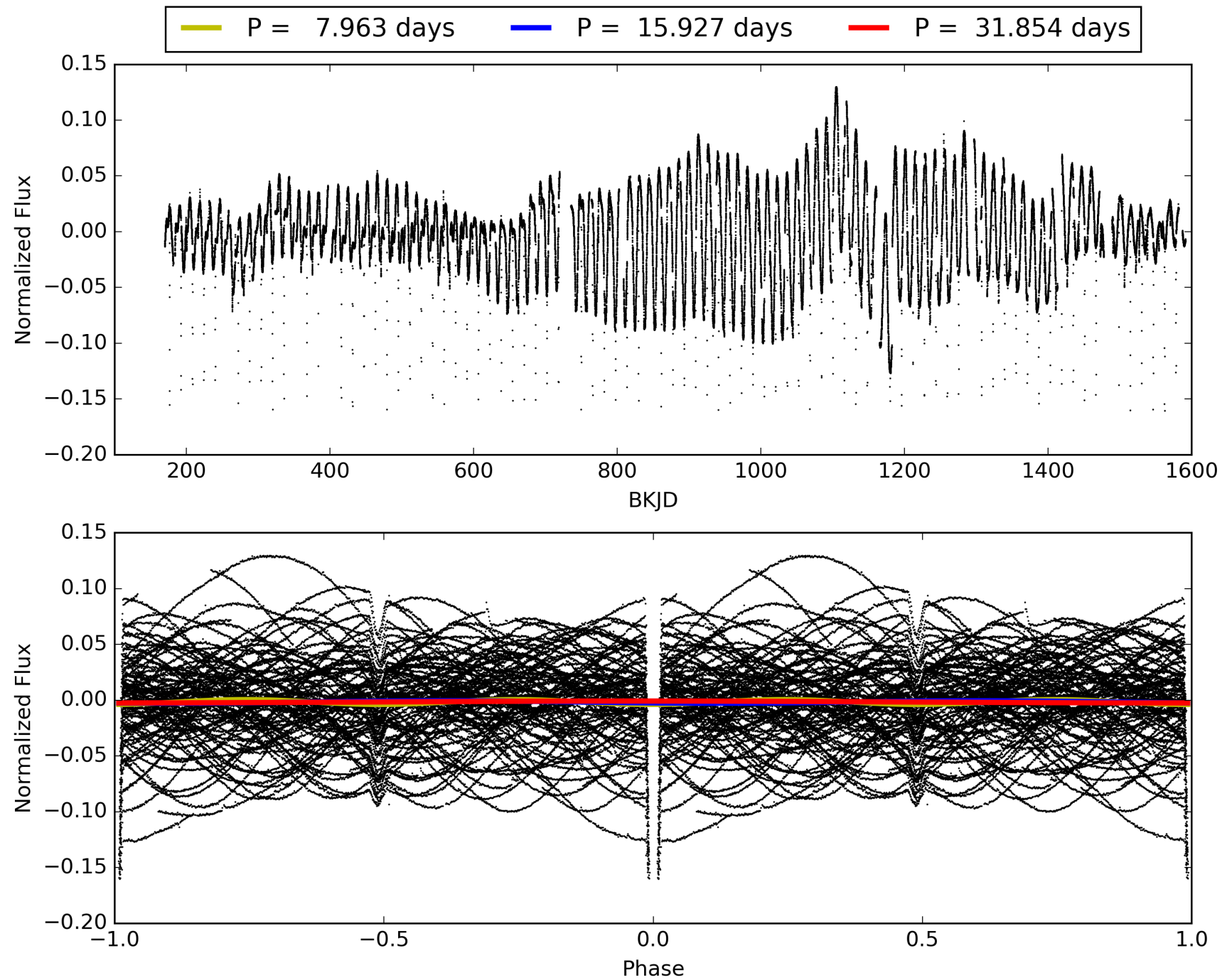
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:07:39 Z

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

TCE 009291748-01, PDC Light Curves

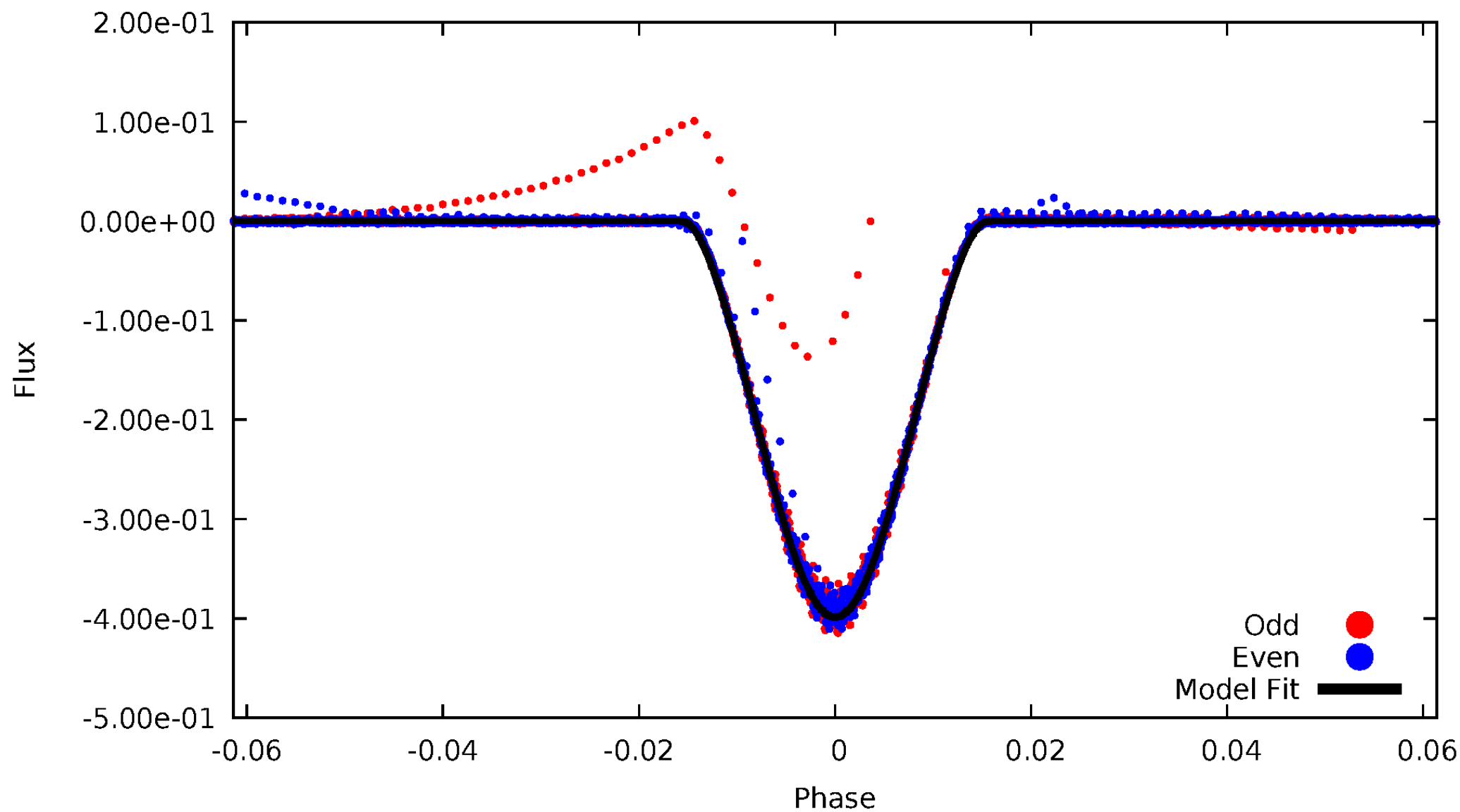


TCE 009291748-01



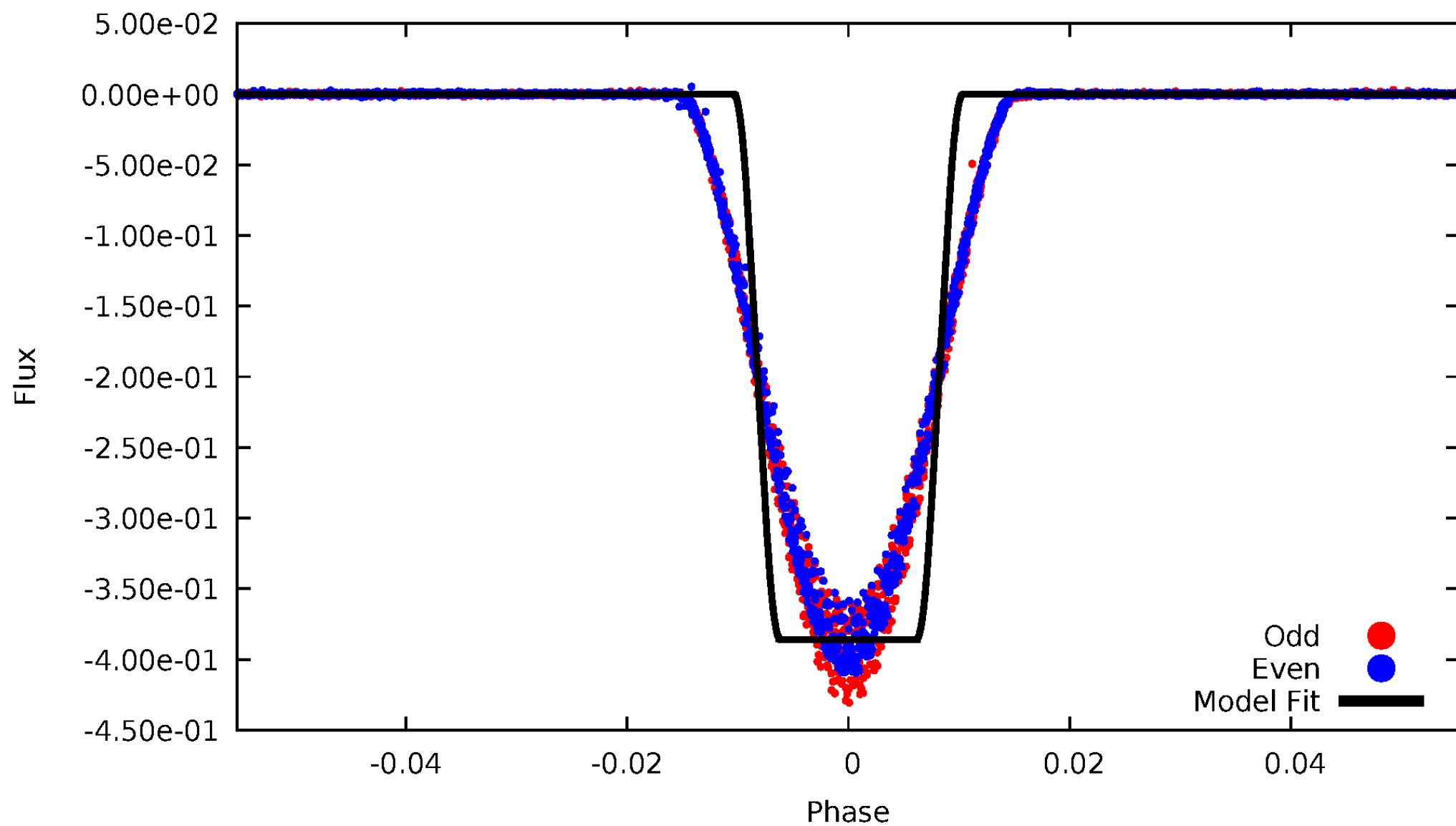
DV Odd/Even

TCE 009291748-01



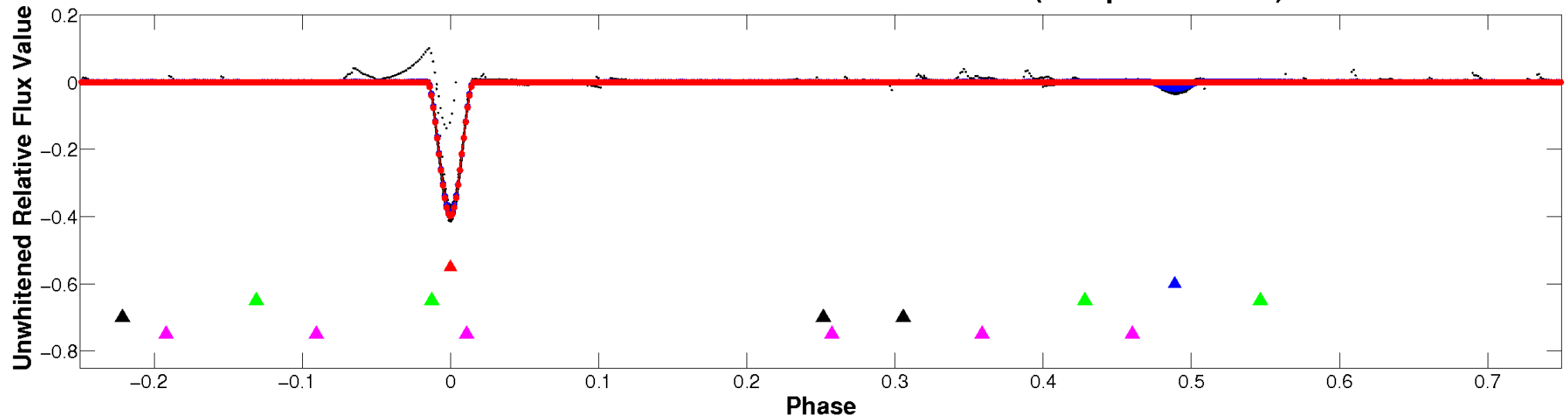
ALT Odd/Even

TCE 009291748-01

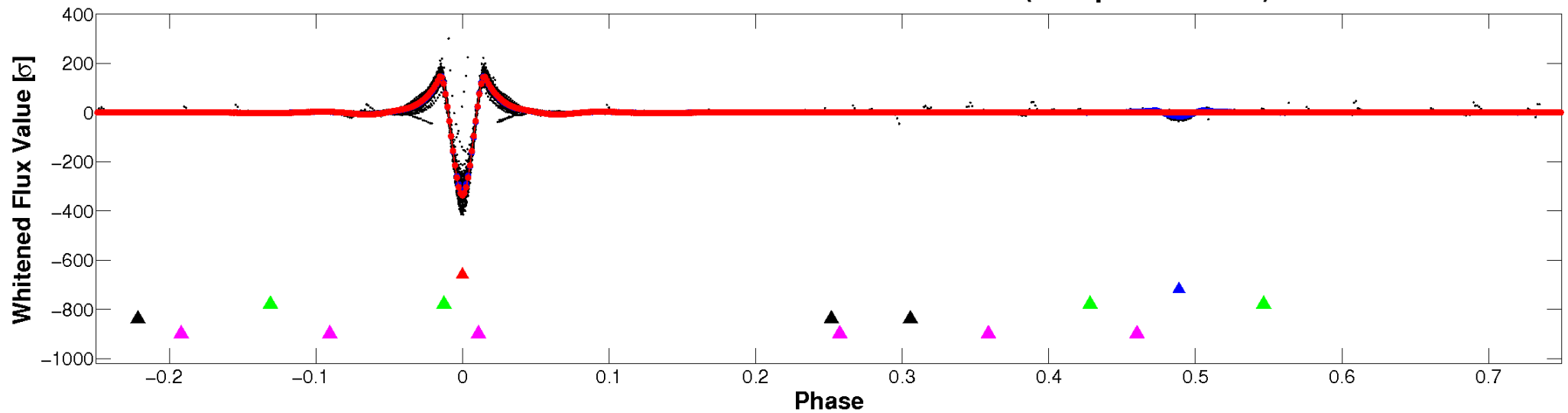


Non-Whitened Vs. Whitened Light Curve

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

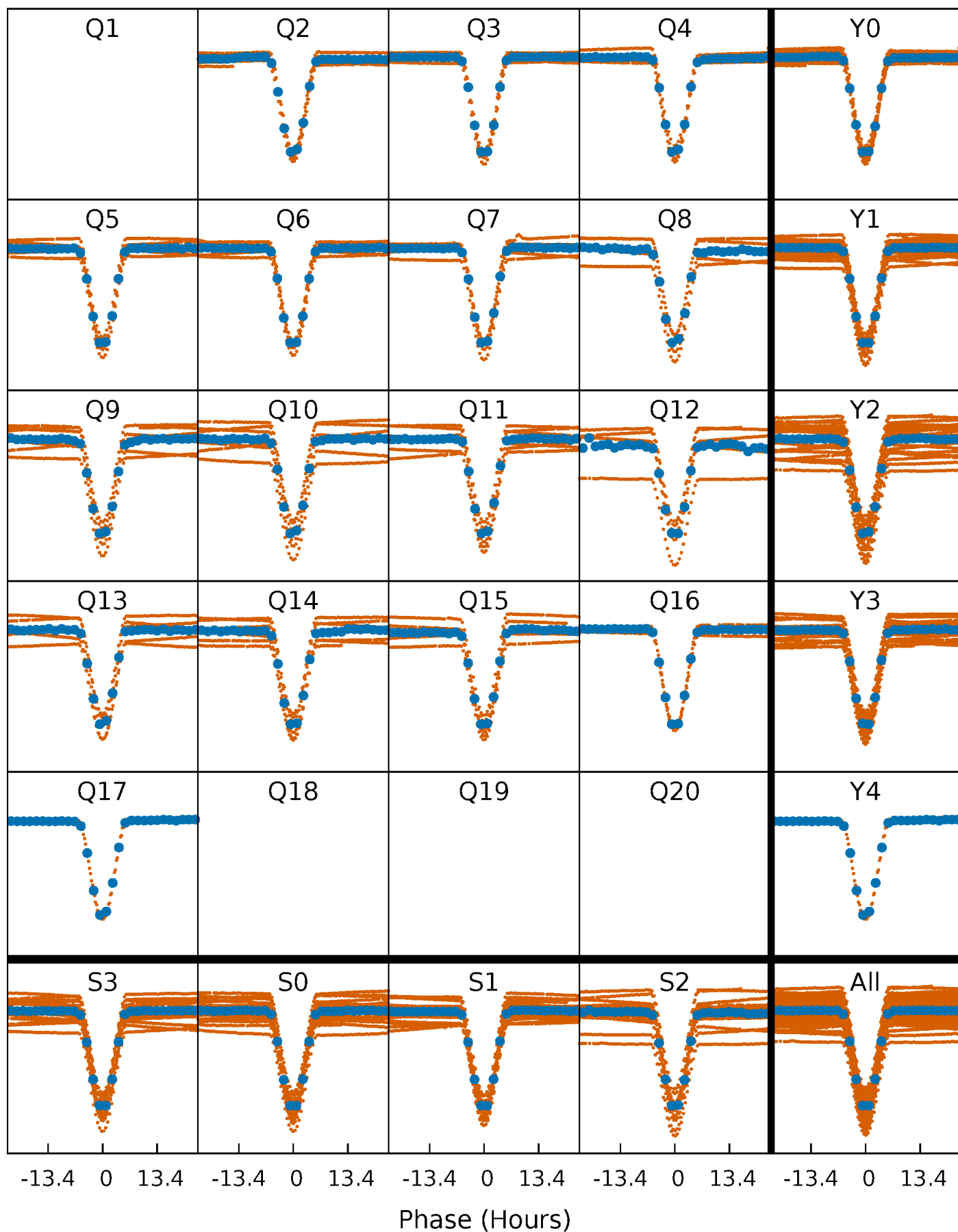


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



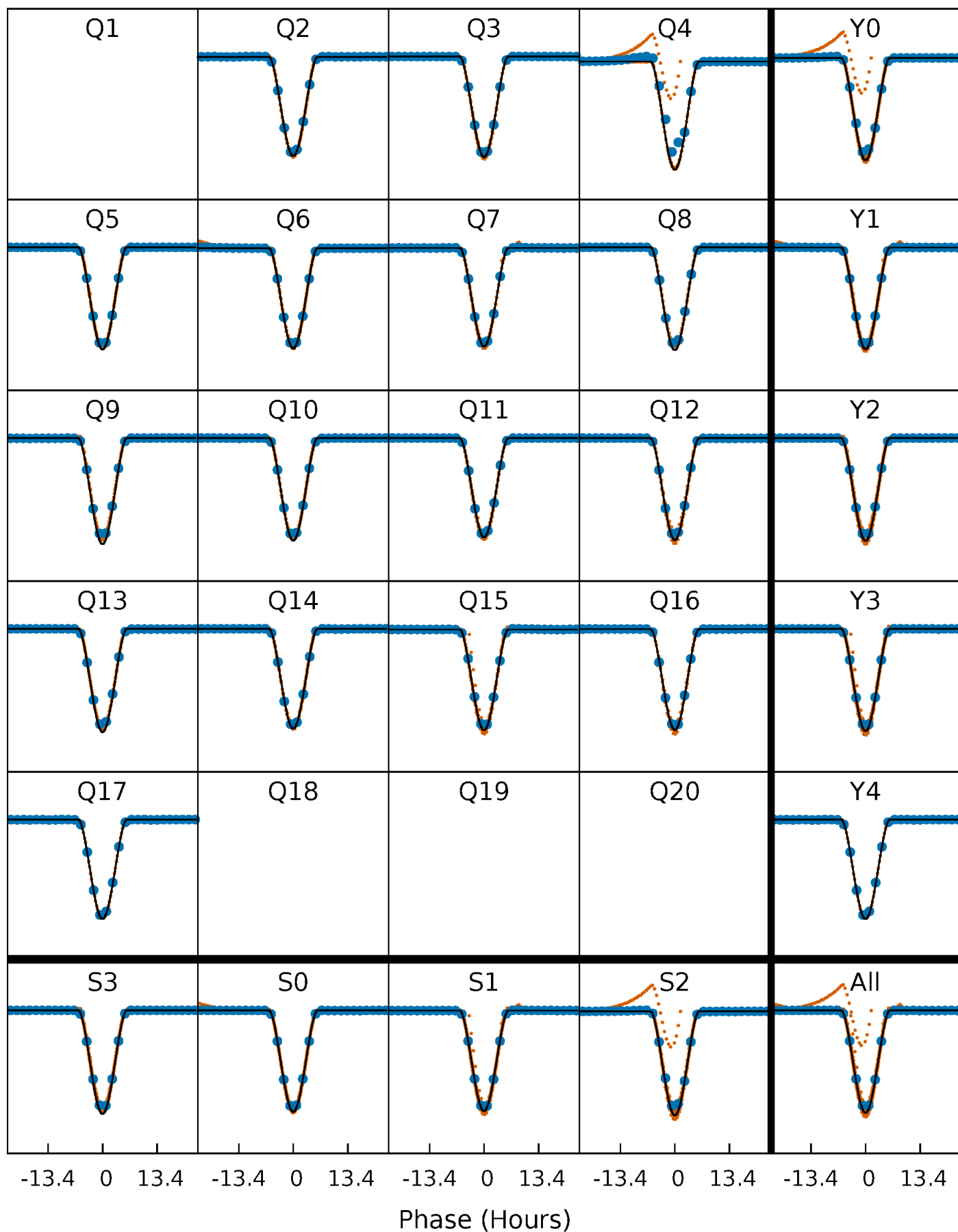
PDC Quarter-Phased Transit Curves

TCE 009291748-01 P= 15.926994 Days $T_0=144.452447$ (BKJD)



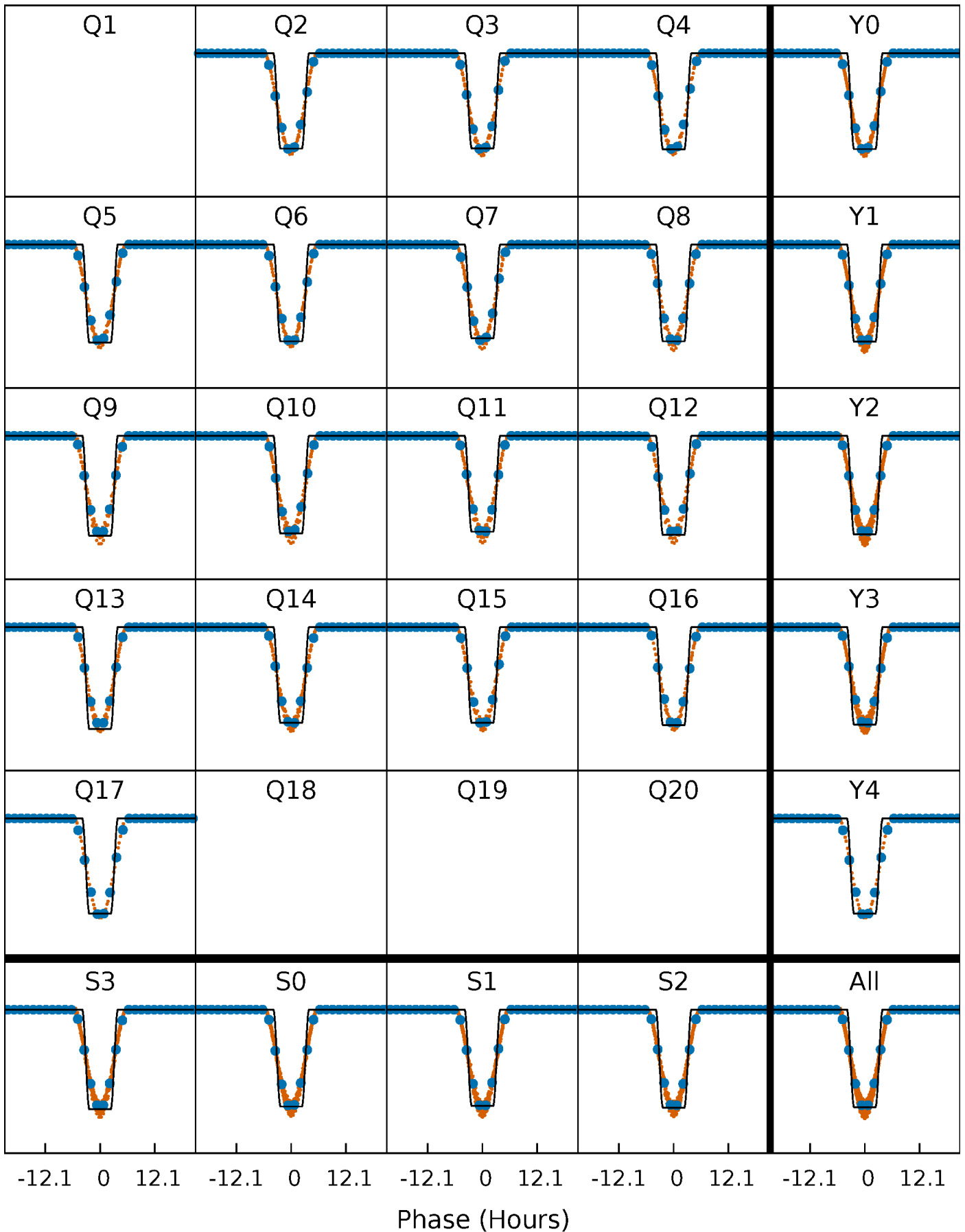
DV Quarter-Phased Transit Curves

TCE 009291748-01 P= 15.926994 Days $T_0=144.452447$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

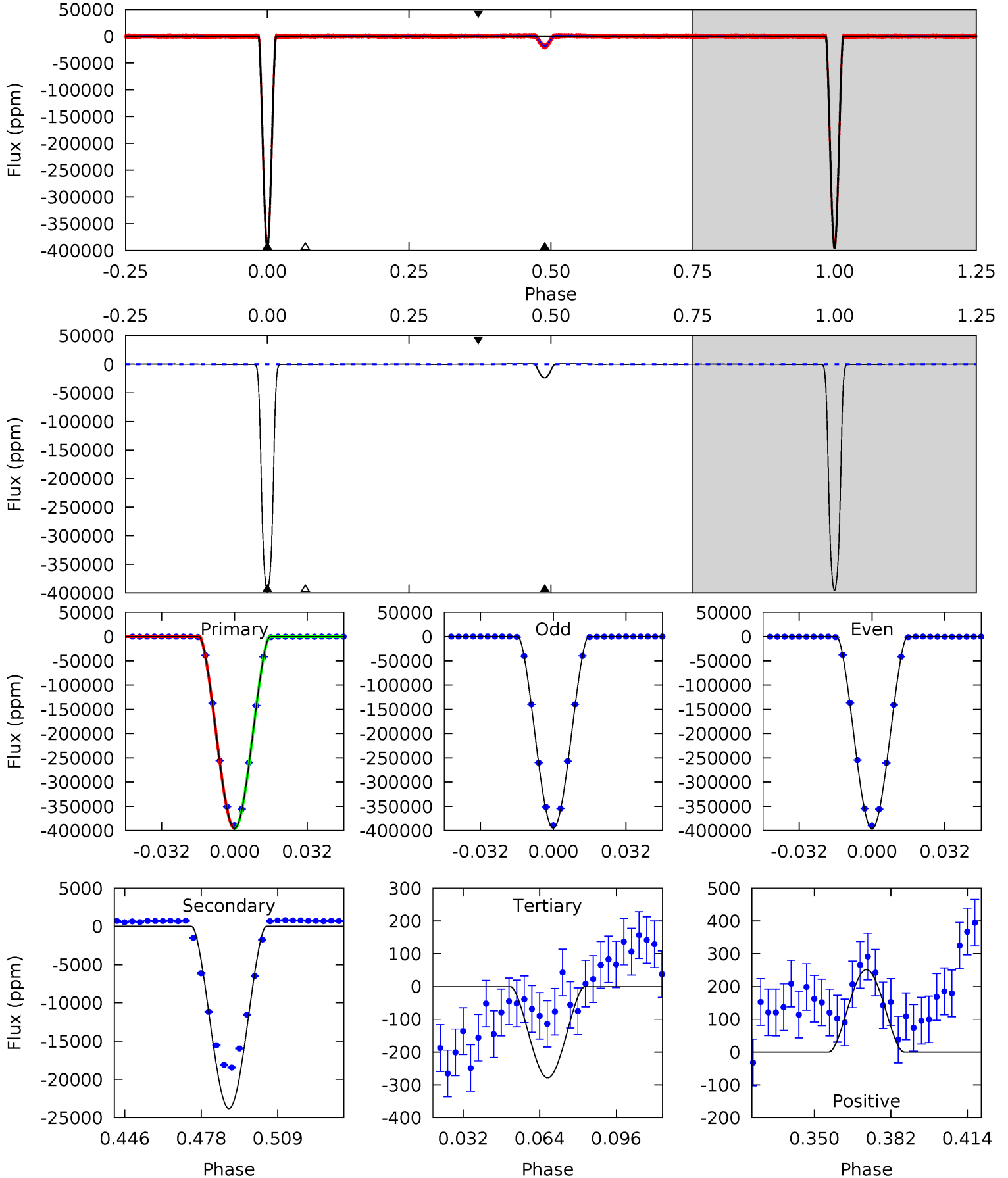
TCE 009291748-01 P= 15.926916 Days $T_0=144.456296$ (BKJD)



DV Model-Shift Uniqueness Test

009291748-01, P = 15.926994 Days, E = 144.452447 Days

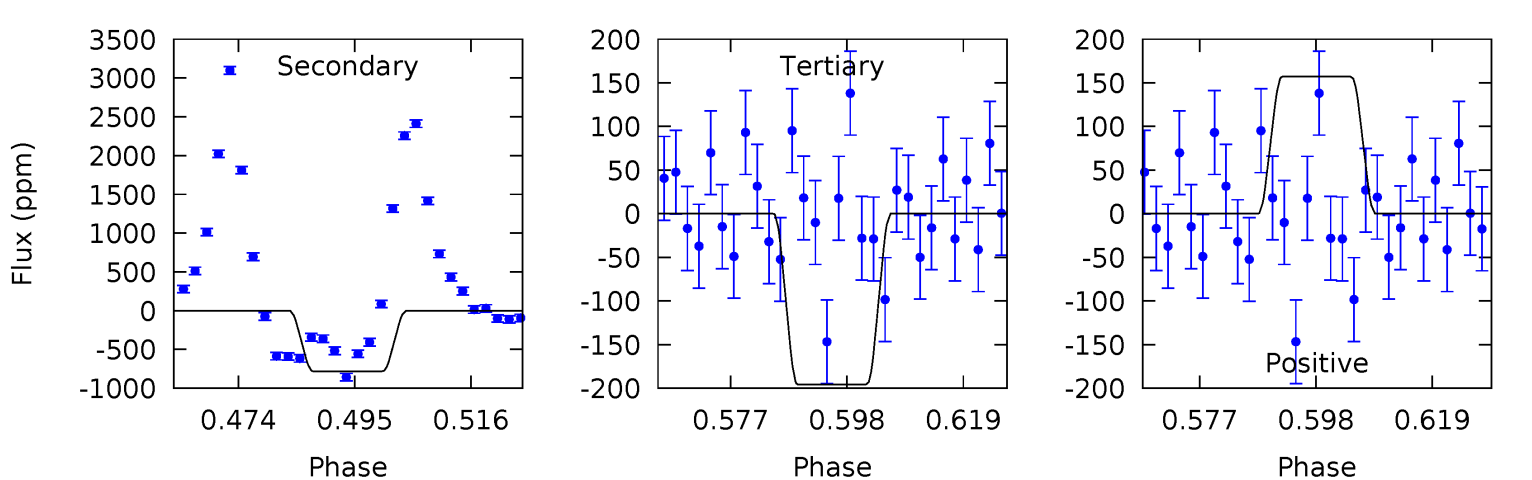
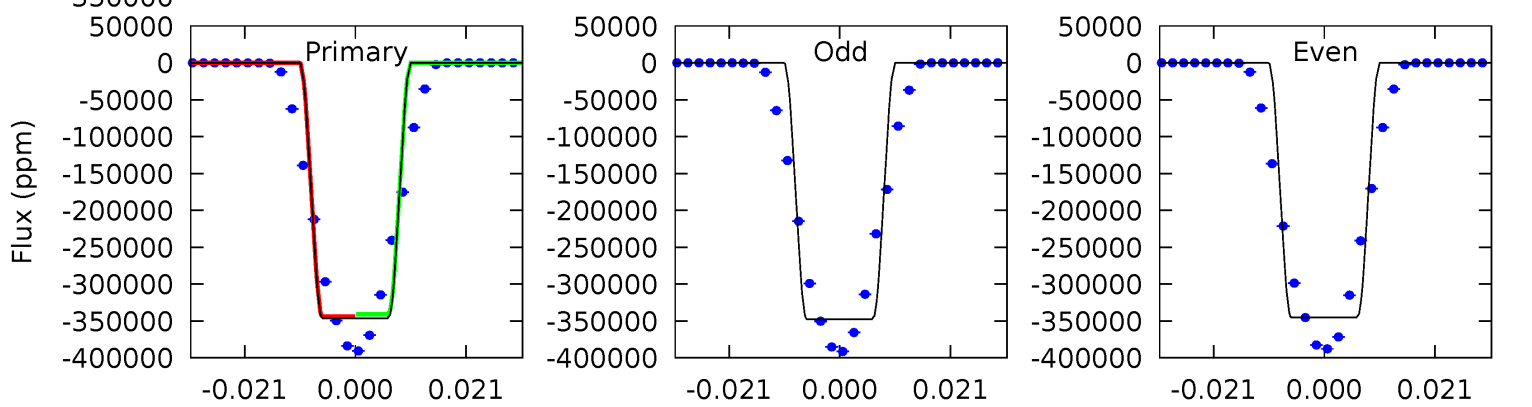
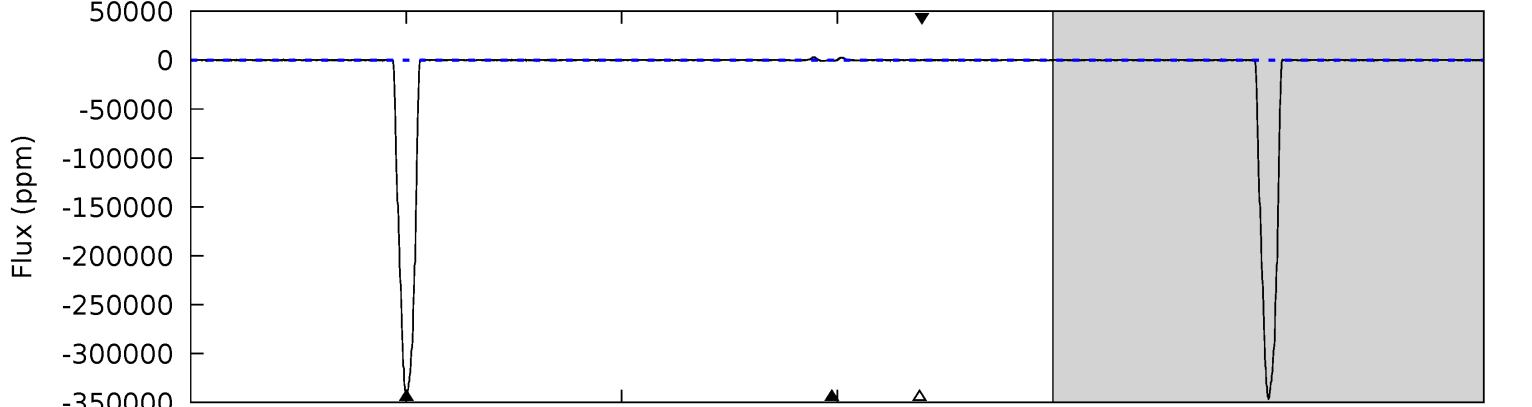
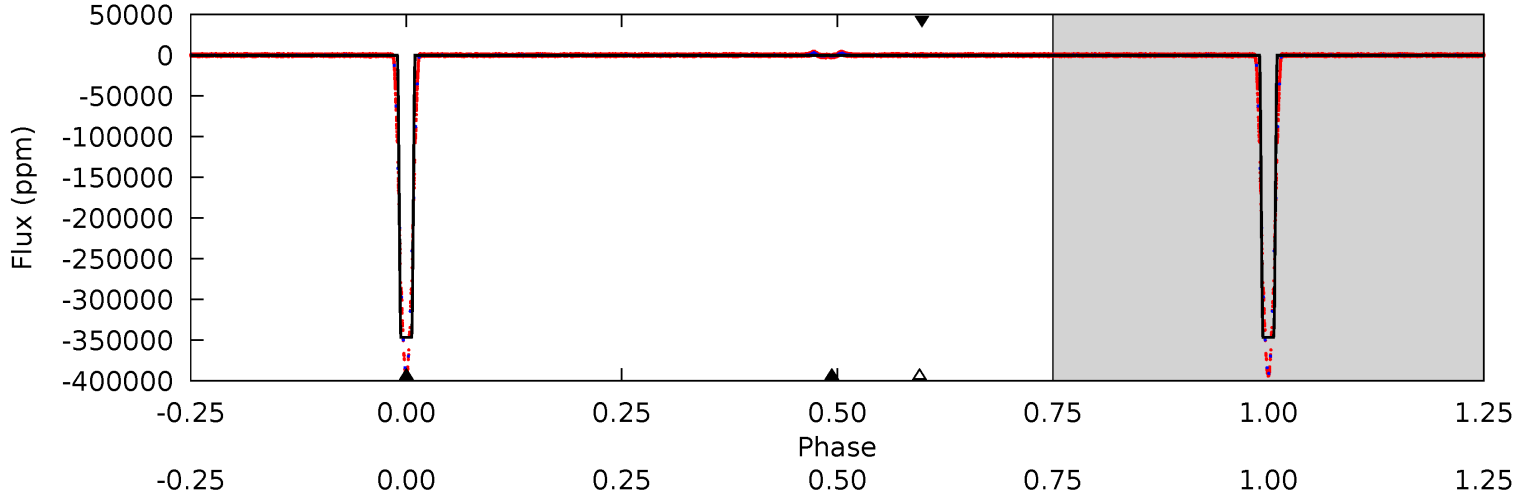
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15163	913.5	10.7	9.63	4.80	2.15	10.6	15152	15153	902.8	903.9	22.4	0.99	0.00	0



Alt Model-Shift Uniqueness Test

009291748-01, P = 15.926916 Days, E = 144.456296 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8047	18.2	4.54	3.65	4.89	2.31	3.52	8042	8043	13.6	14.5	26.3	1.00	0.01	0



Stellar Parameters For KIC 009291748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5191^{+156}_{-156}	$4.615^{+0.071}_{-0.044}$	$-0.840^{+0.300}_{-0.300}$	$0.650^{+0.057}_{-0.057}$	$0.635^{+0.066}_{-0.028}$	$3.251^{+0.967}_{-0.517}$
	+3%/-3%	+2%/-1%	+36%/-36%	+9%/-9%	+10%/-4%	+30%/-16%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009291748-01 / KOI 7156.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-23819 ± 26	$71.19^{+3.91}_{-3.53}$	788^{+30}_{-31}	2776^{+49}_{-50}	30^{+3}_{-2}
Alt.	-782 ± 43	$44.02^{+2.14}_{-2.23}$	786^{+30}_{-29}	2050^{+33}_{-35}	$2.570^{+0.306}_{-0.261}$

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

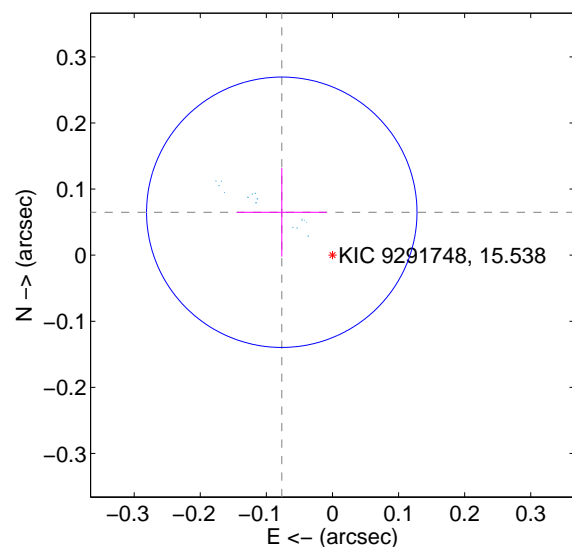
Supplemental centroid analysis for 009291748-01. Kepler magnitude: 15.54. Transit SNR 5383.59

There are 16 quarters with good PRF difference image offsets

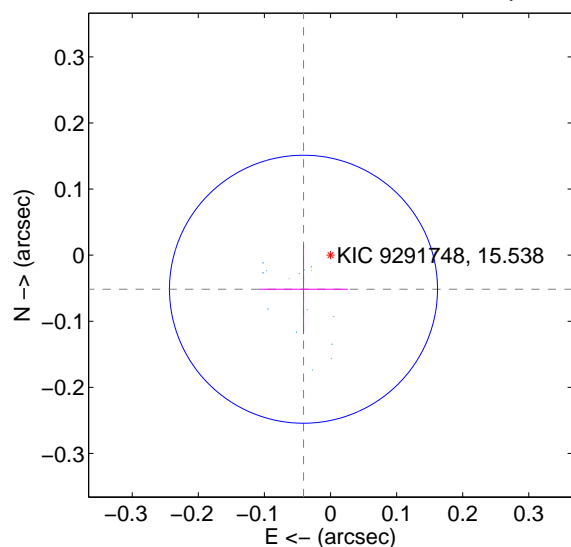
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.068	1.47	0.077 ± 0.068	0.065 ± 0.067
PRF-fit source offset from KIC position	0.066 ± 0.068	0.97	0.041 ± 0.067	-0.052 ± 0.068
photometric centroid source offset	0.18 ± 0.00	160.20	0.07 ± 0.00	-0.16 ± 0.00

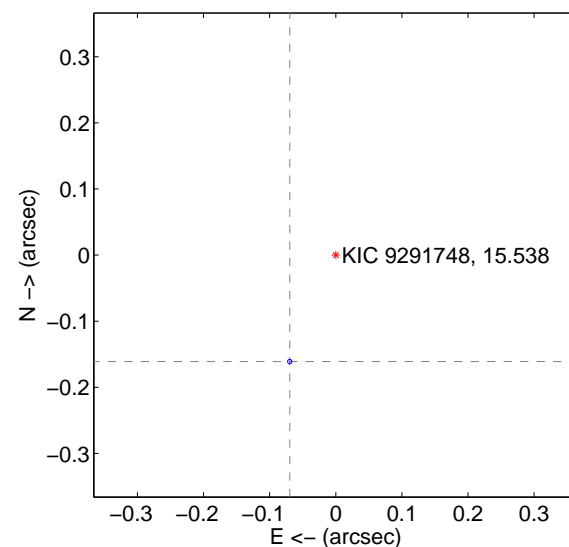
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

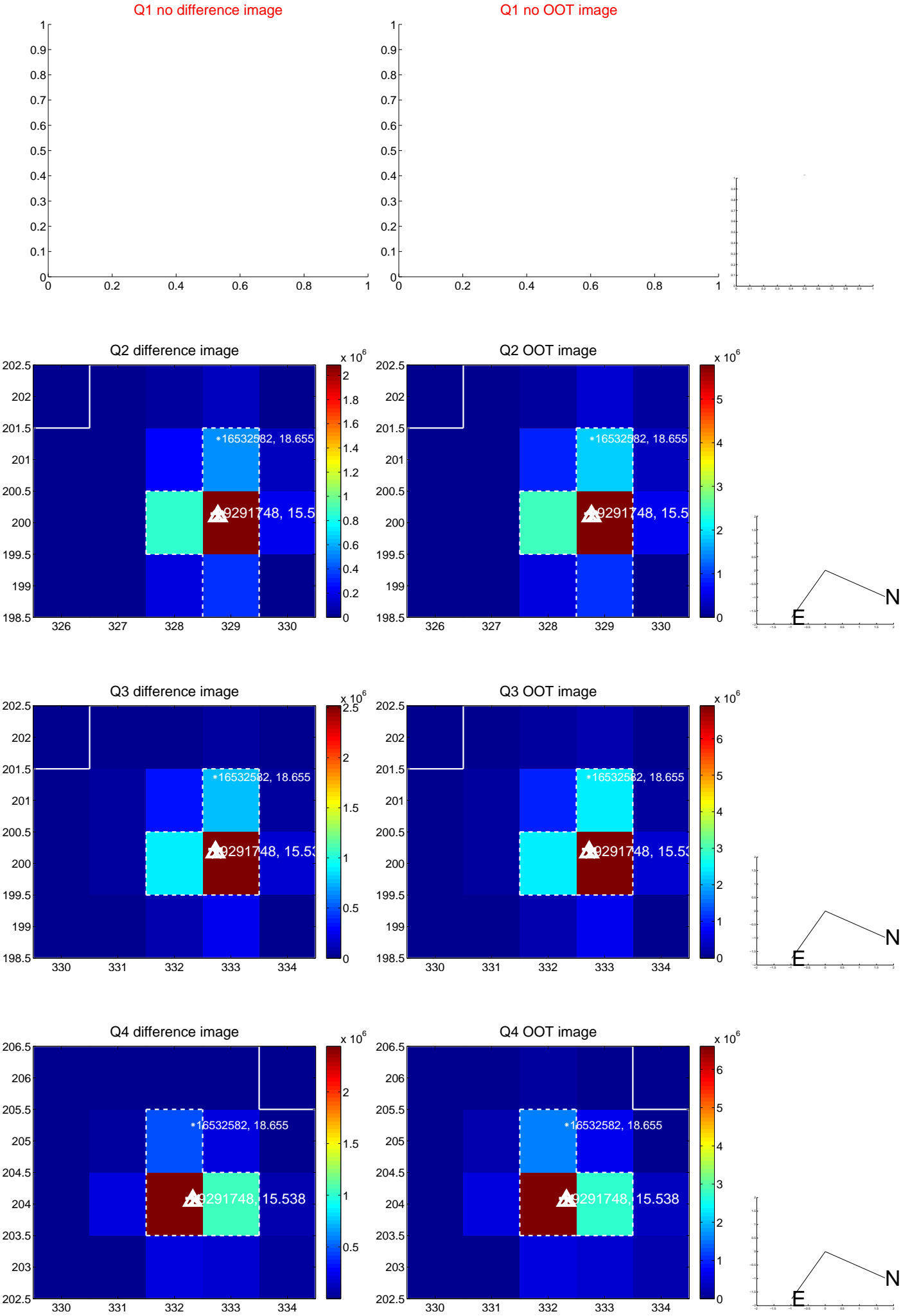


offset from photometric centroids

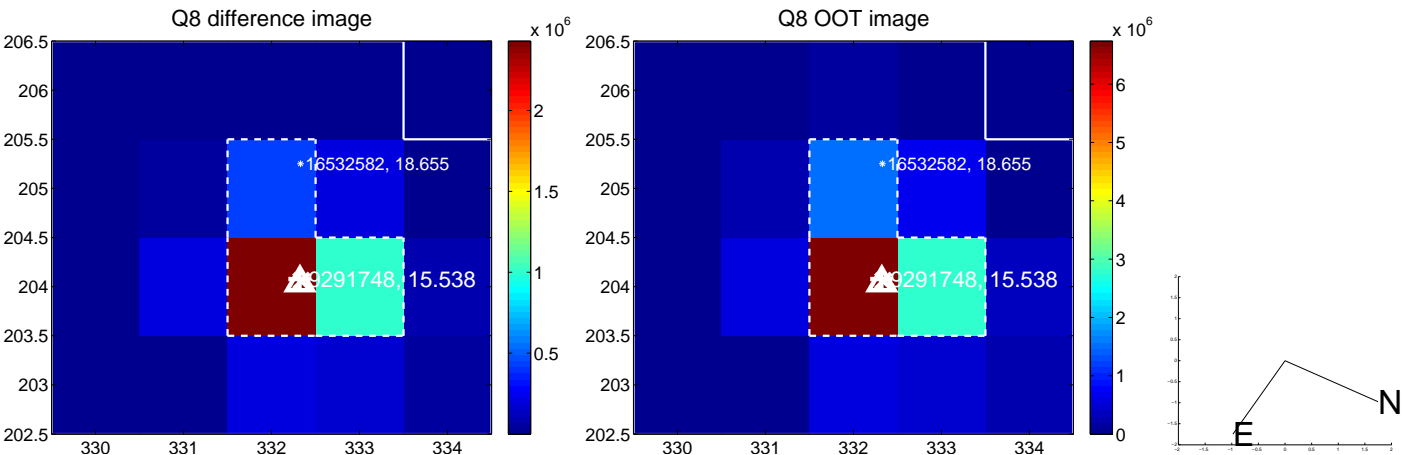
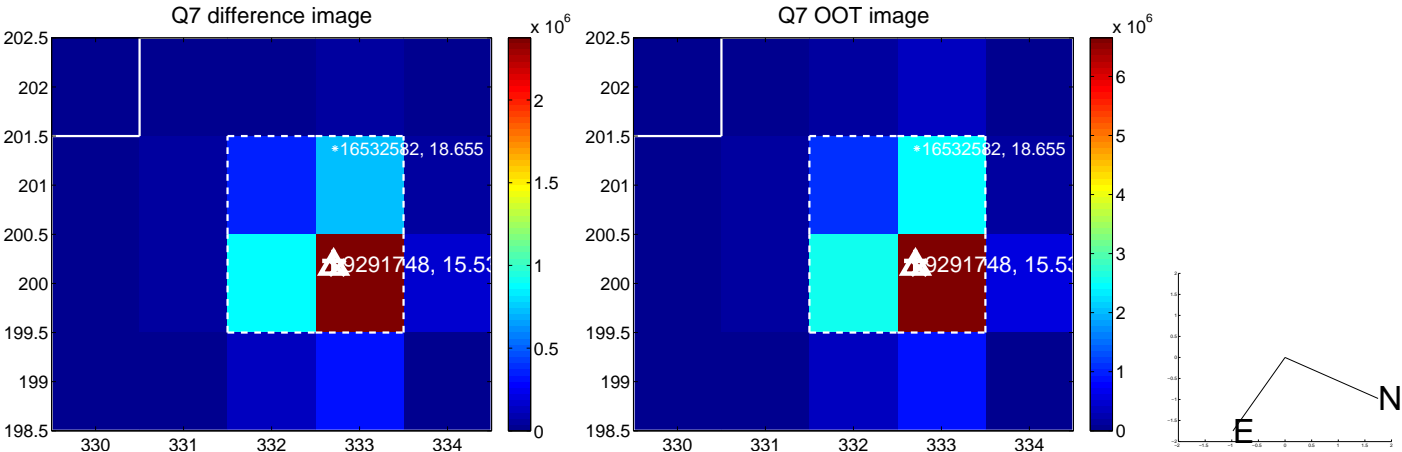
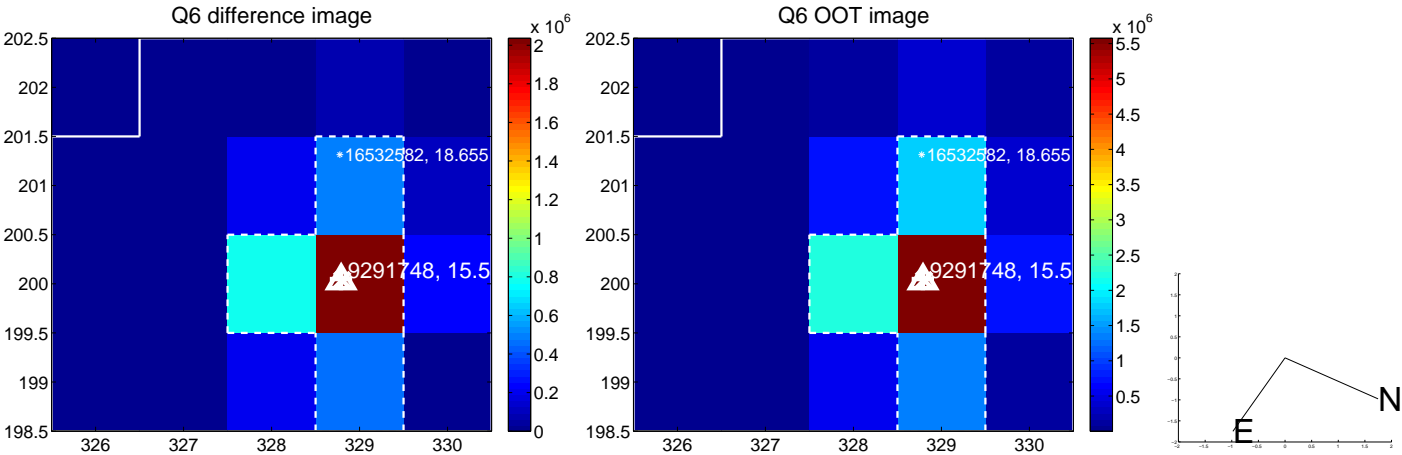
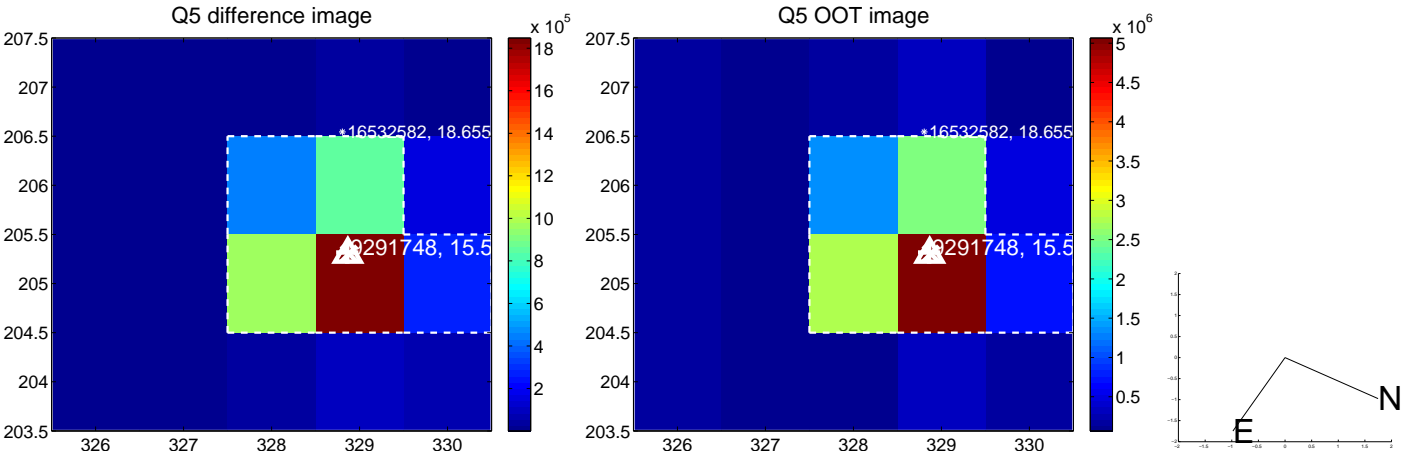


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

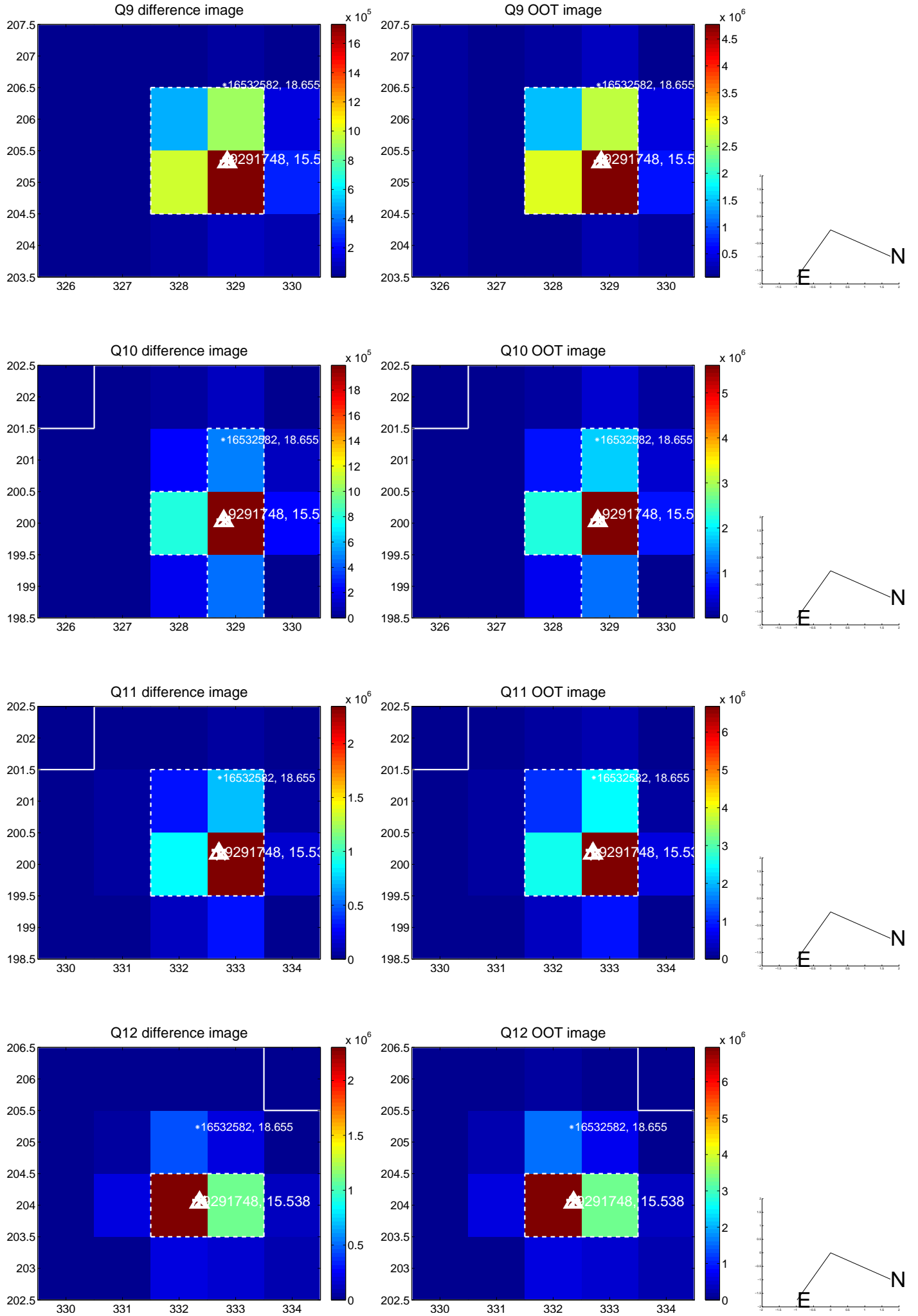
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



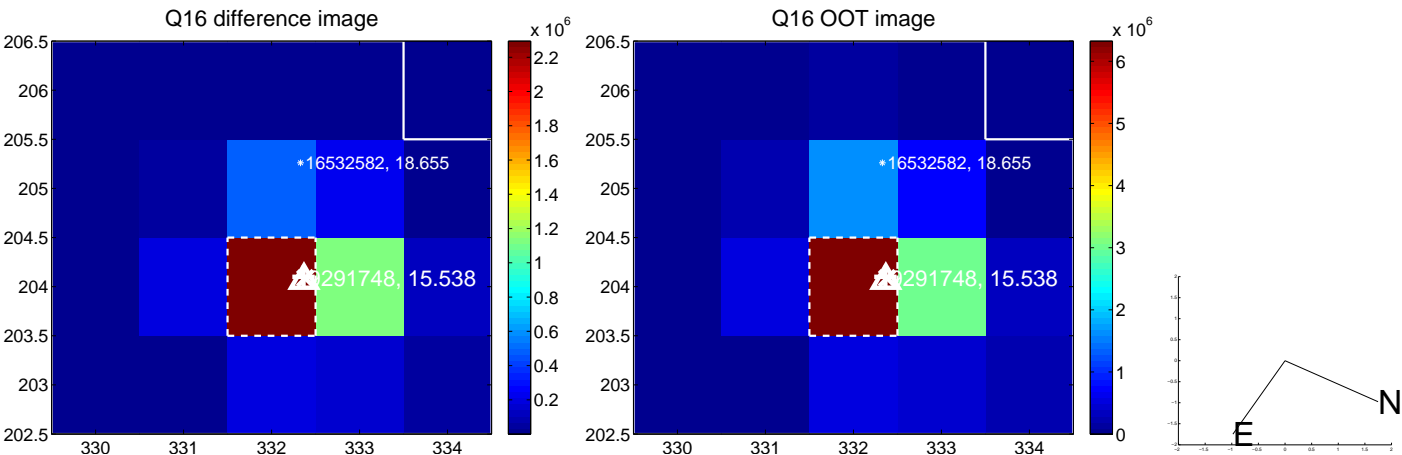
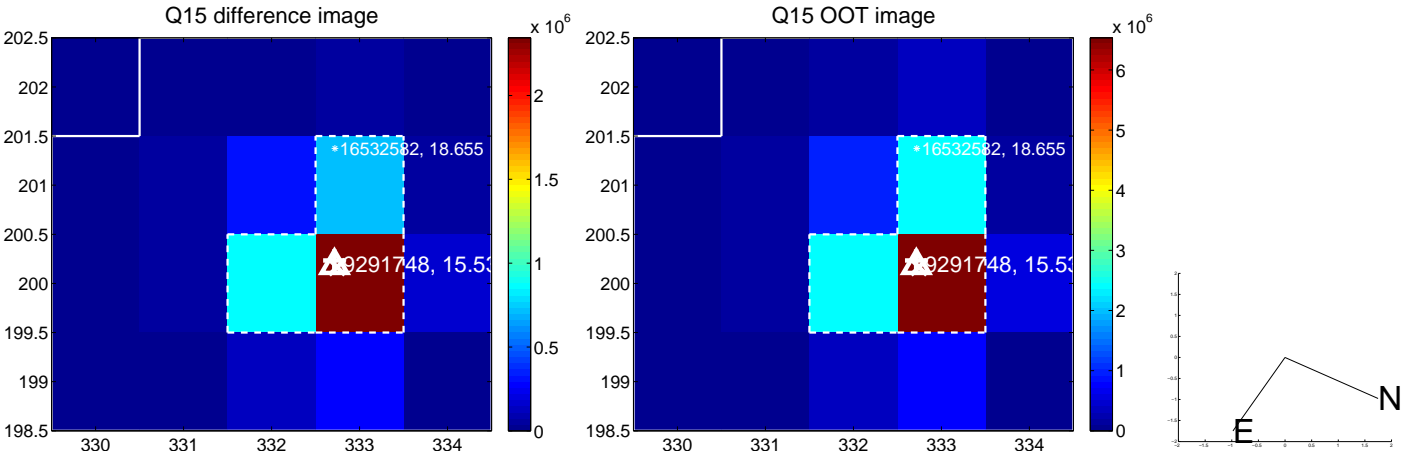
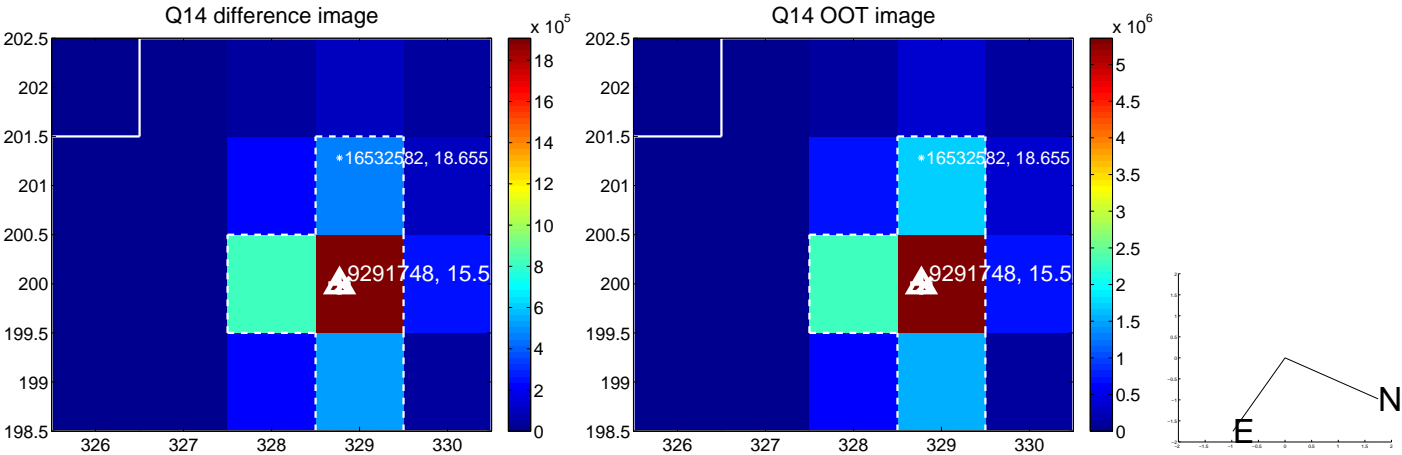
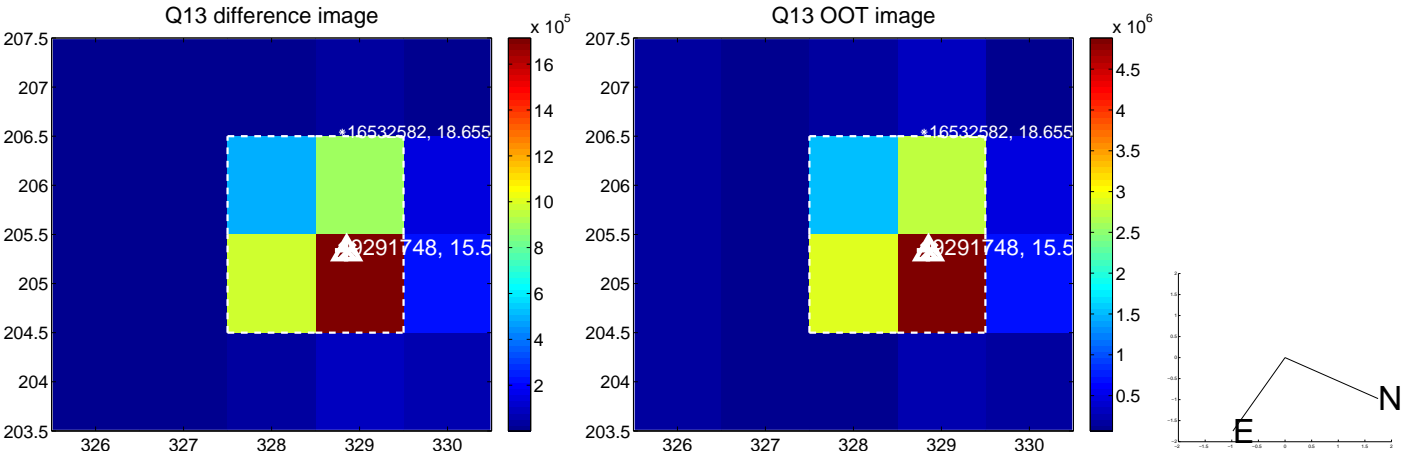
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



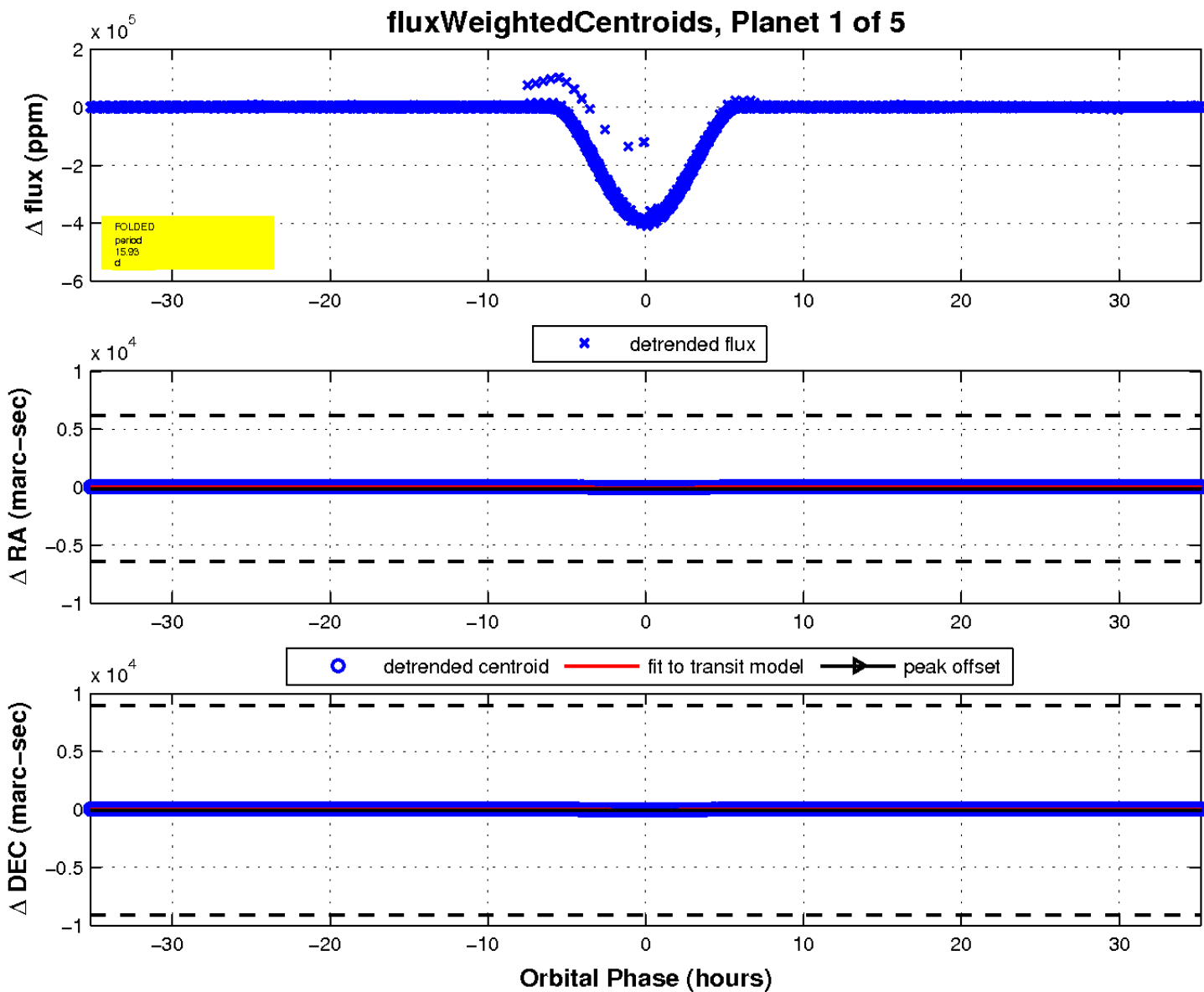
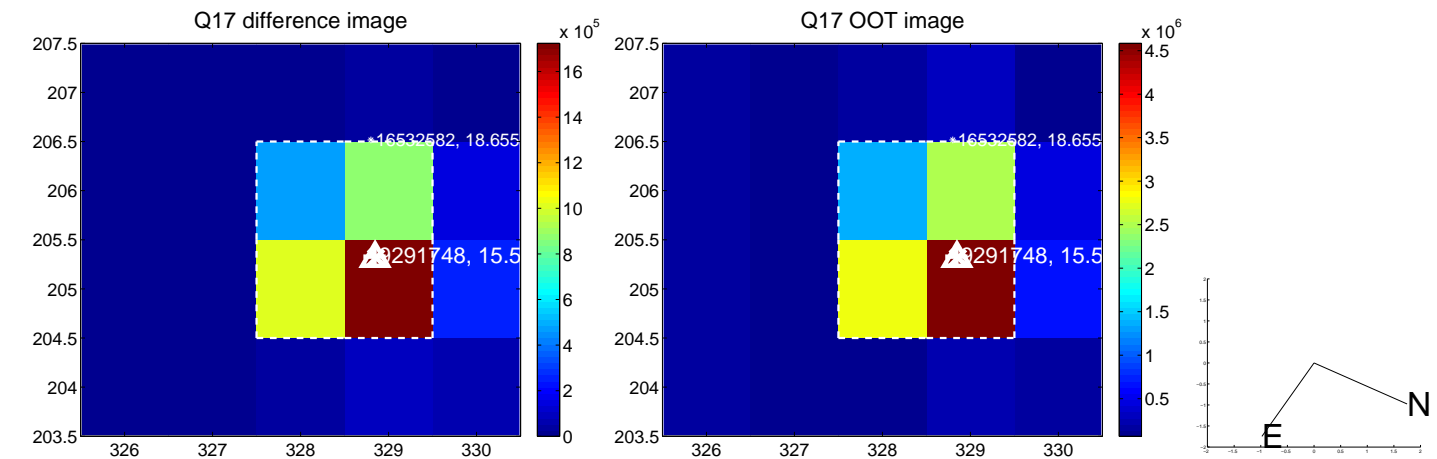
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

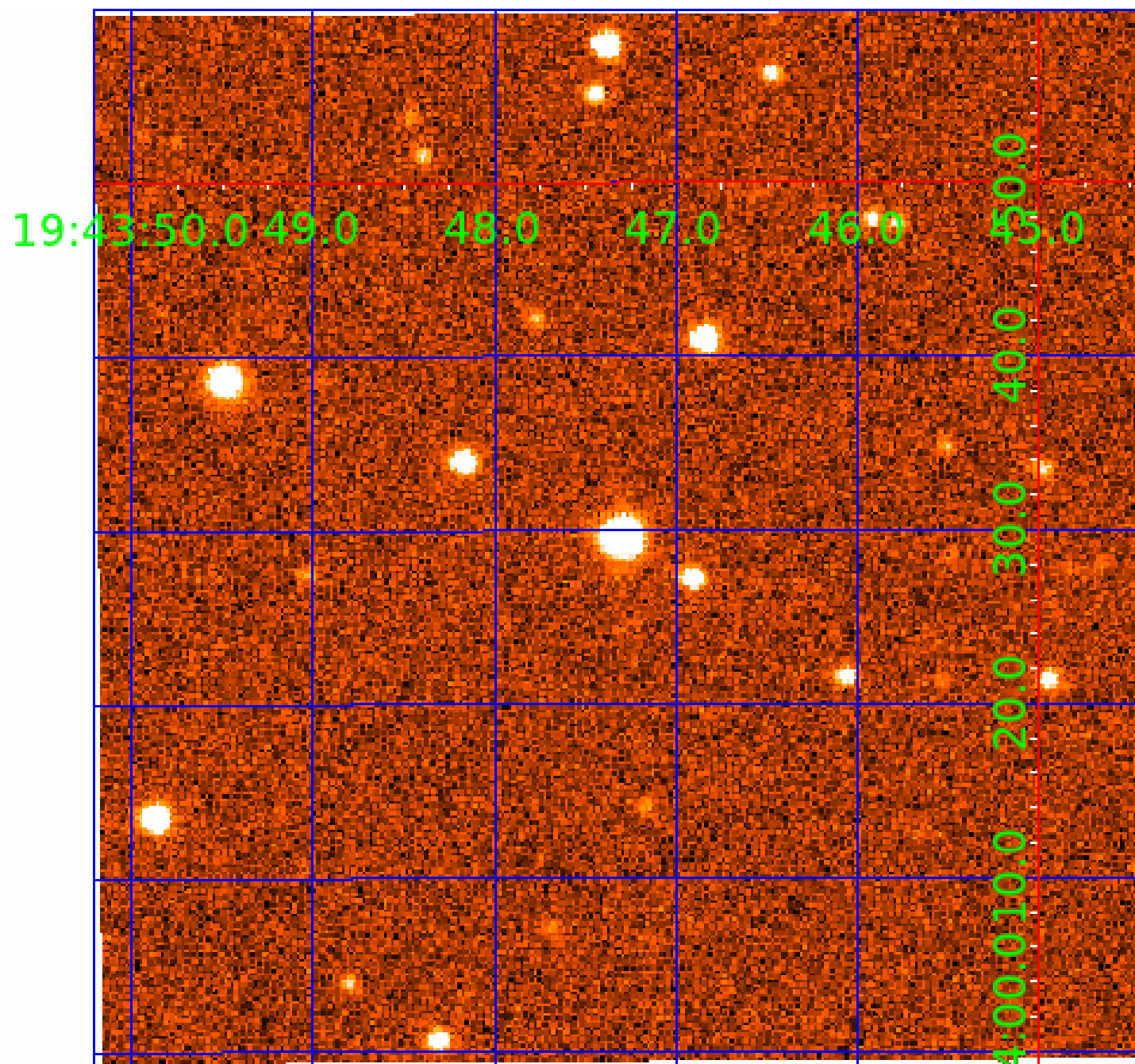


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291748

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})
009291748-01	OBS	7156.01	15.926994	144.452447	398829.8	11.728	8702.4	5383.6	0.65	5191	71.12	24.23
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009291748-03	OBS	No	437.049433	264.647067	1587.6	6.565	13.5	8.1	0.65	5191	2.62	0.29
009291748-04	OBS	No	533.124931	388.224803	1776.8	13.593	13.0	8.8	0.65	5191	2.70	0.23
009291748-05	OBS	No	246.060930	208.334368	1165.3	10.500	12.2	-1.0	0.65	5191	2.19	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009291748-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009291748-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

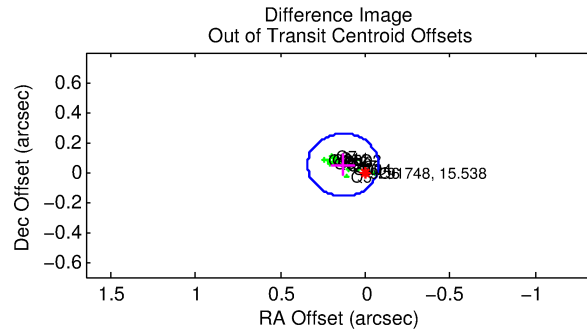
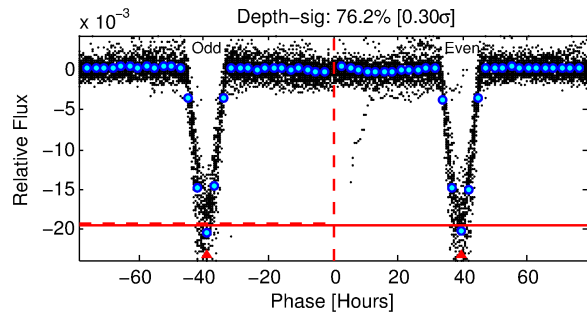
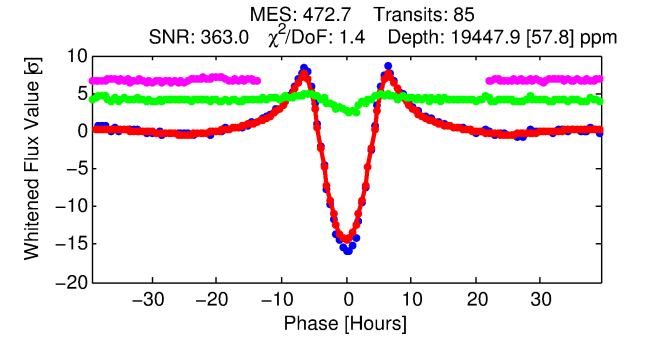
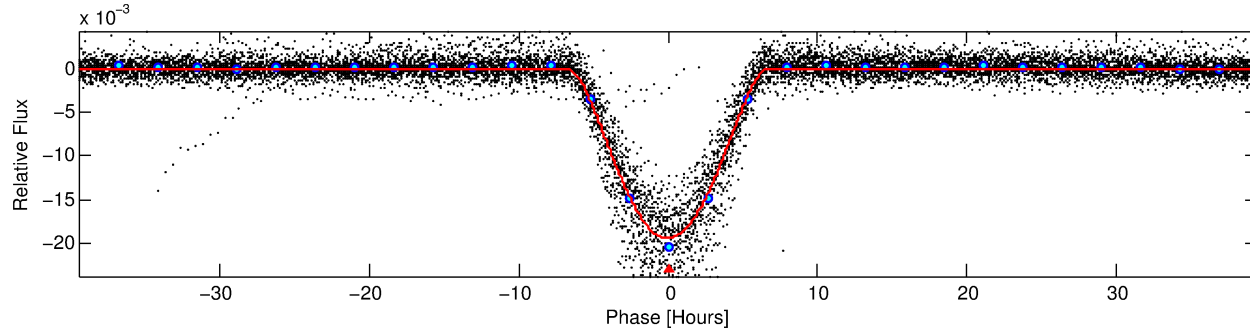
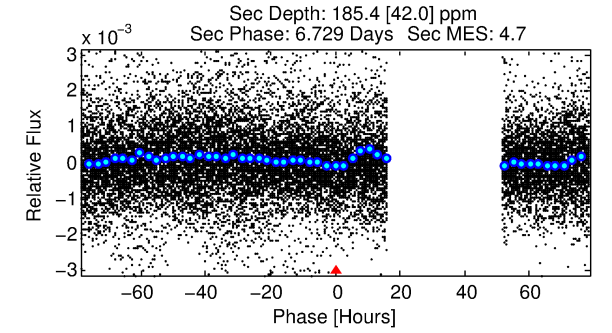
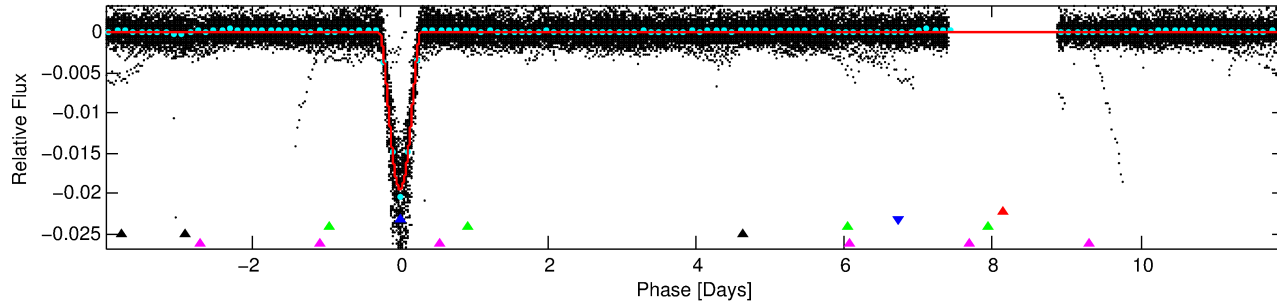
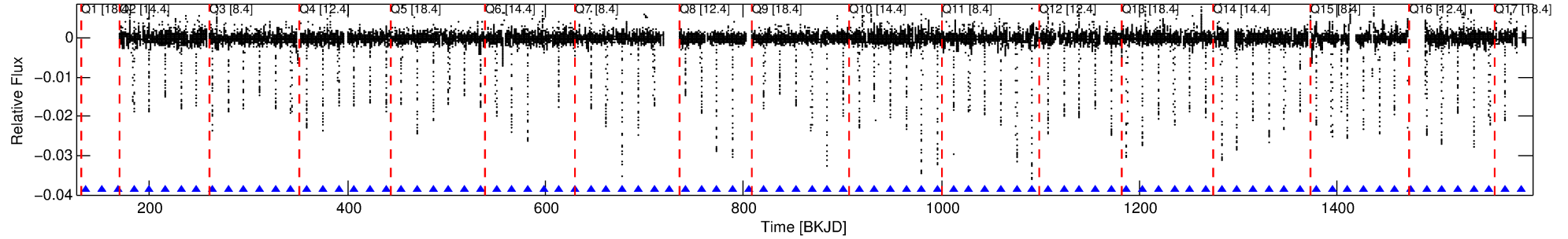
Ephemeris Match Information For 009291748-02

No Significant Match Found

DV One-Page Summary

KIC: 9291748 Candidate: 2 of 5 Period: 15.927 d
KOI: K07156 Corr: No Ephemeris Match

Kp: 15.54 R*: 0.65 Rs Teff: 5191.0 K Logg: 4.62 Fe/H: -0.840



DV Fit Results:

Period = 15.92702 [0.00001] d
Epoch = 136.3098 [0.0006] BKJD
Rp/R* = 0.2100 [0.0141]
a/R* = 6.72 [0.05]
b = 0.98 [0.02]
Seff = 24.23 [4.18]
Teq = 566 [24] K
Rp = 14.89 [1.65] Re
a = 0.1065 [0.0085] AU
Ag = 5.22 [1.52] [2.78σ]
Teffp = 1322 [96] K [7.66σ]

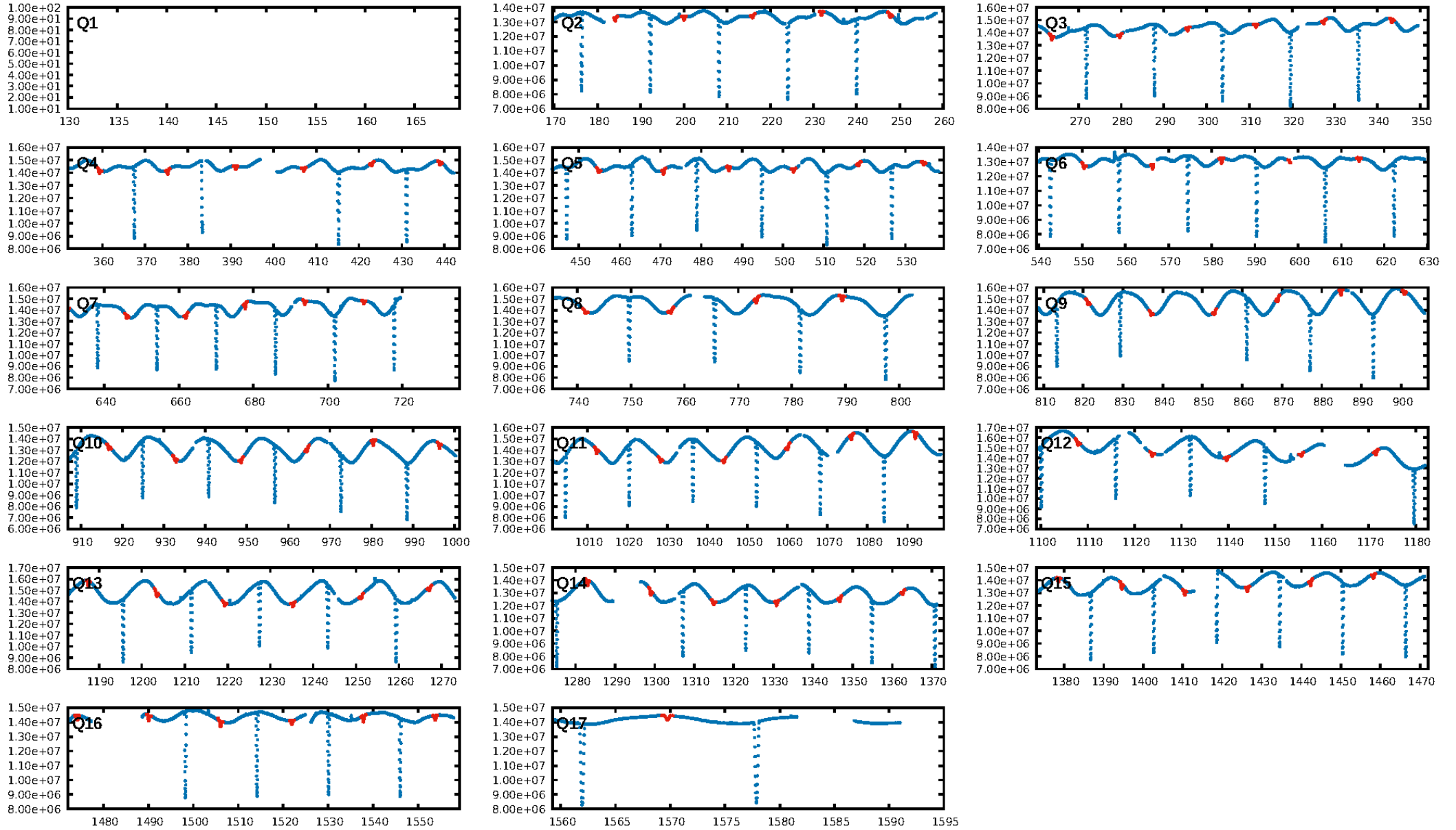
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [328.59σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [84/84]
GhostDiagnostic-chr: 1.155
Centroid-sig: 0.0%
Centroid-so: 0.219 arcsec [11.41σ]
OotOffset-rm: 0.142 arcsec [2.04σ]
KicOffset-rm: 0.133 arcsec [1.95σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

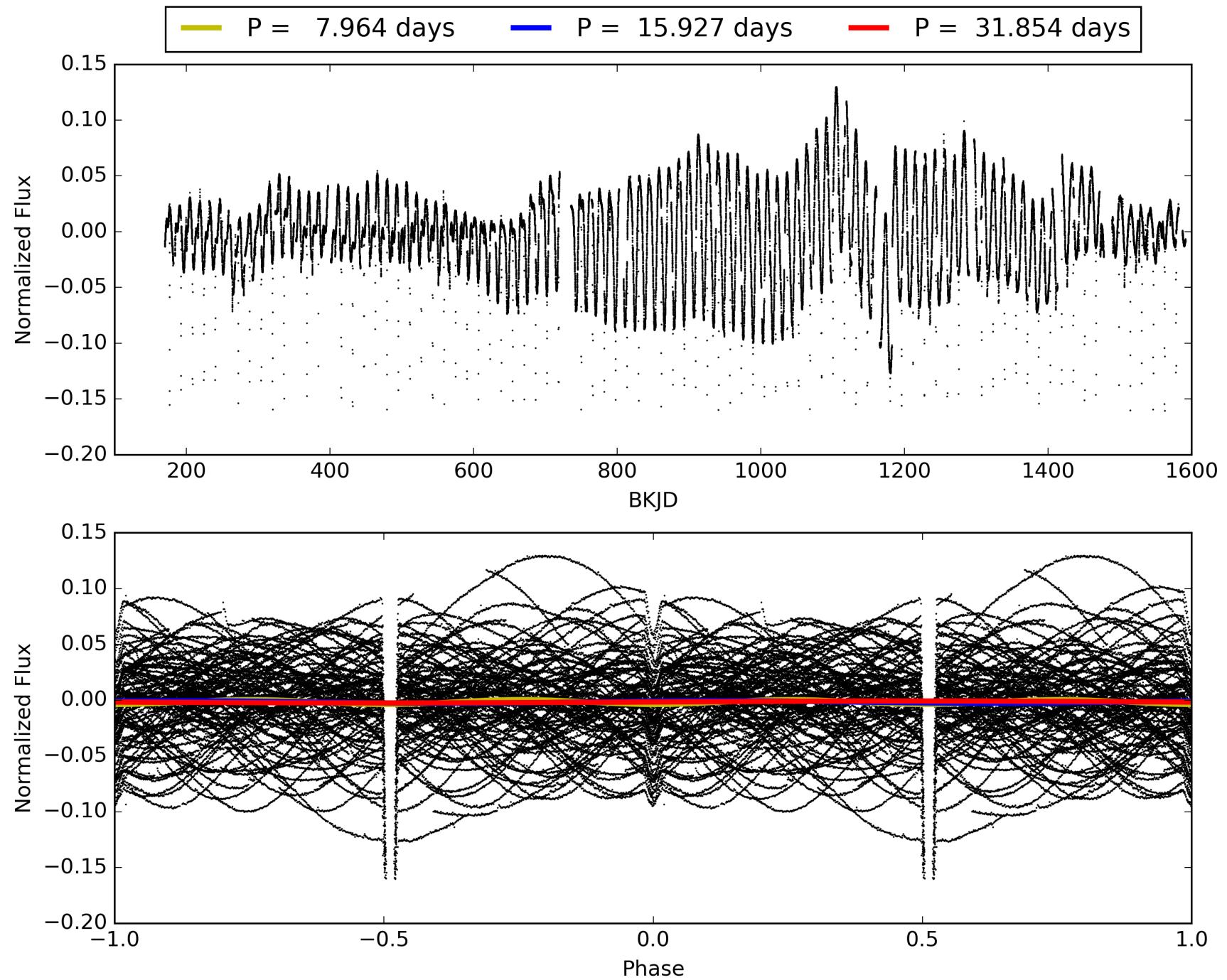
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009291748-02, PDC Light Curves

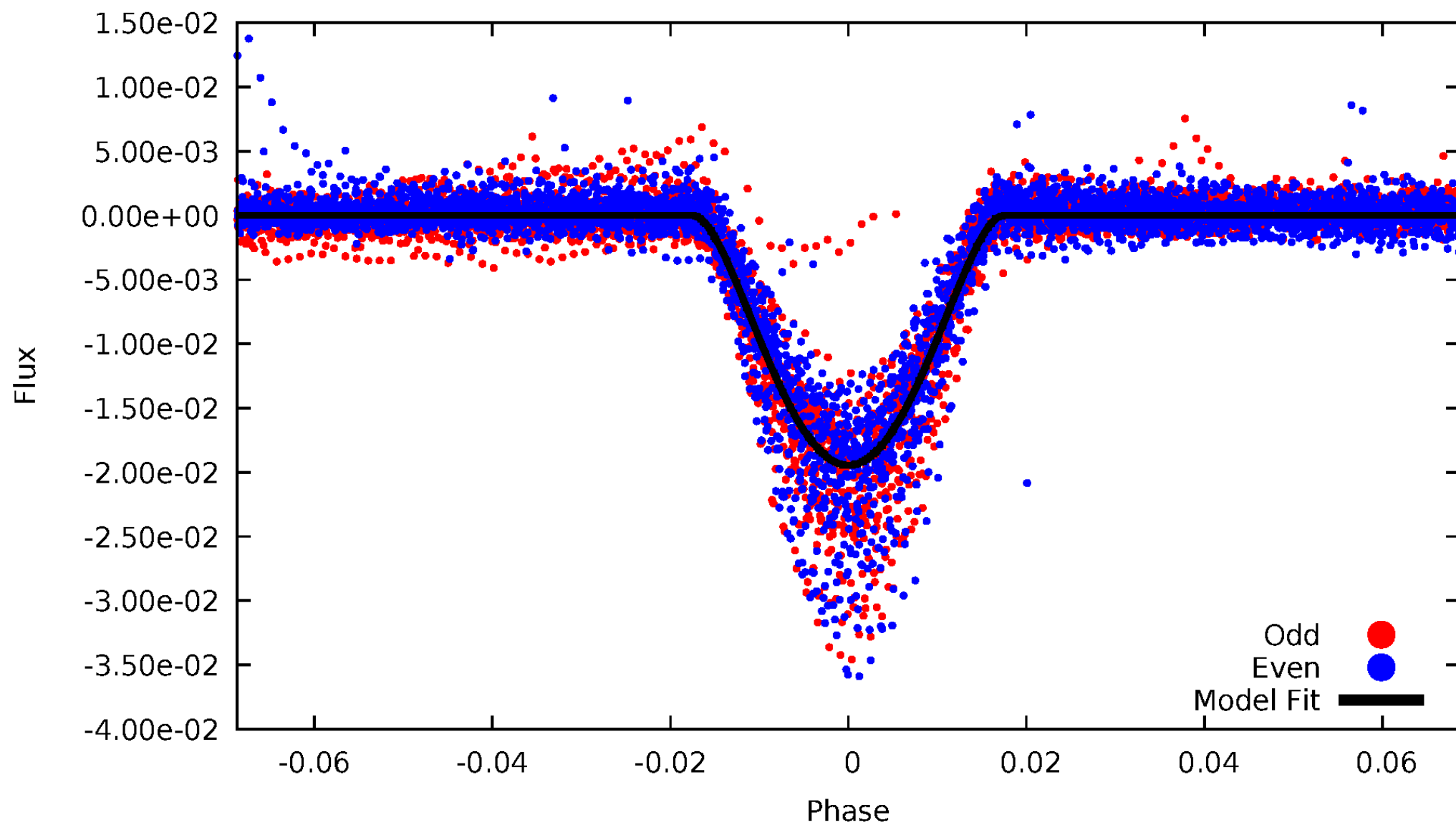


TCE 009291748-02



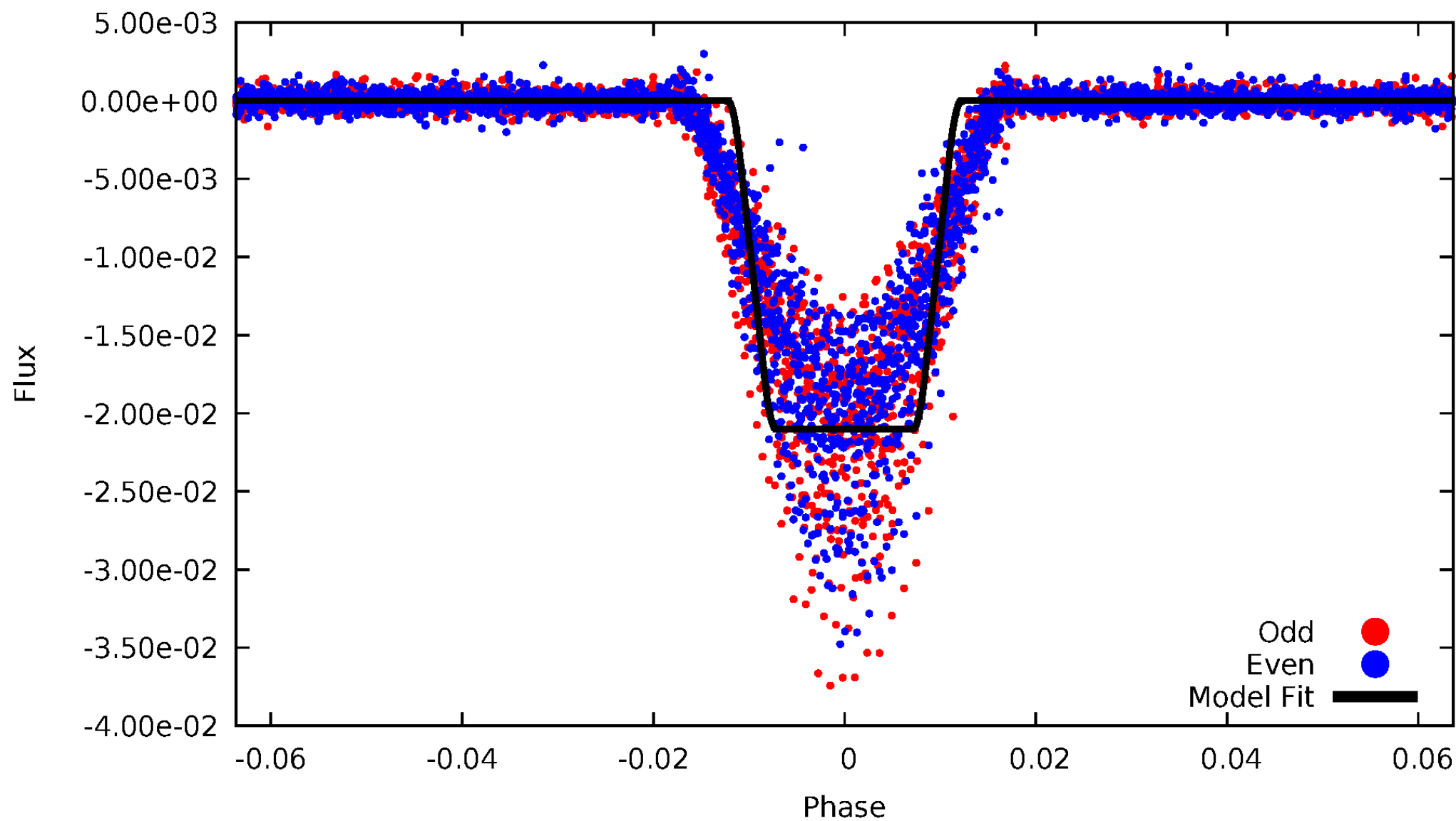
DV Odd/Even

TCE 009291748-02



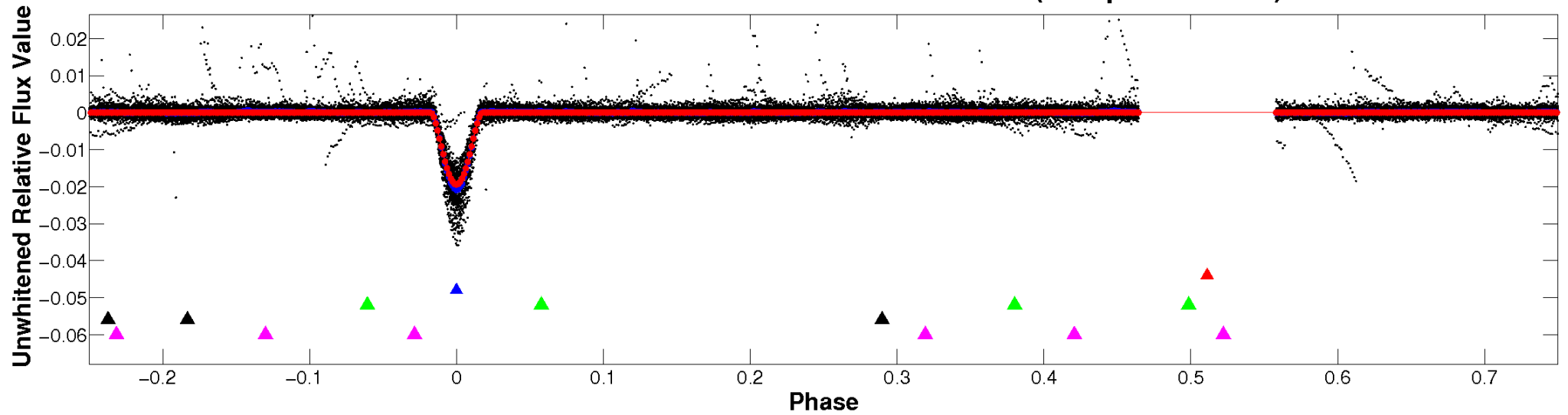
ALT Odd/Even

TCE 009291748-02

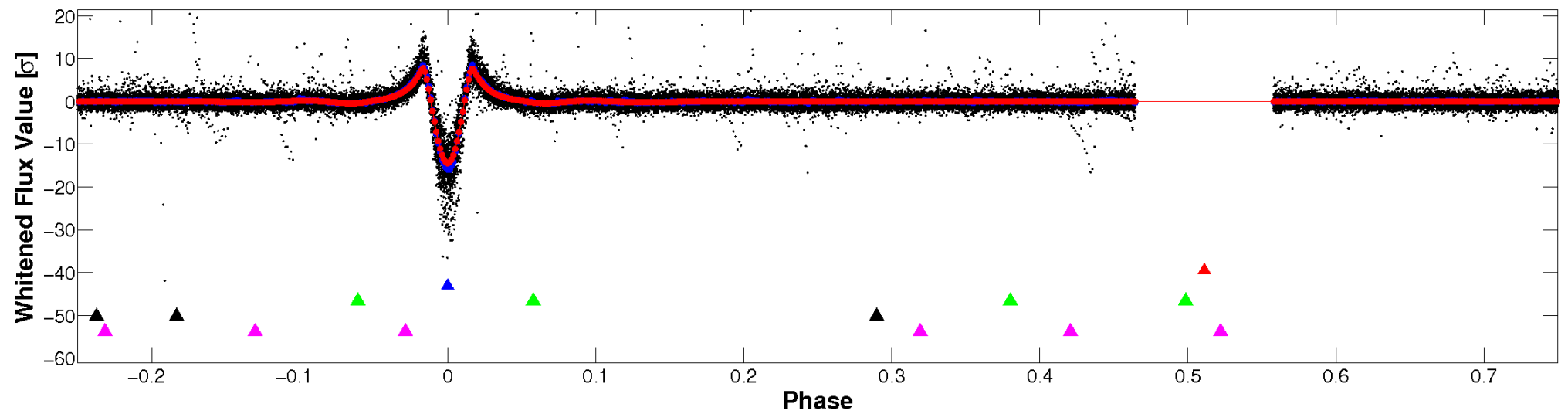


Non-Whitened Vs. Whitened Light Curve

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

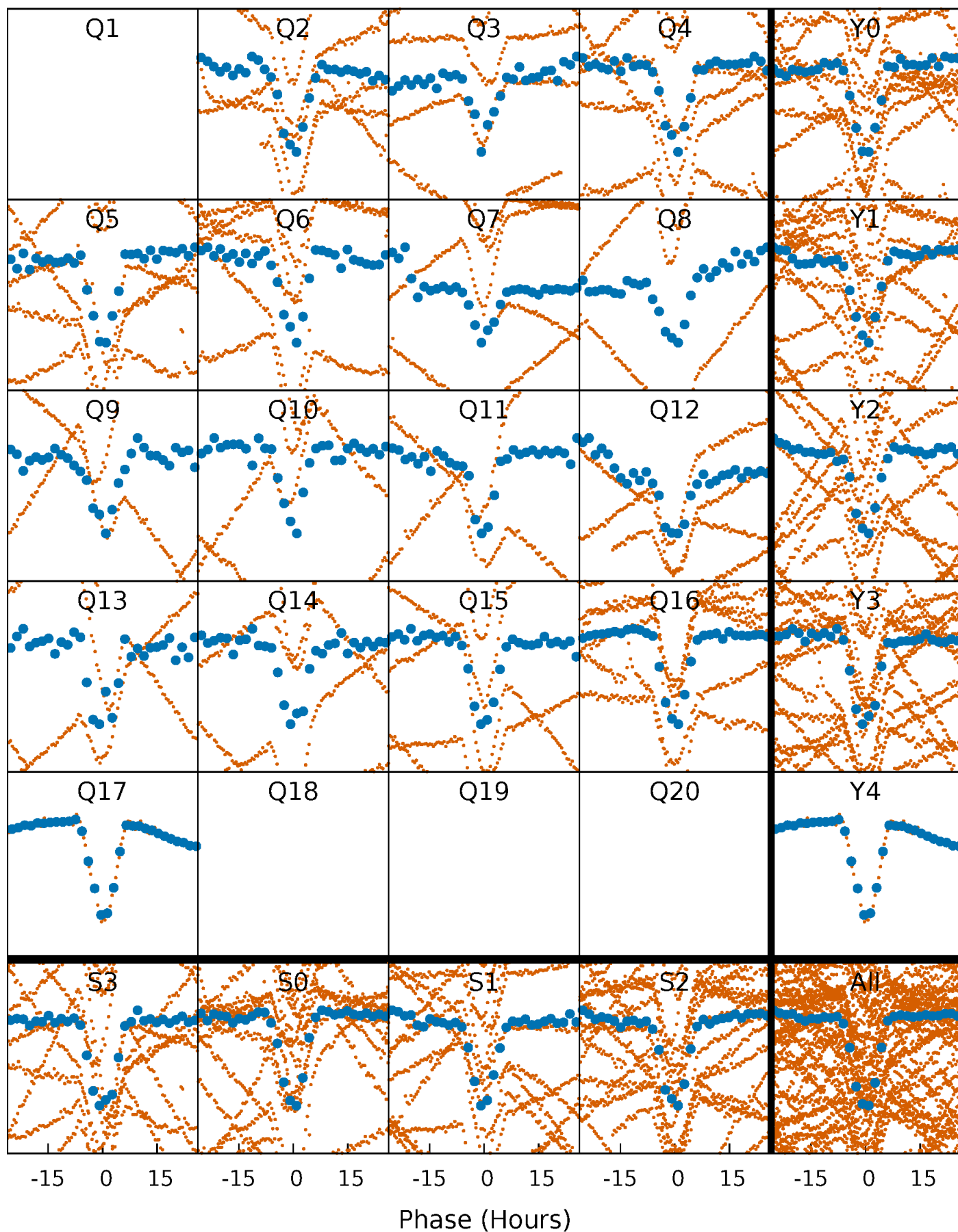


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



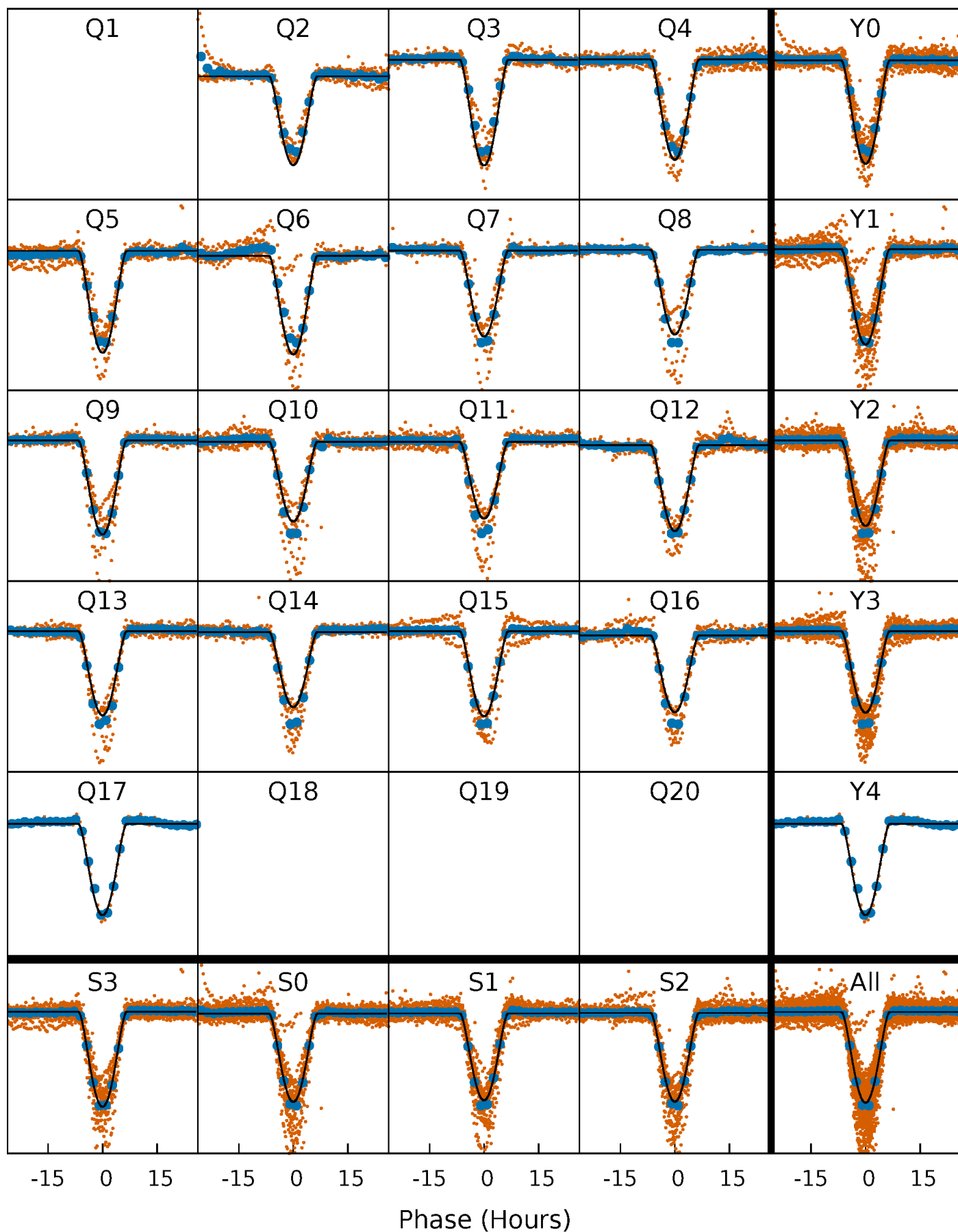
PDC Quarter-Phased Transit Curves

TCE 009291748-02 P= 15.927023 Days $T_0=136.309798$ (BKJD)



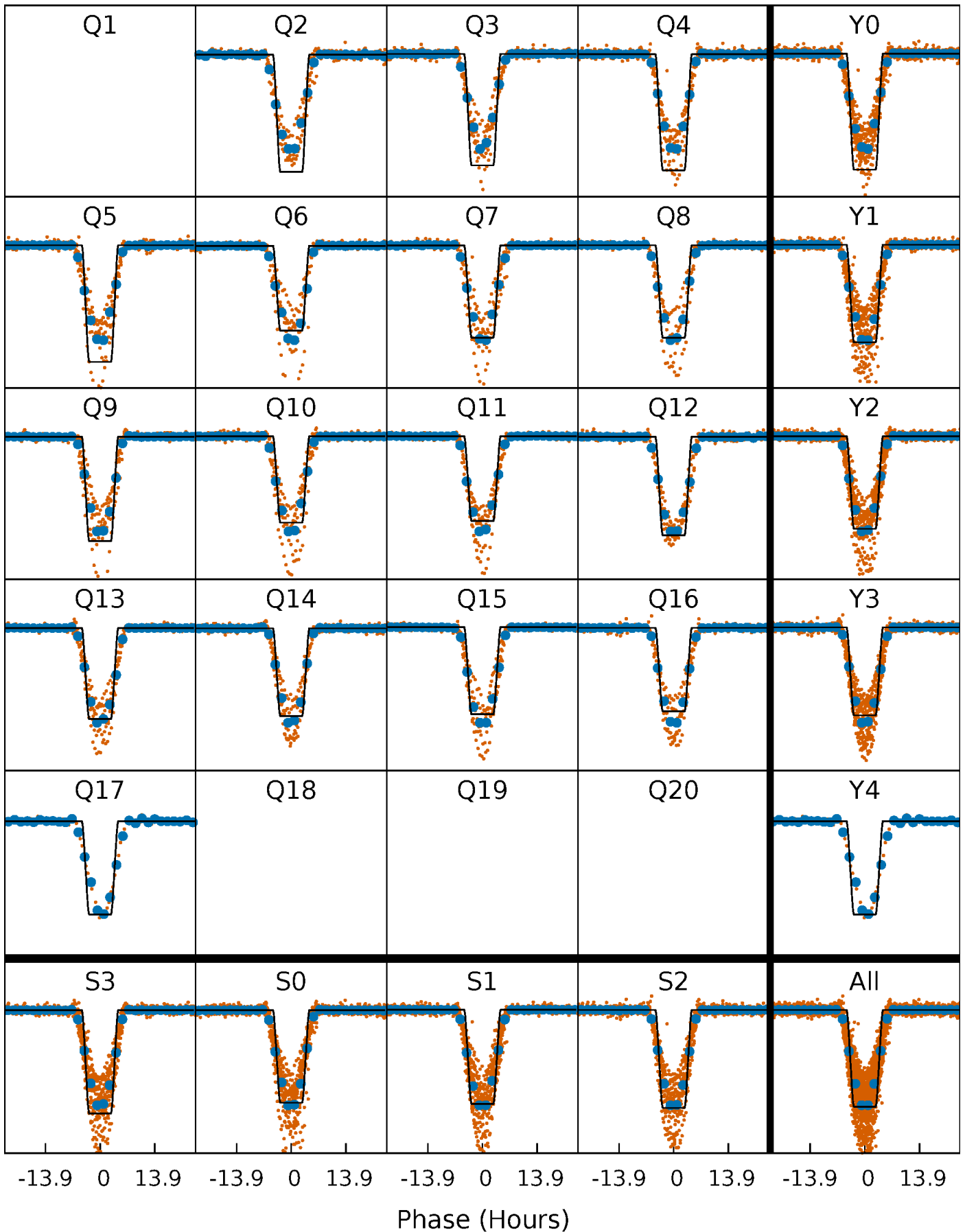
DV Quarter-Phased Transit Curves

TCE 009291748-02 P= 15.927023 Days $T_0=136.309798$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

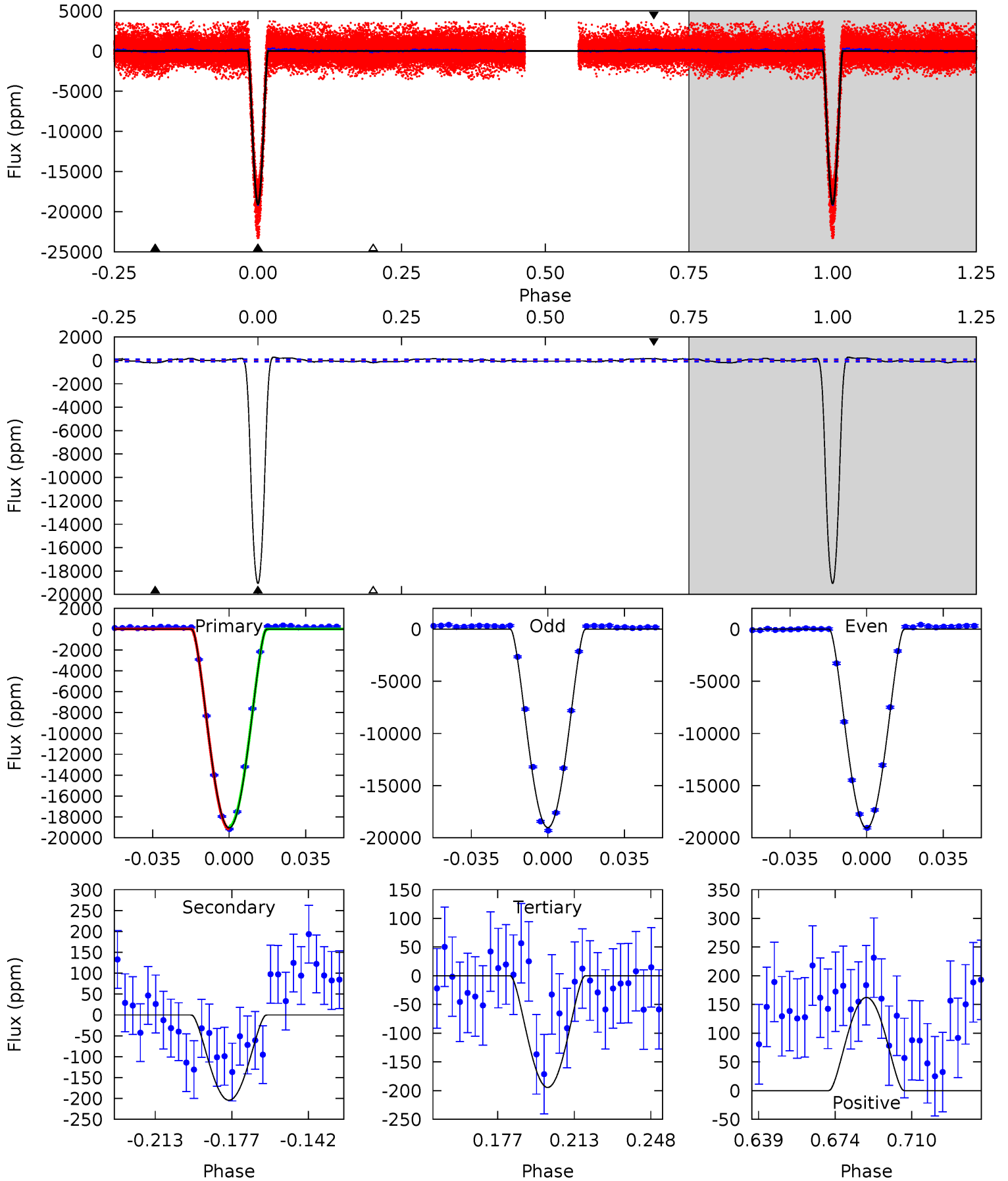
TCE 009291748-02 P= 15.926847 Days $T_0=136.319330$ (BKJD)



DV Model-Shift Uniqueness Test

009291748-02, P = 15.927023 Days, E = 136.309798 Days

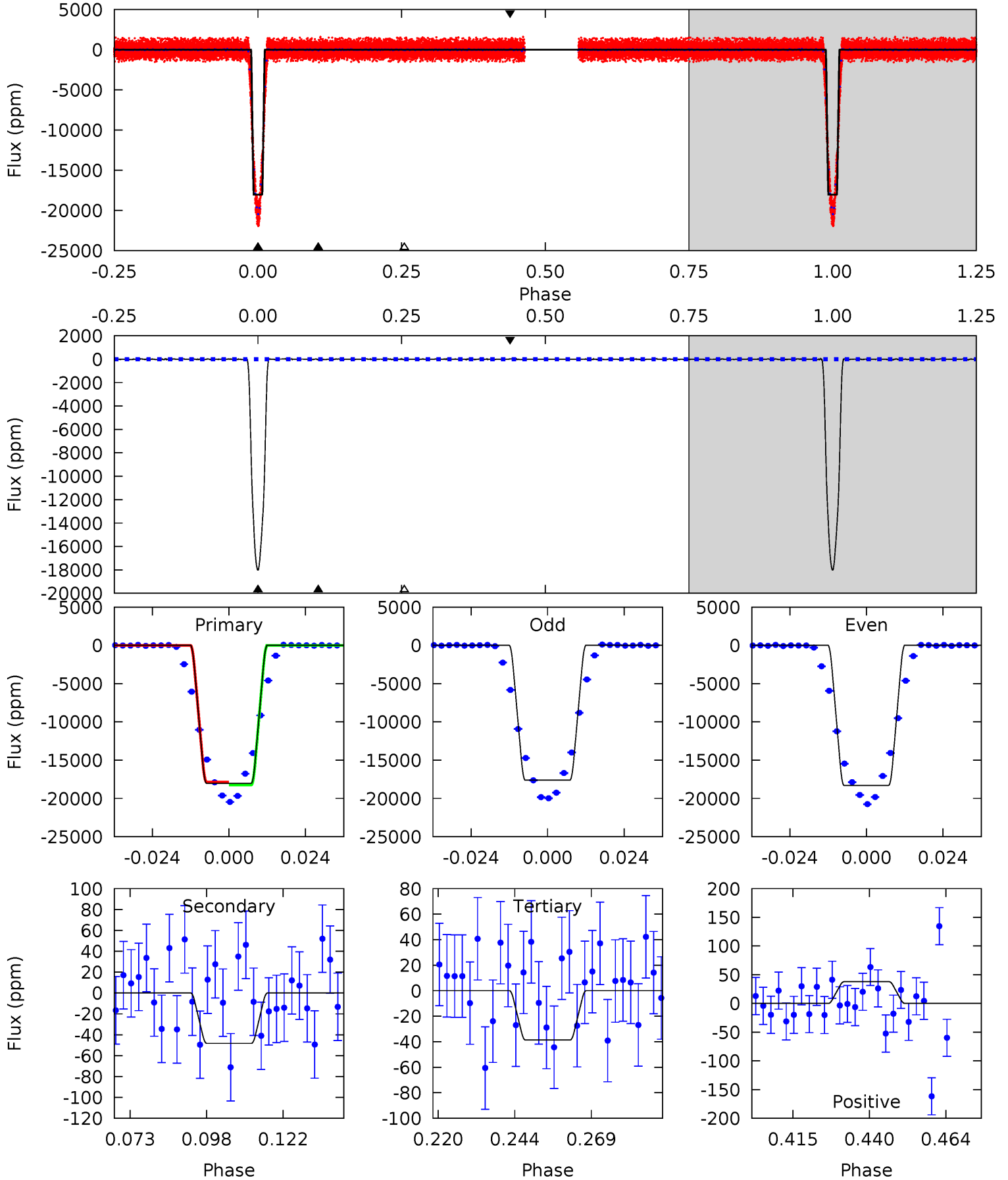
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
867.2	9.30	8.85	7.39	4.78	2.10	4.35	858.3	859.8	0.45	1.91	1.04	1.03	0.01	4.74



Alt Model-Shift Uniqueness Test

009291748-02, P = 15.926847 Days, E = 136.319330 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
994.0	2.66	2.13	2.09	4.85	2.25	0.73	991.8	991.9	0.53	0.57	18.4	1.02	0.00	10.6



Stellar Parameters For KIC 009291748

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.615^{+0.071}_{-0.044}$	$-0.840^{+0.300}_{-0.300}$	$0.650^{+0.057}_{-0.057}$	$0.635^{+0.066}_{-0.028}$	$3.251^{+0.967}_{-0.517}$
	$+3\%/-3\%$	$+2\%/-1\%$	$+36\%/-36\%$	$+9\%/-9\%$	$+10\%/-4\%$	$+30\%/-16\%$
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009291748-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-204 ± 22	$14.90^{+1.28}_{-1.18}$	789^{+27}_{-28}	2256^{+55}_{-54}	$5.807^{+1.228}_{-0.979}$
Alt.	-48 ± 18	$10.37^{+1.11}_{-1.18}$	787^{+31}_{-31}	2076^{+92}_{-119}	$2.870^{+1.270}_{-1.124}$

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

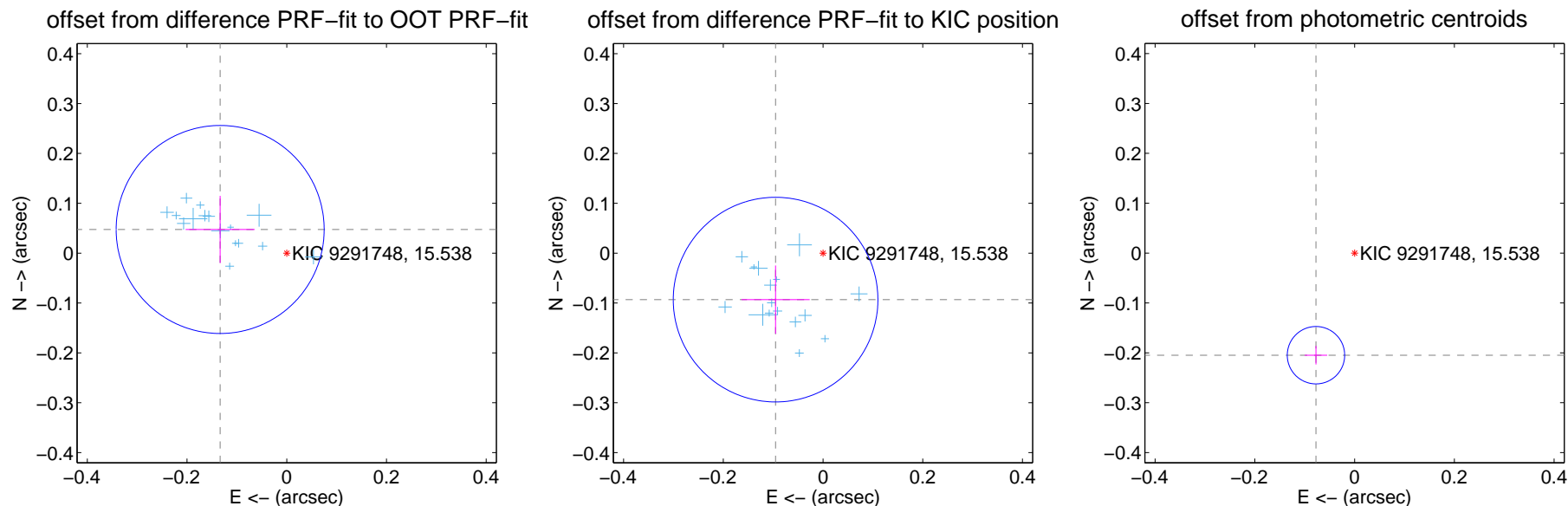
DV Centroid Data

Supplemental centroid analysis for 009291748-02. Kepler magnitude: 15.54. Transit SNR 363.05

There are 16 quarters with good PRF difference image offsets

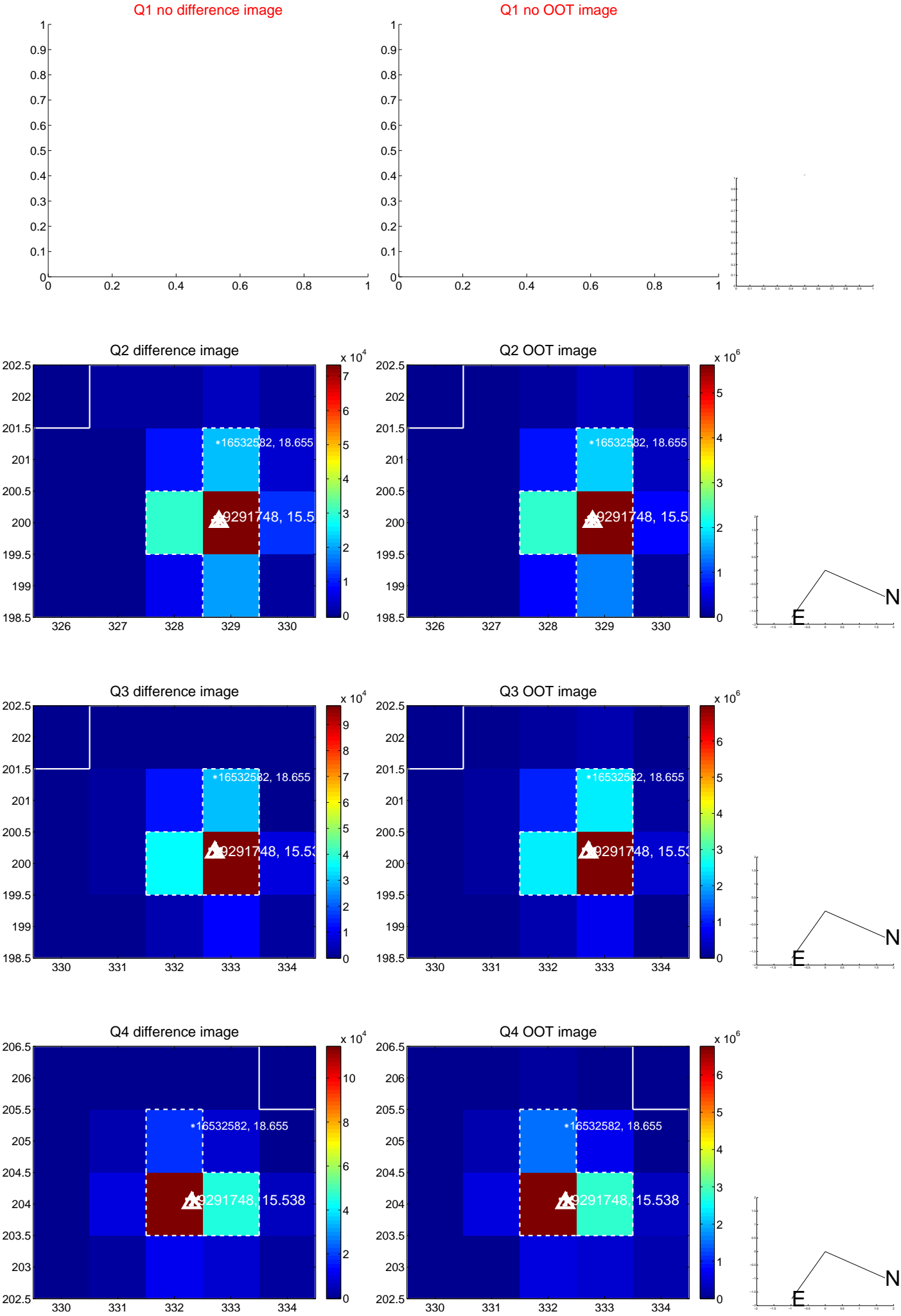
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.142 ± 0.070	2.04	0.134 ± 0.069	0.047 ± 0.067
PRF-fit source offset from KIC position	0.133 ± 0.068	1.95	0.095 ± 0.068	-0.093 ± 0.068
photometric centroid source offset	0.22 ± 0.02	11.41	0.08 ± 0.02	-0.20 ± 0.02

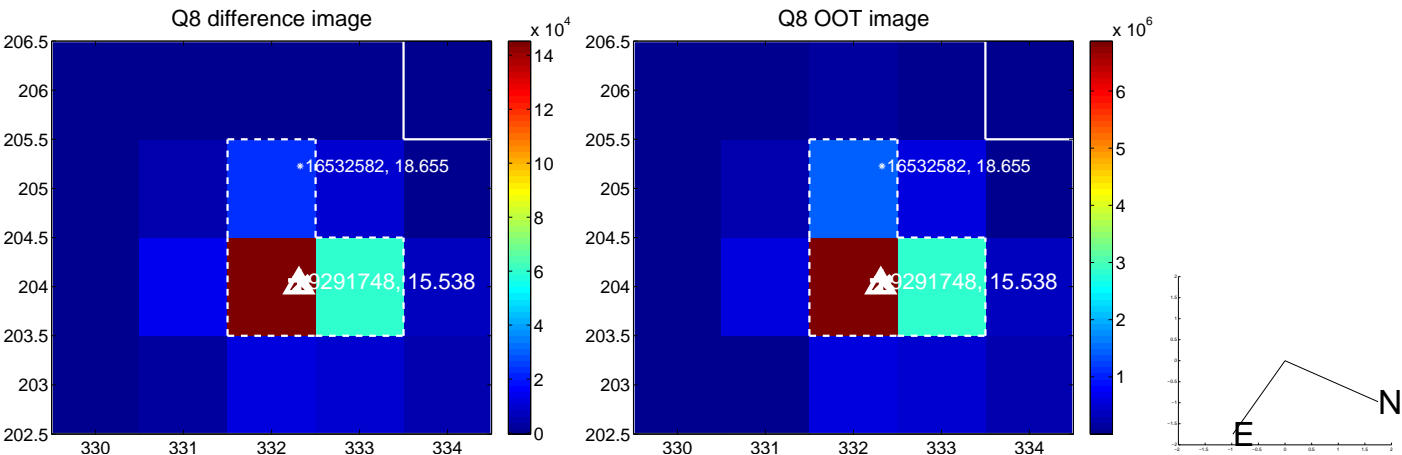
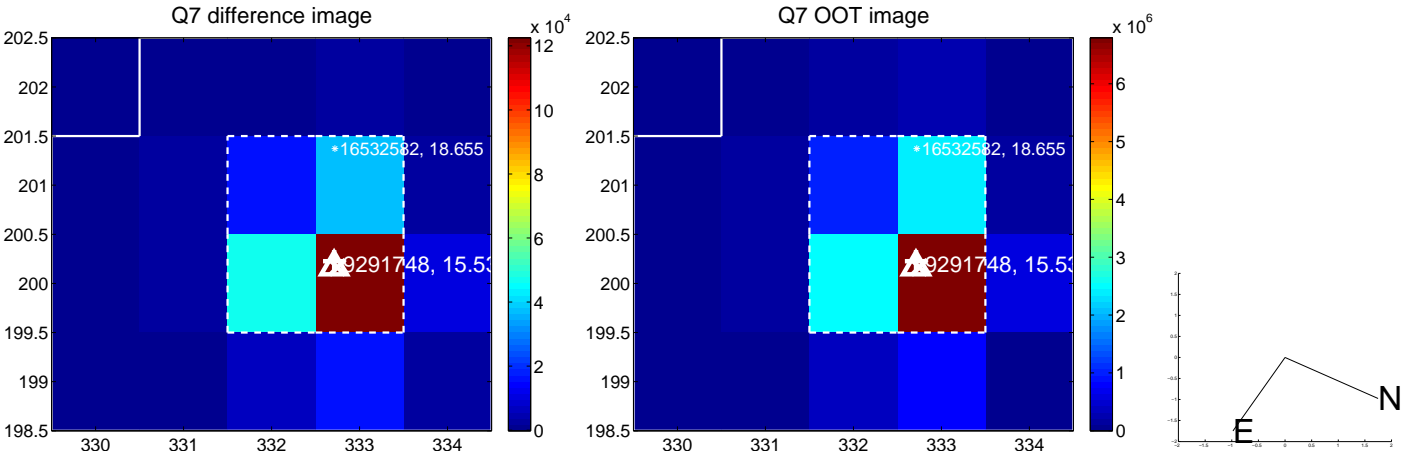
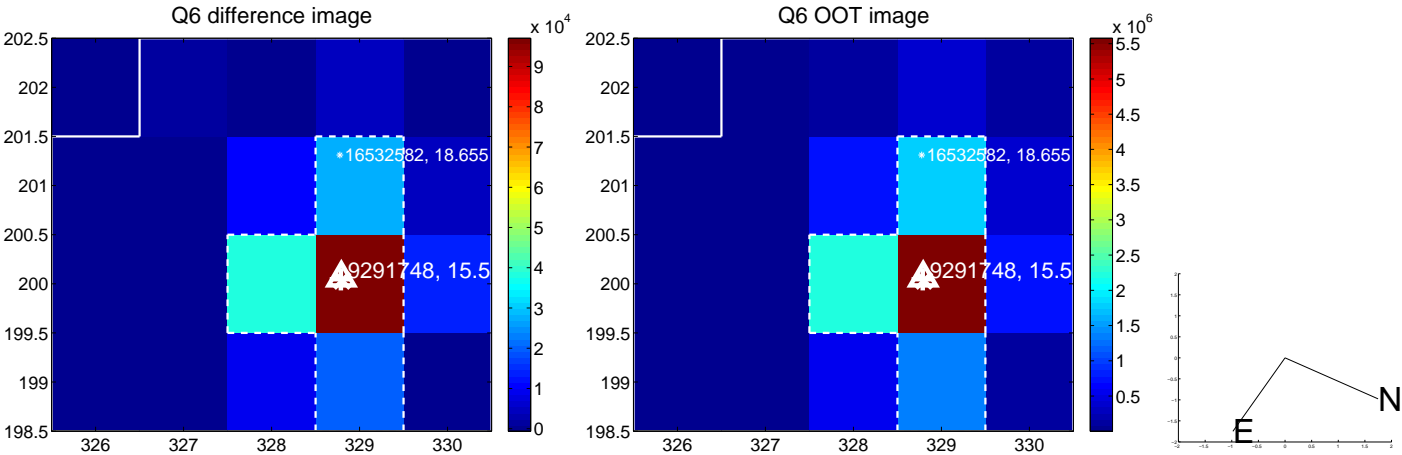
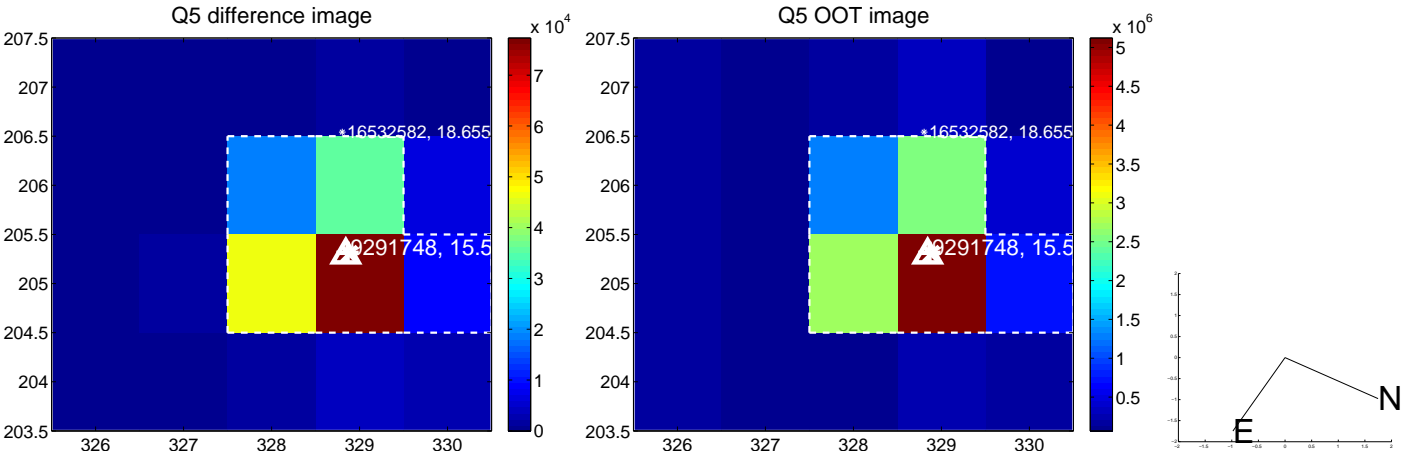


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

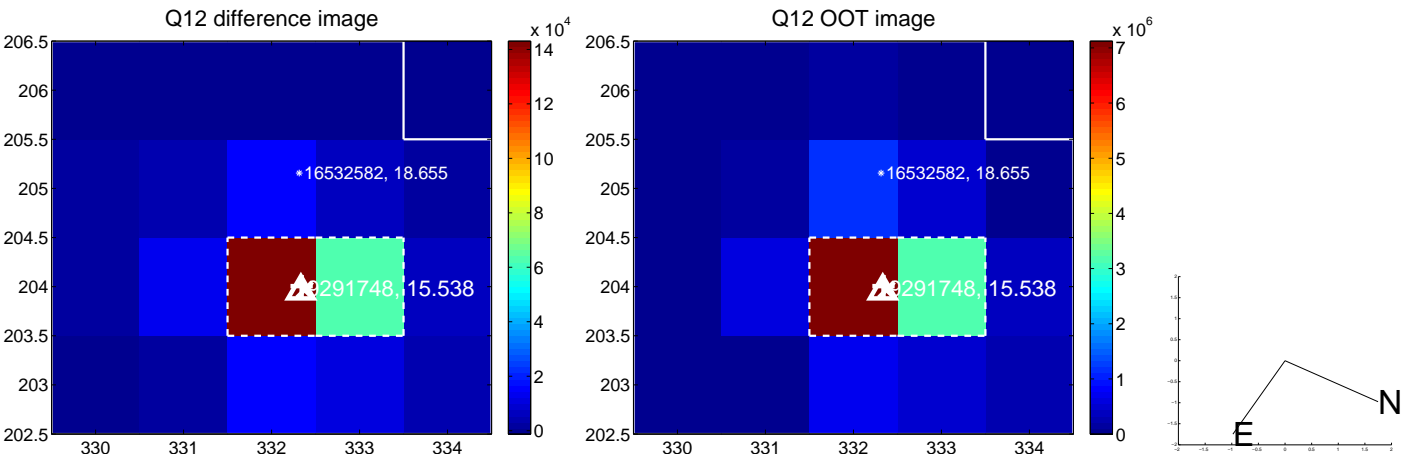
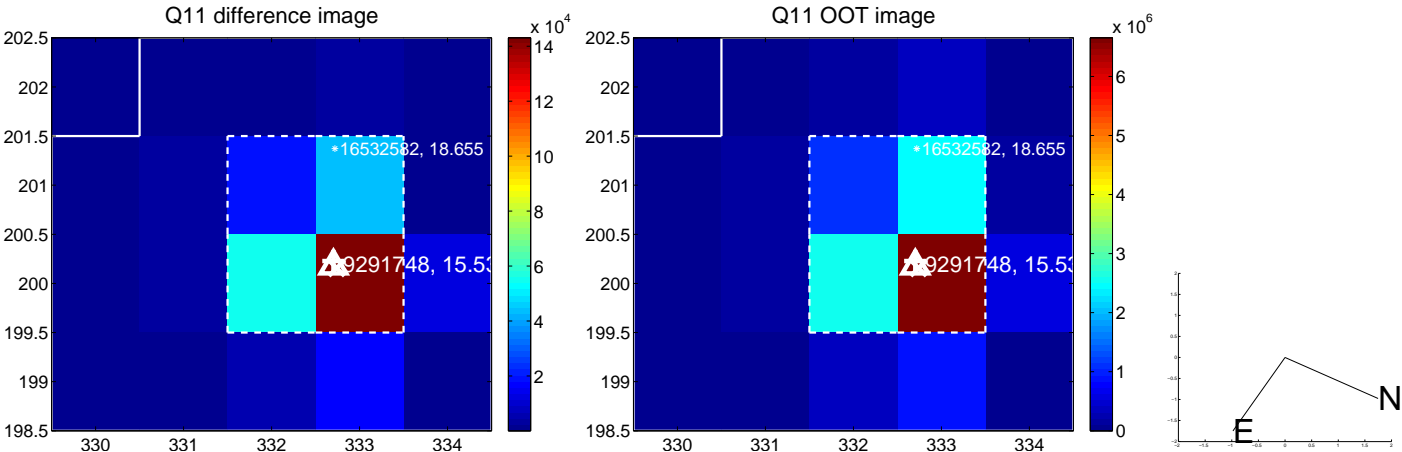
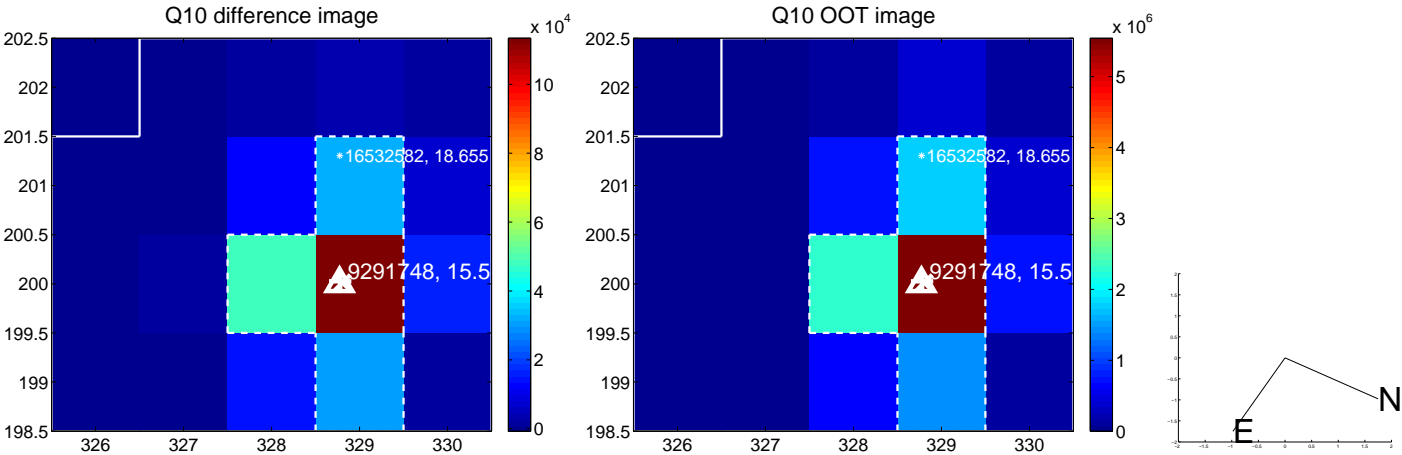
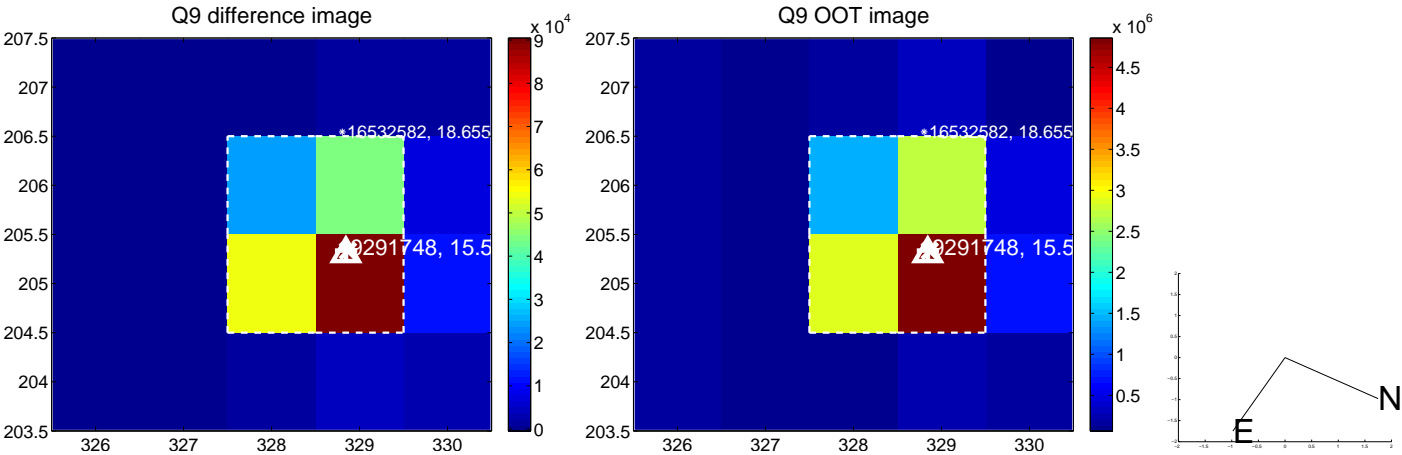
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



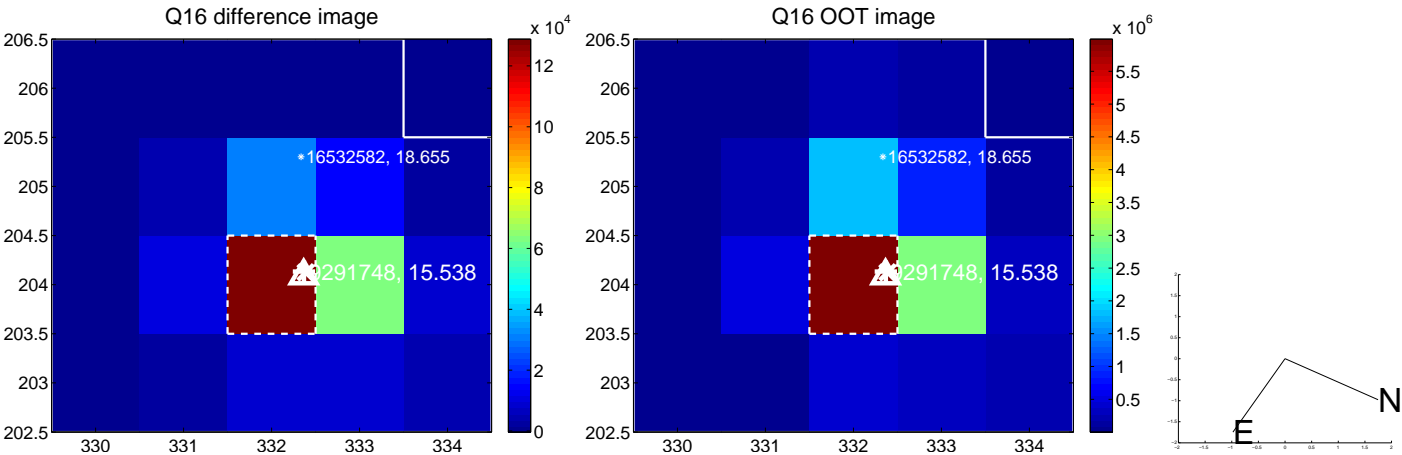
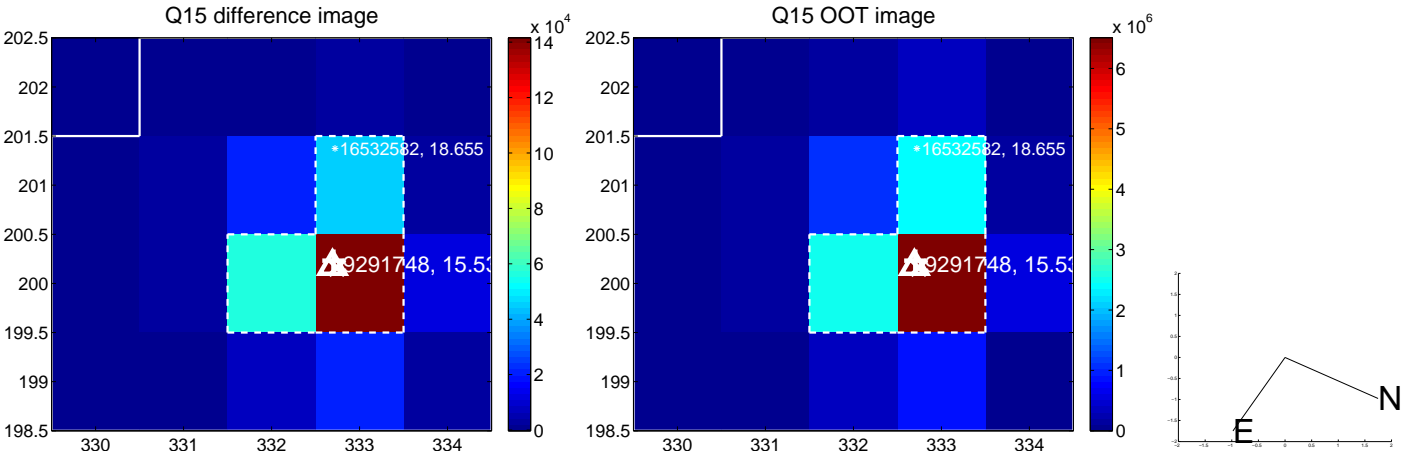
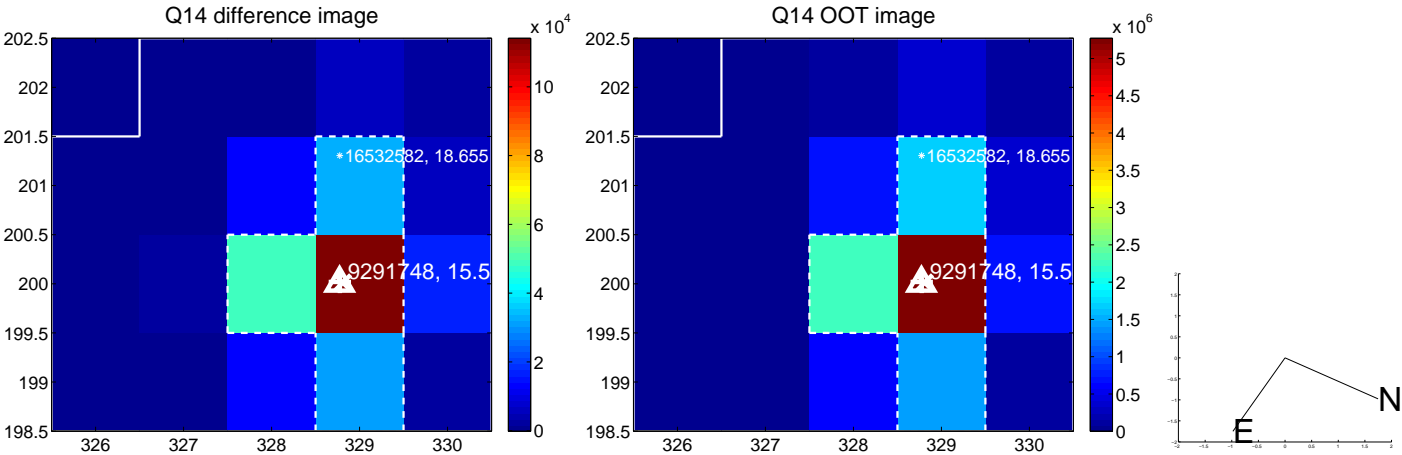
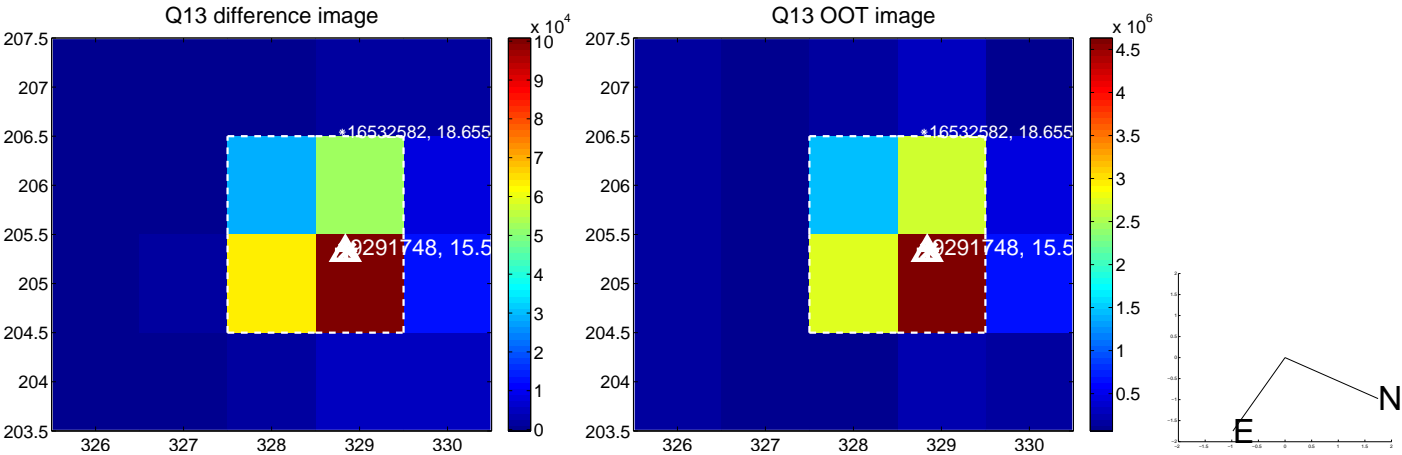
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



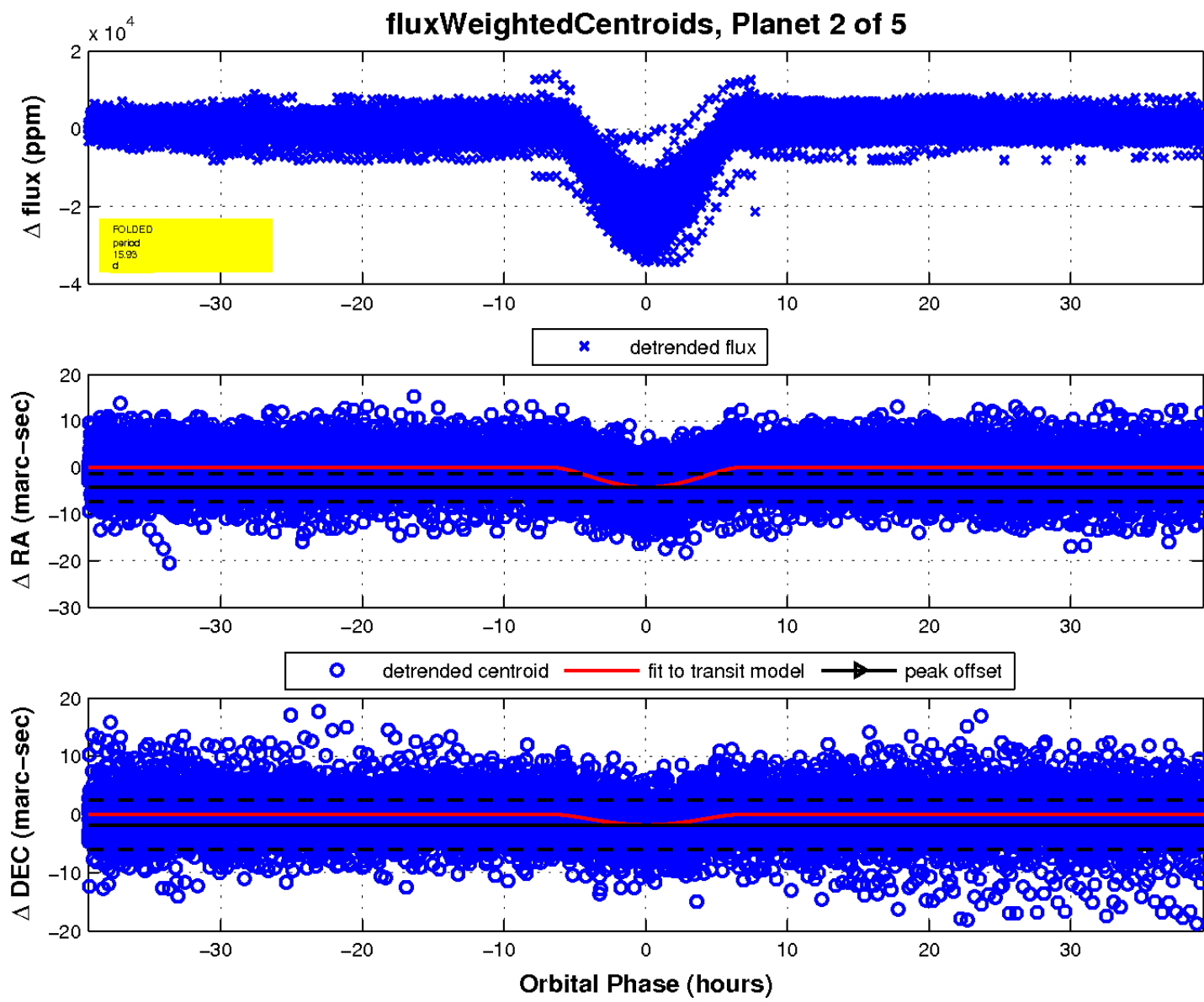
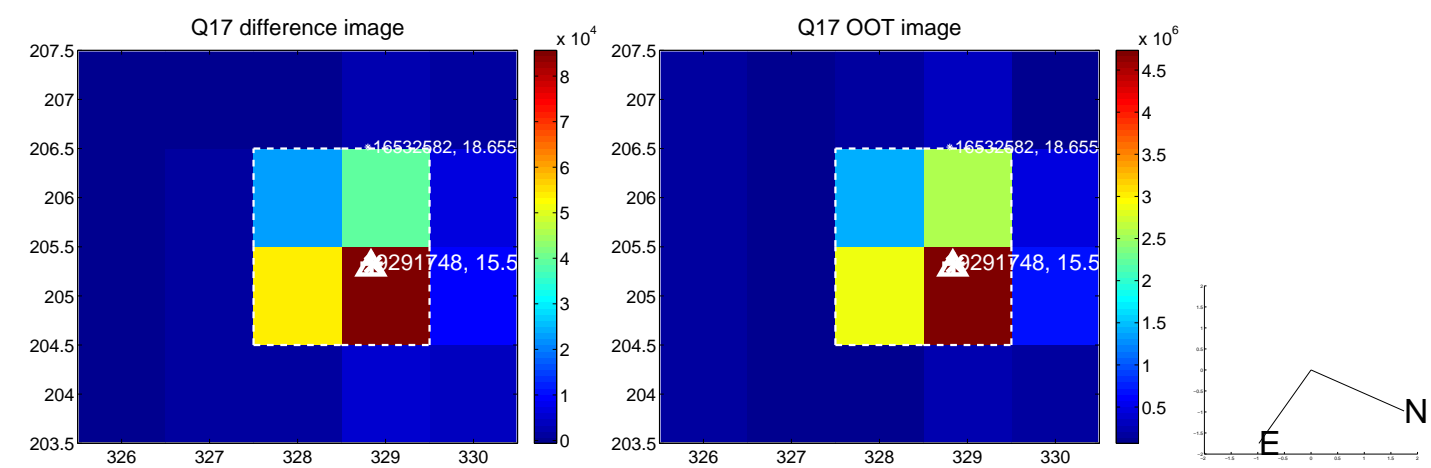
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

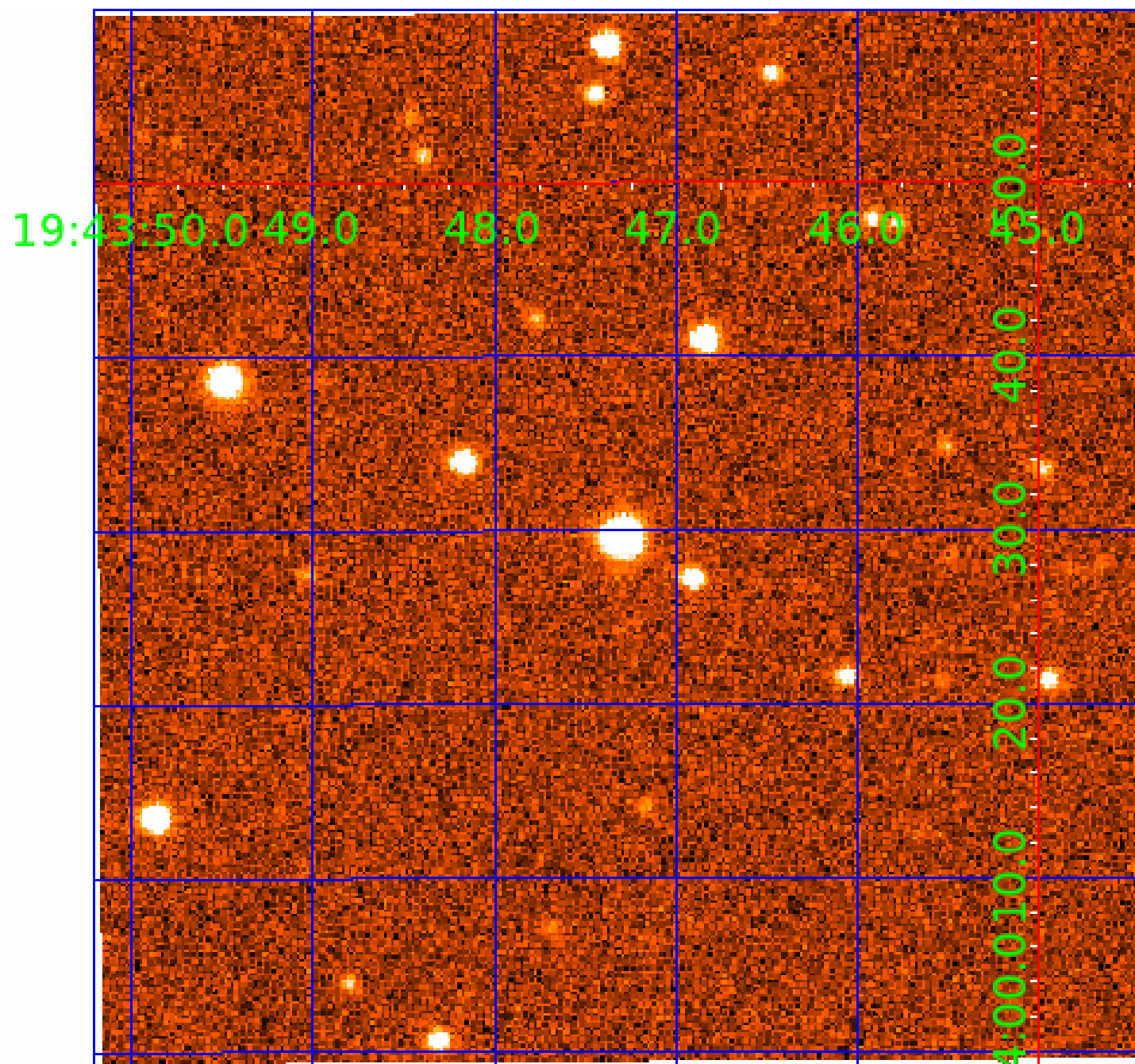


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291748

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})
009291748-01	OBS	7156.01	15.926994	144.452447	398829.8	11.728	8702.4	5383.6	0.65	5191	71.12	24.23
009291748-02	OBS	No	15.927023	136.309798	19447.9	13.126	472.7	363.0	0.65	5191	14.89	24.23
009291748-03	OBS	No	437.049433	264.647067	1587.6	6.565	13.5	8.1	0.65	5191	2.62	0.29
009291748-04	OBS	No	533.124931	388.224803	1776.8	13.593	13.0	8.8	0.65	5191	2.70	0.23
009291748-05	OBS	No	246.060930	208.334368	1165.3	10.500	12.2	-1.0	0.65	5191	2.19	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291748-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009291748-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009291748-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

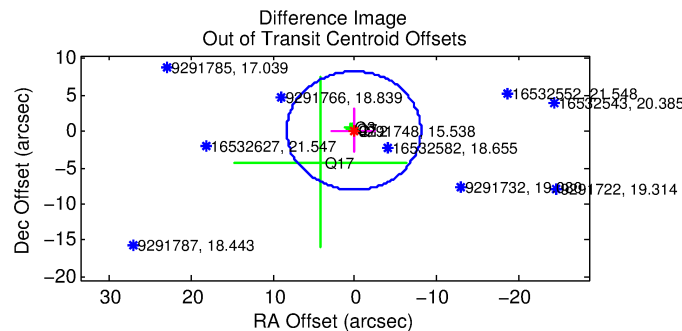
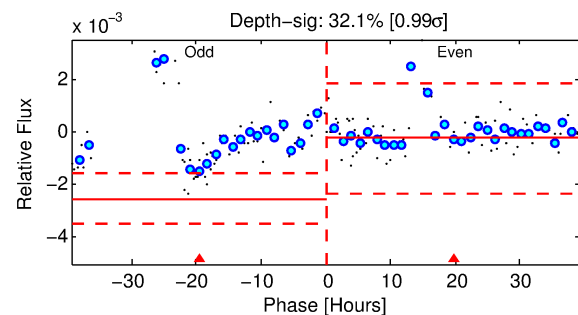
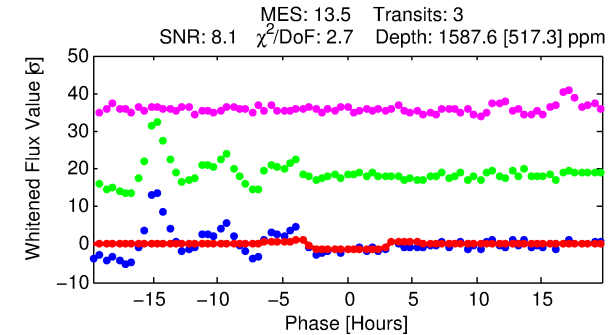
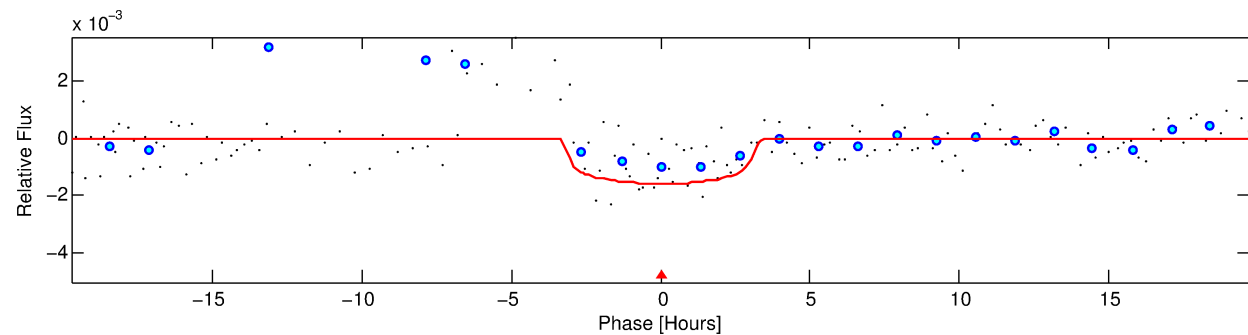
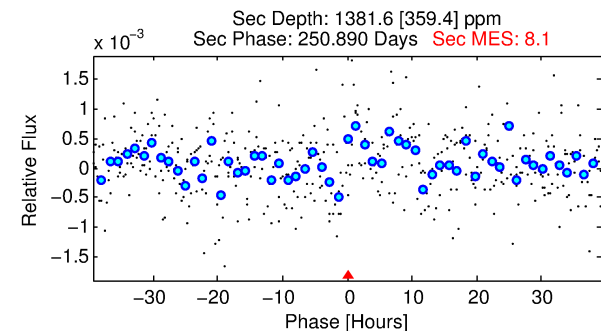
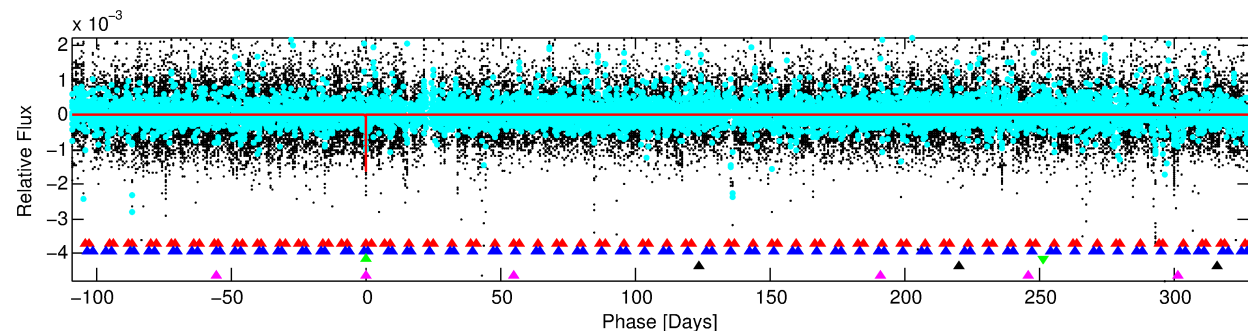
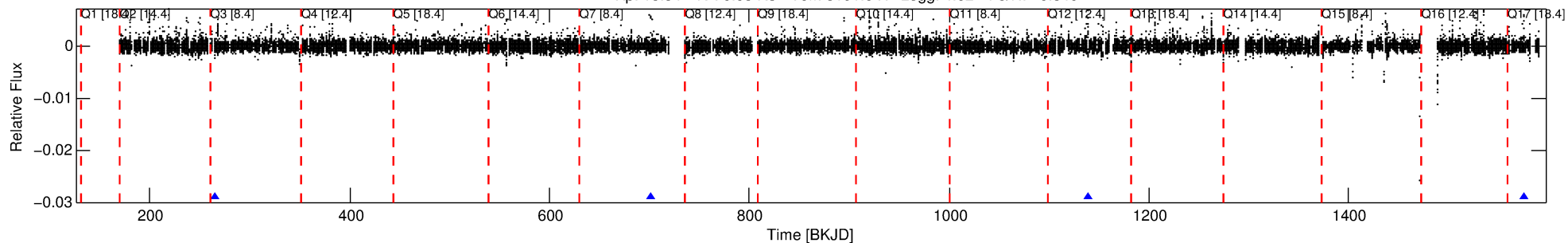
Ephemeris Match Information For 009291748-03

No Significant Match Found

DV One-Page Summary

KIC: 9291748 Candidate: 3 of 5 Period: 437.049 d
KOI: K07156 Corr: No Ephemeris Match

Kp: 15.54 R*: 0.65 Rs Teff: 5191.0 K Logg: 4.62 Fe/H: -0.840



DV Fit Results:

Period = 437.04943 [0.01148] d
Epoch = 264.6471 [0.0281] BKJD
Rp/R* = 0.0370 [0.0706]
a/R* = 473.87 [3732.74]
b = 0.46 [13.77]
Seff = 0.29 [0.05]
Teq = 188 [8] K
Rp = 2.62 [5.01] Re
a = 0.9690 [0.0774] AU
Ag = 103801.11 [397573.00] [0.26σ]
Teffp = 5205 [4984] K [1.01σ]

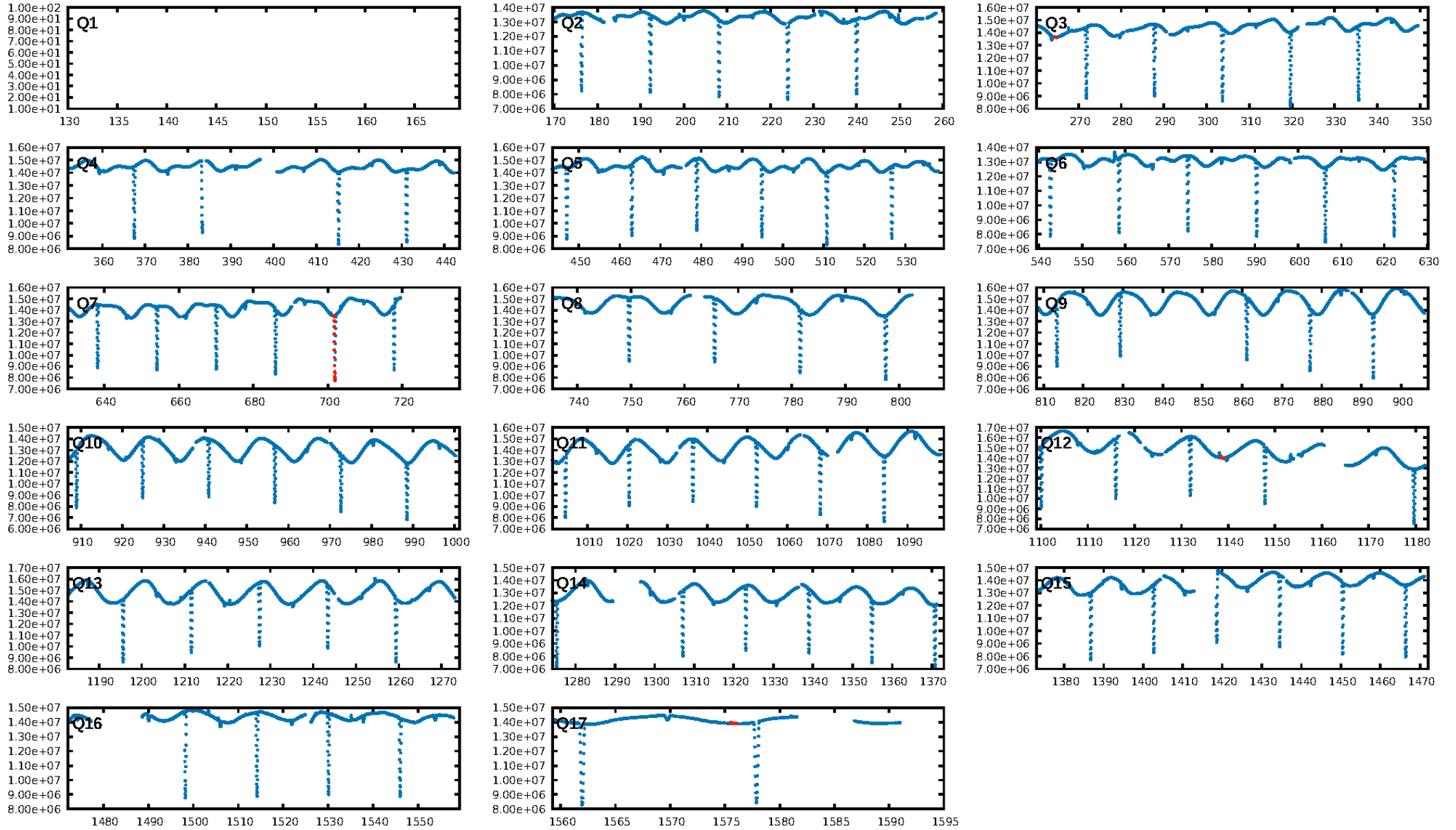
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [370.16σ]
LongPeriod-sig: 100.0% [152.75σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 13.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.668
Centroid-sig: 0.3%
Centroid-so: 1.980 arcsec [2.19σ]
OotOffset-rm: 0.191 arcsec [0.07σ]
KicOffset-rm: 0.112 arcsec [0.04σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.75 [3/4]

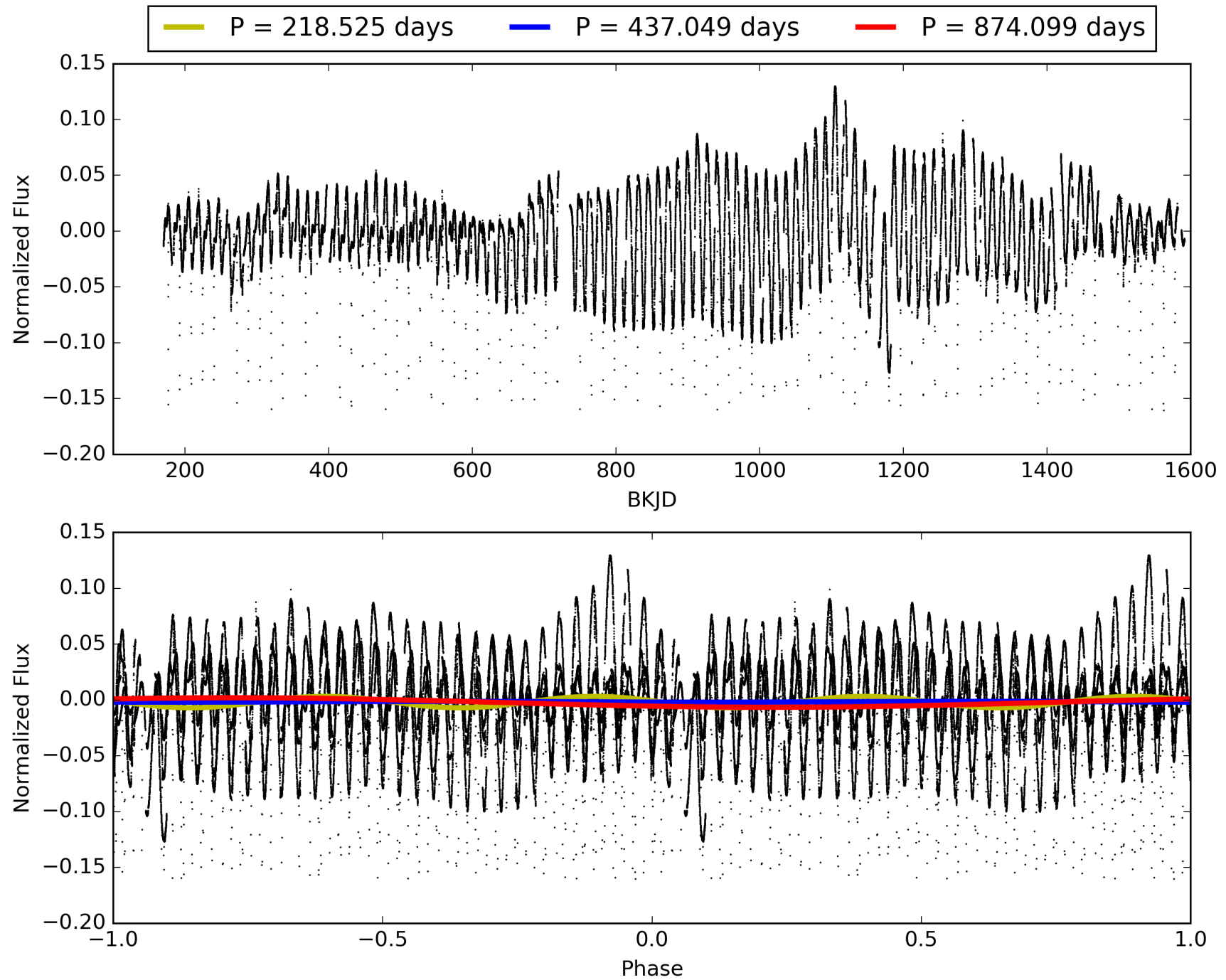
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:07:56 Z

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TCE 009291748-03, PDC Light Curves

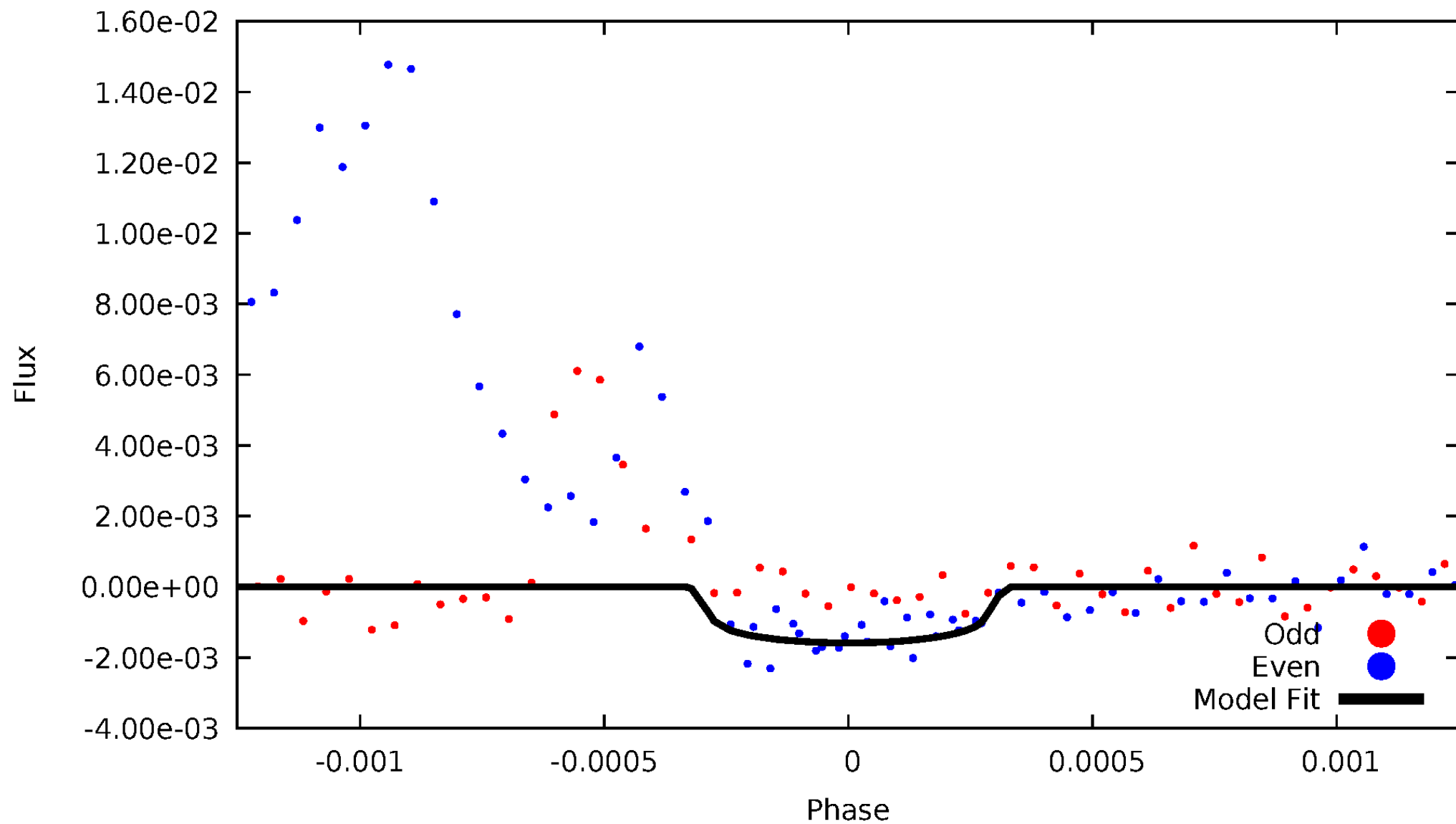


TCE 009291748-03



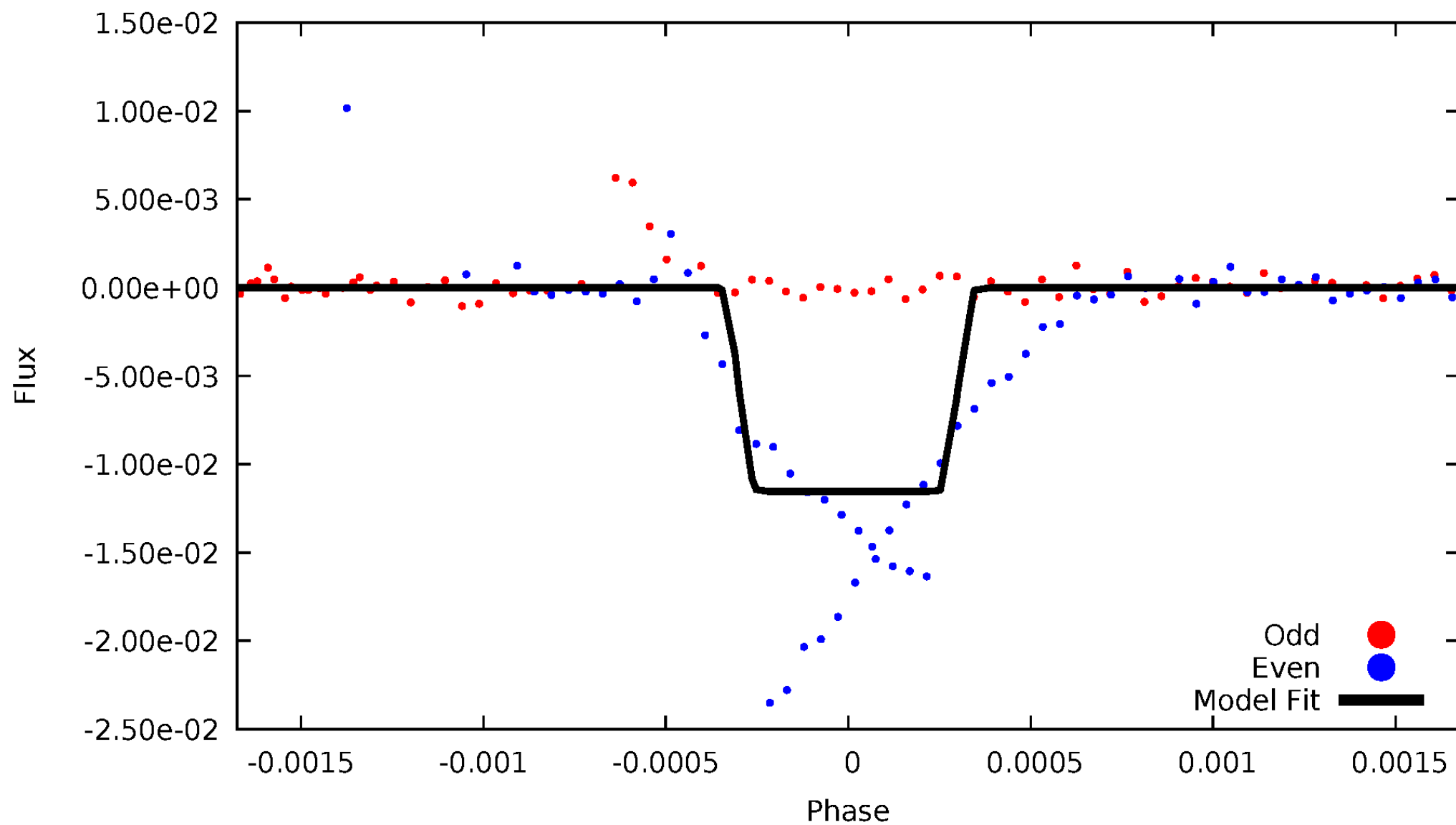
DV Odd/Even

TCE 009291748-03



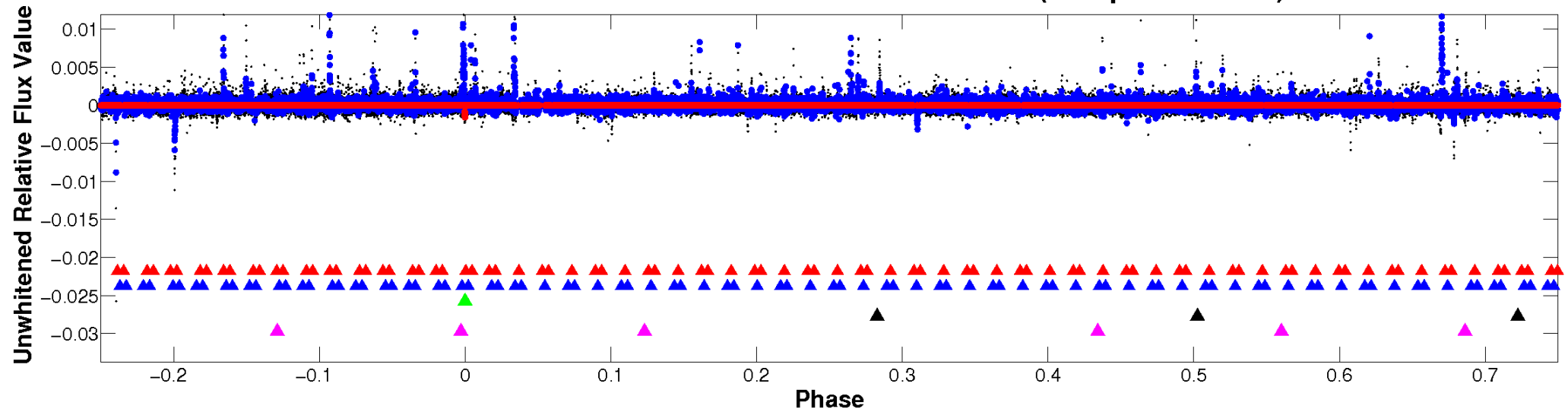
ALT Odd/Even

TCE 009291748-03

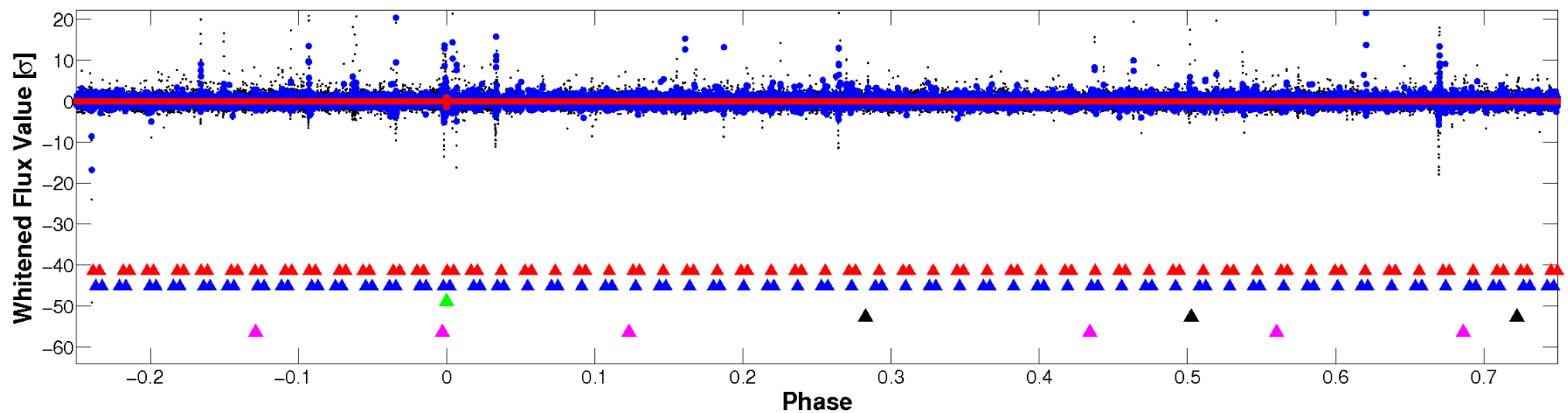


Non-Whitened Vs. Whitened Light Curve

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

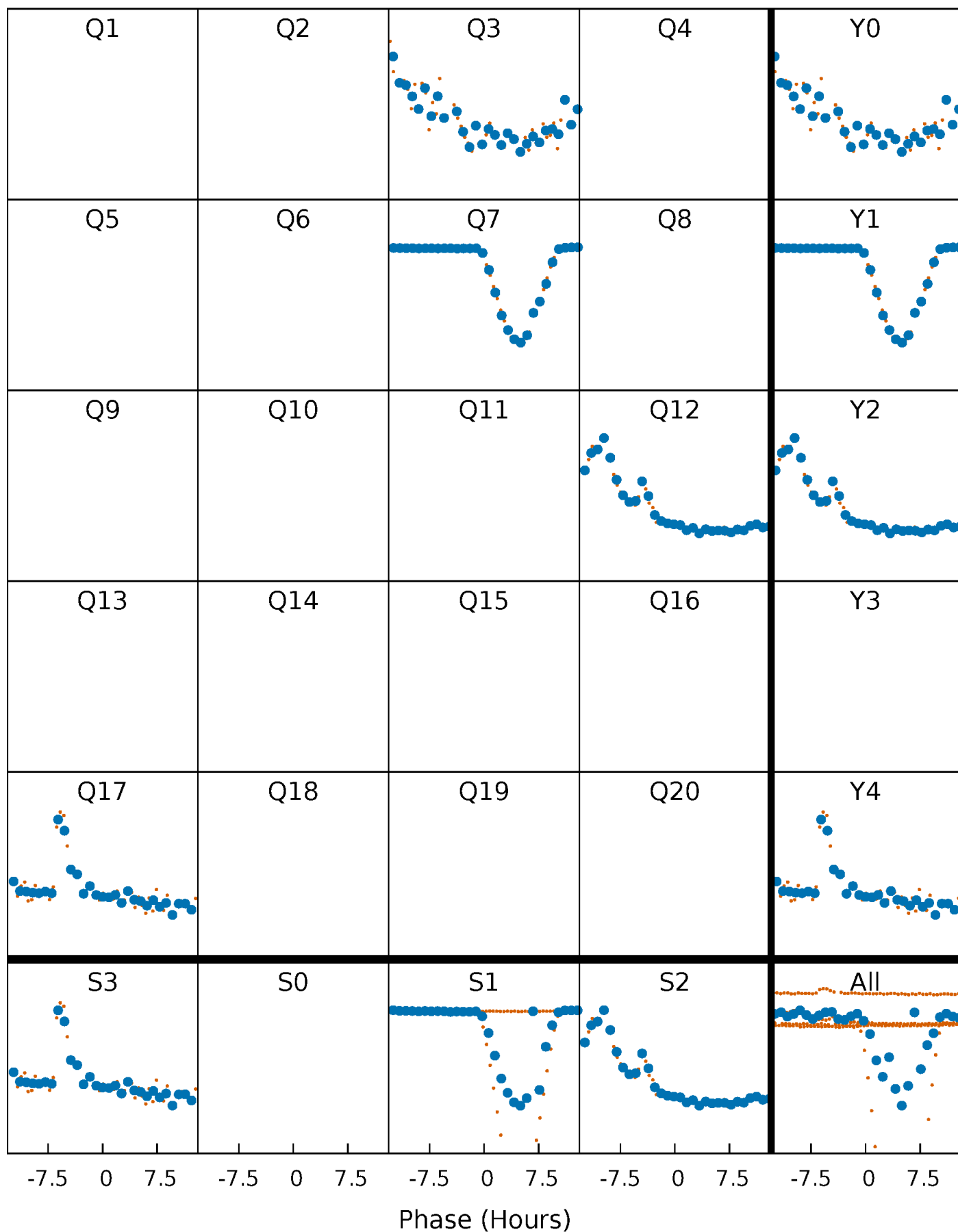


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



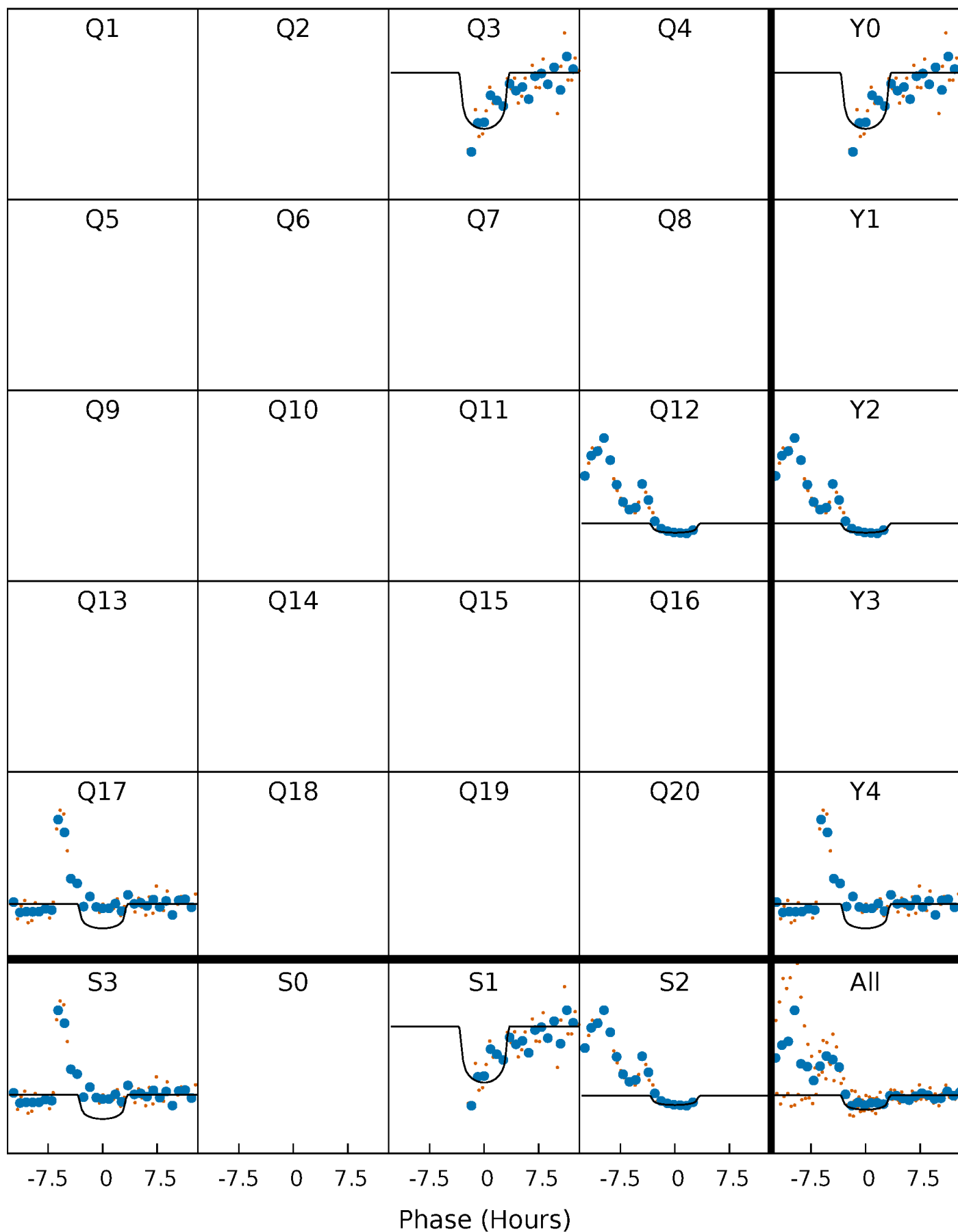
PDC Quarter-Phased Transit Curves

TCE 009291748-03 $P=437.049433$ Days $T_0=264.647067$ (BKJD)



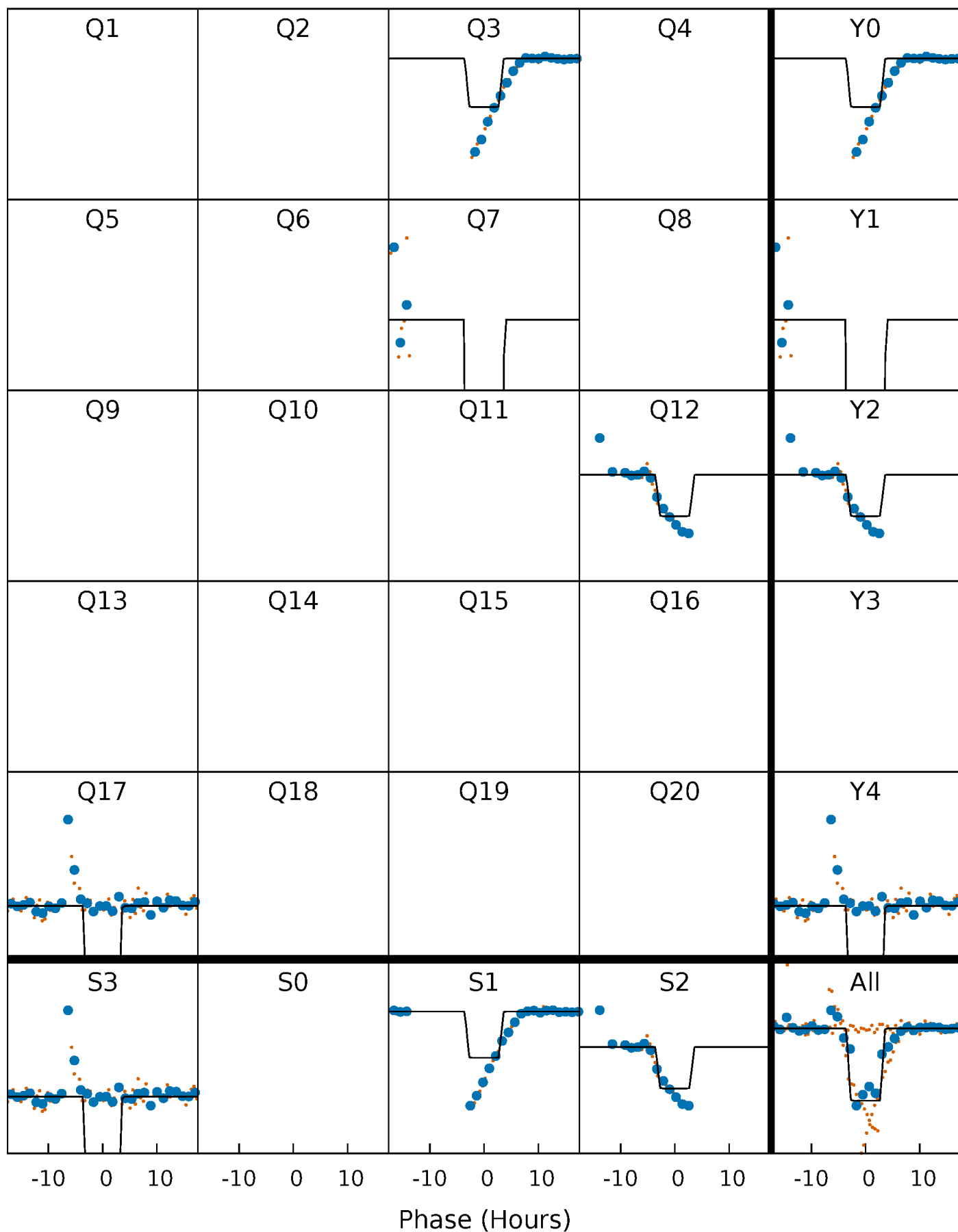
DV Quarter-Phased Transit Curves

TCE 009291748-03 $P=437.049433$ Days $T_0=264.647067$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

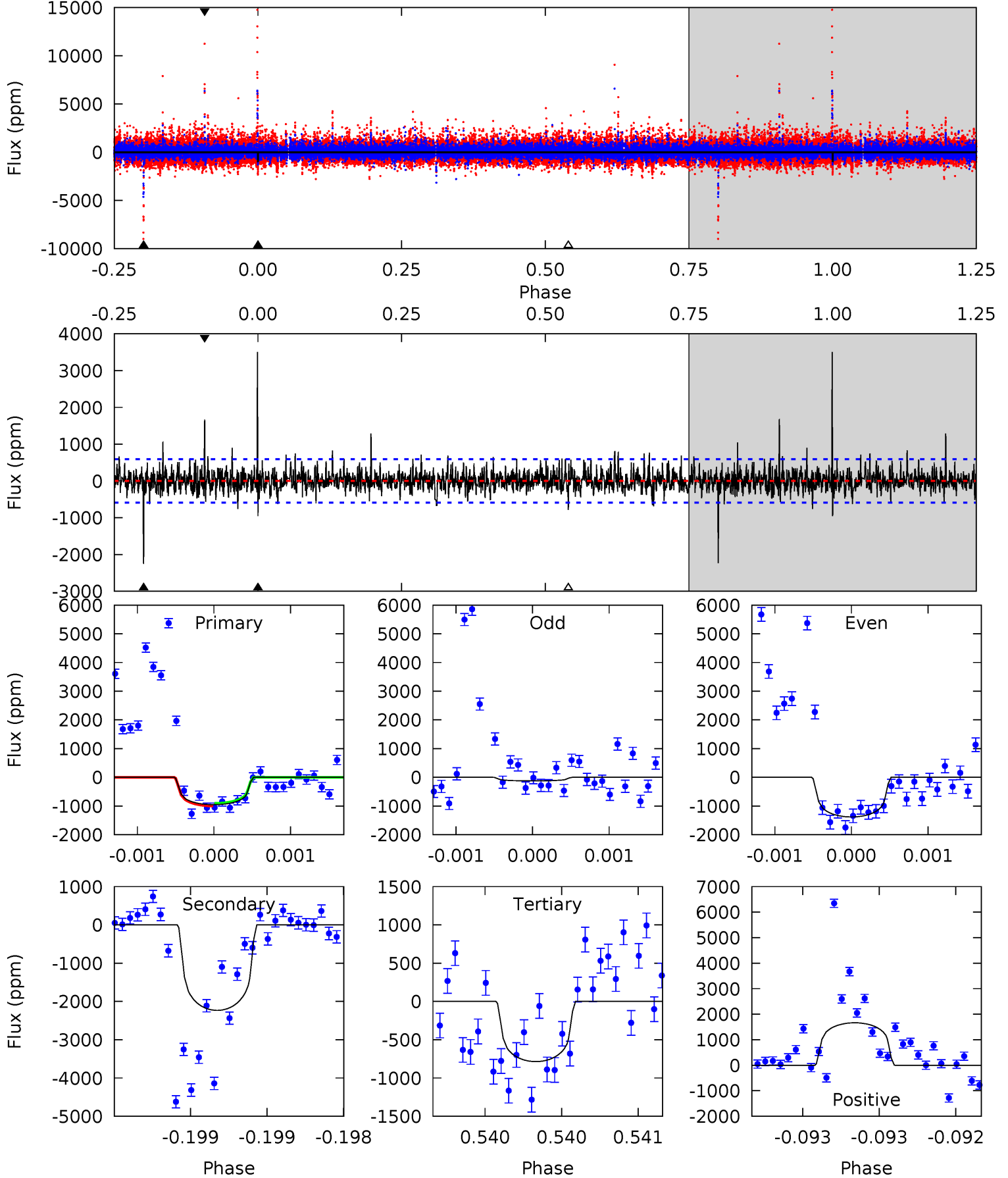
TCE 009291748-03 $P=437.060226$ Days $T_0=264.650832$ (BKJD)



DV Model-Shift Uniqueness Test

009291748-03, P = 437.049433 Days, E = 264.647067 Days

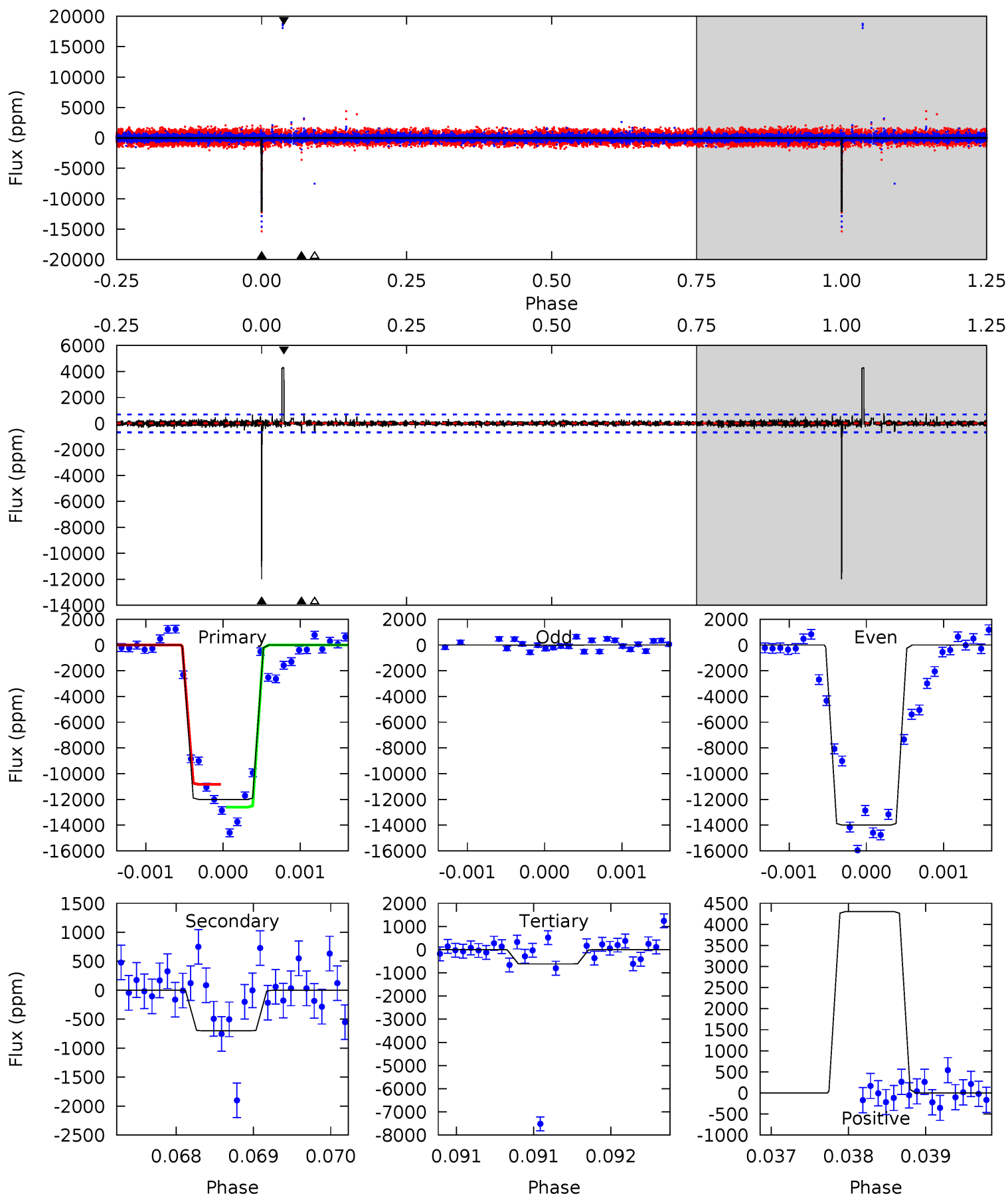
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.92	20.9	7.35	15.6	5.53	3.41	2.03	1.58	-6.64	13.5	5.32	4.46	0.70	0.61	0.40



Alt Model-Shift Uniqueness Test

009291748-03, P = 437.060226 Days, E = 264.650832 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
96.5	5.63	4.96	34.6	5.53	3.41	0.88	91.5	61.9	0.67	-29.0	78.2	0.76	0.26	6.89



Stellar Parameters For KIC 009291748

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.615^{+0.071}_{-0.044}$	$-0.840^{+0.300}_{-0.300}$	$0.650^{+0.057}_{-0.057}$	$0.635^{+0.066}_{-0.028}$	$3.251^{+0.967}_{-0.517}$
	+3%/-3%	+2%/-1%	+36%/-36%	+9%/-9%	+10%/-4%	+30%/-16%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009291748-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2233 ± 107	$4.48^{+4.20}_{-2.81}$	261^{+10}_{-10}	4580^{+2956}_{-948}	$59101^{+360121}_{-43863}$
Alt.	-700 ± 124	$7.69^{+5.01}_{-4.33}$	261^{+10}_{-10}	3139^{+983}_{-409}	6293^{+25420}_{-4010}

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

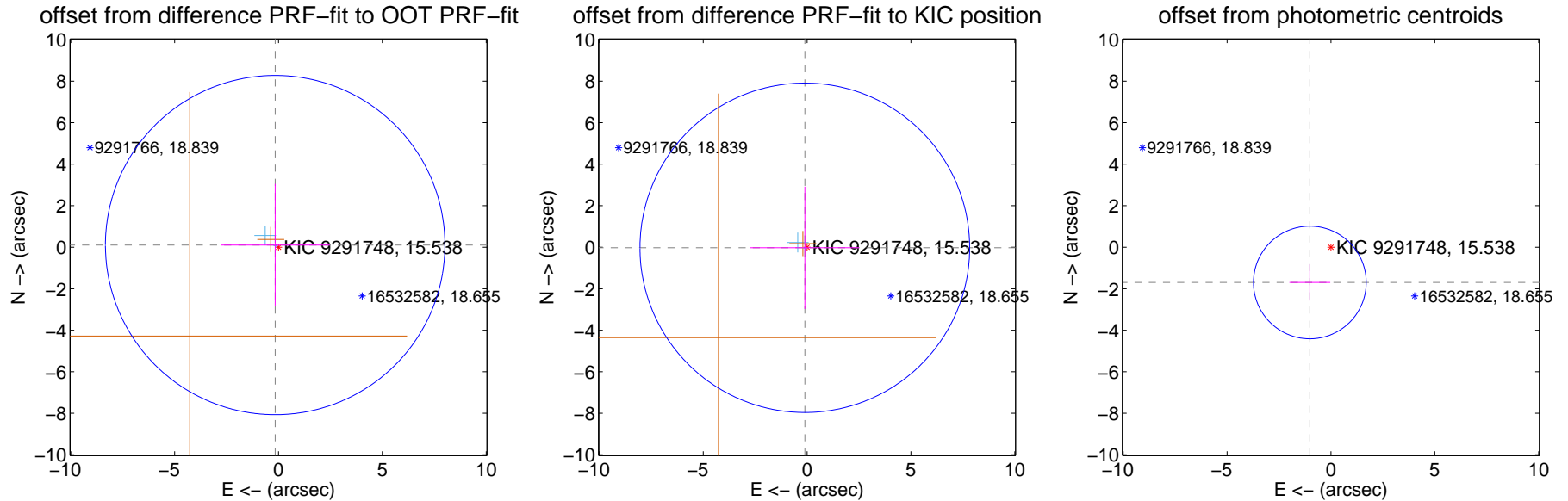
DV Centroid Data

Supplemental centroid analysis for 009291748-03. Kepler magnitude: 15.54. Transit SNR 8.13

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.191 ± 2.724	0.07	0.160 ± 2.626	0.103 ± 2.947
PRF-fit source offset from KIC position	0.112 ± 2.646	0.04	0.109 ± 2.626	-0.027 ± 2.947
photometric centroid source offset	1.98 ± 0.90	2.19	1.02 ± 0.98	-1.70 ± 0.87



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



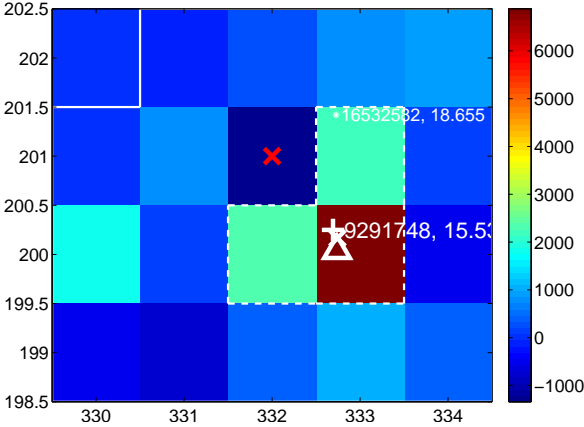
Q2 no difference image



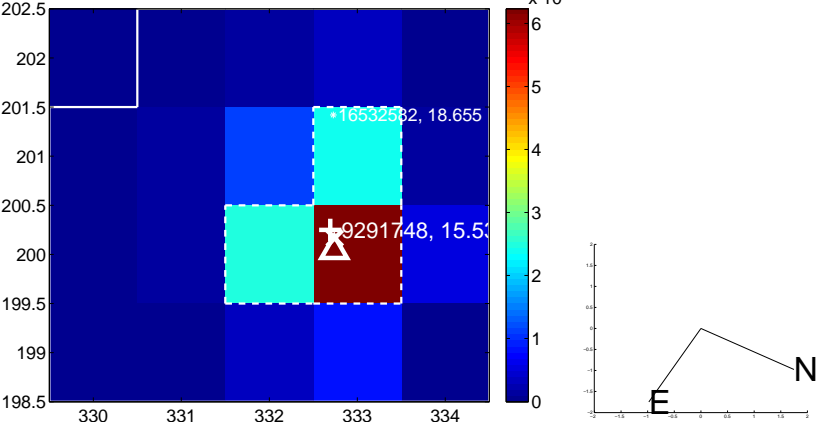
Q2 no OOT image



Q3 difference image



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.

Q5 no difference image



Q5 no OOT image



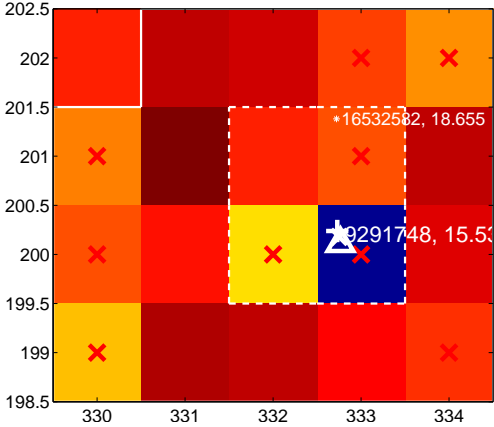
Q6 no difference image



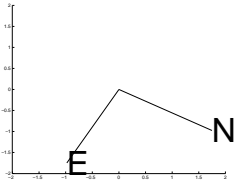
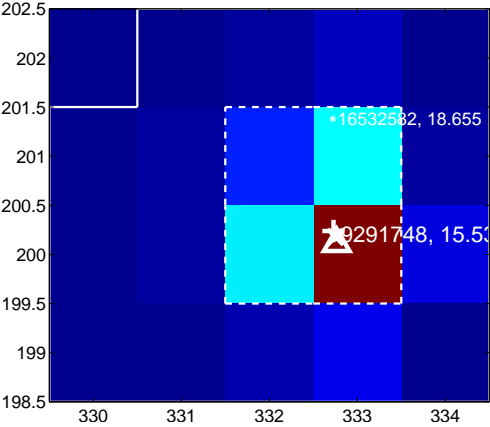
Q6 no OOT image



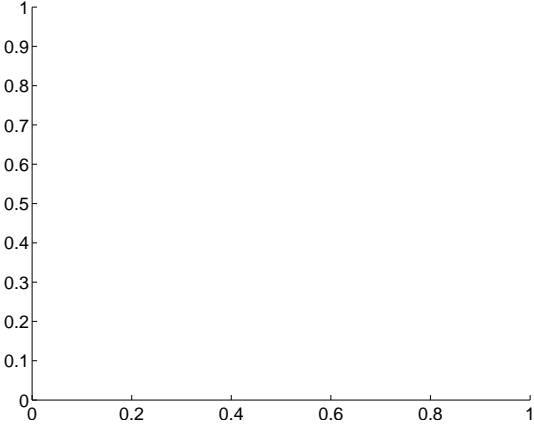
Q7 difference image. Poor Quality



Q7 OOT image



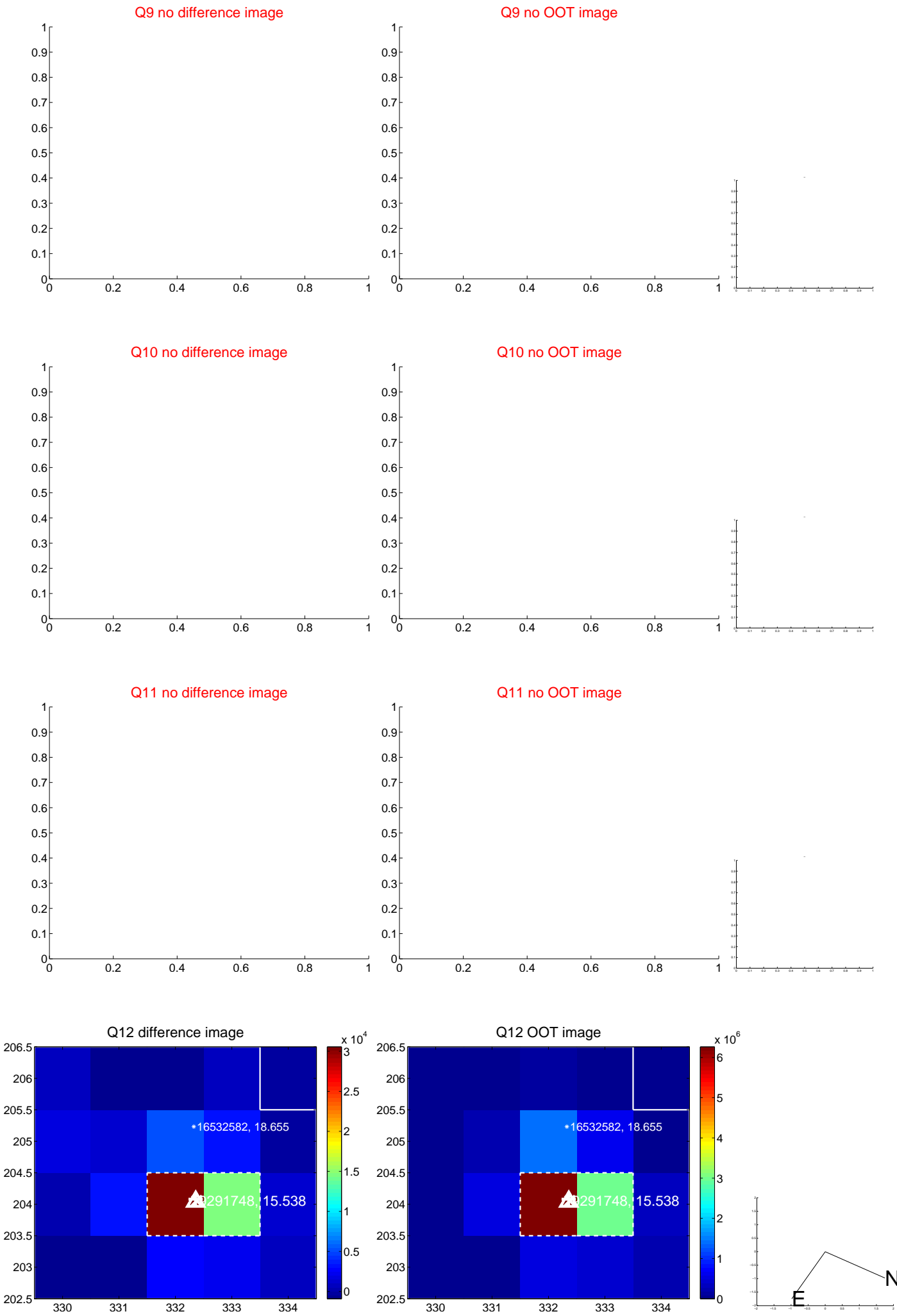
Q8 no difference image



Q8 no OOT image



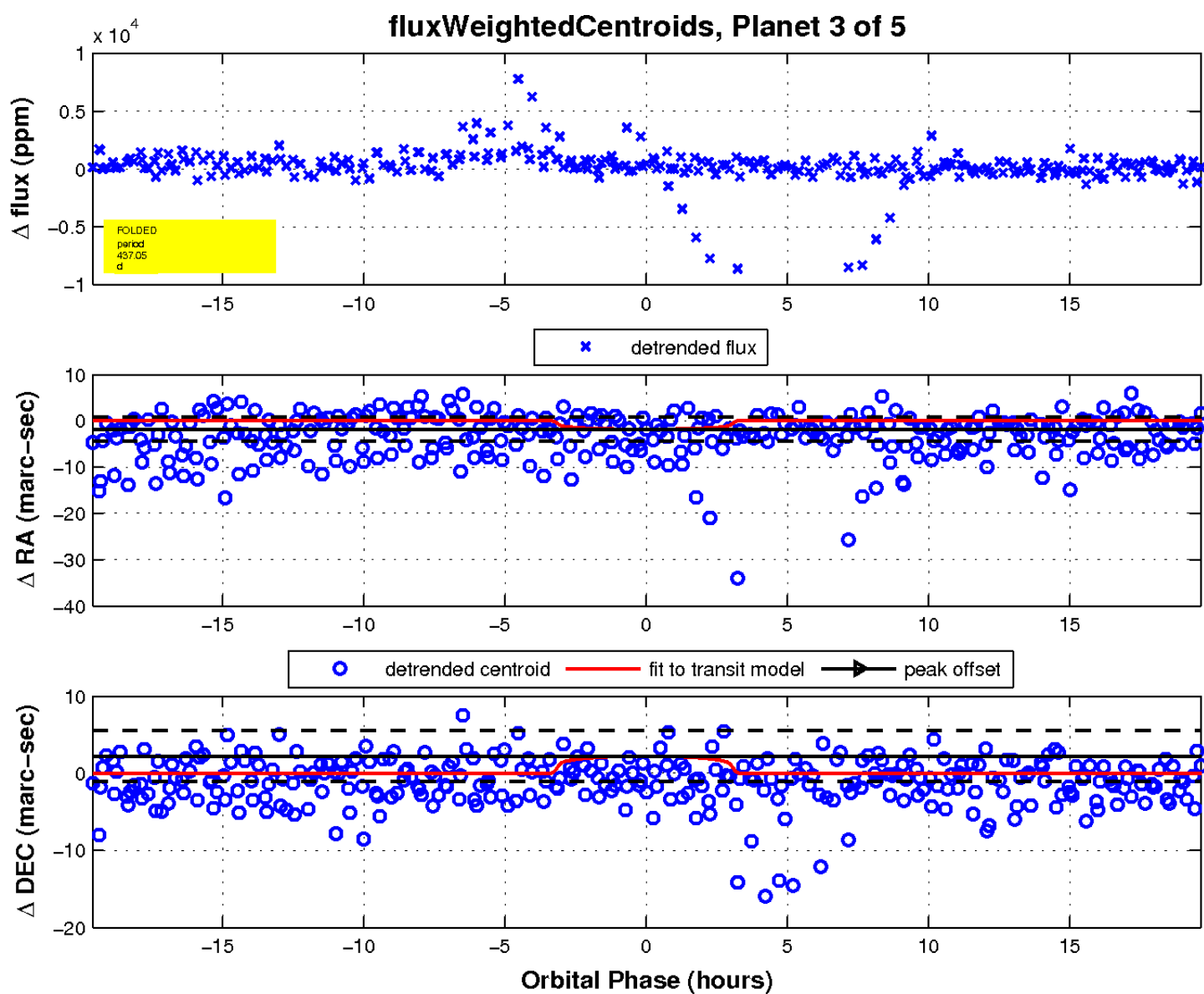
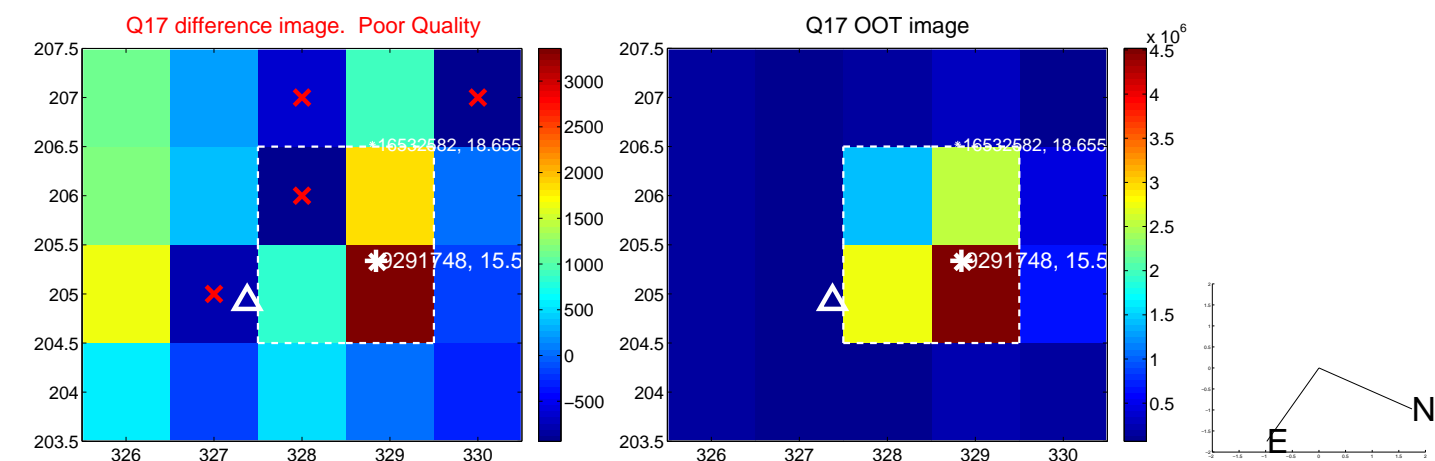
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

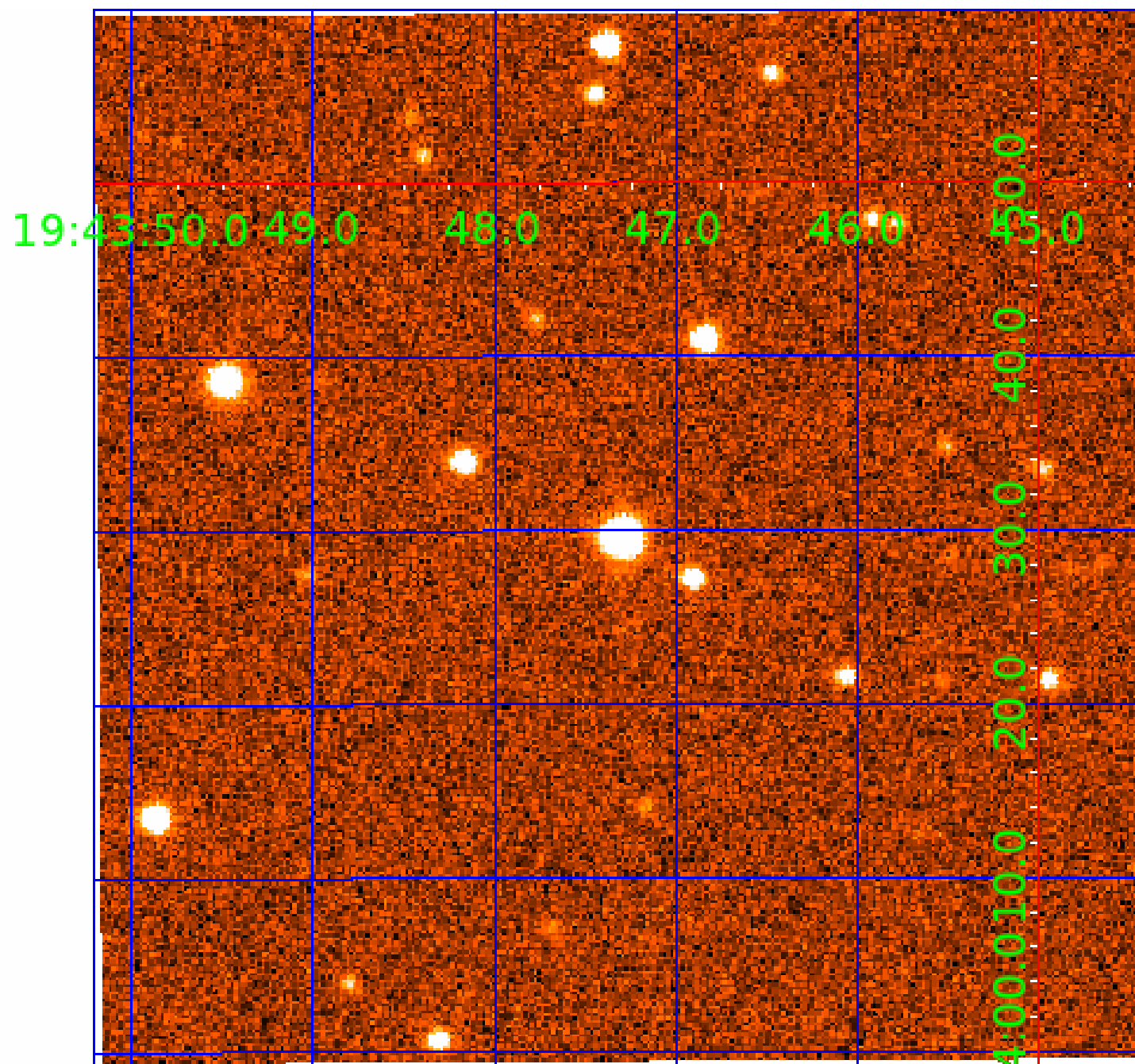


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291748

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})
009291748-01	OBS	7156.01	15.926994	144.452447	398829.8	11.728	8702.4	5383.6	0.65	5191	71.12	24.23
009291748-02	OBS	No	15.927023	136.309798	19447.9	13.126	472.7	363.0	0.65	5191	14.89	24.23
009291748-03	OBS	No	437.049433	264.647067	1587.6	6.565	13.5	8.1	0.65	5191	2.62	0.29
009291748-04	OBS	No	533.124931	388.224803	1776.8	13.593	13.0	8.8	0.65	5191	2.70	0.23
009291748-05	OBS	No	246.060930	208.334368	1165.3	10.500	12.2	-1.0	0.65	5191	2.19	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291748-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009291748-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009291748-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

Ephemeris Match Information For 009291748-04

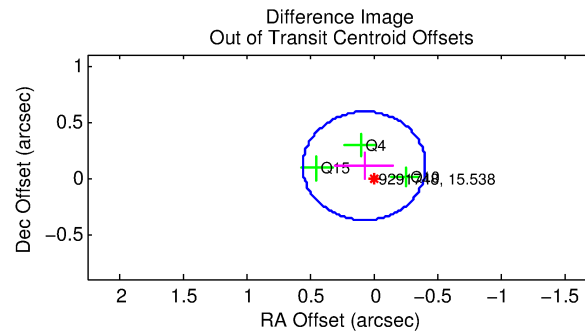
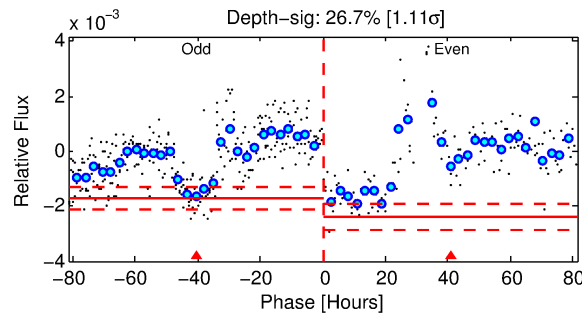
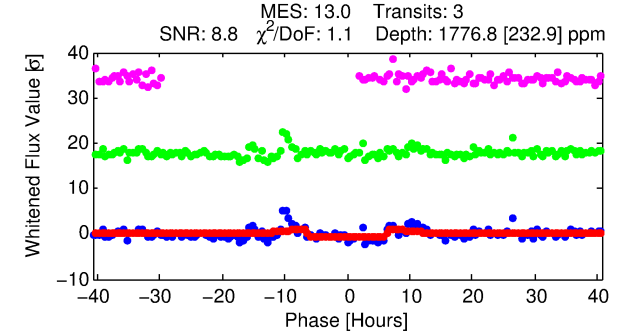
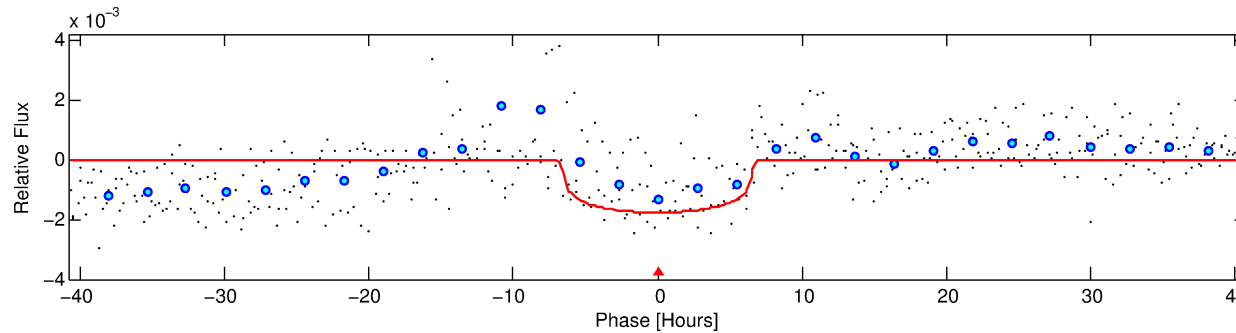
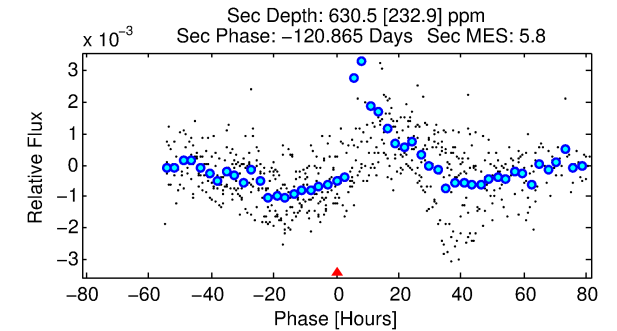
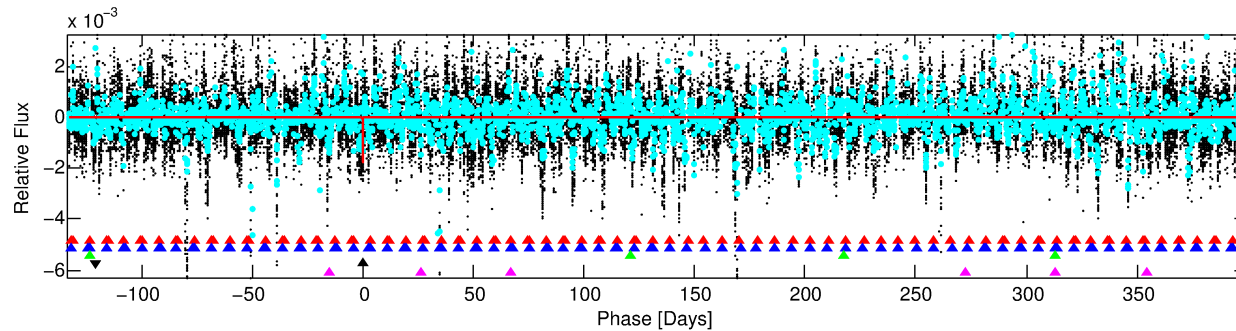
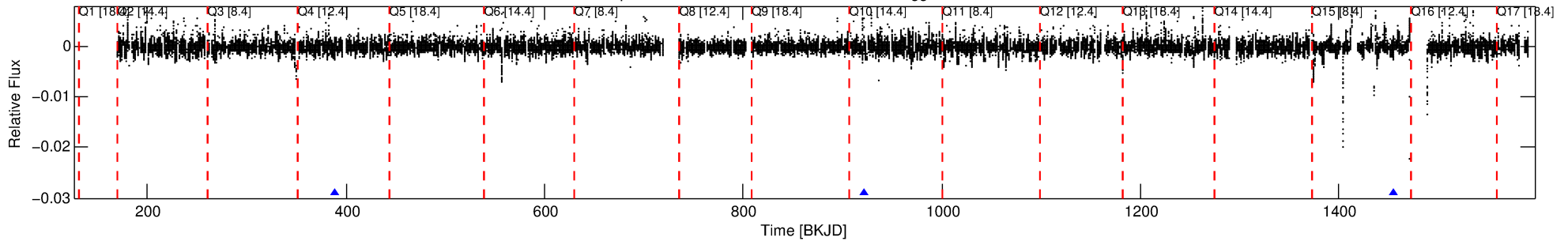
No Significant Match Found

DV One-Page Summary

KIC: 9291748 Candidate: 4 of 5 Period: 533.125 d

KOI: K07156 Corr: No Ephemeris Match

Kp: 15.54 R*: 0.65 Rs Teff: 5191.0 K Logg: 4.62 Fe/H: -0.840



DV Fit Results:

Period = 533.12493 [0.00763] d
Epoch = 388.2248 [0.0105] BKJD
Rp/R* = 0.0380 [0.0165]
a/R* = 310.95 [545.05]
b = 0.02 [76.81]
Seff = 0.22 [0.04]
Teq = 176 [8] K
Rp = 2.70 [1.19] Re
a = 1.1063 [0.0884] AU
Ag = 58278.09 [55414.09] [1.05σ]
Teffp = 4217 [1002] K [4.03σ]

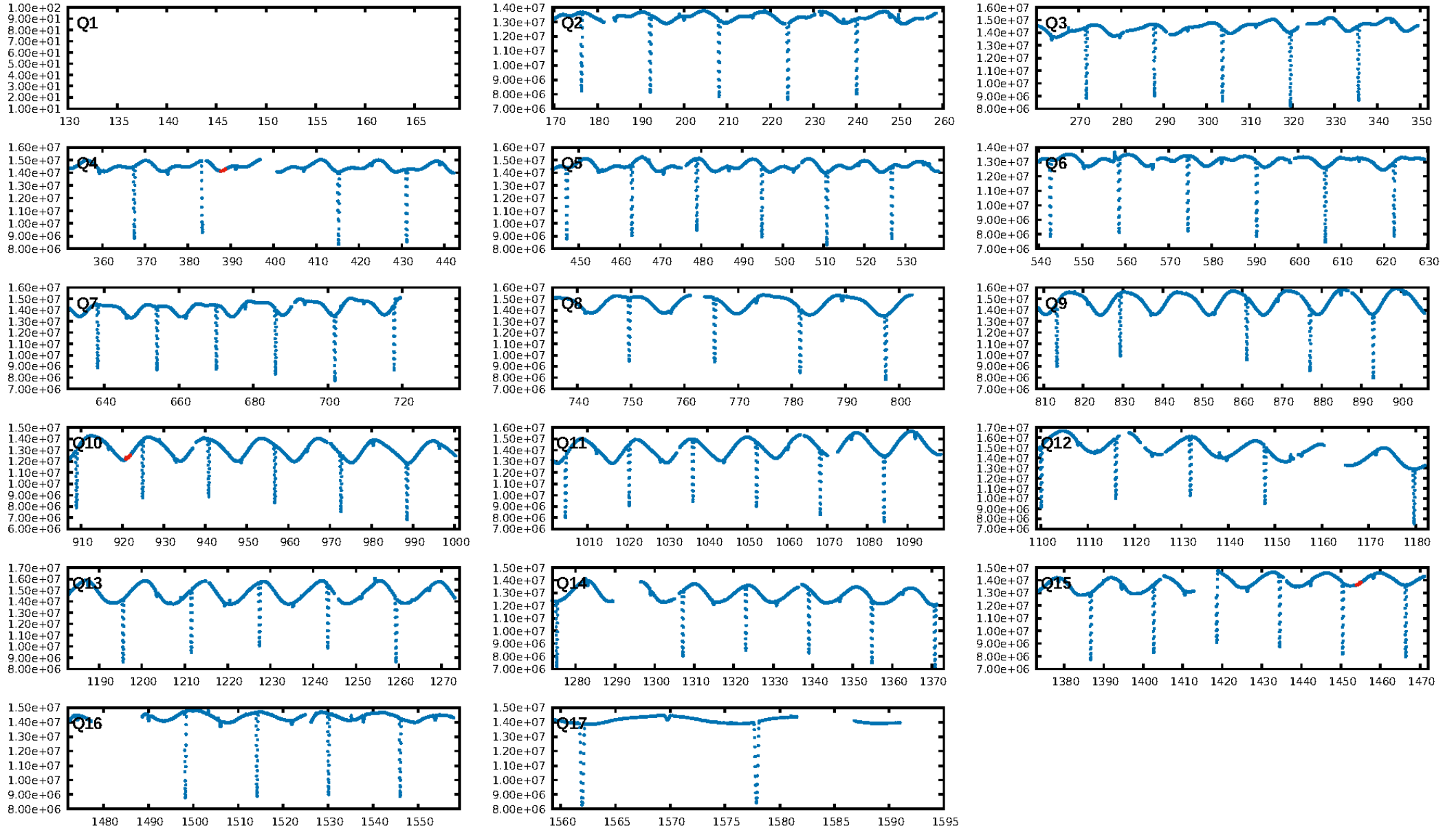
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [152.75σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 95.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9911
Centroid-sig: 0.0%
Centroid-so: 2.887 arcsec [2.91σ]
OotOffset-rm: 0.128 arcsec [0.80σ]
KicOffset-rm: 0.068 arcsec [0.47σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

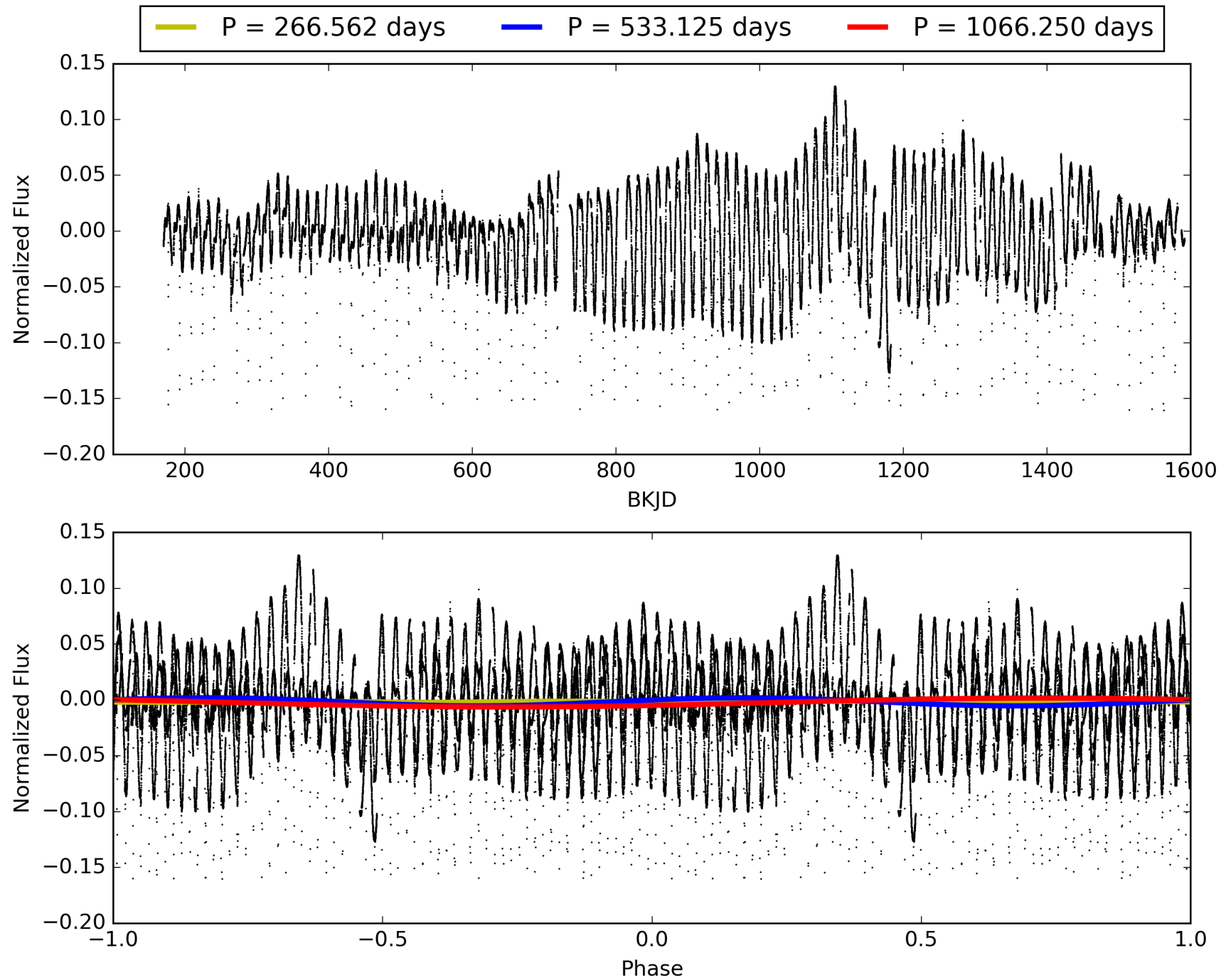
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:08:04 Z

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

TCE 009291748-04, PDC Light Curves

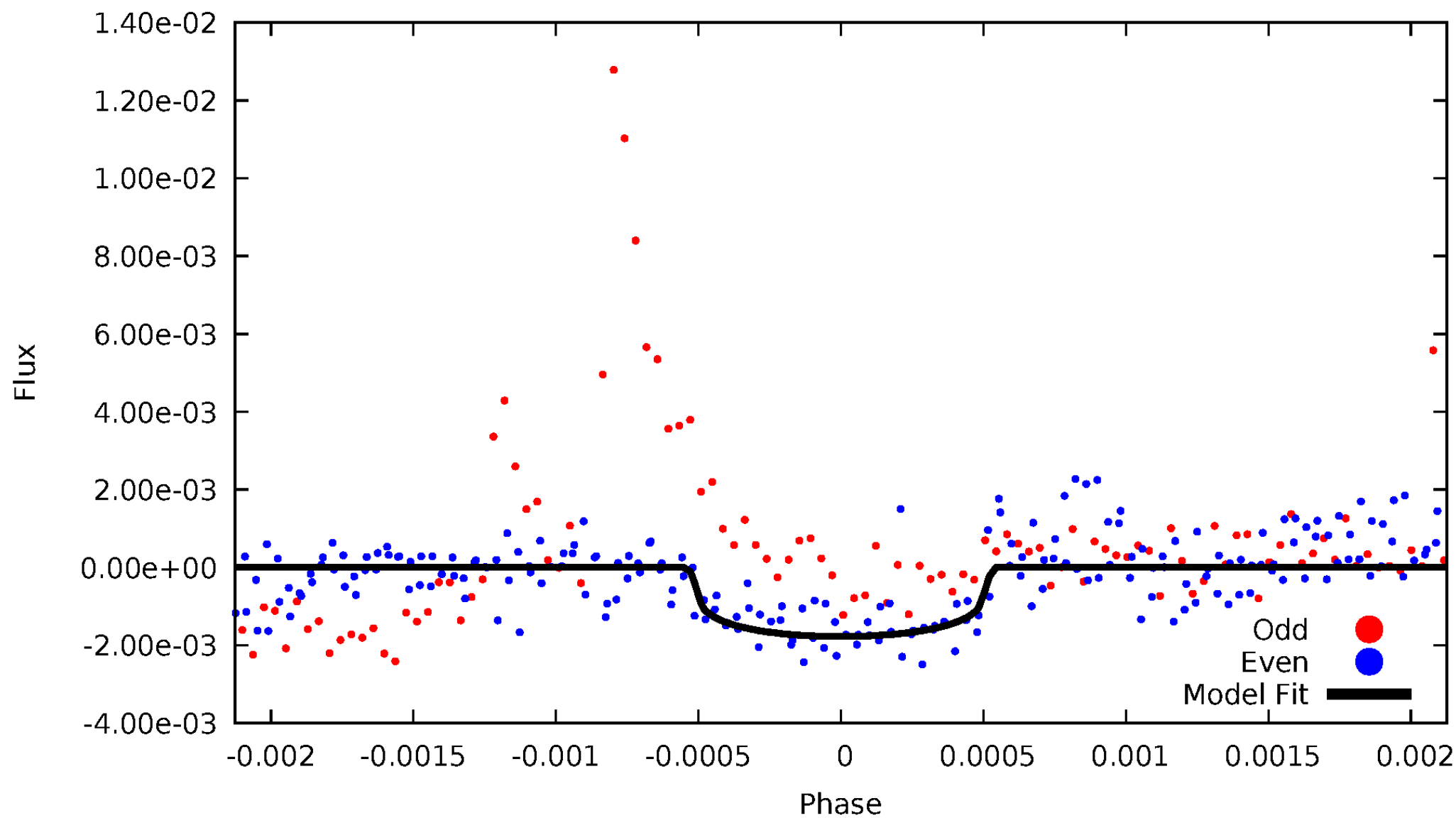


TCE 009291748-04



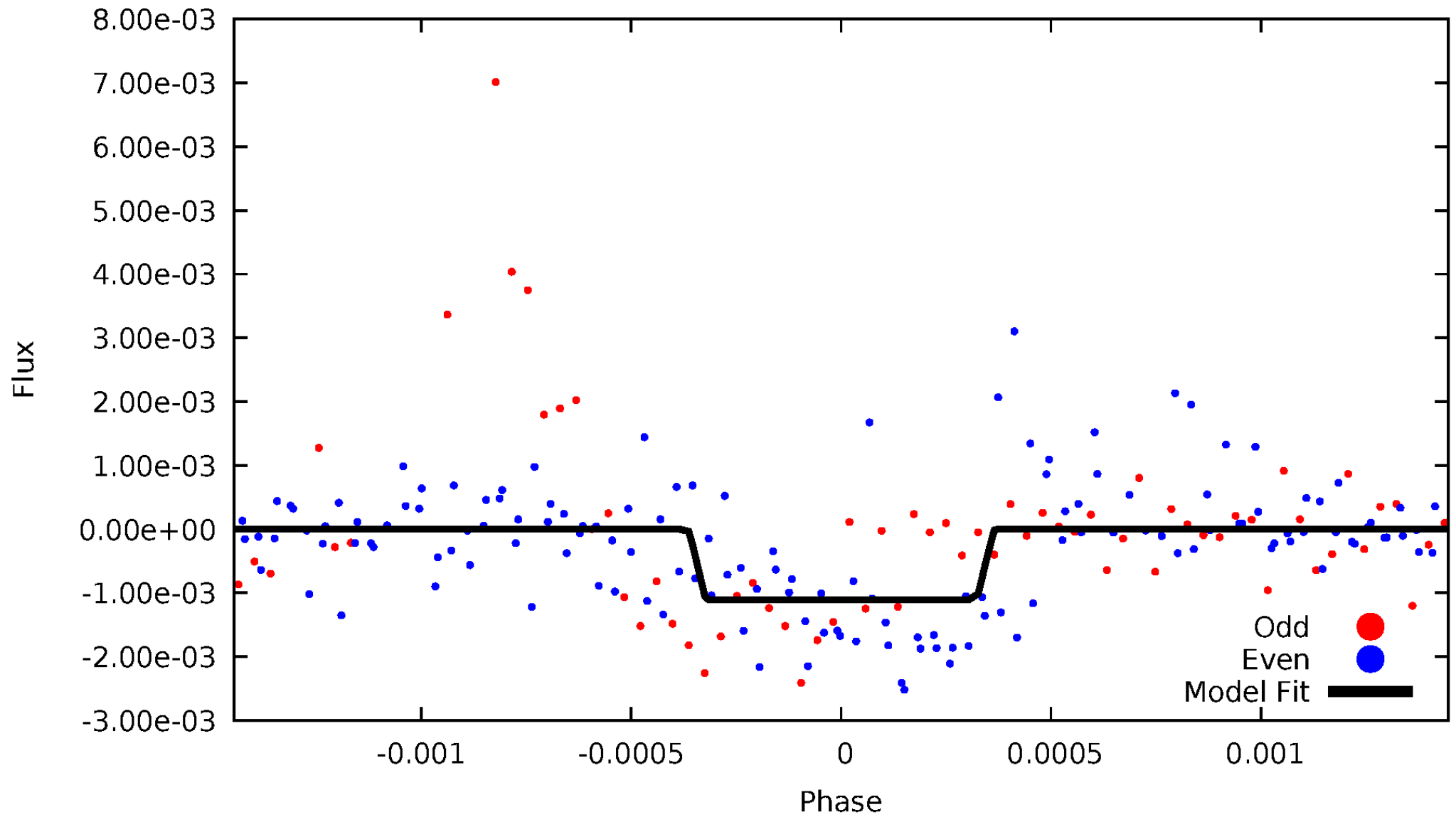
DV Odd/Even

TCE 009291748-04



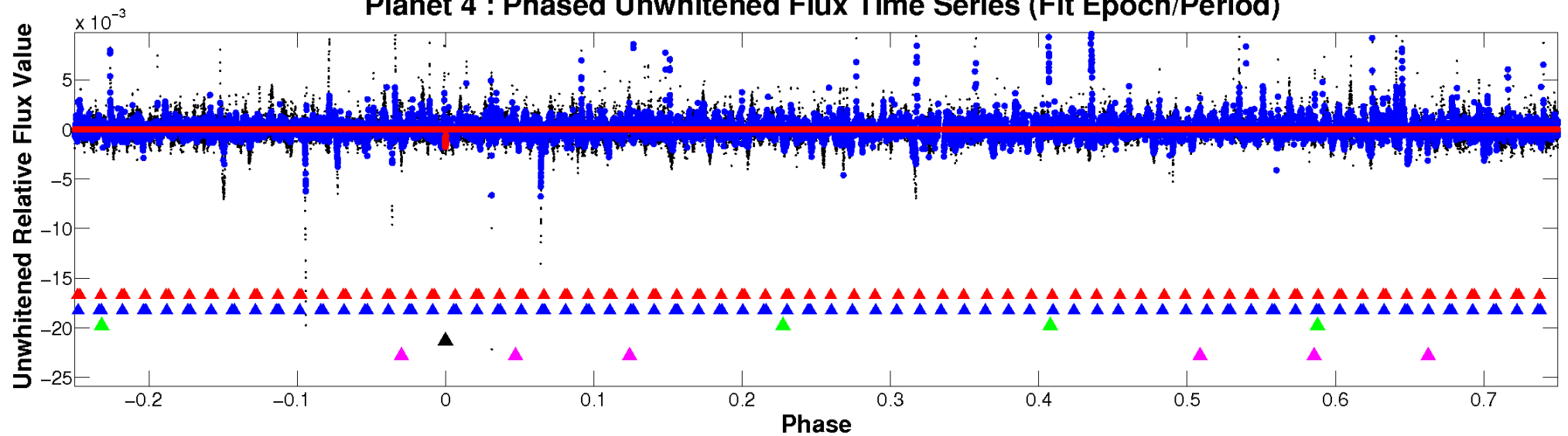
ALT Odd/Even

TCE 009291748-04

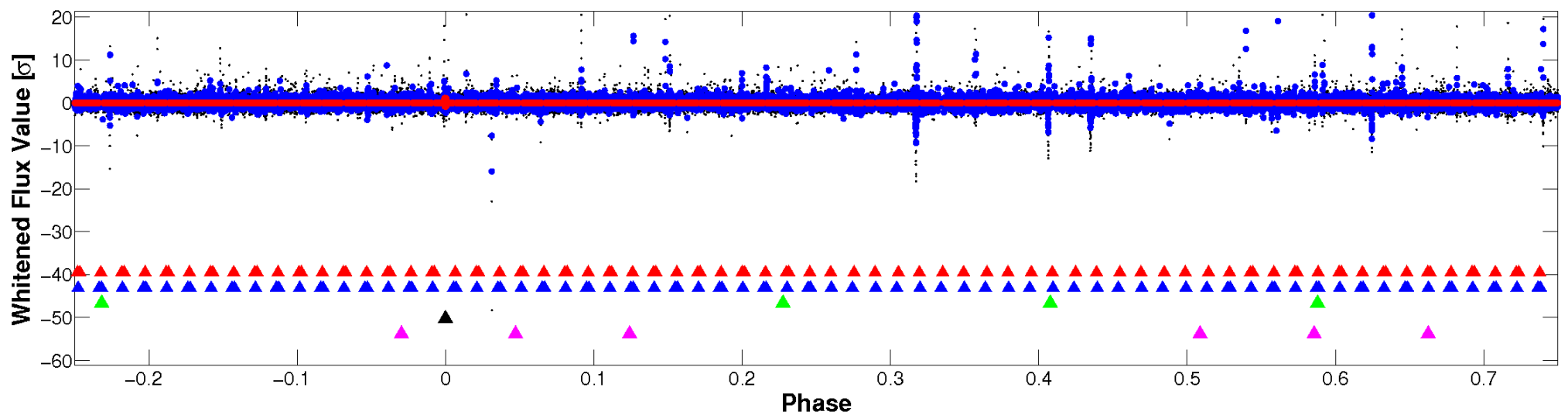


Non-Whitened Vs. Whitened Light Curve

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

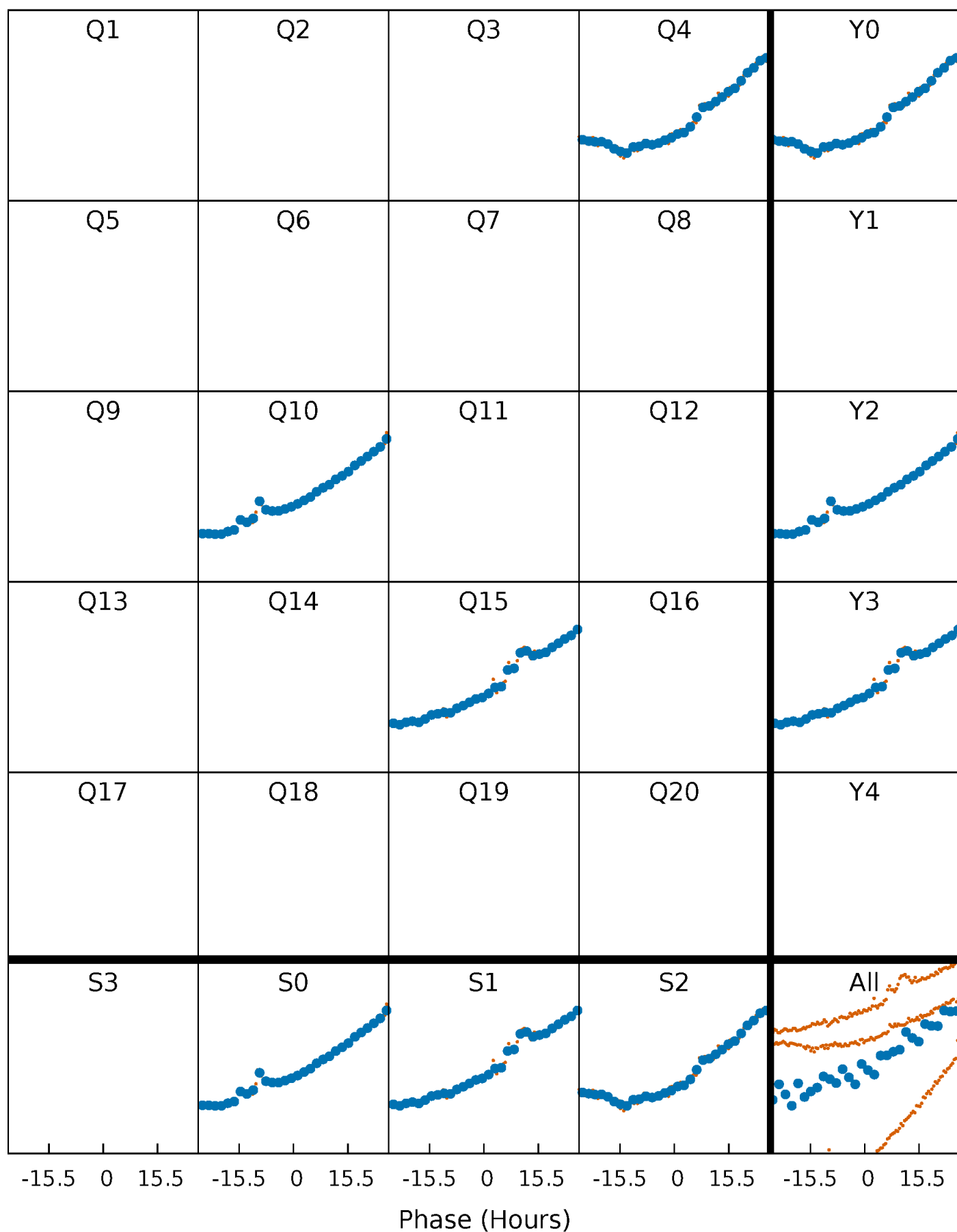


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009291748-04 P=533.124931 Days $T_0=388.224803$ (BKJD)



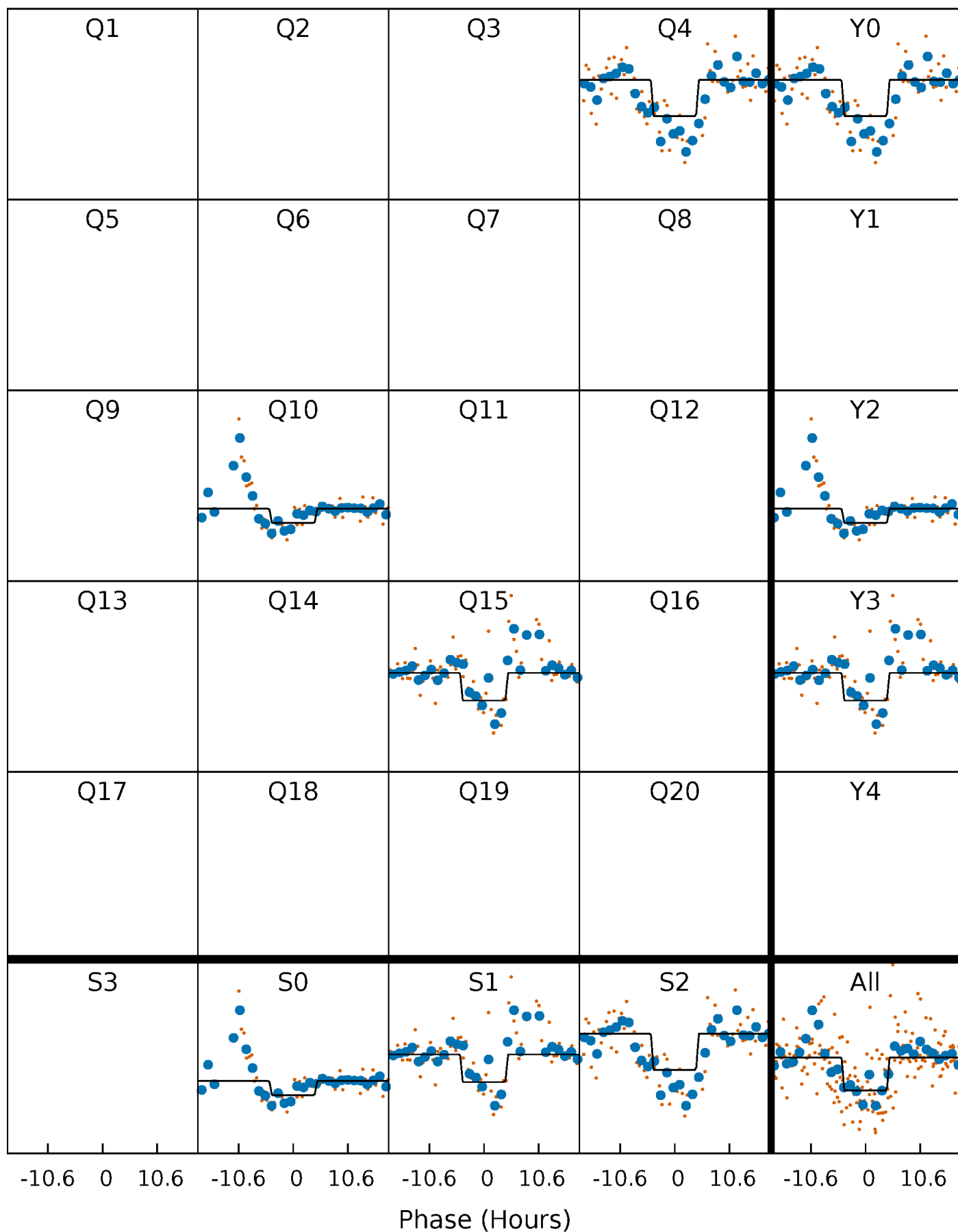
DV Quarter-Phased Transit Curves

TCE 009291748-04 P=533.124931 Days $T_0=388.224803$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

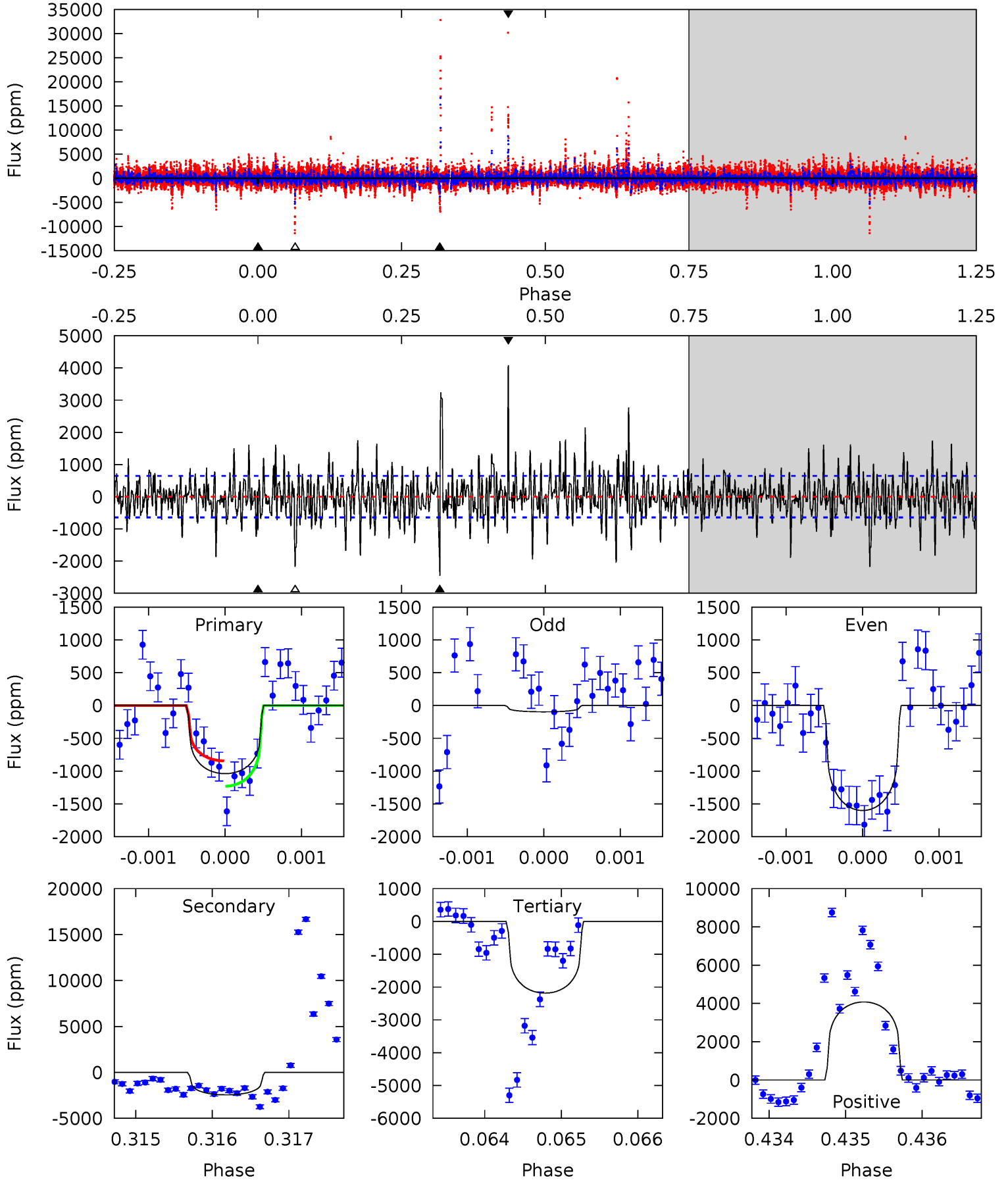
TCE 009291748-04 $P=533.145636$ Days $T_0=388.258924$ (BKJD)



DV Model-Shift Uniqueness Test

009291748-04, P = 533.124931 Days, E = 388.224803 Days

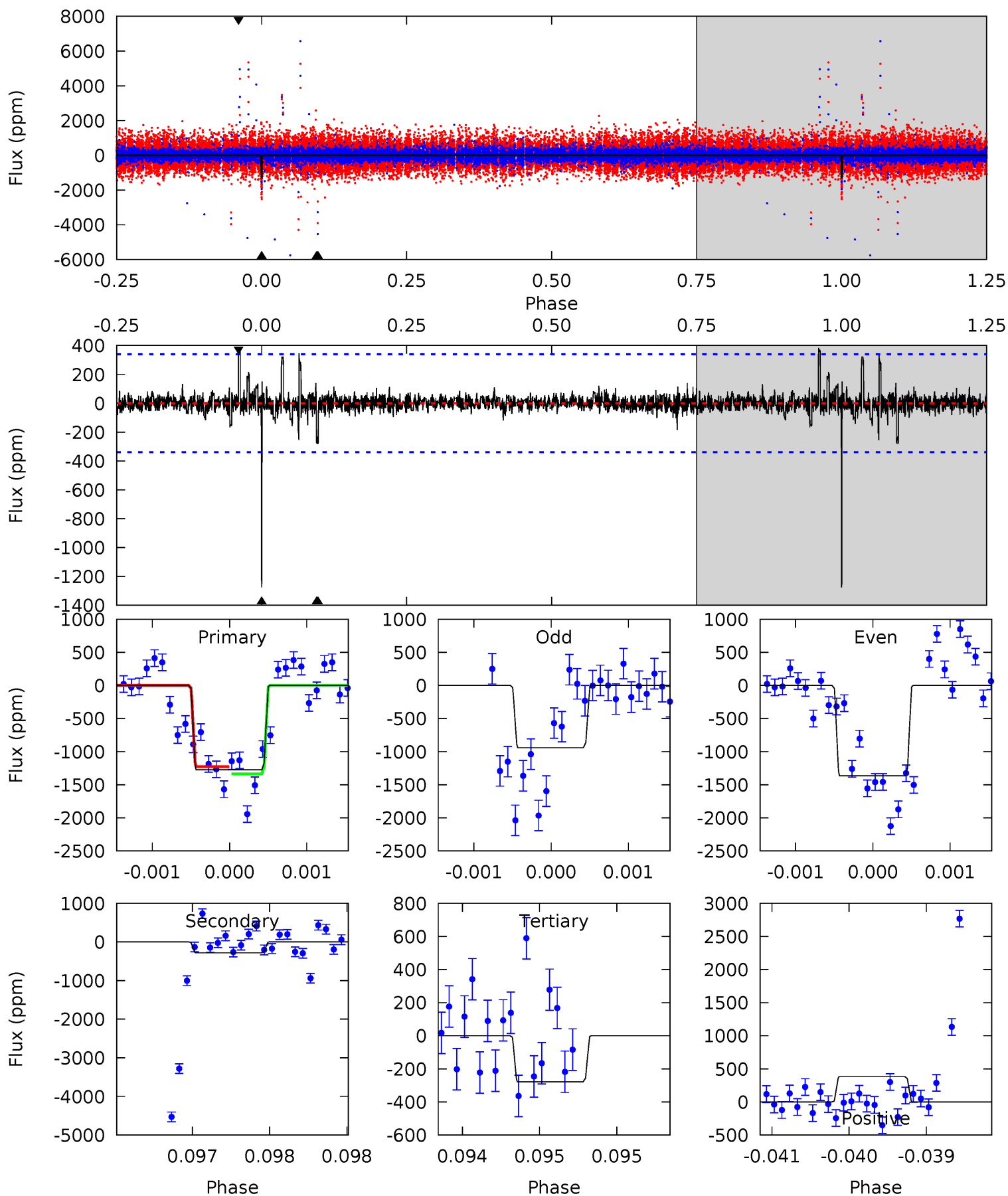
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.76	20.7	18.4	34.4	5.44	3.27	4.78	-9.66	-25.6	2.24	-13.7	5.56	0.66	0.62	1.62



Alt Model-Shift Uniqueness Test

009291748-04, P = 533.145636 Days, E = 388.258924 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.7	4.58	4.52	6.22	5.51	3.38	0.58	16.2	14.5	0.07	-1.63	3.30	1.23	0.23	0.89



Stellar Parameters For KIC 009291748

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.615^{+0.071}_{-0.044}$	$-0.840^{+0.300}_{-0.300}$	$0.650^{+0.057}_{-0.057}$	$0.635^{+0.066}_{-0.028}$	$3.251^{+0.967}_{-0.517}$
	+3%/-3%	+2%/-1%	+36%/-36%	+9%/-9%	+10%/-4%	+30%/-16%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009291748-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2450 ± 119	$2.65^{+1.18}_{-1.18}$	244^{+9}_{-9}	5917^{+2291}_{-934}	$234574^{+548409}_{-120330}$
Alt.	-282 ± 62	$2.39^{+1.20}_{-1.10}$	244^{+9}_{-9}	3977^{+1122}_{-550}	34217^{+82681}_{-19686}

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

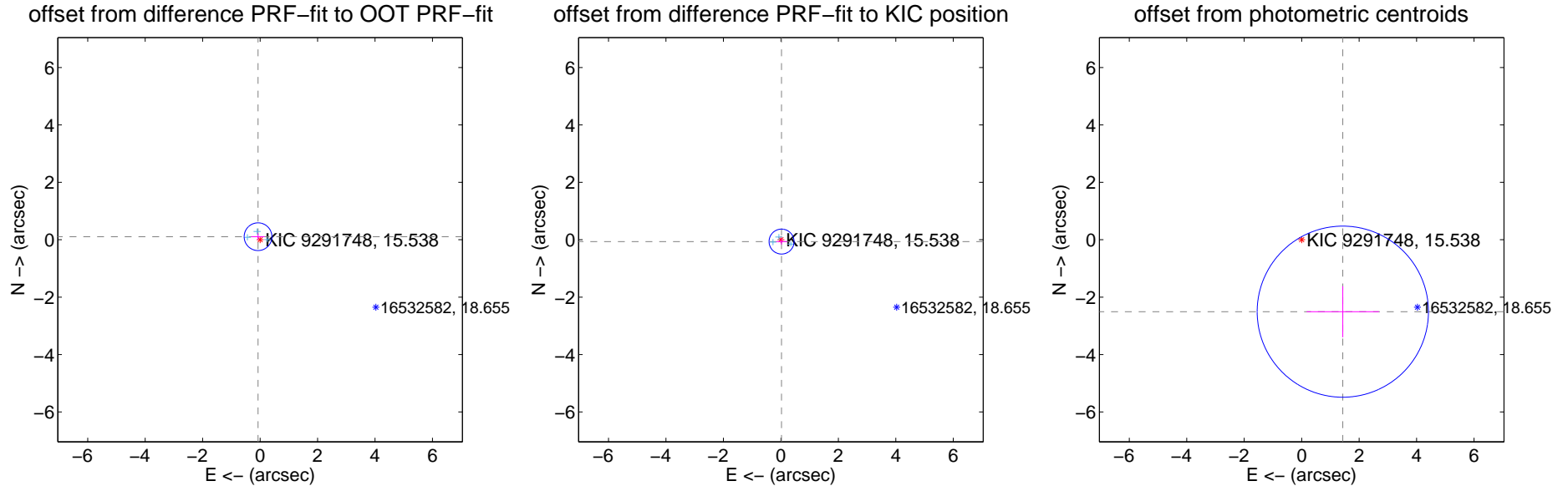
DV Centroid Data

Supplemental centroid analysis for 009291748-04. Kepler magnitude: 15.54. Transit SNR 8.78

There are 3 quarters with good PRF difference image offsets

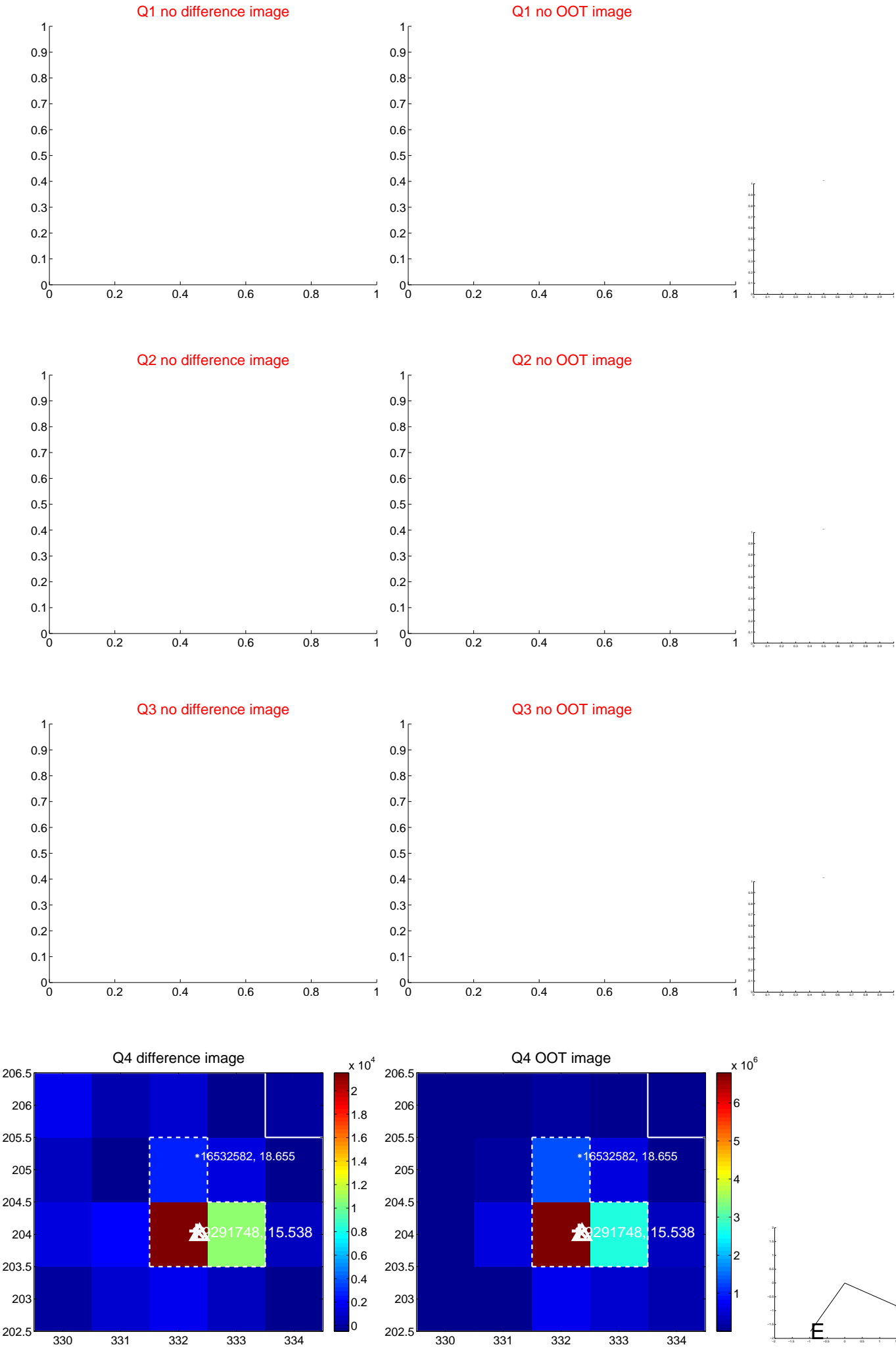
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.128 ± 0.161	0.80	0.072 ± 0.232	0.106 ± 0.114
PRF-fit source offset from KIC position	0.068 ± 0.145	0.47	-0.023 ± 0.189	-0.064 ± 0.105
photometric centroid source offset	2.89 ± 0.99	2.91	-1.43 ± 1.26	-2.51 ± 0.89



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.

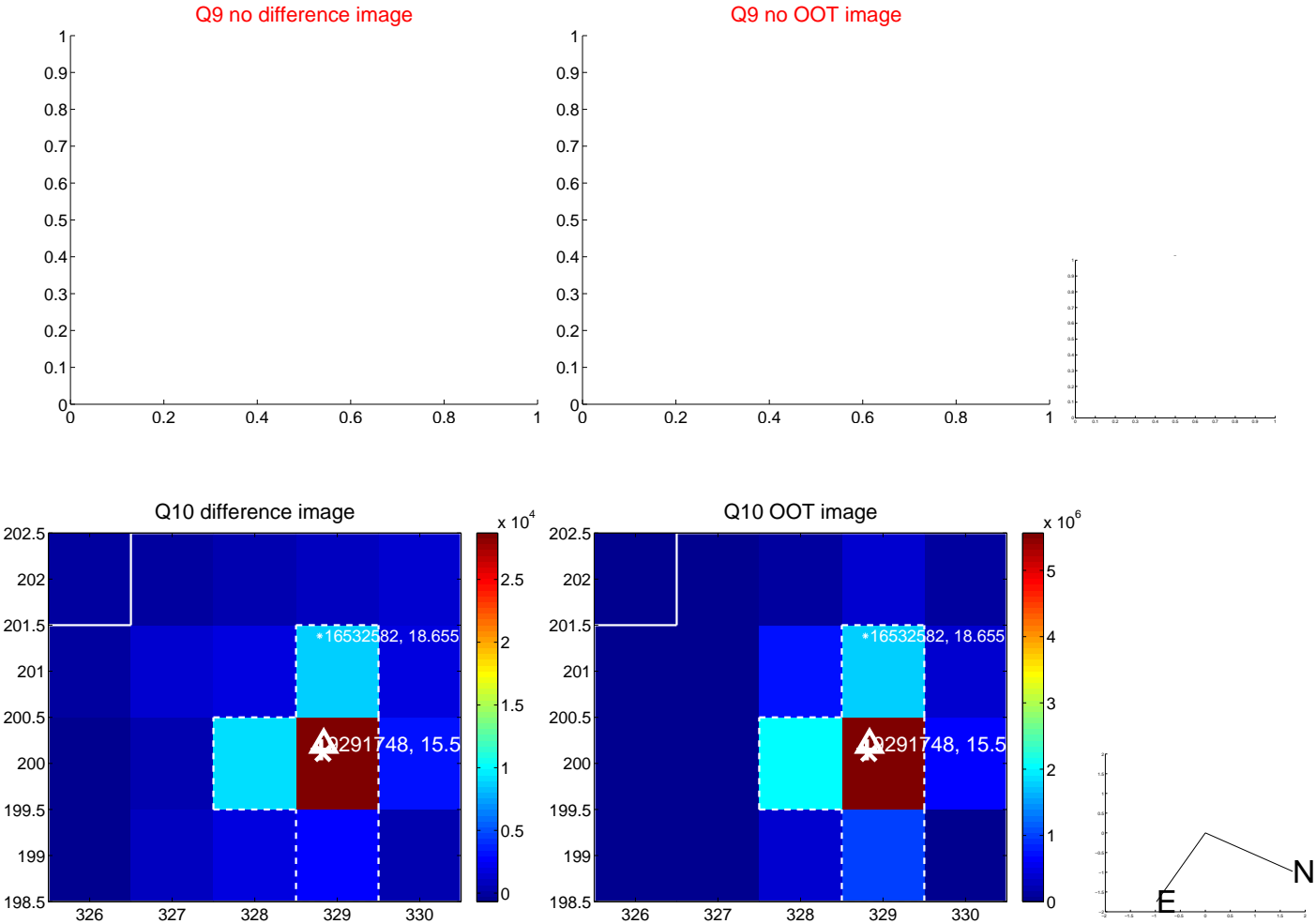
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q13 no difference image



Q13 no OOT image



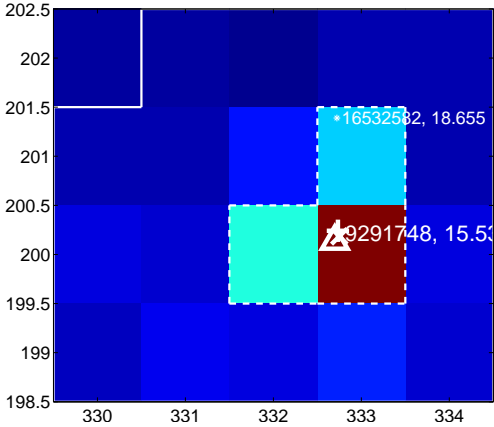
Q14 no difference image



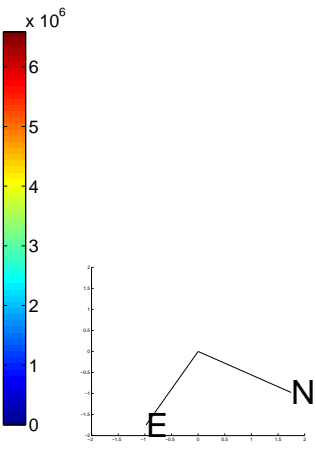
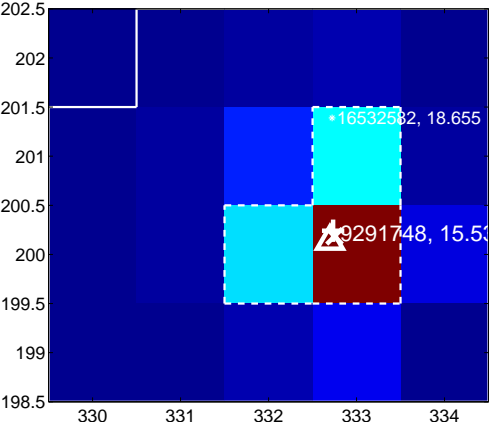
Q14 no OOT image



Q15 difference image



Q15 OOT image



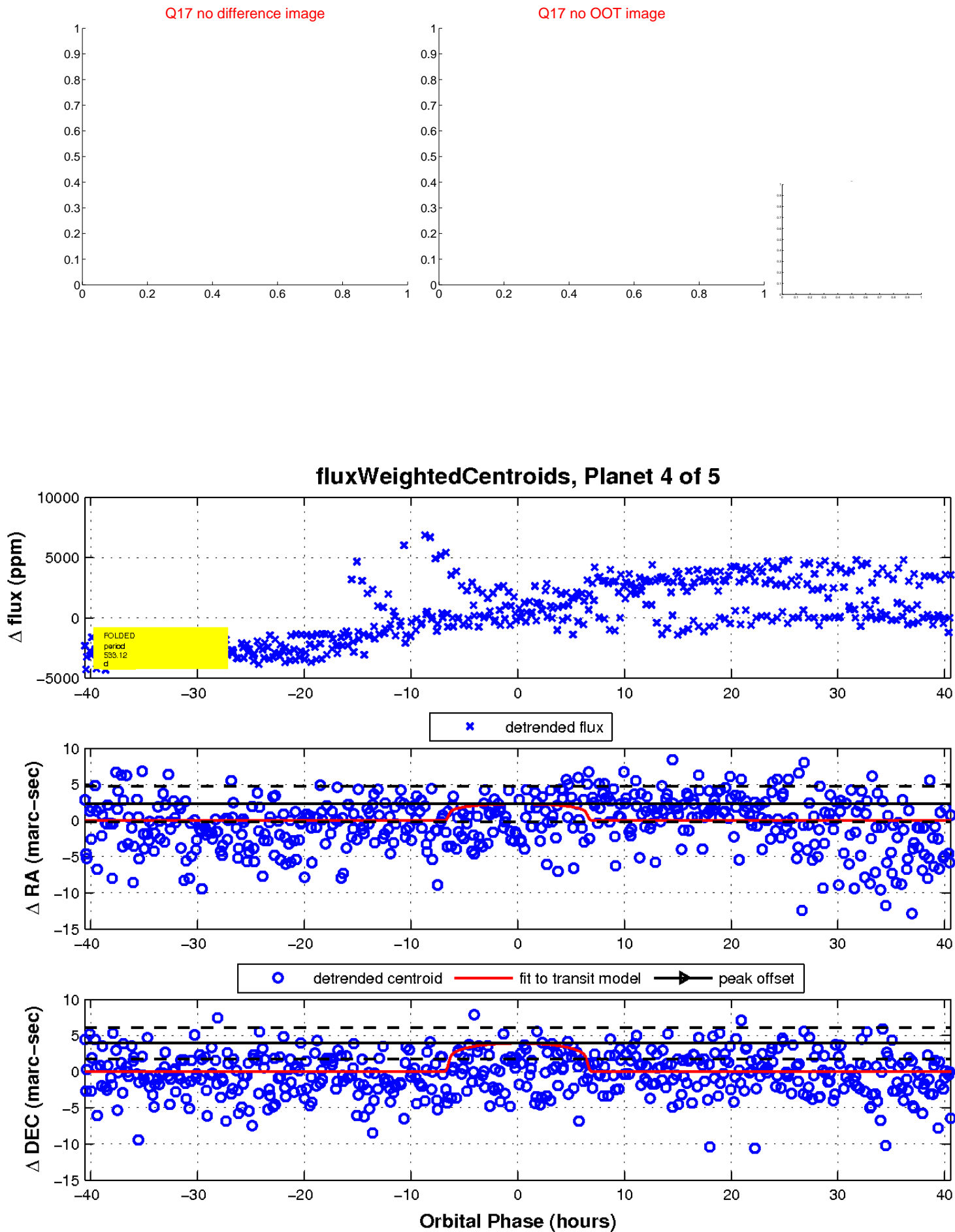
Q16 no difference image



Q16 no OOT image

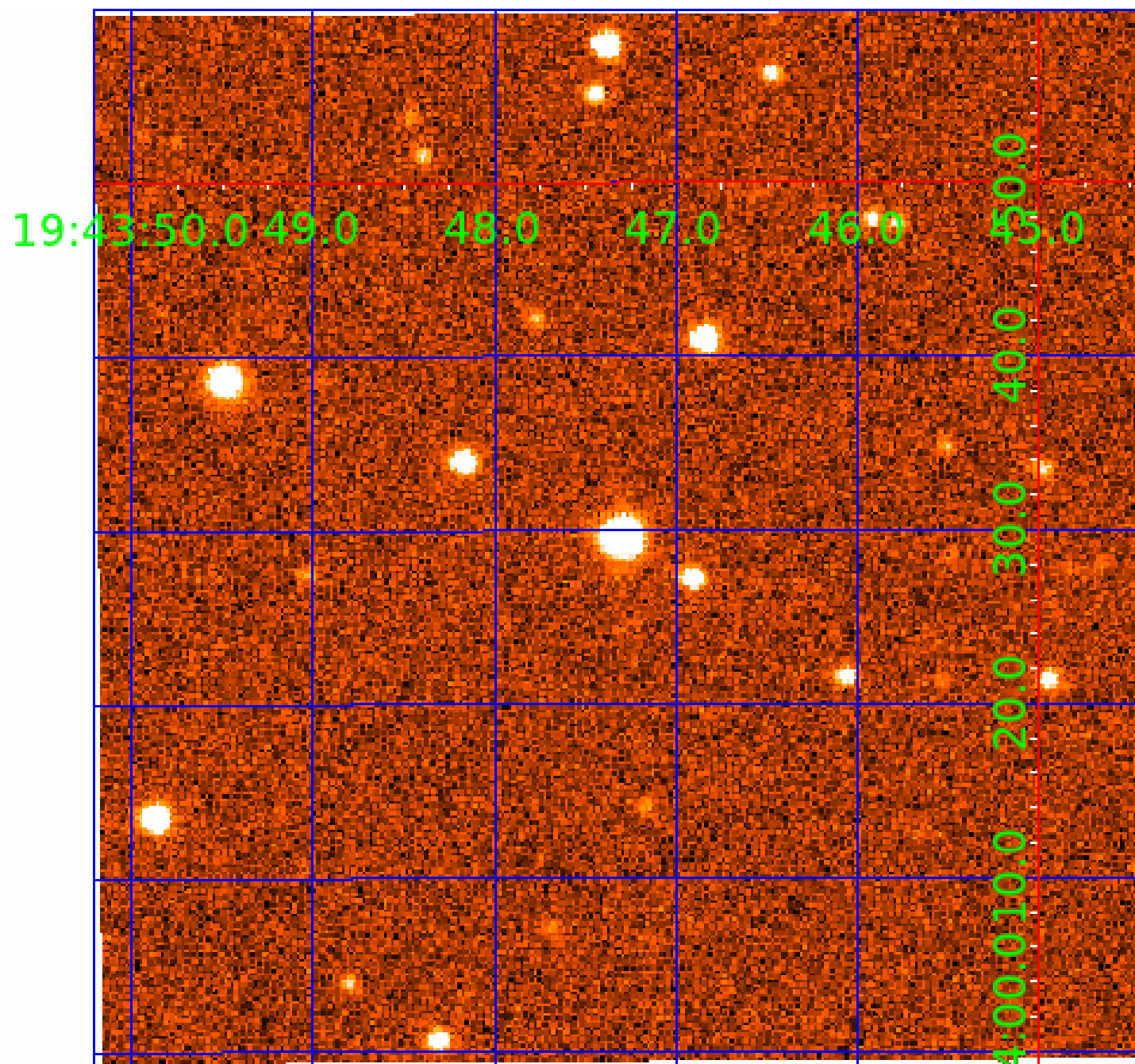


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291748

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})
009291748-01	OBS	7156.01	15.926994	144.452447	398829.8	11.728	8702.4	5383.6	0.65	5191	71.12	24.23
009291748-02	OBS	No	15.927023	136.309798	19447.9	13.126	472.7	363.0	0.65	5191	14.89	24.23
009291748-03	OBS	No	437.049433	264.647067	1587.6	6.565	13.5	8.1	0.65	5191	2.62	0.29
009291748-04	OBS	No	533.124931	388.224803	1776.8	13.593	13.0	8.8	0.65	5191	2.70	0.23
009291748-05	OBS	No	246.060930	208.334368	1165.3	10.500	12.2	-1.0	0.65	5191	2.19	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291748-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009291748-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009291748-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009291748-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

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

Ephemeris Match Information For 009291748-05

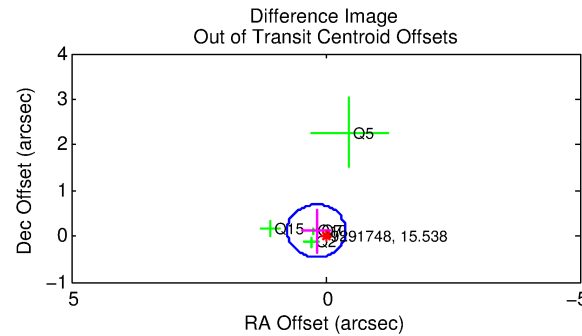
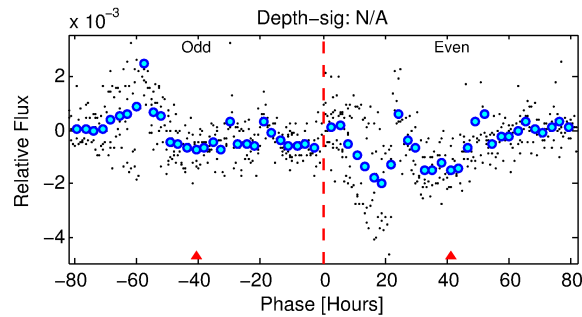
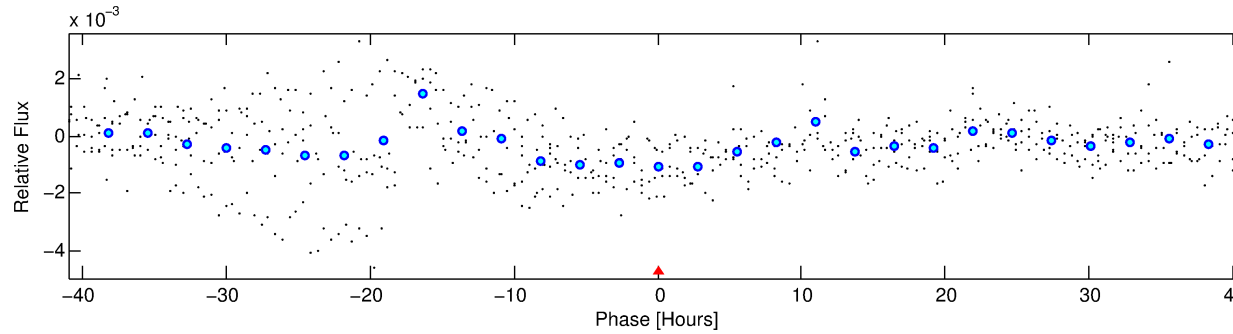
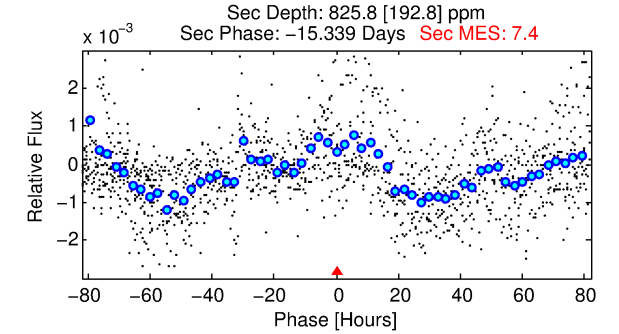
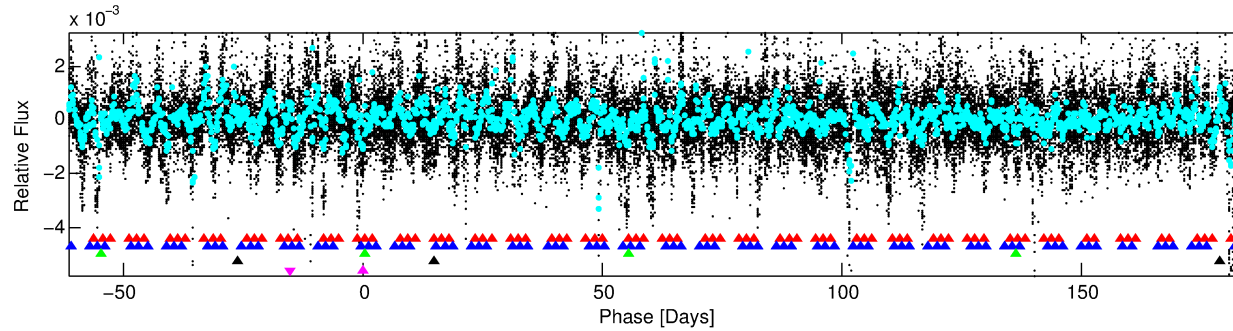
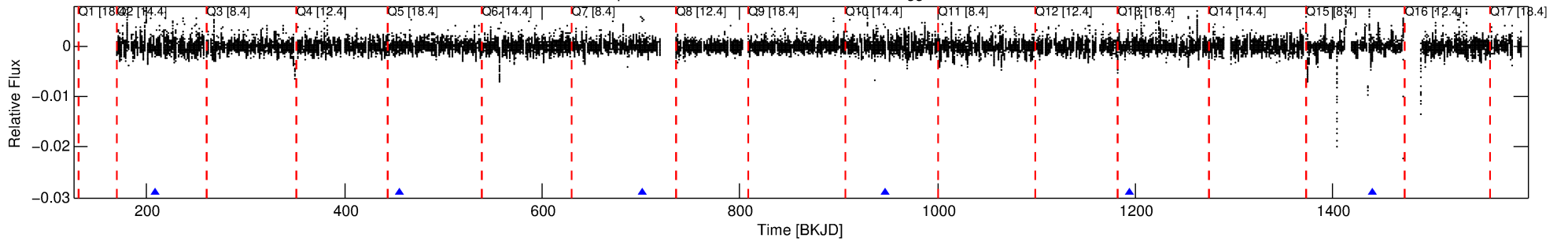
No Significant Match Found

DV One-Page Summary

KIC: 9291748 Candidate: 5 of 5 Period: 246.061 d

KOI: K07156 Corr: No Ephemeris Match

Kp: 15.54 R*: 0.65 Rs Teff: 5191.0 K Logg: 4.62 Fe/H: -0.840



TPS TCE Results:

Period = 246.06093 d
Epoch = 208.3344 BKJD

DV fit results are unavailable

DV Diagnostic Results:

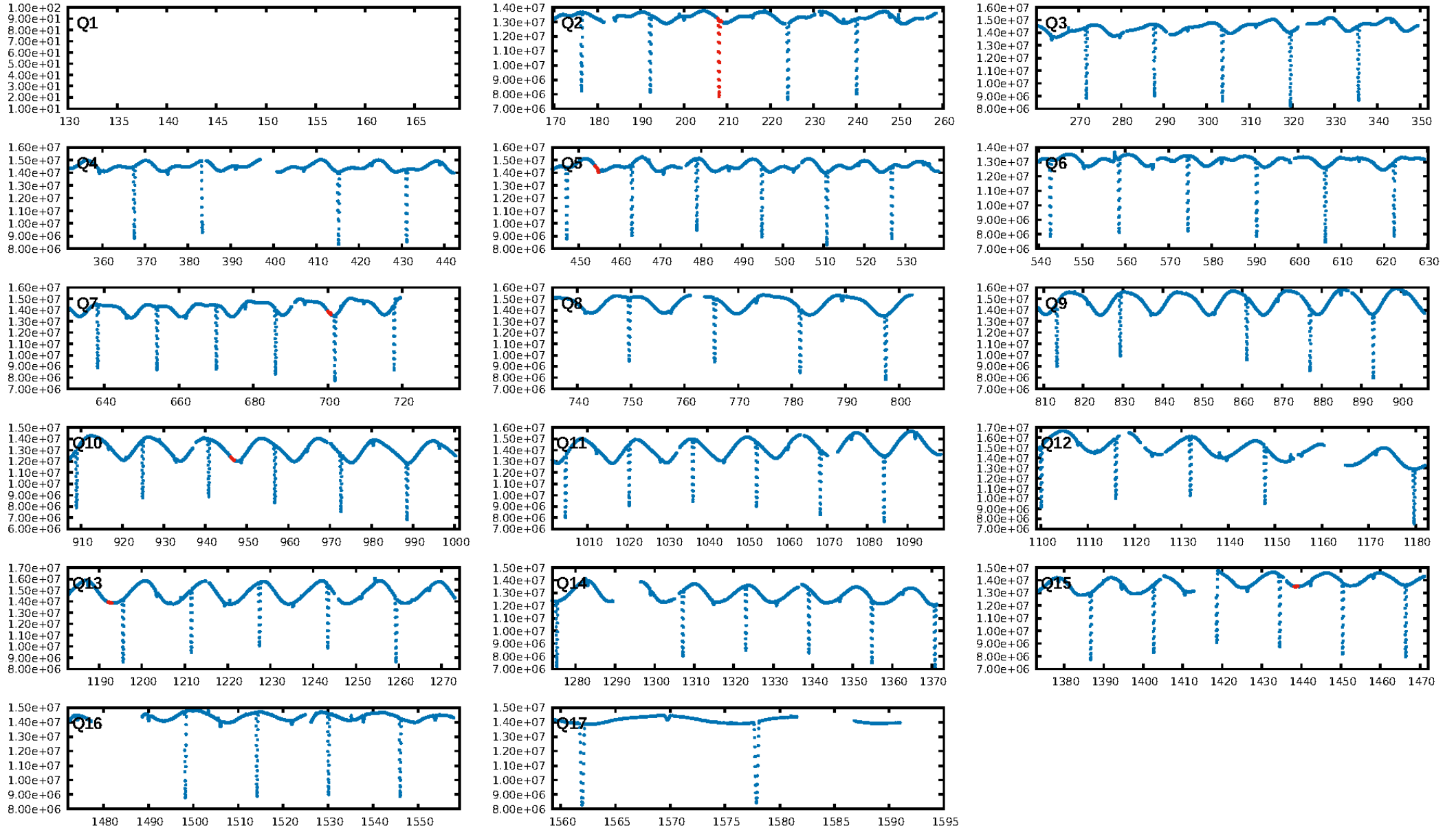
ShortPeriod-sig: 100.0% [328.59σ]
LongPeriod-sig: 100.0% [370.16σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.931

Centroid-sig: 3.7%
Centroid-so: 0.981 arcsec [1.06σ]
OotOffset-rm: 0.215 arcsec [1.12σ]
KicOffset-rm: 0.082 arcsec [0.22σ]
OotOffset-st: 2/2/0/1 [5]
KicOffset-st: 2/2/0/1 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.20 [1/5]

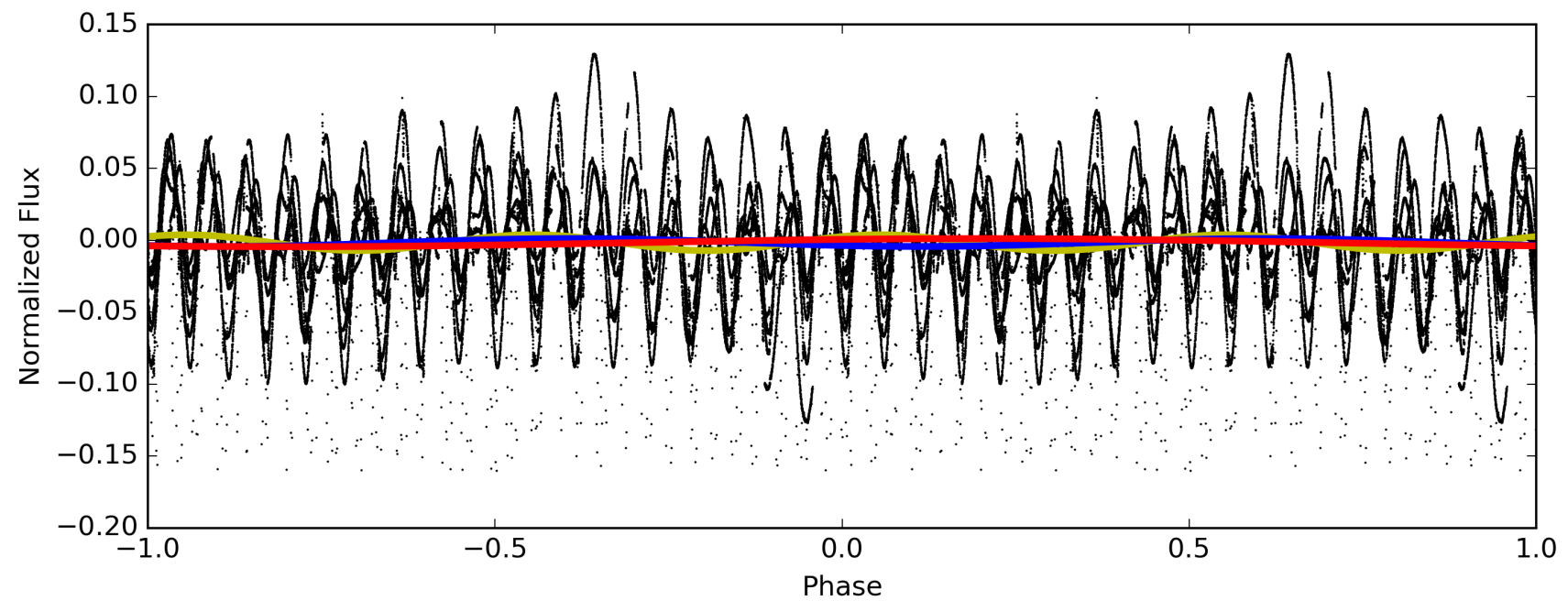
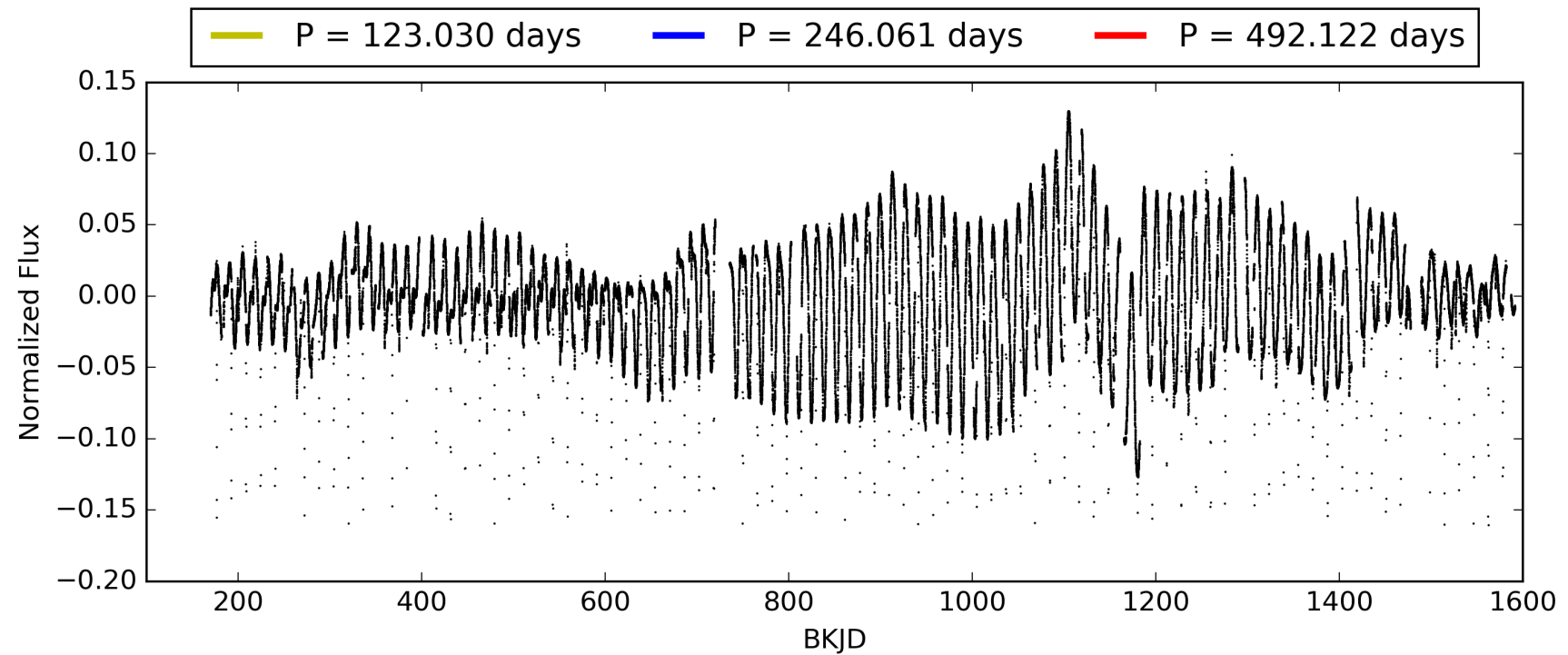
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:08:11 Z

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

TCE 009291748-05, PDC Light Curves

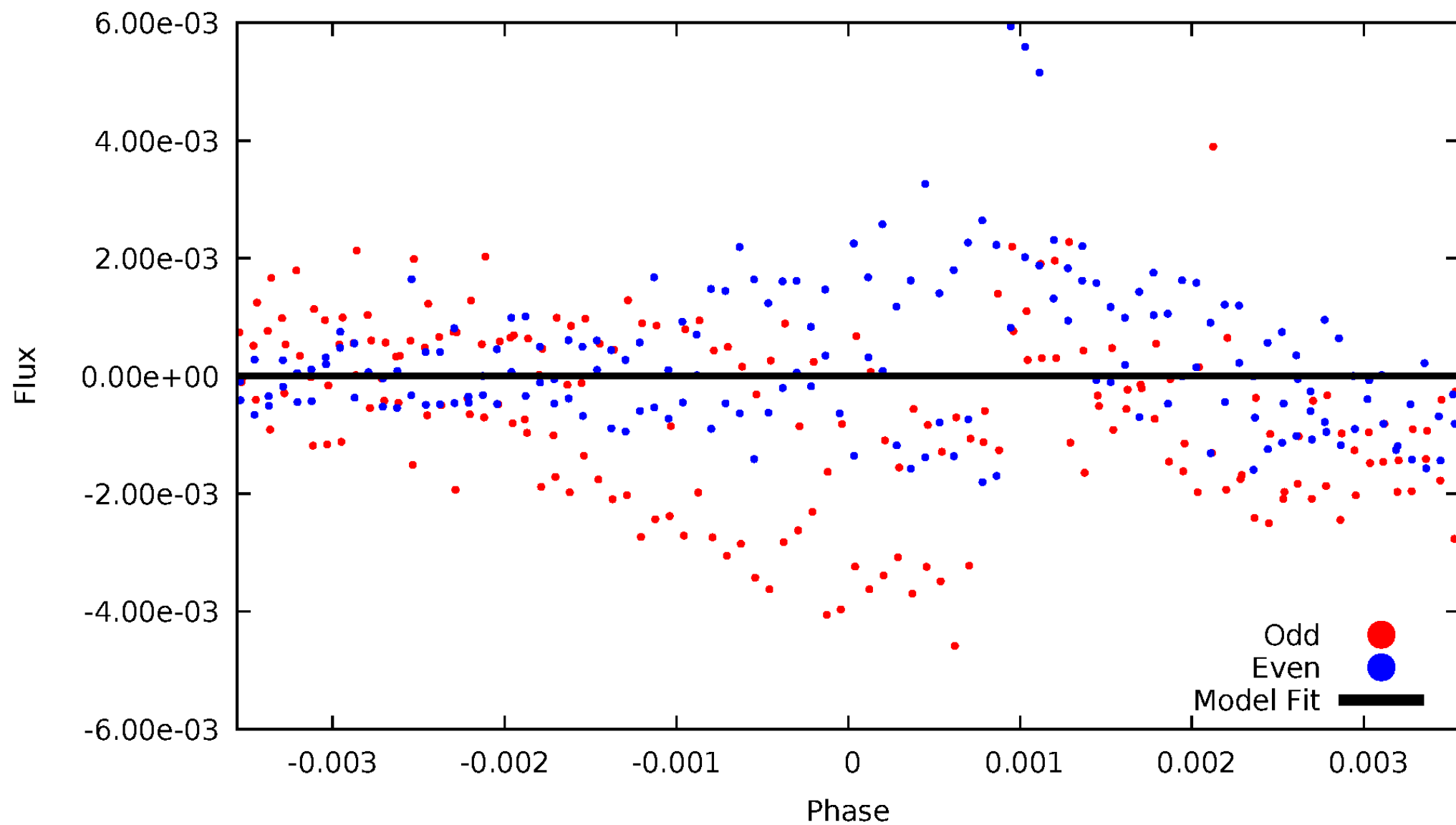


TCE 009291748-05



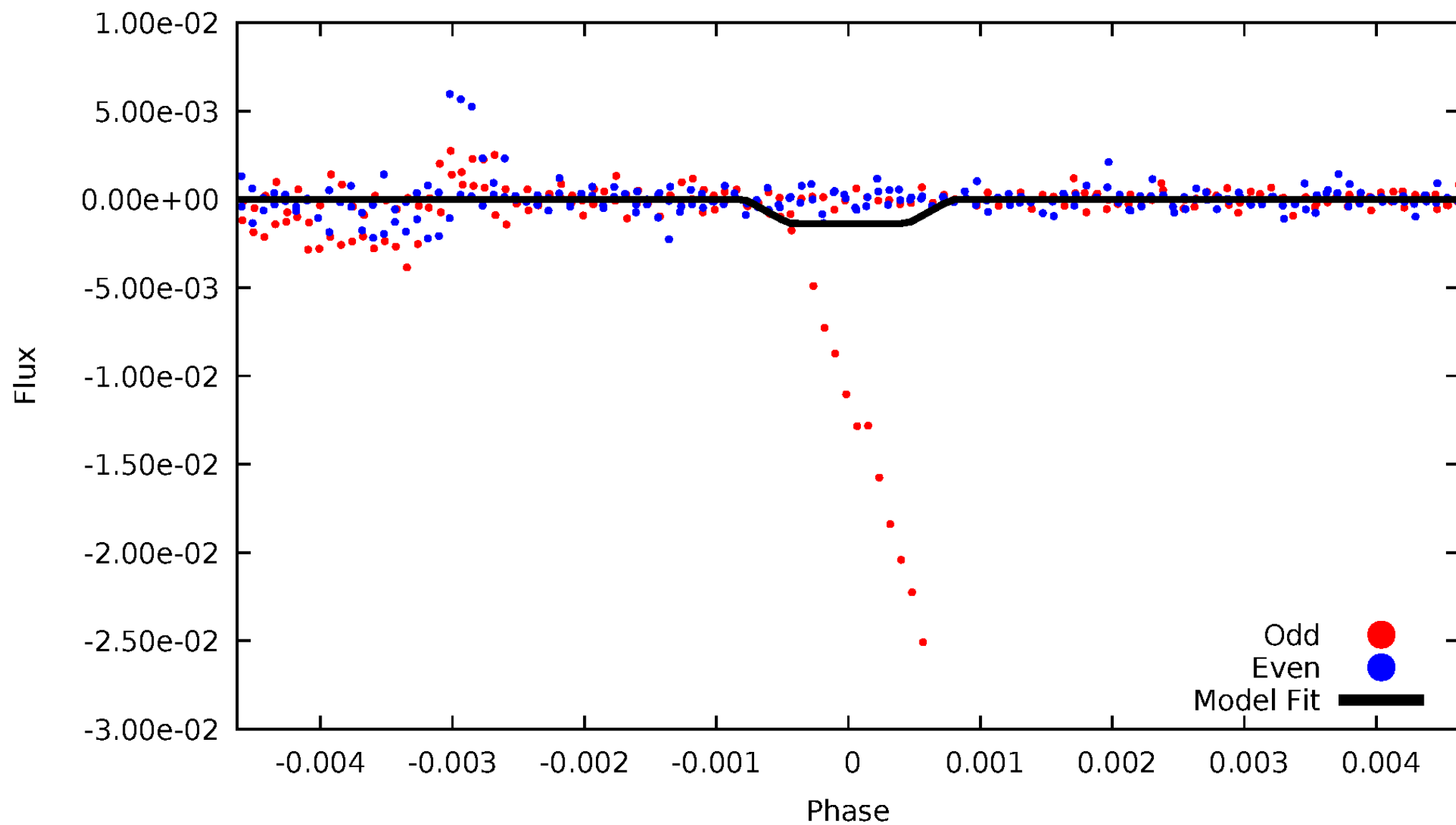
DV Odd/Even

TCE 009291748-05

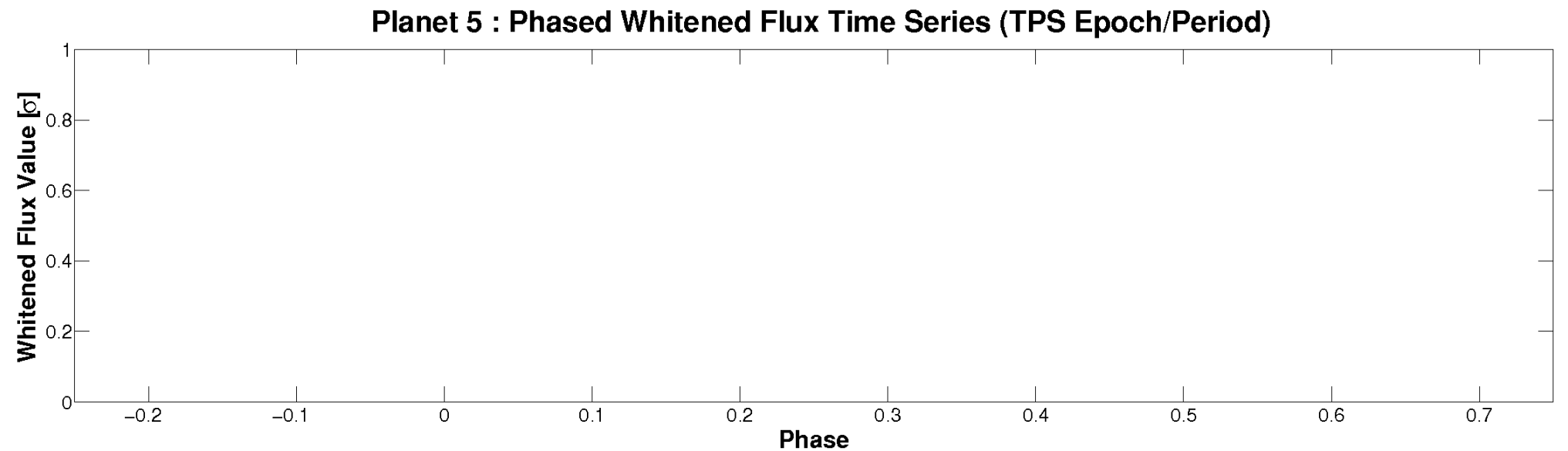
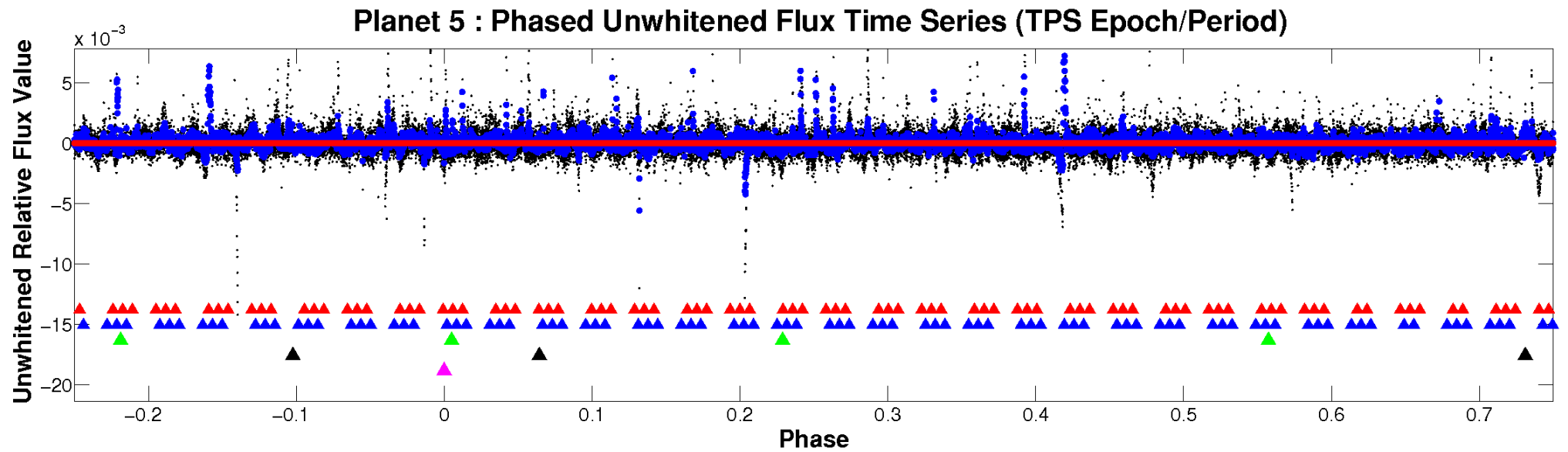


ALT Odd/Even

TCE 009291748-05

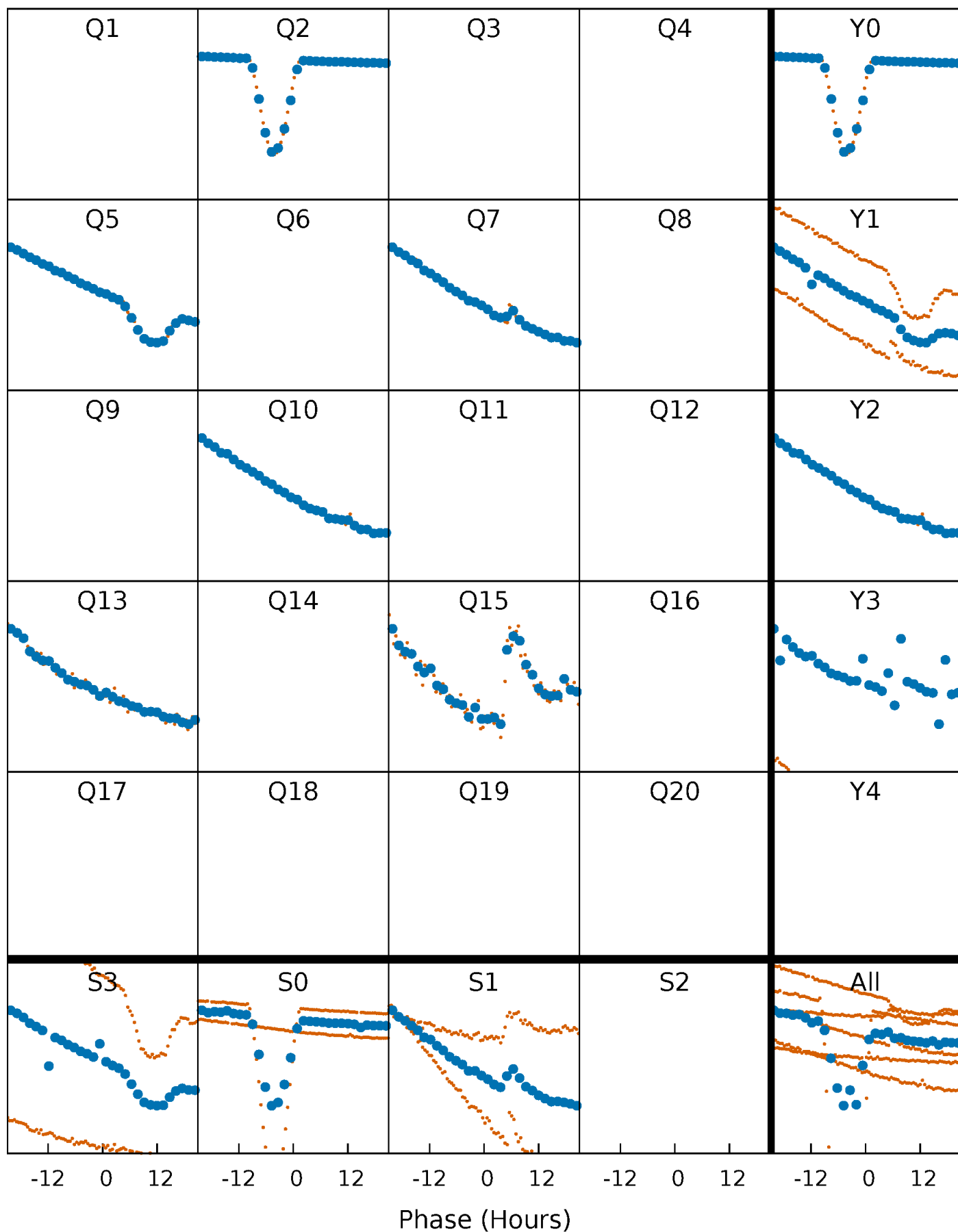


Non-Whitened Vs. Whitened Light Curve



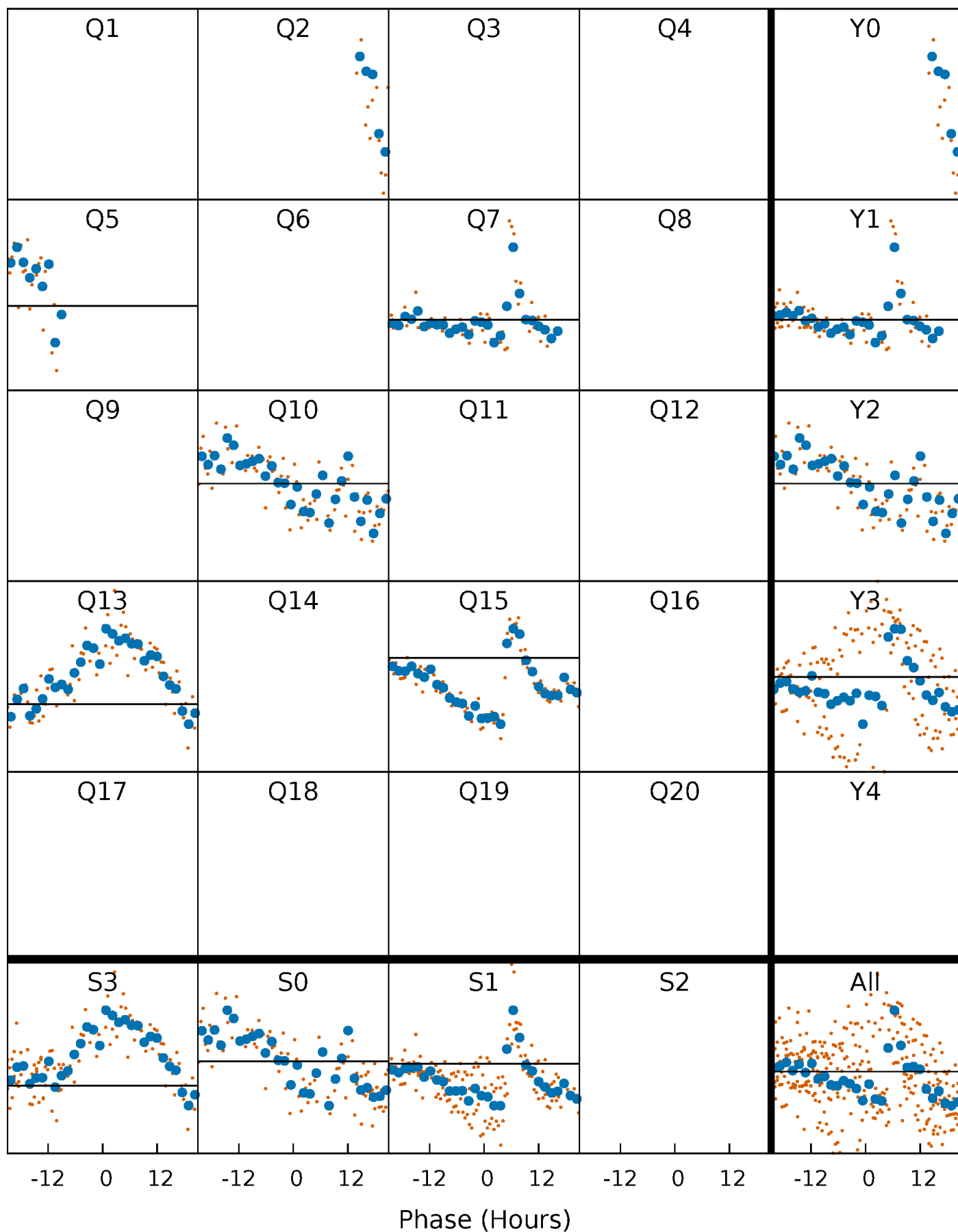
PDC Quarter-Phased Transit Curves

TCE 009291748-05 $P=246.060929$ Days $T_0=208.334368$ (BKJD)



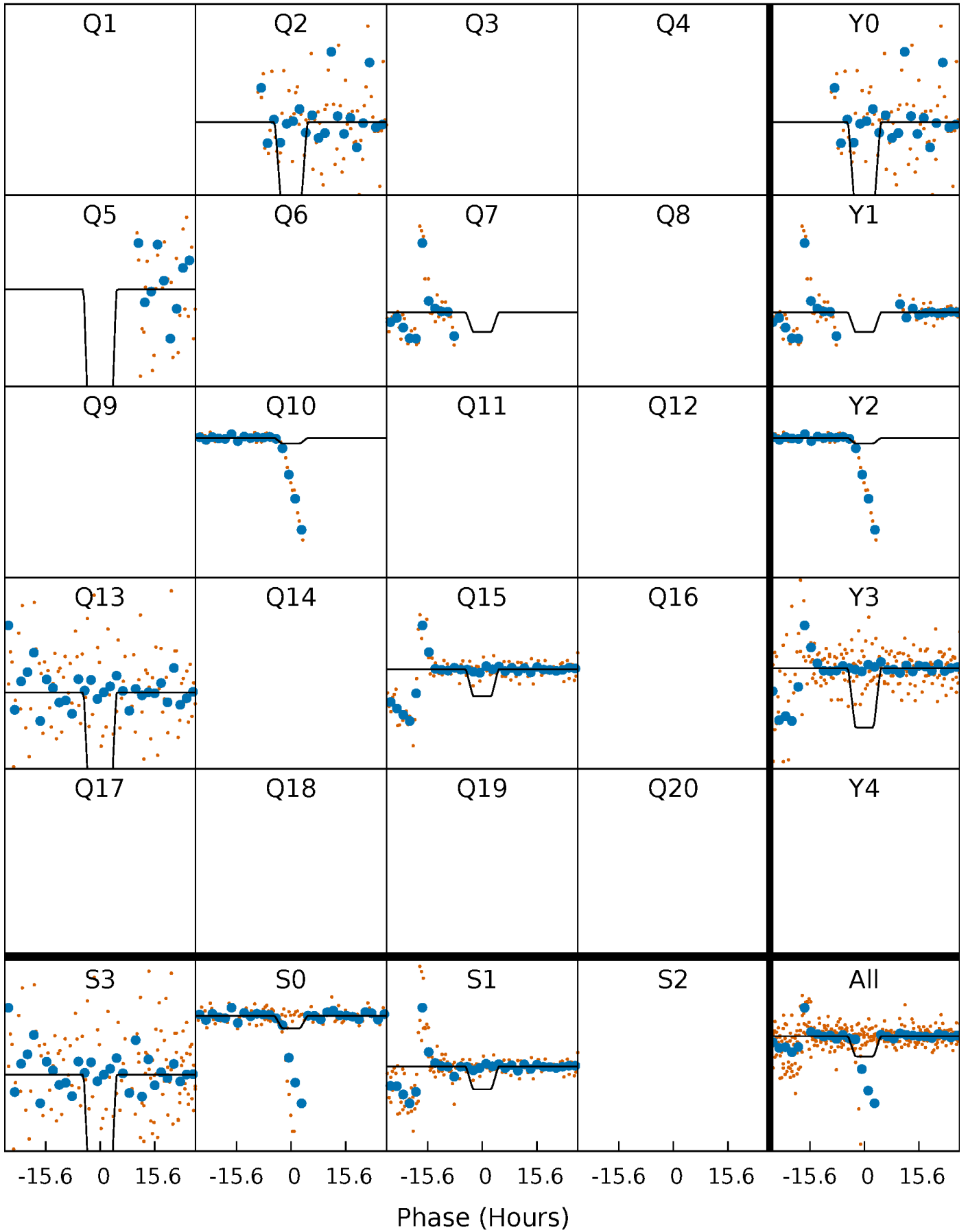
DV Quarter-Phased Transit Curves

TCE 009291748-05 $P=246.060929$ Days $T_0=208.334368$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

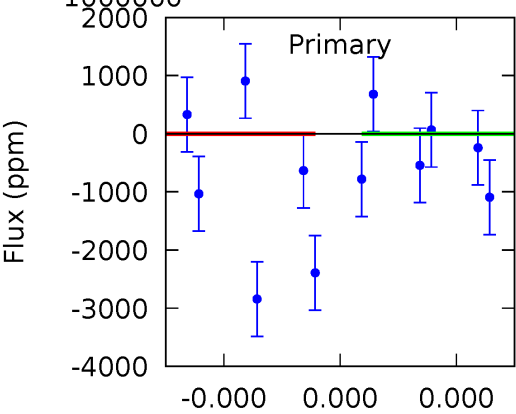
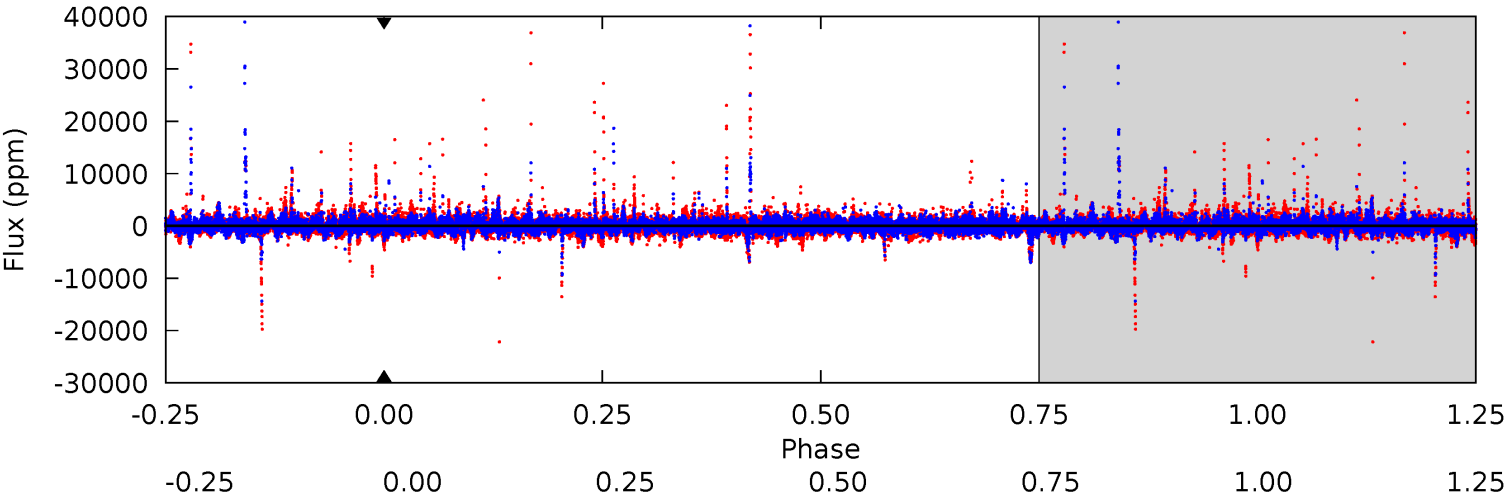
TCE 009291748-05 $P=246.060929$ Days $T_0=209.310122$ (BKJD)



DV Model-Shift Uniqueness Test

009291748-05, P = 246.060929 Days, E = 208.334368 Days

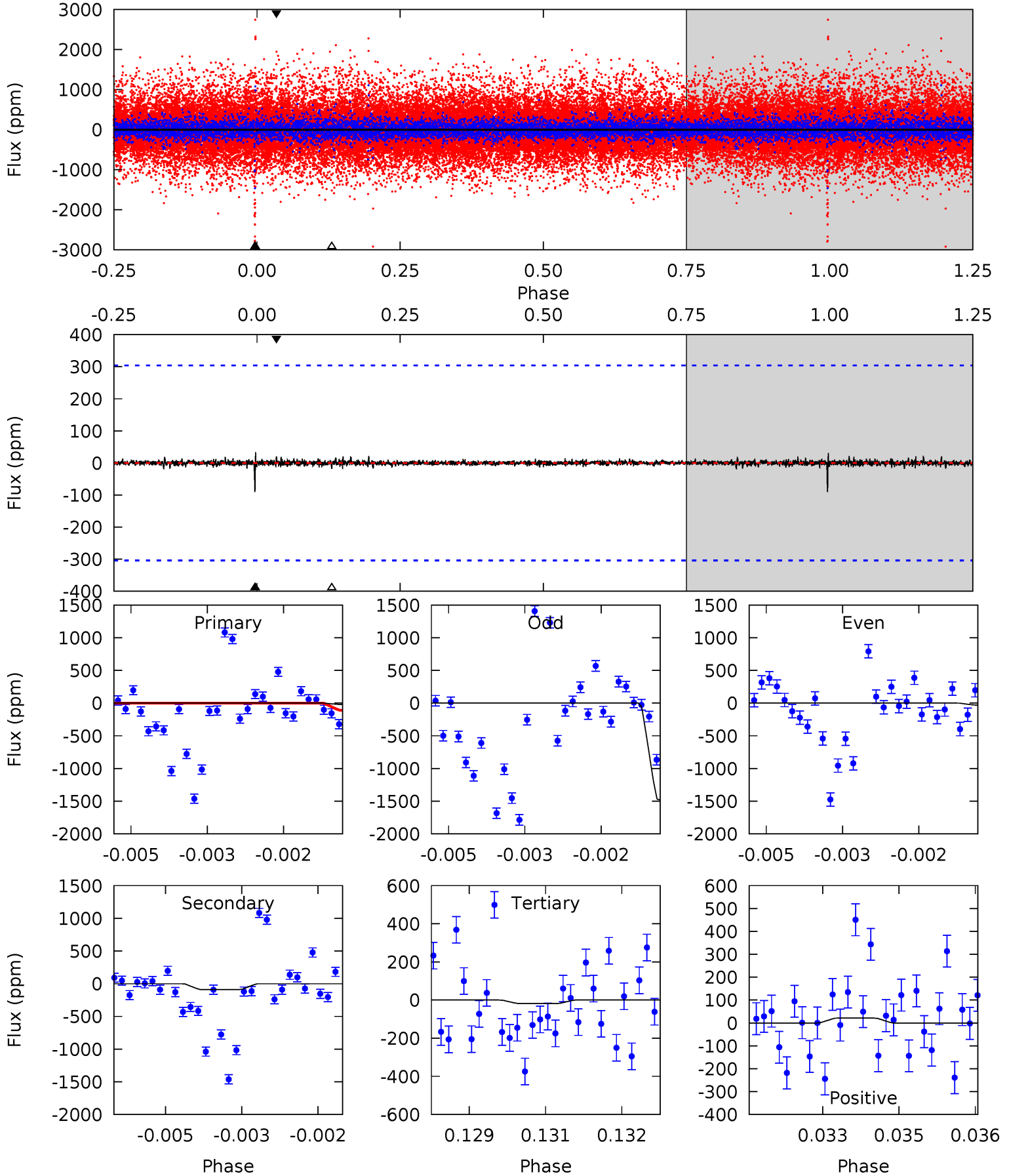
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009291748-05, P = 246.060929 Days, E = 209.310122 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.38	1.58	0.32	0.37	5.36	3.15	0.07	0.05	0.00	1.26	1.21	11.7	136.6	0.26	0



Stellar Parameters For KIC 009291748

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.615^{+0.071}_{-0.044}$	$-0.840^{+0.300}_{-0.300}$	$0.650^{+0.057}_{-0.057}$	$0.635^{+0.066}_{-0.028}$	$3.251^{+0.967}_{-0.517}$
	+3%/-3%	+2%/-1%	+36%/-36%	+9%/-9%	+10%/-4%	+30%/-16%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009291748-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$5.45^{+5.90}_{-3.87}$	316^{+12}_{-13}	4921^{+15369}_{-17759}	$38428^{+2438796}_{-1008448}$
Alt.	-90 ± 57	$5.72^{+5.84}_{-4.08}$	315^{+12}_{-12}	2551^{+1147}_{-466}	595^{+7612}_{-493}

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

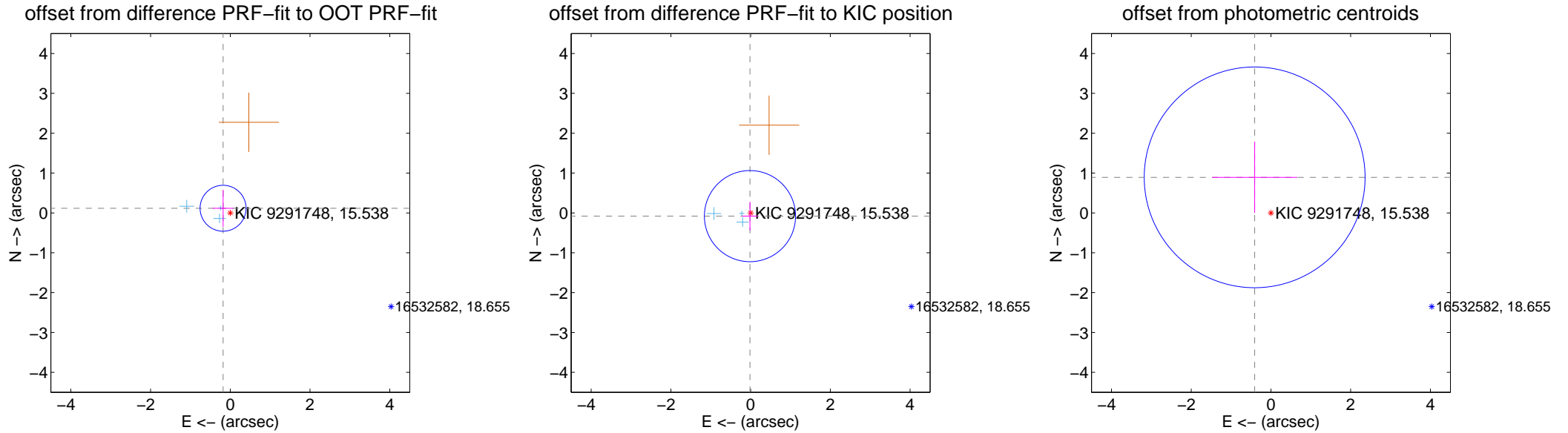
DV Centroid Data

Supplemental centroid analysis for 009291748-05. Kepler magnitude: 15.54. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

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

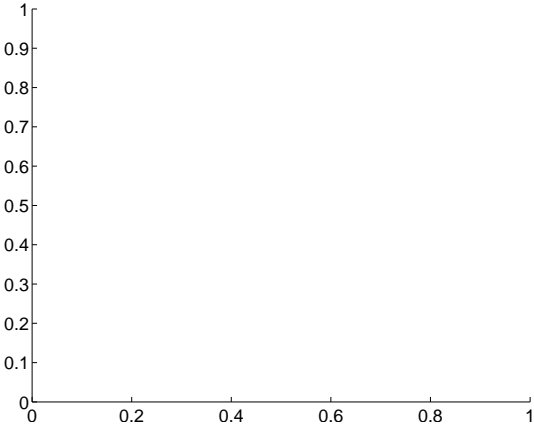
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.215 ± 0.192	1.12	0.181 ± 0.263	0.117 ± 0.466
PRF-fit source offset from KIC position	0.082 ± 0.381	0.22	0.016 ± 0.200	-0.081 ± 0.358
photometric centroid source offset	0.98 ± 0.92	1.06	0.41 ± 1.06	0.89 ± 0.89



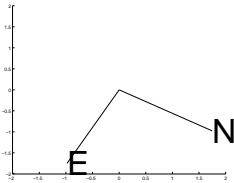
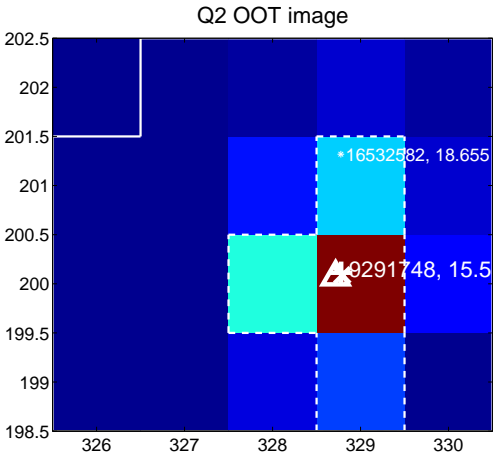
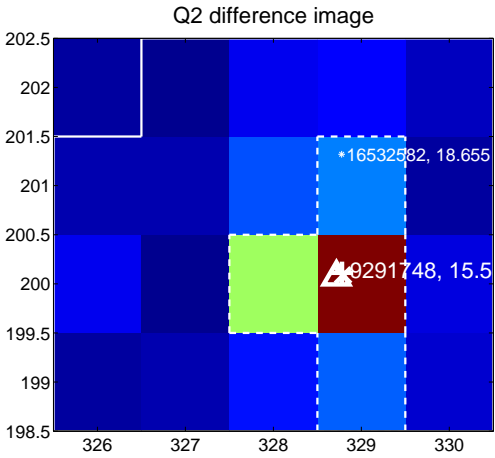
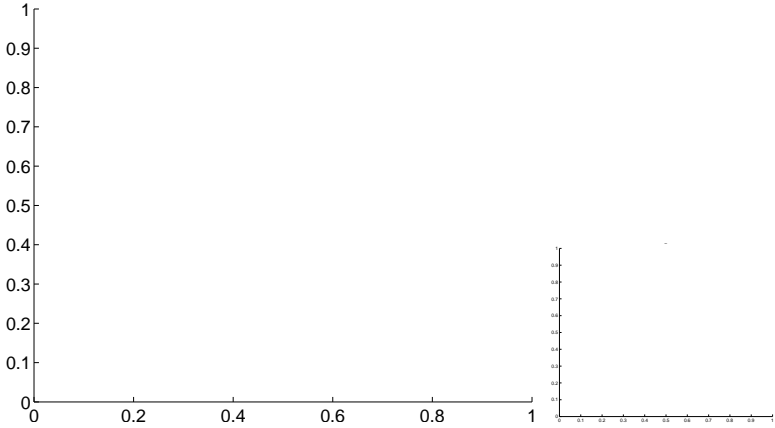
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

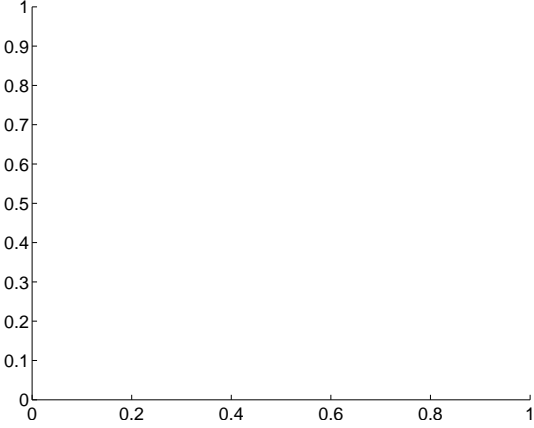
Q1 no difference image



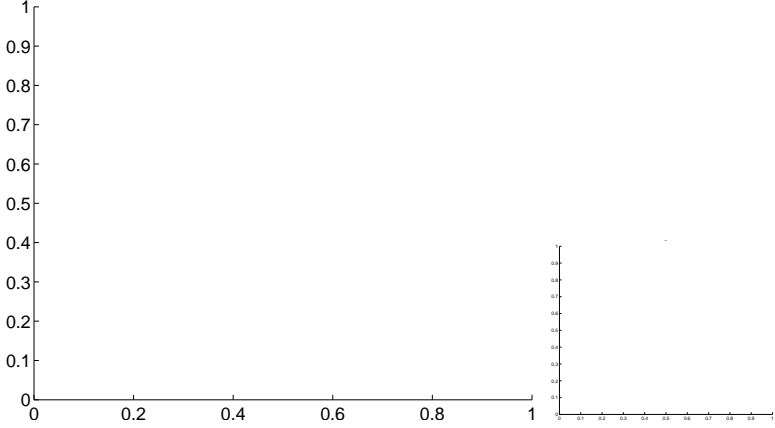
Q1 no OOT image



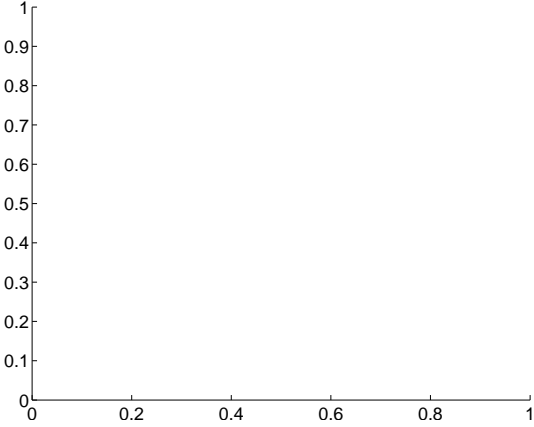
Q3 no difference image



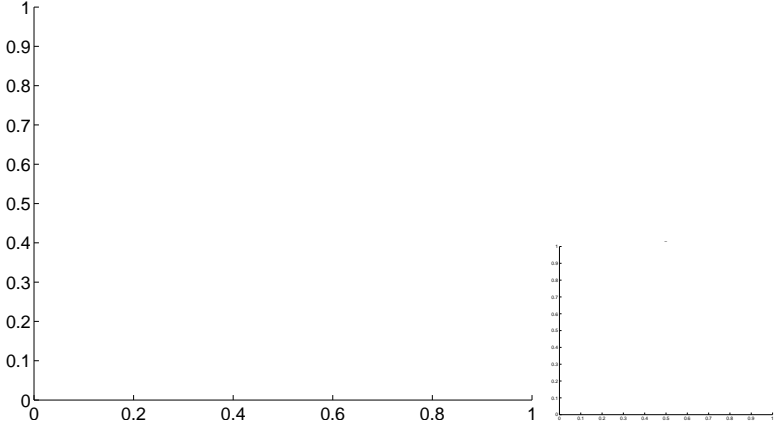
Q3 no OOT image



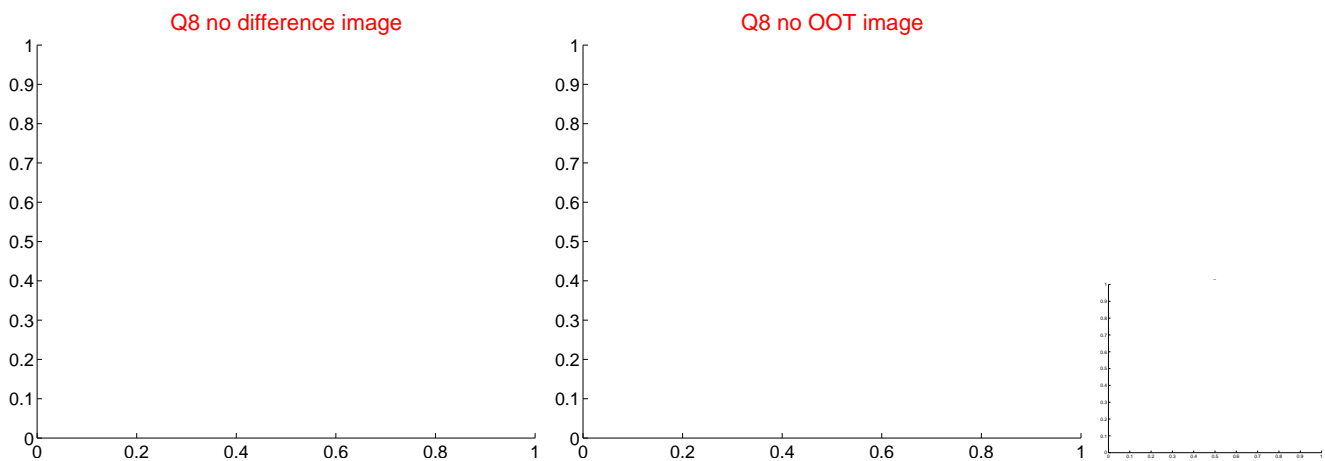
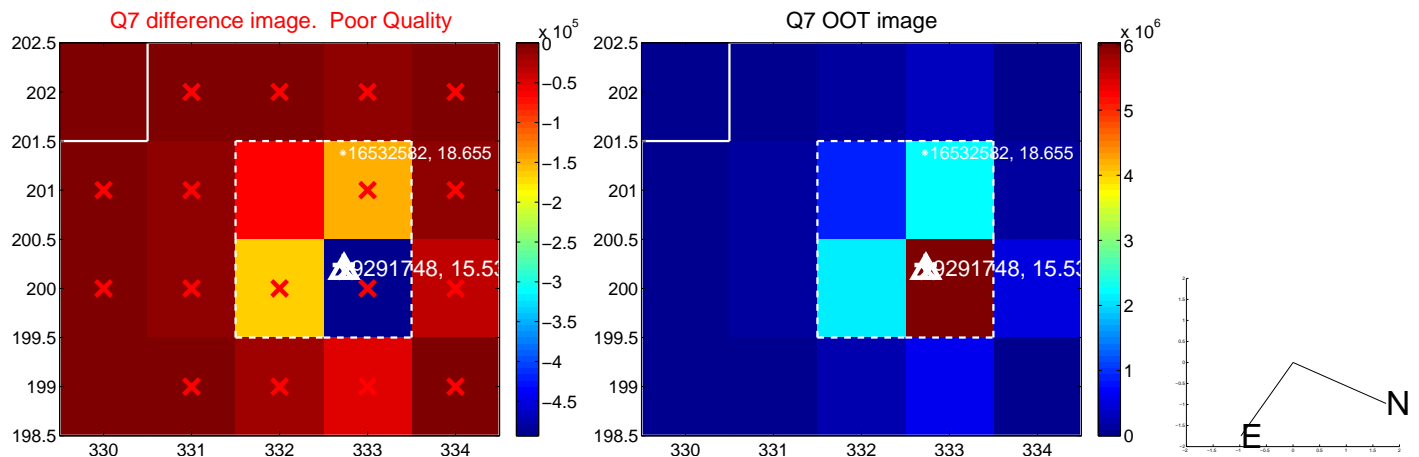
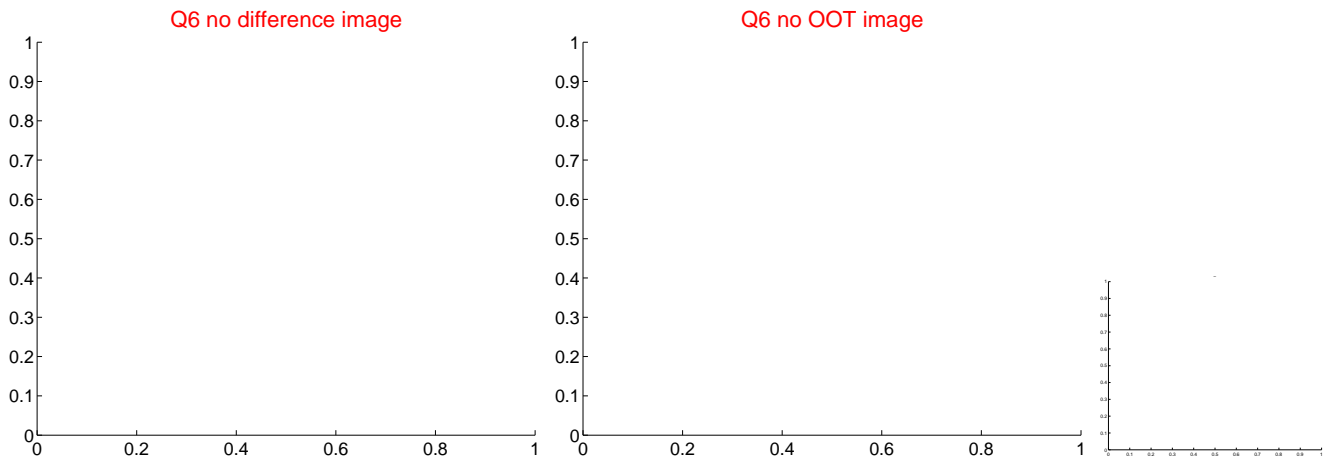
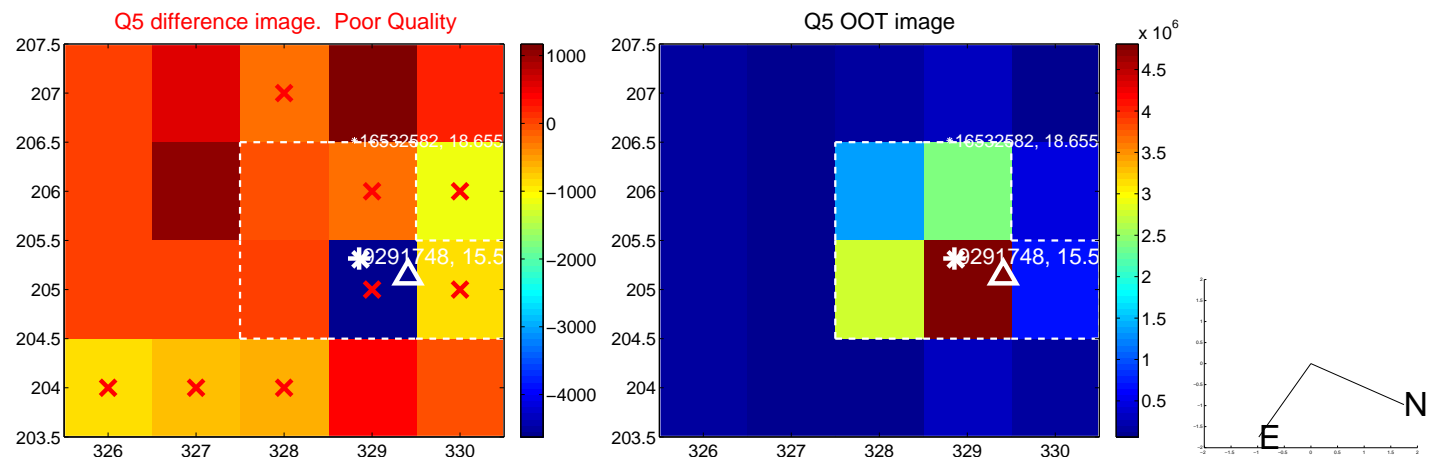
Q4 no difference image



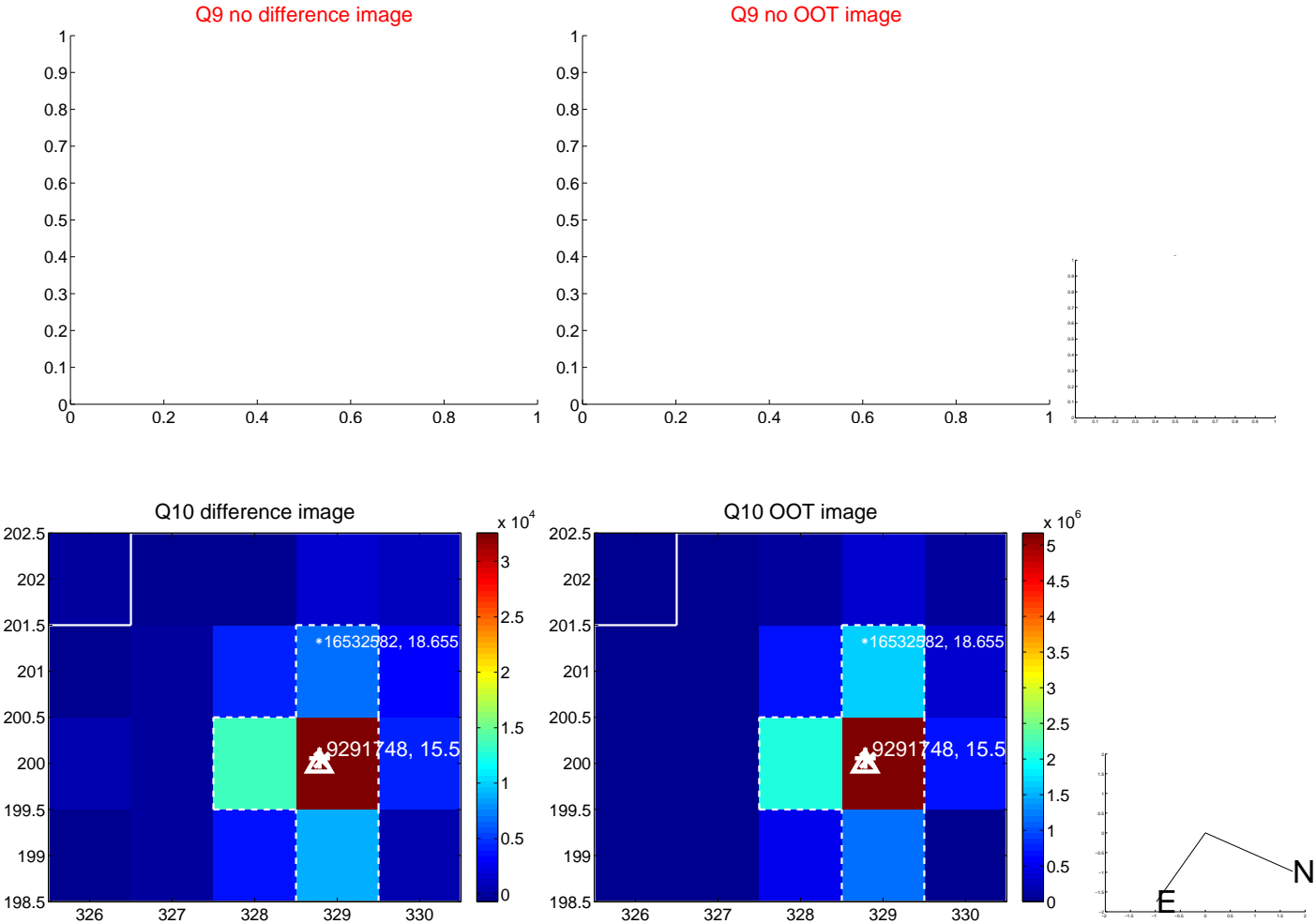
Q4 no OOT image



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

Q13 no difference image



Q13 no OOT image



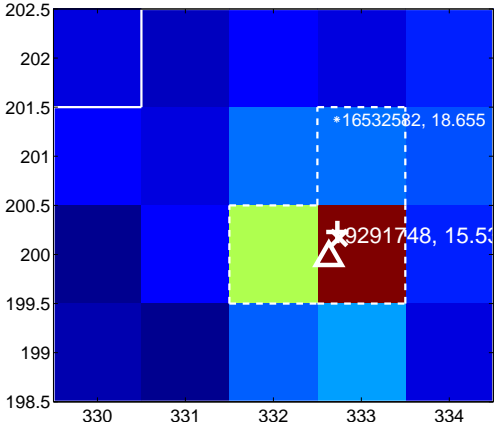
Q14 no difference image



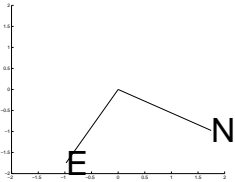
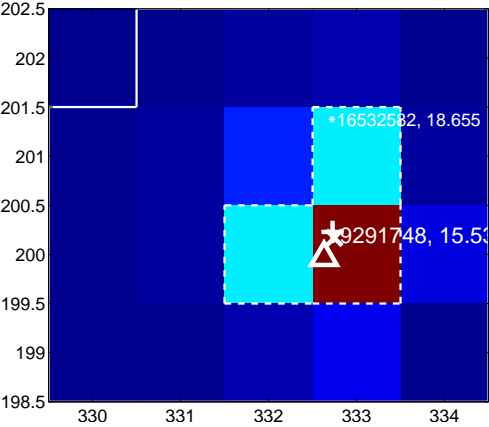
Q14 no OOT image



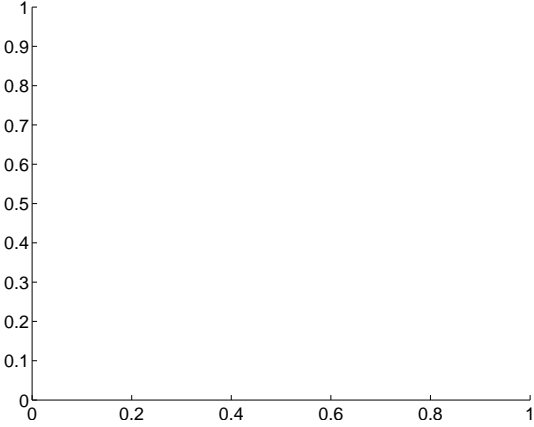
Q15 difference image



Q15 OOT image



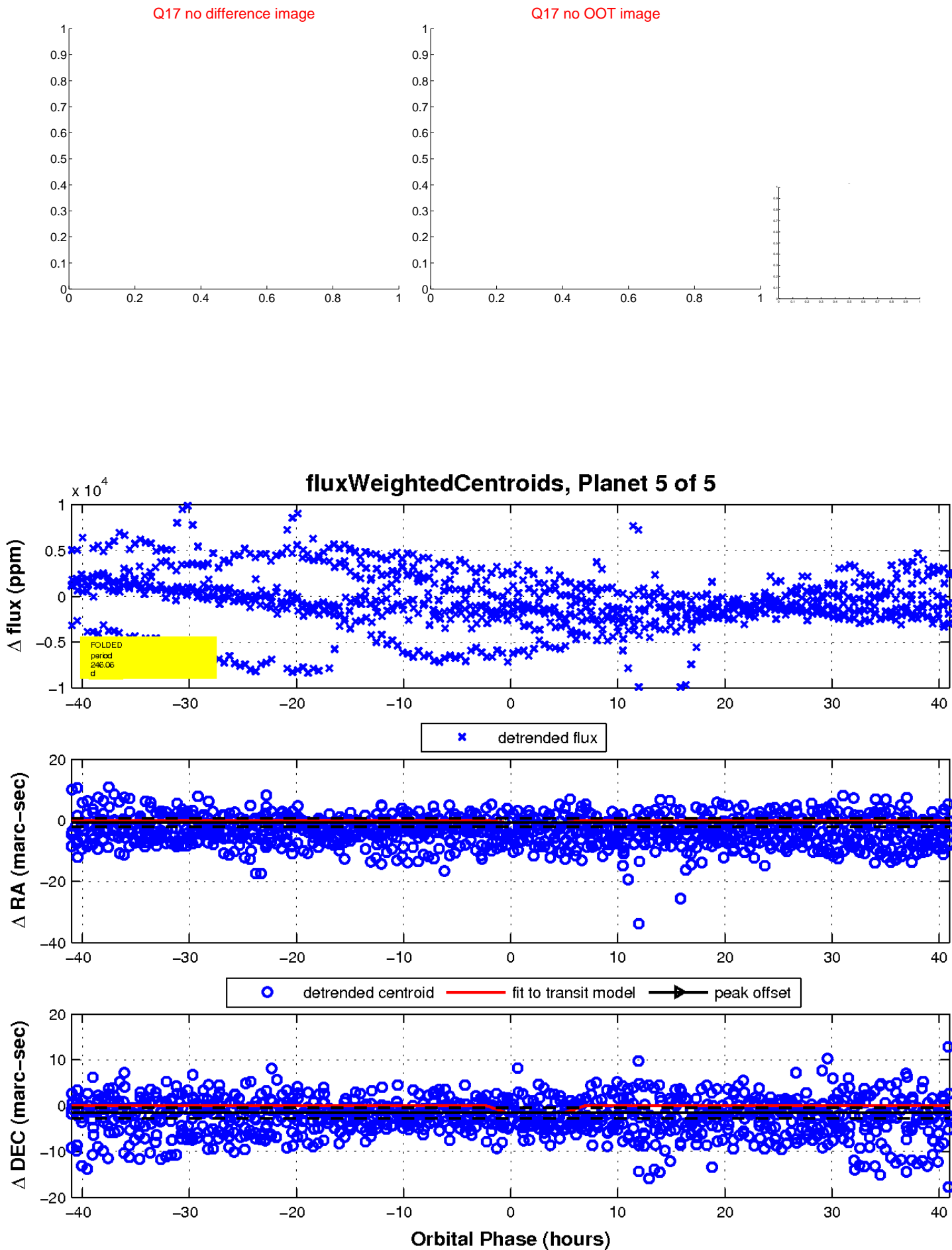
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

