

KIC 003222369

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})
003222369-01	OBS	No	367.598366	212.518024	1966.4	6.379	18.9	10.3	0.65	4619	3.77	0.23
003222369-02	OBS	No	458.694719	250.711866	2044.9	8.283	14.6	9.3	0.65	4619	3.58	0.17
003222369-03	OBS	No	545.676981	208.472926	1187.1	4.560	14.8	5.9	0.65	4619	2.28	0.14
003222369-04	OBS	No	331.107752	424.070027	1525.4	2.090	14.1	8.5	0.65	4619	2.73	0.27
003222369-05	OBS	No	353.224935	398.170679	1608.5	8.333	15.5	7.8	0.65	4619	2.82	0.24
003222369-06	OBS	No	496.577603	362.877680	1225.1	7.766	16.0	6.0	0.65	4619	2.37	0.15
003222369-07	OBS	No	410.959759	341.642914	841.2	10.500	14.5	-1.0	0.65	4619	1.81	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003222369-01	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—INCONSISTENT_TRANS
003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003222369-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

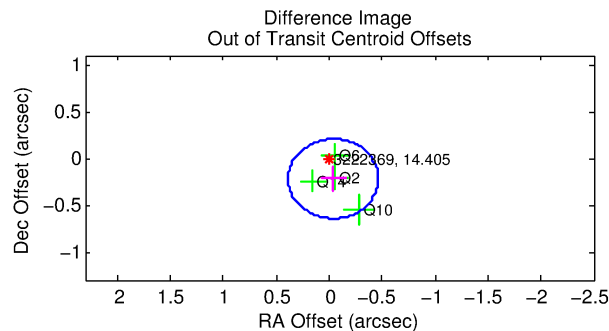
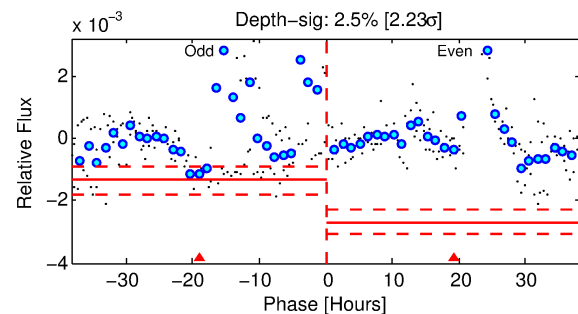
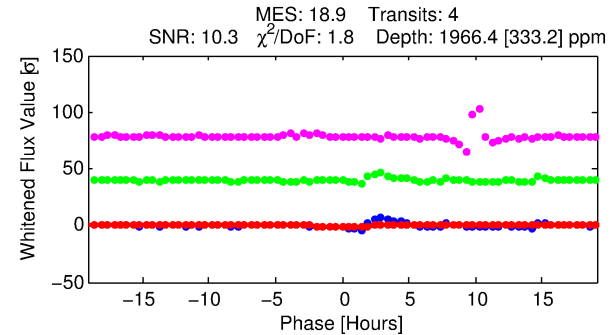
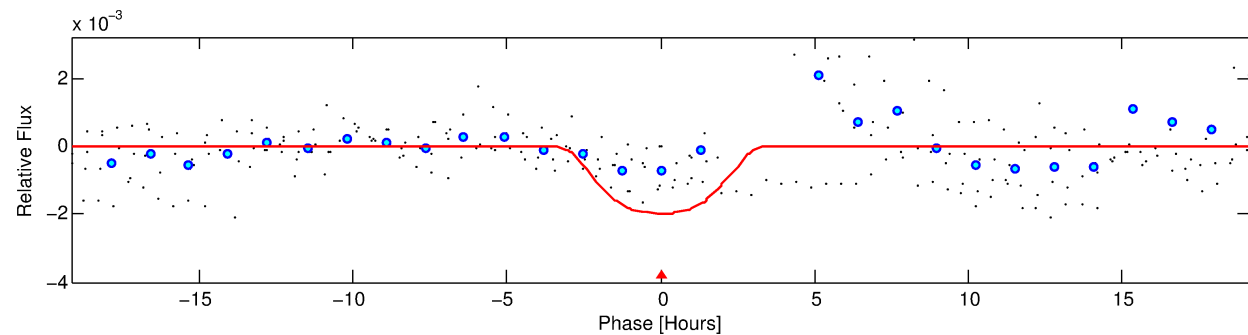
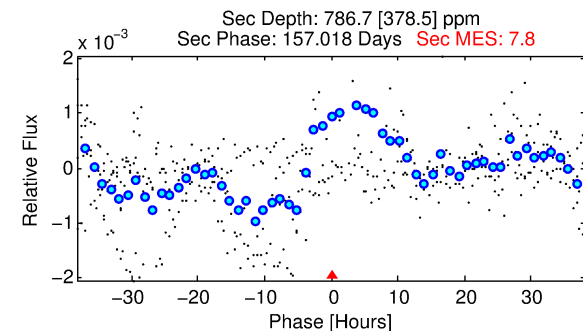
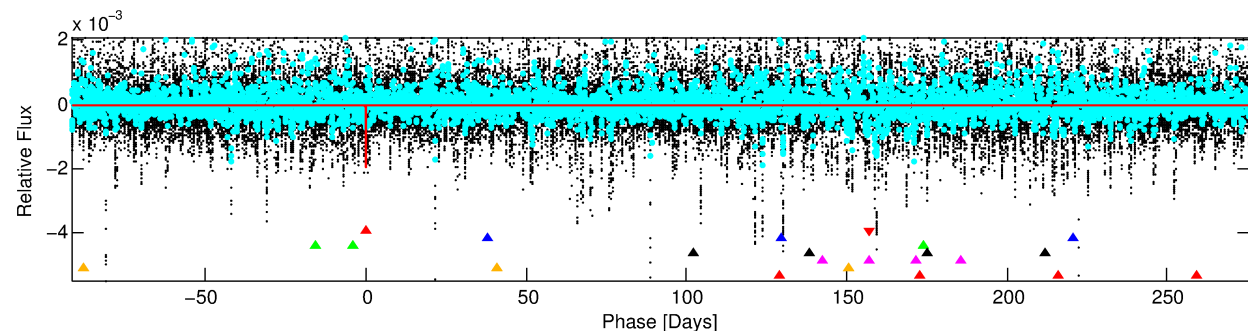
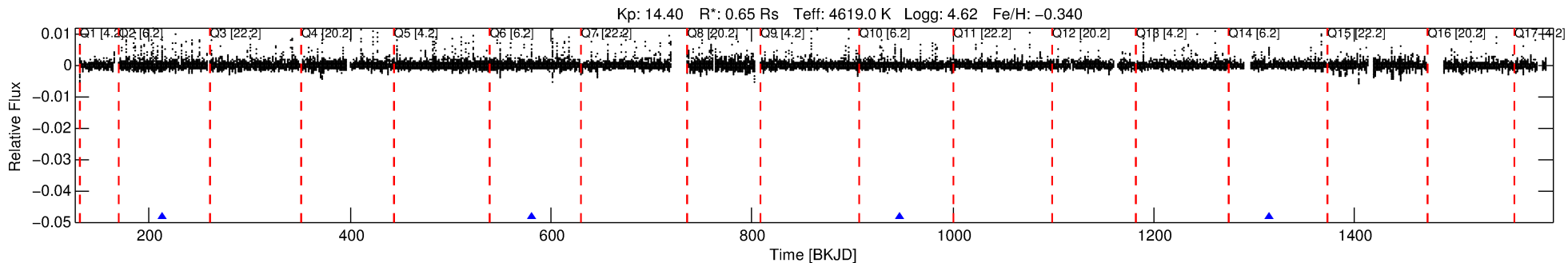
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-01

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 1 of 7 Period: 367.598 d



DV Fit Results:

Period = 367.59837 [0.00602] d
Epoch = 212.5180 [0.0125] BKJD
Rp/R* = 0.0531 [0.0059]
a/R* = 209.80 [30.44]
b = 0.94 [0.02]
Seff = 0.23 [0.04]
Teq = 177 [7] K
Rp = 3.77 [0.53] Re
a = 0.8634 [0.0612] AU
Ag = 22727.27 [12249.37] [1.86σ]
Teffp = 3356 [455] K [6.98σ]

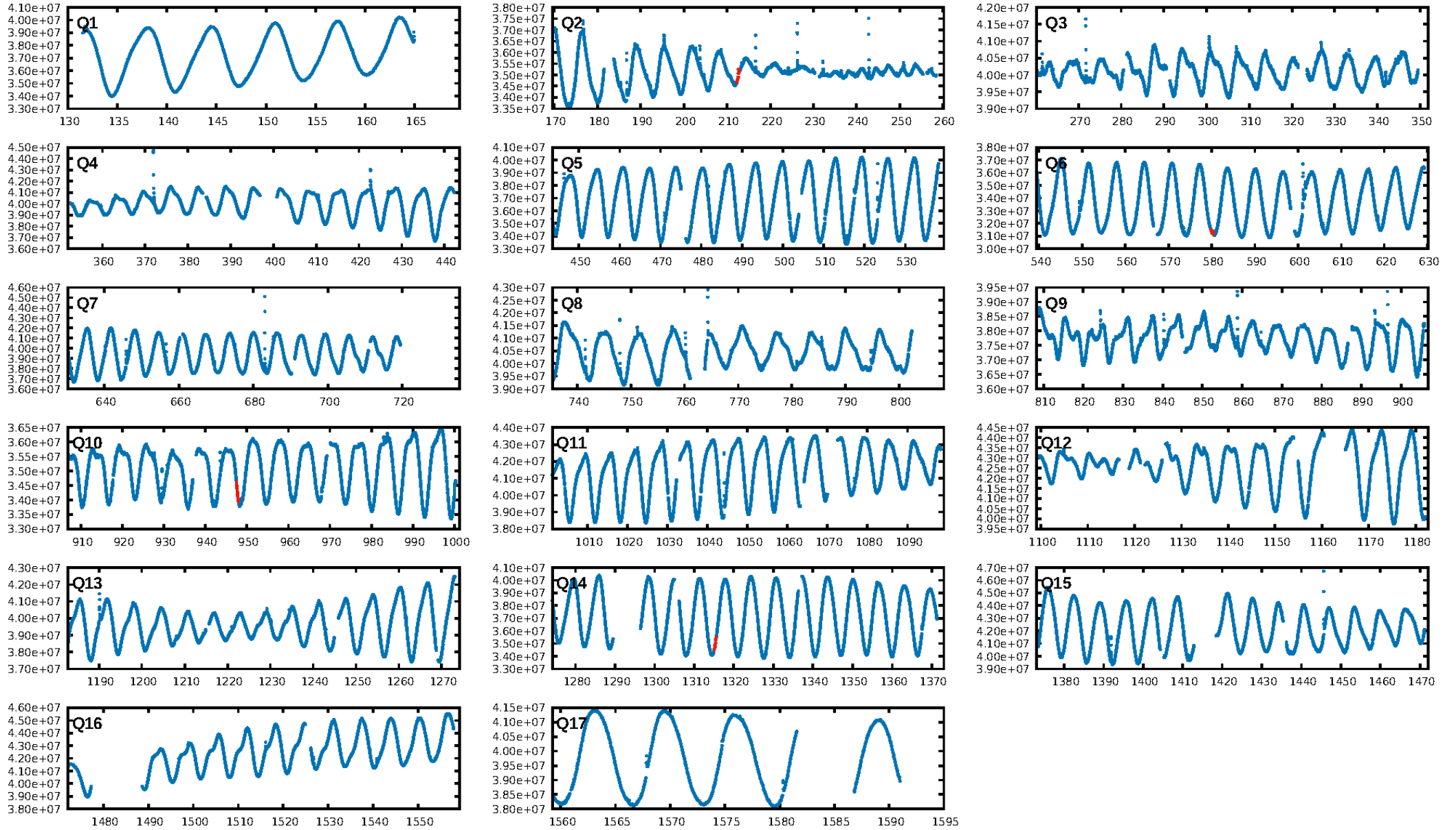
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.87σ]
LongPeriod-sig: 100.0% [84.71σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 37.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.383
Centroid-sig: 85.1%
Centroid-so: 0.386 arcsec [0.56σ]
OotOffset-rm: 0.222 arcsec [1.57σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-rm: 0.068 arcsec [0.52σ]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

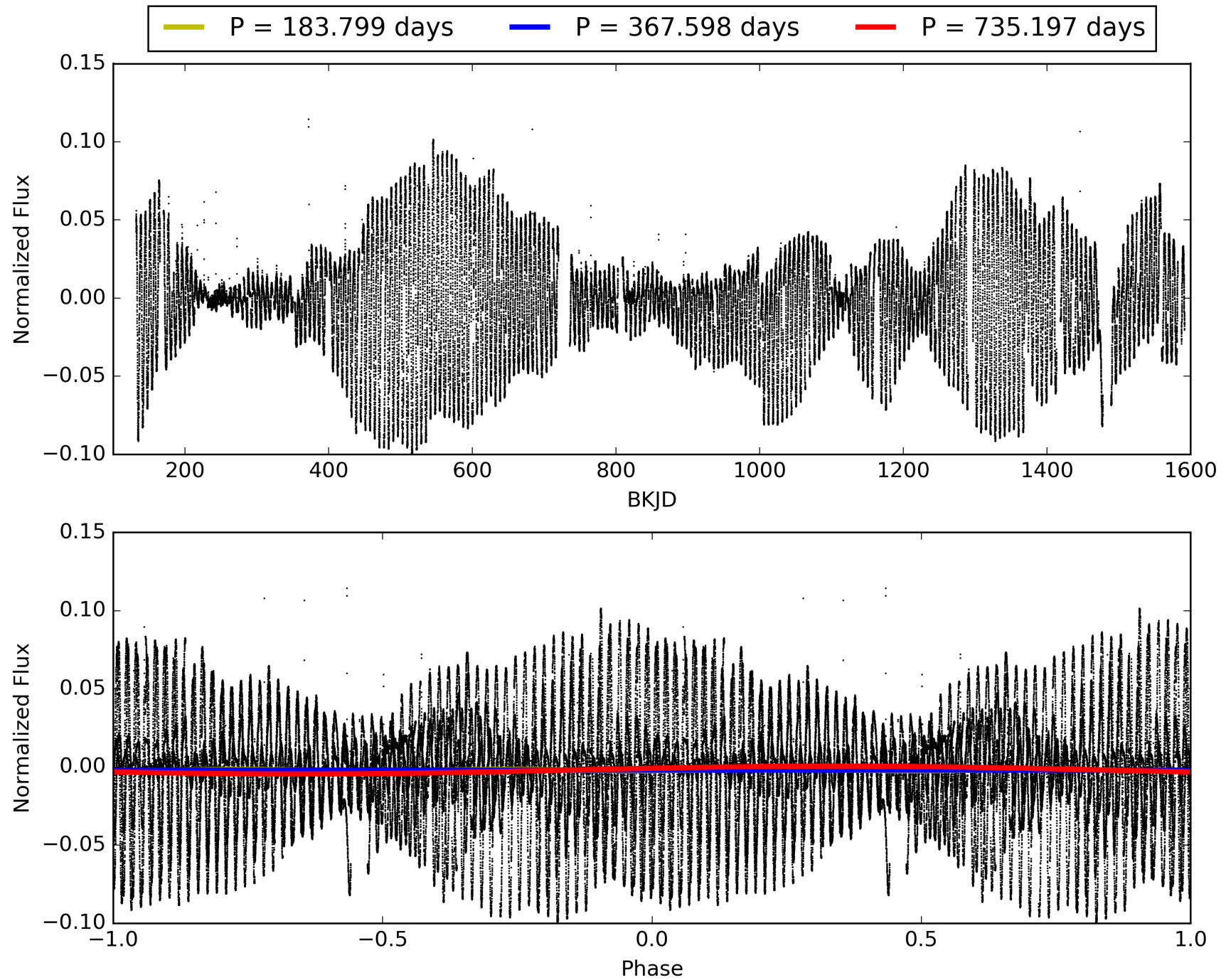
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:24 Z

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

TCE 003222369-01, PDC Light Curves

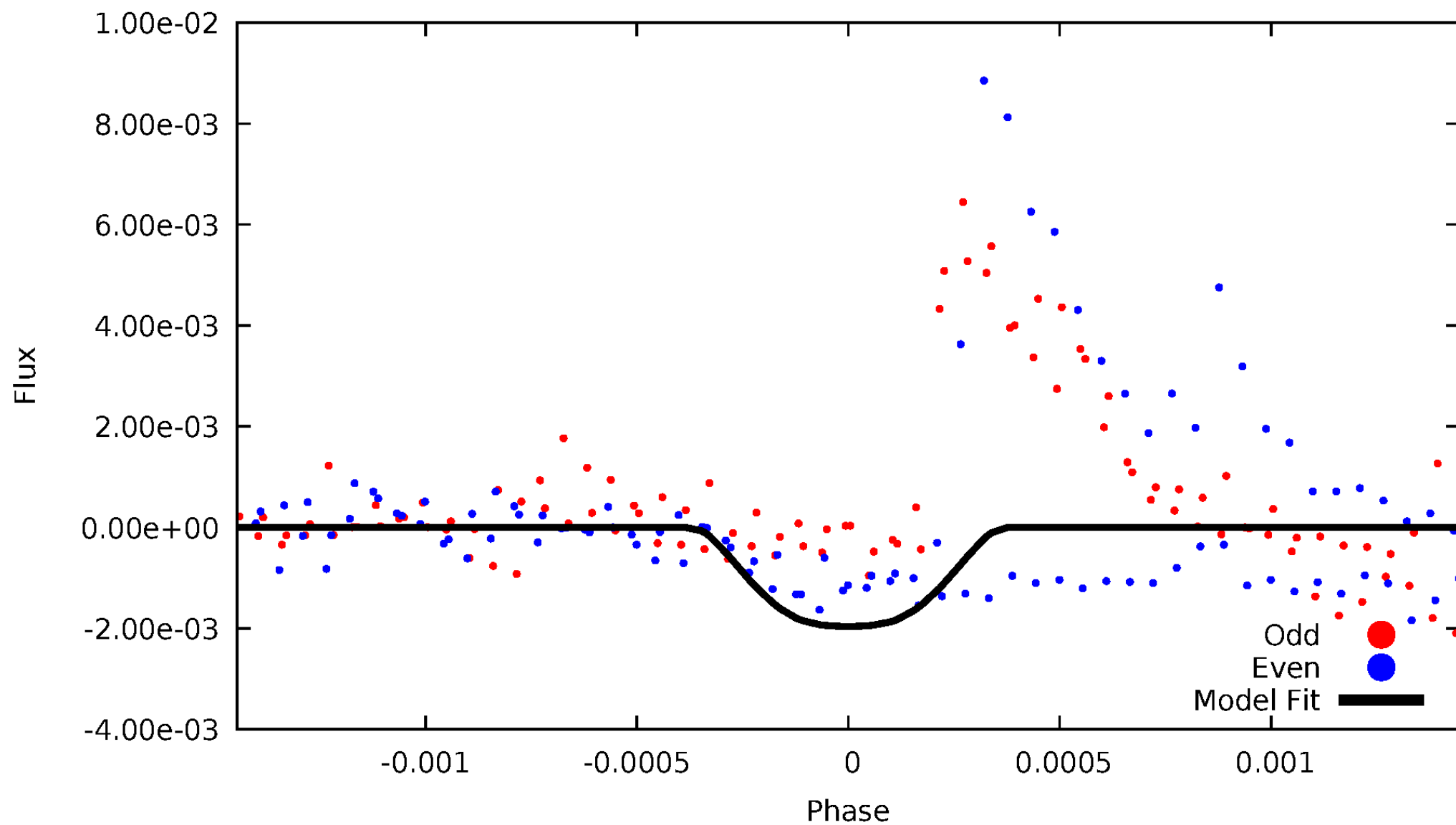


TCE 003222369-01



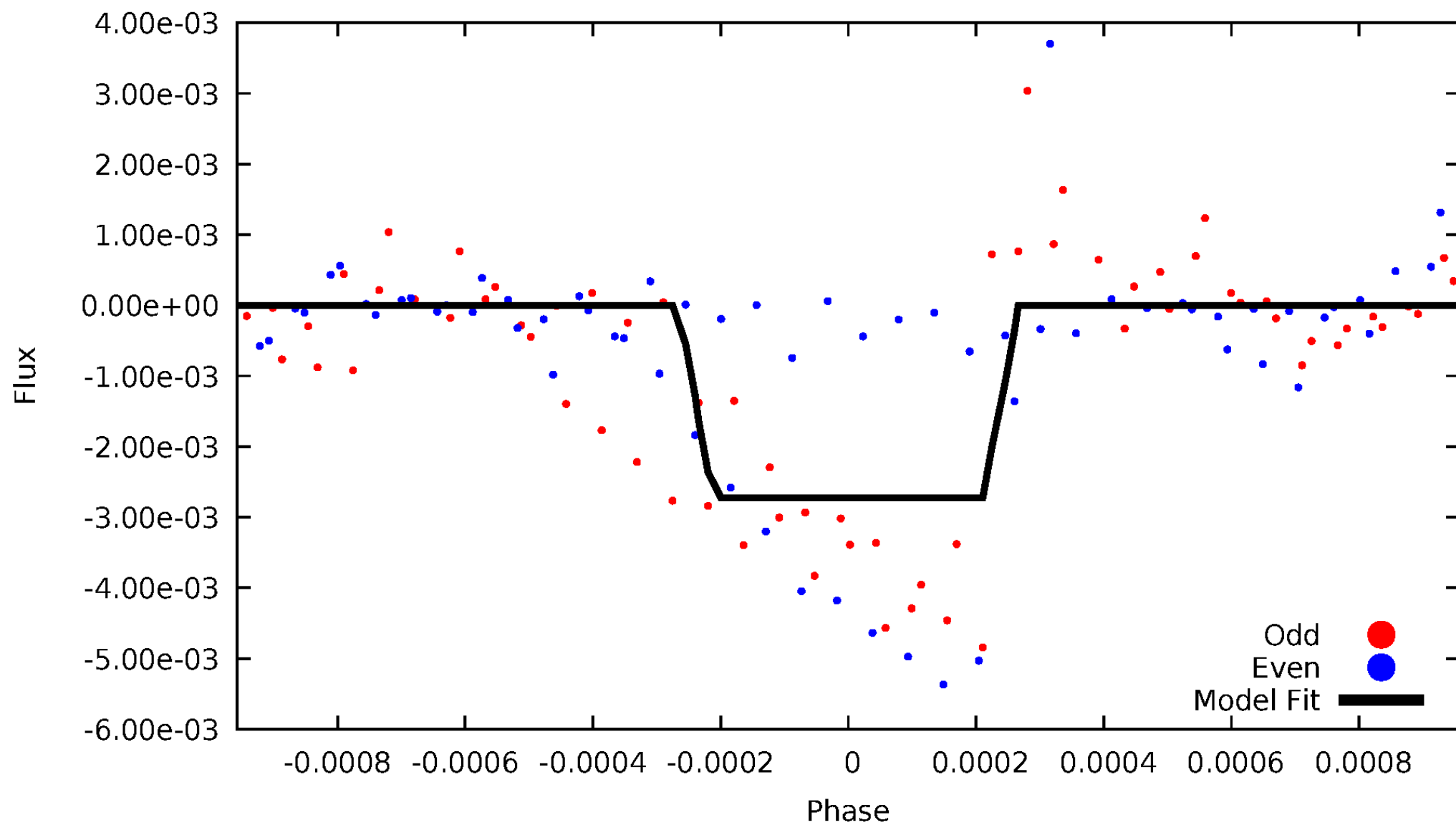
DV Odd/Even

TCE 003222369-01



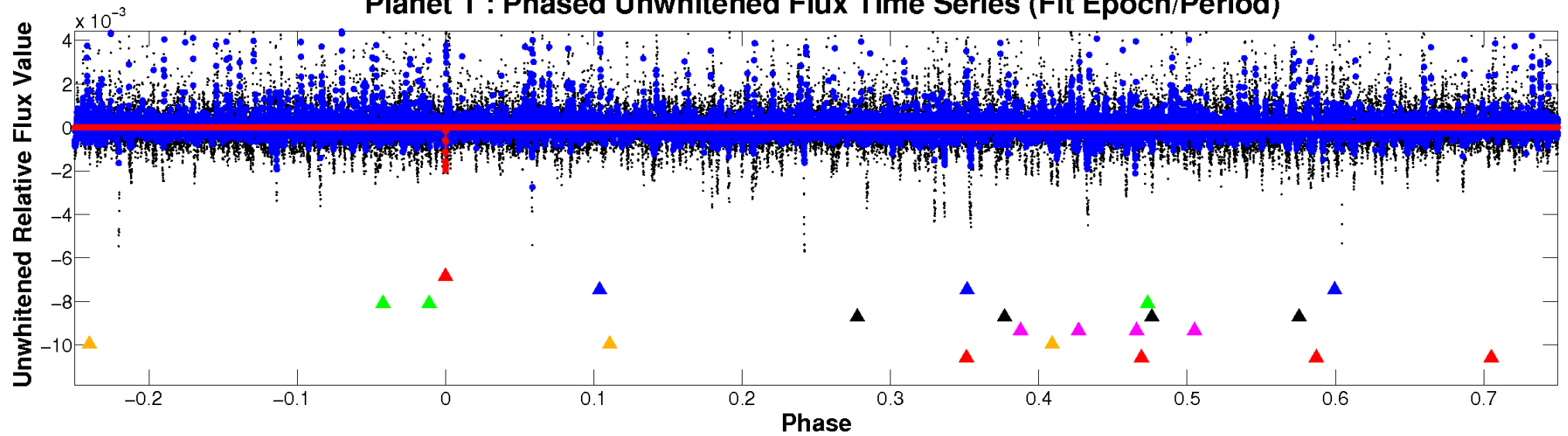
ALT Odd/Even

TCE 003222369-01

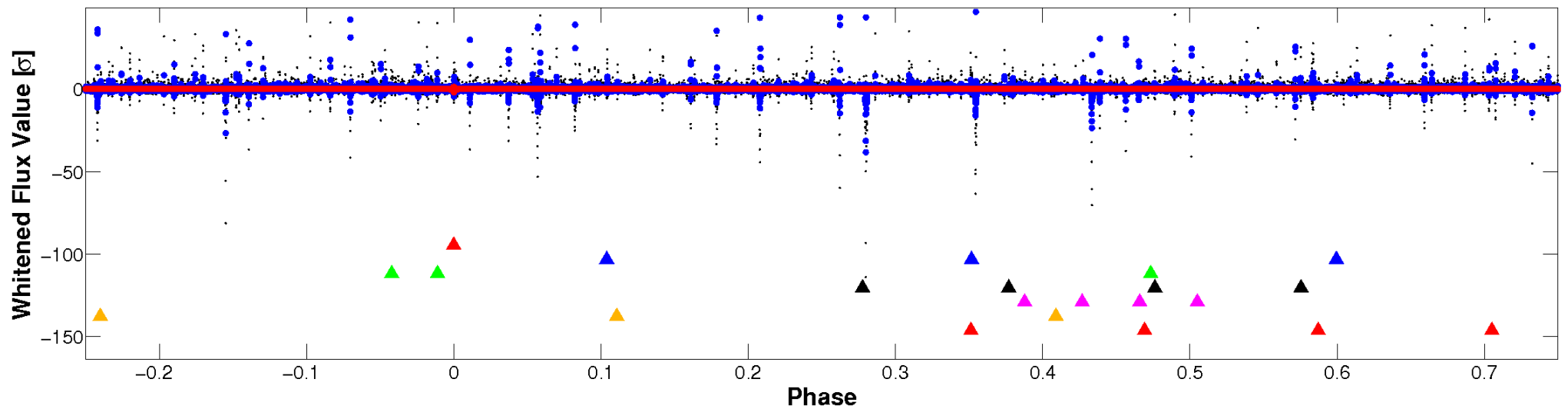


Non-Whitened Vs. Whitened Light Curve

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

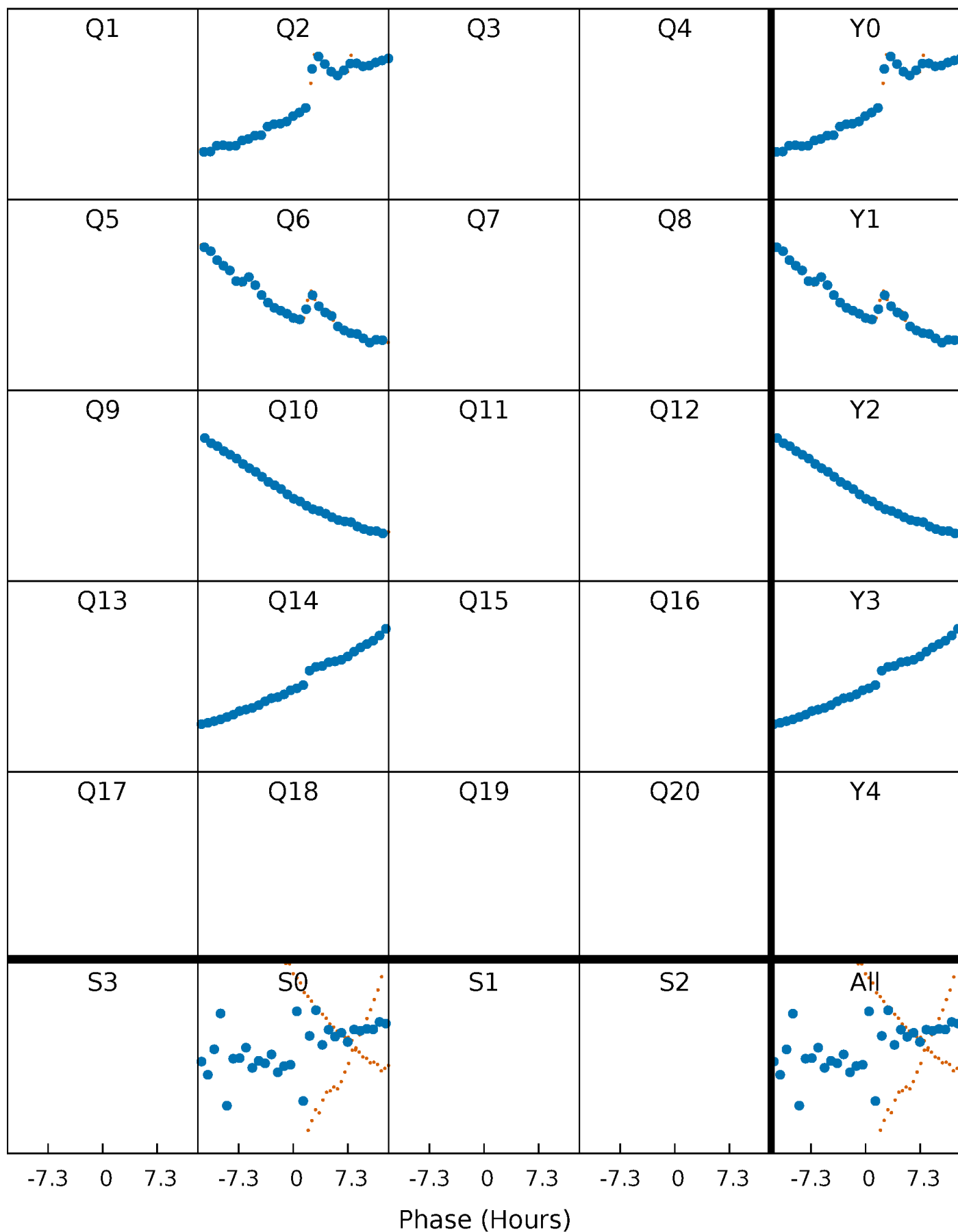


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



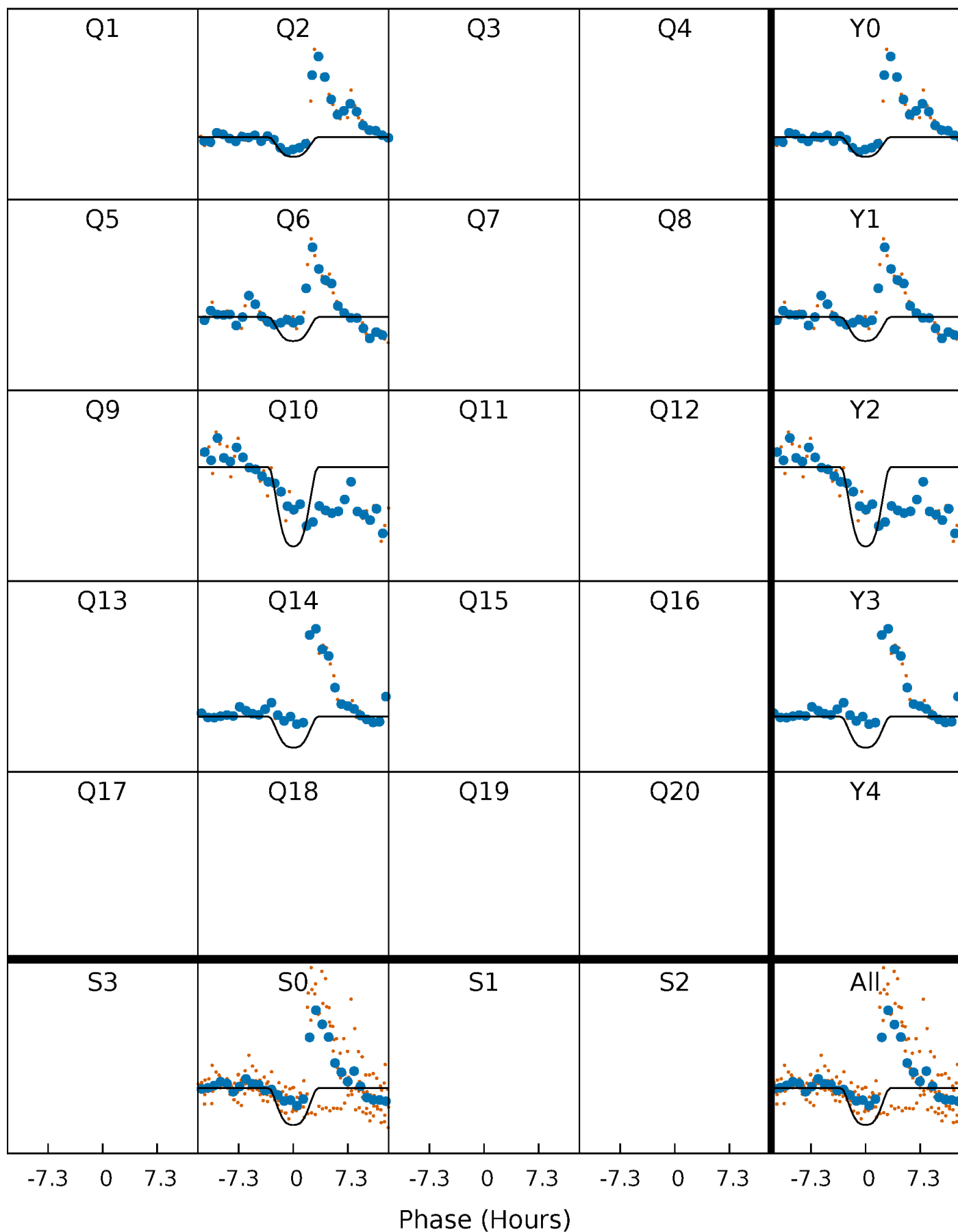
PDC Quarter-Phased Transit Curves

TCE 003222369-01 P=367.598366 Days $T_0=212.518024$ (BKJD)



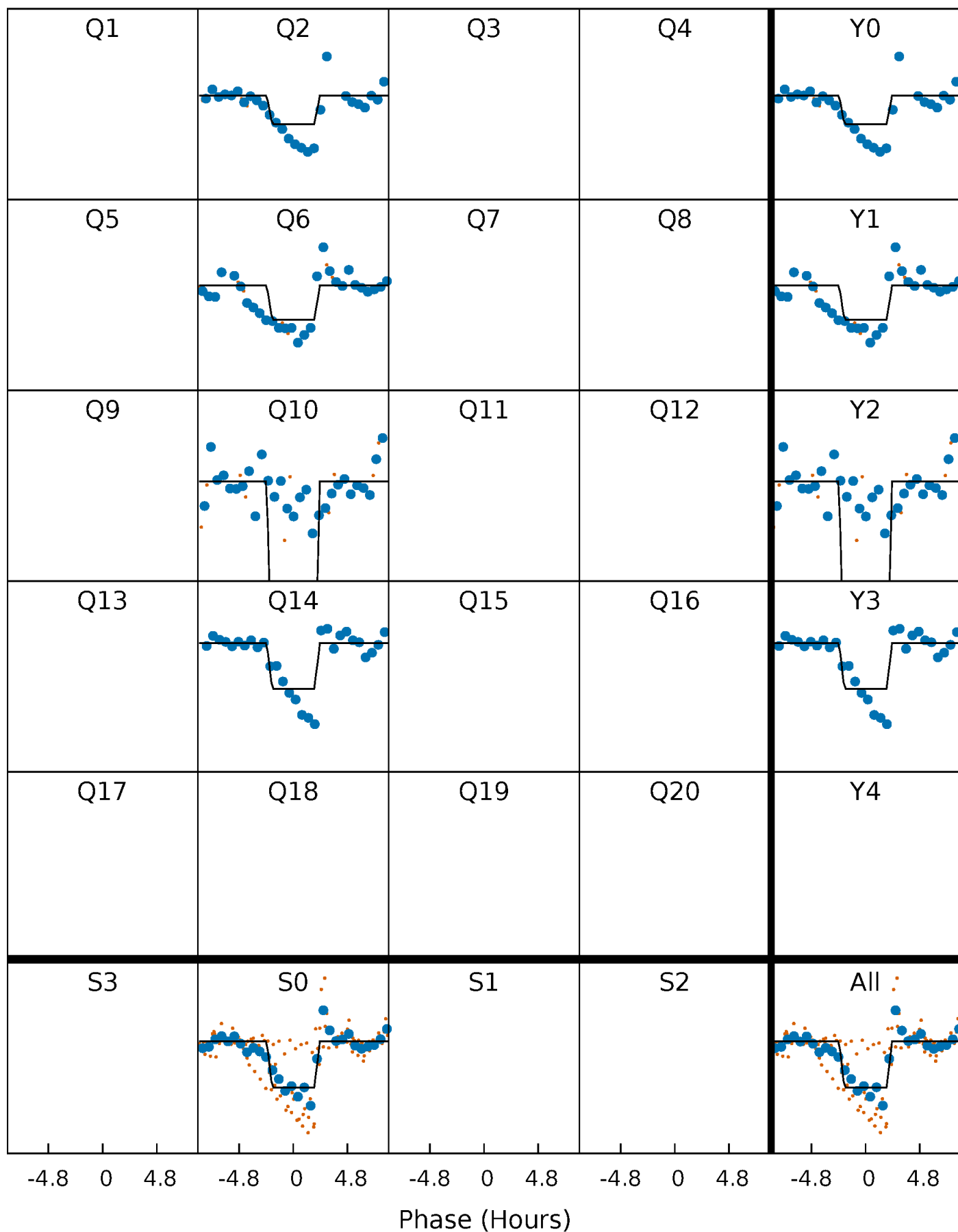
DV Quarter-Phased Transit Curves

TCE 003222369-01 P=367.598366 Days $T_0=212.518024$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

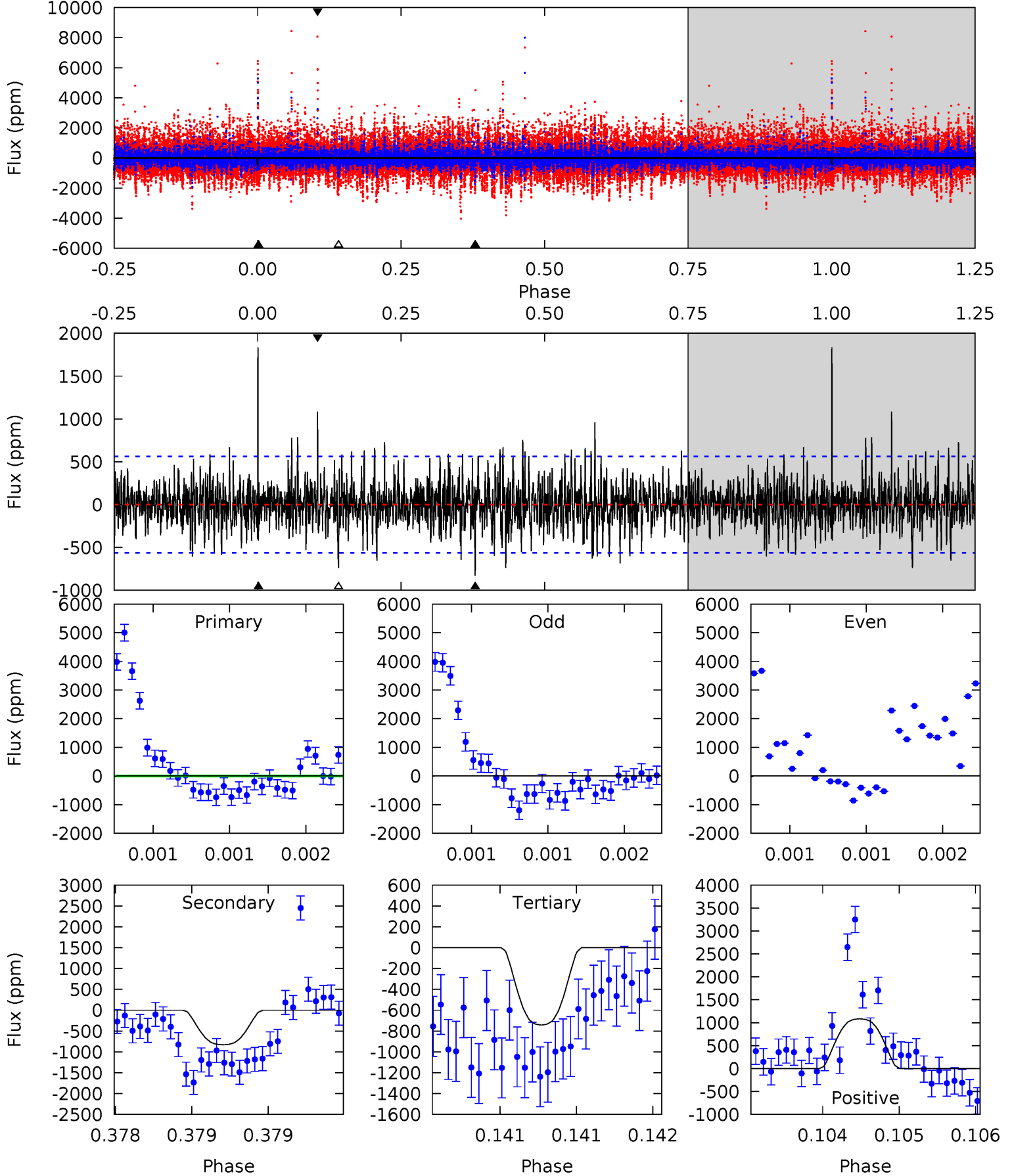
TCE 003222369-01 P=367.592933 Days $T_0=212.520030$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-01, P = 367.598366 Days, E = 212.518024 Days

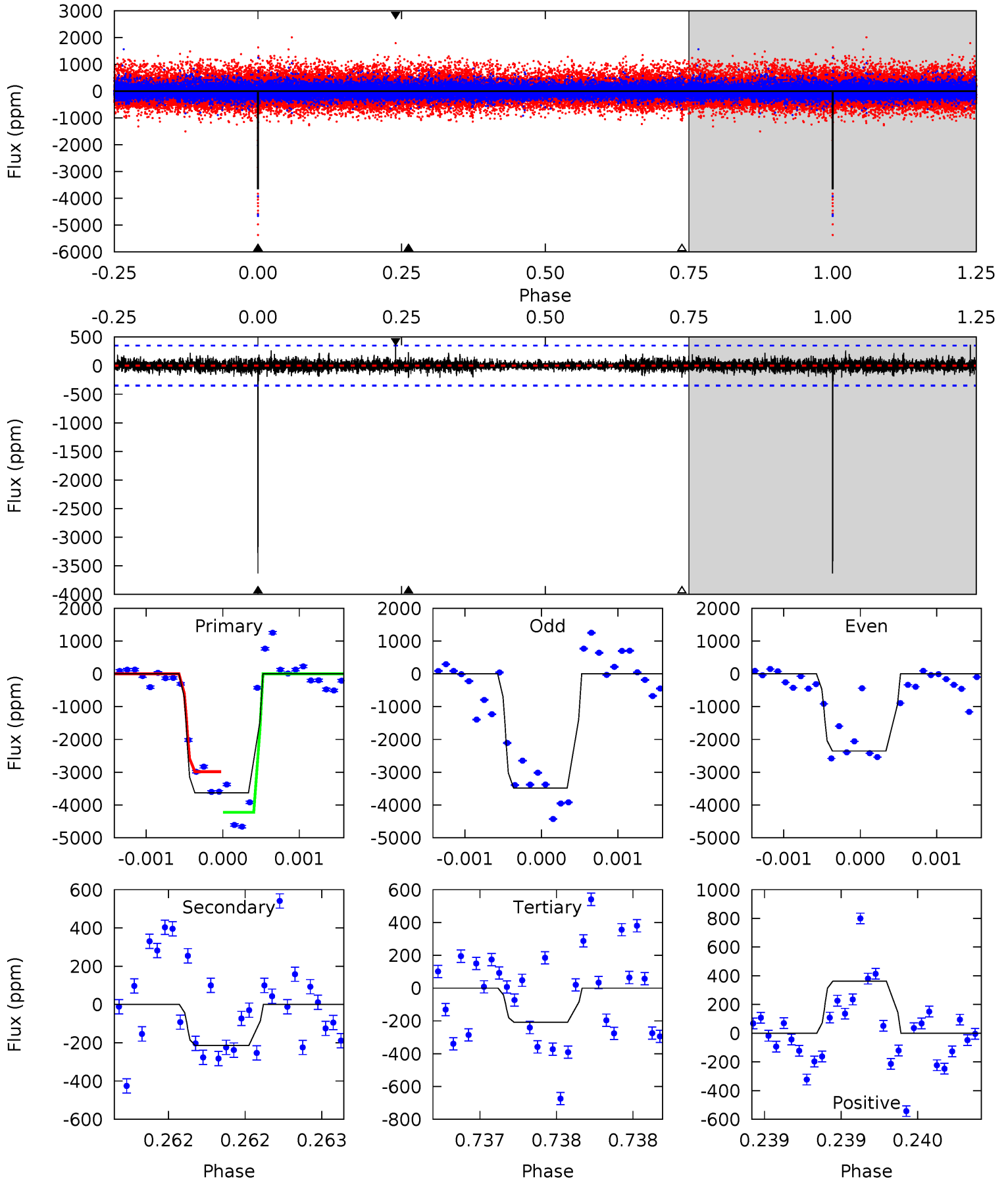
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.10	8.12	7.28	10.6	5.51	3.38	2.03	-3.18	-6.53	0.84	-2.51	2.69	1.31	0.69	3.62



Alt Model-Shift Uniqueness Test

003222369-01, P = 367.592933 Days, E = 212.520030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.9	3.41	3.32	5.77	5.57	3.48	0.77	54.5	52.1	0.10	-2.36	10.3	0.85	0.09	10.2



Stellar Parameters For KIC 003222369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-828 ± 102	$3.77^{+0.44}_{-0.49}$	246^{+8}_{-9}	3692^{+182}_{-170}	24271^{+7751}_{-5418}
Alt.	-214 ± 63	$3.68^{+0.48}_{-0.45}$	245^{+8}_{-9}	3020^{+163}_{-184}	6594^{+2917}_{-2306}

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

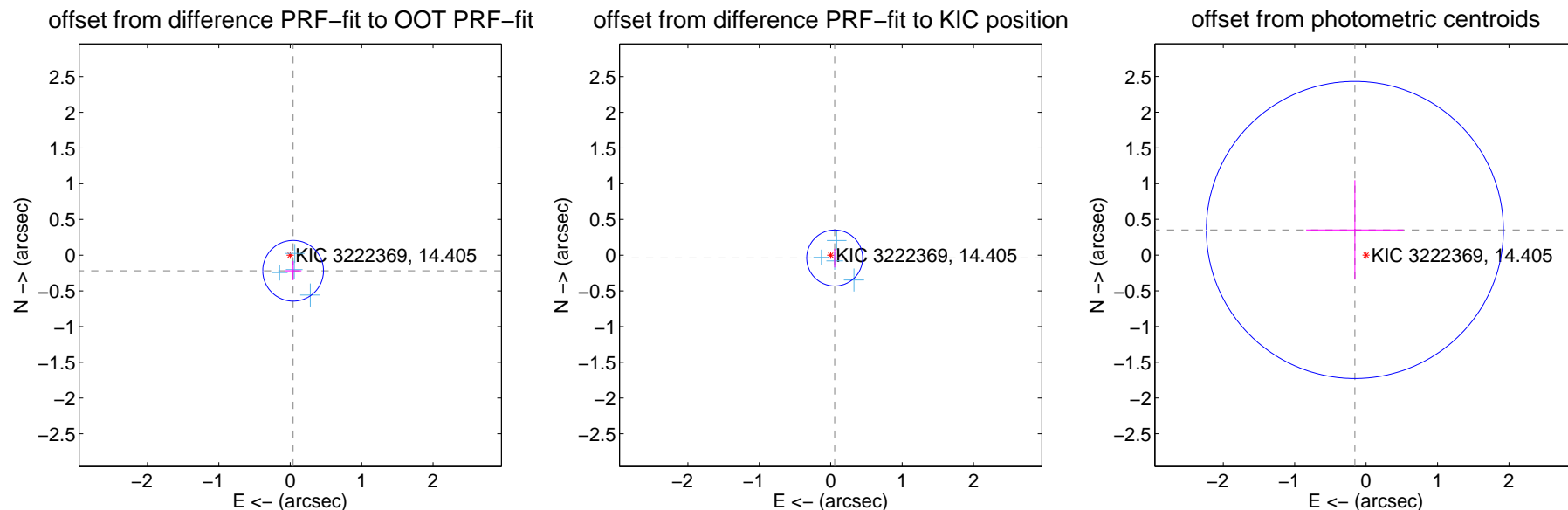
DV Centroid Data

Supplemental centroid analysis for 003222369-01. Kepler magnitude: 14.40. Transit SNR 10.27

There are 4 quarters with good PRF difference image offsets

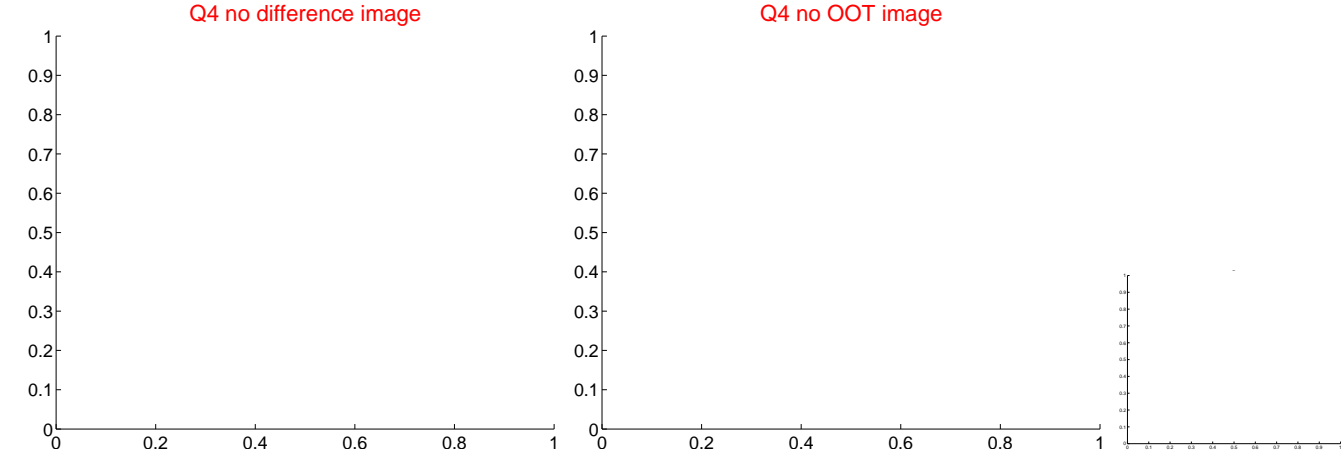
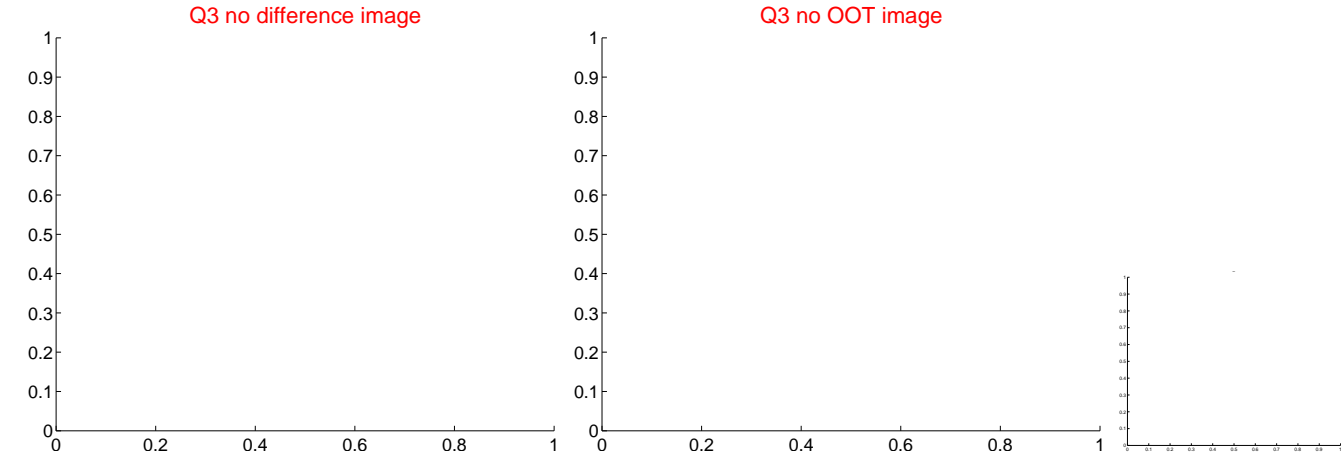
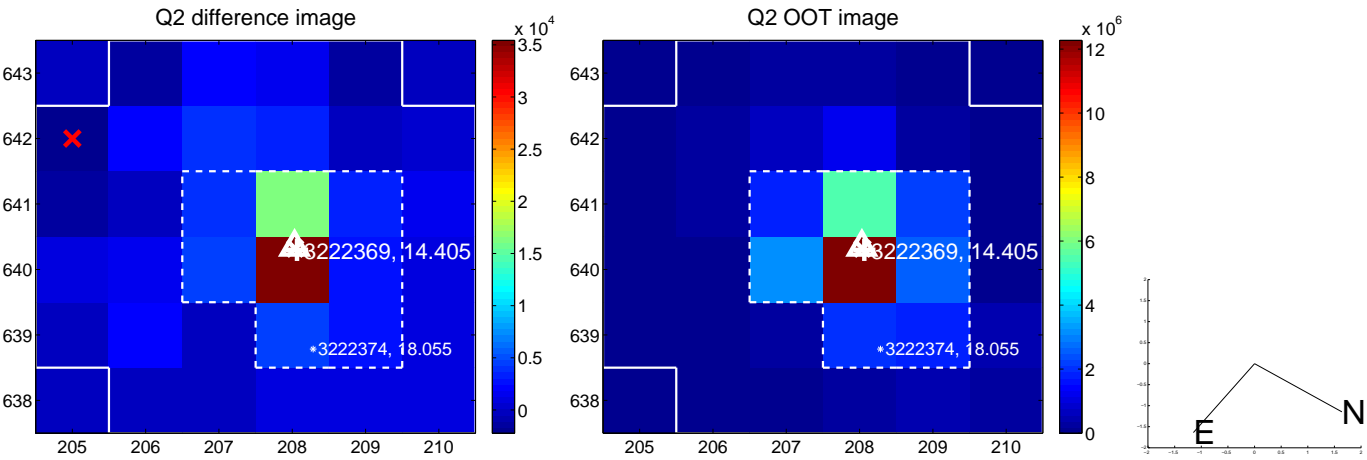
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.222 ± 0.142	1.57	-0.040 ± 0.117	-0.219 ± 0.134
PRF-fit source offset from KIC position	0.068 ± 0.131	0.52	-0.056 ± 0.099	-0.040 ± 0.131
photometric centroid source offset	0.39 ± 0.69	0.56	0.16 ± 0.68	0.35 ± 0.70

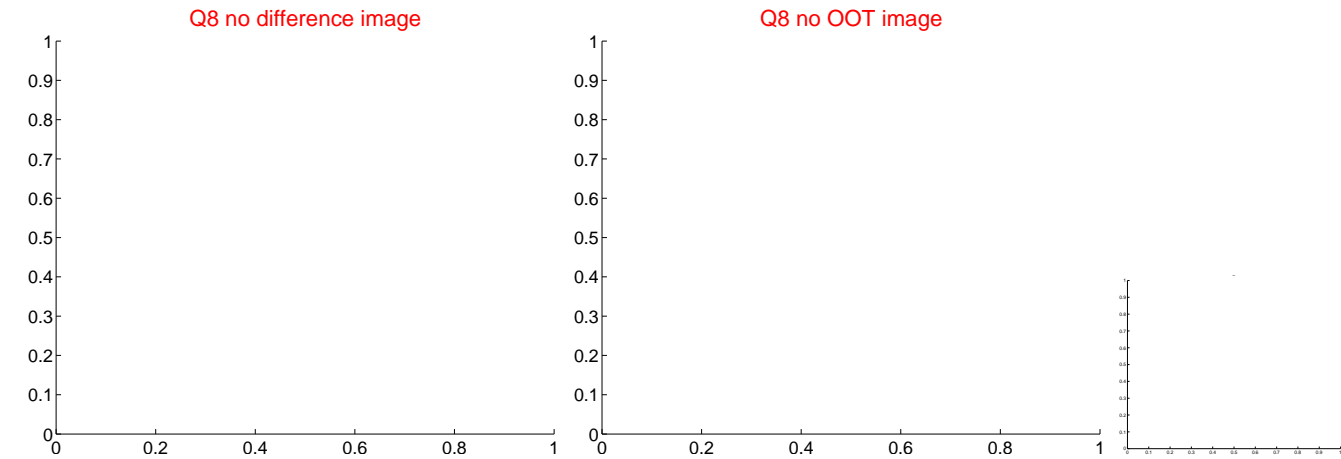
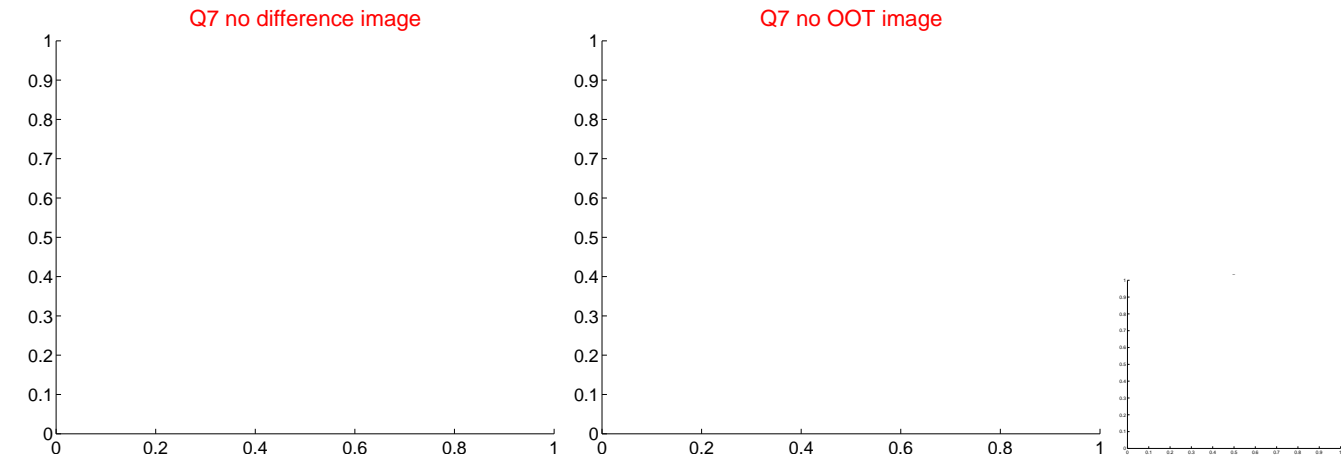
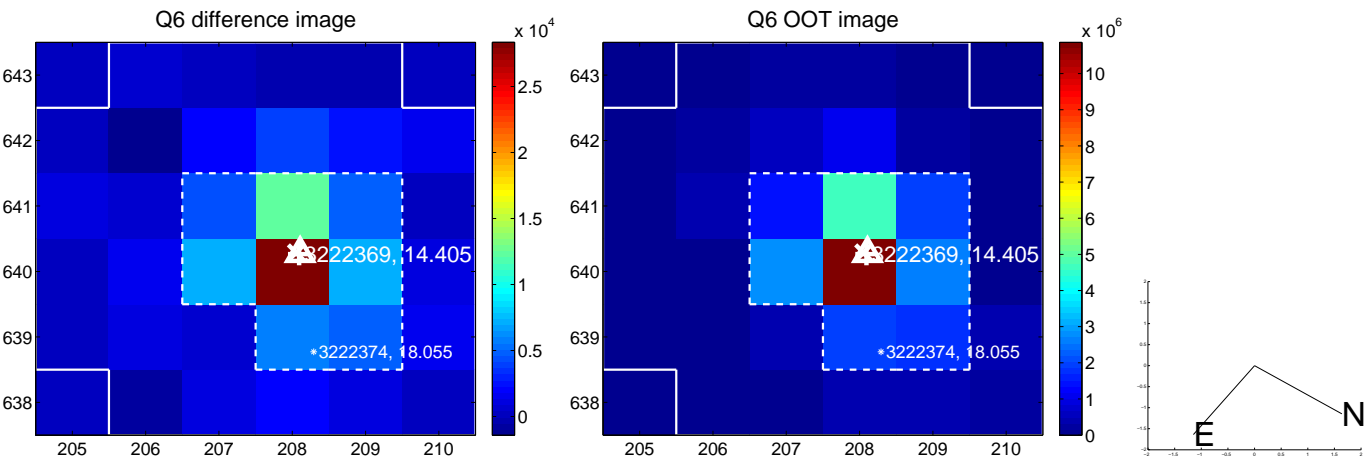


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

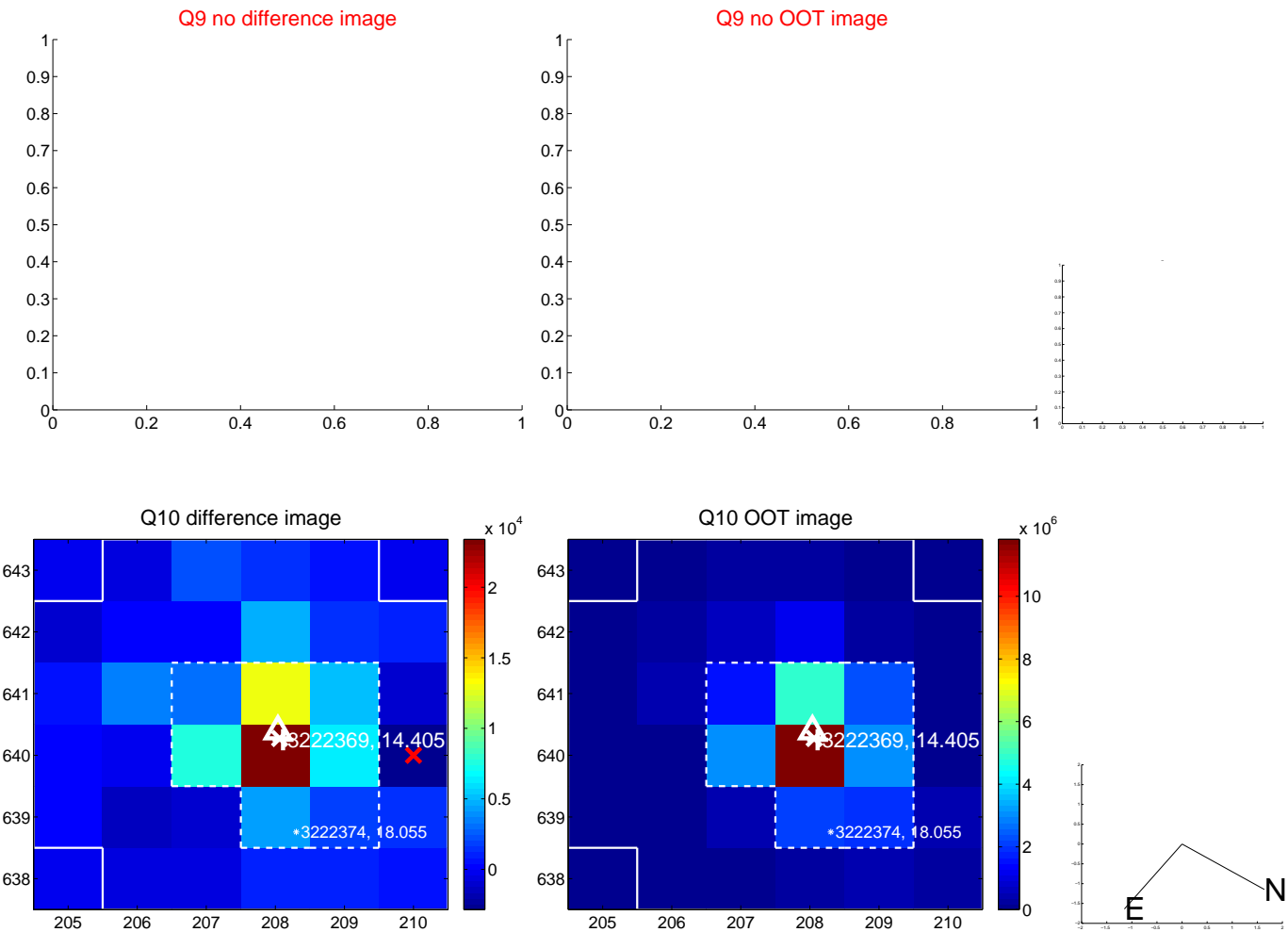
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



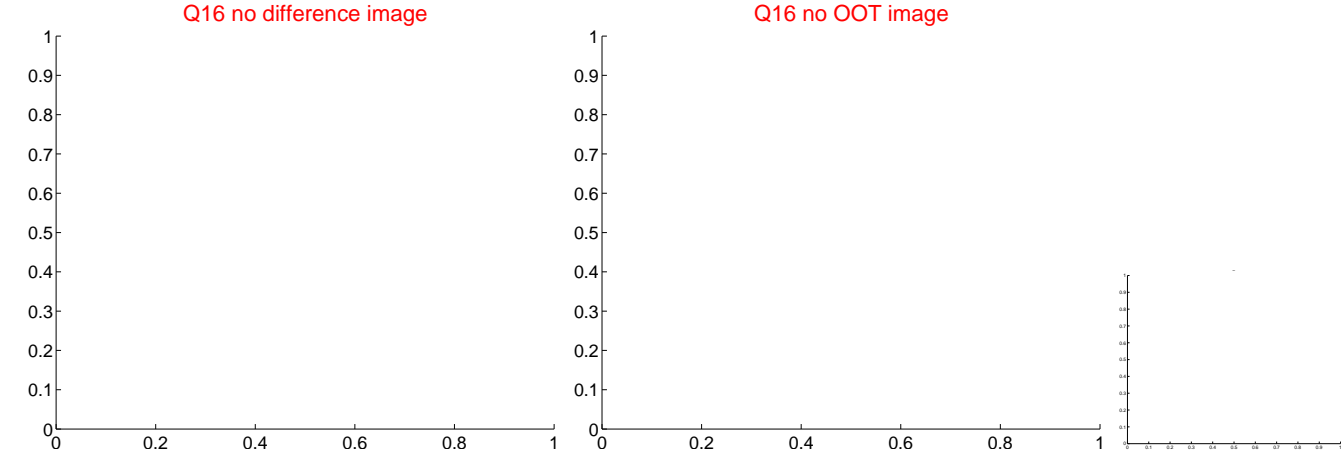
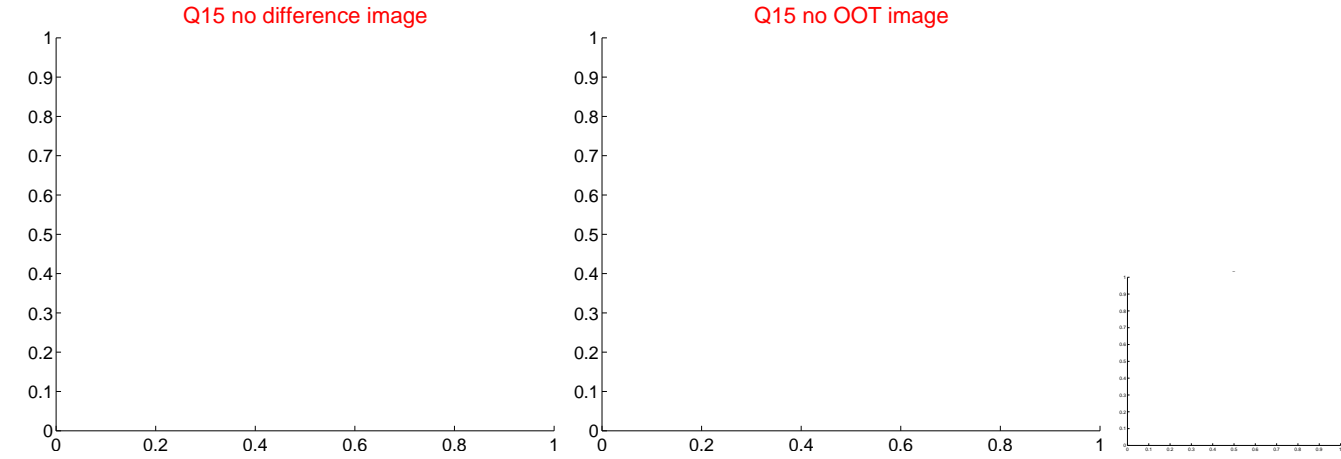
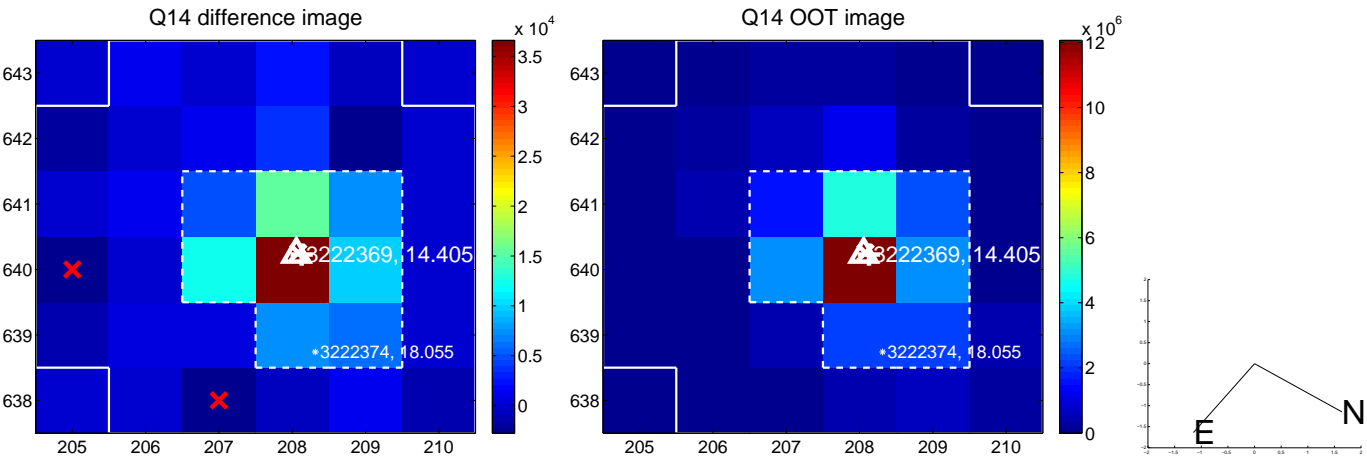
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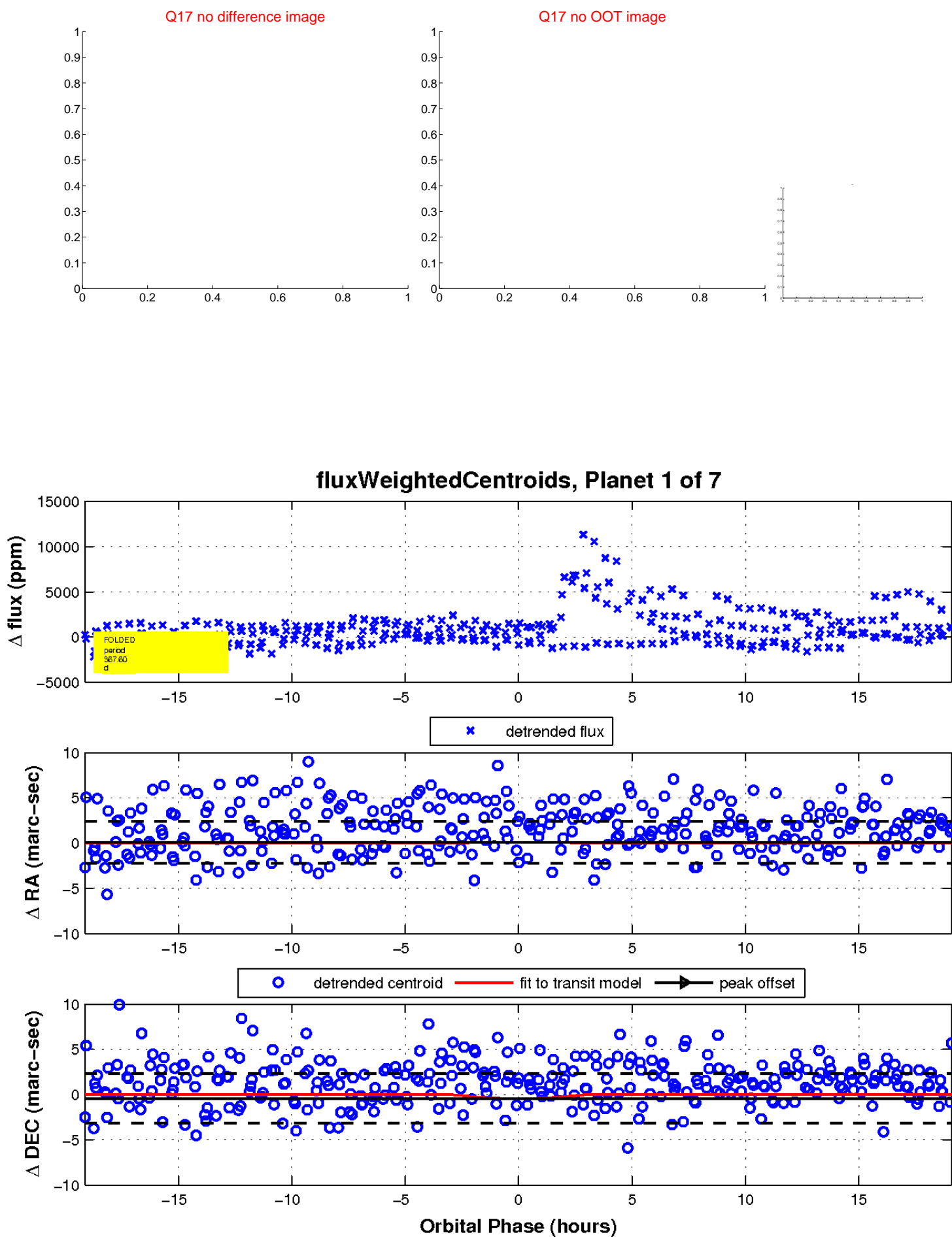
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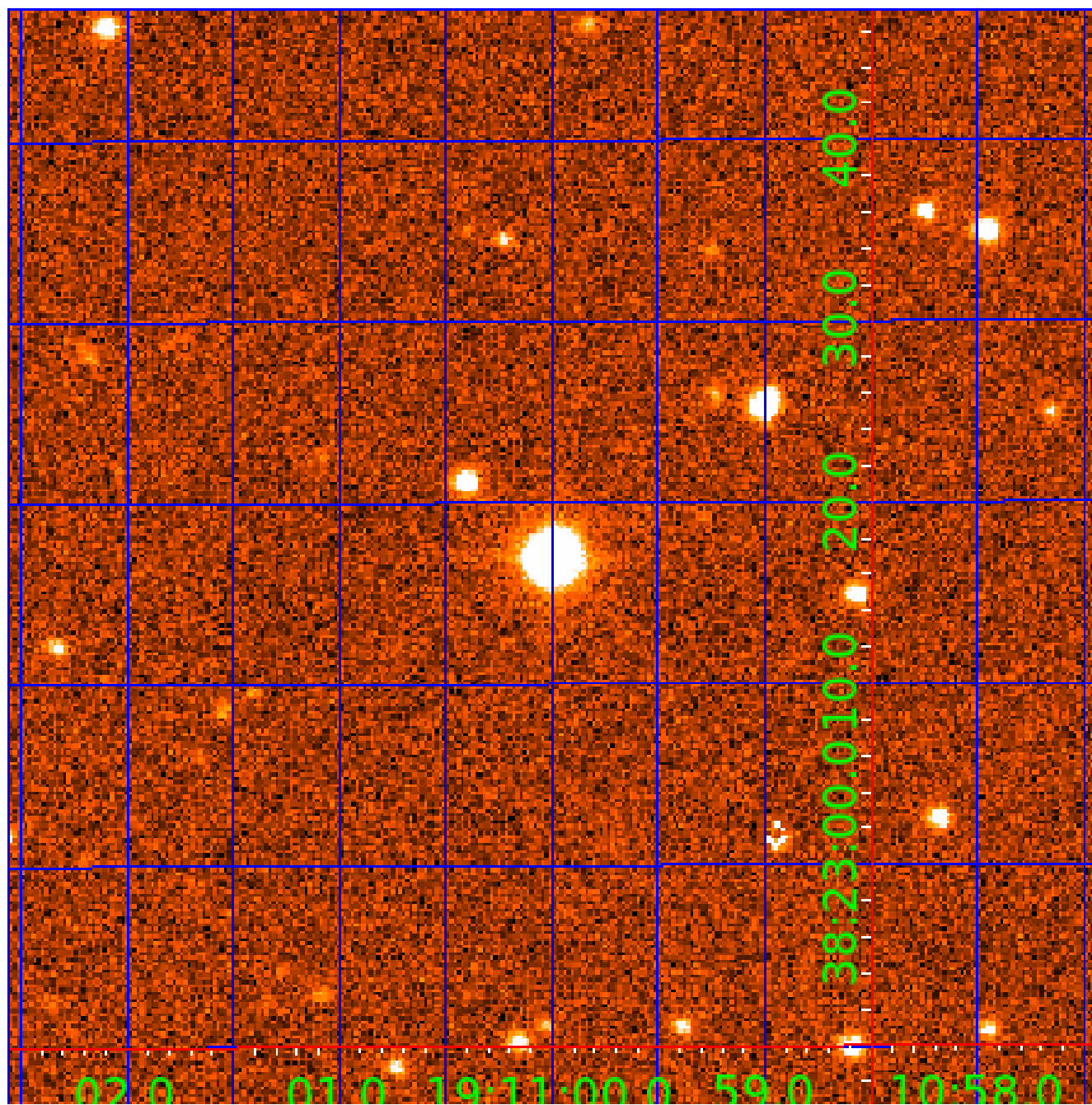


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UKIRT Image

Declination



KIC 003222369

Q1-17 DR25 TCE Parameters

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003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
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003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

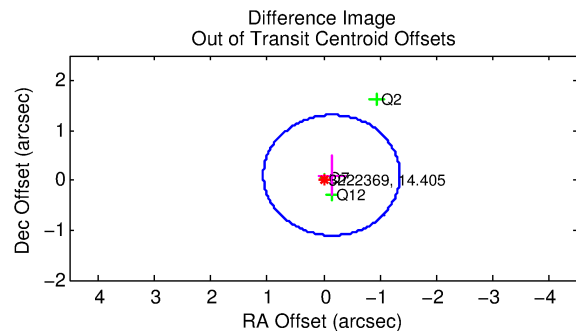
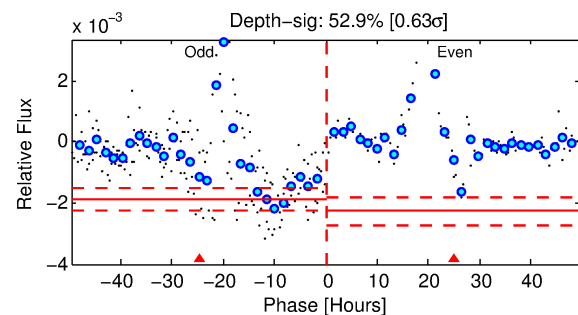
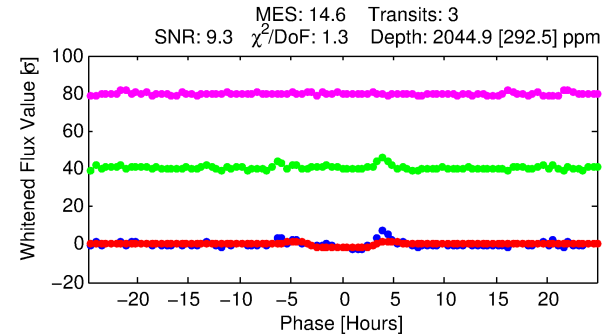
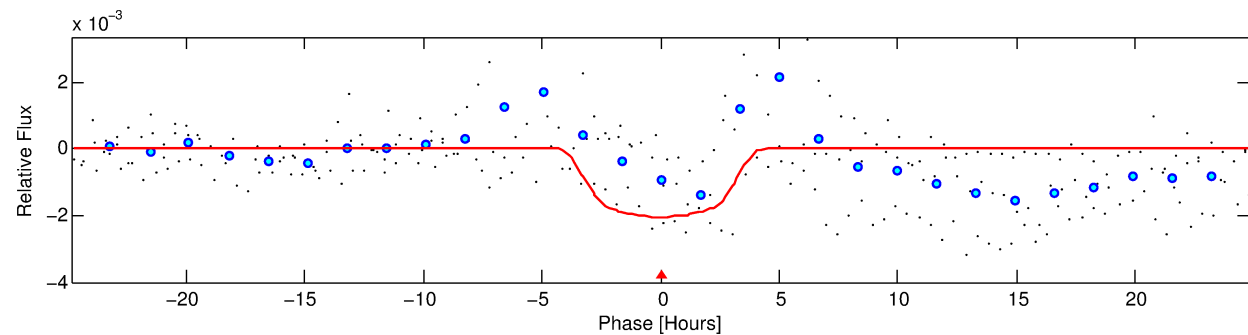
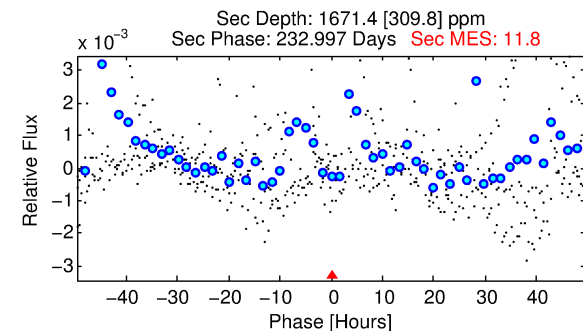
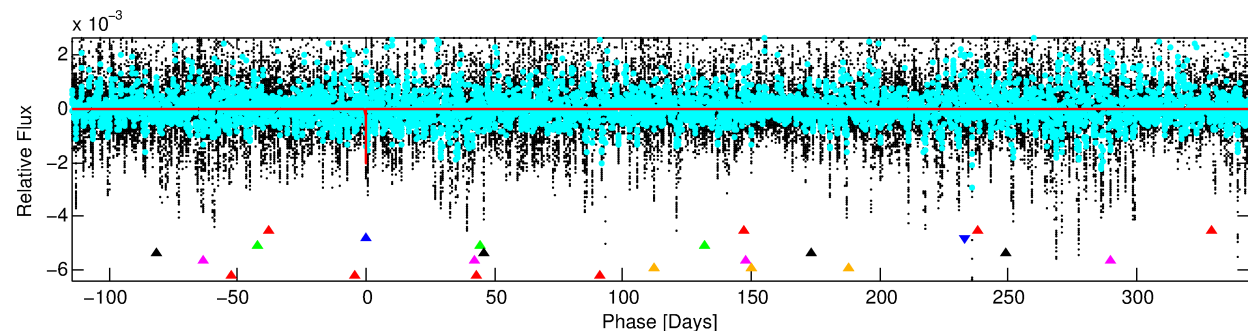
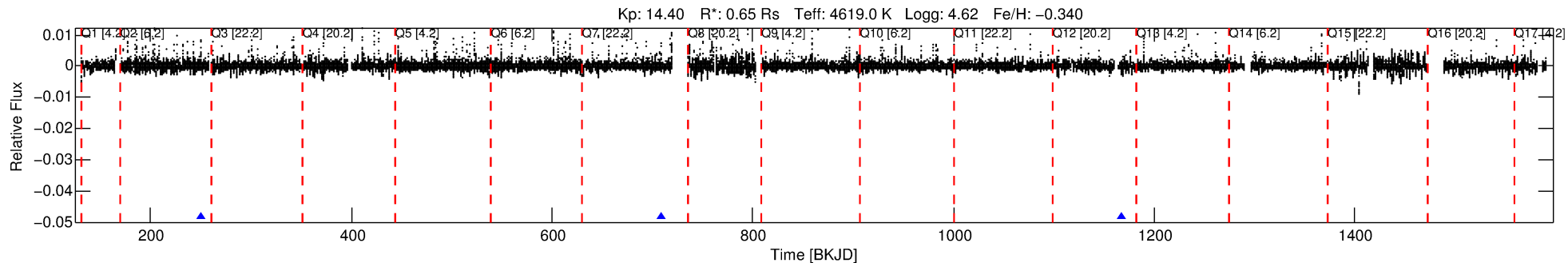
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-02

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 2 of 7 Period: 458.695 d



DV Fit Results:

Period = 458.69472 [0.00837] d
Epoch = 250.7119 [0.0109] BKJD
Rp/R* = 0.0504 [0.0048]
a/R* = 234.24 [42.77]
b = 0.89 [0.04]
Seff = 0.17 [0.03]
Teq = 164 [6] K
Rp = 3.58 [0.46] Re
a = 1.0007 [0.0709] AU
Ag = 72036.41 [20450.00] [3.52σ]
Teffp = 4160 [303] K [13.20σ]

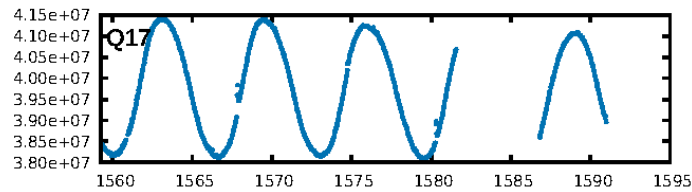
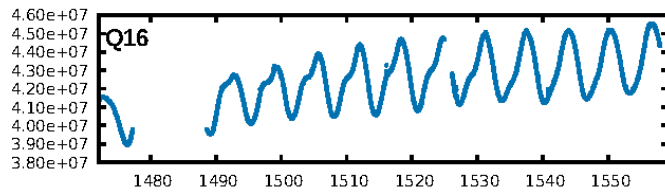
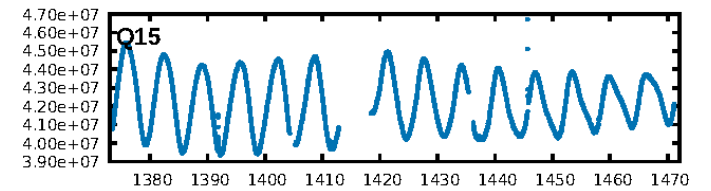
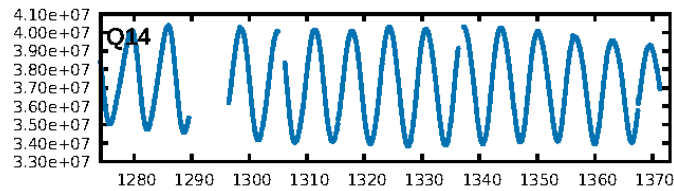
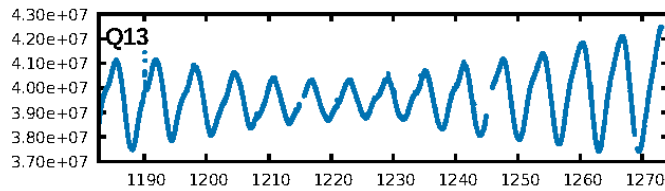
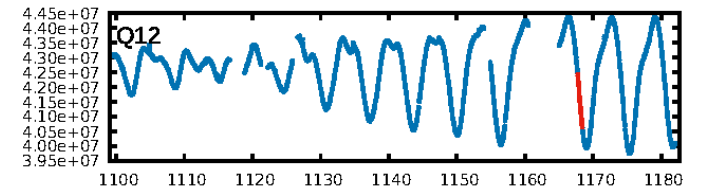
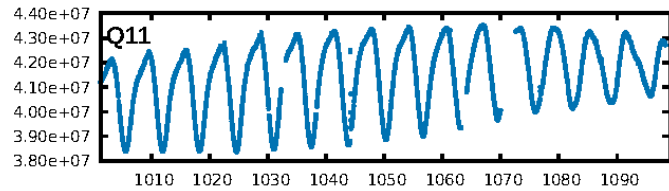
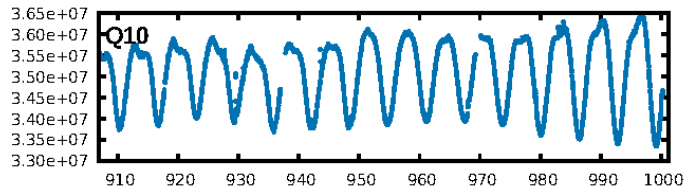
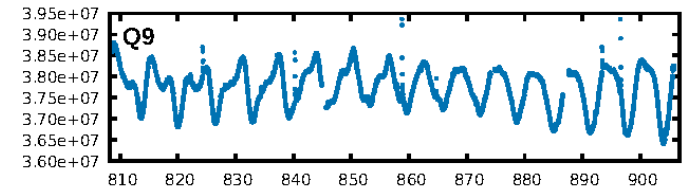
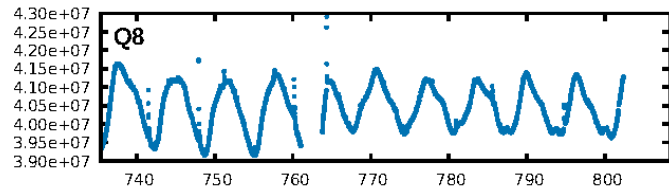
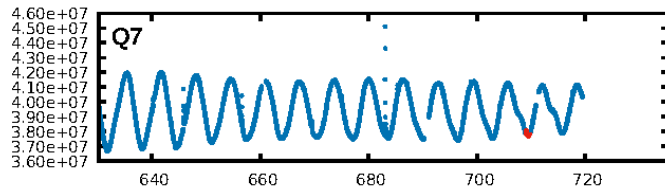
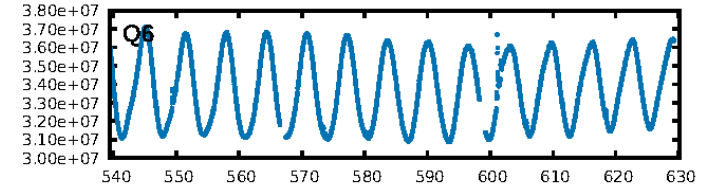
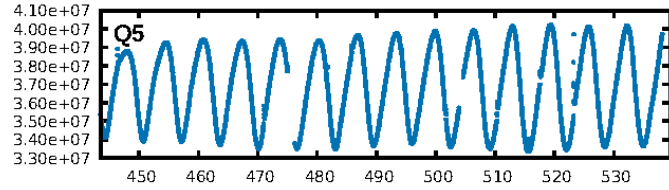
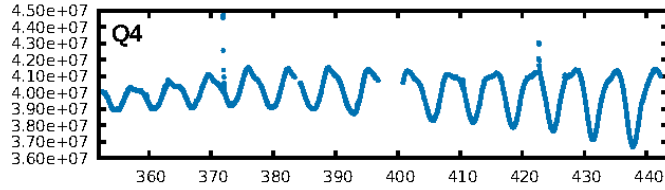
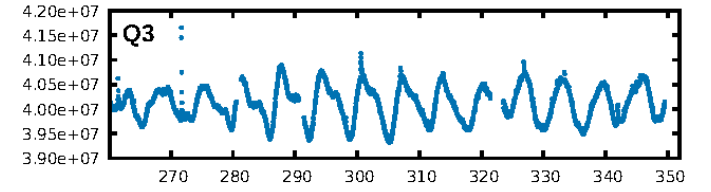
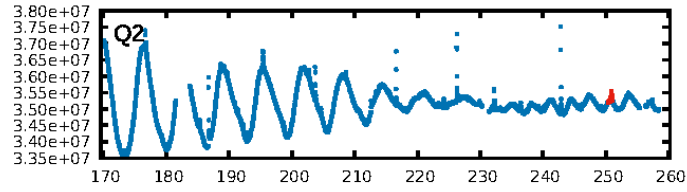
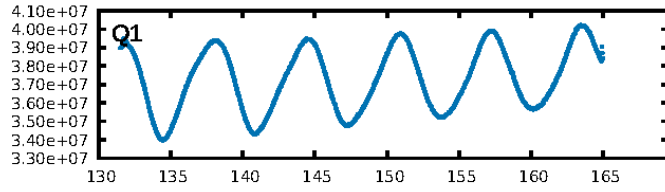
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [85.66σ]
LongPeriod-sig: 100.0% [80.08σ]
ModelChiSquare2-sig: 65.6%
ModelChiSquareGof-sig: 79.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.407
Centroid-sig: 0.1%
Centroid-so: 0.932 arcsec [1.65σ]
OotOffset-rm: 0.174 arcsec [0.43σ]
KicOffset-rm: 0.239 arcsec [0.55σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

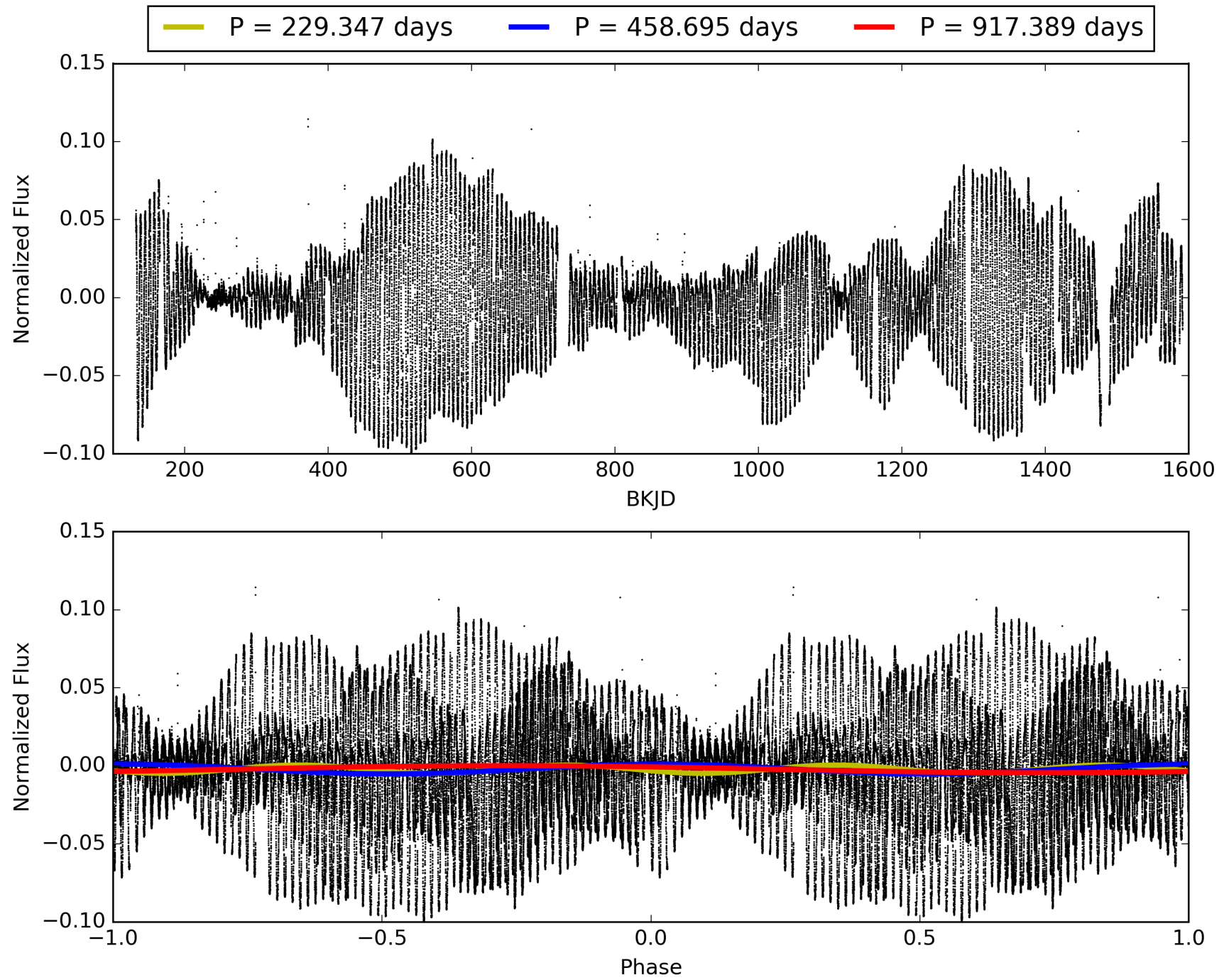
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:35 Z

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

TCE 003222369-02, PDC Light Curves

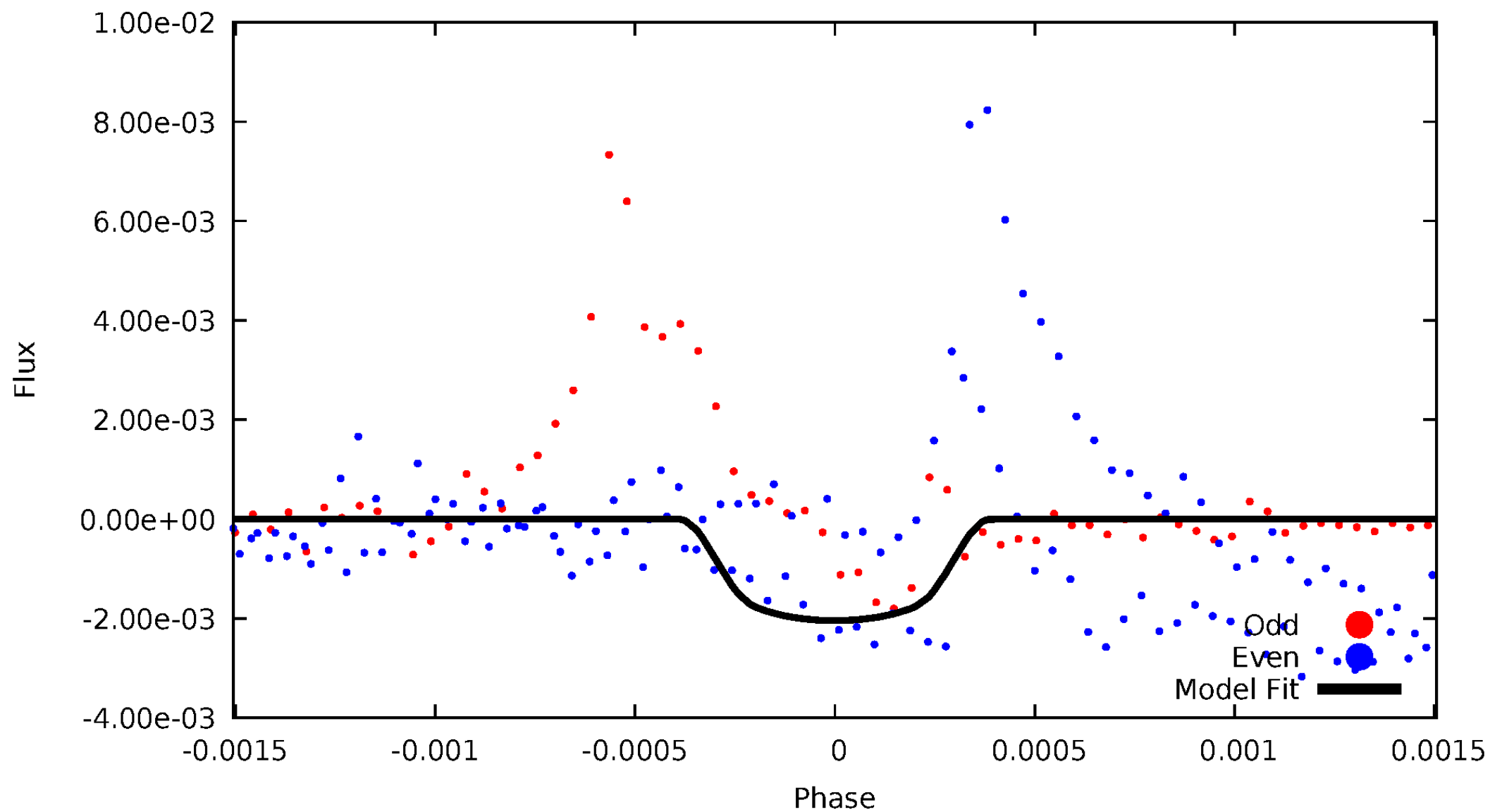


TCE 003222369-02



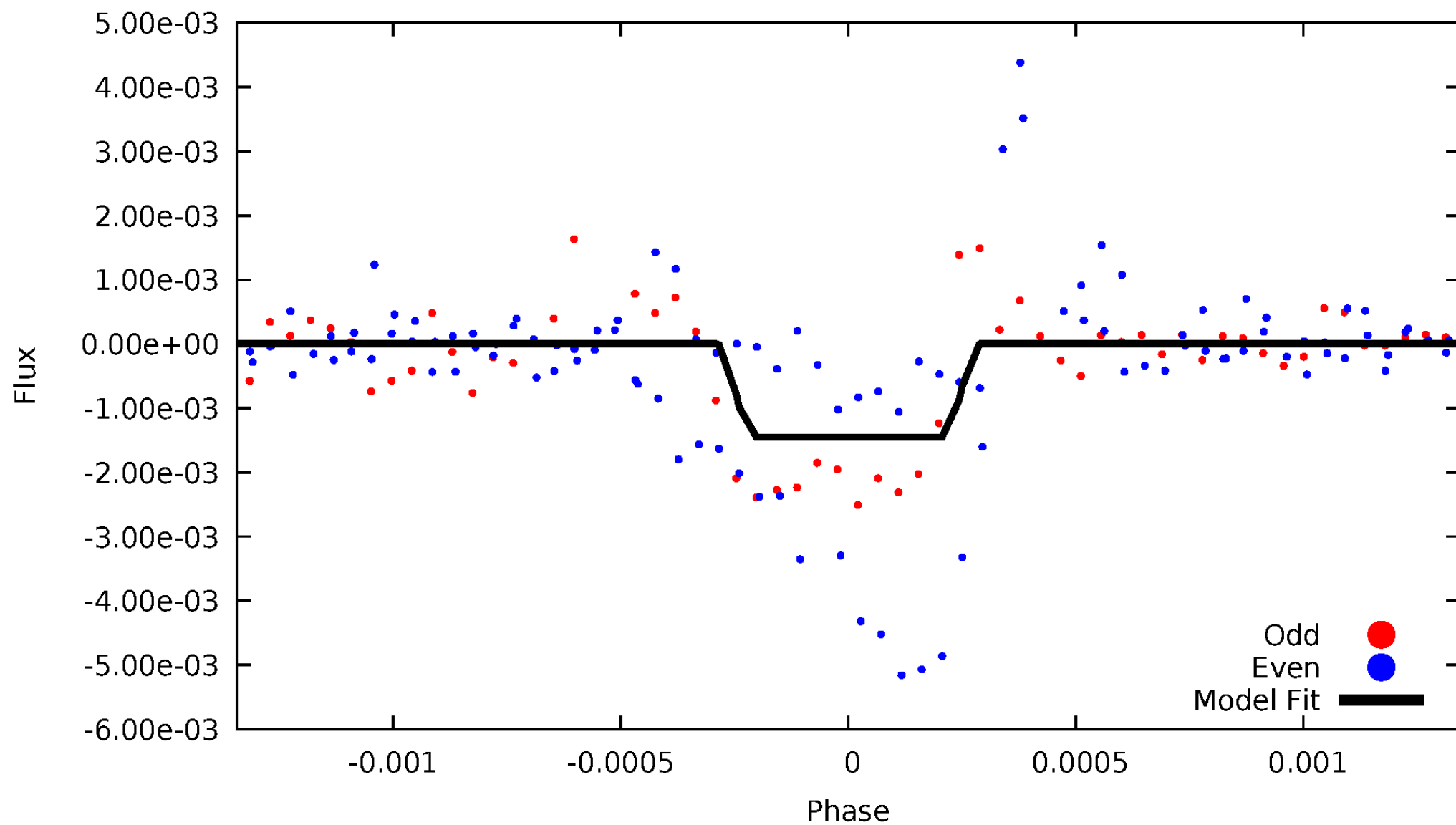
DV Odd/Even

TCE 003222369-02



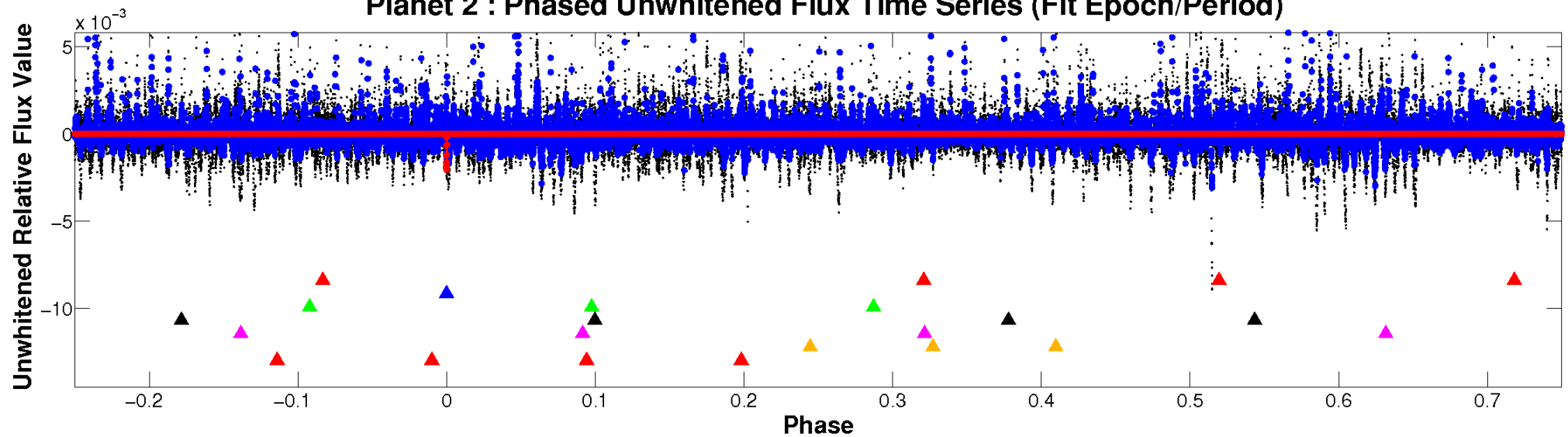
ALT Odd/Even

TCE 003222369-02

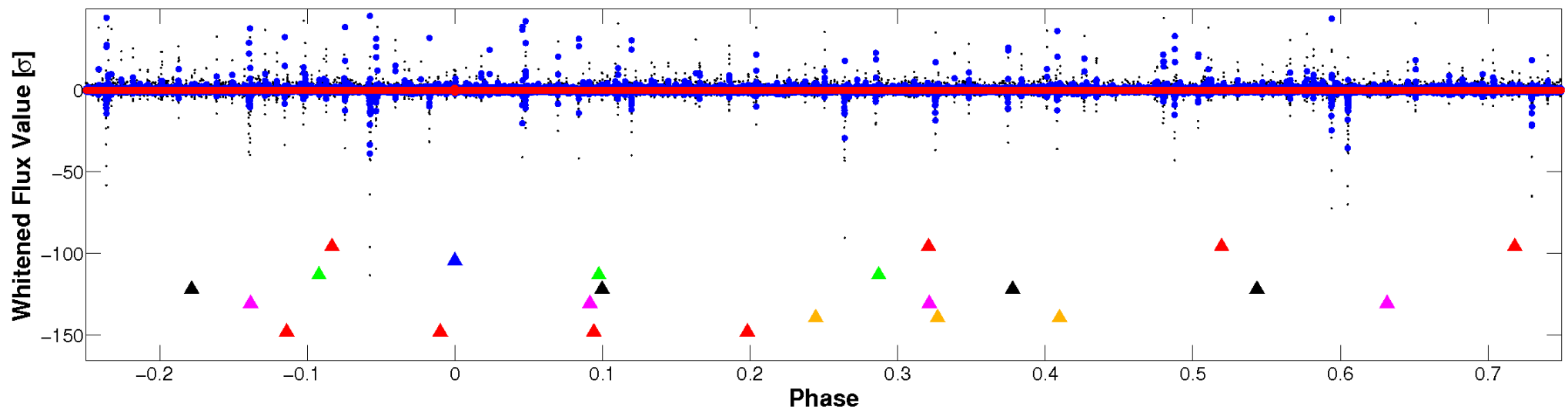


Non-Whitened Vs. Whitened Light Curve

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

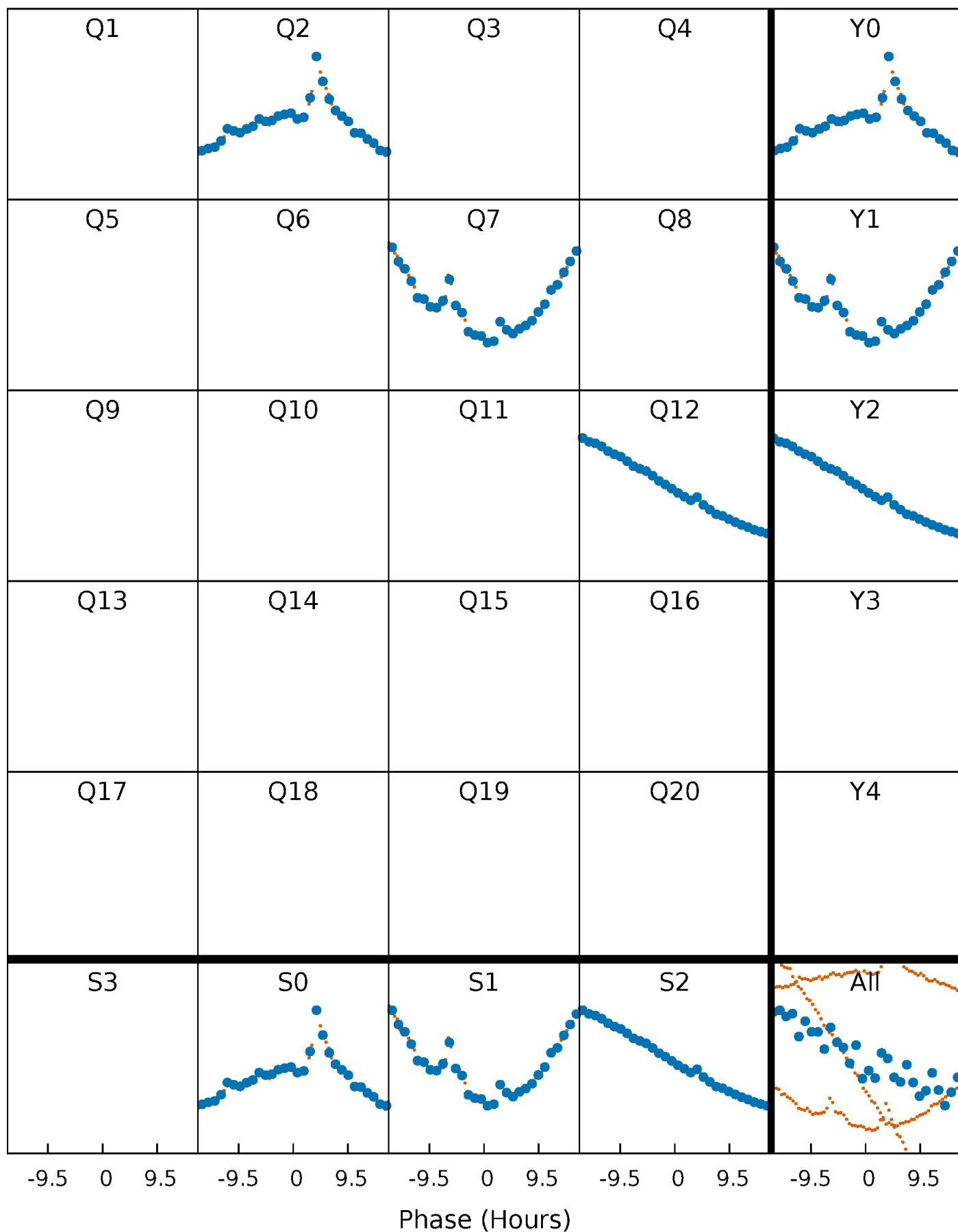


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



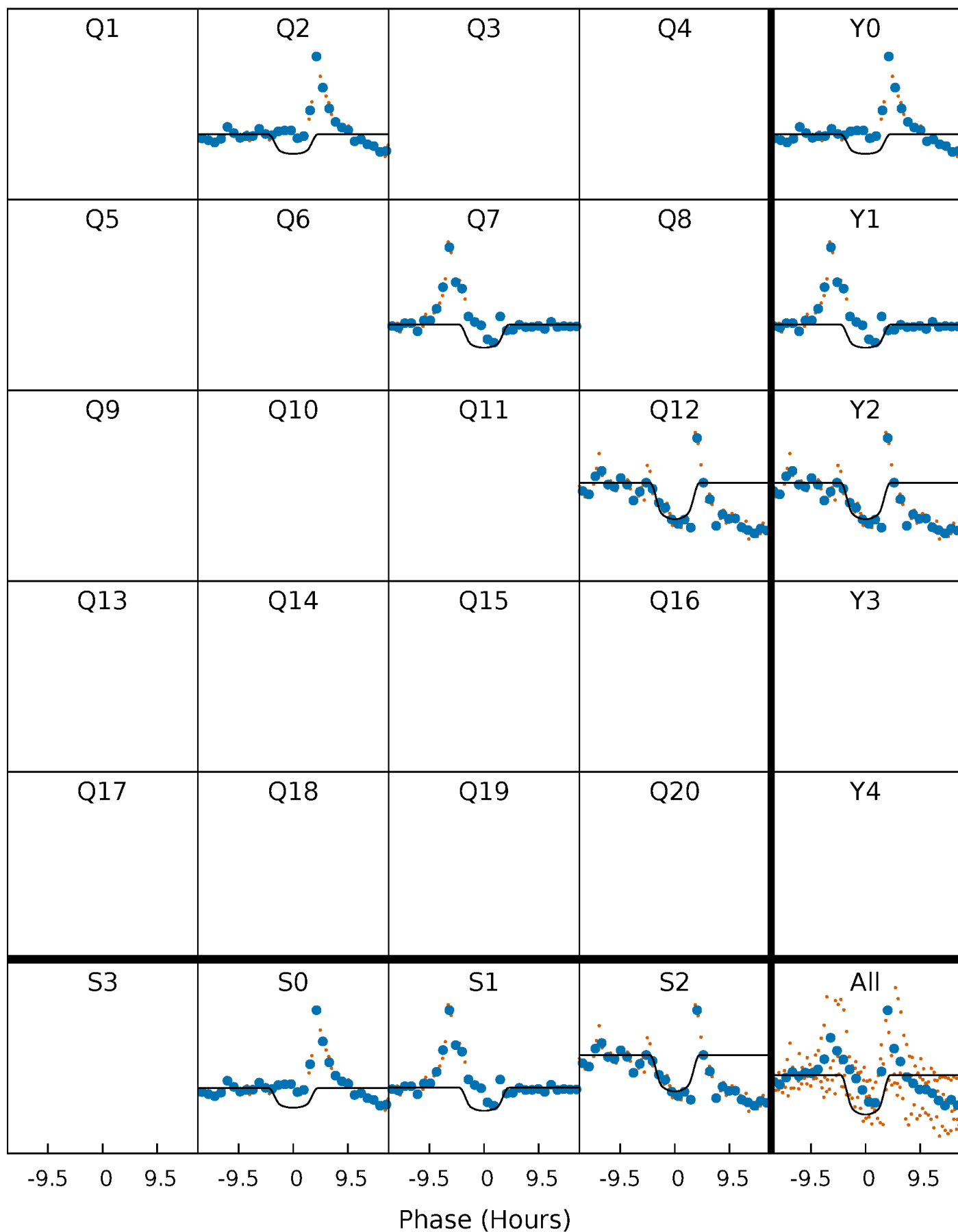
PDC Quarter-Phased Transit Curves

TCE 003222369-02 P=458.694719 Days $T_0=250.711866$ (BKJD)



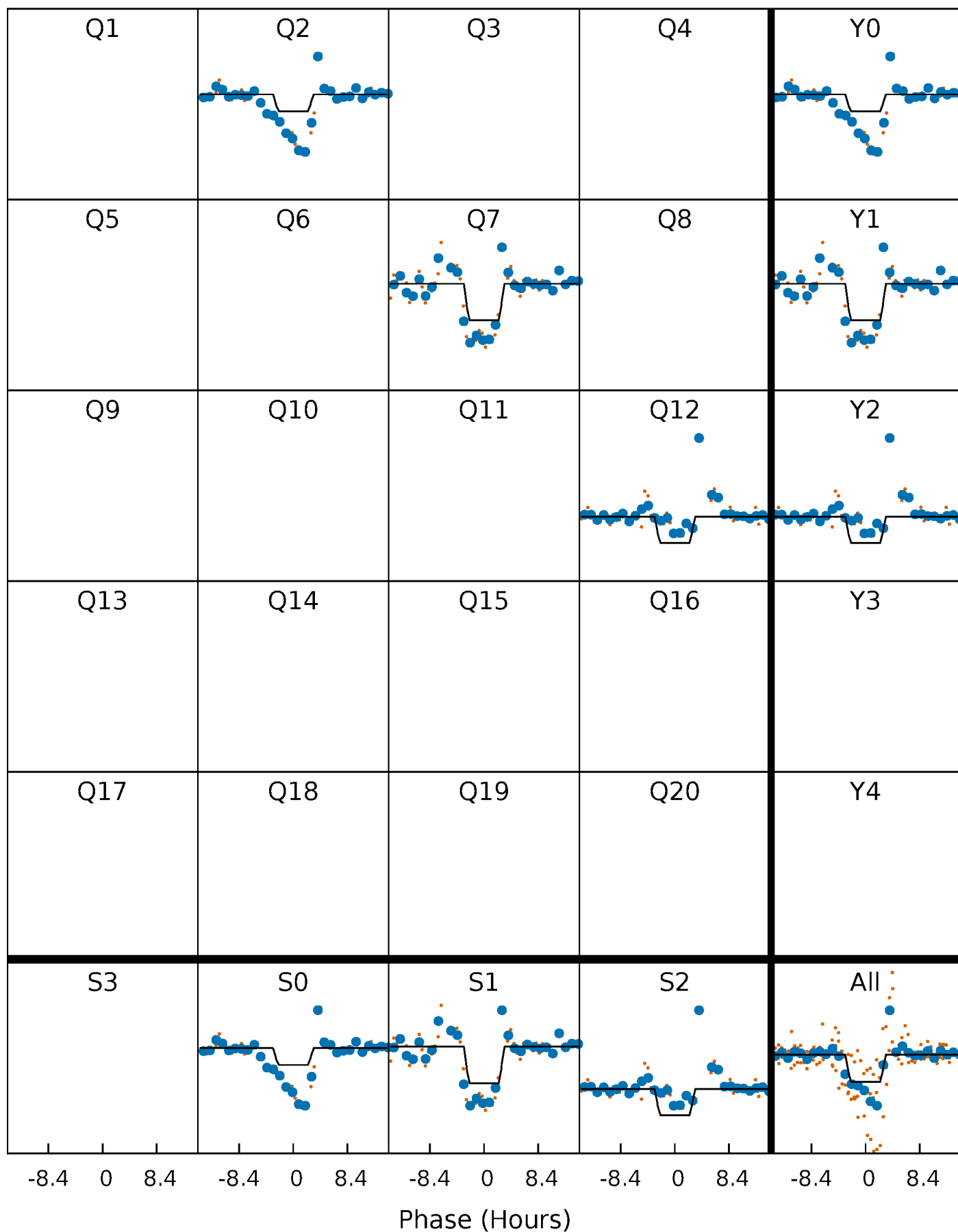
DV Quarter-Phased Transit Curves

TCE 003222369-02 P=458.694719 Days $T_0=250.711866$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

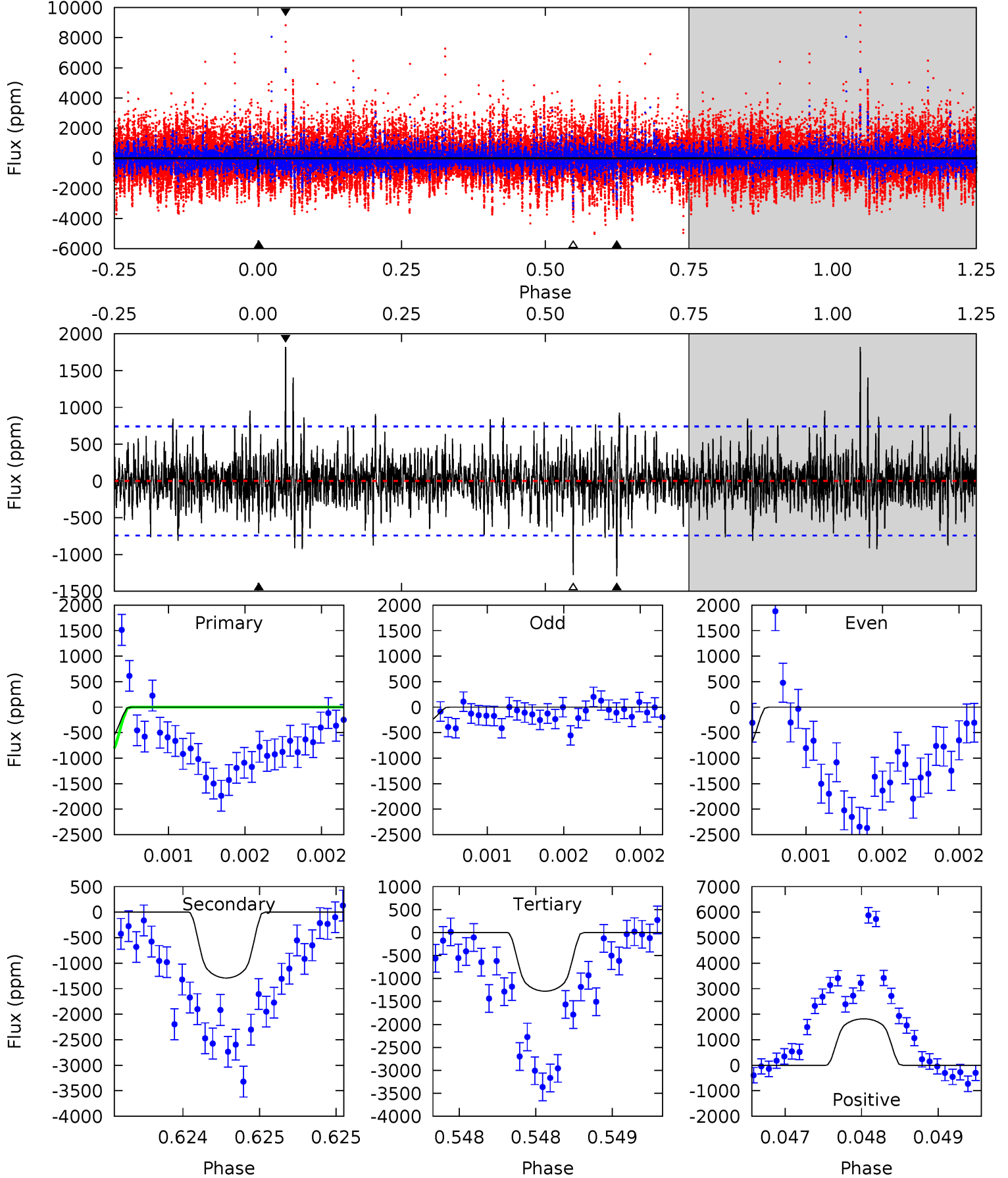
TCE 003222369-02 P=458.692555 Days $T_0=250.710833$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-02, P = 458.694719 Days, E = 250.711866 Days

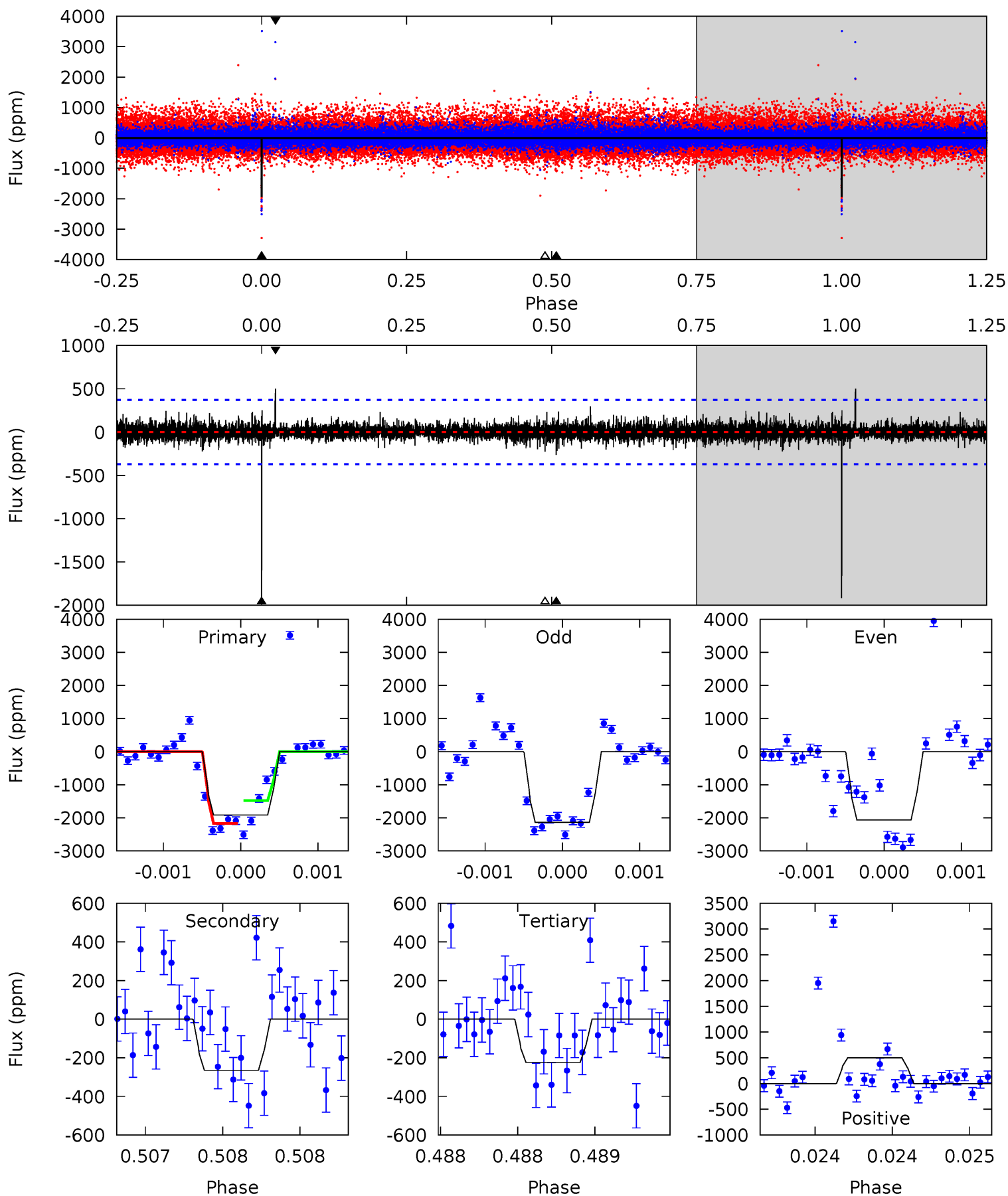
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.26	9.56	9.45	13.5	5.49	3.35	1.83	-4.20	-8.22	0.11	-3.92	1.22	2.16	0.59	2.66



Alt Model-Shift Uniqueness Test

003222369-02, P = 458.692555 Days, E = 250.710833 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.6	3.96	3.35	7.50	5.55	3.44	0.74	25.3	21.1	0.60	-3.55	0.62	1.08	0.21	0



Stellar Parameters For KIC 003222369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1291 ± 135	$3.56^{+0.38}_{-0.37}$	228^{+8}_{-8}	4060^{+205}_{-186}	55996^{+16290}_{-10191}
Alt.	-264 ± 67	$2.68^{+0.36}_{-0.34}$	228^{+8}_{-8}	3404^{+221}_{-204}	19885^{+8649}_{-6401}

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

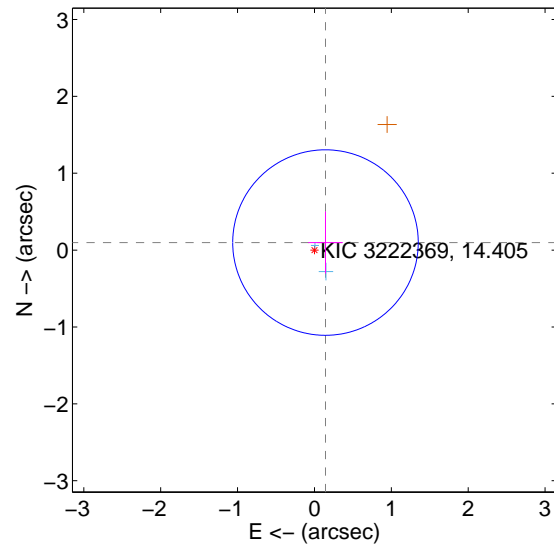
Supplemental centroid analysis for 003222369-02. Kepler magnitude: 14.40. Transit SNR 9.26

There are 2 quarters with good PRF difference image offsets

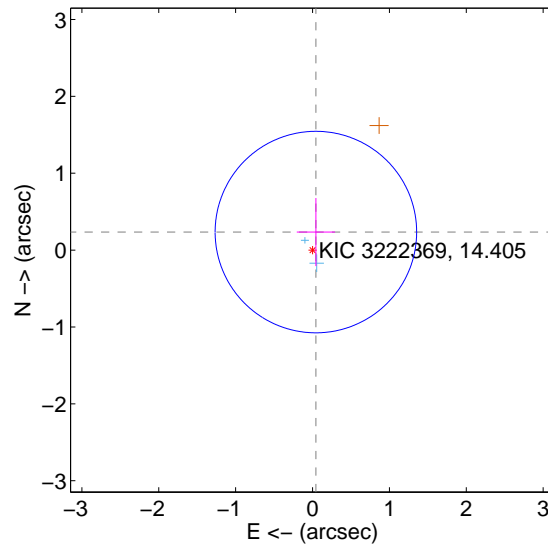
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.174 ± 0.402	0.43	-0.144 ± 0.225	0.098 ± 0.403
PRF-fit source offset from KIC position	0.239 ± 0.437	0.55	-0.044 ± 0.249	0.235 ± 0.442
photometric centroid source offset	0.93 ± 0.56	1.65	-0.40 ± 0.54	-0.84 ± 0.57

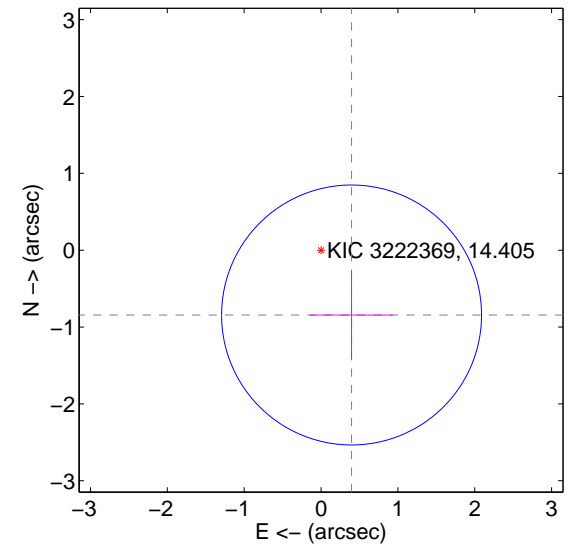
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

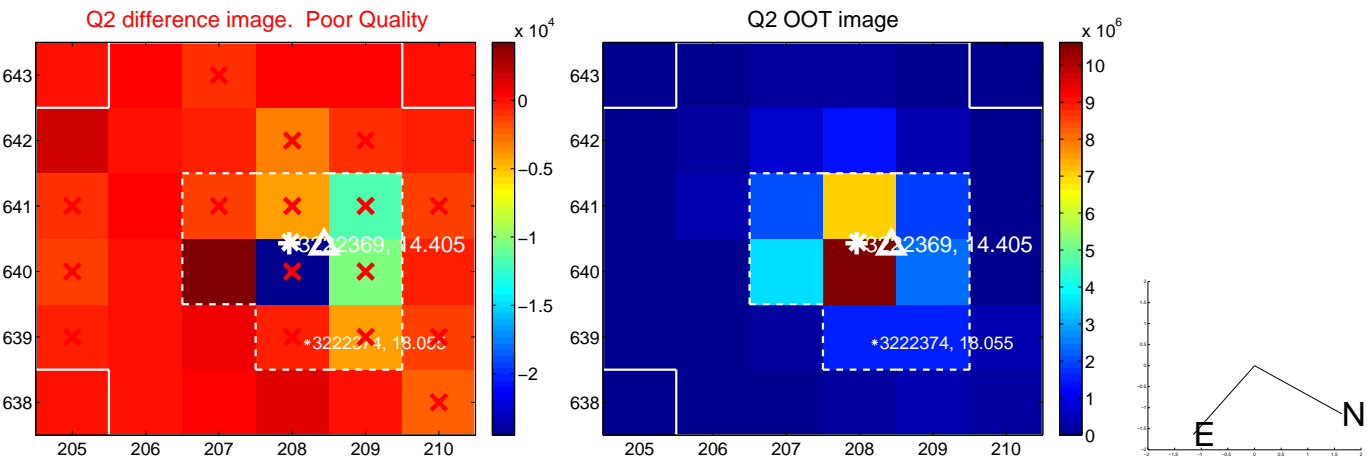


offset from photometric centroids

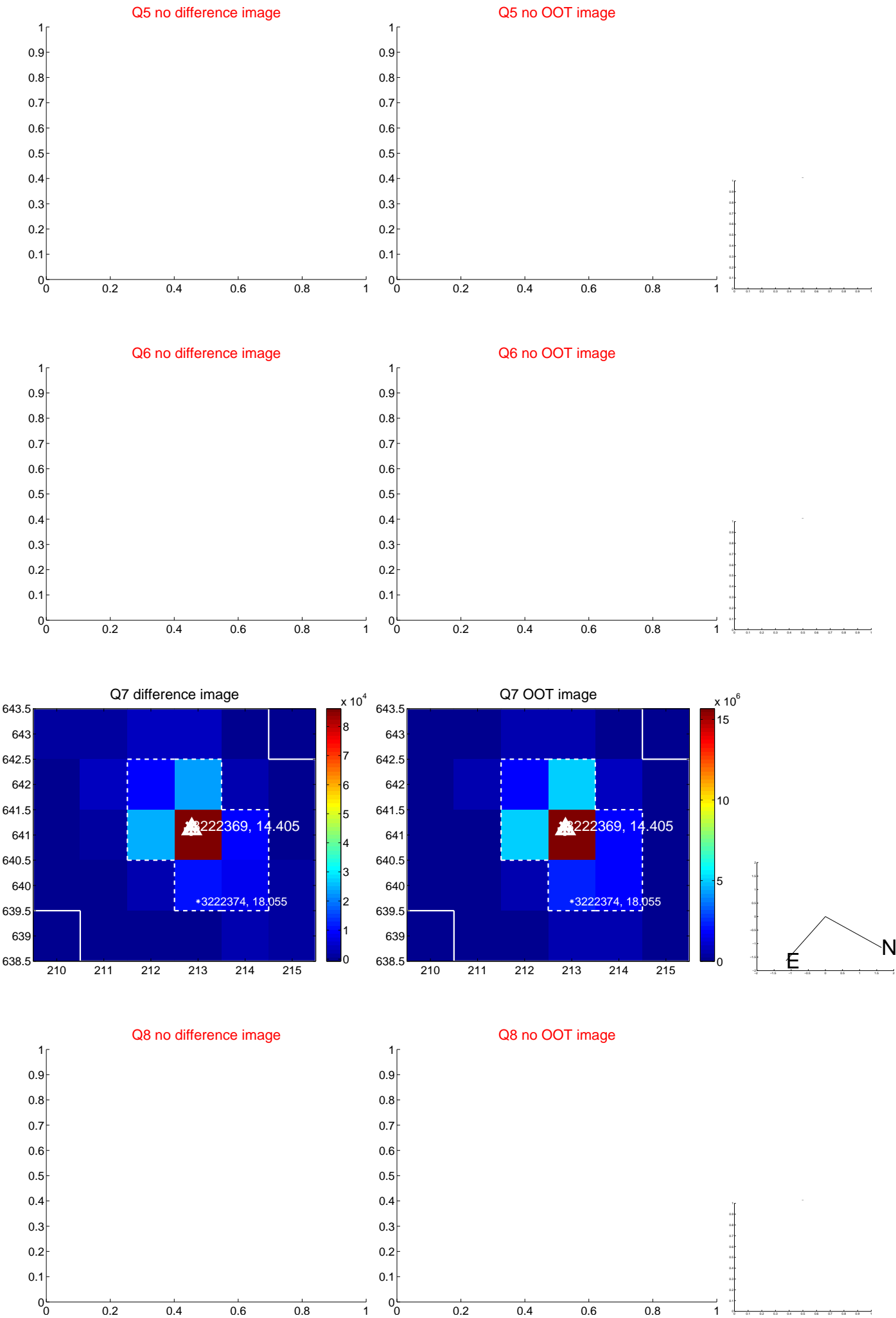


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

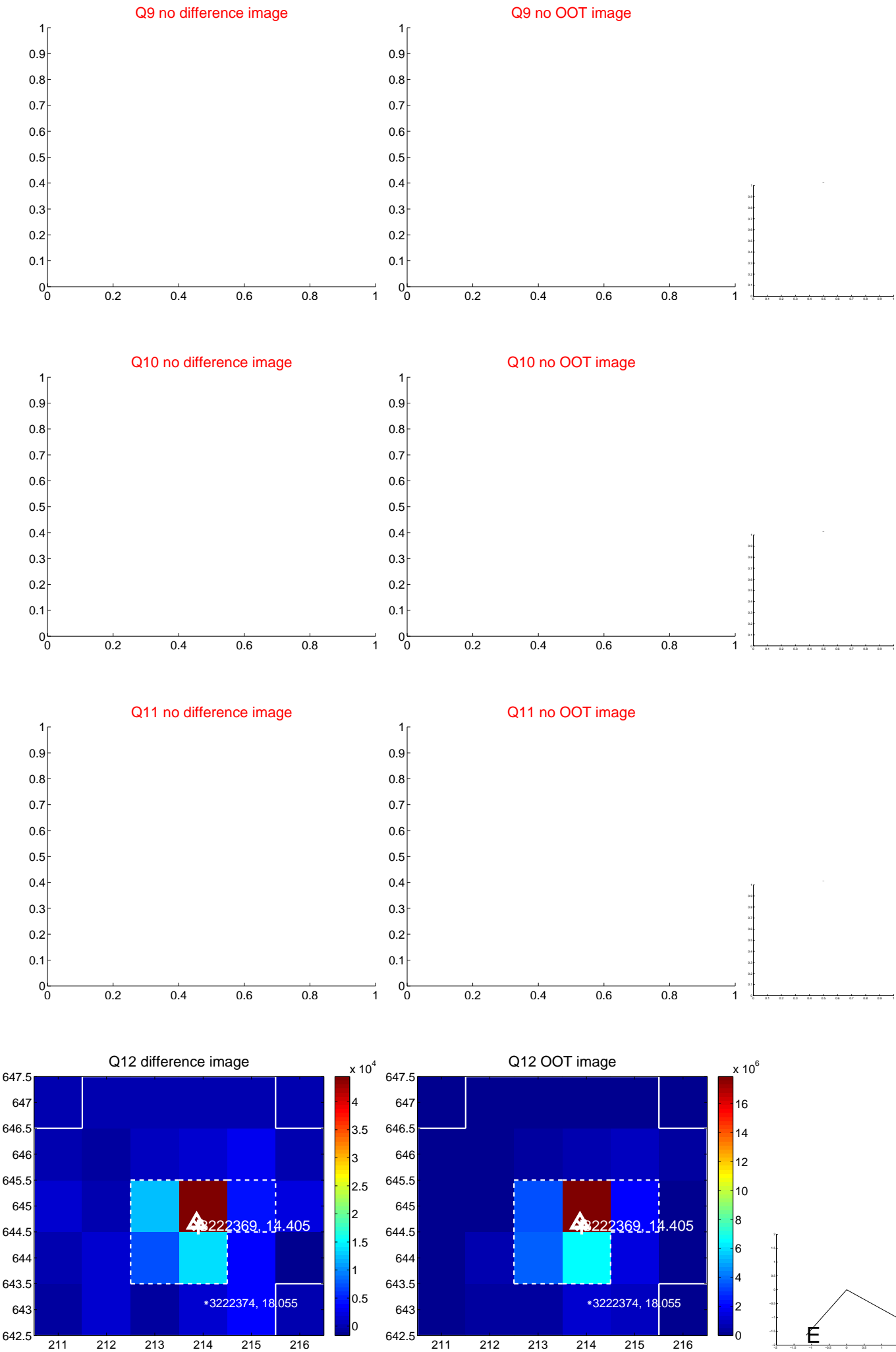
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



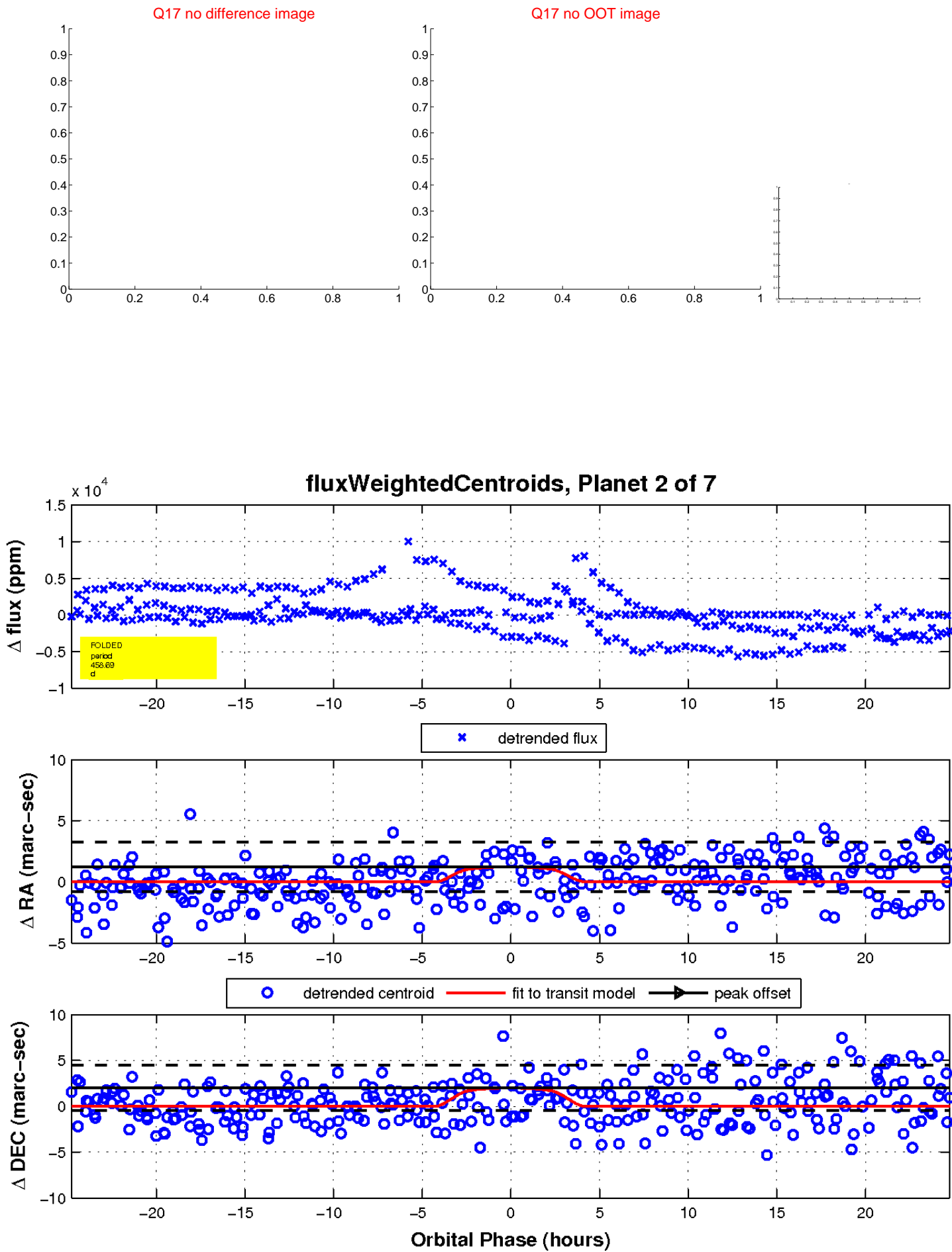
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

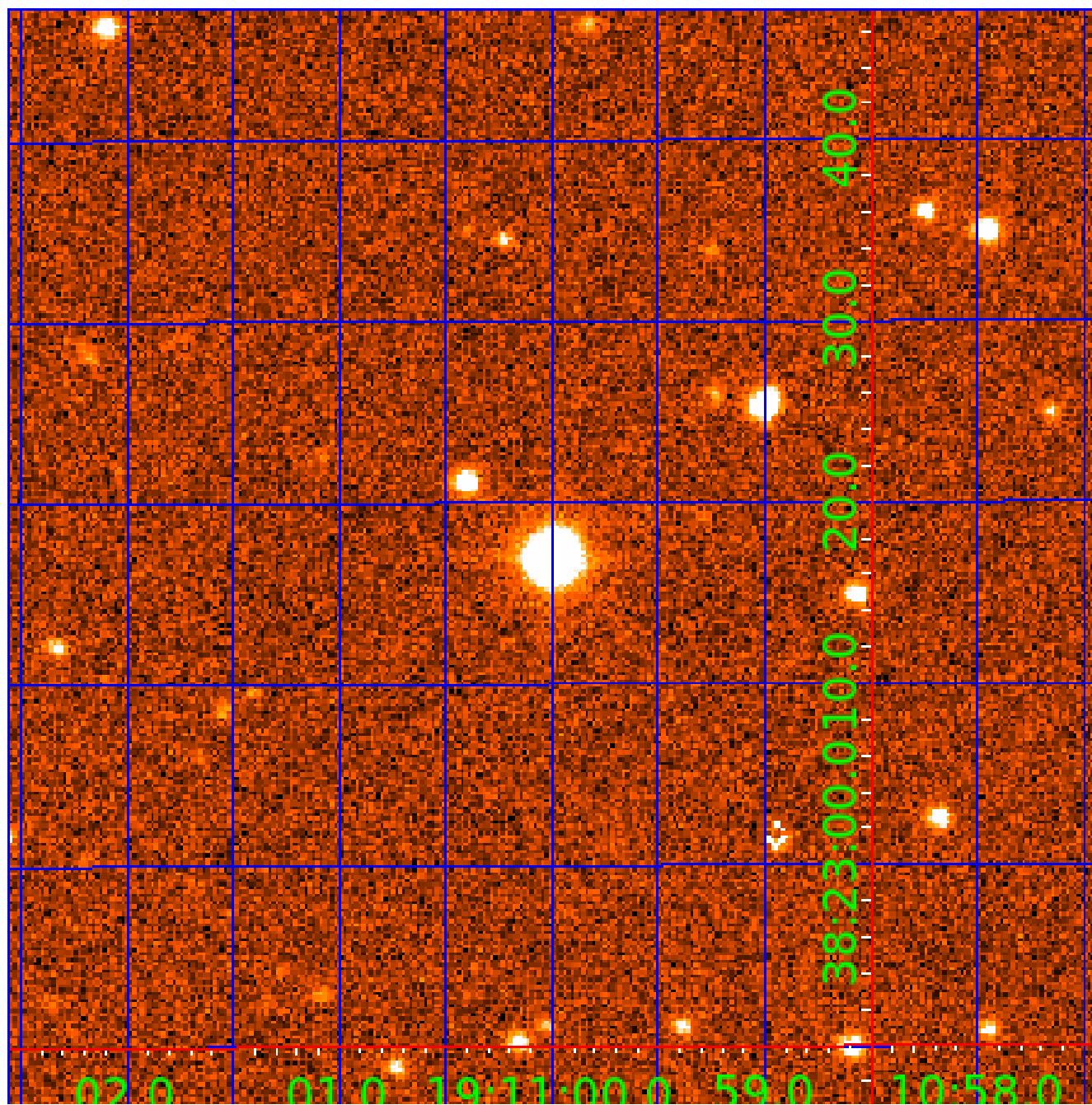


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003222369

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})
003222369-01	OBS	No	367.598366	212.518024	1966.4	6.379	18.9	10.3	0.65	4619	3.77	0.23
003222369-02	OBS	No	458.694719	250.711866	2044.9	8.283	14.6	9.3	0.65	4619	3.58	0.17
003222369-03	OBS	No	545.676981	208.472926	1187.1	4.560	14.8	5.9	0.65	4619	2.28	0.14
003222369-04	OBS	No	331.107752	424.070027	1525.4	2.090	14.1	8.5	0.65	4619	2.73	0.27
003222369-05	OBS	No	353.224935	398.170679	1608.5	8.333	15.5	7.8	0.65	4619	2.82	0.24
003222369-06	OBS	No	496.577603	362.877680	1225.1	7.766	16.0	6.0	0.65	4619	2.37	0.15
003222369-07	OBS	No	410.959759	341.642914	841.2	10.500	14.5	-1.0	0.65	4619	1.81	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003222369-01	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—INCONSISTENT_TRANS
003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003222369-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

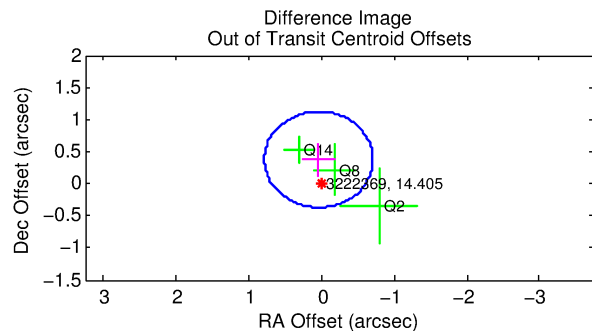
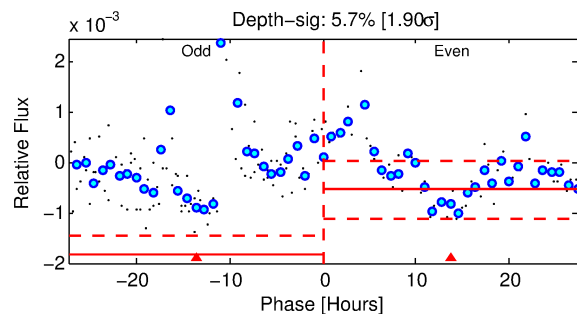
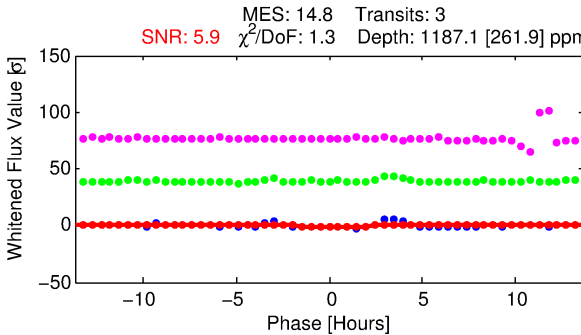
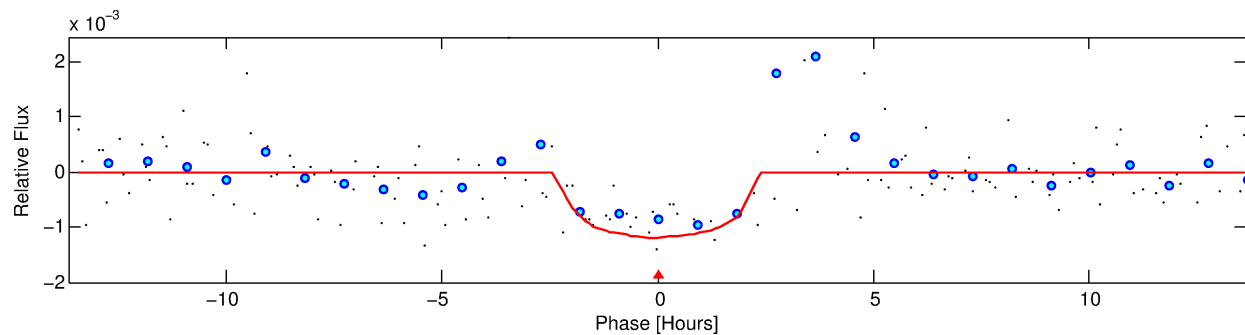
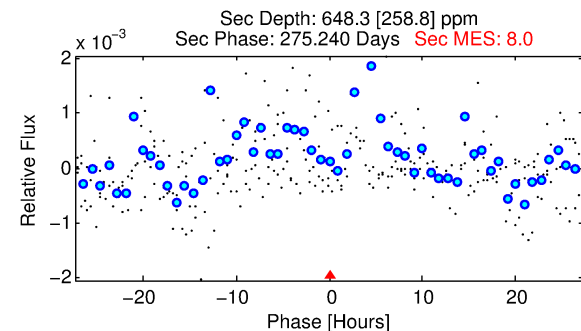
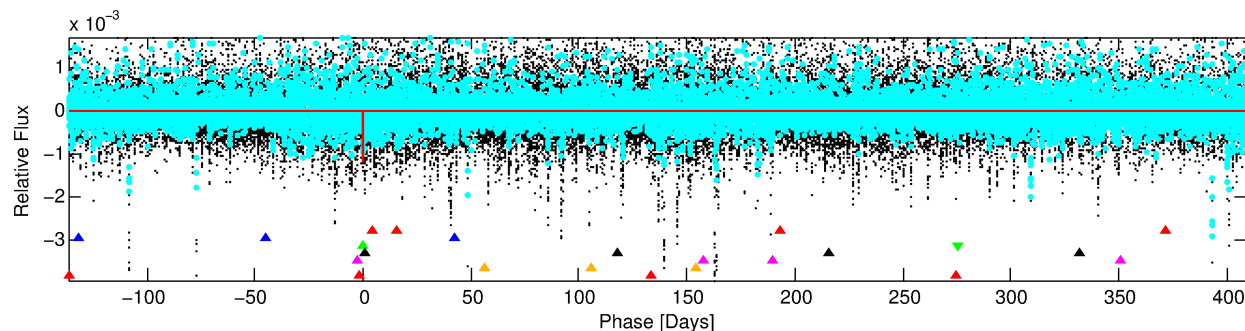
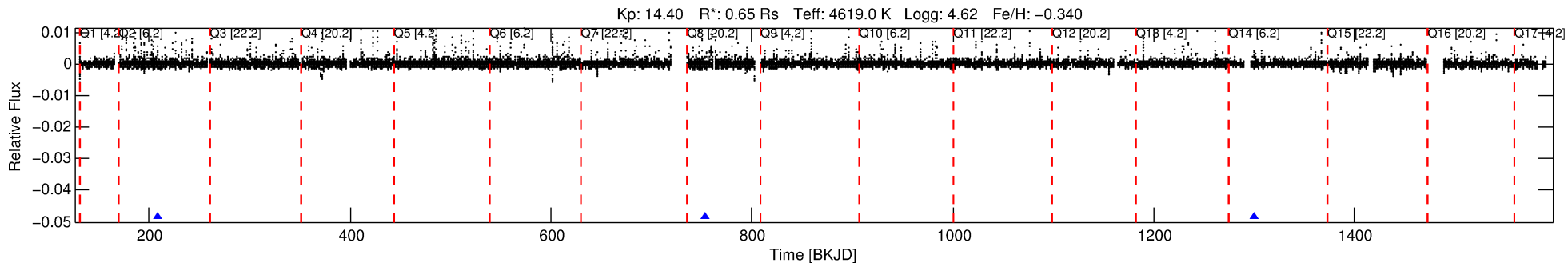
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-03

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 3 of 7 Period: 545.677 d



DV Fit Results:

Period = 545.67698 [0.00789] d
Epoch = 208.4729 [0.0097] BKJD
Rp/R* = 0.0321 [0.0517]
a/R* = 797.24 [4133.96]
b = 0.55 [6.66]
Seff = 0.14 [0.02]
Teq = 155 [6] K
Rp = 2.28 [3.67] Re
a = 1.1236 [0.0796] AU
Ag = 86664.60 [280913.24] [0.31 sigma]
Teffp = 4112 [3332] K [1.19 sigma]

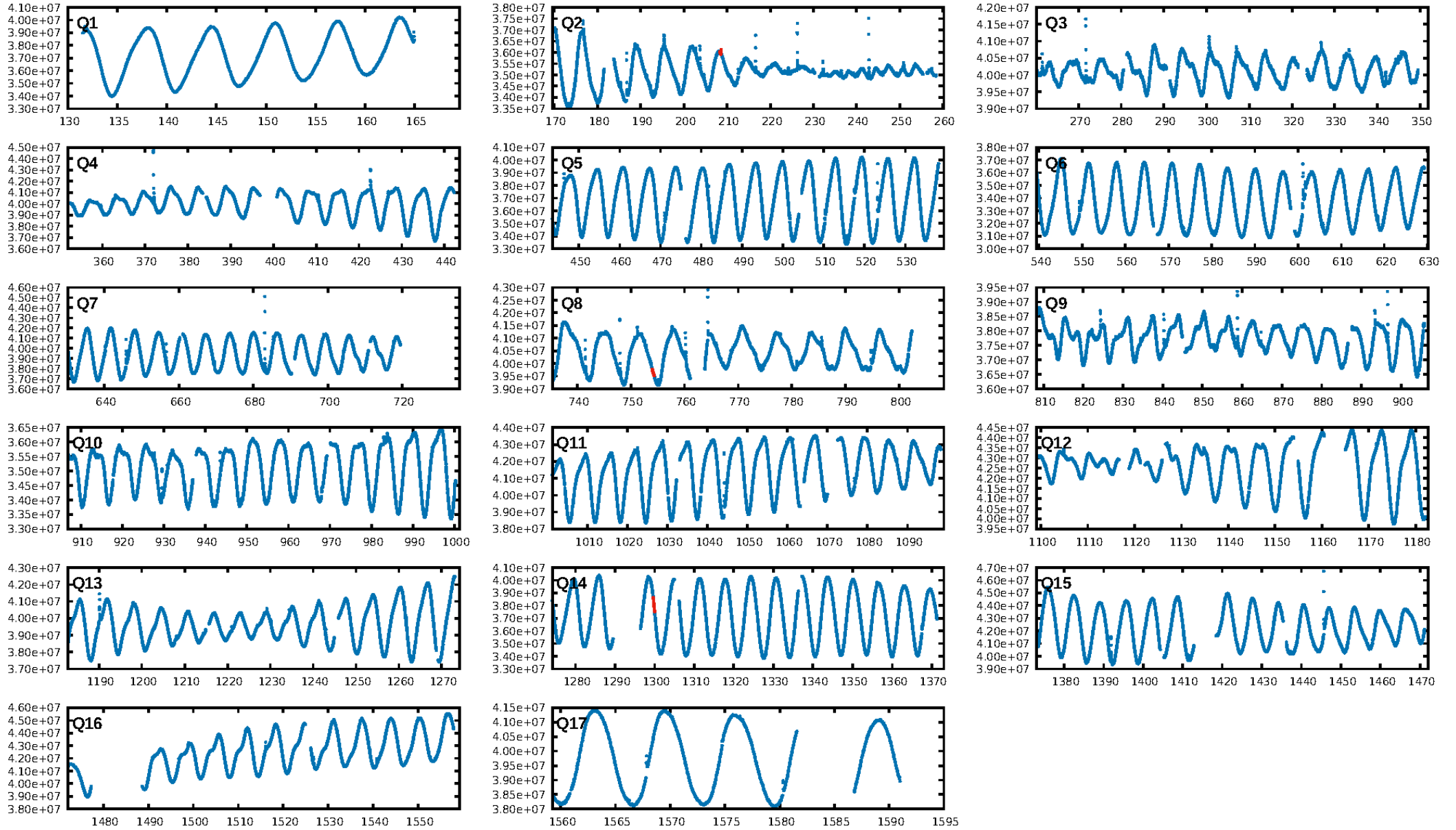
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [130.85 sigma]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 83.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.03
Centroid-sig: 57.3%
Centroid-so: 0.499 arcsec [0.47 sigma]
OotOffset-rm: 0.379 arcsec [1.52 sigma]
KicOffset-rm: 0.646 arcsec [2.60 sigma]
OotOffset-st: 2/0/1/0 [3]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

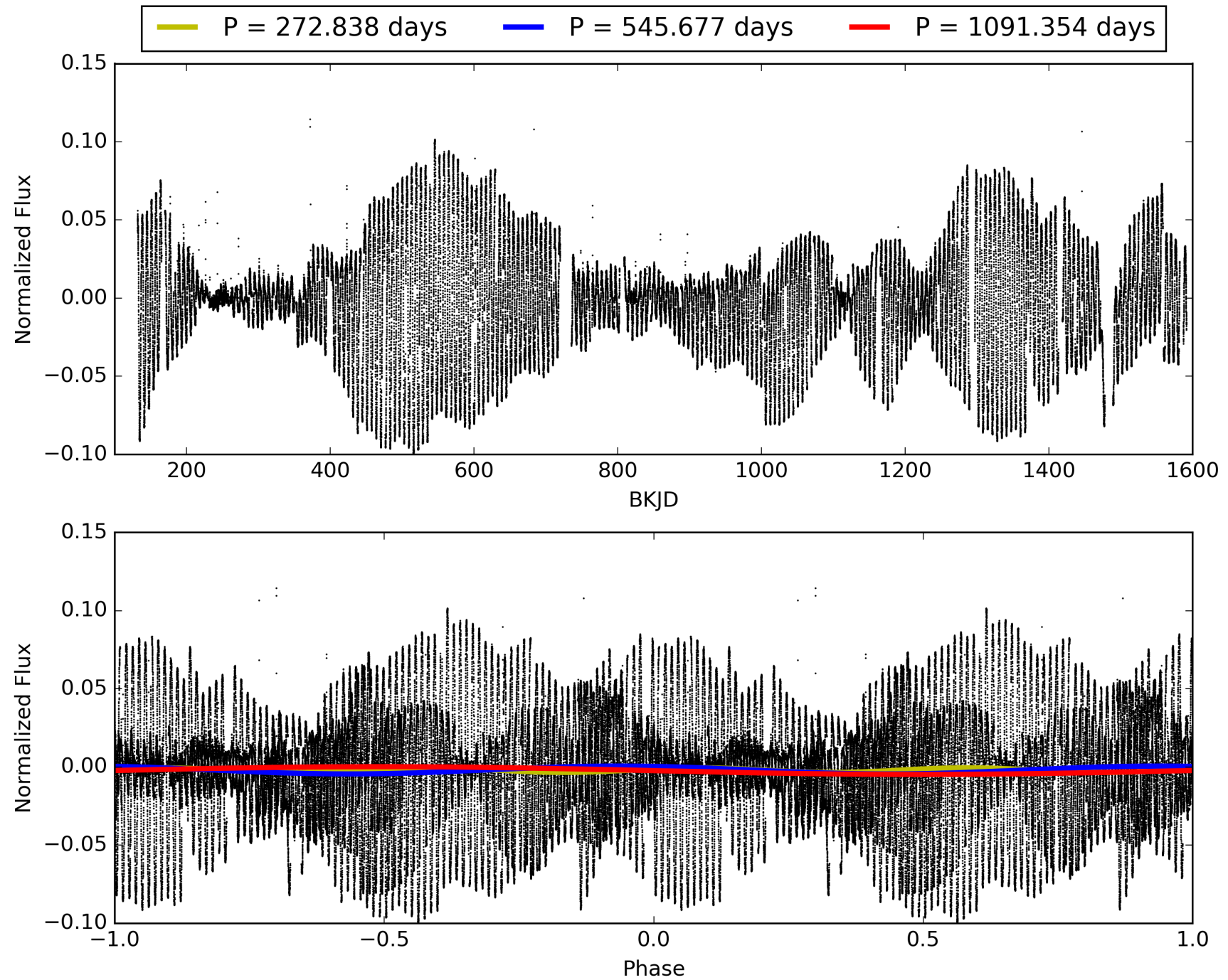
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:27:52 Z

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

TCE 003222369-03, PDC Light Curves

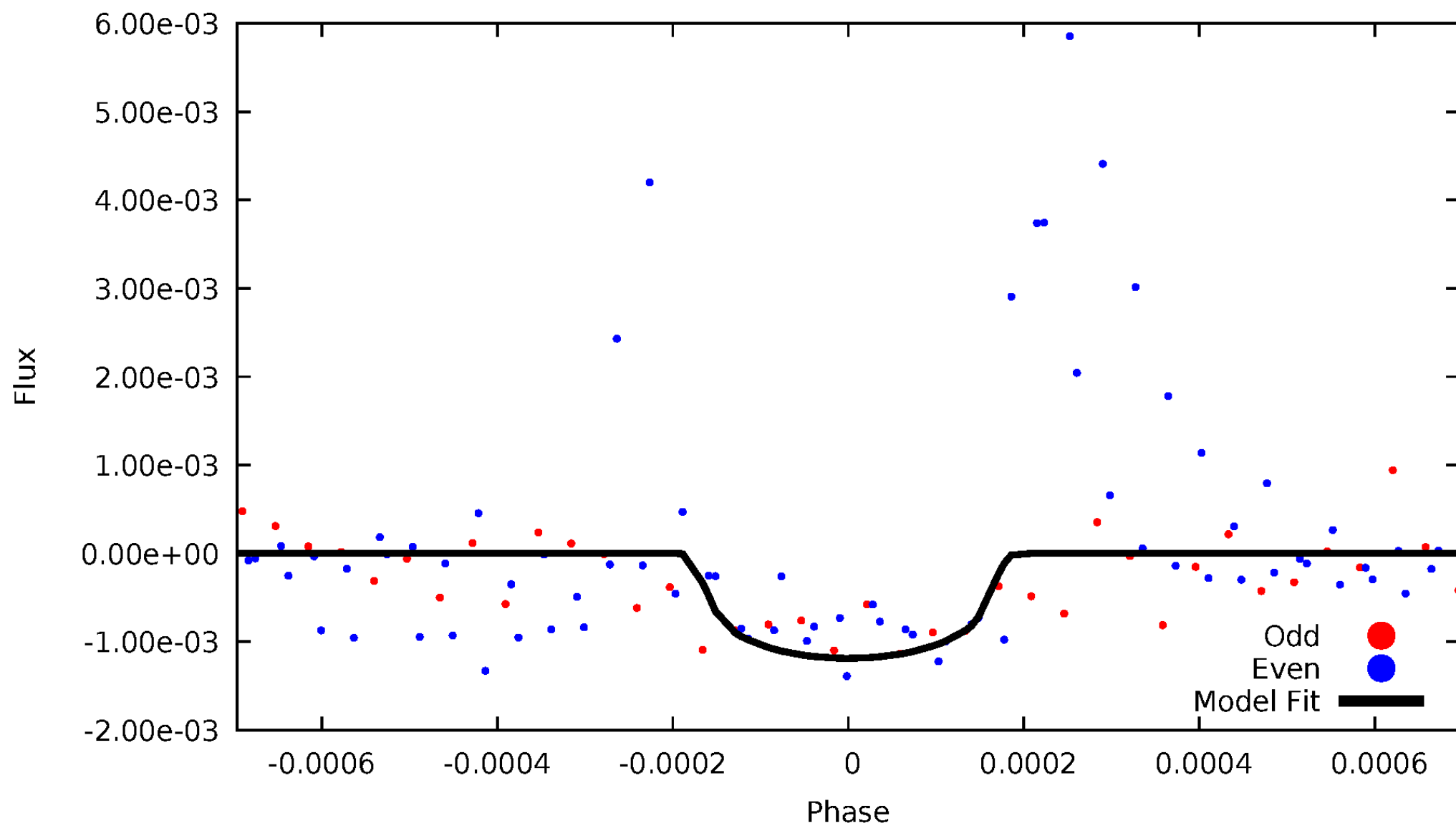


TCE 003222369-03



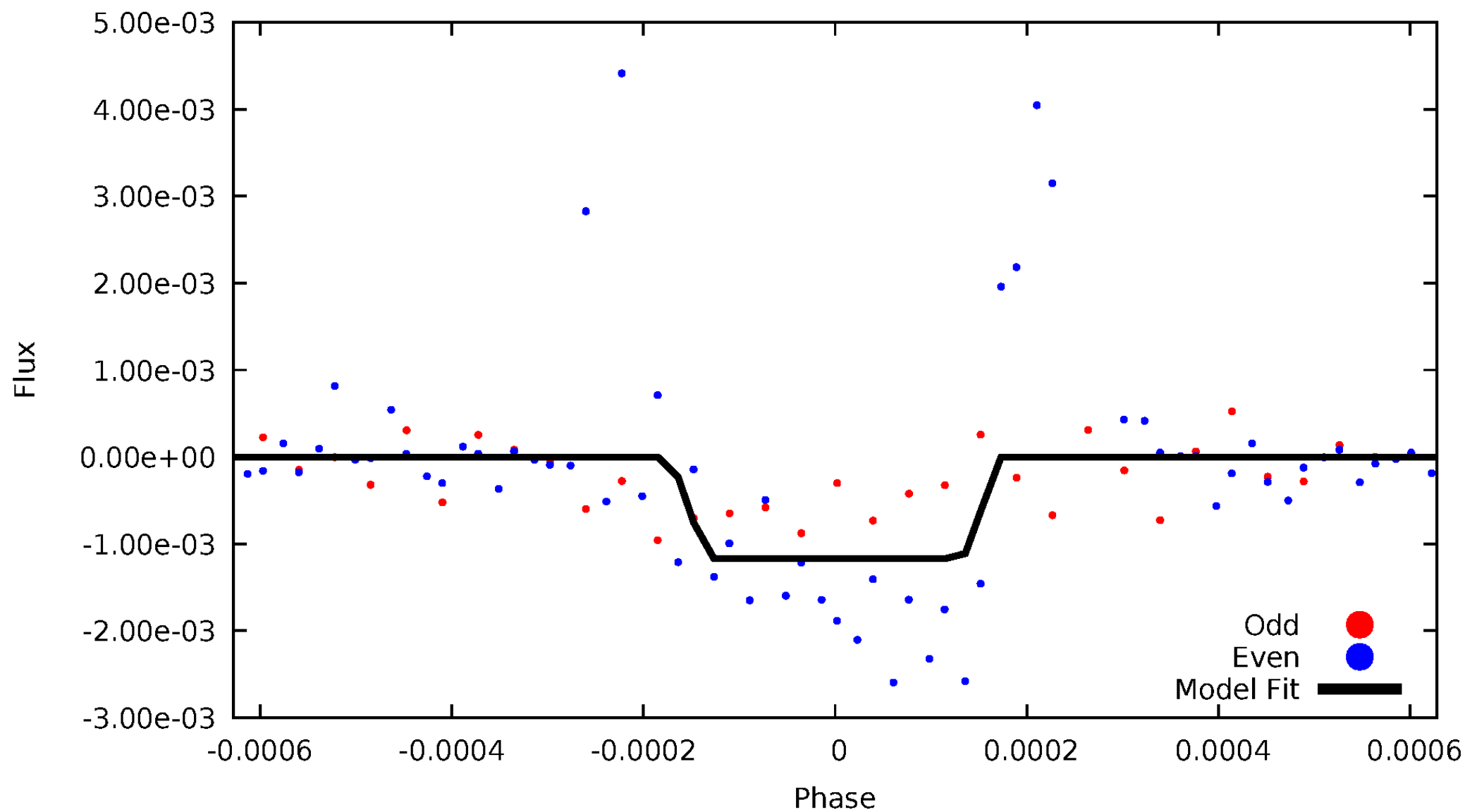
DV Odd/Even

TCE 003222369-03



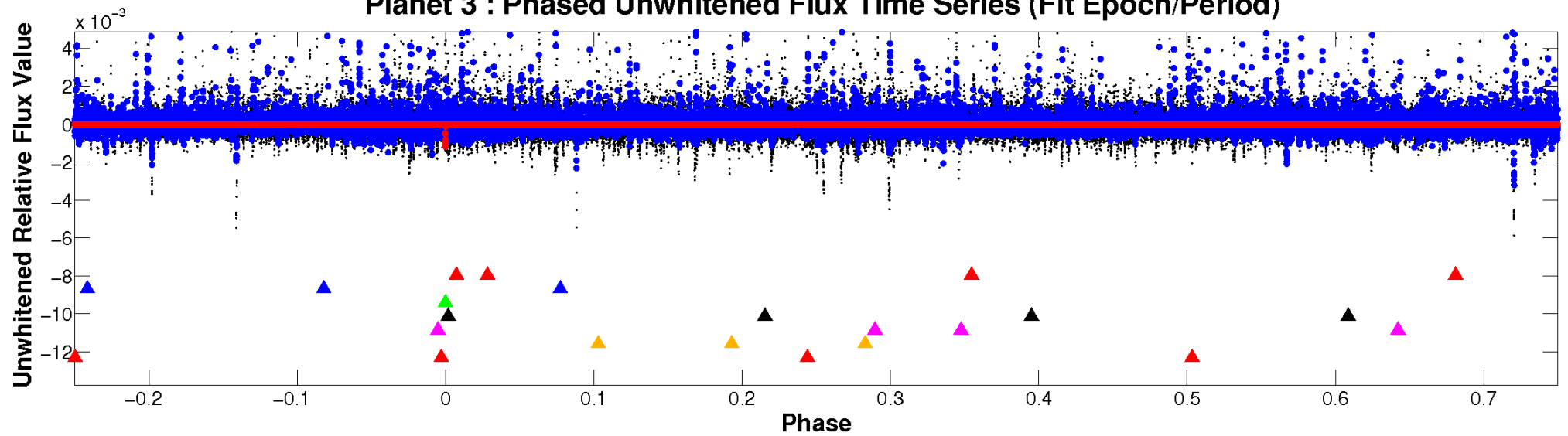
ALT Odd/Even

TCE 003222369-03

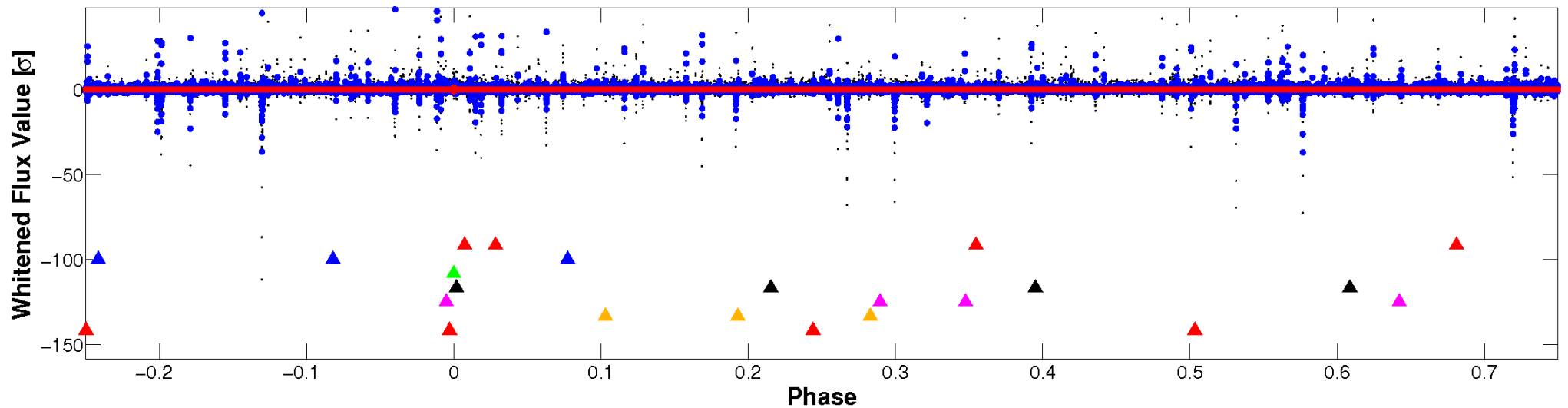


Non-Whitened Vs. Whitened Light Curve

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

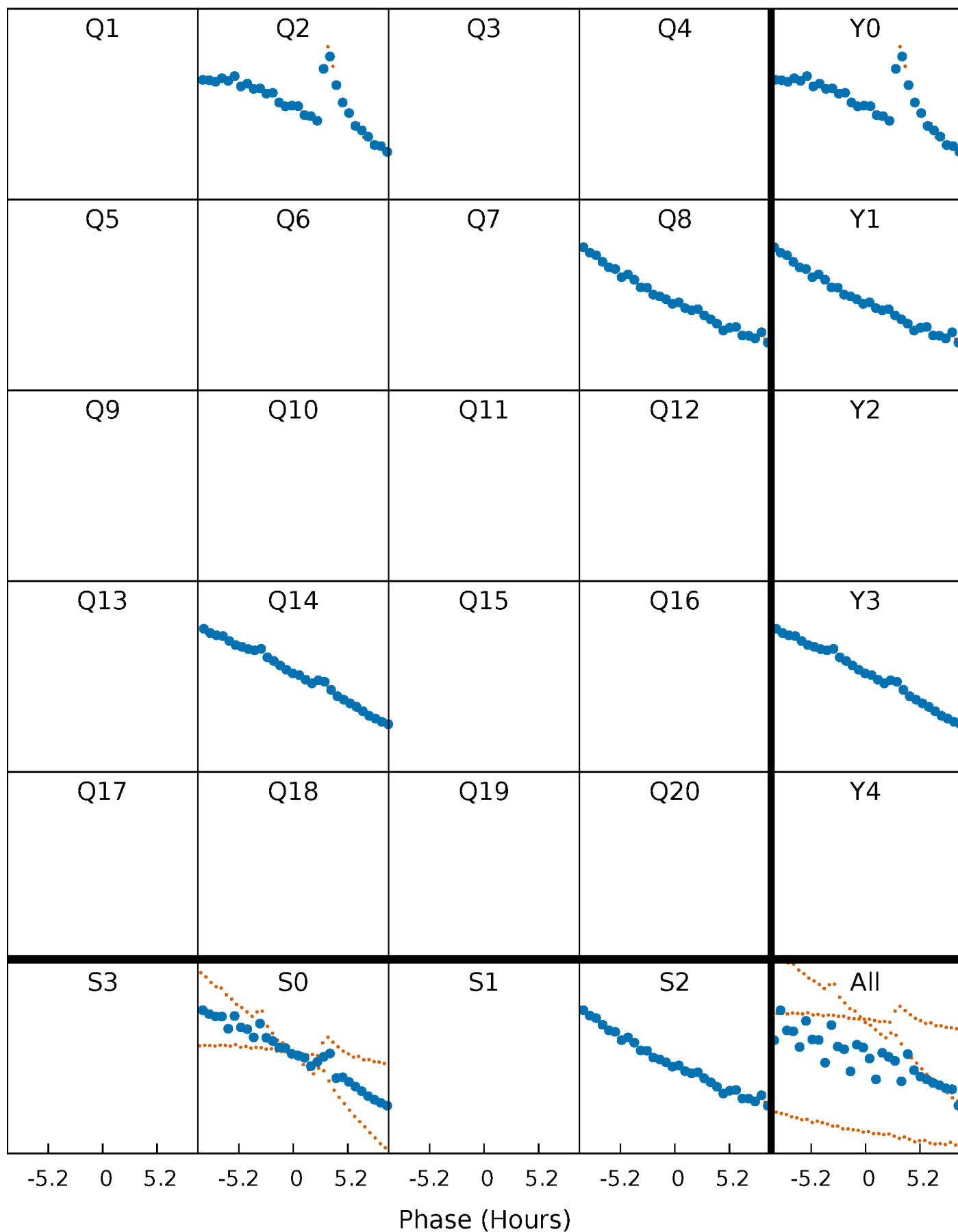


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



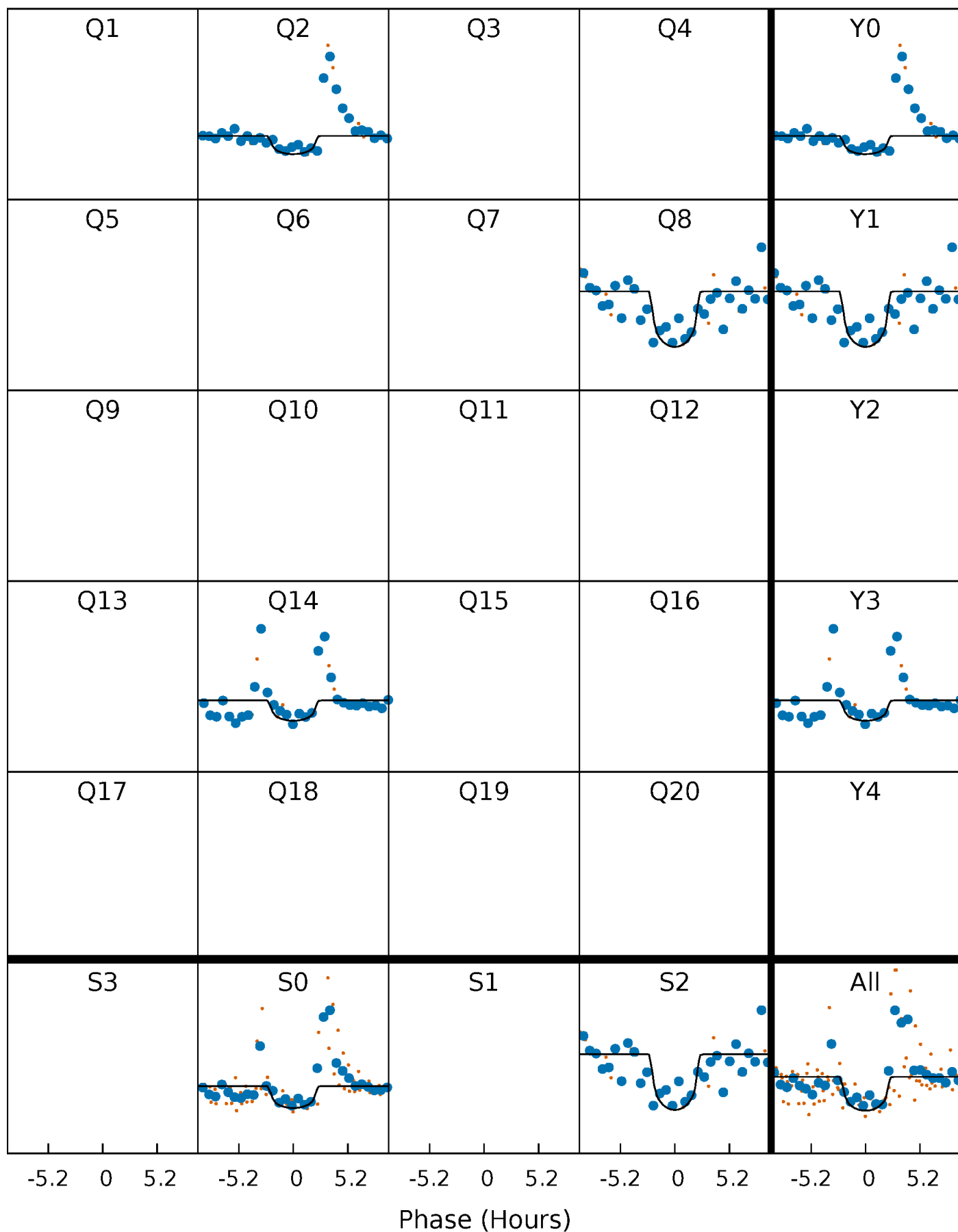
PDC Quarter-Phased Transit Curves

TCE 003222369-03 P=545.676981 Days $T_0=208.472926$ (BKJD)



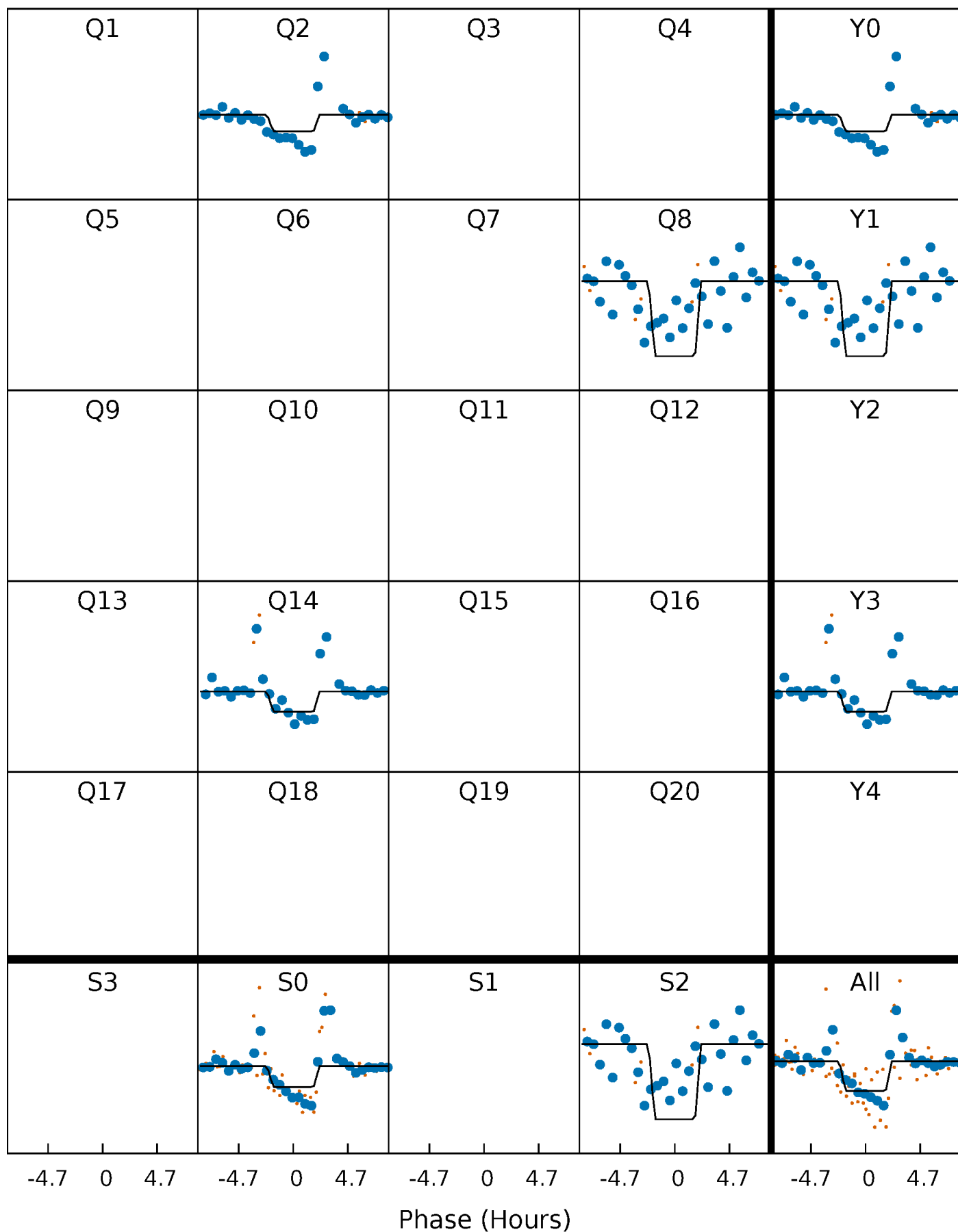
DV Quarter-Phased Transit Curves

TCE 003222369-03 P=545.676981 Days $T_0=208.472926$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

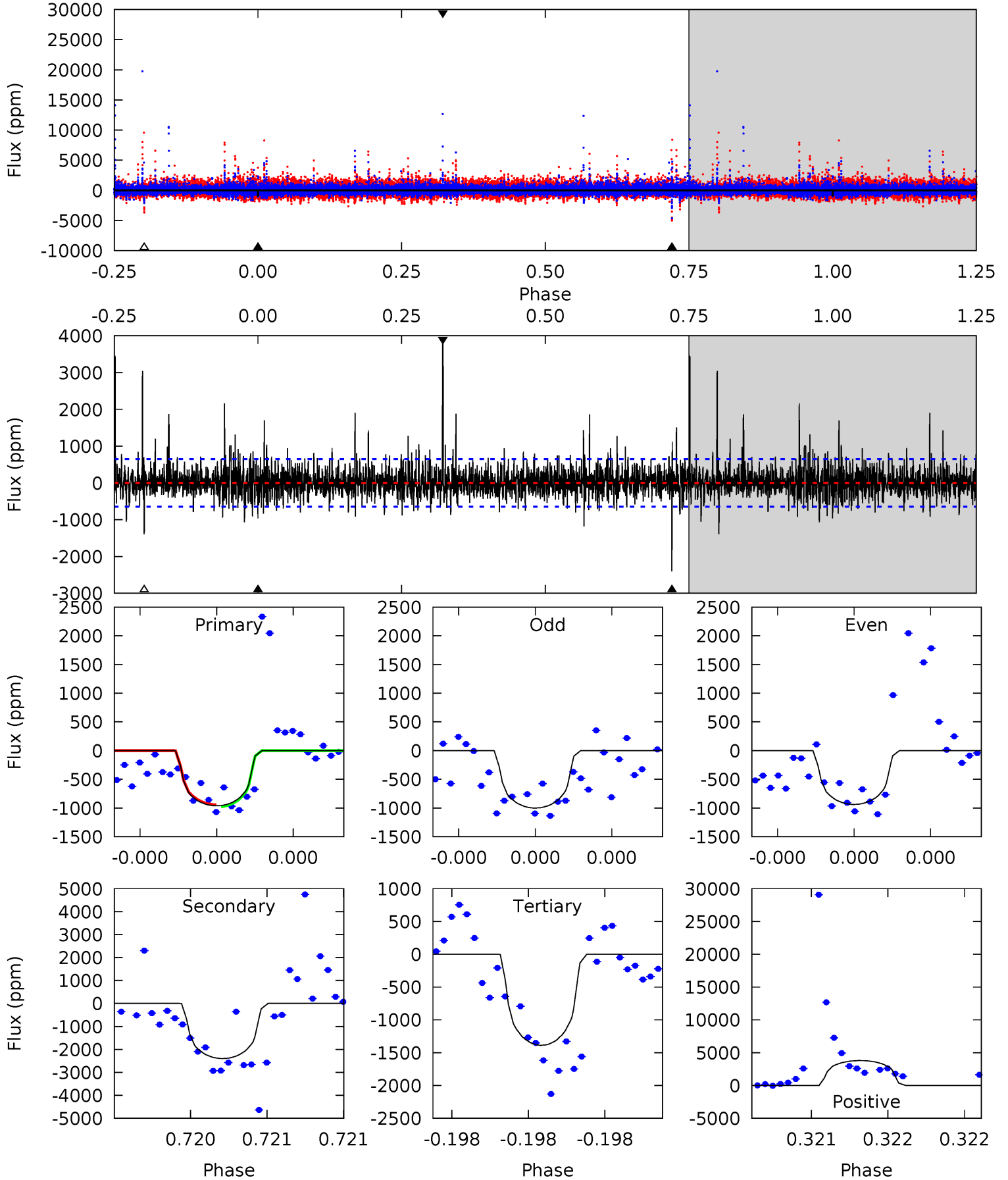
TCE 003222369-03 $P=545.664597$ Days $T_0=208.495734$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-03, P = 545.676981 Days, E = 208.472926 Days

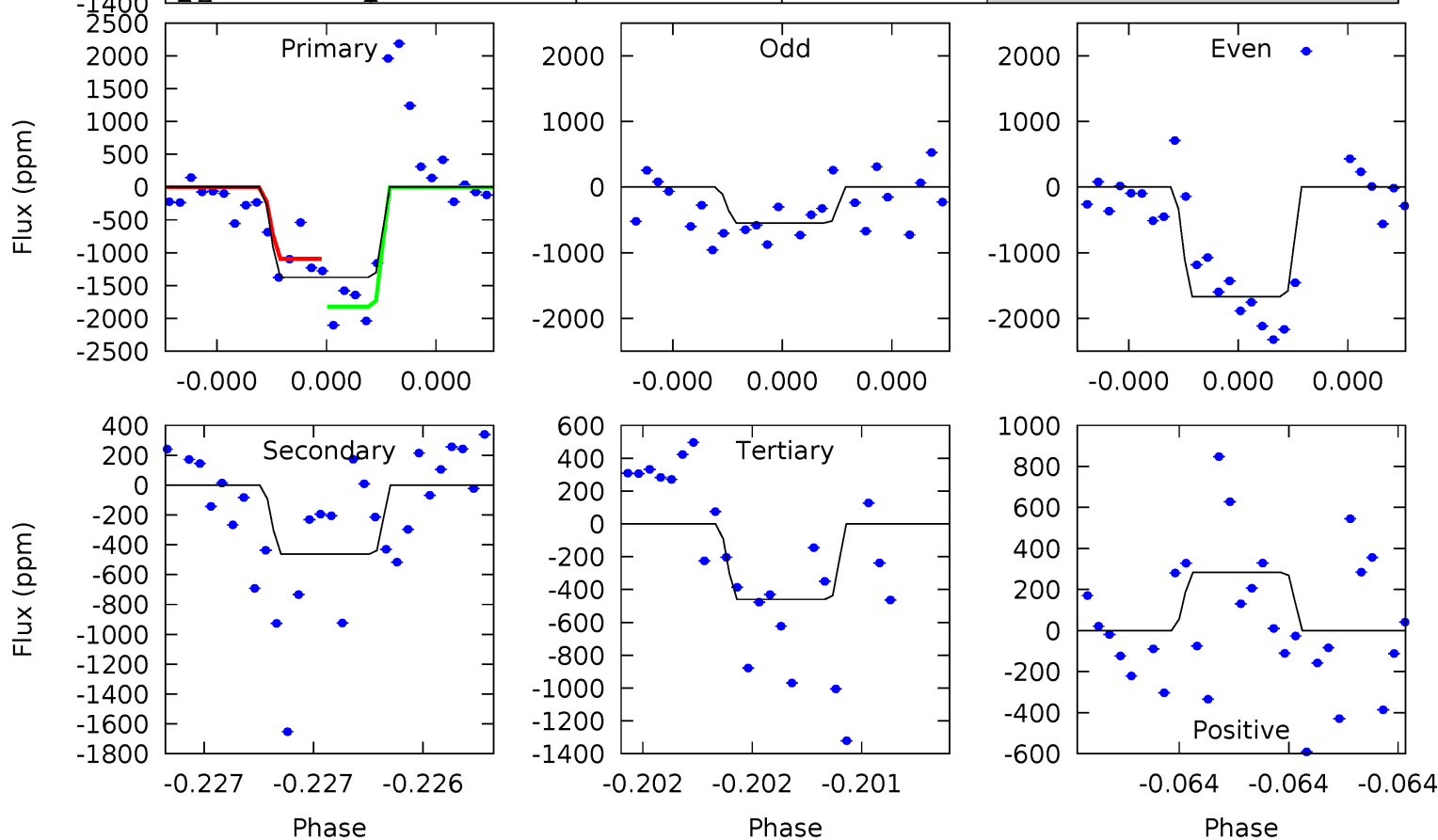
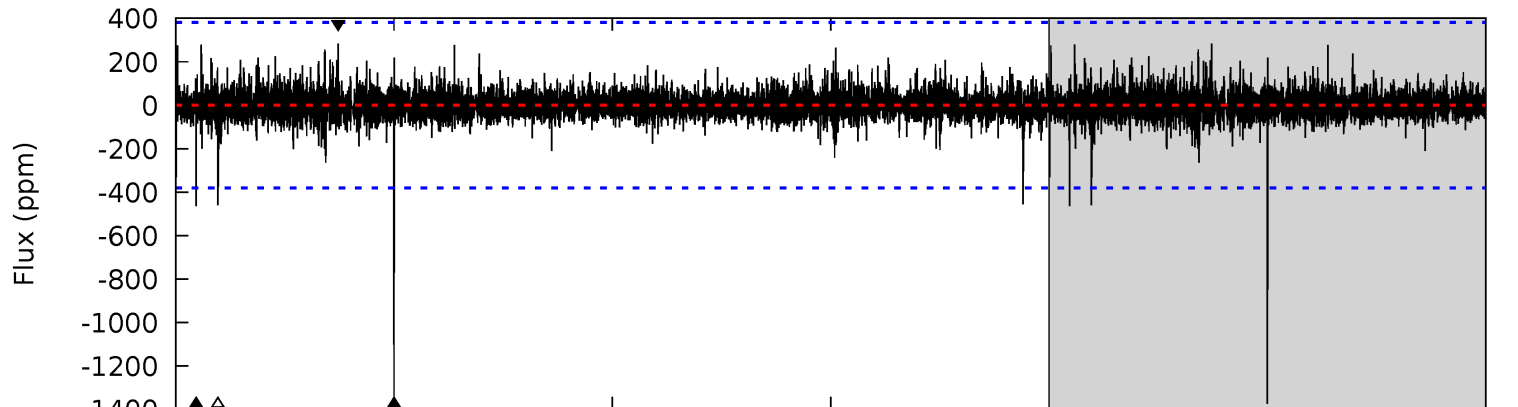
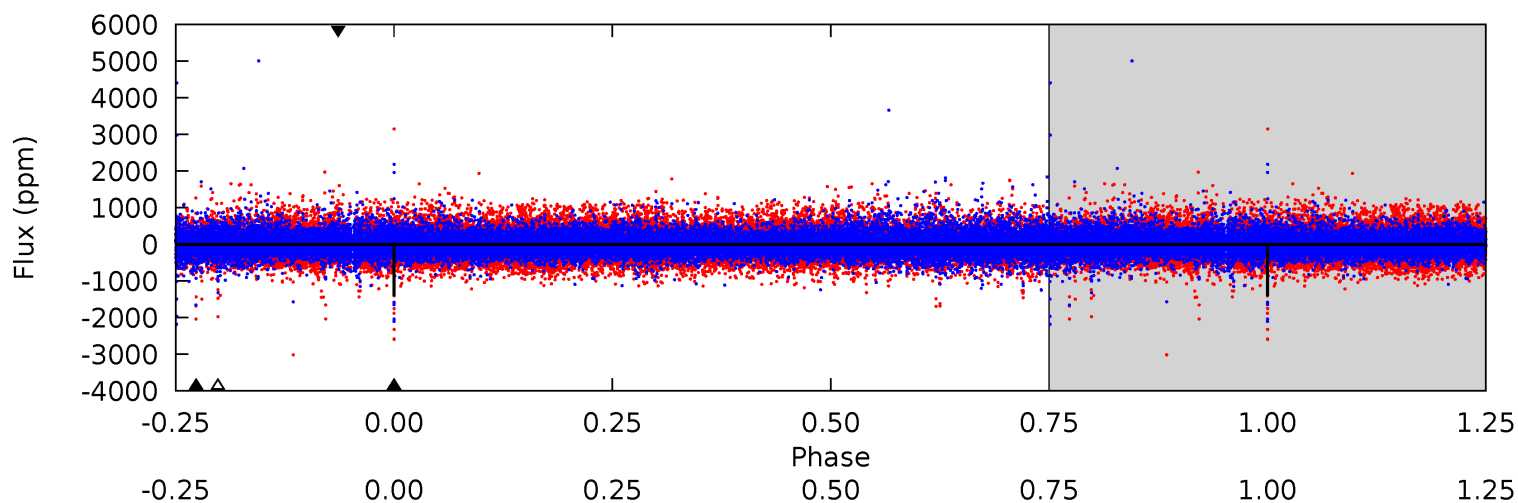
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.37	20.9	12.1	33.1	5.63	3.57	2.58	-3.70	-24.7	8.81	-12.2	0.09	1.01	0.61	0.16



Alt Model-Shift Uniqueness Test

003222369-03, P = 545.664597 Days, E = 208.495734 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	6.89	6.85	4.22	5.66	3.62	0.69	13.6	16.2	0.04	2.67	7.43	0.97	0.17	5.31



Stellar Parameters For KIC 003222369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2400 ± 115	$3.56^{+3.02}_{-2.28}$	215^{+7}_{-7}	4582^{+2865}_{-928}	$136914^{+887139}_{-97311}$
Alt.	-463 ± 67	$3.37^{+3.19}_{-2.15}$	215^{+7}_{-8}	3460^{+1586}_{-602}	$27706^{+197028}_{-20266}$

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

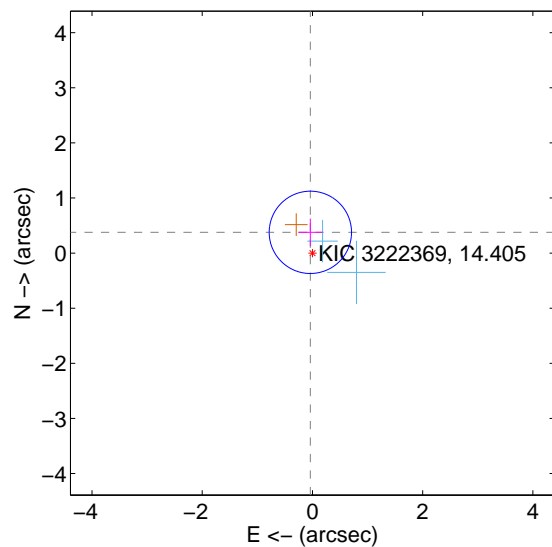
Supplemental centroid analysis for 003222369-03. Kepler magnitude: 14.40. Transit SNR 5.91

There are 2 quarters with good PRF difference image offsets

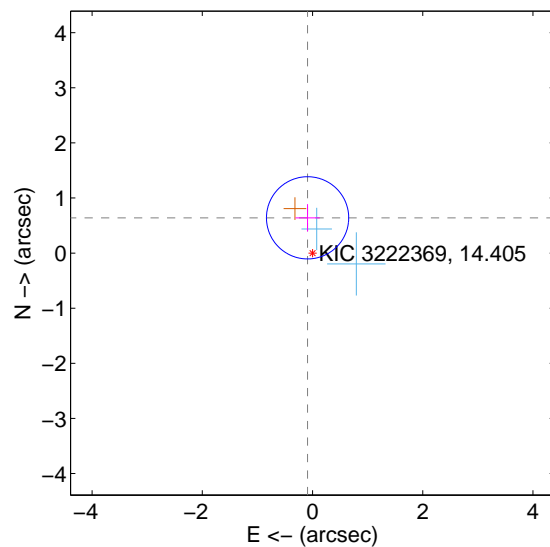
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.379 ± 0.249	1.52	0.038 ± 0.221	0.377 ± 0.249
PRF-fit source offset from KIC position	0.646 ± 0.249	2.60	0.090 ± 0.221	0.640 ± 0.249
photometric centroid source offset	0.50 ± 1.05	0.47	0.01 ± 1.07	-0.50 ± 1.05

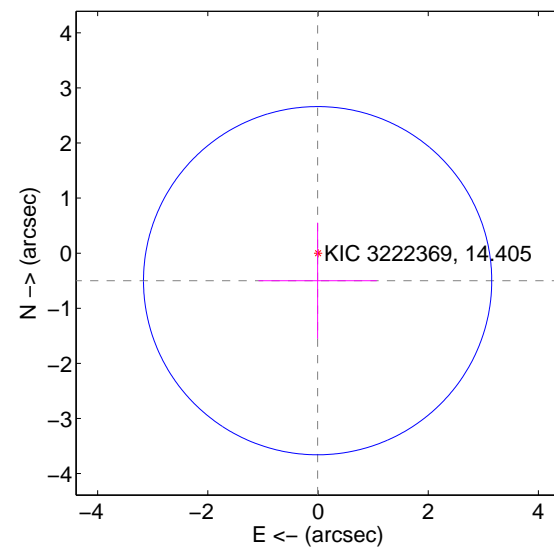
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



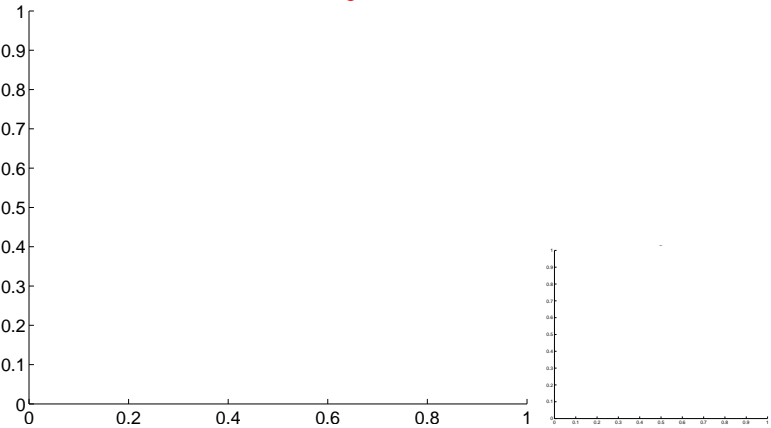
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

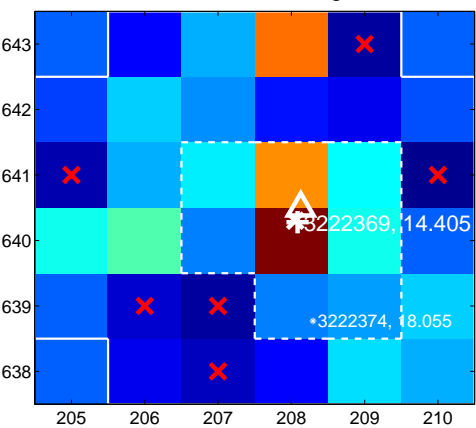
Q1 no difference image



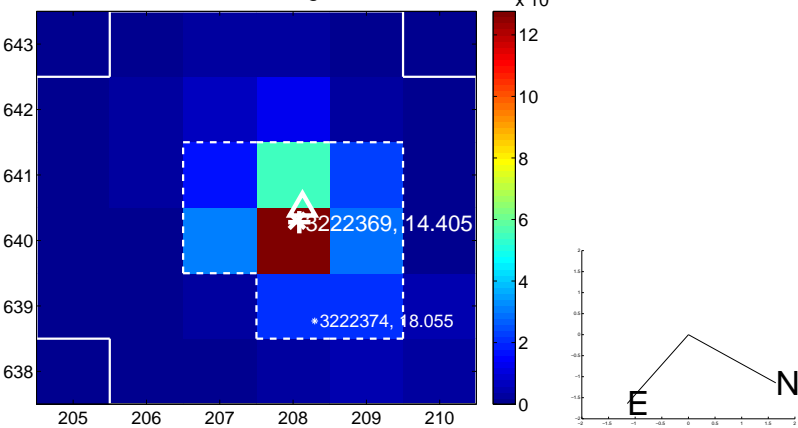
Q1 no OOT image



Q2 difference image



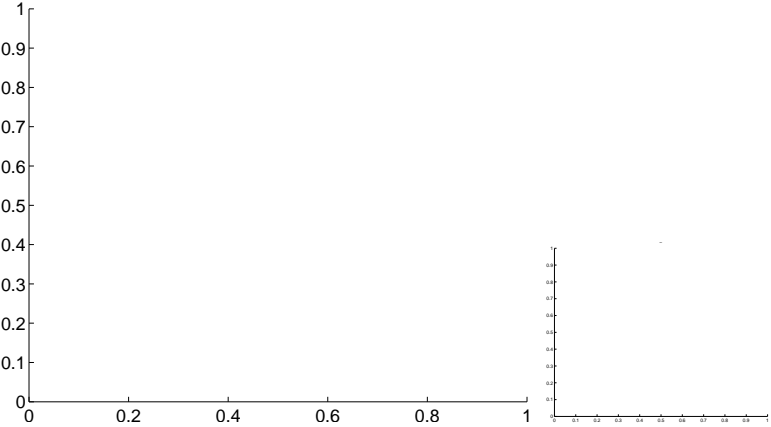
Q2 OOT image



Q3 no difference image



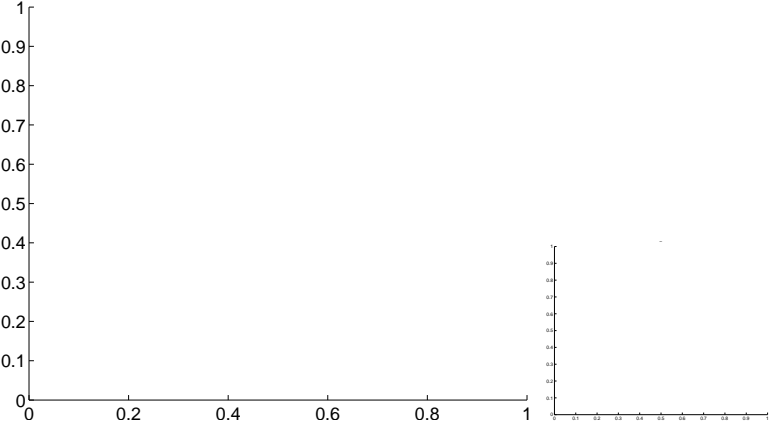
Q3 no OOT image



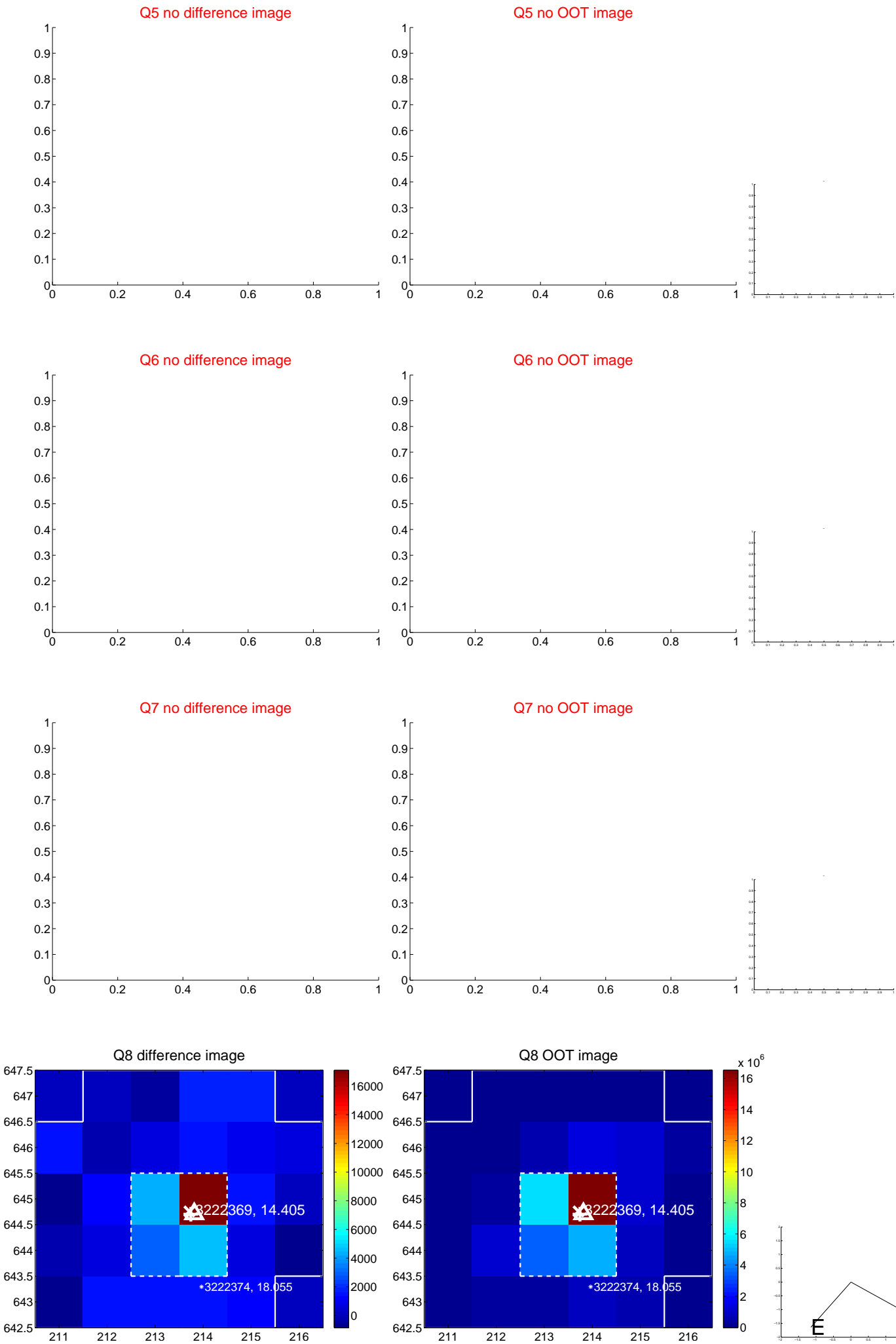
Q4 no difference image



Q4 no OOT image



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

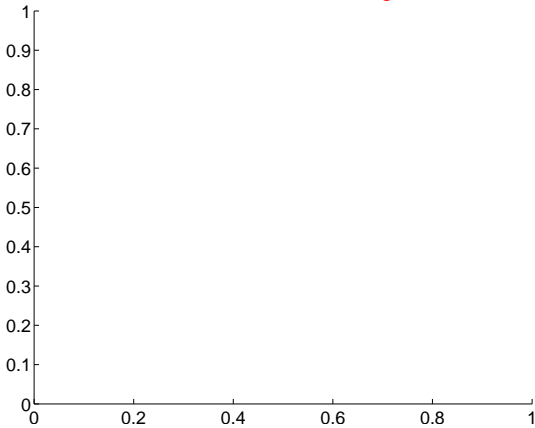


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

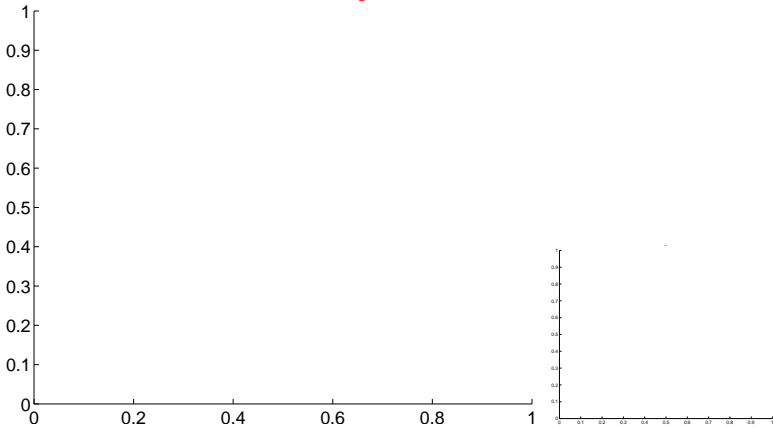


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

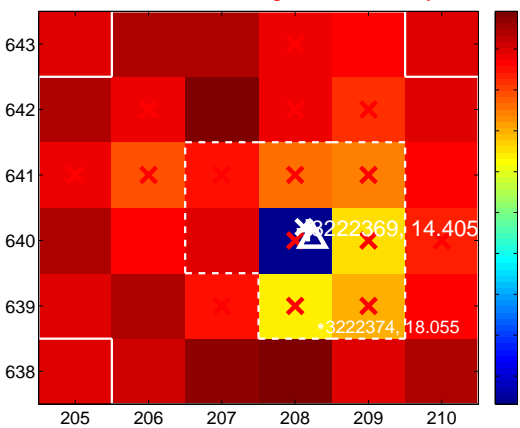
Q13 no difference image



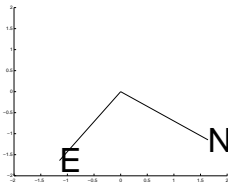
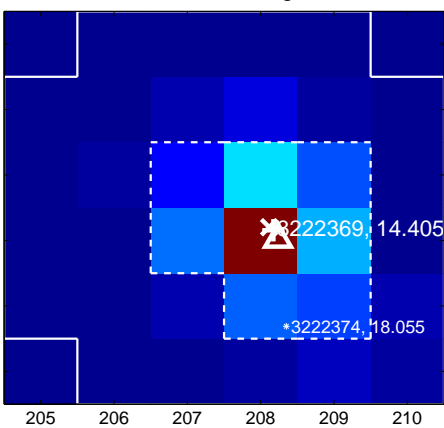
Q13 no OOT image



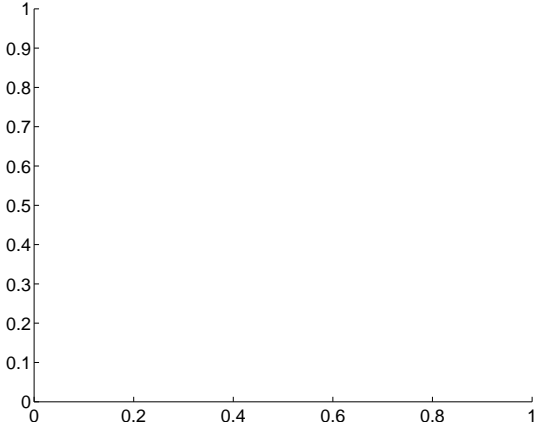
Q14 difference image. Poor Quality



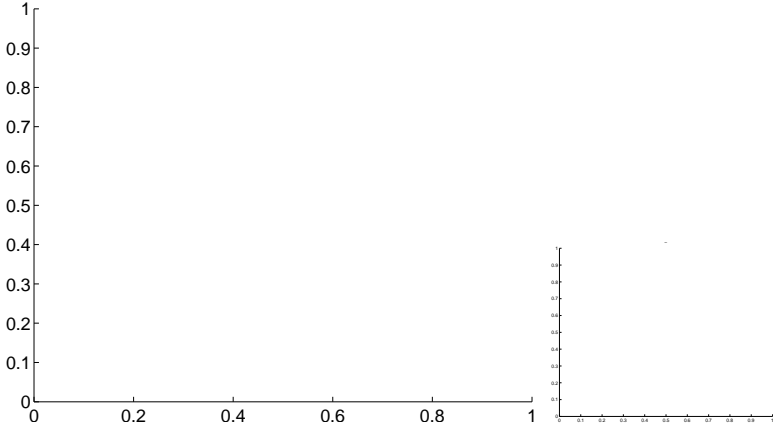
Q14 OOT image



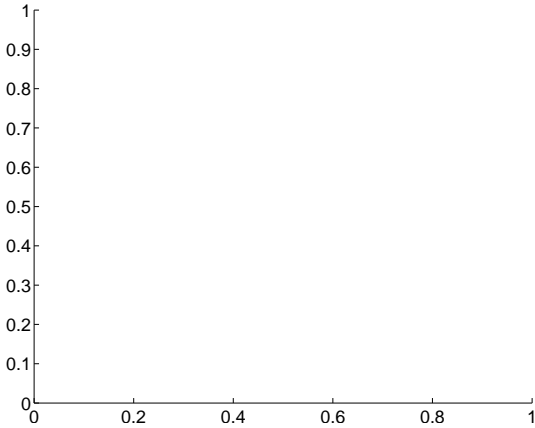
Q15 no difference image



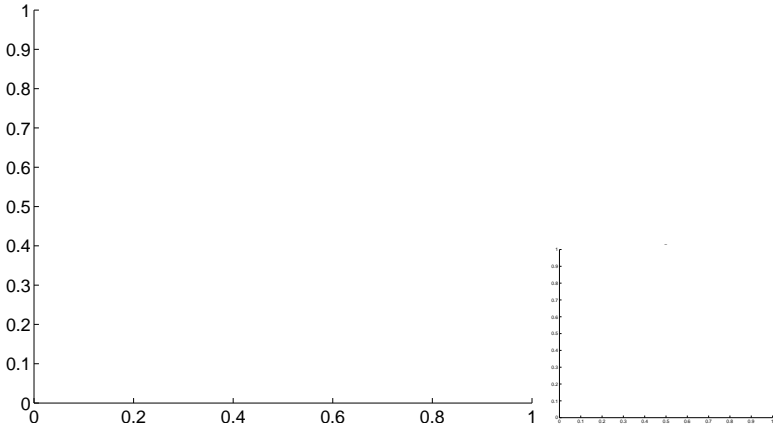
Q15 no OOT image



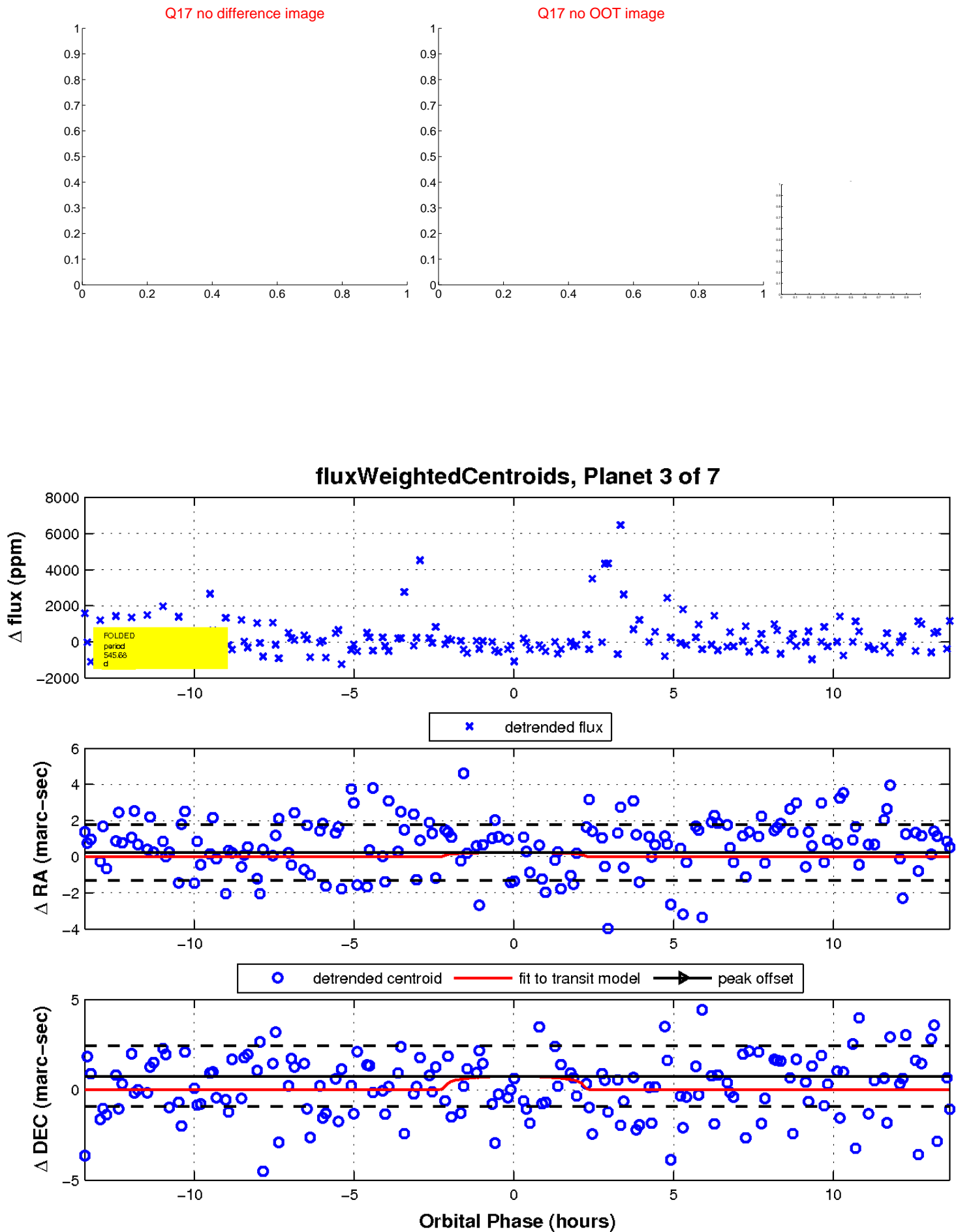
Q16 no difference image



Q16 no OOT image

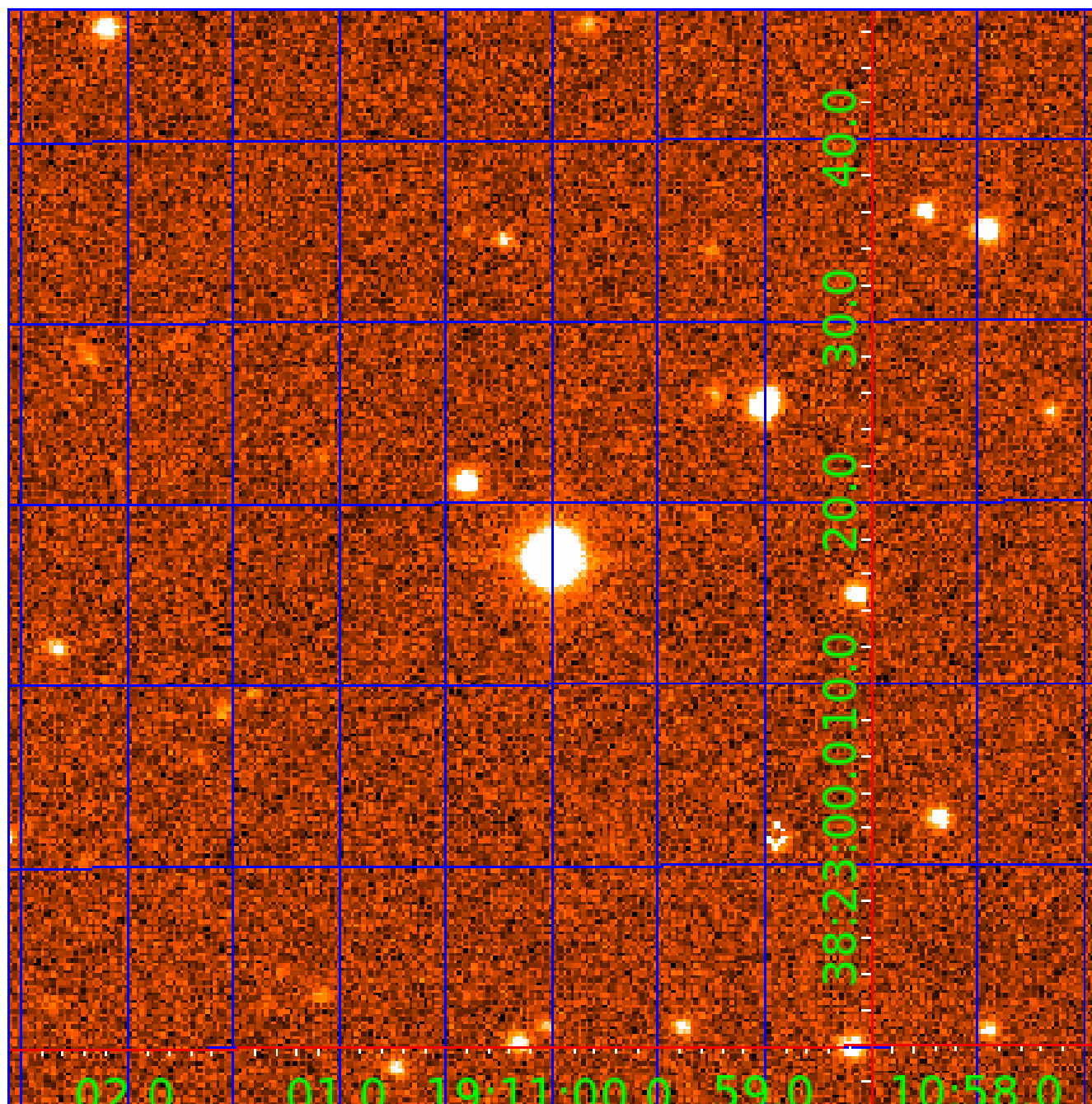


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003222369

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})
003222369-01	OBS	No	367.598366	212.518024	1966.4	6.379	18.9	10.3	0.65	4619	3.77	0.23
003222369-02	OBS	No	458.694719	250.711866	2044.9	8.283	14.6	9.3	0.65	4619	3.58	0.17
003222369-03	OBS	No	545.676981	208.472926	1187.1	4.560	14.8	5.9	0.65	4619	2.28	0.14
003222369-04	OBS	No	331.107752	424.070027	1525.4	2.090	14.1	8.5	0.65	4619	2.73	0.27
003222369-05	OBS	No	353.224935	398.170679	1608.5	8.333	15.5	7.8	0.65	4619	2.82	0.24
003222369-06	OBS	No	496.577603	362.877680	1225.1	7.766	16.0	6.0	0.65	4619	2.37	0.15
003222369-07	OBS	No	410.959759	341.642914	841.2	10.500	14.5	-1.0	0.65	4619	1.81	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003222369-01	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—INCONSISTENT_TRANS
003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003222369-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

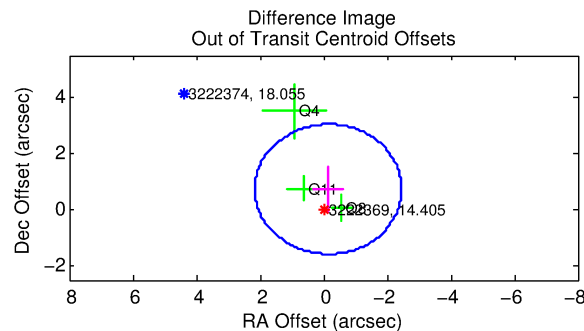
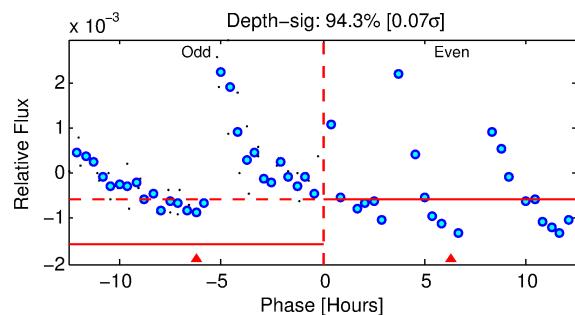
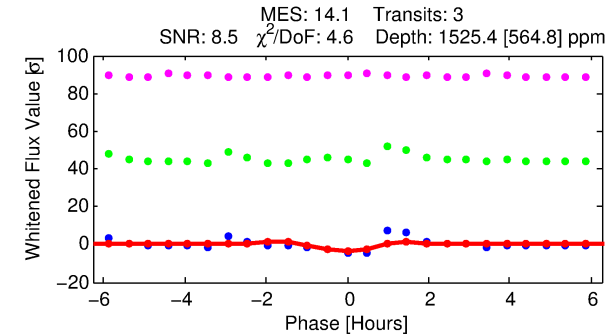
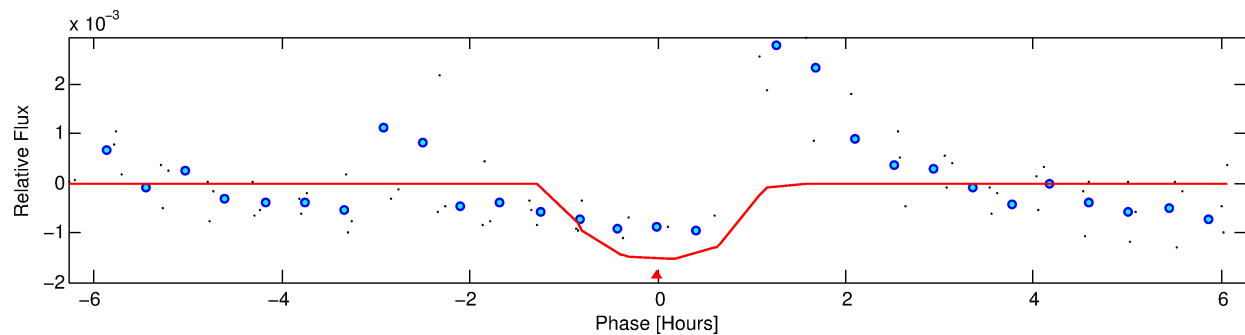
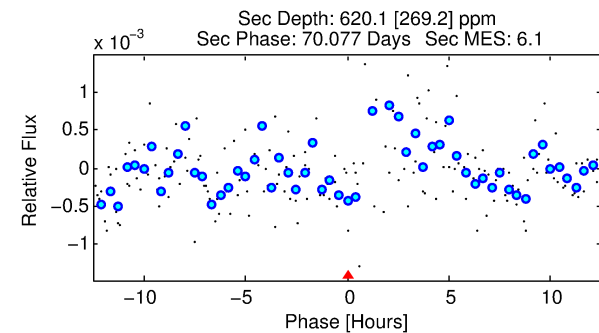
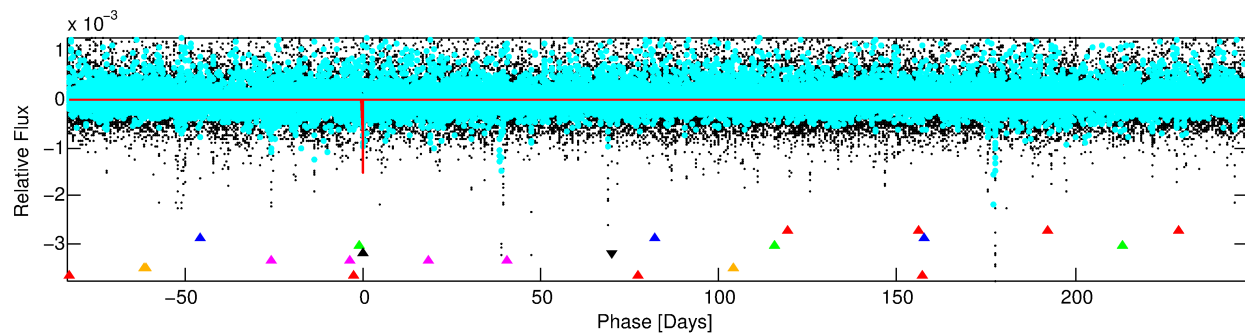
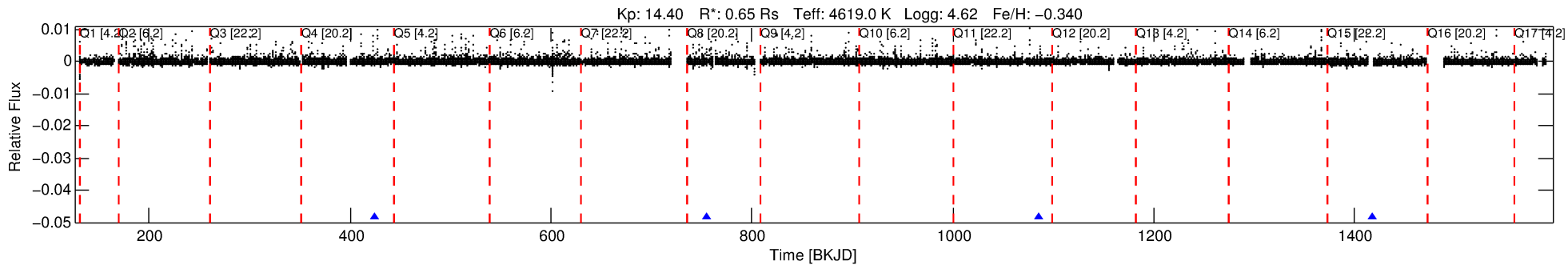
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-04

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 4 of 7 Period: 331.108 d



DV Fit Results:

Period = 331.10775 [0.00876] d
Epoch = 424.0700 [0.0136] BKJD
Rp/R* = 0.0386 [0.2287]
a/R* = 915.58 [17855.50]
b = 0.71 [14.02]
Seff = 0.27 [0.04]
Teff = 183 [7] K
Rp = 2.73 [16.22] Re
a = 0.8053 [0.0570] AU
Ag = 29586.63 [351236.90] [0.08σ]
Teffp = 3712 [11018] K [0.32σ]

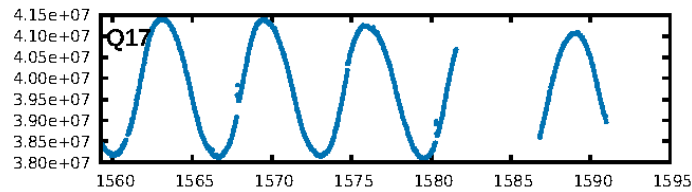
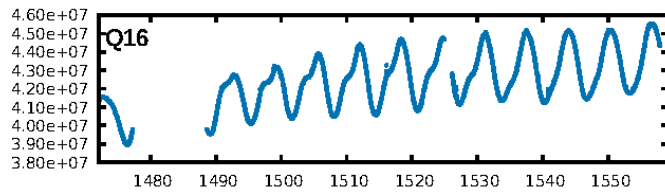
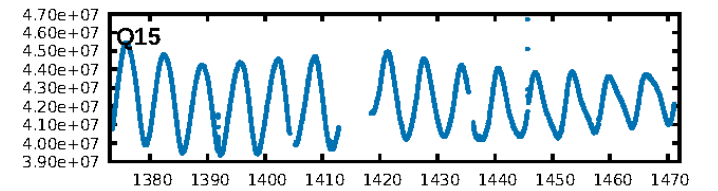
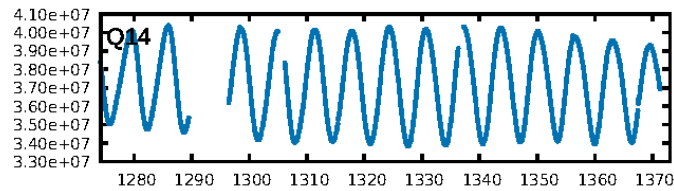
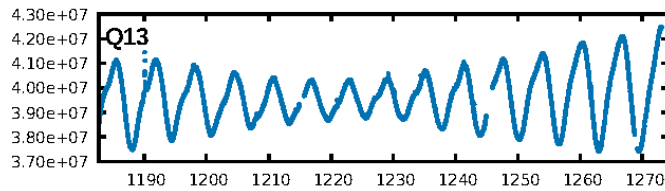
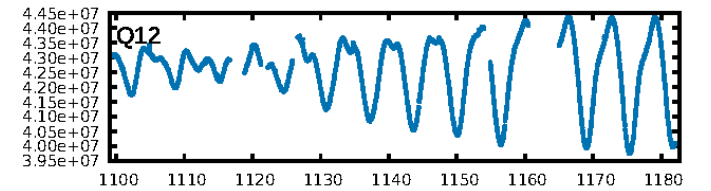
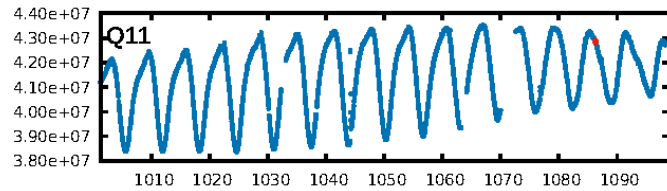
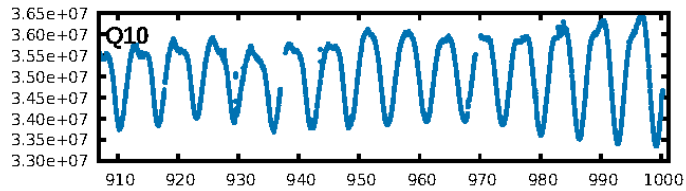
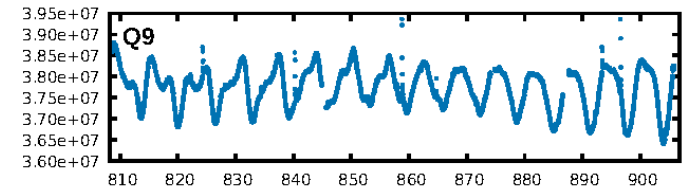
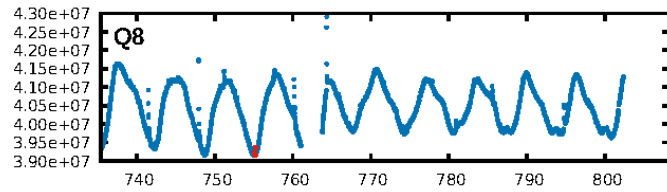
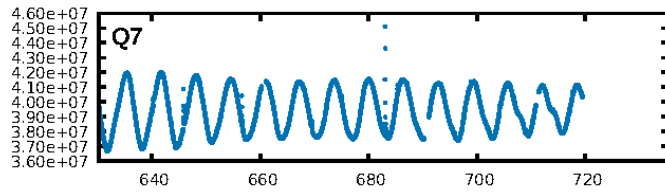
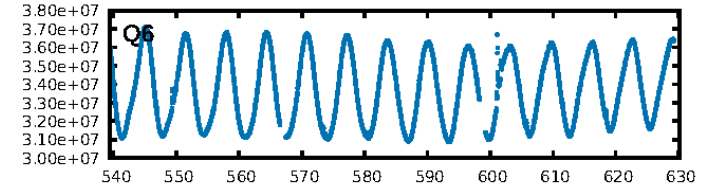
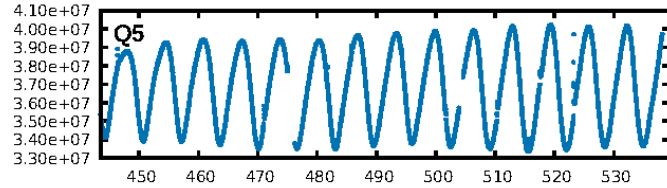
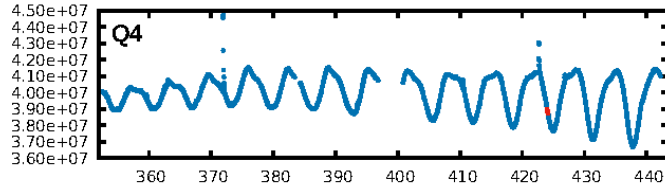
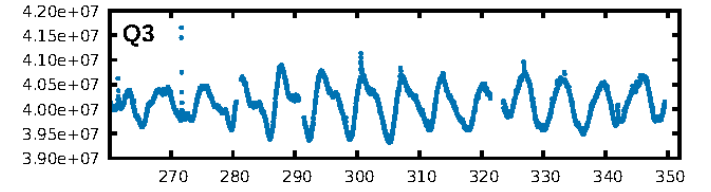
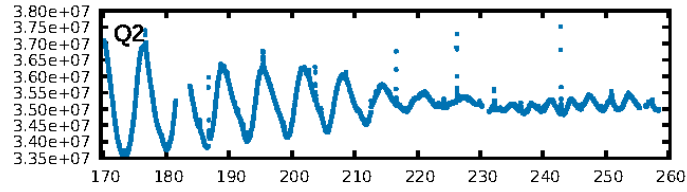
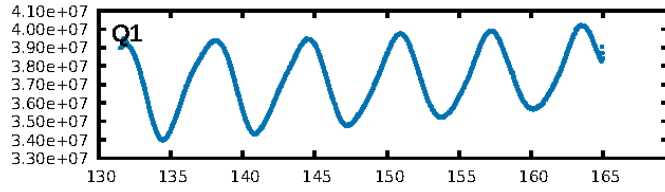
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [61.78σ]
ModelChiSquare2-sig: 2.7%
ModelChiSquareGof-sig: 22.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3521
Centroid-sig: 70.1%
Centroid-so: 0.615 arcsec [0.58σ]
OotOffset-rm: 0.746 arcsec [0.97σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-rm: 0.859 arcsec [1.02σ]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

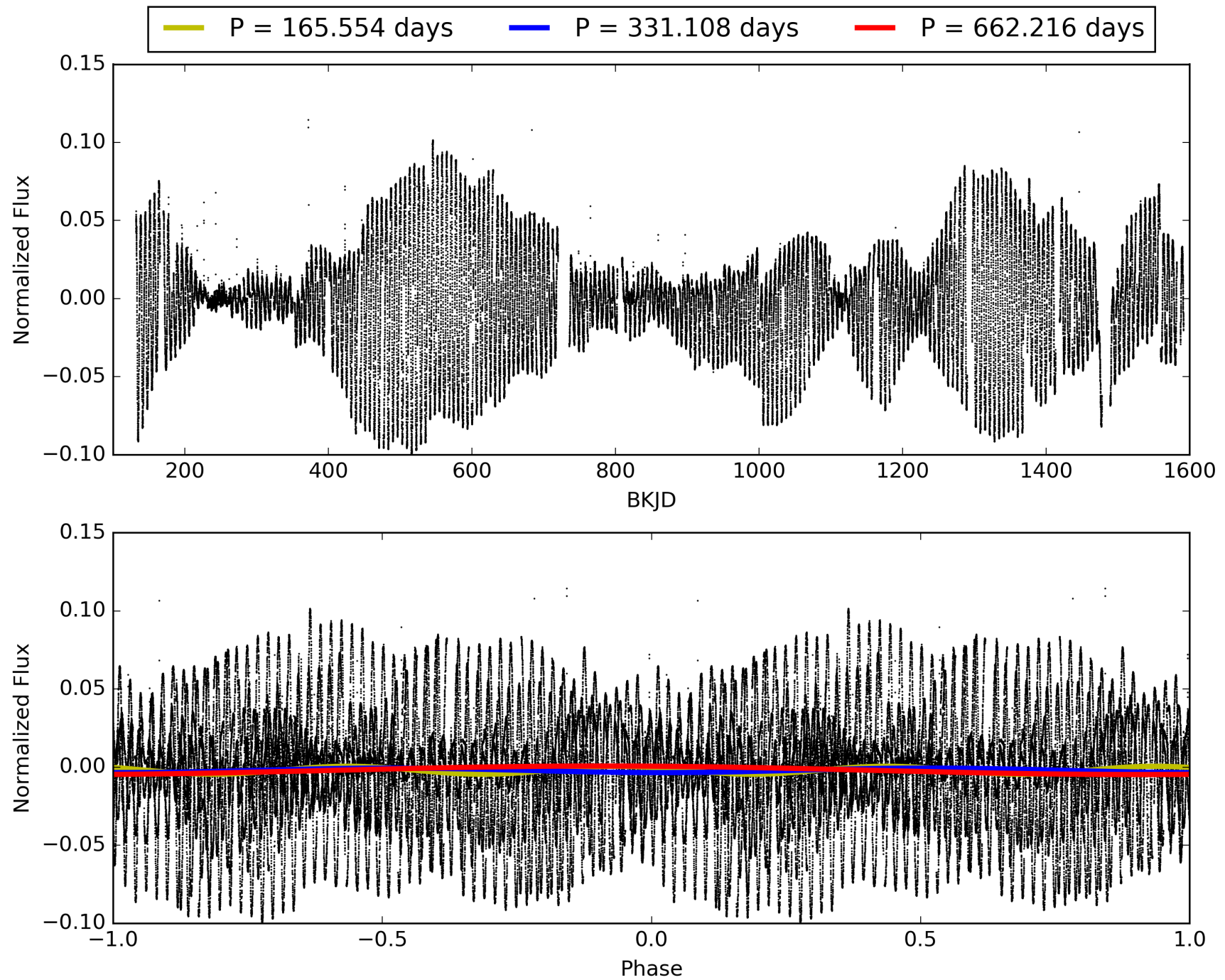
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:28:13 Z

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

TCE 003222369-04, PDC Light Curves

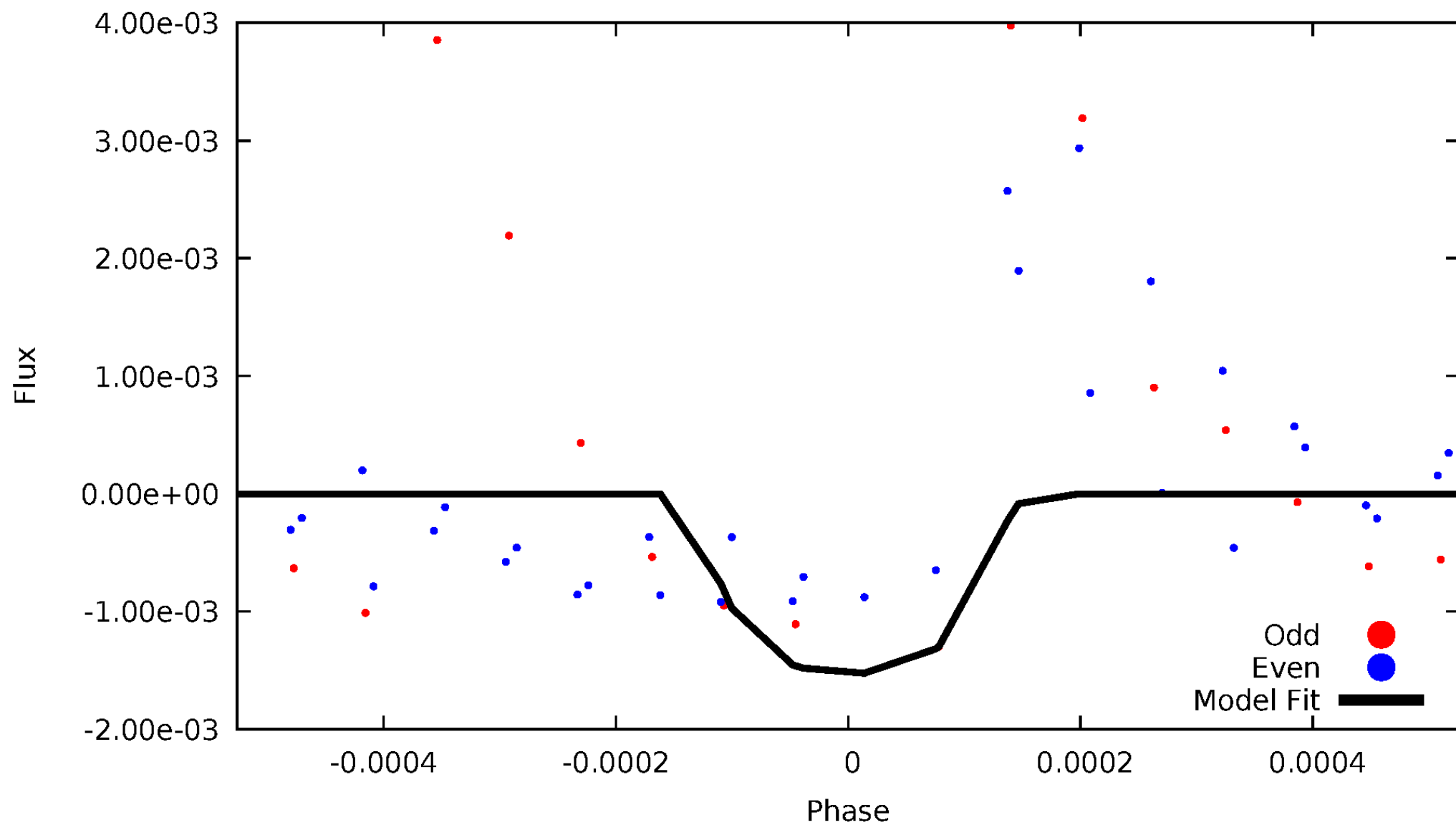


TCE 003222369-04



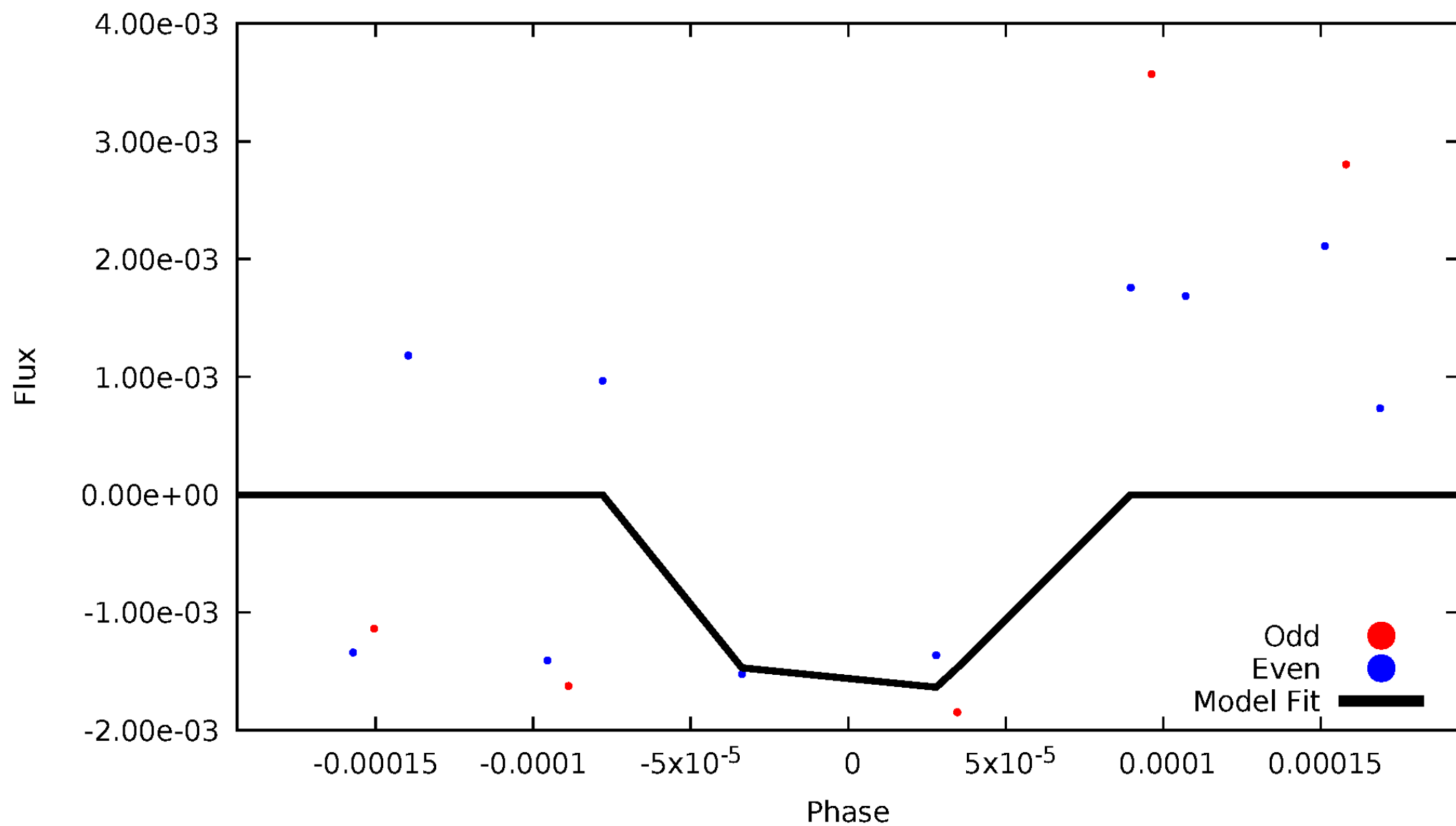
DV Odd/Even

TCE 003222369-04



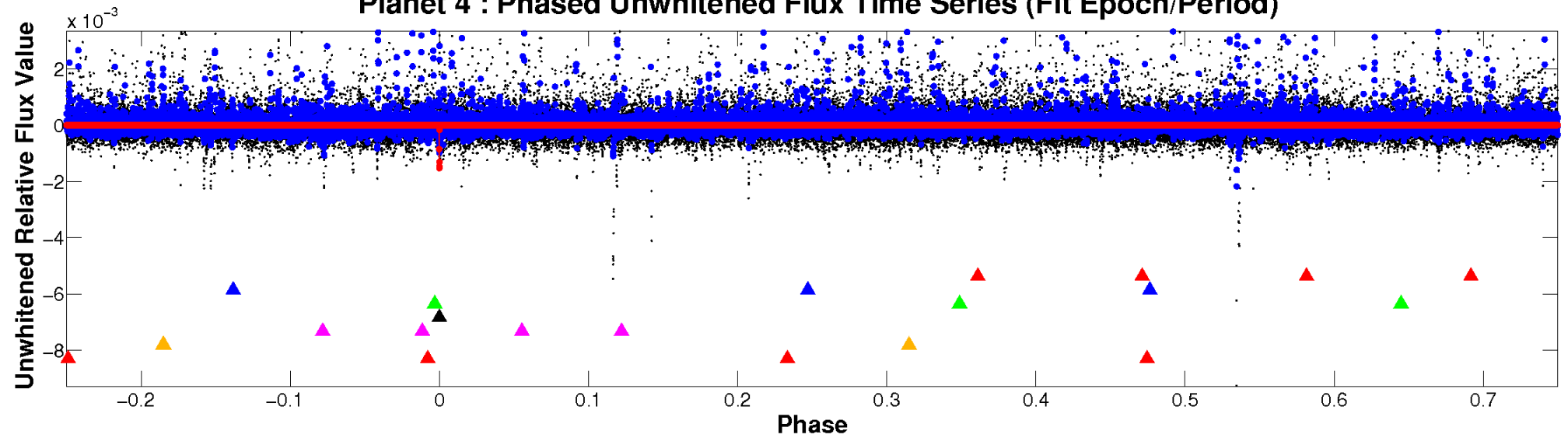
ALT Odd/Even

TCE 003222369-04

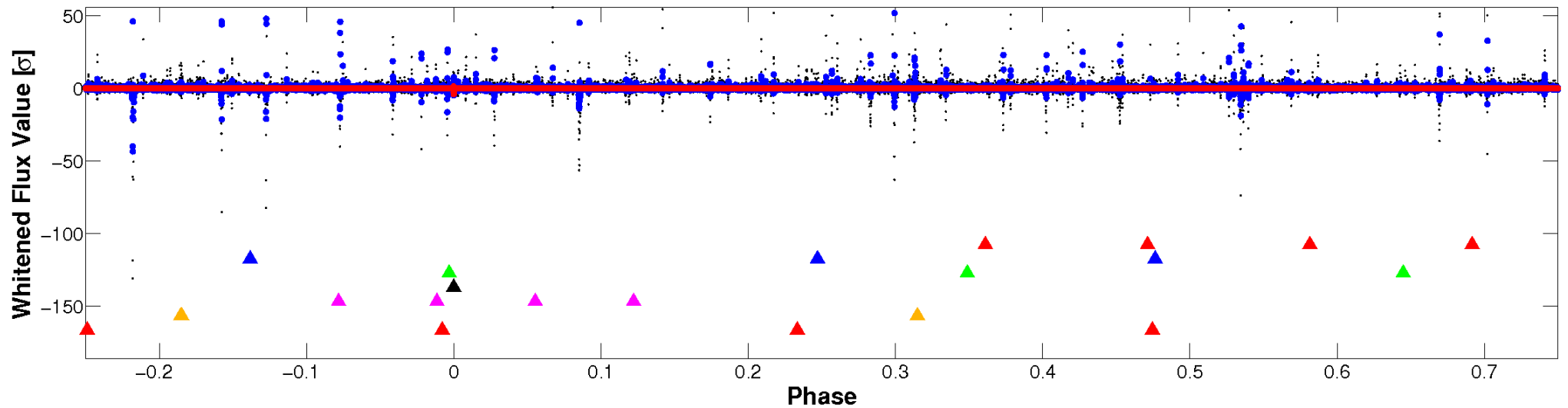


Non-Whitened Vs. Whitened Light Curve

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

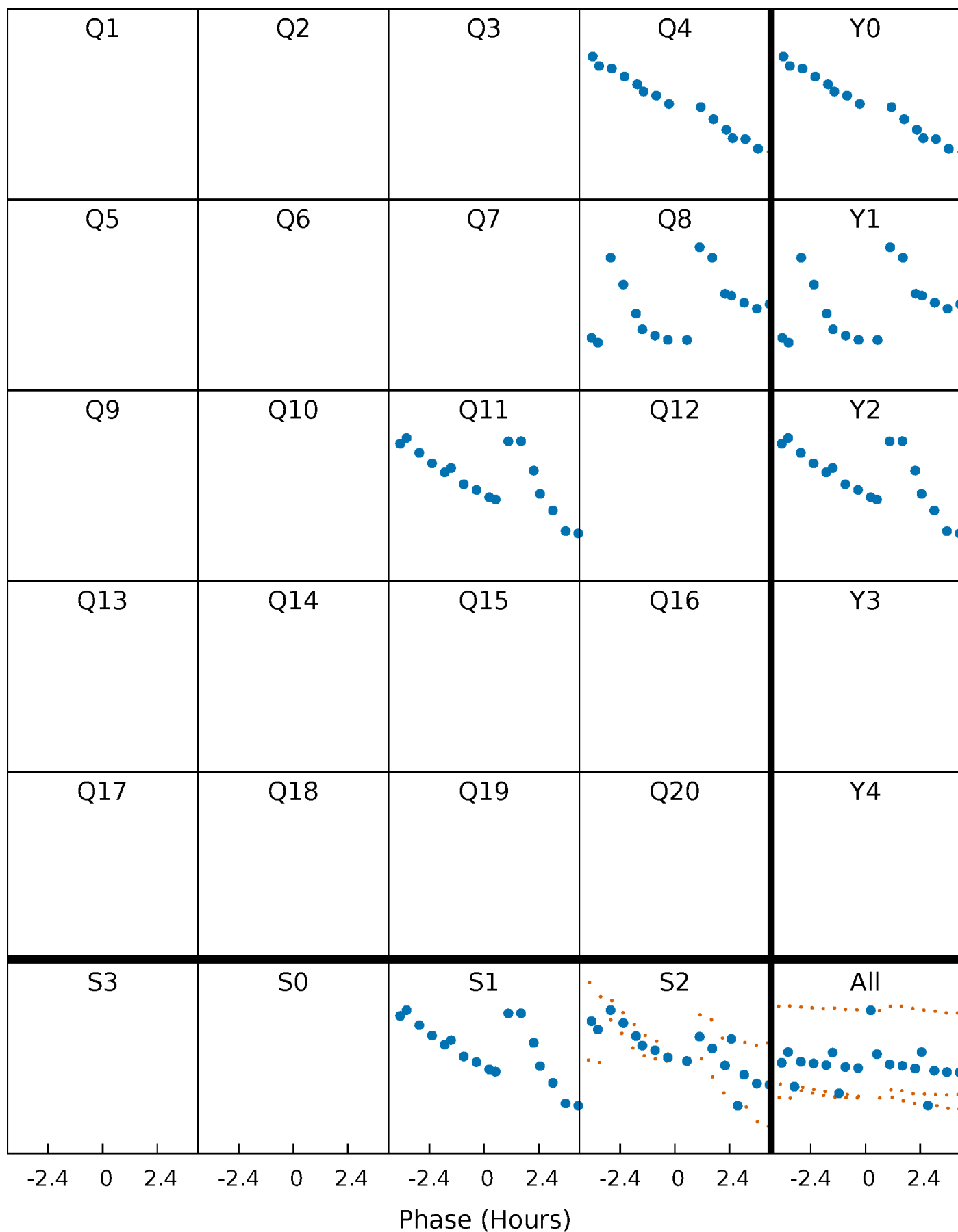


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



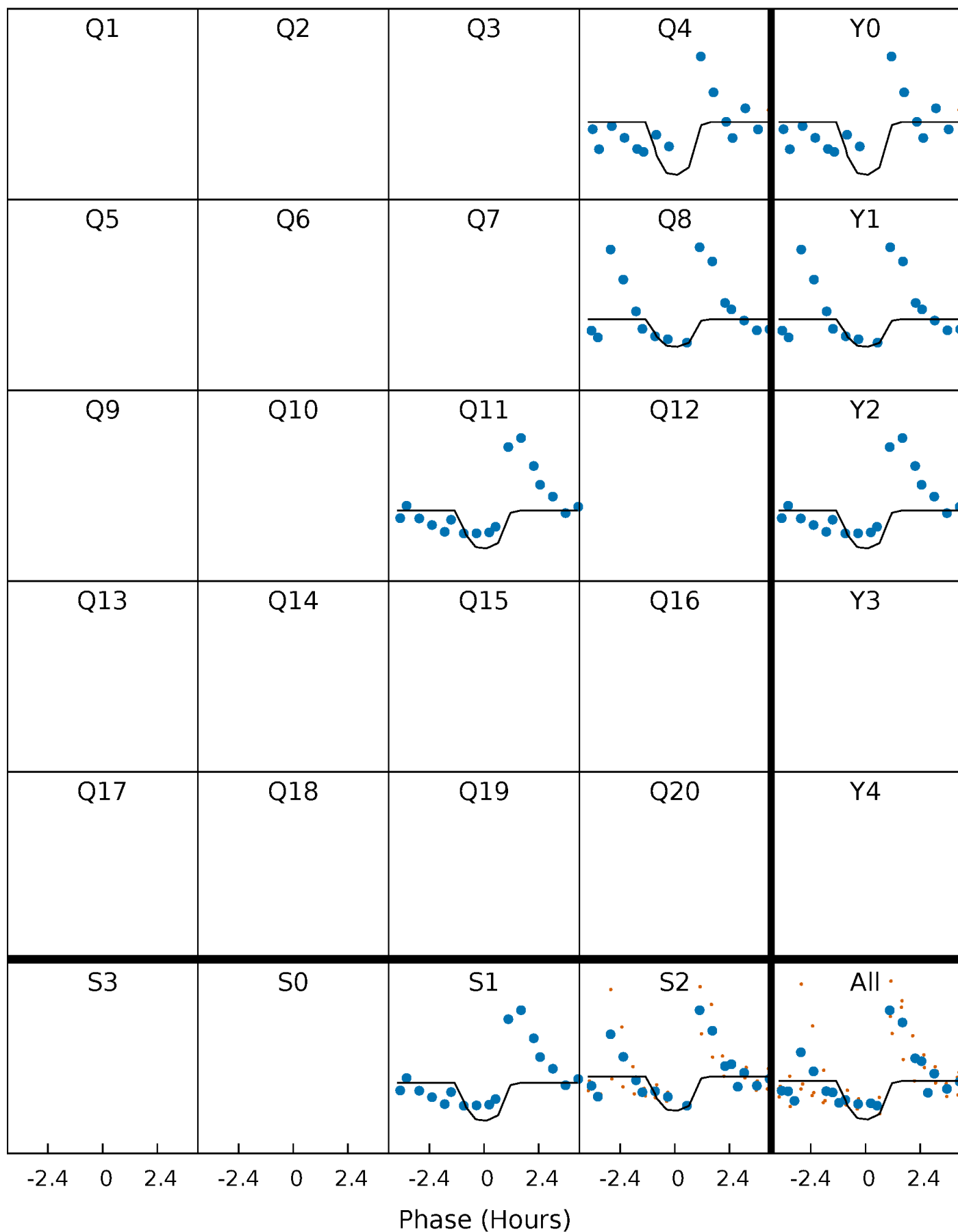
PDC Quarter-Phased Transit Curves

TCE 003222369-04 P=331.107752 Days $T_0=424.070027$ (BKJD)



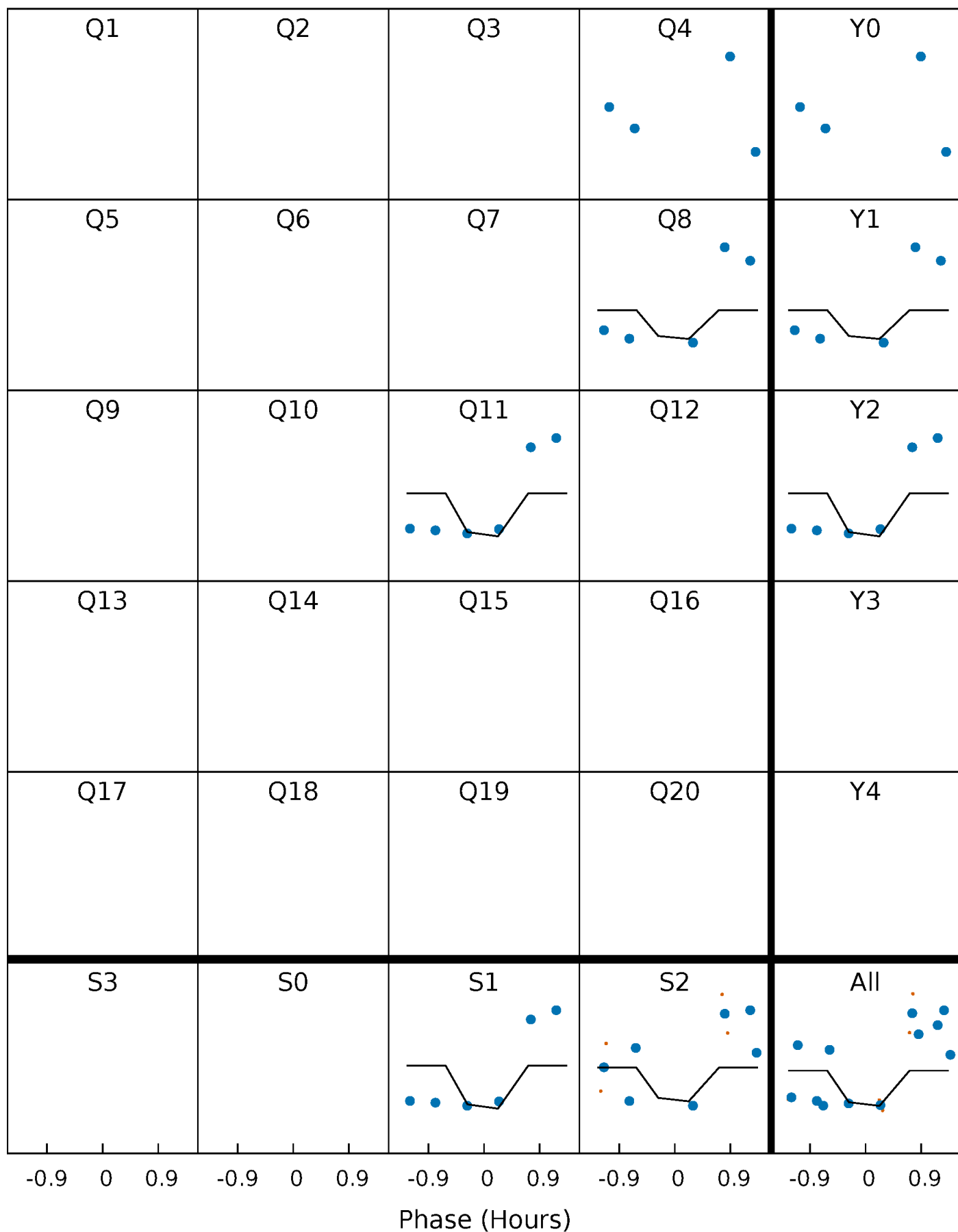
DV Quarter-Phased Transit Curves

TCE 003222369-04 $P=331.107752$ Days $T_0=424.070027$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

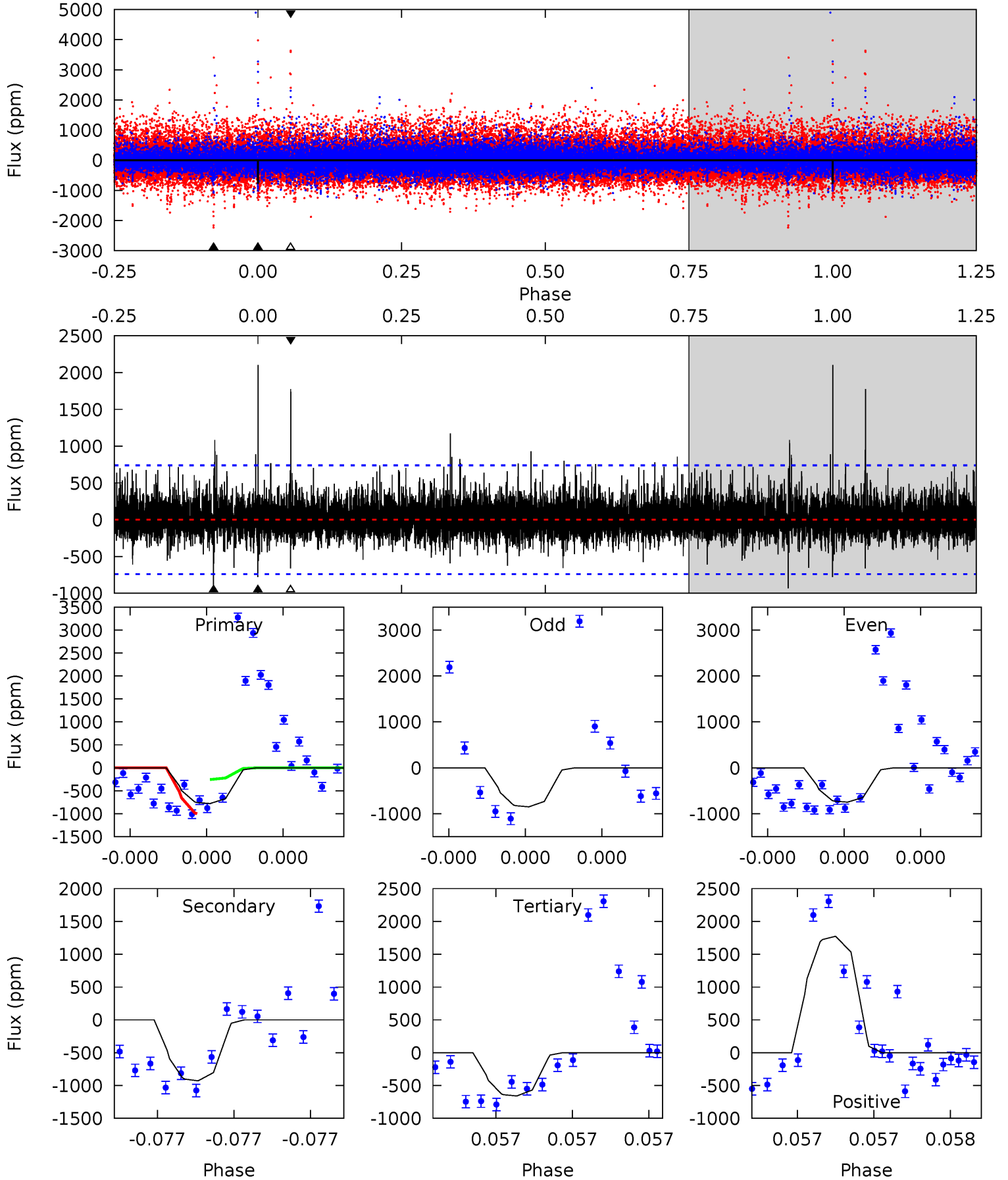
TCE 003222369-04 P=331.109072 Days $T_0=424.083100$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-04, P = 331.107752 Days, E = 92.962275 Days

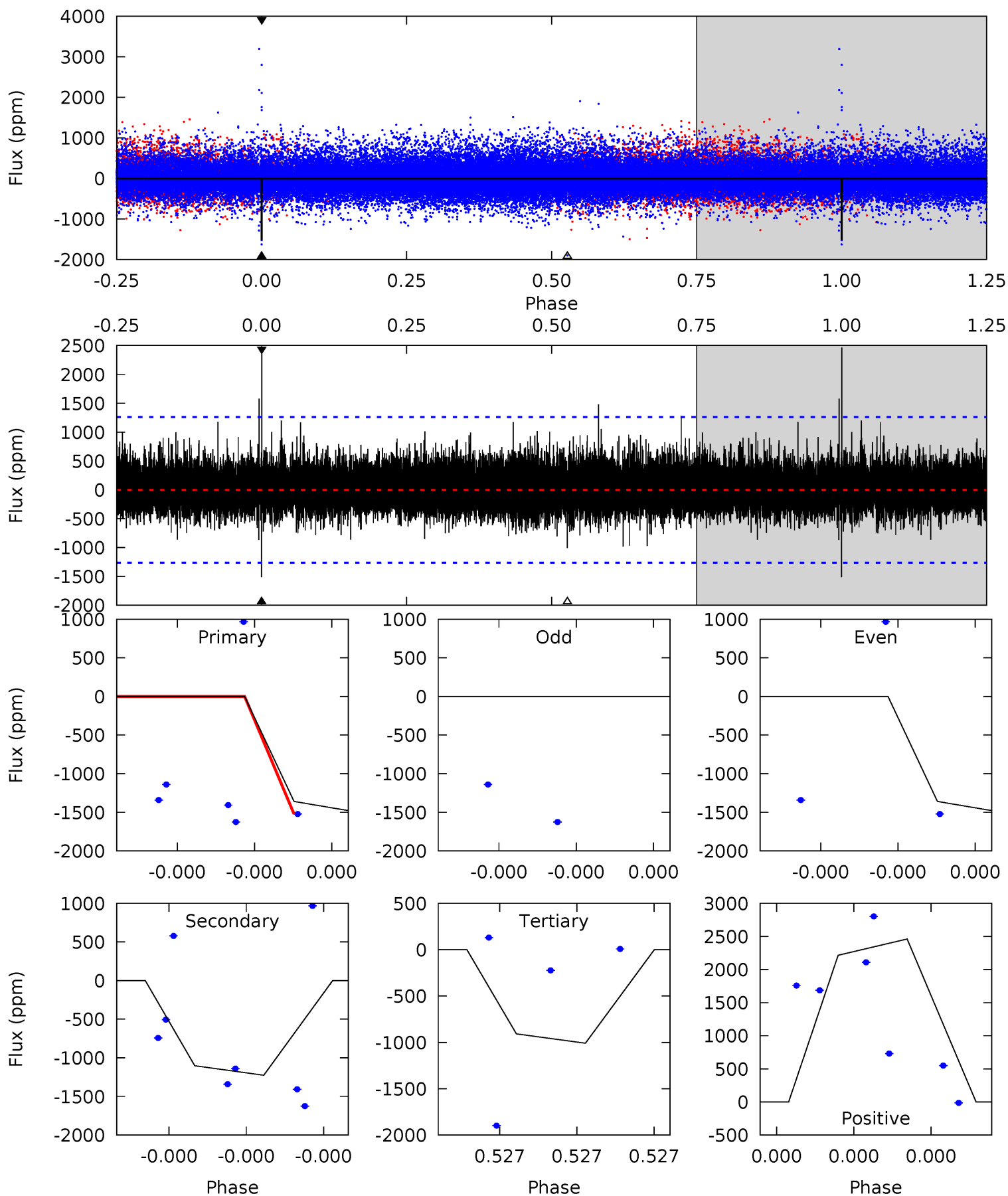
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.95	7.11	5.04	13.6	5.66	3.61	1.23	0.91	-7.61	2.07	-6.45	0.24	1.04	0.69	2.84



Alt Model-Shift Uniqueness Test

003222369-04, P = 331.109072 Days, E = 92.974028 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.08	5.74	4.72	11.5	5.91	3.98	1.00	2.35	-4.45	1.02	-5.78	0	1.00	0.62	0.37



Stellar Parameters For KIC 003222369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-930 ± 131	$12.32^{+12.32}_{-8.47}$	255^{+8}_{-9}	2661^{+1076}_{-409}	2119^{+21321}_{-1589}
Alt.	-1226 ± 214	$12.61^{+14.68}_{-8.81}$	254^{+8}_{-9}	2732^{+1184}_{-456}	2662^{+27075}_{-2076}

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

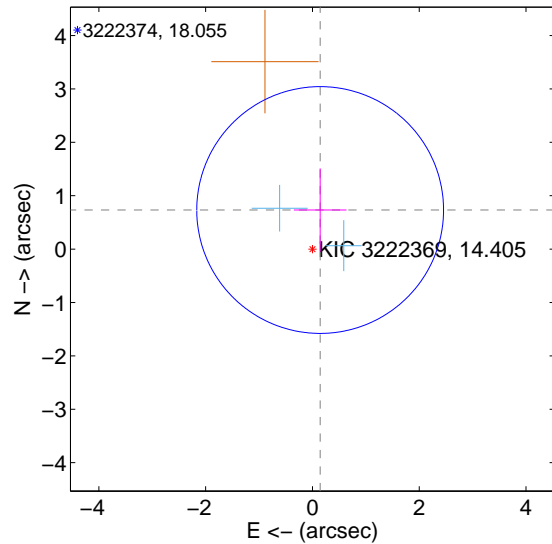
Supplemental centroid analysis for 003222369-04. Kepler magnitude: 14.40. Transit SNR 8.45

There are 2 quarters with good PRF difference image offsets

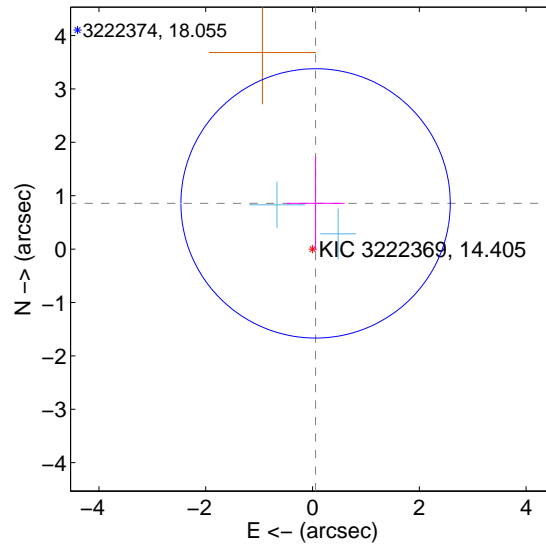
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.746 ± 0.771	0.97	-0.145 ± 0.493	0.732 ± 0.779
PRF-fit source offset from KIC position	0.859 ± 0.841	1.02	-0.057 ± 0.544	0.857 ± 0.876
photometric centroid source offset	0.61 ± 1.05	0.58	0.21 ± 1.12	0.58 ± 1.05

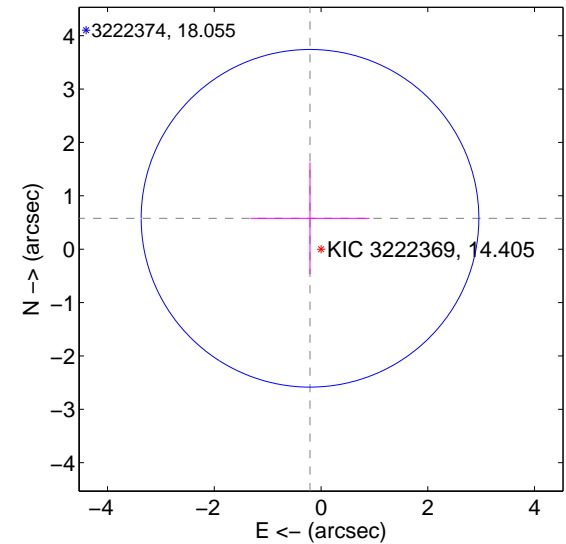
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

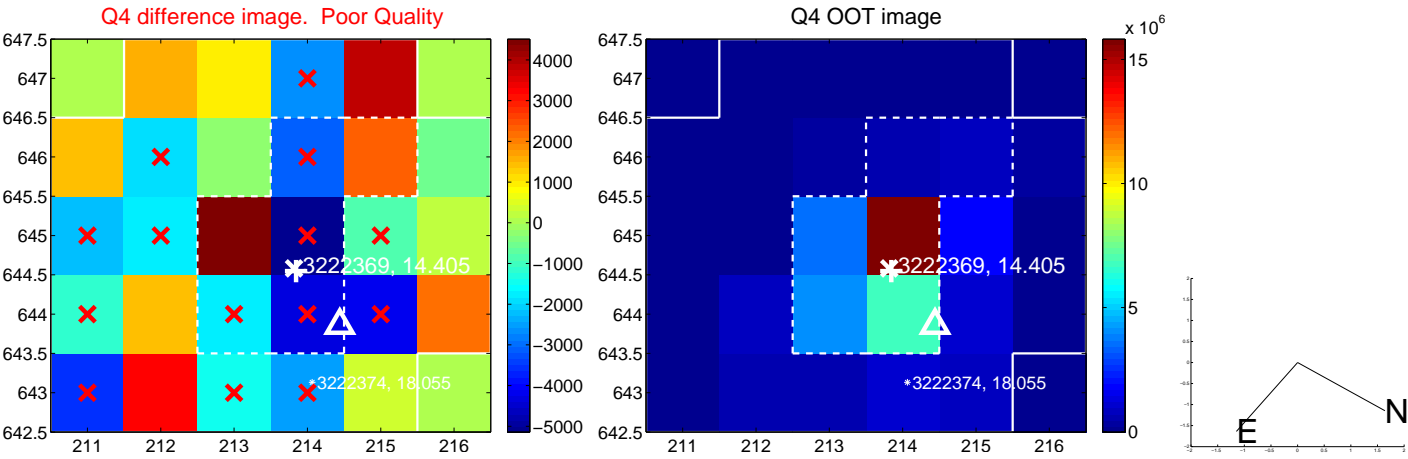
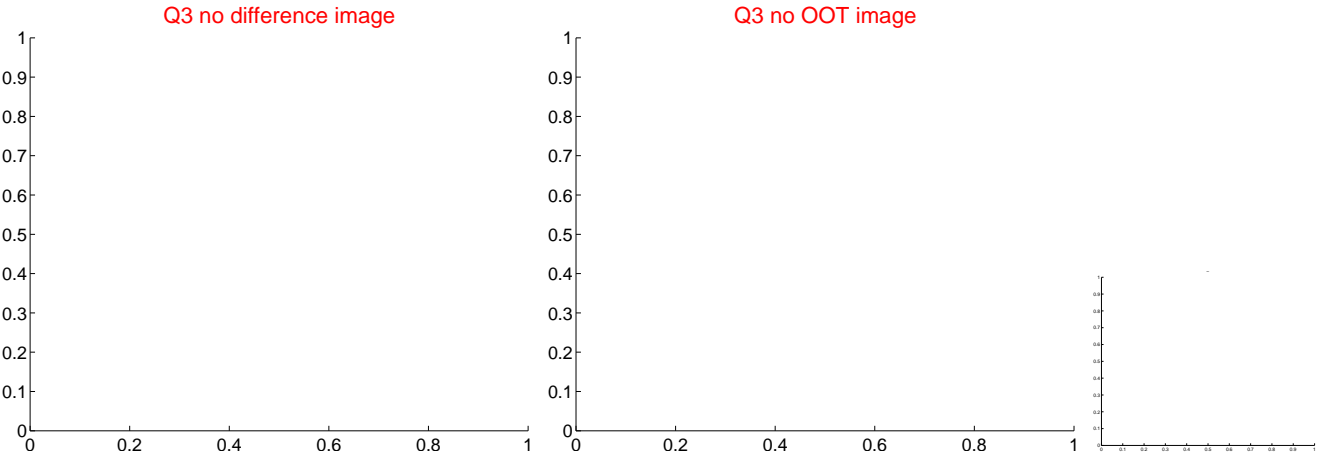
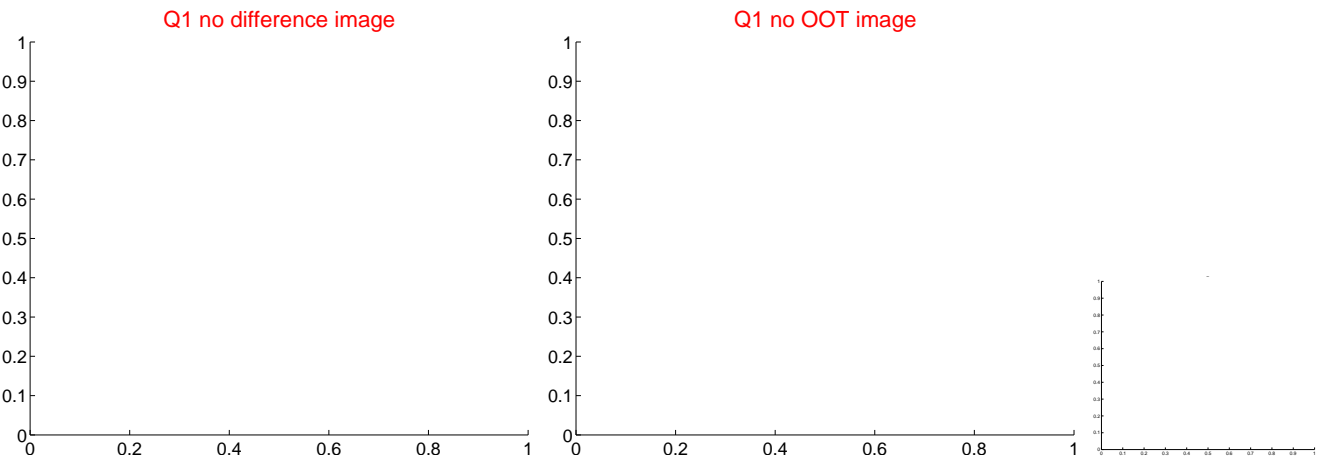


offset from photometric centroids

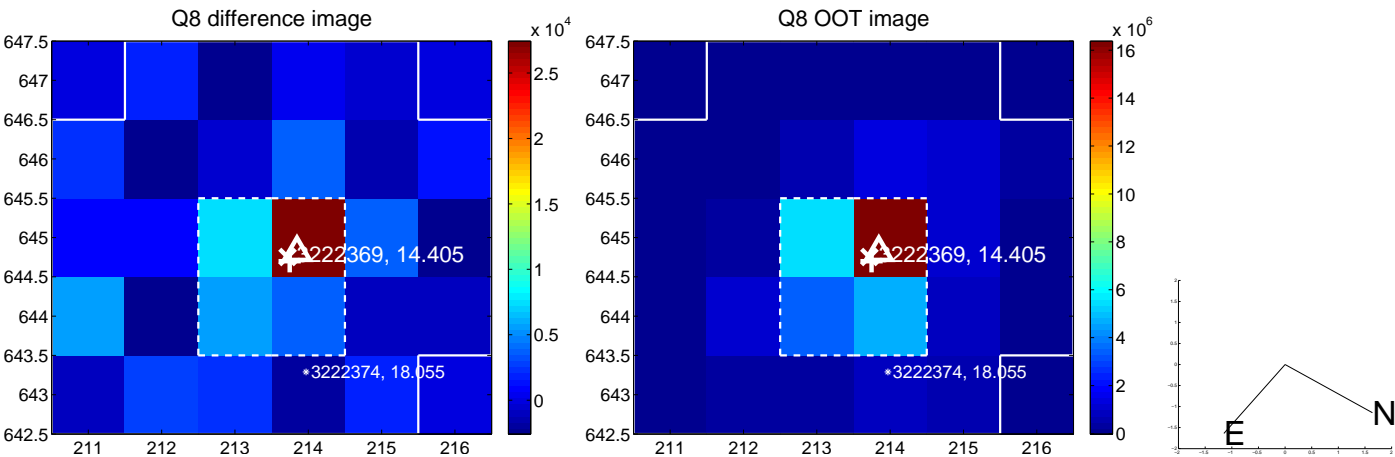


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

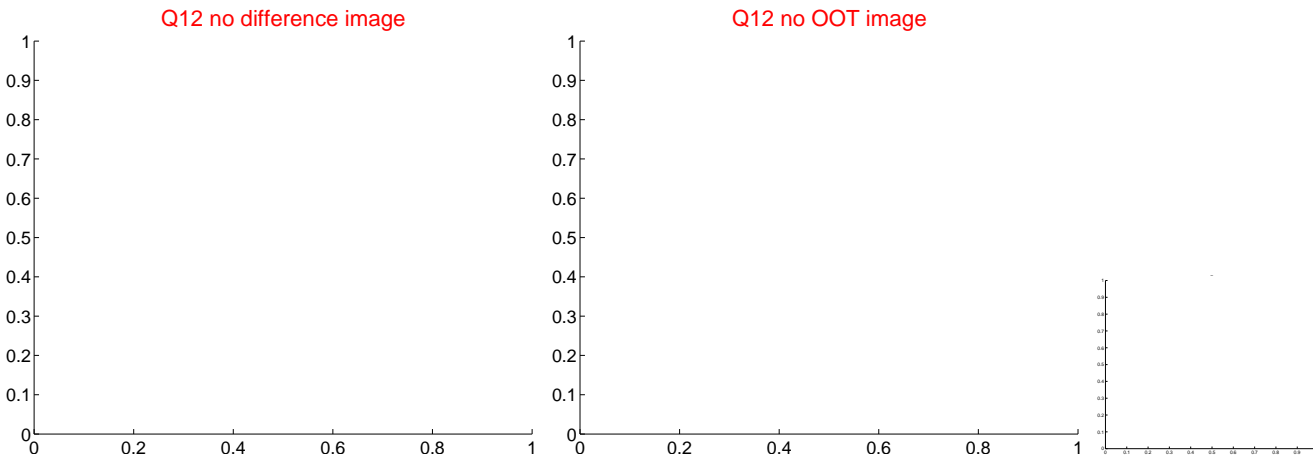
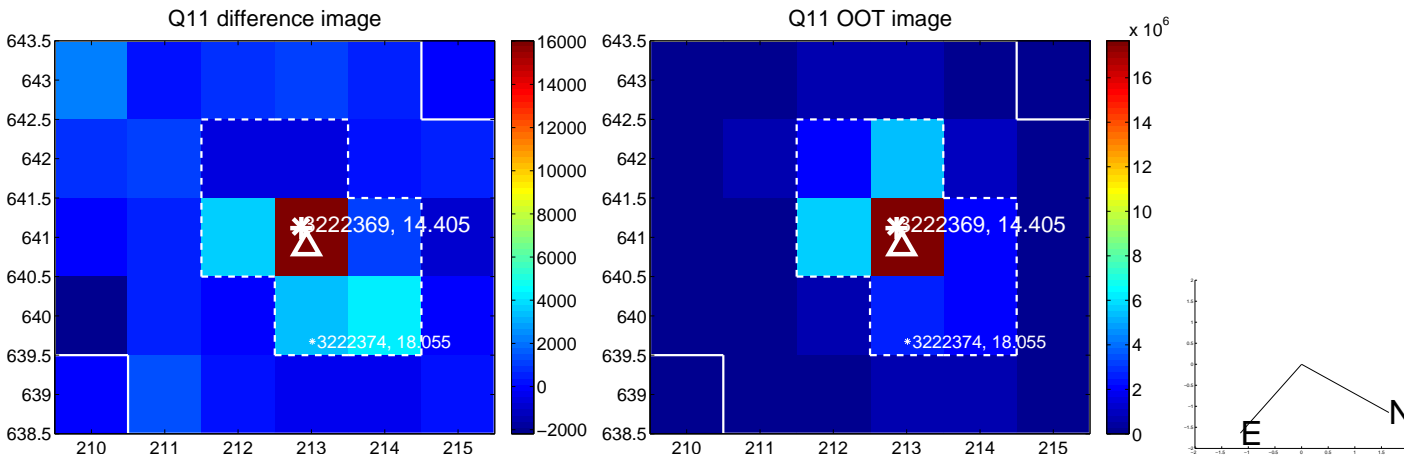
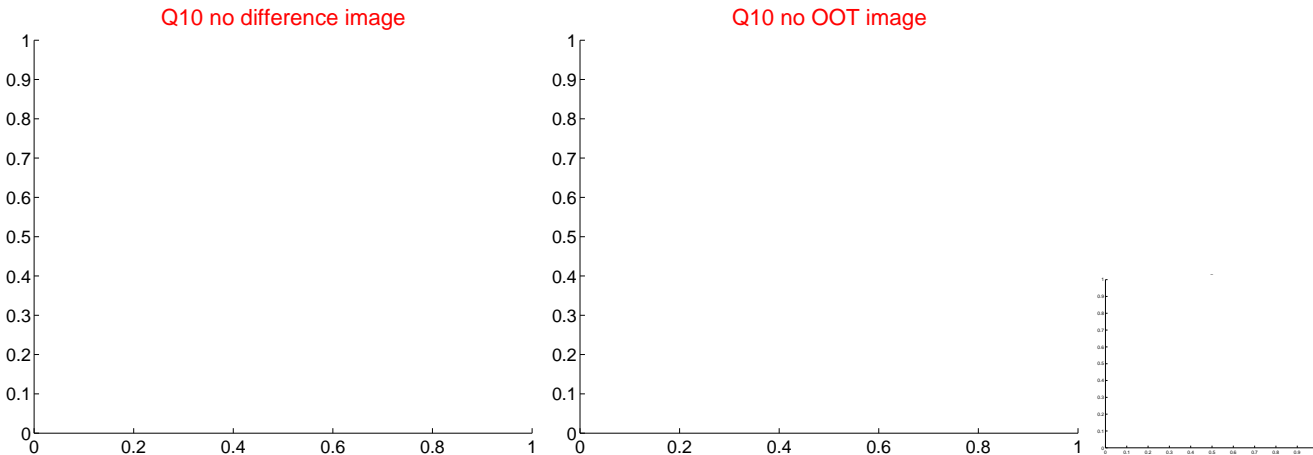
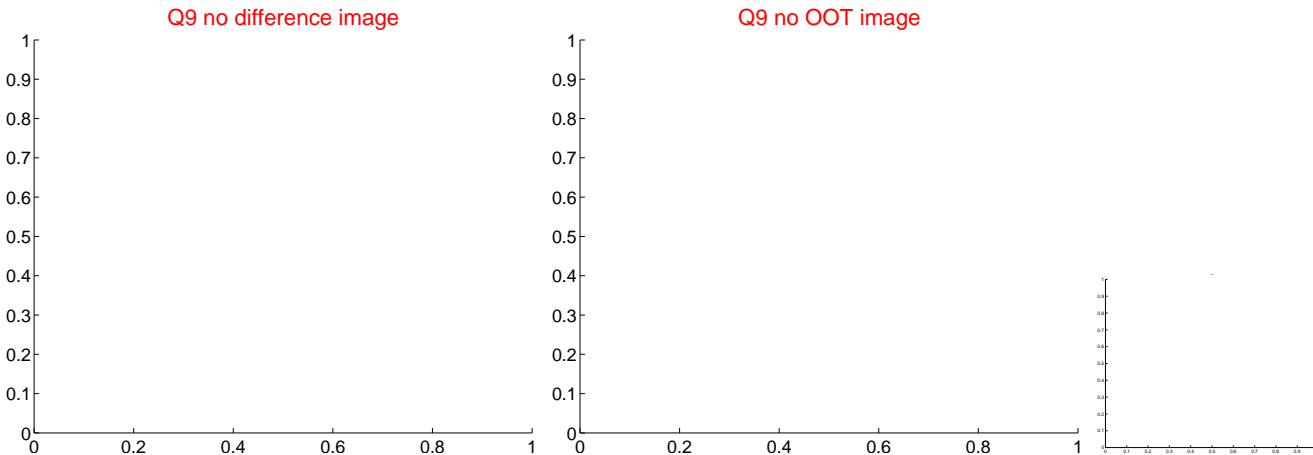
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



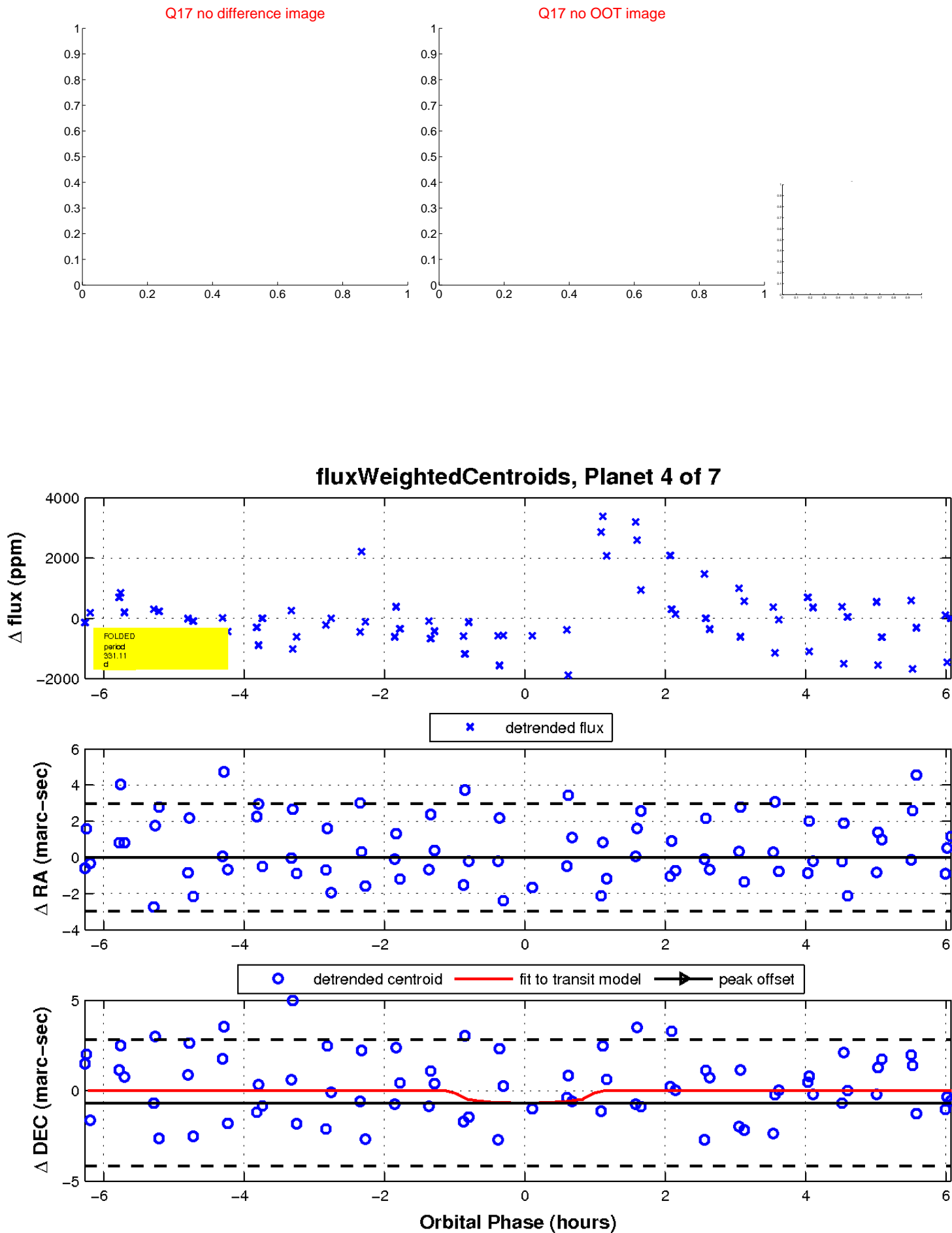
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

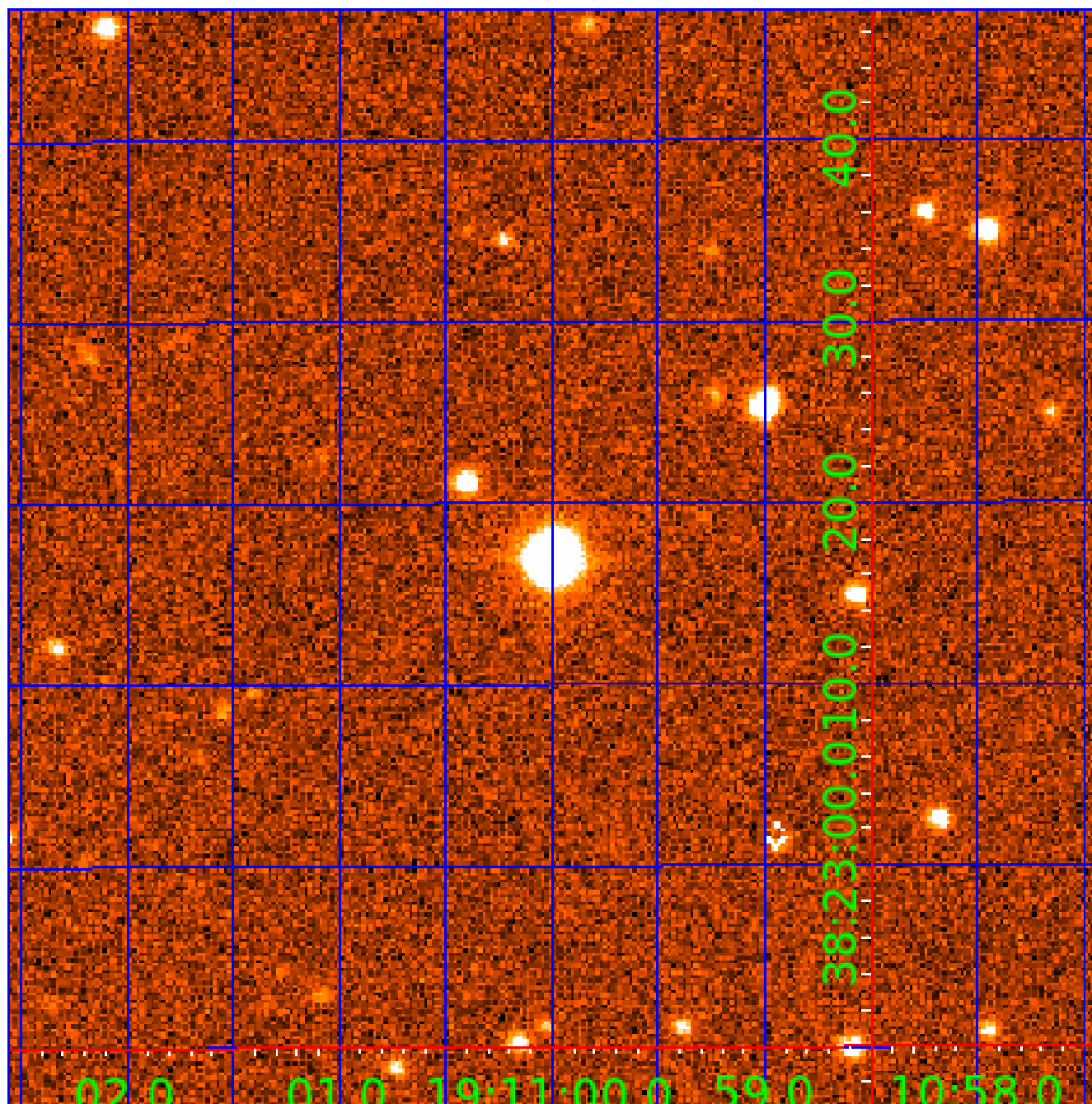


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003222369

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})
003222369-01	OBS	No	367.598366	212.518024	1966.4	6.379	18.9	10.3	0.65	4619	3.77	0.23
003222369-02	OBS	No	458.694719	250.711866	2044.9	8.283	14.6	9.3	0.65	4619	3.58	0.17
003222369-03	OBS	No	545.676981	208.472926	1187.1	4.560	14.8	5.9	0.65	4619	2.28	0.14
003222369-04	OBS	No	331.107752	424.070027	1525.4	2.090	14.1	8.5	0.65	4619	2.73	0.27
003222369-05	OBS	No	353.224935	398.170679	1608.5	8.333	15.5	7.8	0.65	4619	2.82	0.24
003222369-06	OBS	No	496.577603	362.877680	1225.1	7.766	16.0	6.0	0.65	4619	2.37	0.15
003222369-07	OBS	No	410.959759	341.642914	841.2	10.500	14.5	-1.0	0.65	4619	1.81	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003222369-01	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—INCONSISTENT_TRANS
003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003222369-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

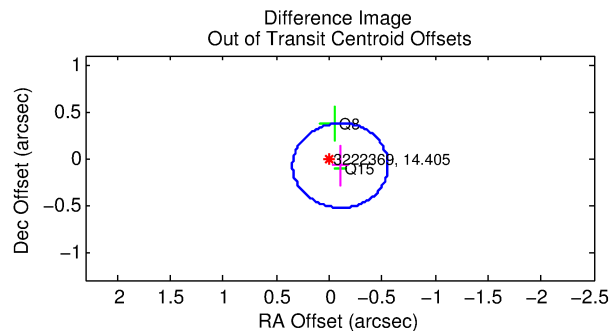
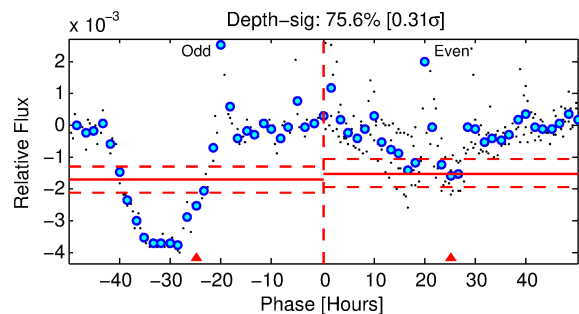
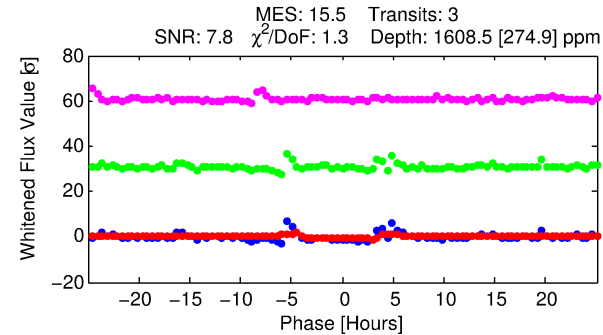
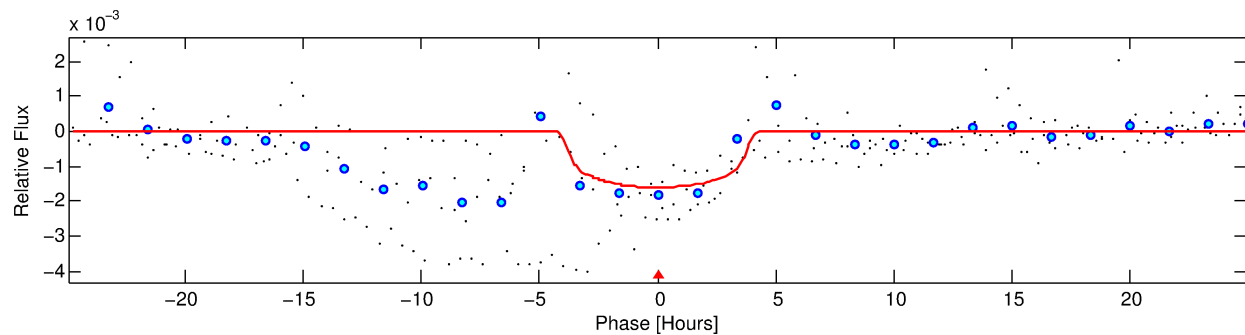
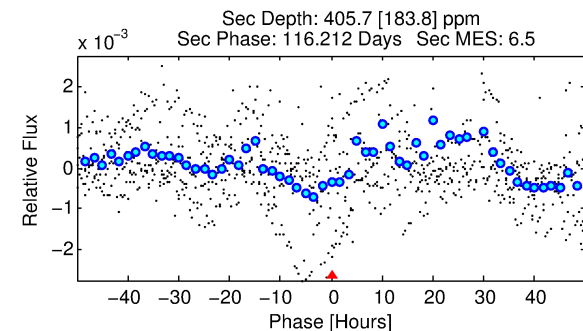
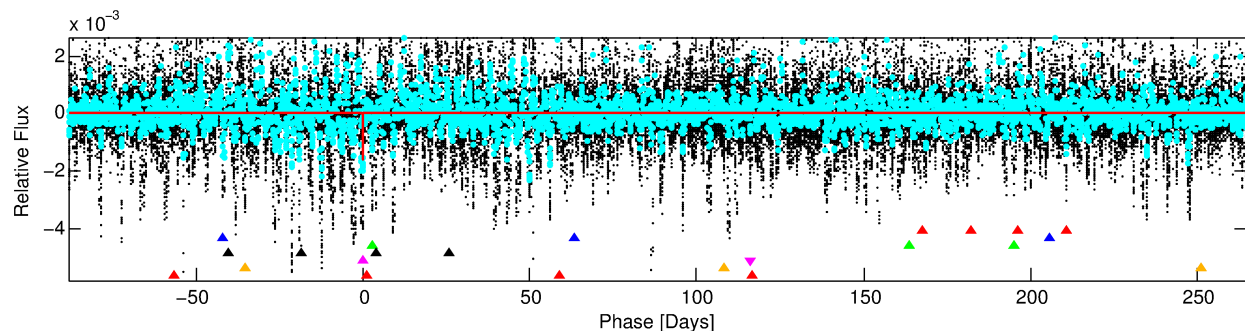
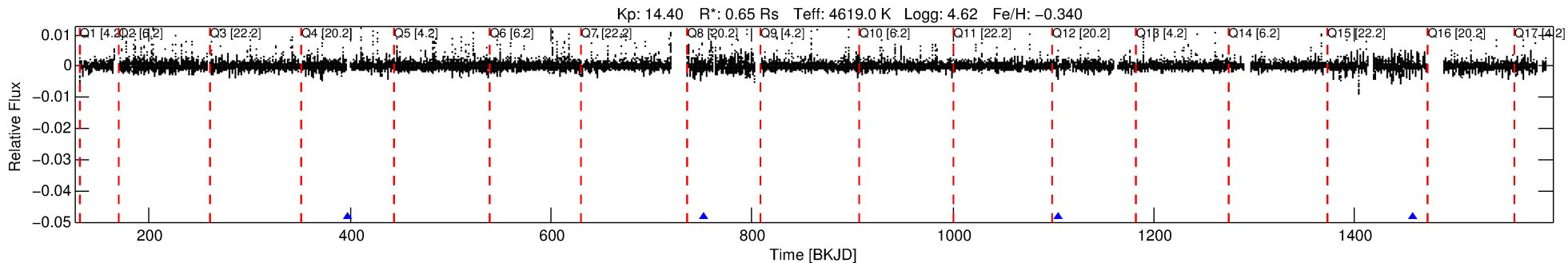
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-05

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 5 of 7 Period: 353.225 d



DV Fit Results:

Period = 353.22493 [0.00751] d
Epoch = 398.1707 [0.0173] BKJD
Rp/R* = 0.0397 [0.0093]
a/R* = 239.71 [165.40]
b = 0.73 [0.45]
Seff = 0.24 [0.04]
Teq = 179 [7] K
Rp = 2.82 [0.71] Re
a = 0.8408 [0.0596] AU
Ag = 19874.62 [13131.39] [1.51σ]
Teffp = 3289 [546] K [5.70σ]

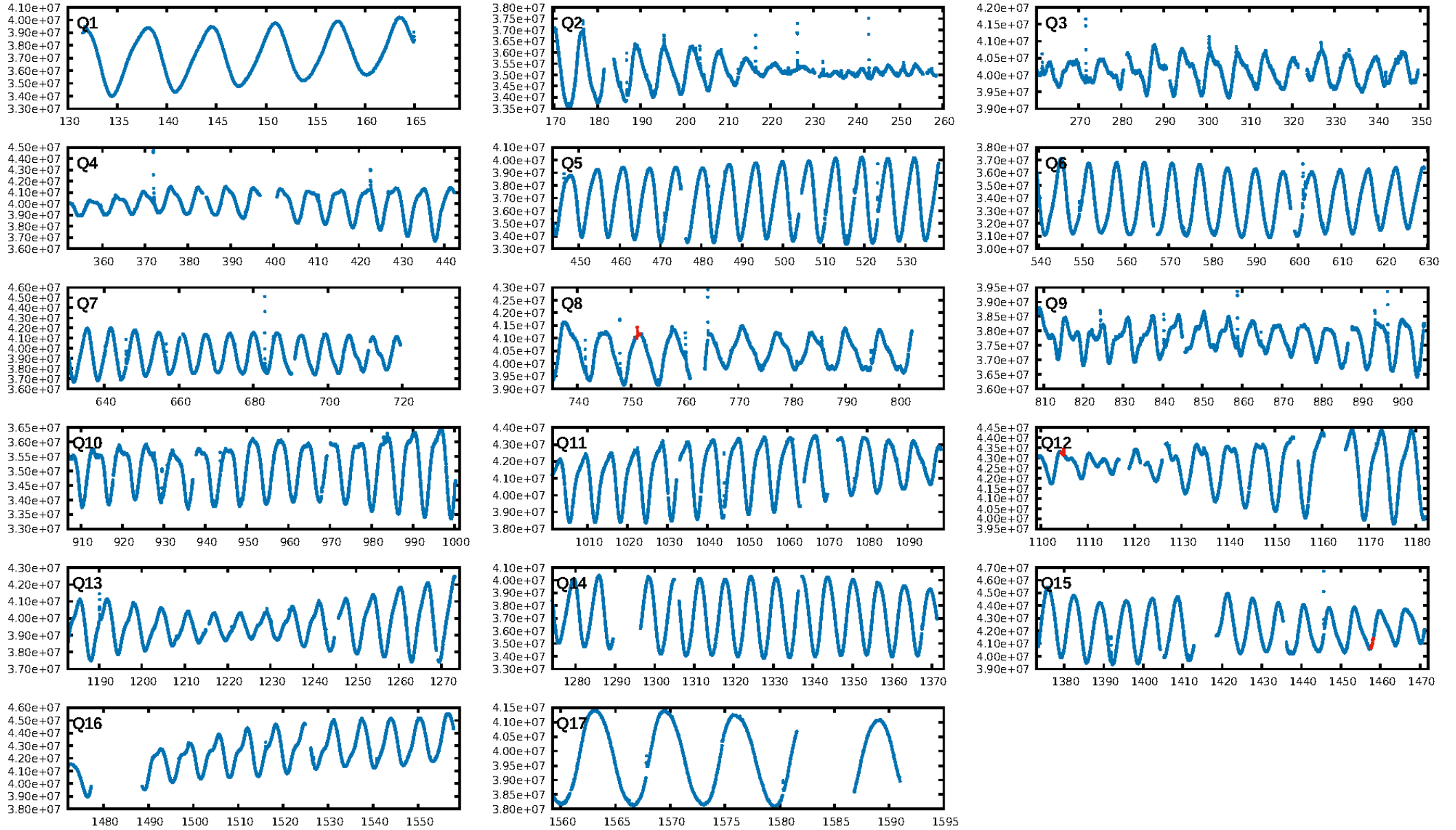
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [61.78σ]
LongPeriod-sig: 100.0% [32.87σ]
ModelChiSquare2-sig: 97.6%
ModelChiSquareGof-sig: 84.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.551
Centroid-sig: 70.0%
Centroid-so: 0.509 arcsec [0.82σ]
OotOffset-rm: 0.133 arcsec [0.88σ]
KicOffset-rm: 0.037 arcsec [0.17σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

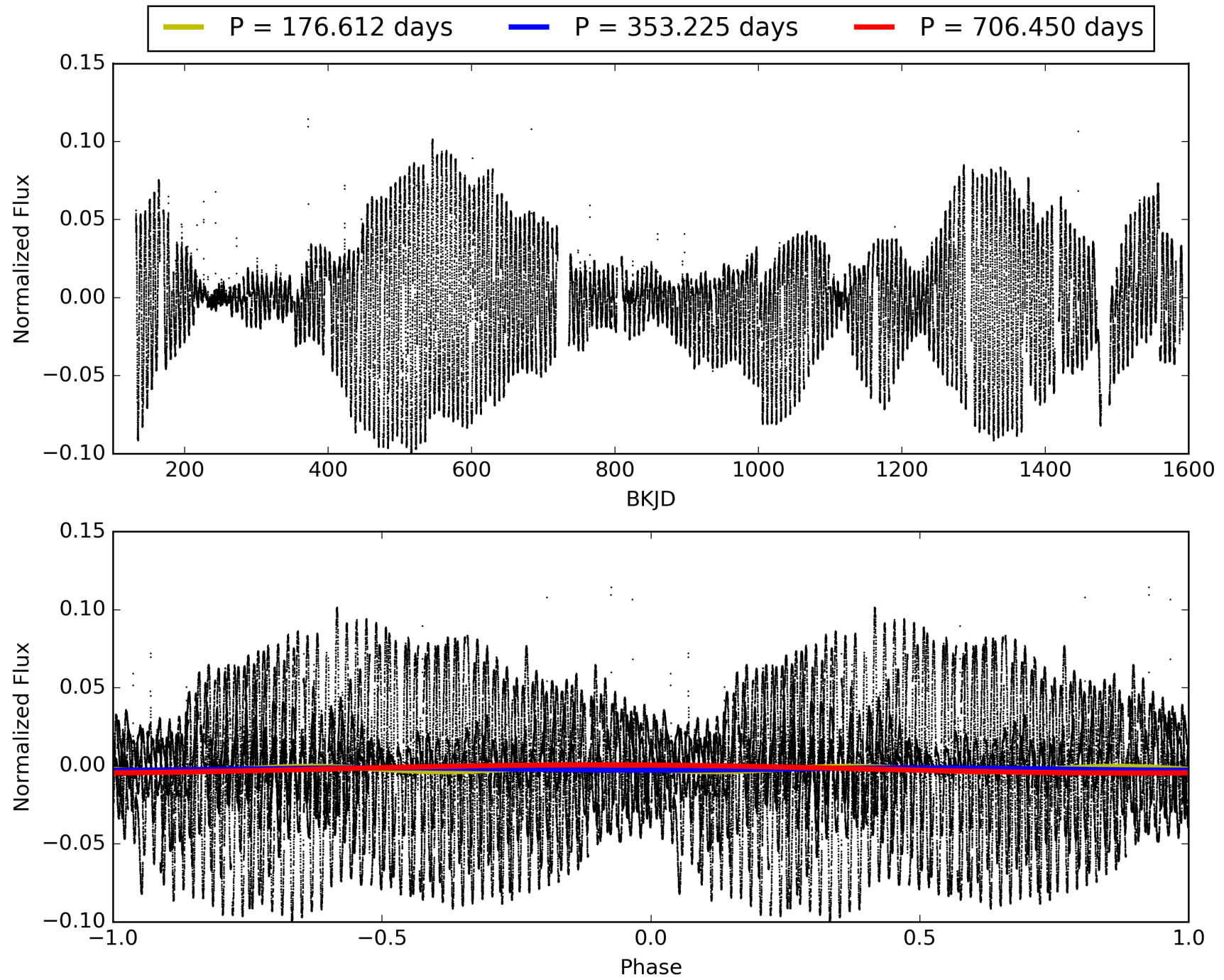
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:28:23 Z

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

TCE 003222369-05, PDC Light Curves

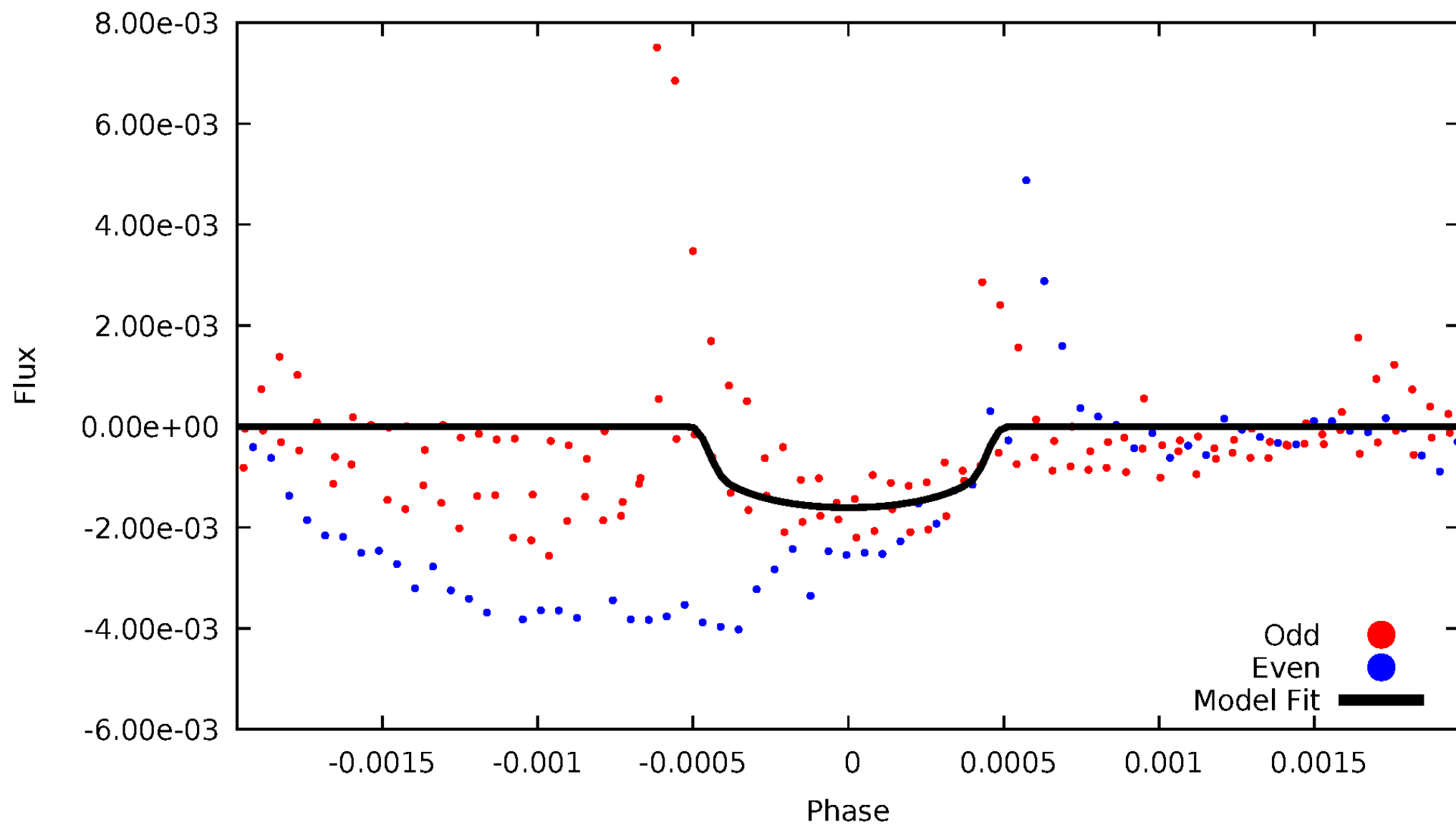


TCE 003222369-05



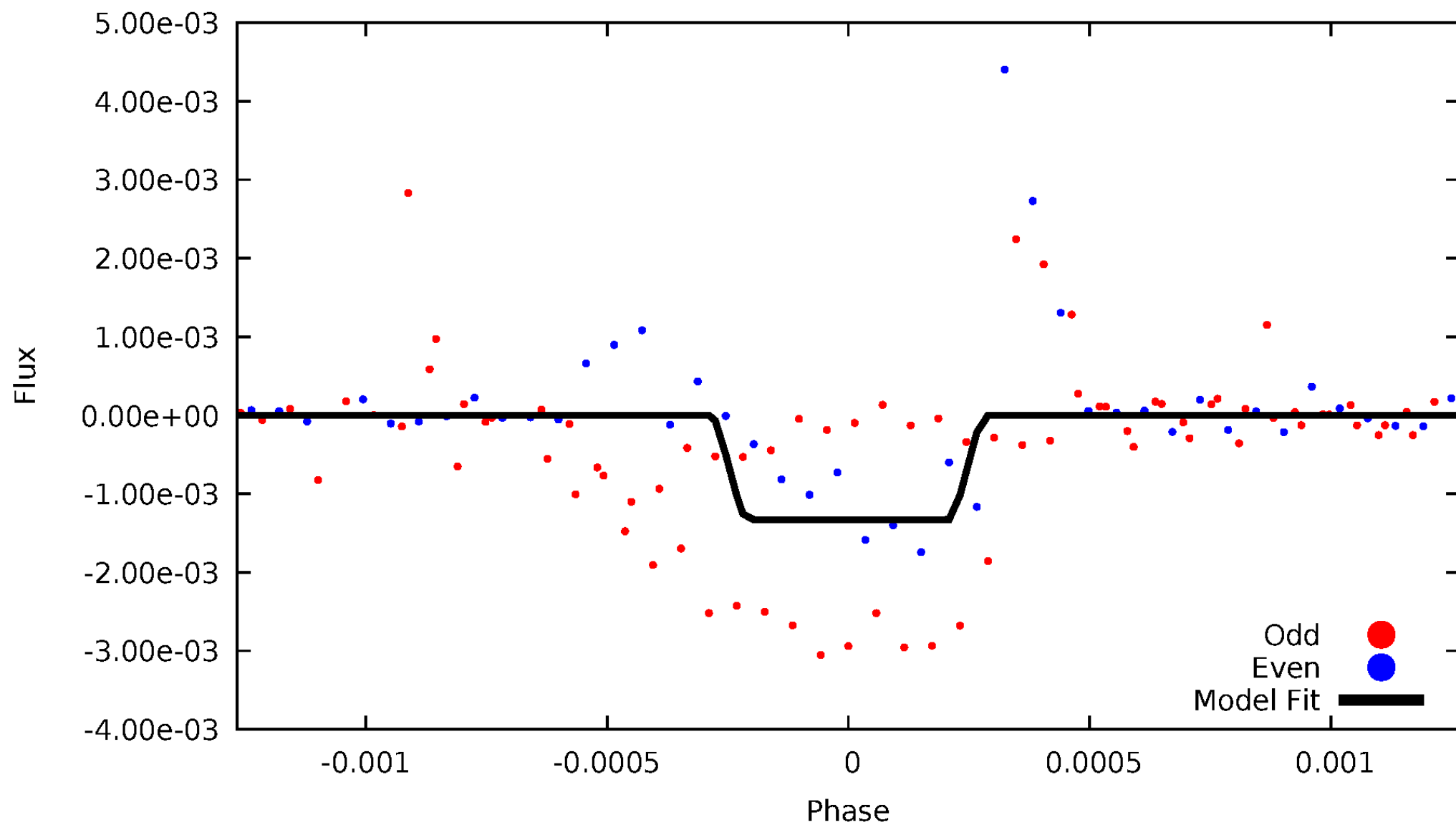
DV Odd/Even

TCE 003222369-05



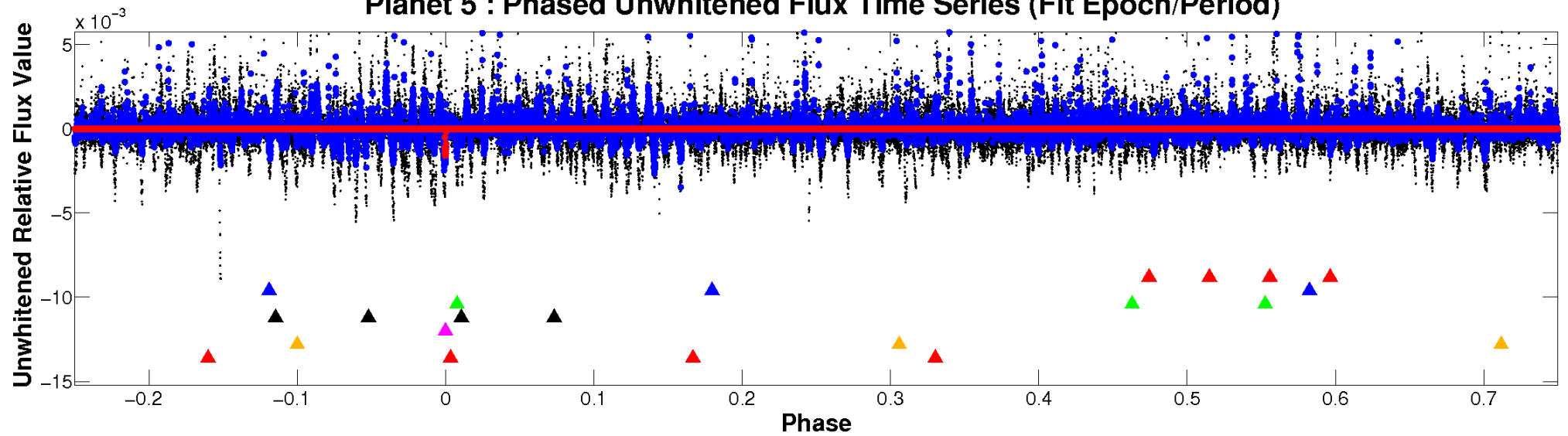
ALT Odd/Even

TCE 003222369-05

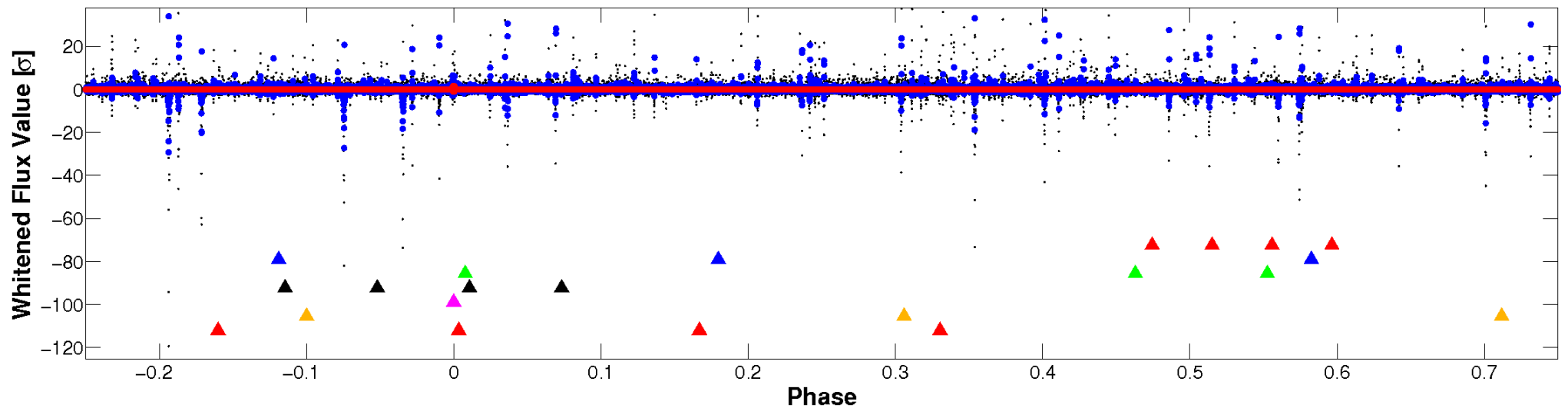


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

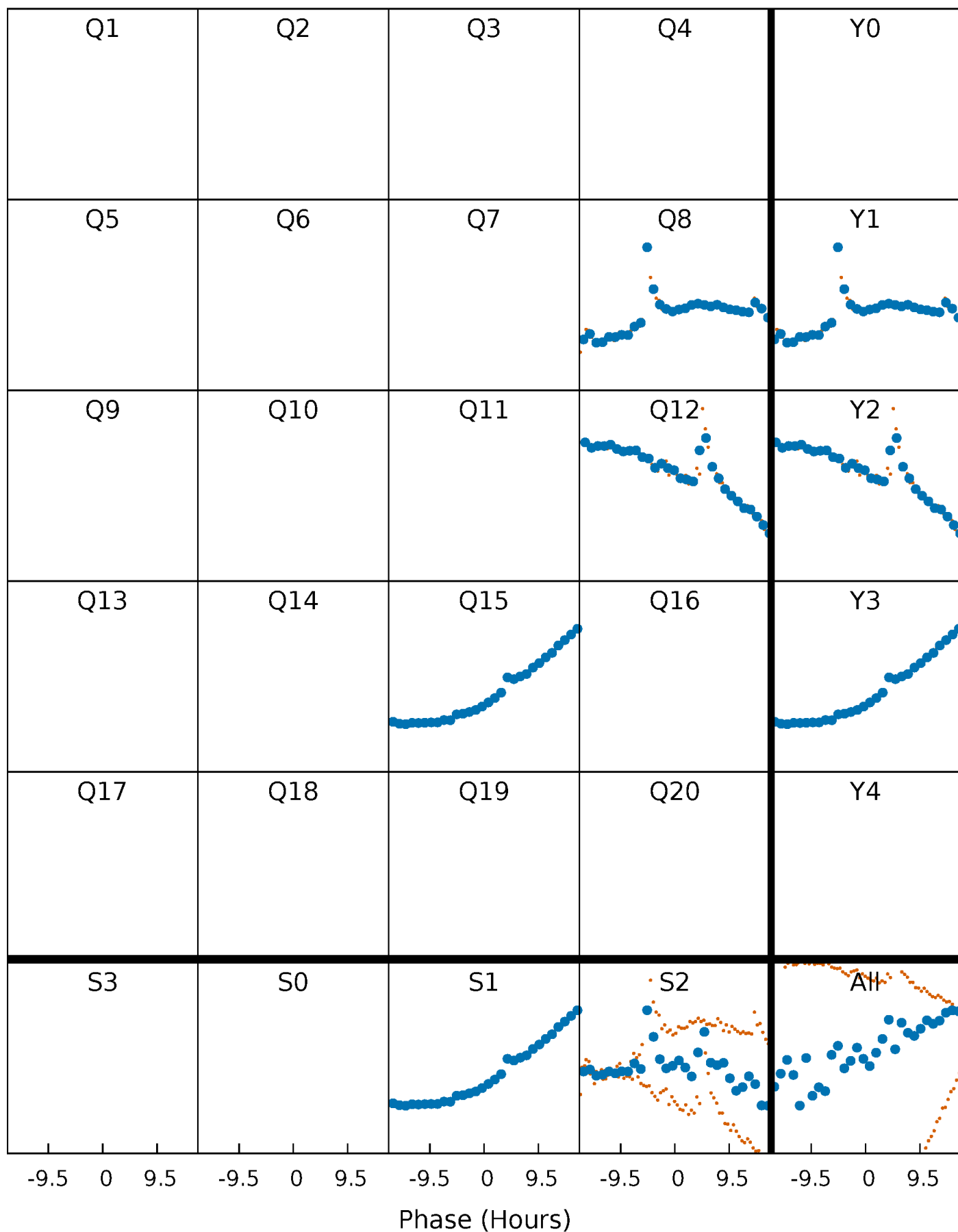


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



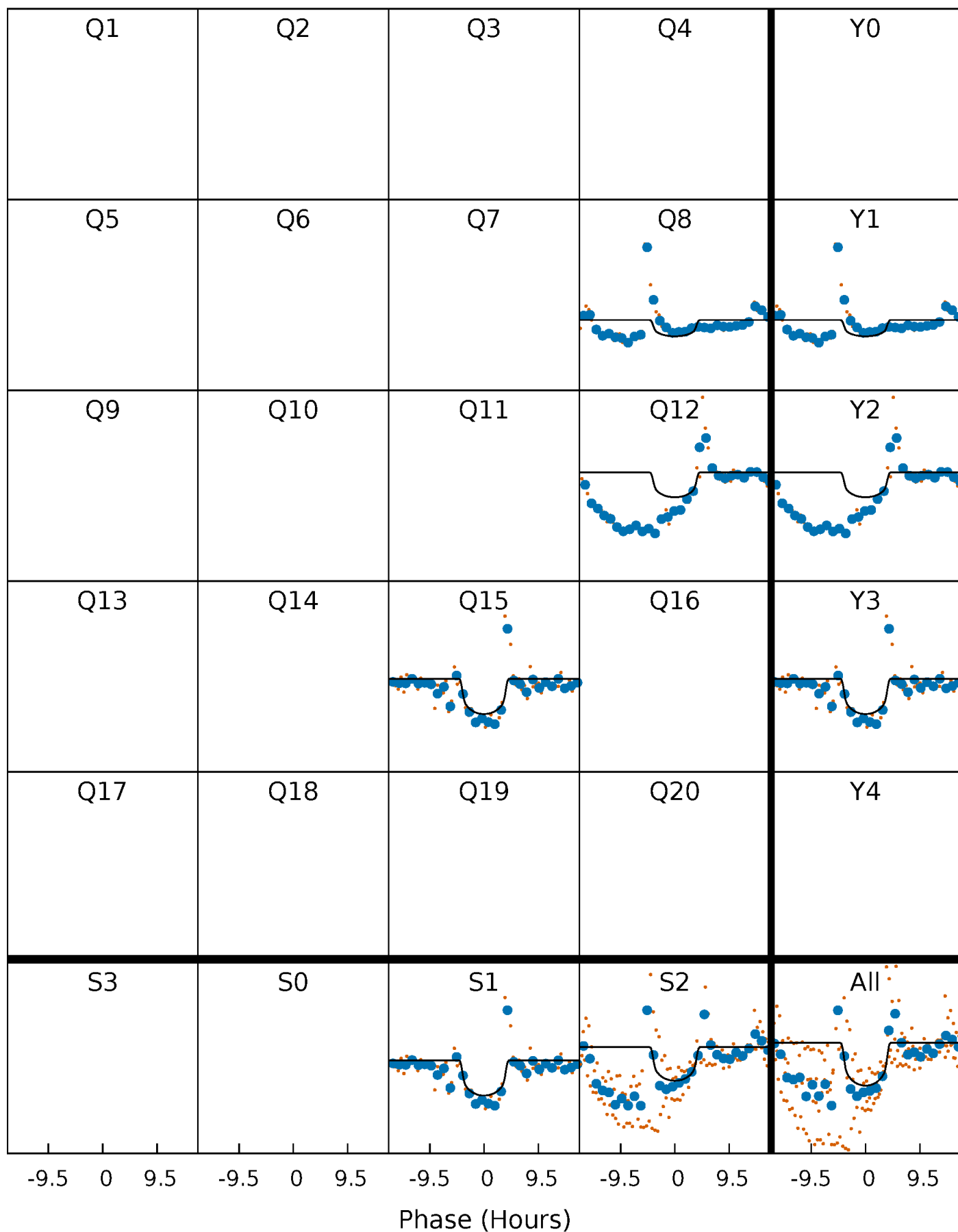
PDC Quarter-Phased Transit Curves

TCE 003222369-05 $P=353.224935$ Days $T_0=398.170679$ (BKJD)



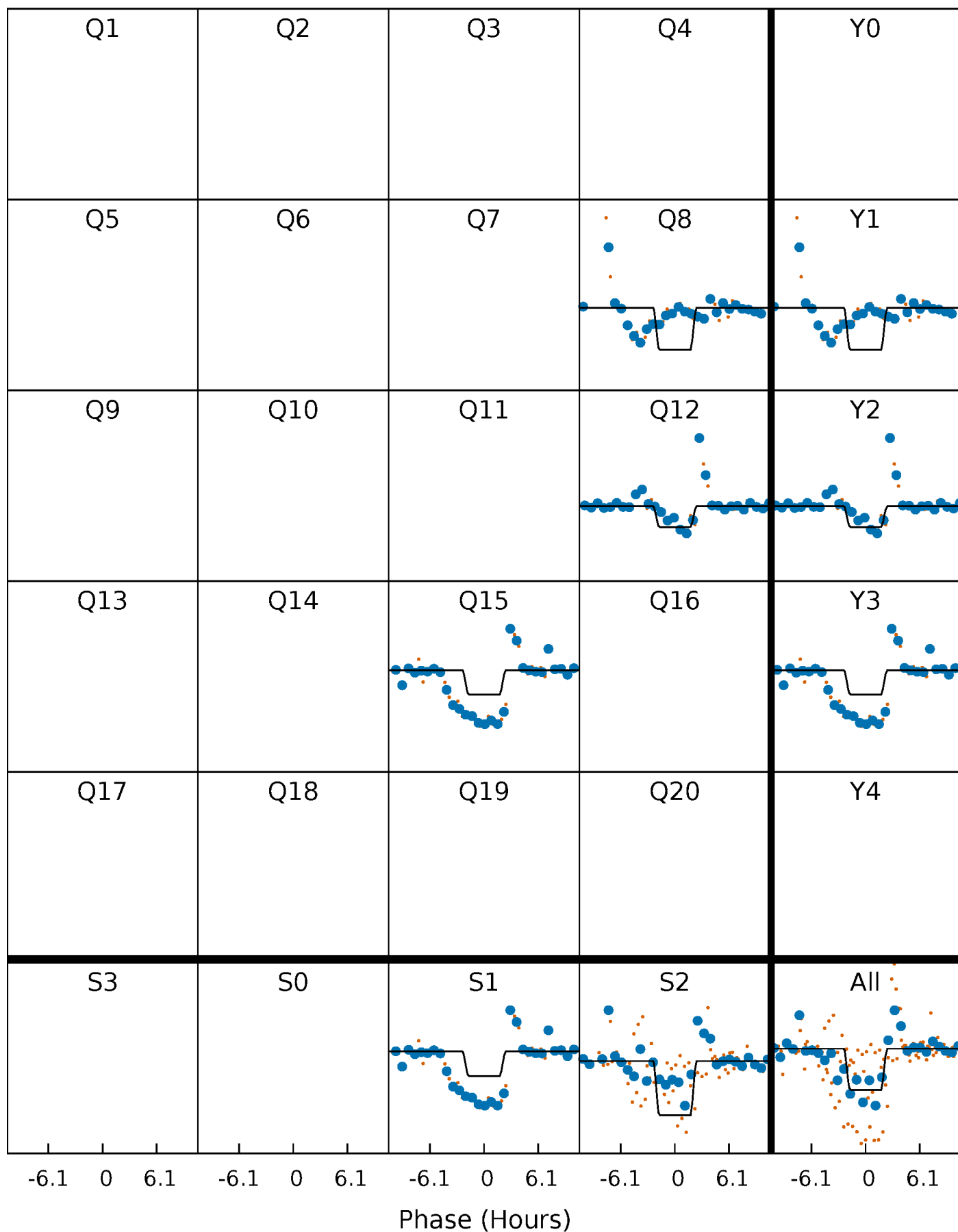
DV Quarter-Phased Transit Curves

TCE 003222369-05 $P=353.224935$ Days $T_0=398.170679$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

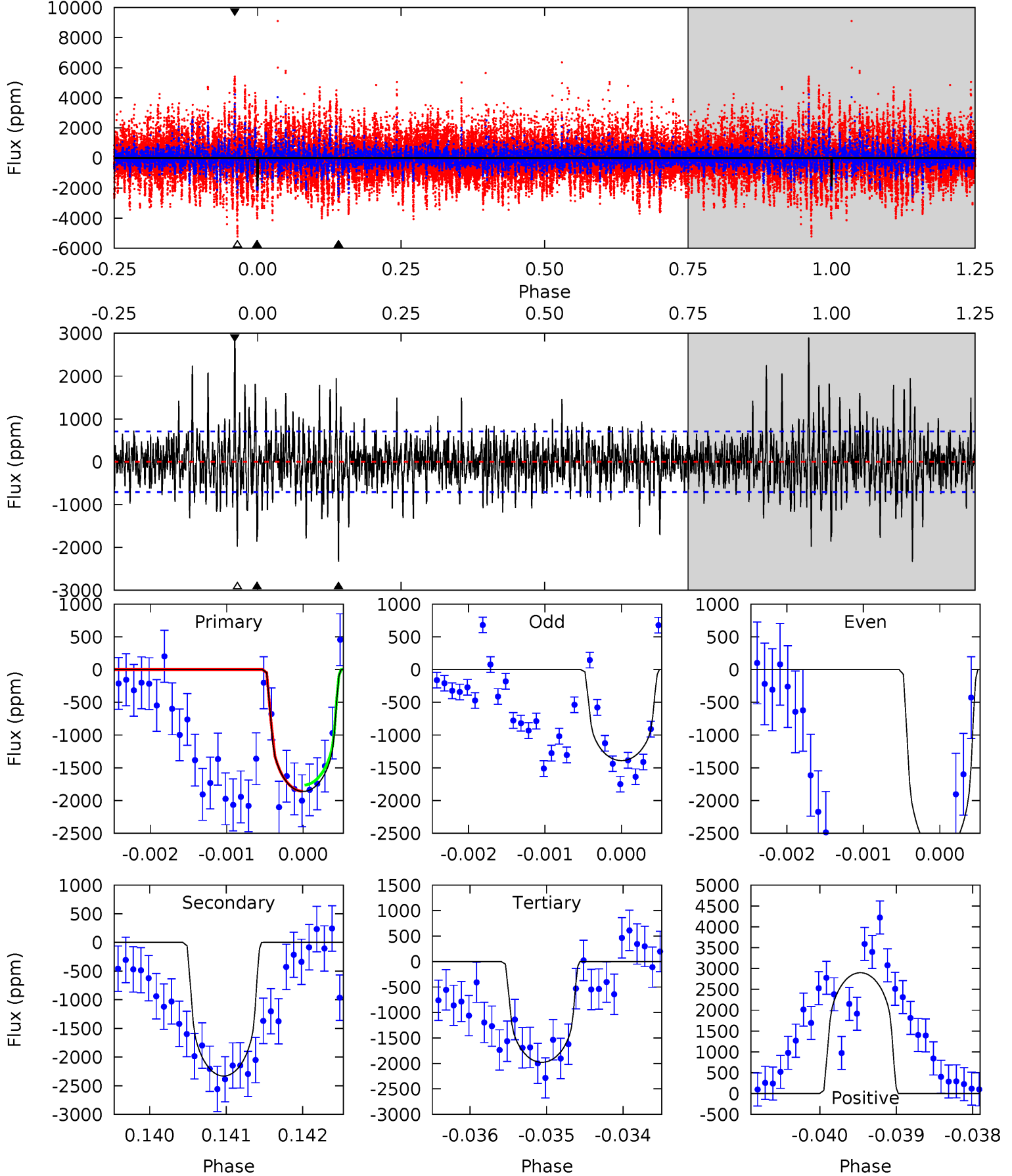
TCE 003222369-05 $P=353.166840$ Days $T_0=398.374524$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-05, P = 353.224935 Days, E = 44.945744 Days

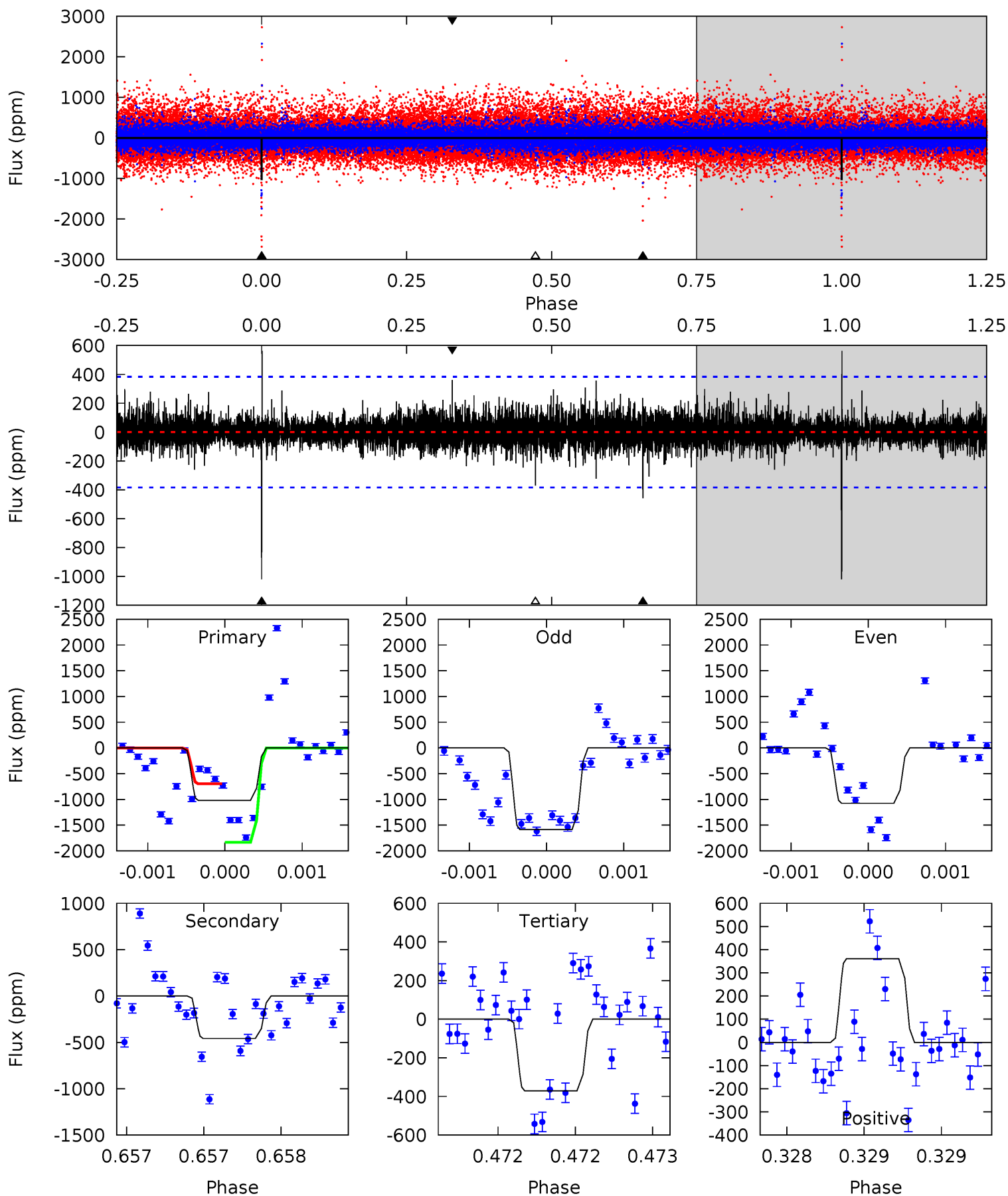
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	18.0	15.2	22.3	5.44	3.28	3.50	-0.90	-8.00	2.71	-4.38	4.72	1.01	0.55	0.36



Alt Model-Shift Uniqueness Test

003222369-05, P = 353.166840 Days, E = 45.207684 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	6.63	5.38	5.22	5.55	3.45	0.96	9.39	9.55	1.26	1.41	3.90	1.32	0.36	8.28



Stellar Parameters For KIC 003222369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2331 ± 130	$2.84^{+0.65}_{-0.66}$	249^{+7}_{-9}	4967^{+652}_{-402}	113547^{+84135}_{-36918}
Alt.	-458 ± 69	$2.59^{+0.66}_{-0.67}$	249^{+8}_{-9}	3791^{+432}_{-303}	27069^{+23491}_{-10669}

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 $A_{obs} \gg 1.0$

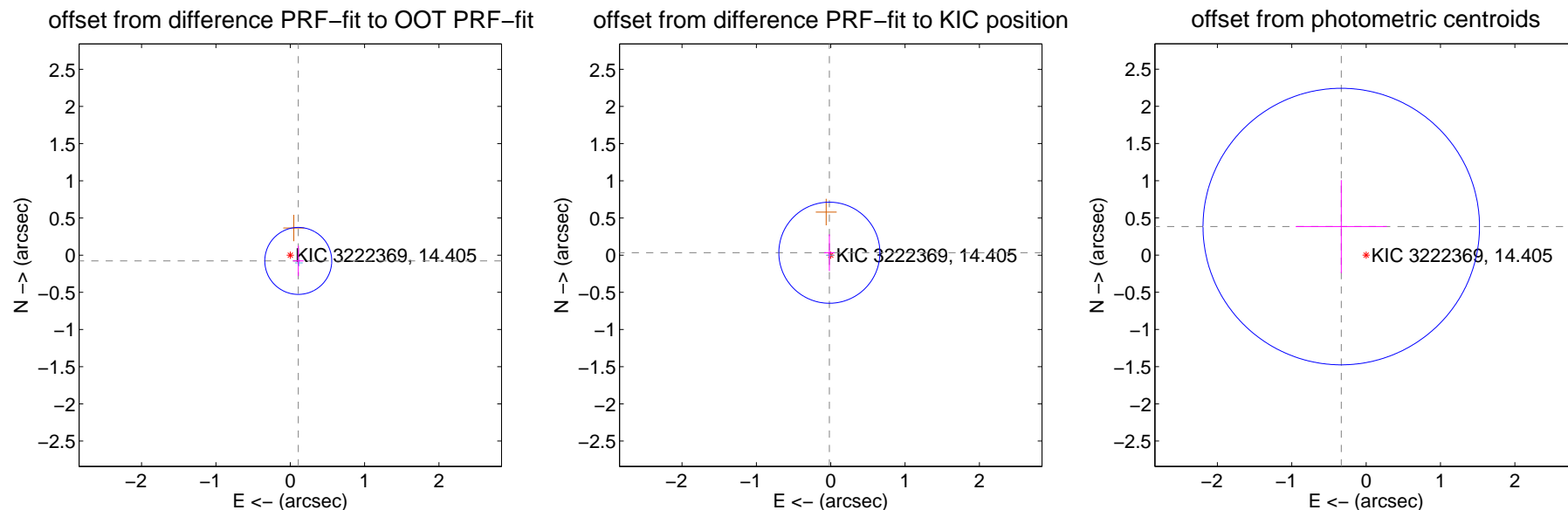
DV Centroid Data

Supplemental centroid analysis for 003222369-05. Kepler magnitude: 14.40. Transit SNR 7.76

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.133 ± 0.150	0.88	-0.108 ± 0.072	-0.077 ± 0.203
PRF-fit source offset from KIC position	0.037 ± 0.227	0.17	0.018 ± 0.070	0.033 ± 0.246
photometric centroid source offset	0.51 ± 0.62	0.82	0.33 ± 0.61	0.38 ± 0.62

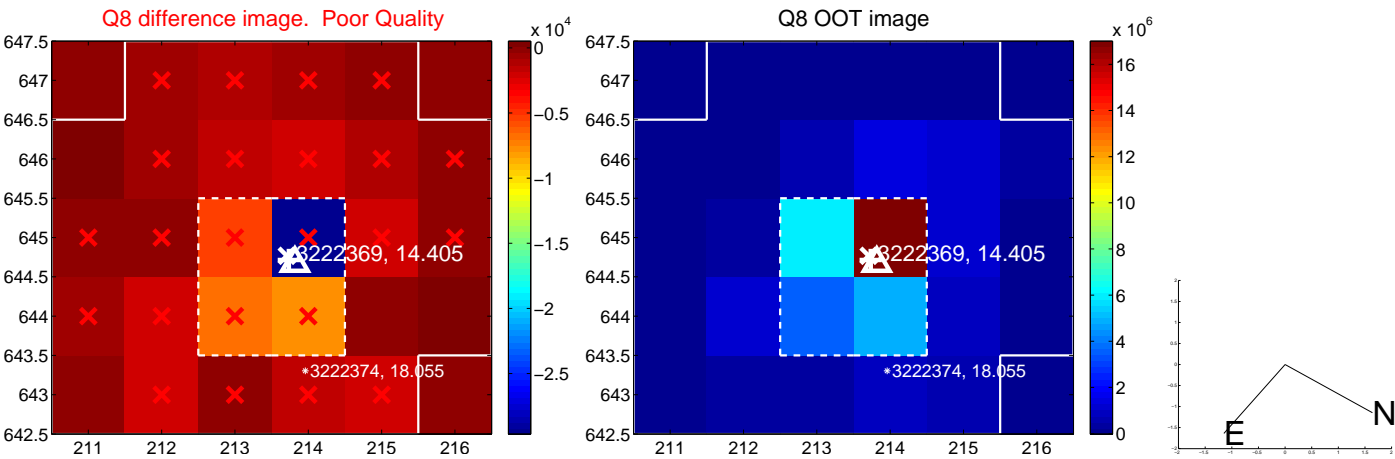
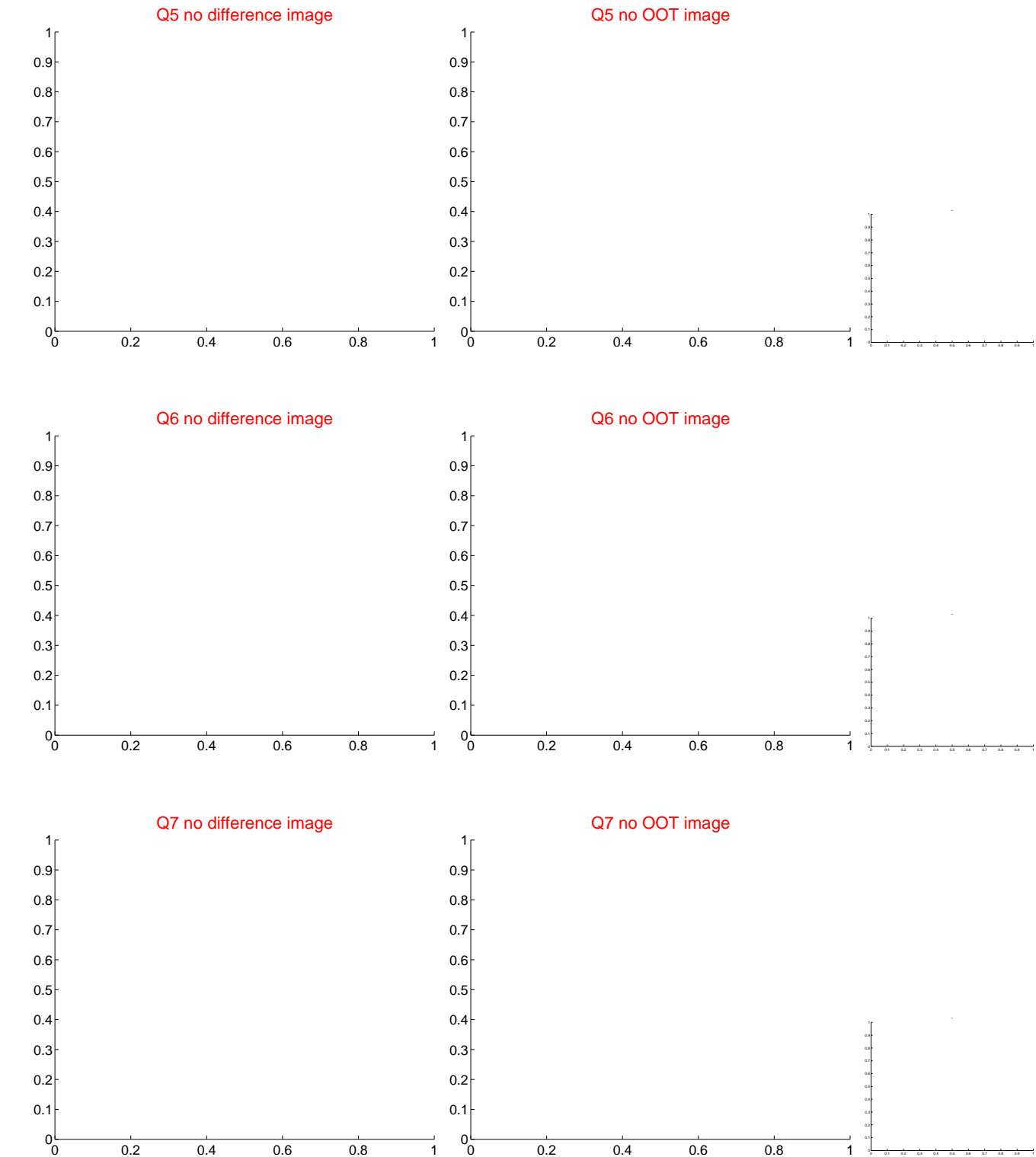


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

Q13 no difference image



Q13 no OOT image



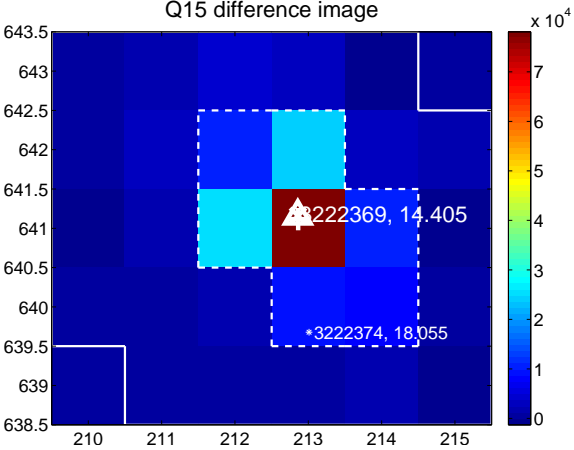
Q14 no difference image



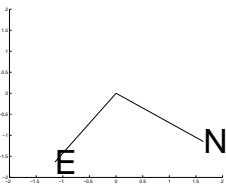
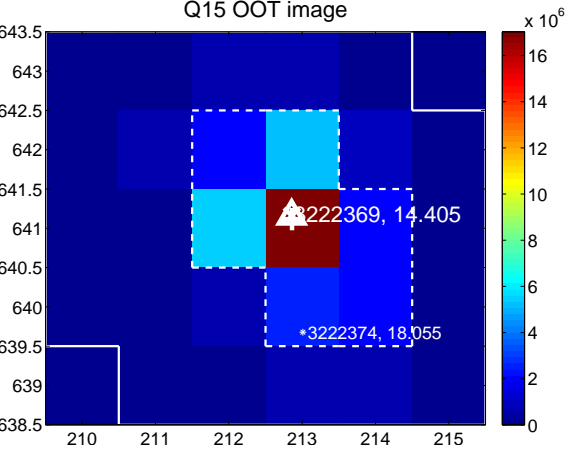
Q14 no OOT image



Q15 difference image



Q15 OOT image



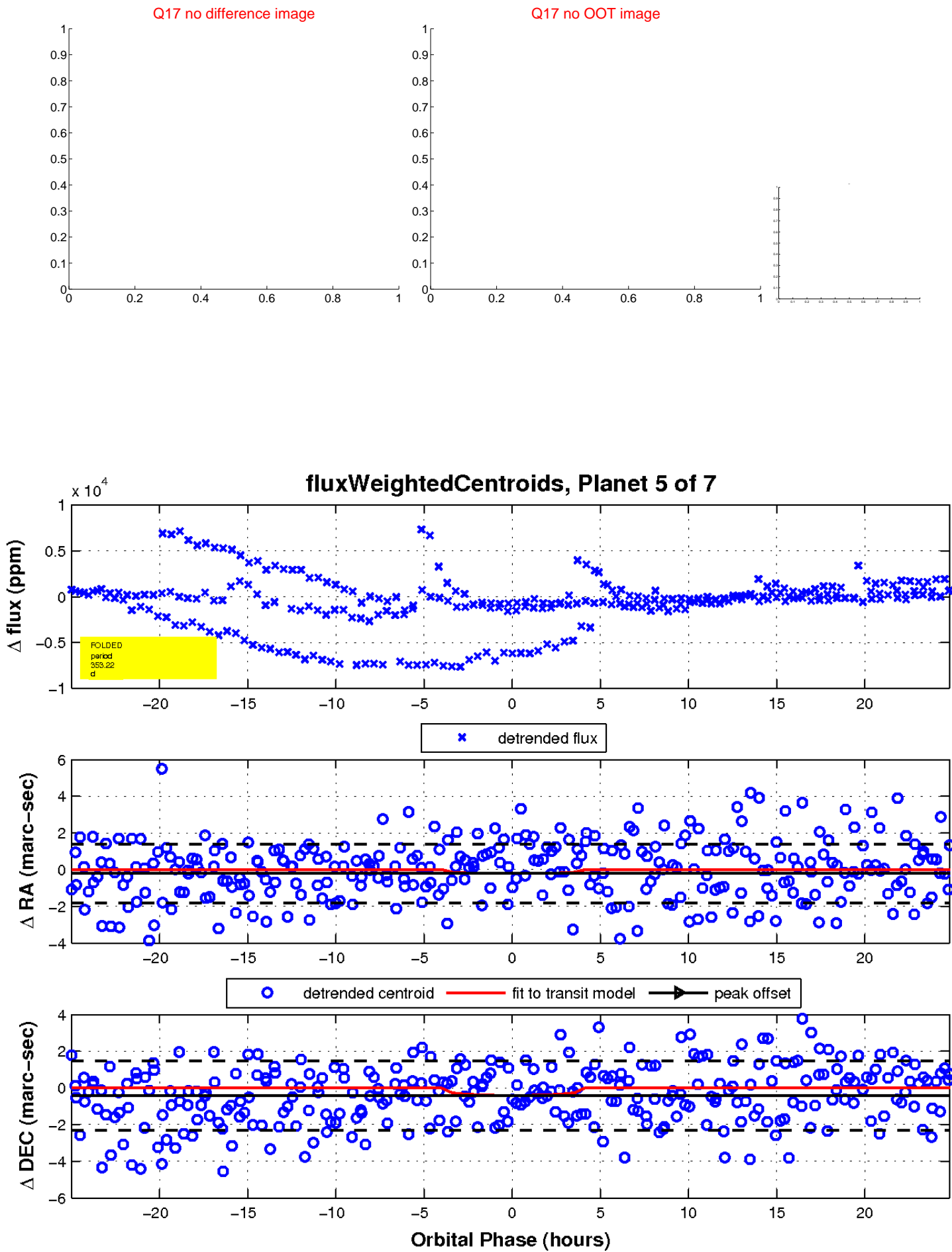
Q16 no difference image



Q16 no OOT image

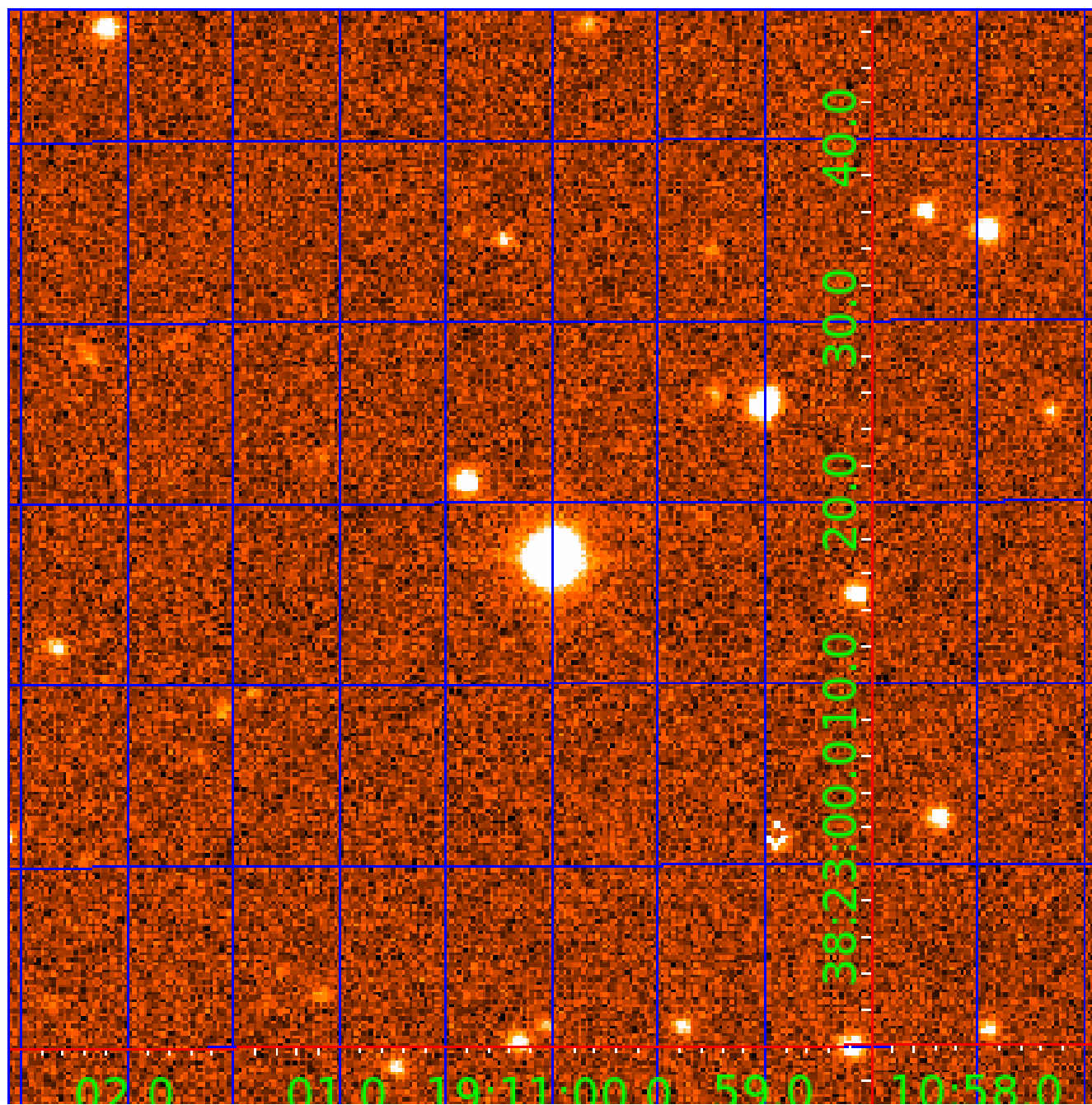


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003222369

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})
003222369-01	OBS	No	367.598366	212.518024	1966.4	6.379	18.9	10.3	0.65	4619	3.77	0.23
003222369-02	OBS	No	458.694719	250.711866	2044.9	8.283	14.6	9.3	0.65	4619	3.58	0.17
003222369-03	OBS	No	545.676981	208.472926	1187.1	4.560	14.8	5.9	0.65	4619	2.28	0.14
003222369-04	OBS	No	331.107752	424.070027	1525.4	2.090	14.1	8.5	0.65	4619	2.73	0.27
003222369-05	OBS	No	353.224935	398.170679	1608.5	8.333	15.5	7.8	0.65	4619	2.82	0.24
003222369-06	OBS	No	496.577603	362.877680	1225.1	7.766	16.0	6.0	0.65	4619	2.37	0.15
003222369-07	OBS	No	410.959759	341.642914	841.2	10.500	14.5	-1.0	0.65	4619	1.81	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003222369-01	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—INCONSISTENT_TRANS
003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003222369-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

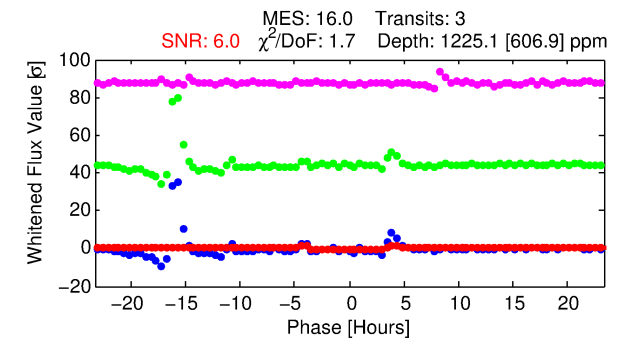
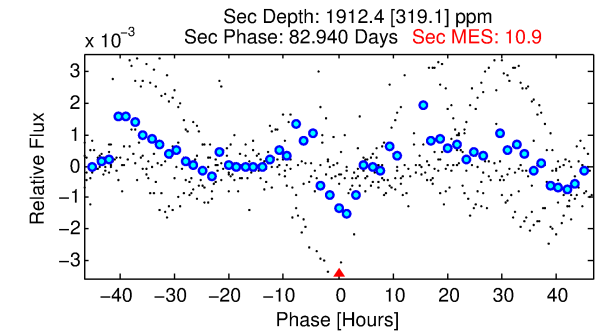
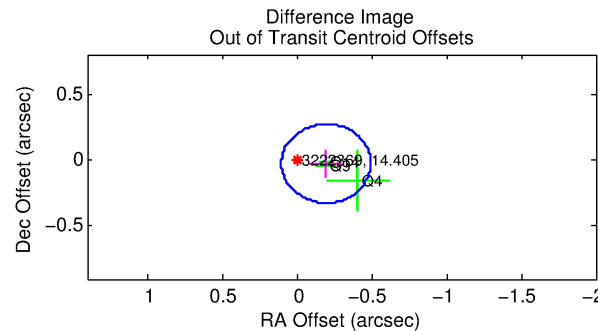
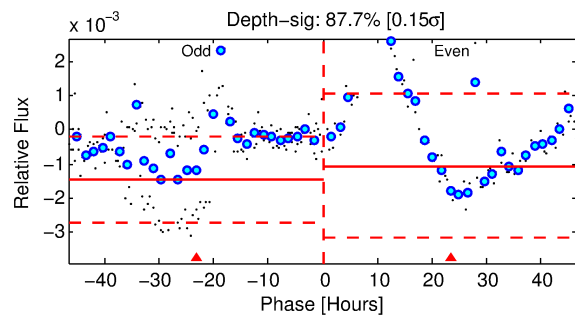
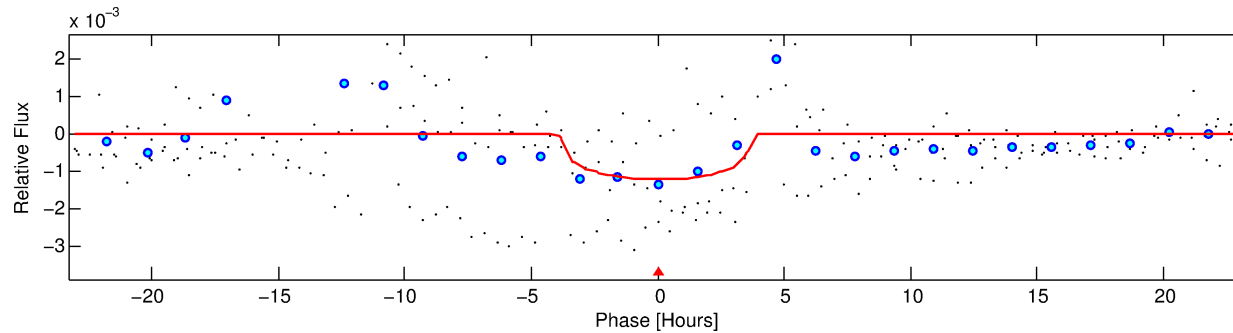
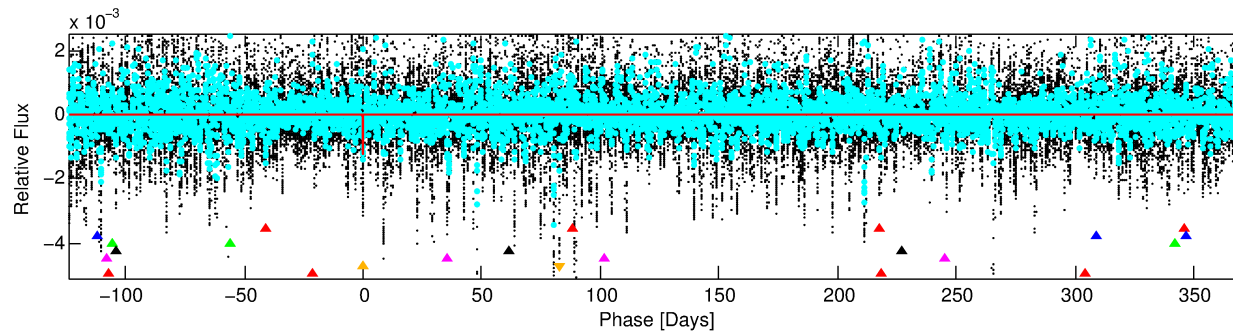
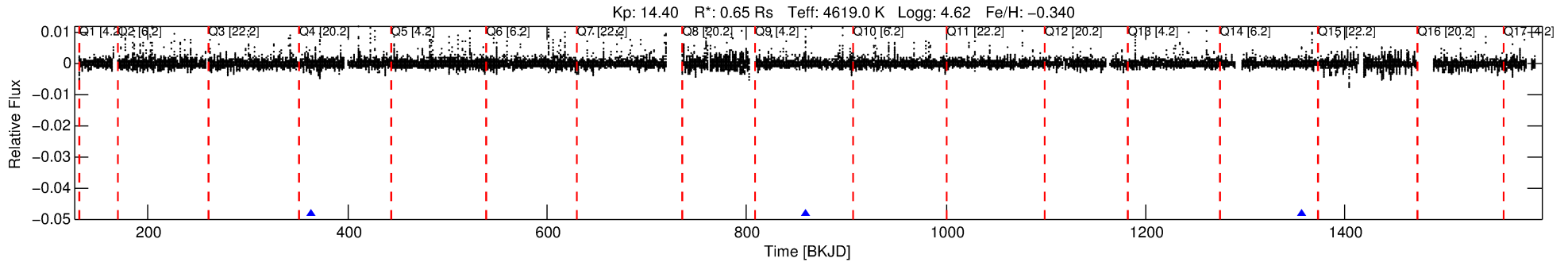
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-06

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 6 of 7 Period: 496.578 d



DV Fit Results:

Period = 496.57760 [0.01991] d
Epoch = 362.8777 [0.0298] BKJD
Rp/R* = 0.0334 [0.0435]
a/R* = 397.41 [1607.83]
b = 0.64 [3.83]
Seff = 0.15 [0.02]
Teq = 160 [6] K
Rp = 2.37 [3.09] Re
a = 1.0551 [0.0747] AU
Ag = 208336.19 [543438.59] [0.38 σ]
Teffp = 5283 [3446] K [1.49 σ]

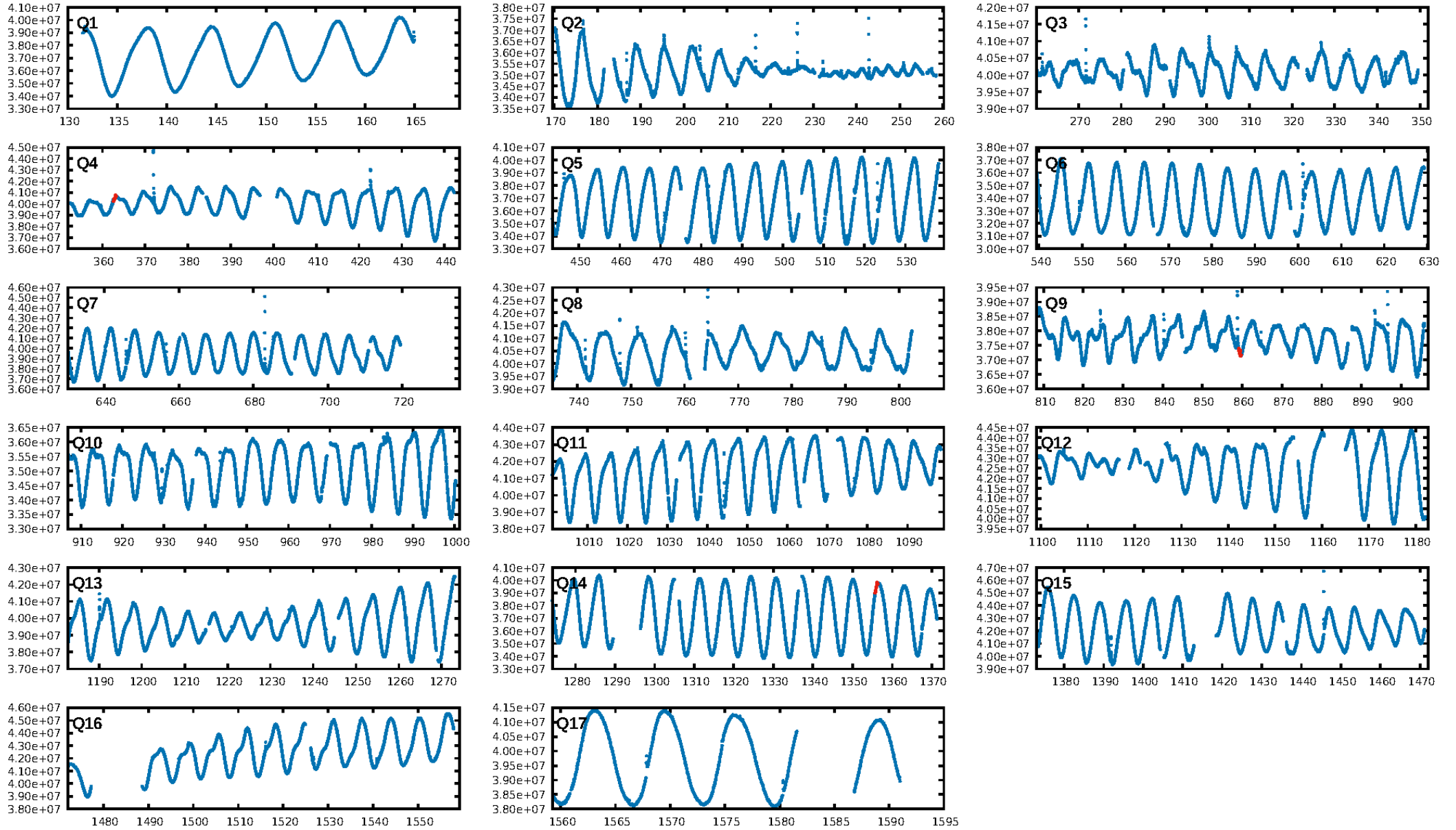
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [80.08 σ]
LongPeriod-sig: 100.0% [130.85 σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 54.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.83
Centroid-sig: 1.3%
Centroid-so: 1.526 arcsec [1.61 σ]
OotOffset-rm: 0.198 arcsec [1.99 σ]
KicOffset-rm: 0.106 arcsec [1.05 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

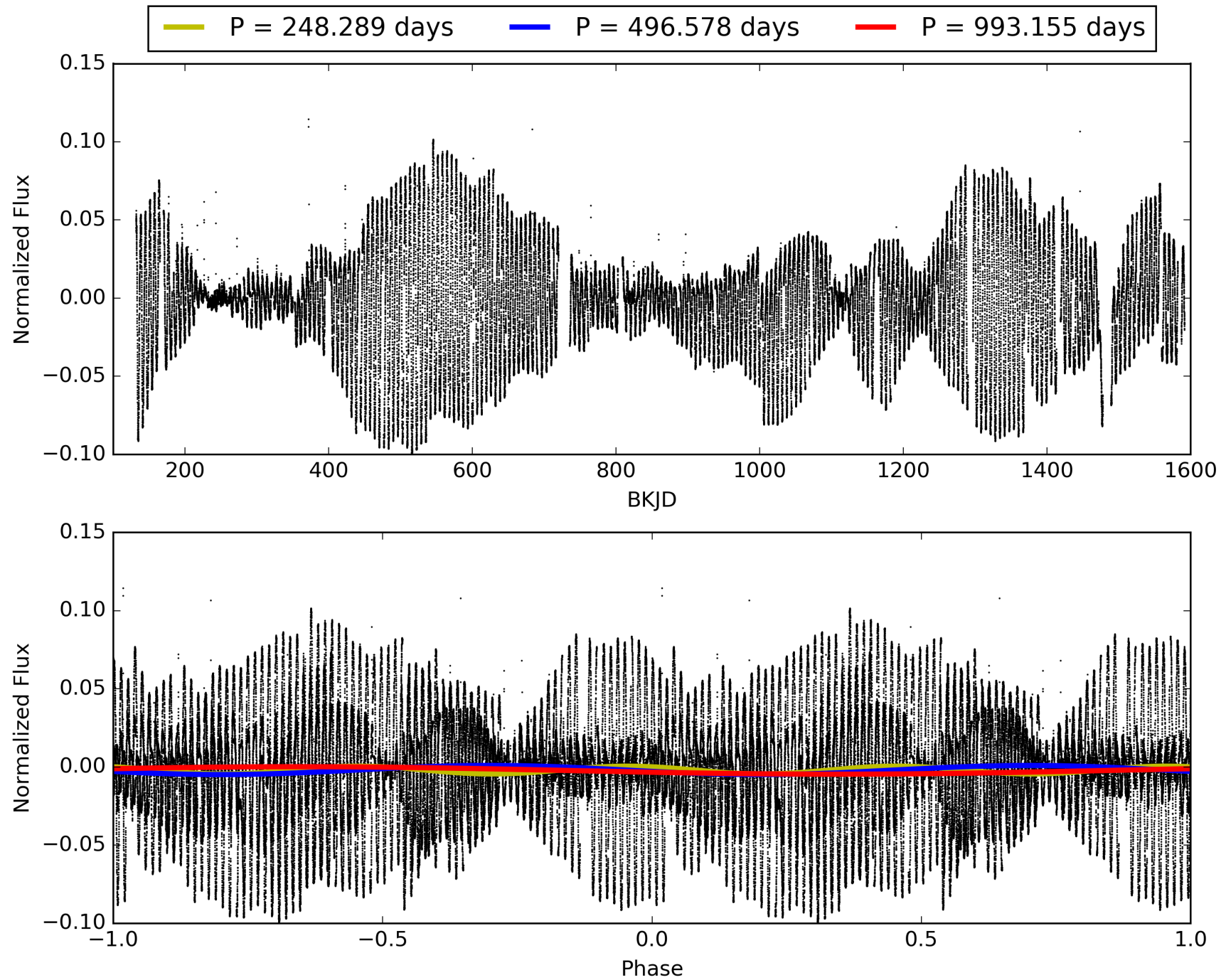
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:28:35 Z

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

TCE 003222369-06, PDC Light Curves

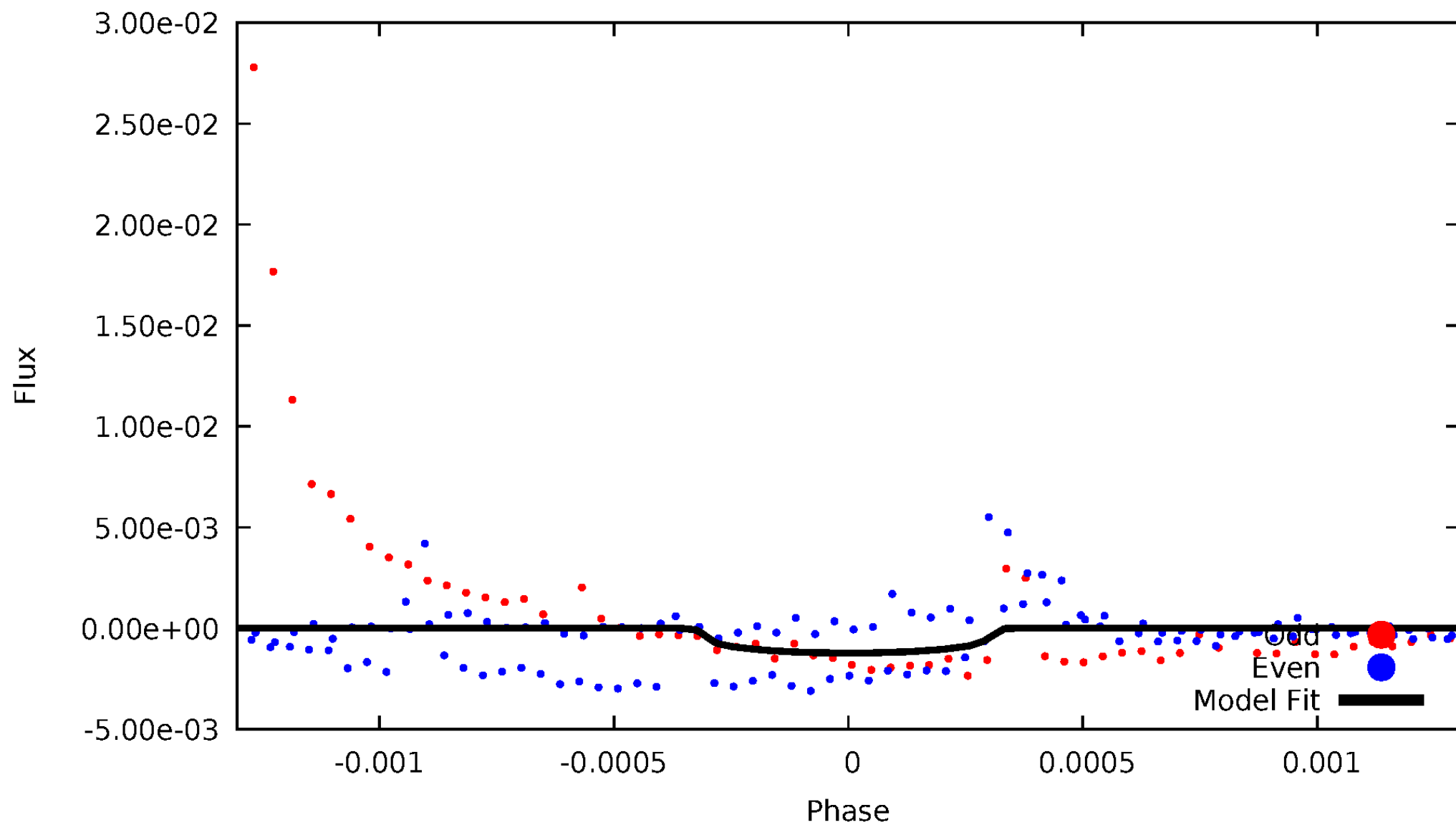


TCE 003222369-06



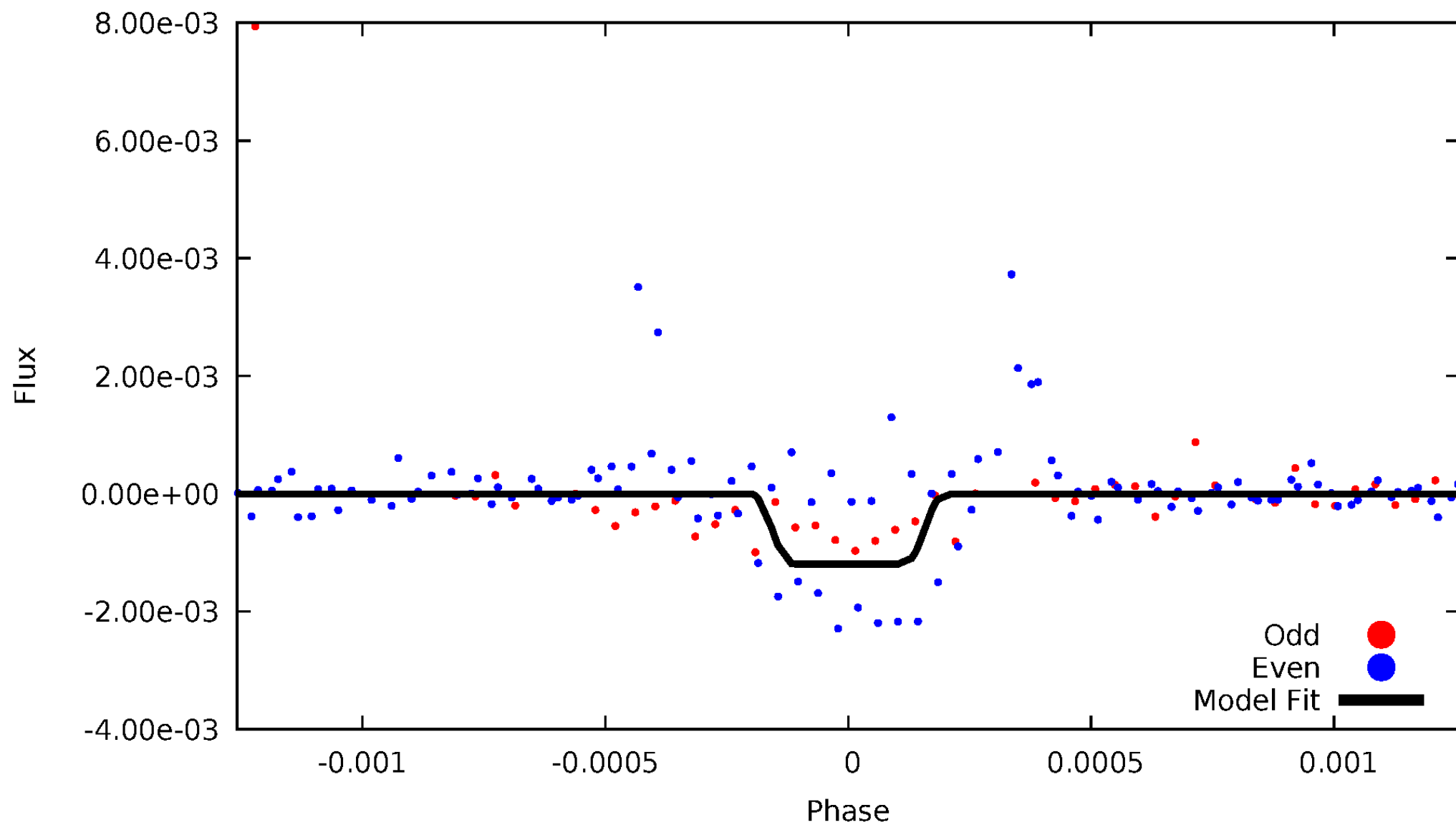
DV Odd/Even

TCE 003222369-06



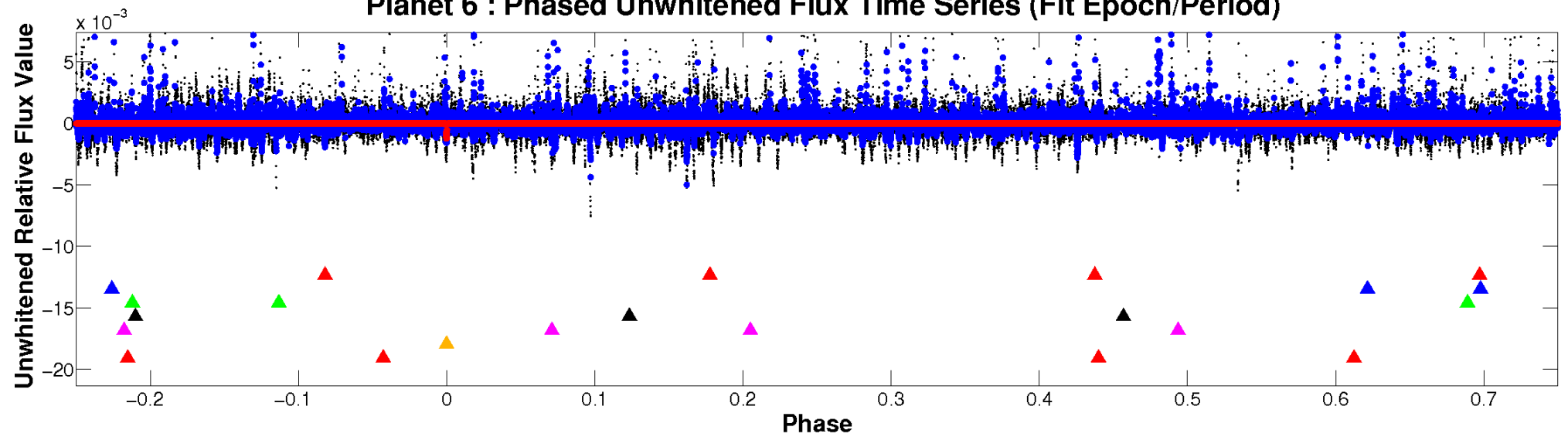
ALT Odd/Even

TCE 003222369-06

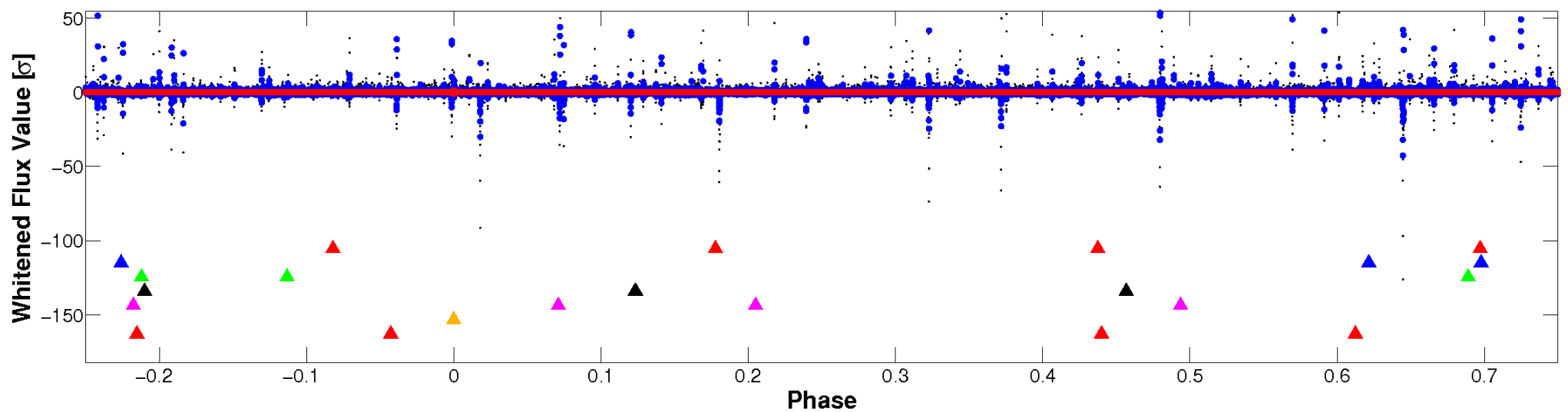


Non-Whitened Vs. Whitened Light Curve

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

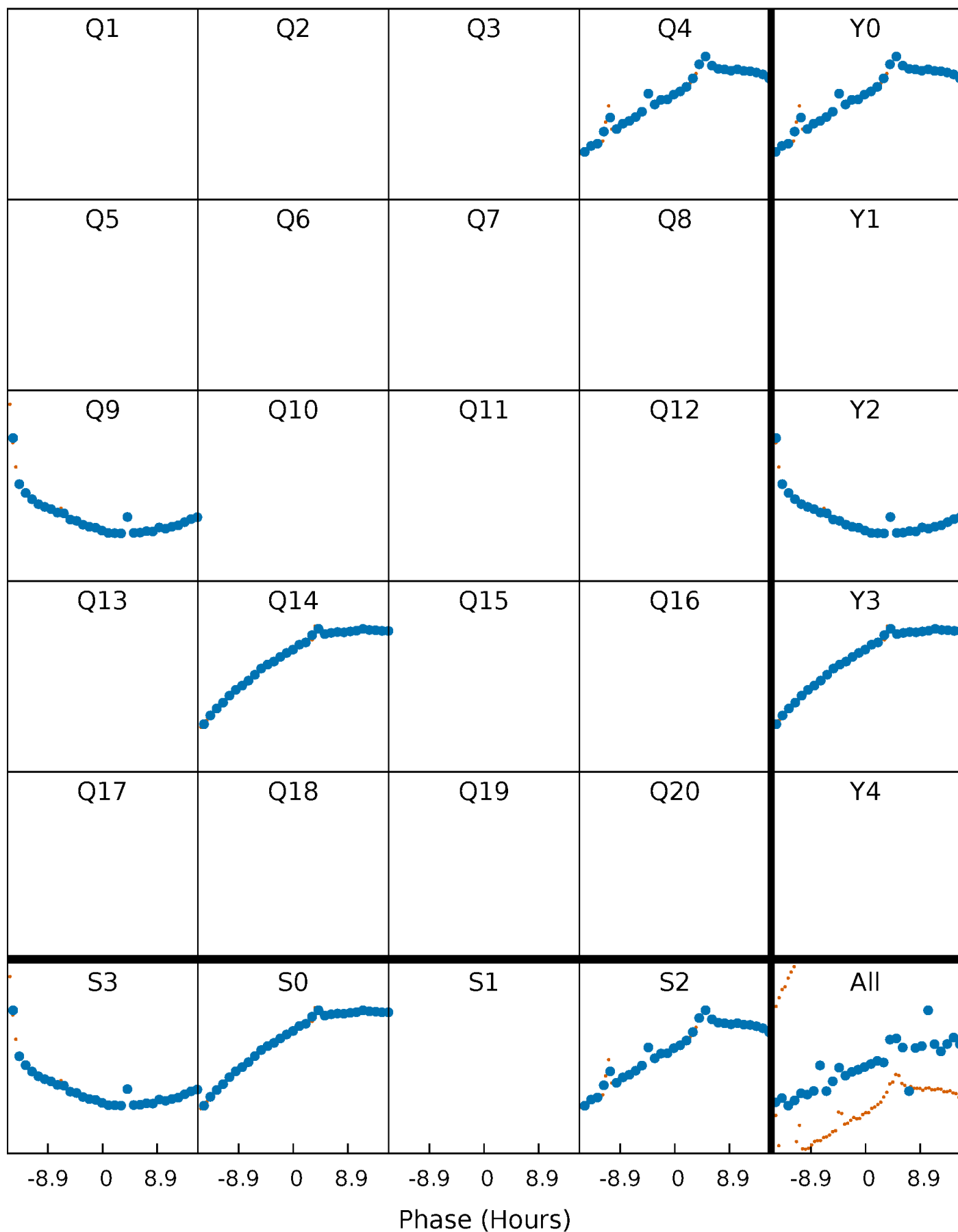


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



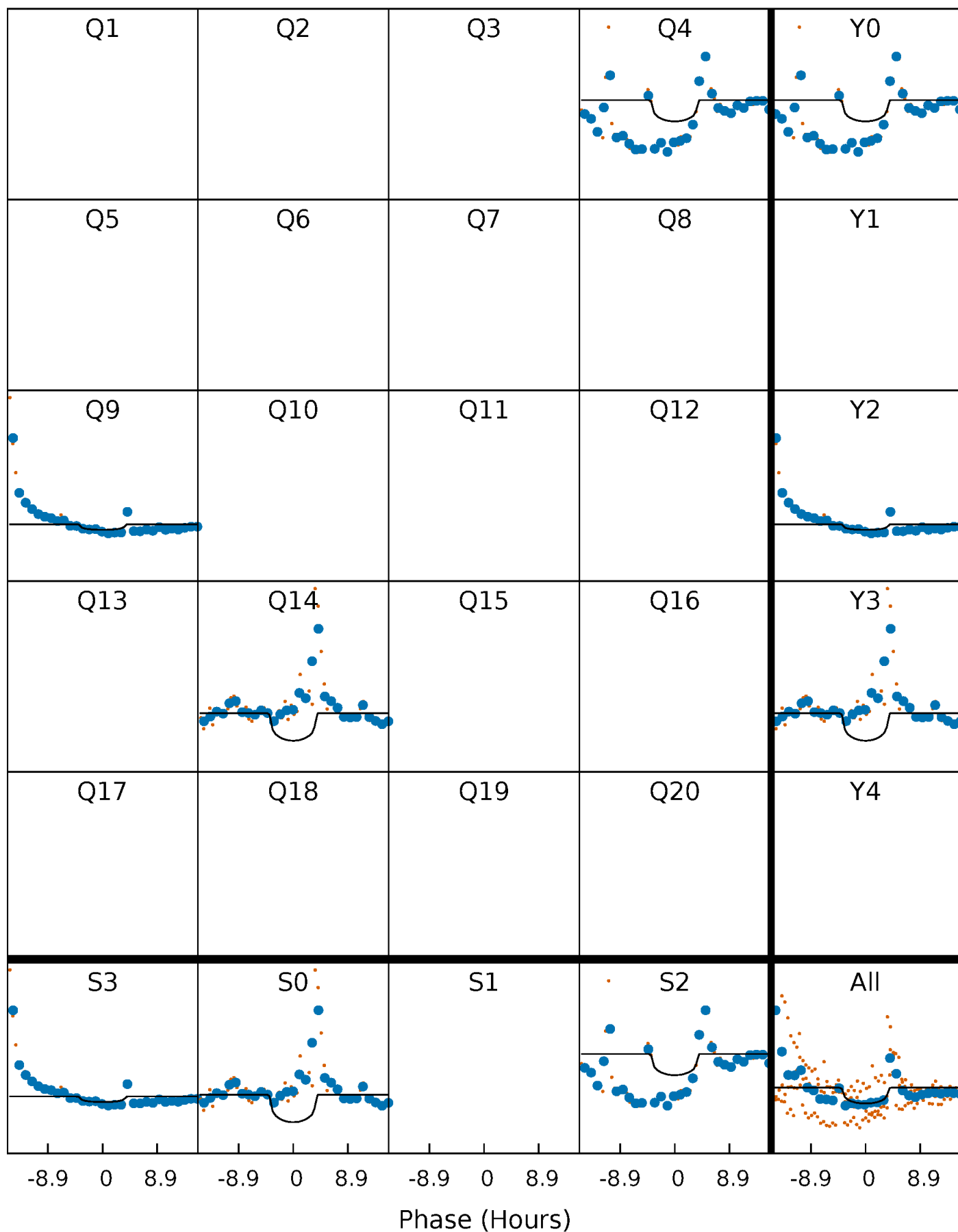
PDC Quarter-Phased Transit Curves

TCE 003222369-06 P=496.577603 Days $T_0=362.877679$ (BKJD)



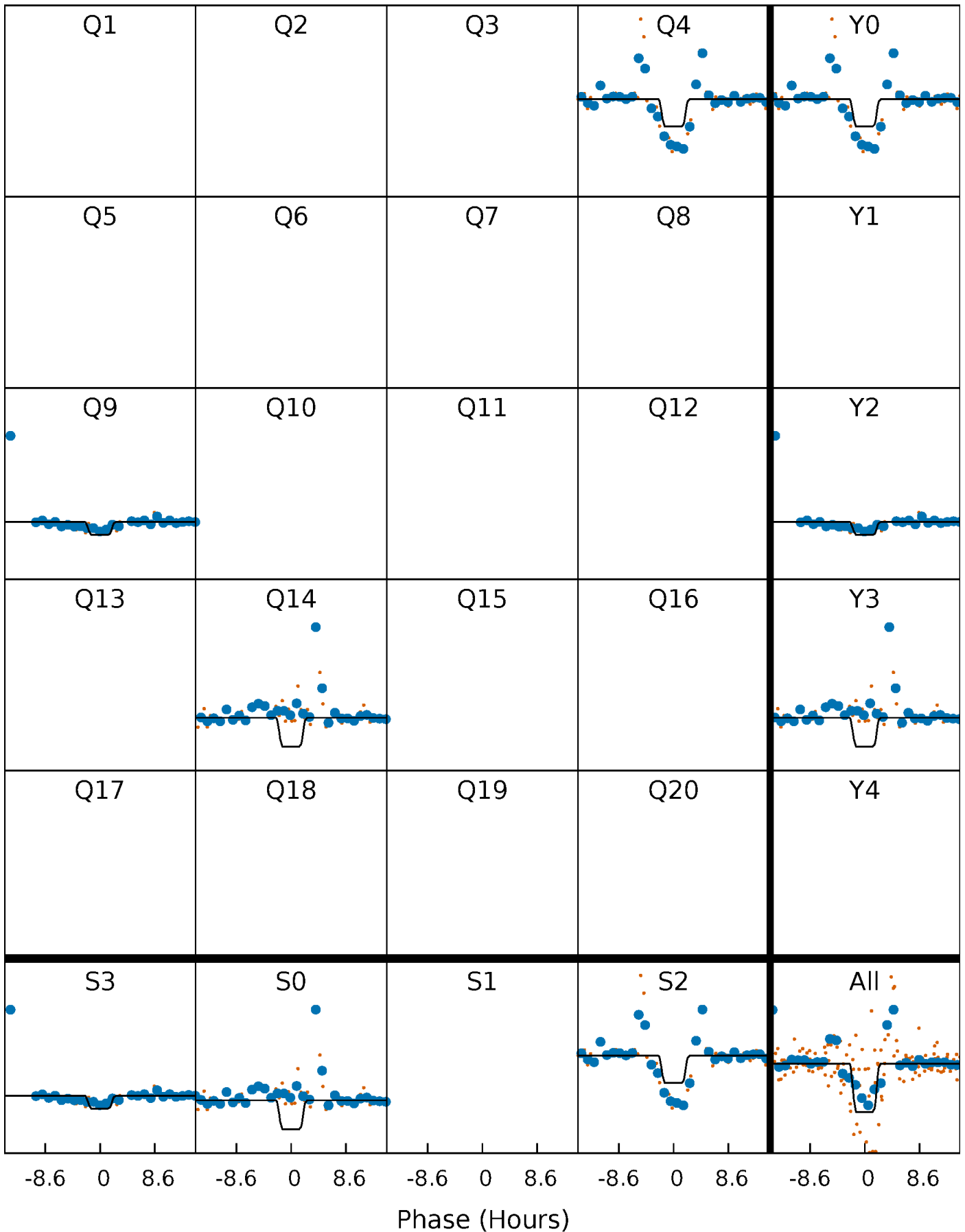
DV Quarter-Phased Transit Curves

TCE 003222369-06 P=496.577603 Days $T_0=362.877679$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

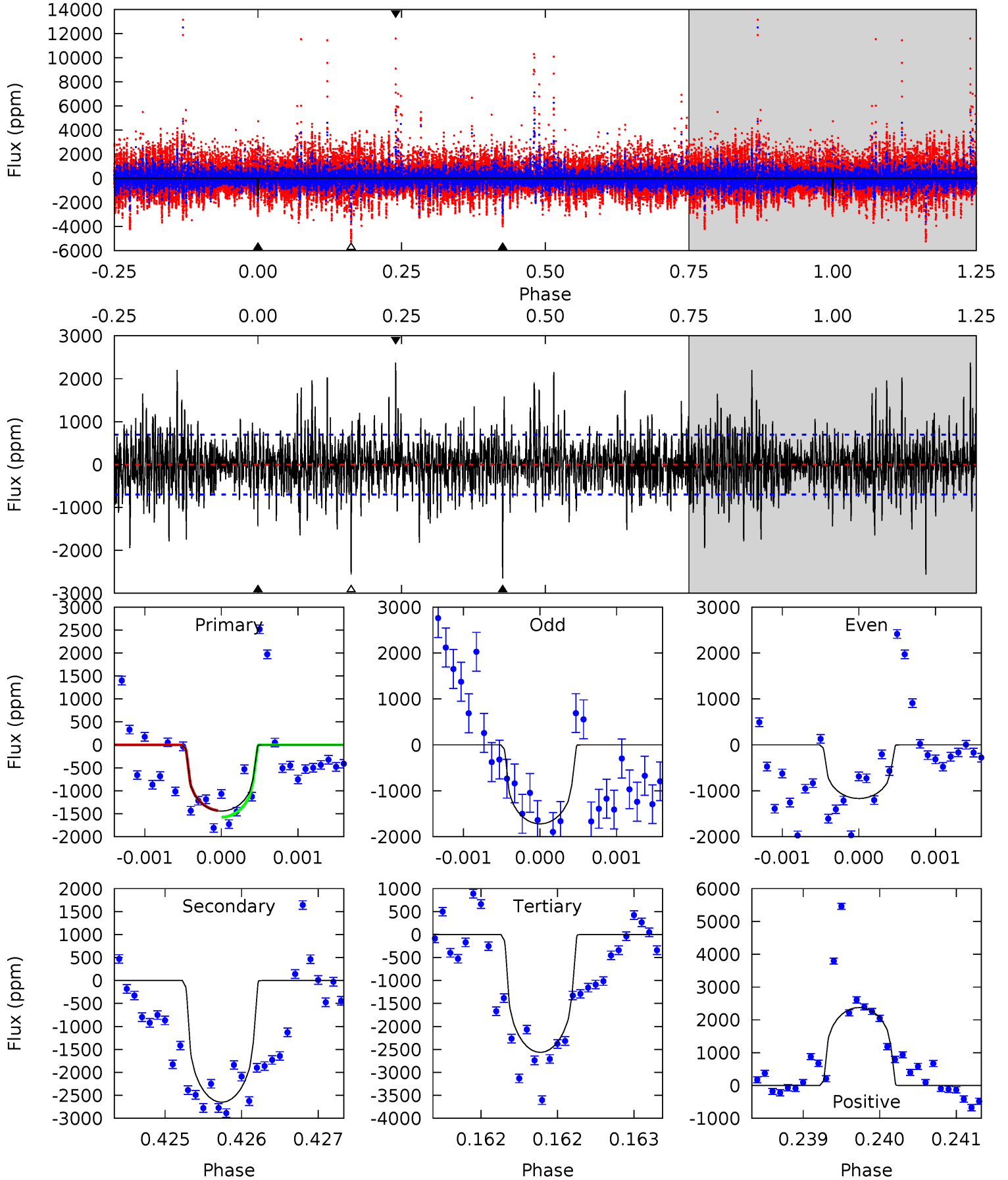
TCE 003222369-06 $P=496.562753$ Days $T_0=362.909740$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-06, P = 496.577603 Days, E = 362.877679 Days

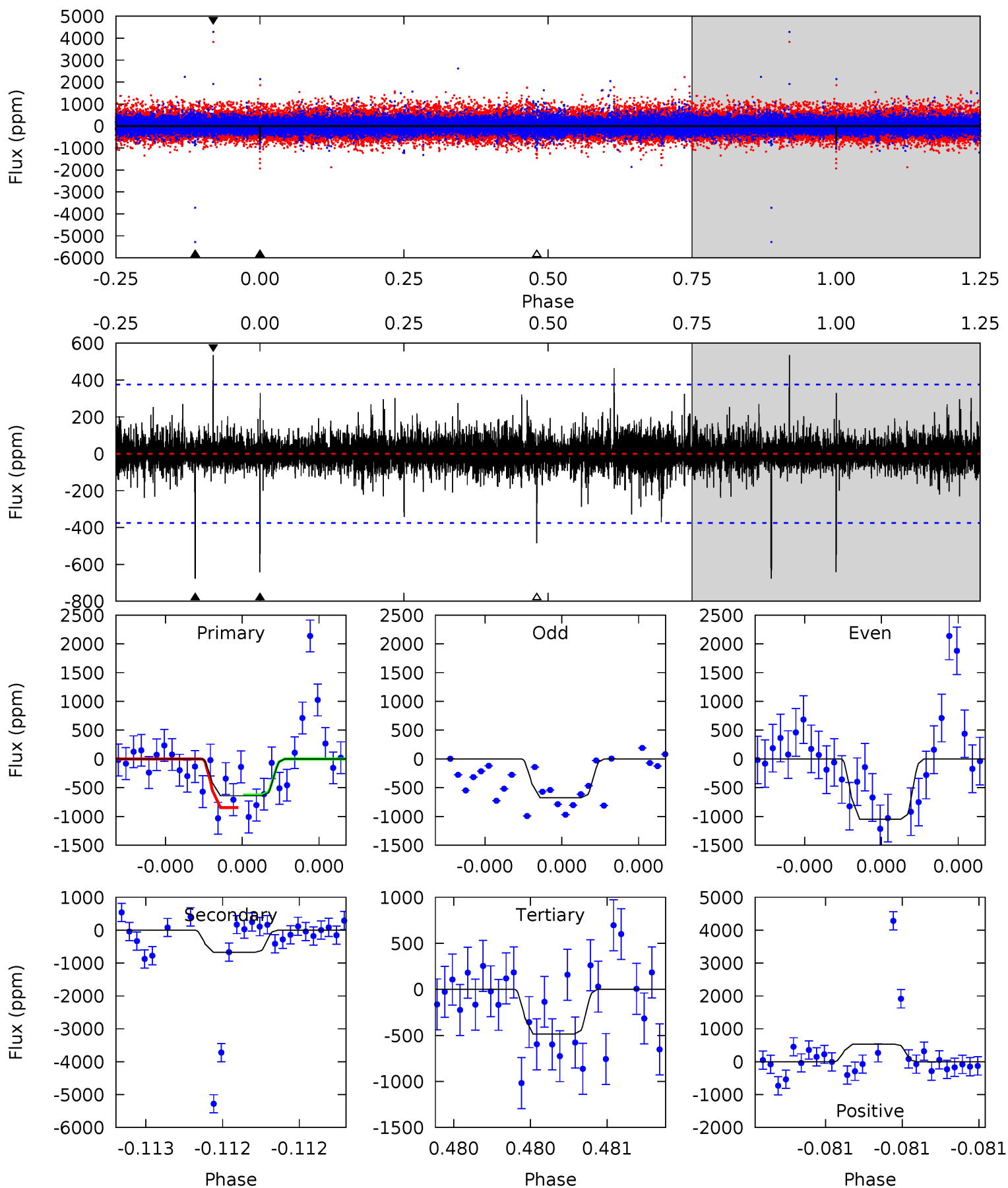
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	21.0	20.3	18.8	5.51	3.39	3.74	-8.88	-7.38	0.68	2.18	0.98	0.75	0.47	0.56



Alt Model-Shift Uniqueness Test

003222369-06, P = 496.562753 Days, E = 362.909740 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.62	10.1	7.27	8.03	5.62	3.55	0.85	2.35	1.59	2.87	2.11	2.76	1.21	0.44	1.68



Stellar Parameters For KIC 003222369

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2651 ± 126	$3.15^{+2.87}_{-2.06}$	222^{+7}_{-8}	4886^{+3660}_{-1066}	$167346^{+1227302}_{-121831}$
Alt.	-677 ± 67	$3.18^{+2.54}_{-2.04}$	222^{+8}_{-7}	3779^{+1867}_{-627}	$43091^{+270737}_{-30265}$

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

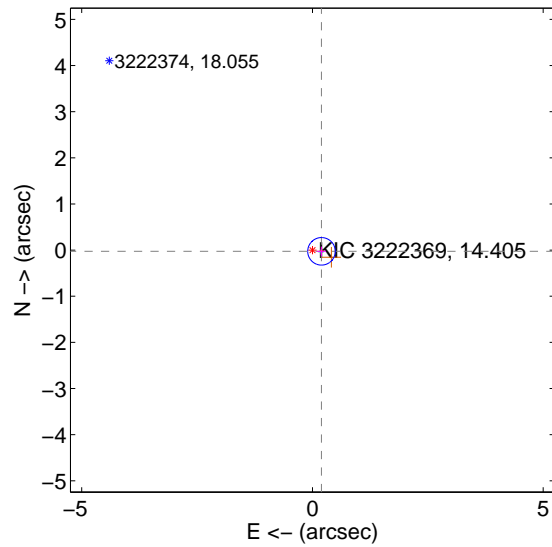
Supplemental centroid analysis for 003222369-06. Kepler magnitude: 14.40. Transit SNR 6.04

There are 1 quarters with good PRF difference image offsets

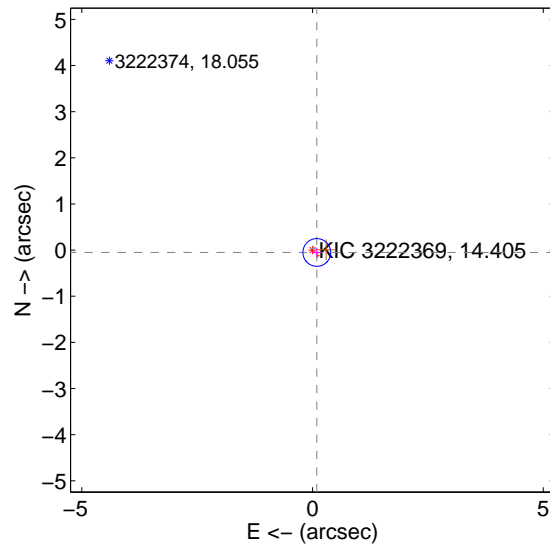
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.198 ± 0.099	1.99	-0.196 ± 0.099	-0.027 ± 0.103
PRF-fit source offset from KIC position	0.106 ± 0.100	1.05	-0.092 ± 0.099	-0.051 ± 0.103
photometric centroid source offset	1.53 ± 0.95	1.61	0.55 ± 0.99	-1.42 ± 0.94

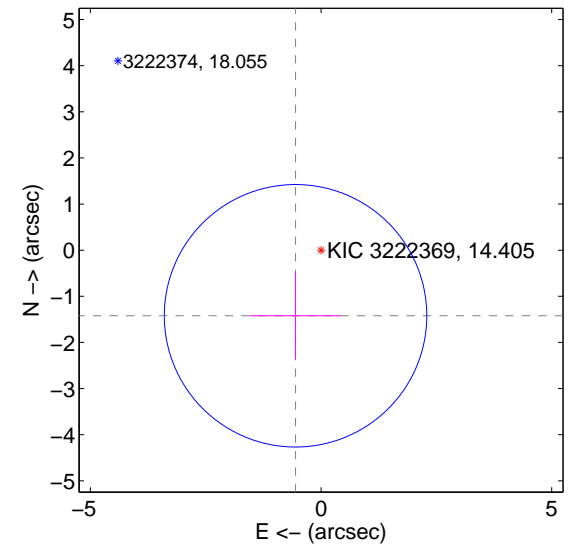
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



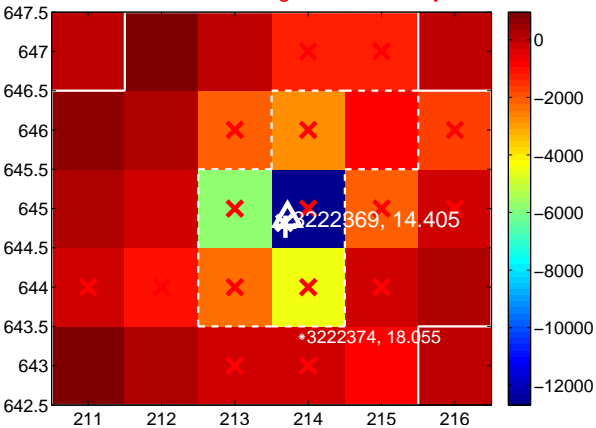
Q3 no difference image



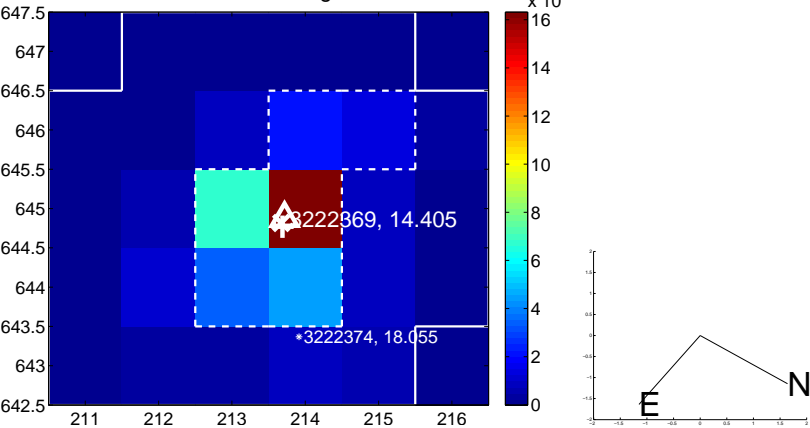
Q3 no OOT image



Q4 difference image. Poor Quality



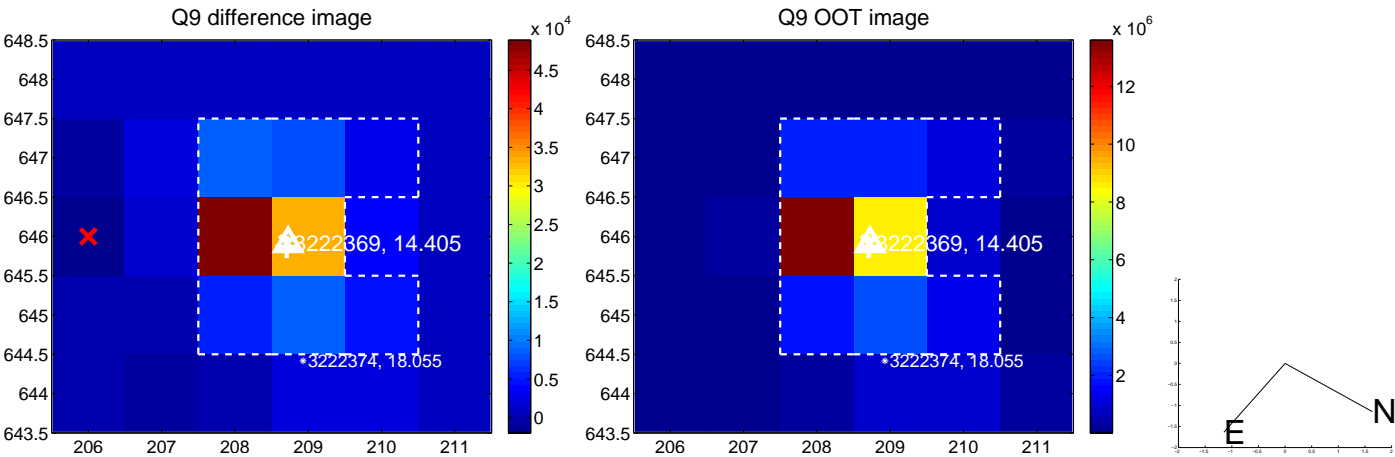
Q4 OOT image



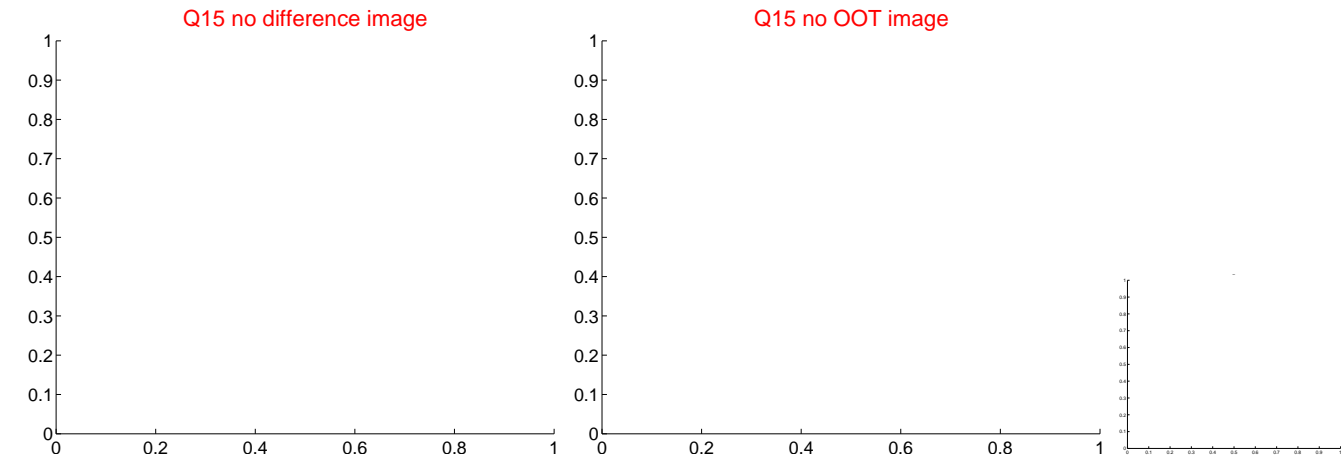
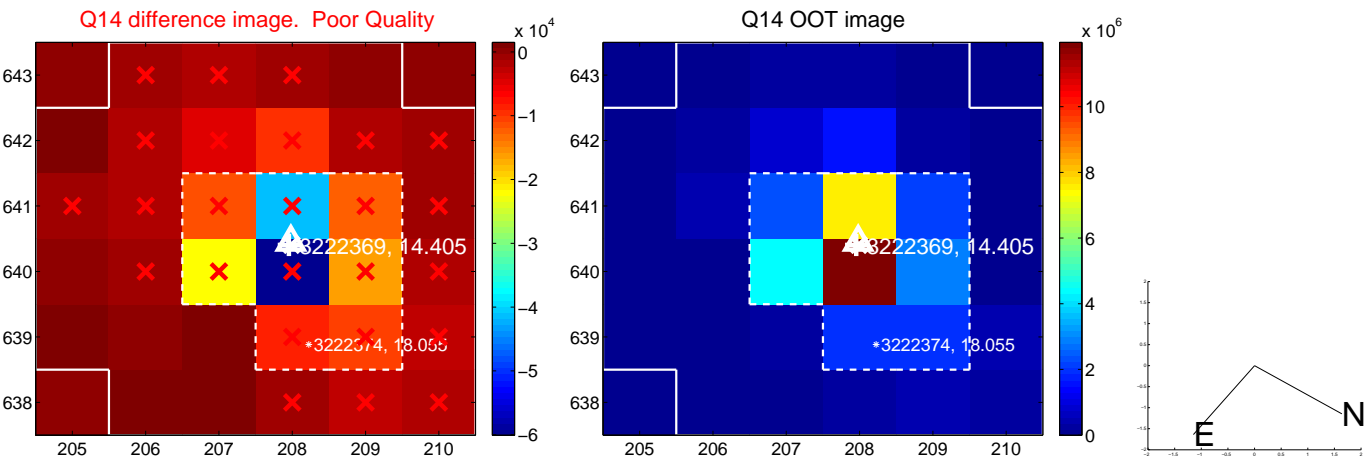
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



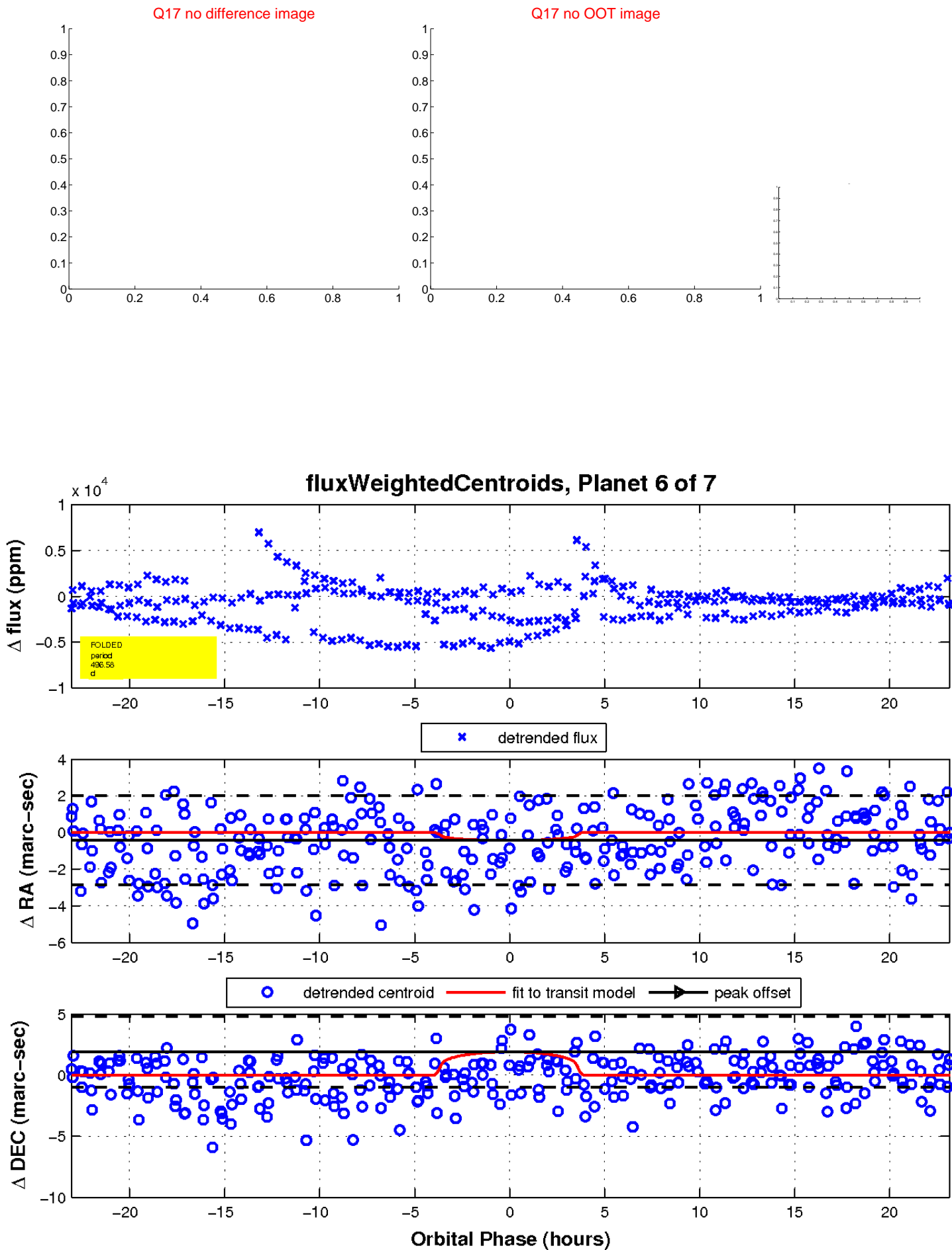
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

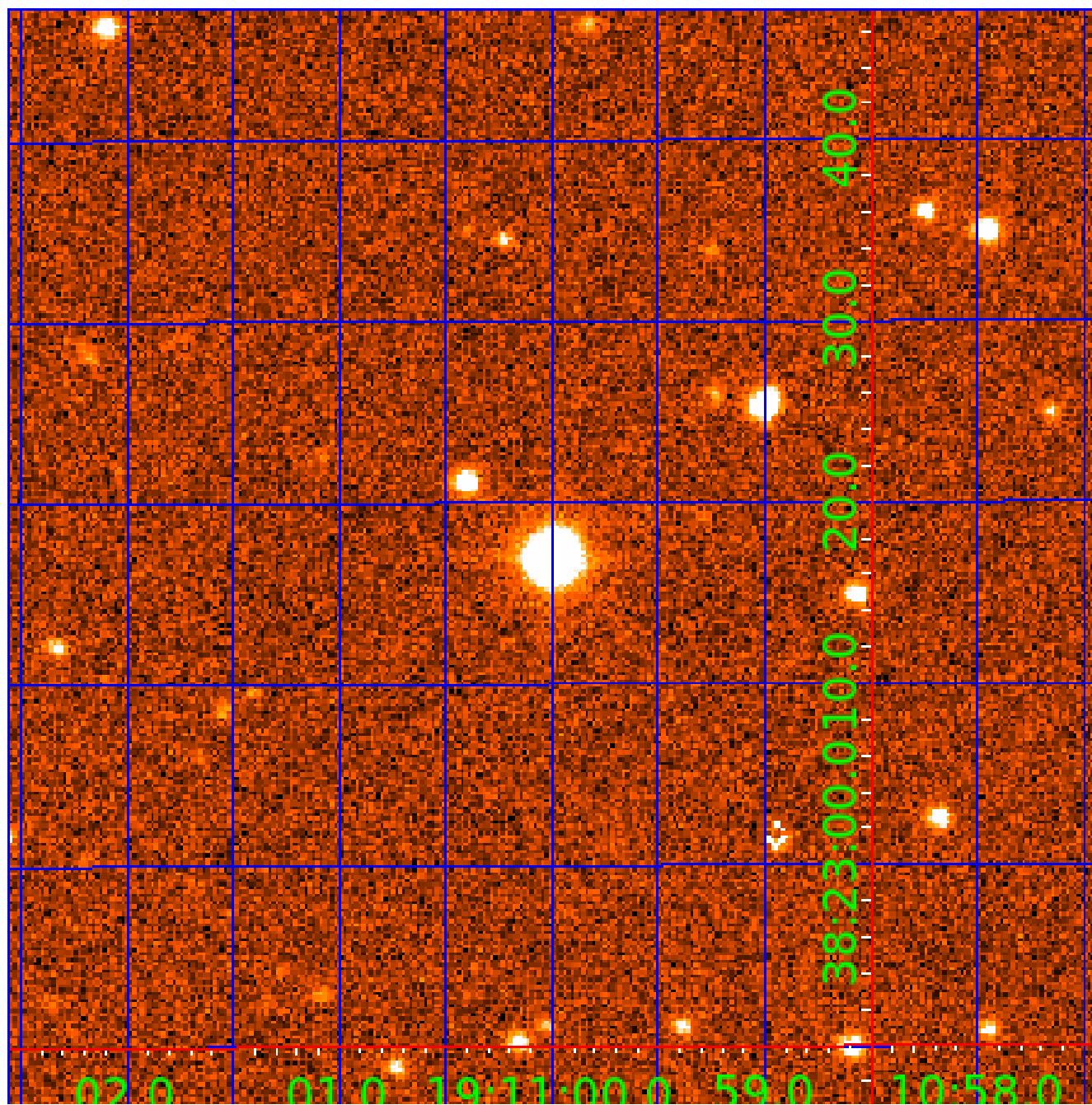


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003222369

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})
003222369-01	OBS	No	367.598366	212.518024	1966.4	6.379	18.9	10.3	0.65	4619	3.77	0.23
003222369-02	OBS	No	458.694719	250.711866	2044.9	8.283	14.6	9.3	0.65	4619	3.58	0.17
003222369-03	OBS	No	545.676981	208.472926	1187.1	4.560	14.8	5.9	0.65	4619	2.28	0.14
003222369-04	OBS	No	331.107752	424.070027	1525.4	2.090	14.1	8.5	0.65	4619	2.73	0.27
003222369-05	OBS	No	353.224935	398.170679	1608.5	8.333	15.5	7.8	0.65	4619	2.82	0.24
003222369-06	OBS	No	496.577603	362.877680	1225.1	7.766	16.0	6.0	0.65	4619	2.37	0.15
003222369-07	OBS	No	410.959759	341.642914	841.2	10.500	14.5	-1.0	0.65	4619	1.81	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003222369-01	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—INCONSISTENT_TRANS
003222369-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003222369-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003222369-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003222369-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS

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

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

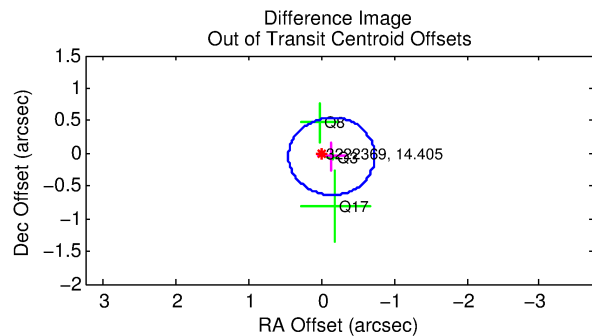
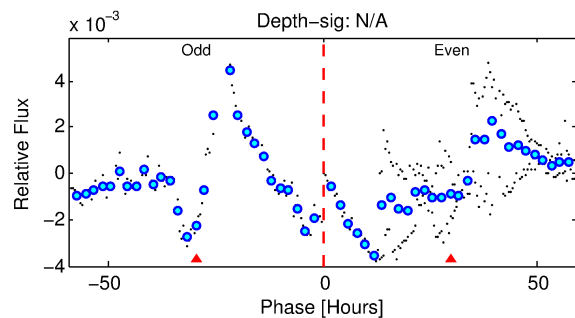
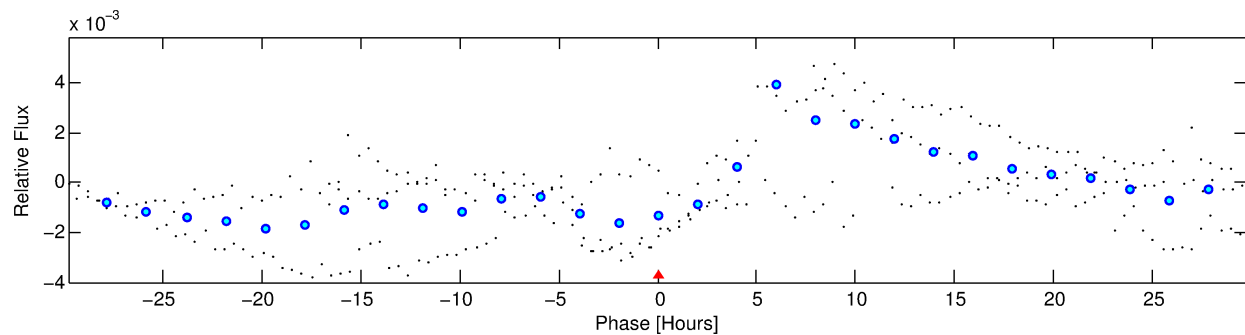
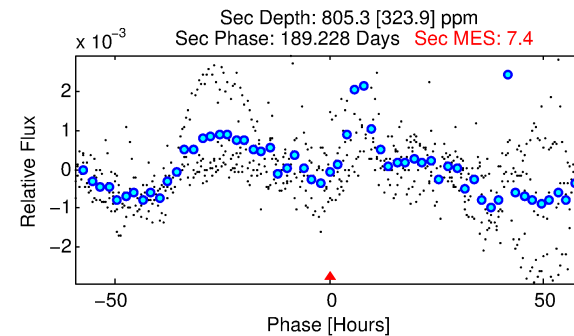
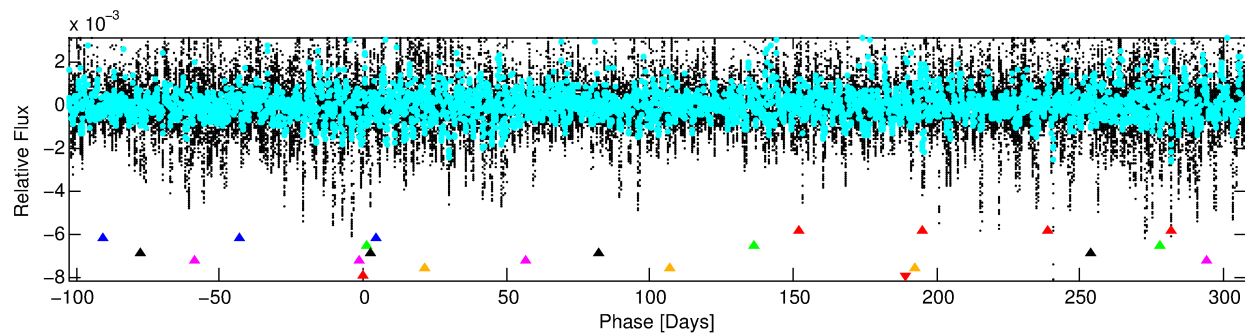
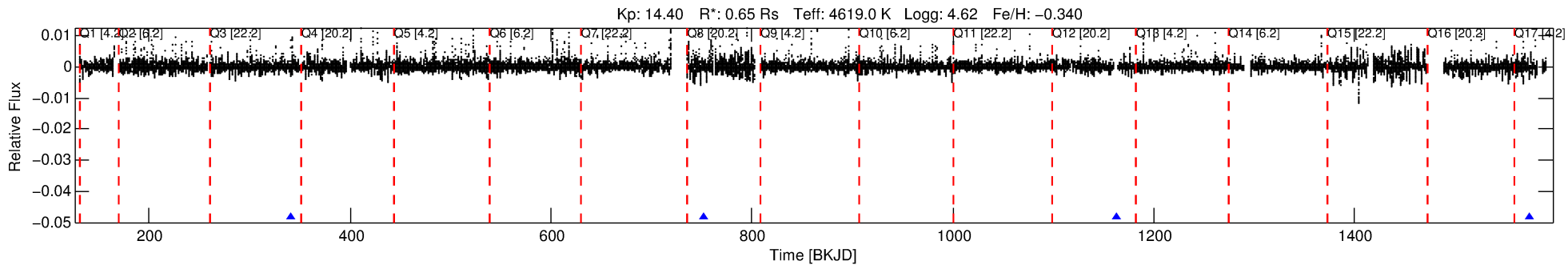
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003222369-07

No Significant Match Found

DV One-Page Summary

KIC: 3222369 Candidate: 7 of 7 Period: 410.960 d



TPS TCE Results:

Period = 410.95976 d
Epoch = 341.6429 BKJD

DV fit results are unavailable

DV Diagnostic Results:

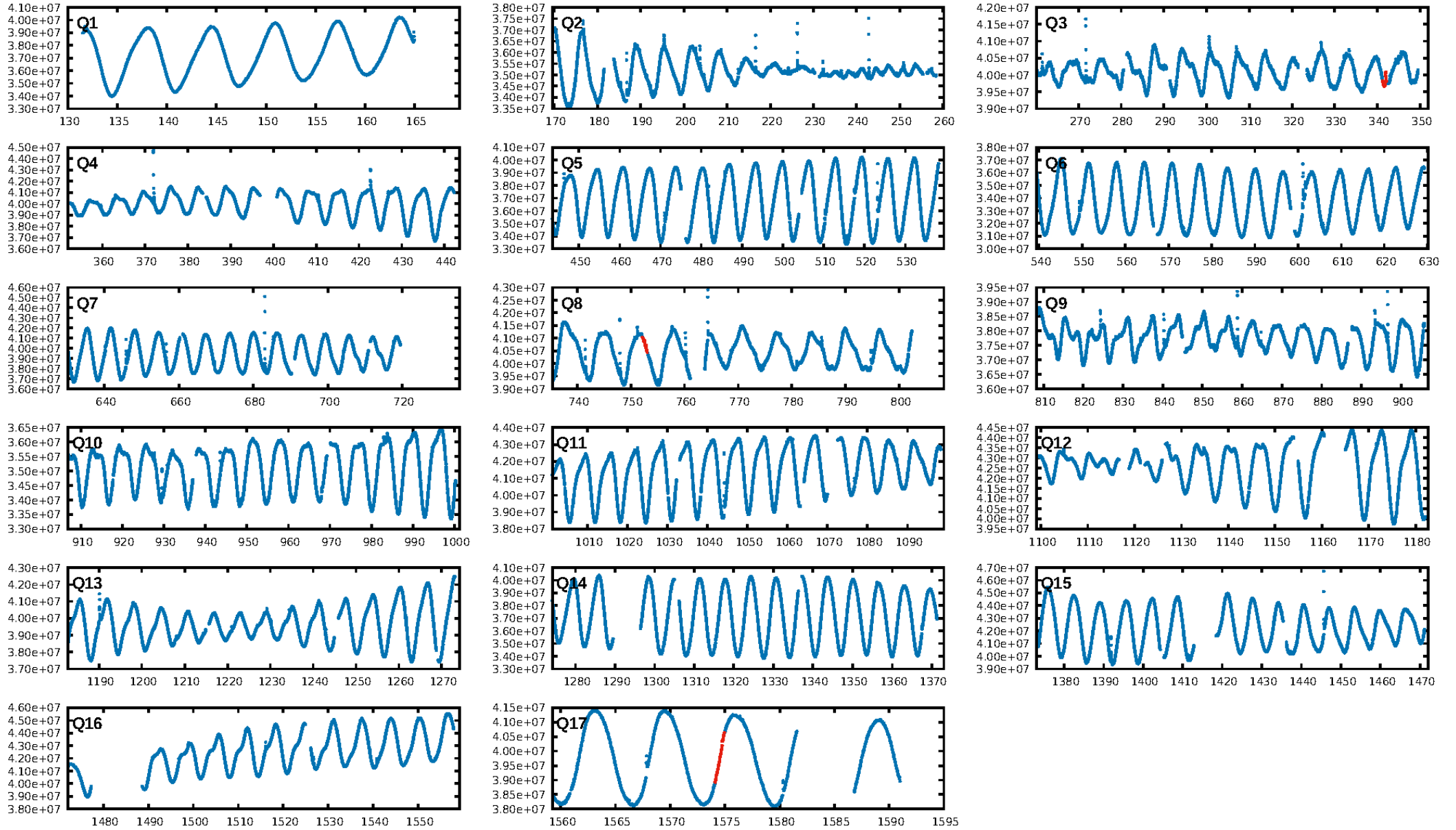
ShortPeriod-sig: 100.0% [84.71 σ]
LongPeriod-sig: 100.0% [85.66 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.094

Centroid-sig: 89.1%
Centroid-so: 0.265 arcsec [0.92 σ]
OotOffset-rm: 0.147 arcsec [0.74 σ]
KicOffset-rm: 0.102 arcsec [0.27 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

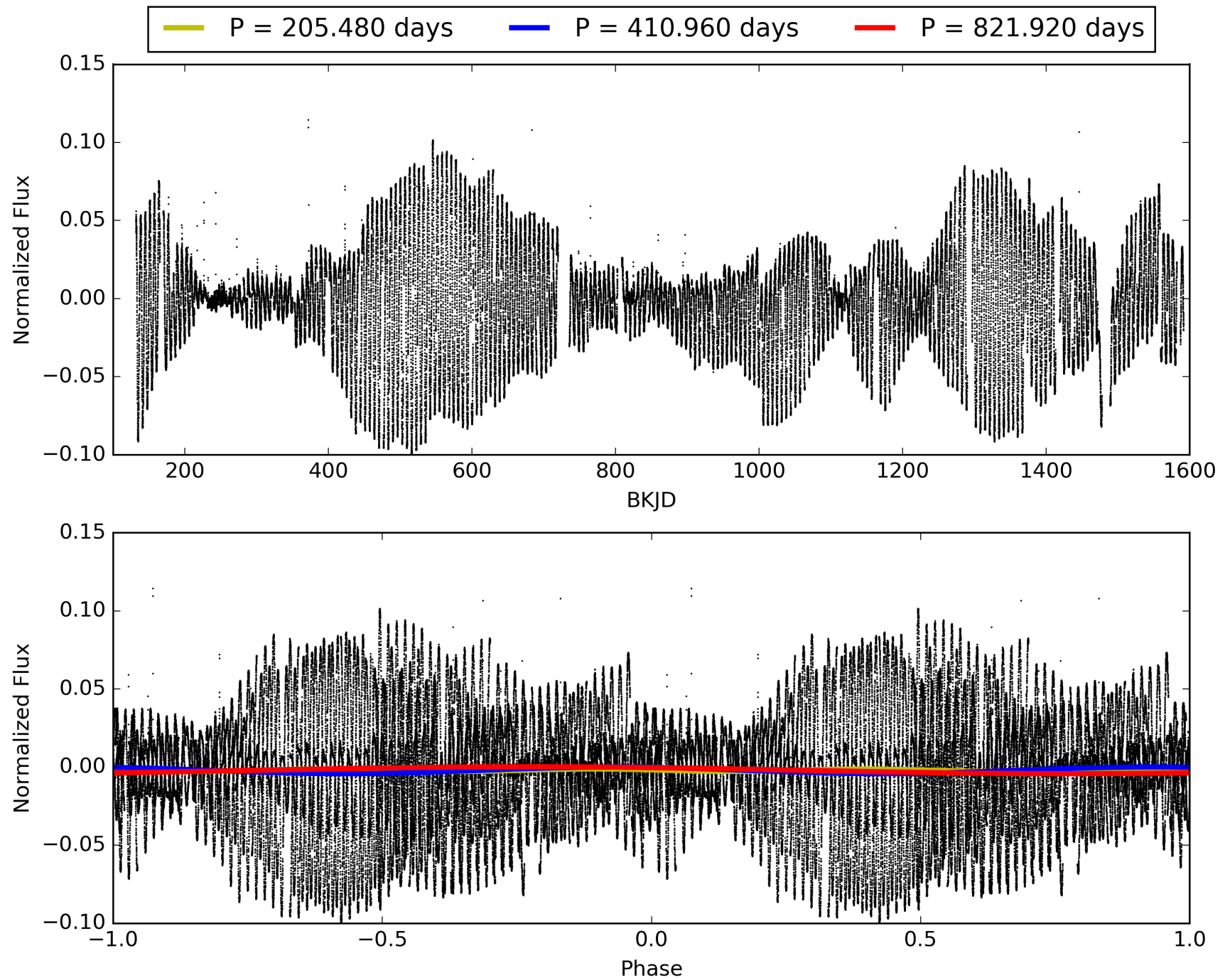
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:28:44 Z

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

TCE 003222369-07, PDC Light Curves

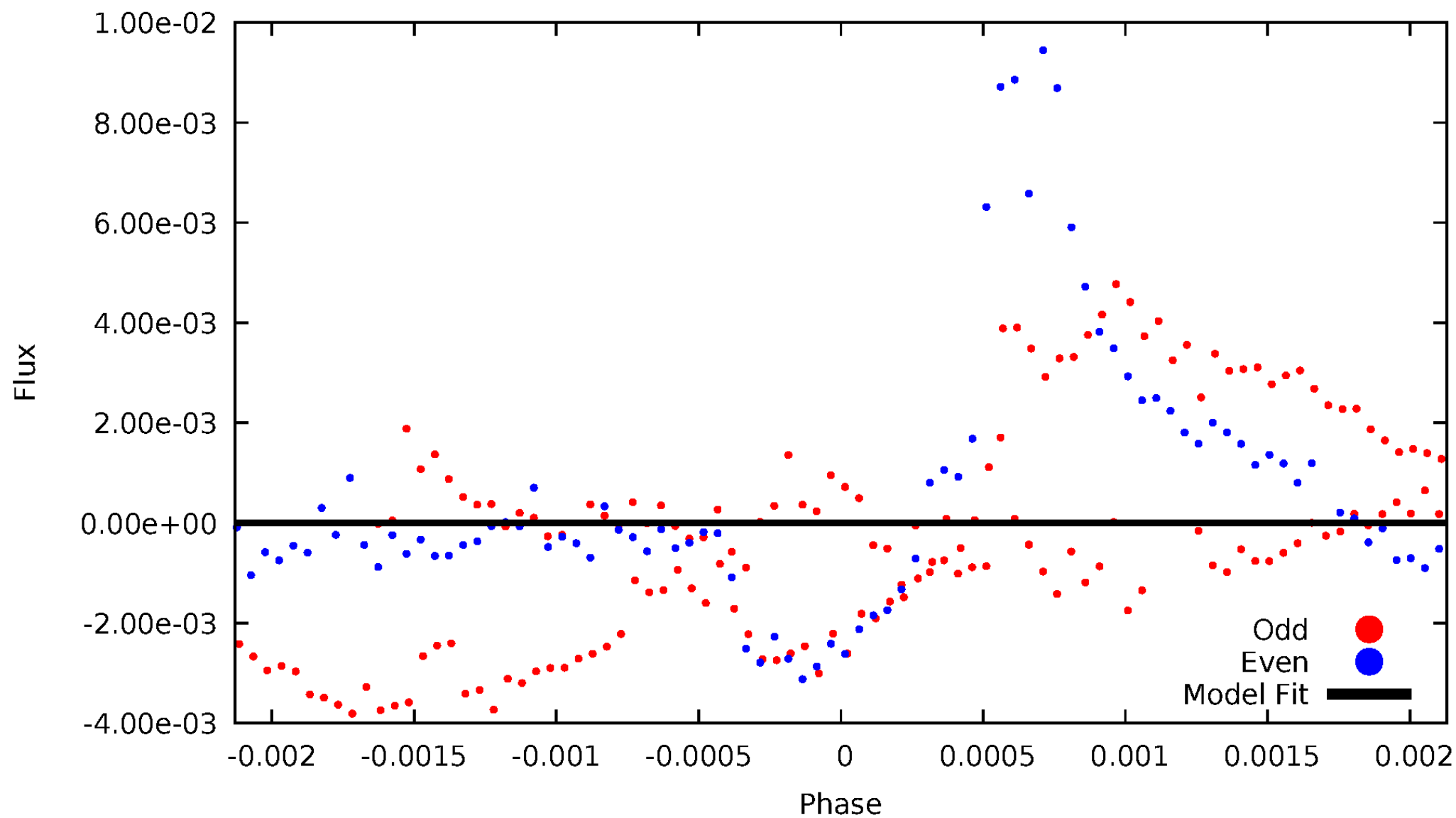


TCE 003222369-07



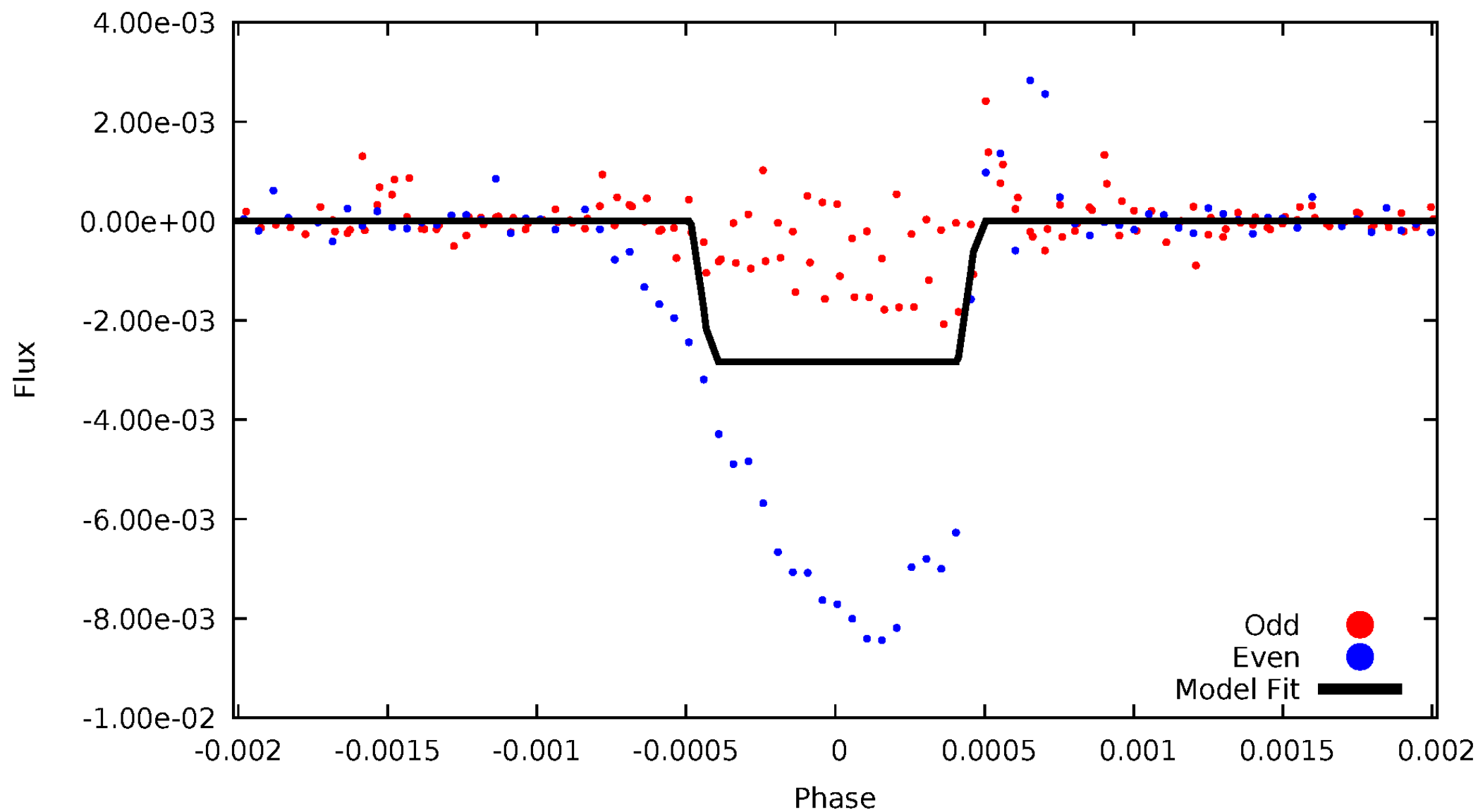
DV Odd/Even

TCE 003222369-07

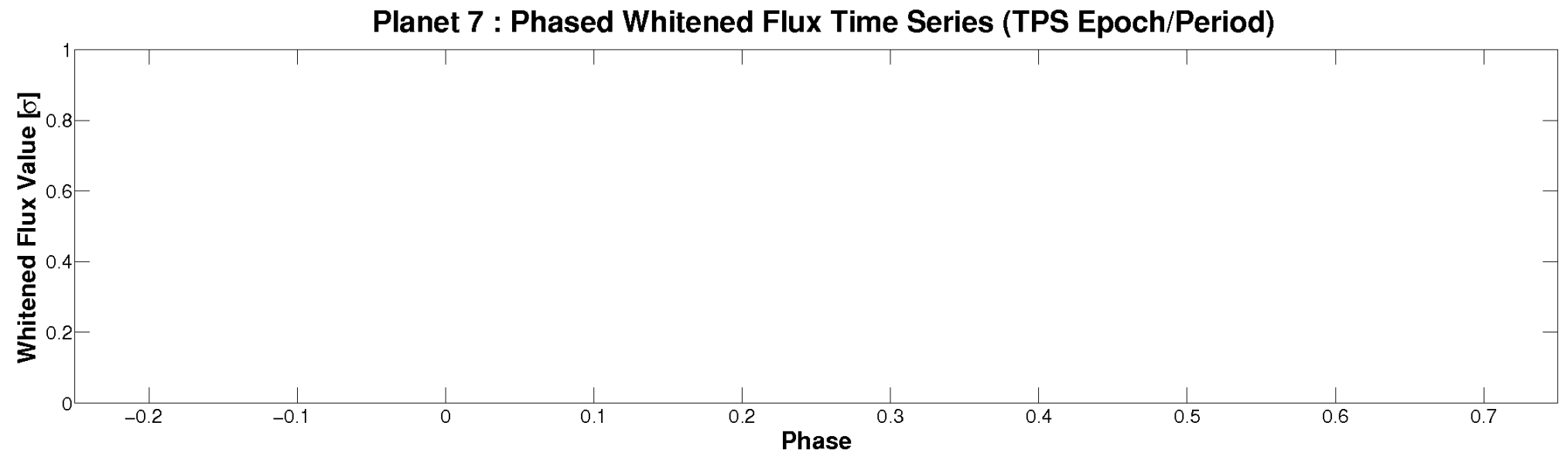
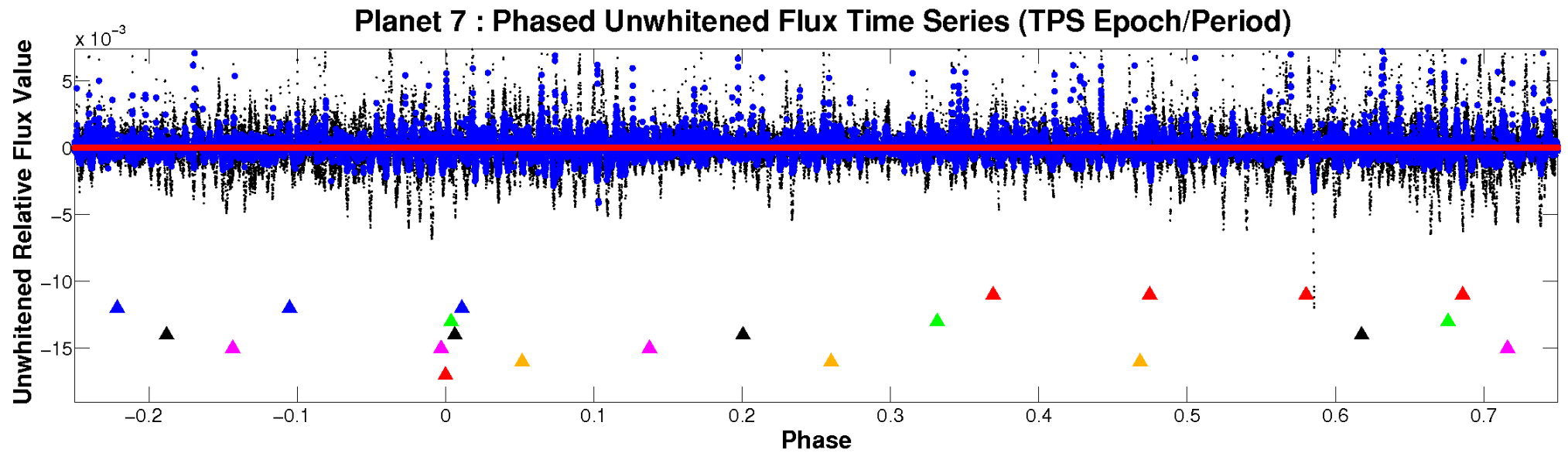


ALT Odd/Even

TCE 003222369-07

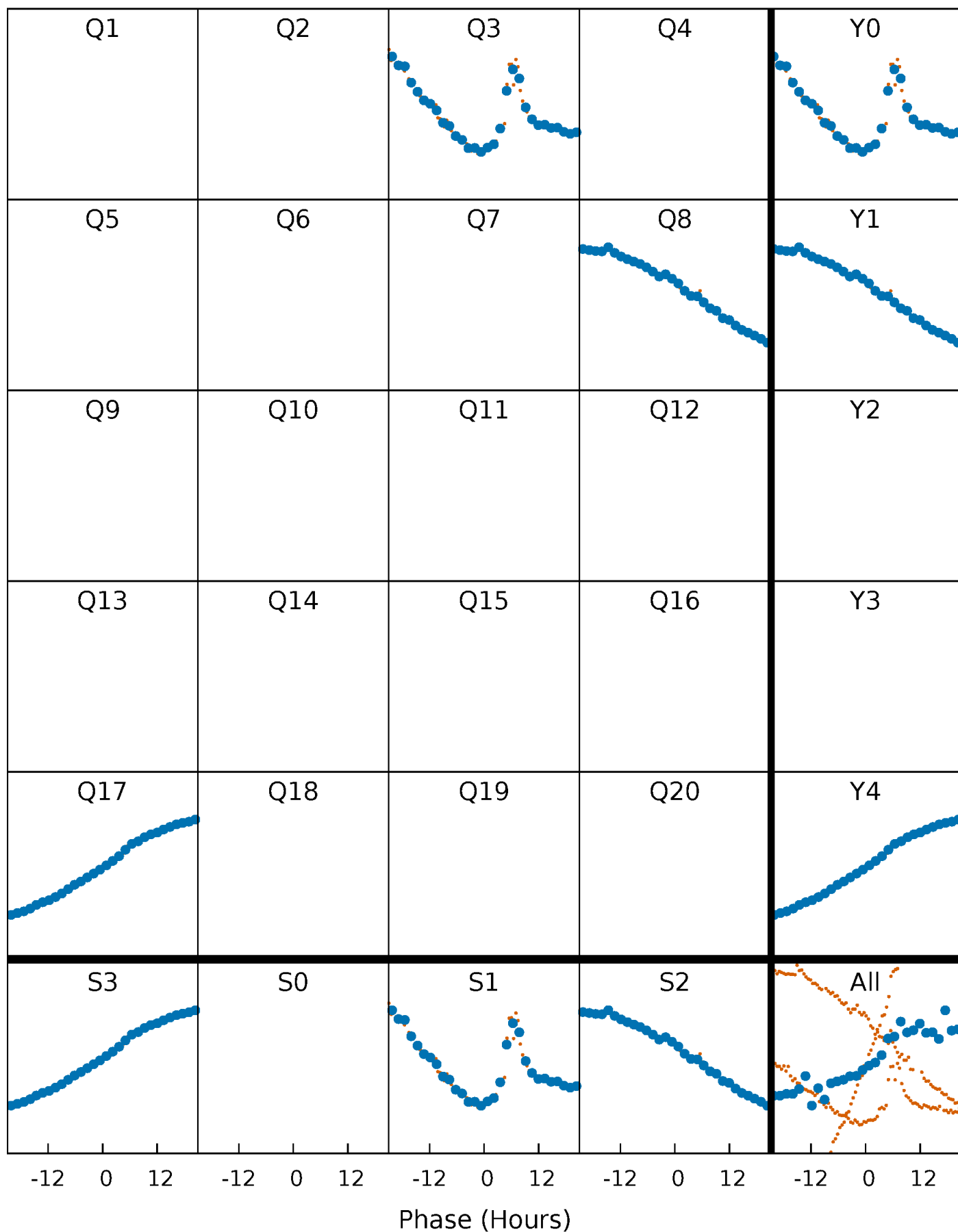


Non-Whitened Vs. Whitened Light Curve



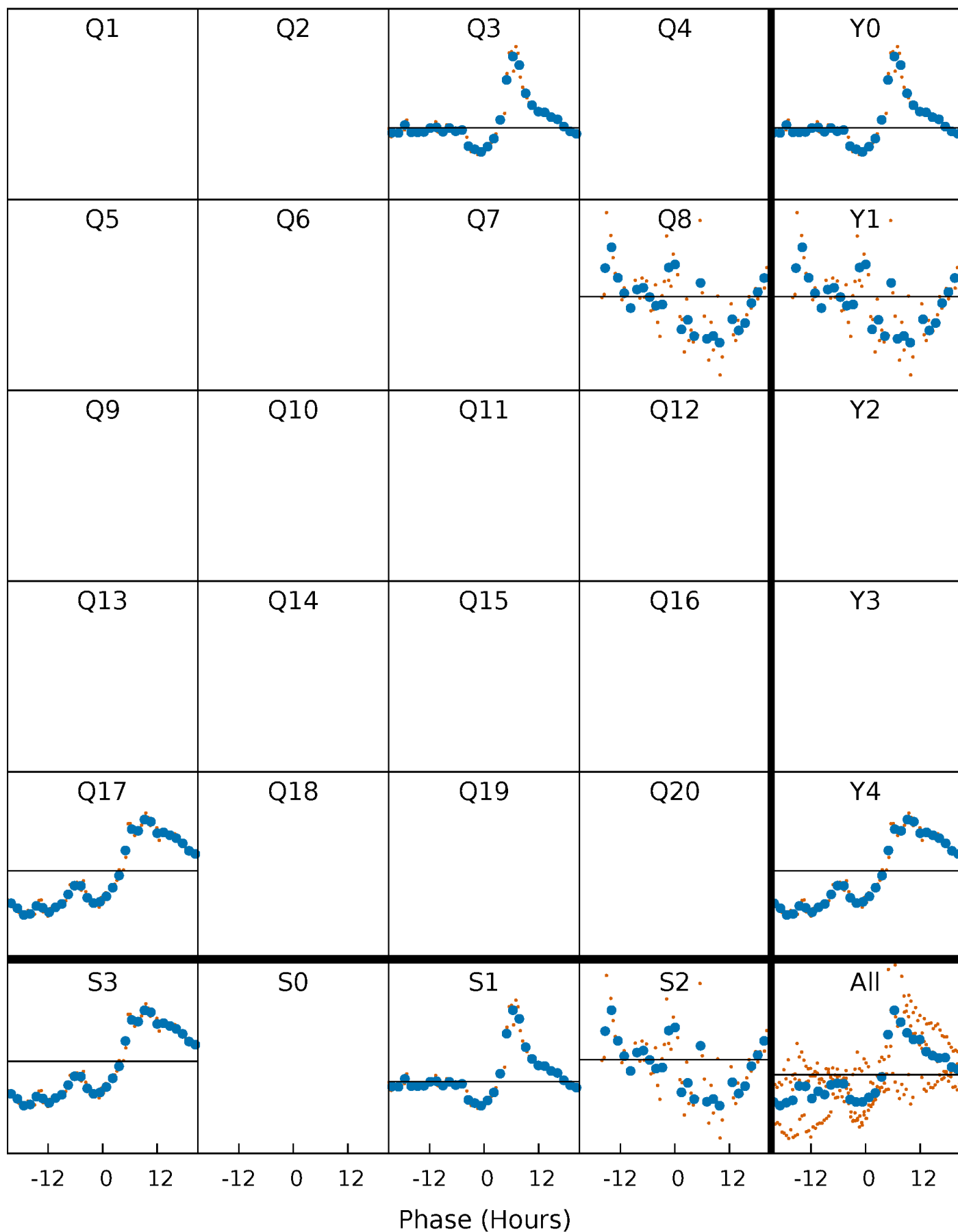
PDC Quarter-Phased Transit Curves

TCE 003222369-07 $P=410.959759$ Days $T_0=341.642914$ (BKJD)



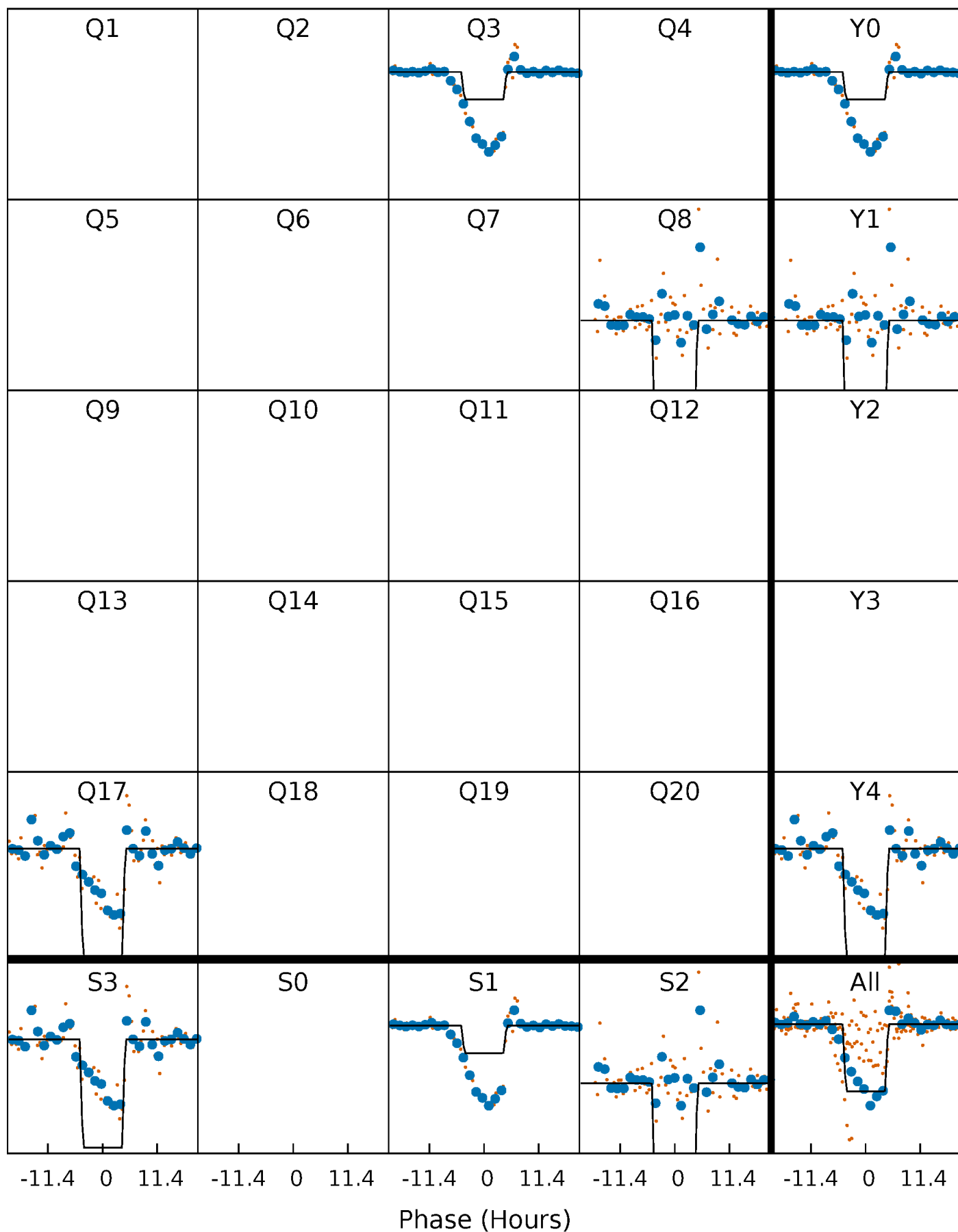
DV Quarter-Phased Transit Curves

TCE 003222369-07 $P=410.959759$ Days $T_0=341.642914$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

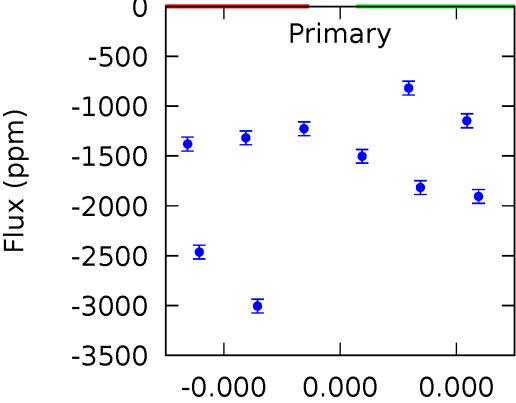
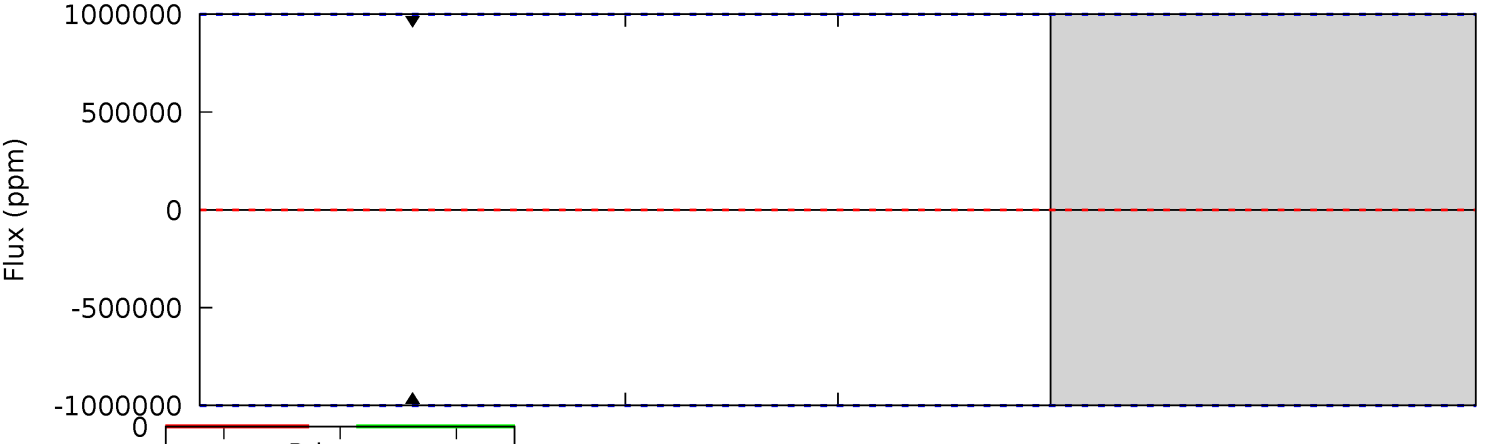
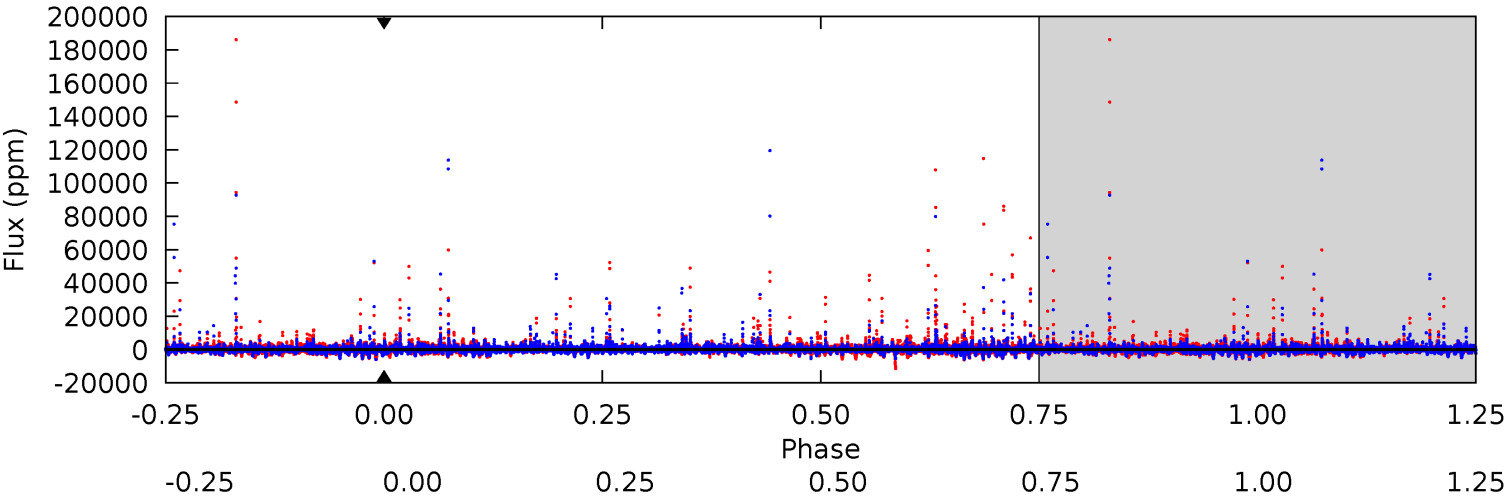
TCE 003222369-07 $P=410.959759$ Days $T_0=341.666471$ (BKJD)



DV Model-Shift Uniqueness Test

003222369-07, P = 410.959759 Days, E = 341.642914 Days

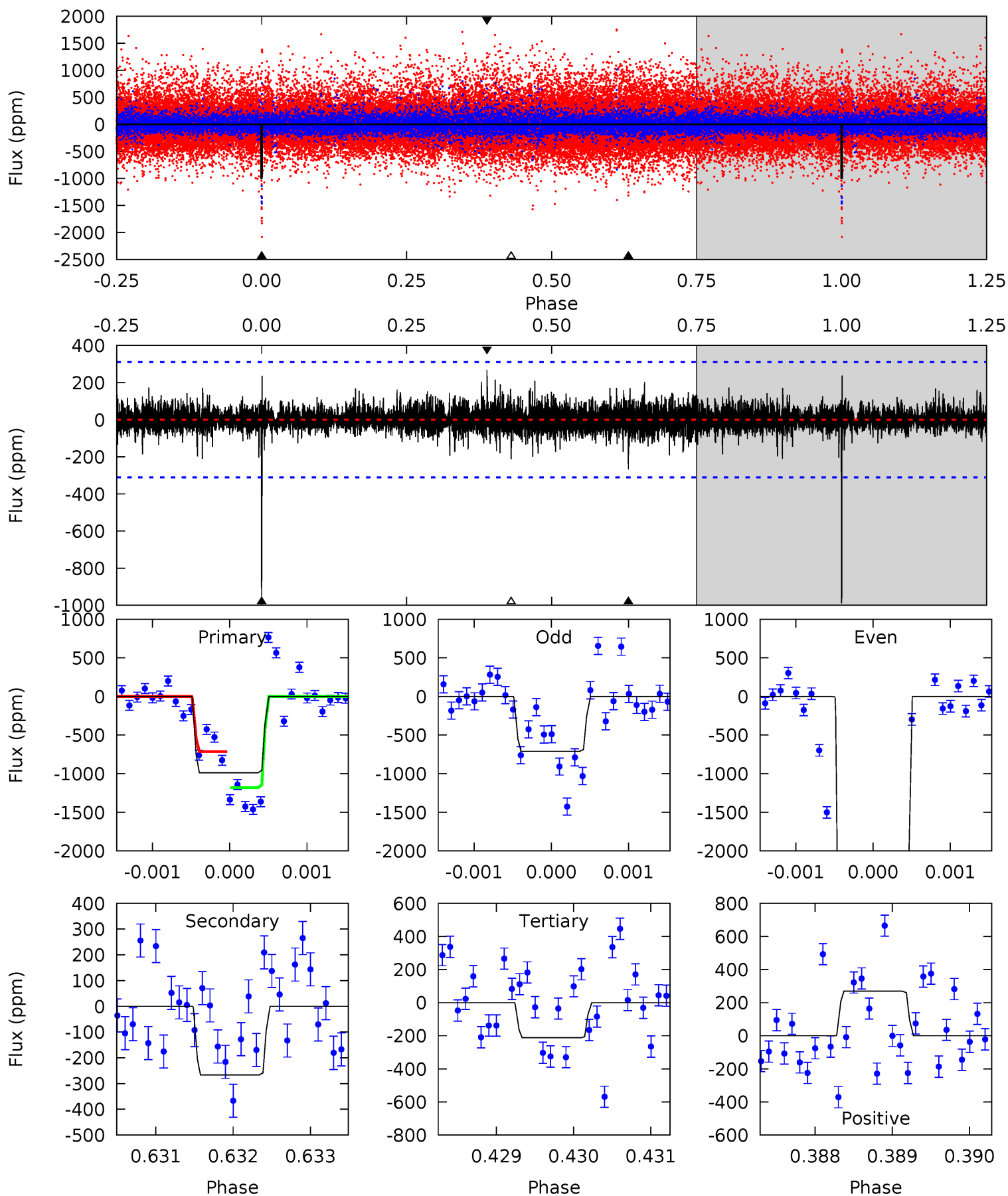
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003222369-07, P = 410.959759 Days, E = 341.666471 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	4.68	3.73	4.72	5.45	3.29	0.76	13.6	12.6	0.95	-0.04	67.1	2.03	0.21	4.19



Stellar Parameters For KIC 003222369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4619^{+124}_{-138}	$4.615^{+0.054}_{-0.027}$	$-0.340^{+0.300}_{-0.300}$	$0.650^{+0.051}_{-0.056}$	$0.635^{+0.076}_{-0.047}$	$3.258^{+0.819}_{-0.420}$
	+3%/-3%	+1%/-1%	+88%/-88%	+8%/-9%	+12%/-7%	+25%/-13%
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 003222369-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$5.31^{+5.98}_{-3.66}$	237^{+7}_{-9}	2836^{+9606}_{-14209}	$4125^{+3090658}_{-2481362}$
Alt.	-267 ± 57	$5.92^{+6.14}_{-4.09}$	237^{+7}_{-9}	2715^{+1189}_{-429}	3438^{+37264}_{-2593}

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

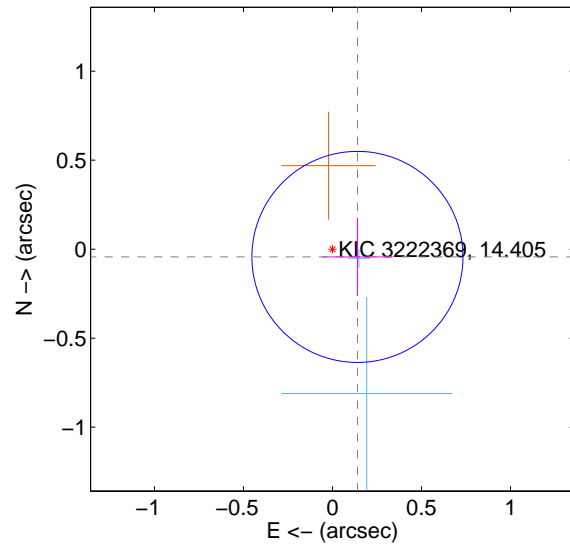
Supplemental centroid analysis for 003222369-07. Kepler magnitude: 14.40. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

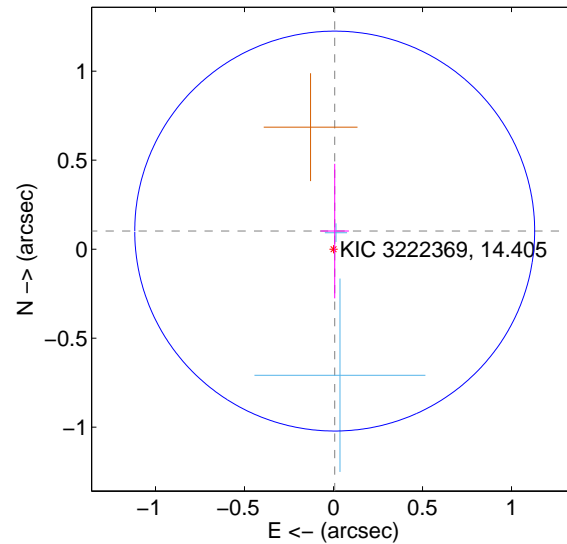
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.147 ± 0.198	0.74	-0.140 ± 0.196	-0.044 ± 0.219
PRF-fit source offset from KIC position	0.102 ± 0.374	0.27	-0.007 ± 0.080	0.102 ± 0.378
photometric centroid source offset	0.27 ± 0.29	0.92	0.18 ± 0.30	0.19 ± 0.28

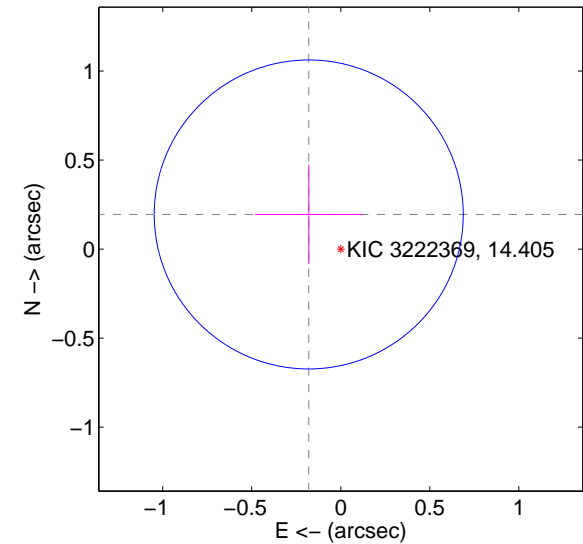
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

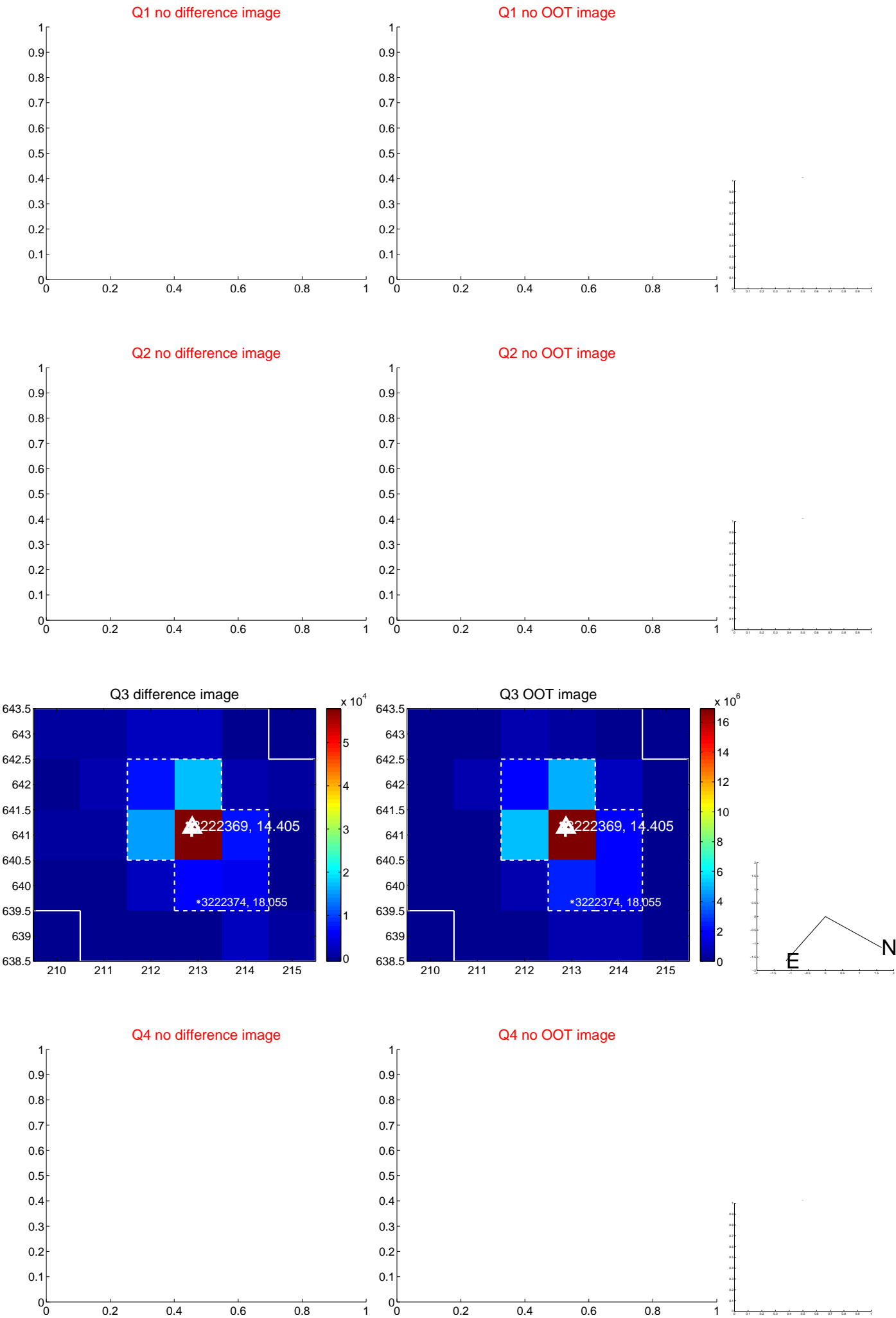


offset from photometric centroids

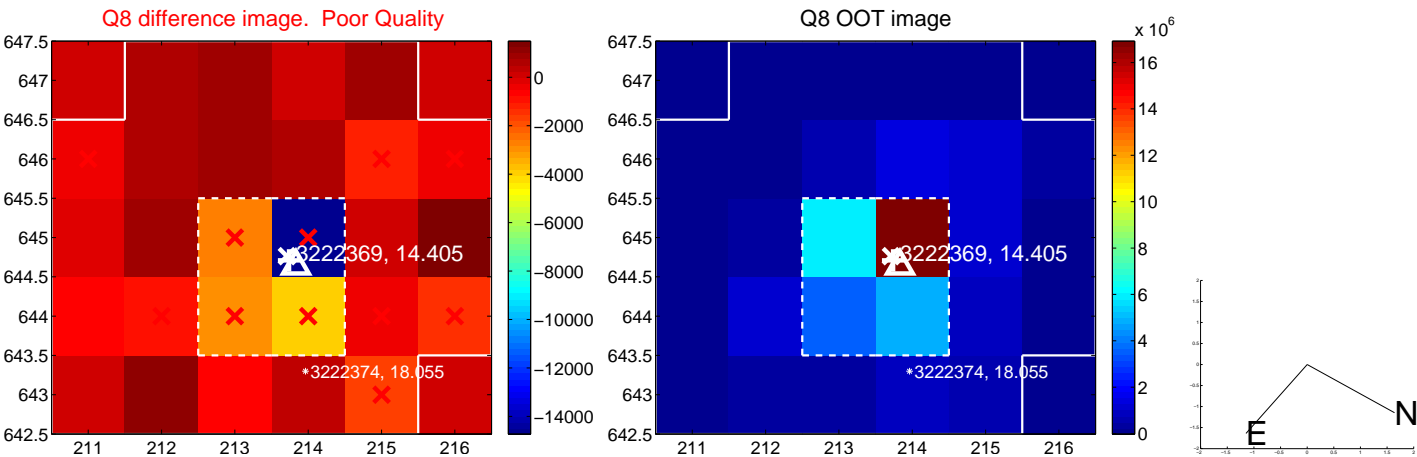


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



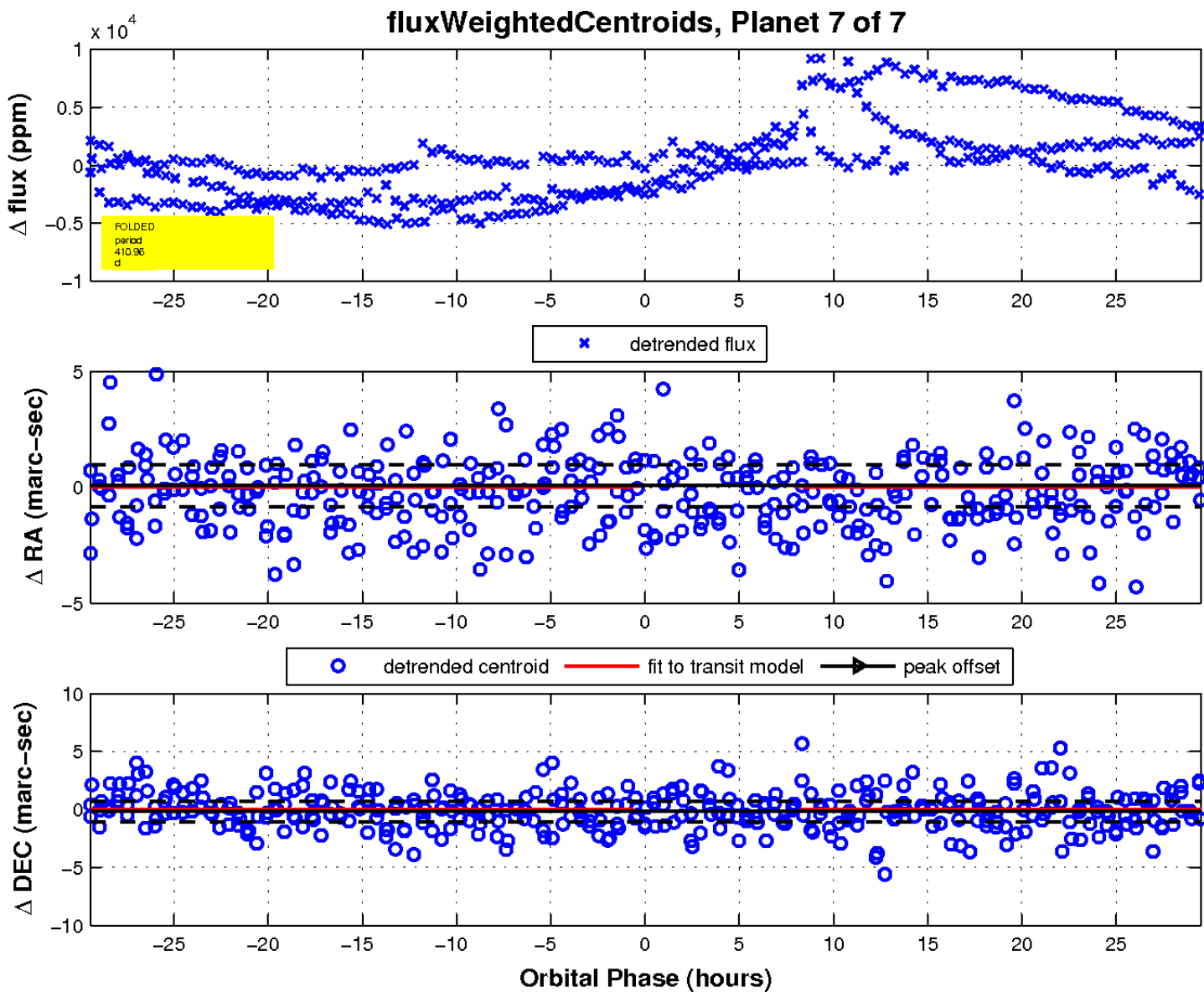
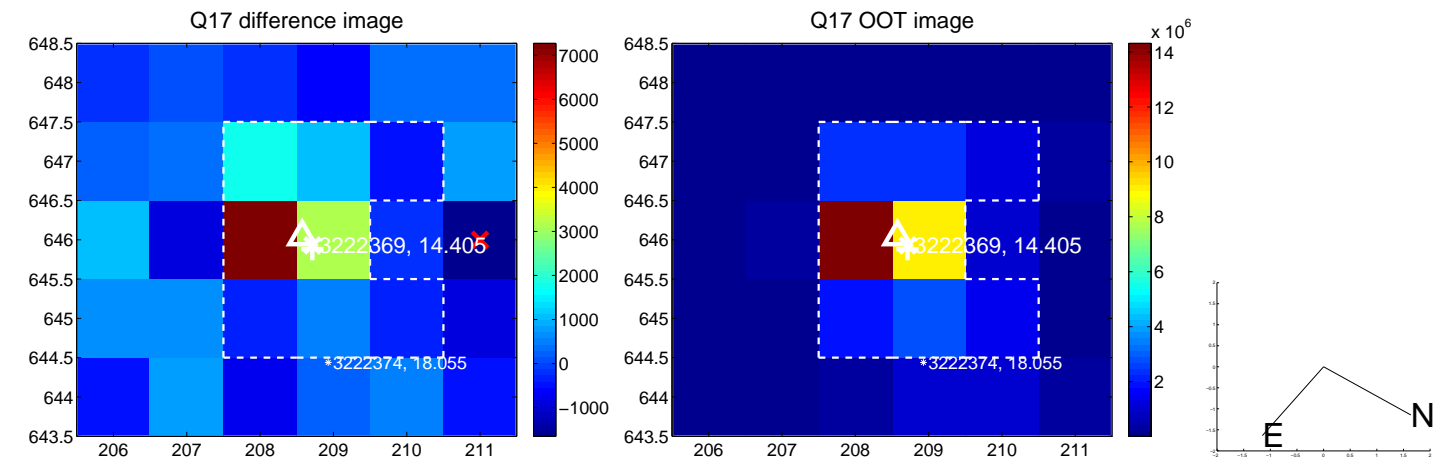
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

