

KIC 007302972

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})
007302972-01	OBS	No	426.639110	462.493799	962.8	3.500	16.4	-1.0	2.34	5499	7.27	4.38
007302972-02	OBS	No	353.780844	370.530542	749.3	2.008	10.5	2.9	2.34	5499	6.87	5.62
007302972-03	OBS	No	353.787718	370.675374	756.4	17.164	9.6	1.8	2.34	5499	6.49	5.62
007302972-04	OBS	No	0.614239	131.875777	551.4	2.000	9.3	-1.0	2.34	5499	5.51	26947.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007302972-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007302972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007302972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD
007302972-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

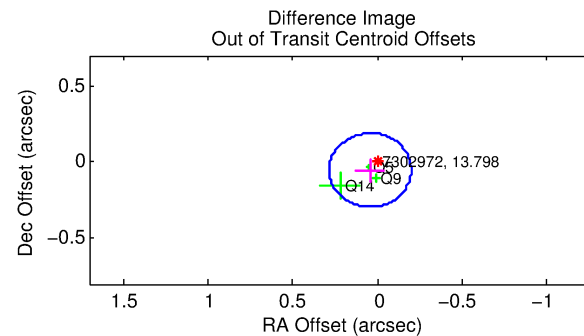
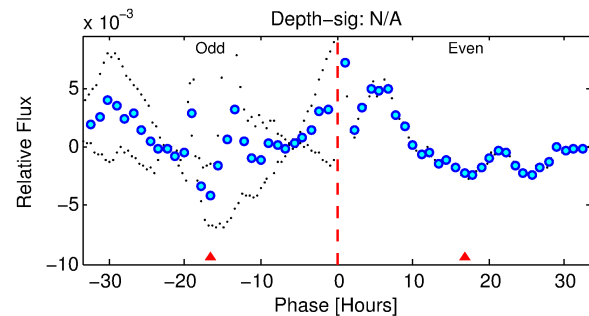
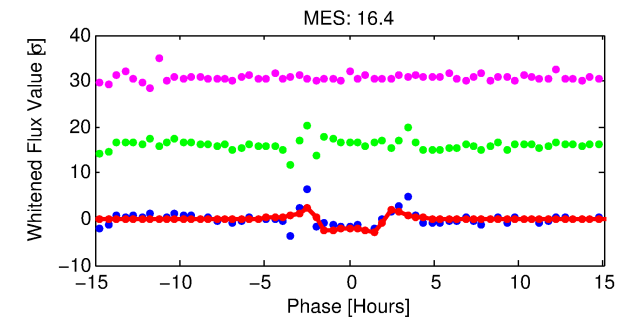
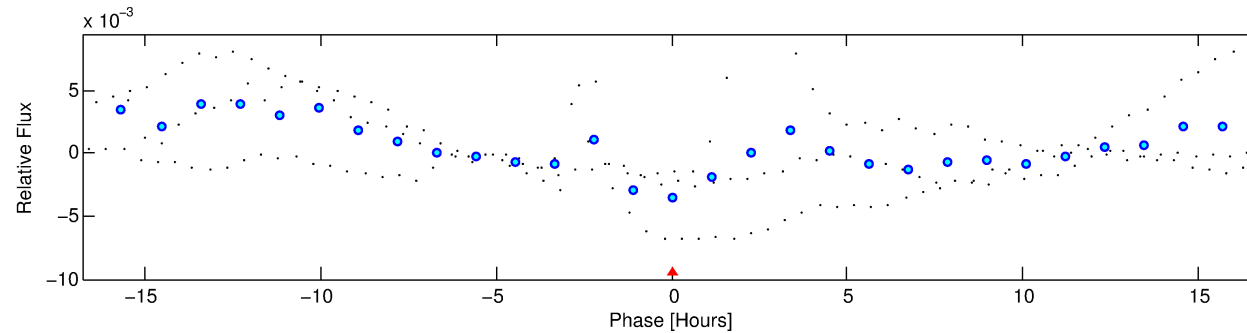
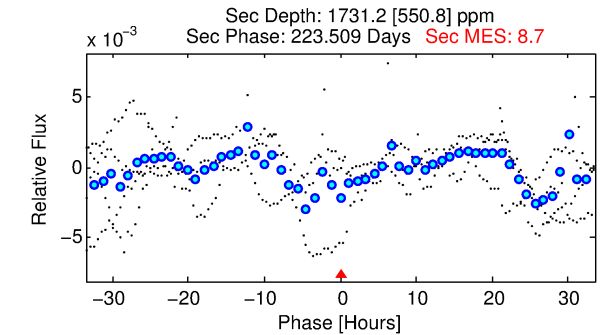
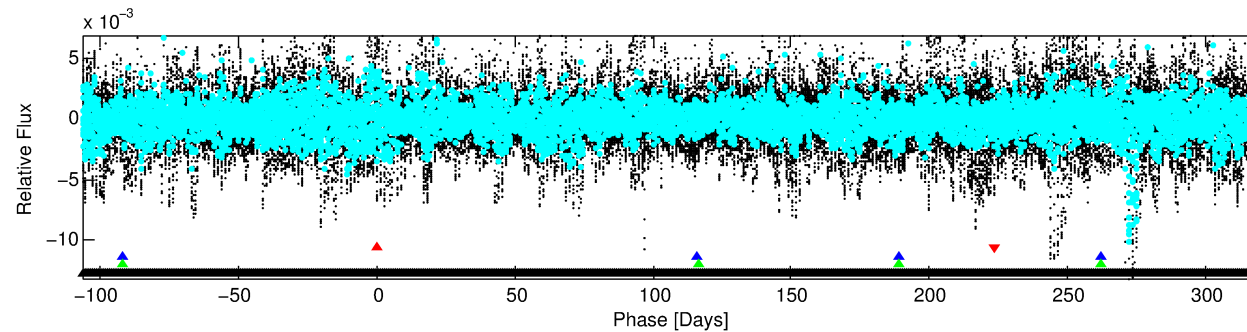
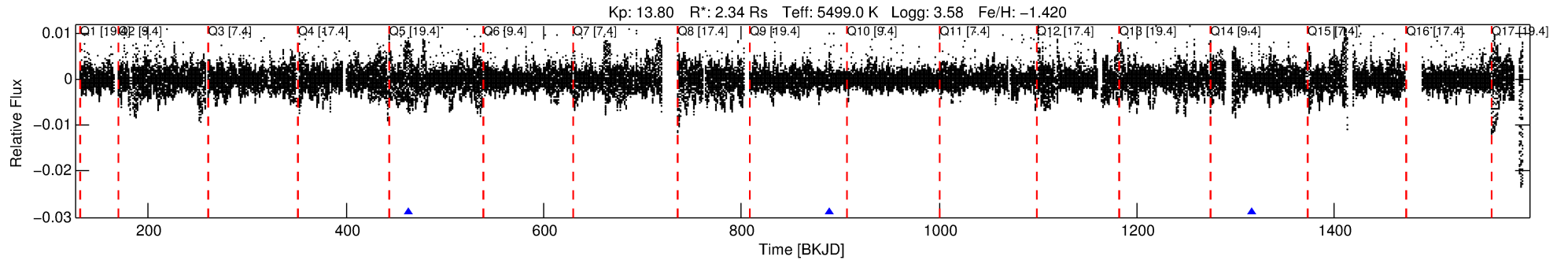
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007302972-01

No Significant Match Found

DV One-Page Summary

KIC: 7302972 Candidate: 1 of 4 Period: 426.639 d



TPS TCE Results:

Period = 426.63911 d
Epoch = 462.4938 BKJD

DV fit results are unavailable

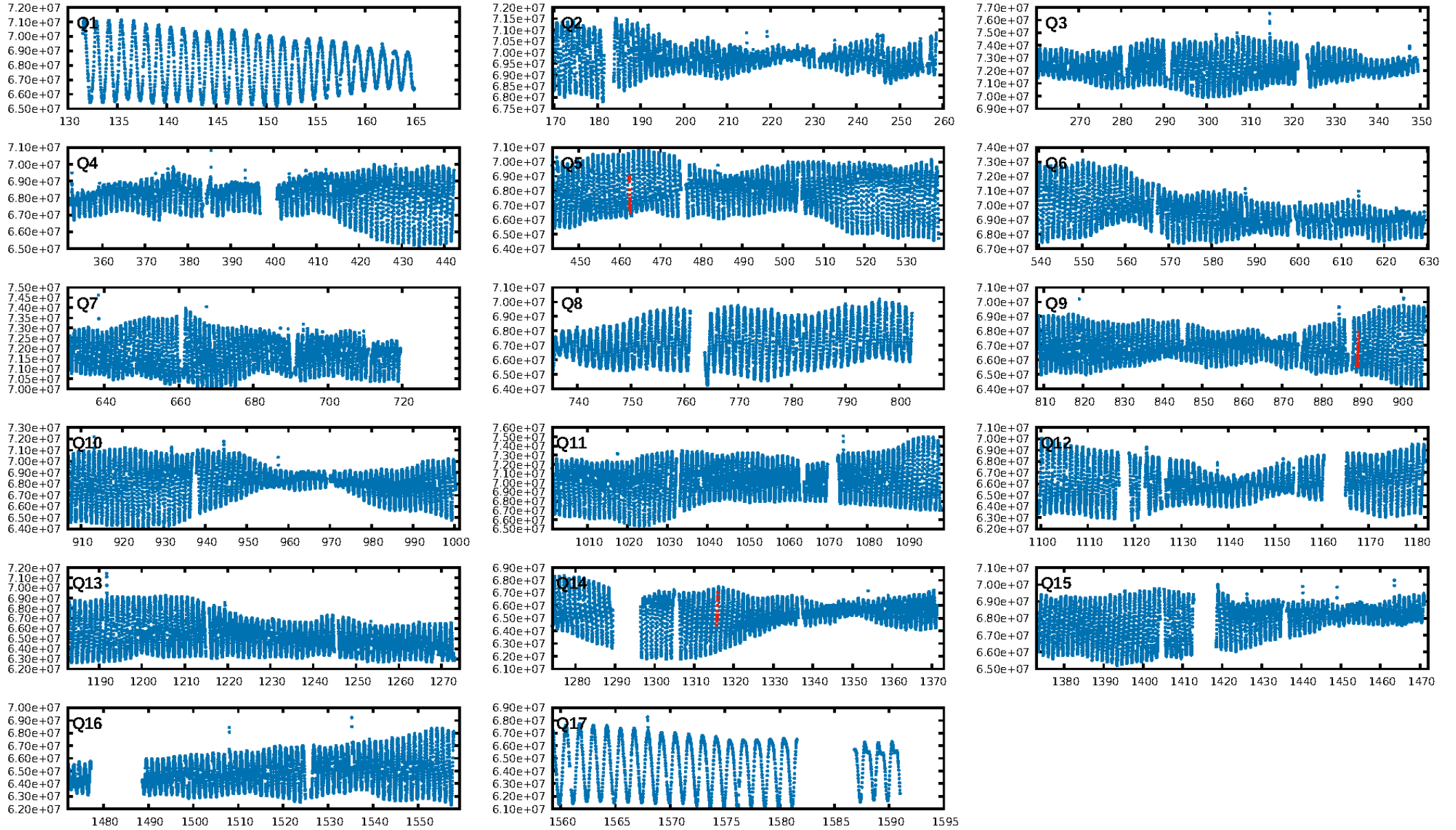
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.81σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.1181
Centroid-sig: 65.2%
Centroid-so: 0.315 arcsec [1.32σ]
OotOffset-rm: 0.068 arcsec [0.84σ]
KicOffset-rm: 0.070 arcsec [0.76σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

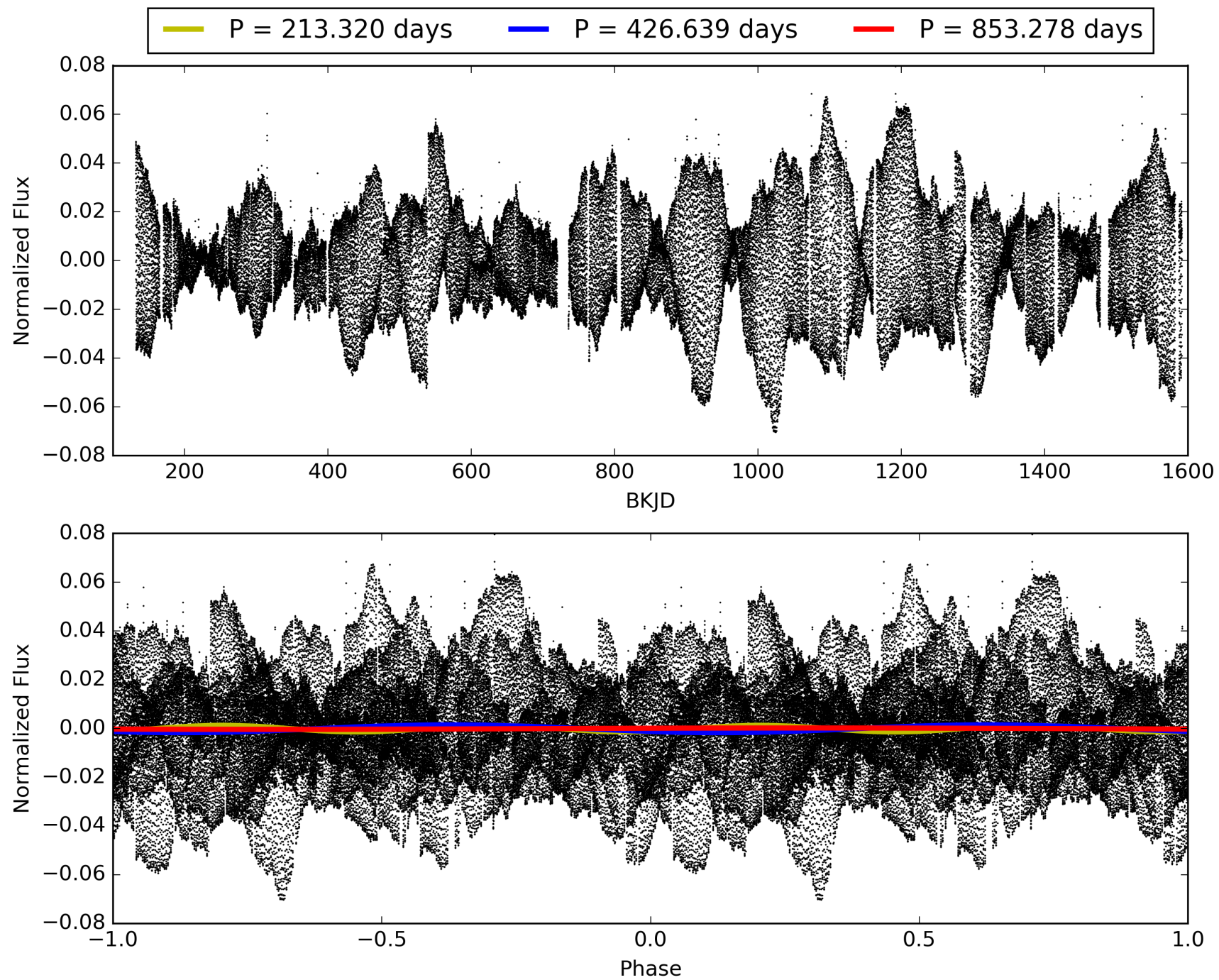
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:17:13 Z

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

TCE 007302972-01, PDC Light Curves

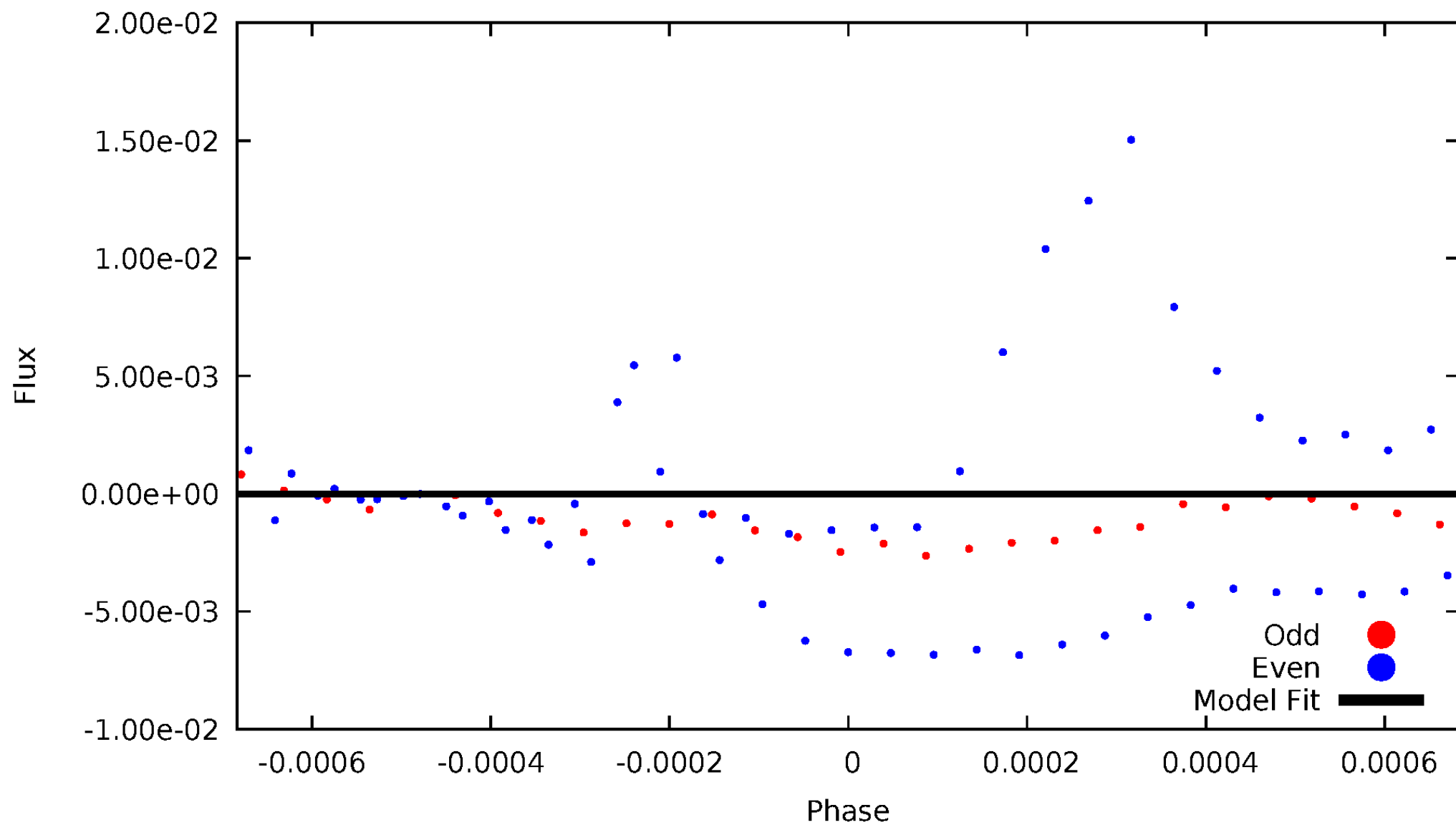


TCE 007302972-01



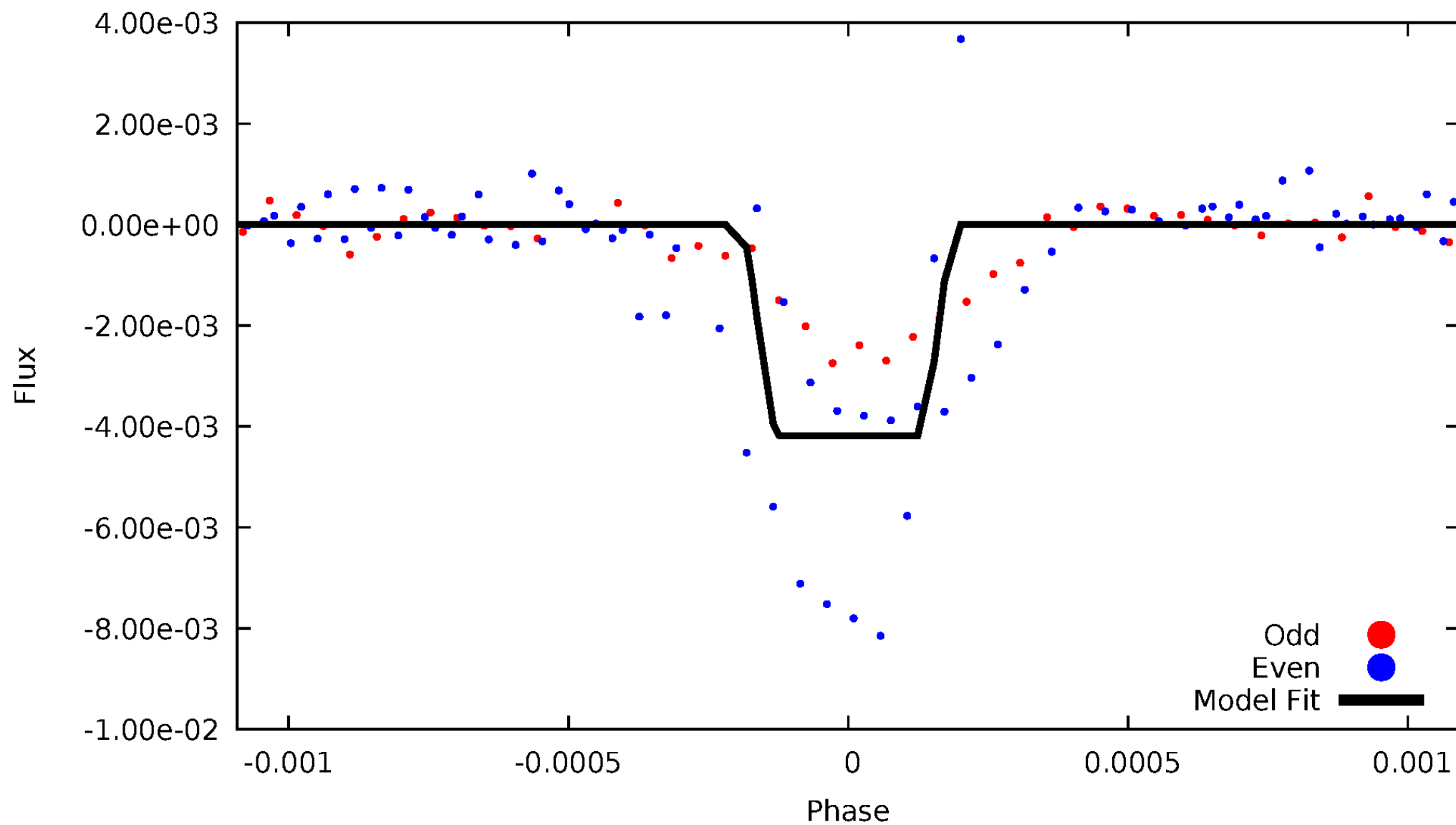
DV Odd/Even

TCE 007302972-01

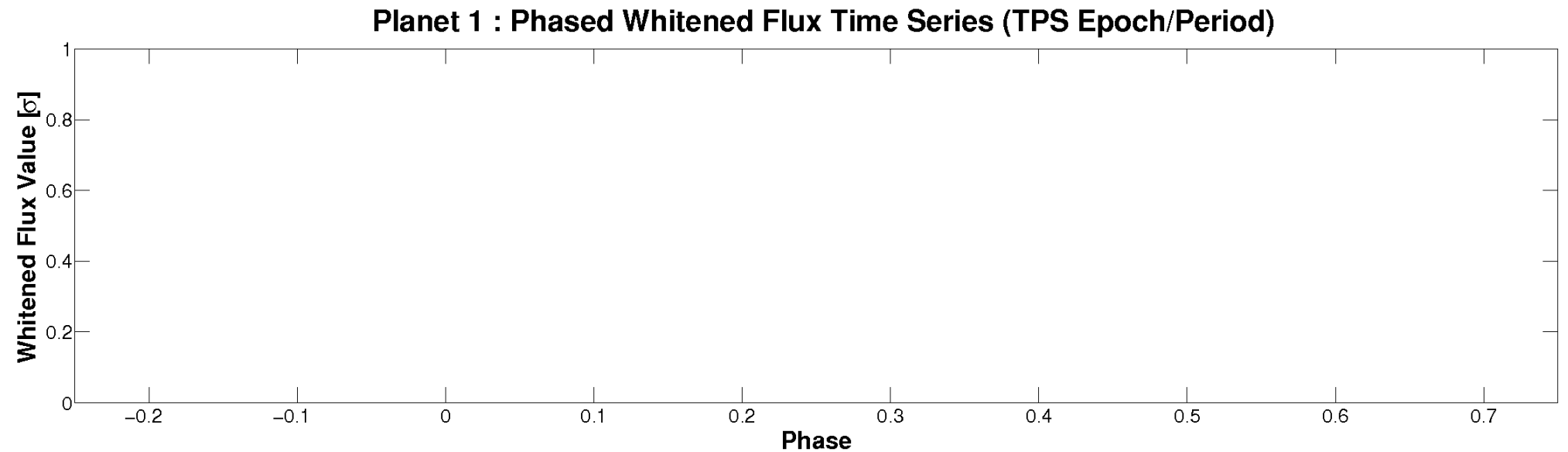
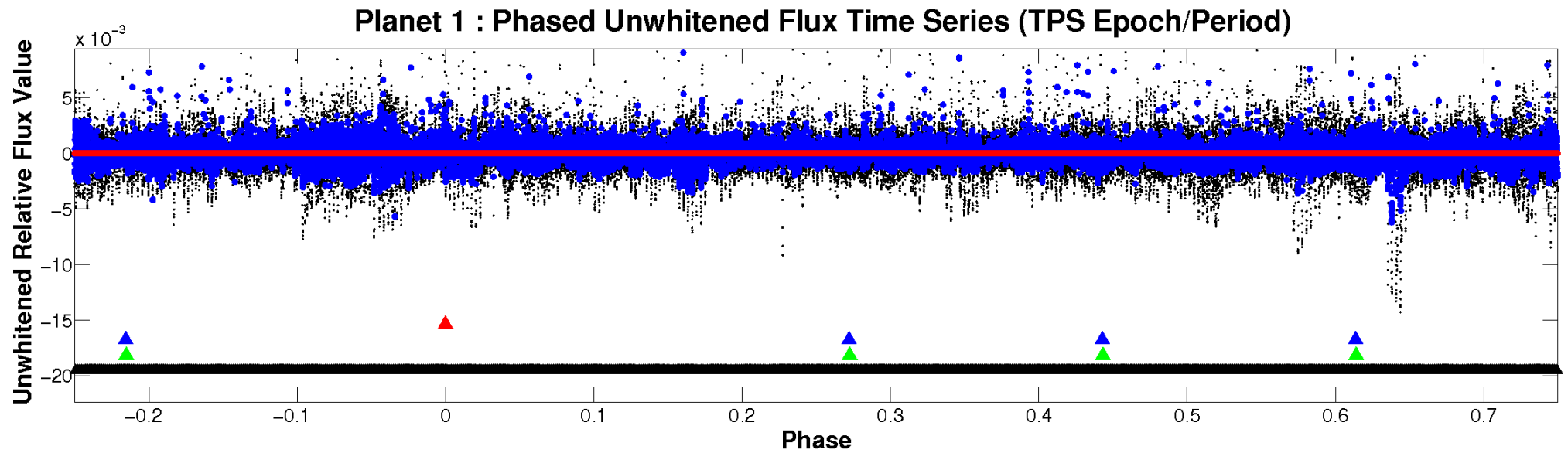


ALT Odd/Even

TCE 007302972-01

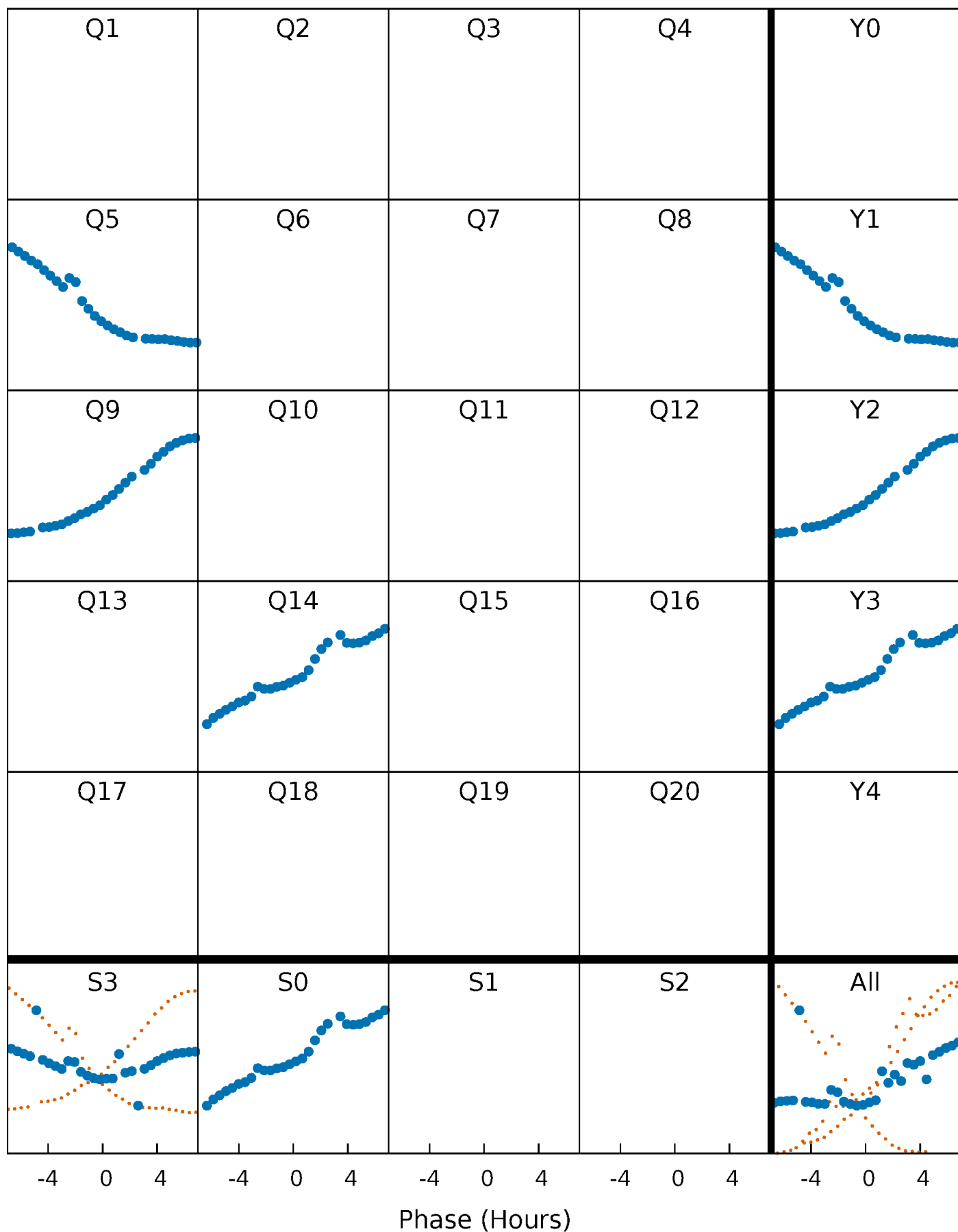


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 007302972-01 P=426.639110 Days $T_0=462.493799$ (BKJD)



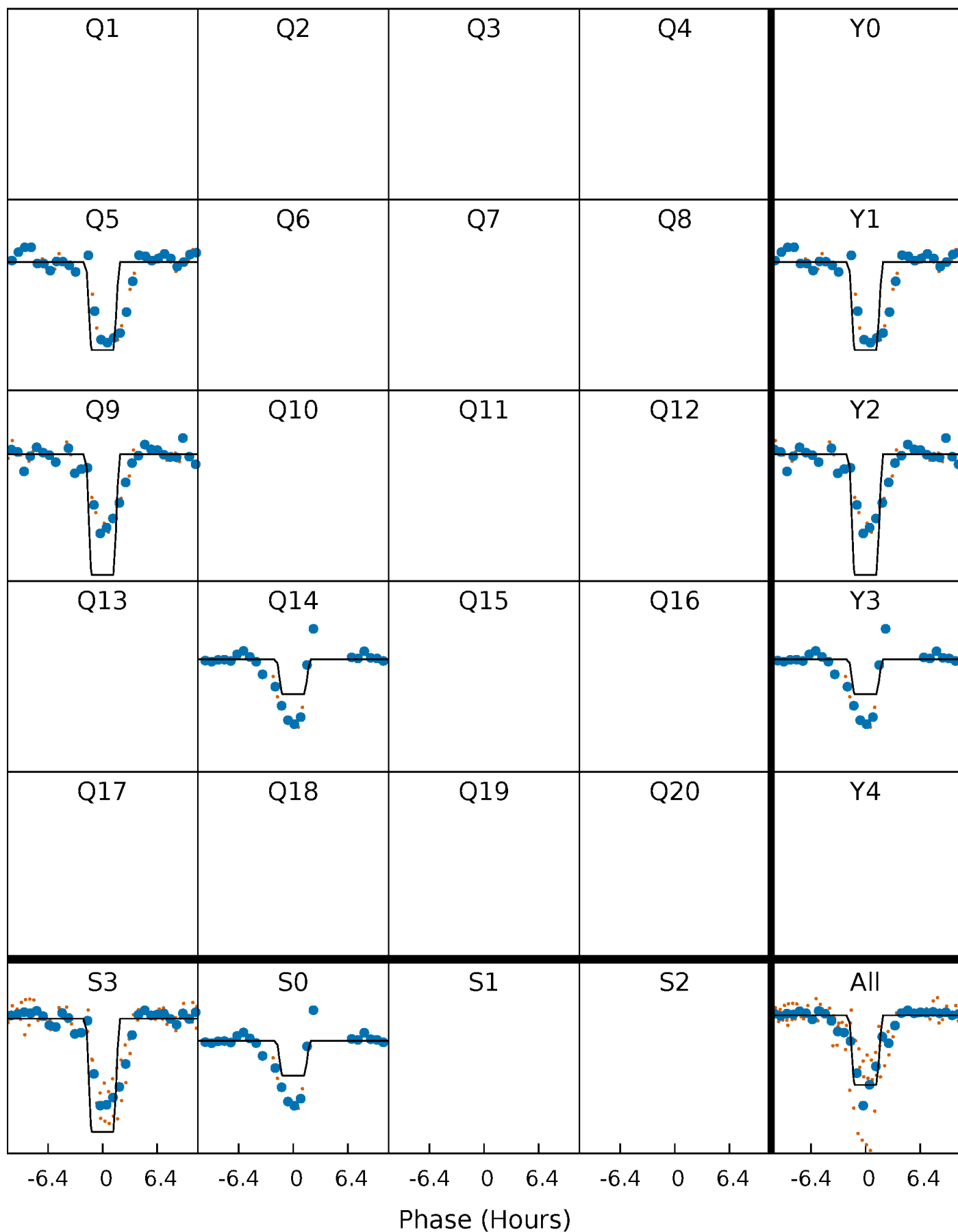
DV Quarter-Phased Transit Curves

TCE 007302972-01 $P=426.639110$ Days $T_0=462.493799$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

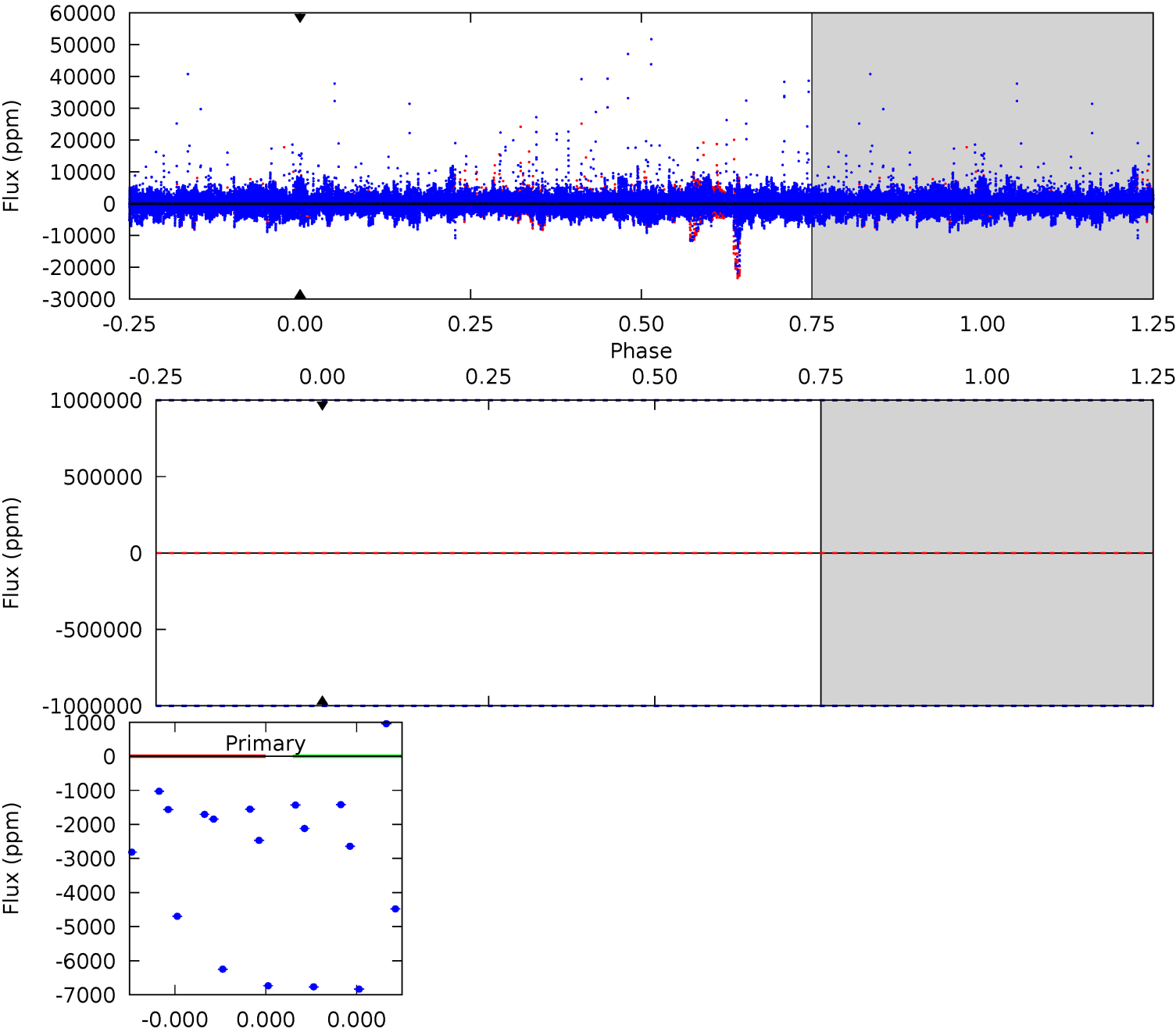
TCE 007302972-01 P=426.639110 Days $T_0=462.502137$ (BKJD)



DV Model-Shift Uniqueness Test

007302972-01, P = 426.639110 Days, E = 35.854689 Days

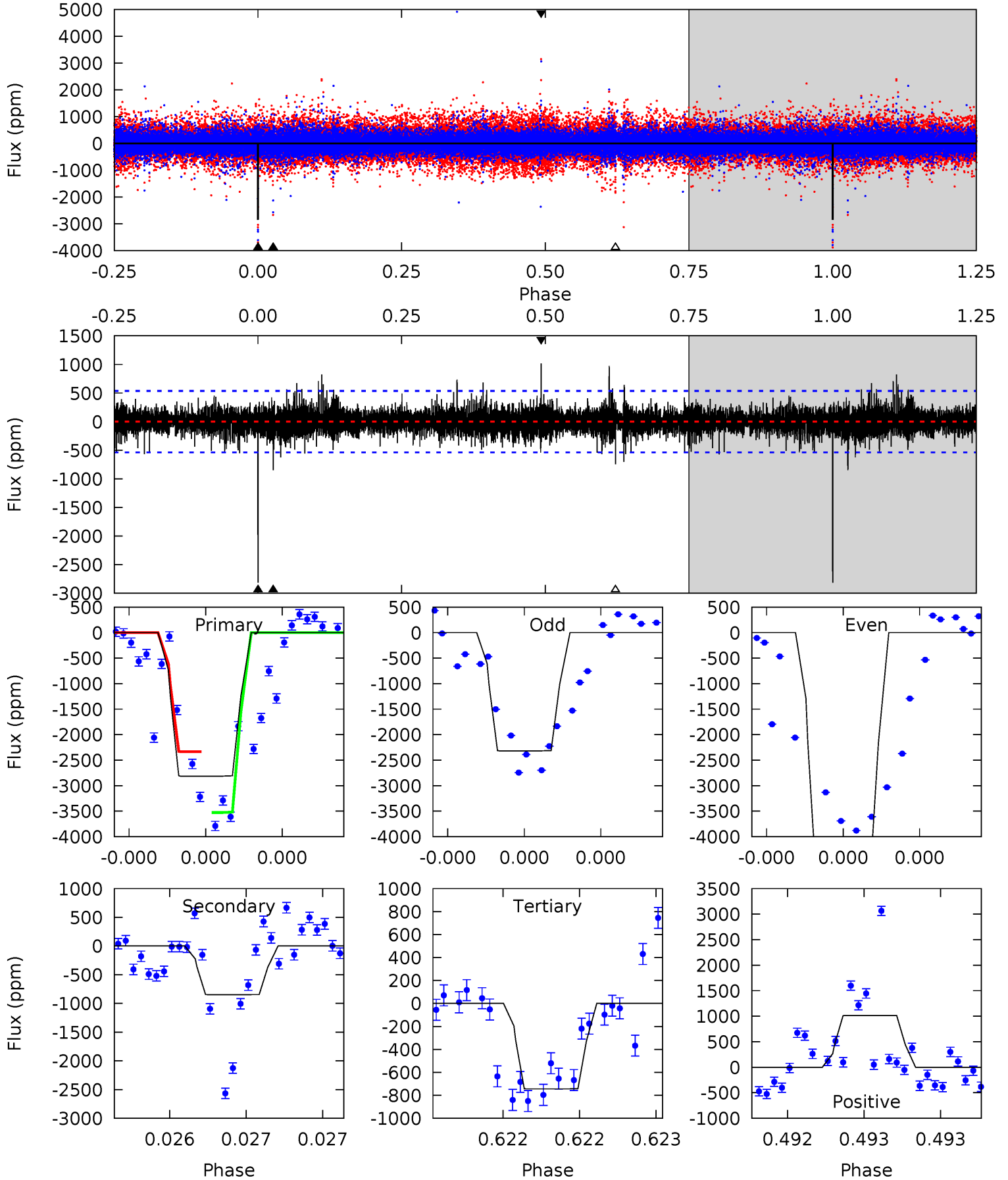
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007302972-01, P = 426.639110 Days, E = 35.863027 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.5	8.87	7.80	10.6	5.63	3.57	1.40	21.7	18.9	1.07	-1.76	13.3	1.25	0.26	6.07



Stellar Parameters For KIC 007302972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5499^{+181}_{-125}	$3.580^{+1.095}_{-0.365}$	$-1.420^{+0.350}_{-0.250}$	$2.341^{+1.754}_{-1.754}$	$0.760^{+0.258}_{-0.129}$	$0.083^{+3.536}_{-0.073}$
	+3%/-2%	+31%/-10%	+25%/-18%	+75%/-75%	+34%/-17%	+4237%/-87%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007302972-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$16.96^{+22.88}_{-12.40}$	499^{+93}_{-113}	-3819^{+22376}_{-12622}	$-919.960^{+408054.832}_{-308503.649}$
Alt.	-846 ± 95	$22.02^{+24.37}_{-15.70}$	504^{+100}_{-102}	3482^{+1791}_{-558}	1005^{+11876}_{-774}

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

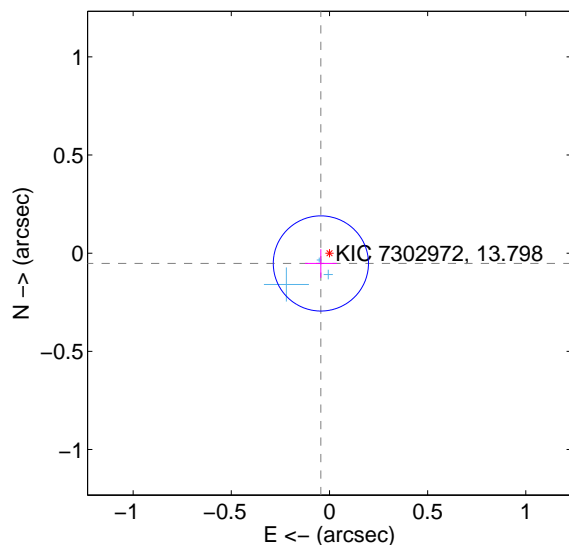
Supplemental centroid analysis for 007302972-01. Kepler magnitude: 13.80. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

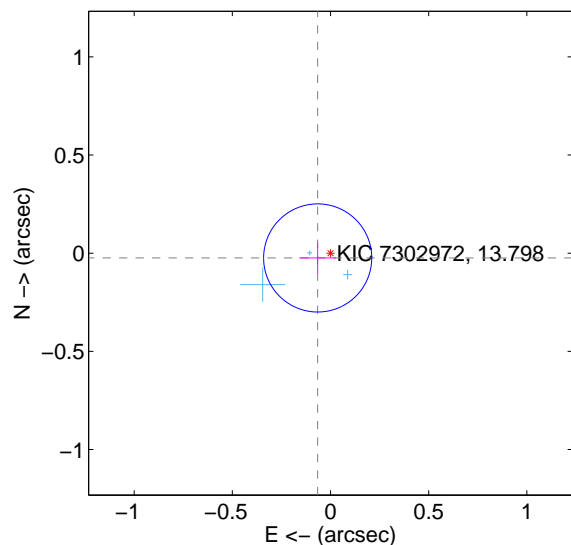
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.068 ± 0.081	0.84	0.044 ± 0.081	-0.052 ± 0.072
PRF-fit source offset from KIC position	0.070 ± 0.092	0.76	0.065 ± 0.094	-0.024 ± 0.076
photometric centroid source offset	0.31 ± 0.24	1.32	-0.17 ± 0.16	0.27 ± 0.26

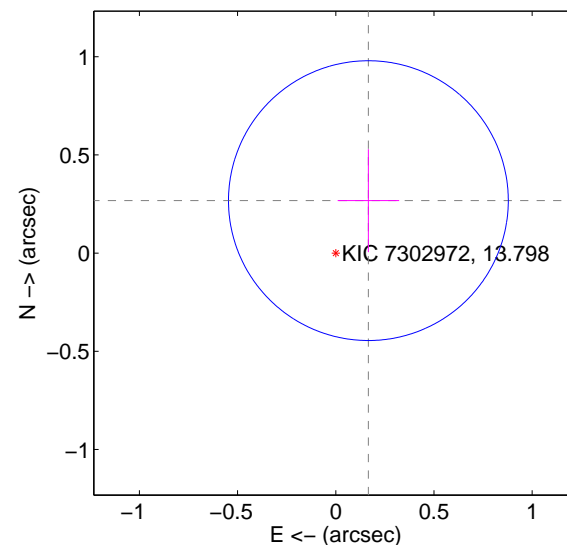
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

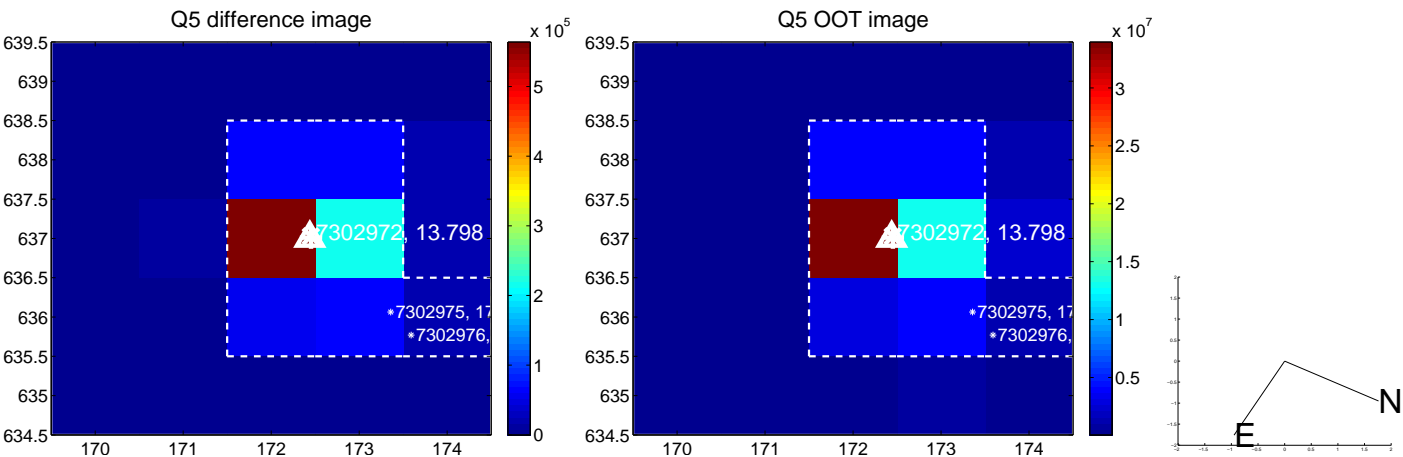


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

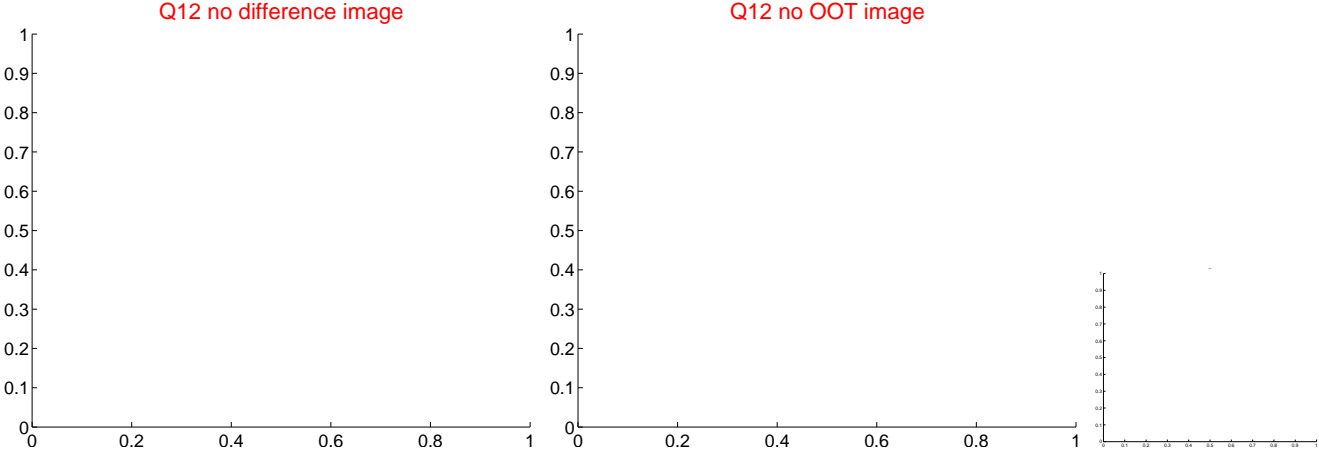
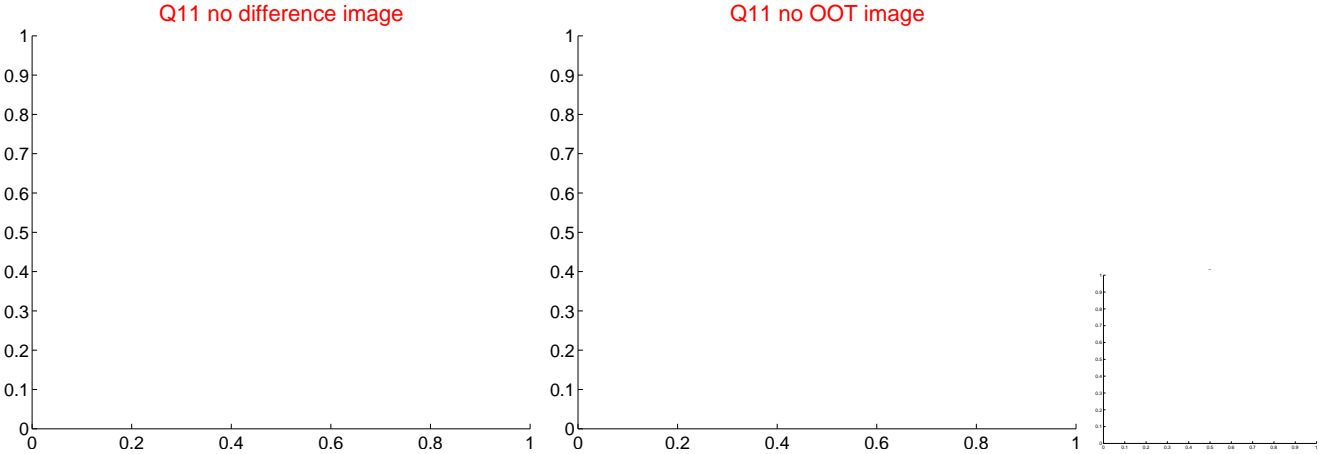
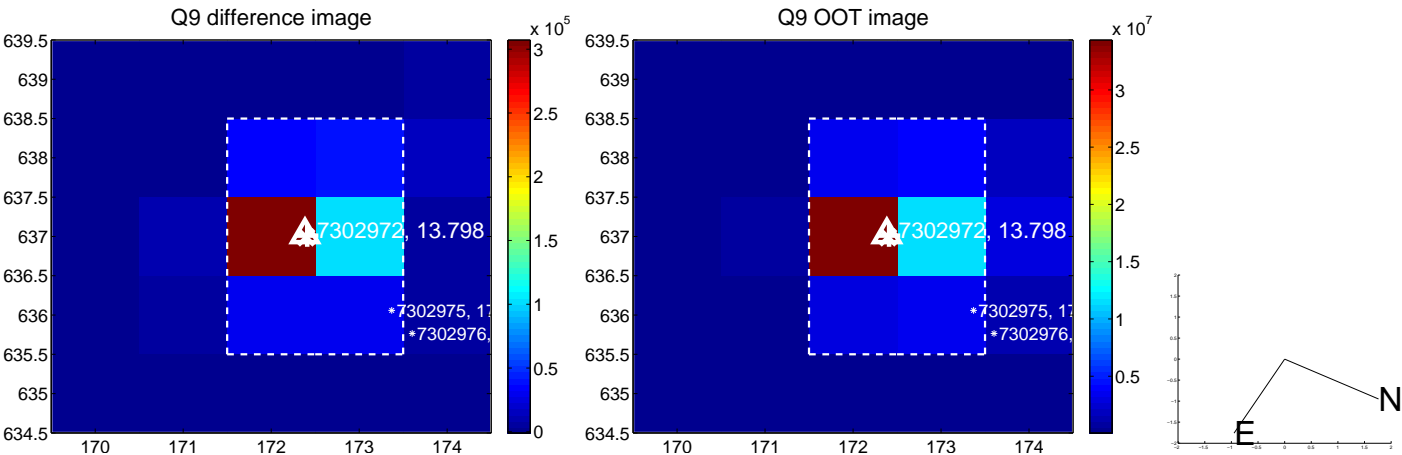
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



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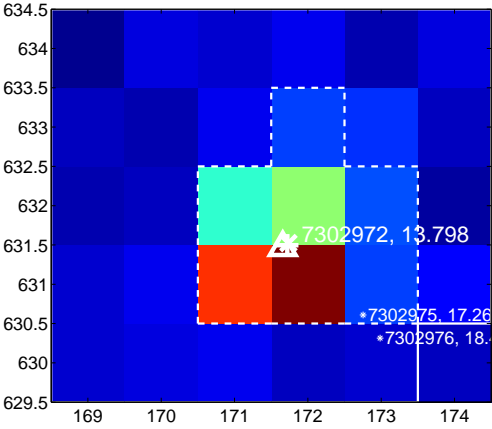
Q13 no difference image



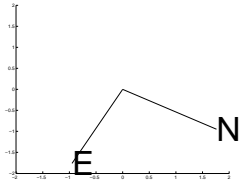
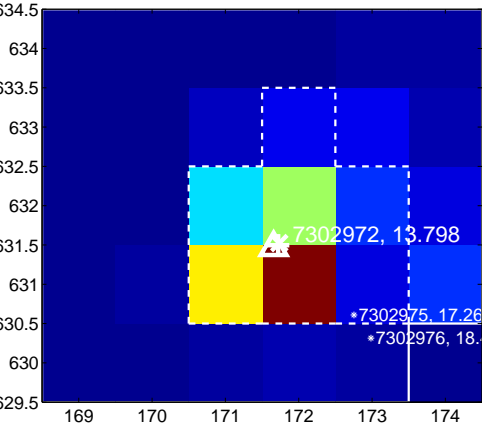
Q13 no OOT image



Q14 difference image



Q14 OOT image



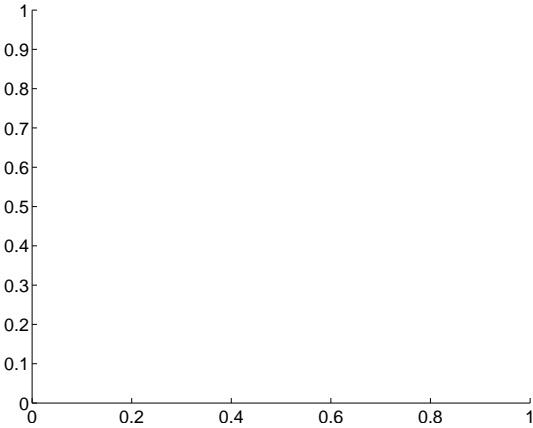
Q15 no difference image



Q15 no OOT image



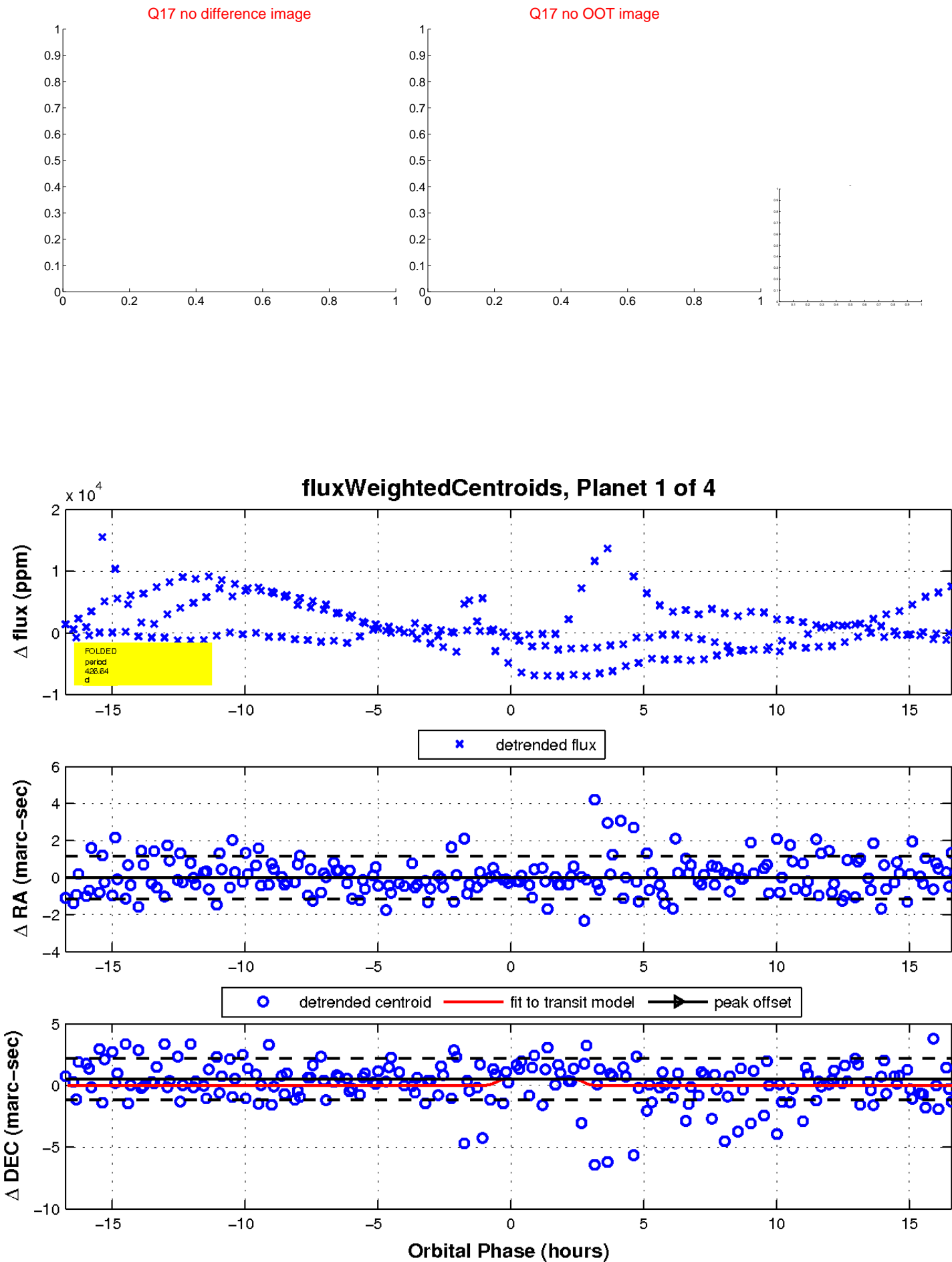
Q16 no difference image



Q16 no OOT image

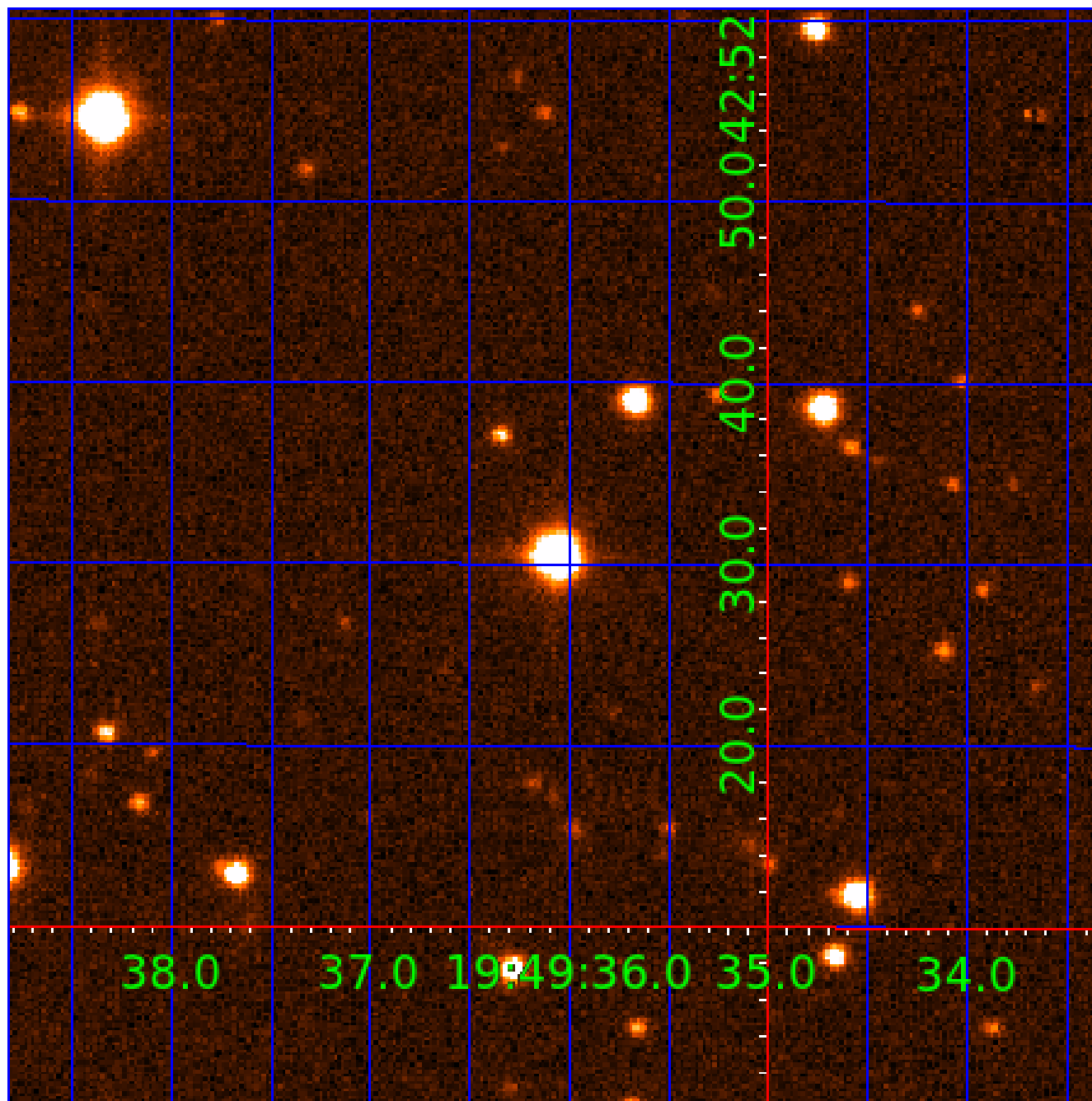


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007302972

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})
007302972-01	OBS	No	426.639110	462.493799	962.8	3.500	16.4	-1.0	2.34	5499	7.27	4.38
007302972-02	OBS	No	353.780844	370.530542	749.3	2.008	10.5	2.9	2.34	5499	6.87	5.62
007302972-03	OBS	No	353.787718	370.675374	756.4	17.164	9.6	1.8	2.34	5499	6.49	5.62
007302972-04	OBS	No	0.614239	131.875777	551.4	2.000	9.3	-1.0	2.34	5499	5.51	26947.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007302972-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007302972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007302972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD
007302972-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

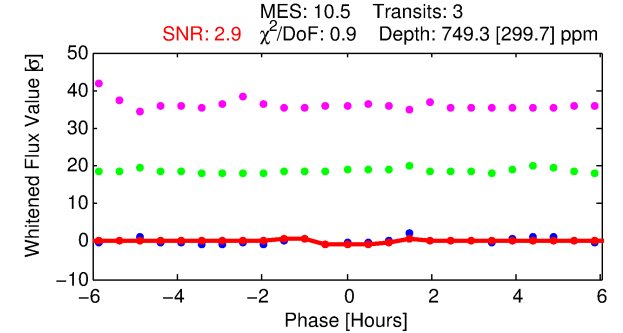
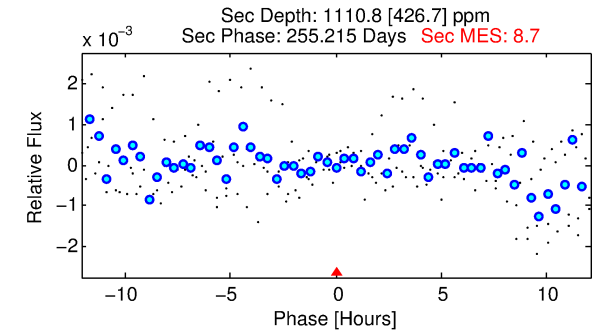
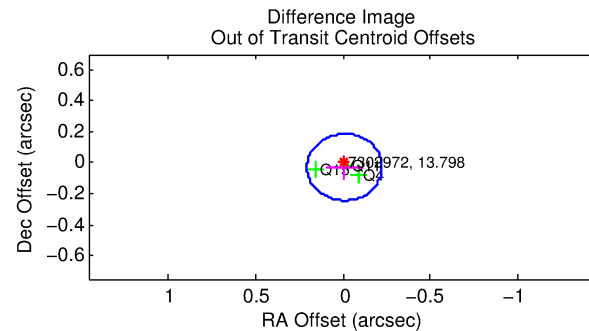
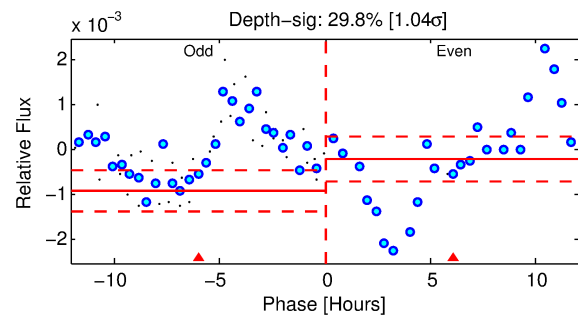
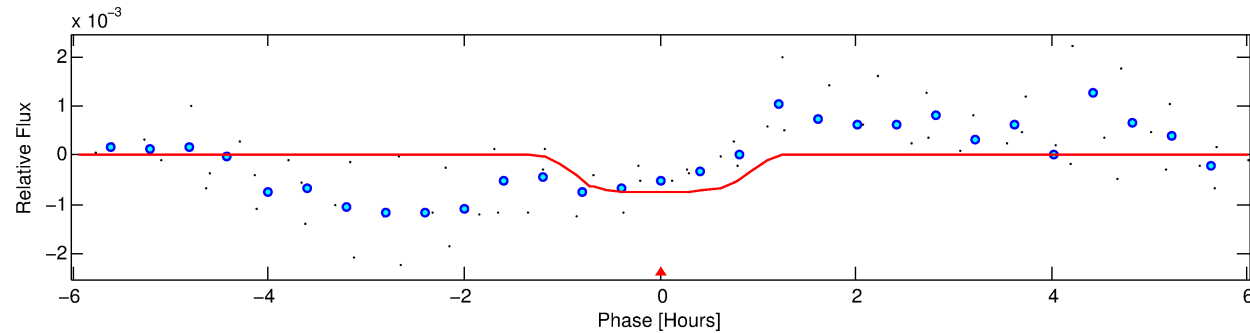
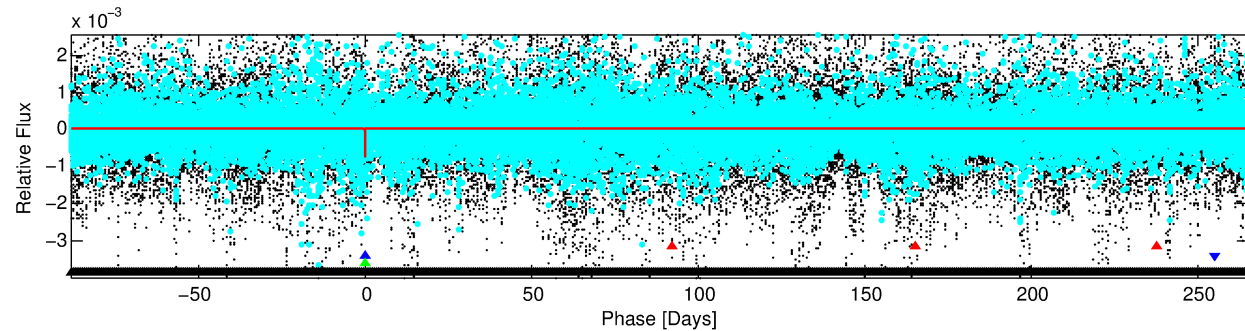
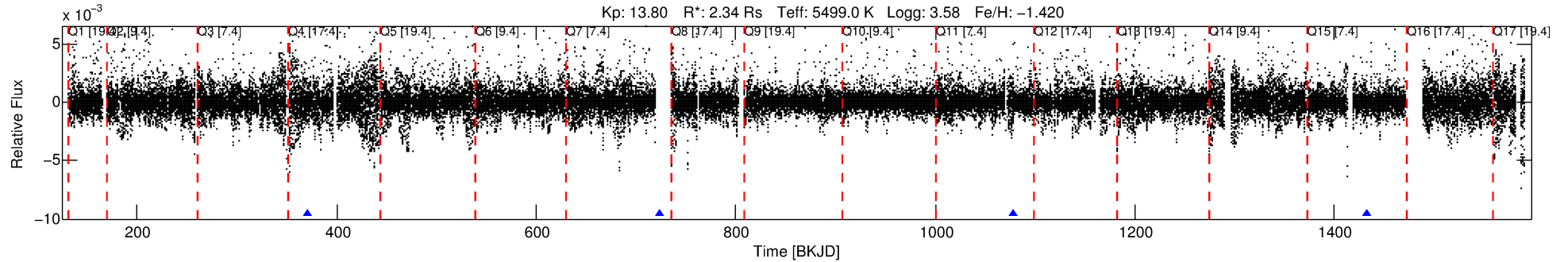
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007302972-02

No Significant Match Found

DV One-Page Summary

KIC: 7302972 Candidate: 2 of 4 Period: 353.781 d



DV Fit Results:

Period = 353.78084 [0.00585] d
Epoch = 370.5305 [0.0140] BKJD
Rp/R* = 0.0269 [0.0532]
a/R* = 1012.08 [10187.21]
b = 0.70 [7.40]
Seff = 5.62 [9.89]
Teq = 393 [173] K
Rp = 6.87 [14.53] Re
a = 0.8936 [0.8736] AU
Ag = 10345.92 [44949.04] [0.23 σ]
Teffp = 6123 [6088] K [0.94 σ]

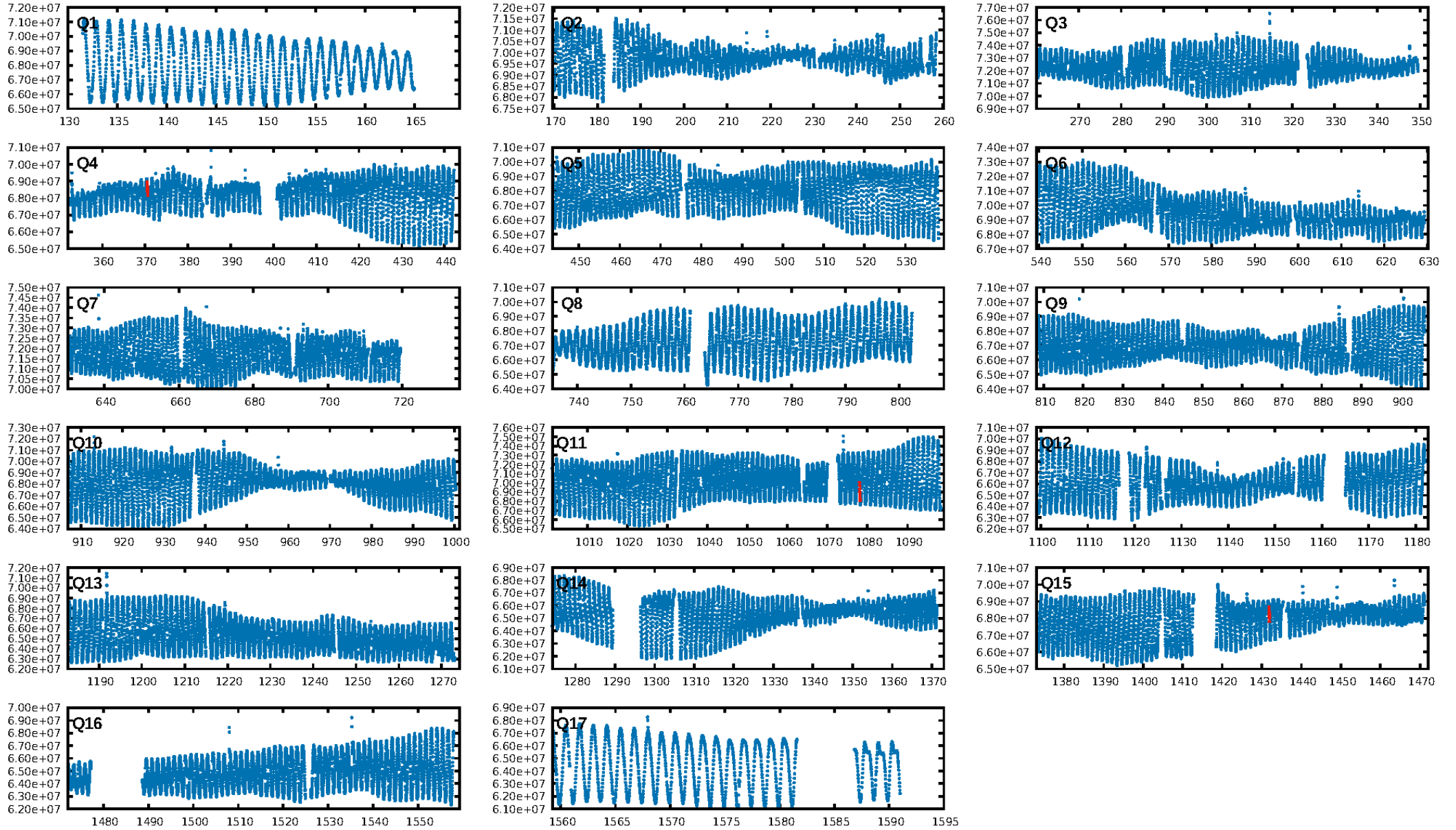
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2990.99 σ]
LongPeriod-sig: 0.8% [0.01 σ]
ModelChiSquare2-sig: 89.7%
ModelChiSquareGof-sig: 97.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.145
Centroid-sig: 95.3%
Centroid-so: 0.581 arcsec [0.29 σ]
OotOffset-rm: 0.030 arcsec [0.42 σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-rm: 0.102 arcsec [1.29 σ]
KicOffset-st: 0/2/1/0 [3]
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DiffImageOverlap-fno: 0.00 [0/3]

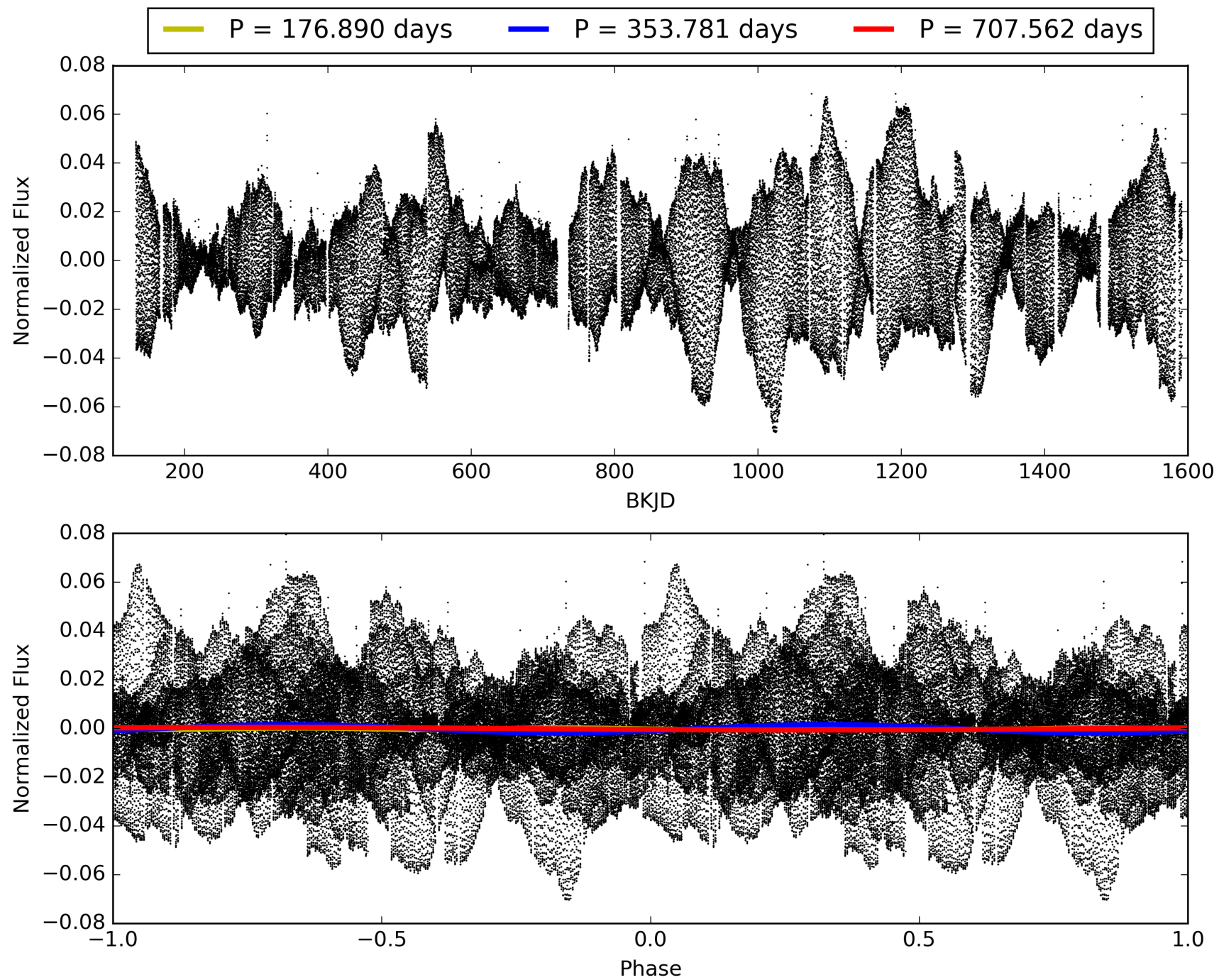
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:17:36 Z

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

TCE 007302972-02, PDC Light Curves

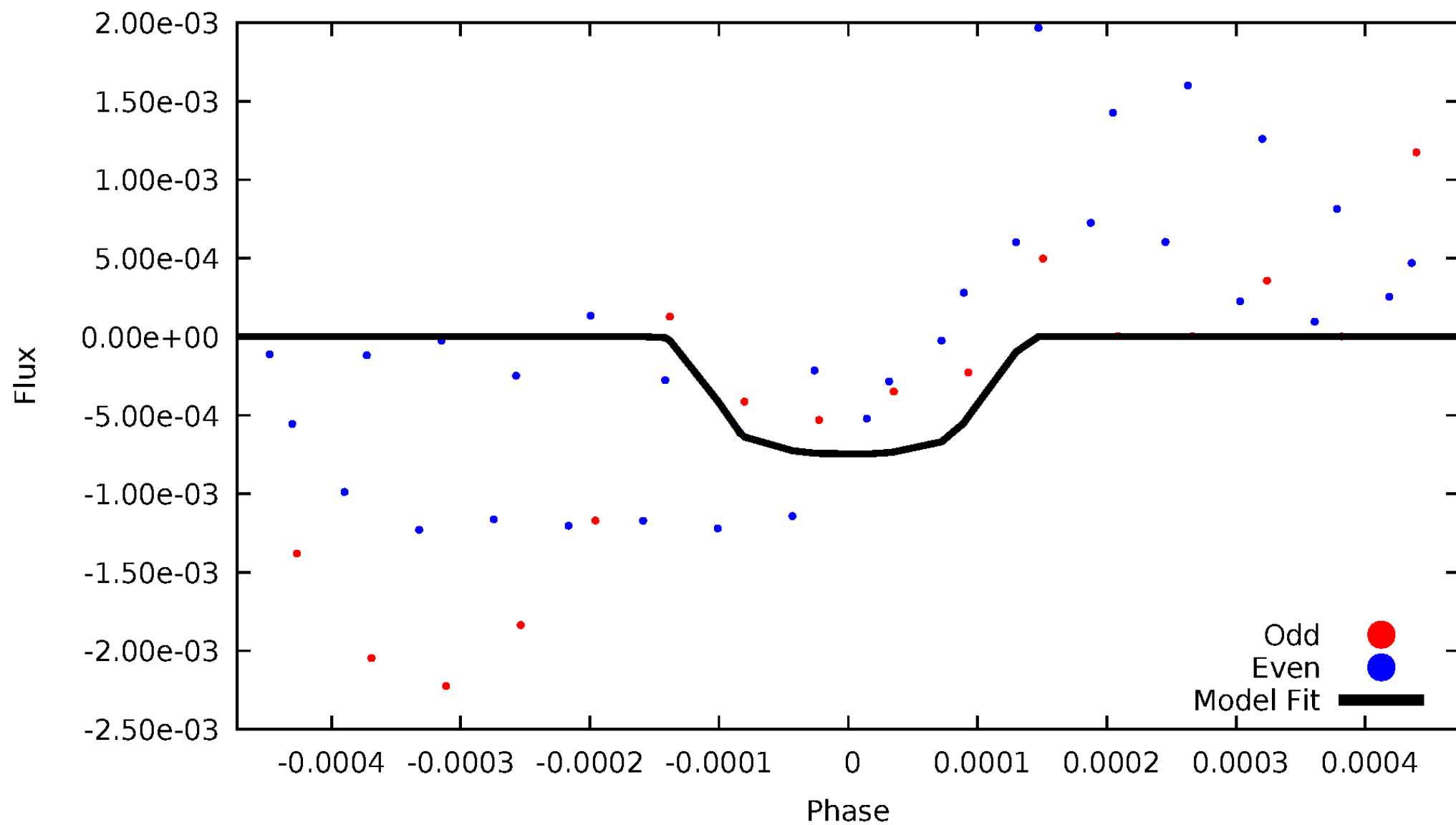


TCE 007302972-02



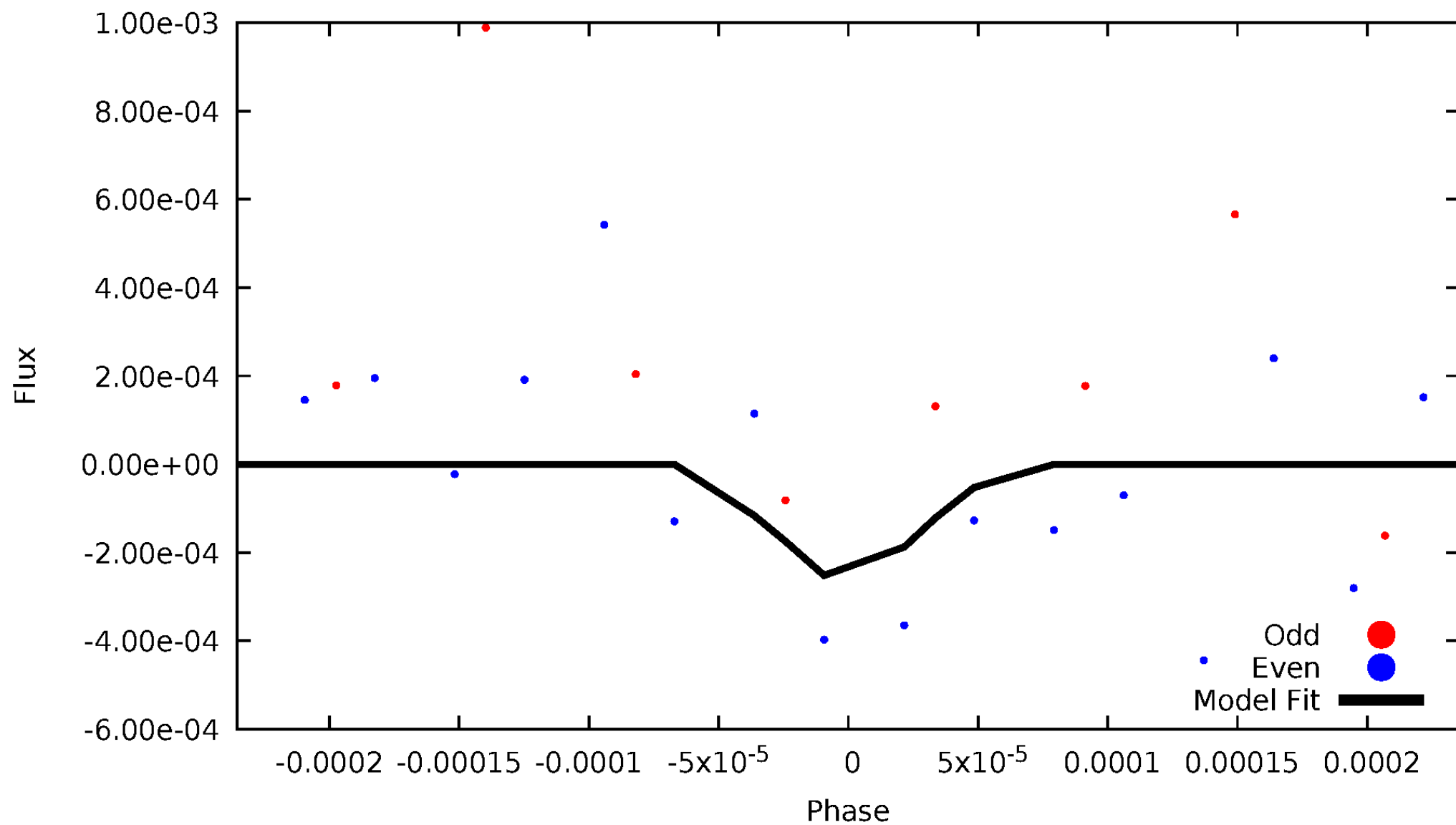
DV Odd/Even

TCE 007302972-02



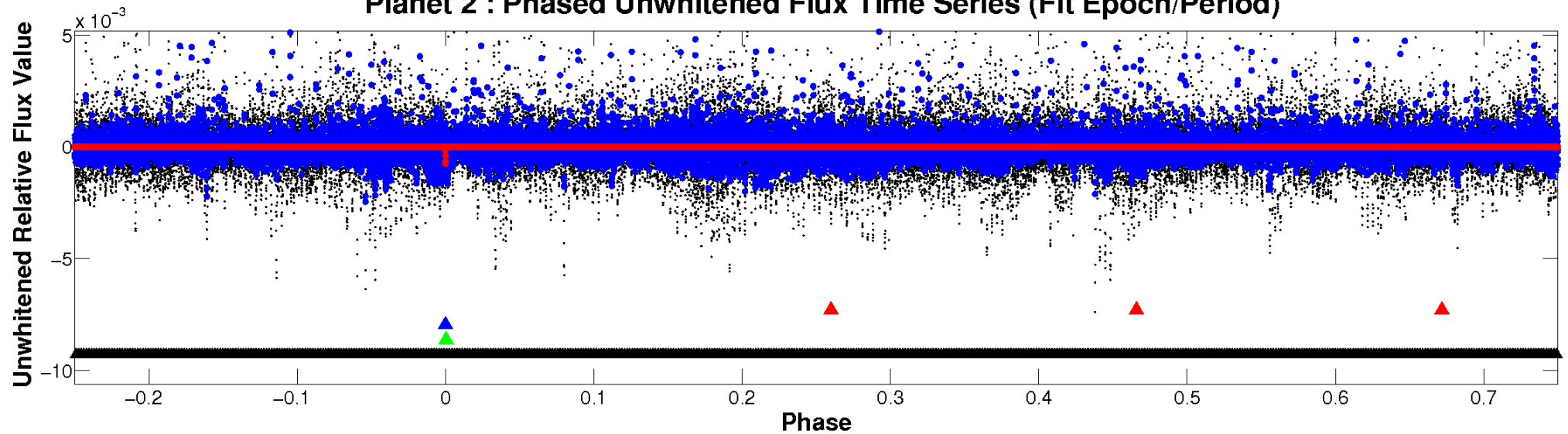
ALT Odd/Even

TCE 007302972-02

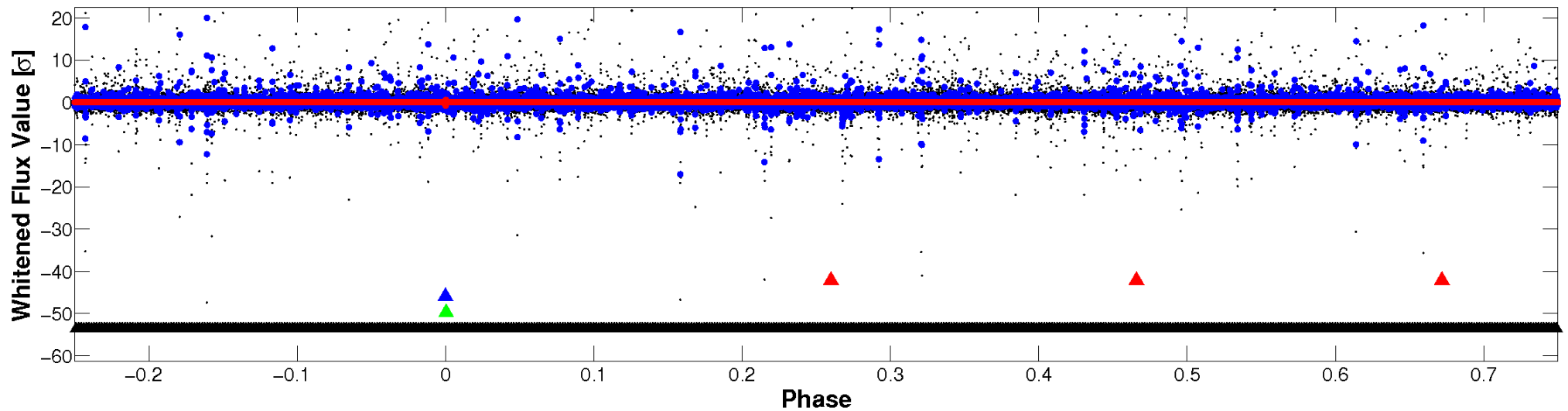


Non-Whitened Vs. Whitened Light Curve

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

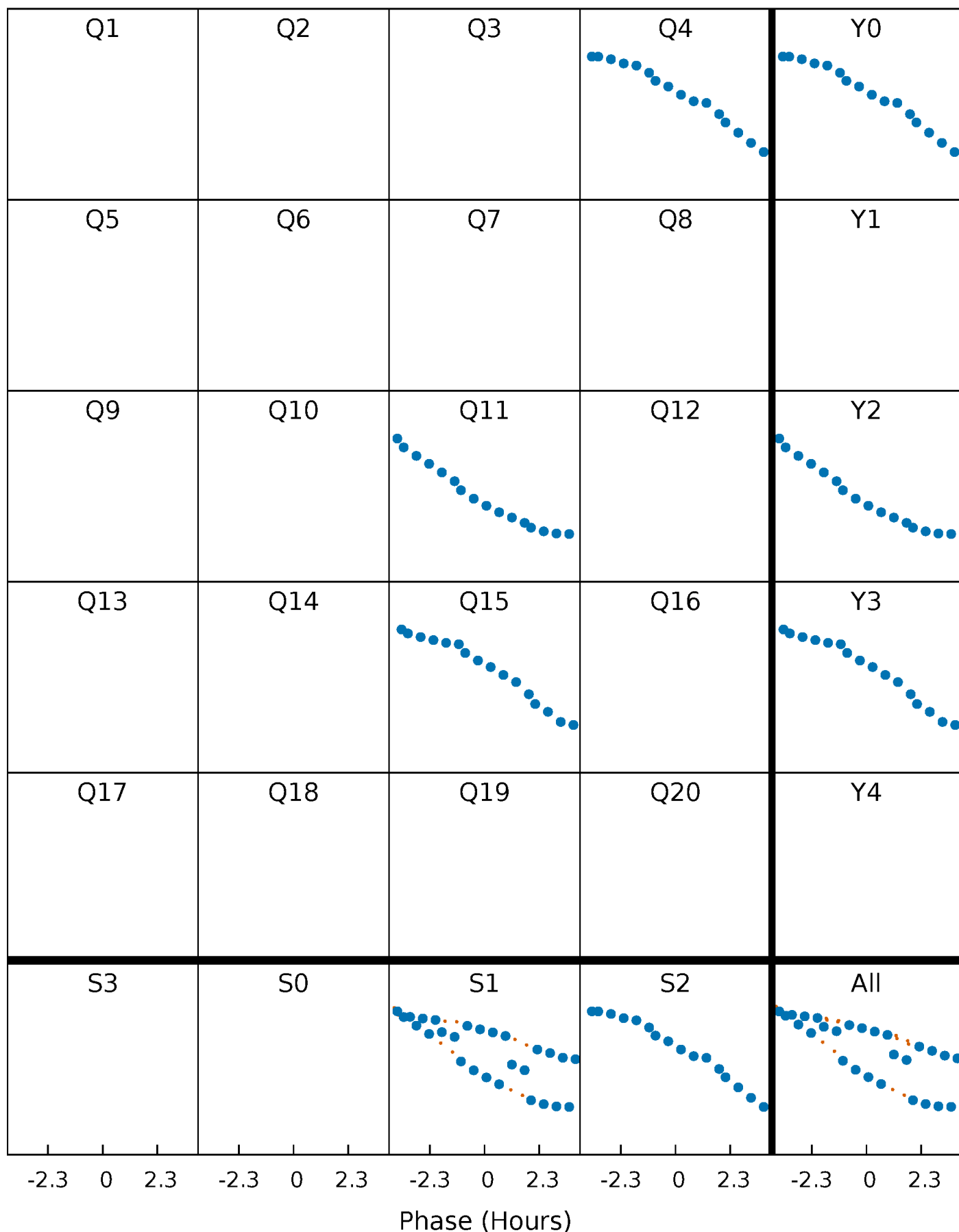


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



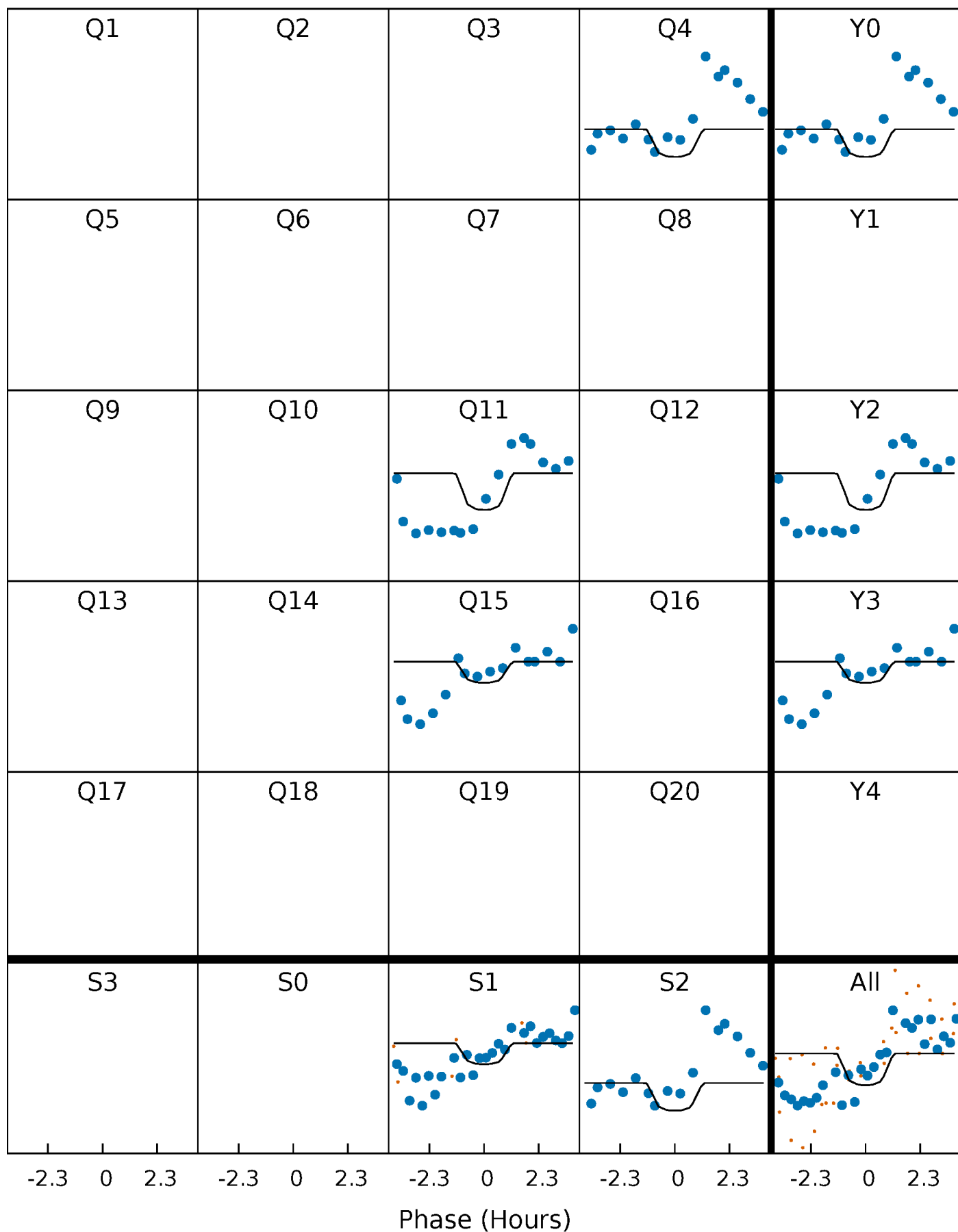
PDC Quarter-Phased Transit Curves

TCE 007302972-02 $P=353.780844$ Days $T_0=370.530542$ (BKJD)



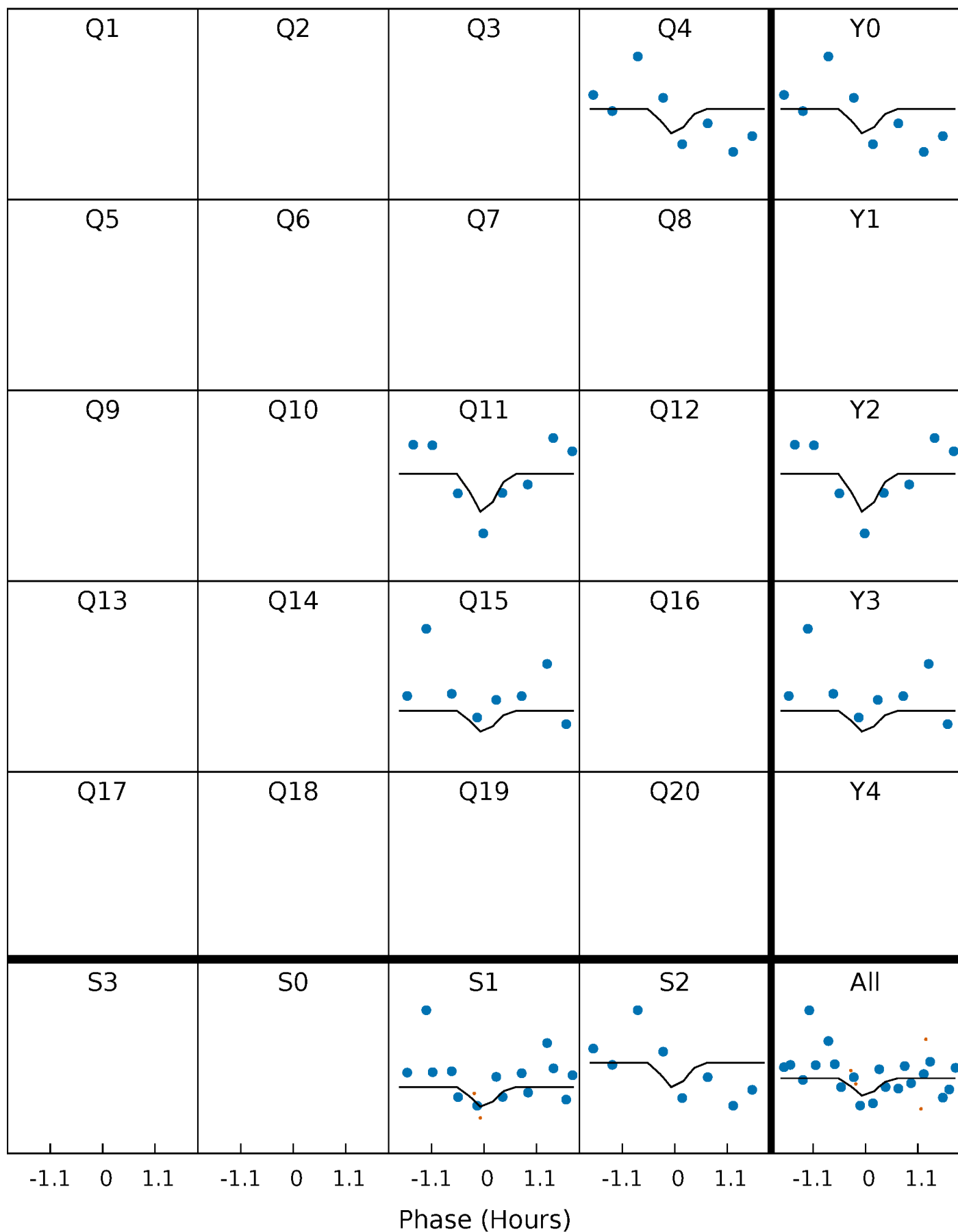
DV Quarter-Phased Transit Curves

TCE 007302972-02 $P=353.780844$ Days $T_0=370.530542$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

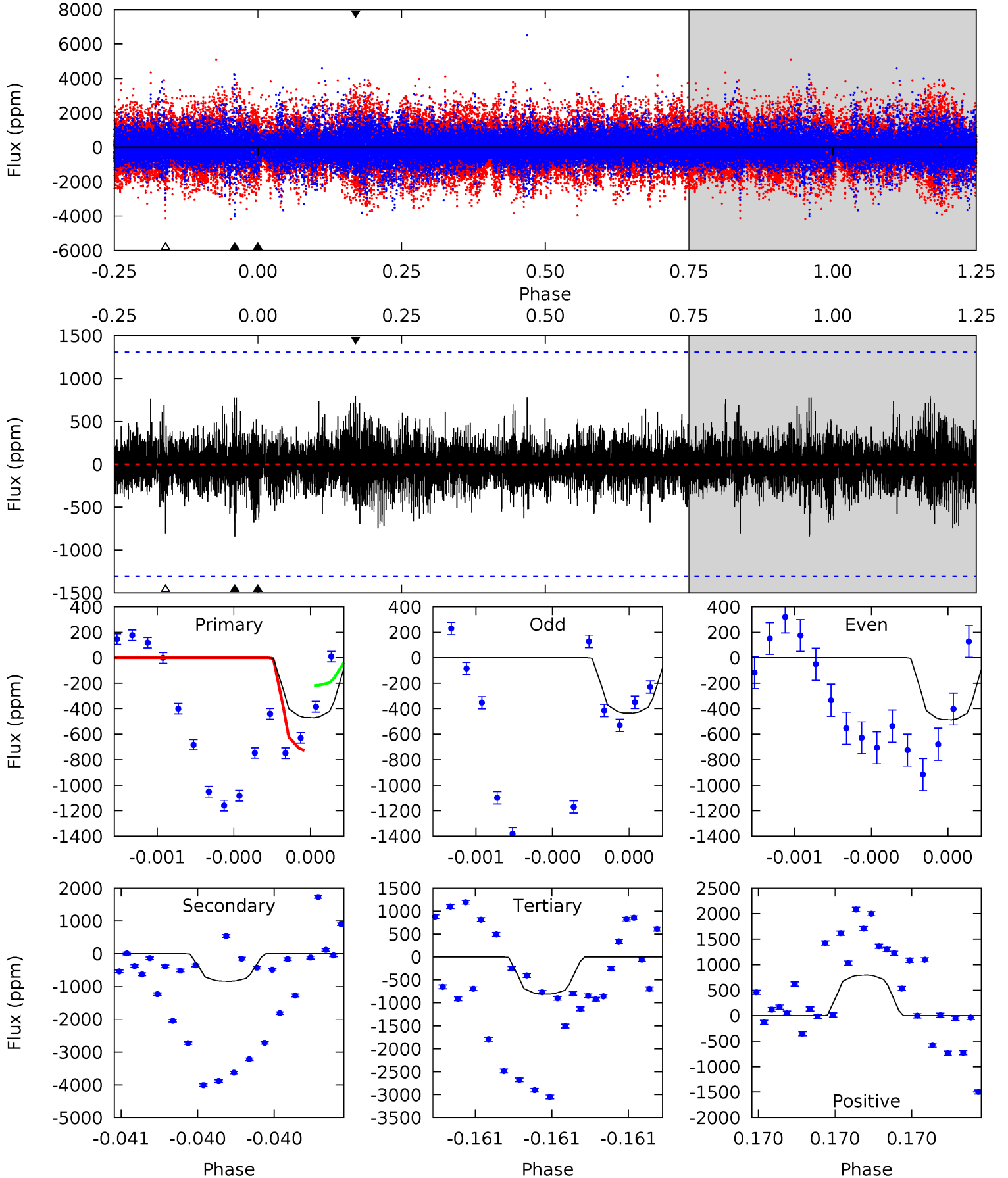
TCE 007302972-02 P=353.793469 Days $T_0=370.493243$ (BKJD)



DV Model-Shift Uniqueness Test

007302972-02, $P = 353.780844$ Days, $E = 16.749698$ Days

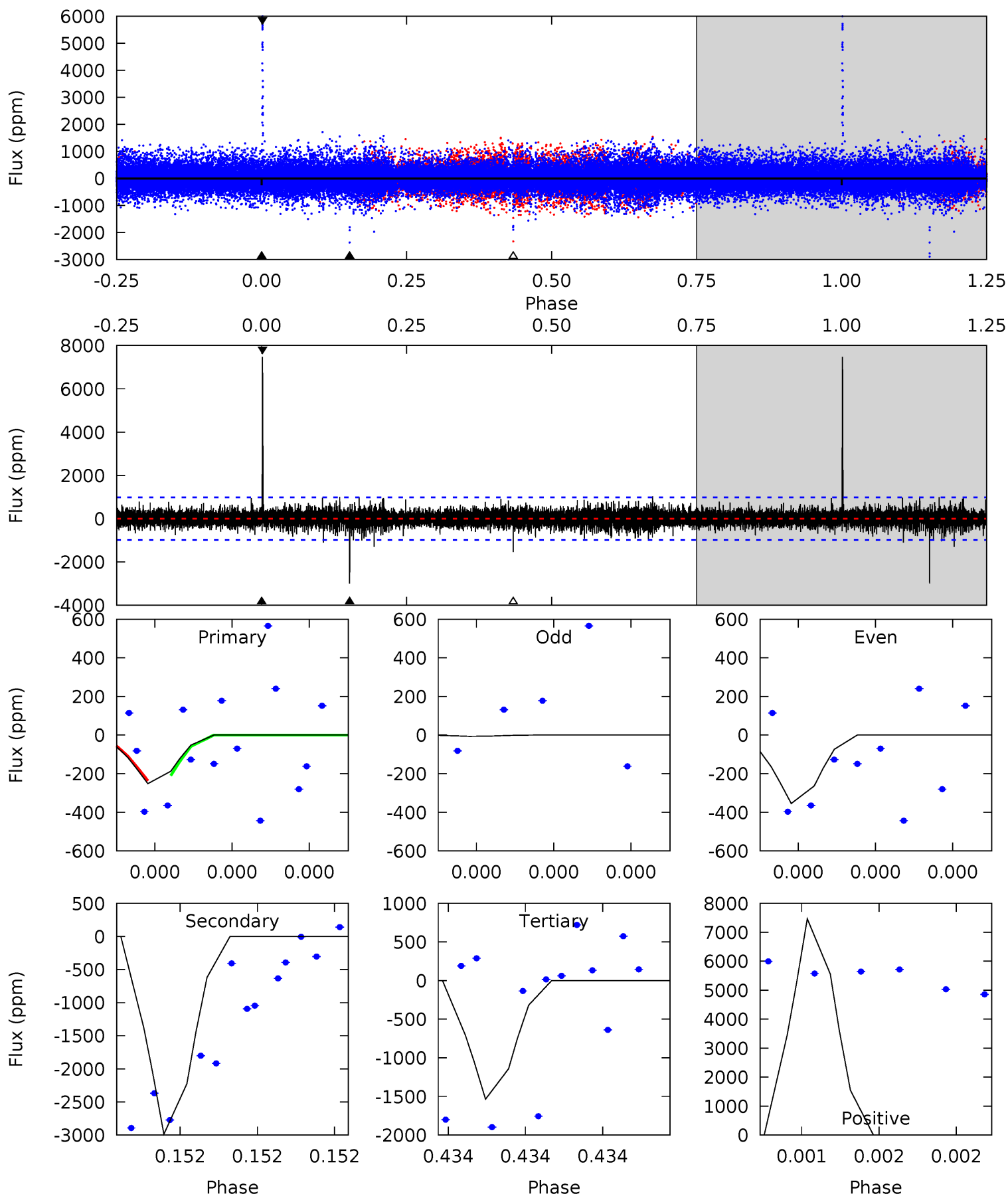
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.04	3.65	3.52	3.44	5.67	3.63	0.79	-1.48	-1.40	0.13	0.21	0.10	1.08	0.49	1.11



Alt Model-Shift Uniqueness Test

007302972-02, P = 353.793469 Days, E = 16.699774 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.50	17.8	9.14	44.4	5.84	3.88	1.42	-7.64	-42.9	8.64	-26.7	0.80	0.80	0.71	0.07



Stellar Parameters For KIC 007302972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5499^{+181}_{-125}	$3.580^{+1.095}_{-0.365}$	$-1.420^{+0.350}_{-0.250}$	$2.341^{+1.754}_{-1.754}$	$0.760^{+0.258}_{-0.129}$	$0.083^{+3.536}_{-0.073}$
	+3%/-2%	+31%/-10%	+25%/-18%	+75%/-75%	+34%/-17%	+4237%/-87%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007302972-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-841 ± 231	$10.95^{+13.90}_{-7.75}$	531^{+100}_{-114}	4413^{+2953}_{-905}	3200^{+31937}_{-2568}
Alt.	-2987 ± 168	$9.15^{+11.06}_{-6.87}$	536^{+96}_{-131}	6295^{+9166}_{-1634}	$16619^{+243998}_{-13280}$

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

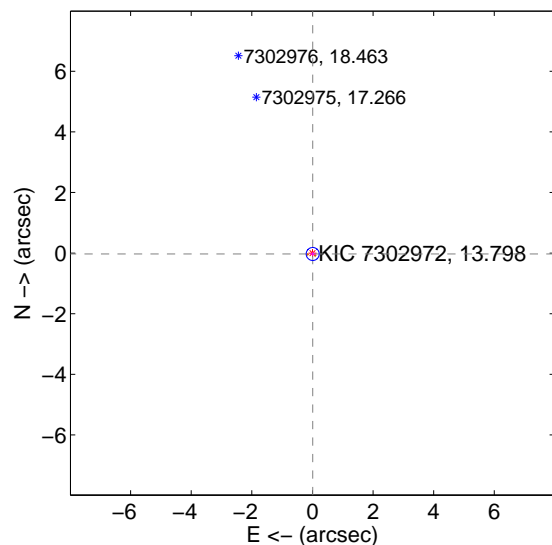
Supplemental centroid analysis for 007302972-02. Kepler magnitude: 13.80. Transit SNR 2.87

There are 1 quarters with good PRF difference image offsets

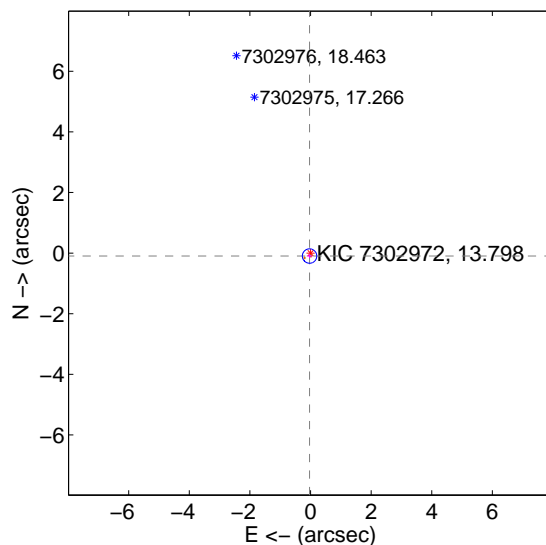
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.030 ± 0.071	0.42	-0.008 ± 0.098	-0.029 ± 0.069
PRF-fit source offset from KIC position	0.102 ± 0.079	1.29	0.032 ± 0.092	-0.097 ± 0.071
photometric centroid source offset	0.58 ± 2.02	0.29	0.20 ± 1.25	0.55 ± 2.11

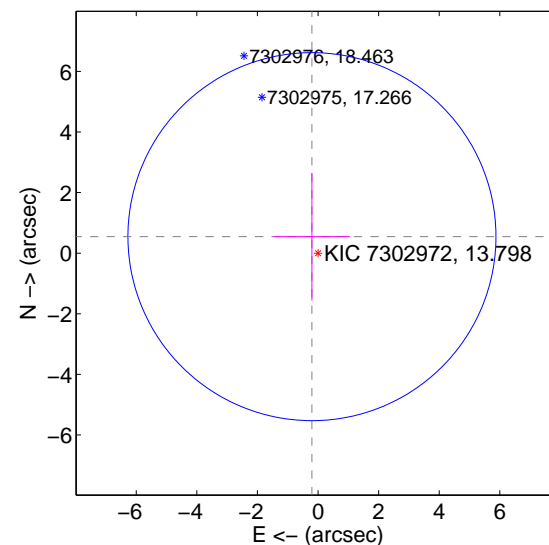
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

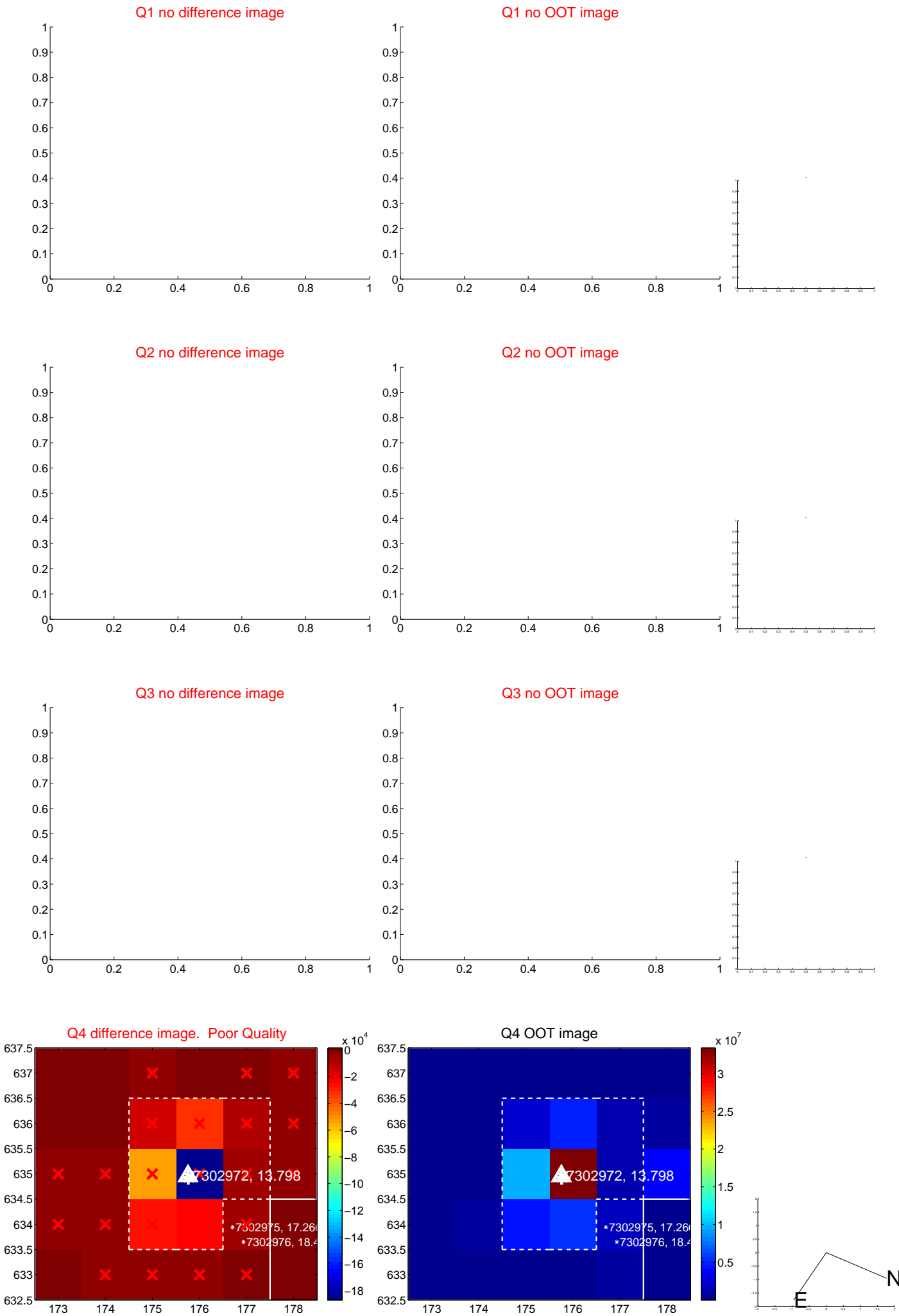


offset from photometric centroids



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.

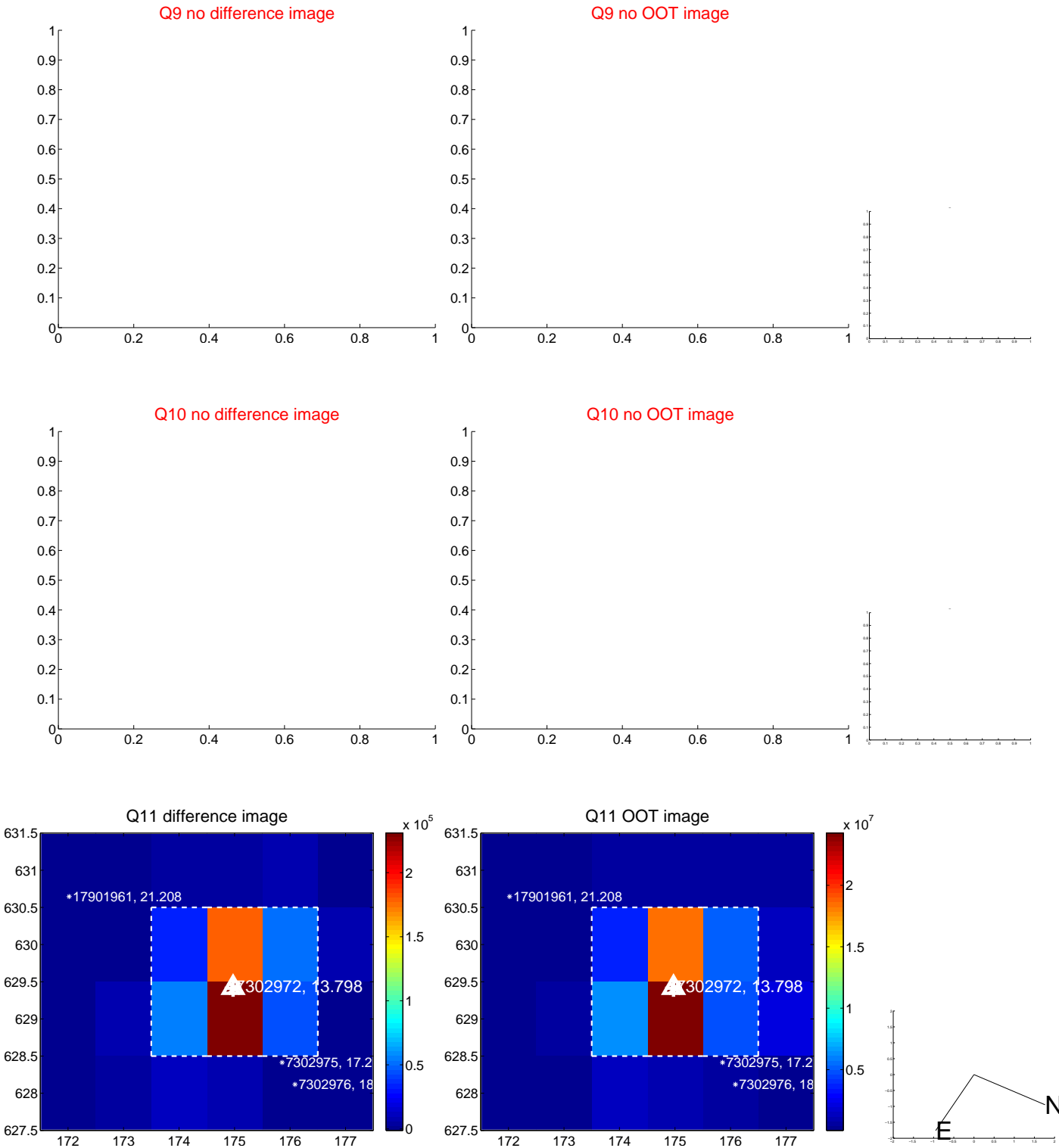
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



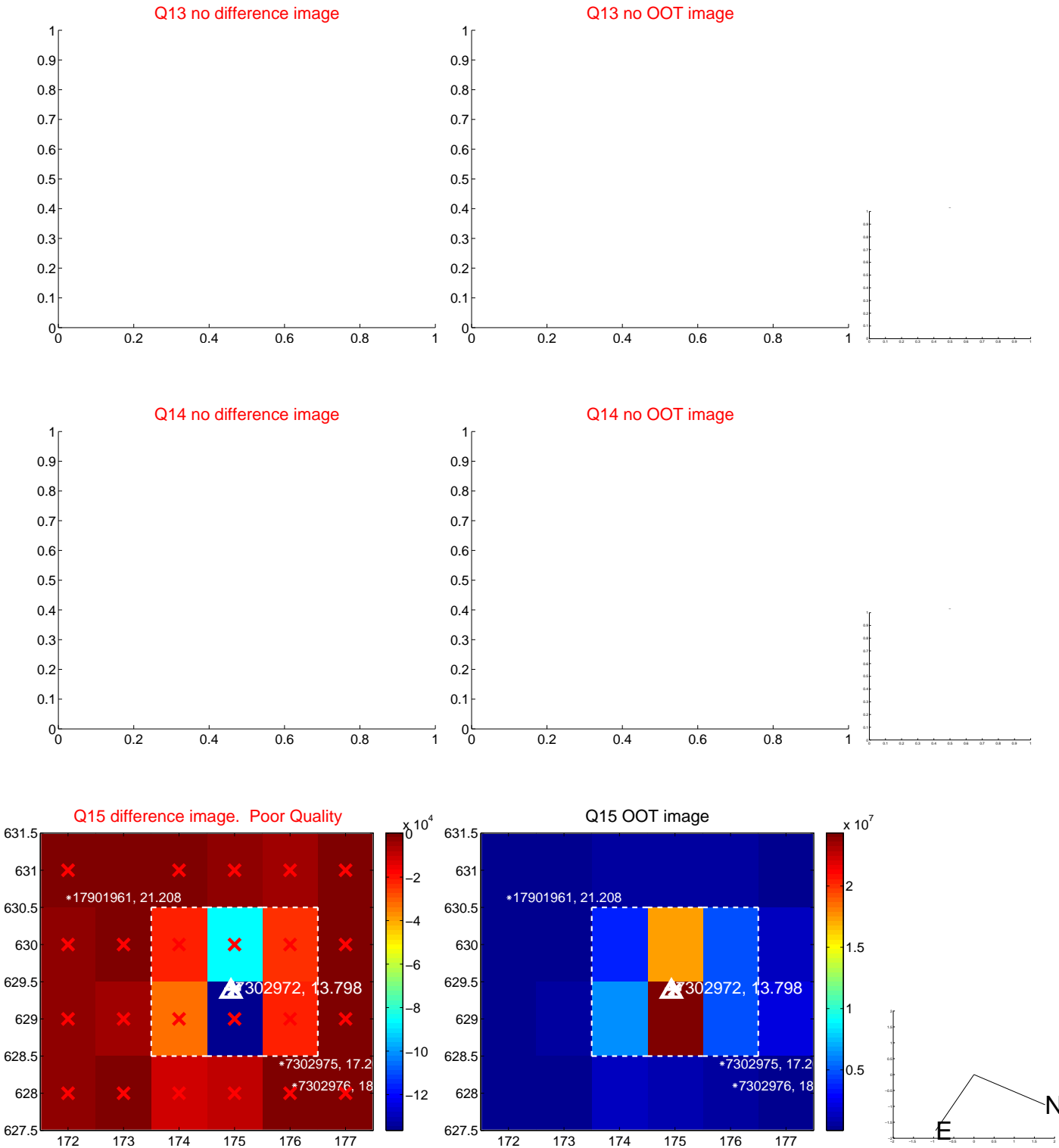
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



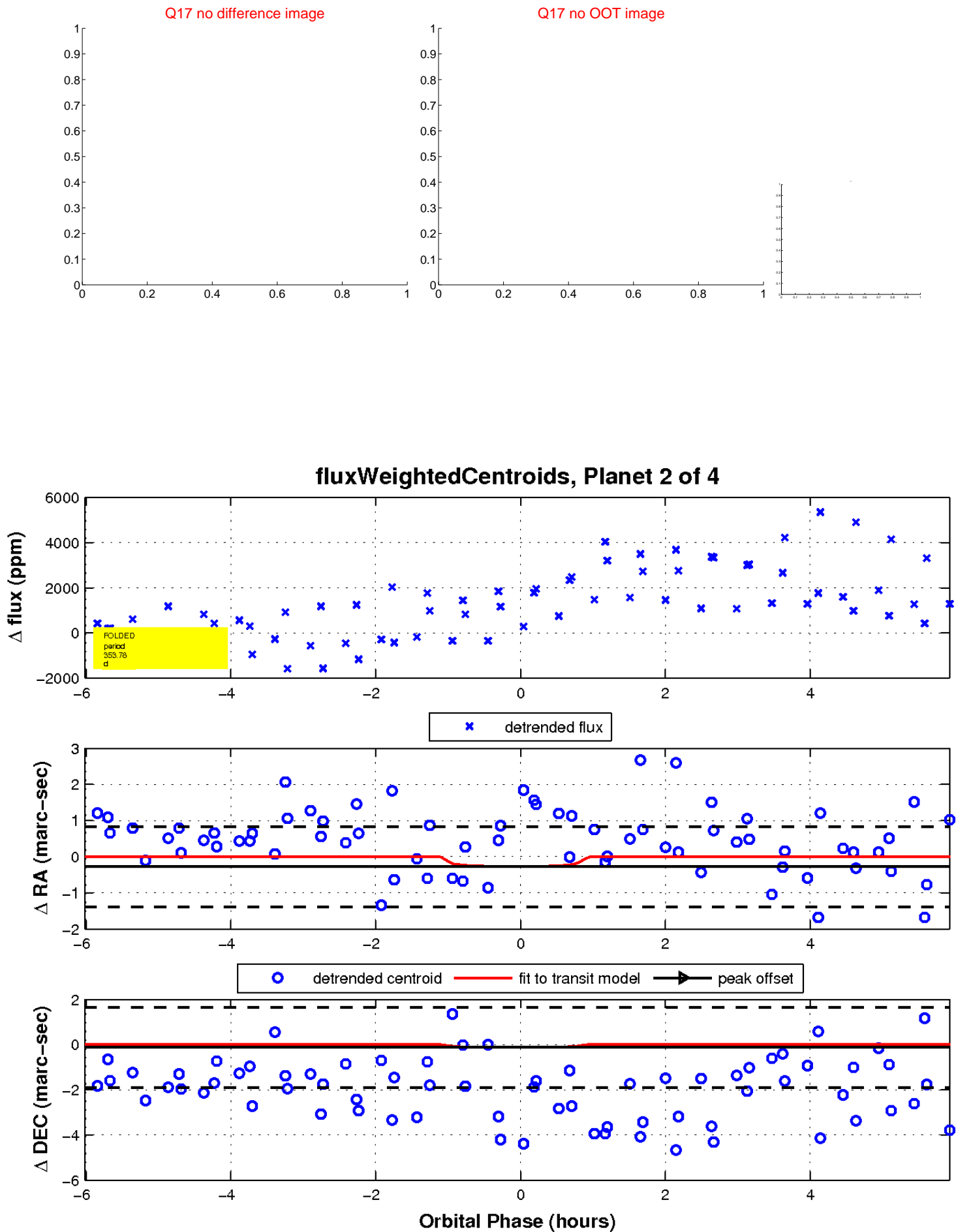
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

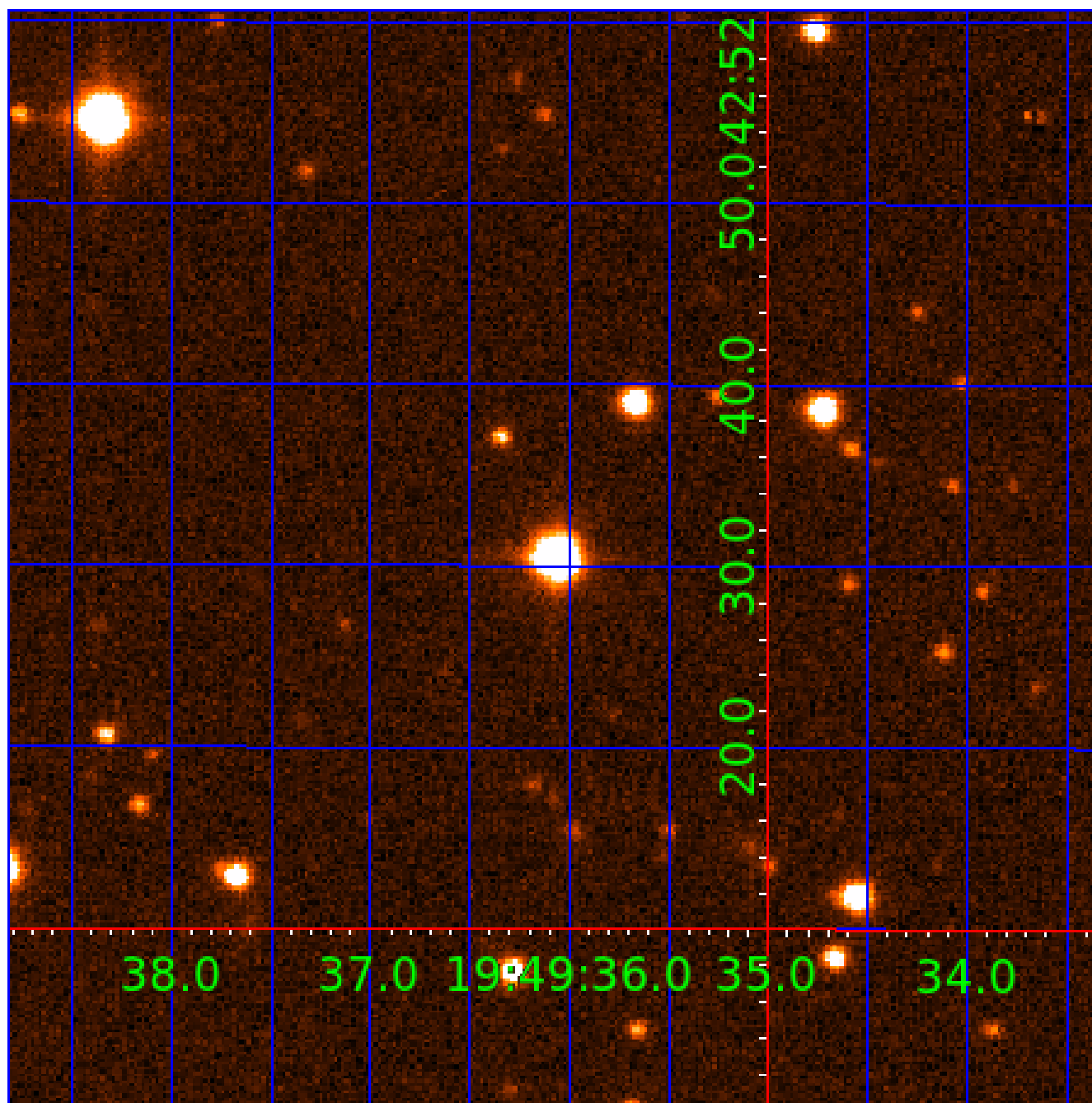


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007302972

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})
007302972-01	OBS	No	426.639110	462.493799	962.8	3.500	16.4	-1.0	2.34	5499	7.27	4.38
007302972-02	OBS	No	353.780844	370.530542	749.3	2.008	10.5	2.9	2.34	5499	6.87	5.62
007302972-03	OBS	No	353.787718	370.675374	756.4	17.164	9.6	1.8	2.34	5499	6.49	5.62
007302972-04	OBS	No	0.614239	131.875777	551.4	2.000	9.3	-1.0	2.34	5499	5.51	26947.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007302972-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007302972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007302972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD
007302972-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

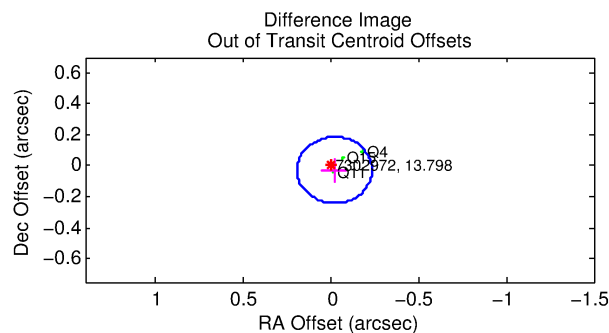
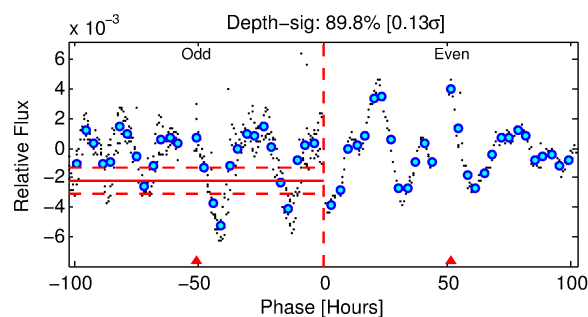
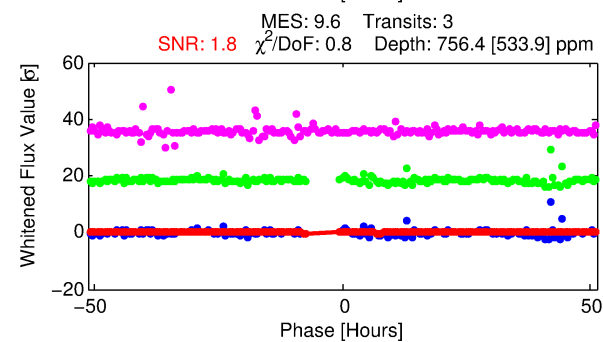
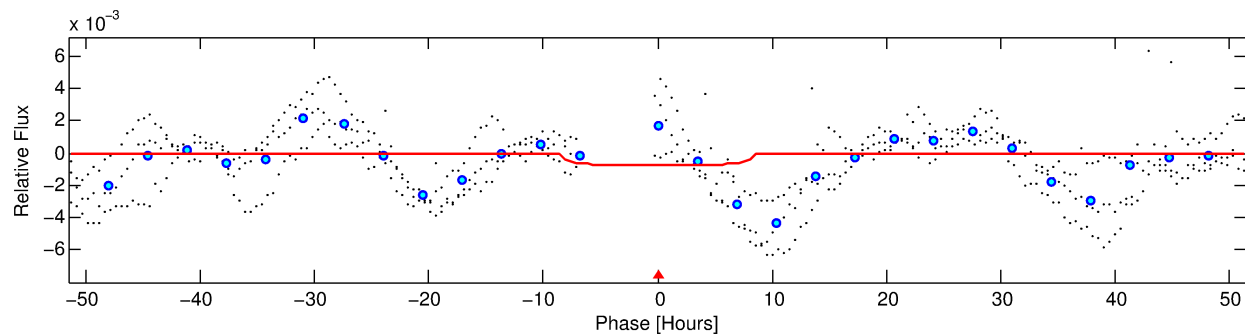
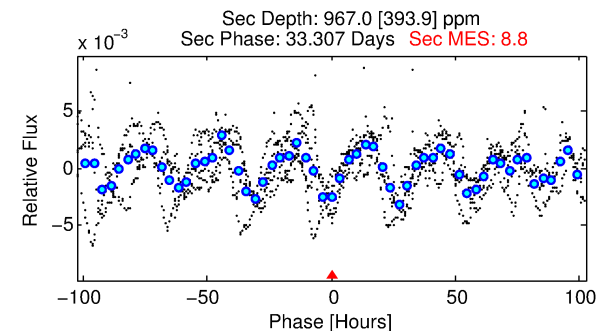
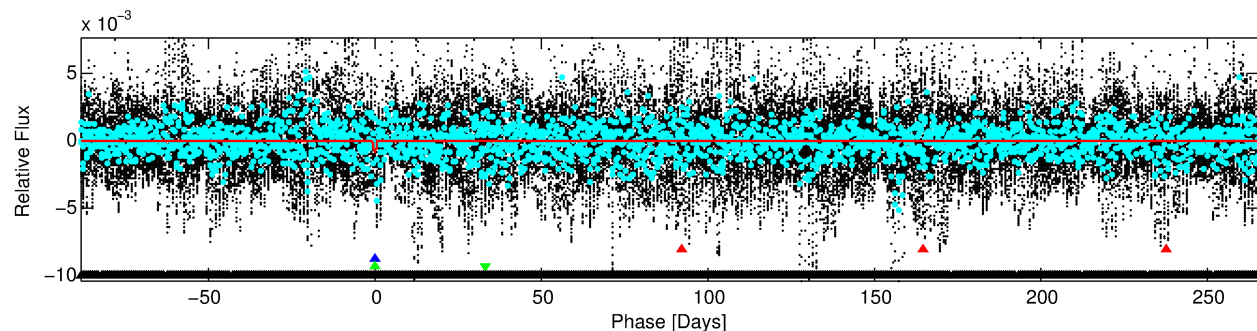
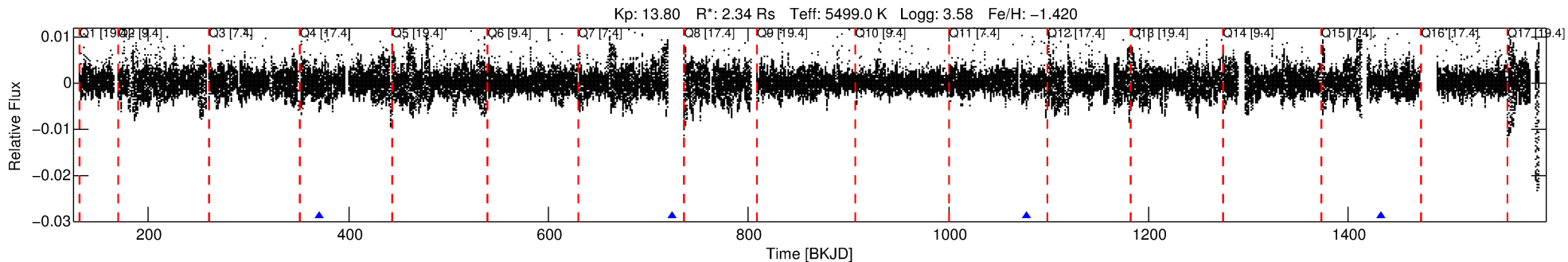
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007302972-03

No Significant Match Found

DV One-Page Summary

KIC: 7302972 Candidate: 3 of 4 Period: 353.788 d



DV Fit Results:

Period = 353.78772 [0.01160] d
Epoch = 370.6754 [0.0259] BKJD
Rp/R* = 0.0254 [0.0149]
a/R* = 154.83 [269.15]
b = 0.29 [5.46]
Seff = 5.62 [9.89]
Teq = 393 [173] K
Rp = 6.49 [6.18] Re
a = 0.8936 [0.8736] AU
Ag = 10075.89 [21667.07] [0.46σ]
Teffp = 6082 [1903] K [2.98σ]

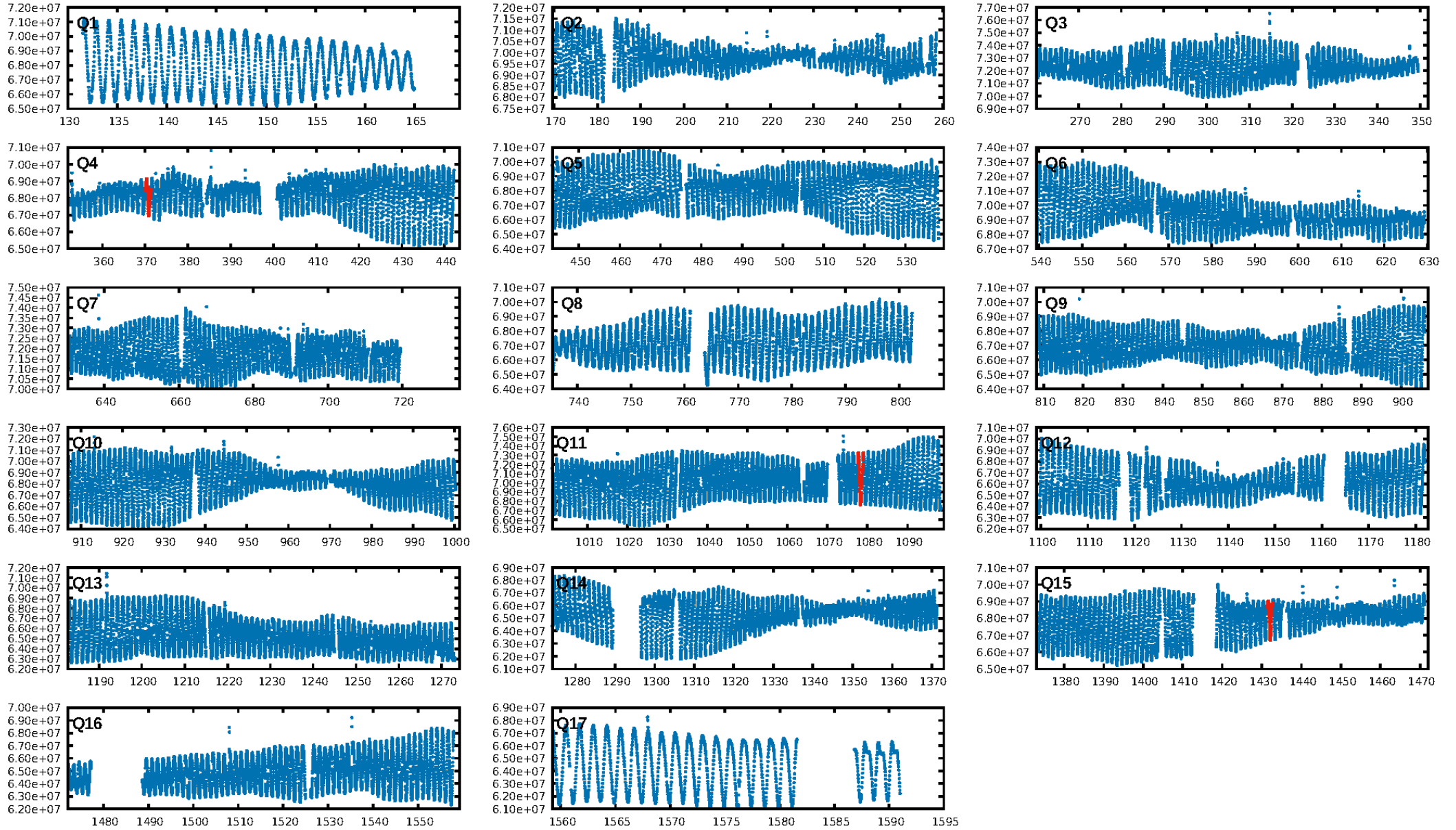
DV Diagnostic Results:

ShortPeriod-sig: 0.8% [0.01σ]
LongPeriod-sig: 100.0% [99.81σ]
ModelChiSquare2-sig: 94.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.911
Centroid-sig: 28.3%
Centroid-so: 1.087 arcsec [0.71σ]
OotOffset-rm: 0.035 arcsec [0.49σ]
KicOffset-rm: 0.102 arcsec [1.21σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

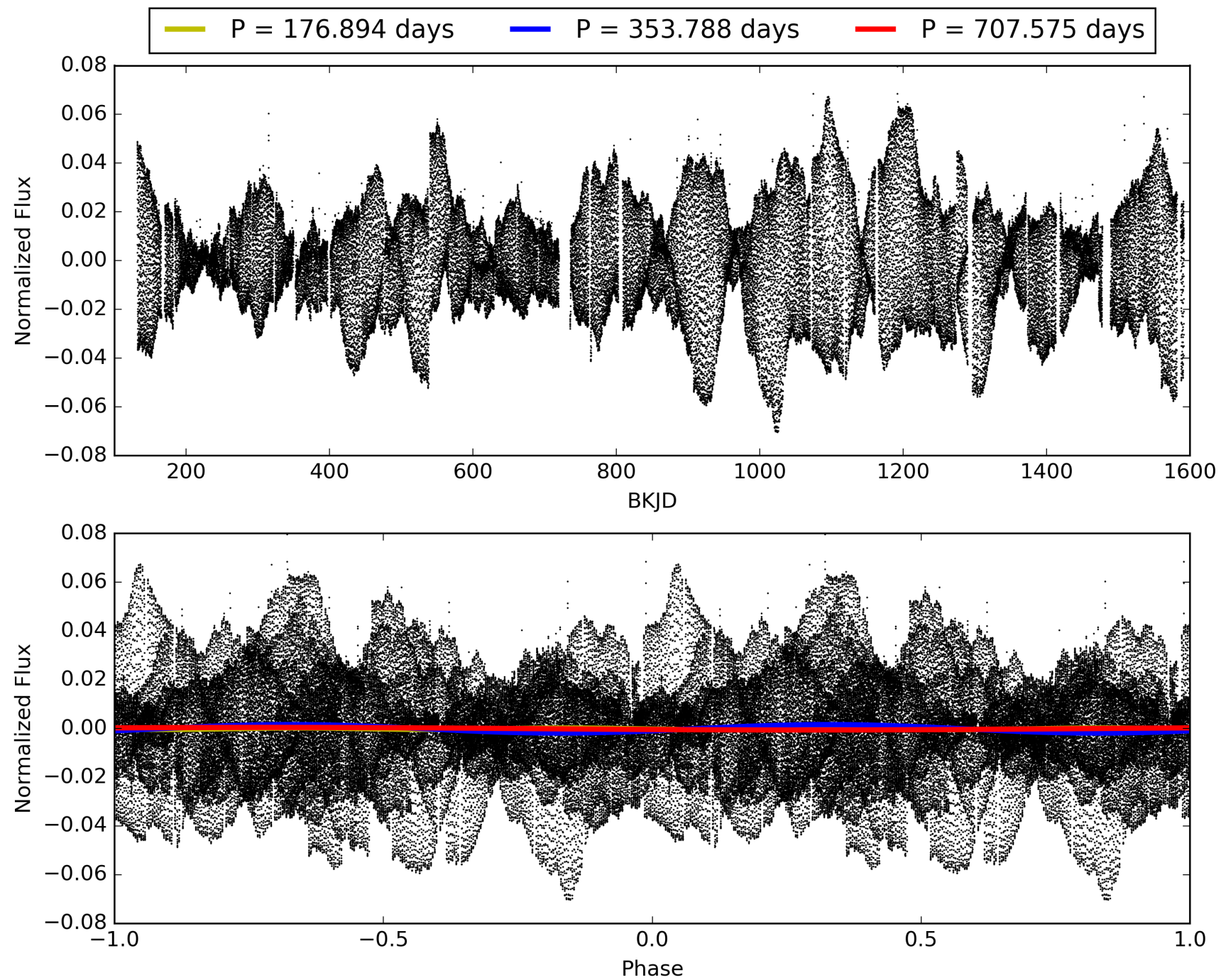
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:17:45 Z

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

TCE 007302972-03, PDC Light Curves

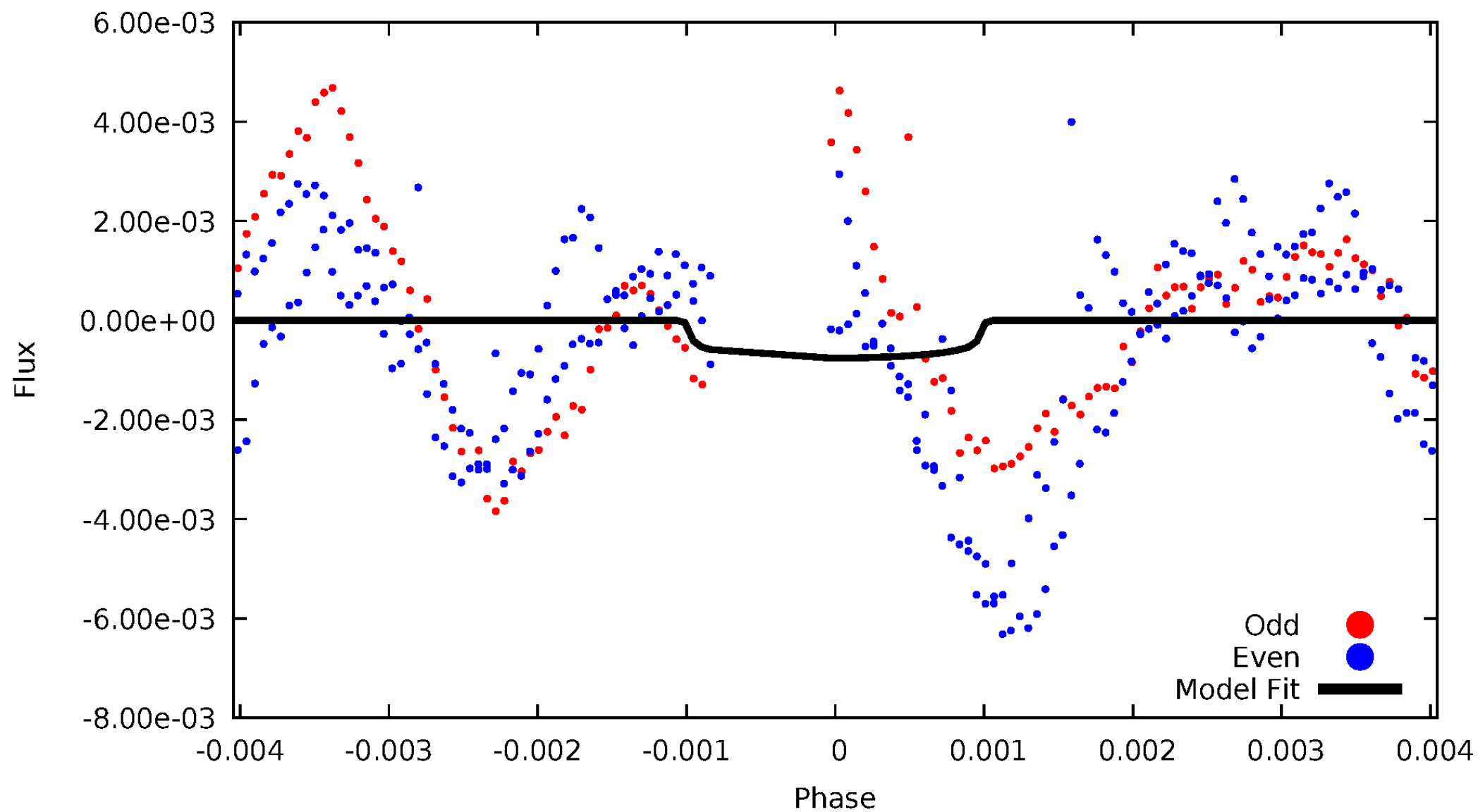


TCE 007302972-03



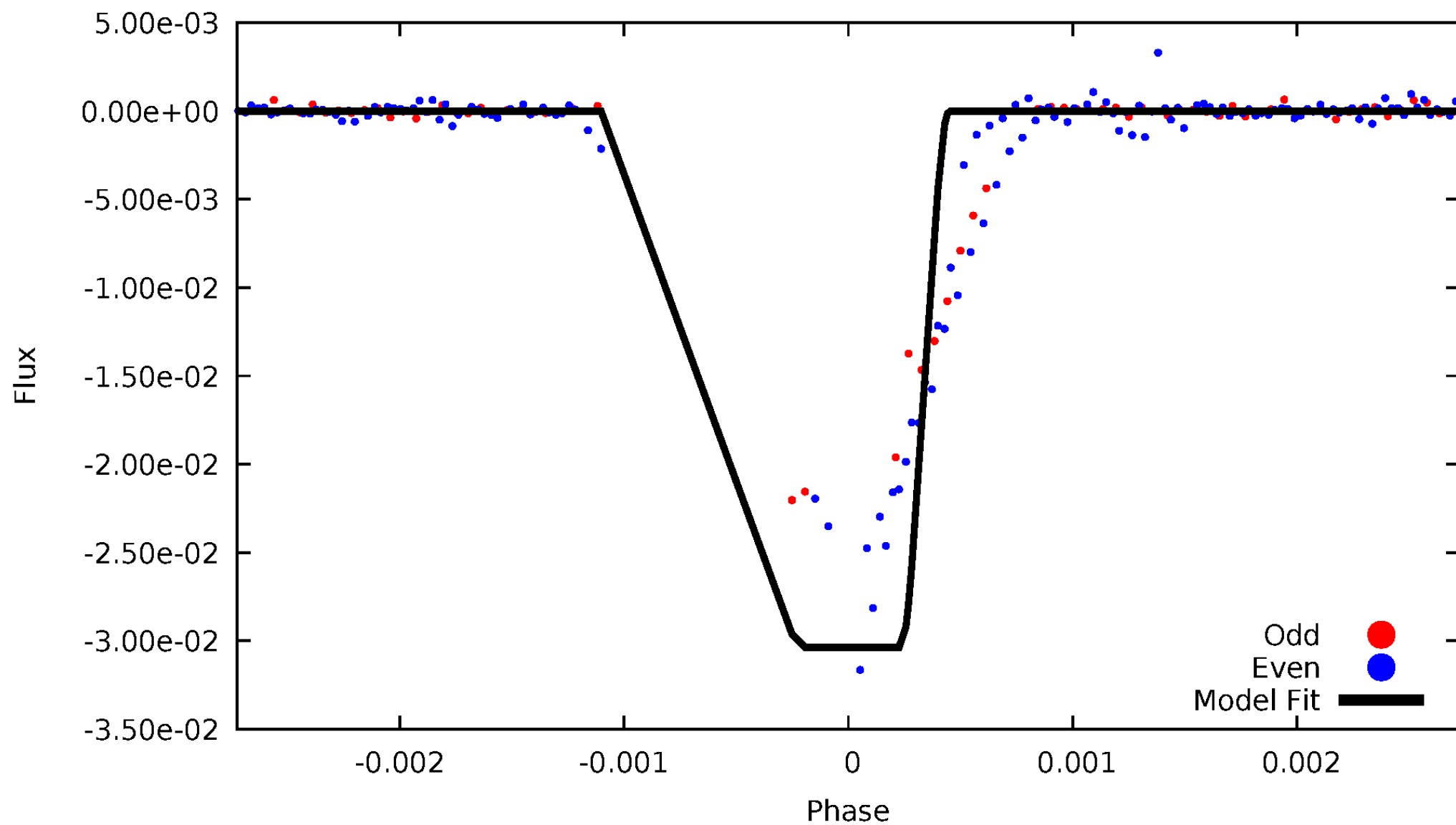
DV Odd/Even

TCE 007302972-03



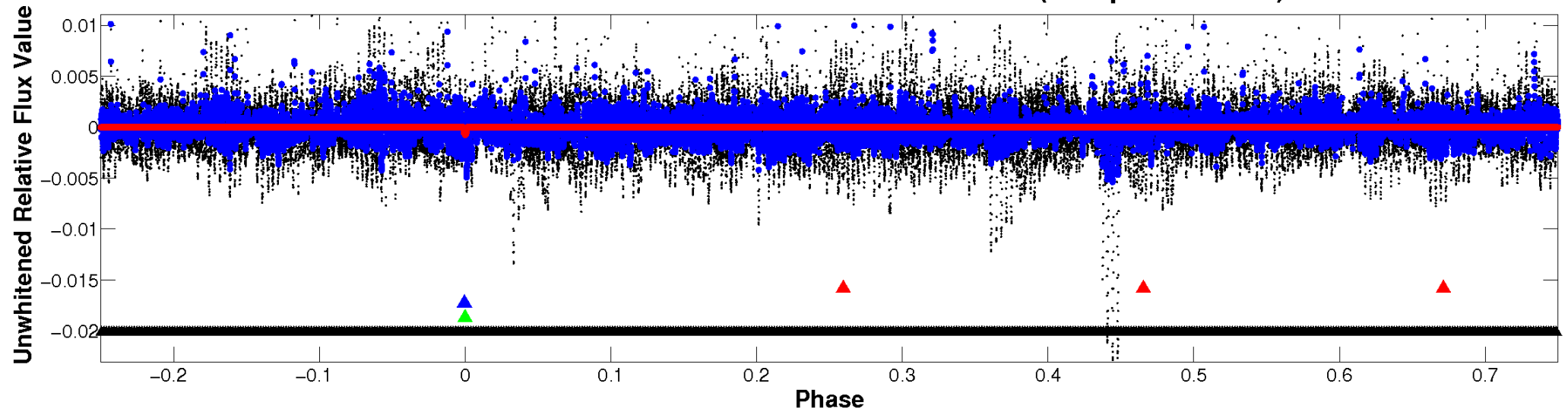
ALT Odd/Even

TCE 007302972-03

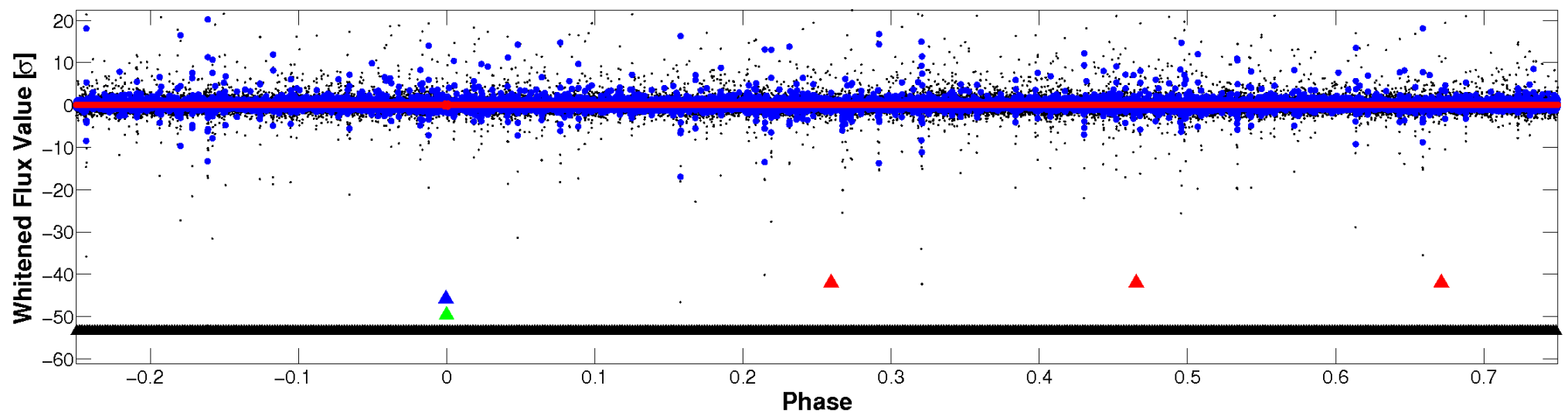


Non-Whitened Vs. Whitened Light Curve

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

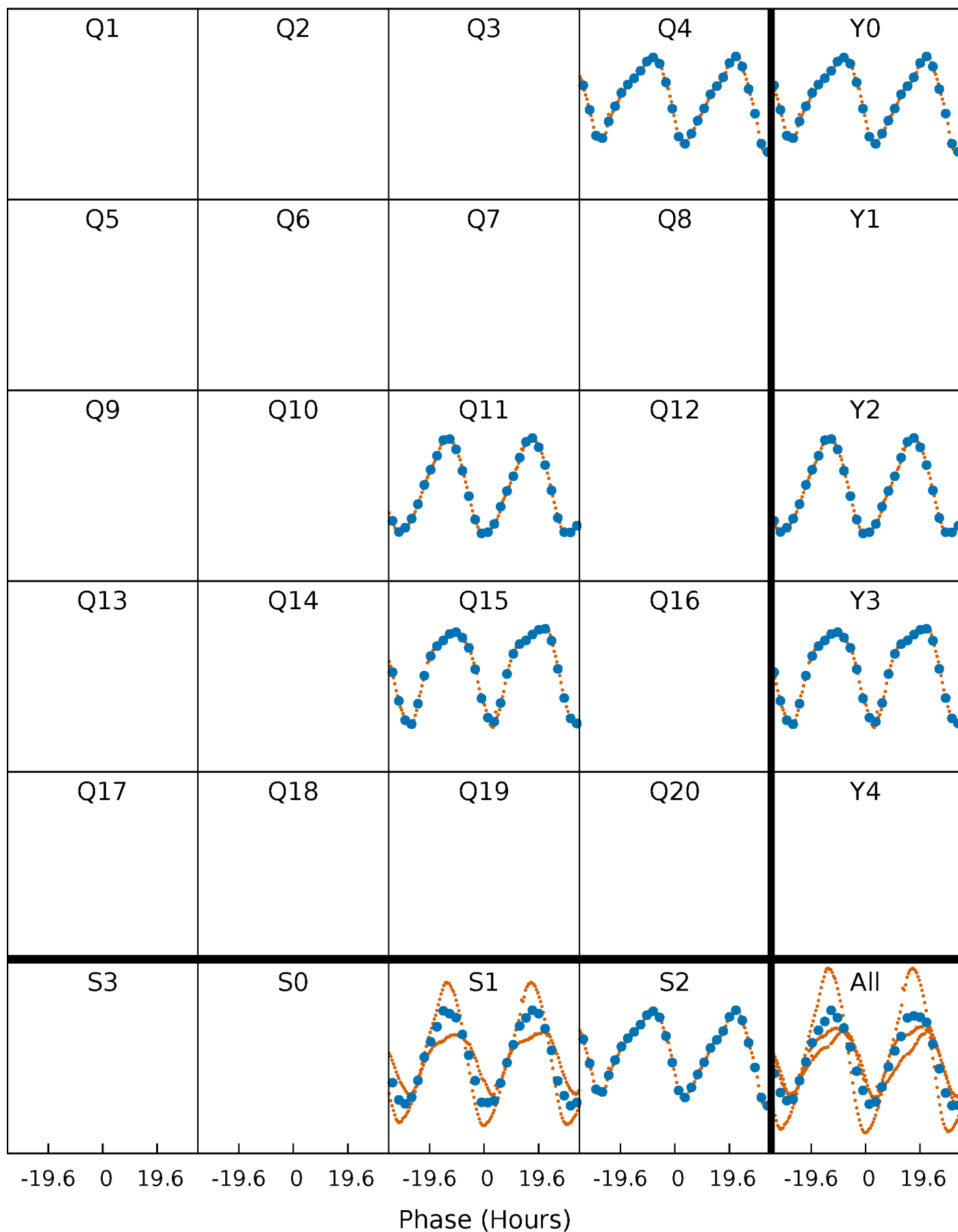


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007302972-03 $P=353.787718$ Days $T_0=370.675374$ (BKJD)



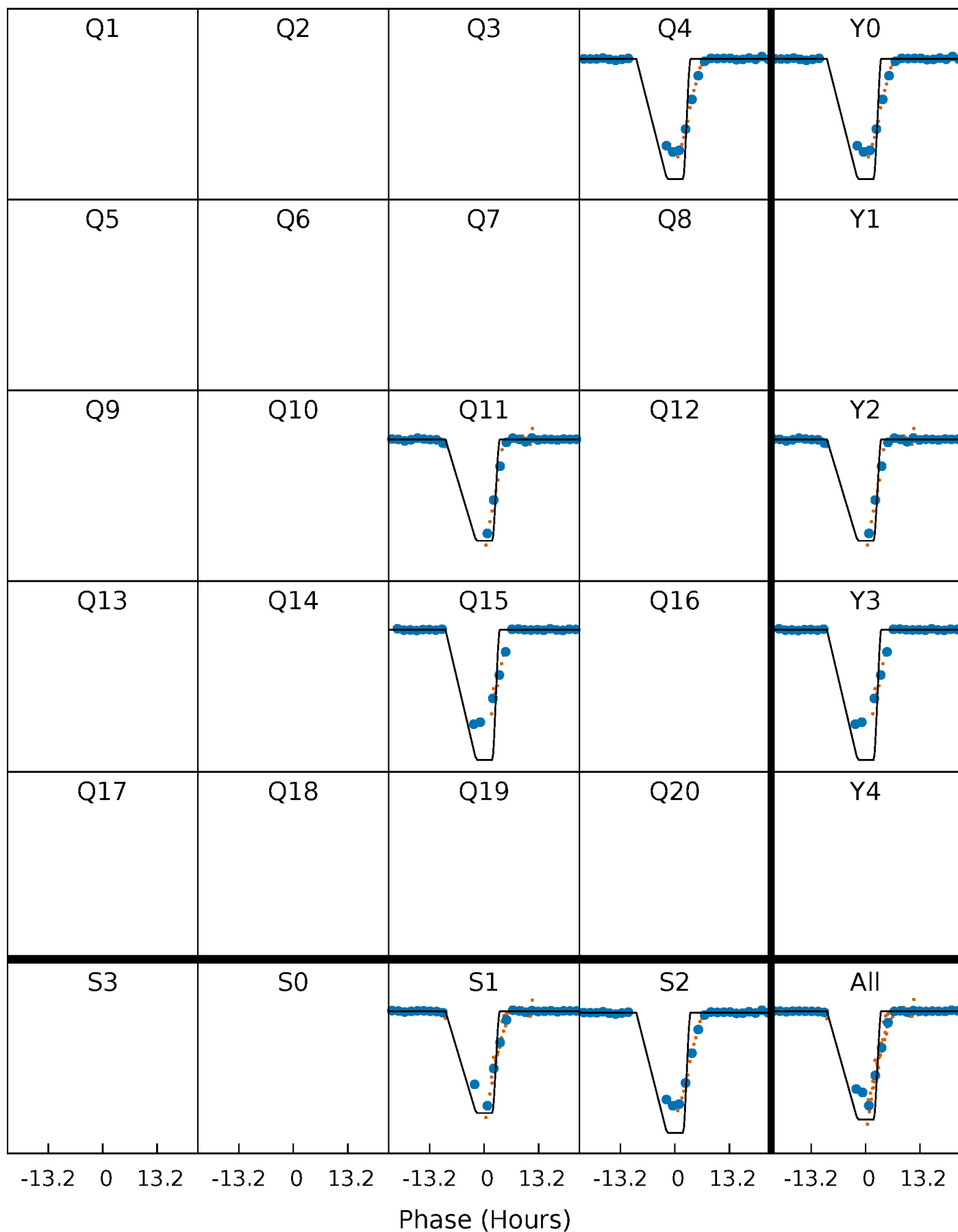
DV Quarter-Phased Transit Curves

TCE 007302972-03 $P=353.787718$ Days $T_0=370.675374$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

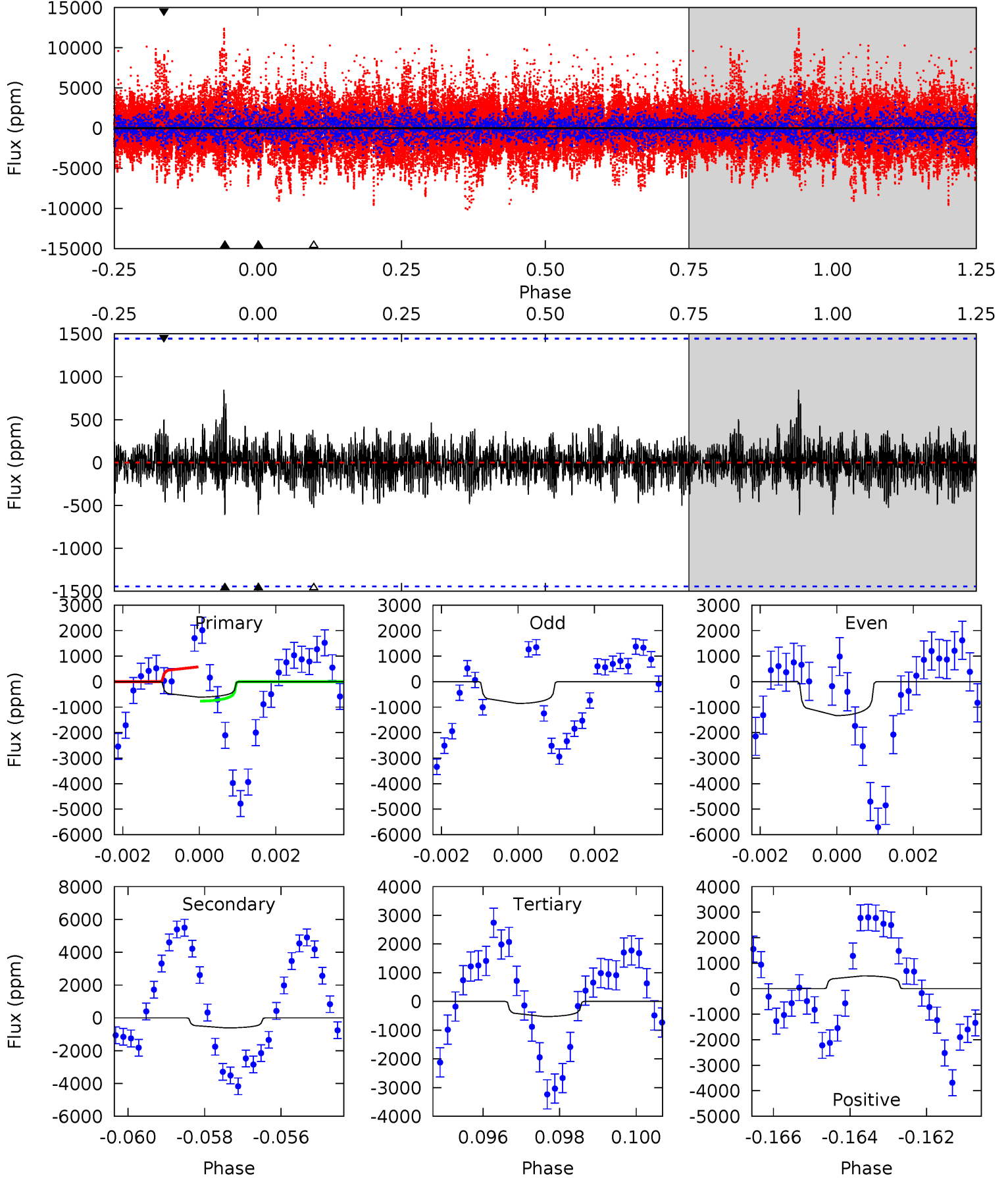
TCE 007302972-03 $P=353.793469$ Days $T_0=370.737036$ (BKJD)



DV Model-Shift Uniqueness Test

007302972-03, $P = 353.787718$ Days, $E = 16.887656$ Days

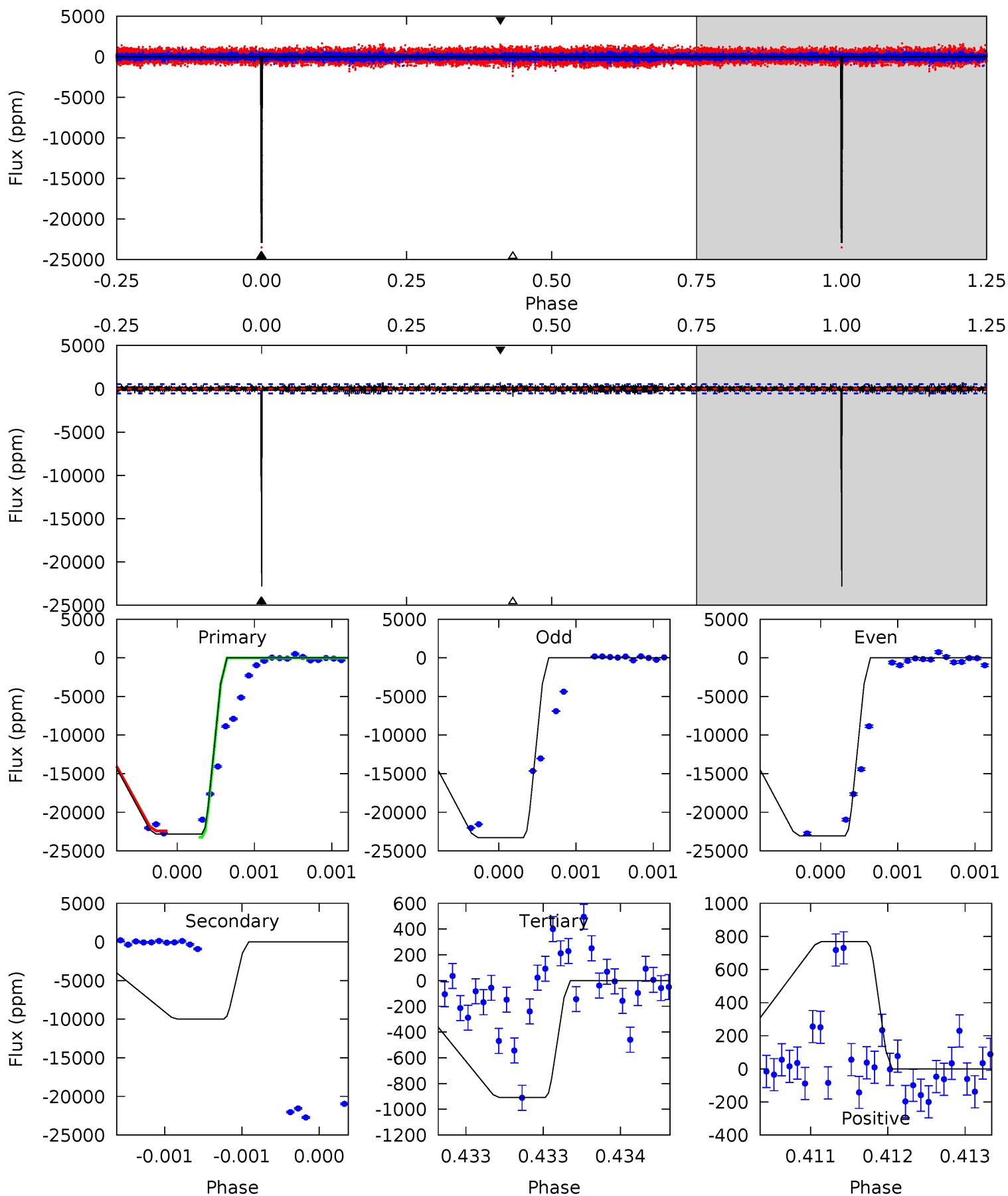
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.23	2.25	1.94	1.85	5.32	3.08	0.59	0.30	0.39	0.31	0.40	0.80	0.50	0.58	0.26



Alt Model-Shift Uniqueness Test

007302972-03, P = 353.793469 Days, E = 16.943567 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
234.8	102.9	9.35	7.90	5.51	3.39	1.50	225.5	226.9	93.6	95.0	1.02	1.00	0.03	3.87



Stellar Parameters For KIC 007302972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5499^{+181}_{-125}	$3.580^{+1.095}_{-0.365}$	$-1.420^{+0.350}_{-0.250}$	$2.341^{+1.754}_{-1.754}$	$0.760^{+0.258}_{-0.129}$	$0.083^{+3.536}_{-0.073}$
	+3%/-2%	+31%/-10%	+25%/-18%	+75%/-75%	+34%/-17%	+4237%/-87%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007302972-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-610 ± 271	$6.01^{+4.88}_{-3.35}$	540^{+96}_{-115}	5318^{+2255}_{-1009}	7203^{+31569}_{-5342}
Alt.	-10002 ± 97	$42.65^{+18.16}_{-16.85}$	535^{+102}_{-119}	4385^{+191}_{-164}	2543^{+4278}_{-1256}

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

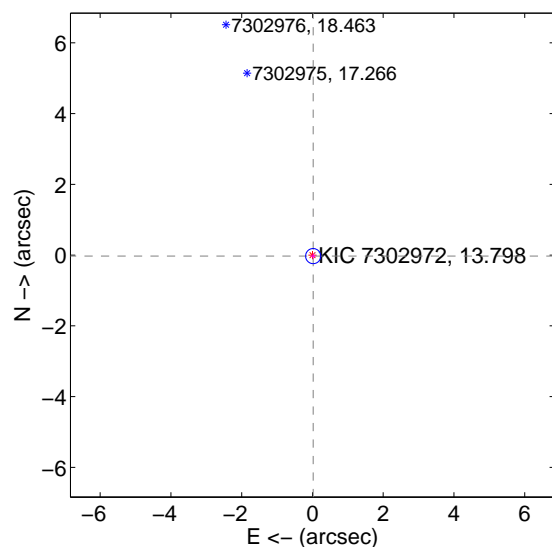
Supplemental centroid analysis for 007302972-03. Kepler magnitude: 13.80. Transit SNR 1.76

There are 3 quarters with good PRF difference image offsets

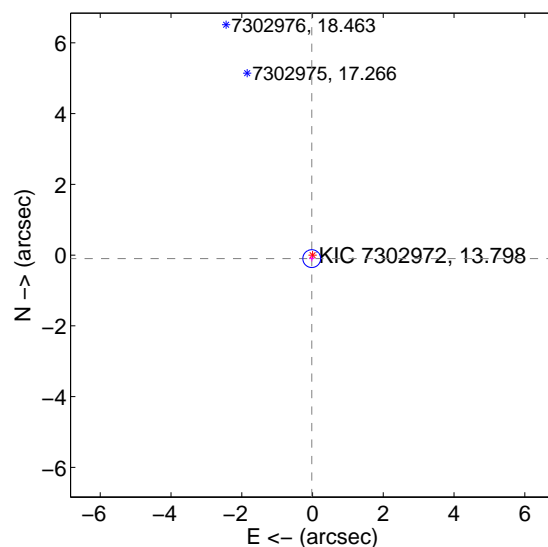
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.071	0.49	-0.021 ± 0.071	-0.028 ± 0.071
PRF-fit source offset from KIC position	0.102 ± 0.084	1.21	0.022 ± 0.076	-0.100 ± 0.080
photometric centroid source offset	1.09 ± 1.54	0.71	-0.27 ± 0.74	-1.05 ± 1.58

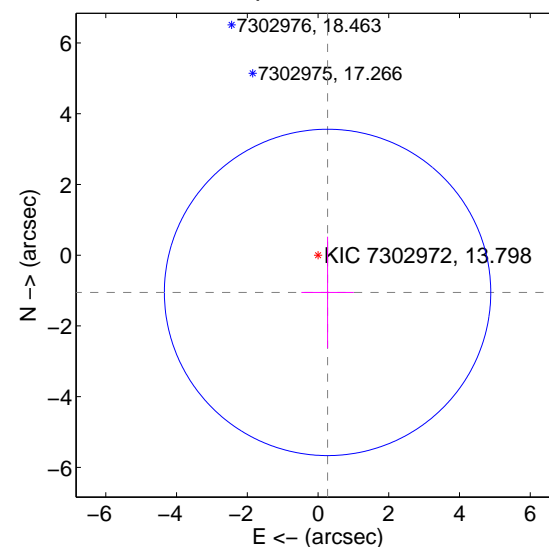
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

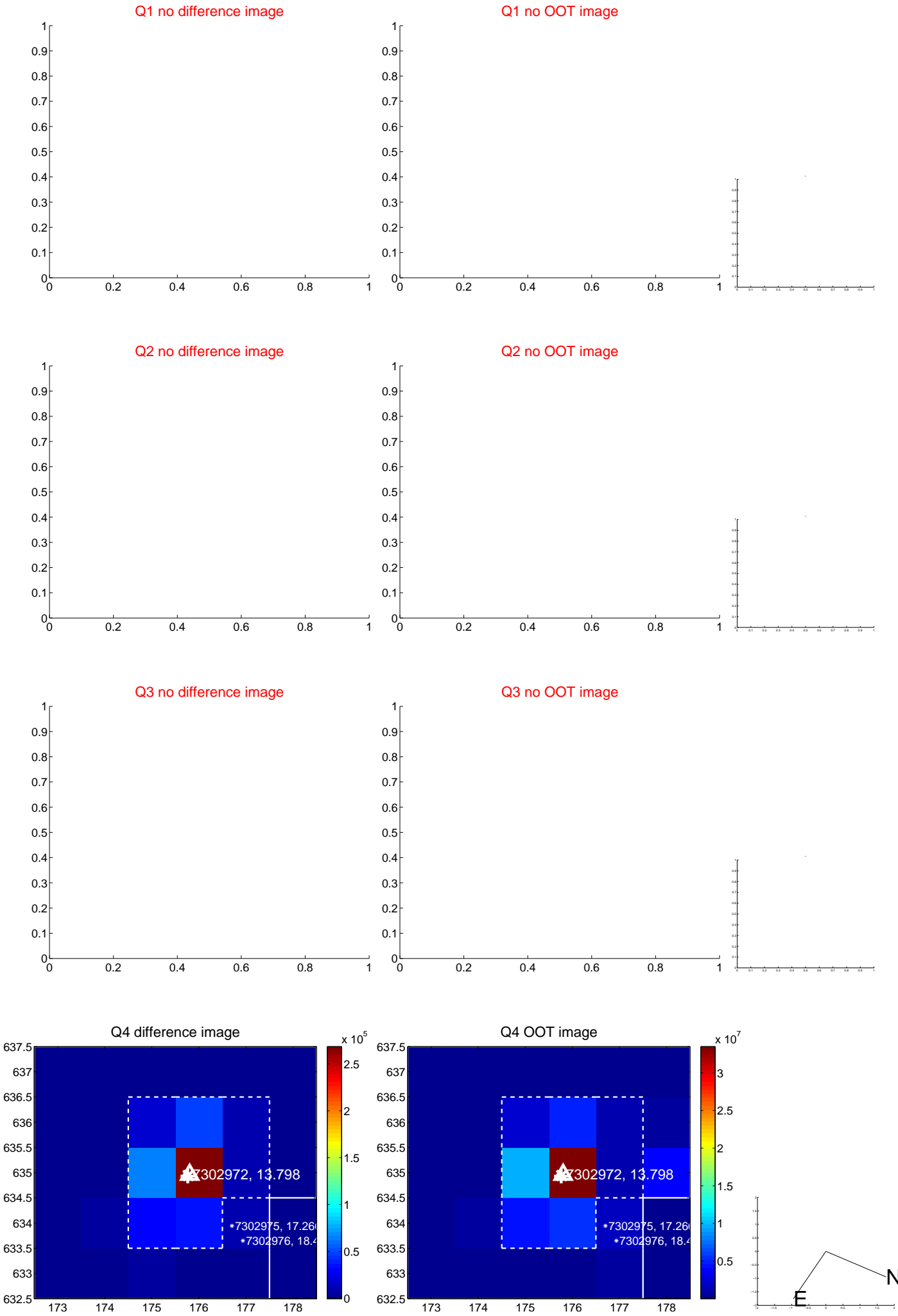


offset from photometric centroids

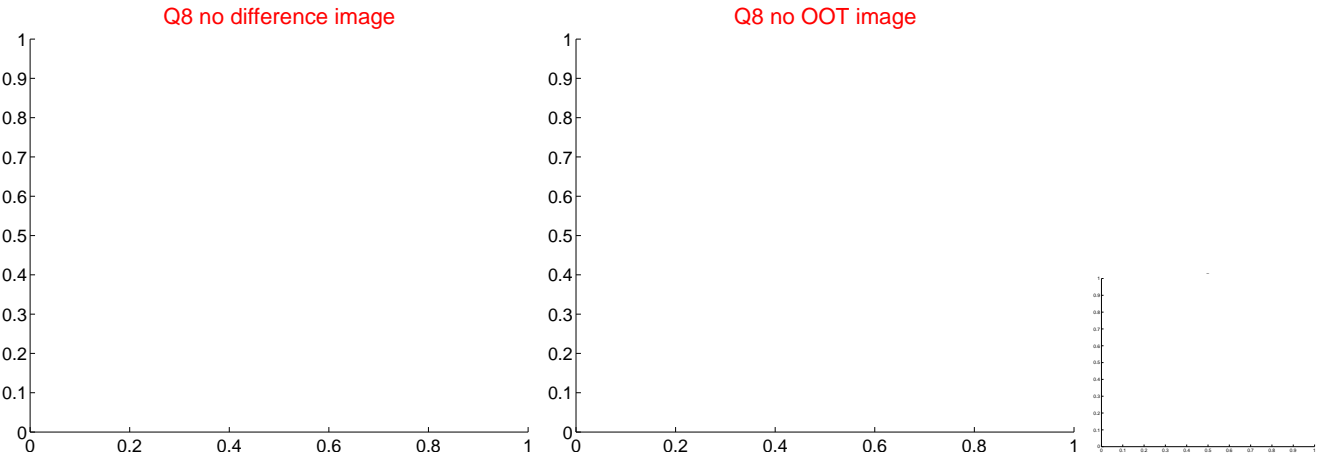
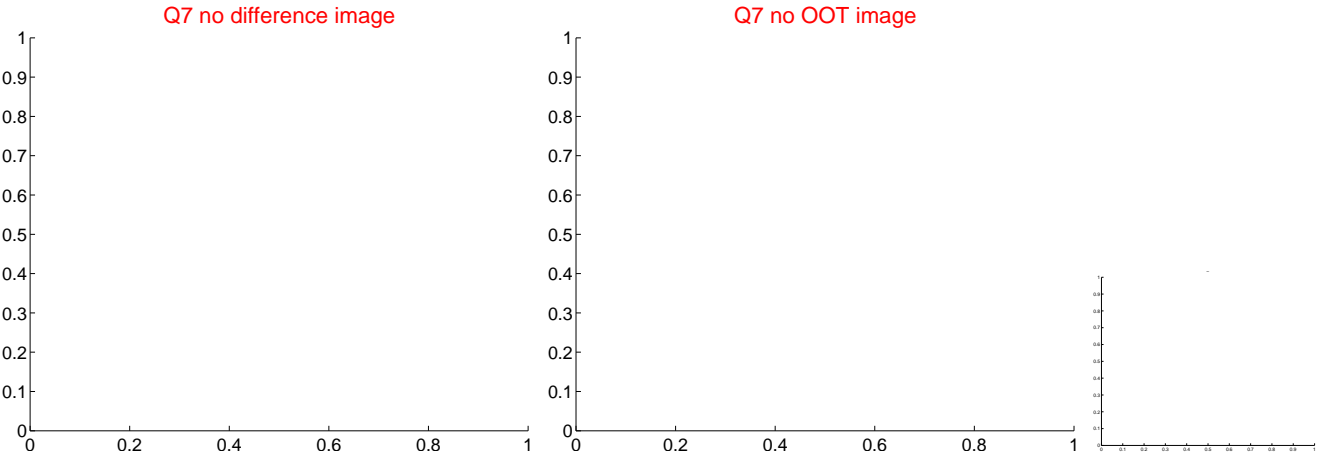
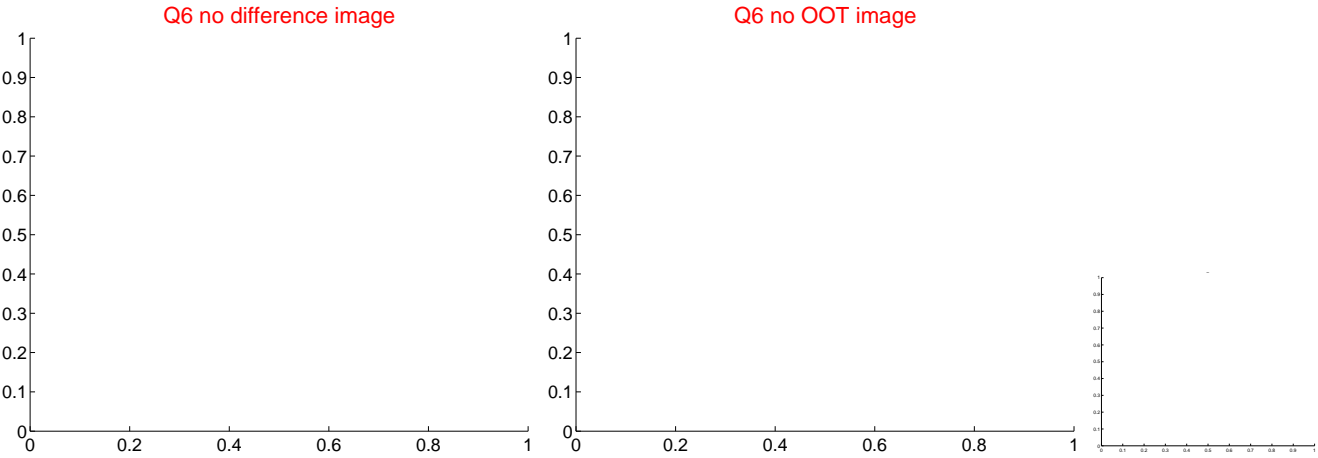
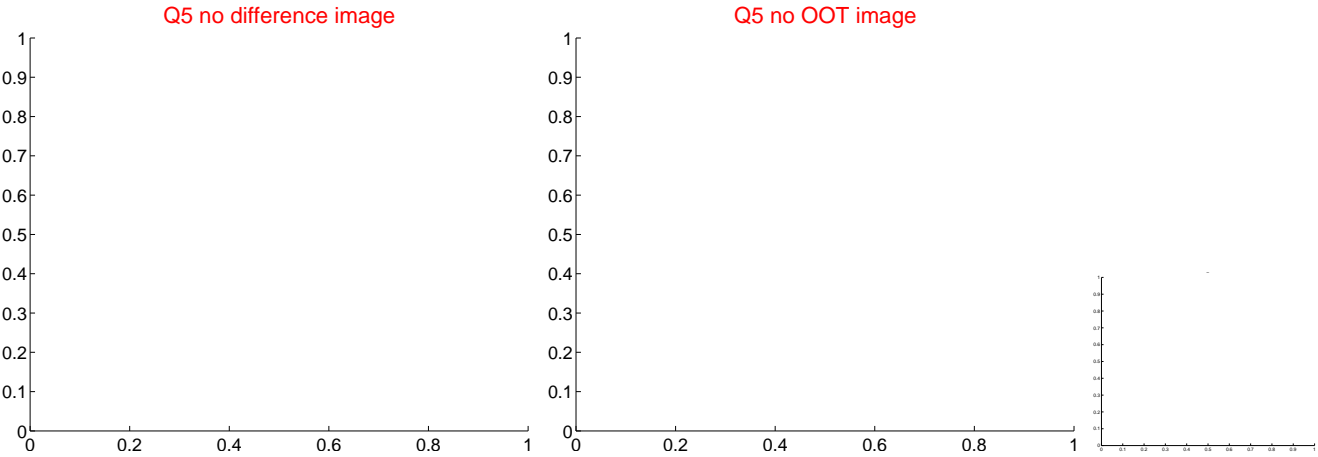


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

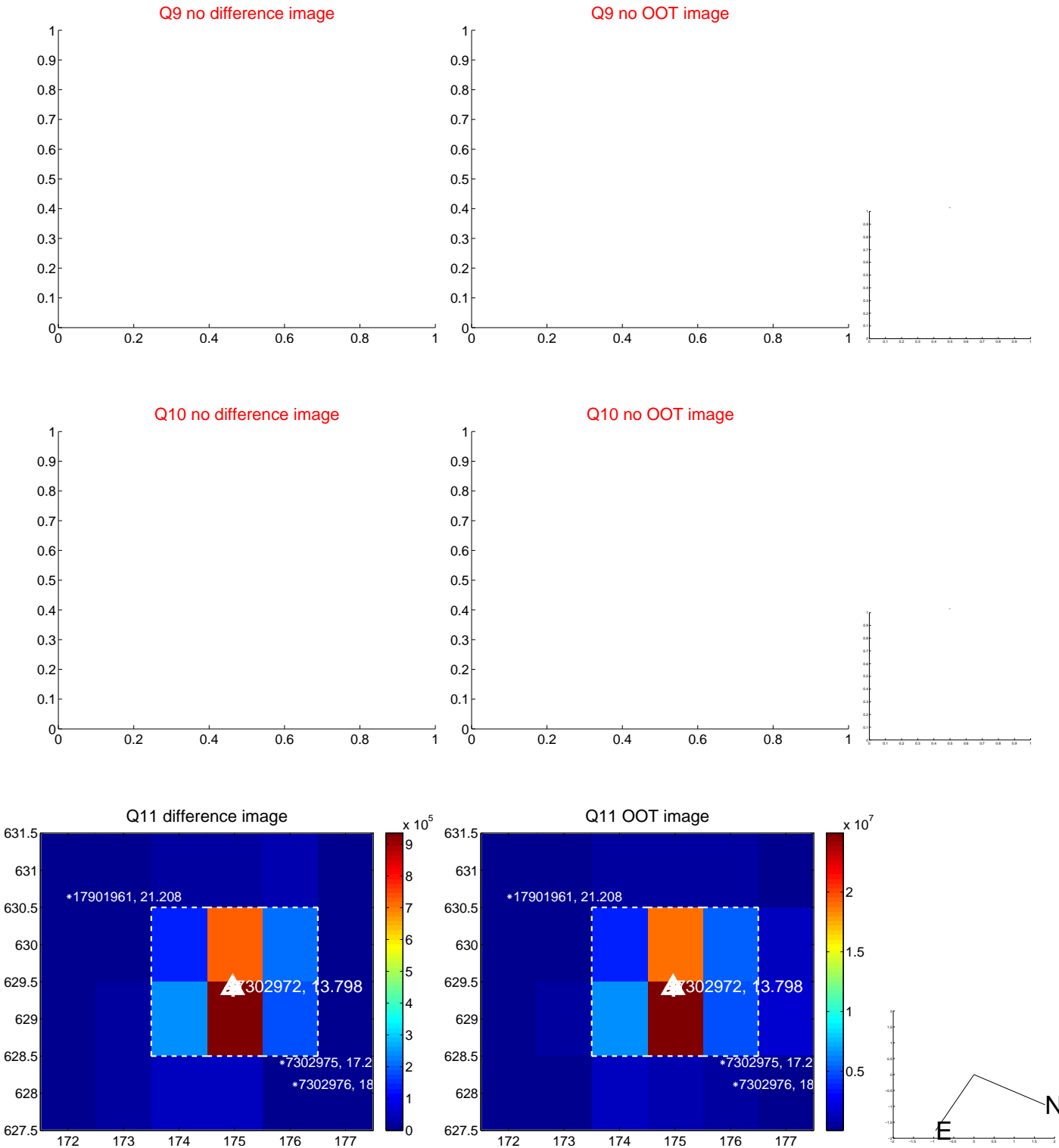
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



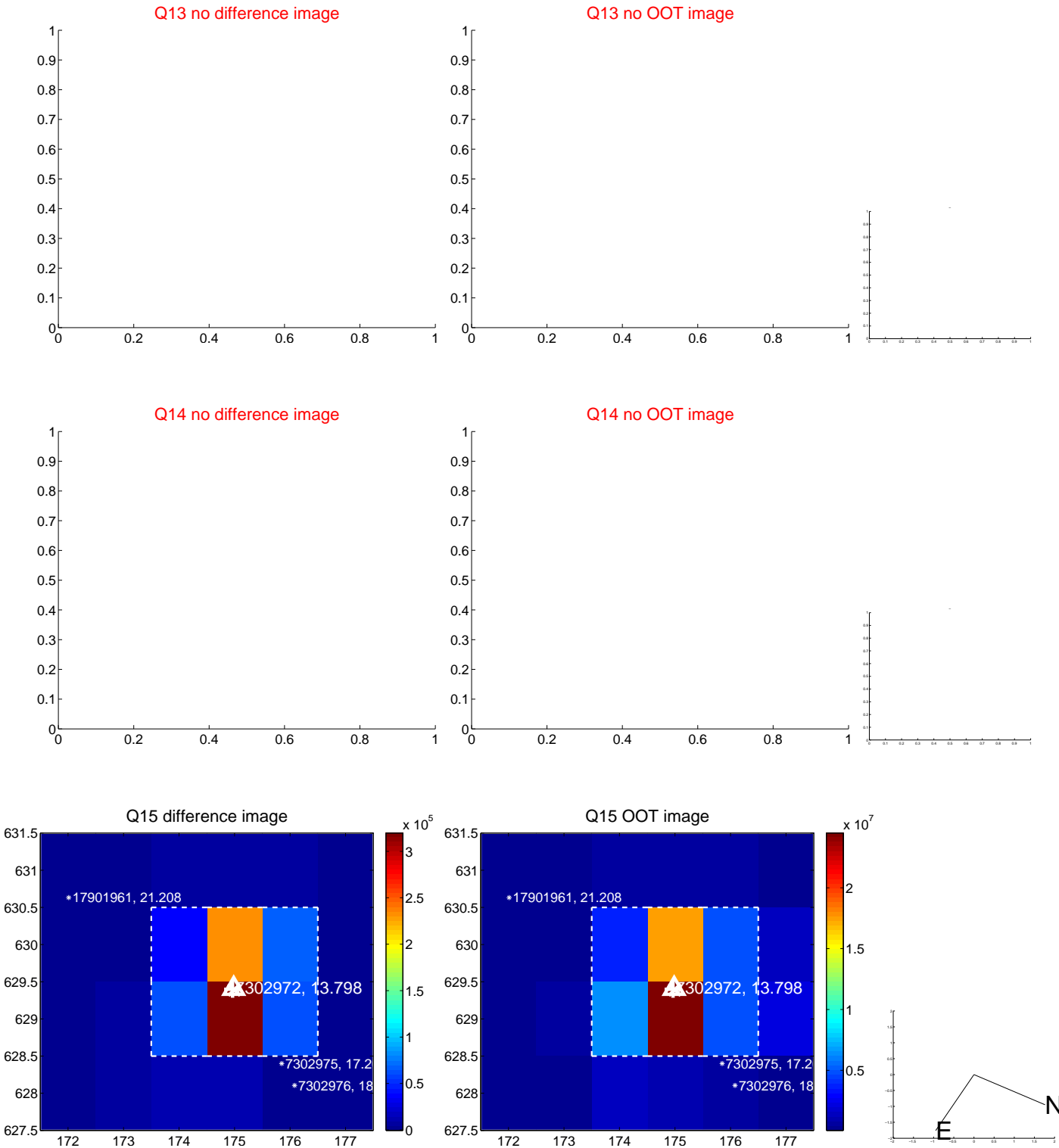
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



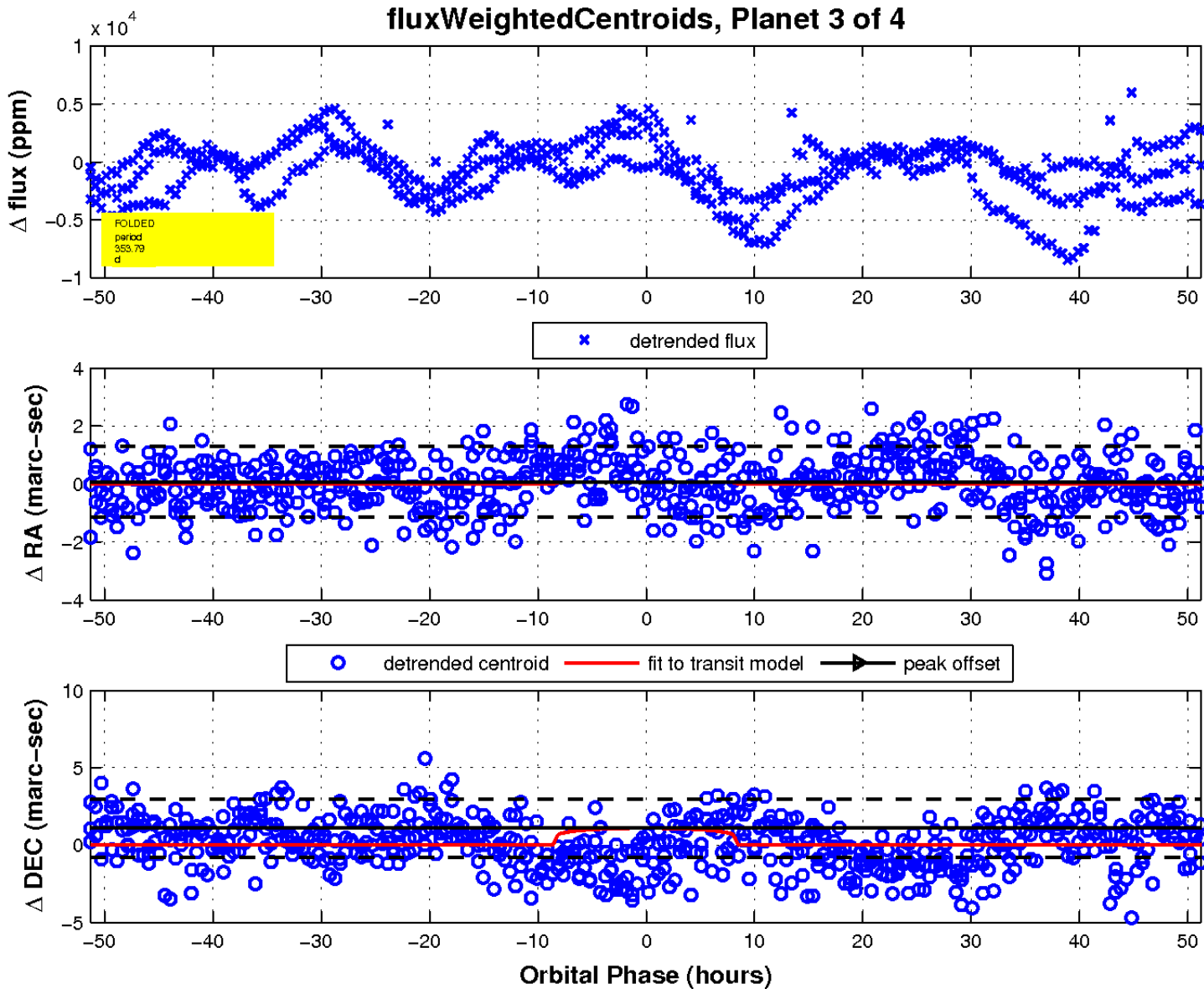
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

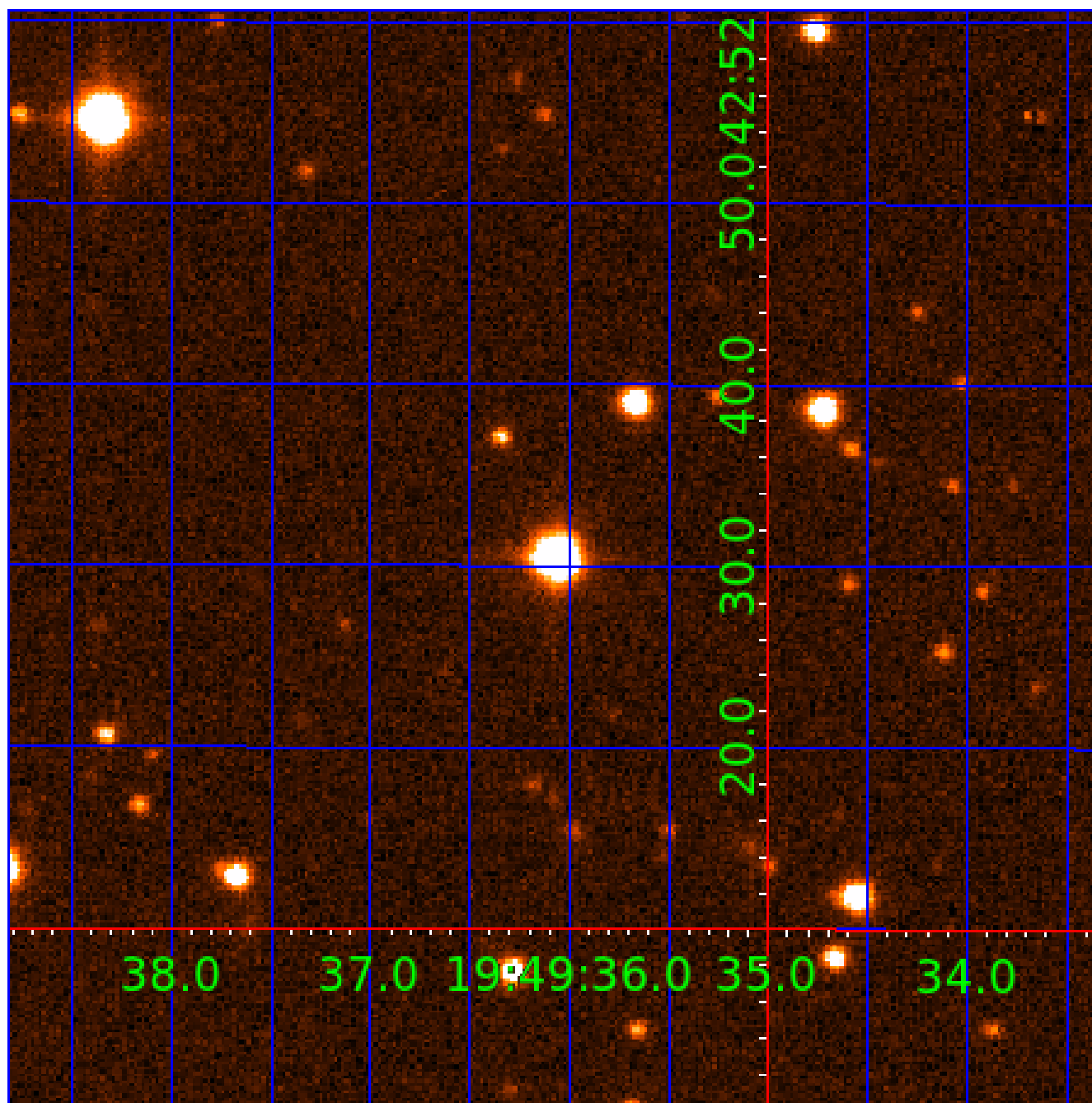
Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination



KIC 007302972

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})
007302972-01	OBS	No	426.639110	462.493799	962.8	3.500	16.4	-1.0	2.34	5499	7.27	4.38
007302972-02	OBS	No	353.780844	370.530542	749.3	2.008	10.5	2.9	2.34	5499	6.87	5.62
007302972-03	OBS	No	353.787718	370.675374	756.4	17.164	9.6	1.8	2.34	5499	6.49	5.62
007302972-04	OBS	No	0.614239	131.875777	551.4	2.000	9.3	-1.0	2.34	5499	5.51	26947.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007302972-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007302972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007302972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD
007302972-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

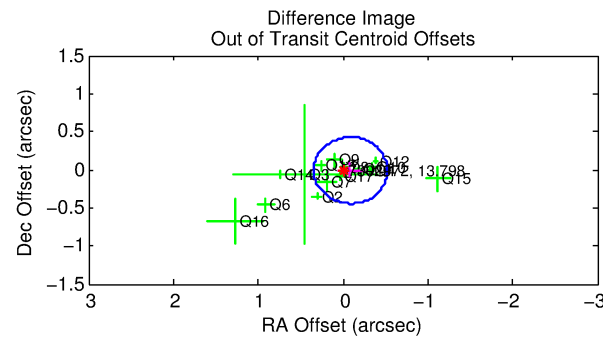
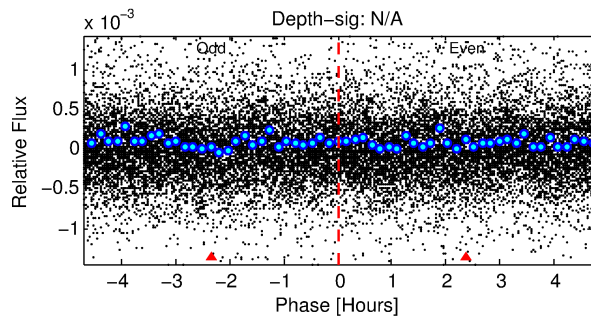
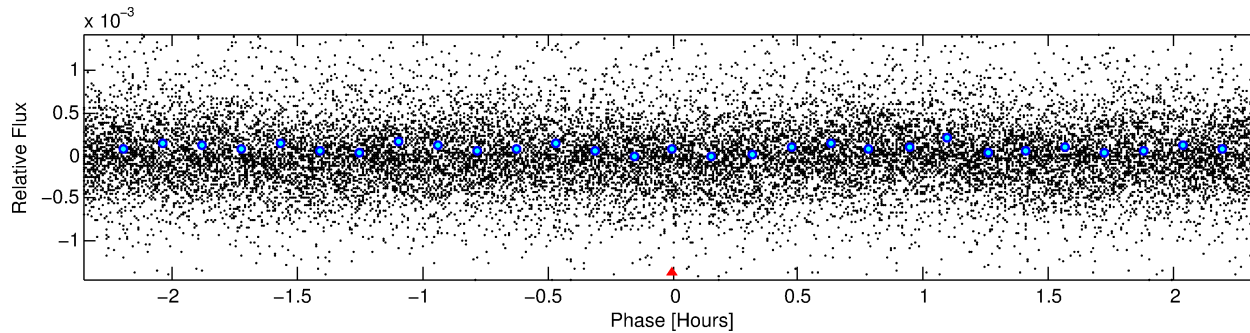
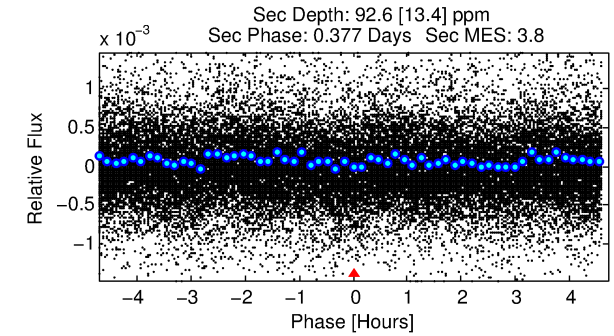
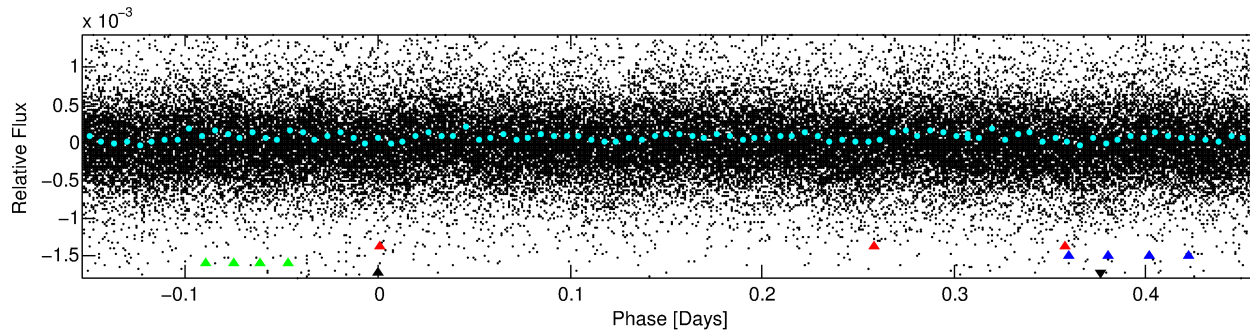
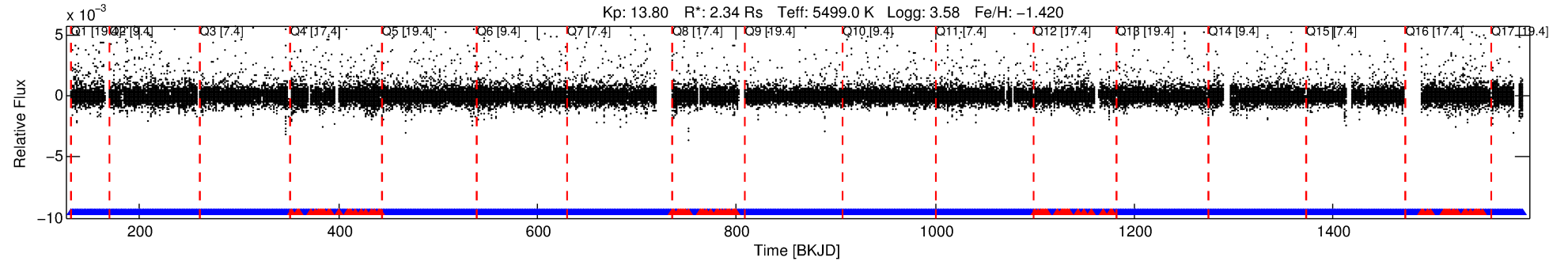
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007302972-04

No Significant Match Found

DV One-Page Summary

KIC: 7302972 Candidate: 4 of 4 Period: 0.614 d



TPS TCE Results:

Period = 0.61424 d
Epoch = 131.8758 BKJD

DV fit results are unavailable

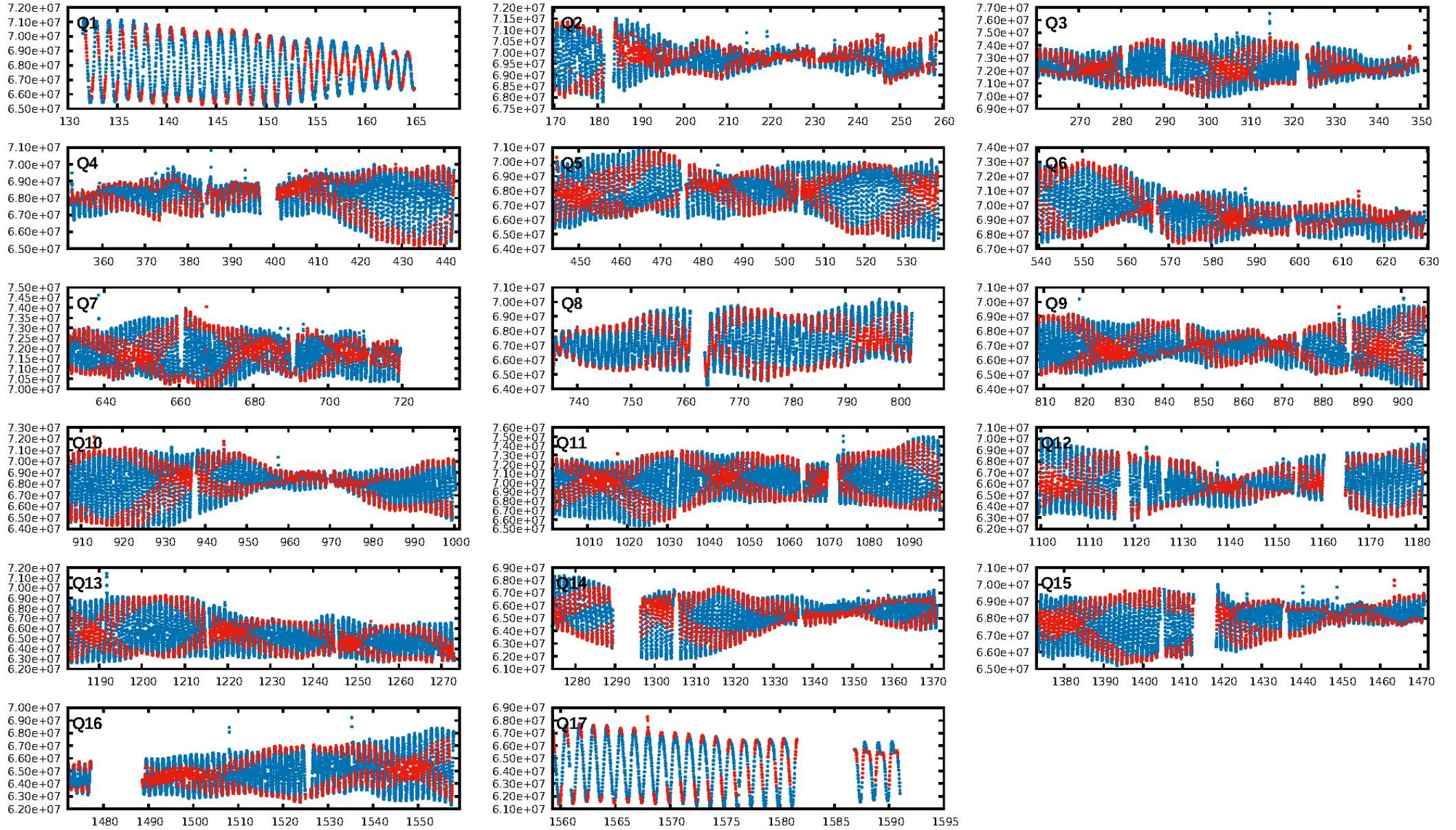
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [2990.996]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [1973/2071]
GhostDiagnostic-chr: 1.142
Centroid-sig: 94.0%
Centroid-so: 0.835 arcsec [0.22σ]
OotOffset-rm: 0.087 arcsec [0.60σ]
KicOffset-rm: 0.063 arcsec [0.41σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 1.00 [17/17]

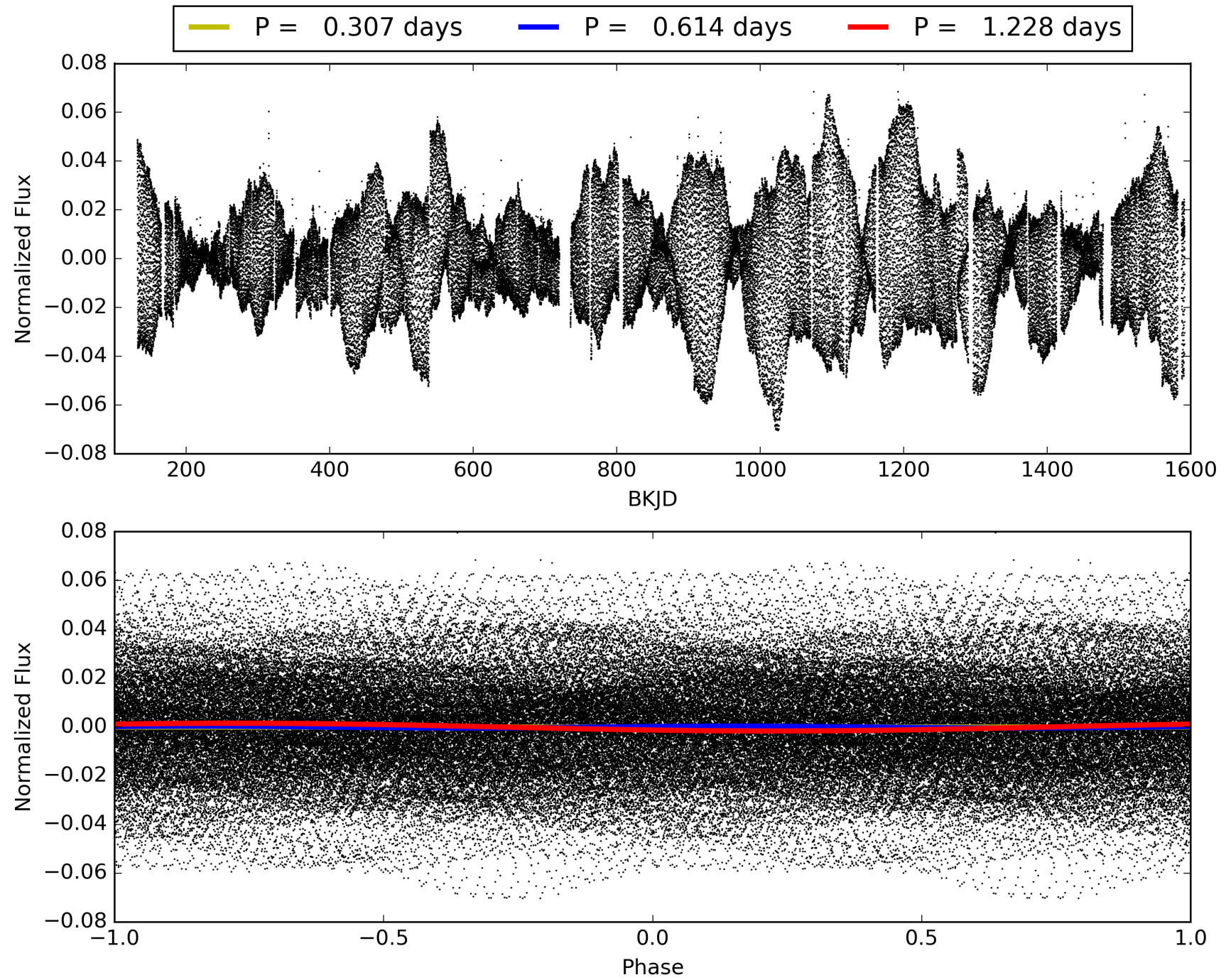
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:17:52 Z

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

TCE 007302972-04, PDC Light Curves

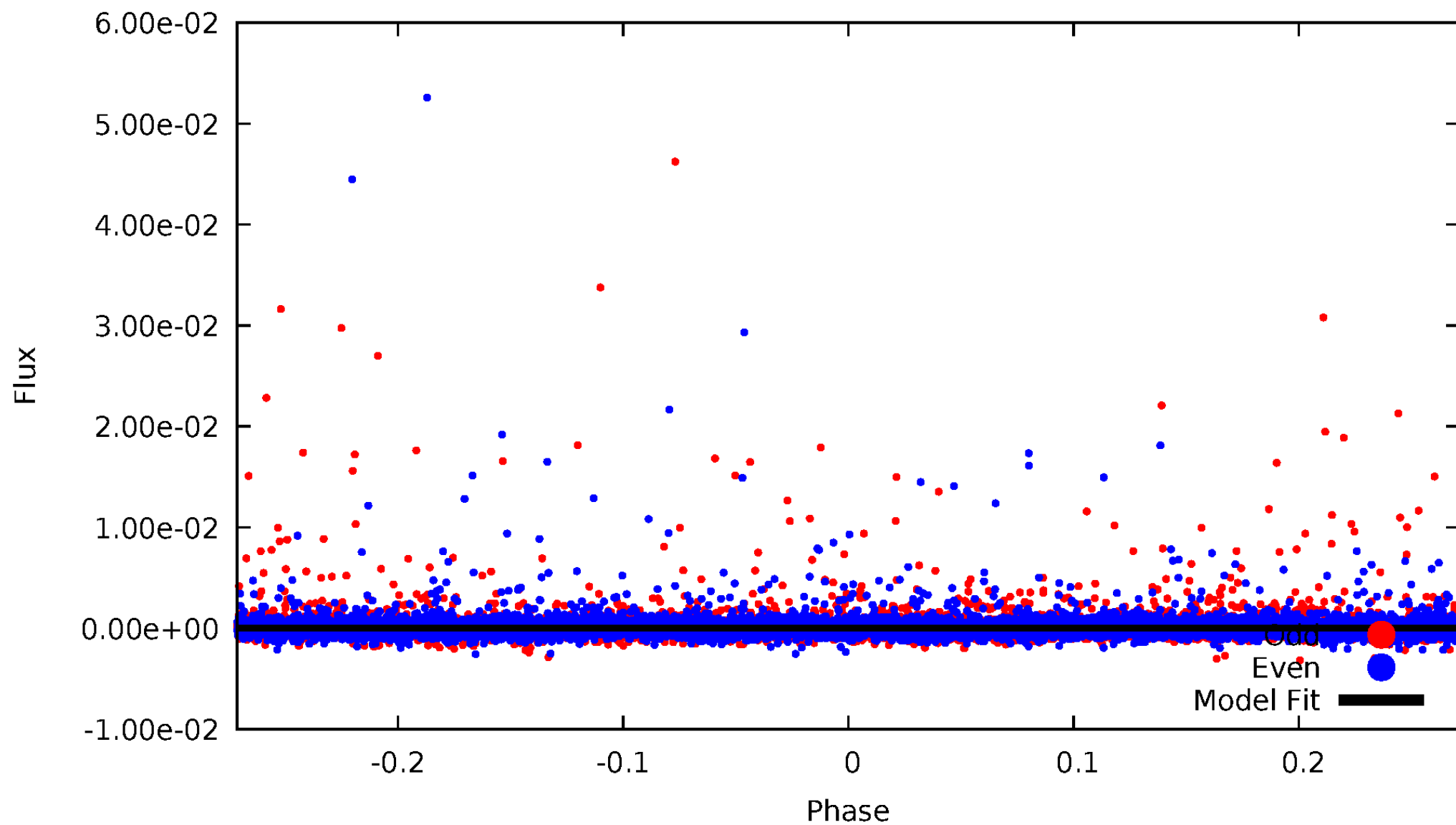


TCE 007302972-04



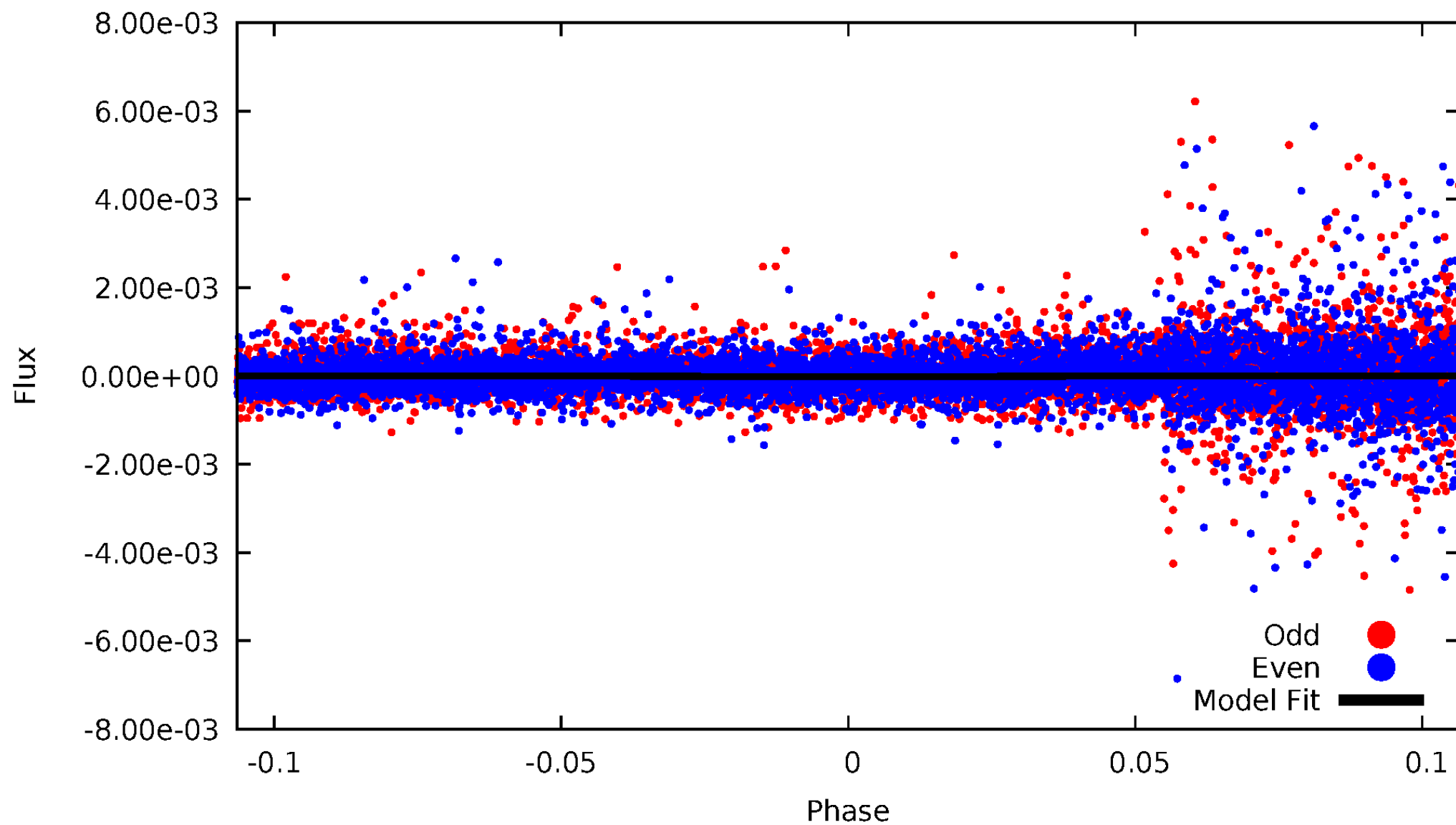
DV Odd/Even

TCE 007302972-04



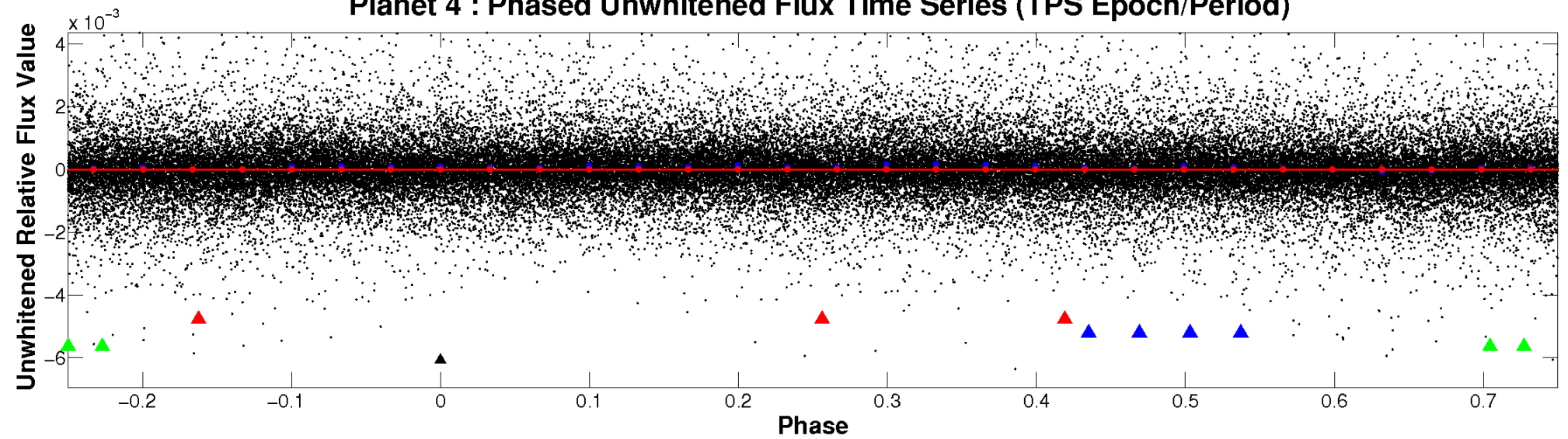
ALT Odd/Even

TCE 007302972-04

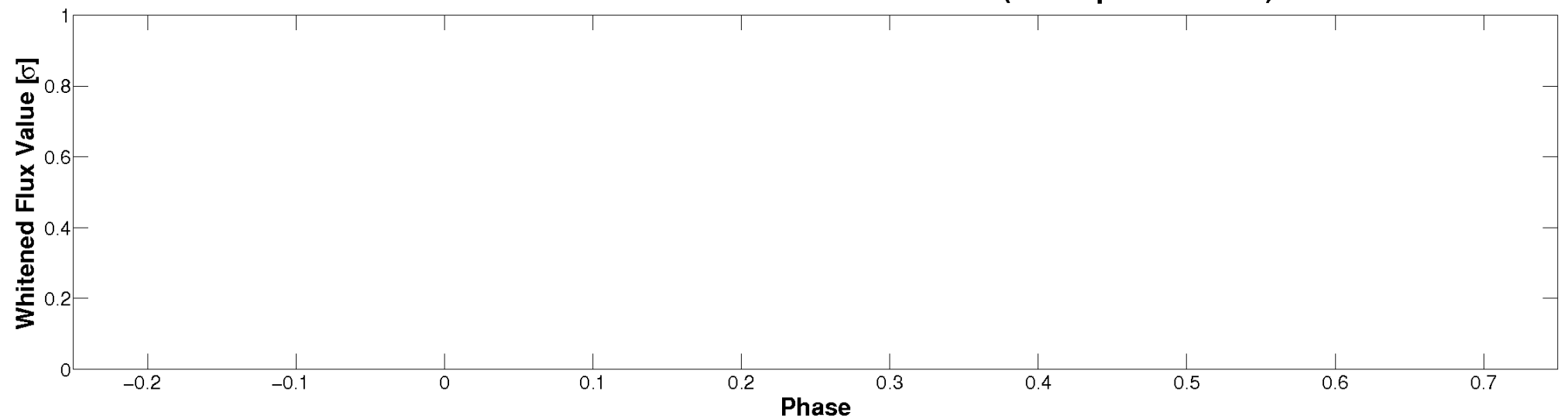


Non-Whitened Vs. Whitened Light Curve

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

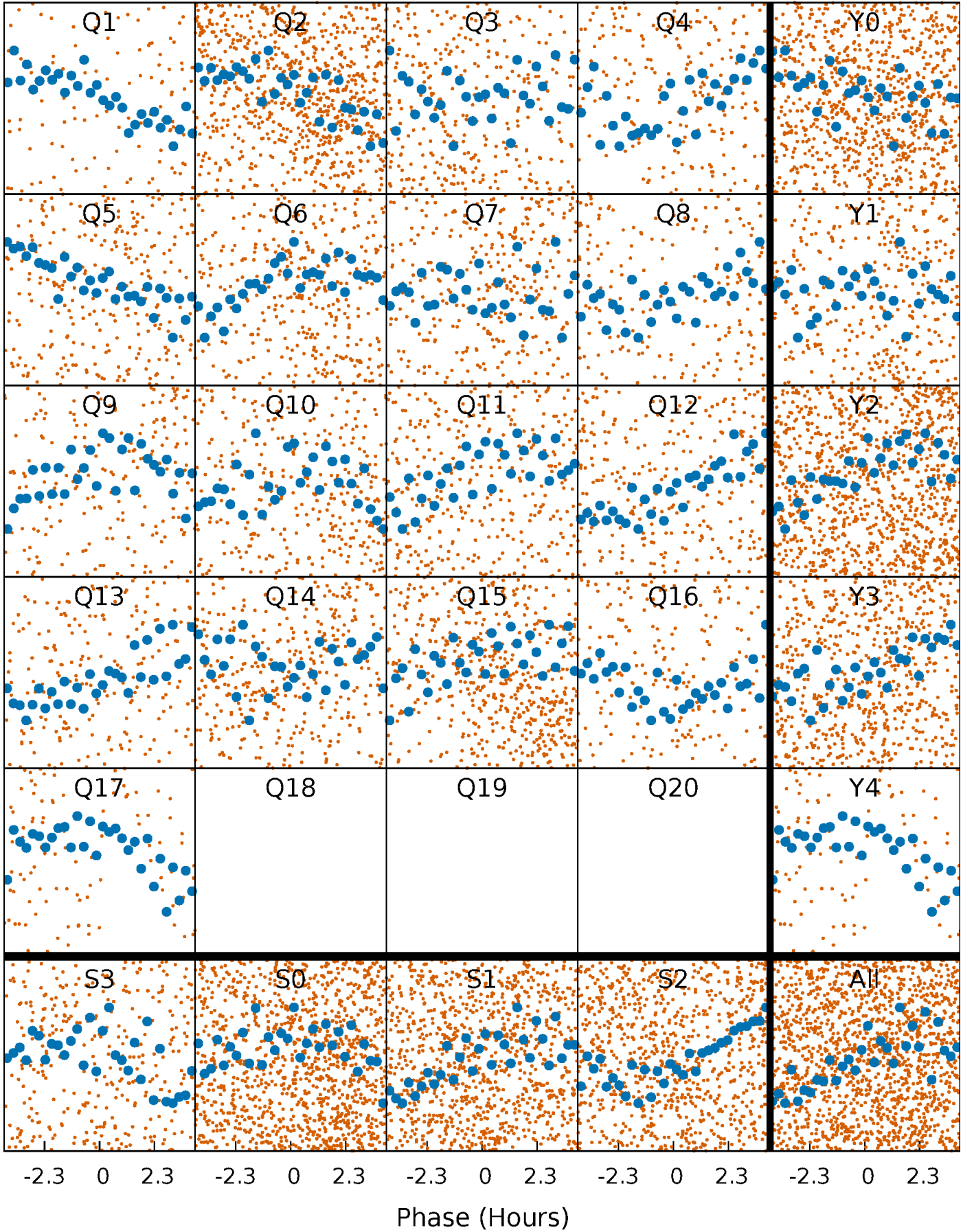


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



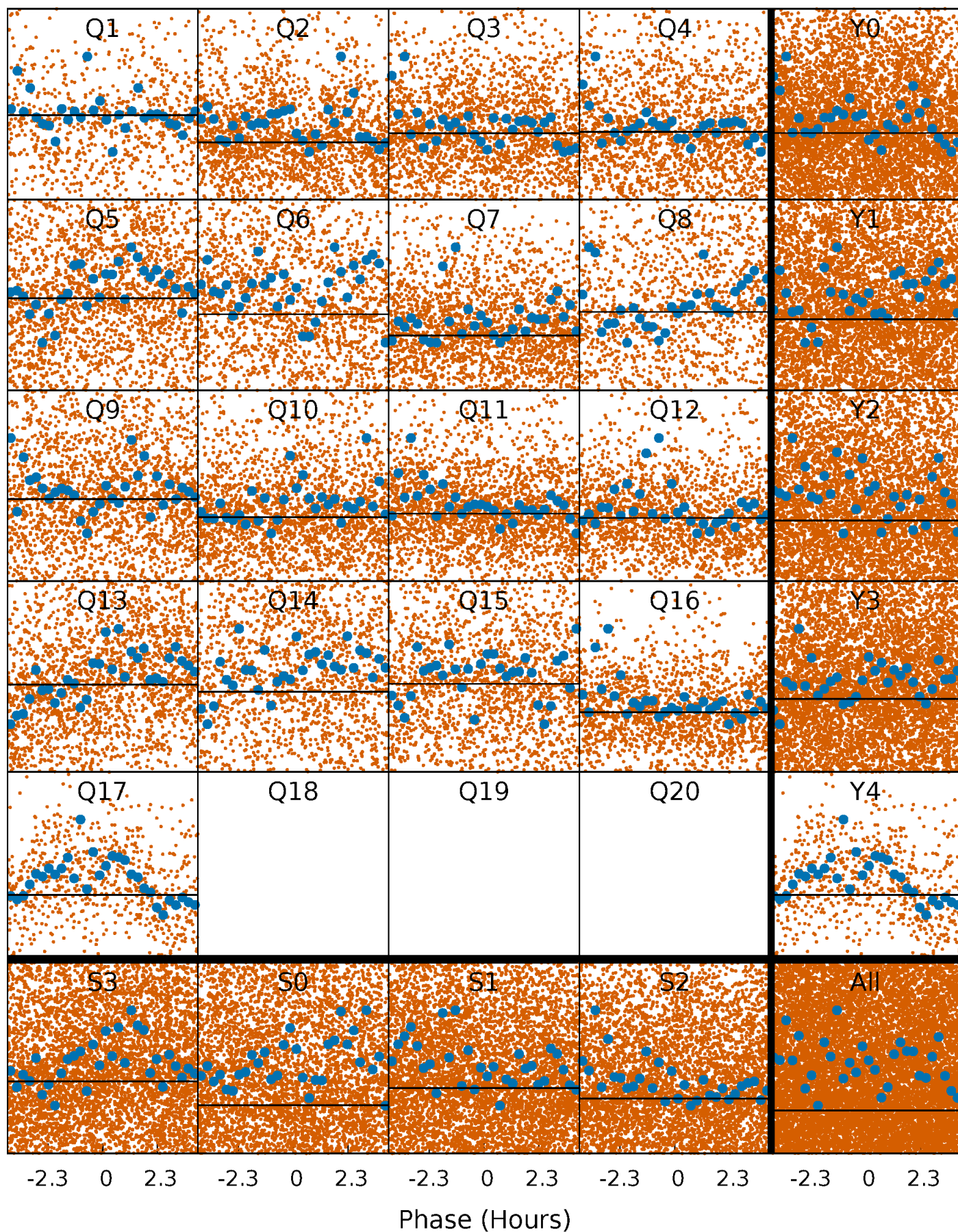
PDC Quarter-Phased Transit Curves

TCE 007302972-04 P= 0.614239 Days $T_0=131.875777$ (BKJD)



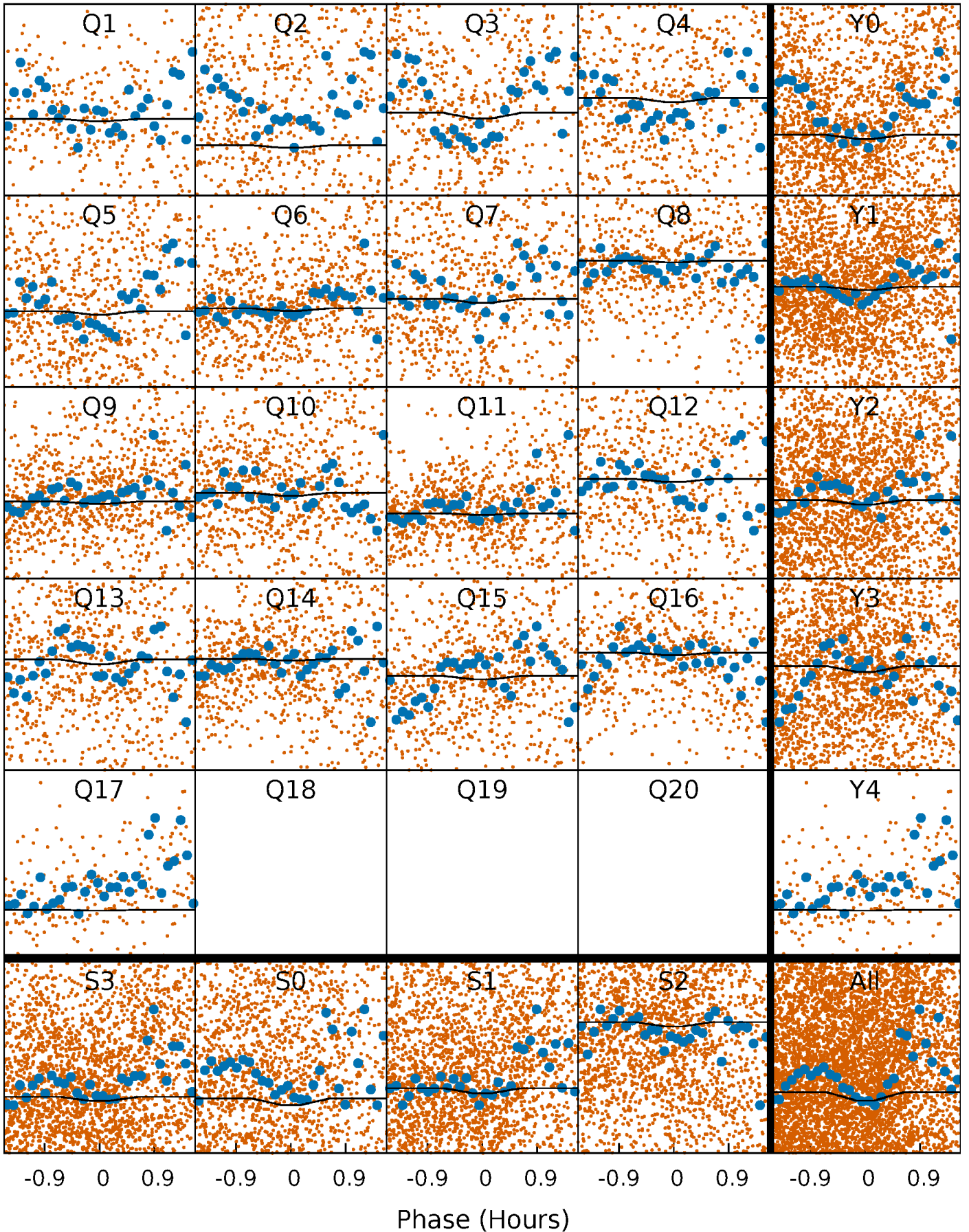
DV Quarter-Phased Transit Curves

TCE 007302972-04 P= 0.614239 Days $T_0=131.875777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

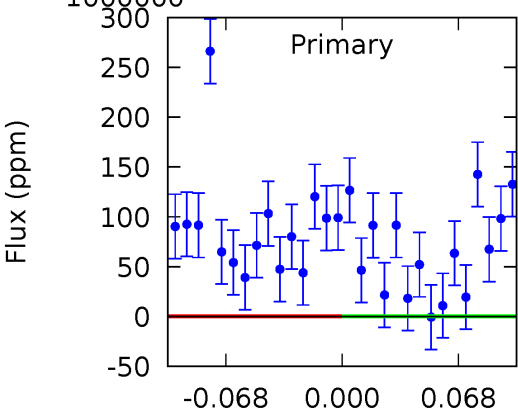
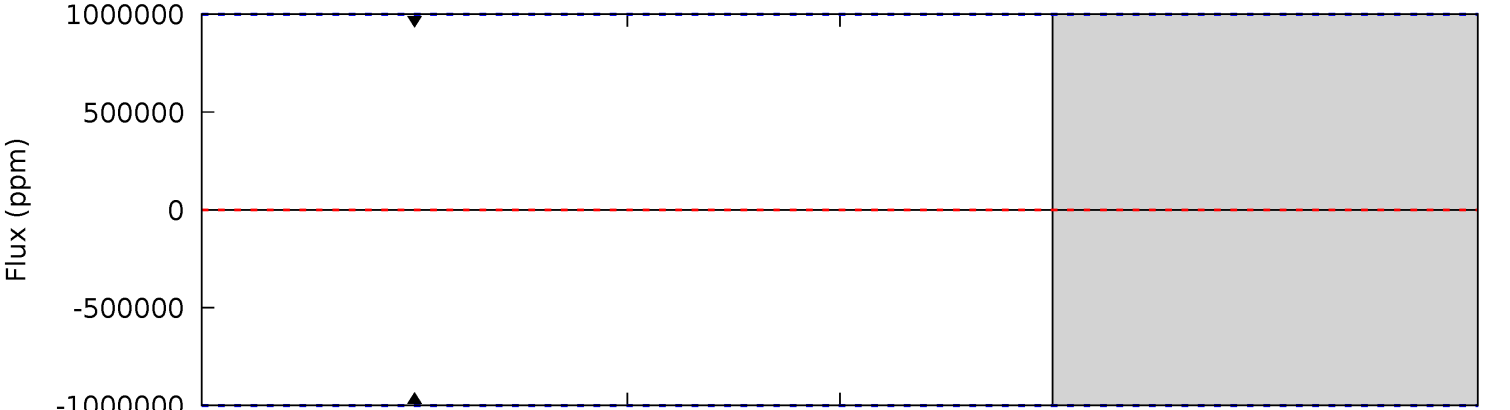
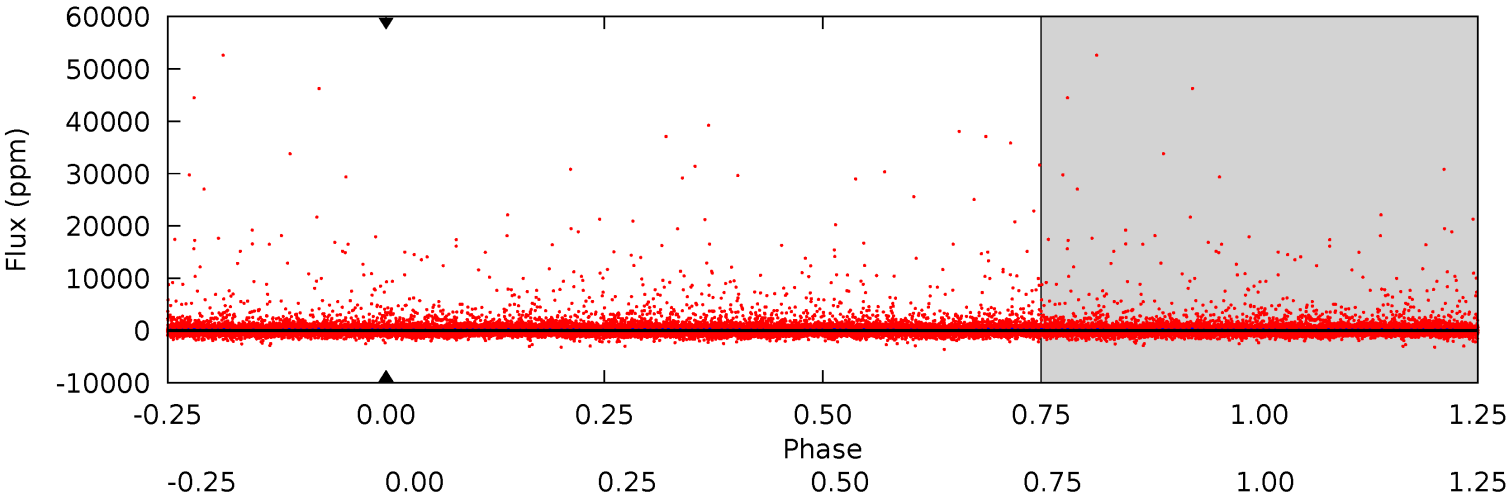
TCE 007302972-04 P= 0.614239 Days $T_0=131.783482$ (BKJD)



DV Model-Shift Uniqueness Test

007302972-04, P = 0.614239 Days, E = 131.261538 Days

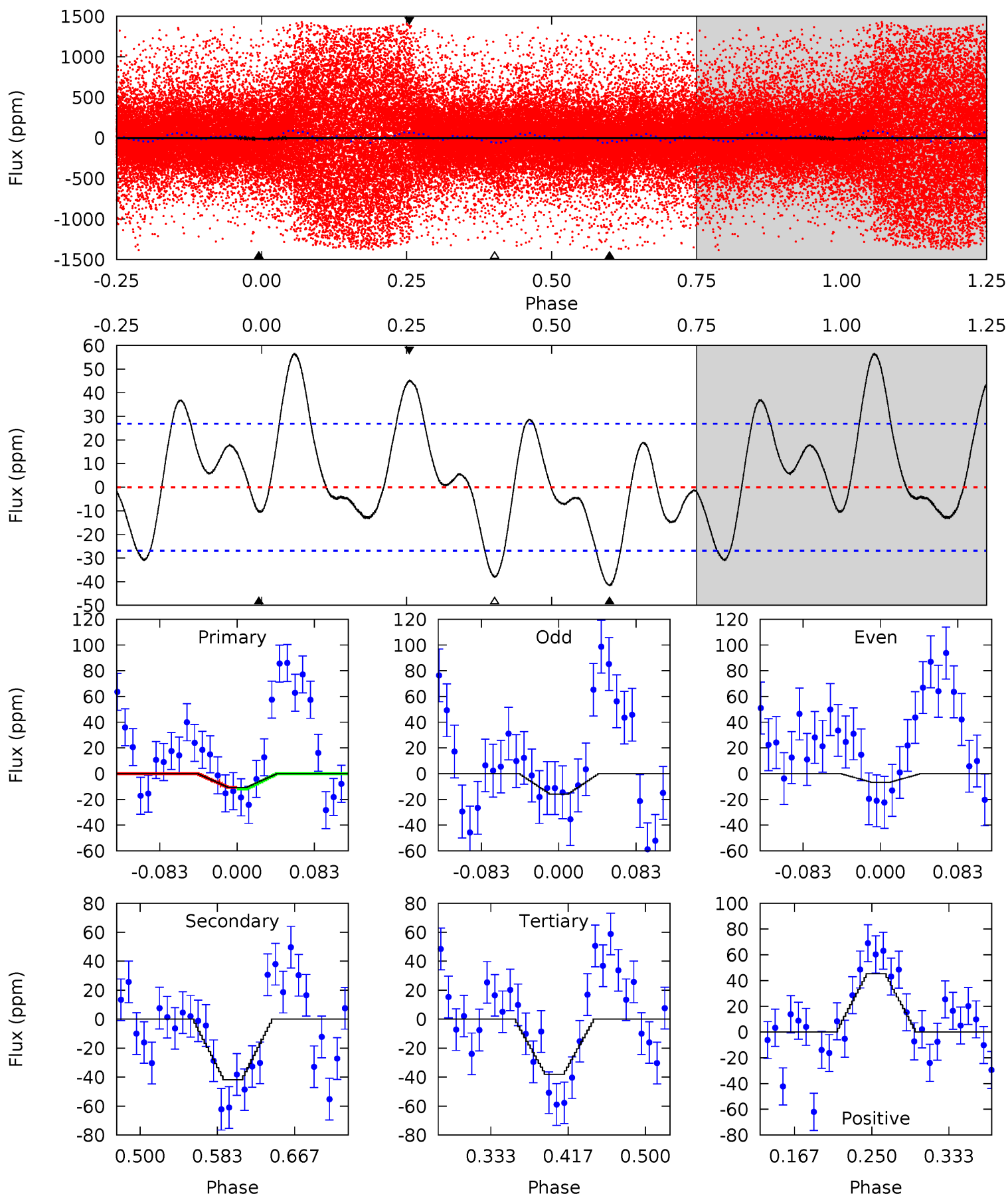
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007302972-04, P = 0.614239 Days, E = 131.169243 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.84	7.17	6.54	7.78	4.60	1.73	3.42	-4.70	-5.94	0.63	-0.61	0.85	0.16	0.58	0.12



Stellar Parameters For KIC 007302972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5499^{+181}_{-125}	$3.580^{+1.095}_{-0.365}$	$-1.420^{+0.350}_{-0.250}$	$2.341^{+1.754}_{-1.754}$	$0.760^{+0.258}_{-0.129}$	$0.083^{+3.536}_{-0.073}$
	+3%/-2%	+31%/-10%	+25%/-18%	+75%/-75%	+34%/-17%	+4237%/-87%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007302972-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$16.25^{+24.71}_{-11.37}$	4524^{+777}_{-1026}	-4616^{+21442}_{-13762}	$-0.233^{+68.024}_{-55.570}$
Alt.	-42 ± 6	$14.35^{+20.21}_{-9.90}$	4434^{+848}_{-973}	-3795^{+1020}_{-634}	$0.019^{+0.168}_{-0.015}$

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 $A_{obs} \gg 1.0$

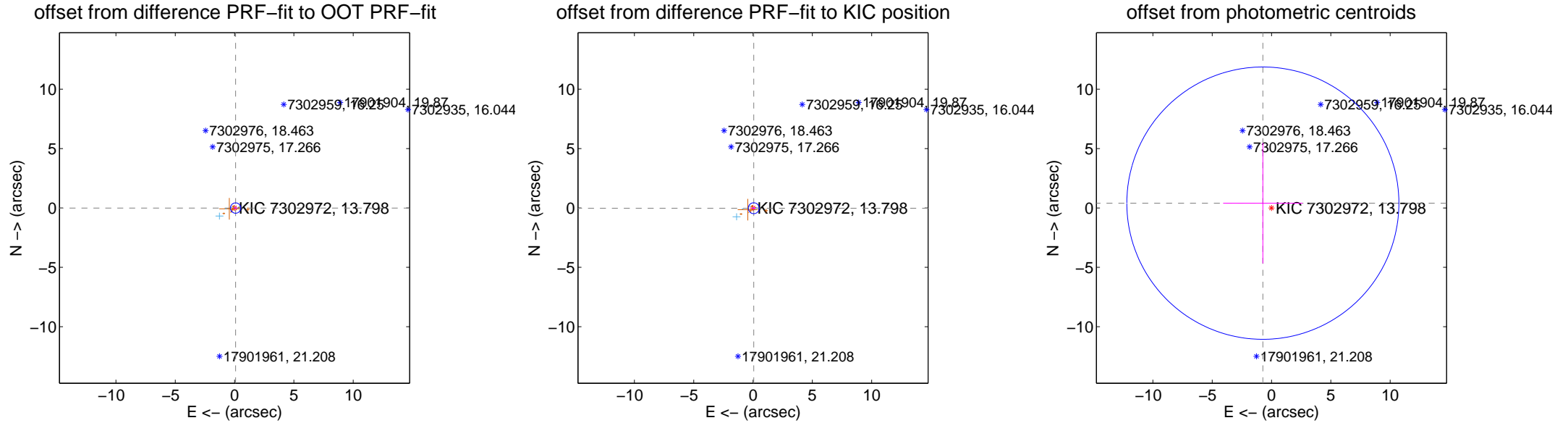
DV Centroid Data

Supplemental centroid analysis for 007302972-04. Kepler magnitude: 13.80. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

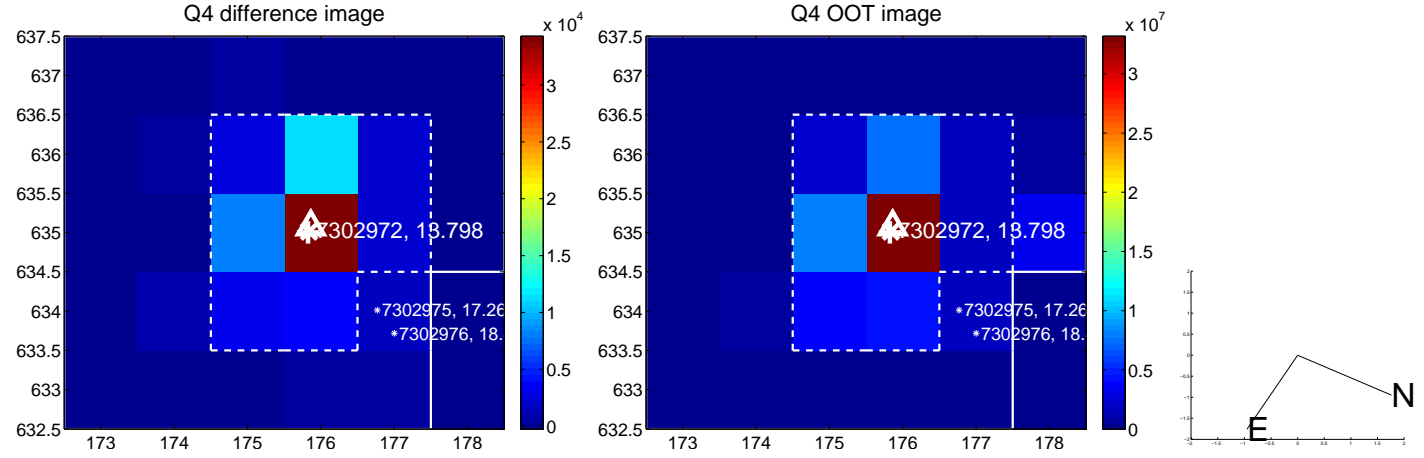
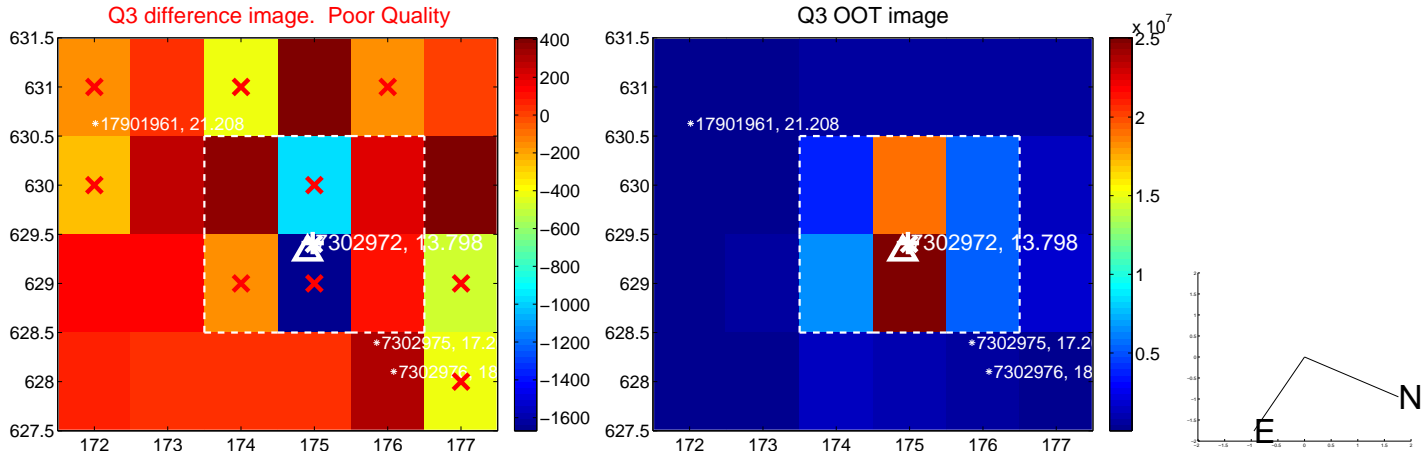
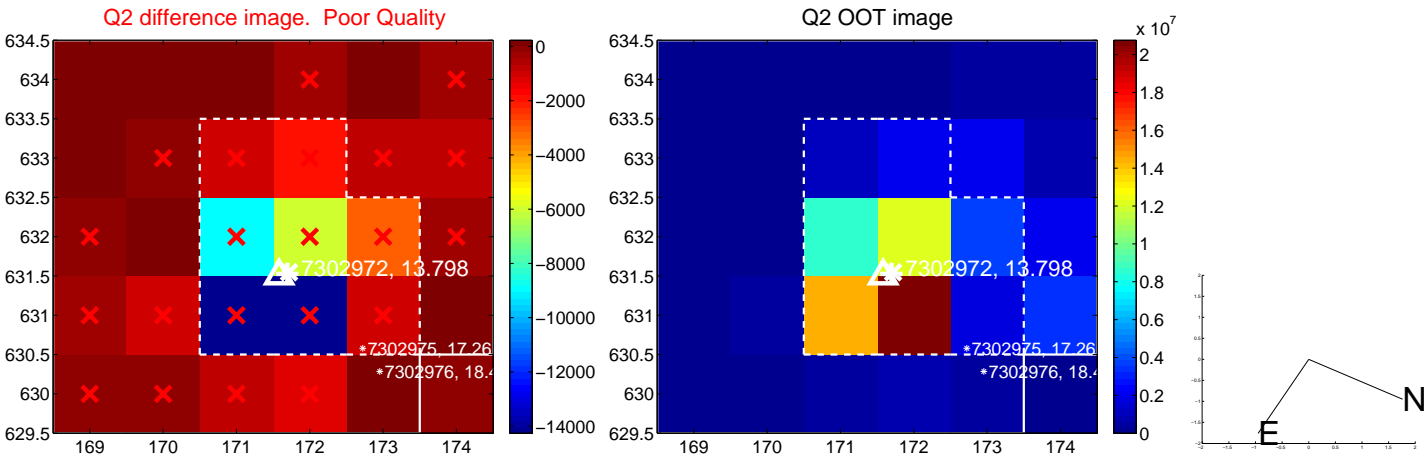
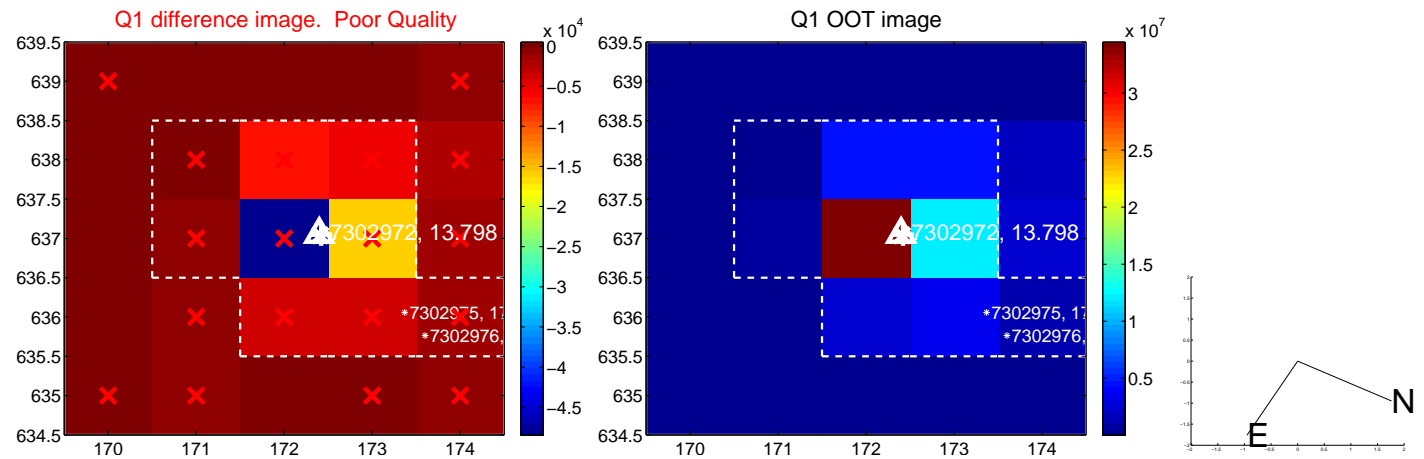
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.087 ± 0.145	0.60	-0.086 ± 0.149	-0.008 ± 0.084
PRF-fit source offset from KIC position	0.063 ± 0.153	0.41	-0.058 ± 0.174	-0.023 ± 0.089
photometric centroid source offset	0.83 ± 3.82	0.22	0.73 ± 3.35	0.40 ± 5.08

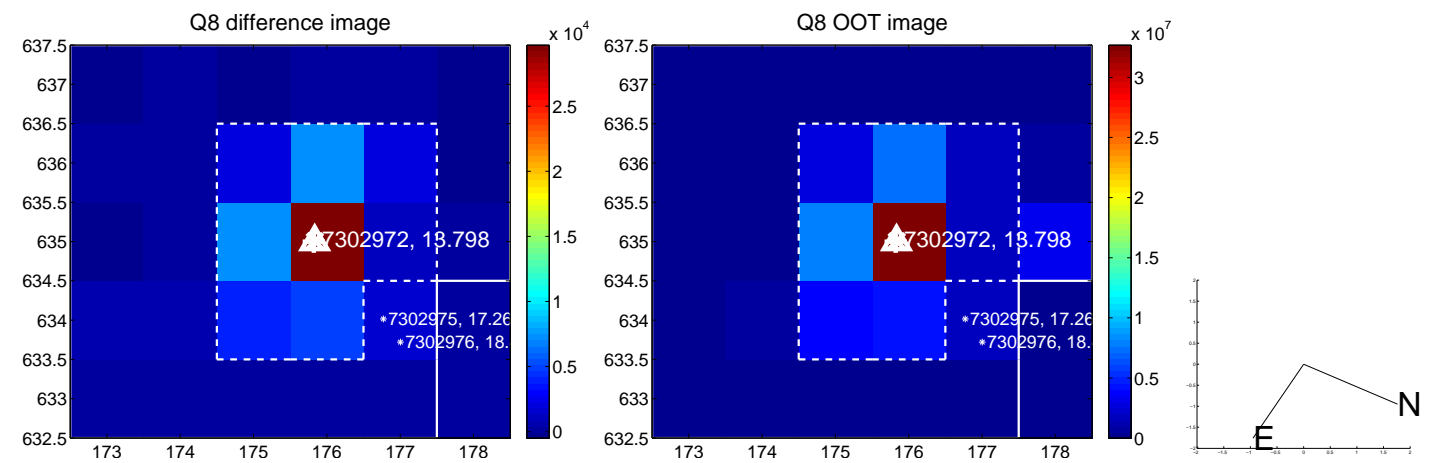
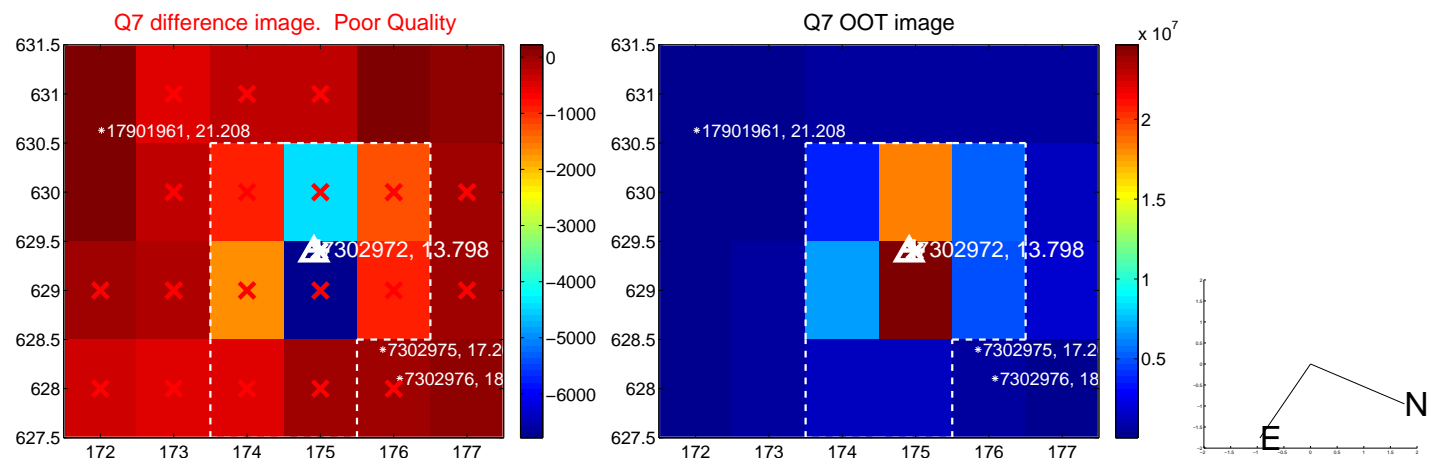
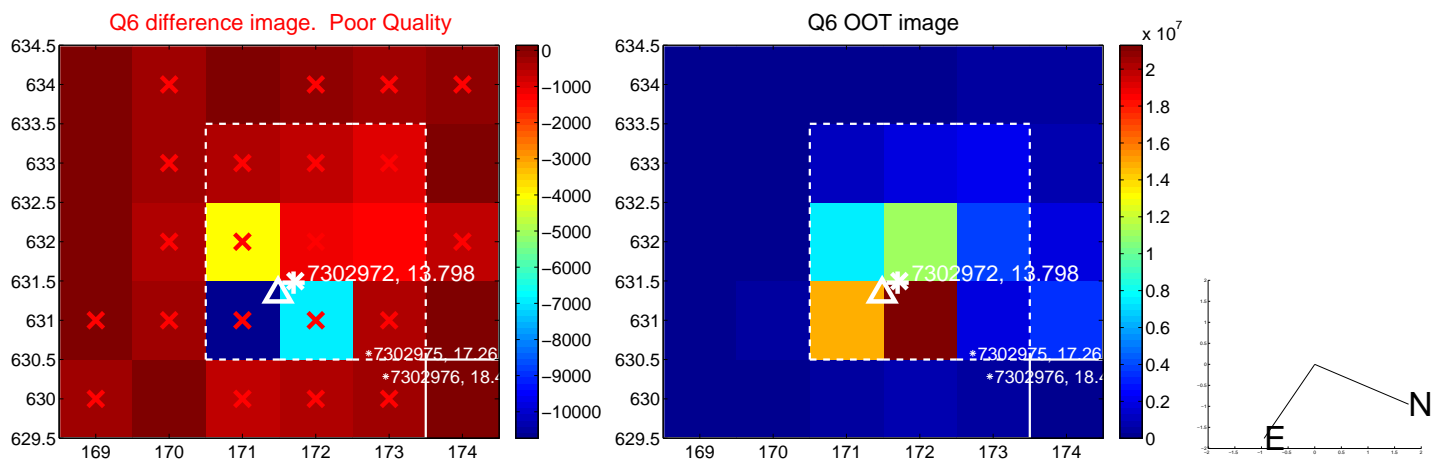
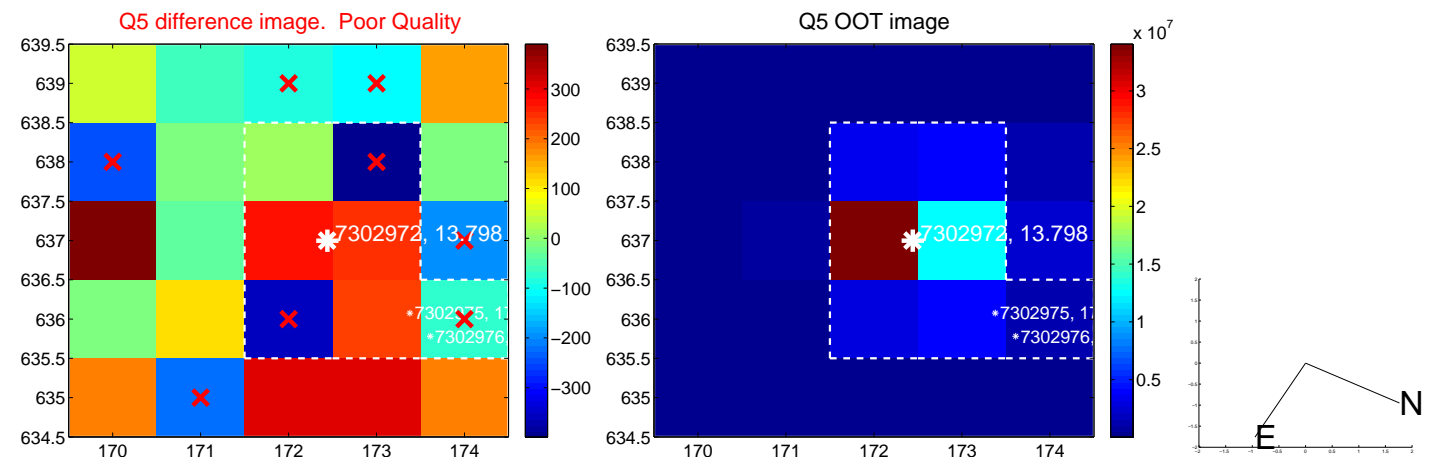


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

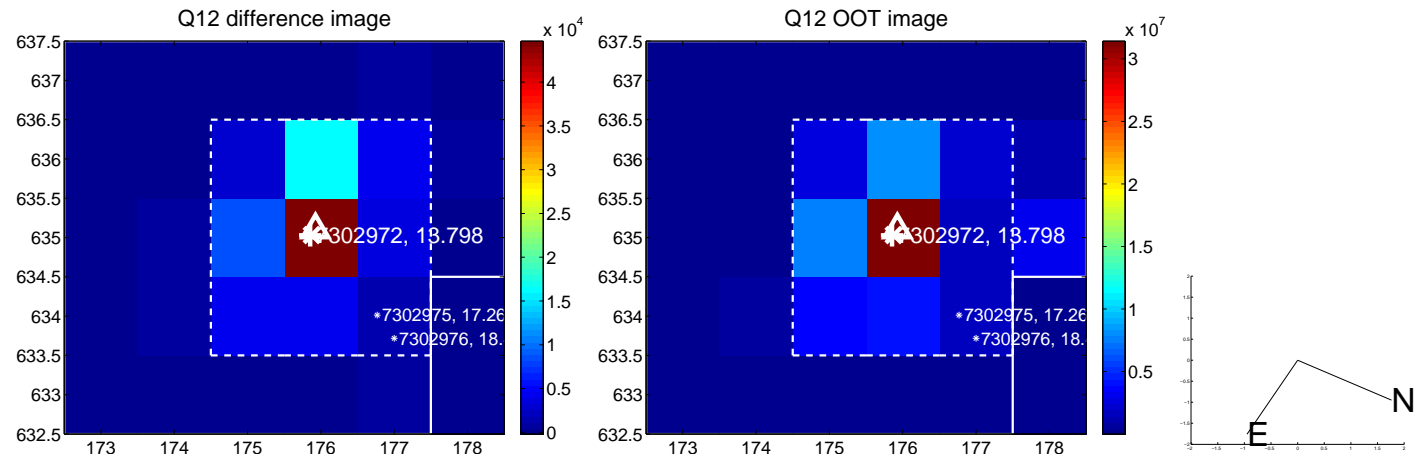
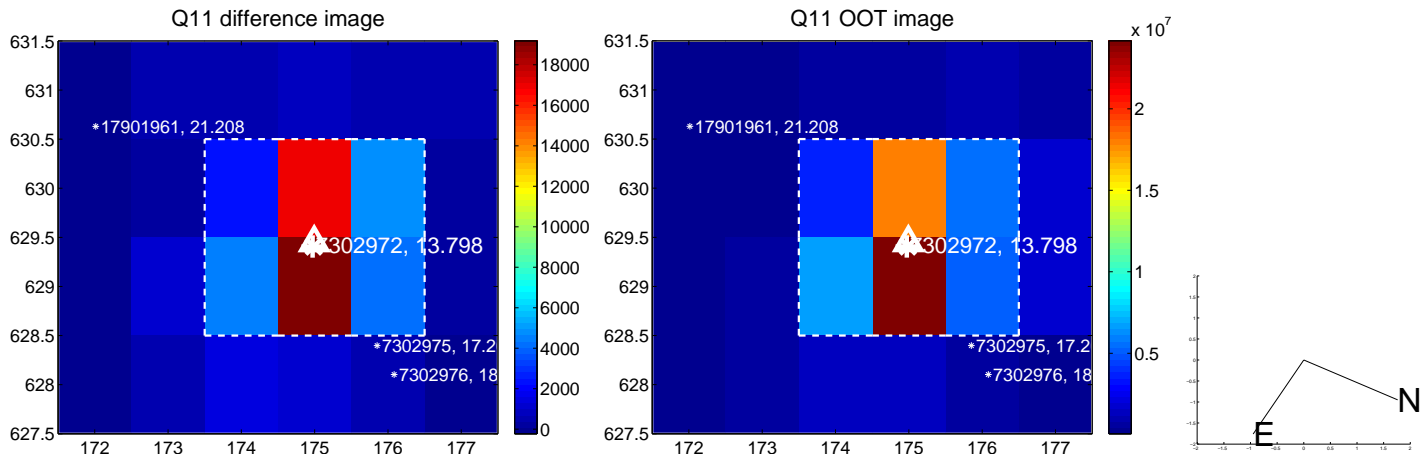
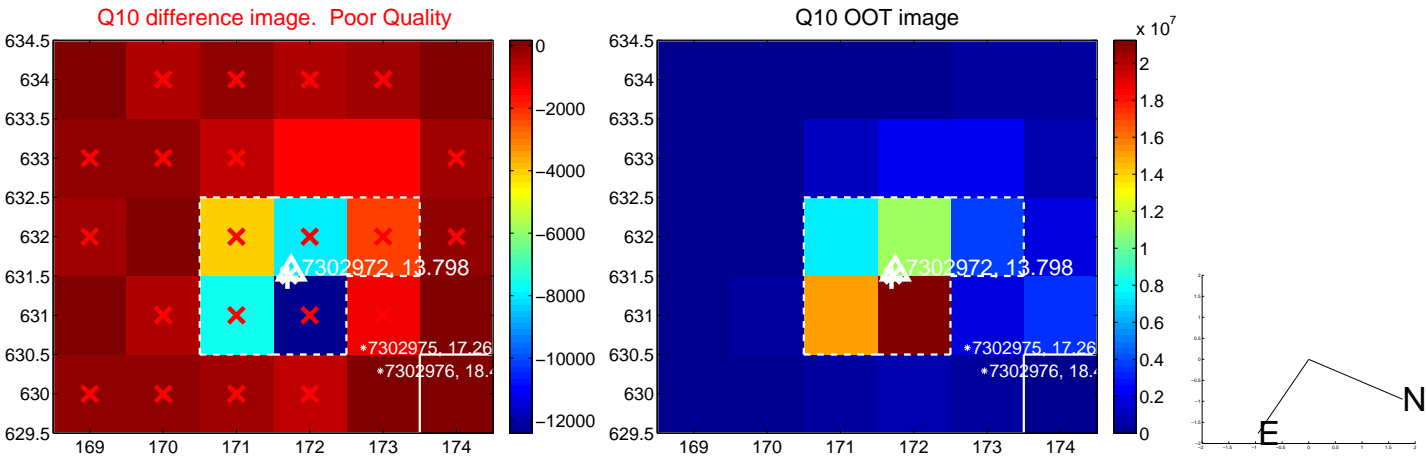
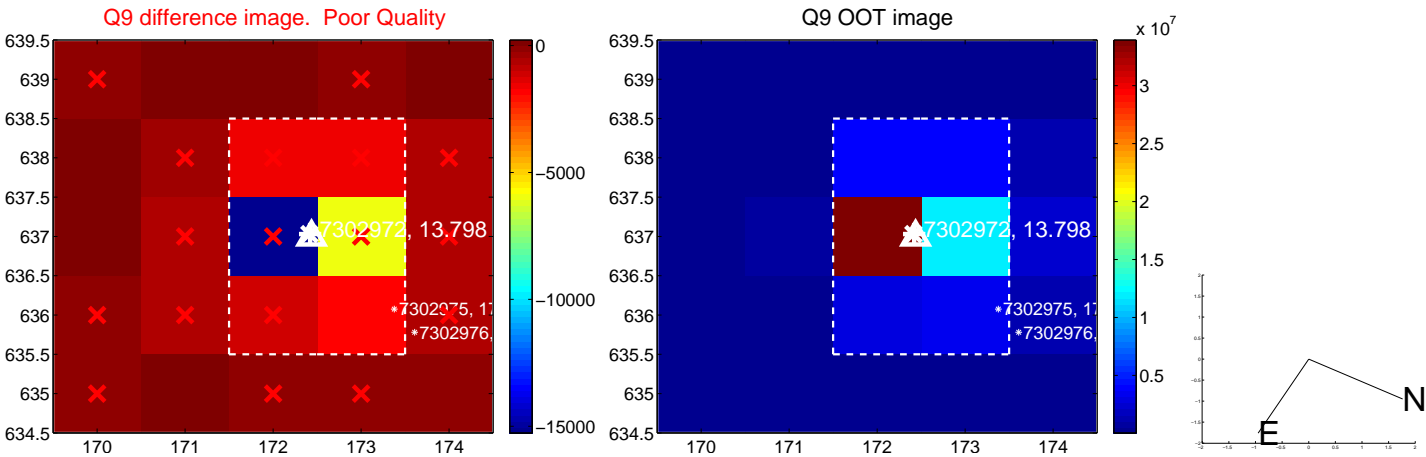
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



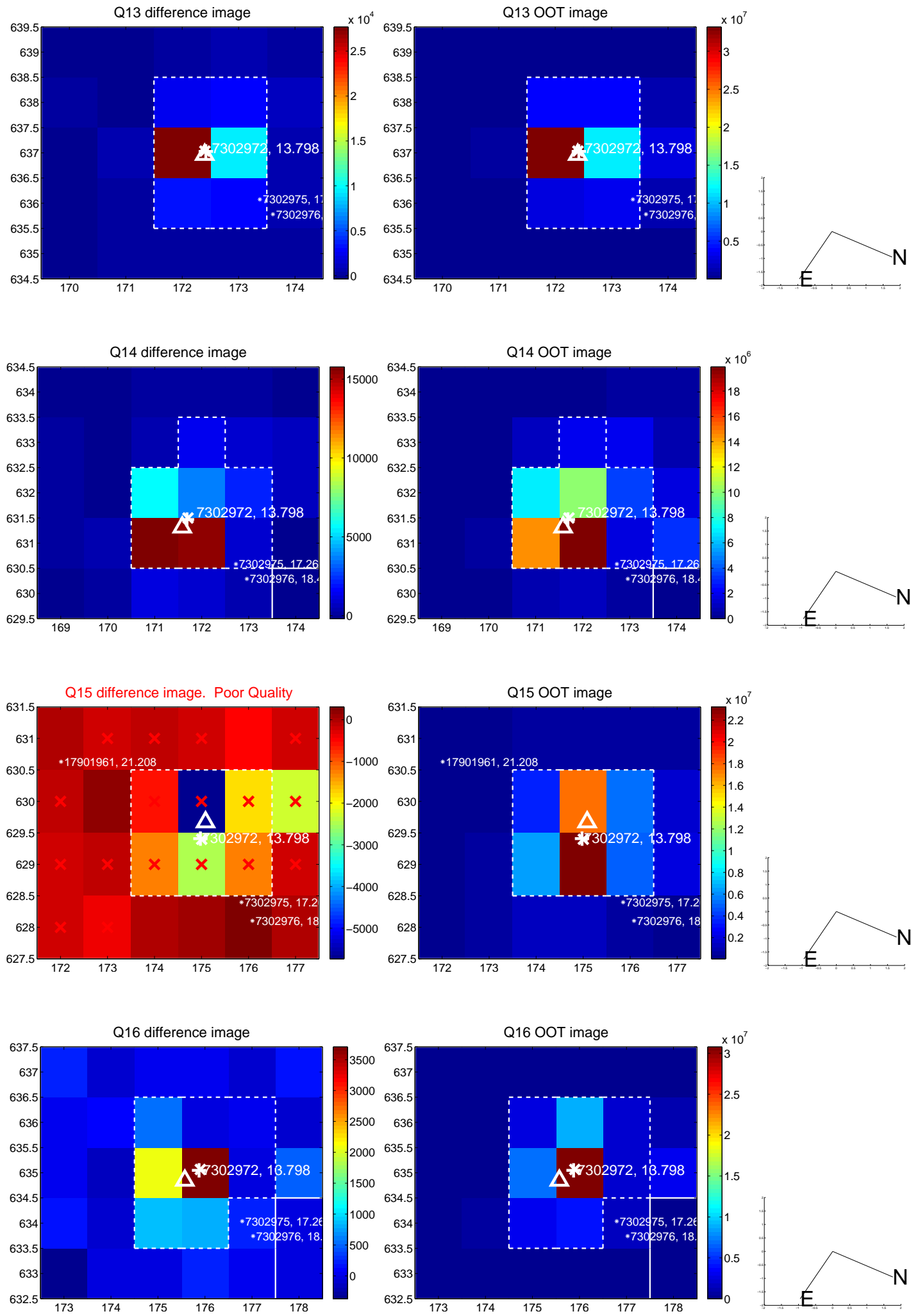
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



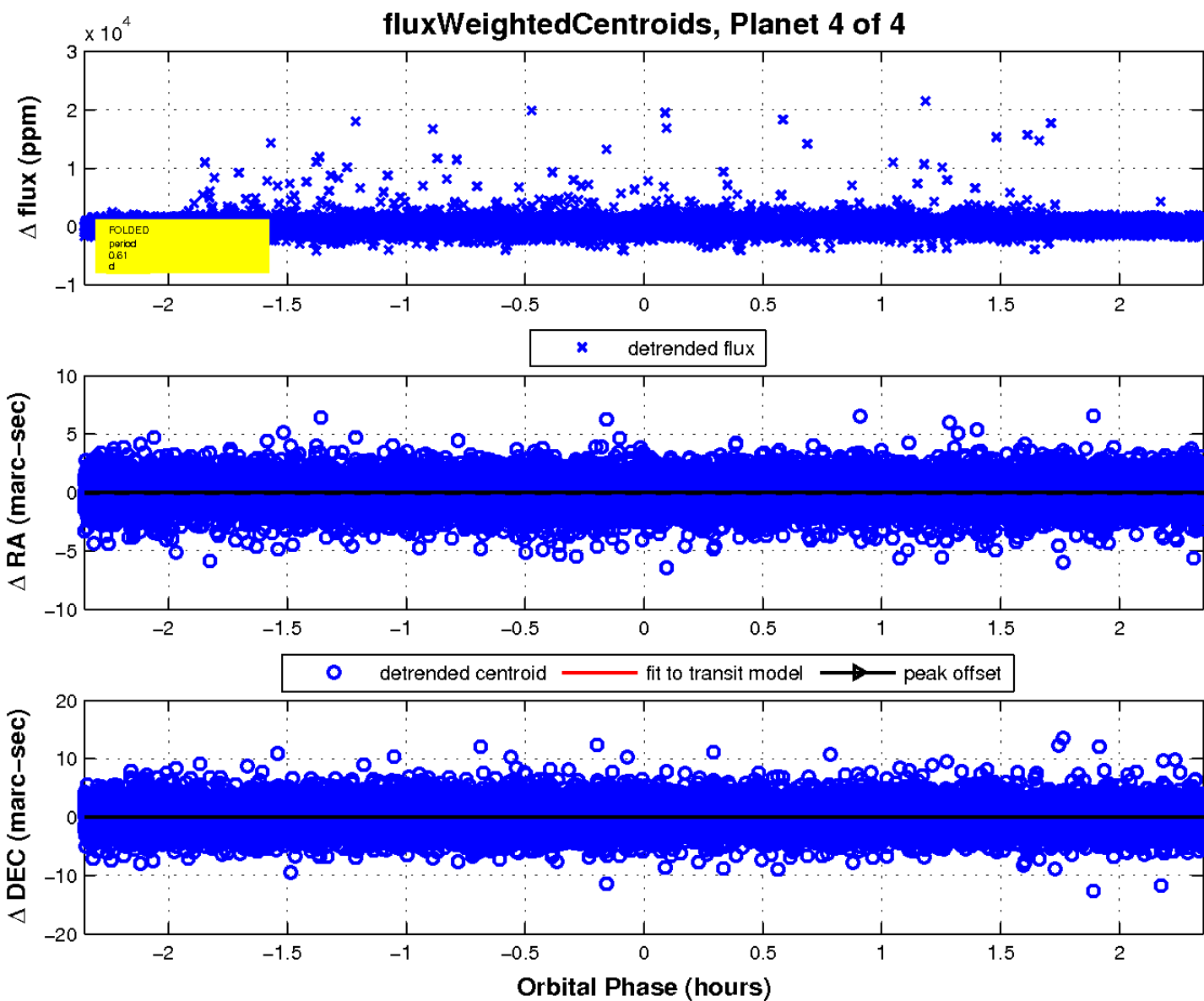
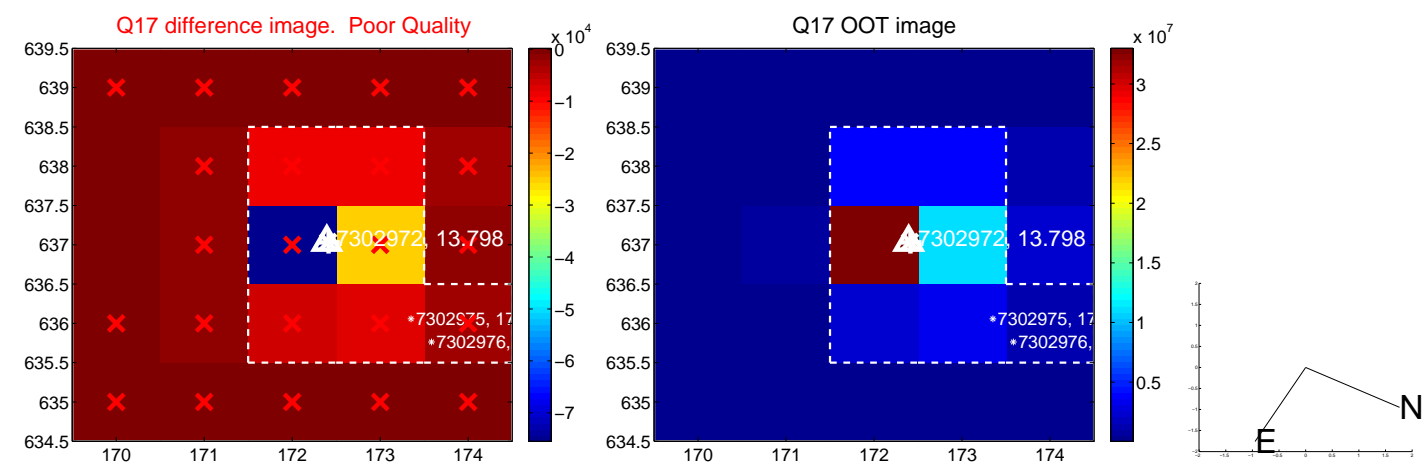
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

