

KIC 008737443

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})
008737443-01	OBS	No	396.003874	526.291048	2260.3	2.496	12.6	8.7	0.24	3435	1.27	0.02
008737443-02	OBS	No	604.493923	191.514383	1320.6	4.881	12.5	6.8	0.24	3435	0.92	0.01
008737443-03	OBS	No	505.418659	447.832032	1925.5	5.226	13.2	7.9	0.24	3435	1.32	0.01
008737443-04	OBS	No	543.021857	238.450030	1309.1	9.000	12.8	-1.0	0.24	3435	0.88	0.01
008737443-05	OBS	No	393.217799	426.029958	1355.3	6.266	11.4	6.8	0.24	3435	0.93	0.02
008737443-06	OBS	No	355.042365	398.174521	1785.6	11.038	12.5	7.2	0.24	3435	1.03	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008737443-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008737443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS
008737443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
008737443-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

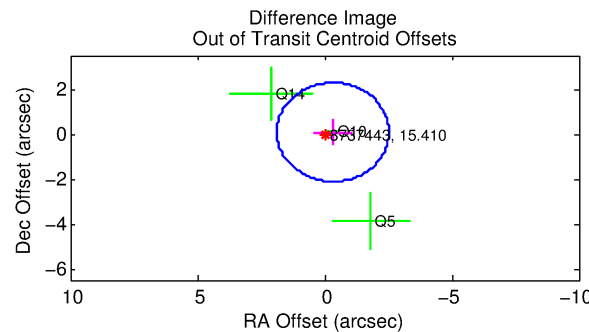
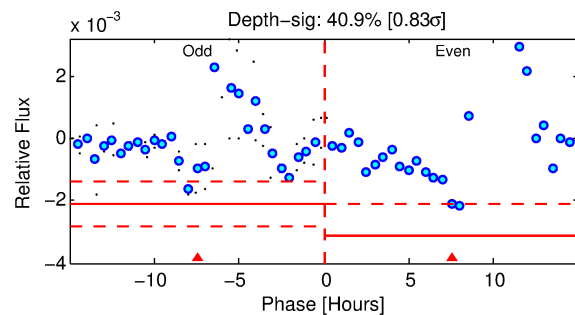
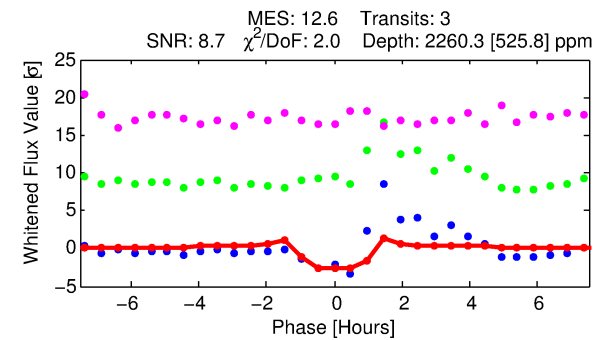
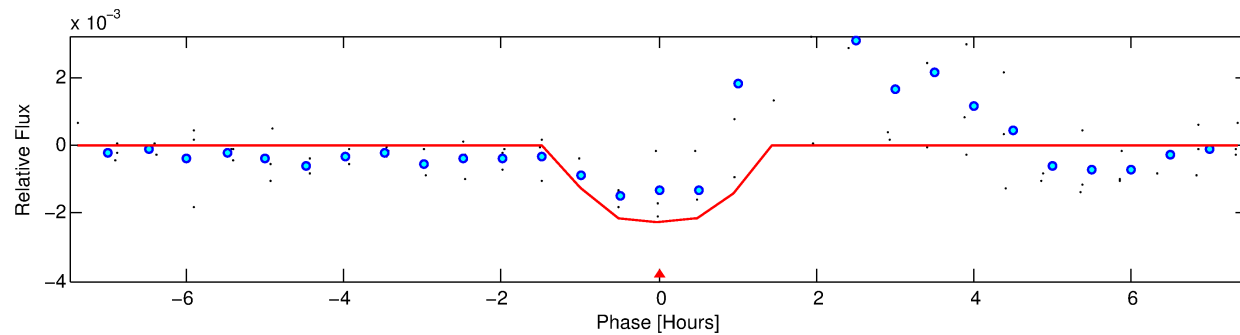
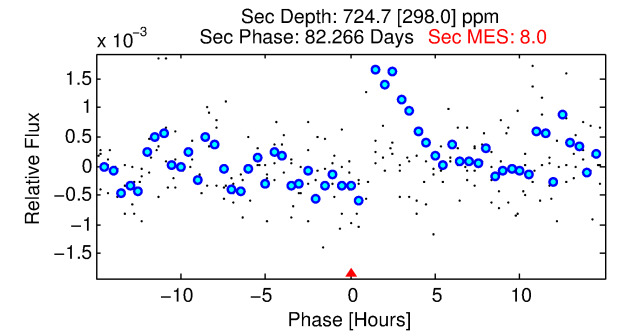
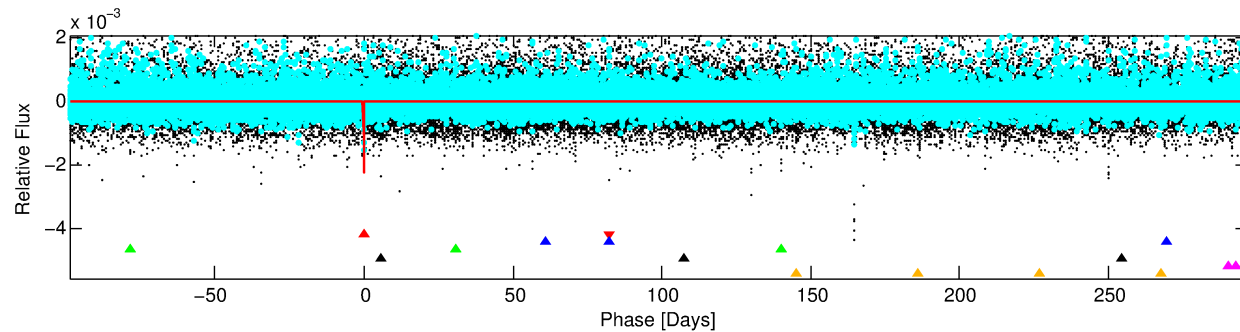
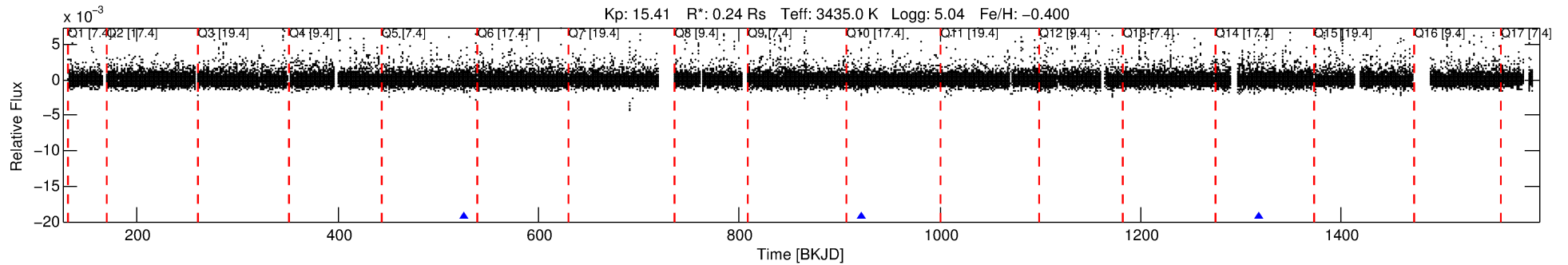
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008737443-01

No Significant Match Found

DV One-Page Summary

KIC: 8737443 Candidate: 1 of 6 Period: 396.004 d



DV Fit Results:

Period = 396.00387 [0.00495] d
Epoch = 526.2910 [0.0060] BKJD
Rp/R* = 0.0478 [0.0731]
a/R* = 849.87 [6105.24]
b = 0.78 [3.62]
Seff = 0.02 [0.00]
Teq = 93 [3] K
Rp = 1.27 [1.96] Re
a = 0.6533 [0.0740] AU
Ag = 105157.24 [325084.99] [0.32σ]
Teffp = 2579 [1992] K [1.25σ]

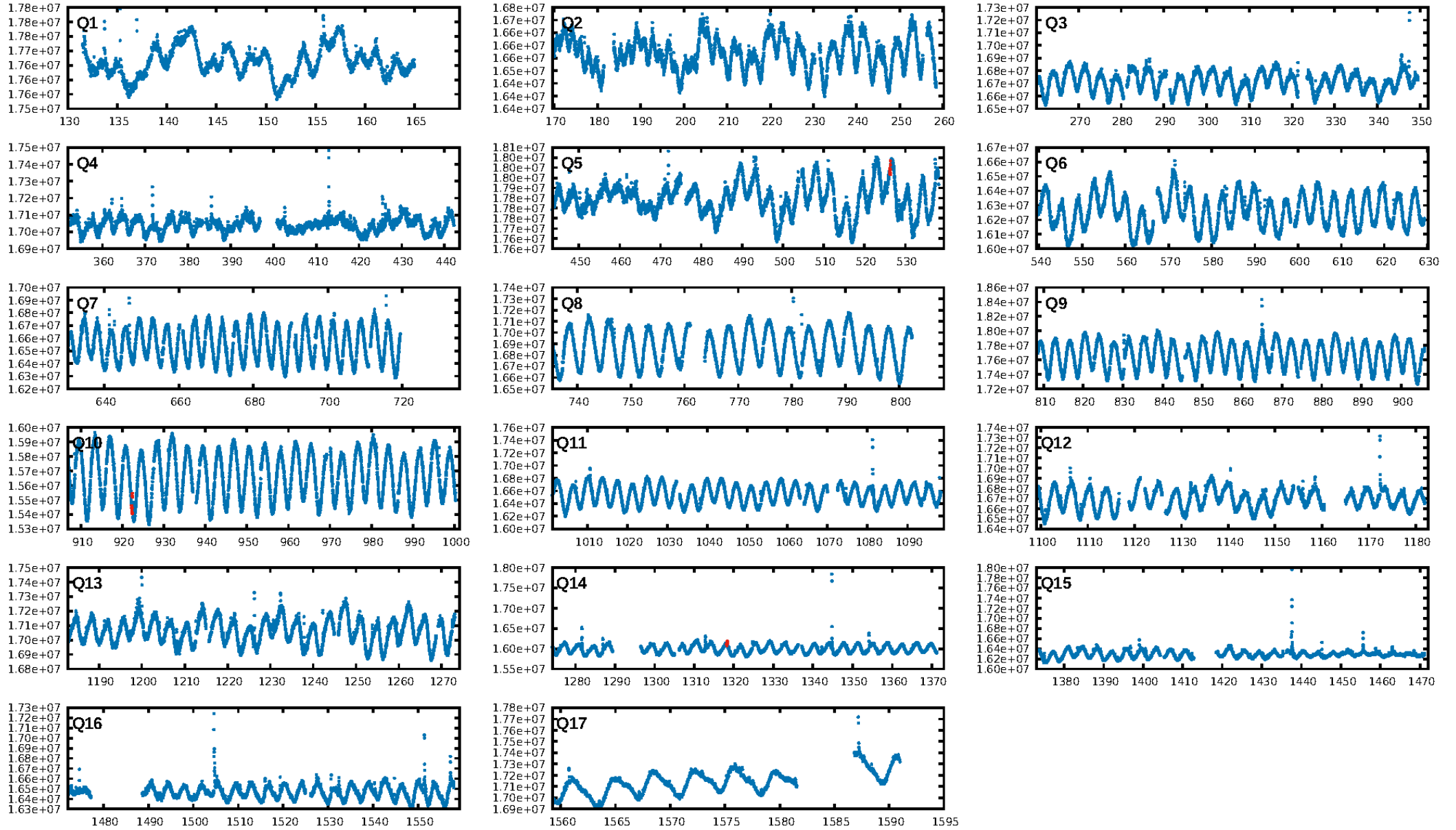
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.91σ]
LongPeriod-sig: 100.0% [453.43σ]
ModelChiSquare2-sig: 20.4%
ModelChiSquareGof-sig: 55.2%
Bootstrap-pfa: 8.20e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.04158
Centroid-sig: 64.7%
Centroid-so: 0.673 arcsec [0.74σ]
OotOffset-rm: 0.328 arcsec [0.45σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-rm: 0.305 arcsec [0.27σ]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

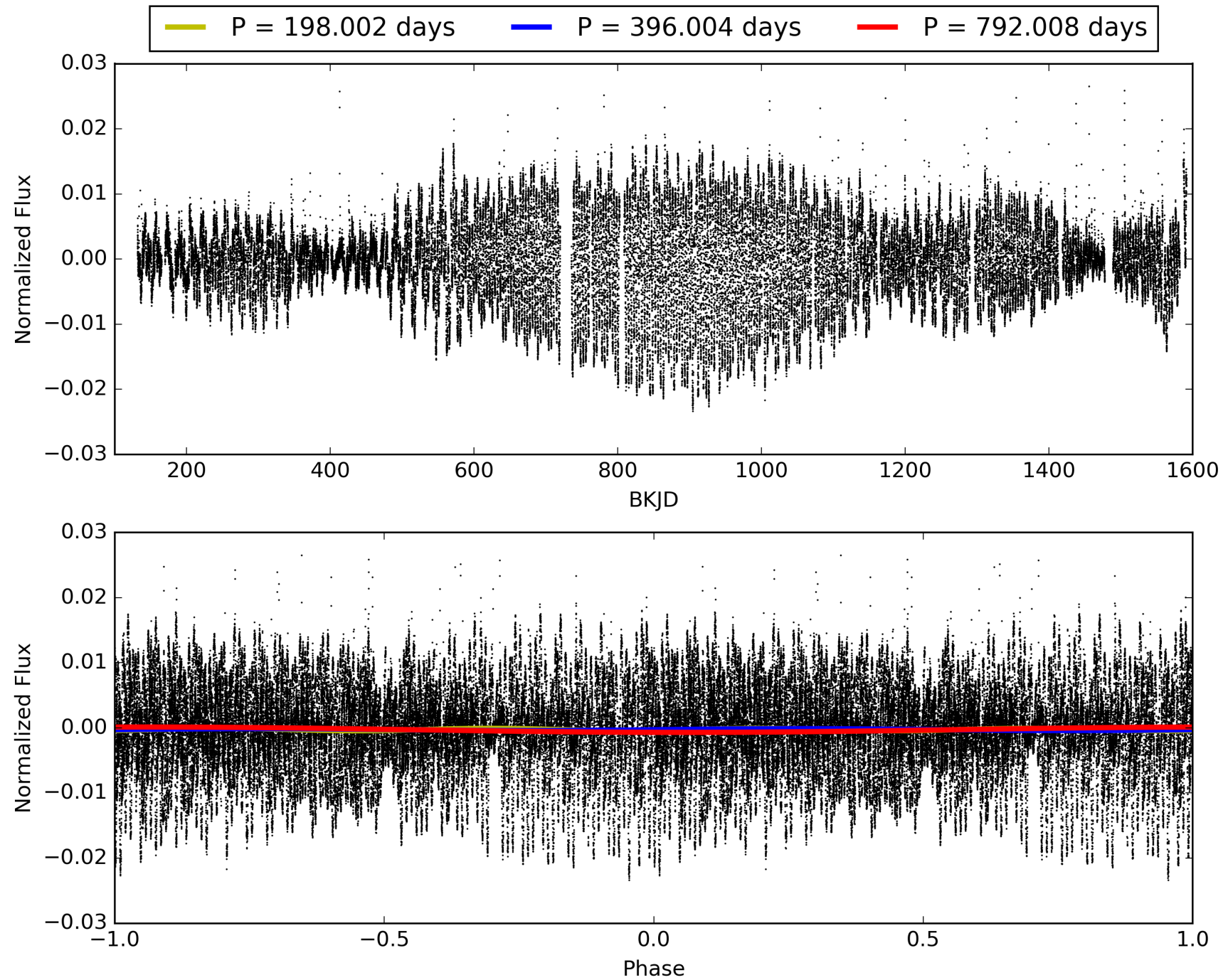
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008737443-01, PDC Light Curves

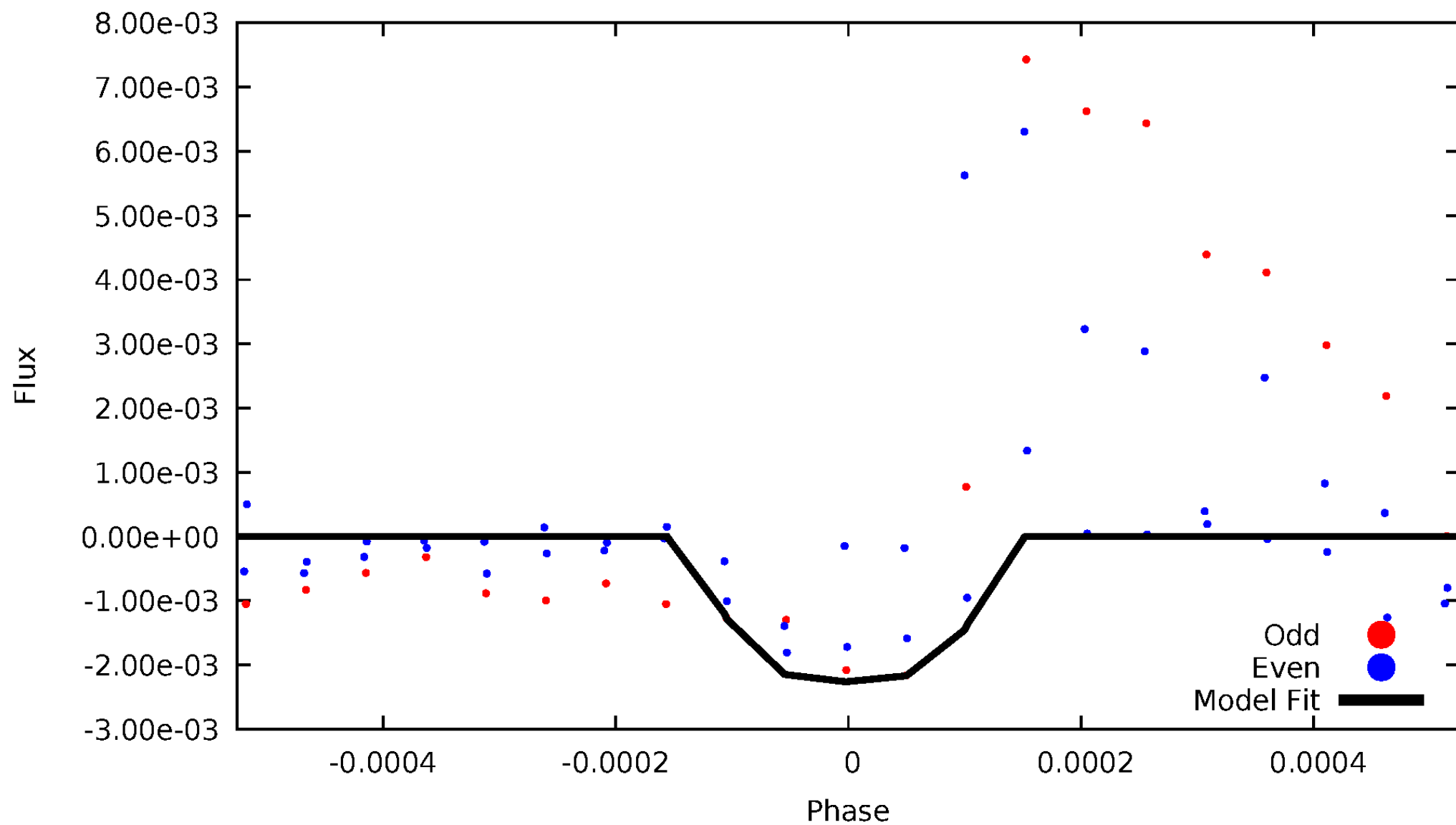


TCE 008737443-01



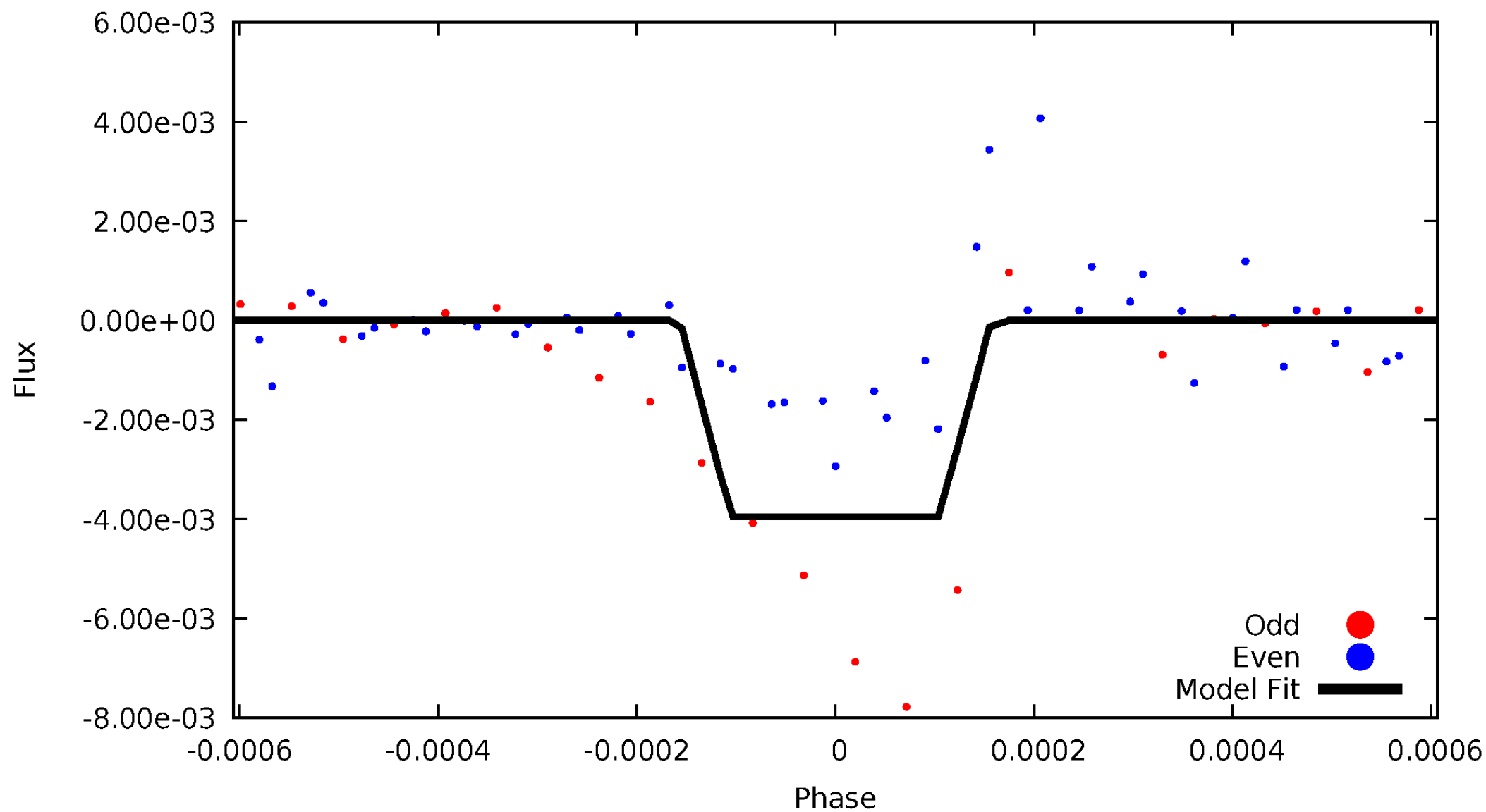
DV Odd/Even

TCE 008737443-01



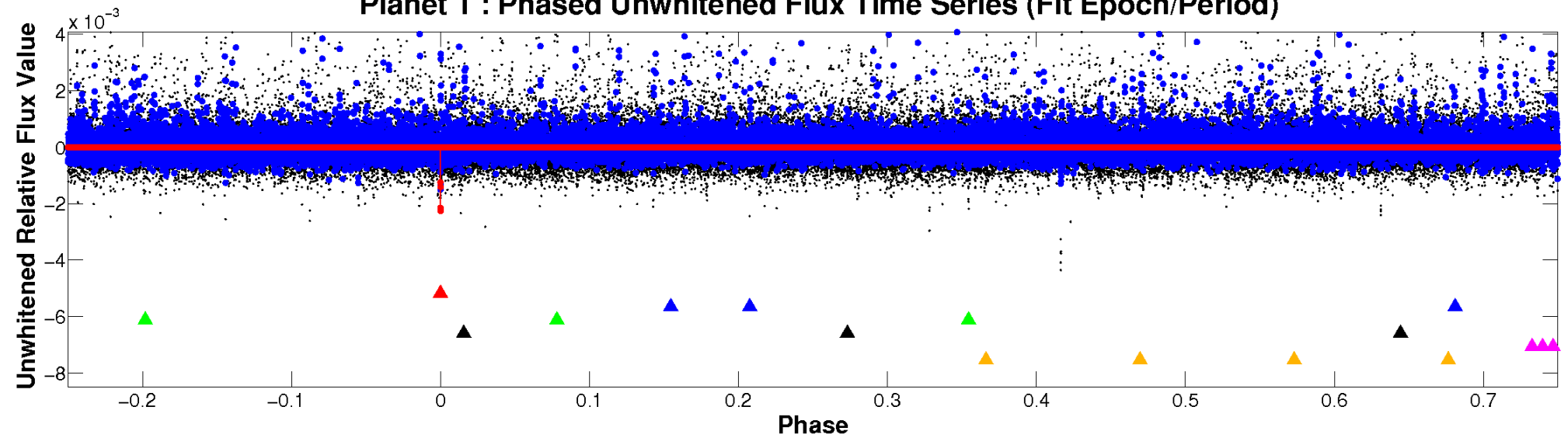
ALT Odd/Even

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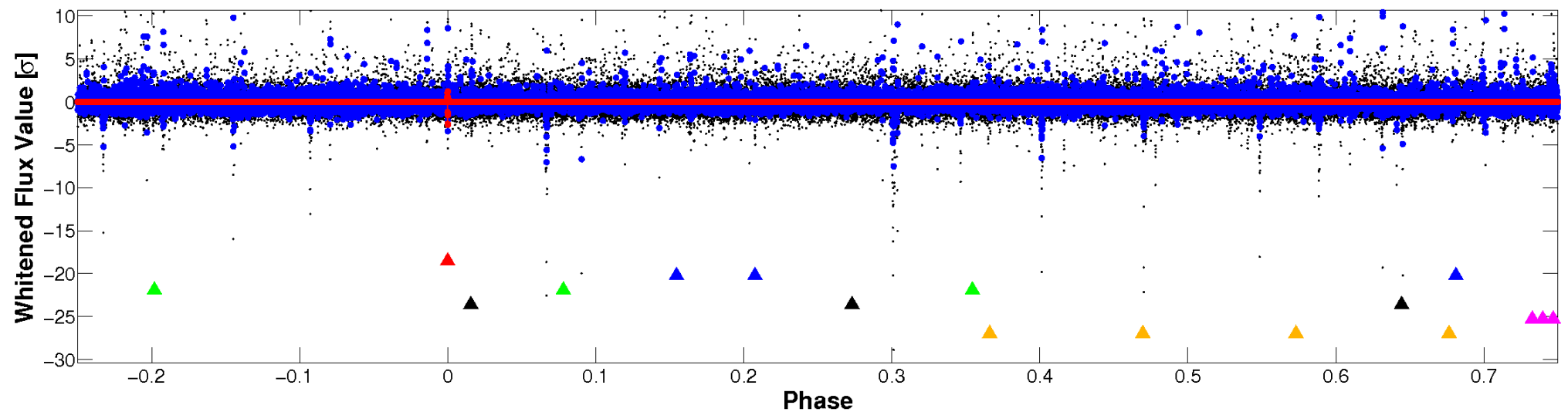


Non-Whitened Vs. Whitened Light Curve

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

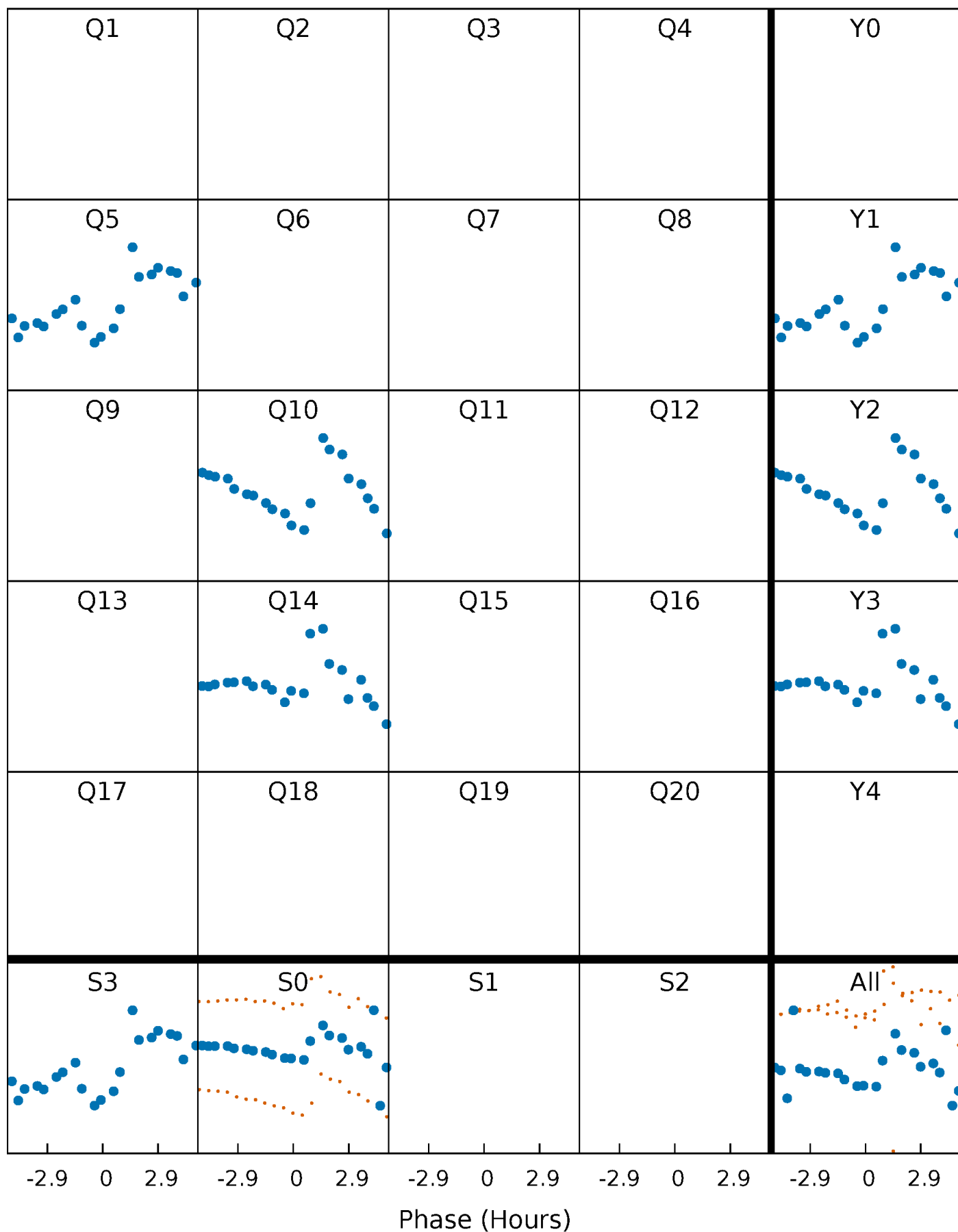


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



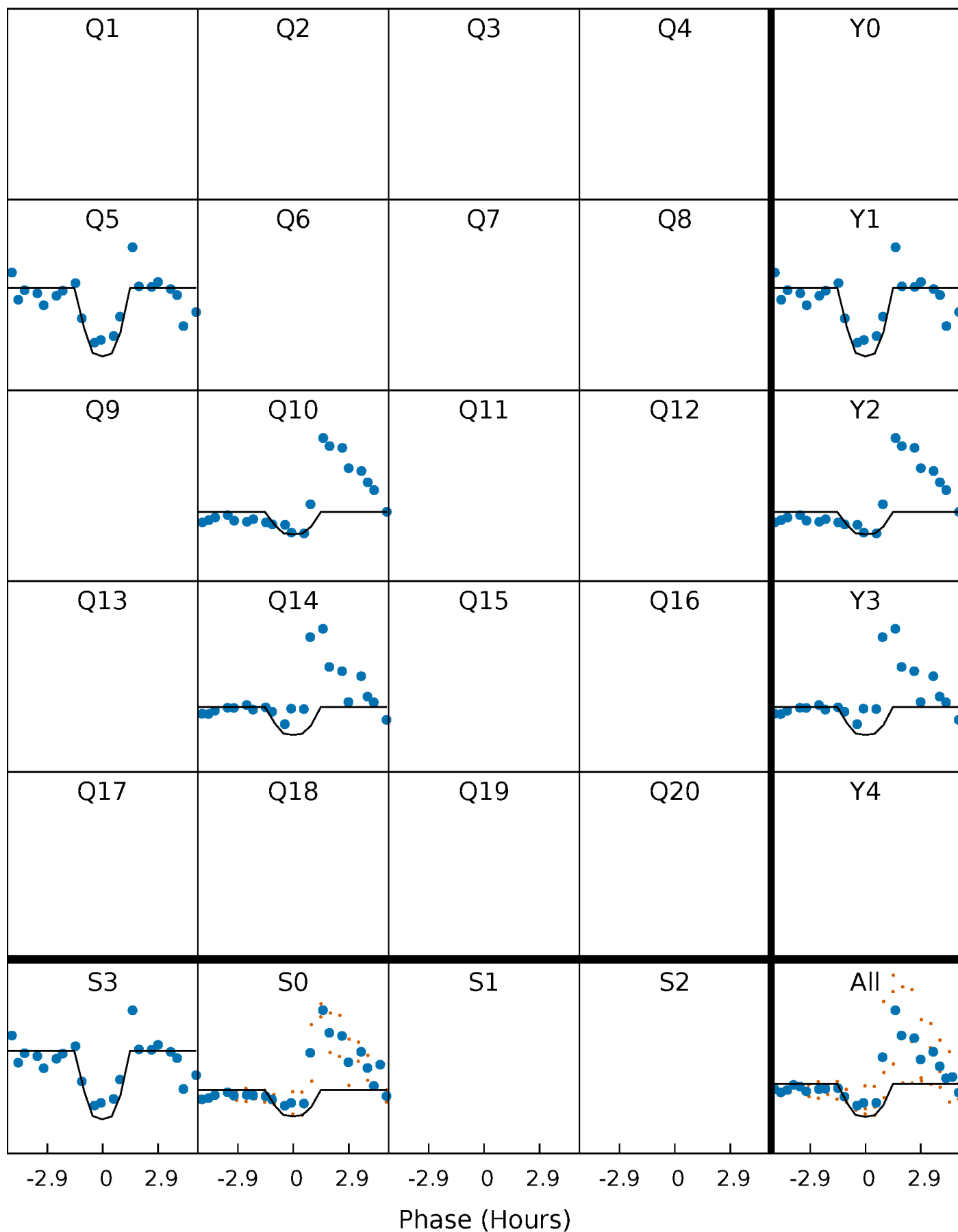
PDC Quarter-Phased Transit Curves

TCE 008737443-01 P=396.003874 Days $T_0=526.291048$ (BKJD)



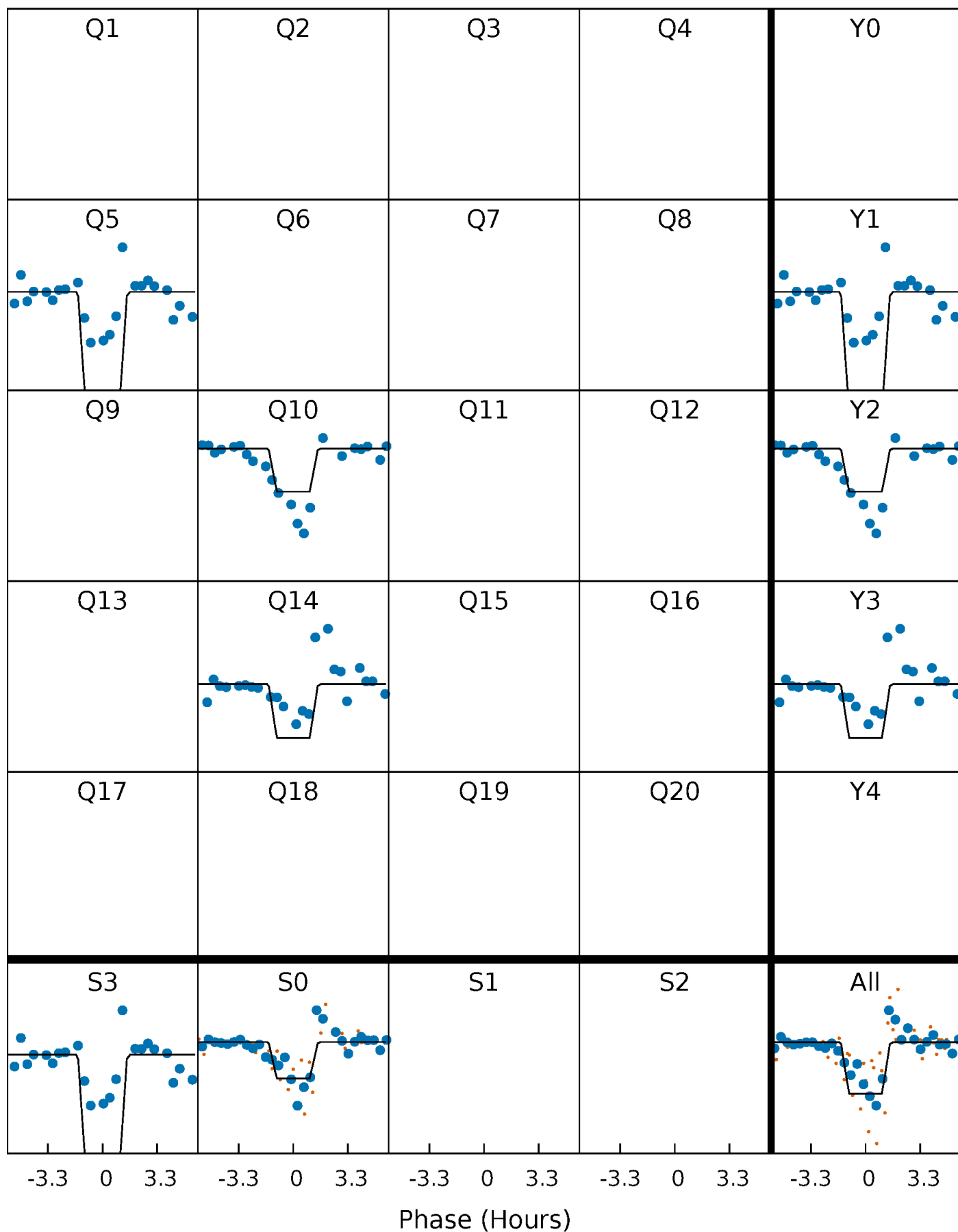
DV Quarter-Phased Transit Curves

TCE 008737443-01 P=396.003874 Days $T_0=526.291048$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

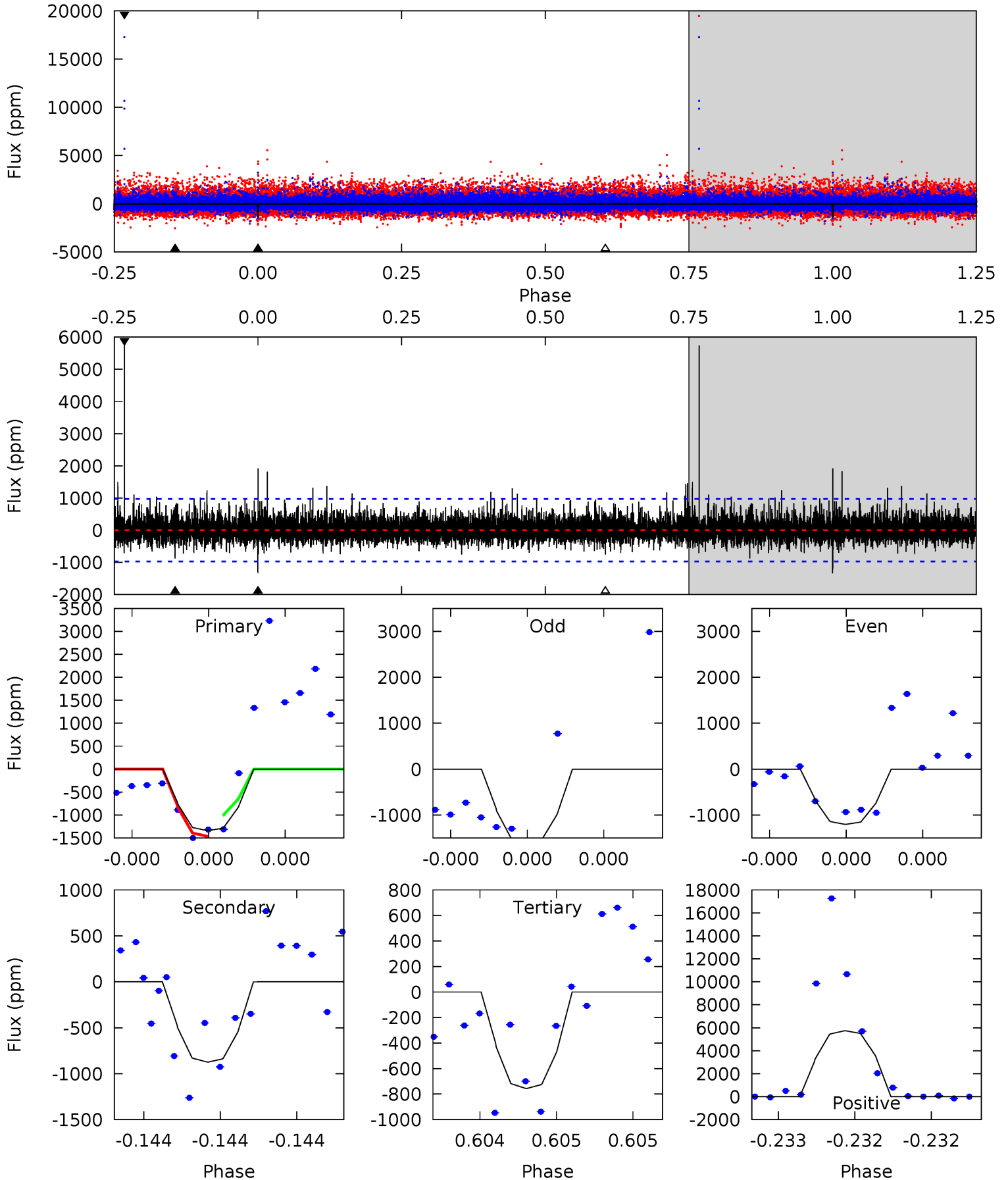
TCE 008737443-01 P=395.990694 Days $T_0=526.295602$ (BKJD)



DV Model-Shift Uniqueness Test

008737443-01, P = 396.003874 Days, E = 130.287174 Days

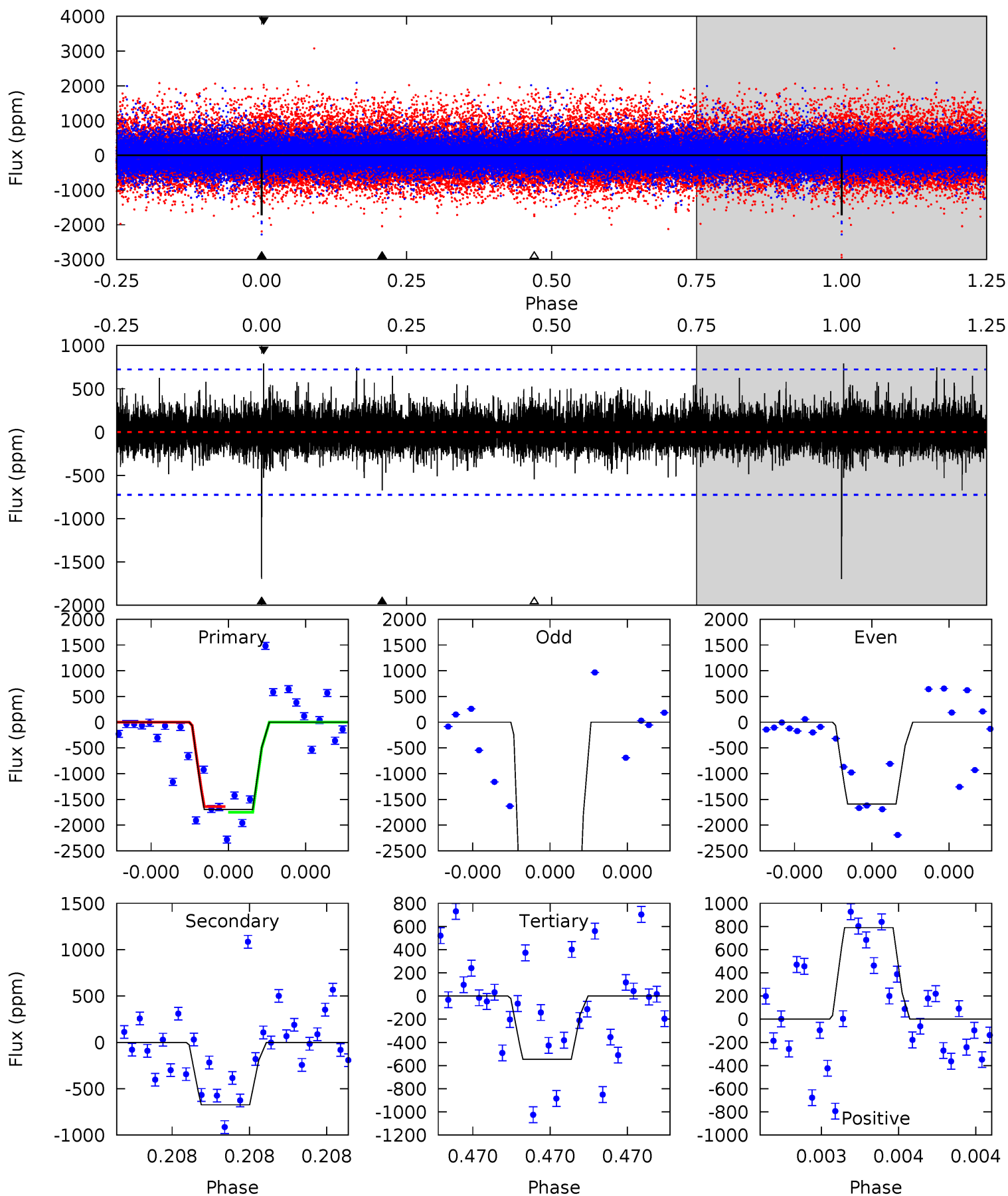
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.84	5.11	4.43	33.6	5.69	3.65	1.49	3.41	-25.7	0.69	-28.4	1.06	0.59	0.81	1.25



Alt Model-Shift Uniqueness Test

008737443-01, P = 395.990694 Days, E = 130.304908 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	5.25	4.26	6.17	5.65	3.59	1.01	8.98	7.07	0.99	-0.92	21.4	1.62	0.32	0.44



Stellar Parameters For KIC 008737443

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3435^{+55}_{-62}	$5.038^{+0.045}_{-0.050}$	$-0.400^{+0.100}_{-0.100}$	$0.244^{+0.039}_{-0.032}$	$0.236^{+0.049}_{-0.040}$	$22.990^{+6.638}_{-5.600}$
	+2%/-2%	+1%/-1%	+25%/-25%	+16%/-13%	+21%/-17%	+29%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008737443-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-874 ± 171	$1.94^{+1.57}_{-1.22}$	129^{+4}_{-4}	2658^{+864}_{-358}	$52867^{+344870}_{-36686}$
Alt.	-673 ± 128	$2.19^{+1.92}_{-1.40}$	129^{+4}_{-4}	2493^{+766}_{-325}	$32293^{+199089}_{-22953}$

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

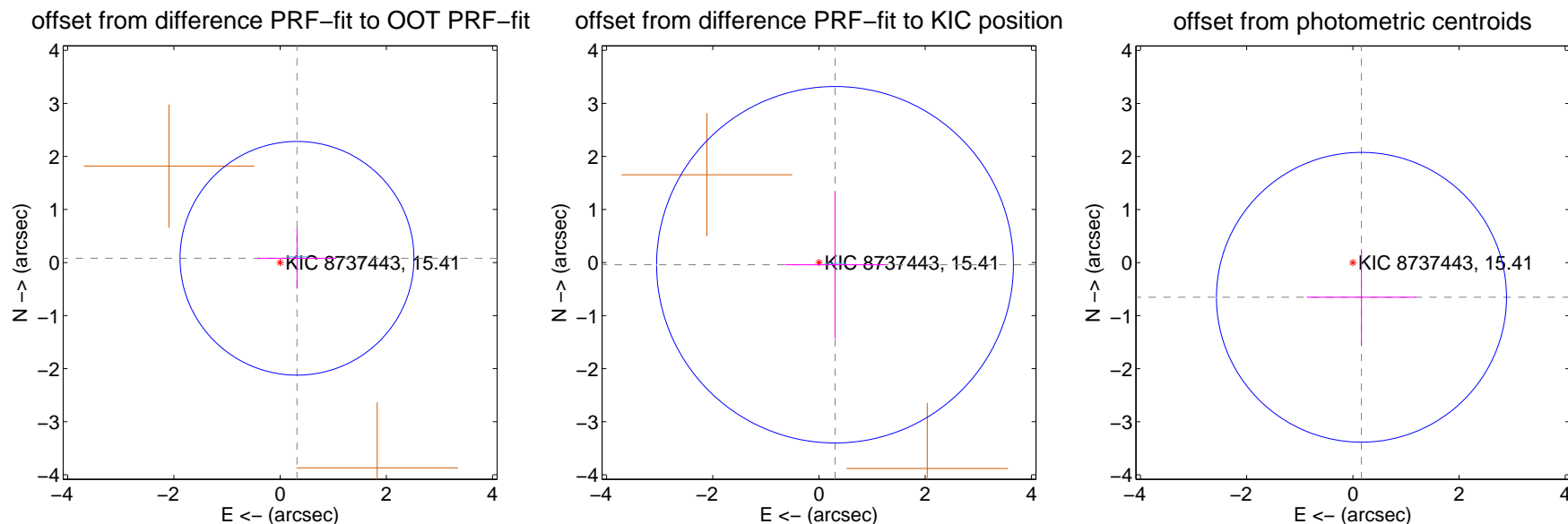
DV Centroid Data

Supplemental centroid analysis for 008737443-01. Kepler magnitude: 15.41. Transit SNR 8.66

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.328 ± 0.734	0.45	-0.318 ± 0.743	0.080 ± 0.572
PRF-fit source offset from KIC position	0.305 ± 1.120	0.27	-0.302 ± 0.944	-0.042 ± 1.388
photometric centroid source offset	0.67 ± 0.91	0.74	-0.16 ± 1.03	-0.65 ± 0.90

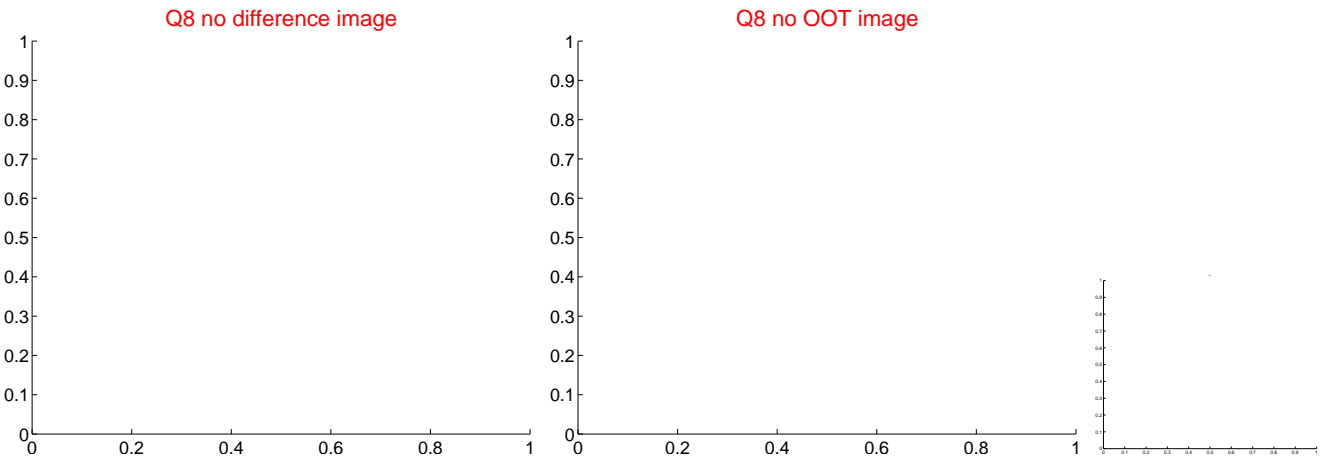
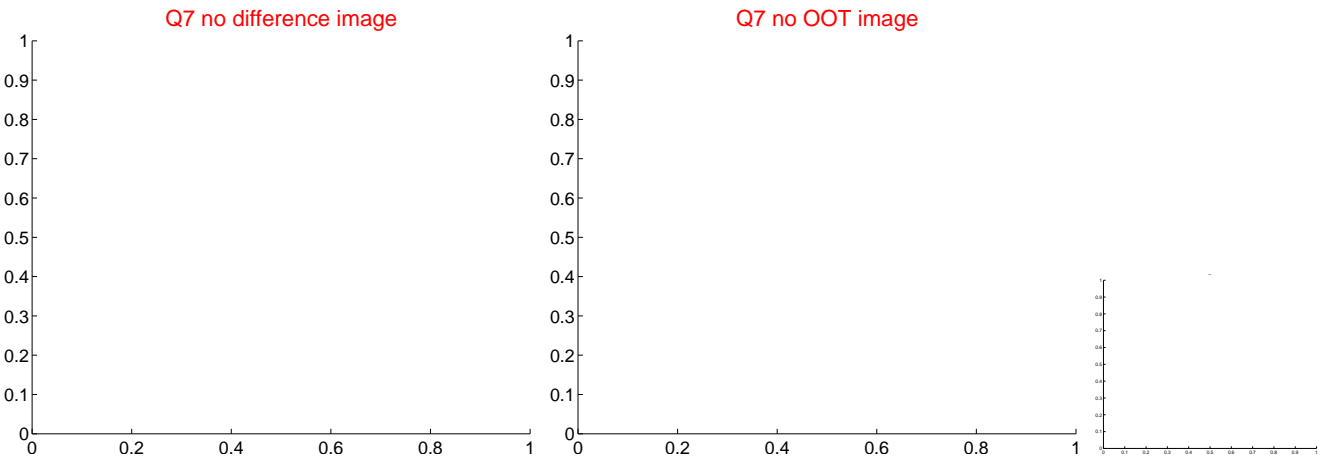
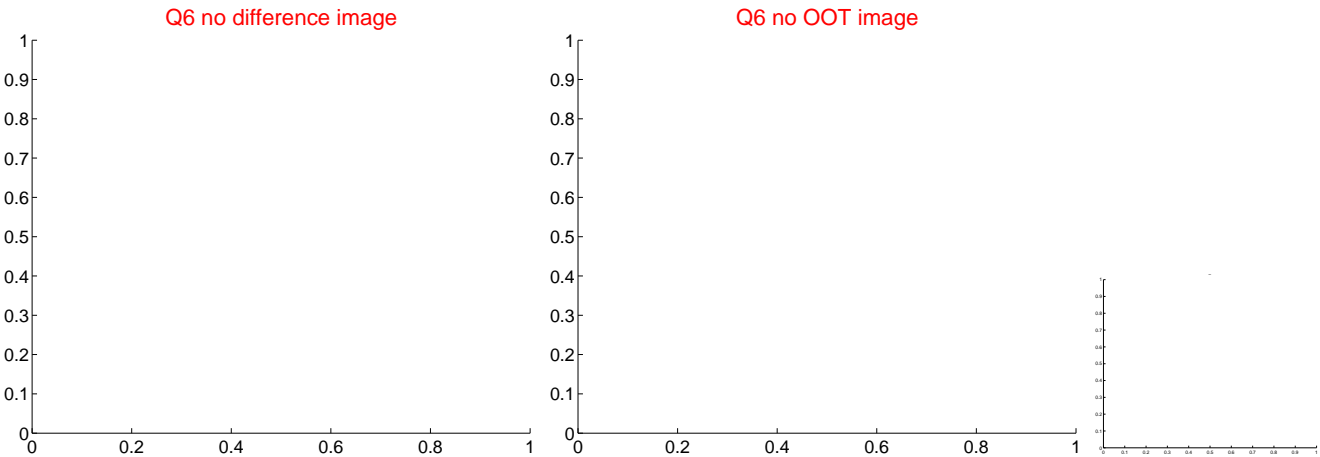
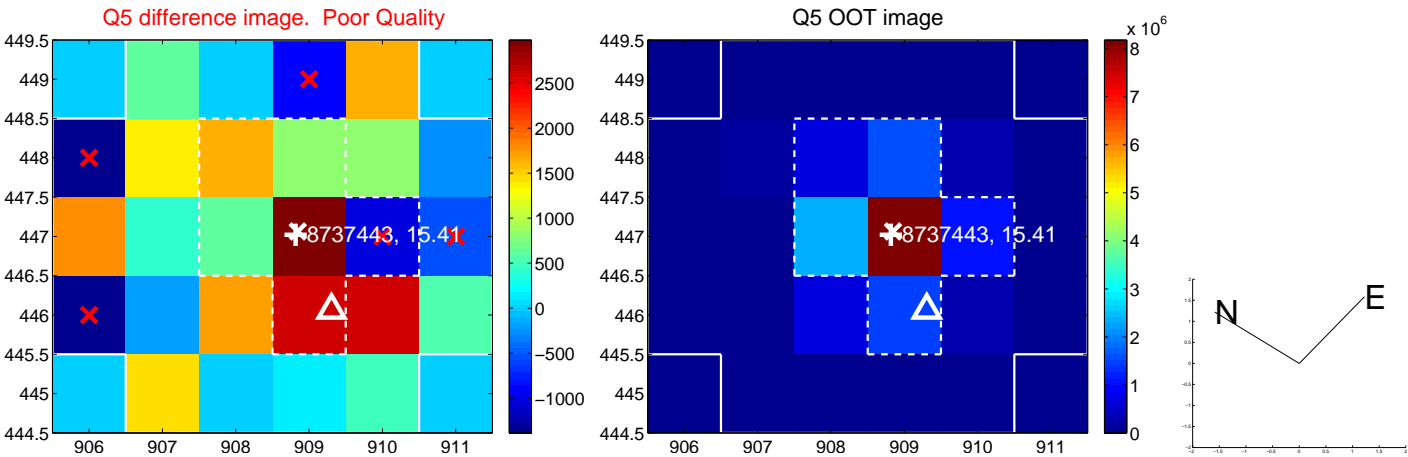


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

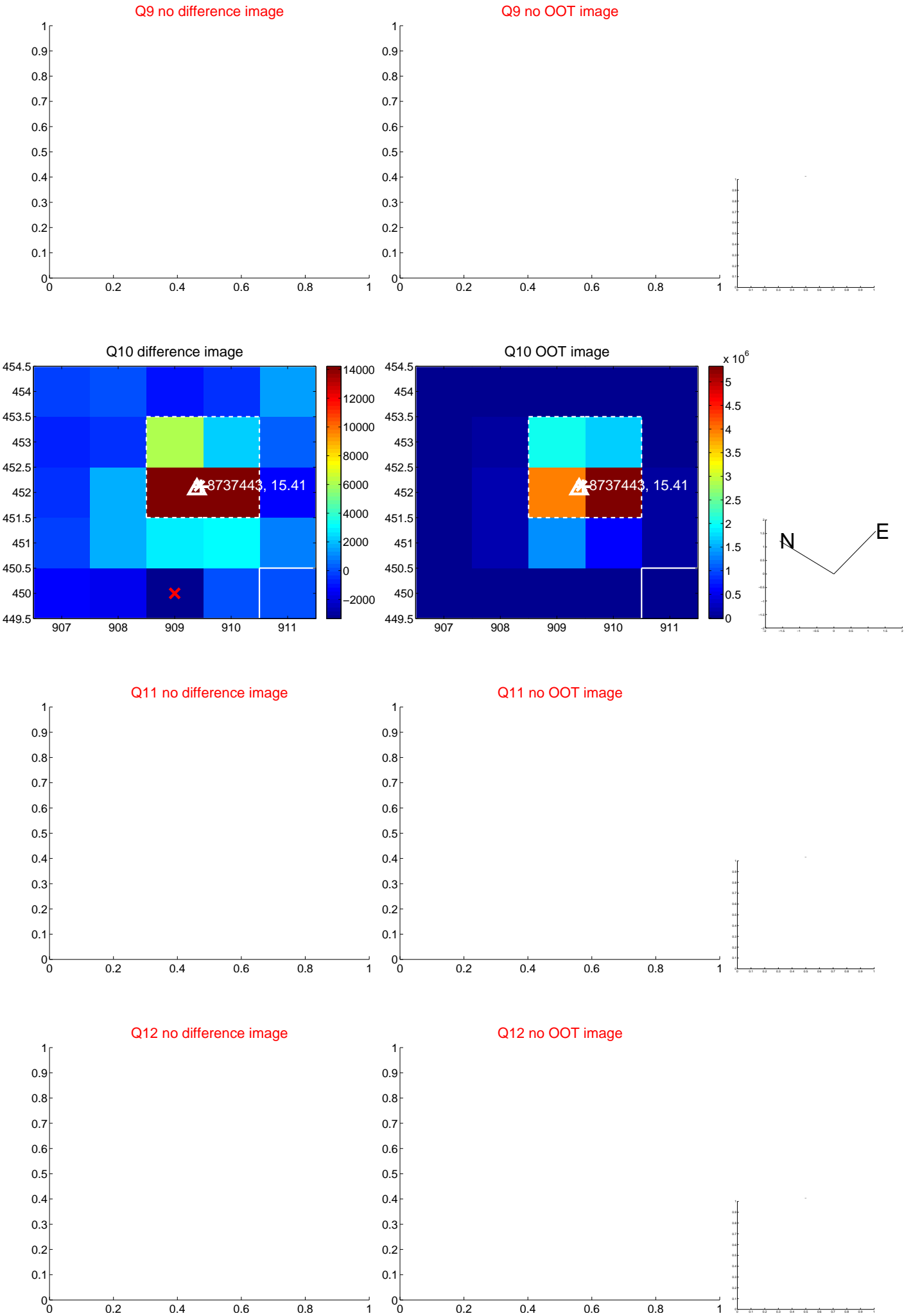
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



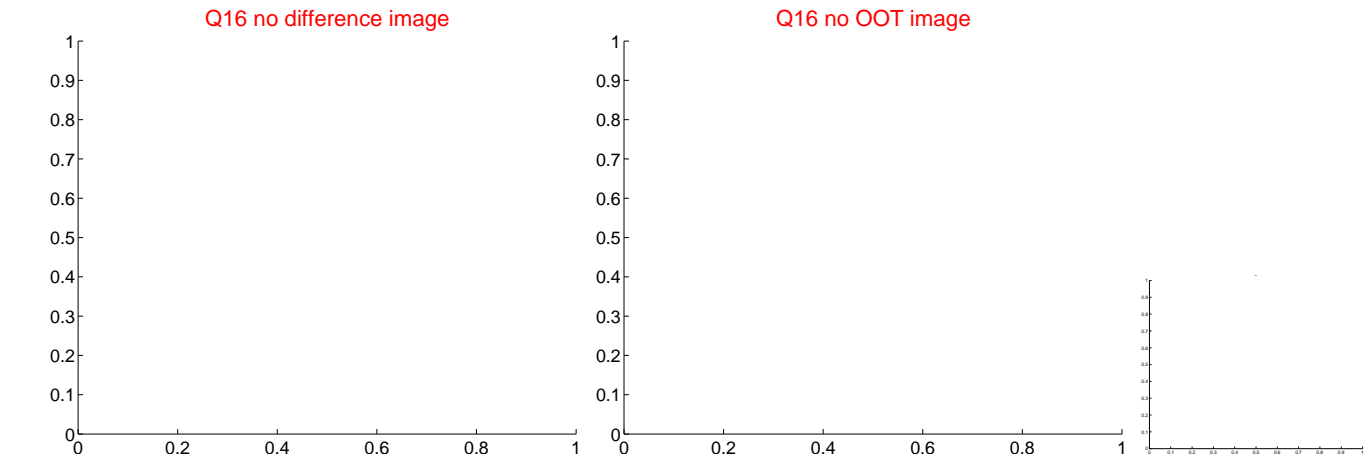
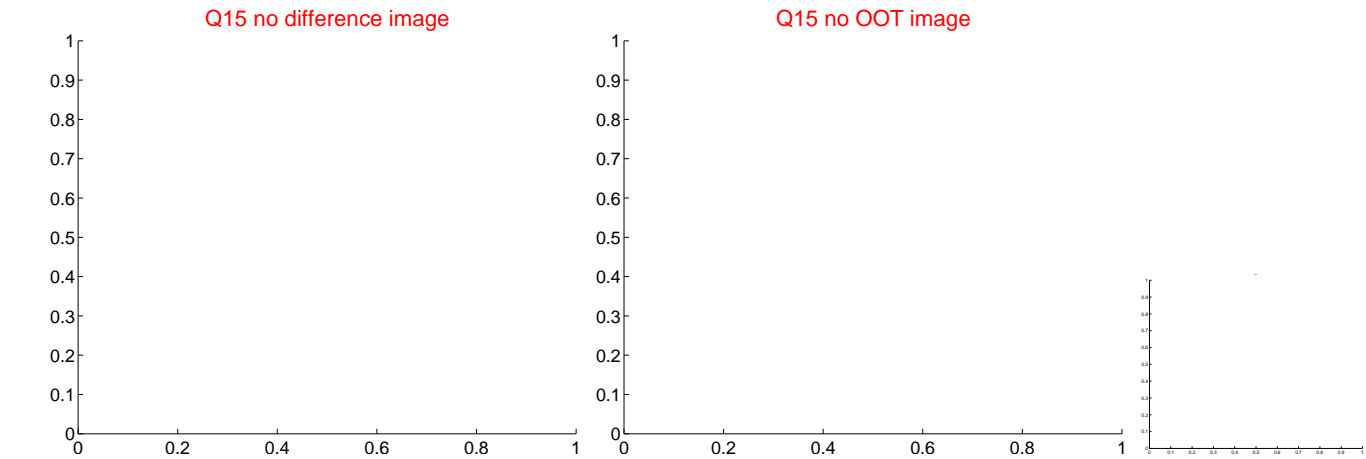
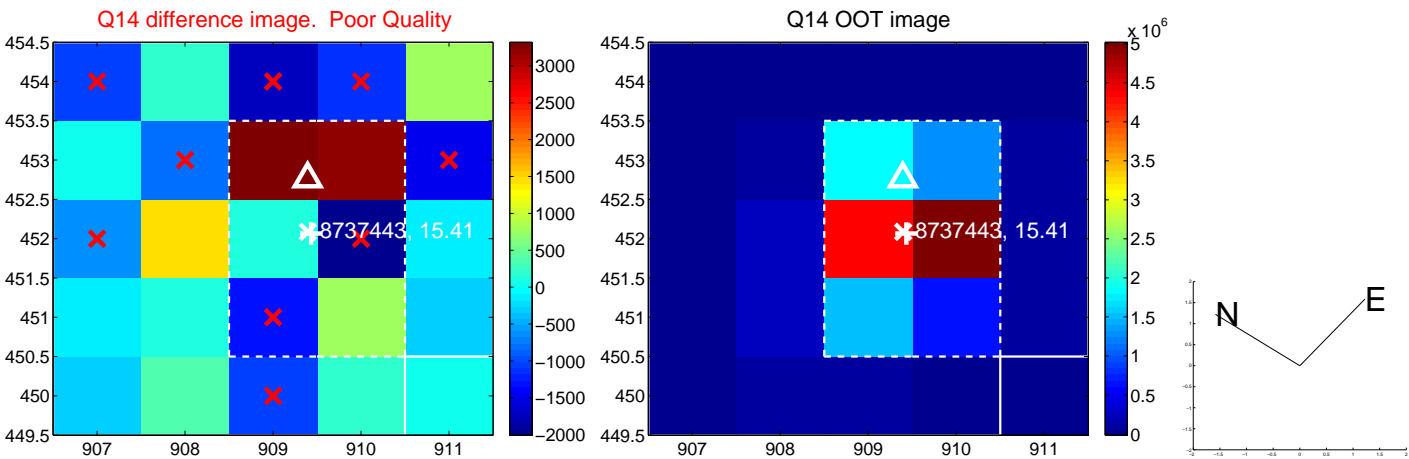
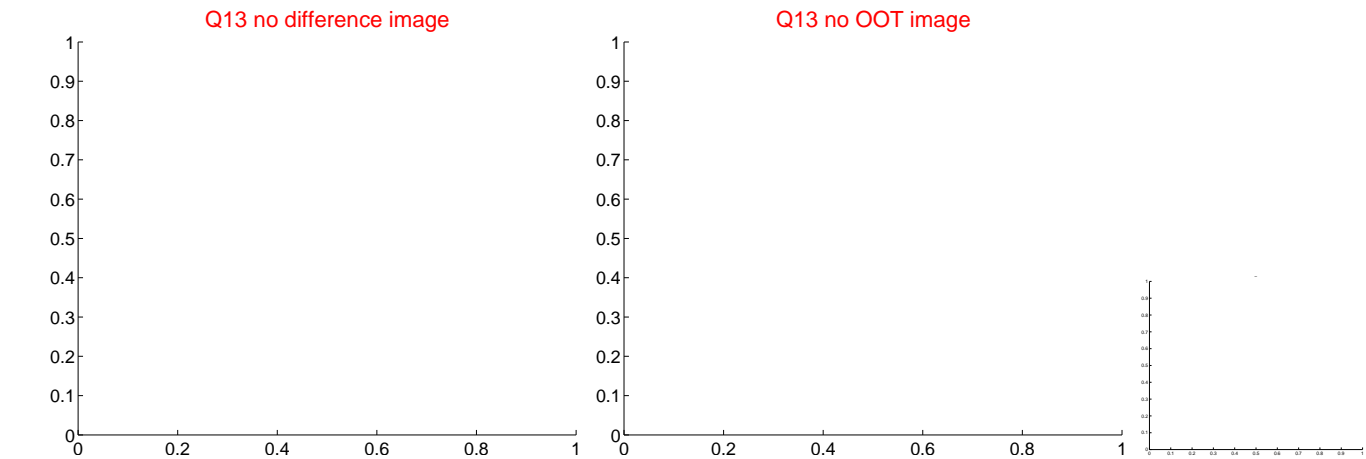
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



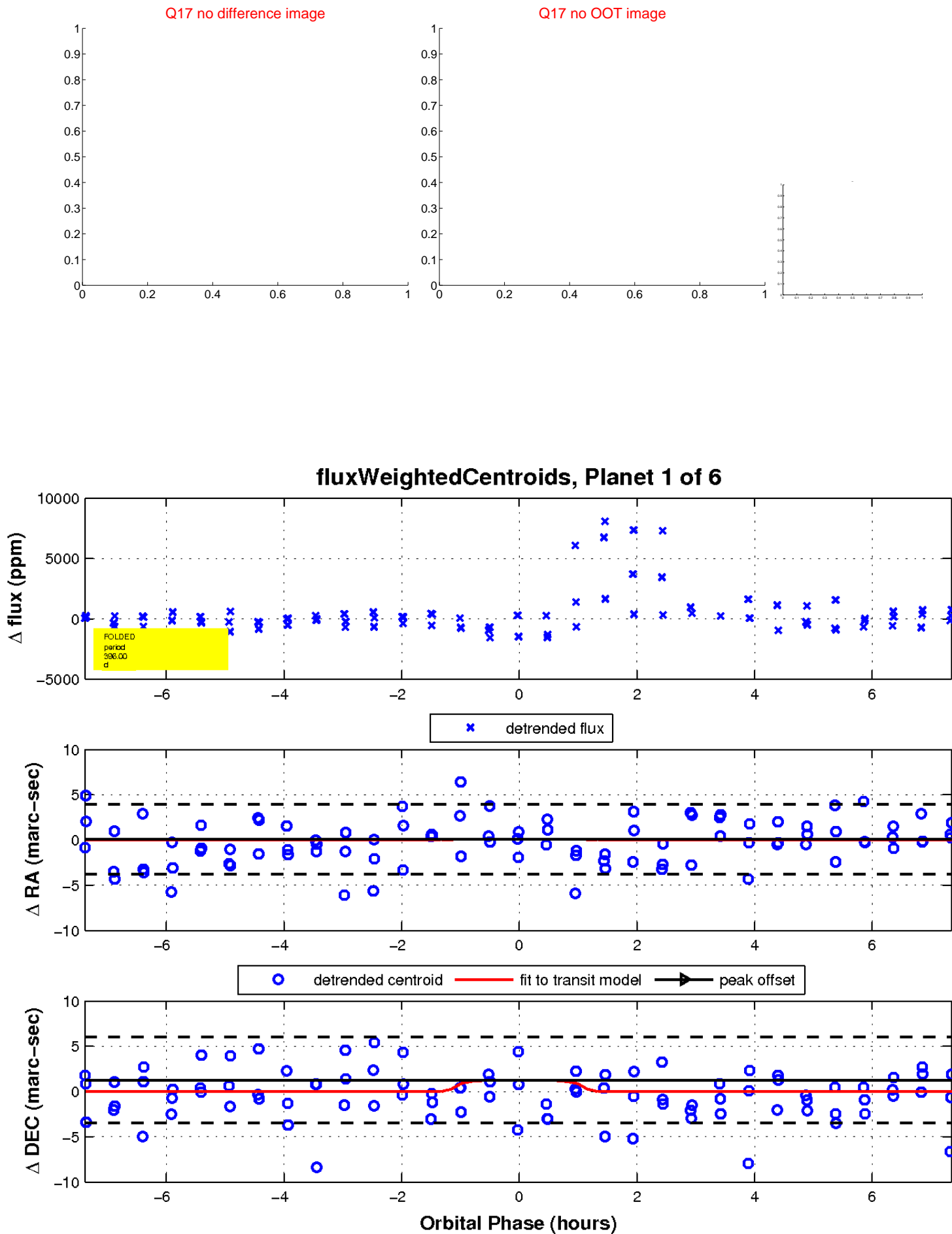
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

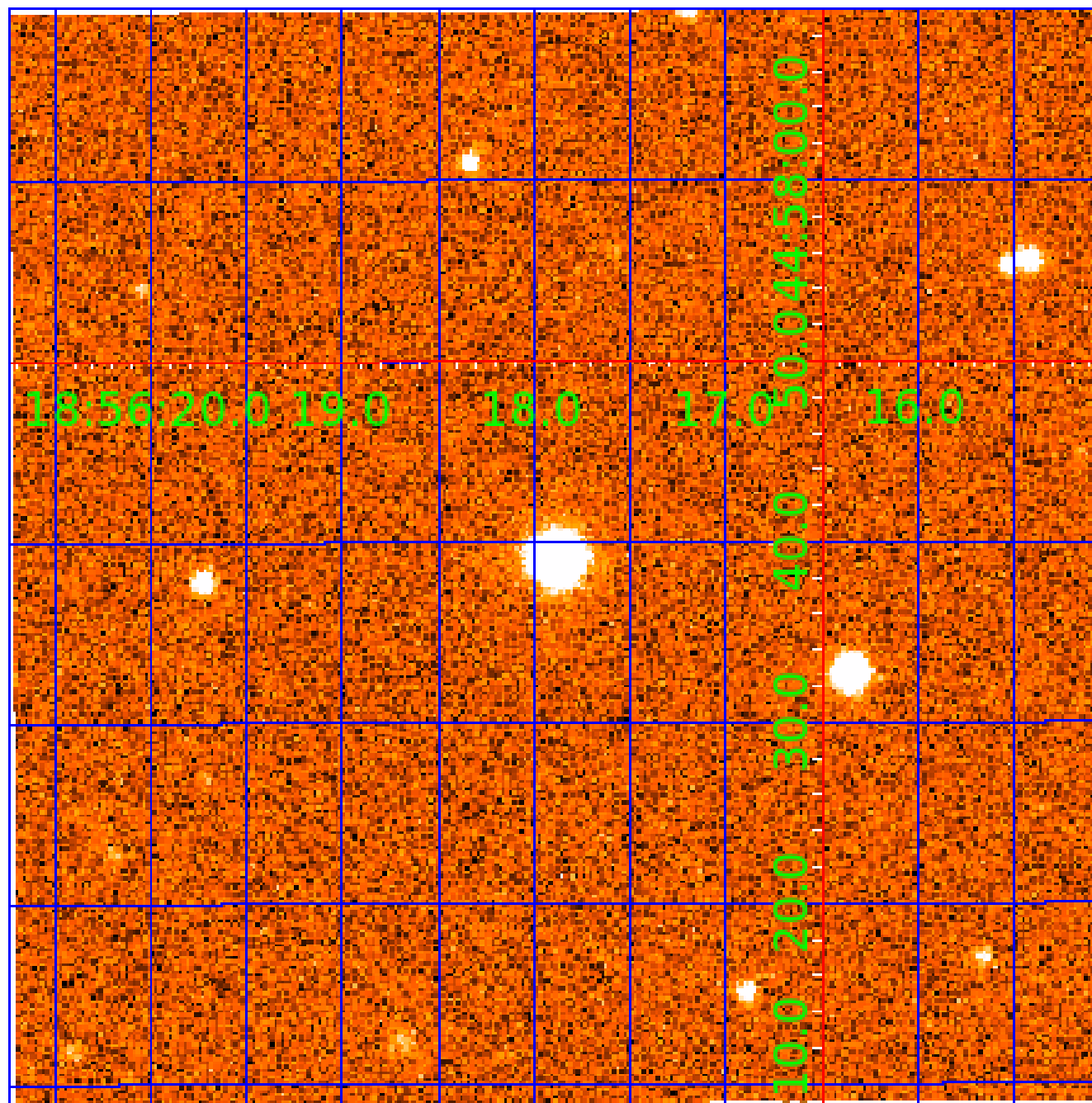


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008737443

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})
008737443-01	OBS	No	396.003874	526.291048	2260.3	2.496	12.6	8.7	0.24	3435	1.27	0.02
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008737443-05	OBS	No	393.217799	426.029958	1355.3	6.266	11.4	6.8	0.24	3435	0.93	0.02
008737443-06	OBS	No	355.042365	398.174521	1785.6	11.038	12.5	7.2	0.24	3435	1.03	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008737443-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008737443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS
008737443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
008737443-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

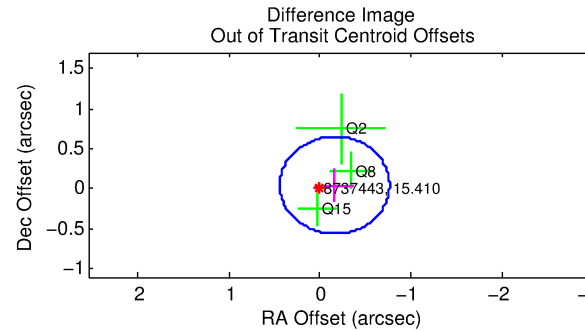
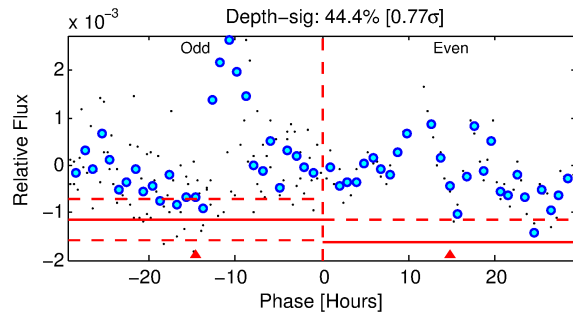
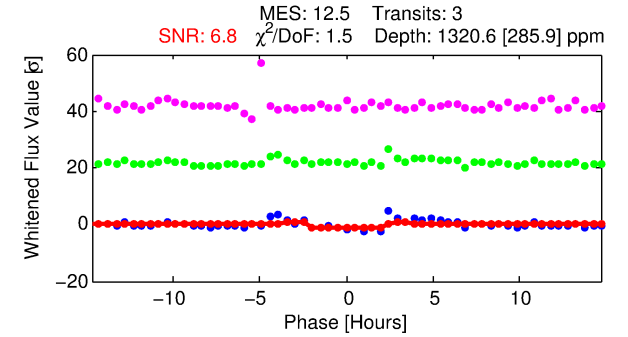
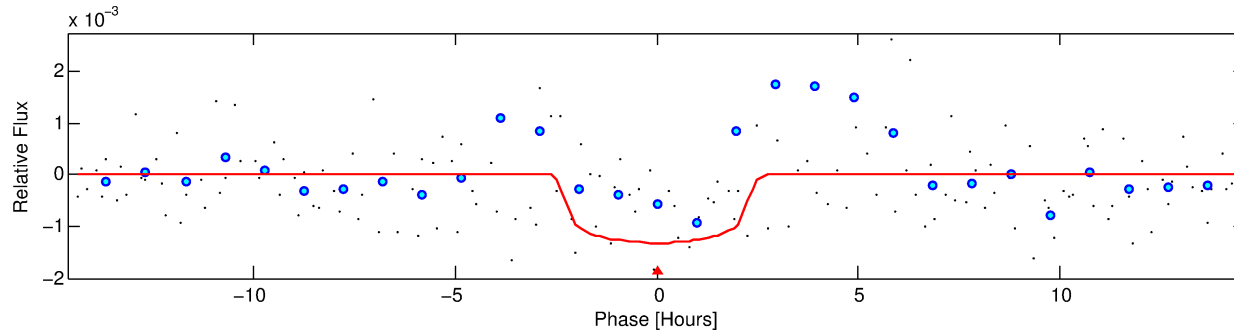
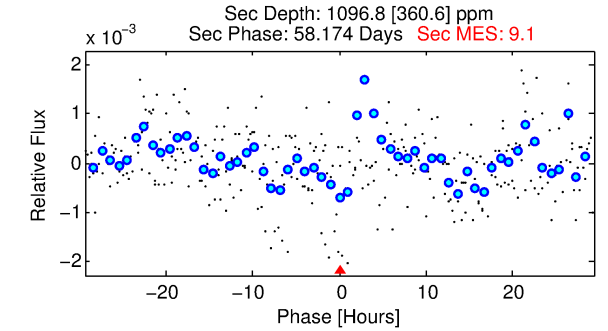
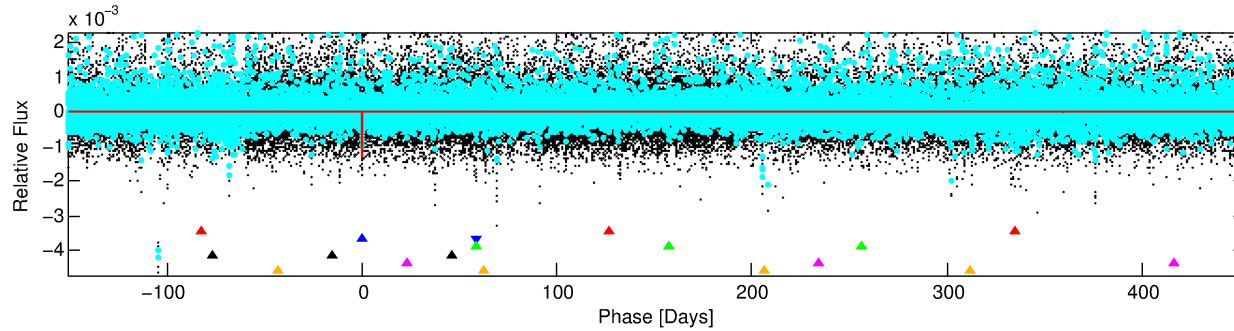
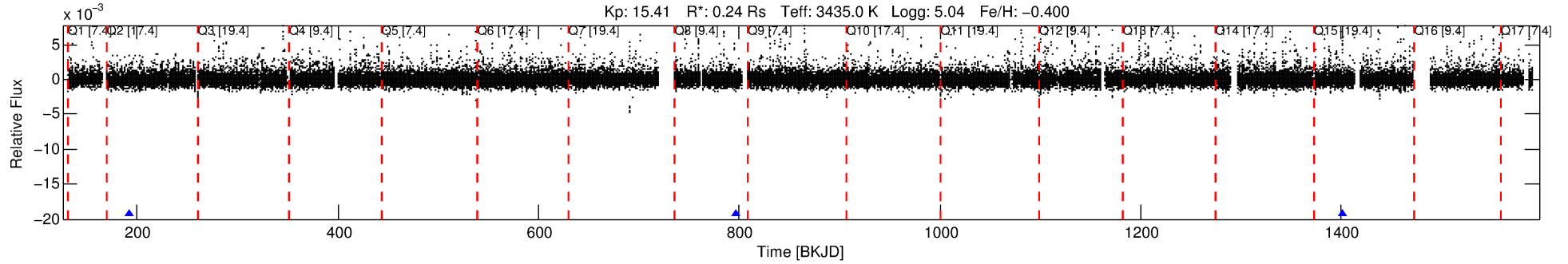
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008737443-02

No Significant Match Found

DV One-Page Summary

KIC: 8737443 Candidate: 2 of 6 Period: 604.494 d



DV Fit Results:

Period = 604.49392 [0.00965] d
Epoch = 191.5144 [0.0128] BKJD
Rp/R* = 0.0344 [0.0336]
a/R* = 828.68 [3817.56]
b = 0.55 [5.85]
Seff = 0.01 [0.00]
Teq = 80 [3] K
Rp = 0.92 [0.91] Re
a = 0.8661 [0.0981] AU
Ag = 539966.57 [1073579.54] [0.50 σ]
Teffp = 3371 [1673] K [1.97 σ]

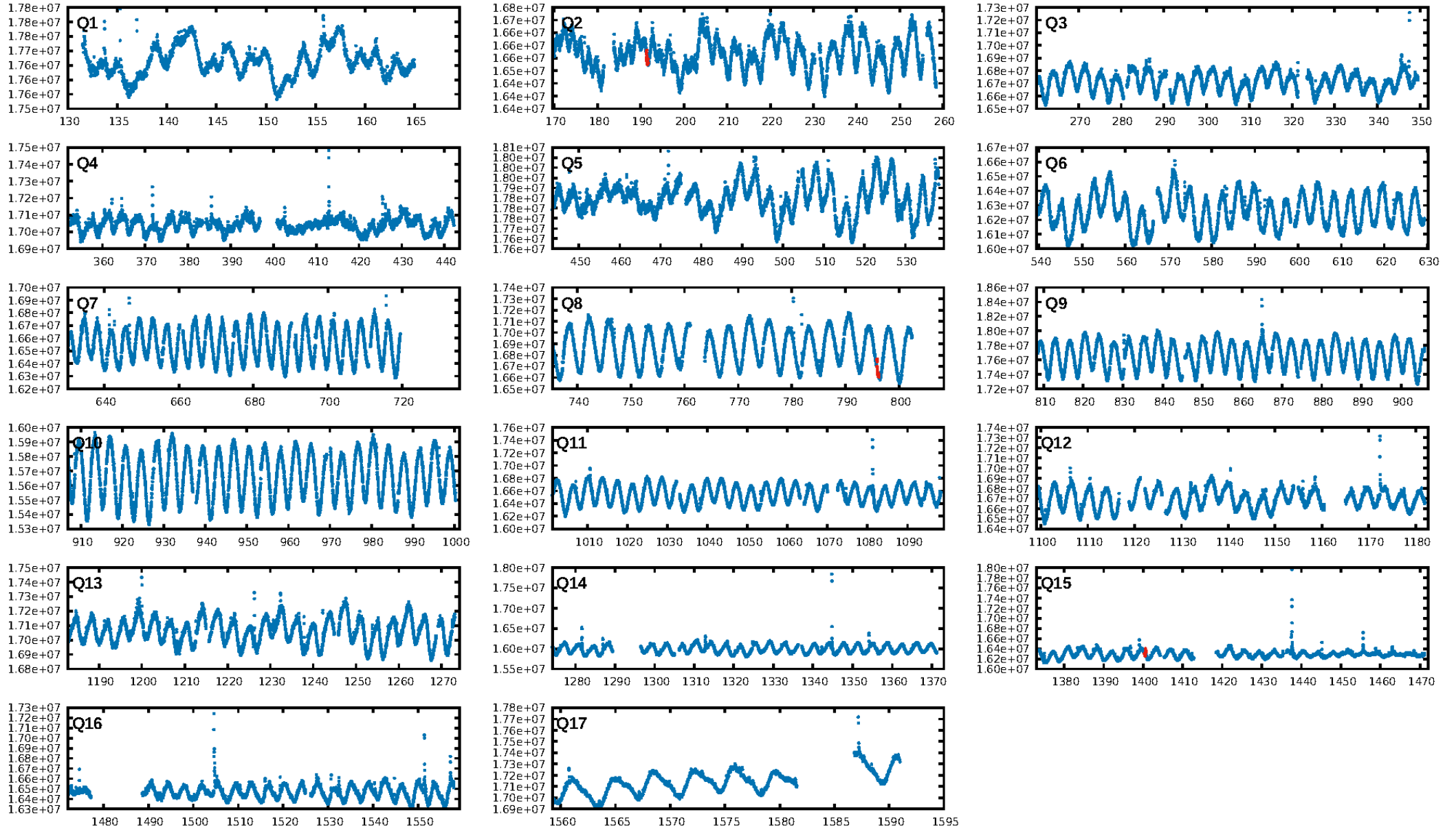
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [144.10 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.7%
ModelChiSquareGof-sig: 29.2%
Bootstrap-pfa: 1.98e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.041
Centroid-sig: 79.4%
Centroid-so: 0.262 arcsec [0.27 σ]
OotOffset-rm: 0.167 arcsec [0.83 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.128 arcsec [0.63 σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

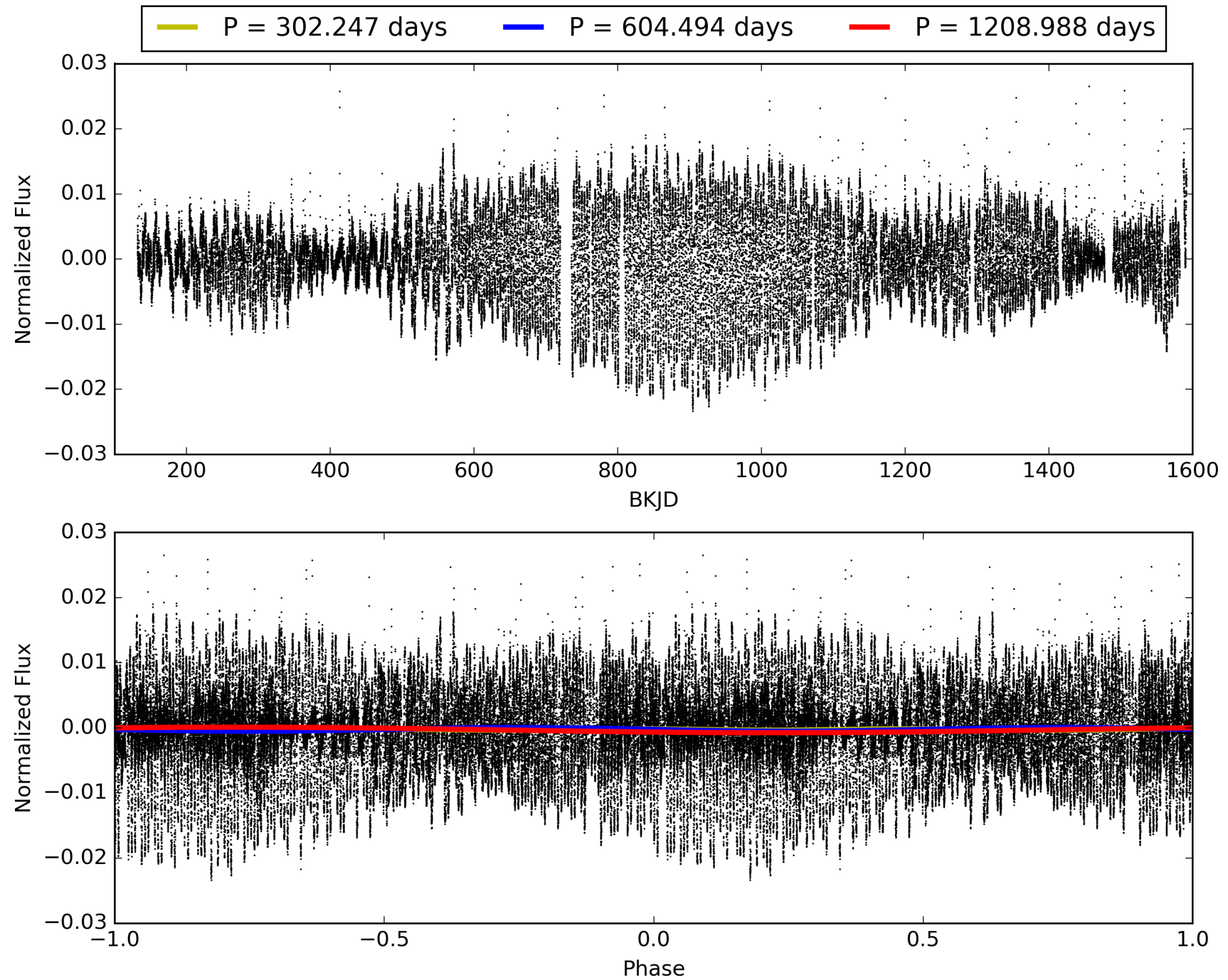
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008737443-02, PDC Light Curves

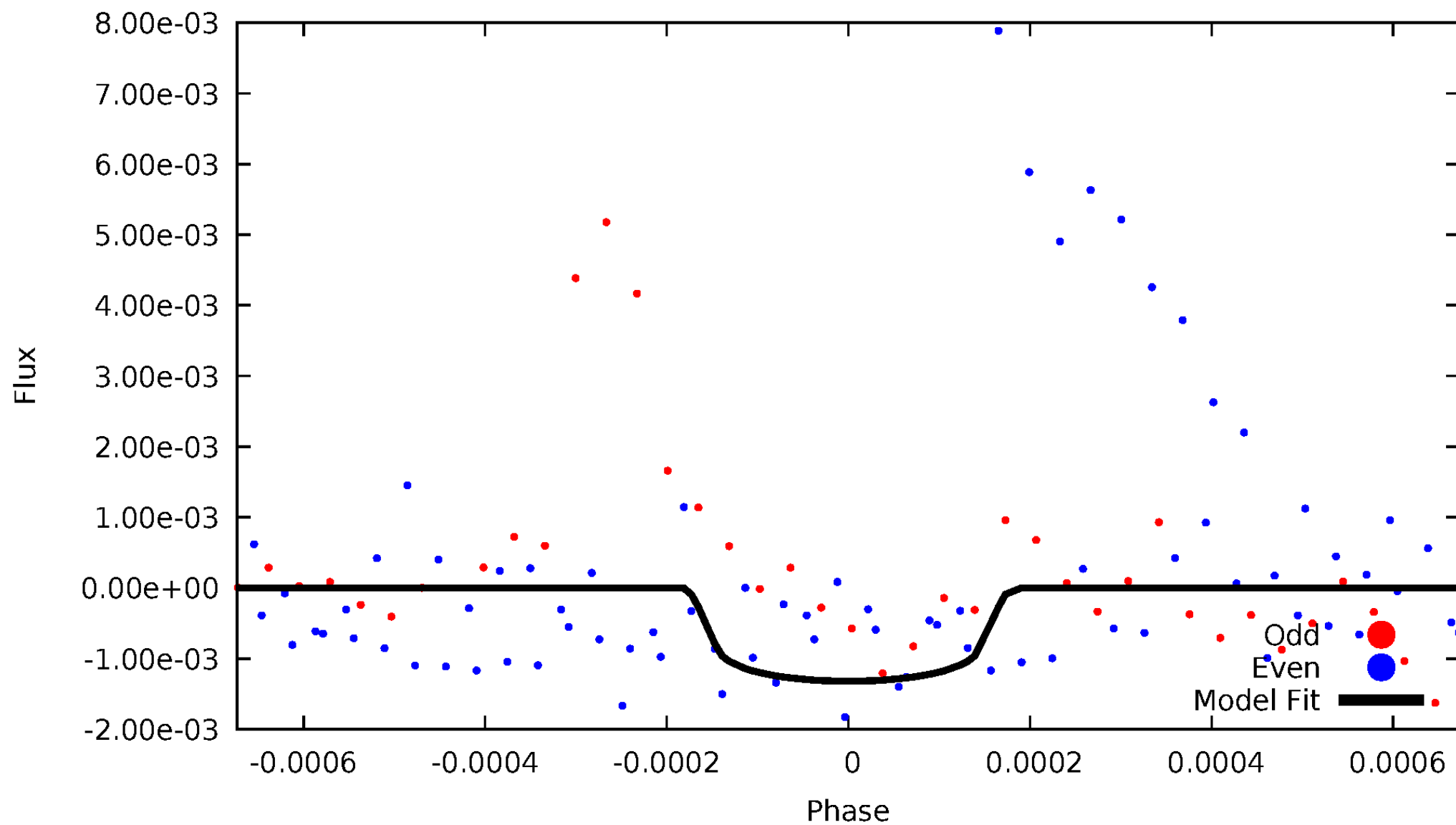


TCE 008737443-02



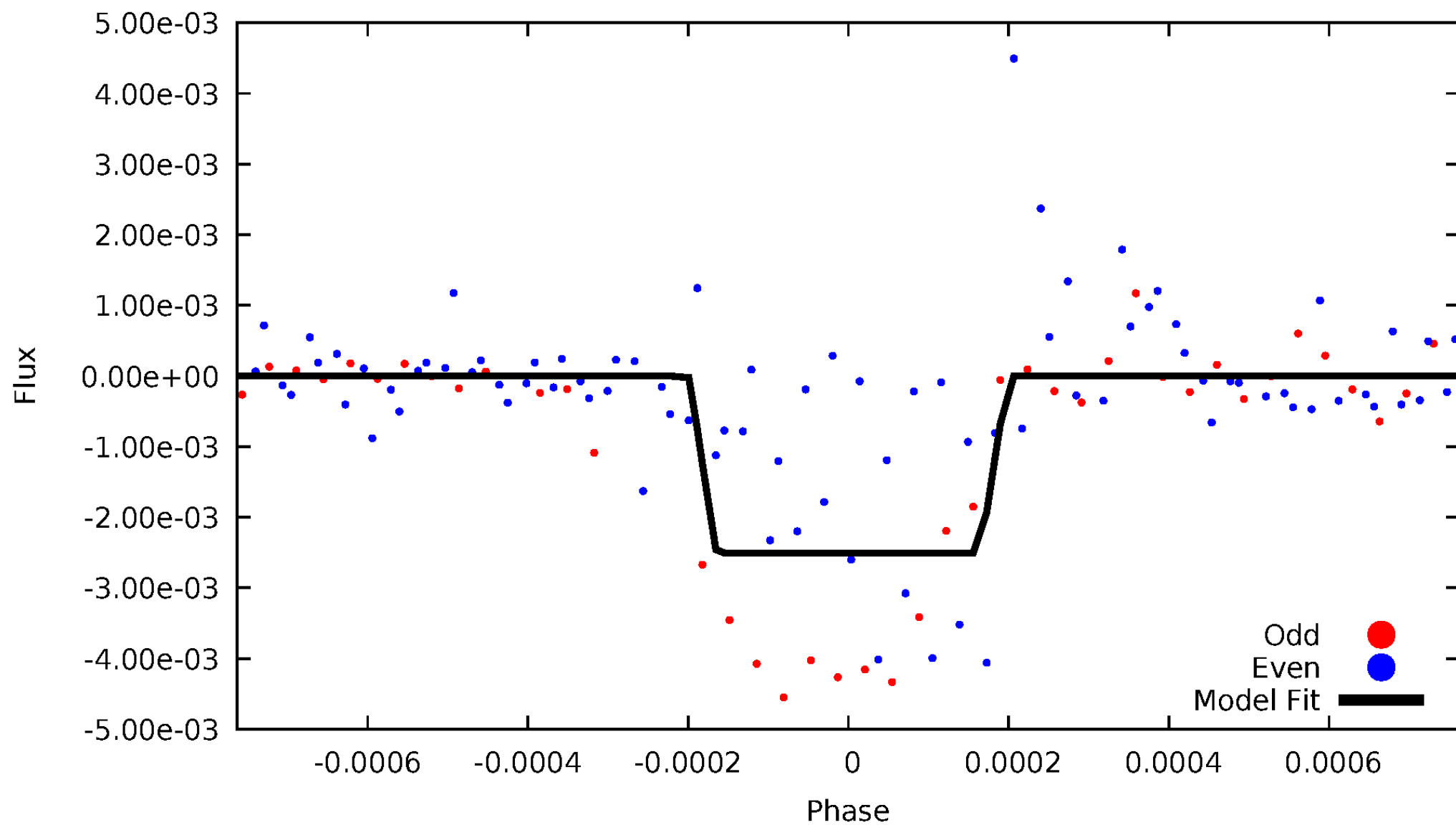
DV Odd/Even

TCE 008737443-02



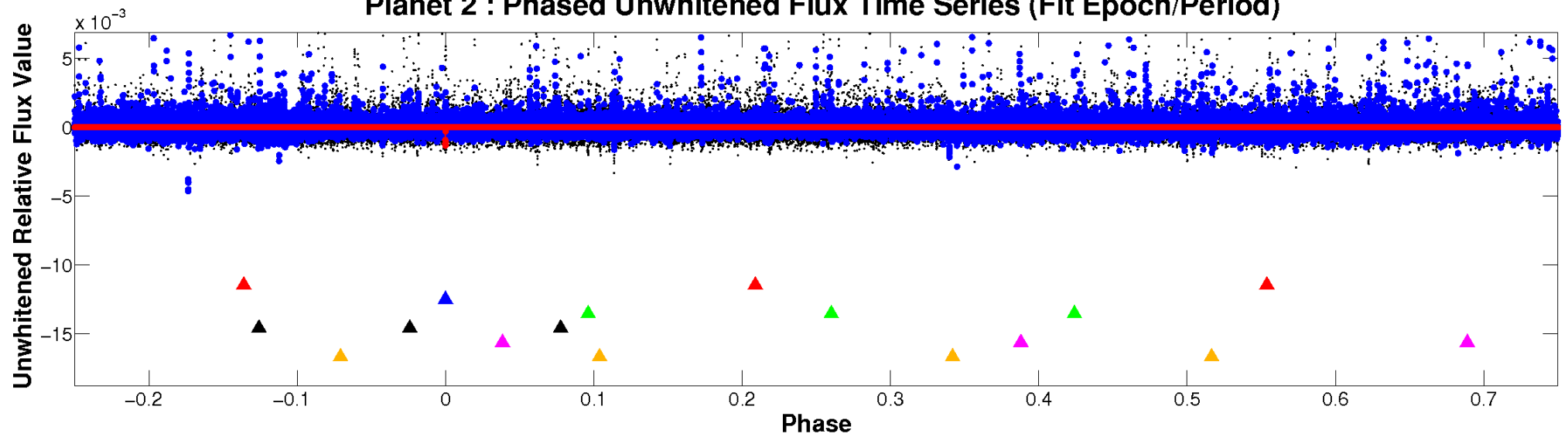
ALT Odd/Even

TCE 008737443-02

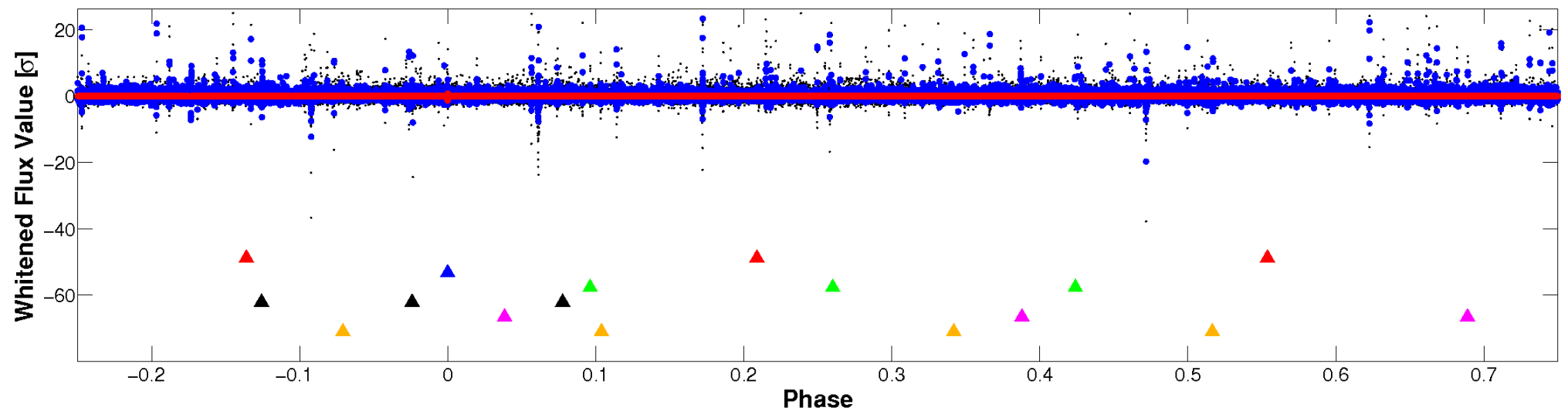


Non-Whitened Vs. Whitened Light Curve

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

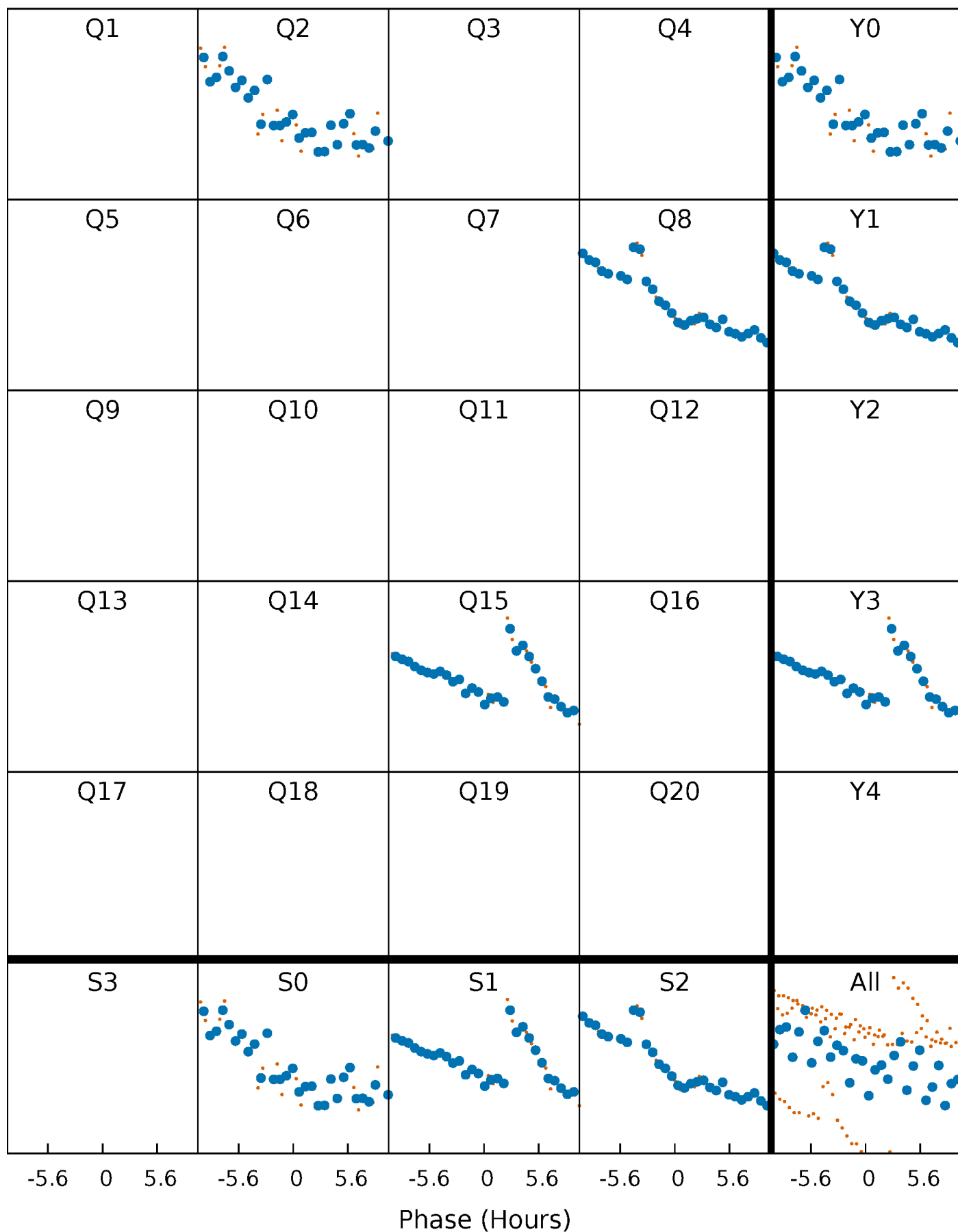


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



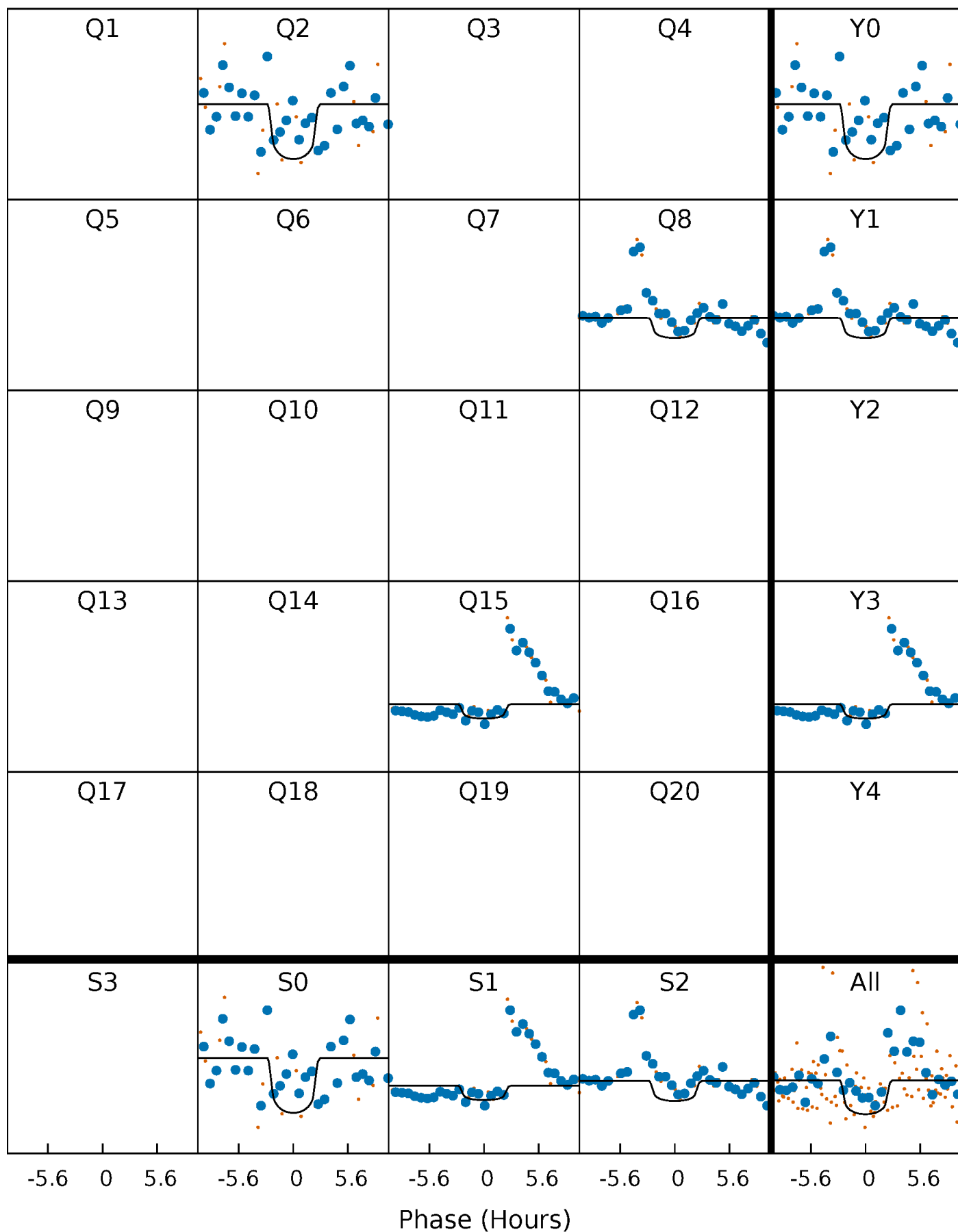
PDC Quarter-Phased Transit Curves

TCE 008737443-02 $P=604.493923$ Days $T_0=191.514383$ (BKJD)



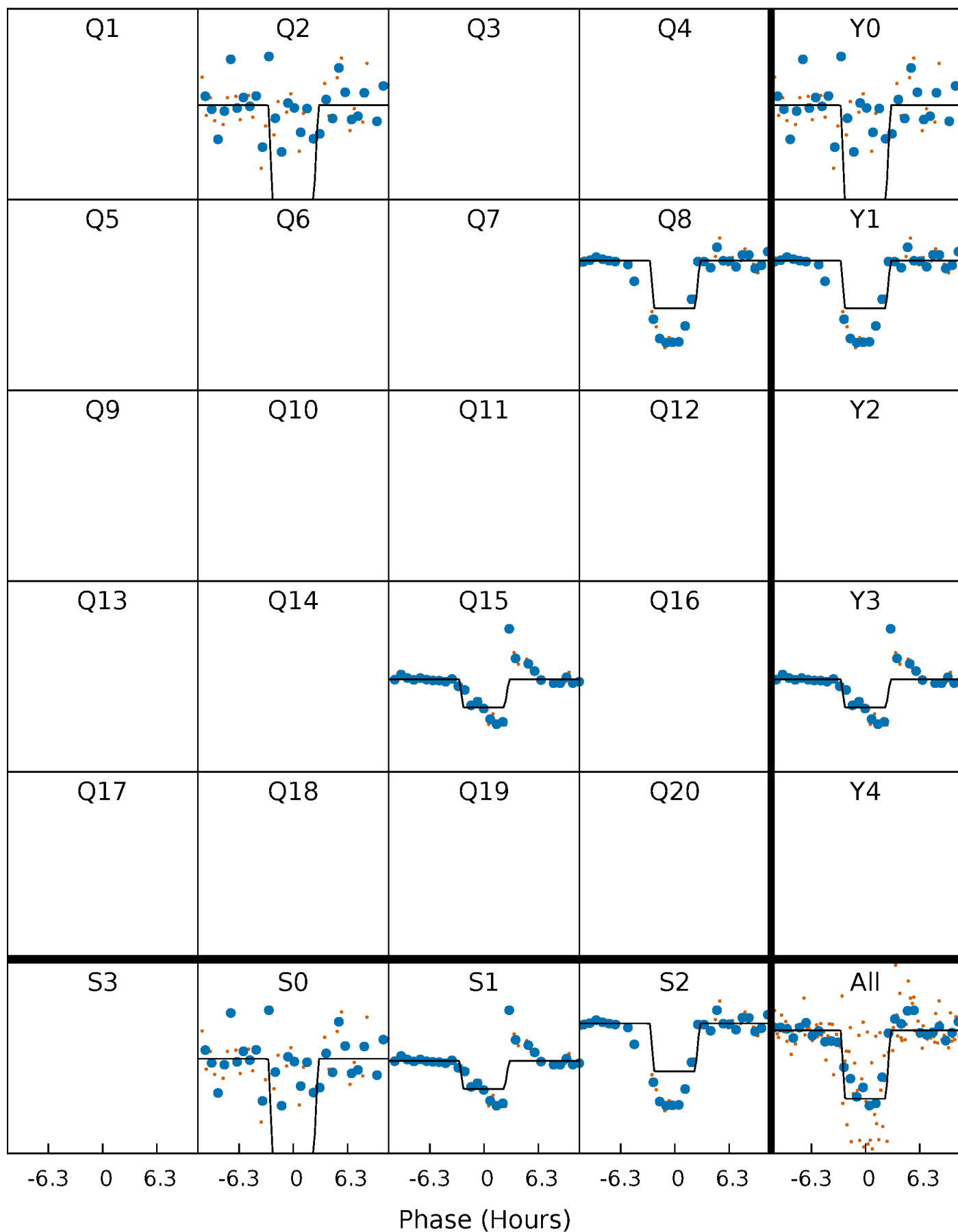
DV Quarter-Phased Transit Curves

TCE 008737443-02 P=604.493923 Days $T_0=191.514383$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

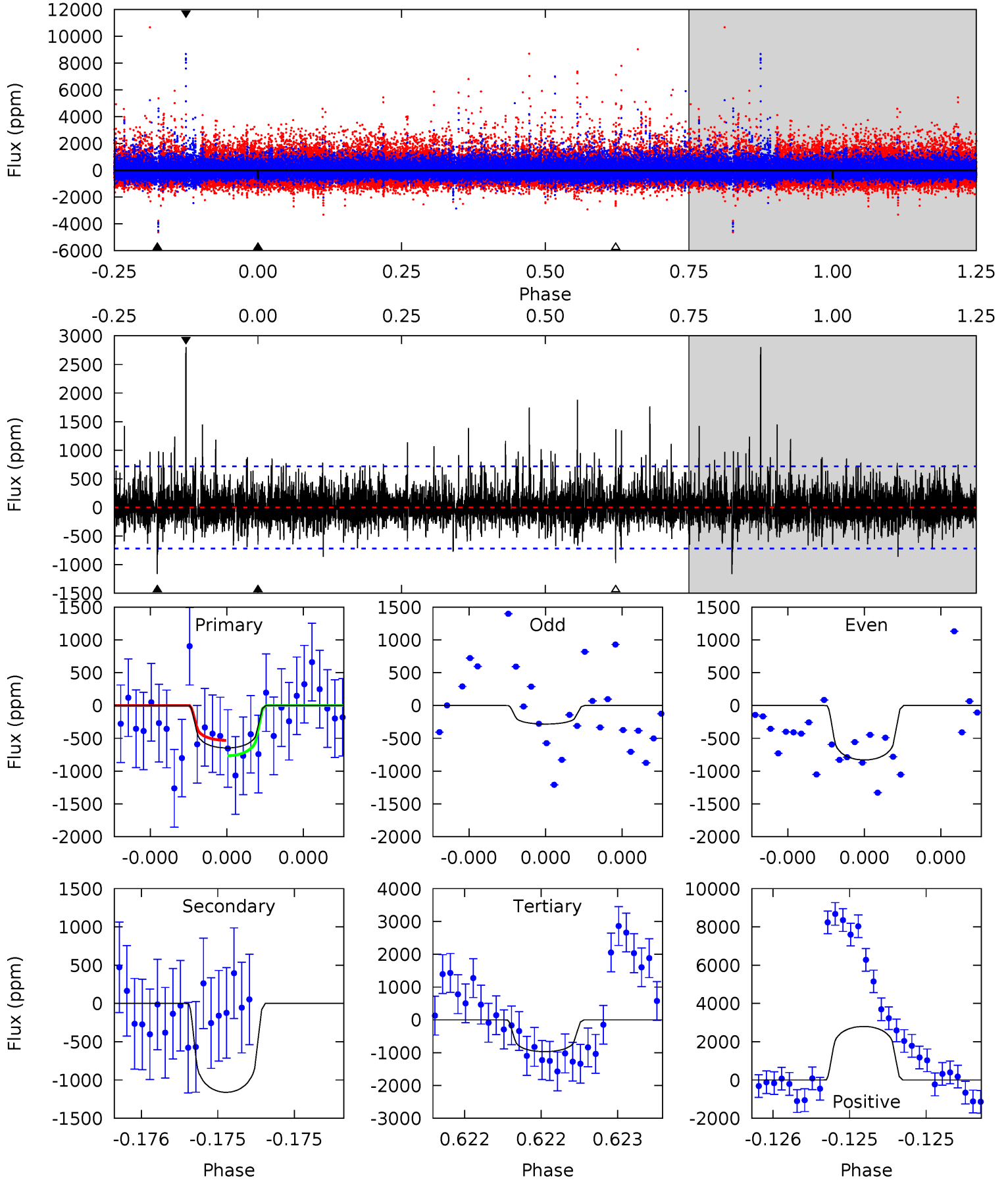
TCE 008737443-02 P=604.479194 Days $T_0=191.518907$ (BKJD)



DV Model-Shift Uniqueness Test

008737443-02, P = 604.493923 Days, E = 191.514383 Days

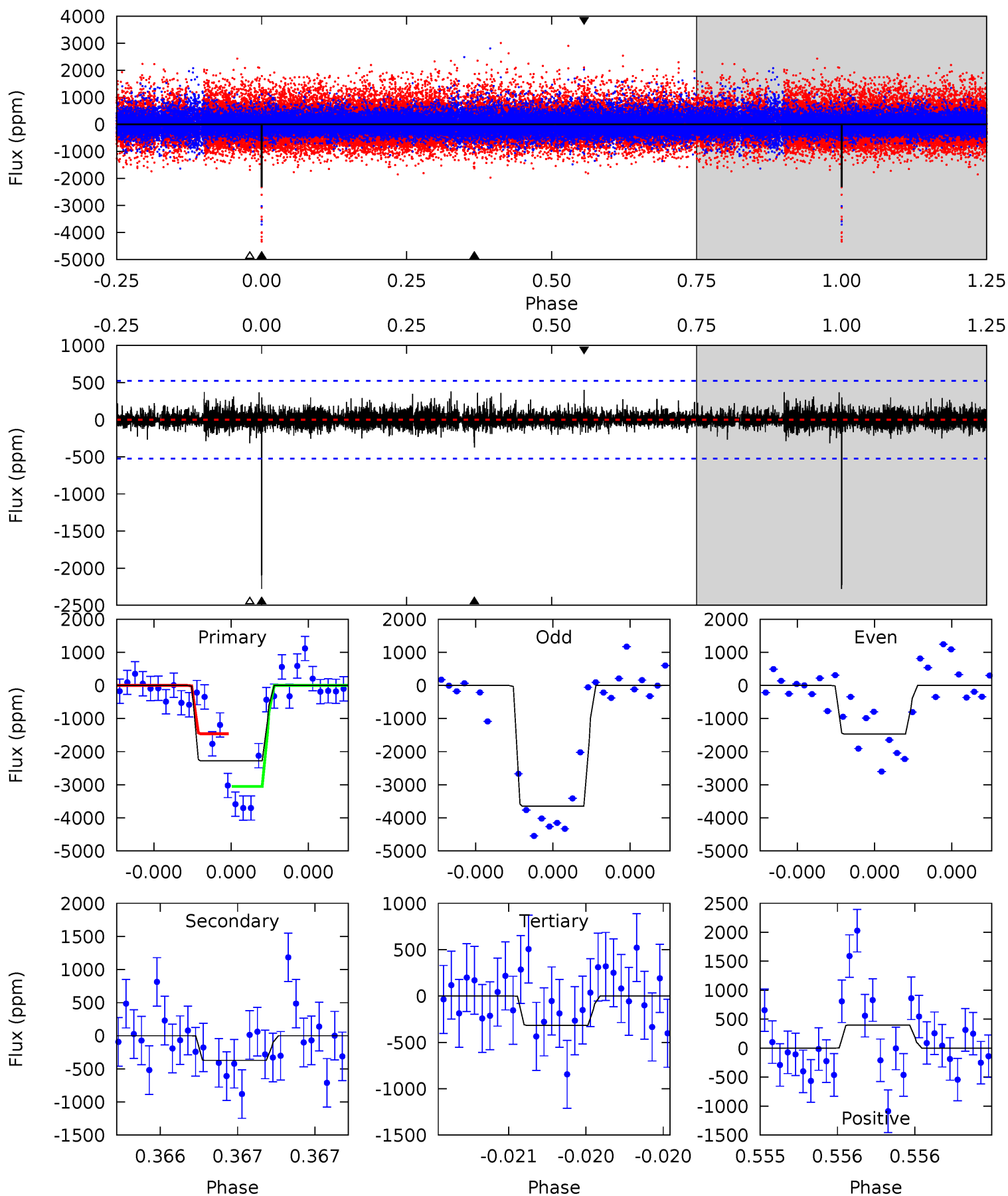
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.07	9.09	7.59	21.9	5.62	3.56	1.92	-2.52	-16.8	1.50	-12.8	1.51	0.90	0.71	0.93



Alt Model-Shift Uniqueness Test

008737443-02, P = 604.479194 Days, E = 191.518907 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	3.99	3.38	4.27	5.62	3.55	0.70	21.0	20.1	0.61	-0.28	13.6	0.83	0.15	8.36



Stellar Parameters For KIC 008737443

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3435^{+55}_{-62}	$5.038^{+0.045}_{-0.050}$	$-0.400^{+0.100}_{-0.100}$	$0.244^{+0.039}_{-0.032}$	$0.236^{+0.049}_{-0.040}$	$22.990^{+6.638}_{-5.600}$
	+2%/-2%	+1%/-1%	+25%/-25%	+16%/-13%	+21%/-17%	+29%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008737443-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1161±128	$1.09^{+0.79}_{-0.68}$	113^{+3}_{-3}	3256^{+1315}_{-470}	$405184^{+2478374}_{-268724}$
Alt.	-373±93	$1.42^{+0.84}_{-0.75}$	113^{+3}_{-3}	2589^{+593}_{-286}	$72889^{+261424}_{-43354}$

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

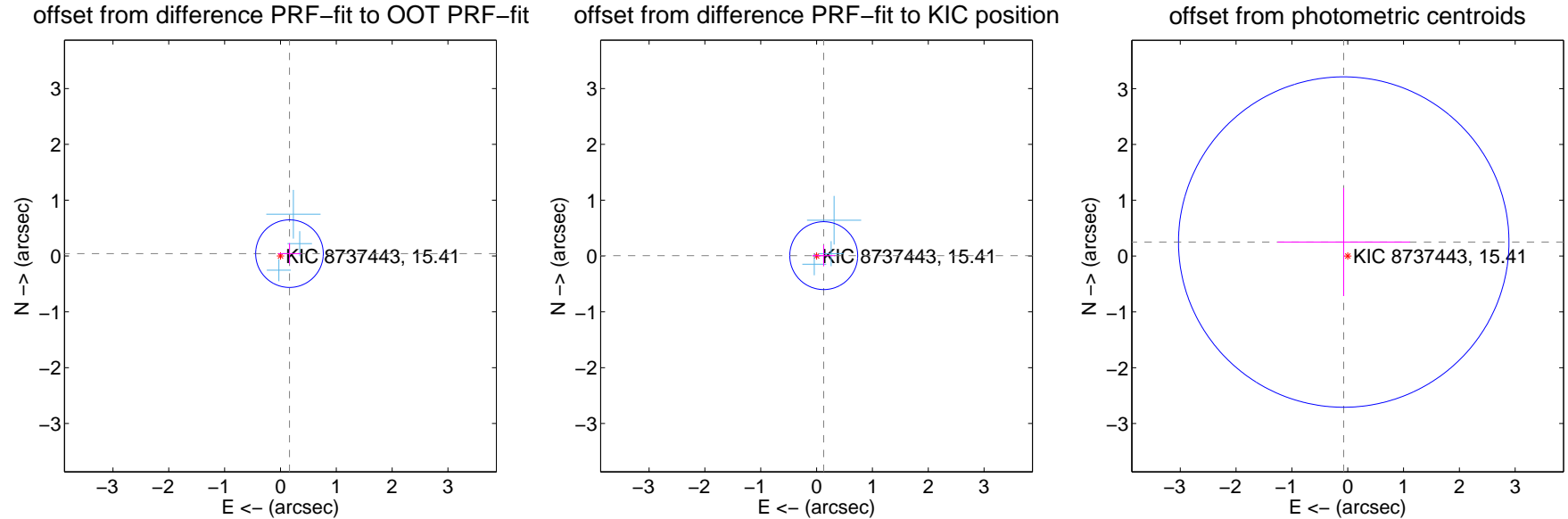
DV Centroid Data

Supplemental centroid analysis for 008737443-02. Kepler magnitude: 15.41. Transit SNR 6.80

There are 3 quarters with good PRF difference image offsets

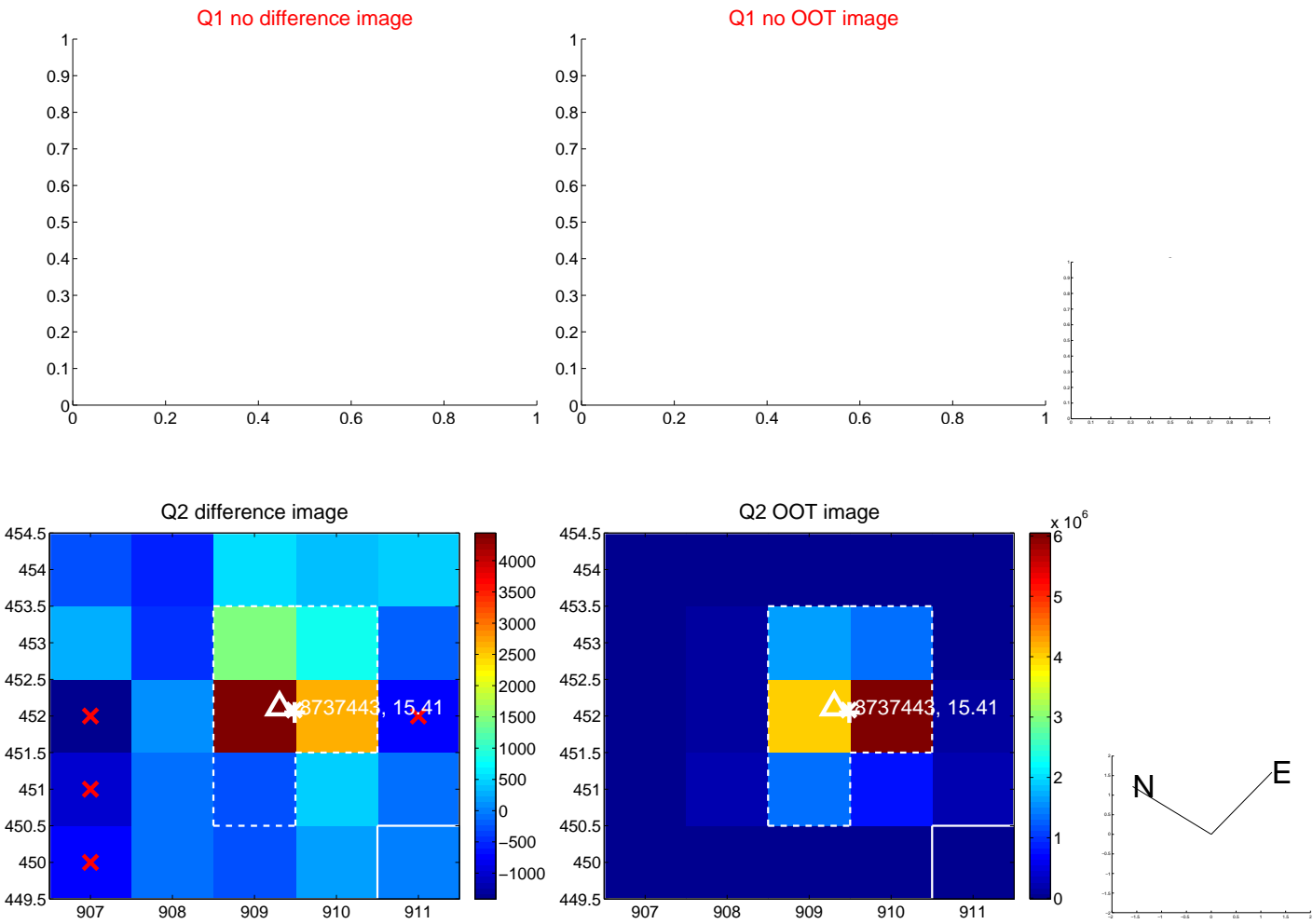
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.167 ± 0.202	0.83	-0.162 ± 0.203	0.043 ± 0.188
PRF-fit source offset from KIC position	0.128 ± 0.203	0.63	-0.128 ± 0.203	0.007 ± 0.188
photometric centroid source offset	0.26 ± 0.99	0.27	0.07 ± 1.19	0.25 ± 0.97

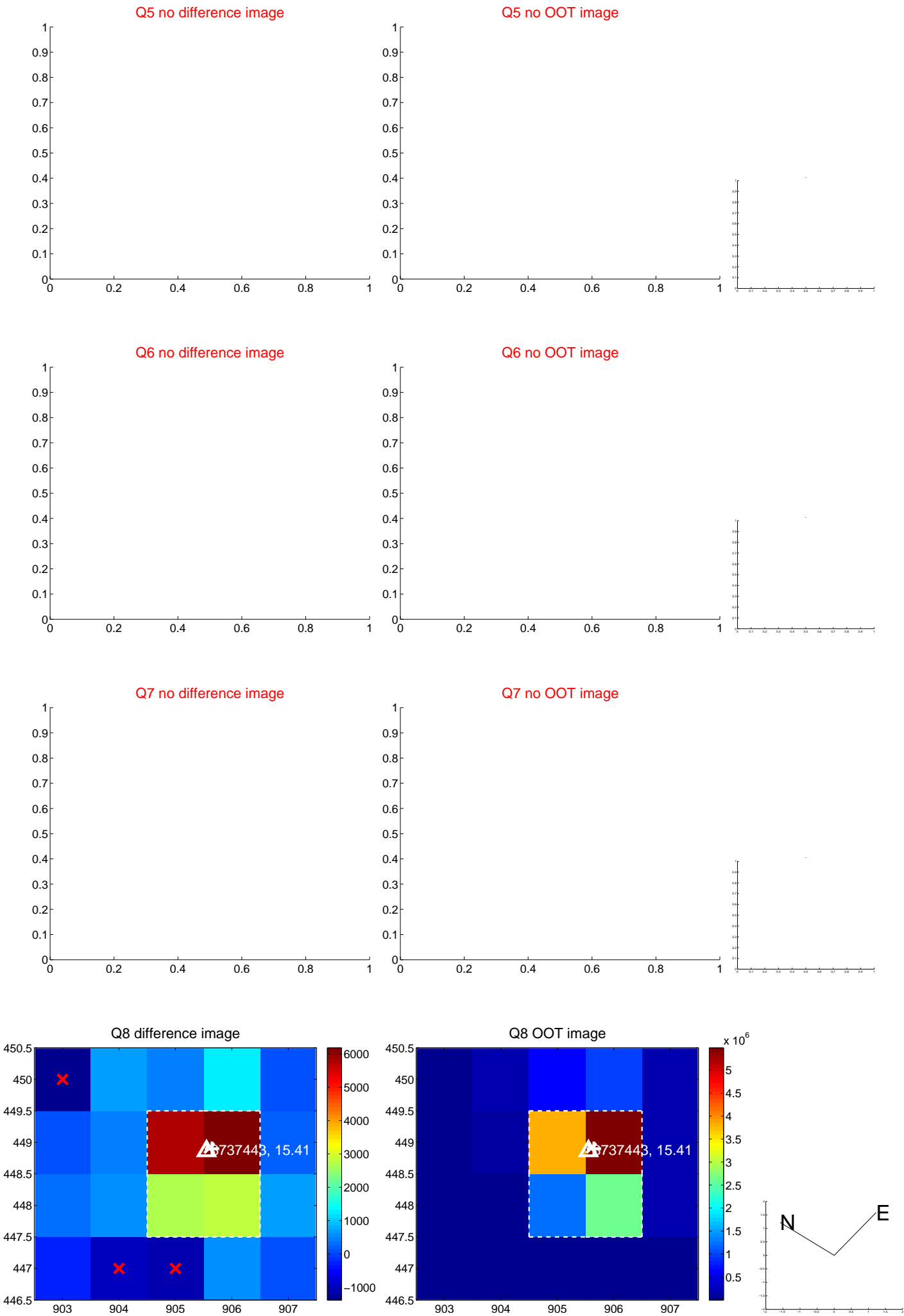


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



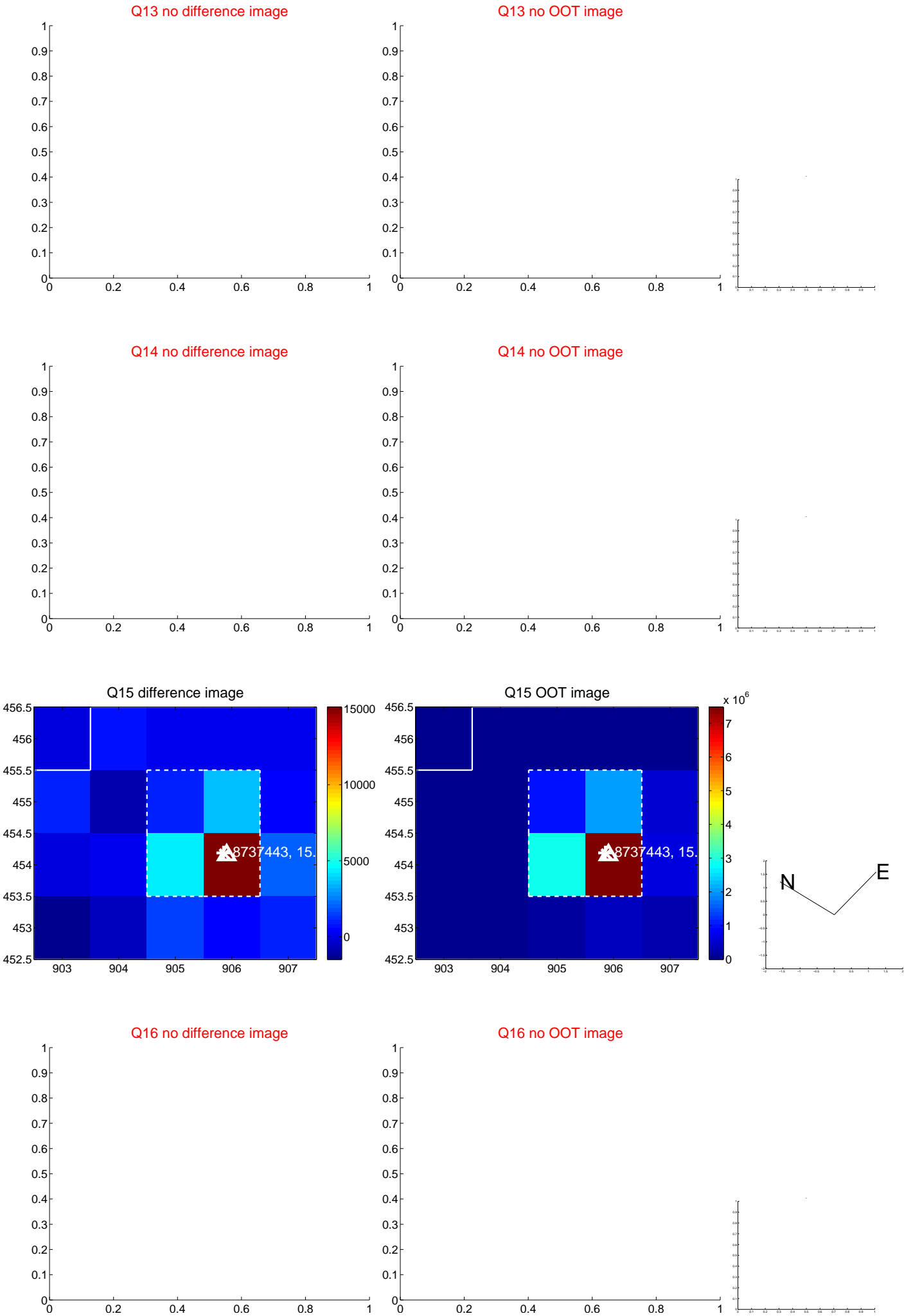
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



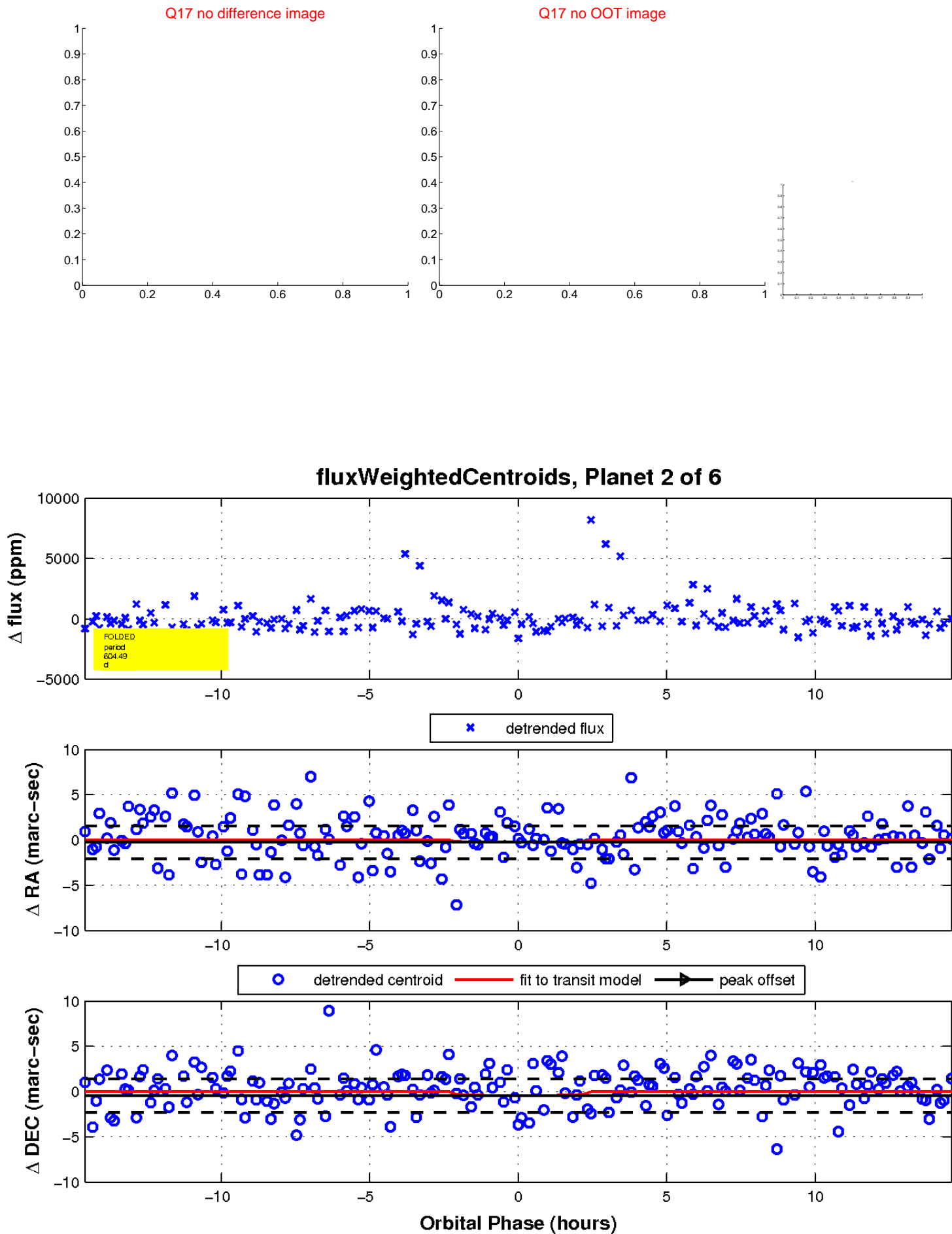
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

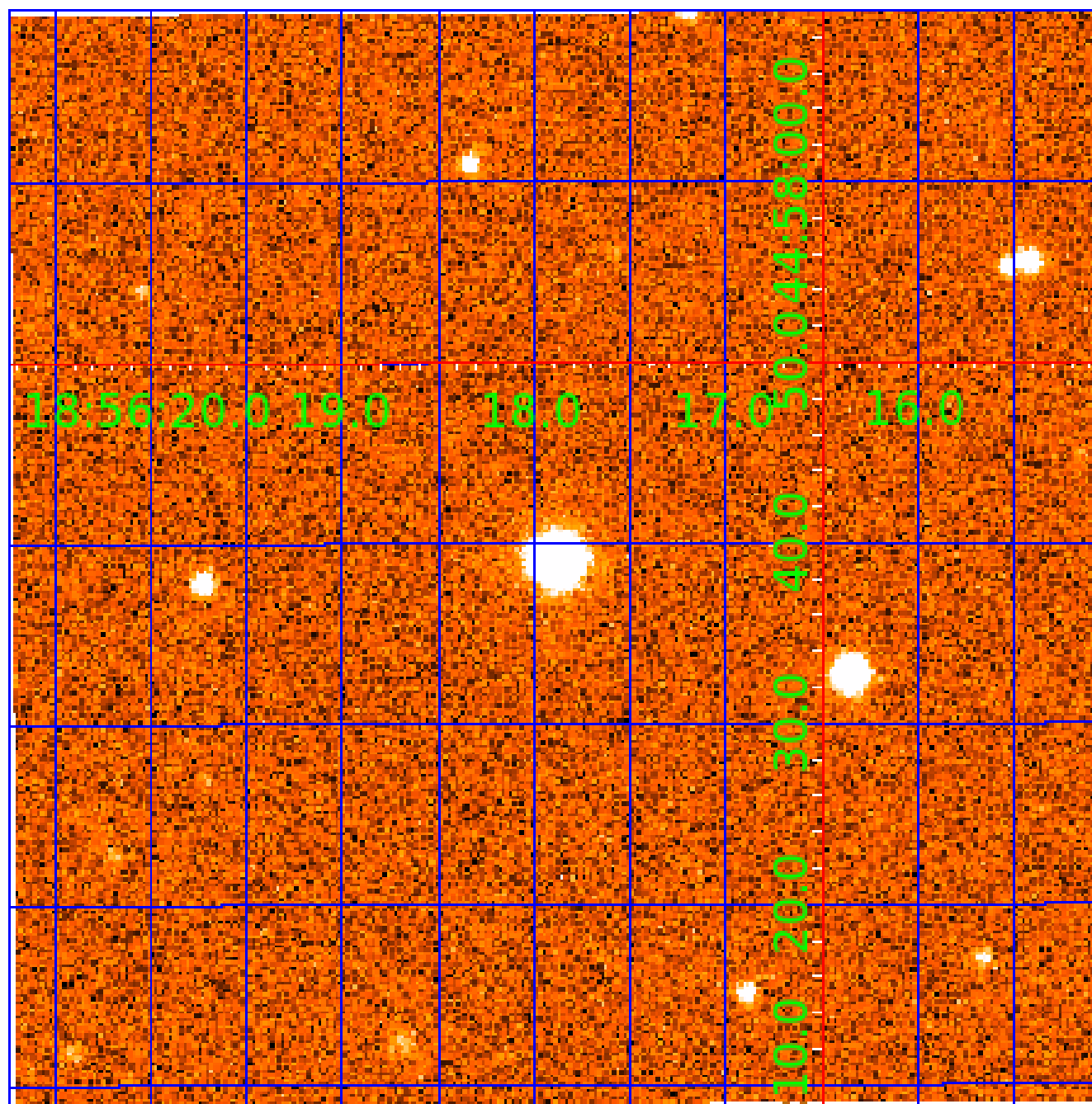


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008737443

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})
008737443-01	OBS	No	396.003874	526.291048	2260.3	2.496	12.6	8.7	0.24	3435	1.27	0.02
008737443-02	OBS	No	604.493923	191.514383	1320.6	4.881	12.5	6.8	0.24	3435	0.92	0.01
008737443-03	OBS	No	505.418659	447.832032	1925.5	5.226	13.2	7.9	0.24	3435	1.32	0.01
008737443-04	OBS	No	543.021857	238.450030	1309.1	9.000	12.8	-1.0	0.24	3435	0.88	0.01
008737443-05	OBS	No	393.217799	426.029958	1355.3	6.266	11.4	6.8	0.24	3435	0.93	0.02
008737443-06	OBS	No	355.042365	398.174521	1785.6	11.038	12.5	7.2	0.24	3435	1.03	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008737443-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008737443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS
008737443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
008737443-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

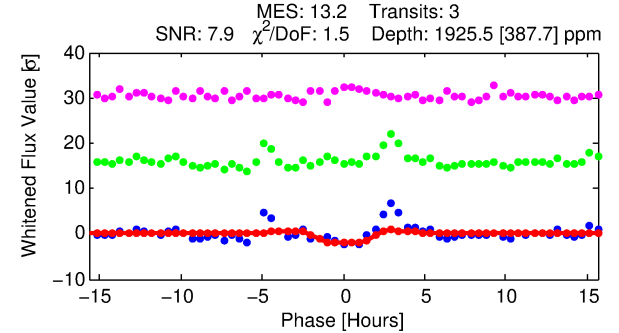
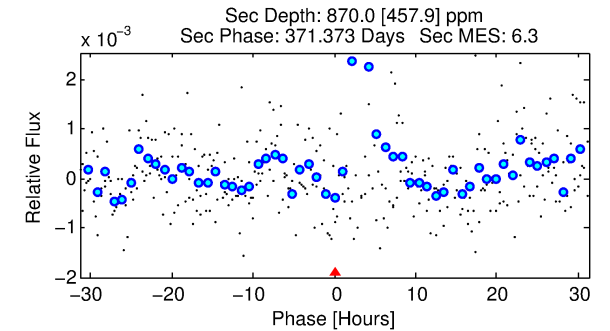
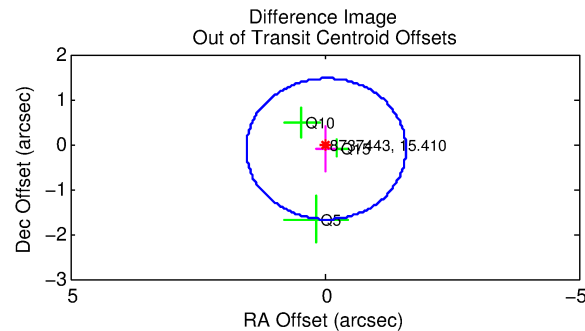
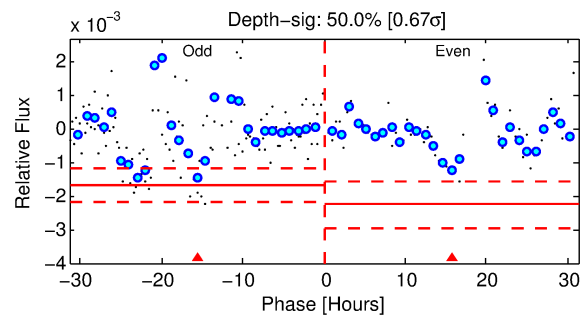
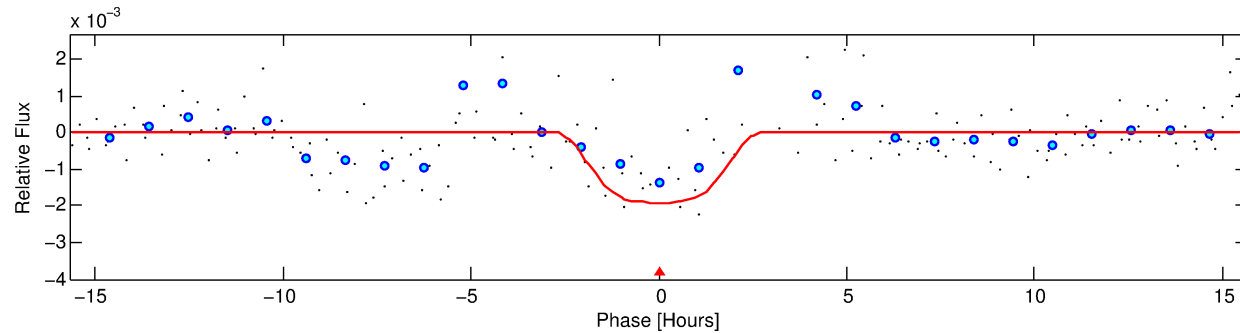
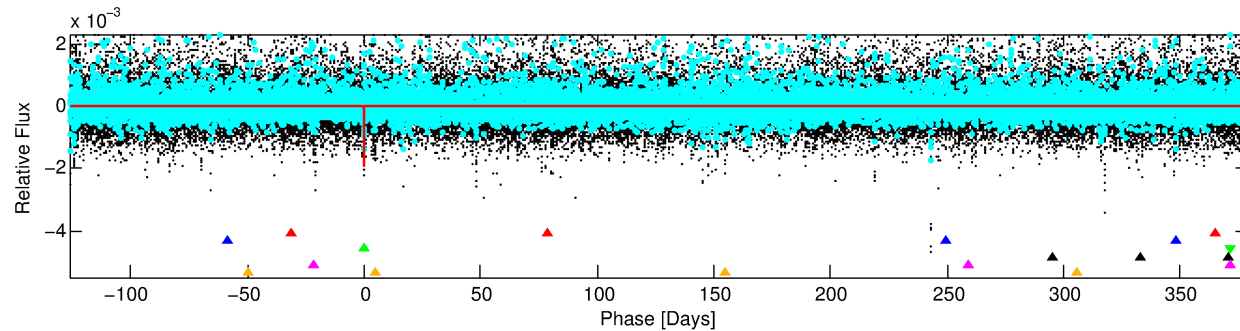
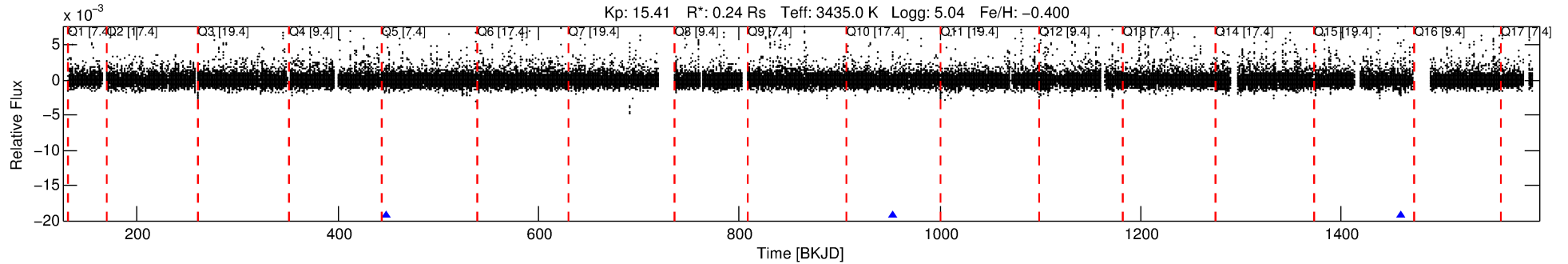
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008737443-03

No Significant Match Found

DV One-Page Summary

KIC: 8737443 Candidate: 3 of 6 Period: 505.419 d



DV Fit Results:

Period = 505.41866 [0.01066] d
Epoch = 447.8320 [0.0146] BKJD
Rp/R* = 0.0496 [0.0072]
a/R* = 356.35 [101.87]
b = 0.93 [0.05]
Seff = 0.01 [0.00]
Teq = 85 [3] K
Rp = 1.32 [0.28] Re
a = 0.7686 [0.0871] AU
Ag = 162034.39 [99538.54] [1.63 σ]
Teffp = 2649 [400] K [6.40 σ]

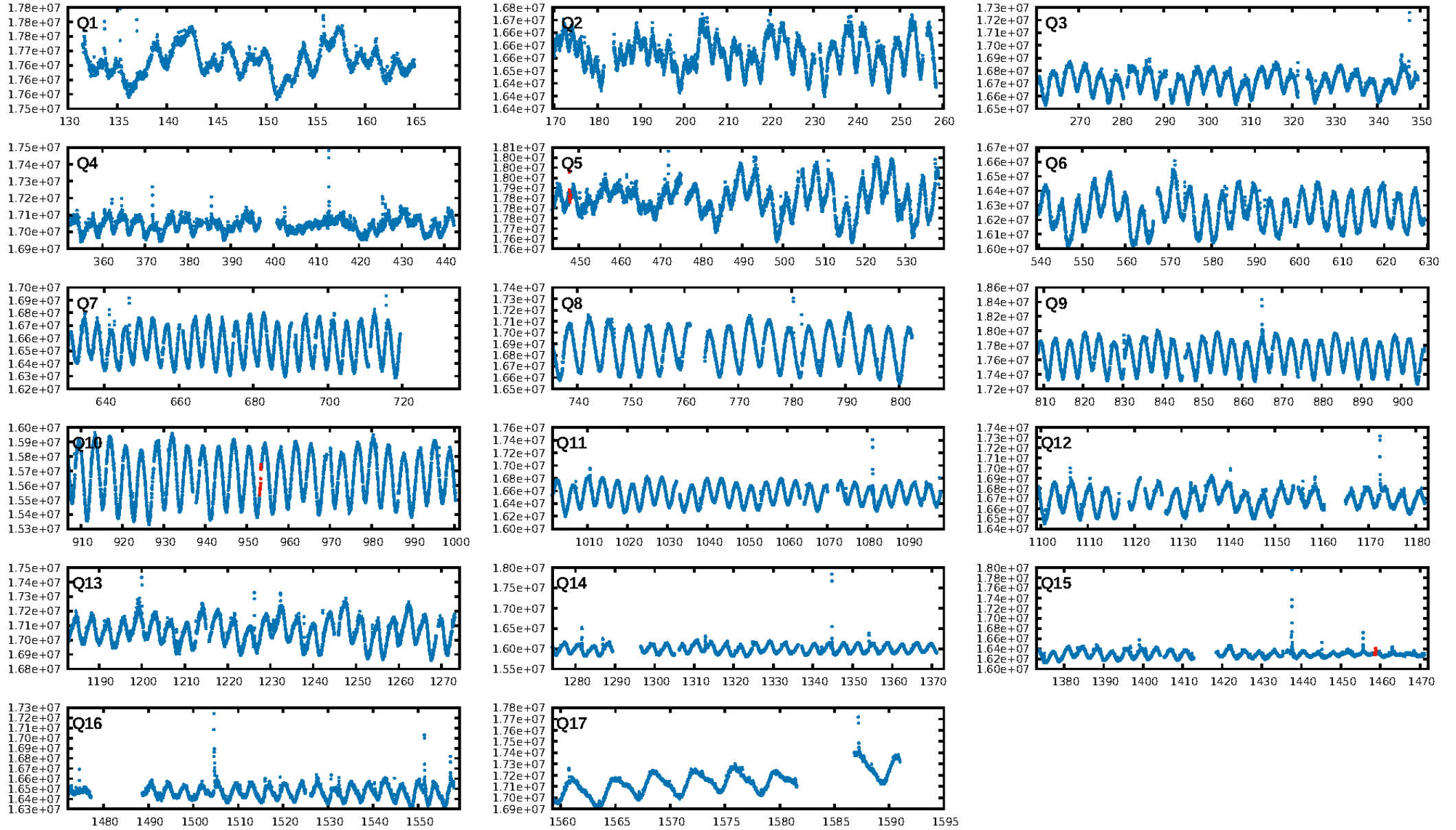
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [453.43 σ]
LongPeriod-sig: 100.0% [86.72 σ]
ModelChiSquare2-sig: 3.5%
ModelChiSquareGof-sig: 85.9%
Bootstrap-pfa: 3.34e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.818
Centroid-sig: 66.2%
Centroid-so: 0.338 arcsec [0.40 σ]
OotOffset-rm: 0.109 arcsec [0.21 σ]
KicOffset-rm: 0.119 arcsec [0.28 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

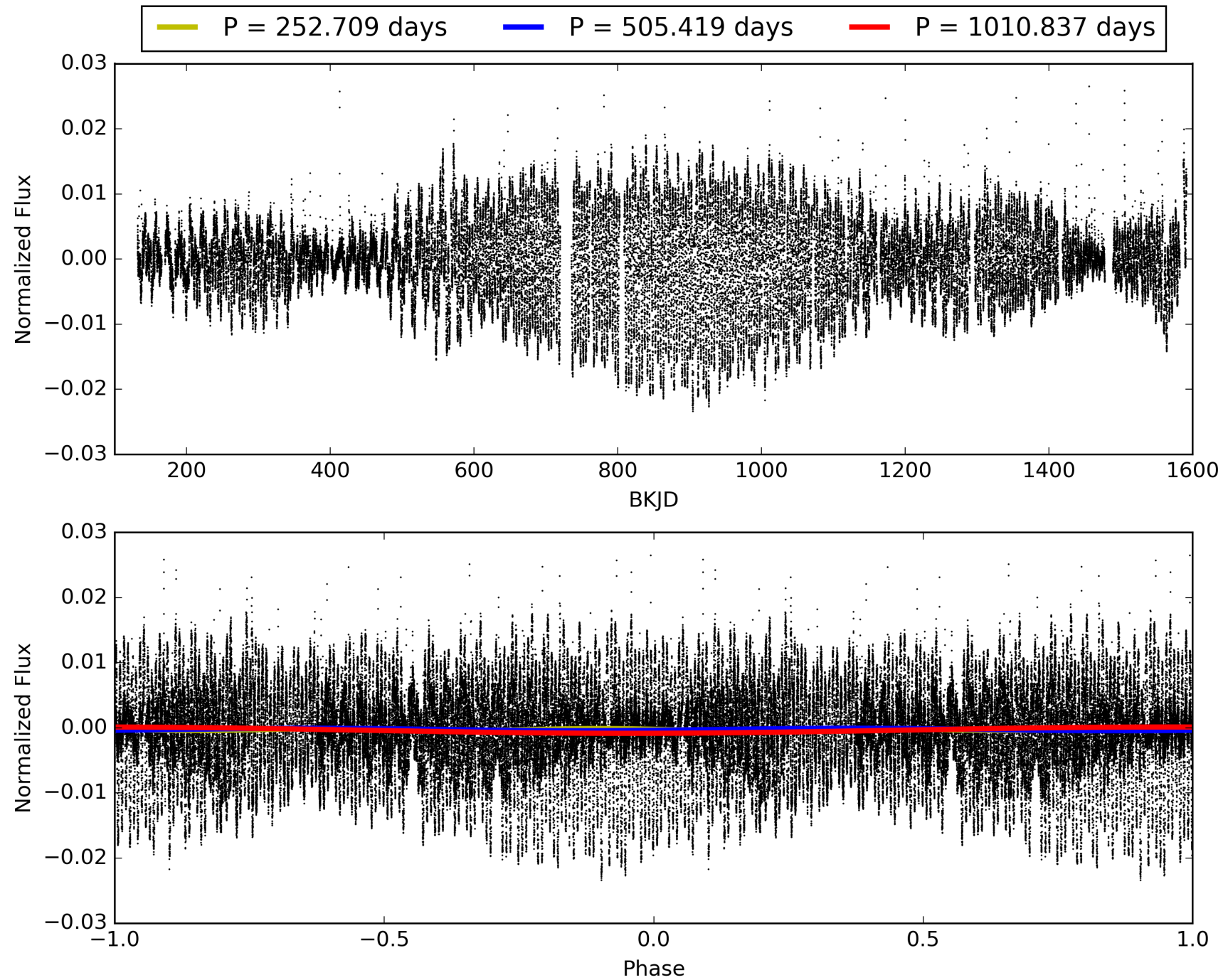
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:09:34 Z

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

TCE 008737443-03, PDC Light Curves

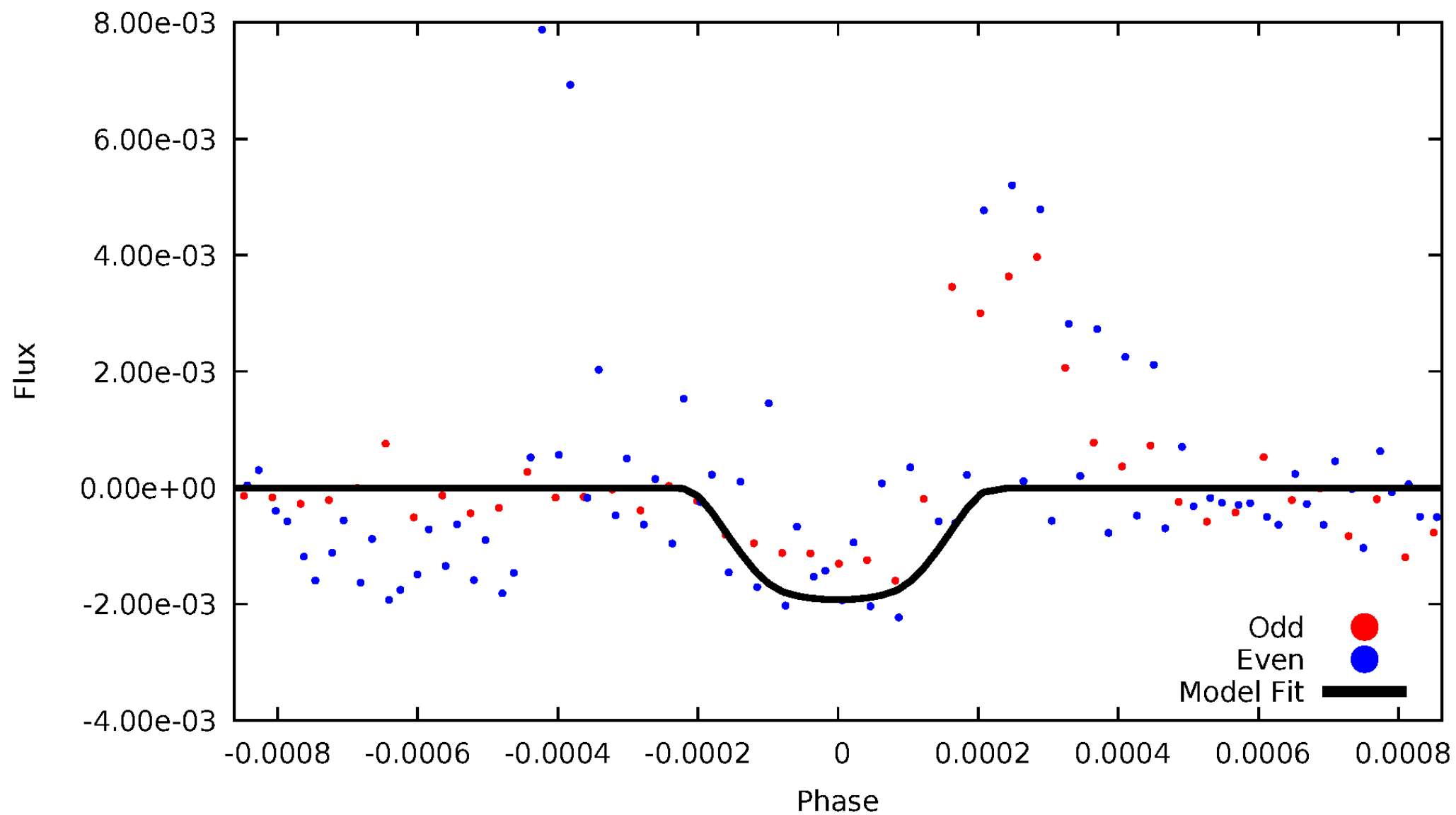


TCE 008737443-03



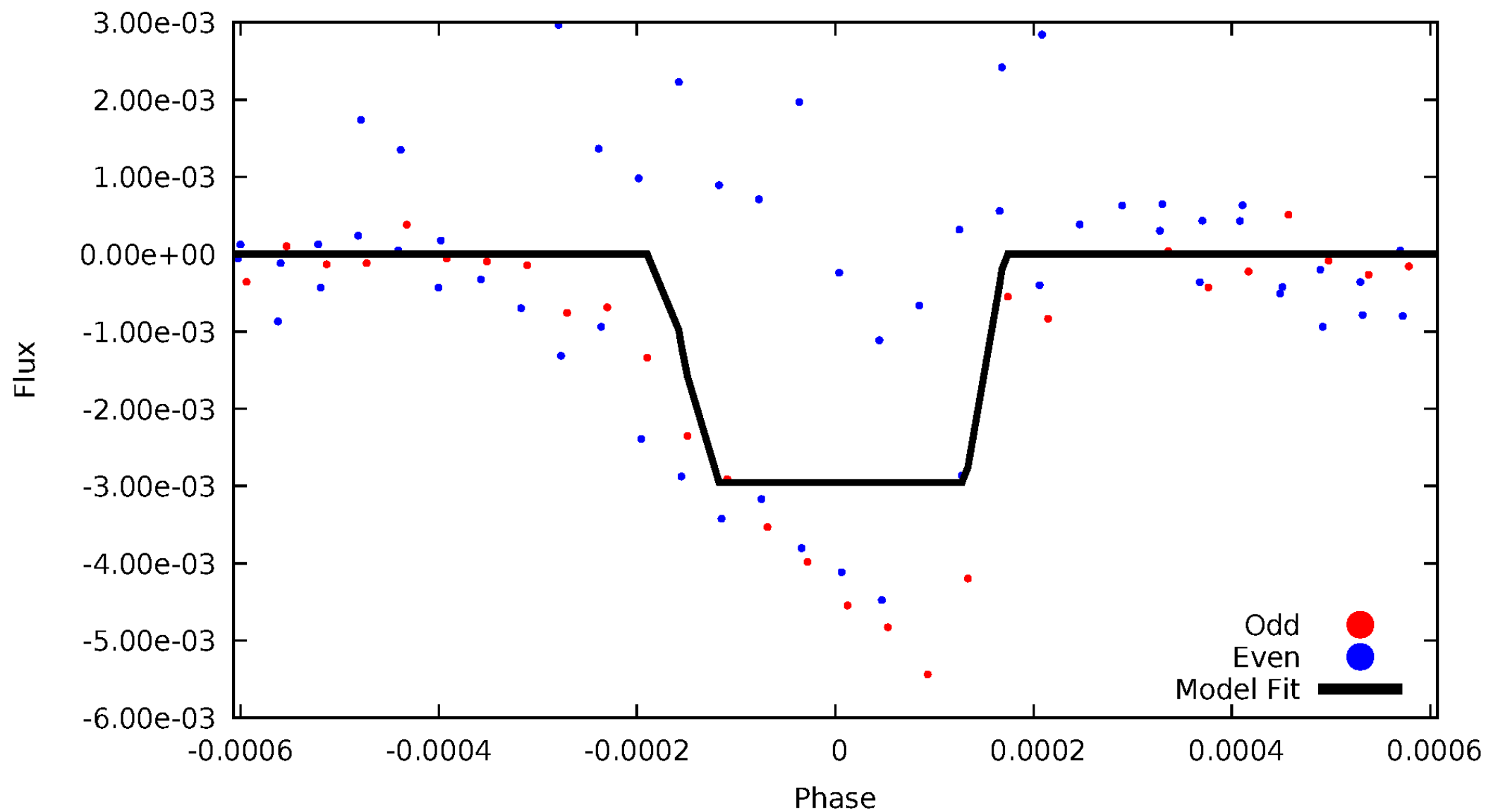
DV Odd/Even

TCE 008737443-03



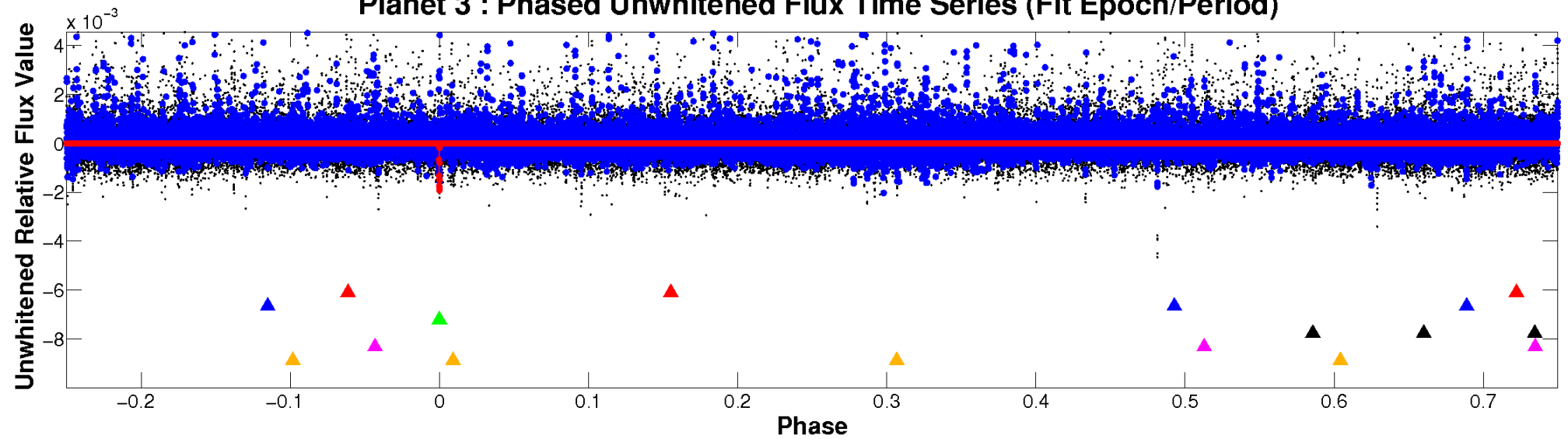
ALT Odd/Even

TCE 008737443-03

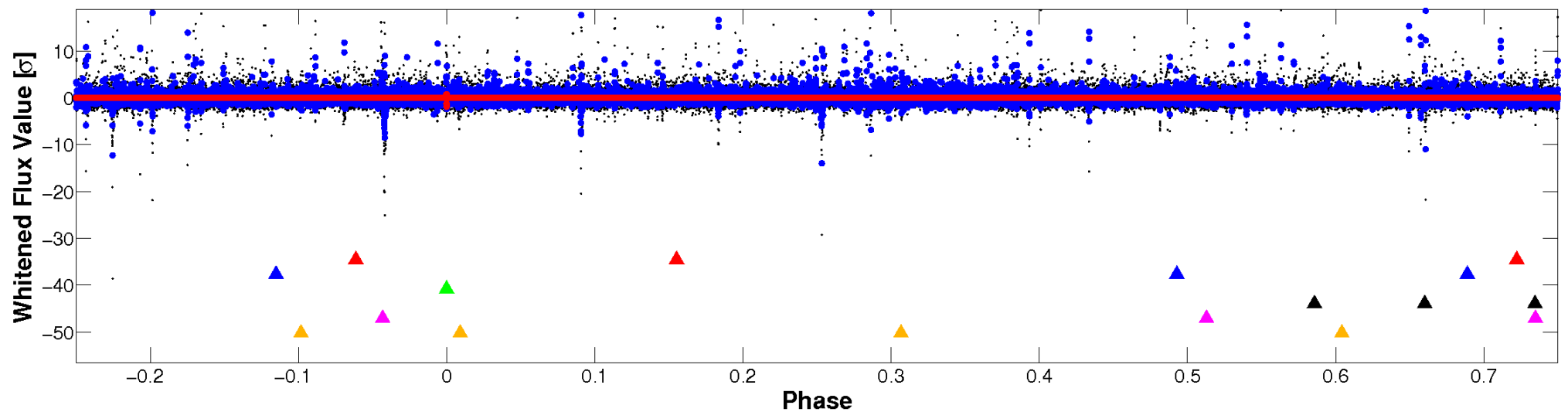


Non-Whitened Vs. Whitened Light Curve

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

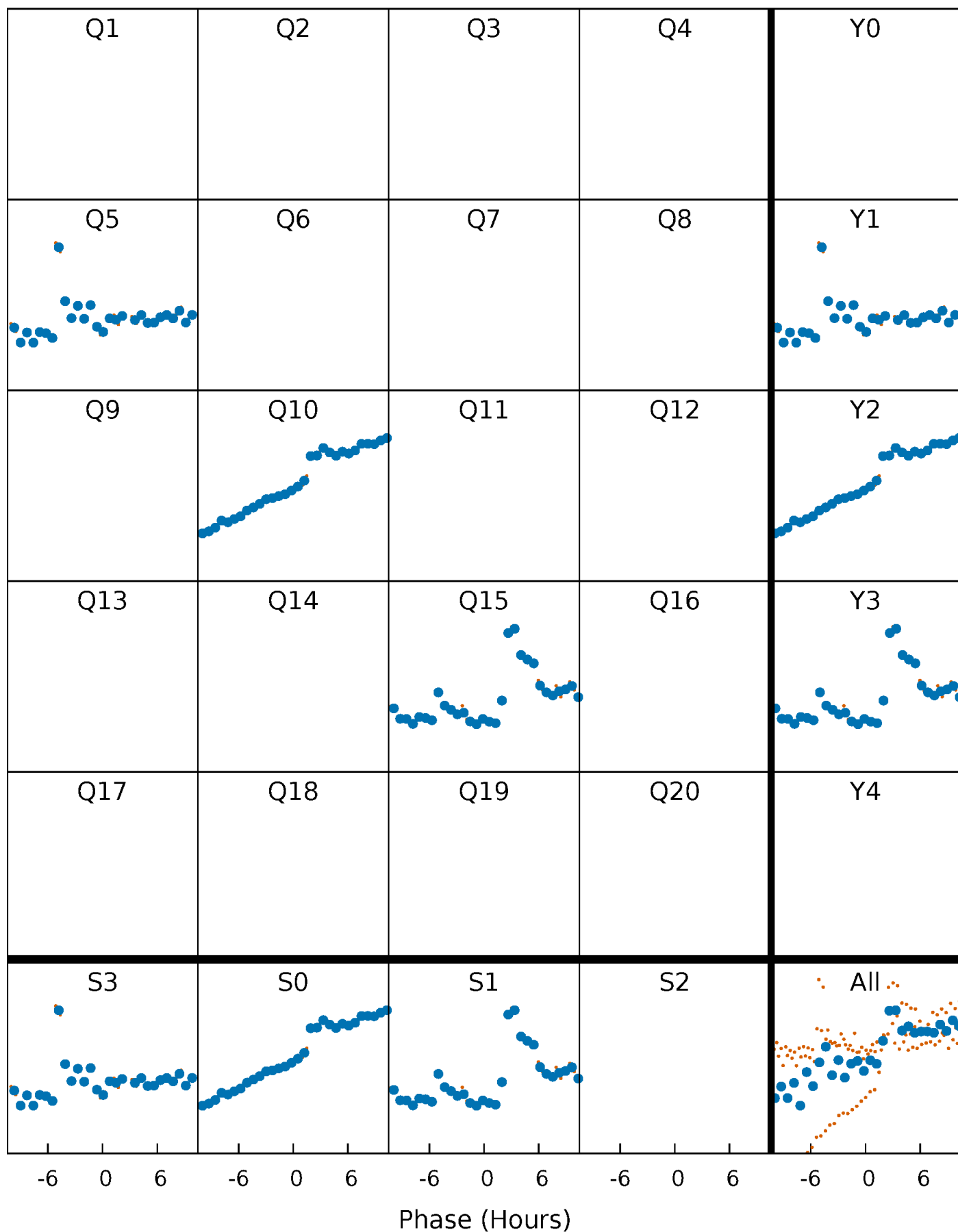


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



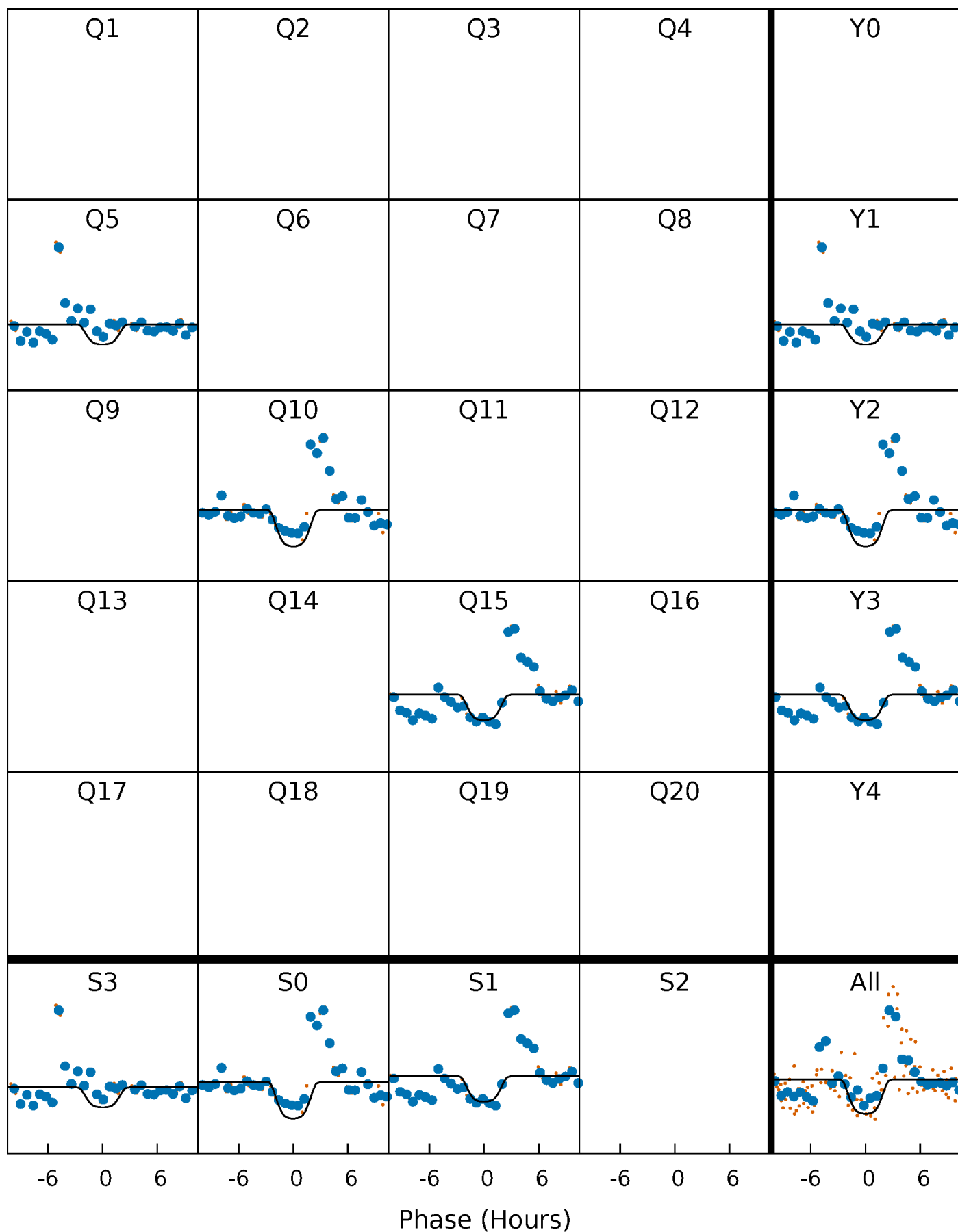
PDC Quarter-Phased Transit Curves

TCE 008737443-03 P=505.418659 Days $T_0=447.832032$ (BKJD)



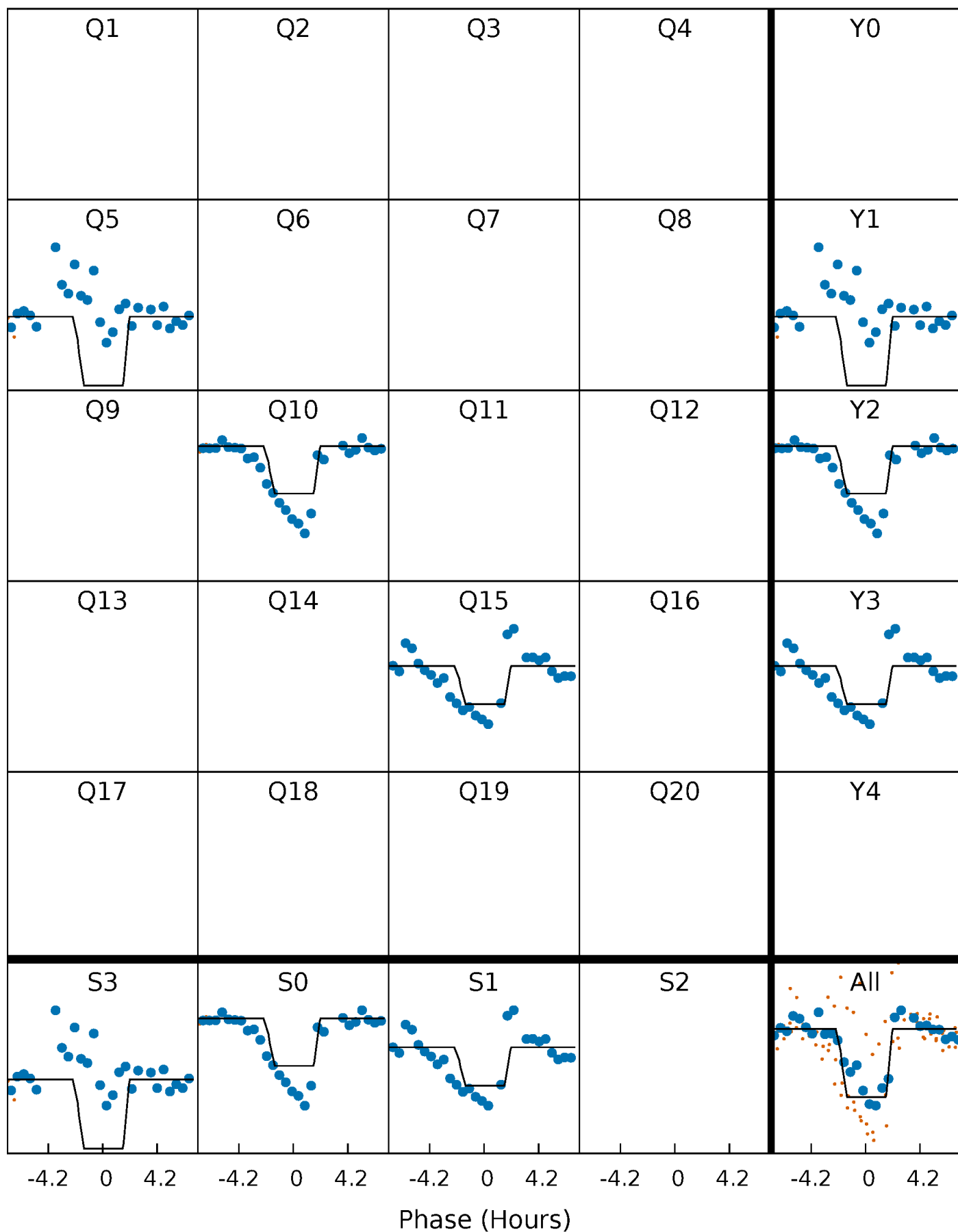
DV Quarter-Phased Transit Curves

TCE 008737443-03 $P=505.418659$ Days $T_0=447.832032$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

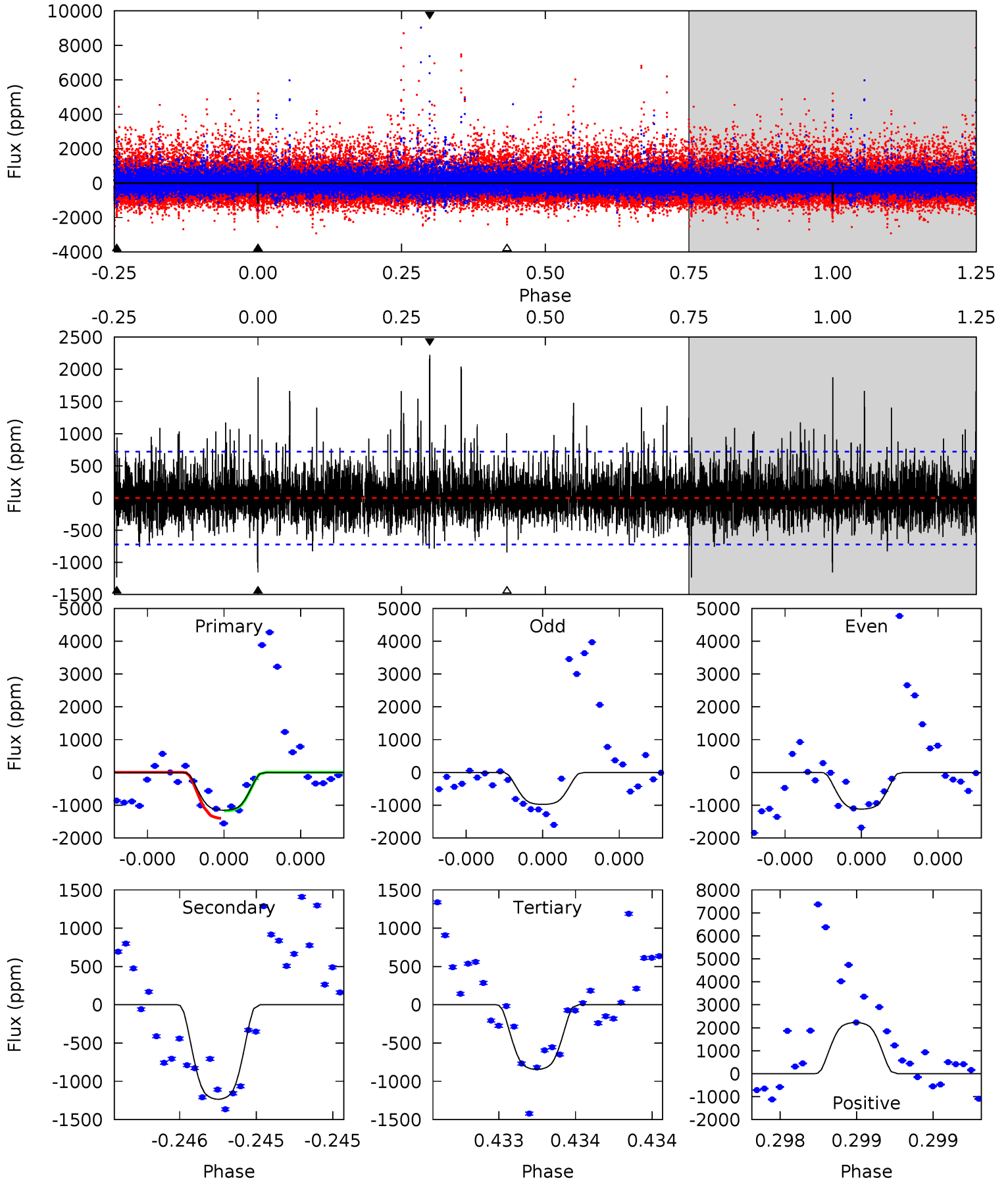
TCE 008737443-03 P=505.444540 Days $T_0=447.800468$ (BKJD)



DV Model-Shift Uniqueness Test

008737443-03, P = 505.418659 Days, E = 447.832032 Days

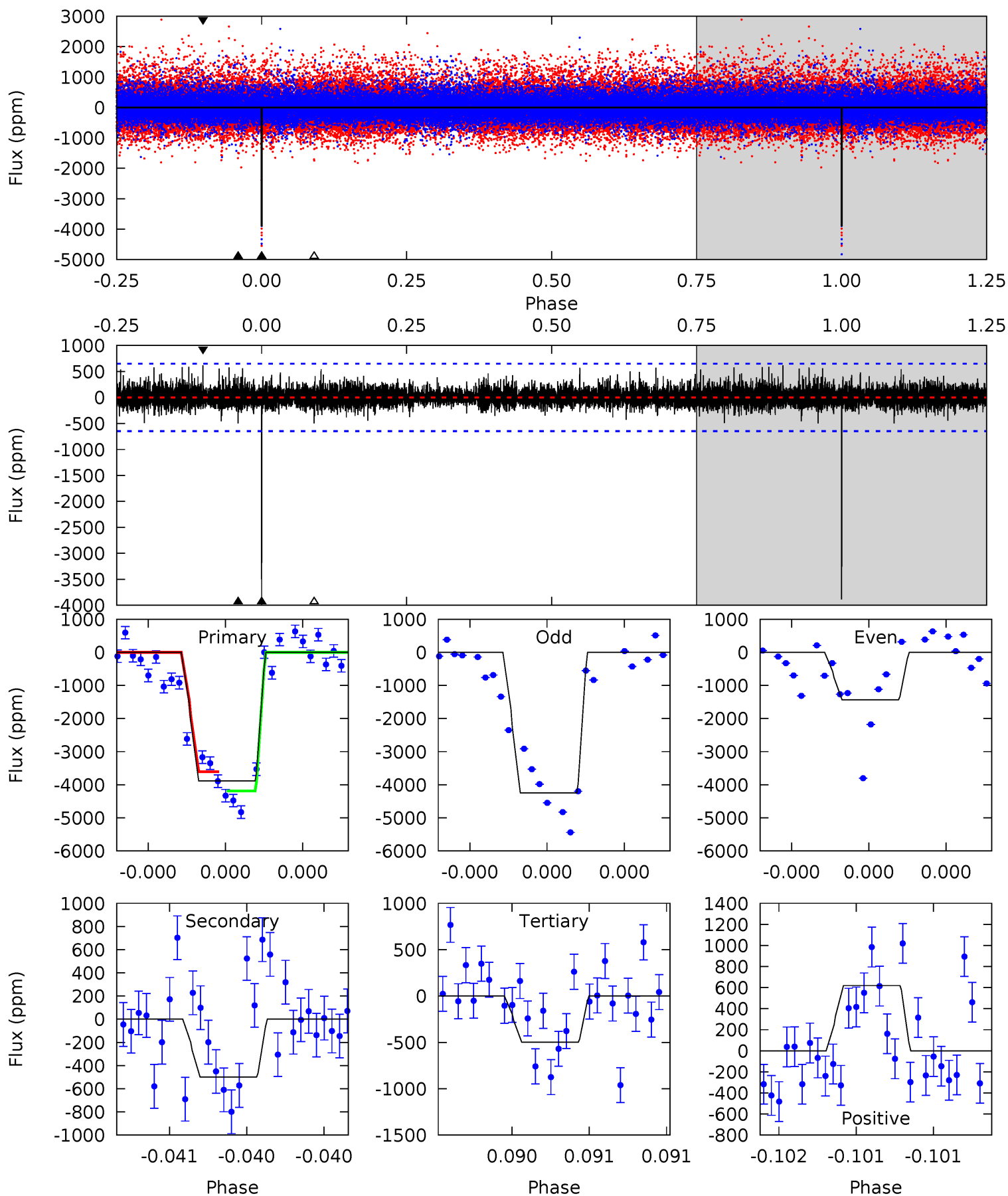
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.94	9.57	6.55	17.3	5.59	3.51	2.09	2.39	-8.32	3.02	-7.69	0.40	1.12	0.64	0.87



Alt Model-Shift Uniqueness Test

008737443-03, P = 505.444540 Days, E = 447.800468 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.8	4.35	4.34	5.39	5.64	3.59	0.93	29.5	28.4	0.01	-1.04	14.4	0.68	0.14	2.55



Stellar Parameters For KIC 008737443

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3435^{+55}_{-62}	$5.038^{+0.045}_{-0.050}$	$-0.400^{+0.100}_{-0.100}$	$0.244^{+0.039}_{-0.032}$	$0.236^{+0.049}_{-0.040}$	$22.990^{+6.638}_{-5.600}$
	+2%/-2%	+1%/-1%	+25%/-25%	+16%/-13%	+21%/-17%	+29%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008737443-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1235 ± 129	$1.32^{+0.23}_{-0.22}$	119^{+3}_{-3}	3097^{+161}_{-139}	$225129^{+100265}_{-55427}$
Alt.	-500 ± 115	$1.46^{+0.25}_{-0.21}$	120^{+4}_{-3}	2659^{+137}_{-117}	74636^{+35062}_{-22675}

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

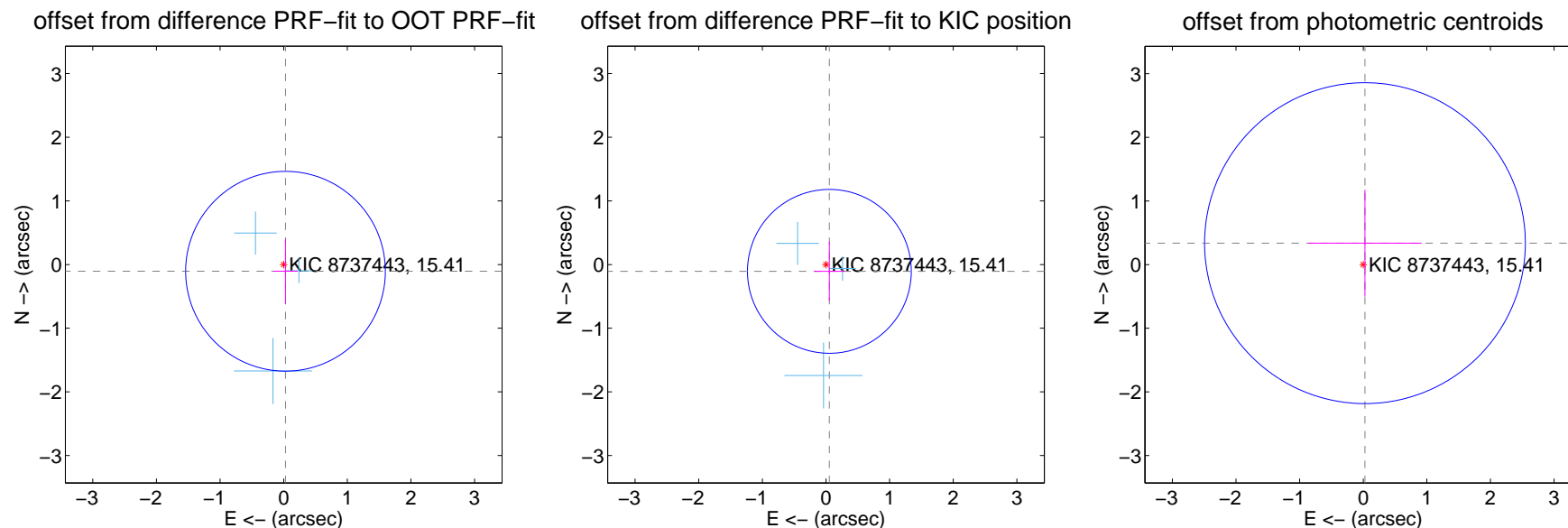
DV Centroid Data

Supplemental centroid analysis for 008737443-03. Kepler magnitude: 15.41. Transit SNR 7.94

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.109 ± 0.523	0.21	-0.028 ± 0.190	-0.105 ± 0.511
PRF-fit source offset from KIC position	0.119 ± 0.429	0.28	-0.053 ± 0.243	-0.107 ± 0.464
photometric centroid source offset	0.34 ± 0.84	0.40	-0.03 ± 0.89	0.34 ± 0.84

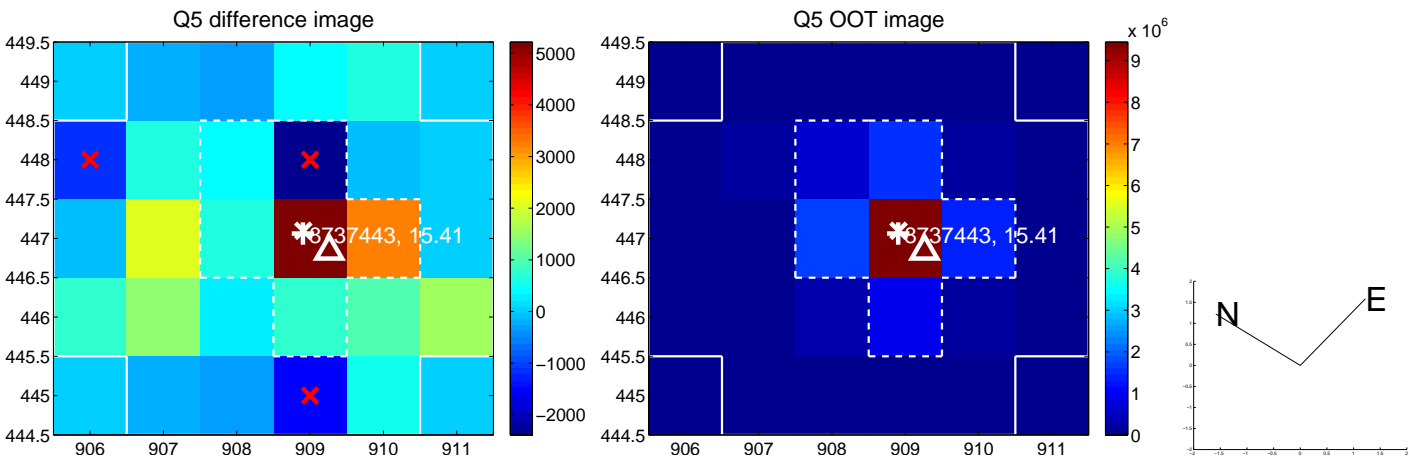


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

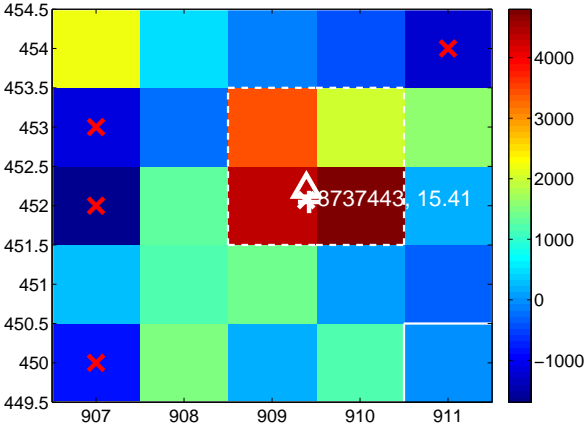
Q9 no difference image



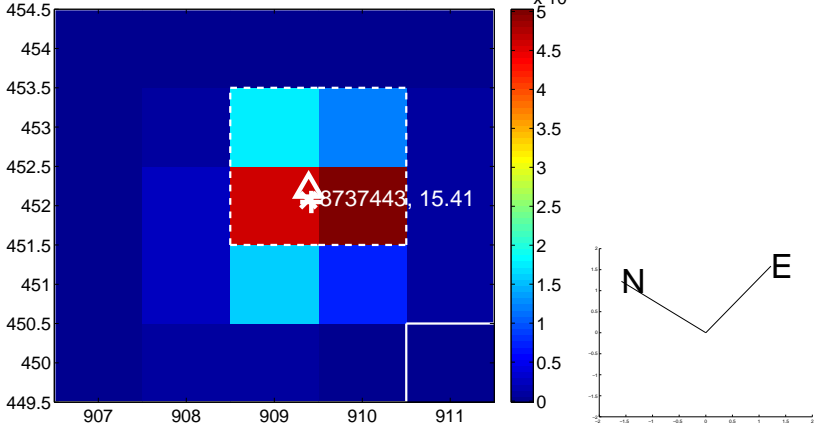
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



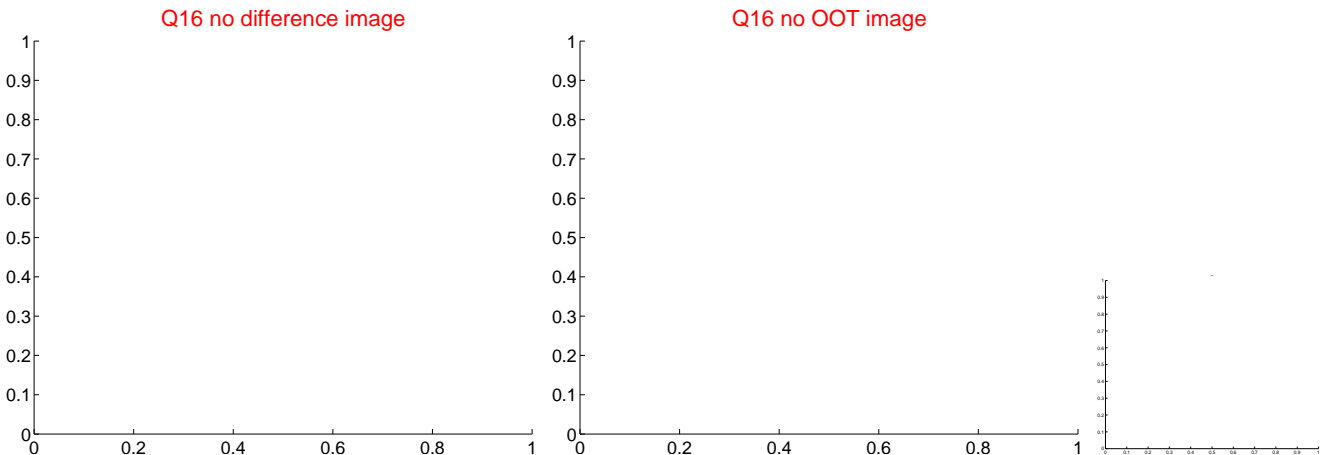
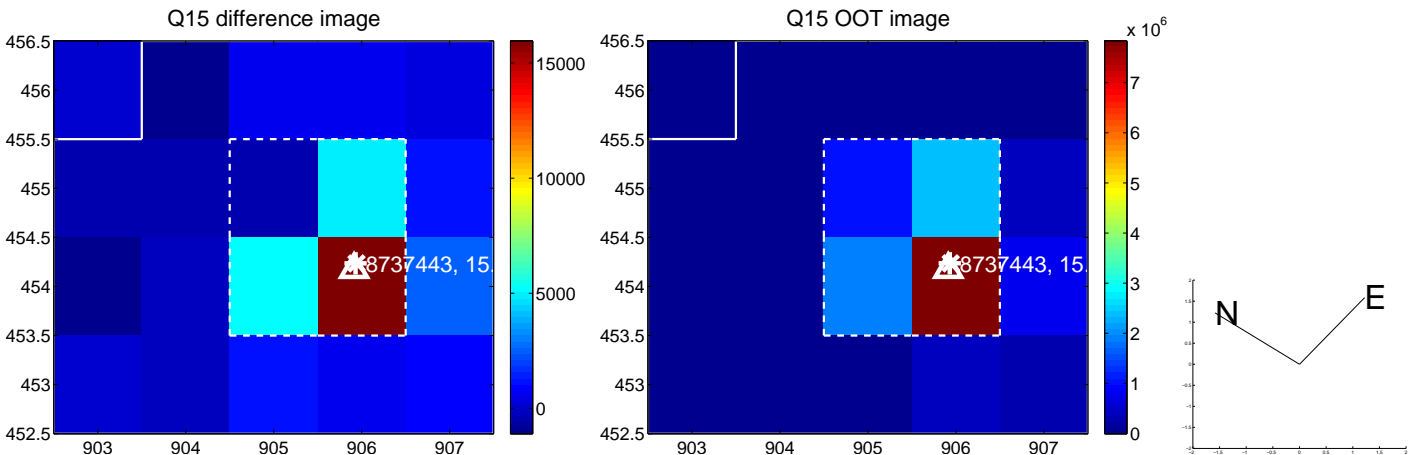
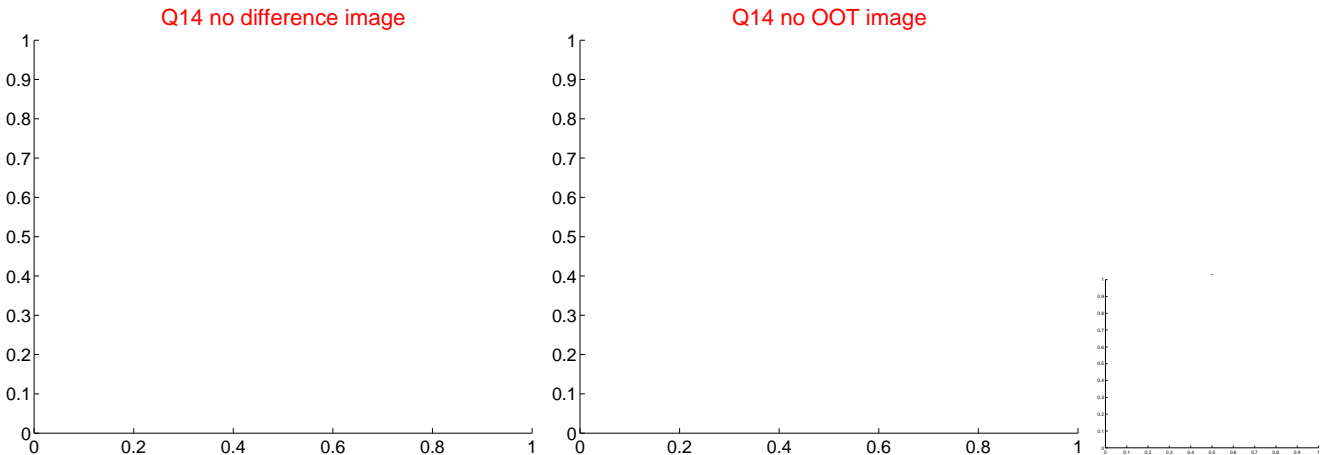
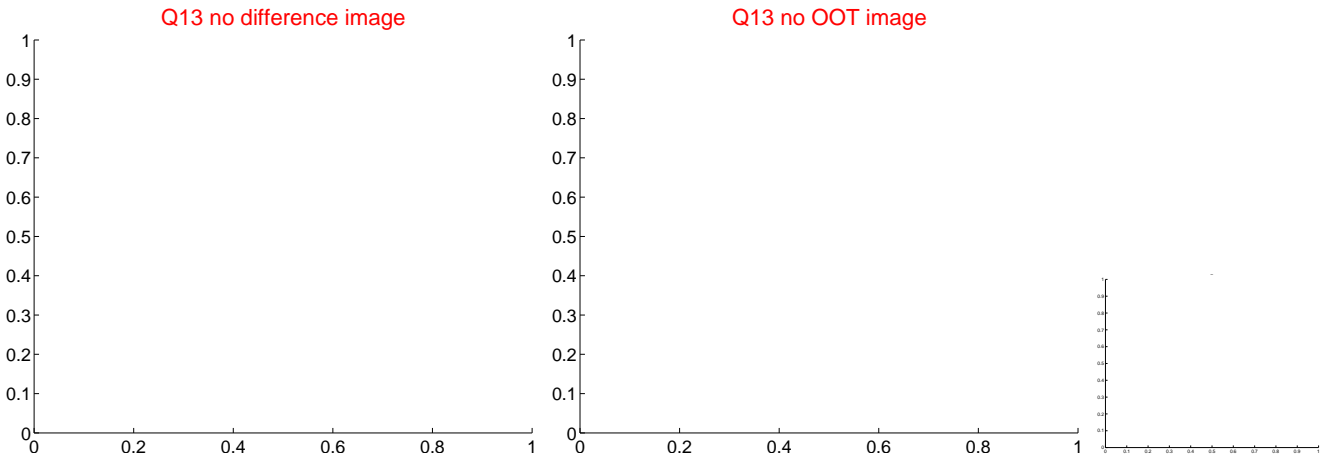
Q12 no difference image



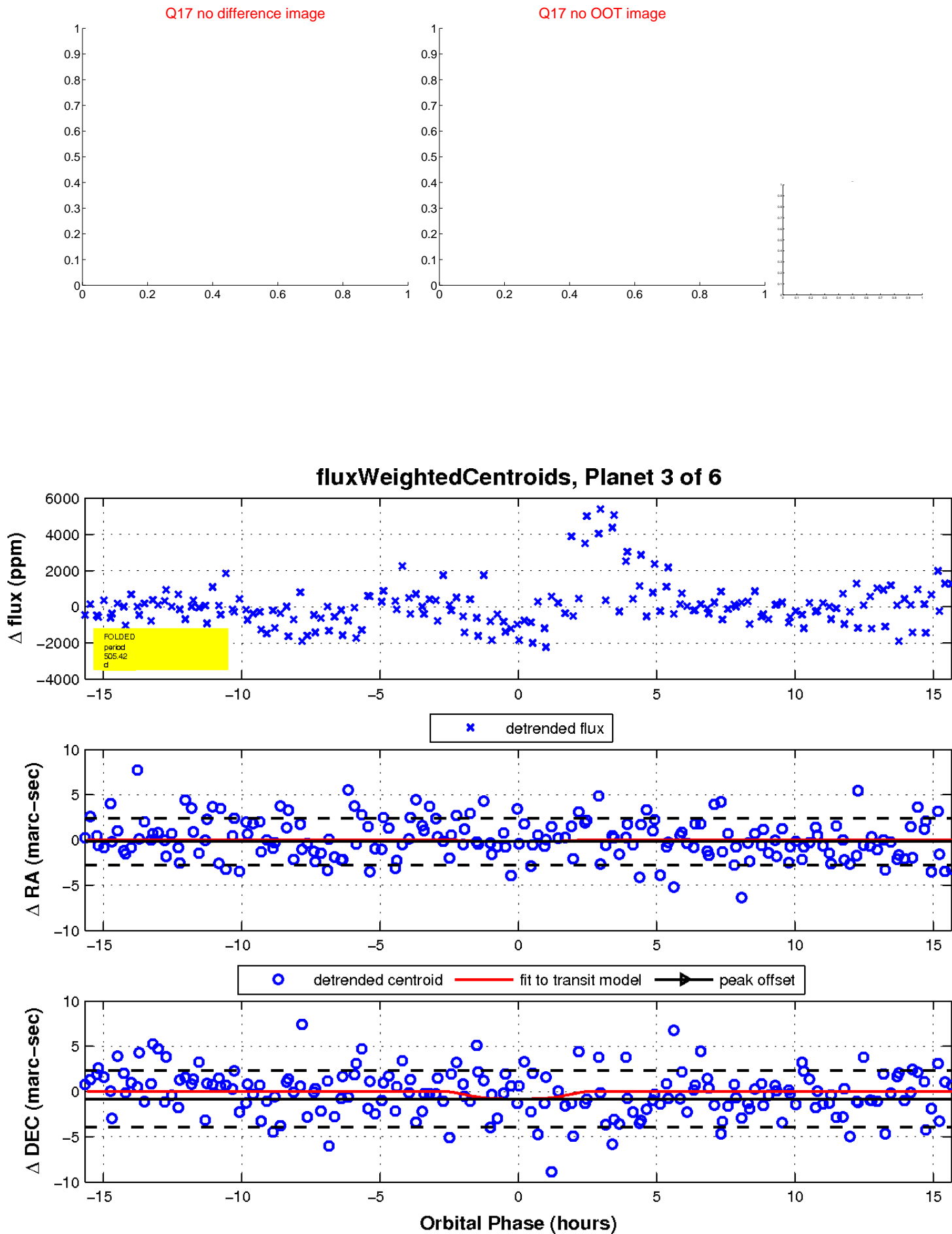
Q12 no OOT image



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

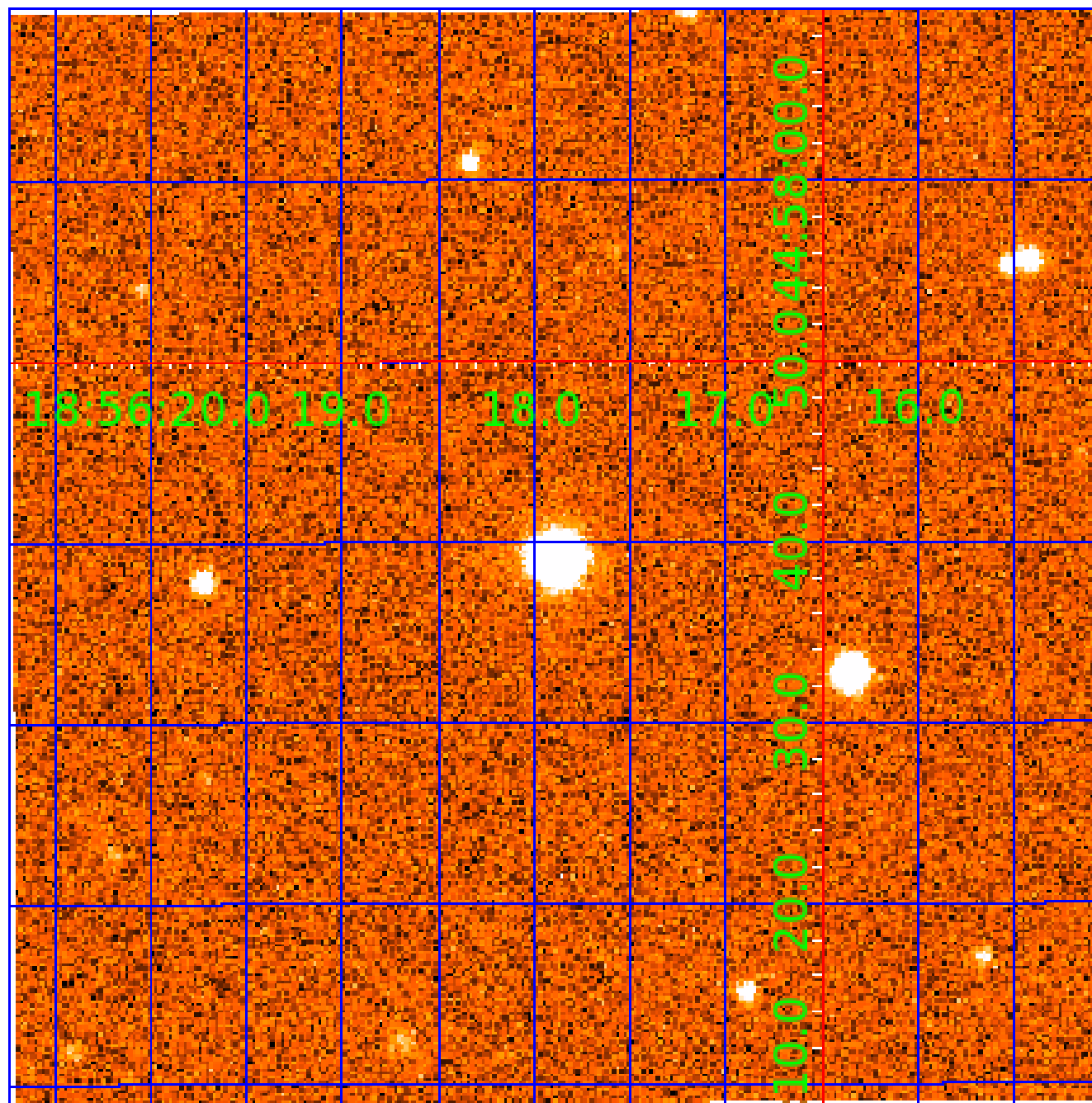


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008737443

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})
008737443-01	OBS	No	396.003874	526.291048	2260.3	2.496	12.6	8.7	0.24	3435	1.27	0.02
008737443-02	OBS	No	604.493923	191.514383	1320.6	4.881	12.5	6.8	0.24	3435	0.92	0.01
008737443-03	OBS	No	505.418659	447.832032	1925.5	5.226	13.2	7.9	0.24	3435	1.32	0.01
008737443-04	OBS	No	543.021857	238.450030	1309.1	9.000	12.8	-1.0	0.24	3435	0.88	0.01
008737443-05	OBS	No	393.217799	426.029958	1355.3	6.266	11.4	6.8	0.24	3435	0.93	0.02
008737443-06	OBS	No	355.042365	398.174521	1785.6	11.038	12.5	7.2	0.24	3435	1.03	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008737443-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008737443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS
008737443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
008737443-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

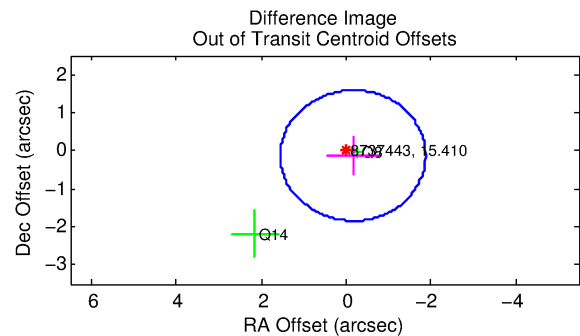
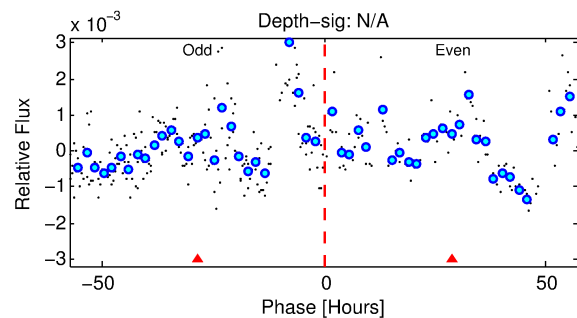
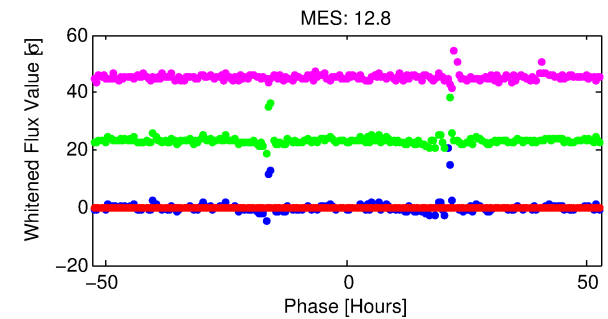
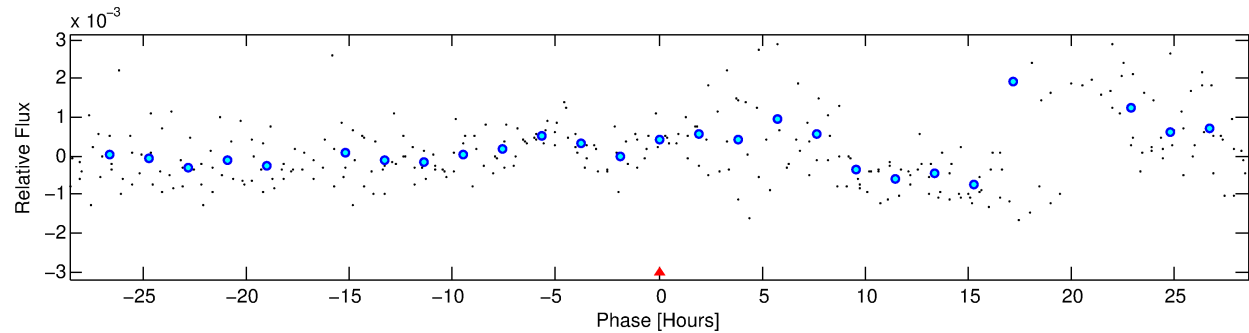
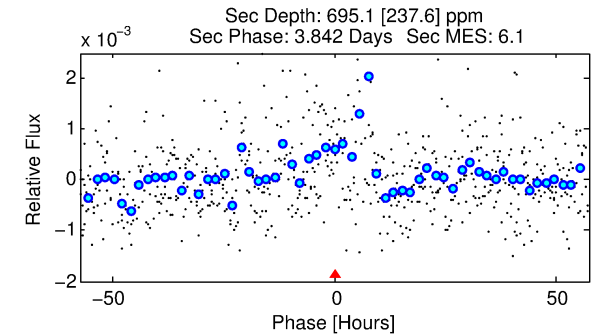
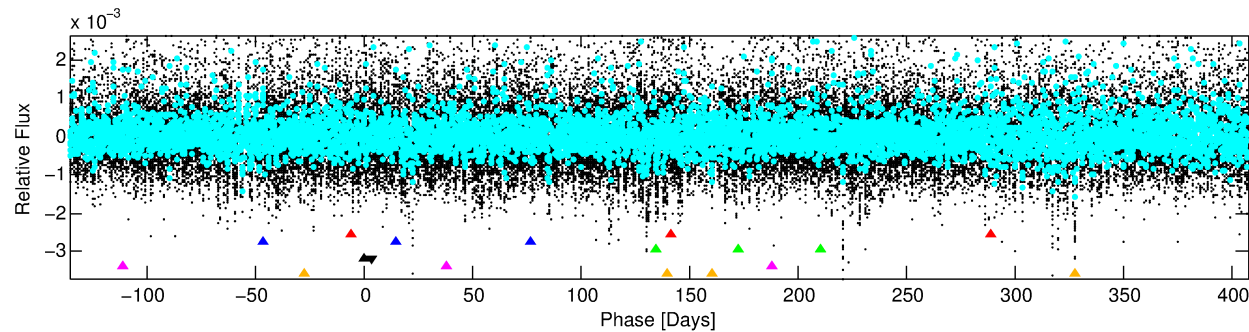
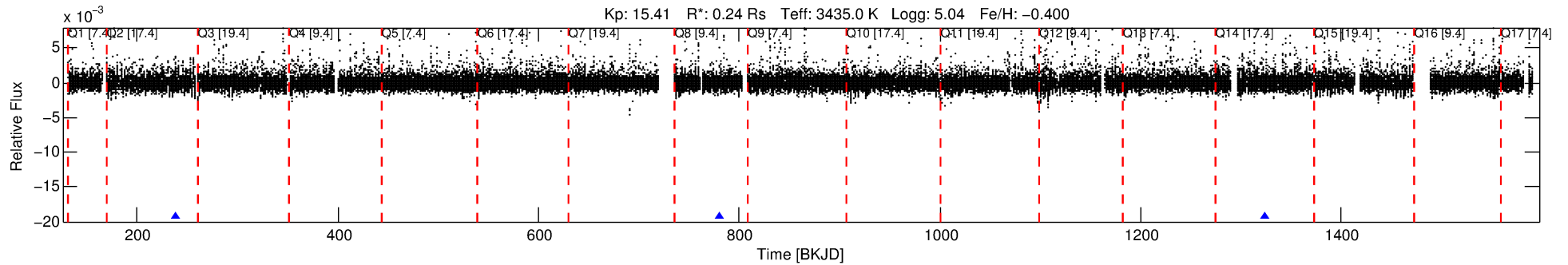
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008737443-04

No Significant Match Found

DV One-Page Summary

KIC: 8737443 Candidate: 4 of 6 Period: 543.022 d



TPS TCE Results:

Period = 543.02186 d
Epoch = 238.4500 BKJD

DV fit results are unavailable

DV Diagnostic Results:

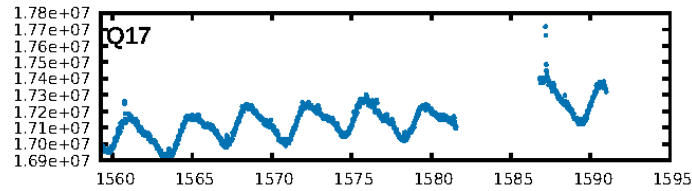
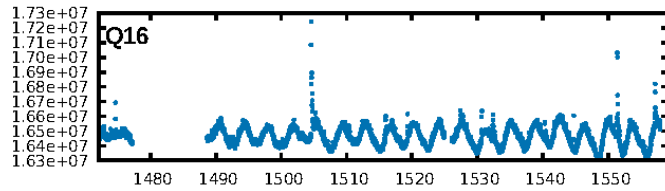
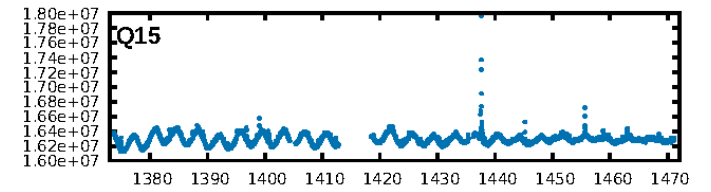
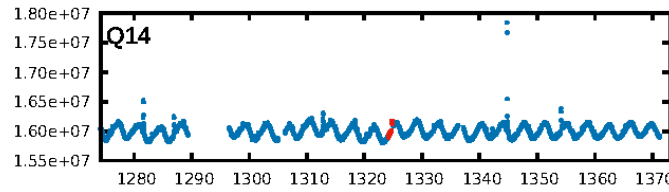
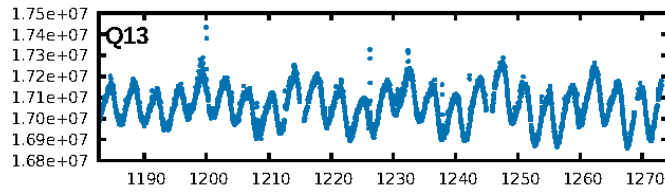
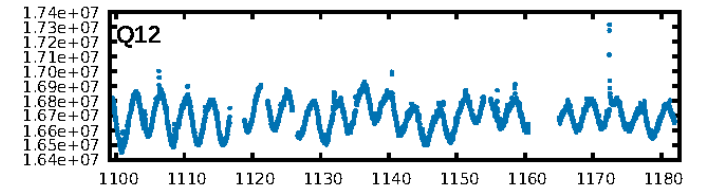
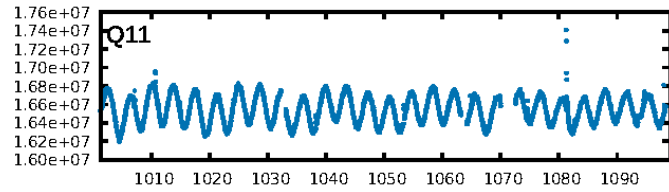
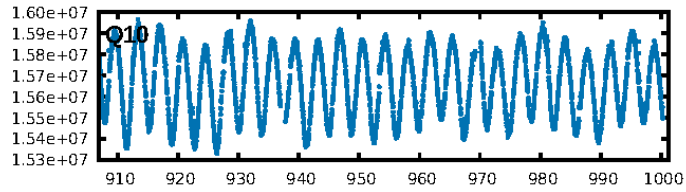
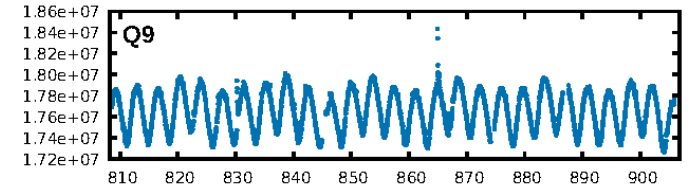
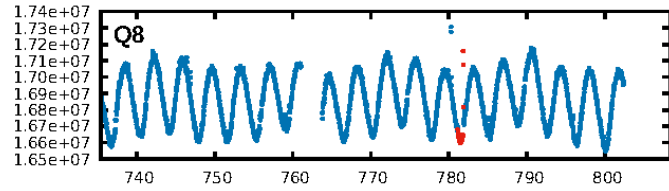
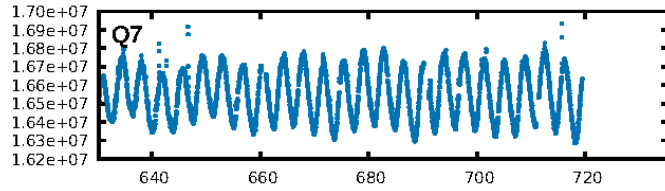
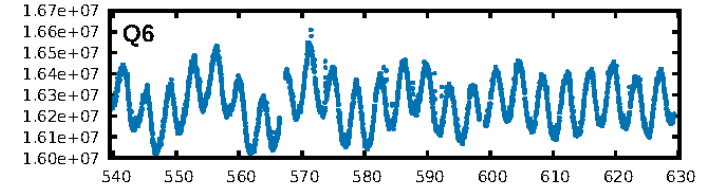
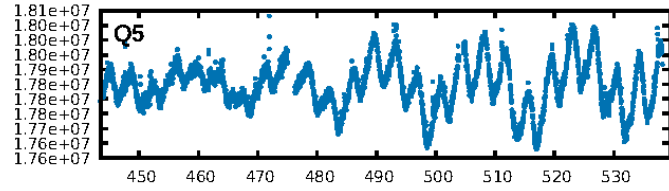
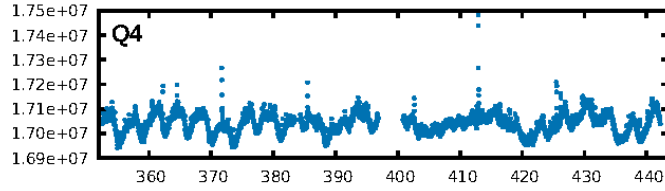
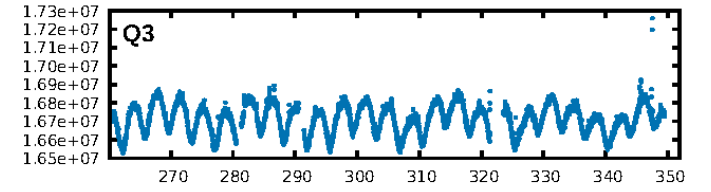
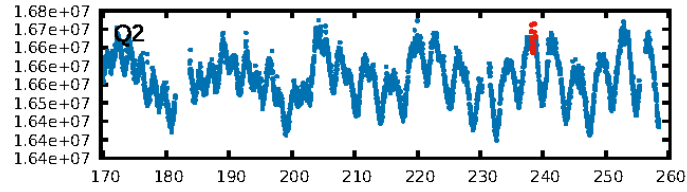
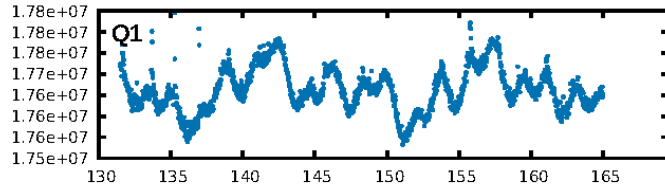
ShortPeriod-sig: 100.0% [86.72σ]
LongPeriod-sig: 100.0% [144.10σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.67e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 138.1

Centroid-sig: 49.7%
Centroid-so: 34.890 arcsec [0.78σ]
OotOffset-rm: 0.211 arcsec [0.37σ]
KicOffset-rm: 0.327 arcsec [0.65σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

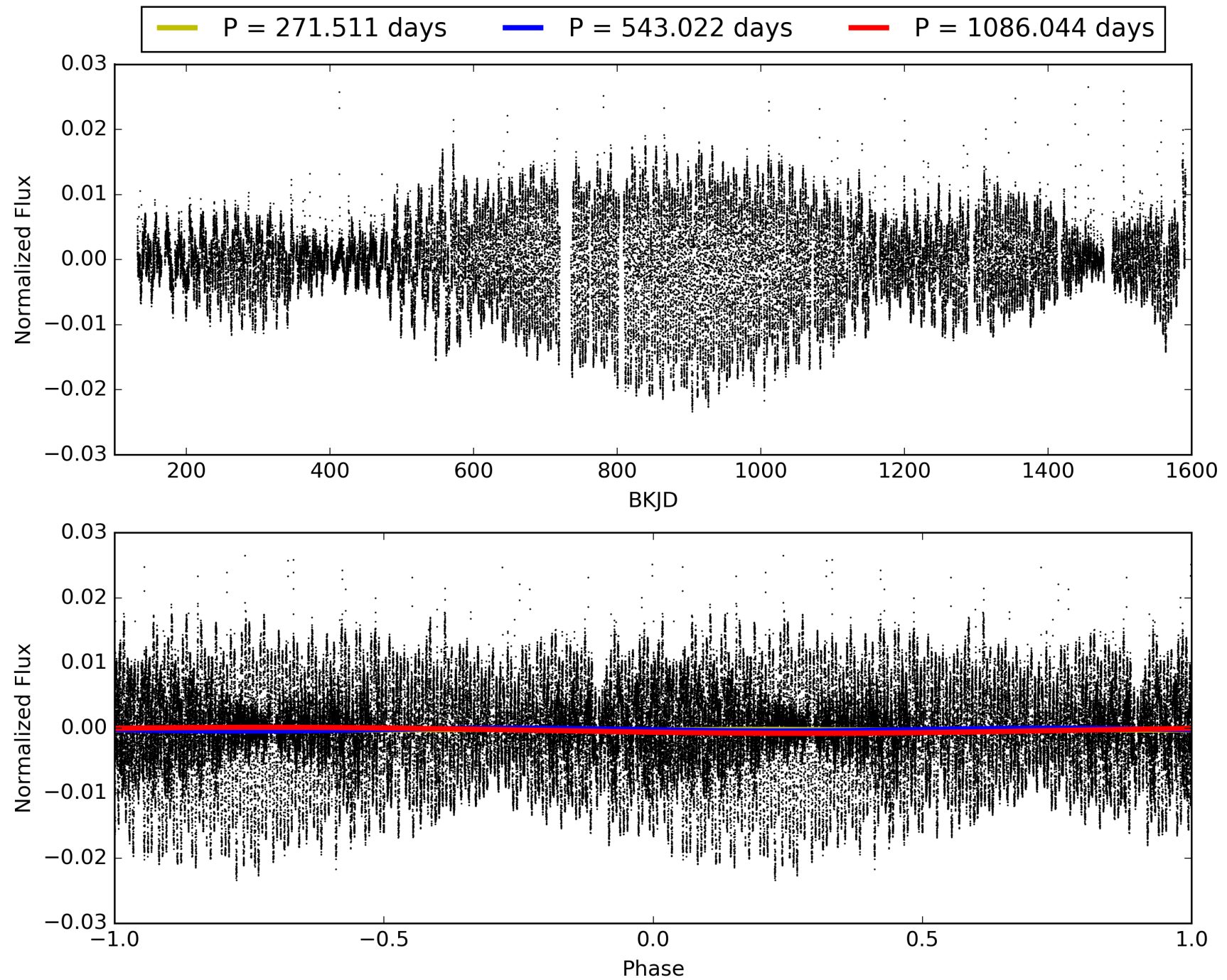
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:09:46 Z

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

TCE 008737443-04, PDC Light Curves

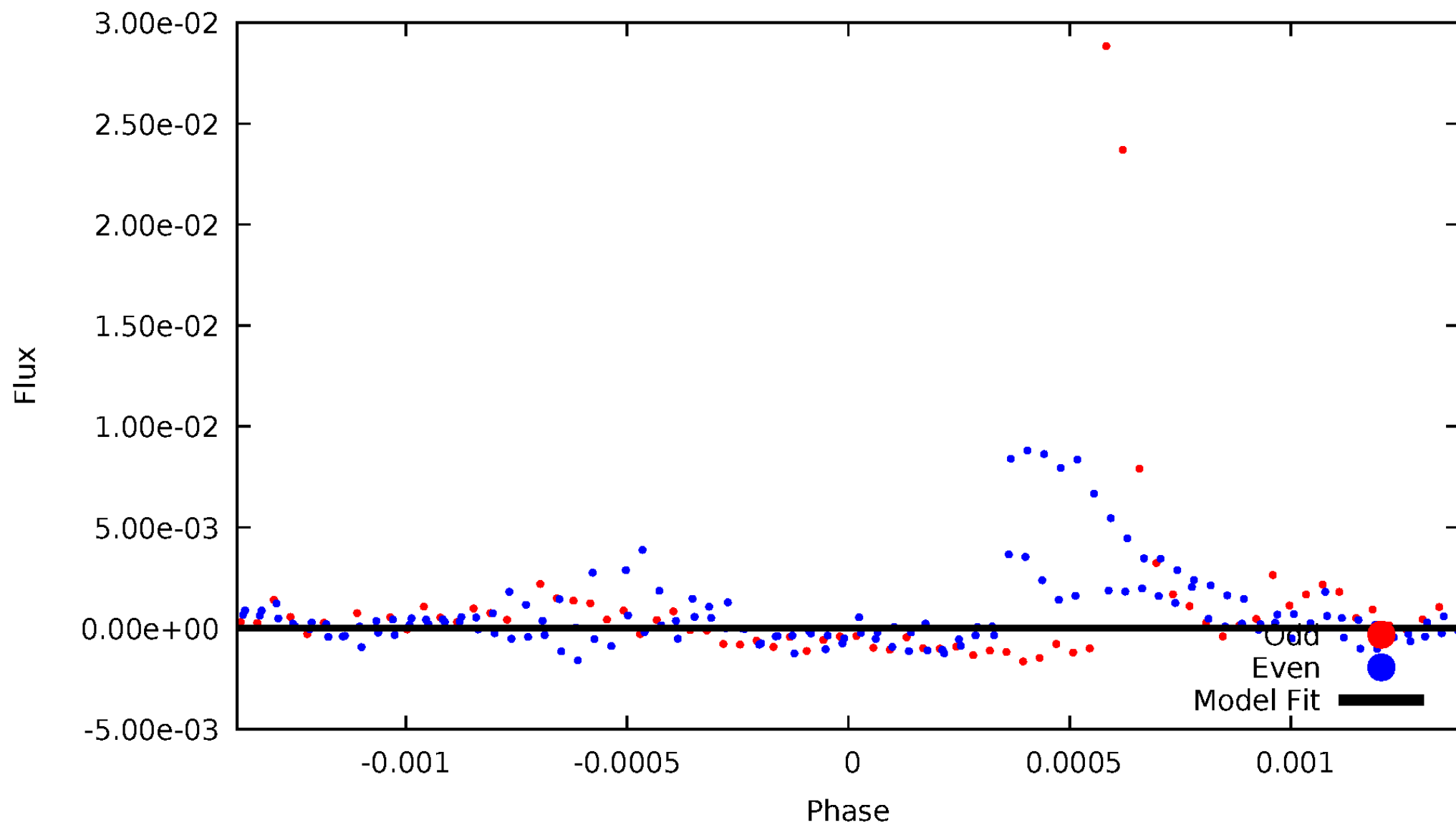


TCE 008737443-04



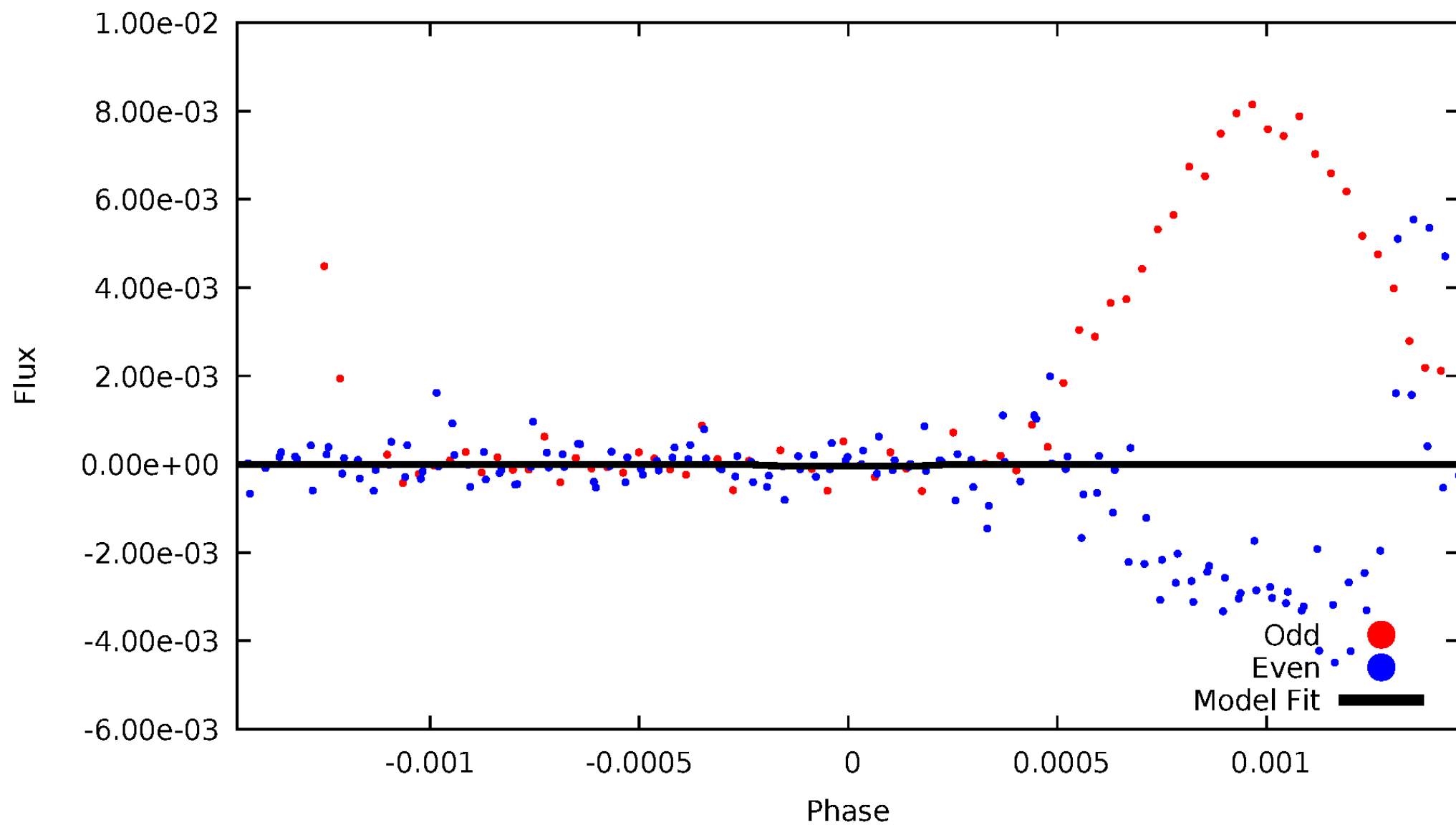
DV Odd/Even

TCE 008737443-04



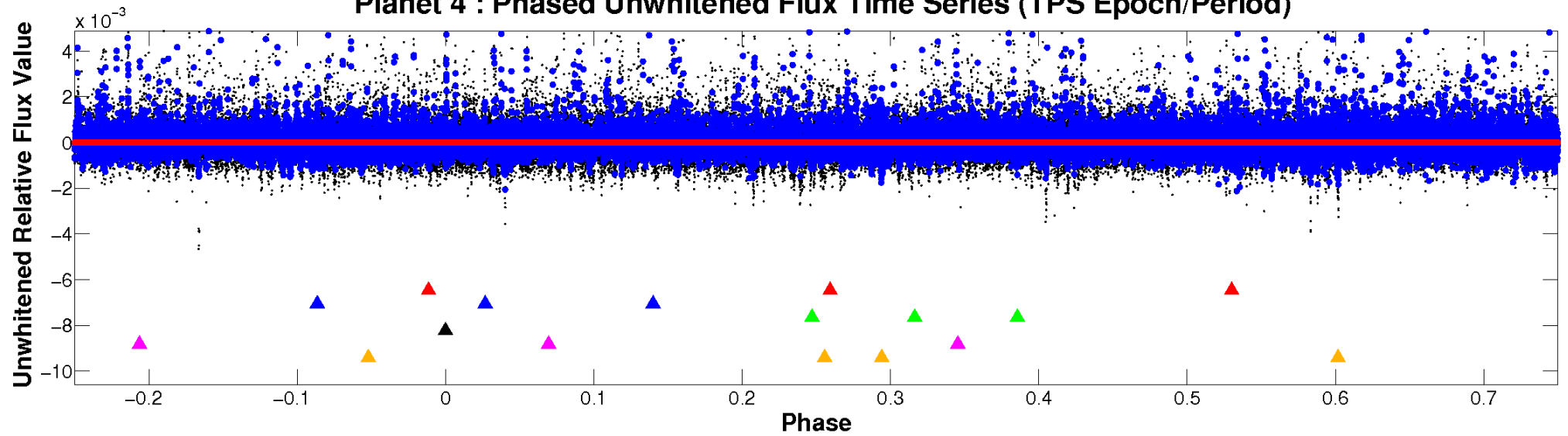
ALT Odd/Even

TCE 008737443-04



Non-Whitened Vs. Whitened Light Curve

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

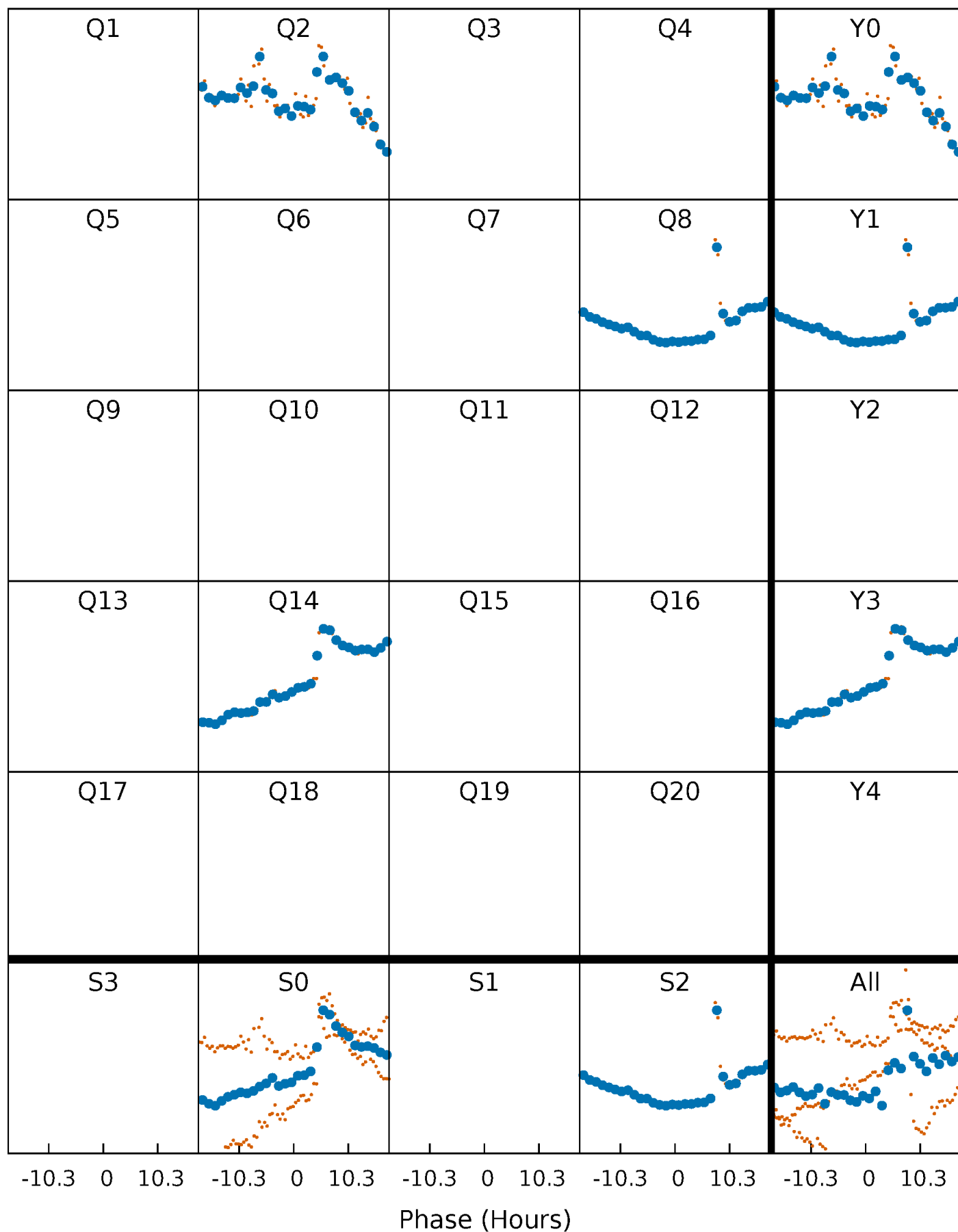


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



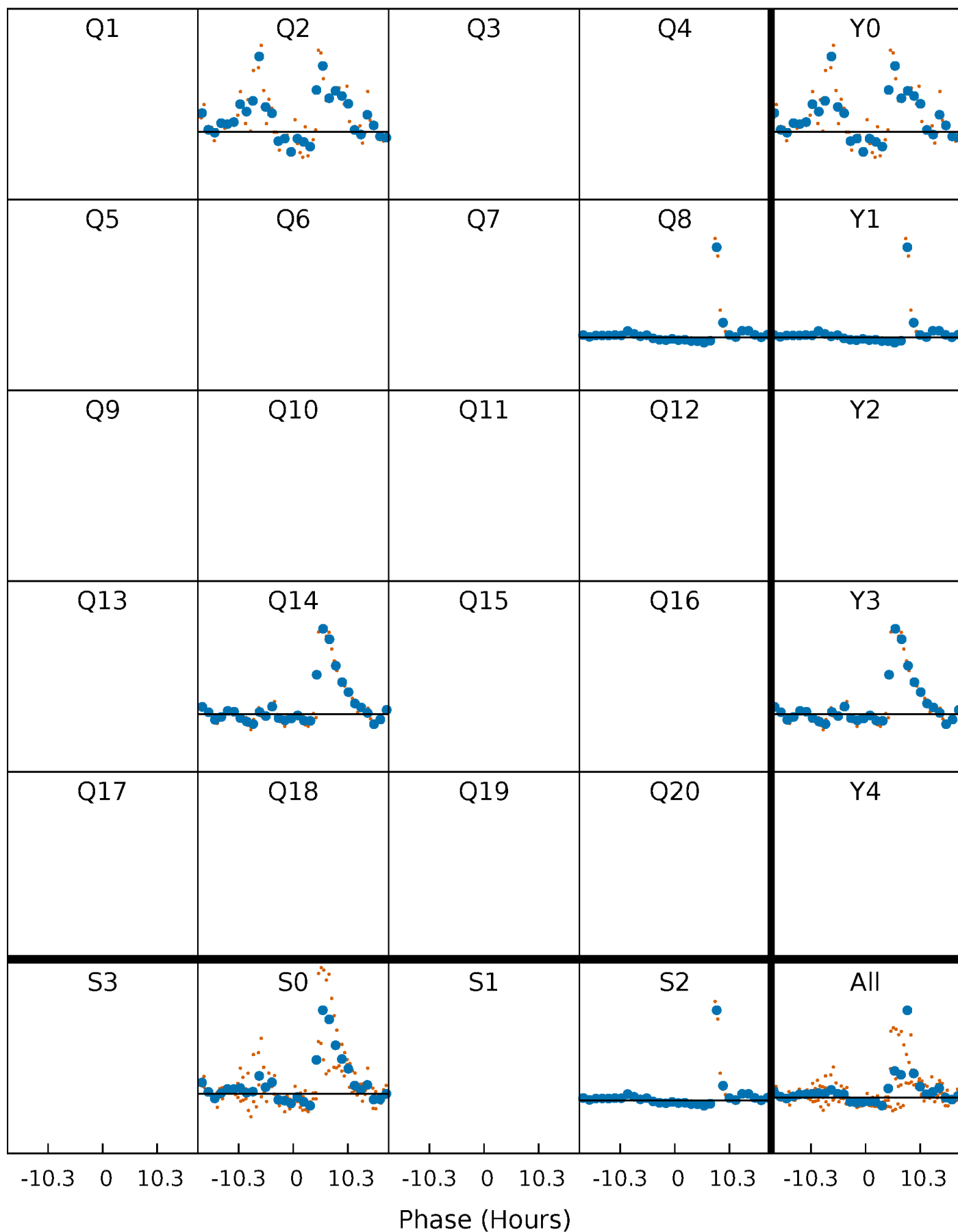
PDC Quarter-Phased Transit Curves

TCE 008737443-04 P=543.021857 Days $T_0=238.450030$ (BKJD)



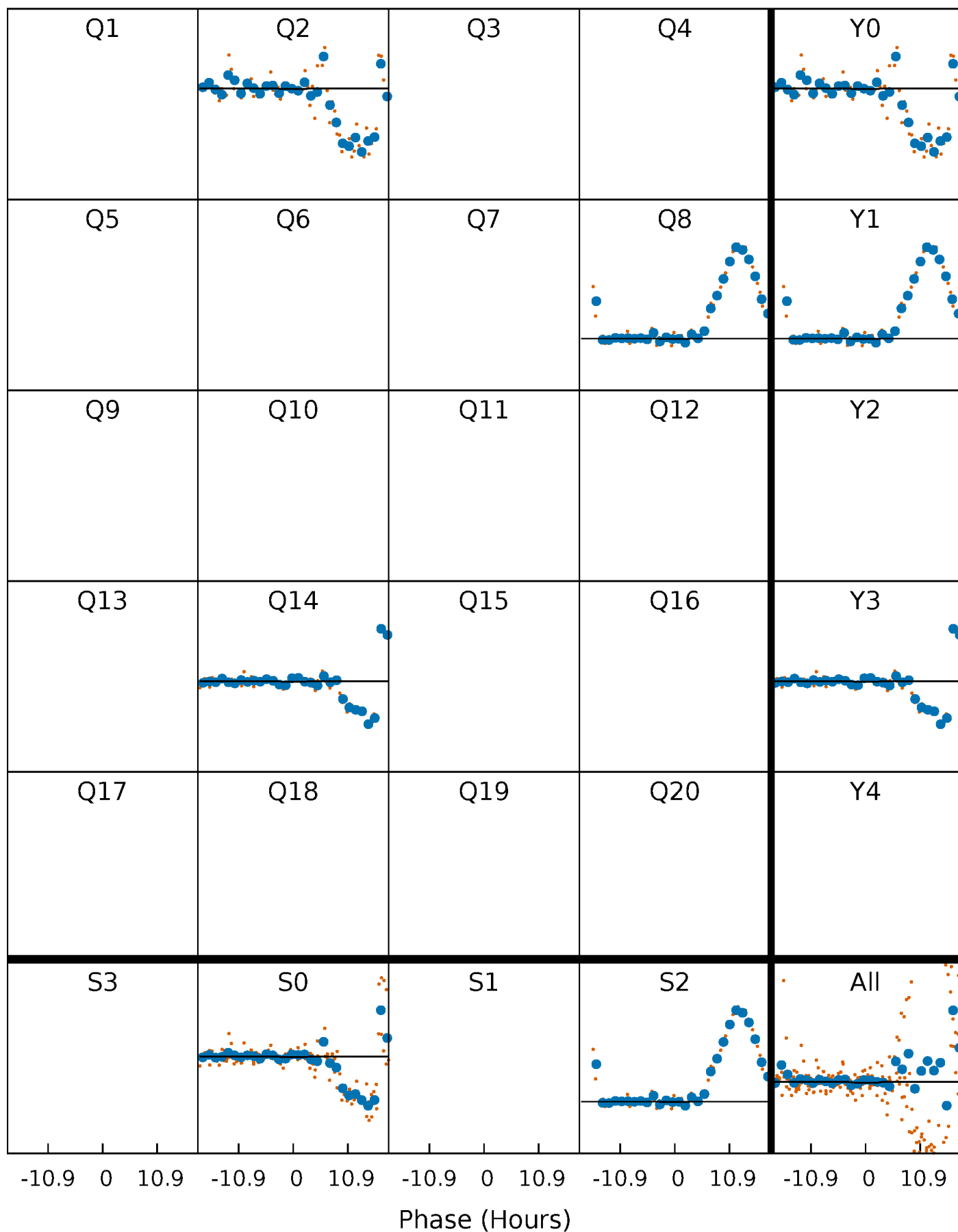
DV Quarter-Phased Transit Curves

TCE 008737443-04 $P=543.021857$ Days $T_0=238.450030$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

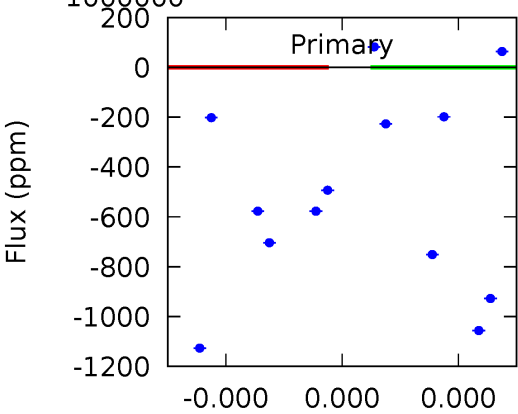
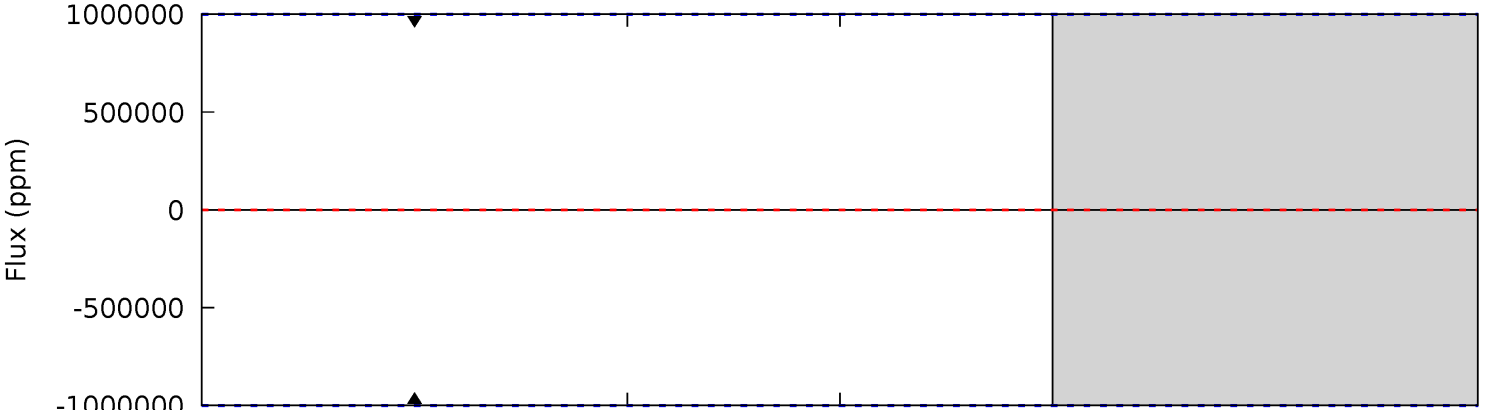
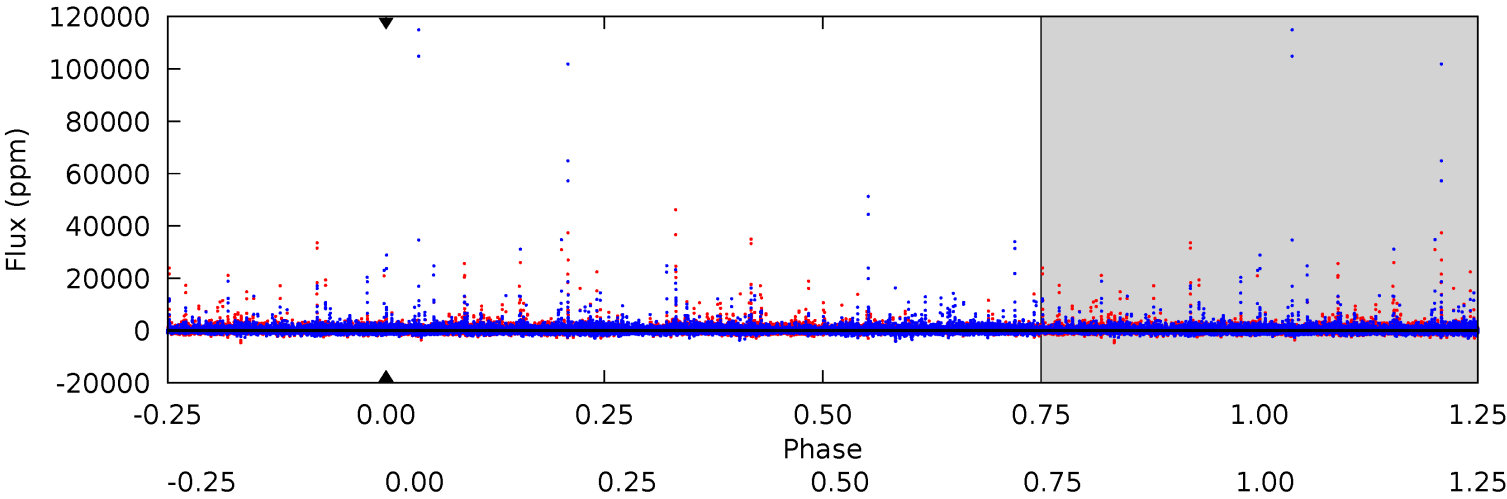
TCE 008737443-04 $P=543.021857$ Days $T_0=237.935483$ (BKJD)



DV Model-Shift Uniqueness Test

008737443-04, P = 543.021857 Days, E = 238.450030 Days

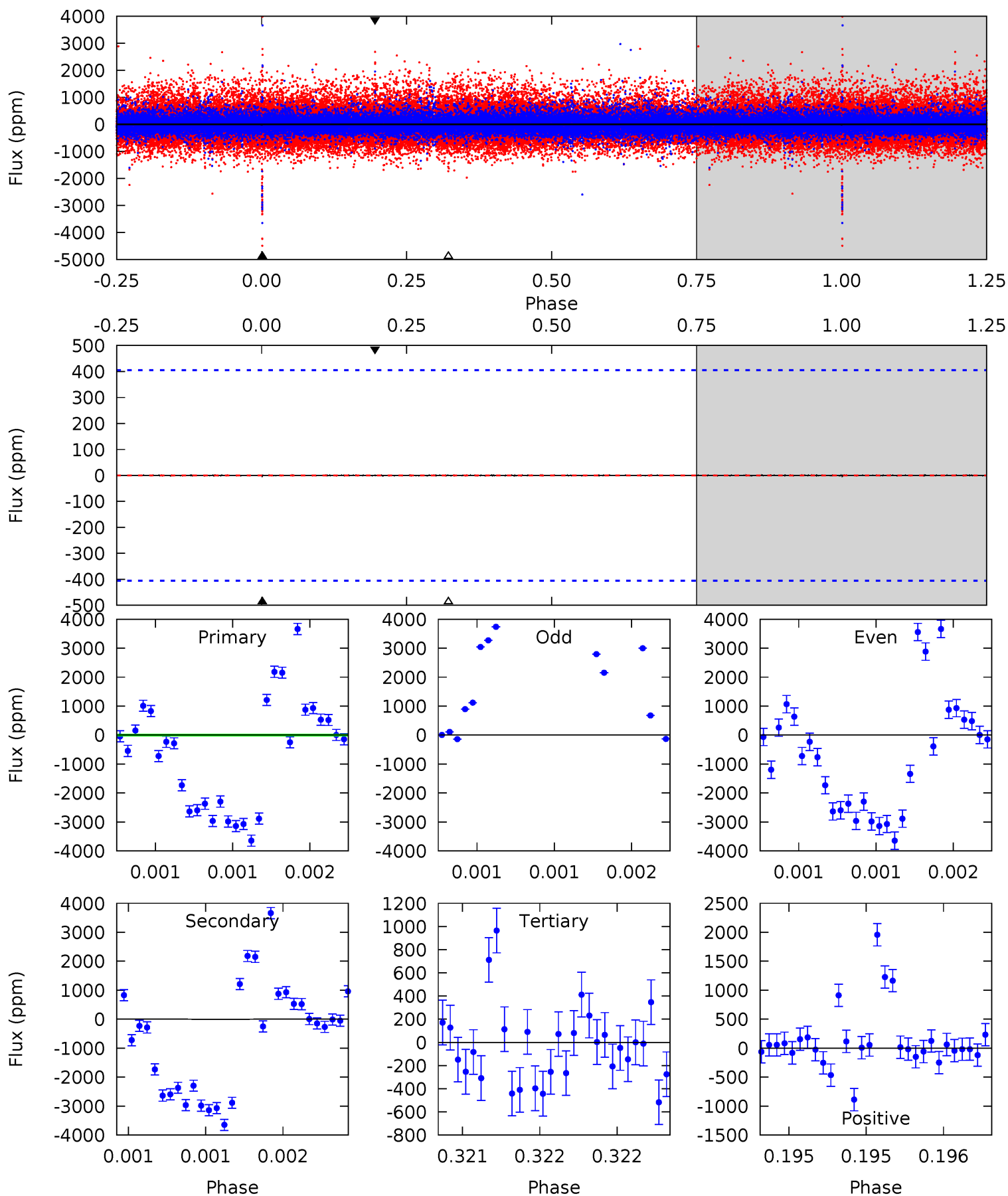
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008737443-04, P = 543.021857 Days, E = 237.935483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.07	0.04	0	0	5.56	3.47	0.00	0.07	0.07	0.04	0.04	0.25	-1.98	0.21	0.06



Stellar Parameters For KIC 008737443

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3435^{+55}_{-62}	$5.038^{+0.045}_{-0.050}$	$-0.400^{+0.100}_{-0.100}$	$0.244^{+0.039}_{-0.032}$	$0.236^{+0.049}_{-0.040}$	$22.990^{+6.638}_{-5.600}$
	+2%/-2%	+1%/-1%	+25%/-25%	+16%/-13%	+21%/-17%	+29%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008737443-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$2.27^{+2.27}_{-1.54}$	117^{+3}_{-3}	-2883^{+9686}_{-3446}	$-161431.482^{+14611240.093}_{-10047446.811}$
Alt.	-3 ± 73	$1.91^{+1.91}_{-1.30}$	117^{+3}_{-3}	-1425^{+3566}_{-704}	$-131.193^{+13036.691}_{-12010.067}$

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

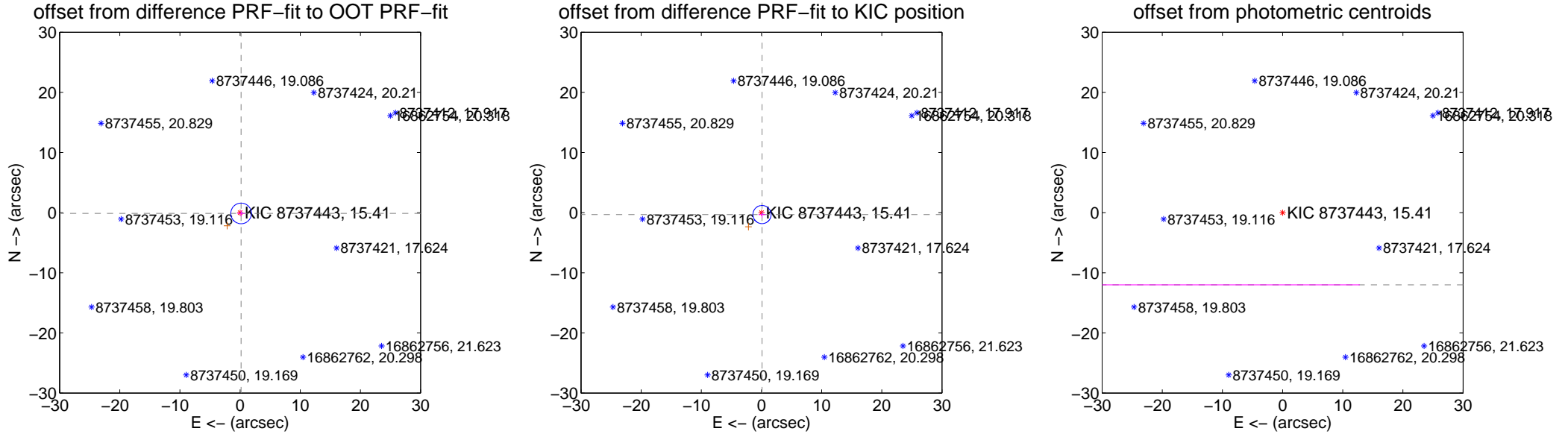
DV Centroid Data

Supplemental centroid analysis for 008737443-04. Kepler magnitude: 15.41. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

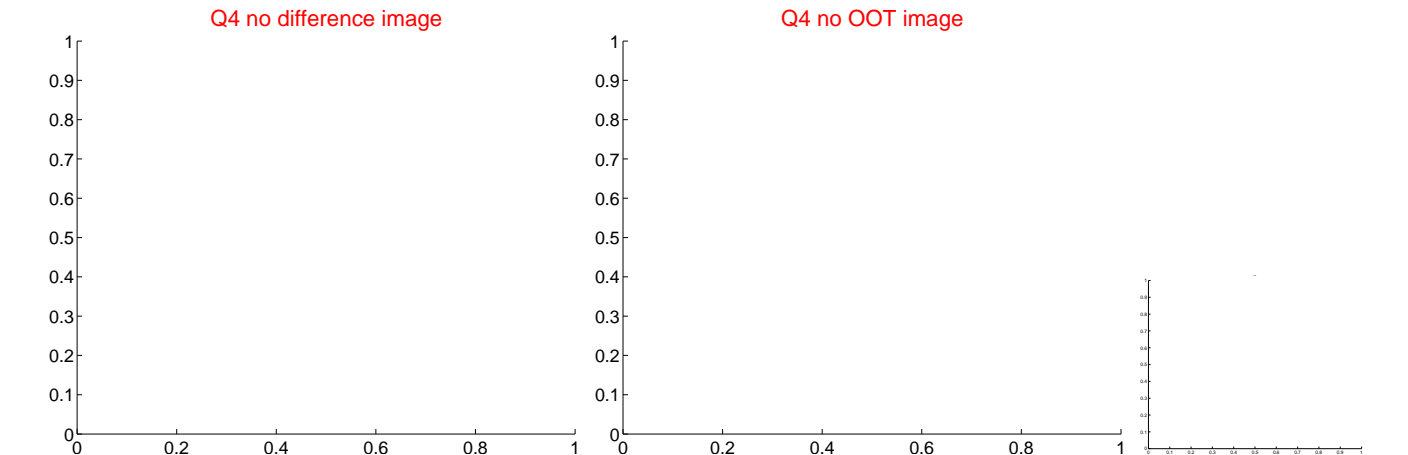
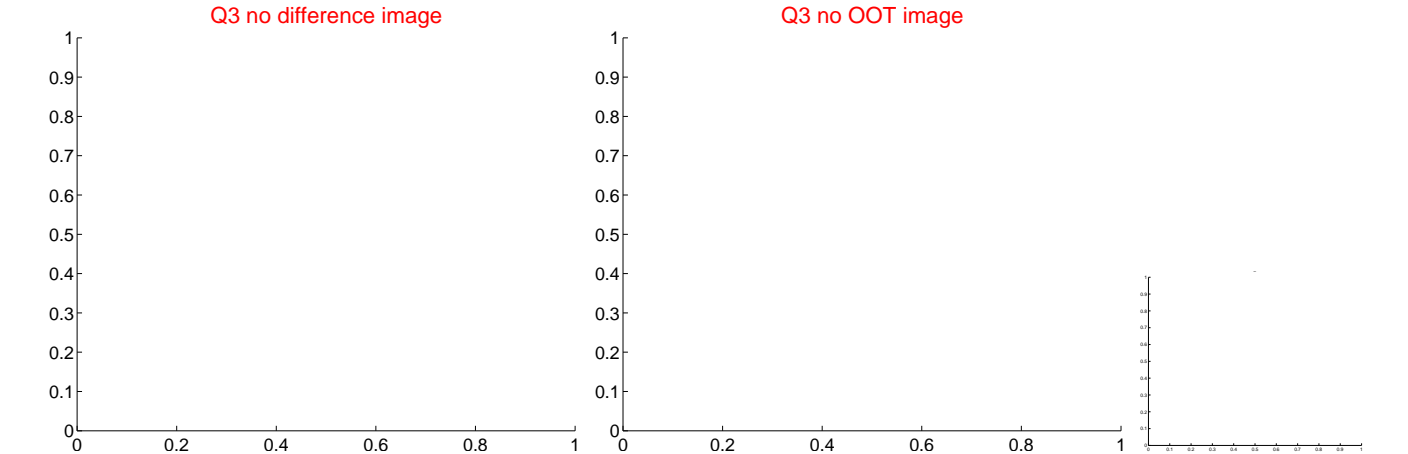
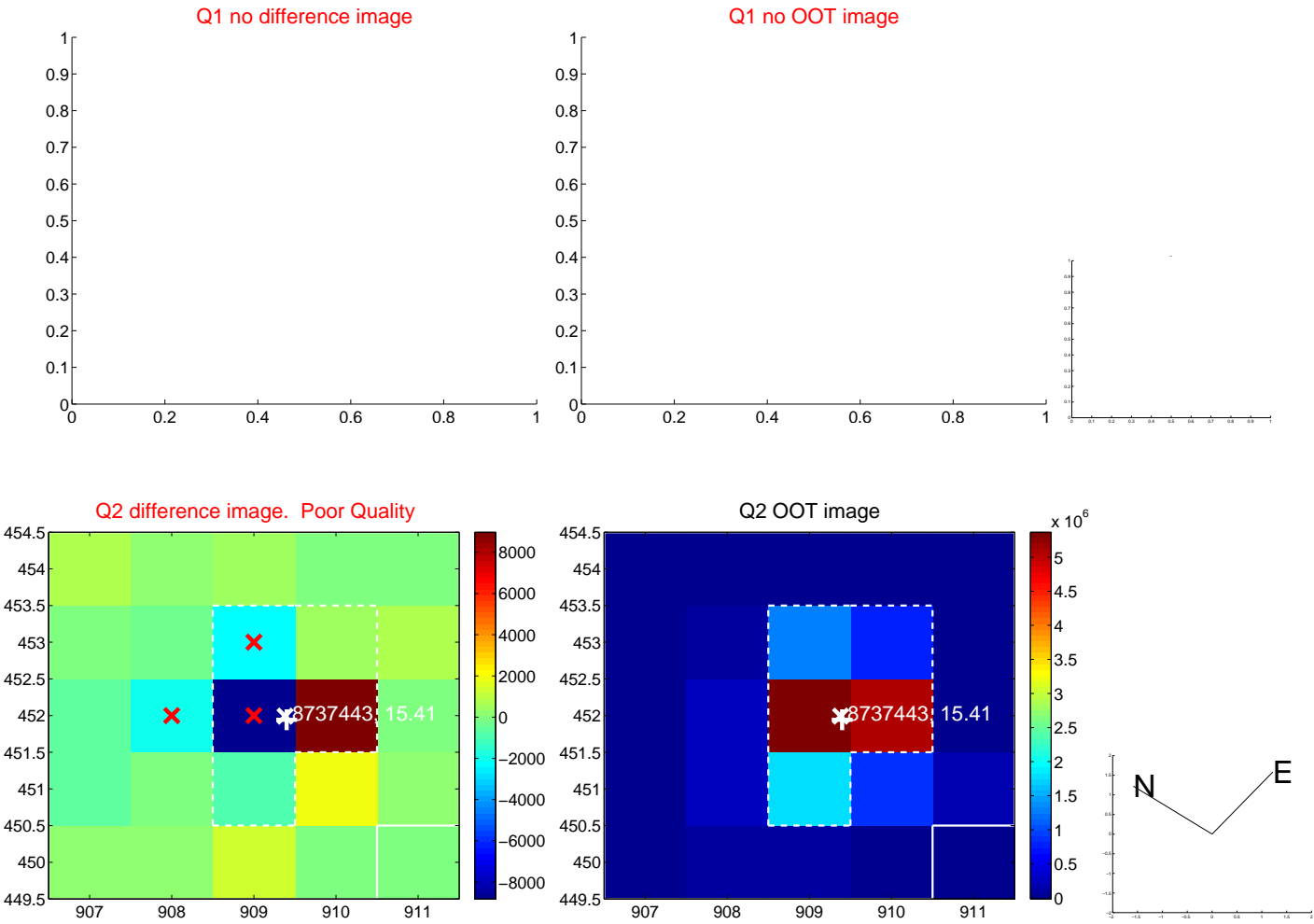
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.211 ± 0.571	0.37	-0.168 ± 0.608	-0.127 ± 0.500
PRF-fit source offset from KIC position	0.327 ± 0.503	0.65	-0.088 ± 0.591	-0.315 ± 0.496
photometric centroid source offset	34.89 ± 44.50	0.78	32.76 ± 45.58	-12.01 ± 35.38

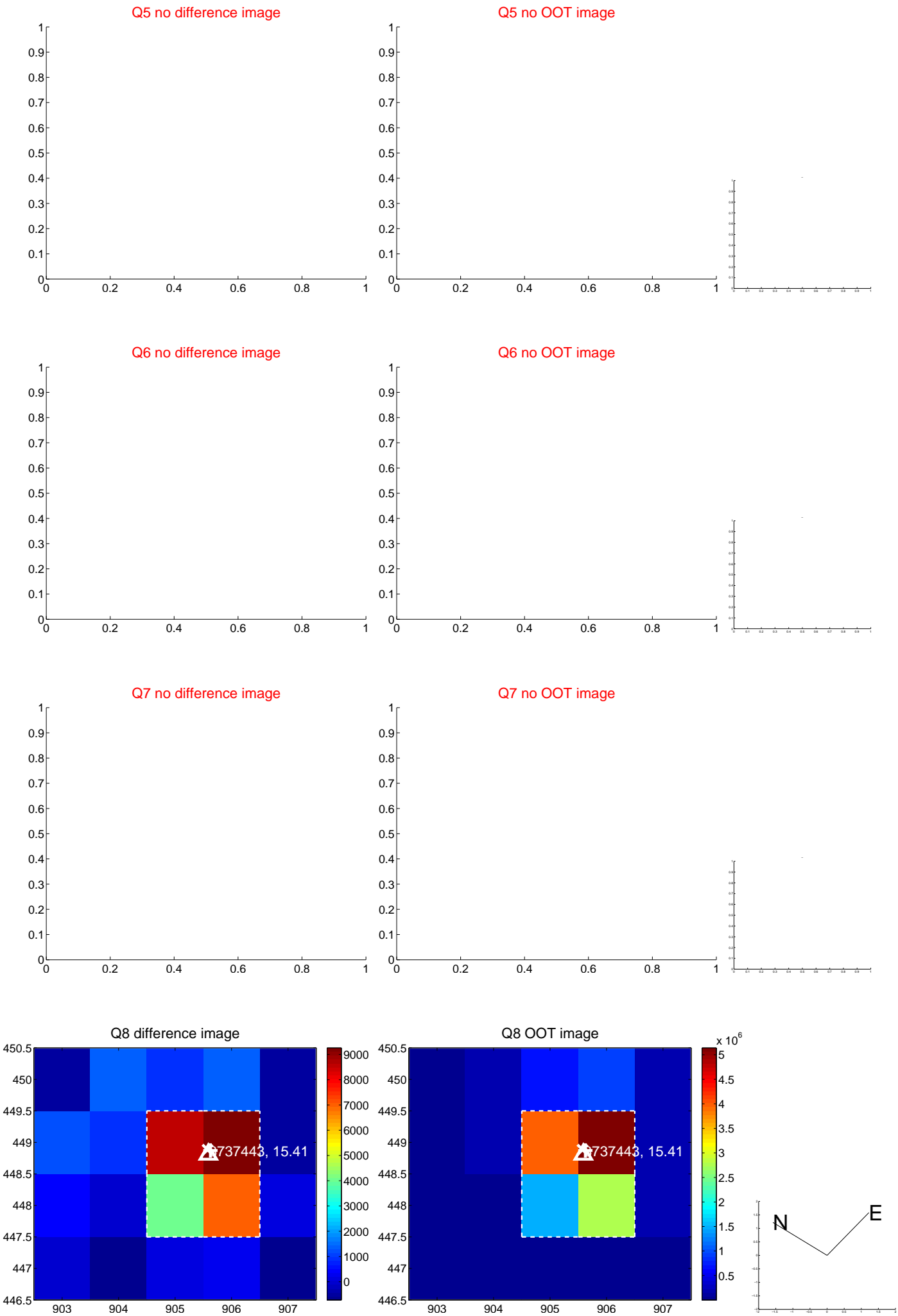


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



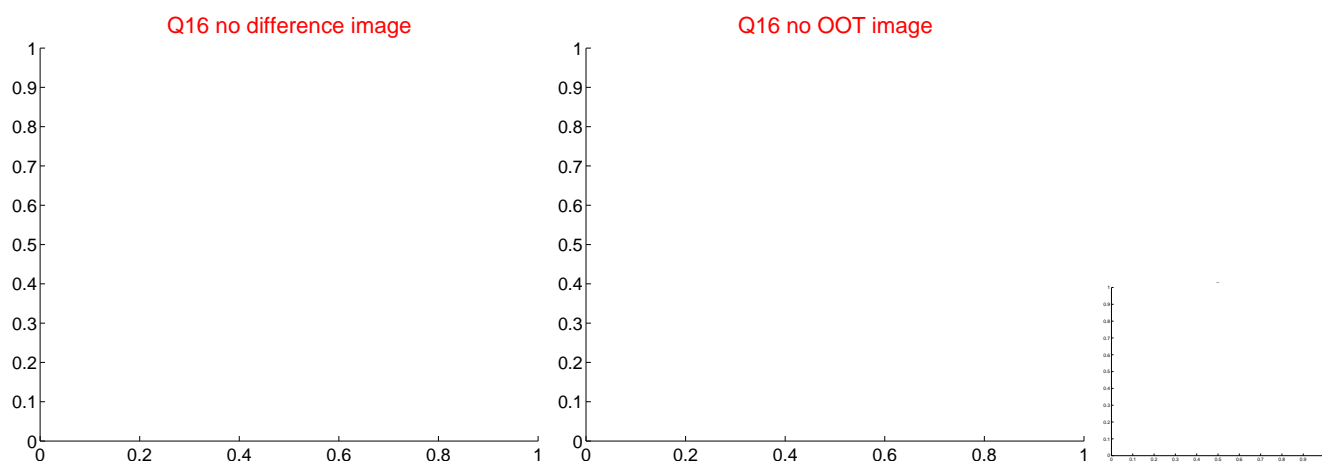
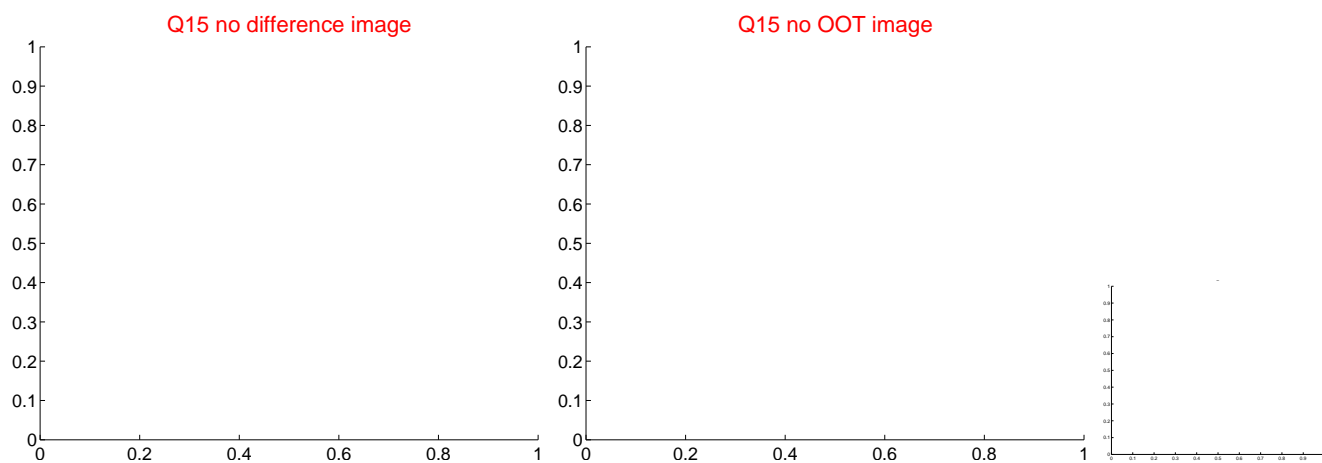
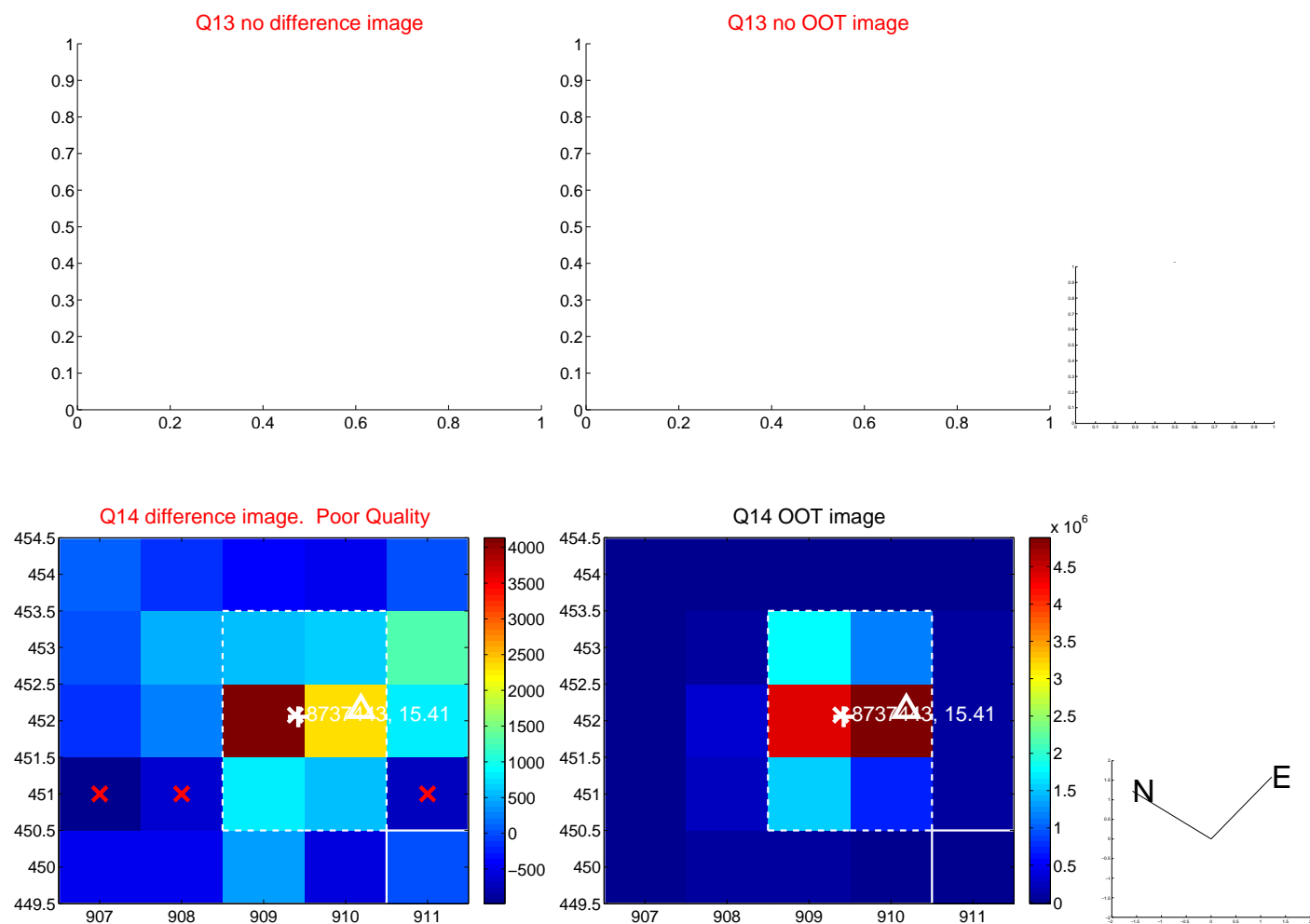
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



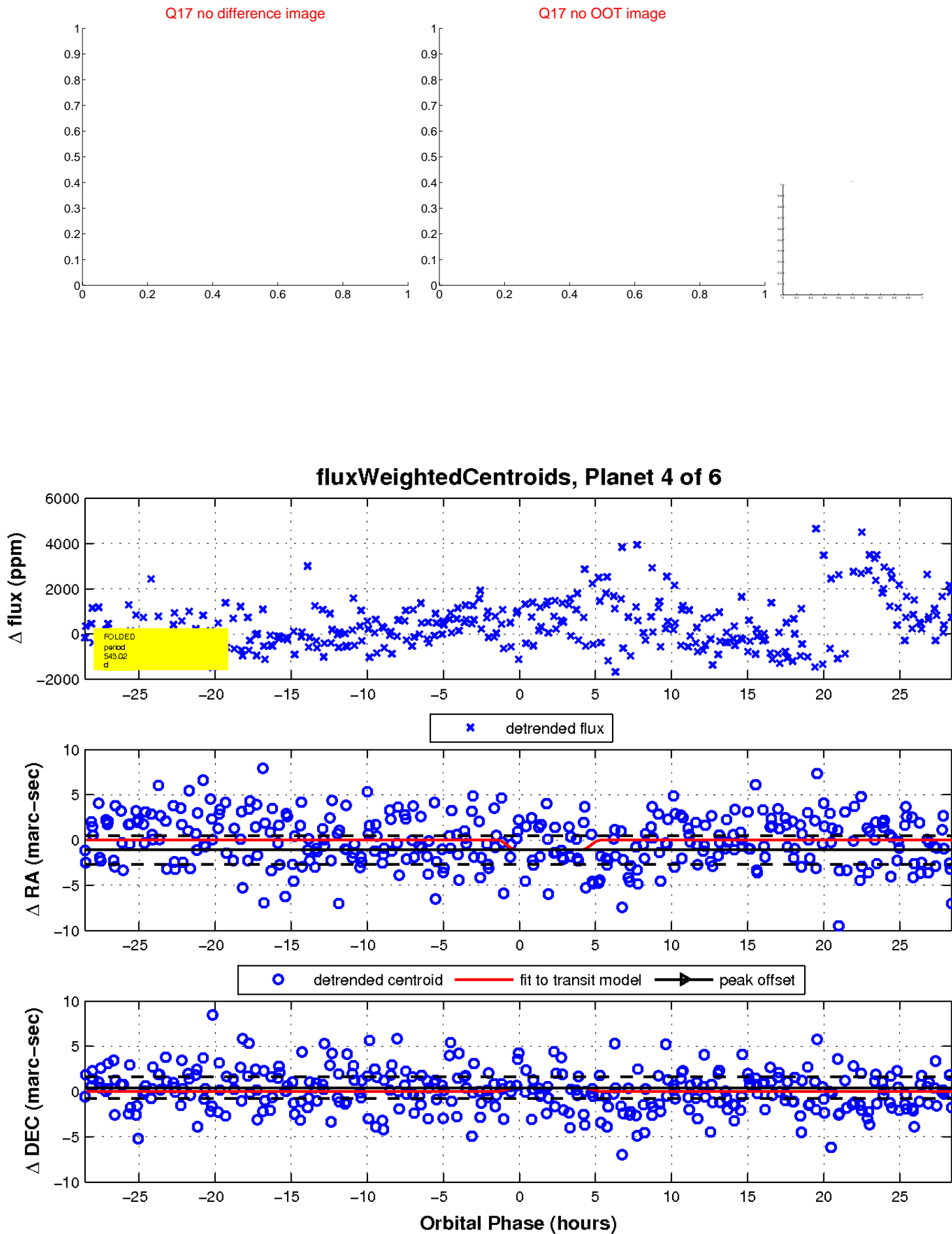
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

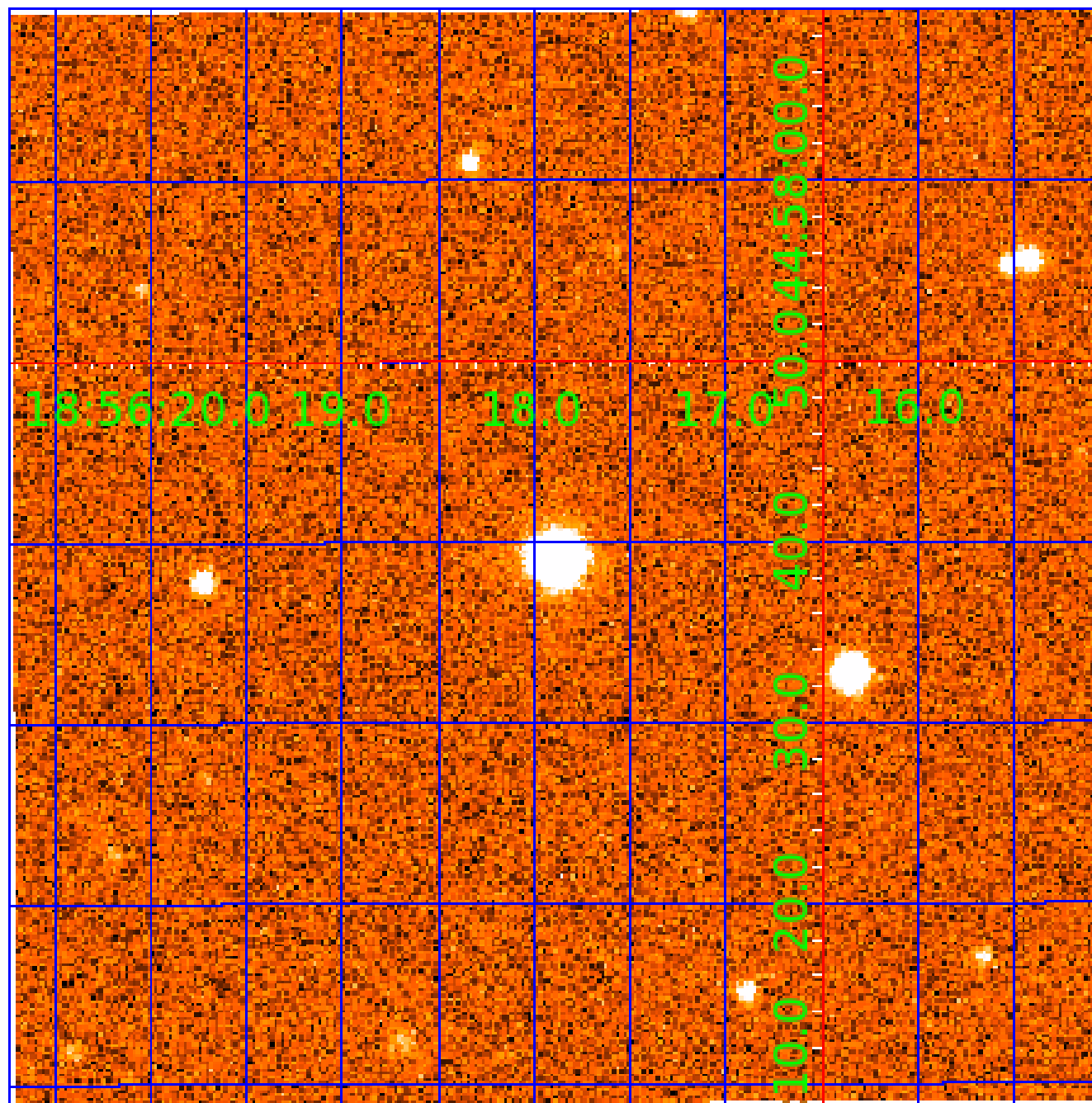


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008737443

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})
008737443-01	OBS	No	396.003874	526.291048	2260.3	2.496	12.6	8.7	0.24	3435	1.27	0.02
008737443-02	OBS	No	604.493923	191.514383	1320.6	4.881	12.5	6.8	0.24	3435	0.92	0.01
008737443-03	OBS	No	505.418659	447.832032	1925.5	5.226	13.2	7.9	0.24	3435	1.32	0.01
008737443-04	OBS	No	543.021857	238.450030	1309.1	9.000	12.8	-1.0	0.24	3435	0.88	0.01
008737443-05	OBS	No	393.217799	426.029958	1355.3	6.266	11.4	6.8	0.24	3435	0.93	0.02
008737443-06	OBS	No	355.042365	398.174521	1785.6	11.038	12.5	7.2	0.24	3435	1.03	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008737443-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008737443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS
008737443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
008737443-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

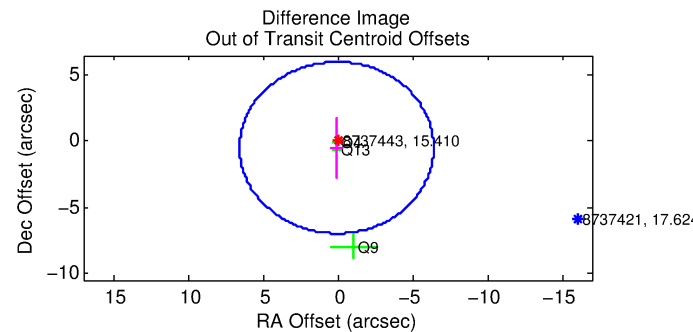
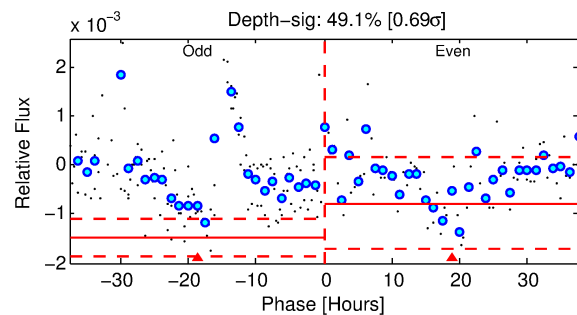
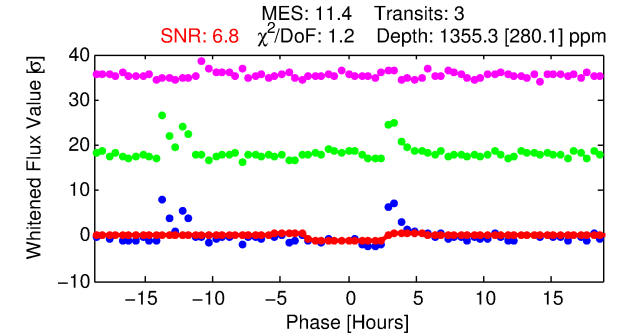
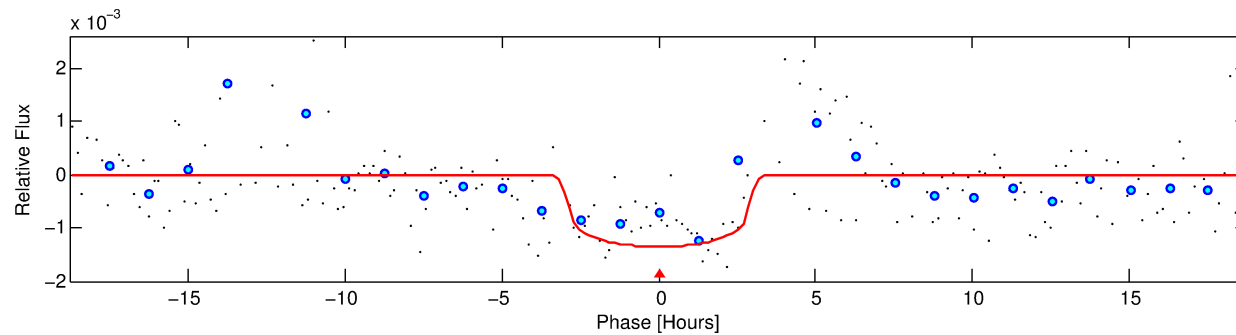
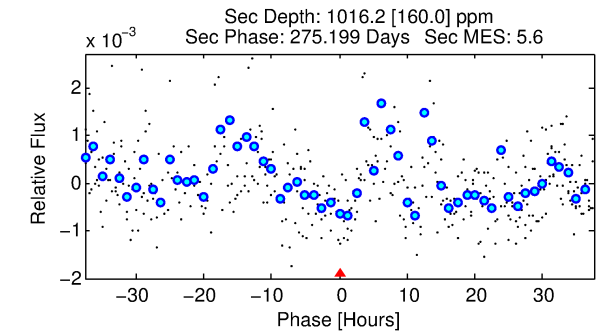
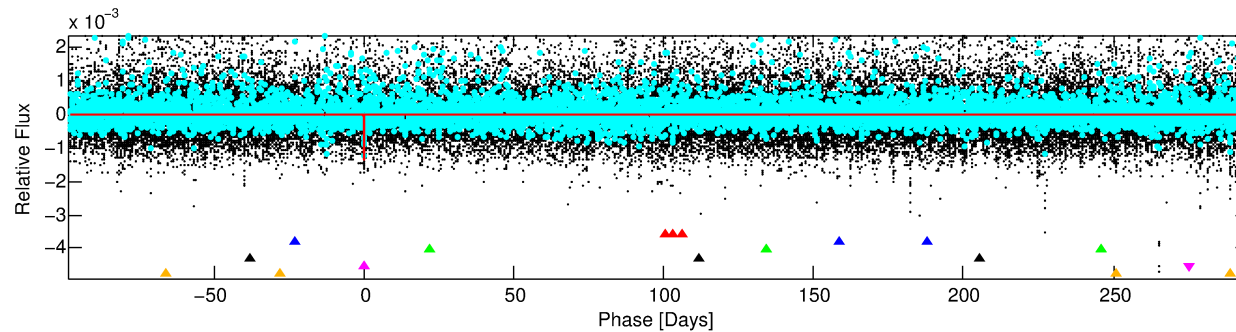
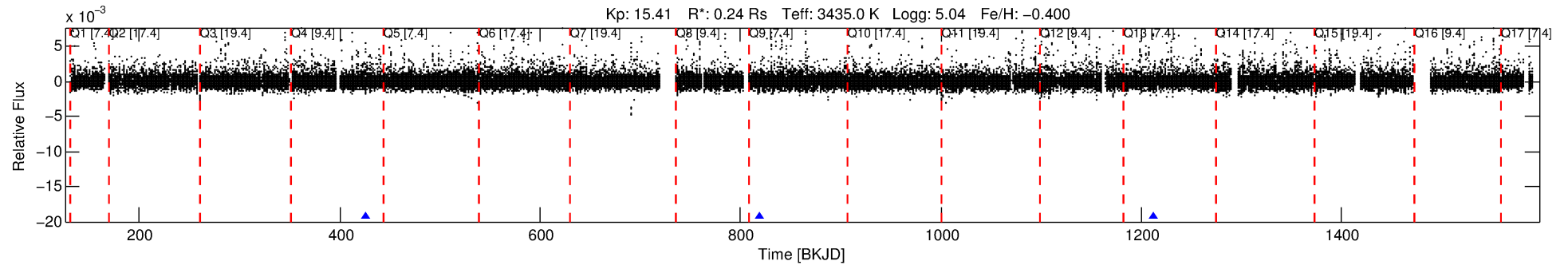
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008737443-05

No Significant Match Found

DV One-Page Summary

KIC: 8737443 Candidate: 5 of 6 Period: 393.218 d



DV Fit Results:

Period = 393.21780 [0.00951] d
Epoch = 426.0300 [0.0148] BKJD
Rp/R* = 0.0347 [0.0260]
a/R* = 424.66 [1493.33]
b = 0.53 [4.69]
Seff = 0.02 [0.00]
Teq = 93 [3] K
Rp = 0.93 [0.71] Re
a = 0.6502 [0.0736] AU
Ag = 276143.31 [417927.06] [0.66 σ]
Teffp = 3290 [1242] K [2.58 σ]

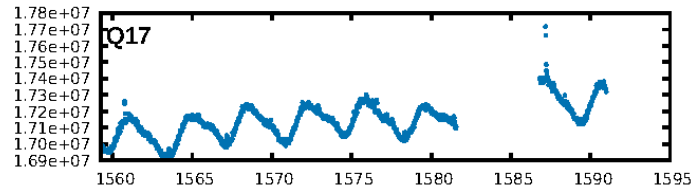
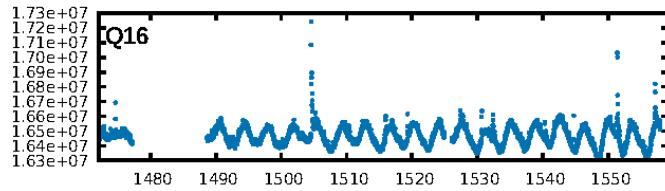
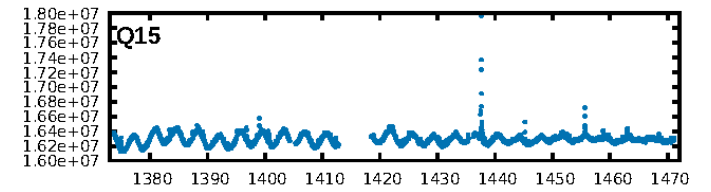
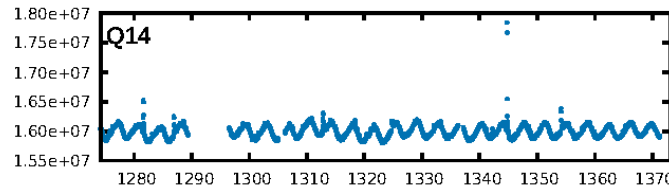
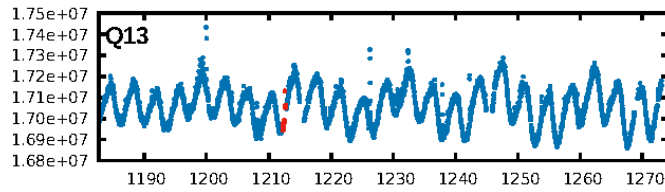
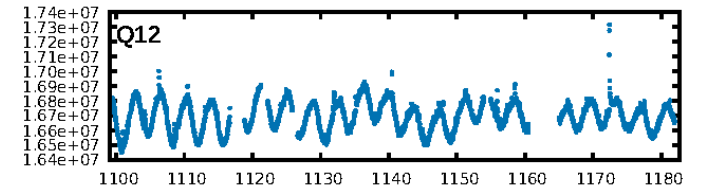
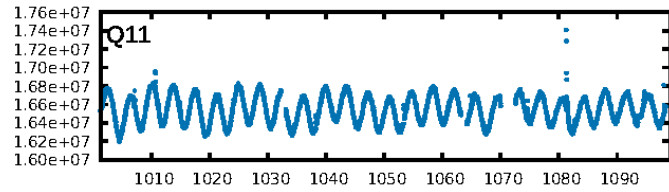
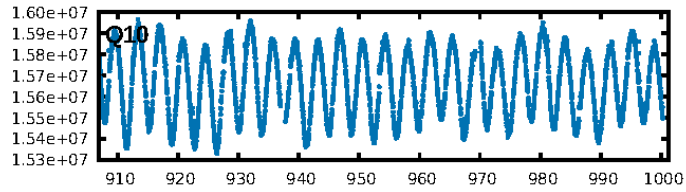
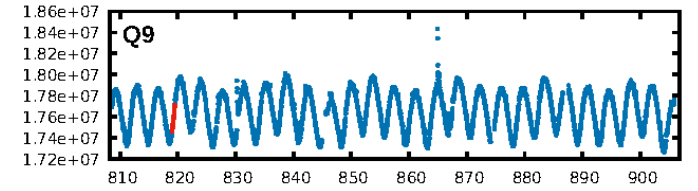
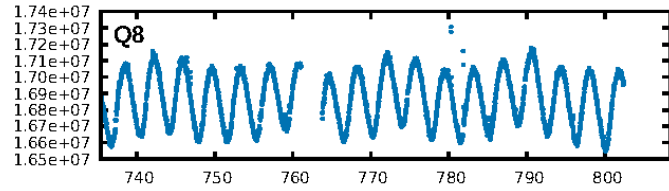
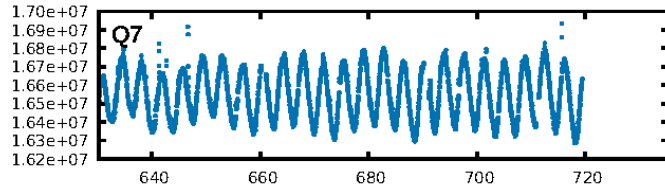
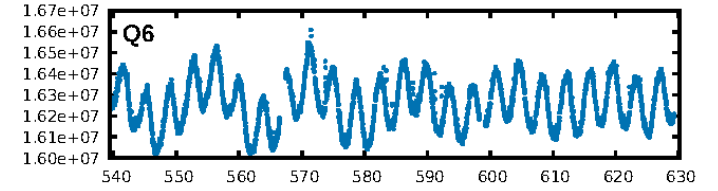
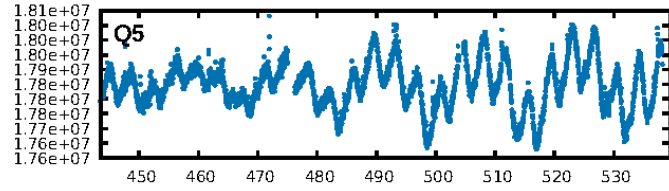
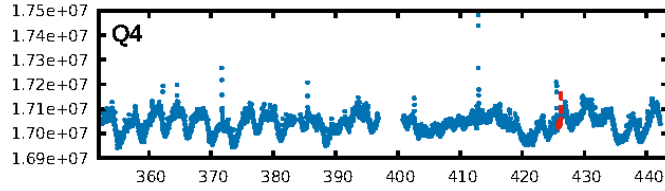
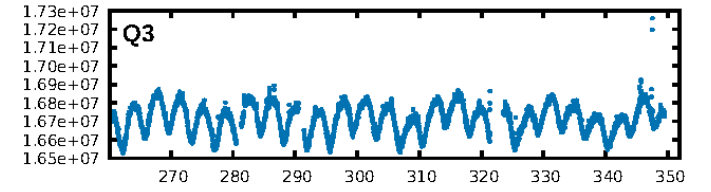
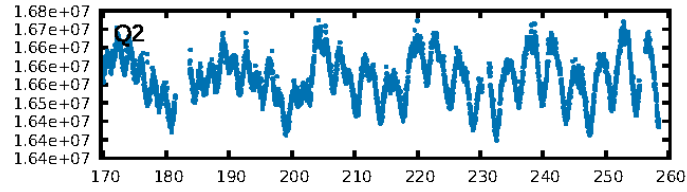
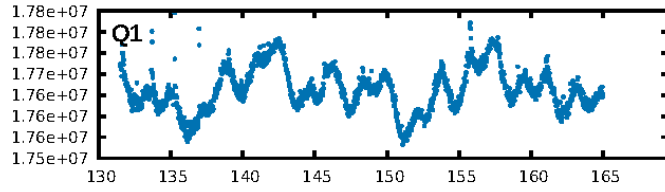
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [72.19 σ]
LongPeriod-sig: 100.0% [9.91 σ]
ModelChiSquare2-sig: 55.7%
ModelChiSquareGof-sig: 97.9%
Bootstrap-pfa: 1.63e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.916
Centroid-sig: 57.6%
Centroid-so: 0.644 arcsec [0.68 σ]
OotOffset-rm: 0.497 arcsec [0.23 σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-rm: 0.535 arcsec [0.30 σ]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

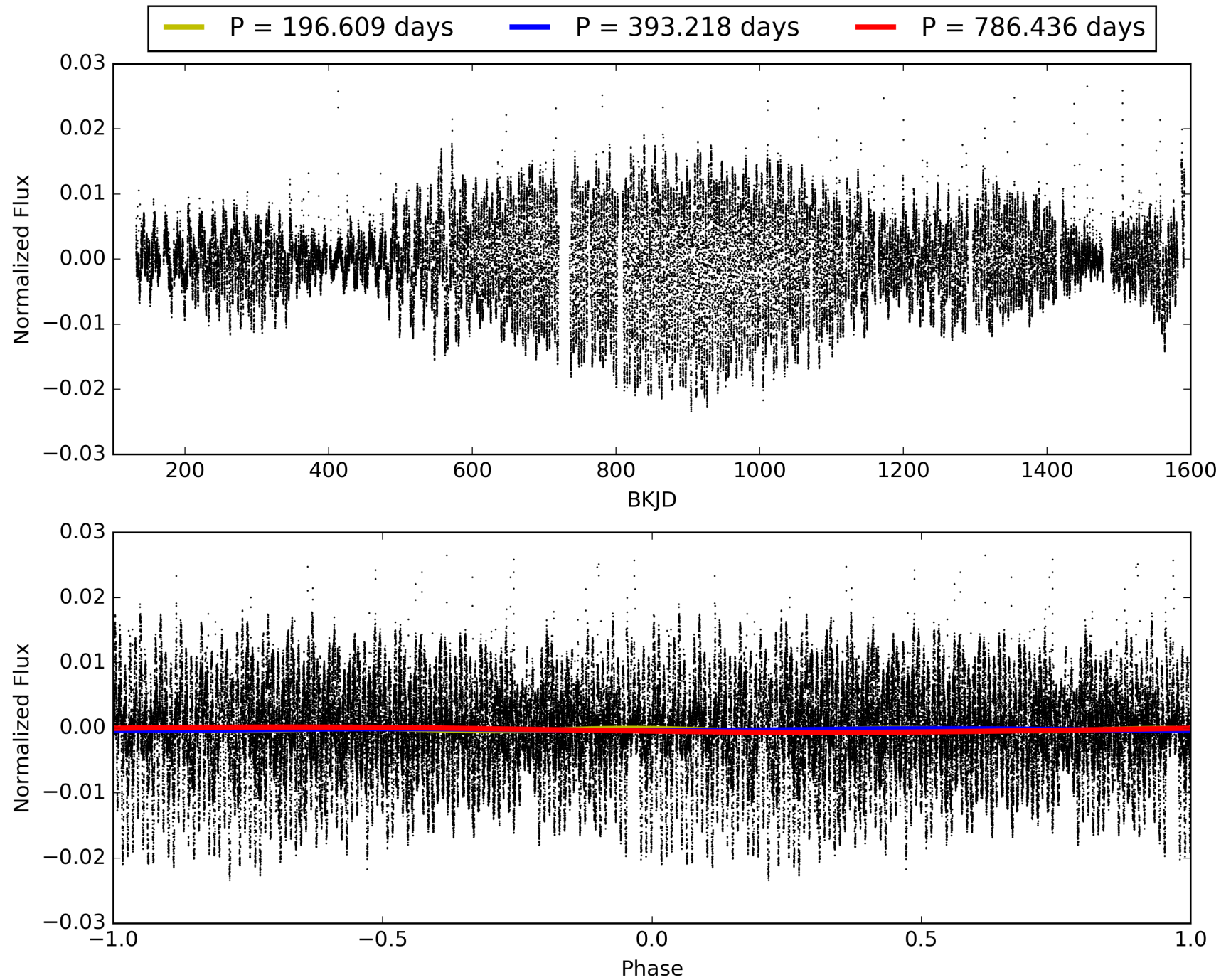
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:09:58 Z

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

TCE 008737443-05, PDC Light Curves

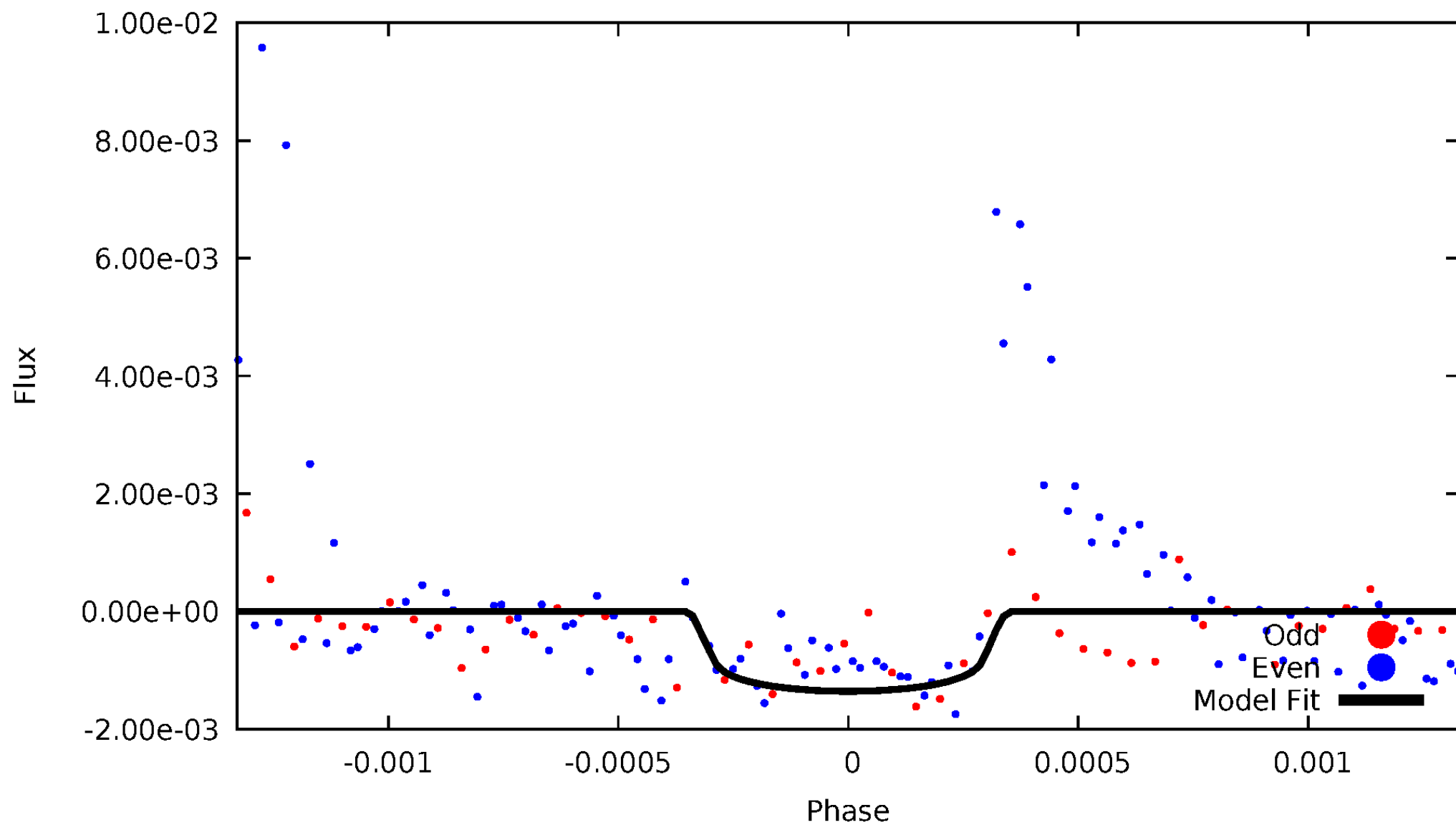


TCE 008737443-05



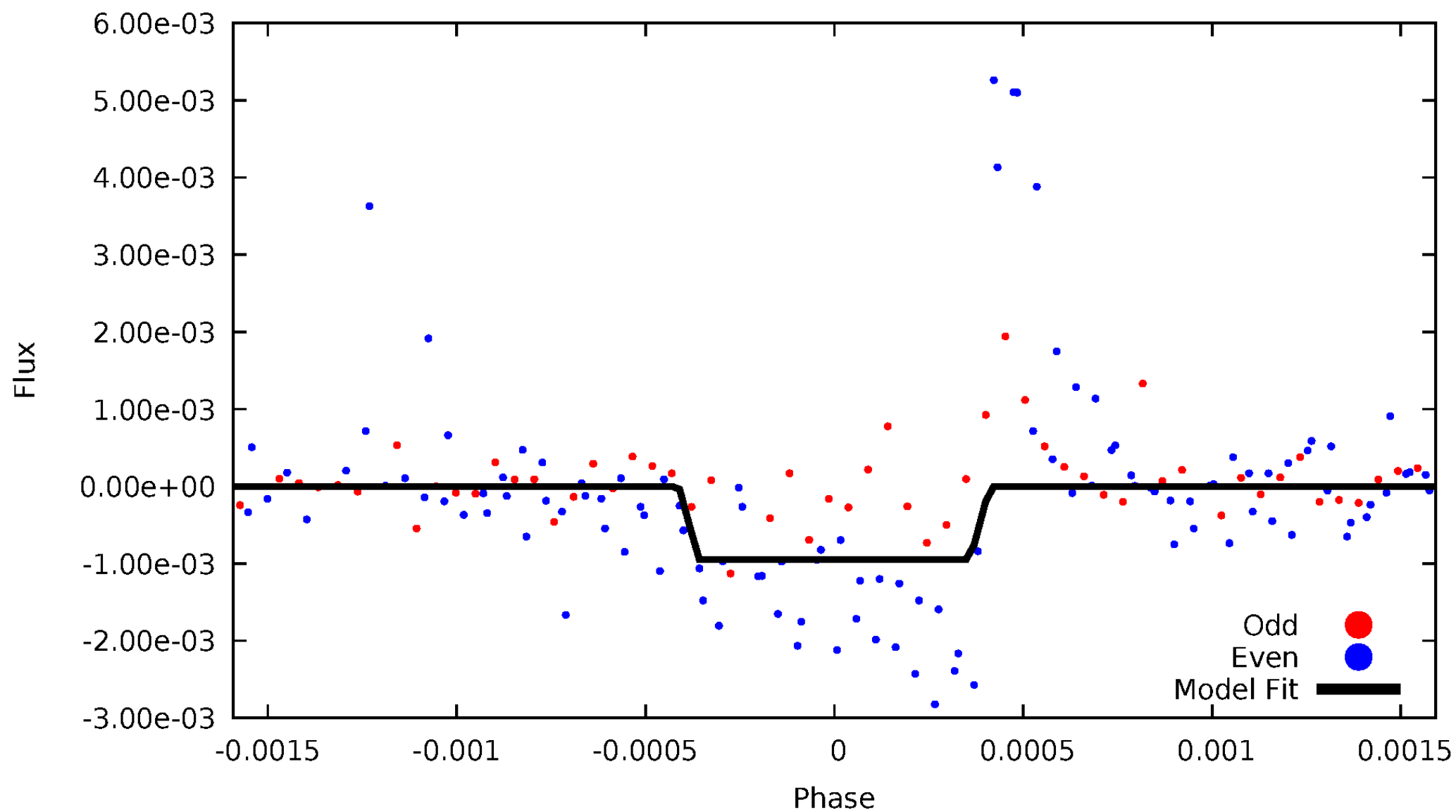
DV Odd/Even

TCE 008737443-05



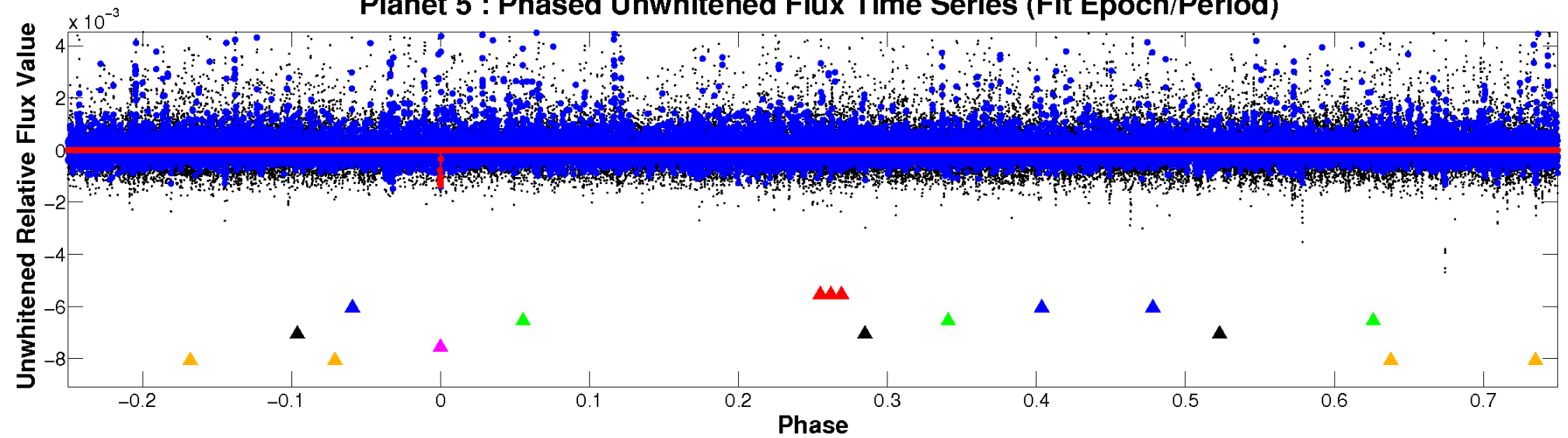
ALT Odd/Even

TCE 008737443-05

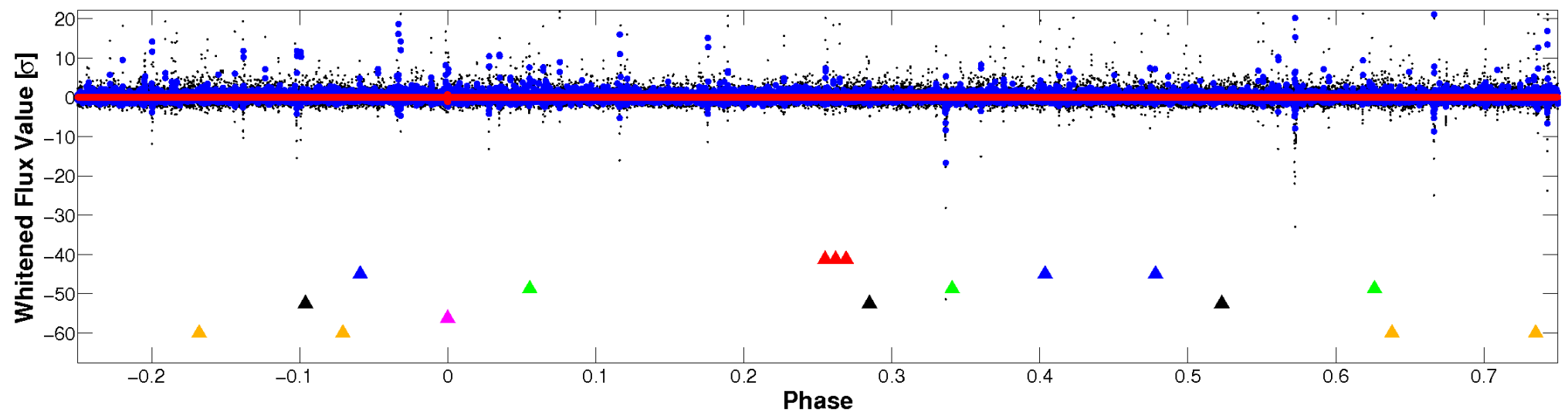


Non-Whitened Vs. Whitened Light Curve

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

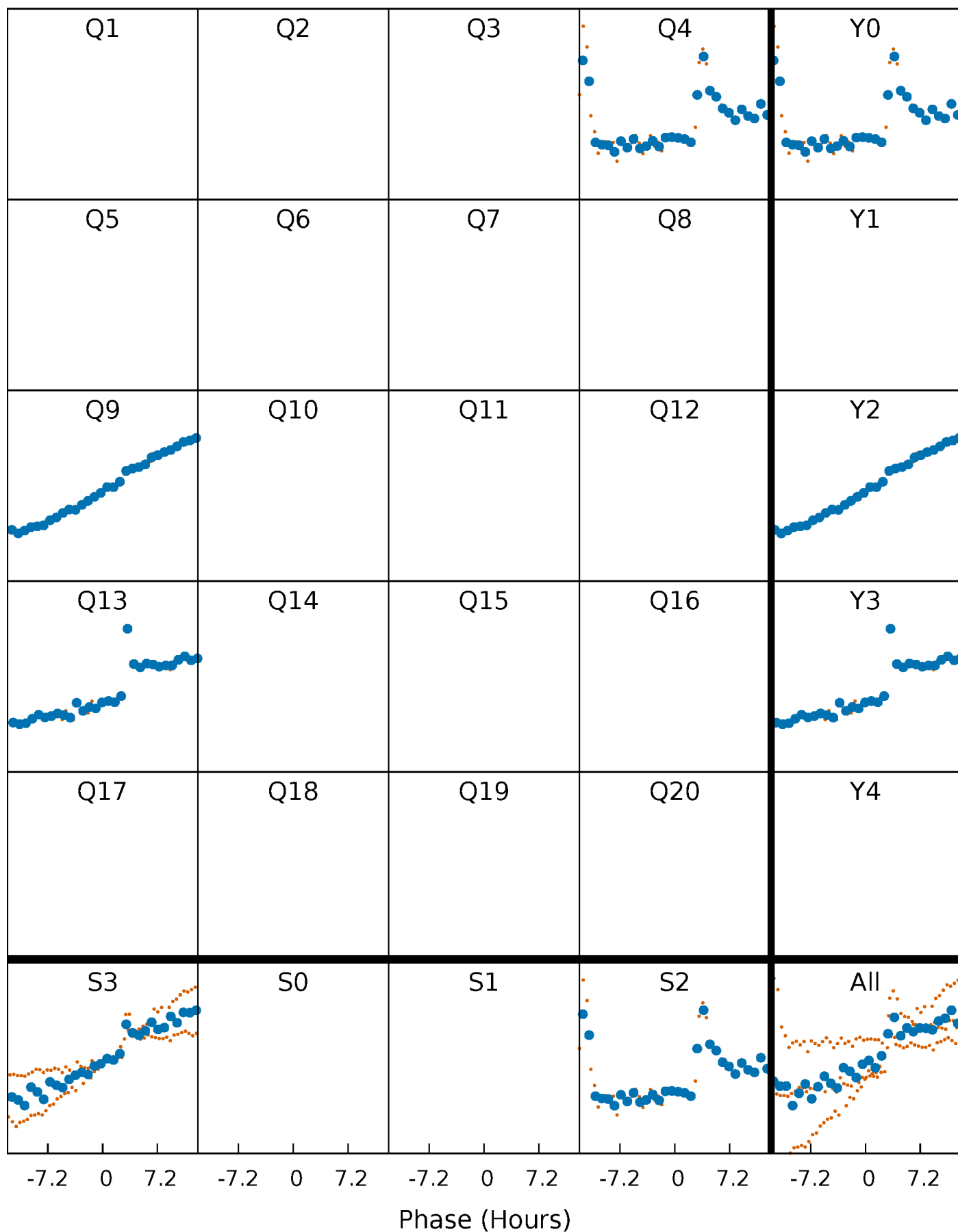


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



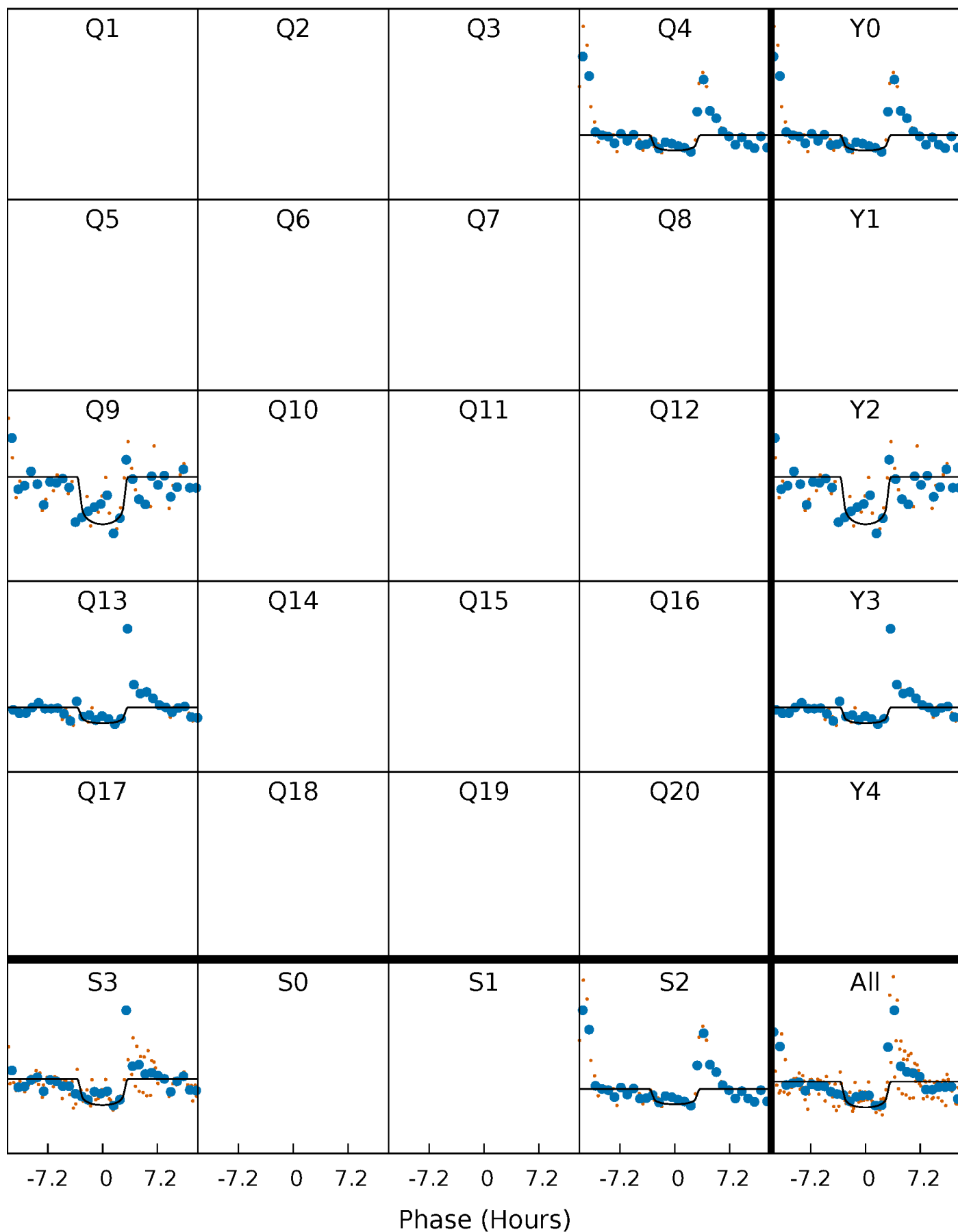
PDC Quarter-Phased Transit Curves

TCE 008737443-05 $P=393.217799$ Days $T_0=426.029958$ (BKJD)



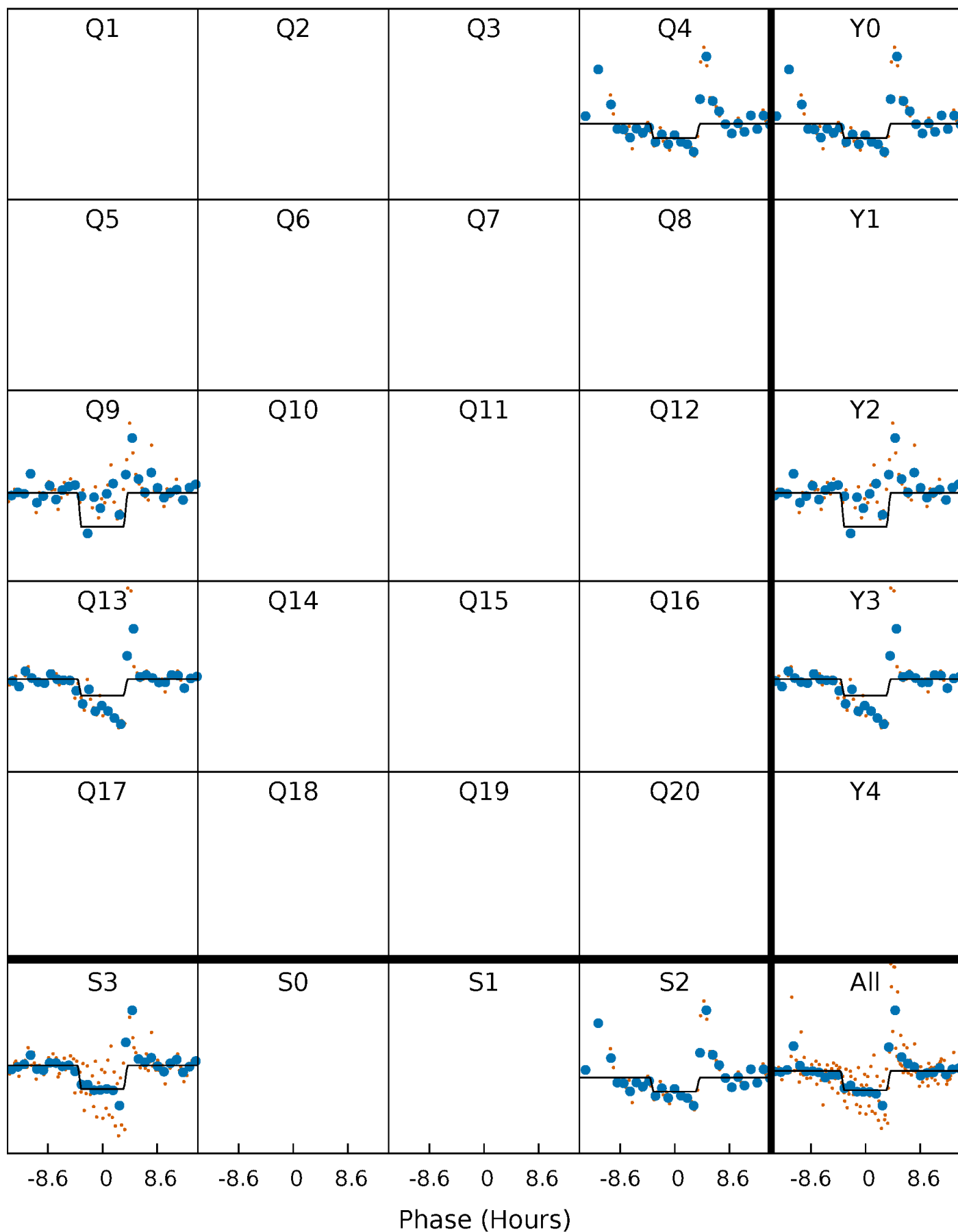
DV Quarter-Phased Transit Curves

TCE 008737443-05 $P=393.217799$ Days $T_0=426.029958$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

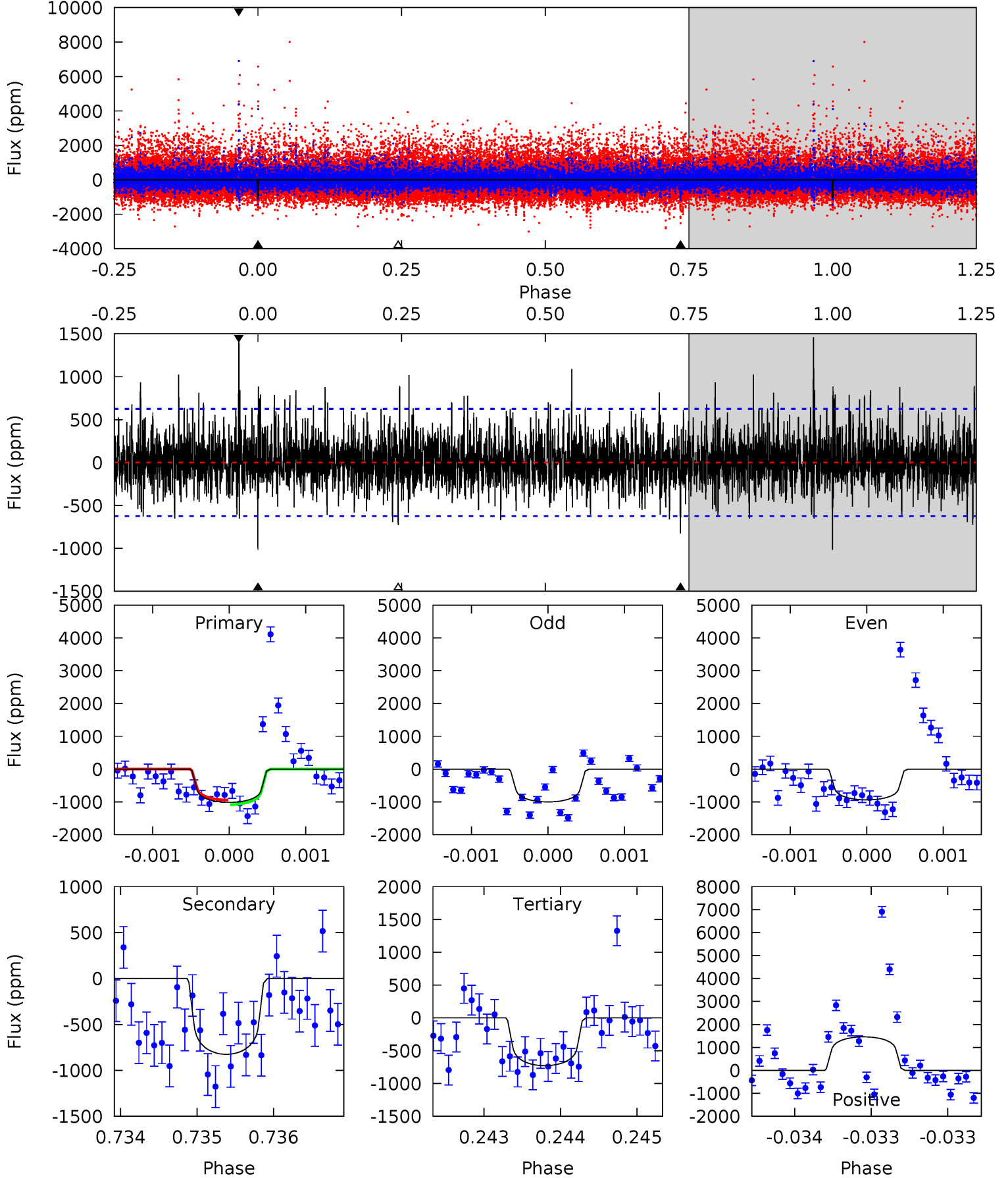
TCE 008737443-05 $P=393.216617$ Days $T_0=425.992686$ (BKJD)



DV Model-Shift Uniqueness Test

008737443-05, P = 393.217799 Days, E = 32.812159 Days

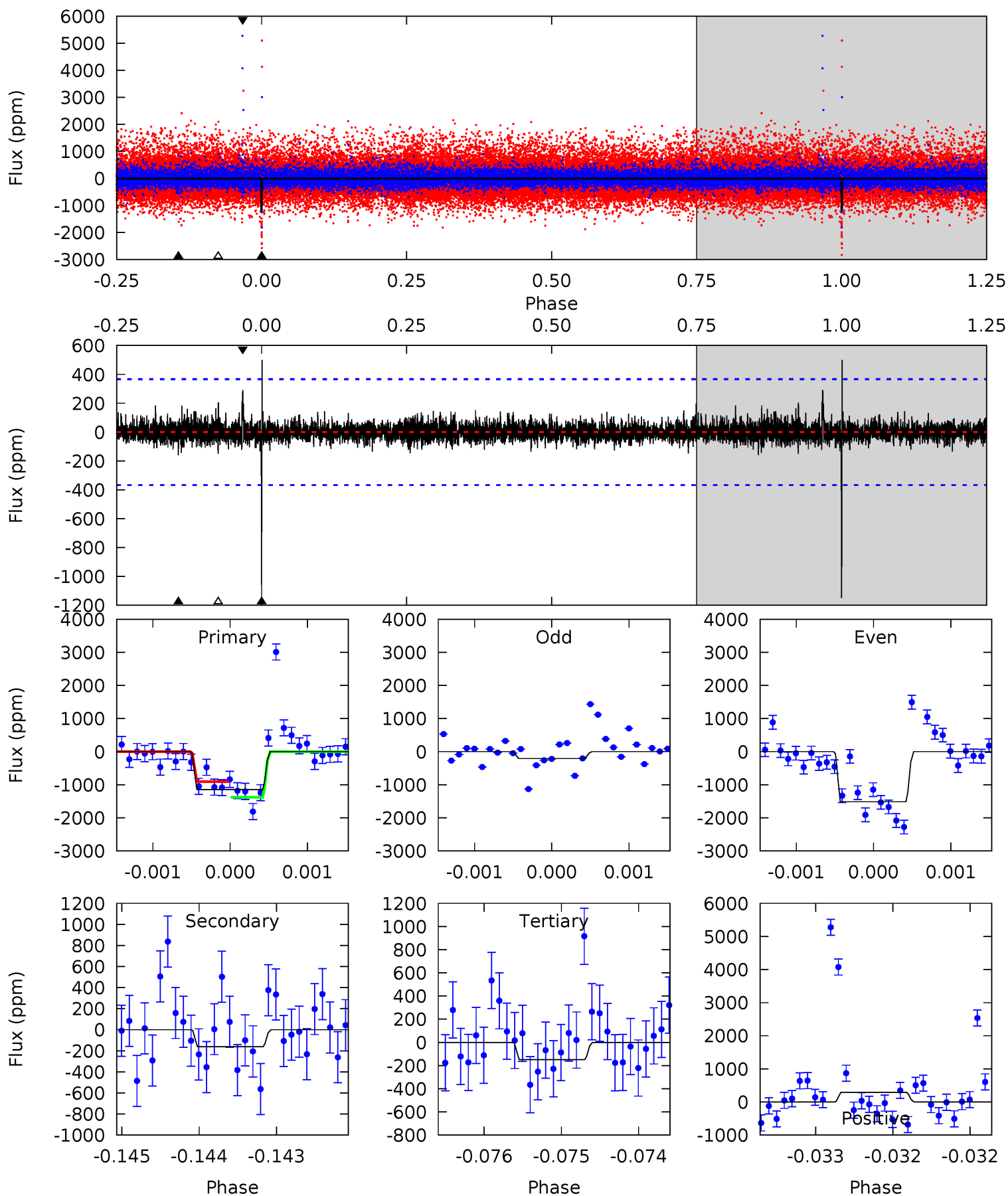
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.96	7.29	6.43	12.9	5.52	3.39	1.95	2.53	-3.91	0.86	-5.58	0.22	0.96	0.59	0.61



Alt Model-Shift Uniqueness Test

008737443-05, P = 393.216617 Days, E = 32.776069 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	2.41	2.22	4.37	5.48	3.34	0.59	15.0	12.8	0.19	-1.96	9.36	0.88	0.30	3.52



Stellar Parameters For KIC 008737443

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3435^{+55}_{-62}	$5.038^{+0.045}_{-0.050}$	$-0.400^{+0.100}_{-0.100}$	$0.244^{+0.039}_{-0.032}$	$0.236^{+0.049}_{-0.040}$	$22.990^{+6.638}_{-5.600}$
	+2%/-2%	+1%/-1%	+25%/-25%	+16%/-13%	+21%/-17%	+29%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008737443-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-825 ± 113	$1.00^{+0.69}_{-0.61}$	130^{+4}_{-4}	3173^{+1128}_{-448}	$194431^{+1024644}_{-127722}$
Alt.	-161 ± 67	$0.94^{+0.71}_{-0.56}$	130^{+3}_{-4}	2556^{+770}_{-347}	$38335^{+227882}_{-26873}$

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

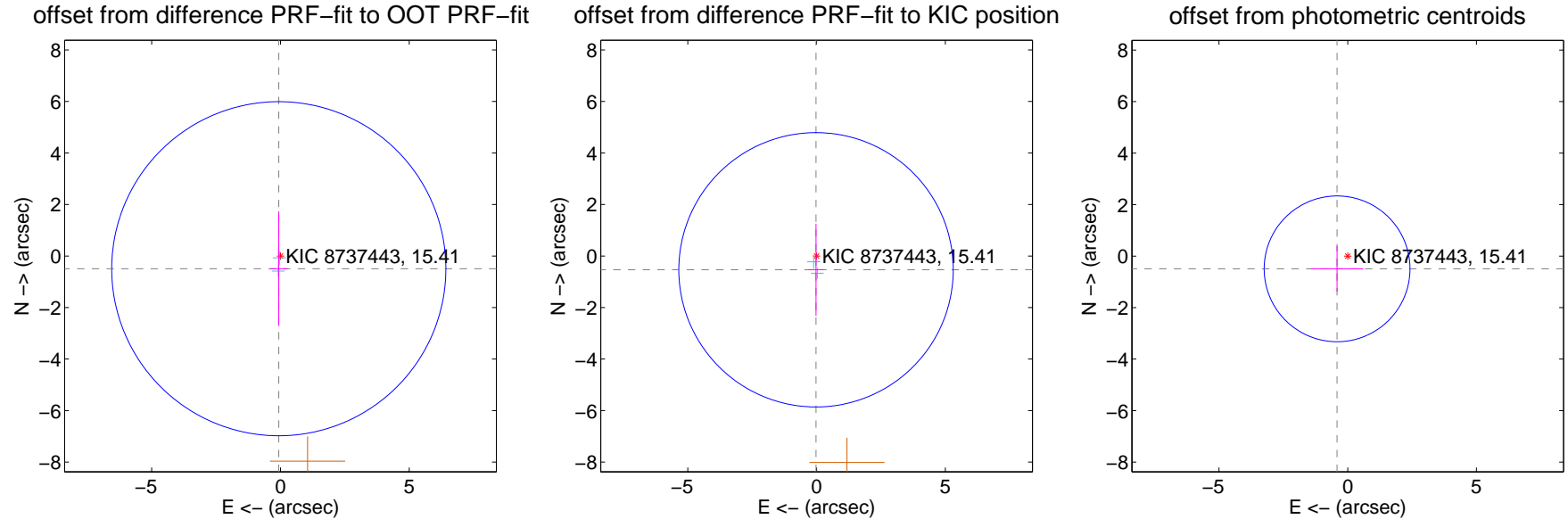
DV Centroid Data

Supplemental centroid analysis for 008737443-05. Kepler magnitude: 15.41. Transit SNR 6.84

There are 2 quarters with good PRF difference image offsets

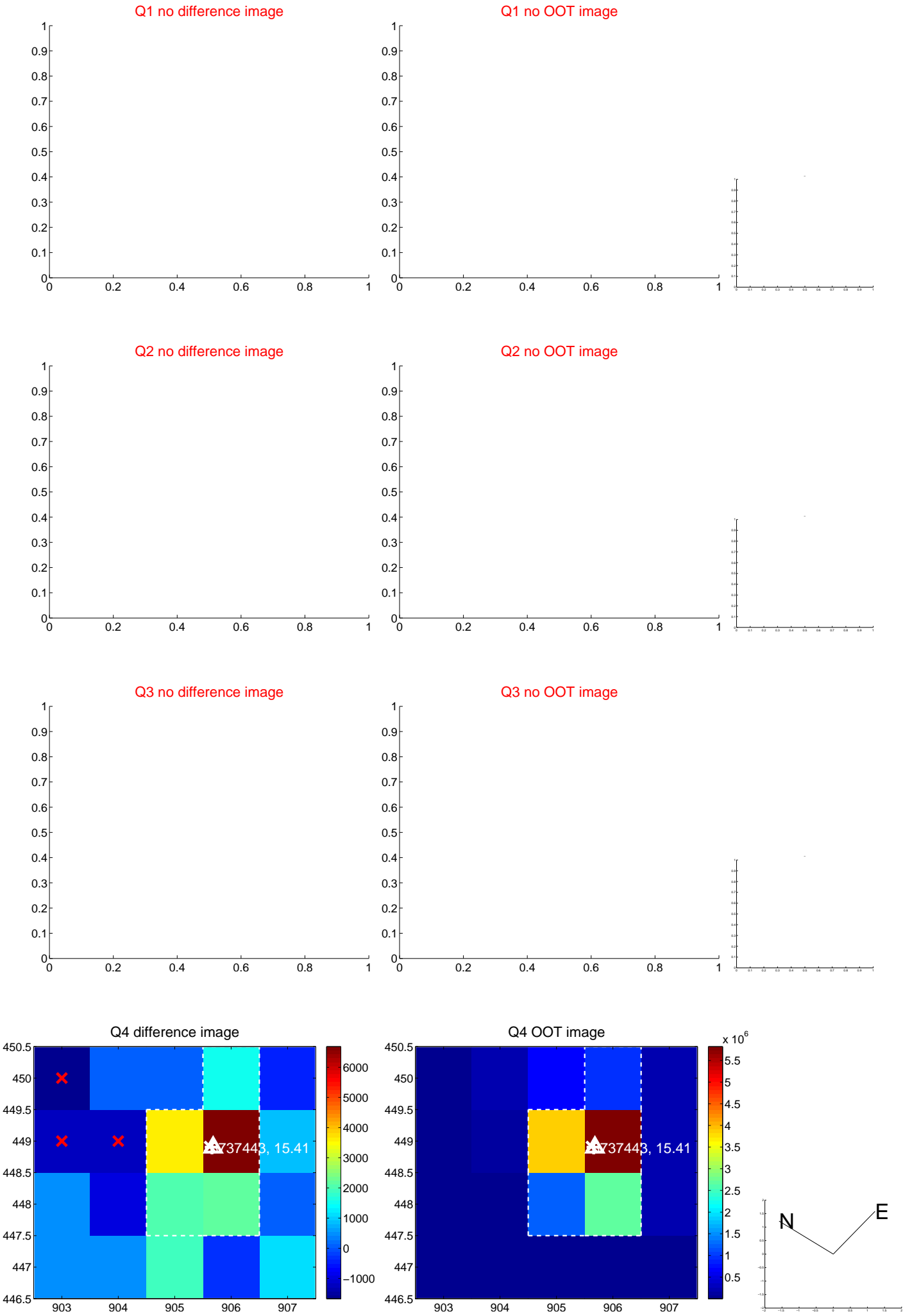
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.497 ± 2.162	0.23	0.065 ± 0.337	-0.493 ± 2.223
PRF-fit source offset from KIC position	0.535 ± 1.775	0.30	0.021 ± 0.297	-0.535 ± 1.788
photometric centroid source offset	0.64 ± 0.94	0.68	0.41 ± 1.02	-0.49 ± 0.89



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.

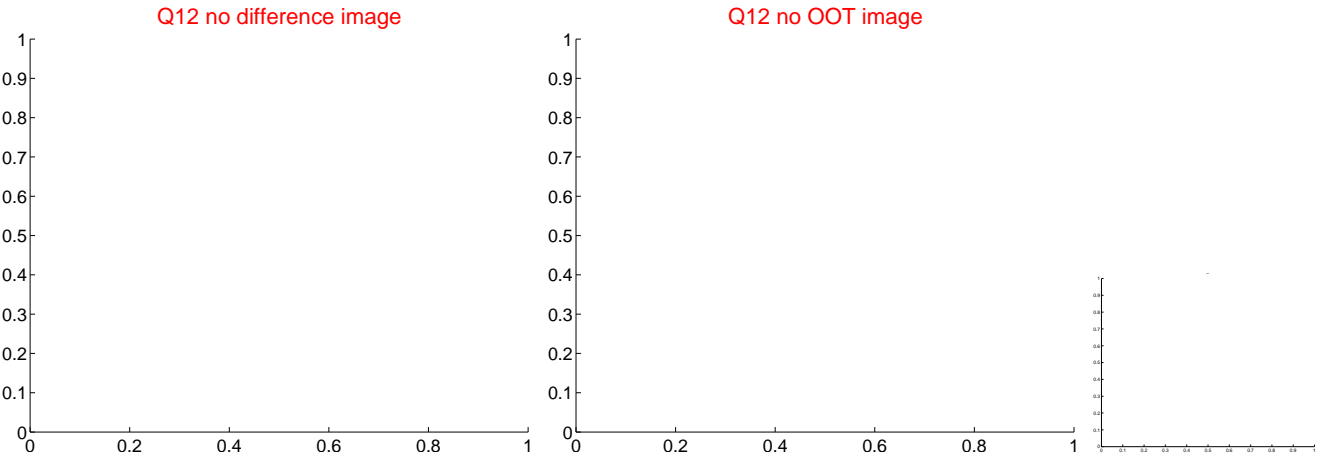
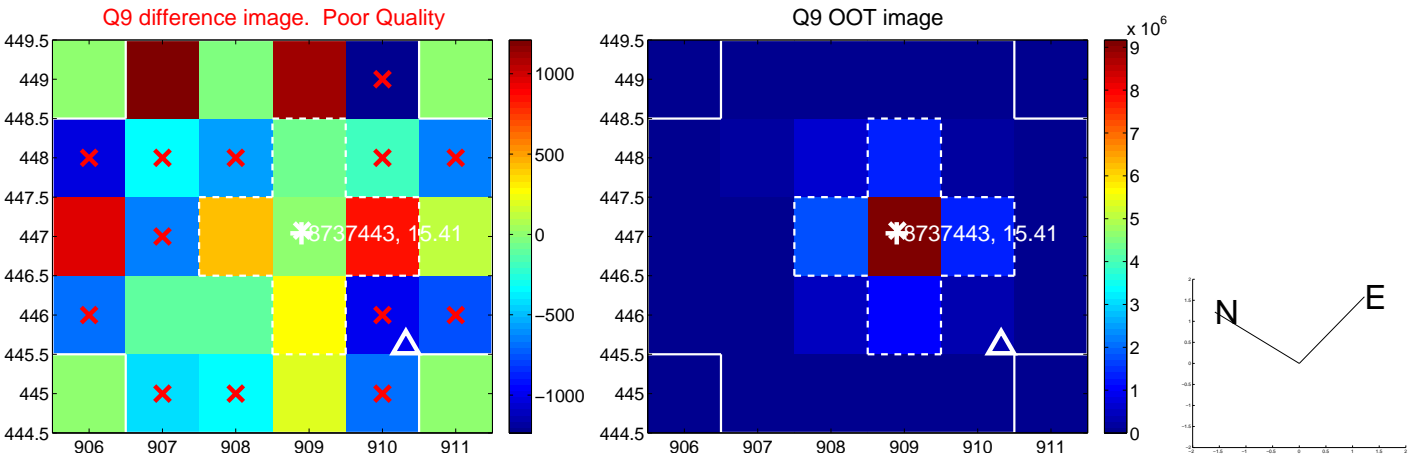
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



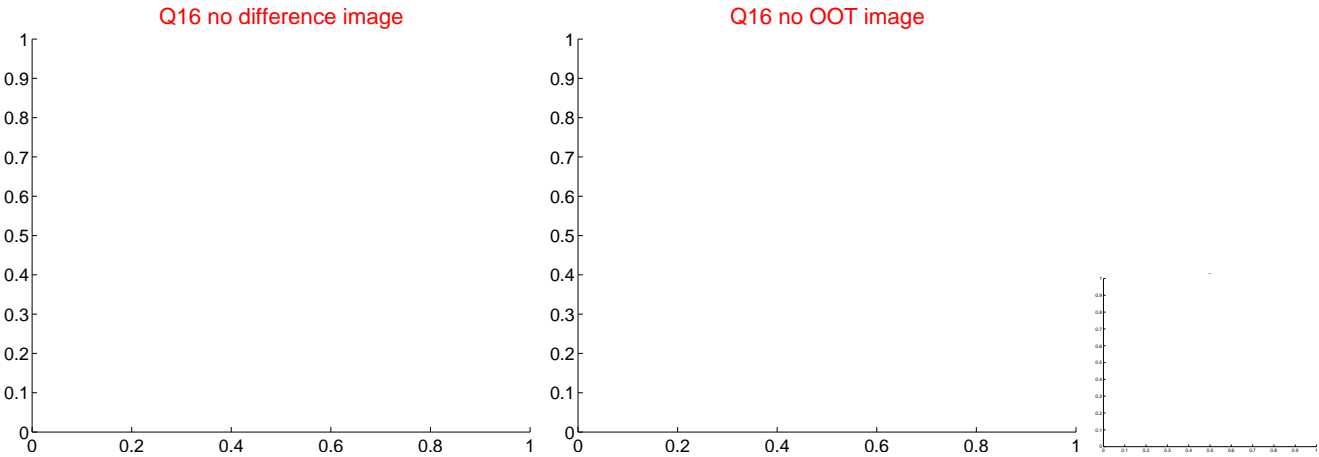
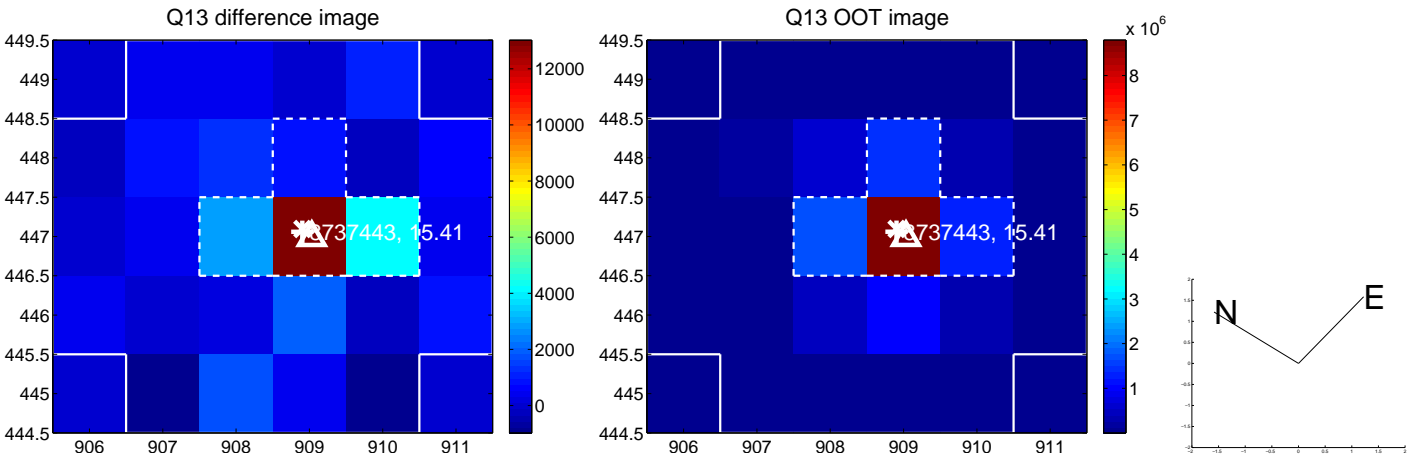
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



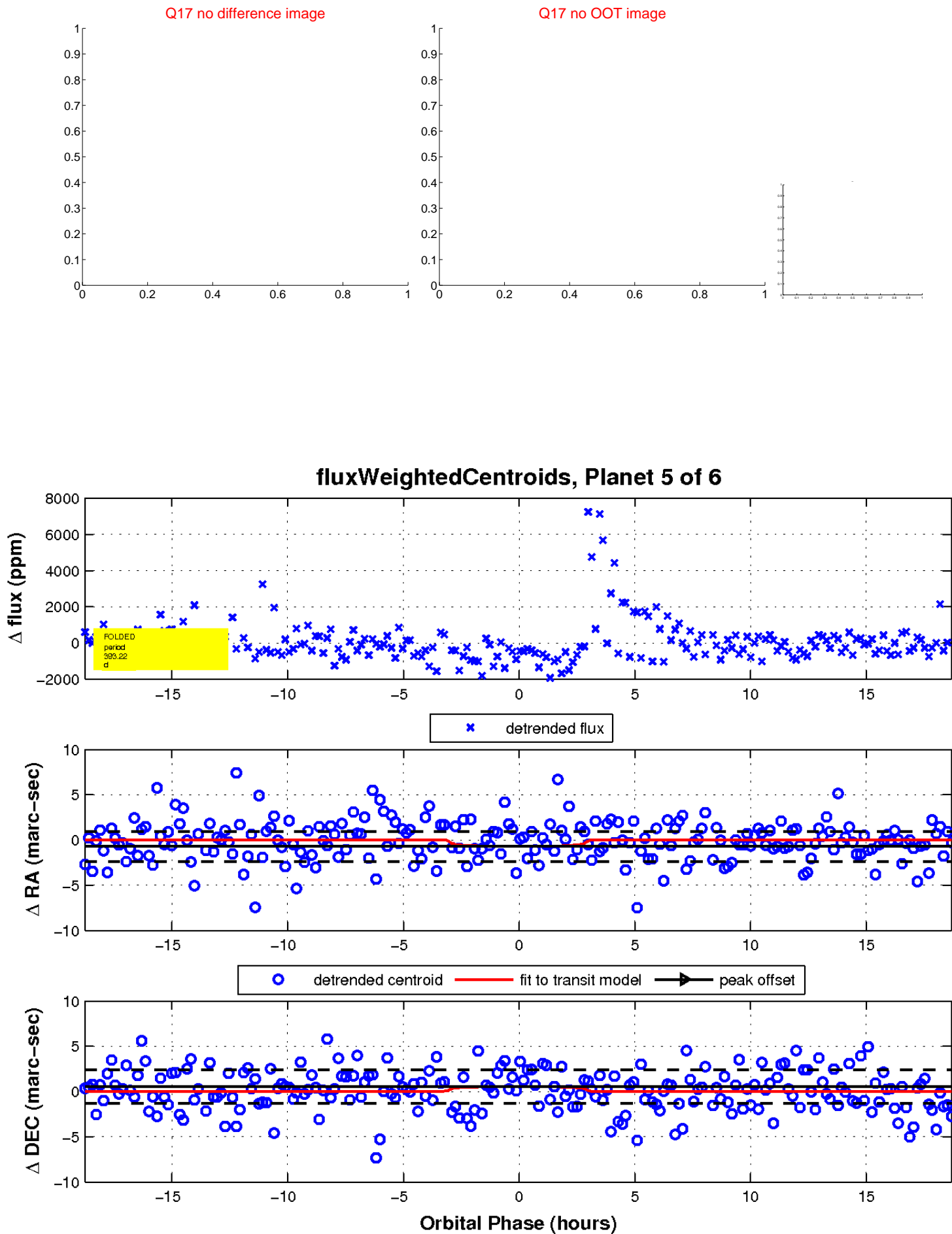
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

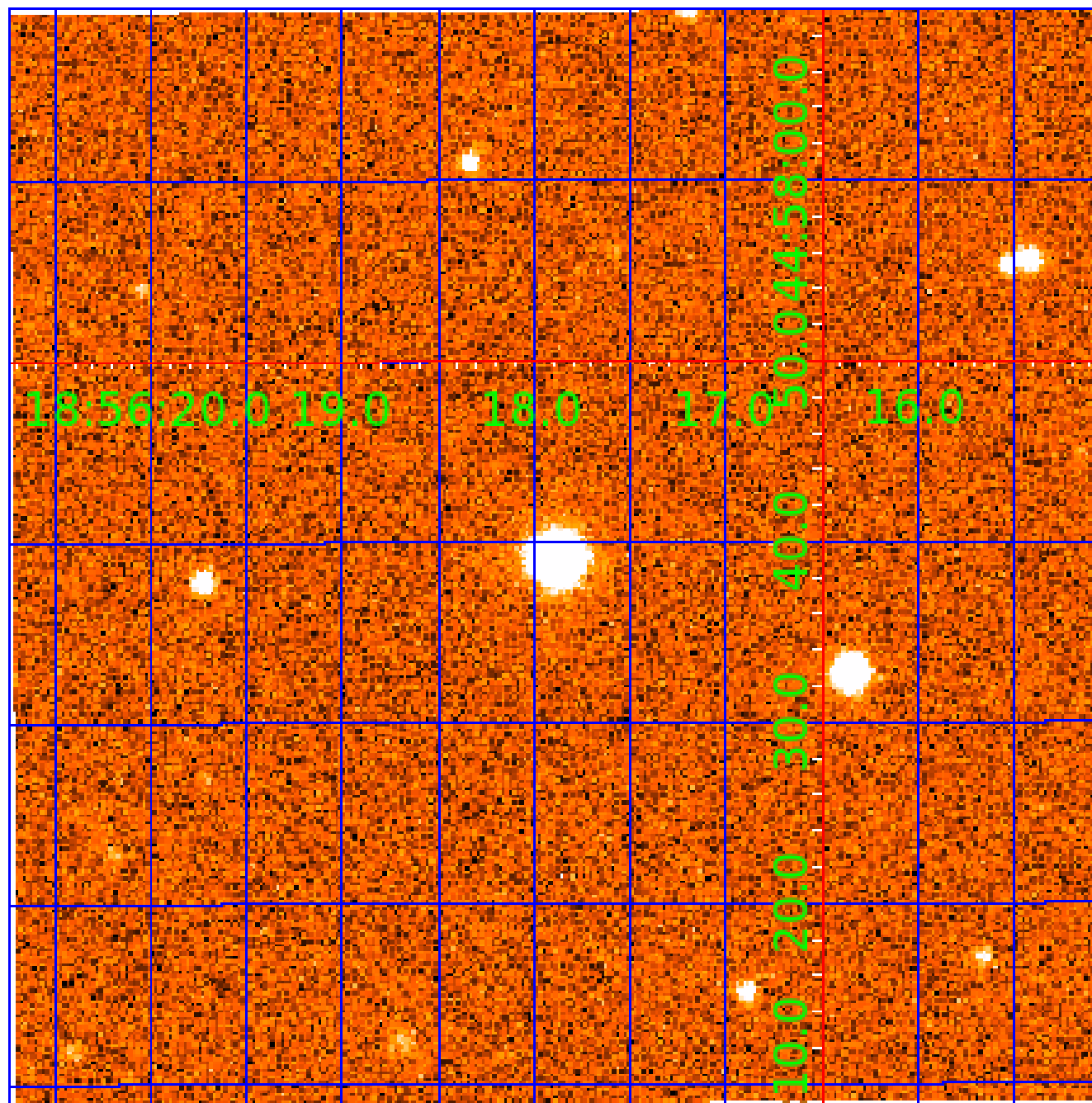


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008737443

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})
008737443-01	OBS	No	396.003874	526.291048	2260.3	2.496	12.6	8.7	0.24	3435	1.27	0.02
008737443-02	OBS	No	604.493923	191.514383	1320.6	4.881	12.5	6.8	0.24	3435	0.92	0.01
008737443-03	OBS	No	505.418659	447.832032	1925.5	5.226	13.2	7.9	0.24	3435	1.32	0.01
008737443-04	OBS	No	543.021857	238.450030	1309.1	9.000	12.8	-1.0	0.24	3435	0.88	0.01
008737443-05	OBS	No	393.217799	426.029958	1355.3	6.266	11.4	6.8	0.24	3435	0.93	0.02
008737443-06	OBS	No	355.042365	398.174521	1785.6	11.038	12.5	7.2	0.24	3435	1.03	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008737443-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008737443-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
008737443-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—INCONSISTENT_TRANS—CENT_NOFITS
008737443-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
008737443-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

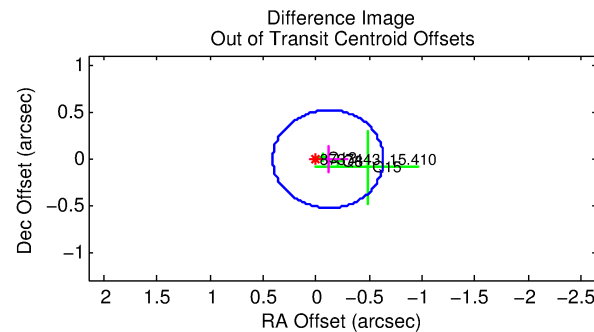
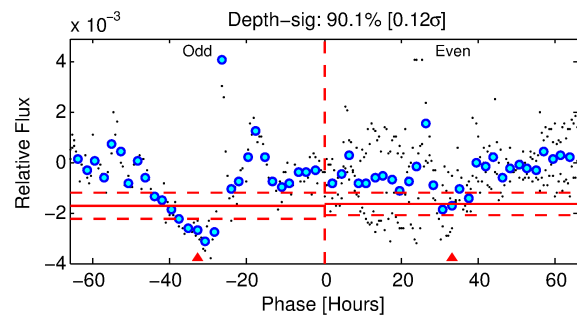
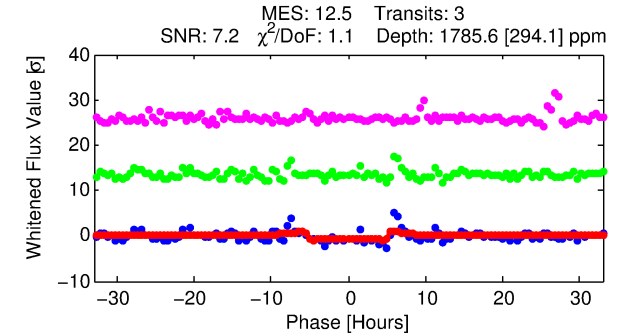
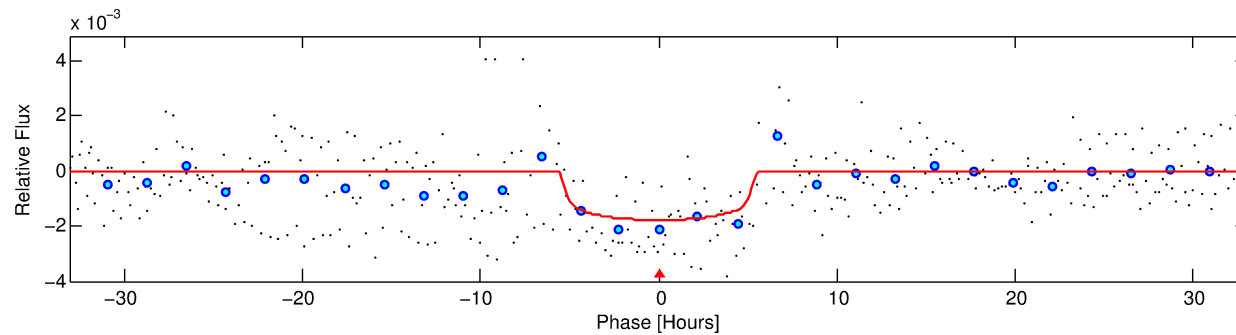
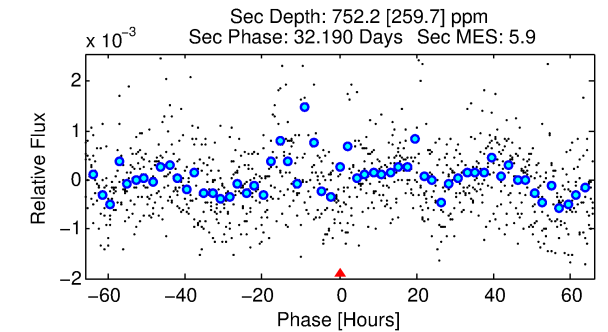
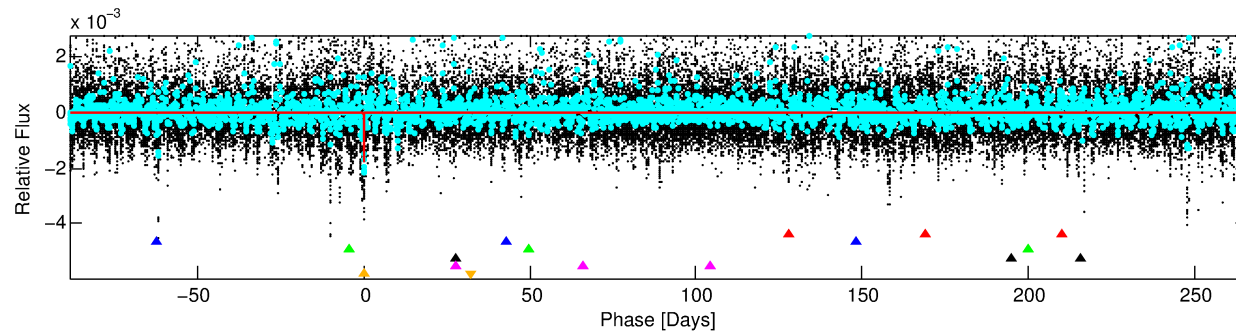
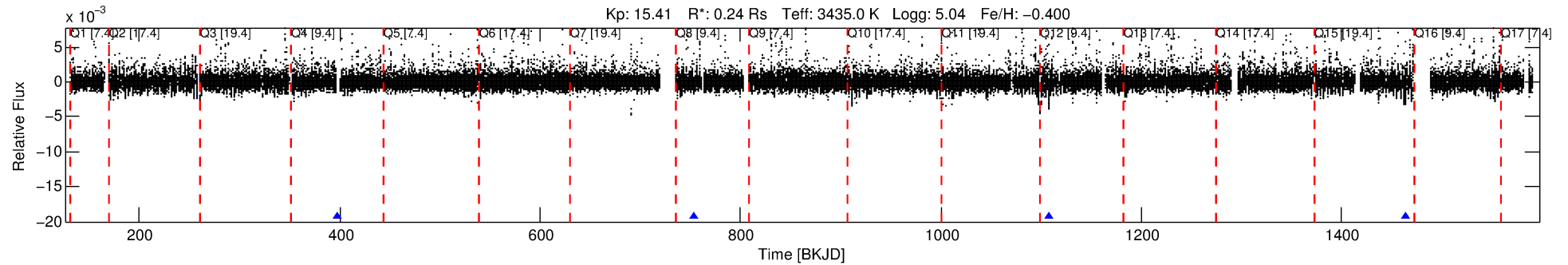
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008737443-06

No Significant Match Found

DV One-Page Summary

KIC: 8737443 Candidate: 6 of 6 Period: 355.042 d



DV Fit Results:

Period = 355.04236 [0.00679] d
Epoch = 398.1745 [0.0147] BKJD
Rp/R* = 0.0387 [0.0122]
a/R* = 250.31 [347.29]
b = 0.20 [6.55]
Seff = 0.02 [0.00]
Teq = 96 [4] K
Rp = 1.03 [0.36] Re
a = 0.6074 [0.0688] AU
Ag = 143845.08 [104924.34] [1.37 σ]
Teffp = 2892 [521] K [5.36 σ]

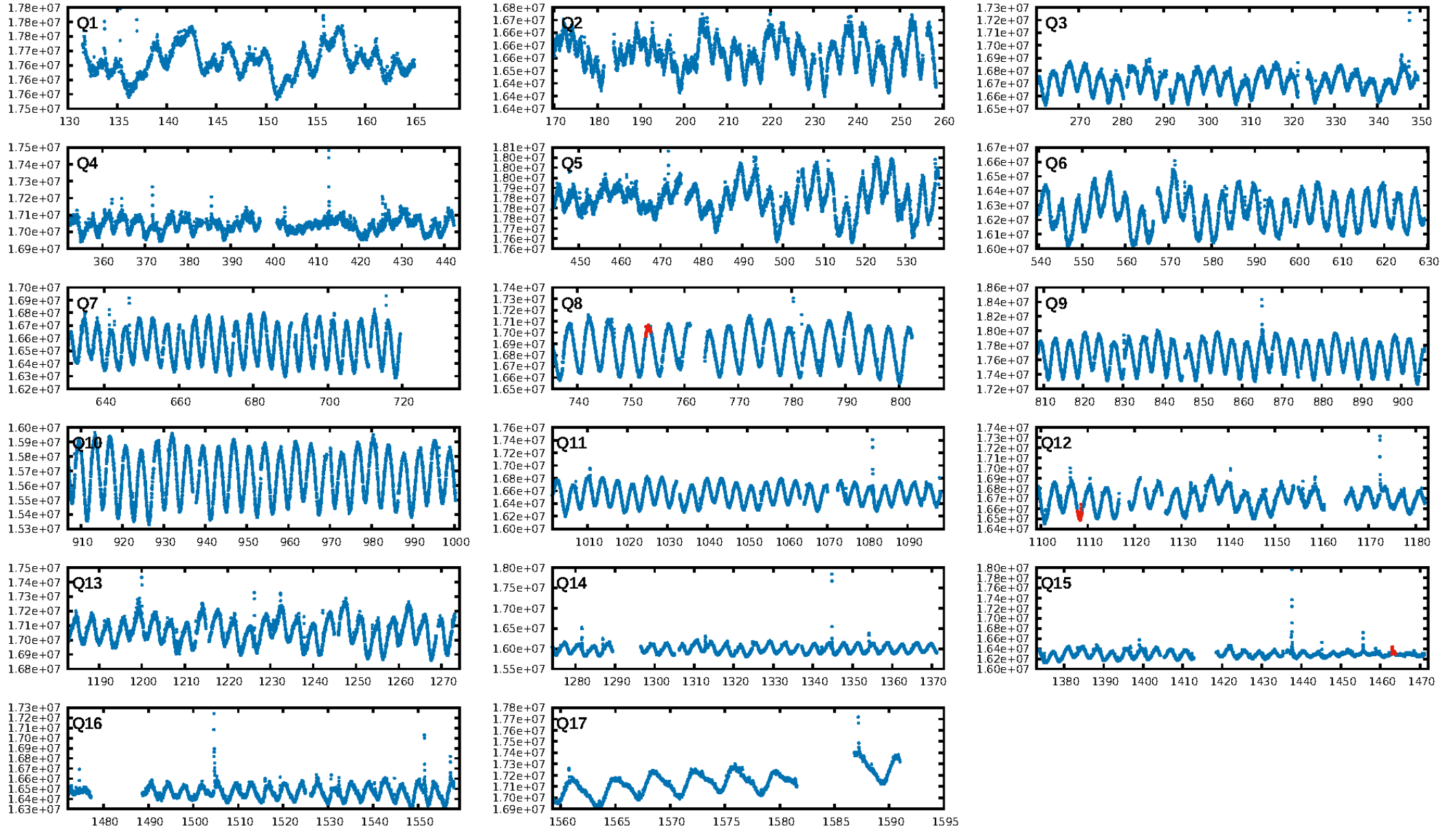
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [72.19 σ]
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: 2.26e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.323
Centroid-sig: 40.9%
Centroid-so: 0.524 arcsec [0.84 σ]
OotOffset-rm: 0.114 arcsec [0.66 σ]
KicOffset-rm: 0.167 arcsec [1.11 σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

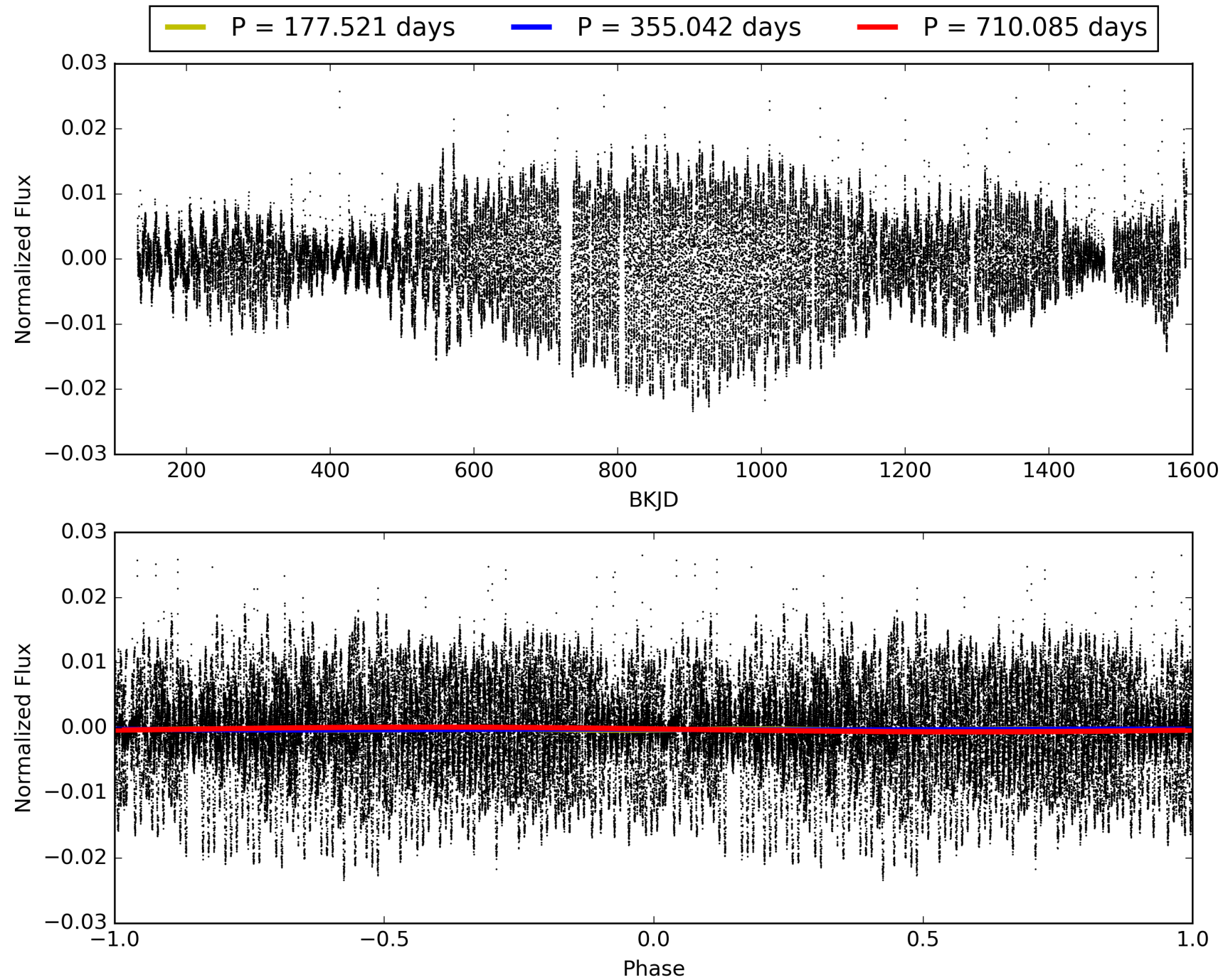
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:10:07 Z

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

TCE 008737443-06, PDC Light Curves

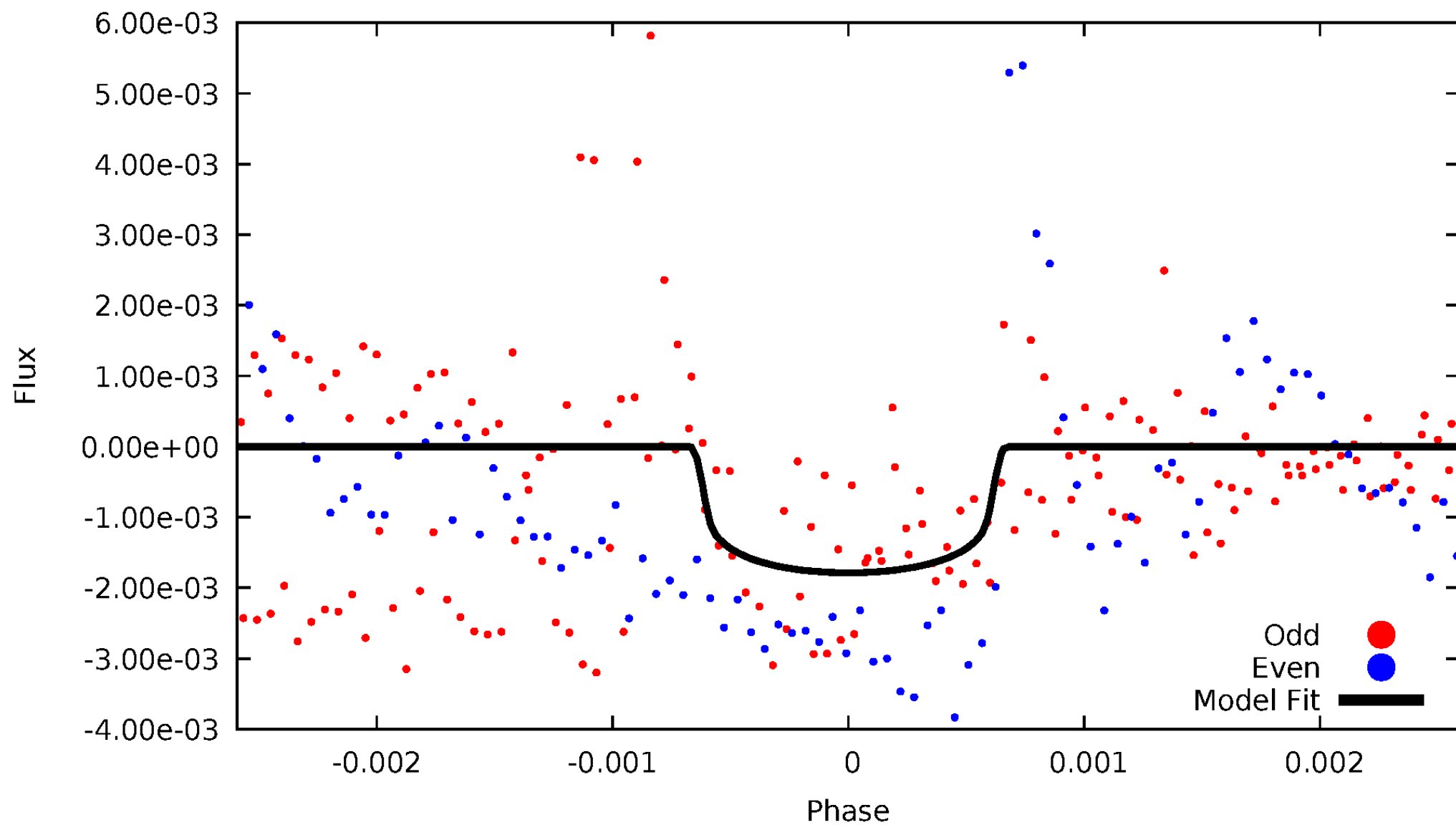


TCE 008737443-06



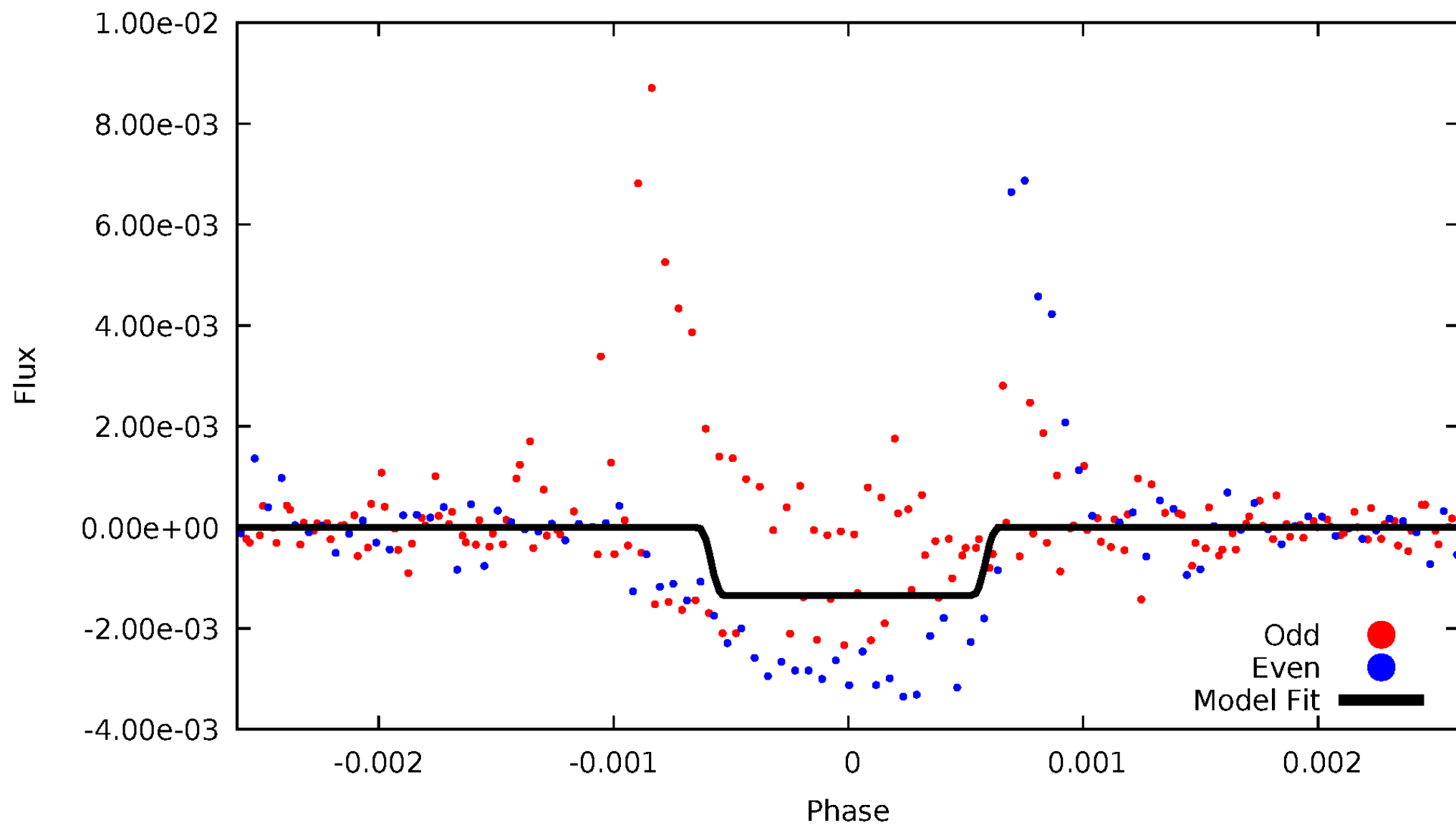
DV Odd/Even

TCE 008737443-06



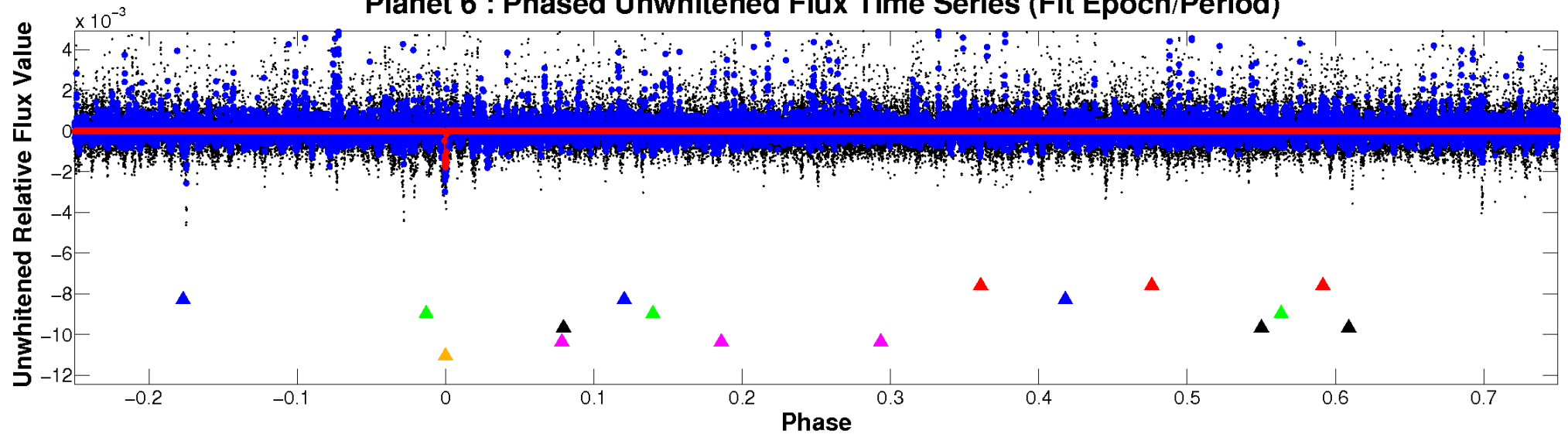
ALT Odd/Even

TCE 008737443-06

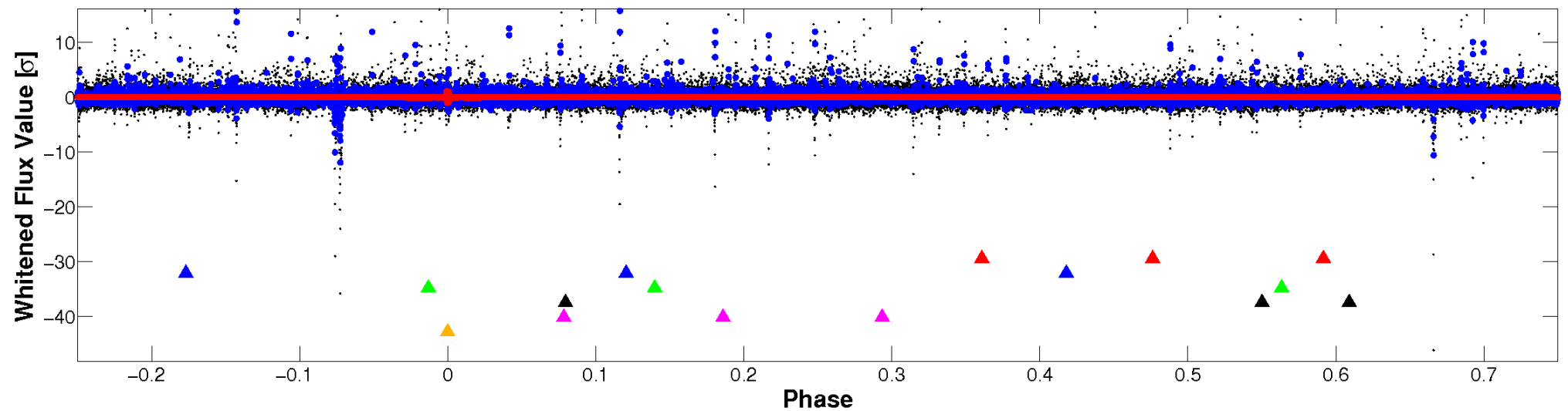


Non-Whitened Vs. Whitened Light Curve

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

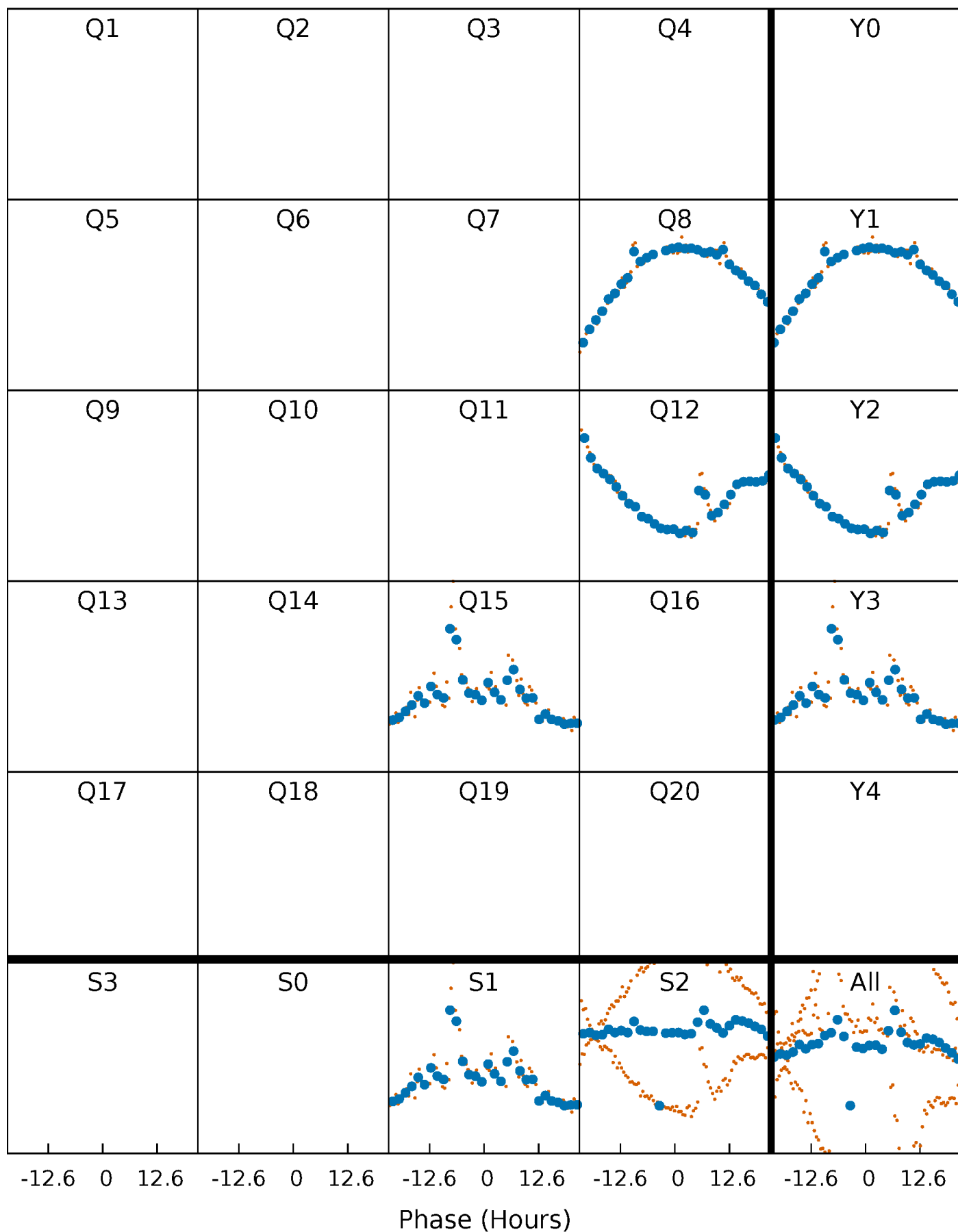


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



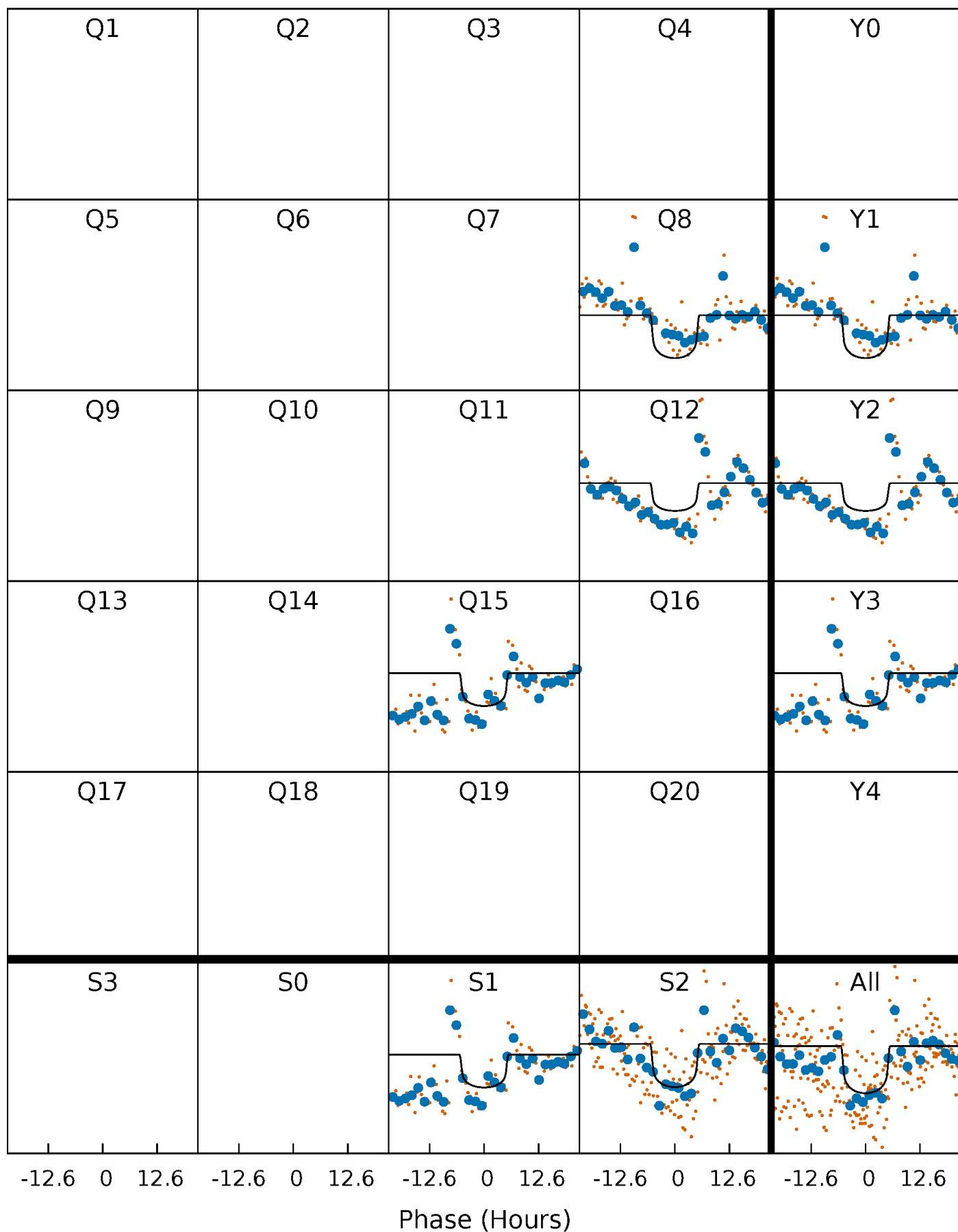
PDC Quarter-Phased Transit Curves

TCE 008737443-06 P=355.042365 Days $T_0=398.174521$ (BKJD)



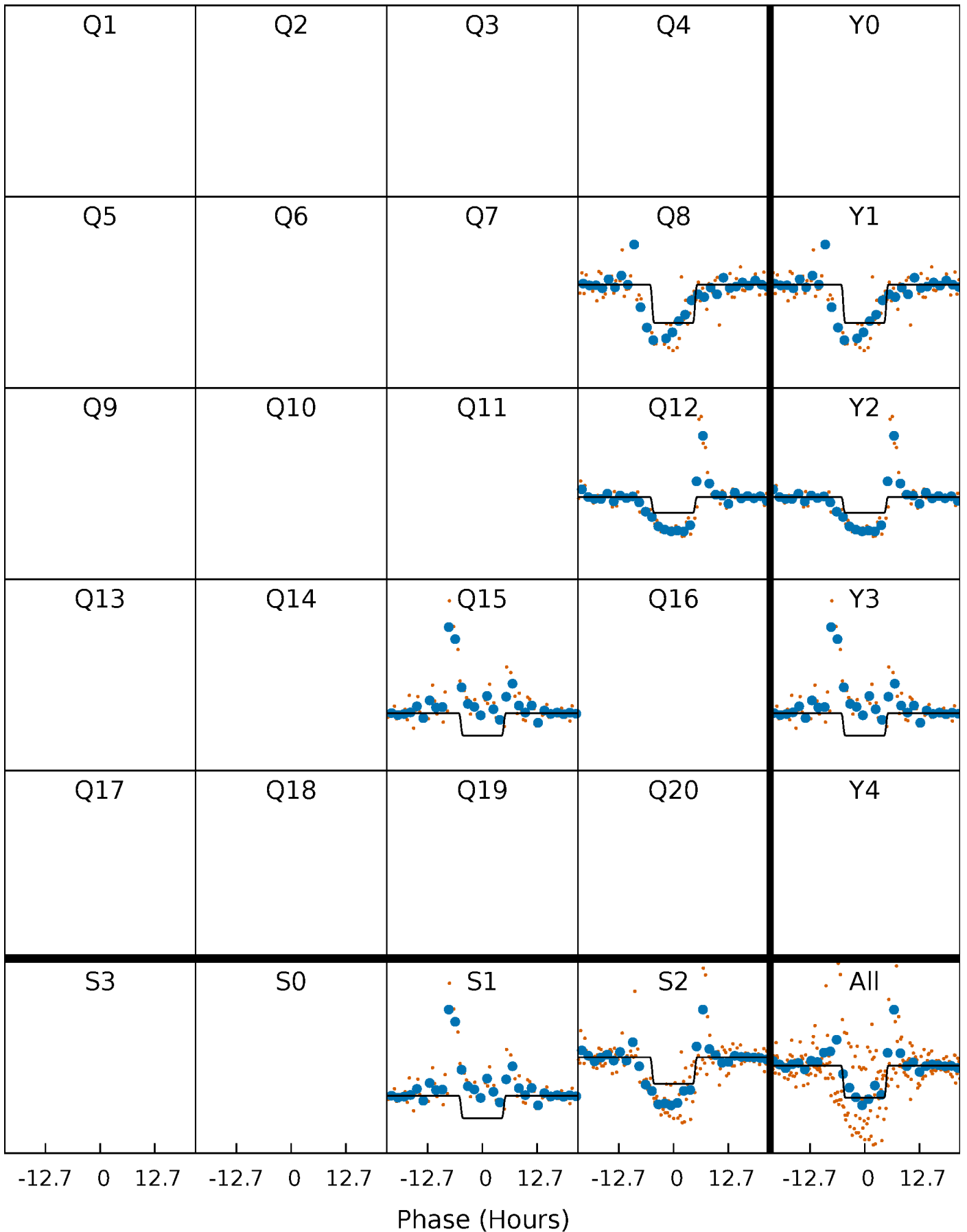
DV Quarter-Phased Transit Curves

TCE 008737443-06 $P=355.042365$ Days $T_0=398.174521$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

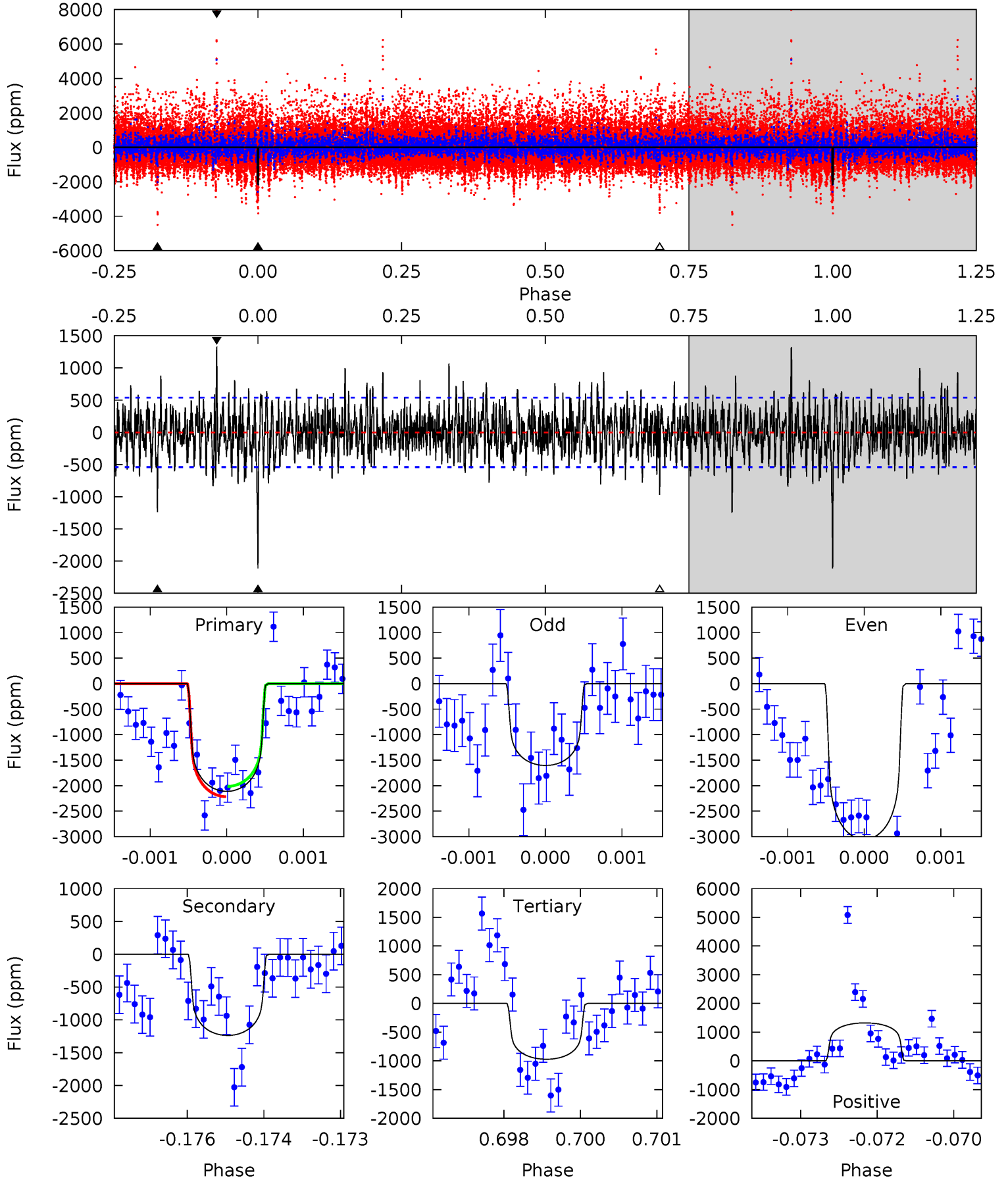
TCE 008737443-06 P=355.046727 Days $T_0=398.161436$ (BKJD)



DV Model-Shift Uniqueness Test

008737443-06, P = 355.042365 Days, E = 43.132156 Days

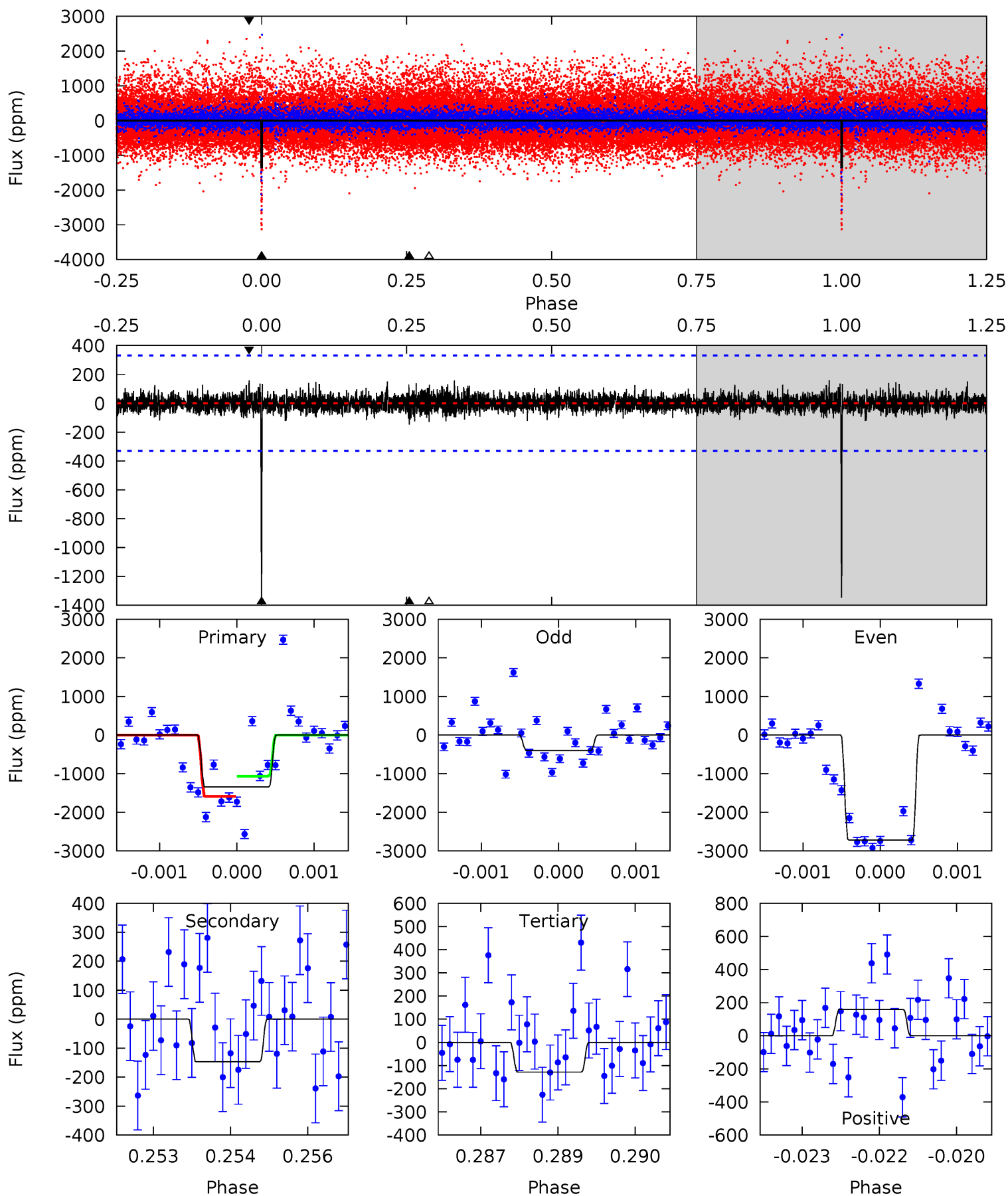
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	12.4	9.71	13.2	5.40	3.22	2.82	11.4	7.87	2.65	-0.86	5.87	0.94	0.39	1.01



Alt Model-Shift Uniqueness Test

008737443-06, $P = 355.046727$ Days, $E = 43.114709$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	2.41	2.10	2.60	5.41	3.22	0.56	19.9	19.4	0.31	-0.19	18.7	0.87	0.11	4.24



Stellar Parameters For KIC 008737443

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3435^{+55}_{-62}	$5.038^{+0.045}_{-0.050}$	$-0.400^{+0.100}_{-0.100}$	$0.244^{+0.039}_{-0.032}$	$0.236^{+0.049}_{-0.040}$	$22.990^{+6.638}_{-5.600}$
	+2%/-2%	+1%/-1%	+25%/-25%	+16%/-13%	+21%/-17%	+29%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008737443-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1237 ± 100	$1.03^{+0.34}_{-0.35}$	134^{+4}_{-4}	3347^{+416}_{-288}	$238048^{+270904}_{-105290}$
Alt.	-147 ± 61	$0.98^{+0.36}_{-0.35}$	134^{+4}_{-4}	2512^{+317}_{-239}	30037^{+45845}_{-17409}

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

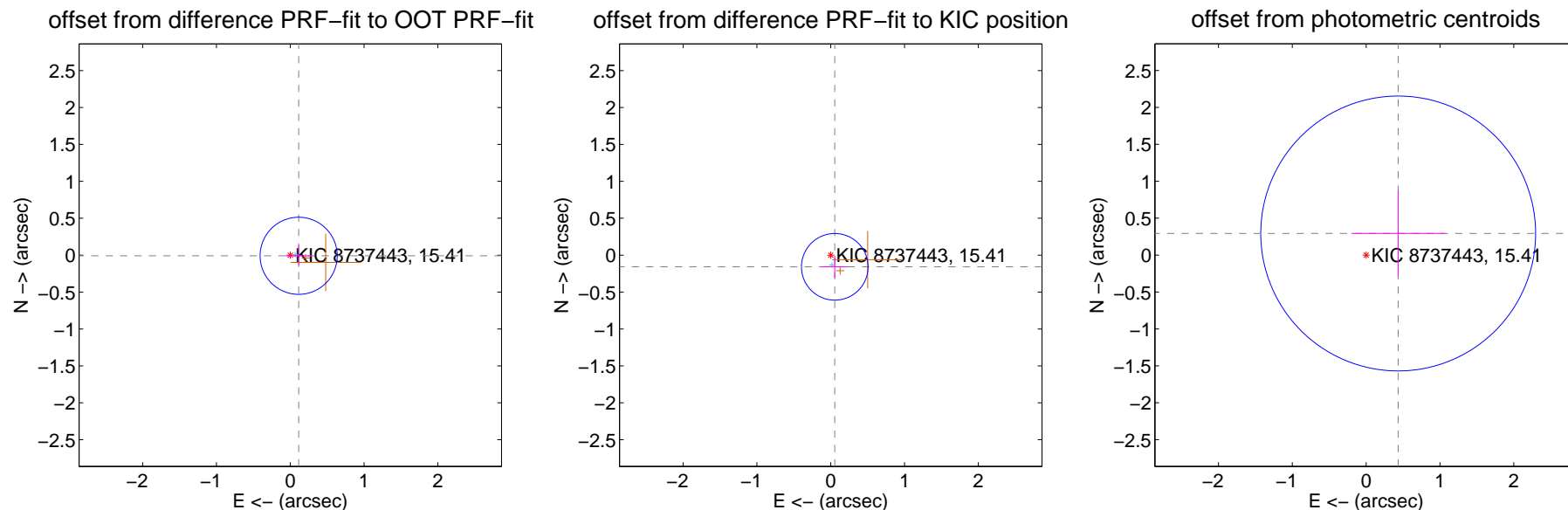
DV Centroid Data

Supplemental centroid analysis for 008737443-06. Kepler magnitude: 15.41. Transit SNR 7.19

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.114 ± 0.174	0.66	-0.114 ± 0.174	-0.009 ± 0.147
PRF-fit source offset from KIC position	0.167 ± 0.150	1.11	-0.055 ± 0.174	-0.158 ± 0.147
photometric centroid source offset	0.52 ± 0.62	0.84	-0.43 ± 0.64	0.29 ± 0.59

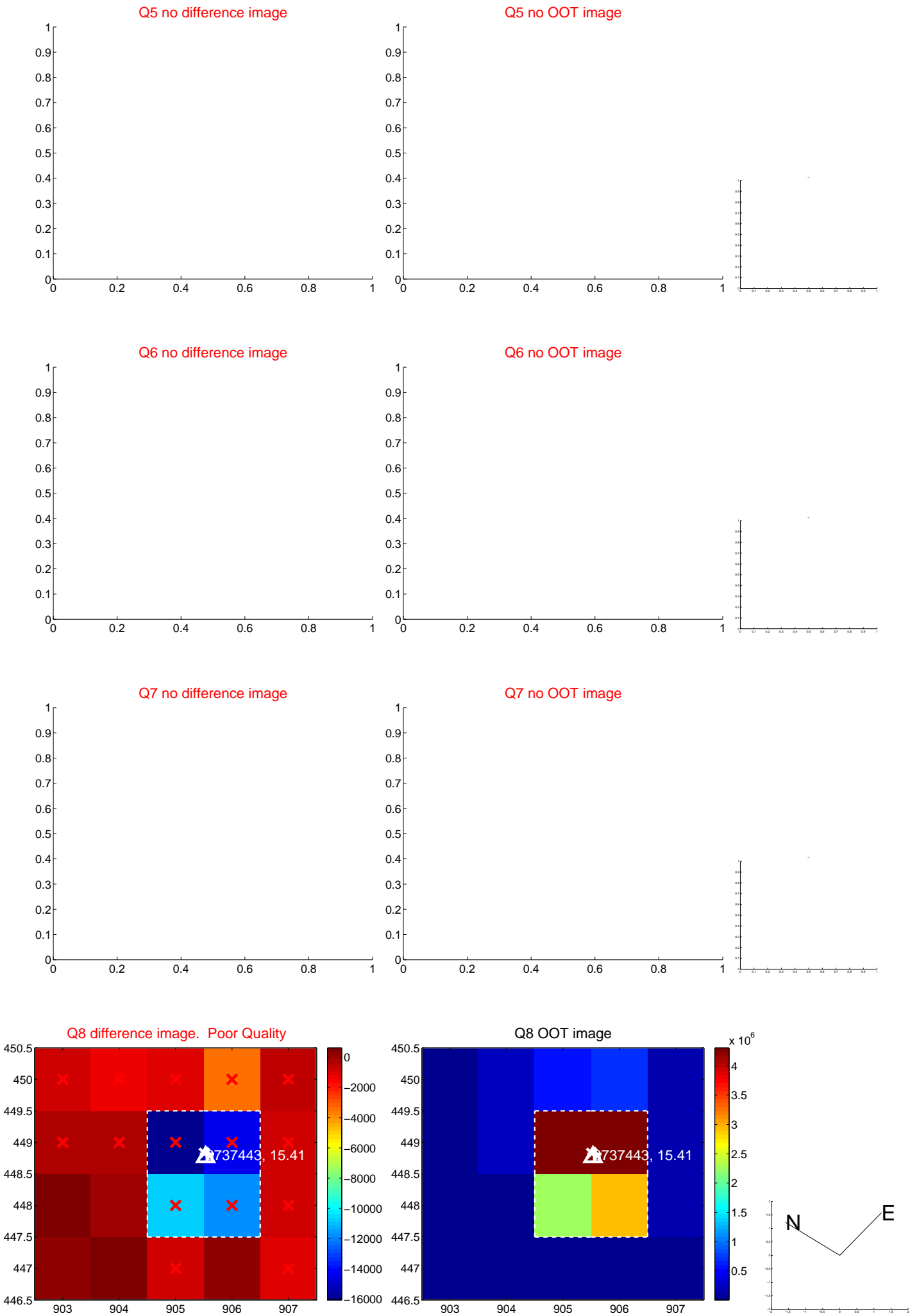


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

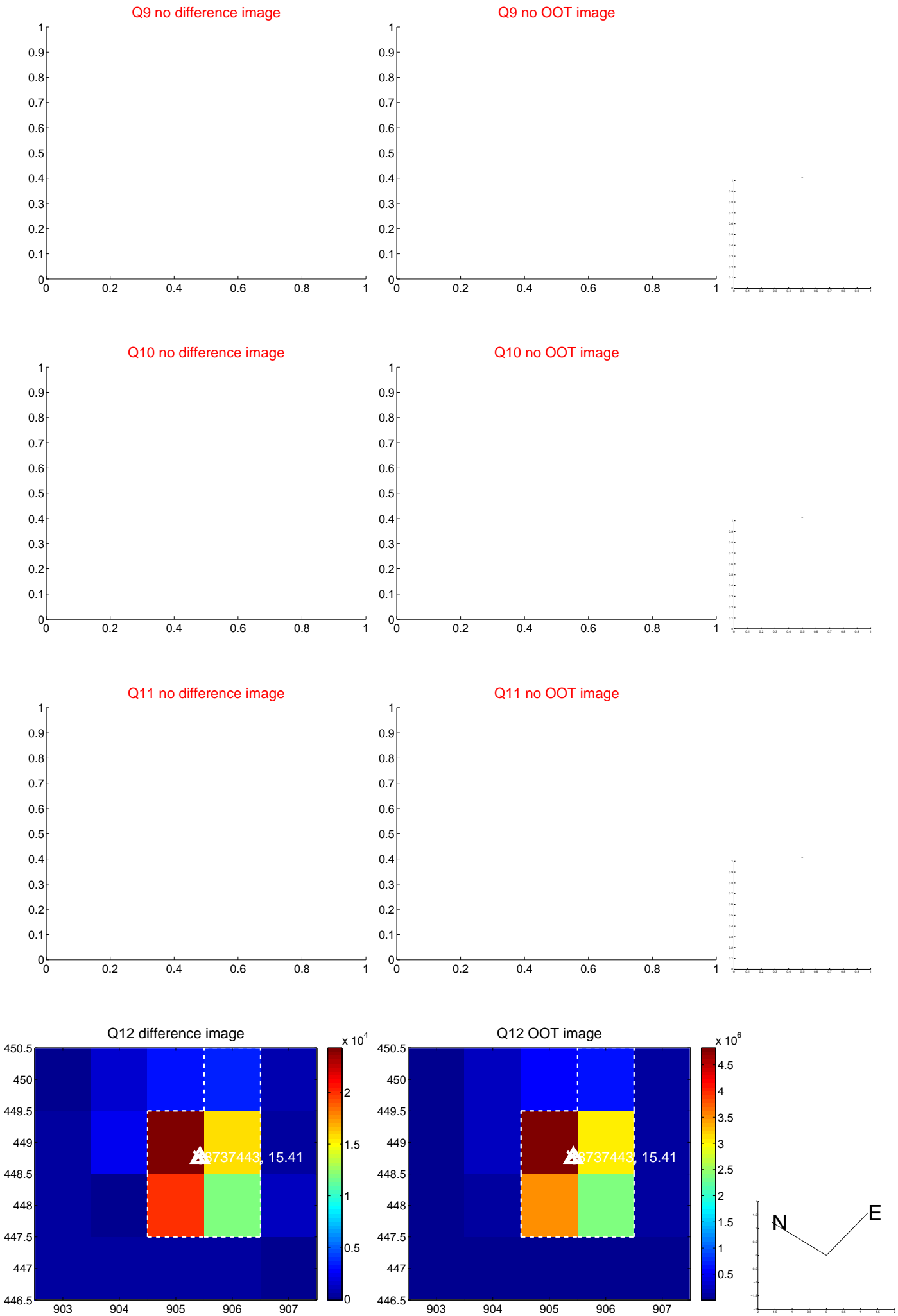
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



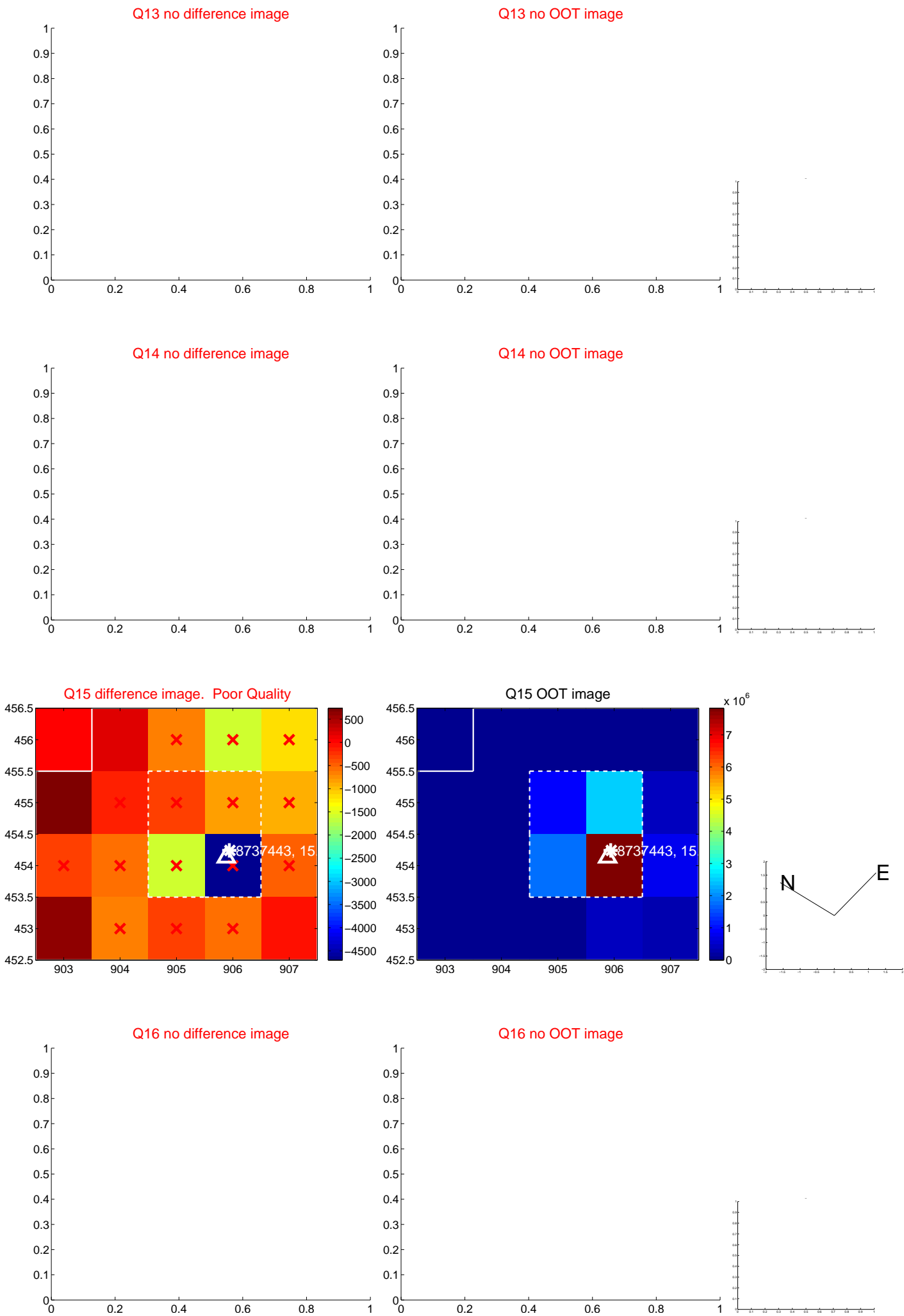
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



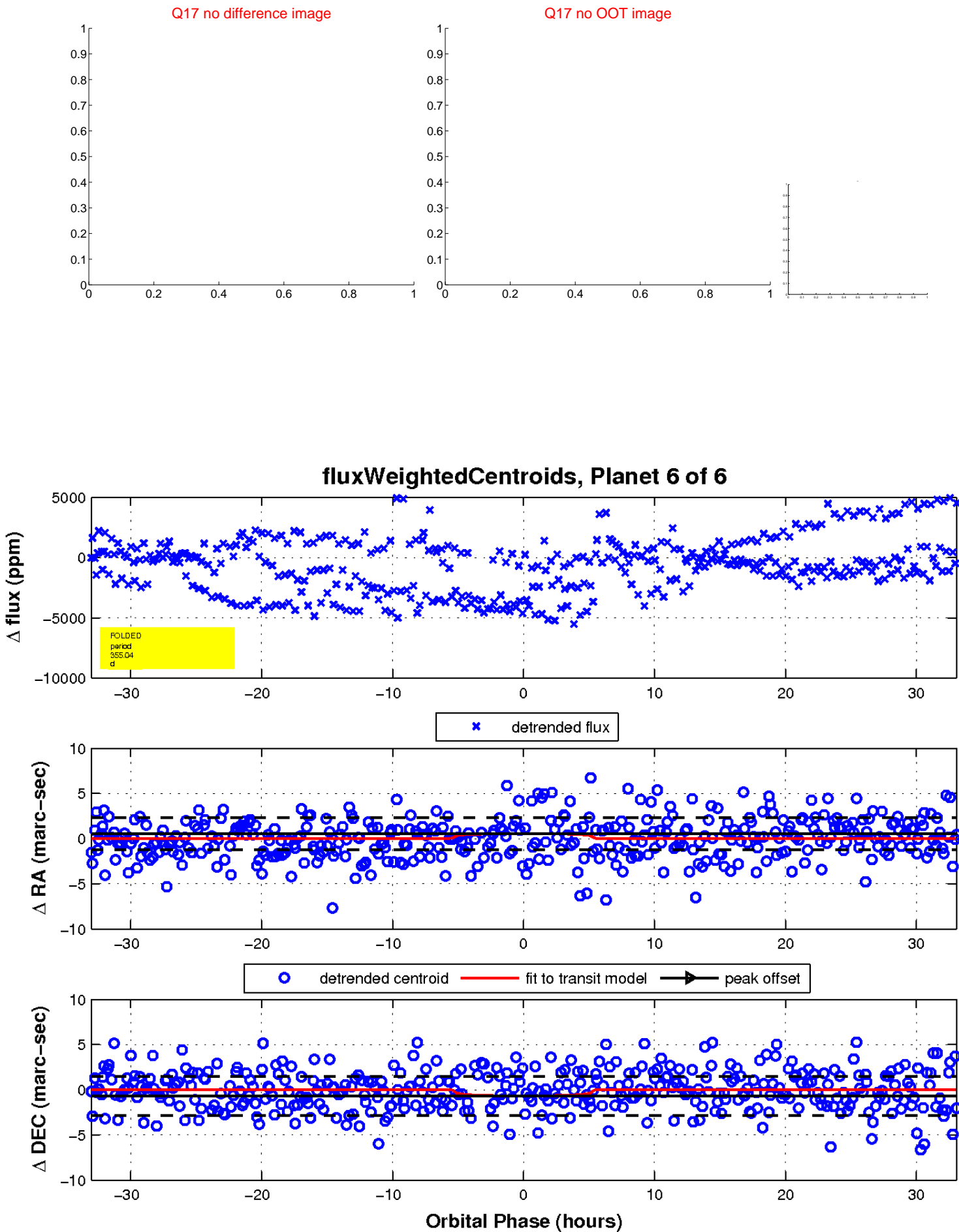
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

