

KIC 007367559

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})
007367559-01	OBS	No	544.984304	462.954230	6719.9	15.267	29.3	5.4	1.25	7102	11.64	1.78
007367559-02	OBS	No	545.008393	463.955358	22744.3	11.982	30.3	18.7	1.25	7102	19.56	1.78
007367559-03	OBS	No	450.053861	496.813721	10288.9	14.157	23.0	8.0	1.25	7102	14.38	2.30
007367559-04	OBS	No	450.051546	495.409777	450.2	2.467	21.2	1.8	1.25	7102	3.13	2.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007367559-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
007367559-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007367559-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007367559-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

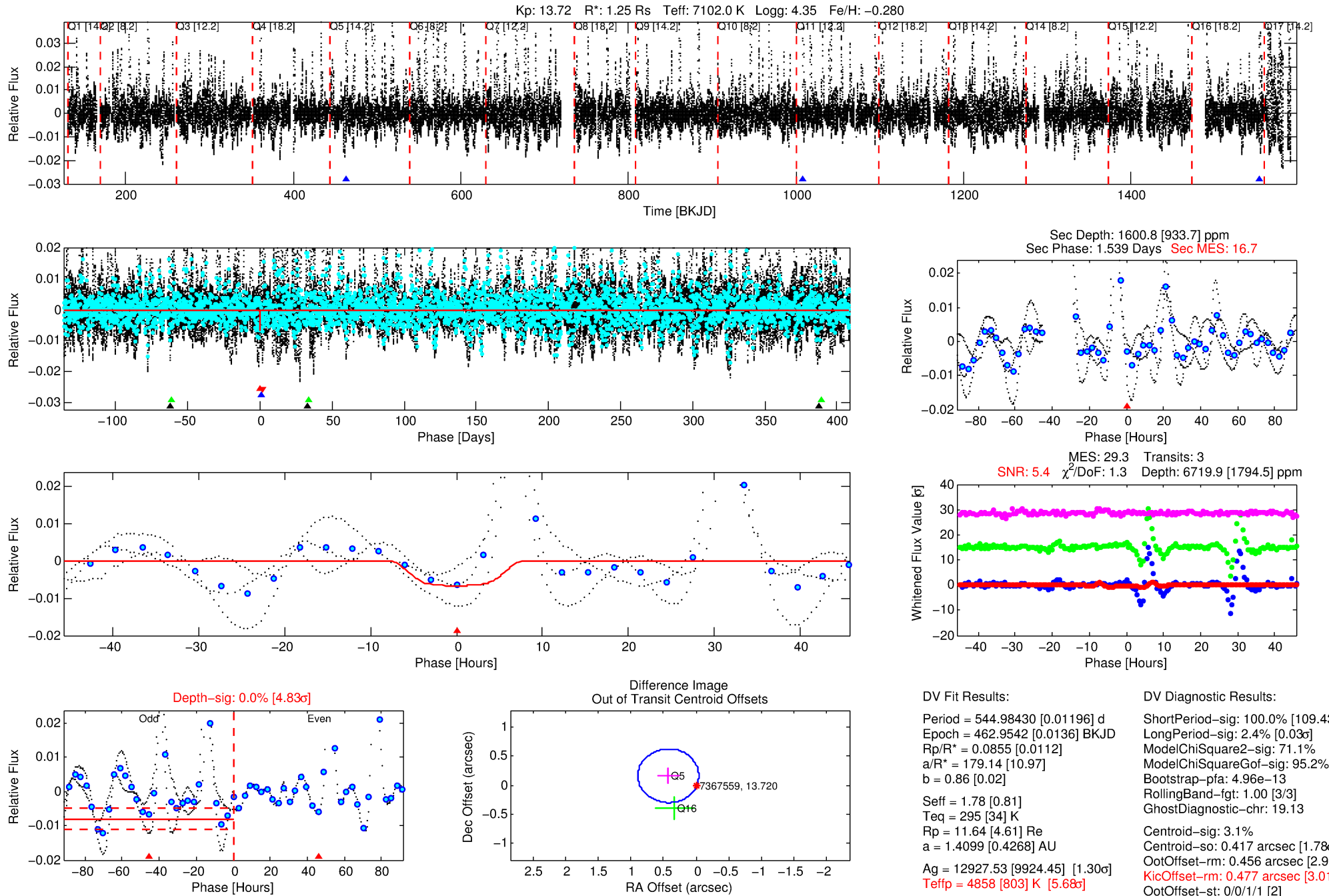
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007367559-01

No Significant Match Found

DV One-Page Summary

KIC: 7367559 Candidate: 1 of 4 Period: 544.984 d



DV Fit Results:

Period = 544.98430 [0.01196] d
Epoch = 462.9542 [0.0136] BKJD
Rp/R* = 0.0855 [0.0112]
a/R* = 179.14 [10.97]
b = 0.86 [0.02]
Seff = 1.78 [0.81]
Teq = 295 [34] K
Rp = 11.64 [4.61] Re
a = 1.4099 [0.4268] AU
Ag = 12927.53 [9924.45] [1.30σ]
Teffp = 4858 [803] K [5.68σ]

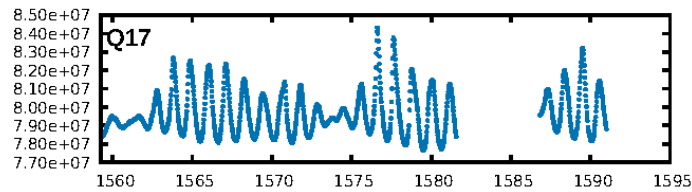
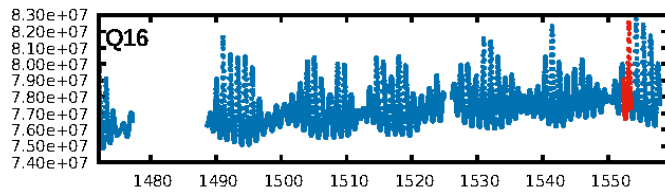
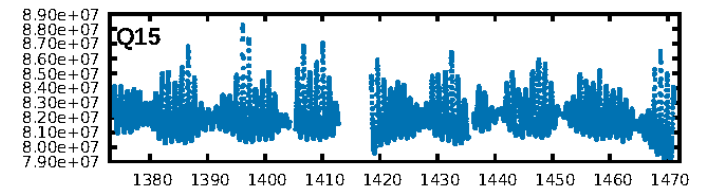
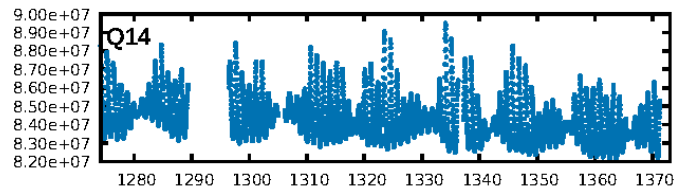
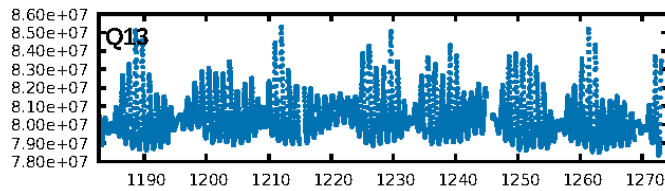
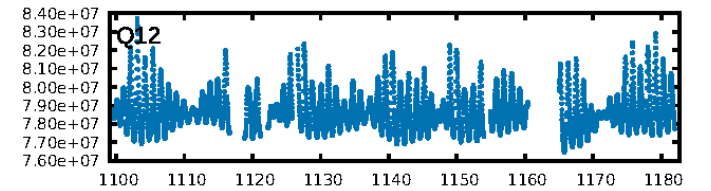
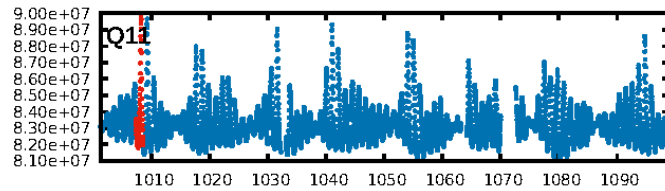
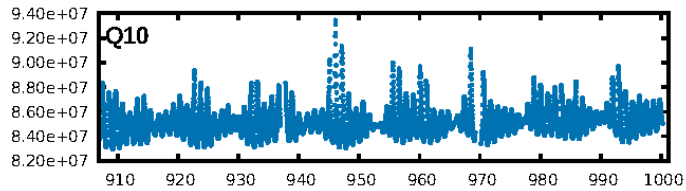
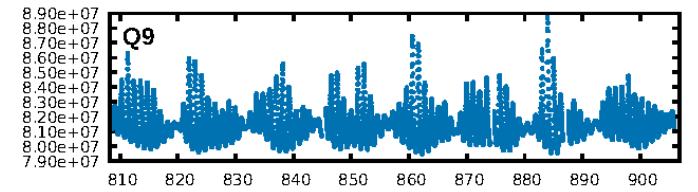
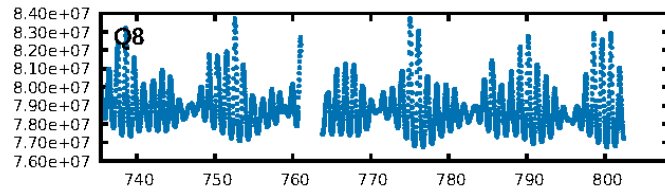
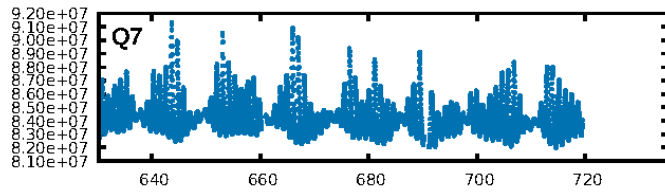
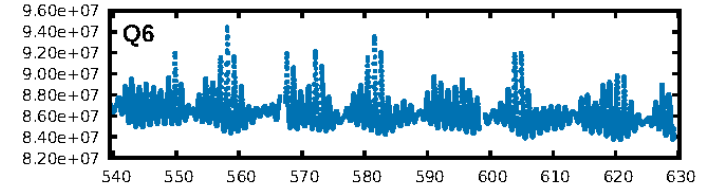
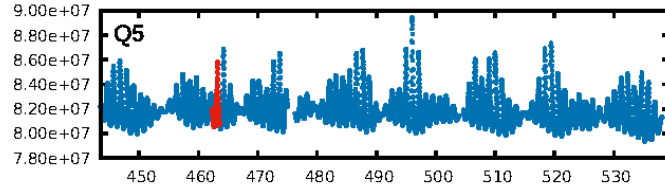
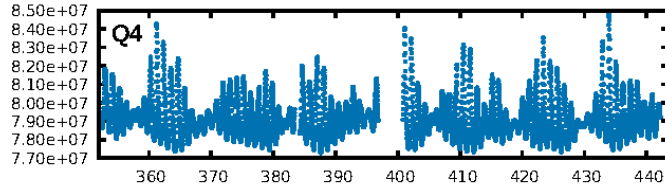
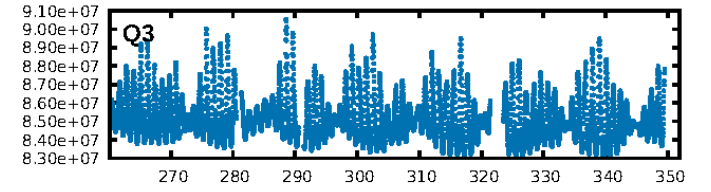
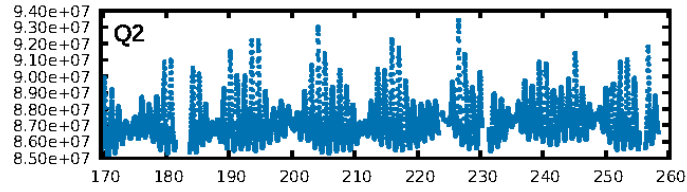
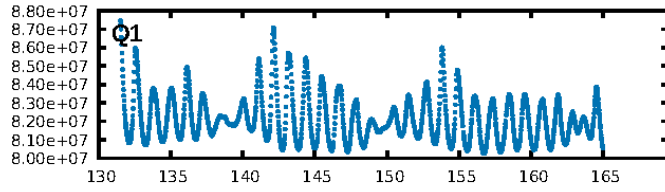
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [109.43σ]
LongPeriod-sig: 2.4% [0.03σ]
ModelChiSquare2-sig: 71.1%
ModelChiSquareGof-sig: 95.2%
Bootstrap-pfa: 4.96e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 19.13
Centroid-sig: 3.1%
Centroid-so: 0.417 arcsec [1.78σ]
OotOffset-rm: 0.456 arcsec [2.93σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.477 arcsec [3.01σ]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/2]

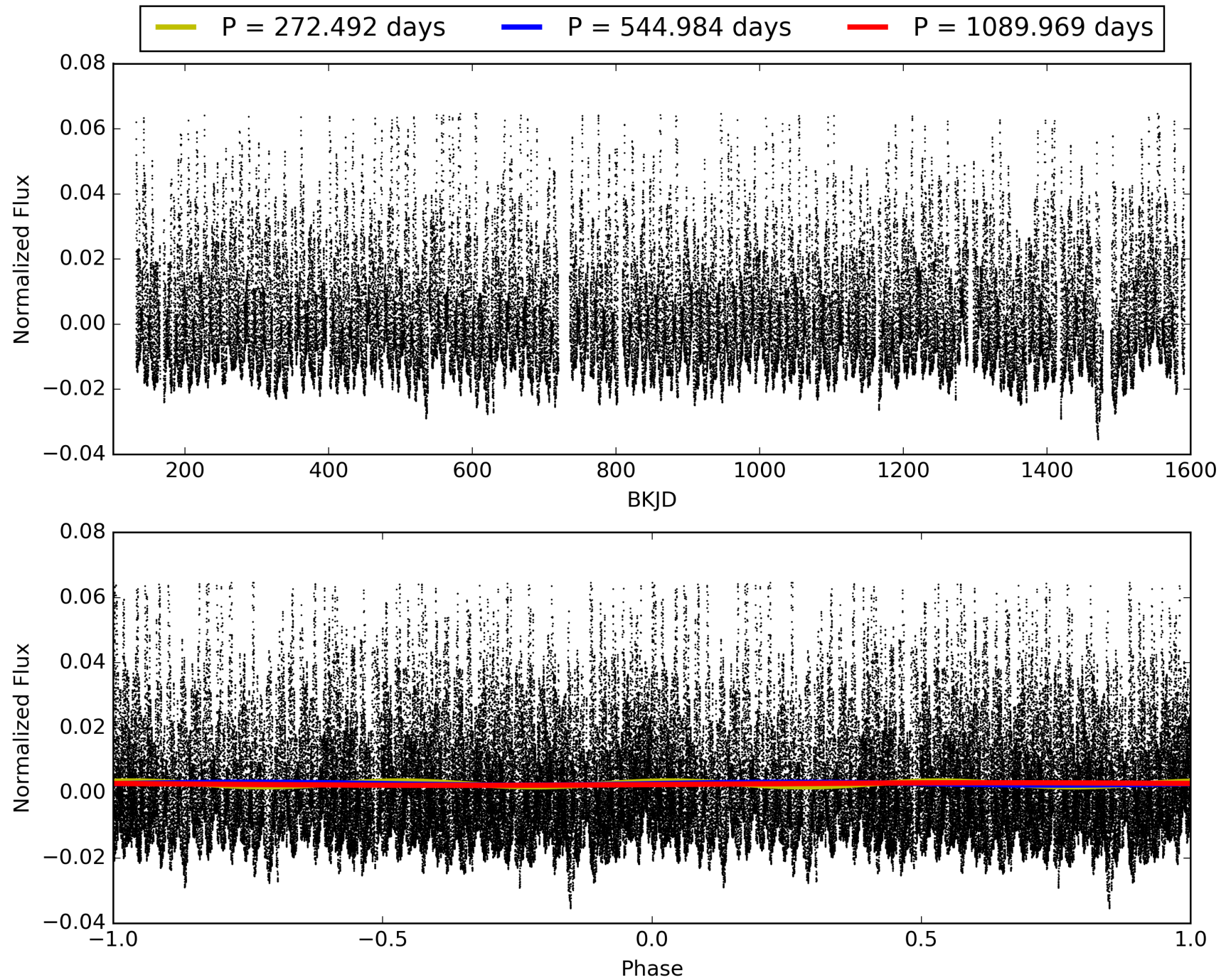
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007367559-01, PDC Light Curves

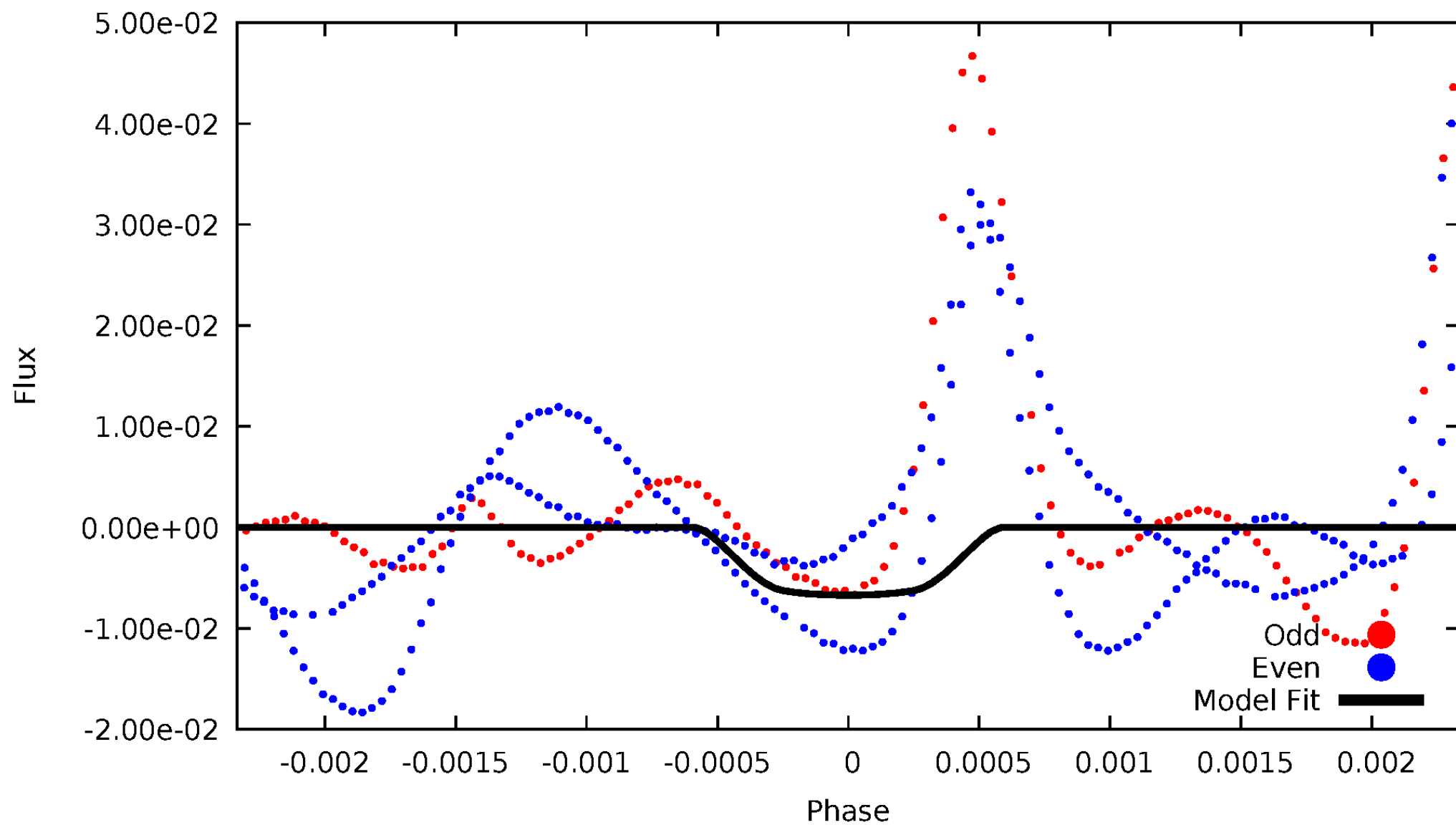


TCE 007367559-01



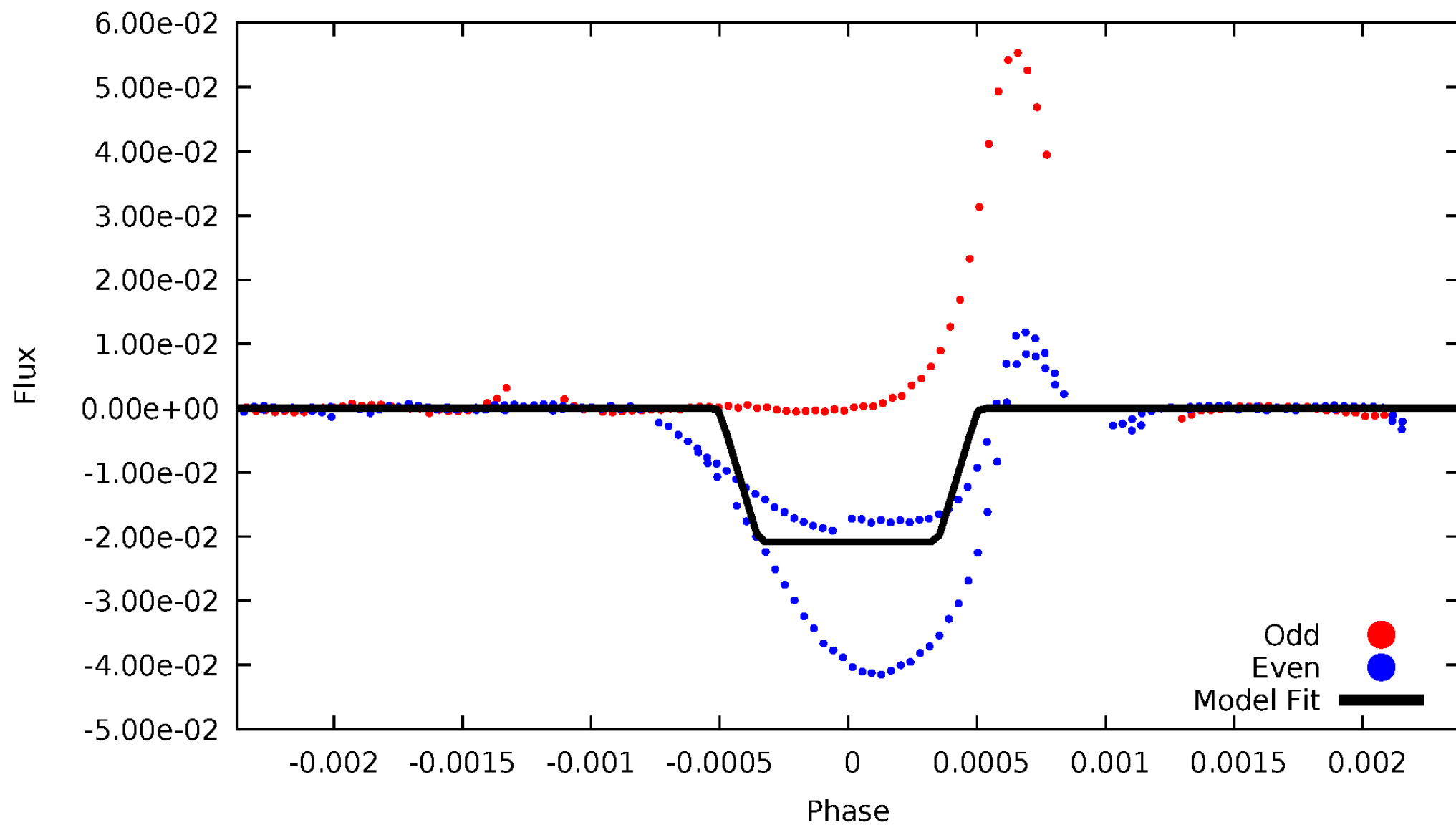
DV Odd/Even

TCE 007367559-01



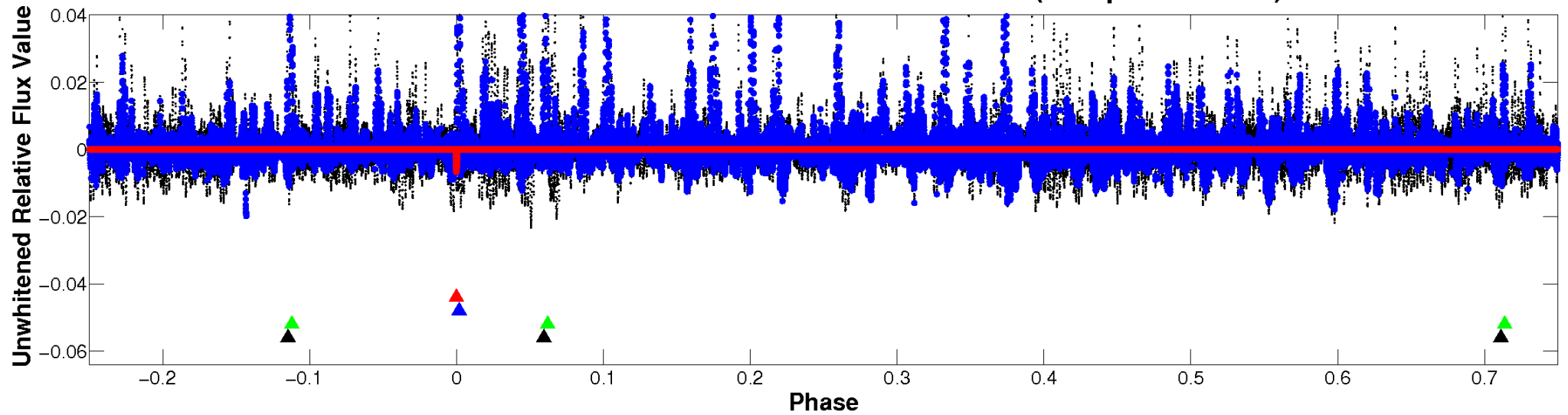
ALT Odd/Even

TCE 007367559-01

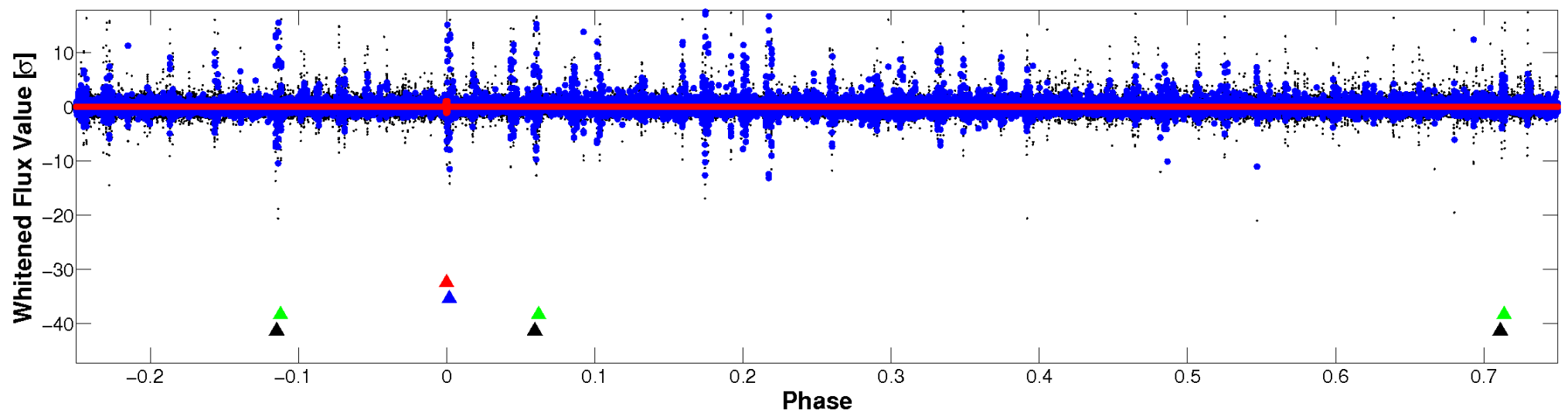


Non-Whitened Vs. Whitened Light Curve

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

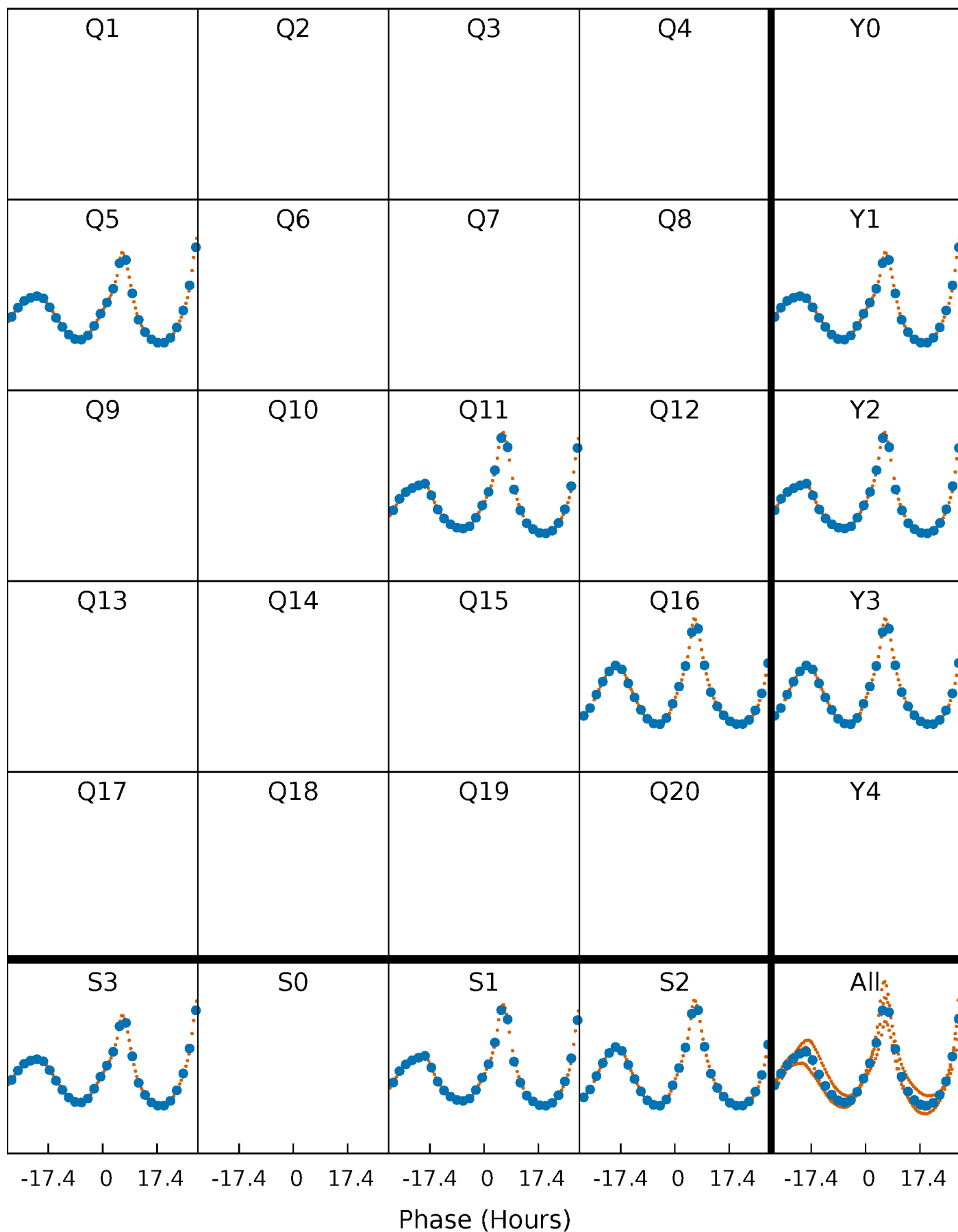


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



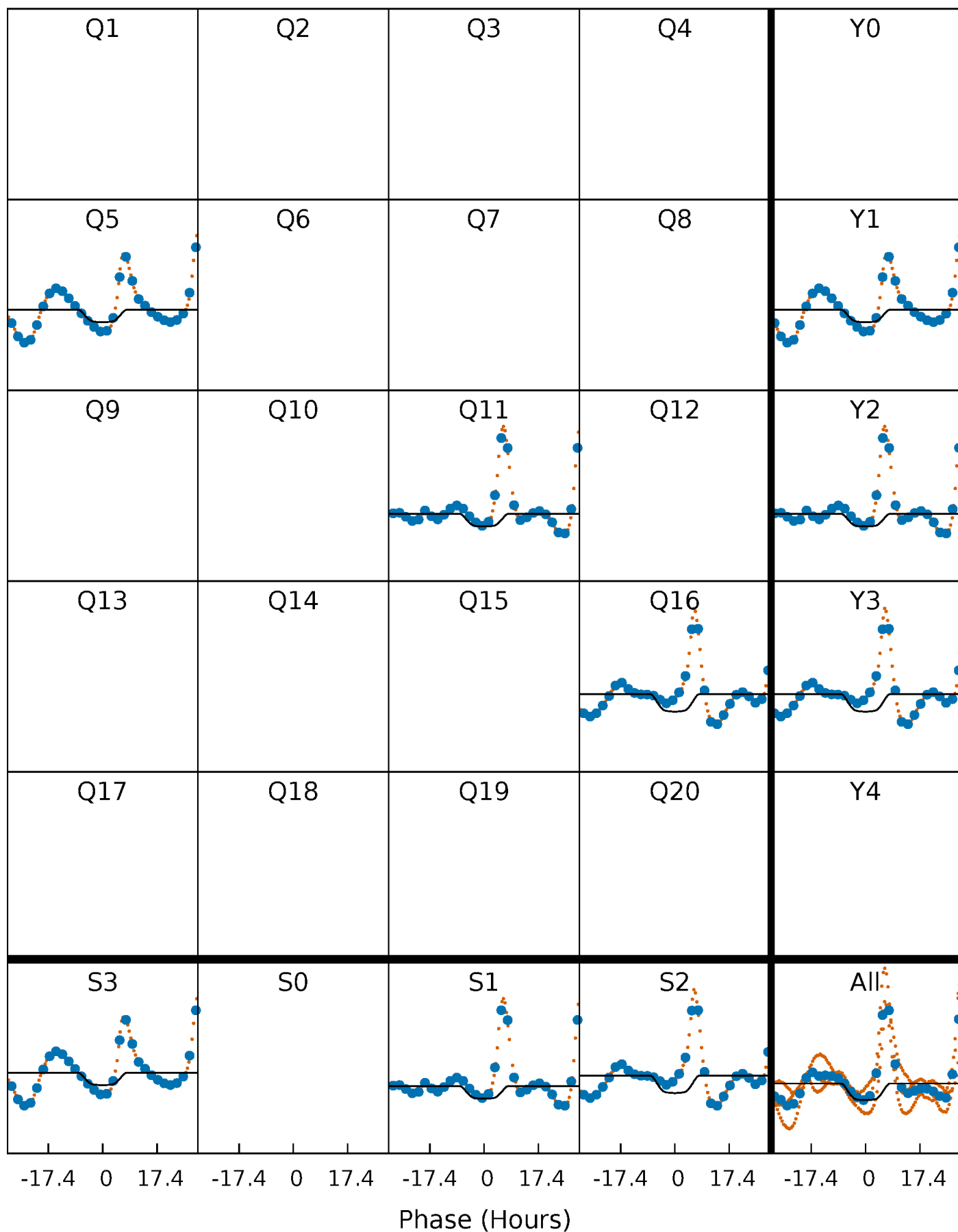
PDC Quarter-Phased Transit Curves

TCE 007367559-01 P=544.984304 Days $T_0=462.954230$ (BKJD)



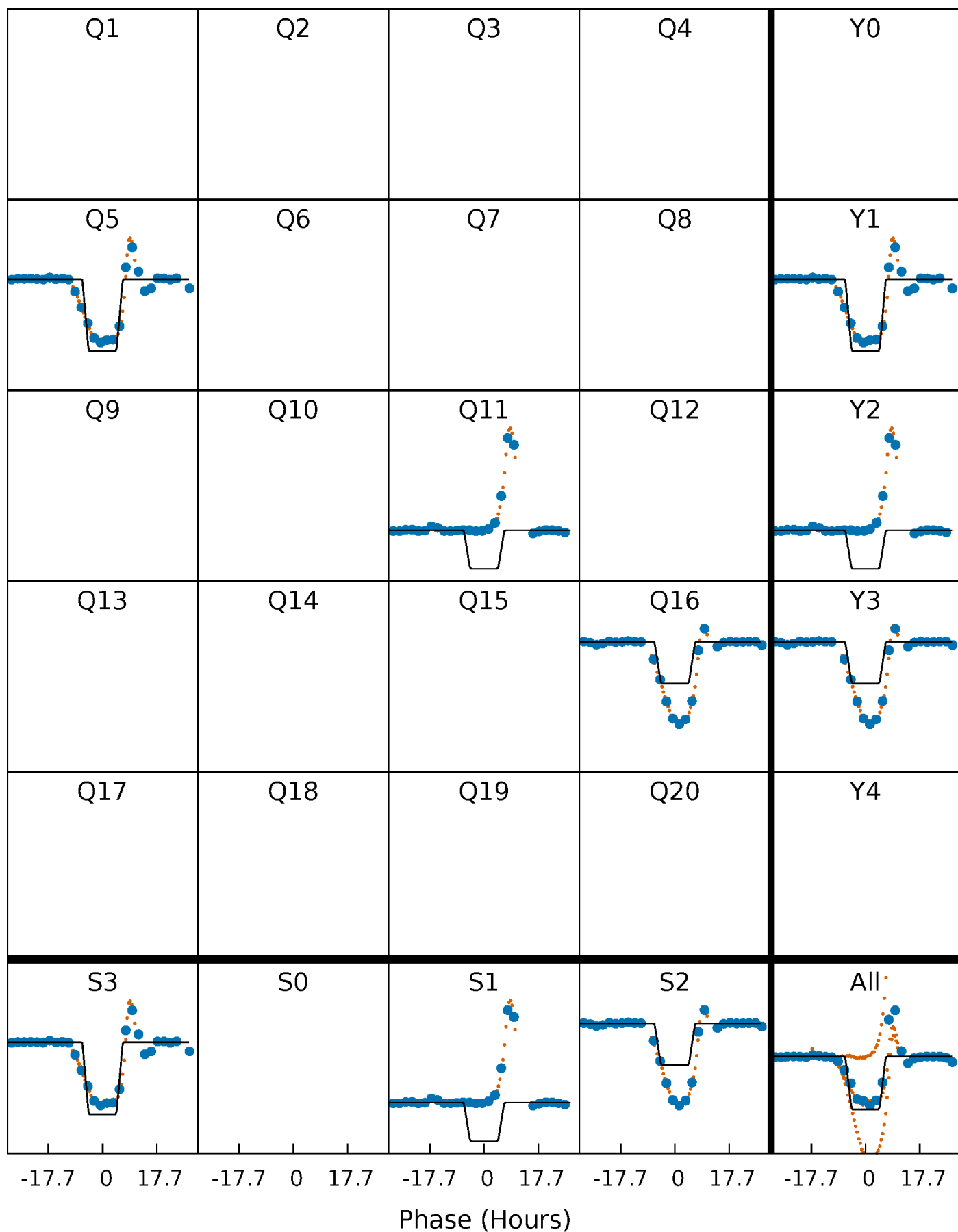
DV Quarter-Phased Transit Curves

TCE 007367559-01 P=544.984304 Days $T_0=462.954230$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

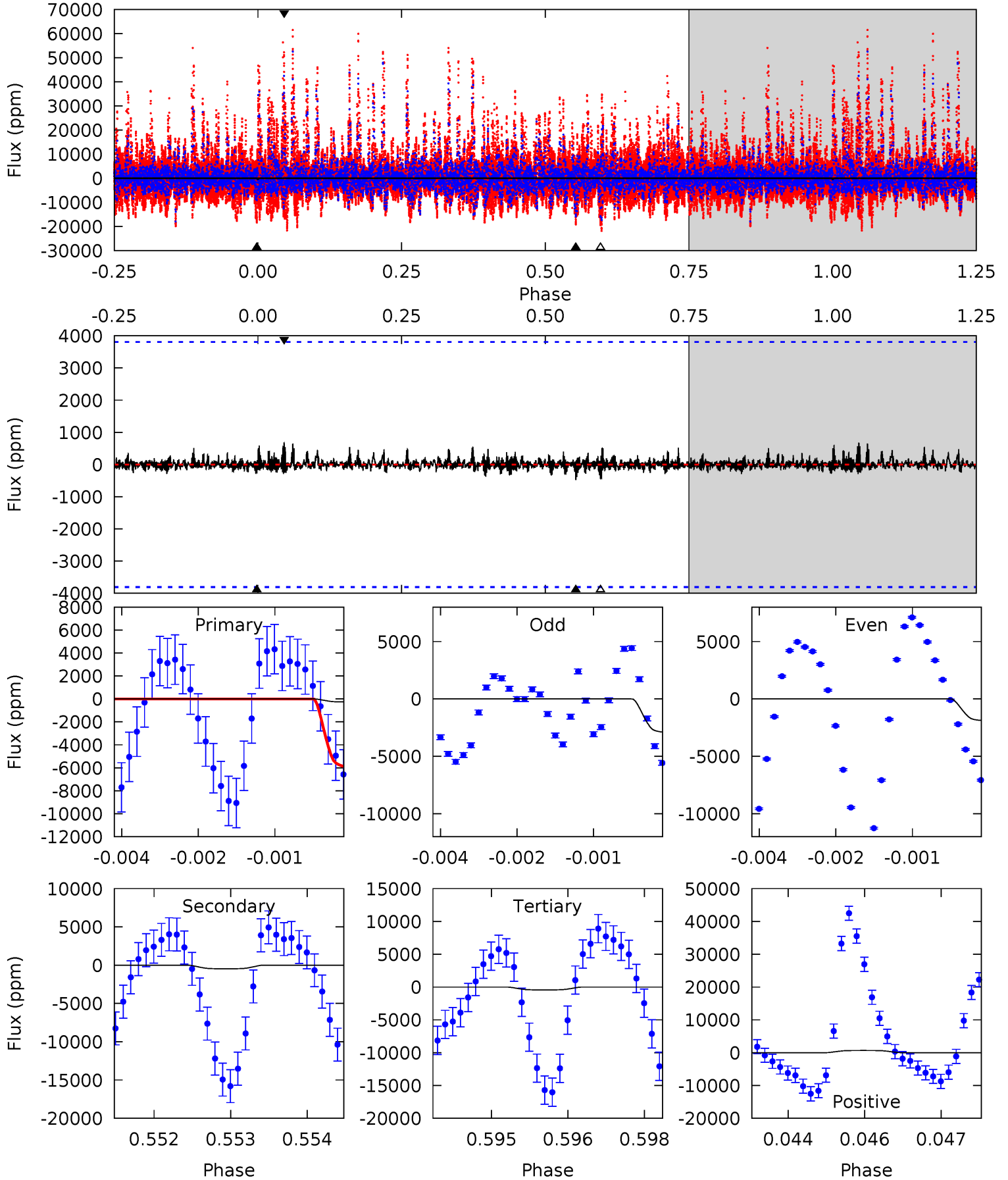
TCE 007367559-01 P=544.983479 Days $T_0=462.854244$ (BKJD)



DV Model-Shift Uniqueness Test

007367559-01, P = 544.984304 Days, E = 462.954230 Days

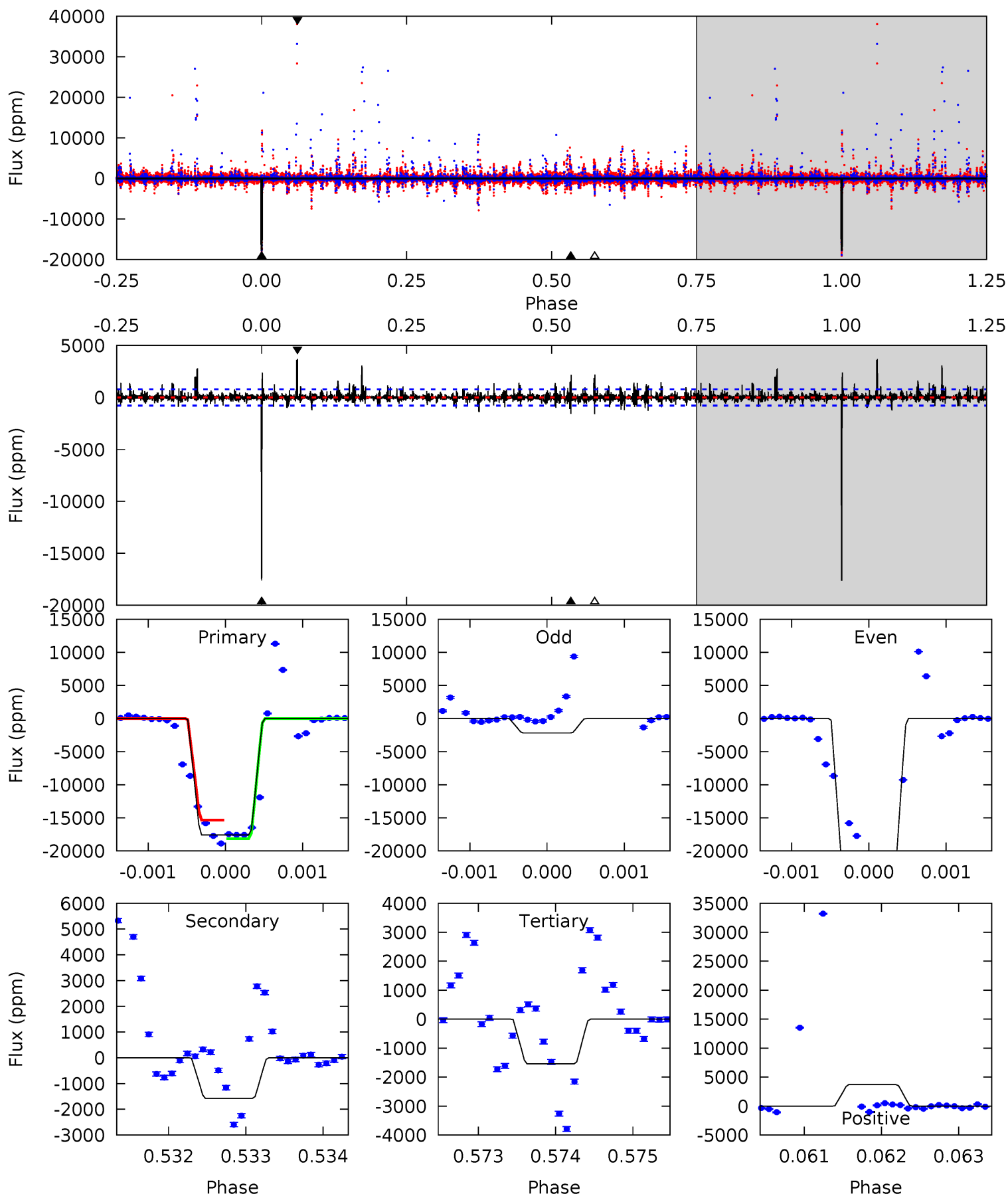
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.38	0.68	0.63	0.96	5.42	3.24	0.17	-0.25	-0.59	0.05	-0.29	0.69	-0.13	0.59	0.49



Alt Model-Shift Uniqueness Test

007367559-01, P = 544.983479 Days, E = 462.854244 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
122.3	11.0	10.7	25.8	5.44	3.28	1.66	111.6	96.6	0.24	-14.8	97.2	0.97	0.17	9.84



Stellar Parameters For KIC 007367559

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7102^{+199}_{-299}	$4.346^{+0.056}_{-0.224}$	$-0.280^{+0.250}_{-0.350}$	$1.247^{+0.466}_{-0.124}$	$1.278^{+0.204}_{-0.167}$	$0.929^{+0.225}_{-0.539}$
	+3%/-4%	+1%/-5%	+89%/-125%	+37%/-10%	+16%/-13%	+24%/-58%
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 007367559-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-476 ± 703	$12.37^{+2.55}_{-2.09}$	420^{+35}_{-22}	3919^{+793}_{-7443}	3405^{+5573}_{-5216}
Alt.	-1578 ± 144	$20.58^{+4.10}_{-2.45}$	420^{+35}_{-23}	4008^{+159}_{-156}	4009^{+1117}_{-1154}

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 $A_{obs} \gg 1.0$

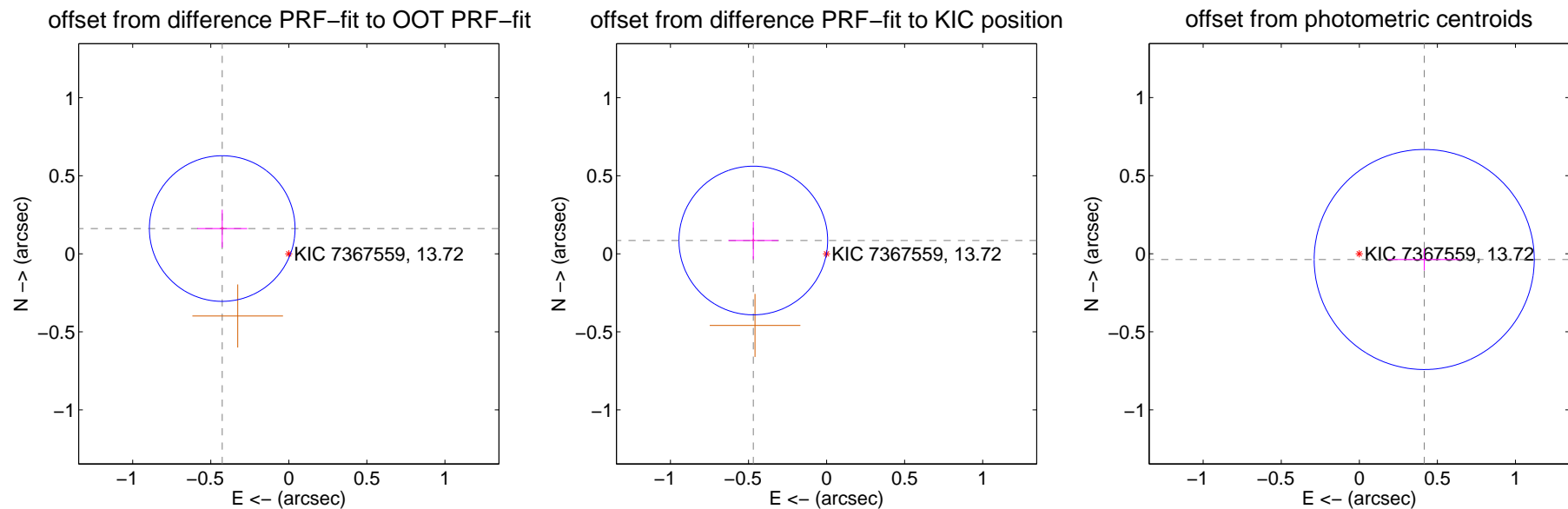
DV Centroid Data

Supplemental centroid analysis for 007367559-01. Kepler magnitude: 13.72. Transit SNR 5.41

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.456 ± 0.156	2.93	0.427 ± 0.160	0.162 ± 0.121
PRF-fit source offset from KIC position	0.477 ± 0.159	3.01	0.469 ± 0.160	0.085 ± 0.121
photometric centroid source offset	0.42 ± 0.23	1.78	-0.42 ± 0.24	-0.04 ± 0.07

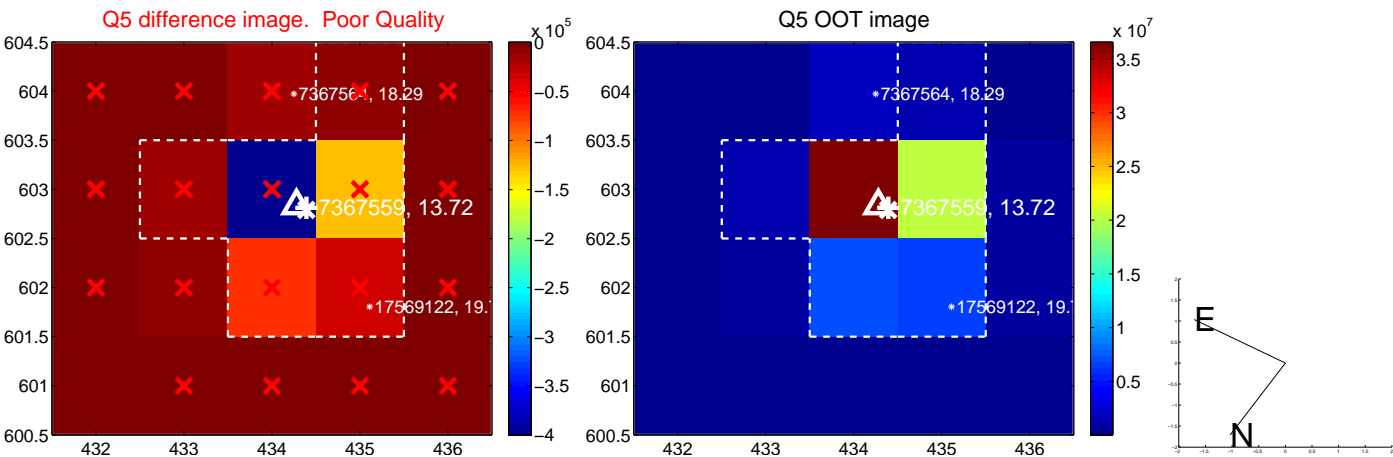


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



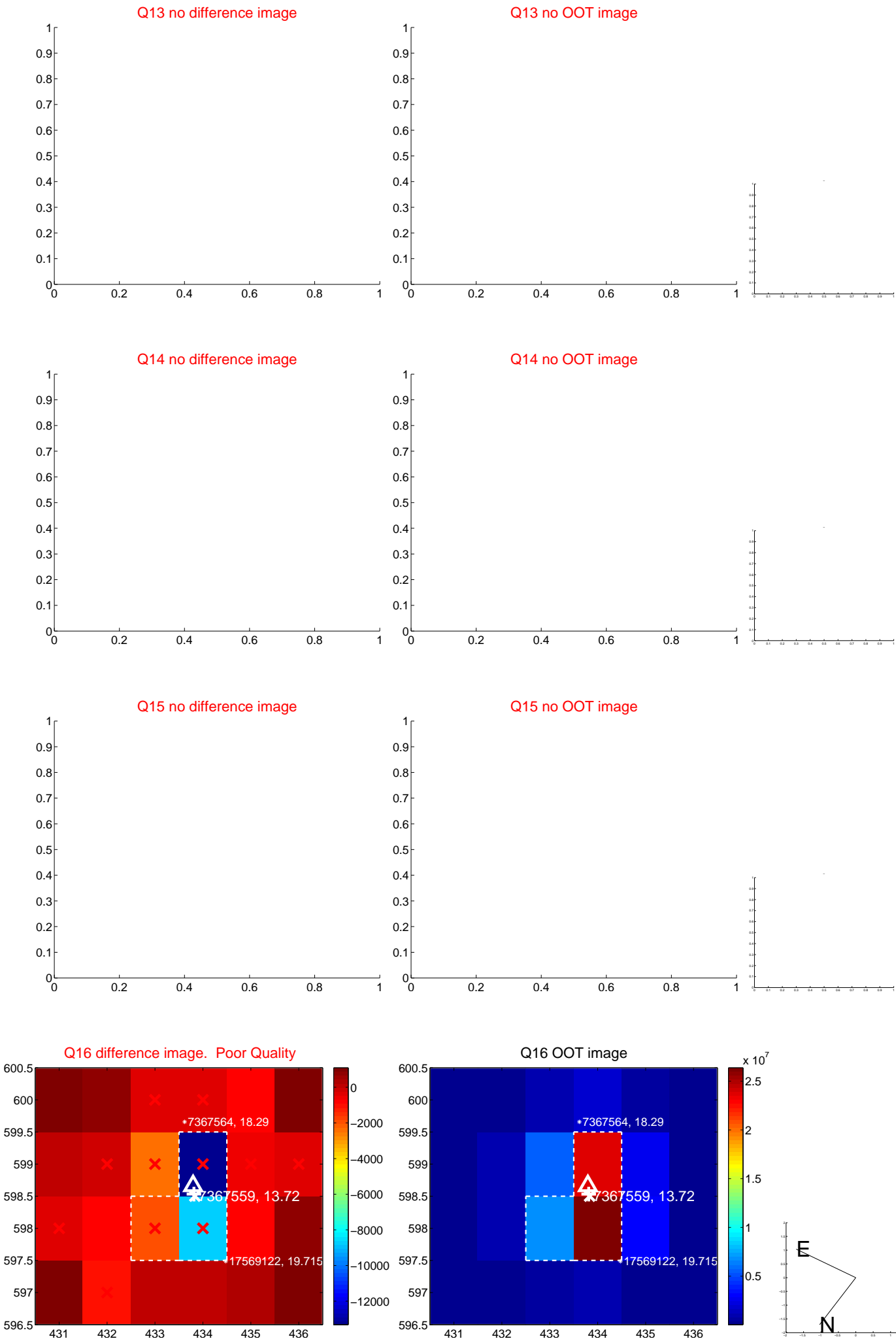
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



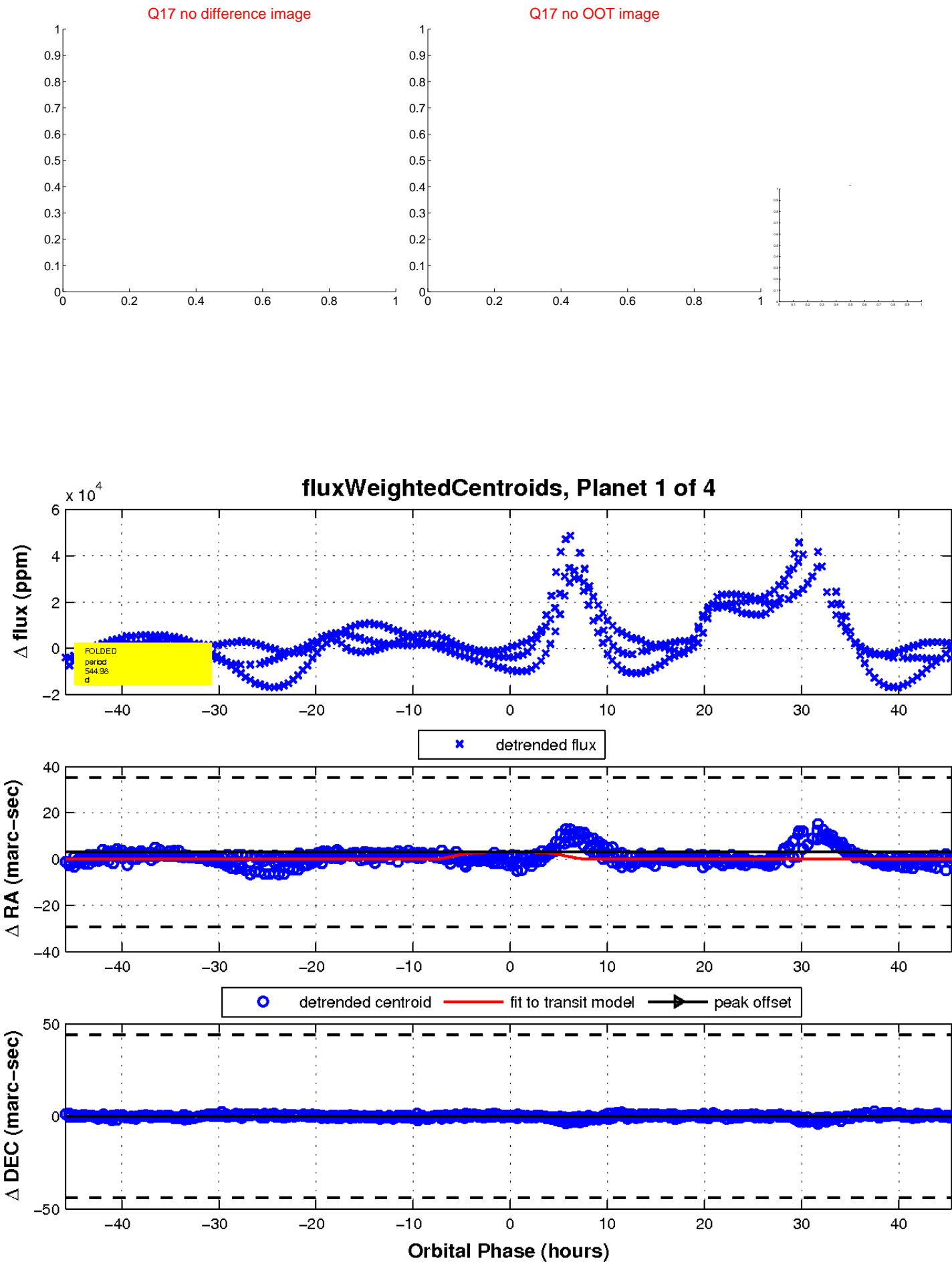
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

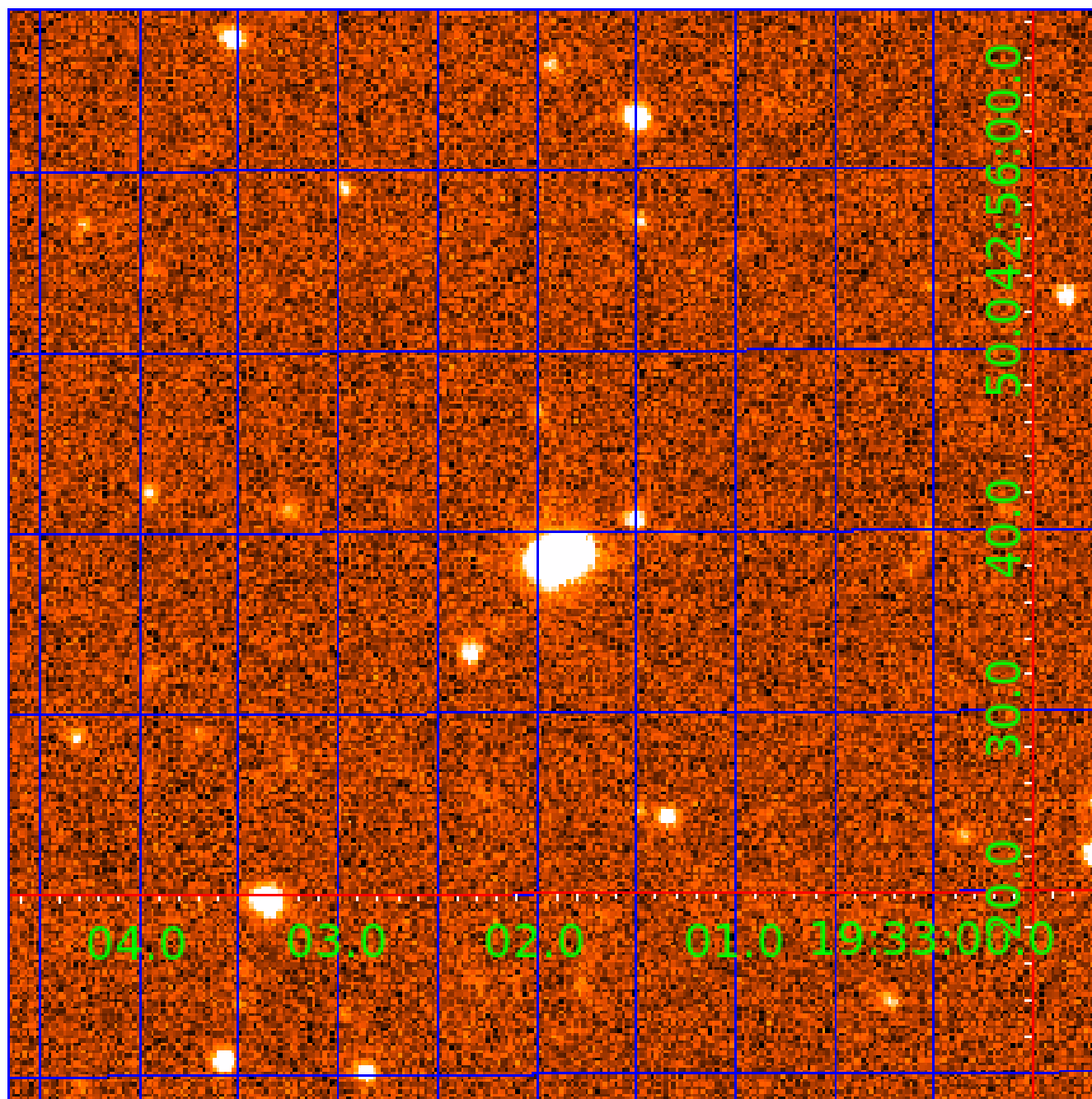


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007367559

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})
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007367559-03	OBS	No	450.053861	496.813721	10288.9	14.157	23.0	8.0	1.25	7102	14.38	2.30
007367559-04	OBS	No	450.051546	495.409777	450.2	2.467	21.2	1.8	1.25	7102	3.13	2.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007367559-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
007367559-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007367559-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007367559-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

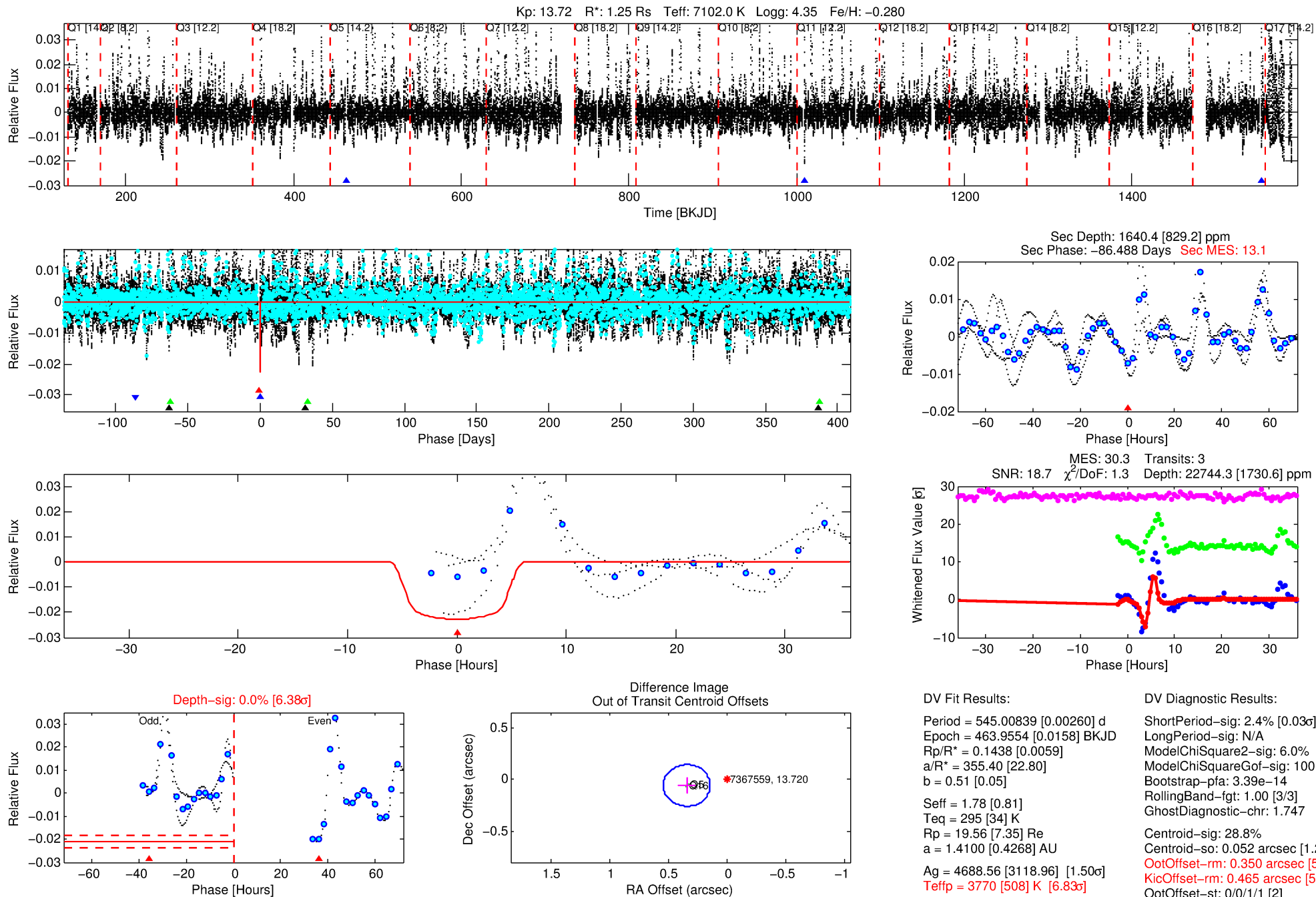
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007367559-02

No Significant Match Found

DV One-Page Summary

KIC: 7367559 Candidate: 2 of 4 Period: 545.008 d



DV Fit Results:

Period = 545.00839 [0.00260] d
Epoch = 463.9554 [0.0158] BKJD
Rp/R* = 0.1438 [0.0059]
a/R* = 355.40 [22.80]
b = 0.51 [0.05]
Seff = 1.78 [0.81]
Teq = 295 [34] K
Rp = 19.56 [7.35] Re
a = 1.4100 [0.4268] AU
Ag = 4688.56 [3118.96] [1.50 σ]
Teffp = 3770 [508] K [6.83 σ]

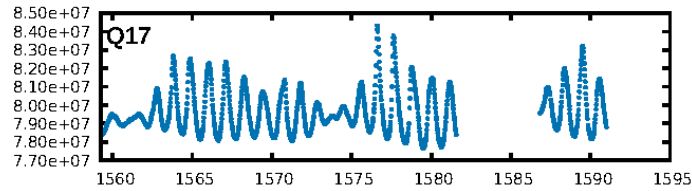
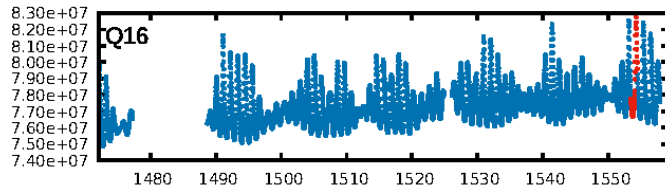
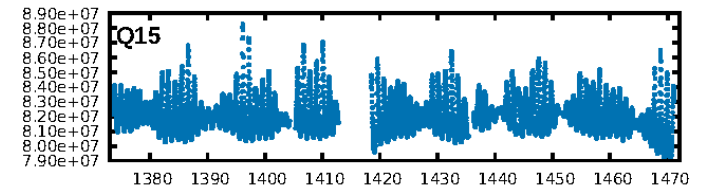
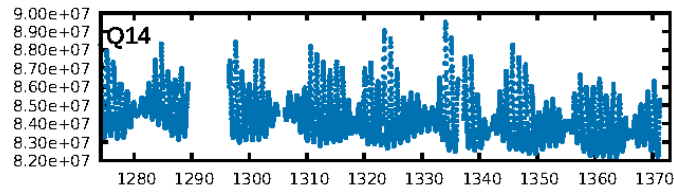
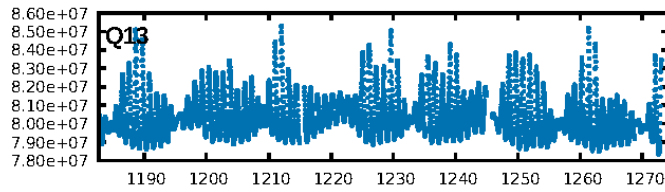
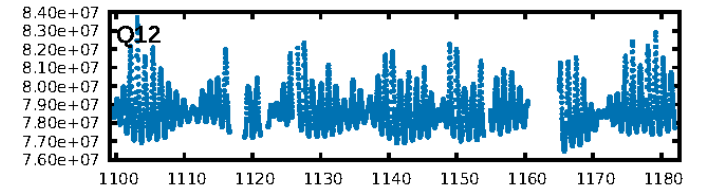
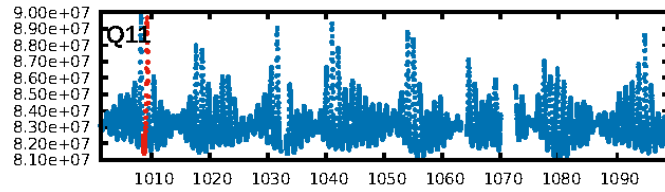
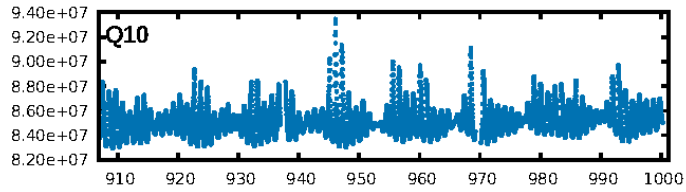
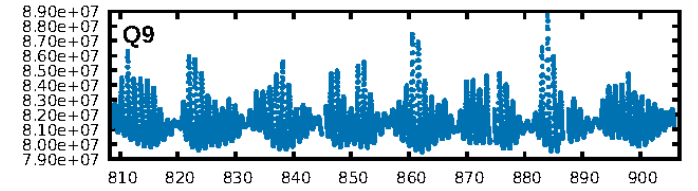
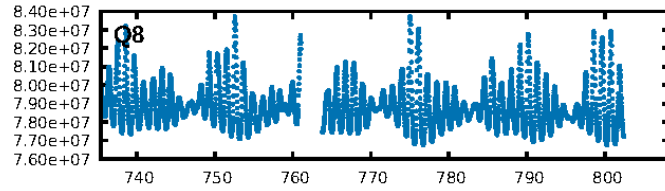
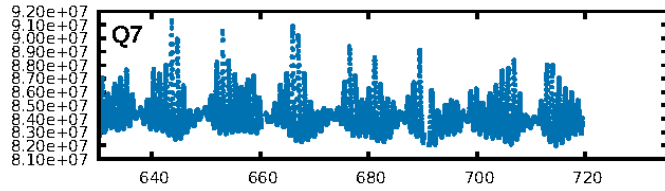
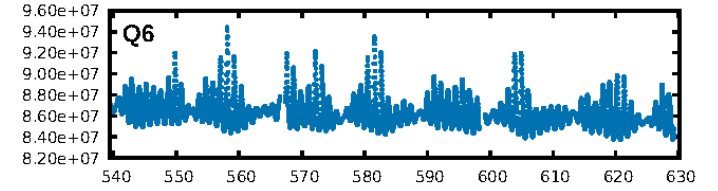
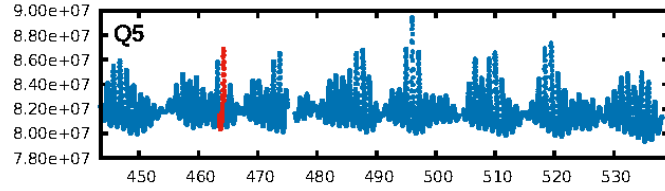
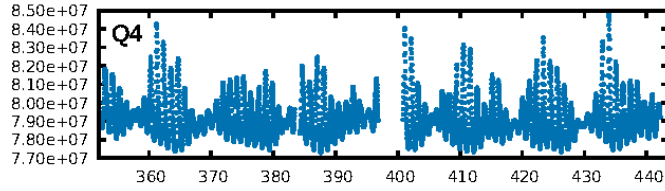
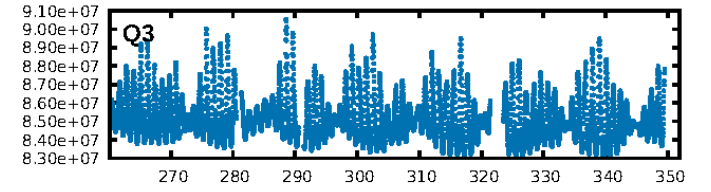
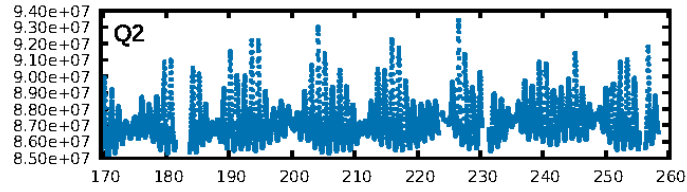
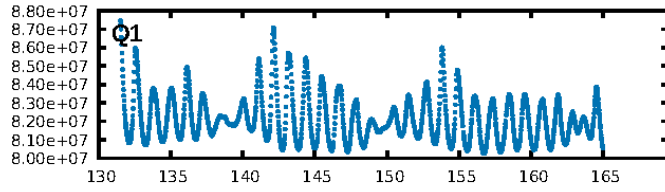
DV Diagnostic Results:

ShortPeriod-sig: 2.4% [0.03 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.39e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.747
Centroid-sig: 28.8%
Centroid-so: 0.052 arcsec [1.21 σ]
OotOffset-rm: 0.350 arcsec [5.22 σ]
KicOffset-rm: 0.465 arcsec [5.41 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/2]

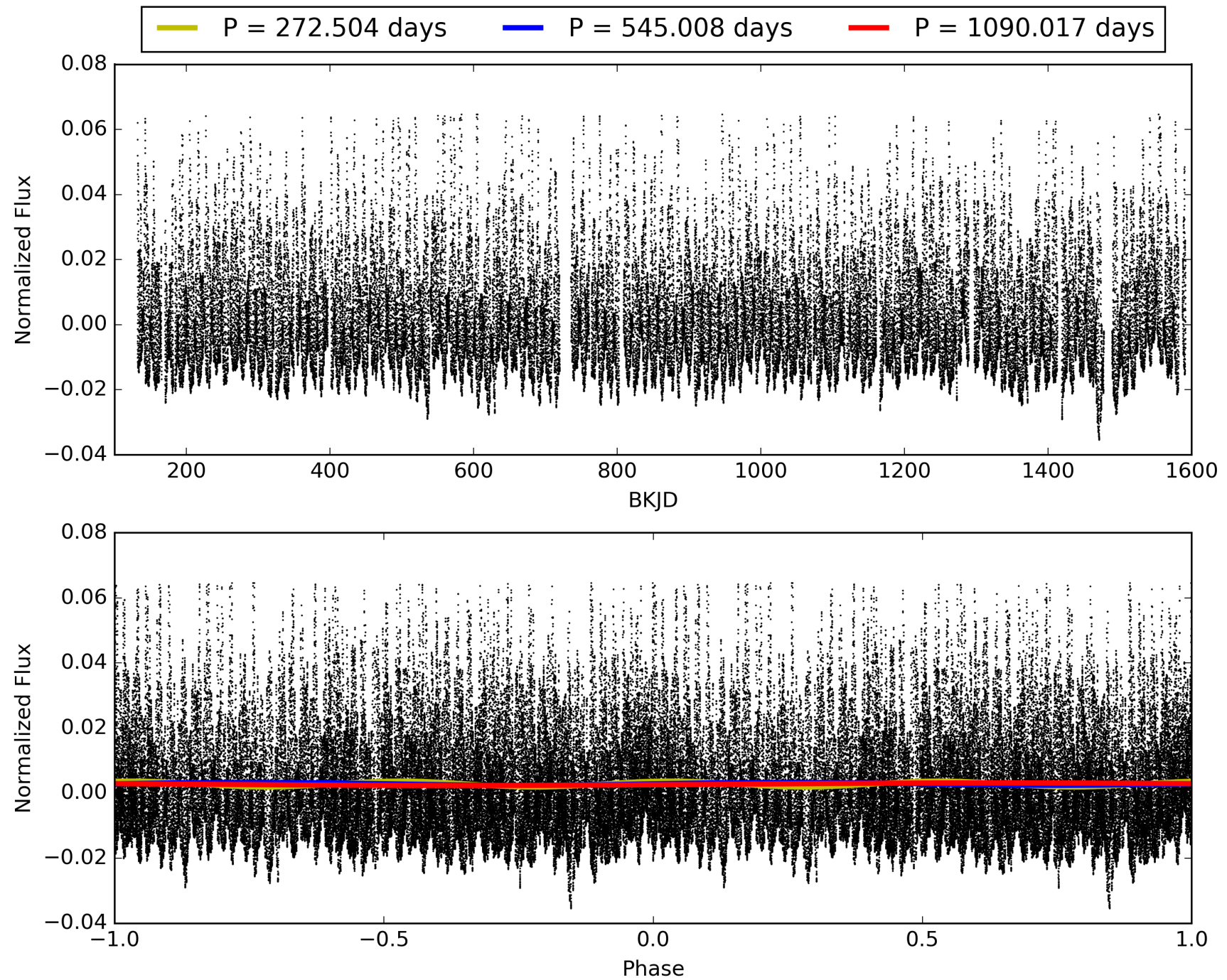
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:20:33 Z

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

TCE 007367559-02, PDC Light Curves

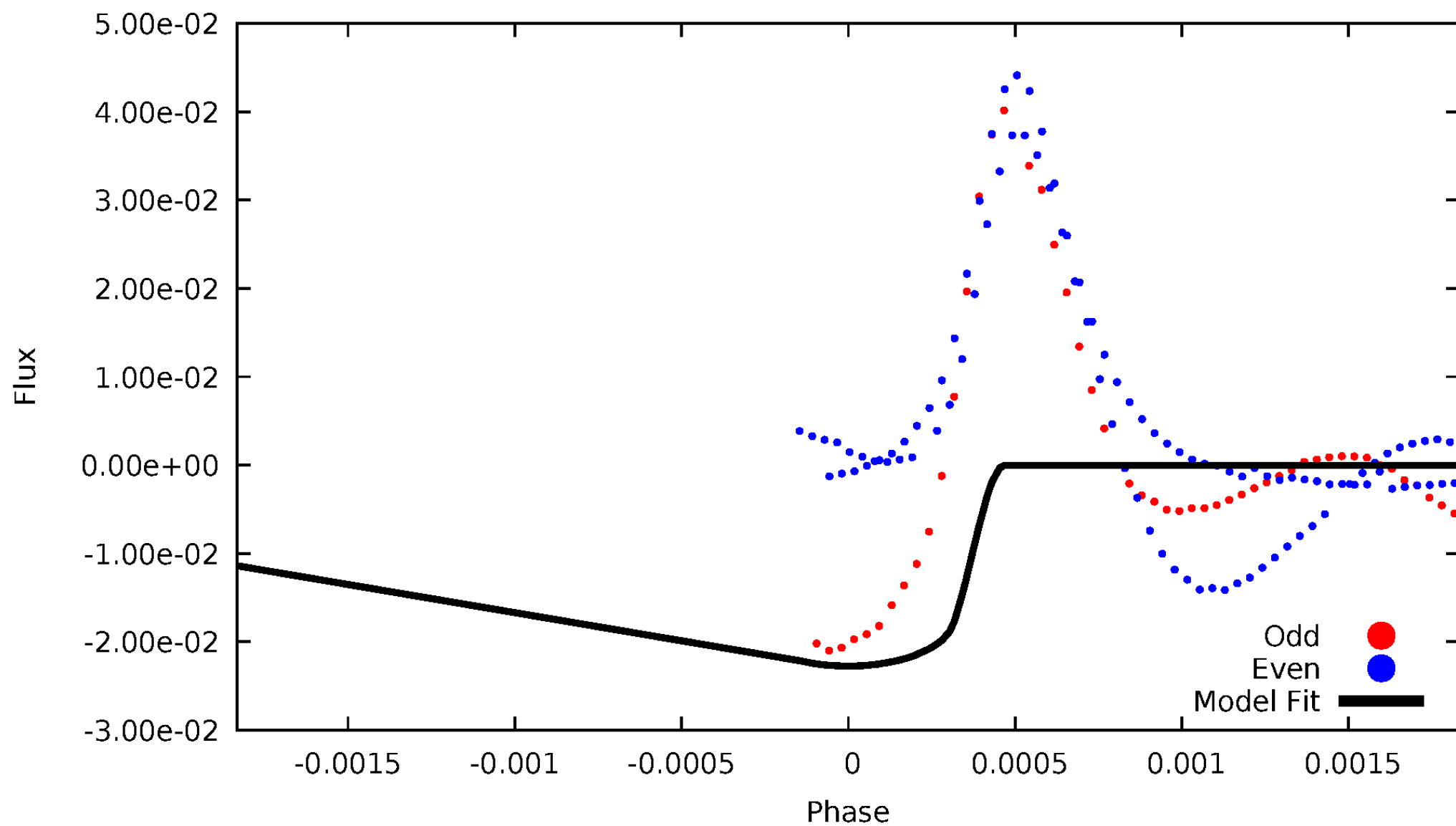


TCE 007367559-02



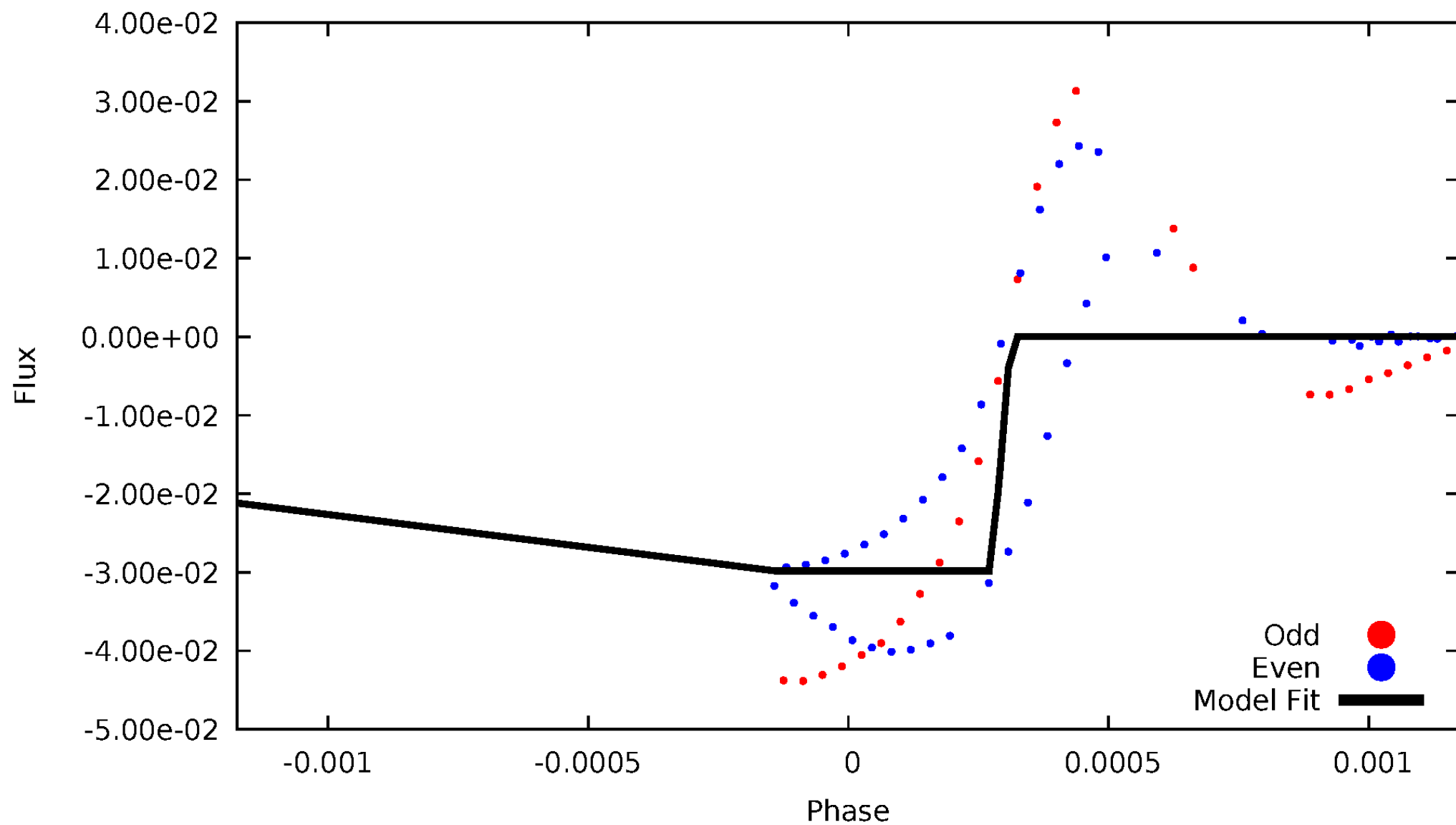
DV Odd/Even

TCE 007367559-02



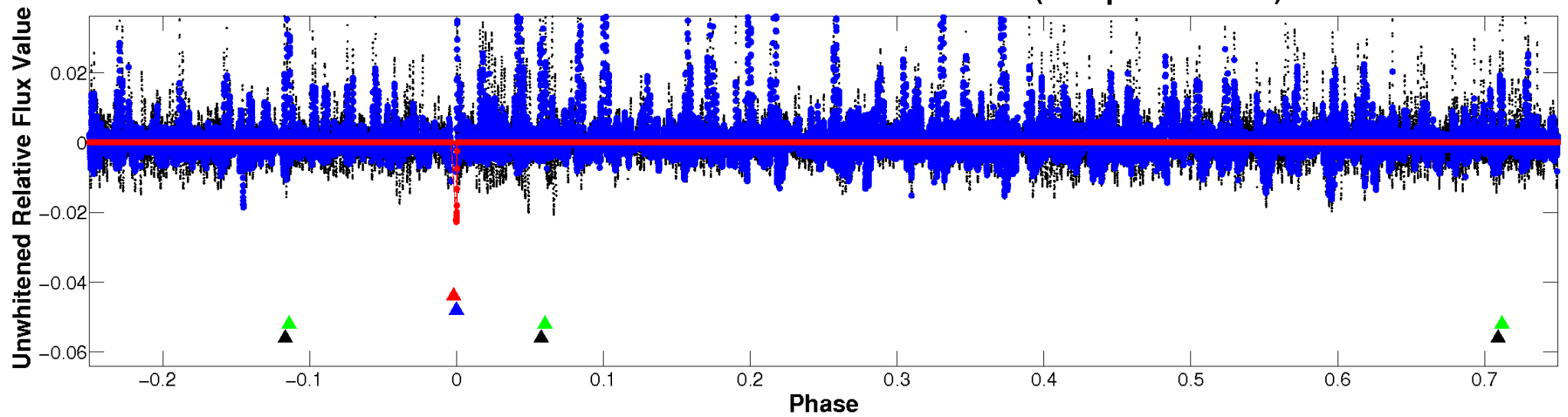
ALT Odd/Even

TCE 007367559-02

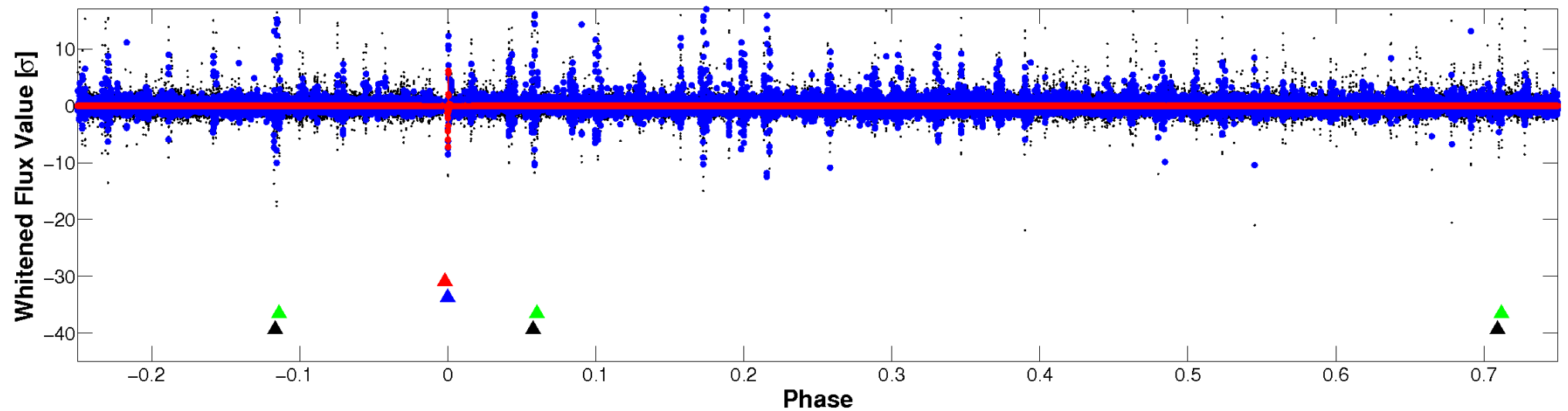


Non-Whitened Vs. Whitened Light Curve

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

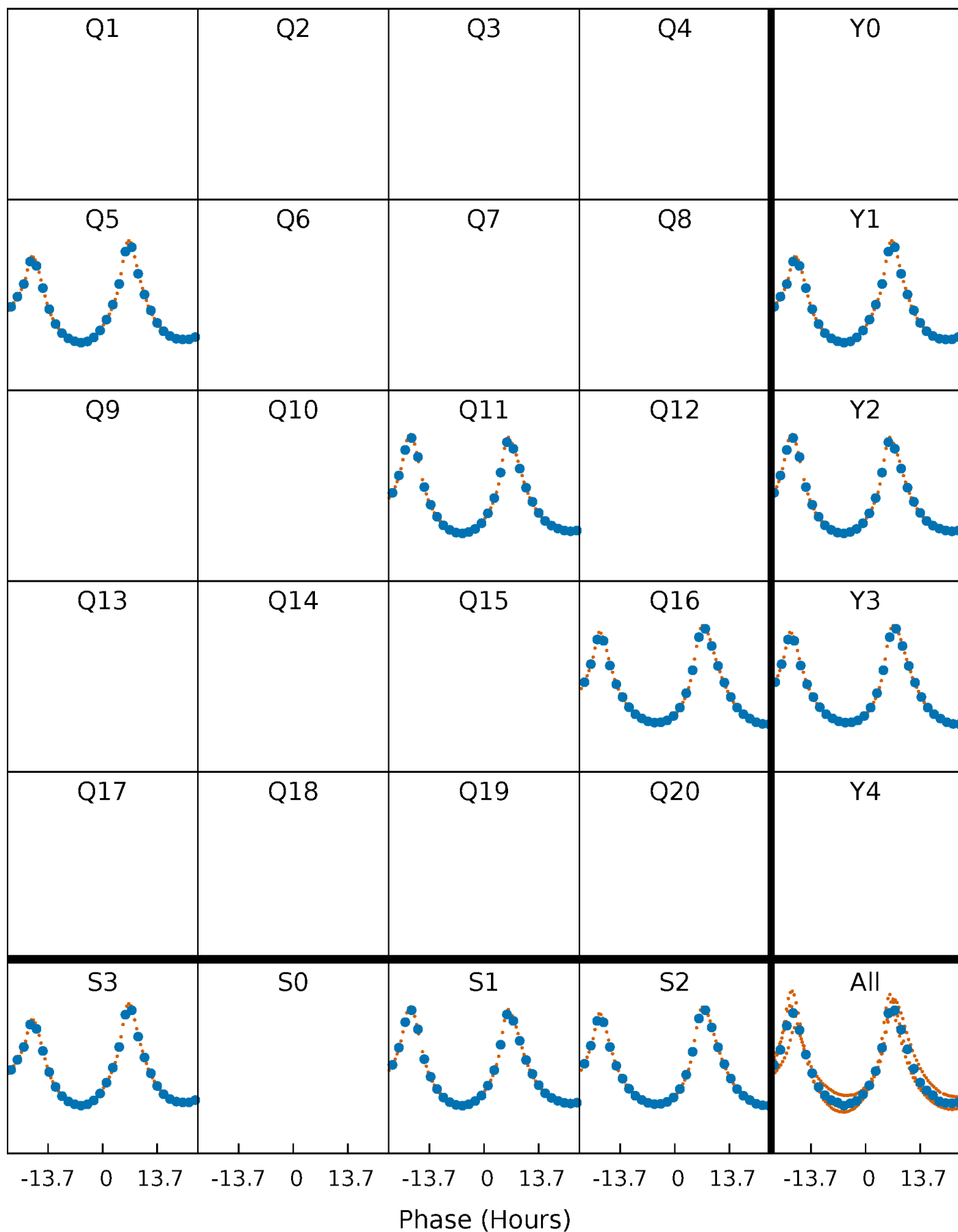


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007367559-02 P=545.008393 Days $T_0=463.955358$ (BKJD)



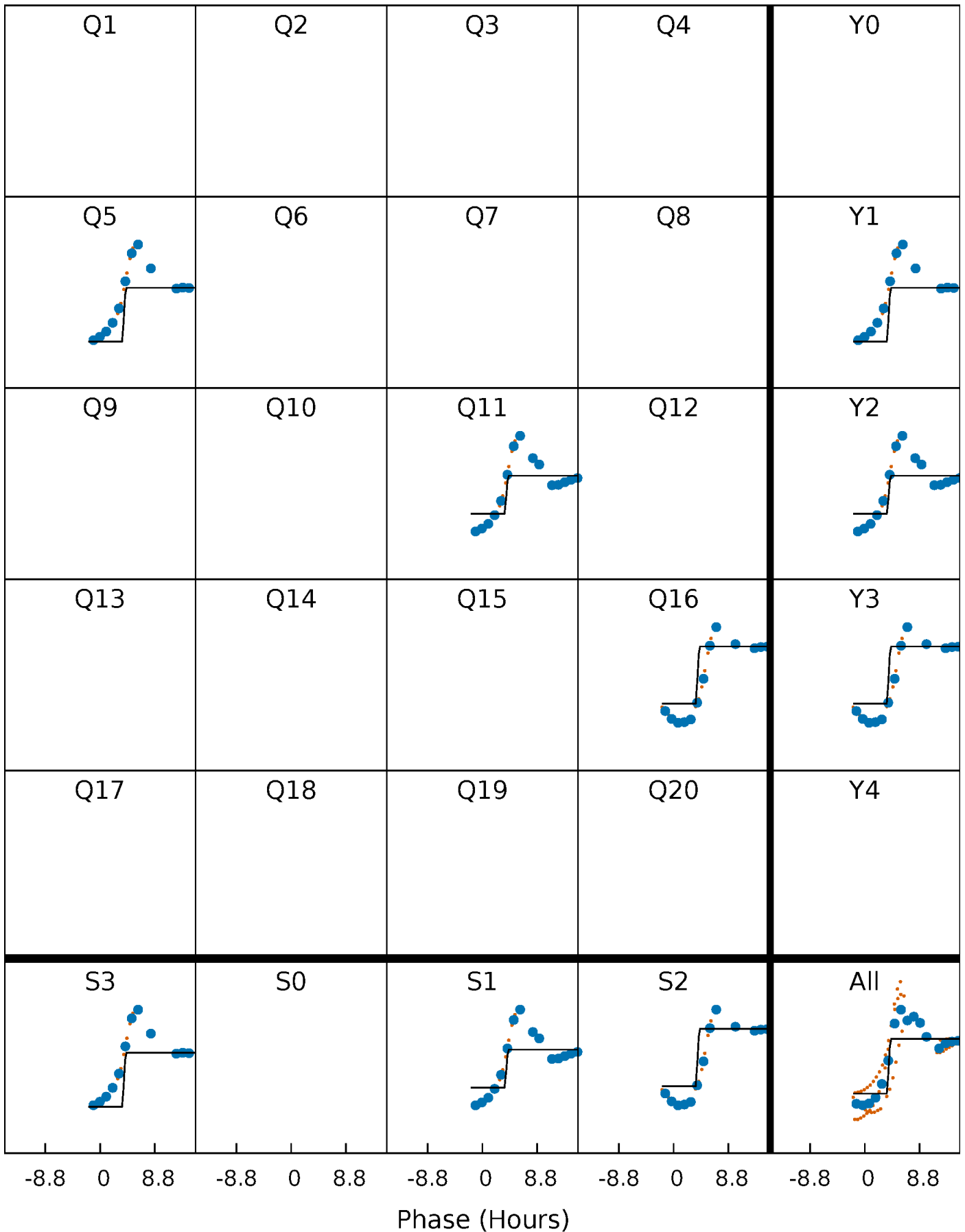
DV Quarter-Phased Transit Curves

TCE 007367559-02 P=545.008393 Days $T_0=463.955358$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

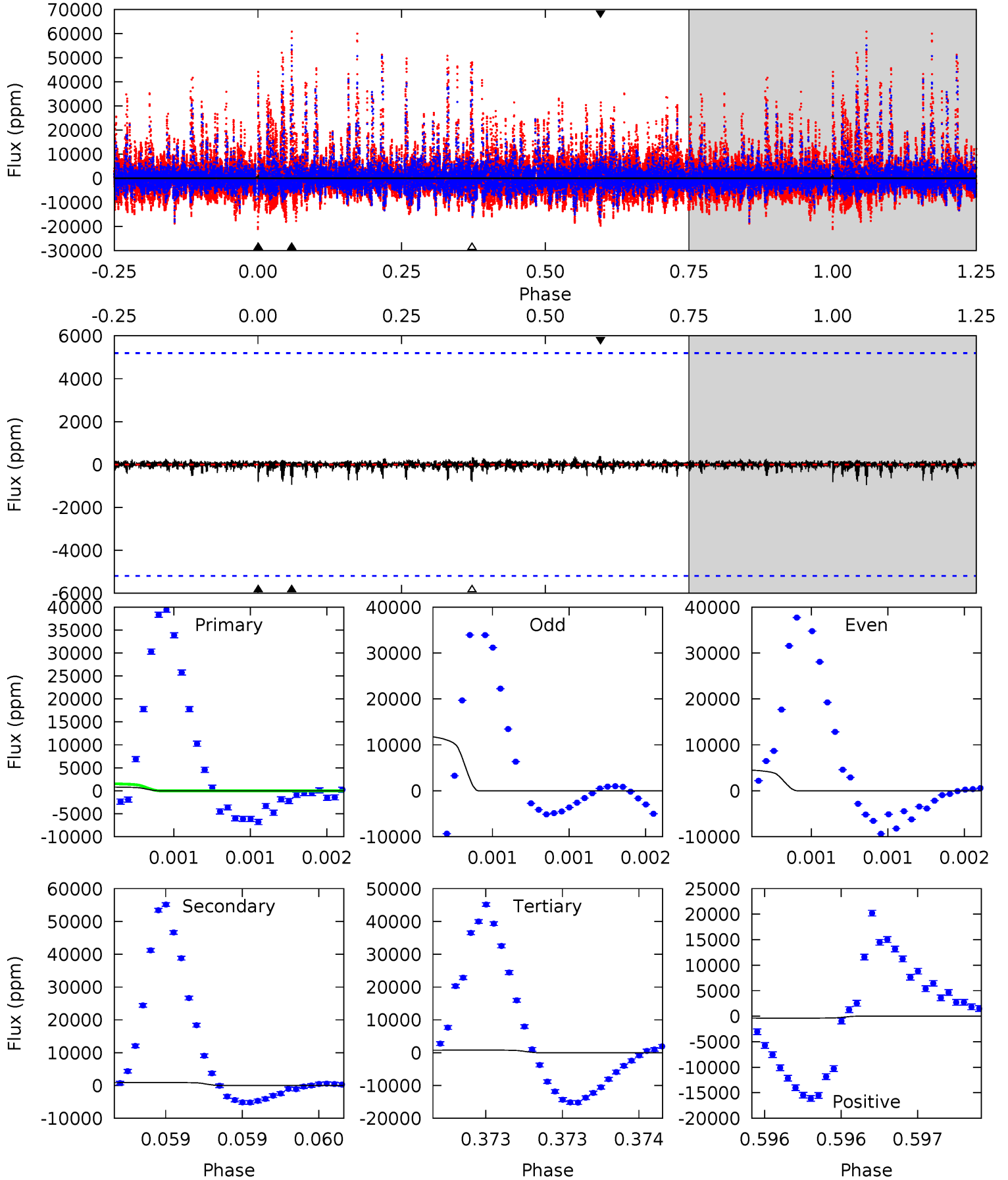
TCE 007367559-02 $P=544.990290$ Days $T_0=463.989451$ (BKJD)



DV Model-Shift Uniqueness Test

007367559-02, P = 545.008393 Days, E = 463.955358 Days

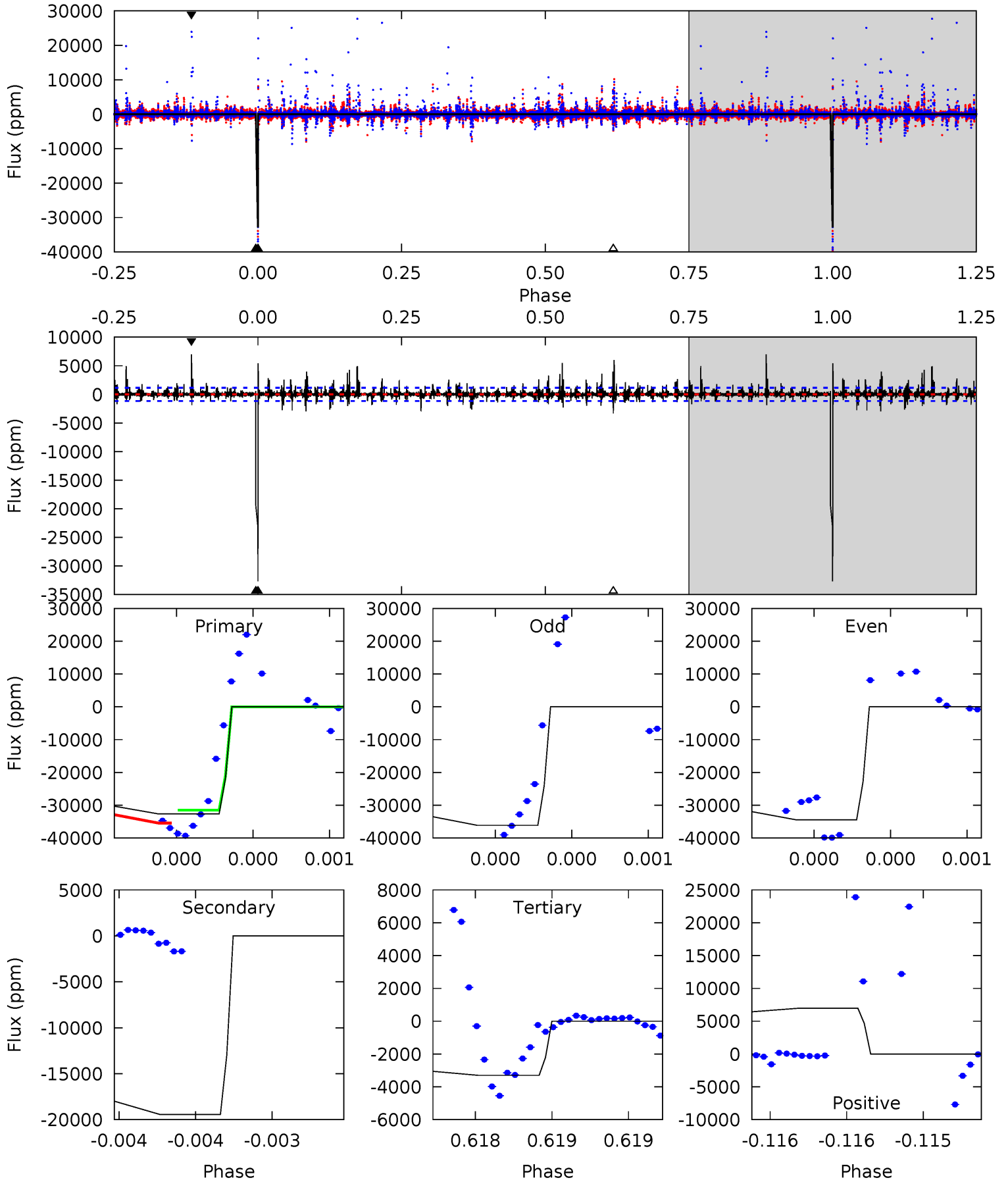
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.87	1.00	0.86	0.42	5.55	3.44	0.11	0.01	0.45	0.14	0.58	3.83	-0.23	0.29	0.96



Alt Model-Shift Uniqueness Test

007367559-02, P = 544.990290 Days, E = 463.989451 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
157.0	93.5	15.9	33.4	5.59	3.51	1.67	141.1	123.6	77.6	60.1	3.94	0.91	0.18	0



Stellar Parameters For KIC 007367559

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7102^{+199}_{-299}	$4.346^{+0.056}_{-0.224}$	$-0.280^{+0.250}_{-0.350}$	$1.247^{+0.466}_{-0.124}$	$1.278^{+0.204}_{-0.167}$	$0.929^{+0.225}_{-0.539}$
	+3%/-4%	+1%/-5%	+89%/-125%	+37%/-10%	+16%/-13%	+24%/-58%
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 007367559-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-938 ± 935	$20.25^{+4.09}_{-1.90}$	421^{+33}_{-23}	3647^{+450}_{-1541}	2166^{+2439}_{-2126}
Alt.	-19446 ± 208	$24.24^{+4.48}_{-2.21}$	419^{+34}_{-23}	6347^{+225}_{-253}	36562^{+6317}_{-9741}

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

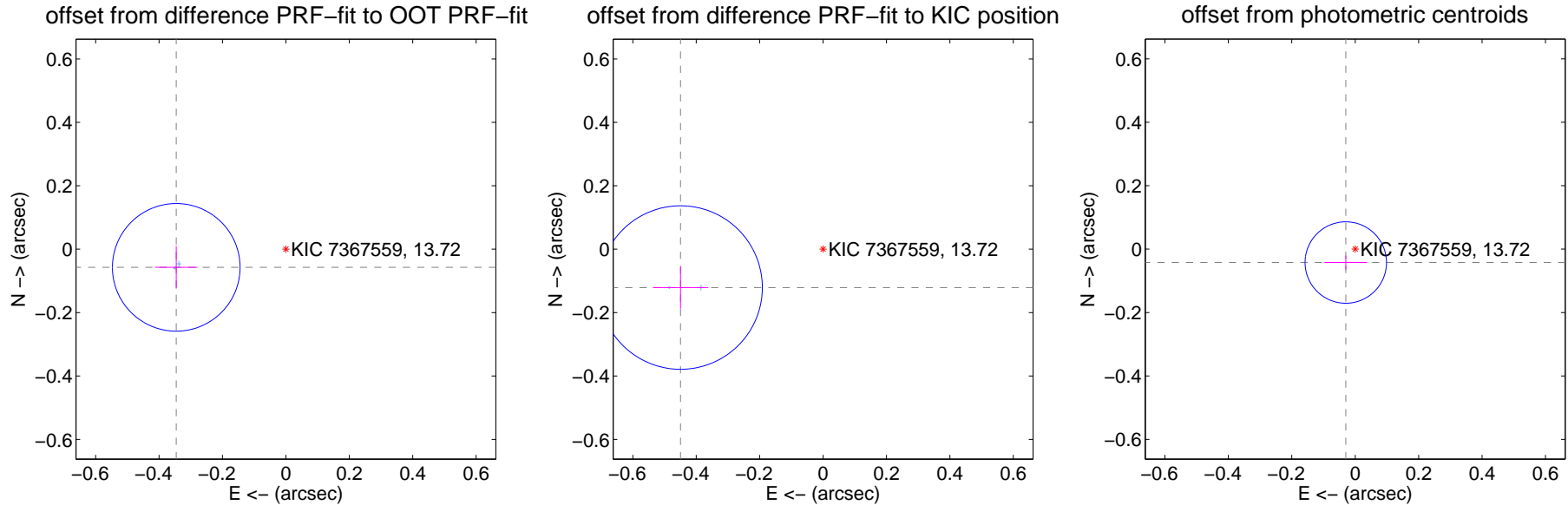
DV Centroid Data

Supplemental centroid analysis for 007367559-02. Kepler magnitude: 13.72. Transit SNR 18.74

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	0.350 ± 0.067	5.22	0.346 ± 0.067	-0.057 ± 0.067
PRF-fit source offset from KIC position	0.465 ± 0.086	5.41	0.449 ± 0.087	-0.121 ± 0.067
photometric centroid source offset	0.05 ± 0.04	1.21	0.03 ± 0.07	-0.04 ± 0.02

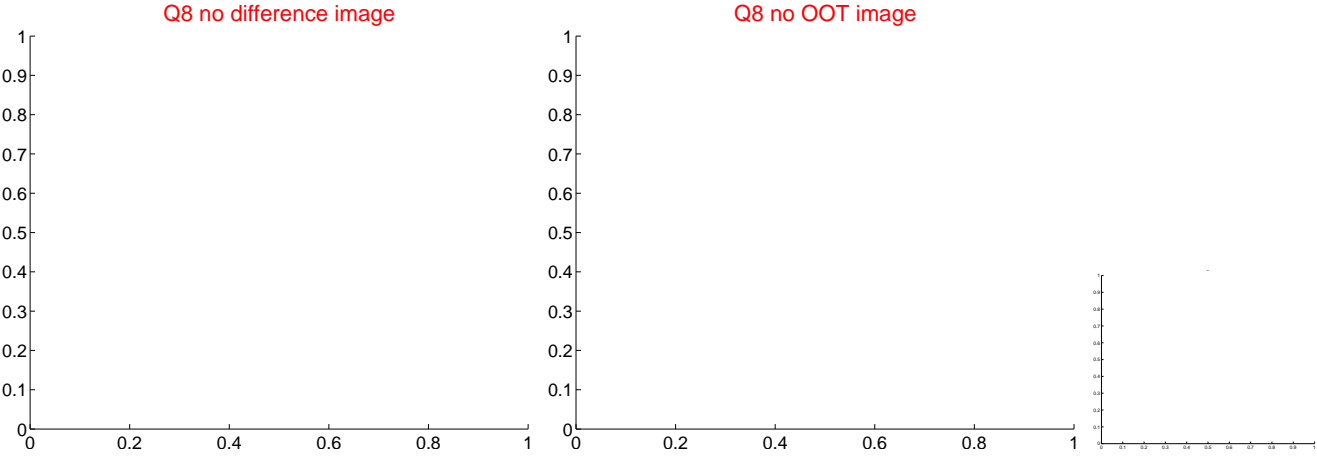
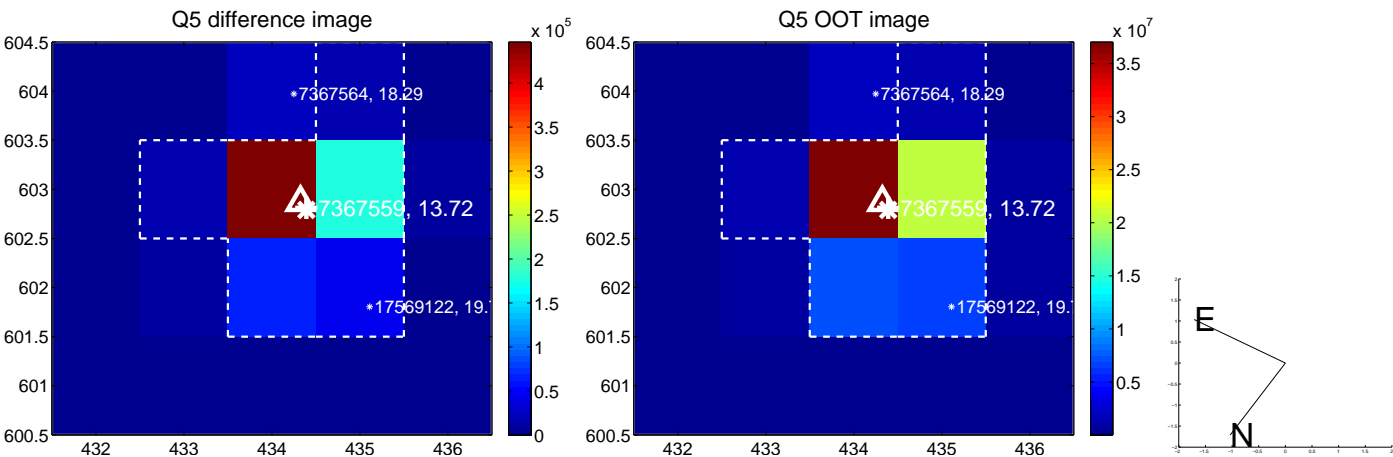


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



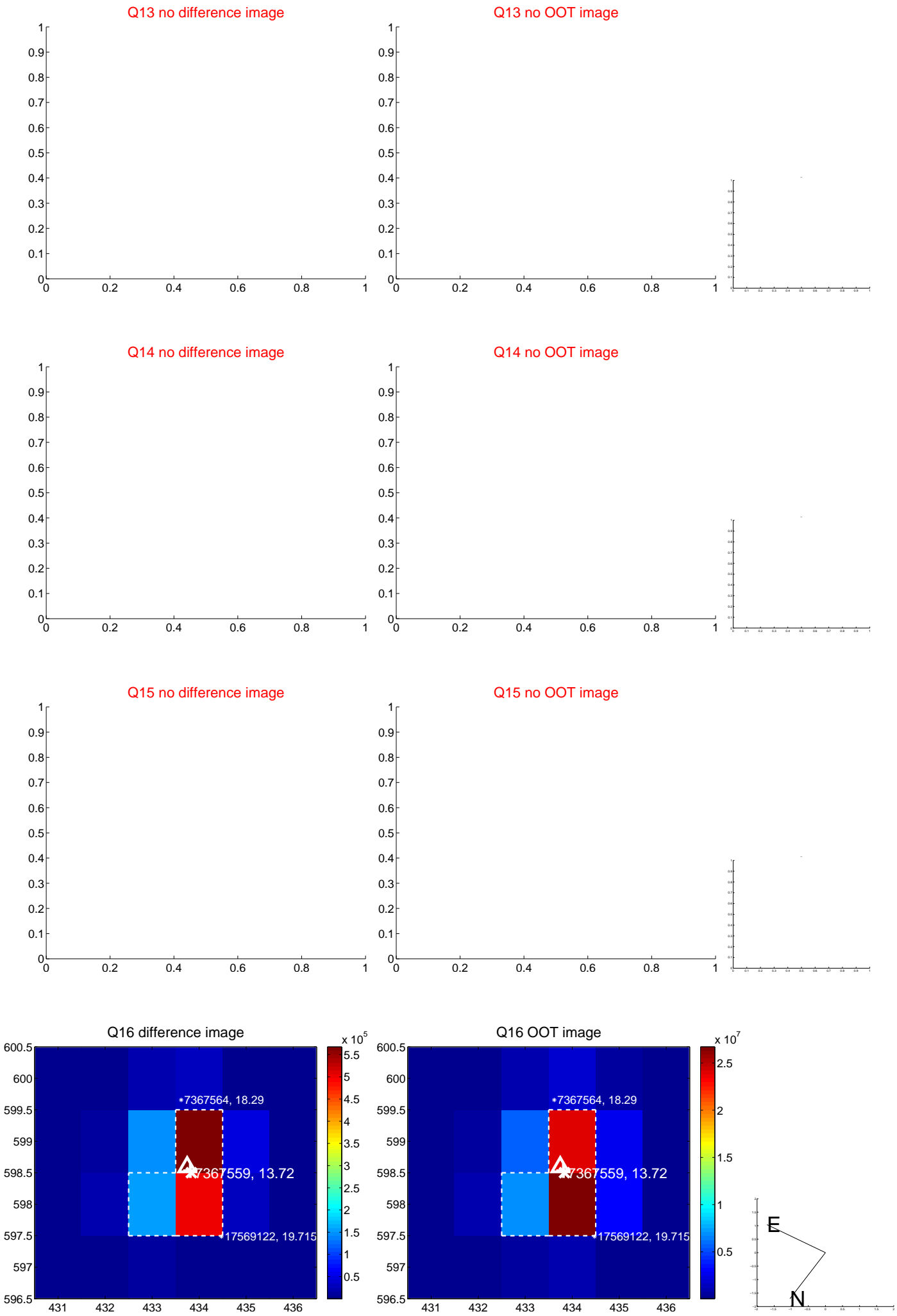
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



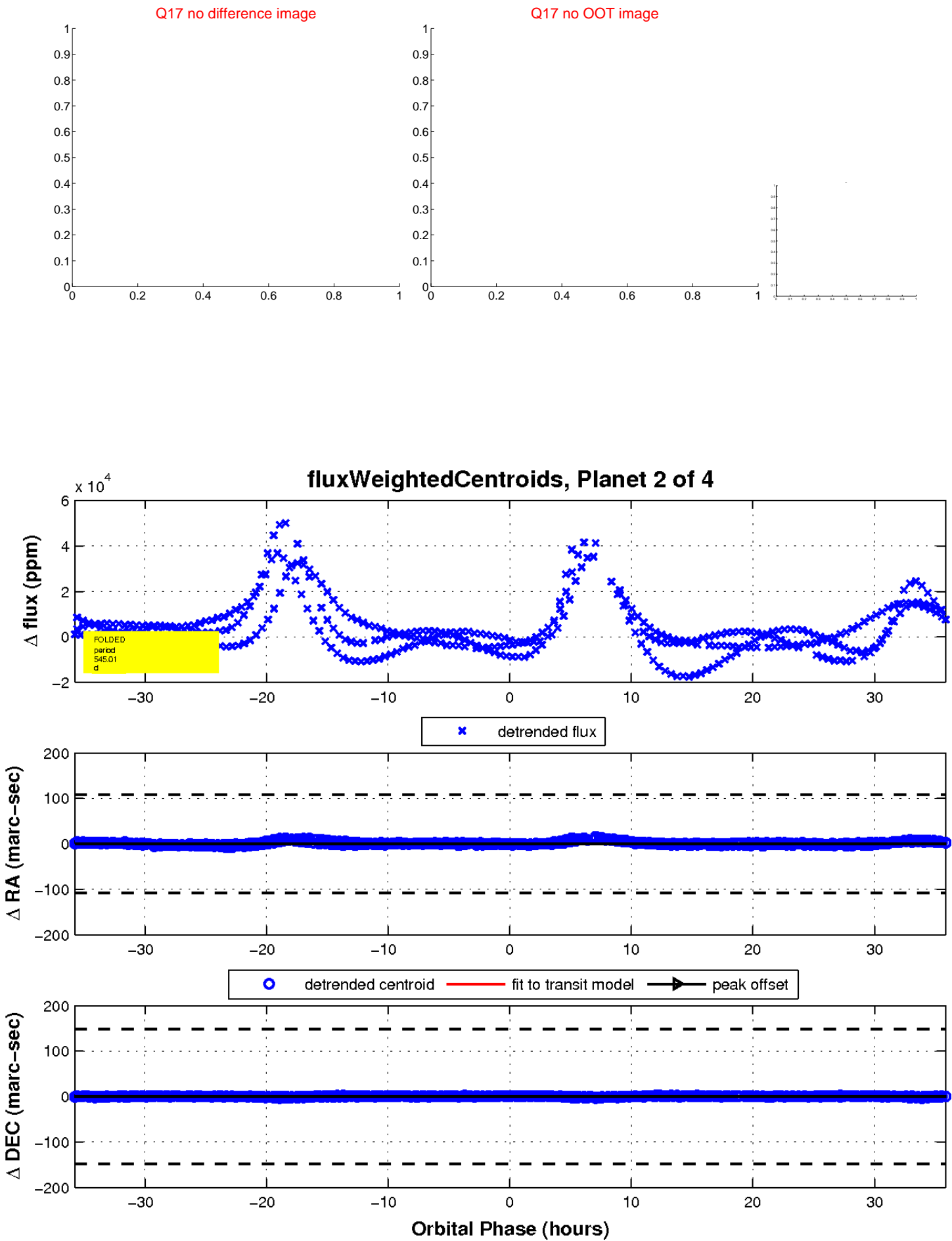
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

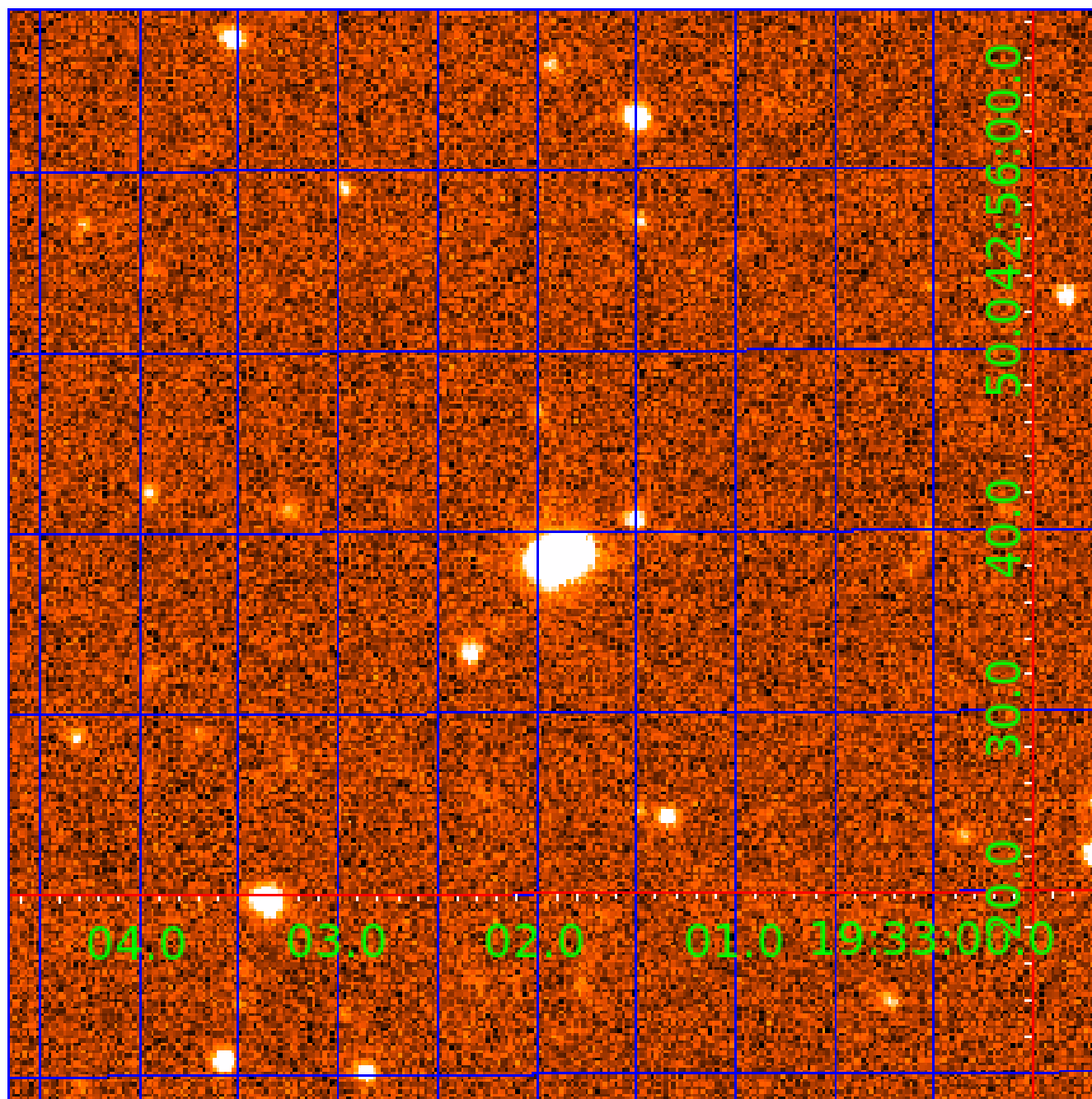


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007367559

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})
007367559-01	OBS	No	544.984304	462.954230	6719.9	15.267	29.3	5.4	1.25	7102	11.64	1.78
007367559-02	OBS	No	545.008393	463.955358	22744.3	11.982	30.3	18.7	1.25	7102	19.56	1.78
007367559-03	OBS	No	450.053861	496.813721	10288.9	14.157	23.0	8.0	1.25	7102	14.38	2.30
007367559-04	OBS	No	450.051546	495.409777	450.2	2.467	21.2	1.8	1.25	7102	3.13	2.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007367559-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
007367559-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007367559-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007367559-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

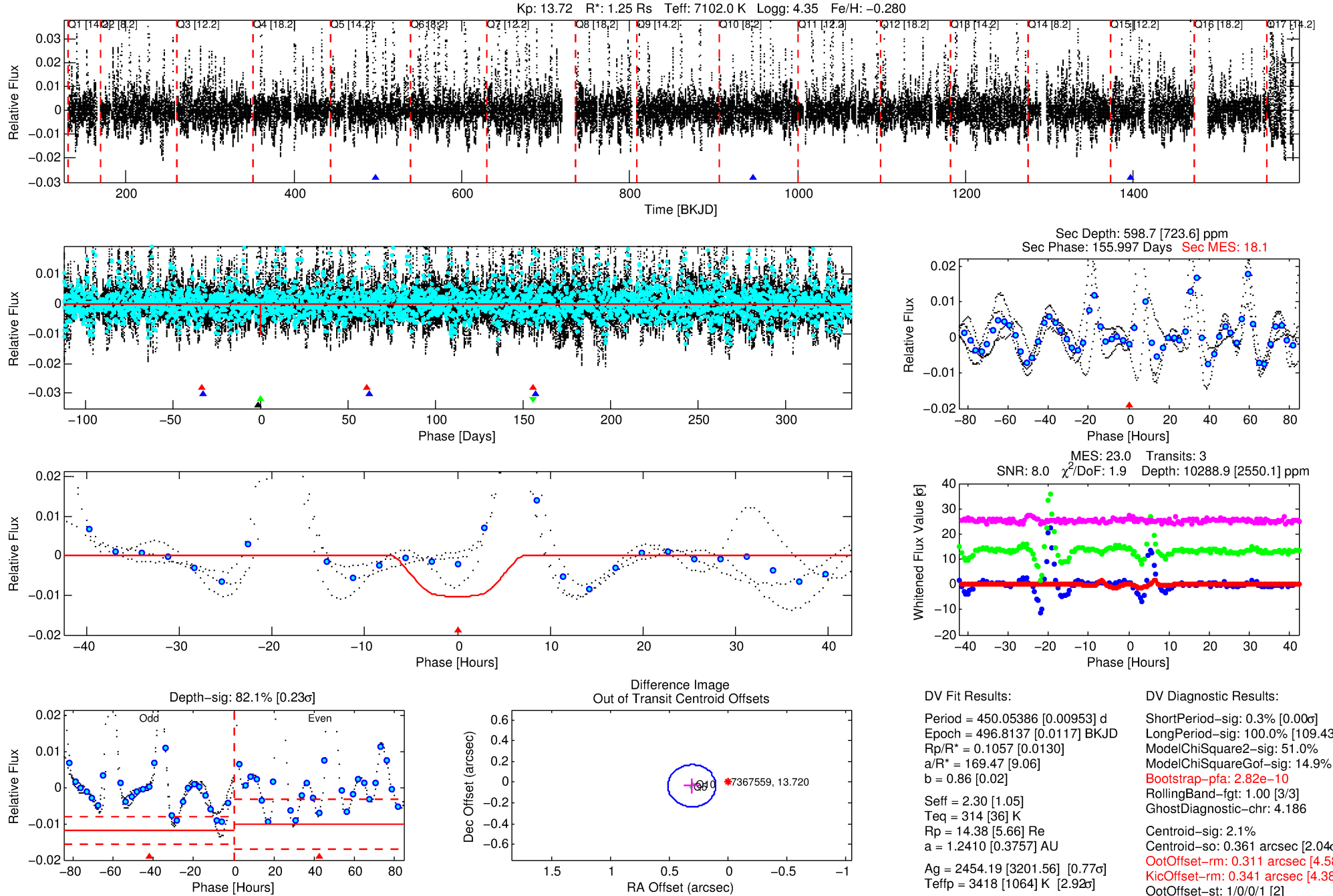
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007367559-03

No Significant Match Found

DV One-Page Summary

KIC: 7367559 Candidate: 3 of 4 Period: 450.054 d



DV Fit Results:

Period = 450.05386 [0.00953] d
Epoch = 496.8137 [0.0117] BKJD
Rp/R* = 0.1057 [0.0130]
a/R* = 169.47 [9.06]
b = 0.86 [0.02]
Seff = 2.30 [1.05]
Teq = 314 [36] K
Rp = 14.38 [5.66] Re
a = 1.2410 [0.3757] AU
Ag = 2454.19 [3201.56] [0.77σ]
Teffp = 3418 [1064] K [2.92σ]

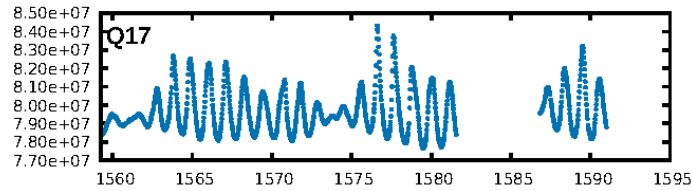
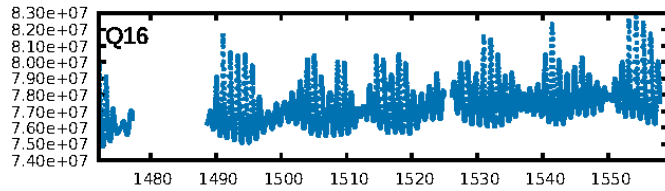
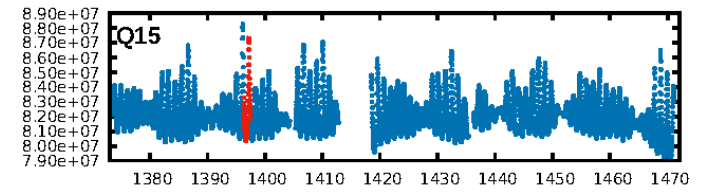
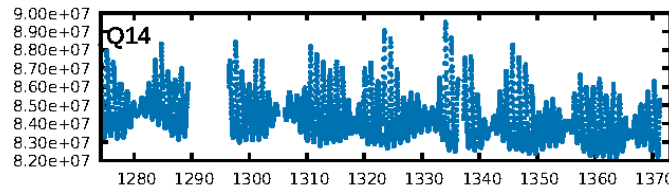
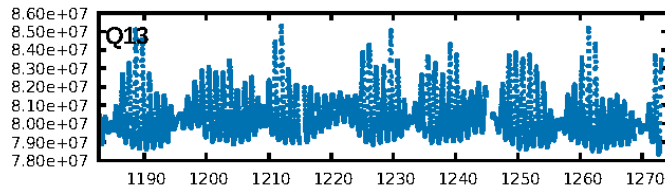
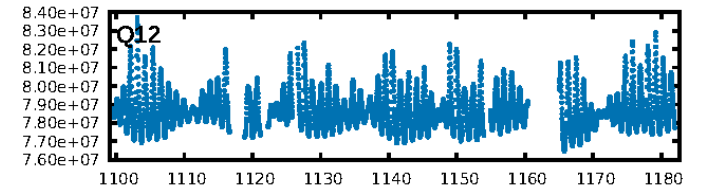
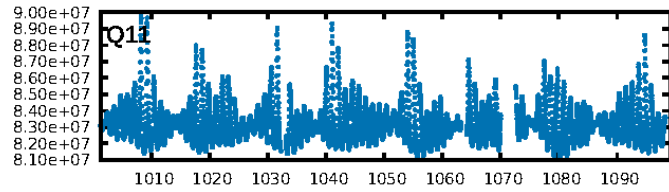
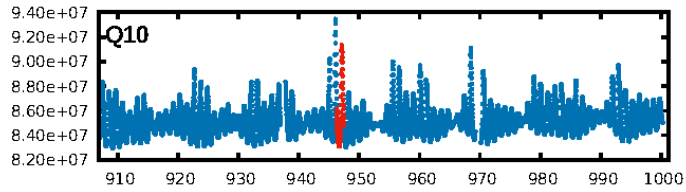
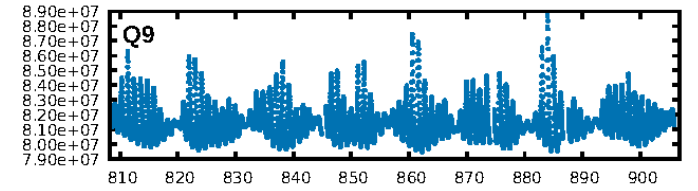
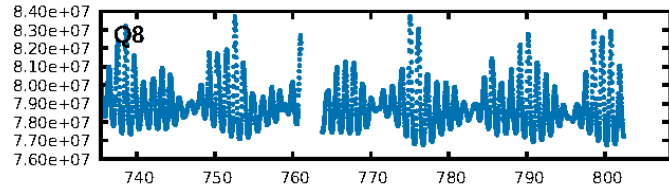
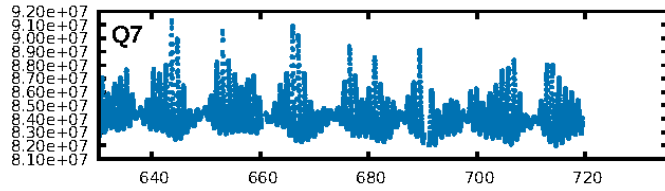
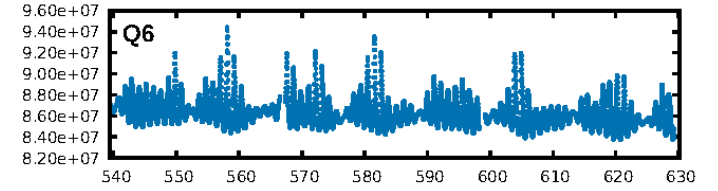
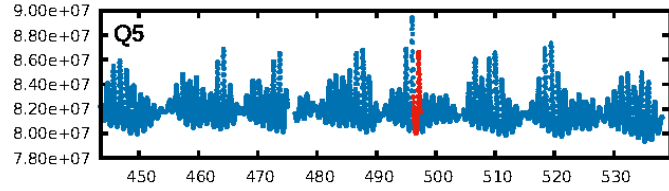
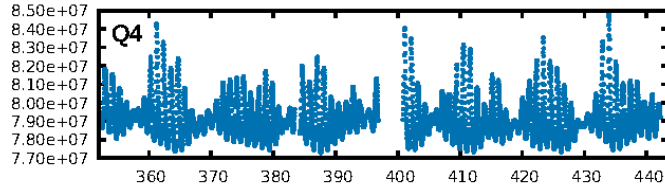
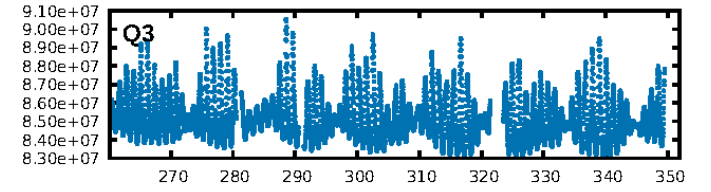
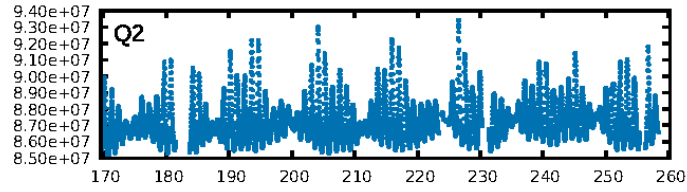
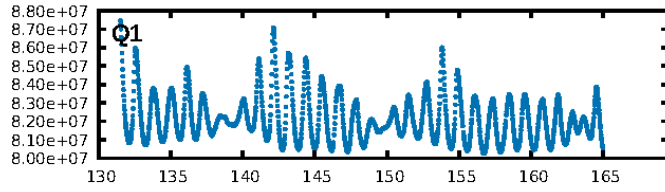
DV Diagnostic Results:

ShortPeriod-sig: 0.3% [0.00σ]
LongPeriod-sig: 100.0% [109.43σ]
ModelChiSquare2-sig: 51.0%
ModelChiSquareGof-sig: 14.9%
Bootstrap-pfa: 2.82e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.186
Centroid-sig: 2.1%
Centroid-so: 0.361 arcsec [2.04σ]
OotOffset-rm: 0.311 arcsec [4.58σ]
KicOffset-rm: 0.341 arcsec [4.38σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

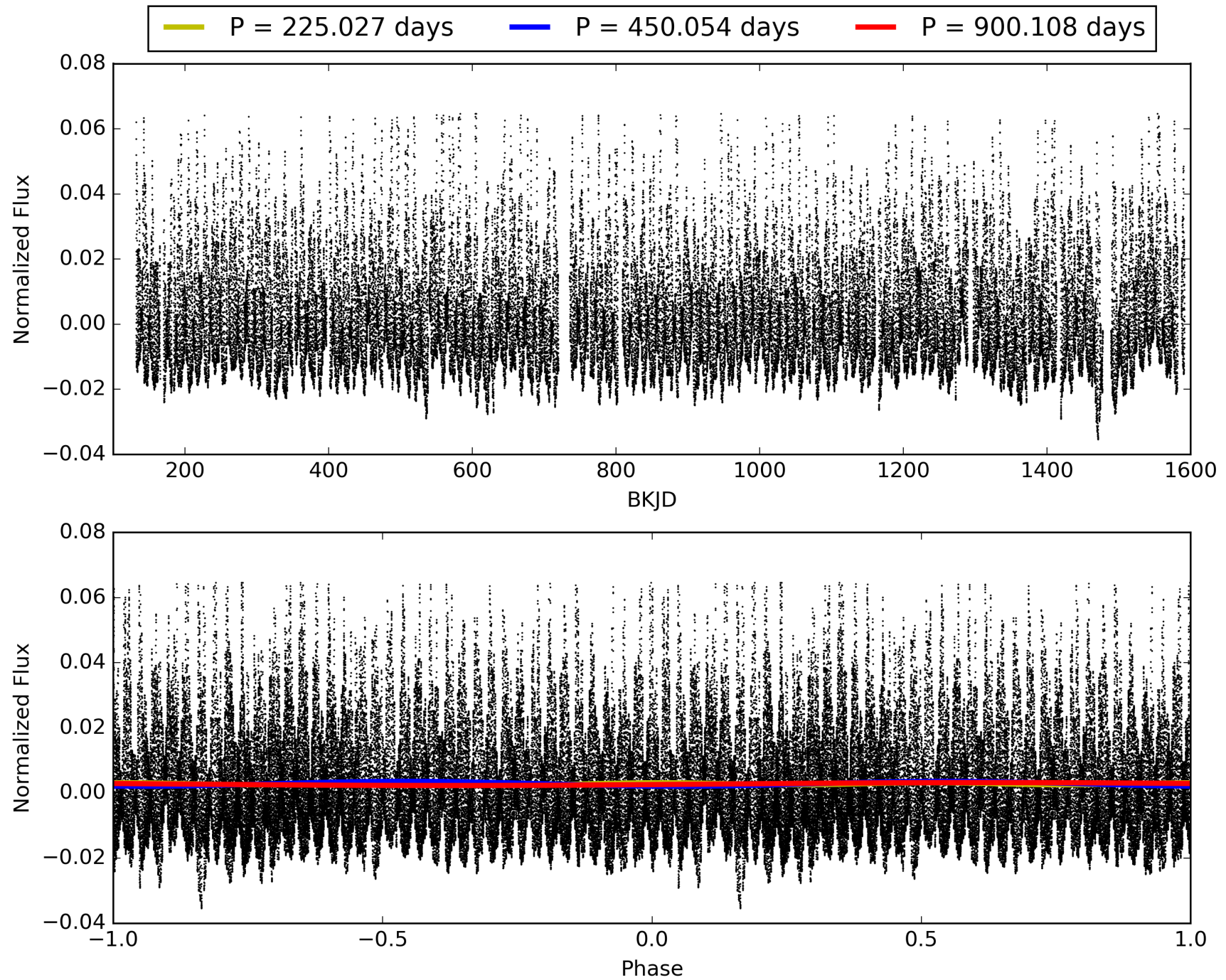
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:20:42 Z

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

TCE 007367559-03, PDC Light Curves

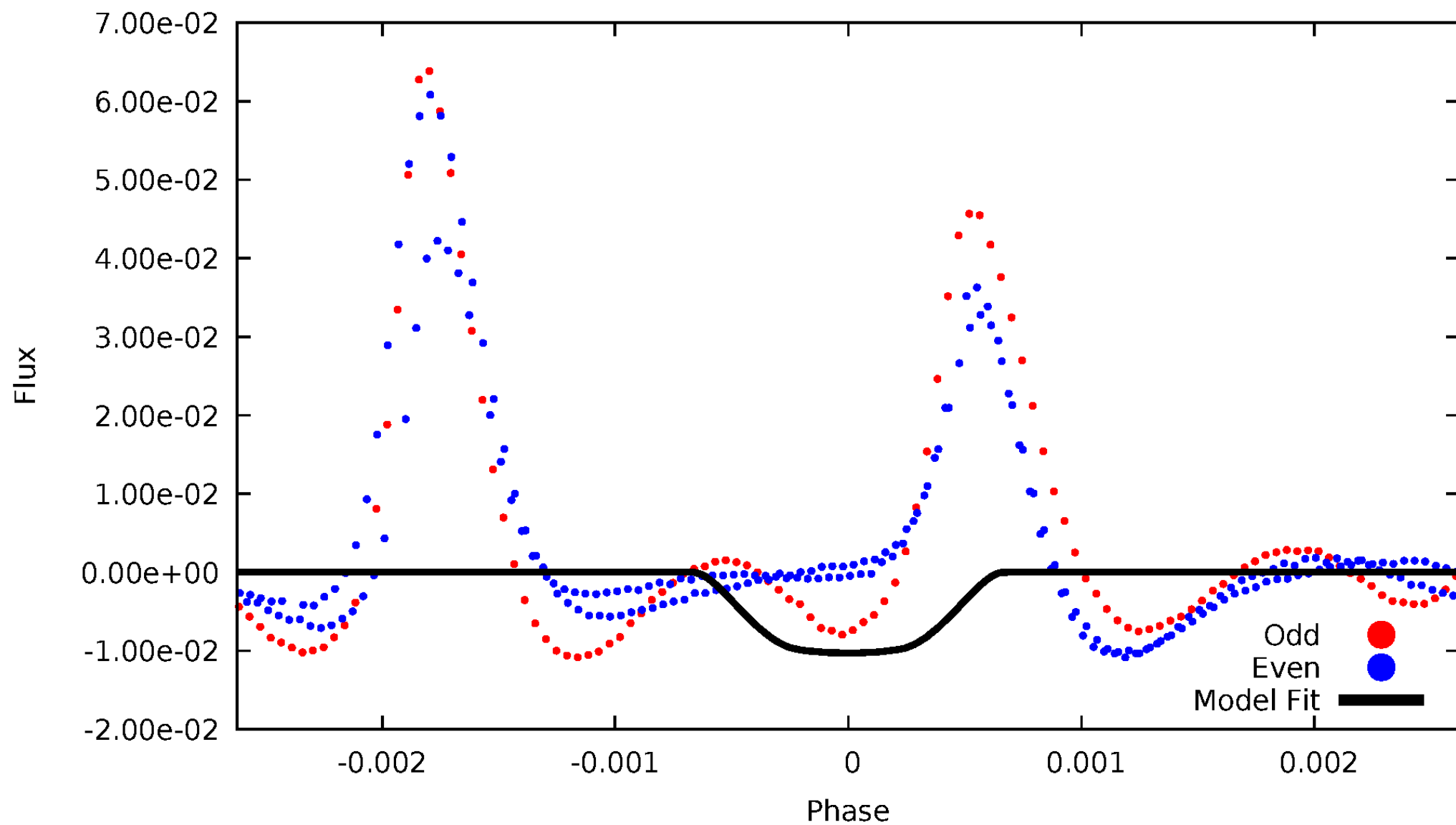


TCE 007367559-03



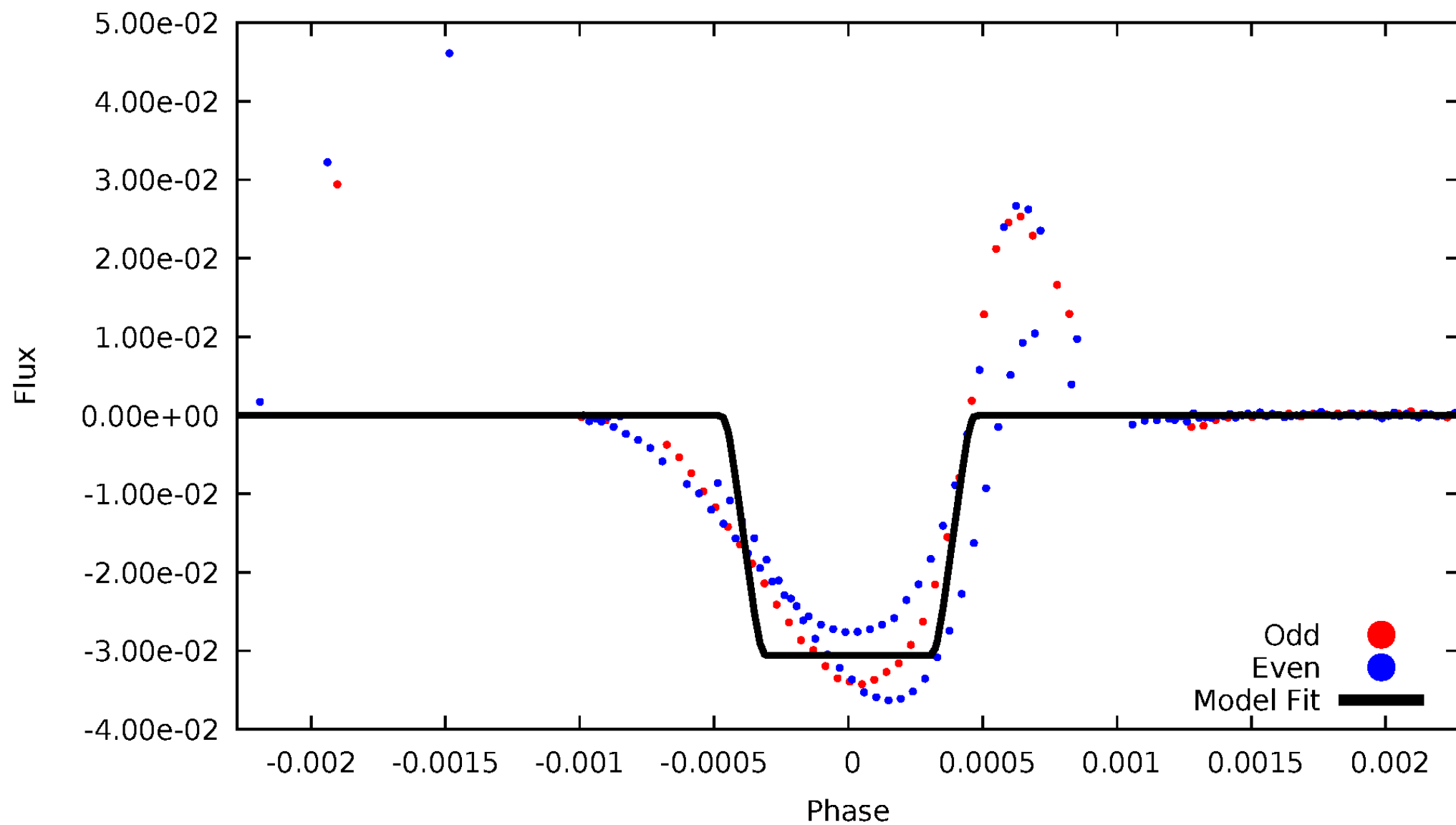
DV Odd/Even

TCE 007367559-03



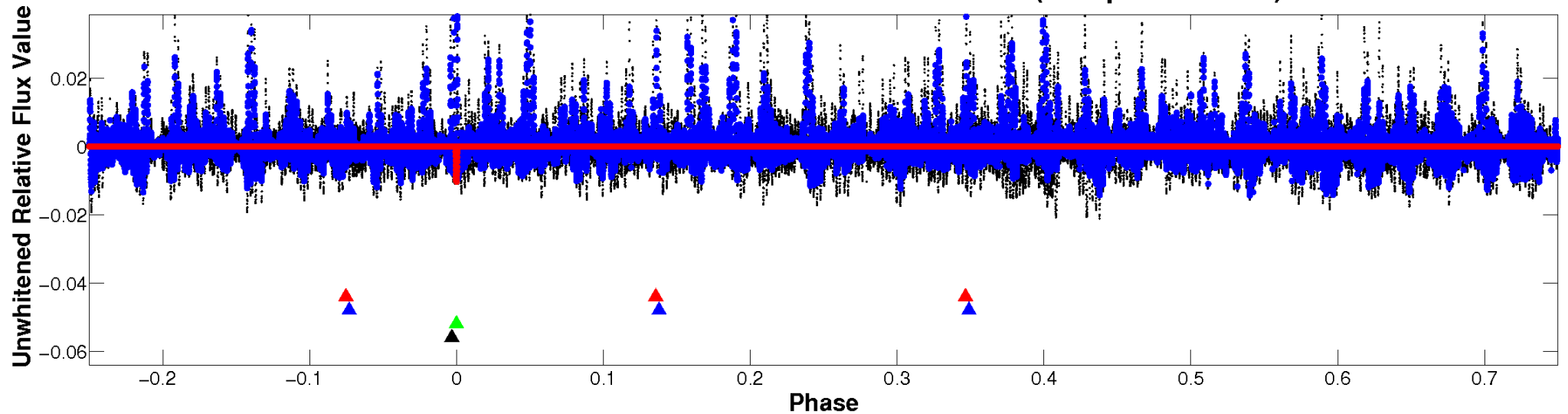
ALT Odd/Even

TCE 007367559-03

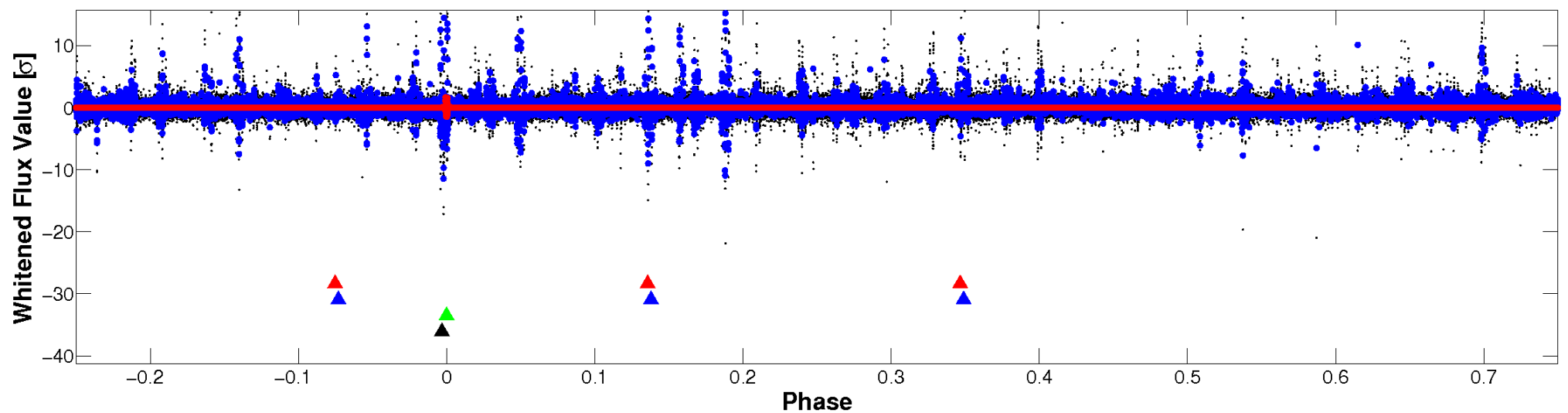


Non-Whitened Vs. Whitened Light Curve

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

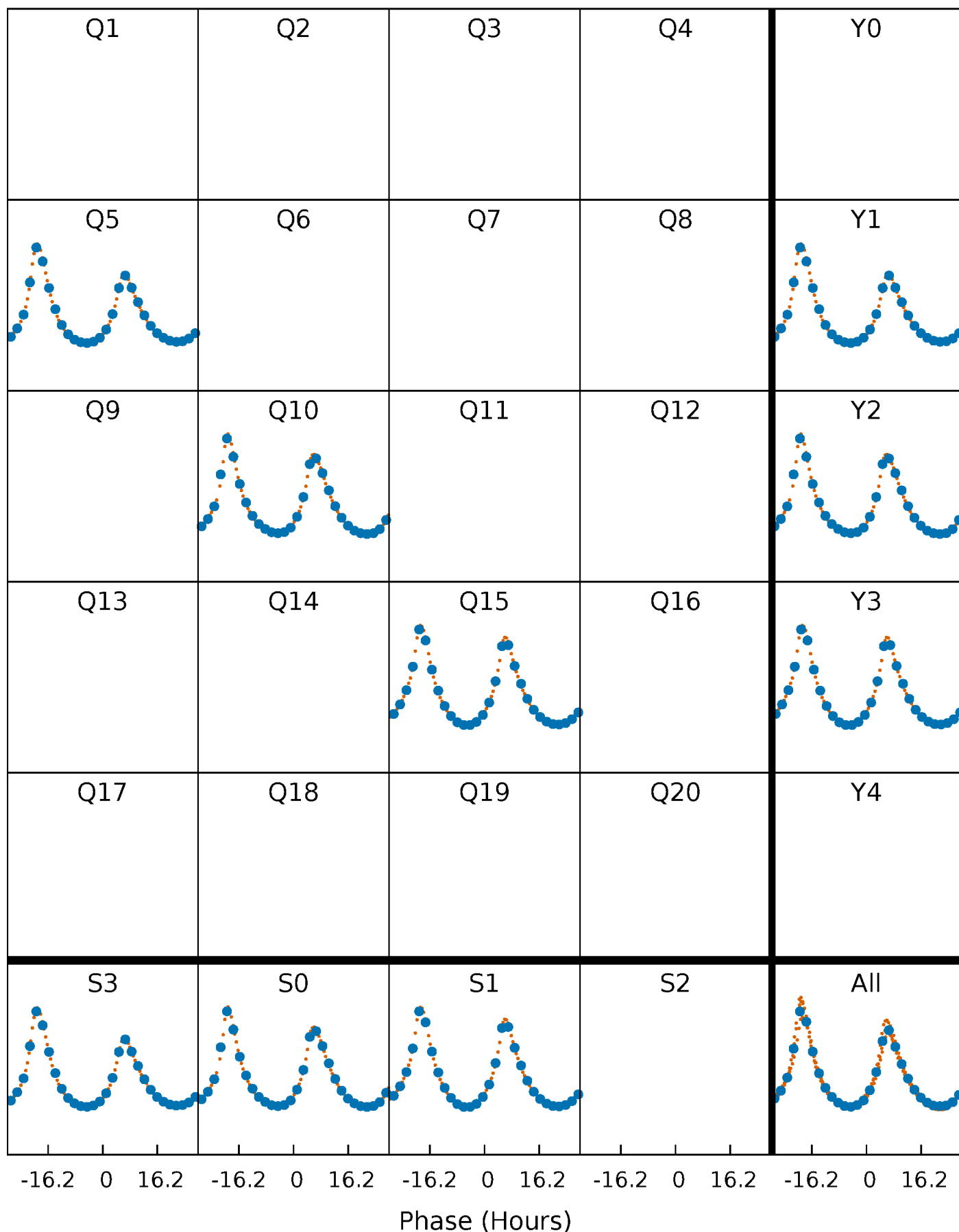


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



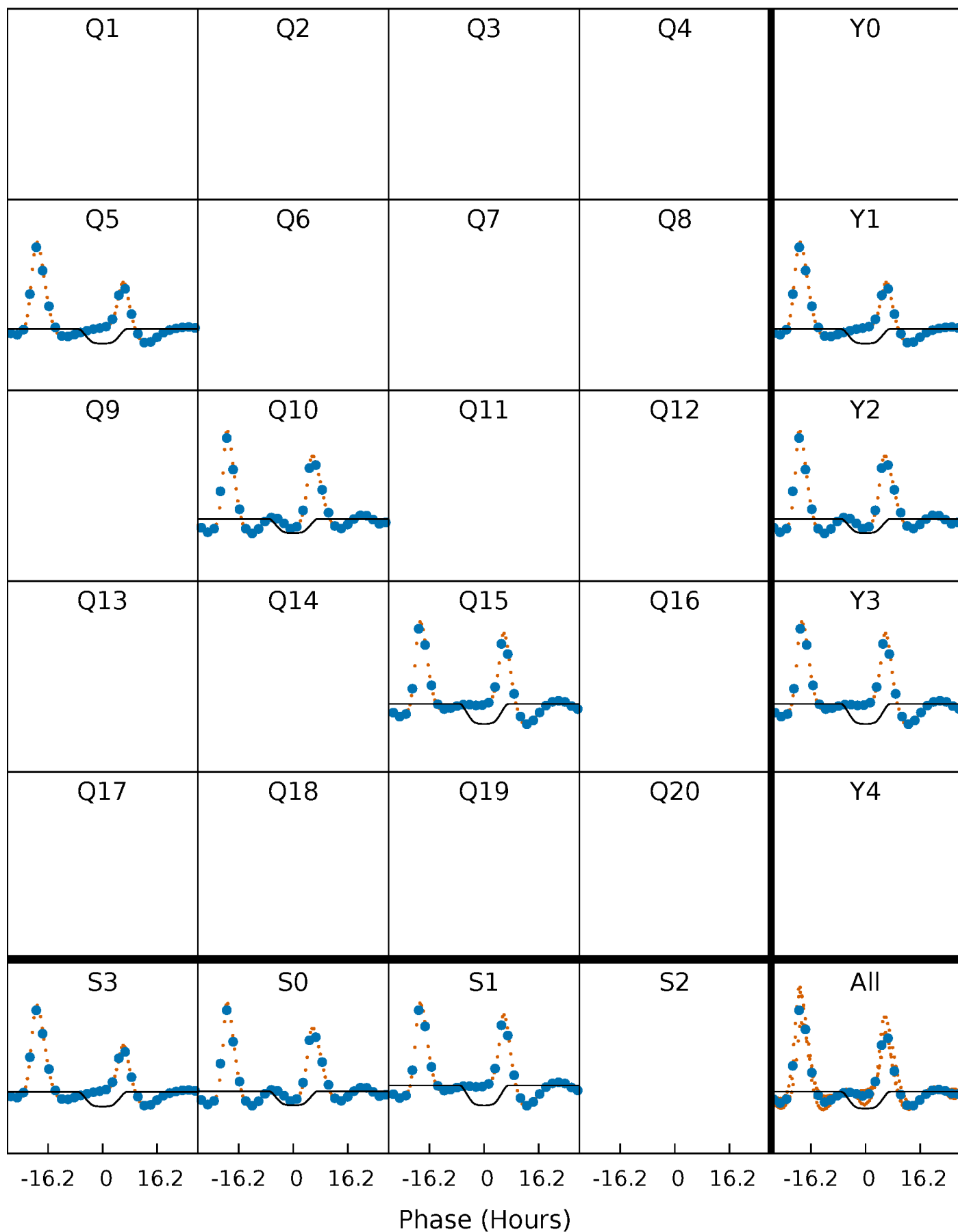
PDC Quarter-Phased Transit Curves

TCE 007367559-03 $P=450.053861$ Days $T_0=496.813721$ (BKJD)



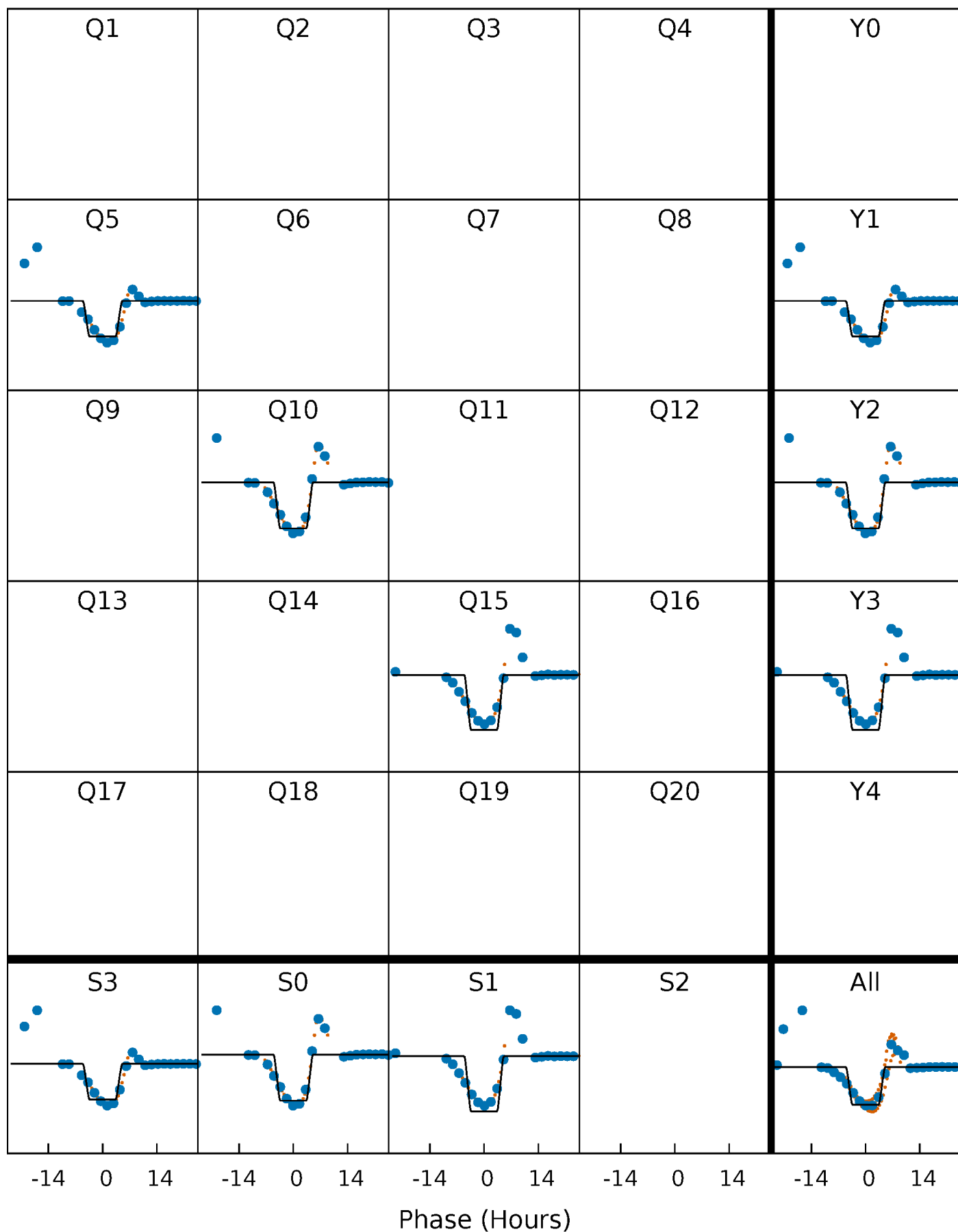
DV Quarter-Phased Transit Curves

TCE 007367559-03 P=450.053861 Days $T_0=496.813721$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

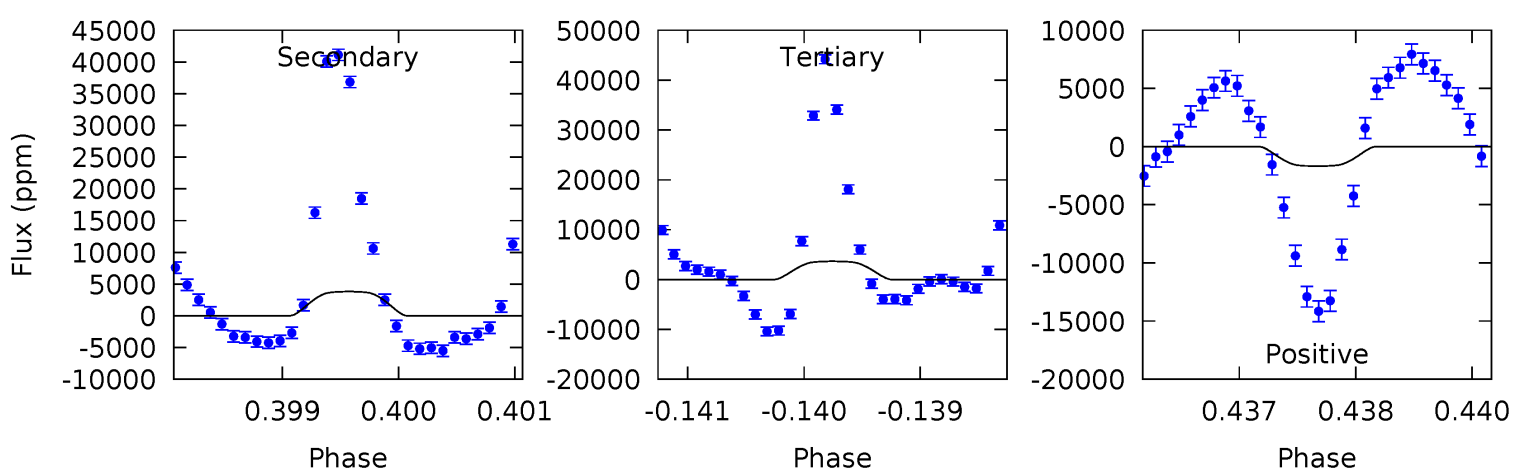
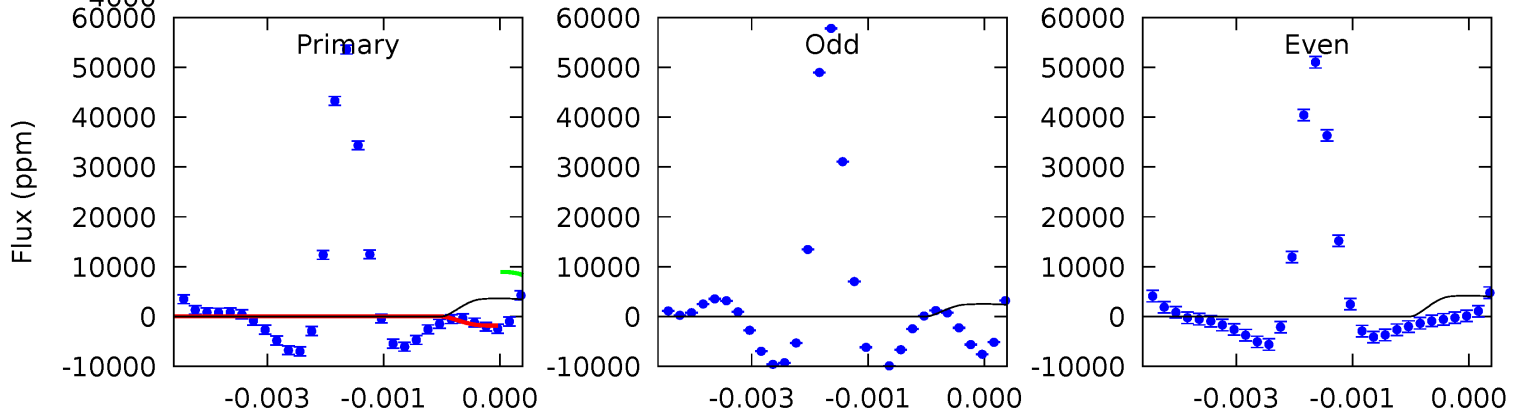
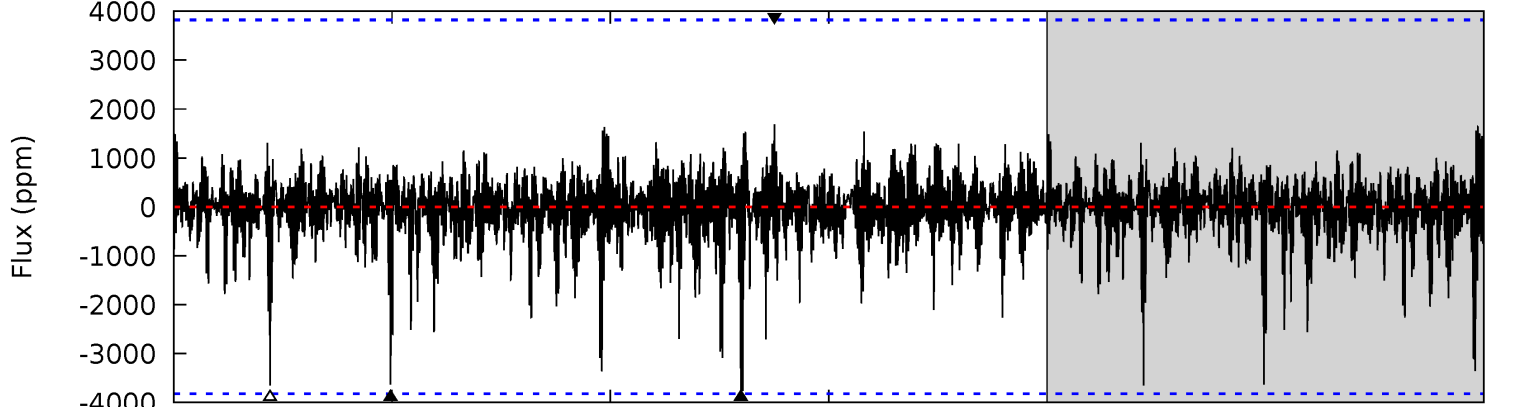
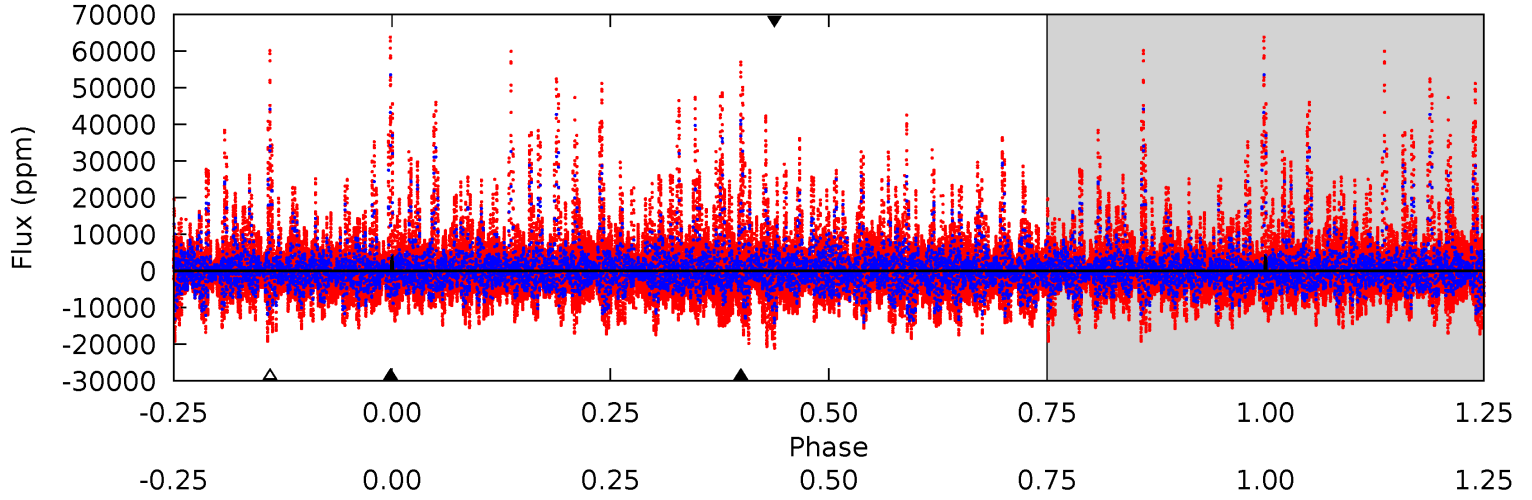
TCE 007367559-03 $P=450.055970$ Days $T_0=496.777082$ (BKJD)



DV Model-Shift Uniqueness Test

007367559-03, P = 450.053861 Days, E = 46.759860 Days

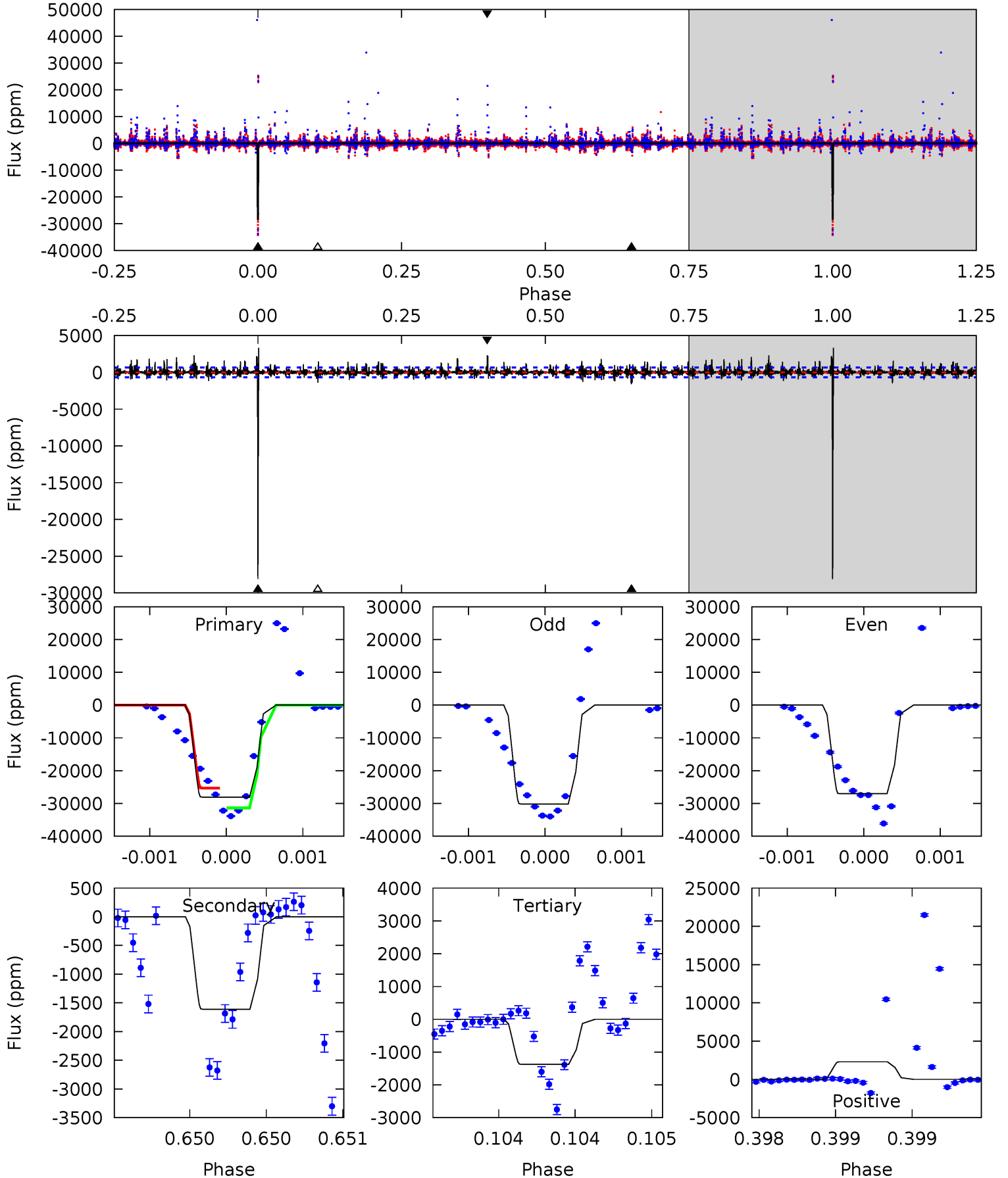
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.13	5.40	5.17	2.38	5.40	3.21	0.82	-0.03	2.75	0.23	3.02	1.14	0.99	0.31	5.10



Alt Model-Shift Uniqueness Test

007367559-03, P = 450.055970 Days, E = 46.721112 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
228.7	13.1	11.2	18.7	5.47	3.32	2.01	217.6	210.0	1.93	-5.63	12.9	0.96	0.11	0



Stellar Parameters For KIC 007367559

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7102^{+199}_{-299}	$4.346^{+0.056}_{-0.224}$	$-0.280^{+0.250}_{-0.350}$	$1.247^{+0.466}_{-0.124}$	$1.278^{+0.204}_{-0.167}$	$0.929^{+0.225}_{-0.539}$
	+3%/-4%	+1%/-5%	+89%/-125%	+37%/-10%	+16%/-13%	+24%/-58%
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 007367559-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3819 ± 707	$15.02^{+3.02}_{-2.19}$	450^{+35}_{-27}	5411^{+477}_{-408}	14025^{+6280}_{-4467}
Alt.	-1611 ± 123	$24.78^{+4.50}_{-2.91}$	446^{+35}_{-22}	3760^{+137}_{-138}	2175^{+588}_{-540}

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 $A_{obs} \gg 1.0$

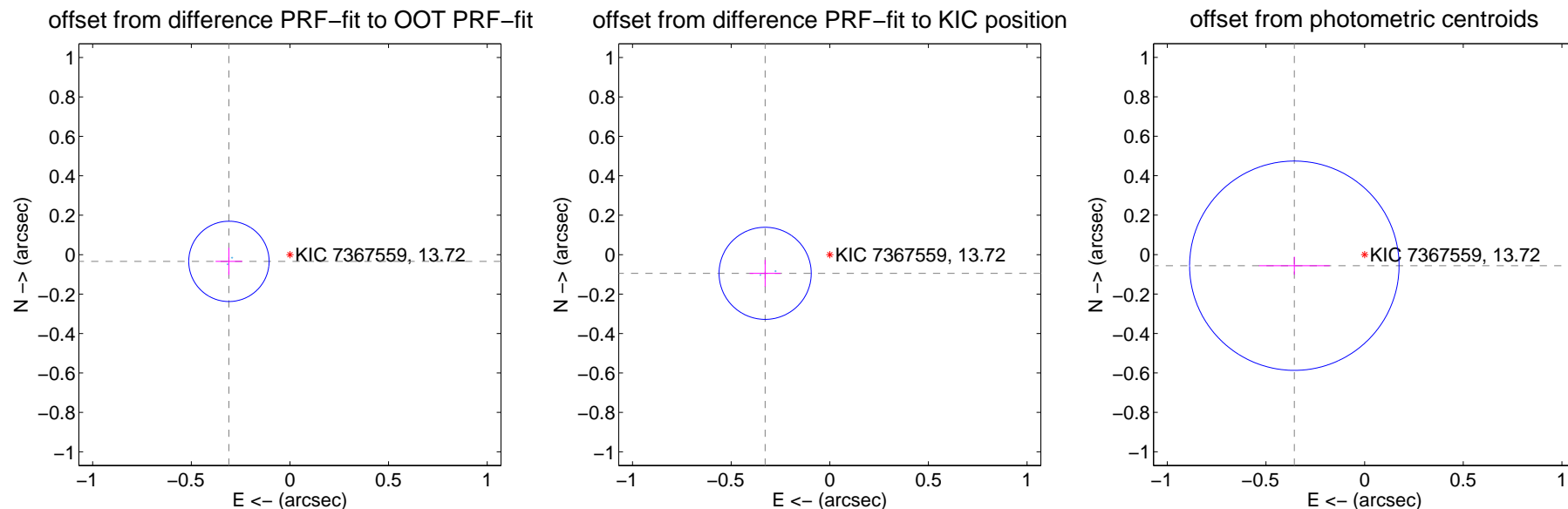
DV Centroid Data

Supplemental centroid analysis for 007367559-03. Kepler magnitude: 13.72. Transit SNR 8.01

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.311 ± 0.068	4.58	0.309 ± 0.068	-0.034 ± 0.069
PRF-fit source offset from KIC position	0.341 ± 0.078	4.38	0.328 ± 0.079	-0.095 ± 0.068
photometric centroid source offset	0.36 ± 0.18	2.04	0.36 ± 0.18	-0.06 ± 0.05

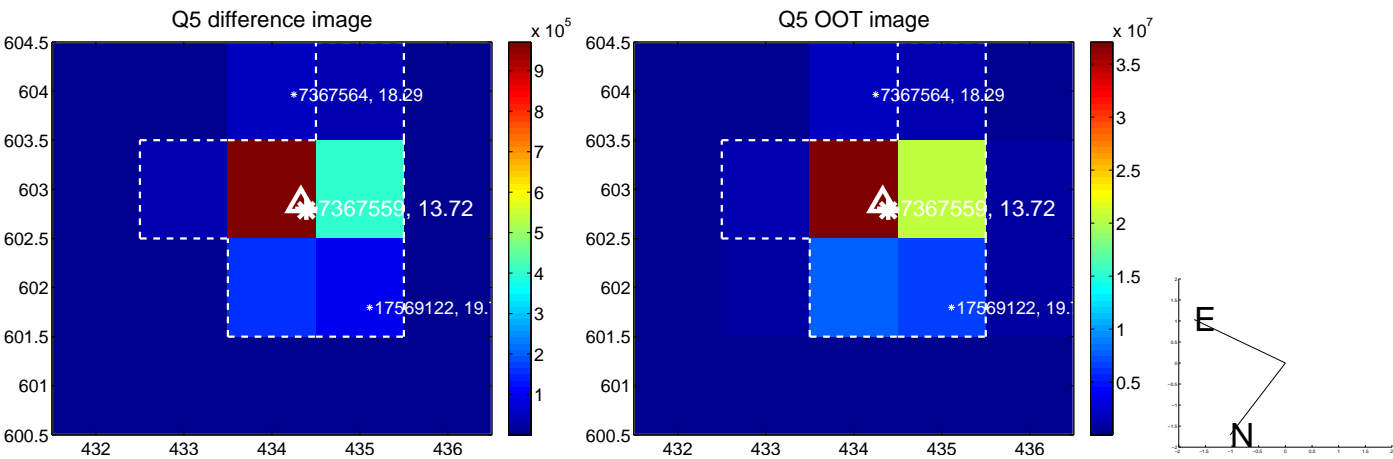


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

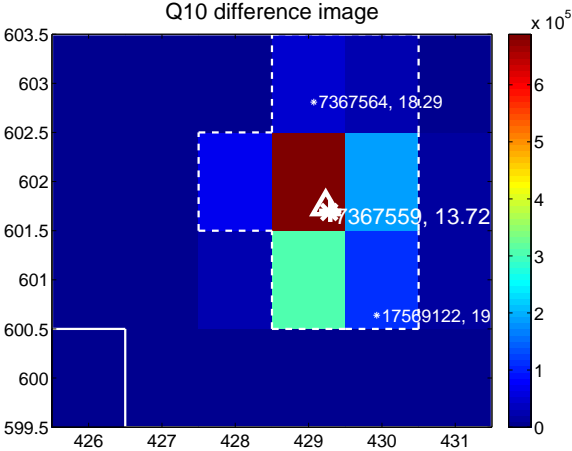
Q9 no difference image



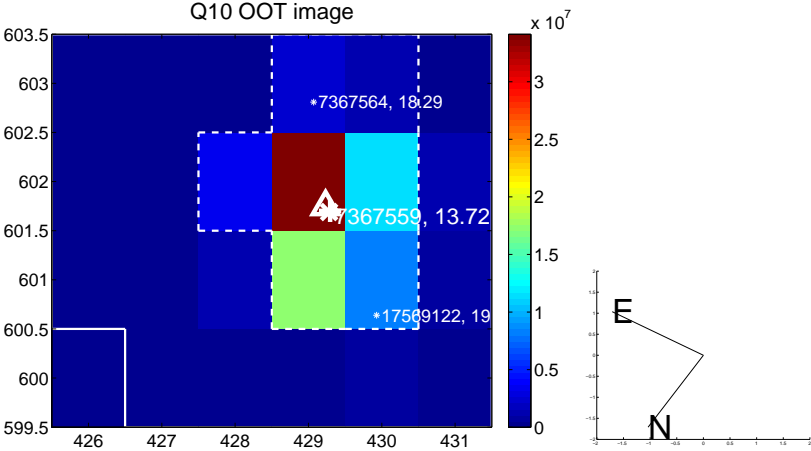
Q9 no OOT image



Q10 difference image



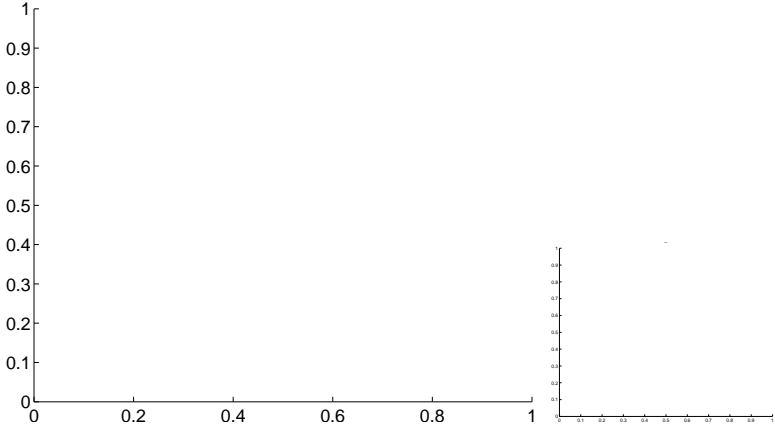
Q10 OOT image



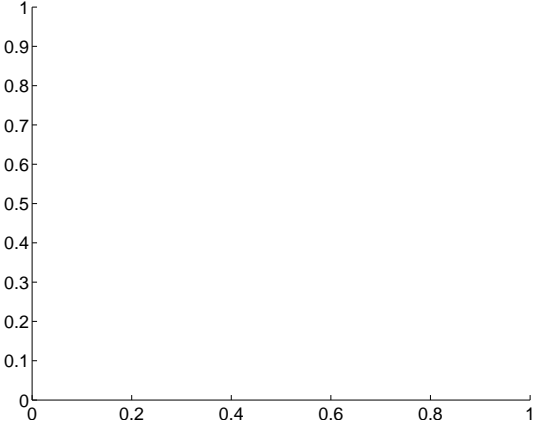
Q11 no difference image



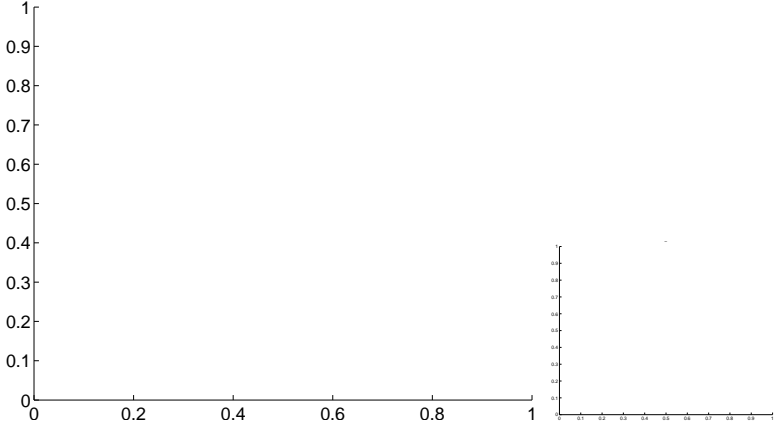
Q11 no OOT image



Q12 no difference image



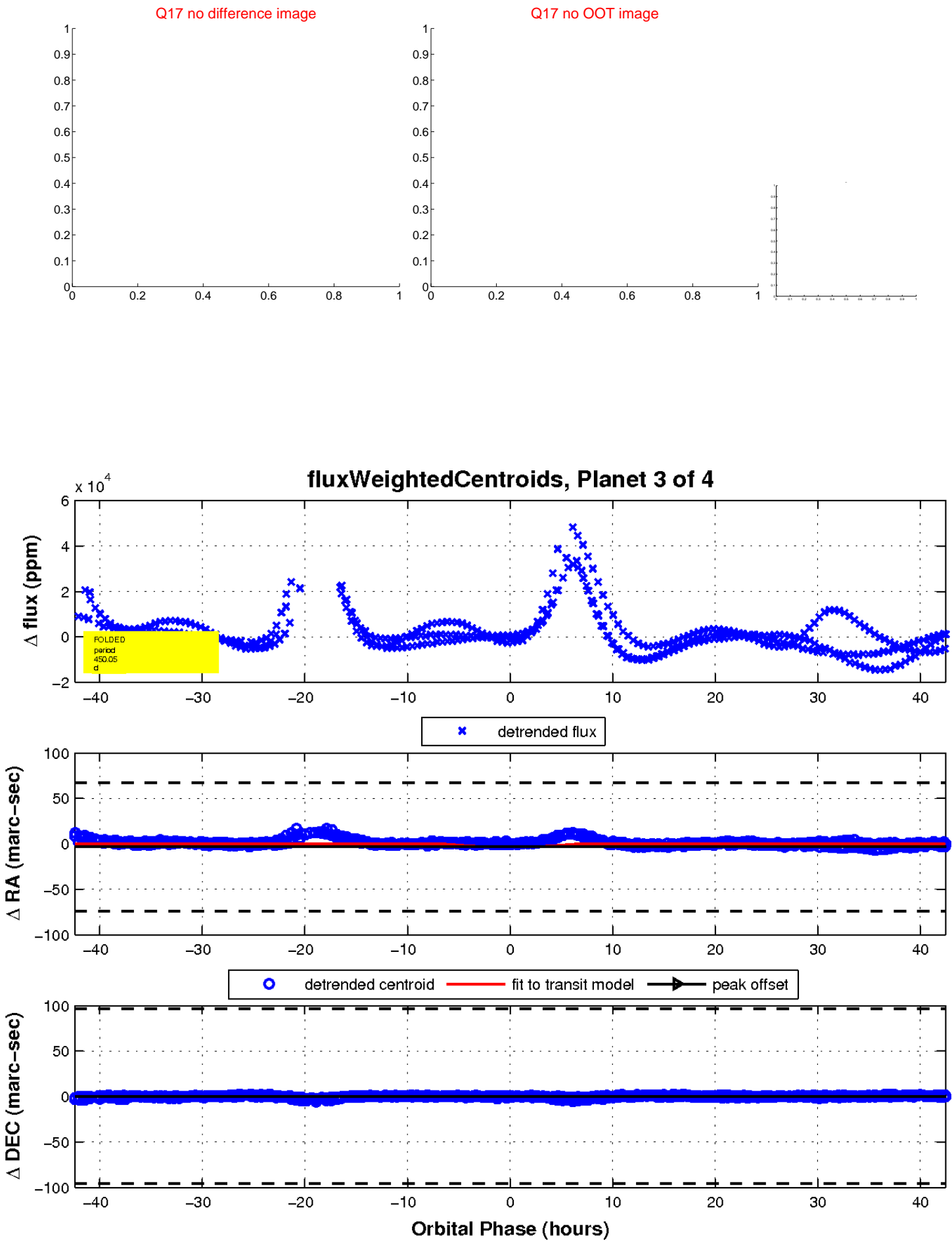
Q12 no OOT image



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

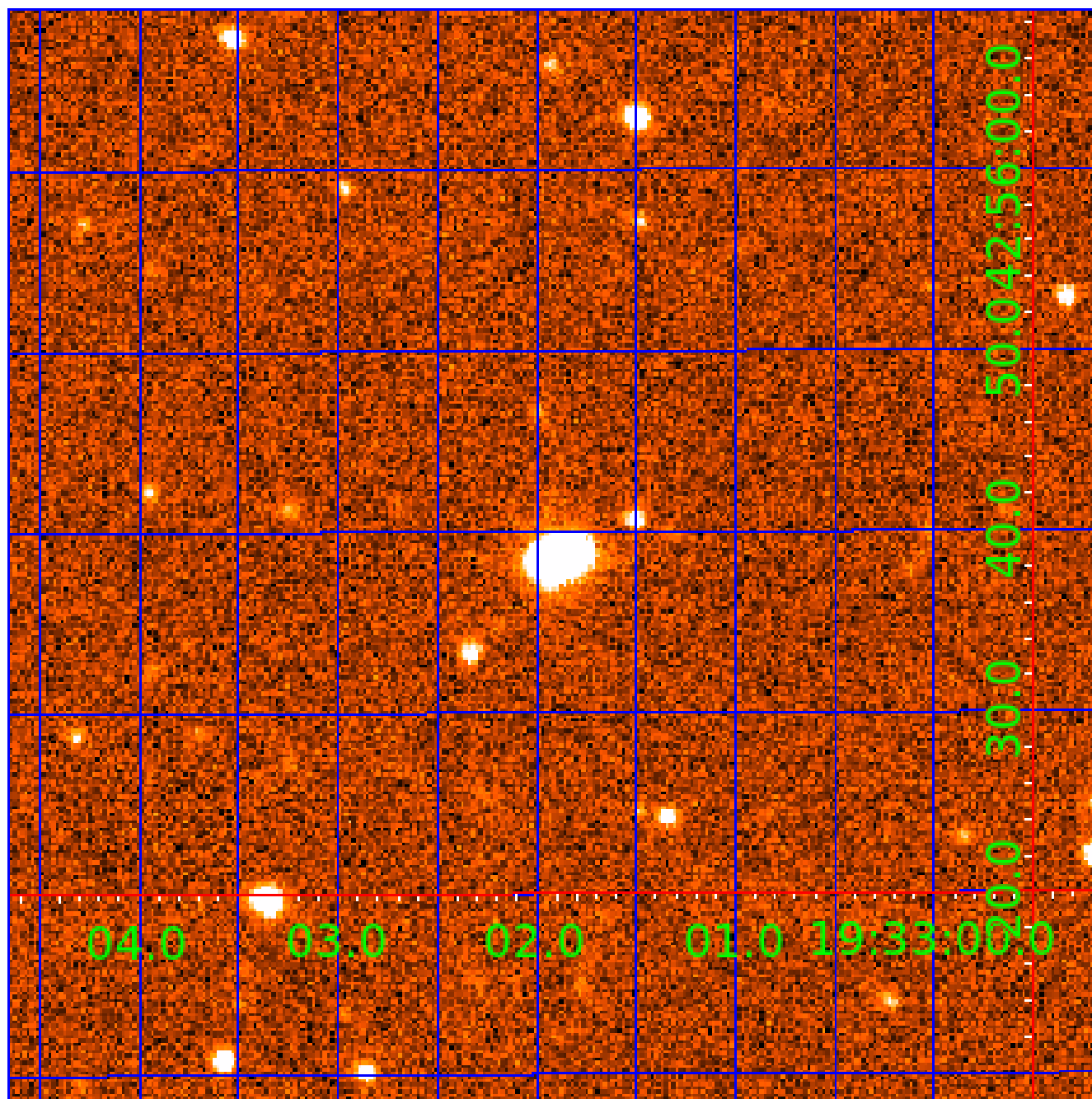


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007367559

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})
007367559-01	OBS	No	544.984304	462.954230	6719.9	15.267	29.3	5.4	1.25	7102	11.64	1.78
007367559-02	OBS	No	545.008393	463.955358	22744.3	11.982	30.3	18.7	1.25	7102	19.56	1.78
007367559-03	OBS	No	450.053861	496.813721	10288.9	14.157	23.0	8.0	1.25	7102	14.38	2.30
007367559-04	OBS	No	450.051546	495.409777	450.2	2.467	21.2	1.8	1.25	7102	3.13	2.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007367559-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
007367559-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS
007367559-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
007367559-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

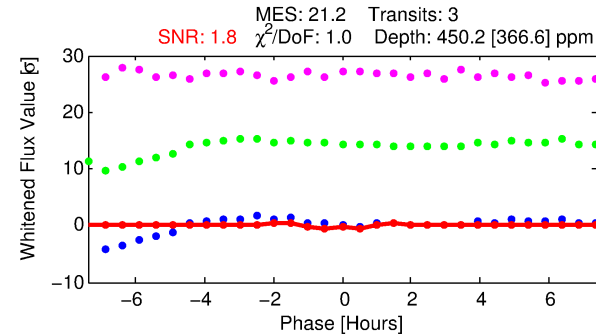
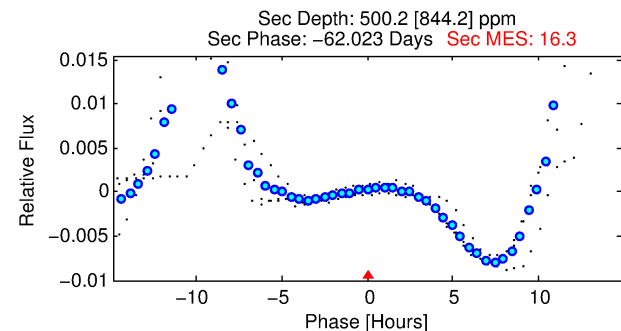
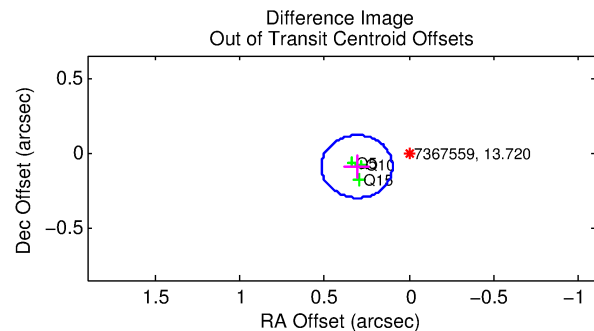
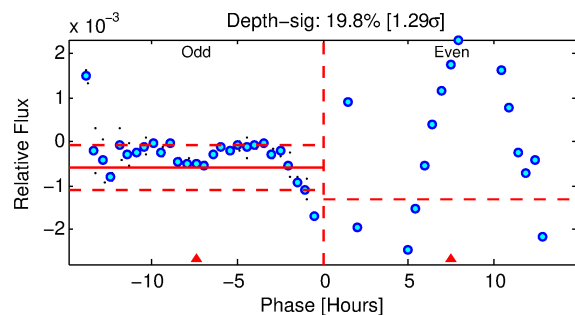
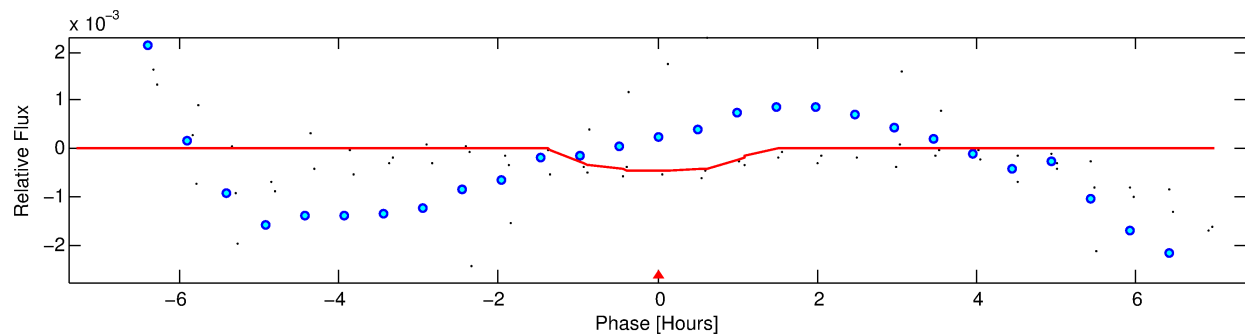
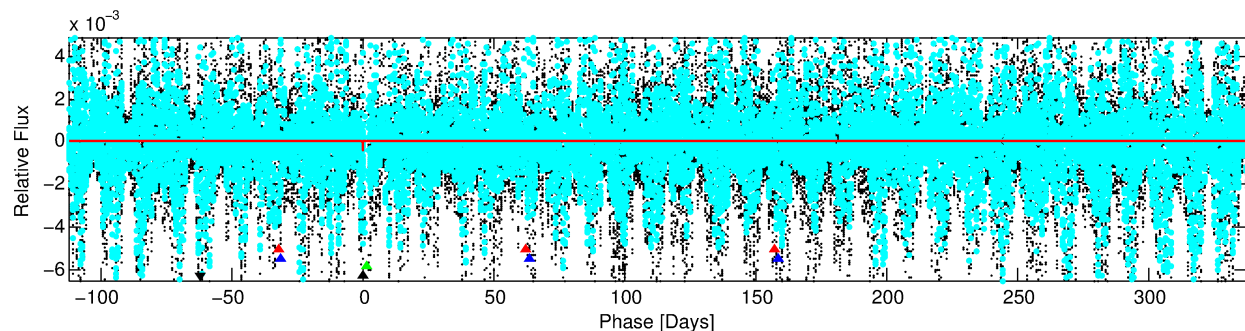
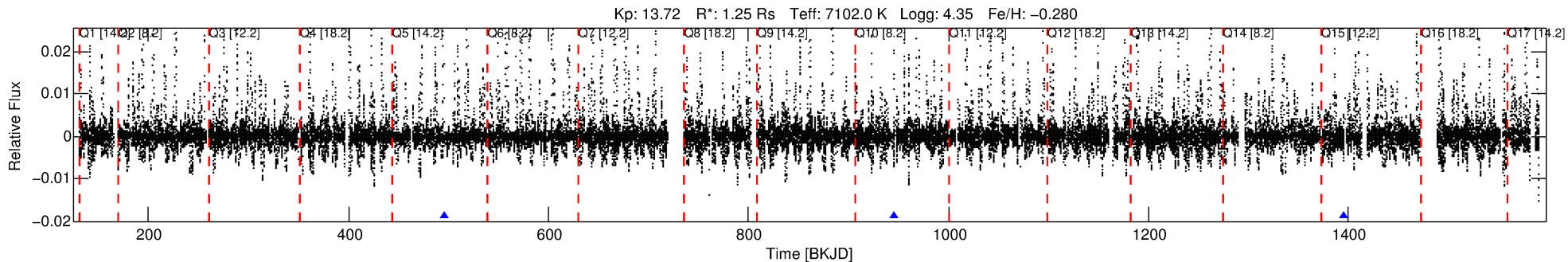
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007367559-04

No Significant Match Found

DV One-Page Summary

KIC: 7367559 Candidate: 4 of 4 Period: 450.052 d



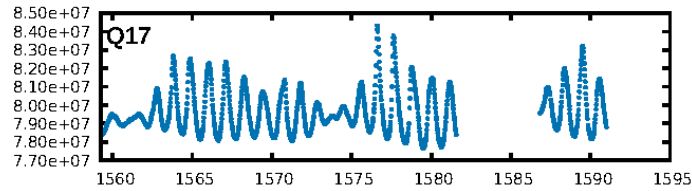
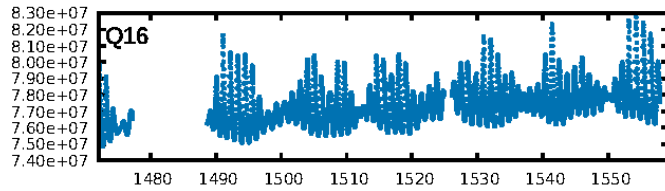
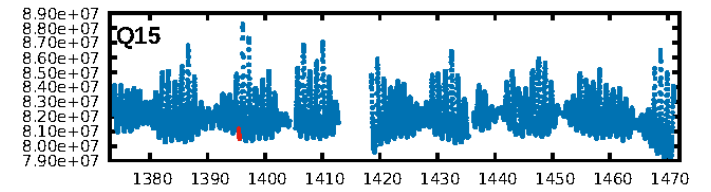
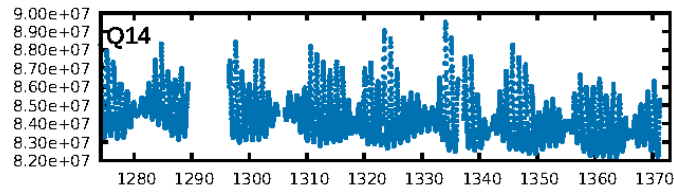
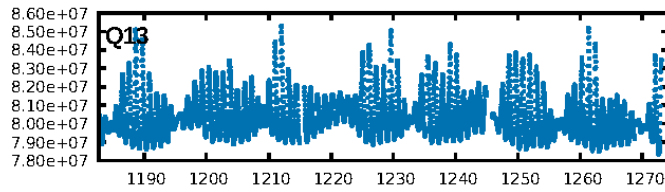
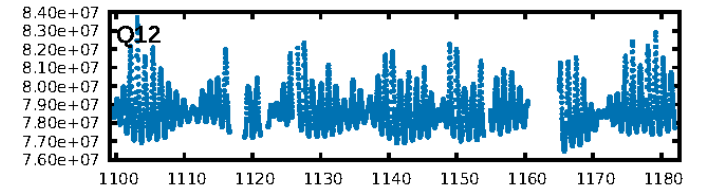
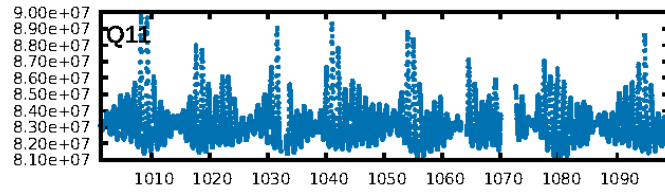
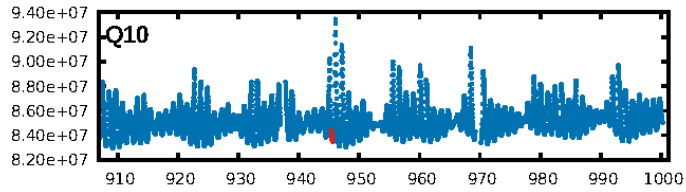
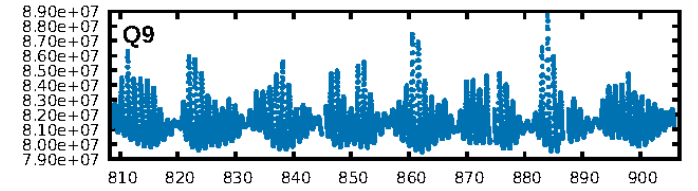
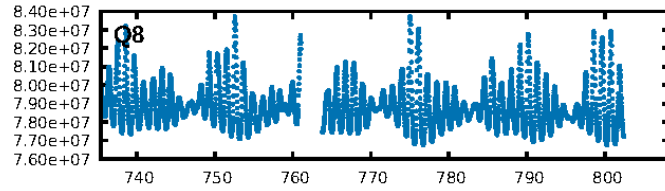
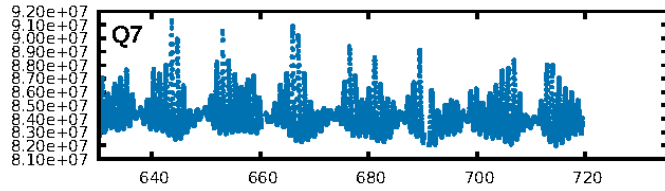
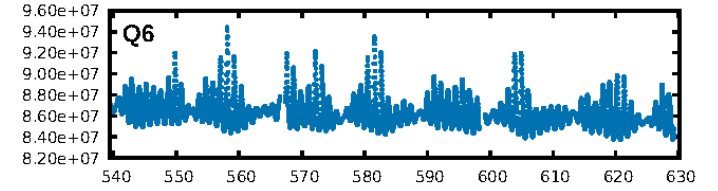
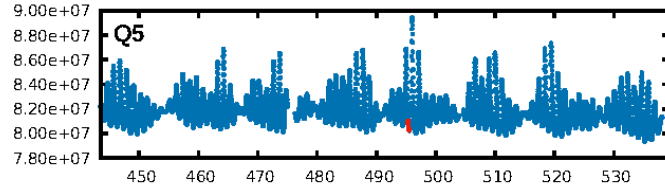
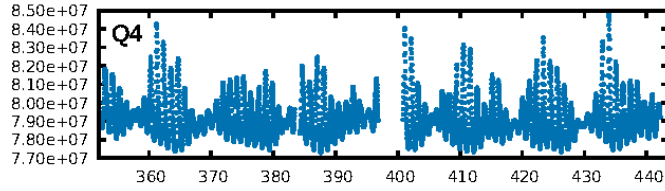
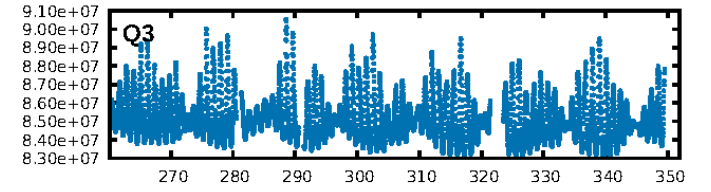
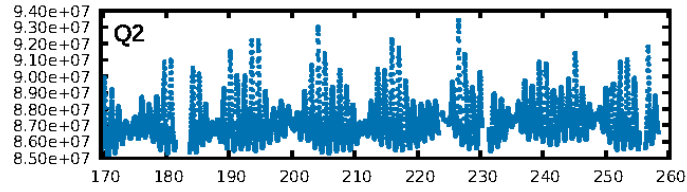
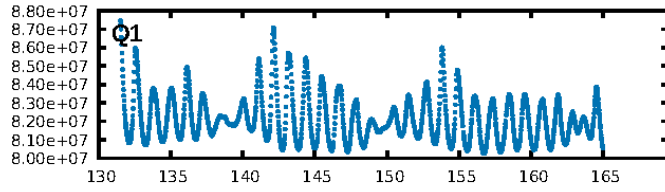
DV Fit Results:

Period = 450.05155 [0.01484] d
Epoch = 495.4098 [0.0230] BKJD
Rp/R* = 0.0230 [0.0285]
a/R* = 622.91 [4165.00]
b = 0.92 [1.10]
Seff = 2.30 [1.05]
Teq = 314 [36] K
Rp = 3.13 [4.04] Re
a = 1.2410 [0.3757] AU
Ag = 43354.24 [131229.00] [0.33 σ]
Teffp = 7007 [5258] K [1.27 σ]

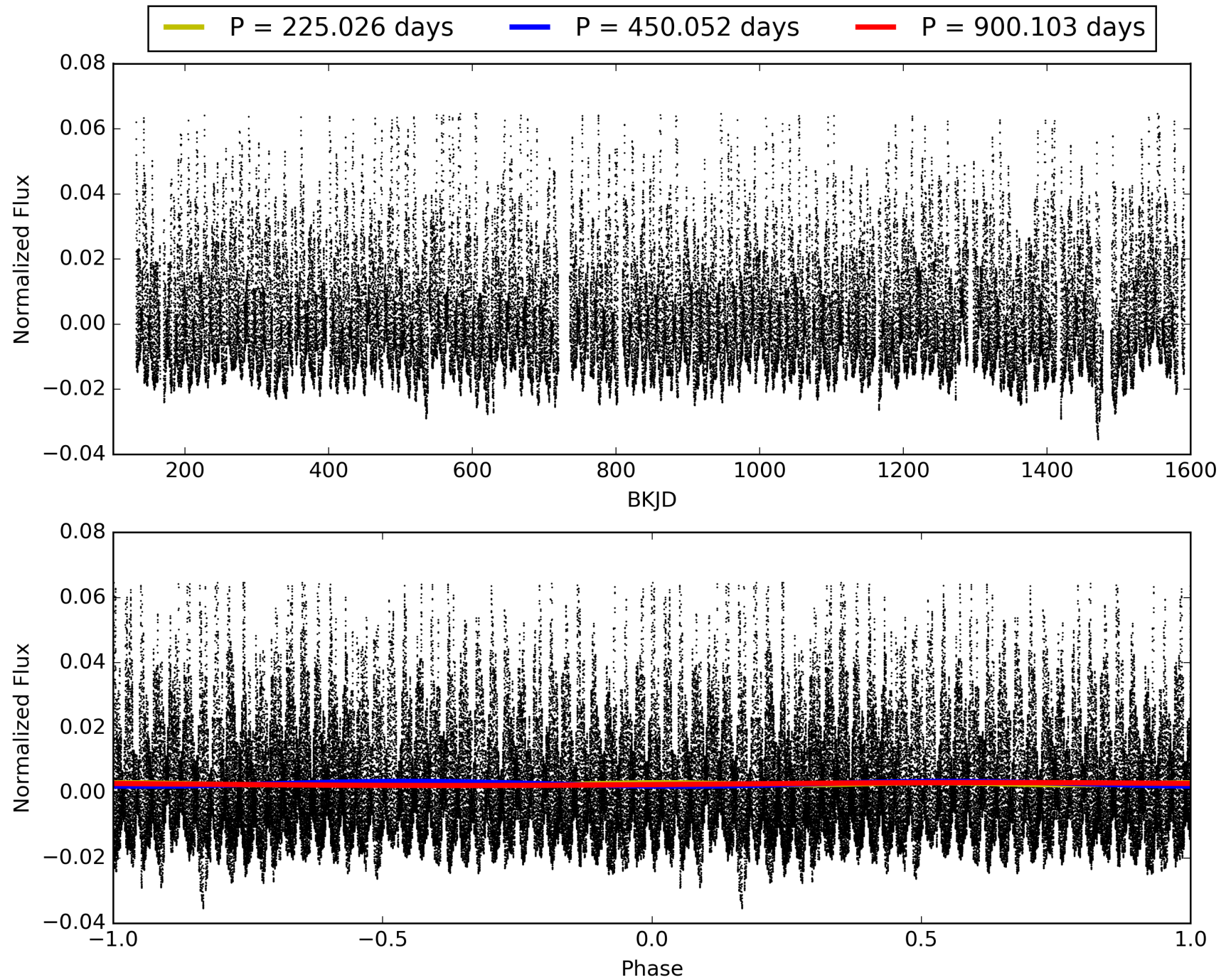
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.3% [0.00 σ]
ModelChiSquare2-sig: 71.6%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: 7.07e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.4285
Centroid-sig: 94.4%
Centroid-so: 0.699 arcsec [0.26 σ]
OotOffset-rm: 0.323 arcsec [4.63 σ]
KicOffset-rm: 0.348 arcsec [4.21 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 007367559-04, PDC Light Curves

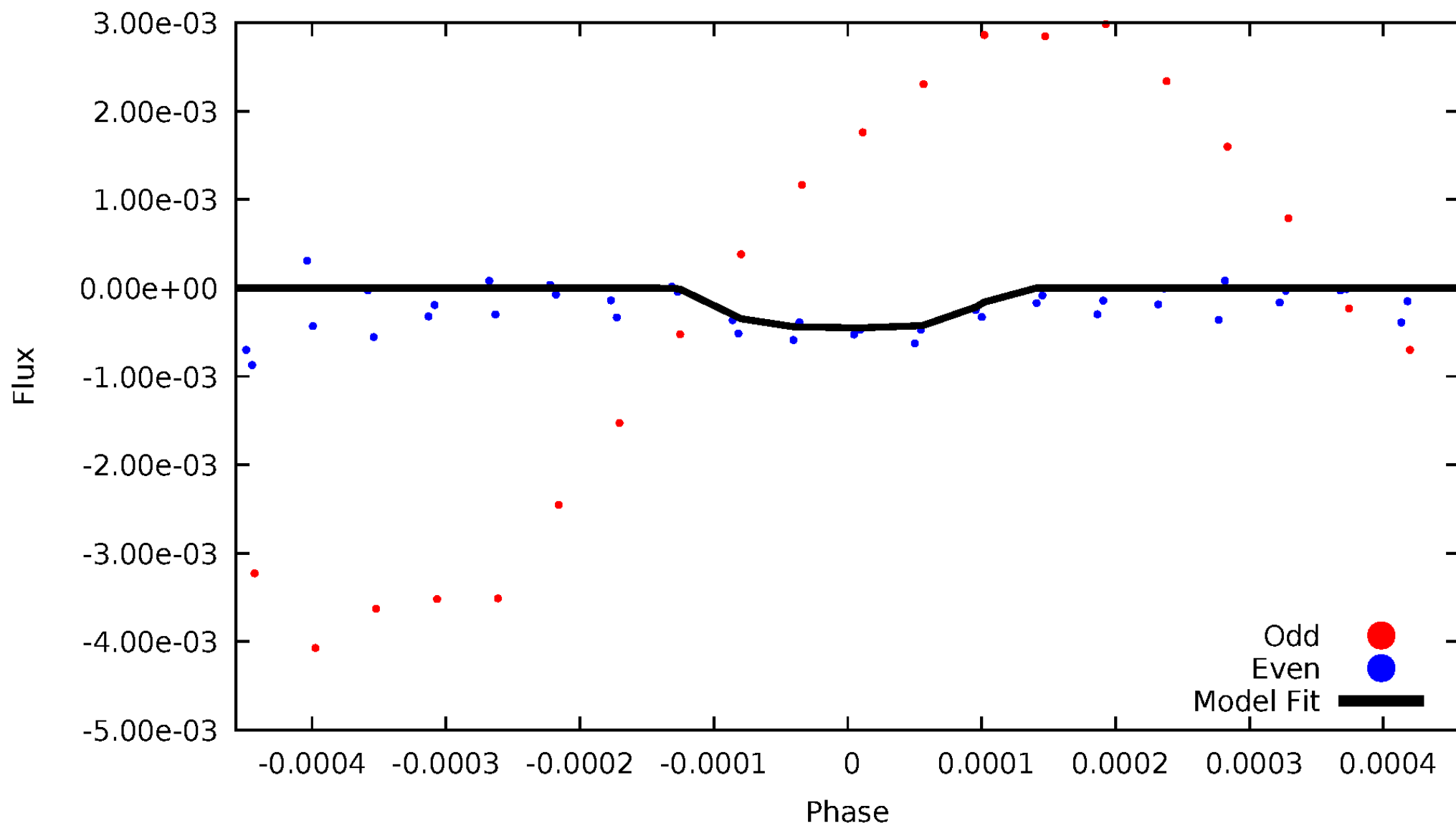


TCE 007367559-04



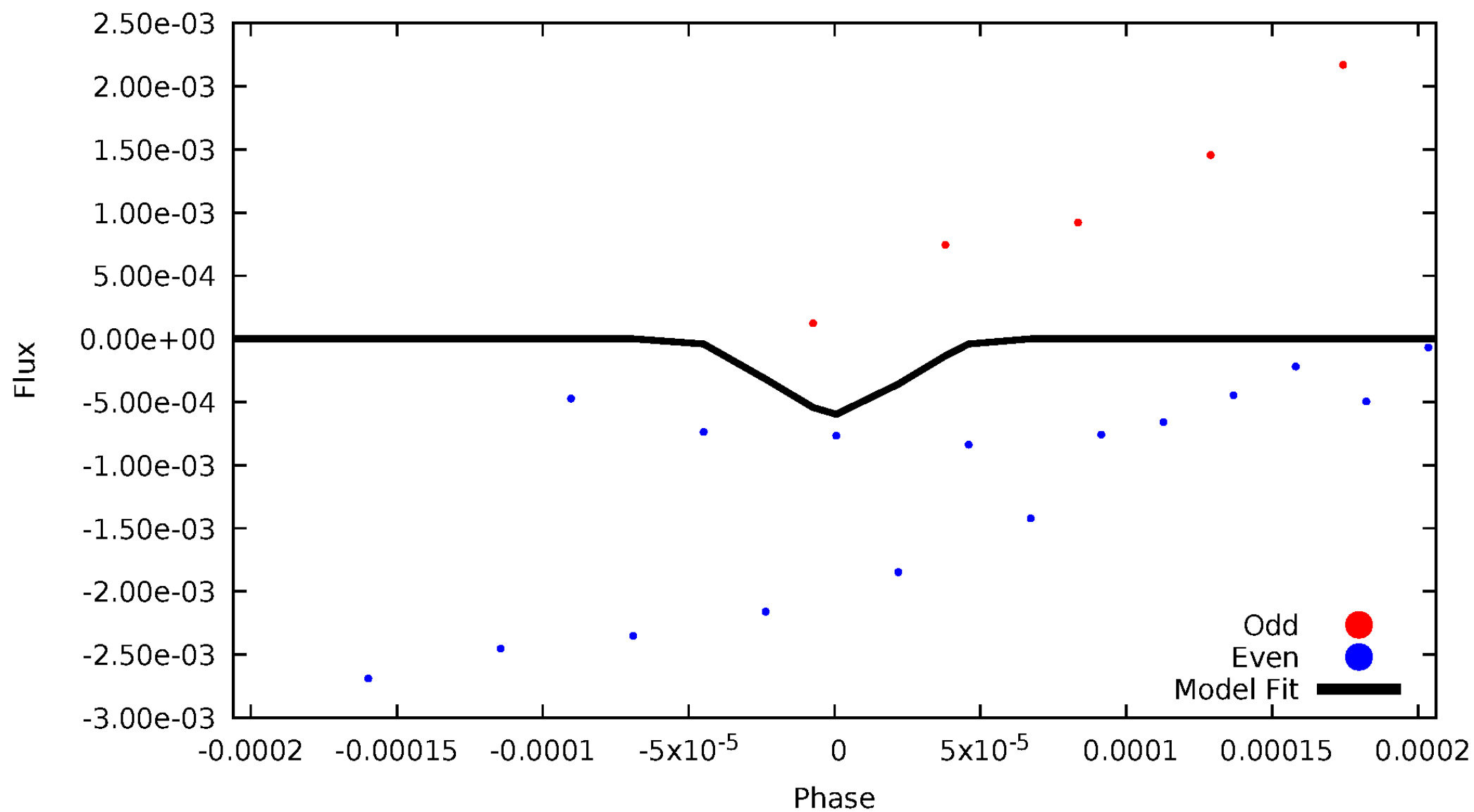
DV Odd/Even

TCE 007367559-04



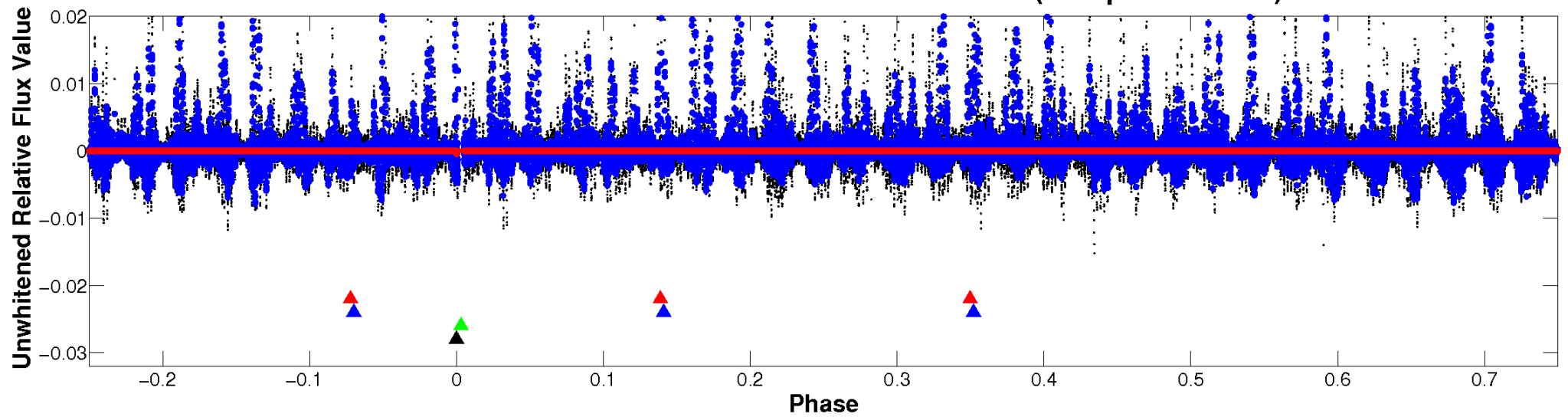
ALT Odd/Even

TCE 007367559-04

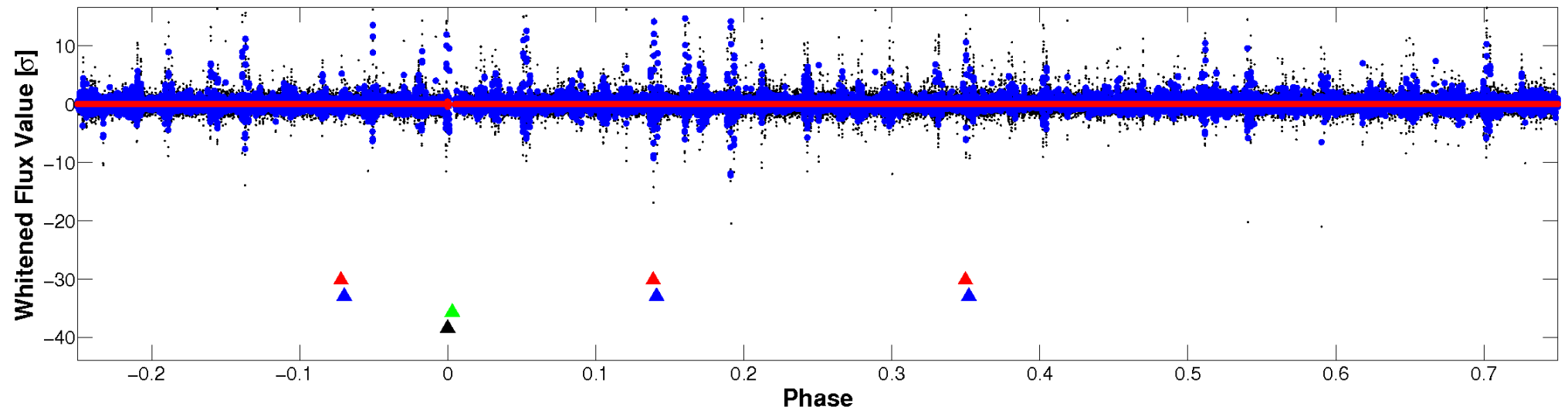


Non-Whitened Vs. Whitened Light Curve

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

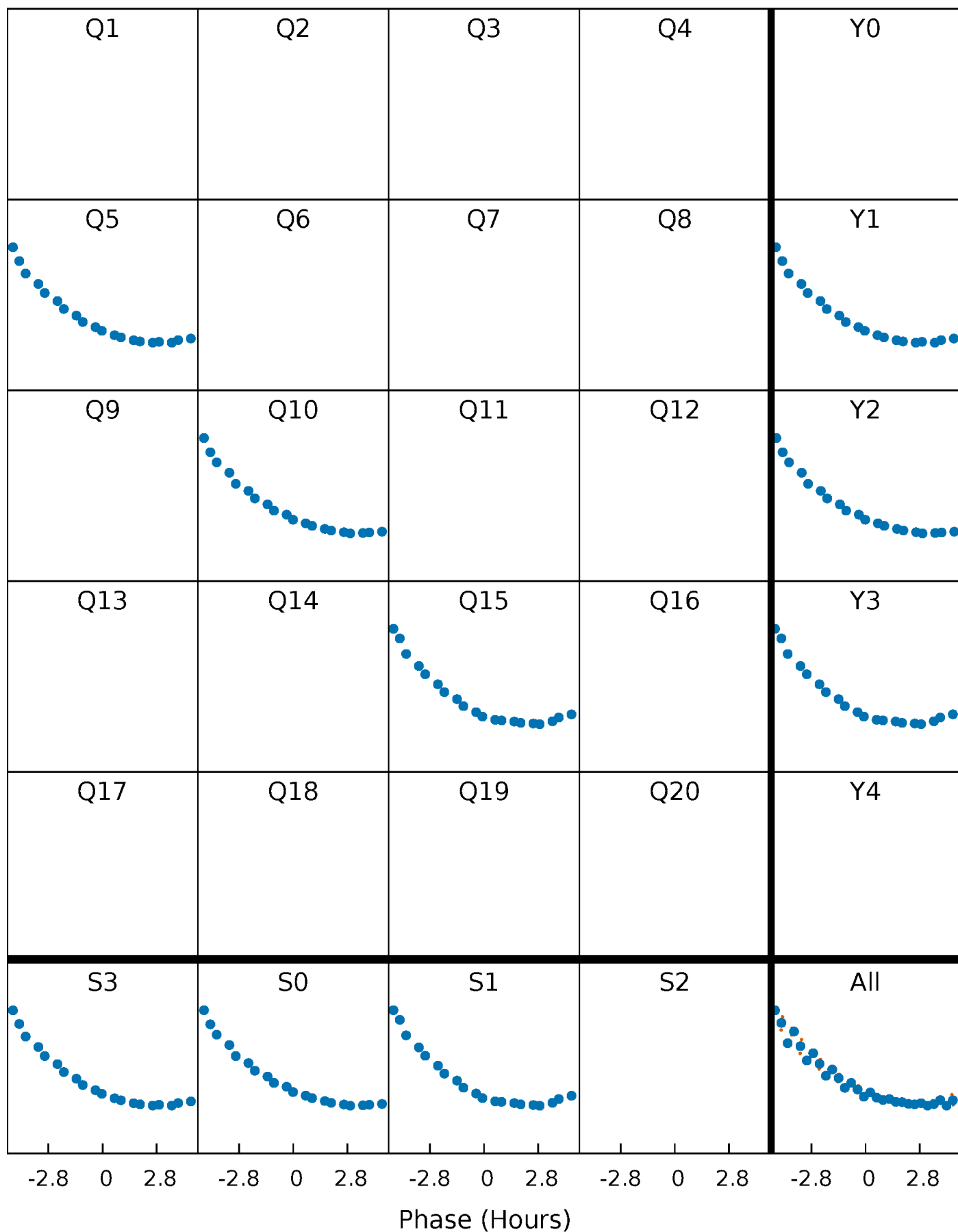


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



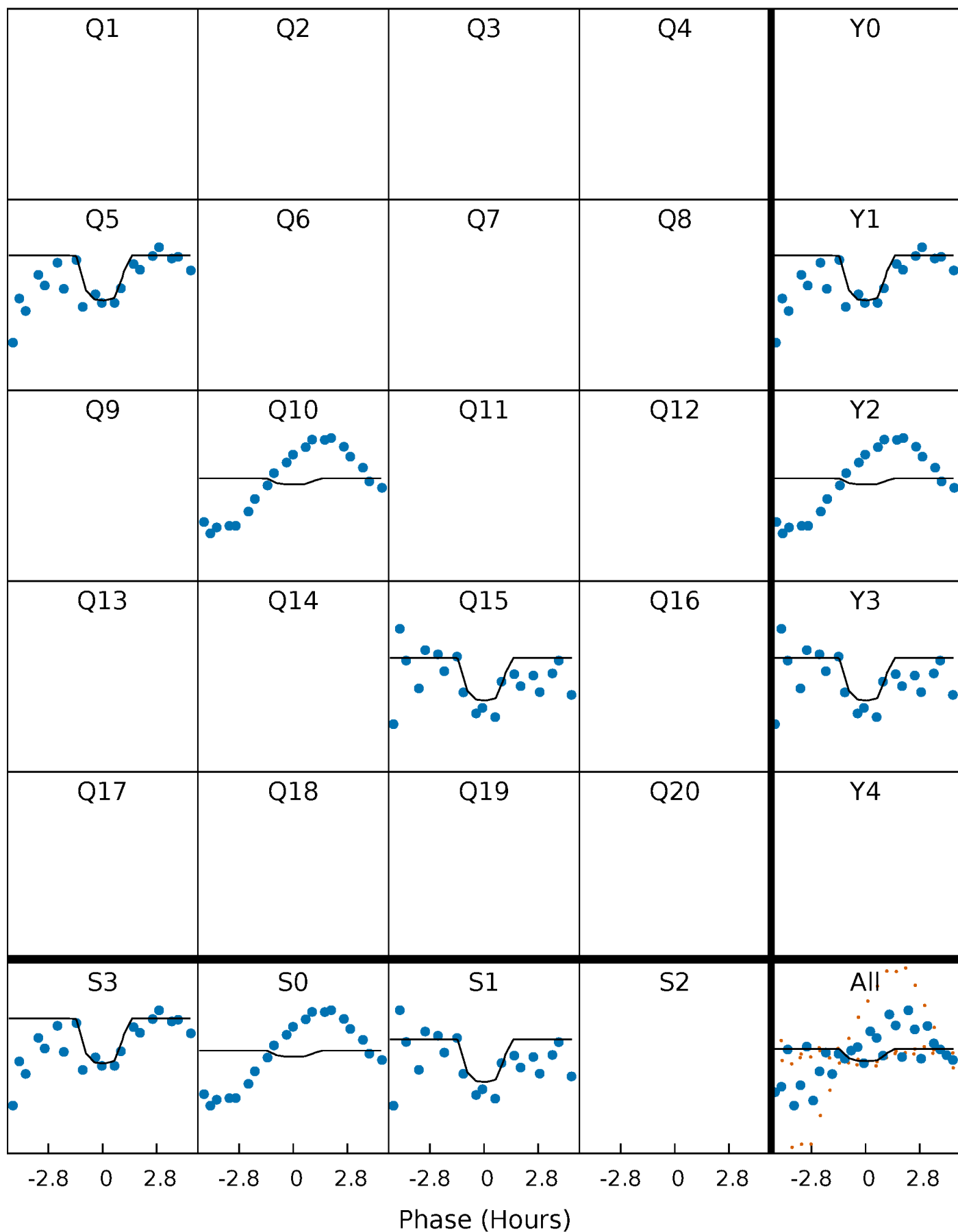
PDC Quarter-Phased Transit Curves

TCE 007367559-04 $P=450.051546$ Days $T_0=495.409777$ (BKJD)



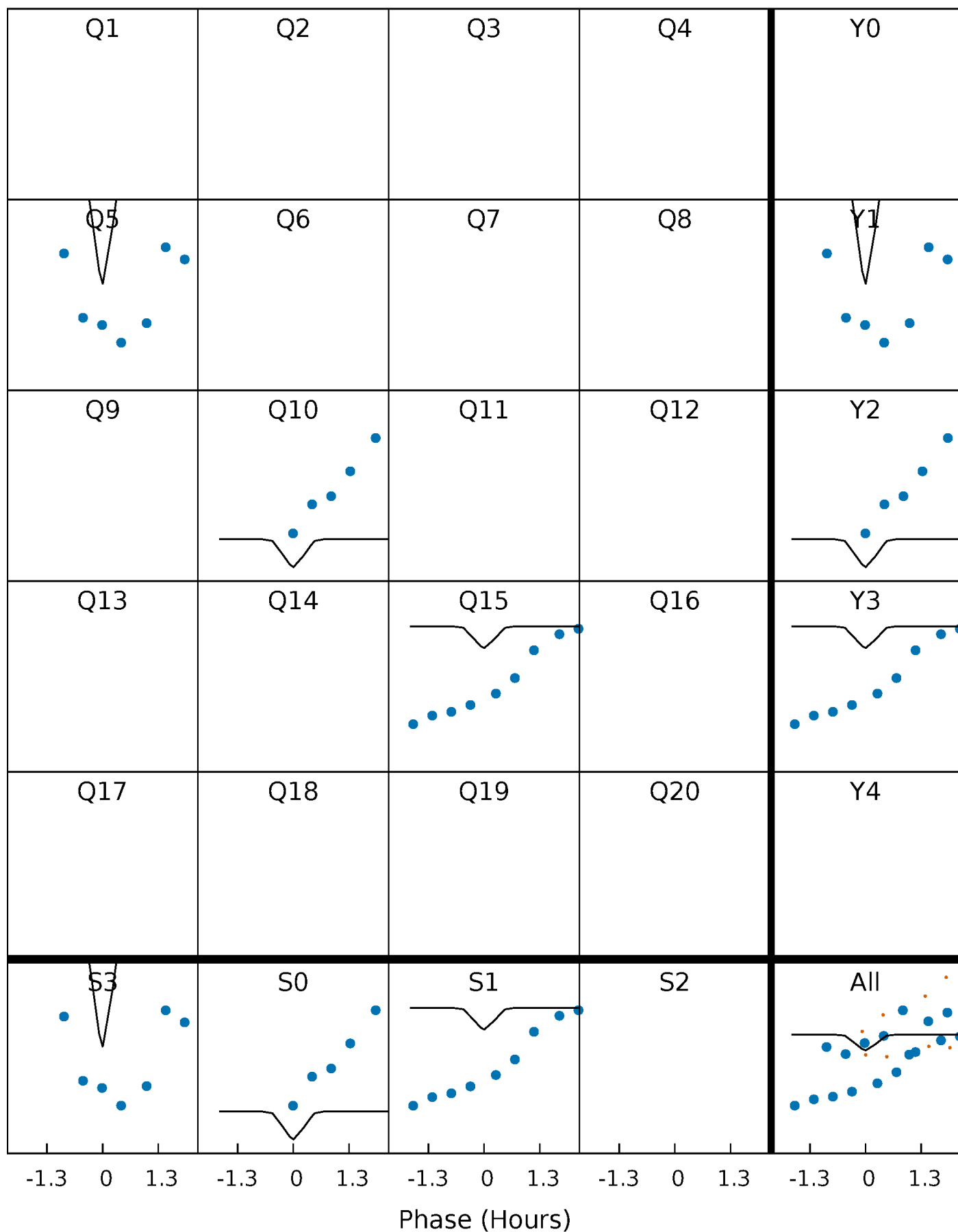
DV Quarter-Phased Transit Curves

TCE 007367559-04 P=450.051546 Days $T_0=495.409777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

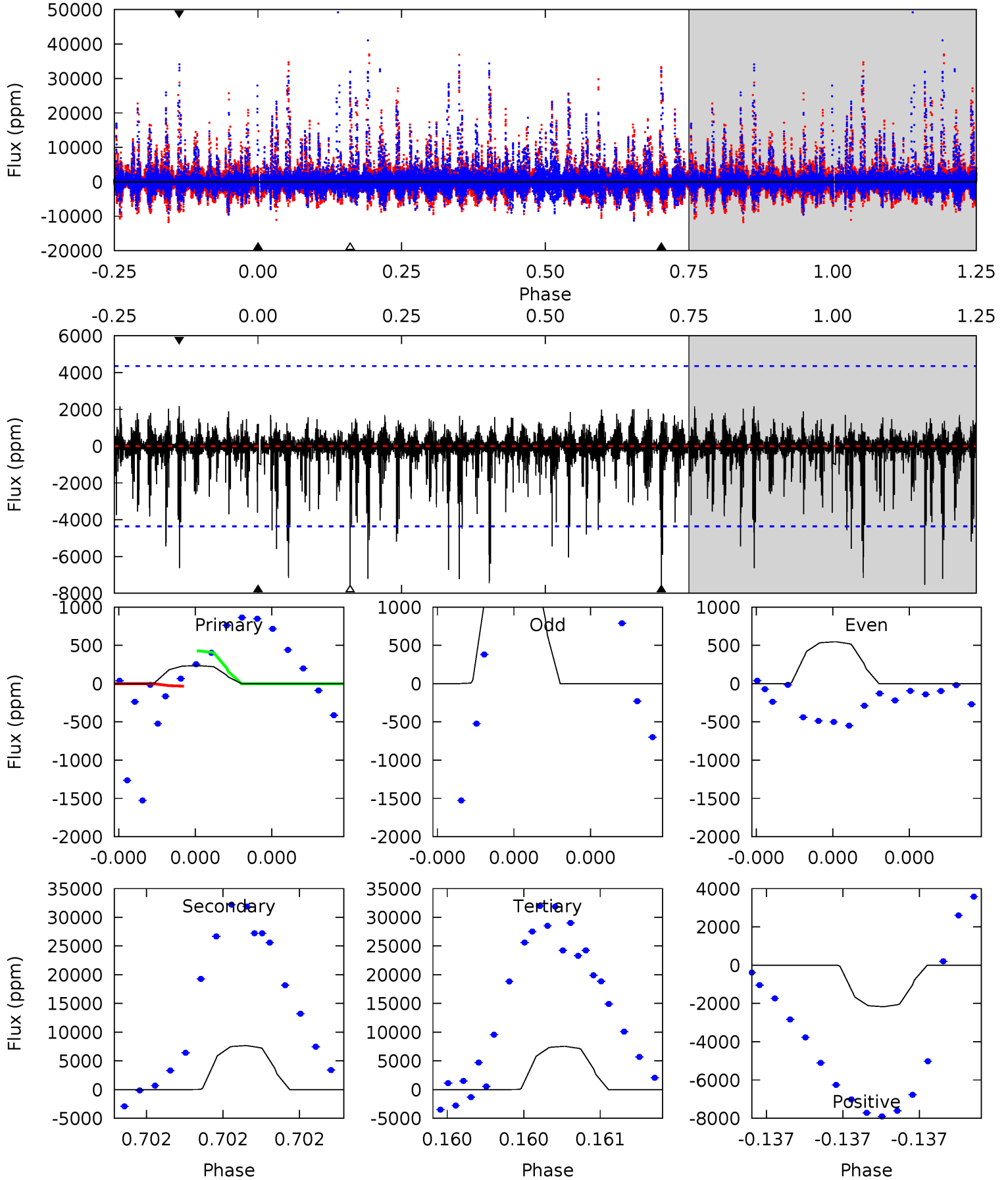
TCE 007367559-04 P=450.076404 Days $T_0=495.352395$ (BKJD)



DV Model-Shift Uniqueness Test

007367559-04, P = 450.051546 Days, E = 45.358231 Days

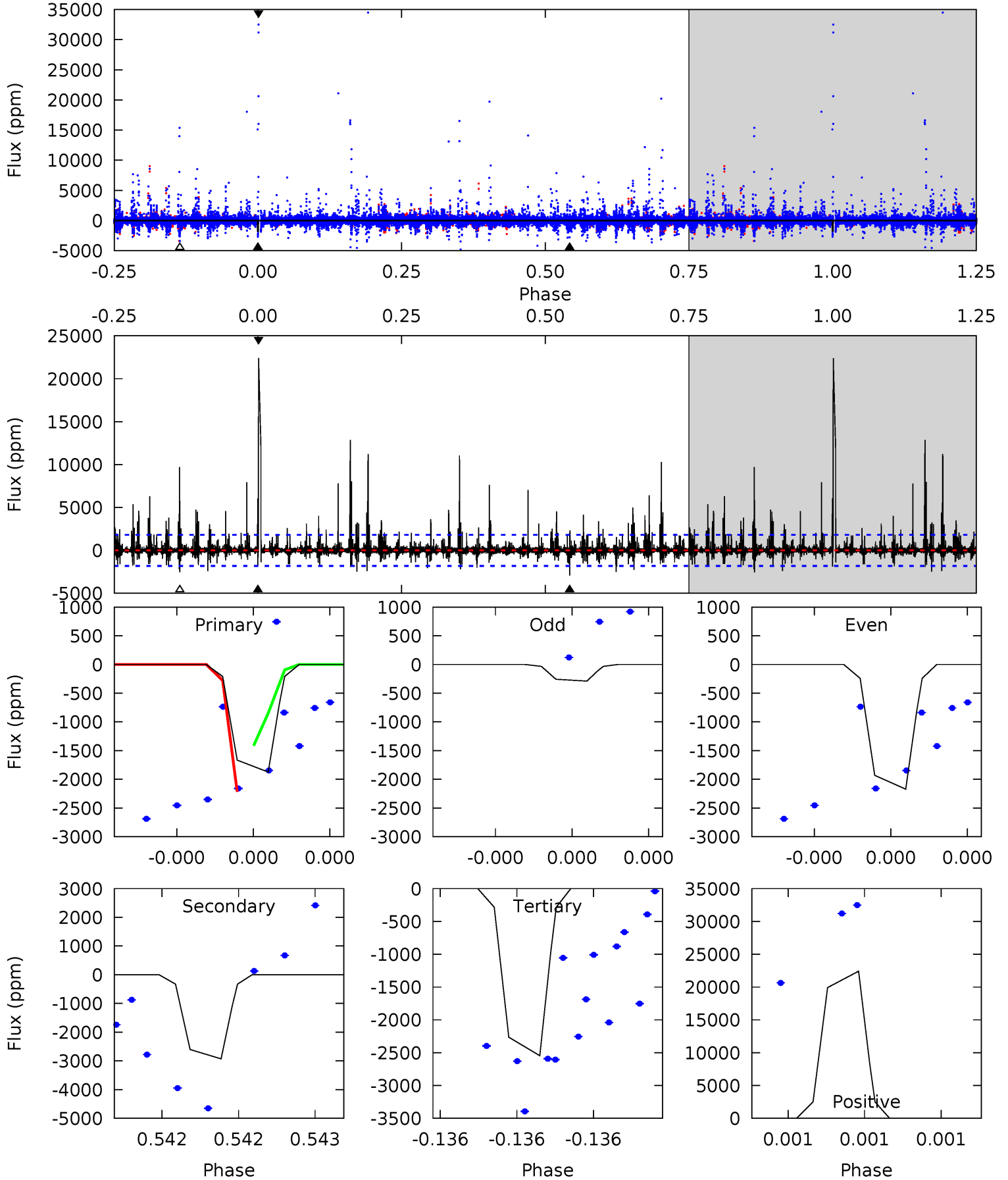
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.31	10.0	9.86	2.84	5.70	3.68	0.92	-9.55	-2.53	0.17	7.19	0.66	-0.45	0.22	0.26



Alt Model-Shift Uniqueness Test

007367559-04, P = 450.076404 Days, E = 45.275991 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.05	9.45	8.22	72.3	5.83	3.86	1.35	-2.17	-66.3	1.24	-62.8	2.53	1.57	0.88	0



Stellar Parameters For KIC 007367559

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7102^{+199}_{-299}	$4.346^{+0.056}_{-0.224}$	$-0.280^{+0.250}_{-0.350}$	$1.247^{+0.466}_{-0.124}$	$1.278^{+0.204}_{-0.167}$	$0.929^{+0.225}_{-0.539}$
	+3%/-4%	+1%/-5%	+89%/-125%	+37%/-10%	+16%/-13%	+24%/-58%
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 007367559-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7660 ± 764	$4.39^{+3.61}_{-2.92}$	448^{+39}_{-23}	15470^{+48850}_{-6029}	$327100^{+2626320}_{-228845}$
Alt.	-2930 ± 310	$4.35^{+3.85}_{-2.62}$	446^{+35}_{-22}	10130^{+14511}_{-3358}	$131449^{+672940}_{-95133}$

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

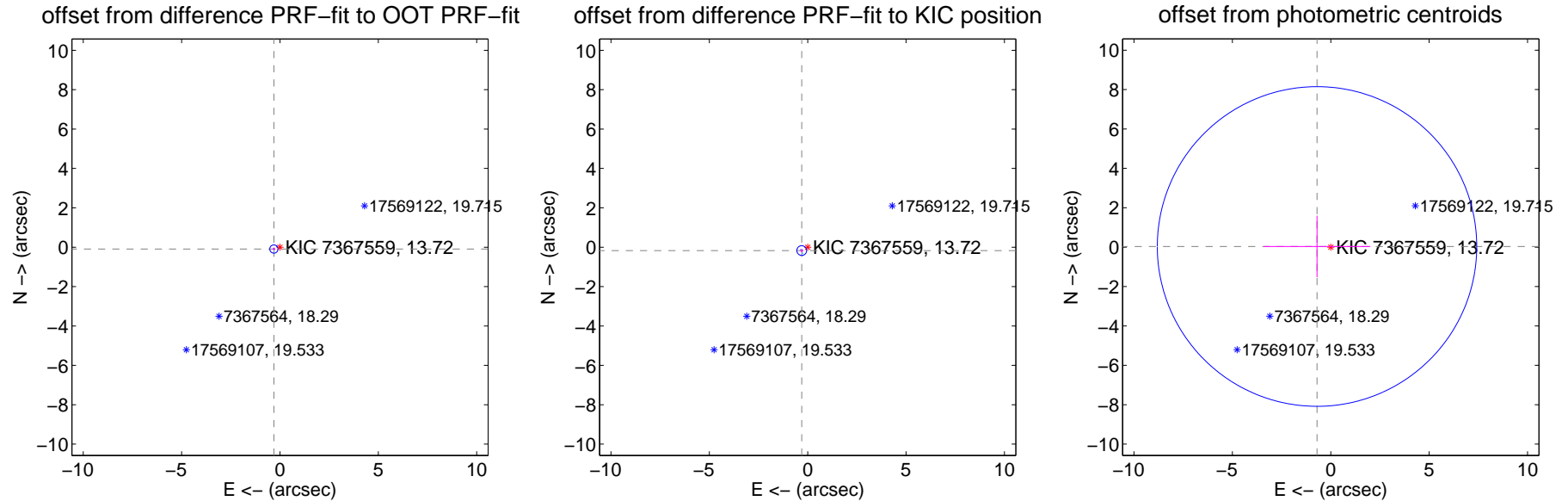
DV Centroid Data

Supplemental centroid analysis for 007367559-04. Kepler magnitude: 13.72. Transit SNR 1.75

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.323 ± 0.070	4.63	0.309 ± 0.069	-0.093 ± 0.077
PRF-fit source offset from KIC position	0.348 ± 0.083	4.21	0.303 ± 0.080	-0.170 ± 0.091
photometric centroid source offset	0.70 ± 2.71	0.26	0.70 ± 2.71	0.03 ± 1.56

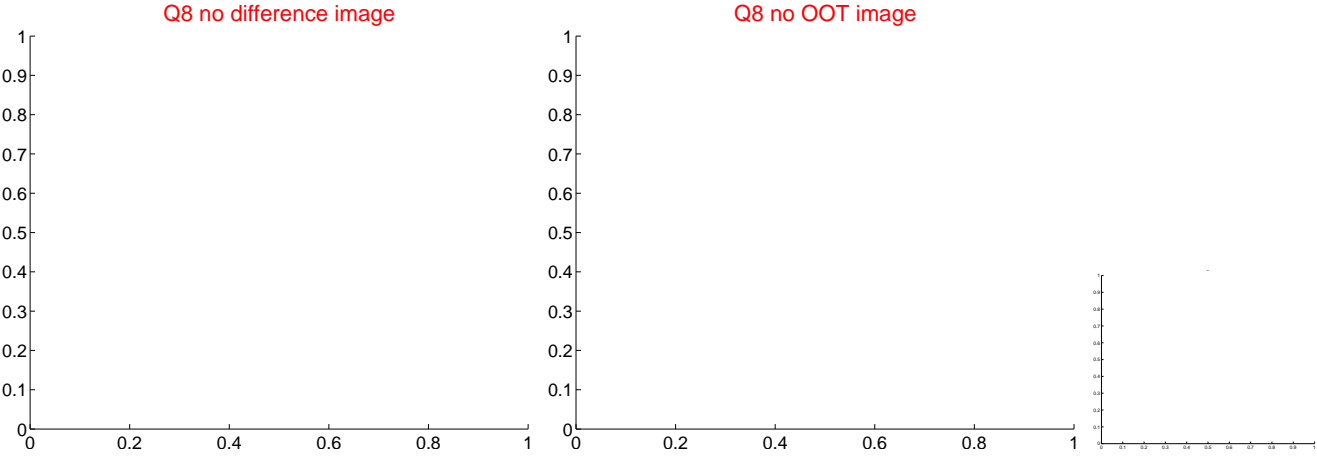
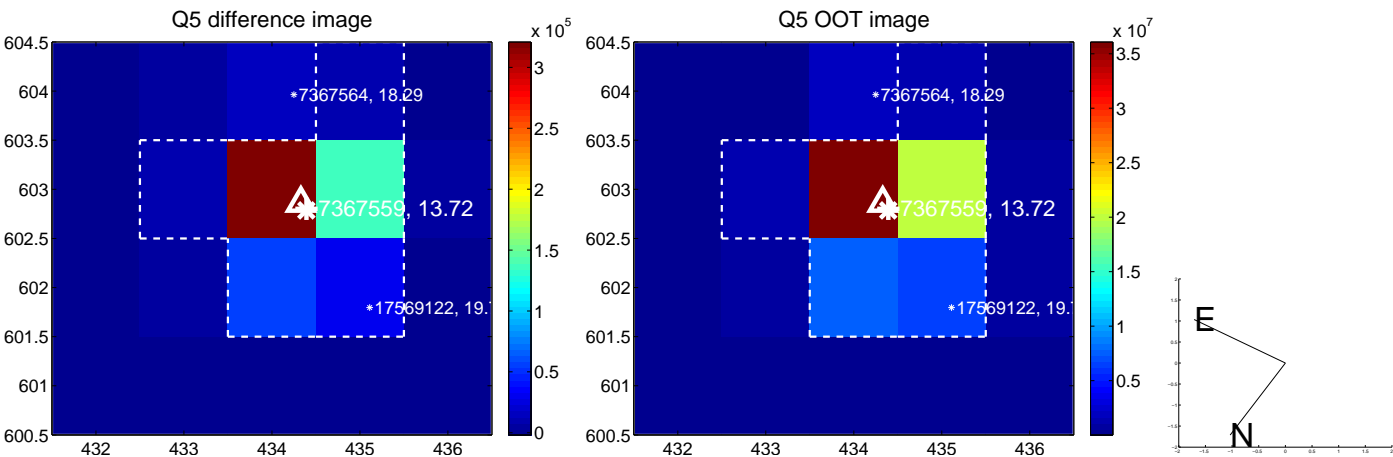


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

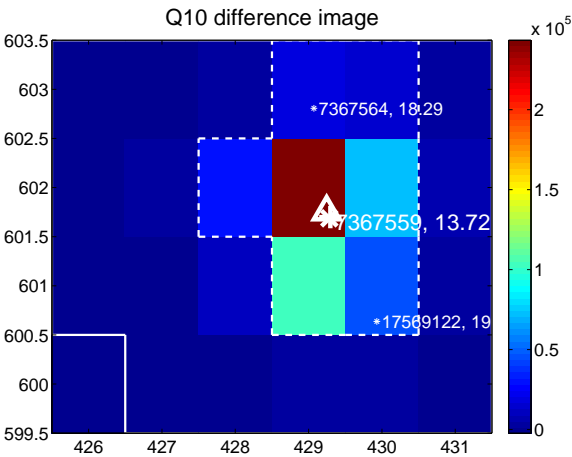
Q9 no difference image



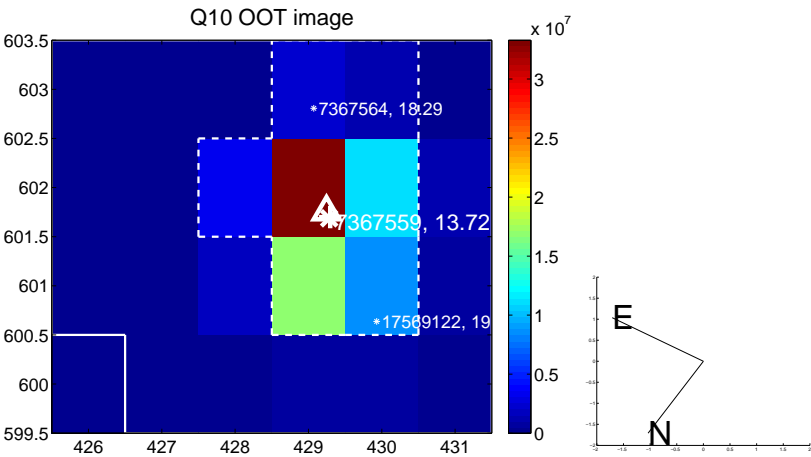
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

Q13 no difference image



Q13 no OOT image



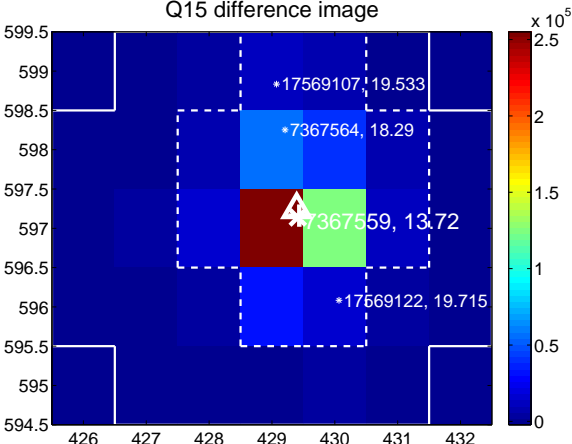
Q14 no difference image



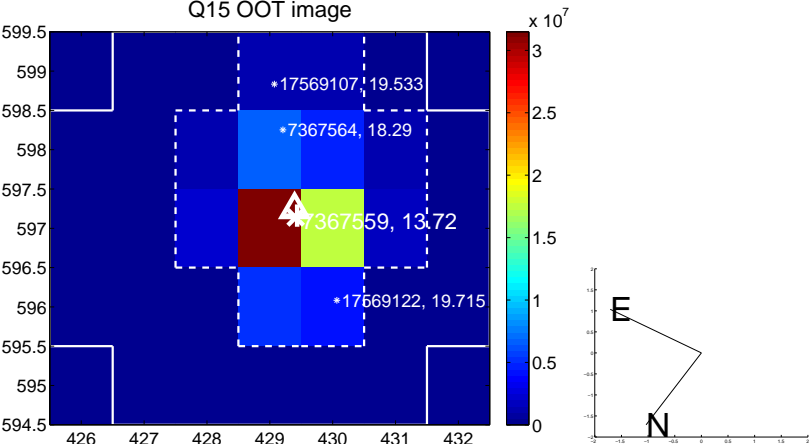
Q14 no OOT image



Q15 difference image



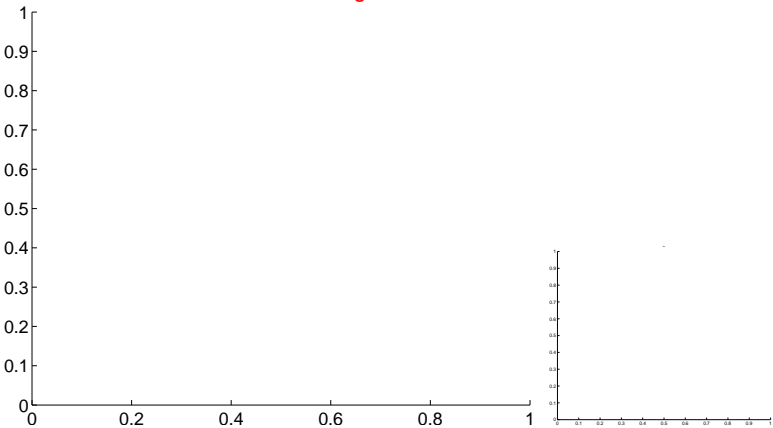
Q15 OOT image



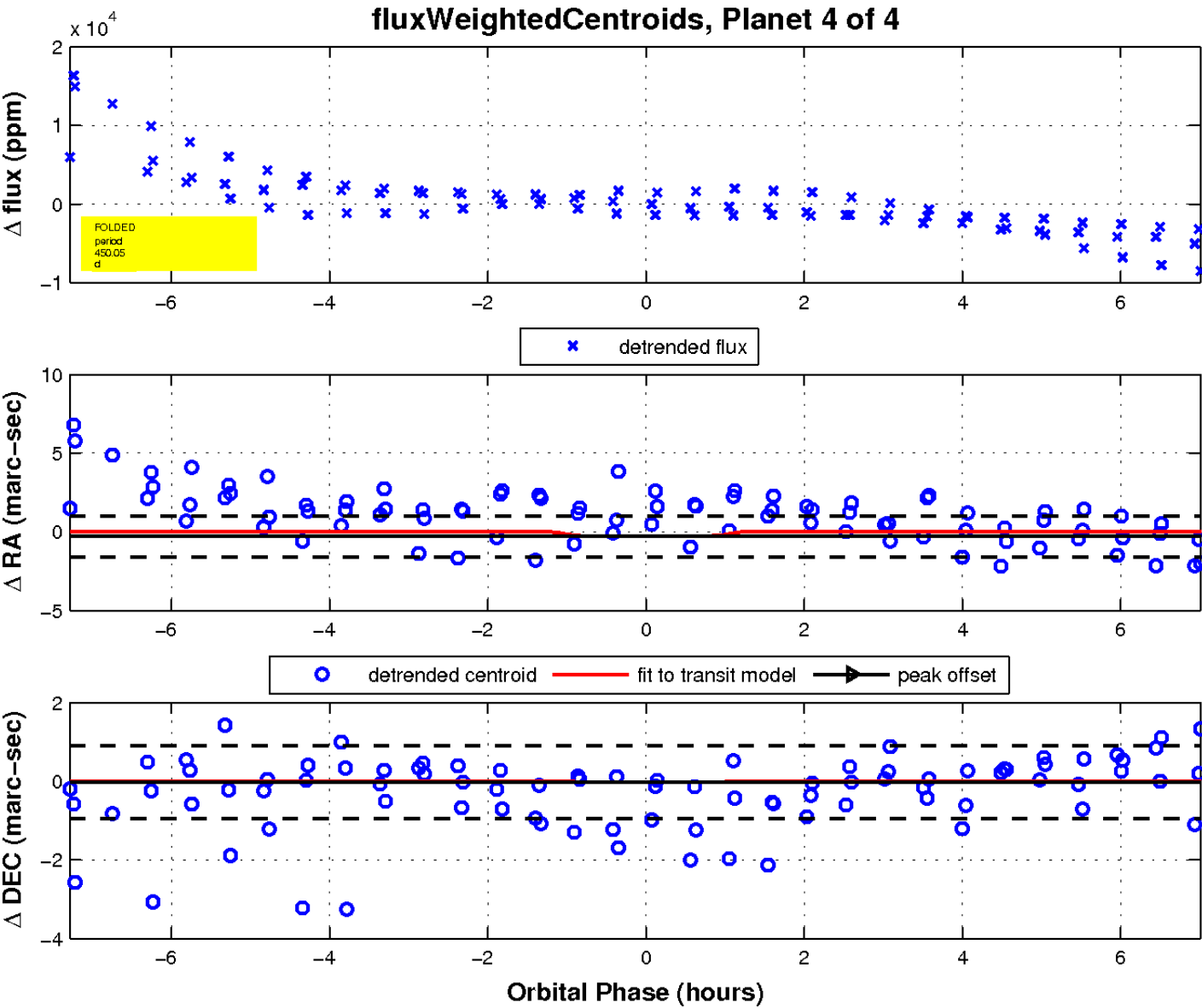
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

