

KIC 007133807

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})
007133807-01	OBS	No	426.197852	281.966556	1655.3	6.153	9.7	6.5	0.71	4378	3.60	0.17
007133807-02	OBS	No	452.664439	243.583132	2440.6	16.143	9.5	6.8	0.71	4378	3.34	0.16
007133807-03	OBS	No	499.258579	136.233311	2268.7	5.489	9.1	8.3	0.71	4378	3.38	0.14
007133807-04	OBS	No	202.577039	207.713183	949.9	3.220	9.3	5.6	0.71	4378	2.48	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007133807-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
007133807-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

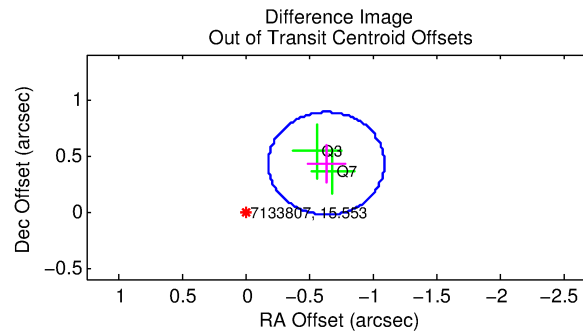
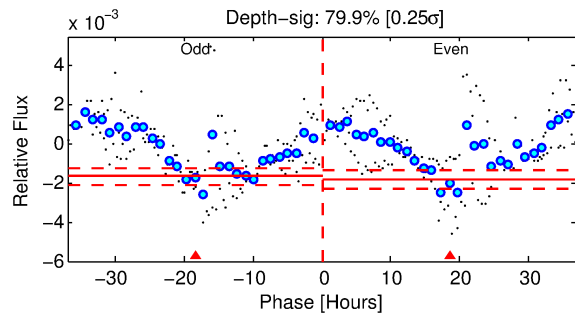
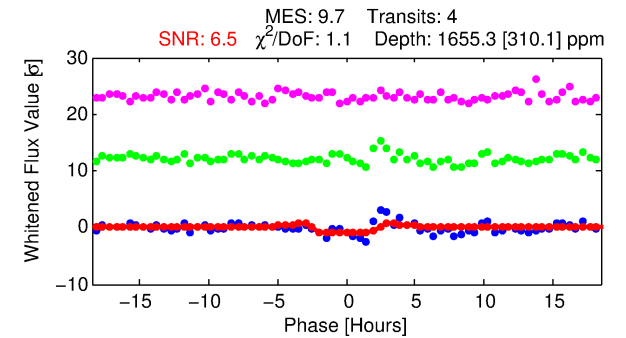
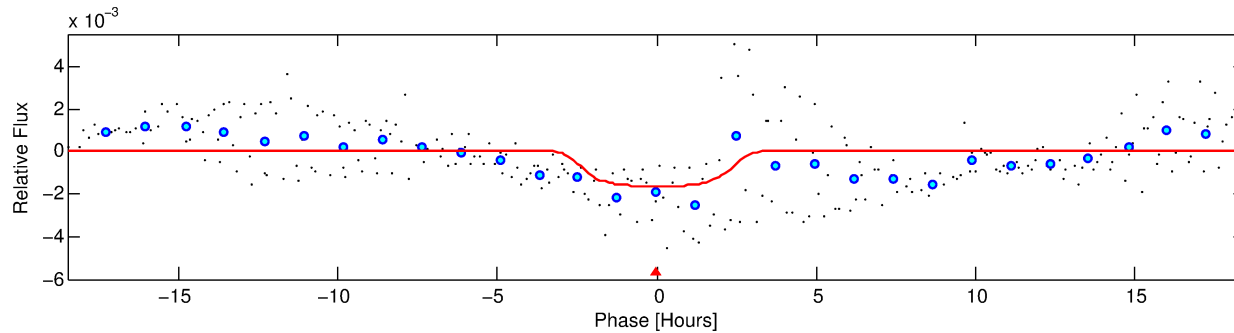
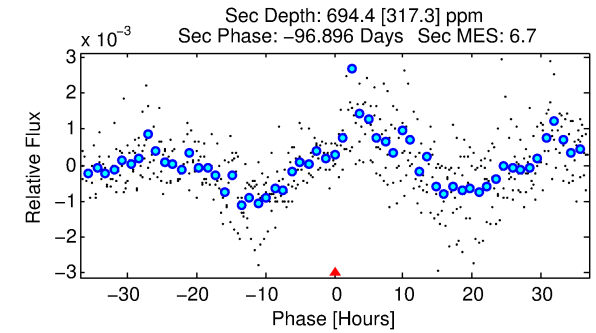
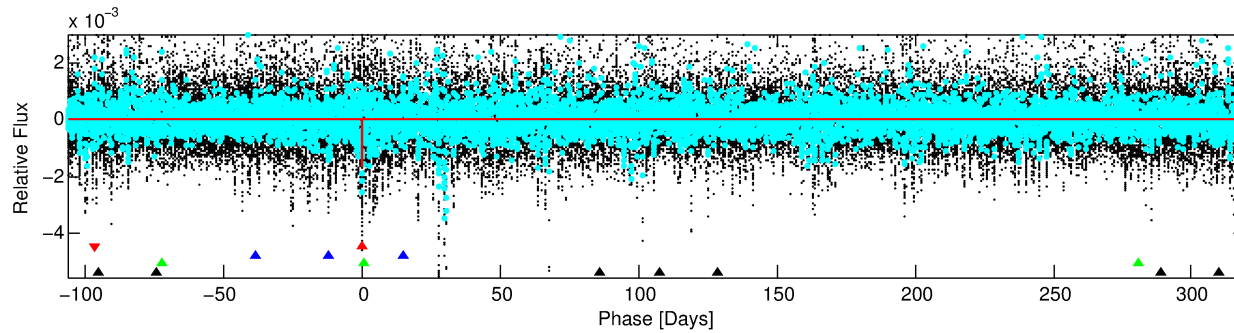
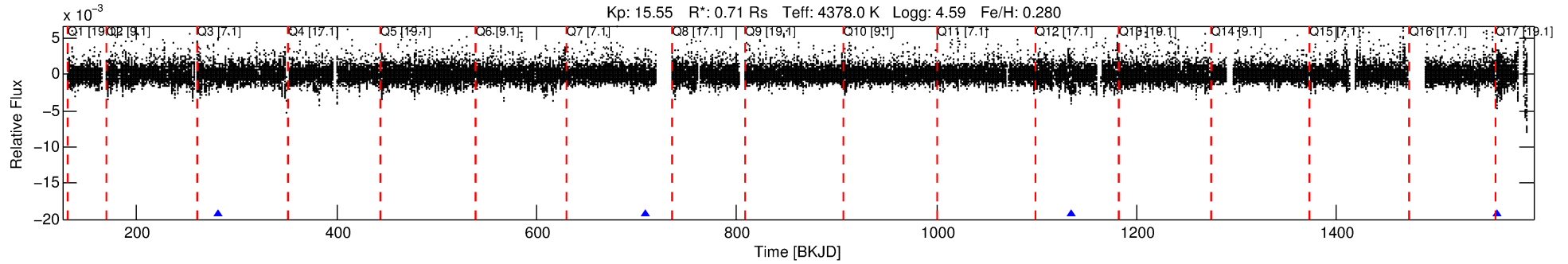
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007133807-01

No Significant Match Found

DV One-Page Summary

KIC: 7133807 Candidate: 1 of 4 Period: 426.198 d



DV Fit Results:

Period = 426.19785 [0.00686] d
Epoch = 281.9666 [0.0115] BKJD
Rp/R* = 0.0465 [0.0062]
a/R* = 278.79 [75.02]
b = 0.90 [0.06]
Seff = 0.17 [0.03]
Teq = 164 [8] K
Rp = 3.61 [0.58] Re
a = 0.9884 [0.0723] AU
Ag = 28718.21 [15508.93] [1.85 σ]
Teffp = 3295 [456] K [6.86 σ]

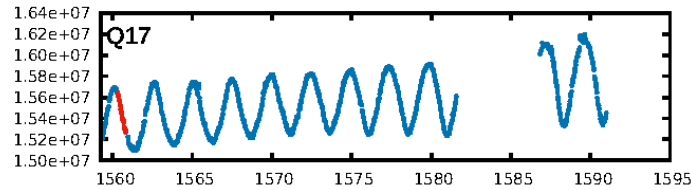
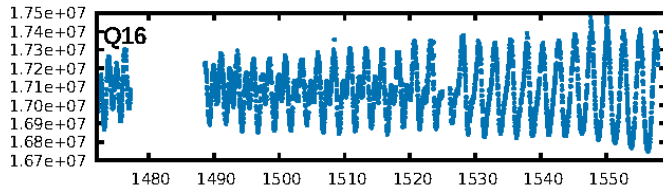
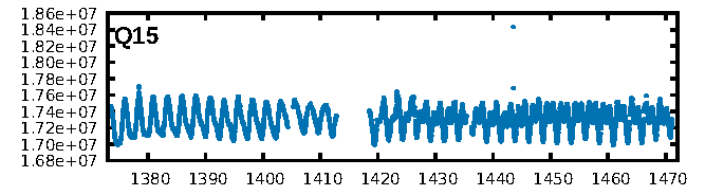
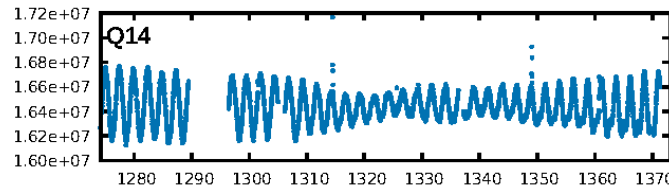
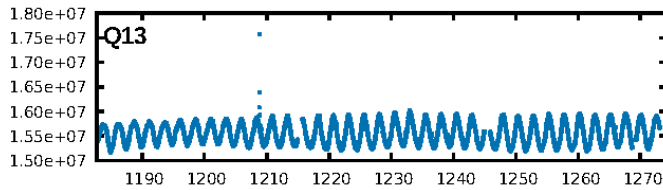
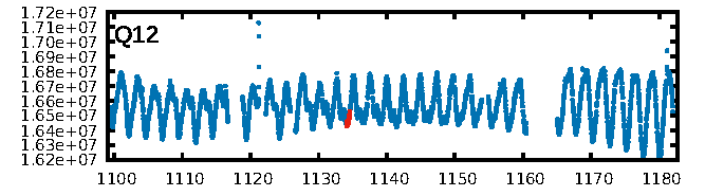
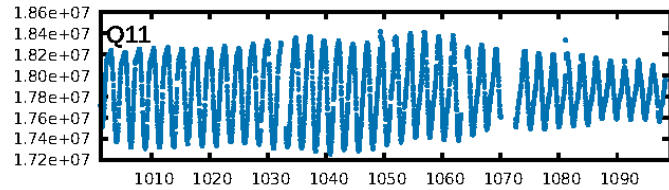
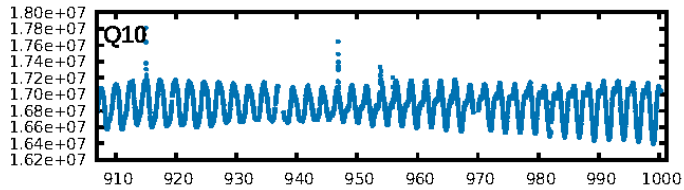
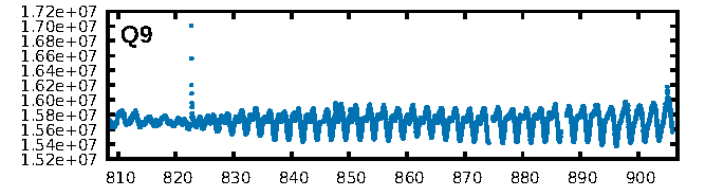
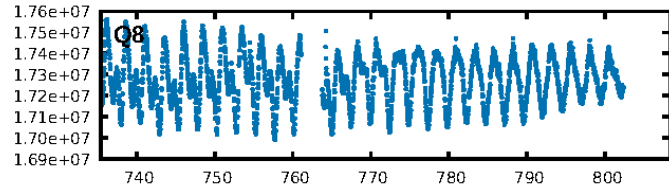
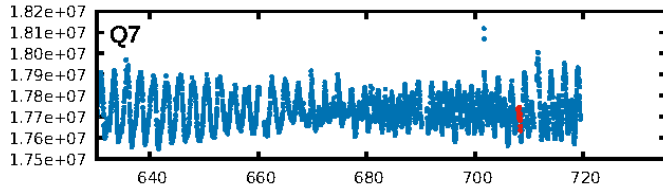
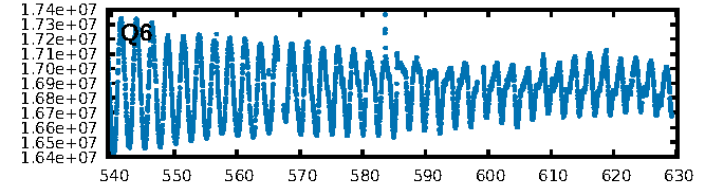
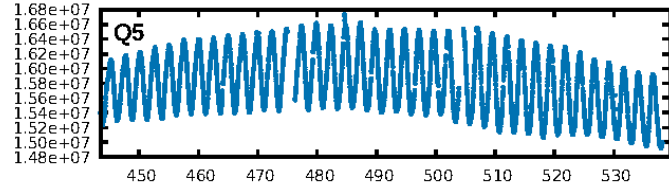
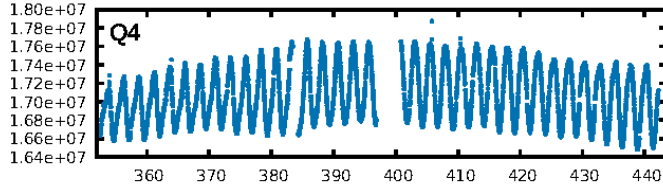
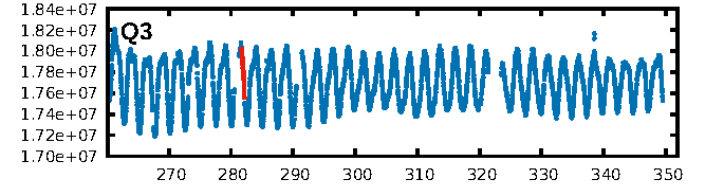
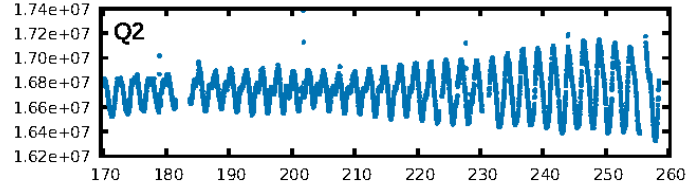
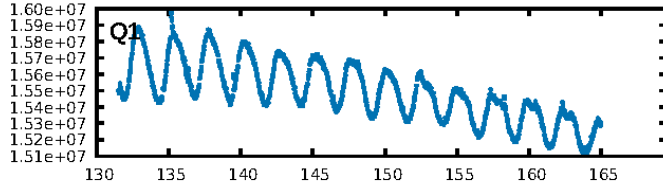
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [772.80 σ]
LongPeriod-sig: 100.0% [36.77 σ]
ModelChiSquare2-sig: 42.0%
ModelChiSquareGof-sig: 94.6%
Bootstrap-pfa: 3.17e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 14.87
Centroid-sig: 4.9%
Centroid-so: 1.178 arcsec [1.32 σ]
OotOffset-rm: 0.767 arcsec [5.04 σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-rm: 0.425 arcsec [2.53 σ]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

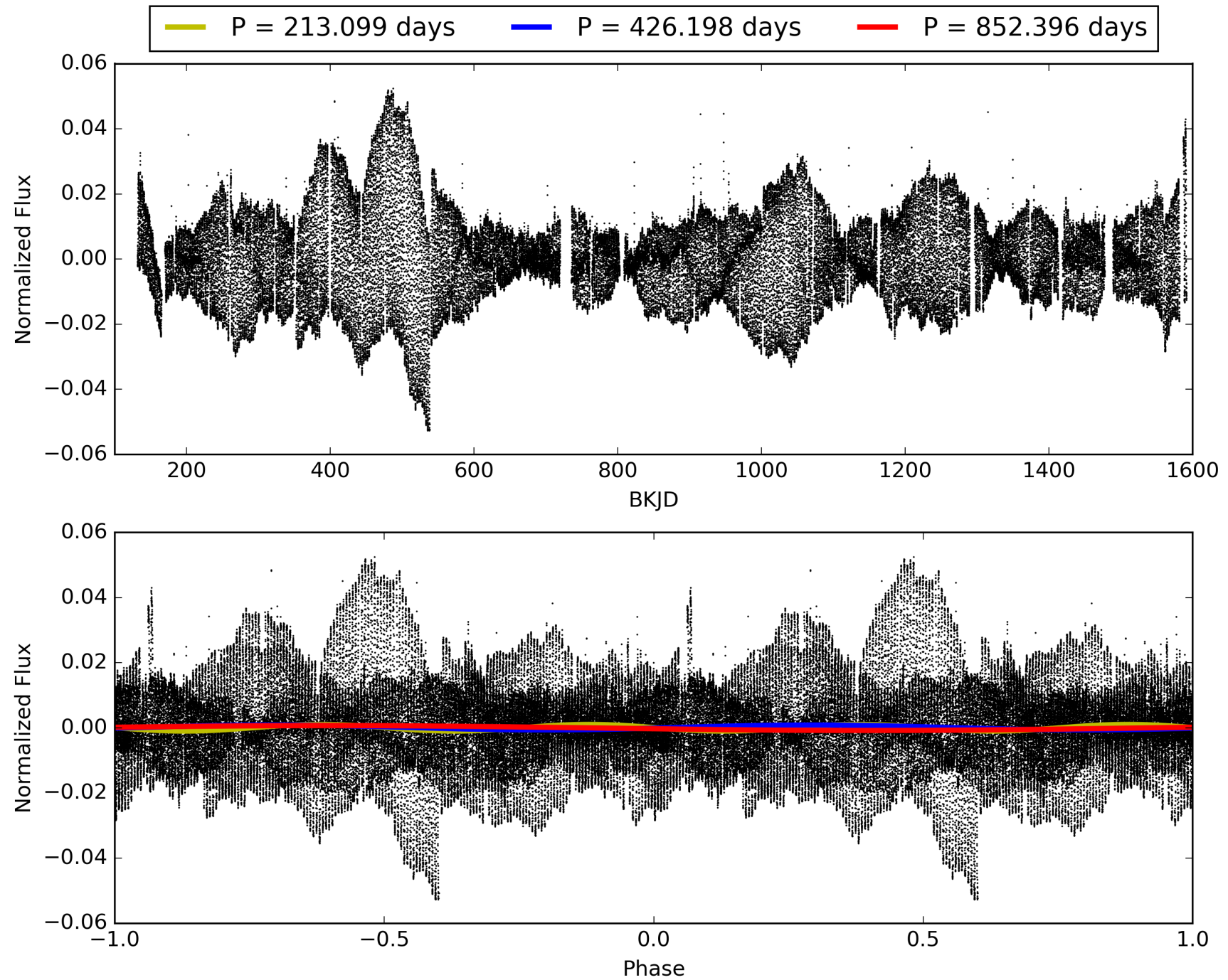
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007133807-01, PDC Light Curves

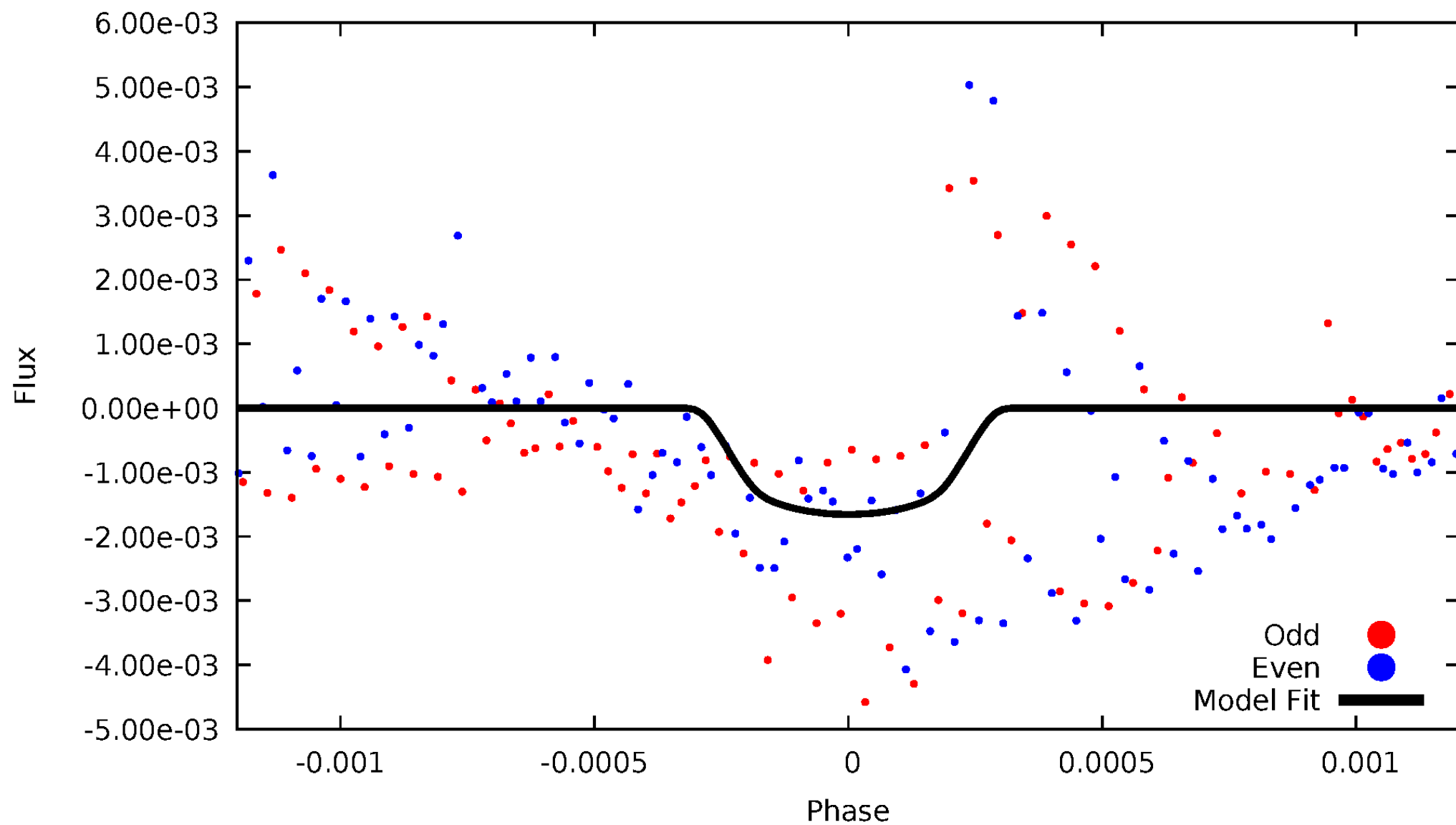


TCE 007133807-01



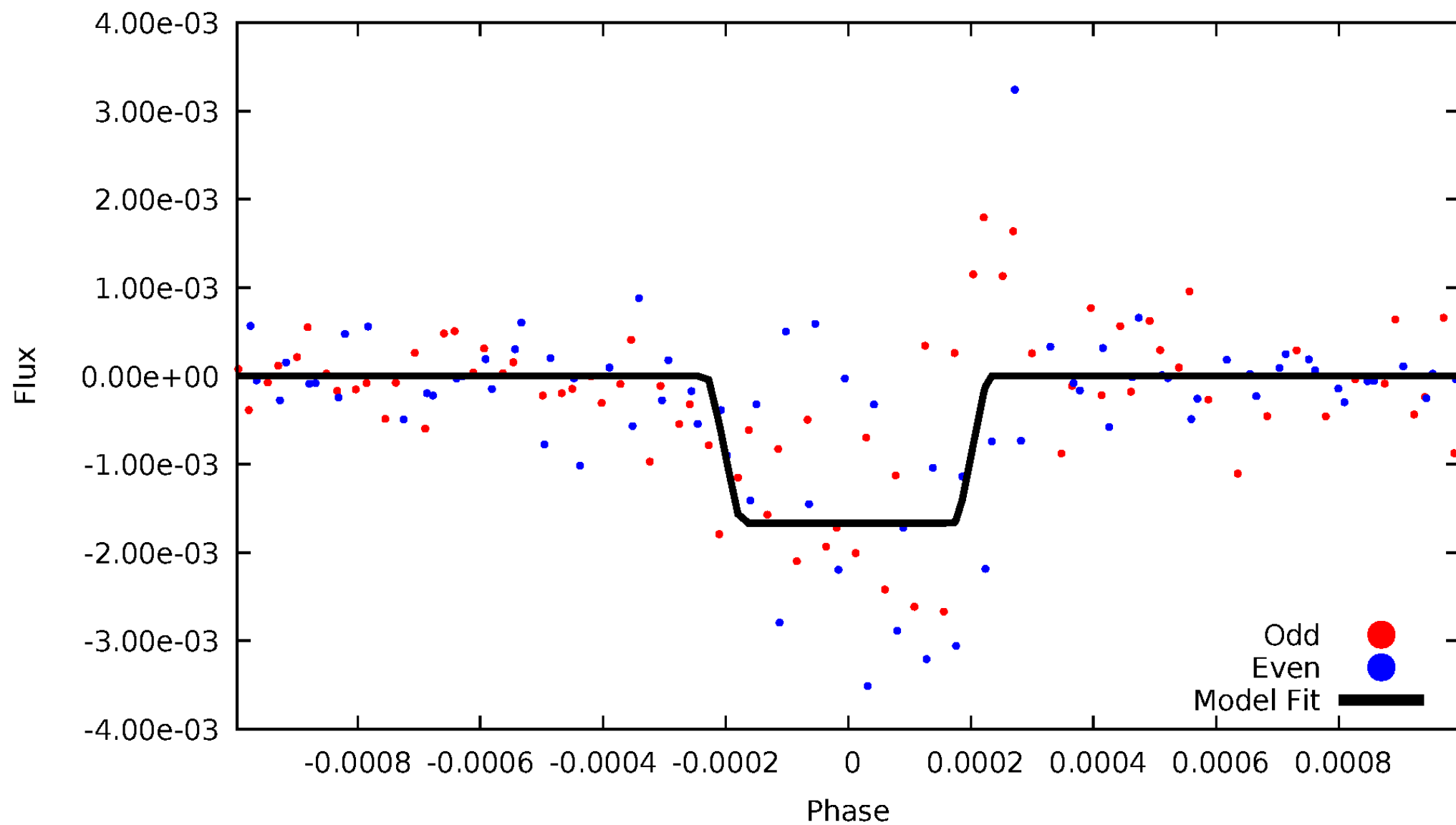
DV Odd/Even

TCE 007133807-01



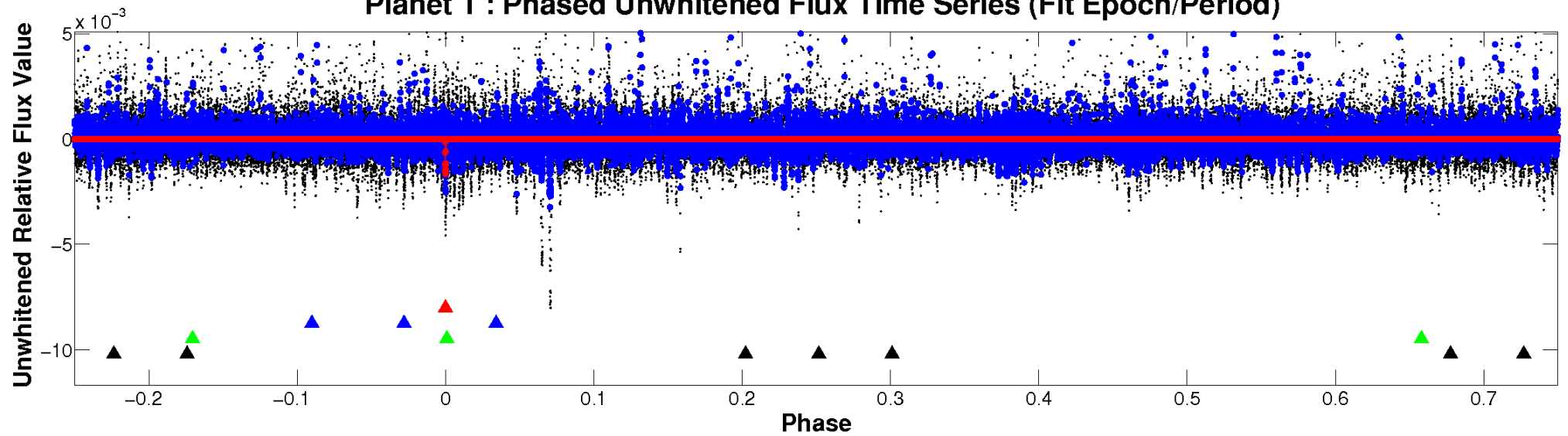
ALT Odd/Even

TCE 007133807-01

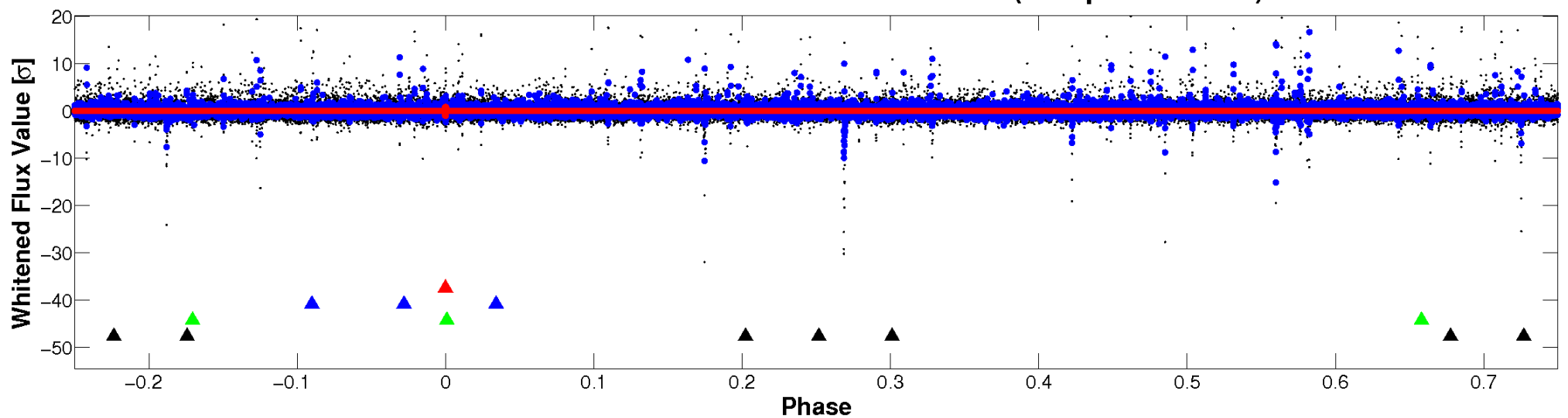


Non-Whitened Vs. Whitened Light Curve

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

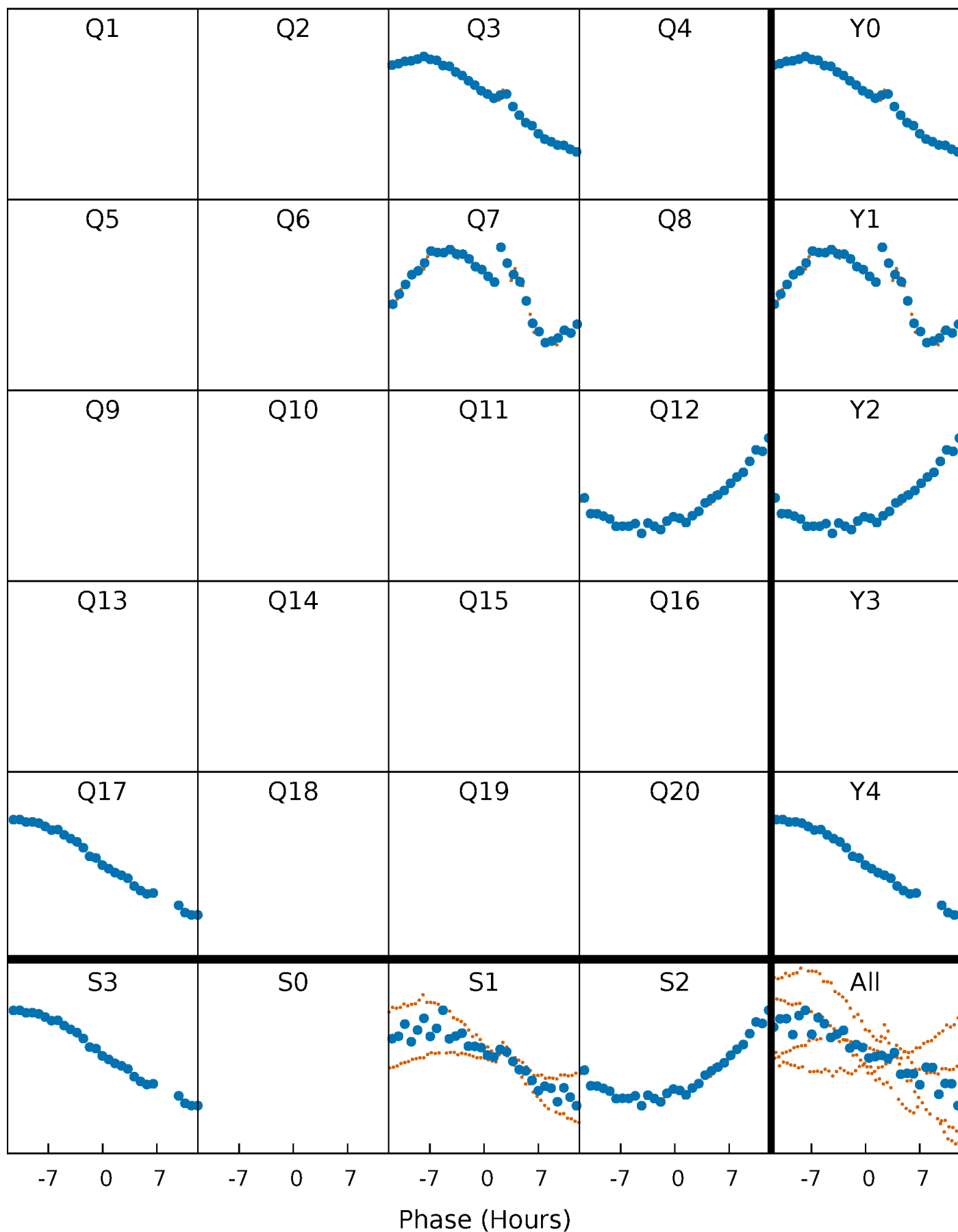


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



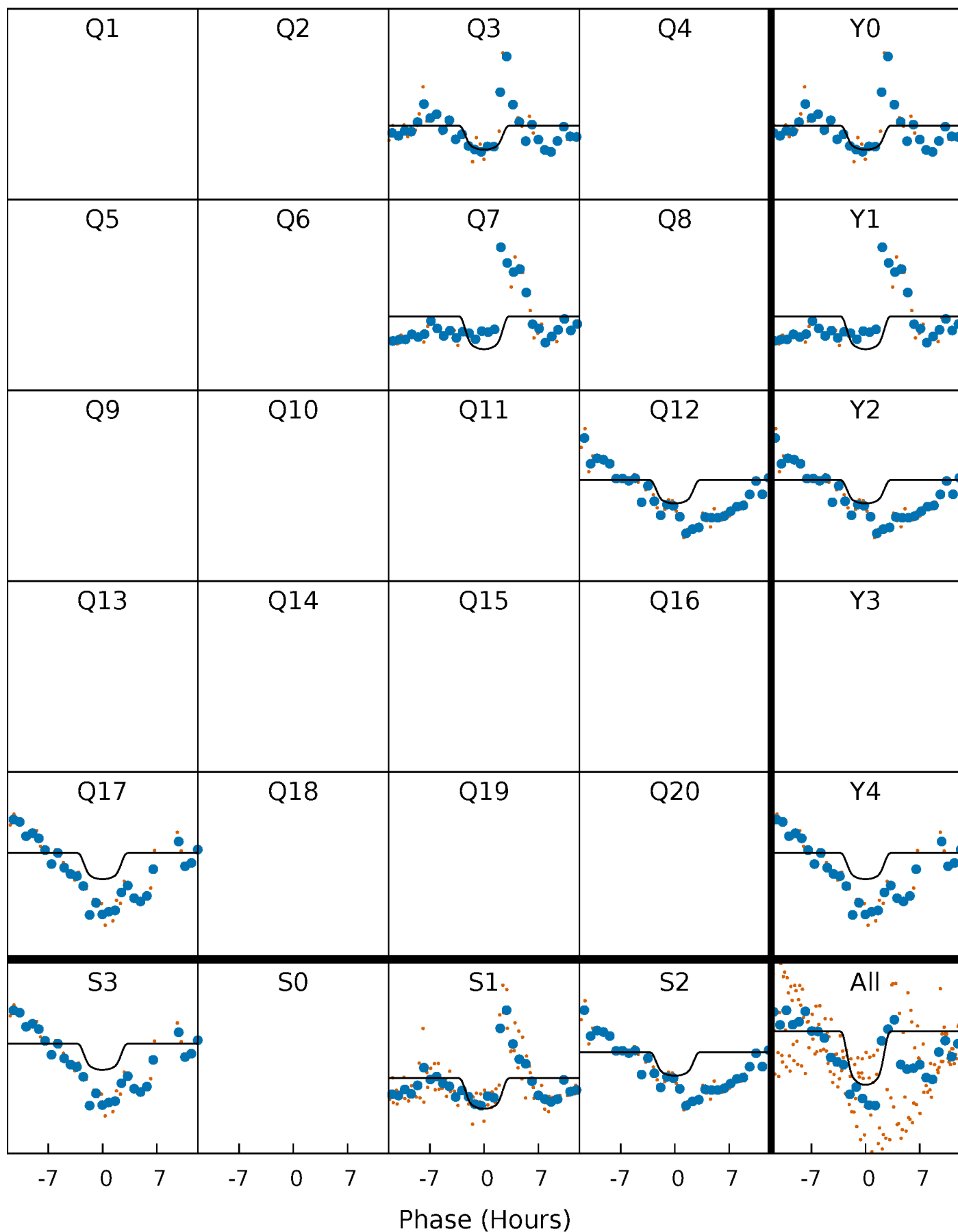
PDC Quarter-Phased Transit Curves

TCE 007133807-01 P=426.197852 Days $T_0=281.966556$ (BKJD)



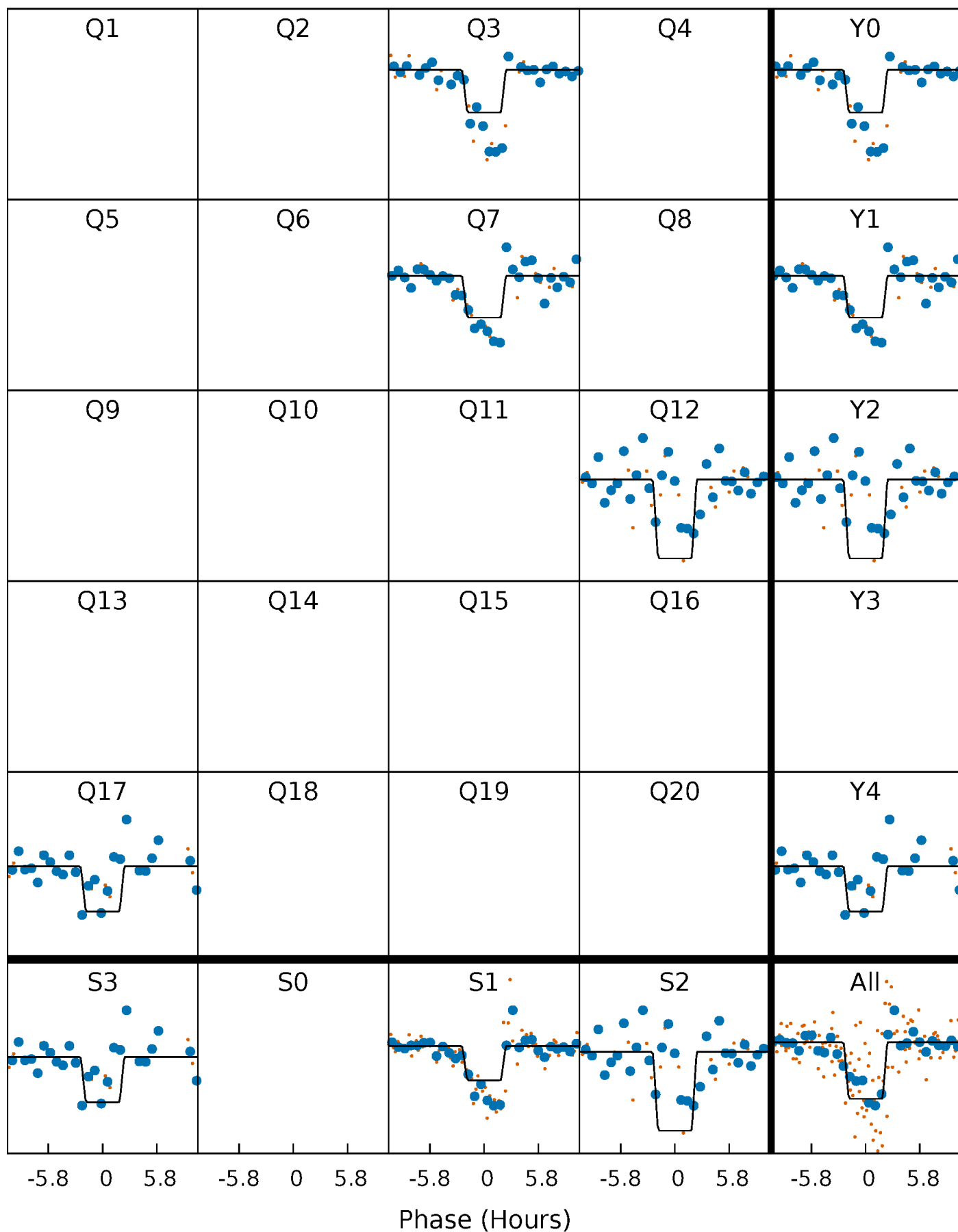
DV Quarter-Phased Transit Curves

TCE 007133807-01 P=426.197852 Days $T_0=281.966556$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

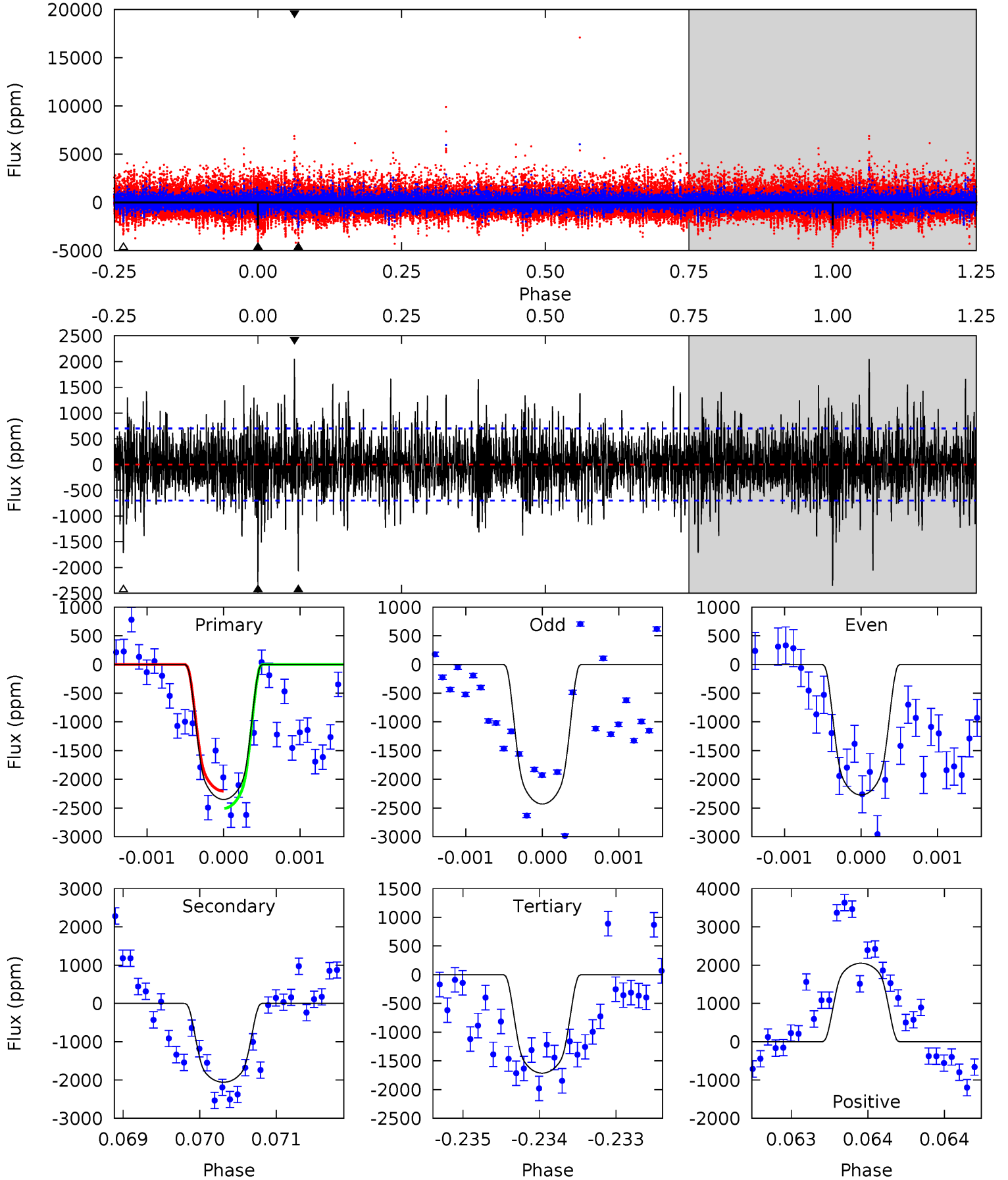
TCE 007133807-01 P=426.210006 Days $T_0=281.952223$ (BKJD)



DV Model-Shift Uniqueness Test

007133807-01, P = 426.197852 Days, E = 281.966556 Days

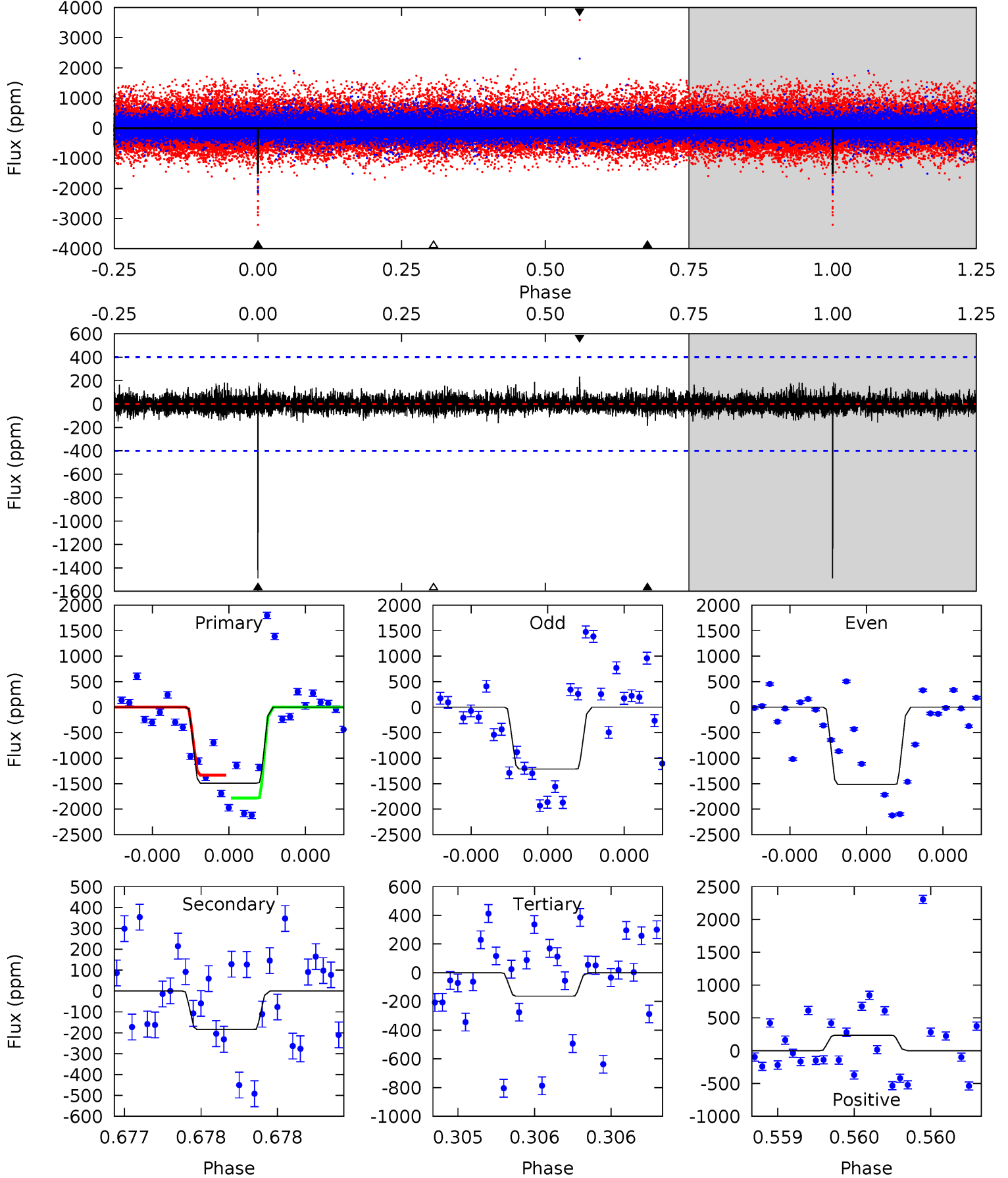
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	16.3	13.5	16.2	5.53	3.42	3.43	5.04	2.38	2.72	0.06	0.54	1.02	0.47	1.19



Alt Model-Shift Uniqueness Test

007133807-01, P = 426.210006 Days, E = 281.952223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	2.57	2.28	3.25	5.60	3.52	0.55	18.5	17.5	0.29	-0.68	2.18	1.08	0.14	0



Stellar Parameters For KIC 007133807

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4378^{+176}_{-176}	$4.586^{+0.056}_{-0.021}$	$0.280^{+0.150}_{-0.300}$	$0.710^{+0.033}_{-0.063}$	$0.709^{+0.048}_{-0.054}$	$2.787^{+0.700}_{-0.239}$
	+4%/-4%	+1%/-0%	+54%/-107%	+5%/-9%	+7%/-8%	+25%/-9%
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 007133807-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2059 ± 127	$3.55^{+0.51}_{-0.45}$	228^{+9}_{-10}	4355^{+293}_{-267}	88896^{+30556}_{-21261}
Alt.	-184 ± 72	$3.14^{+0.48}_{-0.50}$	228^{+10}_{-10}	3054^{+238}_{-237}	10365^{+6200}_{-4551}

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

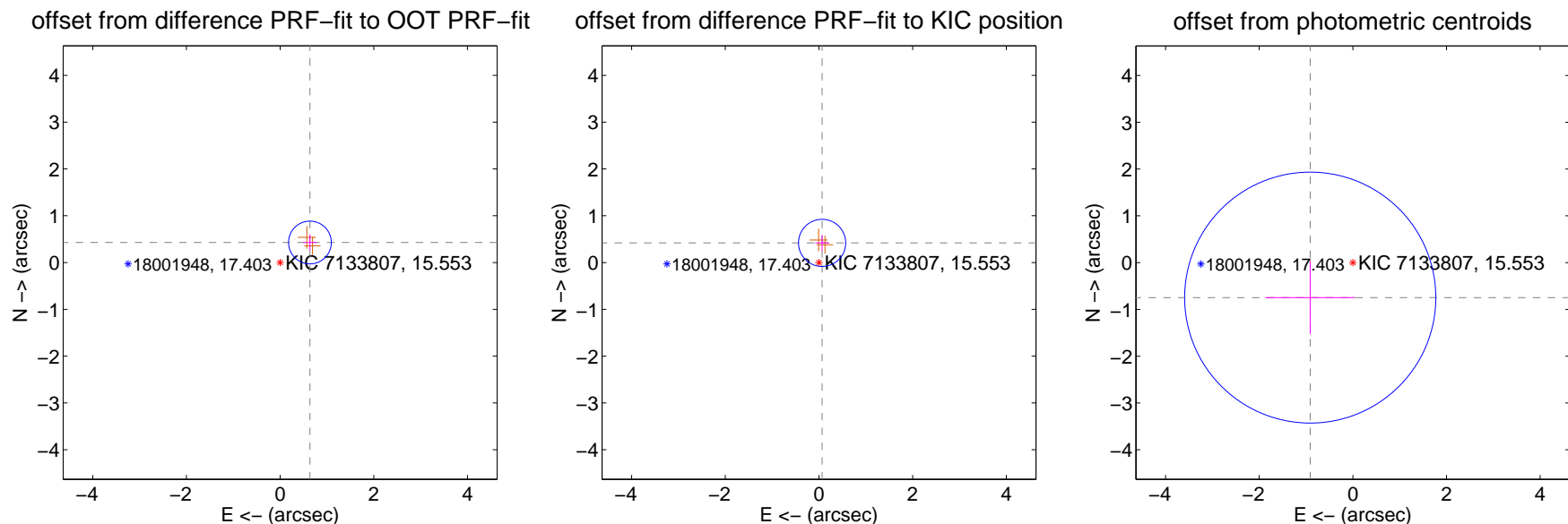
DV Centroid Data

Supplemental centroid analysis for 007133807-01. Kepler magnitude: 15.55. Transit SNR 6.49

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.767 \pm 0.152	5.04	-0.637 \pm 0.144	0.428 \pm 0.168
PRF-fit source offset from KIC position	0.425 \pm 0.168	2.53	-0.066 \pm 0.144	0.420 \pm 0.168
photometric centroid source offset	1.18 \pm 0.89	1.32	0.91 \pm 0.96	-0.75 \pm 0.78



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

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

Q1 no difference image



Q1 no OOT image



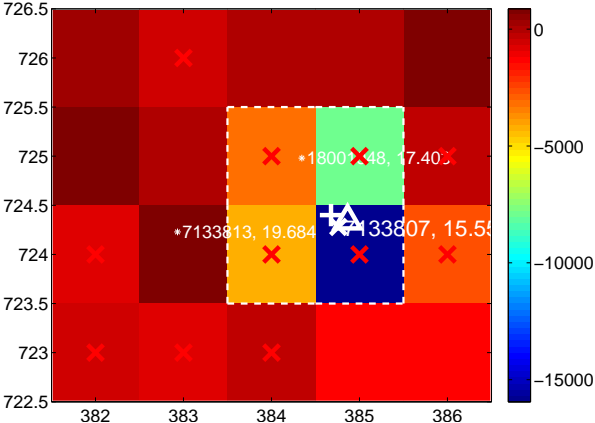
Q2 no difference image



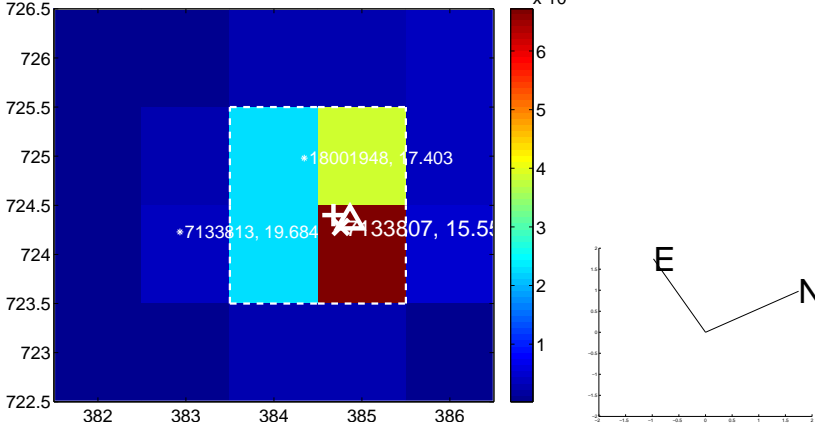
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



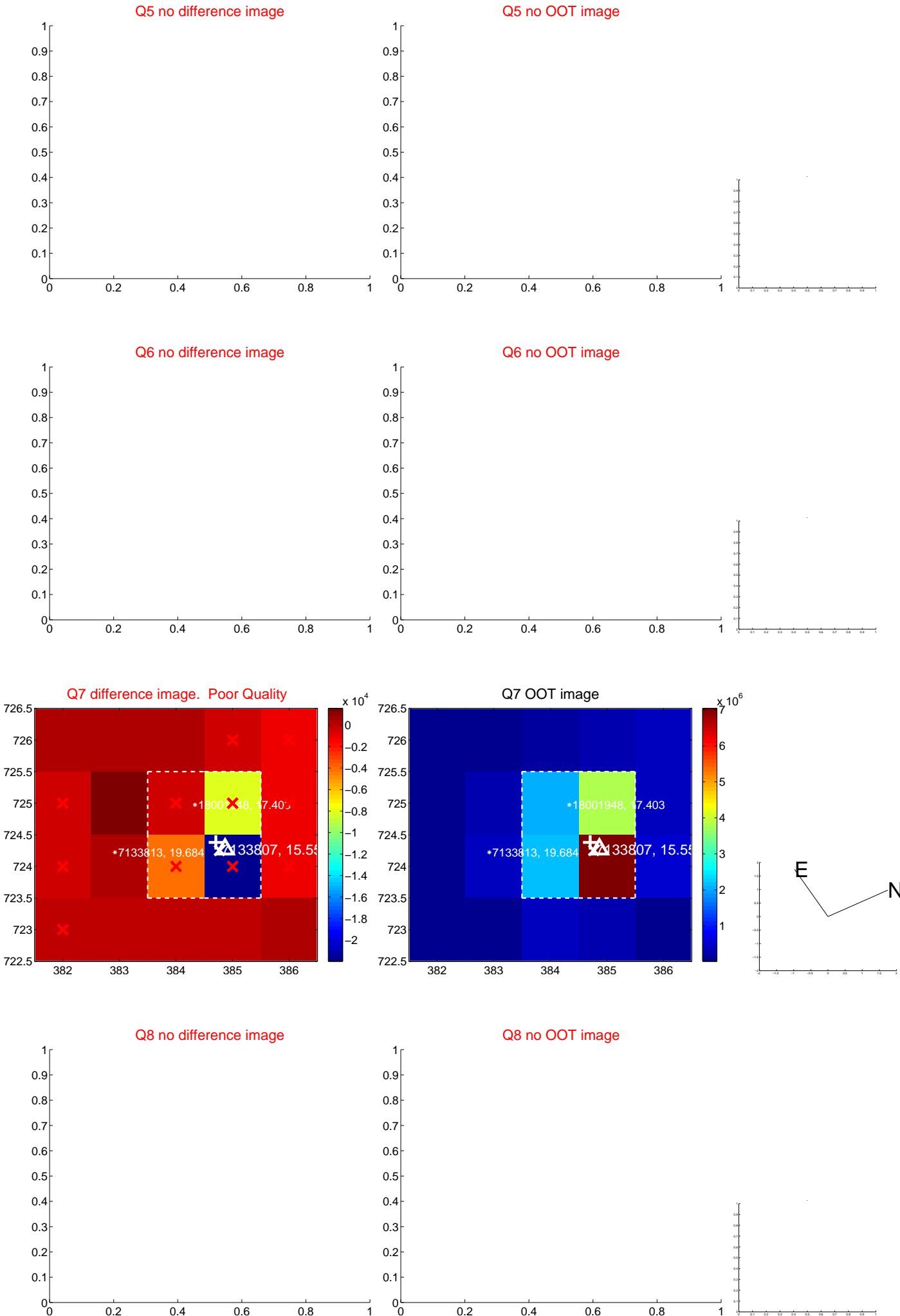
Q4 no difference image



Q4 no OOT image



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



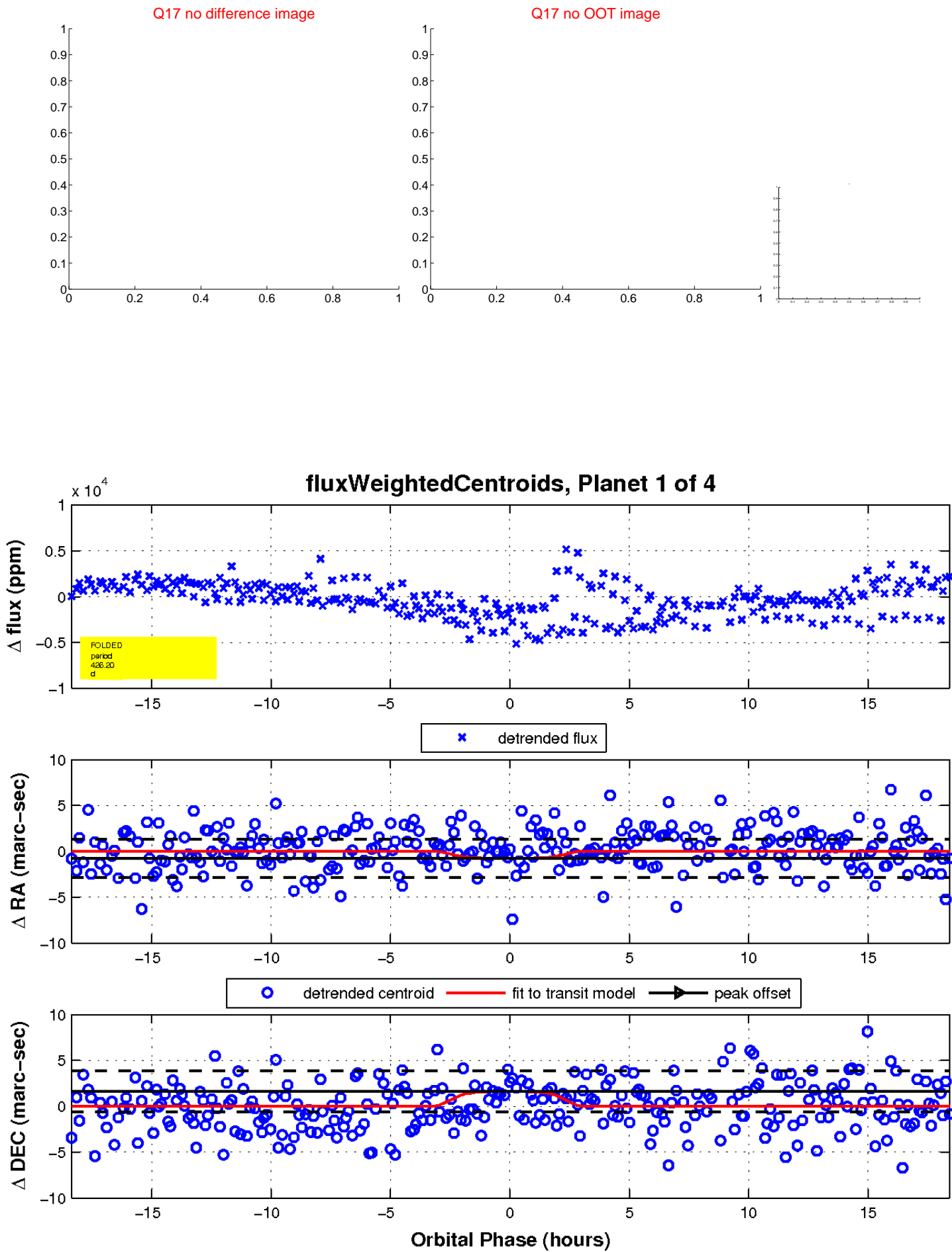
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

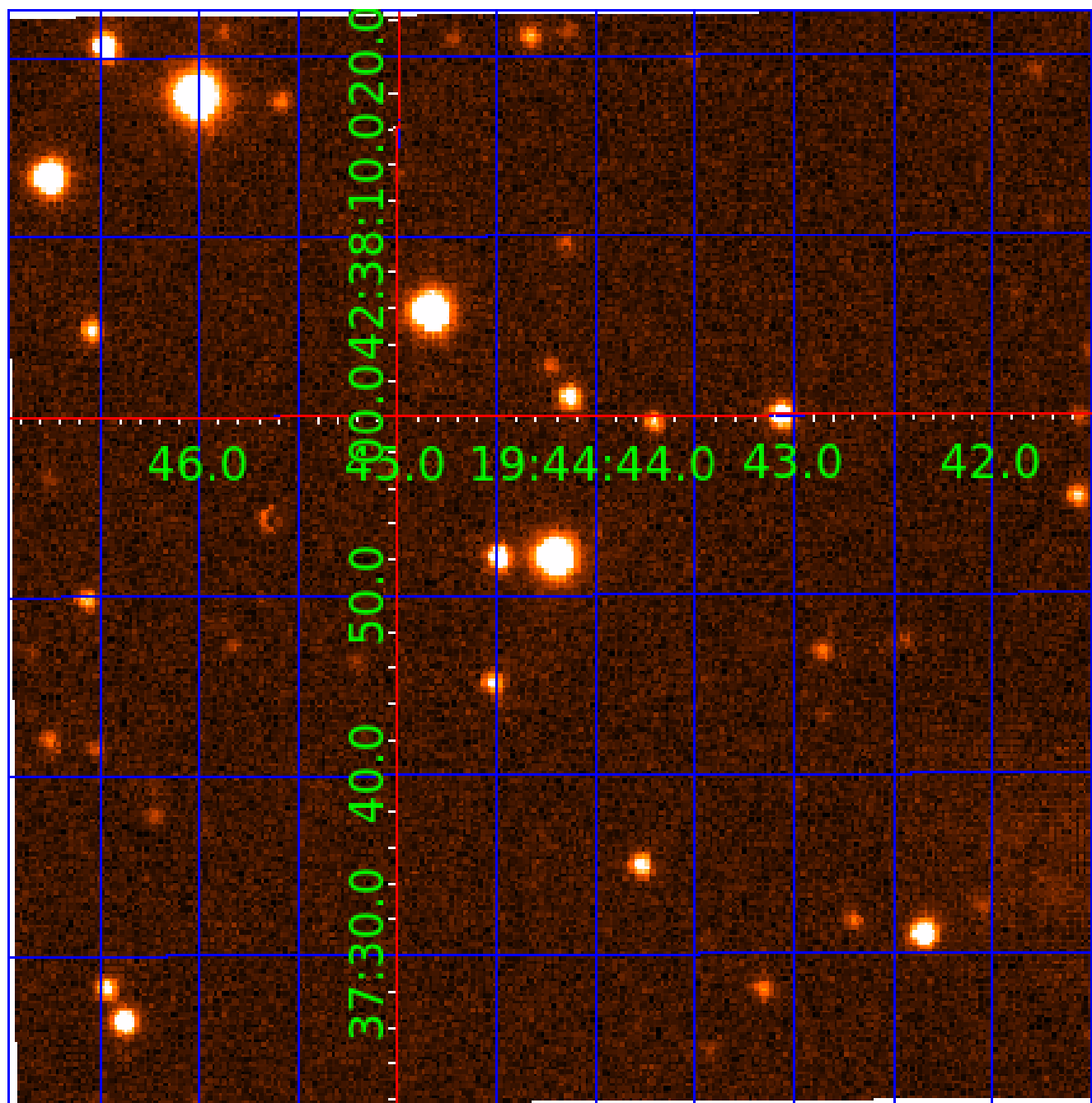


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007133807

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})
007133807-01	OBS	No	426.197852	281.966556	1655.3	6.153	9.7	6.5	0.71	4378	3.60	0.17
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Robovetter Results

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007133807-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
007133807-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

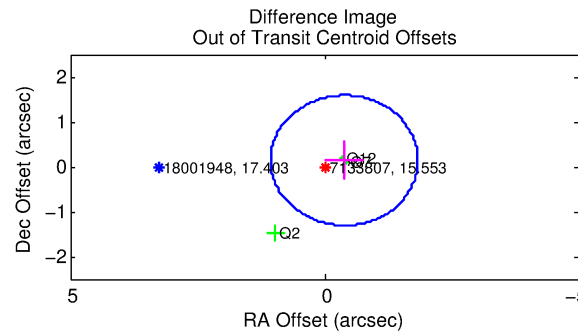
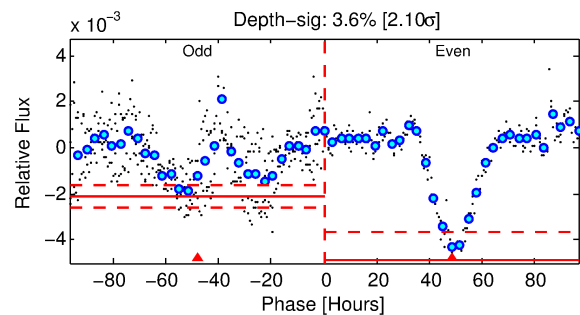
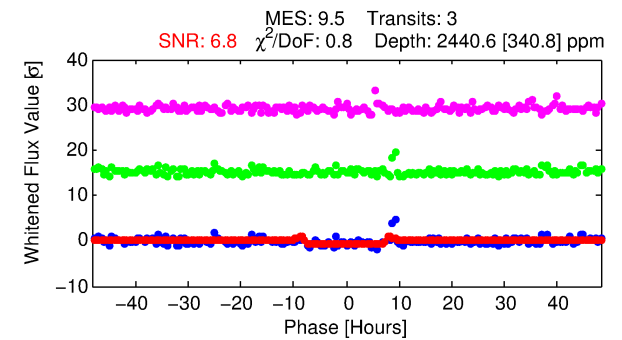
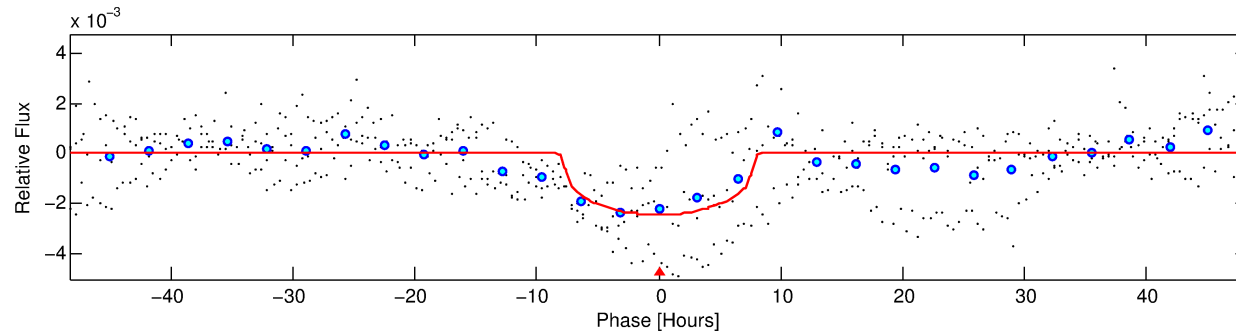
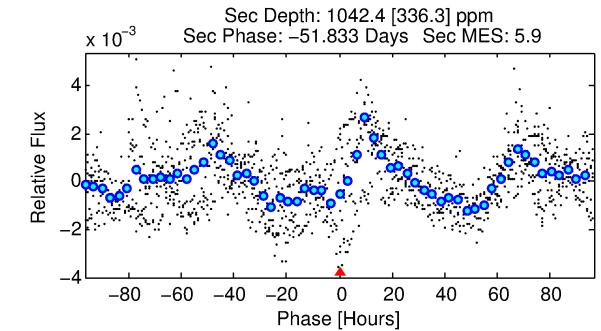
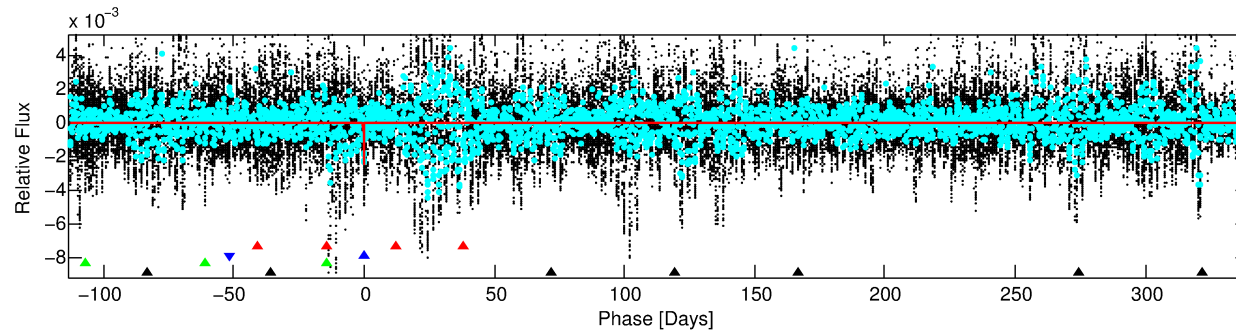
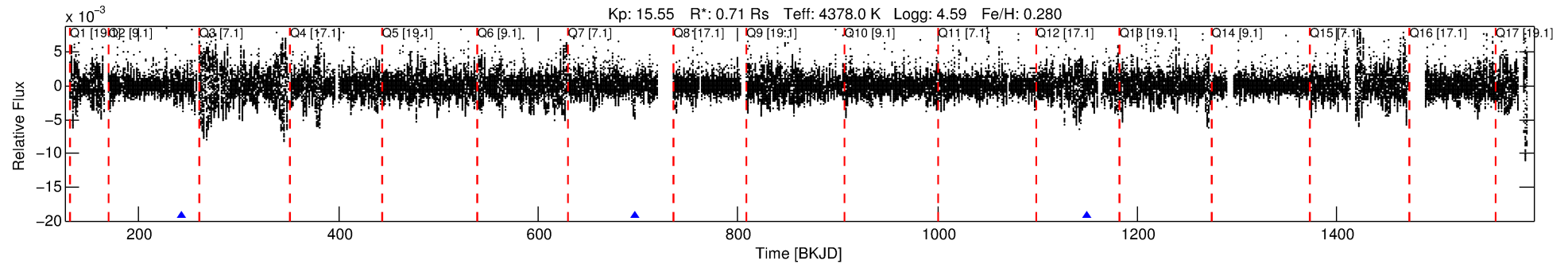
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007133807-02

No Significant Match Found

DV One-Page Summary

KIC: 7133807 Candidate: 2 of 4 Period: 452.664 d



DV Fit Results:

Period = 452.66444 [0.00693] d
Epoch = 243.5831 [0.0087] BKJD
Rp/R* = 0.0431 [0.0108]
a/R* = 221.63 [152.50]
b = 0.13 [5.10]
Seff = 0.16 [0.03]
Teq = 160 [8] K
Rp = 3.34 [0.89] Re
a = 1.0289 [0.0752] AU
Ag = 54358.71 [32908.06] [1.65 σ]
Teffp = 3788 [585] K [6.20 σ]

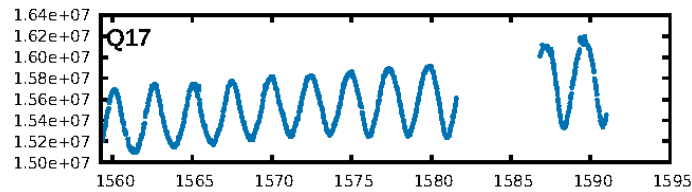
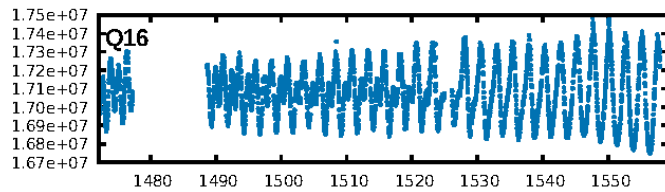
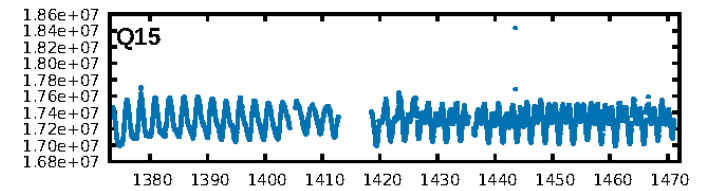
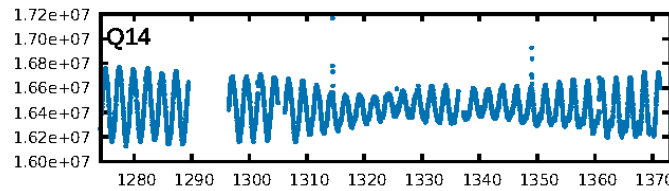
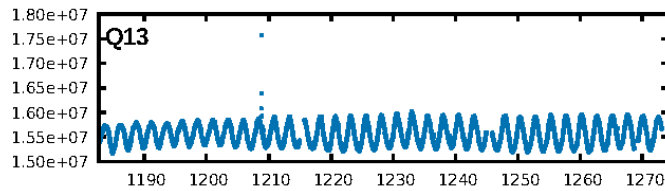
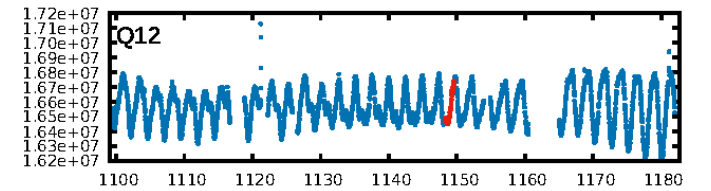
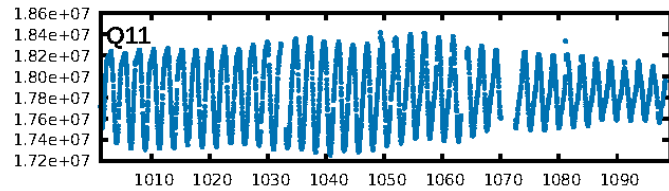
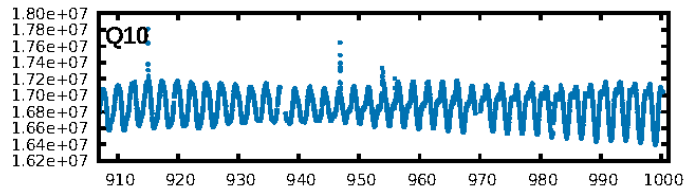
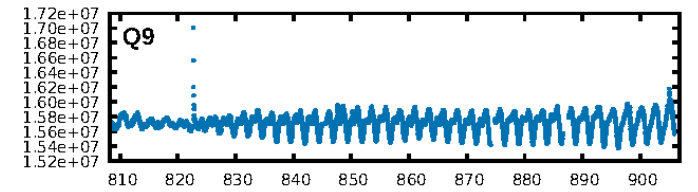
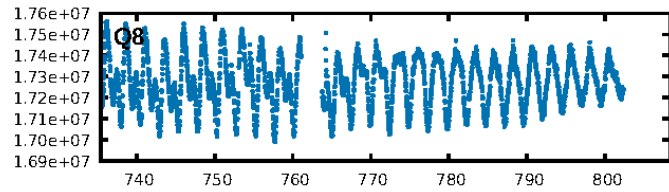
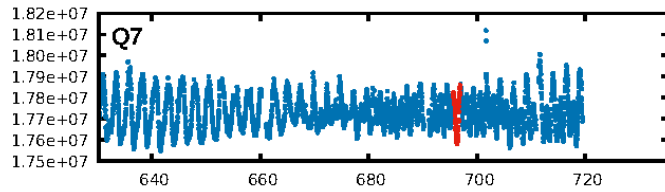
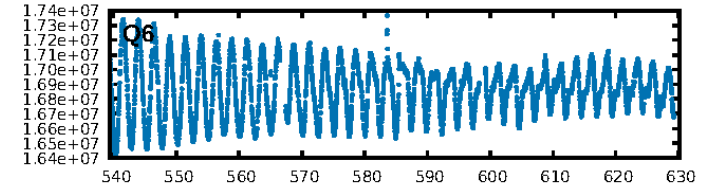
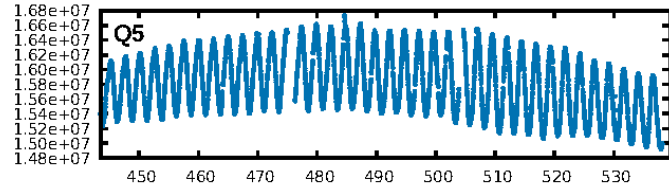
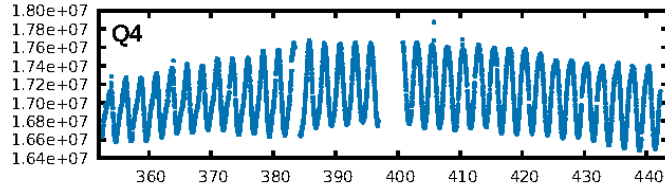
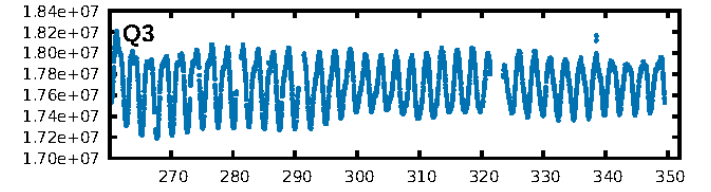
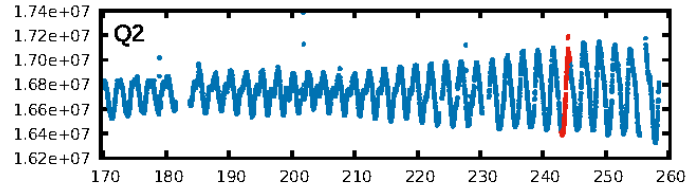
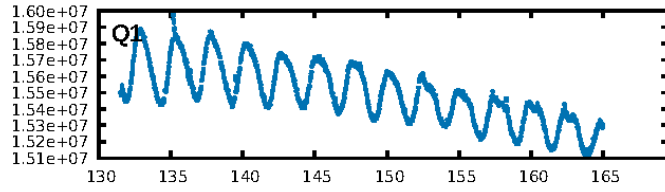
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.77 σ]
LongPeriod-sig: 100.0% [65.58 σ]
ModelChiSquare2-sig: 35.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.35e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9658
Centroid-sig: 13.2%
Centroid-so: 0.280 arcsec [0.60 σ]
OotOffset-rm: 0.409 arcsec [0.85 σ]
KicOffset-rm: 0.189 arcsec [1.87 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

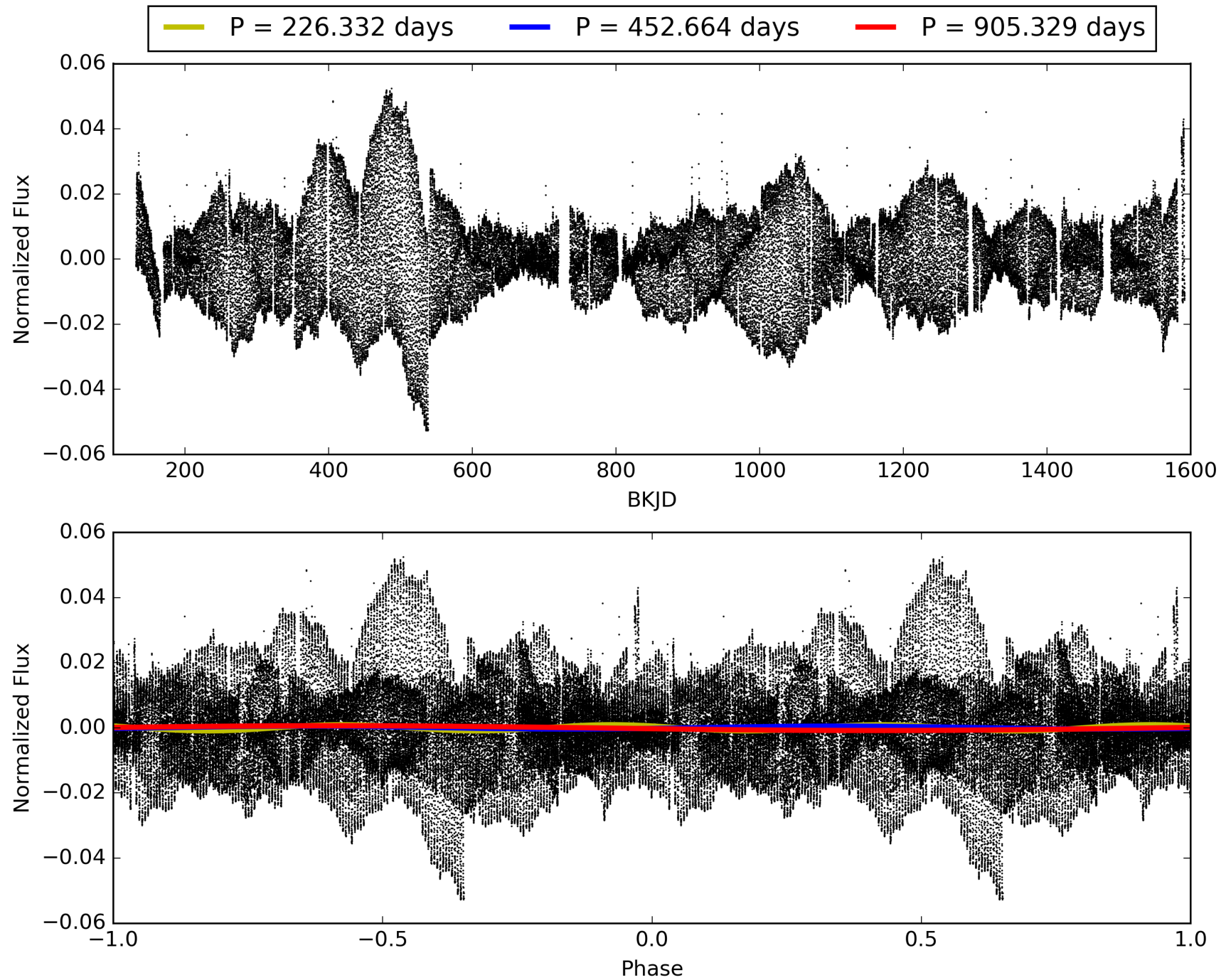
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:53:02 Z

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

TCE 007133807-02, PDC Light Curves

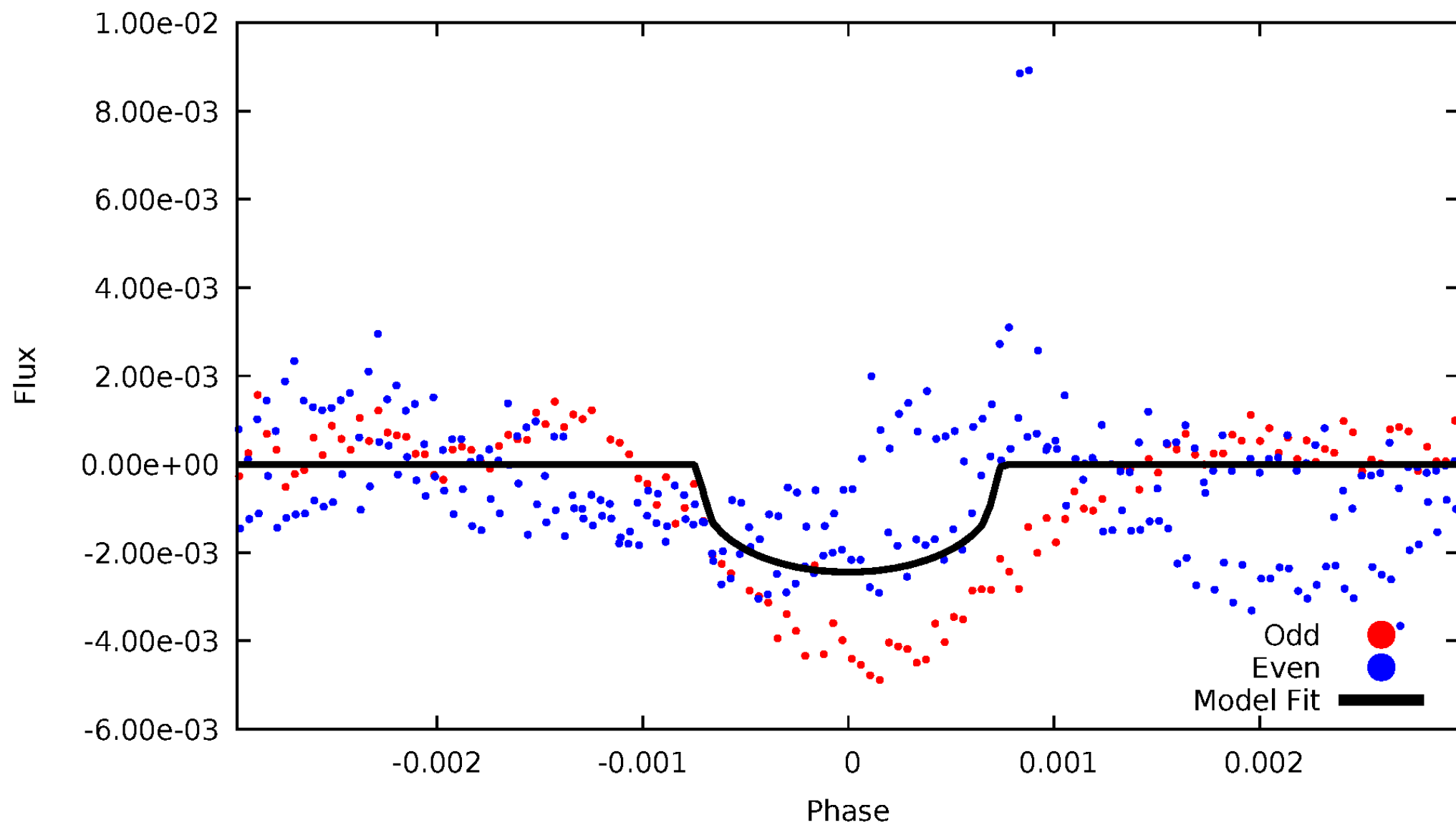


TCE 007133807-02



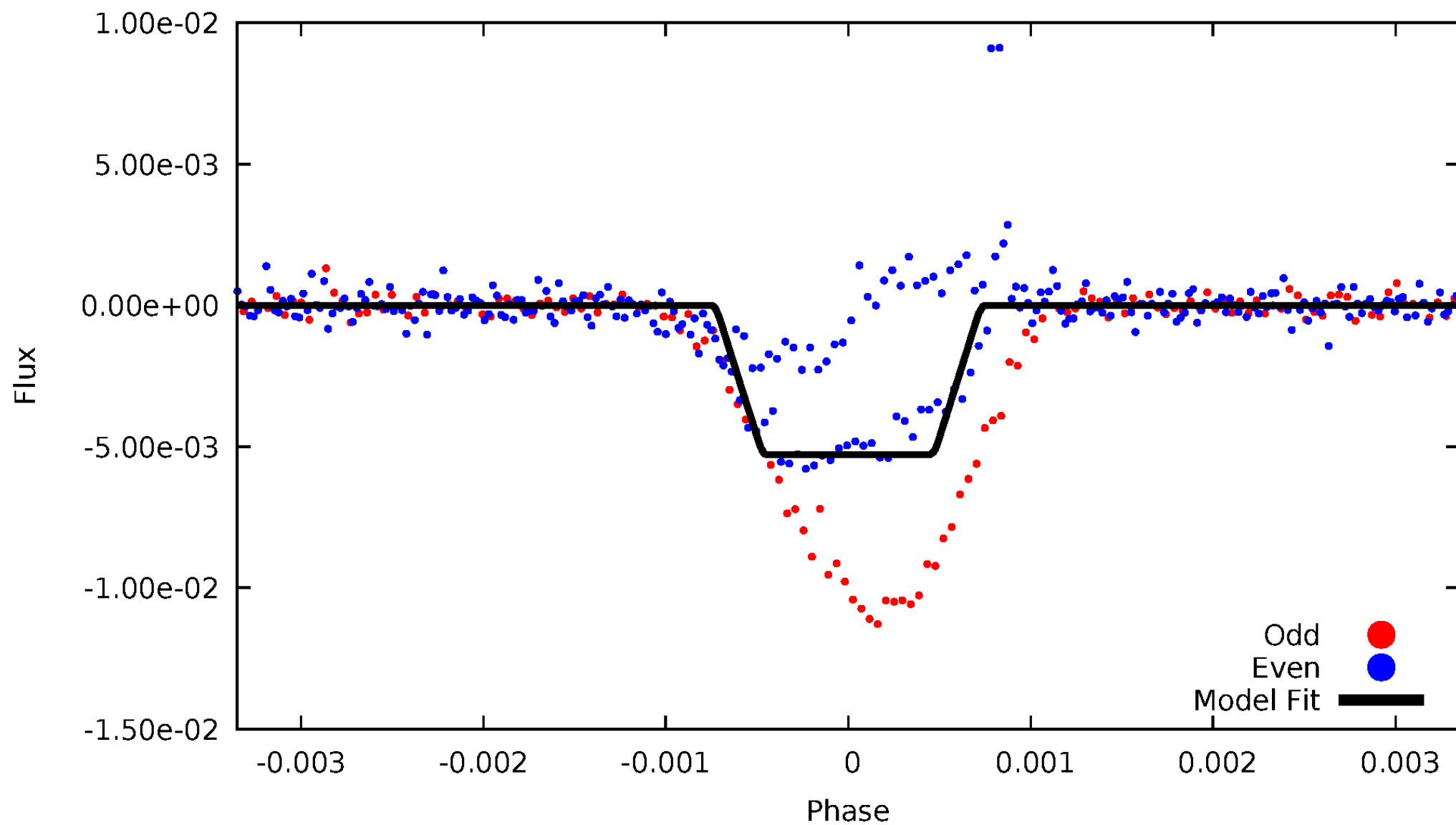
DV Odd/Even

TCE 007133807-02



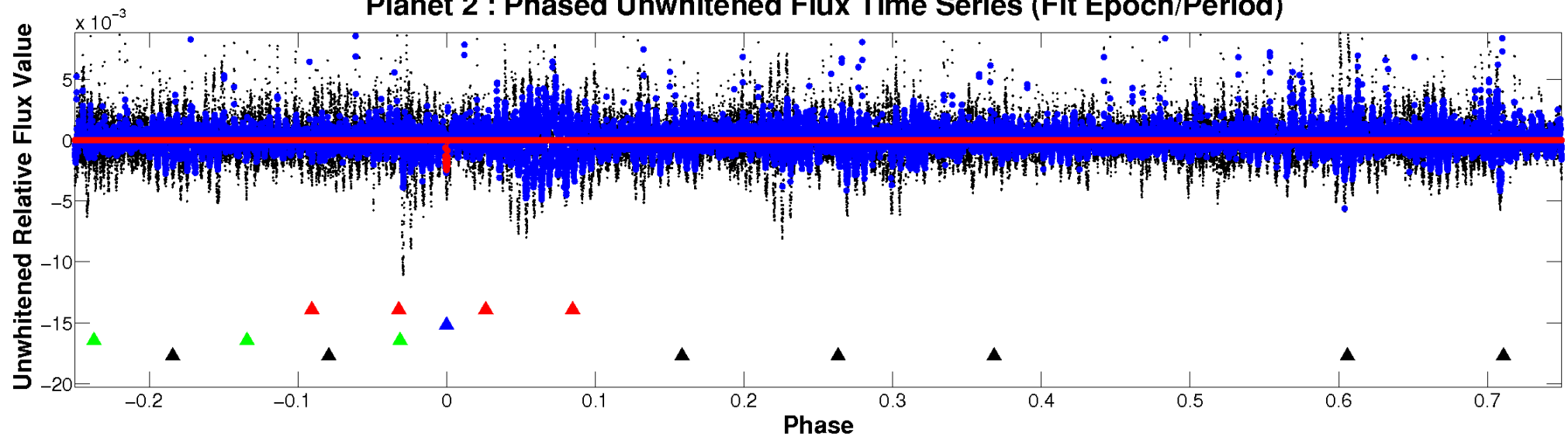
ALT Odd/Even

TCE 007133807-02

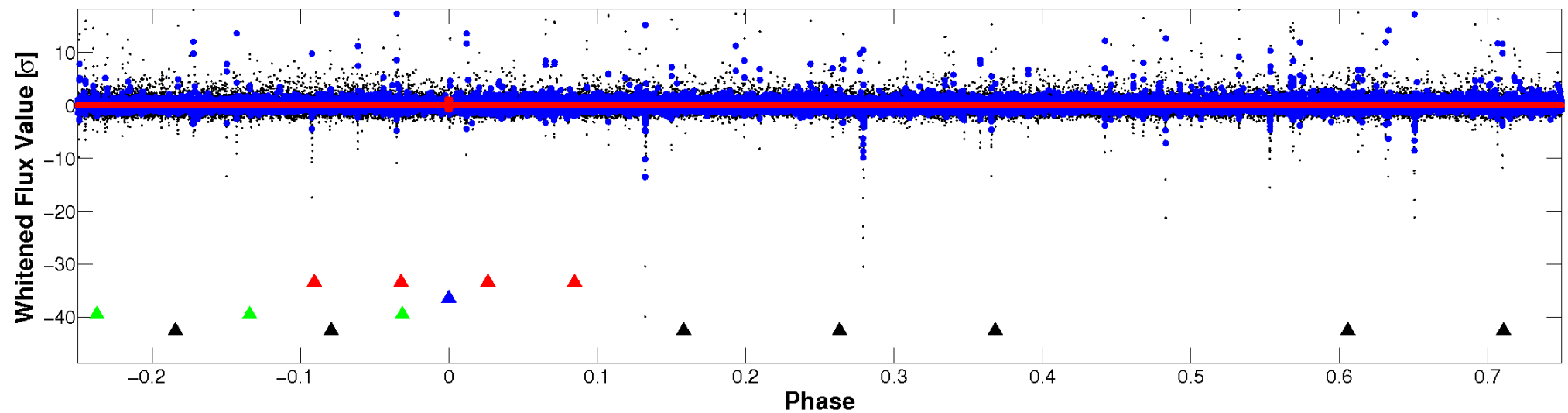


Non-Whitened Vs. Whitened Light Curve

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

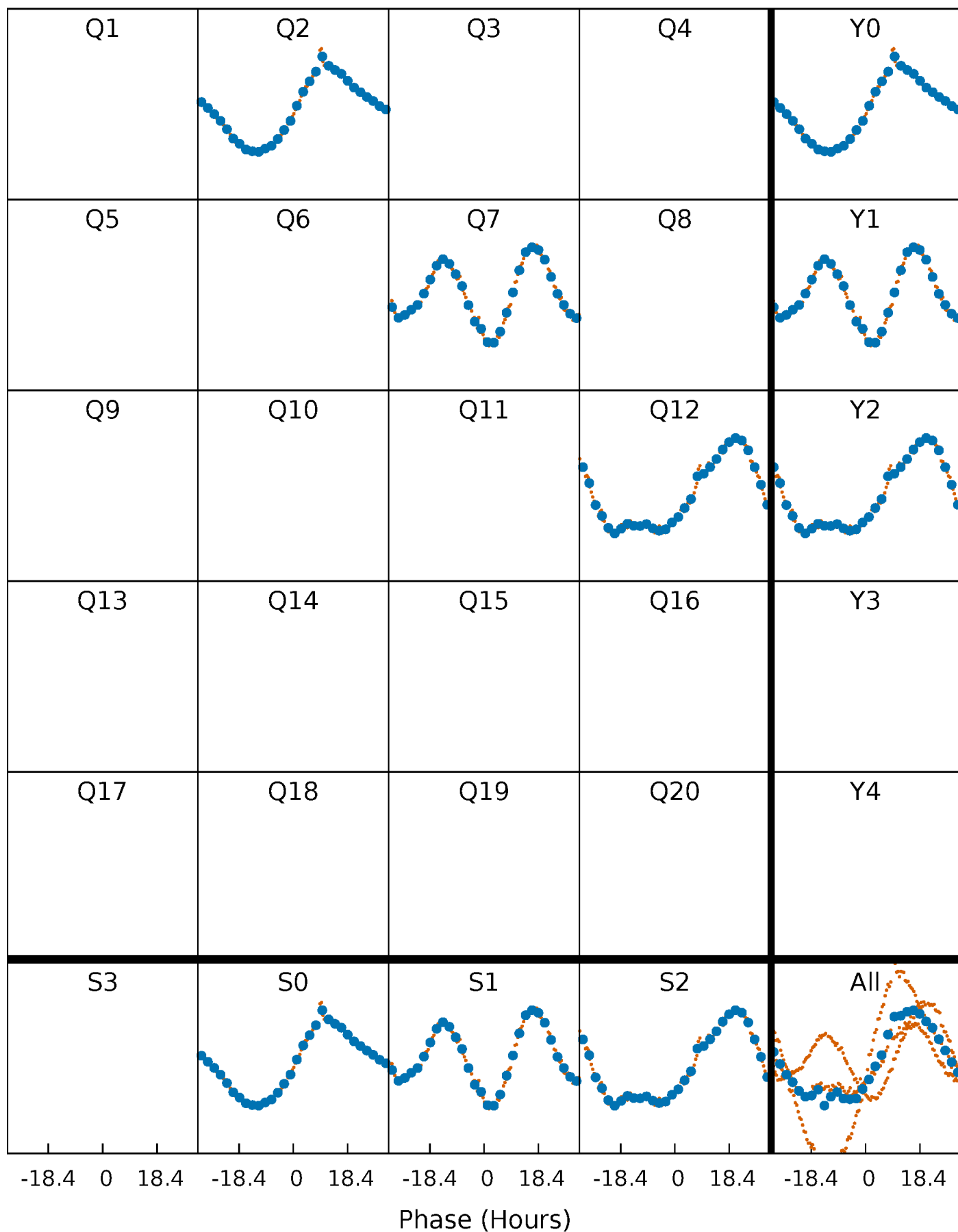


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



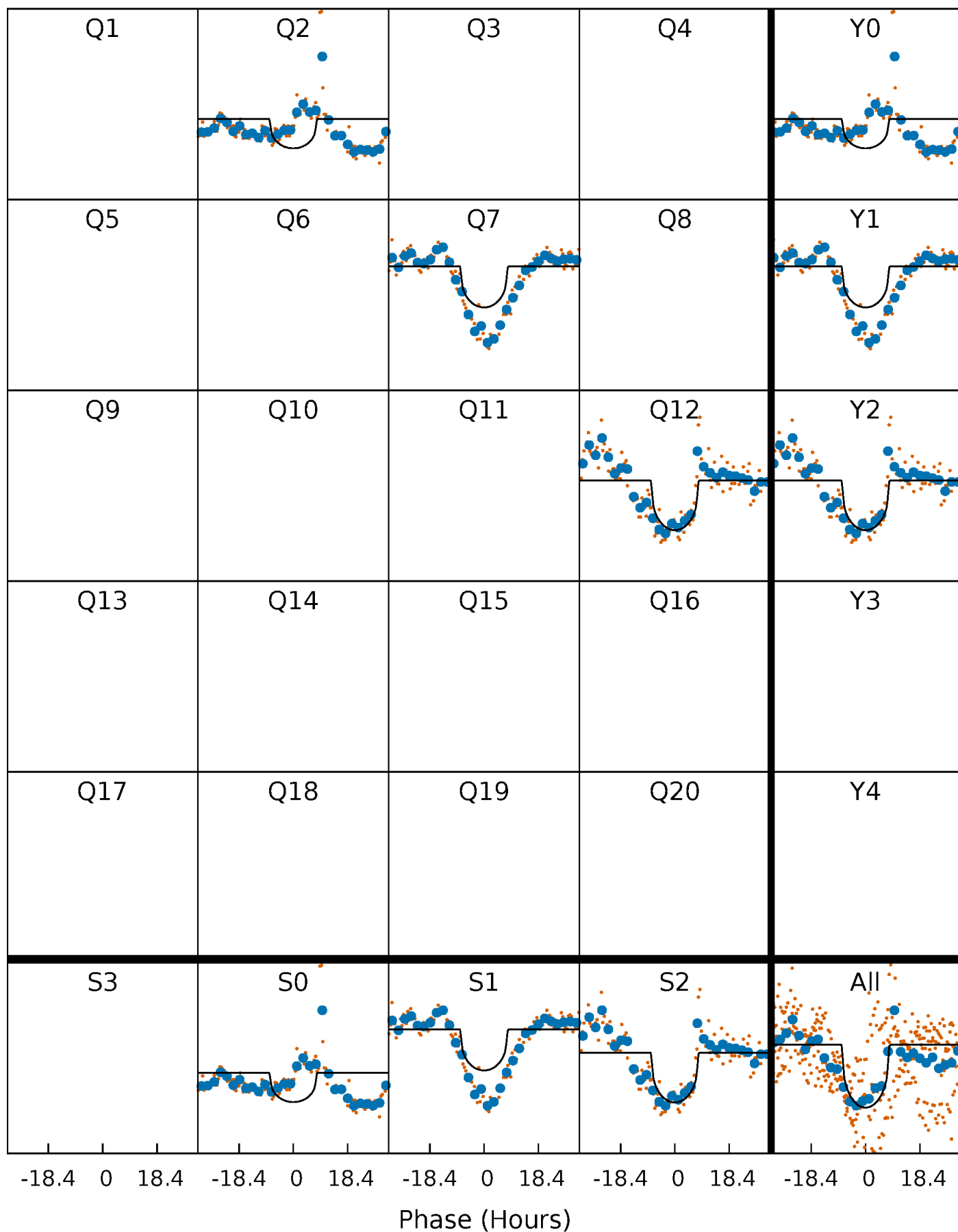
PDC Quarter-Phased Transit Curves

TCE 007133807-02 $P=452.664439$ Days $T_0=243.583132$ (BKJD)



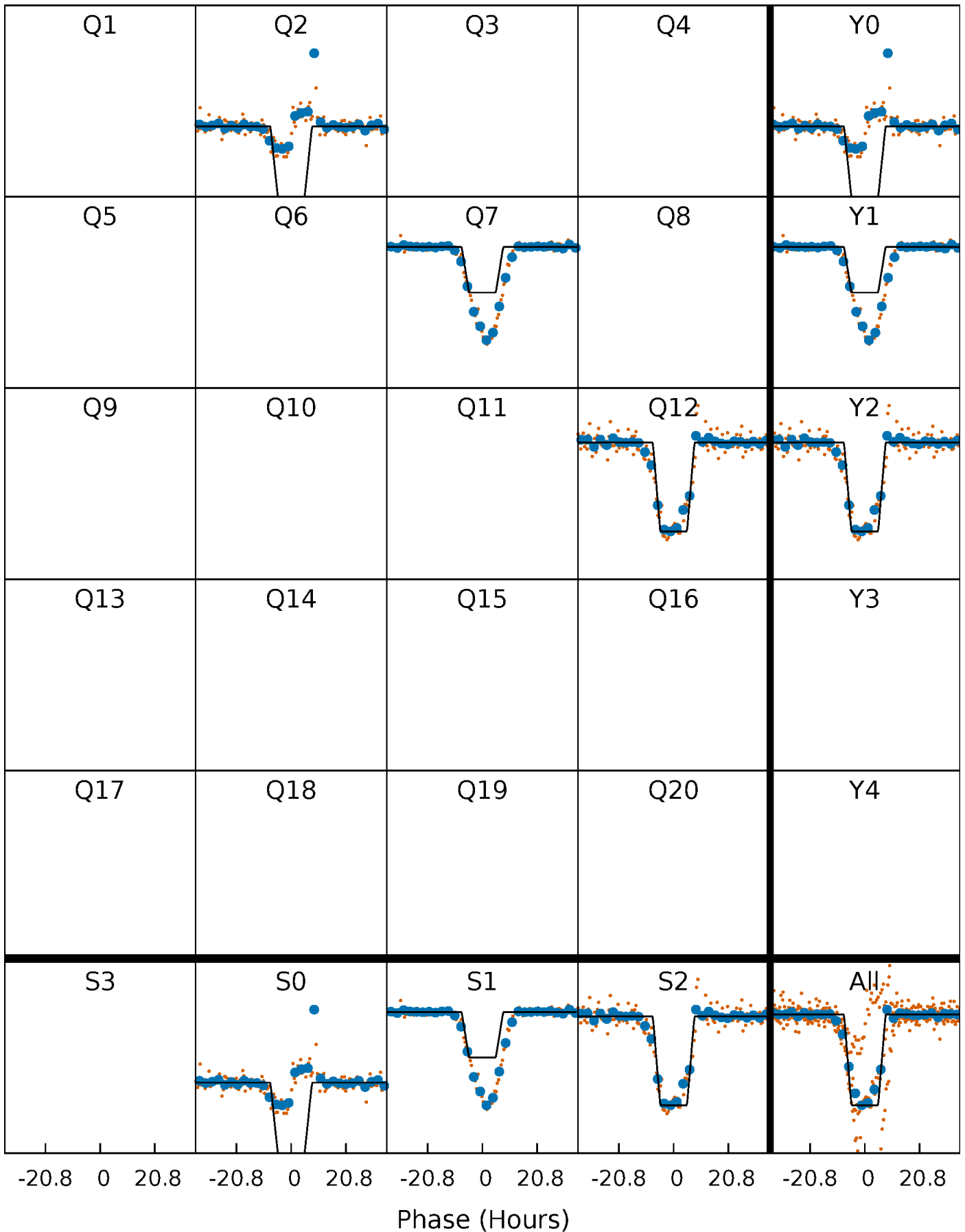
DV Quarter-Phased Transit Curves

TCE 007133807-02 $P=452.664439$ Days $T_0=243.583132$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

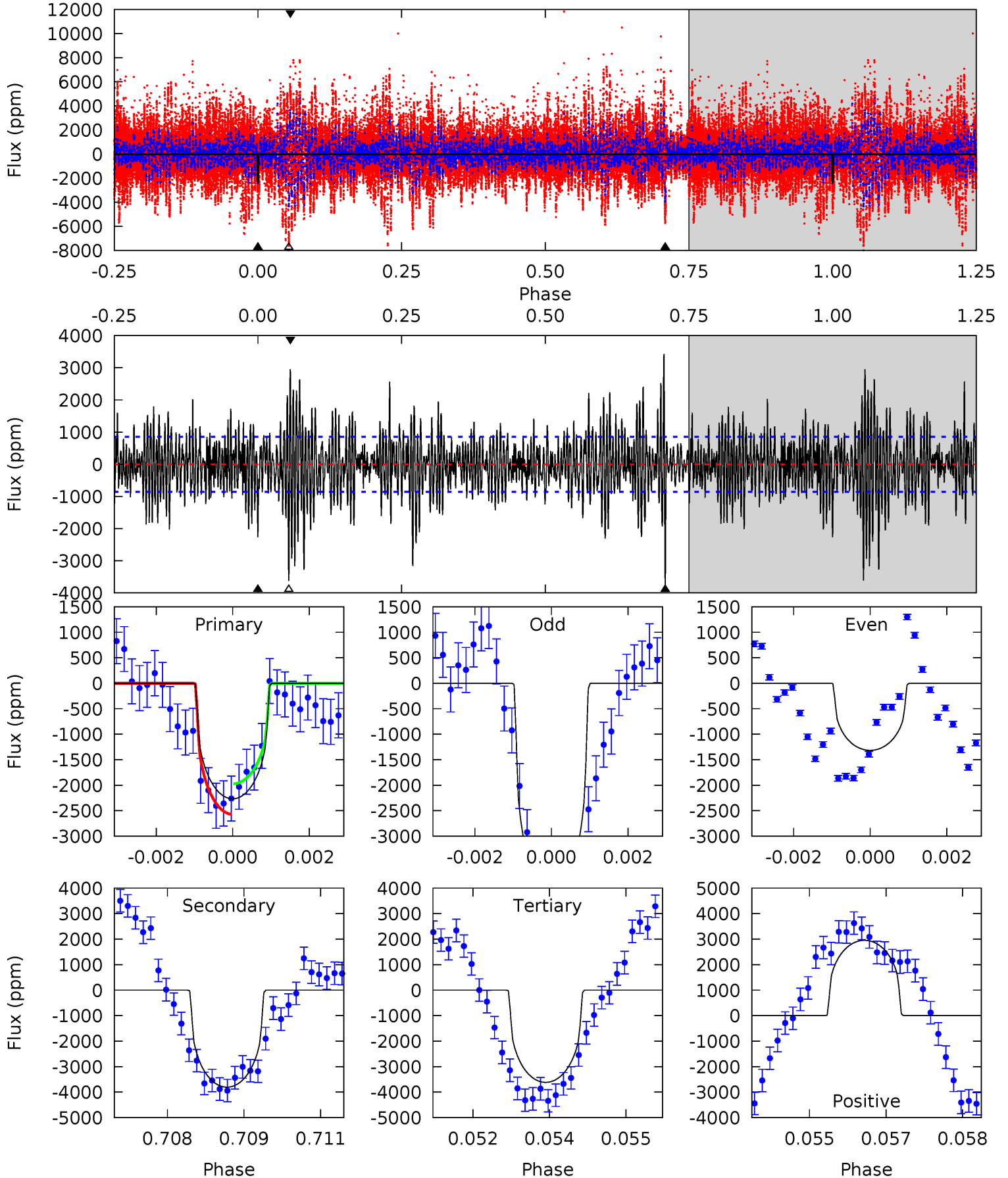
TCE 007133807-02 P=452.637410 Days $T_0=243.605951$ (BKJD)



DV Model-Shift Uniqueness Test

007133807-02, P = 452.664439 Days, E = 243.583132 Days

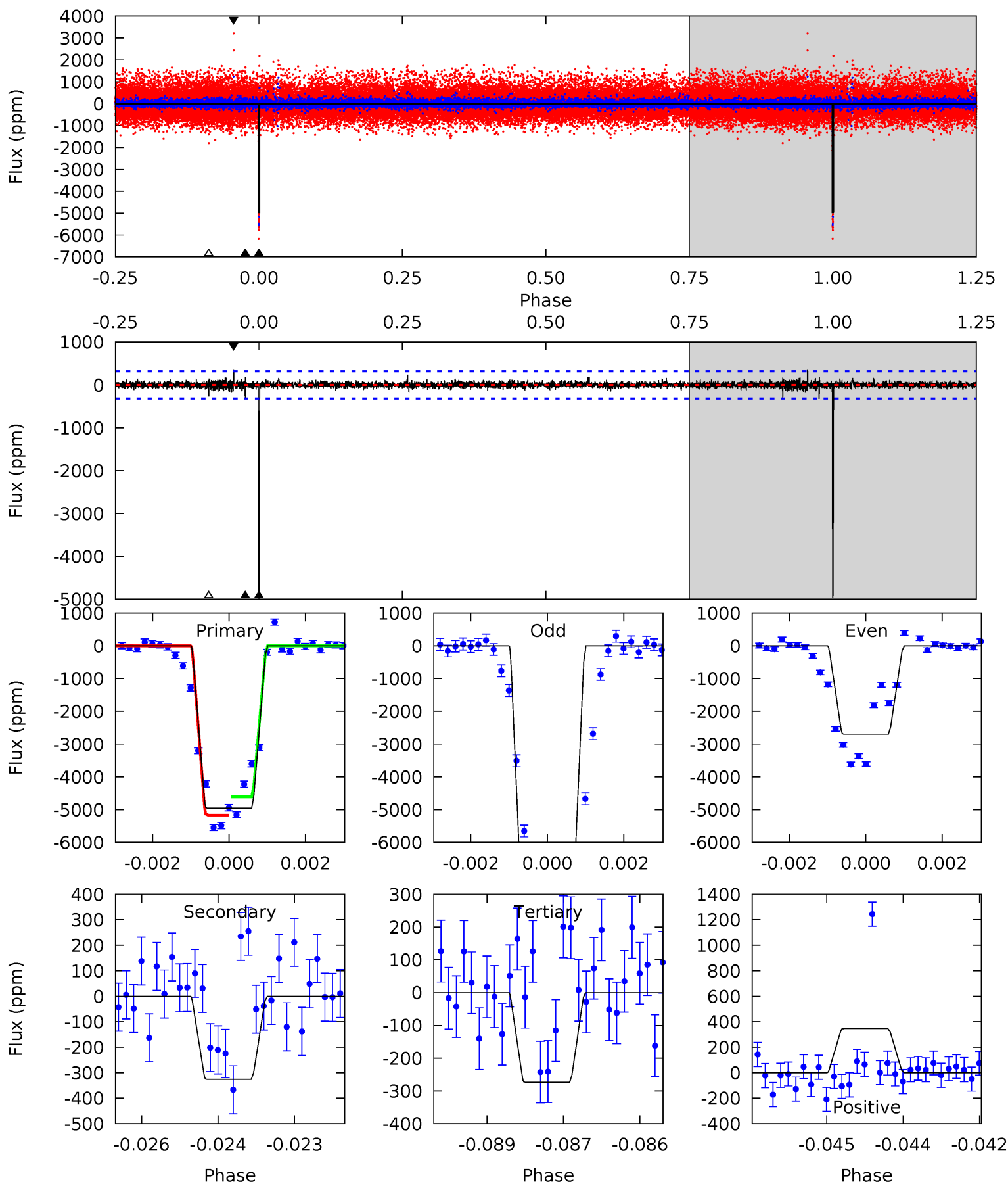
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	23.9	22.7	18.6	5.37	3.17	4.99	-8.49	-4.31	1.19	5.37	7.96	0.94	0.47	1.89



Alt Model-Shift Uniqueness Test

007133807-02, P = 452.637410 Days, E = 243.605951 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.2	5.47	4.59	5.81	5.38	3.17	0.64	78.6	77.4	0.88	-0.34	72.4	0.99	0.07	4.46



Stellar Parameters For KIC 007133807

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4378^{+176}_{-176}	$4.586^{+0.056}_{-0.021}$	$0.280^{+0.150}_{-0.300}$	$0.710^{+0.033}_{-0.063}$	$0.709^{+0.048}_{-0.054}$	$2.787^{+0.700}_{-0.239}$
	+4%/-4%	+1%/-0%	+54%/-107%	+5%/-9%	+7%/-8%	+25%/-9%
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 007133807-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3805 ± 159	$3.25^{+0.80}_{-0.82}$	222^{+10}_{-9}	5082^{+761}_{-469}	$214401^{+165851}_{-78359}$
Alt.	-326 ± 60	$5.57^{+0.91}_{-0.90}$	222^{+10}_{-10}	2814^{+170}_{-160}	6166^{+2780}_{-1922}

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

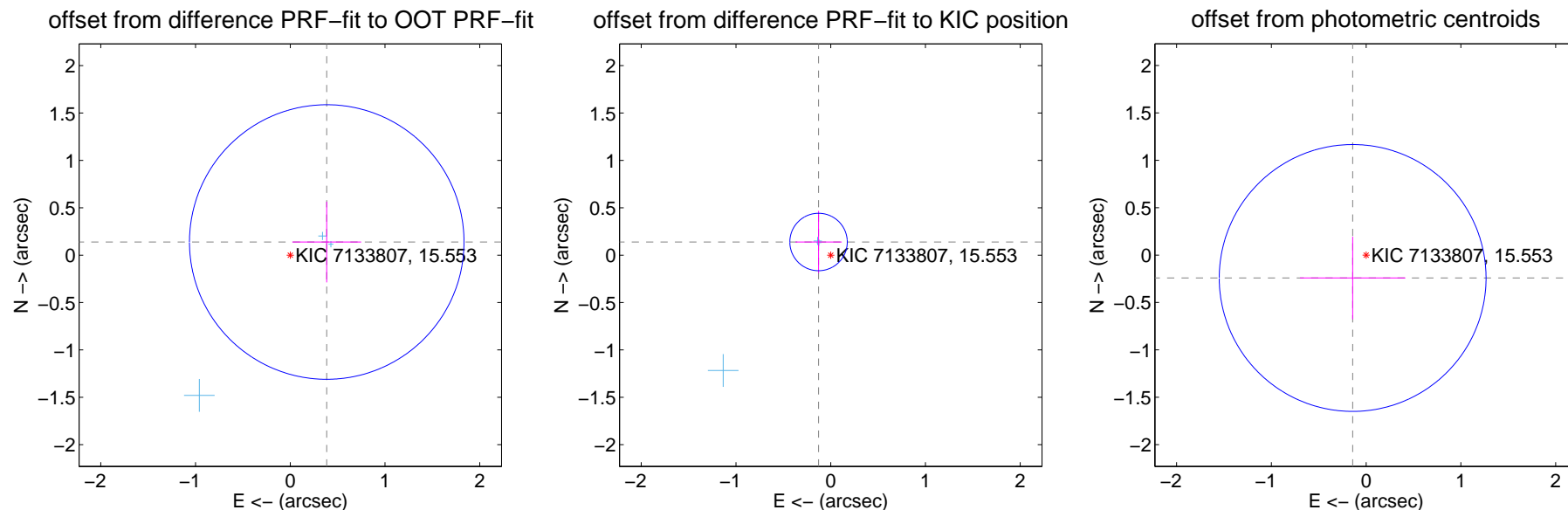
DV Centroid Data

Supplemental centroid analysis for 007133807-02. Kepler magnitude: 15.55. Transit SNR 6.82

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.409 ± 0.483	0.85	-0.385 ± 0.363	0.139 ± 0.426
PRF-fit source offset from KIC position	0.189 ± 0.101	1.87	0.128 ± 0.245	0.139 ± 0.328
photometric centroid source offset	0.28 ± 0.47	0.60	0.14 ± 0.56	-0.24 ± 0.44



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

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

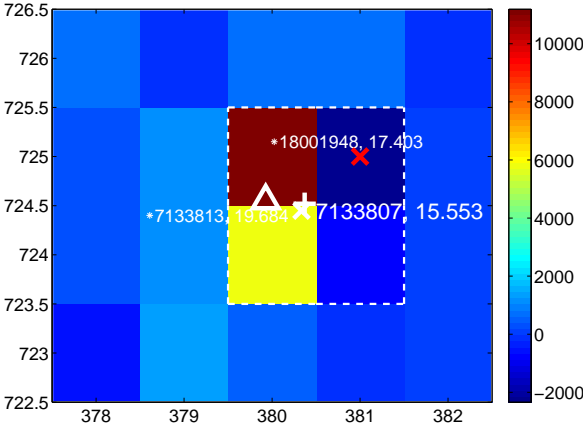
Q1 no difference image



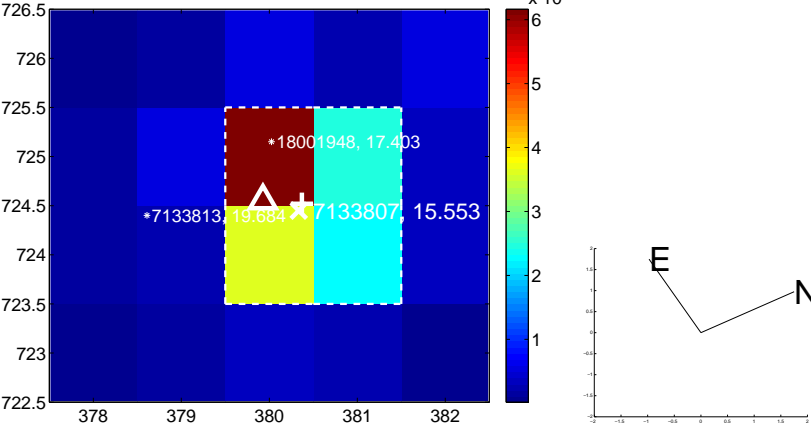
Q1 no OOT image



Q2 difference image



Q2 OOT image



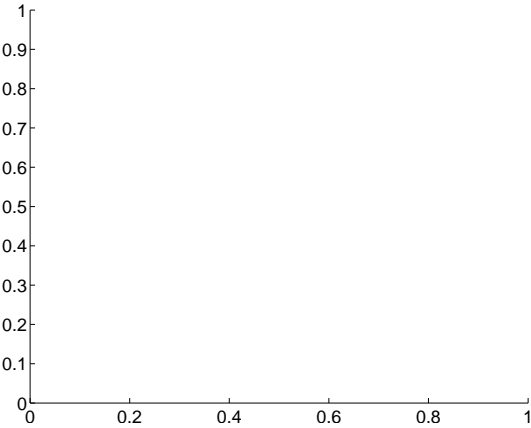
Q3 no difference image



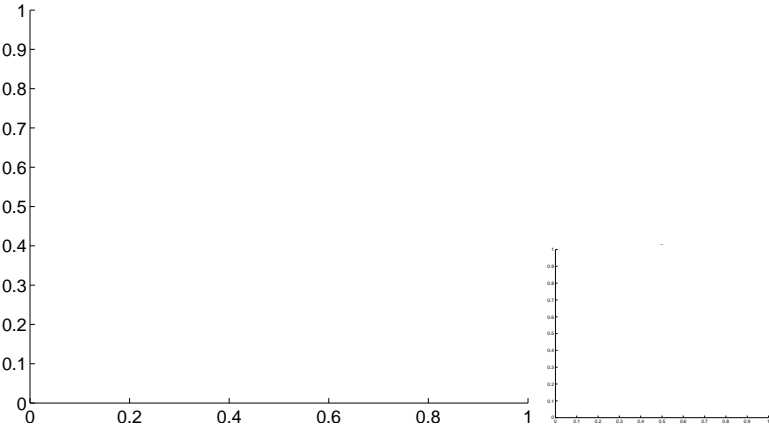
Q3 no OOT image



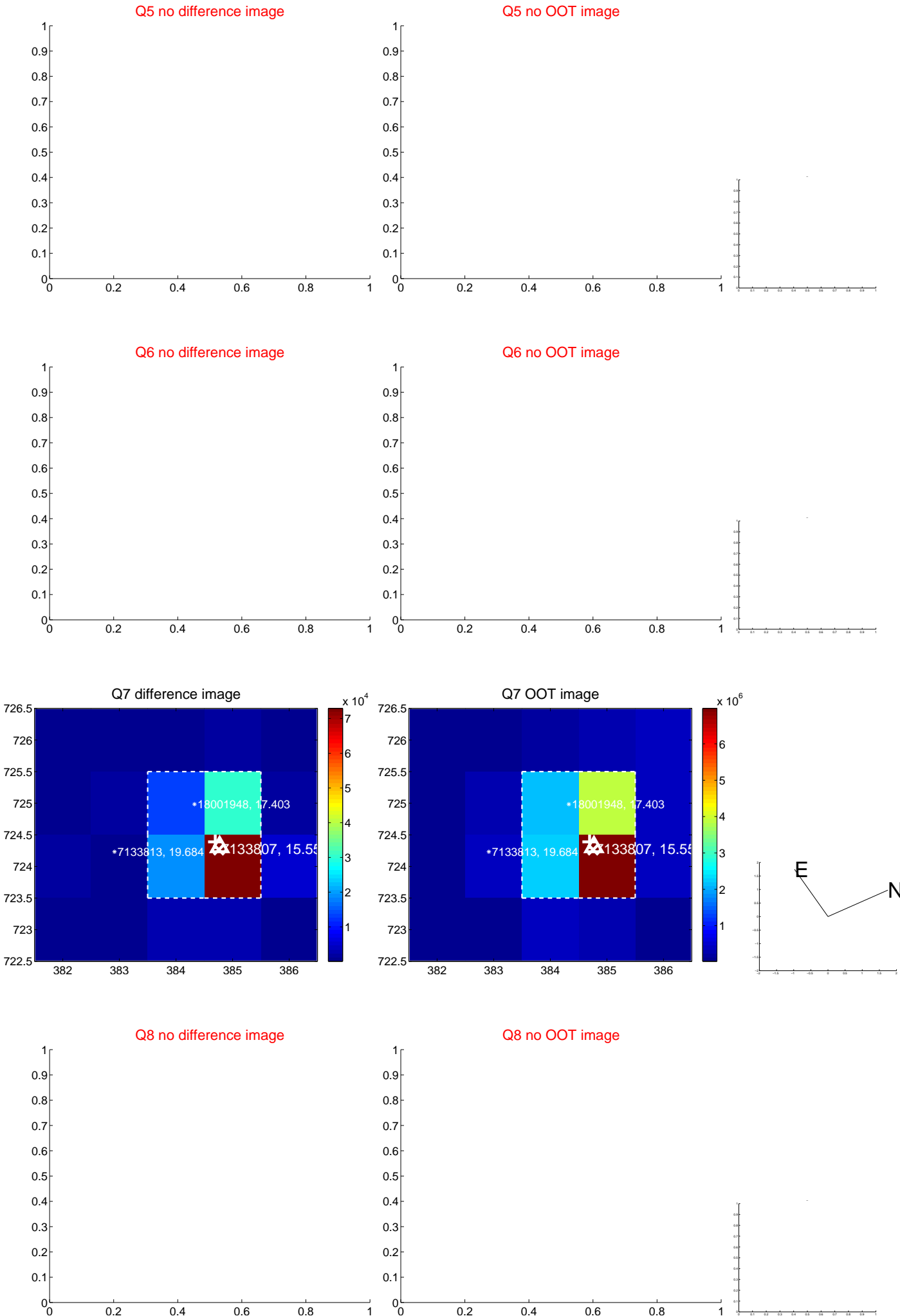
Q4 no difference image



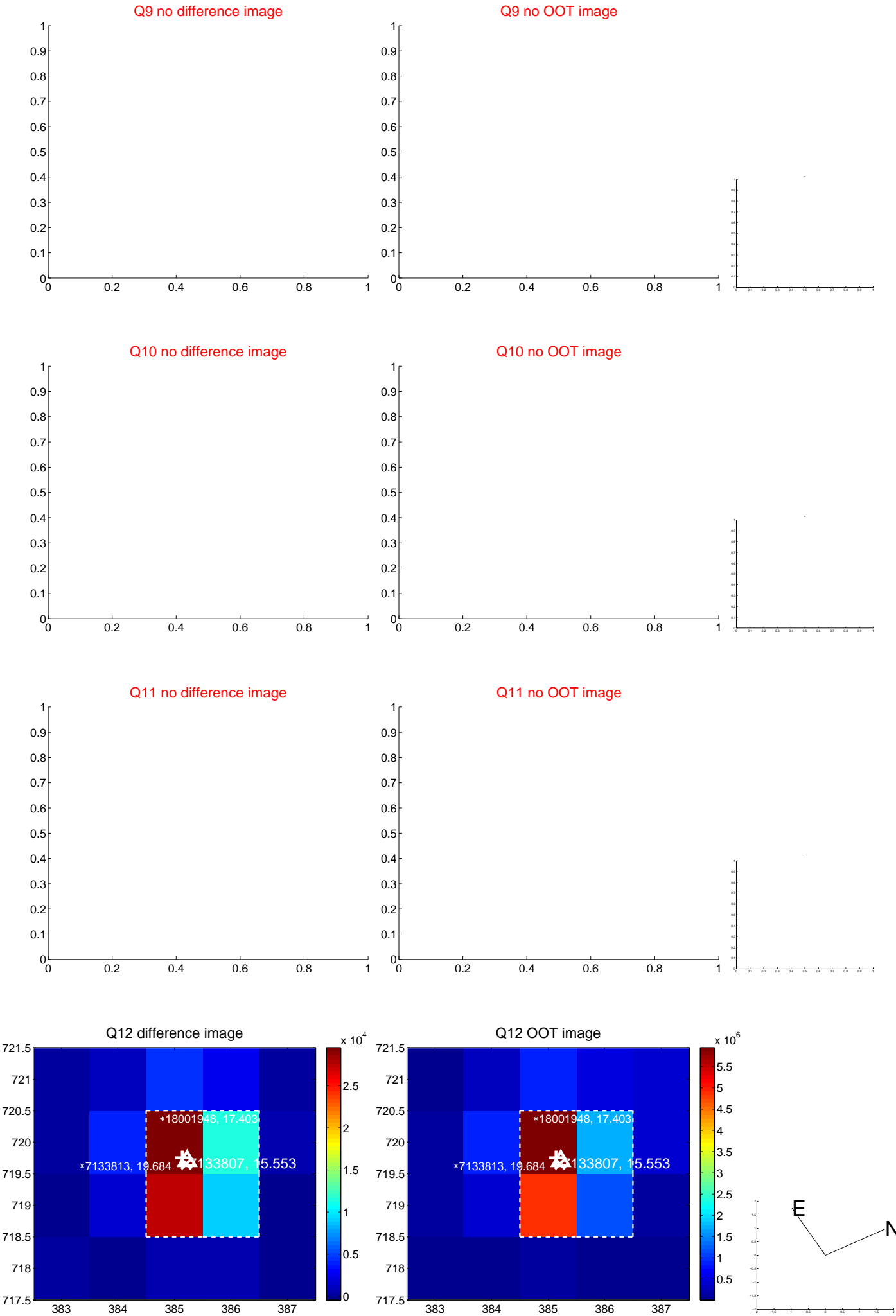
Q4 no OOT image



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



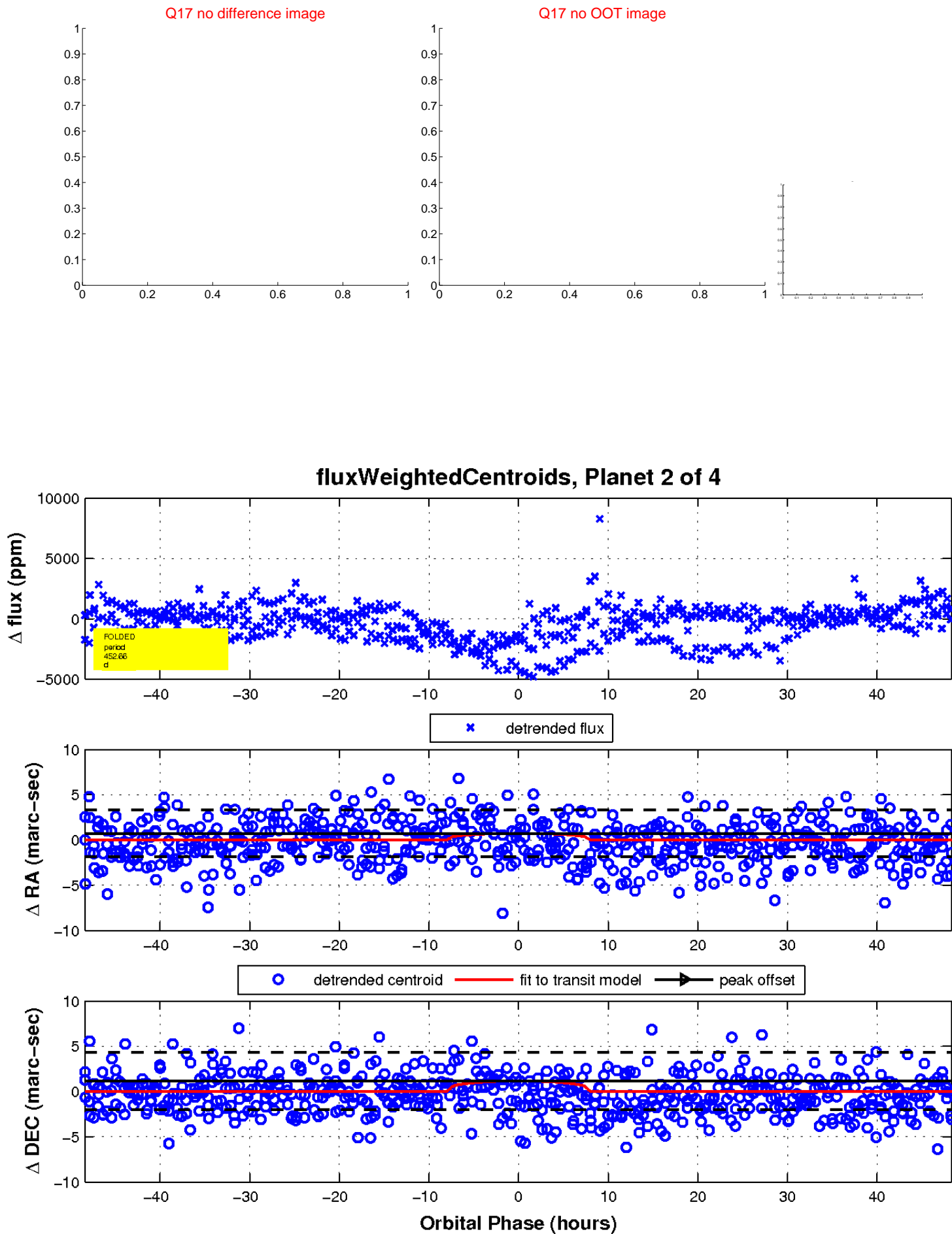
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

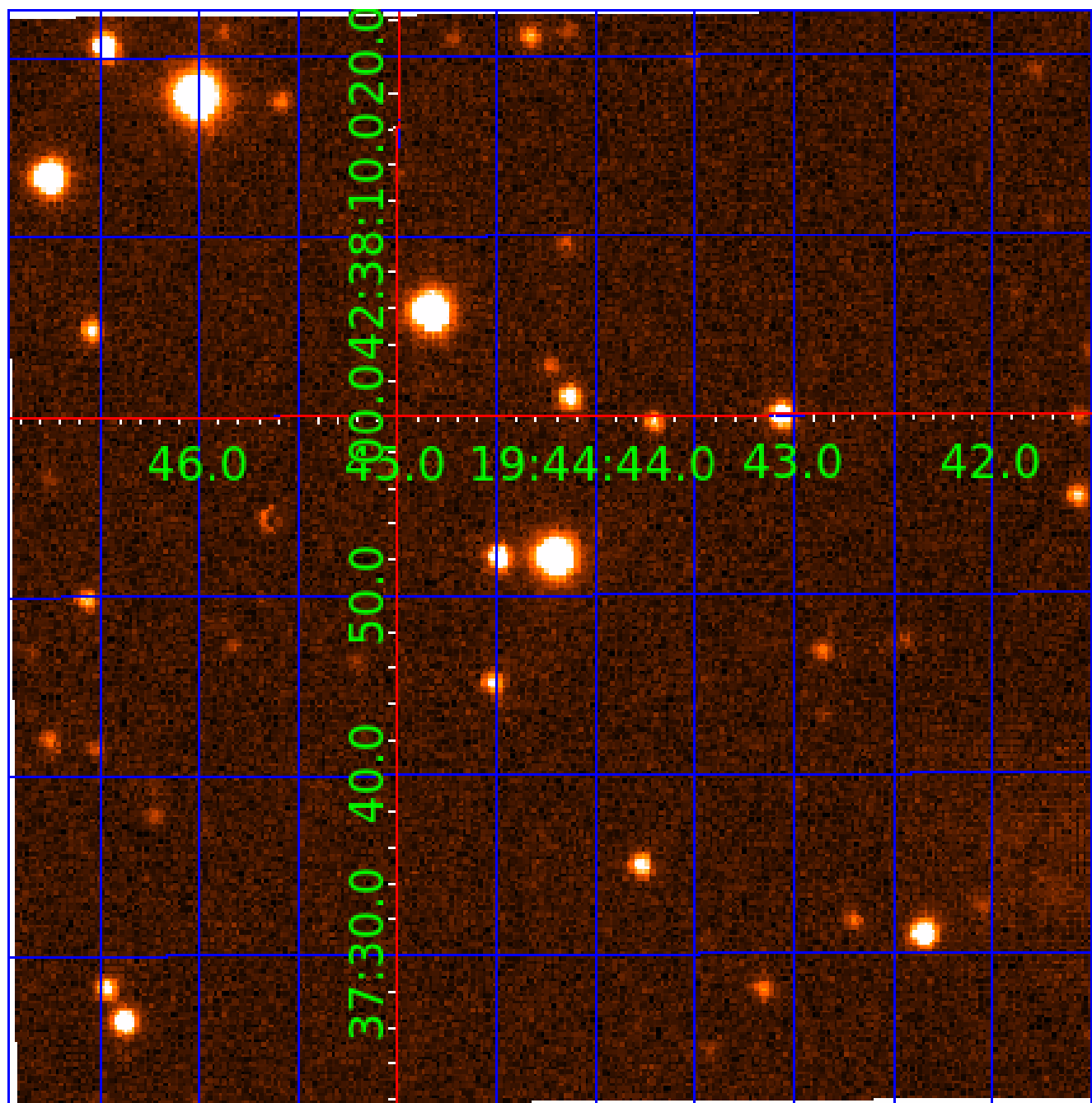


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007133807

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})
007133807-01	OBS	No	426.197852	281.966556	1655.3	6.153	9.7	6.5	0.71	4378	3.60	0.17
007133807-02	OBS	No	452.664439	243.583132	2440.6	16.143	9.5	6.8	0.71	4378	3.34	0.16
007133807-03	OBS	No	499.258579	136.233311	2268.7	5.489	9.1	8.3	0.71	4378	3.38	0.14
007133807-04	OBS	No	202.577039	207.713183	949.9	3.220	9.3	5.6	0.71	4378	2.48	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007133807-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
007133807-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

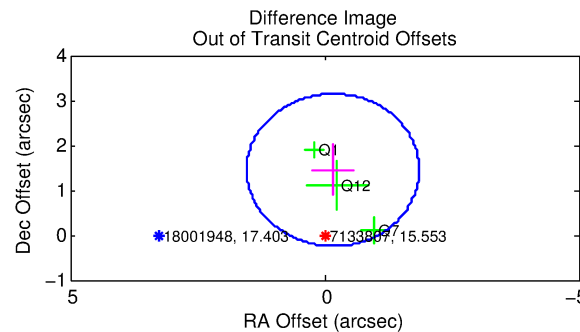
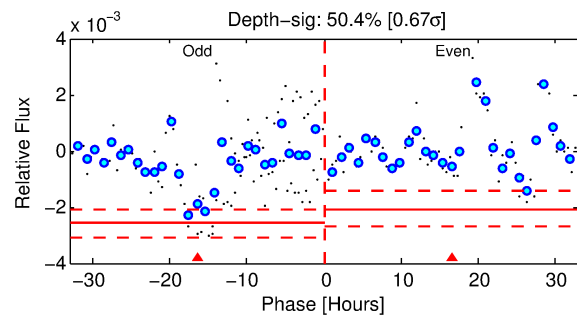
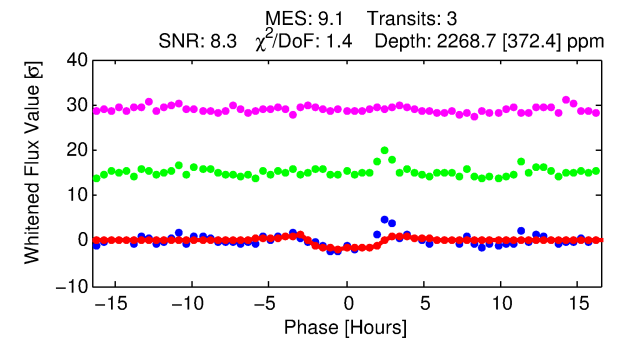
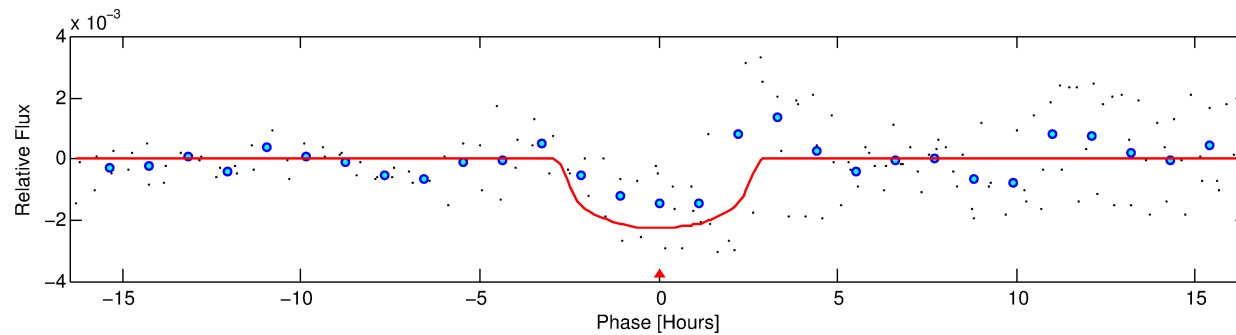
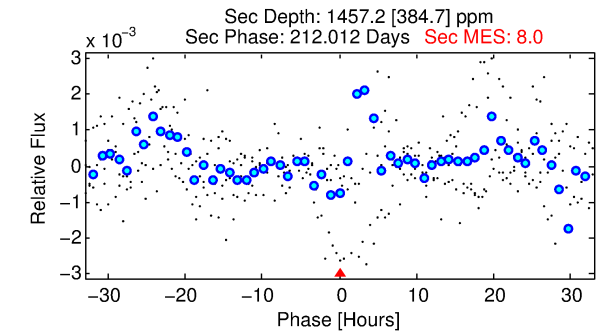
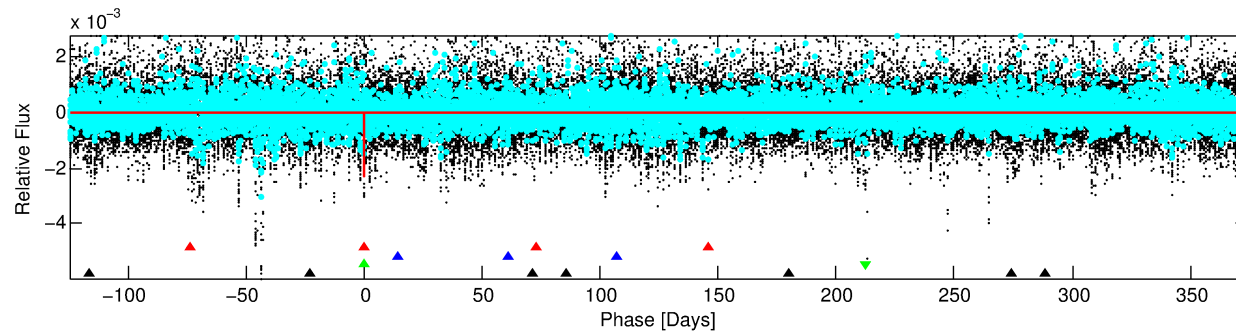
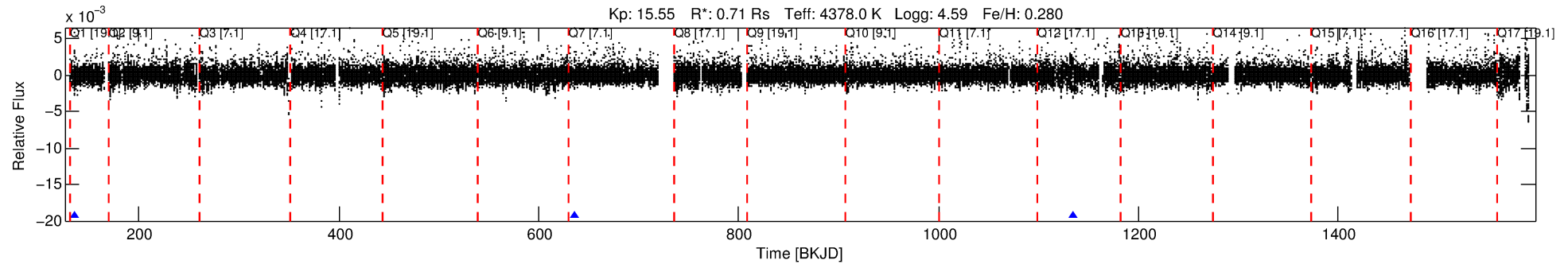
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007133807-03

No Significant Match Found

DV One-Page Summary

KIC: 7133807 Candidate: 3 of 4 Period: 499.259 d



DV Fit Results:

Period = 499.25858 [0.00876] d
Epoch = 136.2333 [0.0093] BKJD
Rp/R* = 0.0437 [0.0470]
a/R* = 634.38 [1938.43]
b = 0.51 [4.61]
Seff = 0.14 [0.03]
Teq = 155 [7] K
Rp = 3.39 [3.66] Re
a = 1.0984 [0.0803] AU
Ag = 84385.28 [183256.72] [0.46 σ]
Teffp = 4092 [2225] K [1.77 σ]

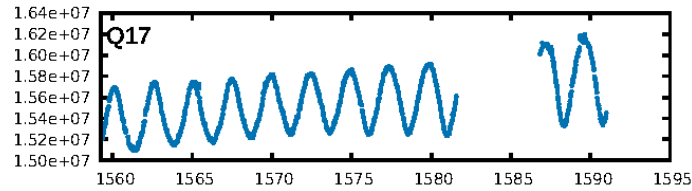
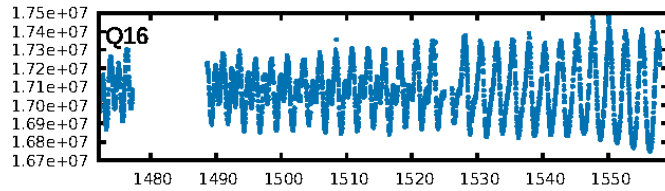
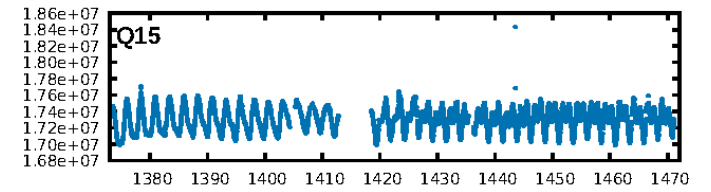
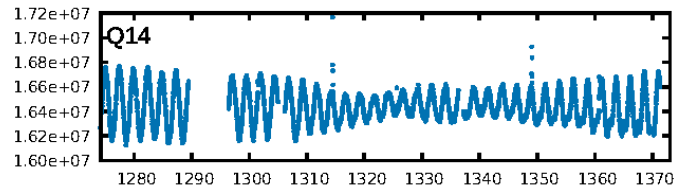
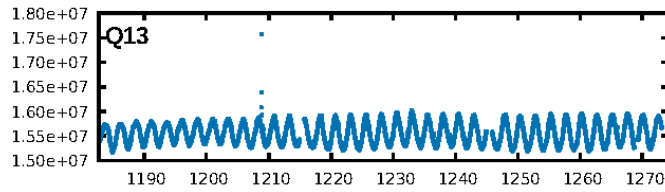
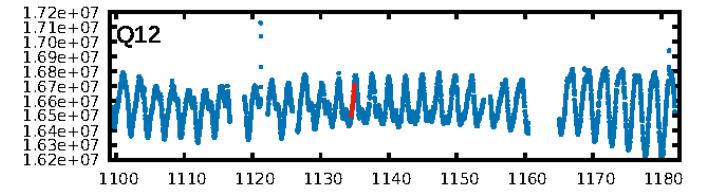
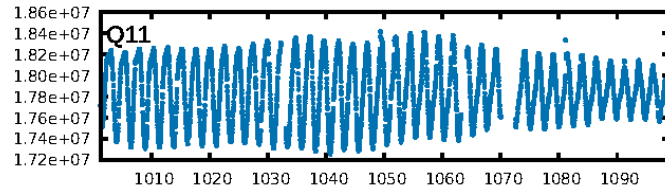
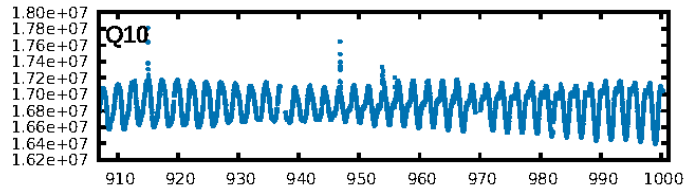
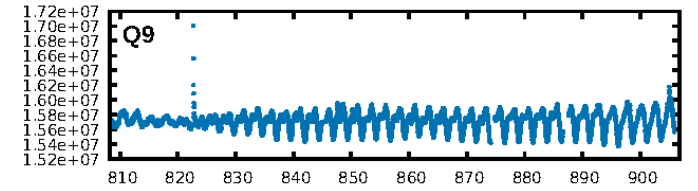
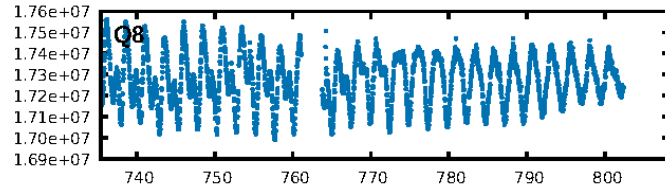
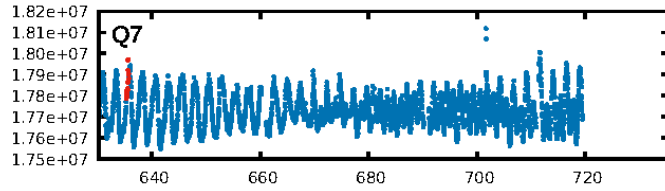
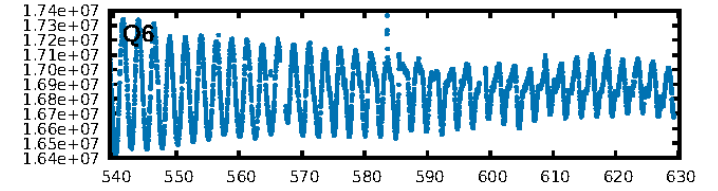
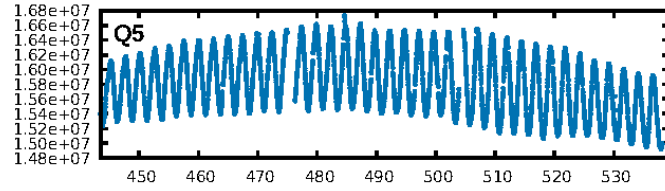
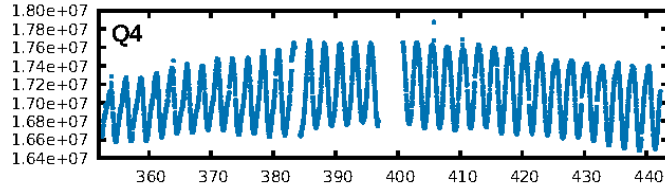
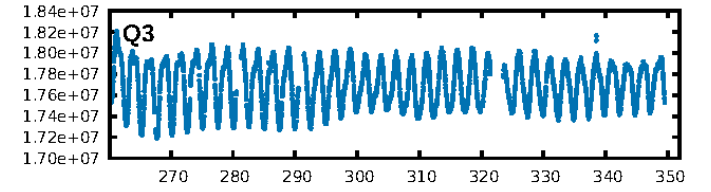
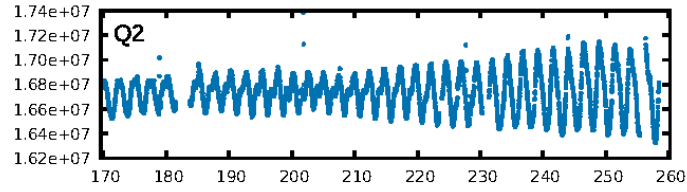
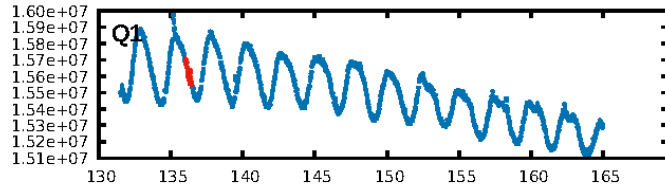
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.58 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 60.8%
ModelChiSquareGof-sig: 93.6%
Bootstrap-pfa: 6.63e-08
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 2.305
Centroid-sig: 33.5%
Centroid-so: 0.631 arcsec [0.97 σ]
OotOffset-rm: 1.456 arcsec [2.58 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 1.517 arcsec [2.55 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.67 [2/3]

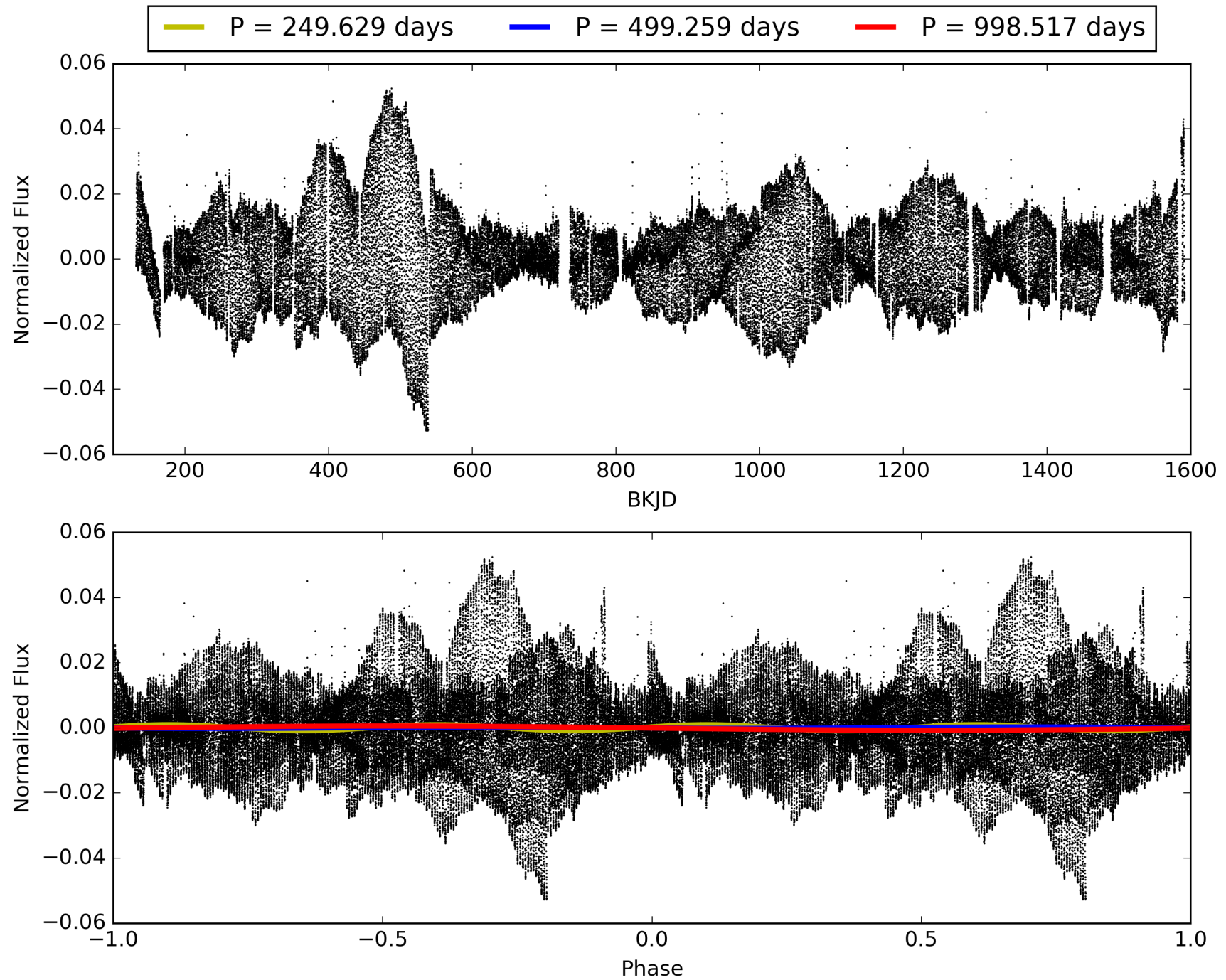
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:53:17 Z

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

TCE 007133807-03, PDC Light Curves

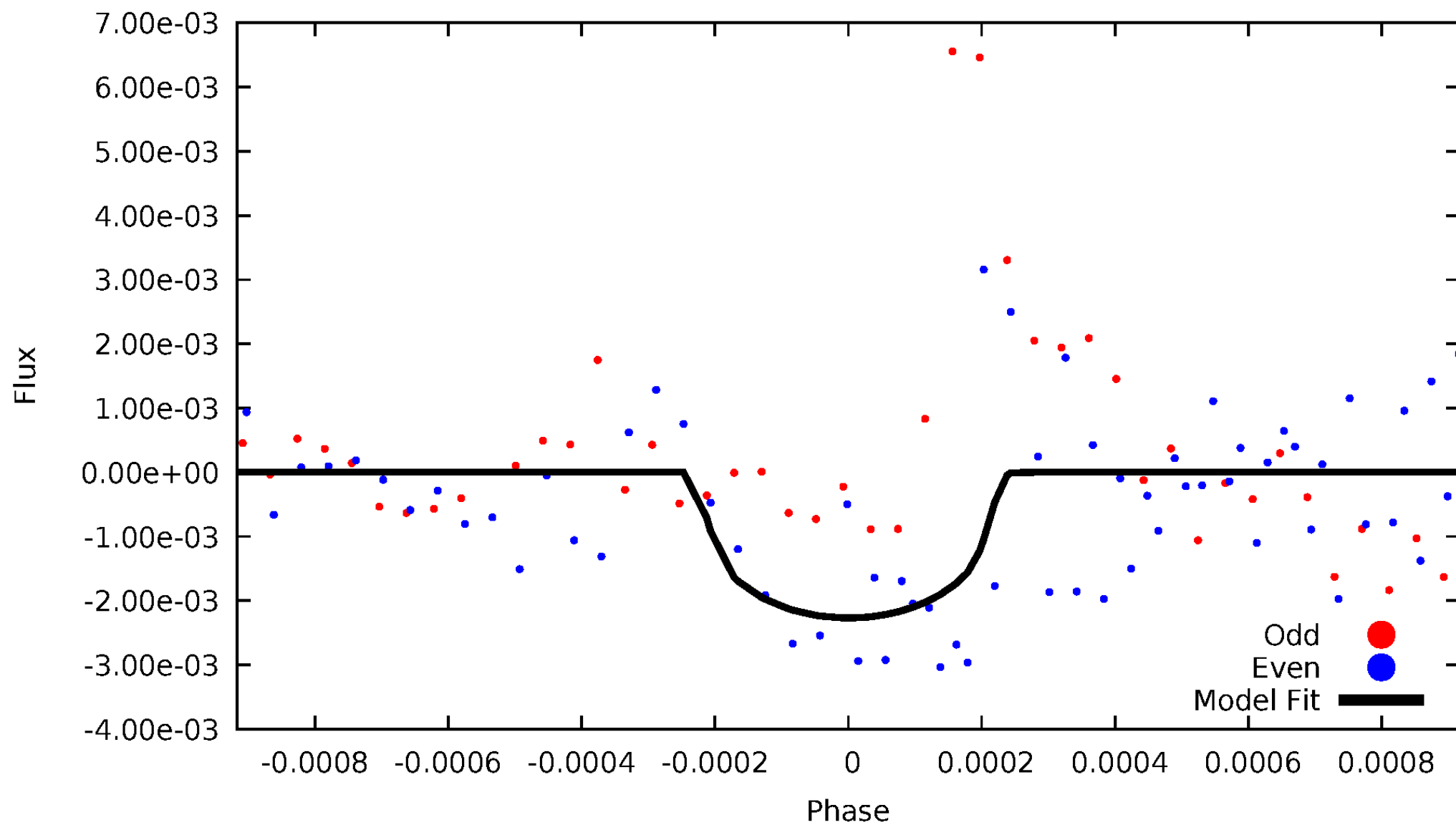


TCE 007133807-03



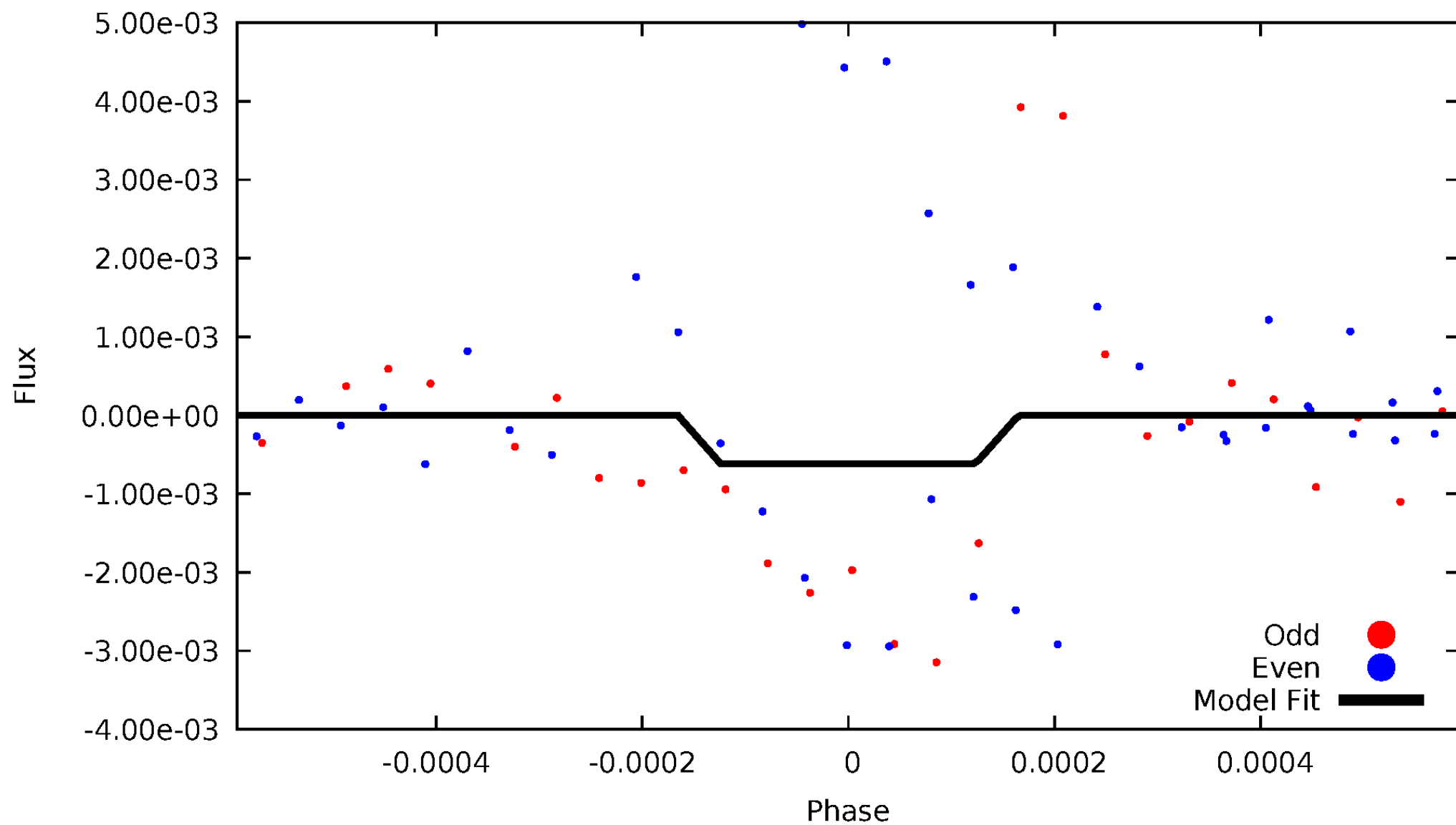
DV Odd/Even

TCE 007133807-03



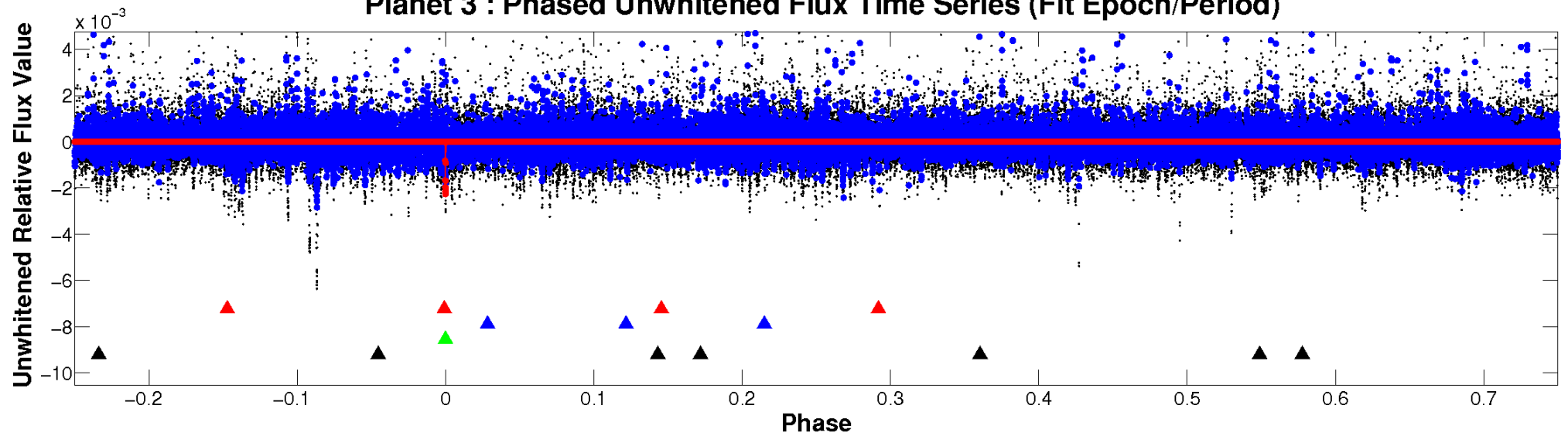
ALT Odd/Even

TCE 007133807-03

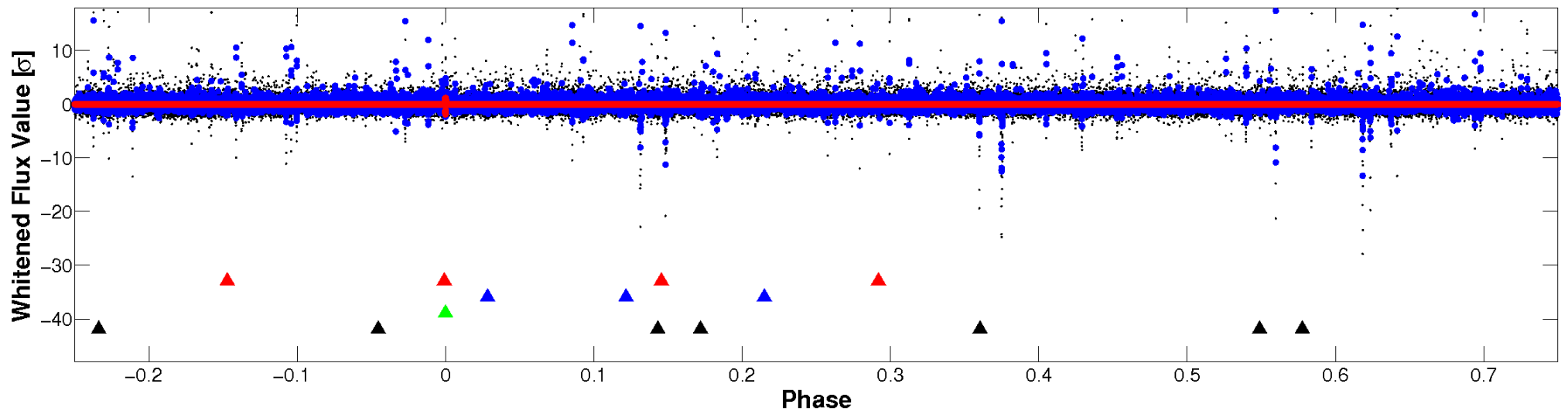


Non-Whitened Vs. Whitened Light Curve

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

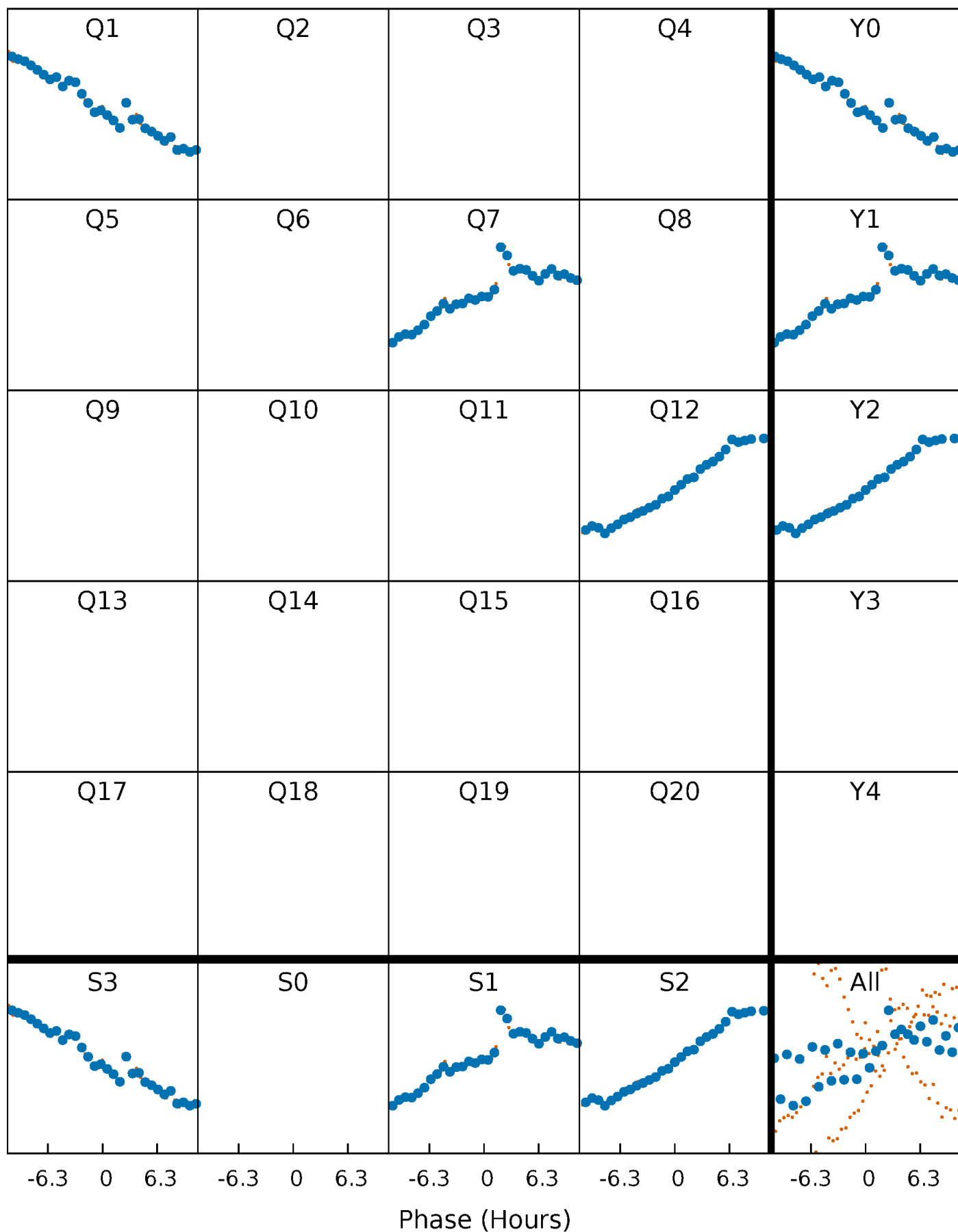


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



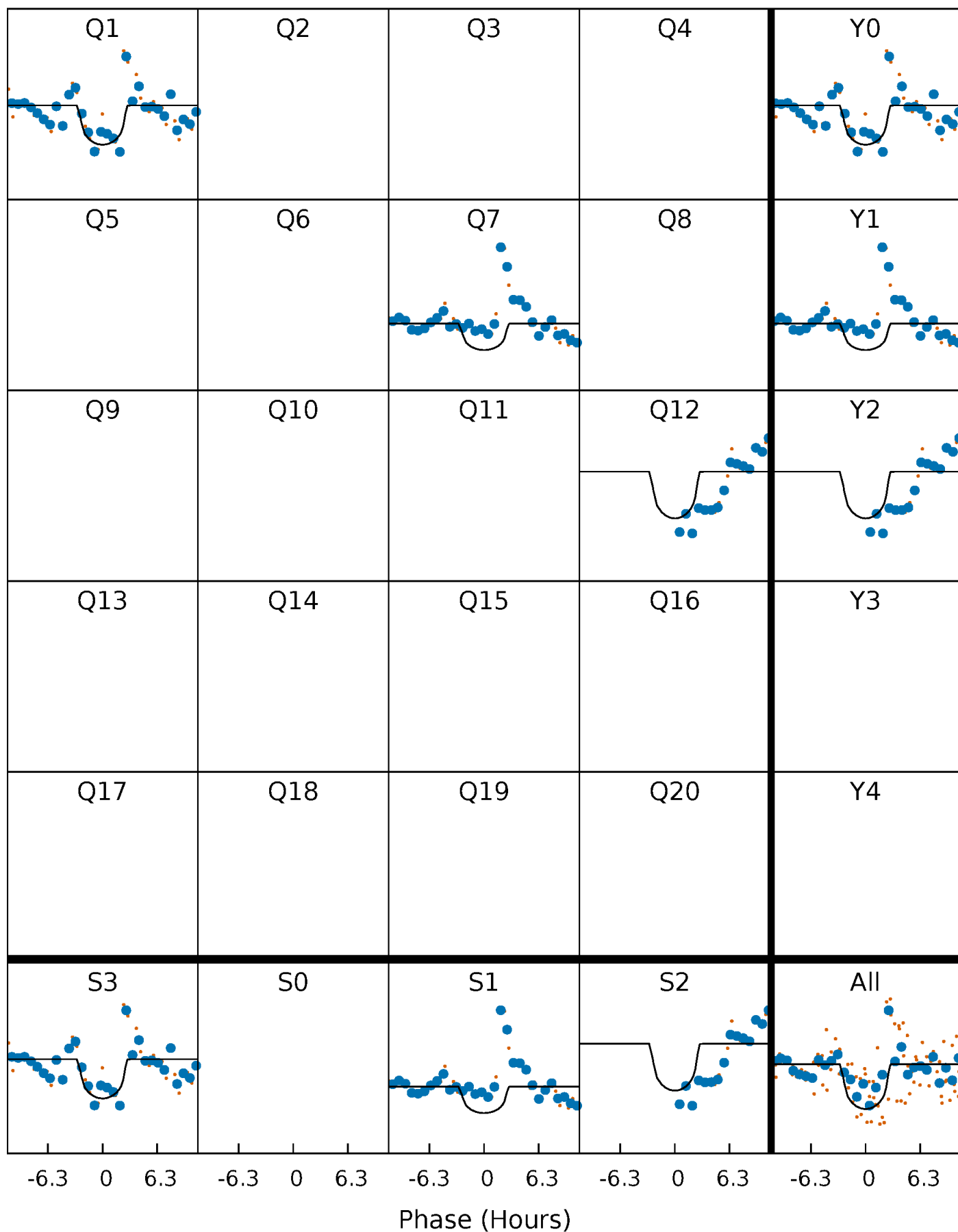
PDC Quarter-Phased Transit Curves

TCE 007133807-03 $P=499.258579$ Days $T_0=136.233312$ (BKJD)



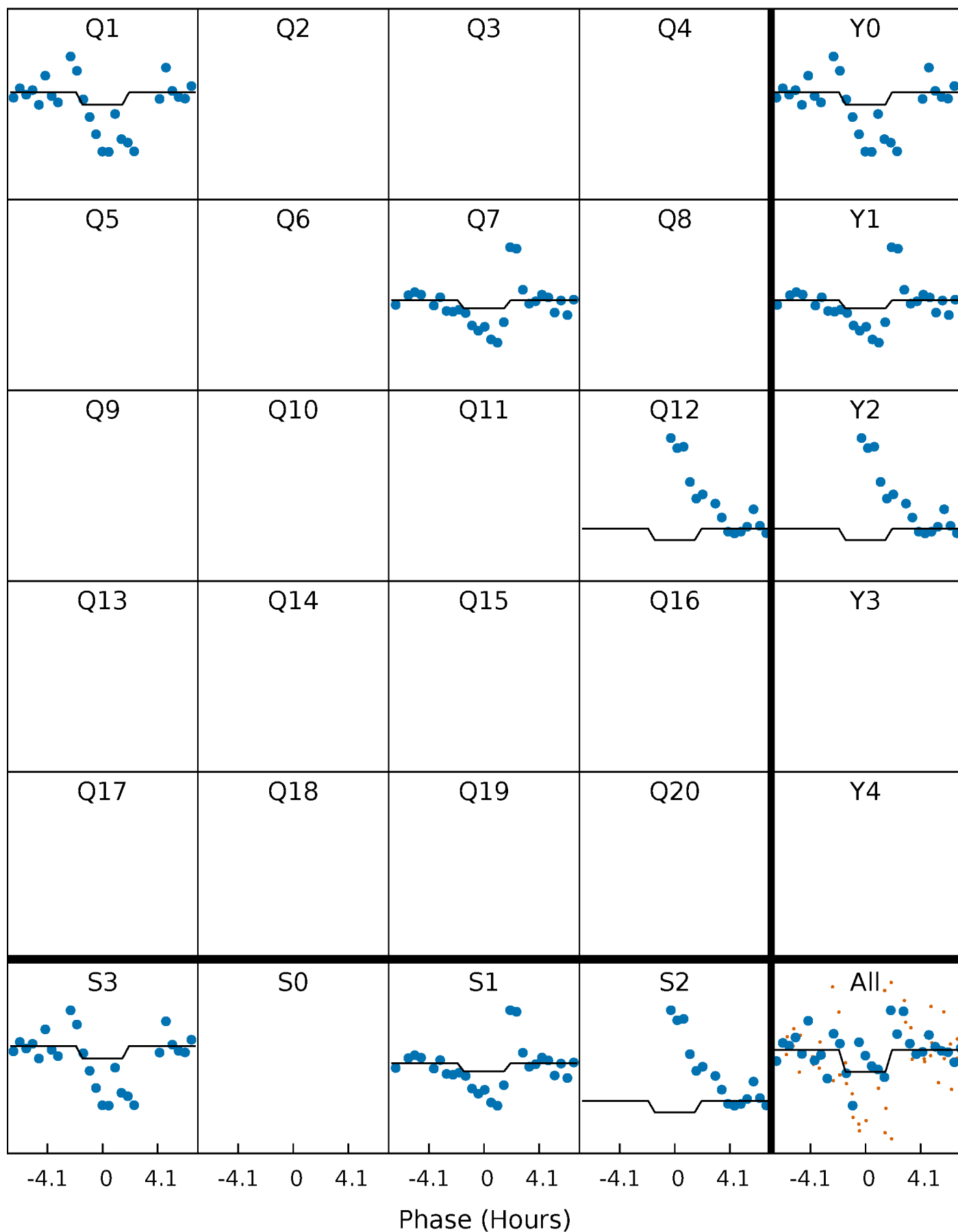
DV Quarter-Phased Transit Curves

TCE 007133807-03 $P=499.258579$ Days $T_0=136.233312$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

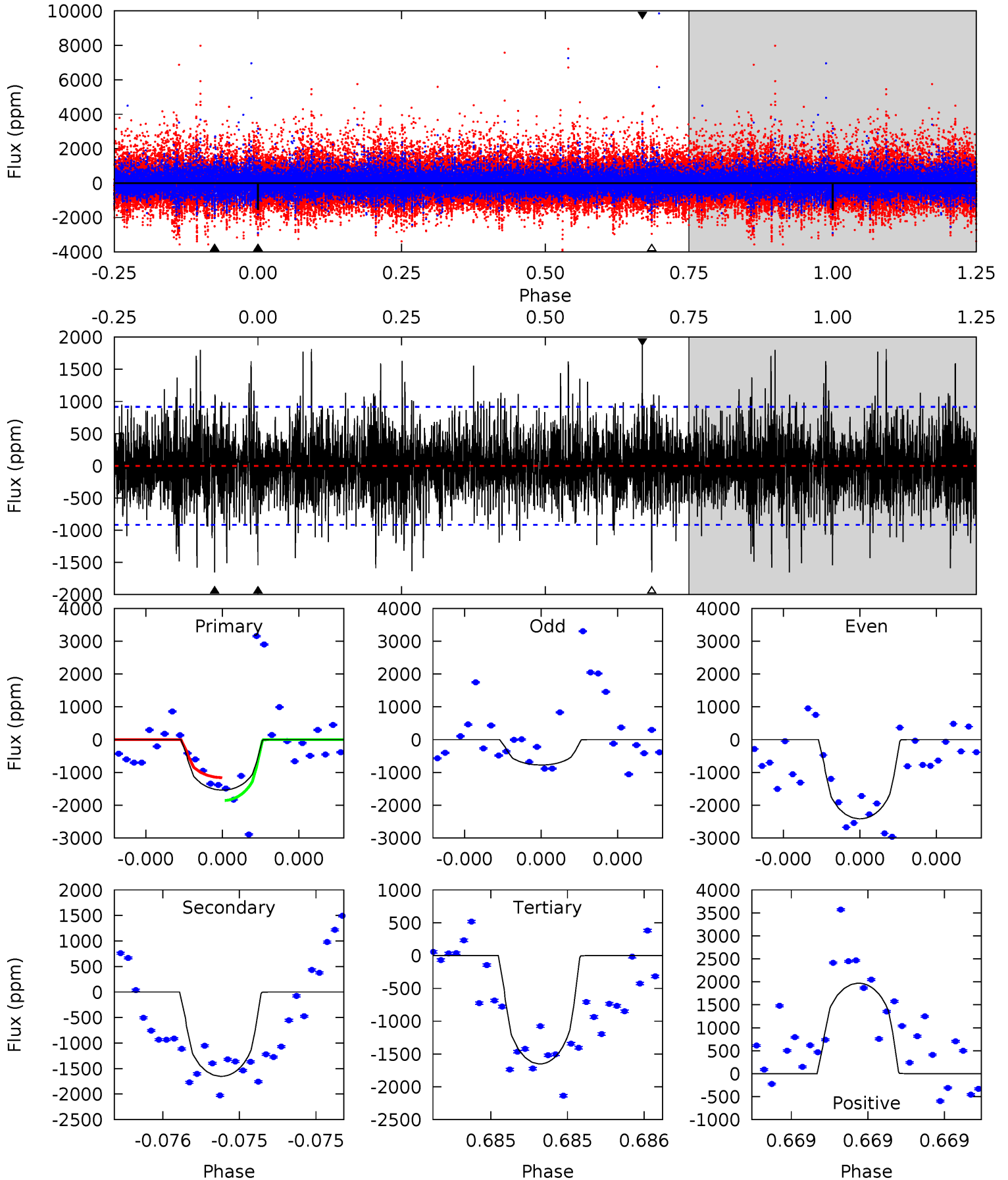
TCE 007133807-03 P=499.294039 Days $T_0=136.192231$ (BKJD)



DV Model-Shift Uniqueness Test

007133807-03, P = 499.258579 Days, E = 136.233312 Days

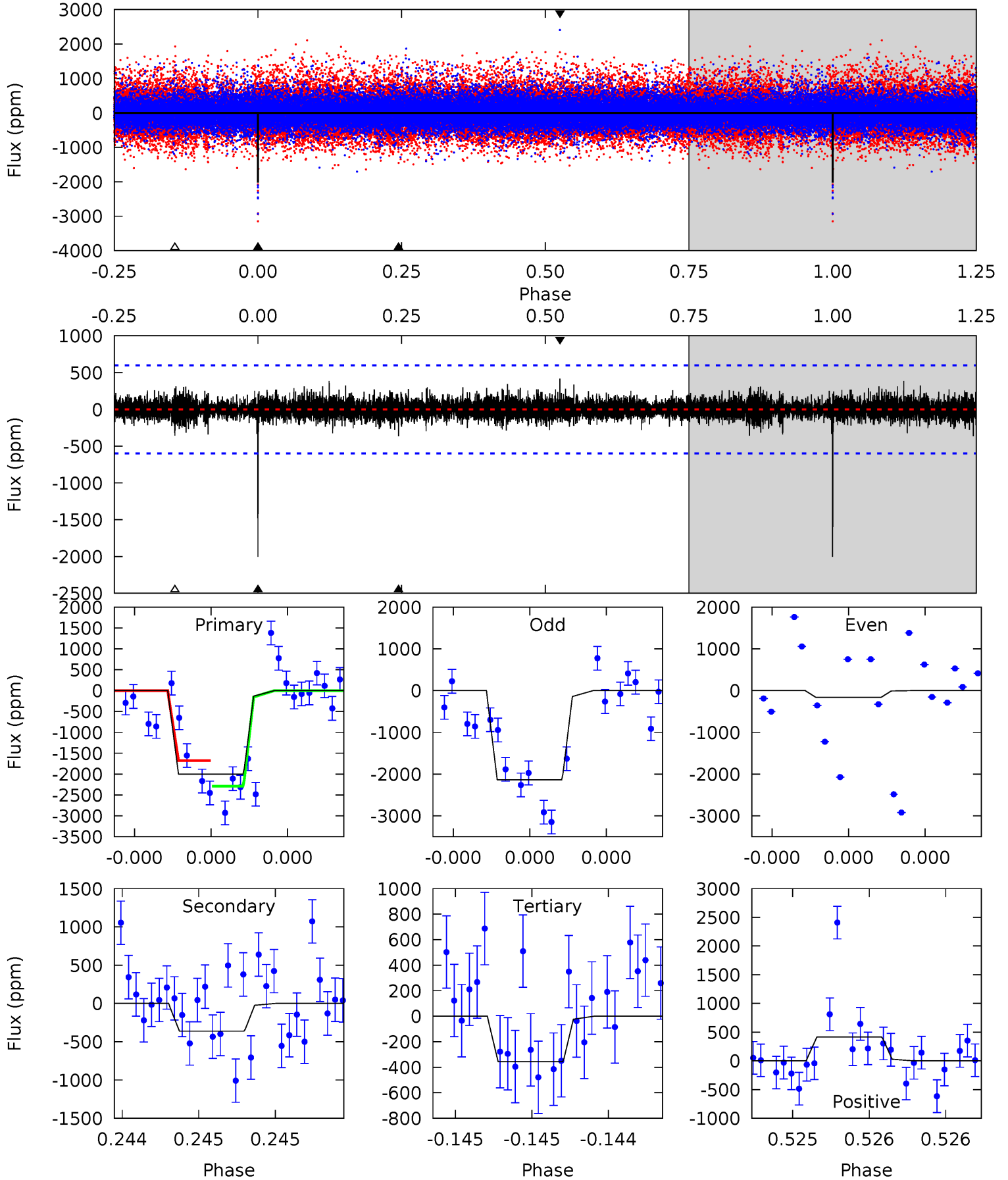
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.39	10.1	10.1	12.0	5.59	3.51	2.38	-0.68	-2.61	0.00	-1.93	4.50	0.77	0.54	2.12



Alt Model-Shift Uniqueness Test

007133807-03, P = 499.294039 Days, E = 136.192231 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	3.43	3.38	3.95	5.67	3.62	0.67	15.6	15.0	0.05	-0.52	9.77	0.06	0.17	2.99



Stellar Parameters For KIC 007133807

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4378^{+176}_{-176}	$4.586^{+0.056}_{-0.021}$	$0.280^{+0.150}_{-0.300}$	$0.710^{+0.033}_{-0.063}$	$0.709^{+0.048}_{-0.054}$	$2.787^{+0.700}_{-0.239}$
	+4%/-4%	+1%/-0%	+54%/-107%	+5%/-9%	+7%/-8%	+25%/-9%
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 007133807-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1653 ± 164	$4.18^{+3.22}_{-2.74}$	215^{+10}_{-9}	3978^{+2079}_{-711}	$65627^{+446550}_{-45462}$
Alt.	-362 ± 106	$3.18^{+3.12}_{-2.08}$	215^{+9}_{-9}	3315^{+1533}_{-598}	$21919^{+176616}_{-16434}$

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

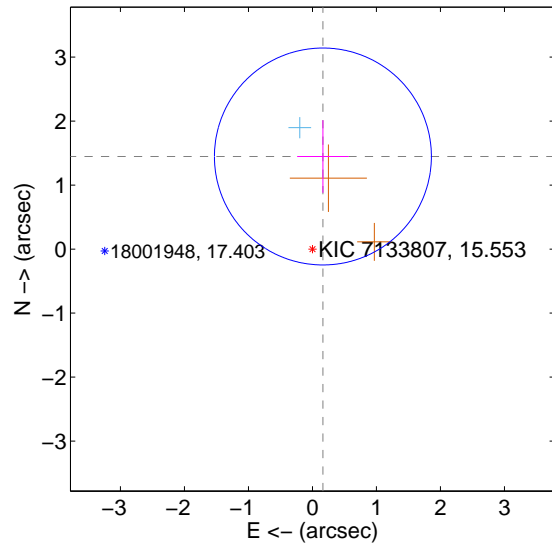
Supplemental centroid analysis for 007133807-03. Kepler magnitude: 15.55. Transit SNR 8.26

There are 1 quarters with good PRF difference image offsets

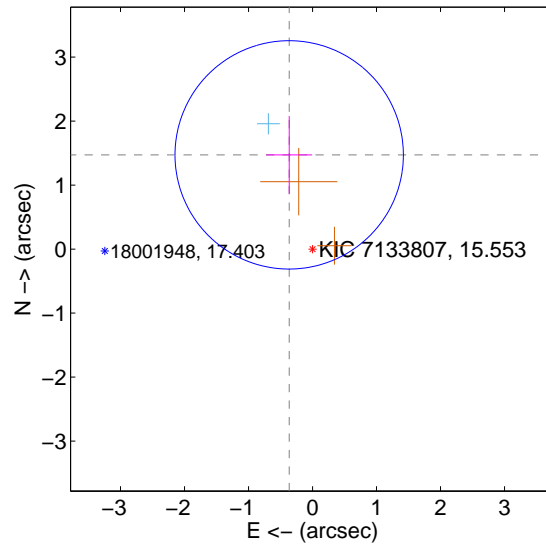
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.456 ± 0.565	2.58	-0.164 ± 0.403	1.447 ± 0.567
PRF-fit source offset from KIC position	1.517 ± 0.595	2.55	0.365 ± 0.359	1.472 ± 0.606
photometric centroid source offset	0.63 ± 0.65	0.97	-0.12 ± 0.73	0.62 ± 0.65

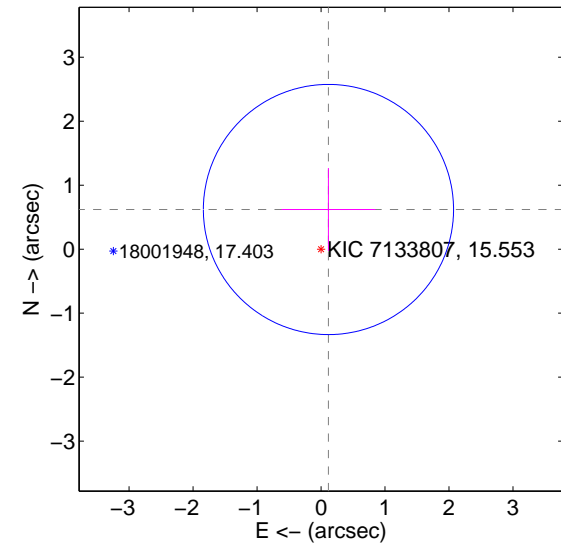
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

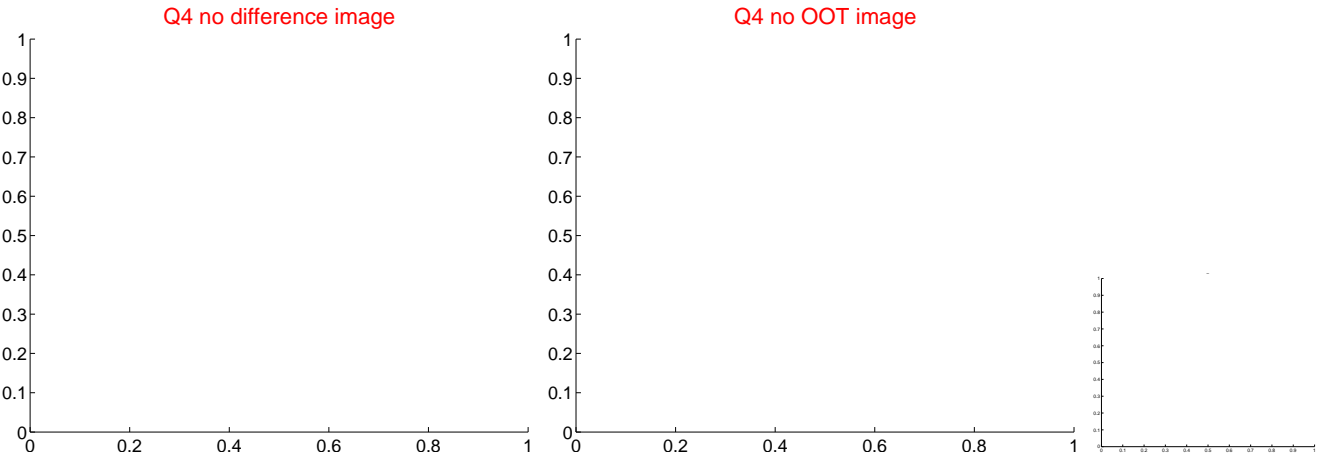
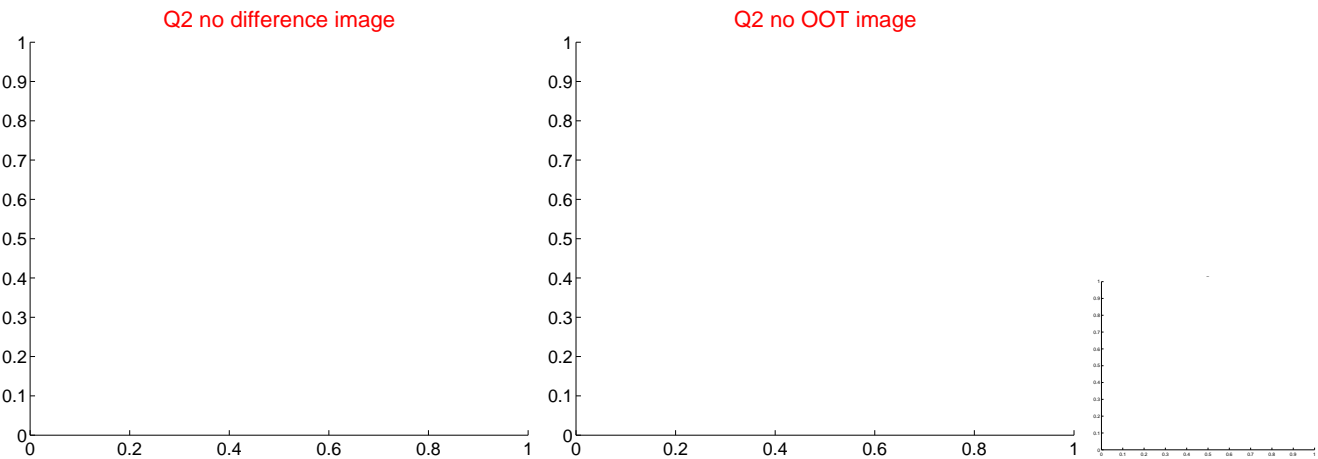
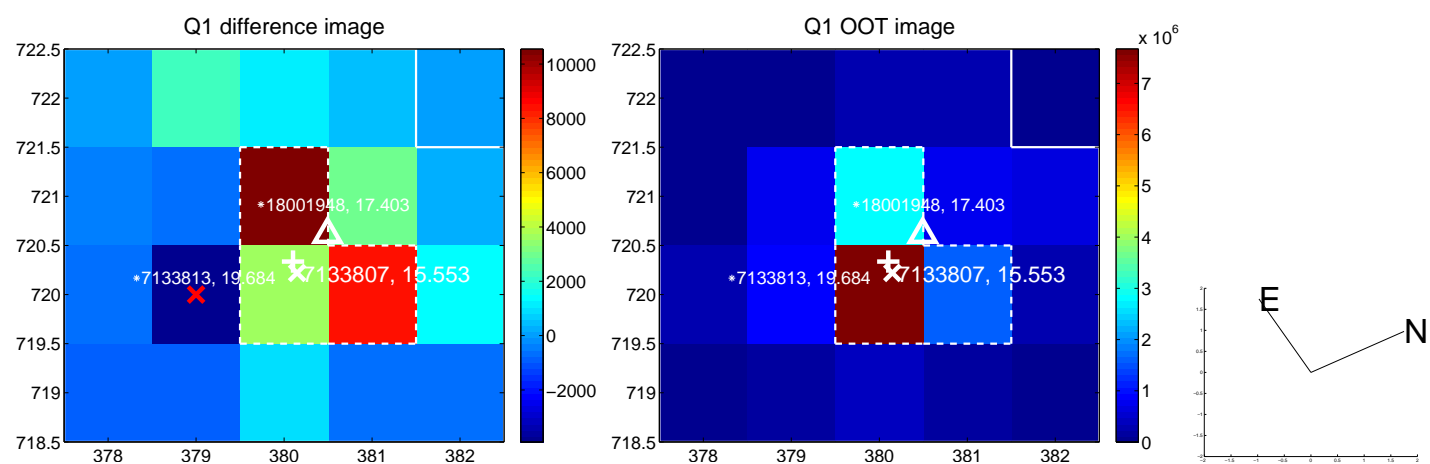


offset from photometric centroids



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

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



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

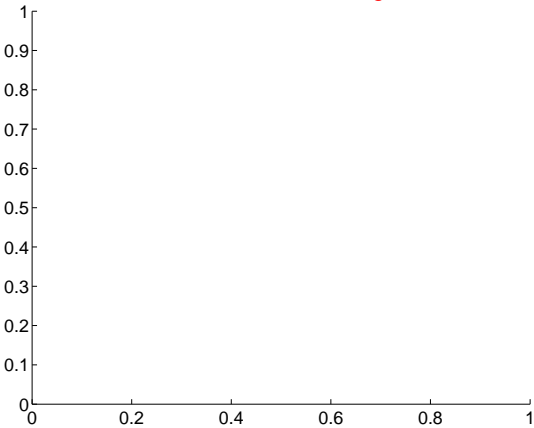
Q5 no difference image



Q5 no OOT image



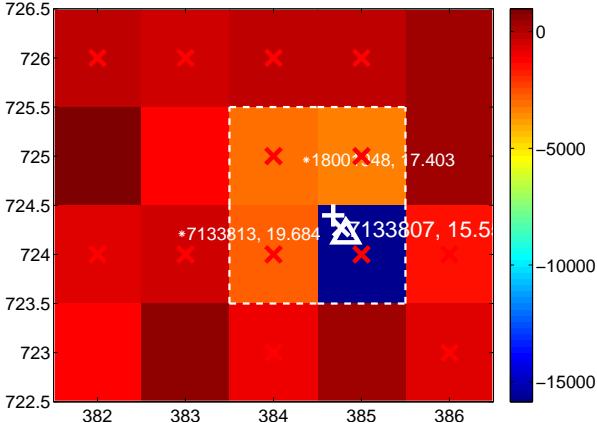
Q6 no difference image



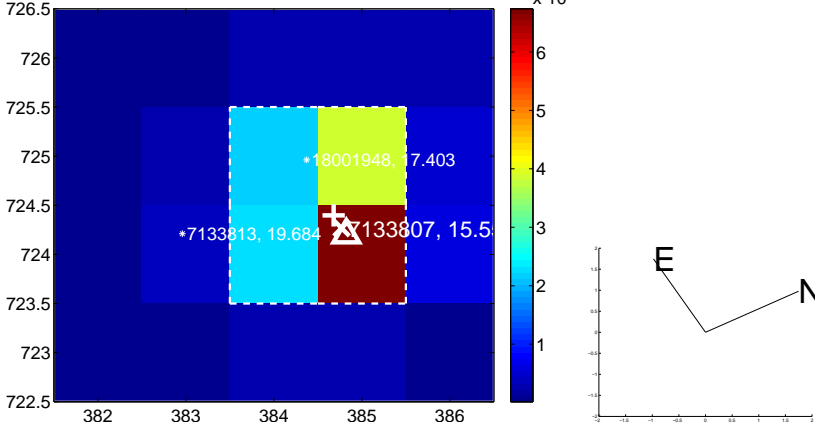
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



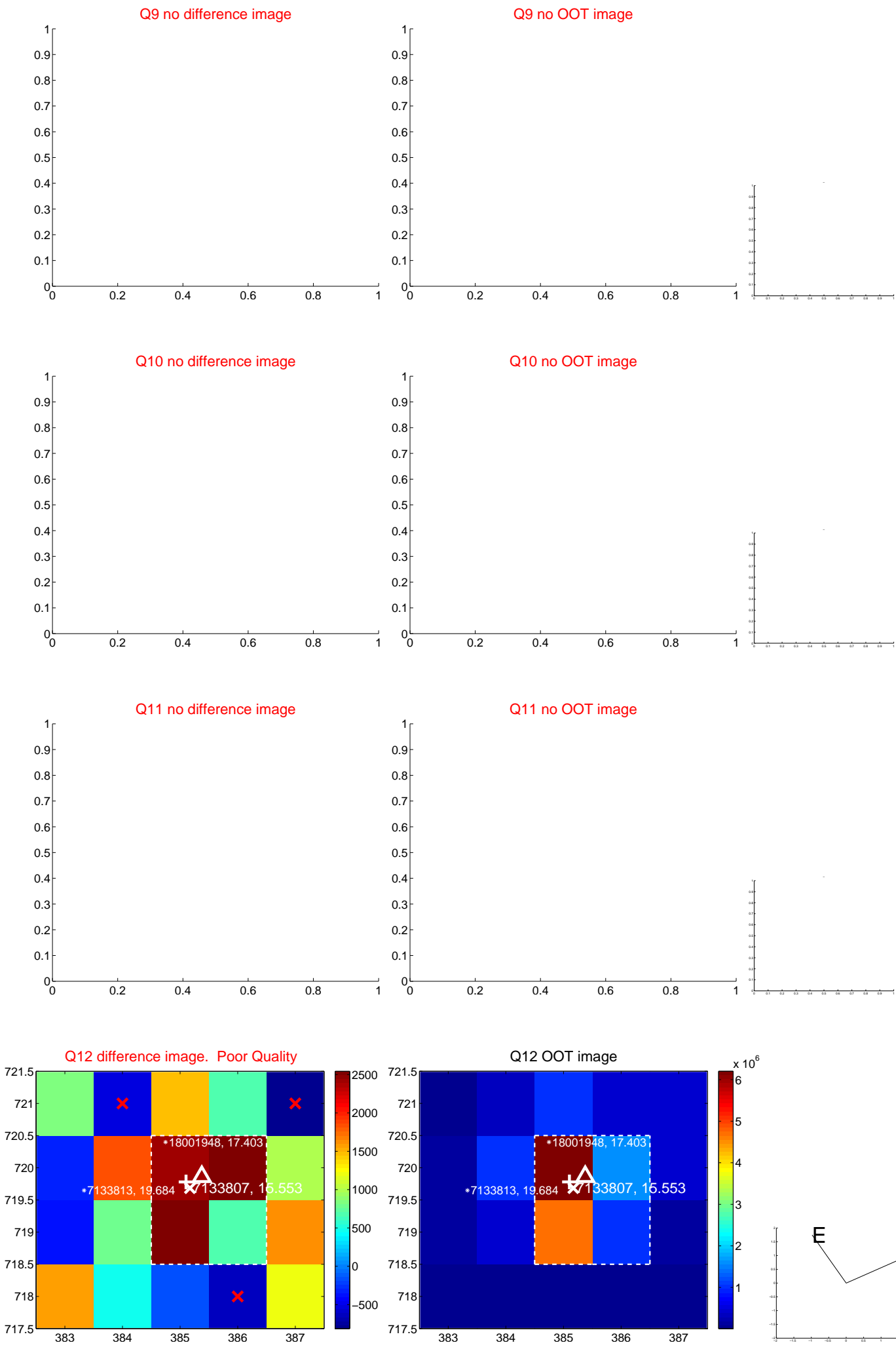
Q8 no difference image



Q8 no OOT image



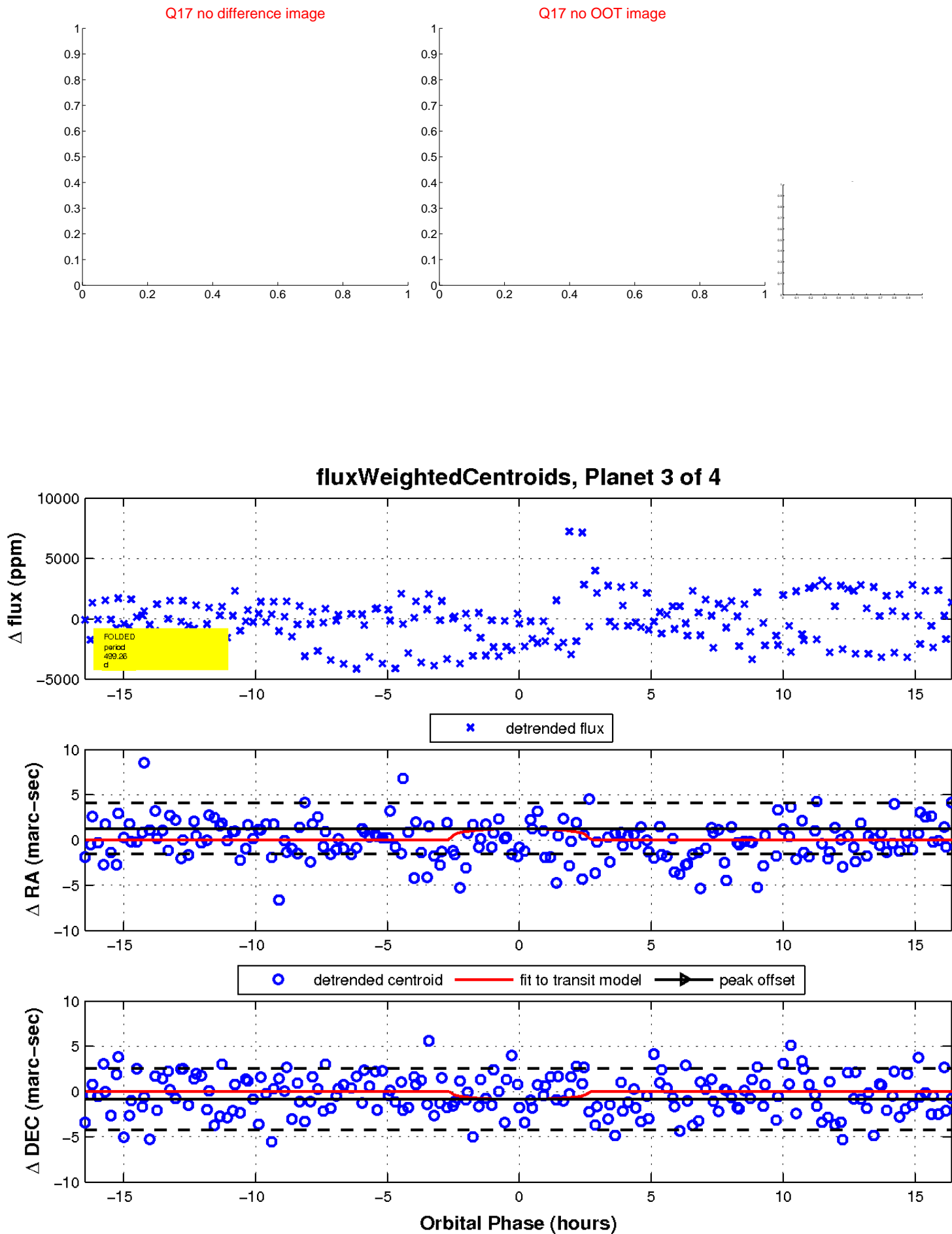
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

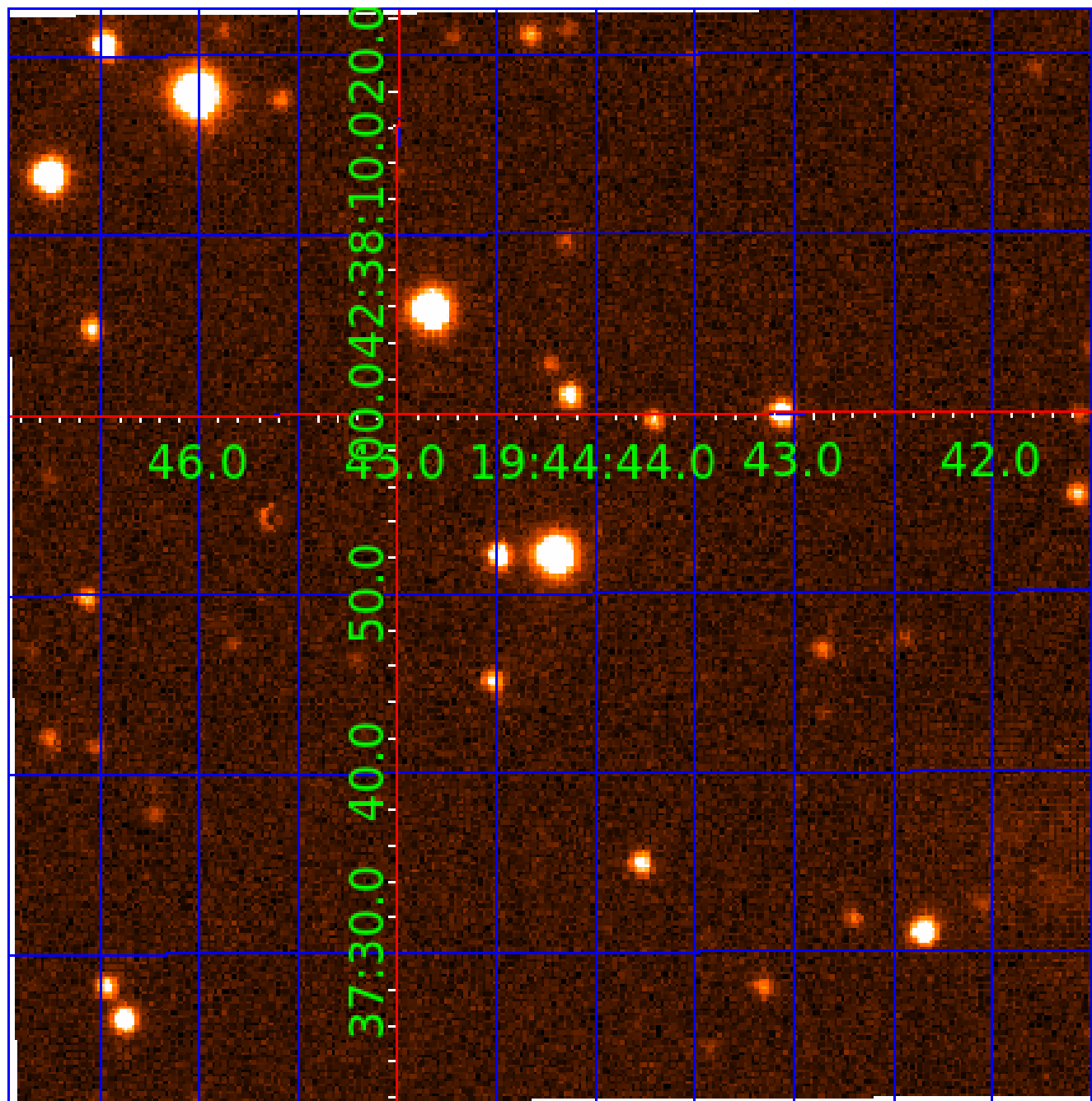


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007133807

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})
007133807-01	OBS	No	426.197852	281.966556	1655.3	6.153	9.7	6.5	0.71	4378	3.60	0.17
007133807-02	OBS	No	452.664439	243.583132	2440.6	16.143	9.5	6.8	0.71	4378	3.34	0.16
007133807-03	OBS	No	499.258579	136.233311	2268.7	5.489	9.1	8.3	0.71	4378	3.38	0.14
007133807-04	OBS	No	202.577039	207.713183	949.9	3.220	9.3	5.6	0.71	4378	2.48	0.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007133807-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
007133807-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007133807-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

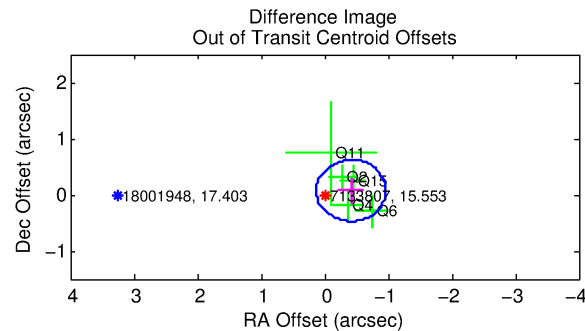
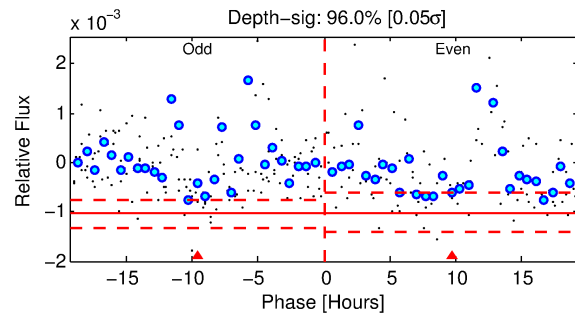
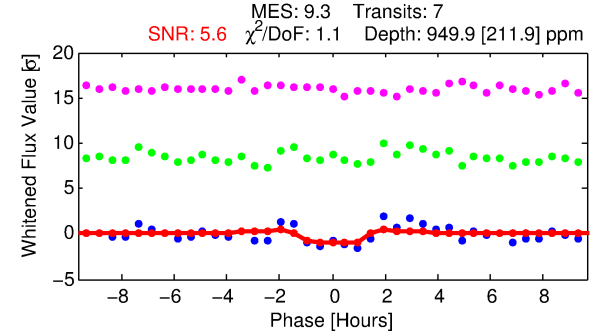
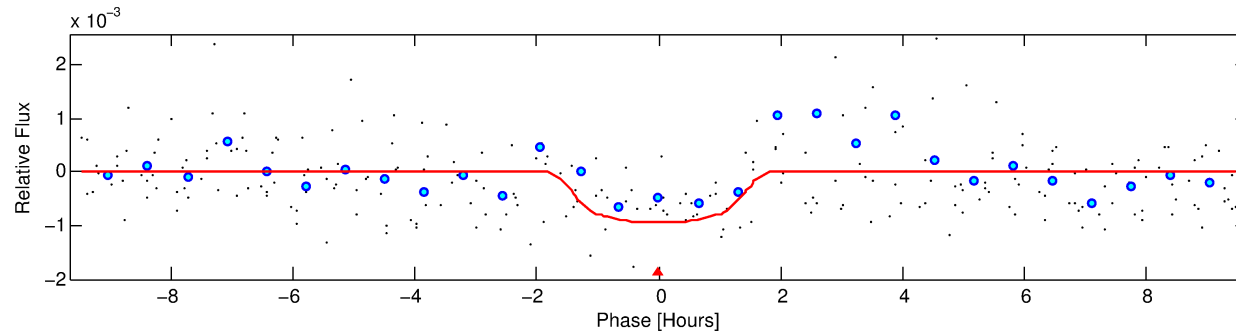
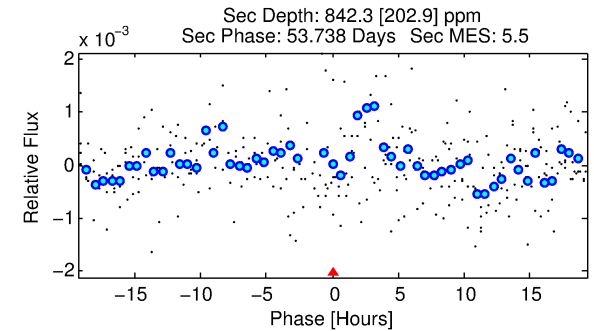
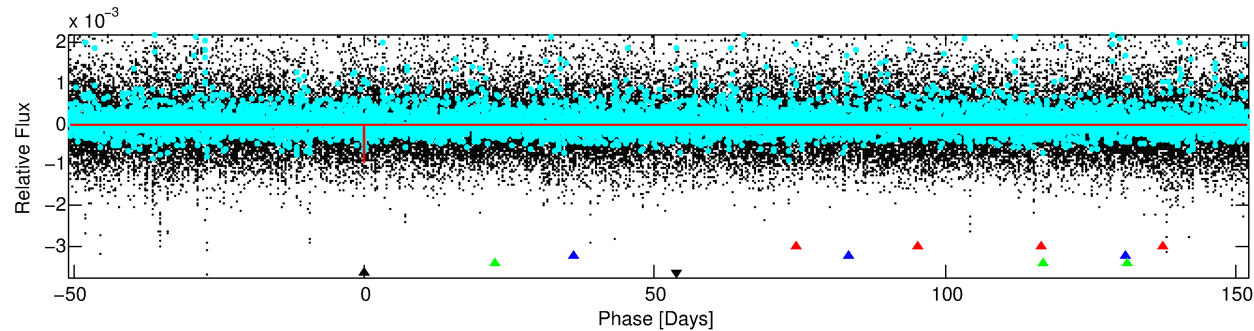
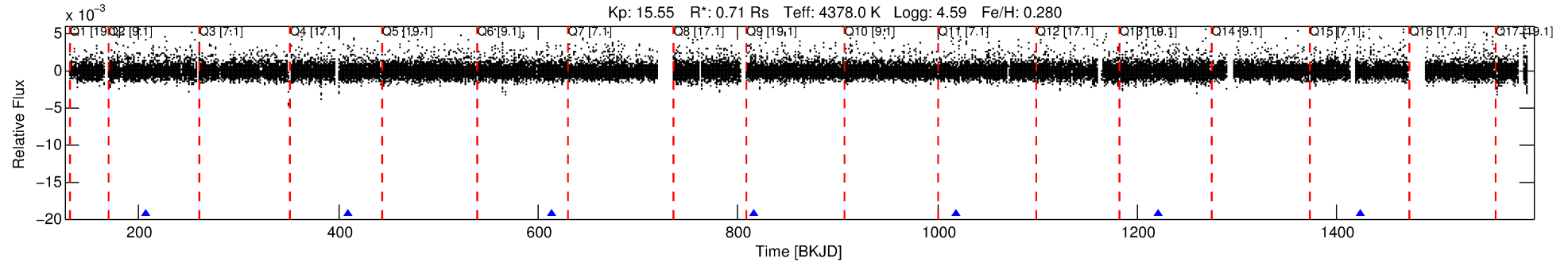
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007133807-04

No Significant Match Found

DV One-Page Summary

KIC: 7133807 Candidate: 4 of 4 Period: 202.577 d



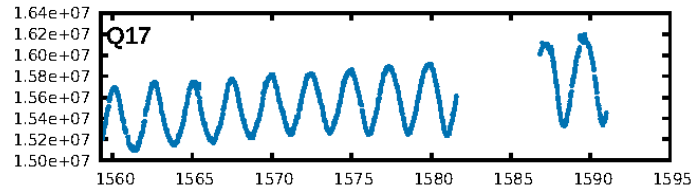
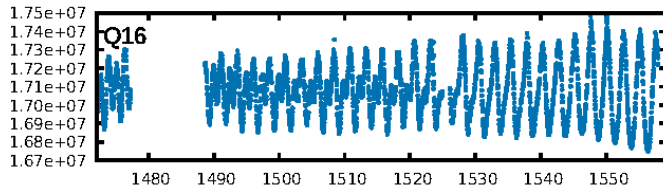
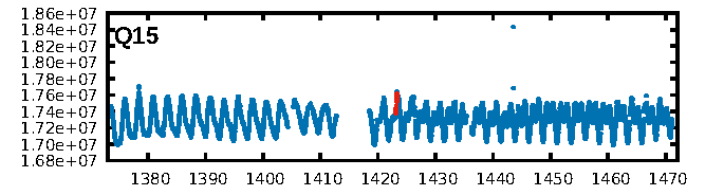
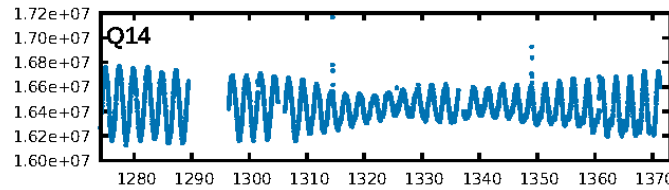
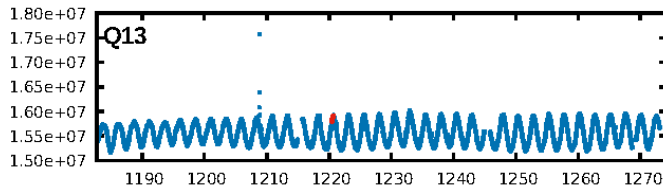
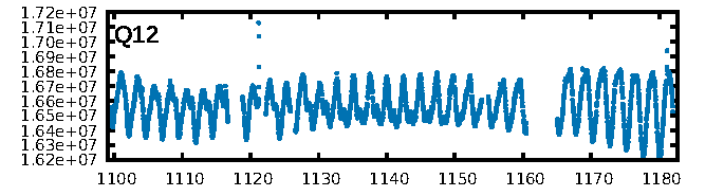
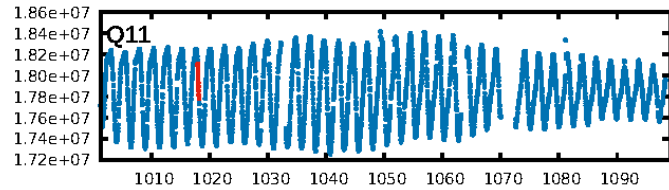
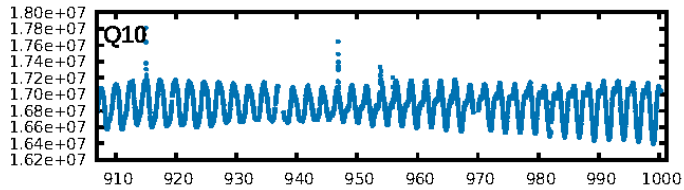
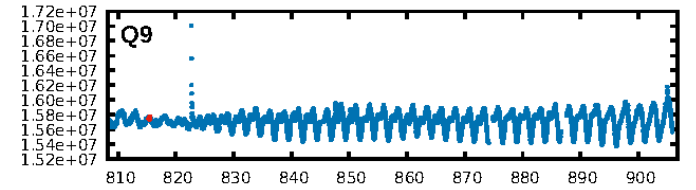
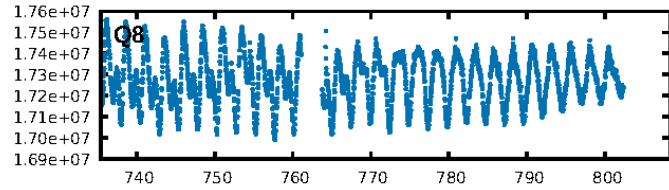
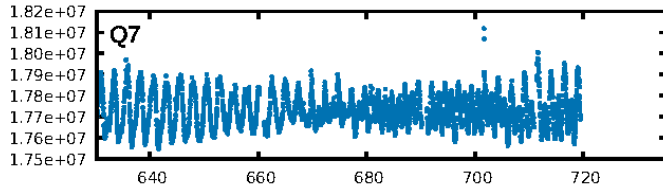
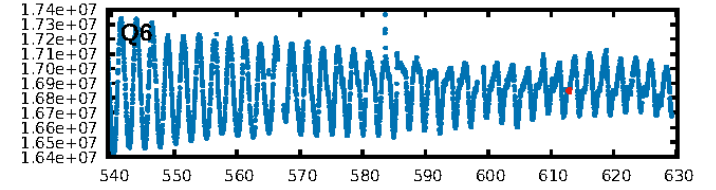
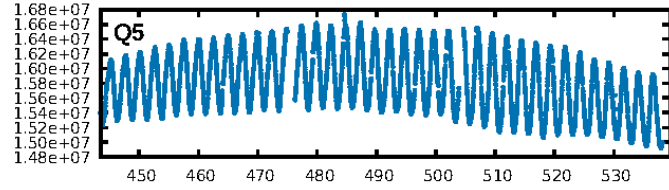
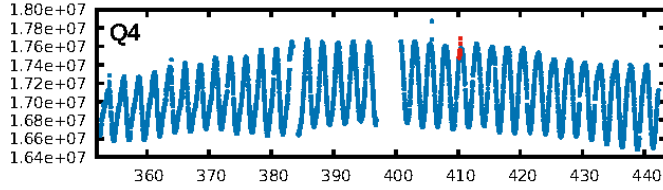
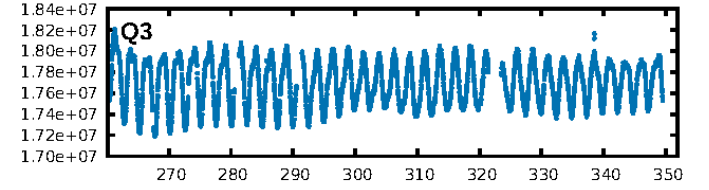
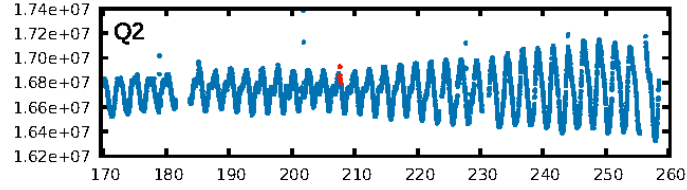
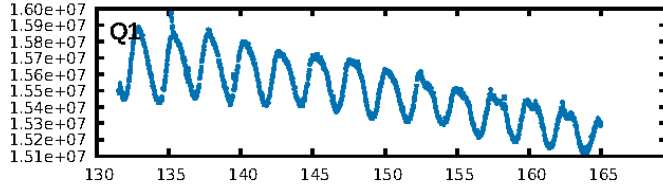
DV Fit Results:

Period = 202.57704 [0.00253] d
Epoch = 207.7132 [0.0089] BKJD
Rp/R* = 0.0320 [0.0572]
a/R* = 309.71 [1774.00]
b = 0.81 [2.58]
Seff = 0.46 [0.09]
Teq = 210 [10] K
Rp = 2.48 [4.44] Re
a = 0.6020 [0.0440] AU
Ag = 27243.24 [97567.76] [0.28 σ]
Teffp = 4166 [3733] K [1.06 σ]

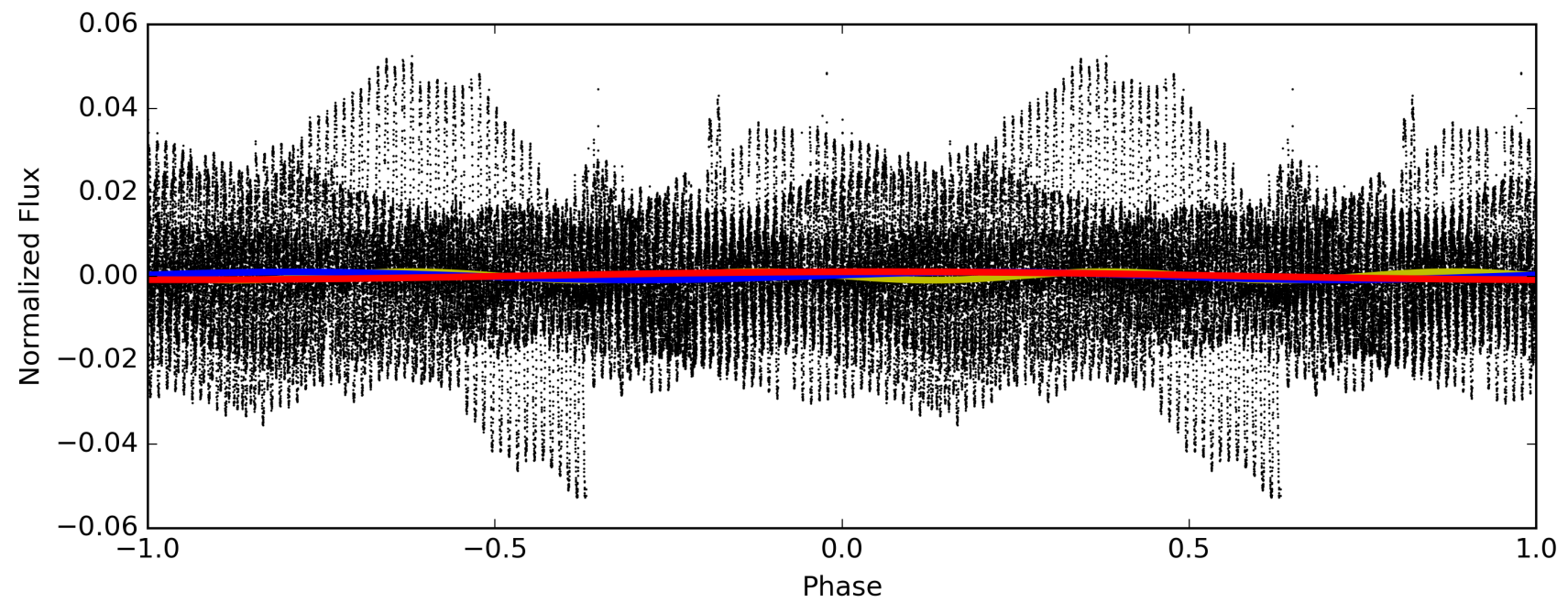
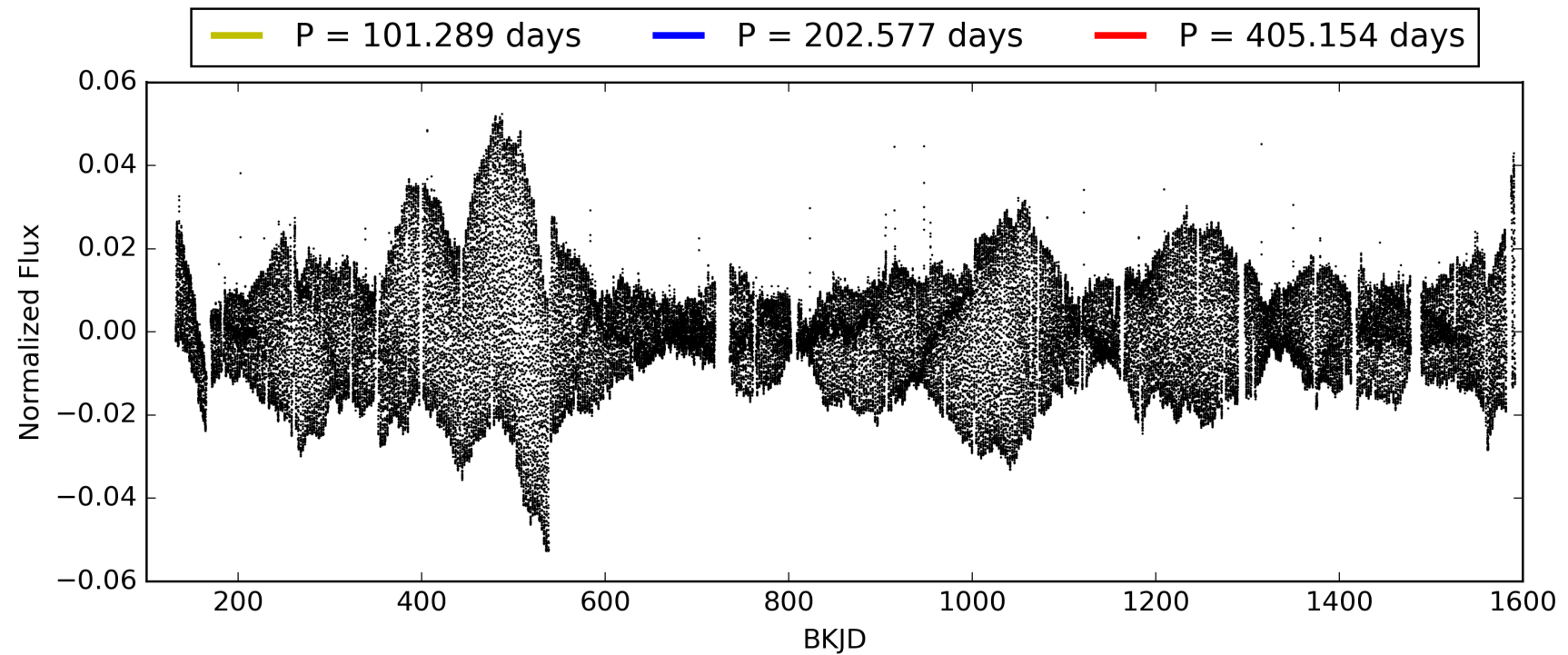
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [772.80 σ]
ModelChiSquare2-sig: 32.1%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 2.14e-09
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -3.209
Centroid-sig: 37.0%
Centroid-so: 1.175 arcsec [0.93 σ]
OotOffset-rm: 0.421 arcsec [2.31 σ]
KicOffset-rm: 0.179 arcsec [0.84 σ]
OotOffset-st: 2/2/1/0 [5]
KicOffset-st: 2/2/1/0 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 007133807-04, PDC Light Curves

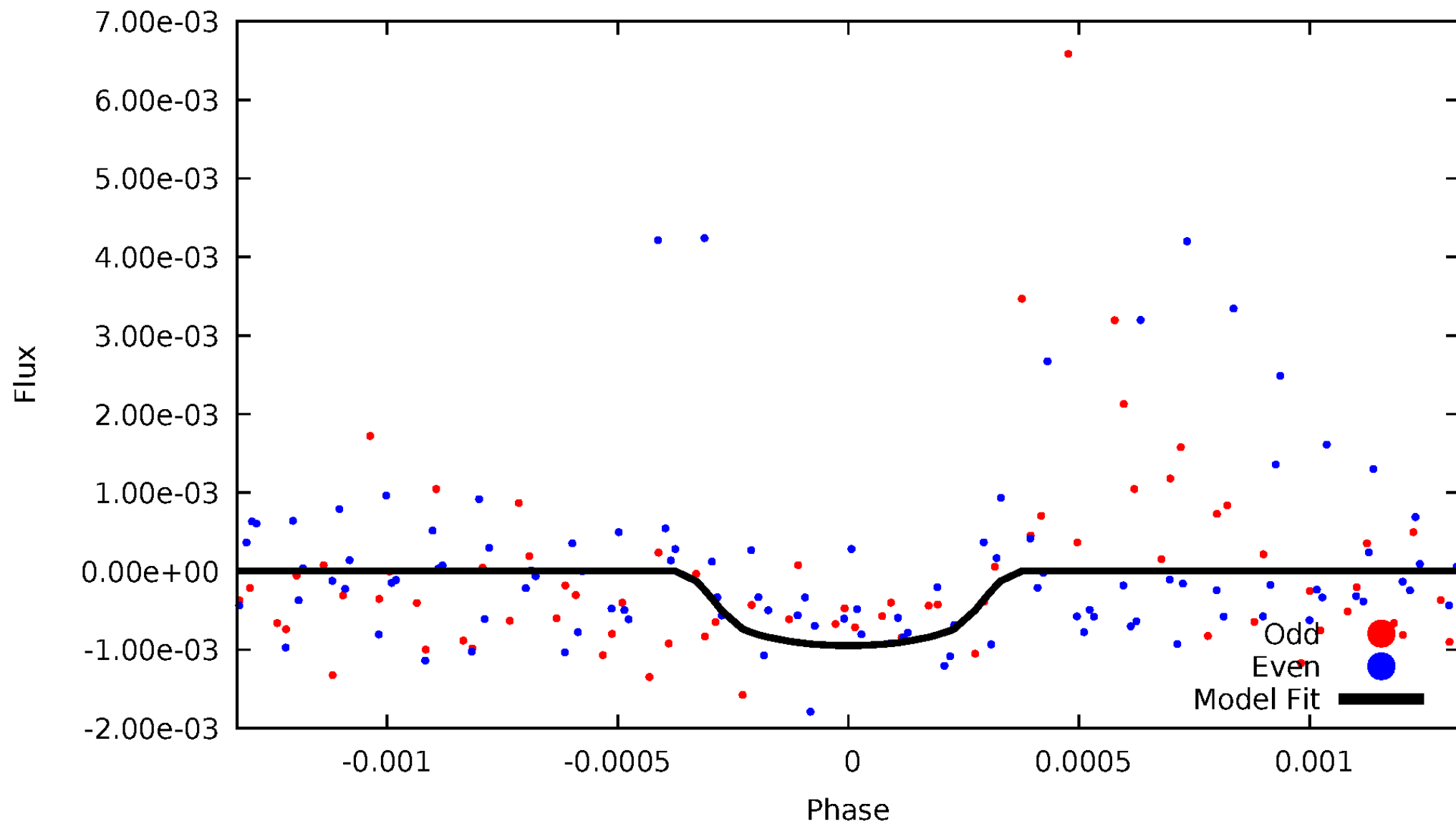


TCE 007133807-04



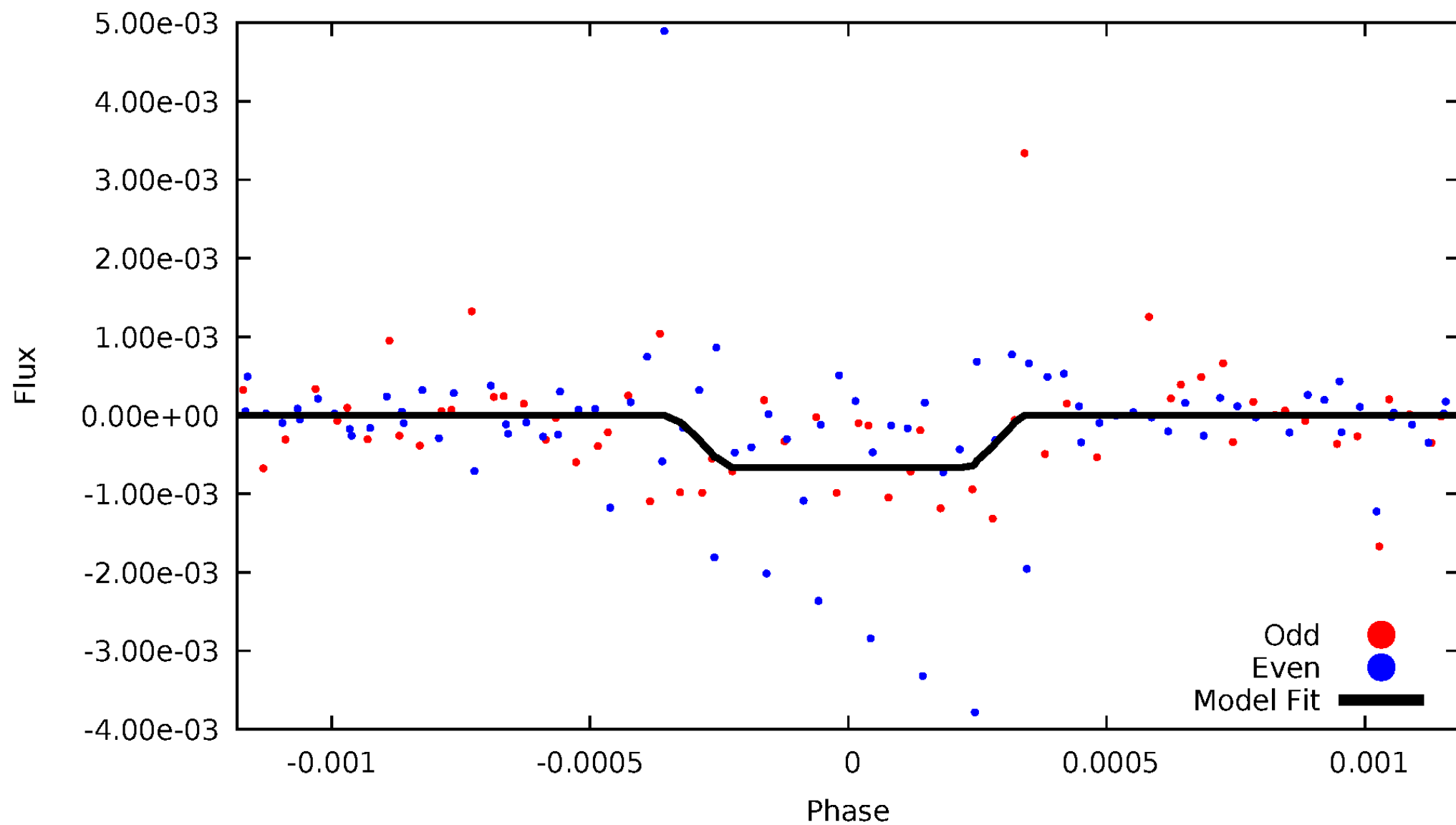
DV Odd/Even

TCE 007133807-04



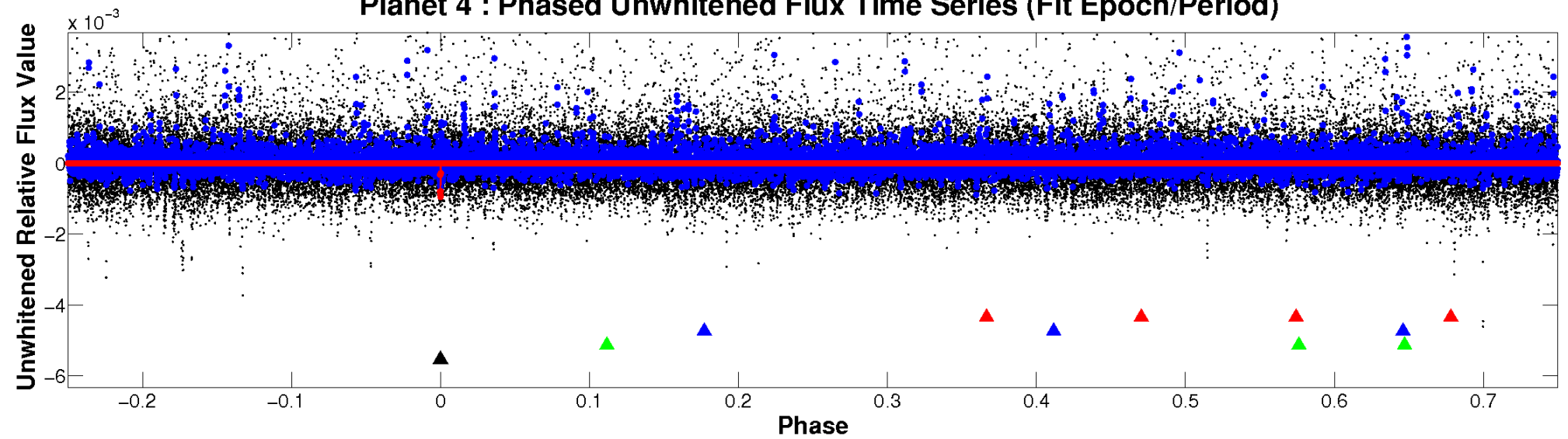
ALT Odd/Even

TCE 007133807-04

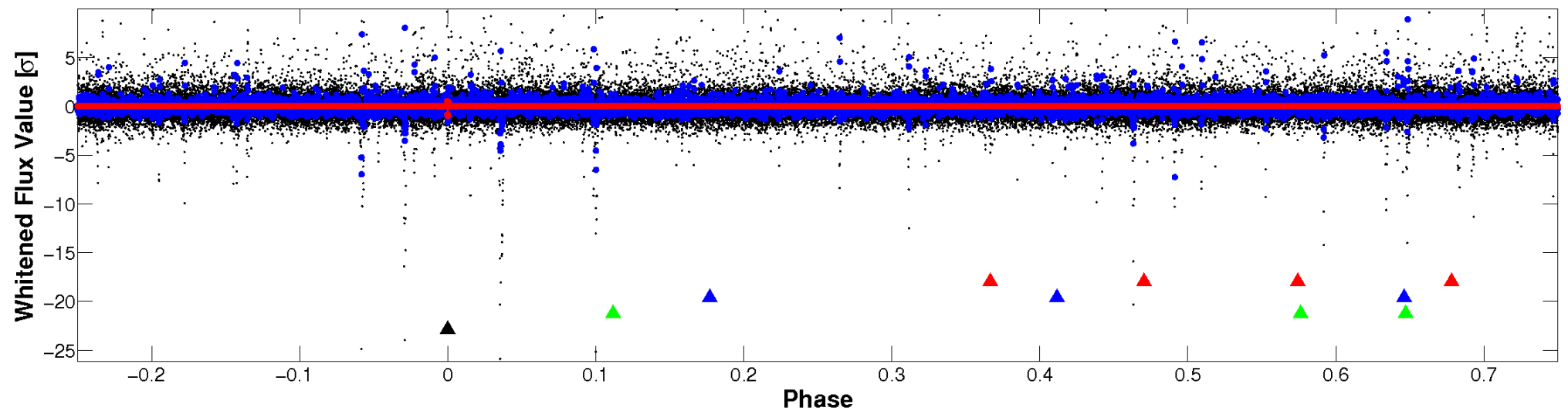


Non-Whitened Vs. Whitened Light Curve

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

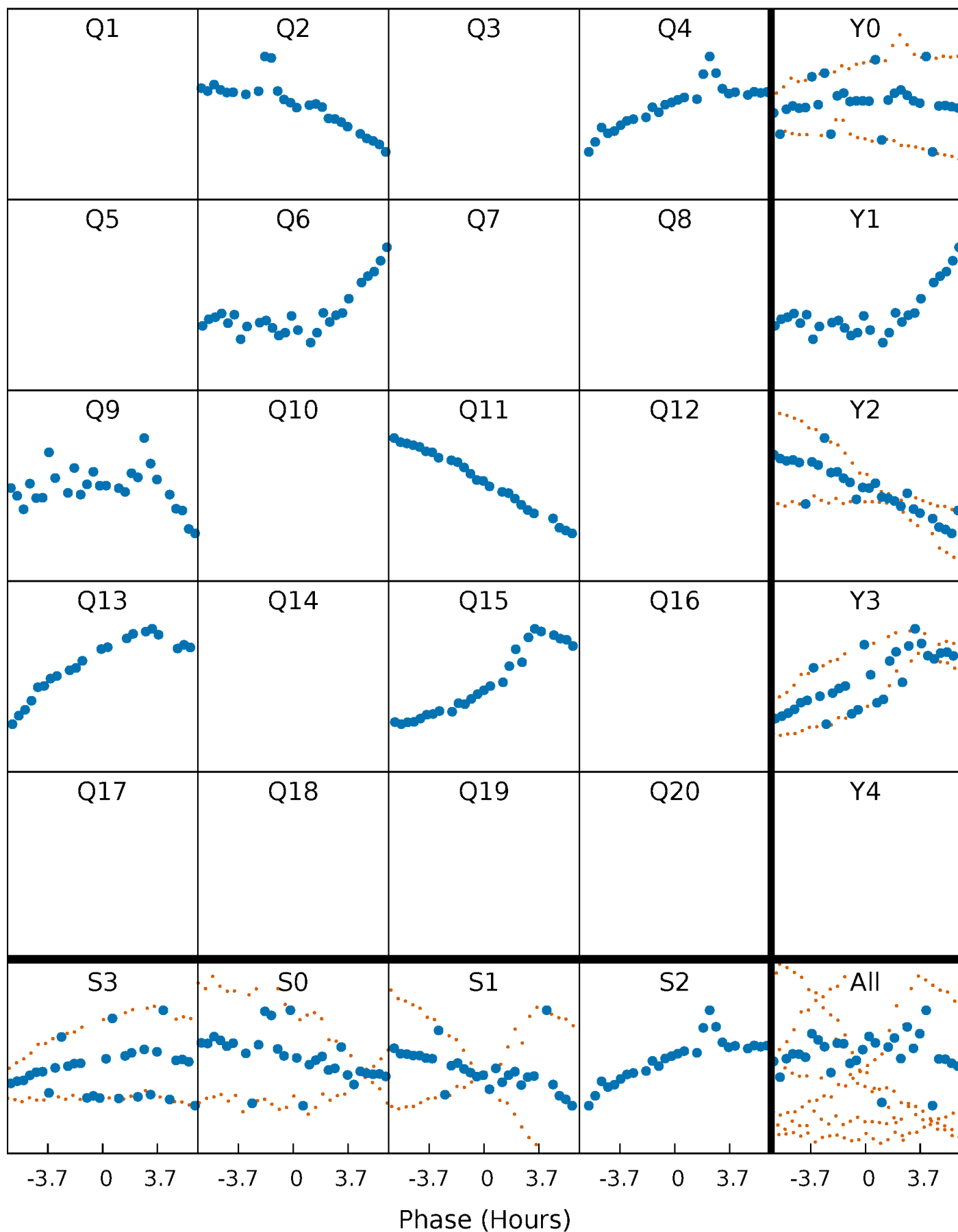


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



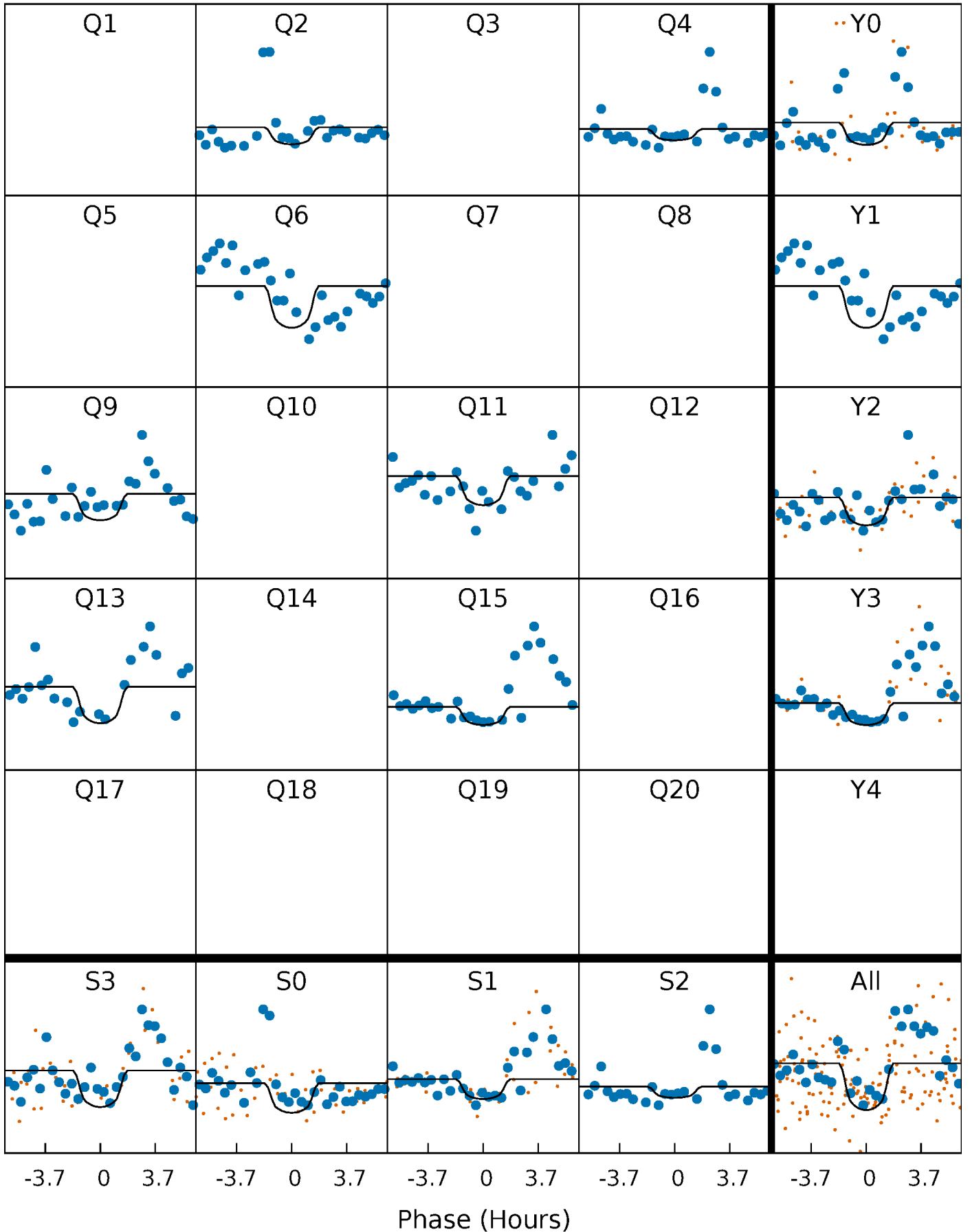
PDC Quarter-Phased Transit Curves

TCE 007133807-04 $P=202.577039$ Days $T_0=207.713183$ (BKJD)



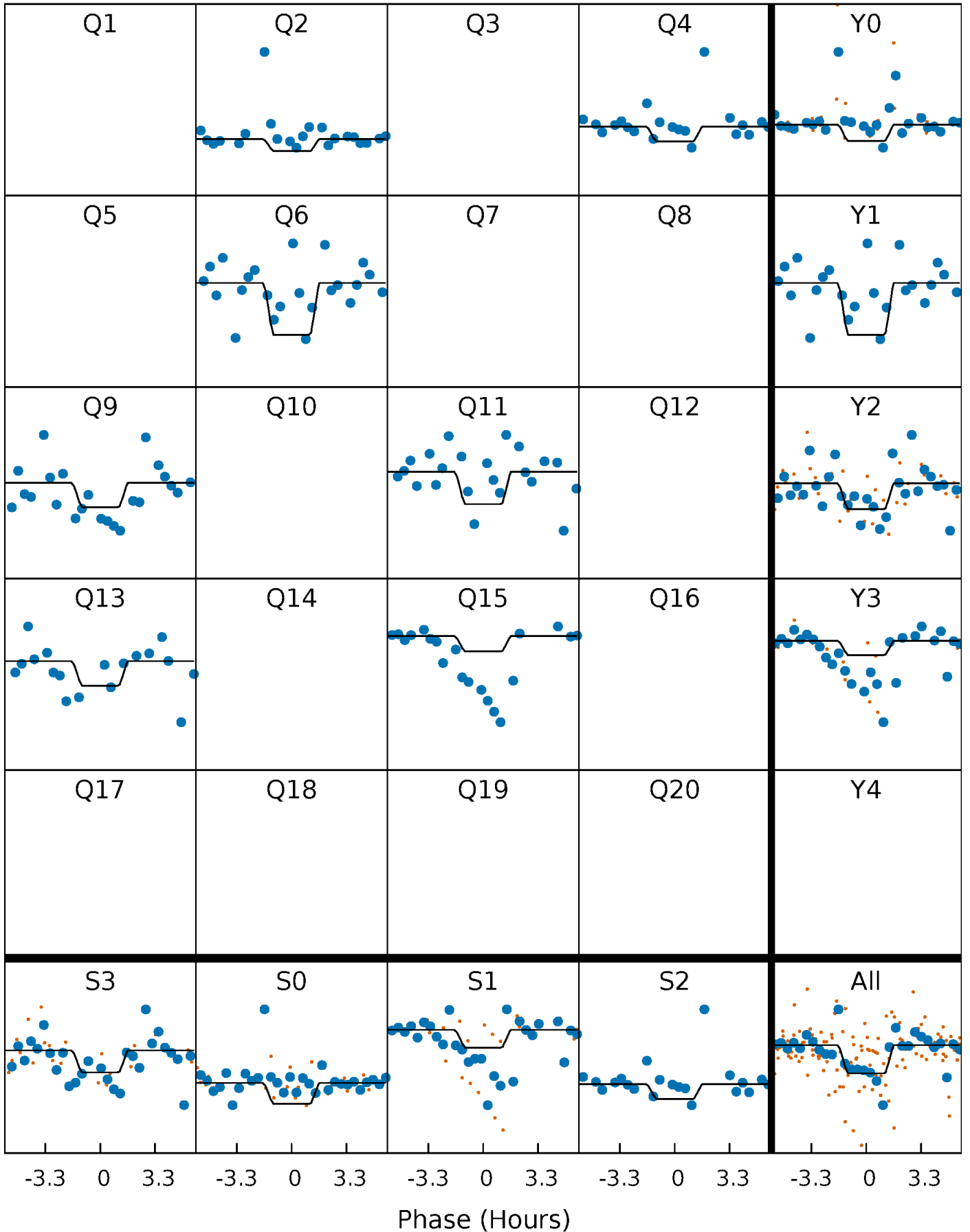
DV Quarter-Phased Transit Curves

TCE 007133807-04 $P=202.577039$ Days $T_0=207.713183$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

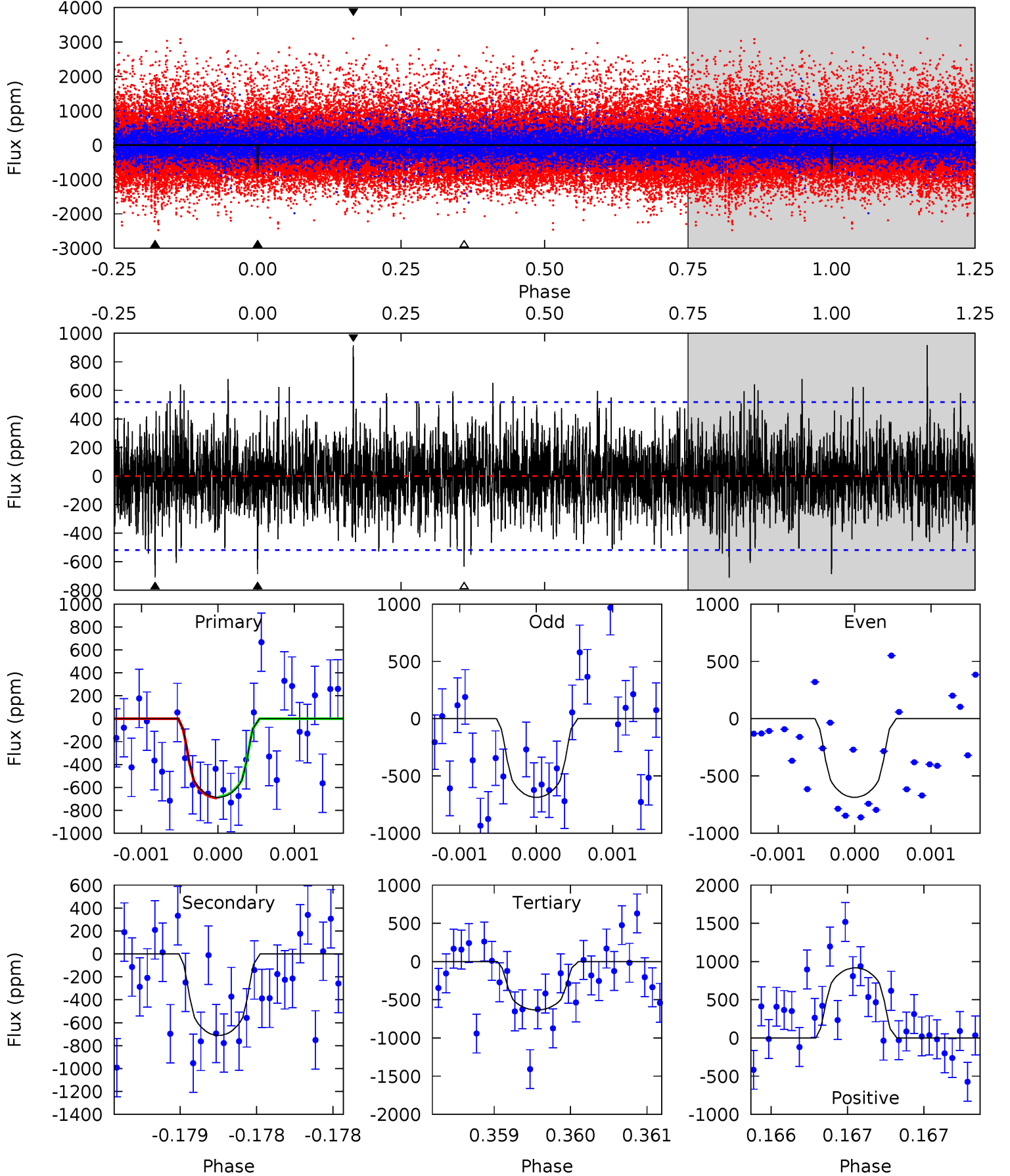
TCE 007133807-04 P=202.575023 Days $T_0=207.722231$ (BKJD)



DV Model-Shift Uniqueness Test

007133807-04, P = 202.577039 Days, E = 5.136144 Days

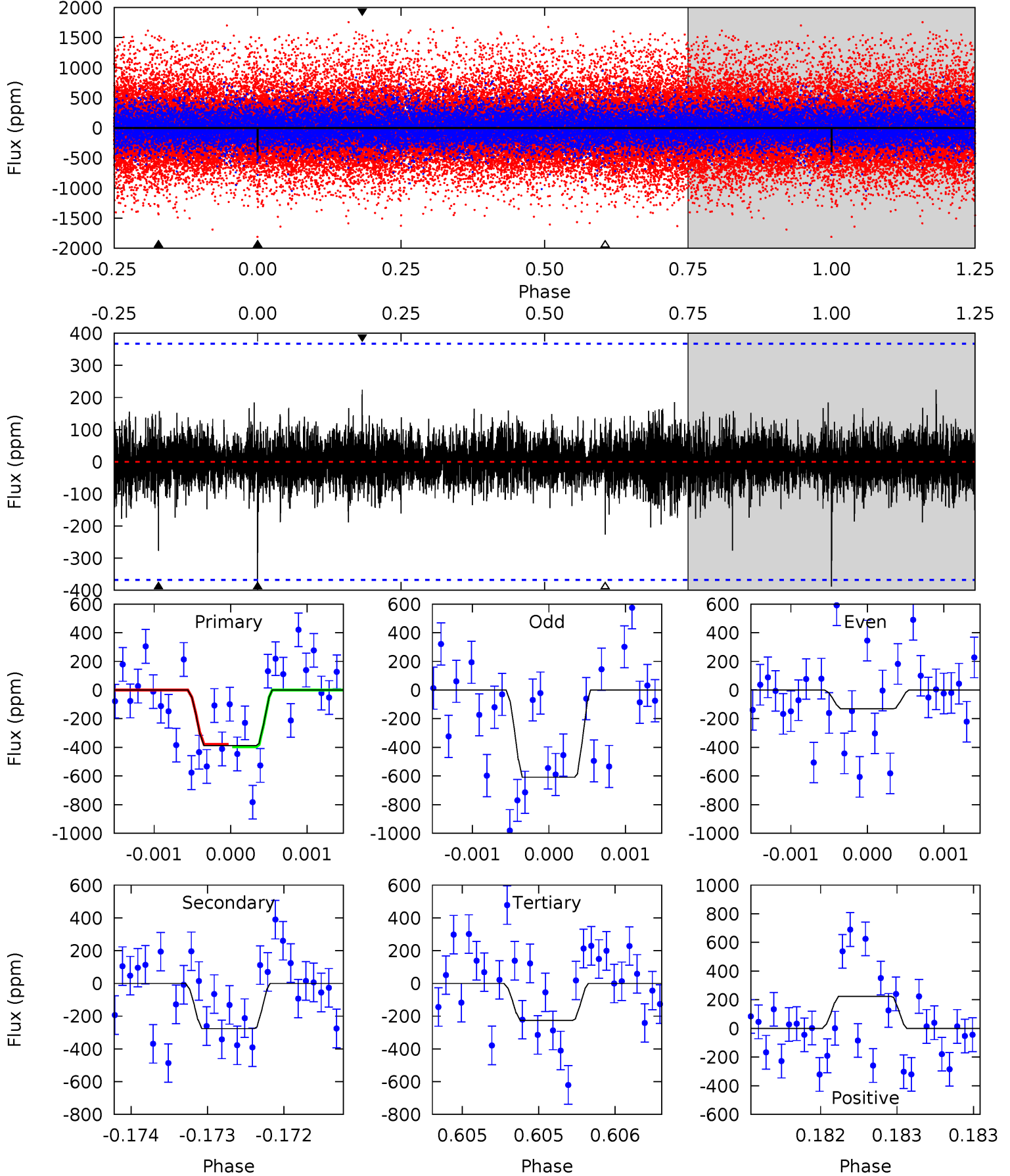
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.30	7.56	6.74	9.75	5.51	3.38	1.91	0.56	-2.45	0.82	-2.19	0.00	0.89	0.56	0.06



Alt Model-Shift Uniqueness Test

007133807-04, P = 202.575023 Days, E = 5.147208 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.83	4.16	3.41	3.37	5.53	3.41	0.73	2.43	2.46	0.75	0.79	3.41	2.34	0.37	0.13



Stellar Parameters For KIC 007133807

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4378^{+176}_{-176}	$4.586^{+0.056}_{-0.021}$	$0.280^{+0.150}_{-0.300}$	$0.710^{+0.033}_{-0.063}$	$0.709^{+0.048}_{-0.054}$	$2.787^{+0.700}_{-0.239}$
	+4%/-4%	+1%/-0%	+54%/-107%	+5%/-9%	+7%/-8%	+25%/-9%
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 007133807-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-711 ± 94	$4.04^{+3.57}_{-2.66}$	291^{+12}_{-13}	3451^{+1676}_{-598}	8860^{+67451}_{-6401}
Alt.	-277 ± 66	$3.76^{+3.54}_{-2.50}$	291^{+12}_{-12}	3053^{+1332}_{-524}	3854^{+29933}_{-2935}

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

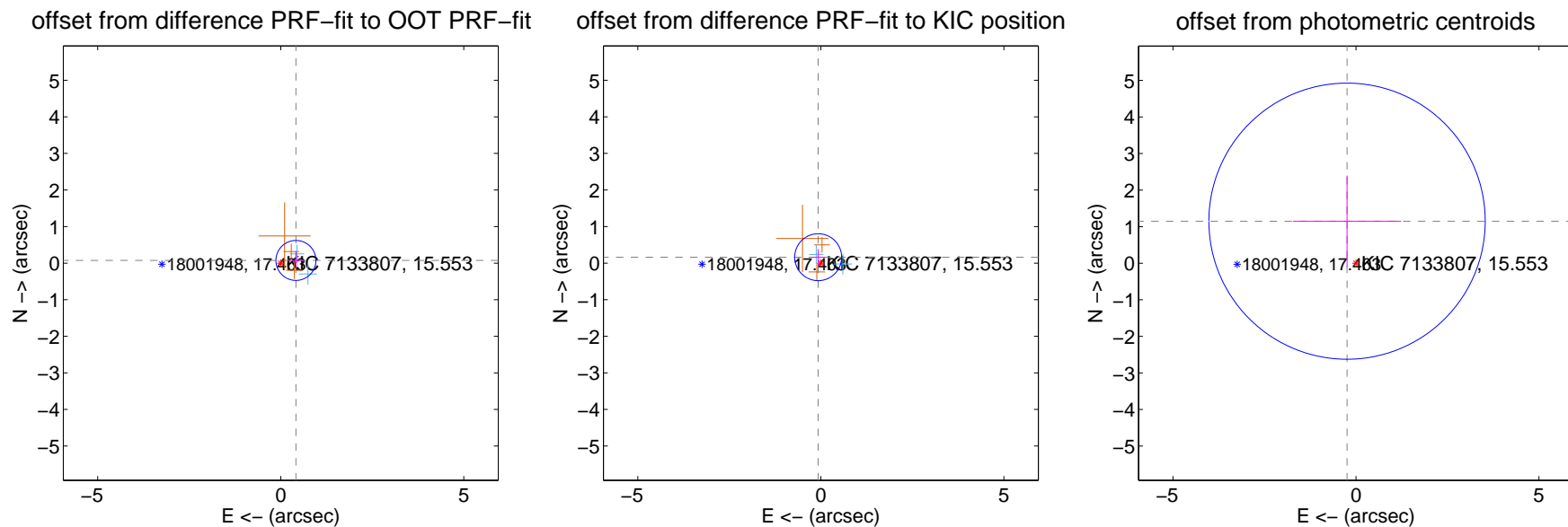
DV Centroid Data

Supplemental centroid analysis for 007133807-04. Kepler magnitude: 15.55. Transit SNR 5.65

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.421 ± 0.182	2.31	-0.415 ± 0.181	0.074 ± 0.220
PRF-fit source offset from KIC position	0.179 ± 0.214	0.84	0.074 ± 0.181	0.163 ± 0.220
photometric centroid source offset	1.17 ± 1.26	0.93	0.24 ± 1.48	1.15 ± 1.25



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

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

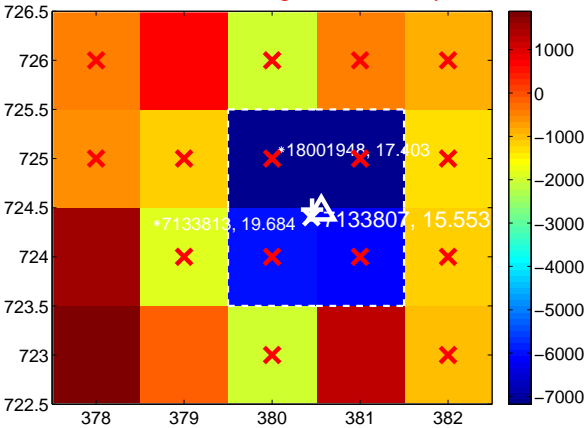
Q1 no difference image



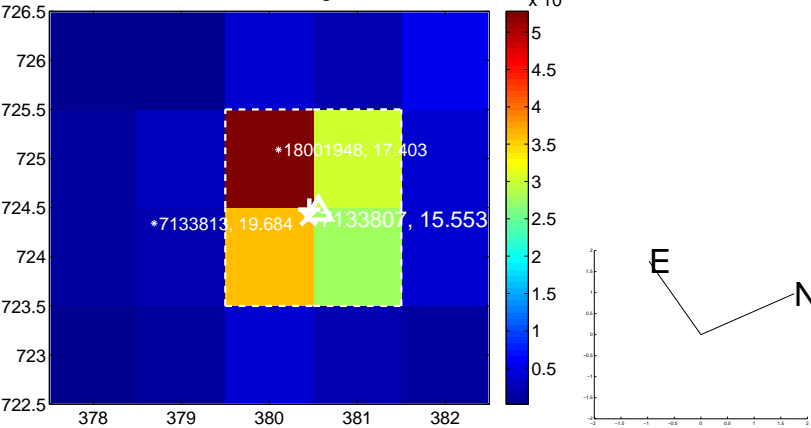
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



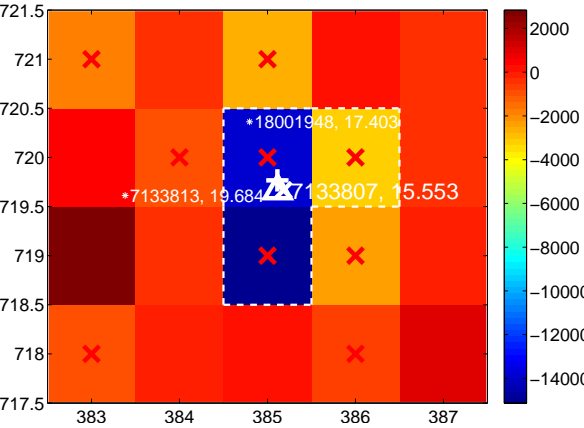
Q3 no difference image



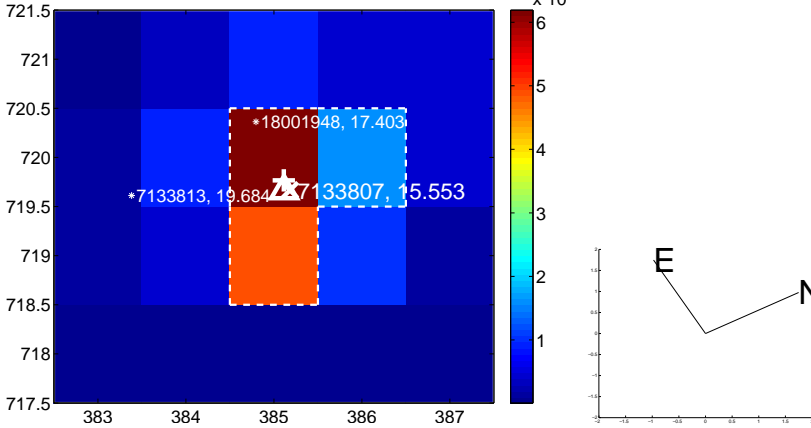
Q3 no OOT image



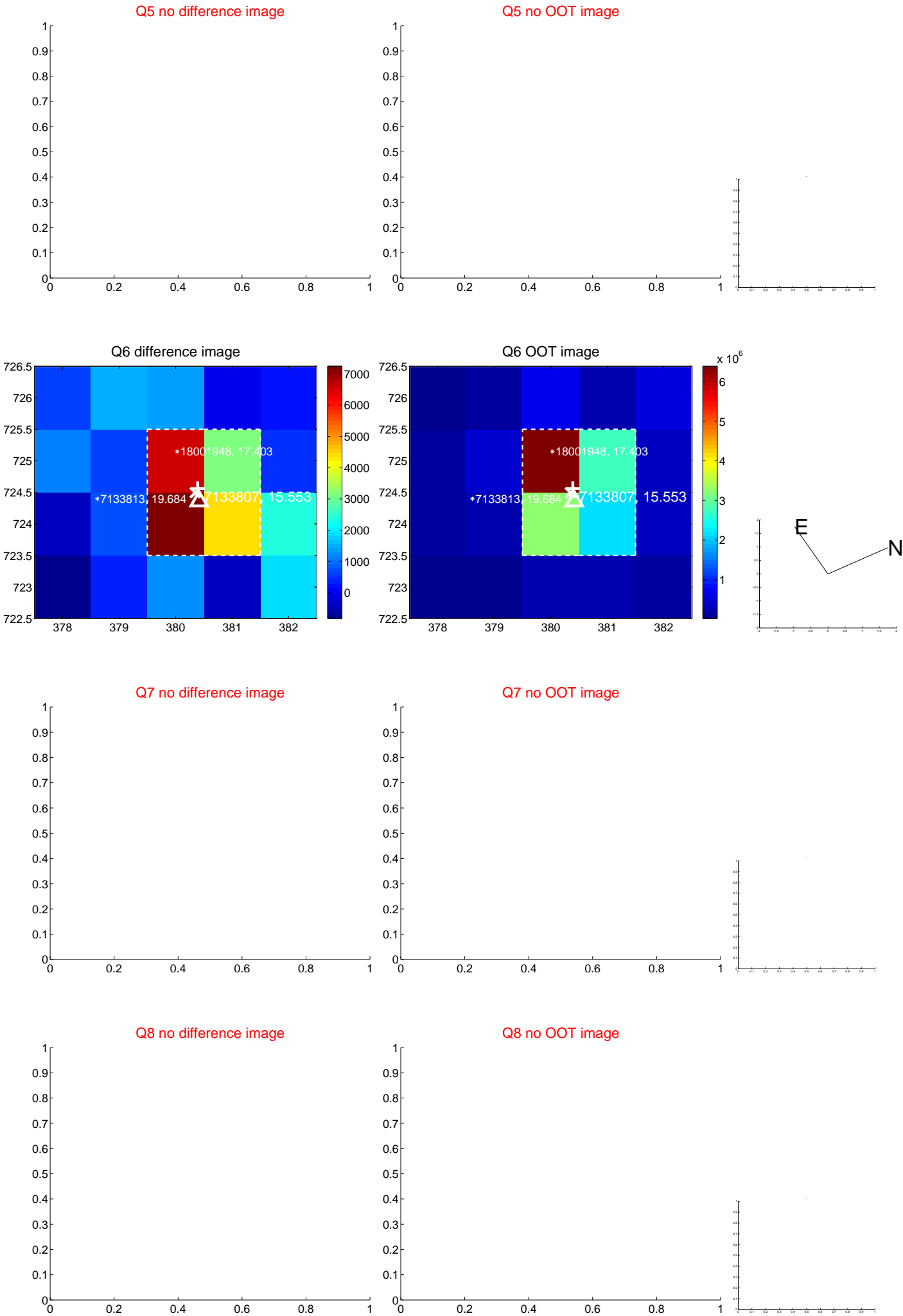
Q4 difference image. Poor Quality



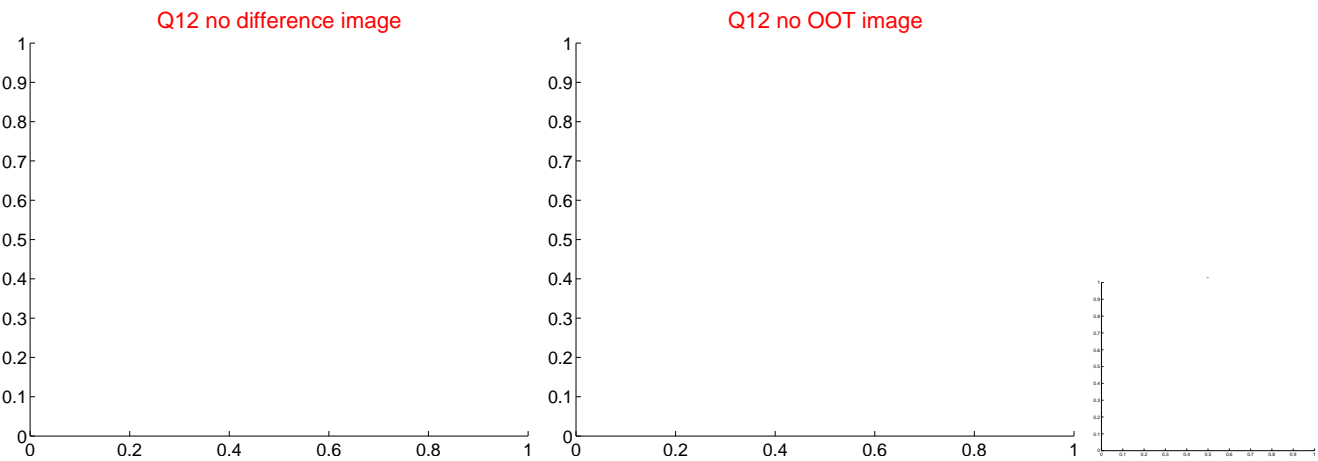
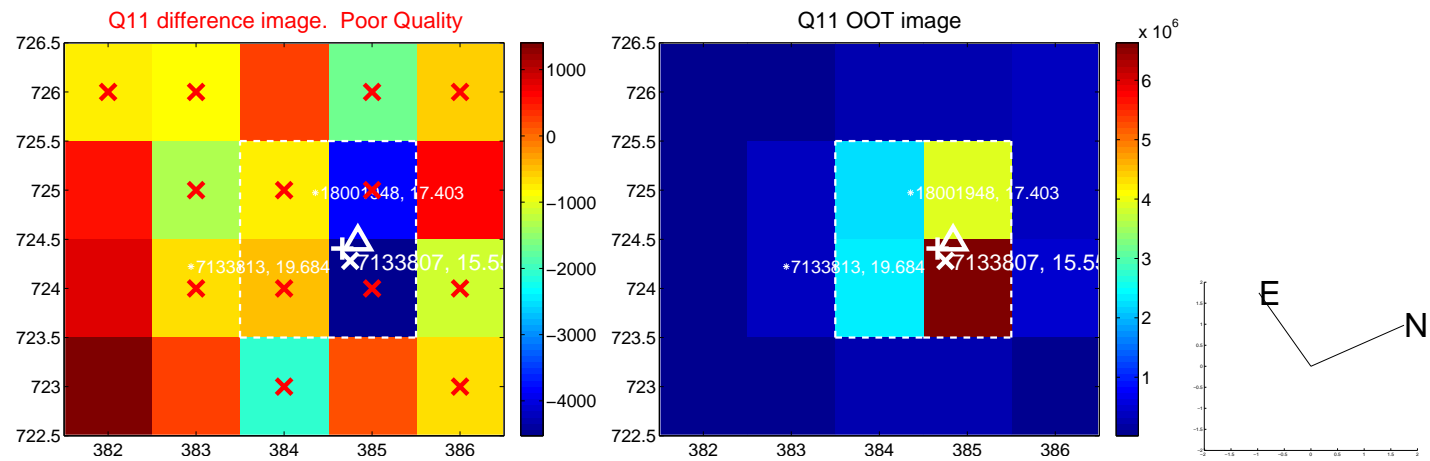
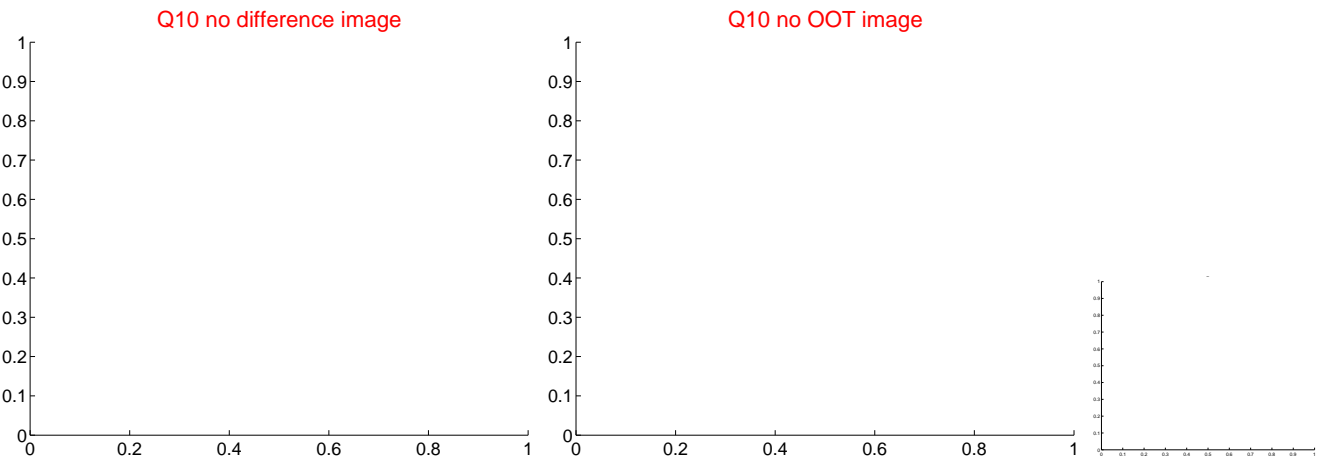
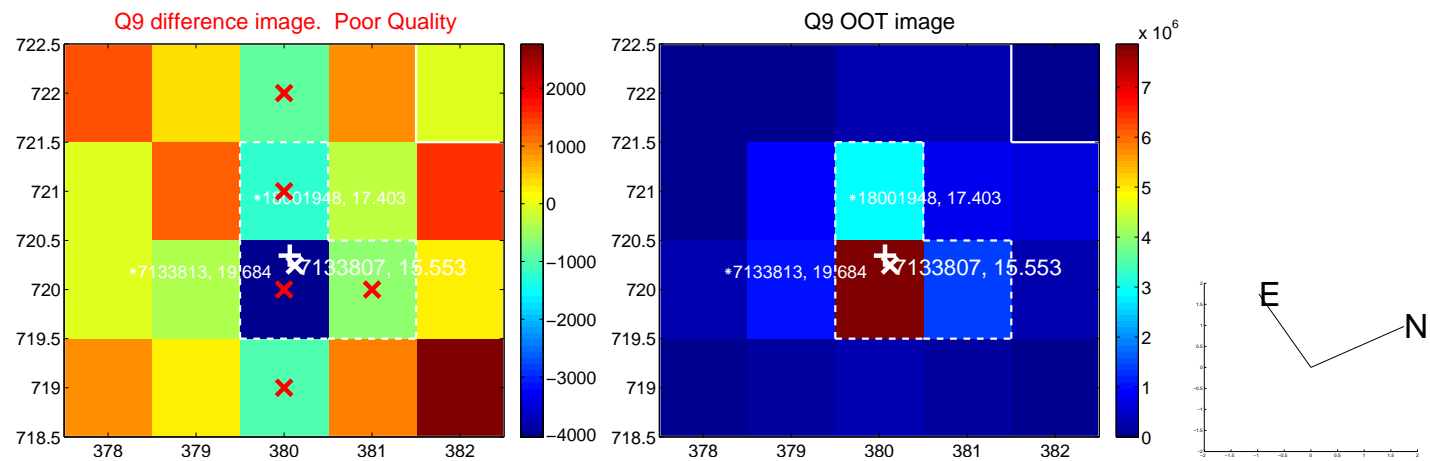
Q4 OOT image



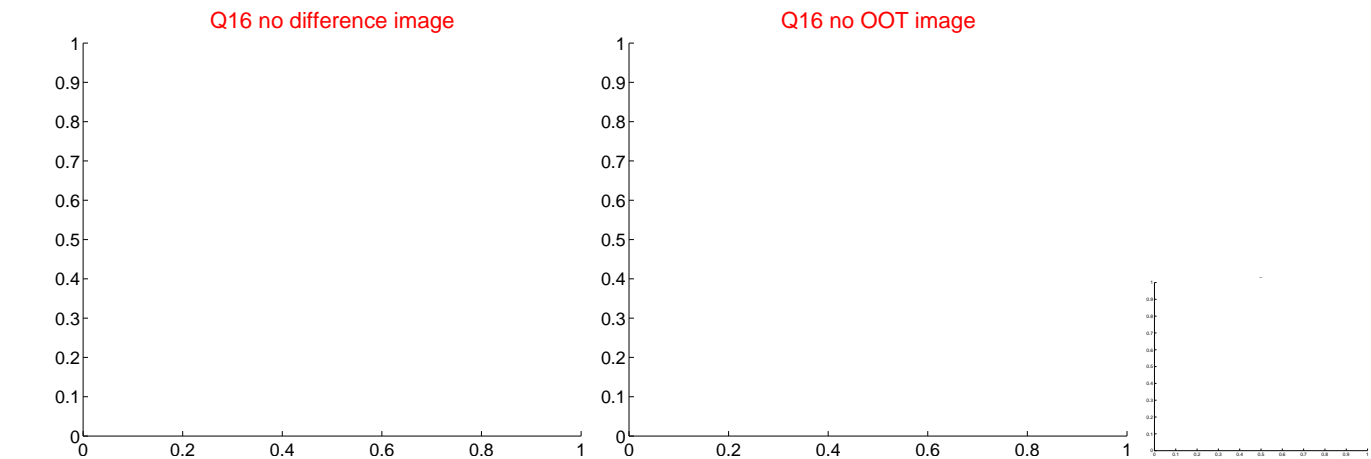
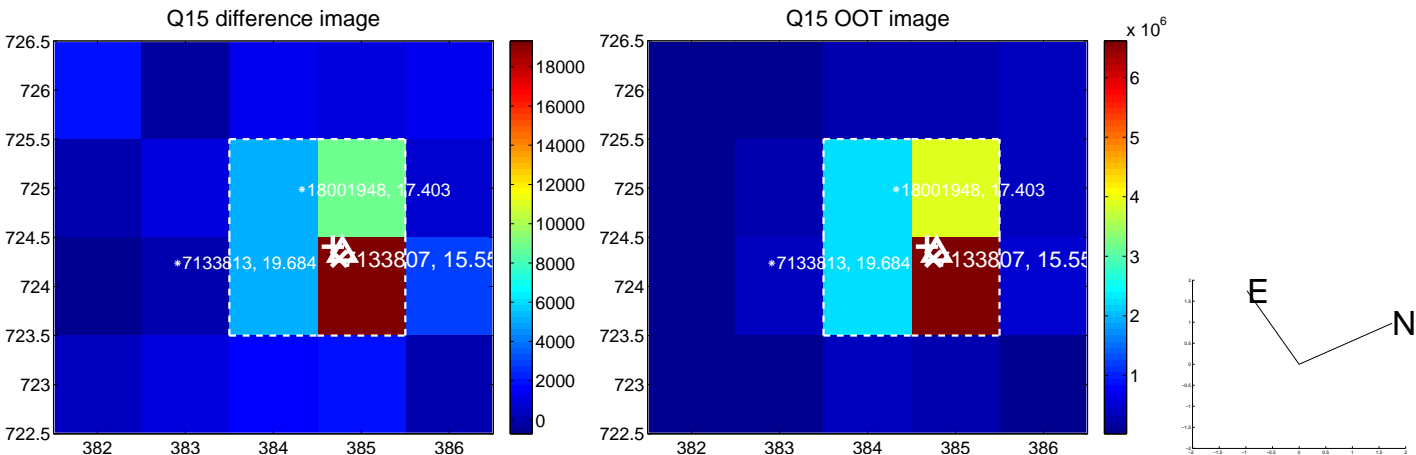
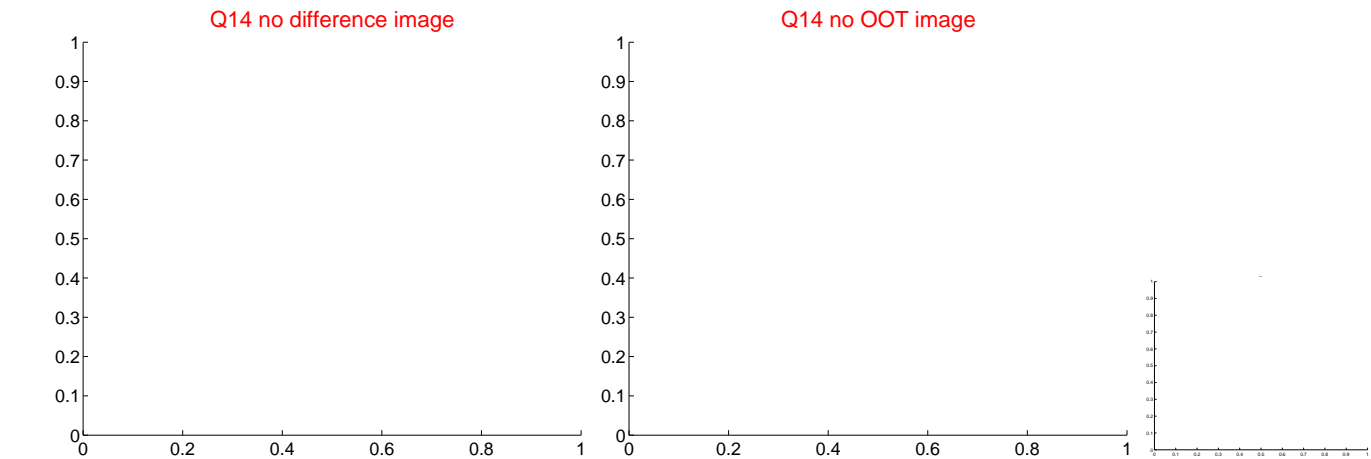
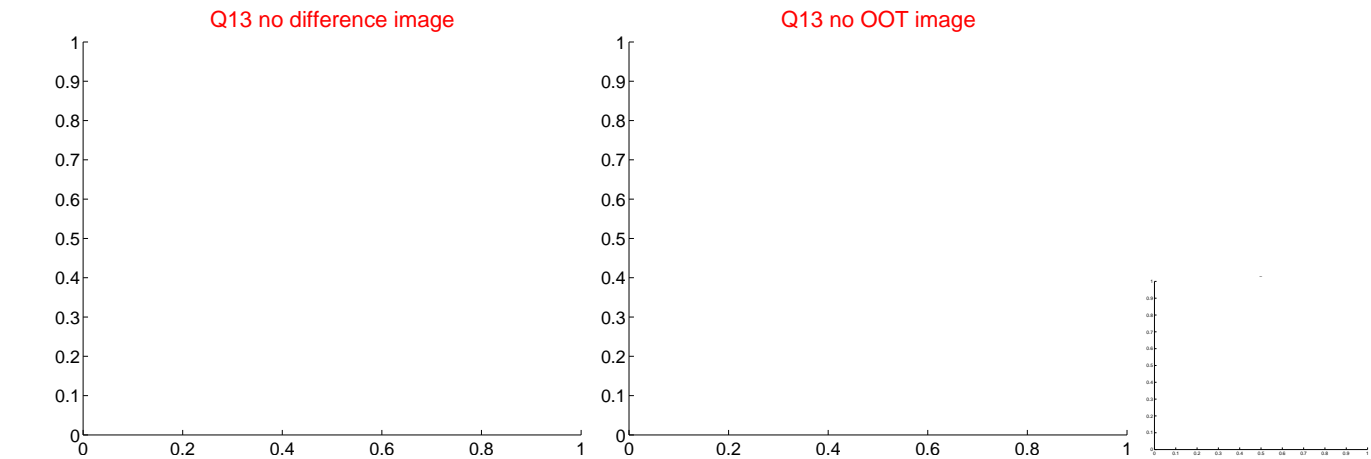
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



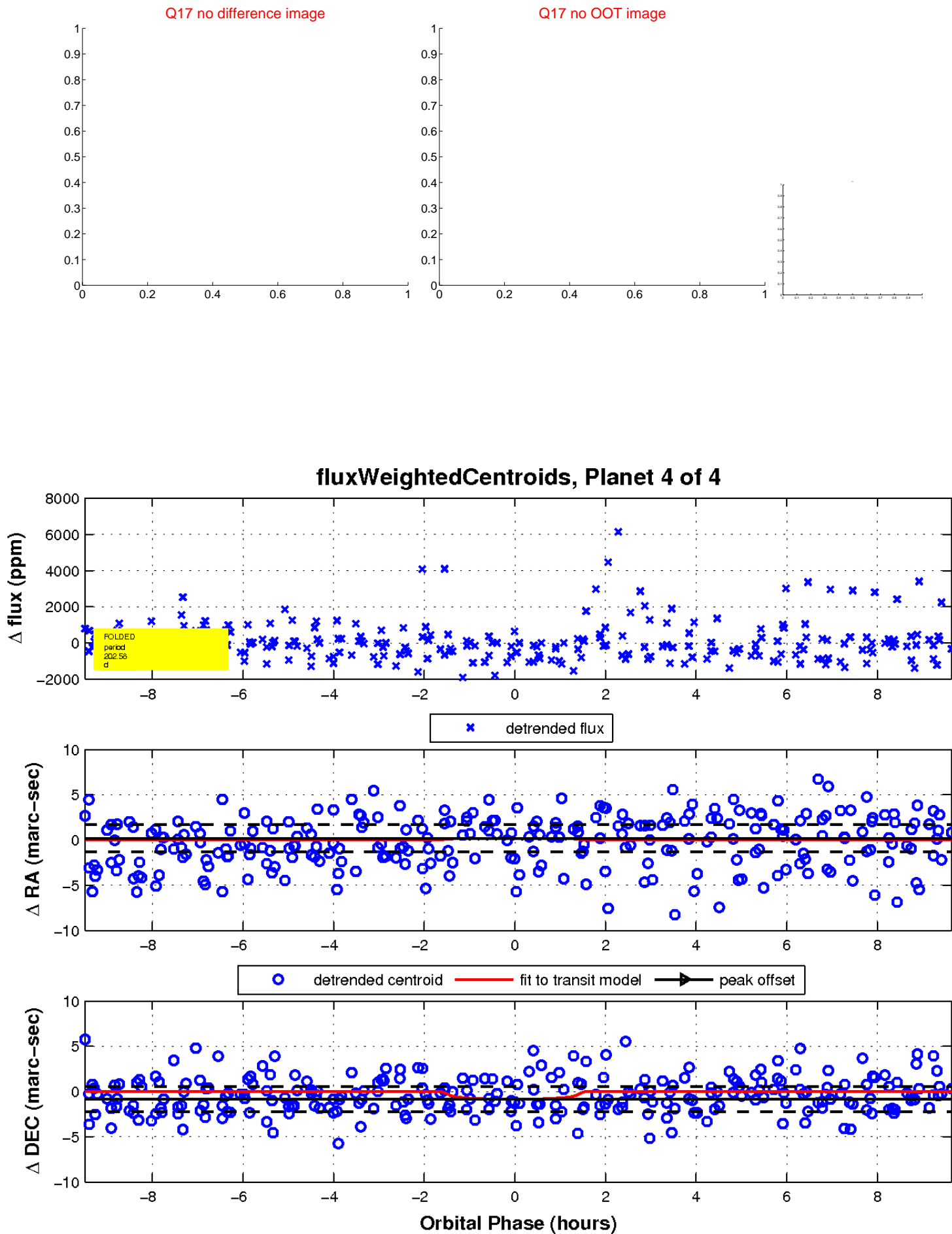
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

Declination

