

KIC 011612249

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})
011612249-01	OBS	No	473.211933	147.374853	2074.8	13.126	27.7	17.0	138.66	3362	831.53	1165.50
011612249-02	OBS	No	354.888012	387.641343	997.8	5.560	20.2	17.1	138.66	3362	572.33	1710.54
011612249-03	OBS	No	570.000967	434.186507	1621.5	3.500	27.6	-1.0	138.66	3362	513.40	909.40
011612249-04	OBS	No	240.023866	136.825979	242.5	3.438	28.1	4.5	138.66	3362	231.58	2881.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011612249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011612249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

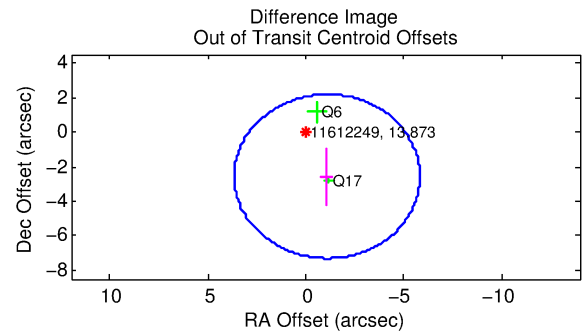
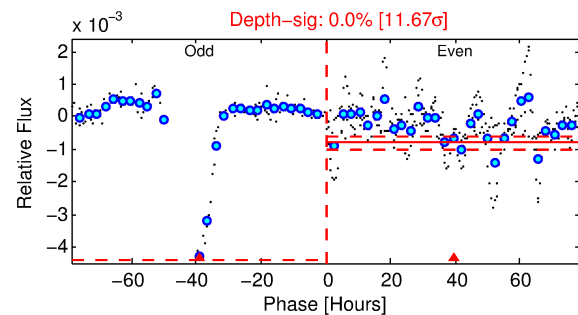
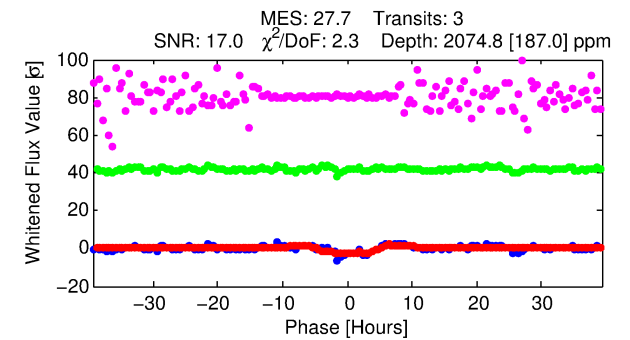
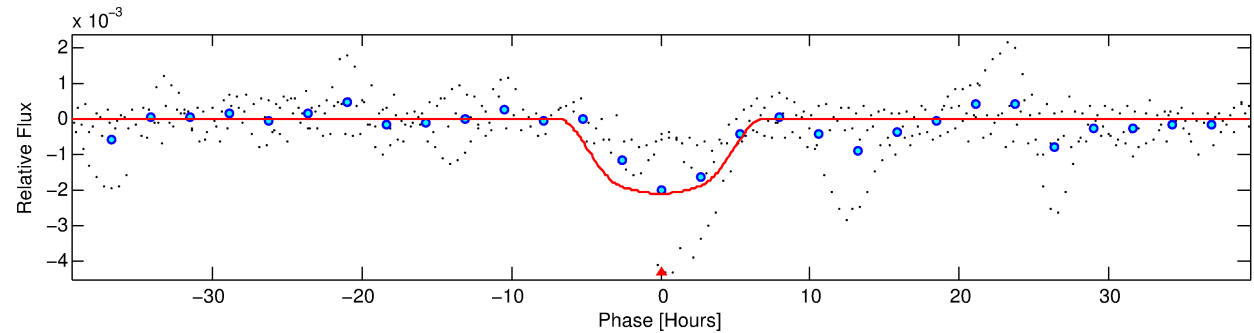
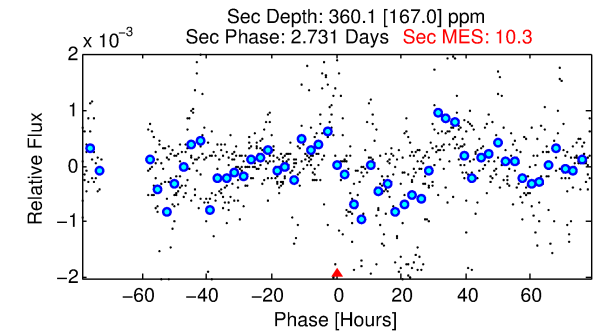
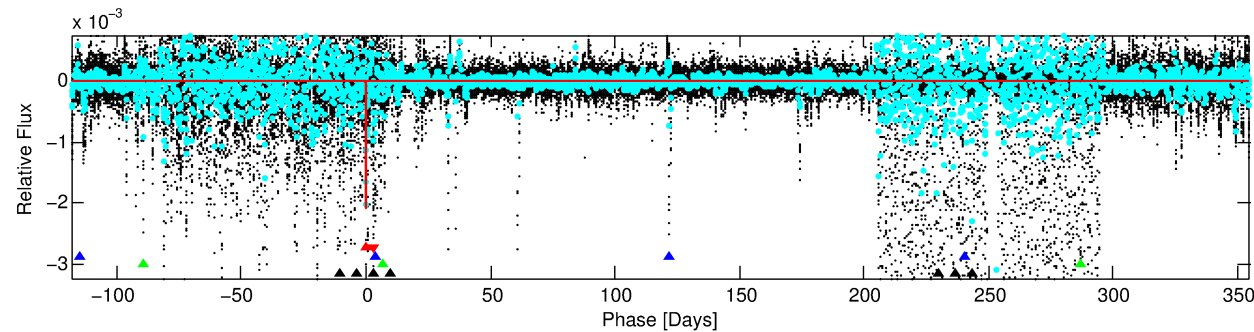
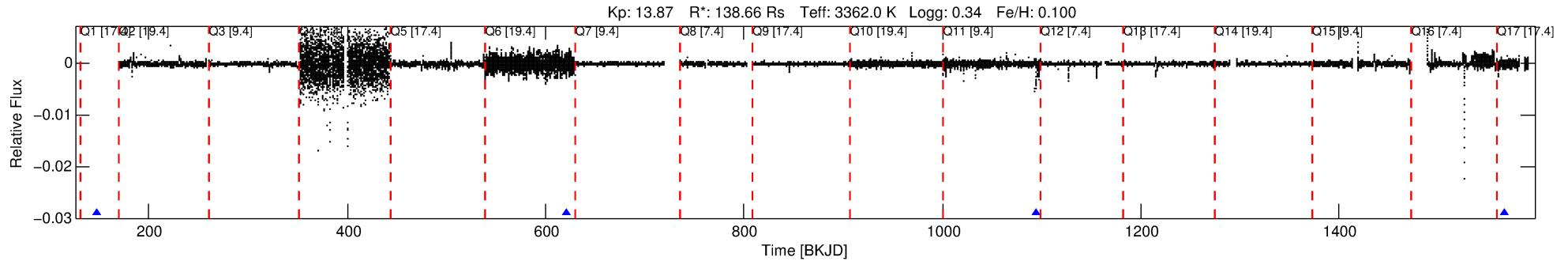
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011612249-01

No Significant Match Found

DV One-Page Summary

KIC: 11612249 Candidate: 1 of 4 Period: 473.212 d



DV Fit Results:

Period = 473.21193 [0.01123] d
Epoch = 147.3749 [0.0258] BKJD
Rp/R* = 0.0550 [0.0036]
a/R* = 145.45 [15.90]
b = 0.91 [0.02]
Seff = 1165.50 [165.89]
Teq = 1490 [53] K
Rp = 831.54 [119.53] Re
a = 1.3742 [0.1210] AU
Ag = 0.54 [0.27] [-1.73σ]
Teffp = 1976 [243] K [1.95σ]

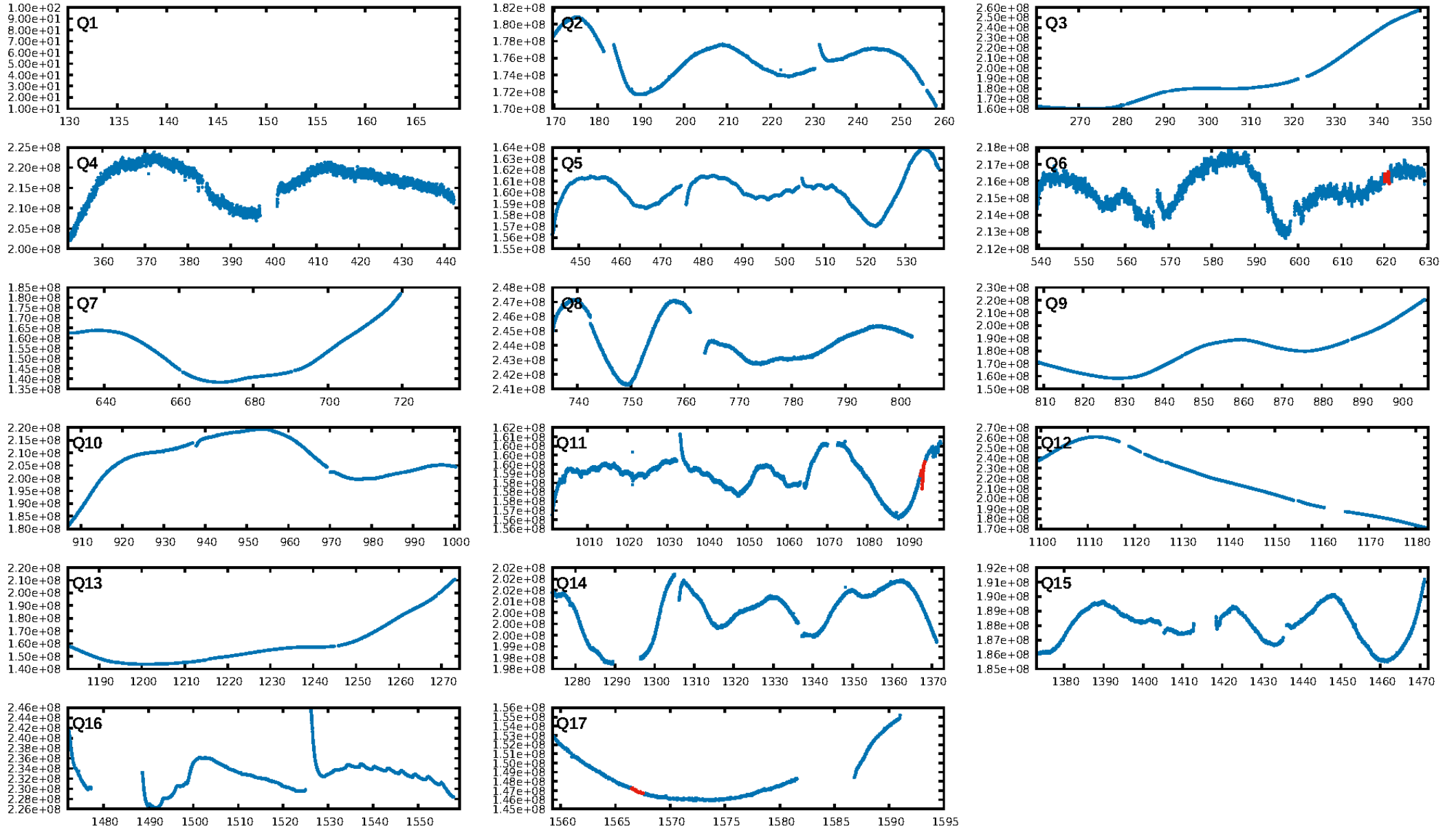
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [199.22σ]
LongPeriod-sig: 100.0% [171.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 2.1%
Bootstrap-pfa: 8.57e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.33
Centroid-sig: 85.3%
Centroid-so: 0.126 arcsec [1.13σ]
OotOffset-rm: 2.782 arcsec [1.76σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 2.285 arcsec [1.20σ]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

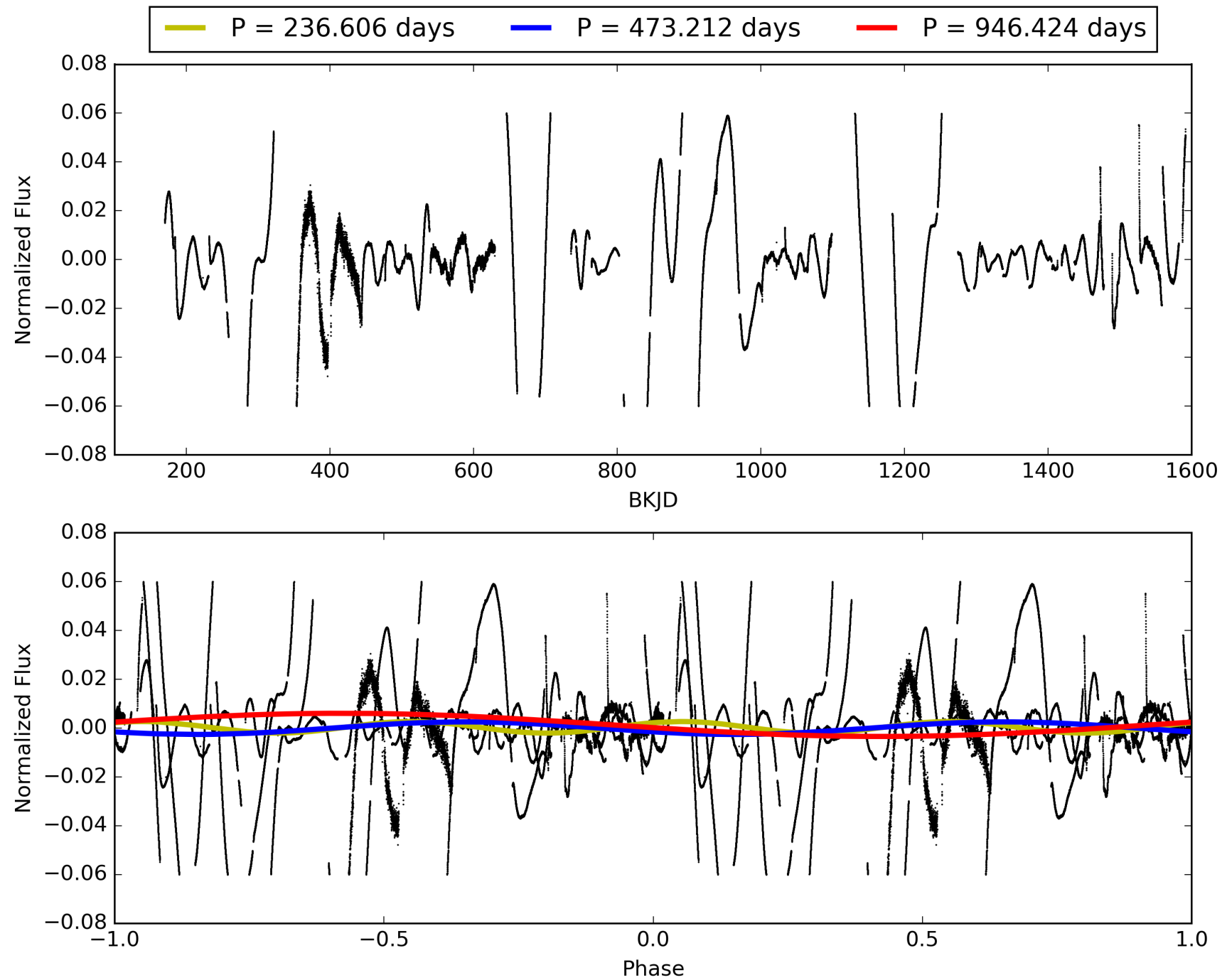
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:46:22 Z

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

TCE 011612249-01, PDC Light Curves

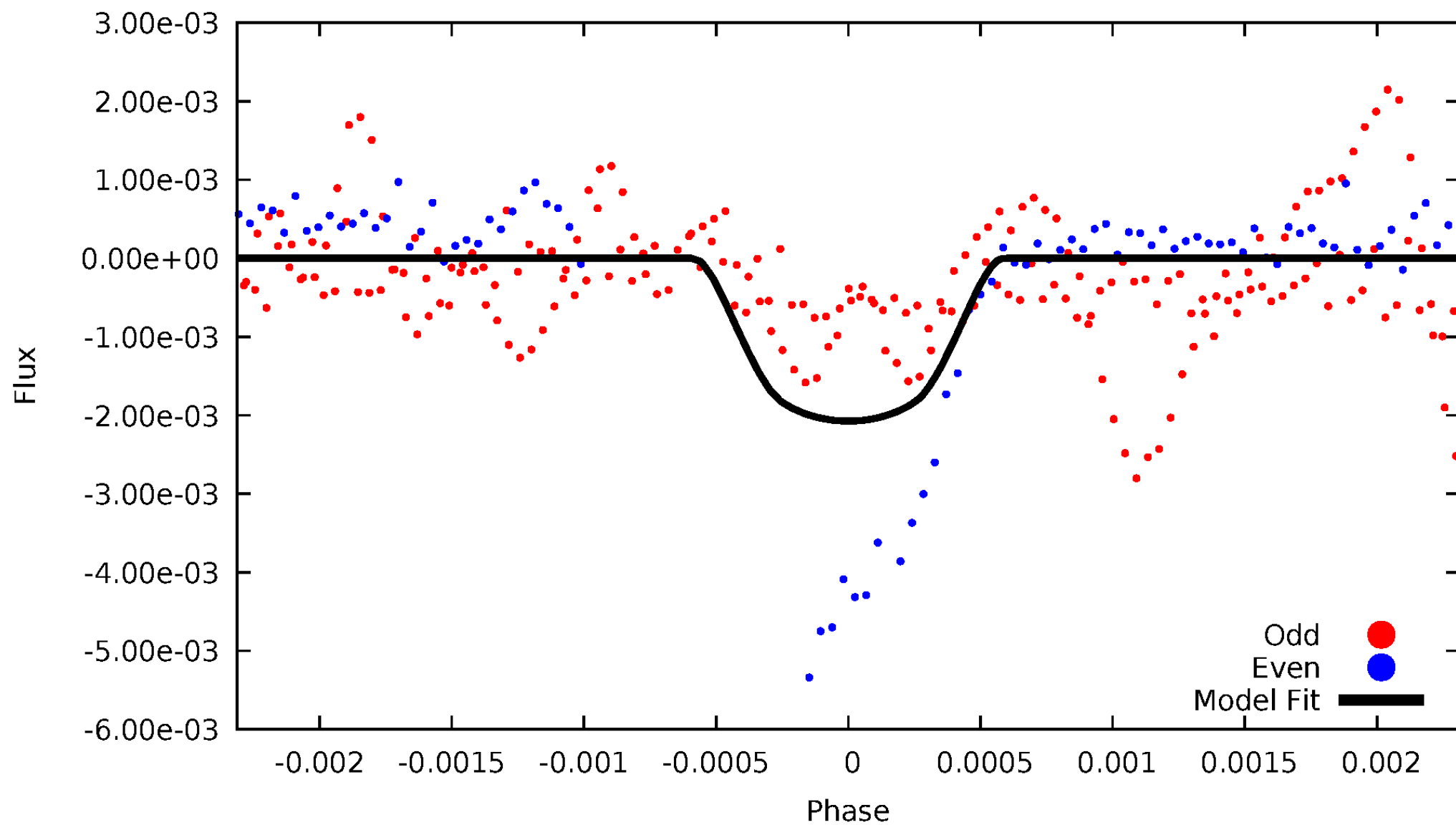


TCE 011612249-01



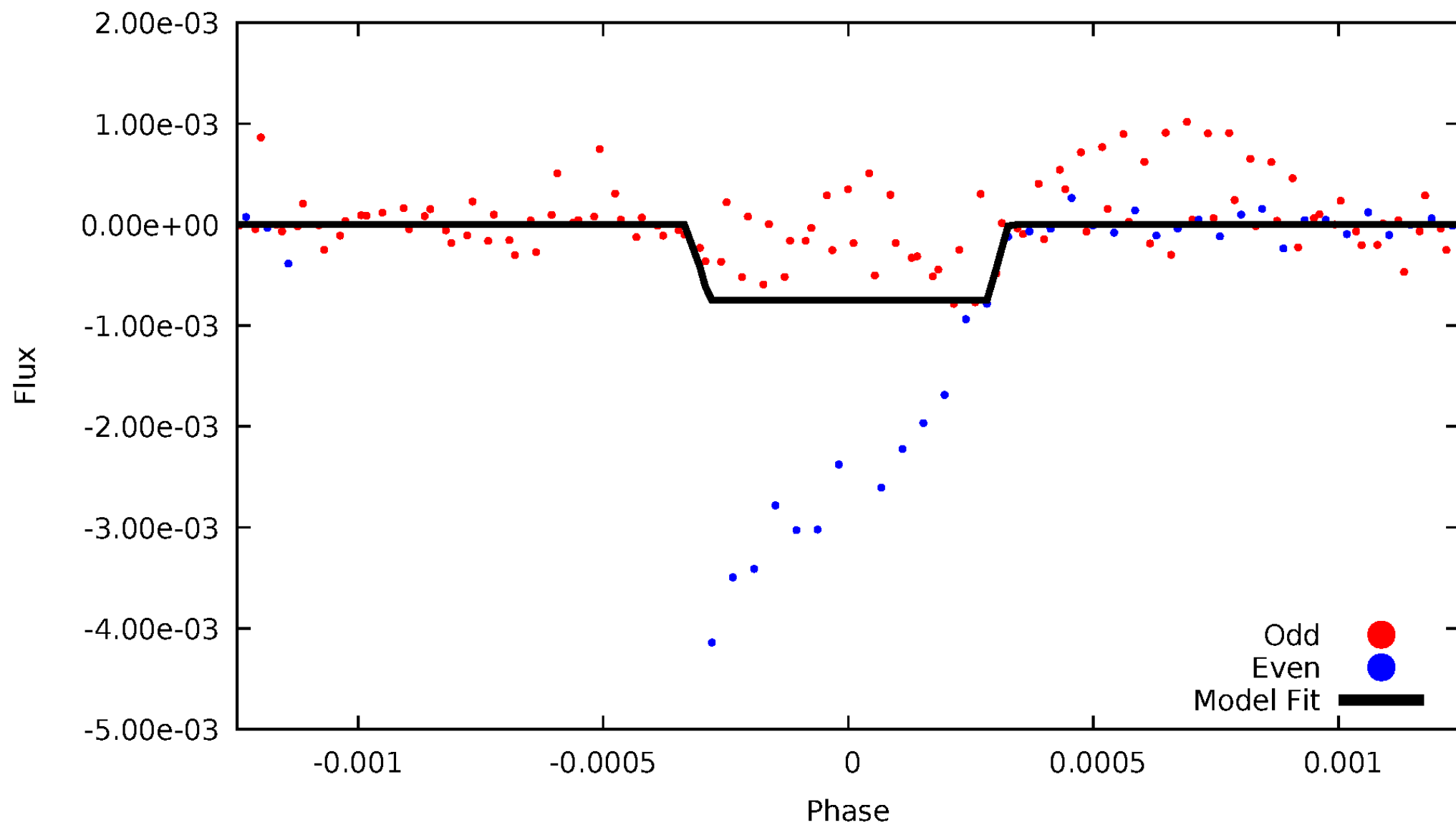
DV Odd/Even

TCE 011612249-01



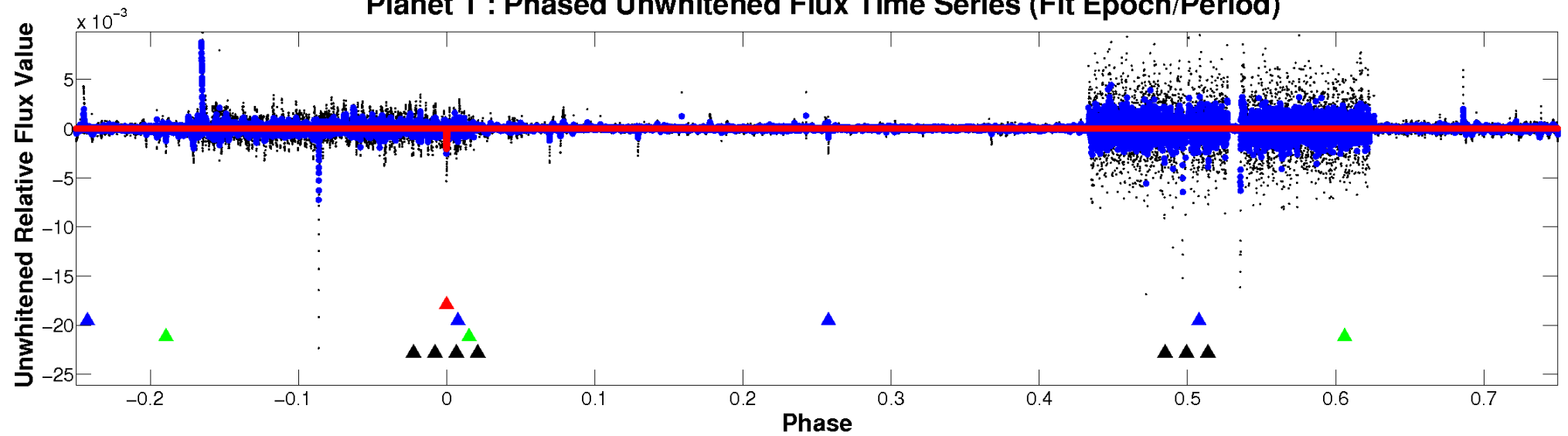
ALT Odd/Even

TCE 011612249-01

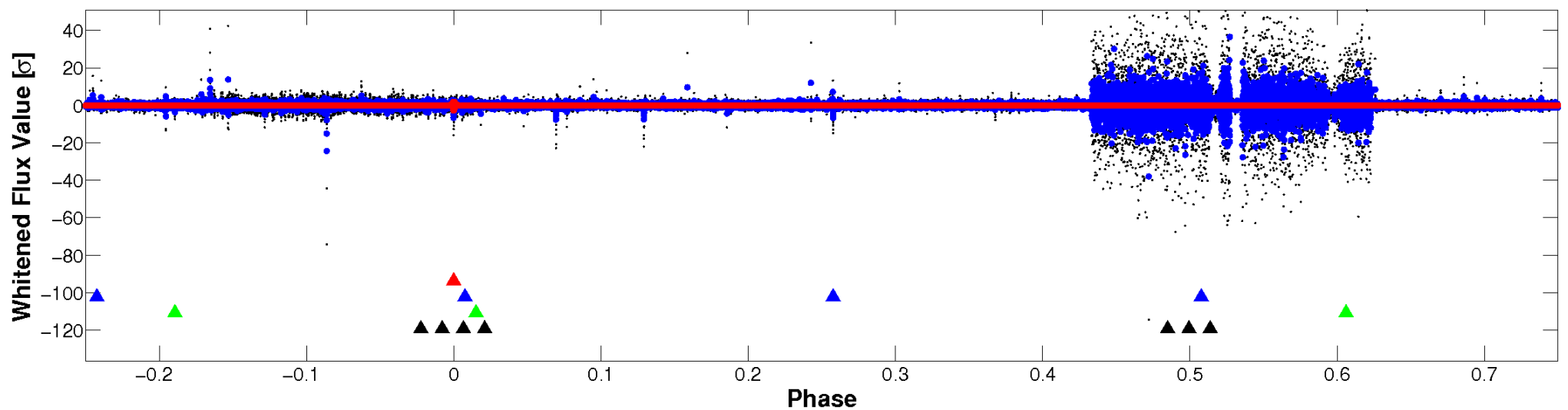


Non-Whitened Vs. Whitened Light Curve

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

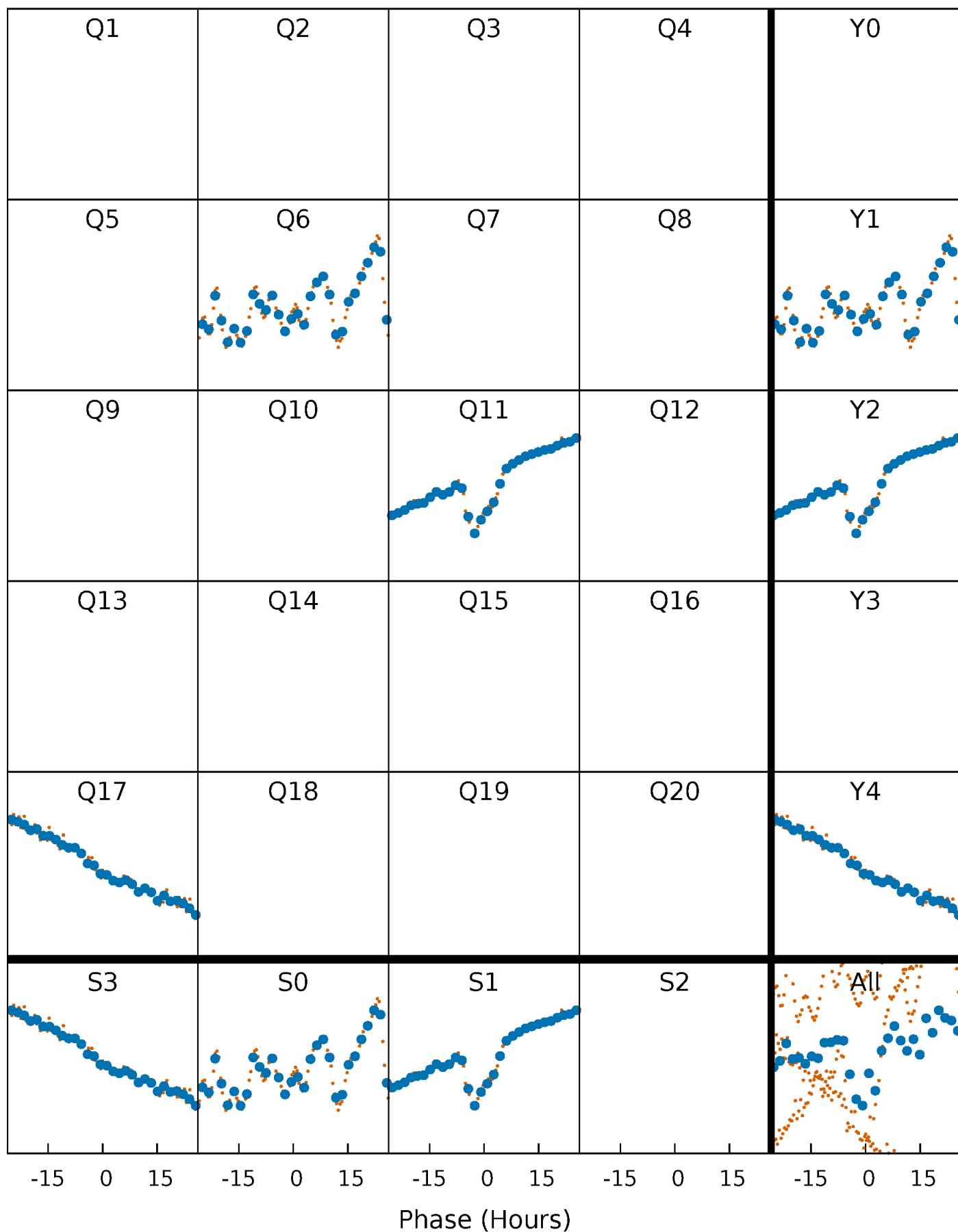


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



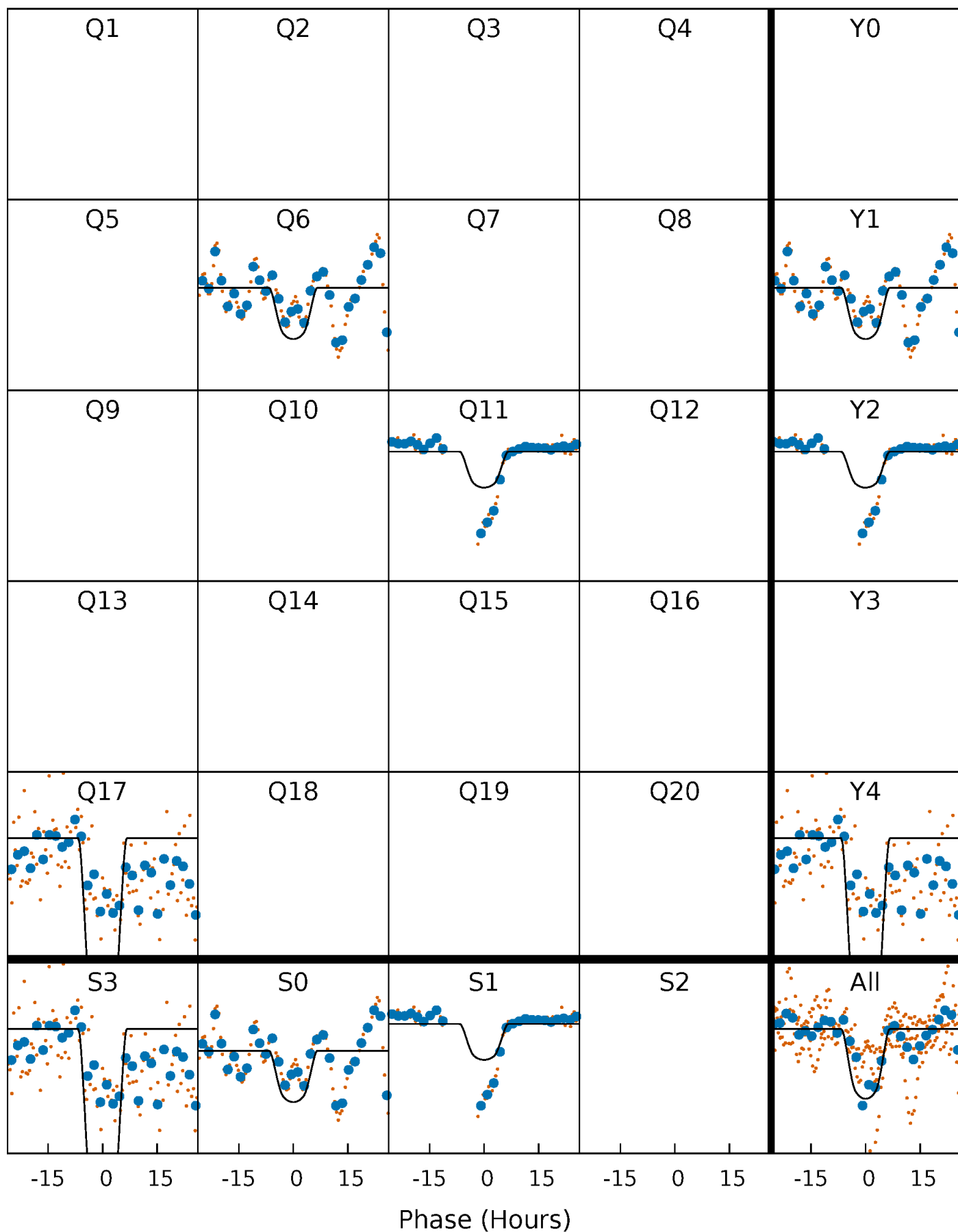
PDC Quarter-Phased Transit Curves

TCE 011612249-01 P=473.211933 Days $T_0=147.374853$ (BKJD)



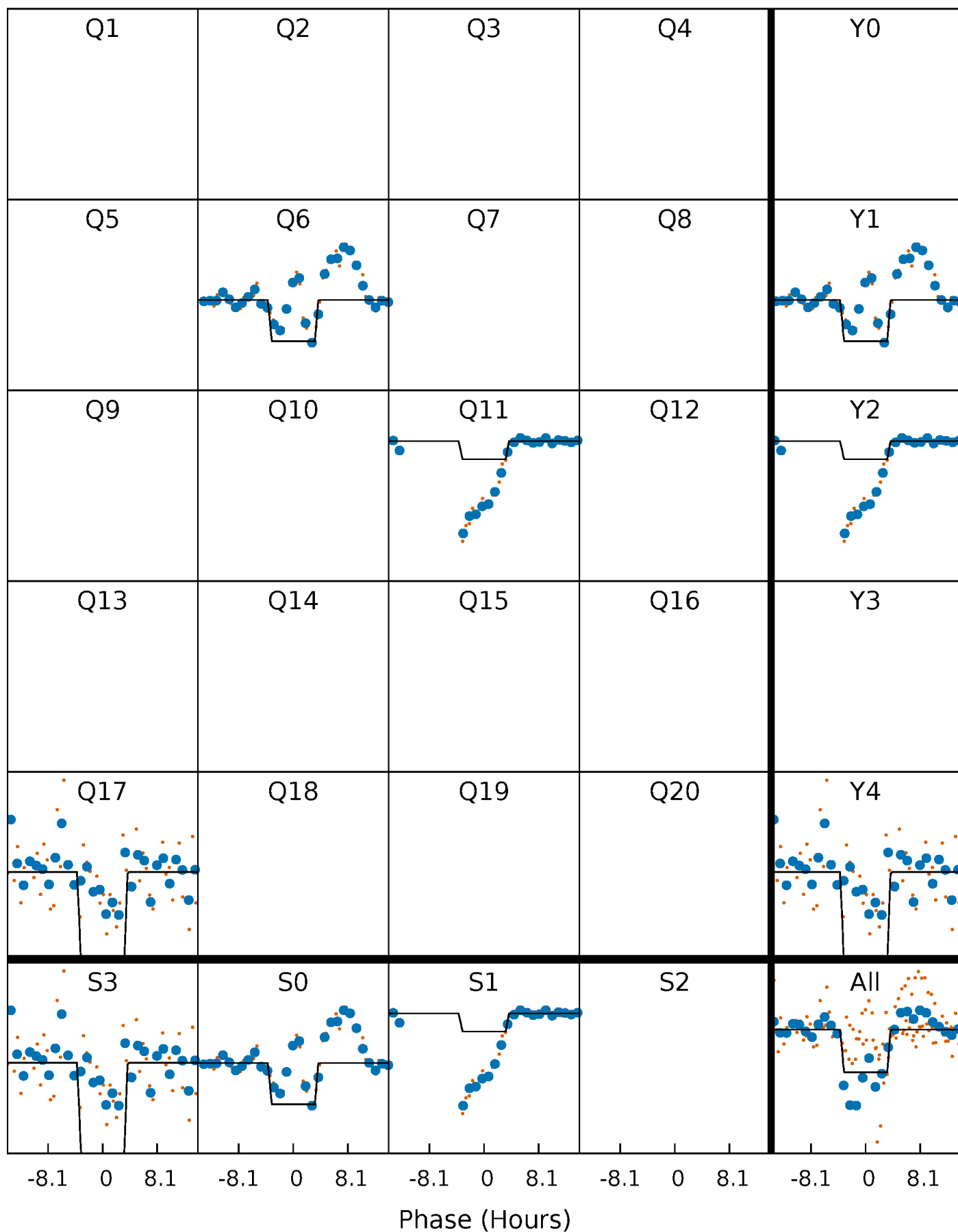
DV Quarter-Phased Transit Curves

TCE 011612249-01 P=473.211933 Days $T_0=147.374853$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

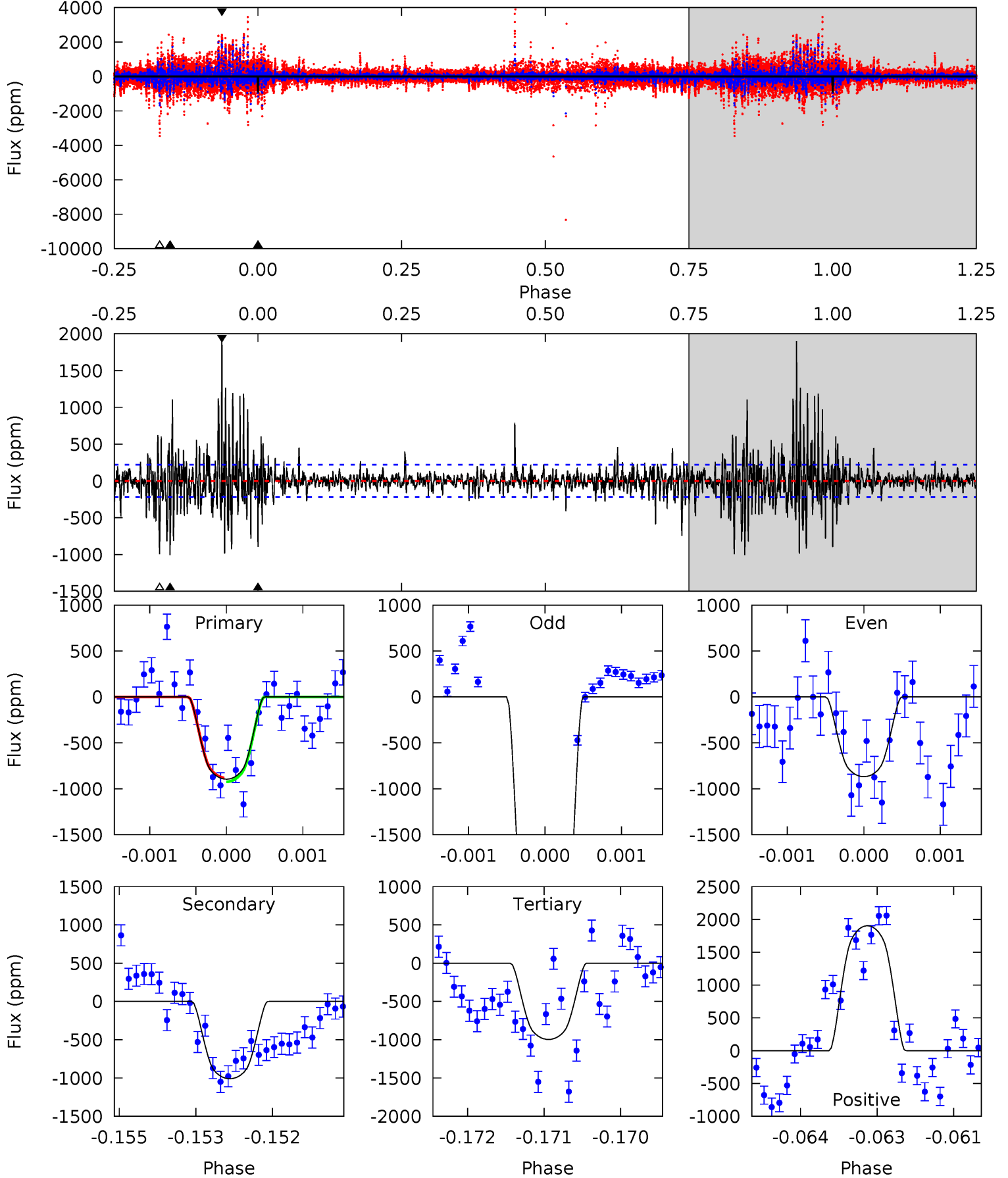
TCE 011612249-01 P=473.268494 Days $T_0=147.323510$ (BKJD)



DV Model-Shift Uniqueness Test

011612249-01, P = 473.211933 Days, E = 147.374853 Days

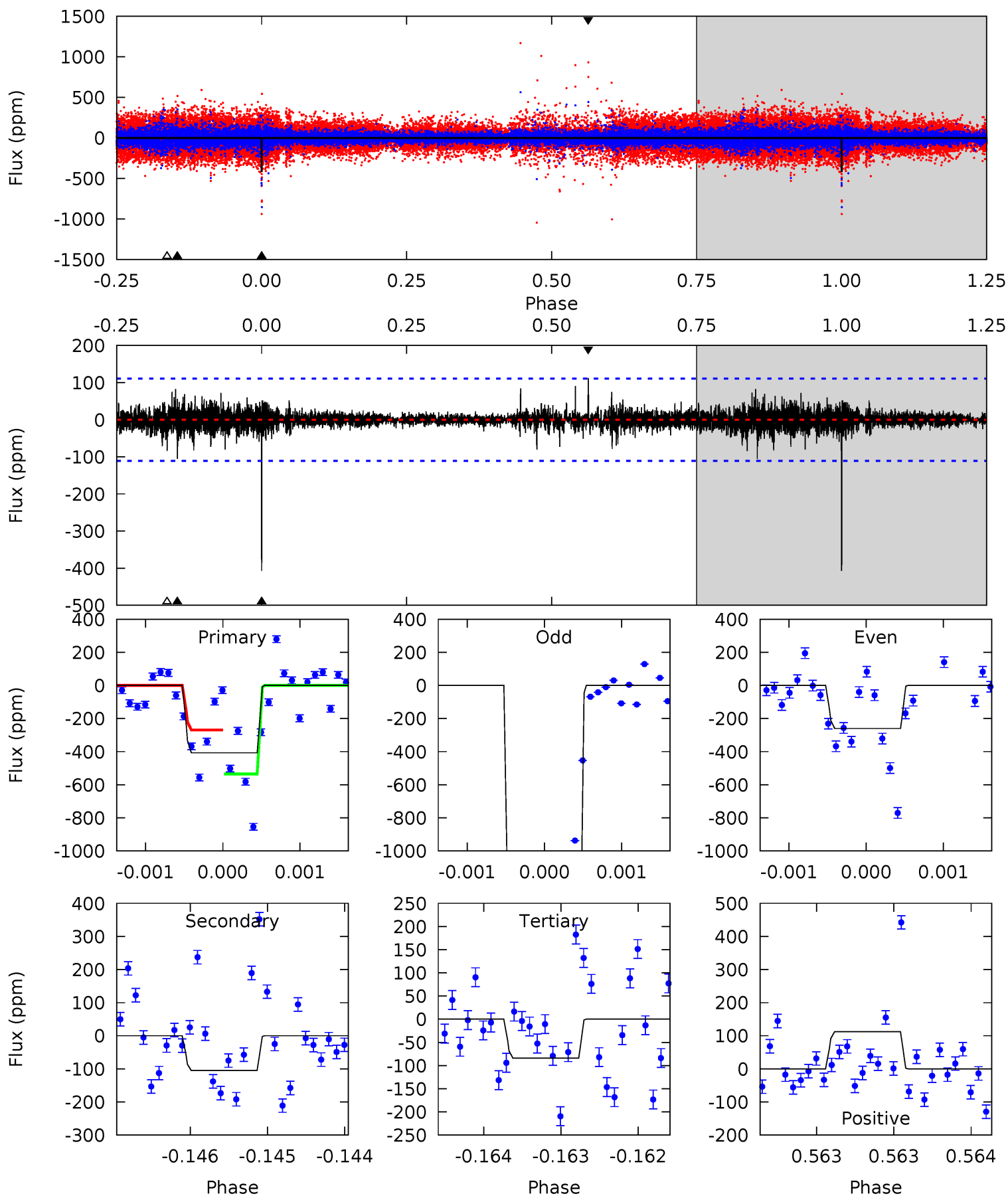
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	24.8	24.5	46.8	5.42	3.24	4.27	-2.48	-24.8	0.31	-22.0	31.1	1.85	0.65	0



Alt Model-Shift Uniqueness Test

011612249-01, P = 473.268494 Days, E = 147.323510 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	5.25	4.19	5.60	5.53	3.42	0.69	16.1	14.7	1.06	-0.35	54.4	3.74	0.22	5.73



Stellar Parameters For KIC 011612249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3362^{+79}_{-89}	$0.343^{+0.027}_{-0.027}$	$0.100^{+0.200}_{-0.200}$	$138.661^{+4.451}_{-17.804}$	$1.546^{+0.038}_{-0.359}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+8%/-8%	+200%/-200%	+3%/-13%	+2%/-23%	+19%/-8%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011612249-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1009±41	$831.26^{+61.13}_{-63.80}$	2086^{+53}_{-55}	2788^{+83}_{-88}	$1.521^{+0.222}_{-0.201}$
Alt.	-105±20	$412.43^{+59.74}_{-52.97}$	2083^{+56}_{-58}	2367^{+171}_{-198}	$0.635^{+0.246}_{-0.183}$

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 $A_{obs} \gg 1.0$

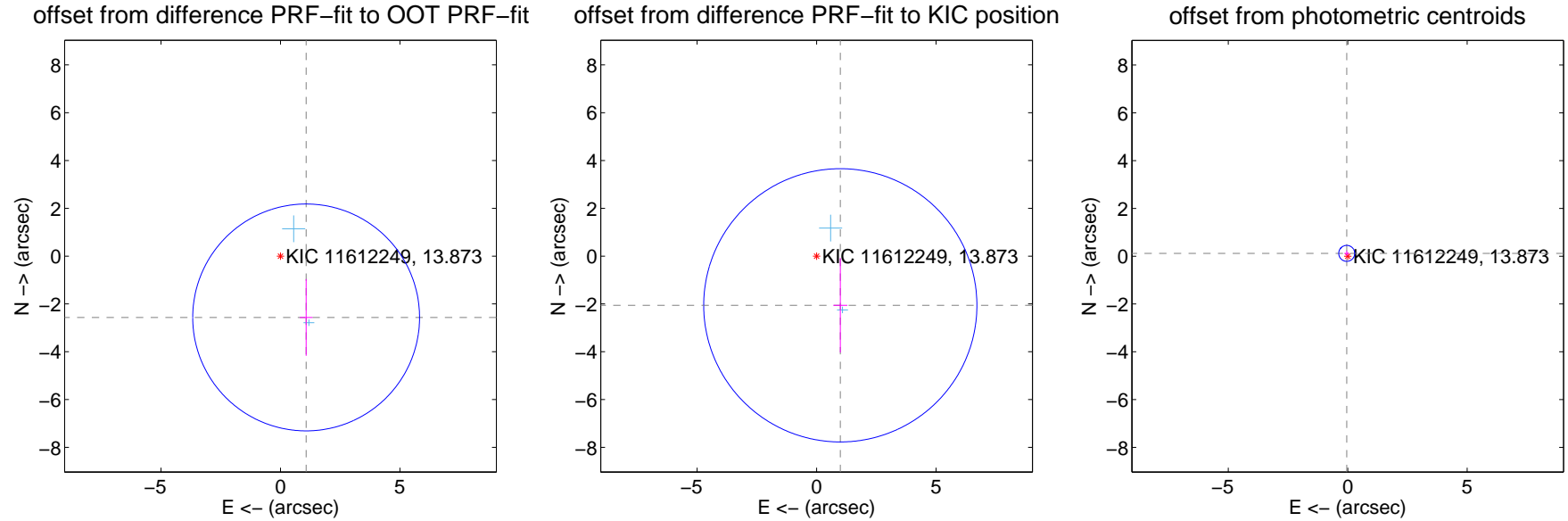
DV Centroid Data

Supplemental centroid analysis for 011612249-01. Kepler magnitude: 13.87. Transit SNR 16.95

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.782 ± 1.582	1.76	-1.075 ± 0.268	-2.566 ± 1.607
PRF-fit source offset from KIC position	2.285 ± 1.906	1.20	-0.993 ± 0.295	-2.058 ± 1.977
photometric centroid source offset	0.13 ± 0.11	1.13	0.04 ± 0.10	0.12 ± 0.11



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

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



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

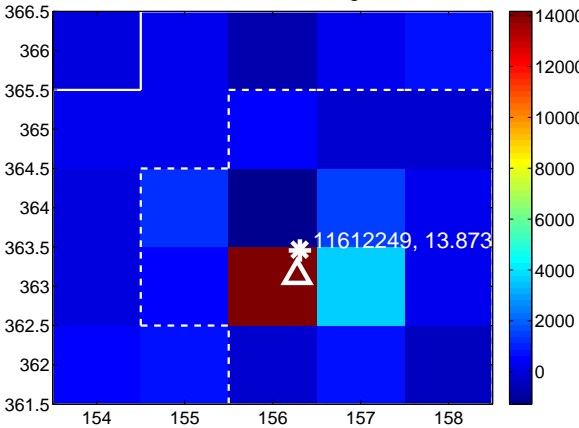
Q5 no difference image



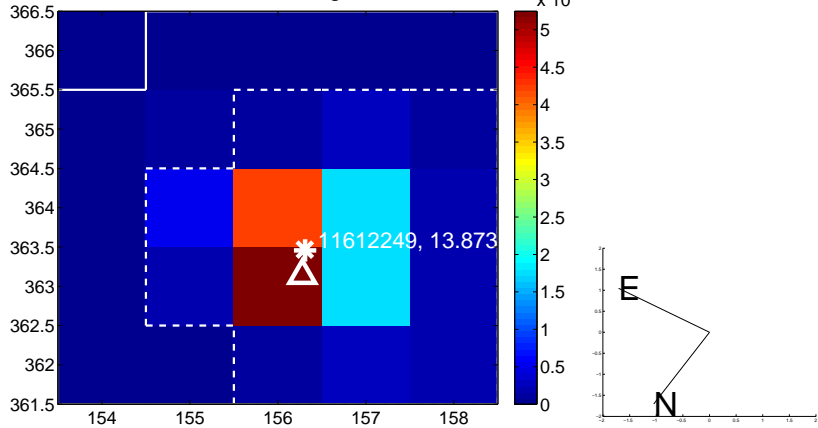
Q5 no OOT image



Q6 difference image



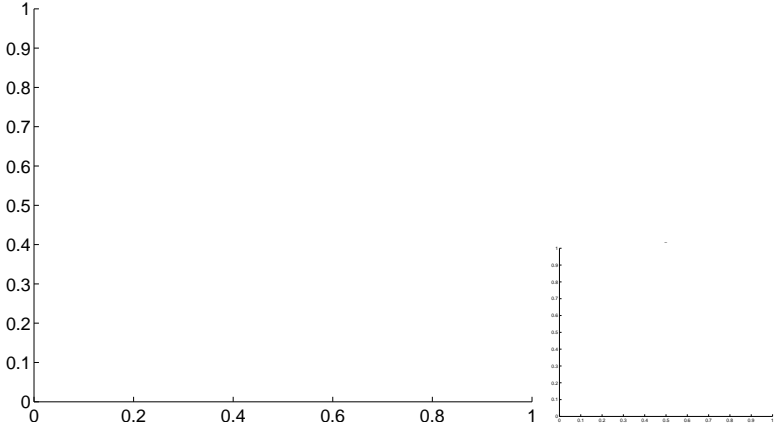
Q6 OOT image



Q7 no difference image



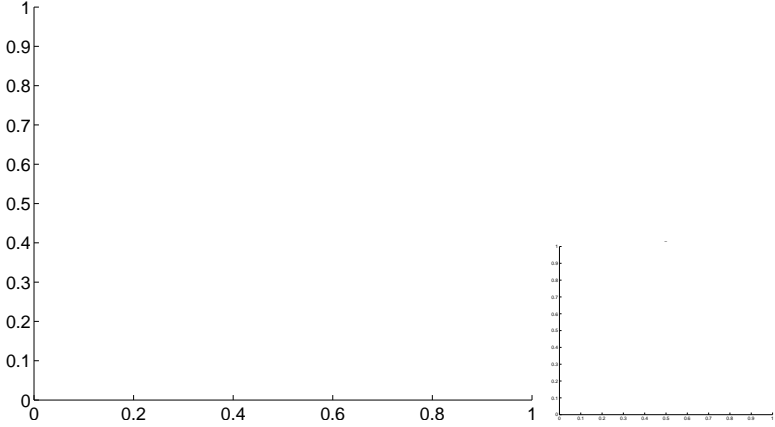
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



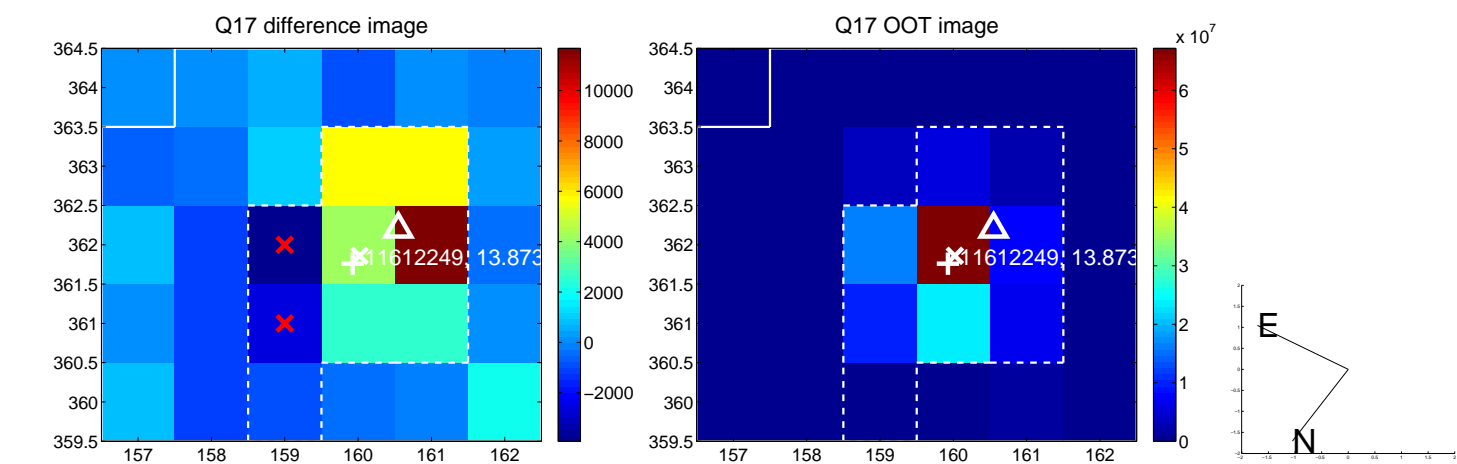
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



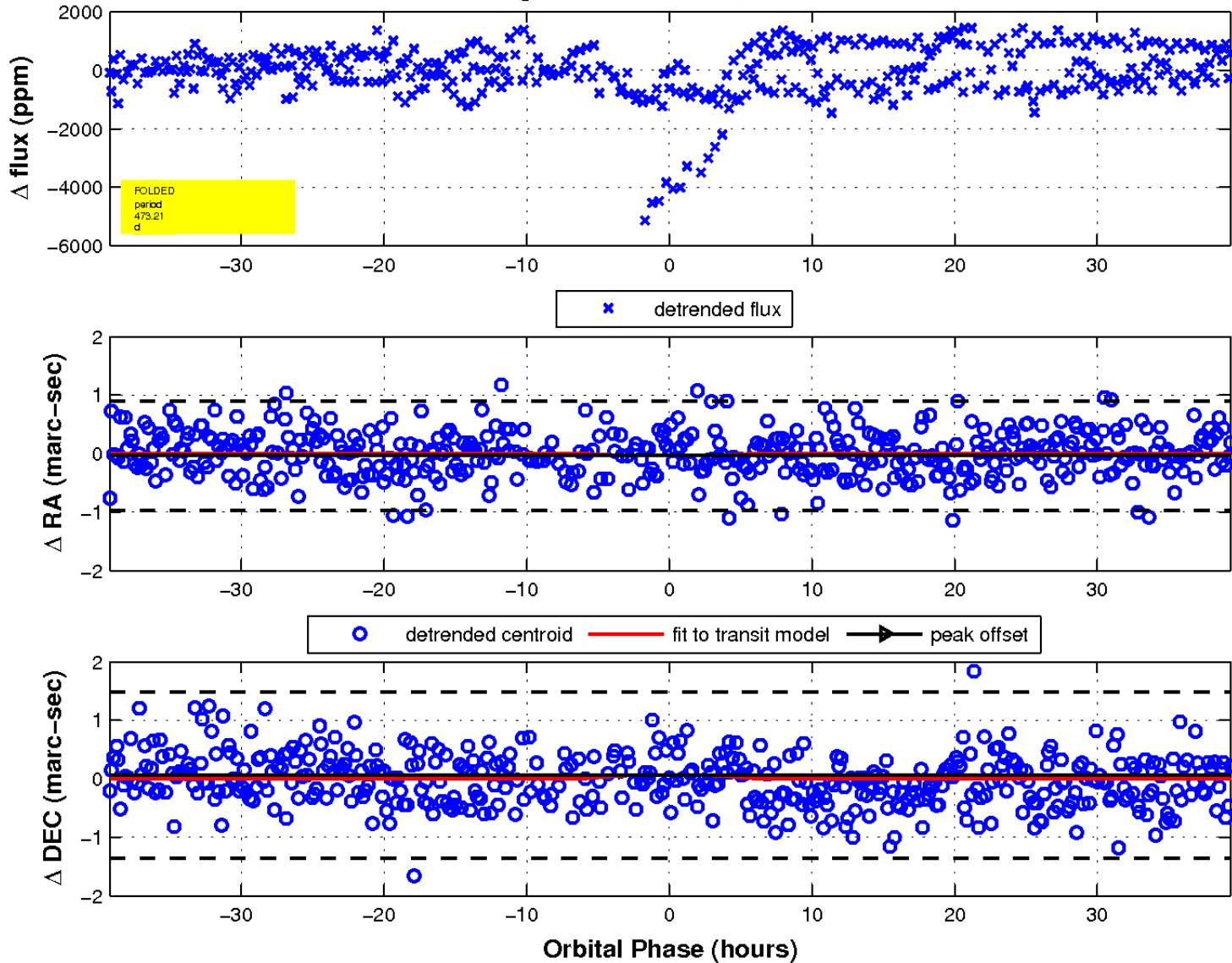
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

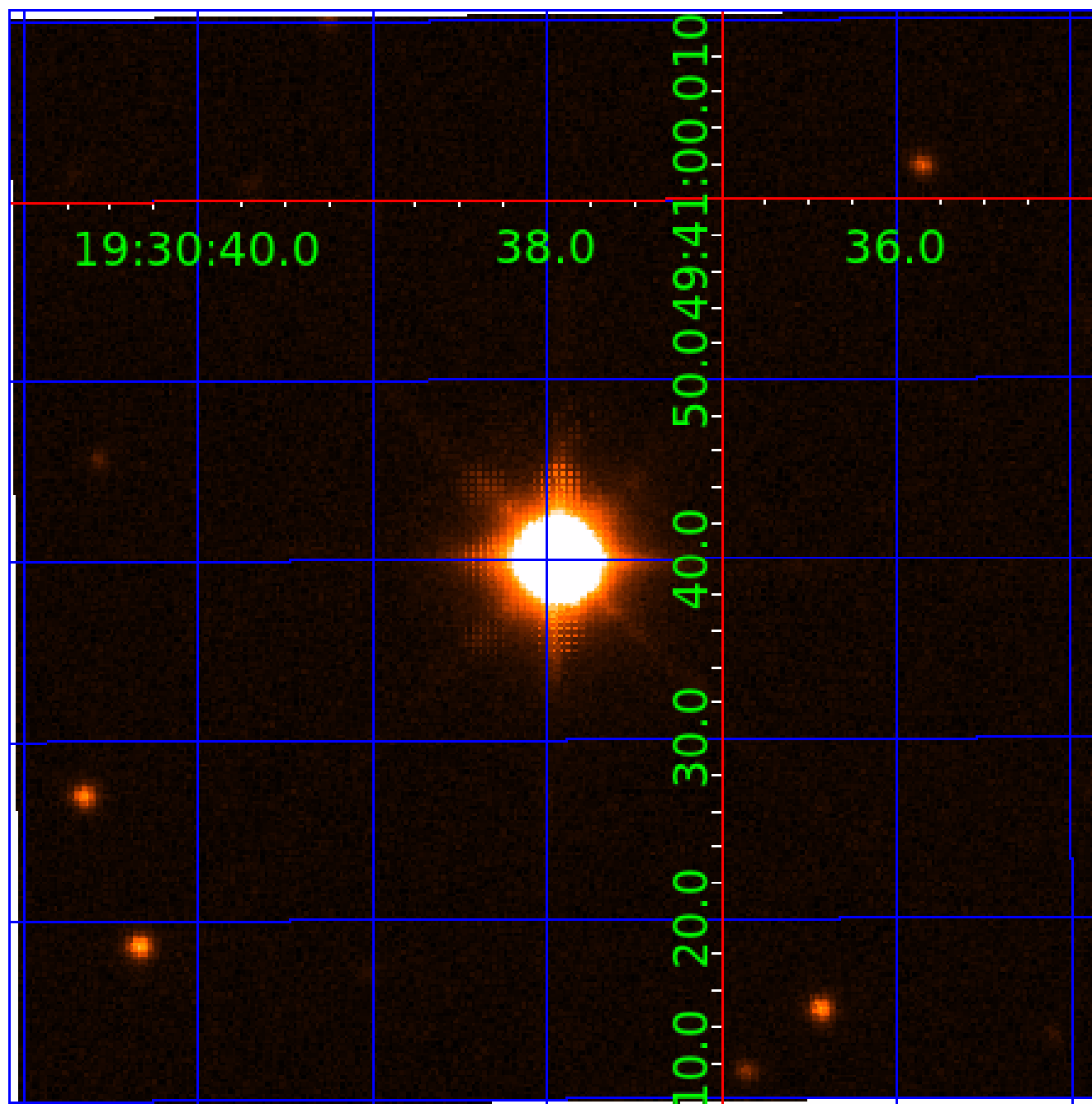


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 011612249

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})
011612249-01	OBS	No	473.211933	147.374853	2074.8	13.126	27.7	17.0	138.66	3362	831.53	1165.50
011612249-02	OBS	No	354.888012	387.641343	997.8	5.560	20.2	17.1	138.66	3362	572.33	1710.54
011612249-03	OBS	No	570.000967	434.186507	1621.5	3.500	27.6	-1.0	138.66	3362	513.40	909.40
011612249-04	OBS	No	240.023866	136.825979	242.5	3.438	28.1	4.5	138.66	3362	231.58	2881.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011612249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011612249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

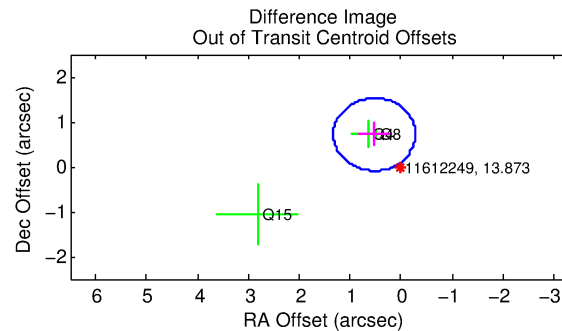
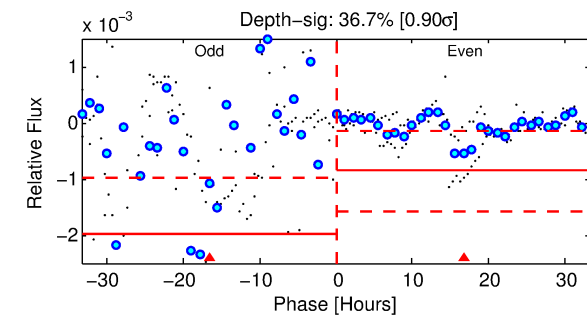
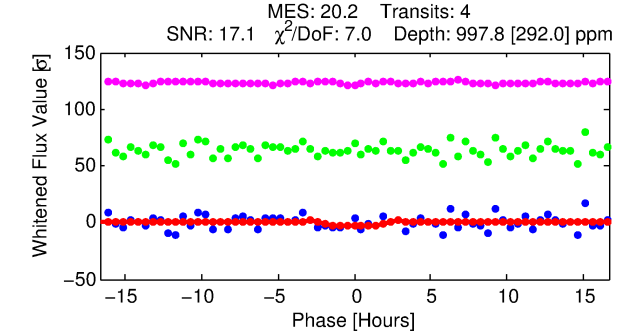
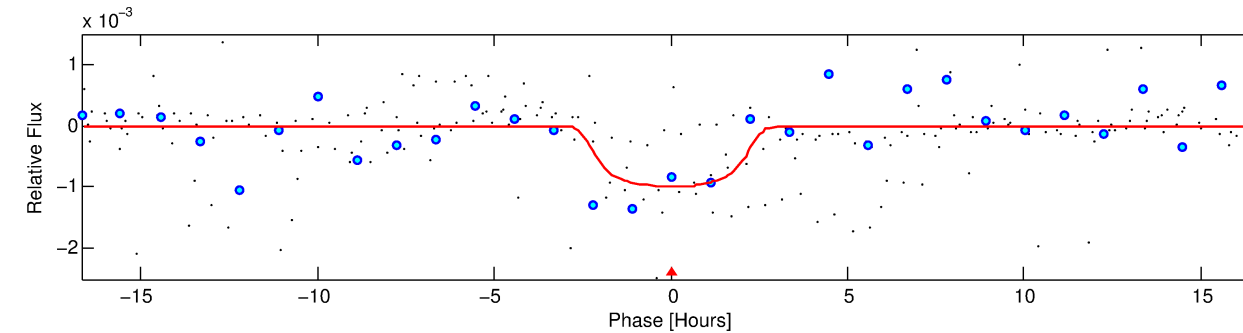
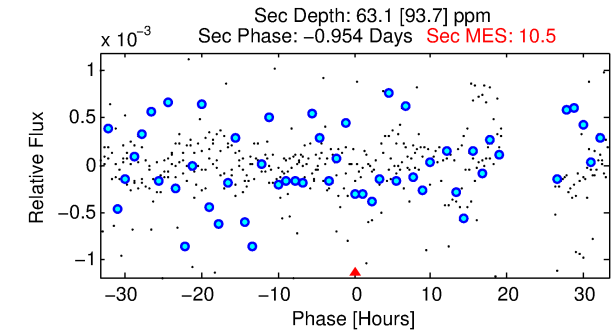
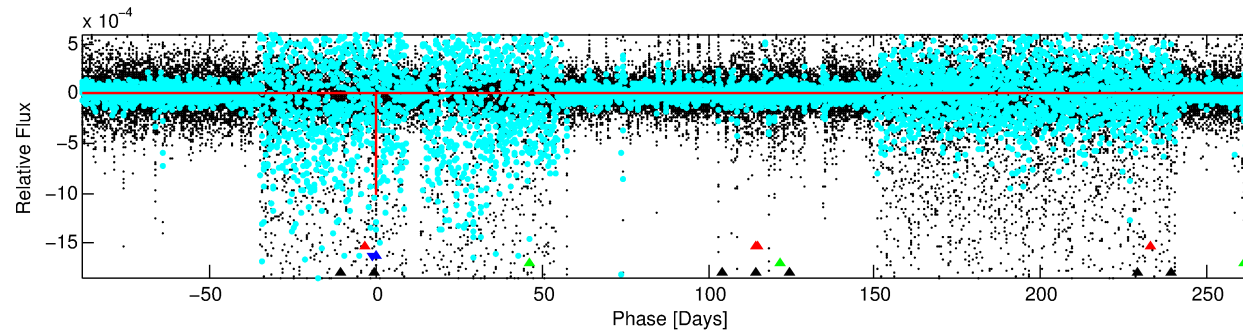
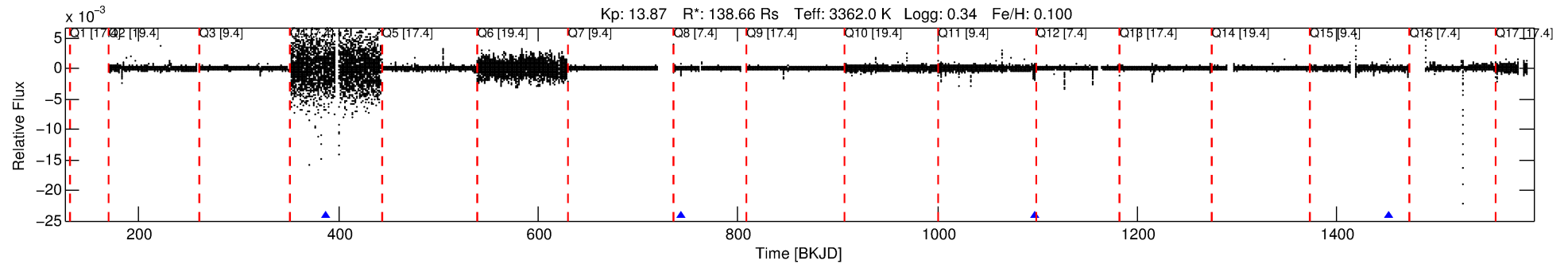
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011612249-02

No Significant Match Found

DV One-Page Summary

KIC: 11612249 Candidate: 2 of 4 Period: 354.888 d



DV Fit Results:

Period = 354.88801 [0.00927] d
Epoch = 387.6413 [0.0169] BKJD
Rp/R* = 0.0378 [0.0105]
a/R* = 243.38 [151.27]
b = 0.91 [0.12]
Seff = 1710.54 [243.46]
Teff = 1640 [58] K
Rp = 572.33 [175.16] Re
a = 1.1343 [0.0999] AU
Ag = 0.14 [0.22] [-3.99 σ]
Teffp = 1540 [612] K [-0.16 σ]

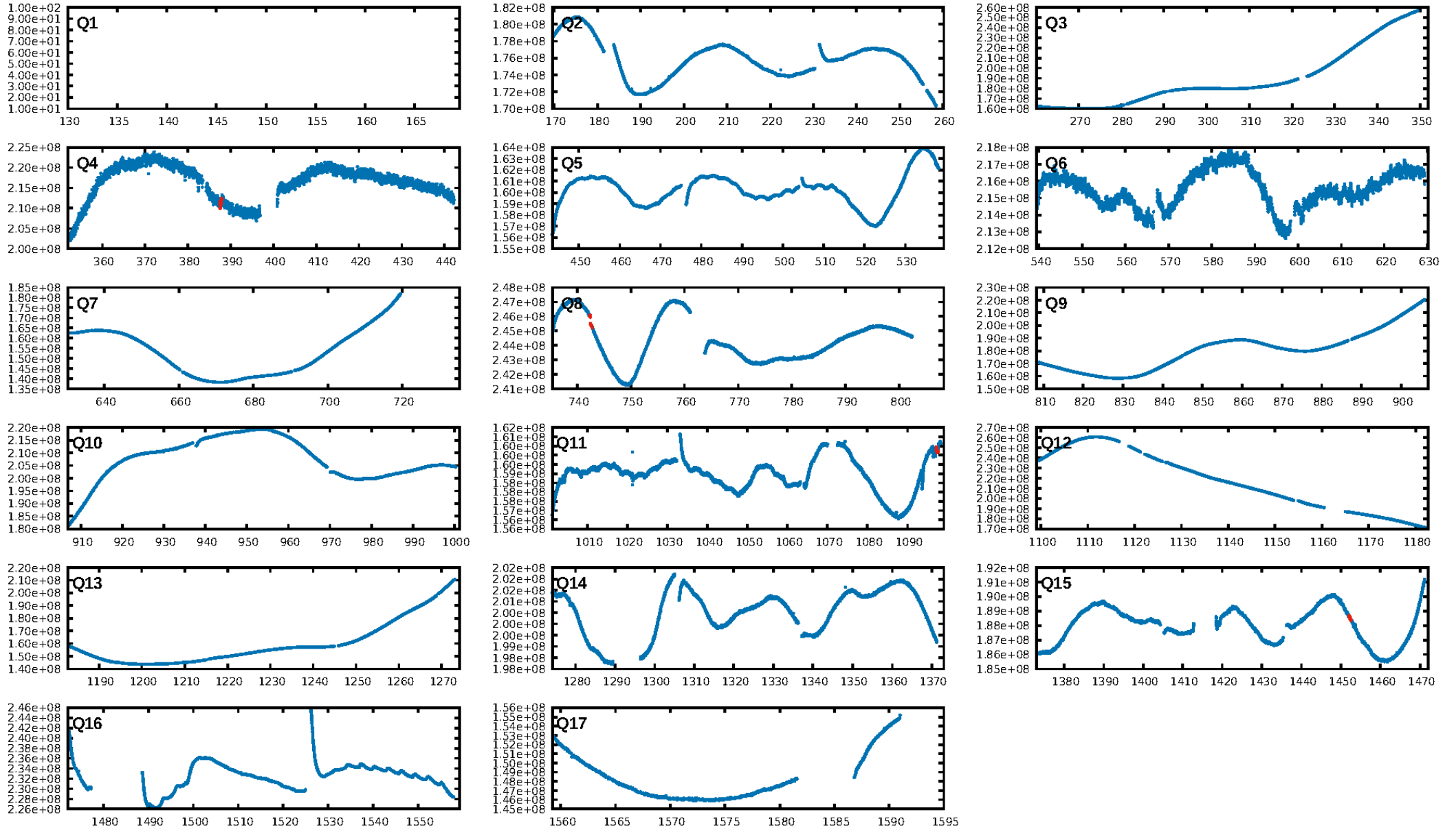
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [421.74 σ]
LongPeriod-sig: 100.0% [199.22 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 5.79e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.014
Centroid-sig: 1.4%
Centroid-so: 0.550 arcsec [2.54 σ]
OotOffset-rm: 0.887 arcsec [3.29 σ]
KicOffset-rm: 0.964 arcsec [3.63 σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

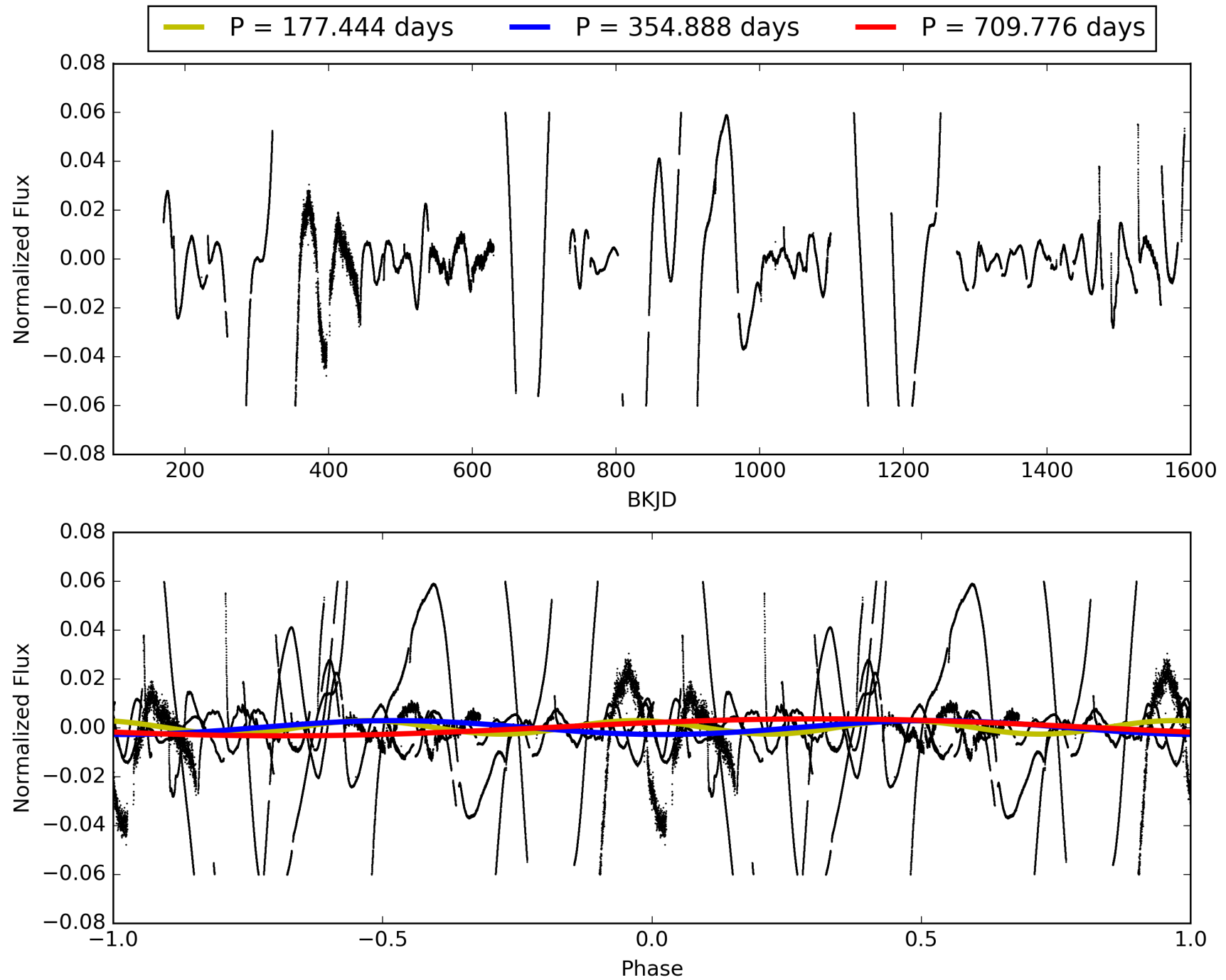
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:46:33 Z

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

TCE 011612249-02, PDC Light Curves

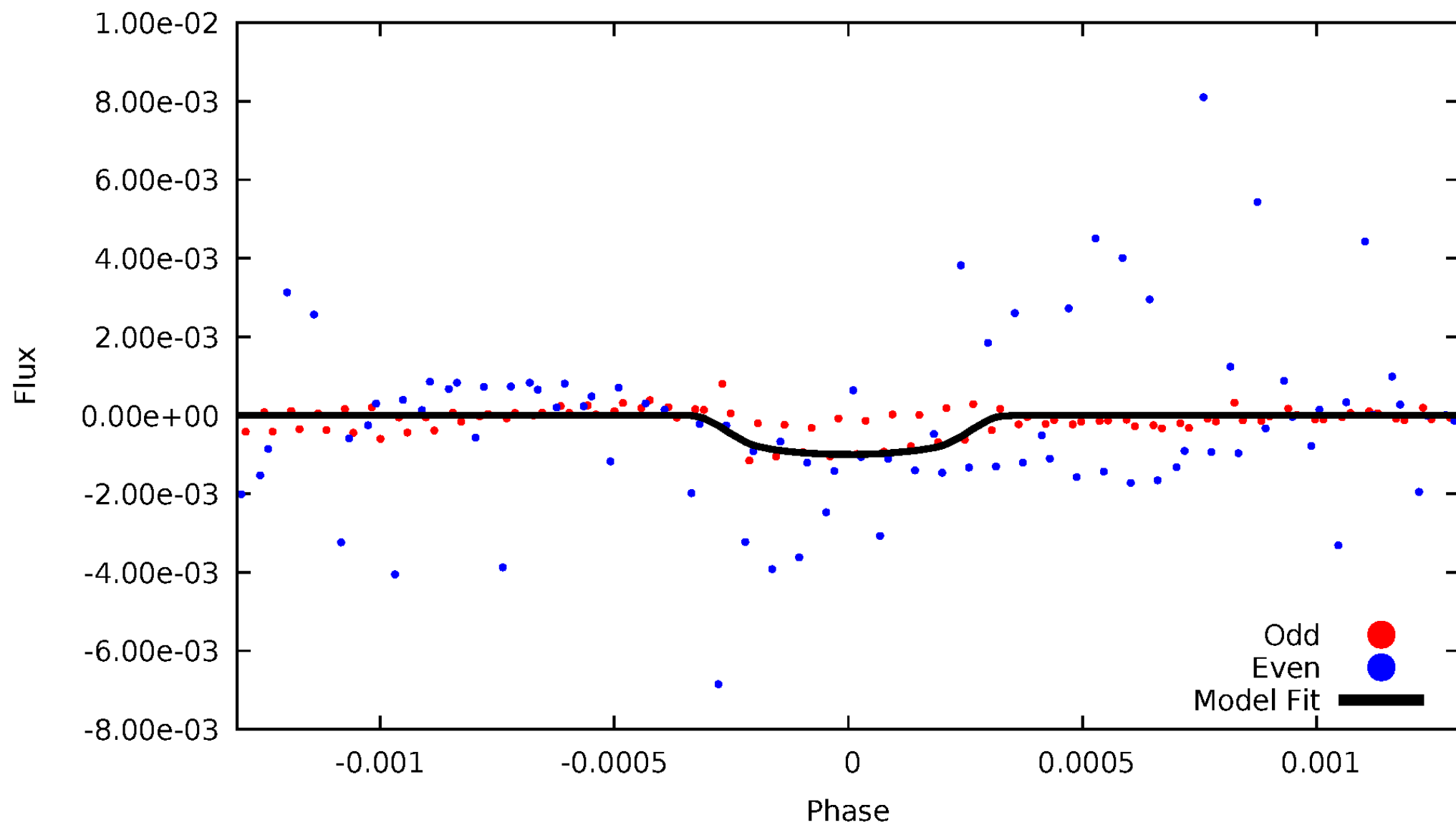


TCE 011612249-02



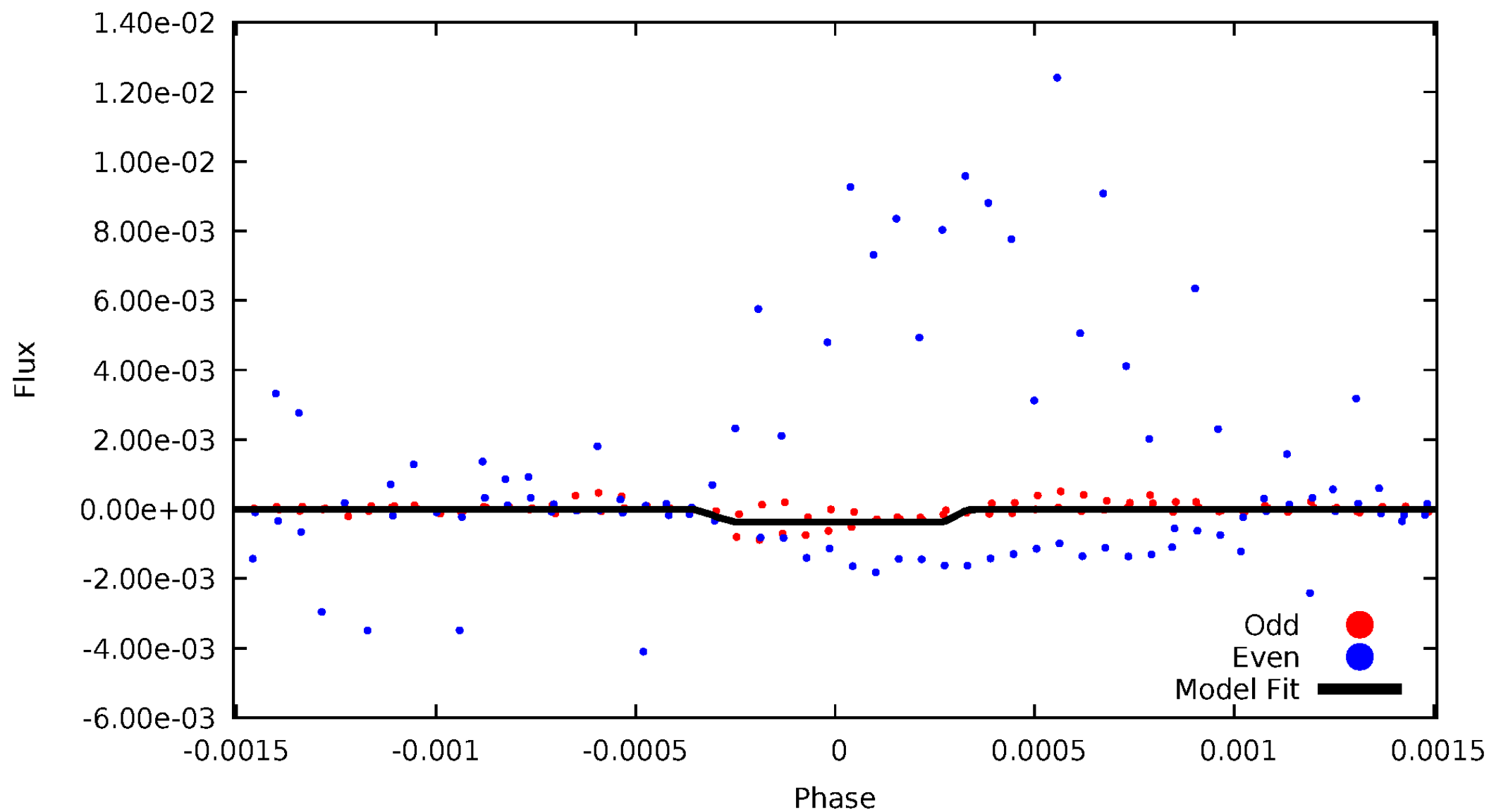
DV Odd/Even

TCE 011612249-02



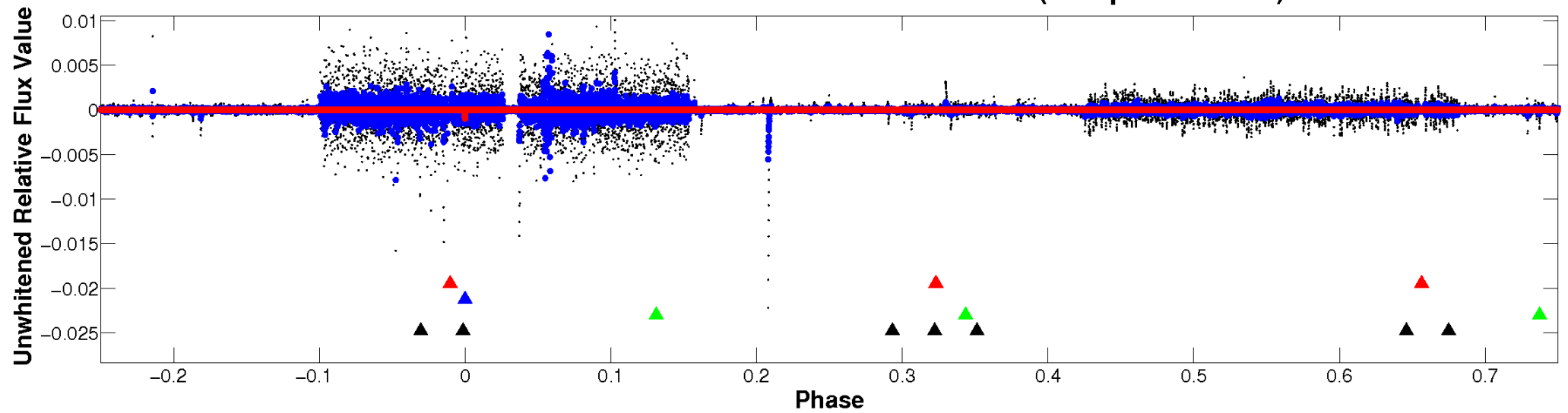
ALT Odd/Even

TCE 011612249-02

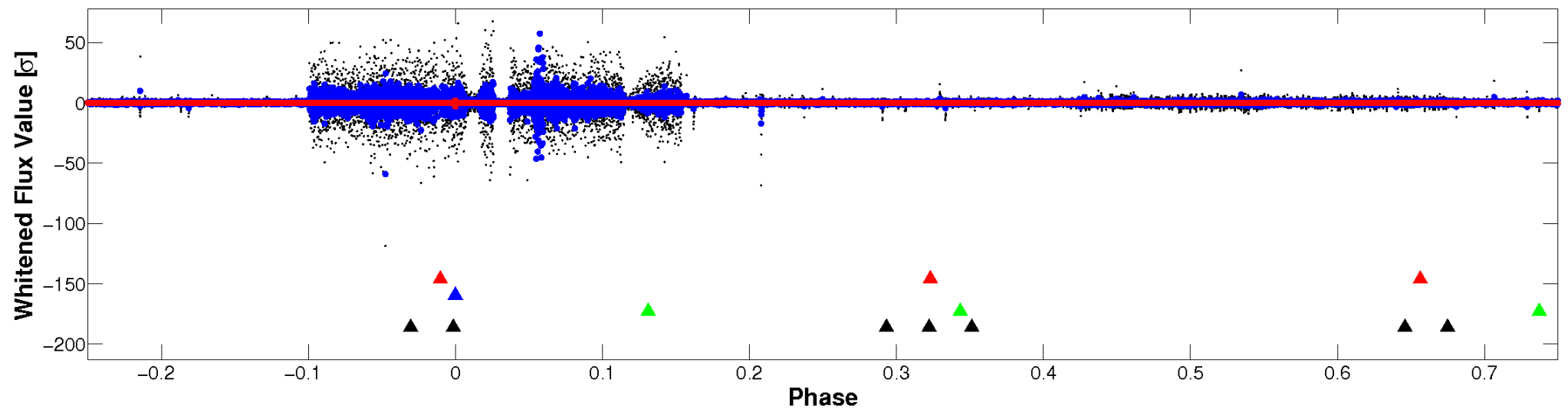


Non-Whitened Vs. Whitened Light Curve

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

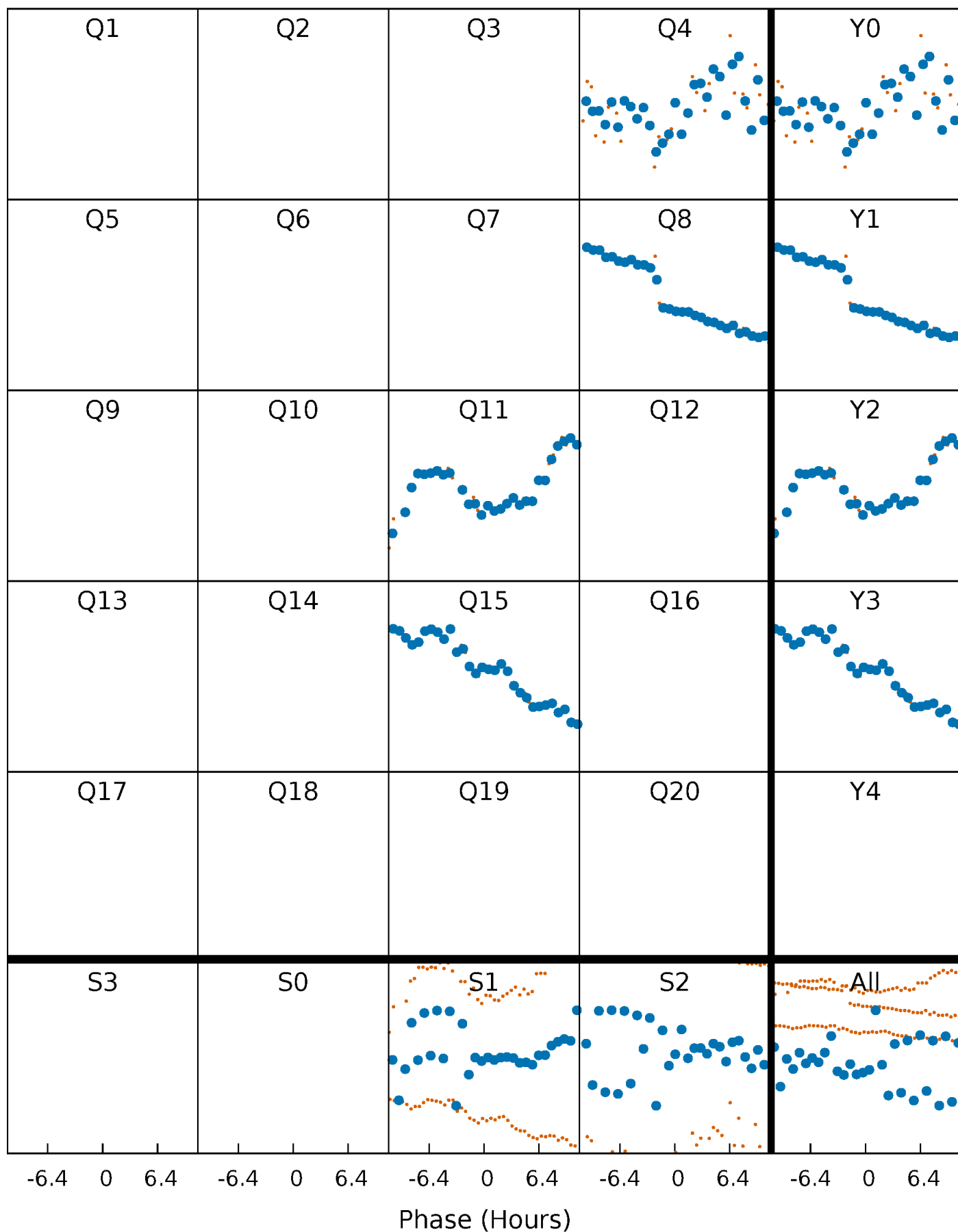


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



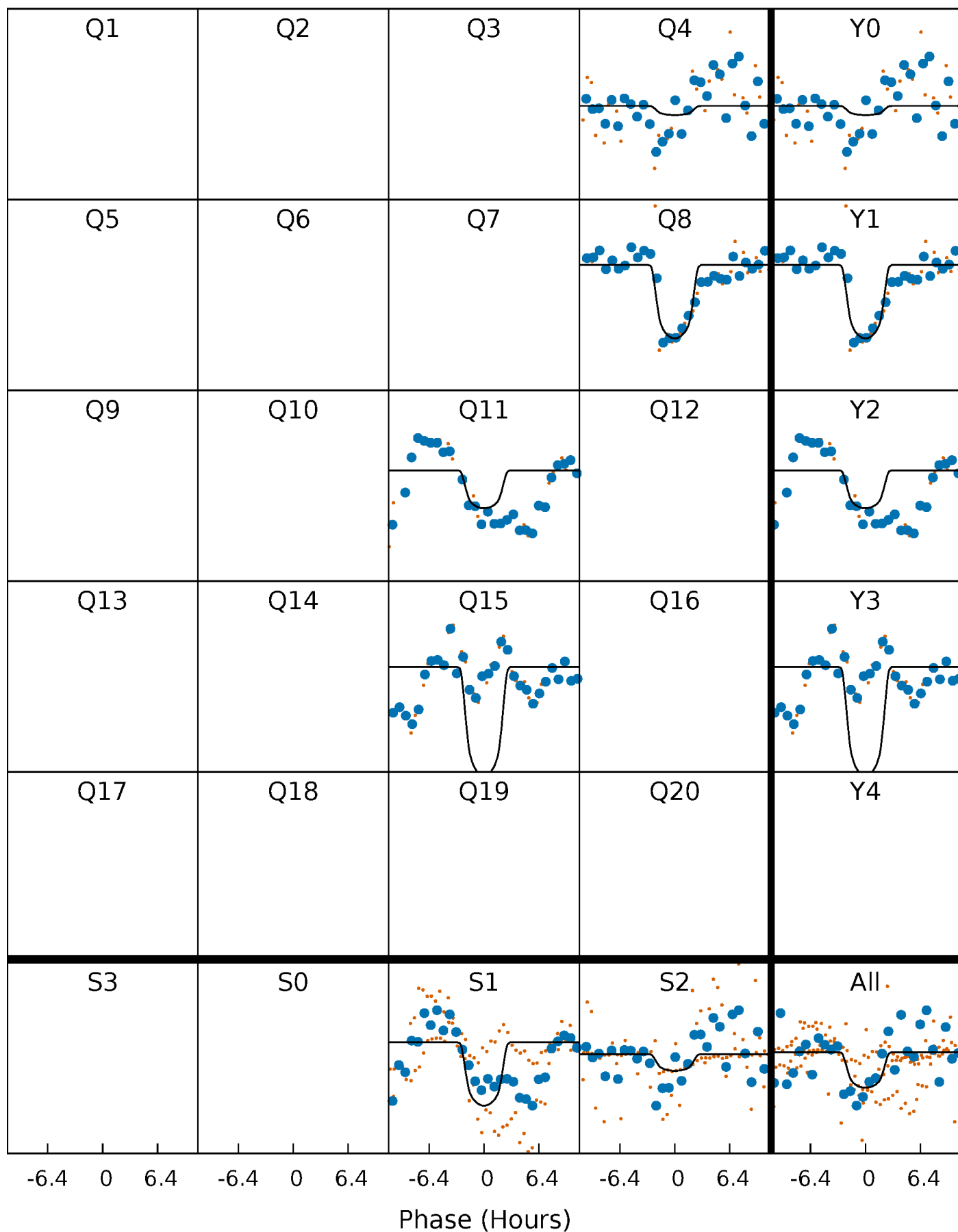
PDC Quarter-Phased Transit Curves

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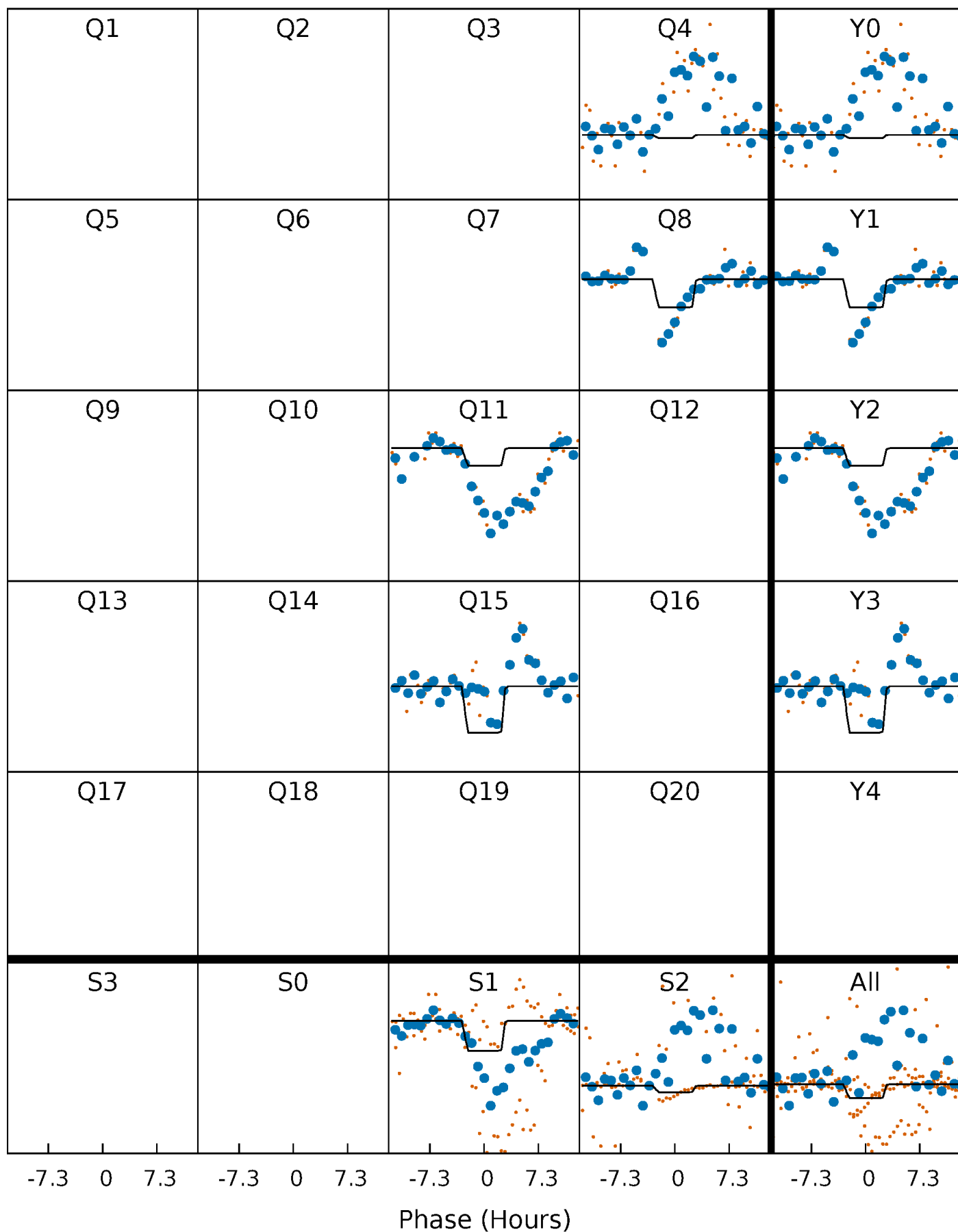
DV Quarter-Phased Transit Curves

TCE 011612249-02 $P=354.888012$ Days $T_0=387.641343$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

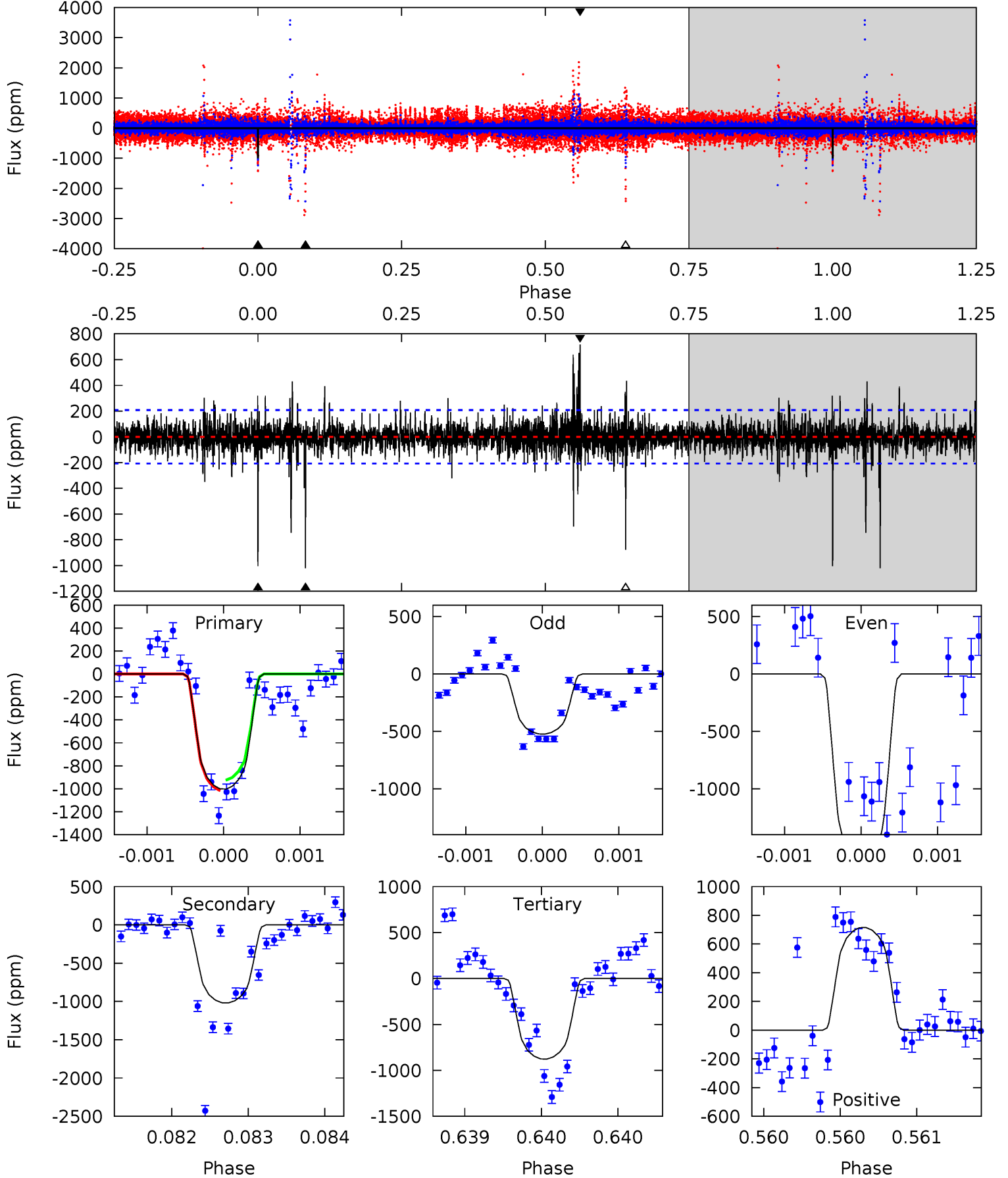
TCE 011612249-02 $P=354.828769$ Days $T_0=387.713144$ (BKJD)



DV Model-Shift Uniqueness Test

011612249-02, P = 354.888012 Days, E = 32.753331 Days

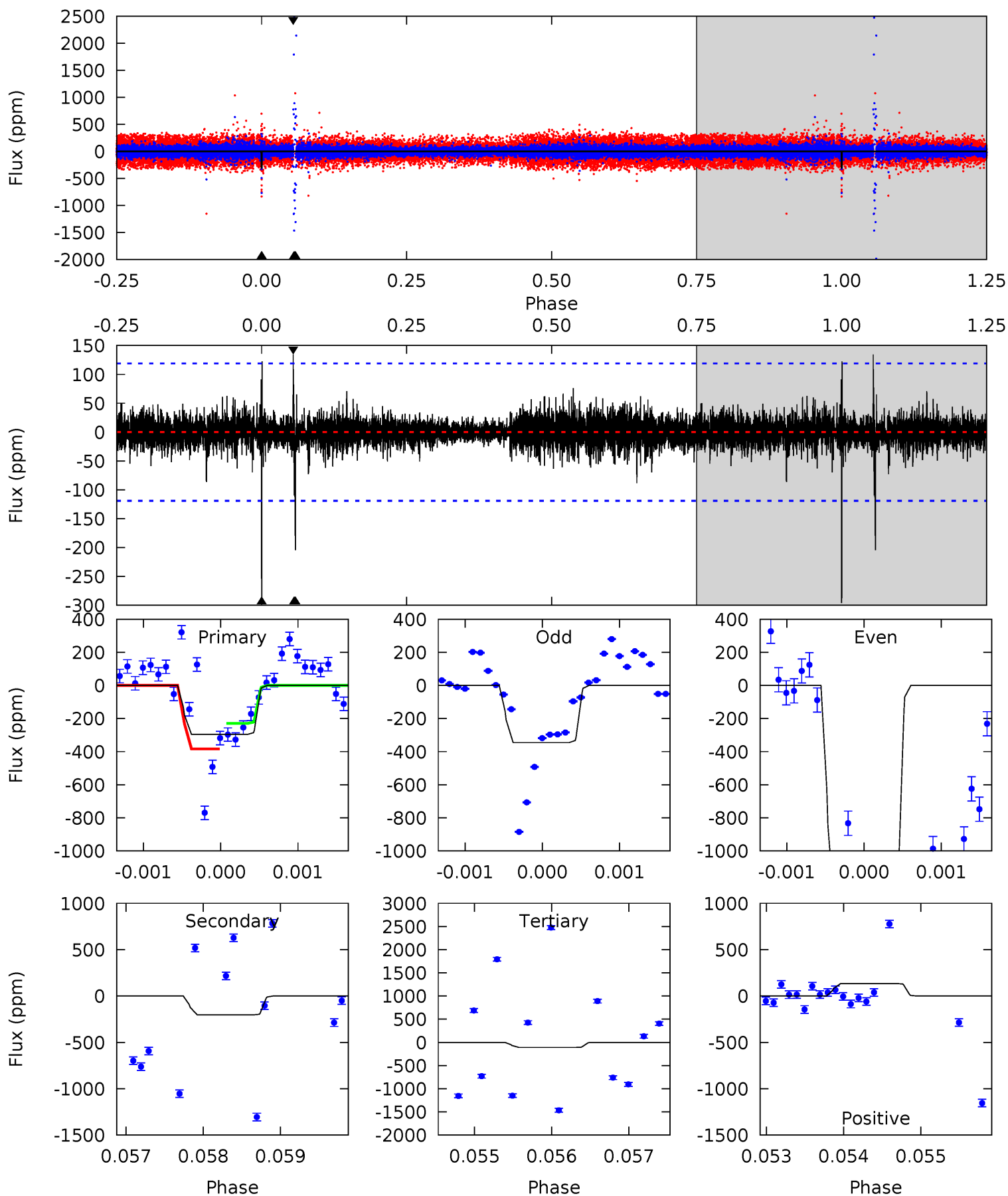
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	27.1	23.3	19.0	5.52	3.39	1.99	3.33	7.62	3.77	8.06	10.2	1.01	0.41	0



Alt Model-Shift Uniqueness Test

011612249-02, P = 354.828769 Days, E = 32.884375 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	9.51	5.10	6.26	5.53	3.42	0.71	8.68	7.52	4.41	3.25	16.2	-3.07	0.31	3.43



Stellar Parameters For KIC 011612249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3362^{+79}_{-89}	$0.343^{+0.027}_{-0.027}$	$0.100^{+0.200}_{-0.200}$	$138.661^{+4.451}_{-17.804}$	$1.546^{+0.038}_{-0.359}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+8%/-8%	+200%/-200%	+3%/-13%	+2%/-23%	+19%/-8%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011612249-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1019±38	$556.72^{+166.12}_{-136.11}$	2291^{+63}_{-66}	3133^{+352}_{-262}	$2.287^{+1.701}_{-0.931}$
Alt.	-204±21	$298.84^{+157.79}_{-158.31}$	2291^{+64}_{-68}	2952^{+891}_{-435}	$1.614^{+5.384}_{-0.942}$

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

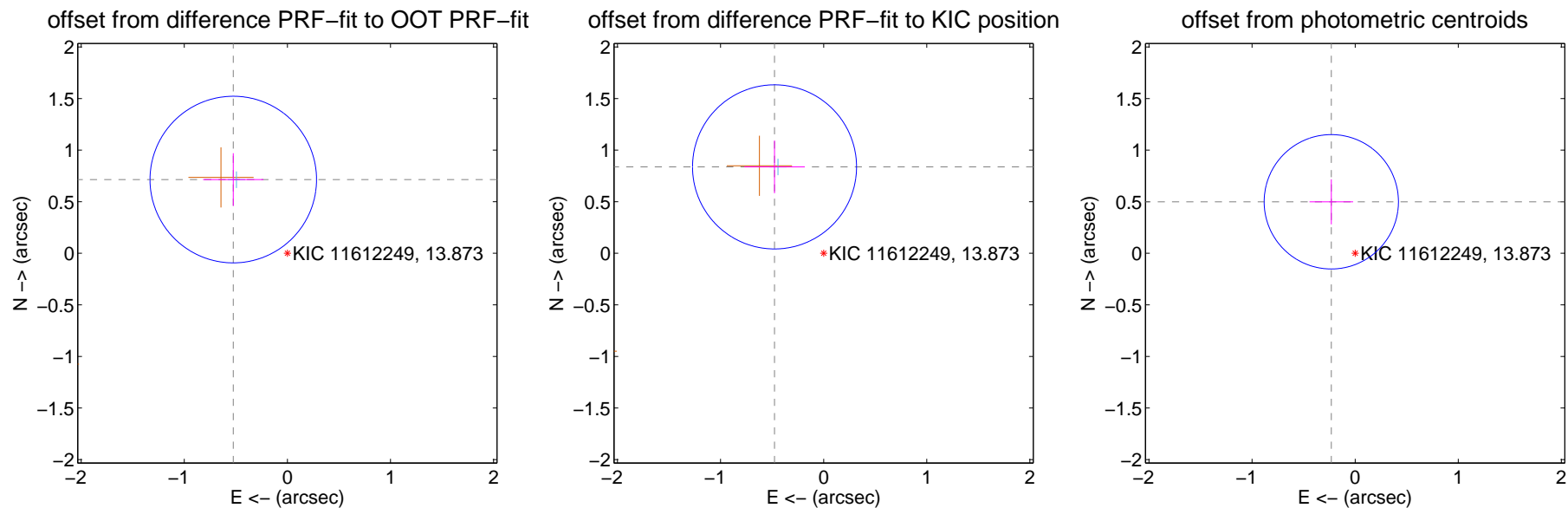
DV Centroid Data

Supplemental centroid analysis for 011612249-02. Kepler magnitude: 13.87. Transit SNR 17.13

There are 1 quarters with good PRF difference image offsets

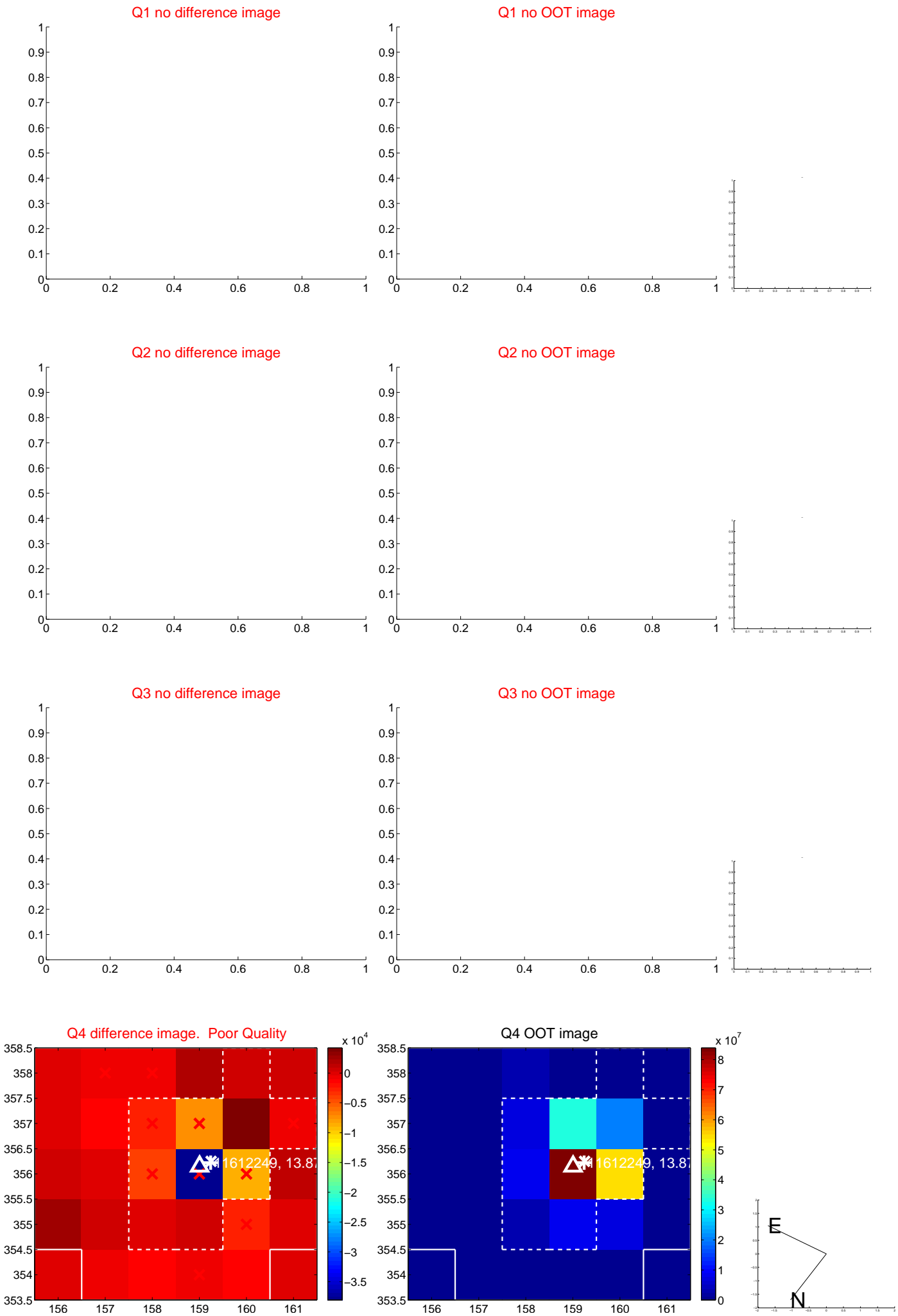
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.887 ± 0.269	3.29	0.525 ± 0.293	0.715 ± 0.256
PRF-fit source offset from KIC position	0.964 ± 0.265	3.63	0.477 ± 0.293	0.838 ± 0.256
photometric centroid source offset	0.55 ± 0.22	2.54	0.23 ± 0.21	0.50 ± 0.22

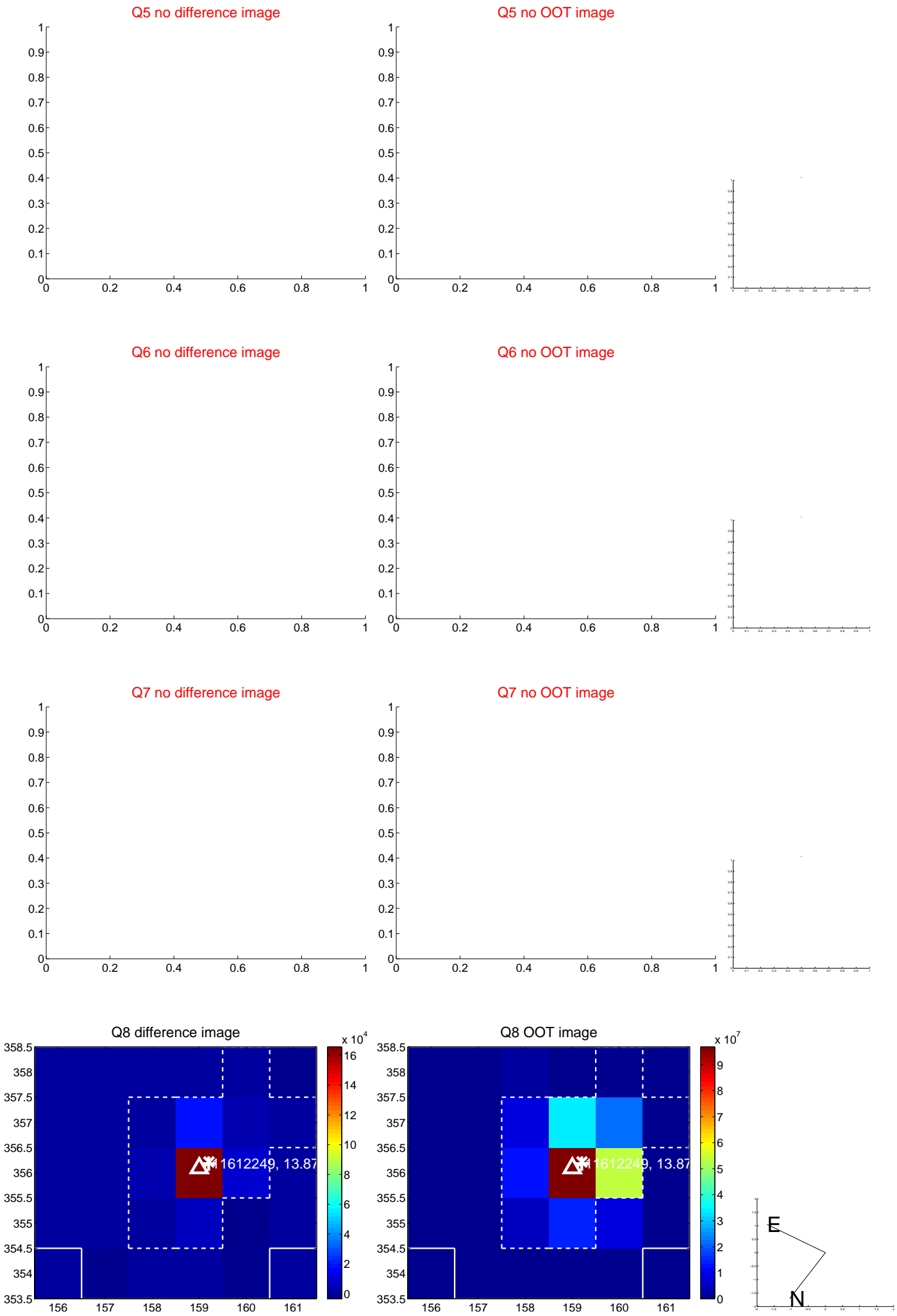


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



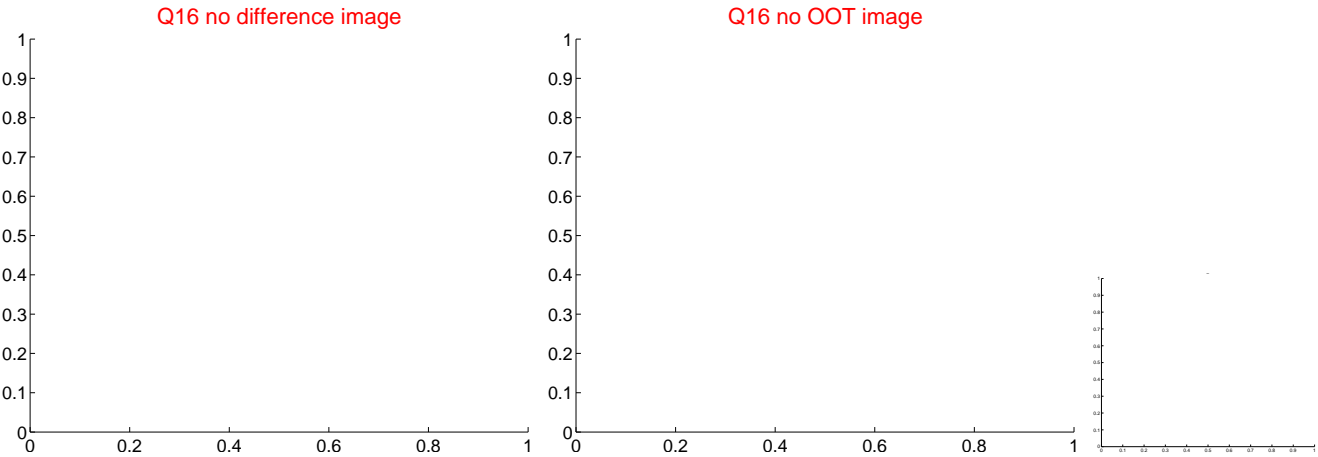
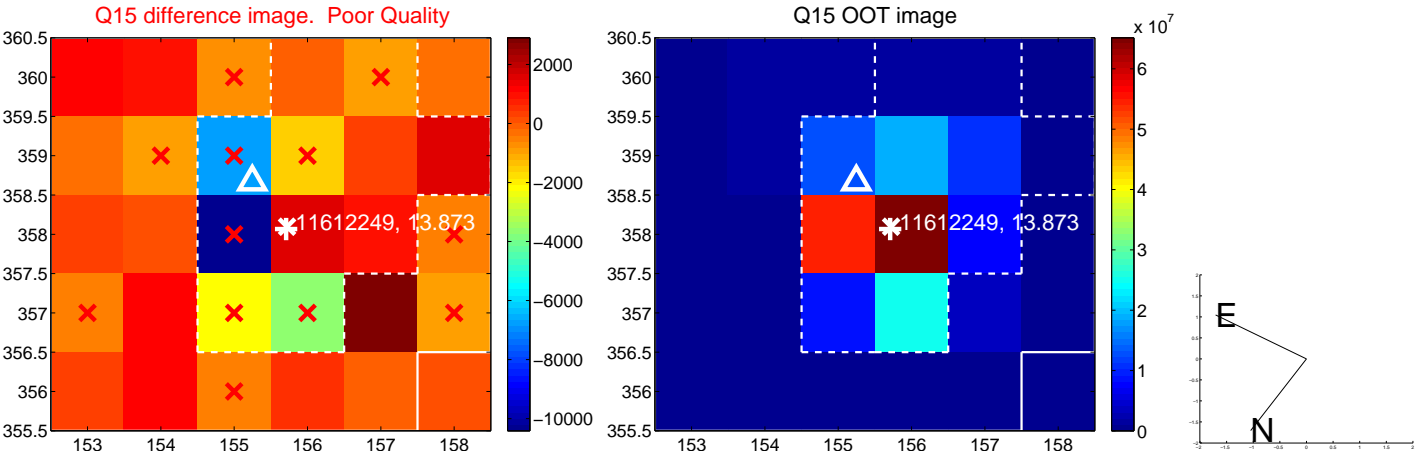
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



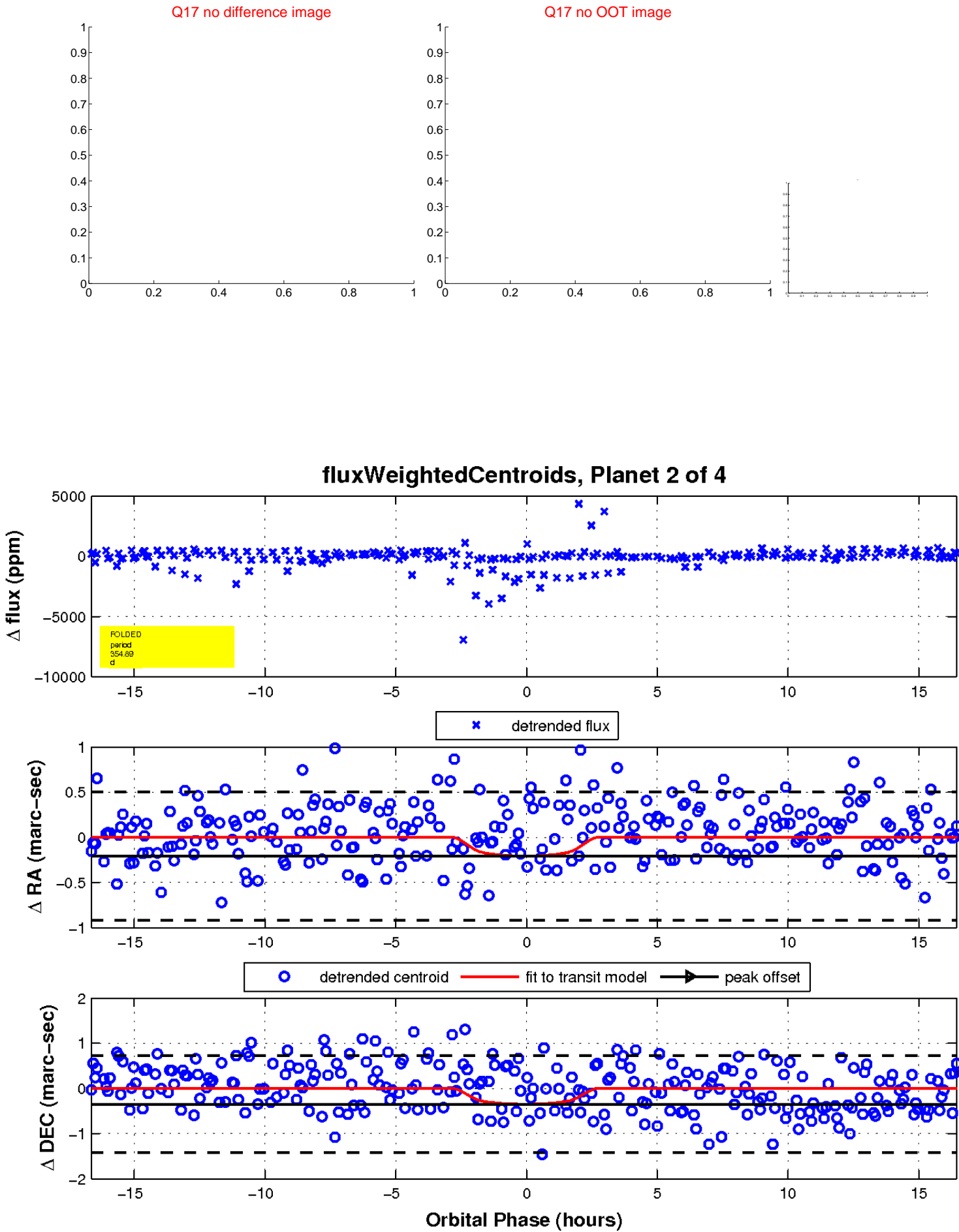
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

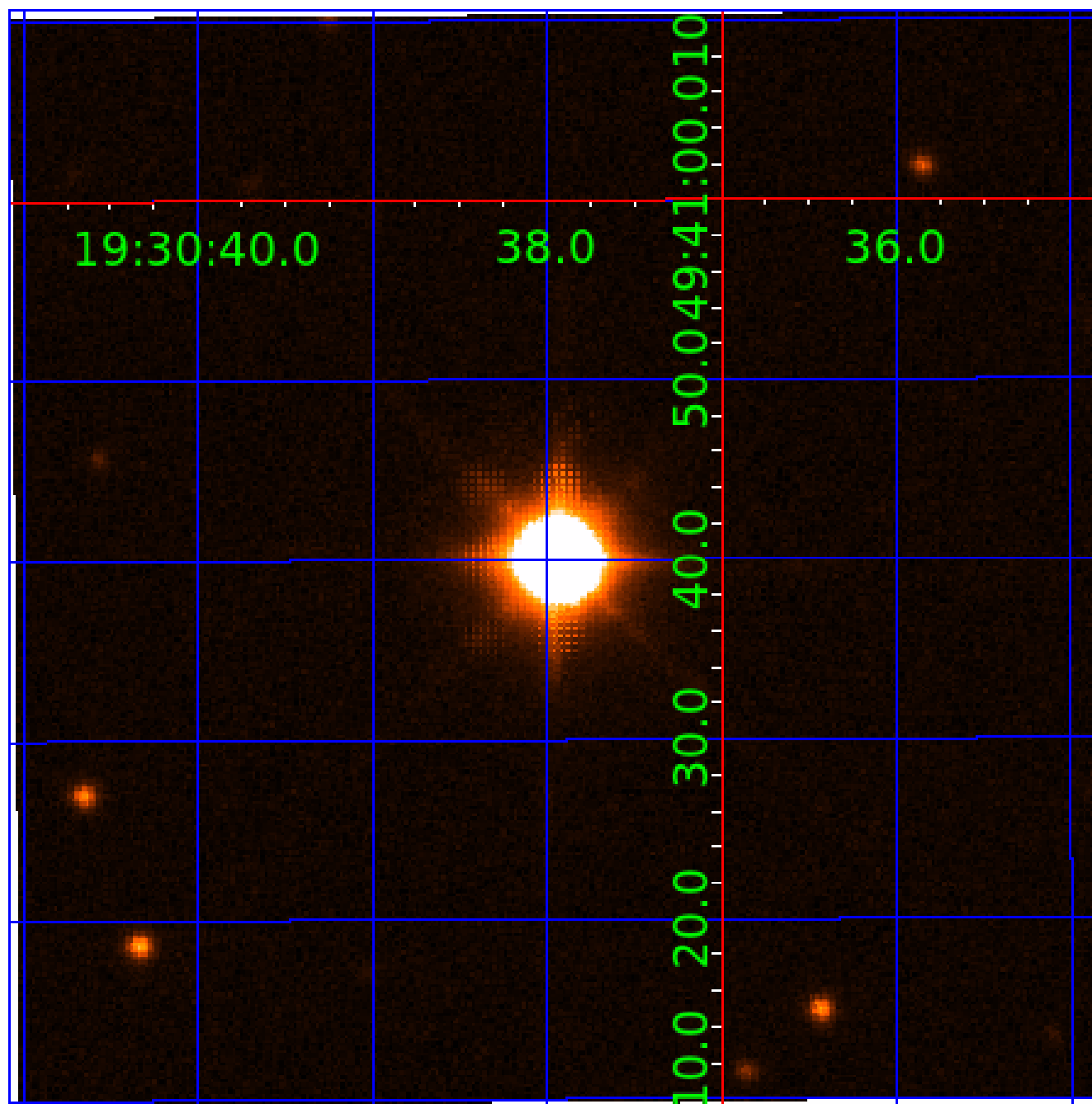


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011612249

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})
011612249-01	OBS	No	473.211933	147.374853	2074.8	13.126	27.7	17.0	138.66	3362	831.53	1165.50
011612249-02	OBS	No	354.888012	387.641343	997.8	5.560	20.2	17.1	138.66	3362	572.33	1710.54
011612249-03	OBS	No	570.000967	434.186507	1621.5	3.500	27.6	-1.0	138.66	3362	513.40	909.40
011612249-04	OBS	No	240.023866	136.825979	242.5	3.438	28.1	4.5	138.66	3362	231.58	2881.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011612249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011612249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

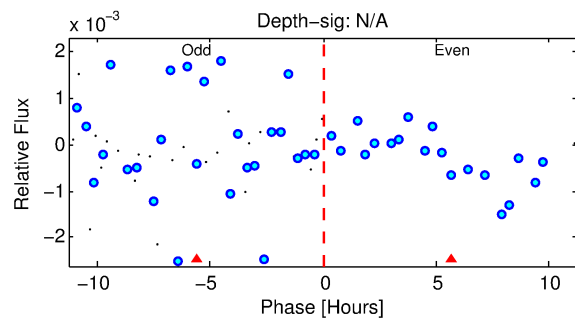
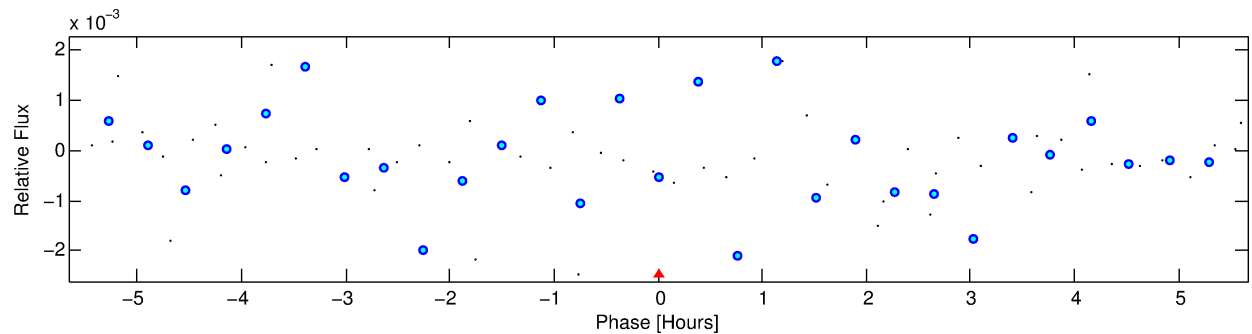
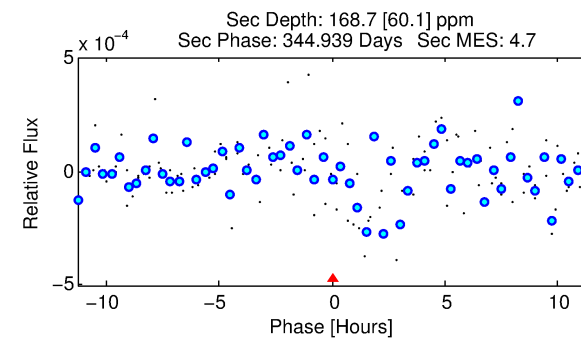
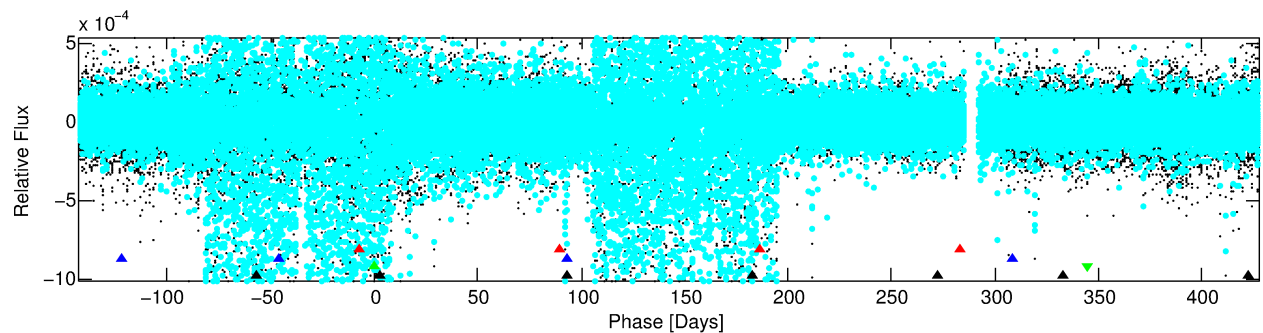
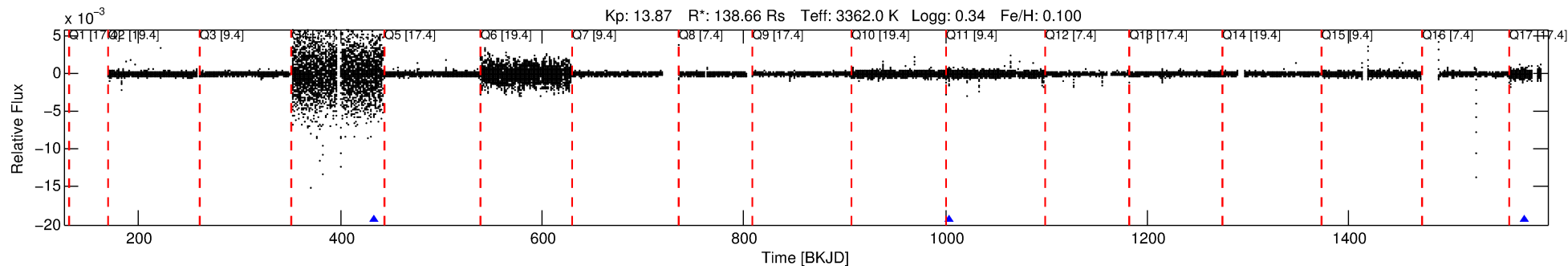
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011612249-03

No Significant Match Found

DV One-Page Summary

KIC: 11612249 Candidate: 3 of 4 Period: 570.001 d



TPS TCE Results:

Period = 570.00097 d
Epoch = 434.1865 BKJD

DV fit results are unavailable

DV Diagnostic Results:

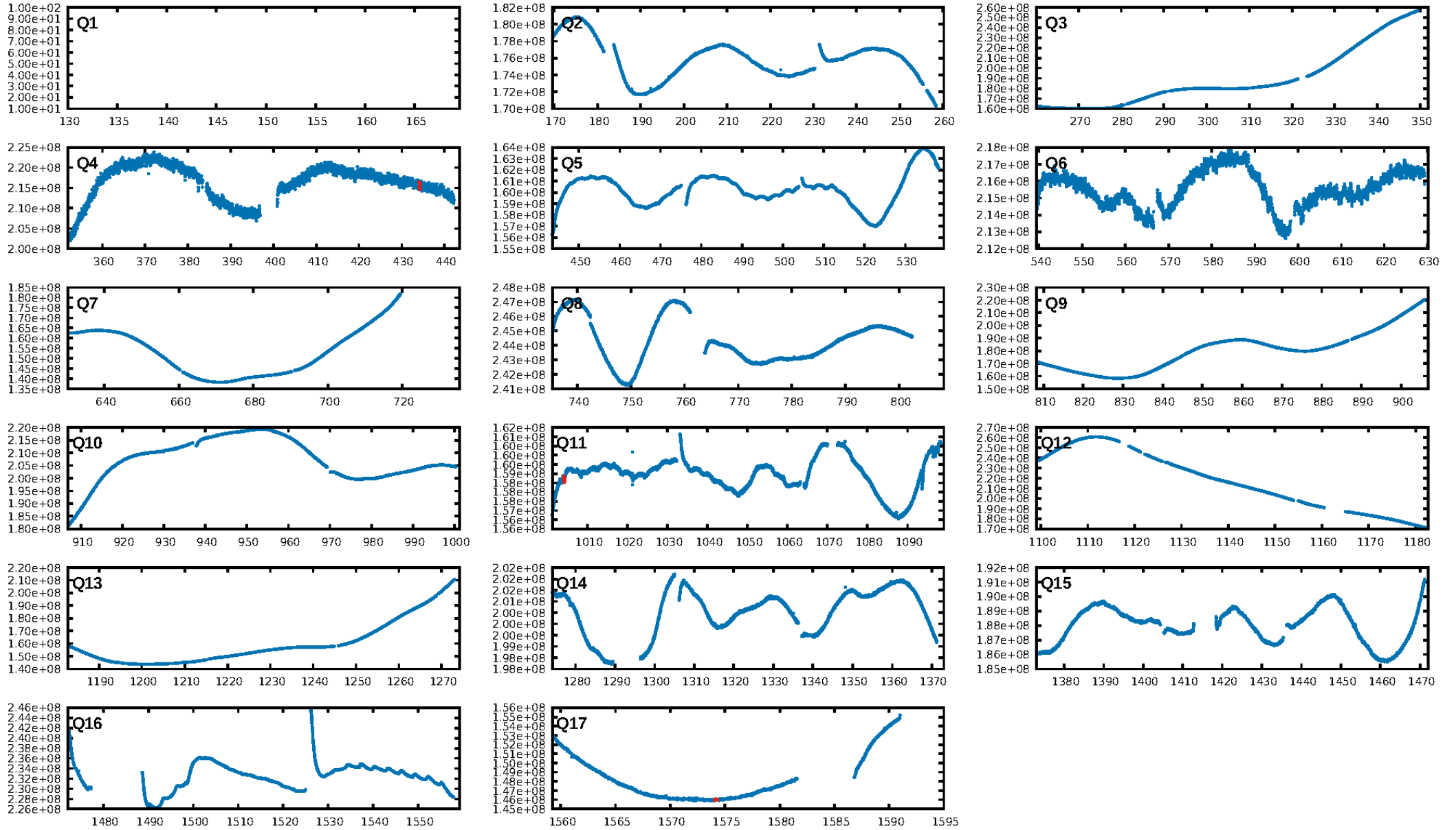
ShortPeriod-sig: 100.0% [171.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 9.55e-07
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.088

Centroid-sig: 91.0%
Centroid-so: 0.202 arcsec [0.16σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [2/2]

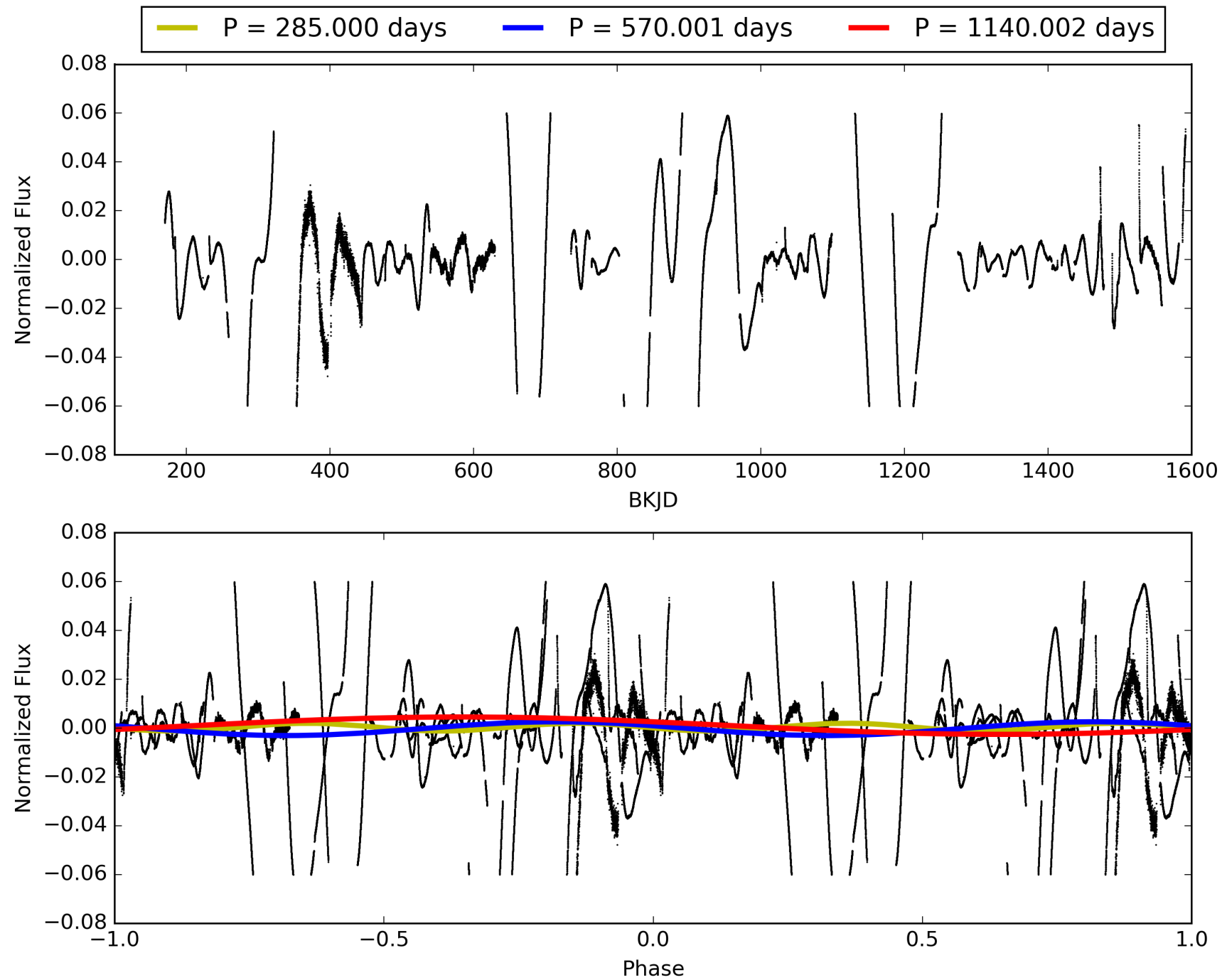
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:47:07 Z

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

TCE 011612249-03, PDC Light Curves

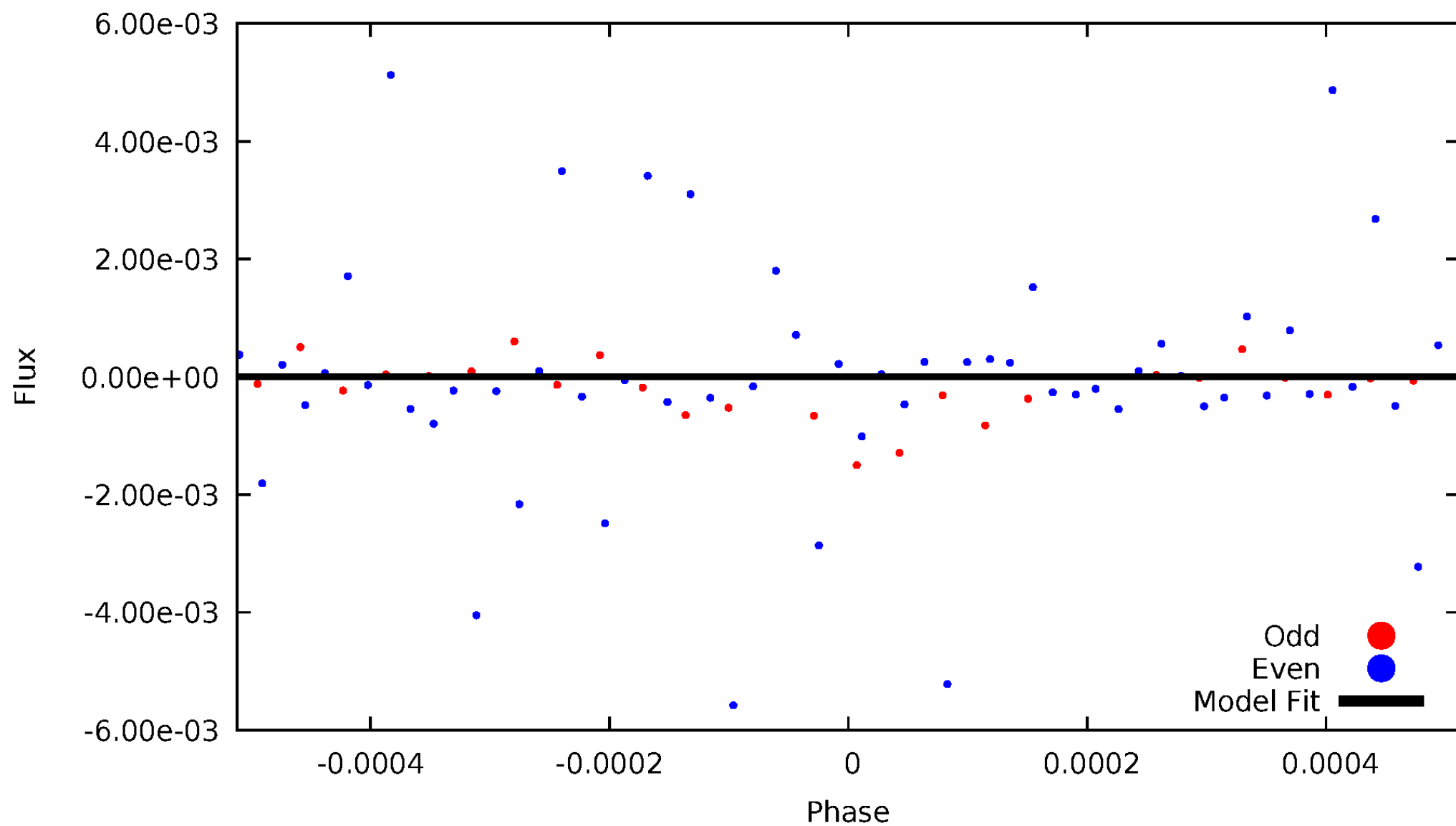


TCE 011612249-03



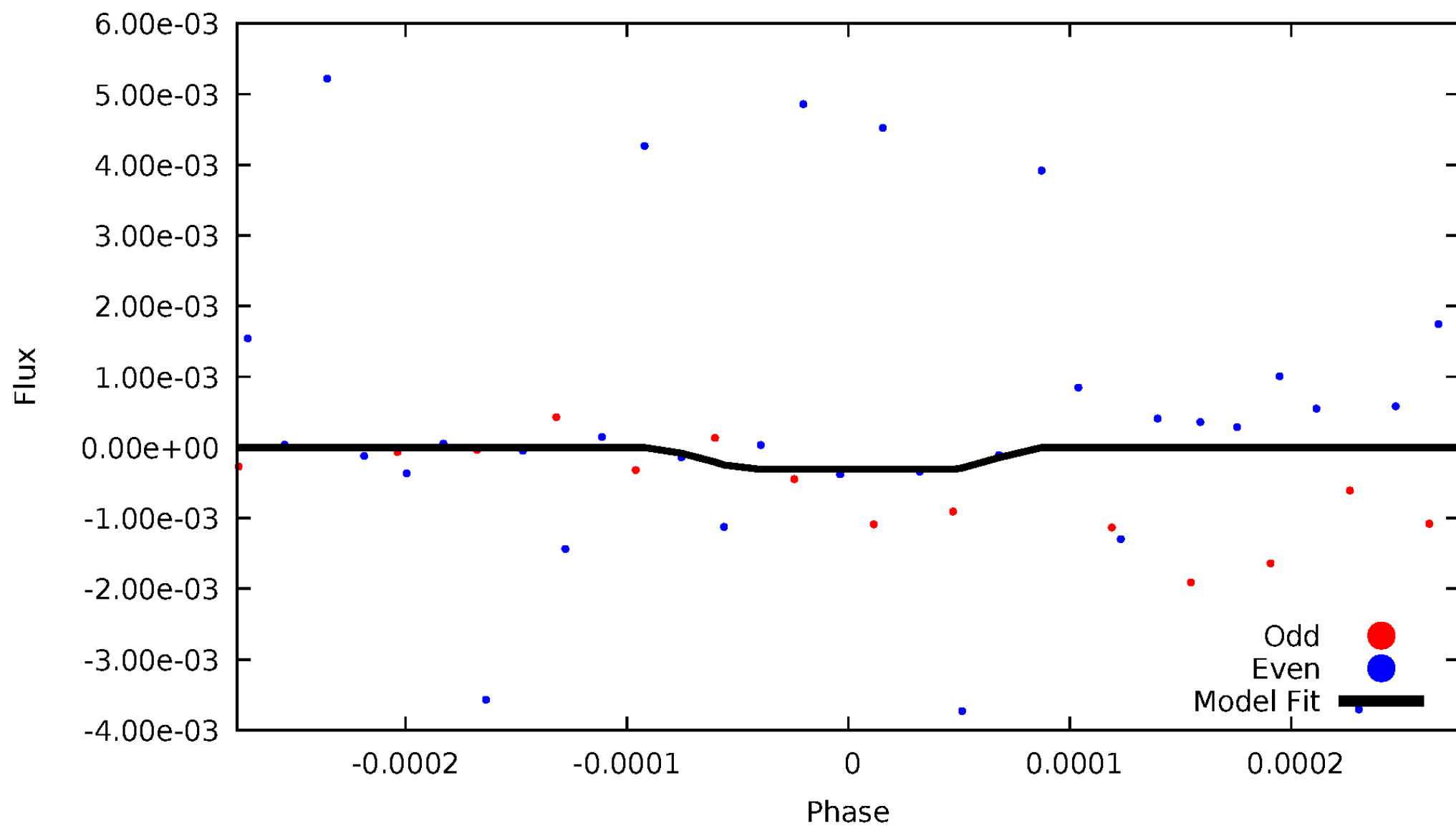
DV Odd/Even

TCE 011612249-03

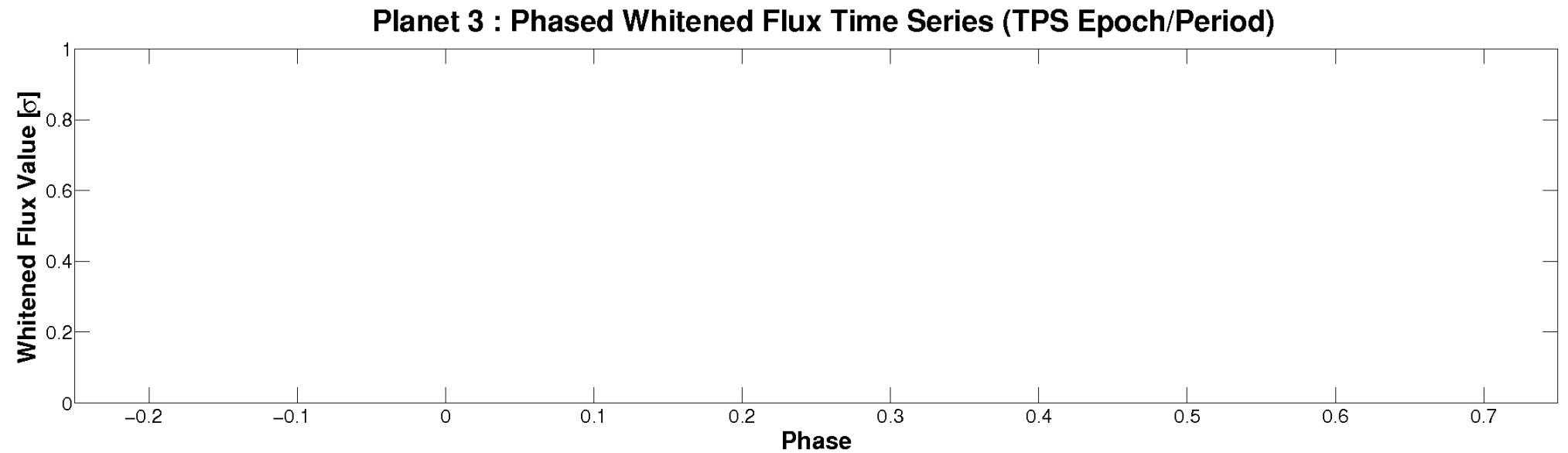
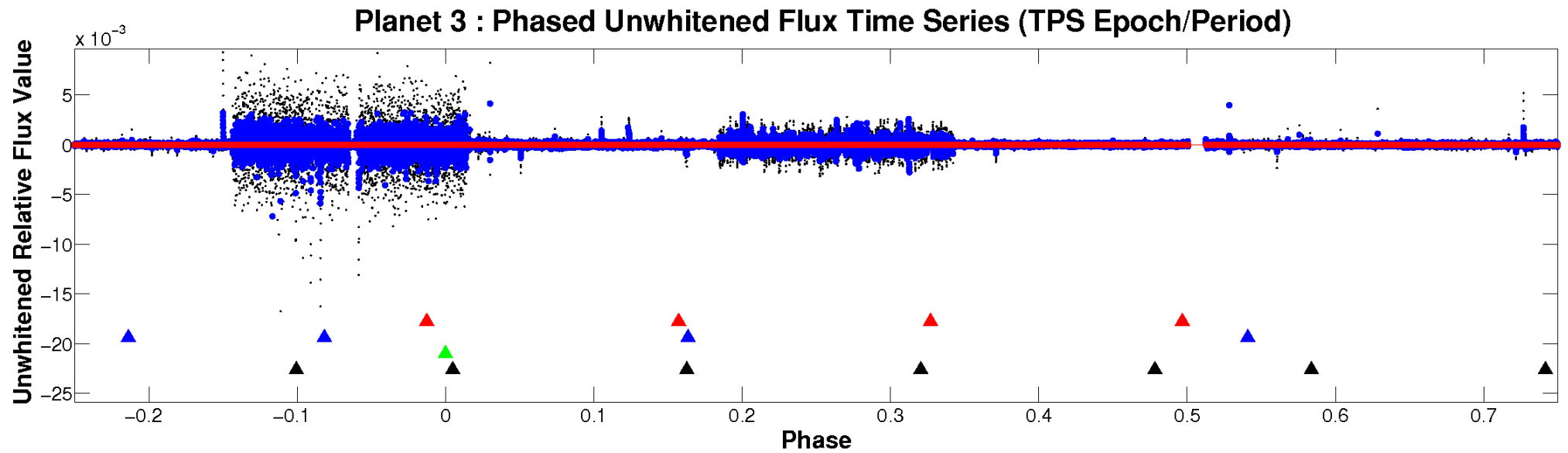


ALT Odd/Even

TCE 011612249-03

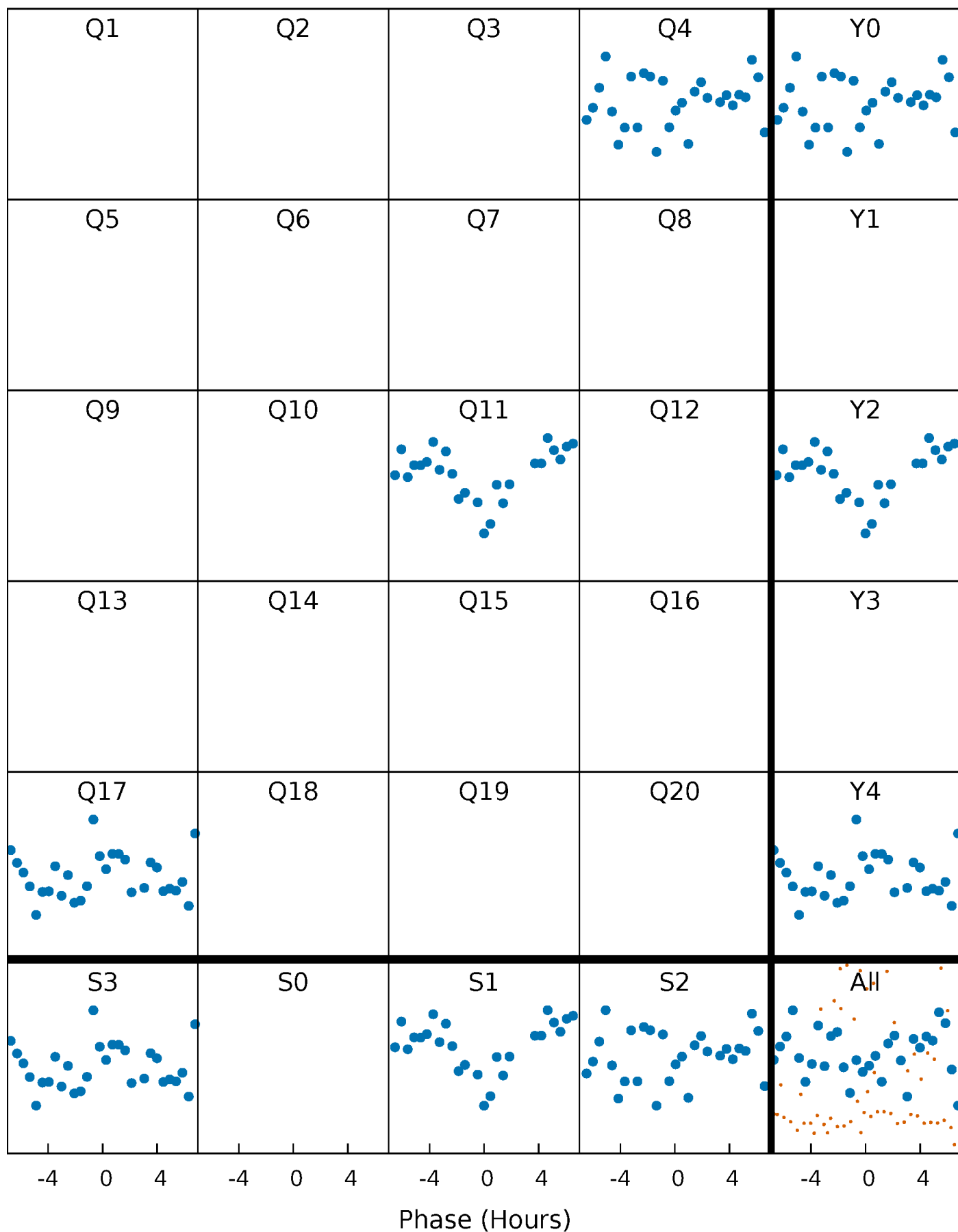


Non-Whitened Vs. Whitened Light Curve



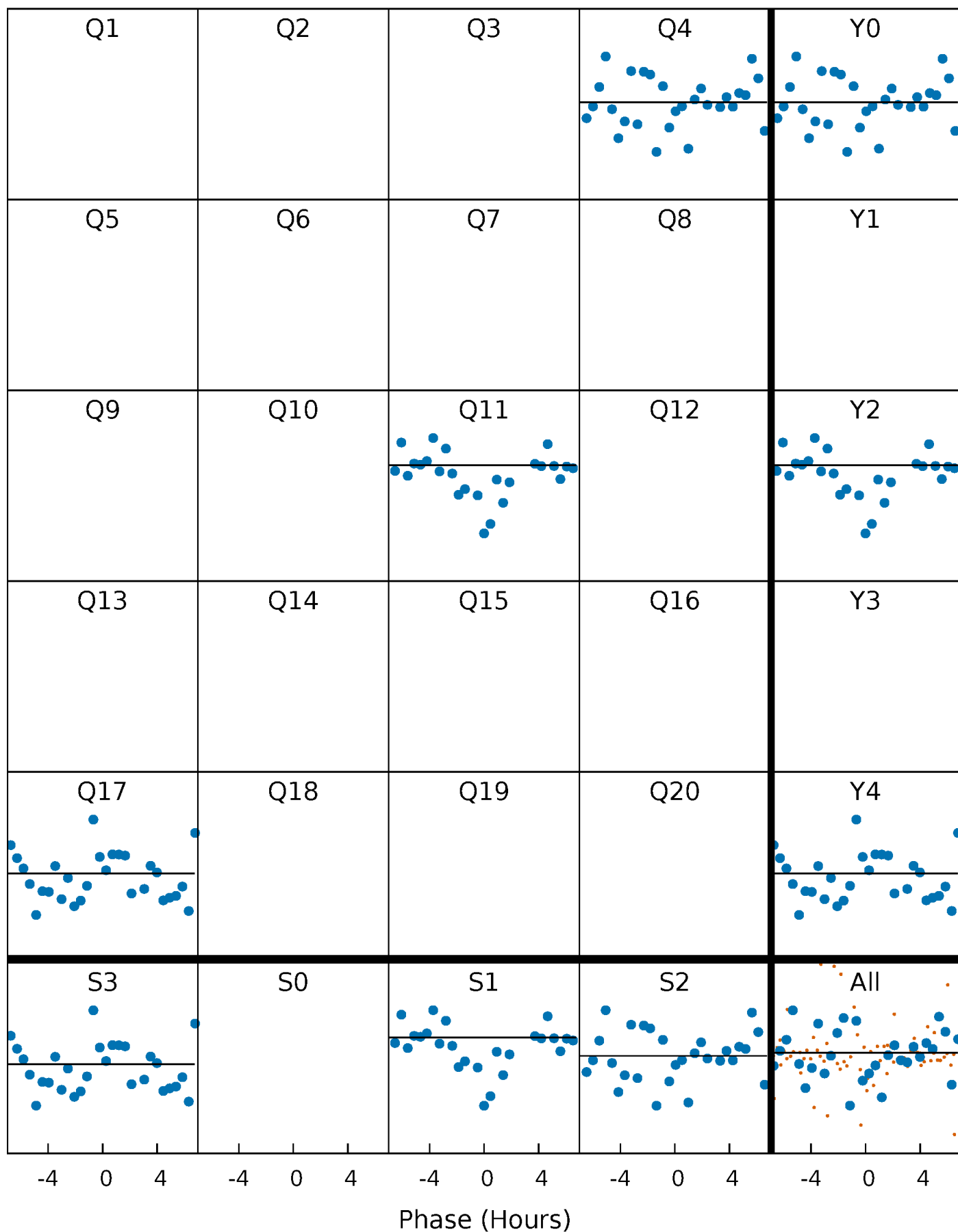
PDC Quarter-Phased Transit Curves

TCE 011612249-03 P=570.000967 Days $T_0=434.186507$ (BKJD)



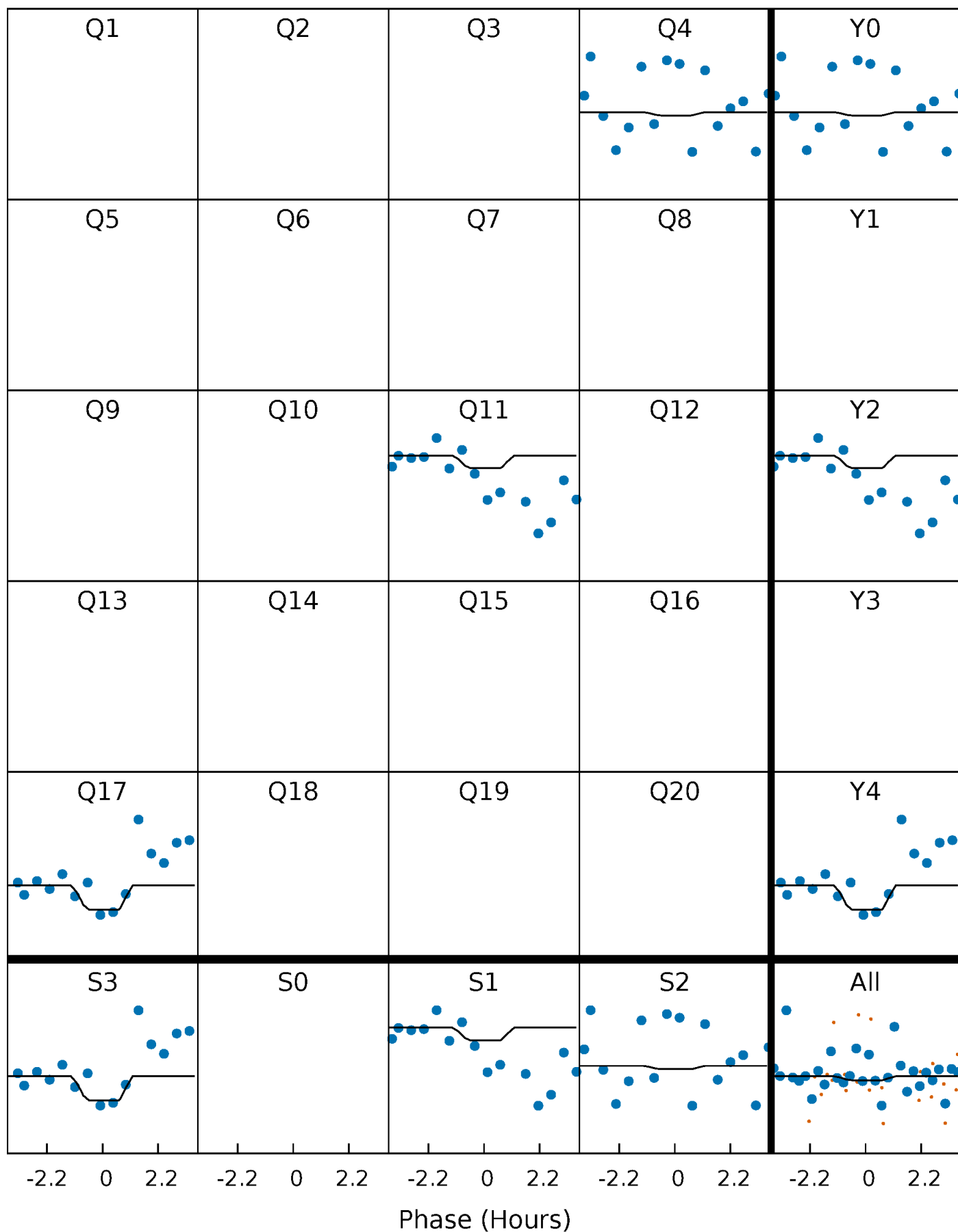
DV Quarter-Phased Transit Curves

TCE 011612249-03 P=570.000967 Days $T_0=434.186507$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

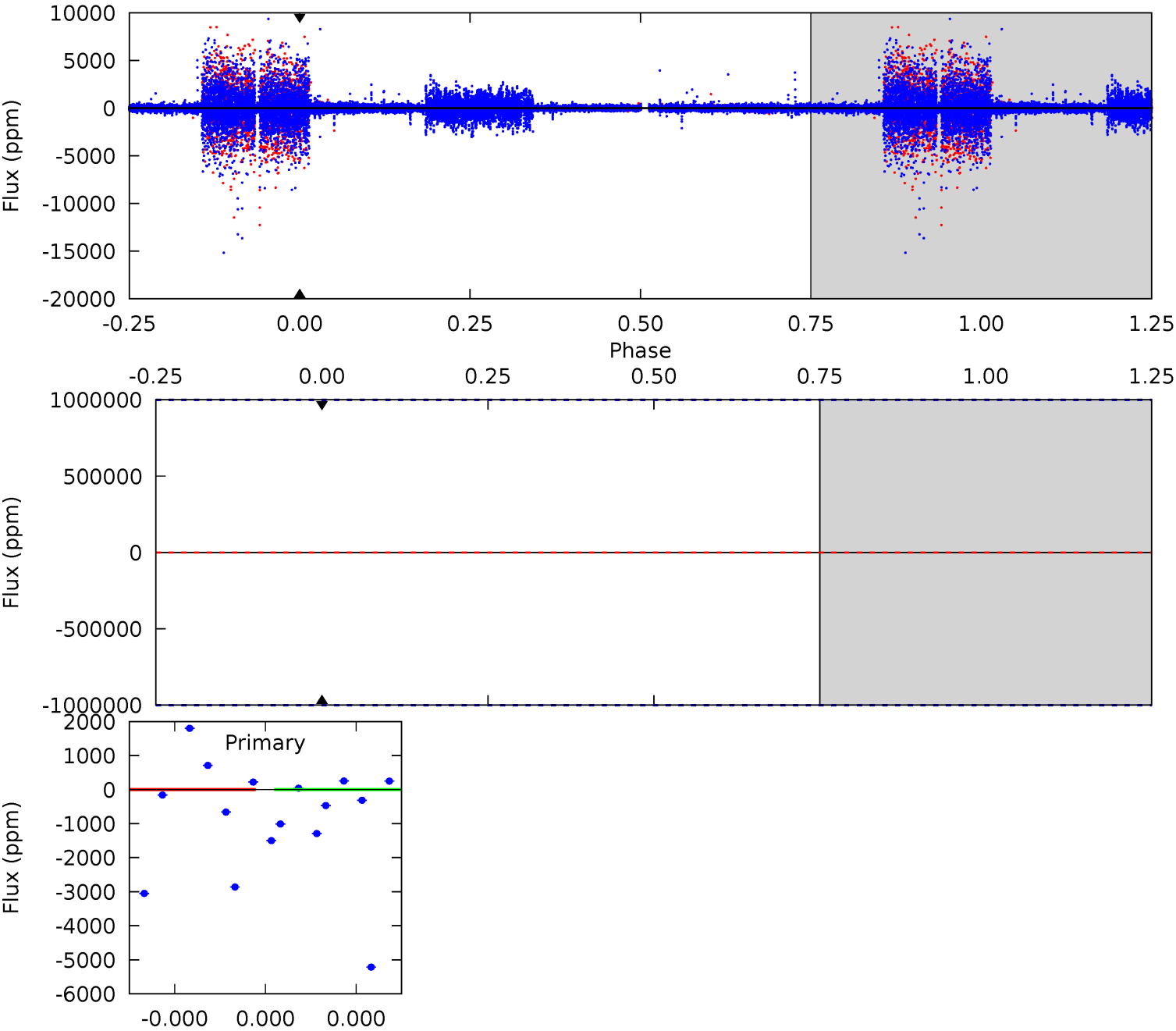
TCE 011612249-03 P=570.000967 Days $T_0=434.102288$ (BKJD)



DV Model-Shift Uniqueness Test

011612249-03, P = 570.000967 Days, E = 434.186507 Days

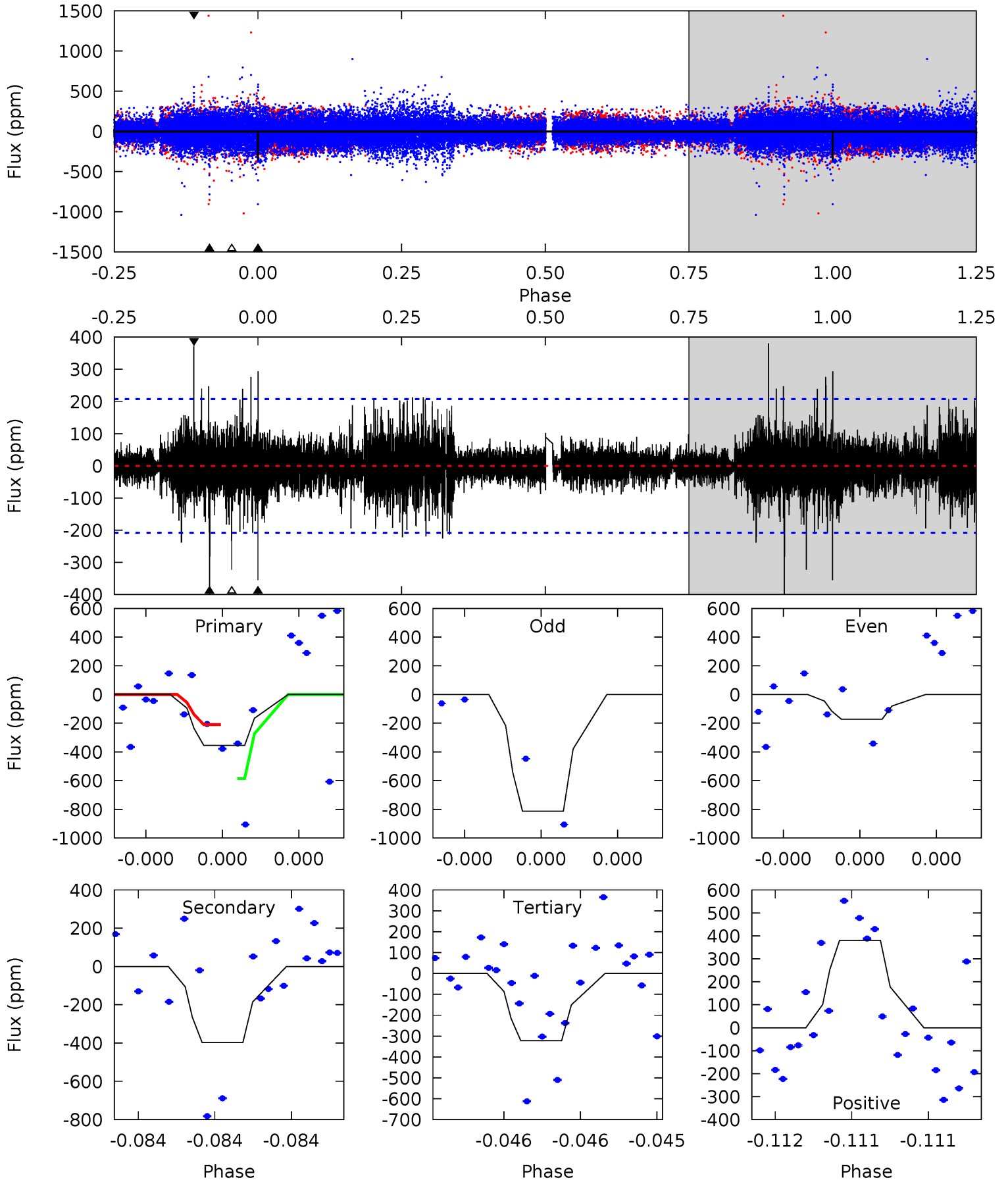
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011612249-03, P = 570.000967 Days, E = 434.102288 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.86	11.0	8.95	10.6	5.77	3.77	1.02	0.91	-0.71	2.07	0.45	6.87	-0.72	0.49	5.05



Stellar Parameters For KIC 011612249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3362^{+79}_{-89}	$0.343^{+0.027}_{-0.027}$	$0.100^{+0.200}_{-0.200}$	$138.661^{+4.451}_{-17.804}$	$1.546^{+0.038}_{-0.359}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+8%/-8%	+200%/-200%	+3%/-13%	+2%/-23%	+19%/-8%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011612249-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$1217.63^{+1312.79}_{-801.95}$	1955^{+51}_{-59}	-2782^{+9466}_{-3273}	$-1.338^{+168.036}_{-130.485}$
Alt.	-397 ± 36	$1102.72^{+1280.65}_{-757.61}$	1956^{+52}_{-54}	2082^{+1148}_{-4255}	$0.446^{+3.977}_{-0.353}$

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 $A_{obs} \gg 1.0$

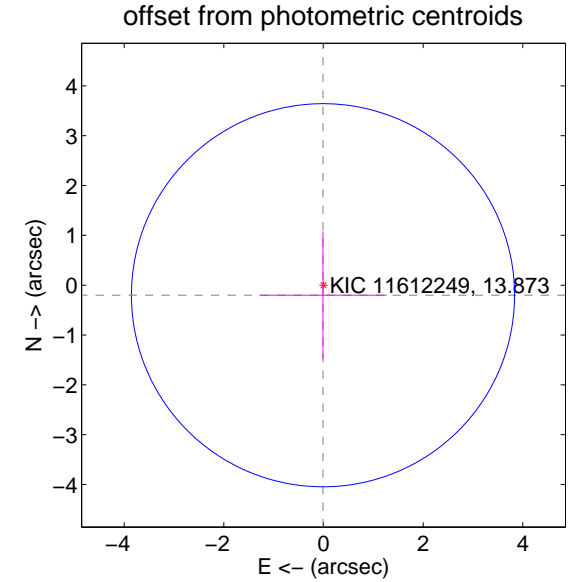
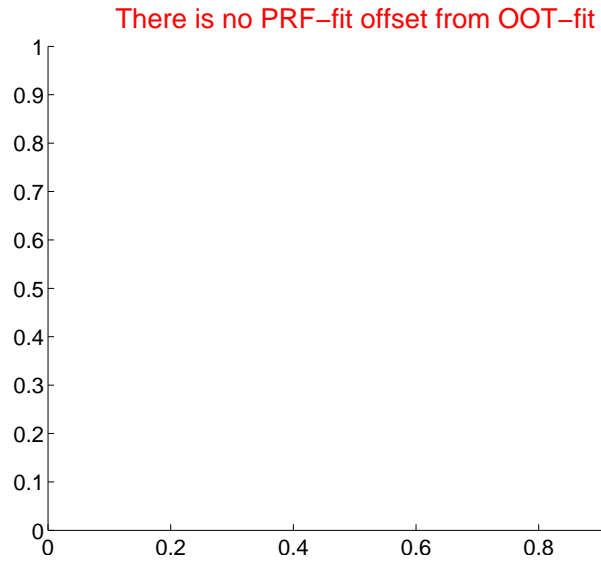
DV Centroid Data

Supplemental centroid analysis for 011612249-03. Kepler magnitude: 13.87. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

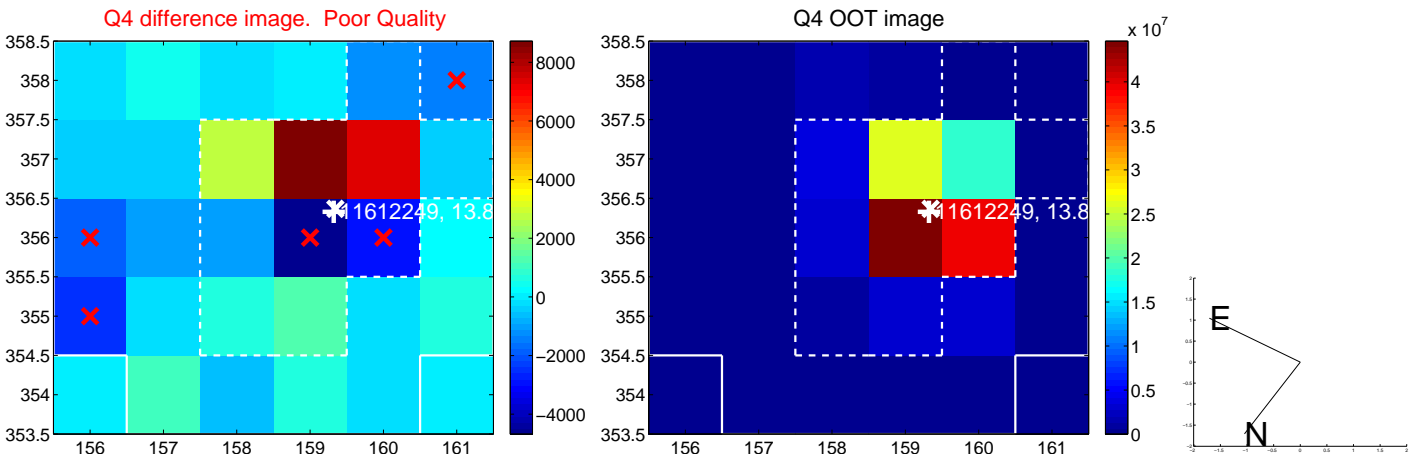
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	0.20 ± 1.28	0.16	0.01 ± 1.28	-0.20 ± 1.28



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.



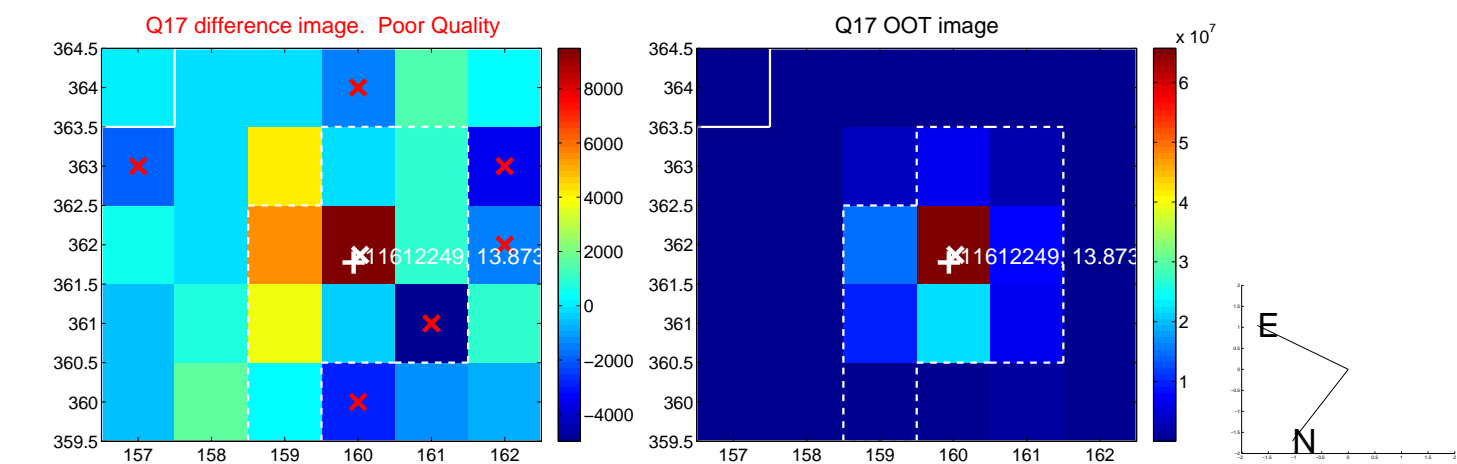
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



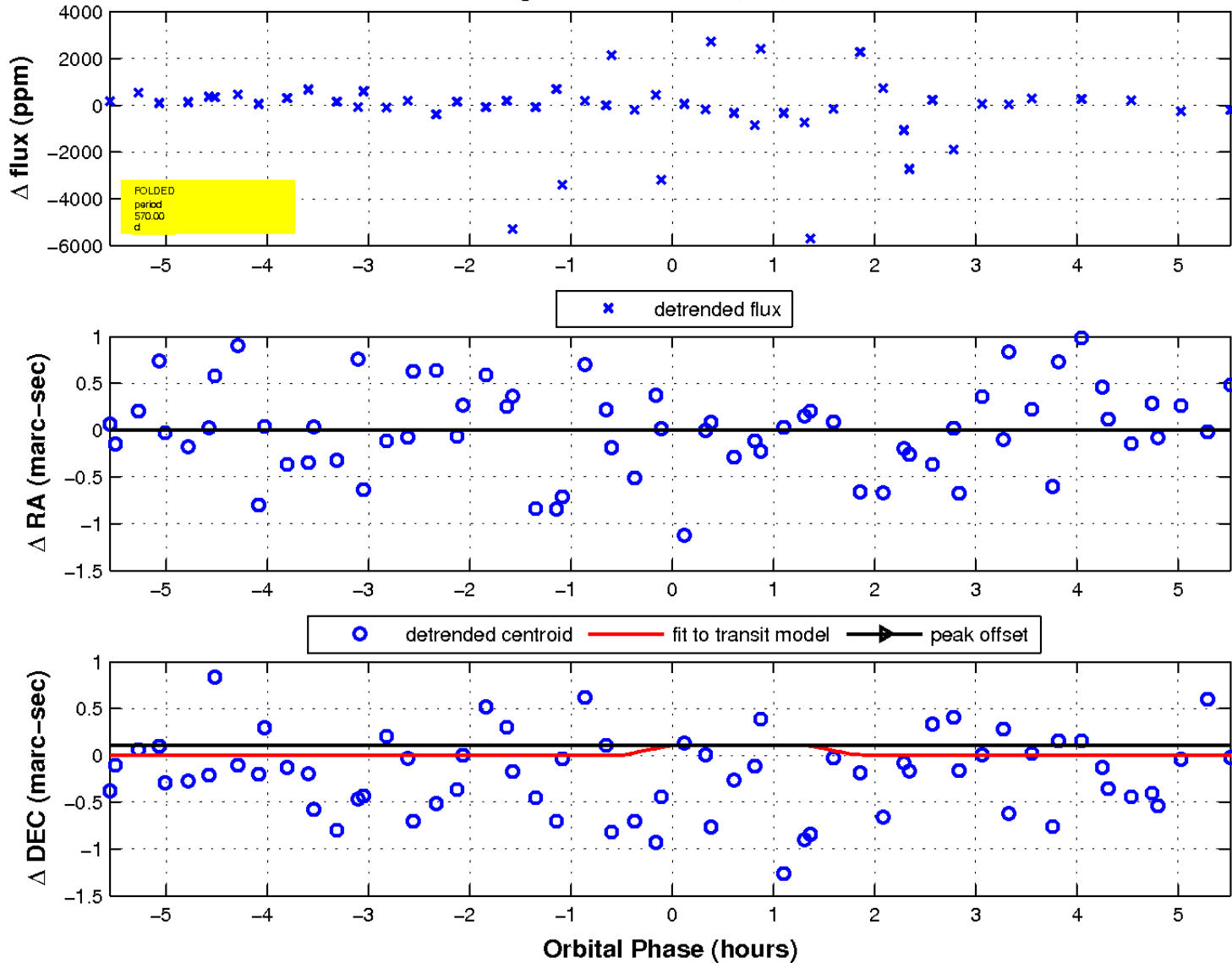
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

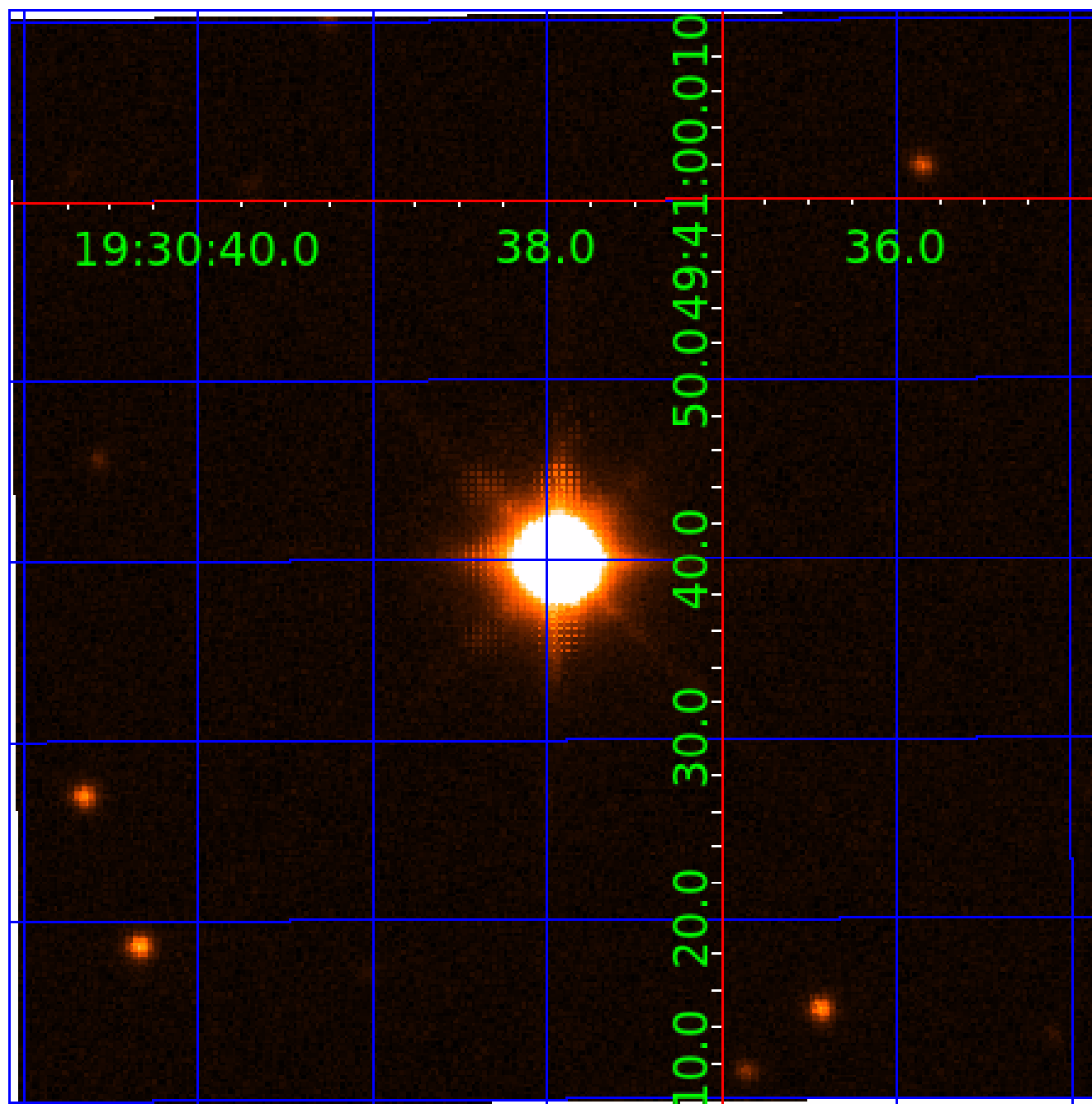


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 011612249

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})
011612249-01	OBS	No	473.211933	147.374853	2074.8	13.126	27.7	17.0	138.66	3362	831.53	1165.50
011612249-02	OBS	No	354.888012	387.641343	997.8	5.560	20.2	17.1	138.66	3362	572.33	1710.54
011612249-03	OBS	No	570.000967	434.186507	1621.5	3.500	27.6	-1.0	138.66	3362	513.40	909.40
011612249-04	OBS	No	240.023866	136.825979	242.5	3.438	28.1	4.5	138.66	3362	231.58	2881.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011612249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011612249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
011612249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

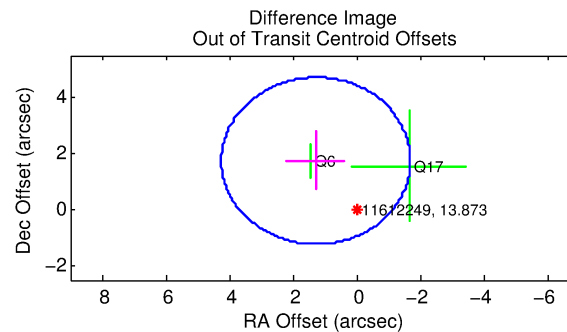
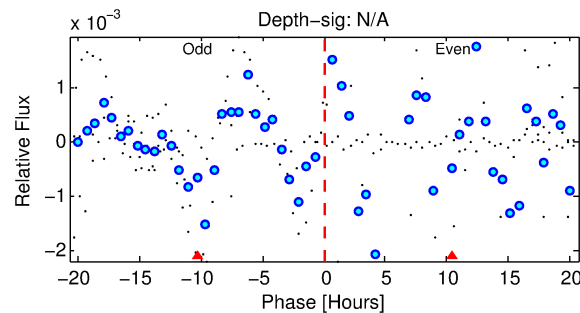
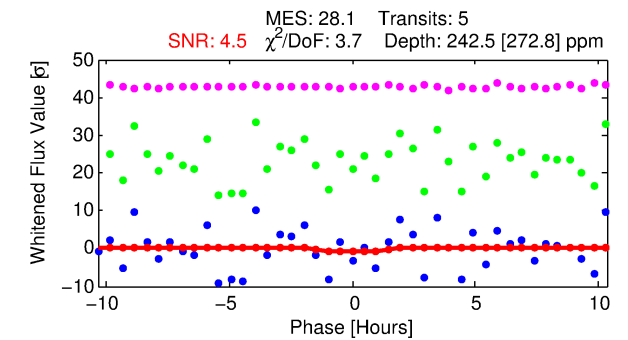
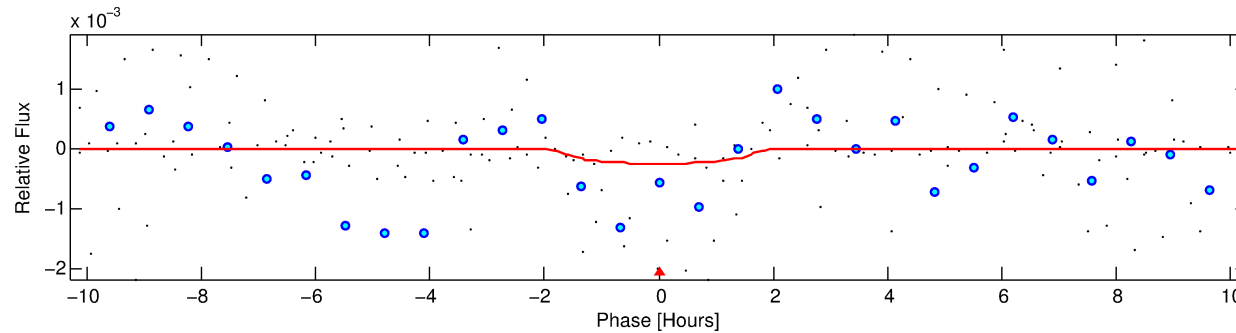
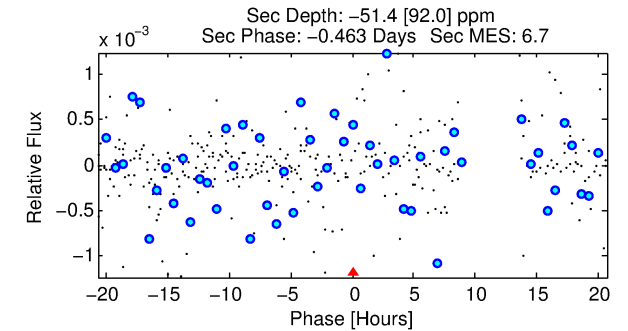
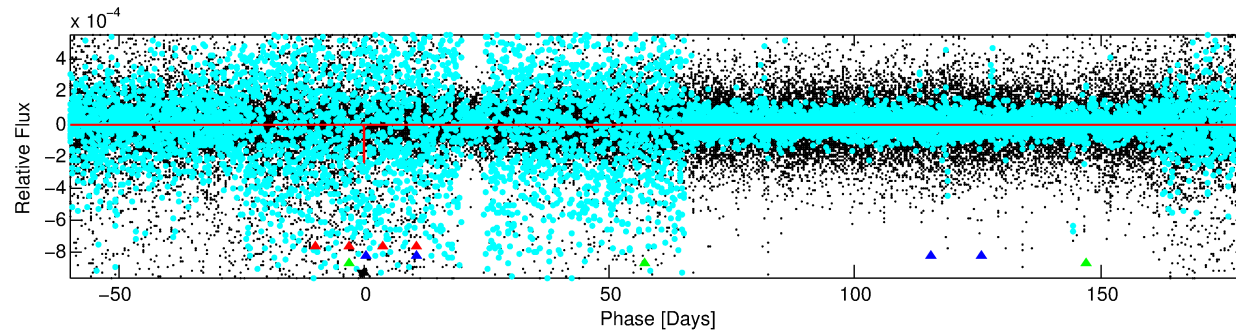
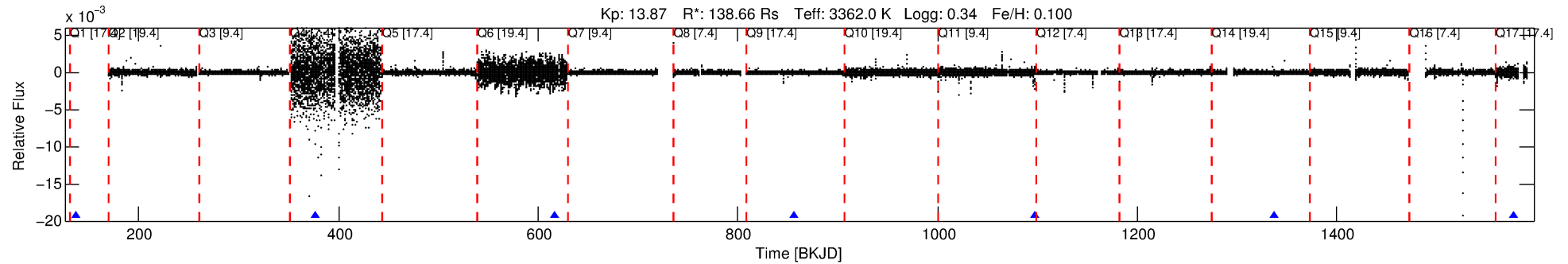
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011612249-04

No Significant Match Found

DV One-Page Summary

KIC: 11612249 Candidate: 4 of 4 Period: 240.024 d



DV Fit Results:

Period = 240.02387 [0.02219] d
Epoch = 136.8260 [0.0699] BKJD
Rp/R* = 0.0153 [0.0684]
a/R* = 391.39 [4255.58]
b = 0.70 [8.20]
Seff = 2881.26 [410.09]
Teq = 1868 [66] K
Rp = 231.58 [1035.46] Re
a = 0.8740 [0.0770] AU
Ag = N/A
Teffp = N/A

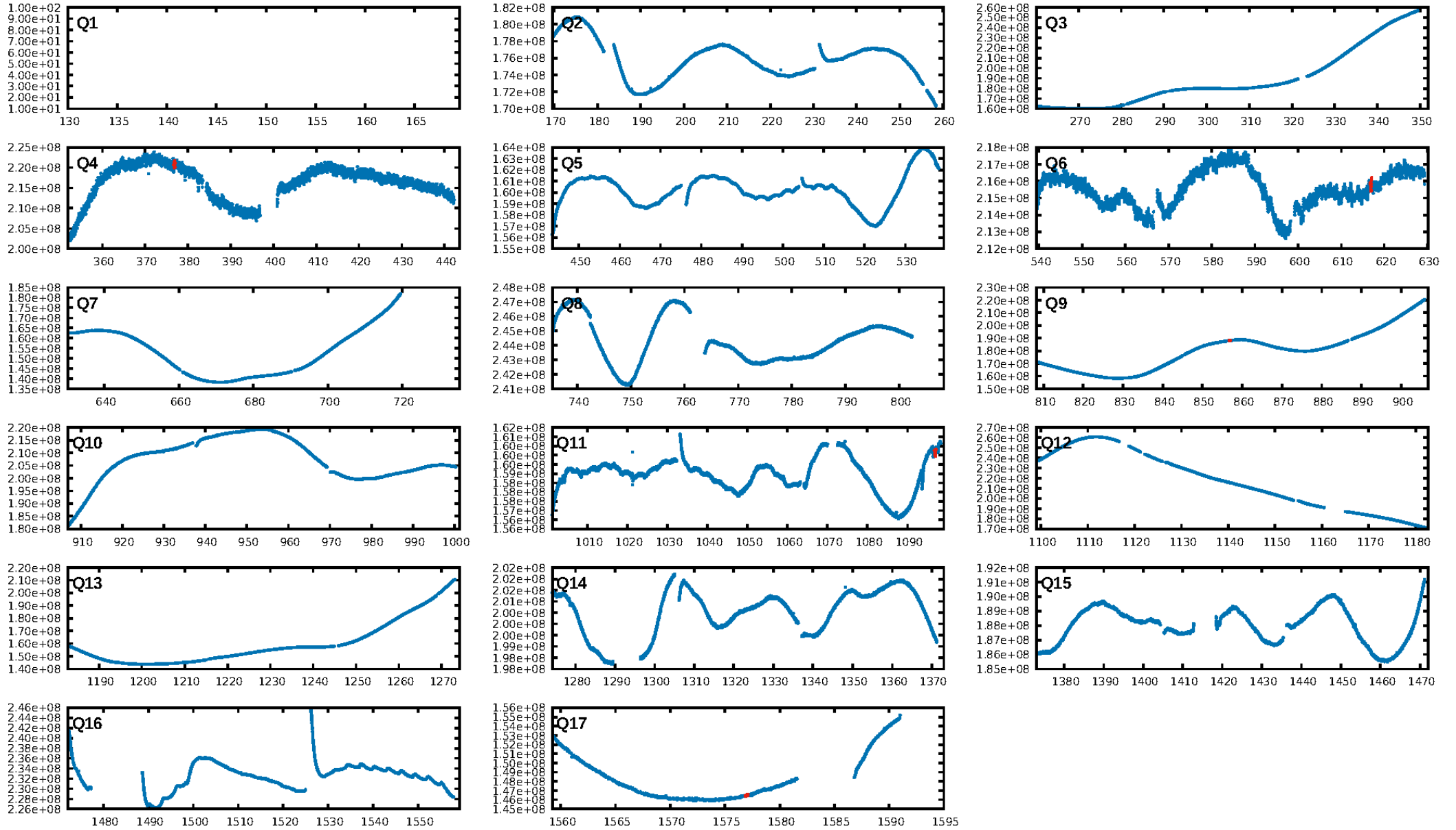
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [421.74 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.1%
Bootstrap-pfa: 1.07e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.843
Centroid-sig: 11.0%
Centroid-so: 1.716 arcsec [1.73 σ]
OotOffset-rm: 2.158 arcsec [2.18 σ]
KicOffset-rm: 2.195 arcsec [2.21 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

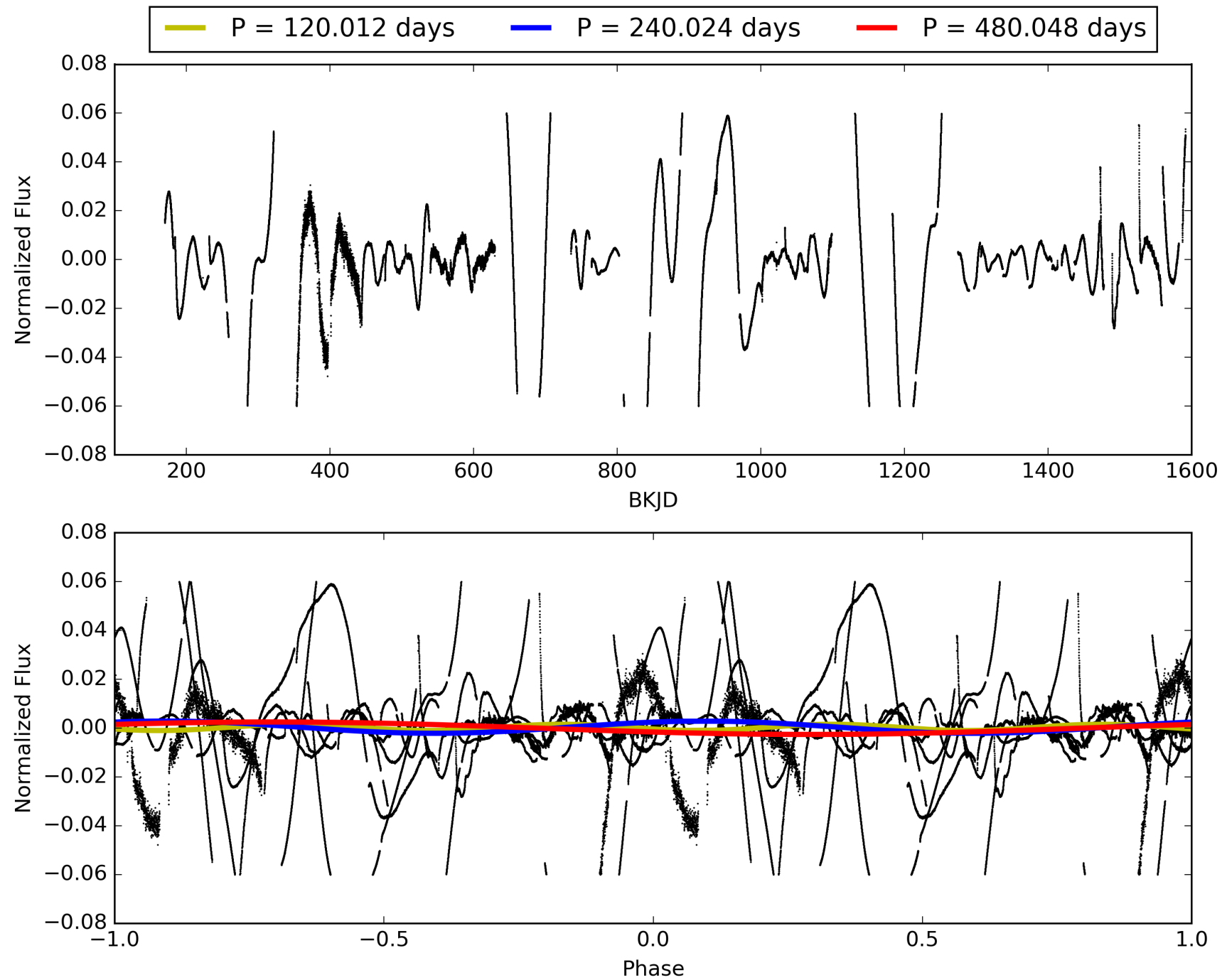
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:47:20 Z

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

TCE 011612249-04, PDC Light Curves

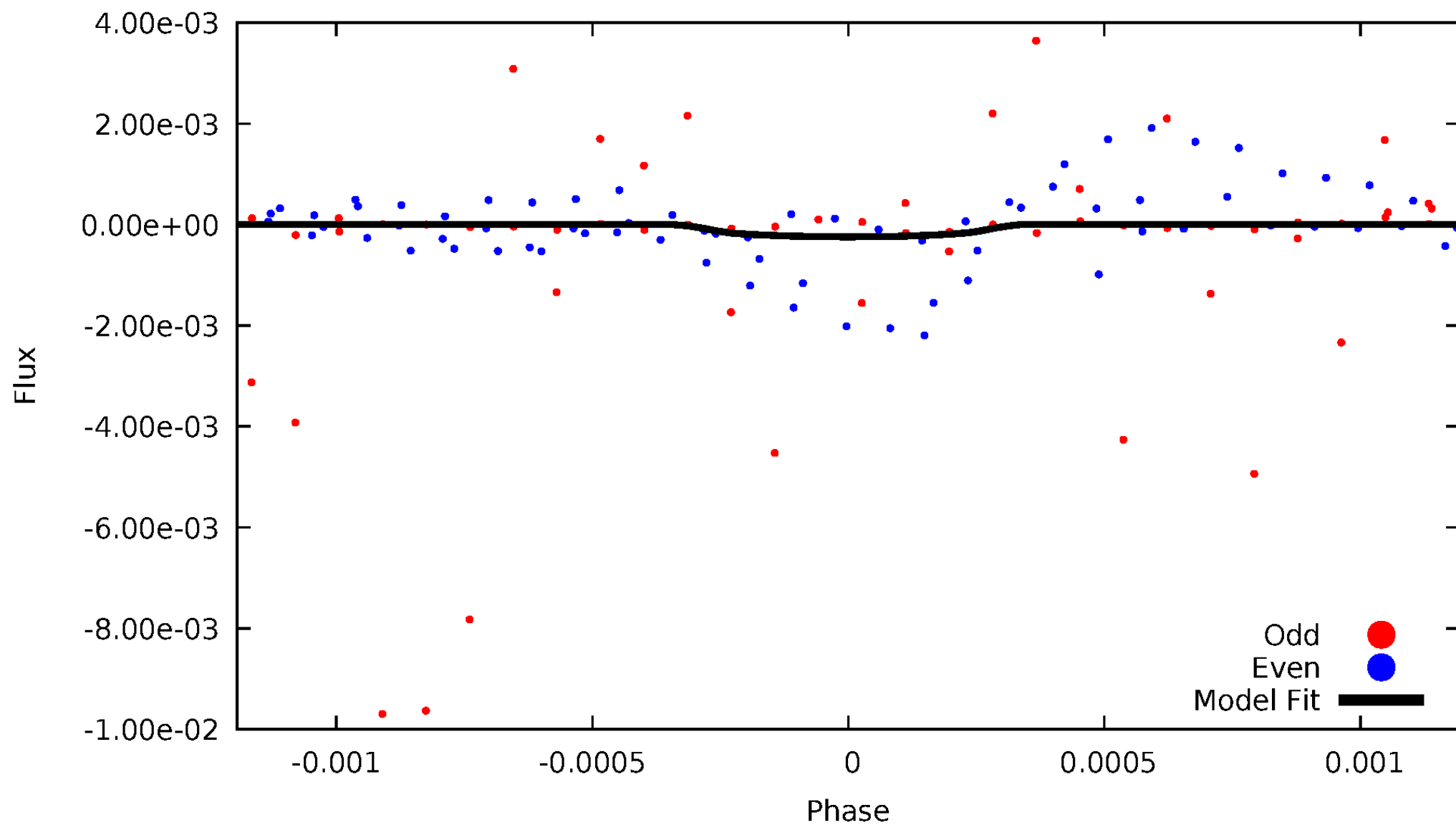


TCE 011612249-04



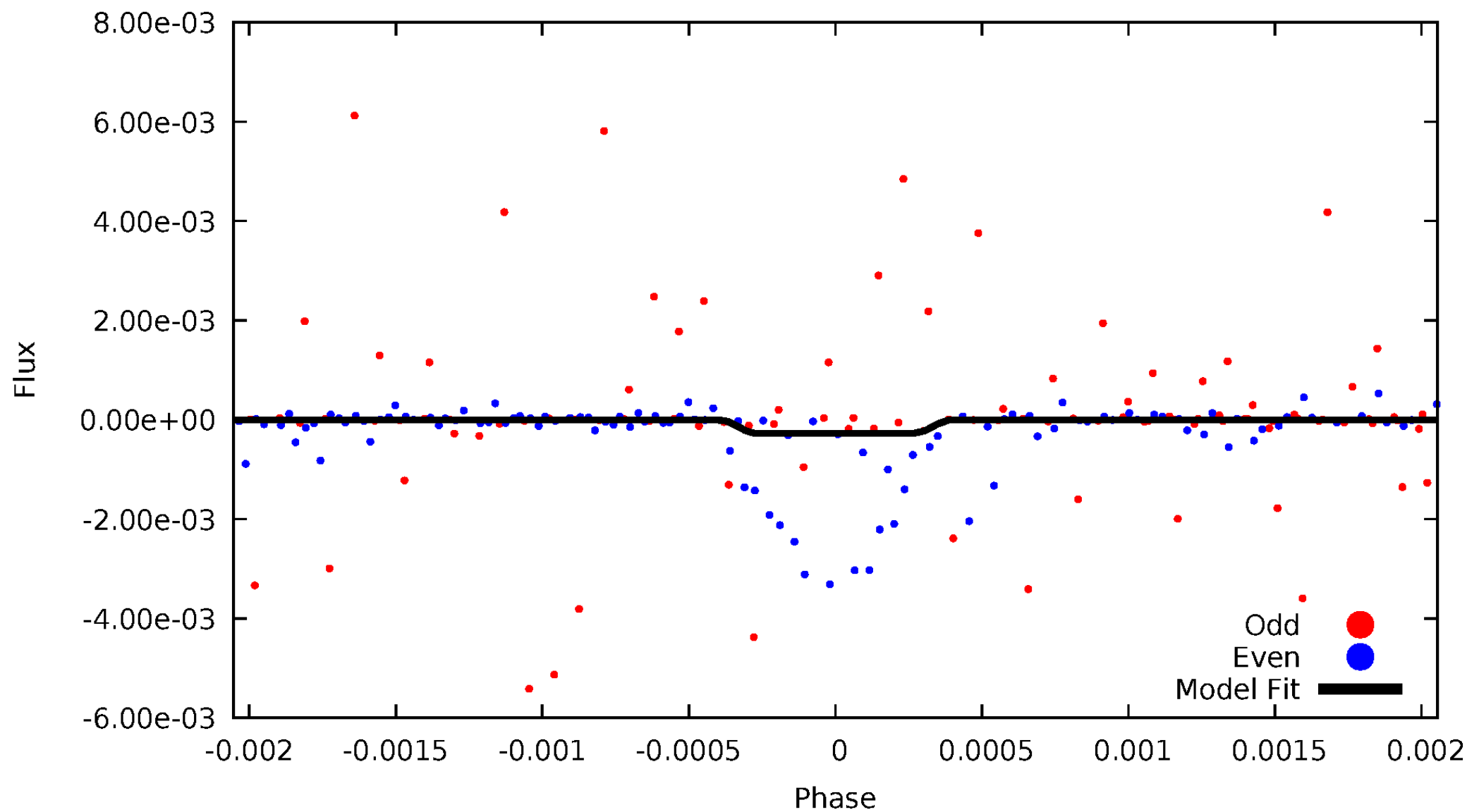
DV Odd/Even

TCE 011612249-04



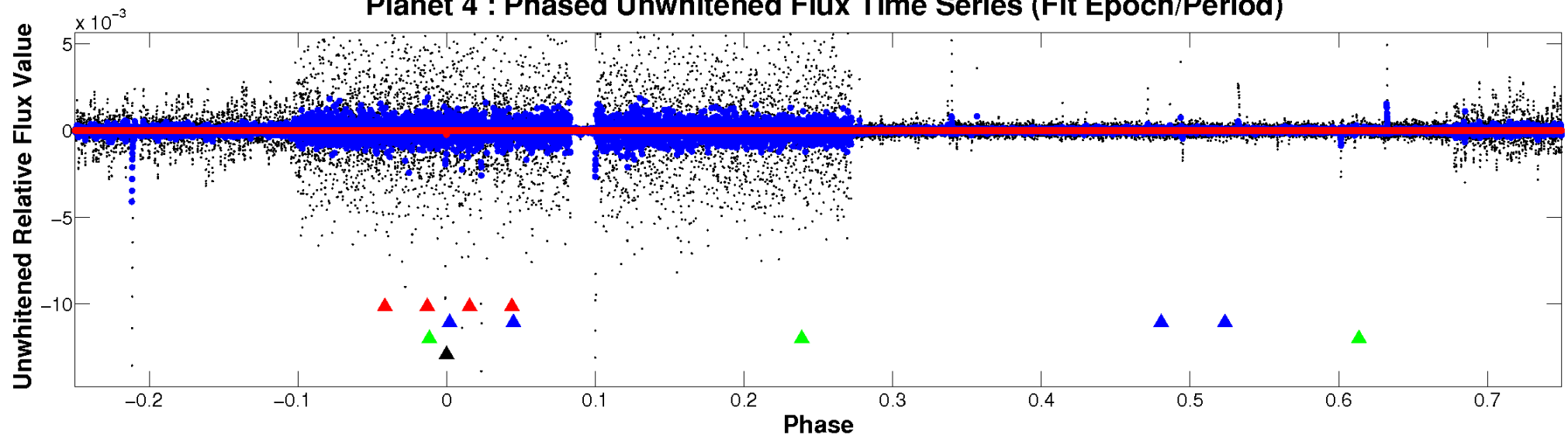
ALT Odd/Even

TCE 011612249-04

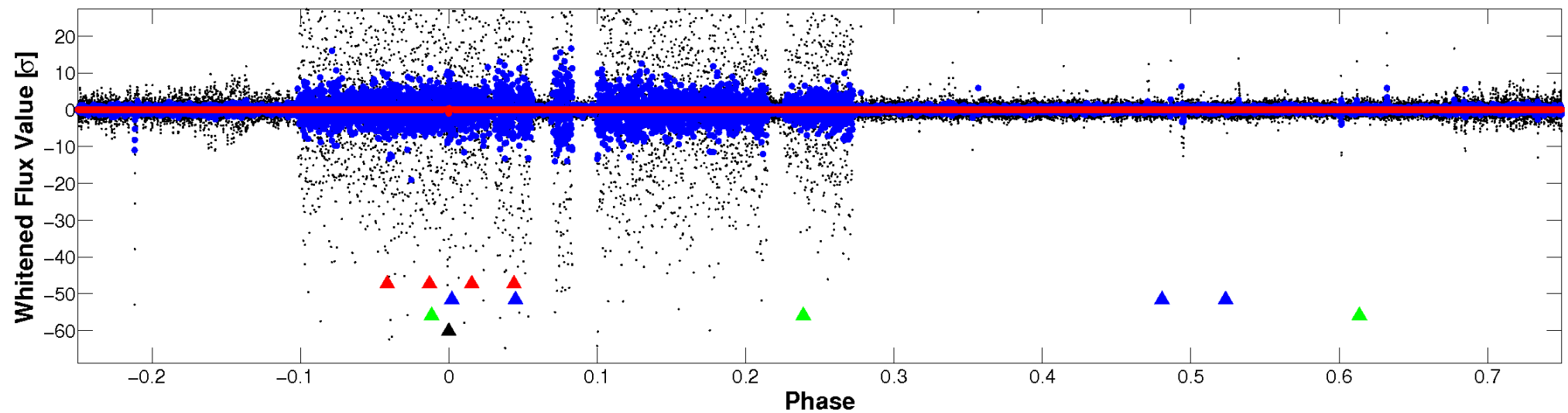


Non-Whitened Vs. Whitened Light Curve

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

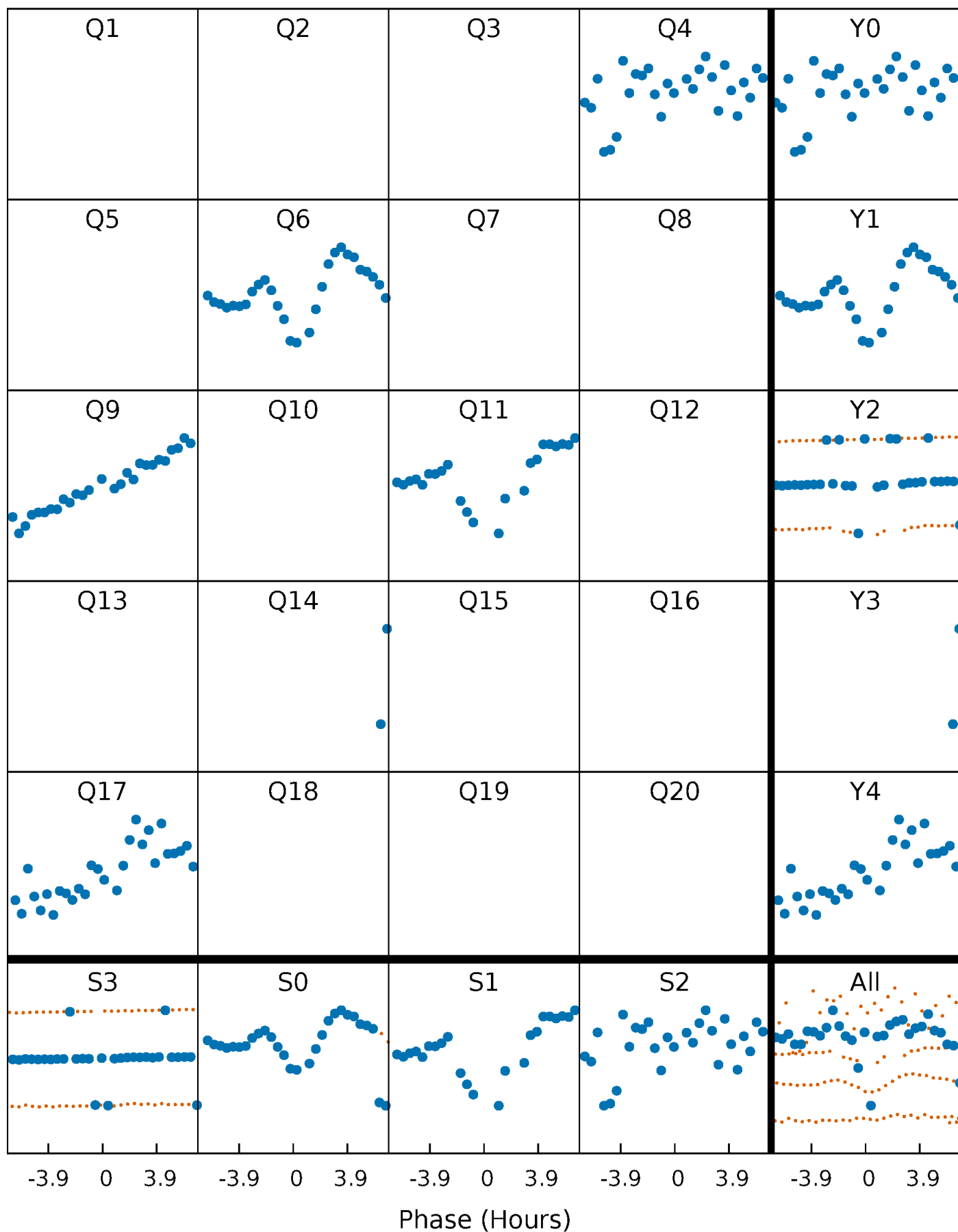


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 011612249-04 P=240.023866 Days $T_0=136.825979$ (BKJD)



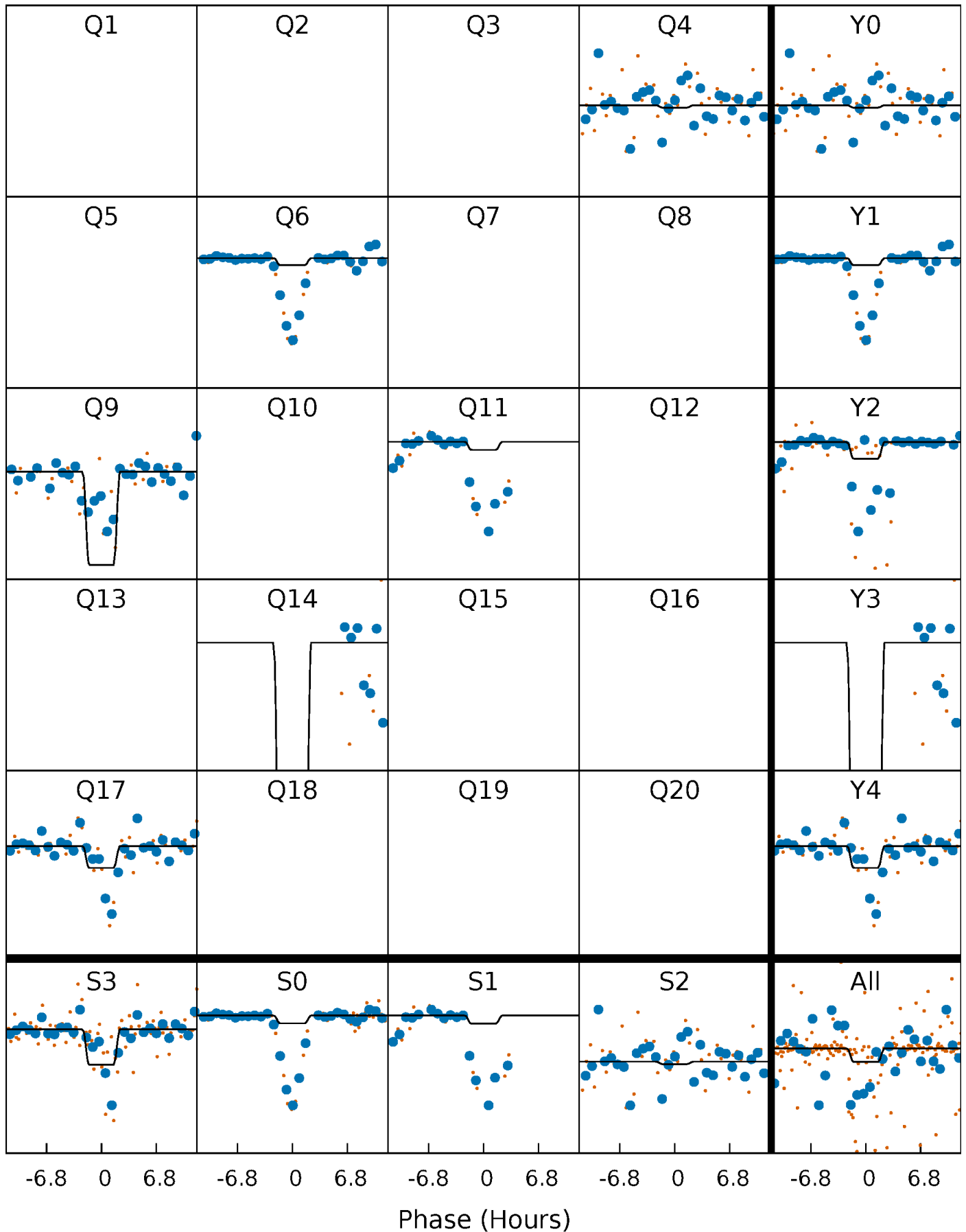
DV Quarter-Phased Transit Curves

TCE 011612249-04 $P=240.023866$ Days $T_0=136.825979$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

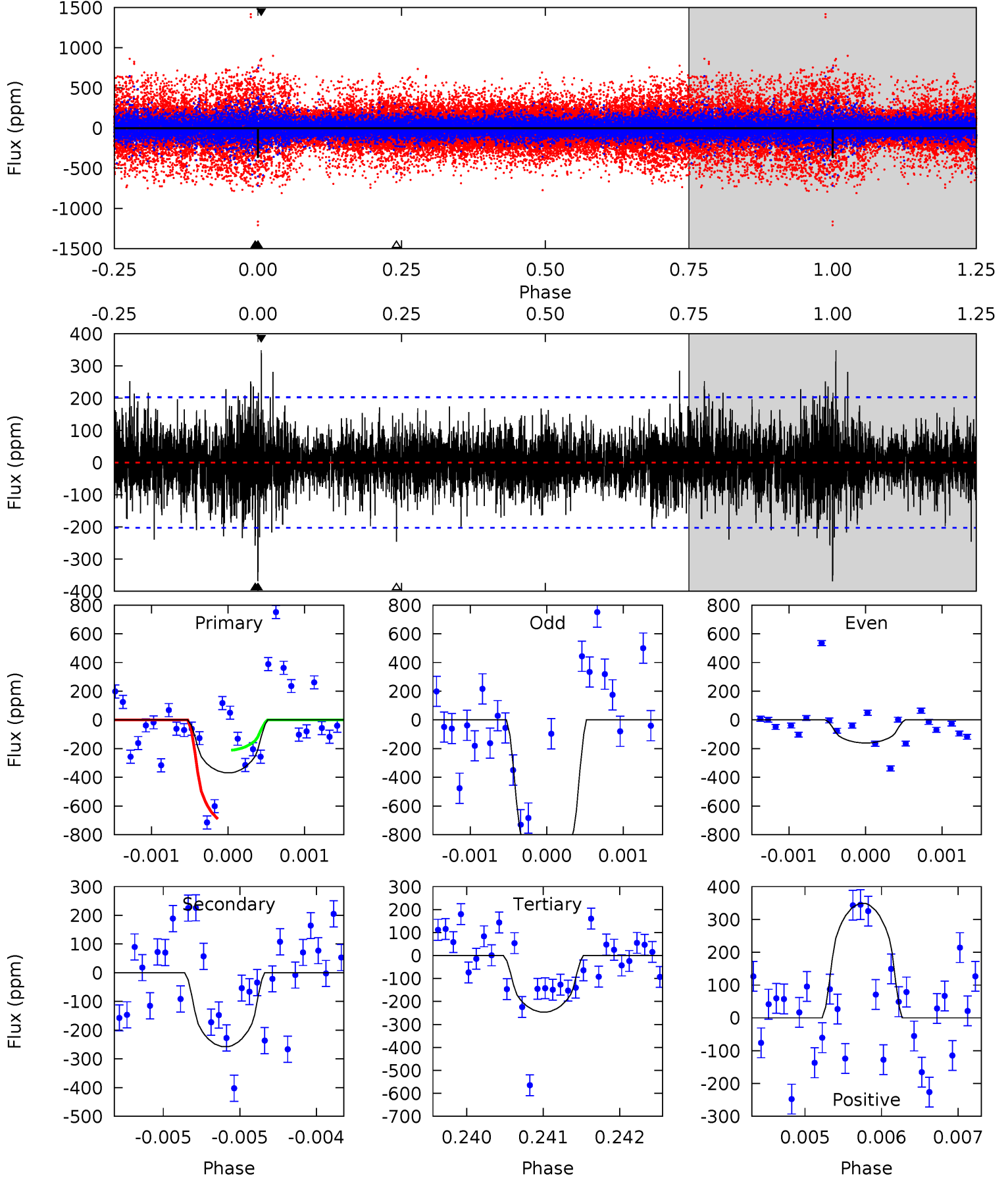
TCE 011612249-04 P=240.015717 Days $T_0=136.866504$ (BKJD)



DV Model-Shift Uniqueness Test

011612249-04, P = 240.023866 Days, E = 136.825979 Days

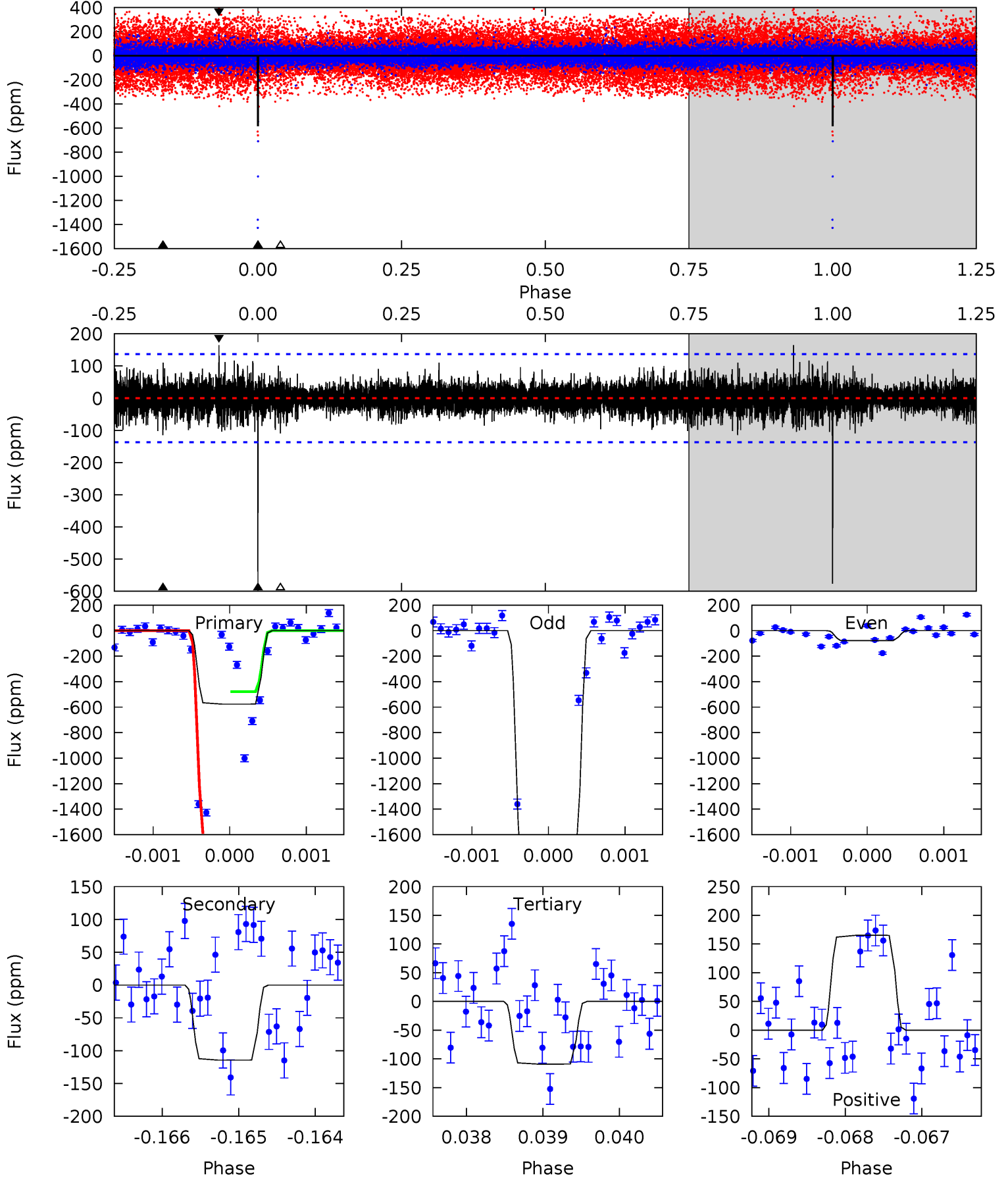
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	7.02	6.71	9.51	5.53	3.41	1.56	3.35	0.55	0.31	-2.49	11.3	0.79	0.49	0



Alt Model-Shift Uniqueness Test

011612249-04, P = 240.015717 Days, E = 136.866504 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	4.60	4.38	6.64	5.49	3.36	1.04	18.8	16.5	0.22	-2.04	43.6	2.09	0.22	0



Stellar Parameters For KIC 011612249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3362^{+79}_{-89}	$0.343^{+0.027}_{-0.027}$	$0.100^{+0.200}_{-0.200}$	$138.661^{+4.451}_{-17.804}$	$1.546^{+0.038}_{-0.359}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+8%/-8%	+200%/-200%	+3%/-13%	+2%/-23%	+19%/-8%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011612249-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-258 ± 37	$764.90^{+768.40}_{-518.15}$	2610^{+70}_{-78}	-2334^{+5580}_{-230}	$0.171^{+1.542}_{-0.125}$
Alt.	-114 ± 25	$800.68^{+787.26}_{-521.64}$	2609^{+71}_{-80}	-2501^{+5119}_{-107}	$0.073^{+0.535}_{-0.054}$

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 $A_{obs} \gg 1.0$

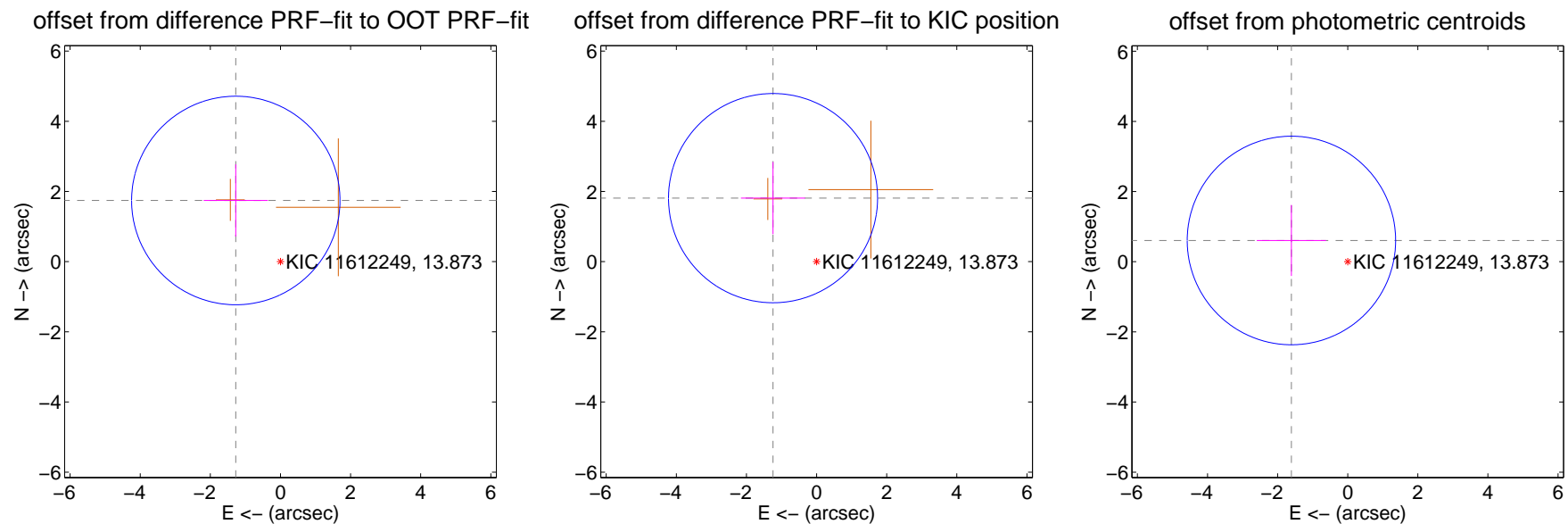
DV Centroid Data

Supplemental centroid analysis for 011612249-04. Kepler magnitude: 13.87. Transit SNR 4.55

There are 0 quarters with good PRF difference image offsets

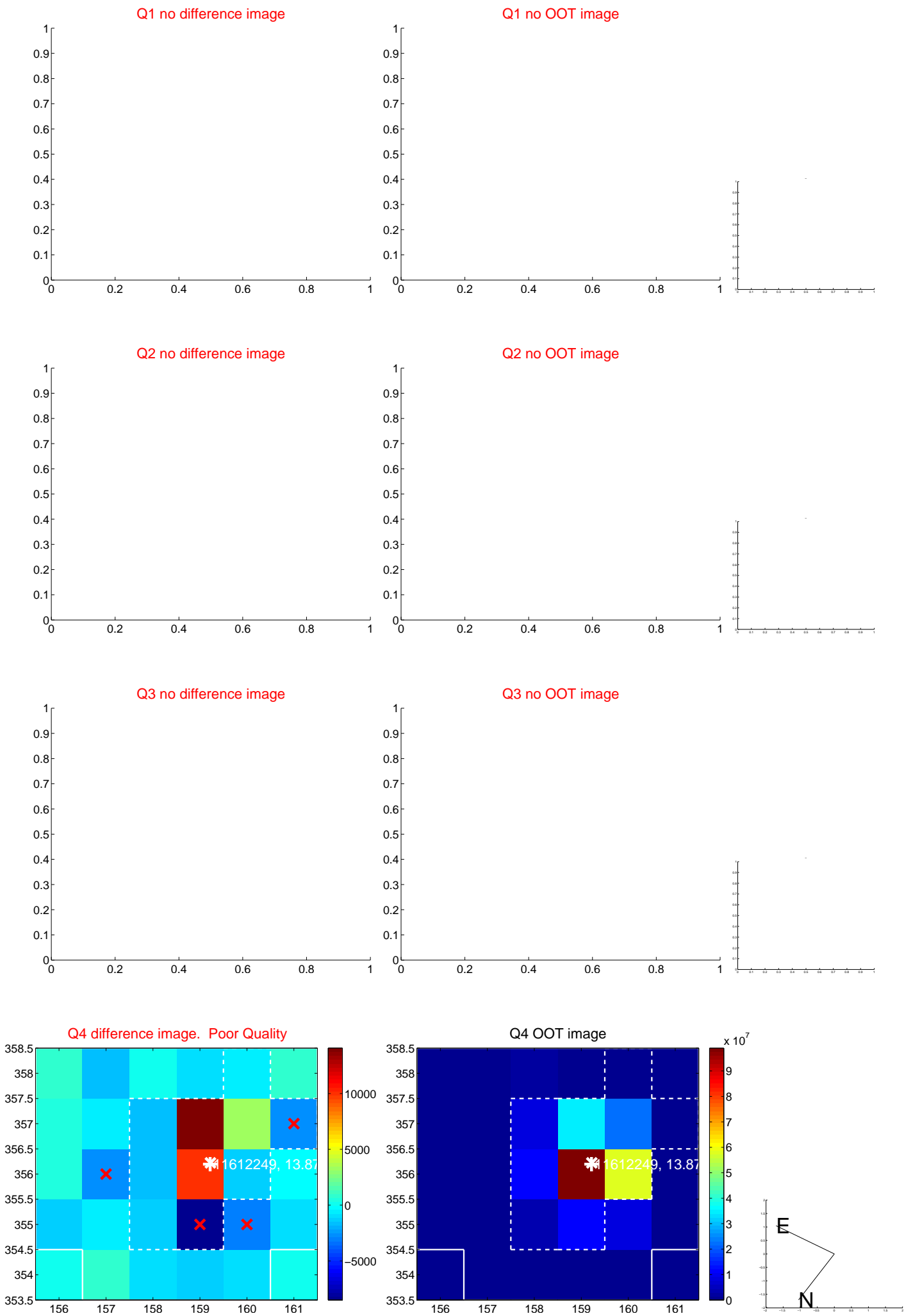
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.158 ± 0.991	2.18	1.273 ± 0.915	1.743 ± 1.029
PRF-fit source offset from KIC position	2.195 ± 0.994	2.21	1.241 ± 0.915	1.810 ± 1.029
photometric centroid source offset	1.72 ± 0.99	1.73	1.61 ± 0.99	0.61 ± 1.01

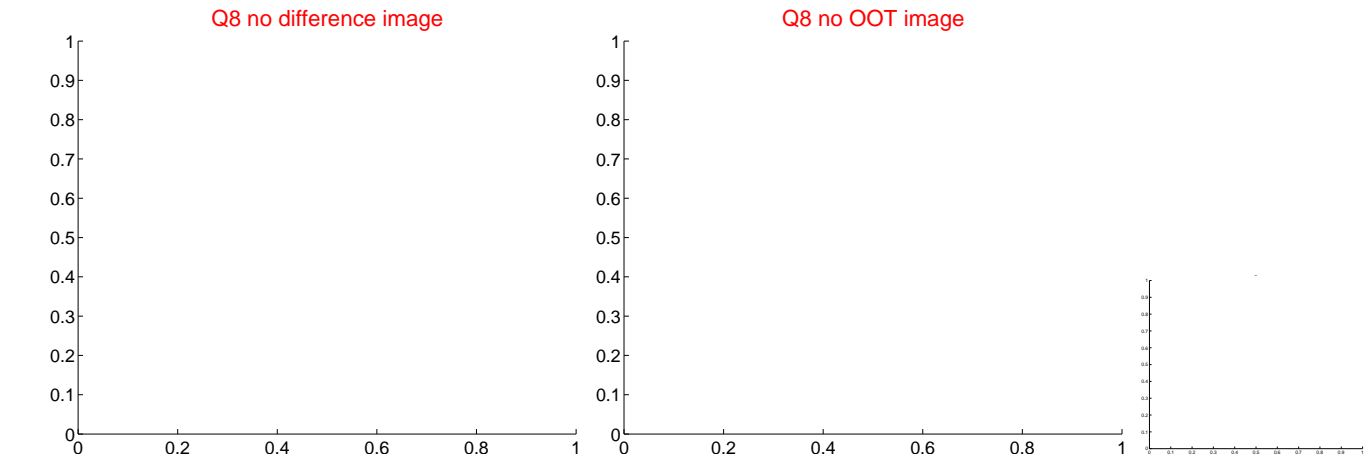
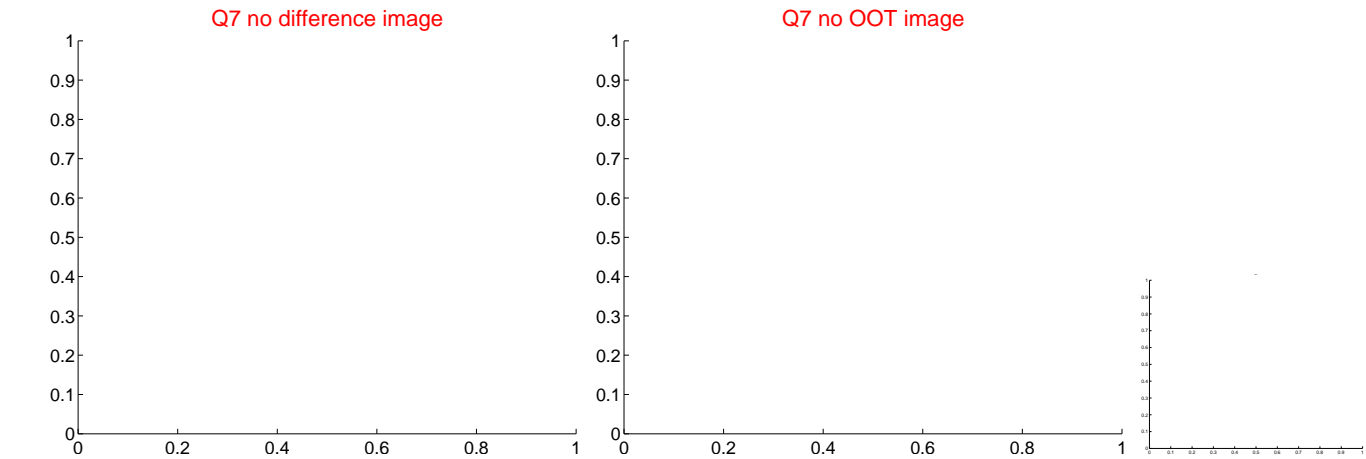
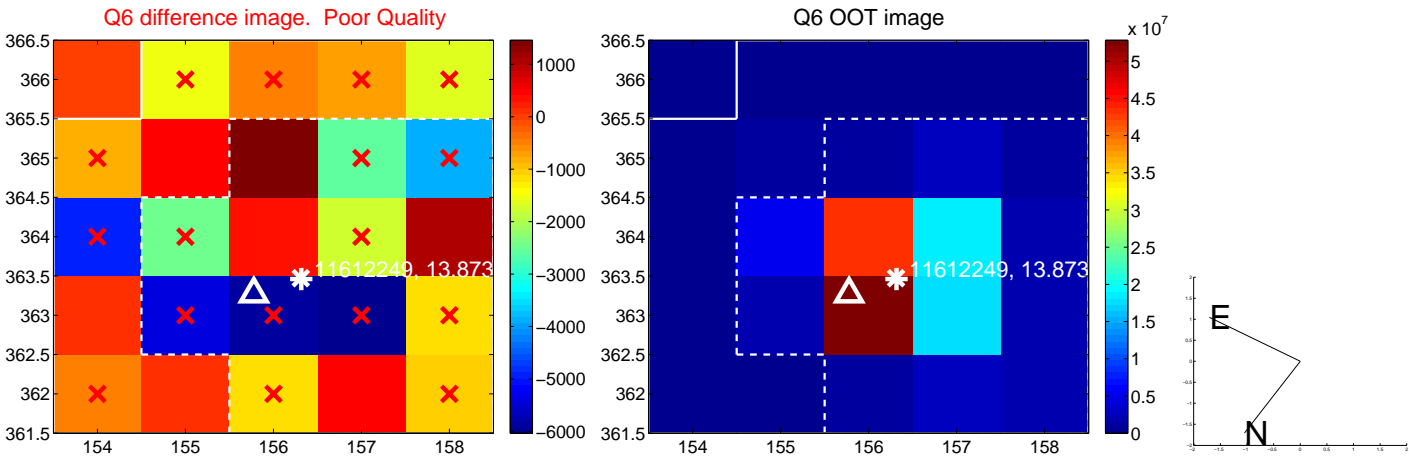
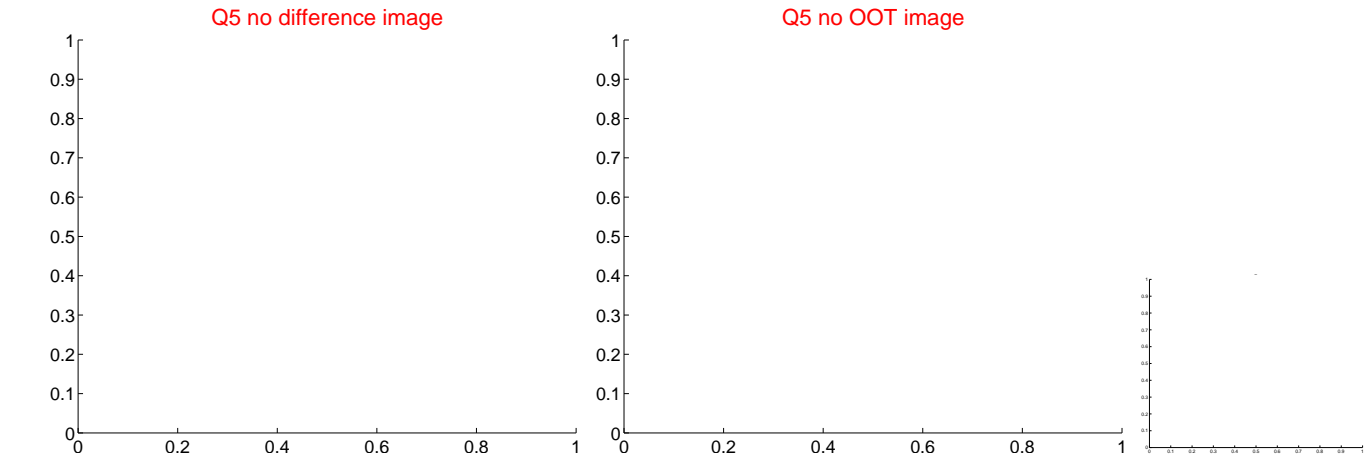


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

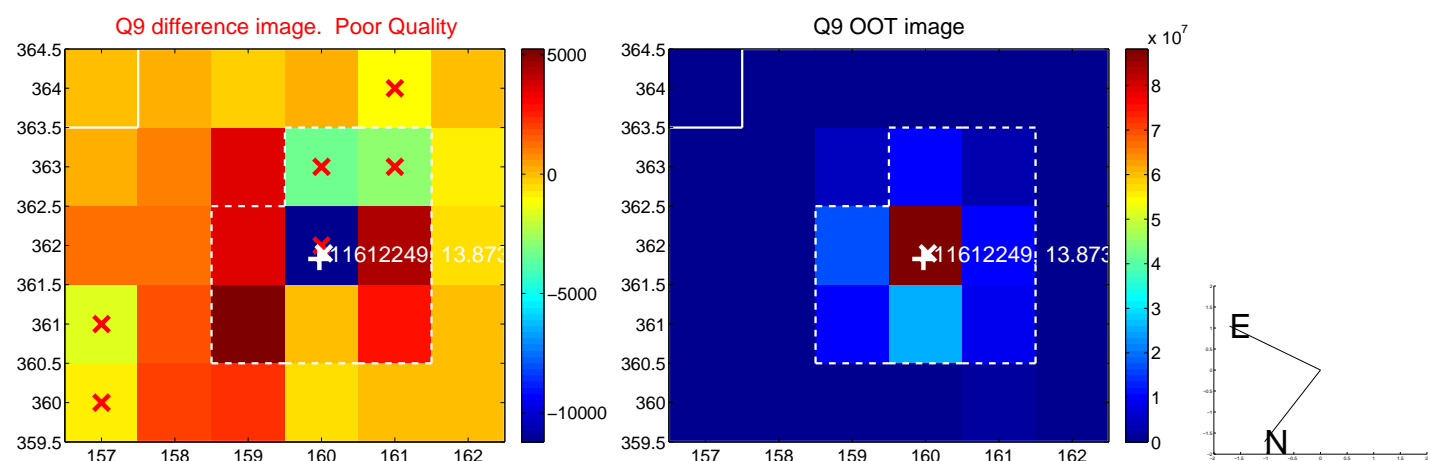
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



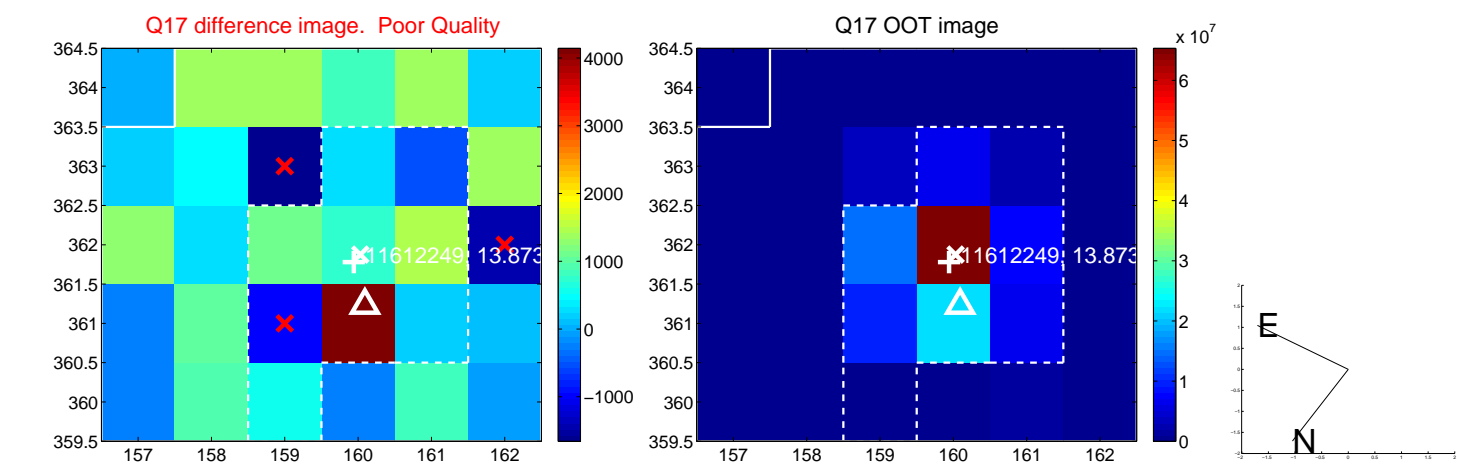
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



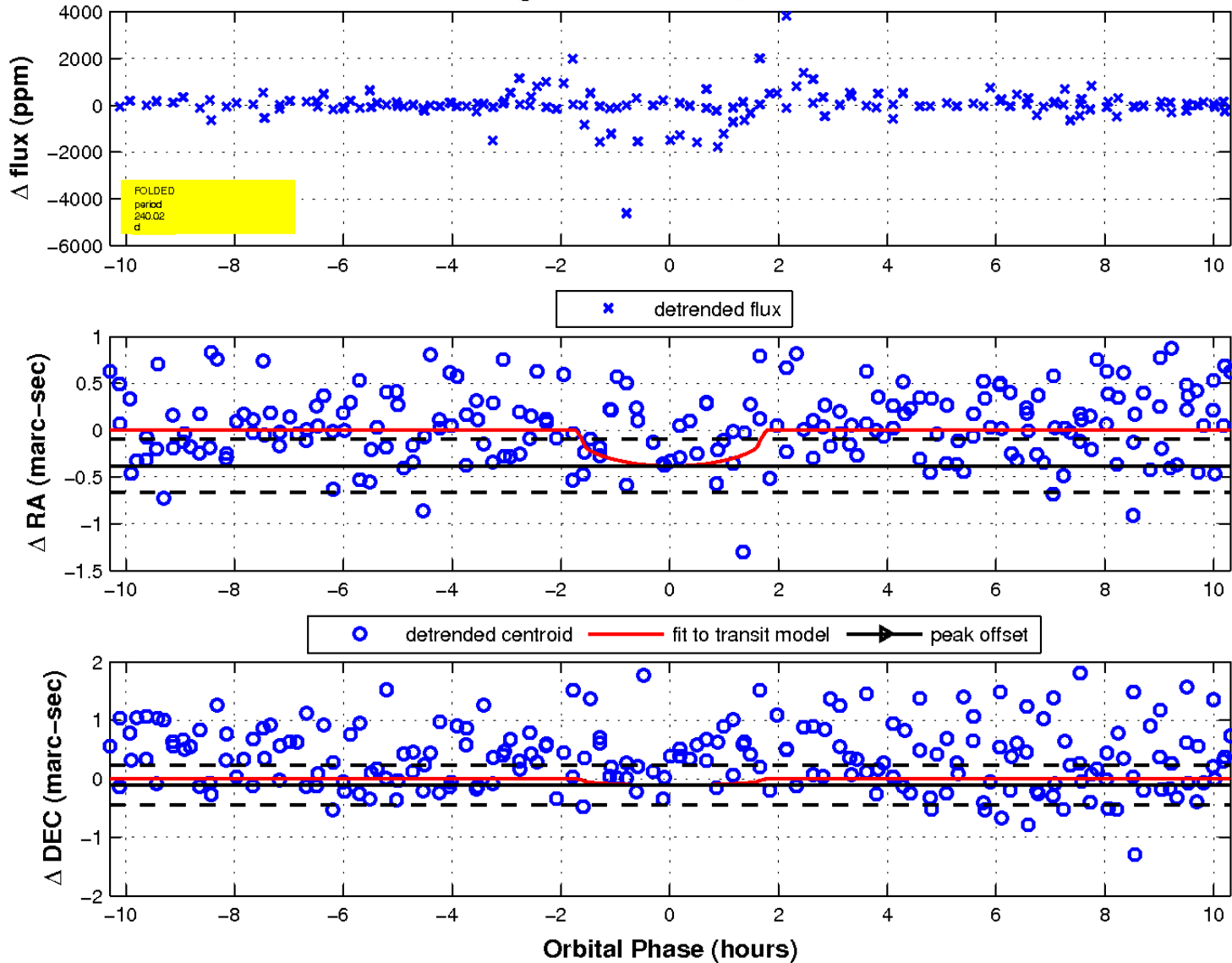
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

