

KIC 009291629

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})
009291629-01	OBS	No	475.787842	299.380175	132871.7	36.364	794.7	132.2	5.14	4809	181.67	7.75
009291629-02	OBS	No	455.104348	154.940808	57961.8	12.861	585.2	206.4	5.14	4809	216.76	8.23
009291629-03	OBS	6198.01	20.686575	133.883909	113190.9	35.165	541.3	381.9	5.14	4809	167.46	507.13
009291629-04	OBS	No	113.729496	185.788290	24056.0	2.000	186.1	-1.0	5.14	4809	77.21	52.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291629-01	OBS	FP	0.00	1	0	0	0	MOD_TER_DV
009291629-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA_TRACKER—LPP_DV—MOD_TER_DV—INCONSISTENT_TRANS
009291629-03	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD
009291629-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

Ephemeris Match Information For 009291629-01

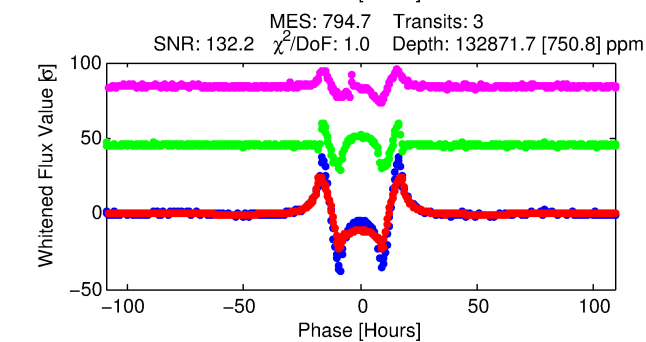
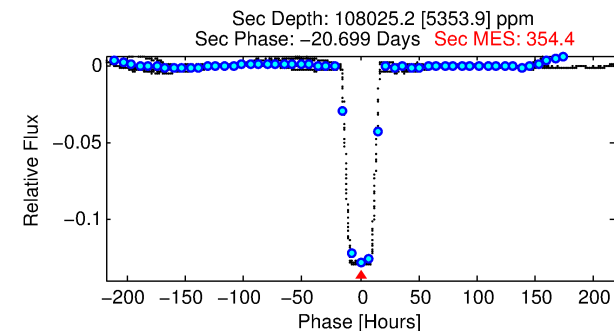
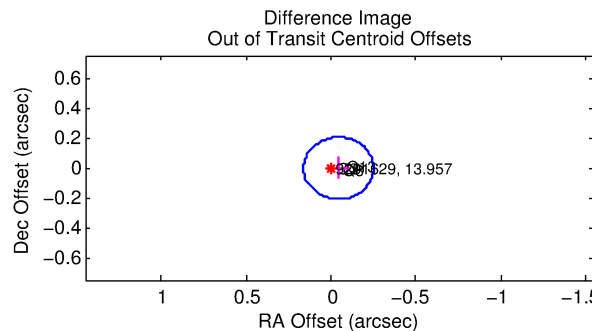
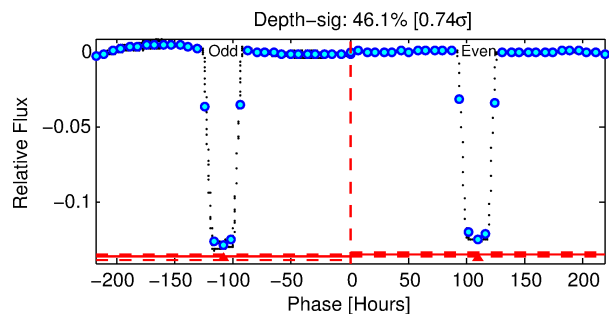
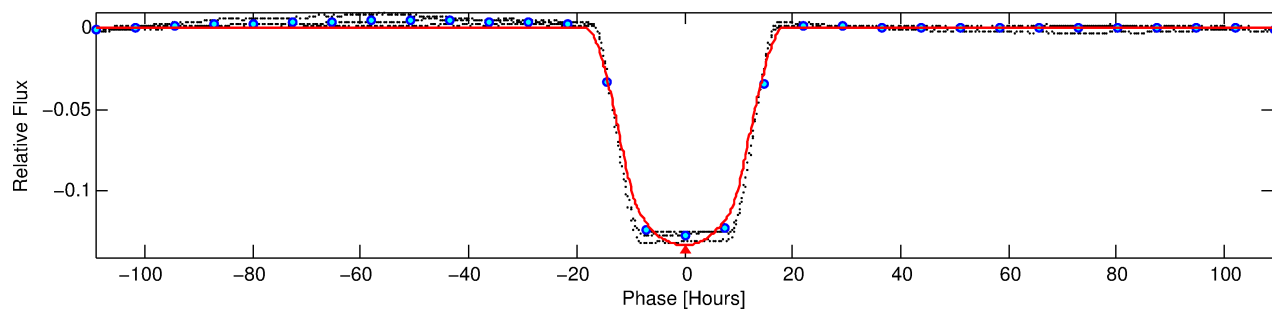
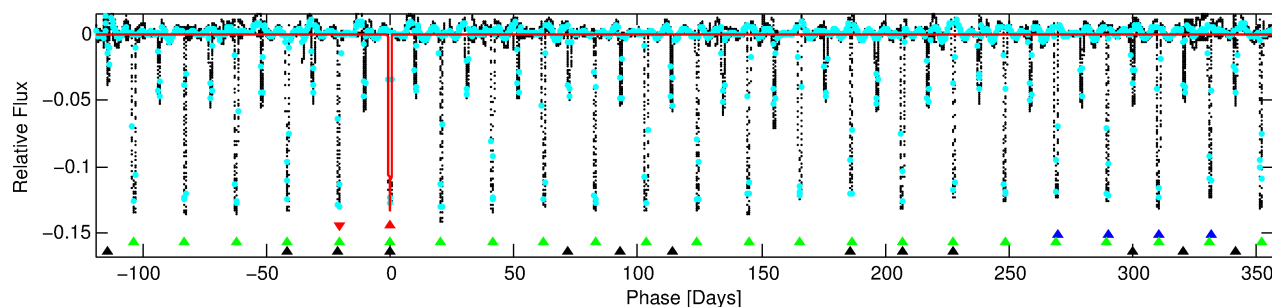
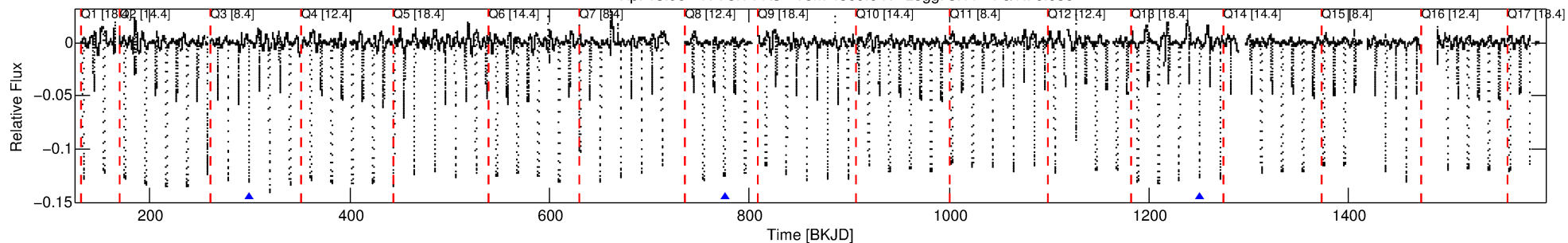
No Significant Match Found

DV One-Page Summary

KIC: 9291629 Candidate: 1 of 4 Period: 475.788 d

KOI: K06198 Corr: No Ephemeris Match

Kp: 13.96 R*: 5.14 Rs Teff: 4809.0 K Logg: 3.11 Fe/H: 0.080



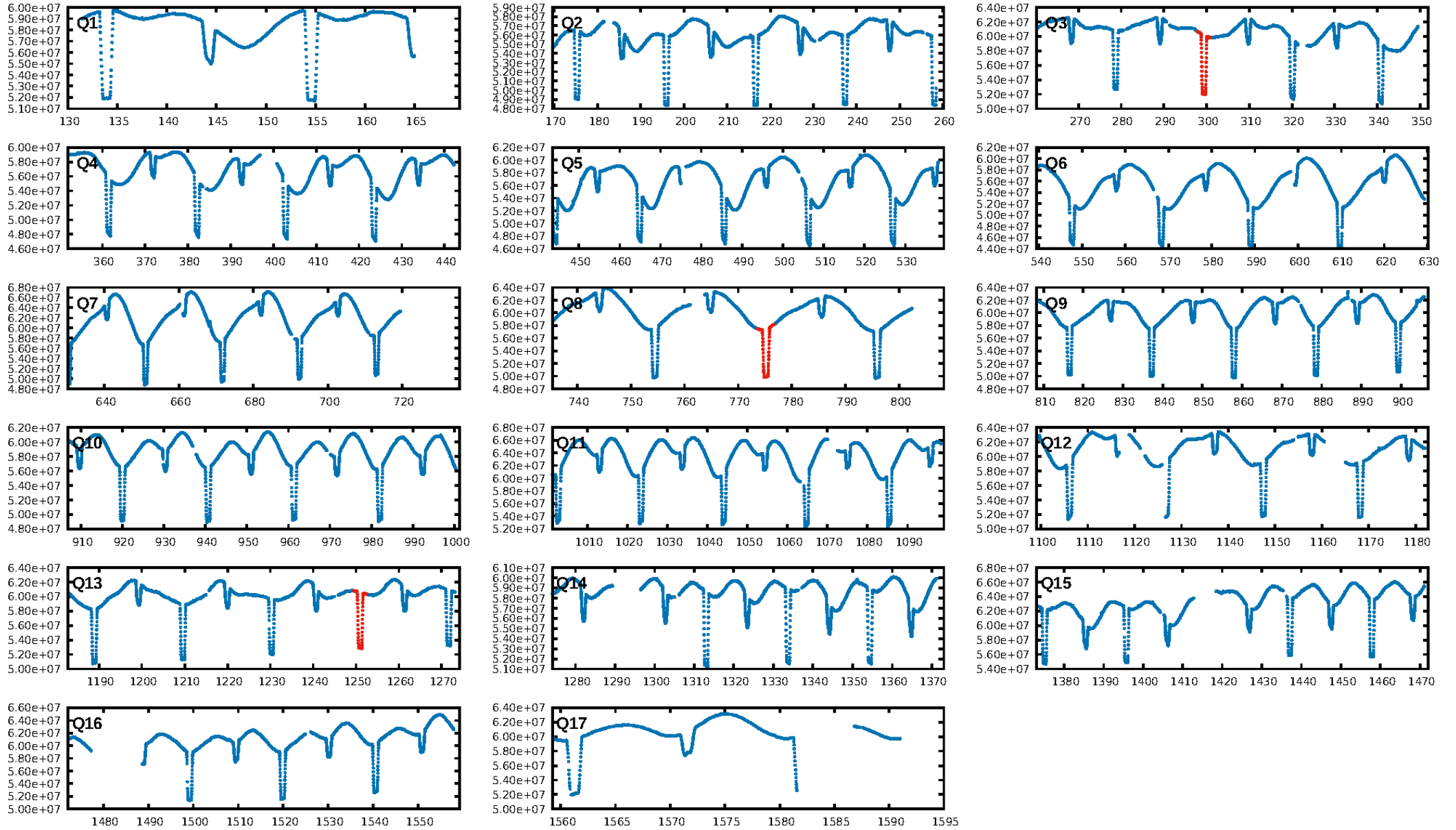
DV Fit Results:

Period = 475.78784 [0.00096] d
Epoch = 299.3802 [0.0011] BKJD
Rp/R* = 0.3236 [0.0009]
a/R* = 132.30 [0.30]
b = 0.00 [32.39]
Seff = 7.75 [5.24]
Teq = 425 [72] K
Rp = 181.67 [85.38] Re
a = 1.2791 [0.5509] AU
Ag = 2945.86 [1975.99] [1.49σ]
Teffp = 4847 [135] K [28.87σ]

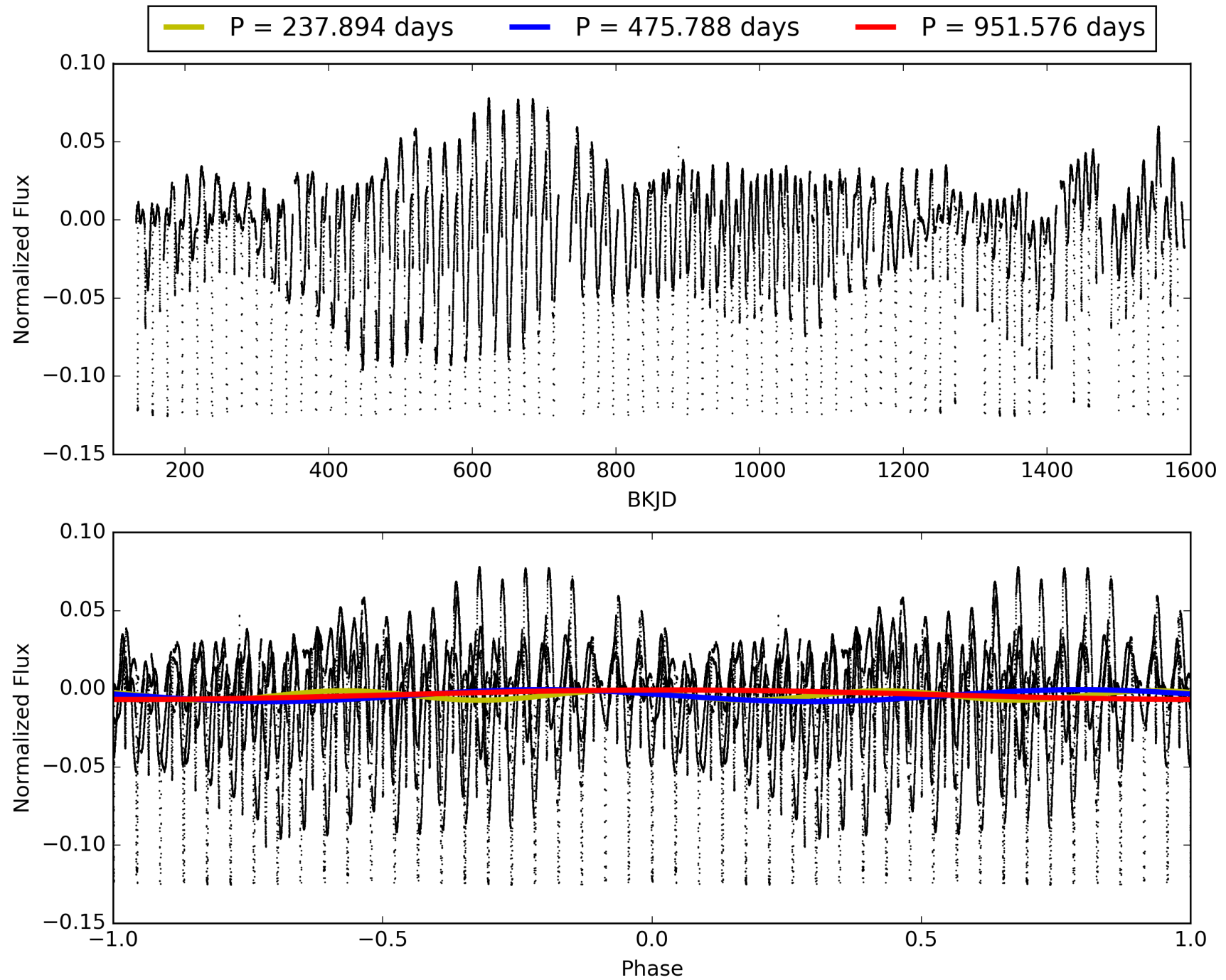
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.87σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 16.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.738
Centroid-sig: 0.3%
Centroid-so: 0.148 arcsec [17.79σ]
OotOffset-rm: 0.044 arcsec [0.63σ]
KicOffset-rm: 0.103 arcsec [1.41σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

TCE 009291629-01, PDC Light Curves

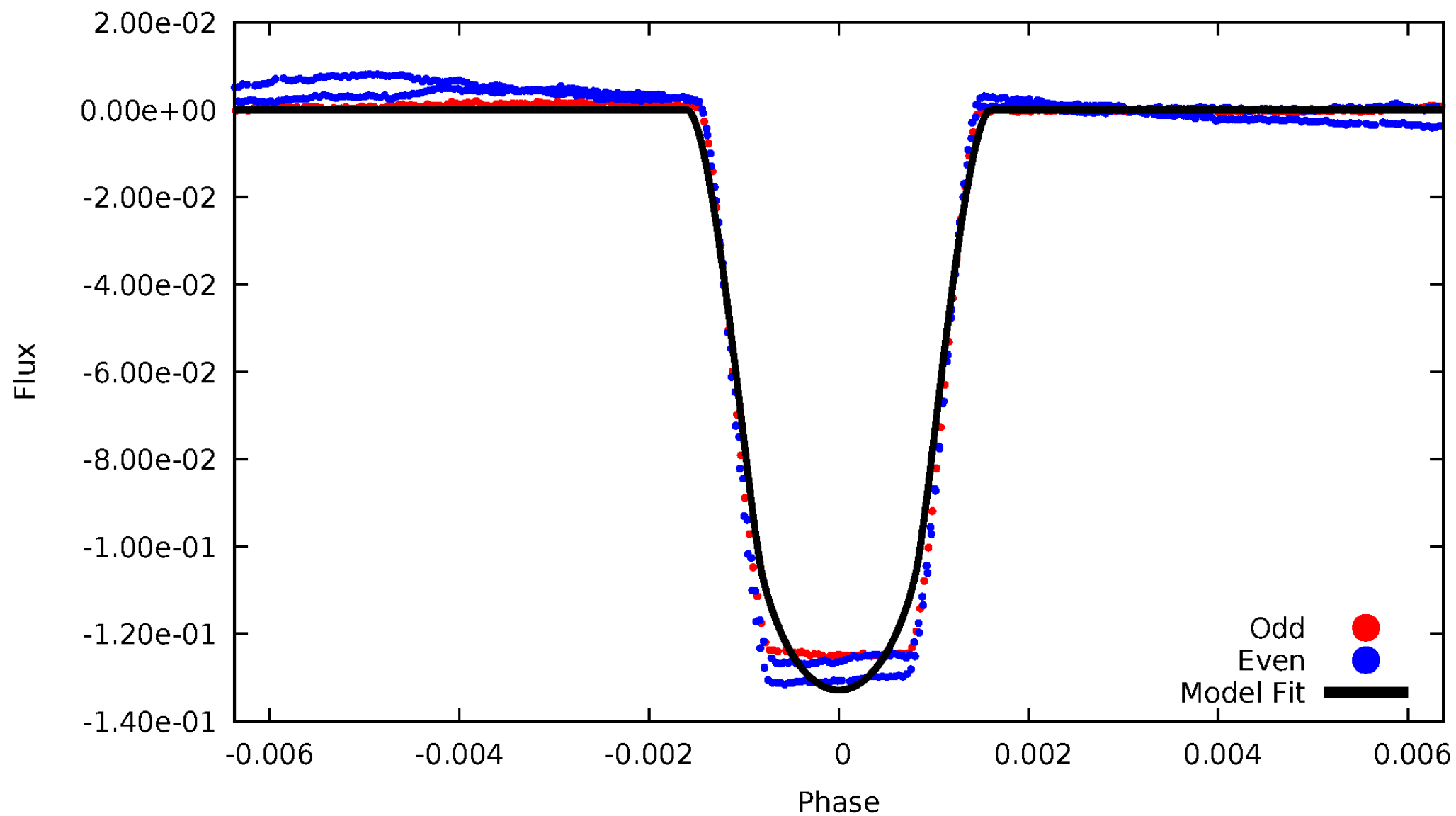


TCE 009291629-01



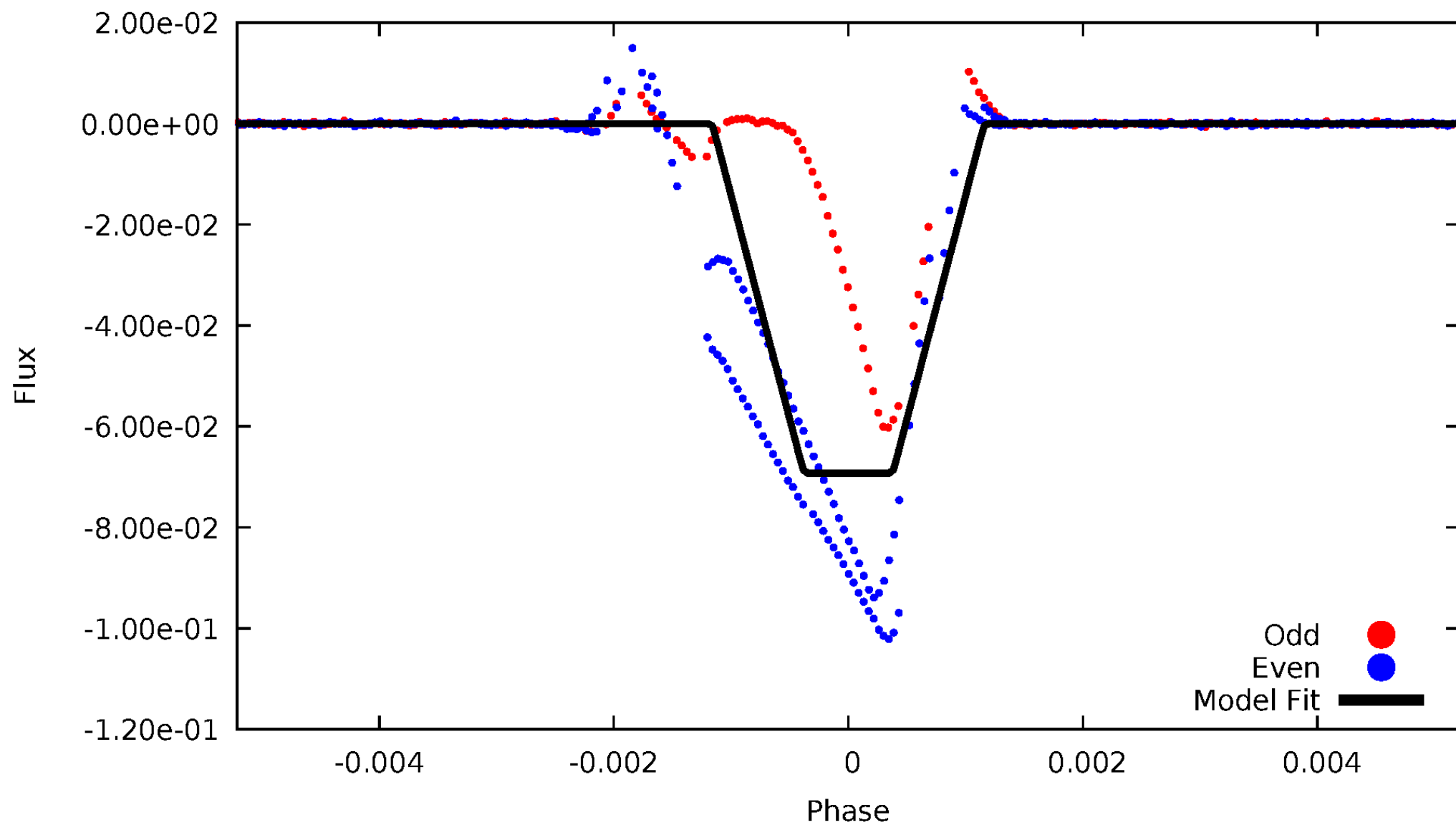
DV Odd/Even

TCE 009291629-01



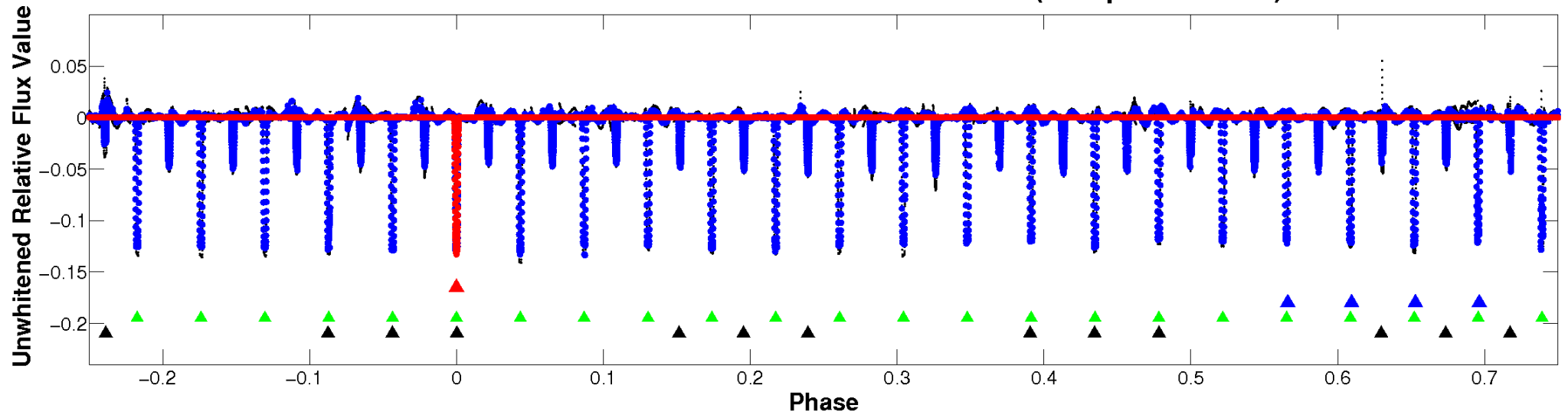
ALT Odd/Even

TCE 009291629-01

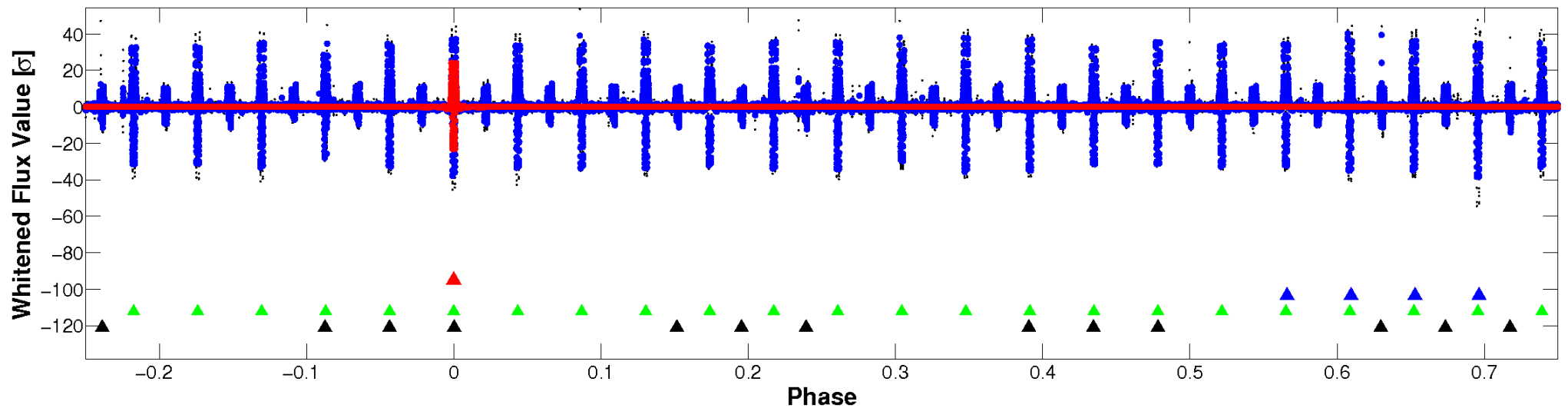


Non-Whitened Vs. Whitened Light Curve

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

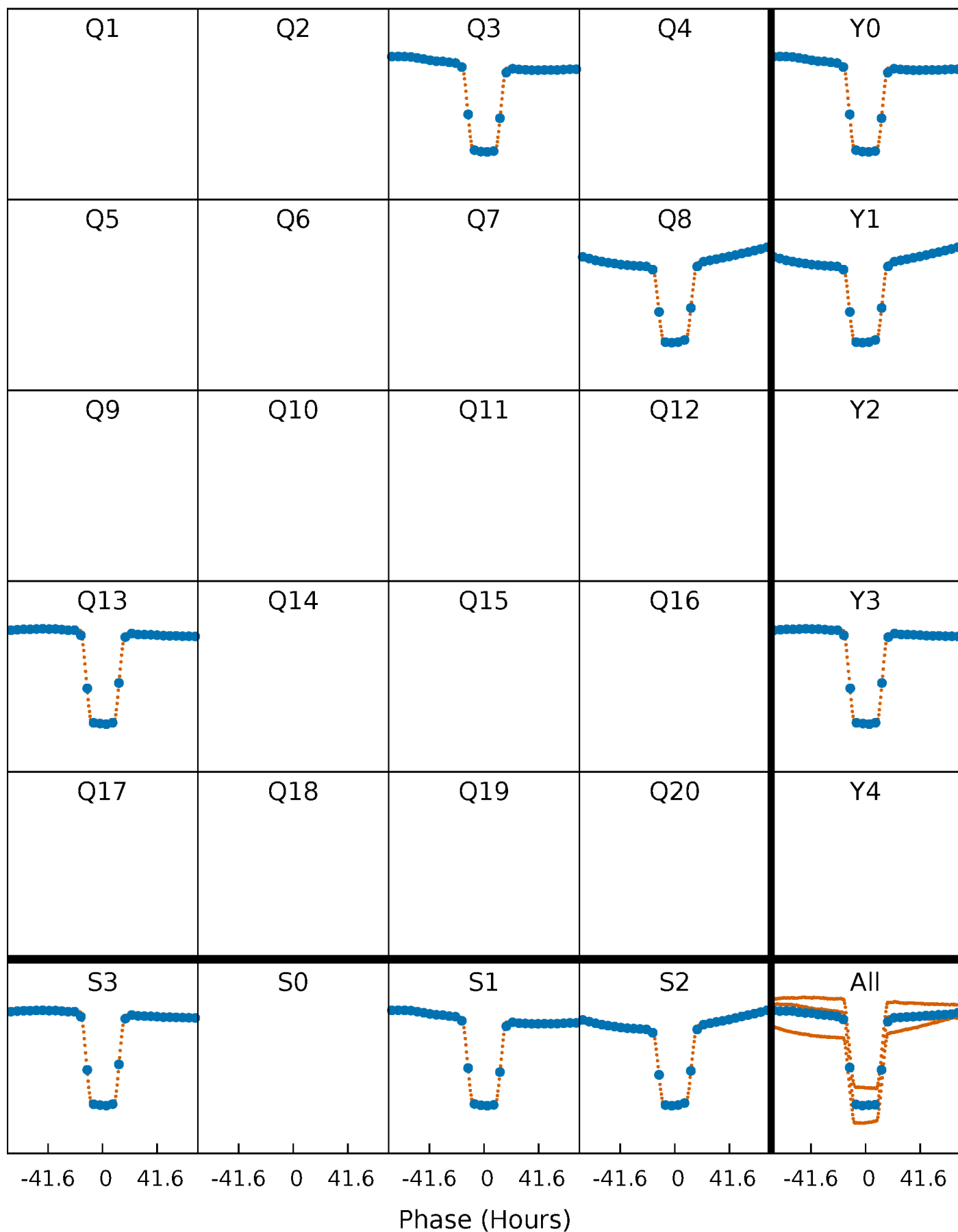


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



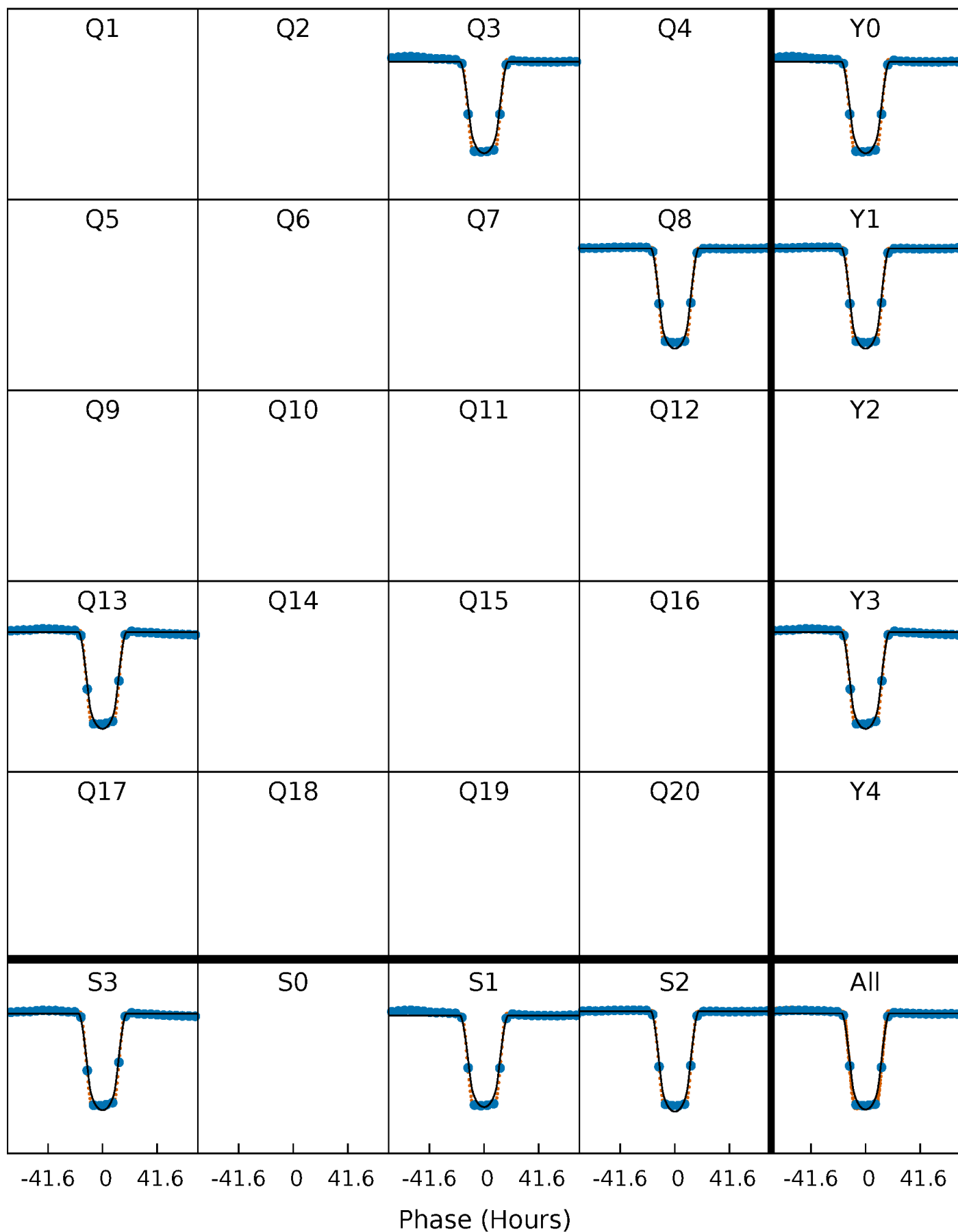
PDC Quarter-Phased Transit Curves

TCE 009291629-01 P=475.787842 Days $T_0=299.380175$ (BKJD)



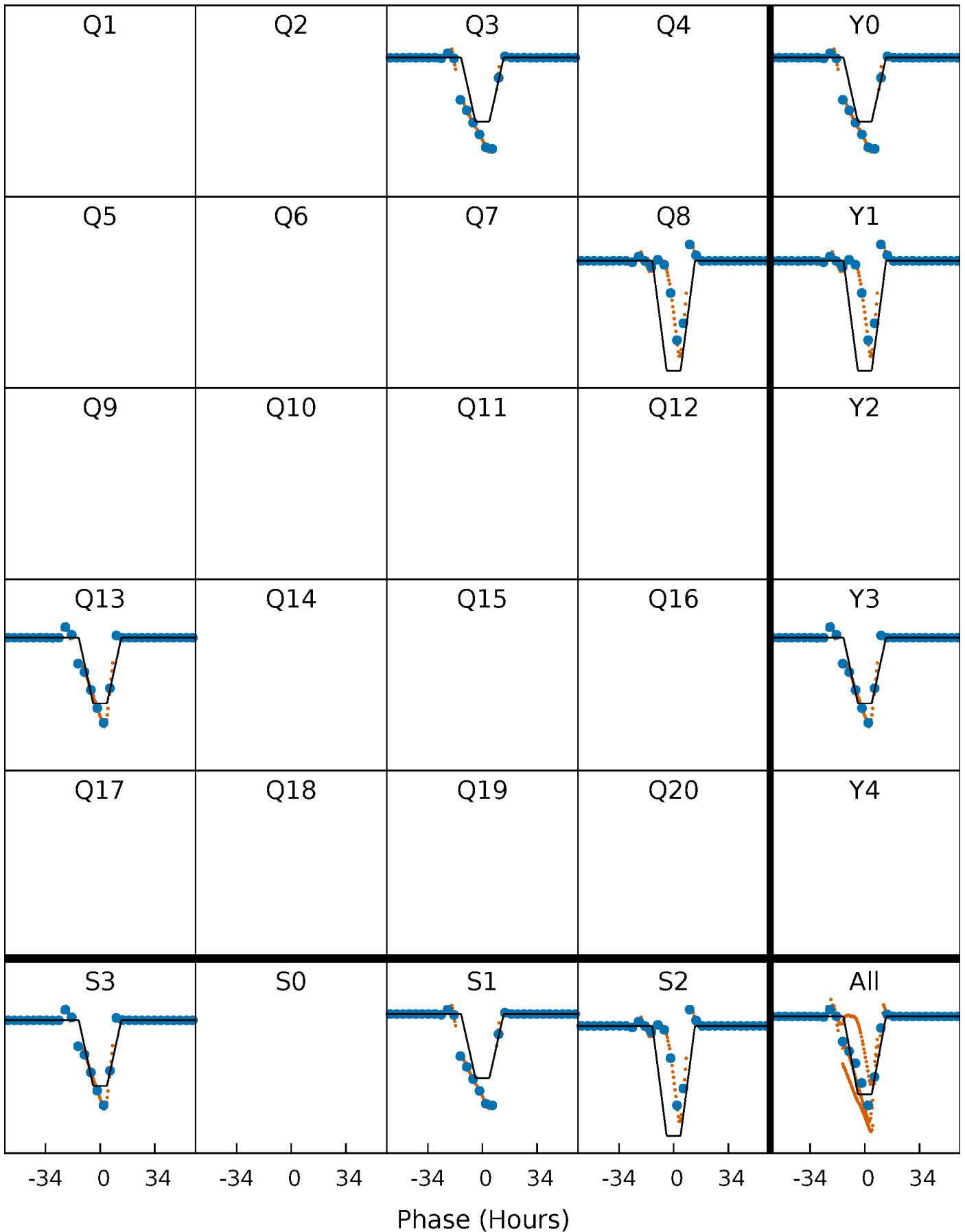
DV Quarter-Phased Transit Curves

TCE 009291629-01 P=475.787842 Days $T_0=299.380175$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

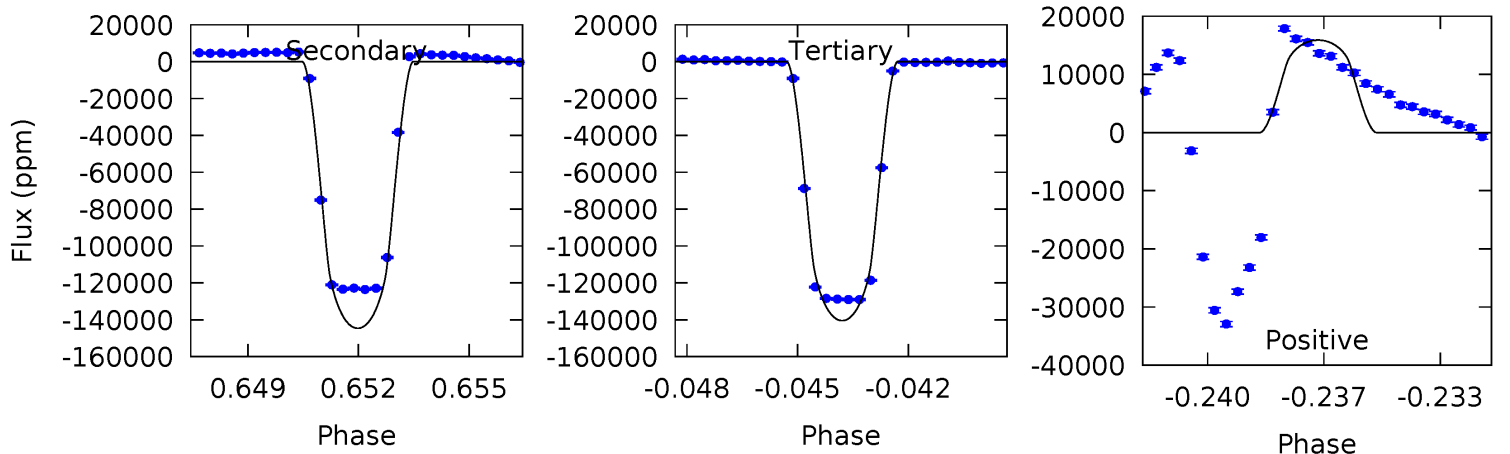
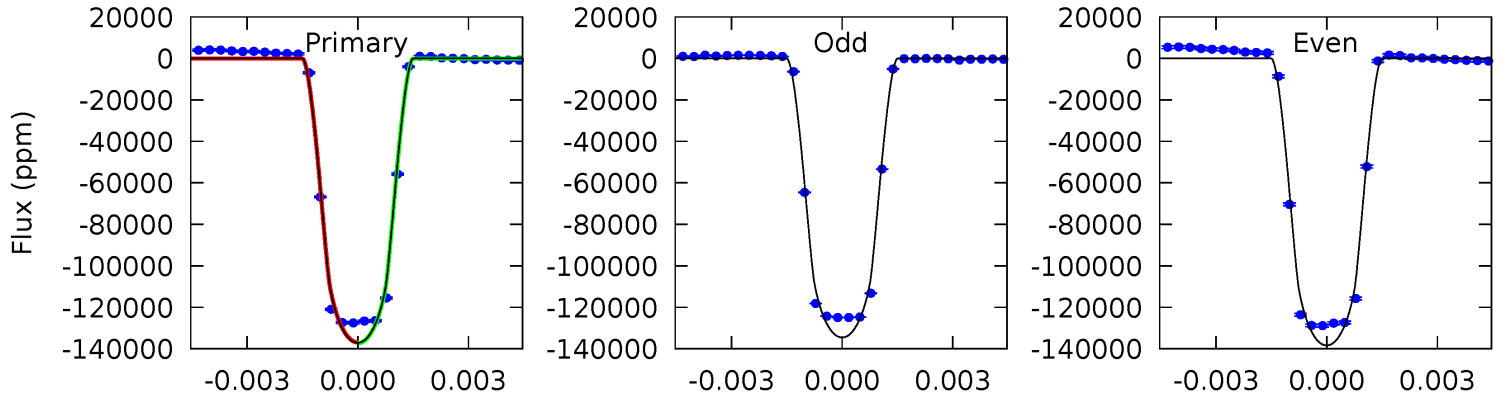
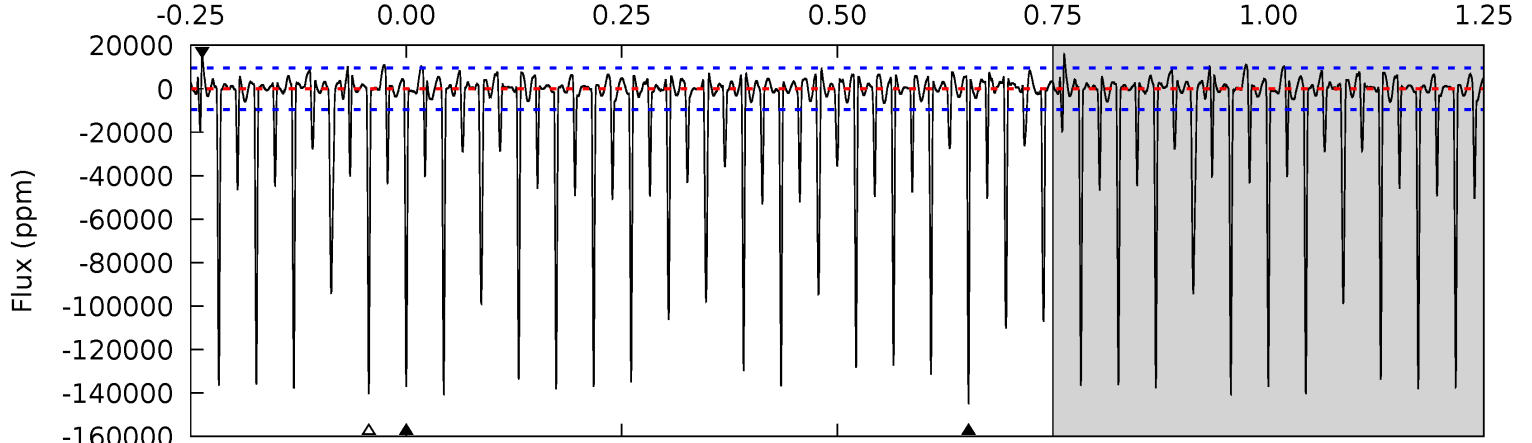
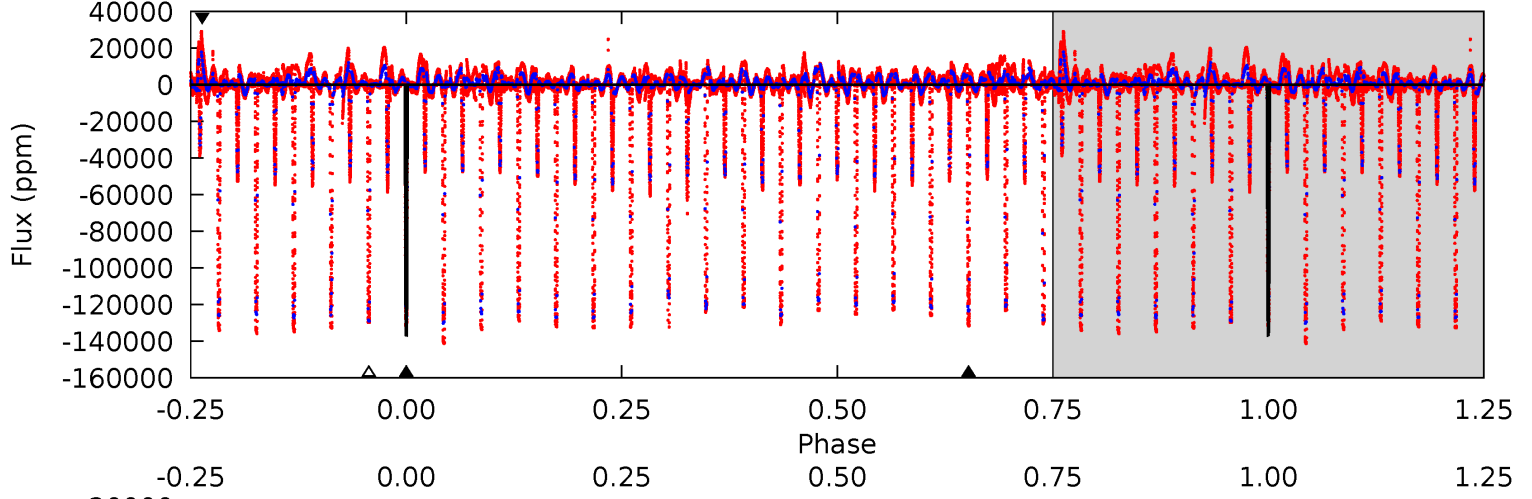
TCE 009291629-01 P=475.815878 Days $T_0=299.578095$ (BKJD)



DV Model-Shift Uniqueness Test

009291629-01, P = 475.787842 Days, E = 299.380175 Days

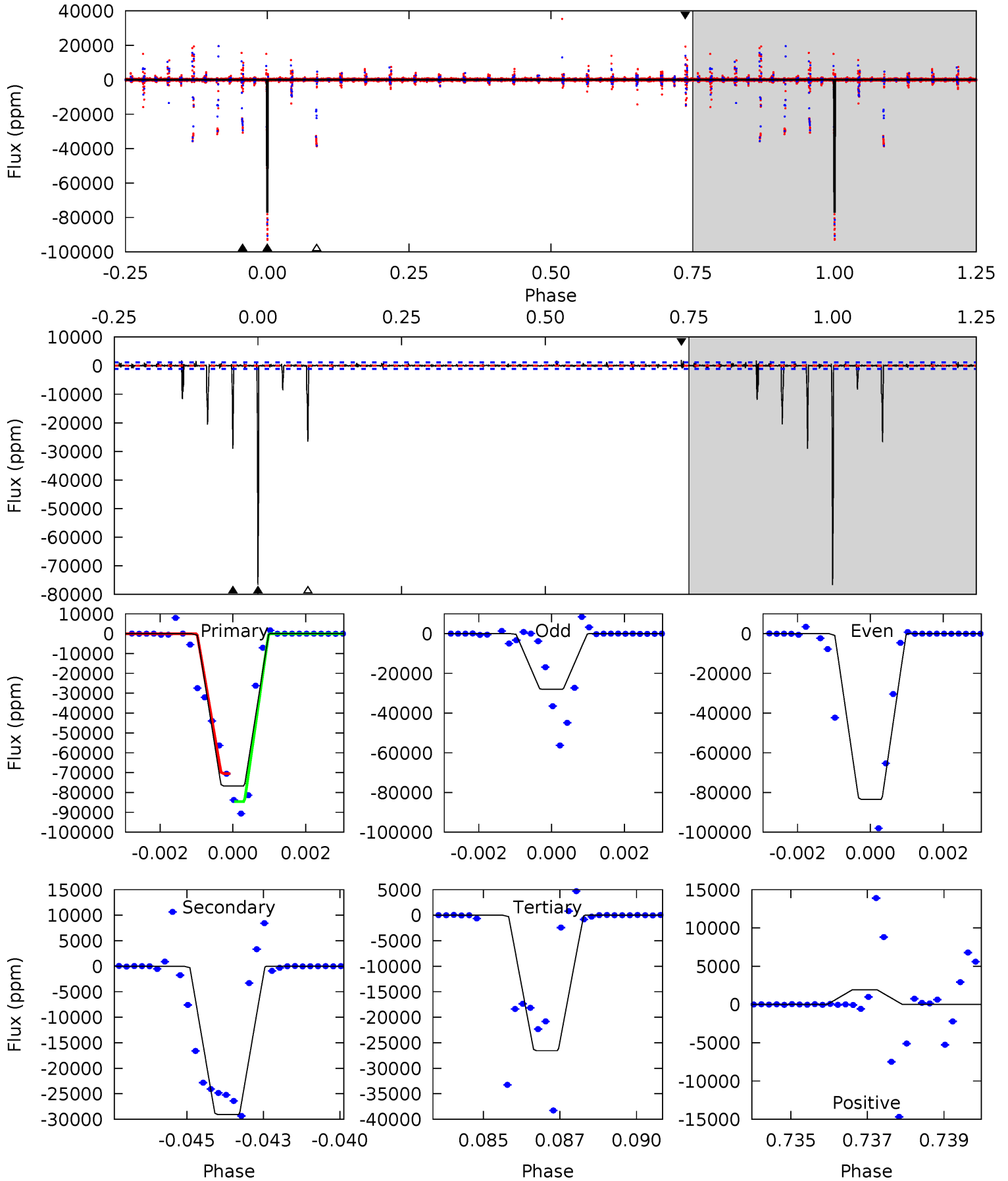
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.1	79.2	77.0	8.71	5.24	2.95	13.7	-1.84	66.4	2.27	70.5	0.99	1.01	0.10	0.12



Alt Model-Shift Uniqueness Test

009291629-01, P = 475.815878 Days, E = 299.578095 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
358.9	135.9	124.1	9.05	5.30	3.04	4.32	234.8	349.8	11.8	126.8	92.9	0.86	0.02	0



Stellar Parameters For KIC 009291629

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4809^{+120}_{-108}	$3.106^{+0.385}_{-0.315}$	$0.080^{+0.250}_{-0.200}$	$5.145^{+2.418}_{-1.978}$	$1.232^{+0.249}_{-0.249}$	$0.013^{+0.039}_{-0.009}$
	+2%/-2%	+12%/-10%	+312%/-250%	+47%/-38%	+20%/-20%	+308%/-71%
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 009291629-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-144619 ± 1825	$181.96^{+49.05}_{-39.44}$	603^{+69}_{-74}	5332^{+151}_{-134}	4487^{+2778}_{-1625}
Alt.	-29056 ± 214	$146.11^{+42.58}_{-31.02}$	595^{+74}_{-69}	4096^{+85}_{-83}	1233^{+765}_{-454}

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 $A_{obs} \gg 1.0$

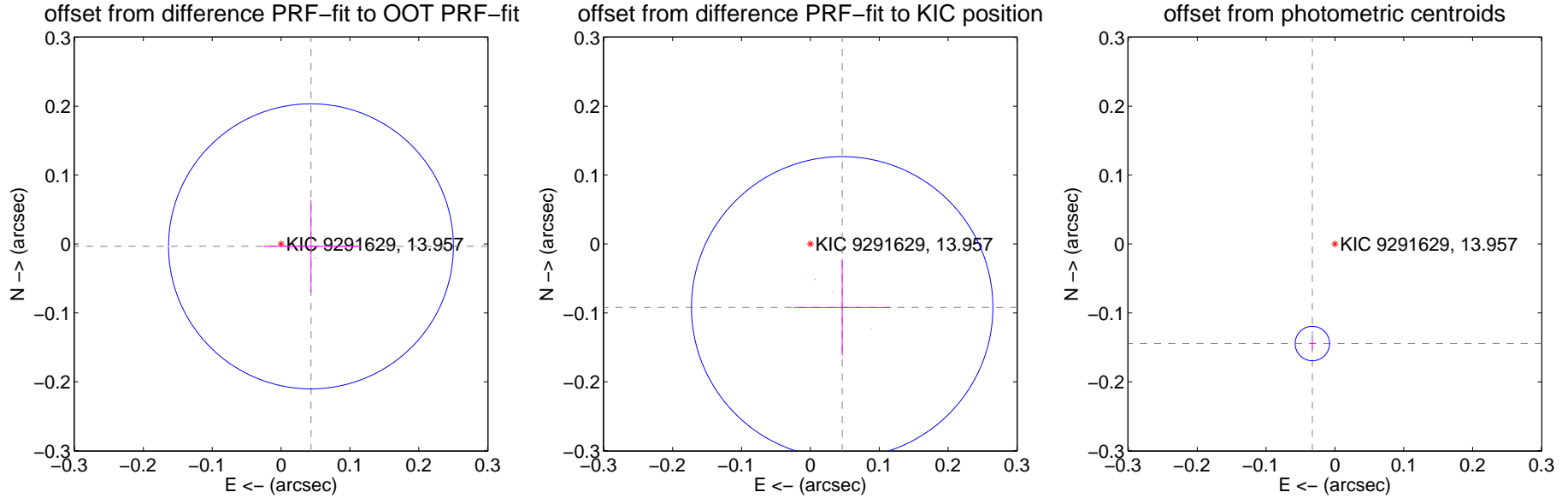
DV Centroid Data

Supplemental centroid analysis for 009291629-01. Kepler magnitude: 13.96. Transit SNR 132.23

There are 3 quarters with good PRF difference image offsets

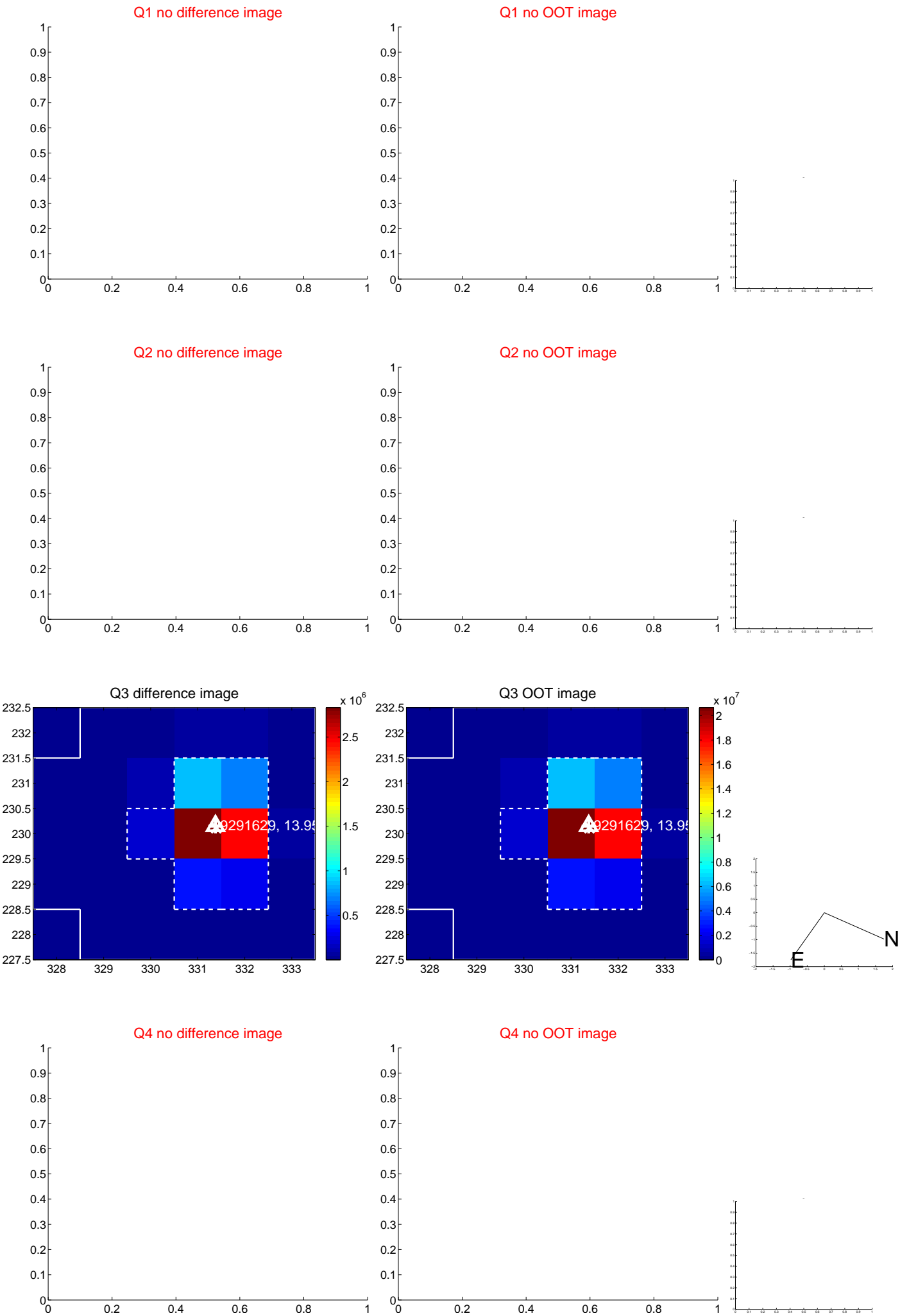
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.044 ± 0.069	0.63	-0.043 ± 0.069	-0.003 ± 0.067
PRF-fit source offset from KIC position	0.103 ± 0.073	1.41	-0.046 ± 0.071	-0.092 ± 0.070
photometric centroid source offset	0.15 ± 0.01	17.79	0.03 ± 0.00	-0.14 ± 0.01

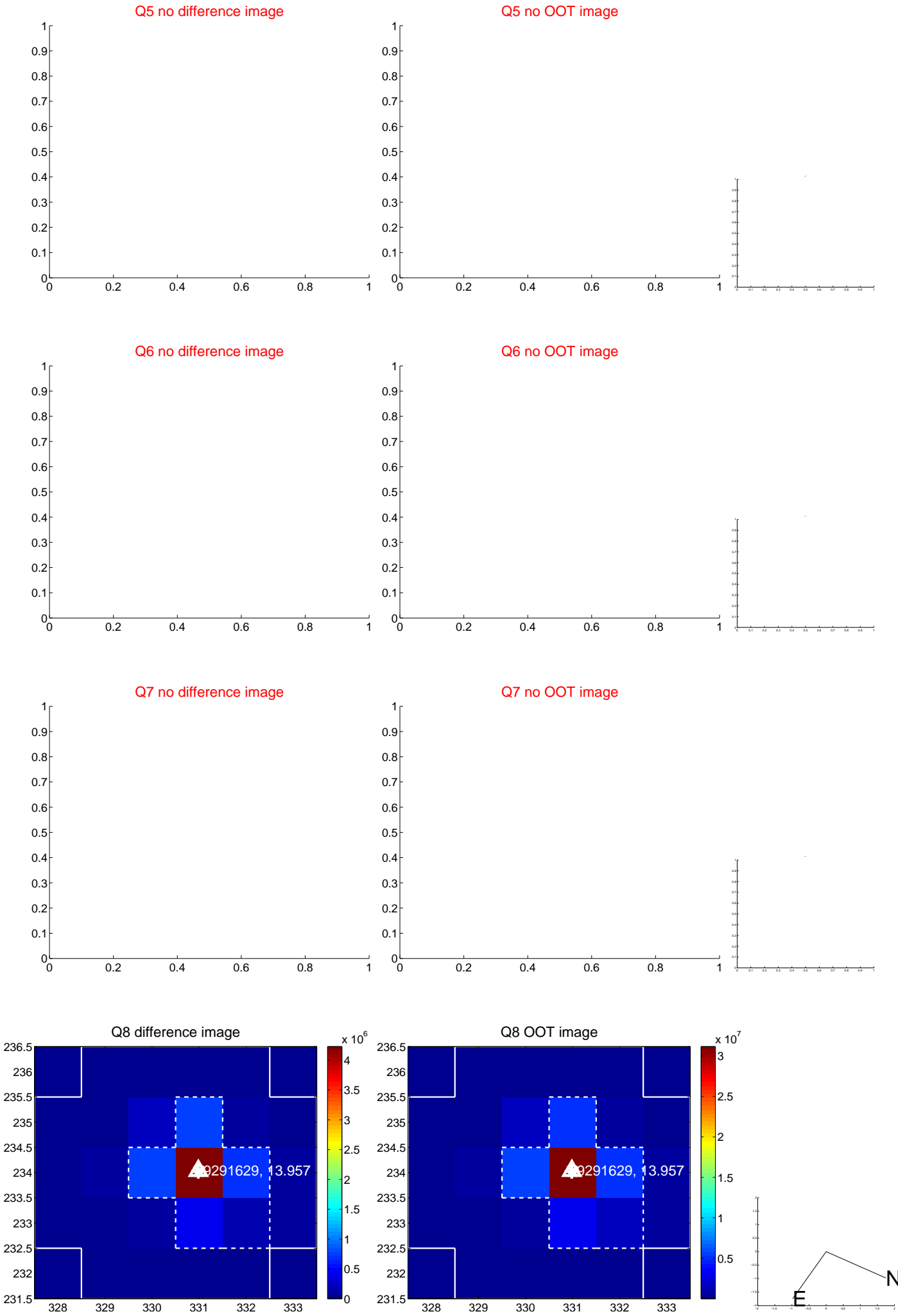


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



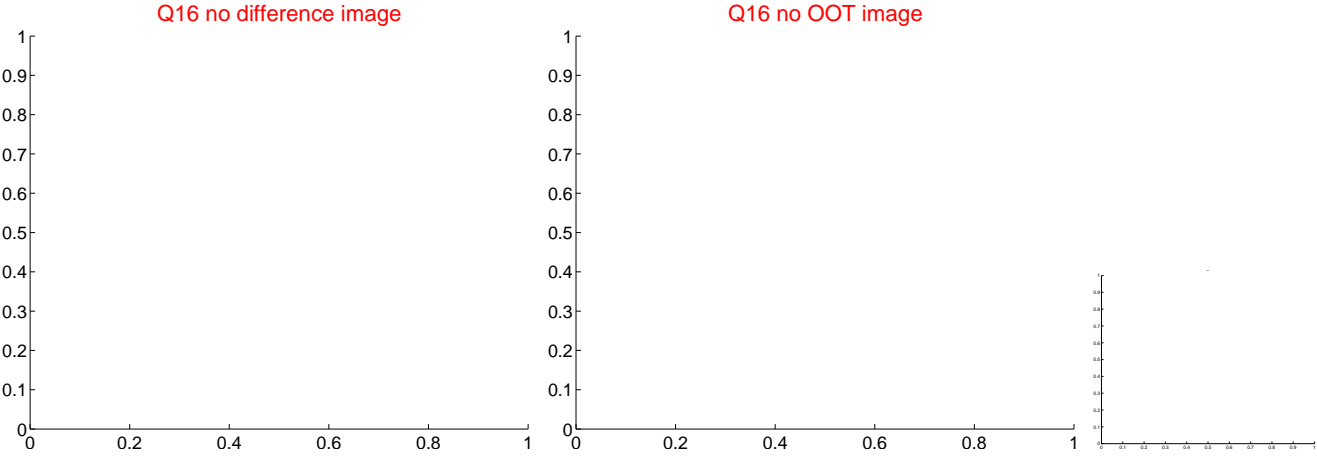
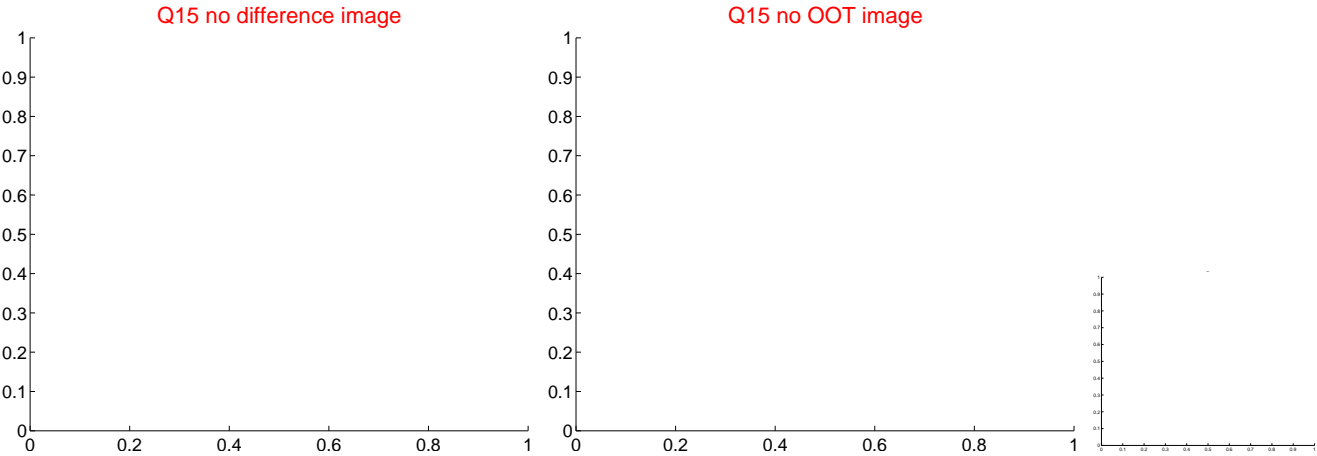
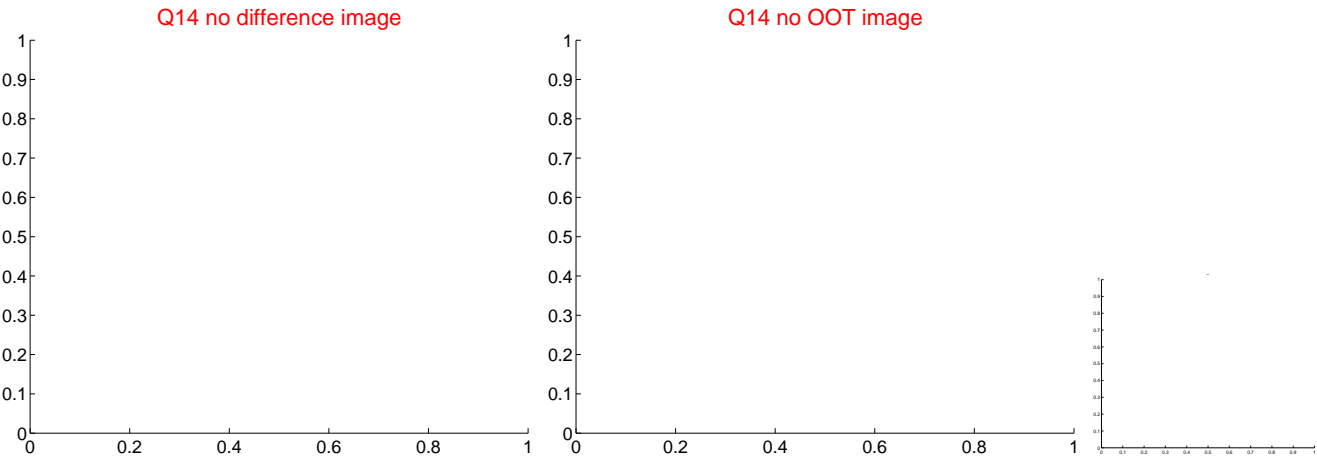
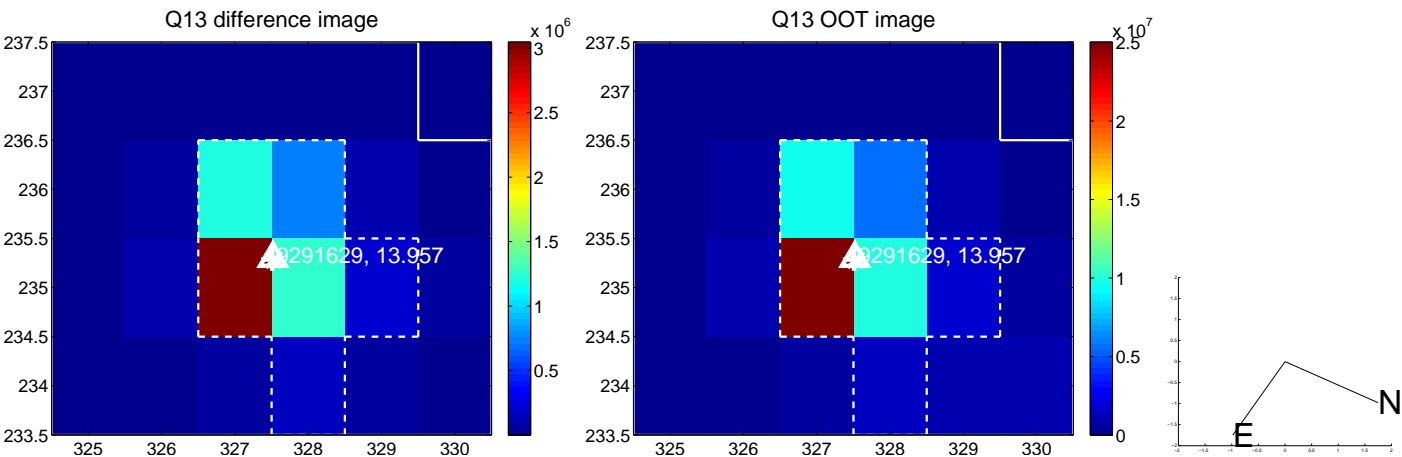
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



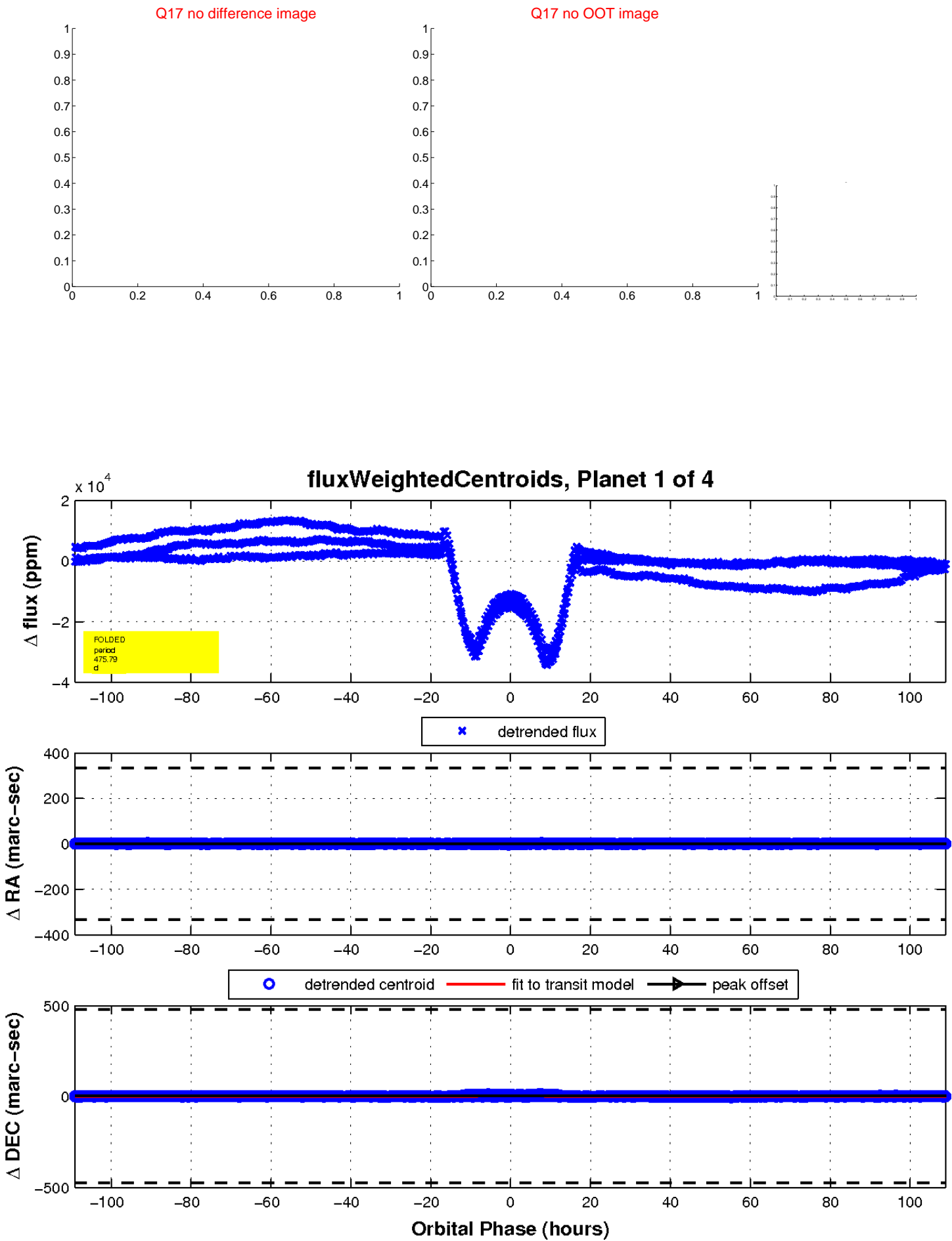
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

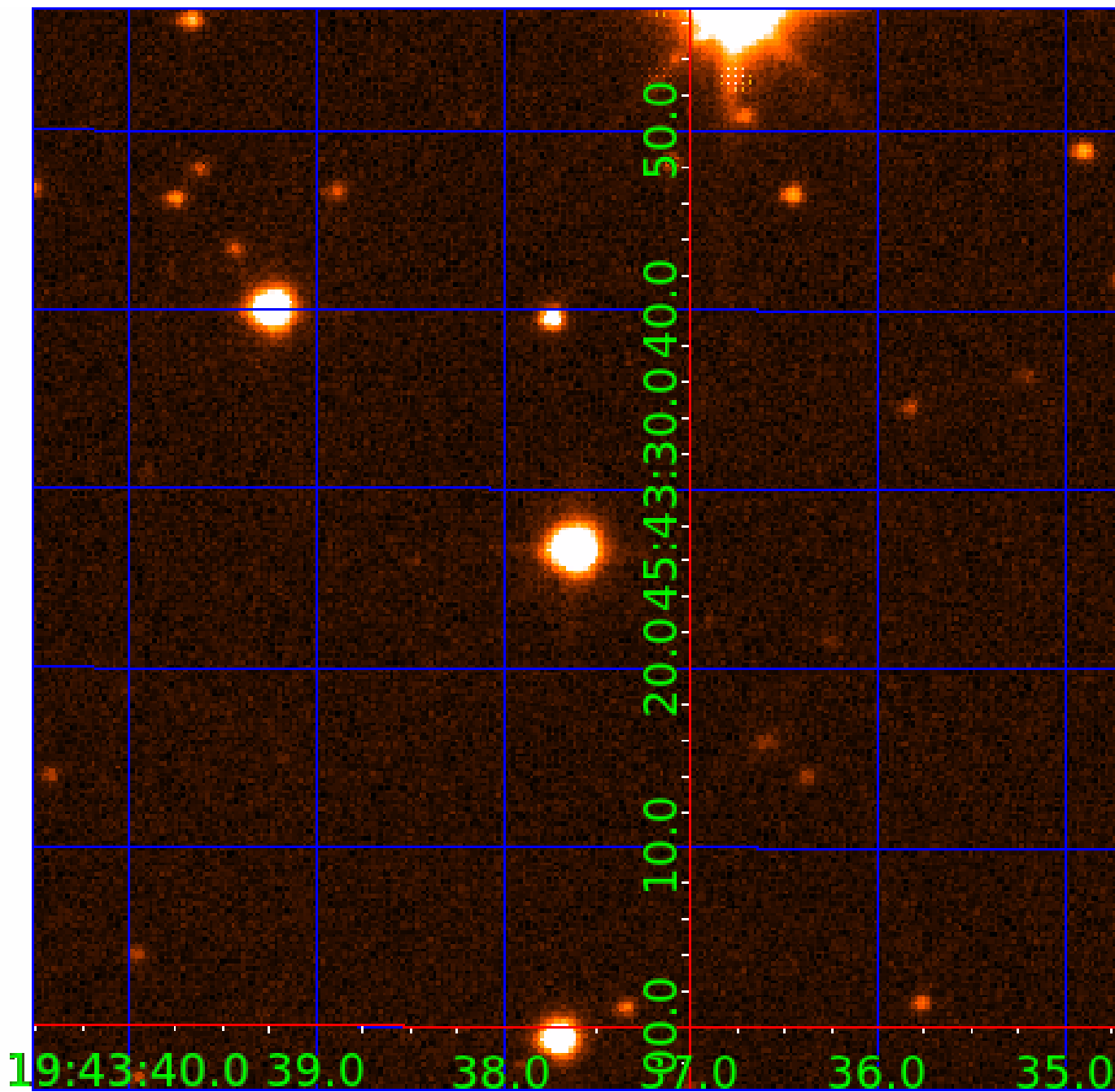


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291629

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})
009291629-01	OBS	No	475.787842	299.380175	132871.7	36.364	794.7	132.2	5.14	4809	181.67	7.75
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009291629-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA_TRACKER—LPP_DV—MOD_TER_DV—INCONSISTENT_TRANS
009291629-03	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD
009291629-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

Ephemeris Match Information For 009291629-02

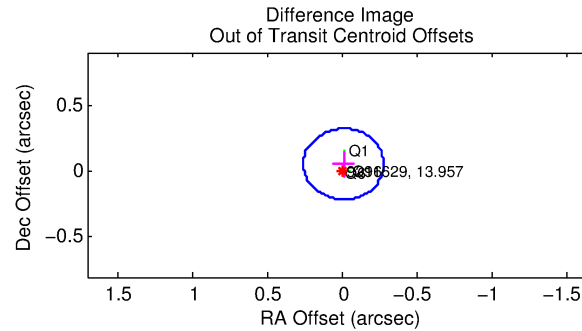
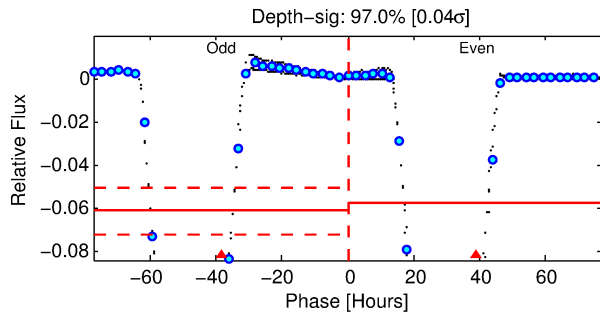
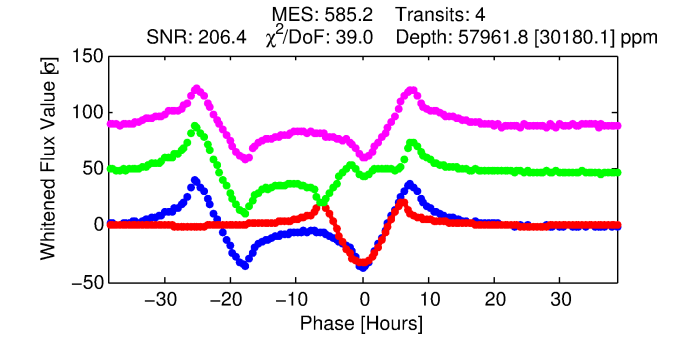
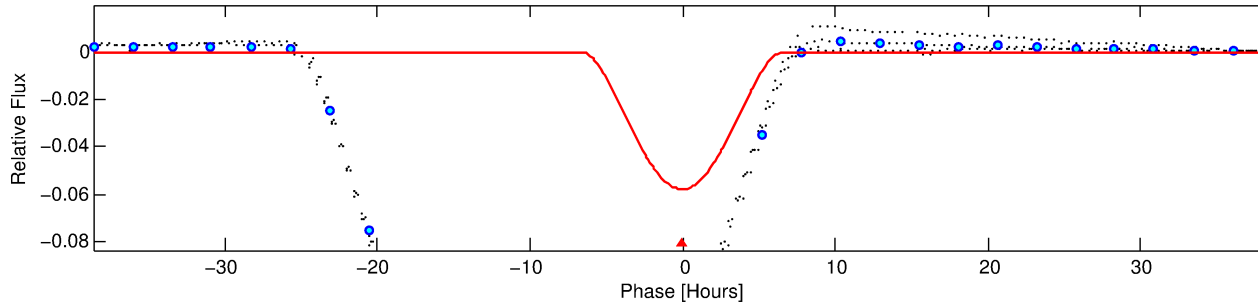
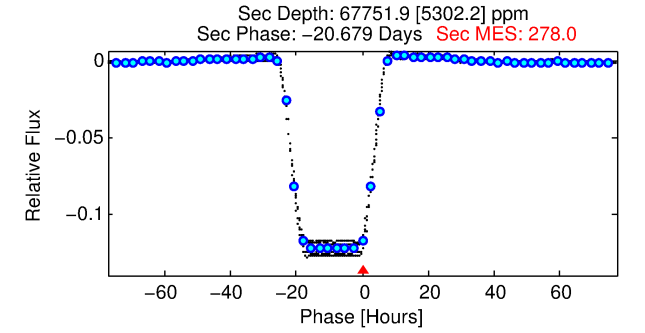
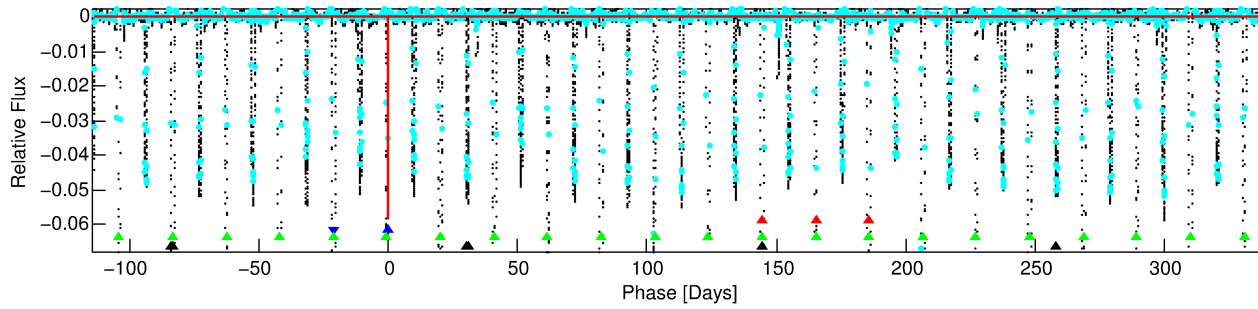
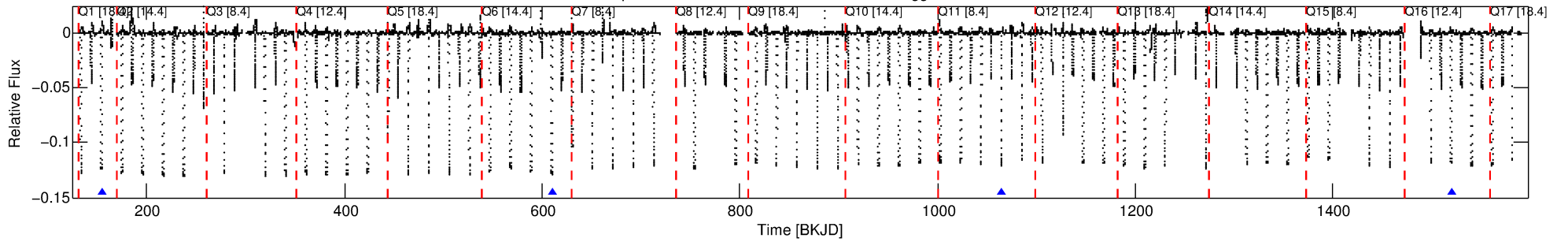
No Significant Match Found

DV One-Page Summary

KIC: 9291629 Candidate: 2 of 4 Period: 455.104 d

KOI: K06198 Corr: No Ephemeris Match

Kp: 13.96 R*: 5.14 Rs Teff: 4809.0 K Logg: 3.11 Fe/H: 0.080



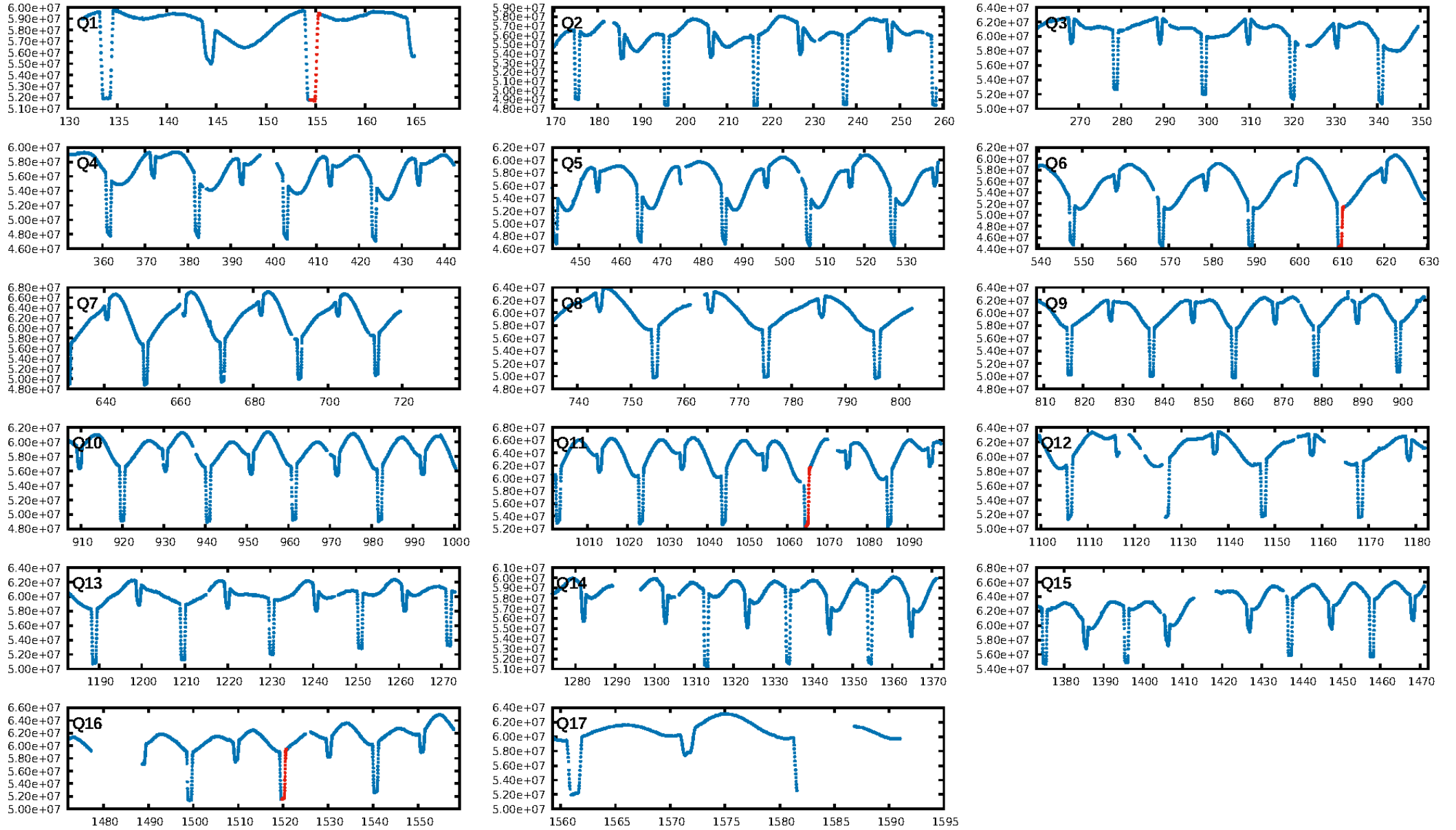
DV Fit Results:

Period = 455.10435 [0.00283] d
Epoch = 154.9408 [0.0051] BKJD
Rp/R* = 0.3861 [0.7559]
a/R* = 259.47 [12.50]
b = 1.00 [0.86]
Seff = 8.23 [5.56]
Teq = 432 [73] K
Rp = 216.76 [436.42] Re
a = 1.2417 [0.5348] AU
Ag = 1223.22 [4860.01] [0.25σ]
Teffp = 3949 [3867] K [0.91σ]

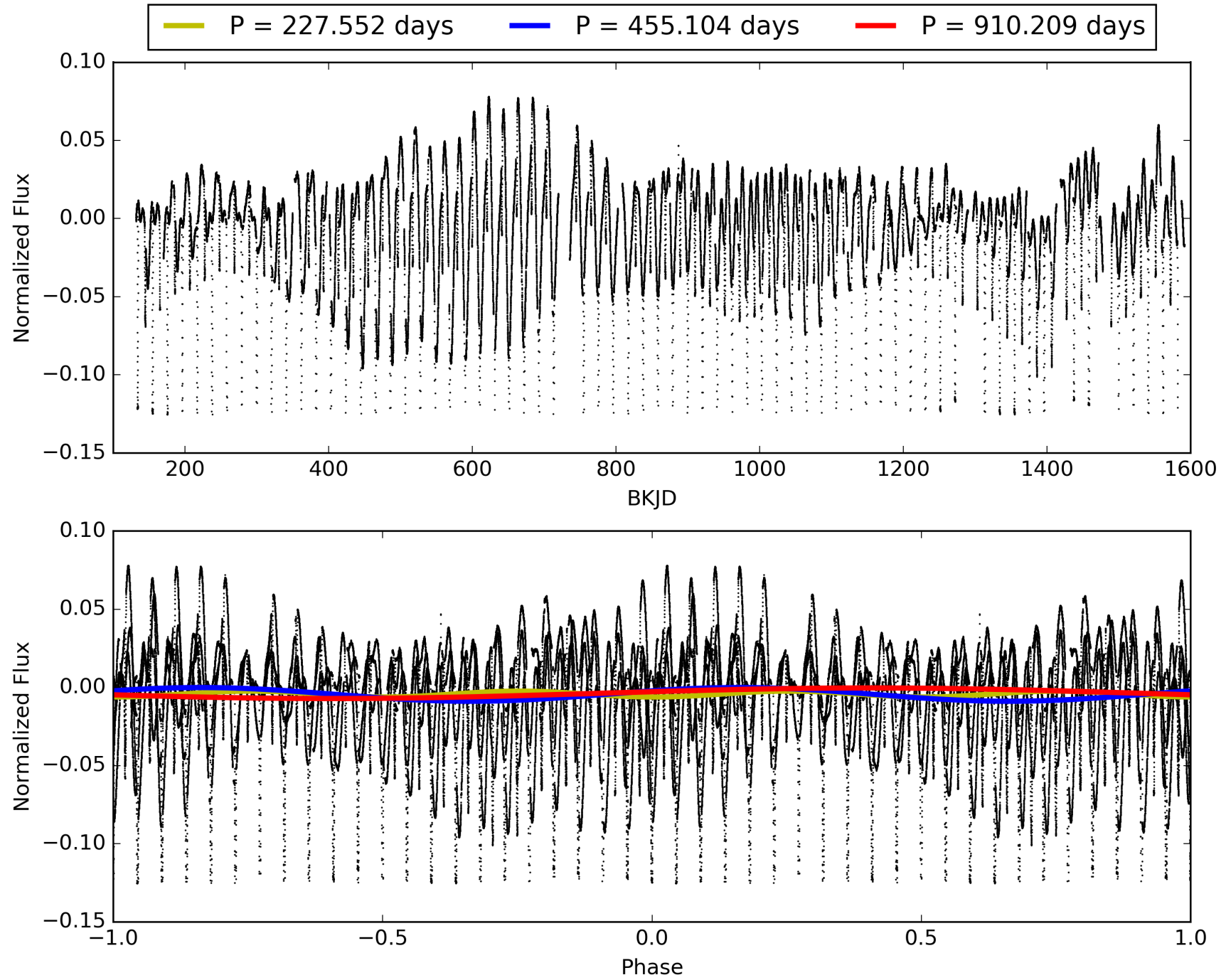
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [629.47σ]
LongPeriod-sig: 100.0% [12.87σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7272
Centroid-sig: 0.5%
Centroid-so: 0.135 arcsec [9.54σ]
OotOffset-rm: 0.055 arcsec [0.62σ]
KicOffset-rm: 0.029 arcsec [0.35σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

TCE 009291629-02, PDC Light Curves

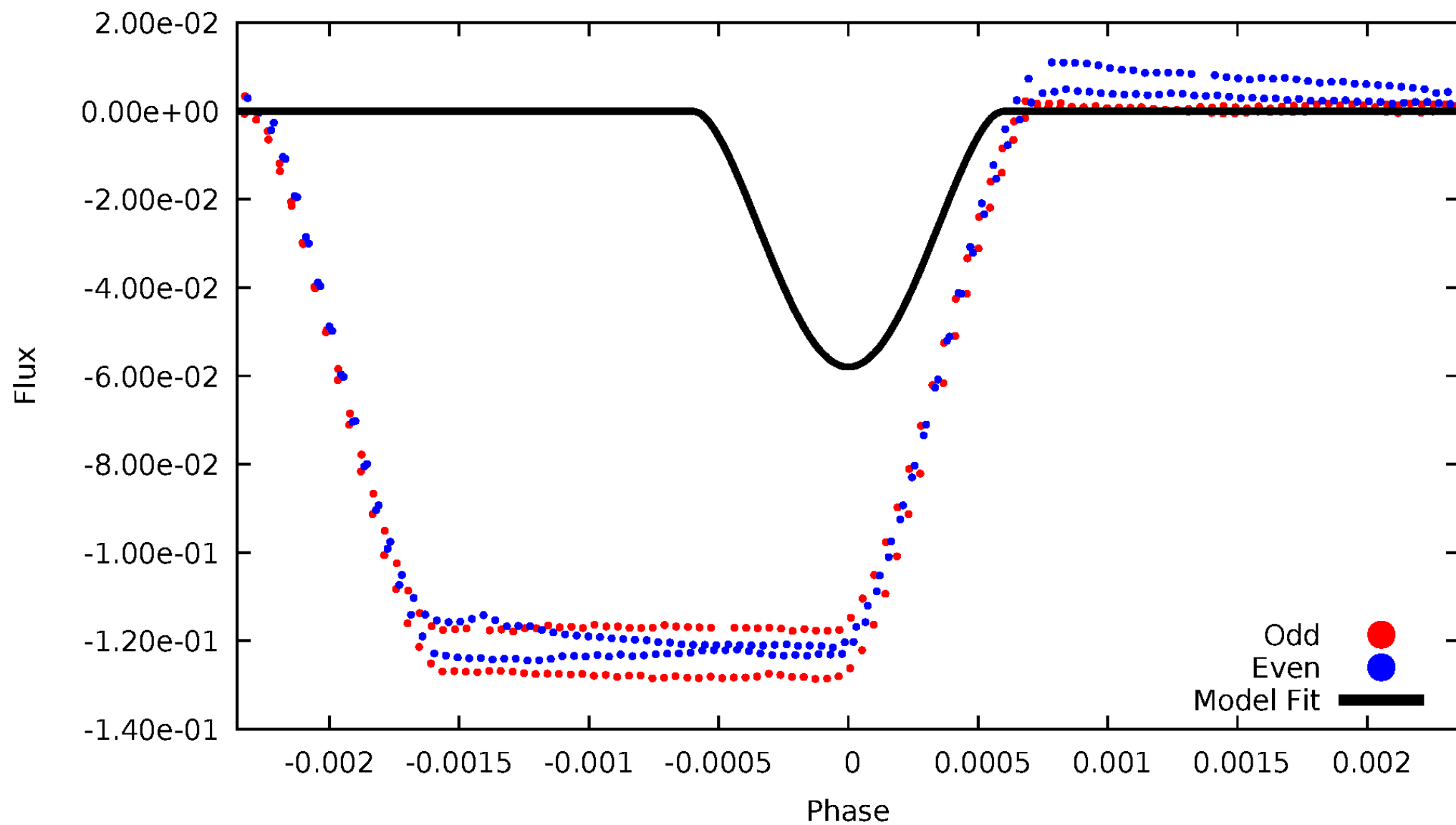


TCE 009291629-02



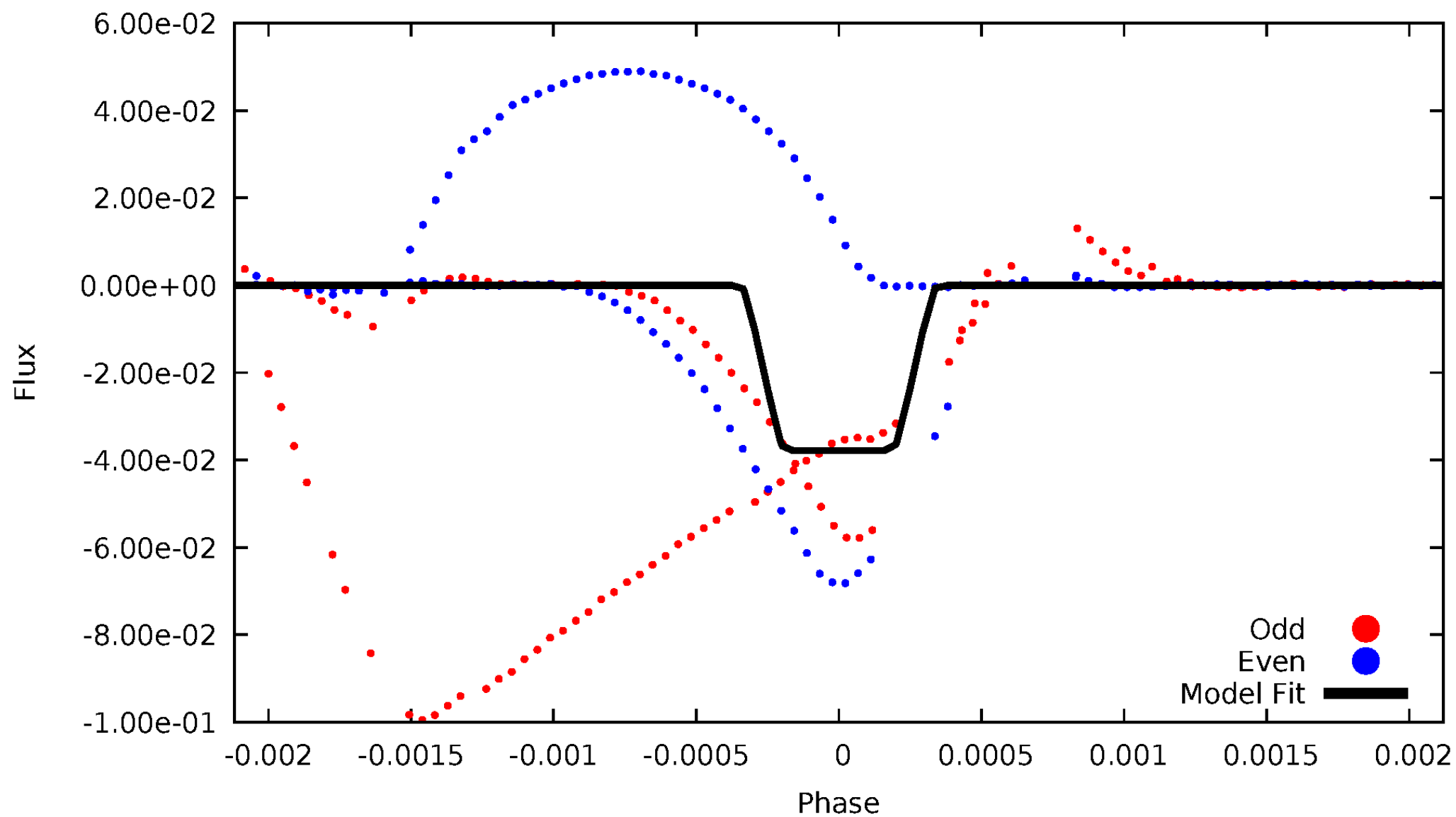
DV Odd/Even

TCE 009291629-02



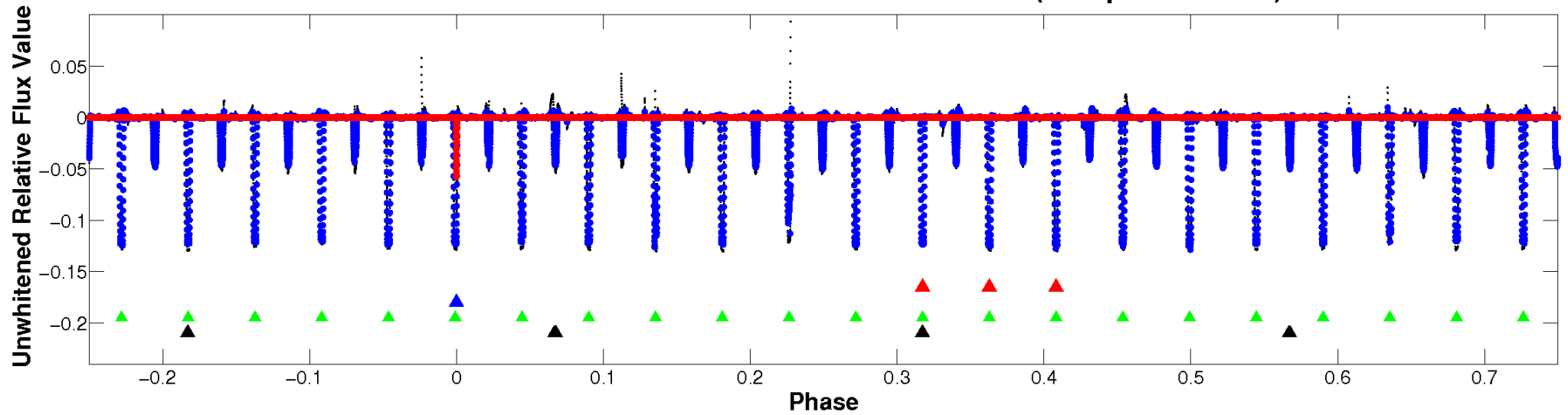
ALT Odd/Even

TCE 009291629-02

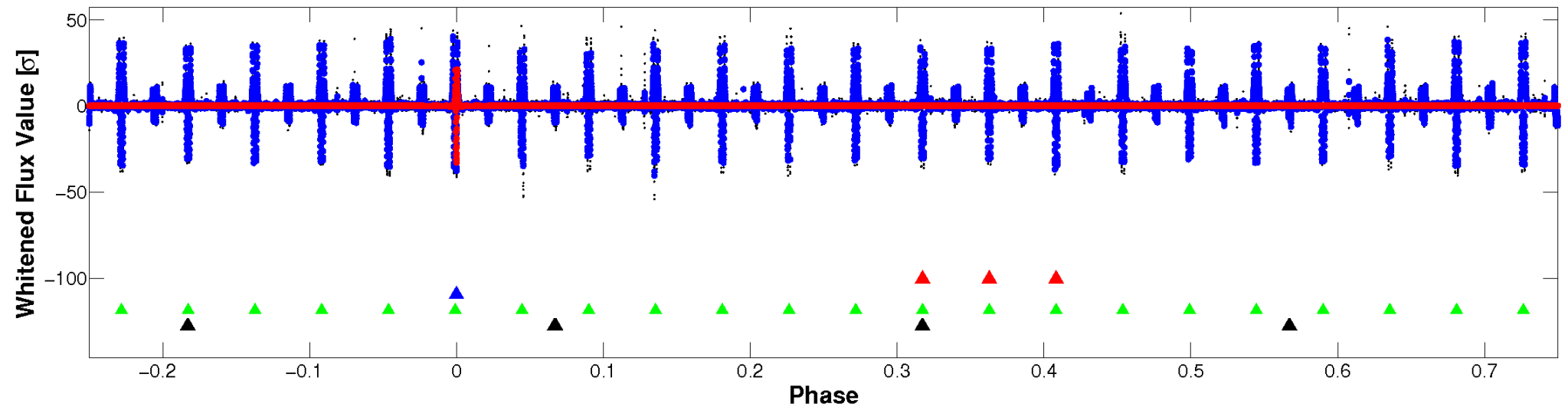


Non-Whitened Vs. Whitened Light Curve

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

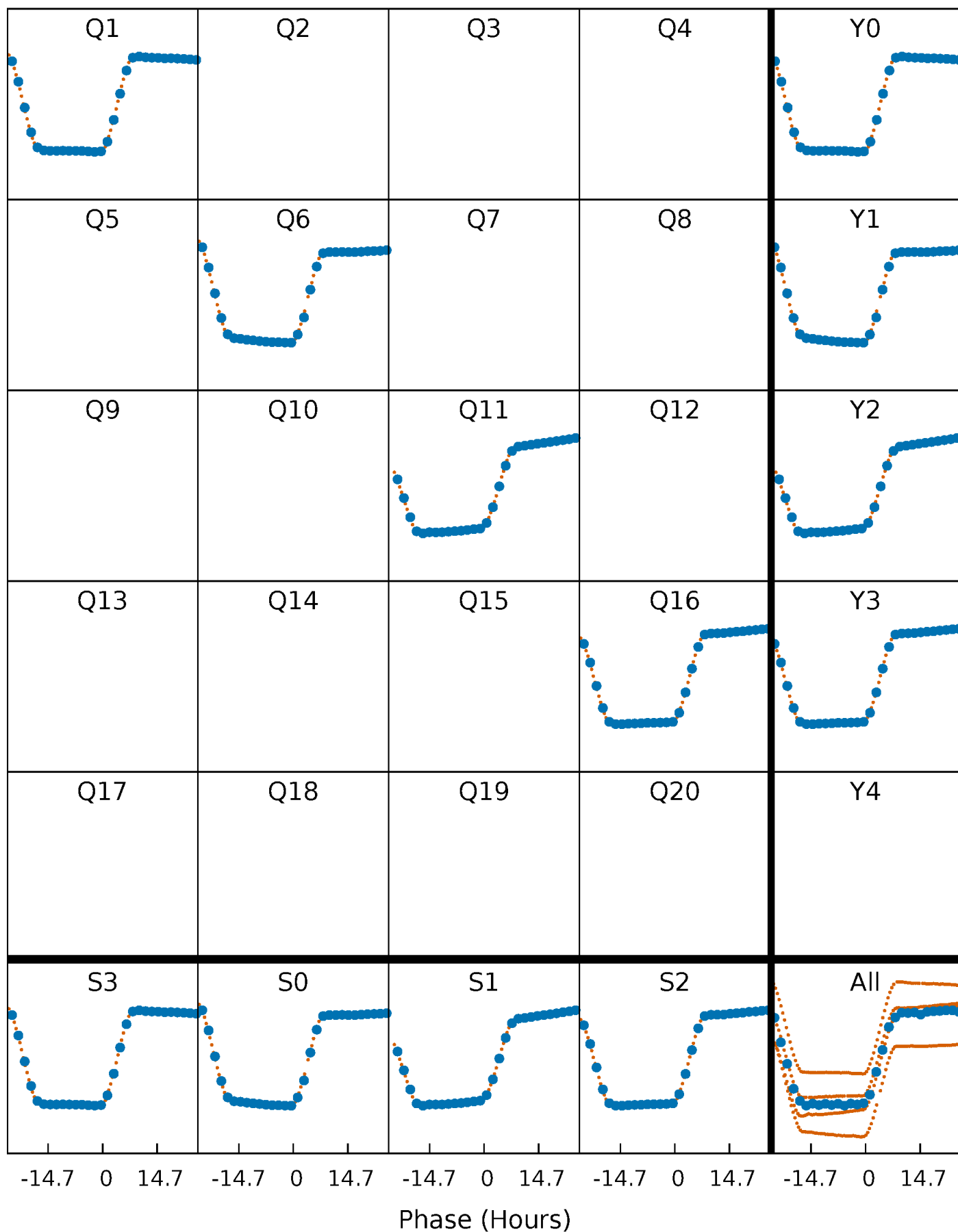


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



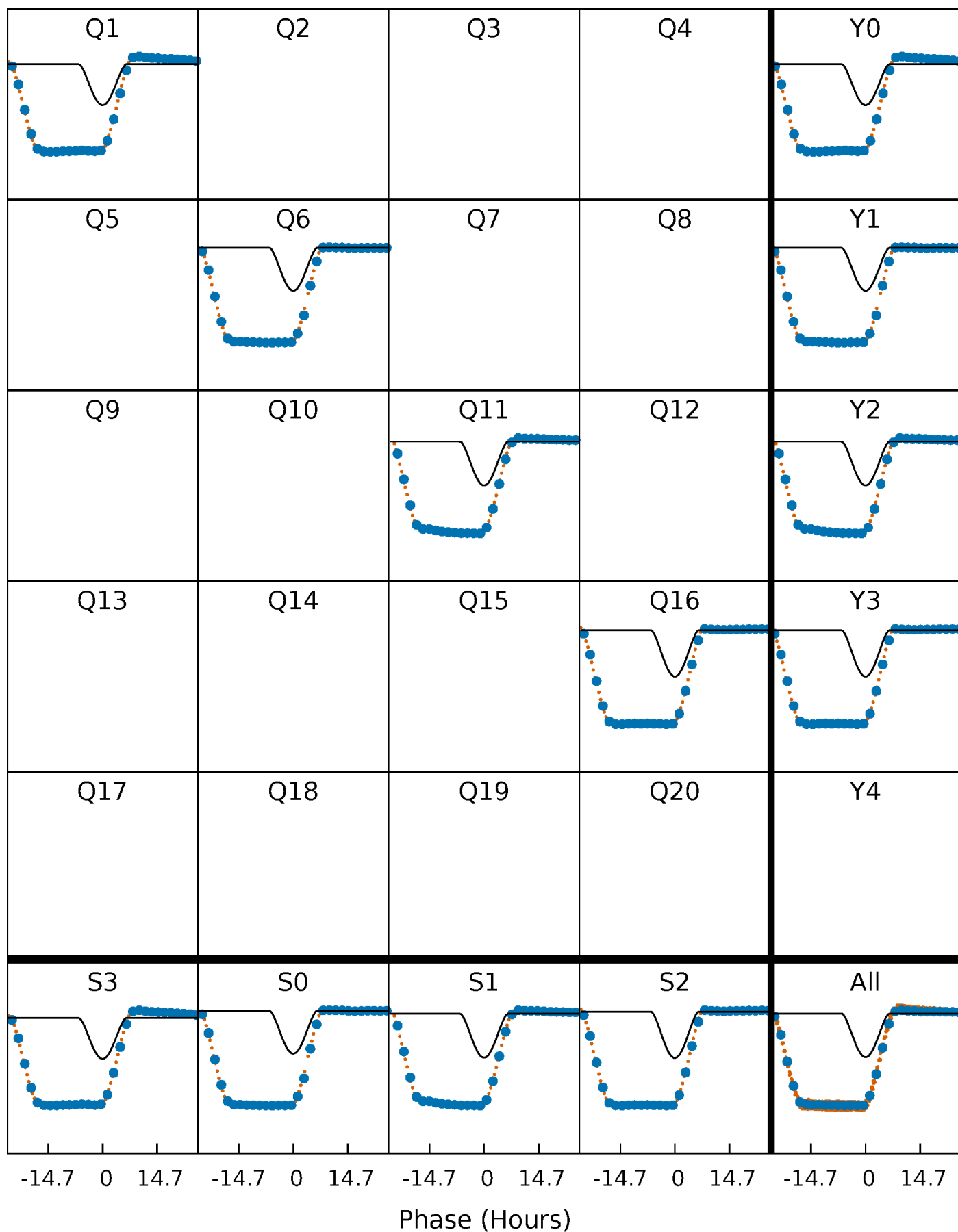
PDC Quarter-Phased Transit Curves

TCE 009291629-02 P=455.104348 Days $T_0=154.940809$ (BKJD)



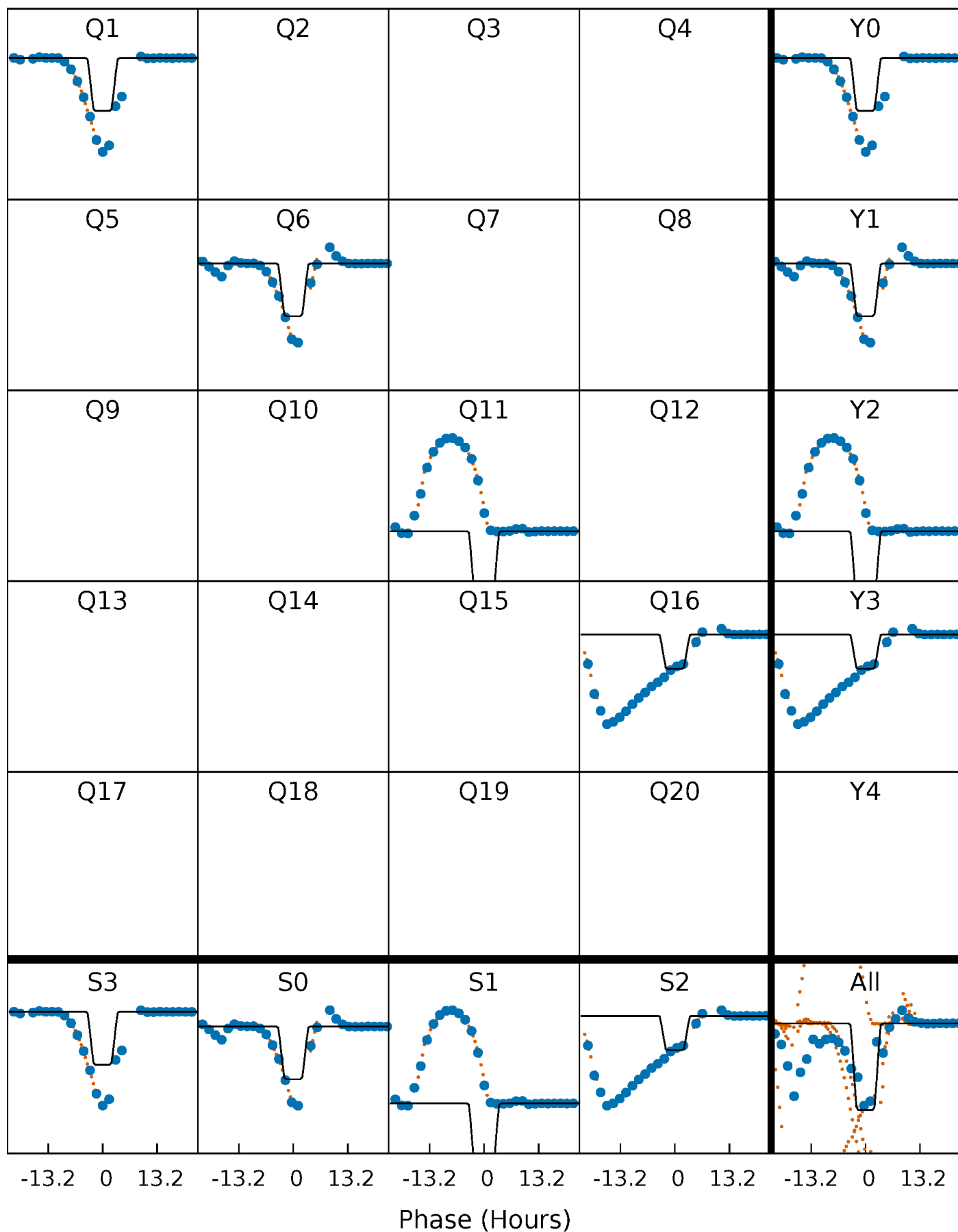
DV Quarter-Phased Transit Curves

TCE 009291629-02 P=455.104348 Days $T_0=154.940809$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

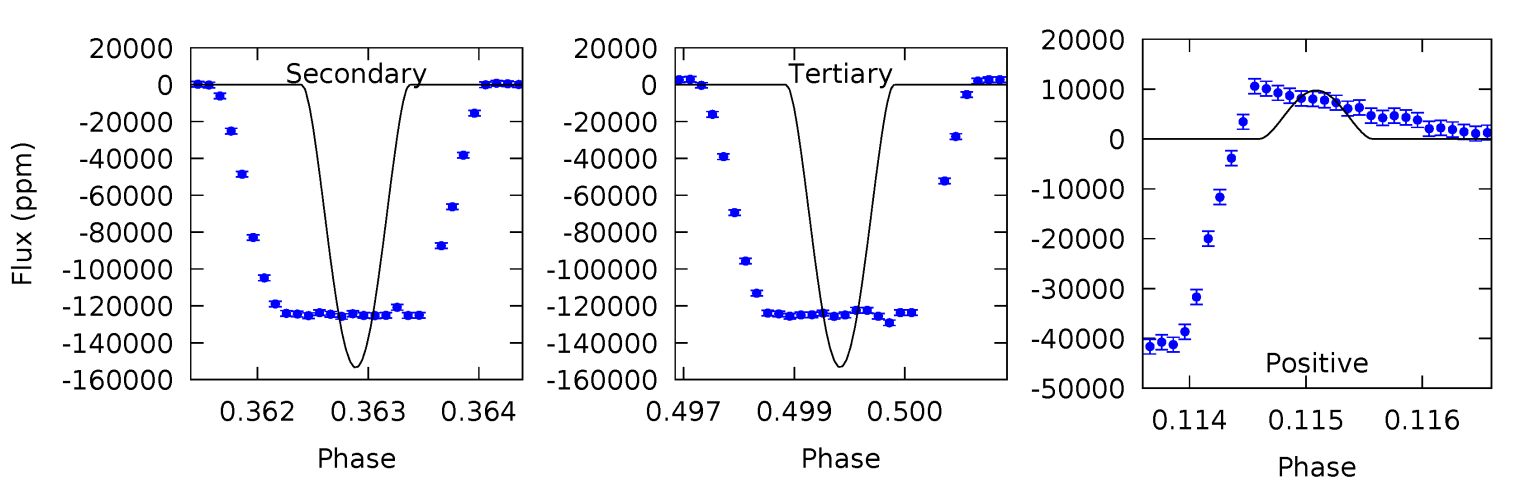
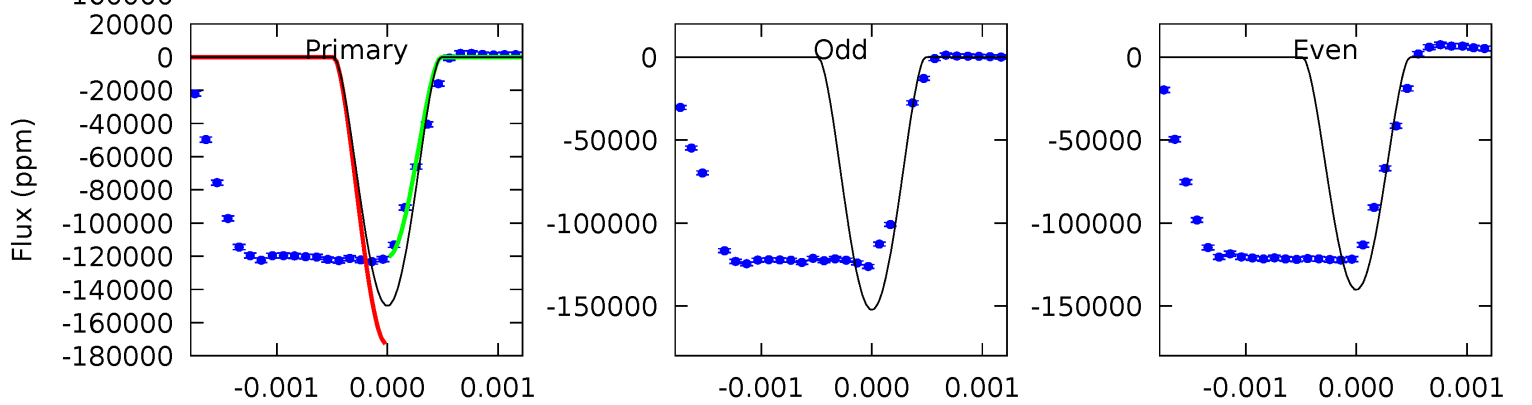
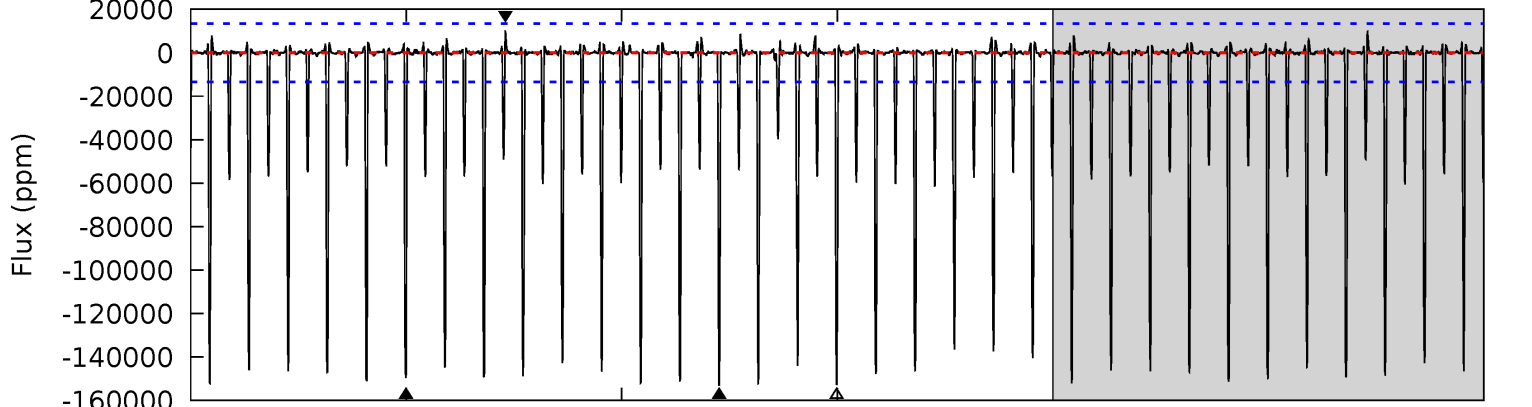
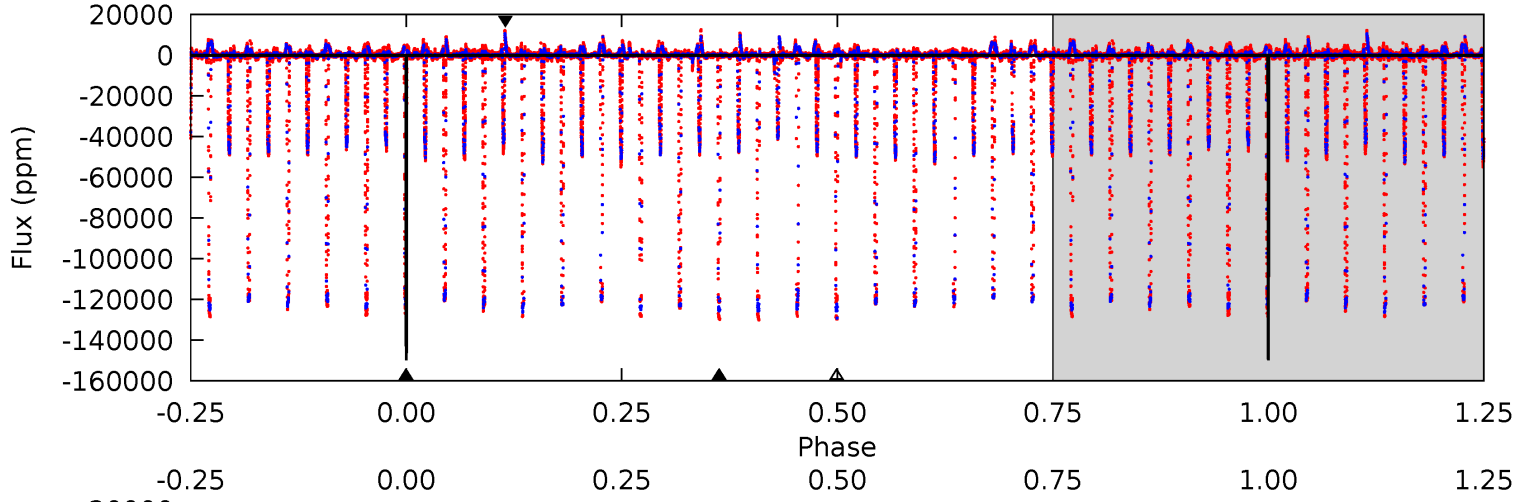
TCE 009291629-02 P=455.075815 Days $T_0=154.960362$ (BKJD)



DV Model-Shift Uniqueness Test

009291629-02, P = 455.104348 Days, E = 154.940809 Days

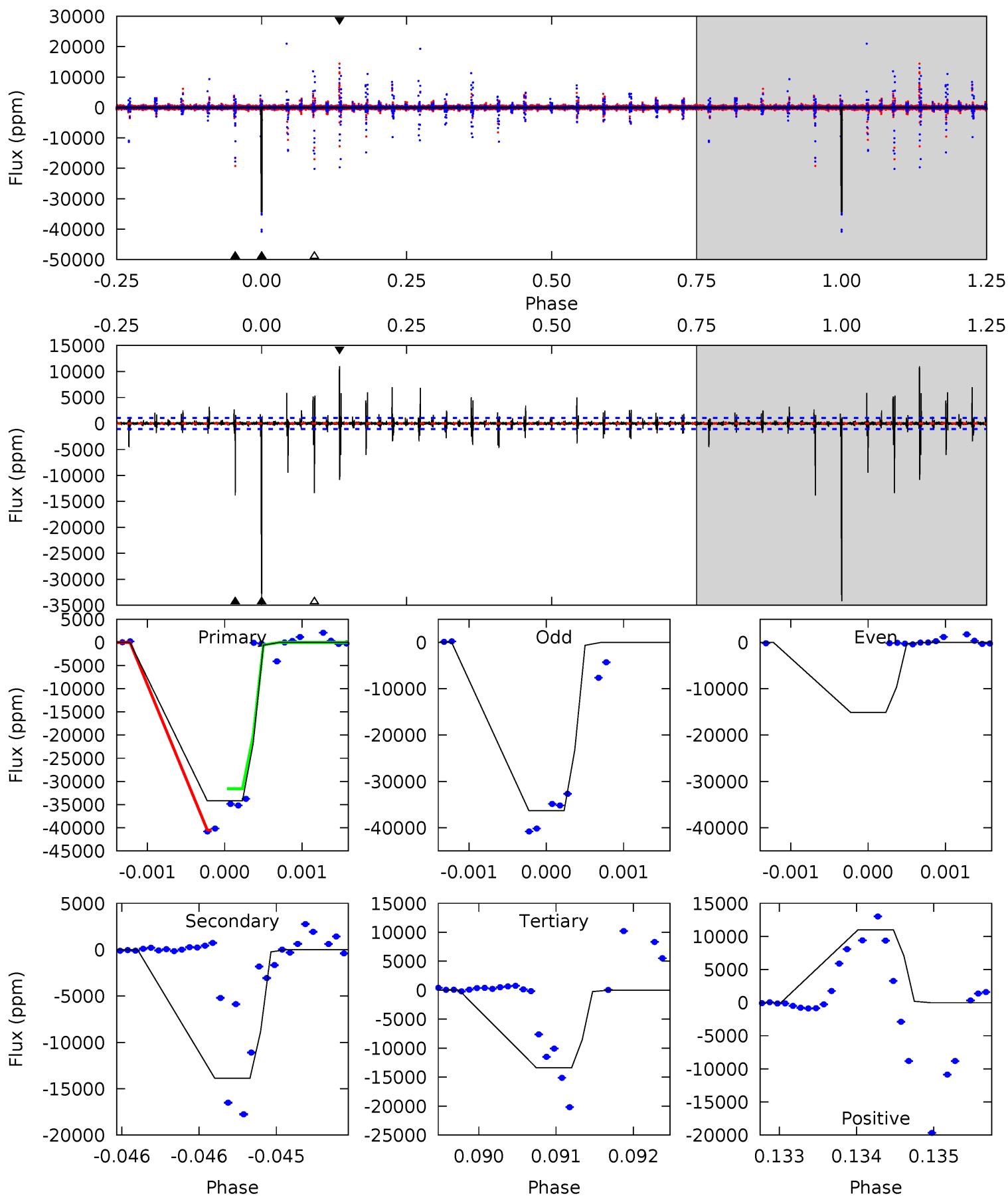
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.4	61.8	61.7	3.92	5.42	3.23	9.35	-1.32	56.4	0.10	57.9	2.08	1.00	0.06	0



Alt Model-Shift Uniqueness Test

009291629-02, P = 455.075815 Days, E = 154.960362 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
176.4	71.6	69.0	56.8	5.52	3.40	1.78	107.4	119.6	2.52	14.7	39.9	0.77	0.24	0



Stellar Parameters For KIC 009291629

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4809^{+120}_{-108}	$3.106^{+0.385}_{-0.315}$	$0.080^{+0.250}_{-0.200}$	$5.145^{+2.418}_{-1.978}$	$1.232^{+0.249}_{-0.249}$	$0.013^{+0.039}_{-0.009}$
	+2%/-2%	+12%/-10%	+312%/-250%	+47%/-38%	+20%/-20%	+308%/-71%
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 009291629-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-153062 ± 2477	$372.31^{+381.72}_{-242.17}$	604^{+73}_{-66}	3998^{+2280}_{-745}	1108^{+7918}_{-844}
Alt.	-13862 ± 194	$317.96^{+347.74}_{-230.81}$	601^{+76}_{-68}	2846^{+1485}_{-459}	115^{+1466}_{-88}

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

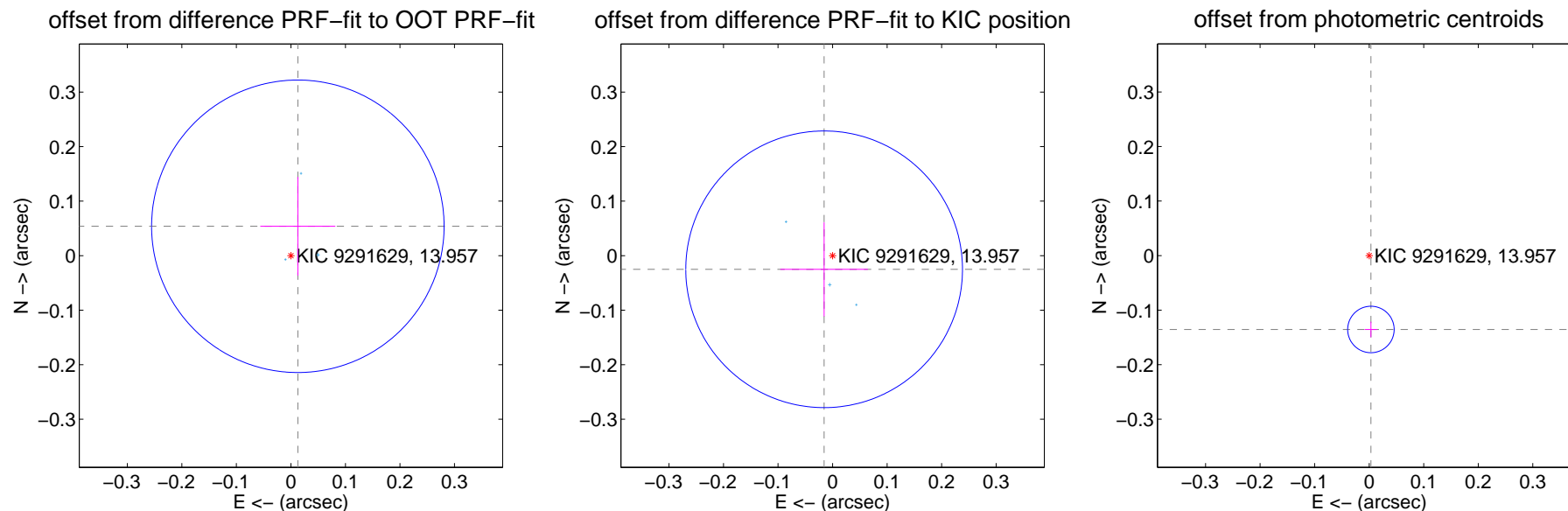
DV Centroid Data

Supplemental centroid analysis for 009291629-02. Kepler magnitude: 13.96. Transit SNR 206.40

There are 3 quarters with good PRF difference image offsets

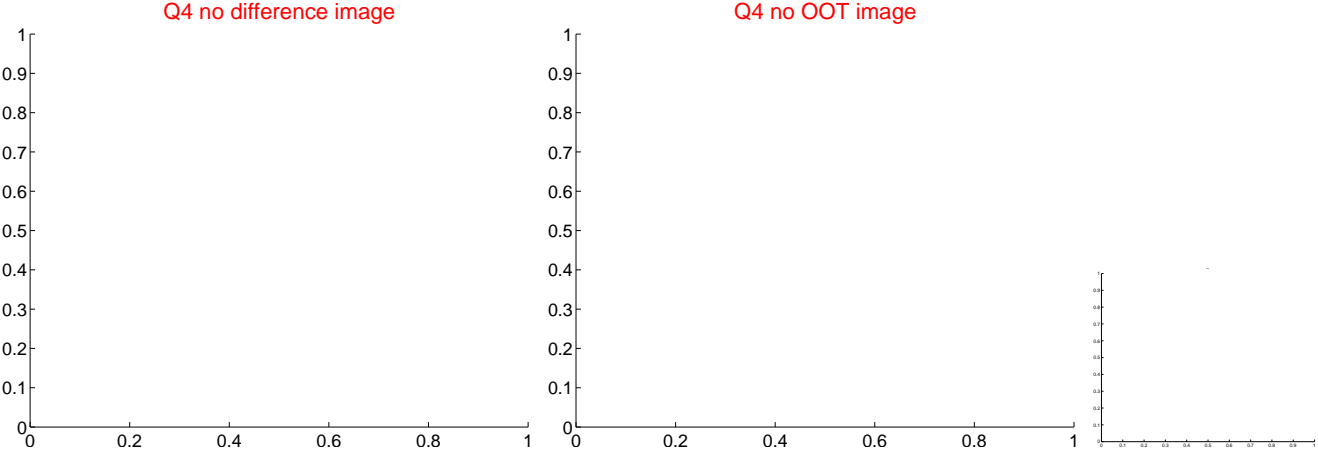
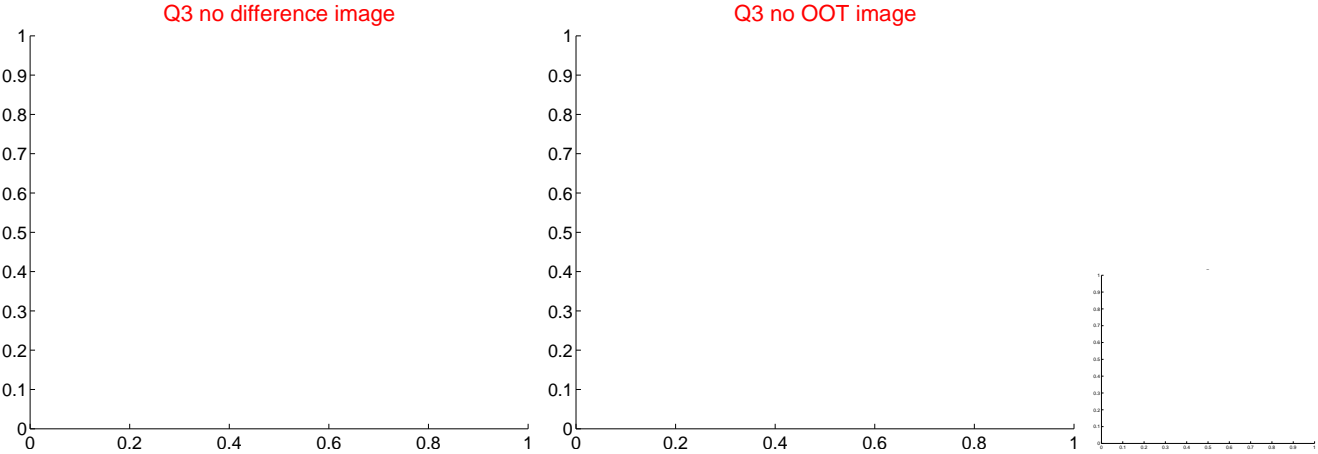
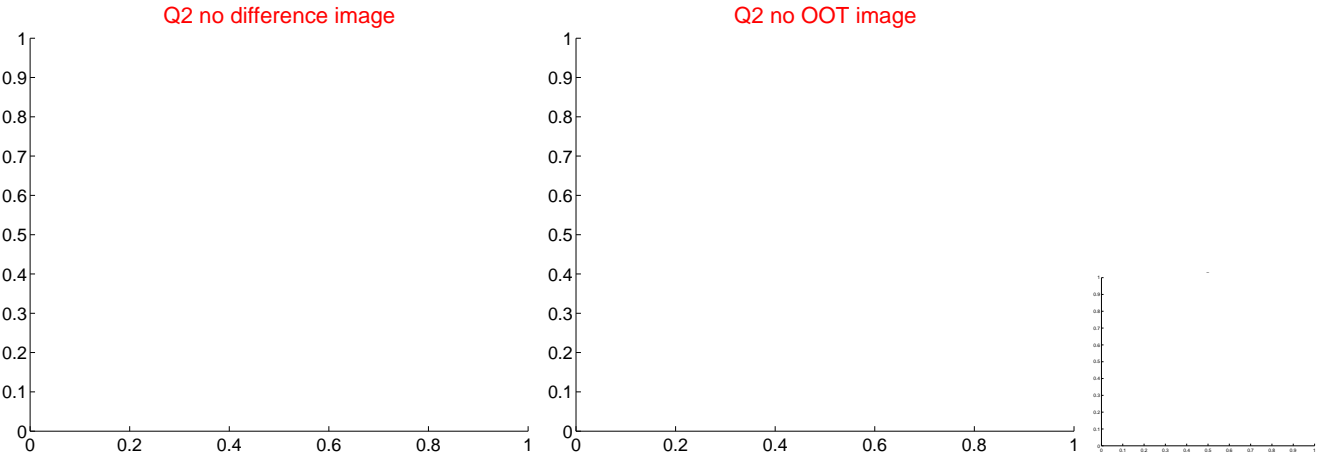
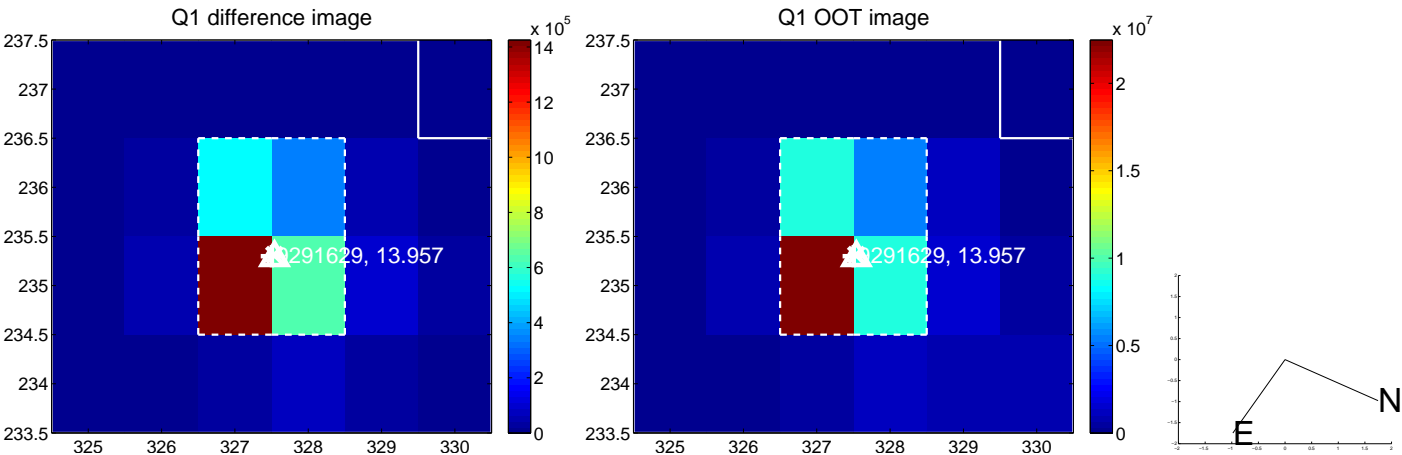
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.089	0.62	-0.013 ± 0.069	0.054 ± 0.090
PRF-fit source offset from KIC position	0.029 ± 0.085	0.35	0.015 ± 0.080	-0.025 ± 0.086
photometric centroid source offset	0.14 ± 0.01	9.54	-0.00 ± 0.01	-0.14 ± 0.01

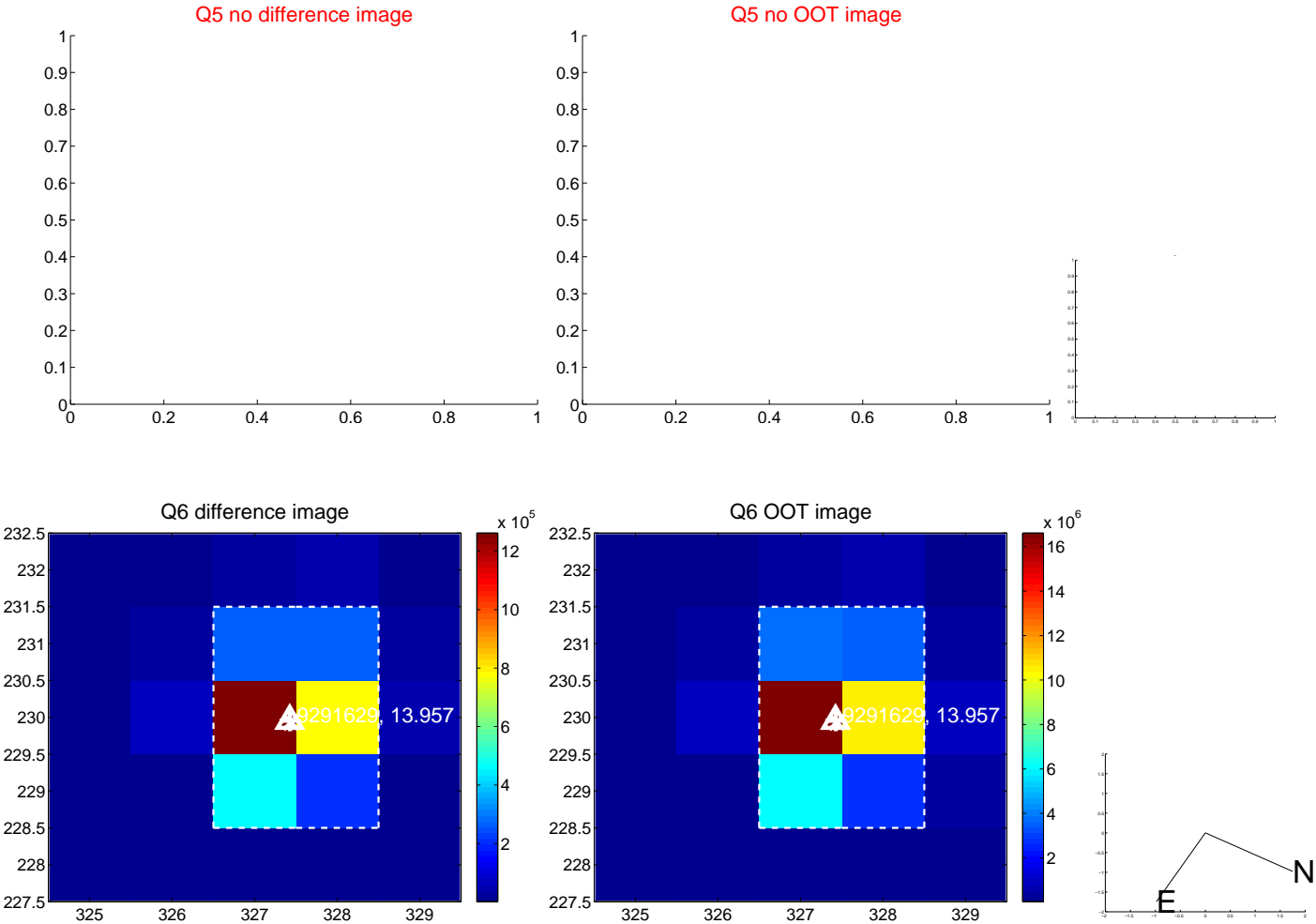


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

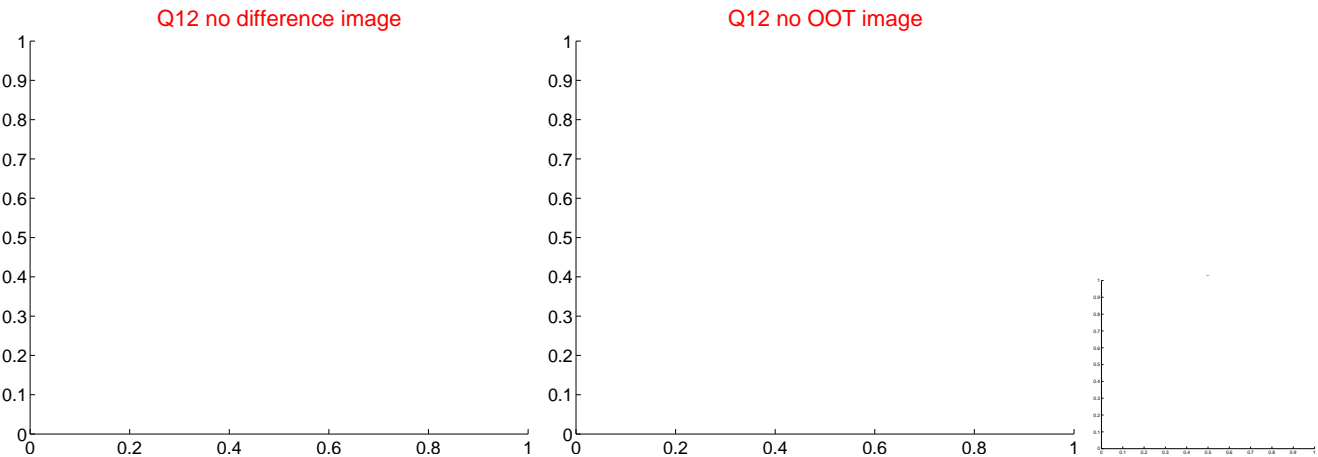
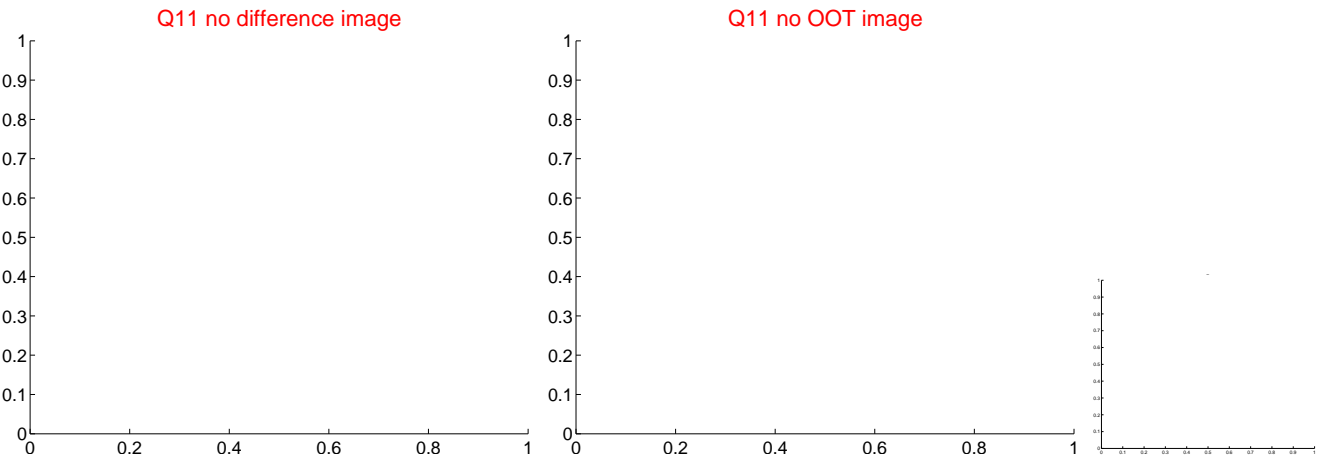
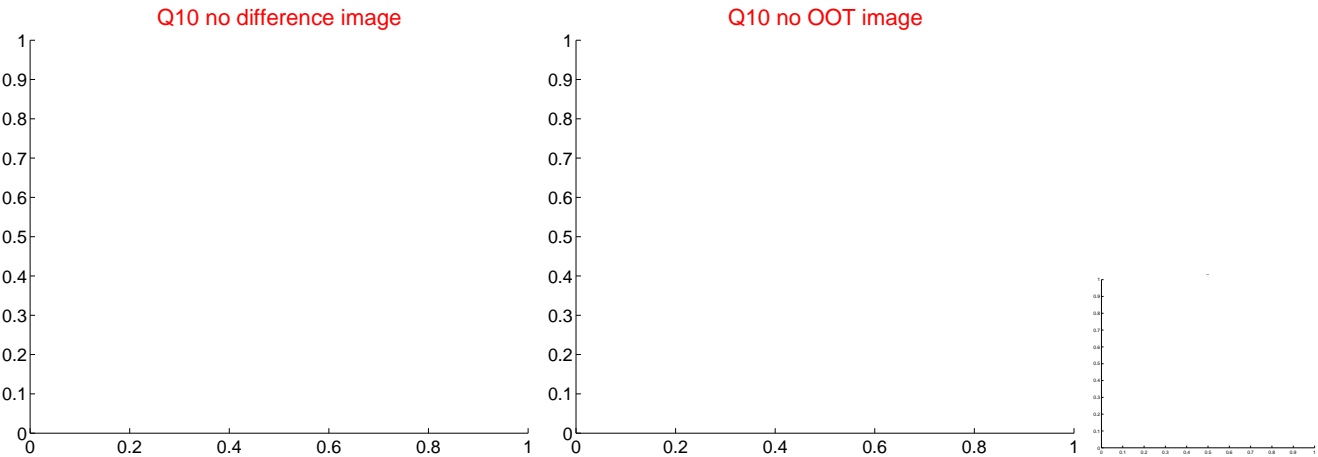
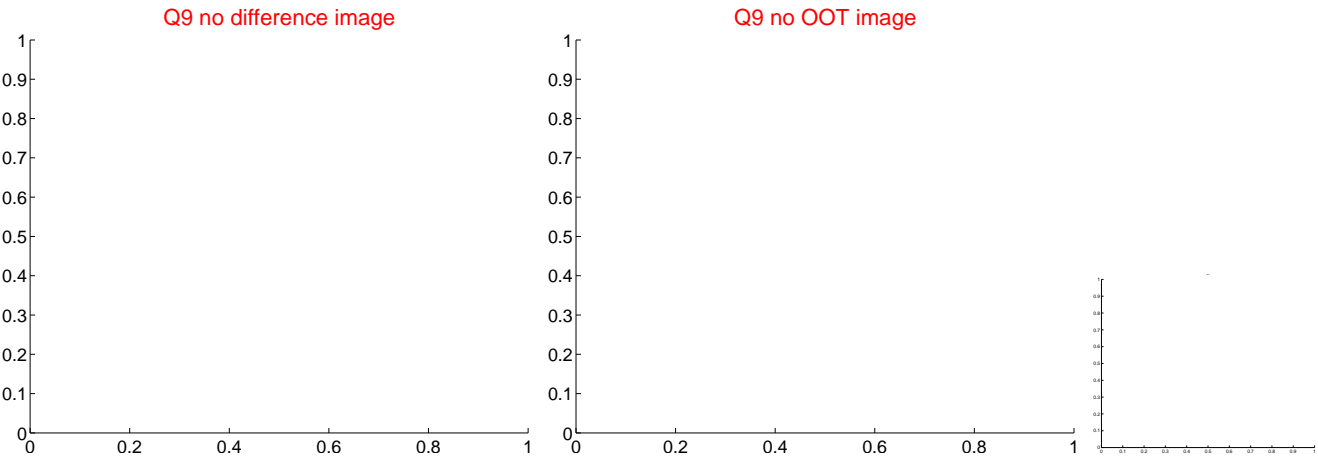
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



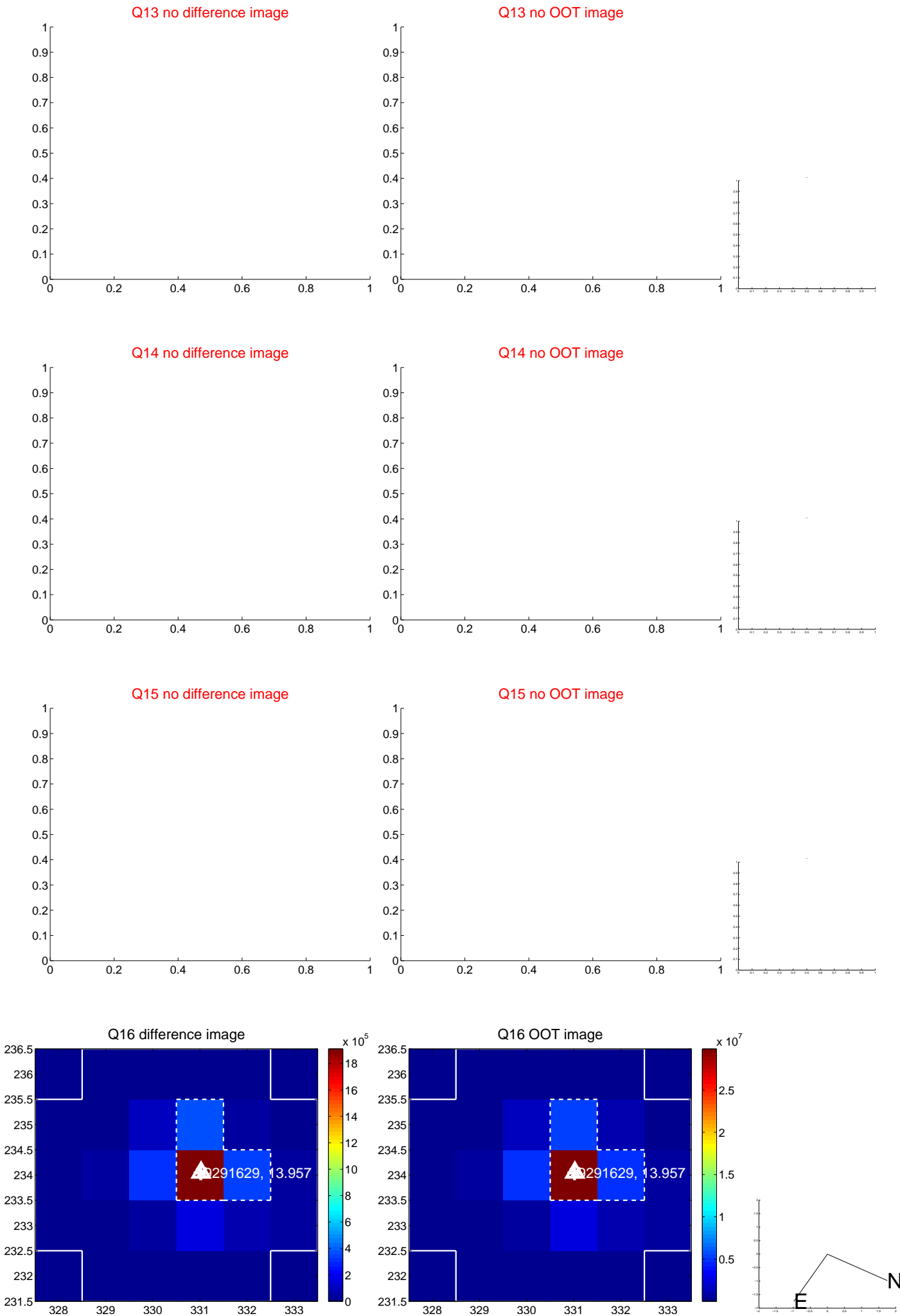
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



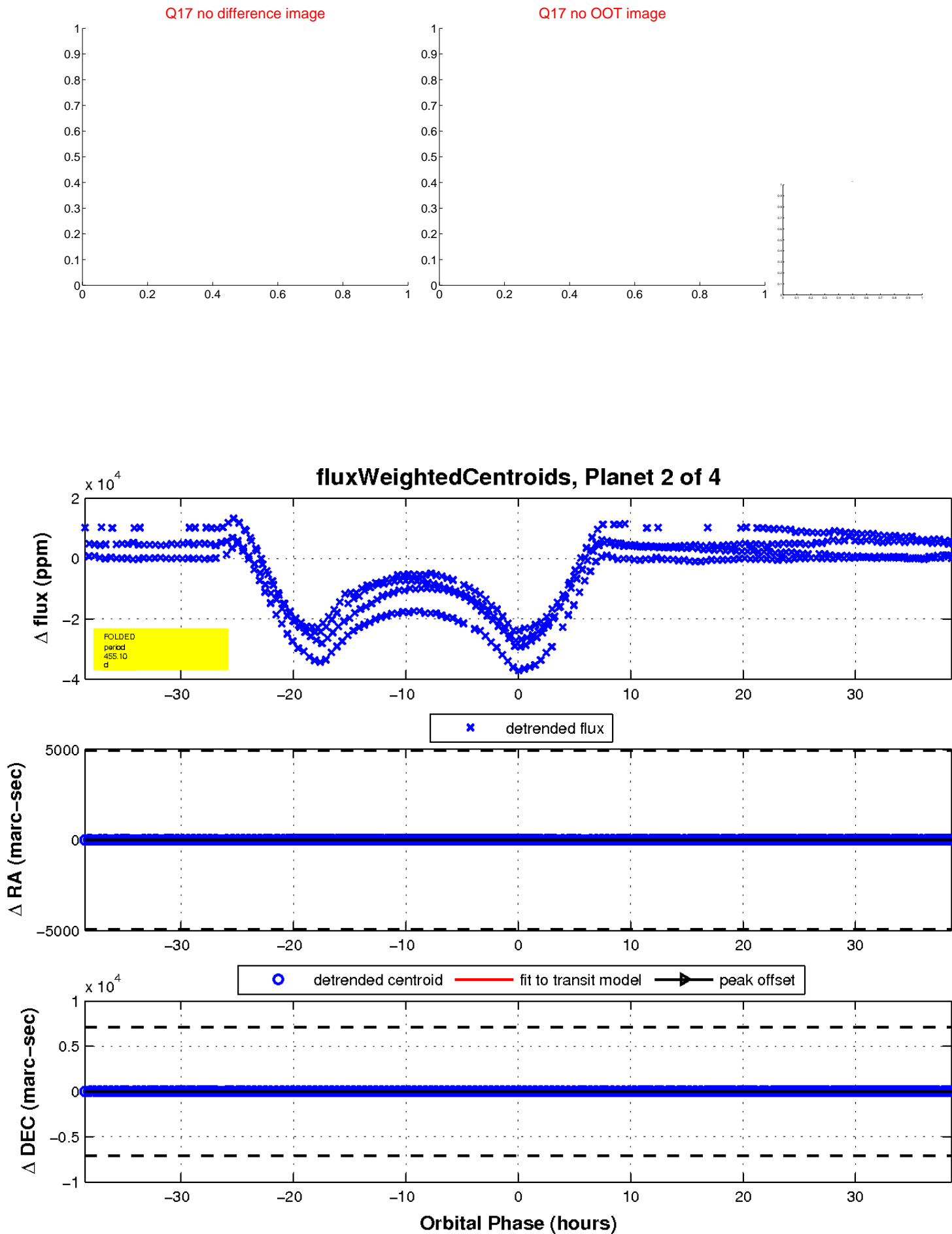
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

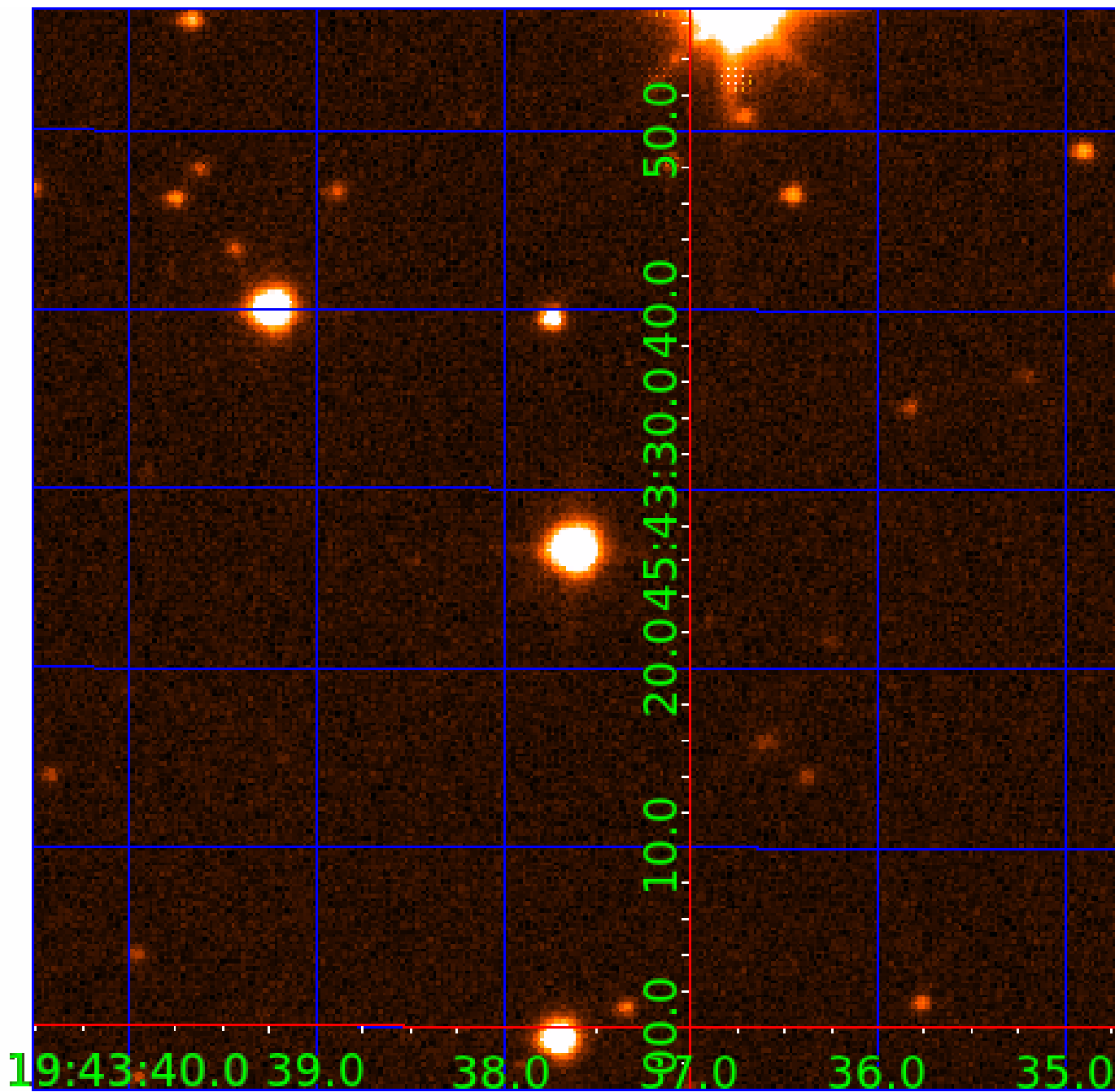


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291629

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})
009291629-01	OBS	No	475.787842	299.380175	132871.7	36.364	794.7	132.2	5.14	4809	181.67	7.75
009291629-02	OBS	No	455.104348	154.940808	57961.8	12.861	585.2	206.4	5.14	4809	216.76	8.23
009291629-03	OBS	6198.01	20.686575	133.883909	113190.9	35.165	541.3	381.9	5.14	4809	167.46	507.13
009291629-04	OBS	No	113.729496	185.788290	24056.0	2.000	186.1	-1.0	5.14	4809	77.21	52.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291629-01	OBS	FP	0.00	1	0	0	0	MOD_TER_DV
009291629-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA_TRACKER—LPP_DV—MOD_TER_DV—INCONSISTENT_TRANS
009291629-03	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD
009291629-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

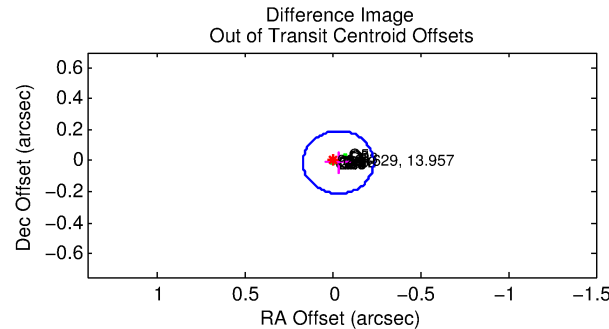
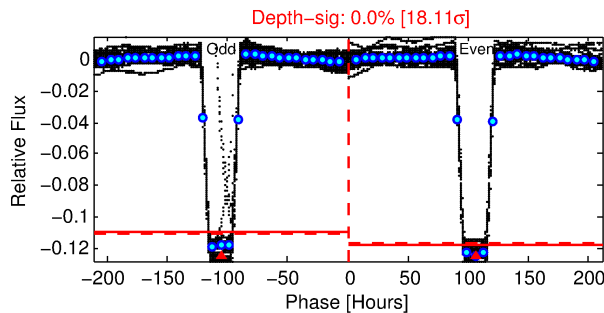
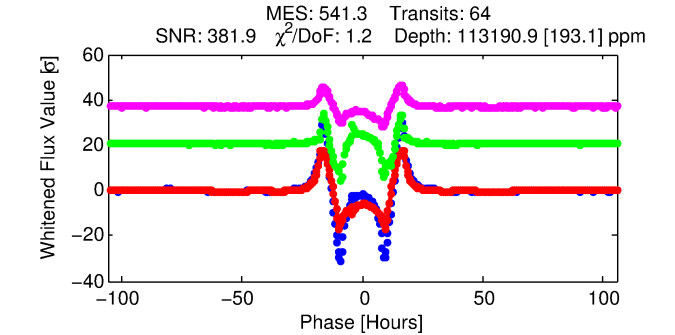
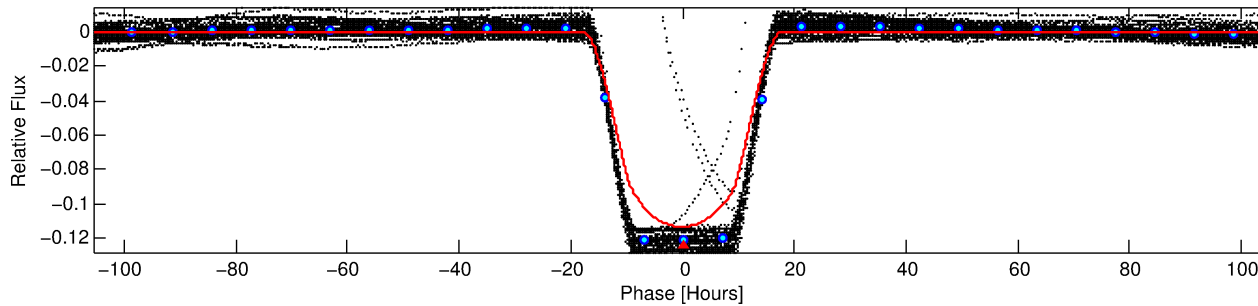
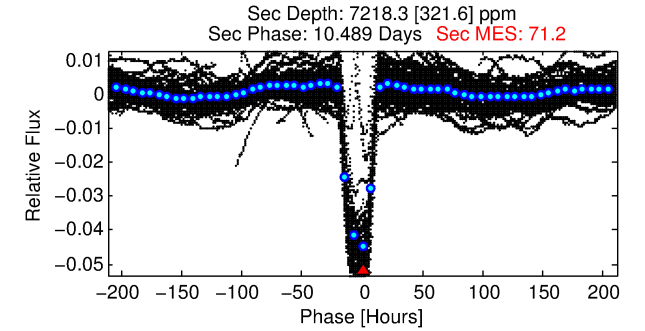
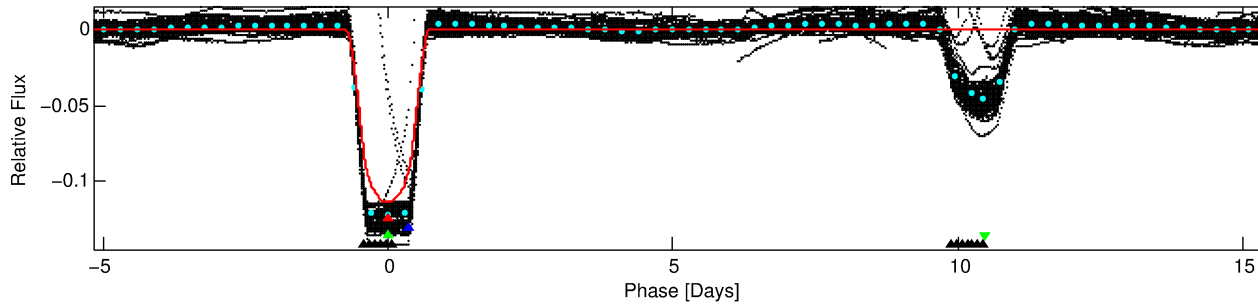
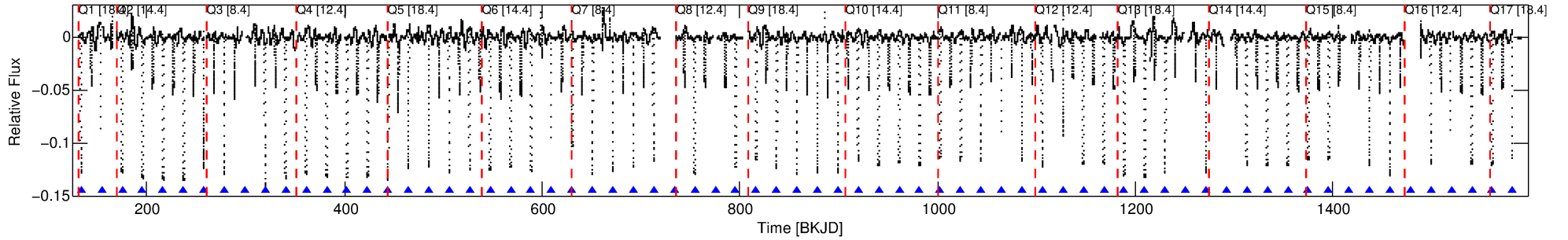
Ephemeris Match Information For 009291629-03

No Significant Match Found

DV One-Page Summary

KIC: 9291629 Candidate: 3 of 4 Period: 20.687 d
KOI: K06198.01 Corr: 0.966

Kp: 13.96 R*: 5.14 Rs Teff: 4809.0 K Logg: 3.11 Fe/H: 0.080



DV Fit Results:

Period = 20.68658 [0.00001] d
Epoch = 133.8839 [0.0004] BKJD
Rp/R* = 0.2983 [0.0003]
a/R* = 5.88 [0.00]
b = 0.01 [0.07]
Seff = 507.13 [342.98]
Teq = 1210 [205] K
Rp = 167.46 [78.70] Re
a = 0.1582 [0.0681] AU
Ag = 3.54 [2.37] [1.07σ]
Teffp = 2567 [70] K [6.27σ]

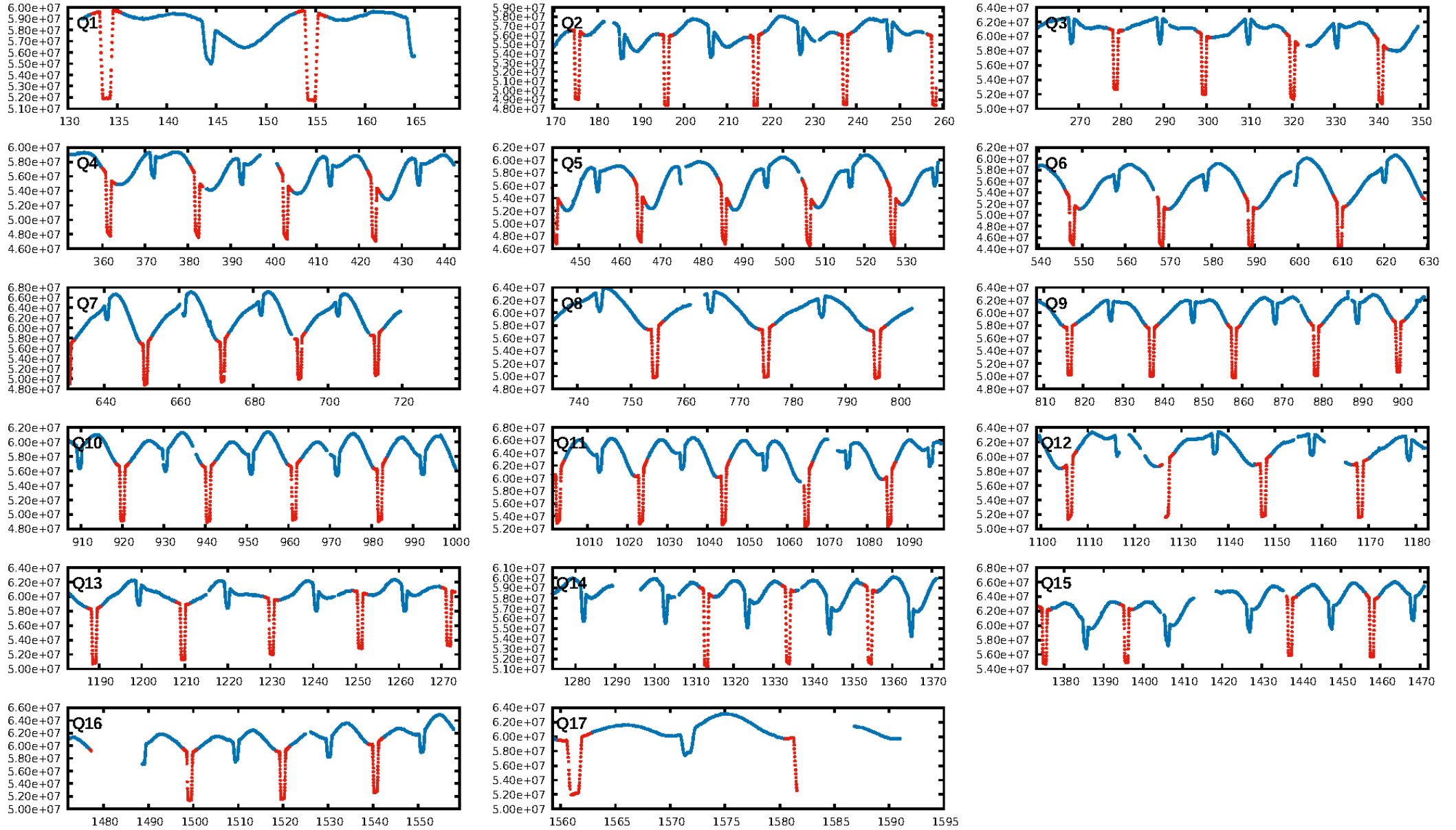
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [63.40σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [60/60]
GhostDiagnostic-chr: 1.038
Centroid-sig: 0.0%
Centroid-so: 0.194 arcsec [84.11σ]
OotOffset-rm: 0.033 arcsec [0.49σ]
KicOffset-rm: 0.106 arcsec [1.58σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.94 [15/16]

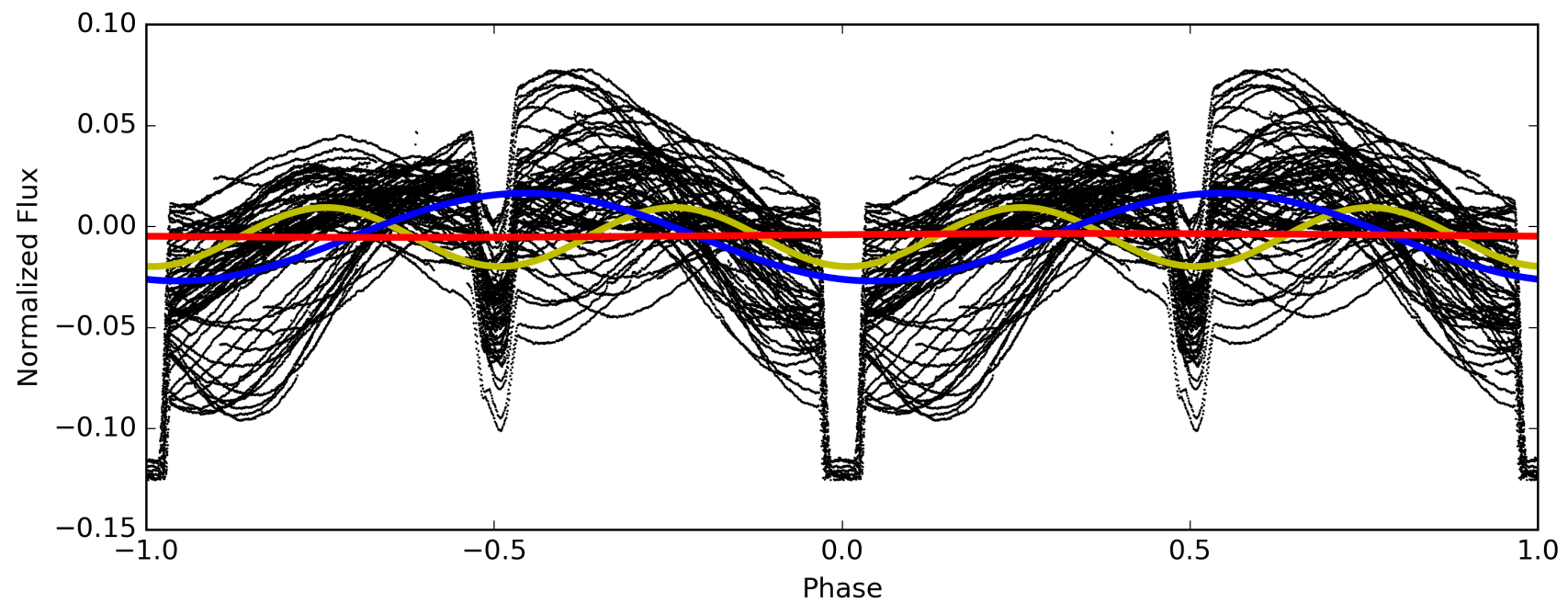
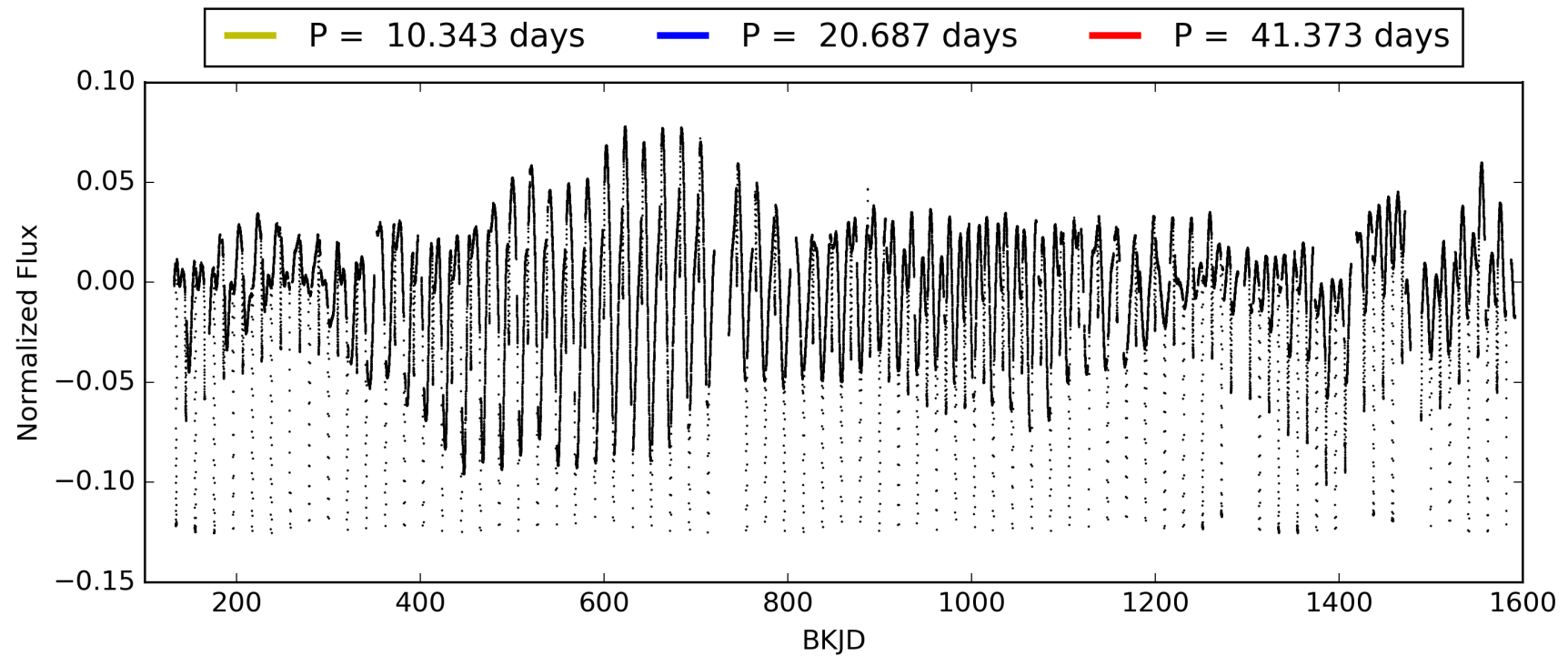
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:08:48 Z

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

TCE 009291629-03, PDC Light Curves

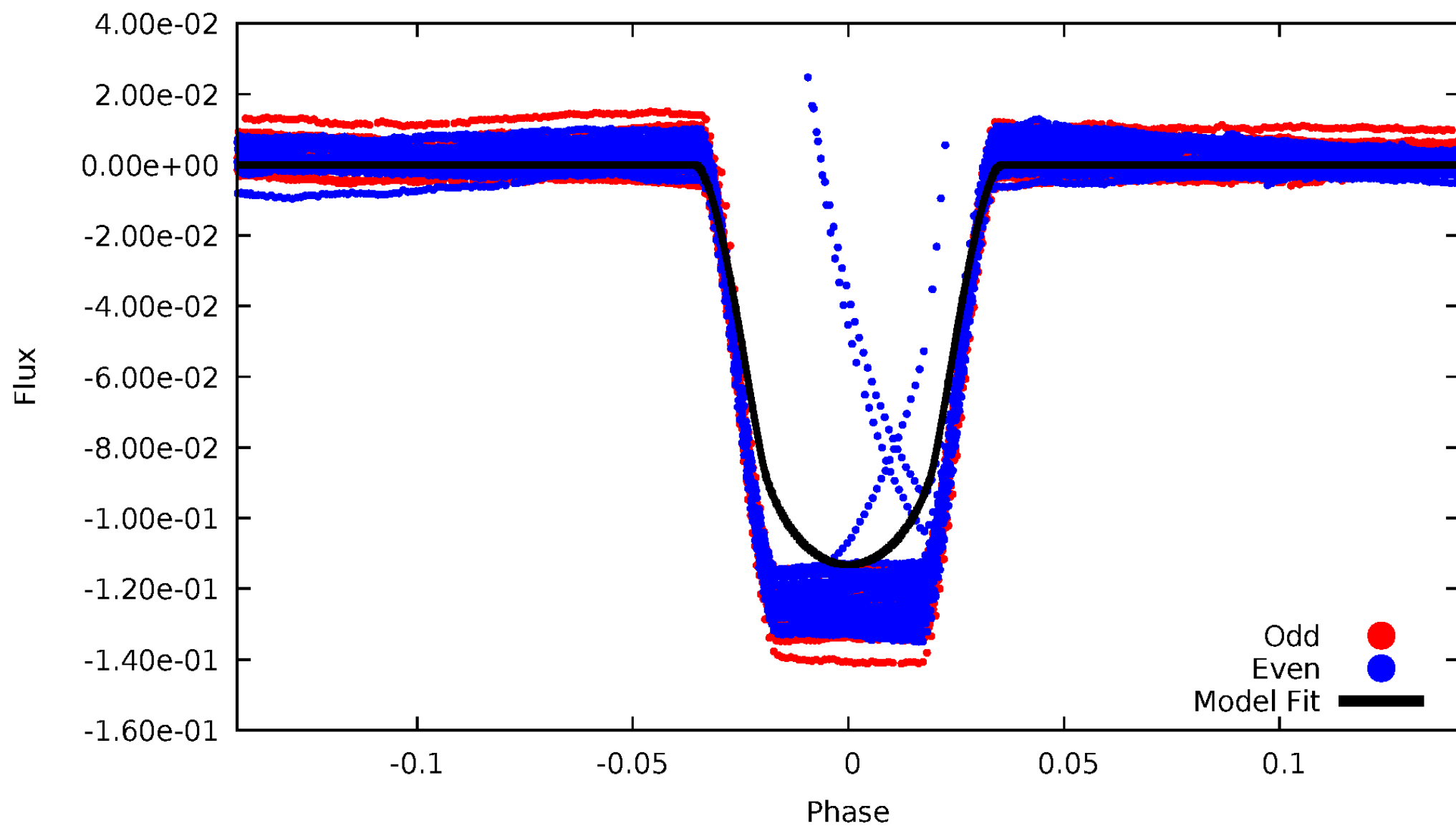


TCE 009291629-03



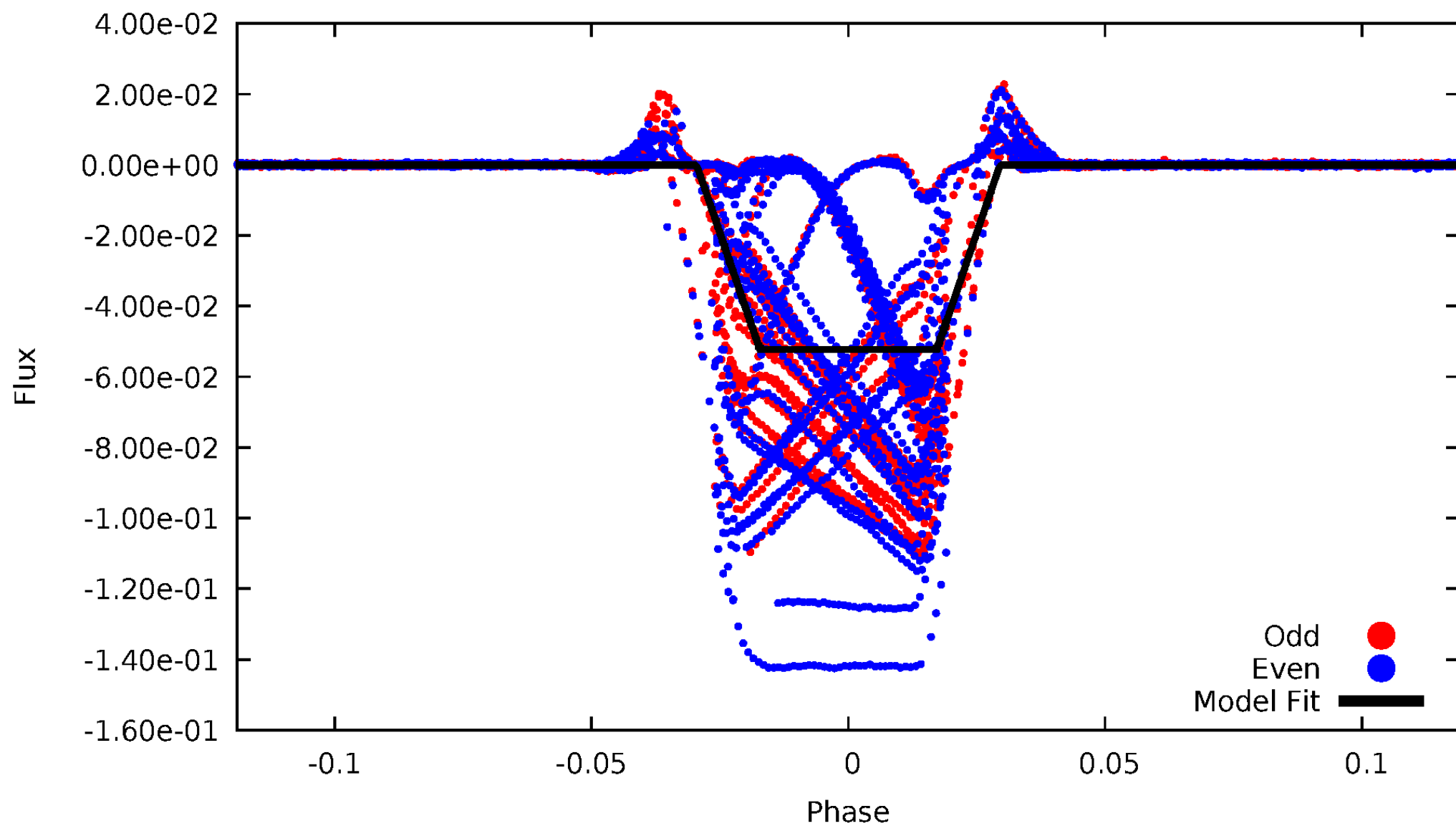
DV Odd/Even

TCE 009291629-03



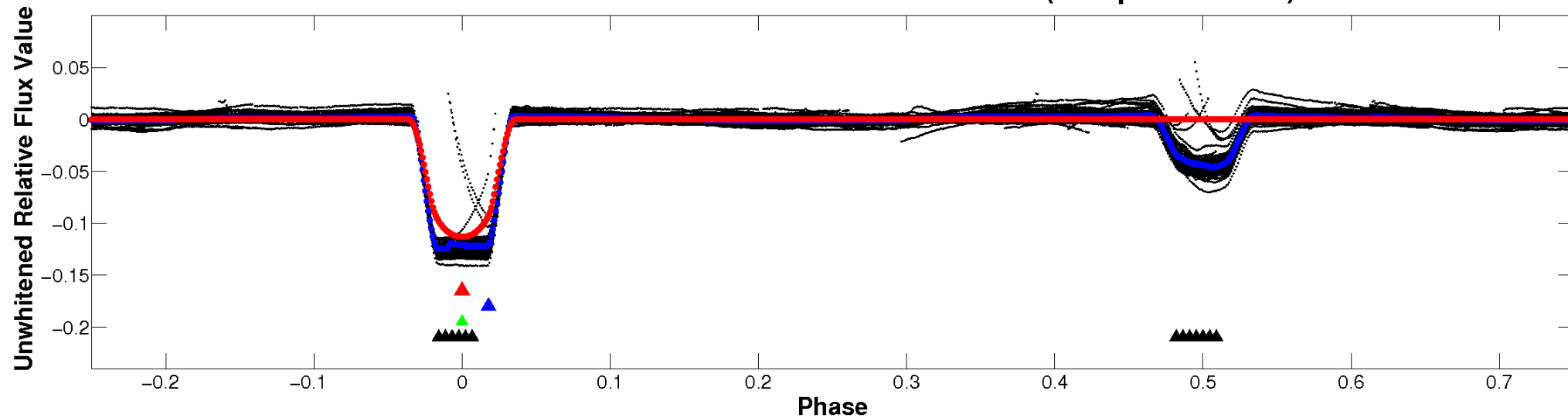
ALT Odd/Even

TCE 009291629-03

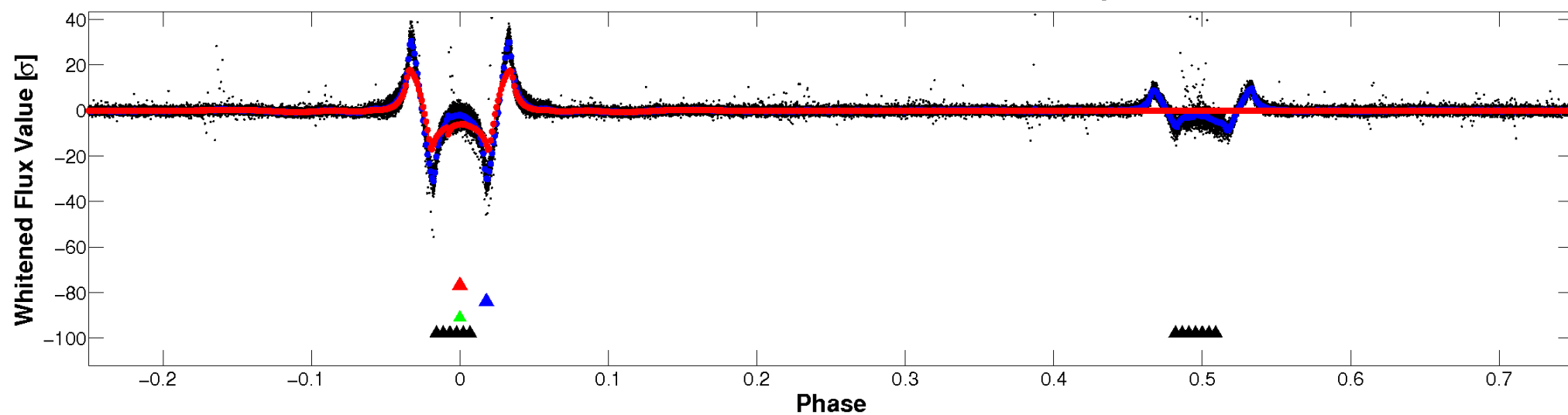


Non-Whitened Vs. Whitened Light Curve

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

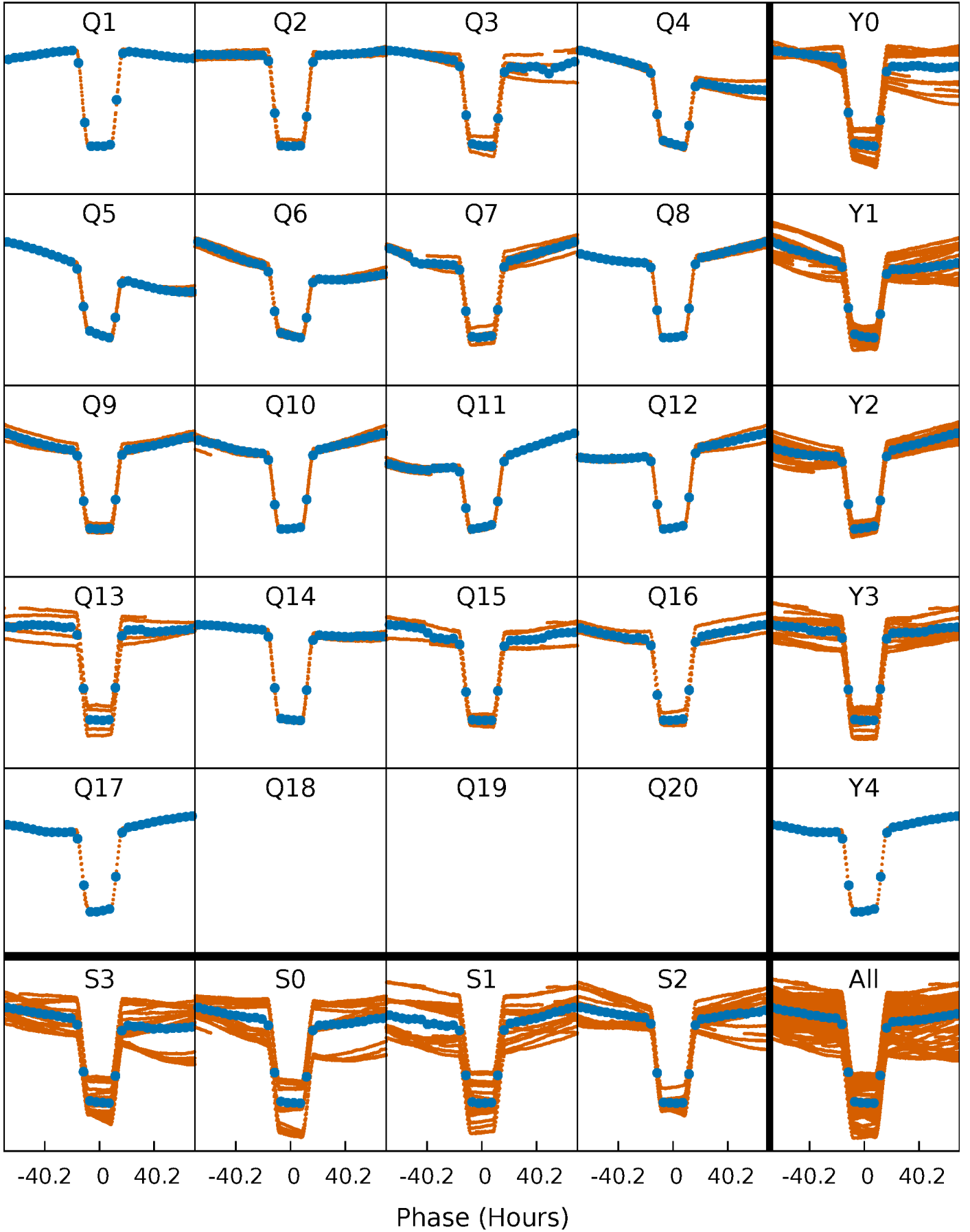


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



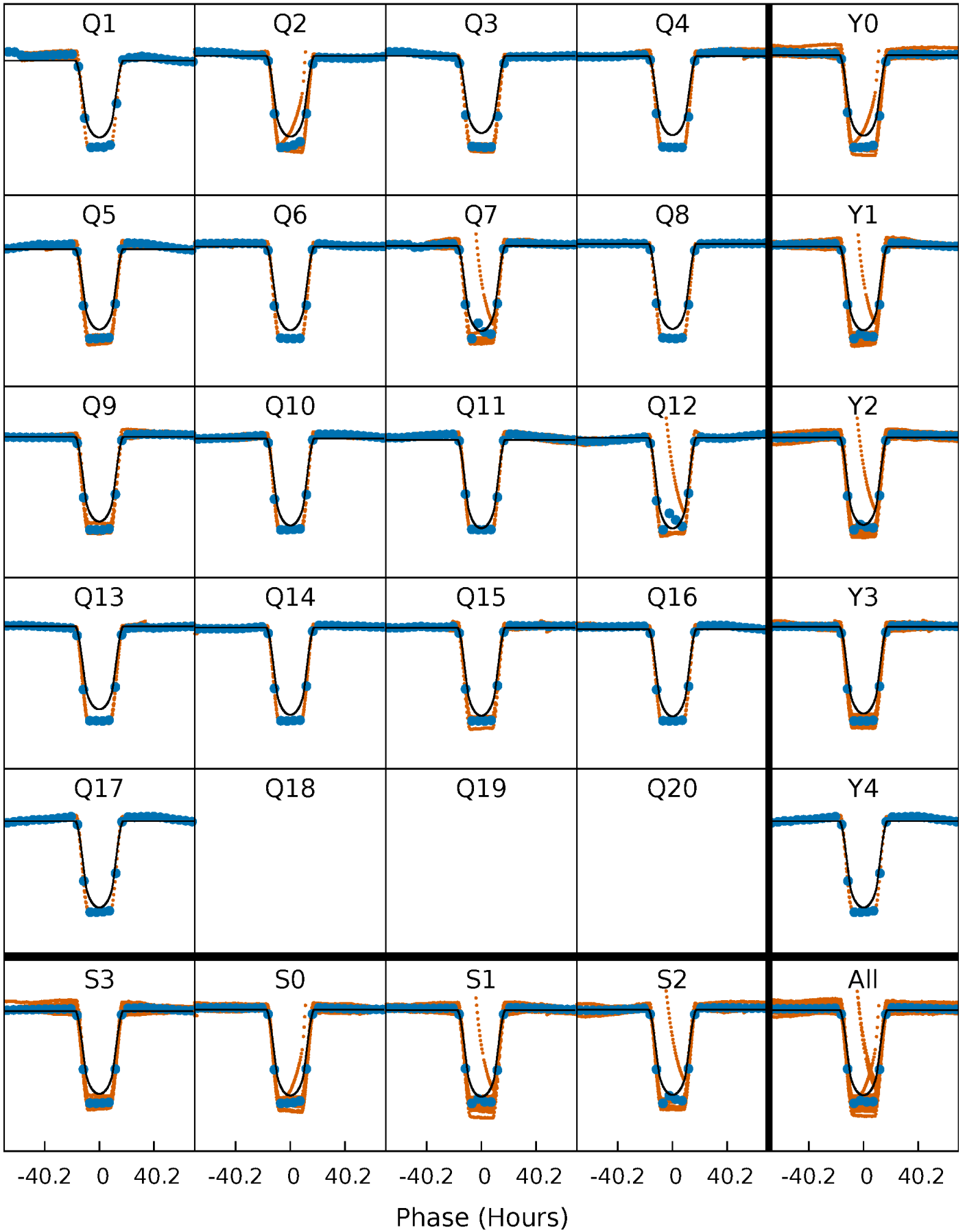
PDC Quarter-Phased Transit Curves

TCE 009291629-03 P= 20.686575 Days $T_0=133.883909$ (BKJD)



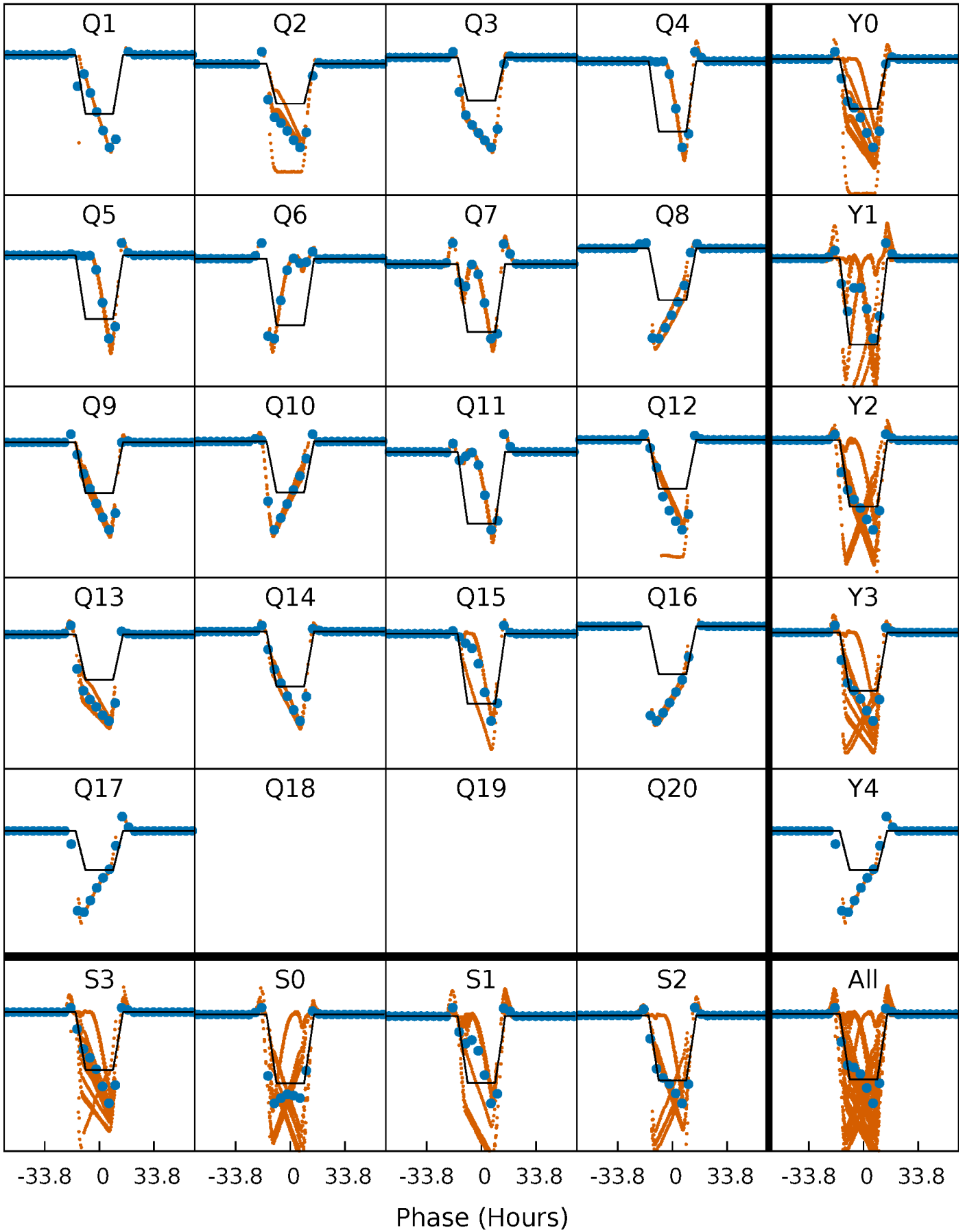
DV Quarter-Phased Transit Curves

TCE 009291629-03 P= 20.686575 Days $T_0=133.883909$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

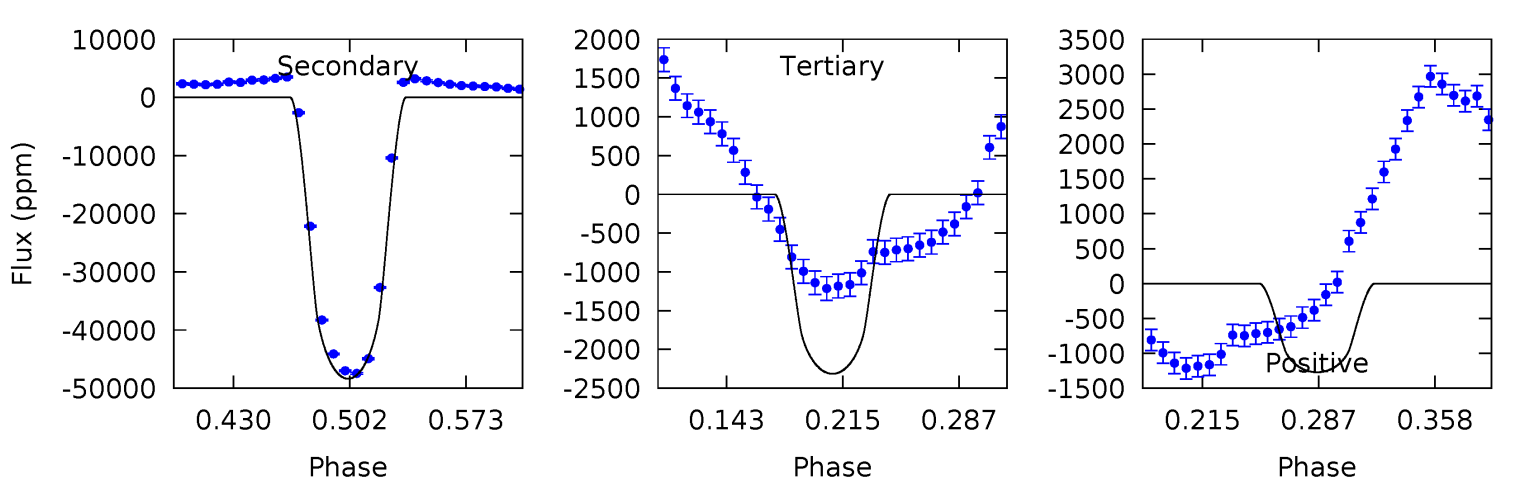
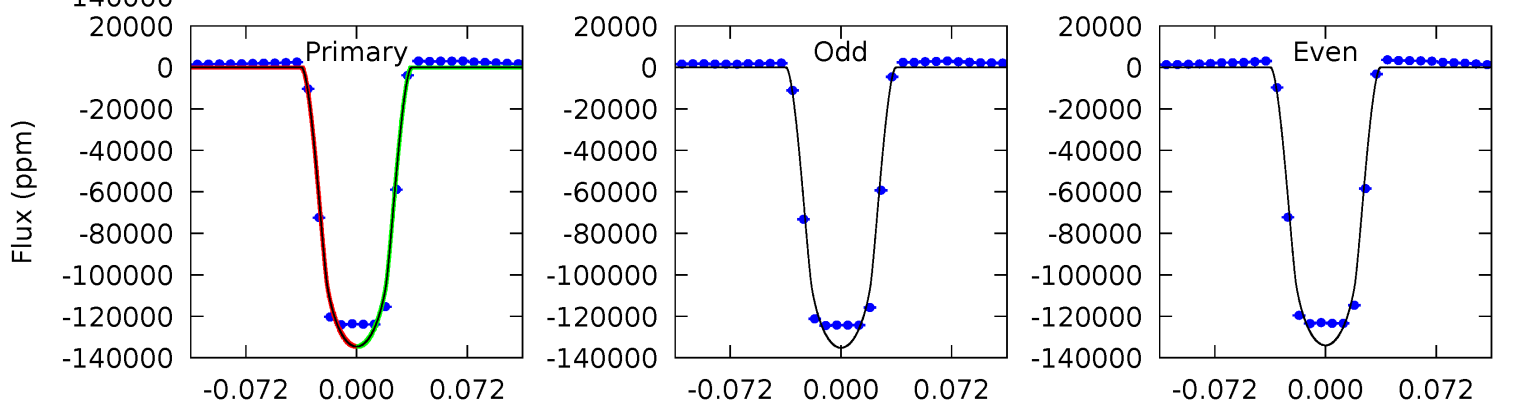
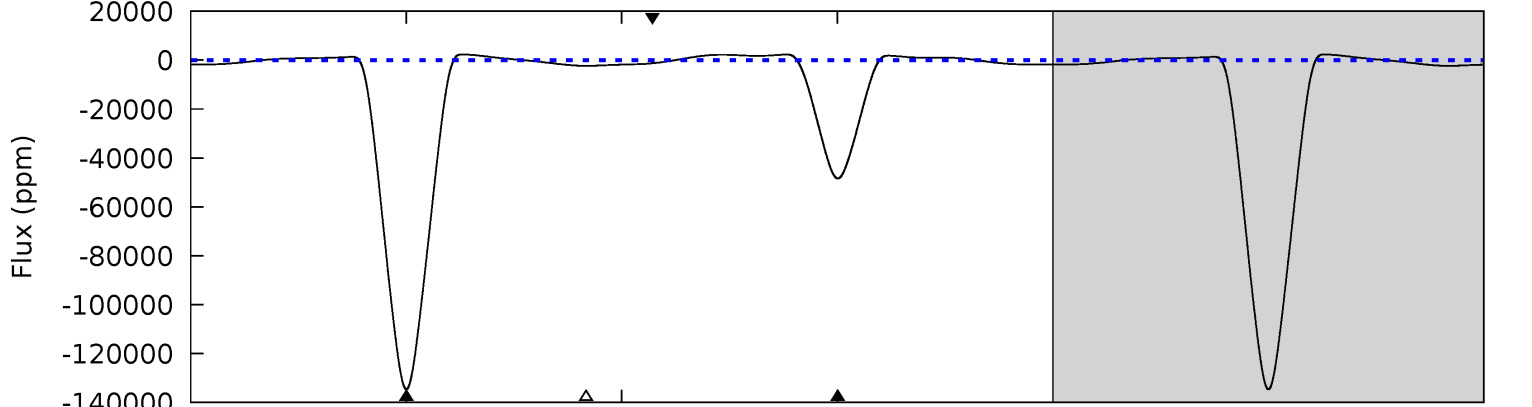
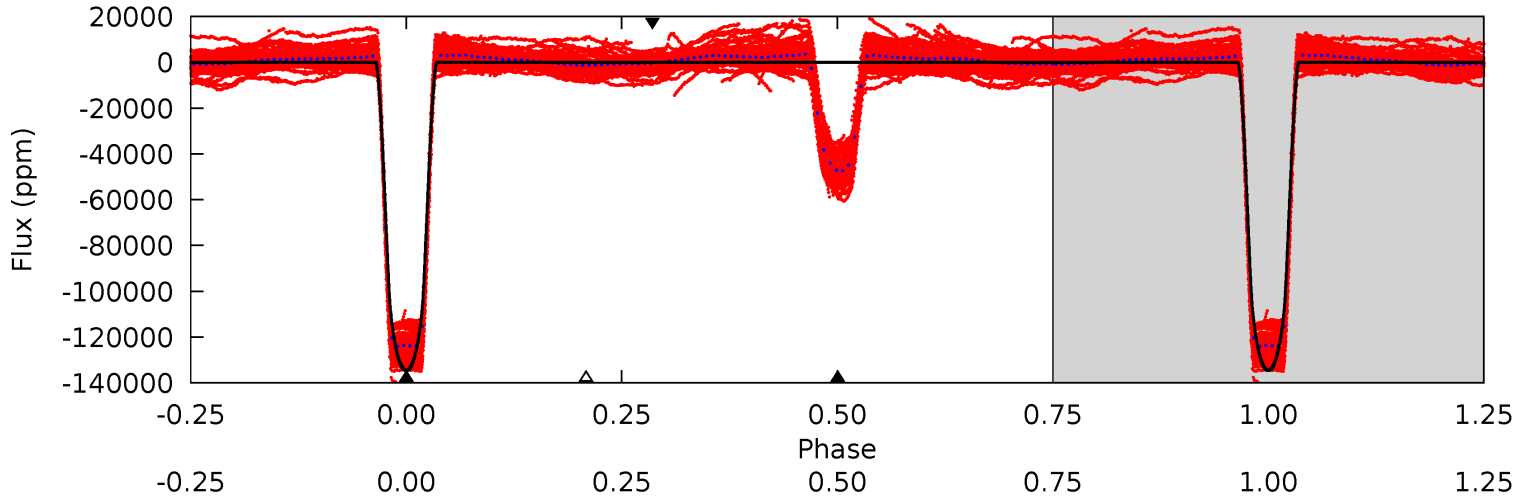
TCE 009291629-03 P= 20.687034 Days $T_0=133.951524$ (BKJD)



DV Model-Shift Uniqueness Test

009291629-03, P = 20.686575 Days, E = 113.197334 Days

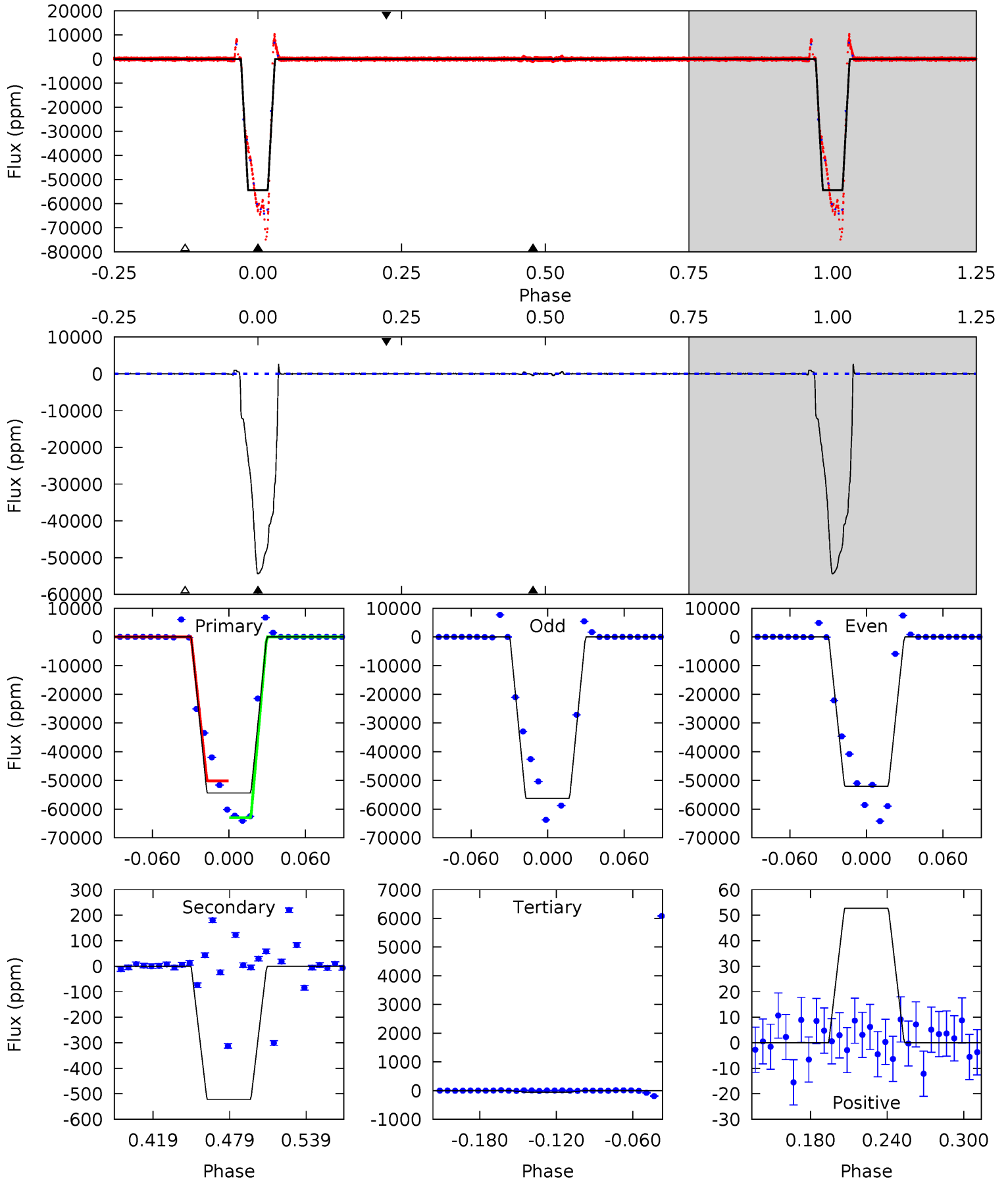
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2343	841.9	40.3	-22.1	4.63	1.80	24.8	2302	2365	801.6	864.0	10.4	0.99	0.02	1.59



Alt Model-Shift Uniqueness Test

009291629-03, P = 20.687034 Days, E = 113.264490 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3578	34.3	3.59	3.47	4.67	1.88	1.16	3575	3575	30.8	30.9	138.9	0.97	0.05	0



Stellar Parameters For KIC 009291629

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4809^{+120}_{-108}	$3.106^{+0.385}_{-0.315}$	$0.080^{+0.250}_{-0.200}$	$5.145^{+2.418}_{-1.978}$	$1.232^{+0.249}_{-0.249}$	$0.013^{+0.039}_{-0.009}$
	+2%/-2%	+12%/-10%	+312%/-250%	+47%/-38%	+20%/-20%	+308%/-71%
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 009291629-03 / KOI 6198.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-48374 ± 57	$166.35^{+48.41}_{-36.80}$	1696^{+204}_{-192}	4296^{+100}_{-86}	25^{+14}_{-10}
Alt.	-522 ± 15	$130.36^{+36.56}_{-26.69}$	1700^{+209}_{-172}	2068^{+152}_{-3946}	$0.422^{+0.227}_{-0.151}$

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 $A_{obs} \gg 1.0$

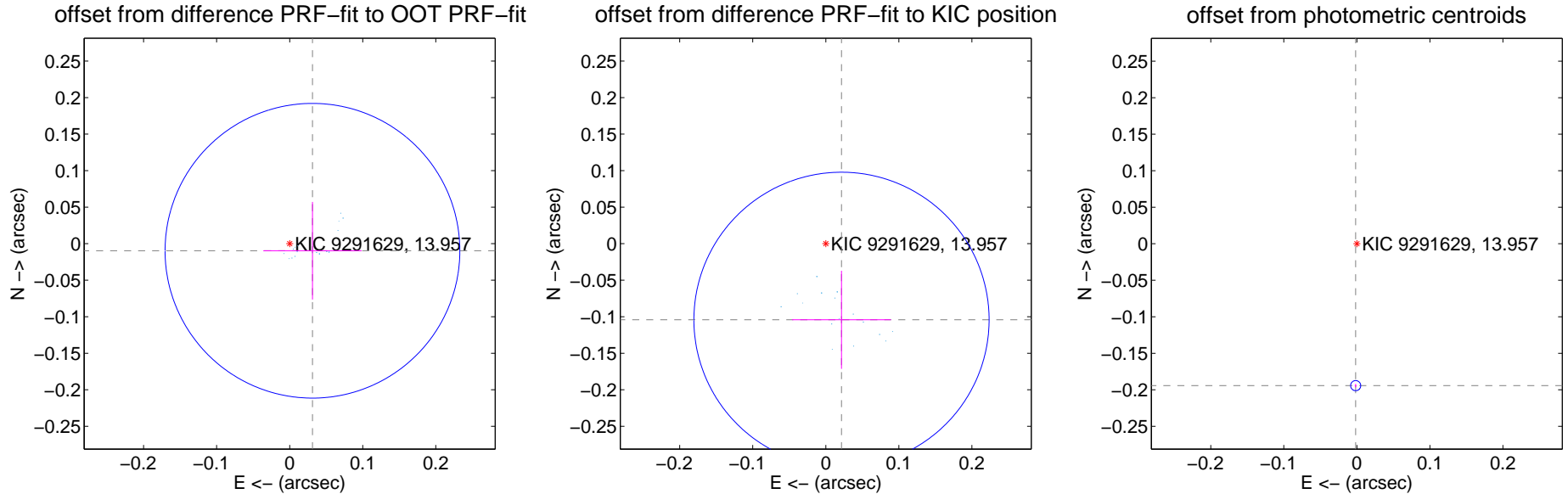
DV Centroid Data

Supplemental centroid analysis for 009291629-03. Kepler magnitude: 13.96. Transit SNR 381.92

There are 16 quarters with good PRF difference image offsets

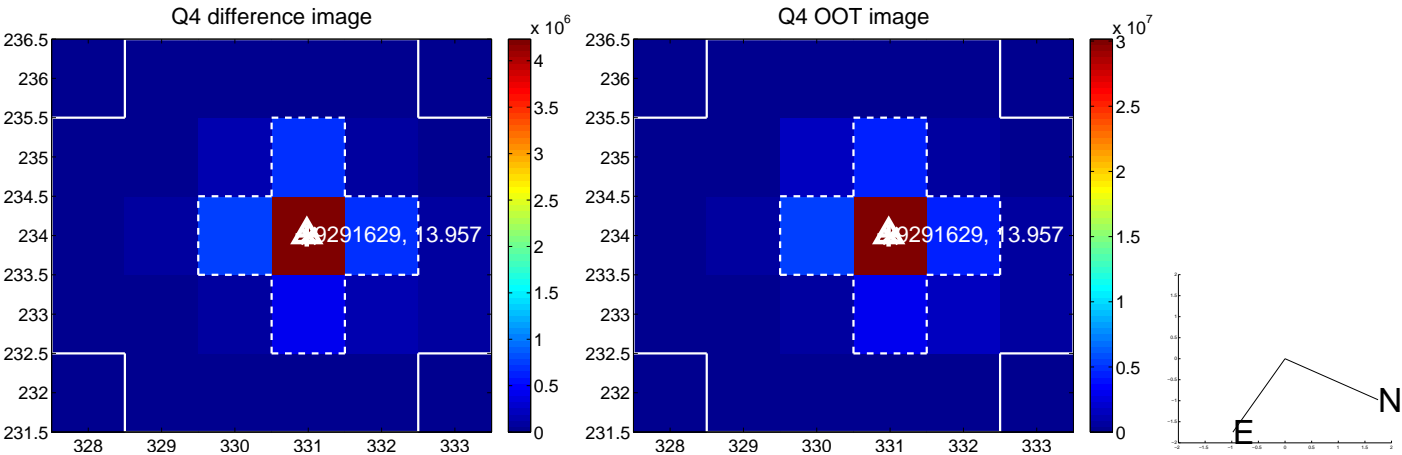
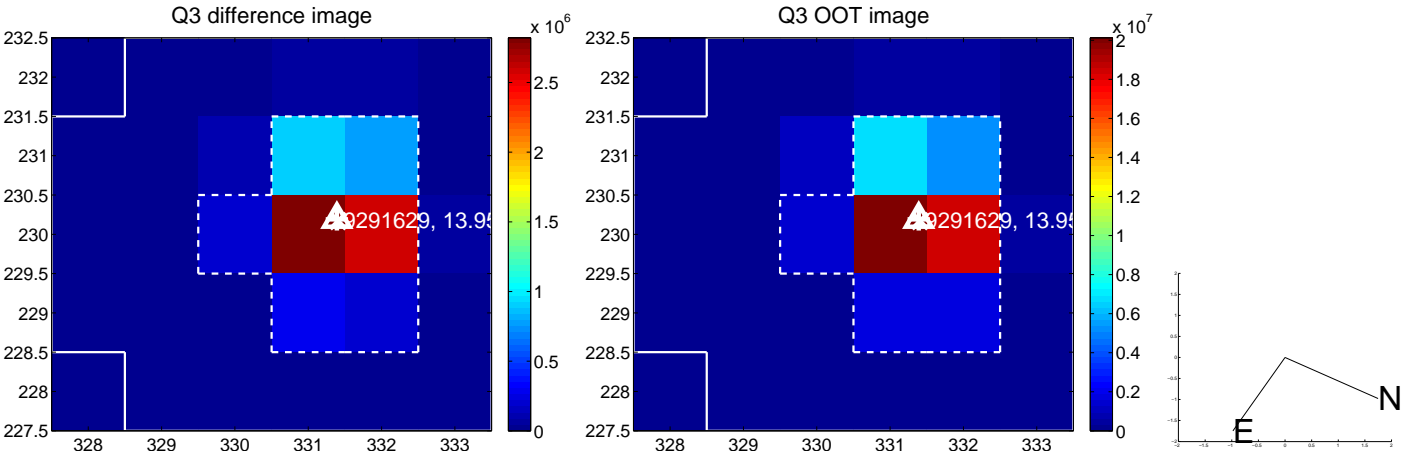
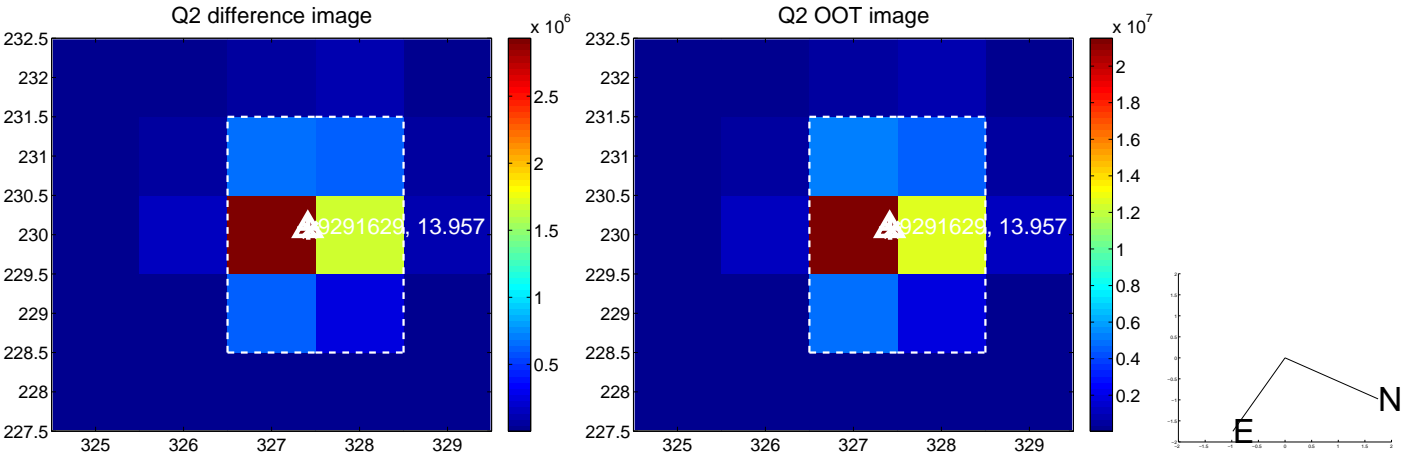
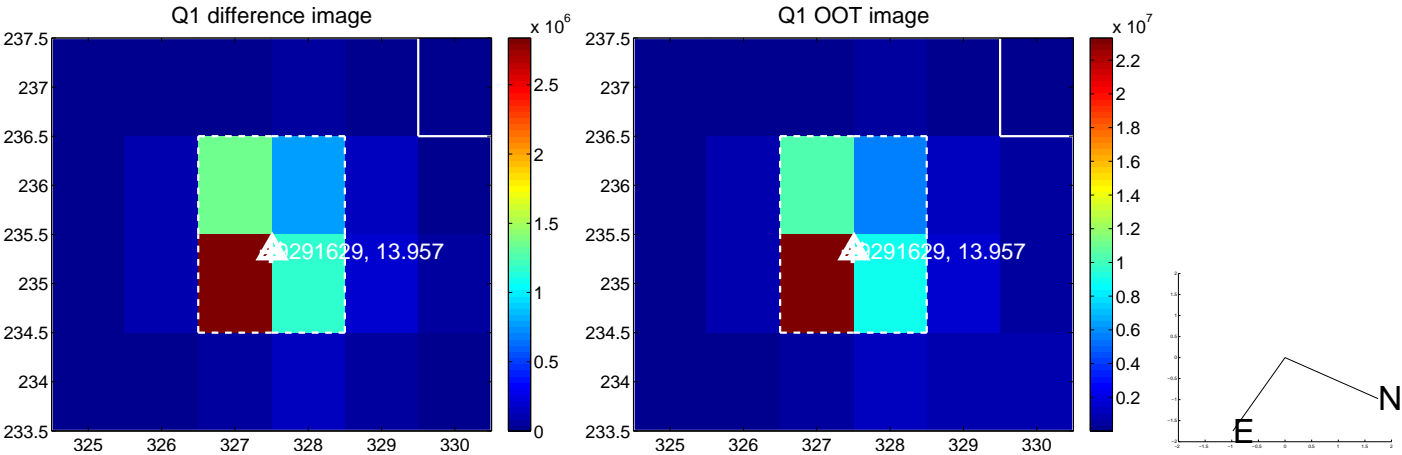
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.033 ± 0.067	0.49	-0.031 ± 0.067	-0.010 ± 0.067
PRF-fit source offset from KIC position	0.106 ± 0.067	1.58	-0.021 ± 0.068	-0.104 ± 0.067
photometric centroid source offset	0.19 ± 0.00	84.11	0.00 ± 0.00	-0.19 ± 0.00

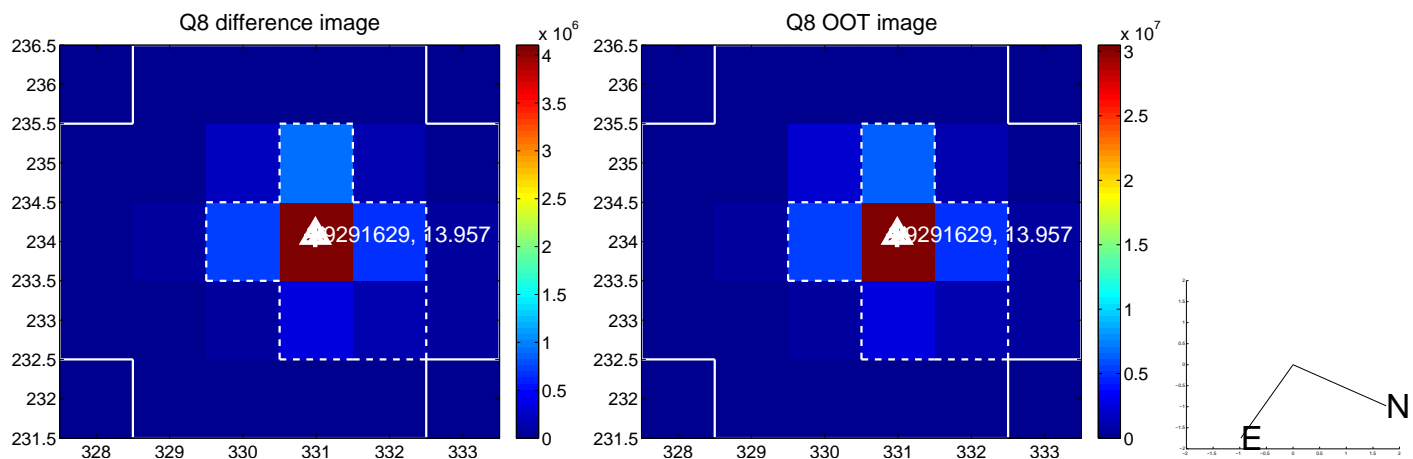
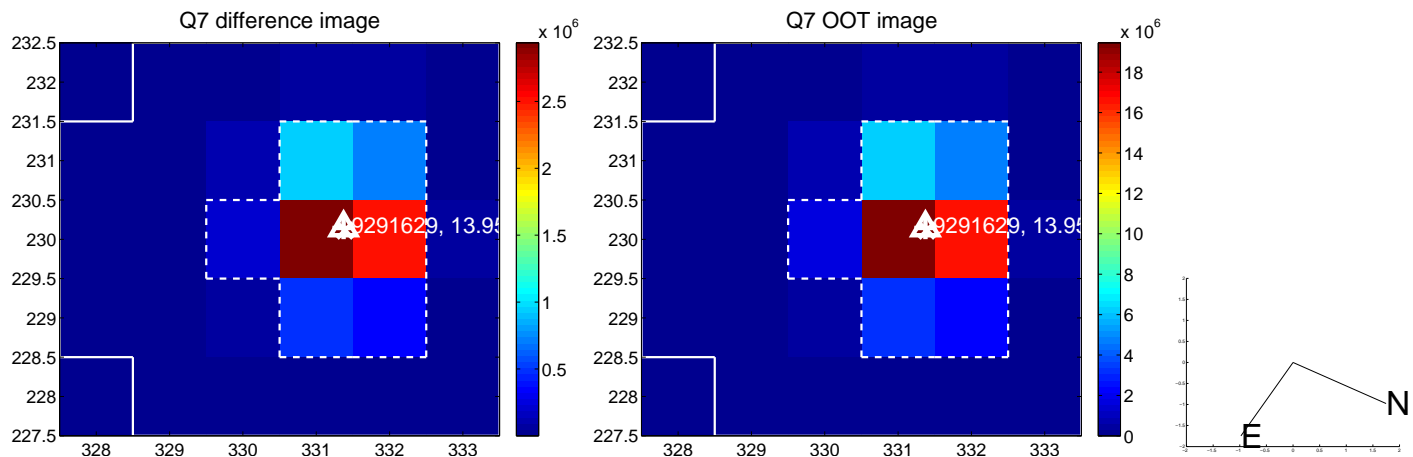
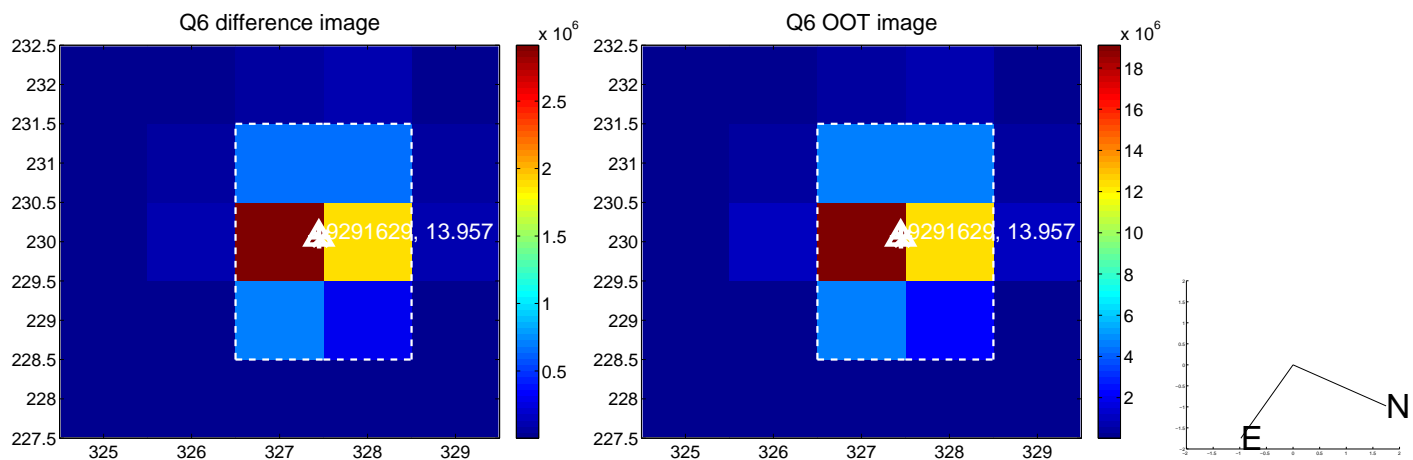
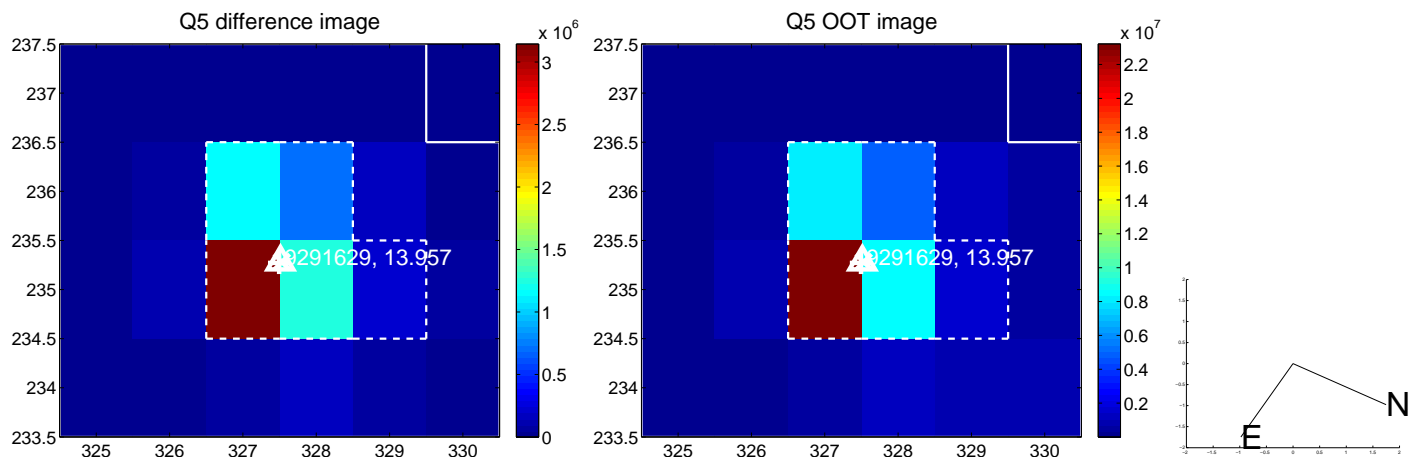


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

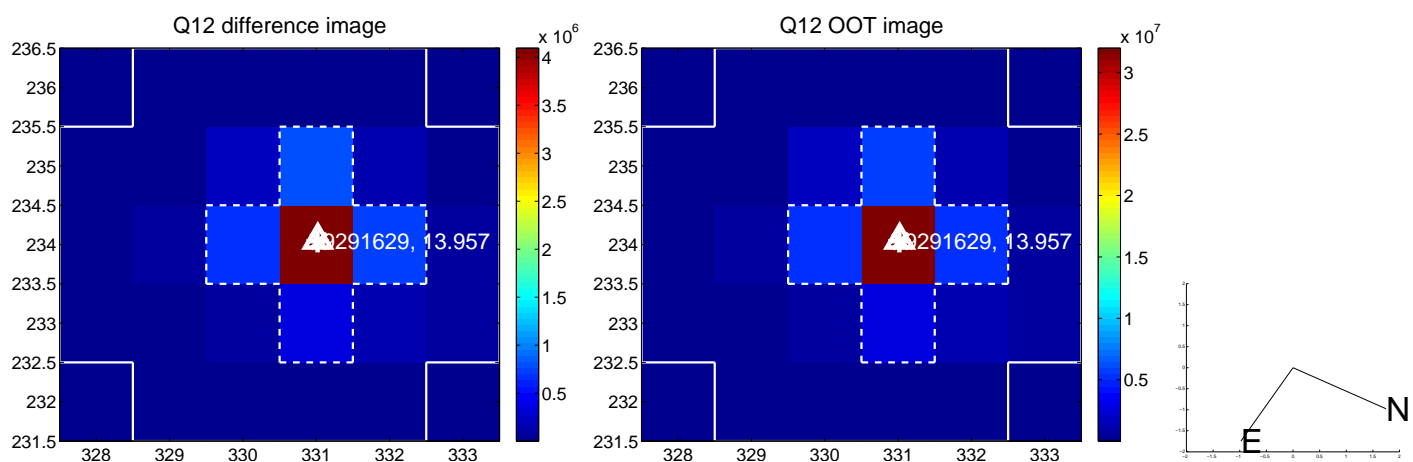
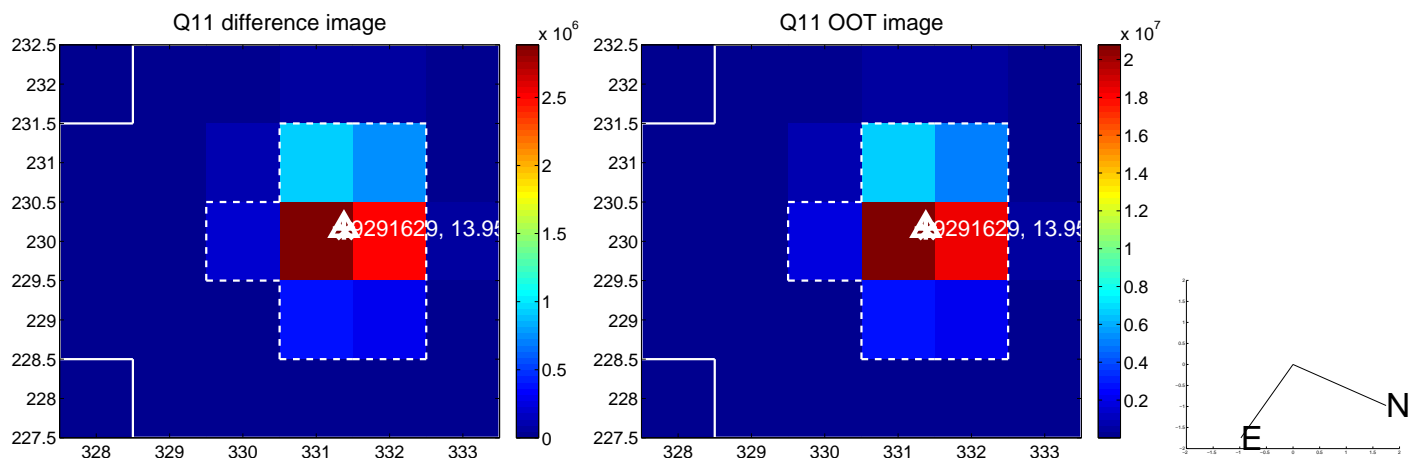
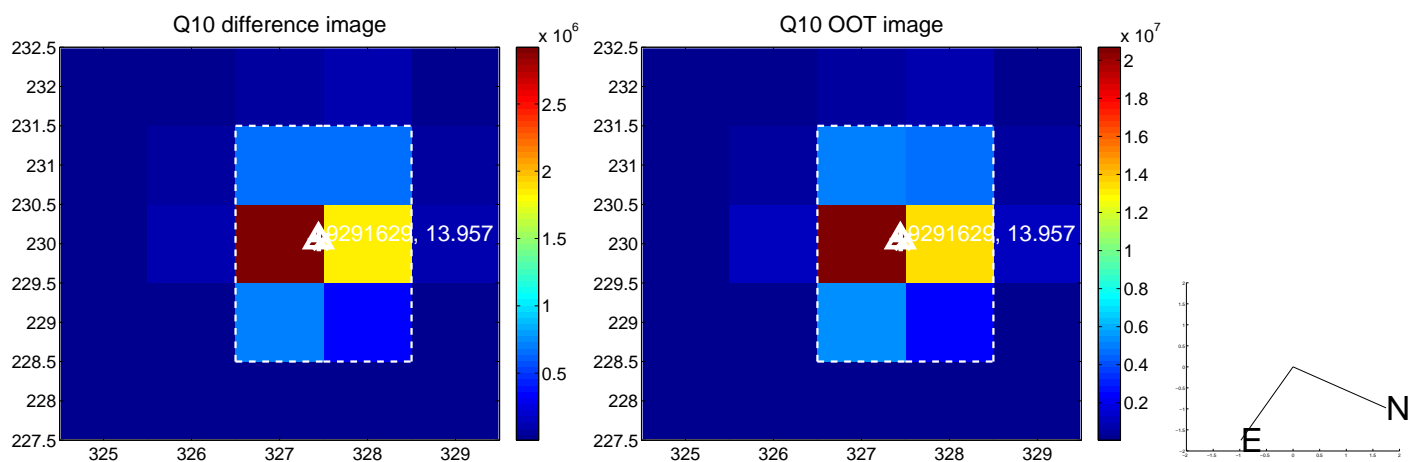
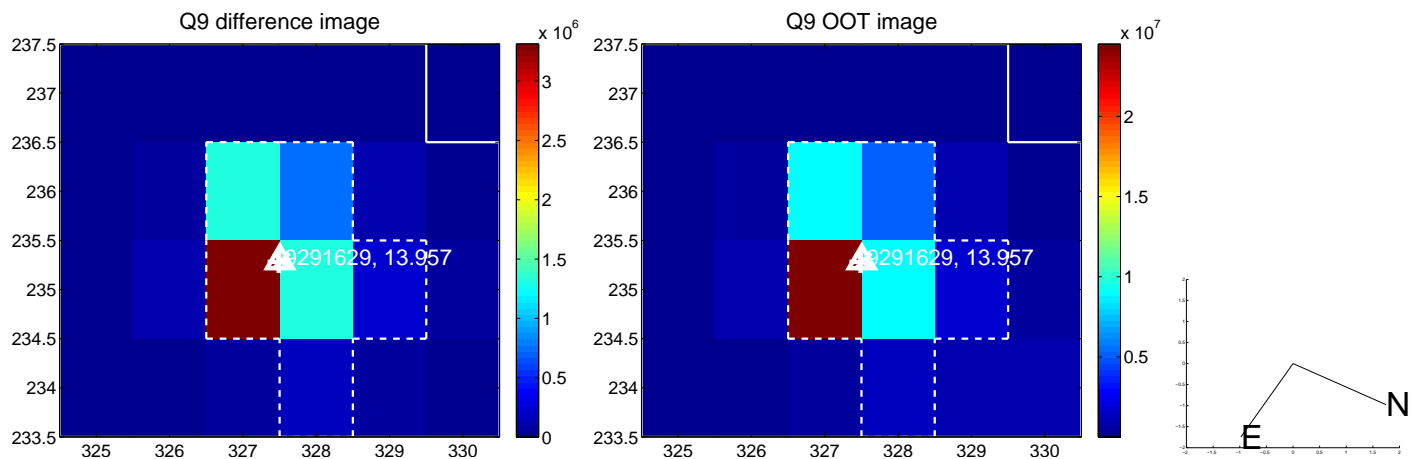
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



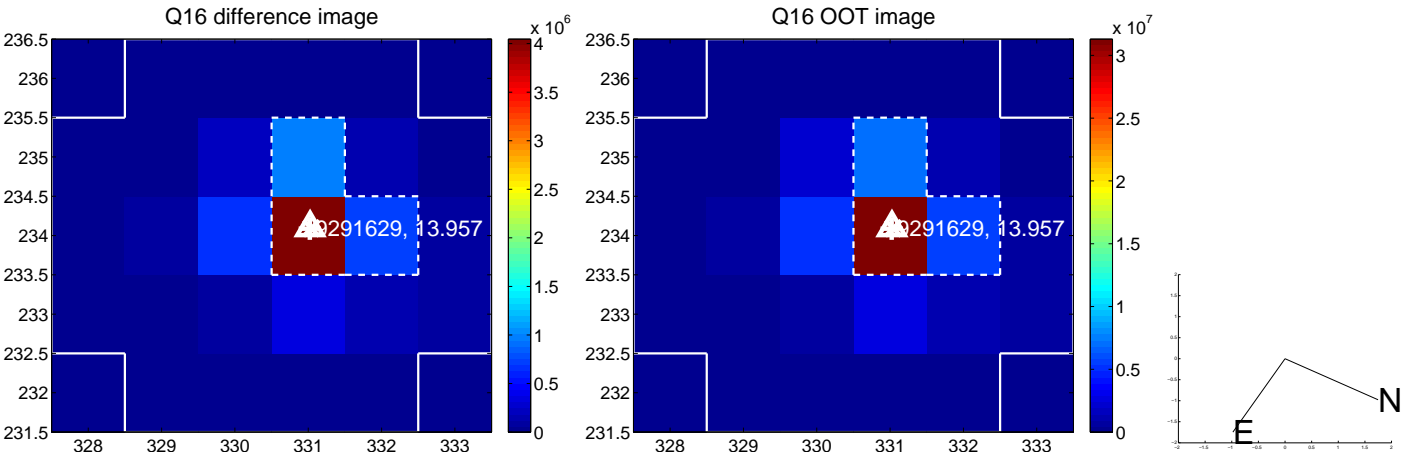
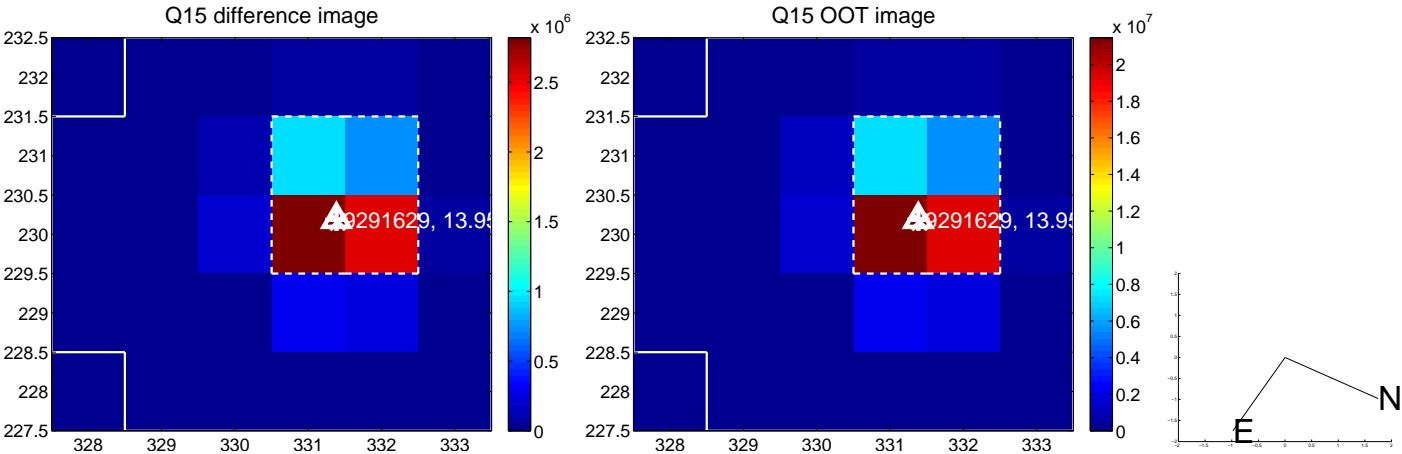
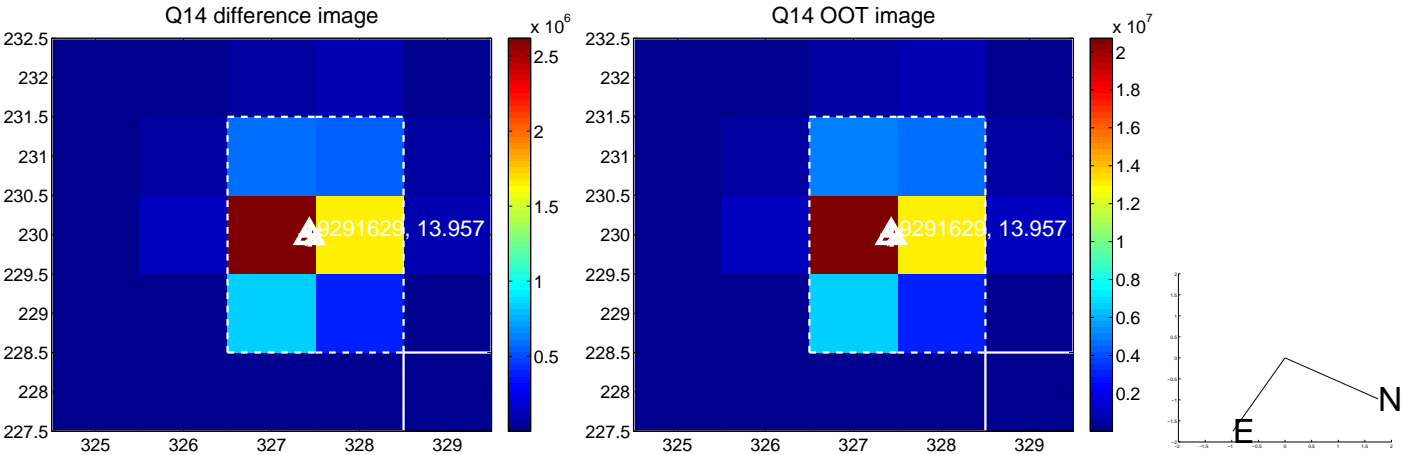
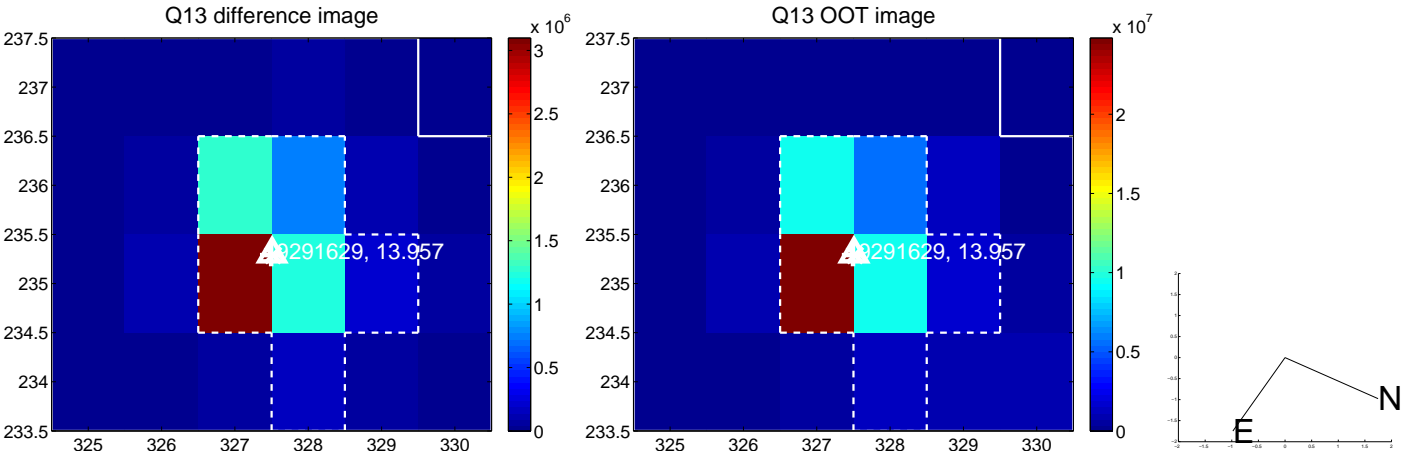
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



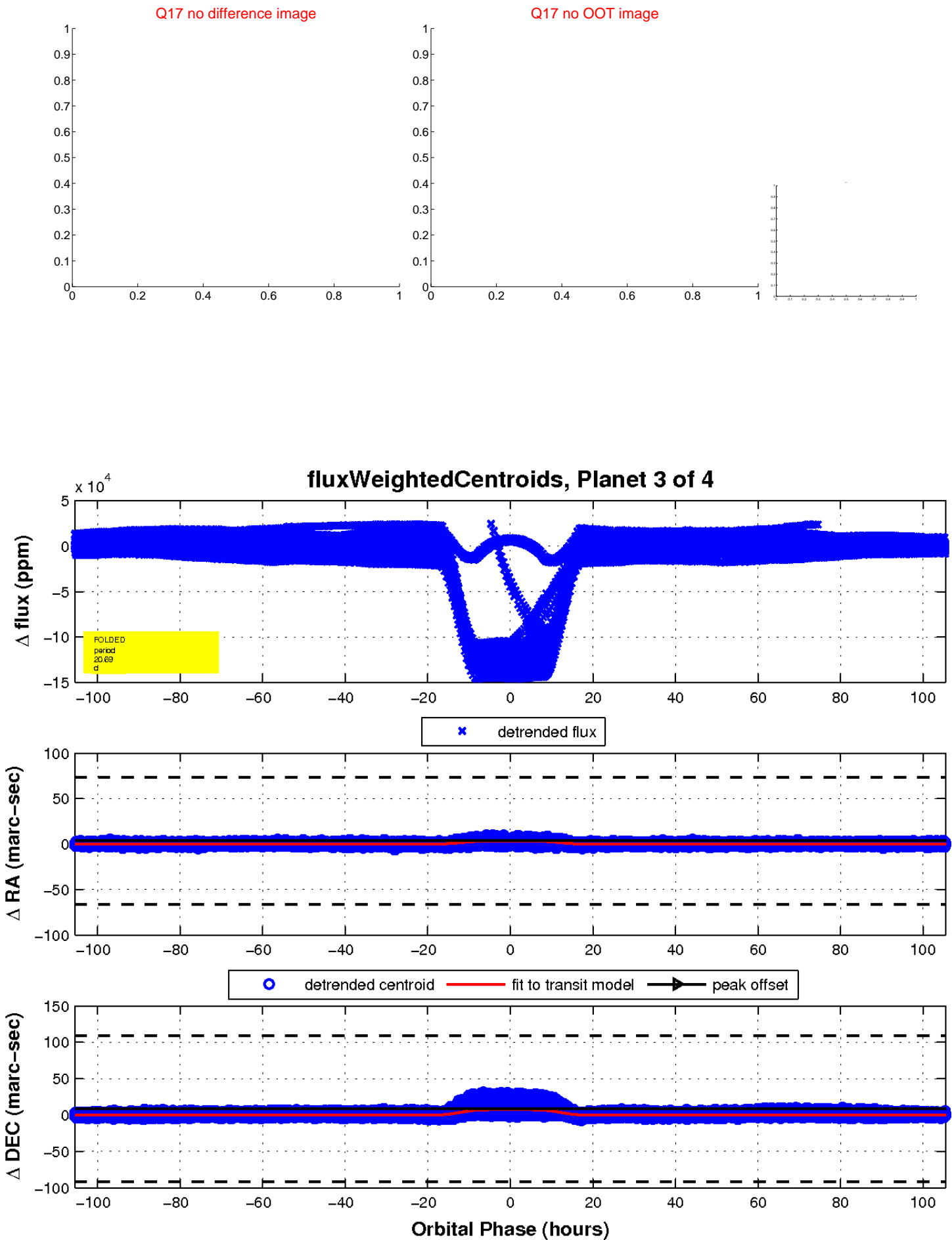
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

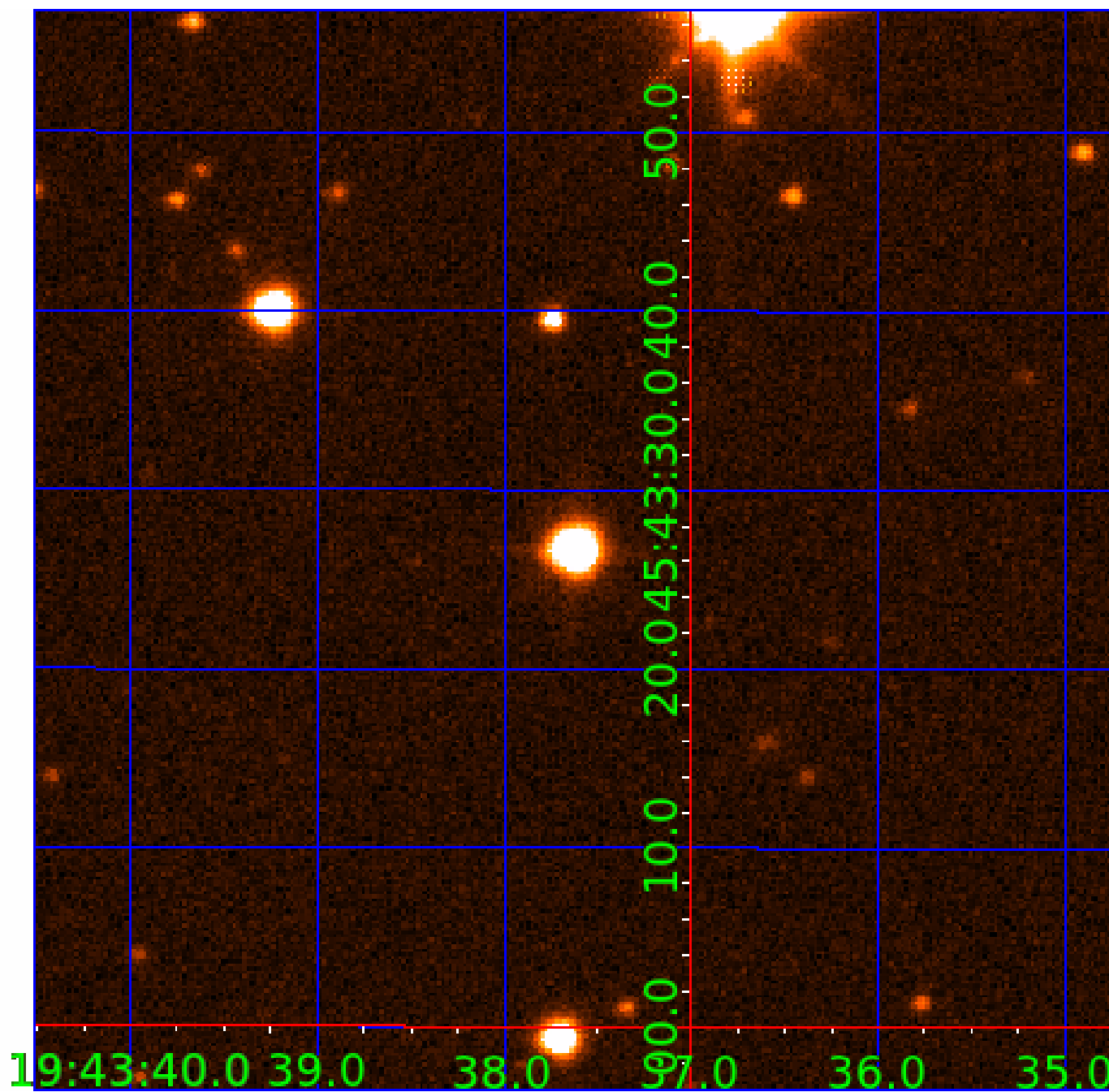


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291629

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})
009291629-01	OBS	No	475.787842	299.380175	132871.7	36.364	794.7	132.2	5.14	4809	181.67	7.75
009291629-02	OBS	No	455.104348	154.940808	57961.8	12.861	585.2	206.4	5.14	4809	216.76	8.23
009291629-03	OBS	6198.01	20.686575	133.883909	113190.9	35.165	541.3	381.9	5.14	4809	167.46	507.13
009291629-04	OBS	No	113.729496	185.788290	24056.0	2.000	186.1	-1.0	5.14	4809	77.21	52.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291629-01	OBS	FP	0.00	1	0	0	0	MOD_TER_DV
009291629-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA_TRACKER—LPP_DV—MOD_TER_DV—INCONSISTENT_TRANS
009291629-03	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD
009291629-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

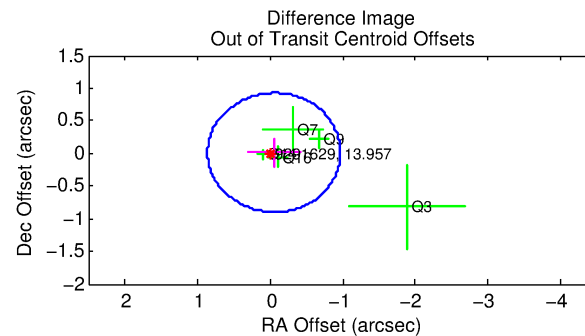
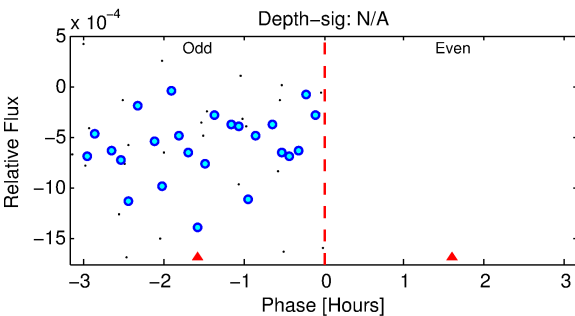
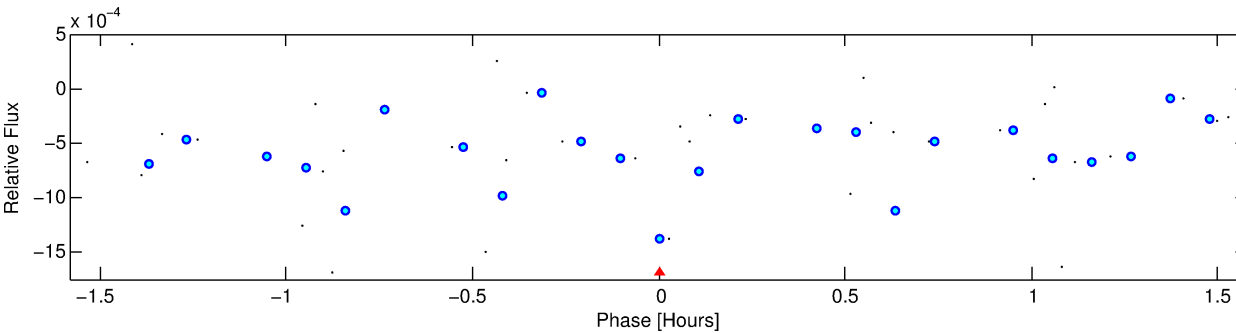
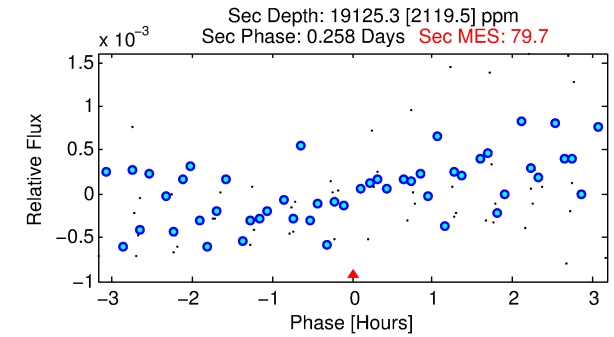
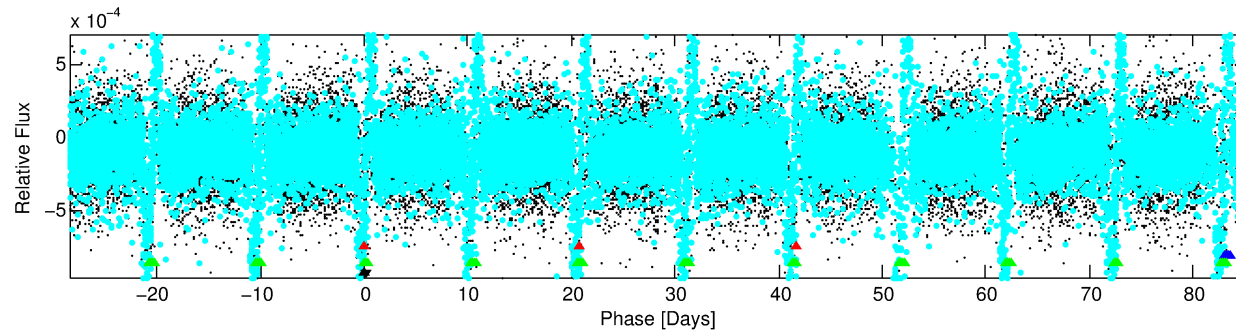
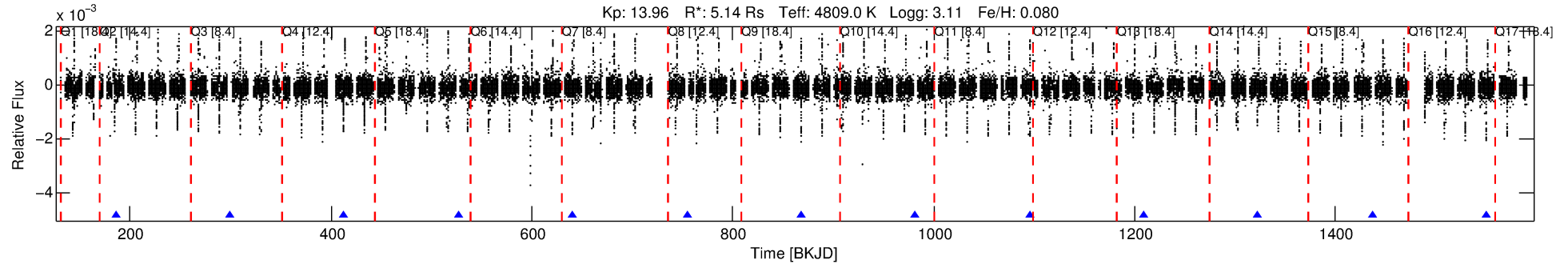
Ephemeris Match Information For 009291629-04

No Significant Match Found

DV One-Page Summary

KIC: 9291629 Candidate: 4 of 4 Period: 113.729 d
KOI: K06198 Corr: No Ephemeris Match

Kp: 13.96 R*: 5.14 Rs Teff: 4809.0 K Logg: 3.11 Fe/H: 0.080



TPS TCE Results:

Period = 113.72950 d
Epoch = 185.7883 BKJD

DV fit results are unavailable

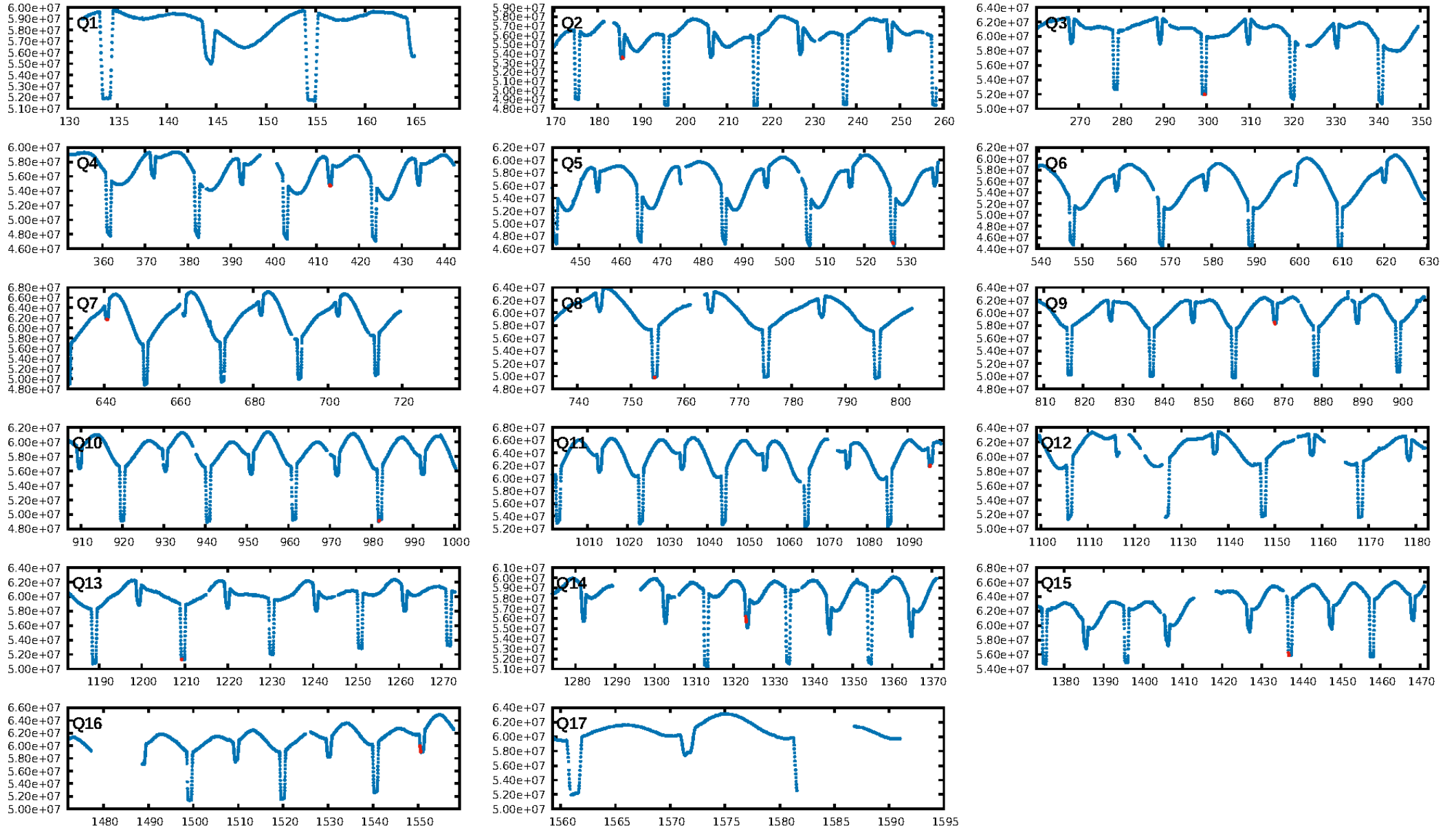
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [63.40σ]
LongPeriod-sig: 100.0% [629.47σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.5477
Centroid-sig: 58.2%
Centroid-so: 9.511 arcsec [0.86σ]
OotOffset-rm: 0.058 arcsec [0.19σ]
KicOffset-rm: 0.119 arcsec [0.52σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.71 [5/7]

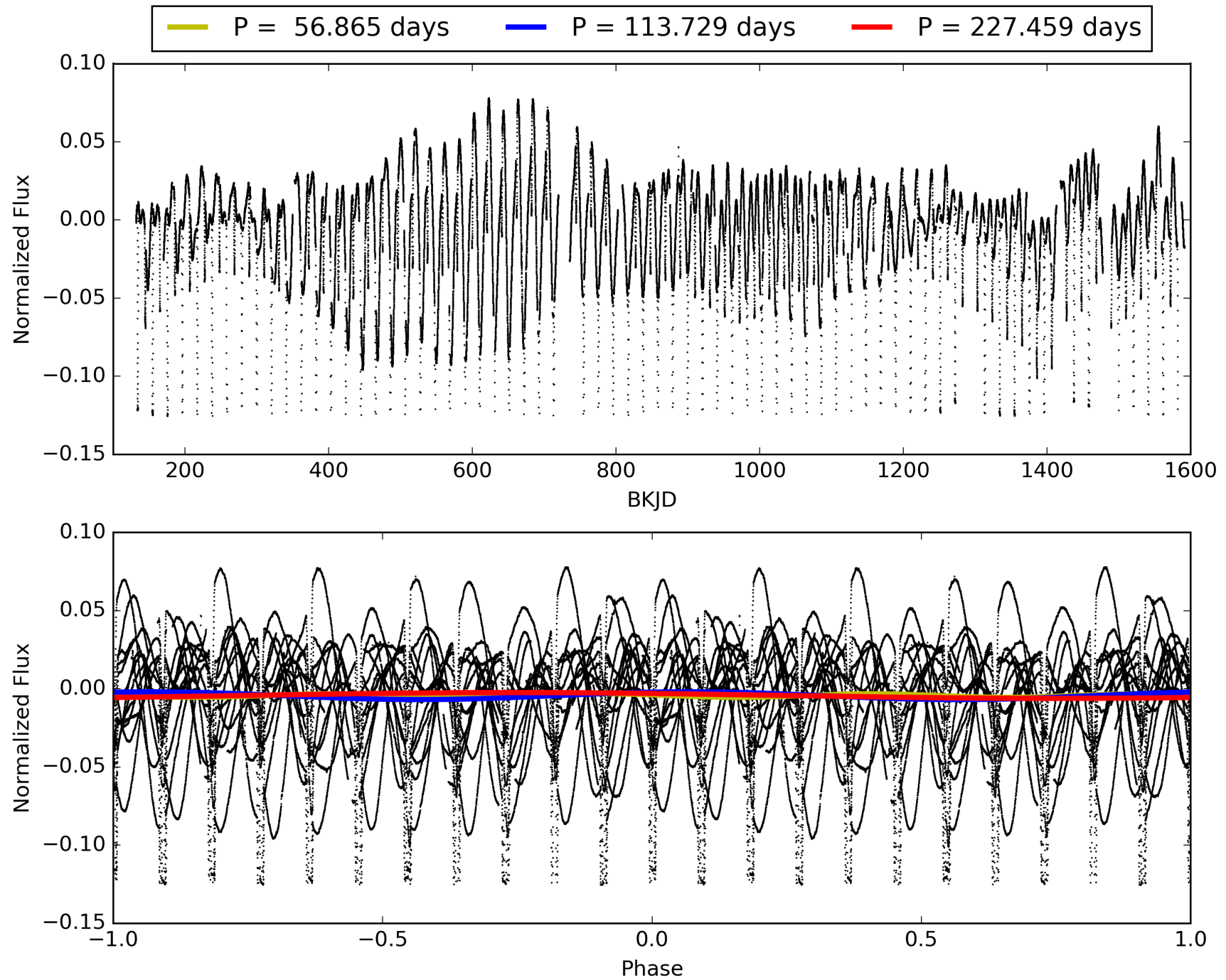
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:09:12 Z

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

TCE 009291629-04, PDC Light Curves

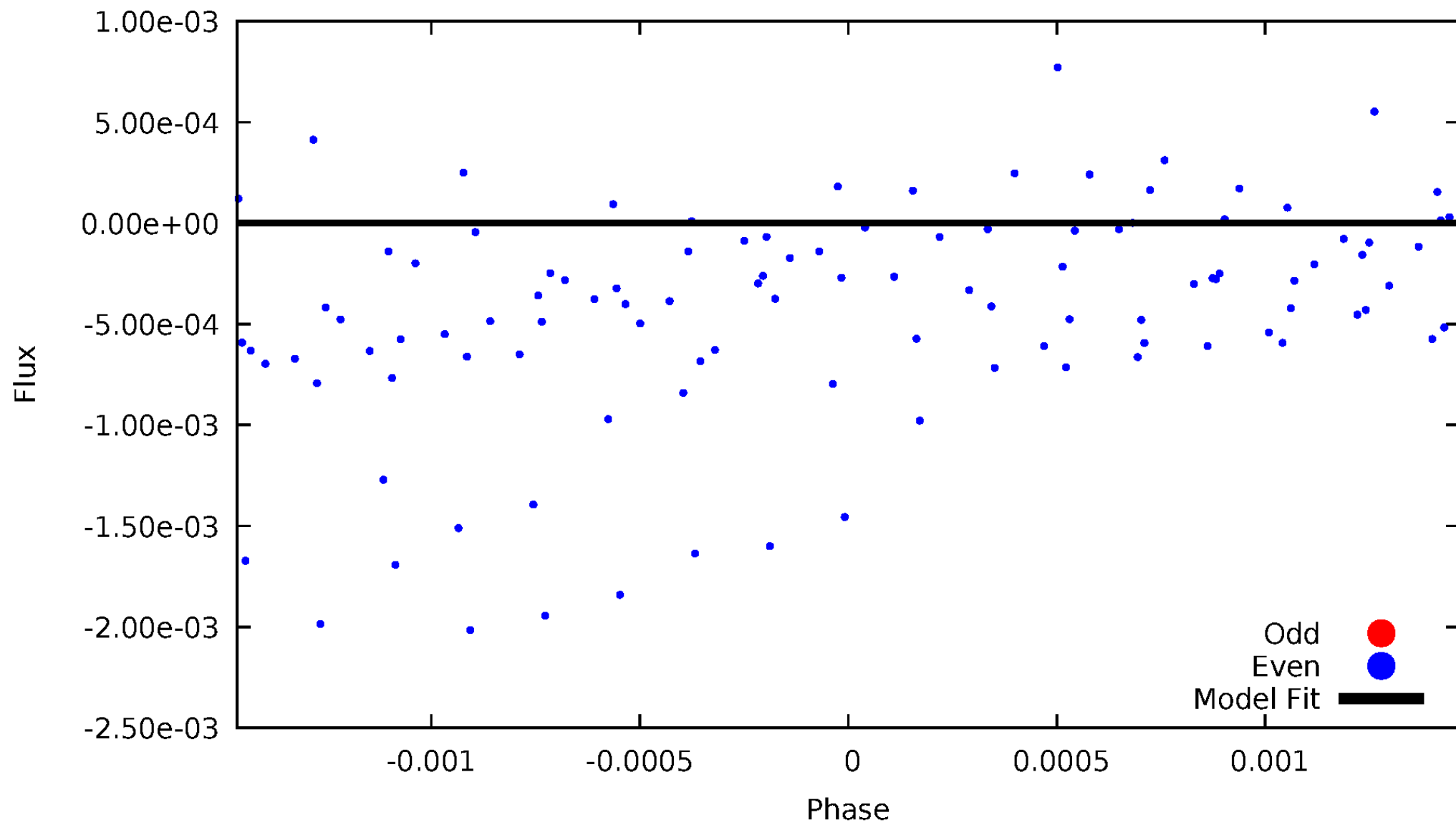


TCE 009291629-04



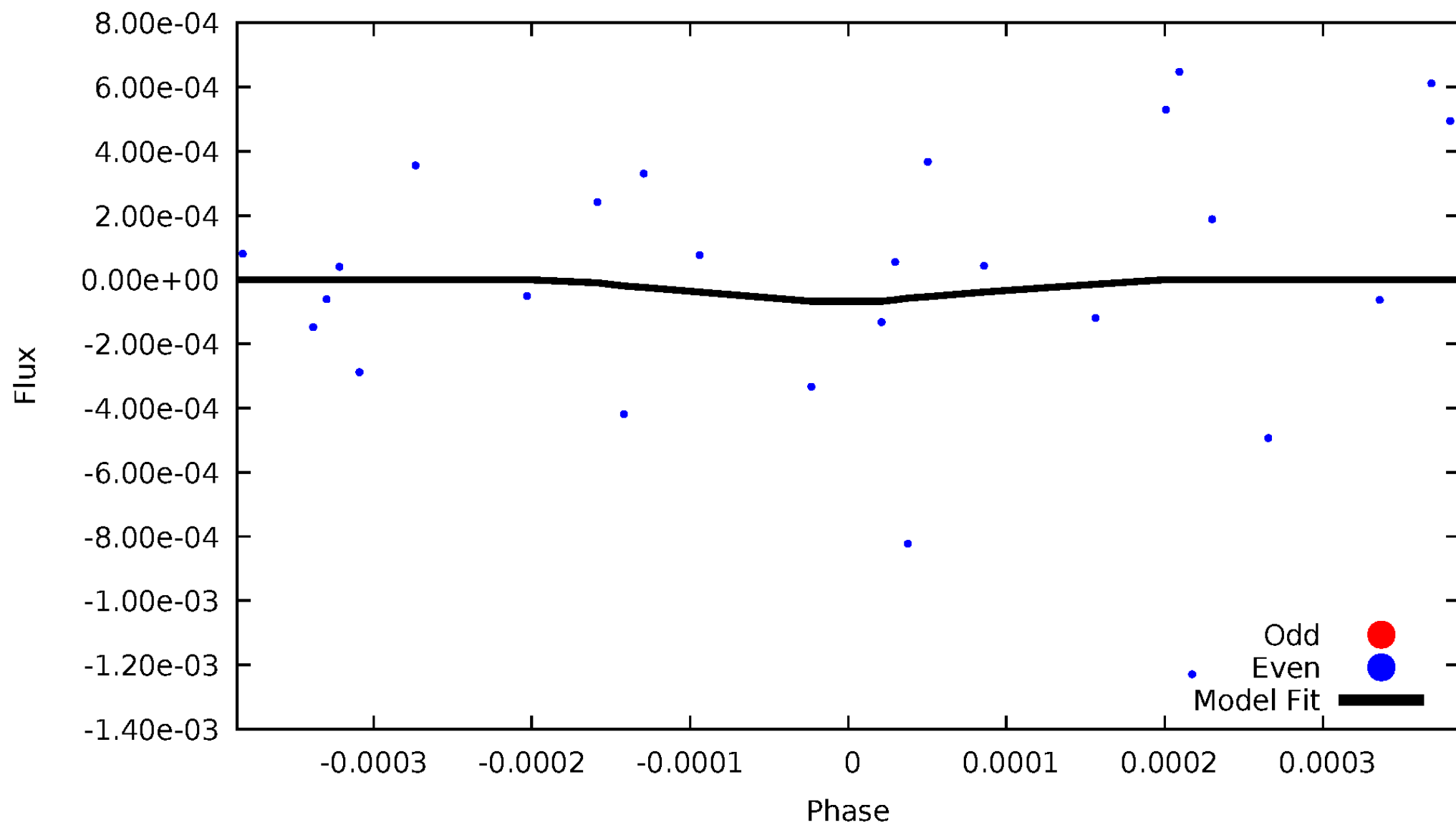
DV Odd/Even

TCE 009291629-04



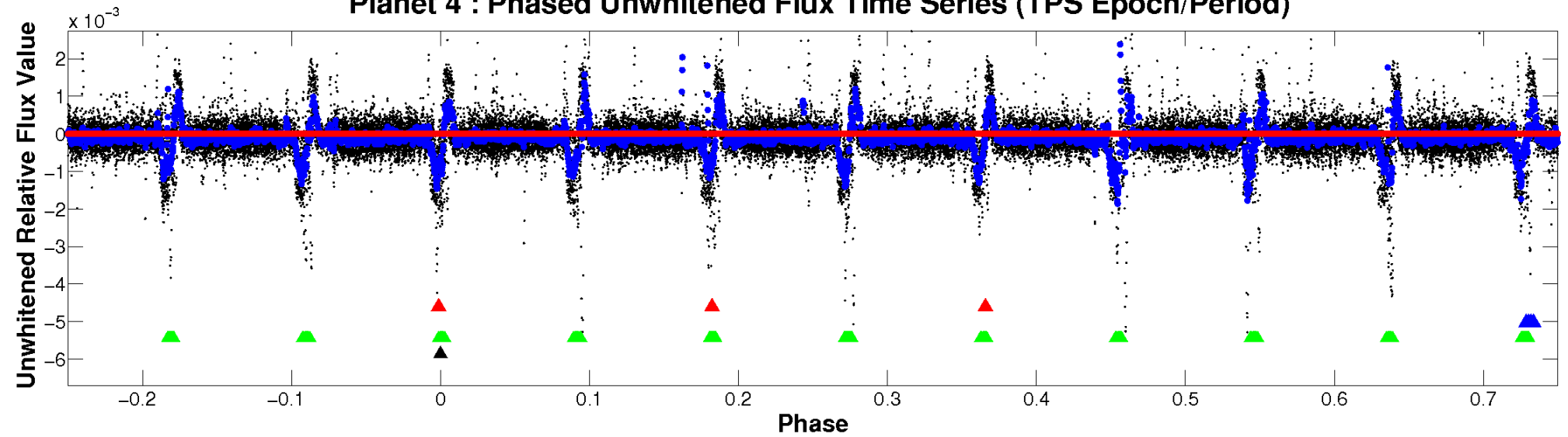
ALT Odd/Even

TCE 009291629-04

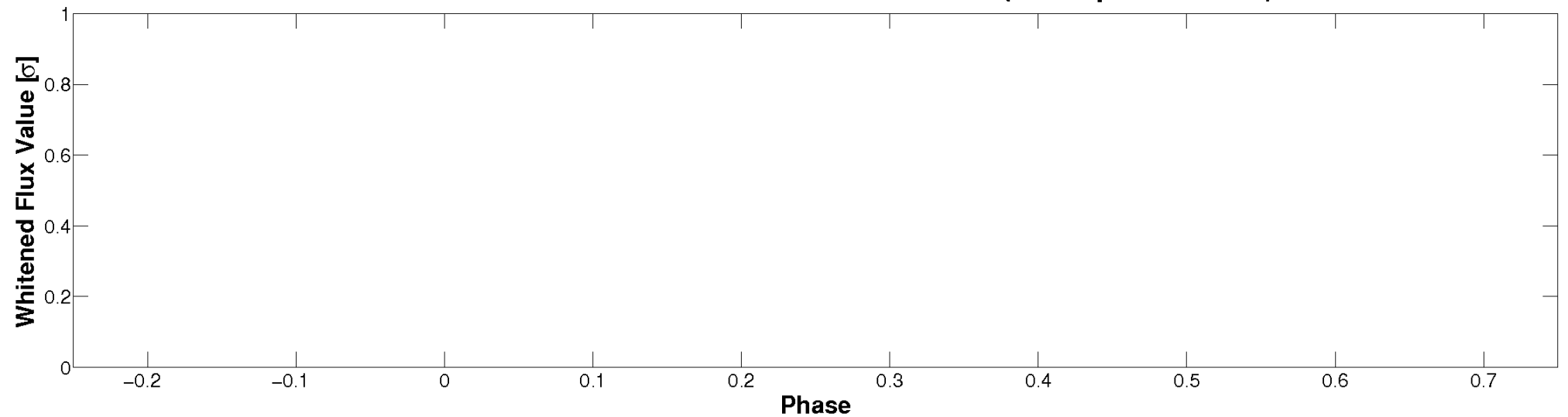


Non-Whitened Vs. Whitened Light Curve

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

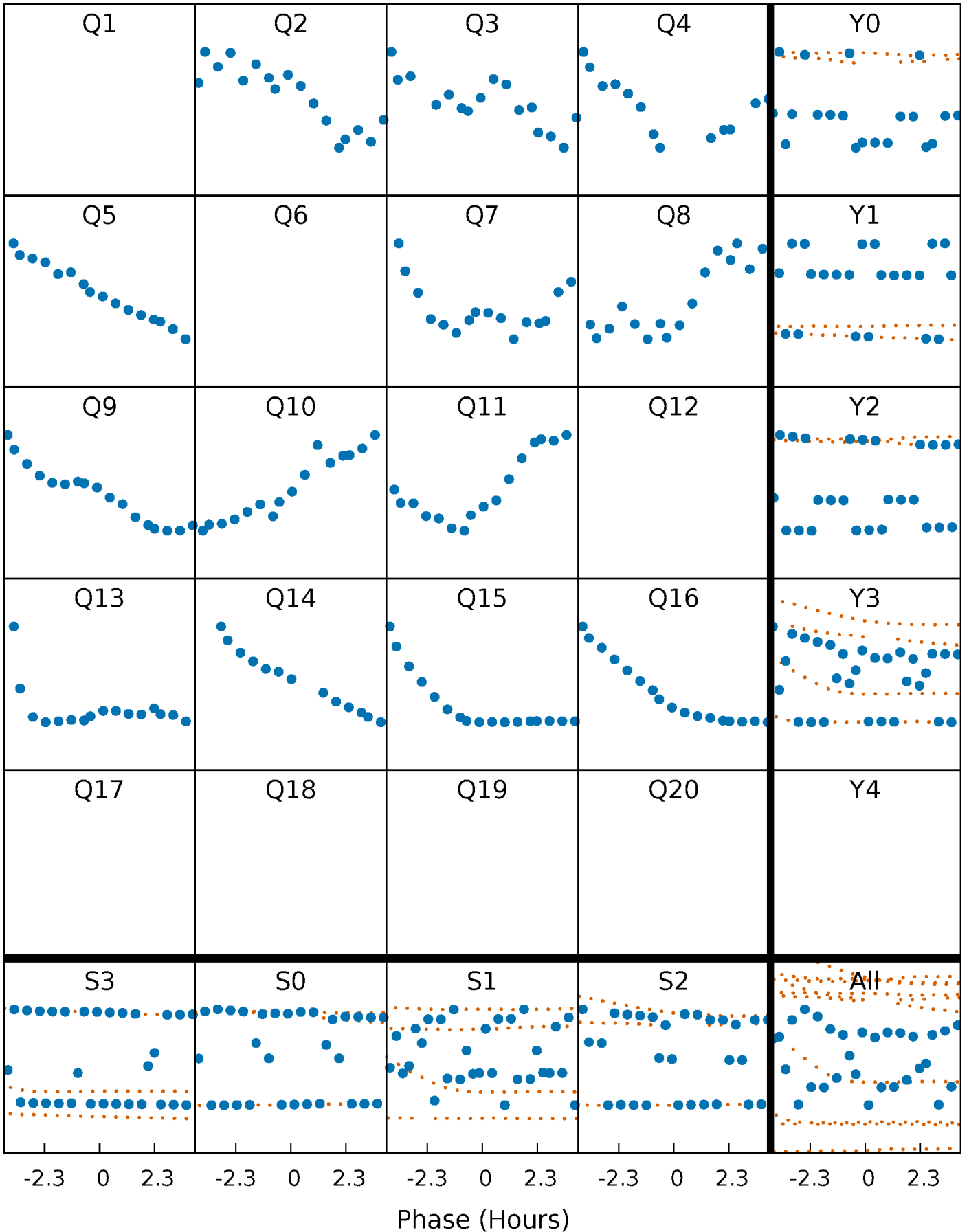


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



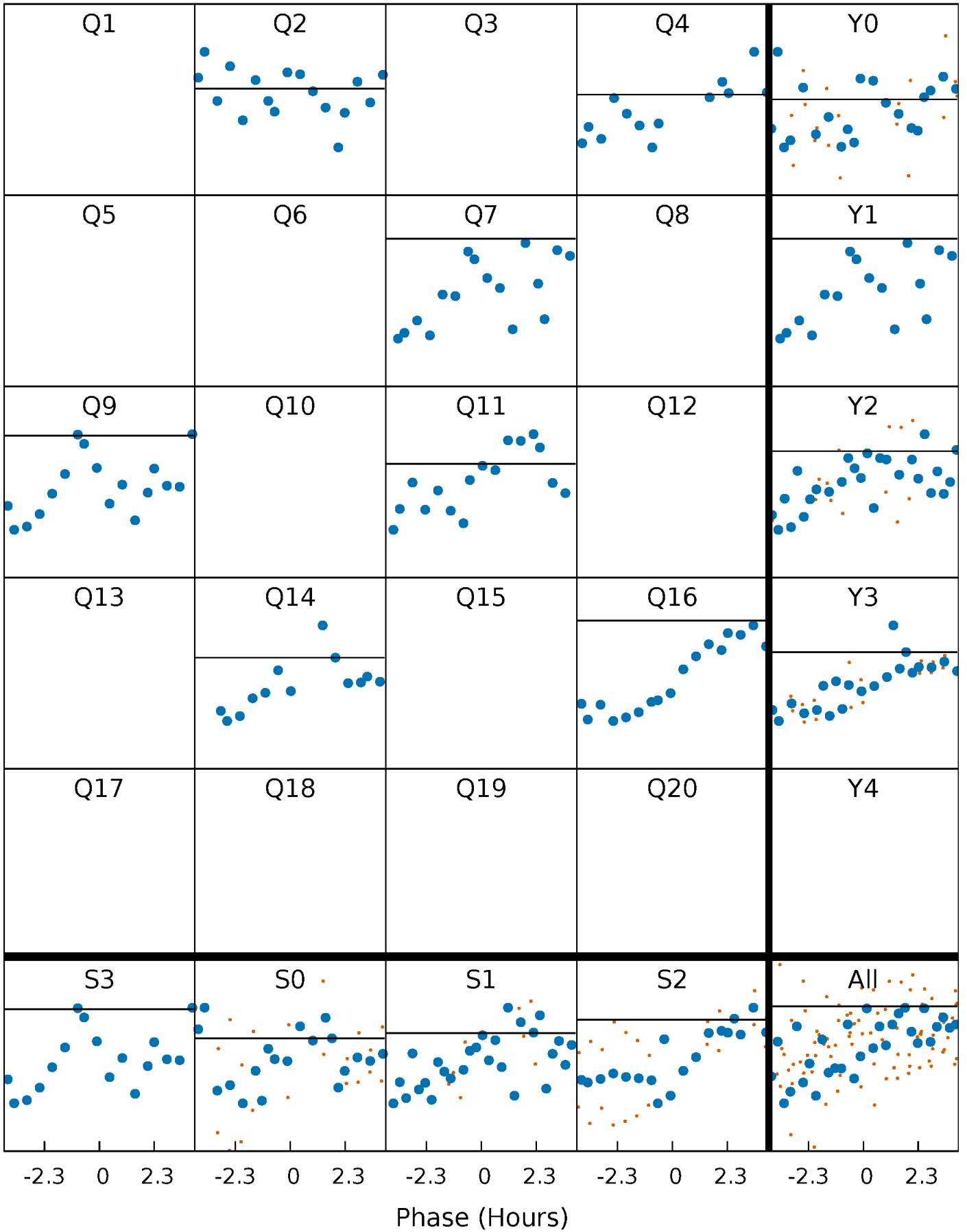
PDC Quarter-Phased Transit Curves

TCE 009291629-04 P=113.729496 Days $T_0=185.788290$ (BKJD)



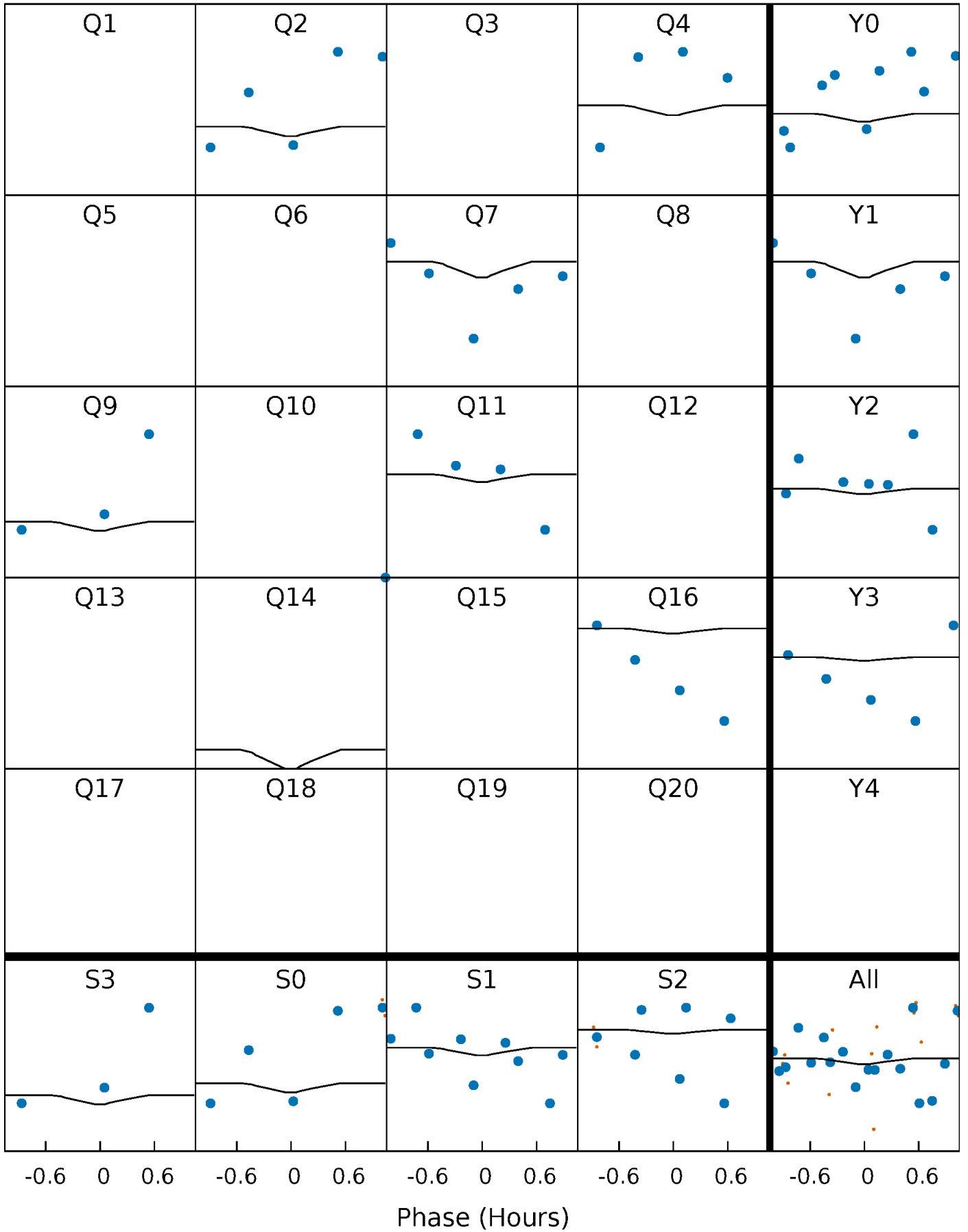
DV Quarter-Phased Transit Curves

TCE 009291629-04 P=113.729496 Days $T_0=185.788290$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

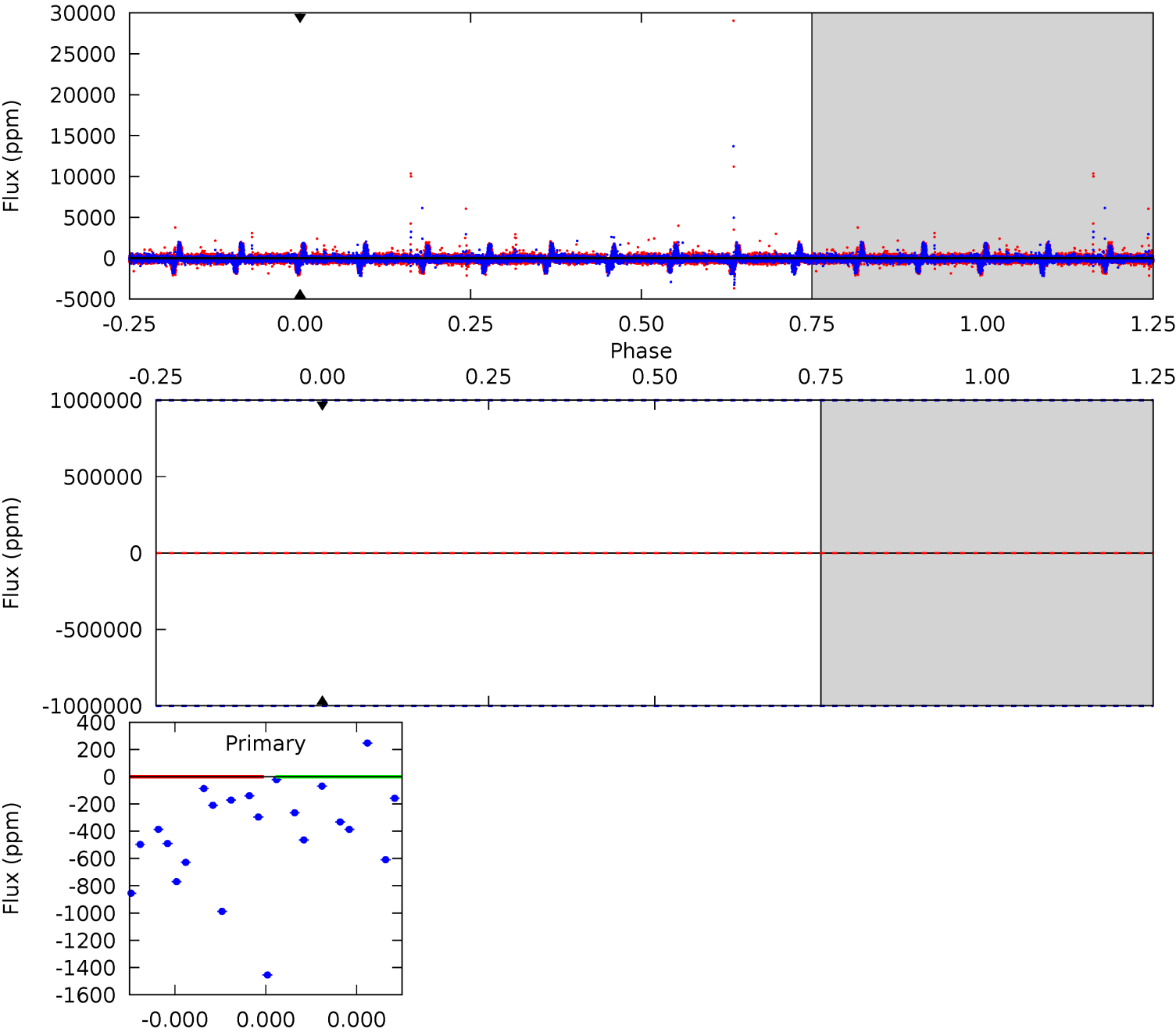
TCE 009291629-04 P=113.729496 Days $T_0=185.701314$ (BKJD)



DV Model-Shift Uniqueness Test

009291629-04, P = 113.729496 Days, E = 72.058794 Days

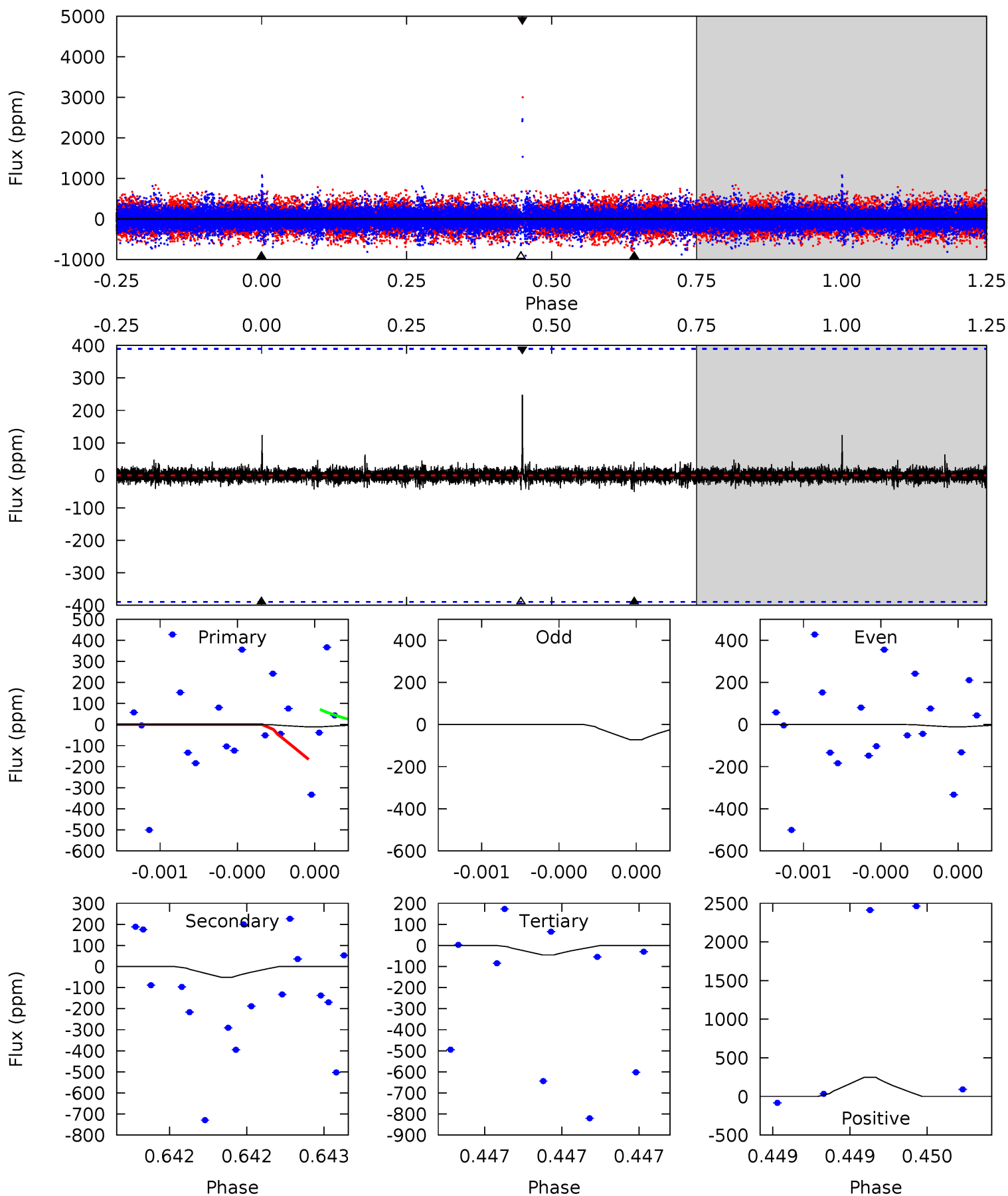
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009291629-04, P = 113.729496 Days, E = 71.971818 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.17	0.74	0.66	3.60	5.66	3.62	0.15	-0.49	-3.44	0.08	-2.87	0.54	1.67	0.83	0.68



Stellar Parameters For KIC 009291629

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4809^{+120}_{-108}	$3.106^{+0.385}_{-0.315}$	$0.080^{+0.250}_{-0.200}$	$5.145^{+2.418}_{-1.978}$	$1.232^{+0.249}_{-0.249}$	$0.013^{+0.039}_{-0.009}$
	+2%/-2%	+12%/-10%	+312%/-250%	+47%/-38%	+20%/-20%	+308%/-71%
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 009291629-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$78.80^{+67.39}_{-44.64}$	961^{+122}_{-117}	-3826^{+11427}_{-3826}	$-98.755^{+3152.262}_{-3017.669}$
Alt.	-51 ± 69	$39.81^{+44.81}_{-27.62}$	952^{+117}_{-100}	2208^{+893}_{-4306}	$2.625^{+34.463}_{-3.753}$

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

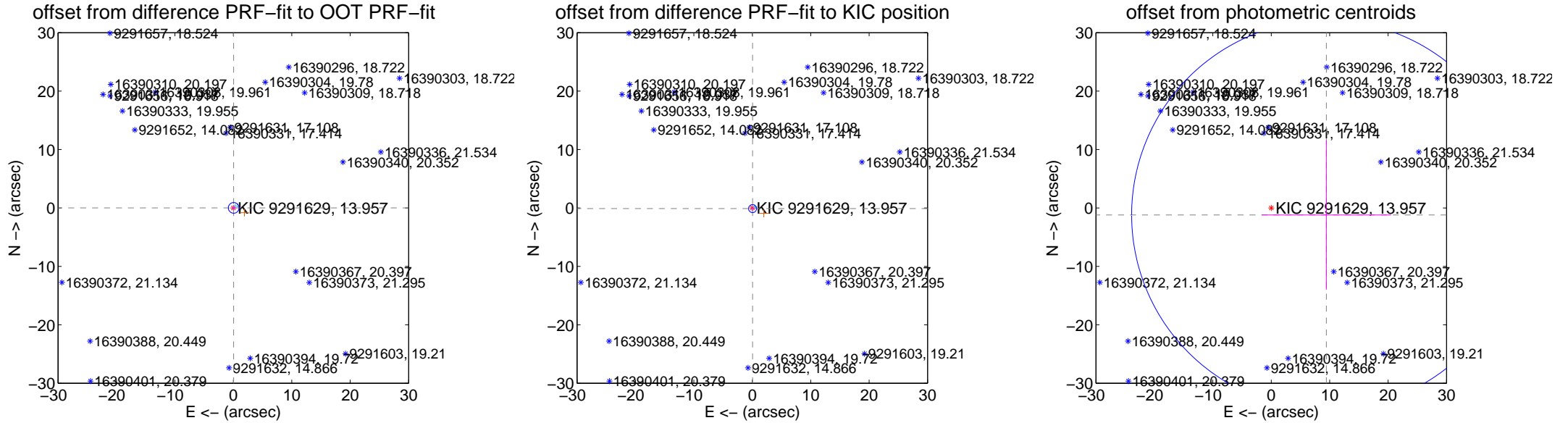
DV Centroid Data

Supplemental centroid analysis for 009291629-04. Kepler magnitude: 13.96. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

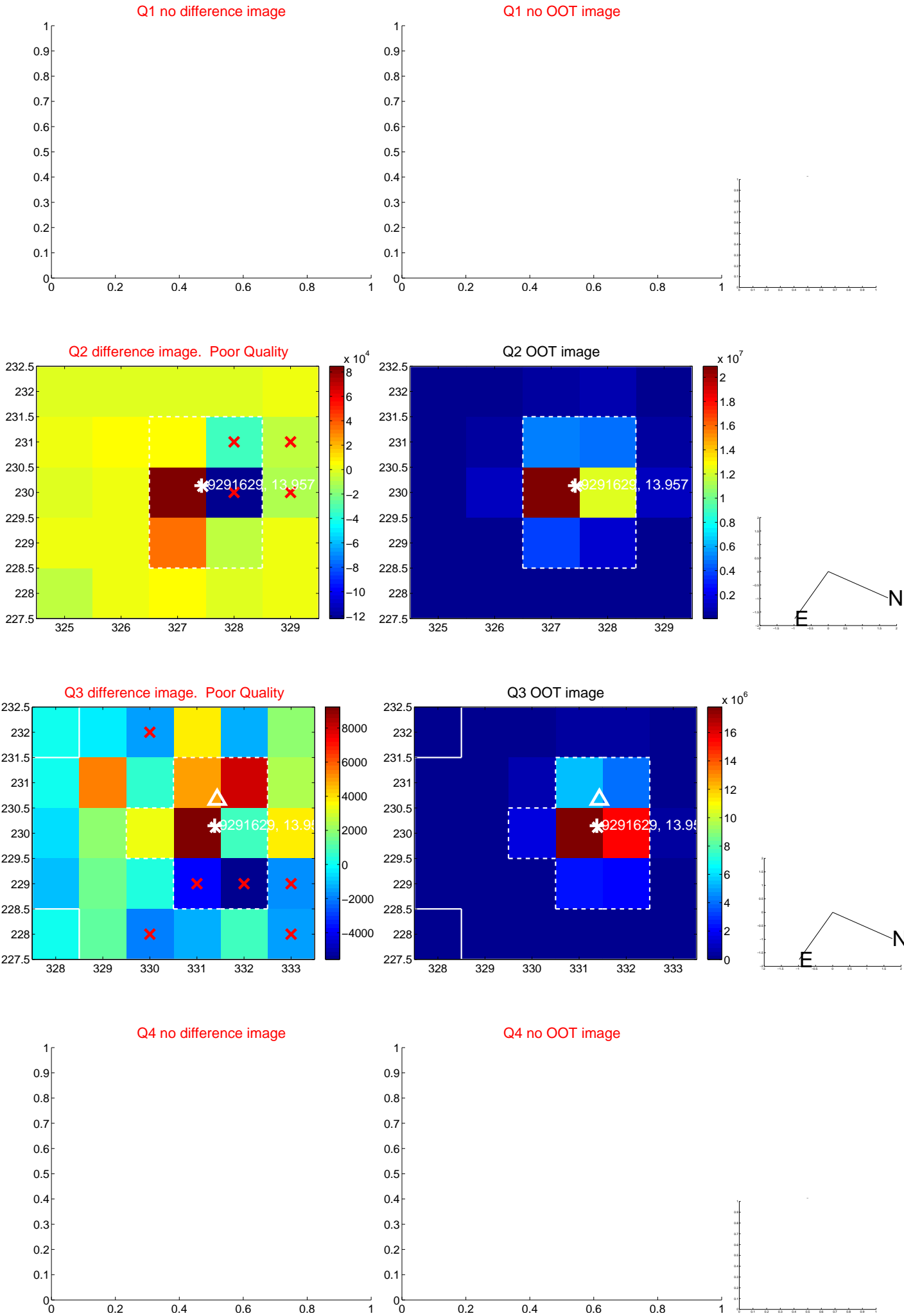
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.058 ± 0.305	0.19	-0.056 ± 0.353	0.014 ± 0.215
PRF-fit source offset from KIC position	0.119 ± 0.228	0.52	-0.047 ± 0.294	-0.110 ± 0.155
photometric centroid source offset	9.51 ± 11.11	0.86	-9.43 ± 11.08	-1.21 ± 12.77



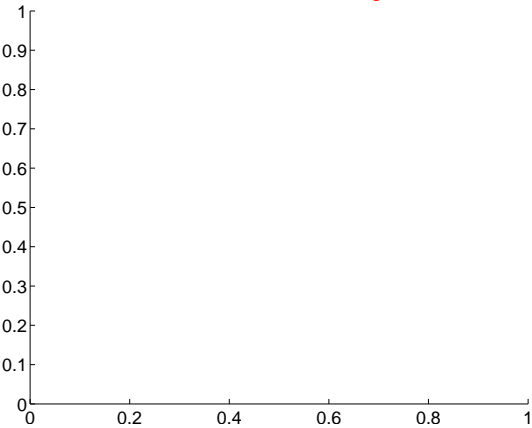
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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

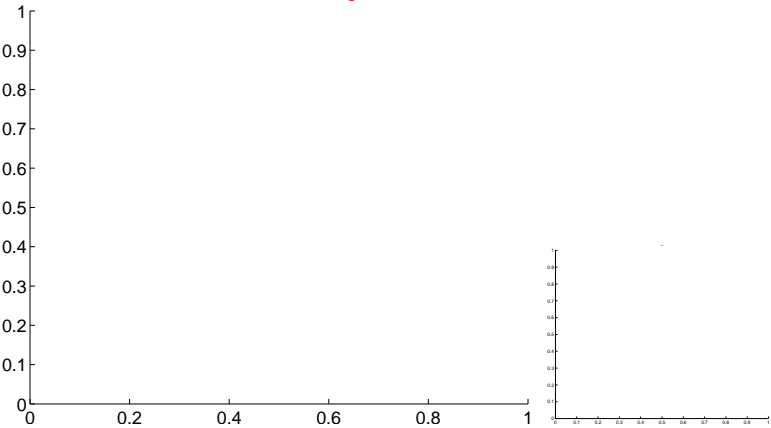


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

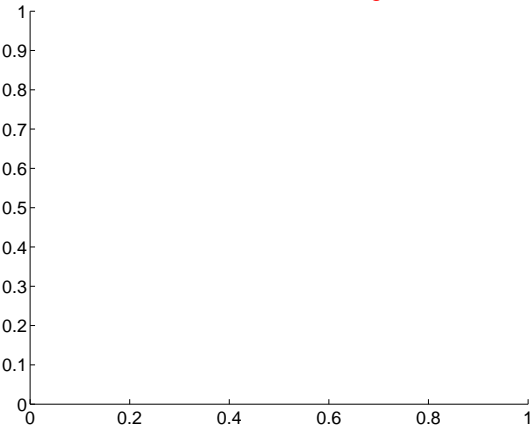
Q5 no difference image



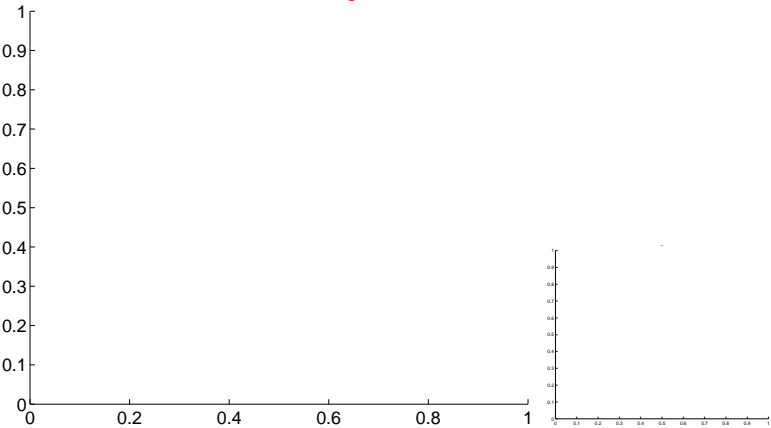
Q5 no OOT image



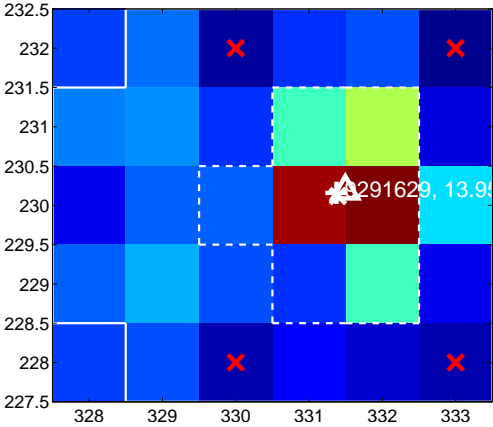
Q6 no difference image



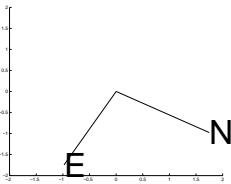
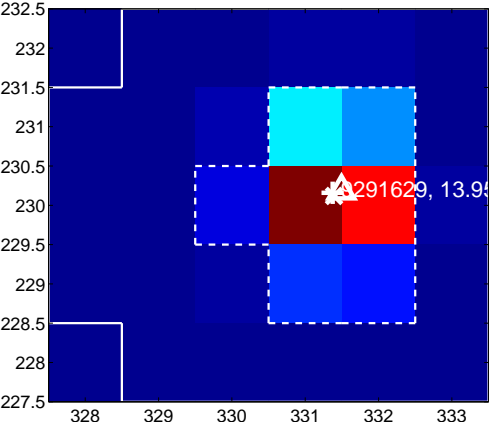
Q6 no OOT image



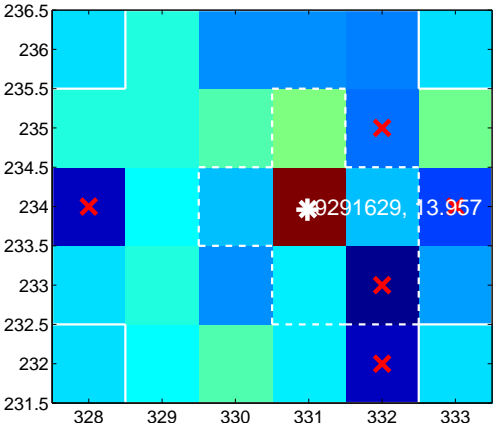
Q7 difference image



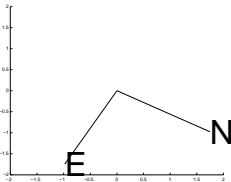
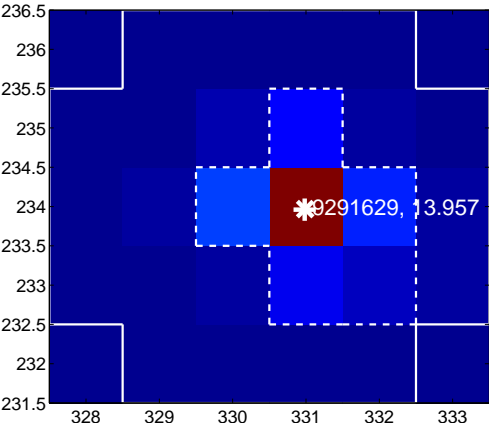
Q7 OOT image



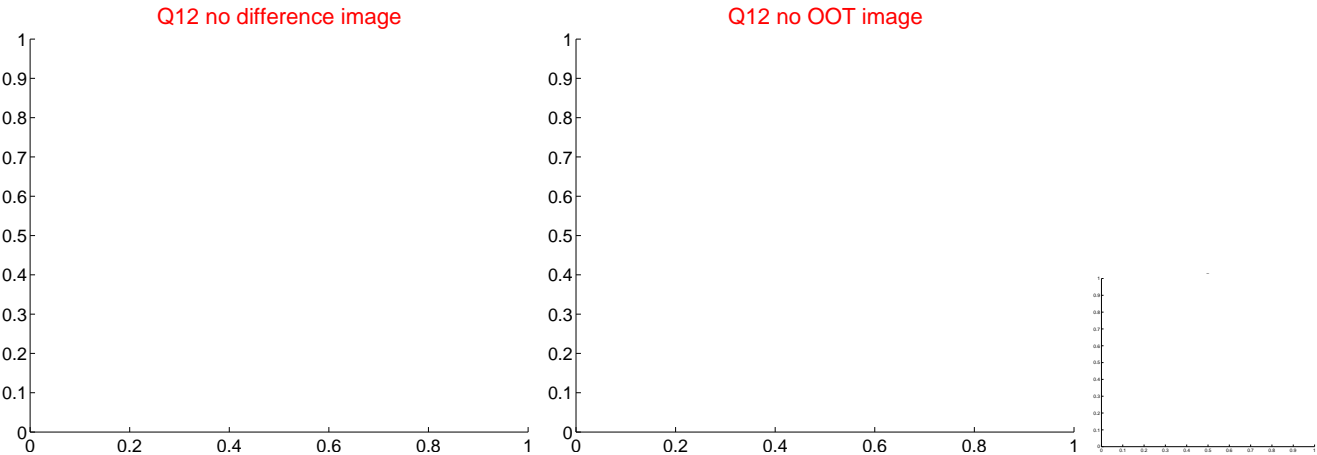
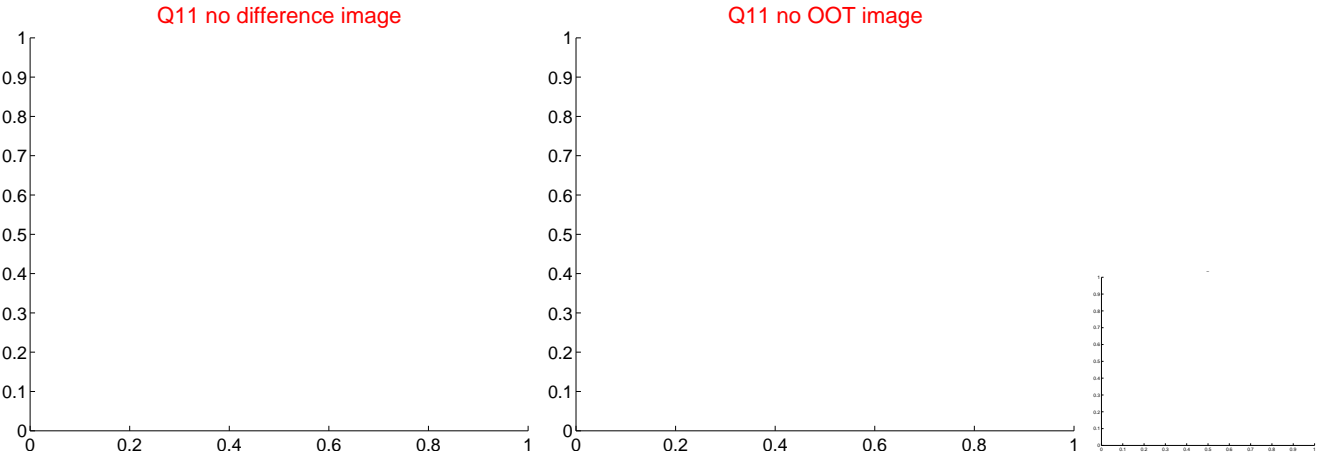
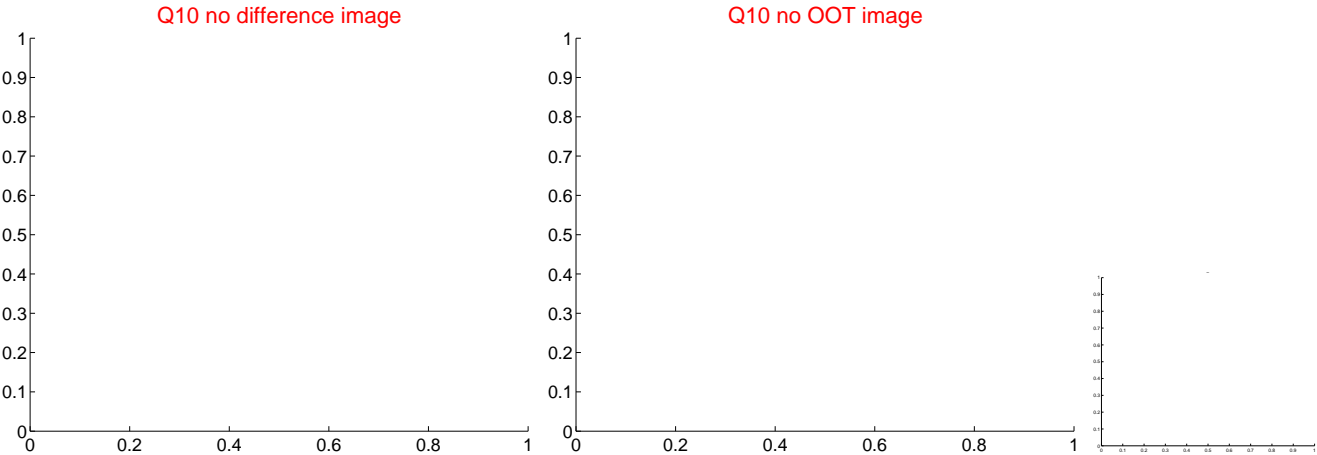
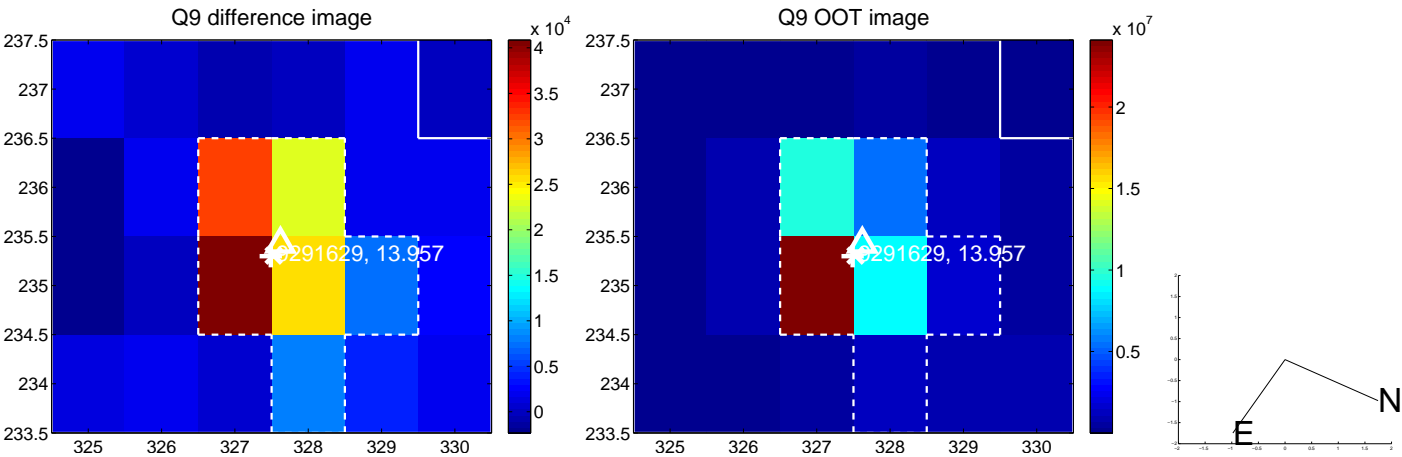
Q8 difference image. Poor Quality



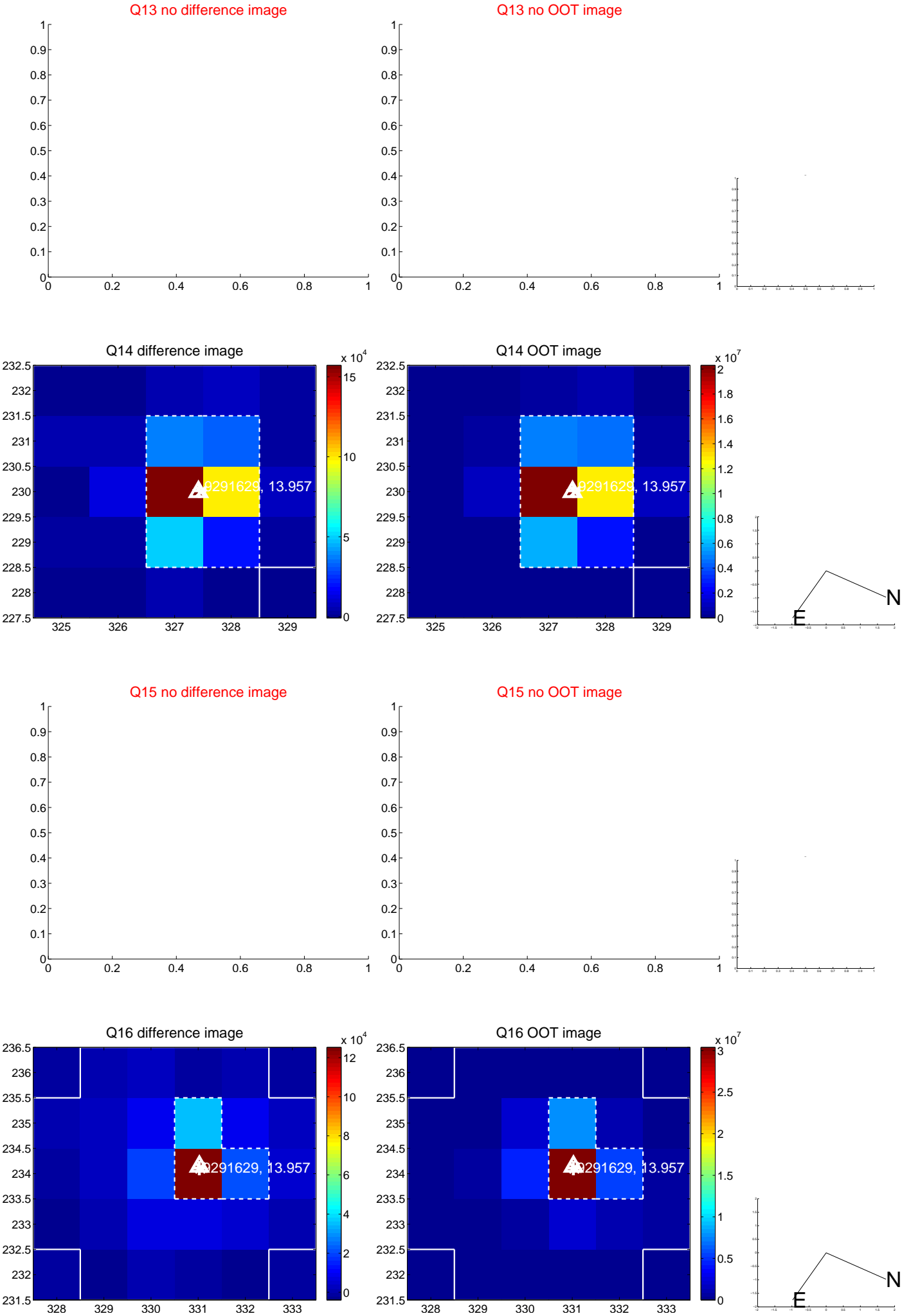
Q8 OOT image



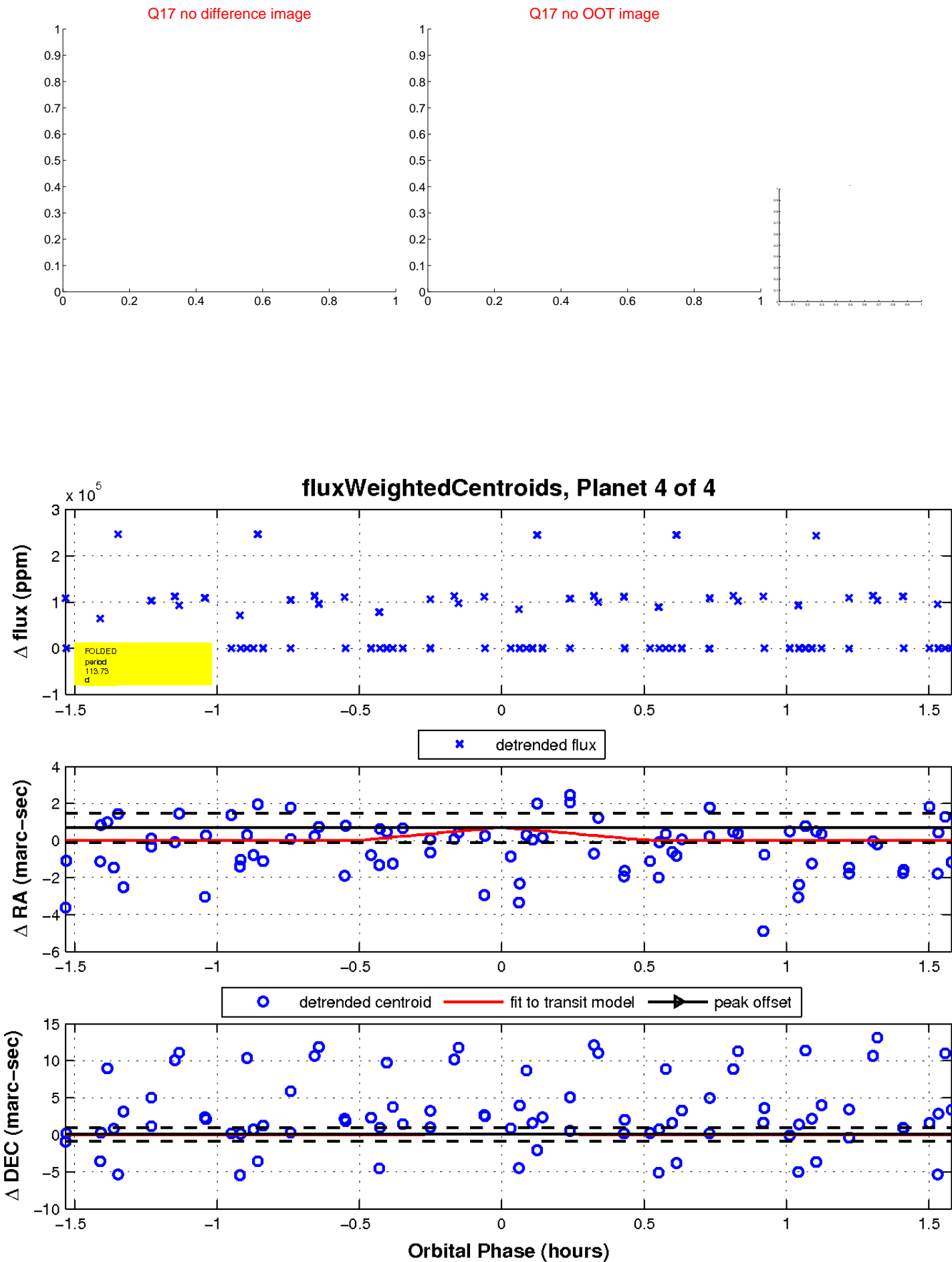
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

