

KIC 011087095

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})
011087095-01	OBS	No	481.024563	610.946492	6075.2	4.375	13.2	8.8	0.72	4360	10.96	0.15
011087095-02	OBS	No	704.040524	162.261896	5764.7	6.174	12.0	8.0	0.72	4360	5.19	0.09
011087095-03	OBS	No	474.434808	152.492622	3221.5	2.896	13.5	5.2	0.72	4360	3.89	0.15
011087095-04	OBS	No	547.188411	480.949829	5930.0	3.263	13.8	9.5	0.72	4360	5.27	0.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011087095-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
011087095-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

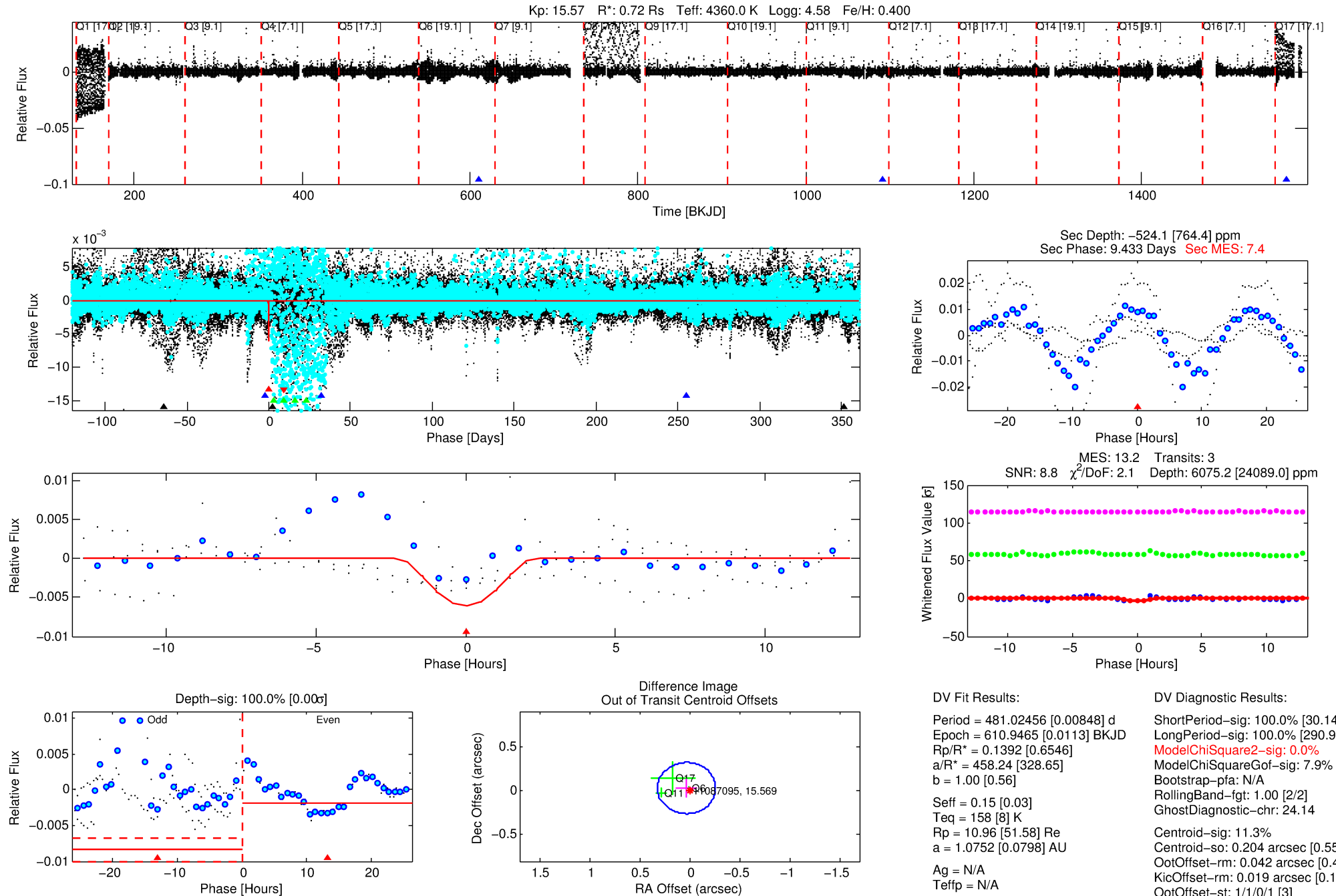
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011087095-01

No Significant Match Found

DV One-Page Summary

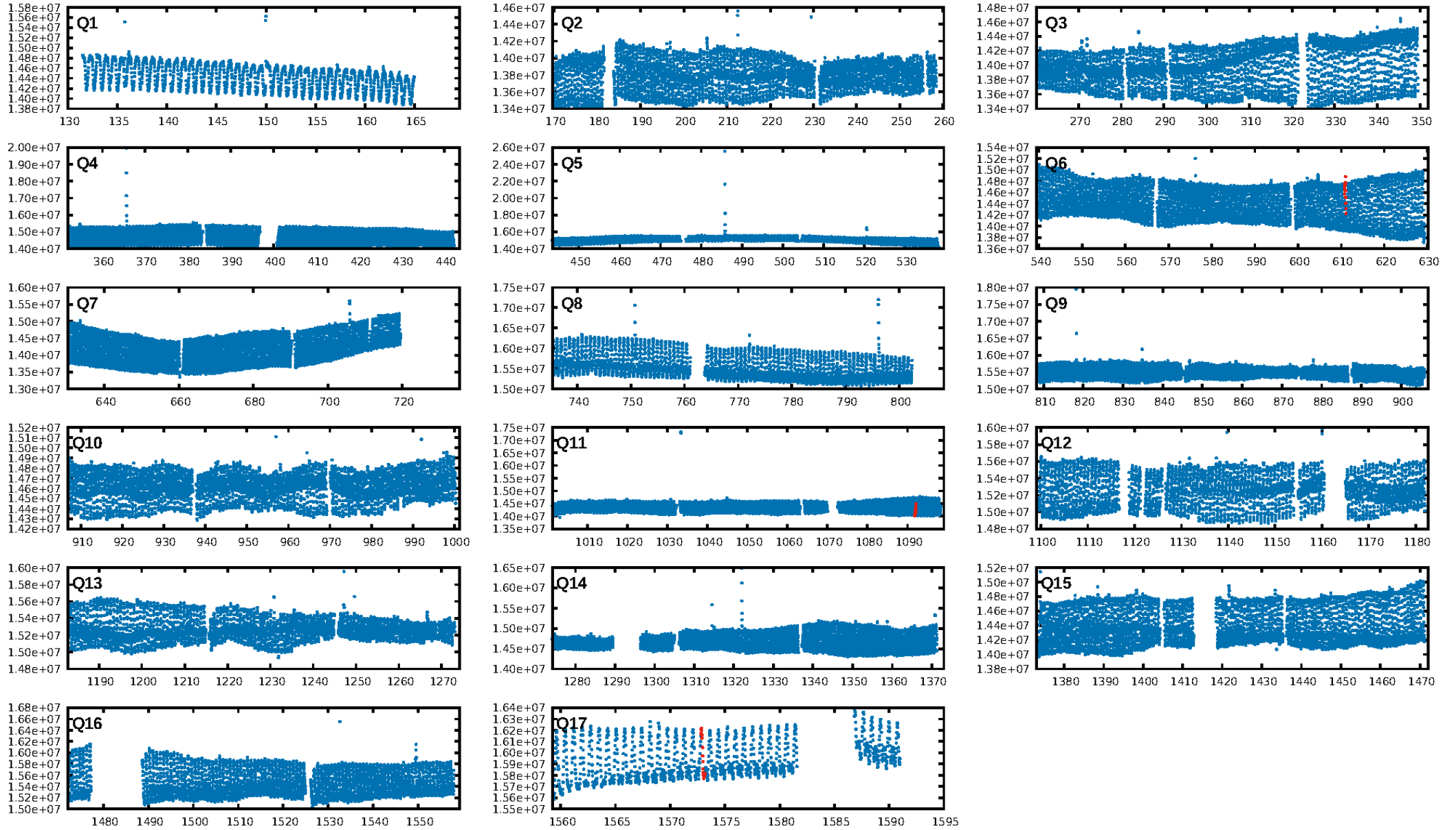
KIC: 11087095 Candidate: 1 of 4 Period: 481.025 d



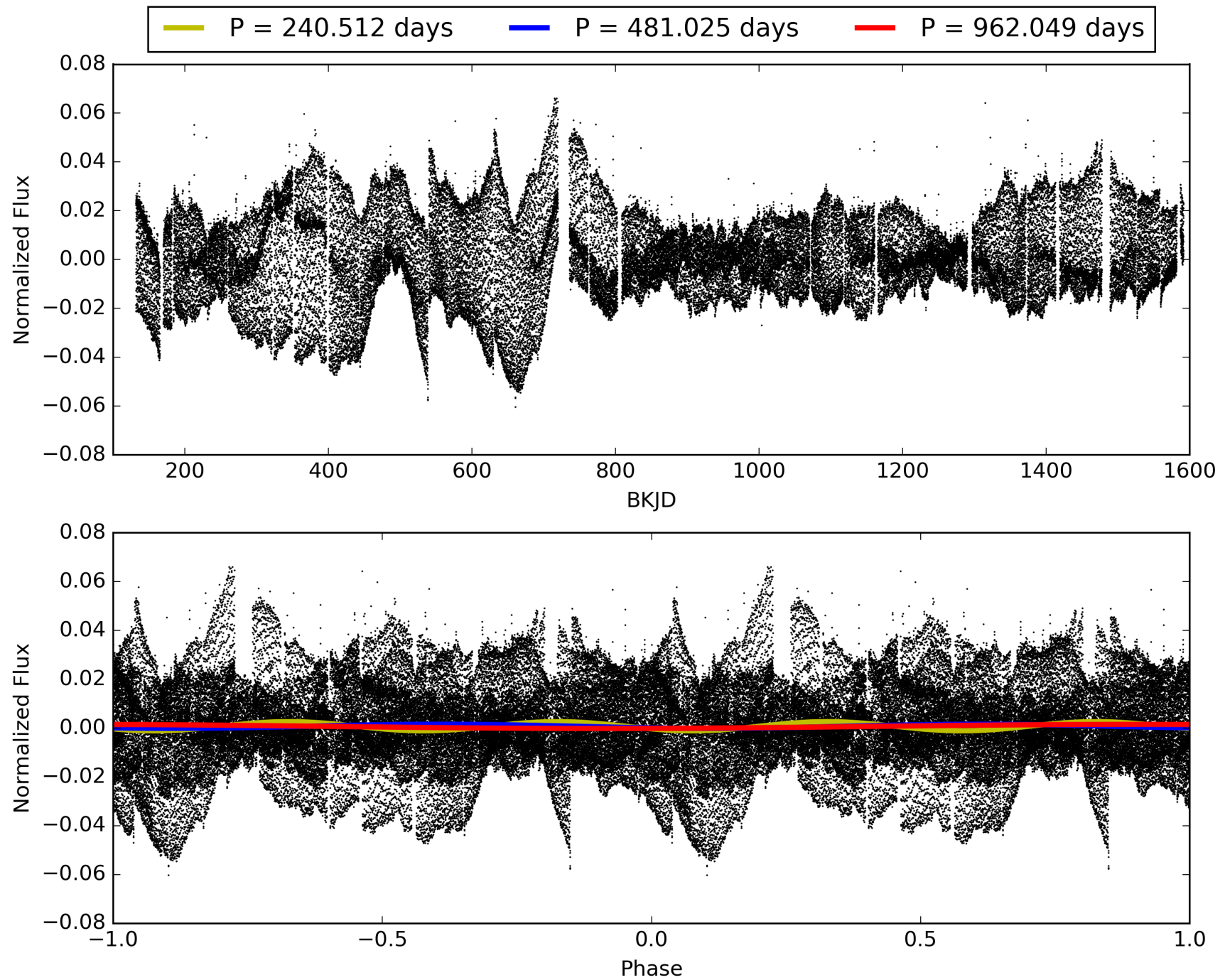
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:36:51 Z

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

TCE 011087095-01, PDC Light Curves

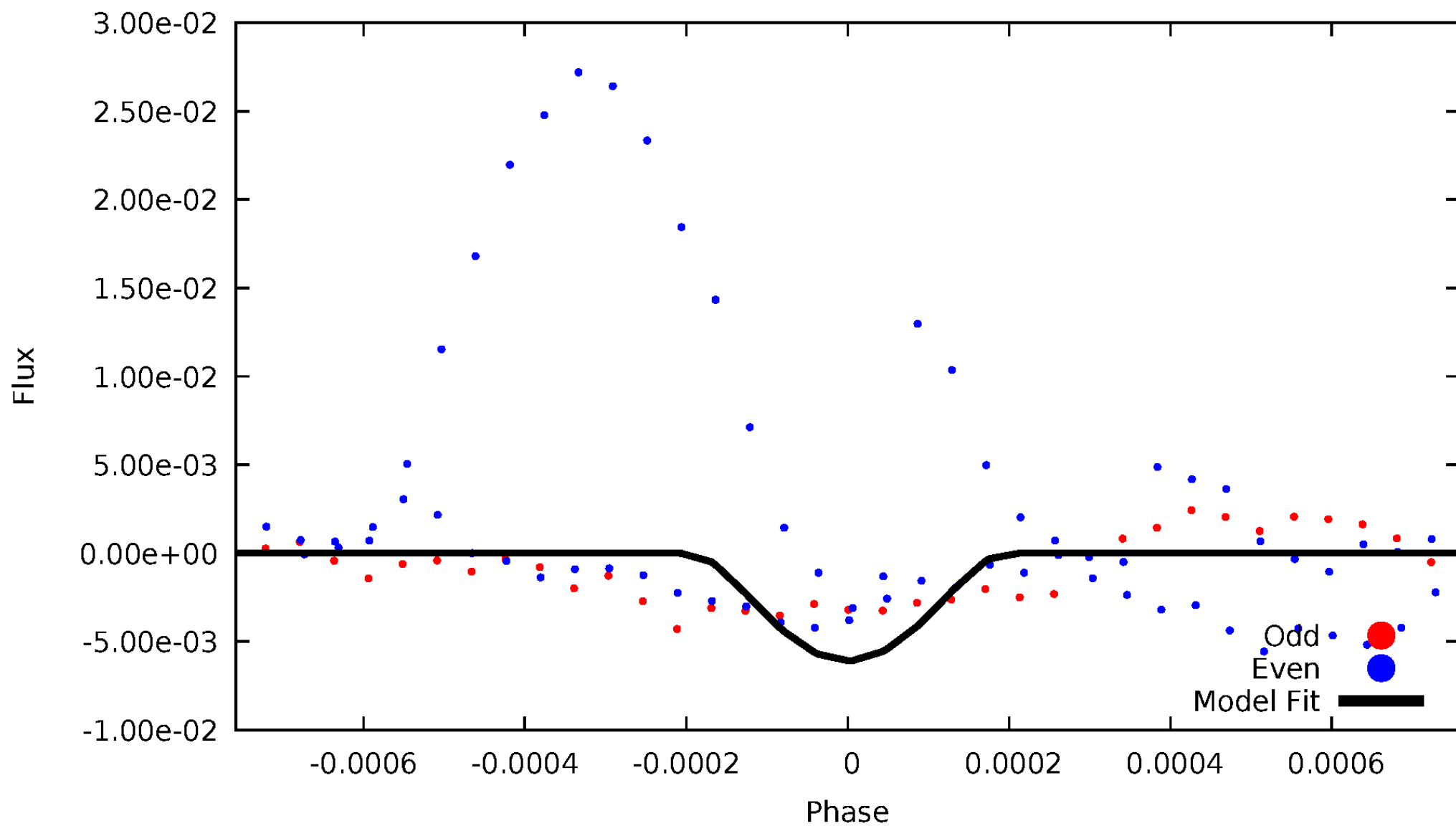


TCE 011087095-01



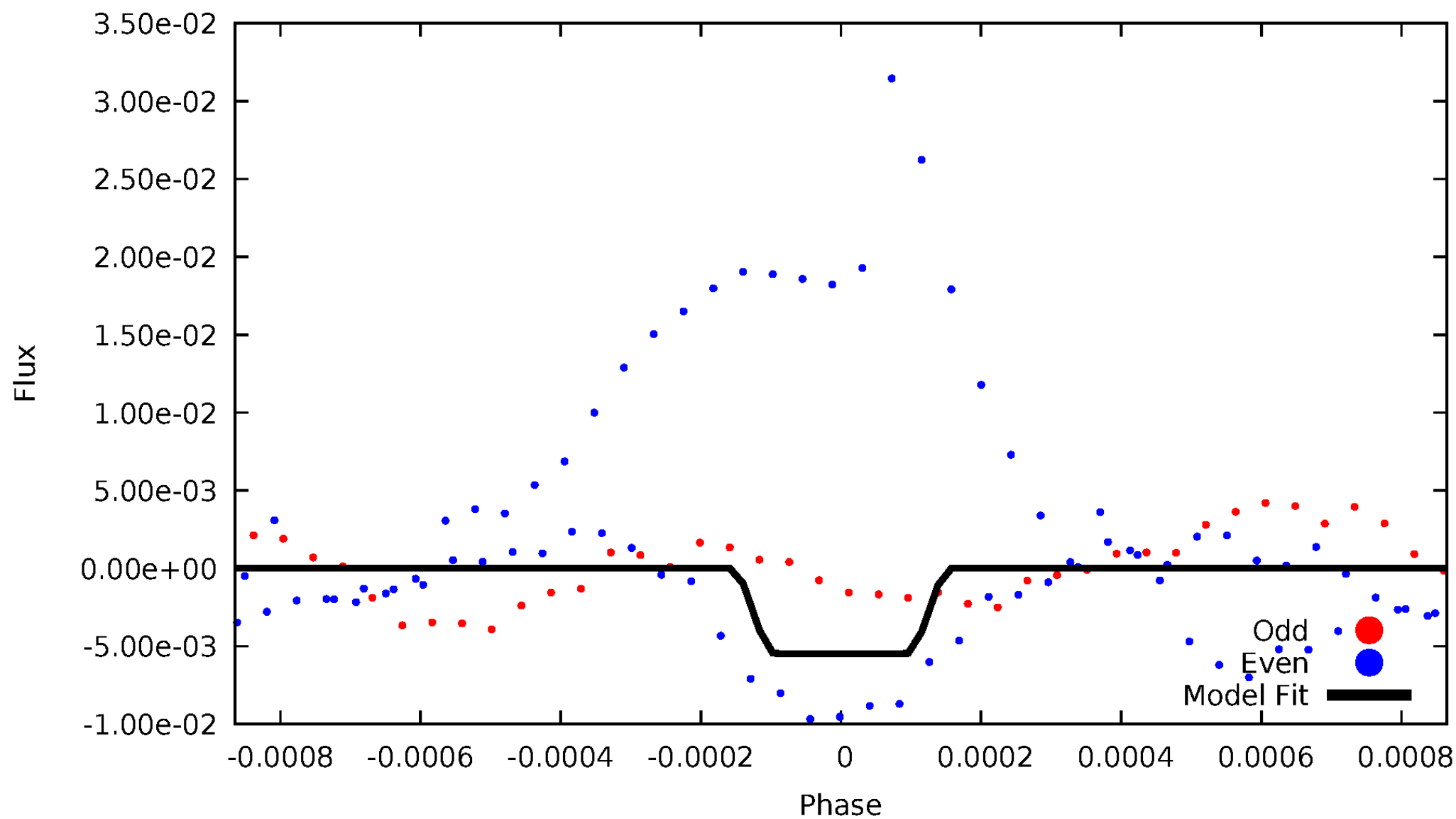
DV Odd/Even

TCE 011087095-01



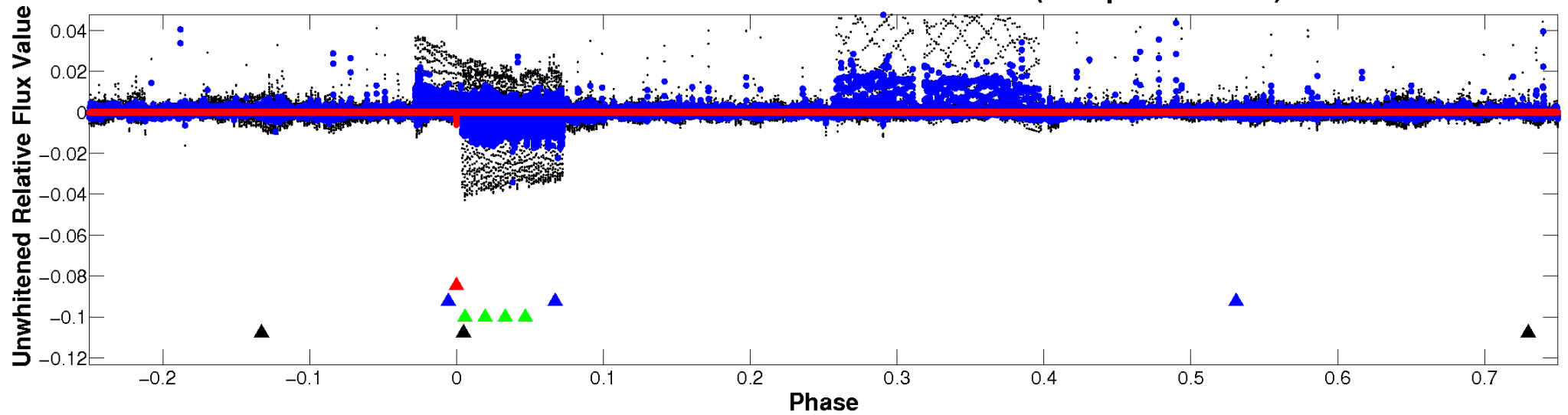
ALT Odd/Even

TCE 011087095-01

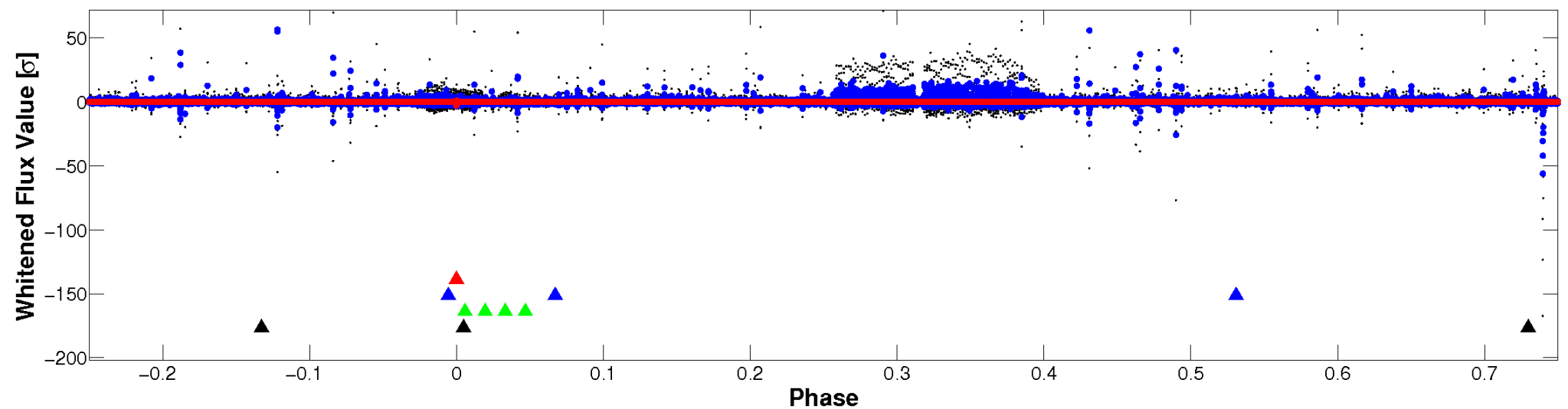


Non-Whitened Vs. Whitened Light Curve

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

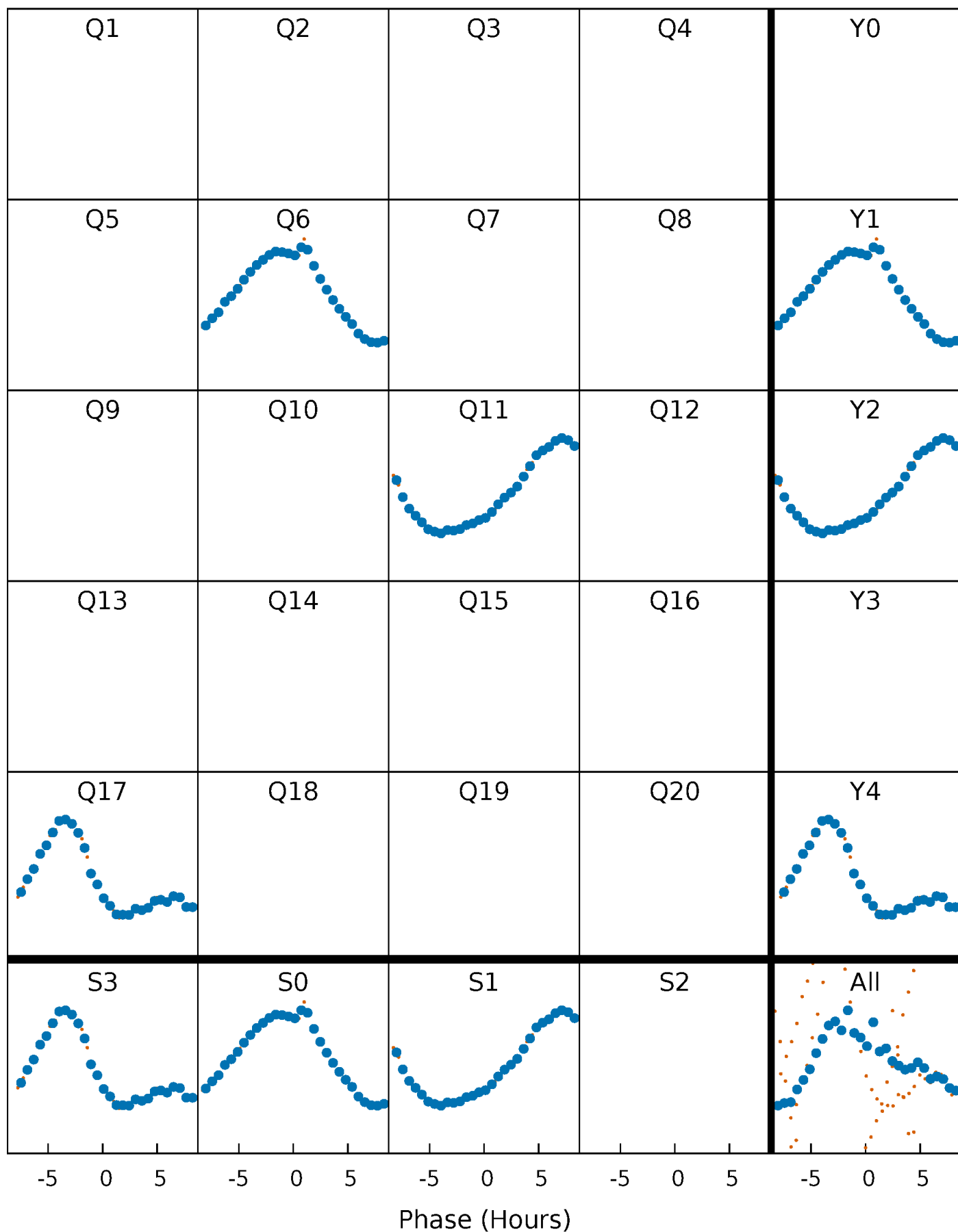


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



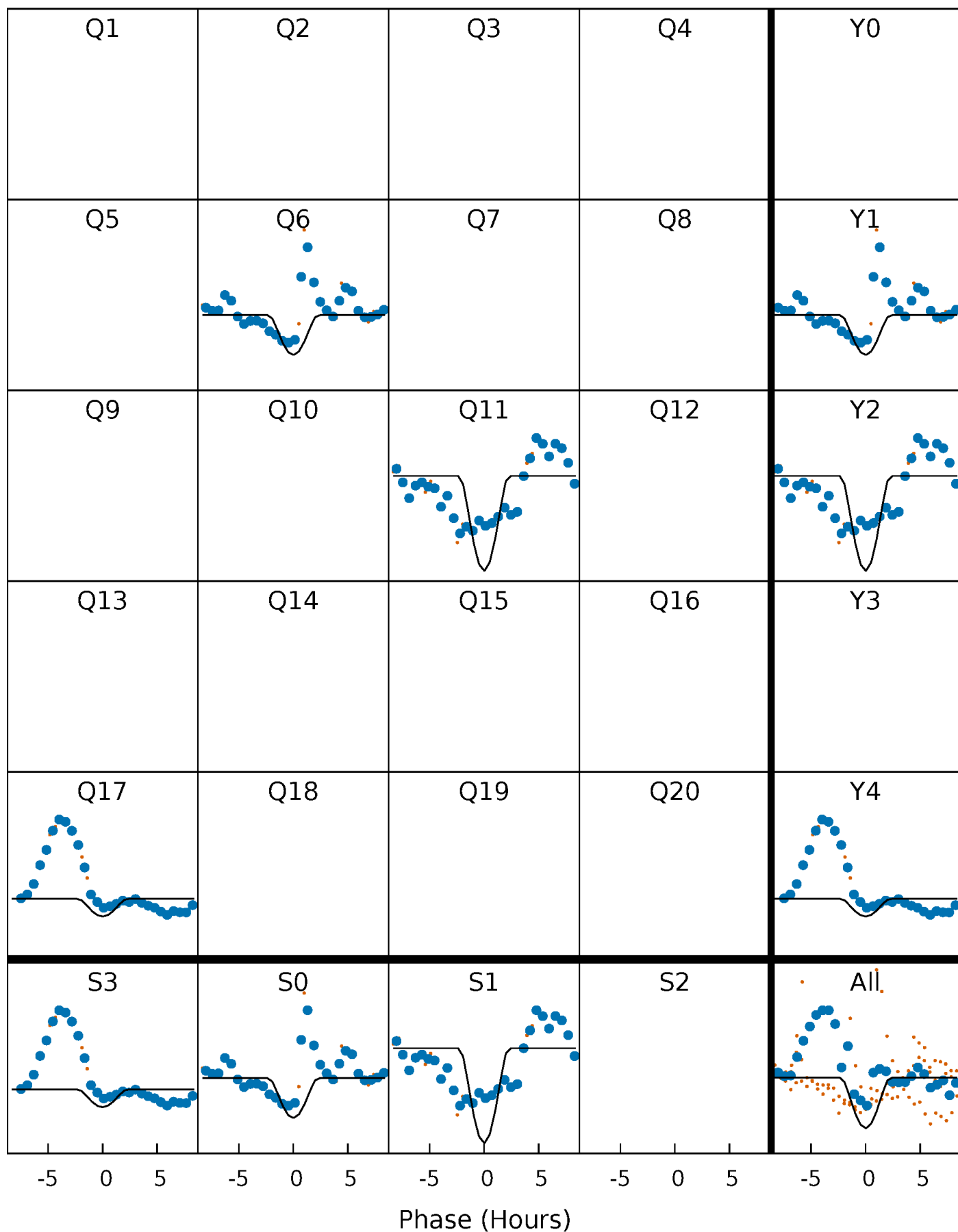
PDC Quarter-Phased Transit Curves

TCE 011087095-01 P=481.024563 Days $T_0=610.946492$ (BKJD)



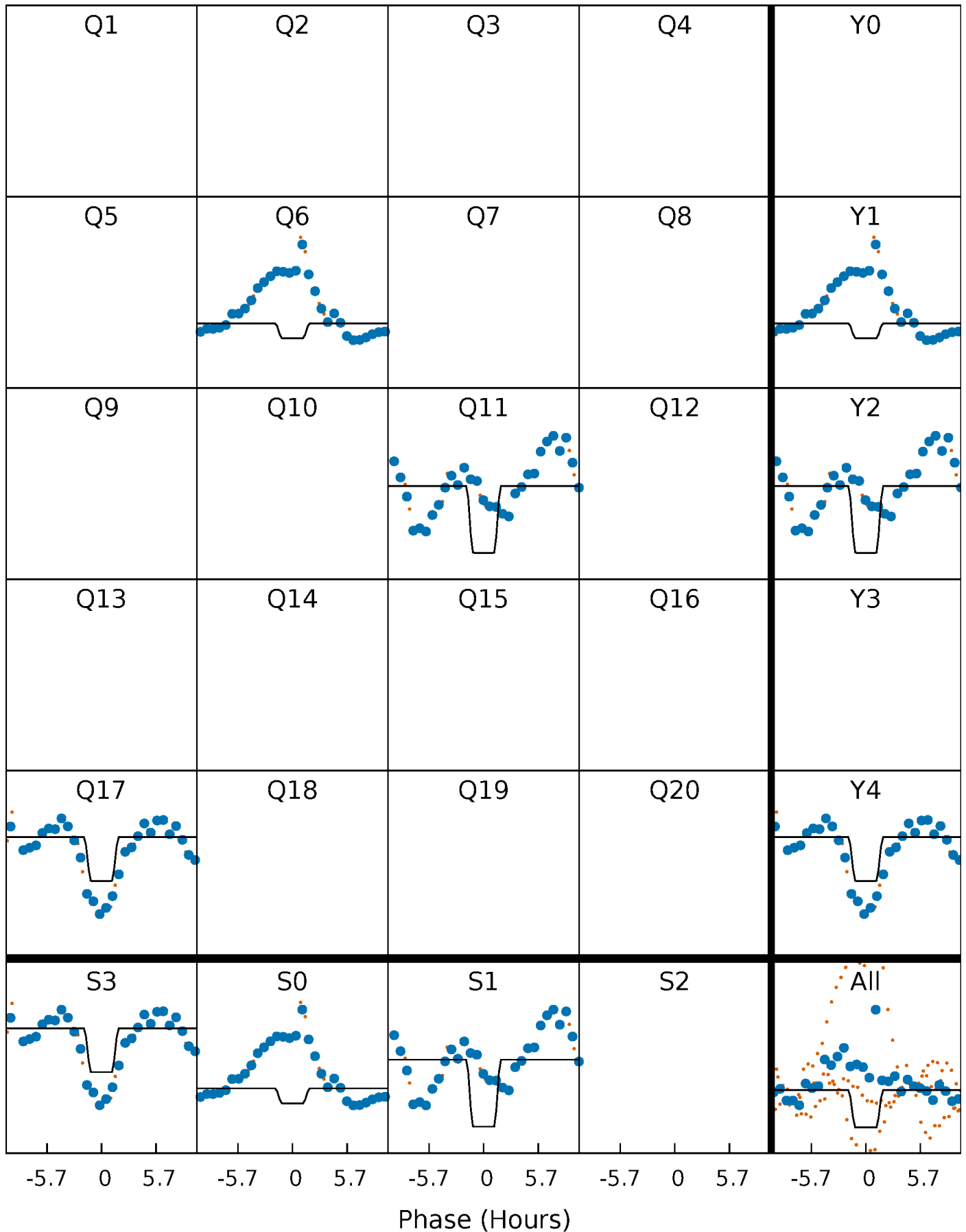
DV Quarter-Phased Transit Curves

TCE 011087095-01 P=481.024563 Days $T_0=610.946492$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

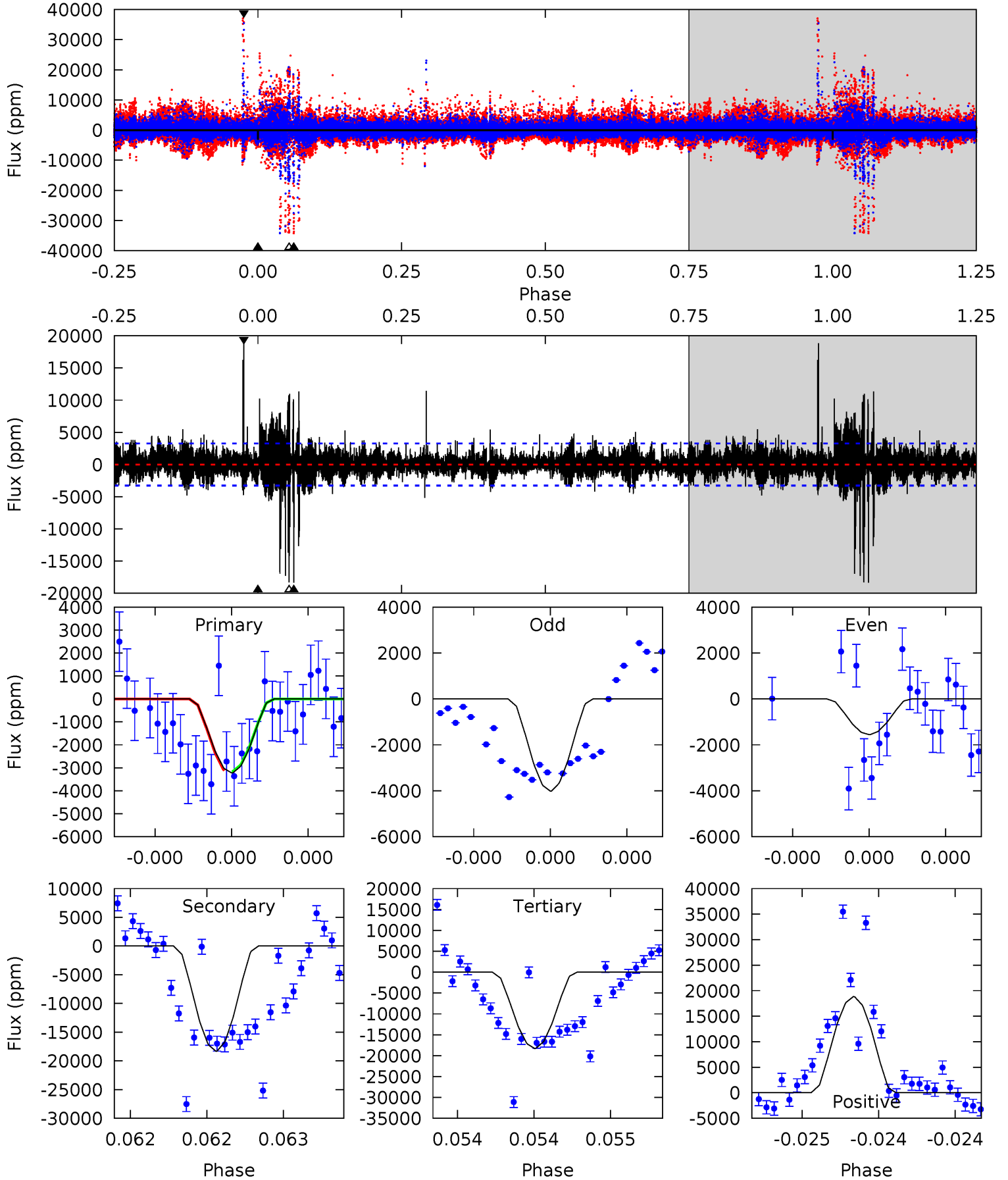
TCE 011087095-01 P=481.033247 Days $T_0=610.953210$ (BKJD)



DV Model-Shift Uniqueness Test

011087095-01, P = 481.024563 Days, E = 129.921929 Days

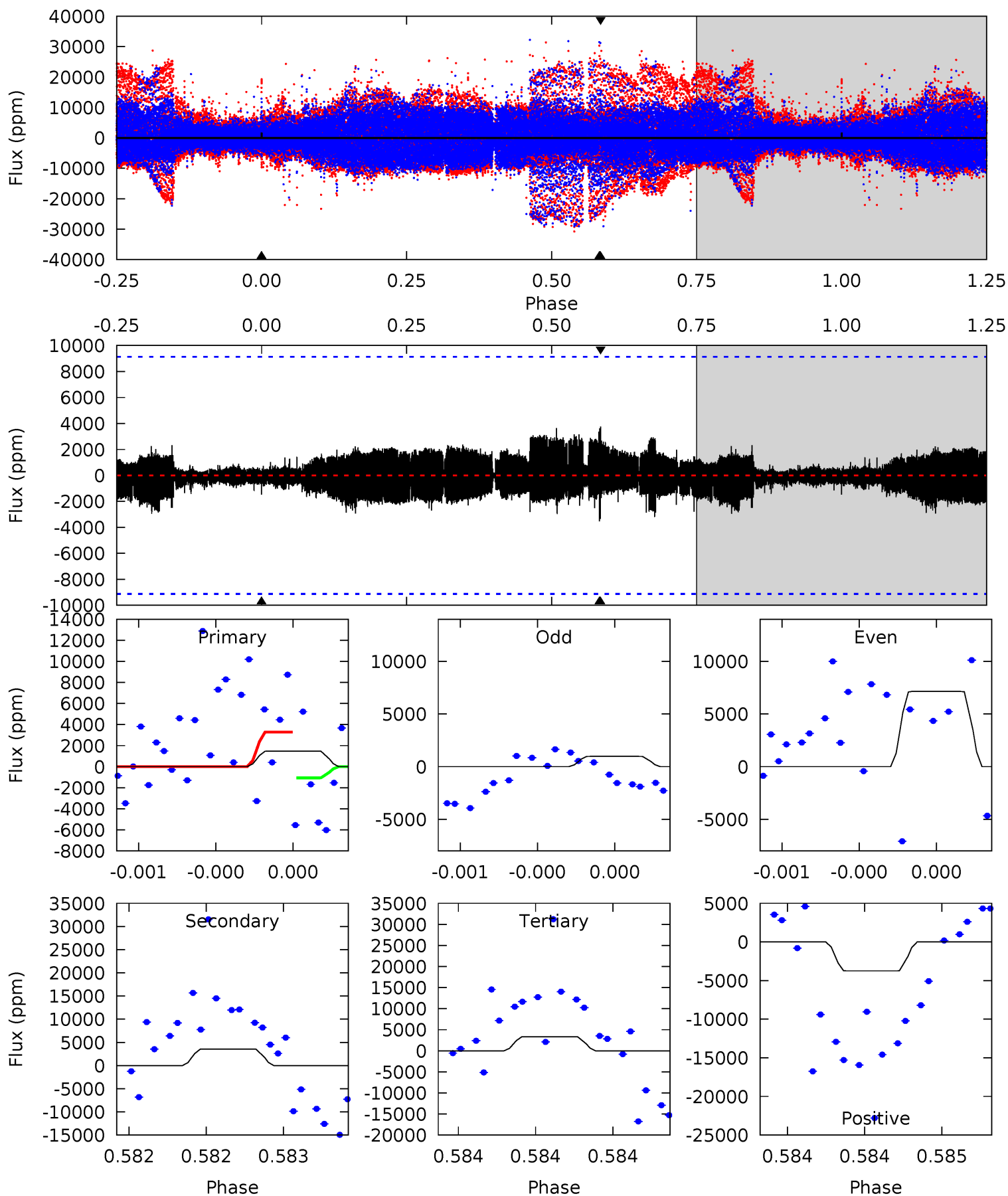
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.53	31.4	31.4	32.3	5.62	3.55	3.02	-25.8	-26.8	0.06	-0.90	1.10	2.47	0.51	0.04



Alt Model-Shift Uniqueness Test

011087095-01, P = 481.033247 Days, E = 129.919963 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.92	2.20	2.08	2.34	5.68	3.64	0.64	-1.17	-1.42	0.12	-0.13	1.99	-4.41	0.51	0.71



Stellar Parameters For KIC 011087095

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4360^{+176}_{-176}	$4.576^{+0.060}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.722^{+0.029}_{-0.063}$	$0.716^{+0.043}_{-0.054}$	$2.677^{+0.727}_{-0.206}$
	+4%/-4%	+1%/-0%	+12%/-75%	+4%/-9%	+6%/-8%	+27%/-8%
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 011087095-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-18330 ± 583	$35.22^{+43.27}_{-25.00}$	218^{+9}_{-9}	2969^{+1472}_{-557}	$9783^{+104844}_{-7826}$
Alt.	-3536 ± 1606	$39.80^{+36.51}_{-28.56}$	218^{+9}_{-9}	2322^{+846}_{-364}	1413^{+12945}_{-1115}

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 $A_{obs} \gg 1.0$

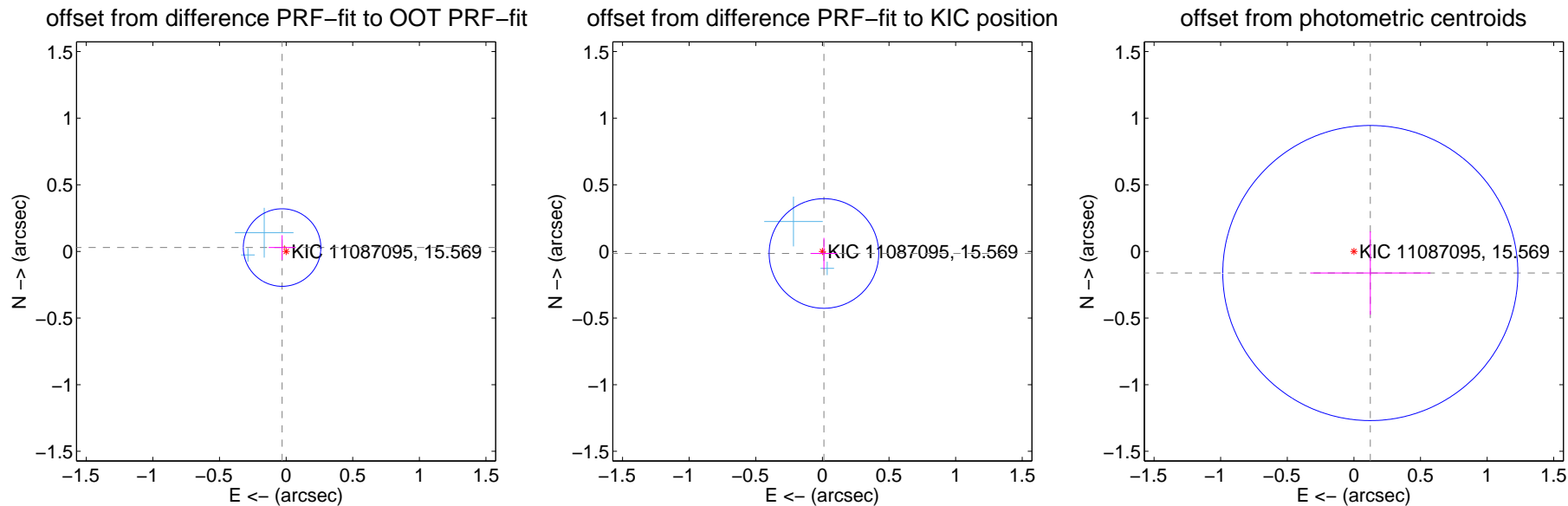
DV Centroid Data

Supplemental centroid analysis for 011087095-01. Kepler magnitude: 15.57. Transit SNR 8.76

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.042 ± 0.097	0.43	0.030 ± 0.101	0.029 ± 0.093
PRF-fit source offset from KIC position	0.019 ± 0.137	0.14	-0.012 ± 0.098	-0.015 ± 0.117
photometric centroid source offset	0.20 ± 0.37	0.55	-0.12 ± 0.45	-0.16 ± 0.31



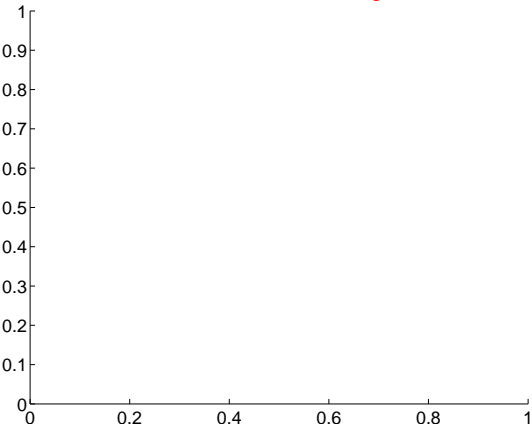
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

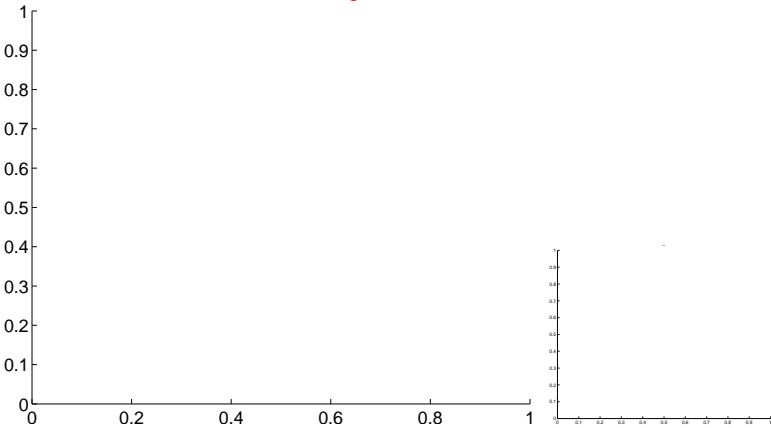


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

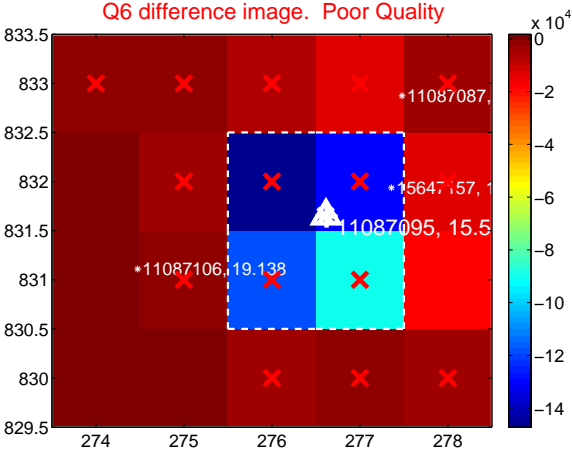
Q5 no difference image



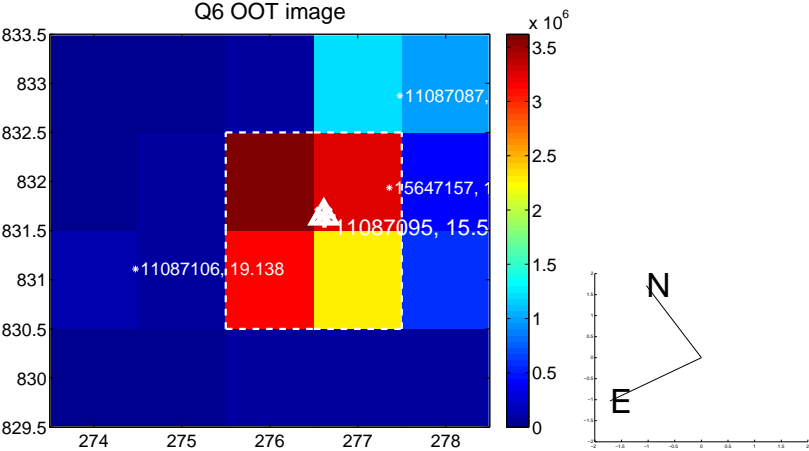
Q5 no OOT image



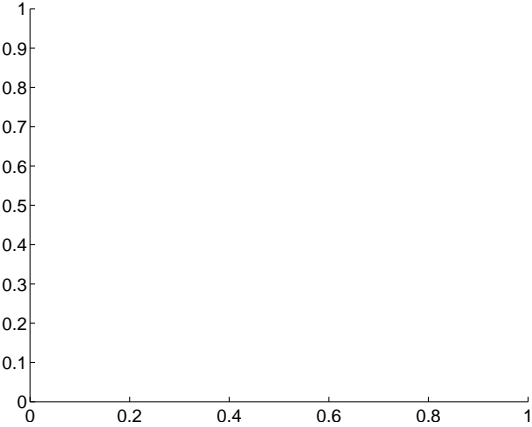
Q6 difference image. Poor Quality



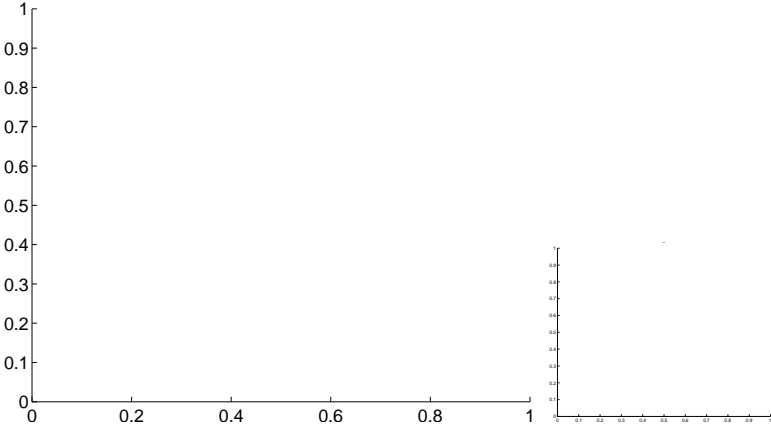
Q6 OOT image



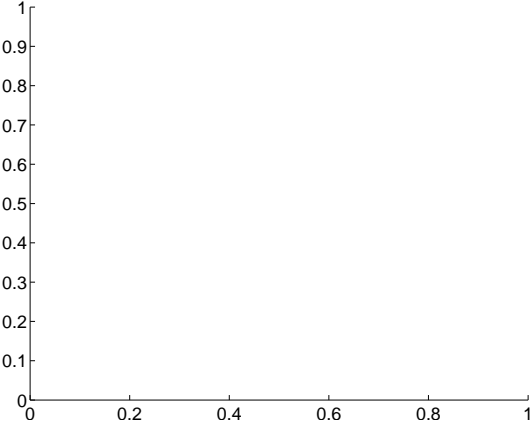
Q7 no difference image



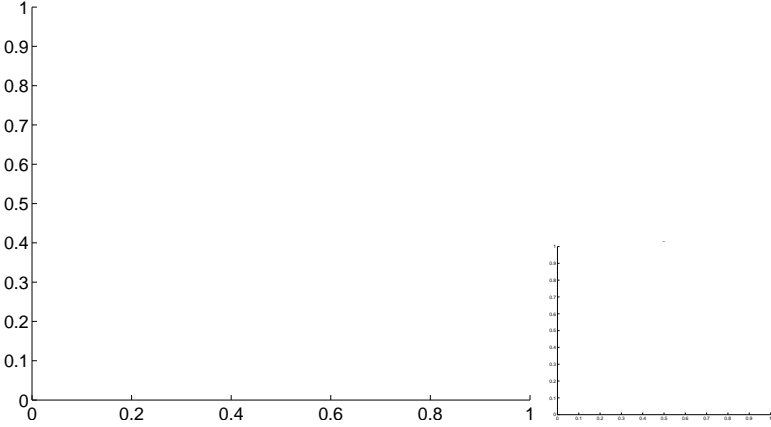
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

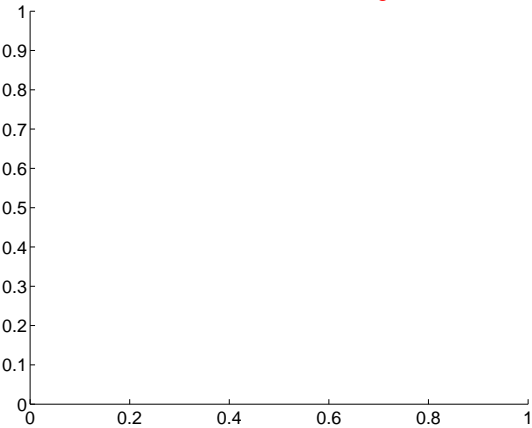
Q9 no difference image



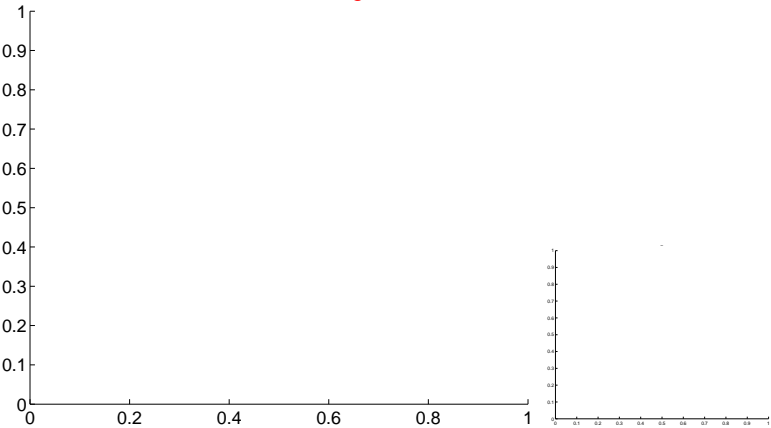
Q9 no OOT image



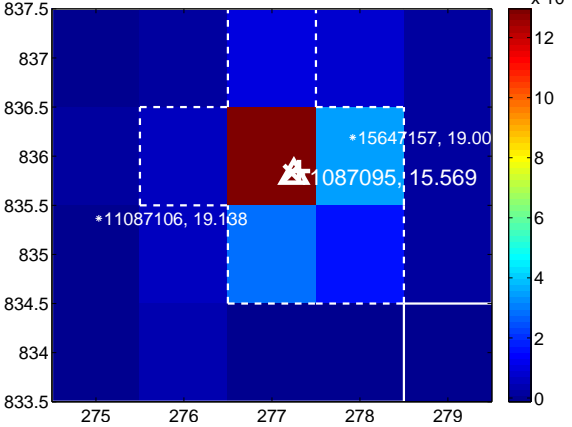
Q10 no difference image



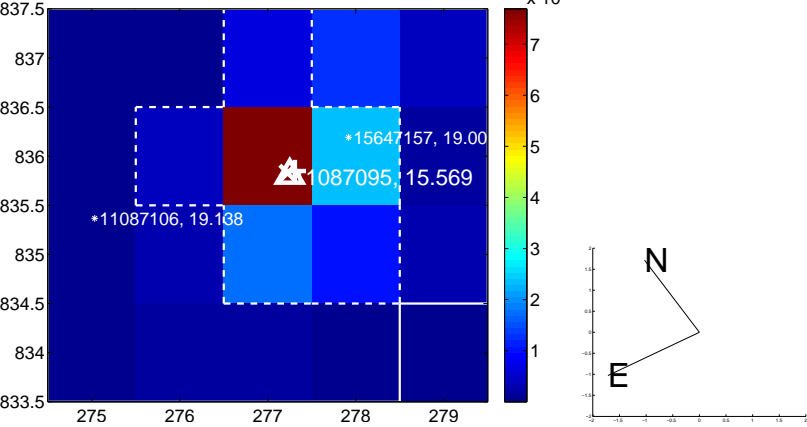
Q10 no OOT image



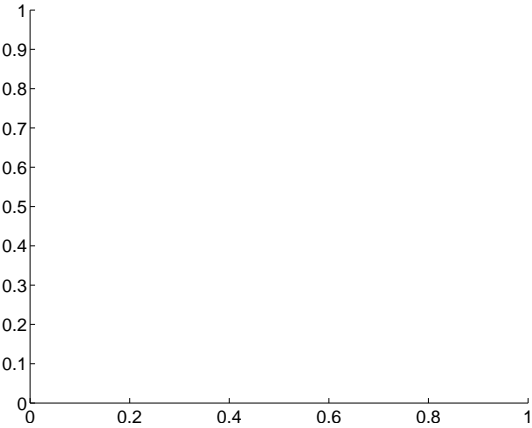
Q11 difference image



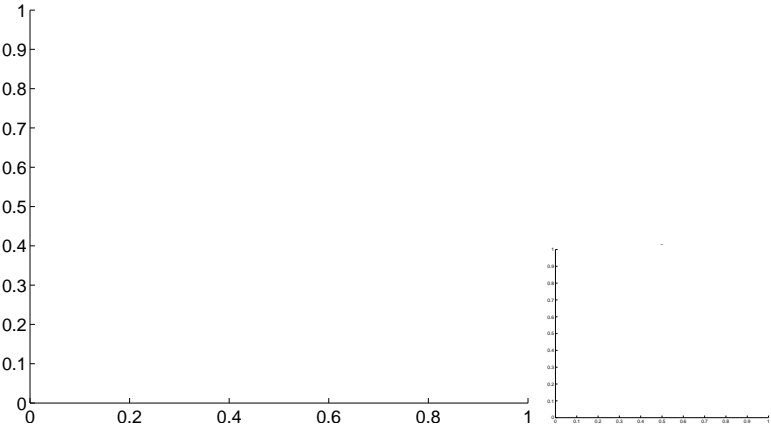
Q11 OOT image



Q12 no difference image



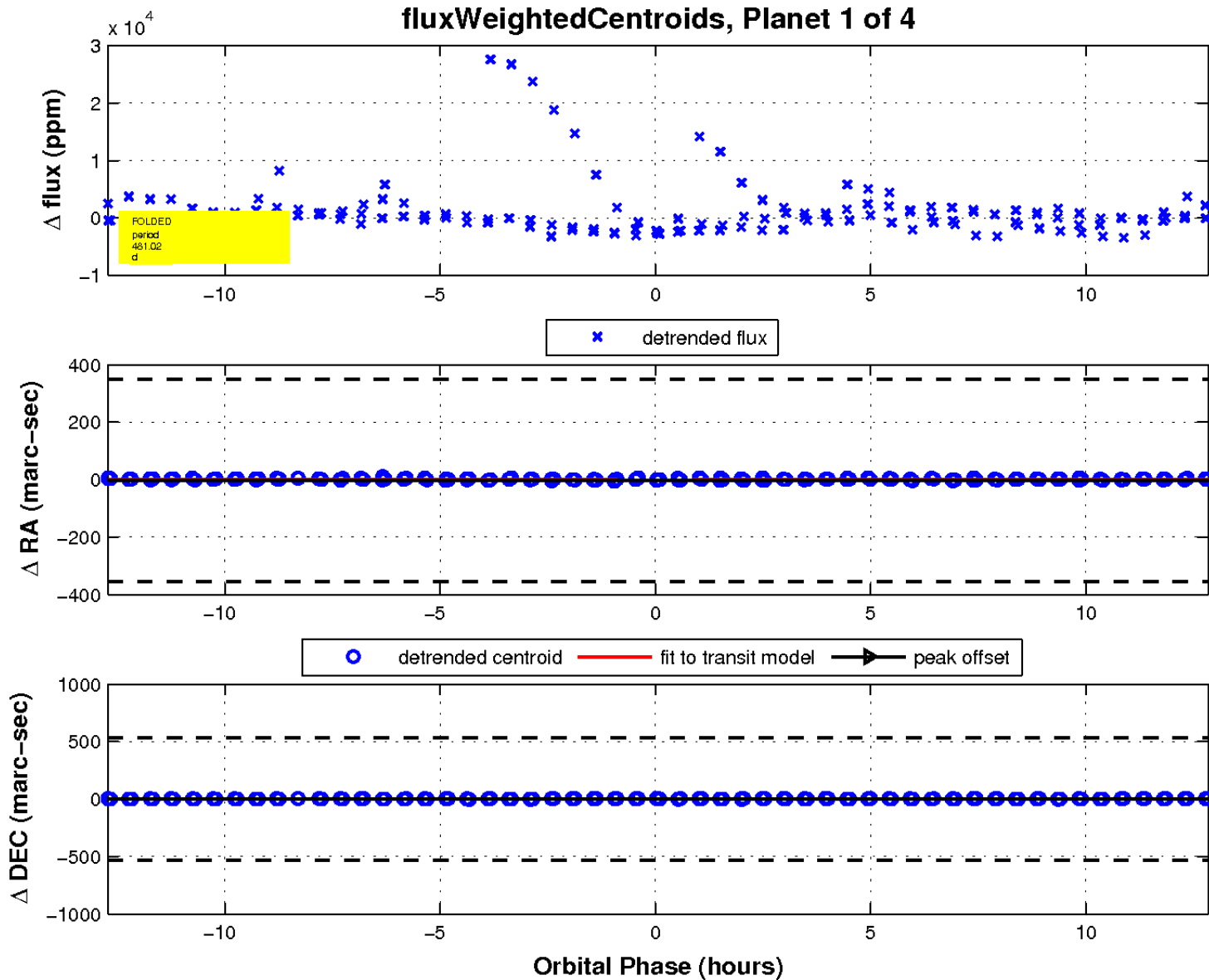
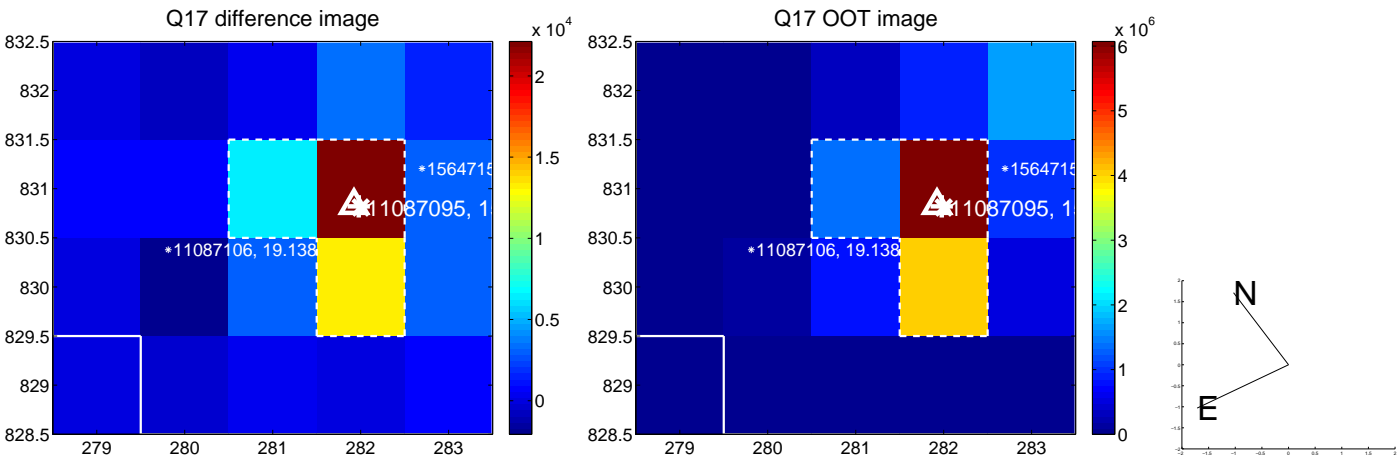
Q12 no OOT image



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

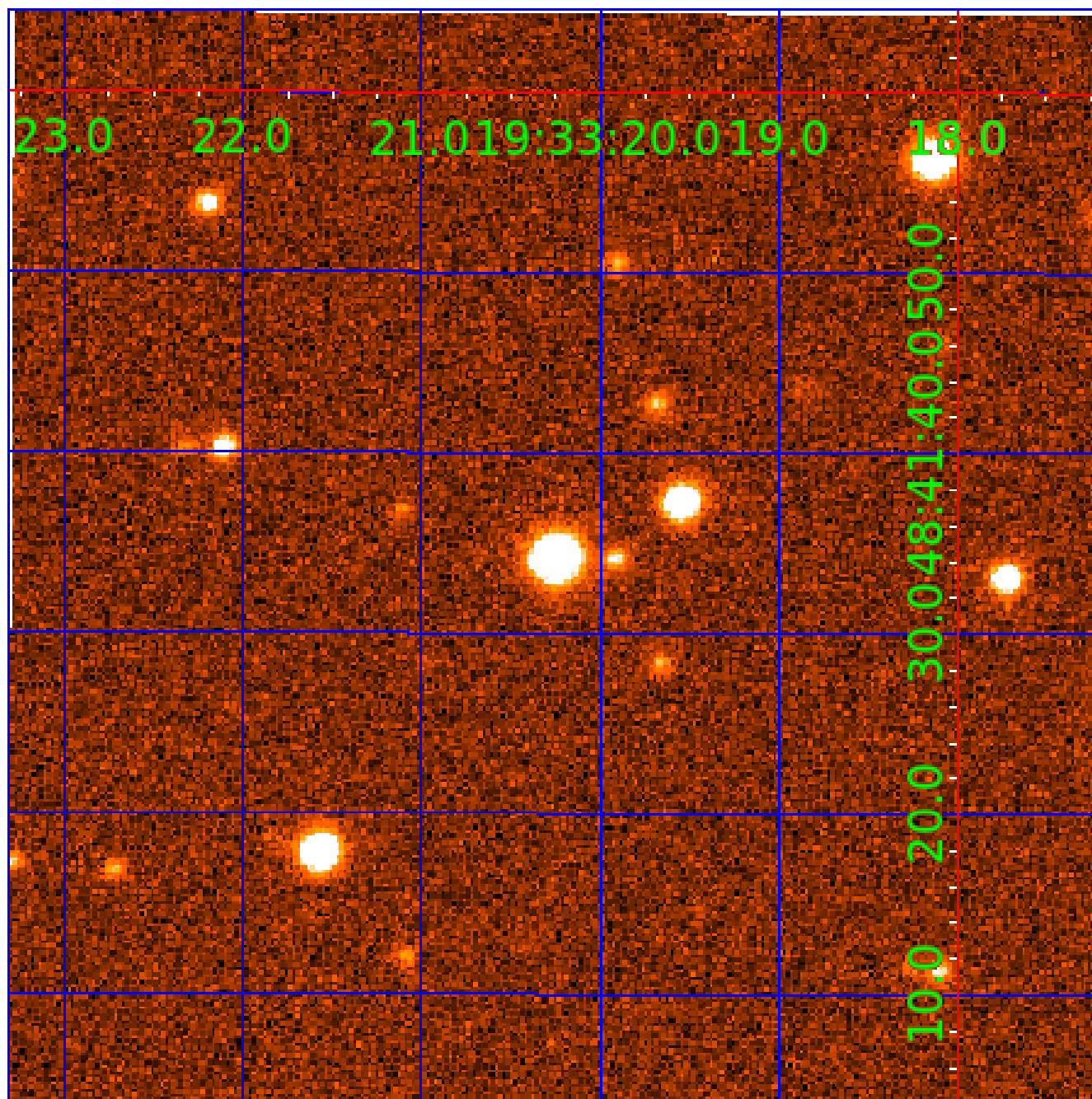


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UKIRT Image

Declination



KIC 011087095

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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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011087095-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
011087095-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

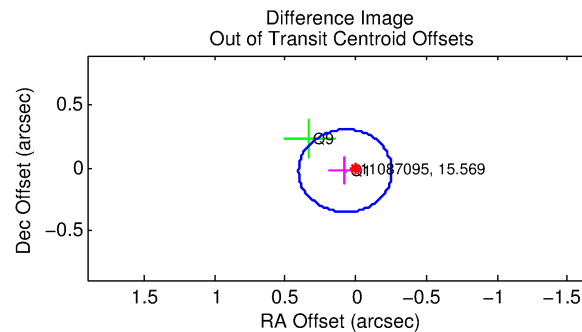
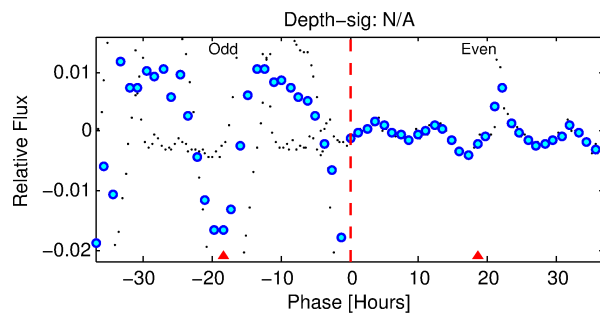
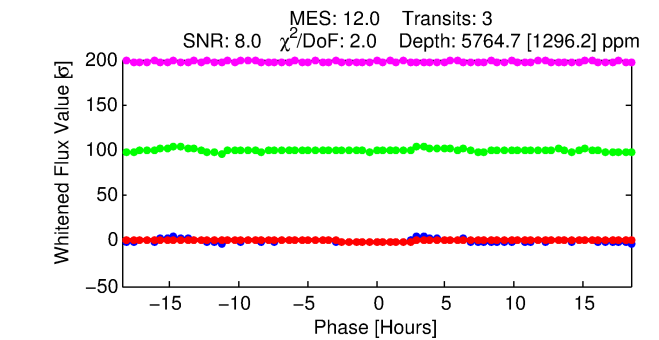
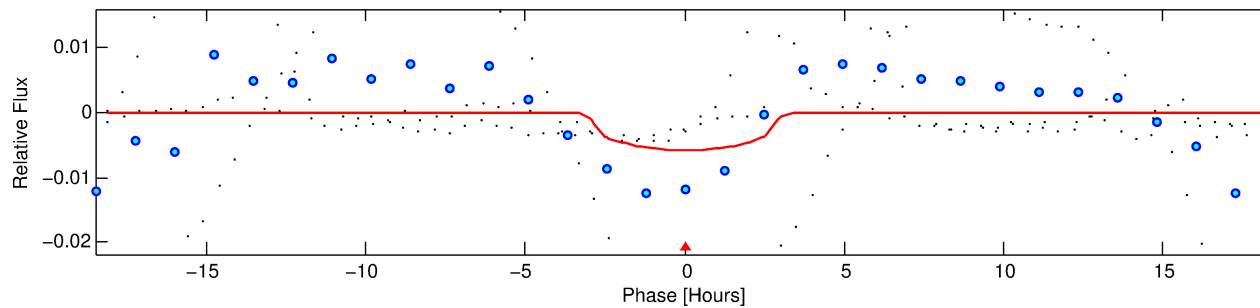
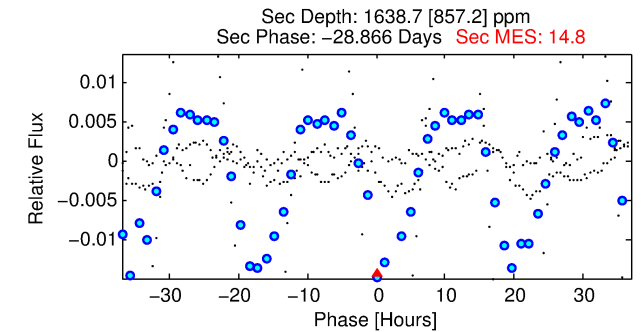
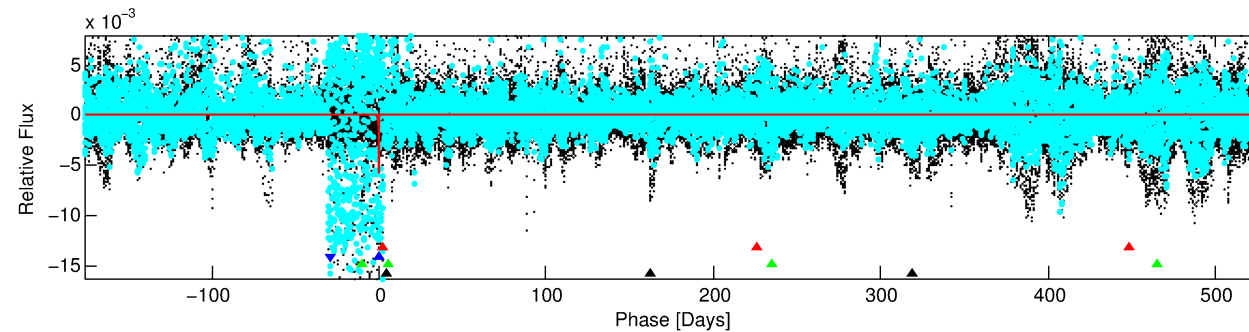
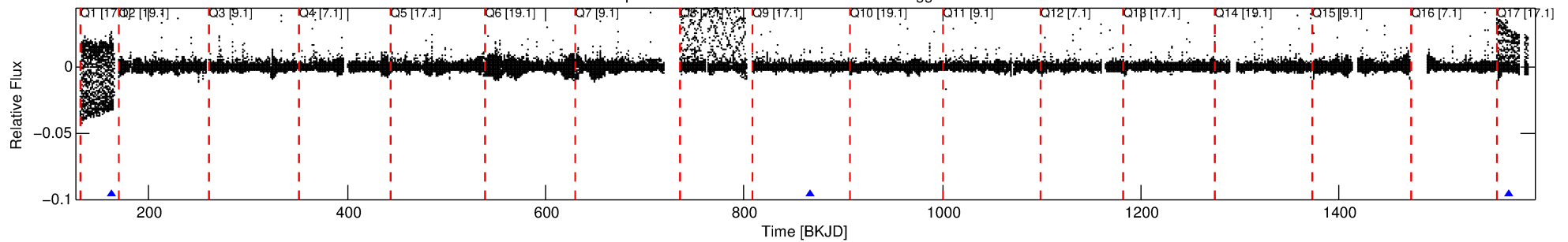
Ephemeris Match Information For 011087095-02

No Significant Match Found

DV One-Page Summary

KIC: 11087095 Candidate: 2 of 4 Period: 704.041 d

Kp: 15.57 R*: 0.72 Rs Teff: 4360.0 K Logg: 4.58 Fe/H: 0.400



DV Fit Results:

Period = 704.04052 [0.00746] d
Epoch = 162.2619 [0.0103] BKJD
Rp/R* = 0.0659 [0.0819]
a/R* = 928.58 [3134.01]
b = 0.01 [530.39]
Seff = 0.09 [0.02]
Teq = 139 [7] K
Rp = 5.19 [6.47] Re
a = 1.3861 [0.1028] AU
Ag = 64222.87 [163277.96] [0.39σ]
Teffp = 3417 [2174] K [1.51σ]

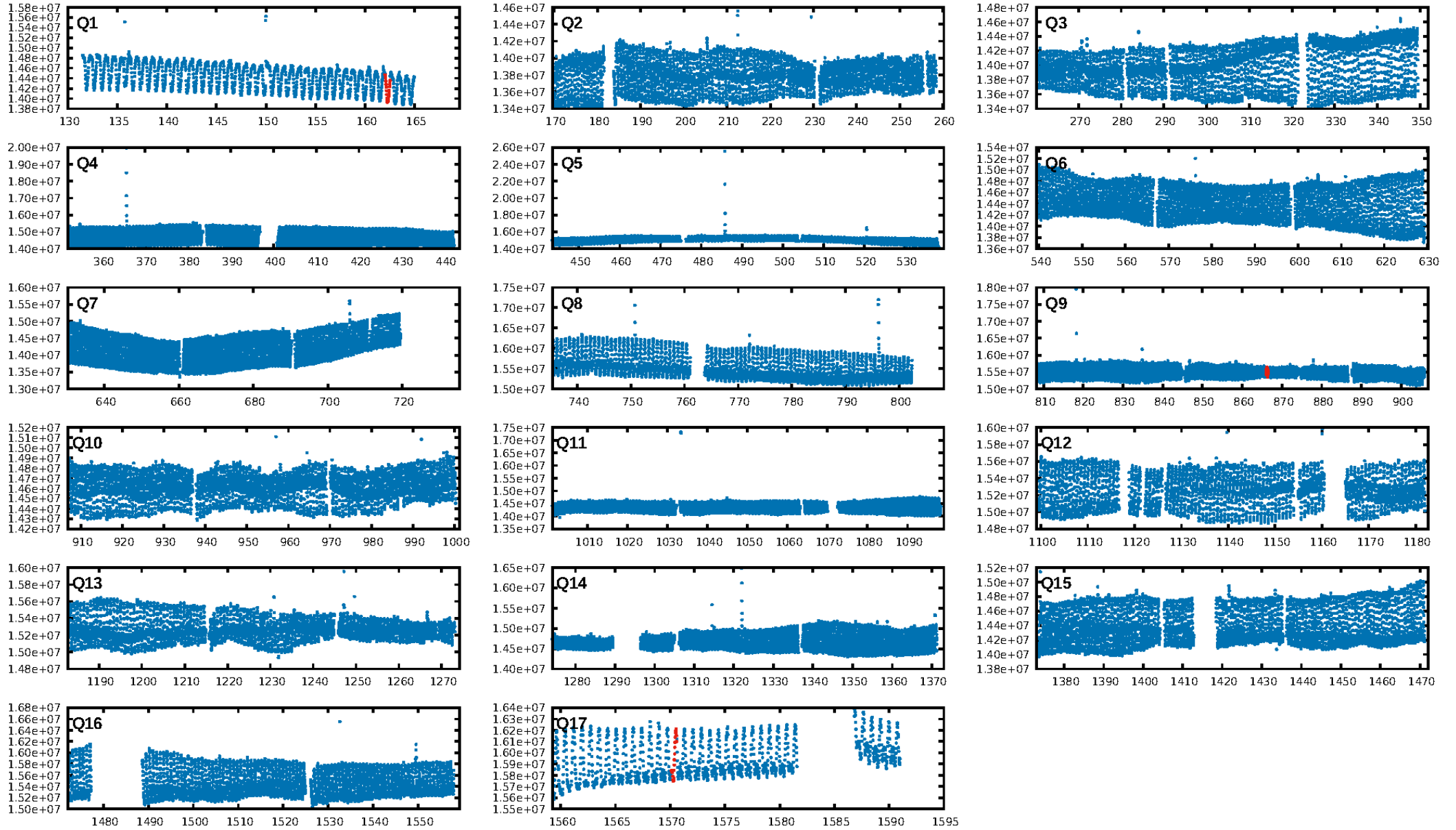
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [539.08σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 1.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: 1.516
Centroid-sig: 24.5%
Centroid-so: 0.083 arcsec [0.27σ]
OotOffset-rm: 0.079 arcsec [0.71σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 0.224 arcsec [2.04σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

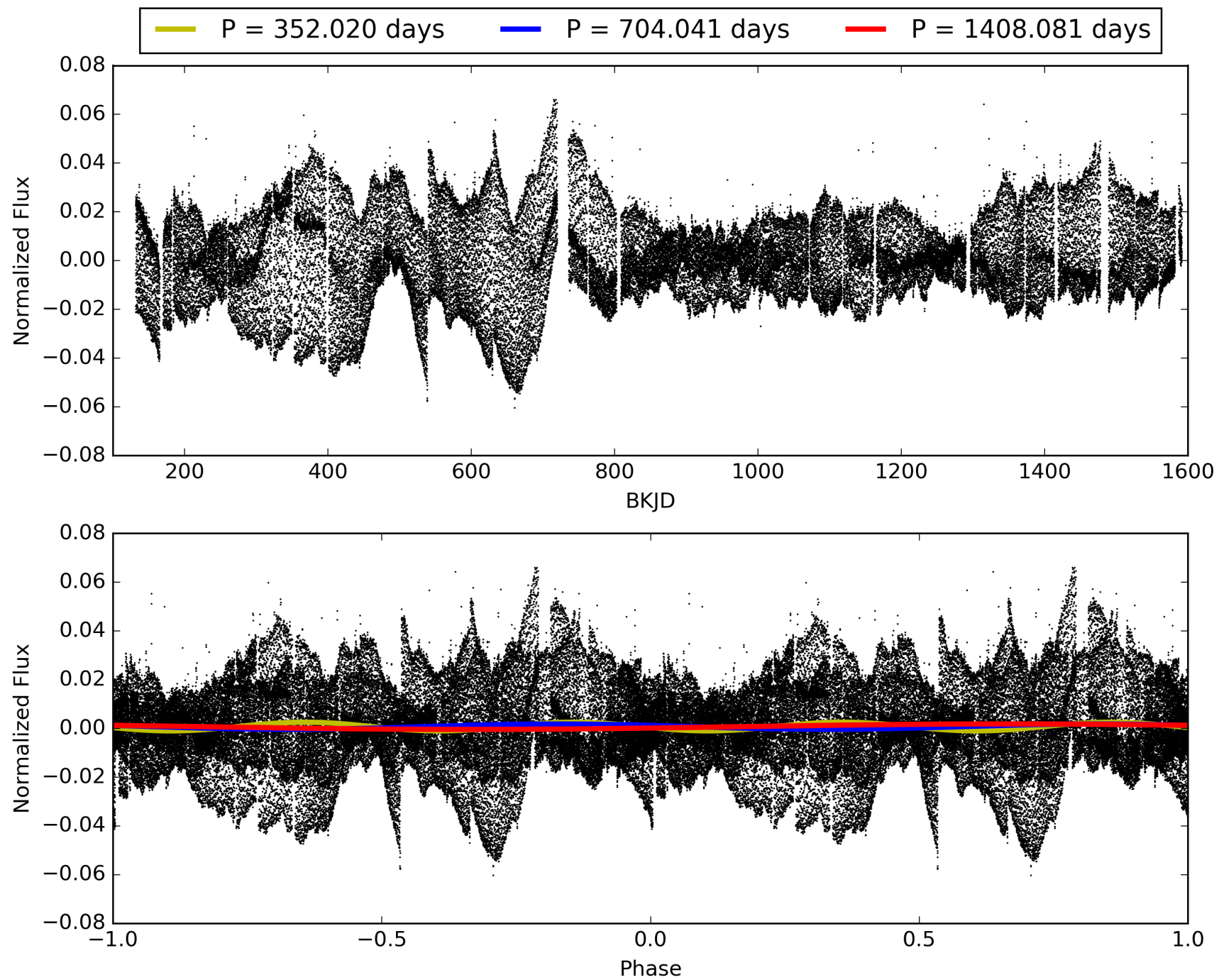
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:08 Z

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

TCE 011087095-02, PDC Light Curves

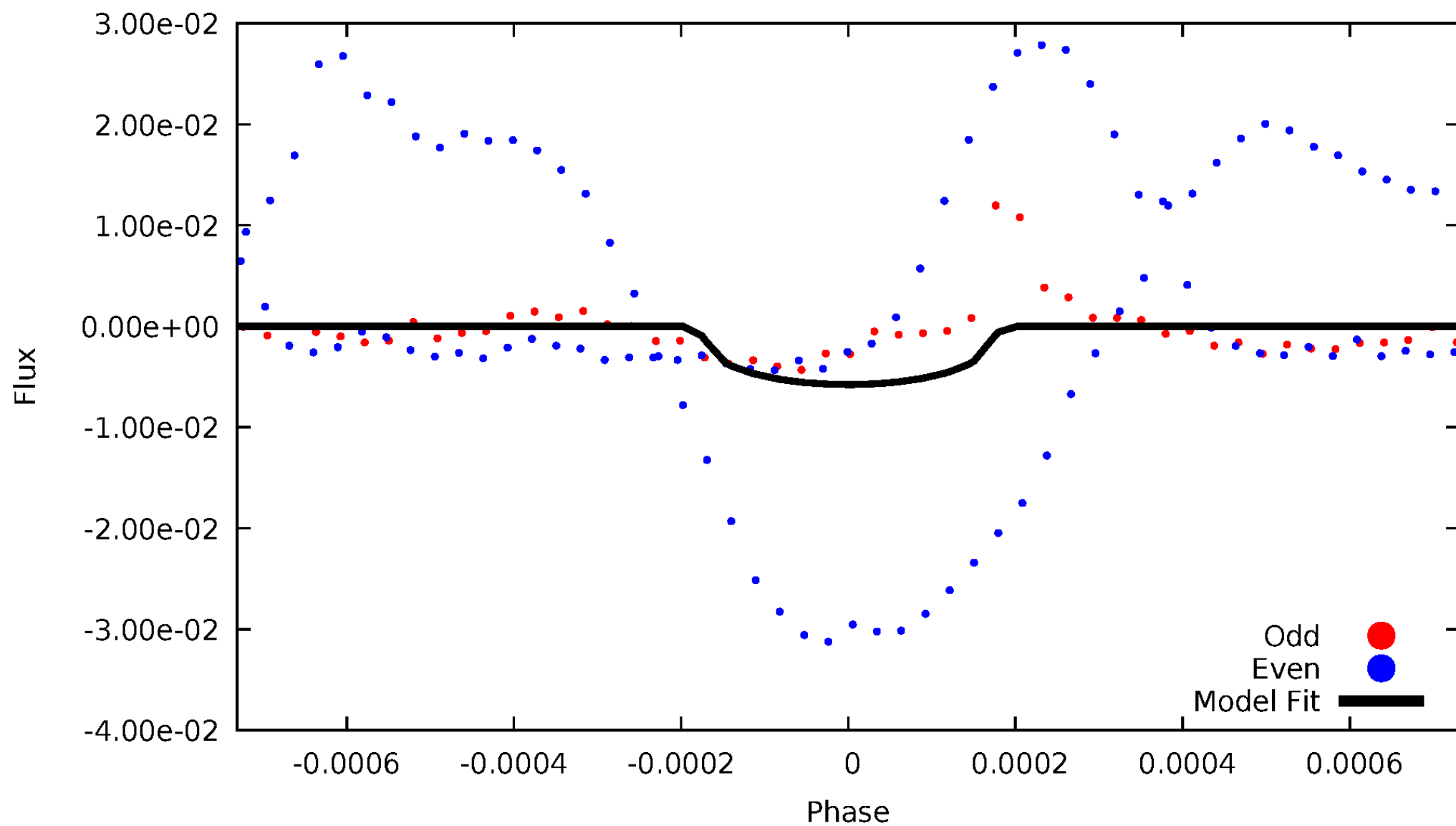


TCE 011087095-02



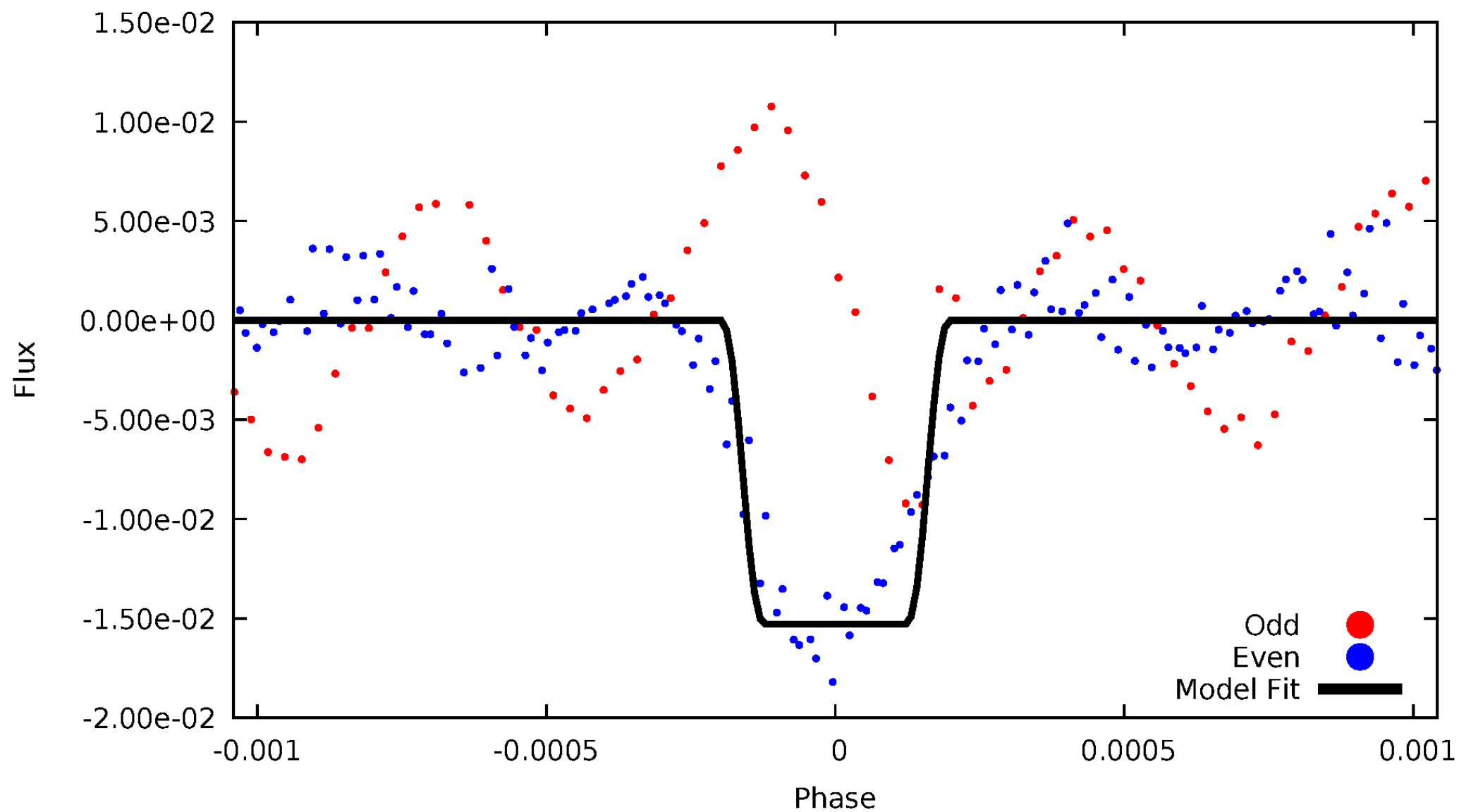
DV Odd/Even

TCE 011087095-02



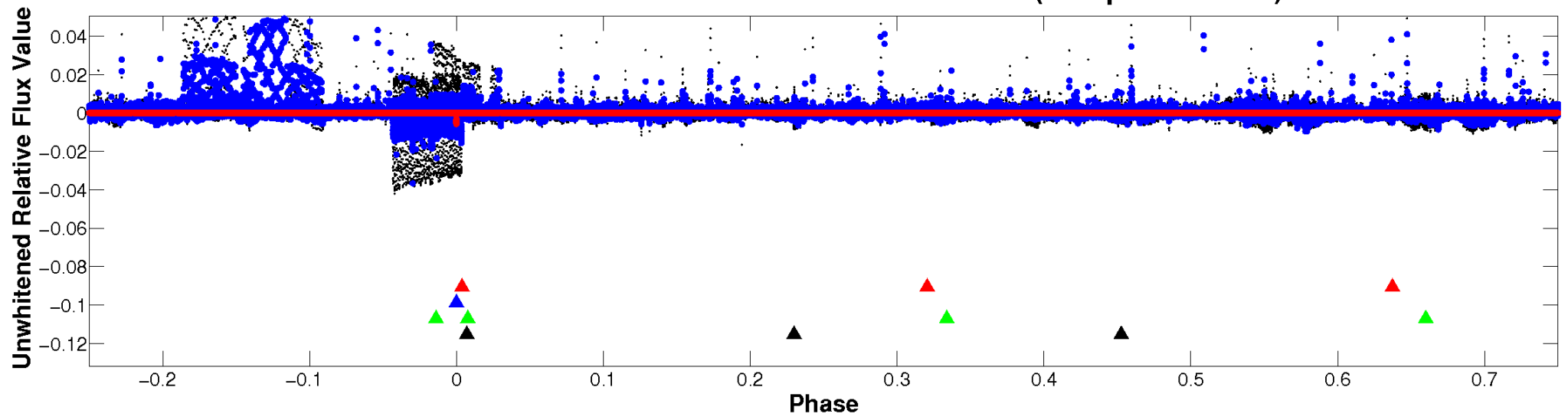
ALT Odd/Even

TCE 011087095-02

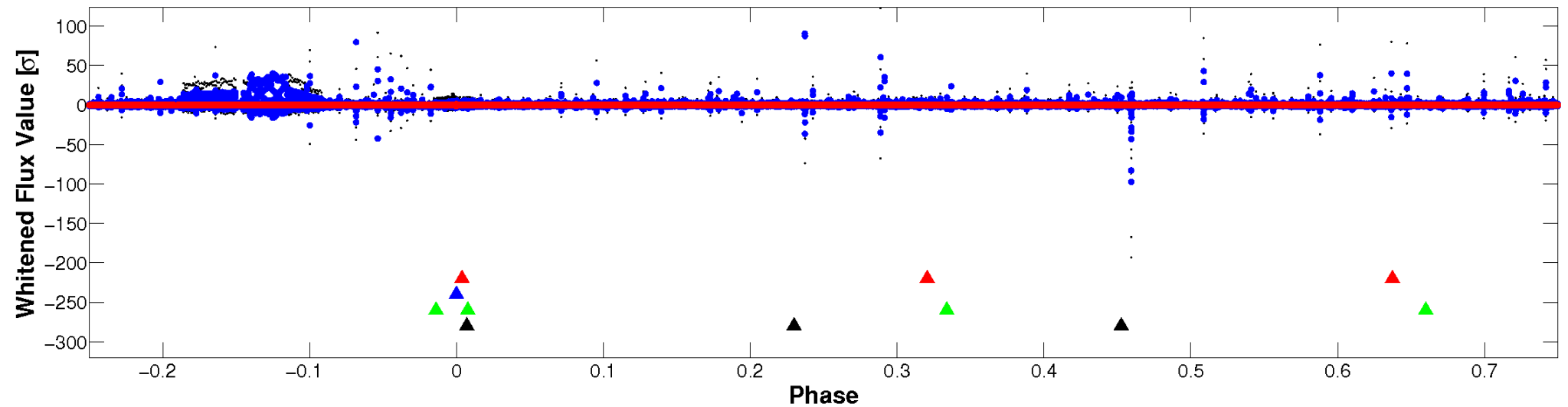


Non-Whitened Vs. Whitened Light Curve

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

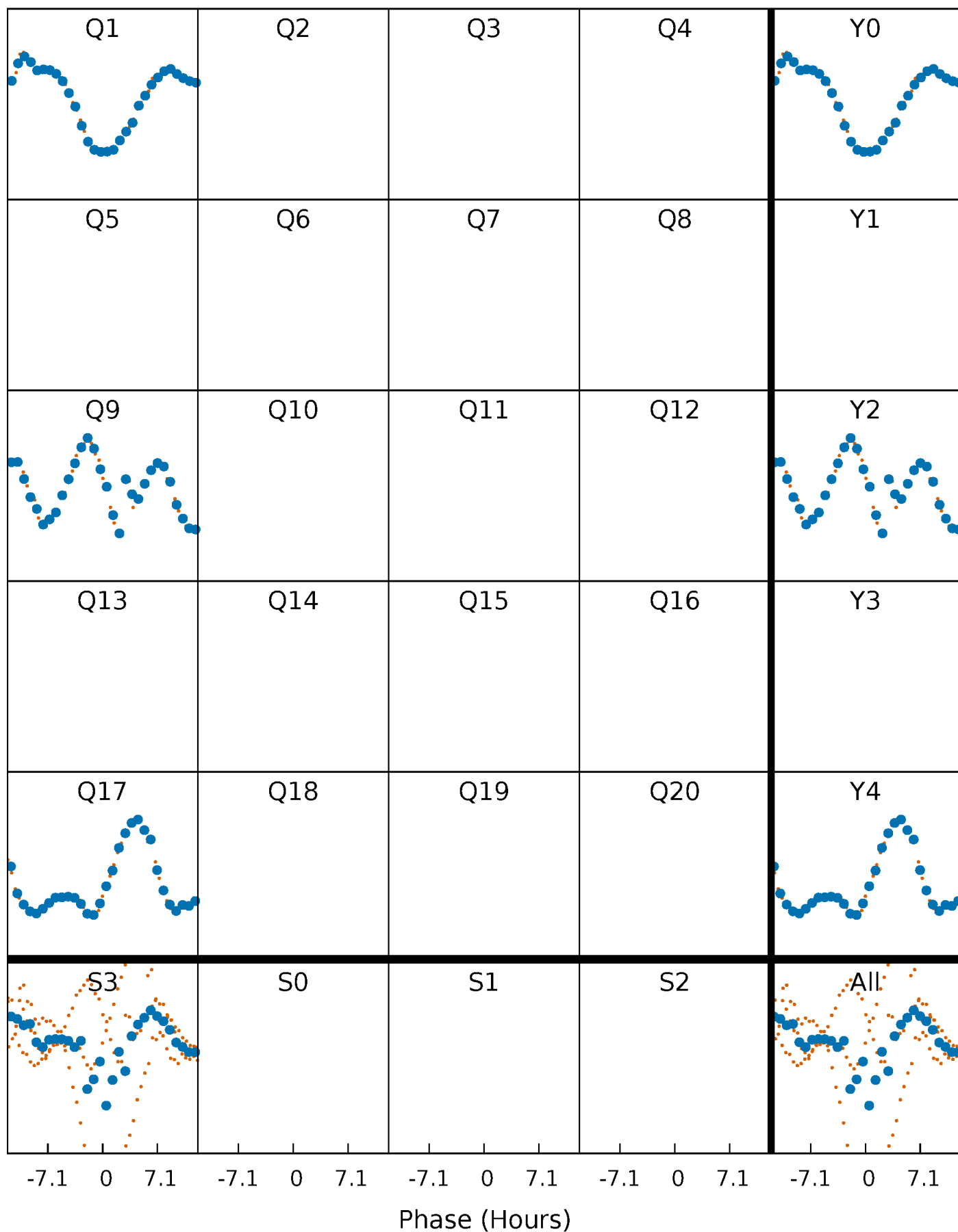


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



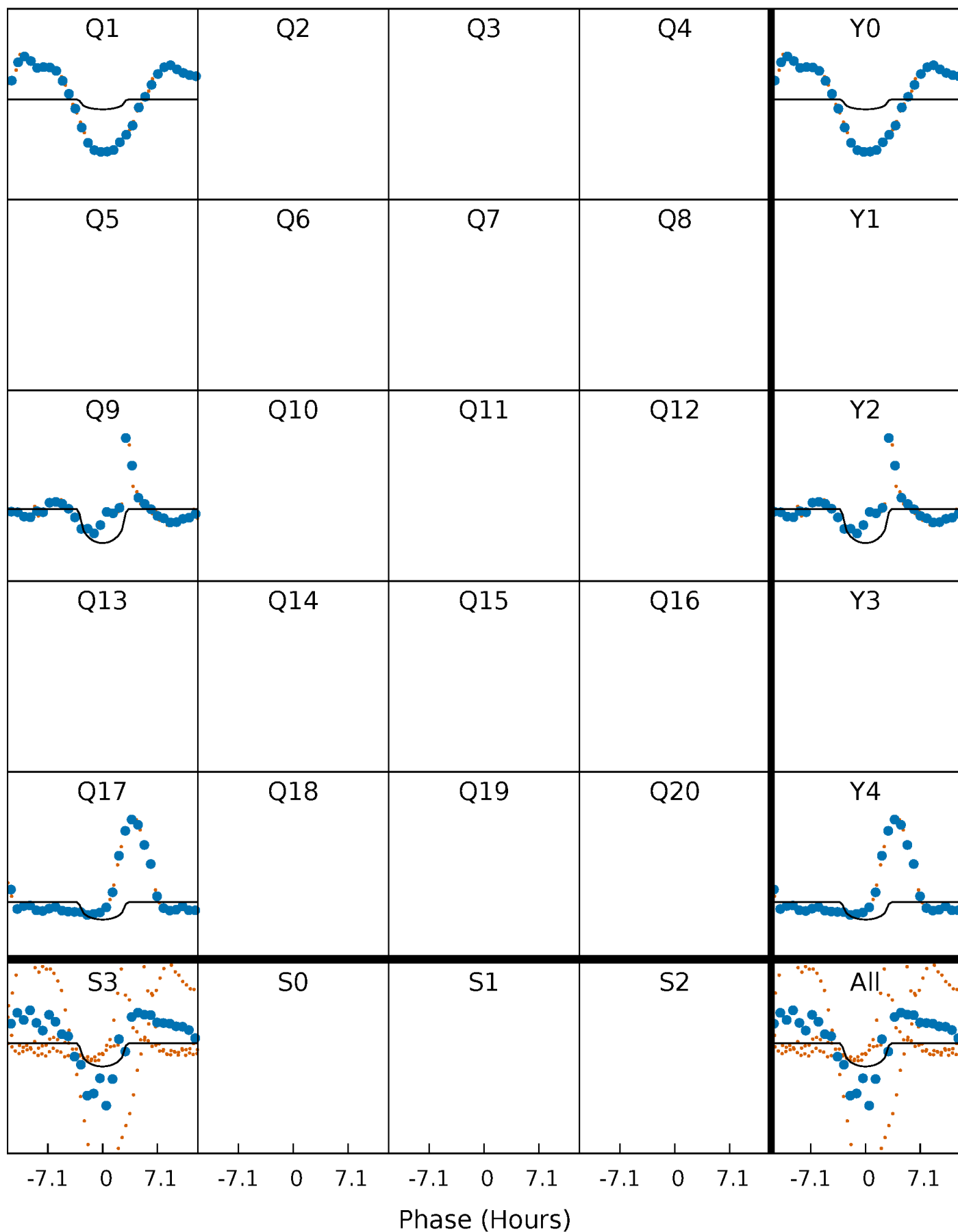
PDC Quarter-Phased Transit Curves

TCE 011087095-02 $P=704.040524$ Days $T_0=162.261896$ (BKJD)



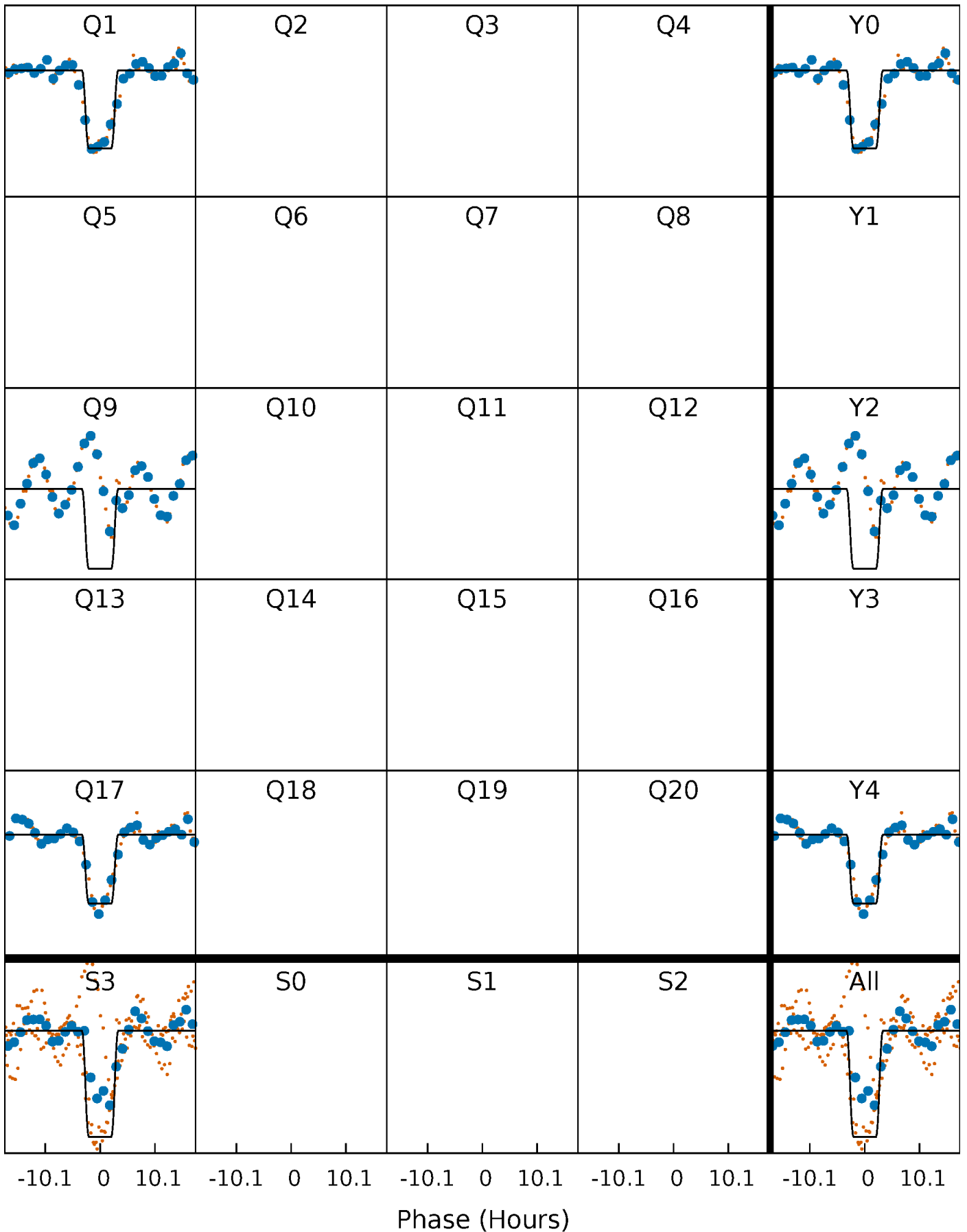
DV Quarter-Phased Transit Curves

TCE 011087095-02 $P=704.040524$ Days $T_0=162.261896$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

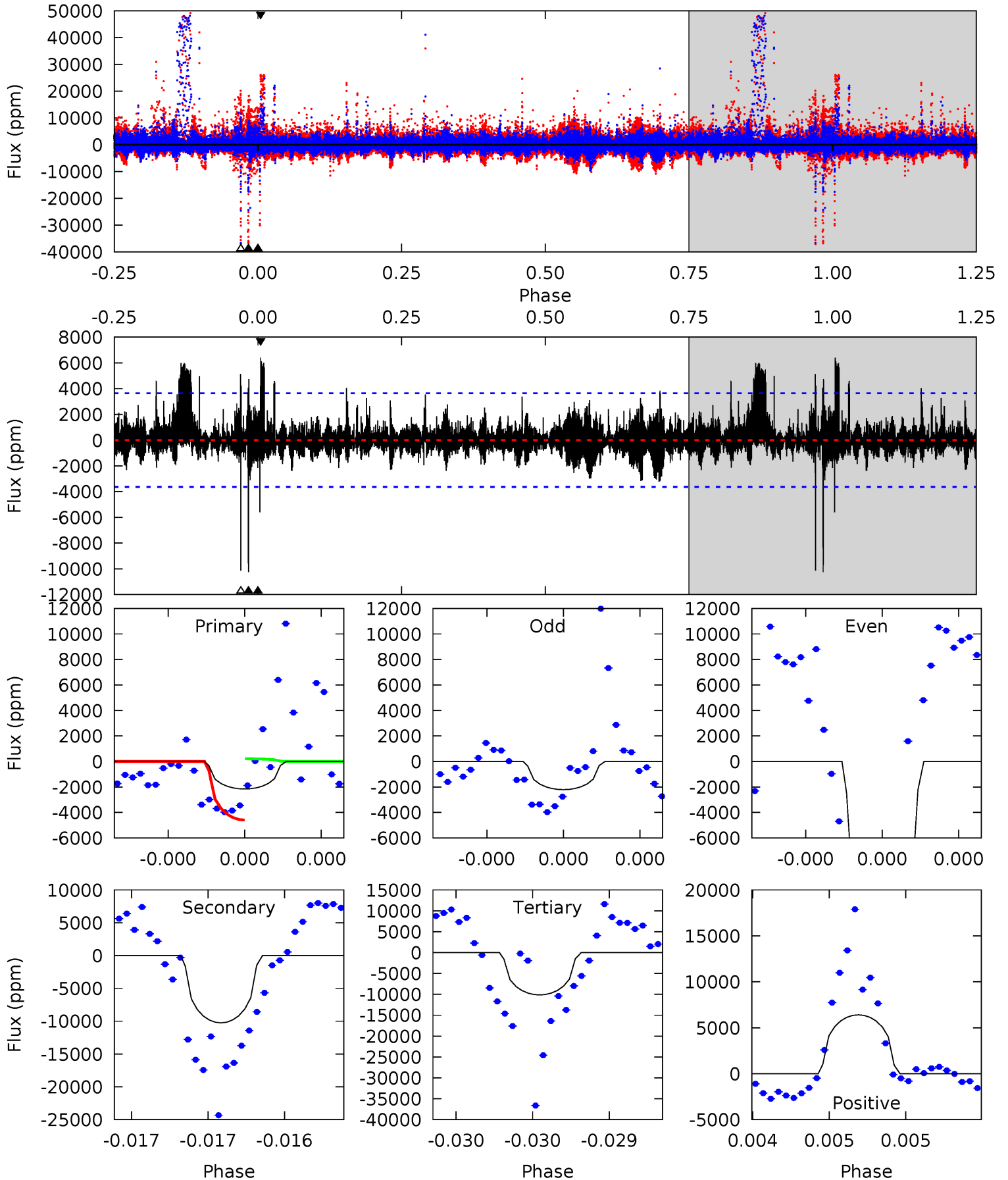
TCE 011087095-02 $P=704.024687$ Days $T_0=162.275305$ (BKJD)



DV Model-Shift Uniqueness Test

011087095-02, P = 704.040524 Days, E = 162.261896 Days

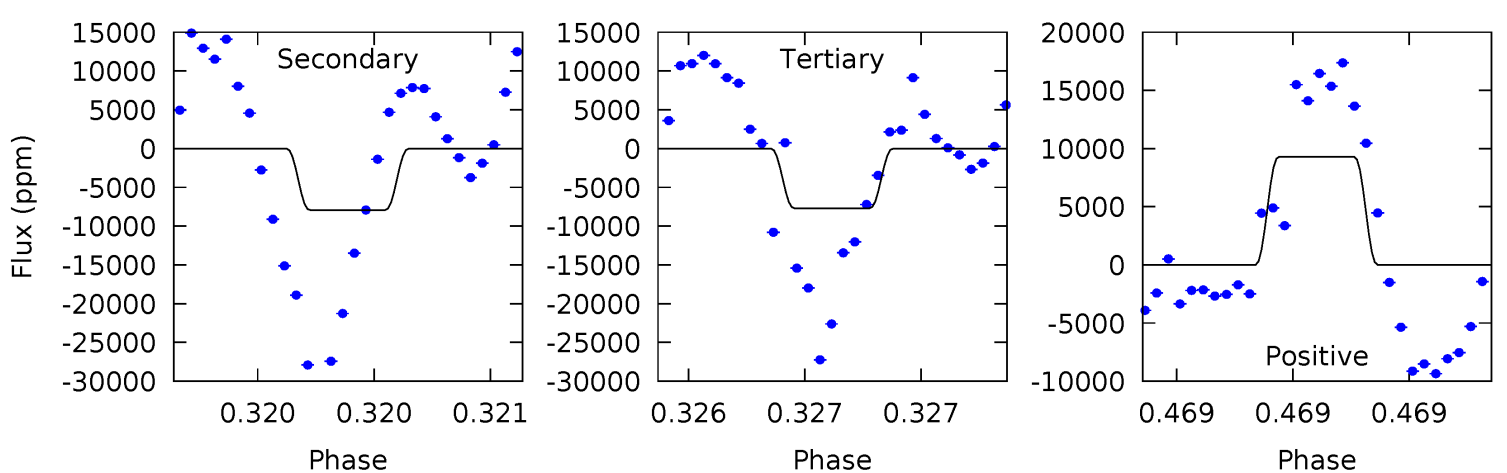
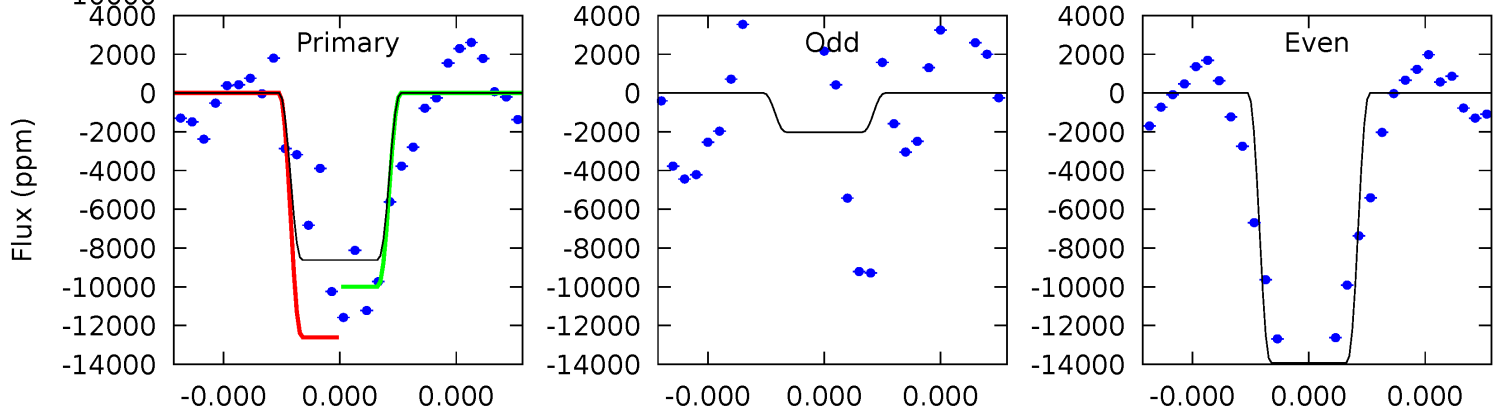
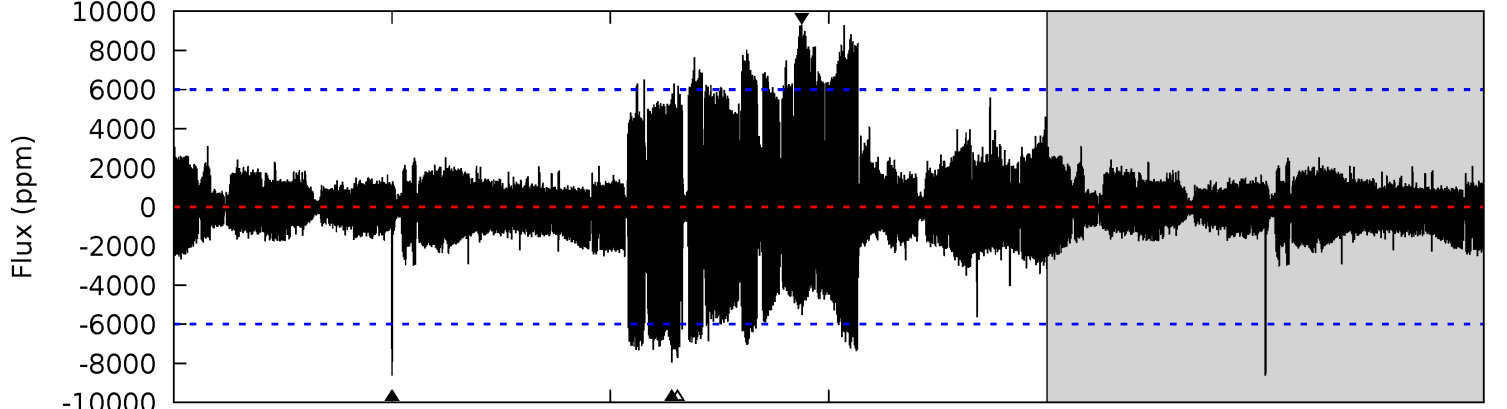
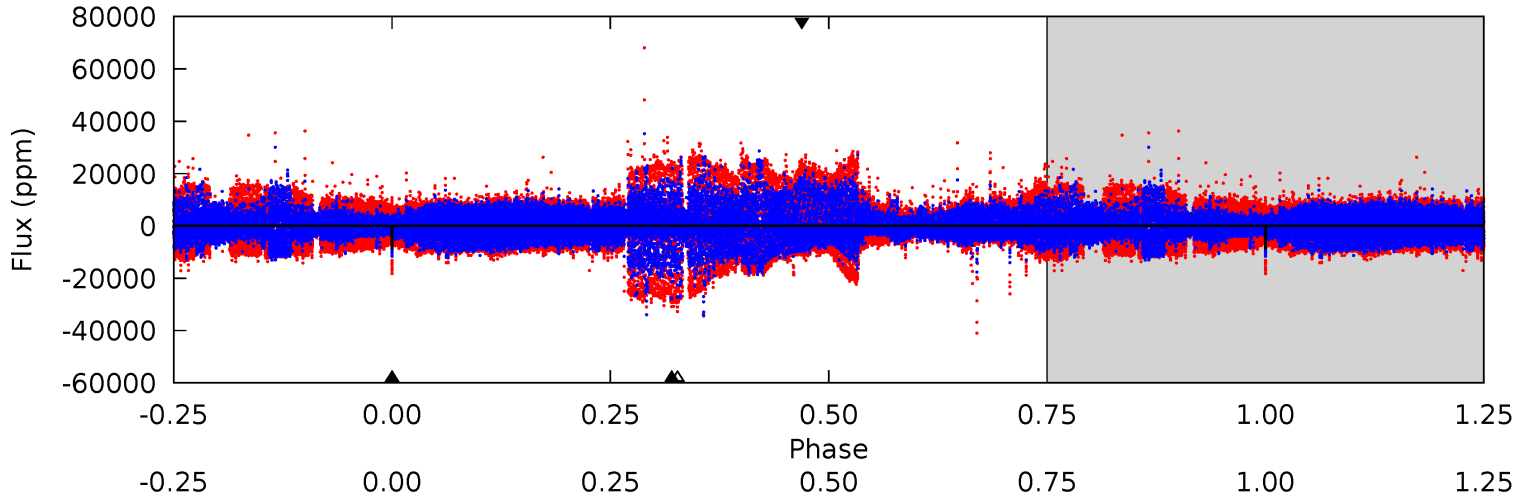
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.34	15.9	15.7	9.90	5.62	3.56	1.51	-12.3	-6.56	0.18	5.95	6.90	4.94	0.38	3.47



Alt Model-Shift Uniqueness Test

011087095-02, P = 704.024687 Days, E = 162.275305 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.08	7.44	7.22	8.72	5.62	3.56	2.18	0.86	-0.64	0.22	-1.27	5.49	0.62	0.52	1.17



Stellar Parameters For KIC 011087095

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4360^{+176}_{-176}	$4.576^{+0.060}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.722^{+0.029}_{-0.063}$	$0.716^{+0.043}_{-0.054}$	$2.677^{+0.727}_{-0.206}$
	+4%/-4%	+1%/-0%	+12%/-75%	+4%/-9%	+6%/-8%	+27%/-8%
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 011087095-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-10255 ± 647	$6.84^{+5.79}_{-4.30}$	193^{+7}_{-9}	4646^{+2920}_{-957}	$234947^{+1501058}_{-164675}$
Alt.	-7938 ± 1066	$9.80^{+6.22}_{-5.24}$	192^{+8}_{-8}	3830^{+1431}_{-567}	$88233^{+355704}_{-55247}$

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

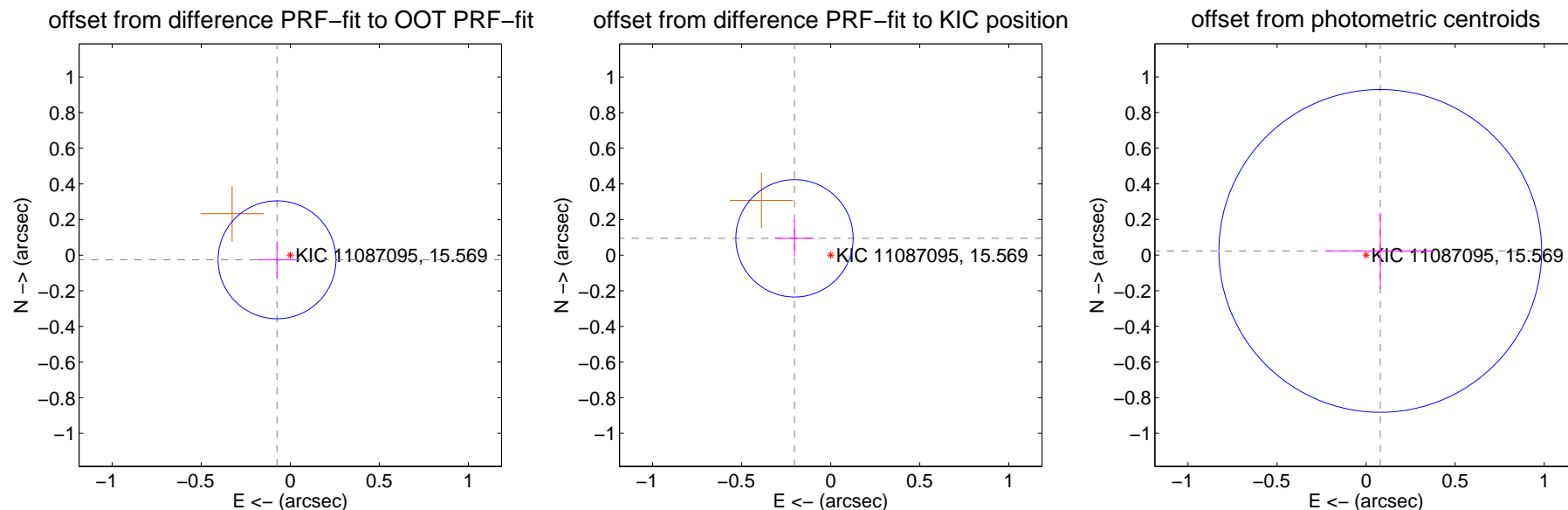
DV Centroid Data

Supplemental centroid analysis for 011087095-02. Kepler magnitude: 15.57. Transit SNR 7.98

There are 1 quarters with good PRF difference image offsets

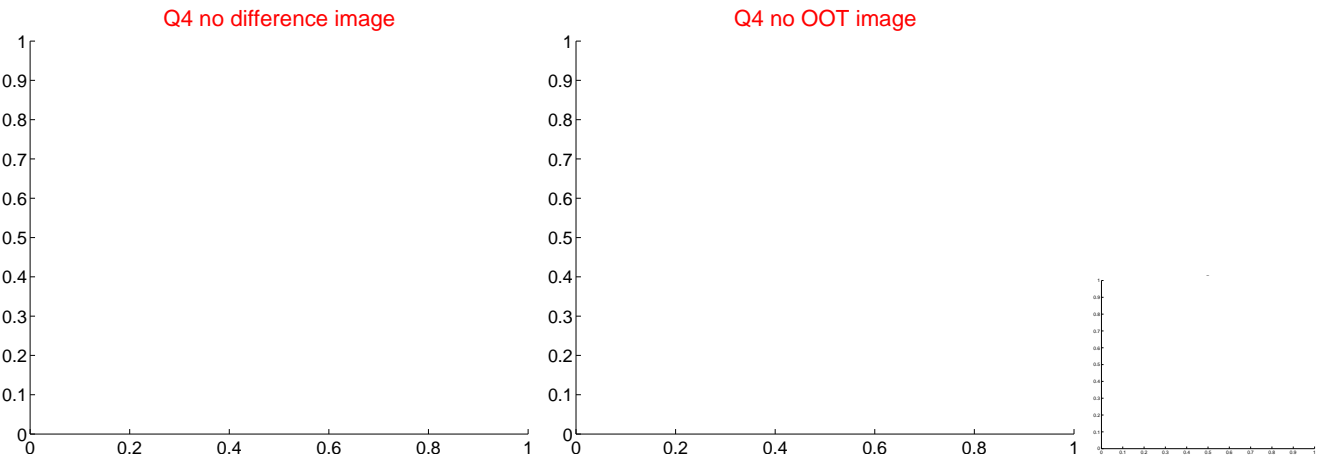
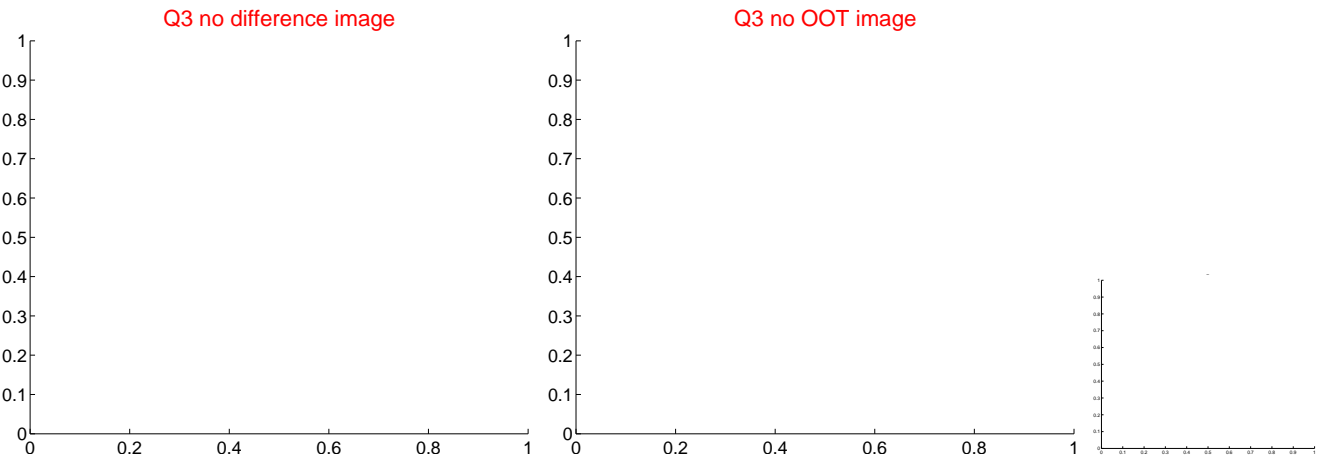
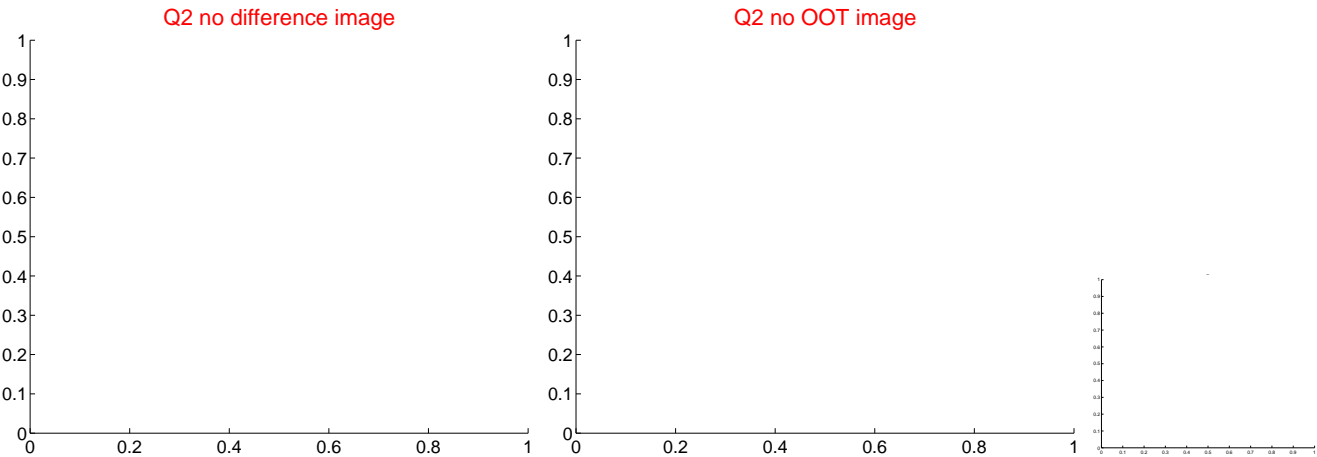
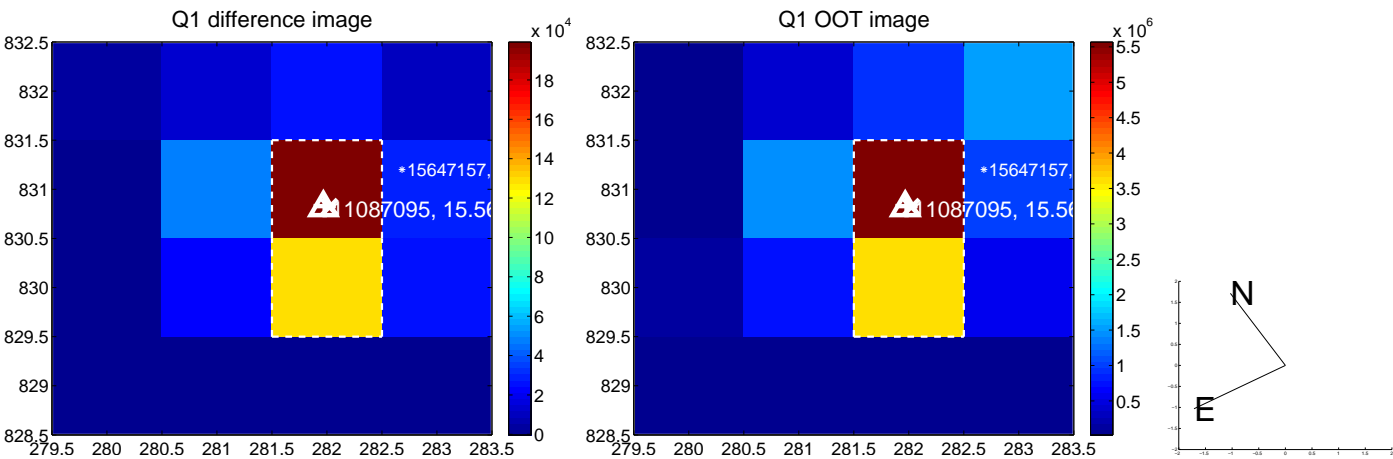
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.079 ± 0.110	0.71	0.074 ± 0.111	-0.026 ± 0.103
PRF-fit source offset from KIC position	0.224 ± 0.110	2.04	0.203 ± 0.111	0.095 ± 0.103
photometric centroid source offset	0.08 ± 0.30	0.27	-0.08 ± 0.31	0.02 ± 0.21

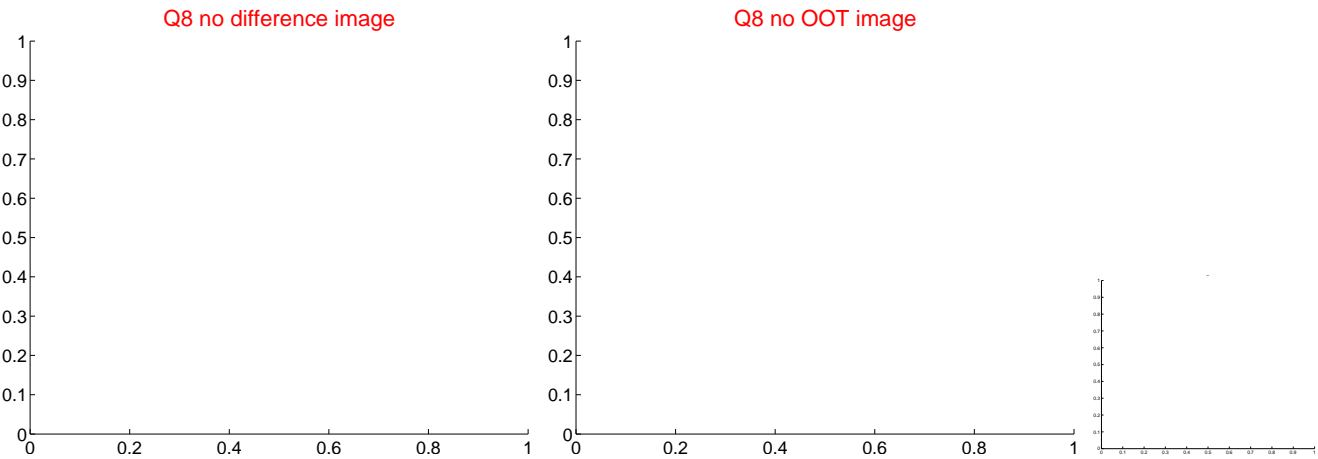
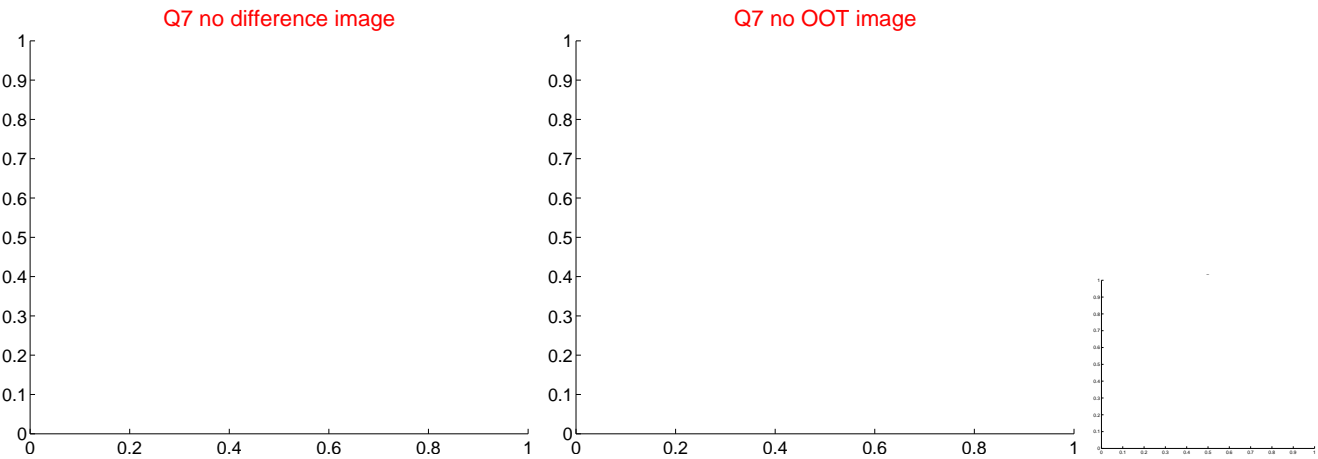
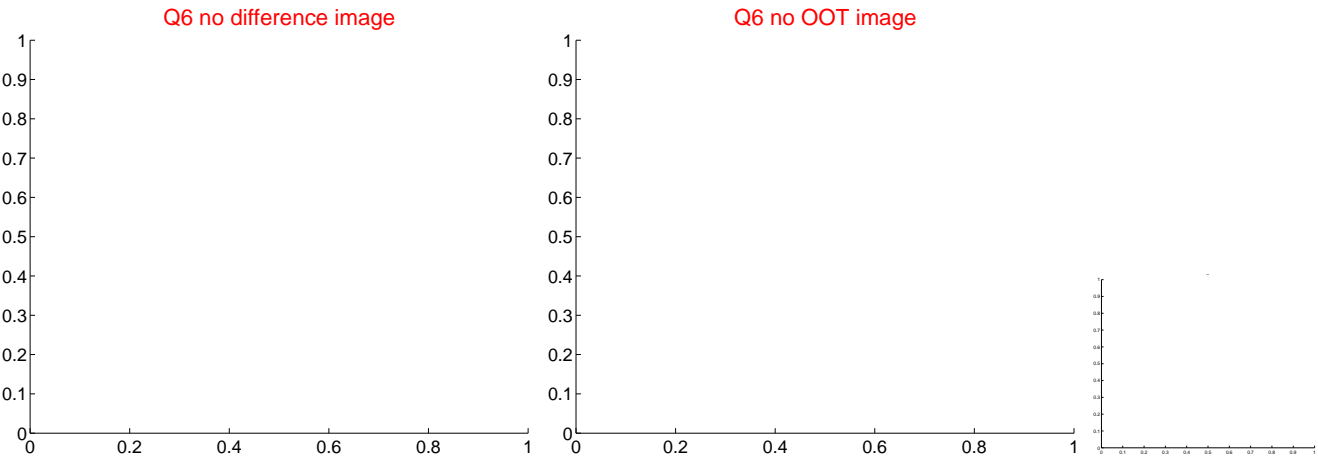
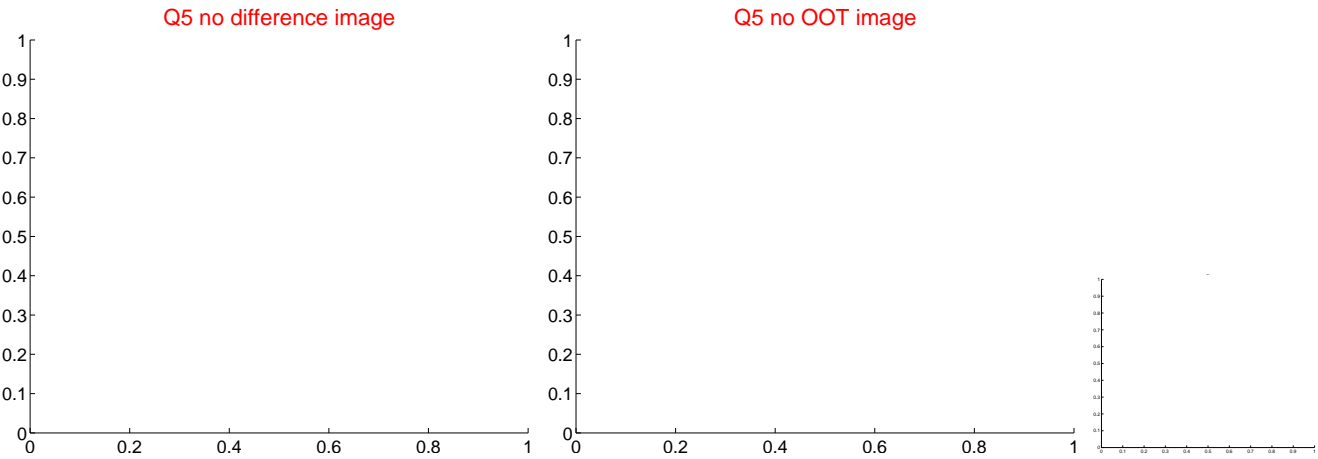


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

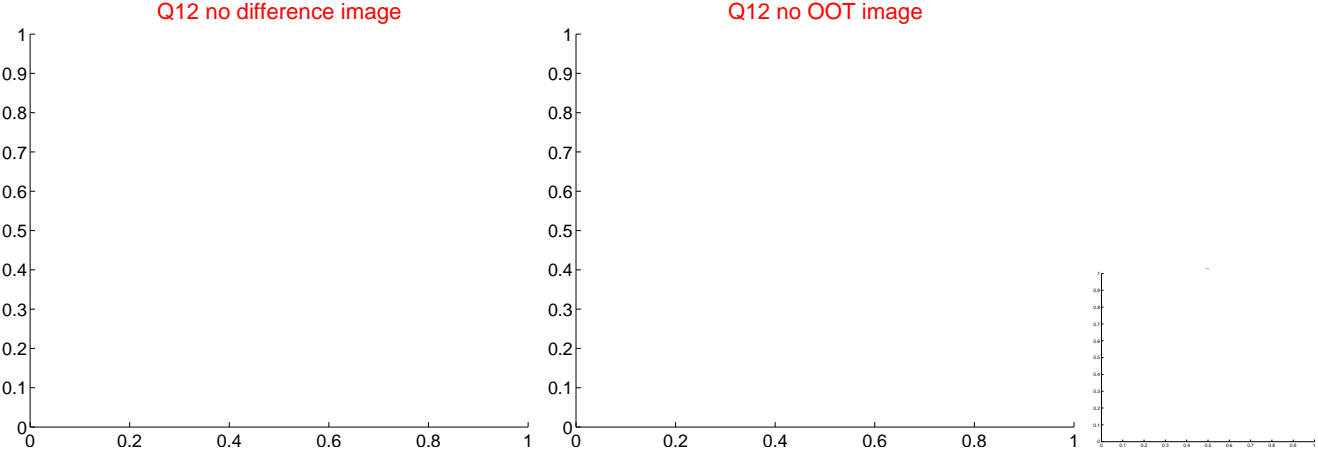
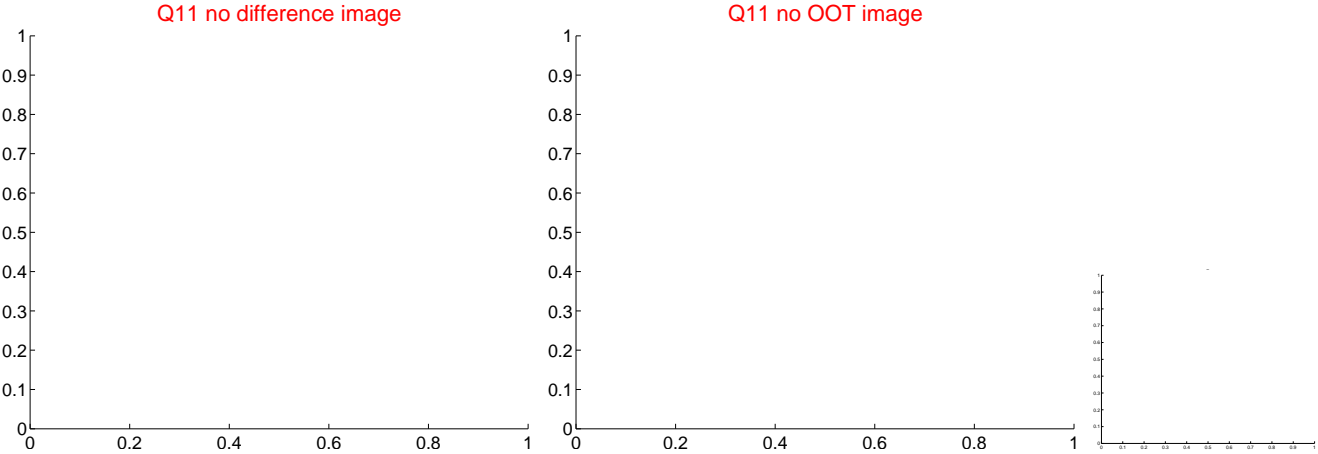
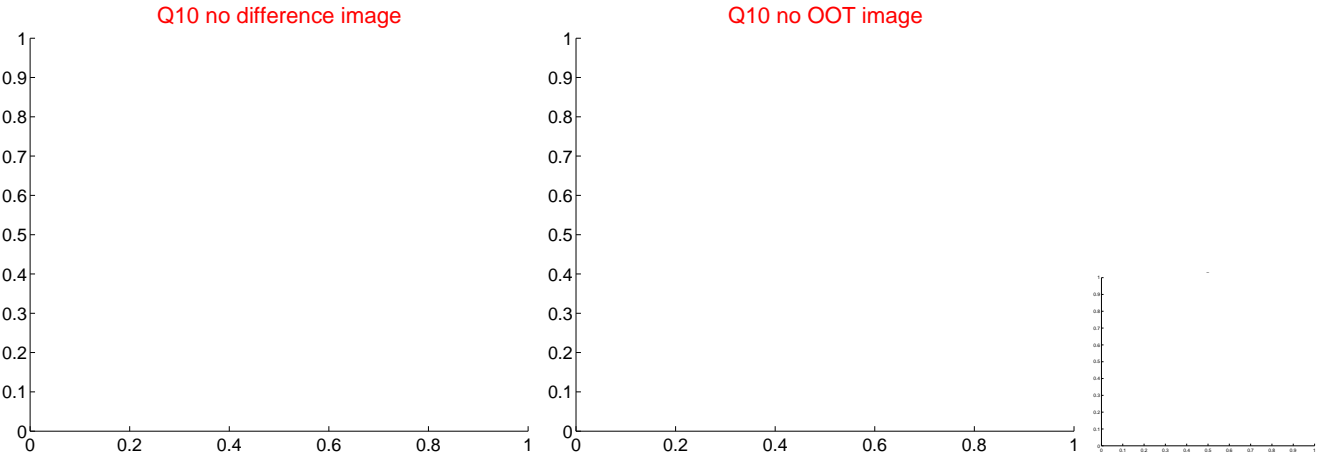
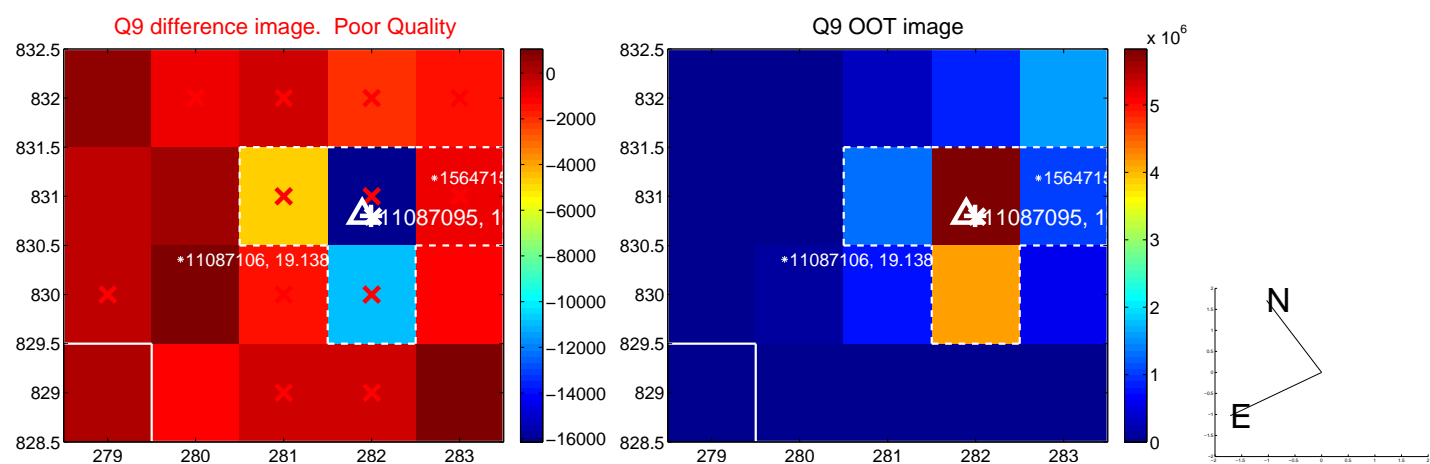
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



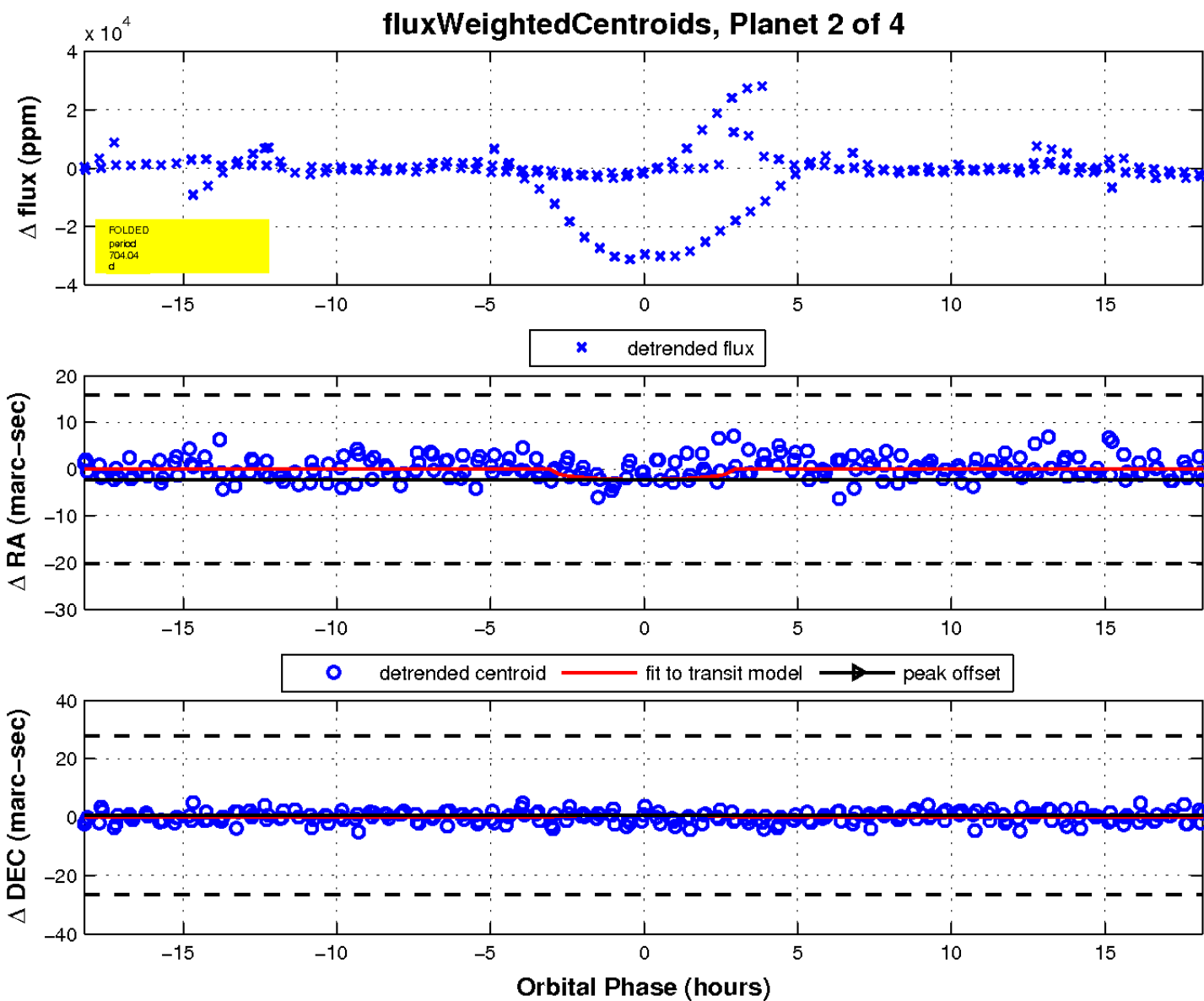
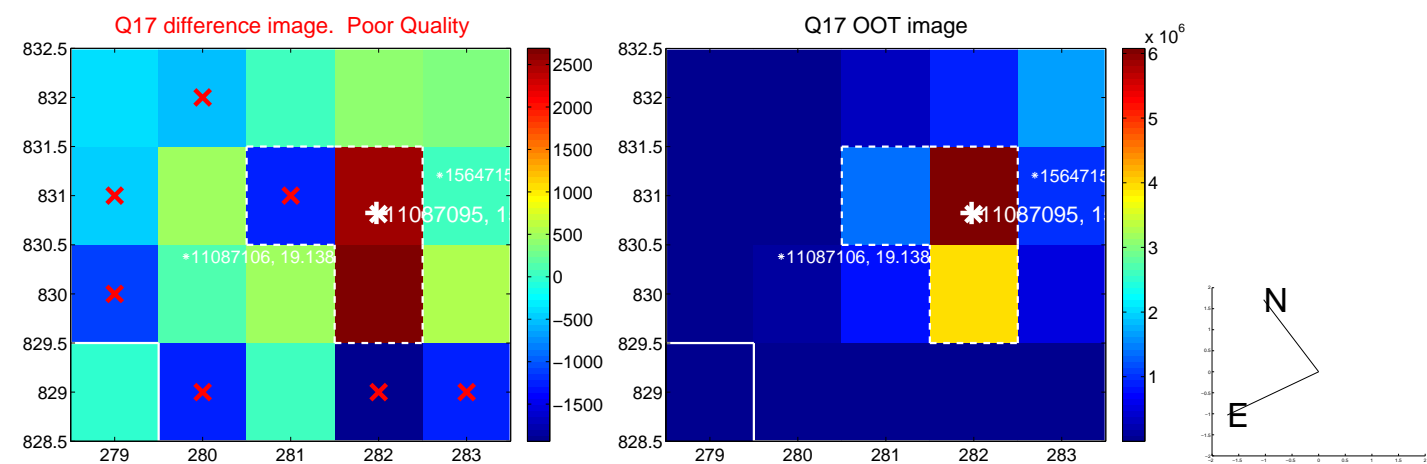
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

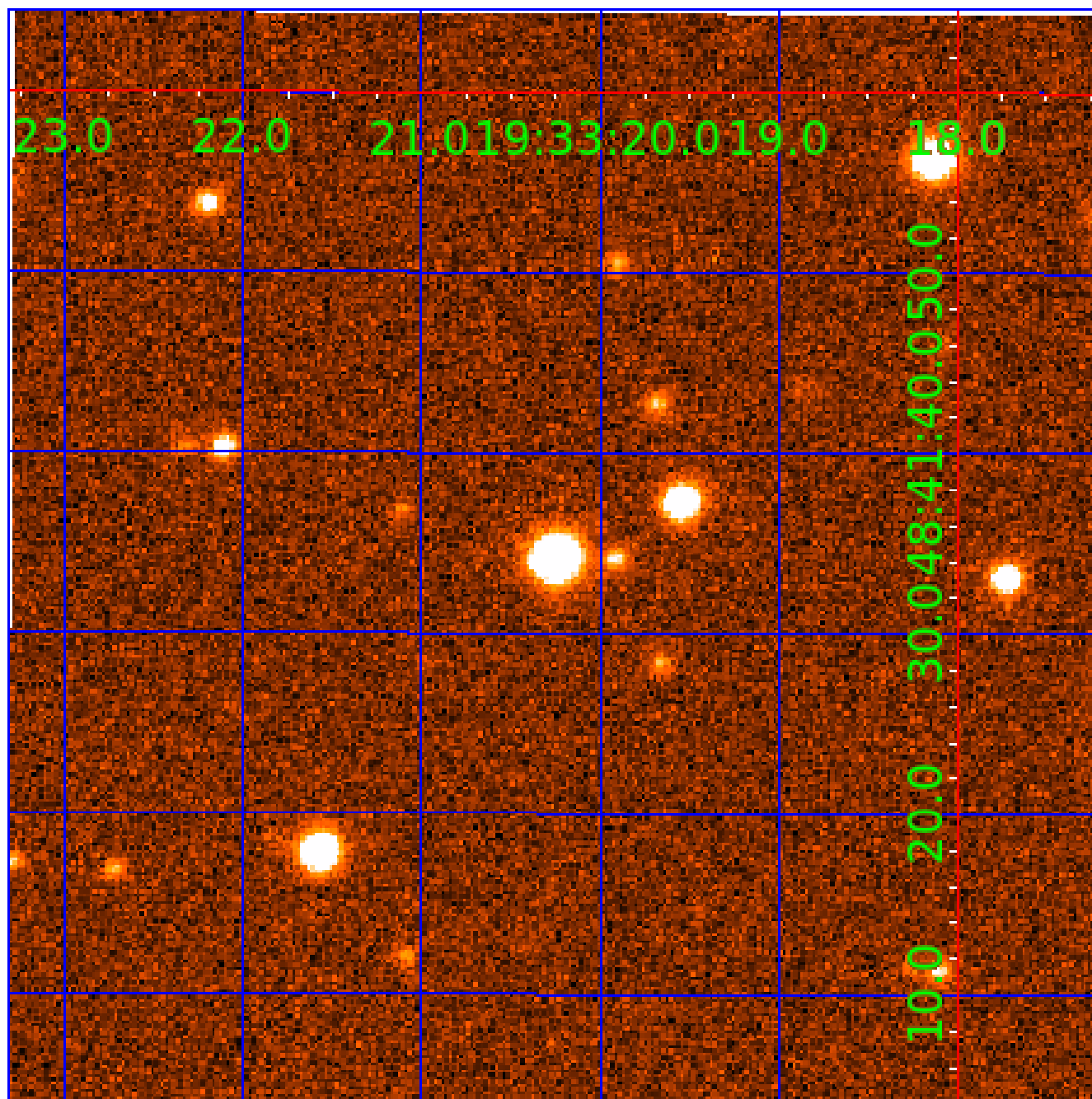


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011087095

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})
011087095-01	OBS	No	481.024563	610.946492	6075.2	4.375	13.2	8.8	0.72	4360	10.96	0.15
011087095-02	OBS	No	704.040524	162.261896	5764.7	6.174	12.0	8.0	0.72	4360	5.19	0.09
011087095-03	OBS	No	474.434808	152.492622	3221.5	2.896	13.5	5.2	0.72	4360	3.89	0.15
011087095-04	OBS	No	547.188411	480.949829	5930.0	3.263	13.8	9.5	0.72	4360	5.27	0.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011087095-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
011087095-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

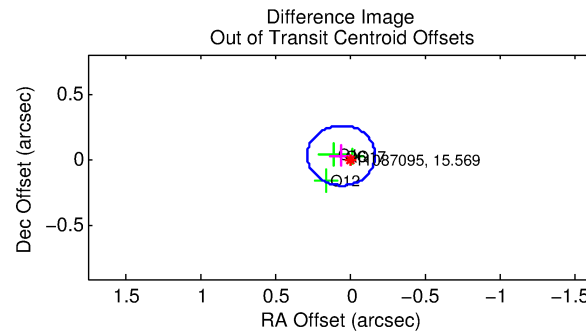
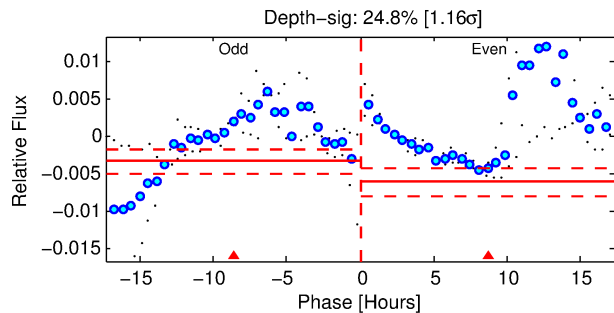
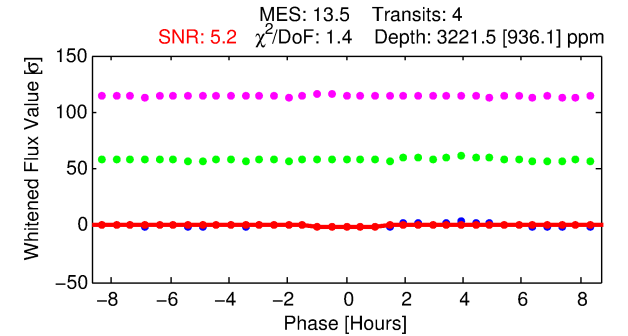
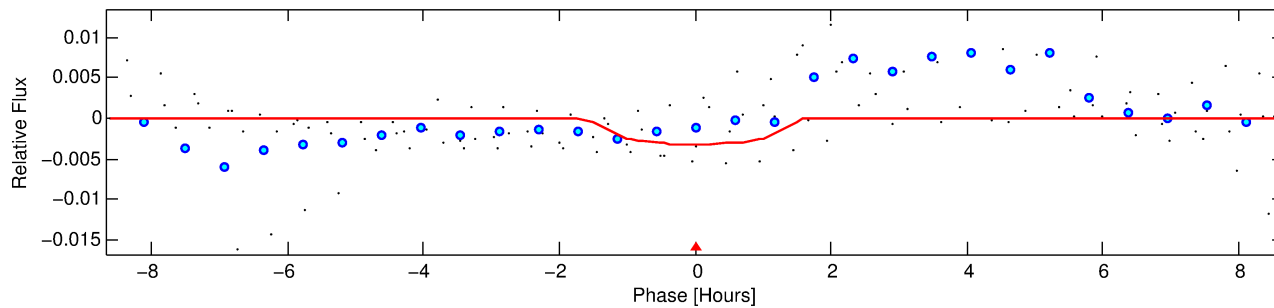
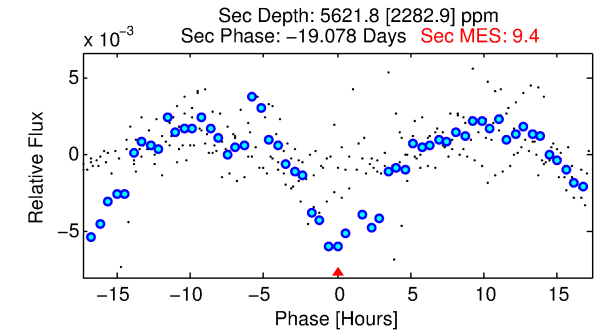
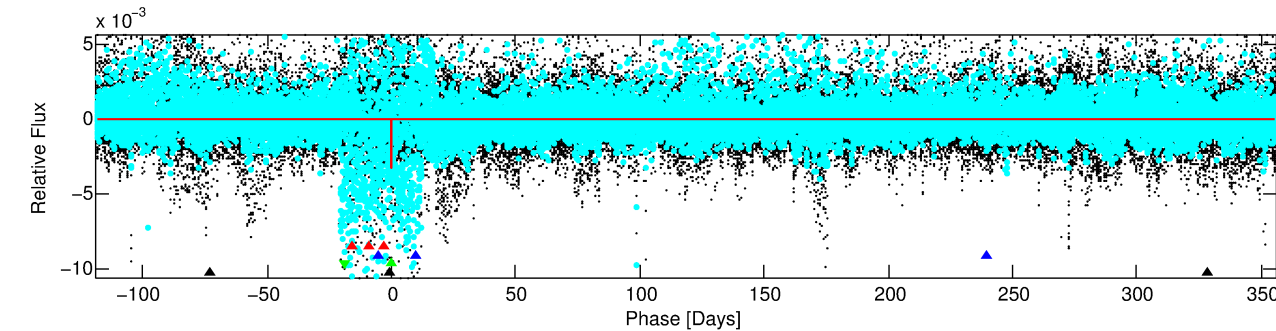
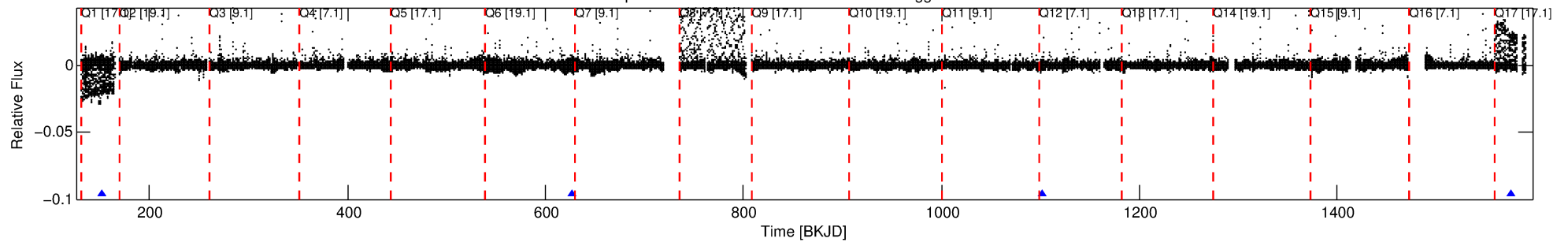
Ephemeris Match Information For 011087095-03

No Significant Match Found

DV One-Page Summary

KIC: 11087095 Candidate: 3 of 4 Period: 474.435 d

Kp: 15.57 R*: 0.72 Rs Teff: 4360.0 K Logg: 4.58 Fe/H: 0.400



DV Fit Results:

Period = 474.43481 [0.00453] d
Epoch = 152.4926 [0.0102] BKJD
Rp/R* = 0.0494 [0.1007]
a/R* = 1311.79 [7254.11]
b = 0.05 [120.13]
Seff = 0.15 [0.03]
Teq = 158 [8] K
Rp = 3.89 [7.94] Re
a = 1.0654 [0.0790] AU
Ag = 232104.75 [951913.34] [0.24σ]
Teffp = 5374 [5512] K [0.95σ]

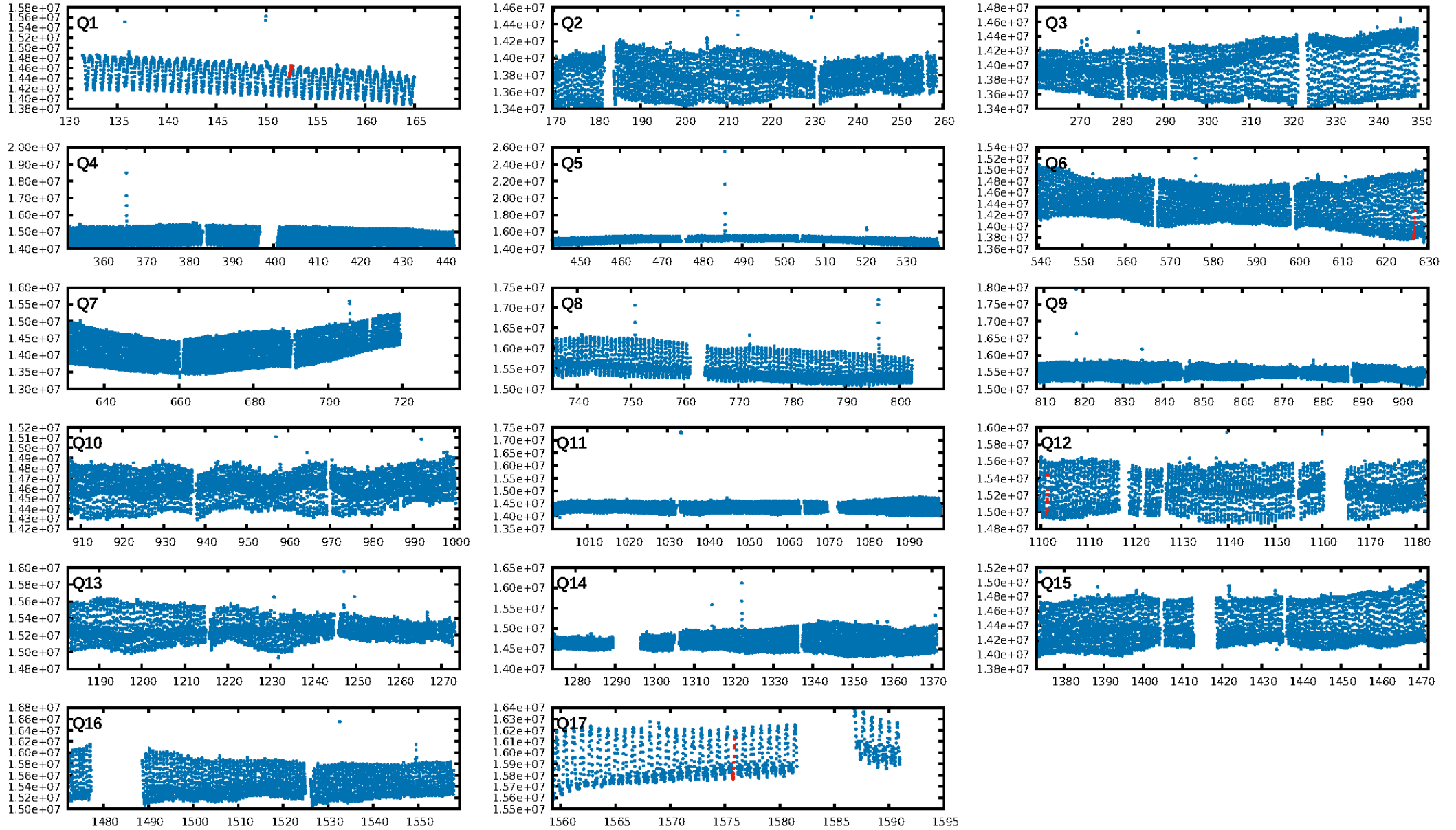
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [30.14σ]
ModelChiSquare2-sig: 2.1%
ModelChiSquareGof-sig: 56.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.29
Centroid-sig: 41.2%
Centroid-so: 0.551 arcsec [0.94σ]
OotOffset-rm: 0.067 arcsec [0.89σ]
KicOffset-st: 1/0/1/2 [4]
KicOffset-st: 1/0/1/2 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

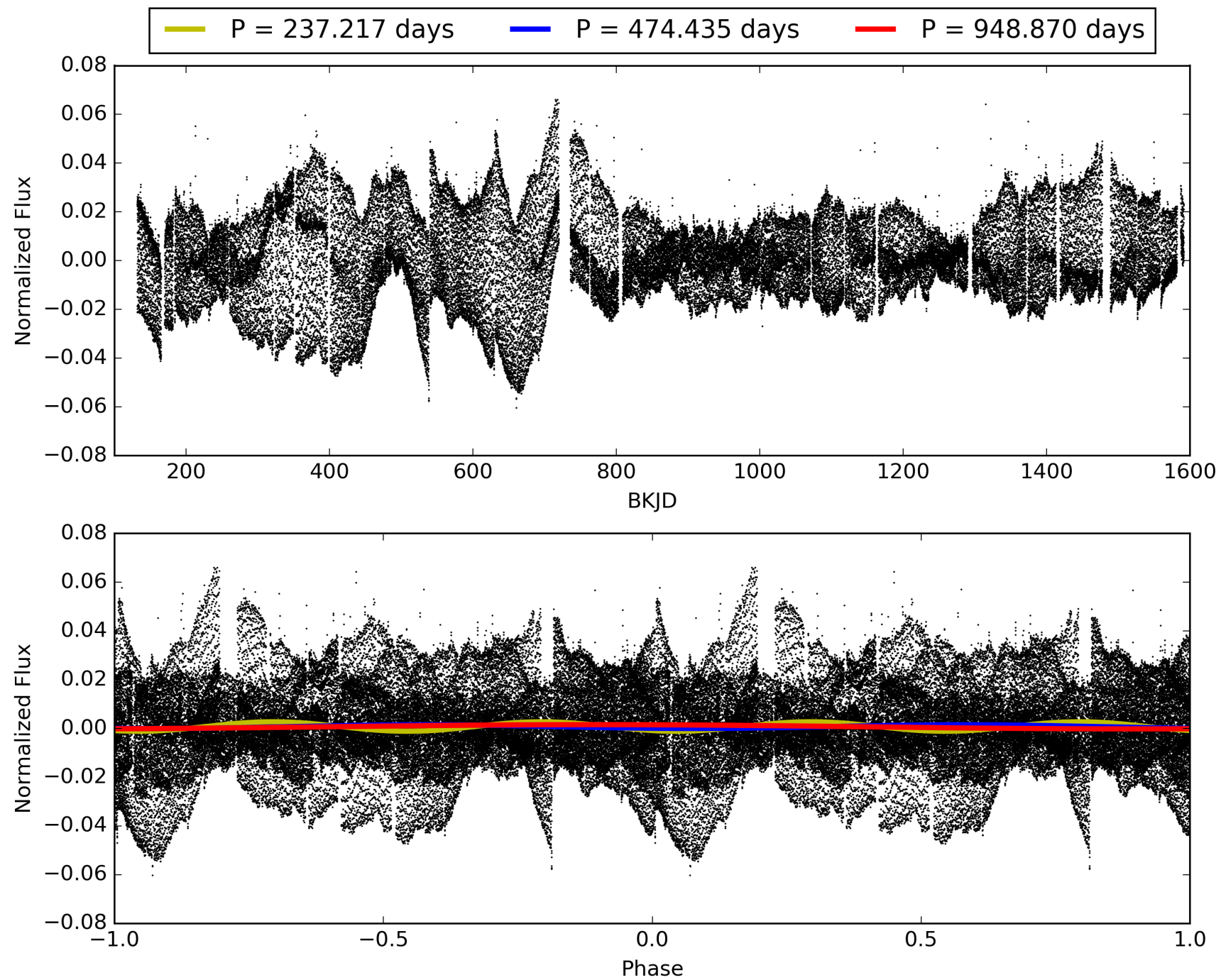
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:29 Z

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

TCE 011087095-03, PDC Light Curves

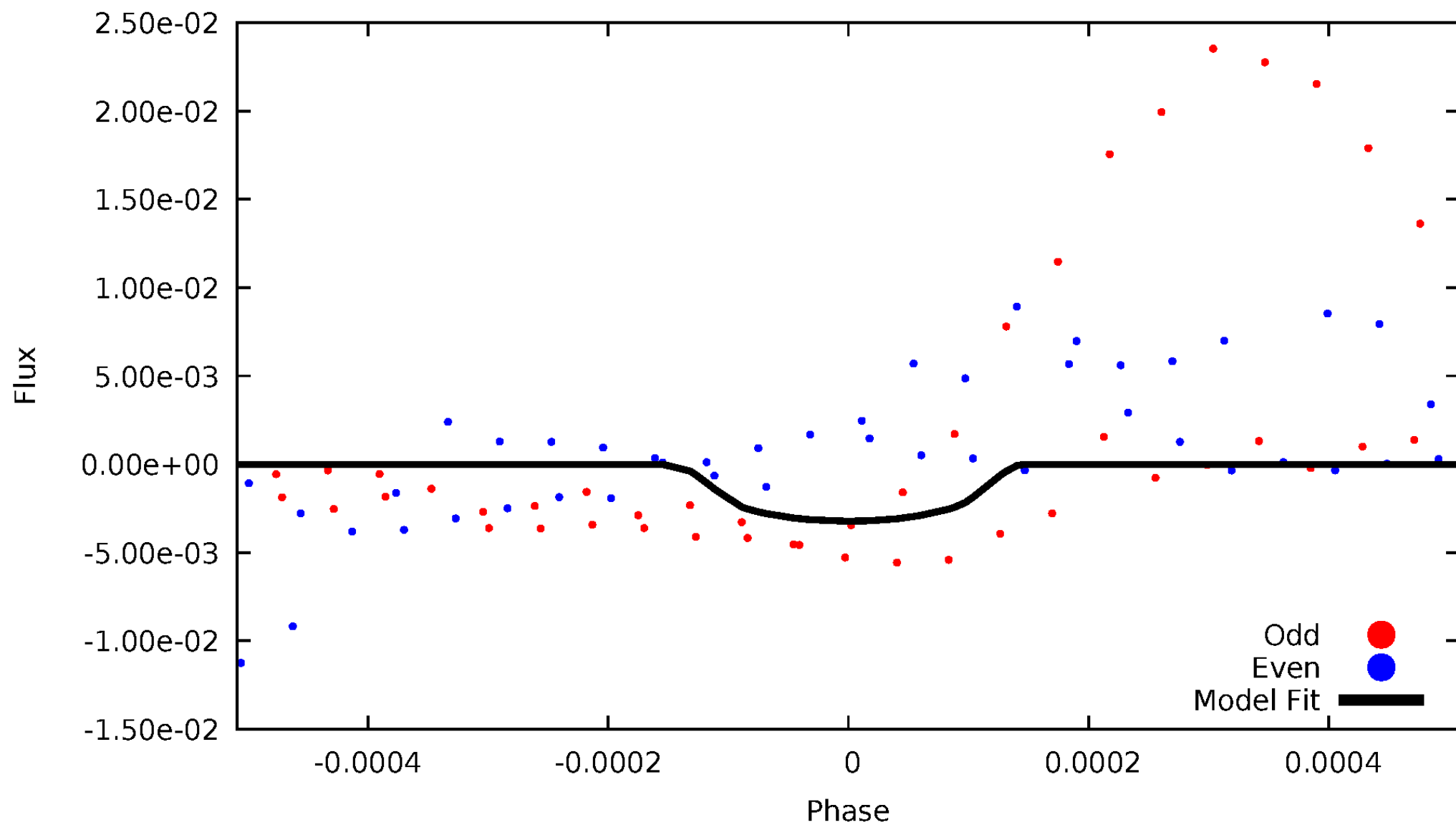


TCE 011087095-03



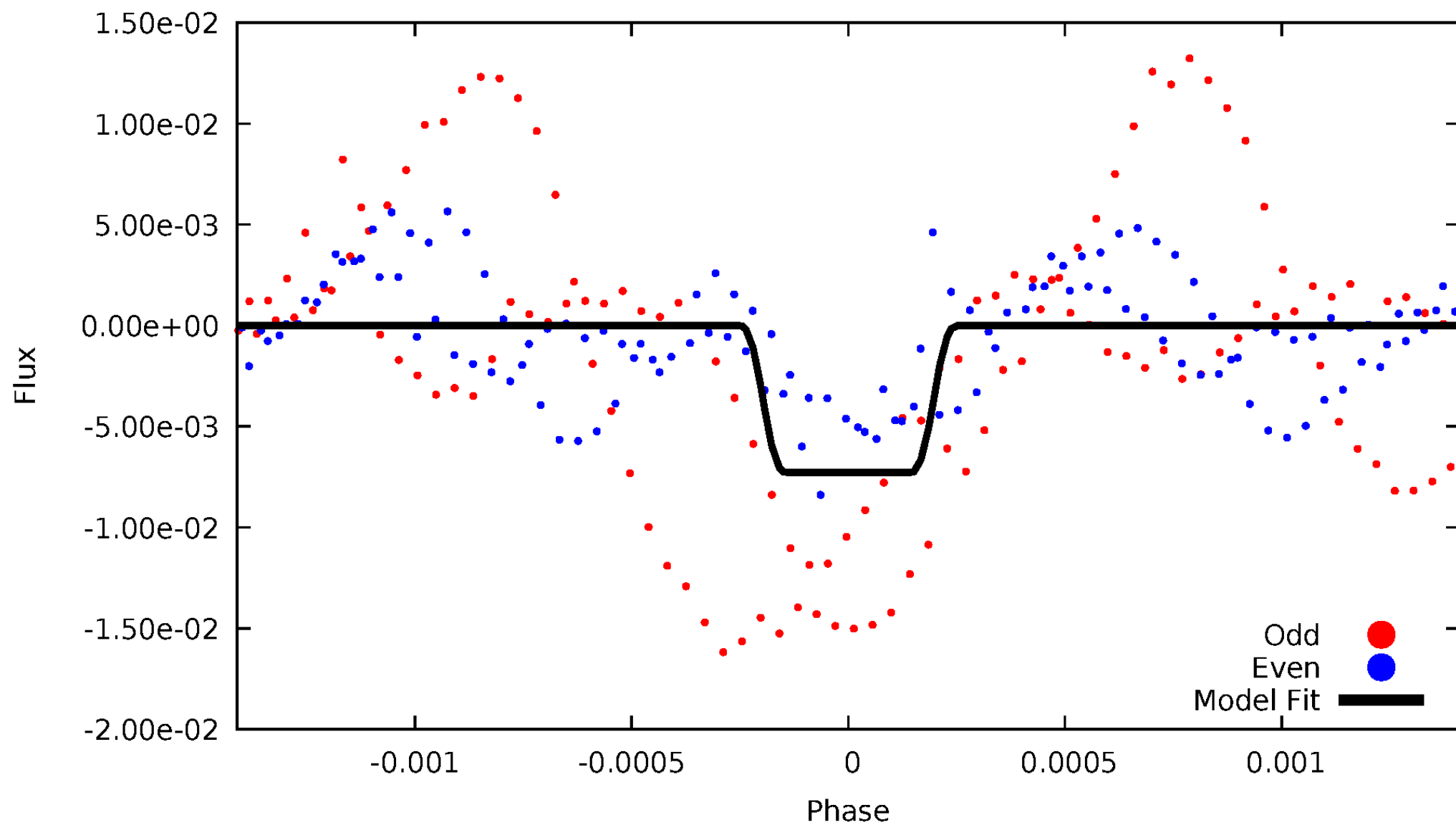
DV Odd/Even

TCE 011087095-03



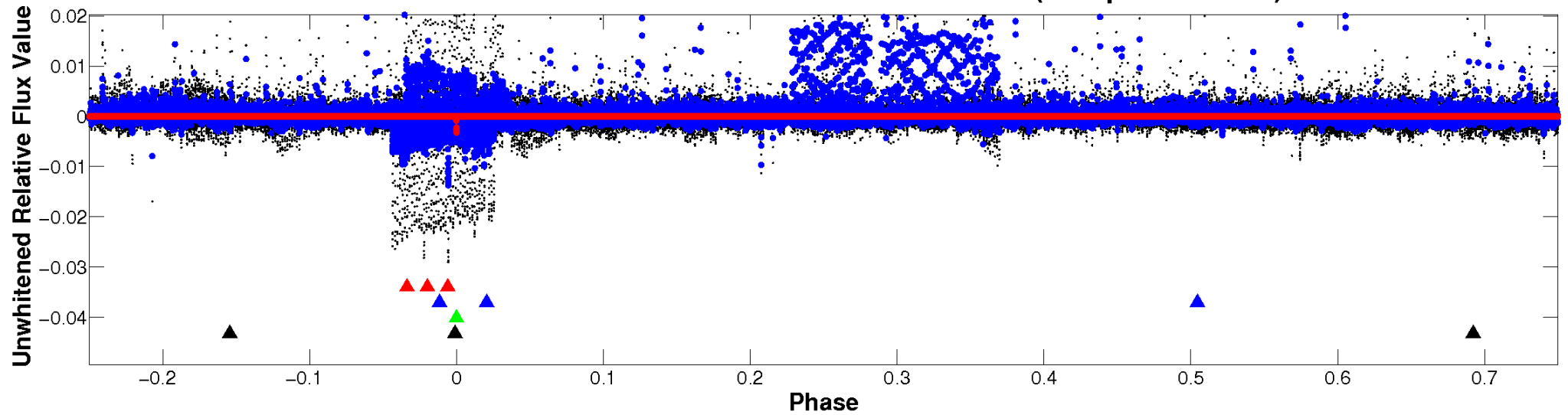
ALT Odd/Even

TCE 011087095-03

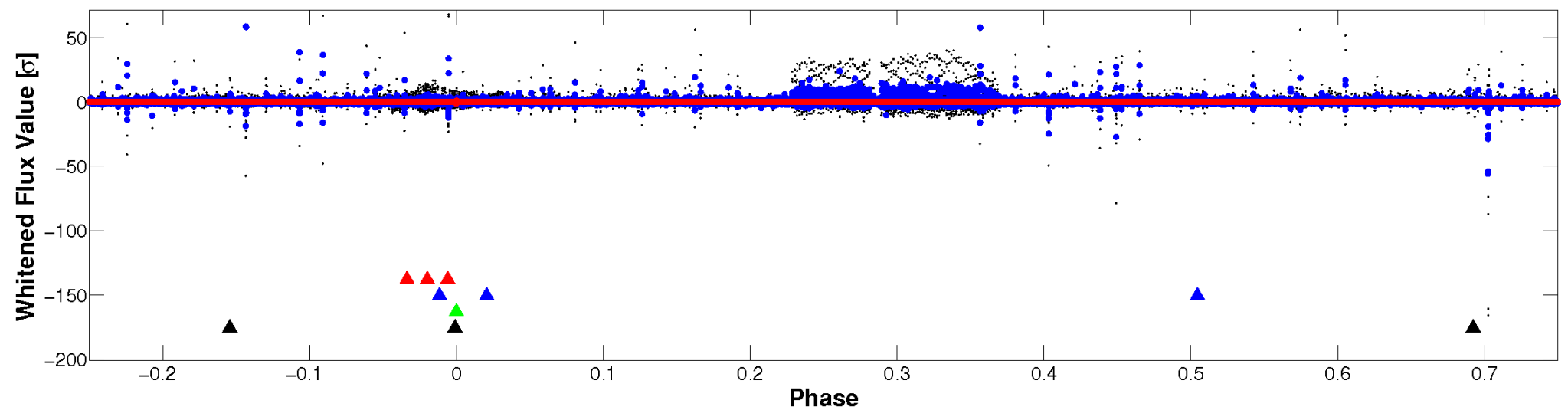


Non-Whitened Vs. Whitened Light Curve

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

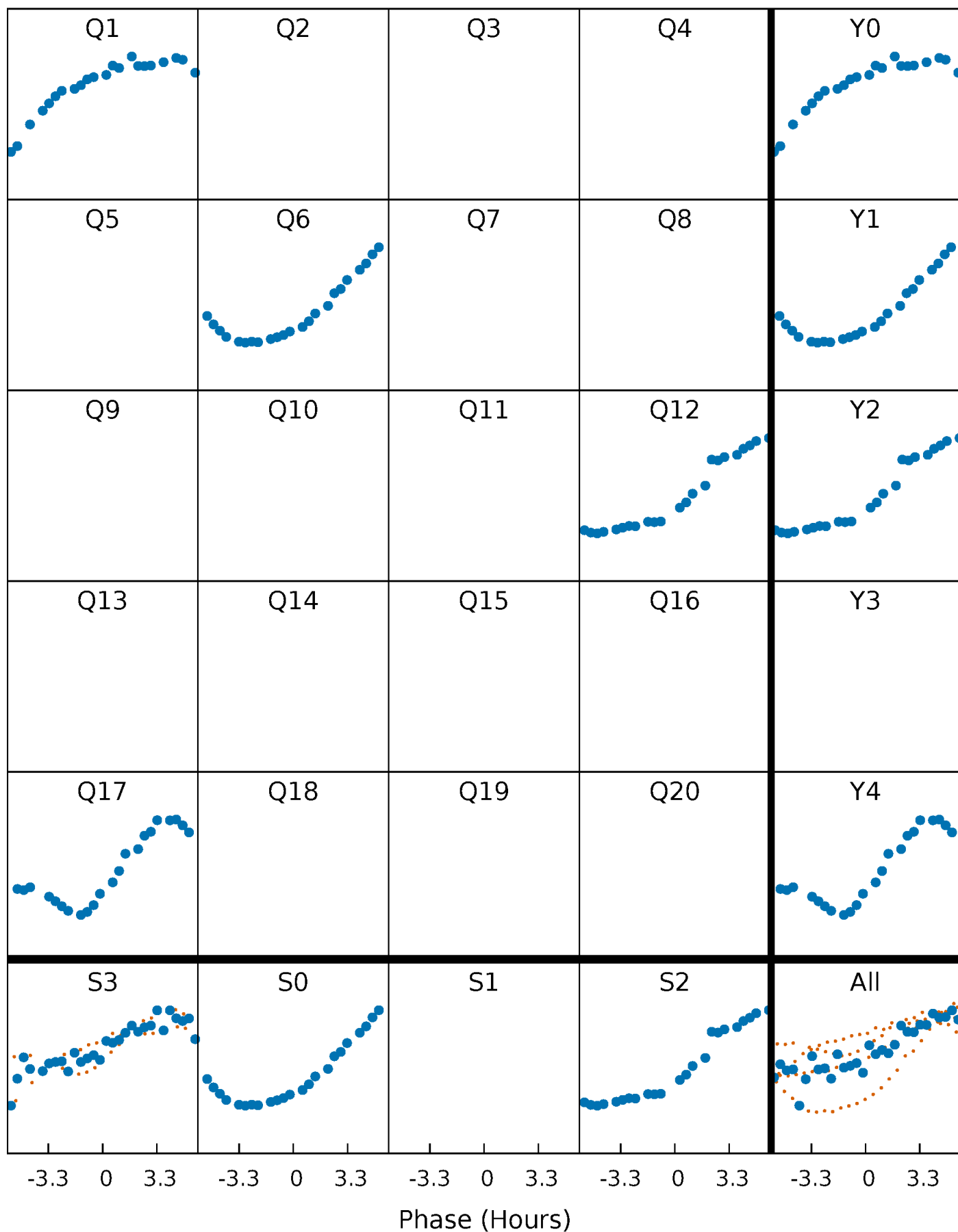


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



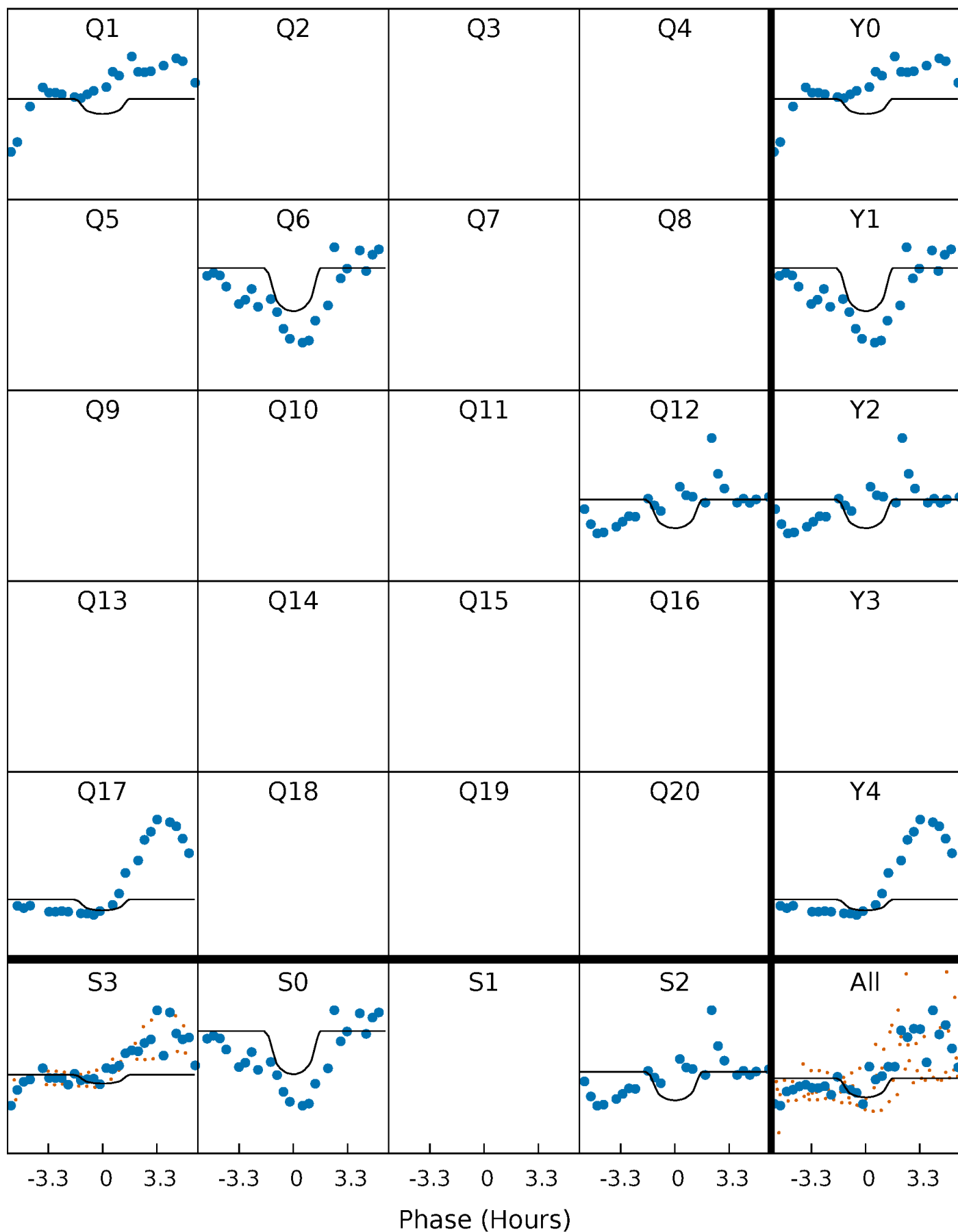
PDC Quarter-Phased Transit Curves

TCE 011087095-03 $P=474.434808$ Days $T_0=152.492622$ (BKJD)



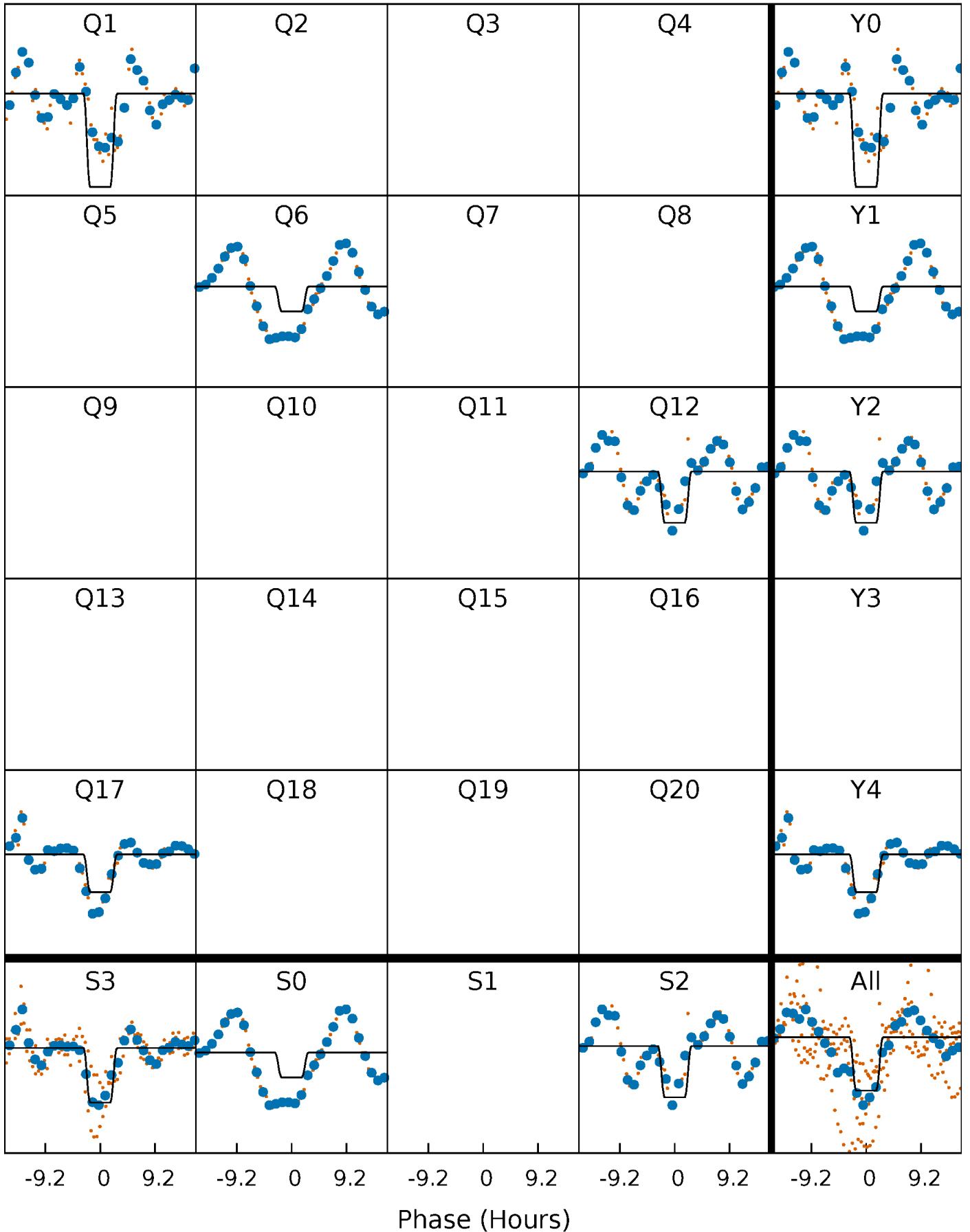
DV Quarter-Phased Transit Curves

TCE 011087095-03 $P=474.434808$ Days $T_0=152.492622$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

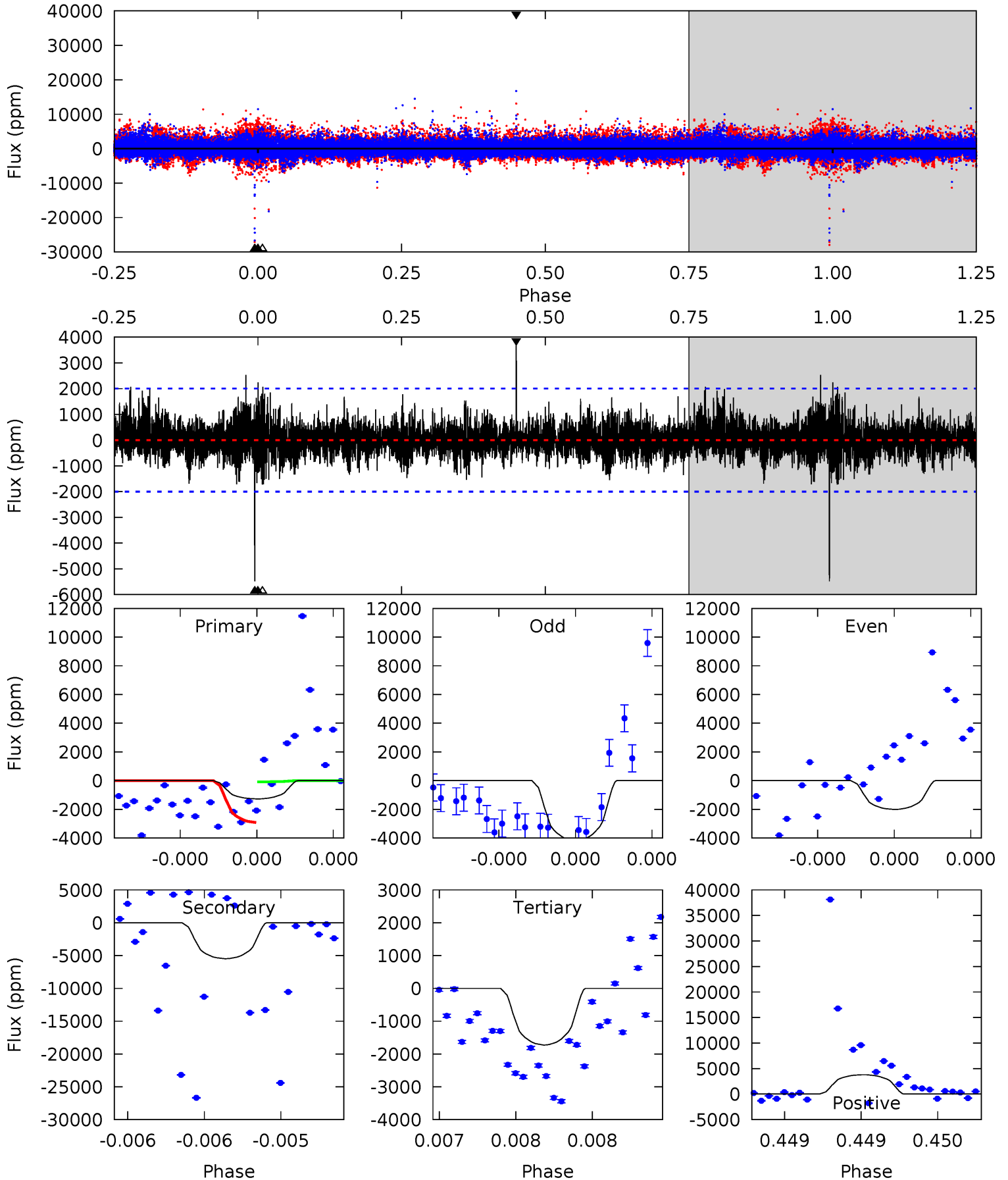
TCE 011087095-03 $P=474.440018$ Days $T_0=152.480062$ (BKJD)



DV Model-Shift Uniqueness Test

011087095-03, P = 474.434808 Days, E = 152.492622 Days

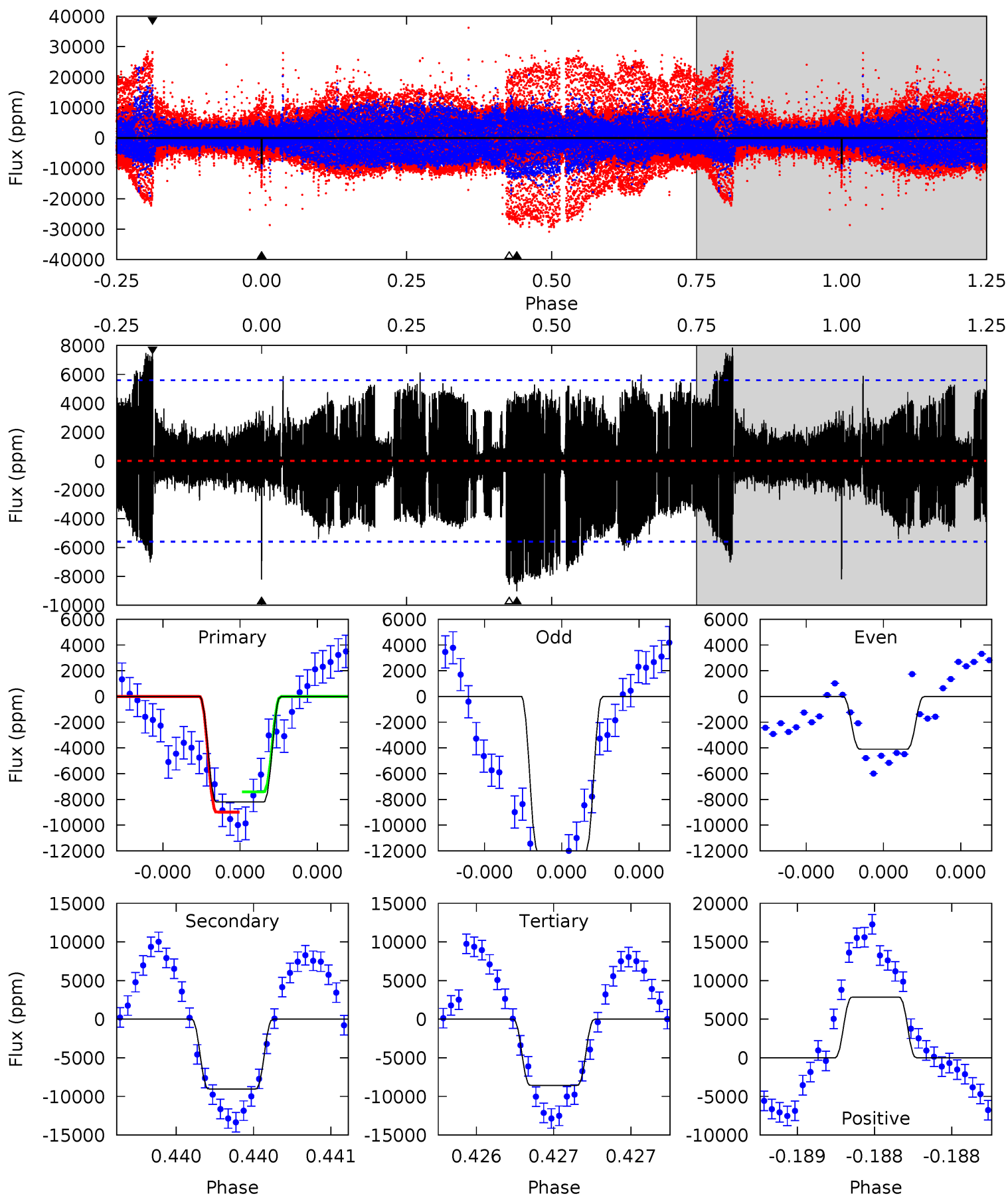
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.61	15.5	4.89	10.8	5.68	3.64	1.42	-1.27	-7.14	10.6	4.76	1.38	0.94	0.41	3.93



Alt Model-Shift Uniqueness Test

011087095-03, P = 474.440018 Days, E = 152.480062 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.19	9.03	8.55	7.84	5.58	3.50	2.46	-0.36	0.36	0.48	1.19	3.98	1.16	0.46	0.80



Stellar Parameters For KIC 011087095

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4360^{+176}_{-176}	$4.576^{+0.060}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.722^{+0.029}_{-0.063}$	$0.716^{+0.043}_{-0.054}$	$2.677^{+0.727}_{-0.206}$
	+4%/-4%	+1%/-0%	+12%/-75%	+4%/-9%	+6%/-8%	+27%/-8%
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 011087095-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5481 ± 353	$7.35^{+6.38}_{-4.84}$	219^{+10}_{-9}	4018^{+2168}_{-766}	$62931^{+487967}_{-44871}$
Alt.	-9037 ± 1001	$8.45^{+7.19}_{-5.51}$	220^{+9}_{-10}	4141^{+2374}_{-750}	$82628^{+520312}_{-59177}$

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

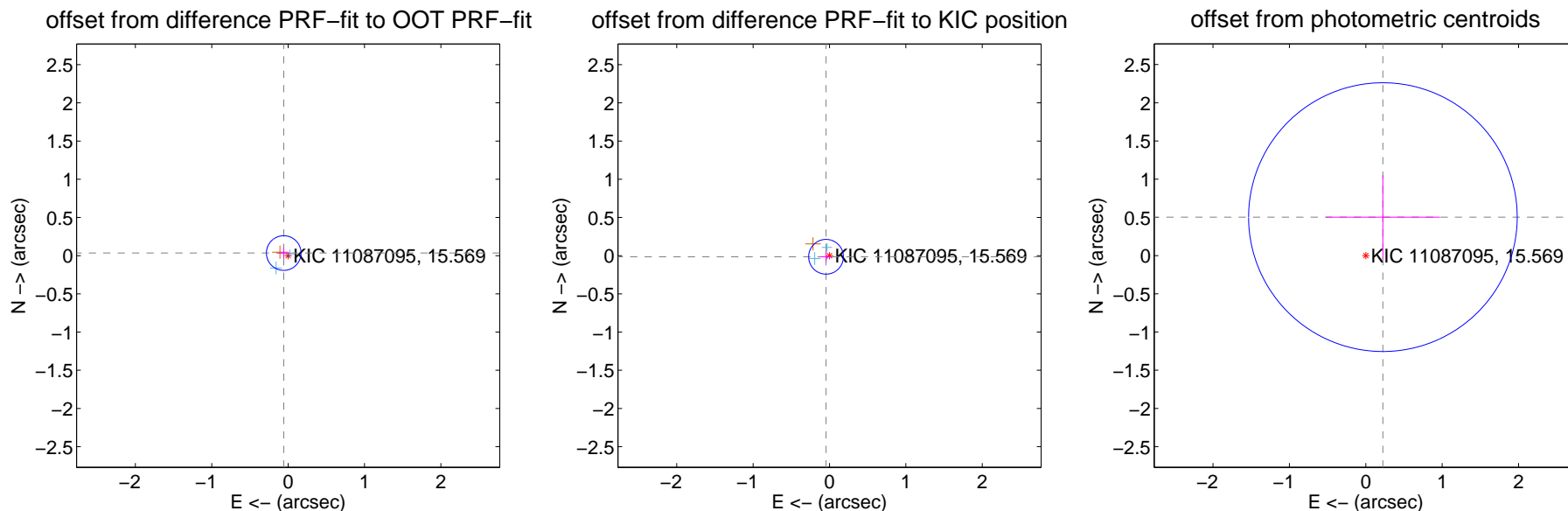
DV Centroid Data

Supplemental centroid analysis for 011087095-03. Kepler magnitude: 15.57. Transit SNR 5.19

There are 3 quarters with good PRF difference image offsets

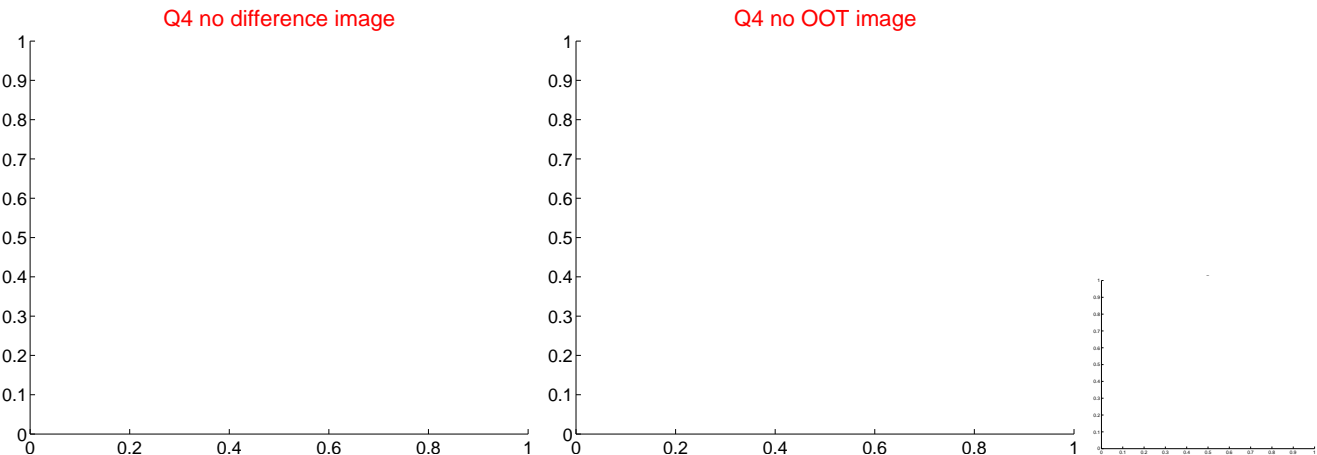
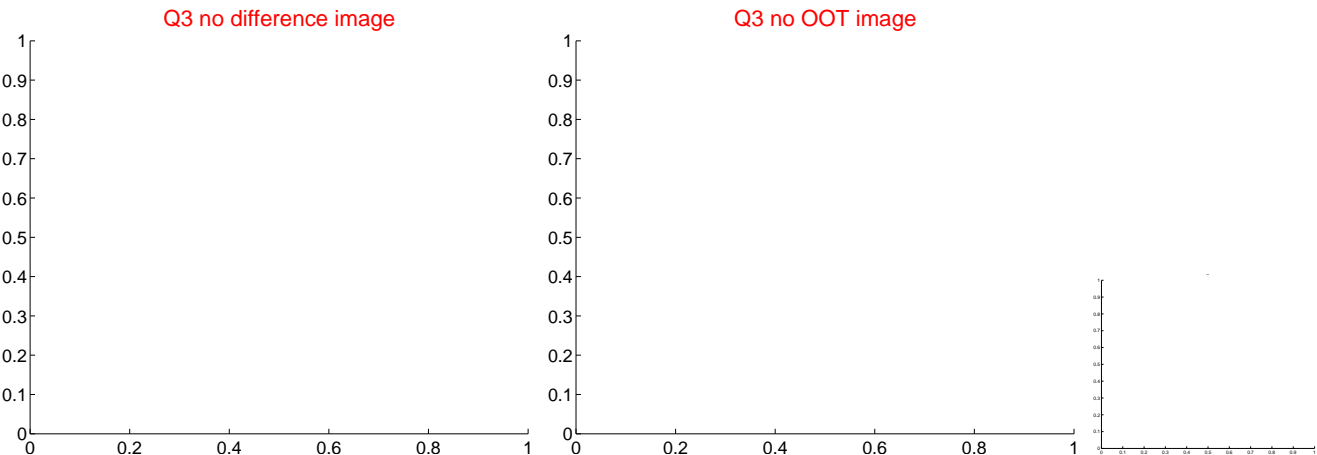
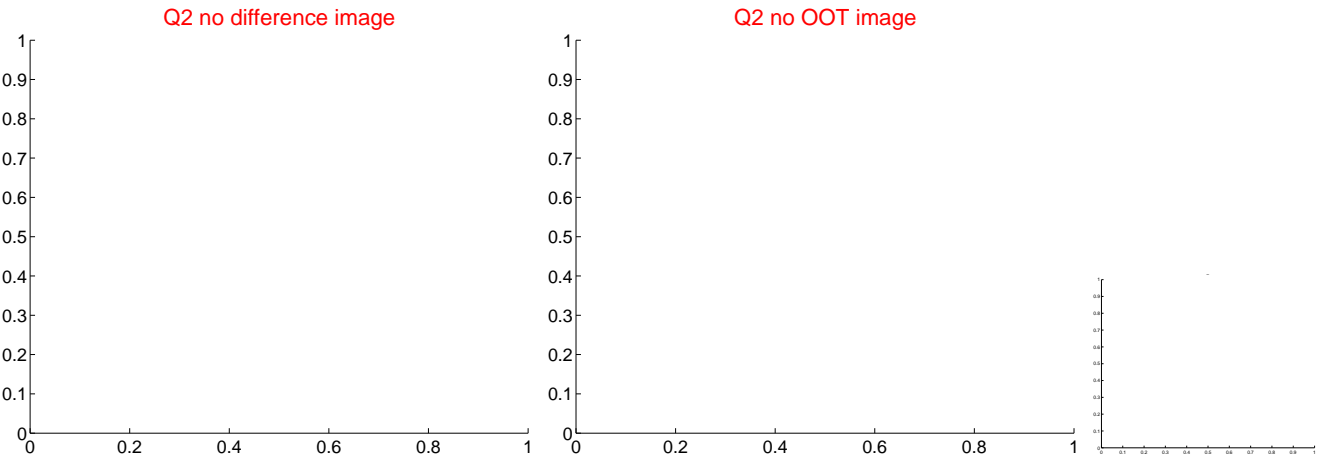
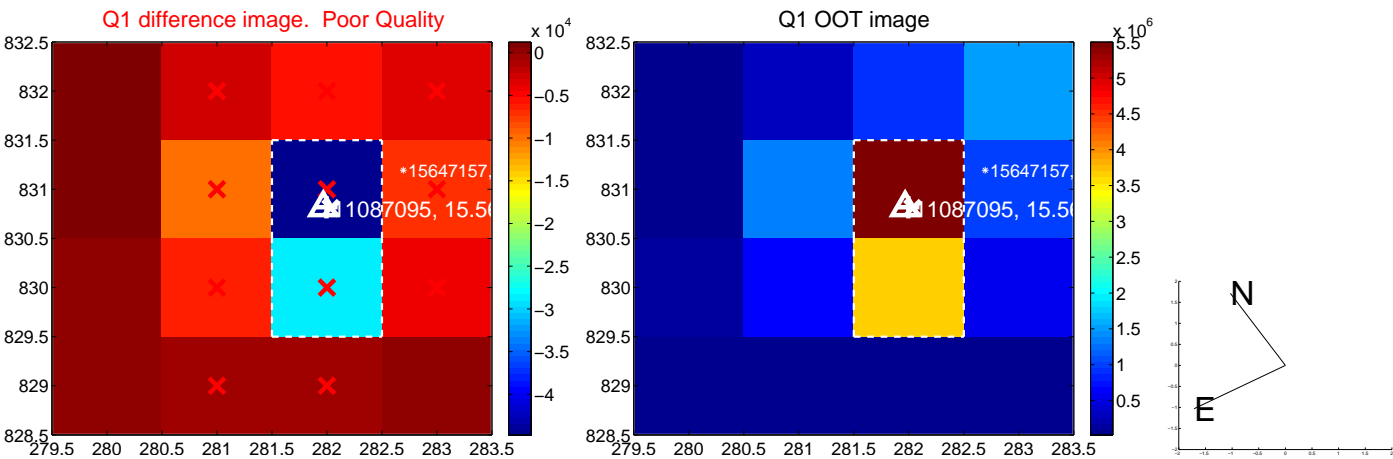
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.067 ± 0.076	0.89	0.058 ± 0.076	0.034 ± 0.075
PRF-fit source offset from KIC position	0.048 ± 0.076	0.63	0.045 ± 0.076	-0.015 ± 0.075
photometric centroid source offset	0.55 ± 0.59	0.94	-0.22 ± 0.75	0.50 ± 0.55



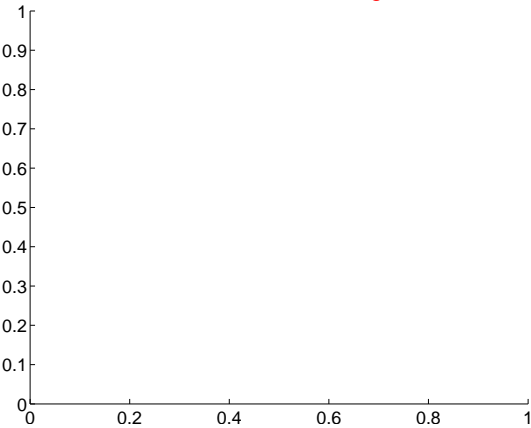
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

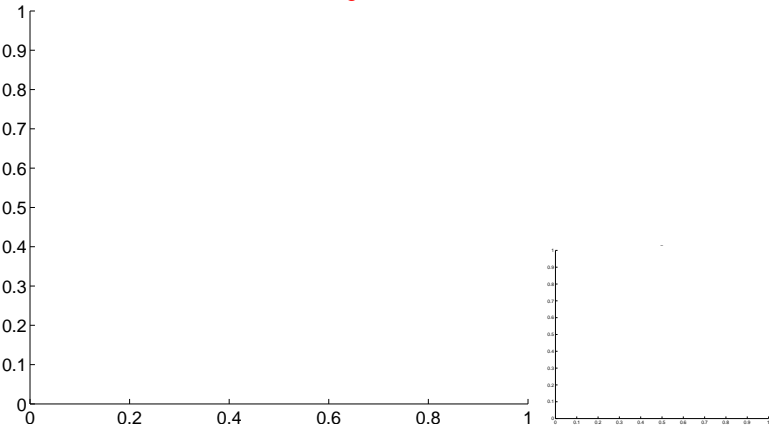


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

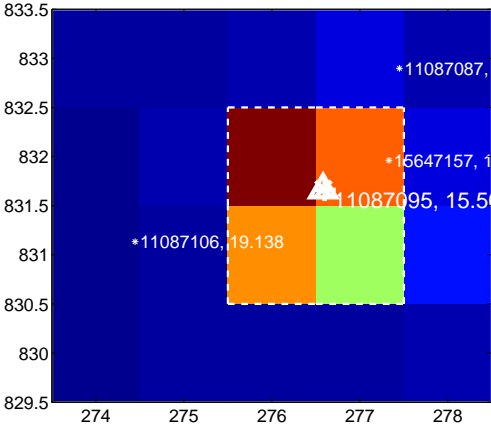
Q5 no difference image



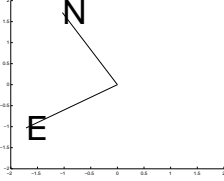
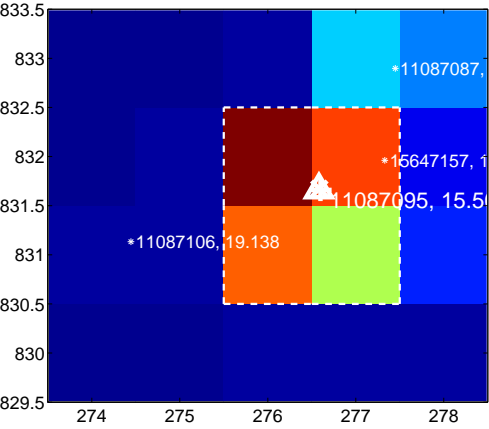
Q5 no OOT image



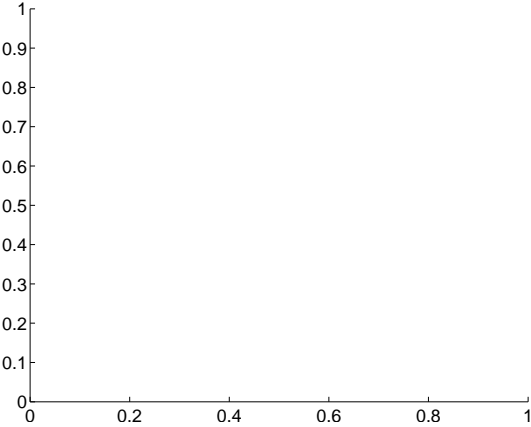
Q6 difference image



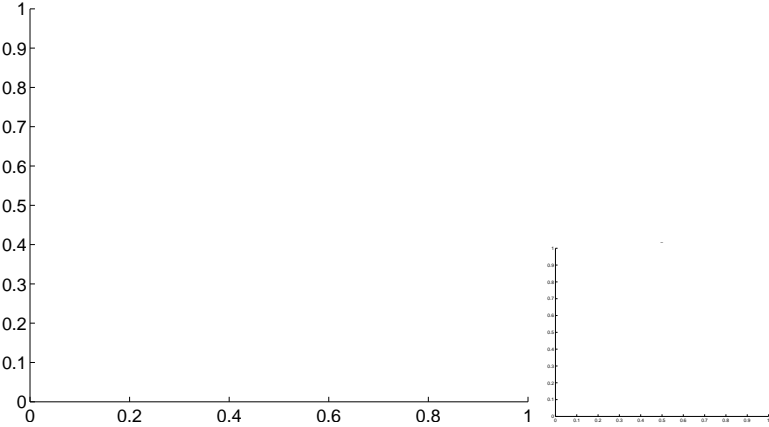
Q6 OOT image



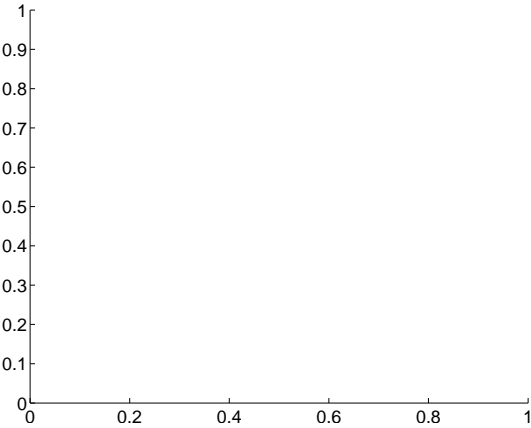
Q7 no difference image



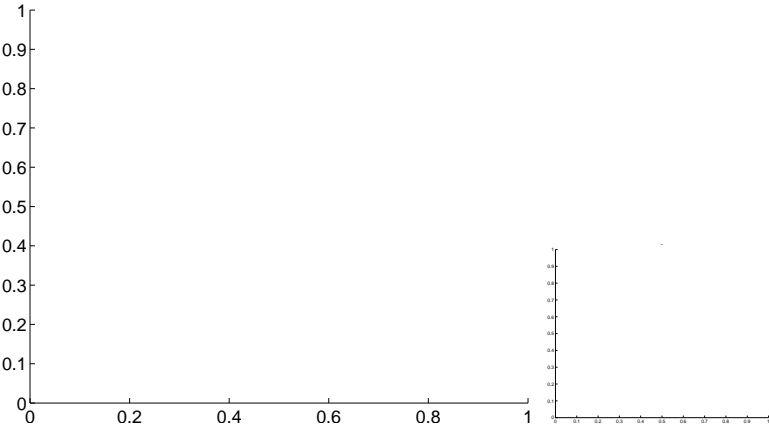
Q7 no OOT image



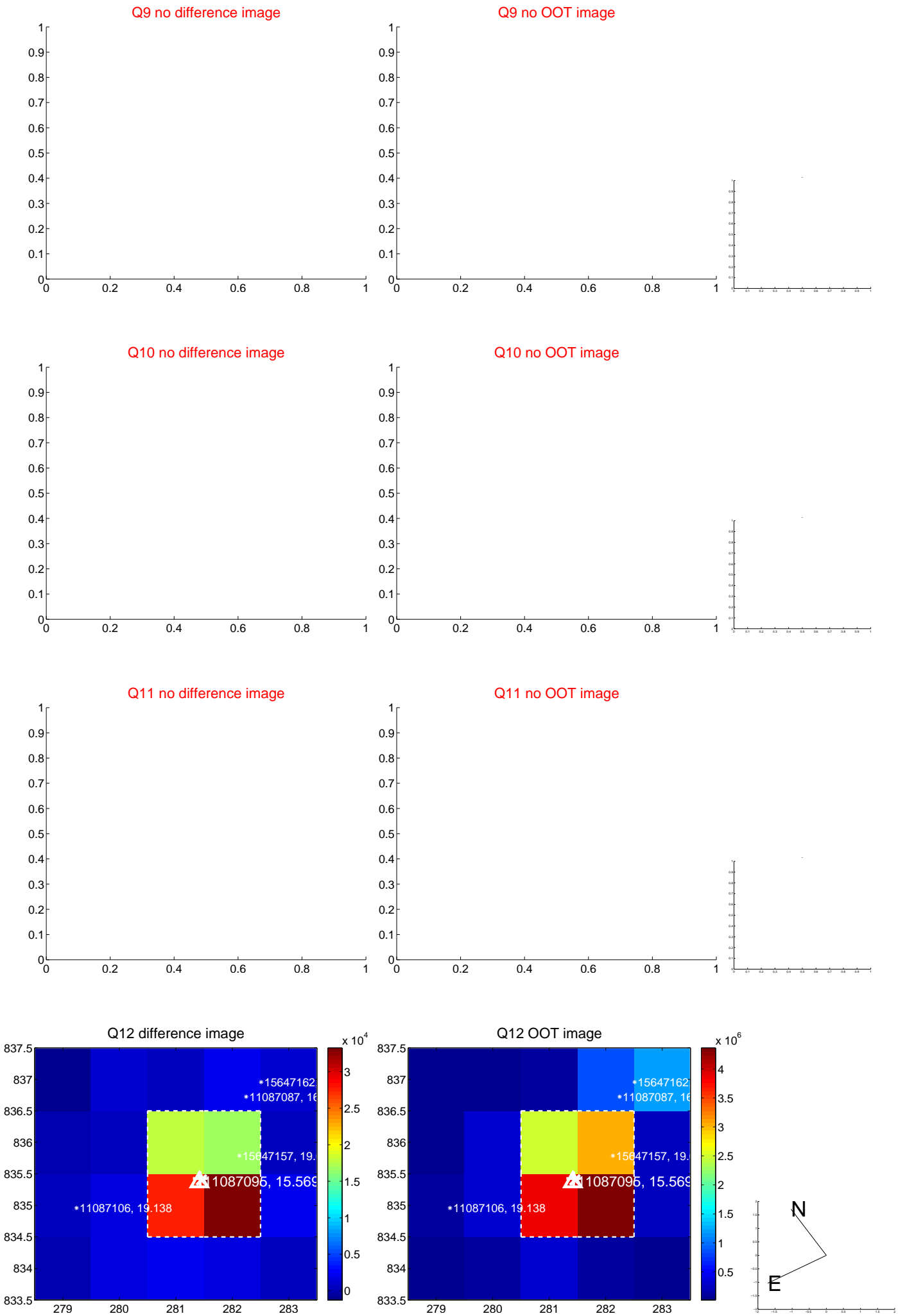
Q8 no difference image



Q8 no OOT image



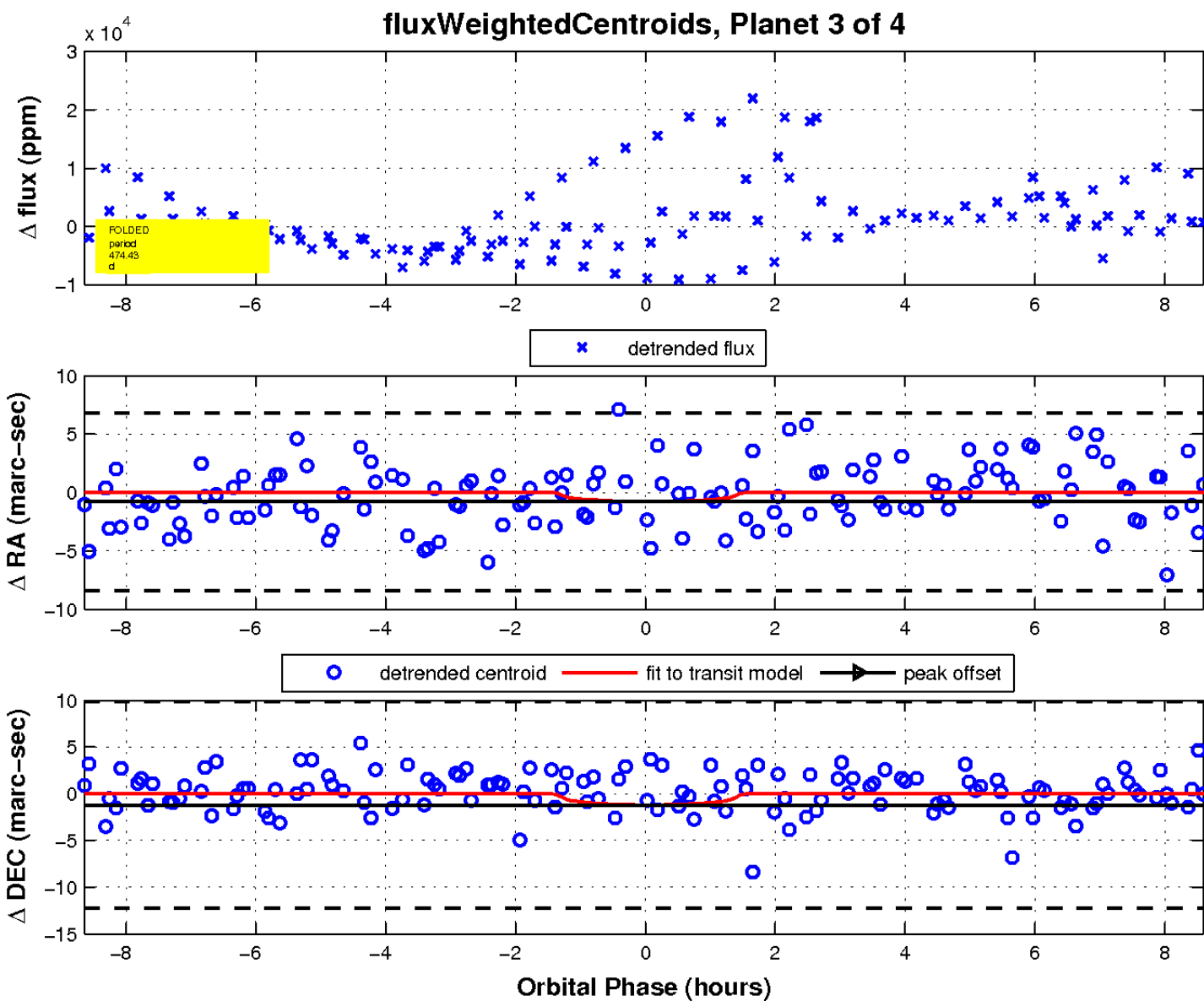
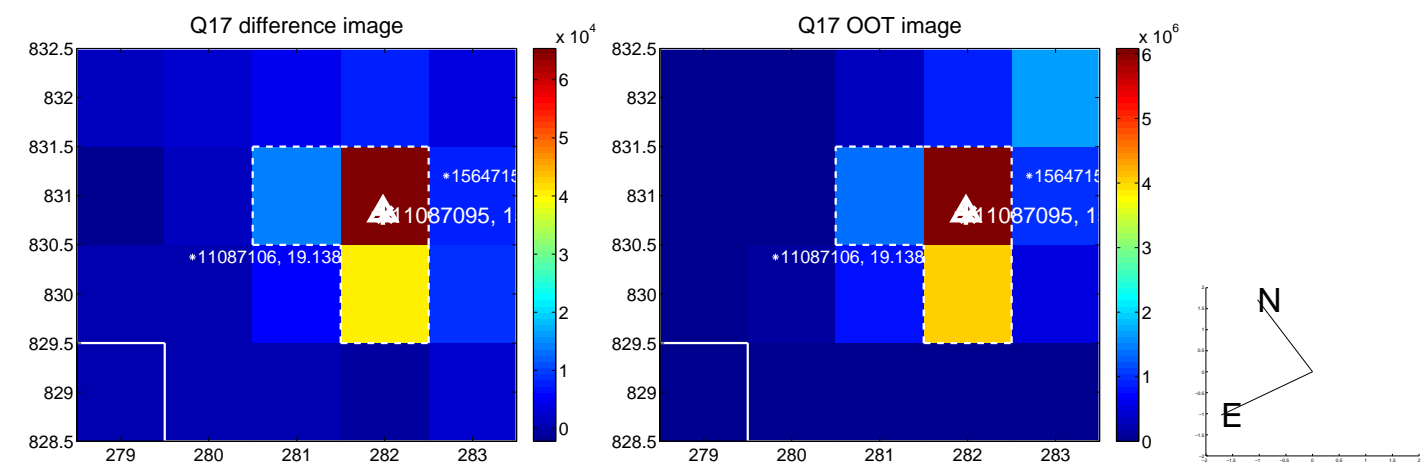
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

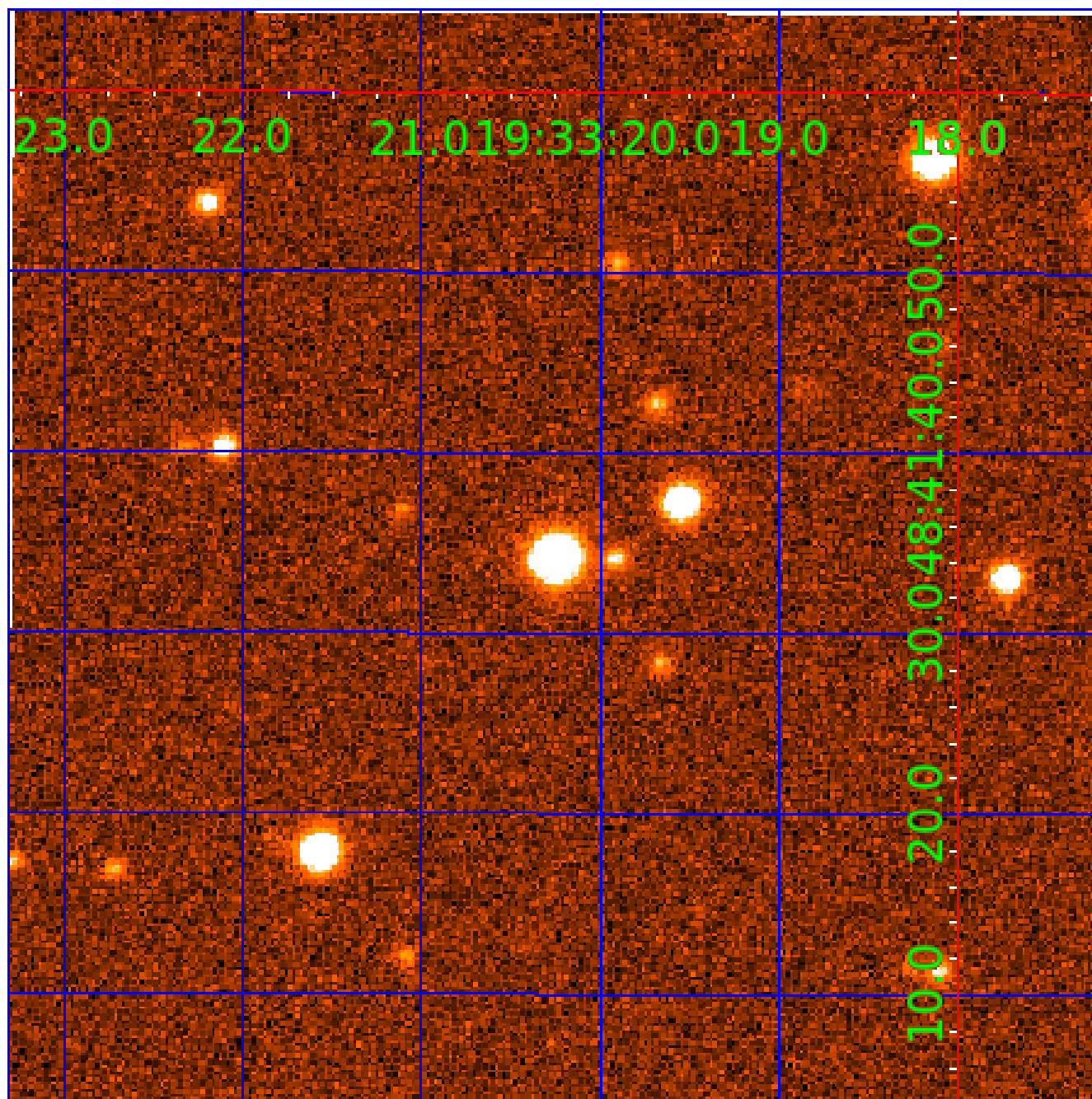


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011087095

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})
011087095-01	OBS	No	481.024563	610.946492	6075.2	4.375	13.2	8.8	0.72	4360	10.96	0.15
011087095-02	OBS	No	704.040524	162.261896	5764.7	6.174	12.0	8.0	0.72	4360	5.19	0.09
011087095-03	OBS	No	474.434808	152.492622	3221.5	2.896	13.5	5.2	0.72	4360	3.89	0.15
011087095-04	OBS	No	547.188411	480.949829	5930.0	3.263	13.8	9.5	0.72	4360	5.27	0.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011087095-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011087095-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
011087095-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

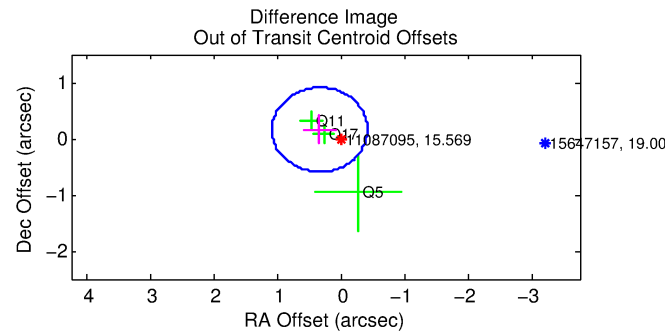
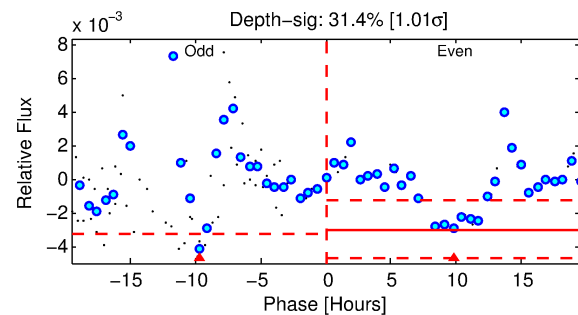
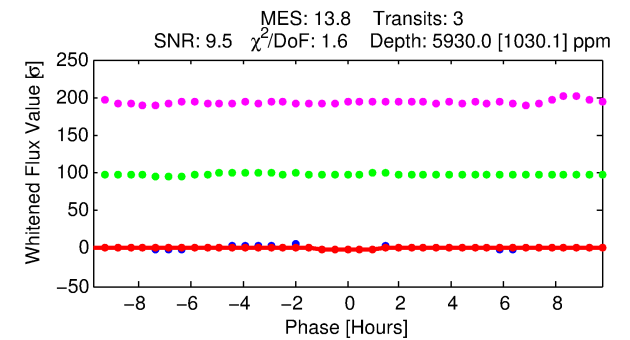
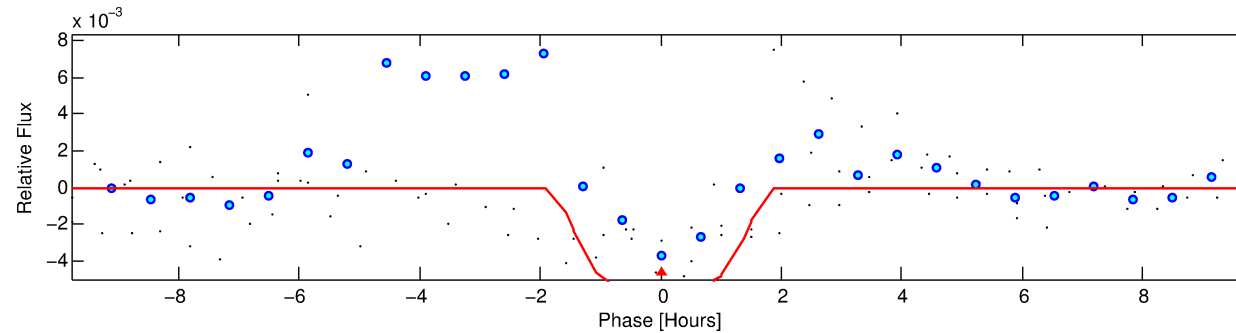
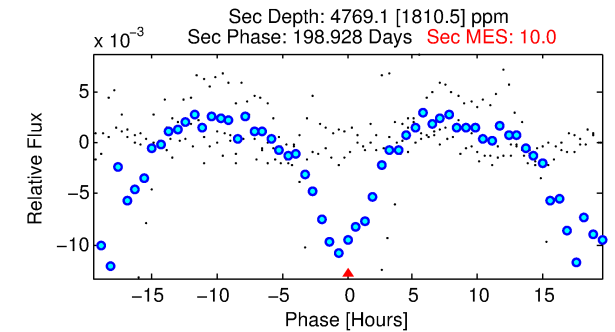
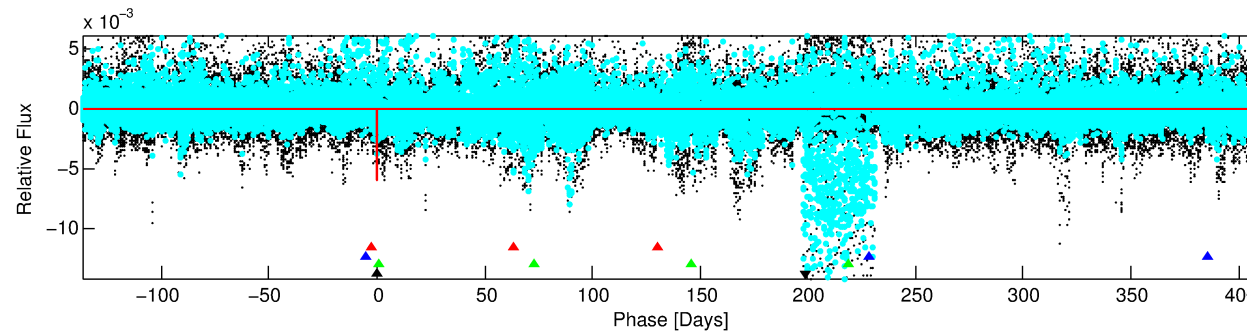
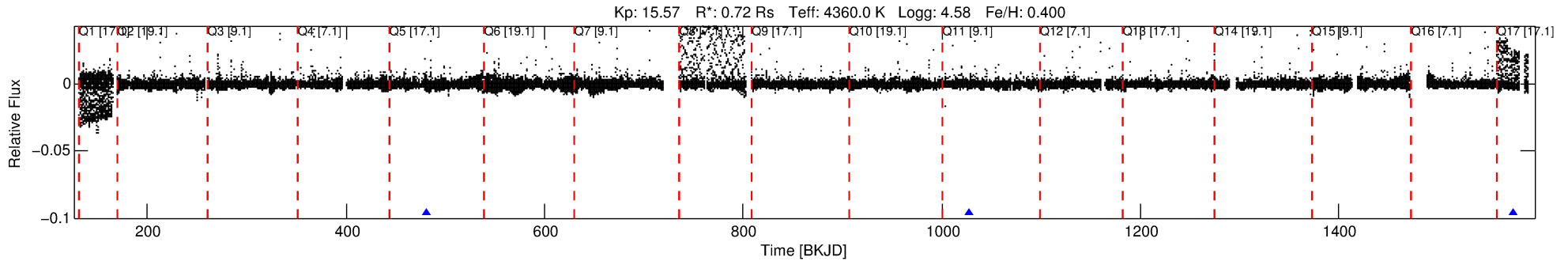
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011087095-04

No Significant Match Found

DV One-Page Summary

KIC: 11087095 Candidate: 4 of 4 Period: 547.188 d



DV Fit Results:

Period = 547.18841 [0.00435] d
Epoch = 480.9498 [0.0064] BKJD
Rp/R* = 0.0669 [0.1440]
a/R* = 1366.37 [7802.39]
b = 0.03 [202.72]
Seff = 0.12 [0.02]
Teq = 151 [7] K
Rp = 5.27 [11.36] Re
a = 1.1717 [0.0869] AU
Ag = 129492.63 [559499.67] [0.23σ]
Teffp = 4428 [4785] K [0.89σ]

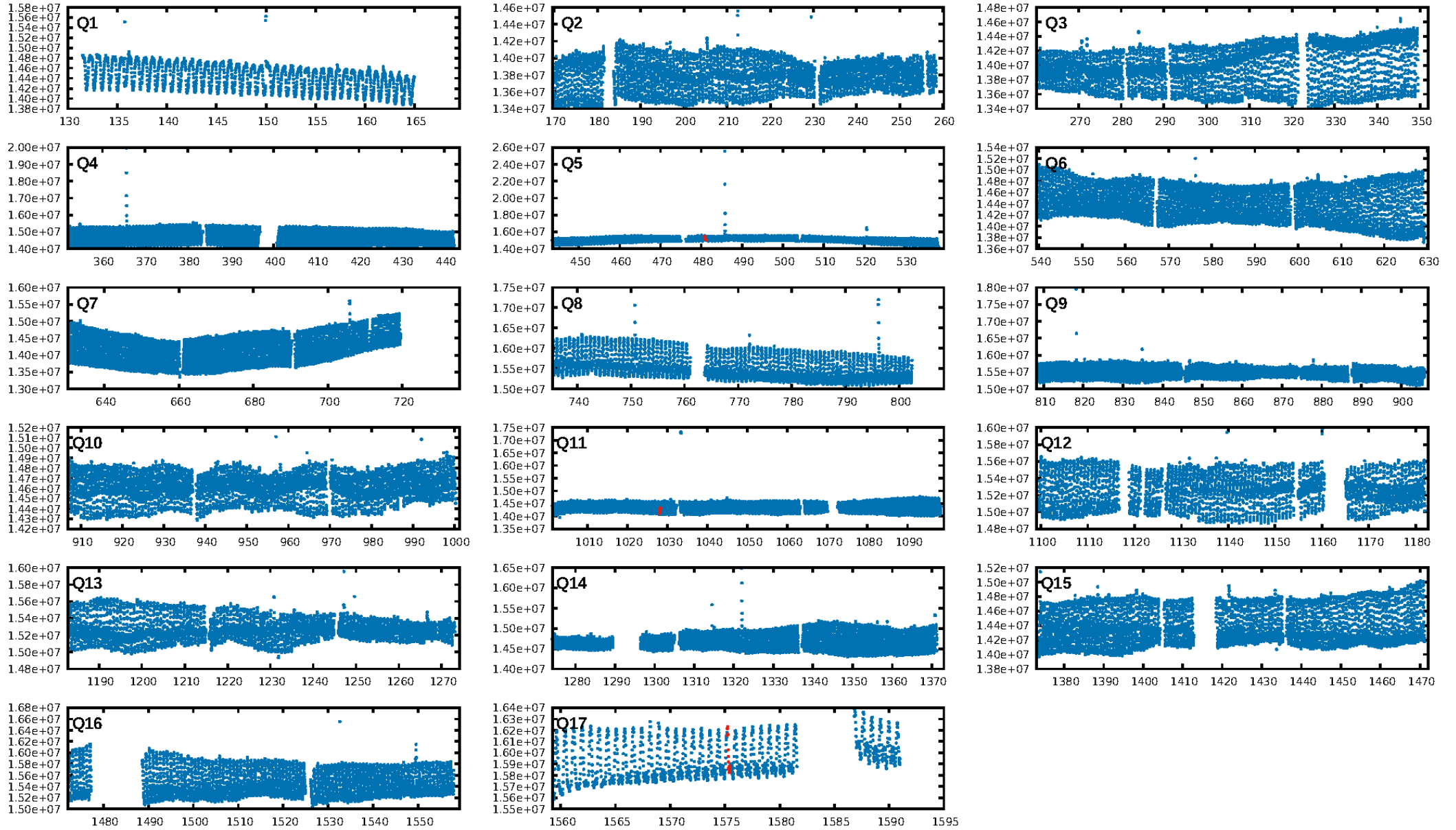
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [290.94σ]
LongPeriod-sig: 100.0% [539.08σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 4.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 3.204
Centroid-sig: 95.1%
Centroid-so: 0.519 arcsec [1.30σ]
OotOffset-rm: 0.378 arcsec [1.51σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 0.208 arcsec [0.83σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

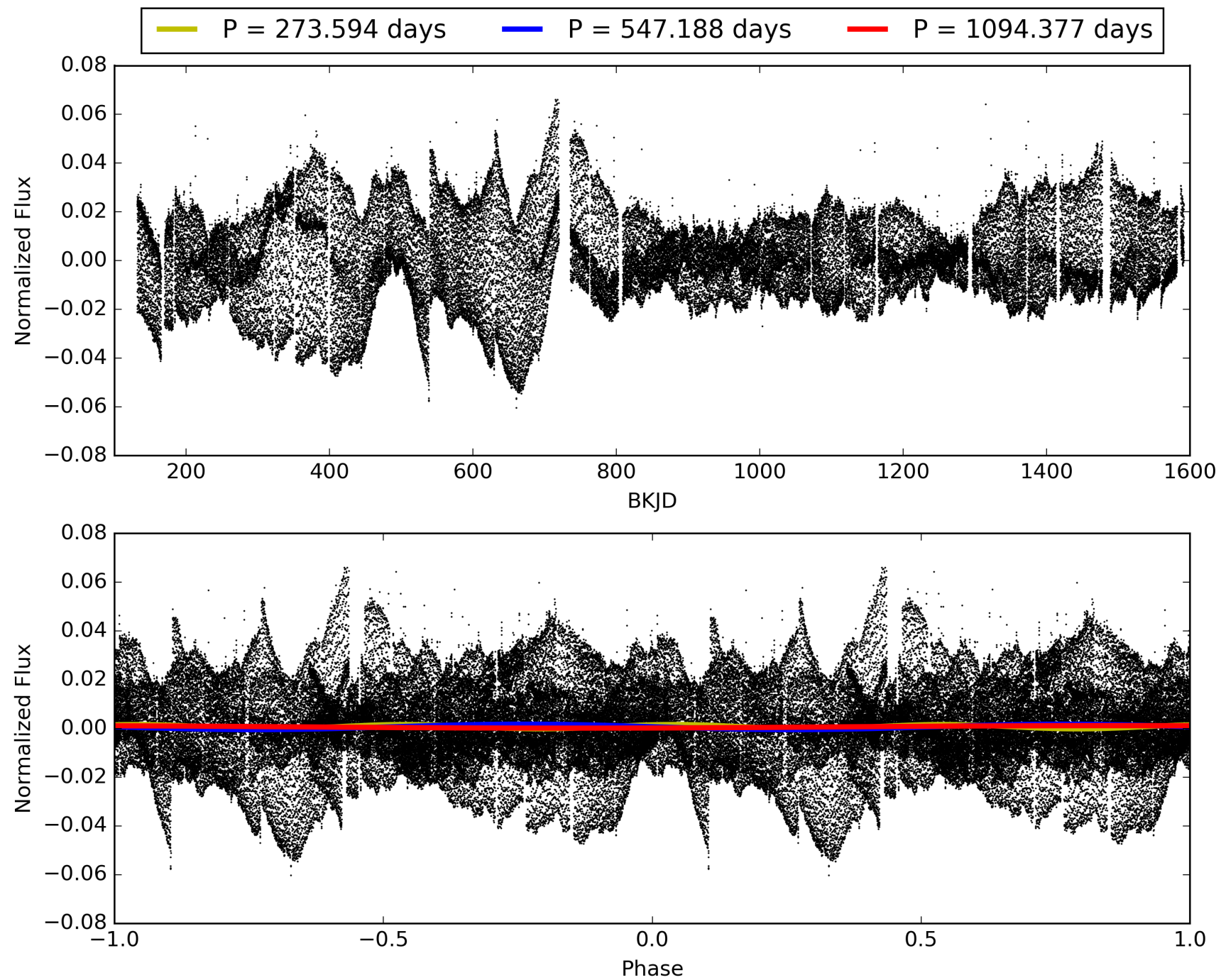
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:37:52 Z

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

TCE 011087095-04, PDC Light Curves

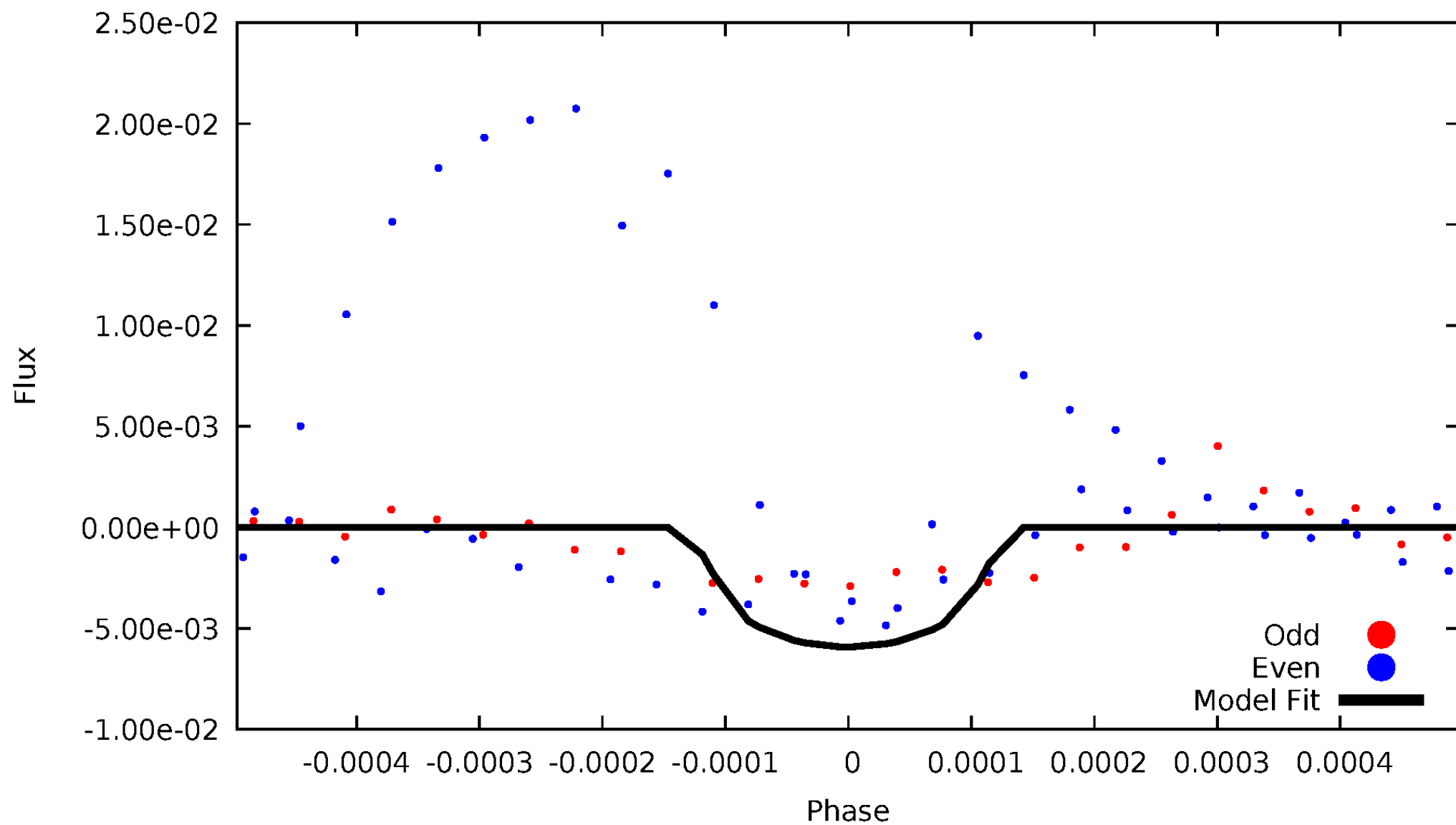


TCE 011087095-04



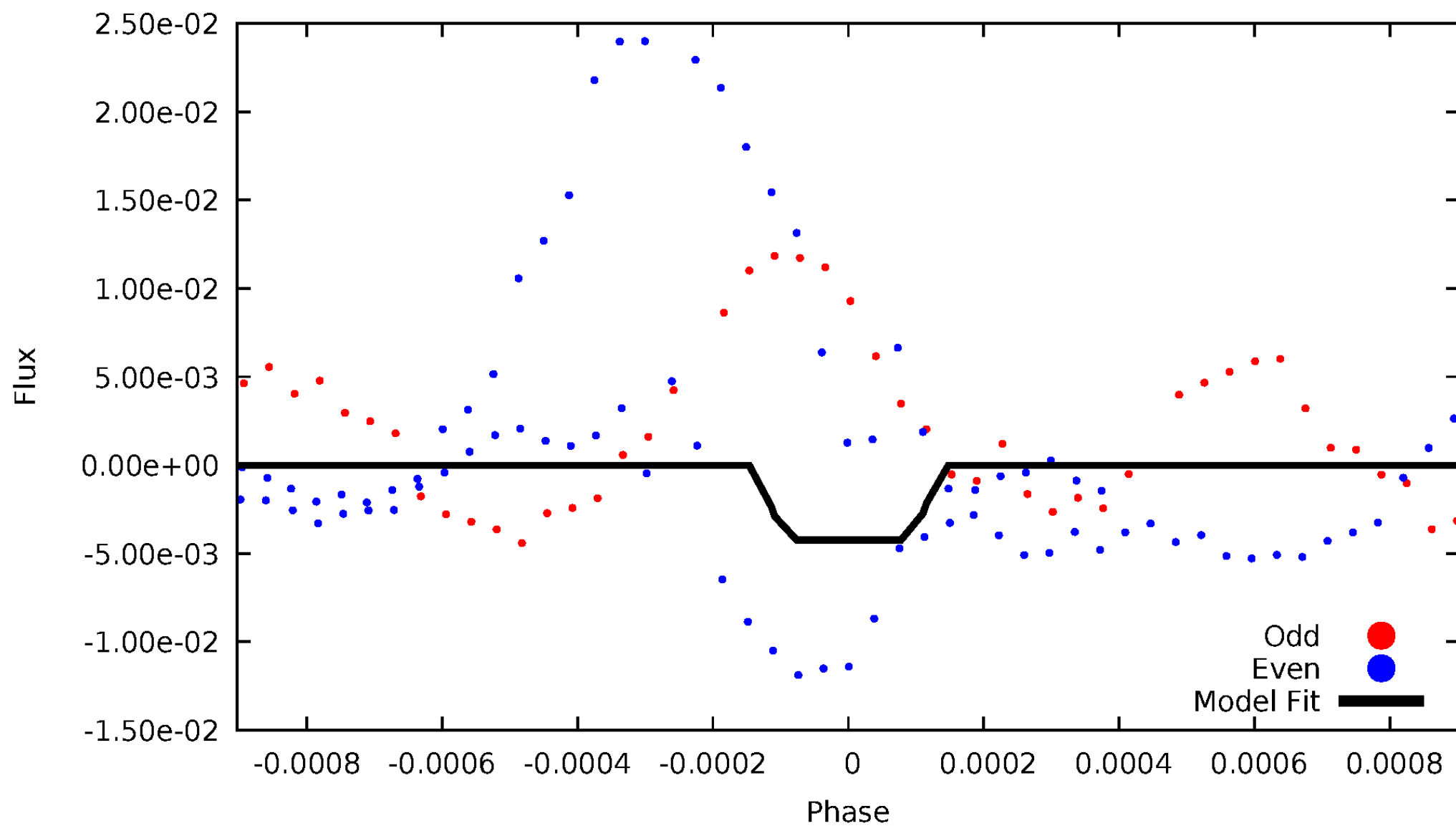
DV Odd/Even

TCE 011087095-04



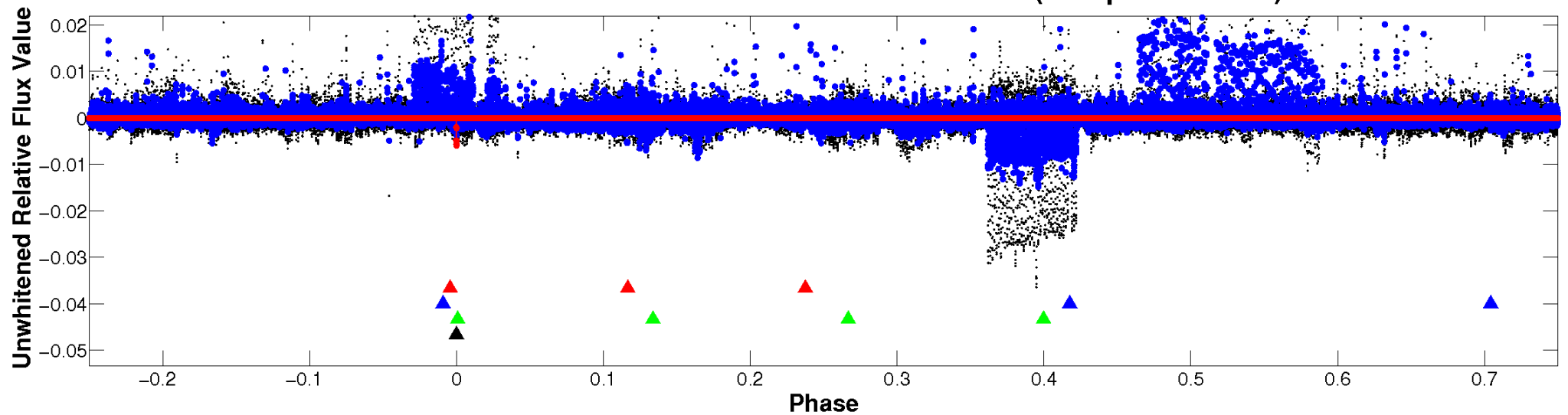
ALT Odd/Even

TCE 011087095-04

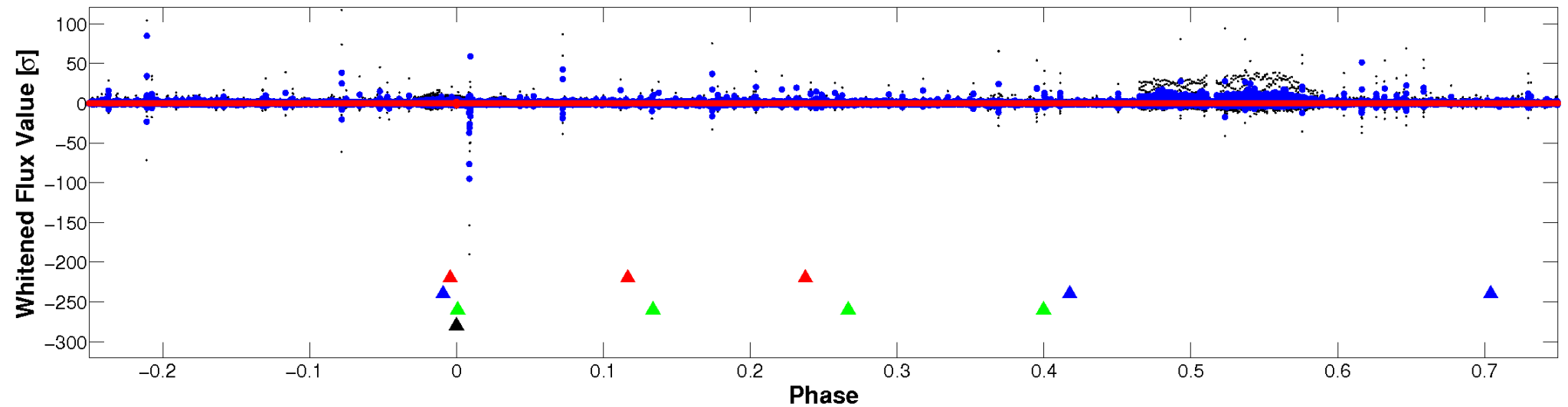


Non-Whitened Vs. Whitened Light Curve

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

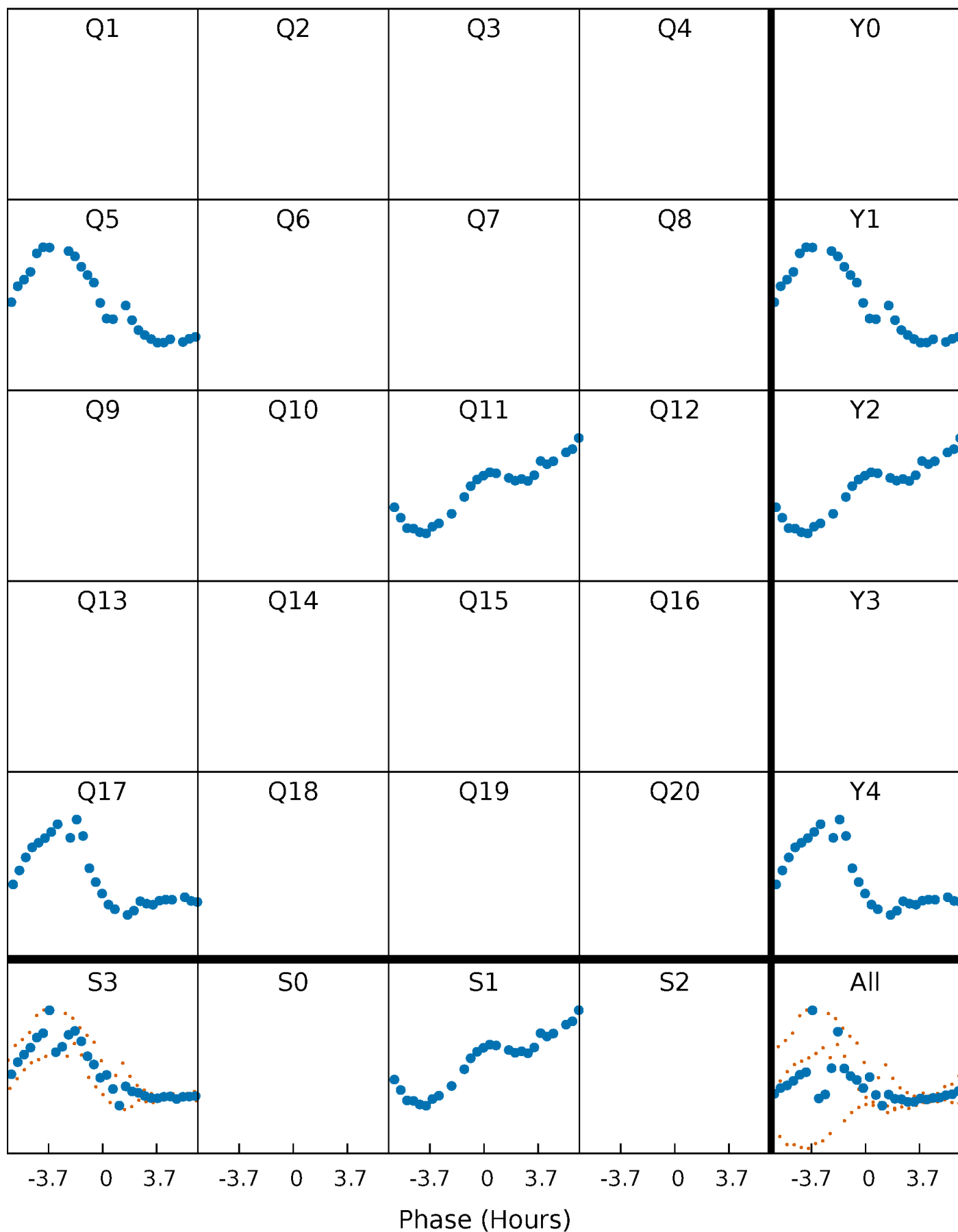


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



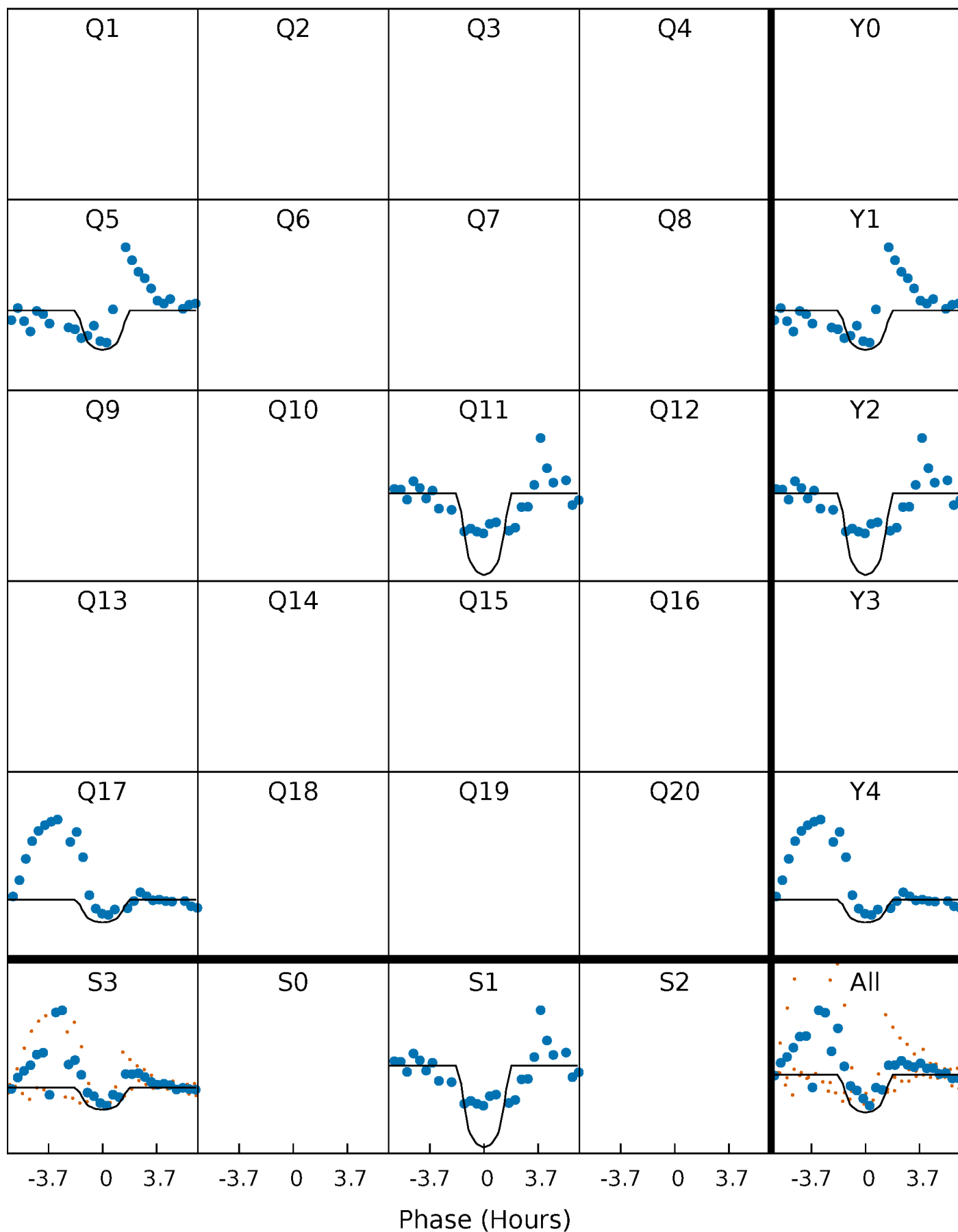
PDC Quarter-Phased Transit Curves

TCE 011087095-04 $P=547.188412$ Days $T_0=480.949829$ (BKJD)



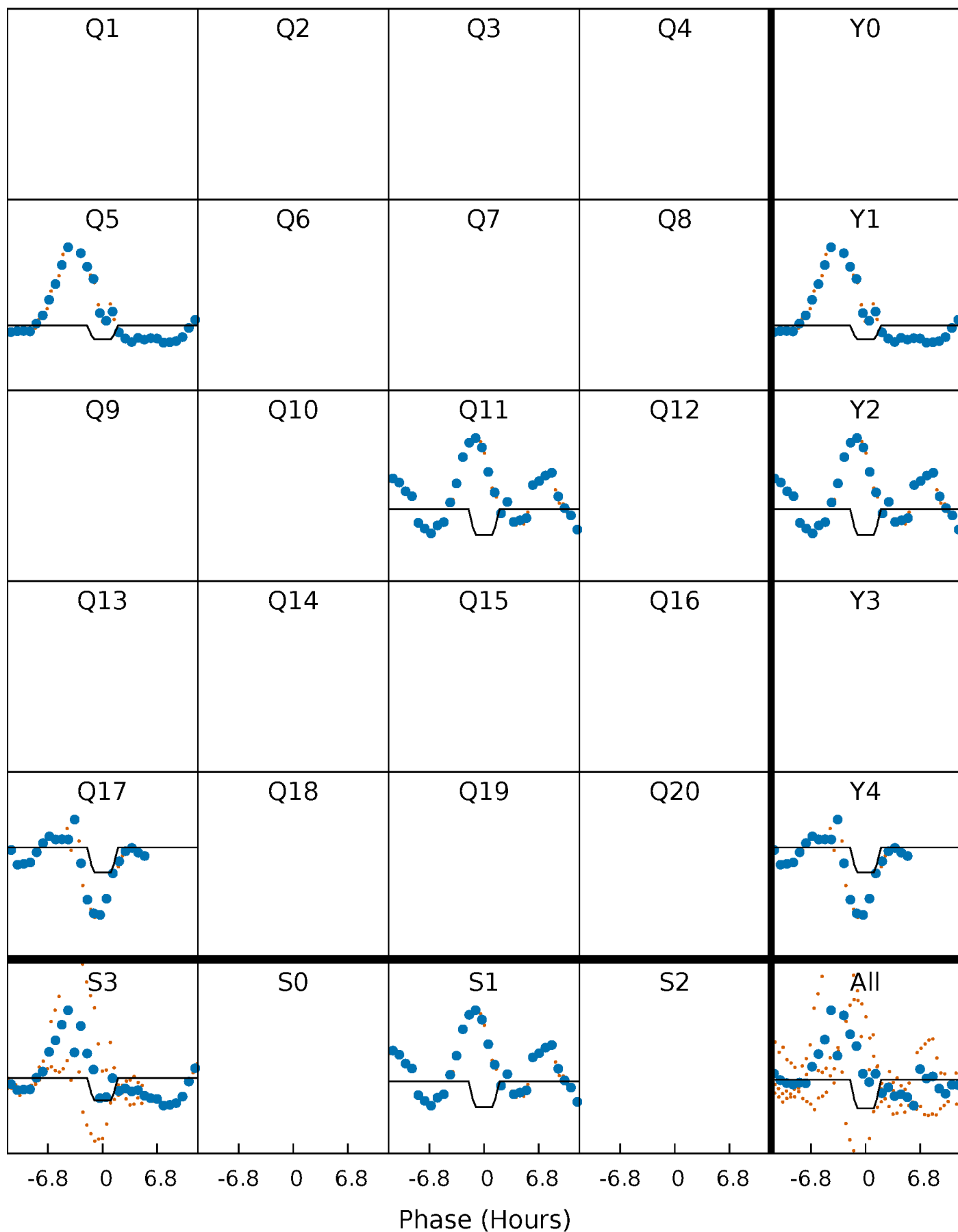
DV Quarter-Phased Transit Curves

TCE 011087095-04 $P=547.188412$ Days $T_0=480.949829$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

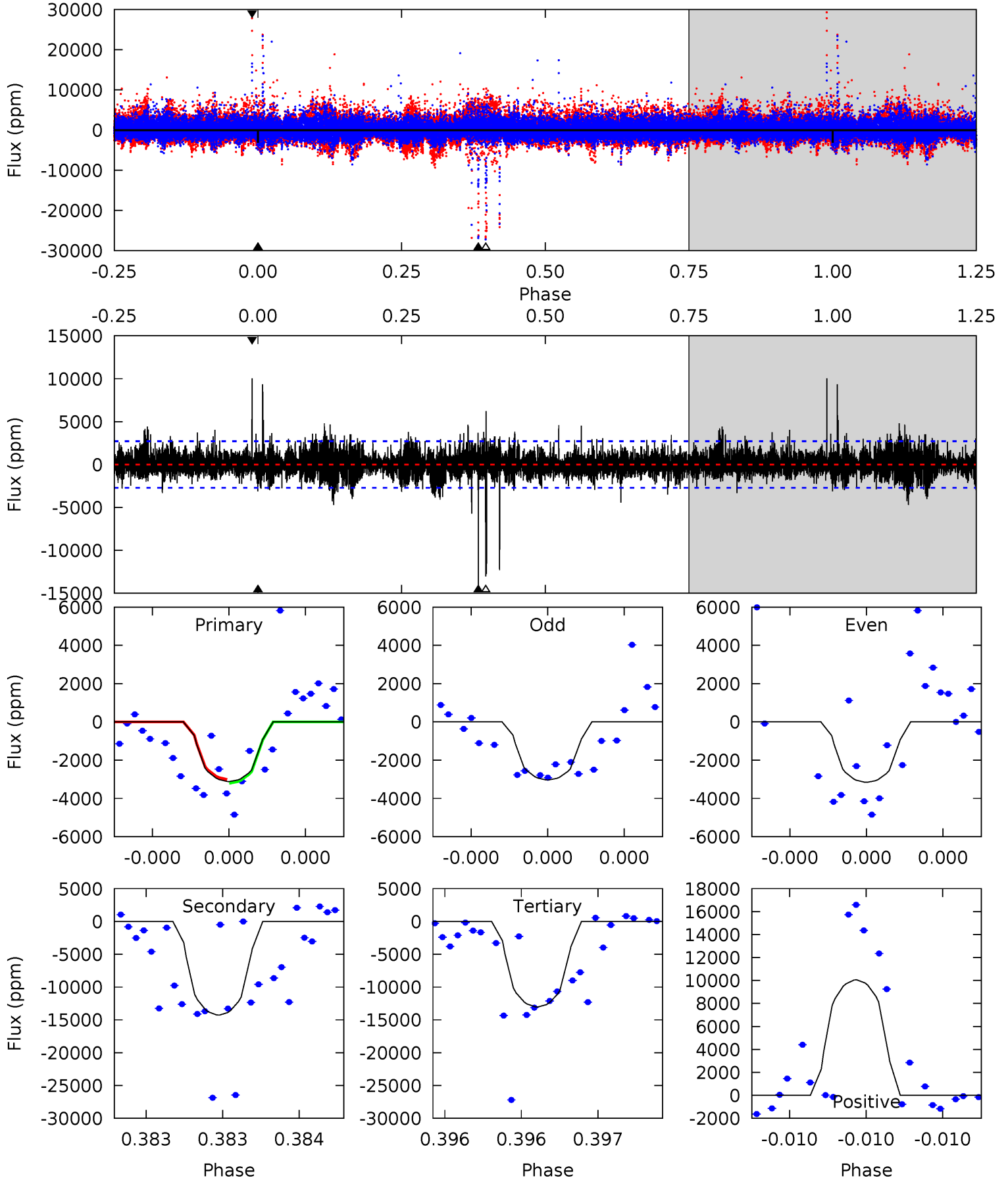
TCE 011087095-04 $P=547.210737$ Days $T_0=480.967513$ (BKJD)



DV Model-Shift Uniqueness Test

011087095-04, P = 547.188412 Days, E = 480.949829 Days

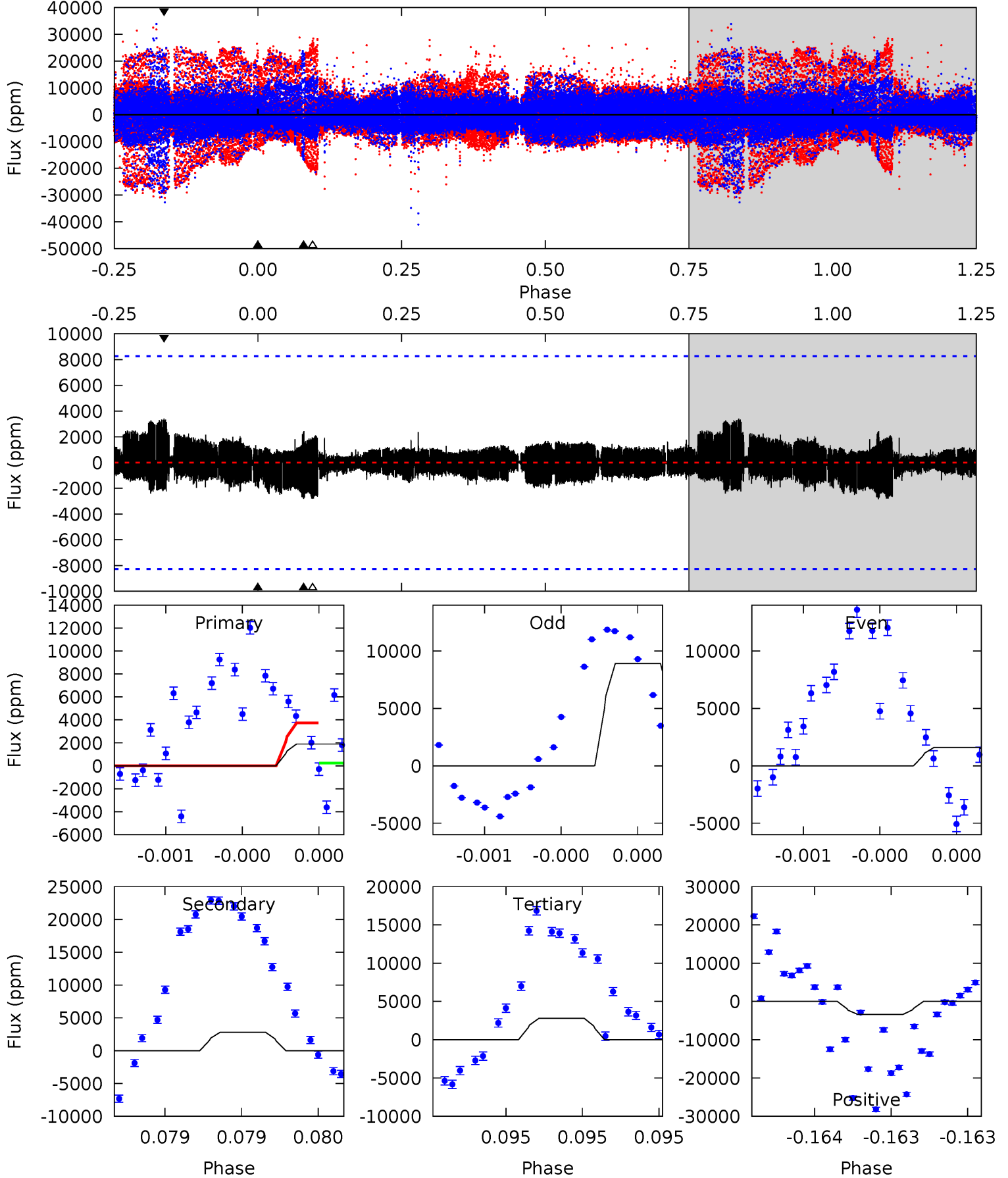
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.53	29.9	27.3	21.1	5.69	3.65	2.40	-20.8	-14.5	2.60	8.84	0.06	0.97	0.41	0.20



Alt Model-Shift Uniqueness Test

011087095-04, P = 547.210737 Days, E = 480.967513 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.31	1.93	1.92	2.34	5.69	3.65	0.58	-0.62	-1.03	0.01	-0.41	2.53	0.28	0.55	1.21



Stellar Parameters For KIC 011087095

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4360^{+176}_{-176}	$4.576^{+0.060}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.722^{+0.029}_{-0.063}$	$0.716^{+0.043}_{-0.054}$	$2.677^{+0.727}_{-0.206}$
	+4%/-4%	+1%/-0%	+12%/-75%	+4%/-9%	+6%/-8%	+27%/-8%
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 011087095-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14274 ± 477	$9.90^{+9.69}_{-6.54}$	209^{+9}_{-9}	4319^{+2754}_{-956}	$113204^{+885271}_{-84505}$
Alt.	-2808 ± 1454	$9.48^{+8.66}_{-6.48}$	209^{+9}_{-9}	3241^{+1705}_{-674}	$21823^{+210353}_{-17947}$

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

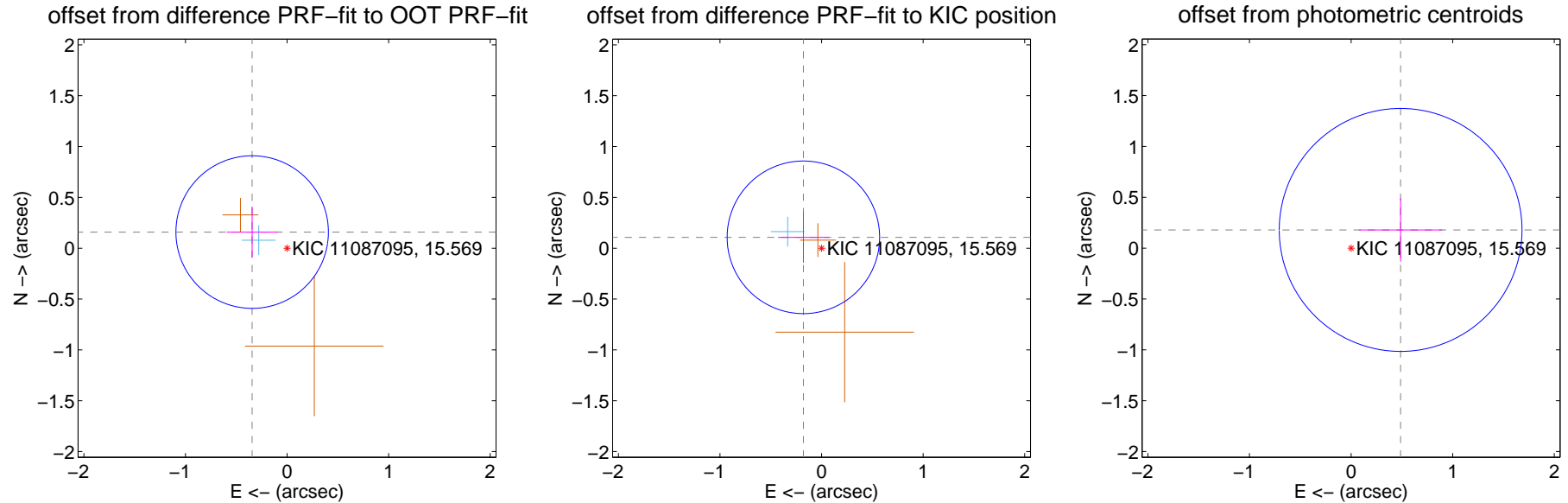
DV Centroid Data

Supplemental centroid analysis for 011087095-04. Kepler magnitude: 15.57. Transit SNR 9.47

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.378 ± 0.250	1.51	0.344 ± 0.250	0.159 ± 0.250
PRF-fit source offset from KIC position	0.208 ± 0.250	0.83	0.179 ± 0.250	0.107 ± 0.250
photometric centroid source offset	0.52 ± 0.40	1.30	-0.49 ± 0.41	0.18 ± 0.31

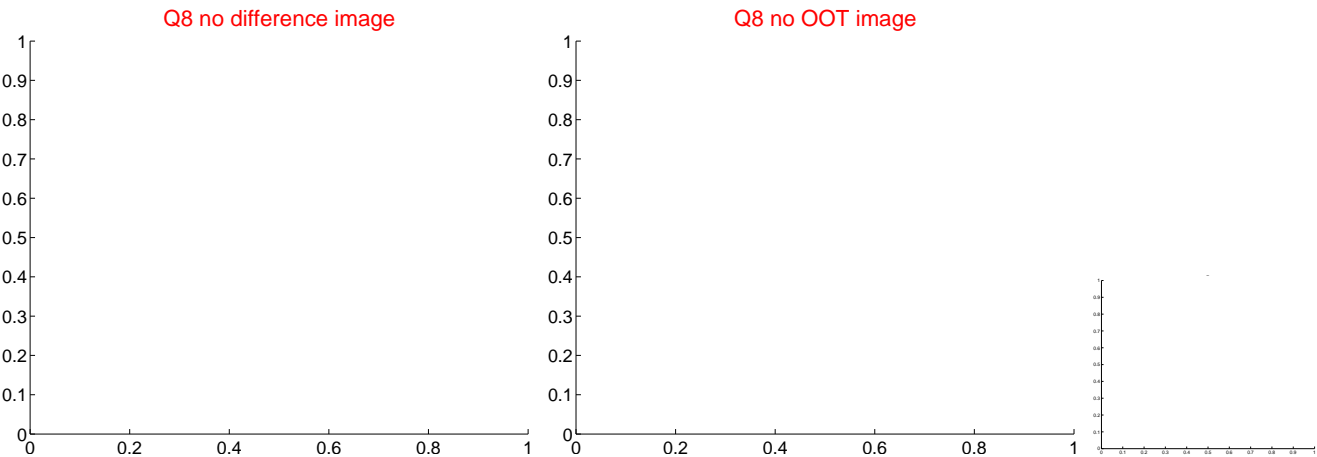
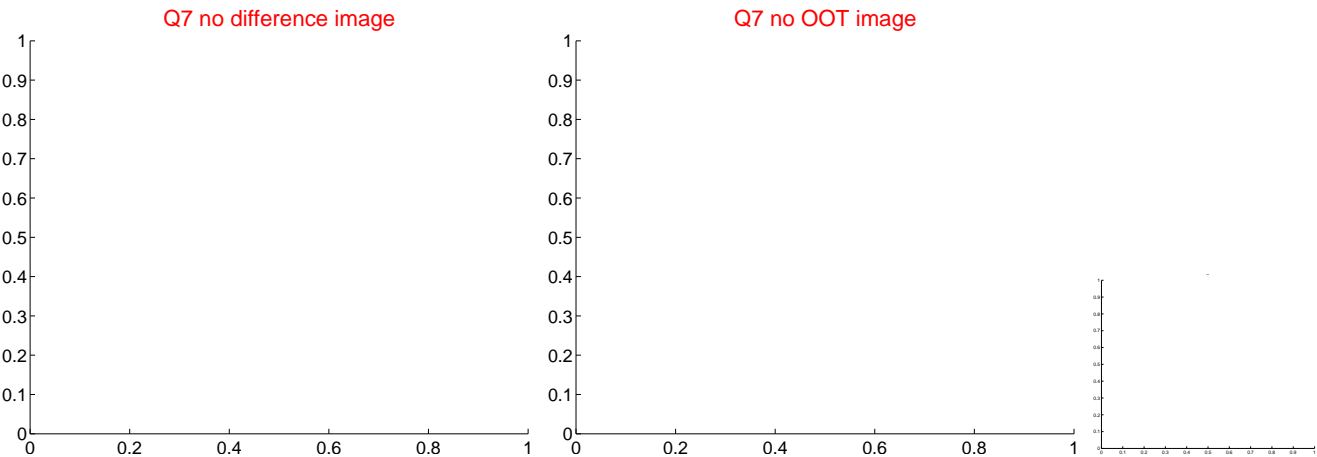
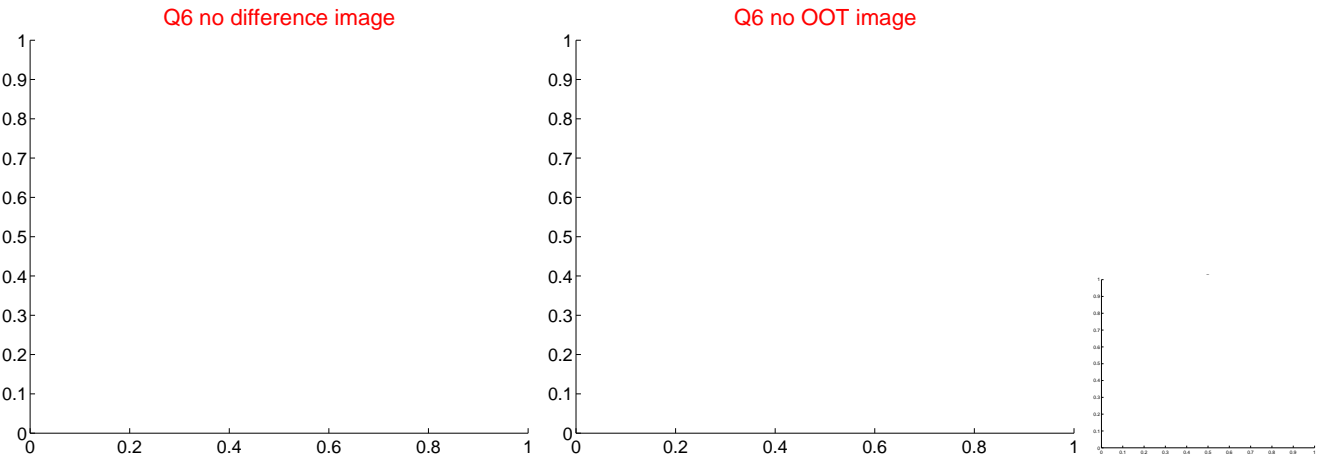
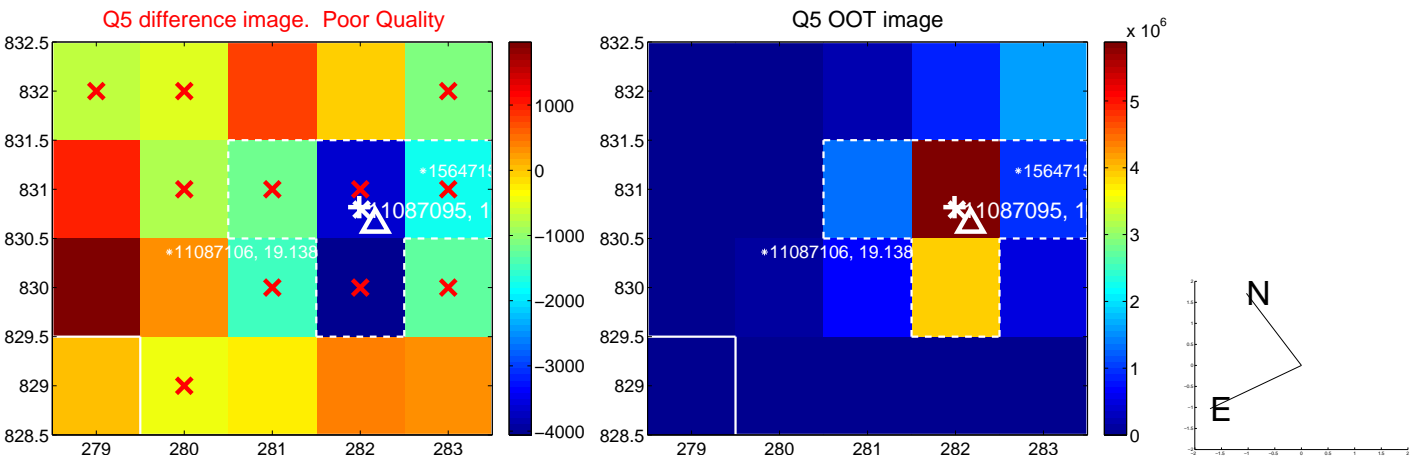


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

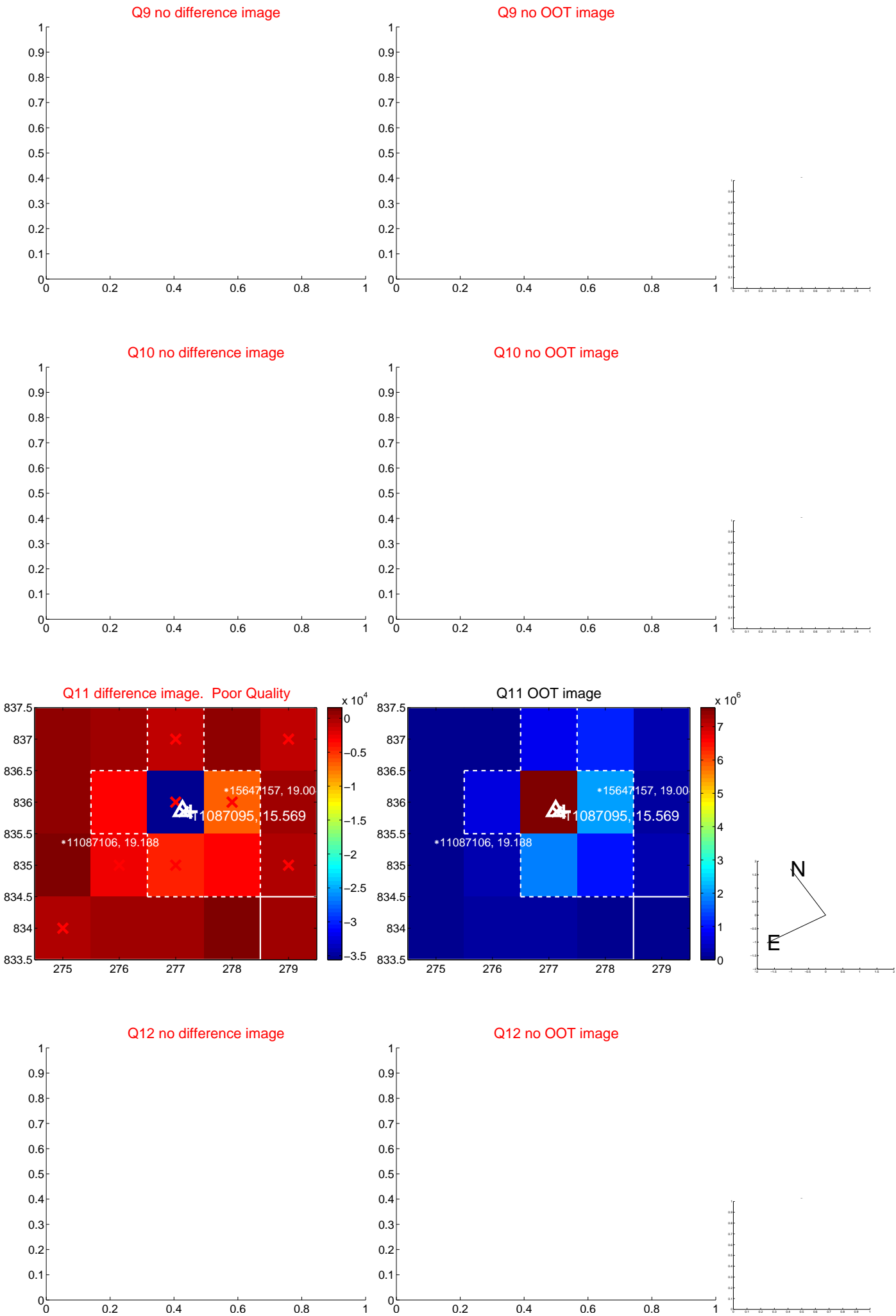
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



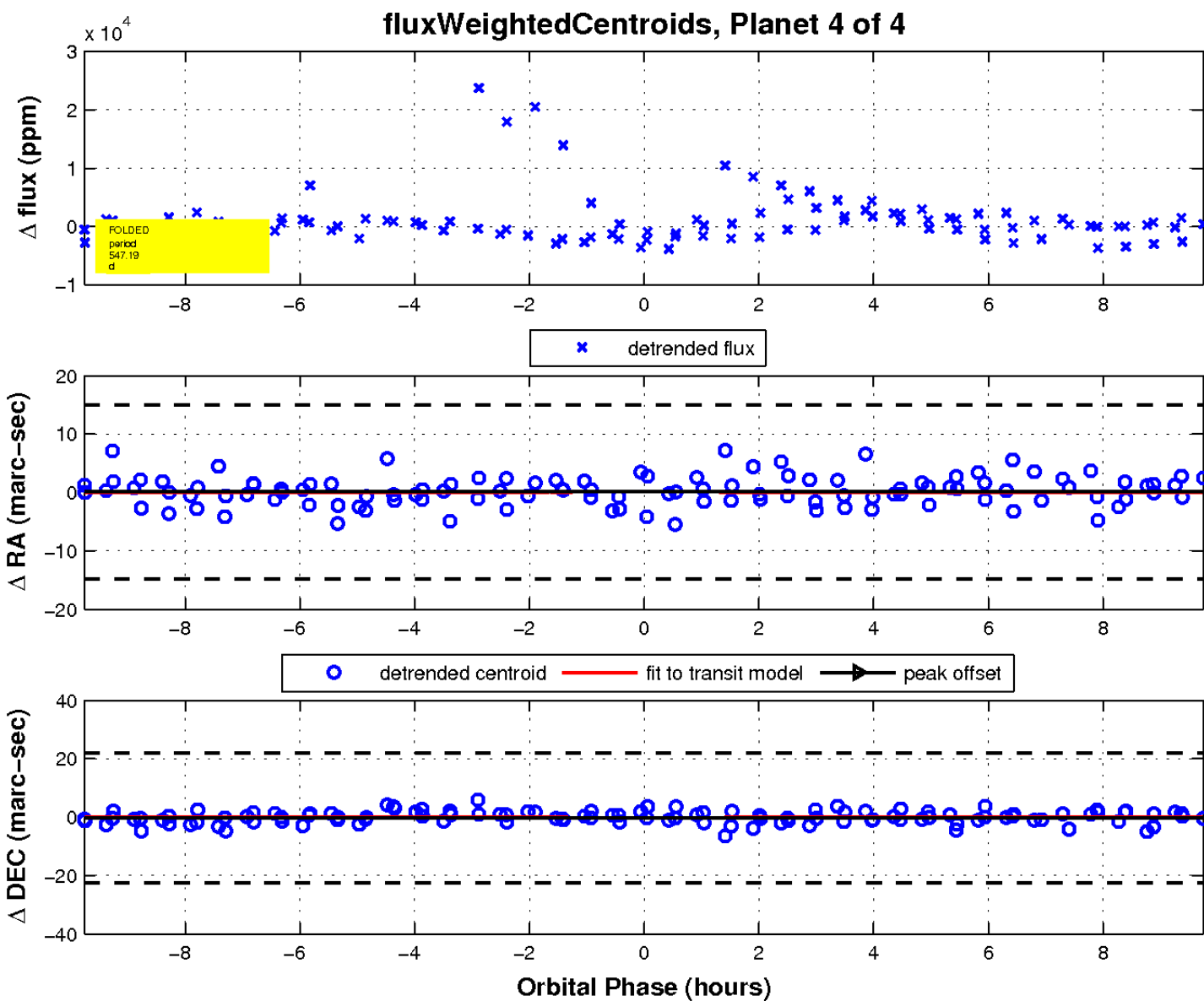
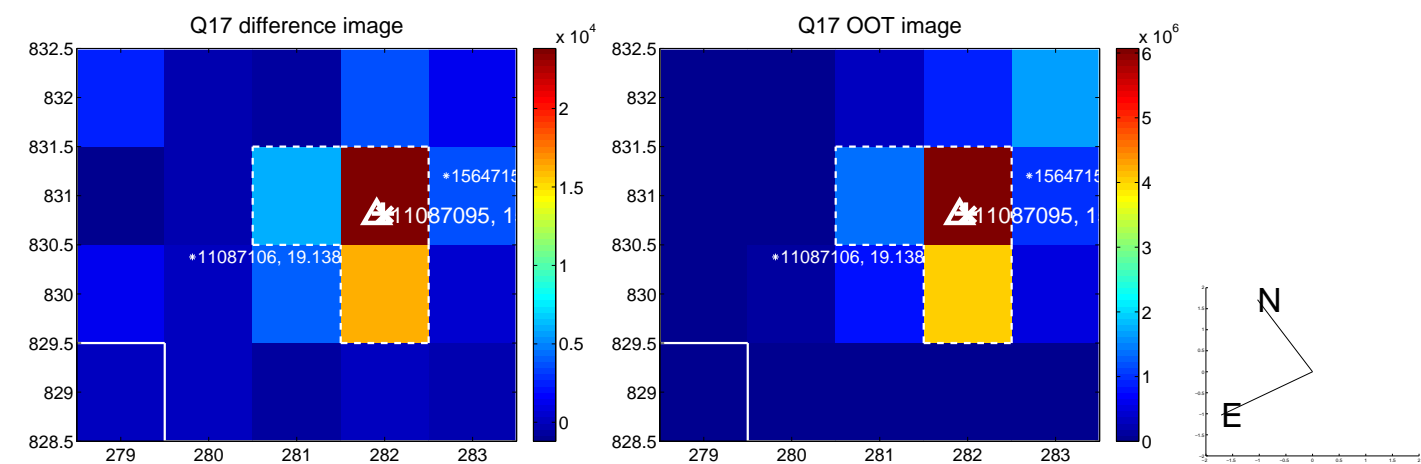
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

