

KIC 012314646

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})
012314646-01	OBS	No	451.340759	175.852140	2479.0	5.619	17.2	10.0	0.32	3444	1.60	0.02
012314646-02	OBS	No	371.424272	398.254456	2683.0	4.712	15.9	9.9	0.32	3444	1.70	0.03
012314646-03	OBS	No	417.641563	299.276895	1872.7	6.312	13.3	8.2	0.32	3444	1.42	0.02
012314646-04	OBS	No	430.169131	185.888702	2493.7	8.736	17.2	8.8	0.32	3444	1.70	0.02
012314646-05	OBS	No	331.038021	416.737216	2257.1	4.900	15.4	7.8	0.32	3444	1.52	0.03
012314646-06	OBS	No	445.015692	454.388487	1007.1	4.500	14.1	-1.0	0.32	3444	1.02	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012314646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012314646-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
012314646-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012314646-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
012314646-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012314646-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

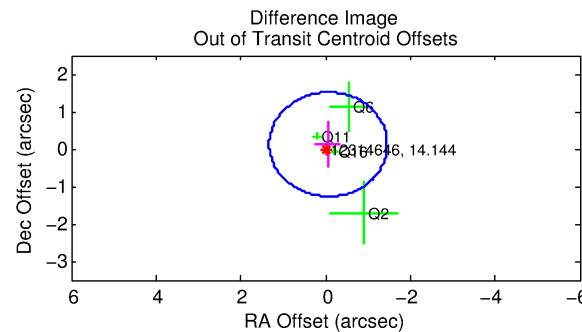
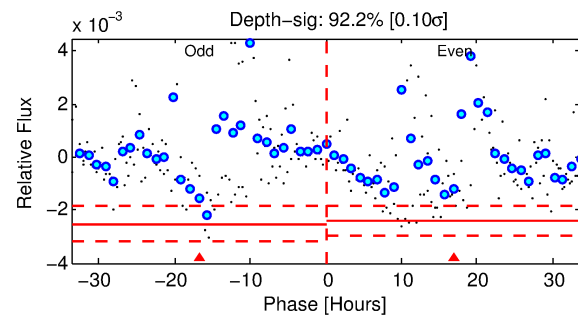
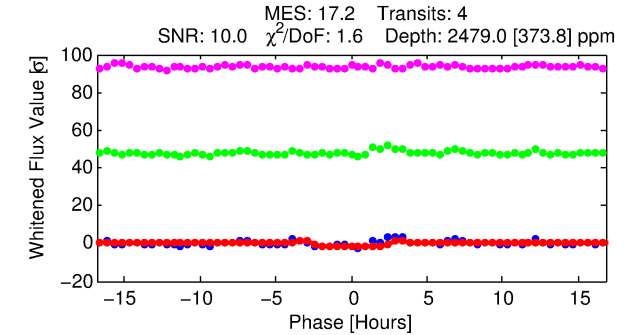
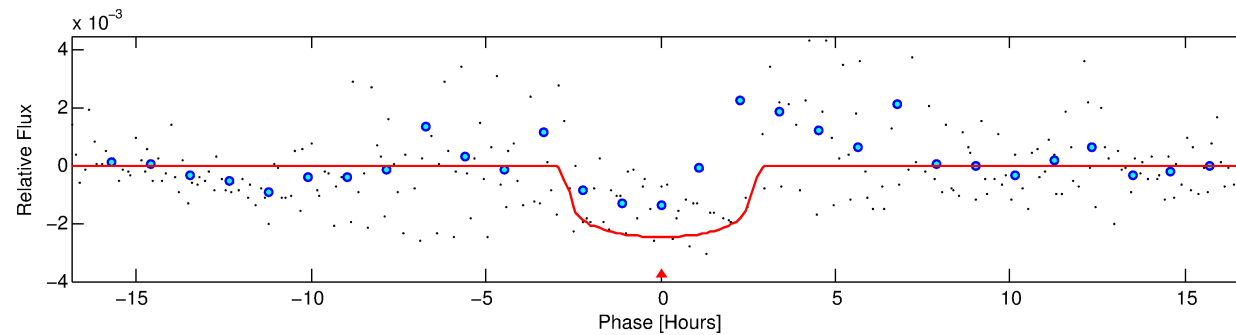
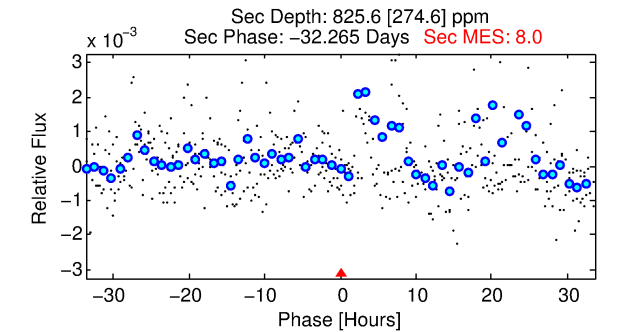
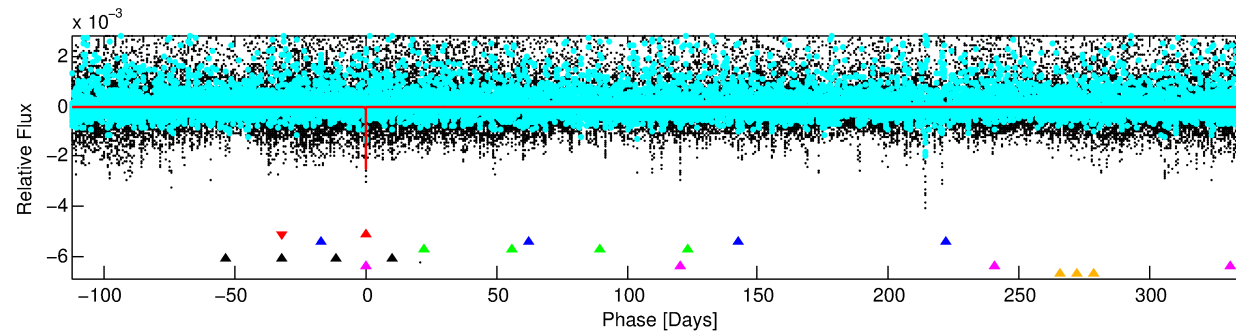
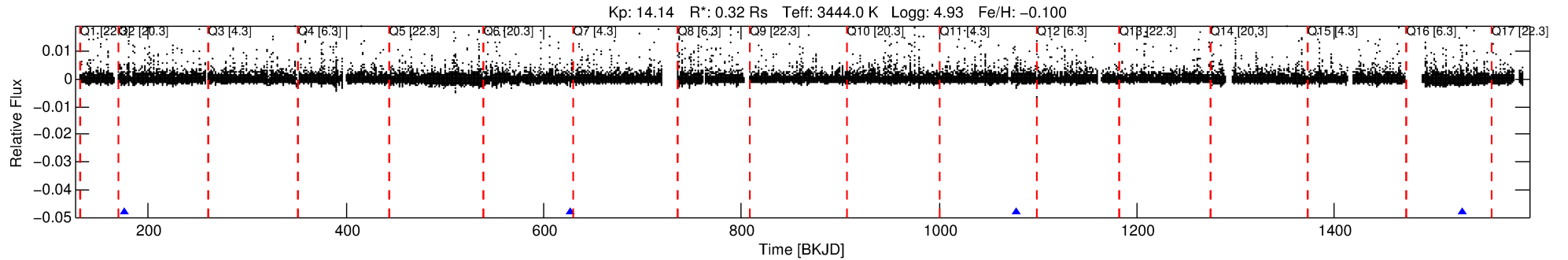
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012314646-01

No Significant Match Found

DV One-Page Summary

KIC: 12314646 Candidate: 1 of 6 Period: 451.341 d



DV Fit Results:

Period = 451.34076 [0.00443] d
Epoch = 175.8521 [0.0077] BKJD
Rp/R* = 0.0452 [0.0226]
a/R* = 632.77 [1336.65]
b = 0.17 [11.96]
Seff = 0.02 [0.00]
Teq = 97 [3] K
Rp = 1.60 [0.83] Re
a = 0.7920 [0.0739] AU
Ag = 111472.29 [118335.63] [0.94σ]
Teffp = 2745 [725] K [3.65σ]

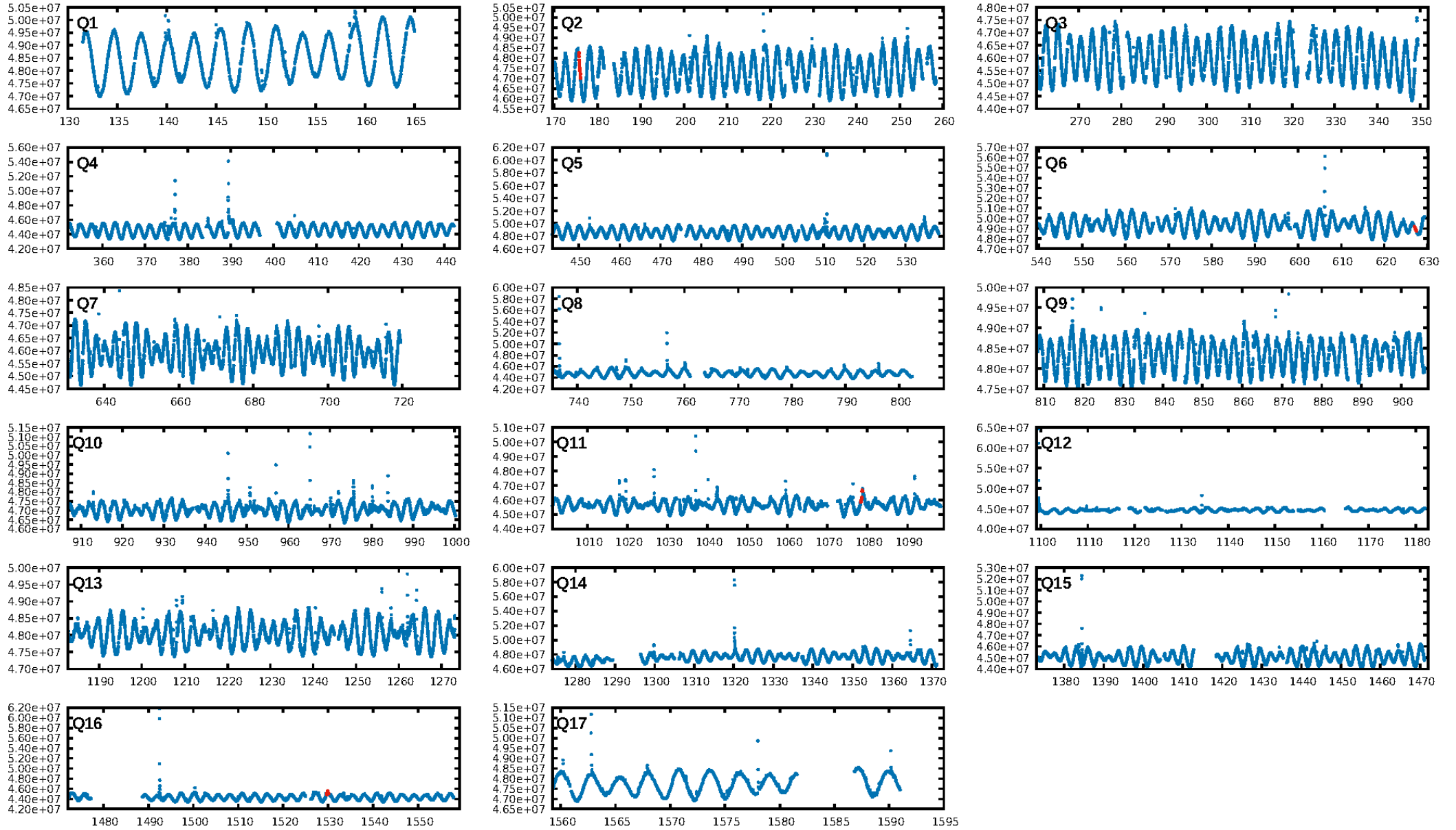
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.09σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 51.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -5.776
Centroid-sig: 18.6%
Centroid-so: 0.514 arcsec [1.79σ]
OotOffset-rm: 0.138 arcsec [0.30σ]
OotOffset-st: 2/1/1/0 [4]
KicOffset-rm: 0.438 arcsec [0.93σ]
KicOffset-st: 2/1/1/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.75 [3/4]

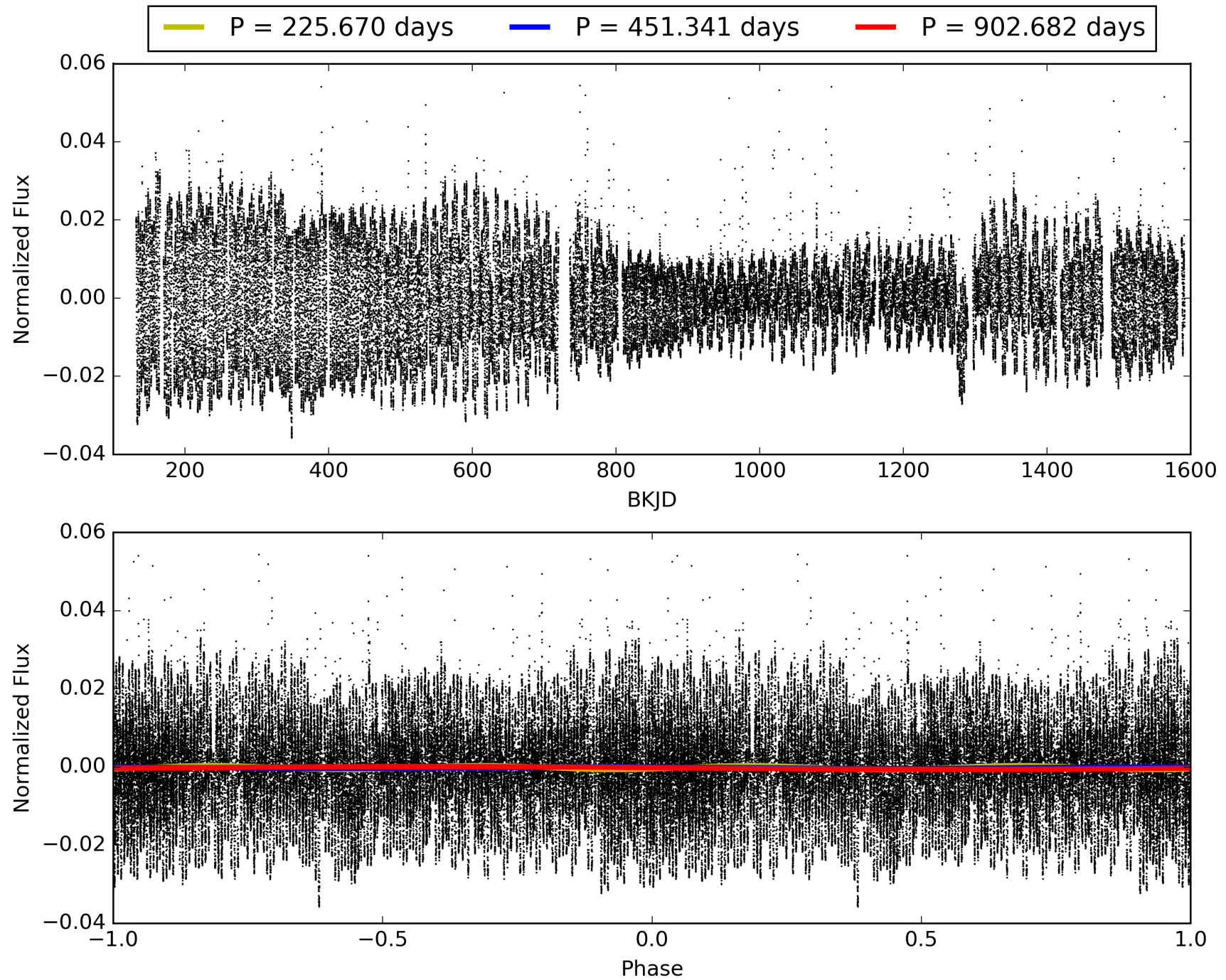
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:49:43 Z

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

TCE 012314646-01, PDC Light Curves

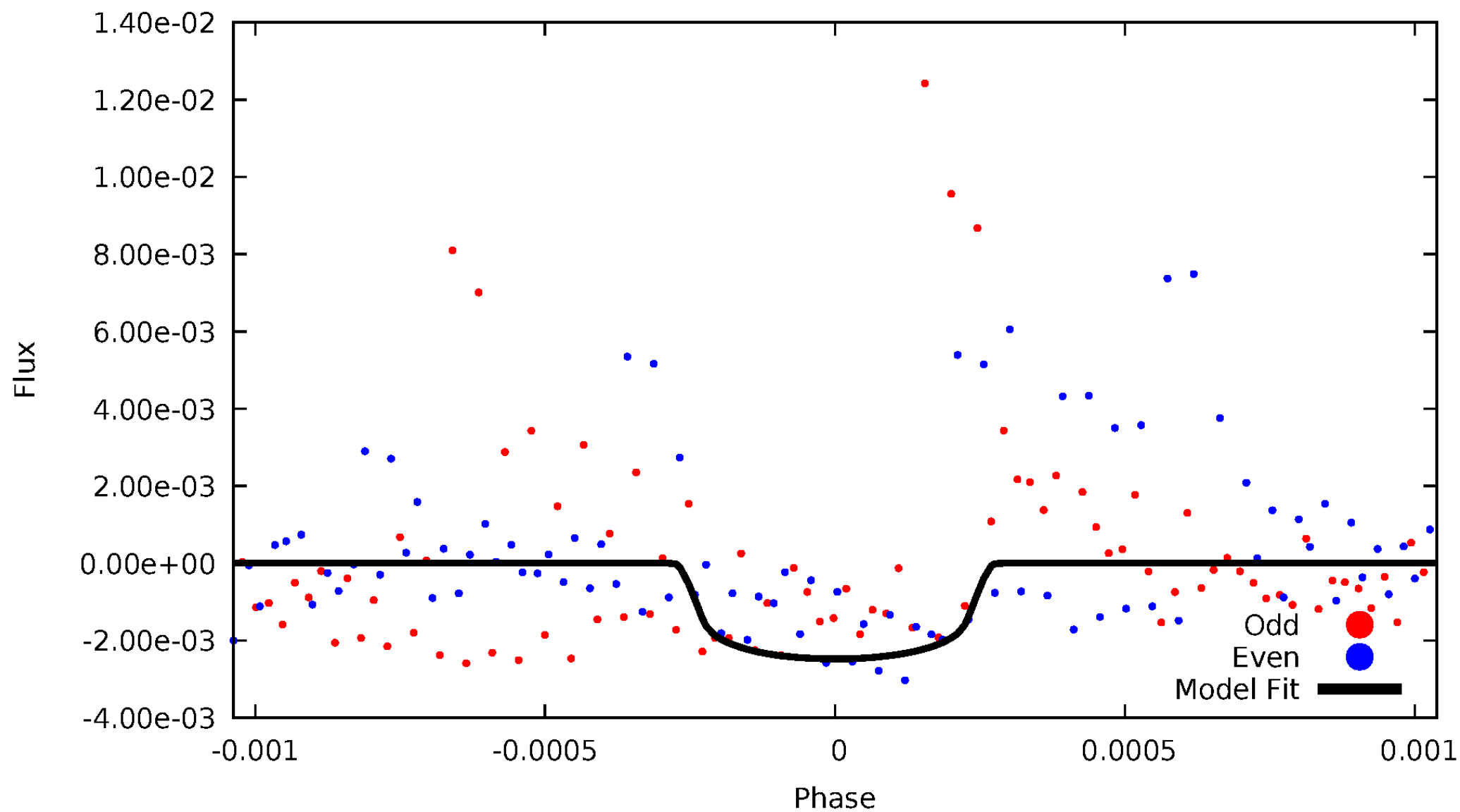


TCE 012314646-01



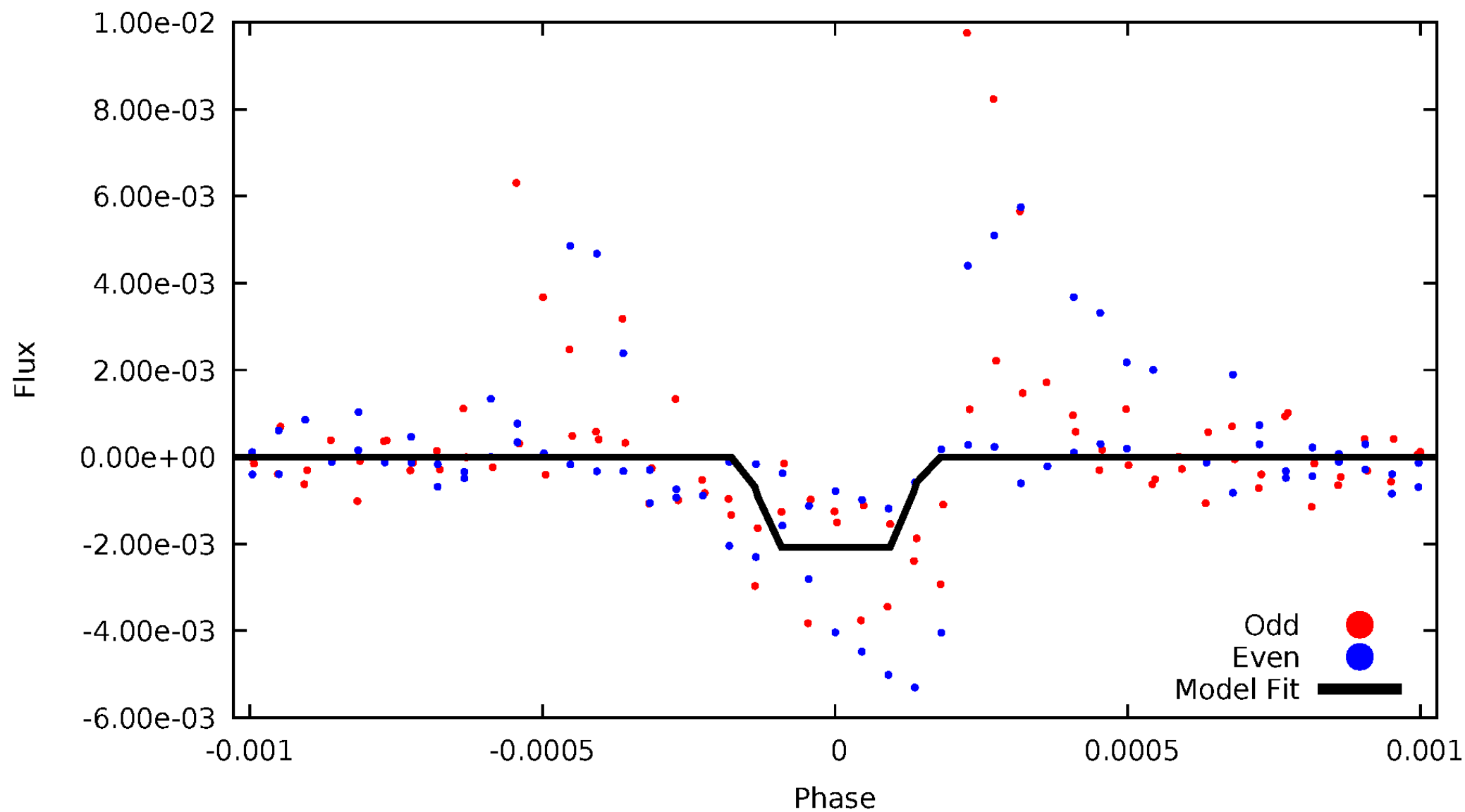
DV Odd/Even

TCE 012314646-01



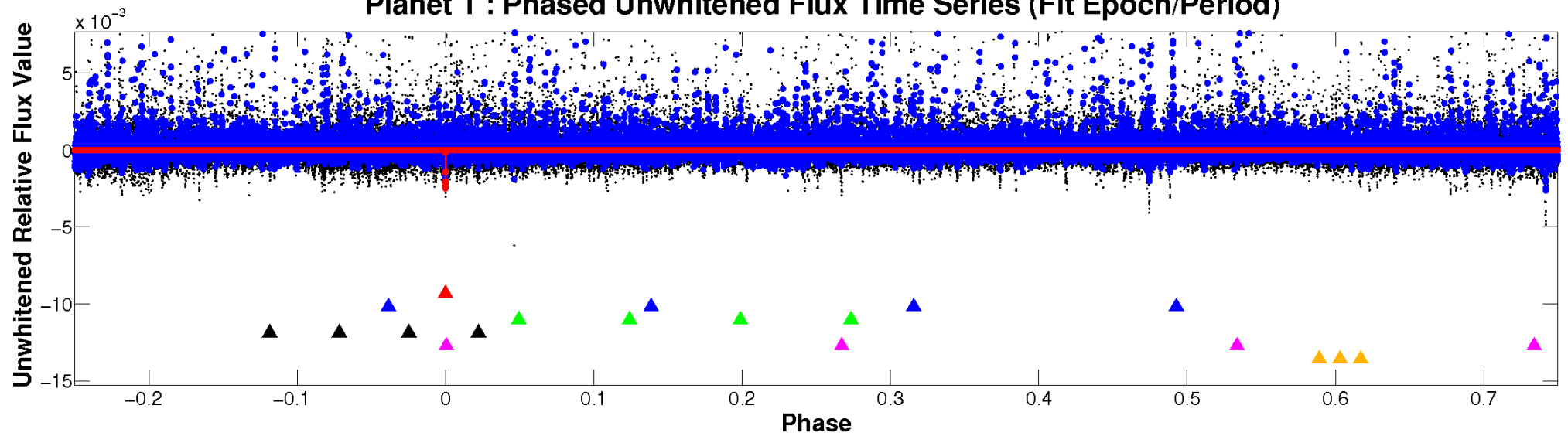
ALT Odd/Even

TCE 012314646-01

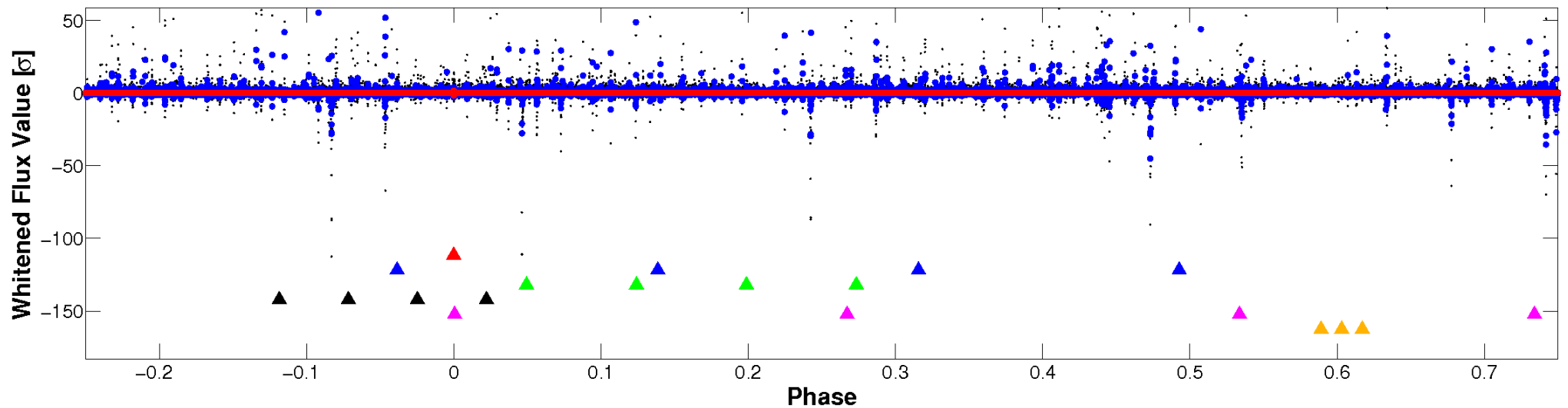


Non-Whitened Vs. Whitened Light Curve

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

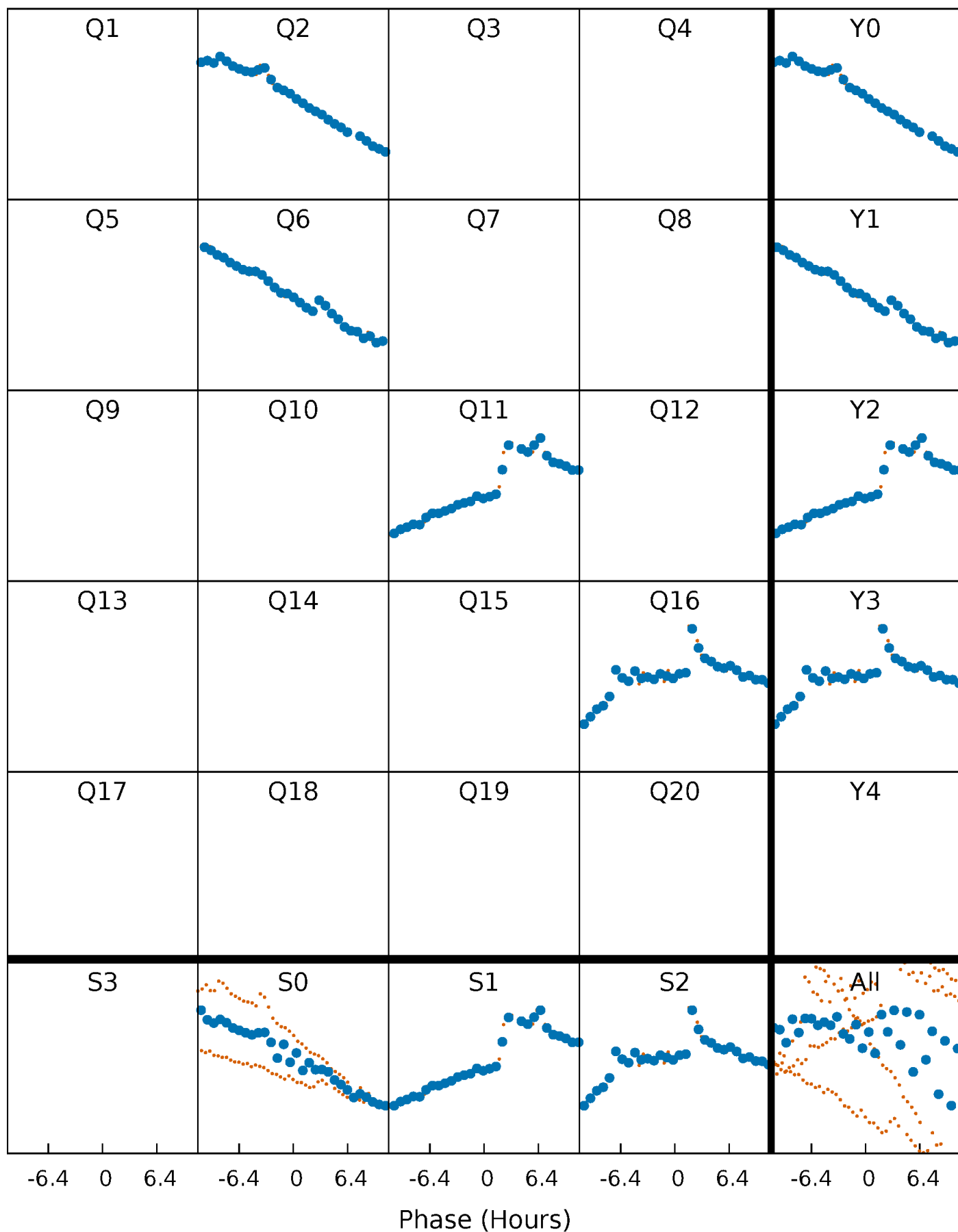


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



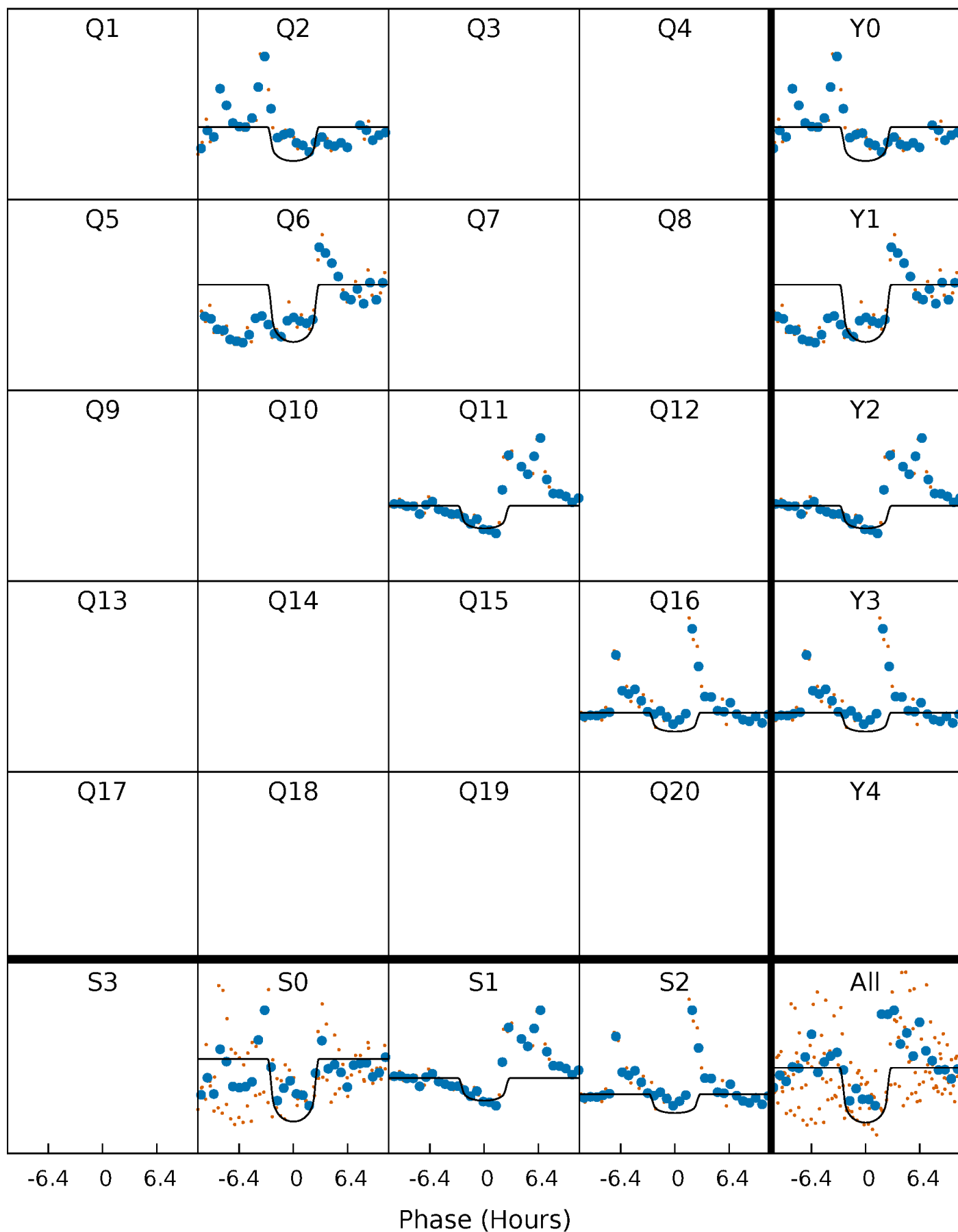
PDC Quarter-Phased Transit Curves

TCE 012314646-01 P=451.340759 Days $T_0=175.852140$ (BKJD)



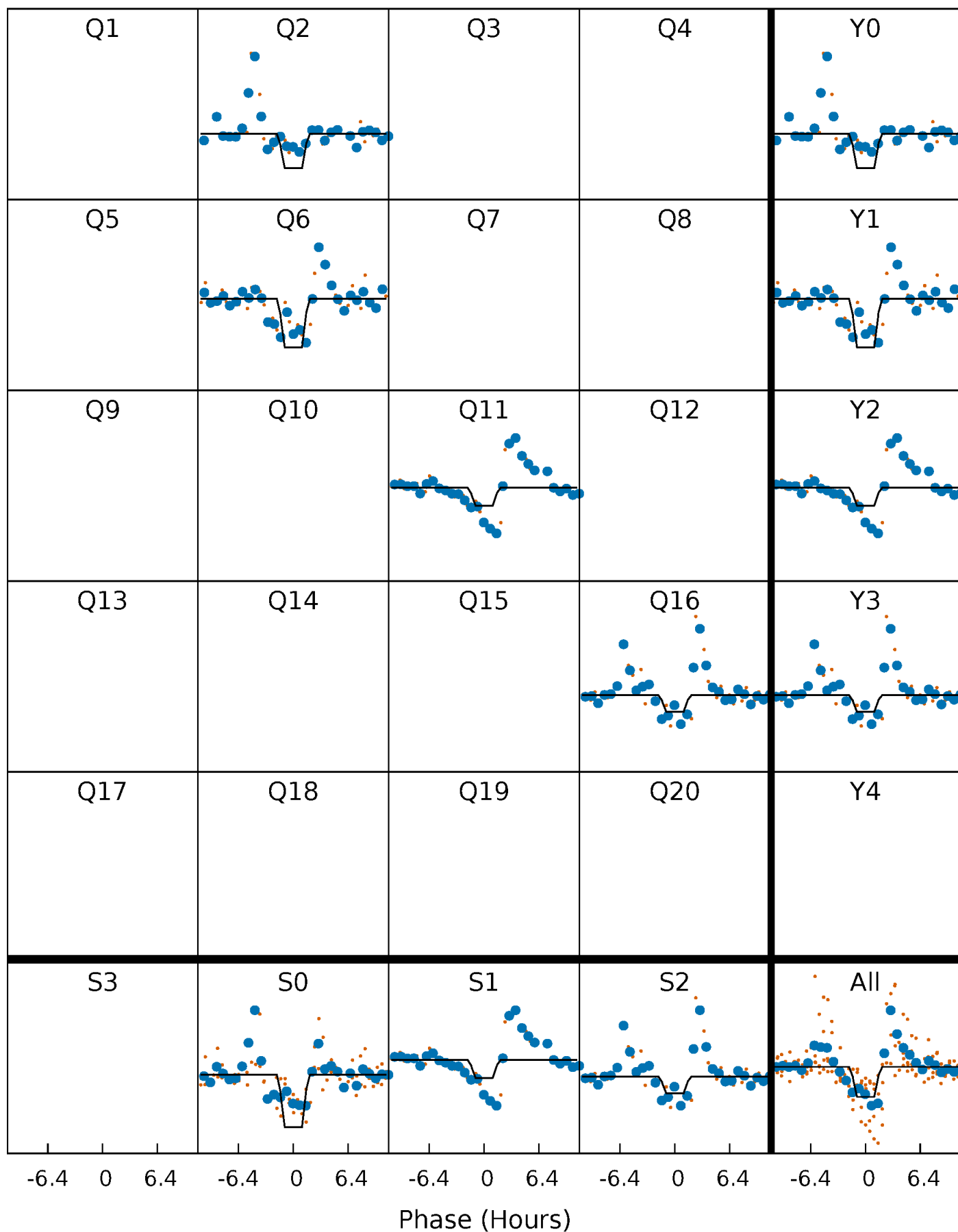
DV Quarter-Phased Transit Curves

TCE 012314646-01 P=451.340759 Days $T_0=175.852140$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

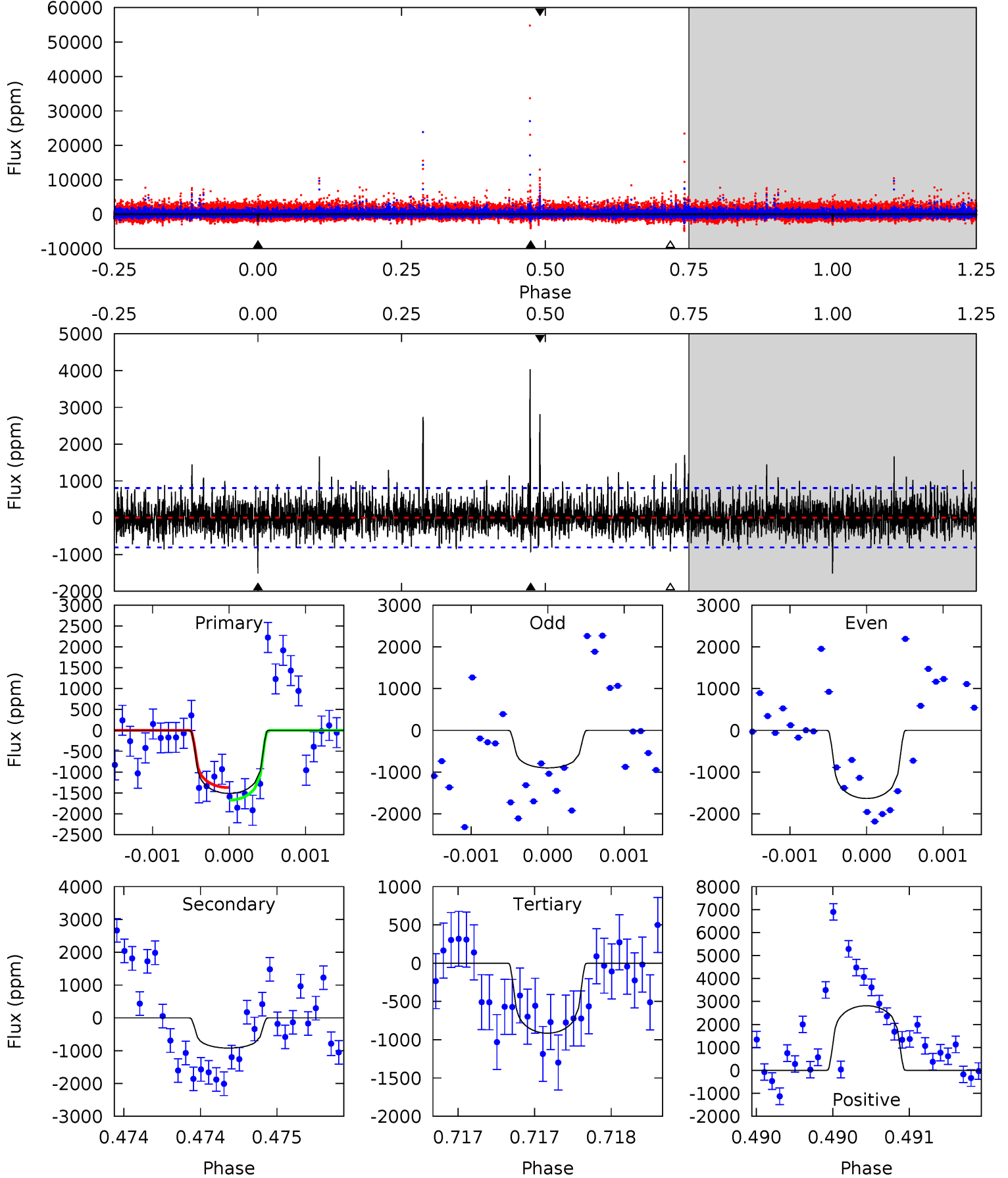
TCE 012314646-01 P=451.316040 Days $T_0=175.894570$ (BKJD)



DV Model-Shift Uniqueness Test

012314646-01, P = 451.340759 Days, E = 175.852140 Days

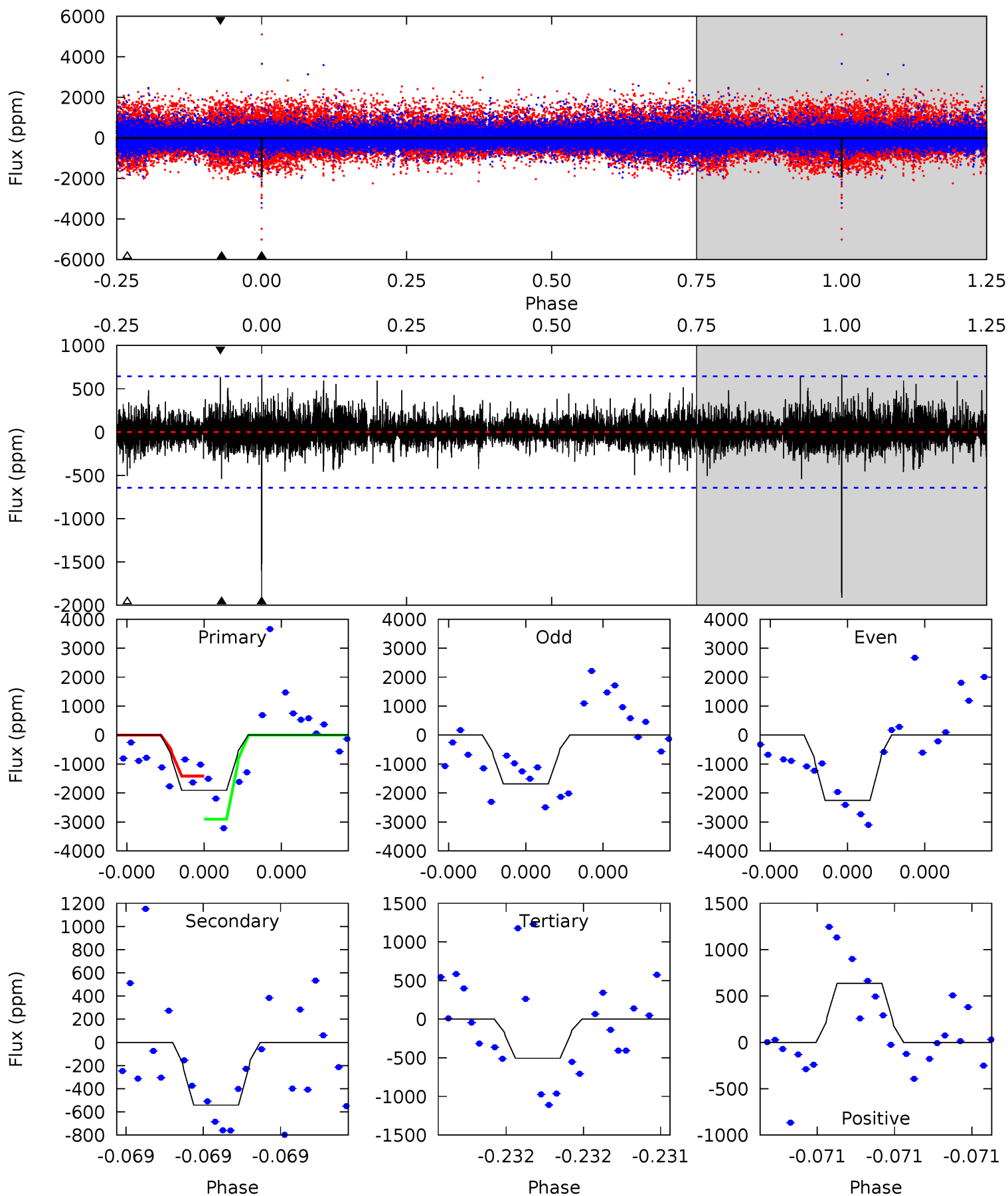
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	6.33	6.28	19.3	5.56	3.46	2.23	4.10	-8.95	0.04	-13.0	1.04	0.51	0.73	1.05



Alt Model-Shift Uniqueness Test

012314646-01, P = 451.316040 Days, E = 175.894570 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	4.76	4.44	5.59	5.65	3.60	0.96	12.3	11.2	0.32	-0.83	2.39	1.08	0.26	6.71



Stellar Parameters For KIC 012314646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3444^{+51}_{-46}	$4.929^{+0.052}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.324^{+0.037}_{-0.041}$	$0.324^{+0.043}_{-0.048}$	$13.470^{+4.158}_{-2.288}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-13%	+13%/-15%	+31%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012314646-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-921 ± 146	$1.61^{+0.78}_{-0.74}$	135^{+3}_{-3}	3043^{+666}_{-320}	$125192^{+317229}_{-69682}$
Alt.	-542 ± 114	$1.67^{+0.81}_{-0.78}$	135^{+3}_{-4}	2793^{+563}_{-272}	$66830^{+164423}_{-37215}$

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

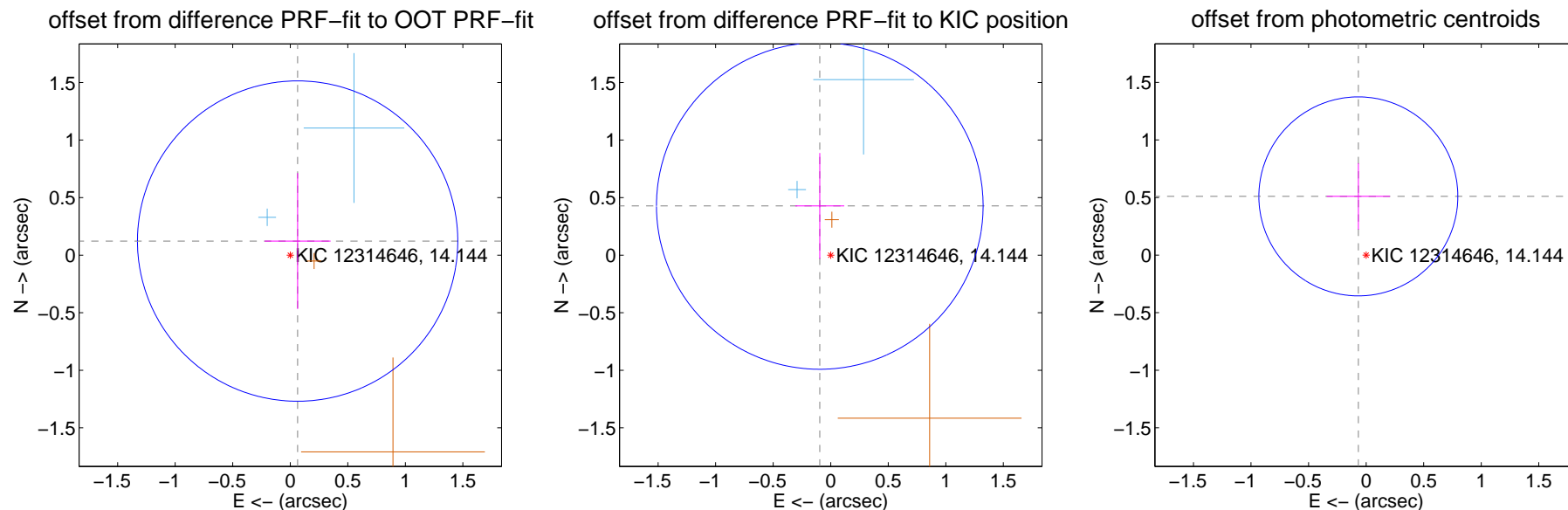
DV Centroid Data

Supplemental centroid analysis for 012314646-01. Kepler magnitude: 14.14. Transit SNR 10.01

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.138 ± 0.464	0.30	-0.064 ± 0.286	0.122 ± 0.591
PRF-fit source offset from KIC position	0.438 ± 0.473	0.93	0.095 ± 0.213	0.428 ± 0.459
photometric centroid source offset	0.51 ± 0.29	1.79	0.07 ± 0.28	0.51 ± 0.29



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

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

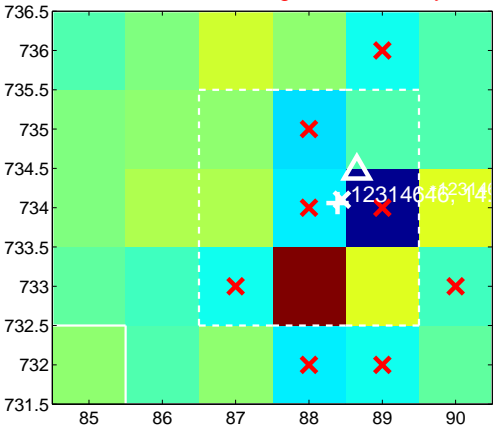
Q1 no difference image



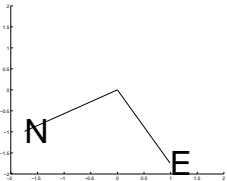
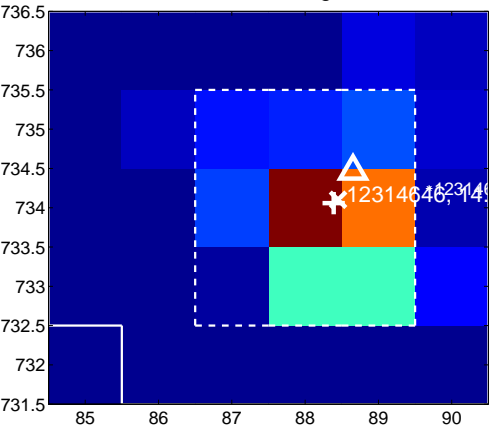
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



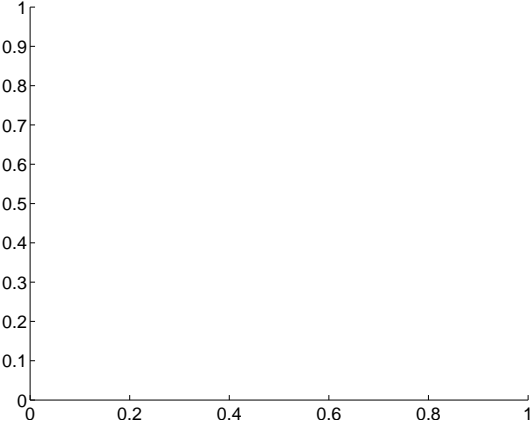
Q3 no difference image



Q3 no OOT image



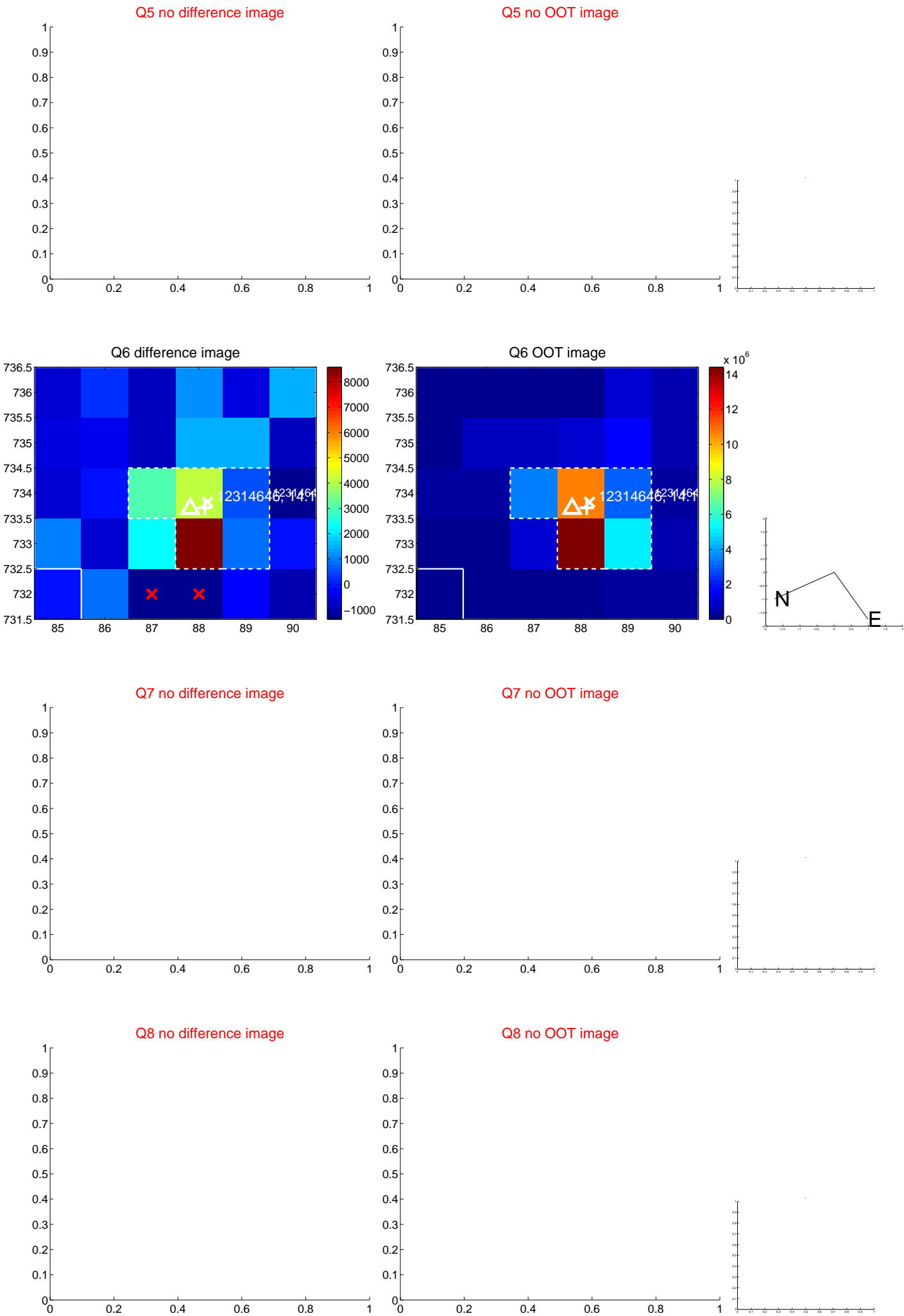
Q4 no difference image



Q4 no OOT image



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



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

Q9 no difference image



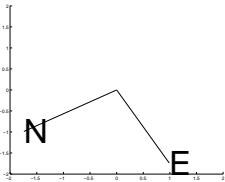
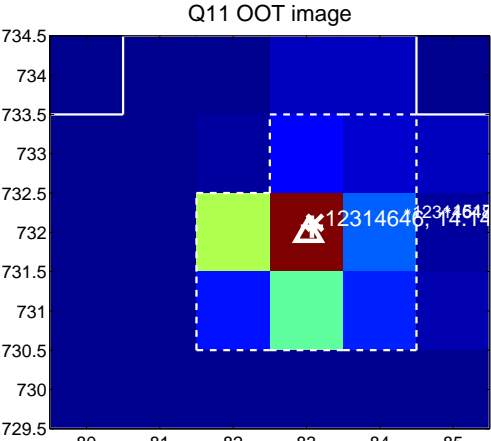
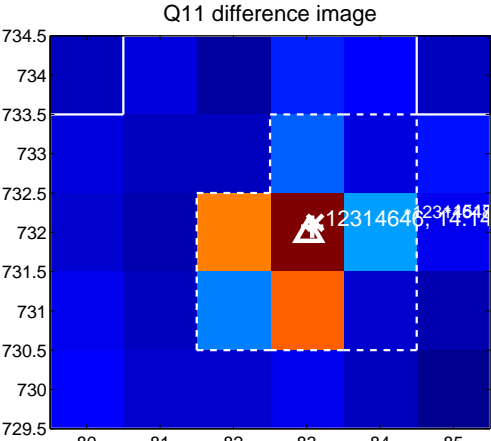
Q9 no OOT image



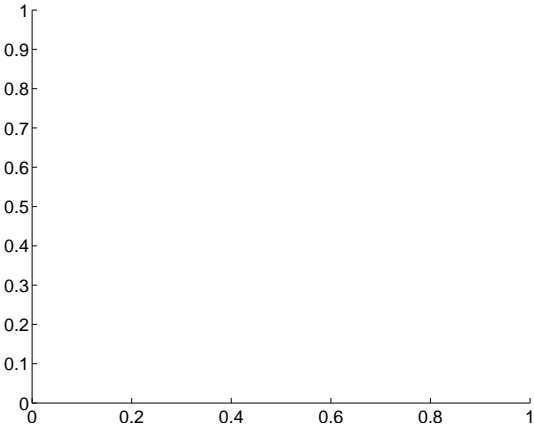
Q10 no difference image



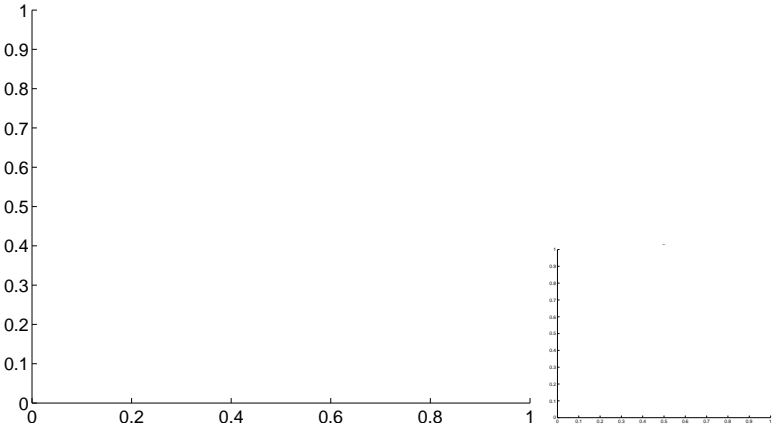
Q10 no OOT image



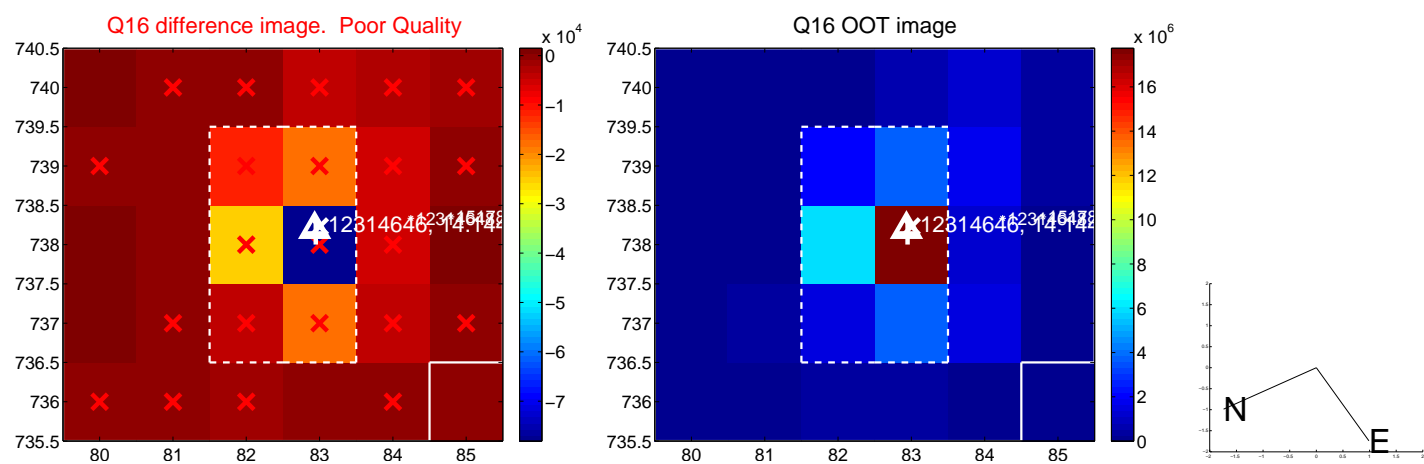
Q12 no difference image



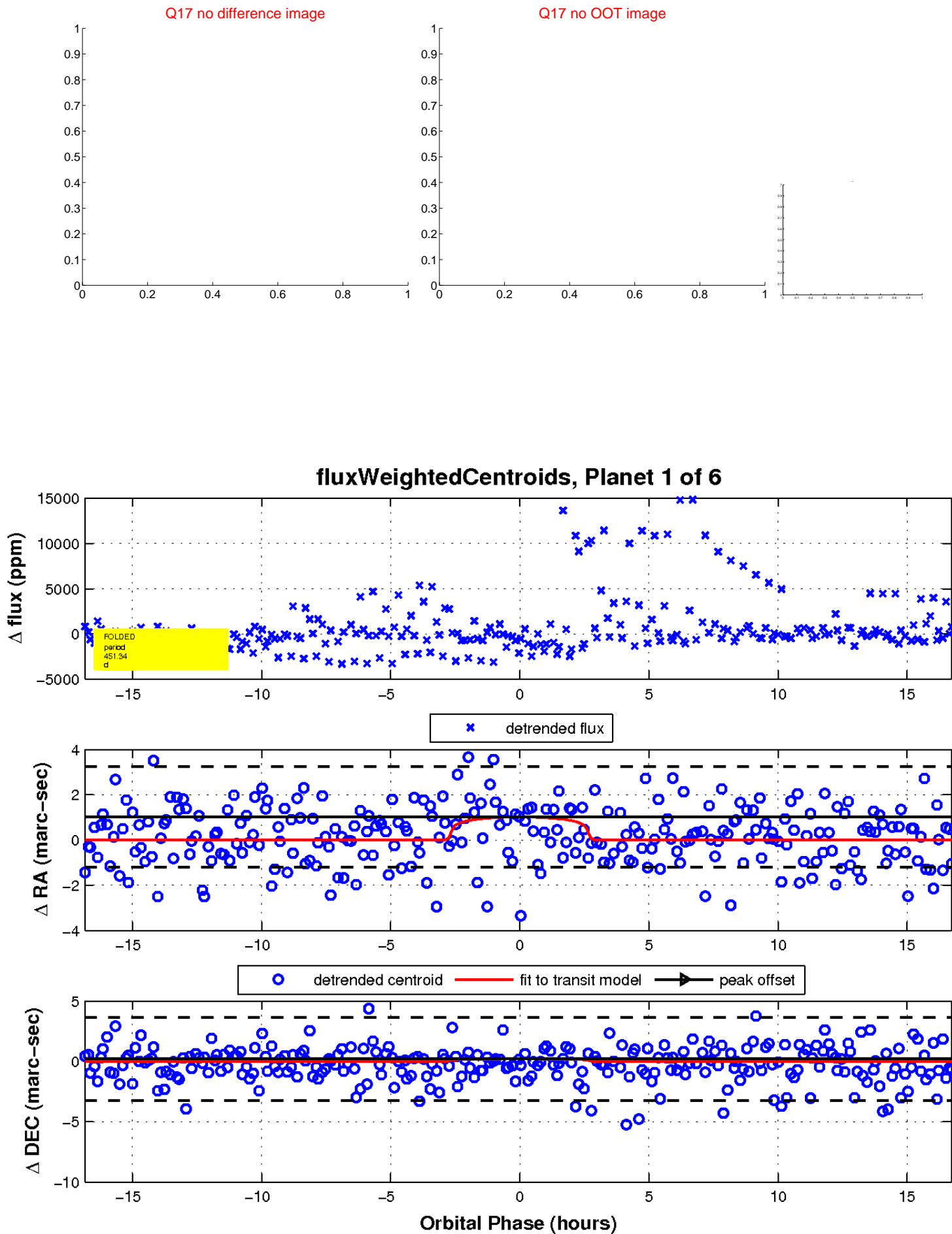
Q12 no OOT image



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

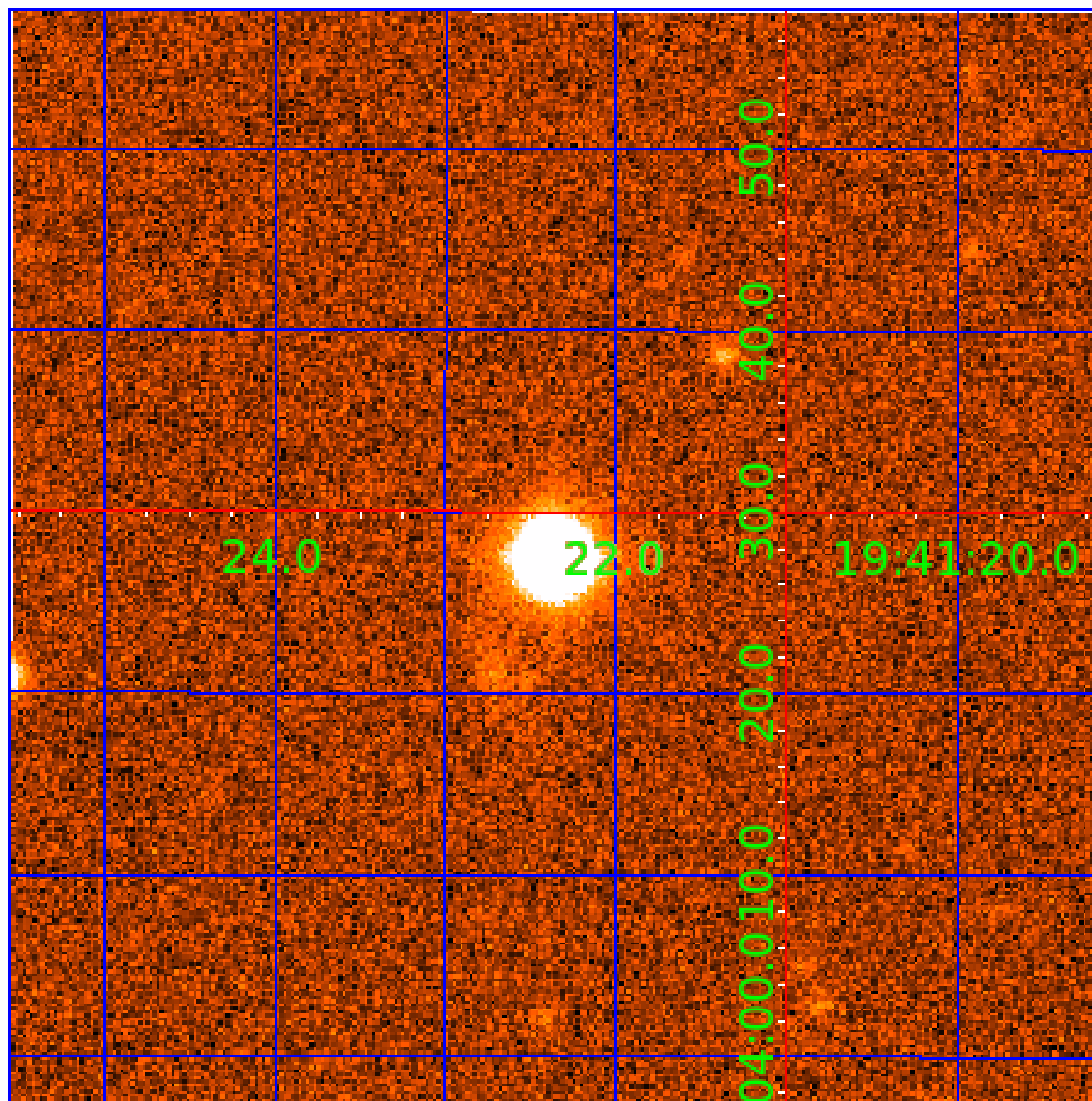


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012314646

Q1-17 DR25 TCE Parameters

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012314646-01	OBS	No	451.340759	175.852140	2479.0	5.619	17.2	10.0	0.32	3444	1.60	0.02
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012314646-04	OBS	No	430.169131	185.888702	2493.7	8.736	17.2	8.8	0.32	3444	1.70	0.02
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Robovetter Results

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012314646-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
012314646-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012314646-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
012314646-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012314646-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

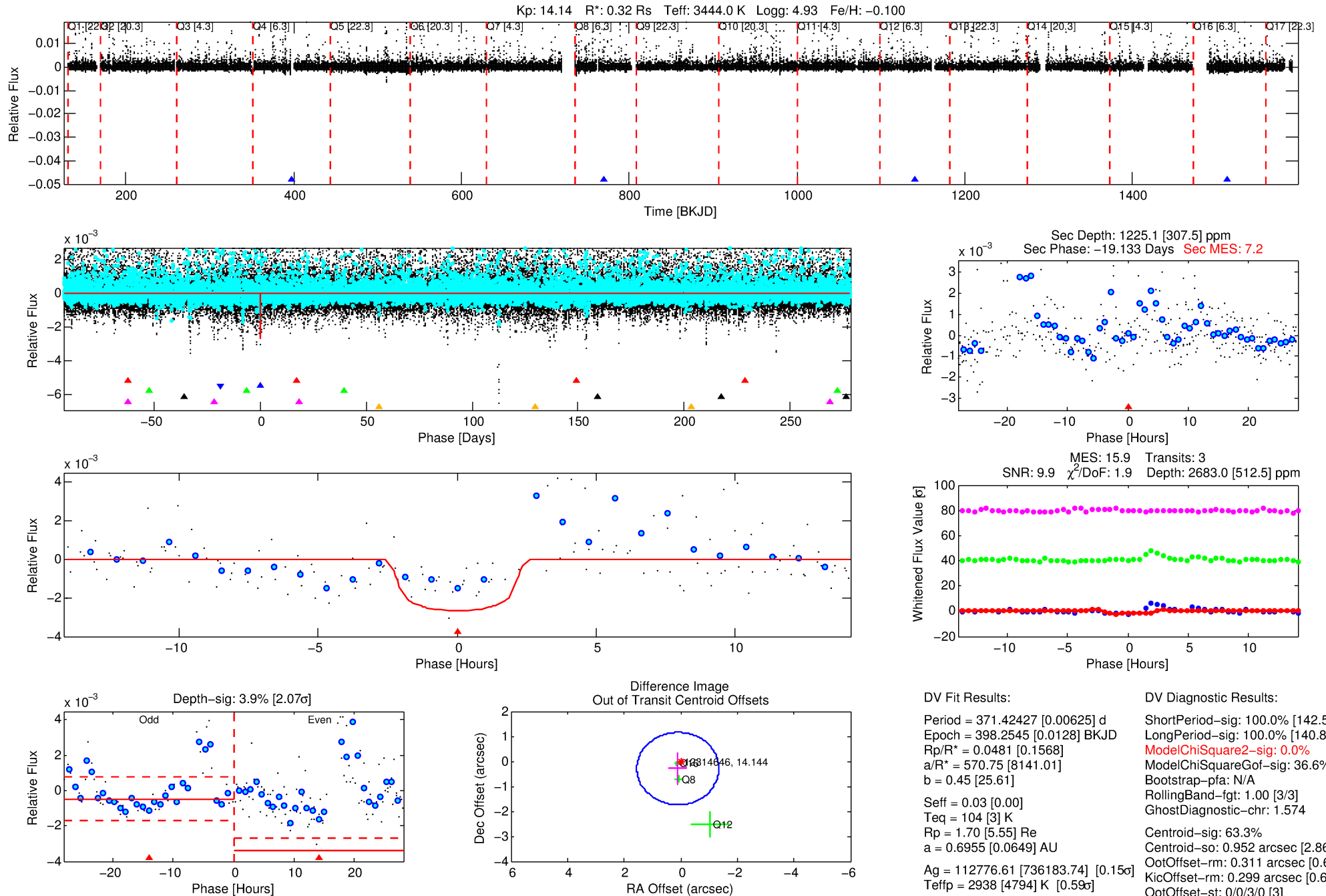
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012314646-02

No Significant Match Found

DV One-Page Summary

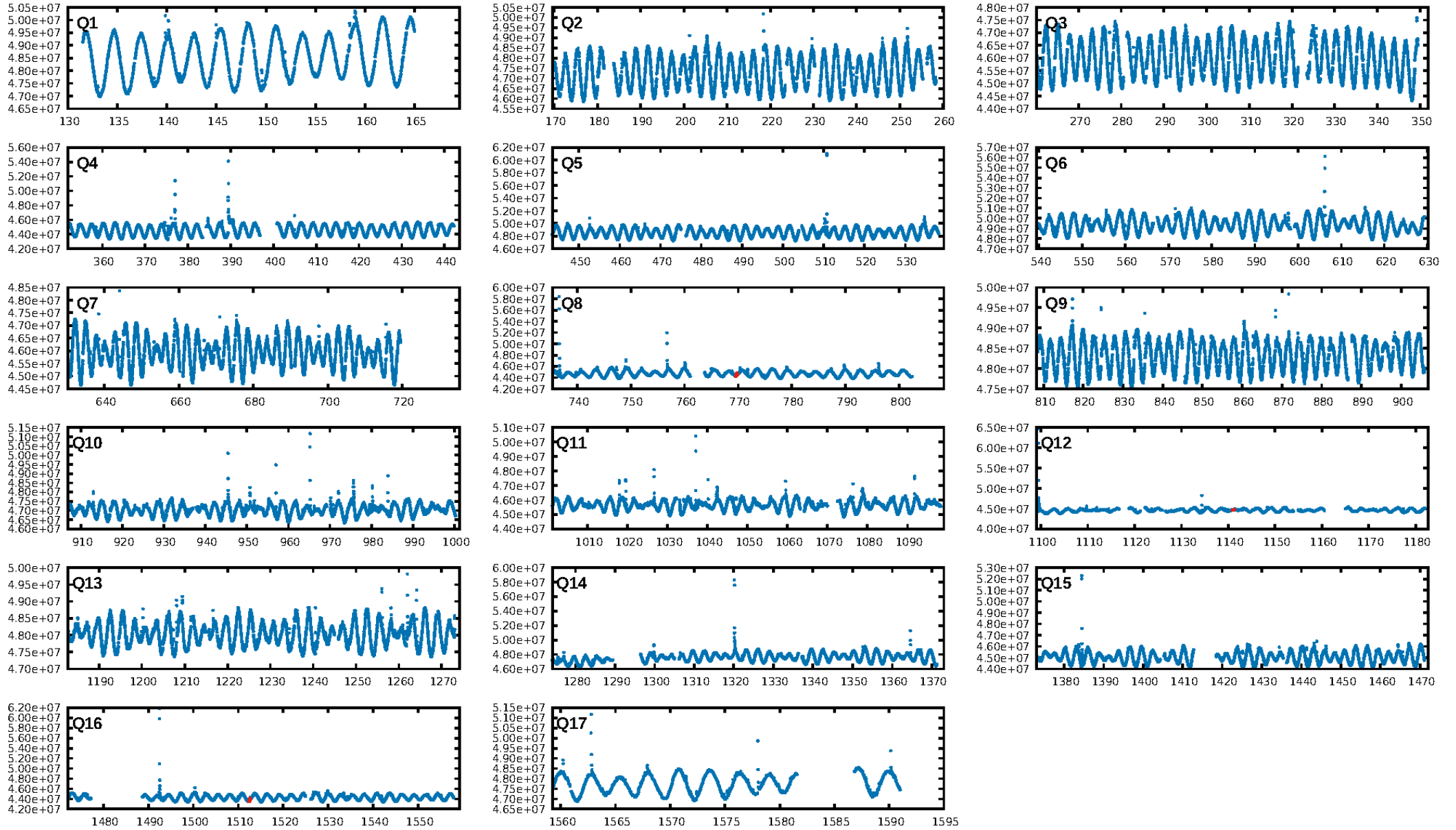
KIC: 12314646 Candidate: 2 of 6 Period: 371.424 d



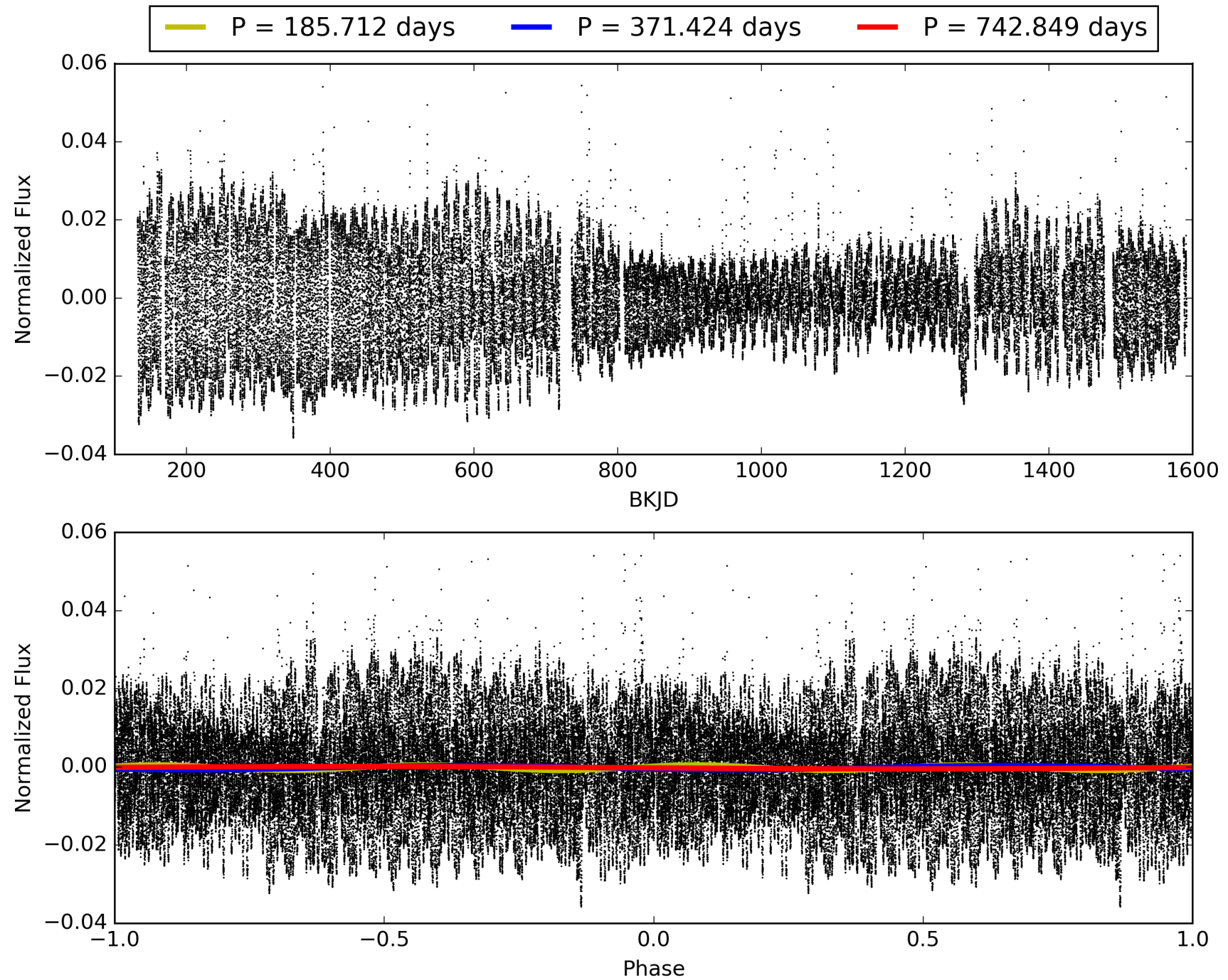
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:49:56 Z

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

TCE 012314646-02, PDC Light Curves

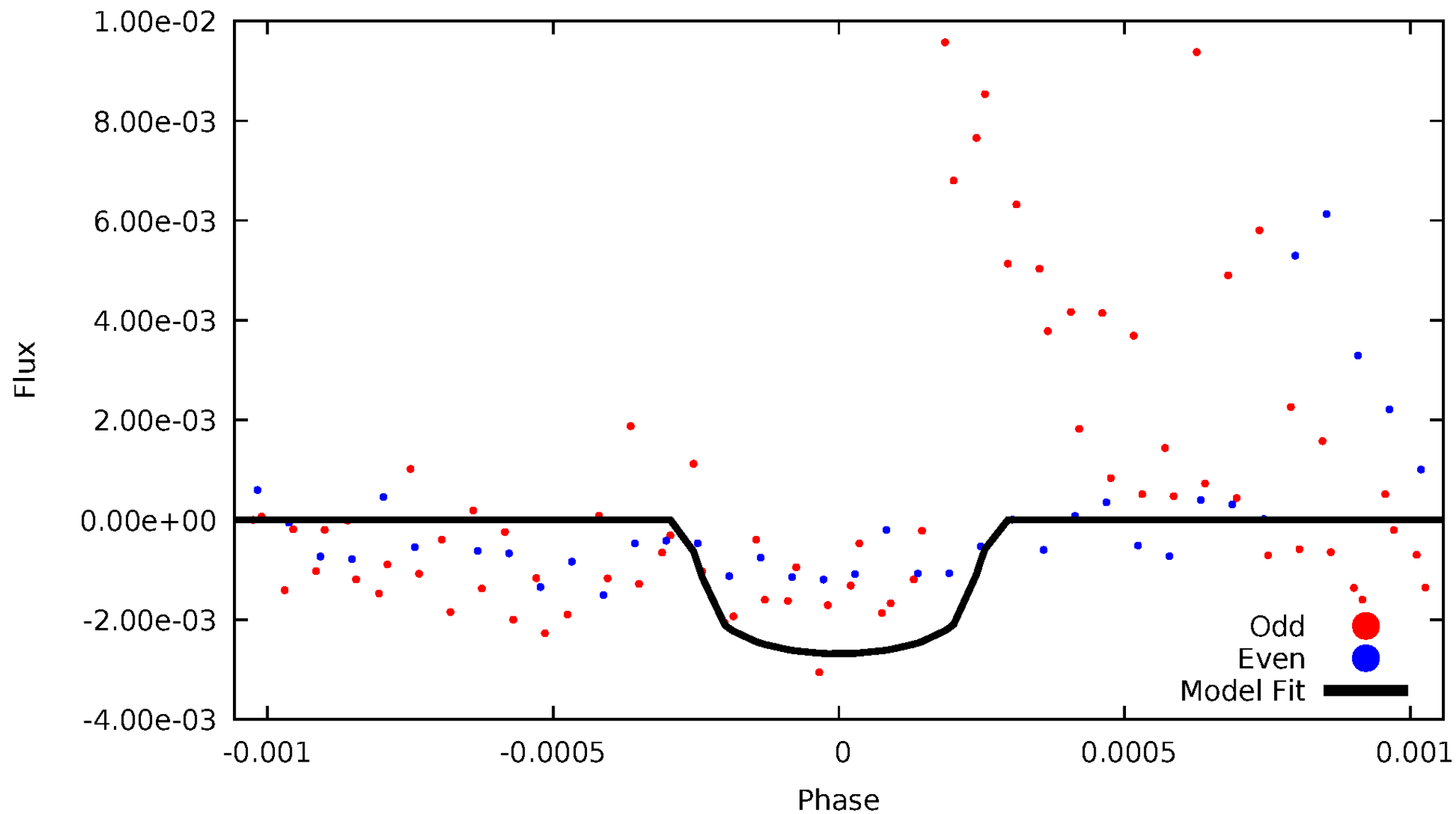


TCE 012314646-02



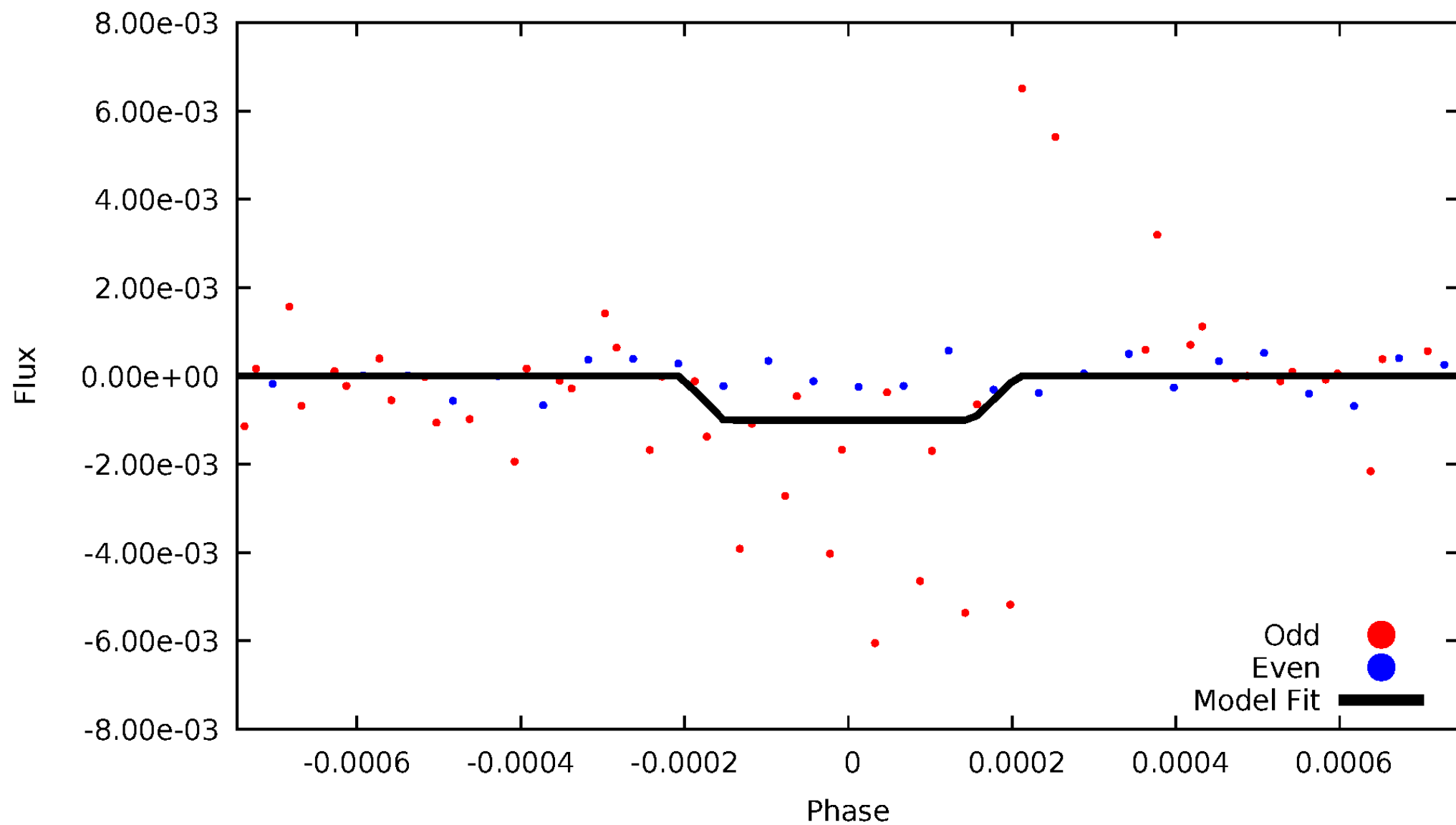
DV Odd/Even

TCE 012314646-02



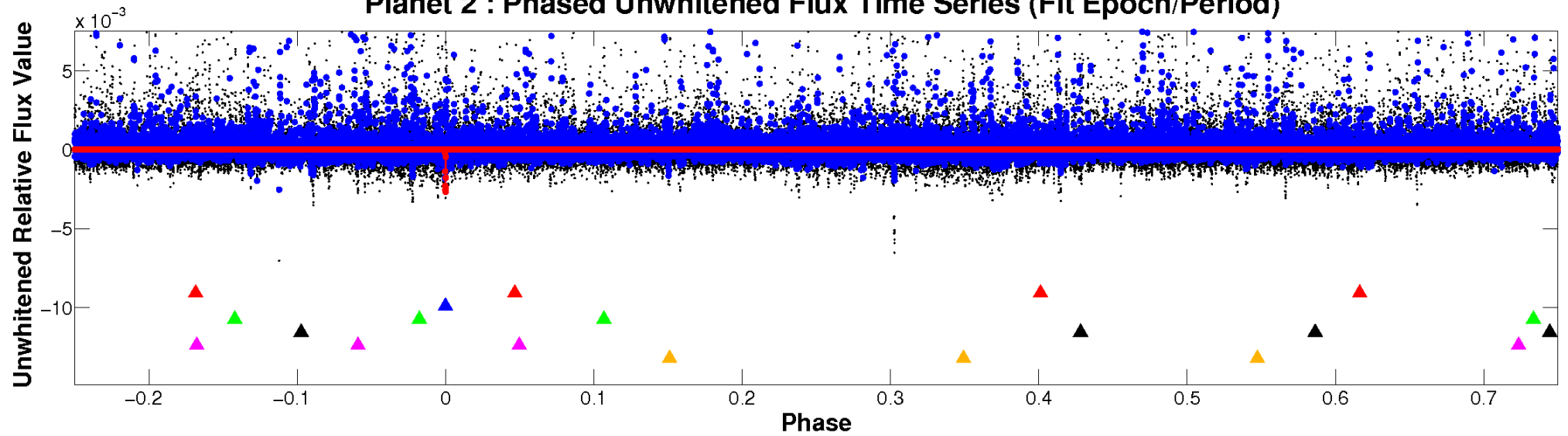
ALT Odd/Even

TCE 012314646-02

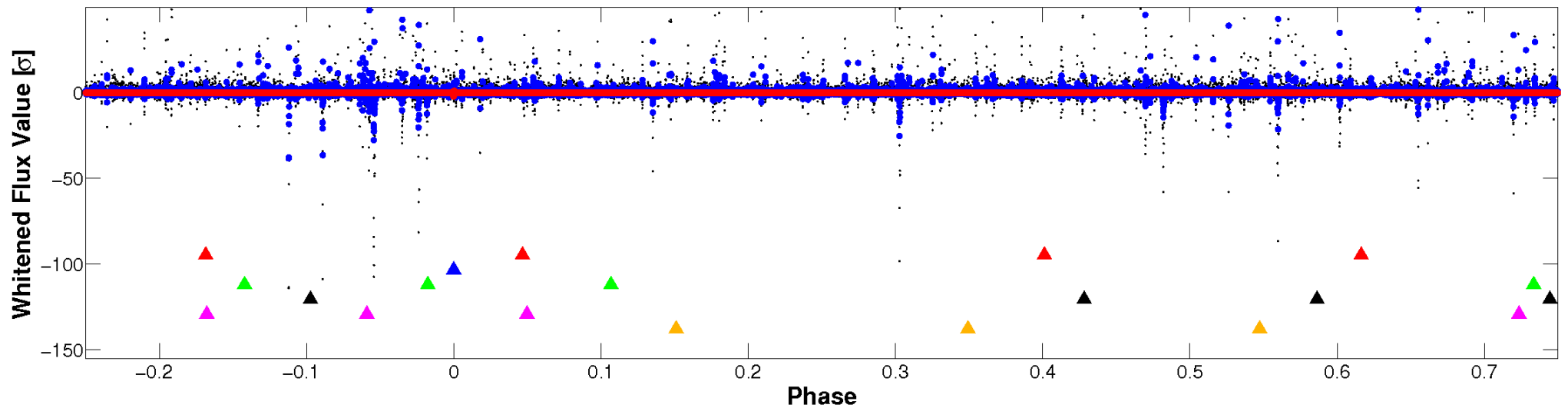


Non-Whitened Vs. Whitened Light Curve

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

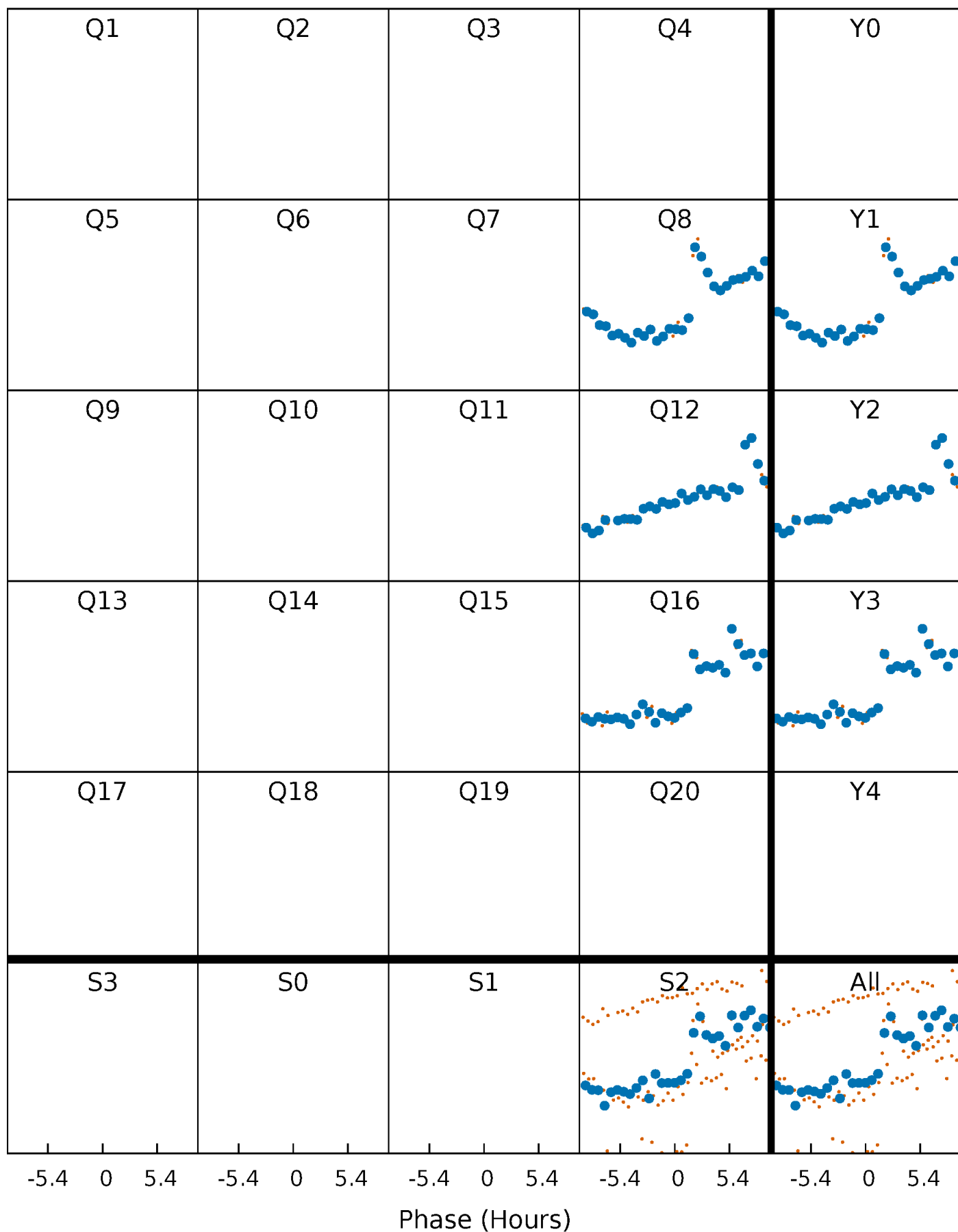


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



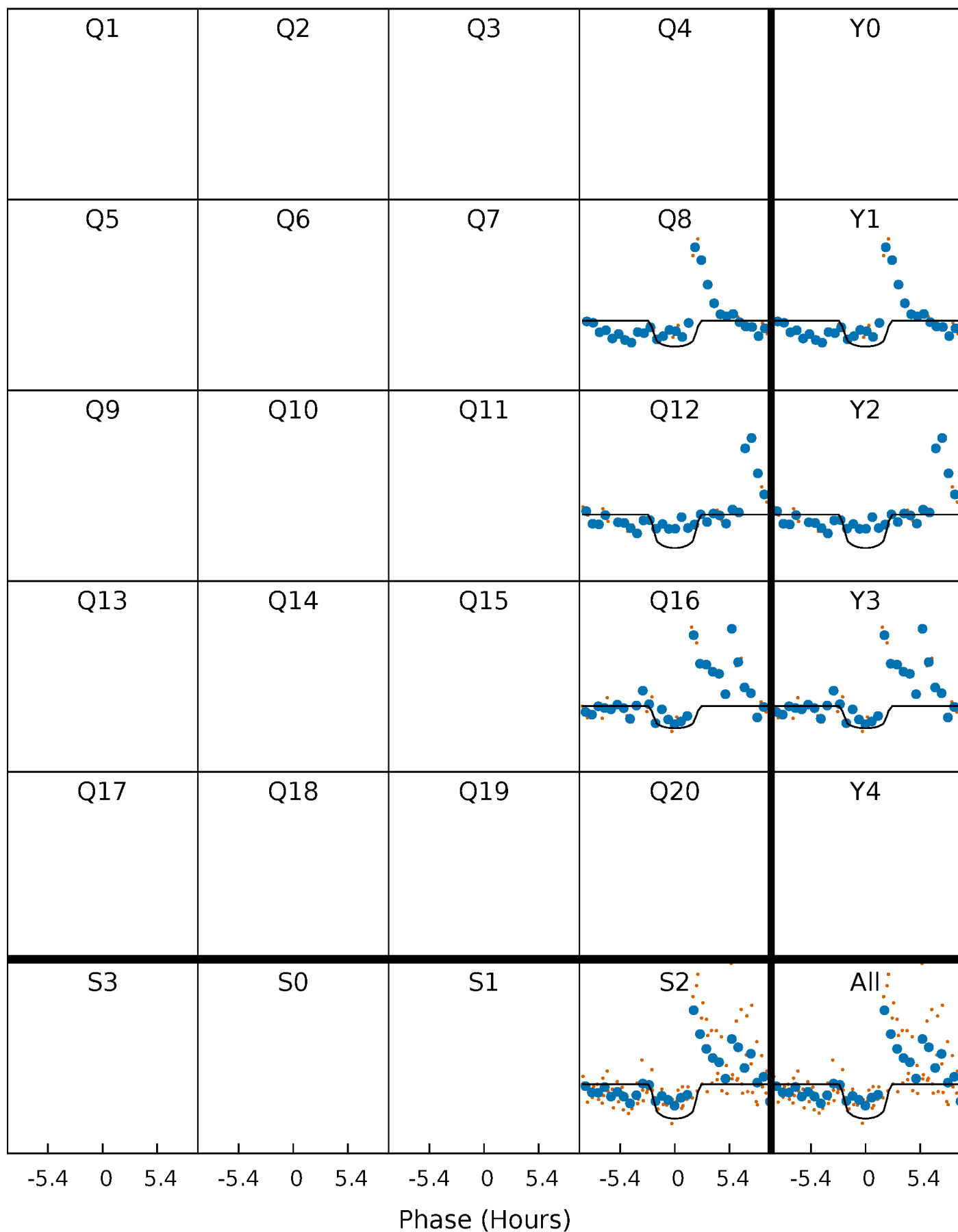
PDC Quarter-Phased Transit Curves

TCE 012314646-02 $P=371.424272$ Days $T_0=398.254456$ (BKJD)



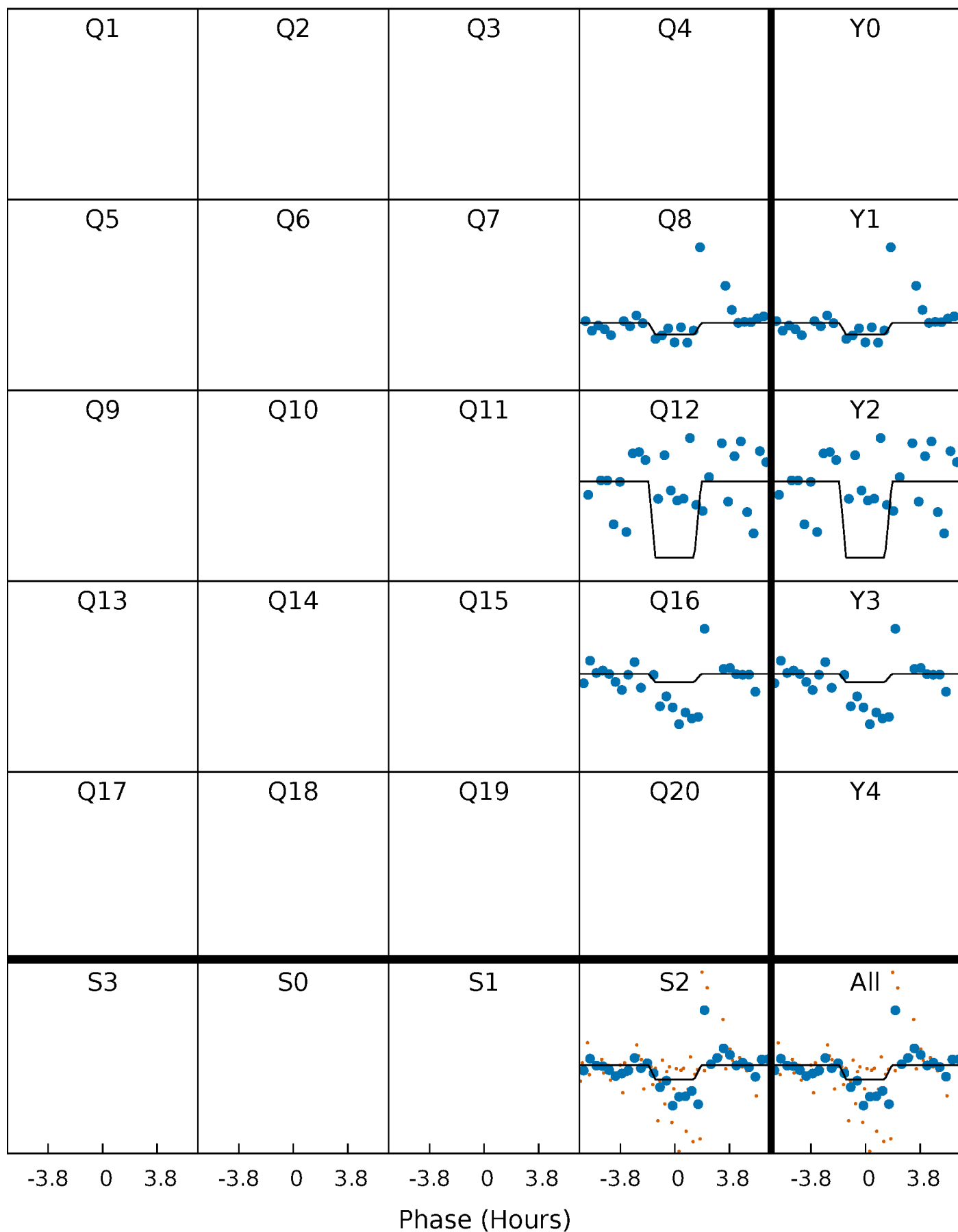
DV Quarter-Phased Transit Curves

TCE 012314646-02 $P=371.424272$ Days $T_0=398.254456$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

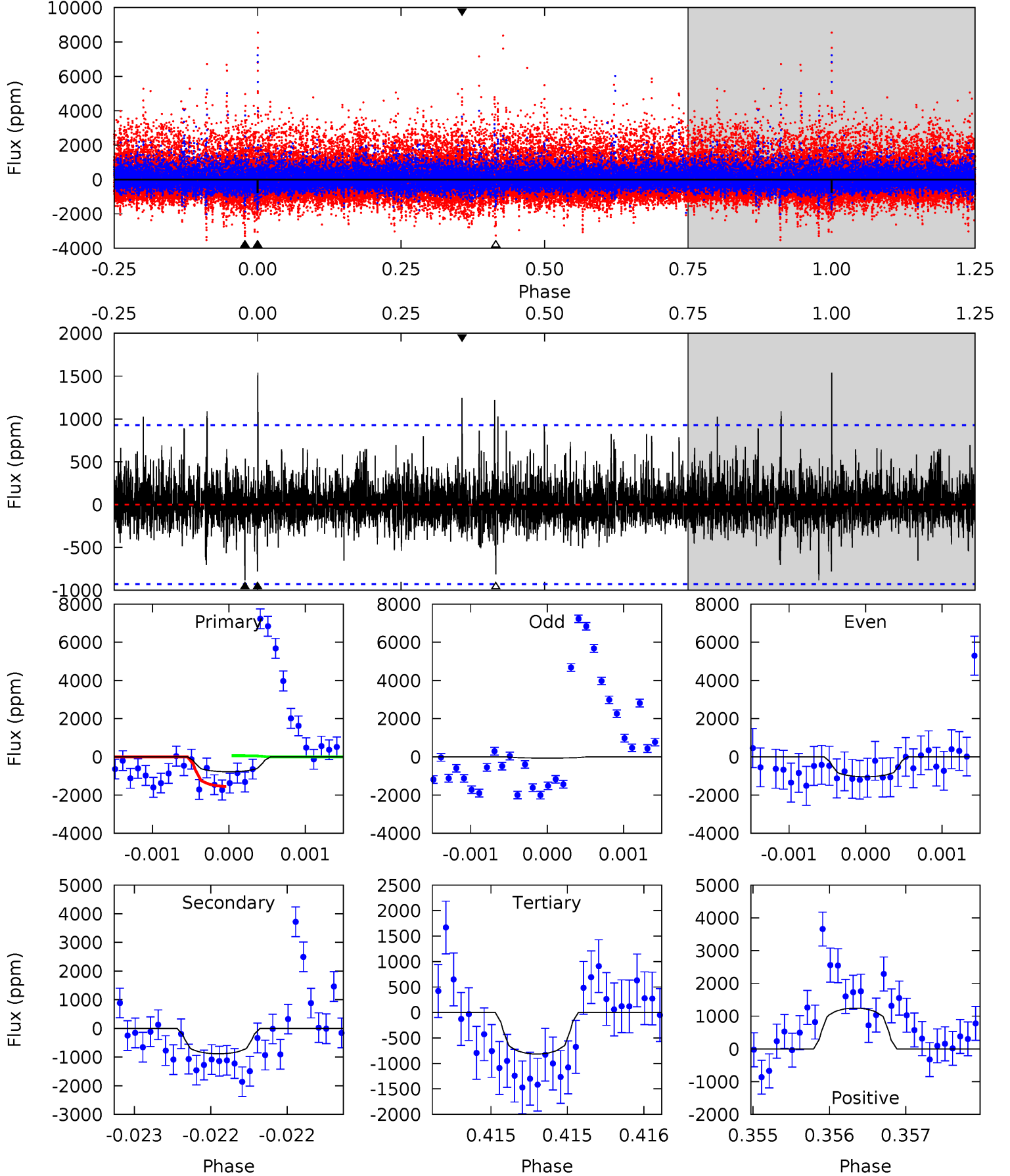
TCE 012314646-02 P=371.414009 Days $T_0=398.260410$ (BKJD)



DV Model-Shift Uniqueness Test

012314646-02, $P = 371.424272$ Days, $E = 26.830184$ Days

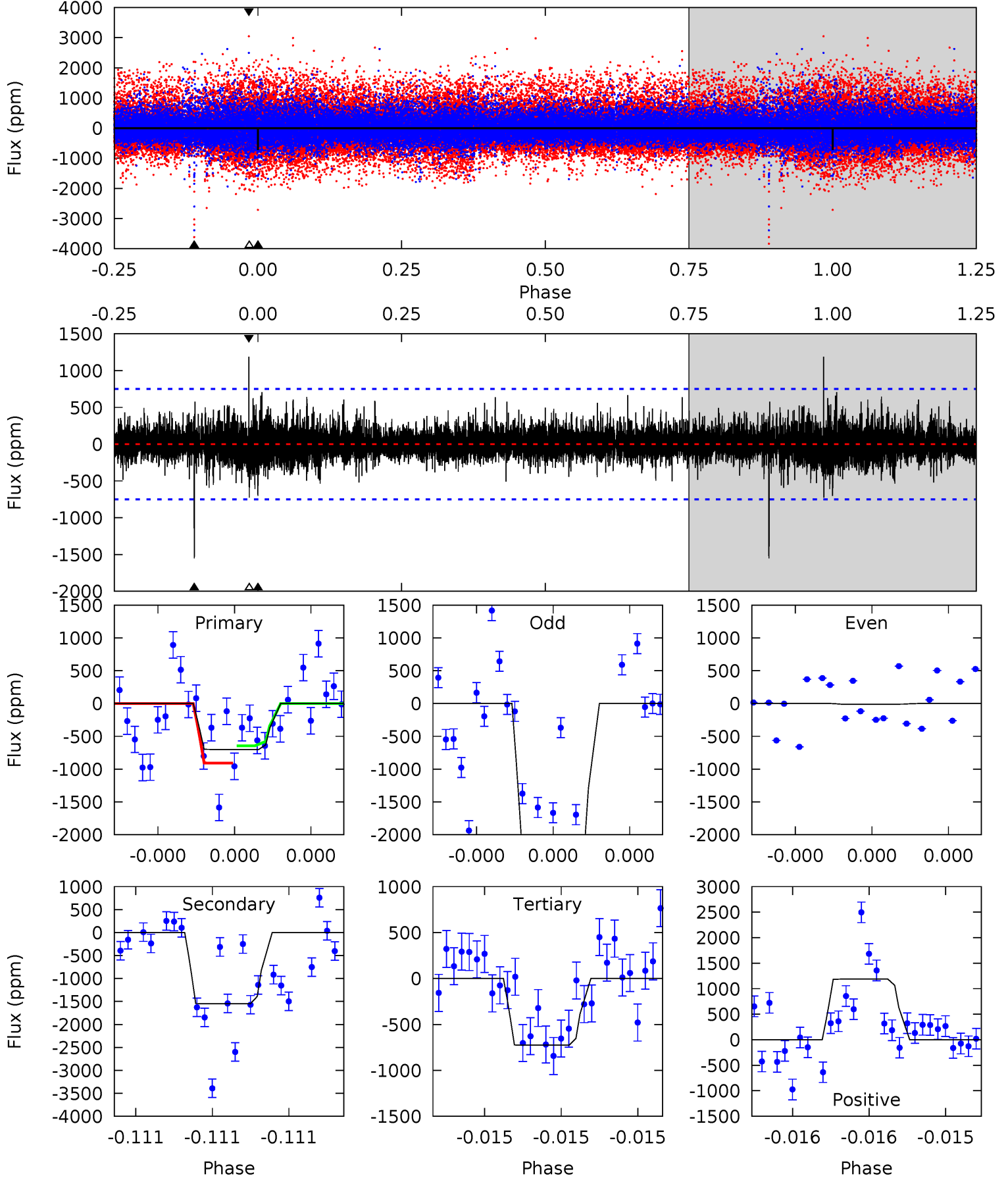
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.67	5.29	4.88	7.45	5.56	3.46	1.18	-0.22	-2.79	0.41	-2.16	1.56	2.13	0.64	4.52



Alt Model-Shift Uniqueness Test

012314646-02, P = 371.414009 Days, E = 26.846401 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.24	11.6	5.42	8.87	5.62	3.55	1.04	-0.19	-3.63	6.17	2.72	9.45	1.72	0.43	0.95



Stellar Parameters For KIC 012314646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3444^{+51}_{-46}	$4.929^{+0.052}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.324^{+0.037}_{-0.041}$	$0.324^{+0.043}_{-0.048}$	$13.470^{+4.158}_{-2.288}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-13%	+13%/-15%	+31%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012314646-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-883 ± 167	$4.48^{+4.46}_{-3.17}$	144^{+4}_{-4}	2330^{+870}_{-333}	$11487^{+121685}_{-8689}$
Alt.	-1551 ± 134	$3.85^{+4.79}_{-2.66}$	145^{+3}_{-4}	2598^{+966}_{-450}	$28473^{+243307}_{-22894}$

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 $A_{obs} \gg 1.0$

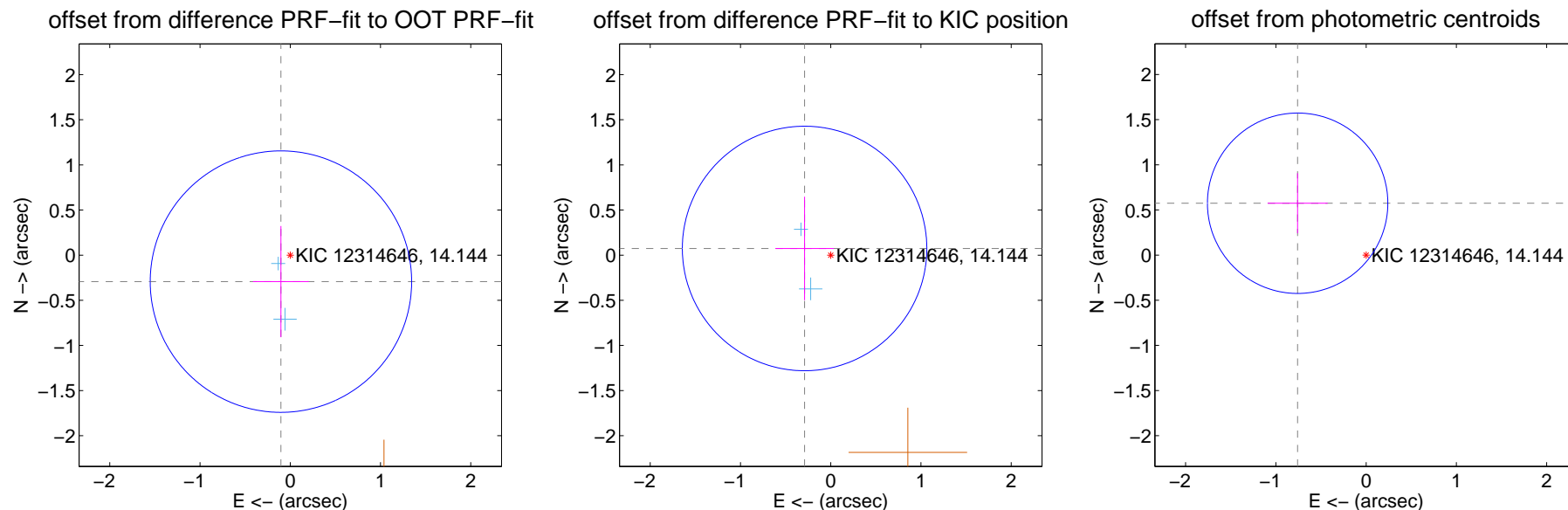
DV Centroid Data

Supplemental centroid analysis for 012314646-02. Kepler magnitude: 14.14. Transit SNR 9.93

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.311 ± 0.483	0.64	0.103 ± 0.309	-0.293 ± 0.616
PRF-fit source offset from KIC position	0.299 ± 0.451	0.66	0.290 ± 0.324	0.074 ± 0.573
photometric centroid source offset	0.95 ± 0.33	2.86	0.76 ± 0.33	0.57 ± 0.33

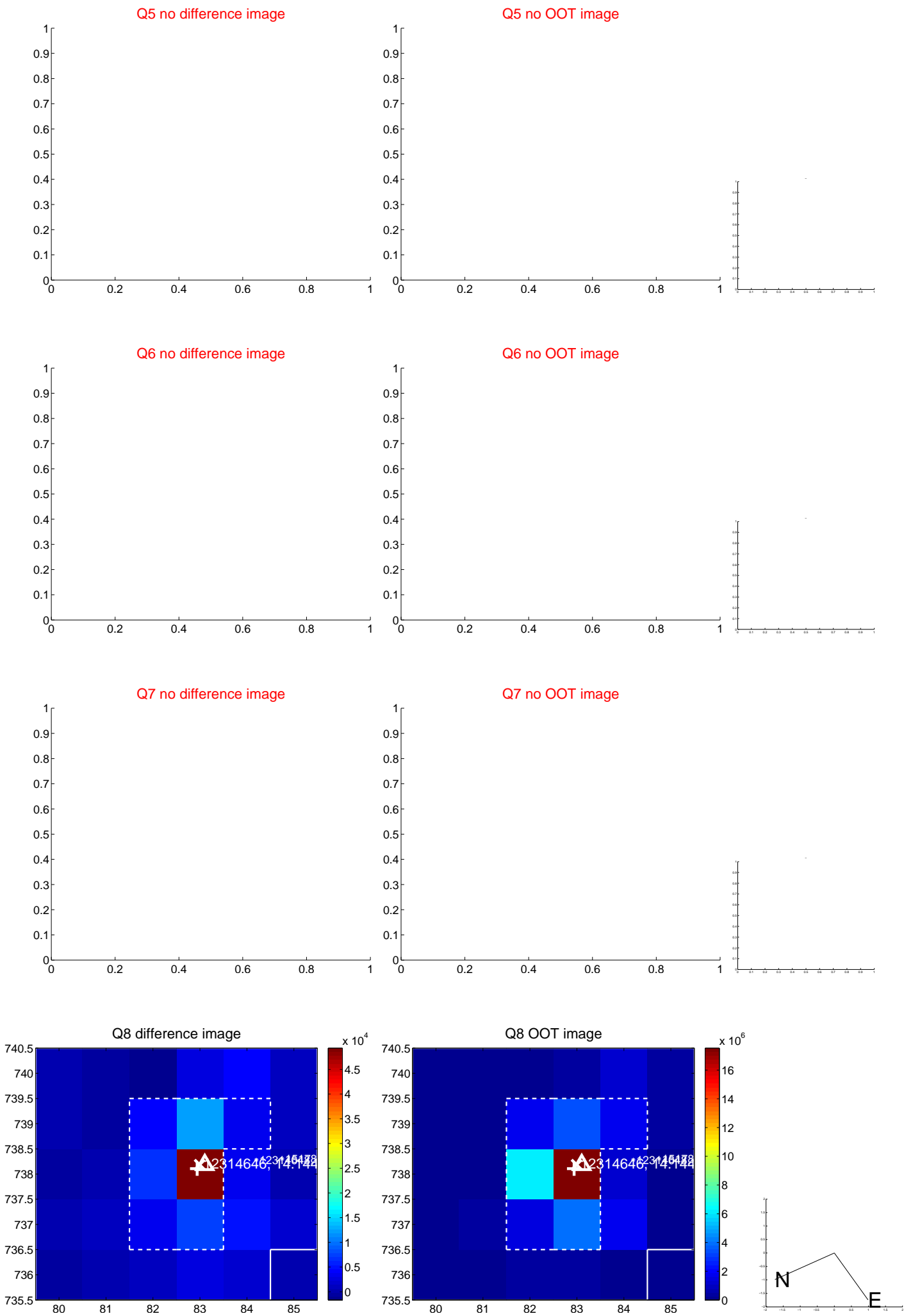


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

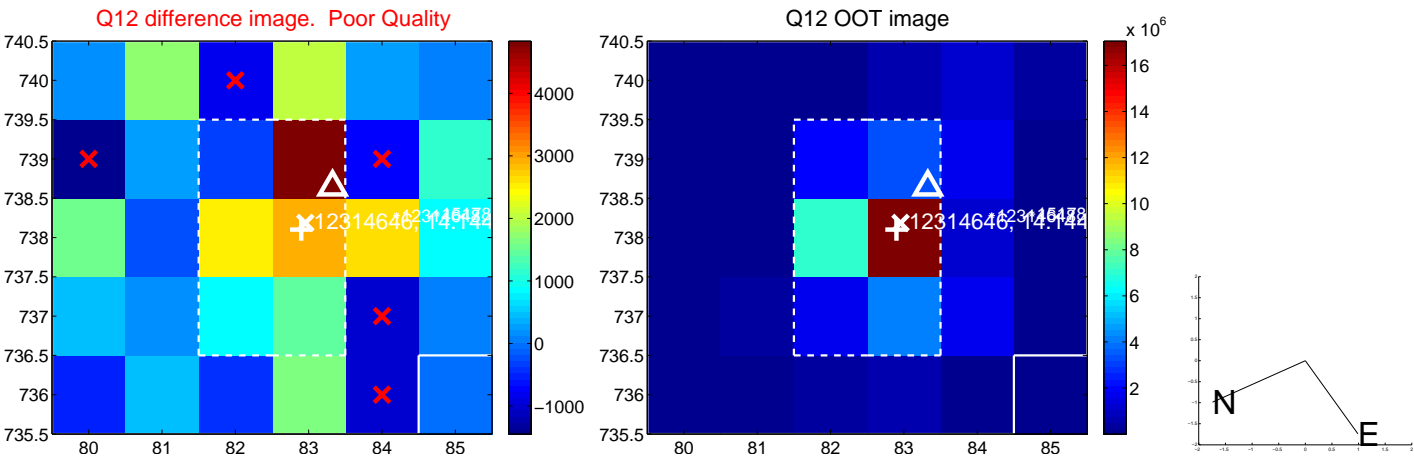
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



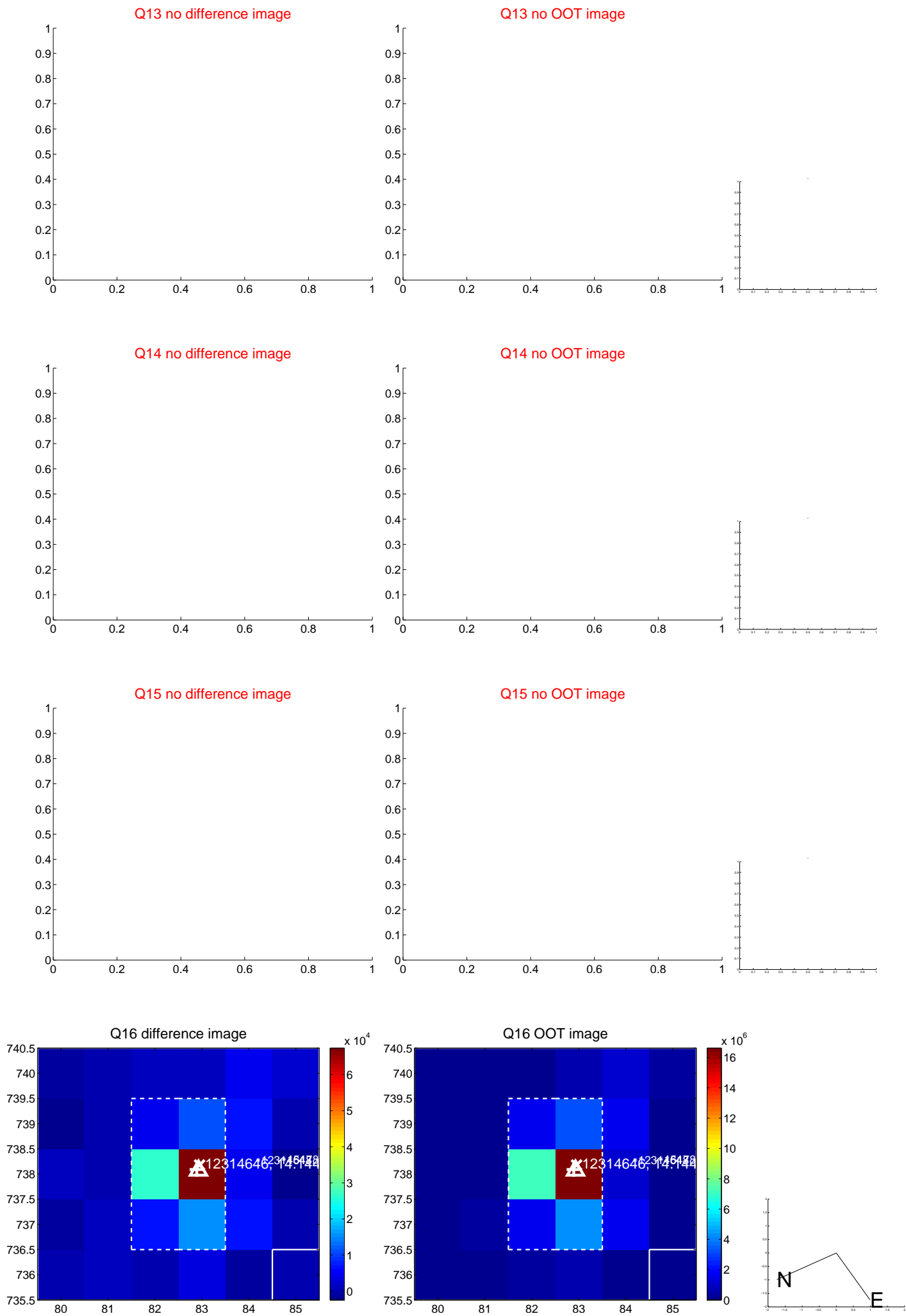
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



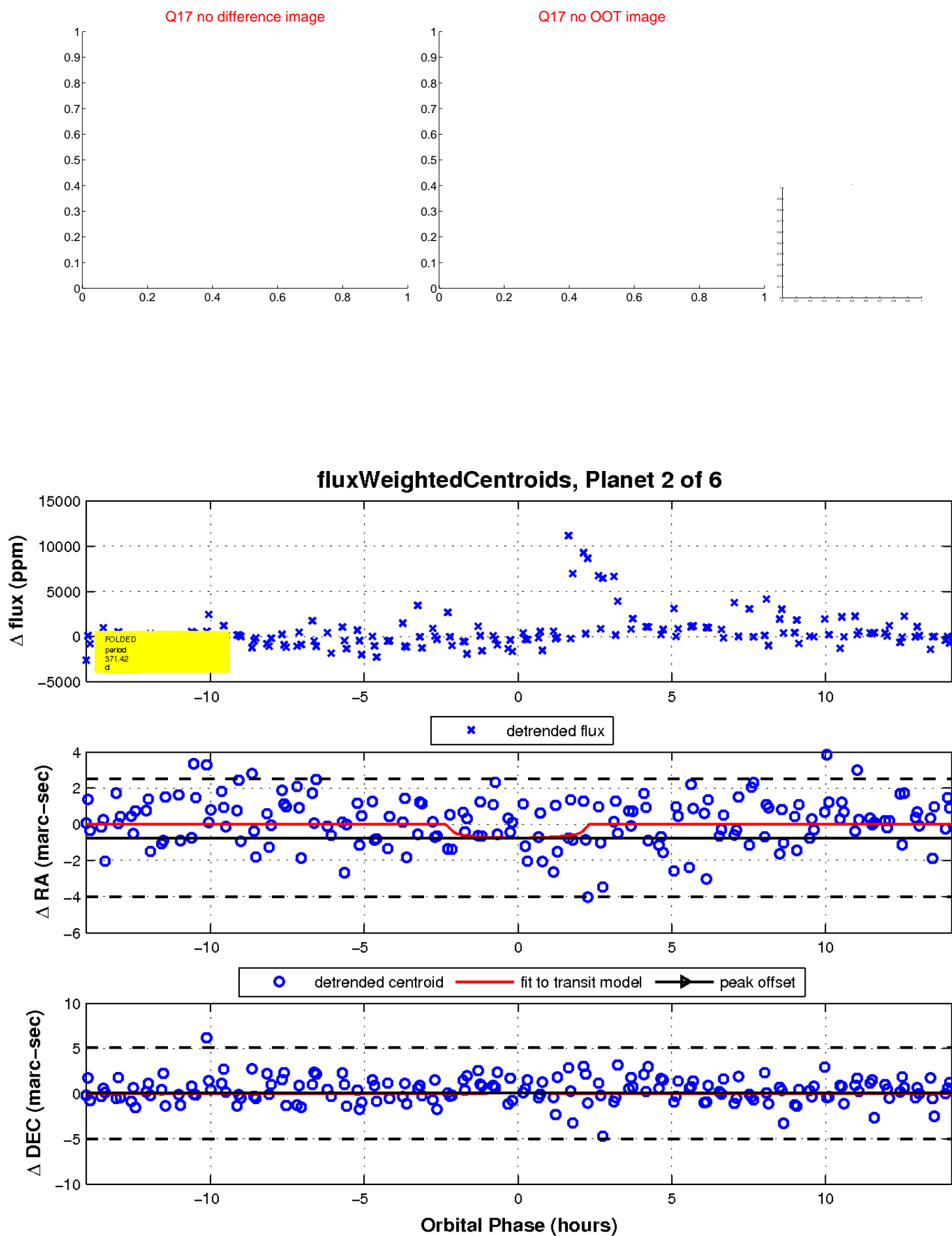
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

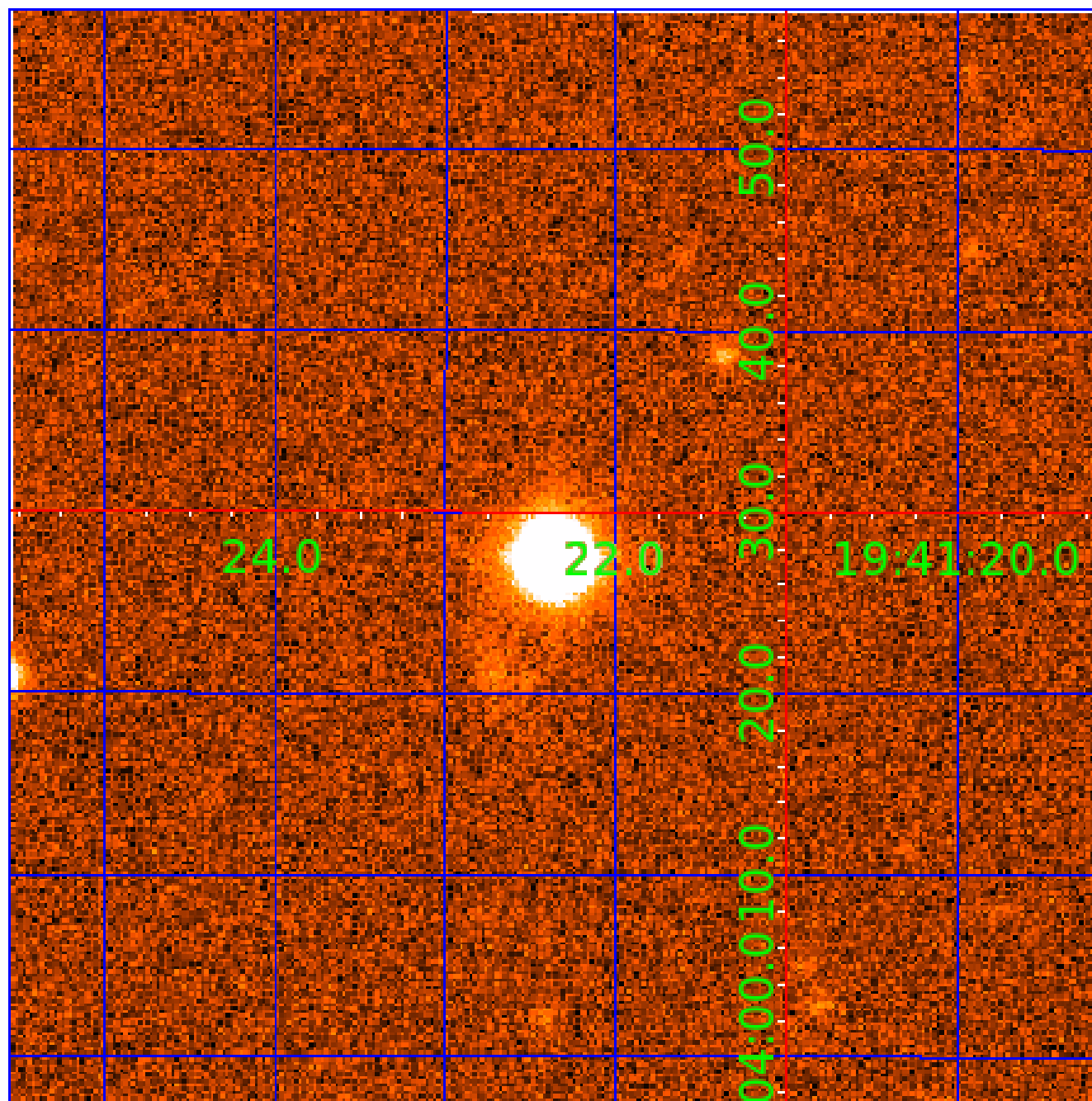


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012314646

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})
012314646-01	OBS	No	451.340759	175.852140	2479.0	5.619	17.2	10.0	0.32	3444	1.60	0.02
012314646-02	OBS	No	371.424272	398.254456	2683.0	4.712	15.9	9.9	0.32	3444	1.70	0.03
012314646-03	OBS	No	417.641563	299.276895	1872.7	6.312	13.3	8.2	0.32	3444	1.42	0.02
012314646-04	OBS	No	430.169131	185.888702	2493.7	8.736	17.2	8.8	0.32	3444	1.70	0.02
012314646-05	OBS	No	331.038021	416.737216	2257.1	4.900	15.4	7.8	0.32	3444	1.52	0.03
012314646-06	OBS	No	445.015692	454.388487	1007.1	4.500	14.1	-1.0	0.32	3444	1.02	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012314646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012314646-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
012314646-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012314646-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
012314646-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012314646-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

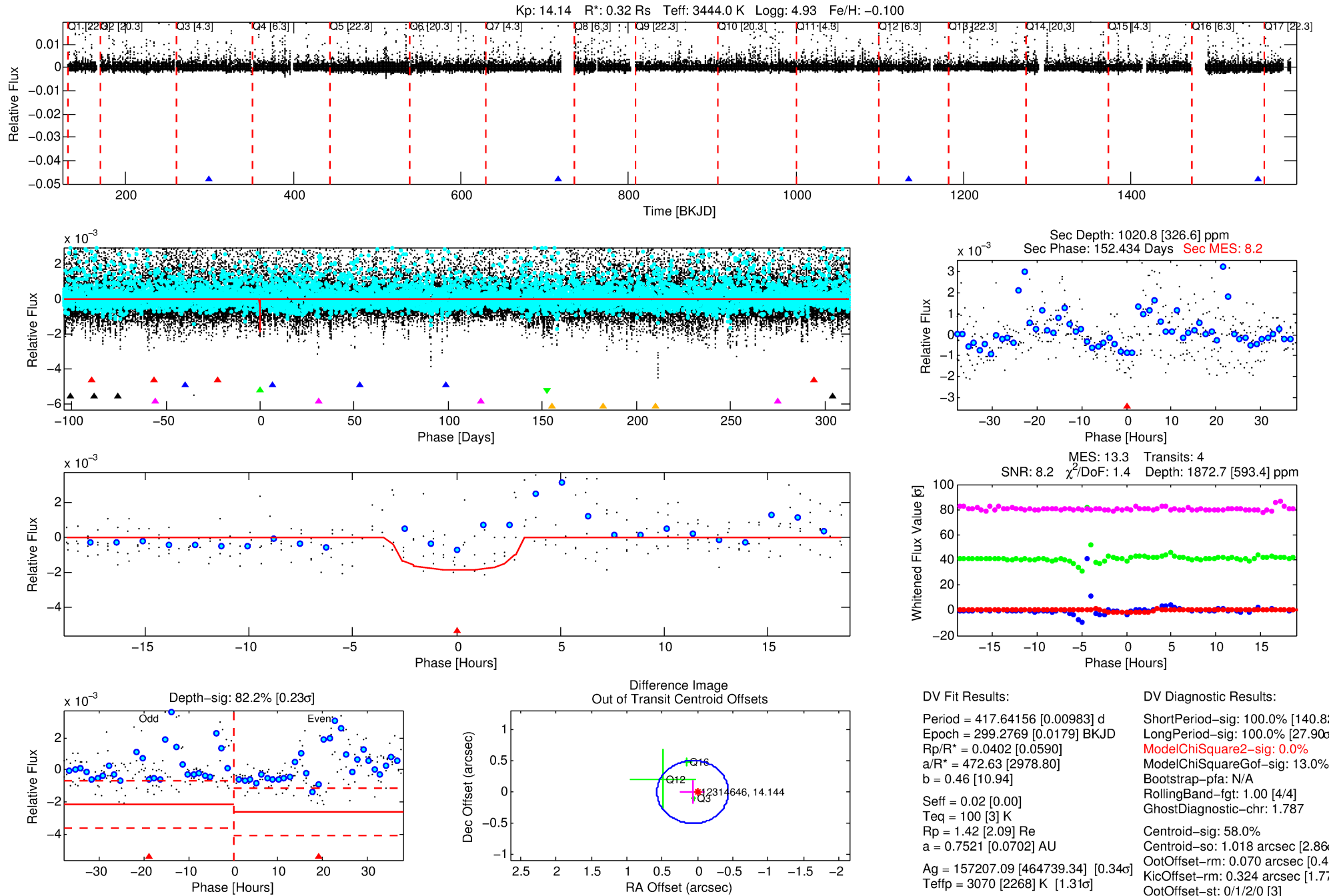
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012314646-03

No Significant Match Found

DV One-Page Summary

KIC: 12314646 Candidate: 3 of 6 Period: 417.642 d



DV Fit Results:

Period = 417.64156 [0.00983] d
Epoch = 299.2769 [0.0179] BKJD
Rp/R* = 0.0402 [0.0590]
a/R* = 472.63 [2978.80]
b = 0.46 [10.94]
Seff = 0.02 [0.00]
Teq = 100 [3] K
Rp = 1.42 [2.09] Re
a = 0.7521 [0.0702] AU
Ag = 157207.09 [464739.34] [0.34σ]
Teffp = 3070 [2268] K [1.31σ]

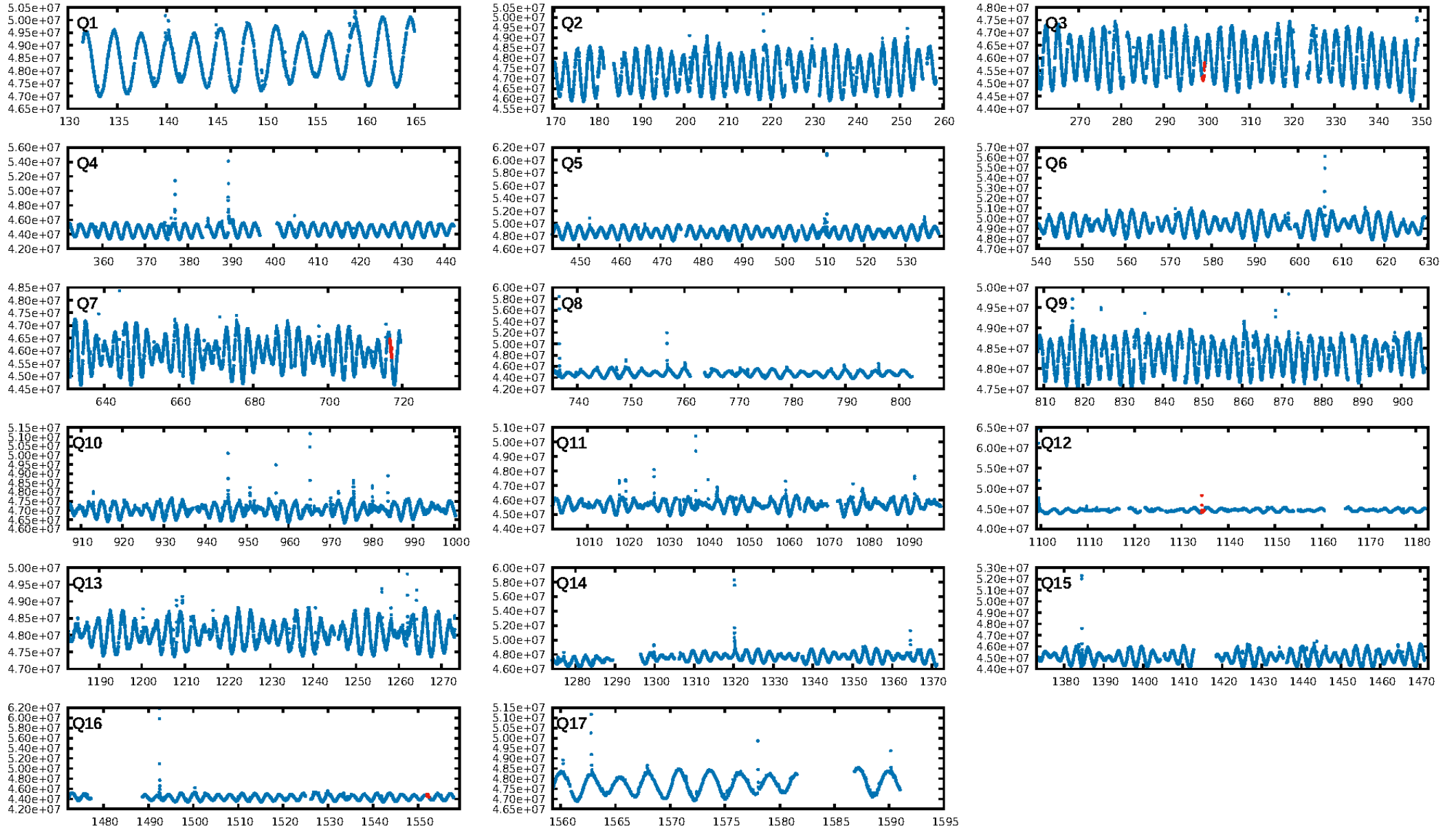
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [140.82σ]
LongPeriod-sig: 100.0% [27.90σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 13.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.787
Centroid-sig: 58.0%
Centroid-so: 1.018 arcsec [2.86σ]
OotOffset-rm: 0.070 arcsec [0.42σ]
KicOffset-rm: 0.324 arcsec [1.77σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [4/4]

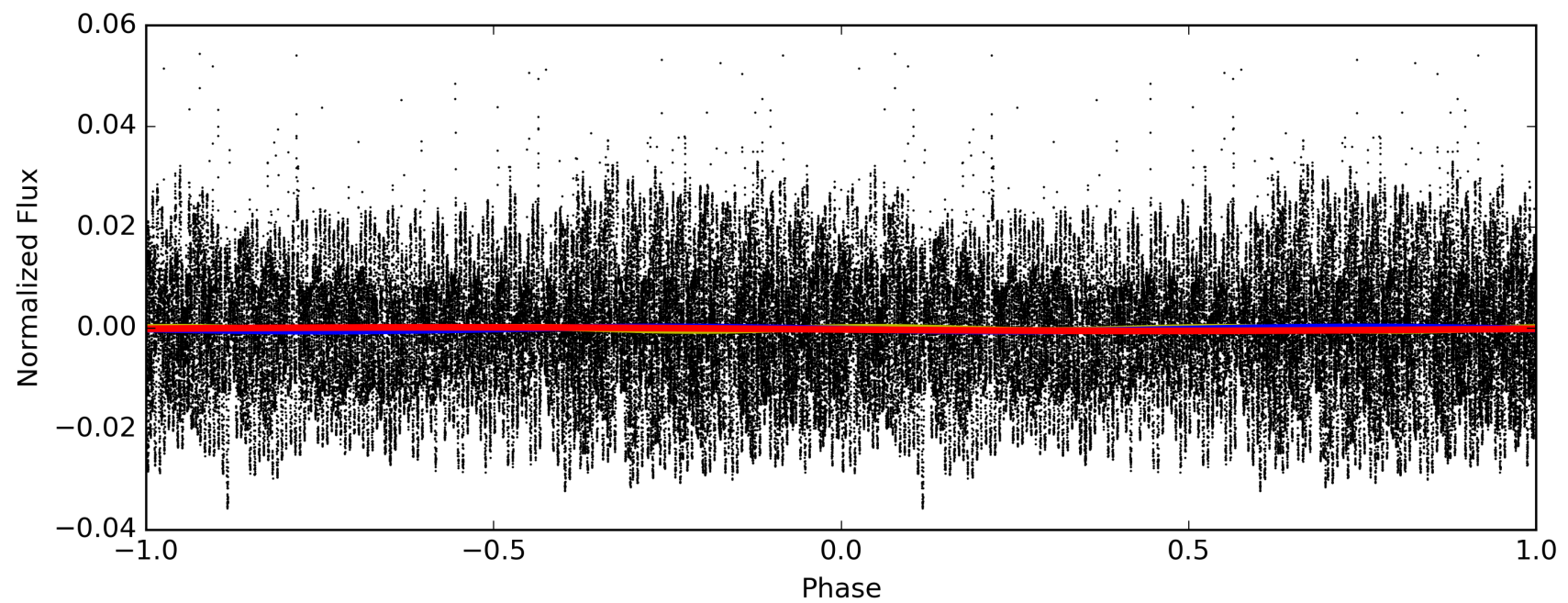
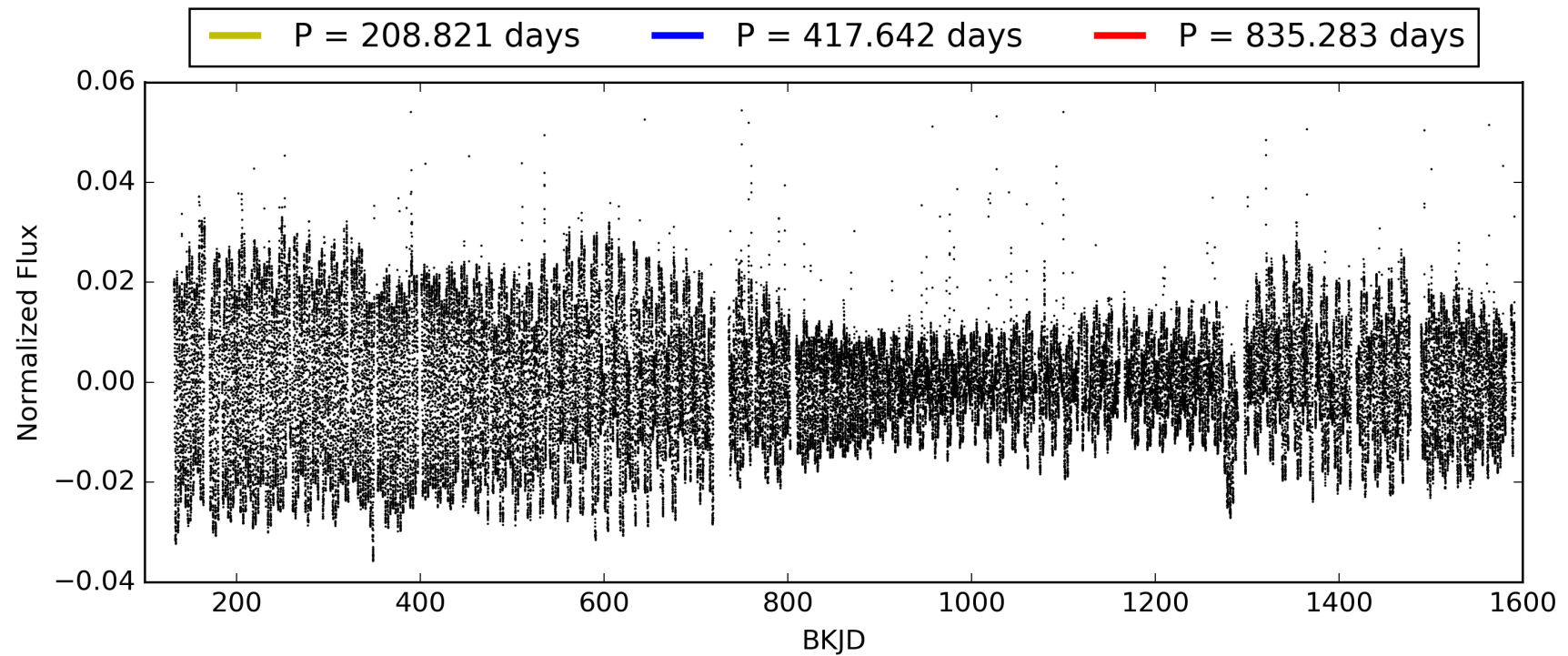
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:50:08 Z

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

TCE 012314646-03, PDC Light Curves

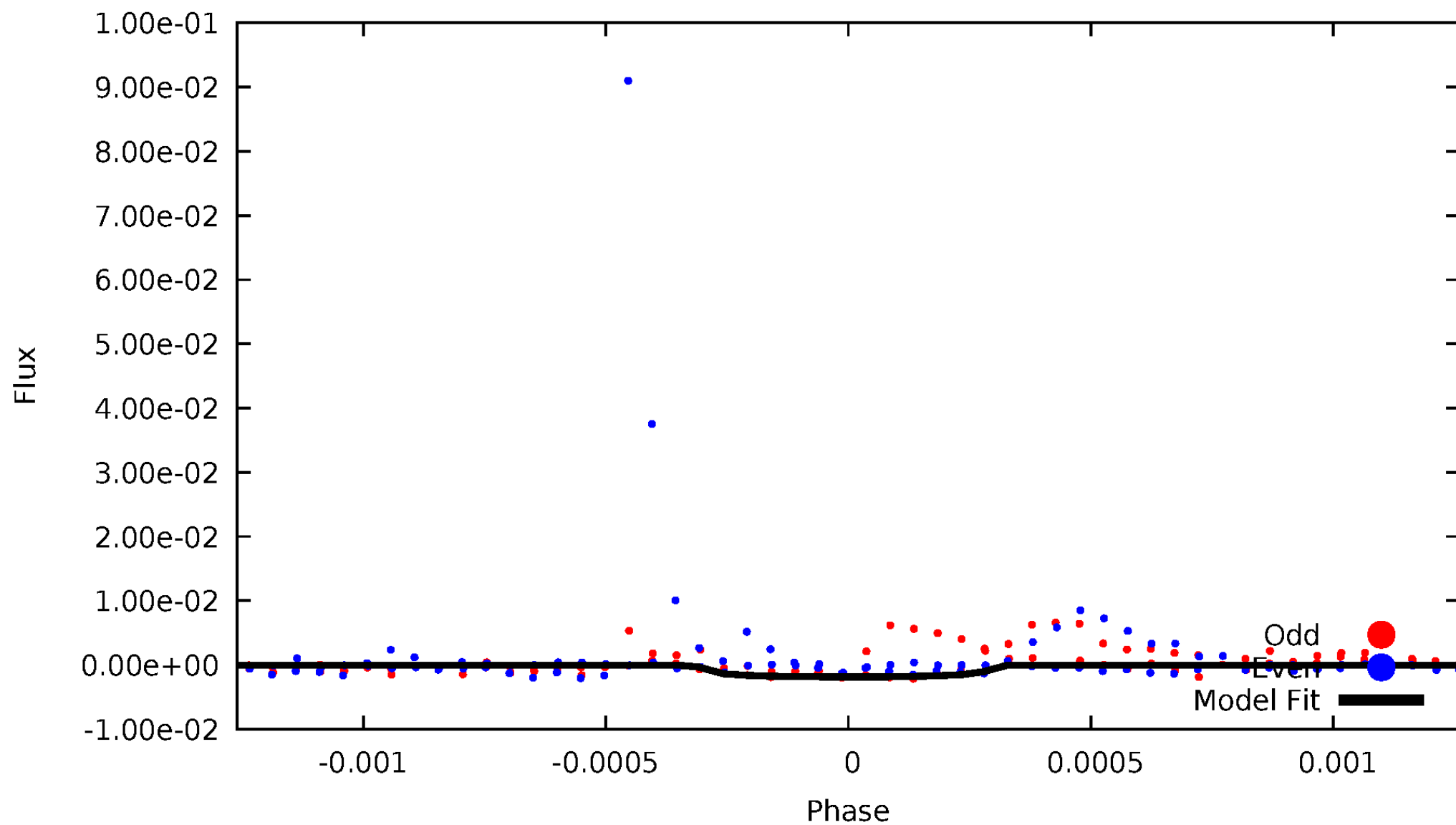


TCE 012314646-03



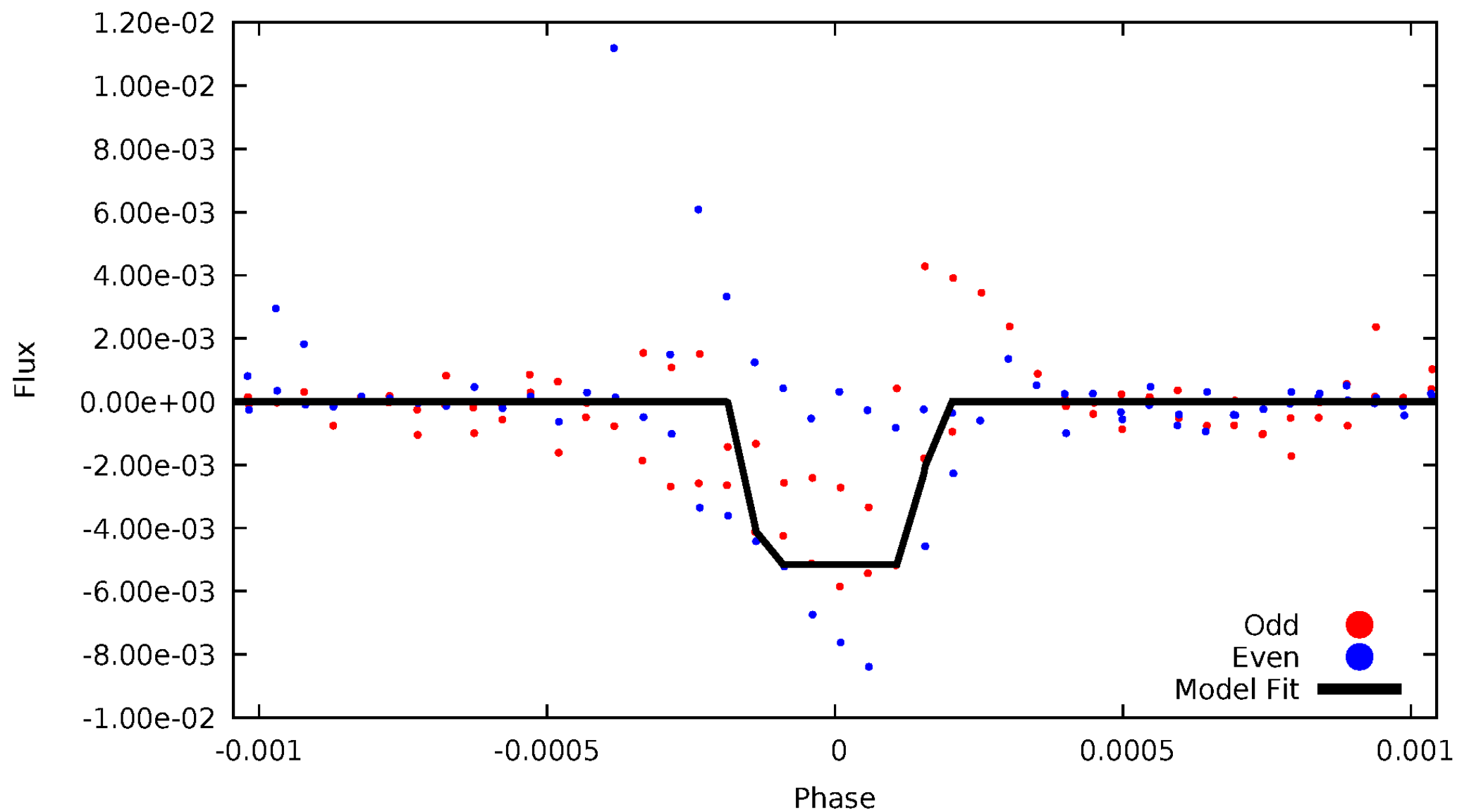
DV Odd/Even

TCE 012314646-03



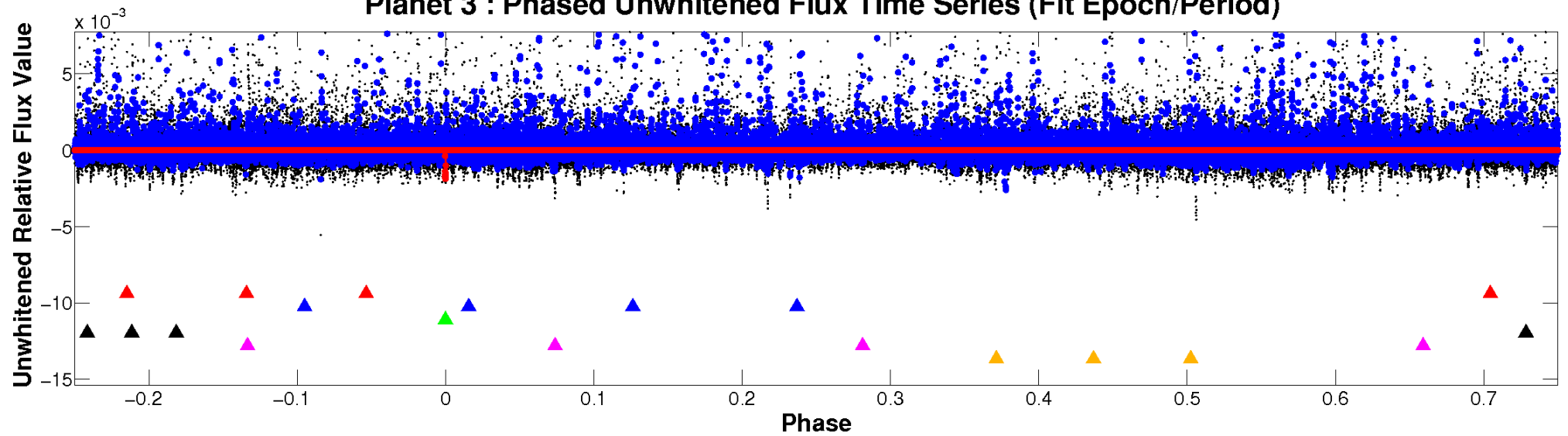
ALT Odd/Even

TCE 012314646-03

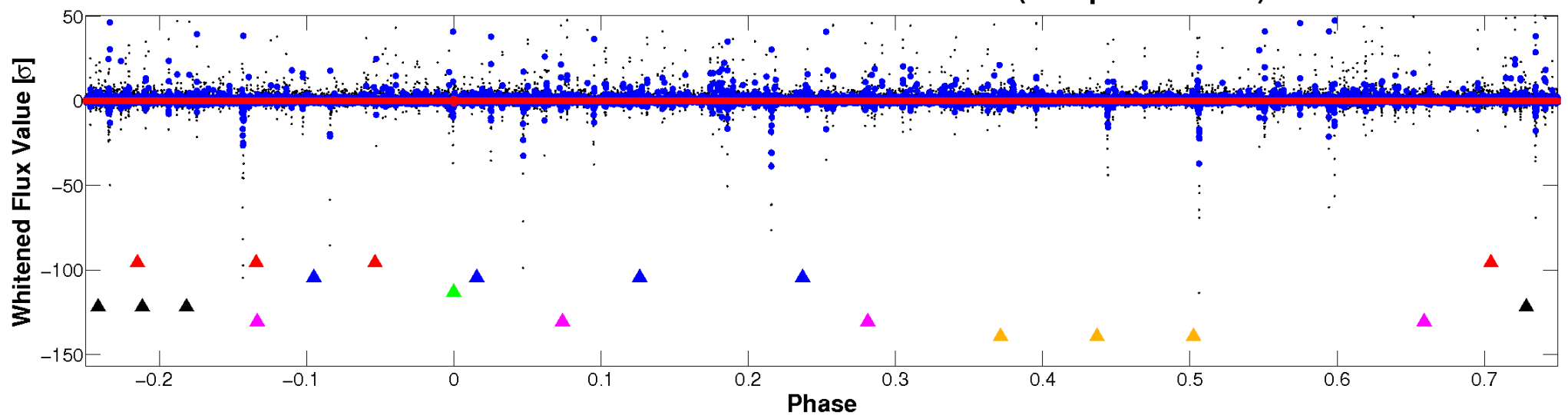


Non-Whitened Vs. Whitened Light Curve

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

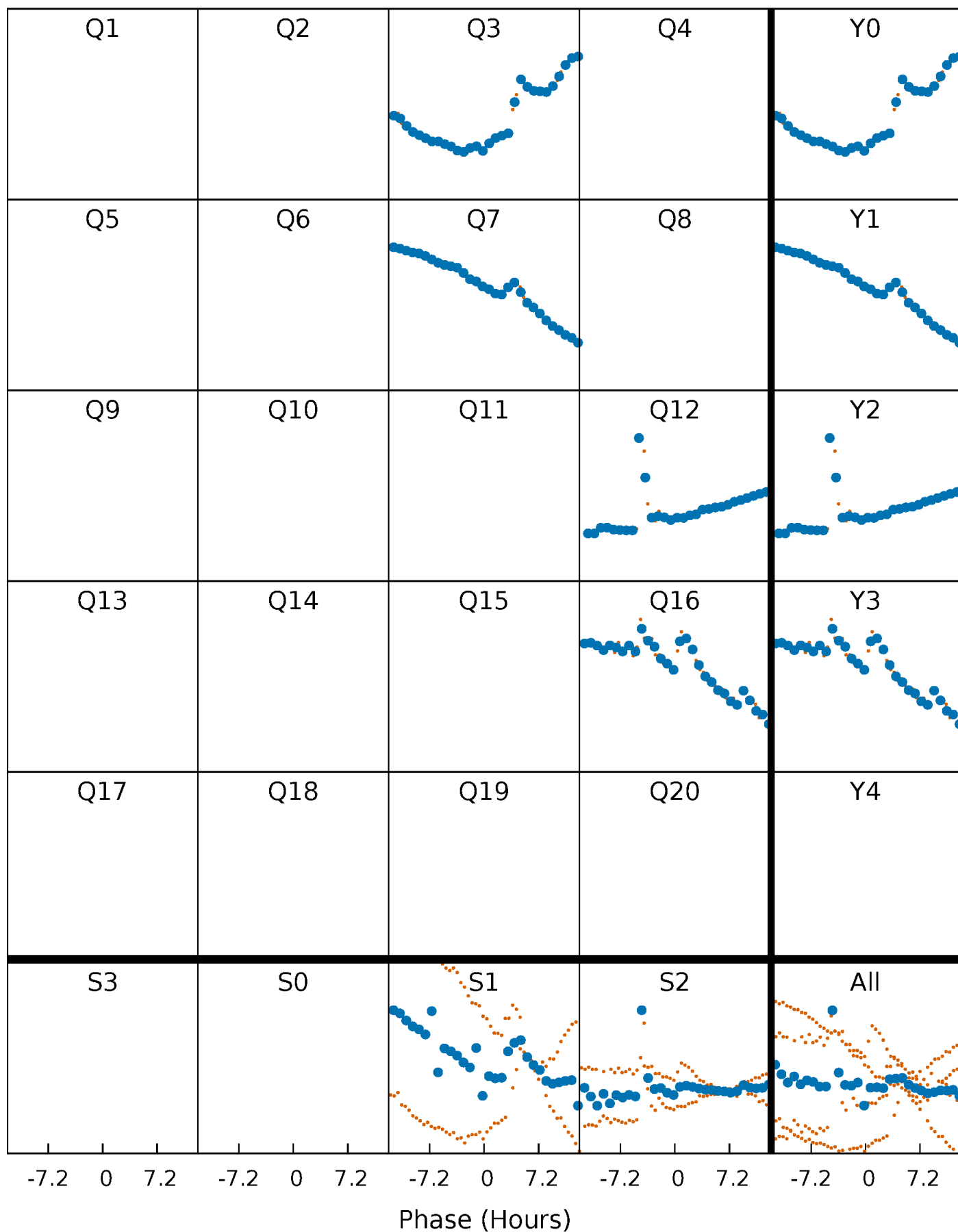


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



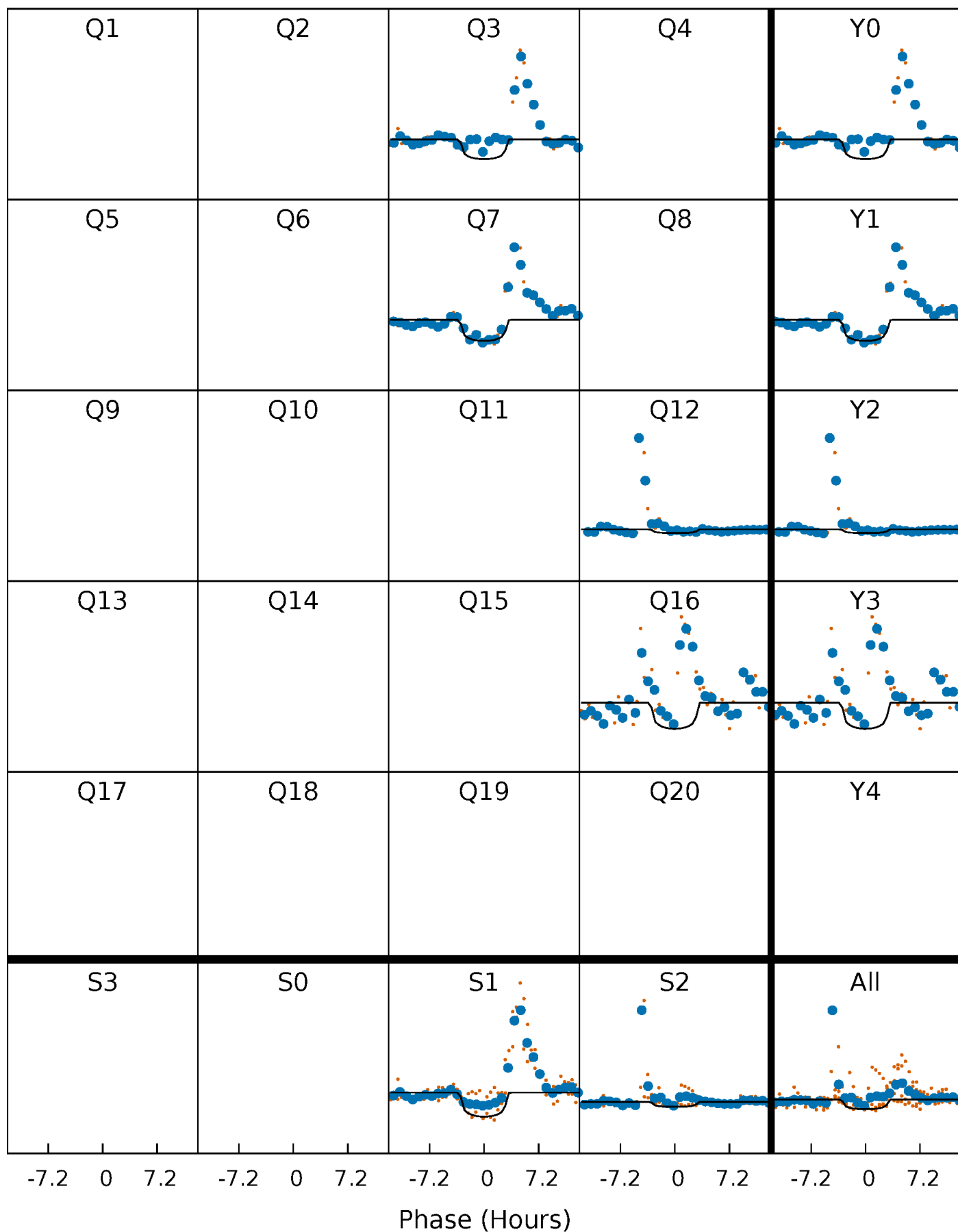
PDC Quarter-Phased Transit Curves

TCE 012314646-03 $P=417.641563$ Days $T_0=299.276895$ (BKJD)



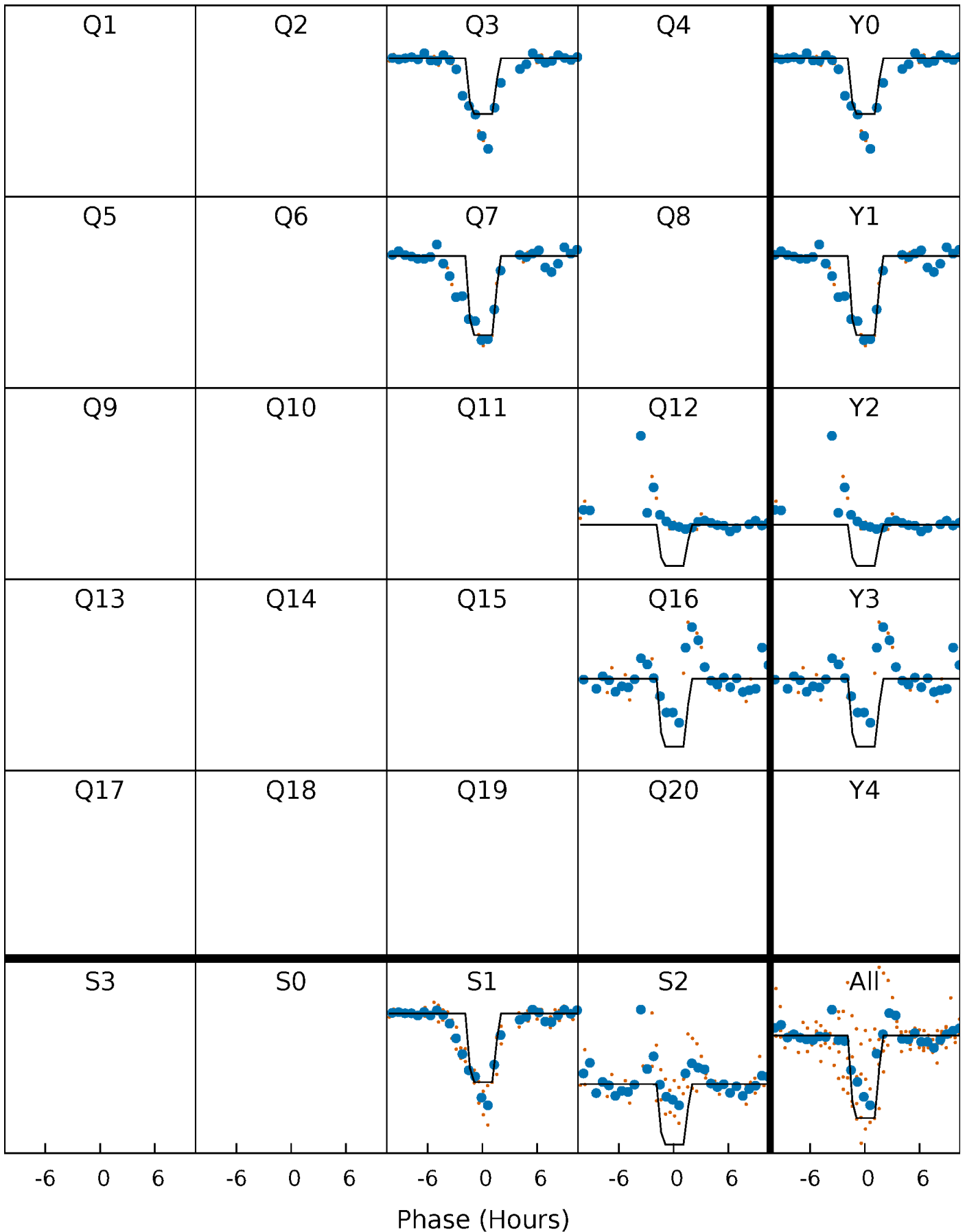
DV Quarter-Phased Transit Curves

TCE 012314646-03 $P=417.641563$ Days $T_0=299.276895$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

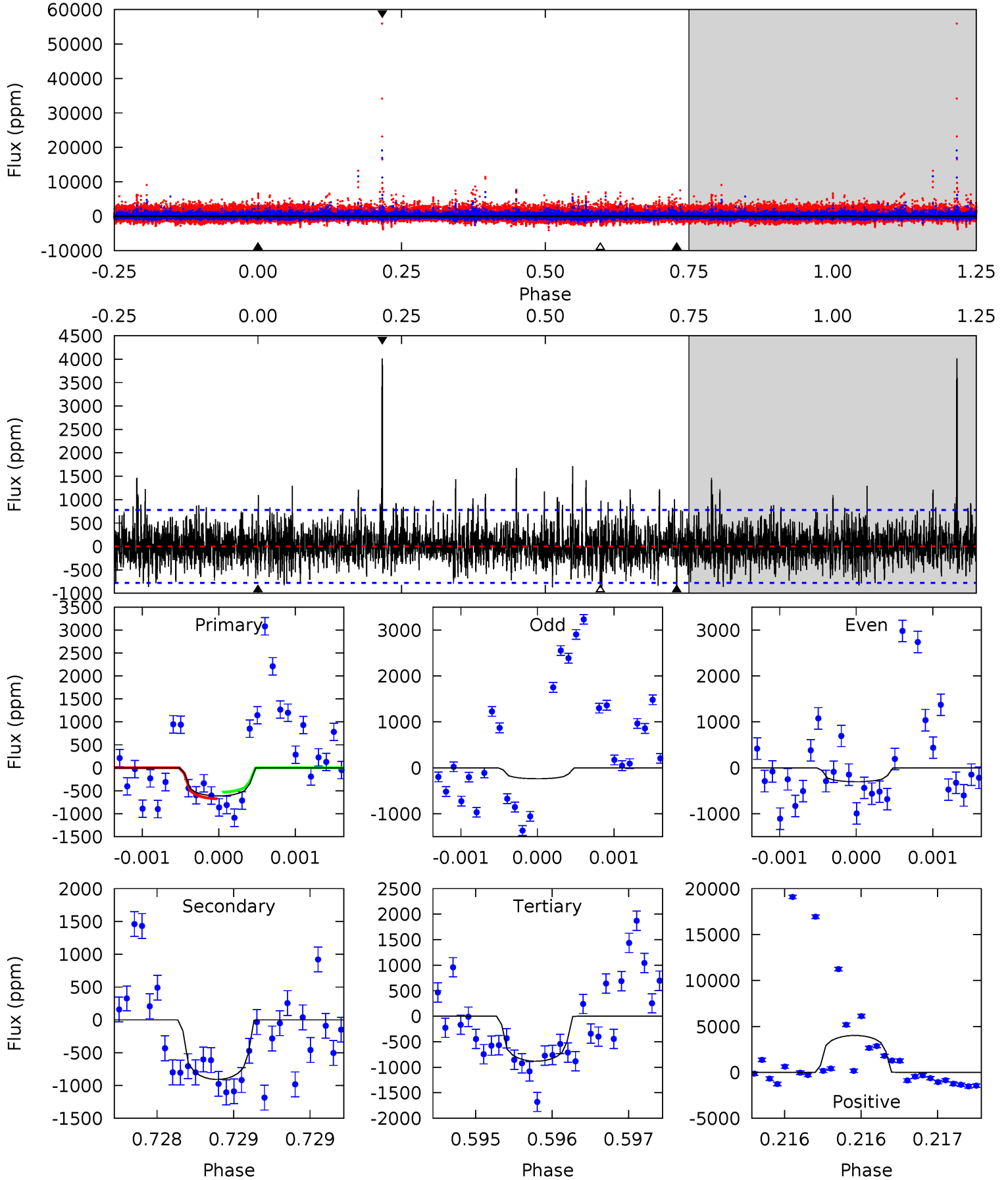
TCE 012314646-03 $P=417.600666$ Days $T_0=299.370313$ (BKJD)



DV Model-Shift Uniqueness Test

012314646-03, P = 417.641563 Days, E = 299.276895 Days

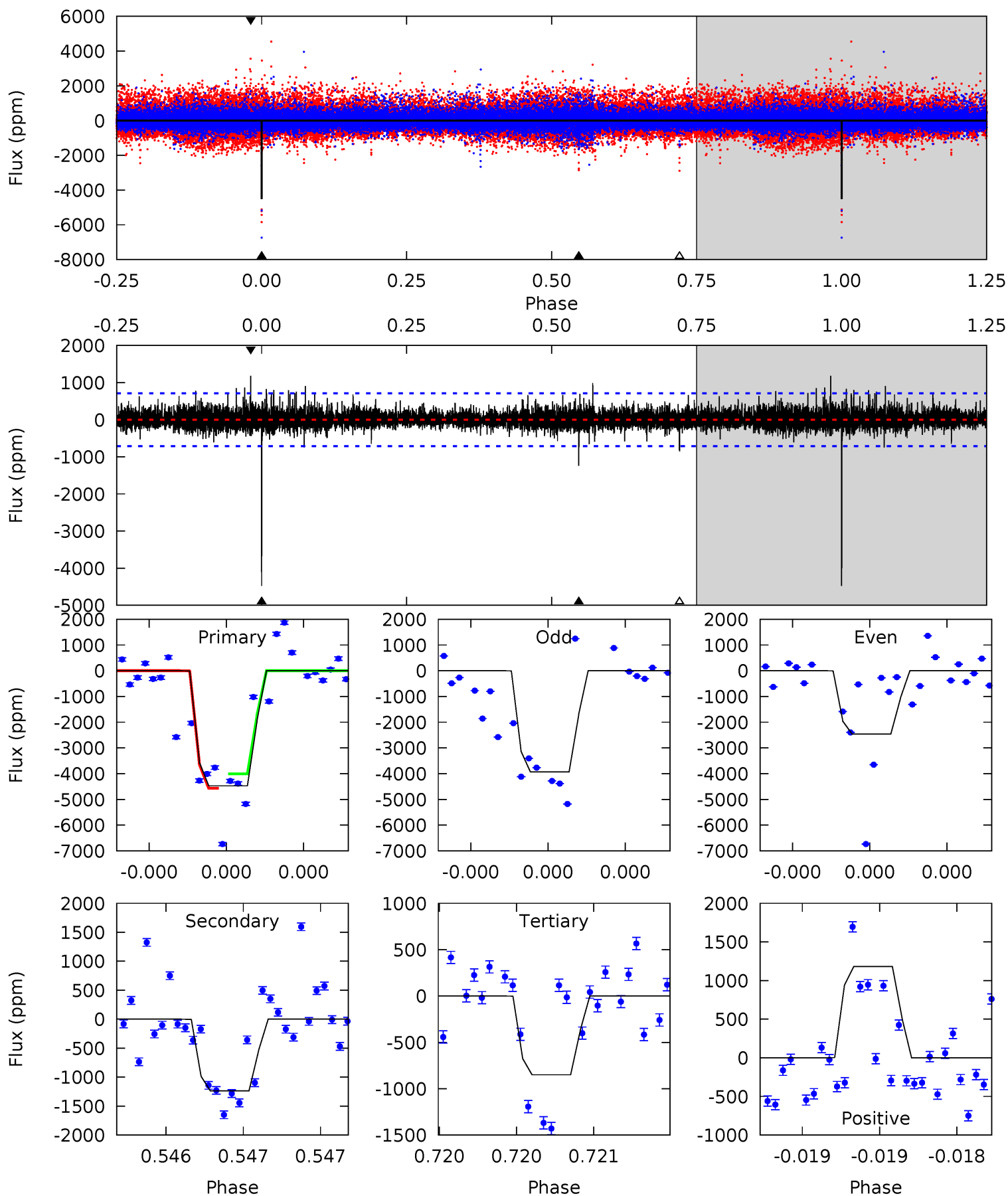
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.35	6.44	6.26	28.5	5.52	3.40	2.24	-1.91	-24.1	0.19	-22.0	0.16	-0.92	0.82	0.51



Alt Model-Shift Uniqueness Test

012314646-03, P = 417.600666 Days, E = 299.370313 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.3	9.78	6.71	9.33	5.62	3.55	1.19	28.6	26.0	3.07	0.45	6.58	1.01	0.21	2.14



Stellar Parameters For KIC 012314646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3444^{+51}_{-46}	$4.929^{+0.052}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.324^{+0.037}_{-0.041}$	$0.324^{+0.043}_{-0.048}$	$13.470^{+4.158}_{-2.288}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-13%	+13%/-15%	+31%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012314646-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-908 ± 141	$2.03^{+1.79}_{-1.36}$	139^{+3}_{-3}	2835^{+1198}_{-410}	$68244^{+602320}_{-49316}$
Alt.	-1238 ± 127	$2.74^{+1.78}_{-1.60}$	139^{+4}_{-3}	2750^{+807}_{-327}	$52192^{+245025}_{-33053}$

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 $A_{obs} \gg 1.0$

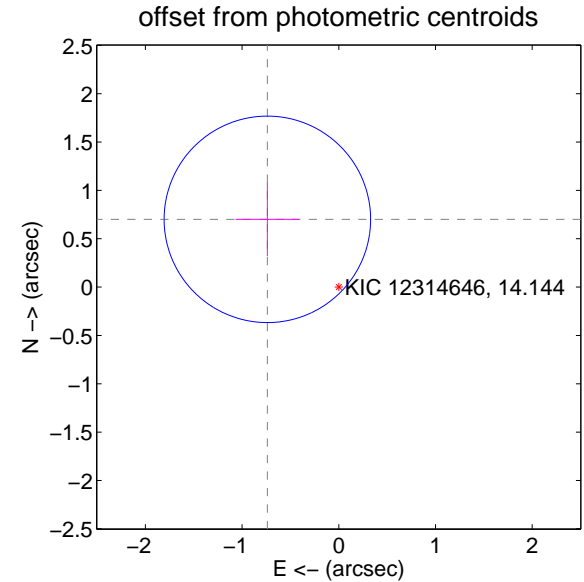
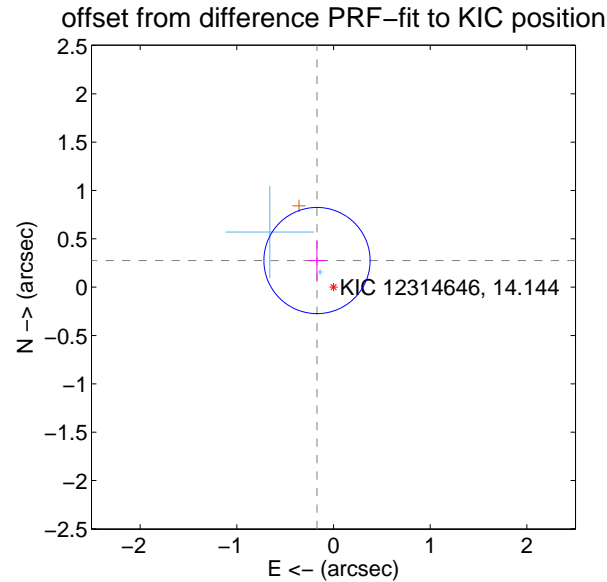
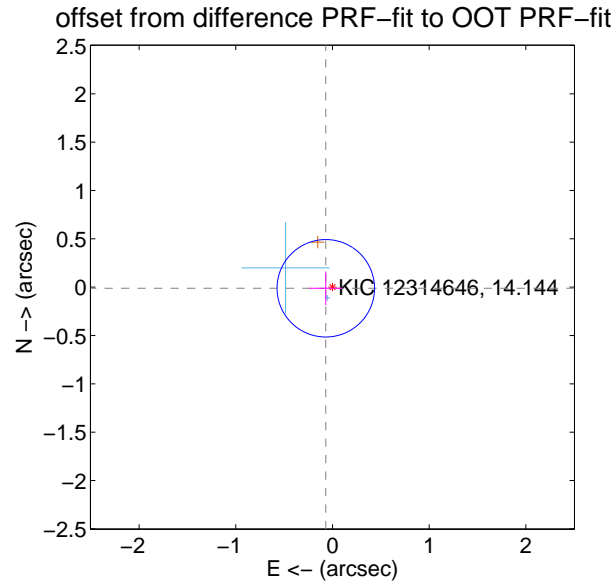
DV Centroid Data

Supplemental centroid analysis for 012314646-03. Kepler magnitude: 14.14. Transit SNR 8.15

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.070 ± 0.168	0.42	0.069 ± 0.168	-0.011 ± 0.173
PRF-fit source offset from KIC position	0.324 ± 0.183	1.77	0.171 ± 0.091	0.276 ± 0.208
photometric centroid source offset	1.02 ± 0.36	2.86	0.74 ± 0.33	0.70 ± 0.38



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

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

Q1 no difference image



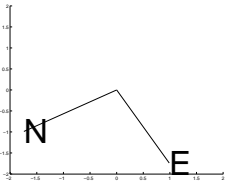
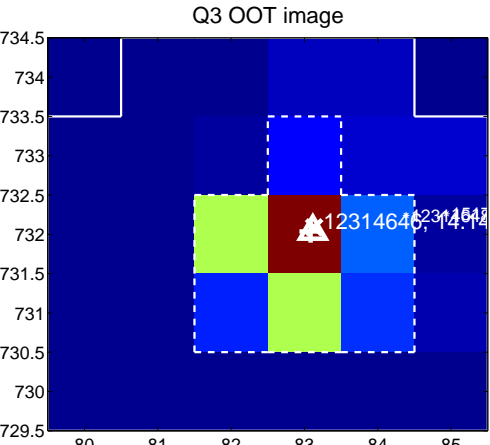
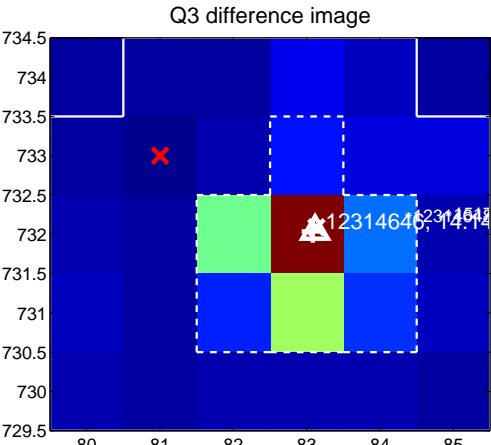
Q1 no OOT image



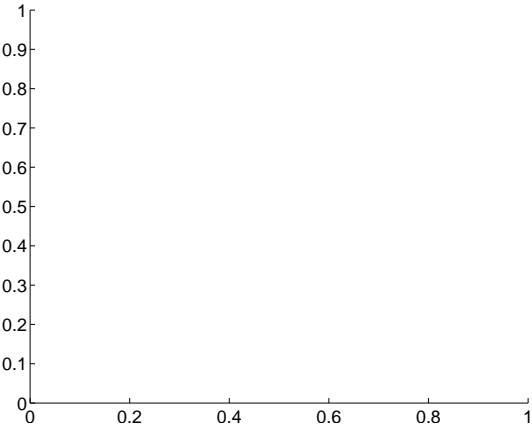
Q2 no difference image



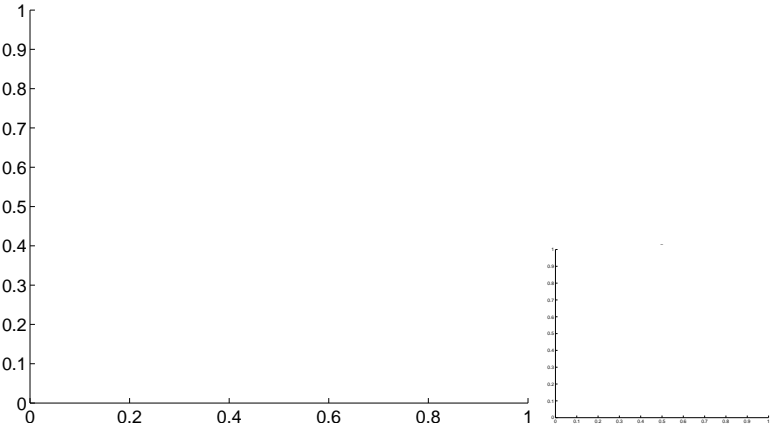
Q2 no OOT image



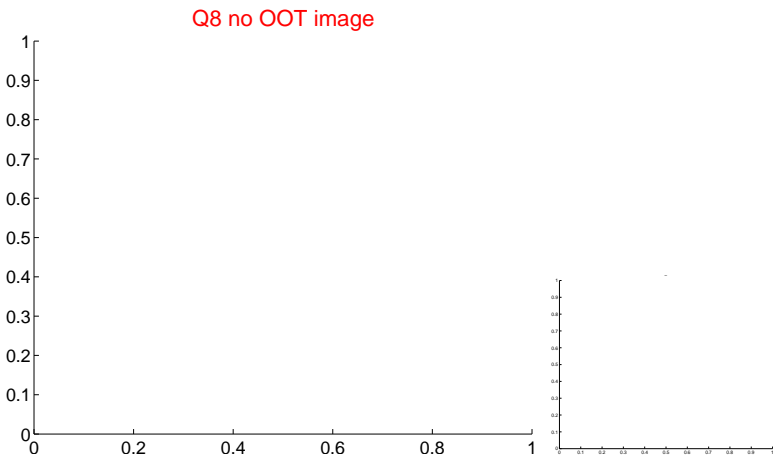
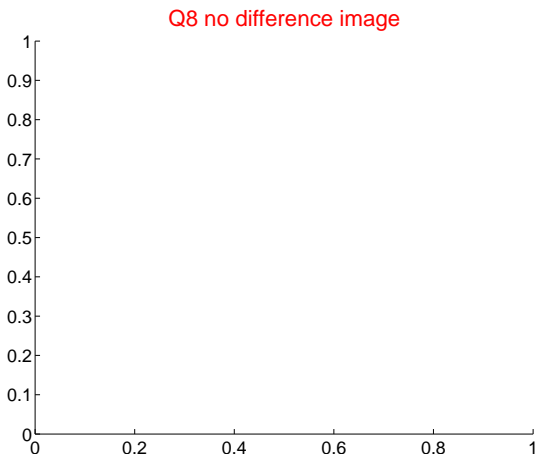
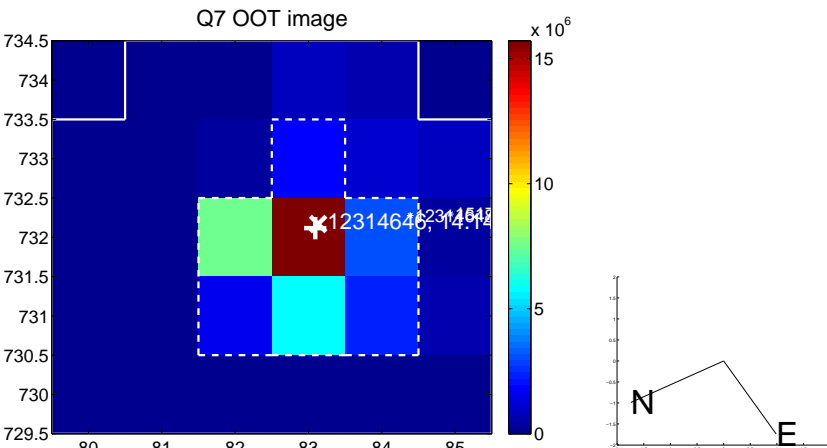
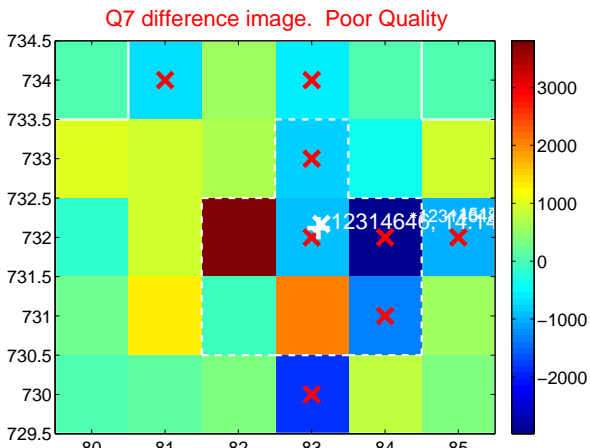
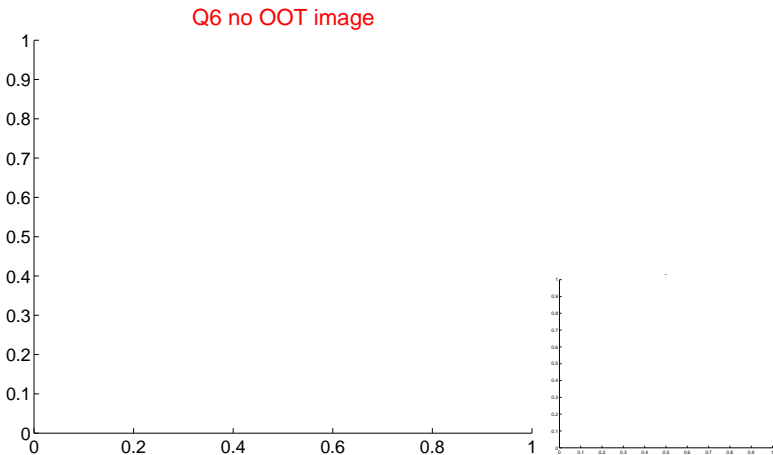
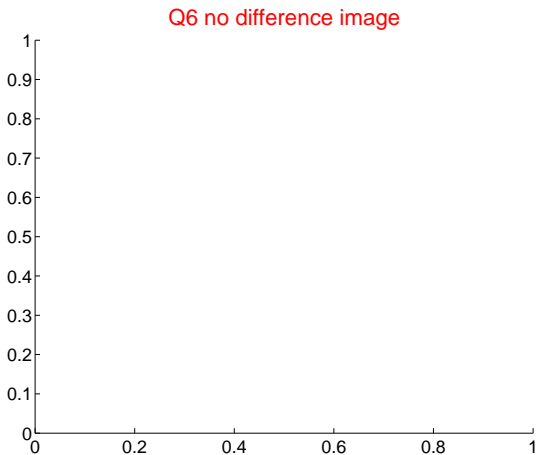
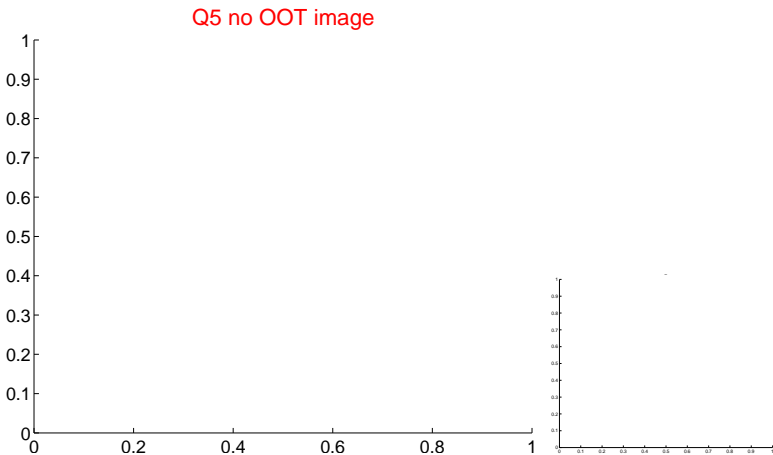
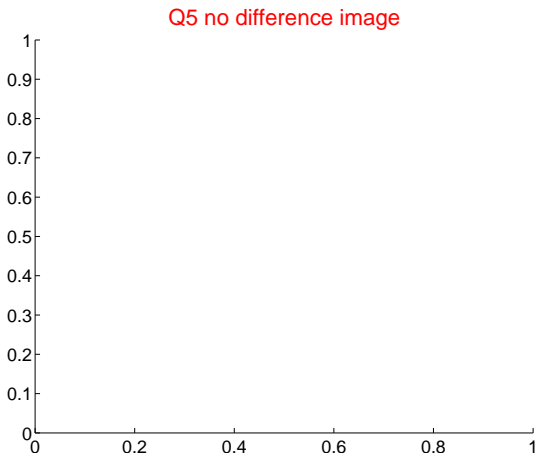
Q4 no difference image



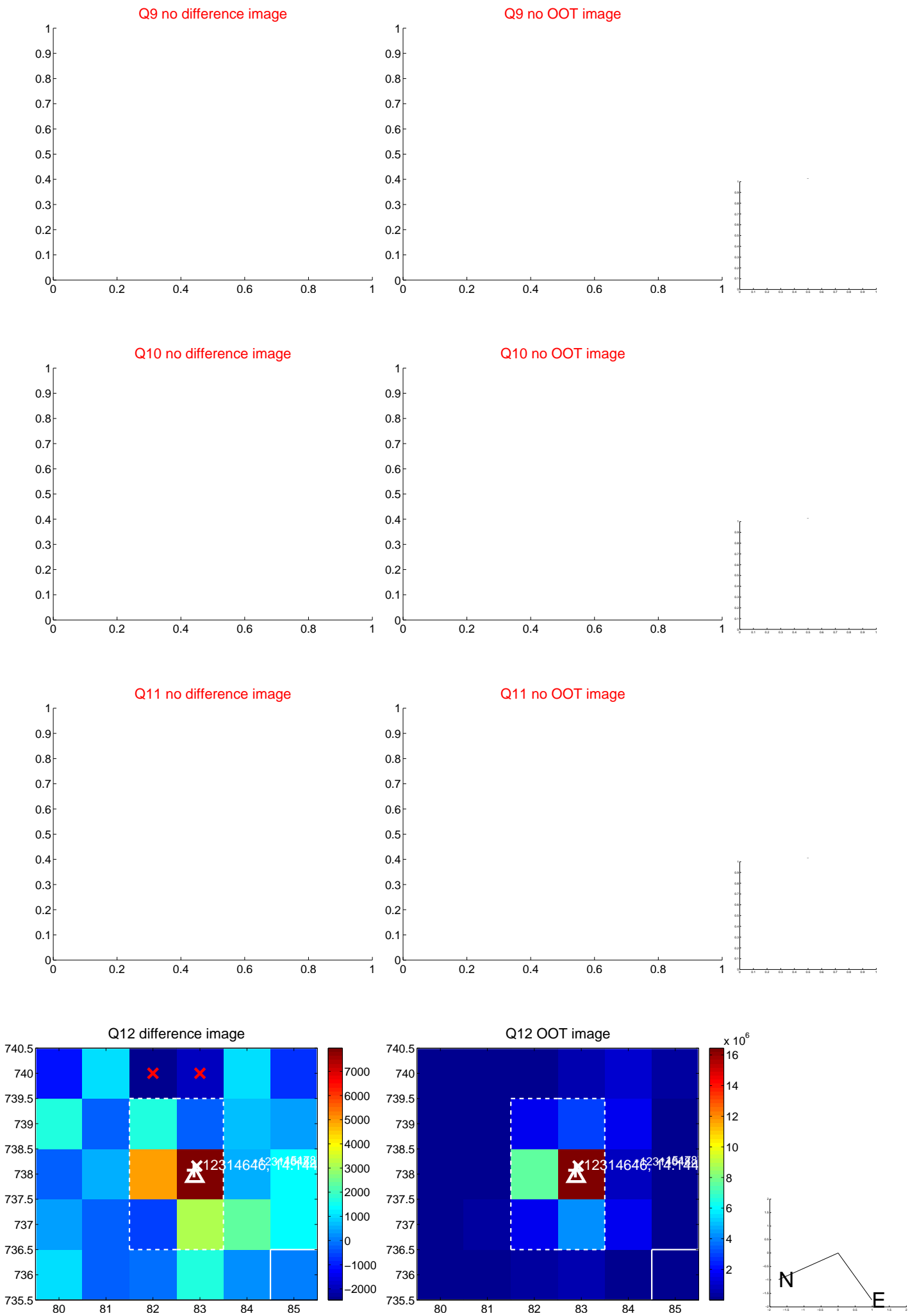
Q4 no OOT image



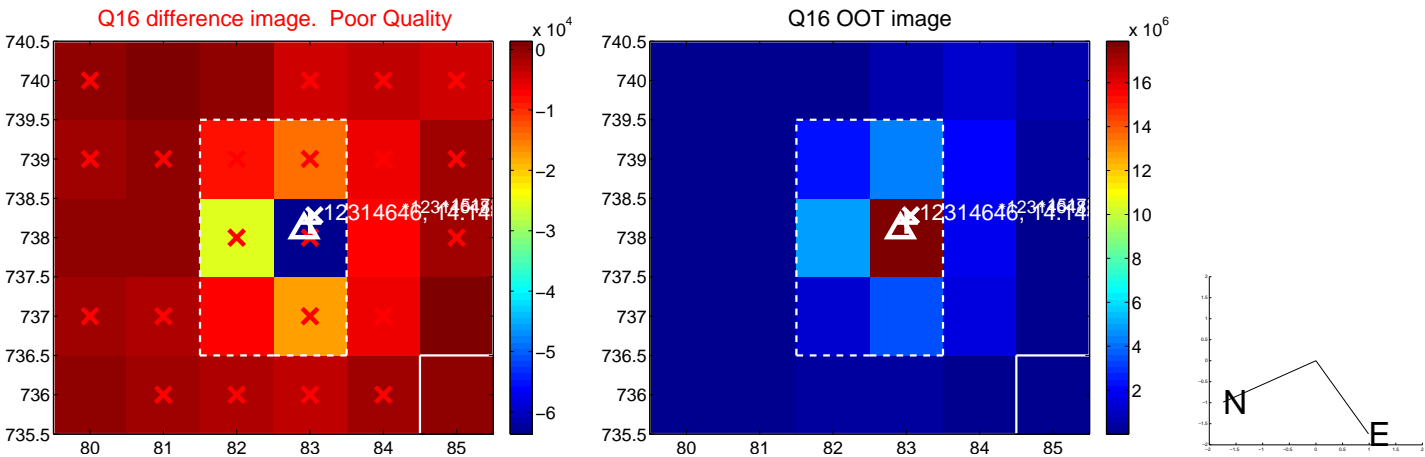
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



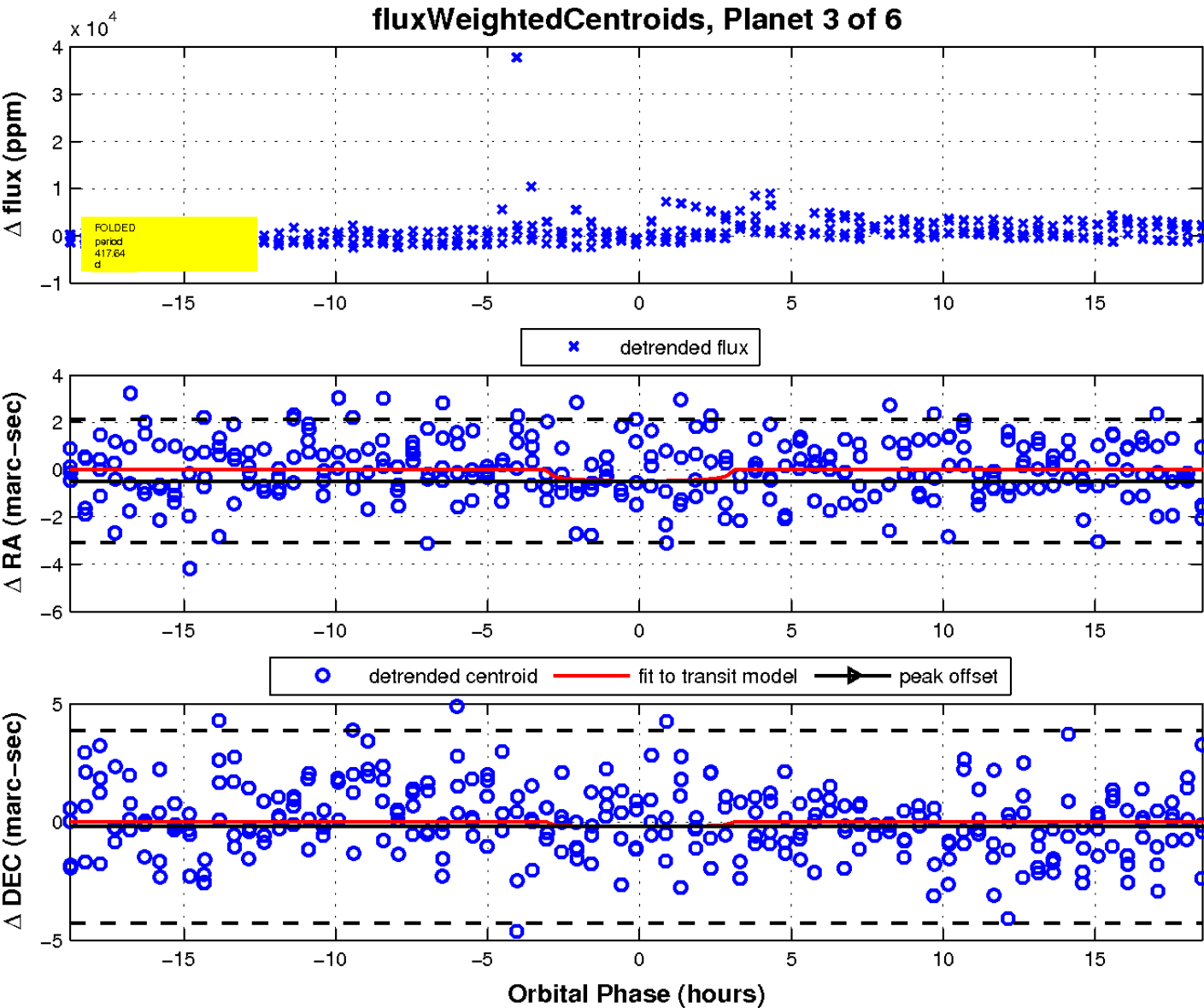
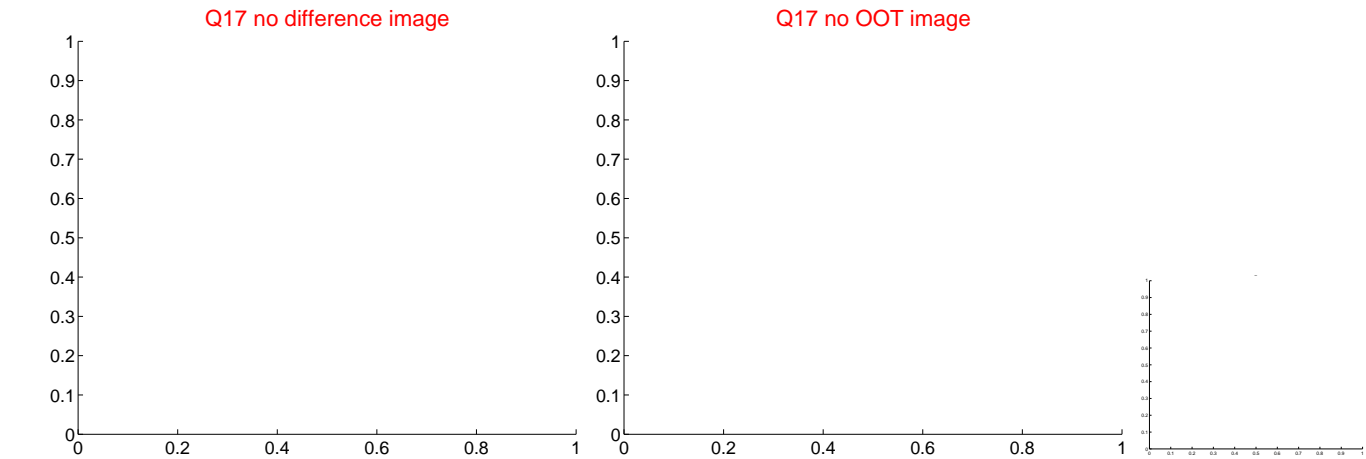
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

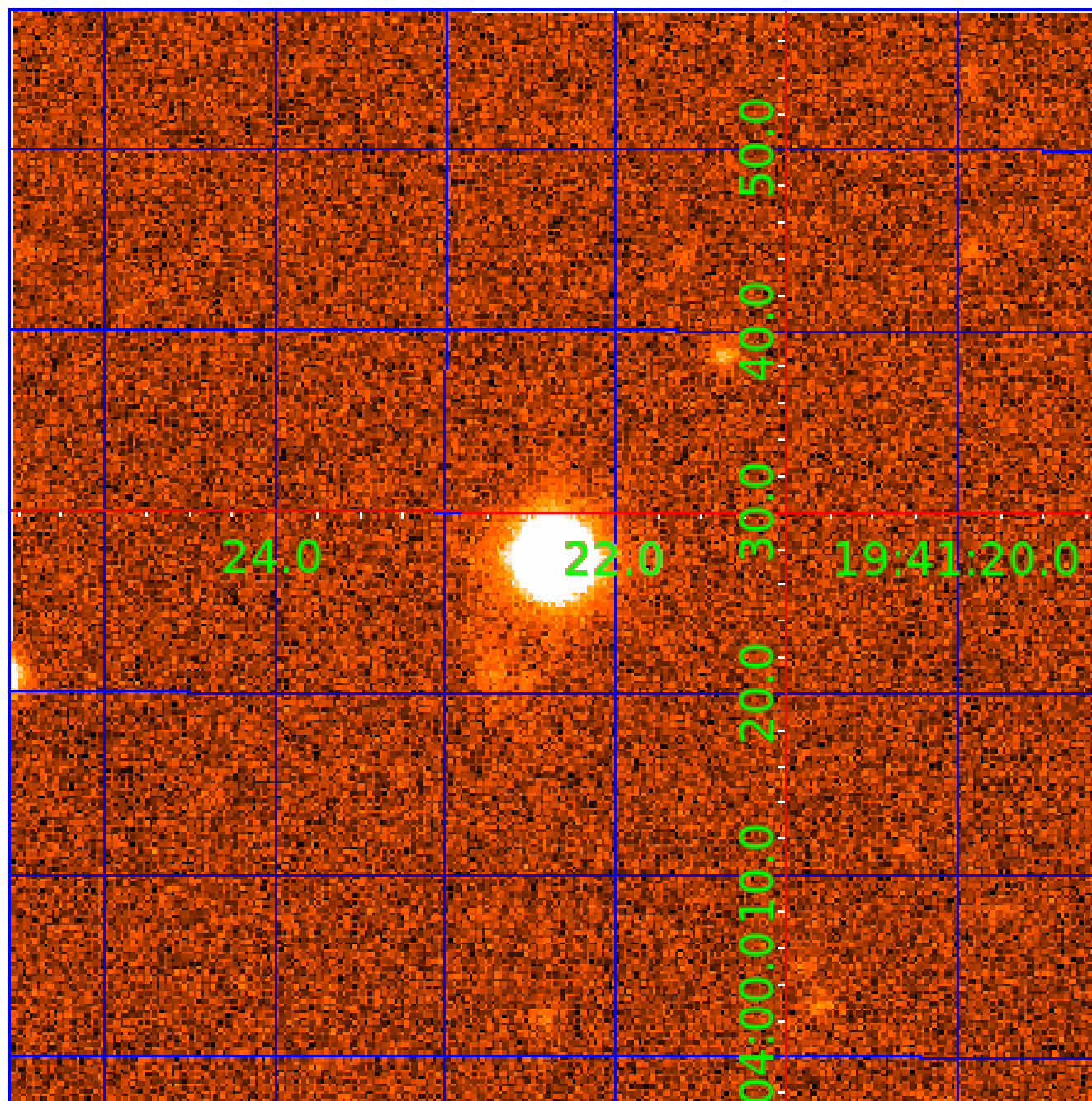


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012314646

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})
012314646-01	OBS	No	451.340759	175.852140	2479.0	5.619	17.2	10.0	0.32	3444	1.60	0.02
012314646-02	OBS	No	371.424272	398.254456	2683.0	4.712	15.9	9.9	0.32	3444	1.70	0.03
012314646-03	OBS	No	417.641563	299.276895	1872.7	6.312	13.3	8.2	0.32	3444	1.42	0.02
012314646-04	OBS	No	430.169131	185.888702	2493.7	8.736	17.2	8.8	0.32	3444	1.70	0.02
012314646-05	OBS	No	331.038021	416.737216	2257.1	4.900	15.4	7.8	0.32	3444	1.52	0.03
012314646-06	OBS	No	445.015692	454.388487	1007.1	4.500	14.1	-1.0	0.32	3444	1.02	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012314646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012314646-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
012314646-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012314646-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
012314646-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012314646-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

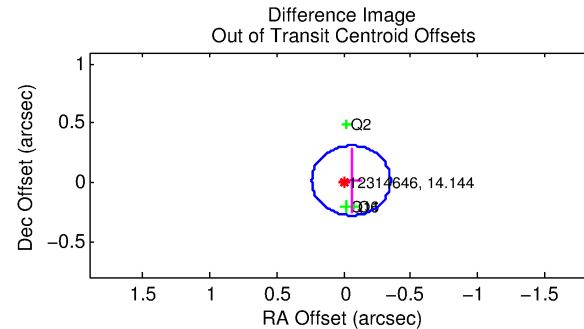
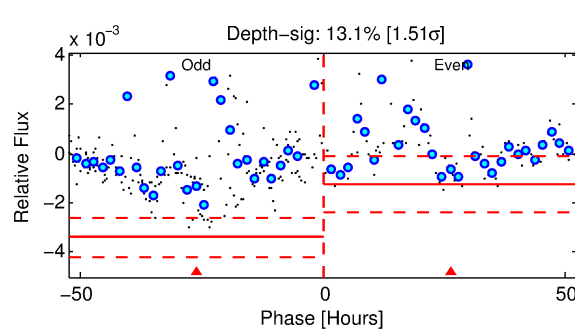
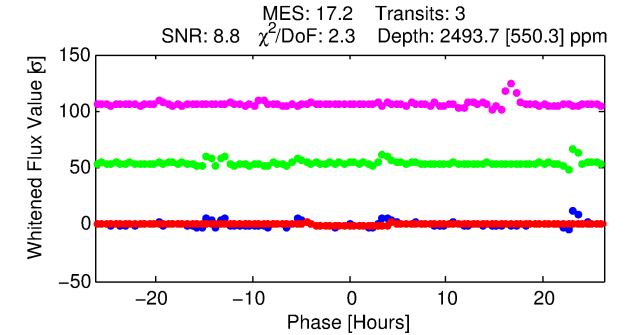
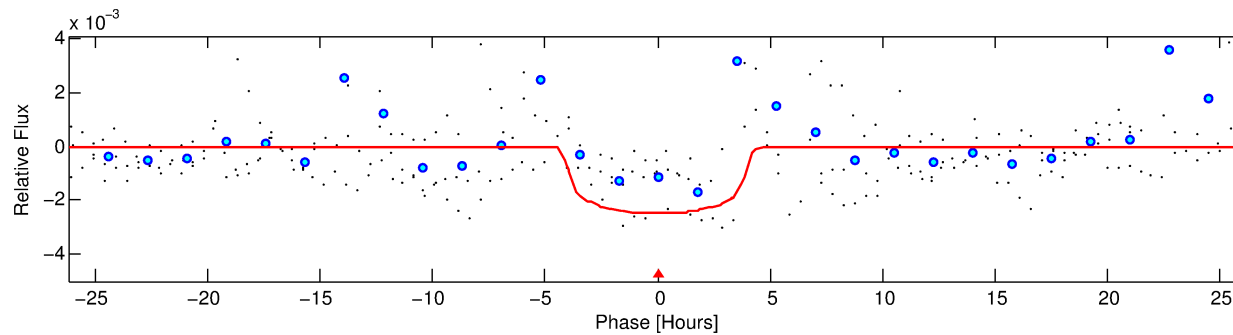
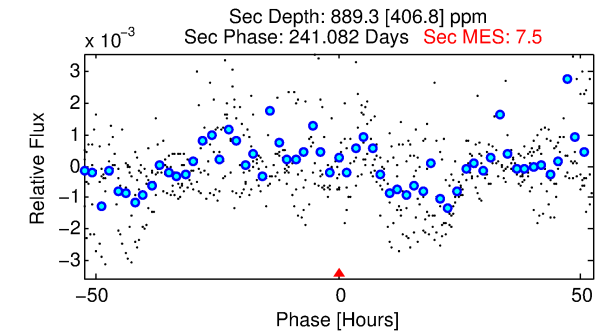
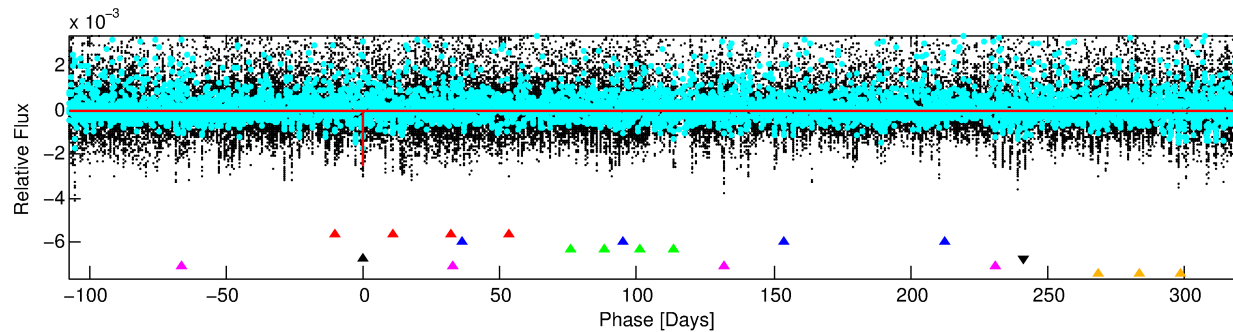
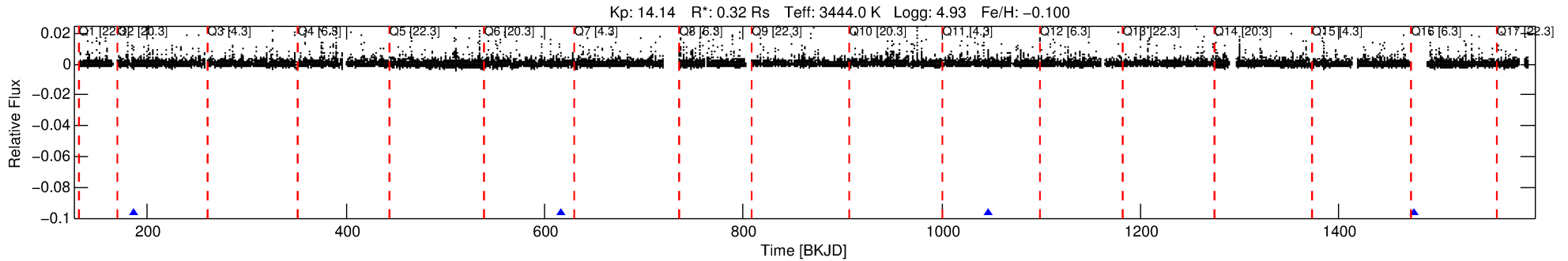
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012314646-04

No Significant Match Found

DV One-Page Summary

KIC: 12314646 Candidate: 4 of 6 Period: 430.169 d



DV Fit Results:

Period = 430.16913 [0.00884] d
Epoch = 185.8887 [0.0115] BKJD
Rp/R* = 0.0481 [0.0120]
a/R* = 309.41 [270.66]
b = 0.65 [0.77]
Seff = 0.02 [0.00]
Teq = 99 [3] K
Rp = 1.70 [0.48] Re
a = 0.7670 [0.0716] AU
Ag = 99688.41 [68537.28] [1.45σ]
Teffp = 2713 [461] K [5.67σ]

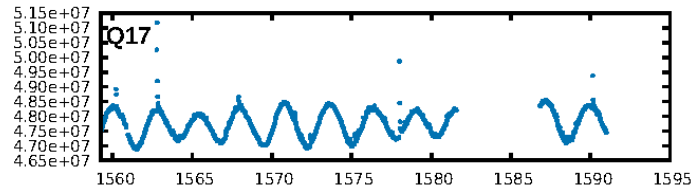
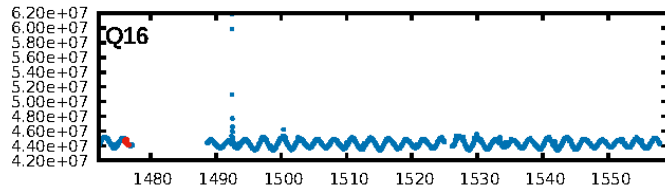
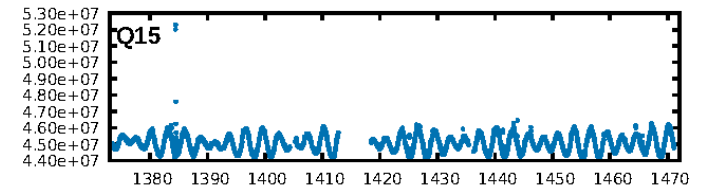
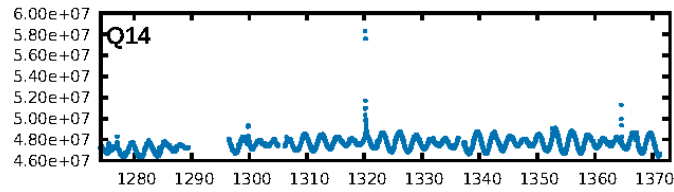
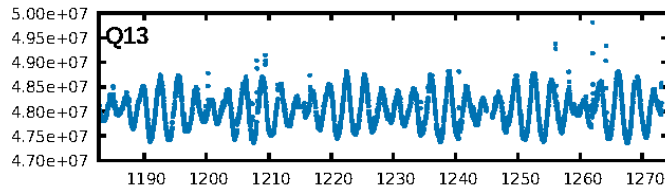
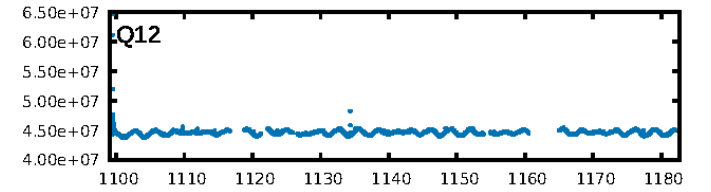
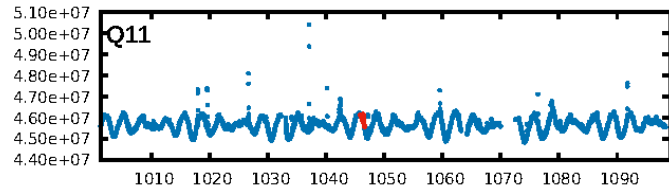
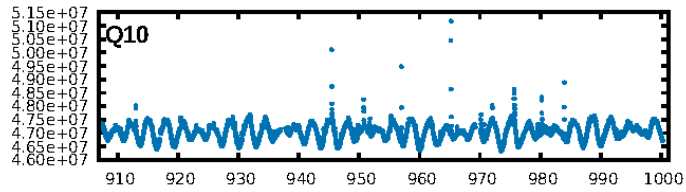
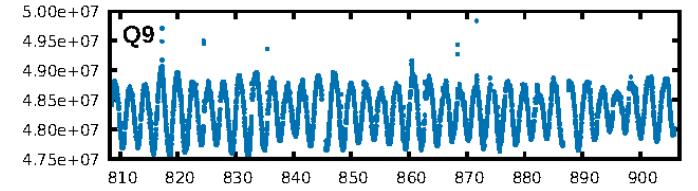
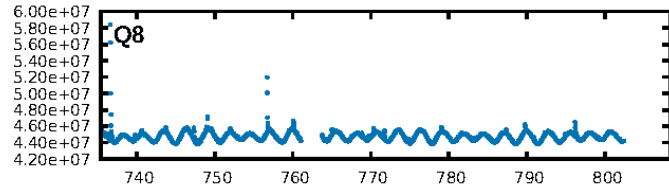
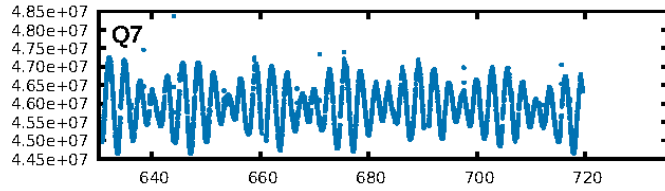
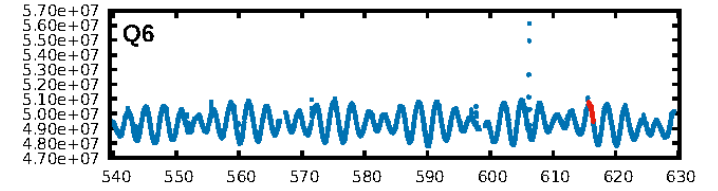
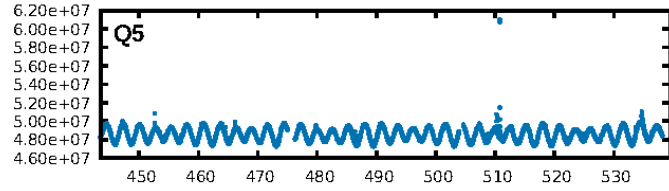
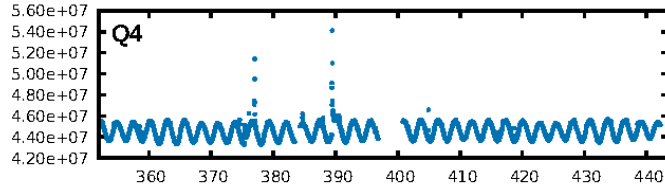
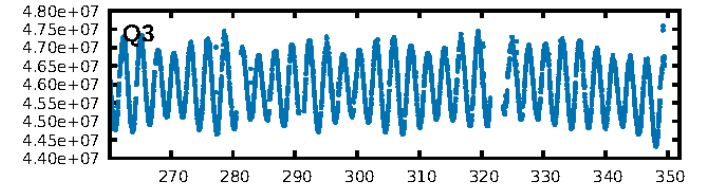
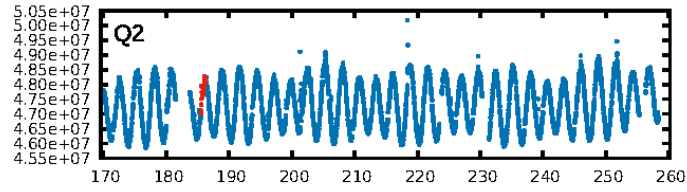
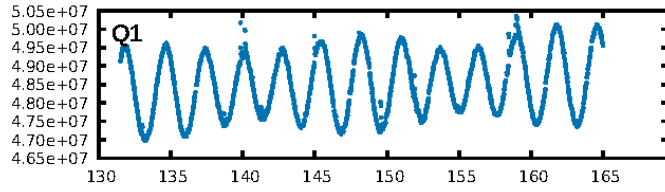
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.90σ]
LongPeriod-sig: 100.0% [36.26σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 8.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.01859
Centroid-sig: 1.2%
Centroid-so: 0.177 arcsec [0.57σ]
OotOffset-rm: 0.058 arcsec [0.59σ]
KicOffset-rm: 0.392 arcsec [1.61σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

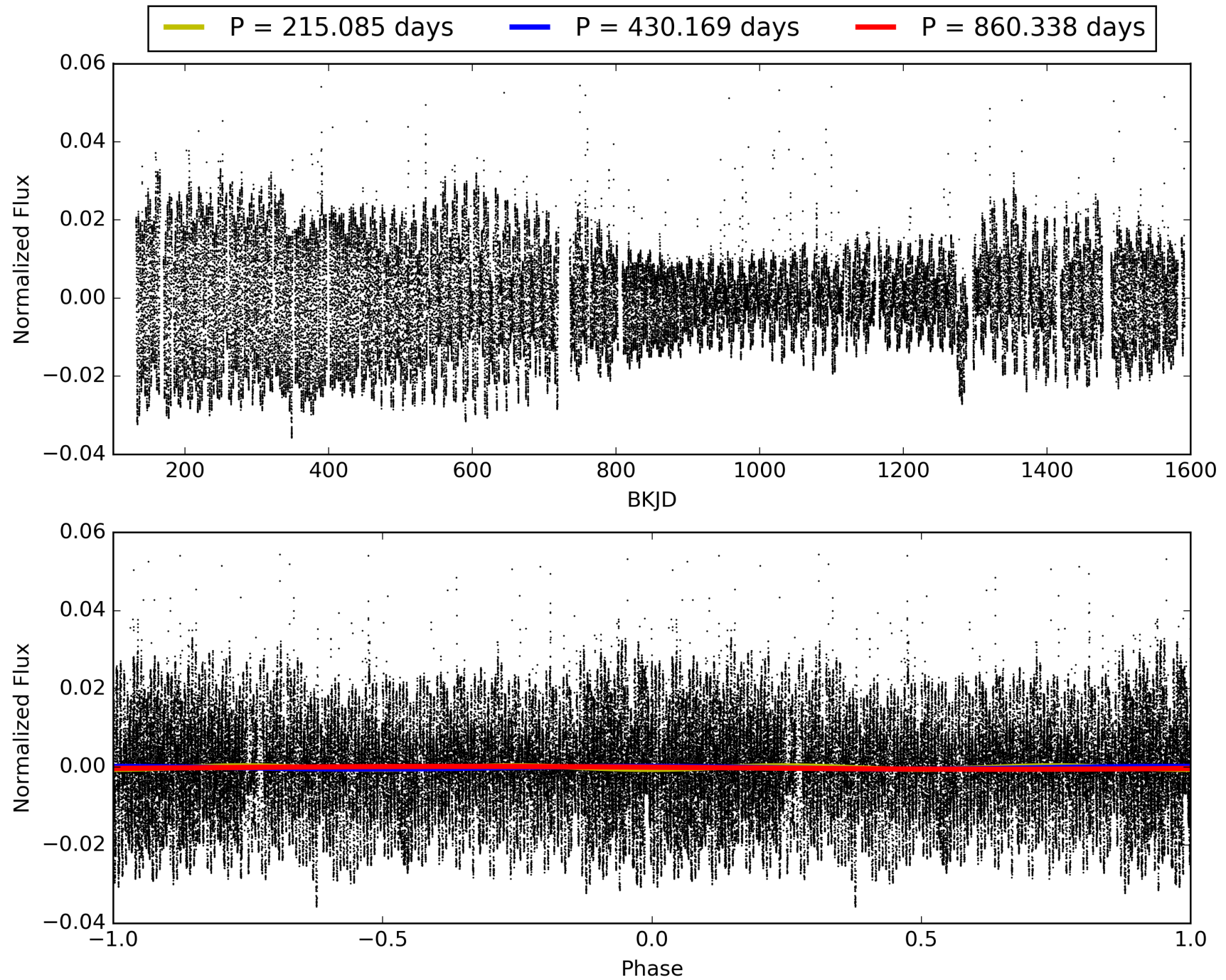
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:50:18 Z

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

TCE 012314646-04, PDC Light Curves

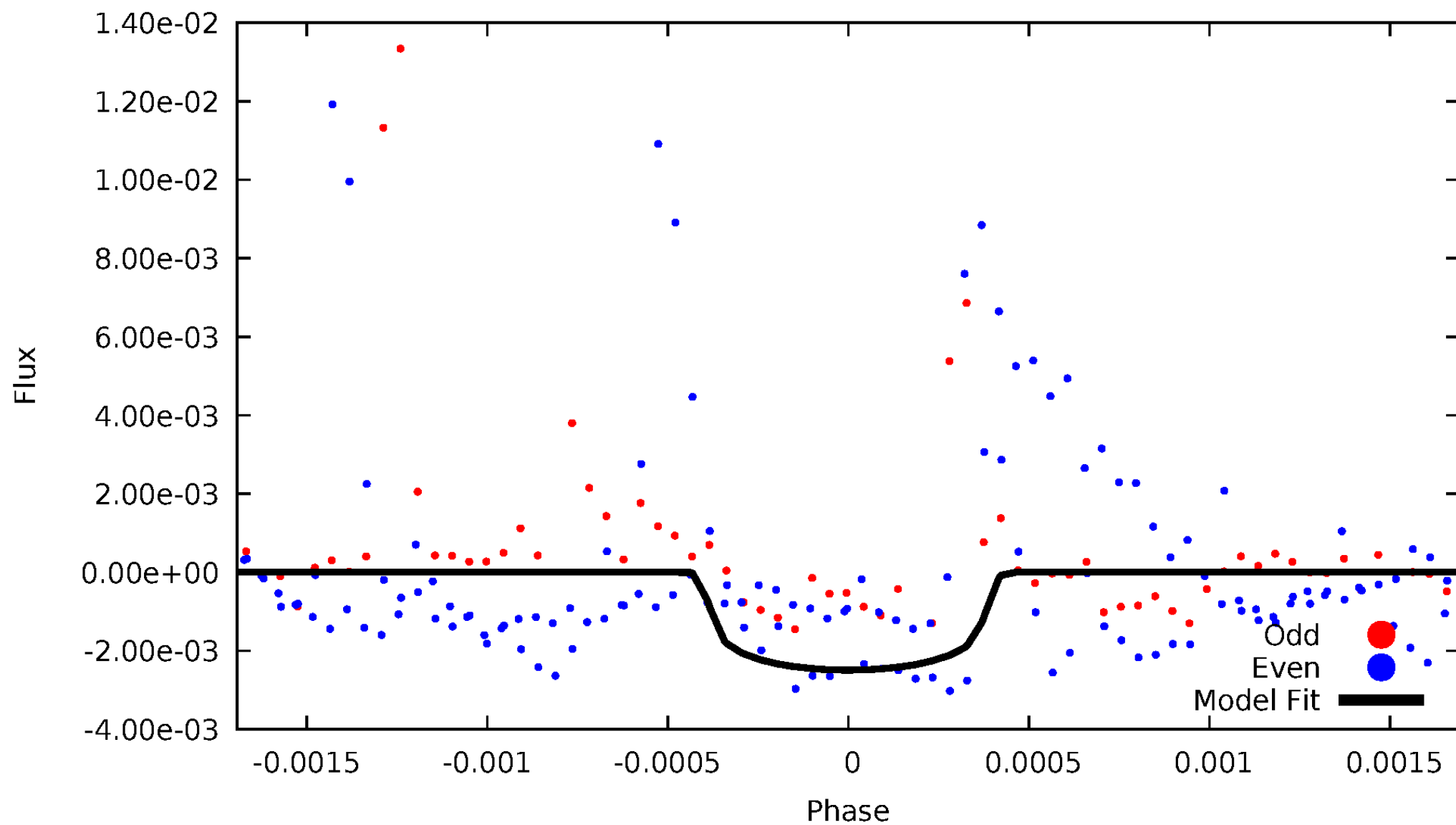


TCE 012314646-04



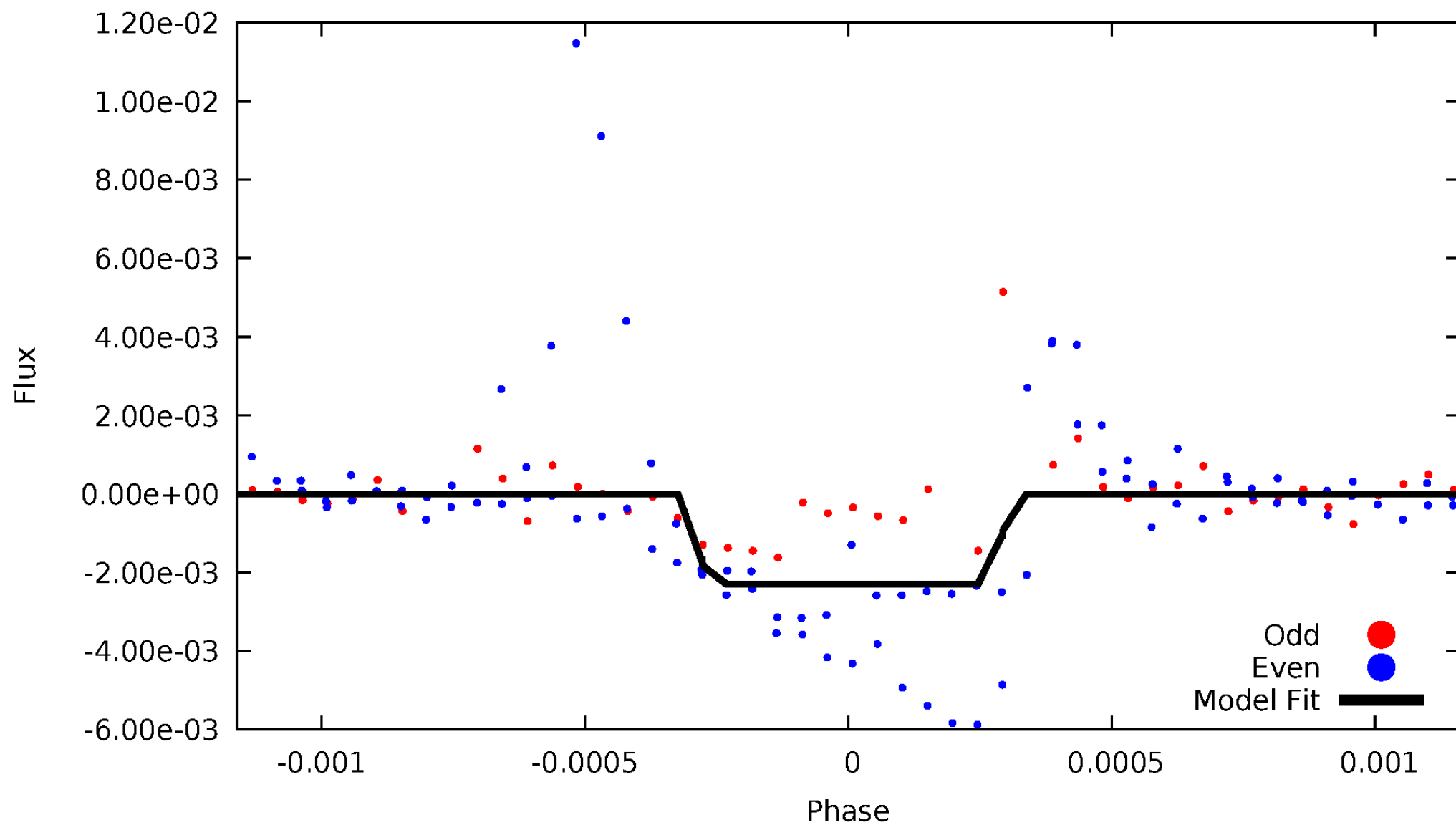
DV Odd/Even

TCE 012314646-04



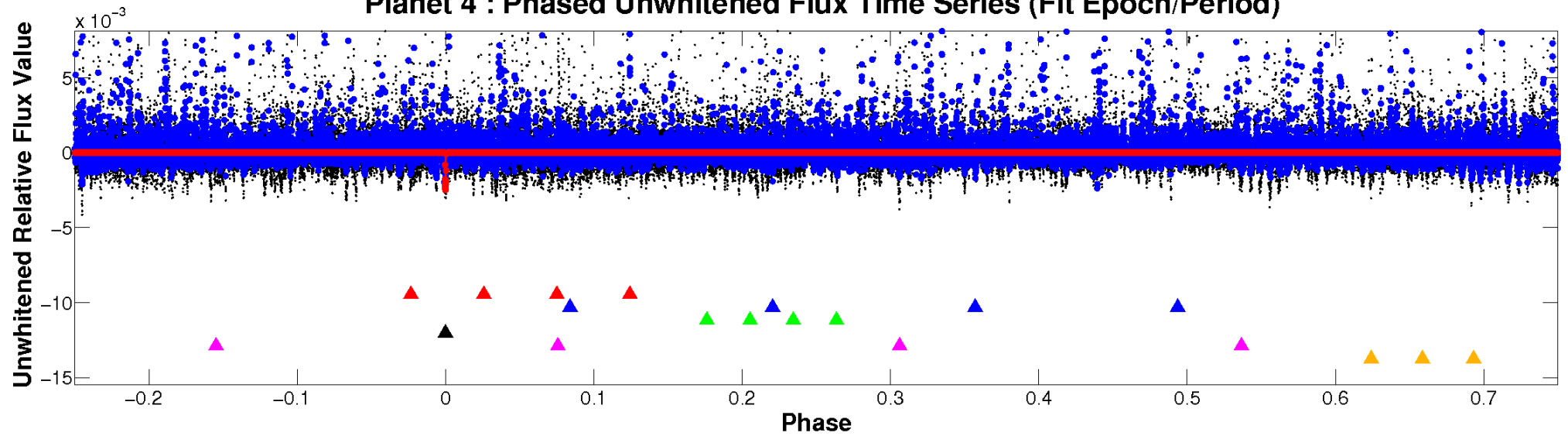
ALT Odd/Even

TCE 012314646-04

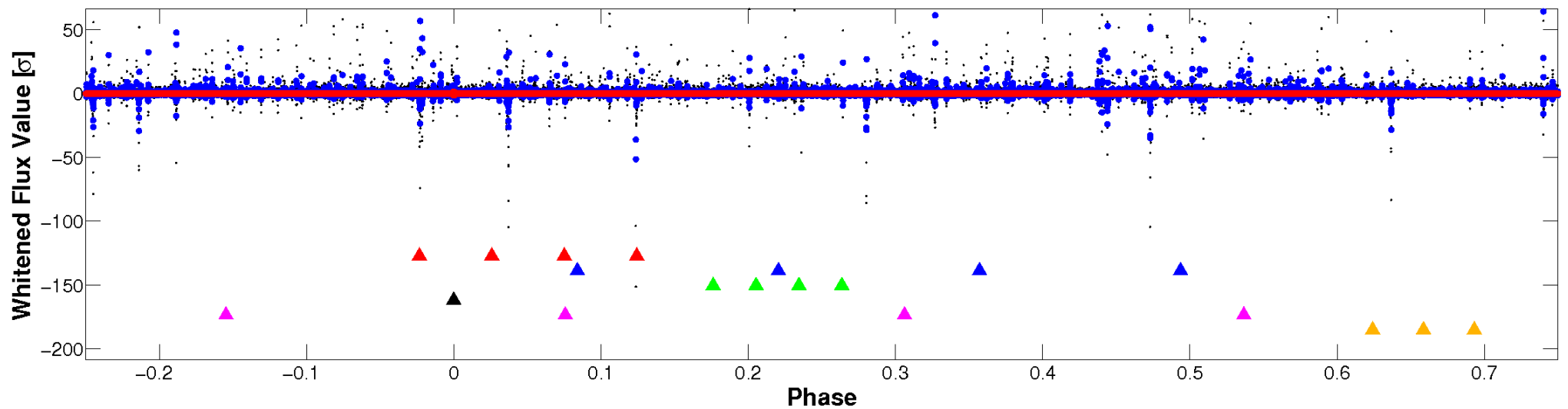


Non-Whitened Vs. Whitened Light Curve

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

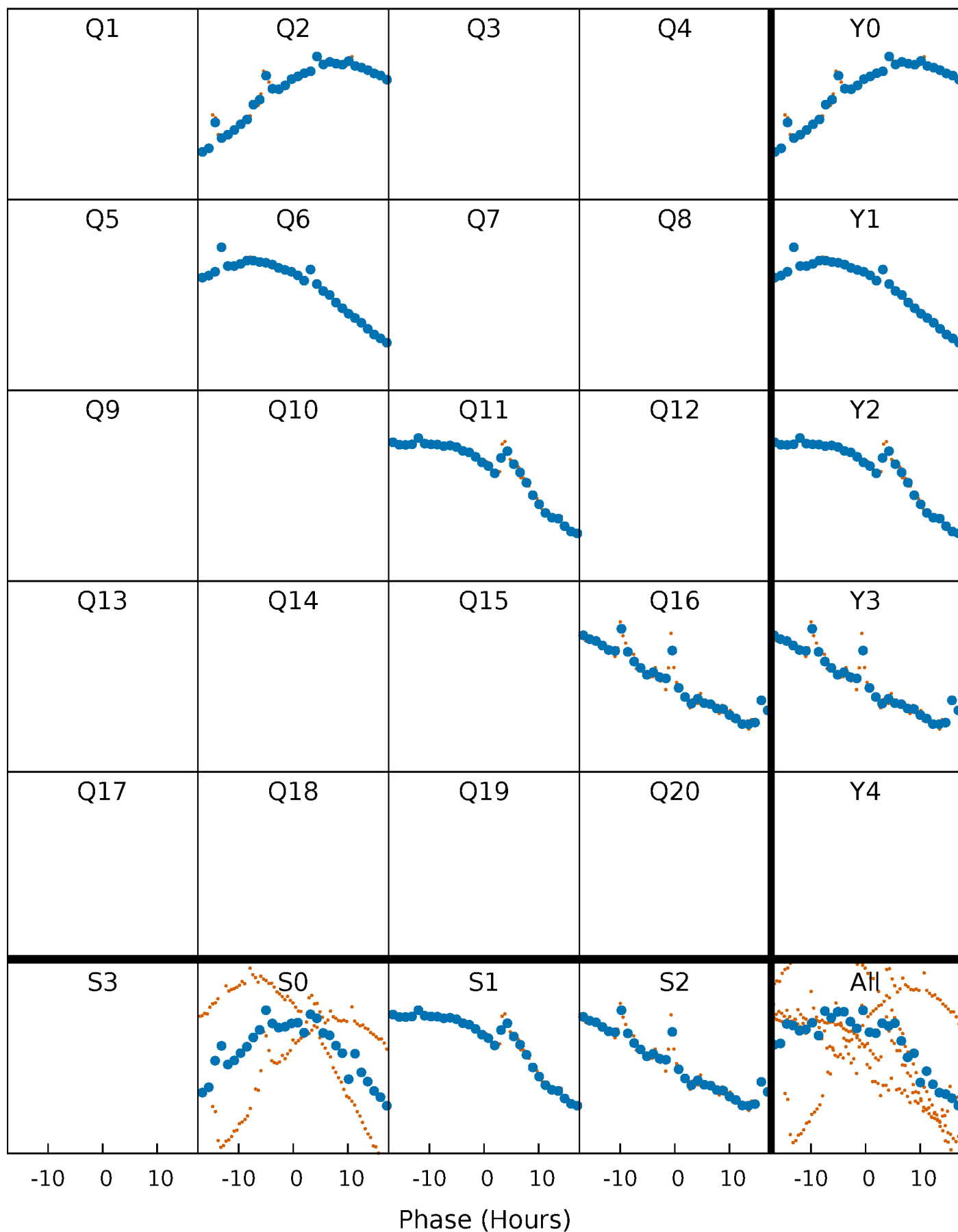


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



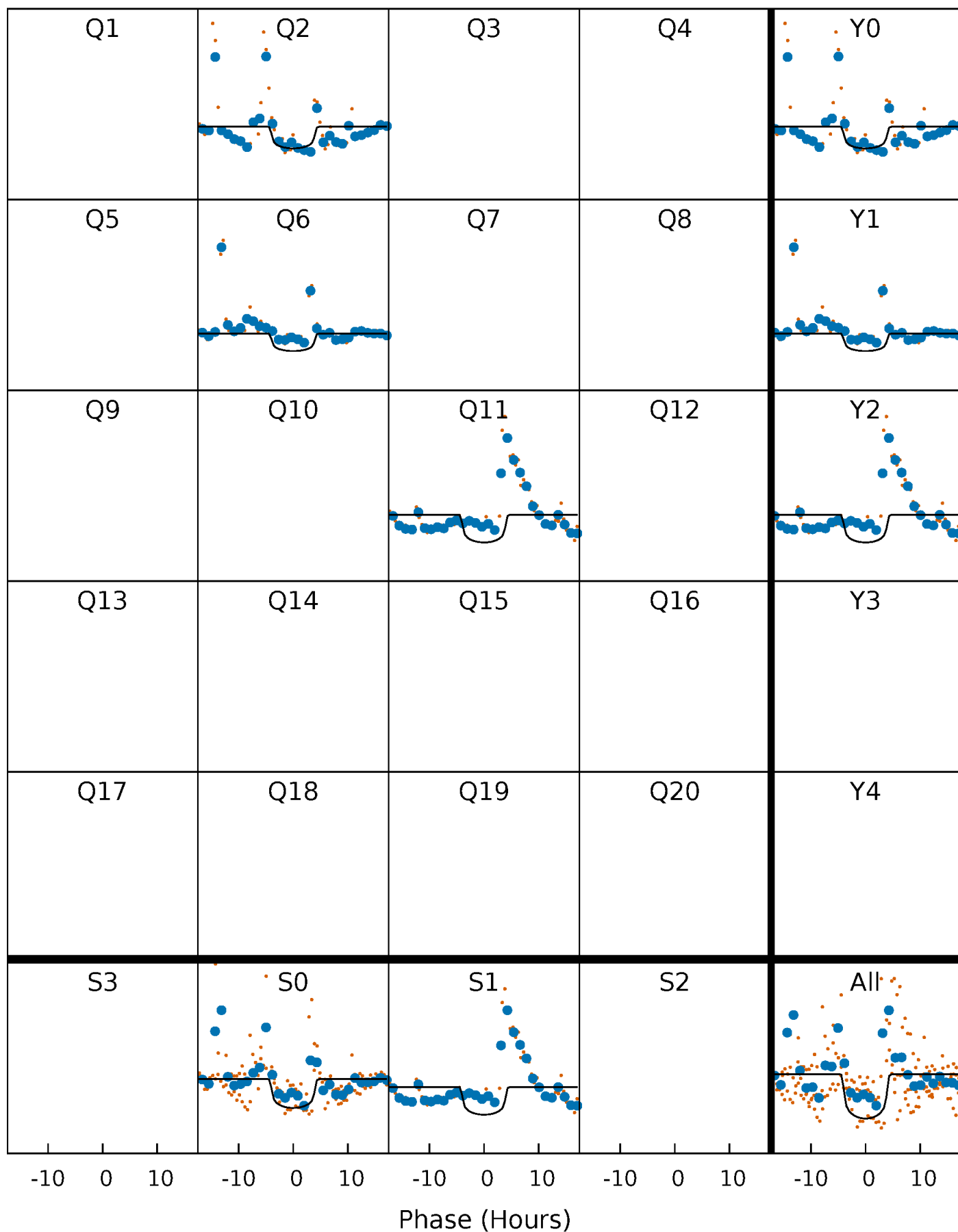
PDC Quarter-Phased Transit Curves

TCE 012314646-04 P=430.169131 Days $T_0=185.888702$ (BKJD)



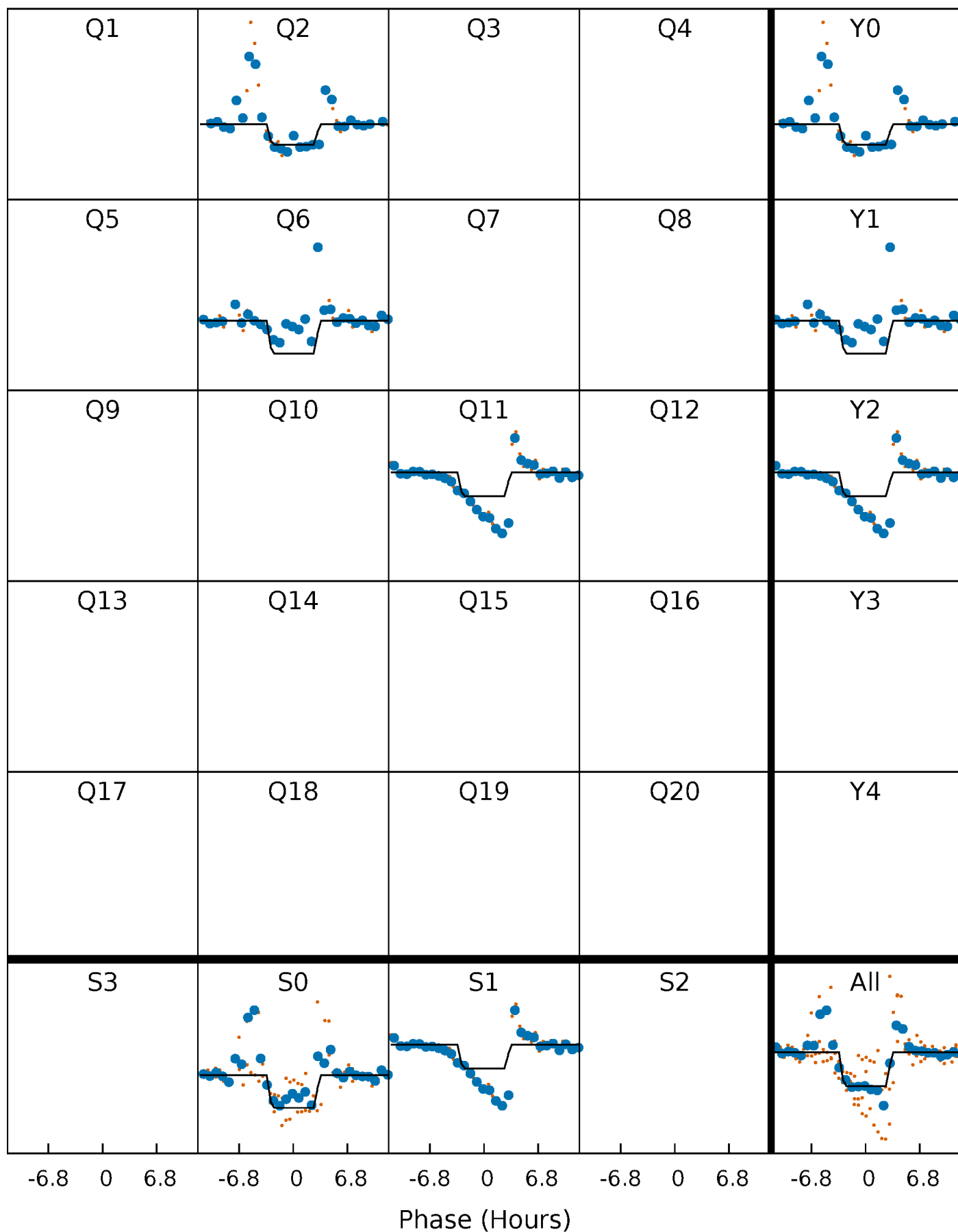
DV Quarter-Phased Transit Curves

TCE 012314646-04 P=430.169131 Days $T_0=185.888702$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

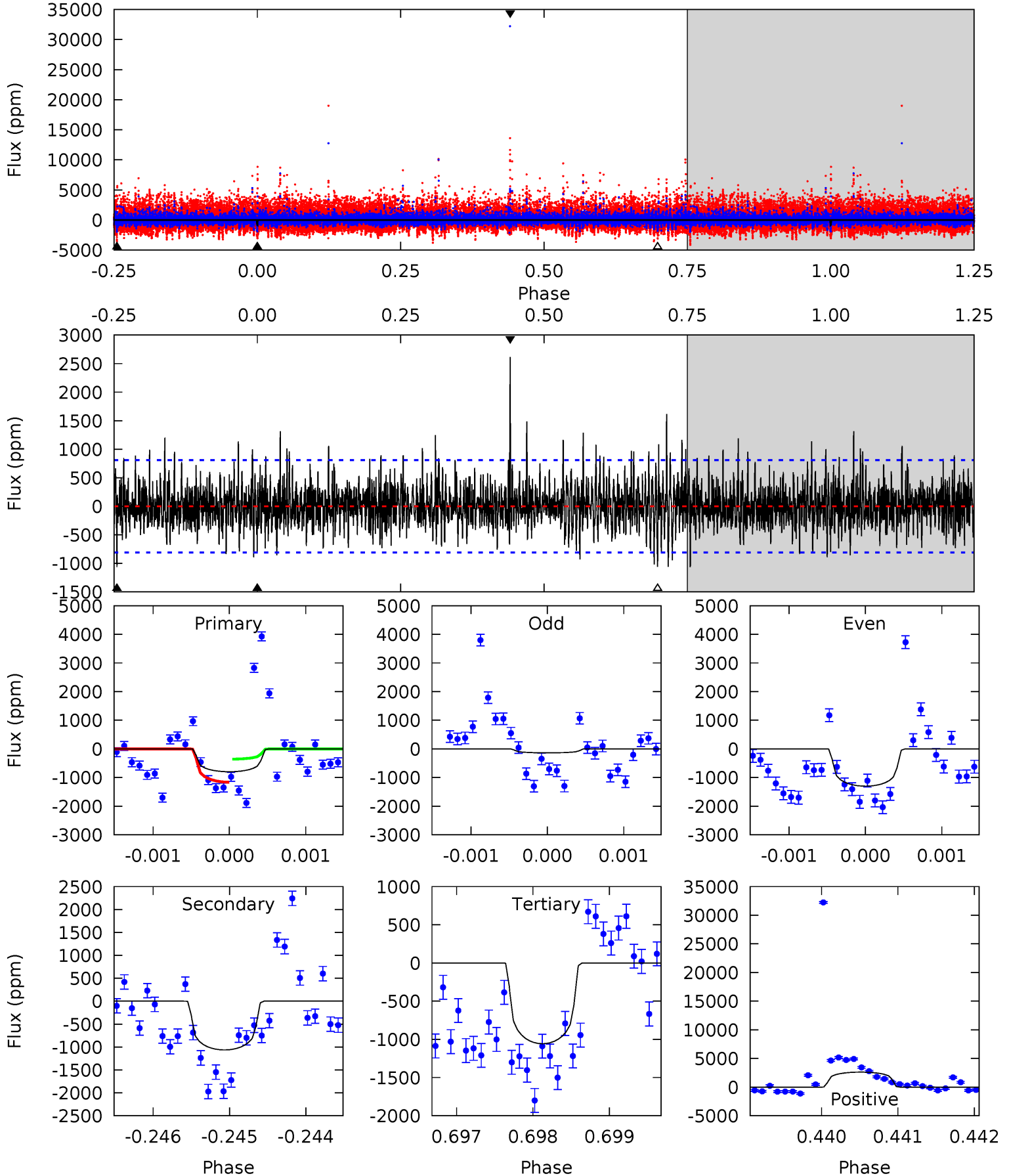
TCE 012314646-04 $P=430.167305$ Days $T_0=185.884592$ (BKJD)



DV Model-Shift Uniqueness Test

012314646-04, P = 430.169131 Days, E = 185.888702 Days

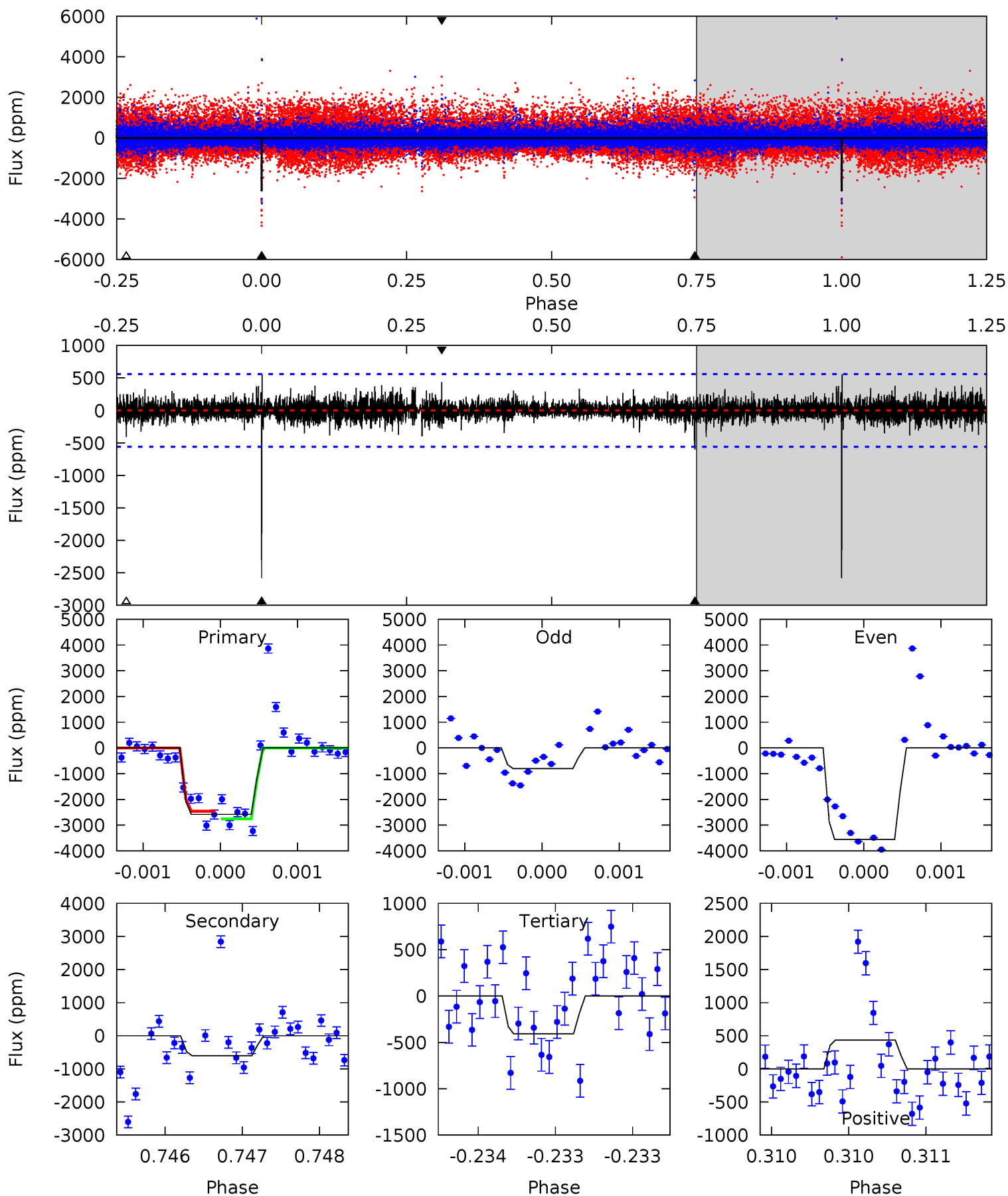
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.39	7.19	7.14	17.7	5.47	3.32	2.12	-1.75	-12.3	0.05	-10.5	2.45	41.2	0.71	2.69



Alt Model-Shift Uniqueness Test

012314646-04, P = 430.167305 Days, E = 185.884592 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.5	5.94	4.04	4.31	5.54	3.42	0.84	21.5	21.2	1.91	1.64	12.4	0.95	0.18	1.48



Stellar Parameters For KIC 012314646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3444^{+51}_{-46}	$4.929^{+0.052}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.324^{+0.037}_{-0.041}$	$0.324^{+0.043}_{-0.048}$	$13.470^{+4.158}_{-2.288}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-13%	+13%/-15%	+31%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012314646-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1064 ± 148	$1.67^{+0.44}_{-0.41}$	138^{+3}_{-3}	3076^{+263}_{-208}	124396^{+90104}_{-48556}
Alt.	-601 ± 101	$1.70^{+0.47}_{-0.43}$	137^{+3}_{-3}	2829^{+250}_{-174}	67797^{+49712}_{-27259}

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 $A_{obs} \gg 1.0$

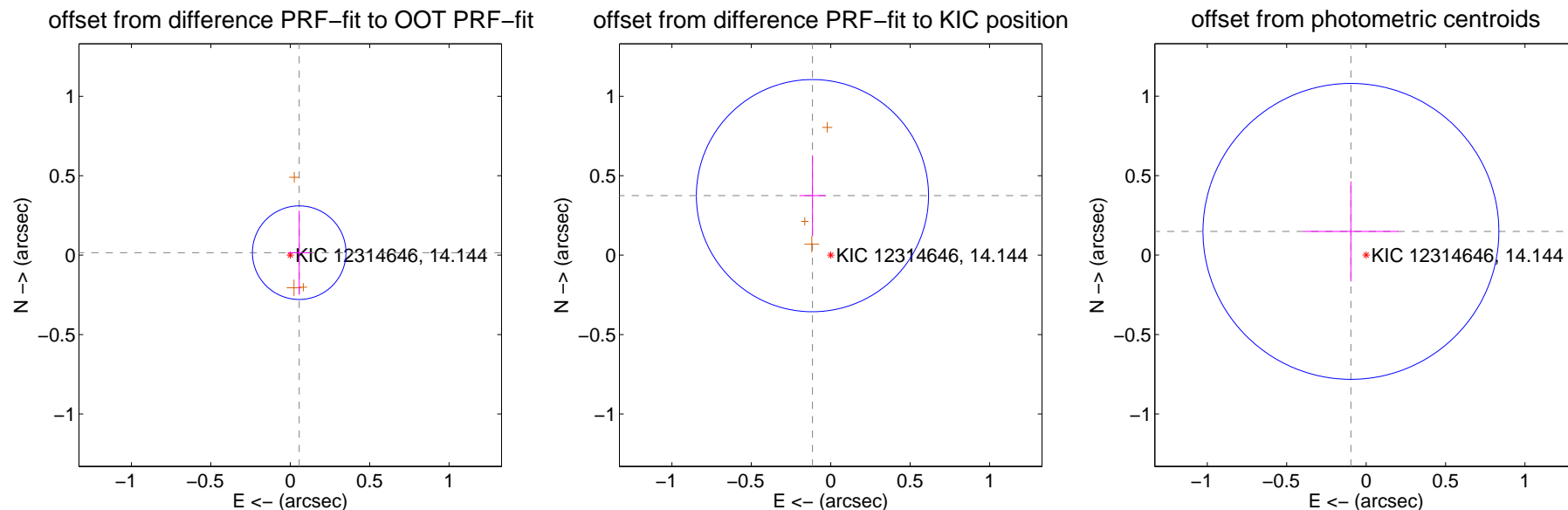
DV Centroid Data

Supplemental centroid analysis for 012314646-04. Kepler magnitude: 14.14. Transit SNR 8.78

There are 0 quarters with good PRF difference image offsets

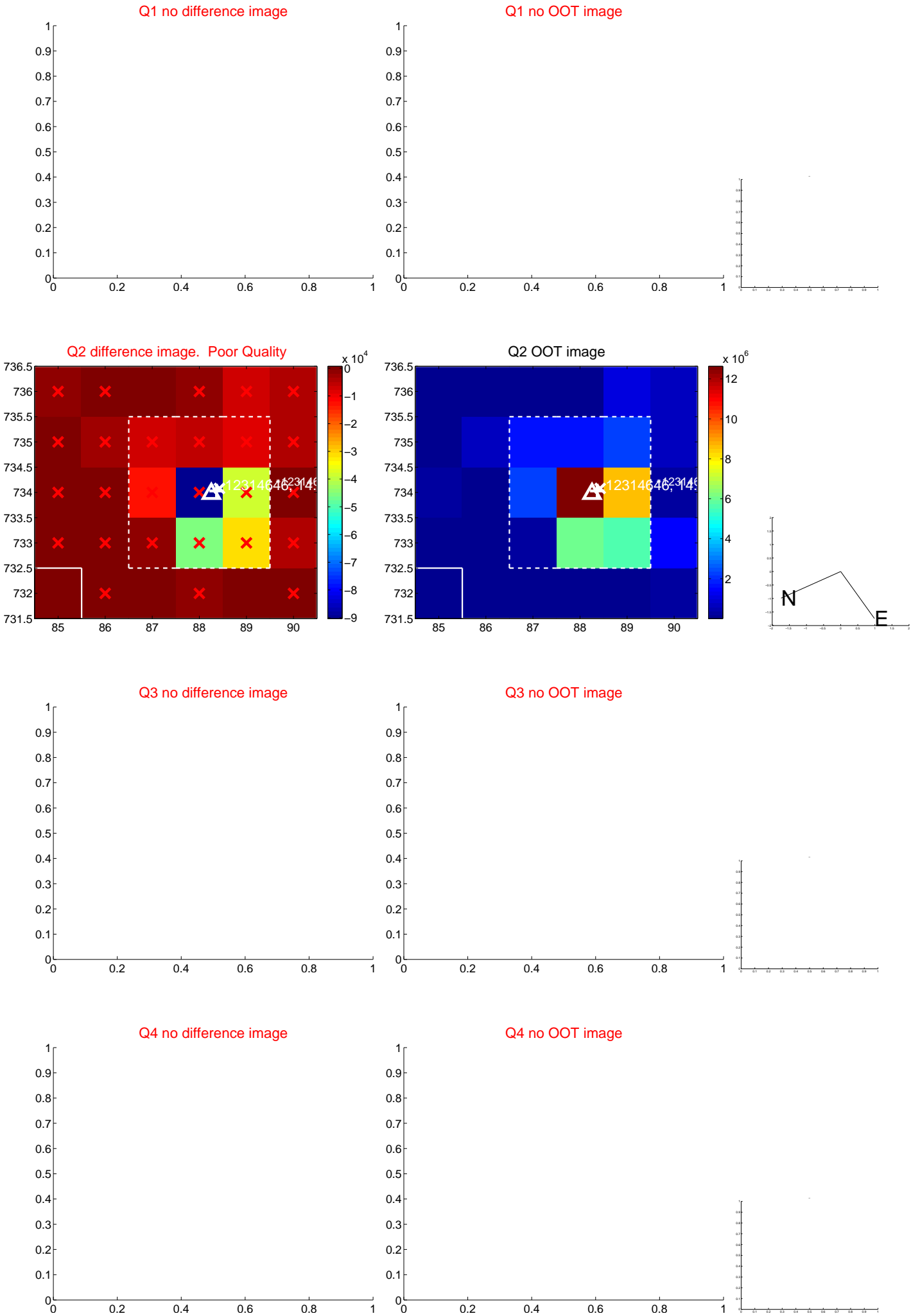
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.058 ± 0.098	0.59	-0.056 ± 0.071	0.016 ± 0.265
PRF-fit source offset from KIC position	0.392 ± 0.244	1.61	0.115 ± 0.082	0.375 ± 0.254
photometric centroid source offset	0.18 ± 0.31	0.57	0.10 ± 0.30	0.15 ± 0.32

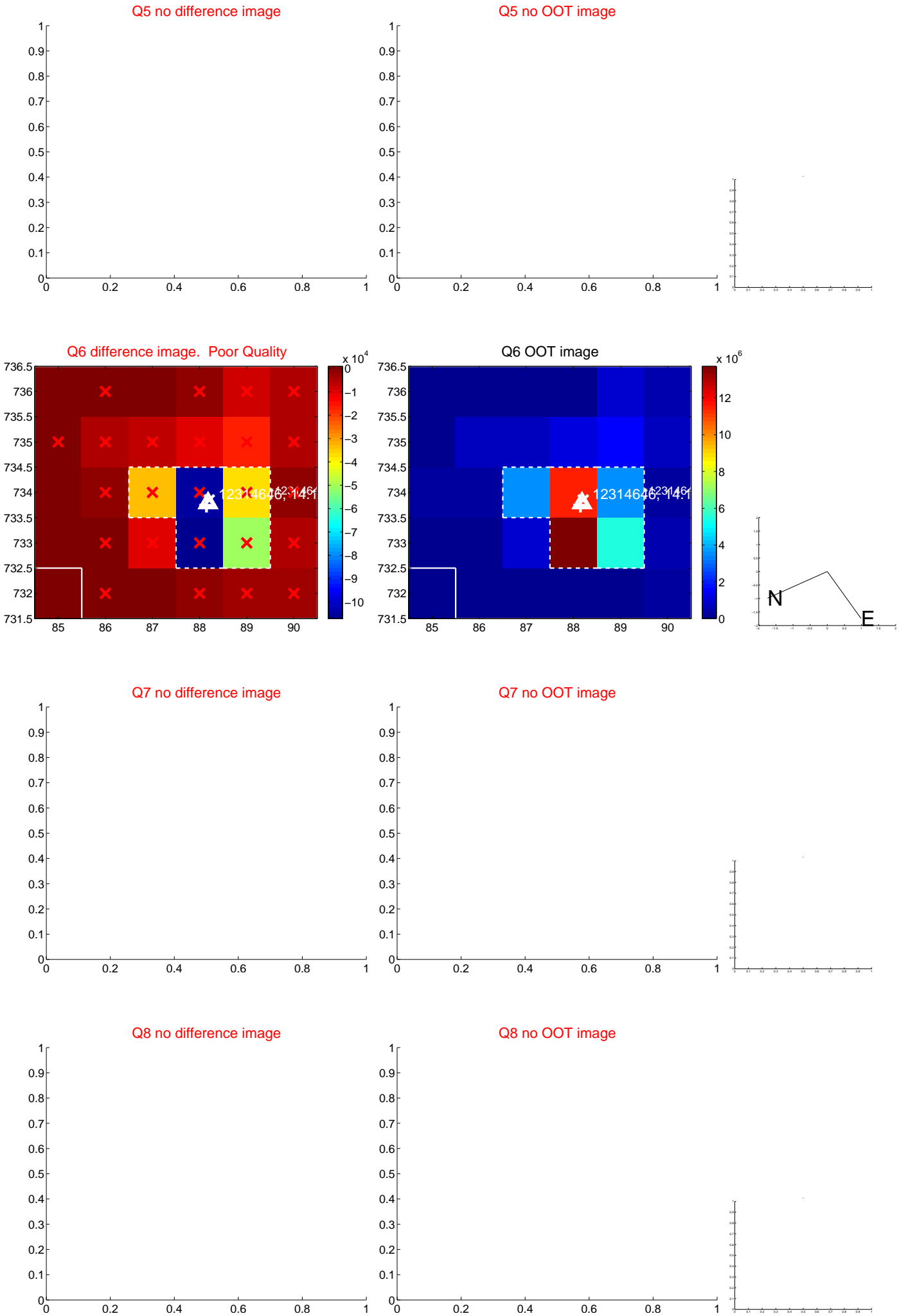


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

Q9 no difference image



Q9 no OOT image



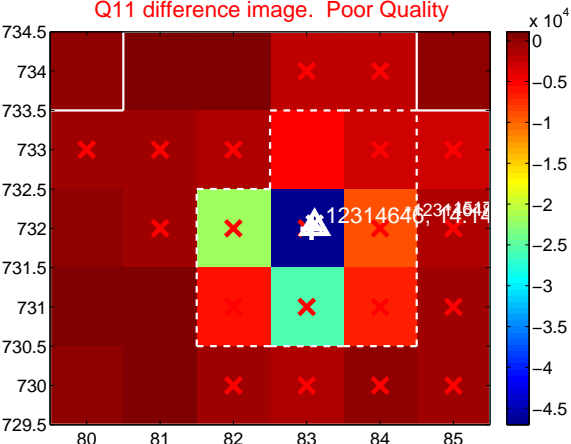
Q10 no difference image



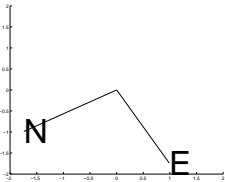
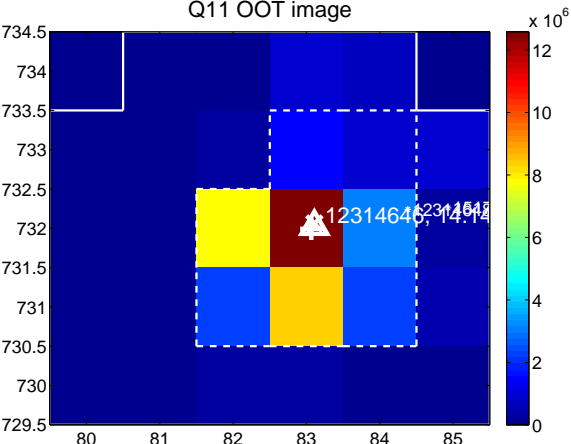
Q10 no OOT image



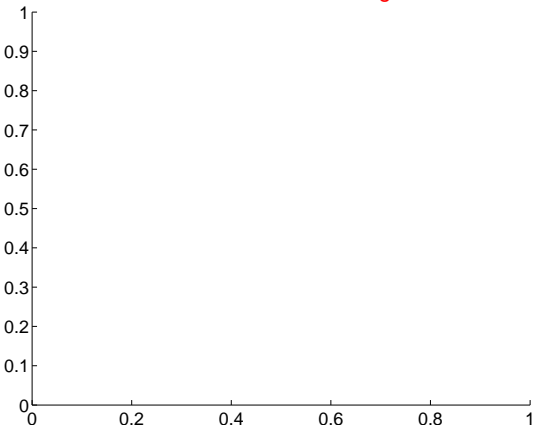
Q11 difference image. Poor Quality



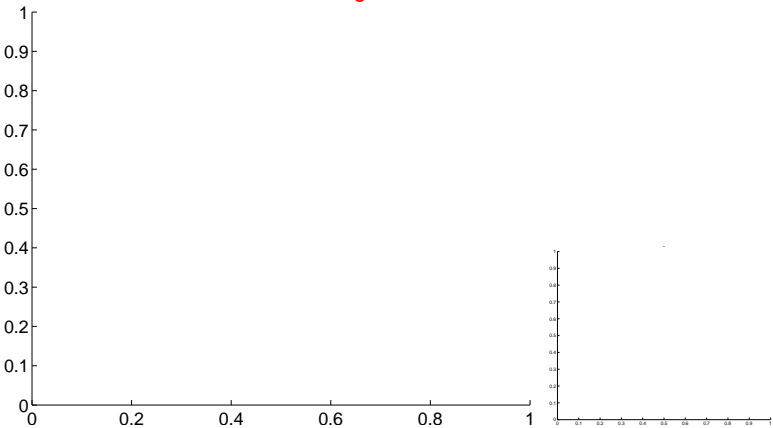
Q11 OOT image



Q12 no difference image



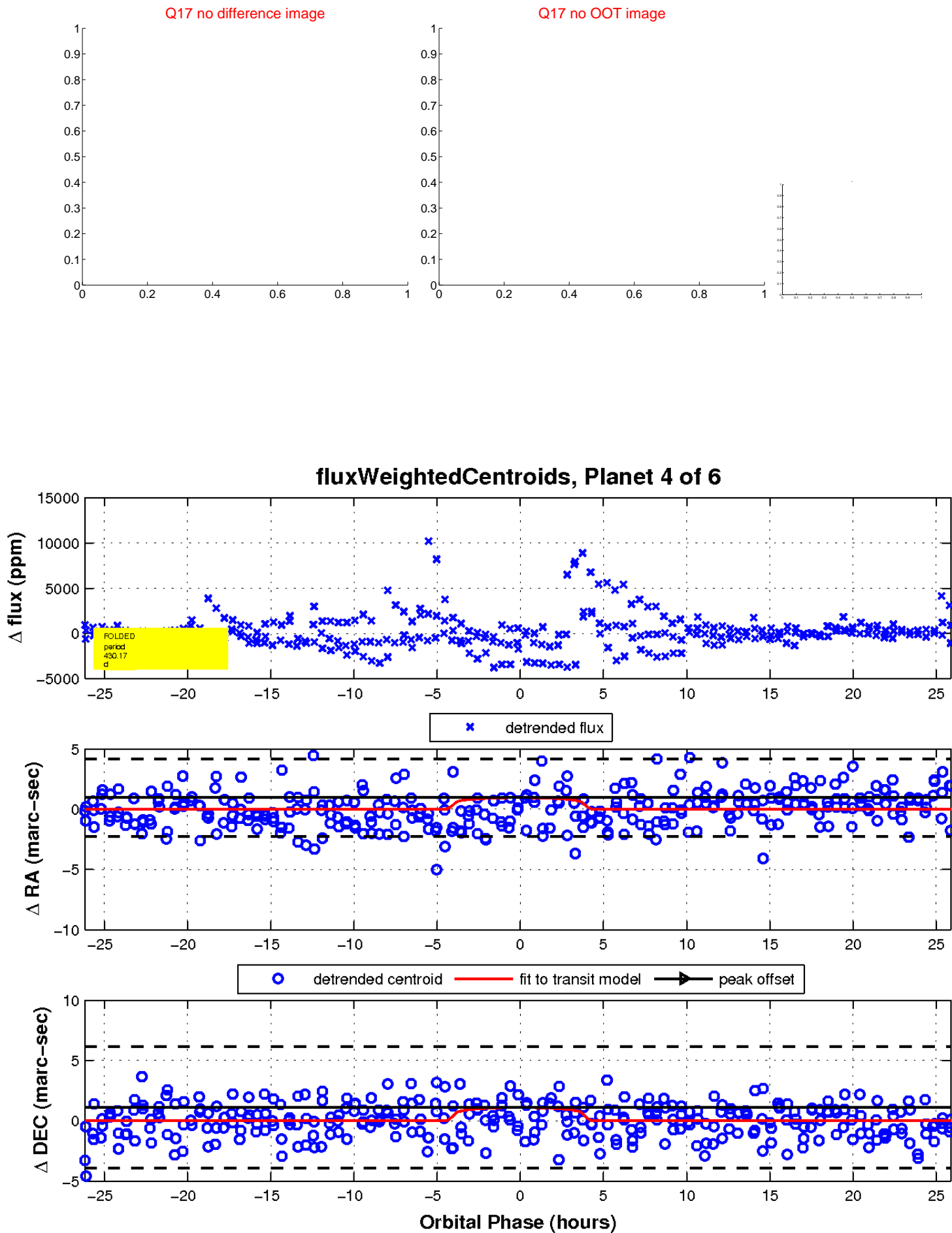
Q12 no OOT image



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

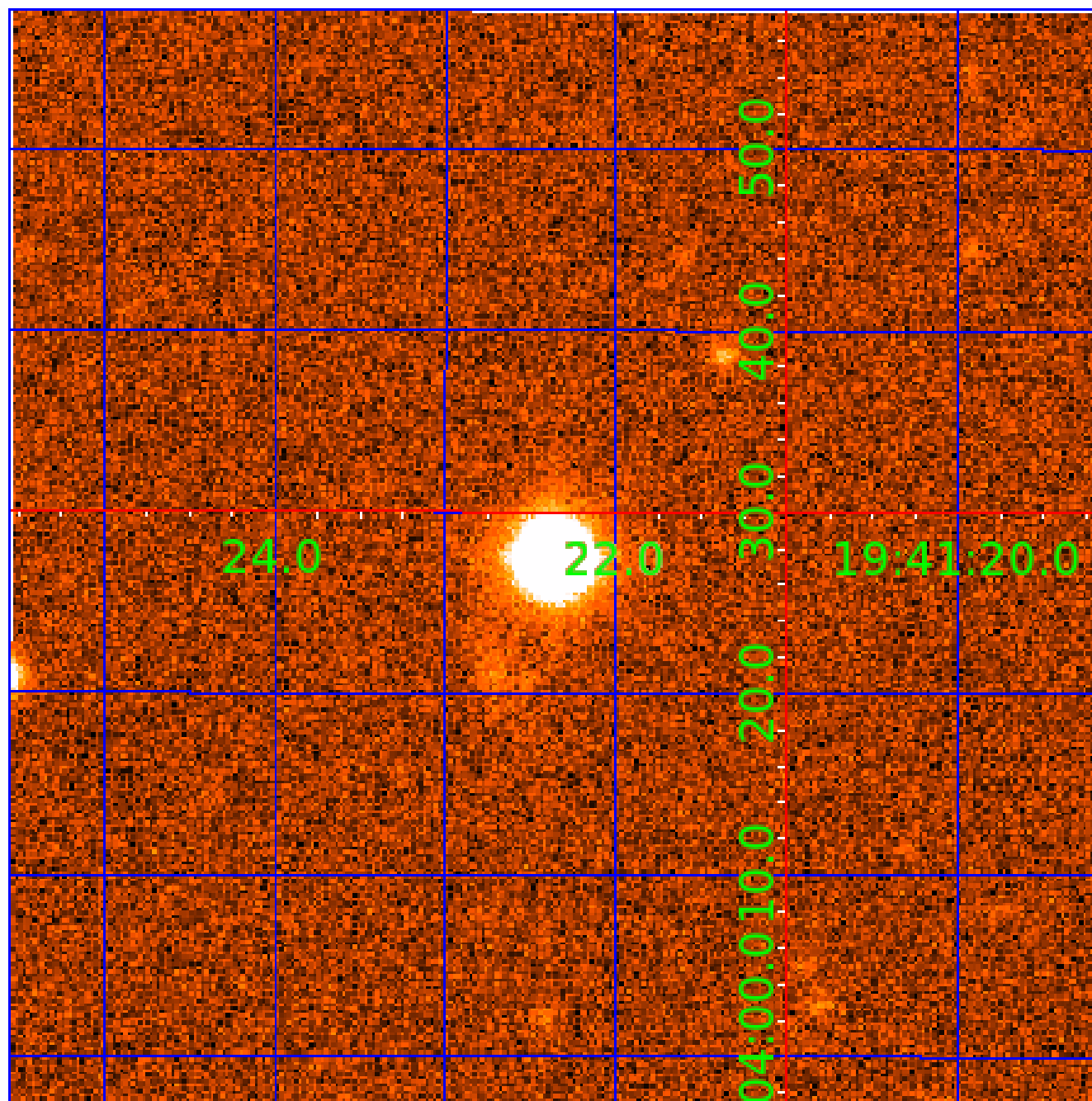


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012314646

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})
012314646-01	OBS	No	451.340759	175.852140	2479.0	5.619	17.2	10.0	0.32	3444	1.60	0.02
012314646-02	OBS	No	371.424272	398.254456	2683.0	4.712	15.9	9.9	0.32	3444	1.70	0.03
012314646-03	OBS	No	417.641563	299.276895	1872.7	6.312	13.3	8.2	0.32	3444	1.42	0.02
012314646-04	OBS	No	430.169131	185.888702	2493.7	8.736	17.2	8.8	0.32	3444	1.70	0.02
012314646-05	OBS	No	331.038021	416.737216	2257.1	4.900	15.4	7.8	0.32	3444	1.52	0.03
012314646-06	OBS	No	445.015692	454.388487	1007.1	4.500	14.1	-1.0	0.32	3444	1.02	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012314646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012314646-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
012314646-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012314646-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
012314646-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012314646-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

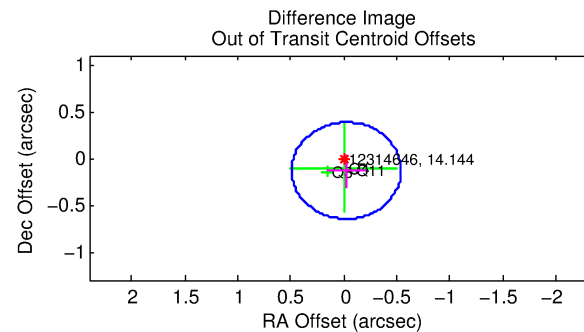
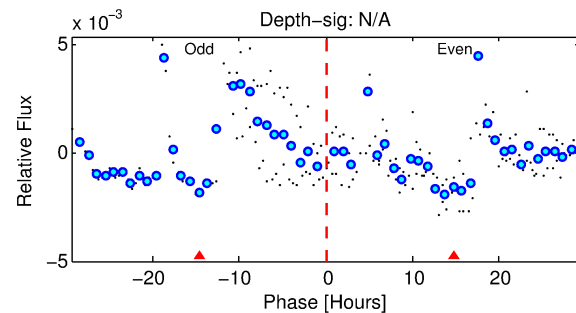
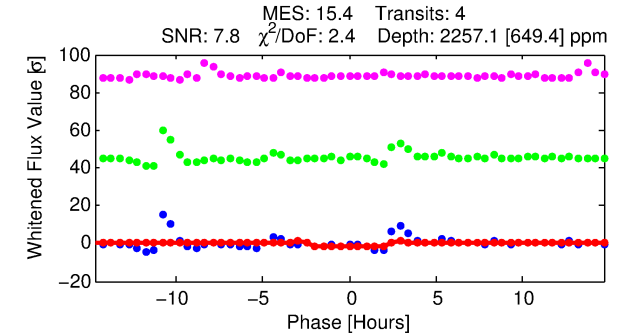
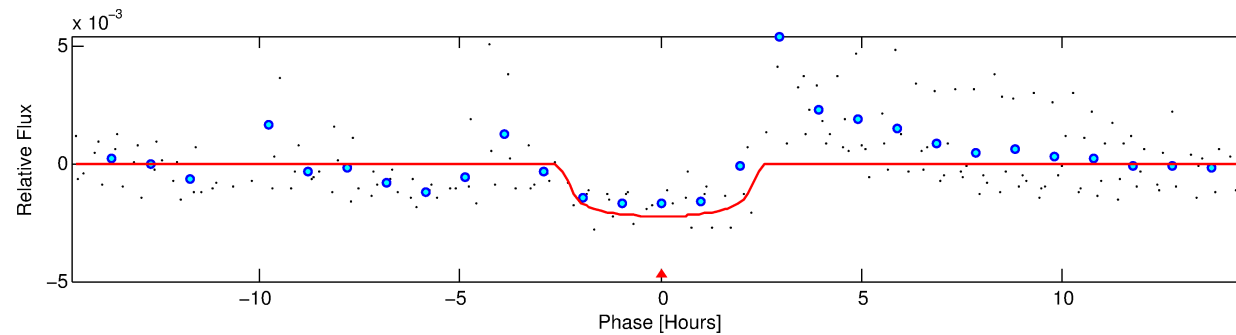
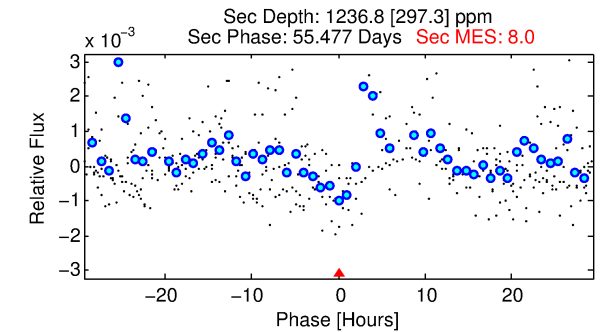
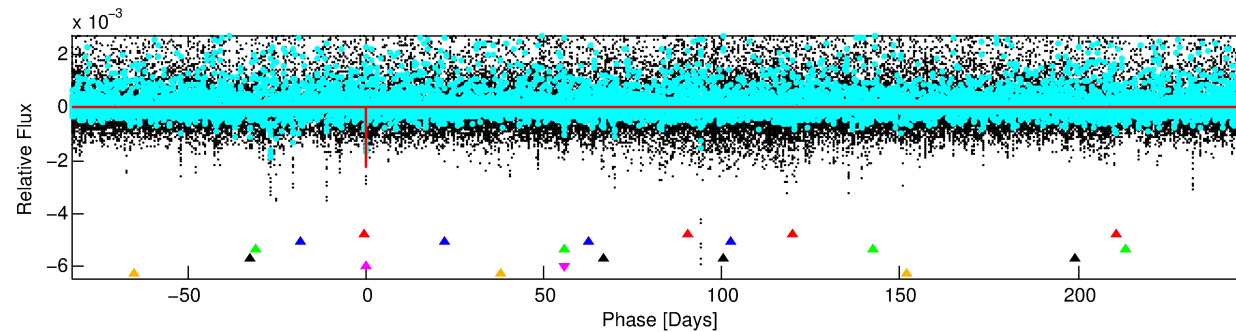
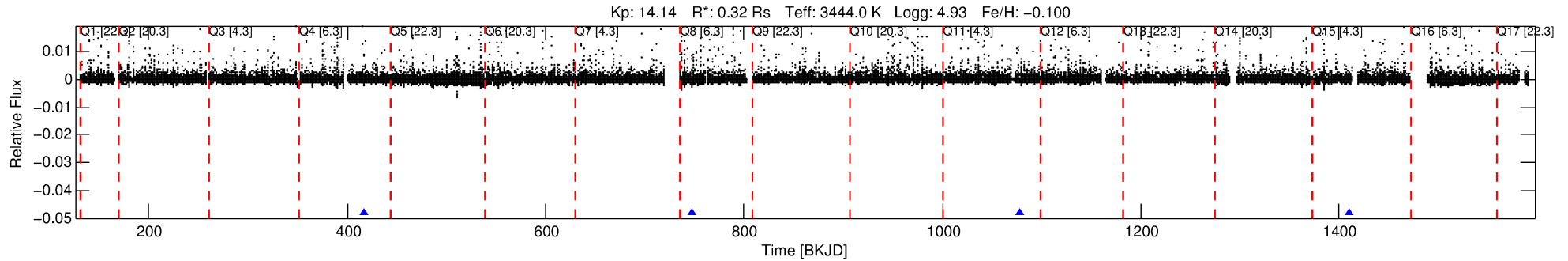
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012314646-05

No Significant Match Found

DV One-Page Summary

KIC: 12314646 Candidate: 5 of 6 Period: 331.038 d



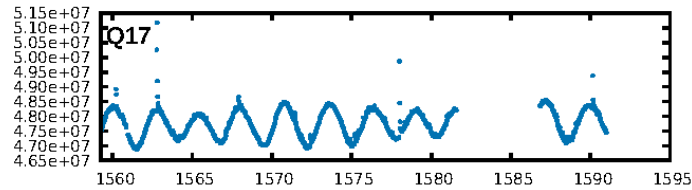
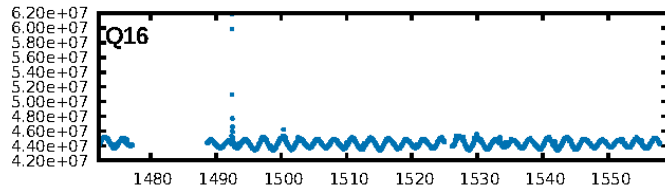
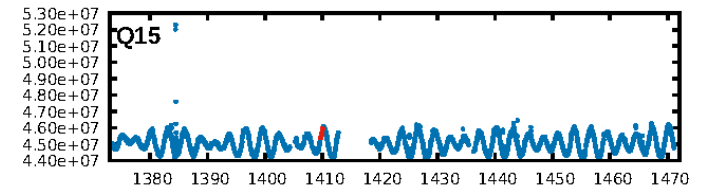
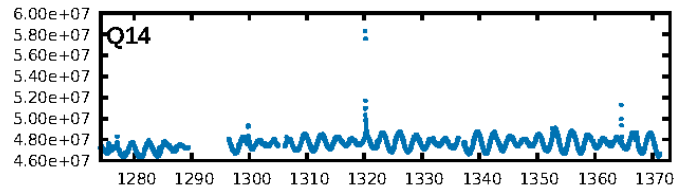
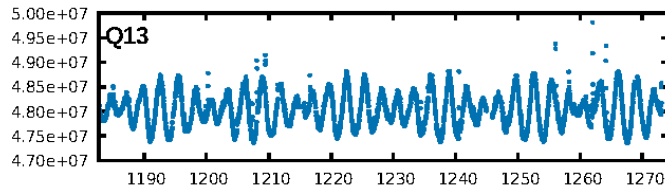
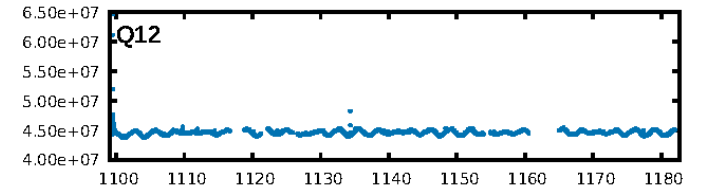
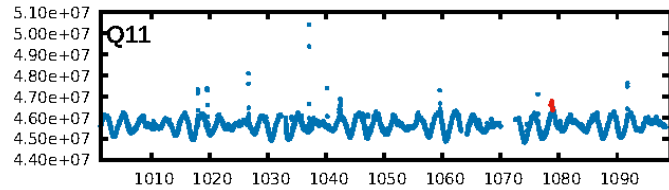
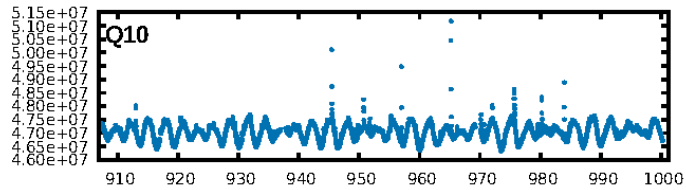
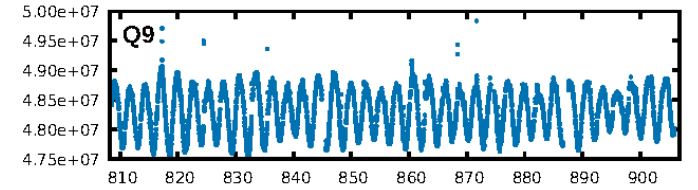
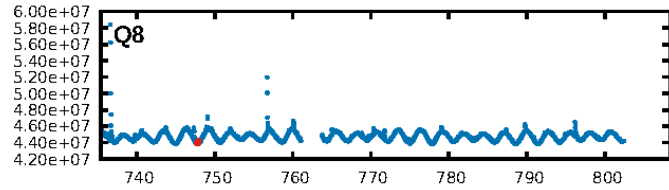
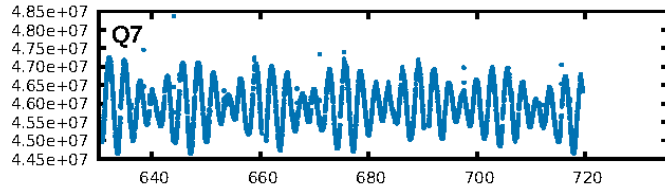
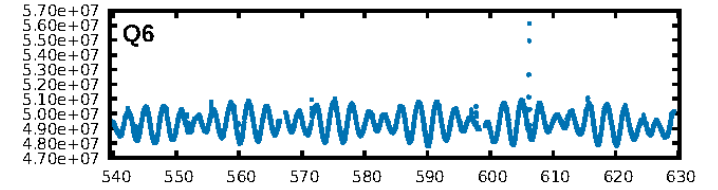
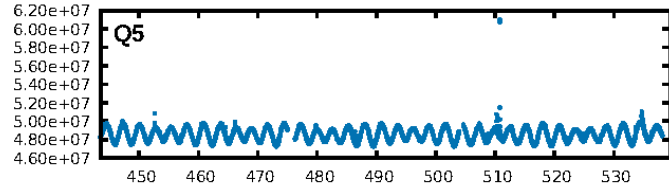
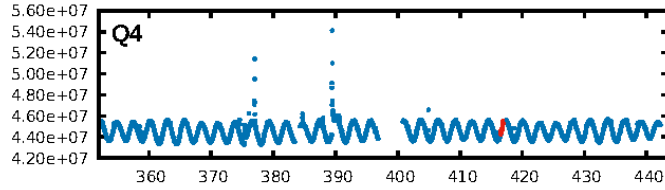
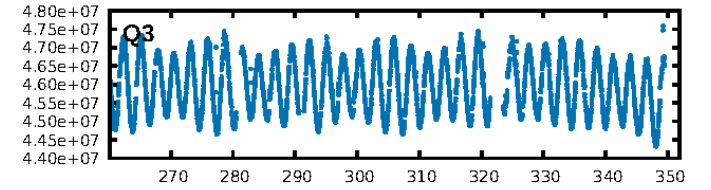
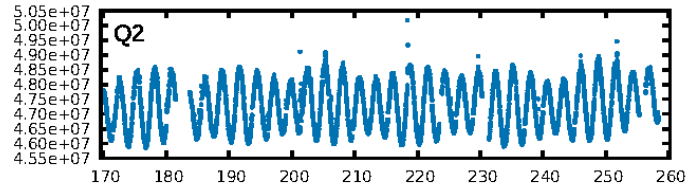
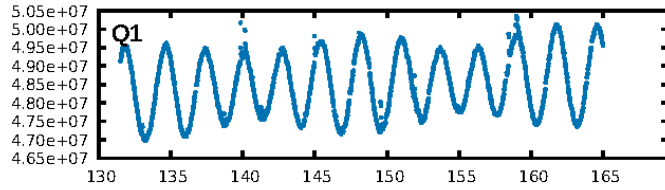
DV Fit Results:

Period = 331.03802 [0.00539] d
Epoch = 416.7372 [0.0096] BKJD
Rp/R* = 0.0430 [0.0479]
a/R* = 538.29 [2549.59]
b = 0.00 [1191.02]
Seff = 0.03 [0.00]
Teq = 108 [4] K
Rp = 1.52 [1.70] Re
a = 0.6441 [0.0601] AU
Ag = 122101.80 [273978.01] [0.45σ]
Teffp = 3114 [1745] K [1.72σ]

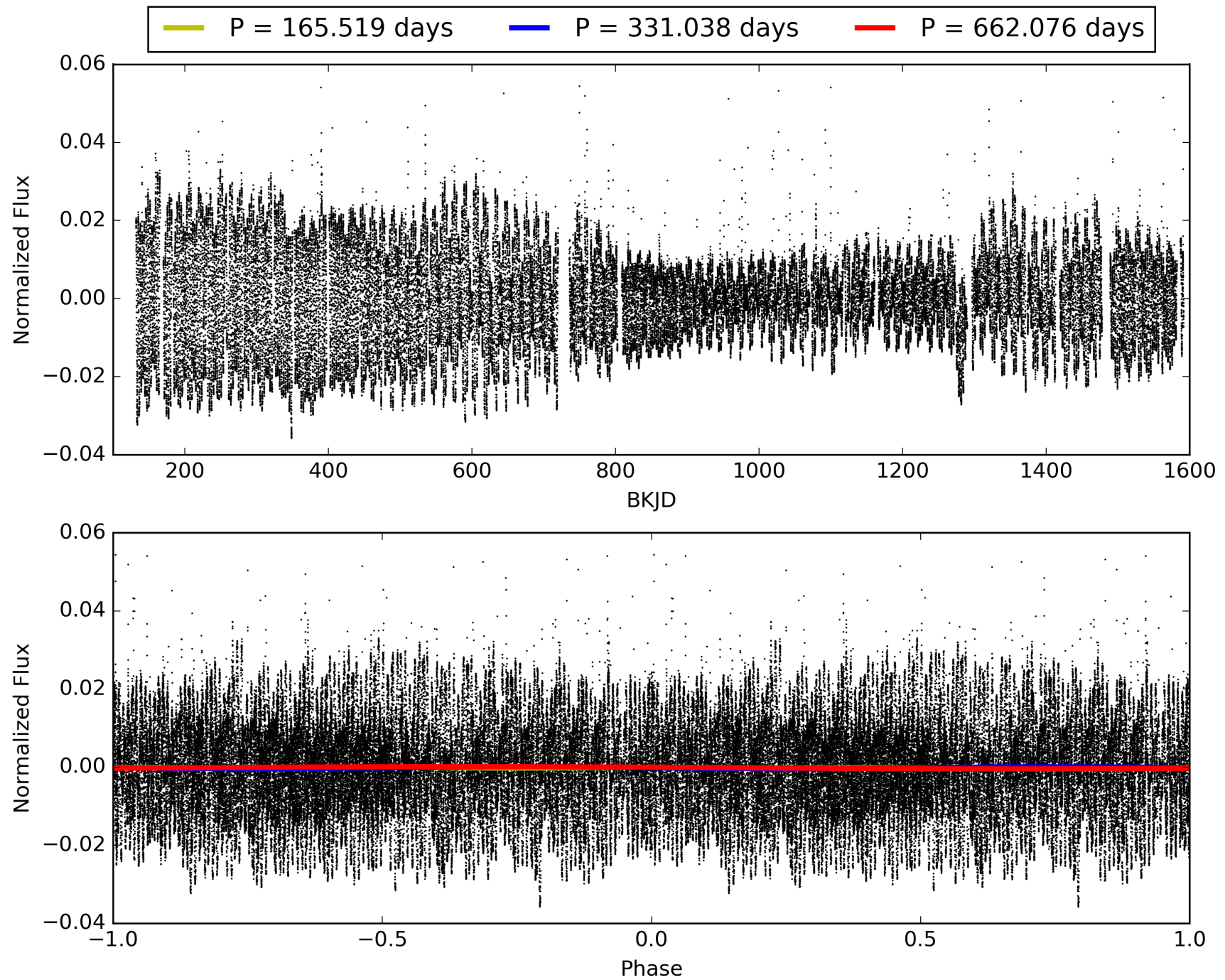
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [142.58σ]
ModelChiSquare2-sig: 2.1%
ModelChiSquareGof-sig: 53.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.1272
Centroid-sig: 79.9%
Centroid-so: 0.810 arcsec [2.36σ]
OotOffset-rm: 0.134 arcsec [0.78σ]
KicOffset-rm: 0.162 arcsec [0.93σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 012314646-05, PDC Light Curves

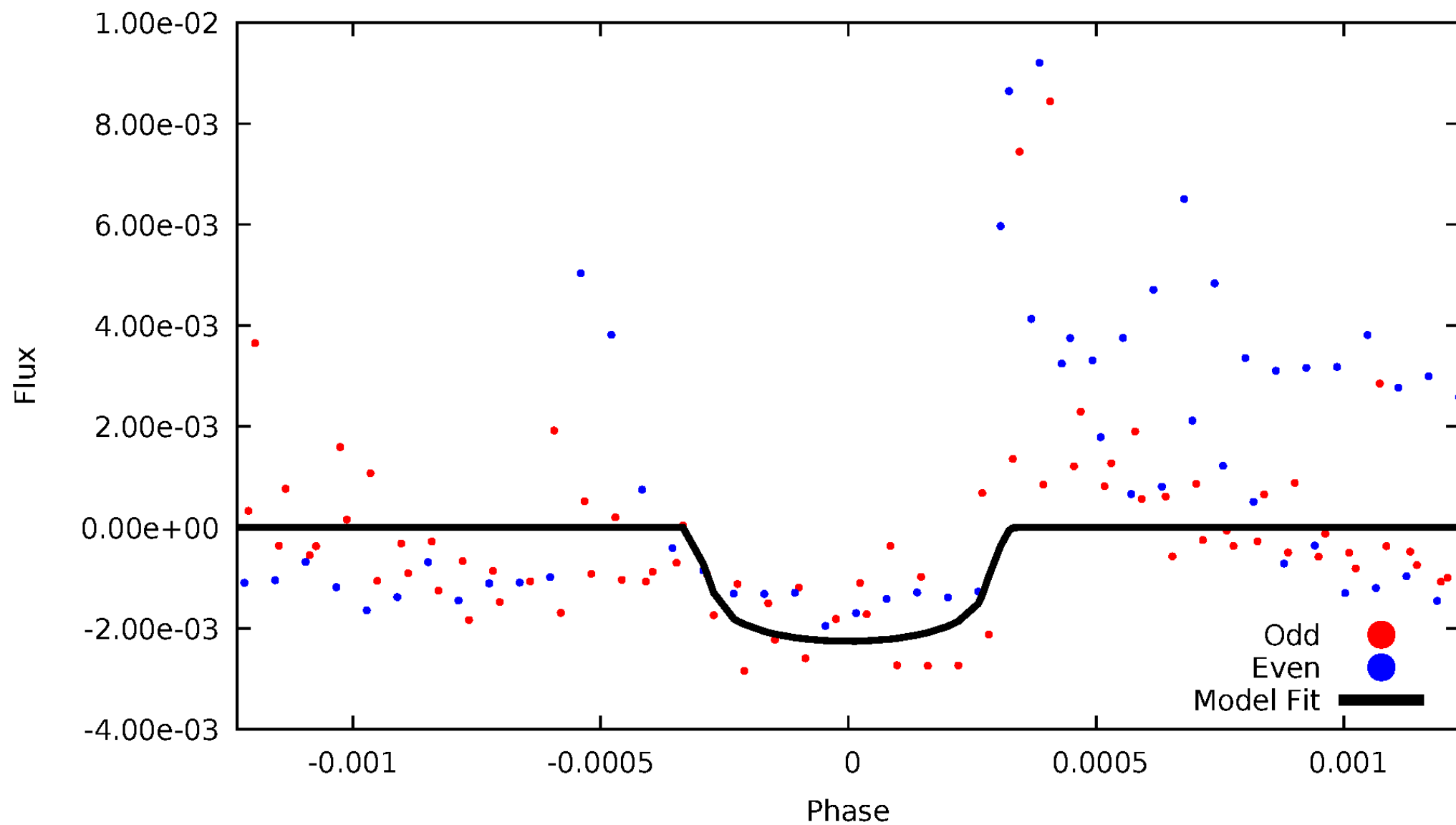


TCE 012314646-05



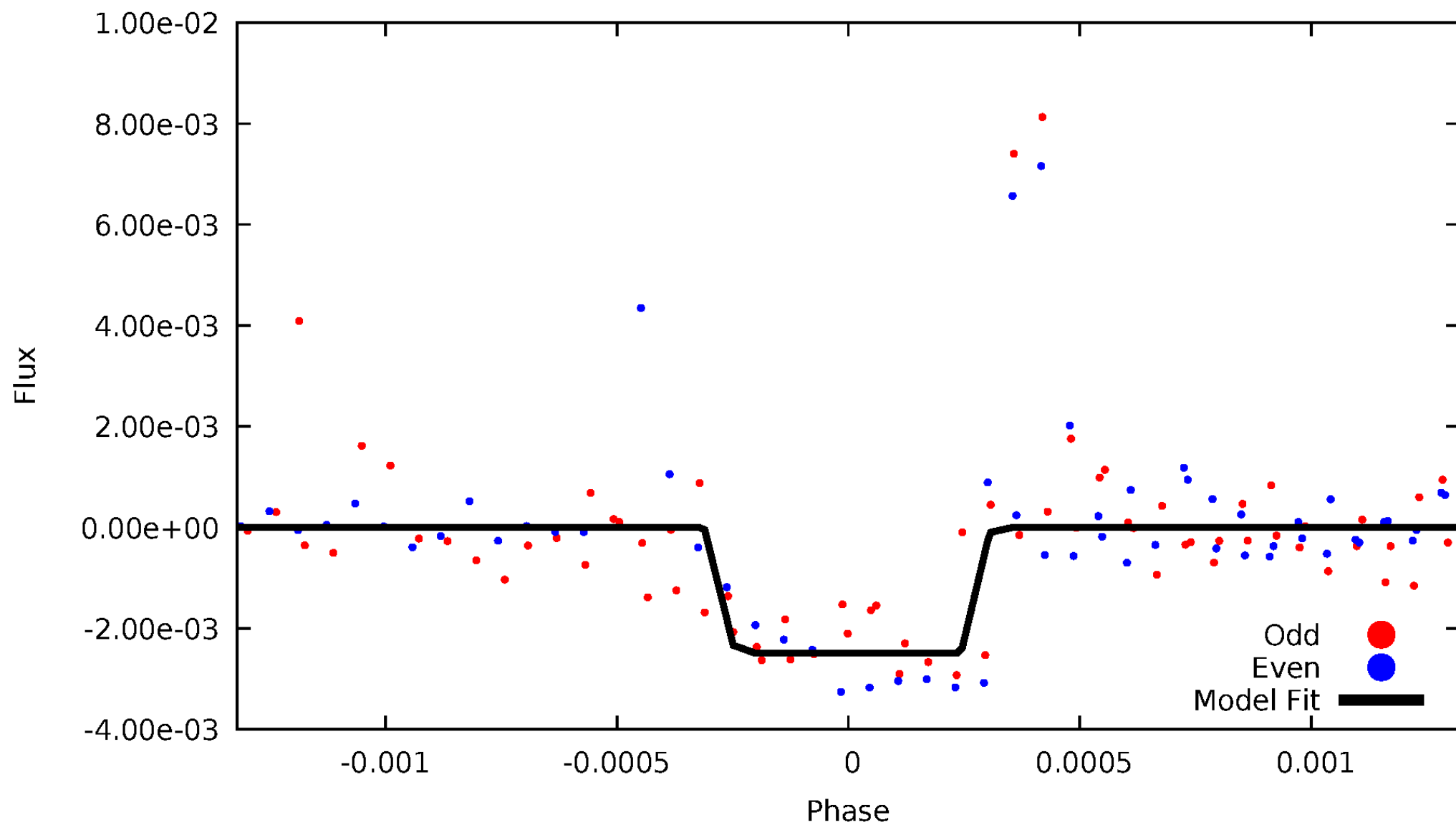
DV Odd/Even

TCE 012314646-05

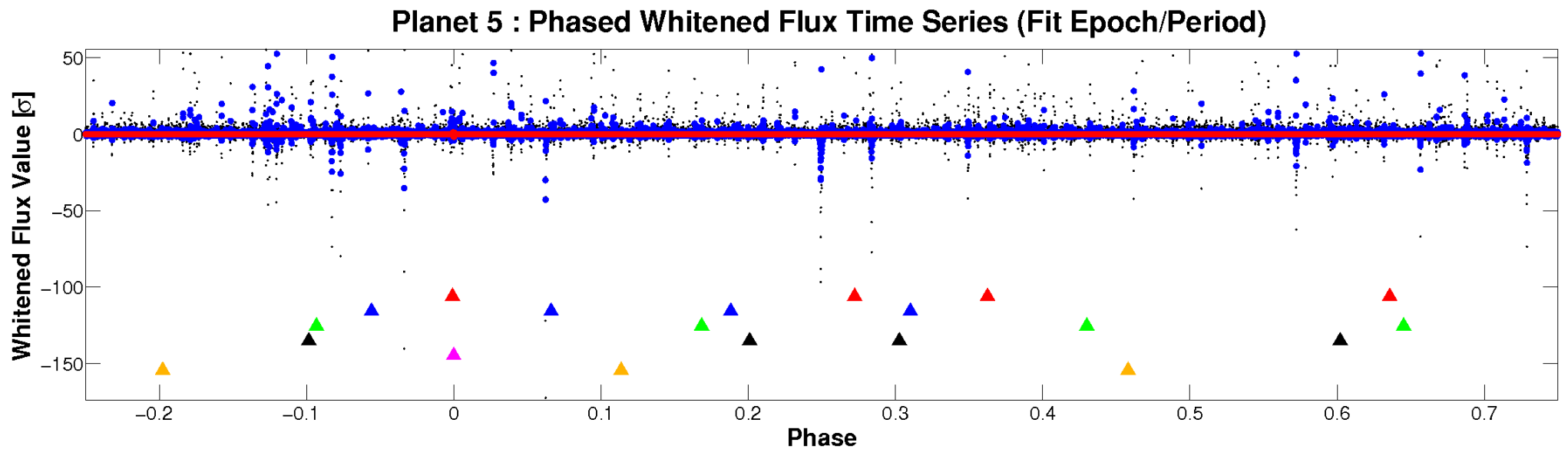
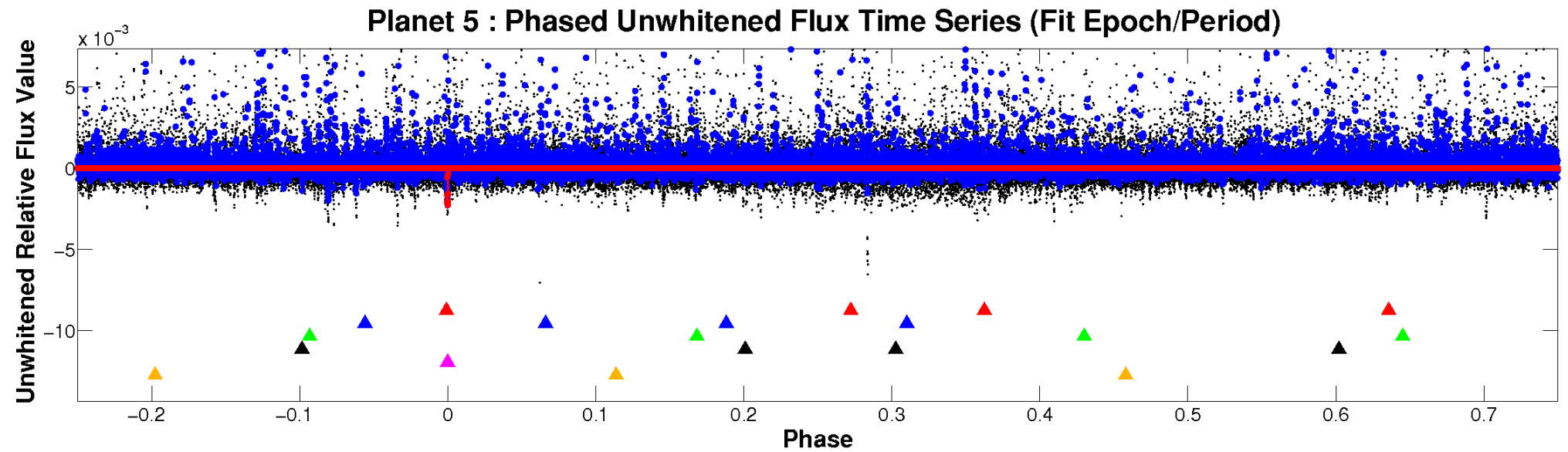


ALT Odd/Even

TCE 012314646-05

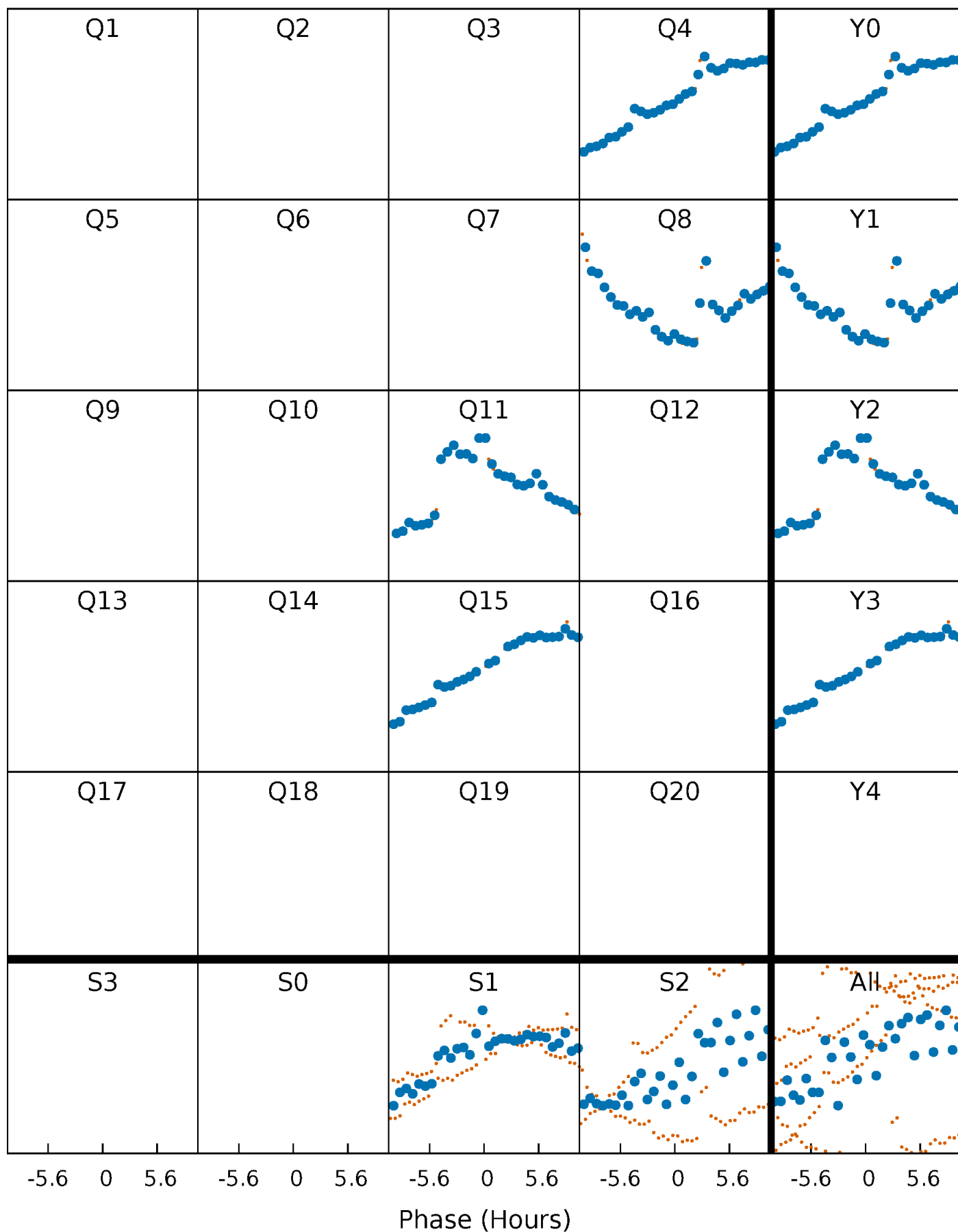


Non-Whitened Vs. Whitened Light Curve



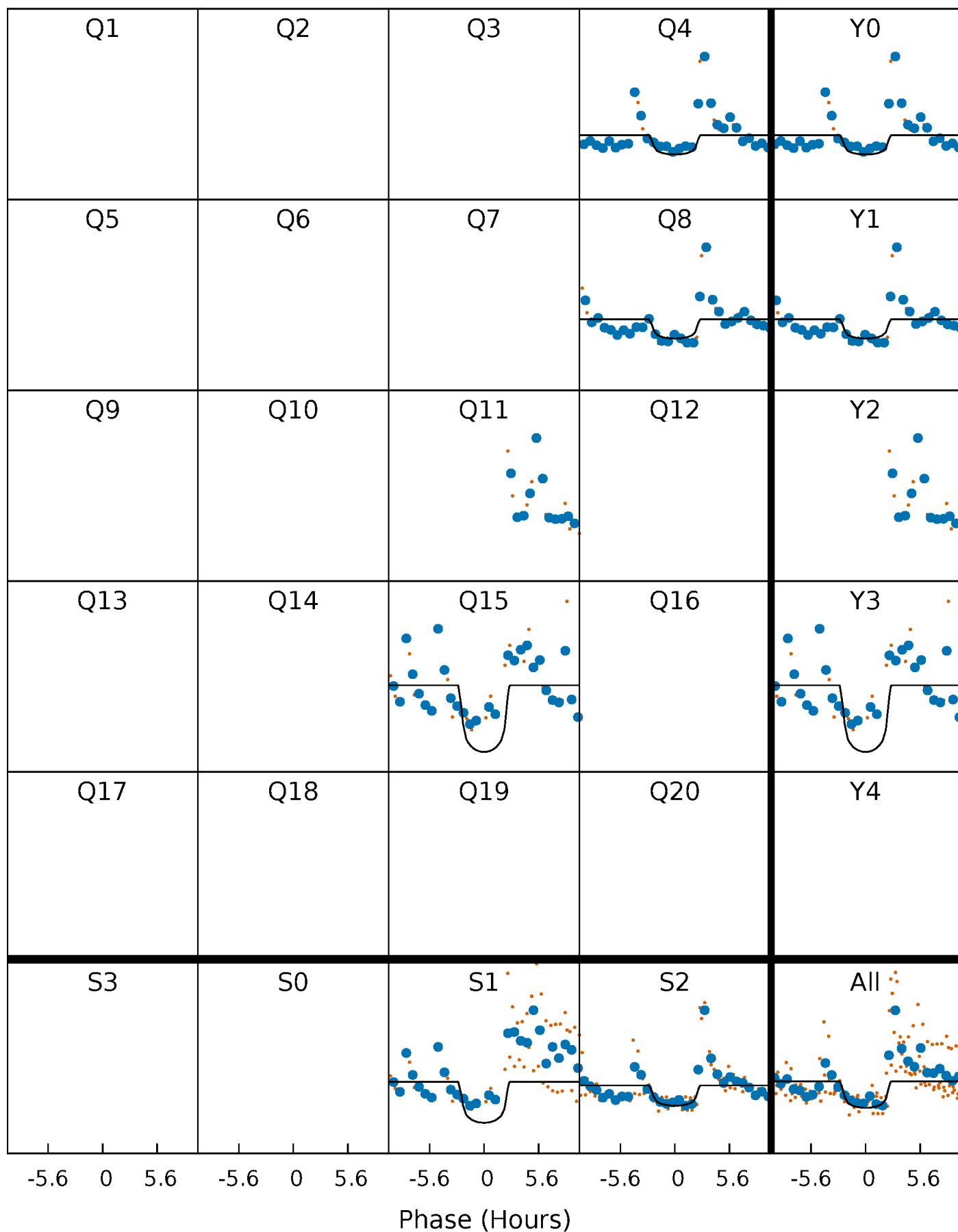
PDC Quarter-Phased Transit Curves

TCE 012314646-05 $P=331.038021$ Days $T_0=416.737216$ (BKJD)



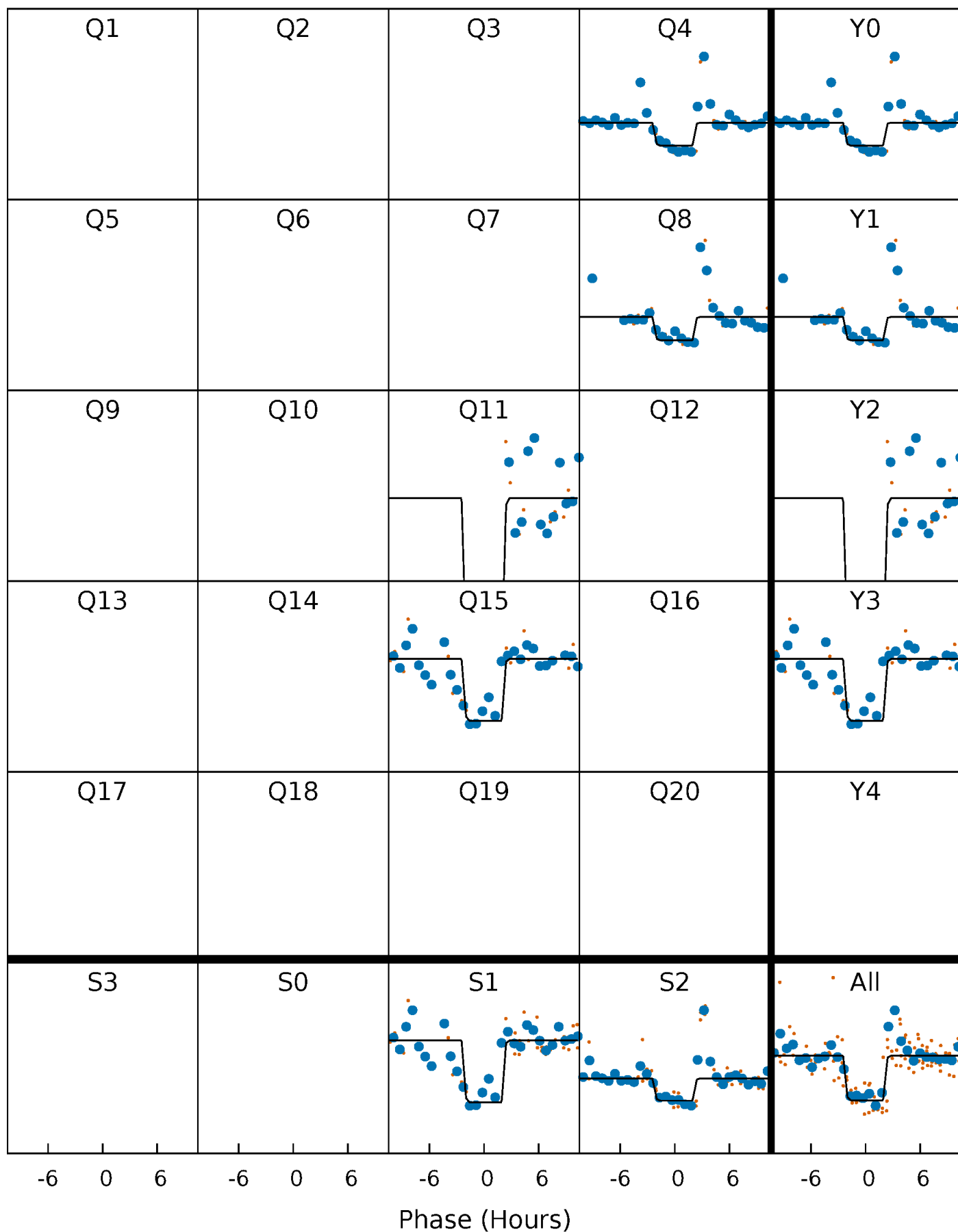
DV Quarter-Phased Transit Curves

TCE 012314646-05 $P=331.038021$ Days $T_0=416.737216$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

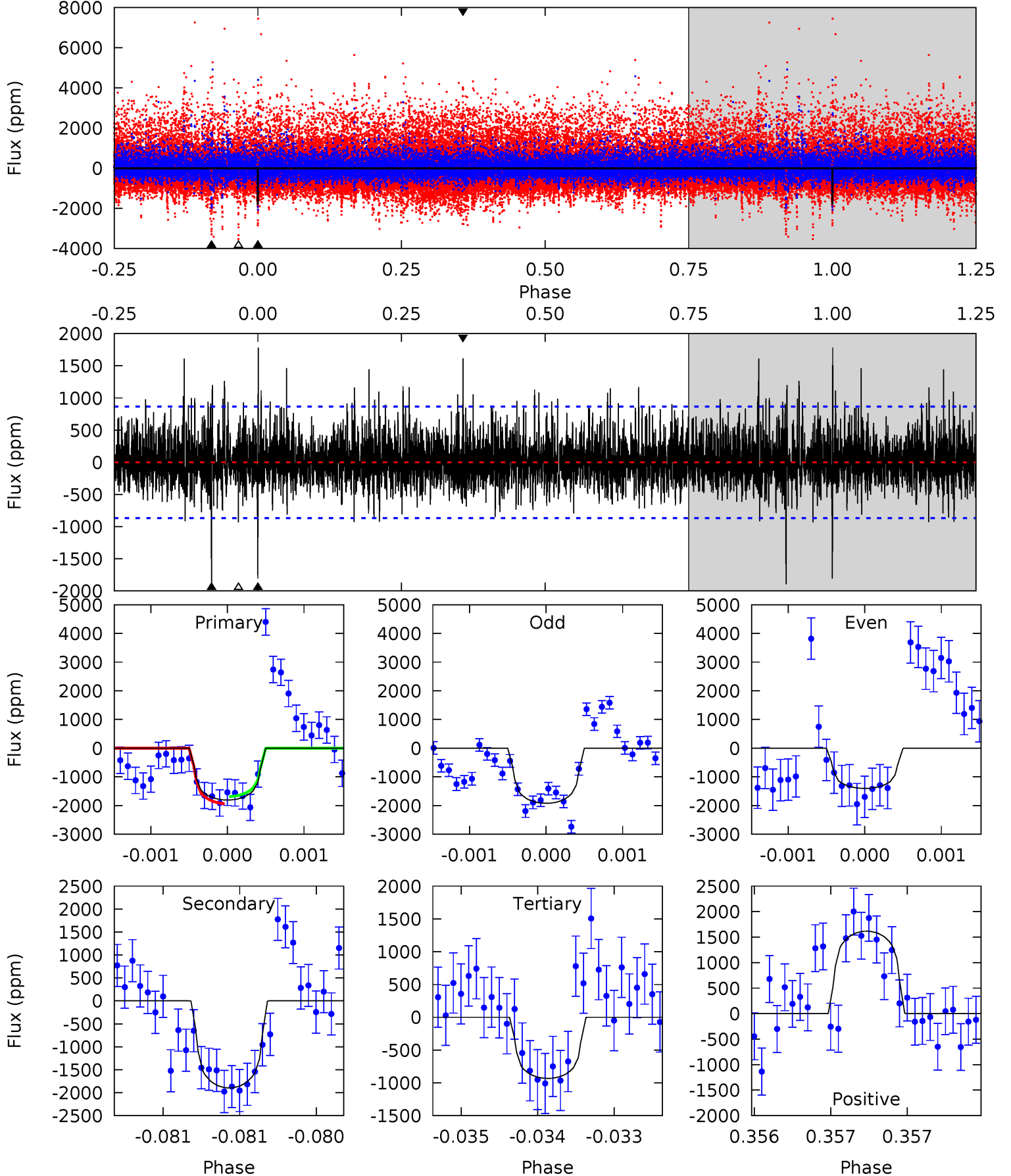
TCE 012314646-05 $P=331.044106$ Days $T_0=416.727140$ (BKJD)



DV Model-Shift Uniqueness Test

012314646-05, P = 331.038021 Days, E = 85.699195 Days

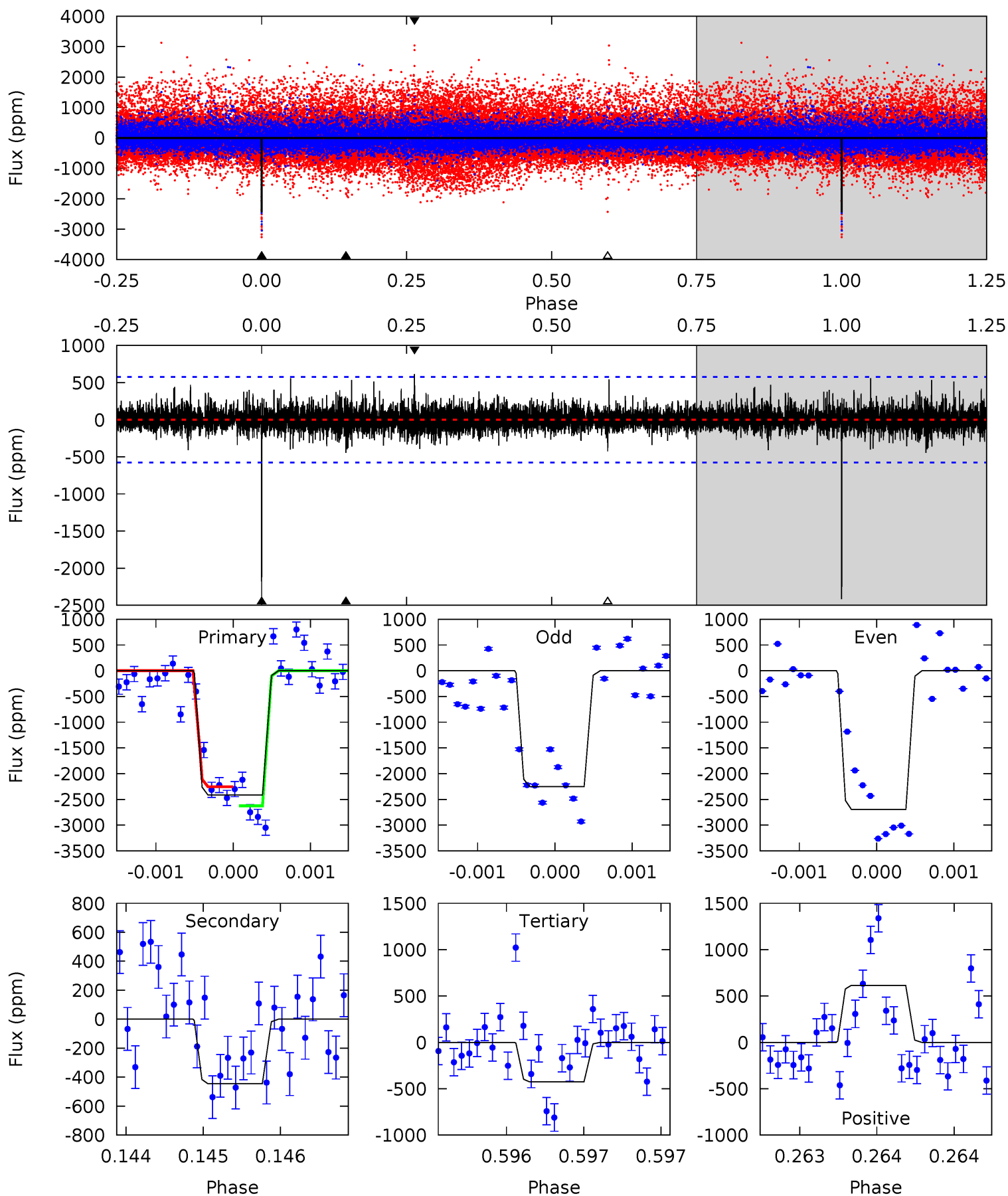
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	12.1	5.93	10.3	5.52	3.40	1.89	5.57	1.22	6.13	1.78	1.03	1.11	0.48	0.80



Alt Model-Shift Uniqueness Test

012314646-05, P = 331.044106 Days, E = 85.683034 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	4.27	4.08	5.90	5.54	3.42	0.96	19.1	17.3	0.19	-1.63	2.00	1.02	0.20	1.76



Stellar Parameters For KIC 012314646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3444^{+51}_{-46}	$4.929^{+0.052}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.324^{+0.037}_{-0.041}$	$0.324^{+0.043}_{-0.048}$	$13.470^{+4.158}_{-2.288}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-13%	+13%/-15%	+31%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012314646-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1895 ± 157	$1.95^{+1.68}_{-1.20}$	150^{+4}_{-4}	3199^{+1299}_{-492}	$115330^{+669061}_{-81713}$
Alt.	-445 ± 104	$2.01^{+1.57}_{-1.16}$	150^{+4}_{-4}	2602^{+682}_{-349}	$24908^{+109653}_{-17528}$

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

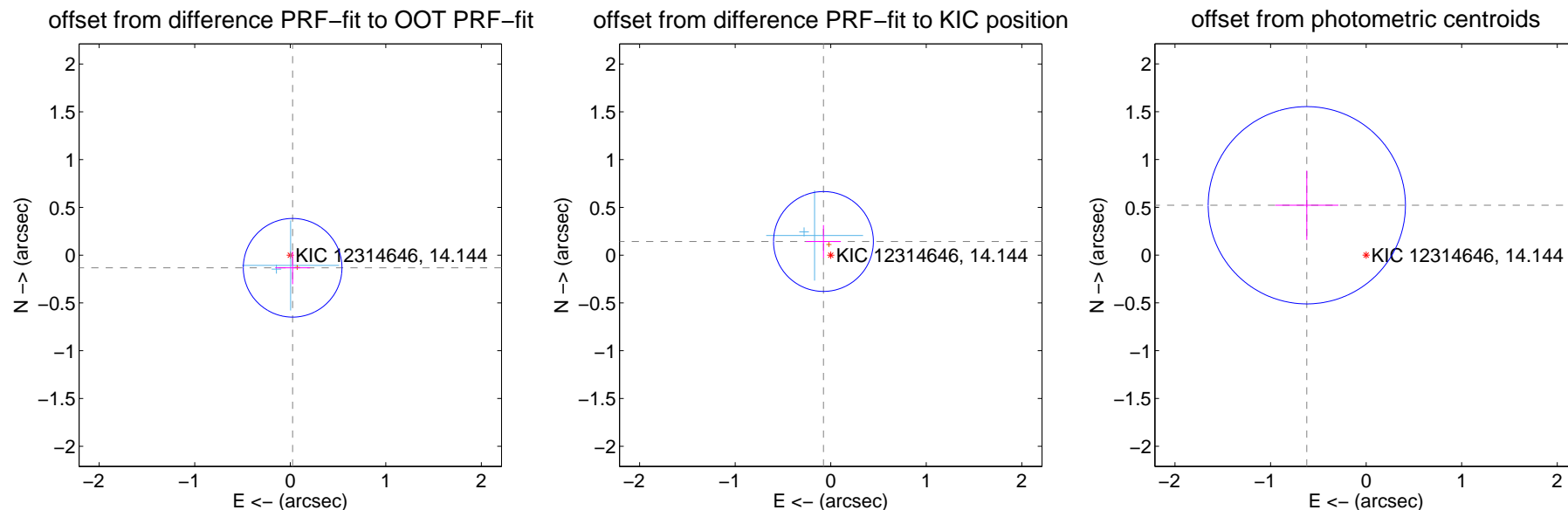
DV Centroid Data

Supplemental centroid analysis for 012314646-05. Kepler magnitude: 14.14. Transit SNR 7.76

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.134 ± 0.172	0.78	-0.025 ± 0.183	-0.132 ± 0.172
PRF-fit source offset from KIC position	0.162 ± 0.174	0.93	0.076 ± 0.183	0.143 ± 0.172
photometric centroid source offset	0.81 ± 0.34	2.36	0.62 ± 0.33	0.52 ± 0.36



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

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

Q1 no difference image



Q1 no OOT image



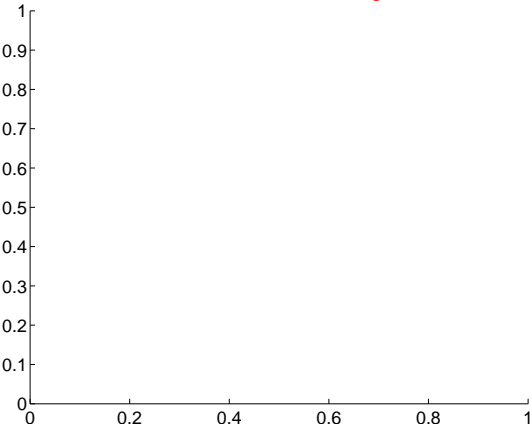
Q2 no difference image



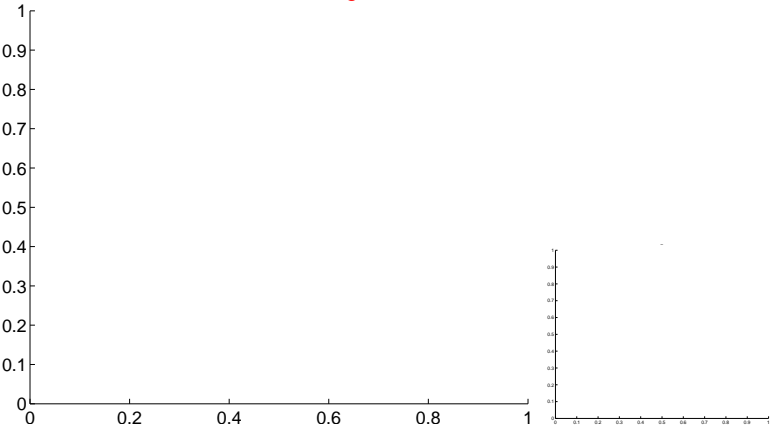
Q2 no OOT image



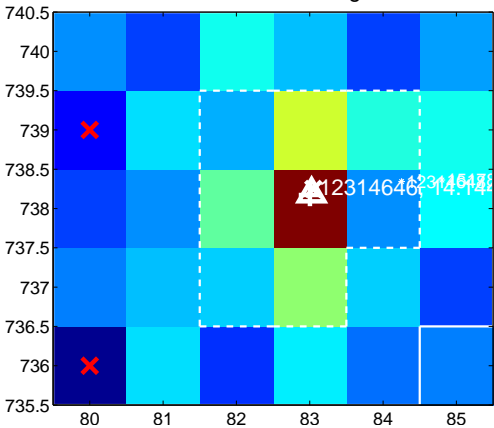
Q3 no difference image



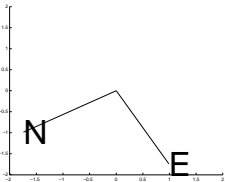
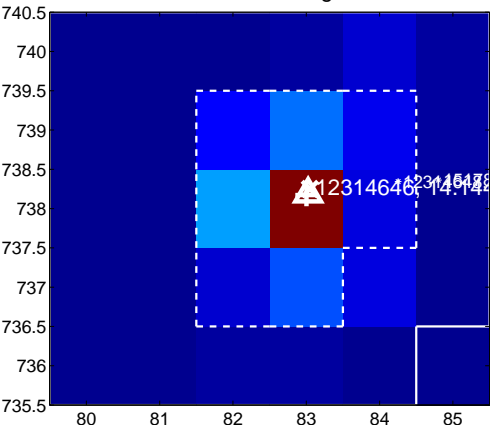
Q3 no OOT image



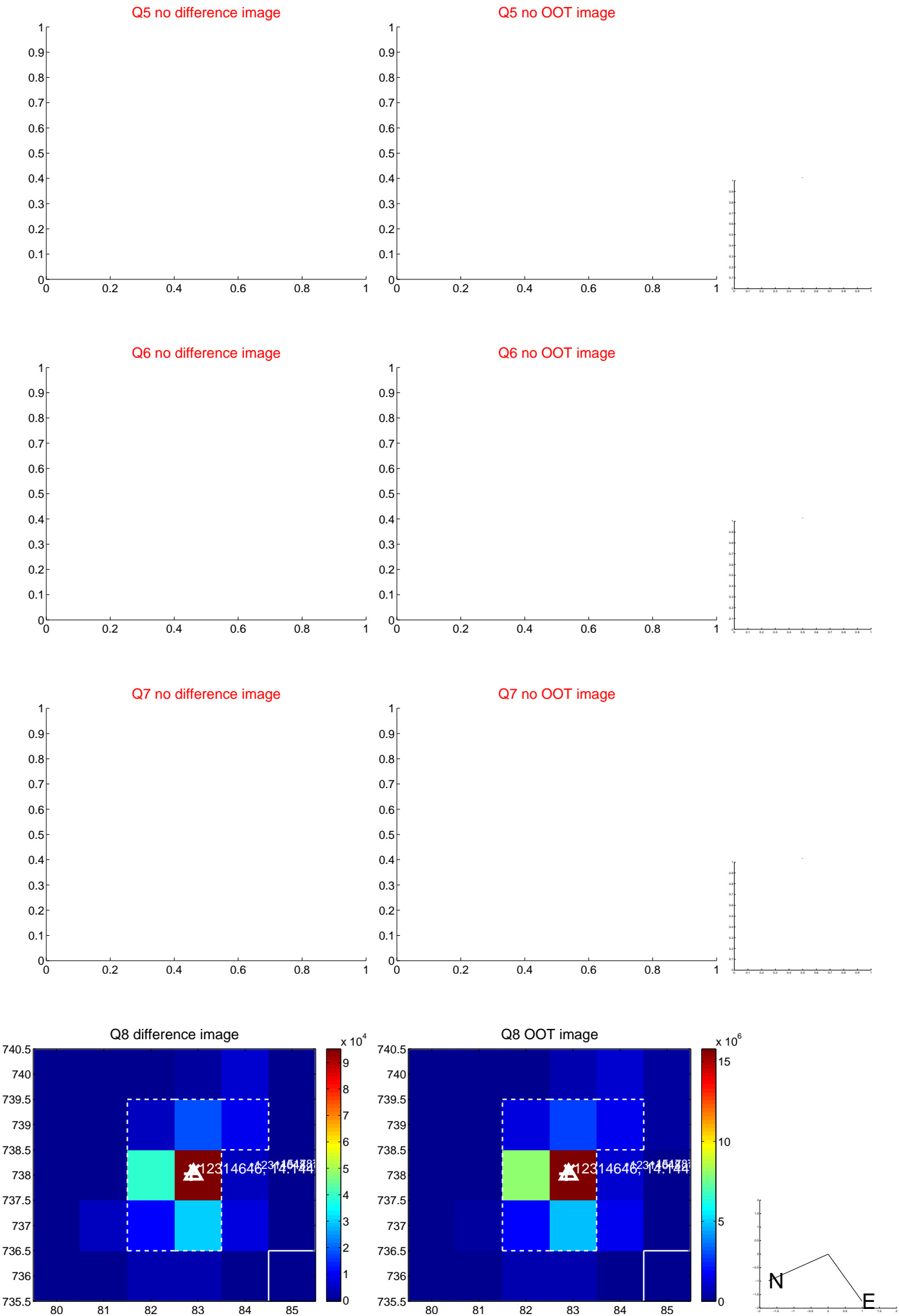
Q4 difference image



Q4 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.

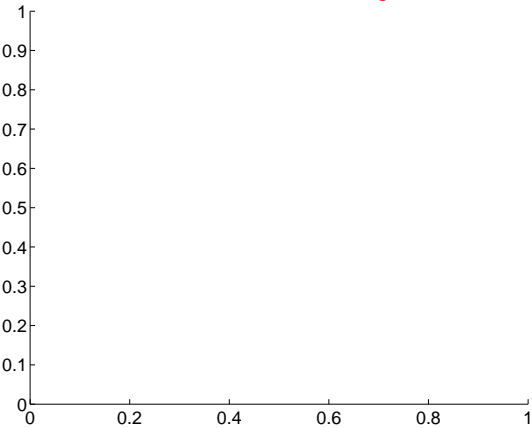
Q9 no difference image



Q9 no OOT image



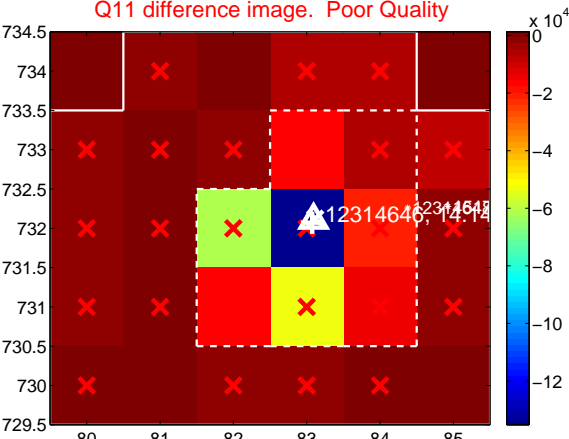
Q10 no difference image



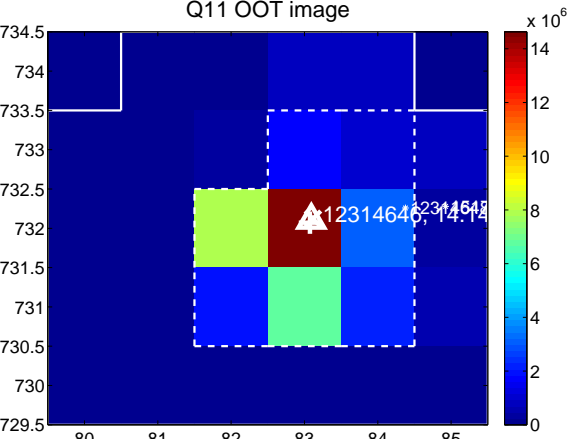
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



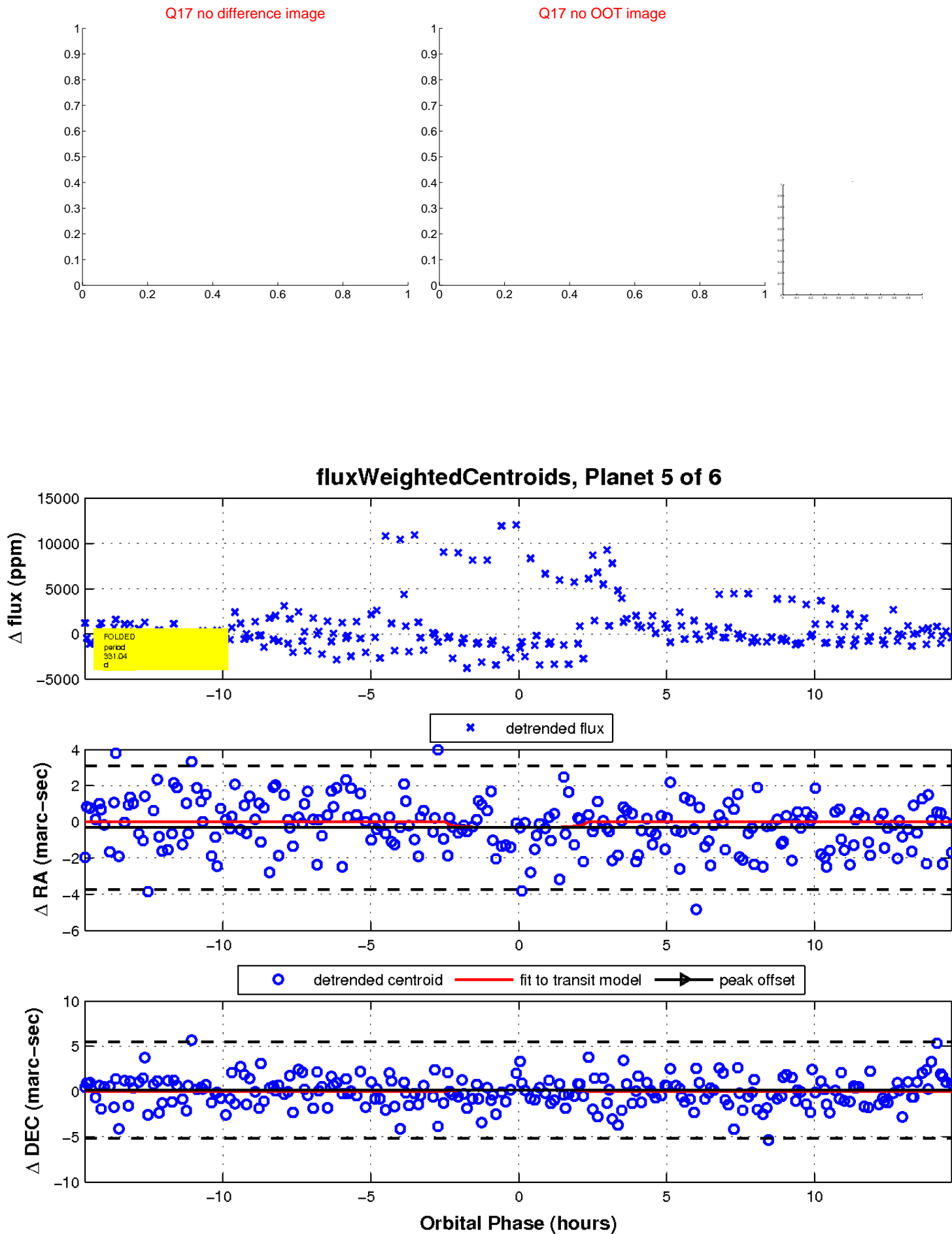
Q12 no OOT image



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

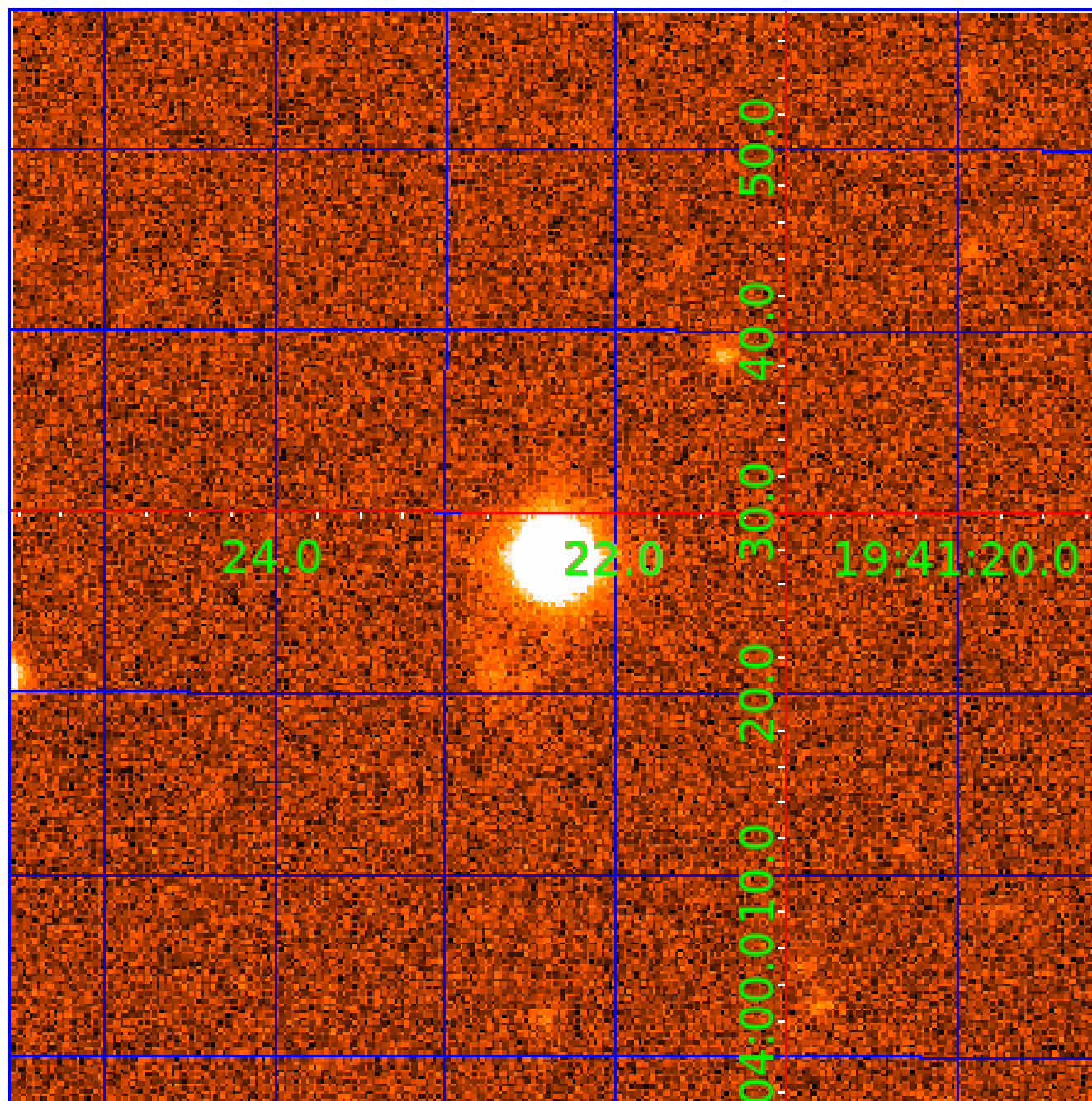


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012314646

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})
012314646-01	OBS	No	451.340759	175.852140	2479.0	5.619	17.2	10.0	0.32	3444	1.60	0.02
012314646-02	OBS	No	371.424272	398.254456	2683.0	4.712	15.9	9.9	0.32	3444	1.70	0.03
012314646-03	OBS	No	417.641563	299.276895	1872.7	6.312	13.3	8.2	0.32	3444	1.42	0.02
012314646-04	OBS	No	430.169131	185.888702	2493.7	8.736	17.2	8.8	0.32	3444	1.70	0.02
012314646-05	OBS	No	331.038021	416.737216	2257.1	4.900	15.4	7.8	0.32	3444	1.52	0.03
012314646-06	OBS	No	445.015692	454.388487	1007.1	4.500	14.1	-1.0	0.32	3444	1.02	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012314646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012314646-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
012314646-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012314646-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
012314646-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012314646-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

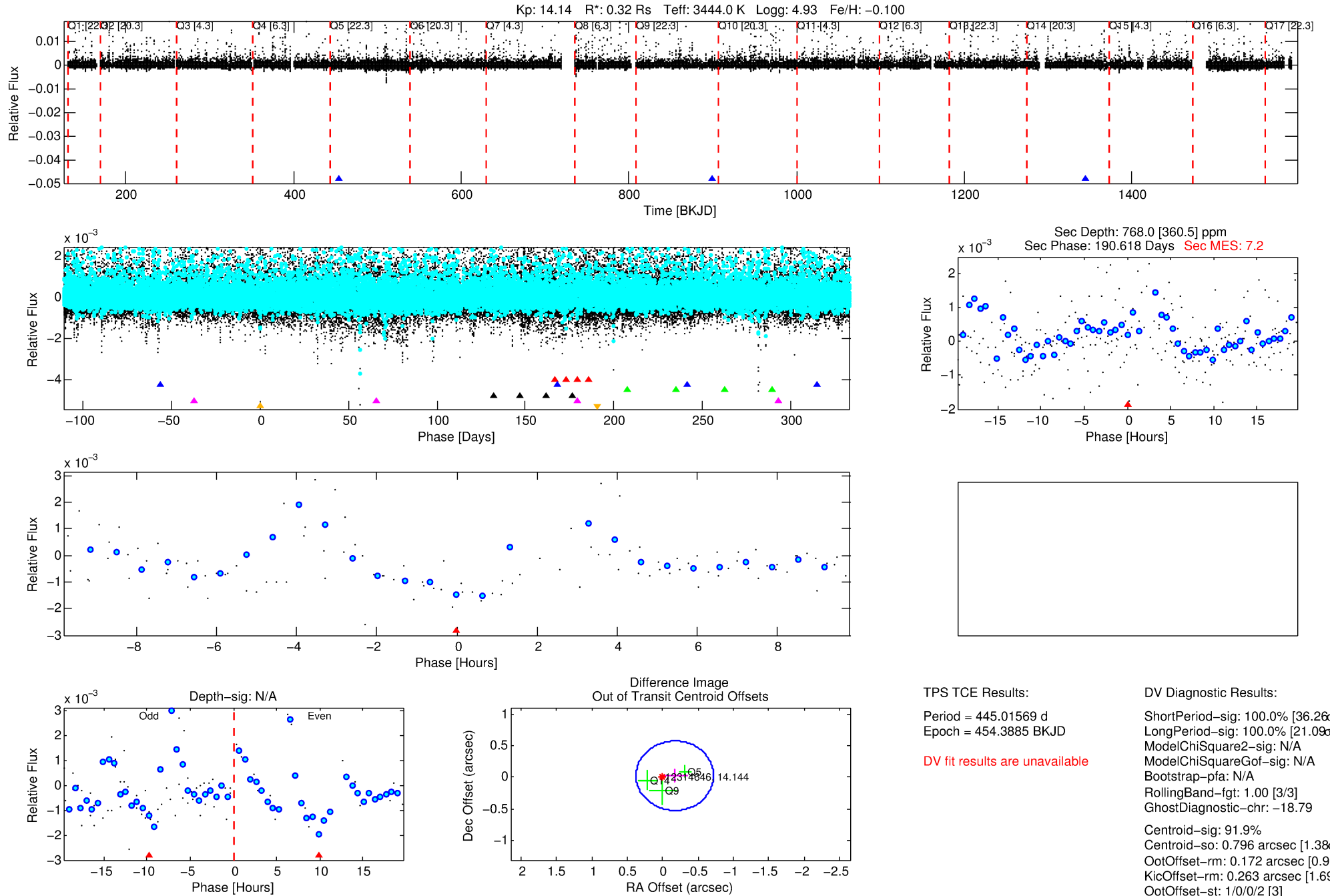
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012314646-06

No Significant Match Found

DV One-Page Summary

KIC: 12314646 Candidate: 6 of 6 Period: 445.016 d



TPS TCE Results:

Period = 445.01569 d
Epoch = 454.3885 BKJD

DV fit results are unavailable

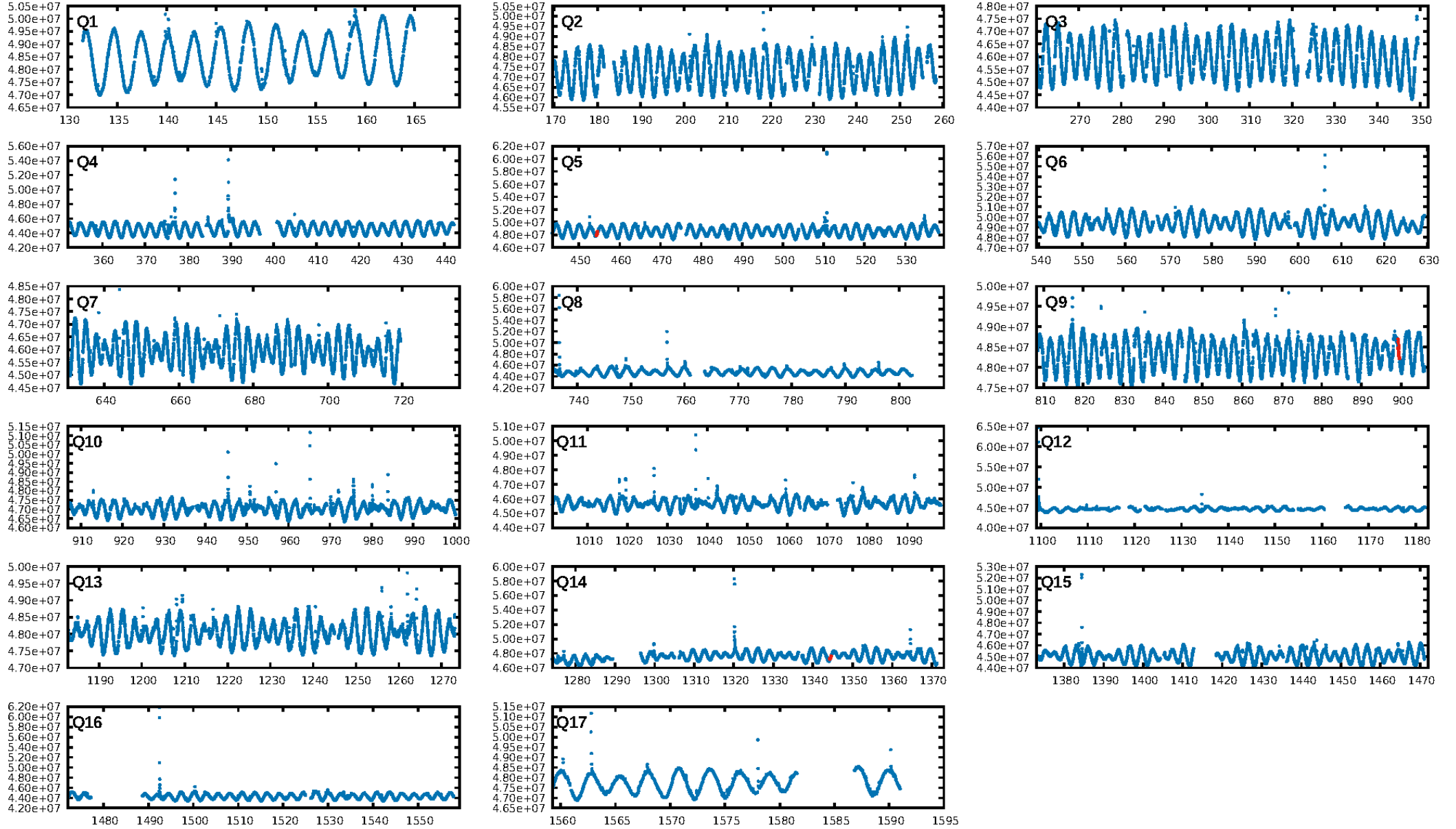
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.26 σ]
LongPeriod-sig: 100.0% [21.09 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -18.79
Centroid-sig: 91.9%
Centroid-so: 0.796 arcsec [1.38 σ]
OotOffset-rm: 0.172 arcsec [0.94 σ]
KicOffset-rm: 0.263 arcsec [1.69 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

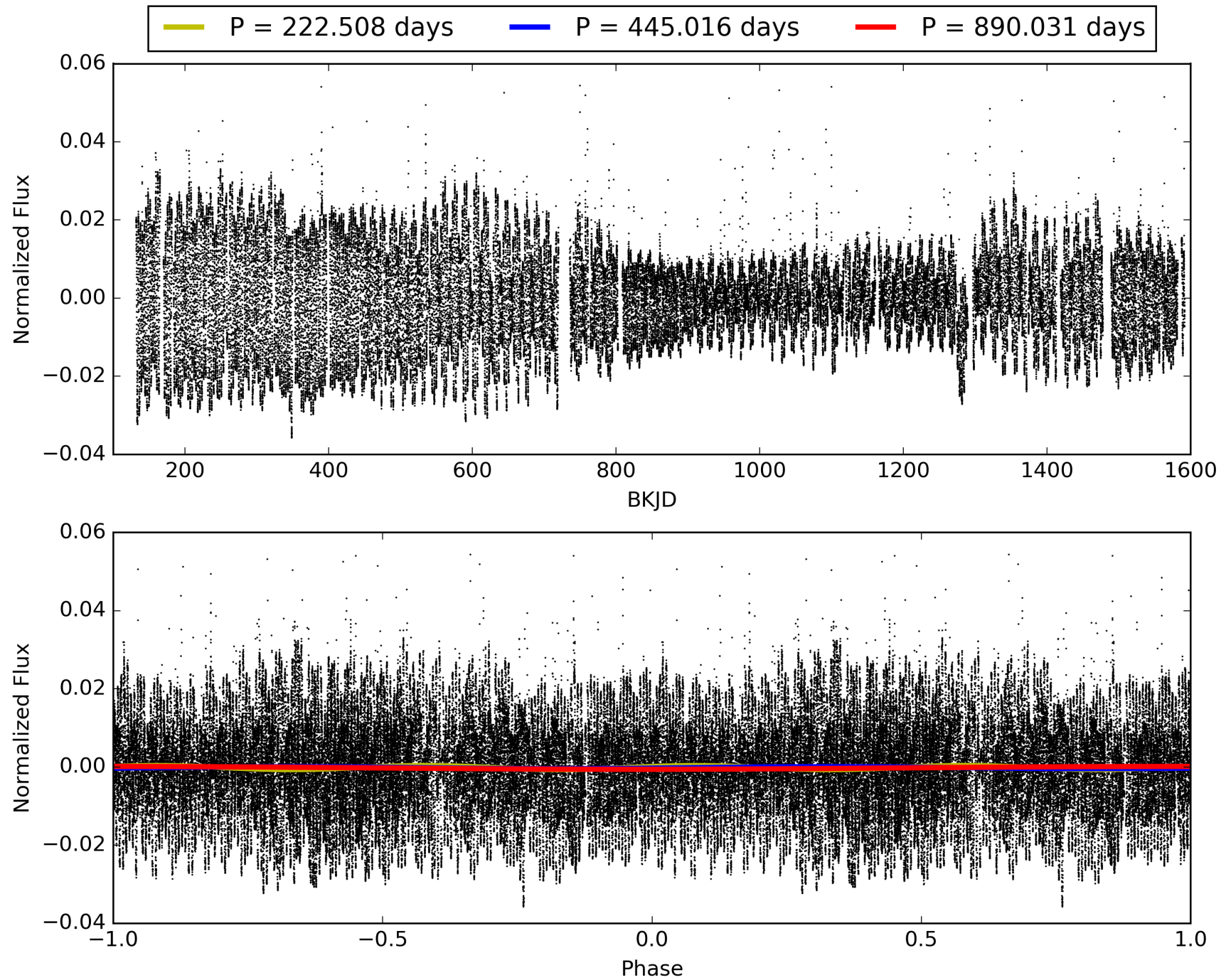
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:50:48 Z

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

TCE 012314646-06, PDC Light Curves

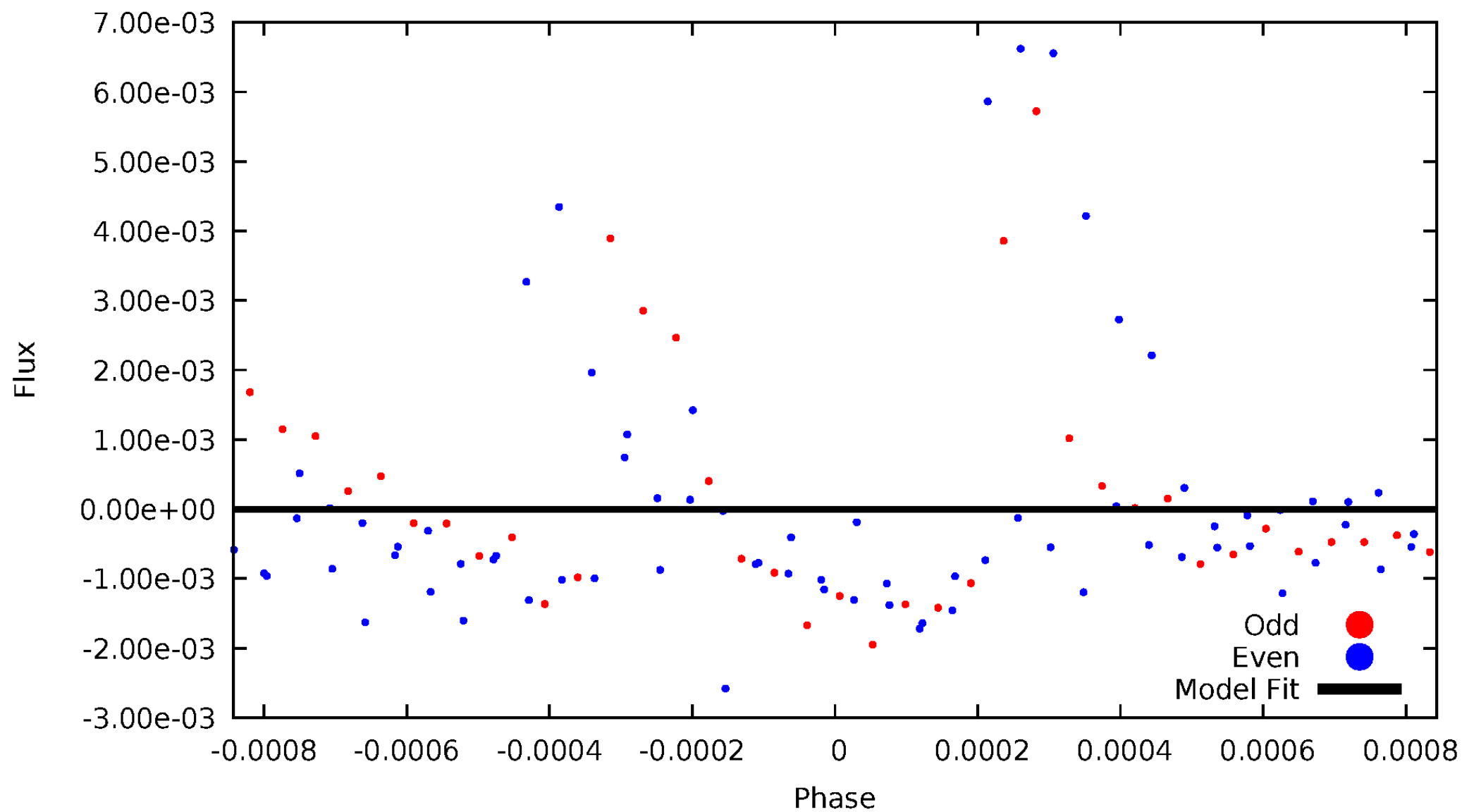


TCE 012314646-06



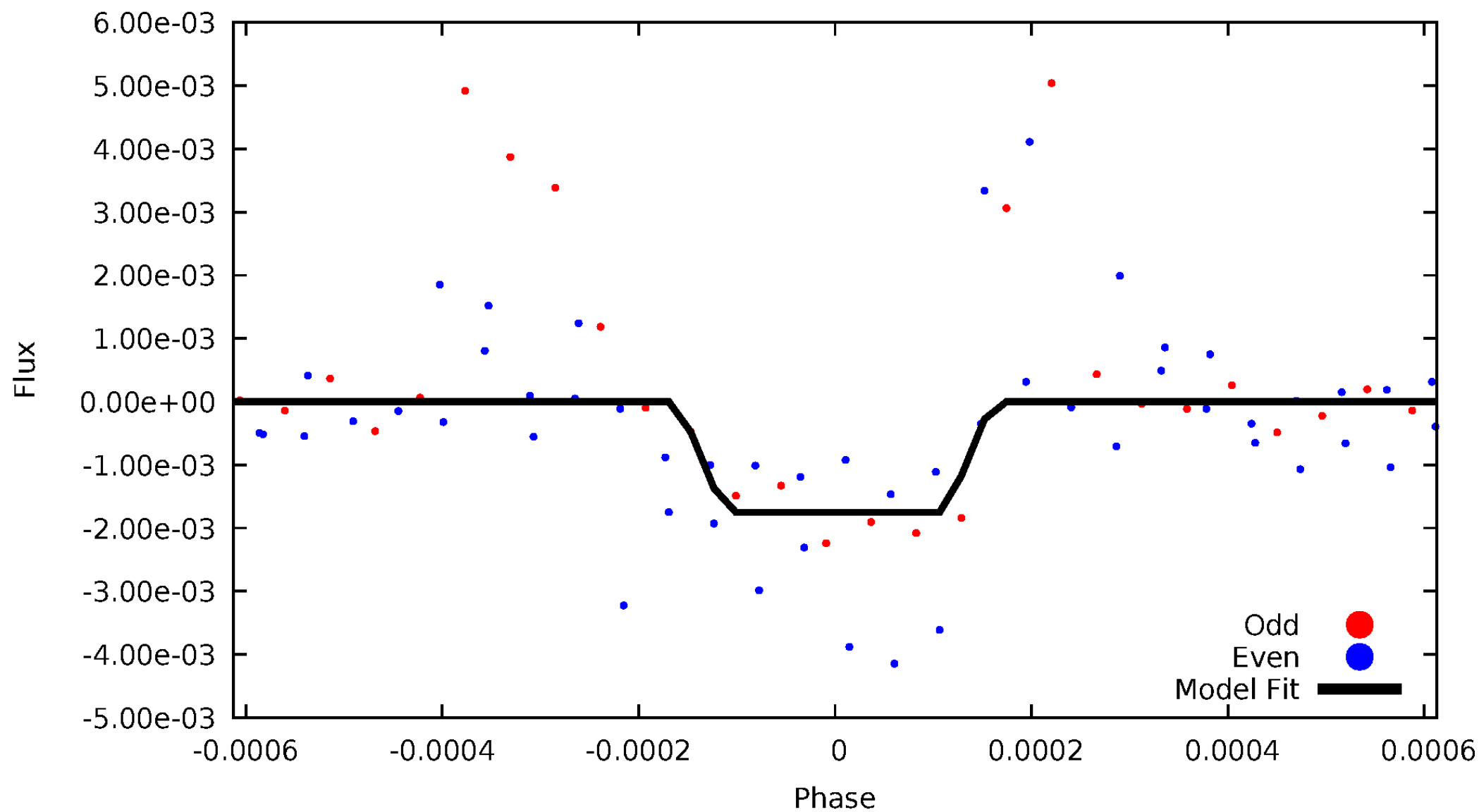
DV Odd/Even

TCE 012314646-06



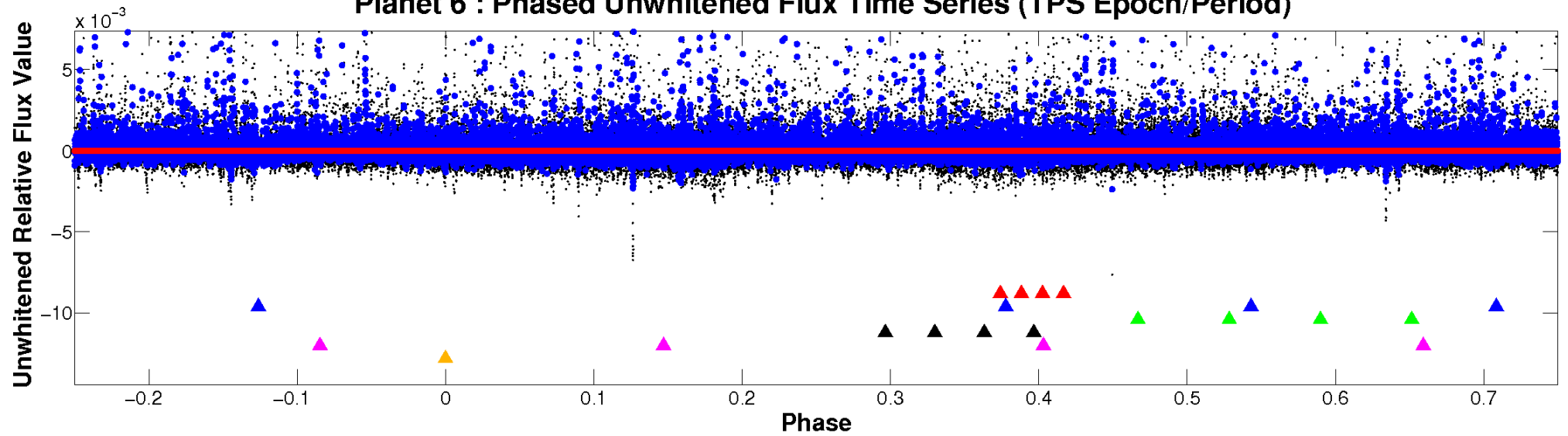
ALT Odd/Even

TCE 012314646-06

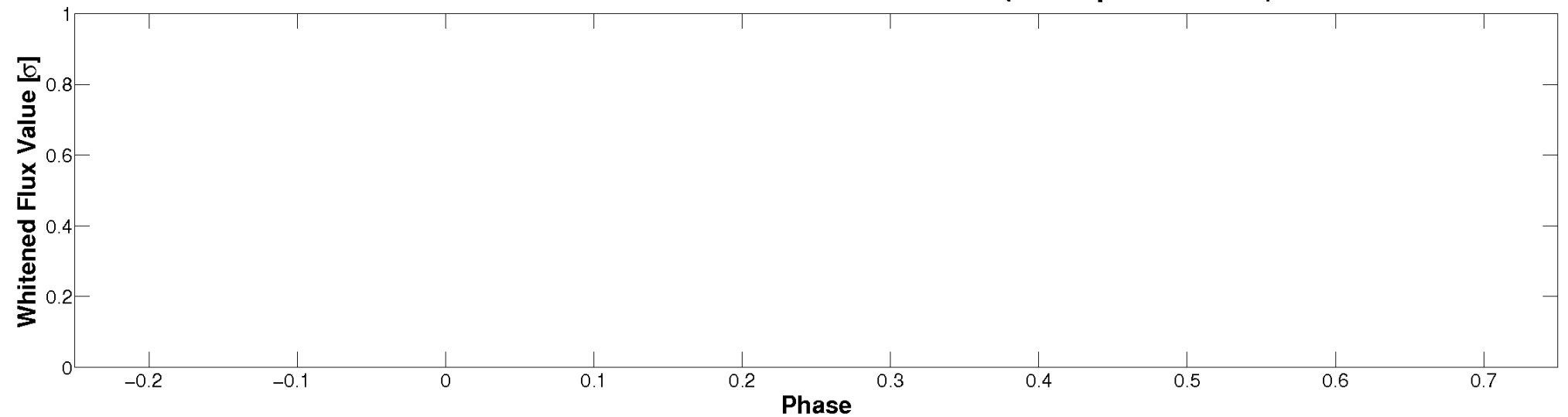


Non-Whitened Vs. Whitened Light Curve

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

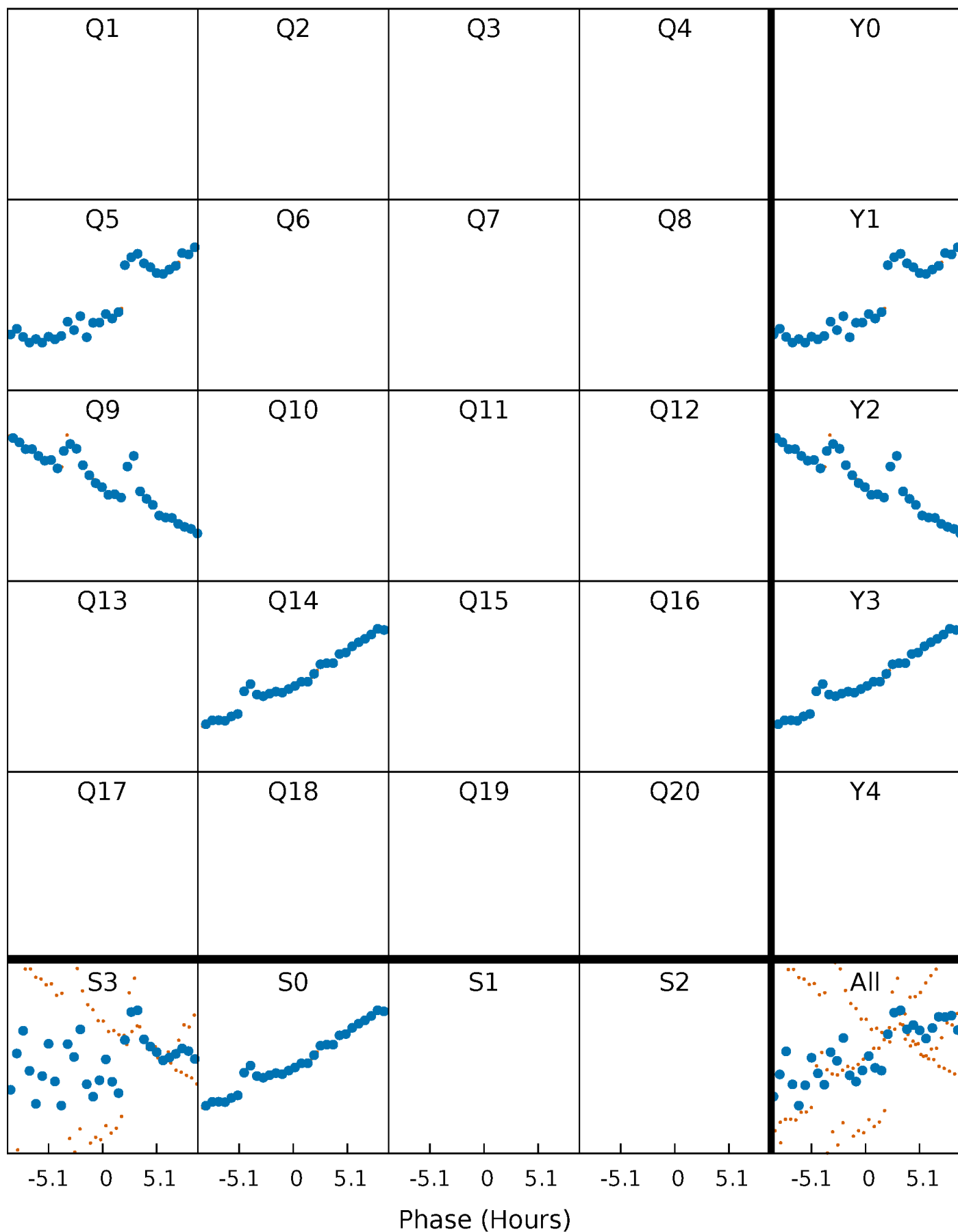


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



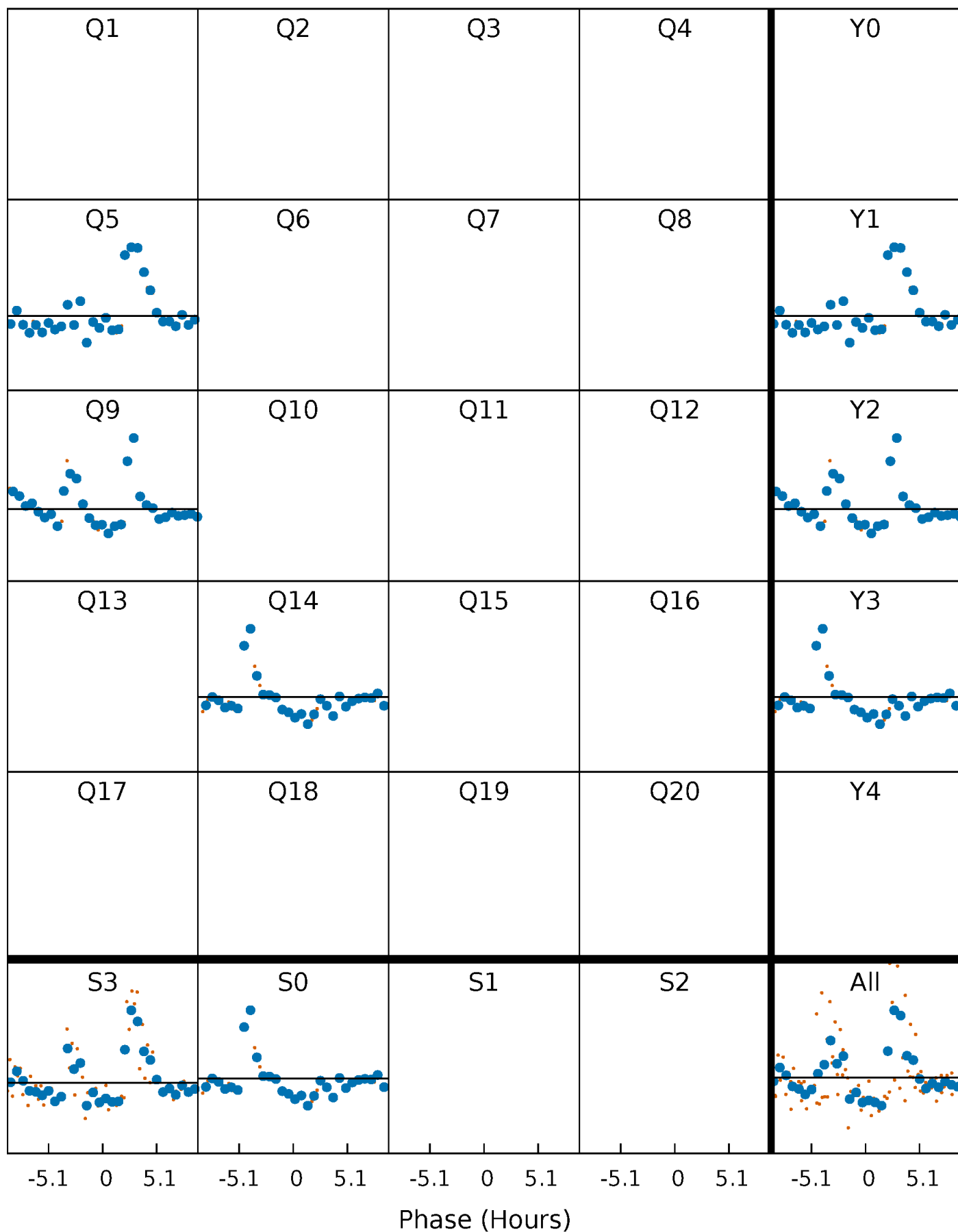
PDC Quarter-Phased Transit Curves

TCE 012314646-06 P=445.015692 Days $T_0=454.388487$ (BKJD)



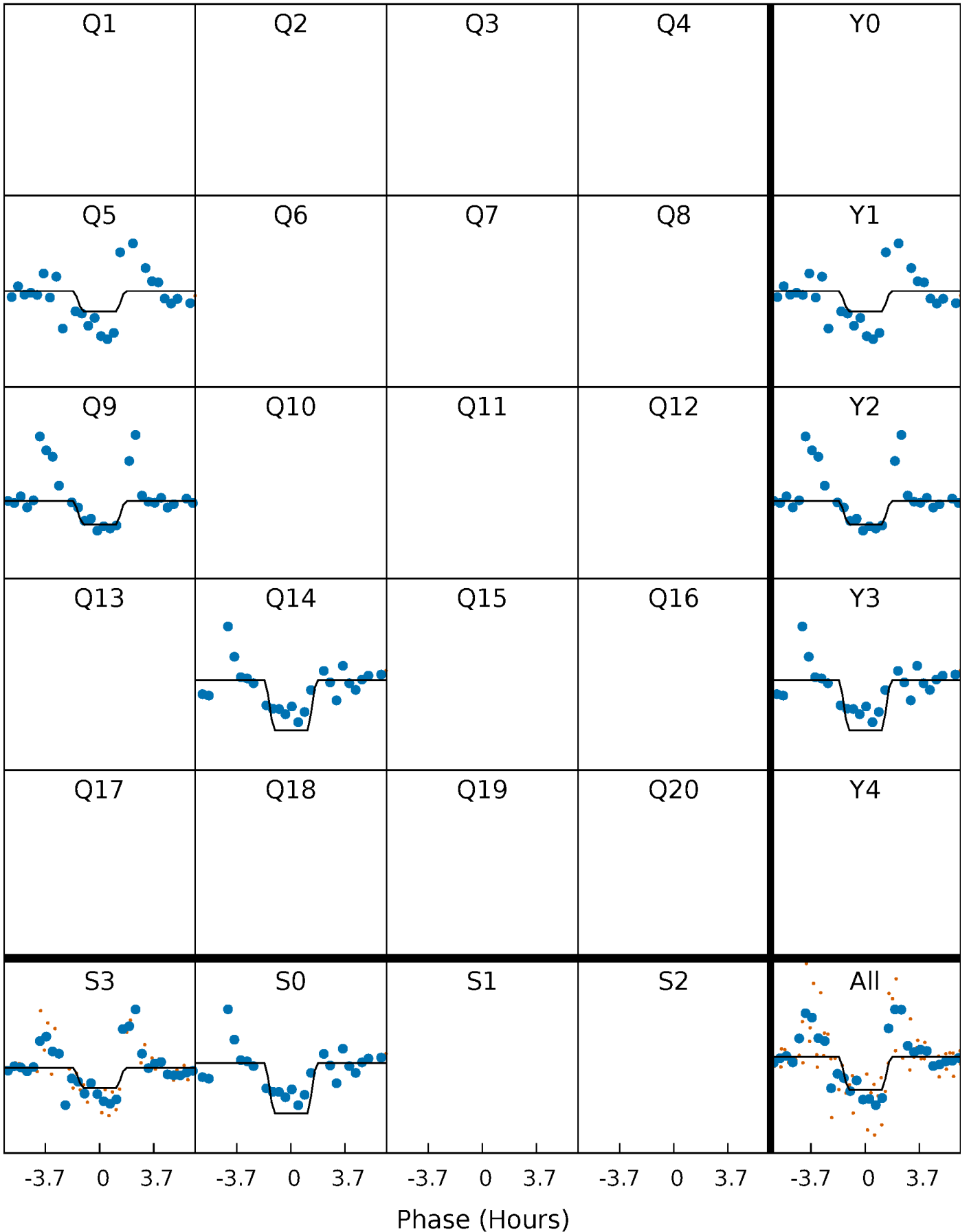
DV Quarter-Phased Transit Curves

TCE 012314646-06 $P=445.015692$ Days $T_0=454.388487$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

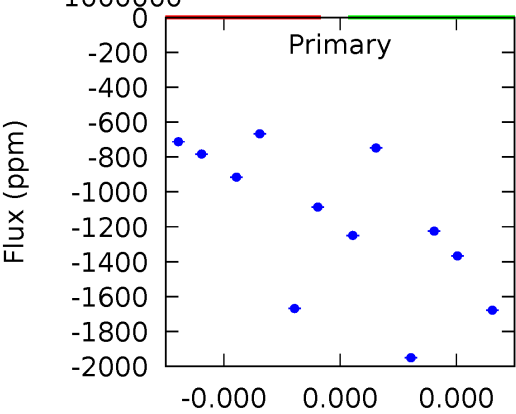
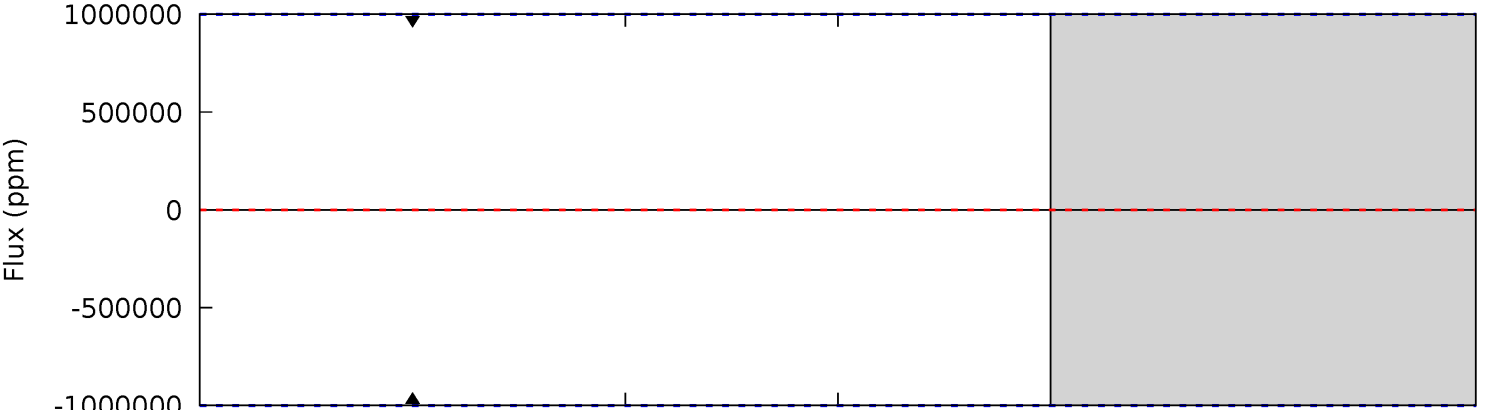
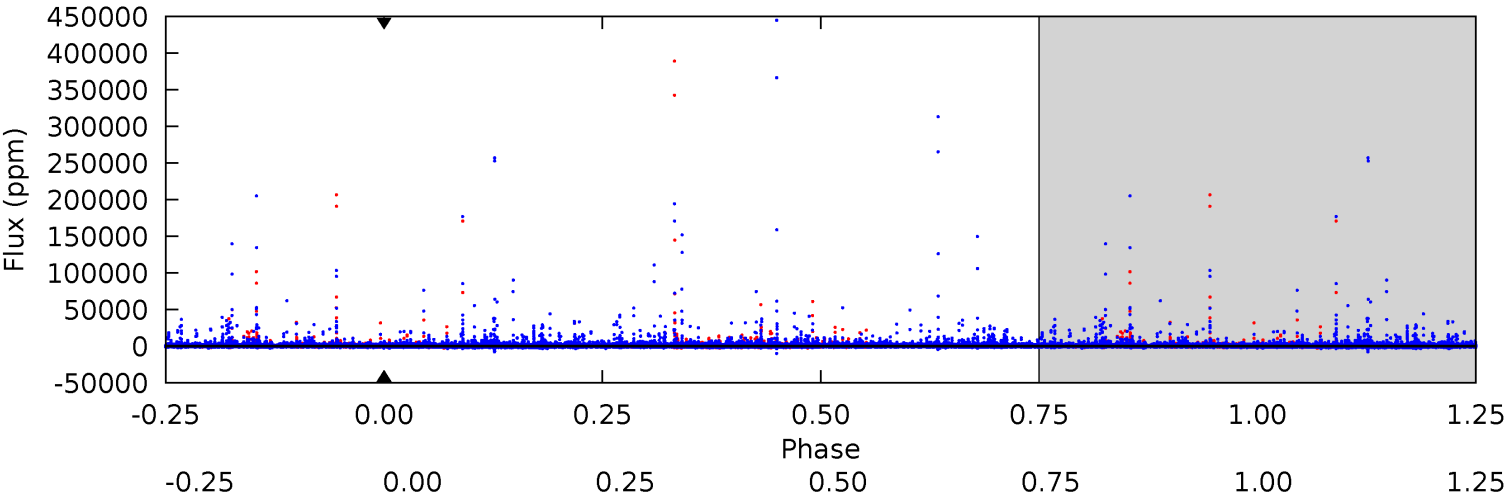
TCE 012314646-06 P=445.015692 Days $T_0=454.416006$ (BKJD)



DV Model-Shift Uniqueness Test

012314646-06, P = 445.015692 Days, E = 9.372795 Days

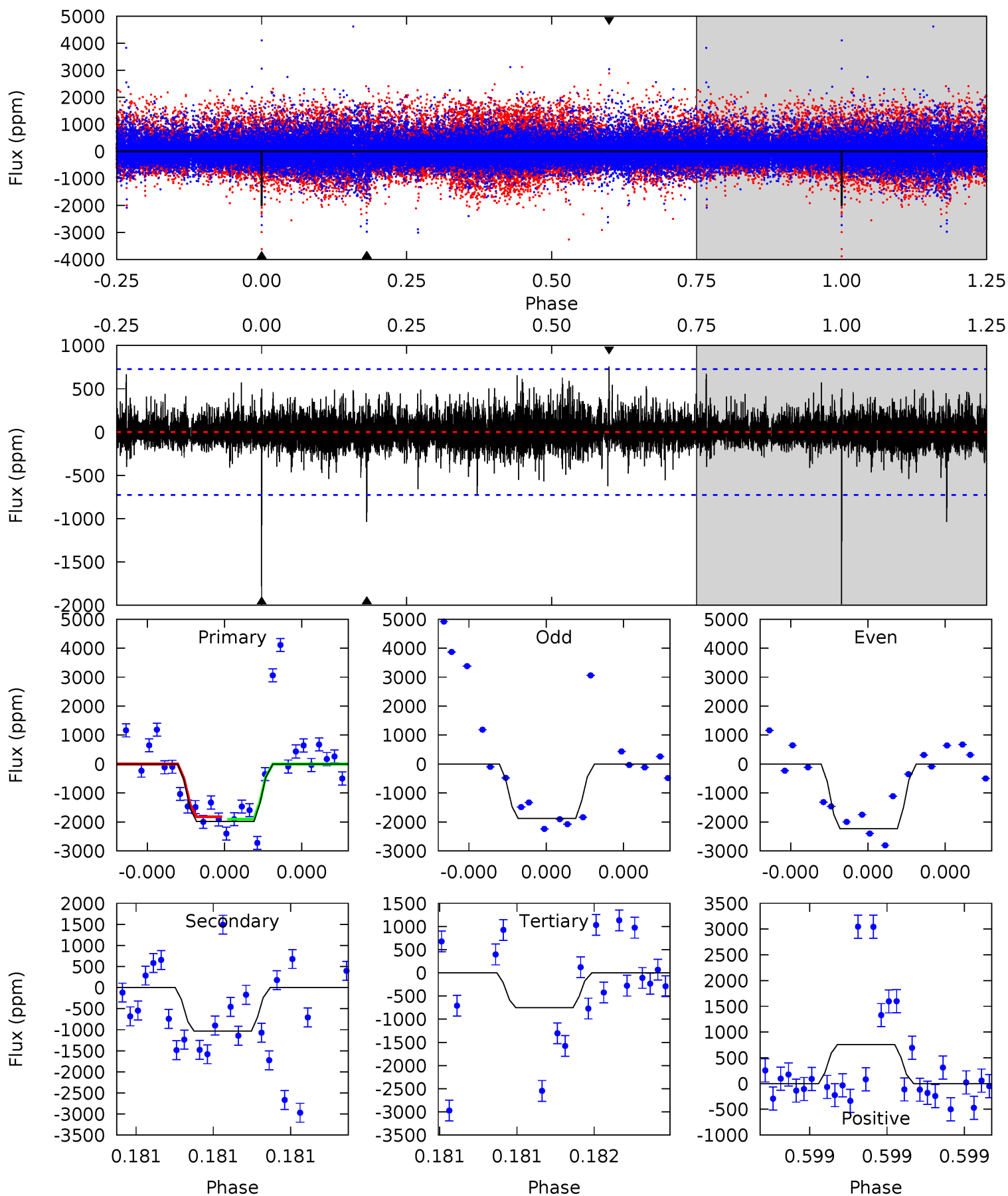
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

012314646-06, P = 445.015692 Days, E = 9.400314 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	8.08	5.85	5.91	5.67	3.63	1.02	9.66	9.60	2.23	2.17	1.21	1.10	0.28	0.33



Stellar Parameters For KIC 012314646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3444^{+51}_{-46}	$4.929^{+0.052}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.324^{+0.037}_{-0.041}$	$0.324^{+0.043}_{-0.048}$	$13.470^{+4.158}_{-2.288}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-13%	+13%/-15%	+31%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012314646-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$2.91^{+2.93}_{-2.04}$	136^{+3}_{-3}	-2222^{+8958}_{-4252}	$-10114.174^{+7430869.763}_{-6808540.519}$
Alt.	-1036 ± 128	$3.10^{+2.83}_{-2.04}$	136^{+3}_{-3}	2597^{+929}_{-374}	$36370^{+282616}_{-26387}$

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

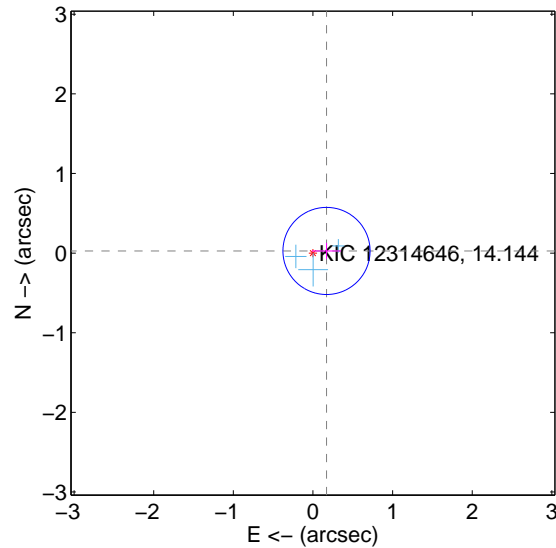
Supplemental centroid analysis for 012314646-06. Kepler magnitude: 14.14. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

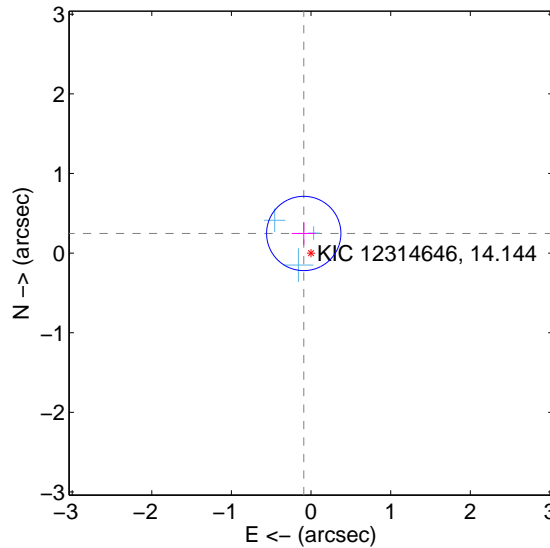
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.172 ± 0.182	0.94	-0.170 ± 0.184	0.027 ± 0.102
PRF-fit source offset from KIC position	0.263 ± 0.155	1.69	0.092 ± 0.150	0.246 ± 0.143
photometric centroid source offset	0.80 ± 0.58	1.38	0.39 ± 0.52	0.69 ± 0.59

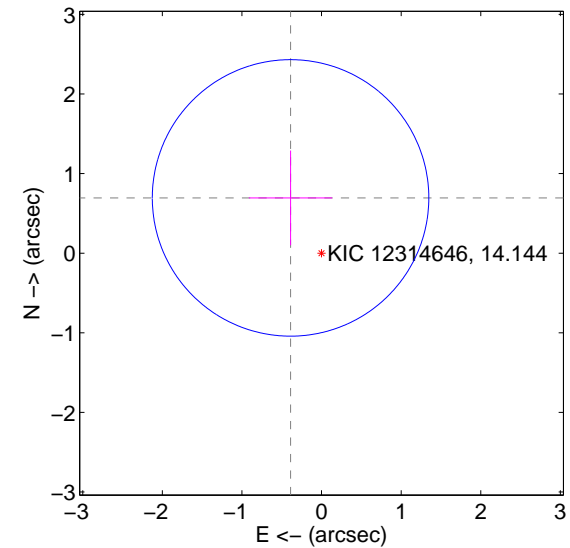
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

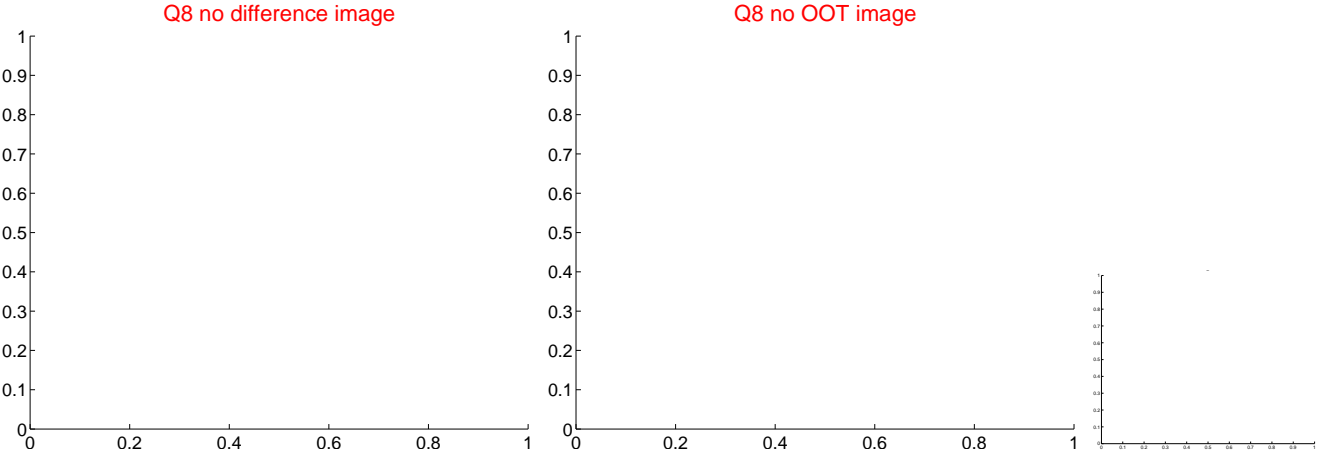
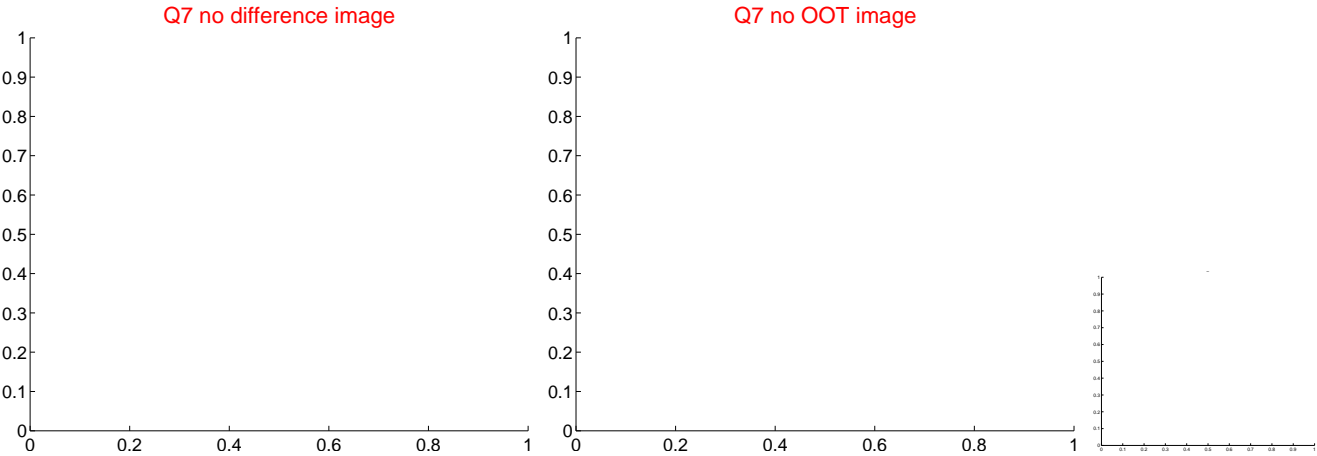
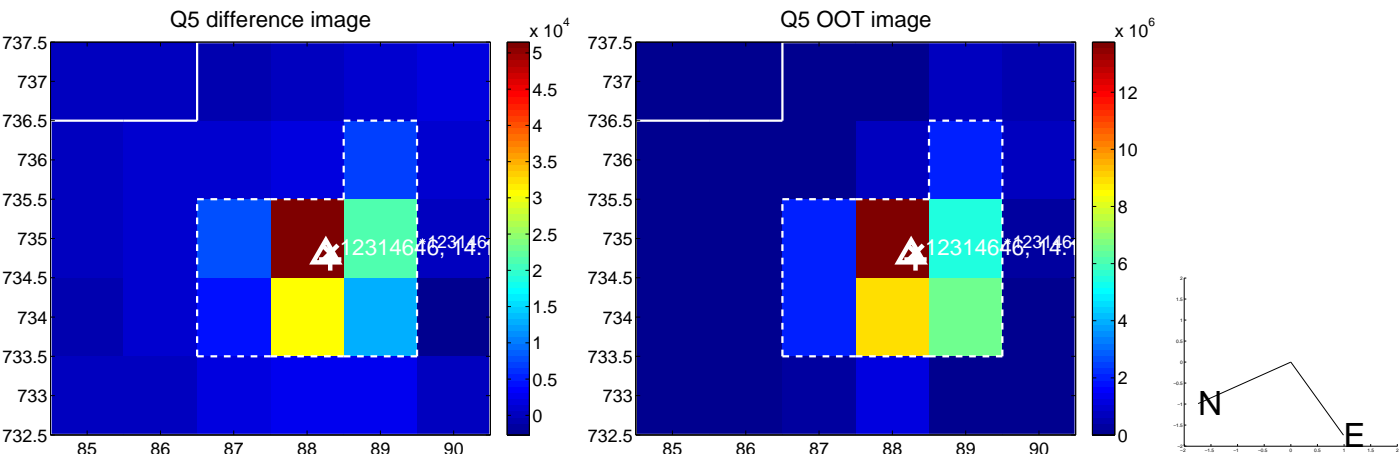


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

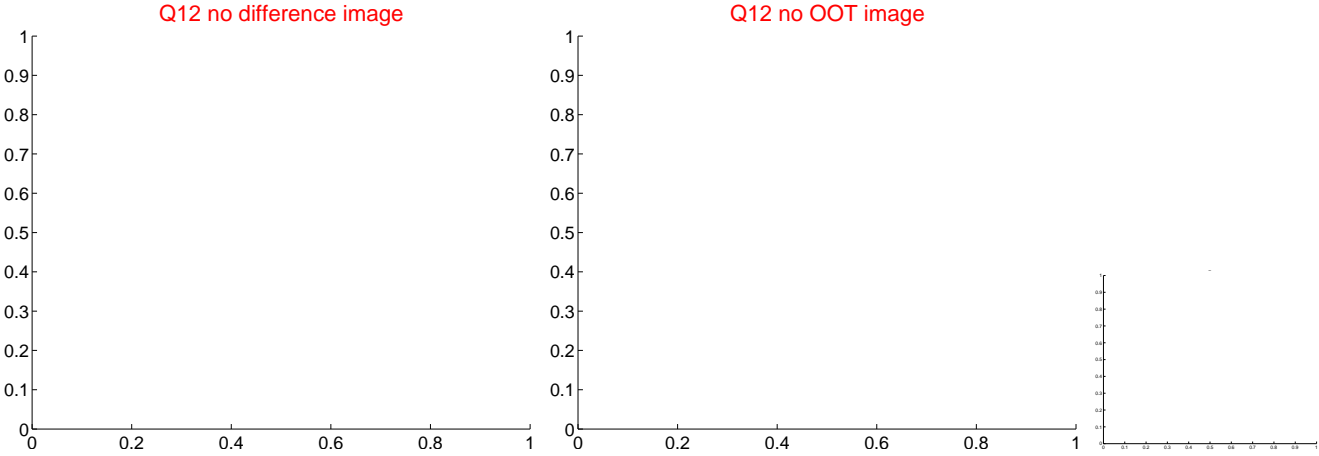
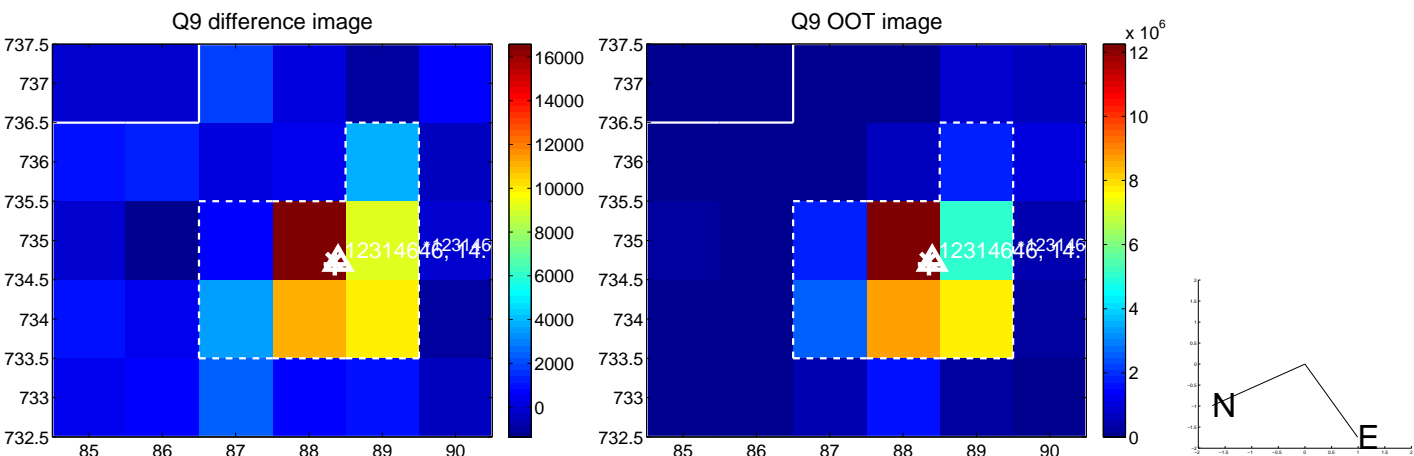
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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

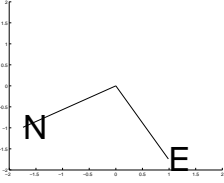
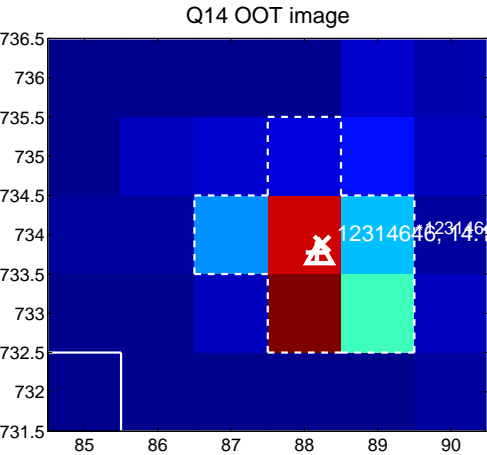
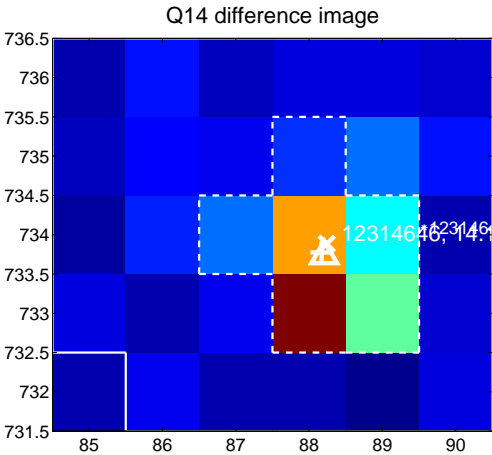


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

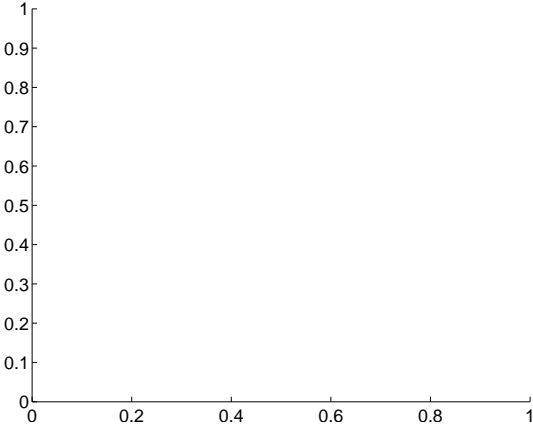
Q13 no difference image



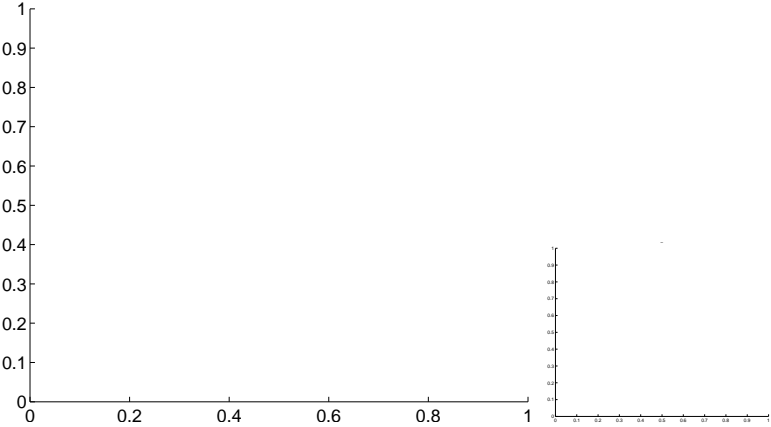
Q13 no OOT image



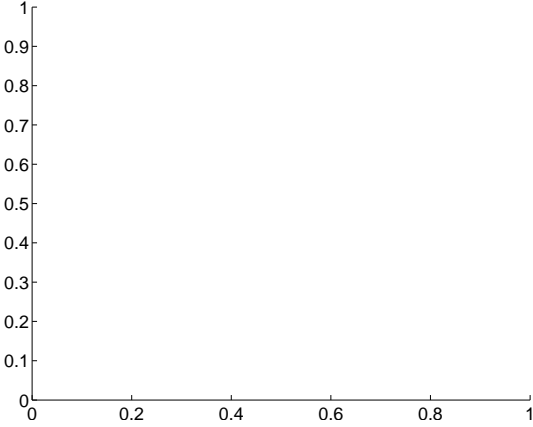
Q15 no difference image



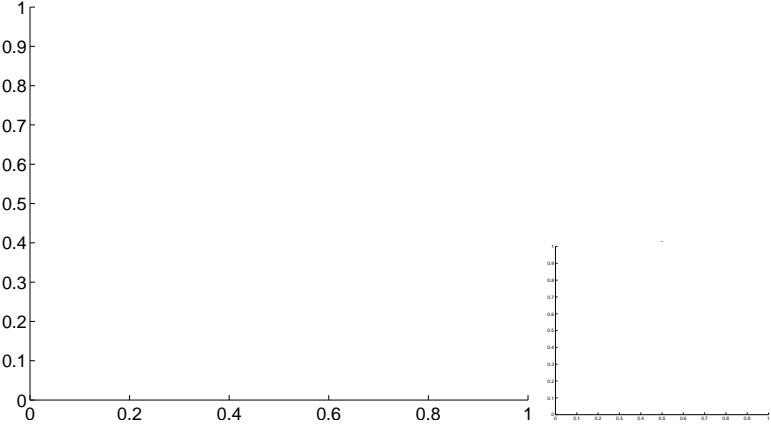
Q15 no OOT image



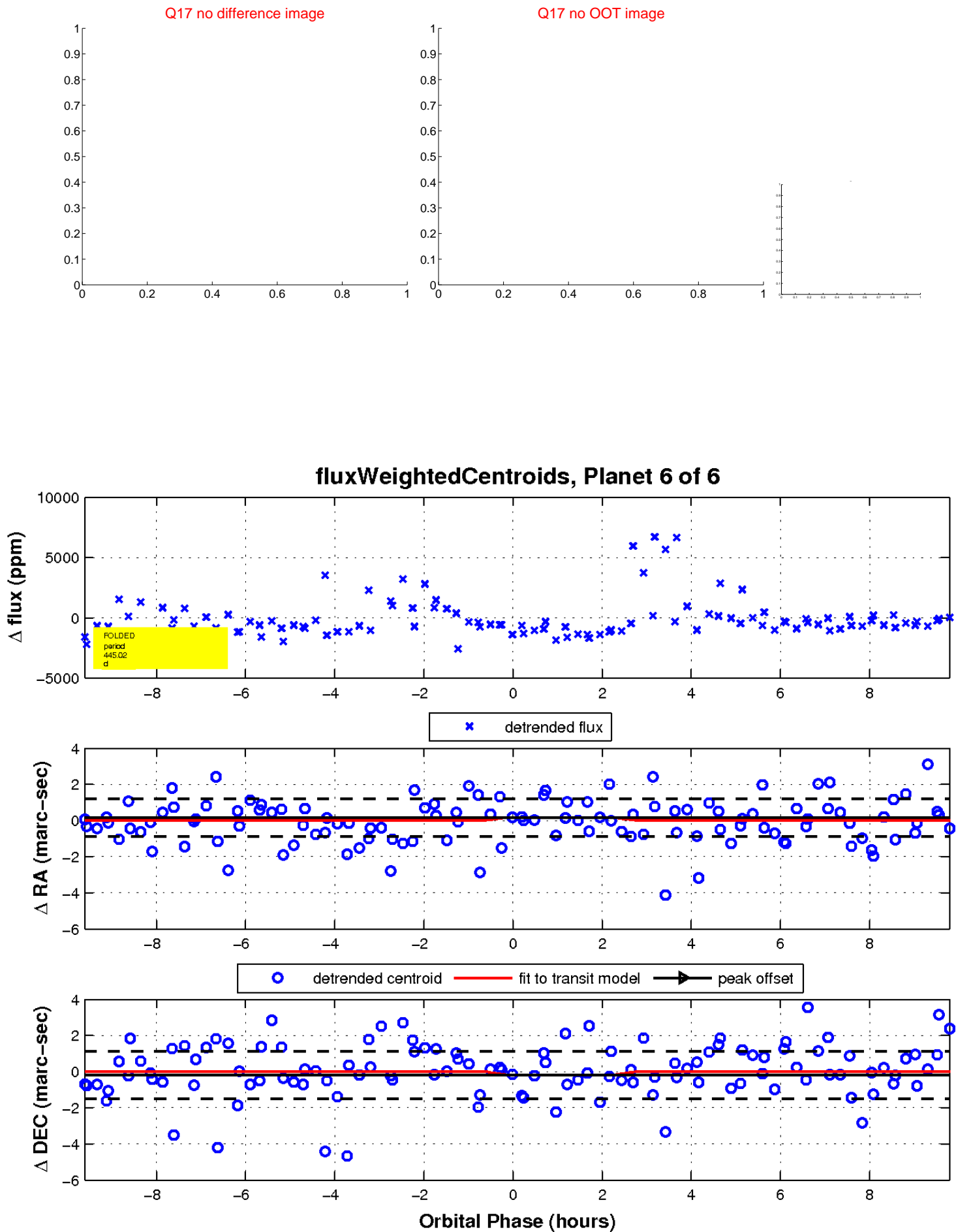
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

