

KIC 002436450

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})
002436450-01	OBS	No	347.411387	189.685339	120394.5	12.500	15.3	-1.0	1.00	5780	34.56	1.07
002436450-02	OBS	No	249.664047	200.682000	123720.6	12.000	15.8	-1.0	1.00	5780	35.04	1.66
002436450-04	OBS	No	373.893281	231.029242	95139.1	12.500	12.2	-1.0	1.00	5780	30.68	0.97
002436450-06	OBS	No	313.702824	278.918696	68858.6	15.000	10.3	-1.0	1.00	5780	26.07	1.22
002436450-07	OBS	No	223.018685	234.540409	67577.2	9.000	10.0	-1.0	1.00	5780	25.82	1.93
002436450-08	OBS	No	229.925228	176.342224	65060.7	15.000	9.7	-1.0	1.00	5780	25.33	1.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
002436450-06	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
002436450-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

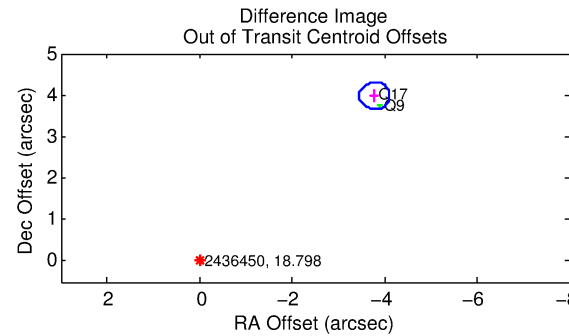
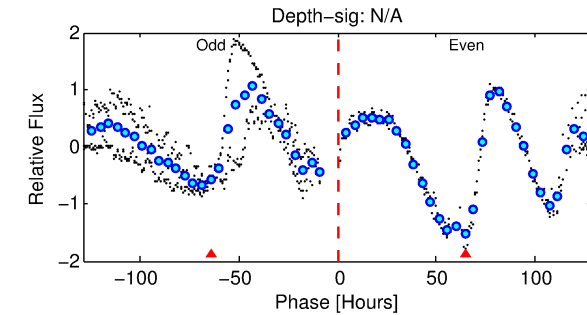
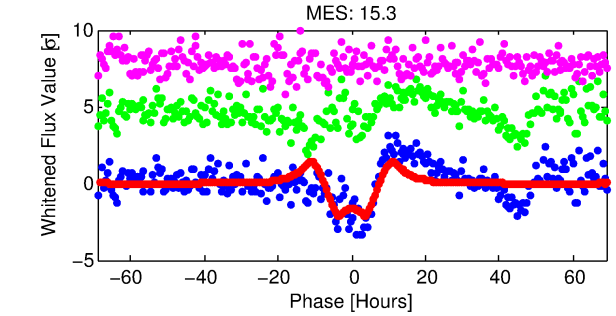
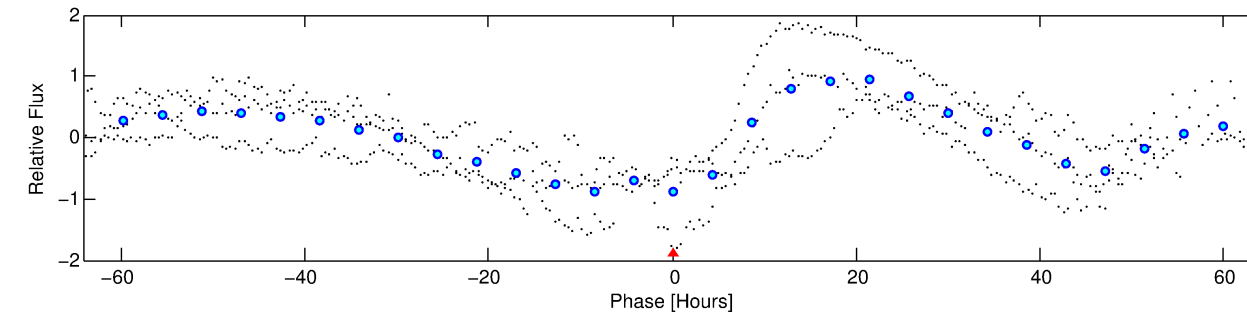
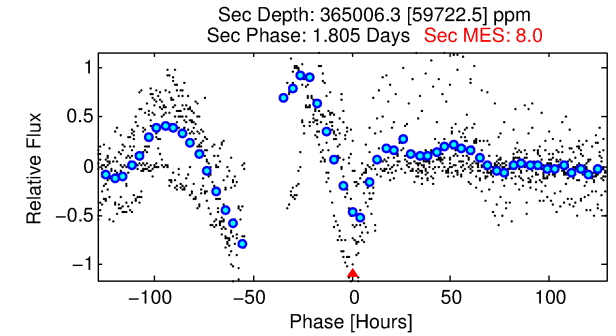
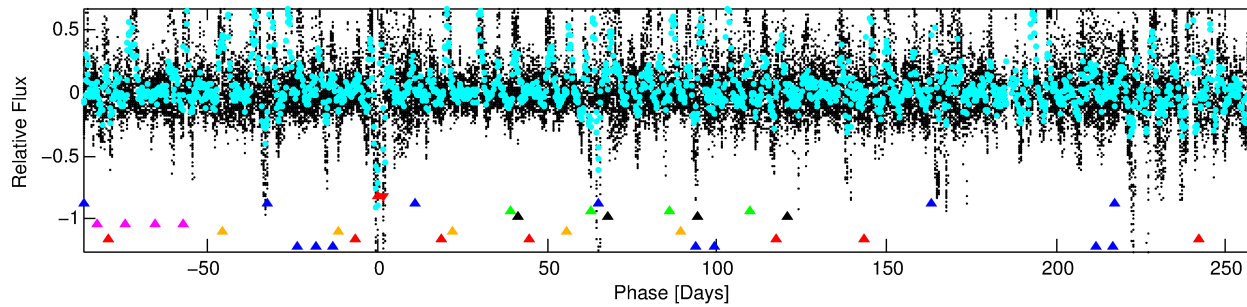
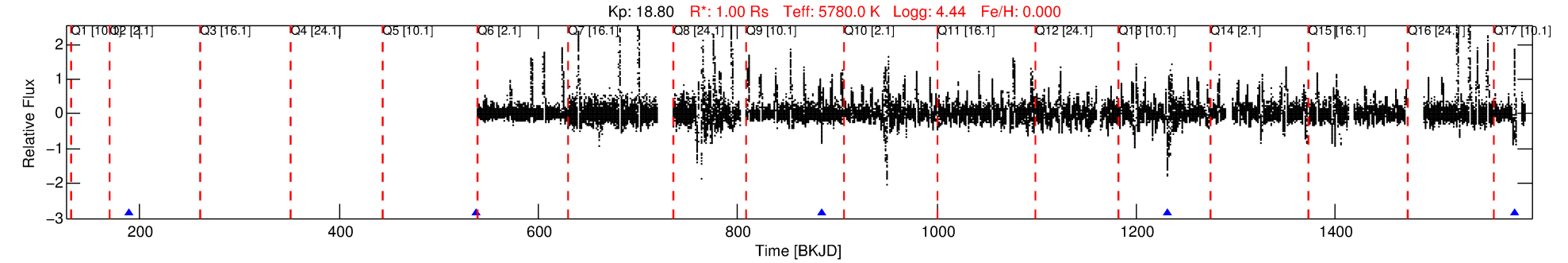
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002436450-01

No Significant Match Found

DV One-Page Summary

KIC: 2436450 Candidate: 1 of 8 Period: 347.411 d



TPS TCE Results:

Period = 347.41139 d
Epoch = 189.6853 BKJD

DV fit results are unavailable

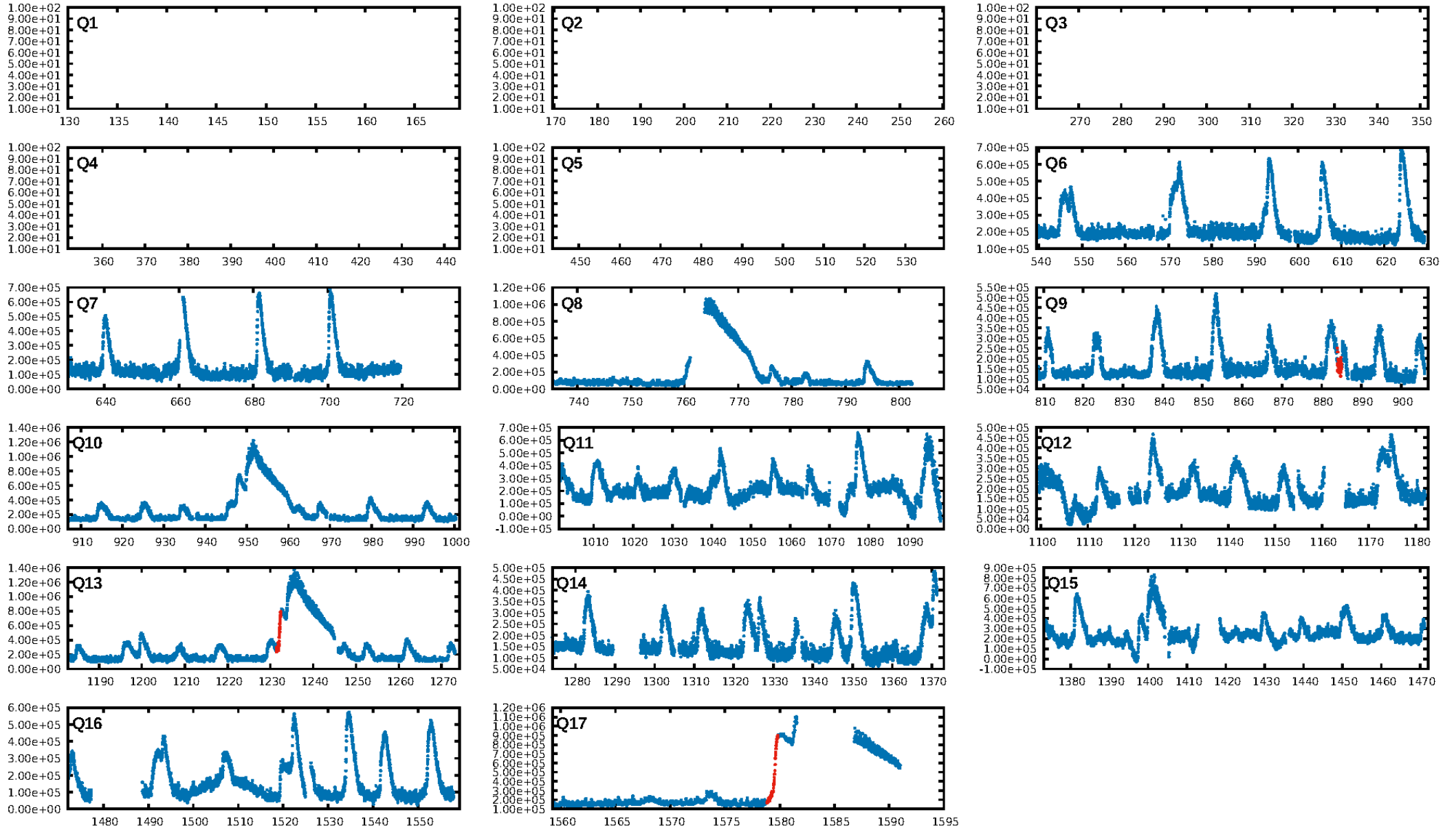
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.47σ]
LongPeriod-sig: 100.0% [12.30σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.402
Centroid-sig: 0.0%
Centroid-so: 1.663 arcsec [2.26σ]
OotOffset-rm: 5.499 arcsec [50.21σ]
KicOffset-rm: 0.488 arcsec [5.82σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

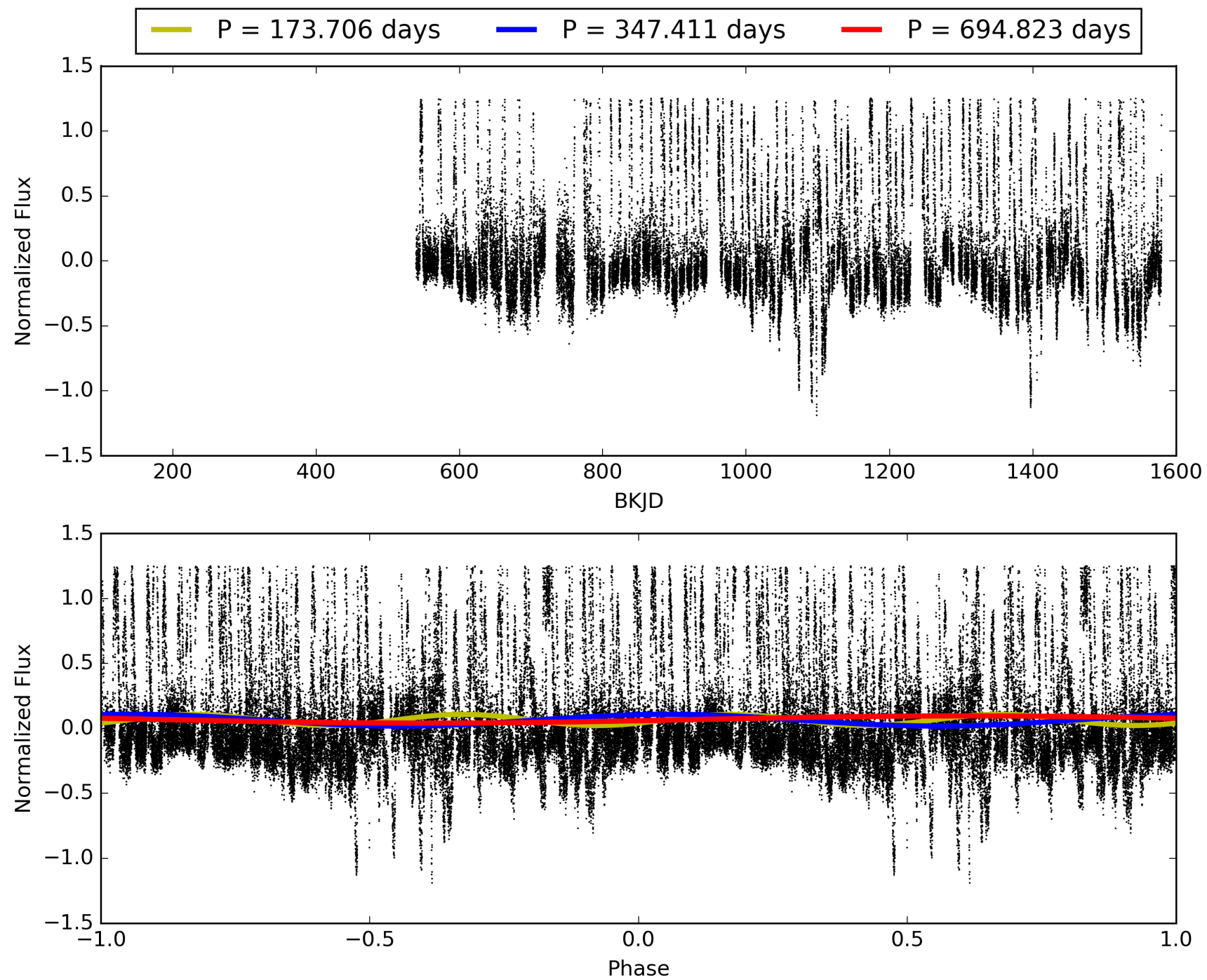
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:13:09 Z

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

TCE 002436450-01, PDC Light Curves

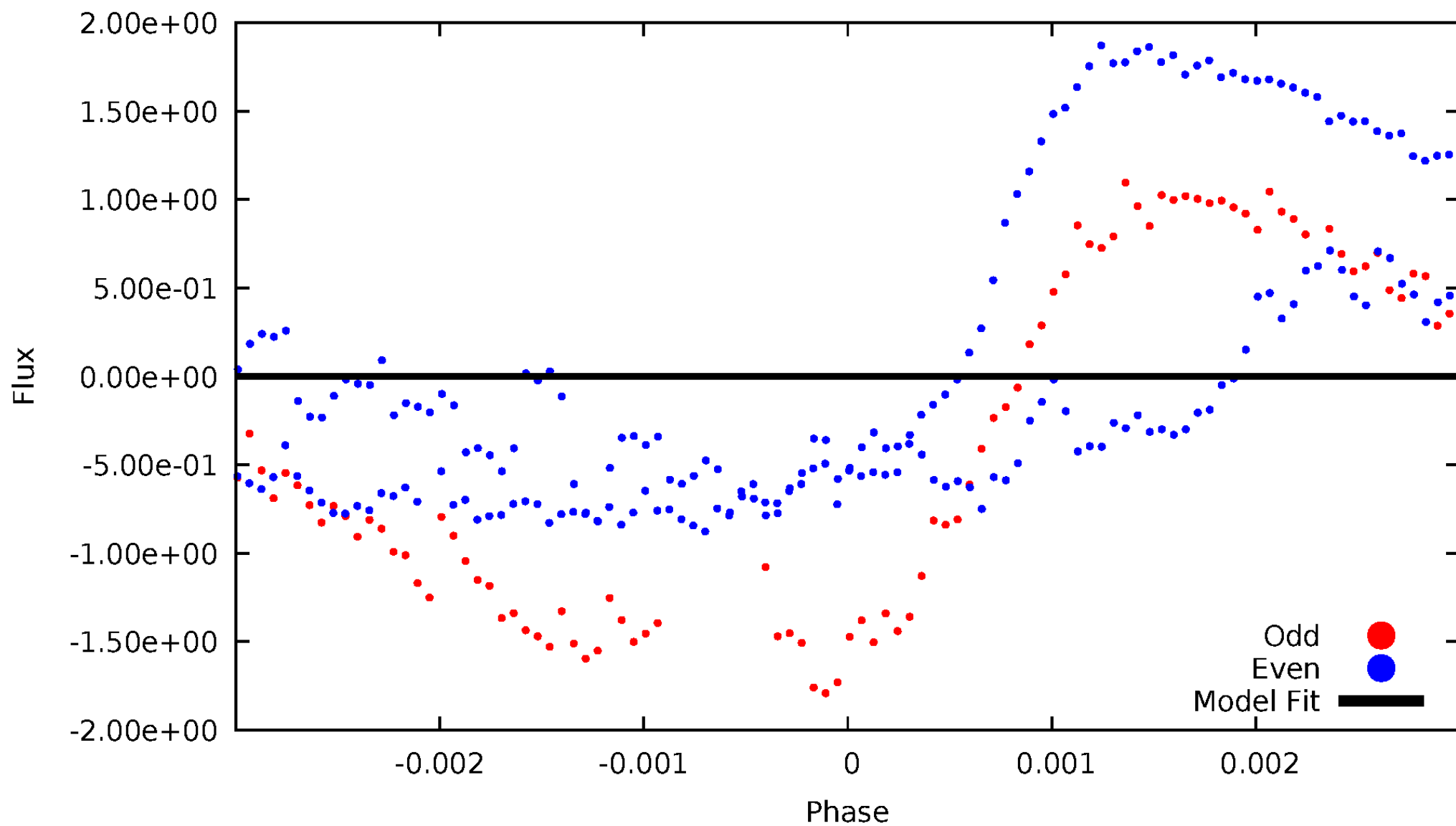


TCE 002436450-01



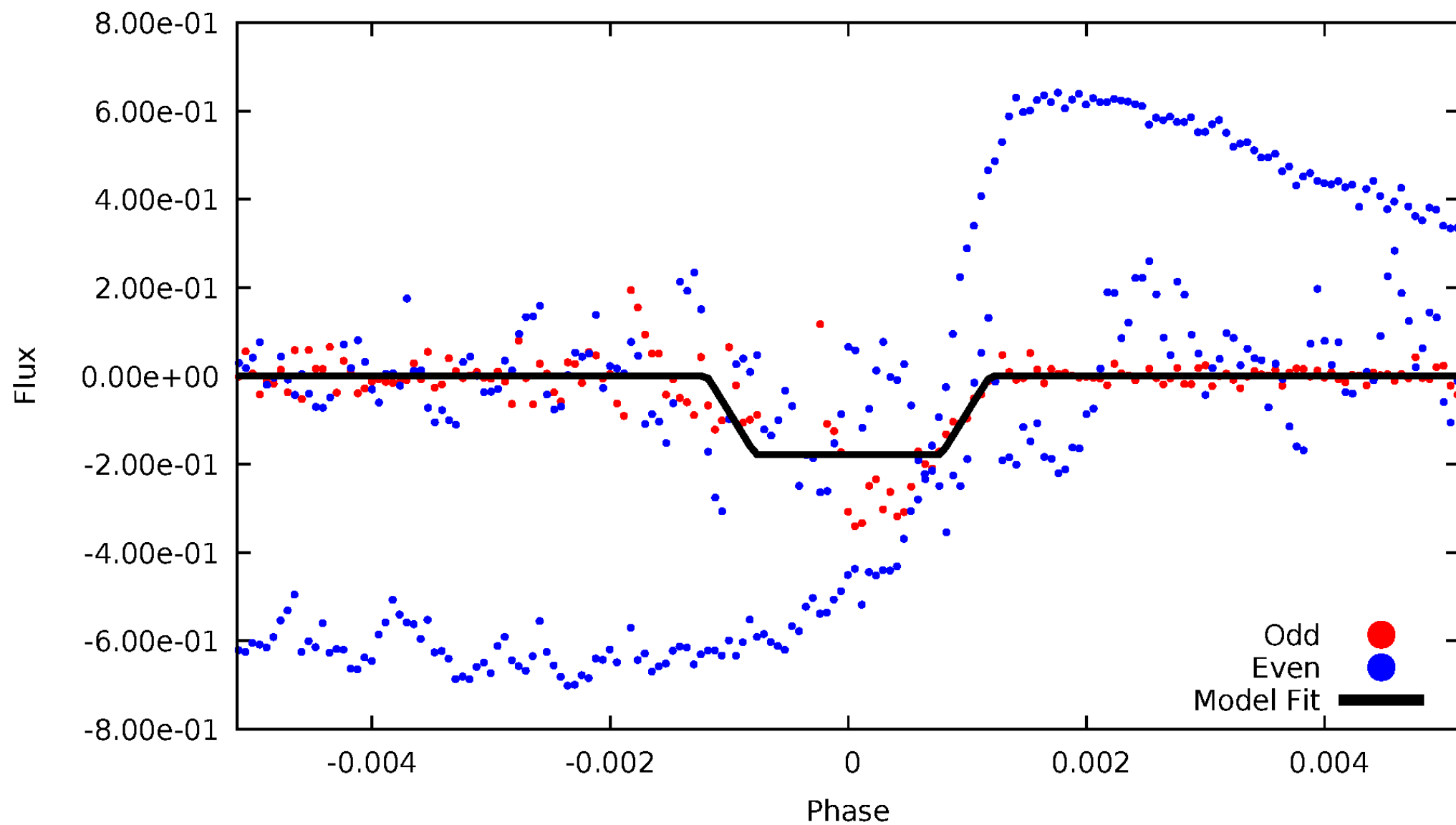
DV Odd/Even

TCE 002436450-01



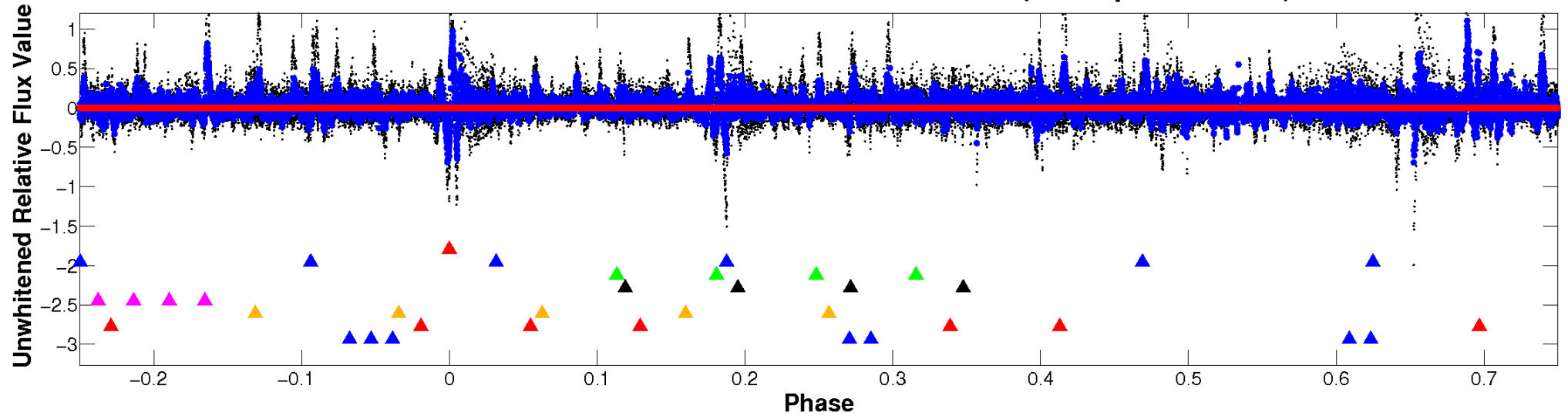
ALT Odd/Even

TCE 002436450-01



Non-Whitened Vs. Whitened Light Curve

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

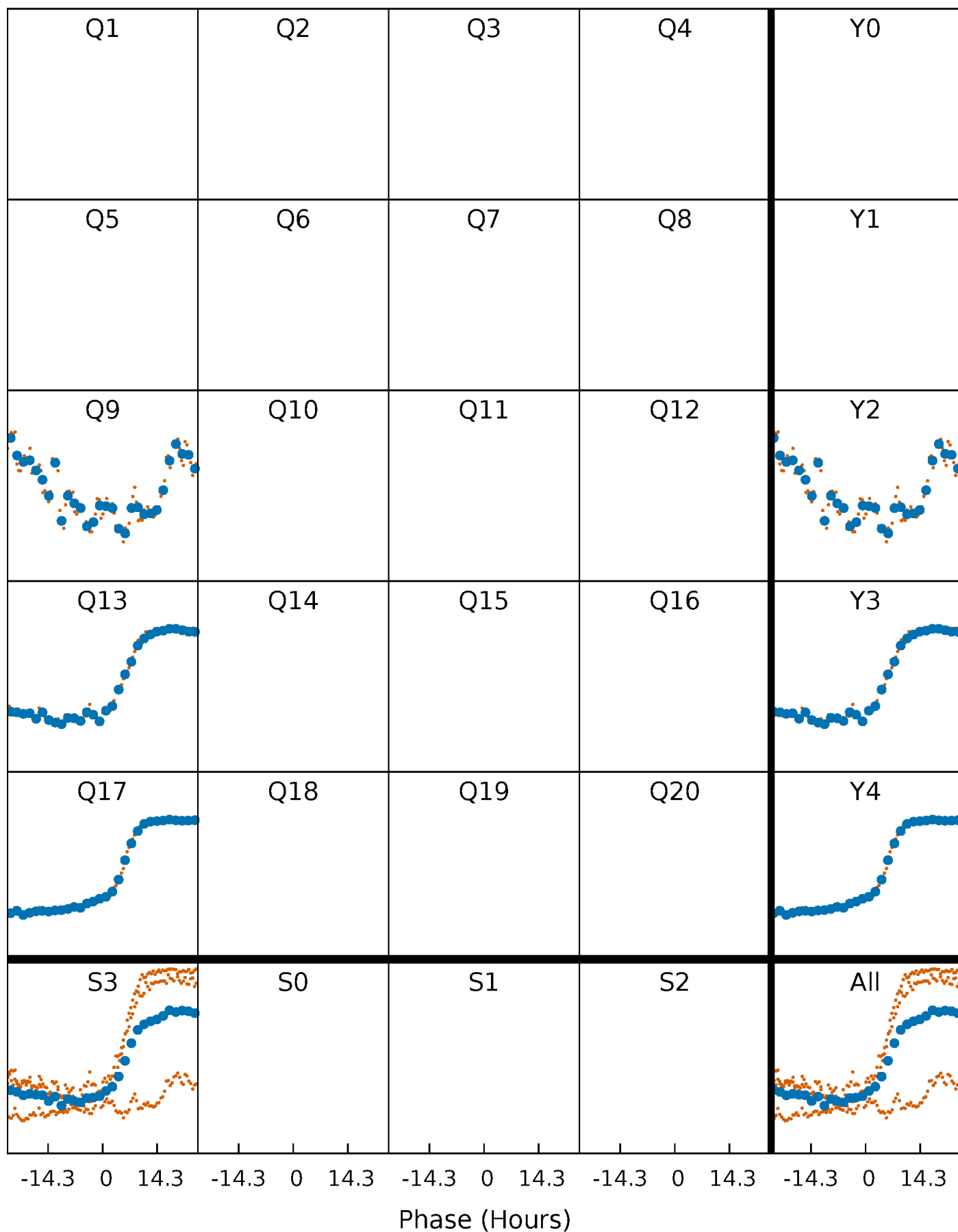


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



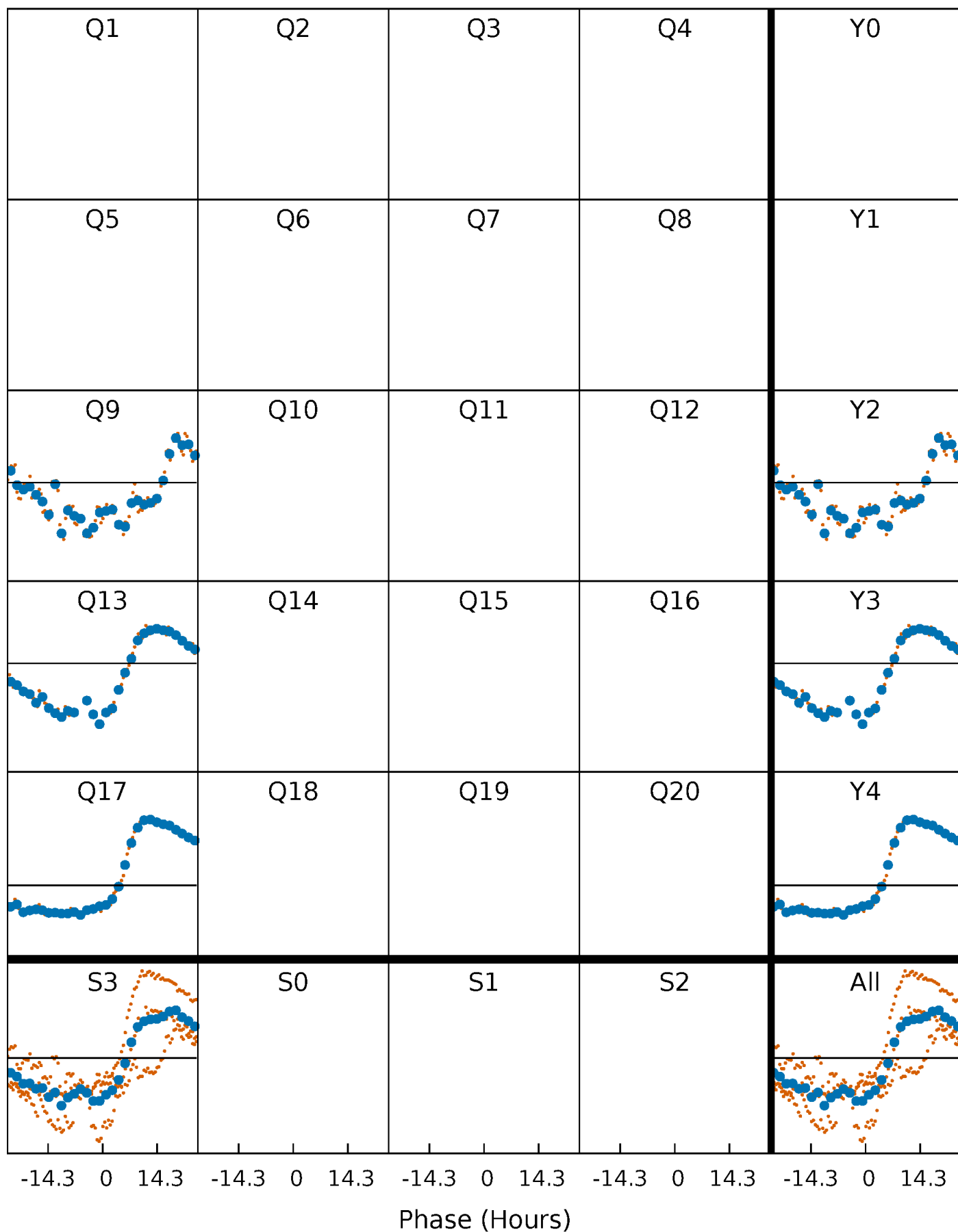
PDC Quarter-Phased Transit Curves

TCE 002436450-01 P=347.411387 Days $T_0=189.685339$ (BKJD)



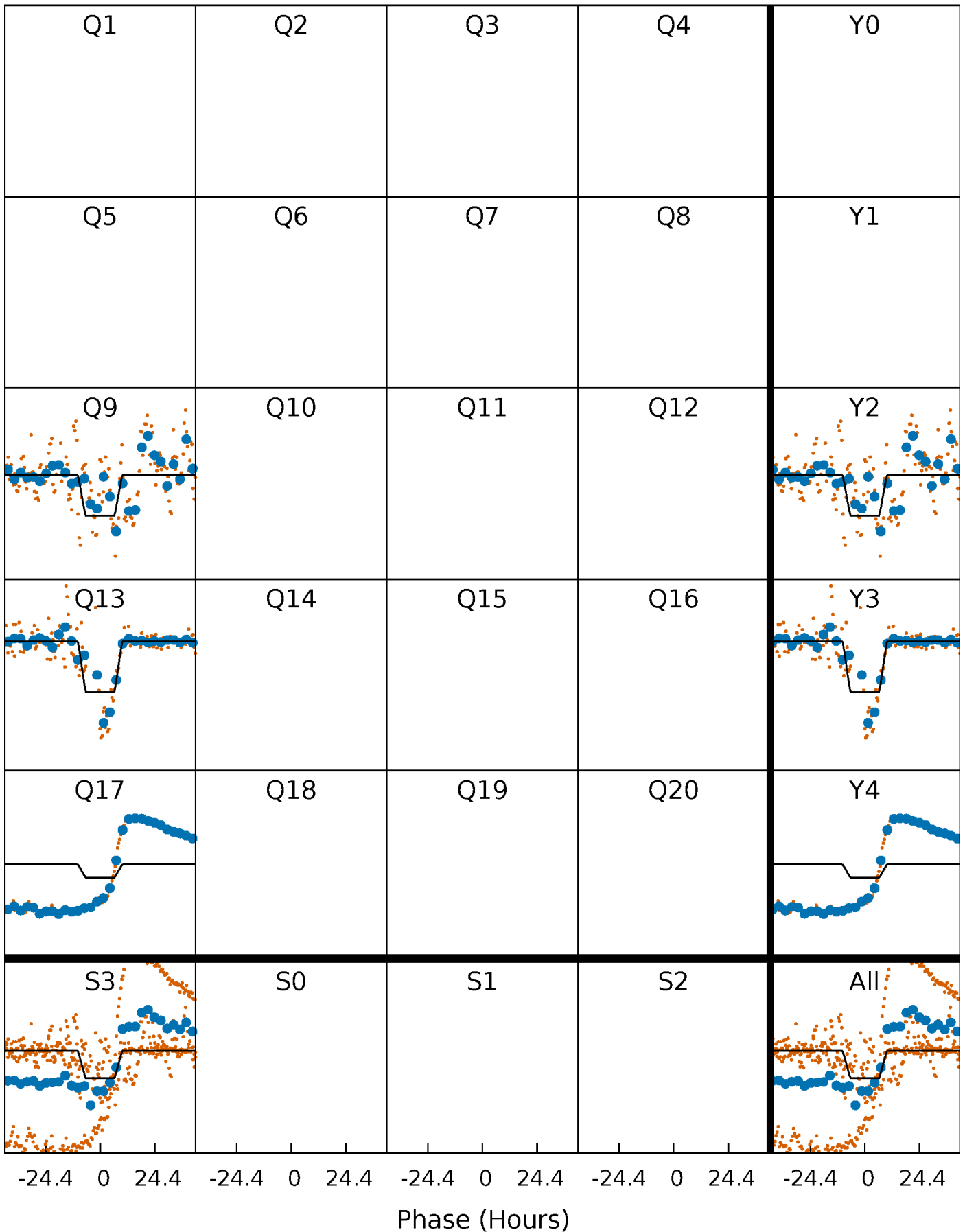
DV Quarter-Phased Transit Curves

TCE 002436450-01 $P=347.411387$ Days $T_0=189.685339$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

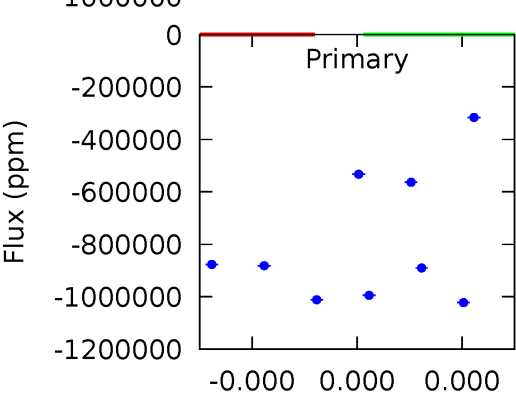
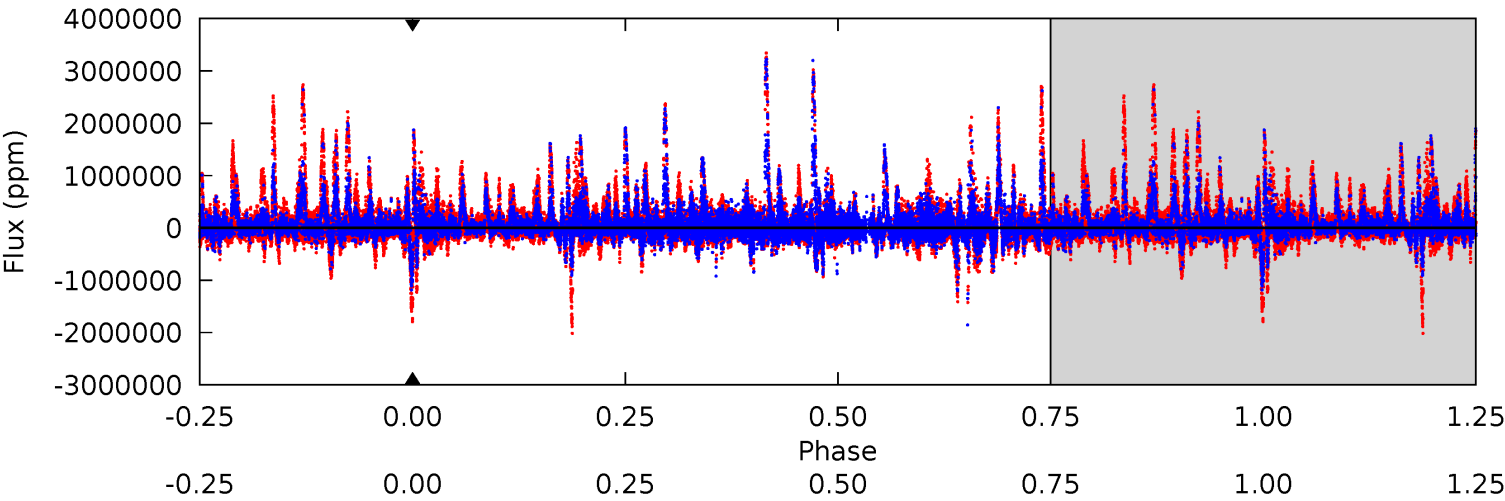
TCE 002436450-01 P=347.411387 Days $T_0=189.627904$ (BKJD)



DV Model-Shift Uniqueness Test

002436450-01, P = 347.411387 Days, E = 189.685339 Days

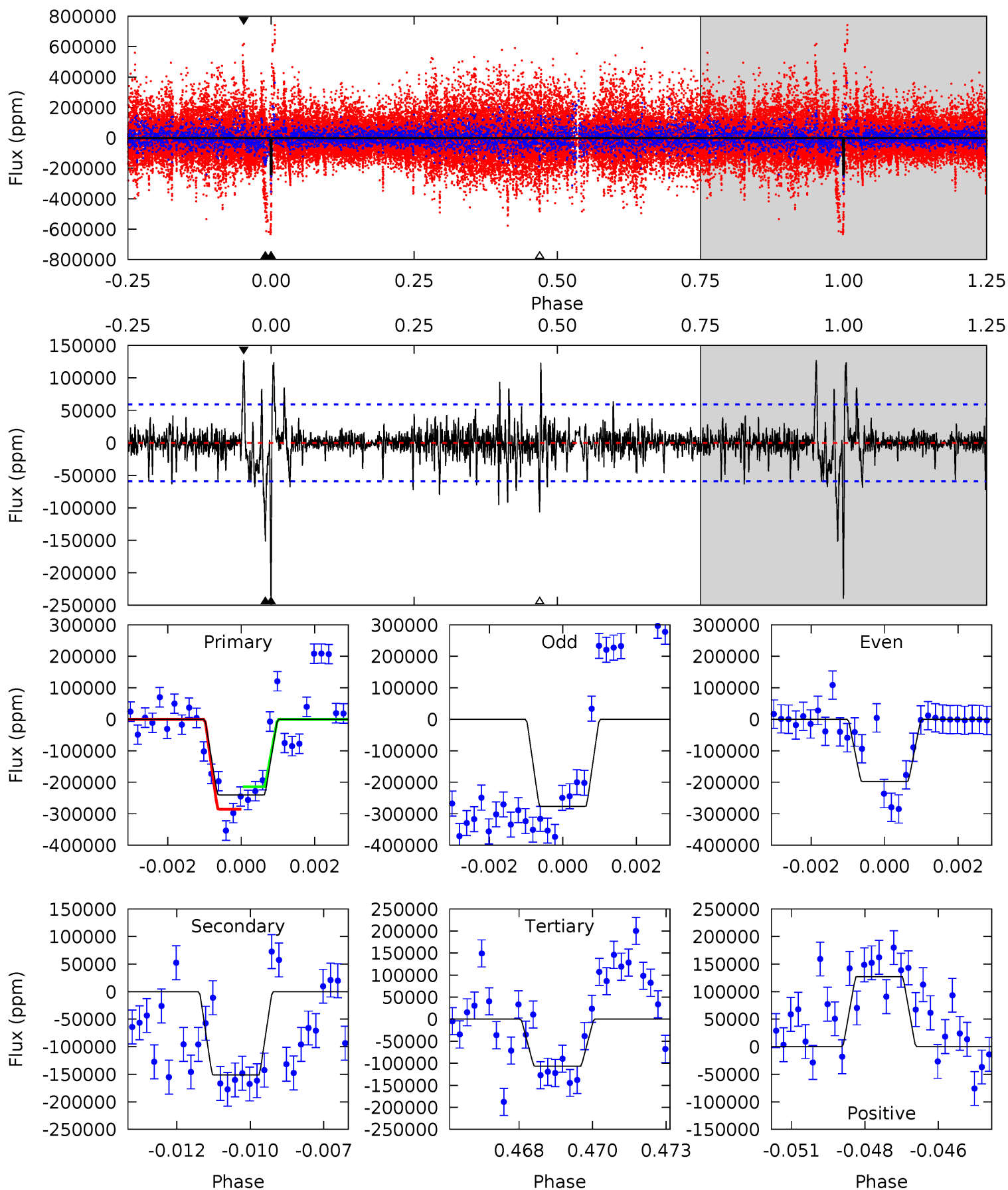
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002436450-01, P = 347.411387 Days, E = 189.627904 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	13.5	9.55	11.4	5.29	3.03	1.92	11.9	10.1	3.99	2.16	2.78	1.27	0.35	3.17



Stellar Parameters For KIC 002436450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436450-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$34.29^{+11.25}_{-11.00}$	363^{+19}_{-18}	2984^{+3261}_{-8742}	1343^{+56788}_{-42975}
Alt.	-151345 ± 11180	$46.13^{+11.86}_{-10.79}$	362^{+18}_{-17}	5736^{+875}_{-551}	43425^{+27868}_{-16304}

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

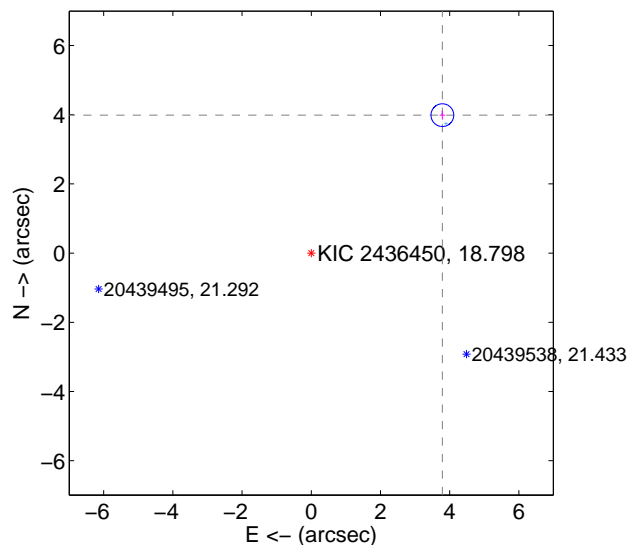
Supplemental centroid analysis for 002436450-01. Kepler magnitude: 18.80. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

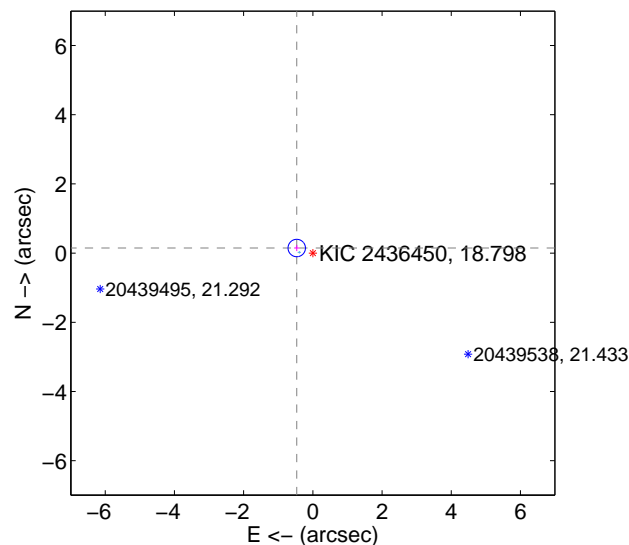
The OOT PRF centroid is offset from the target star catalog position by about 5.74 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.499 \pm 0.110	50.21	-3.788 \pm 0.081	3.986 \pm 0.130
PRF-fit source offset from KIC position	0.488 \pm 0.084	5.82	0.465 \pm 0.075	0.147 \pm 0.089
photometric centroid source offset	1.66 \pm 0.73	2.26	-0.72 \pm 0.55	-1.50 \pm 0.77

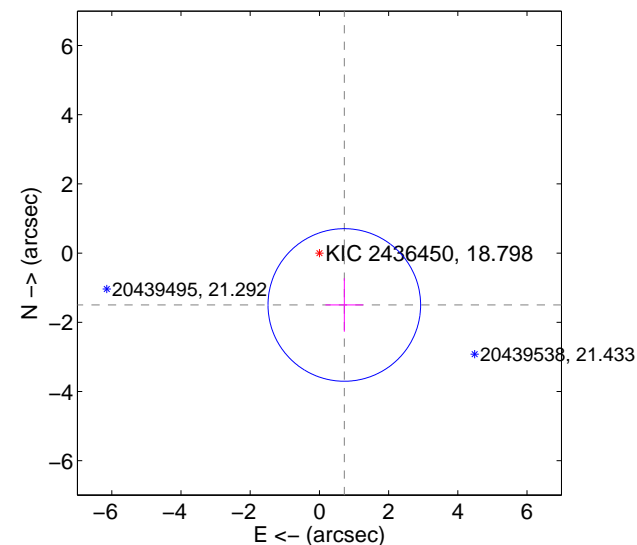
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

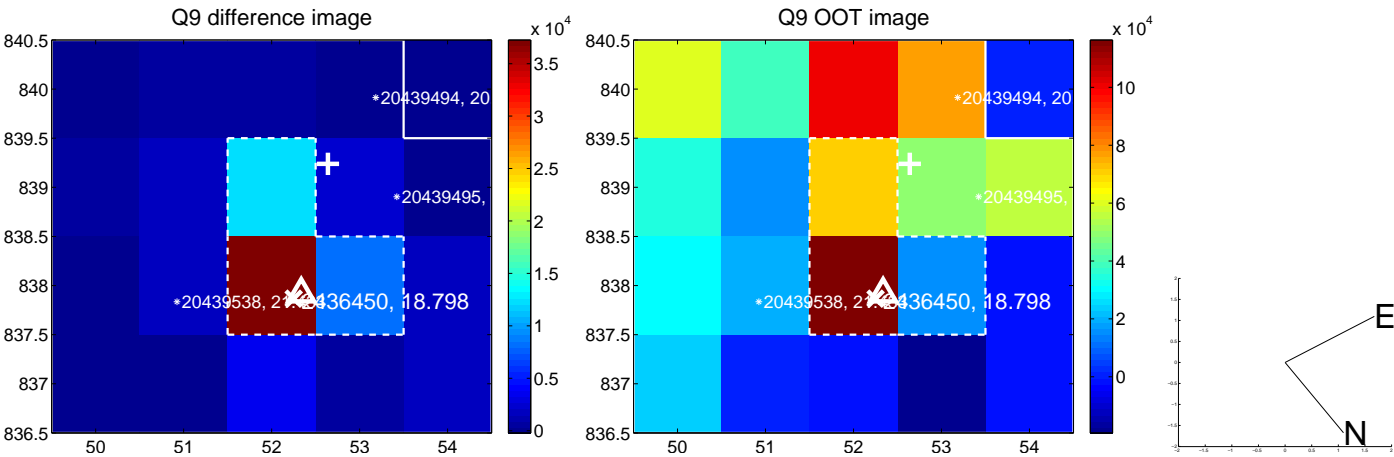
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



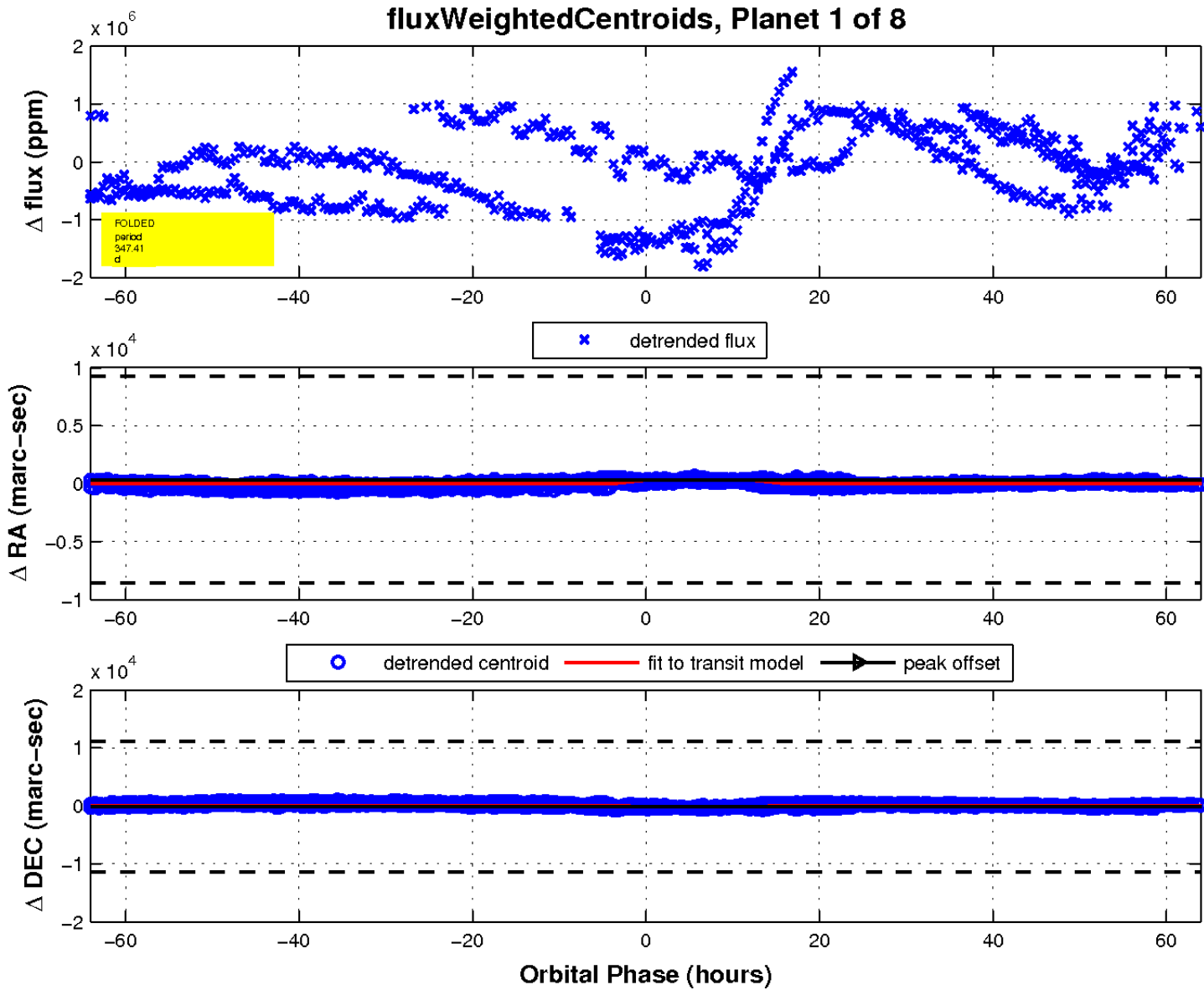
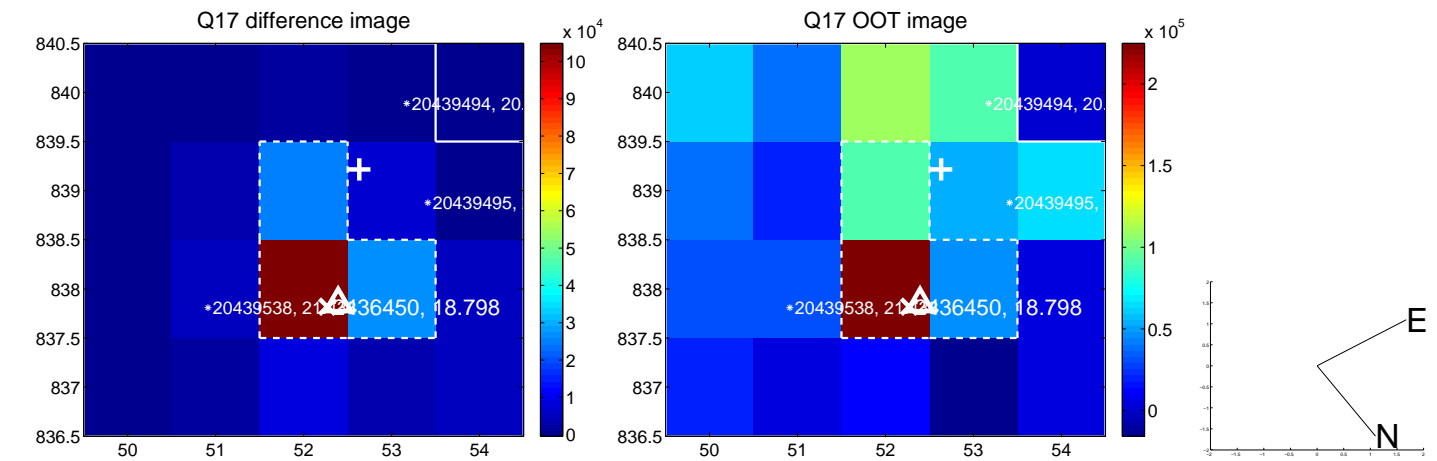
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

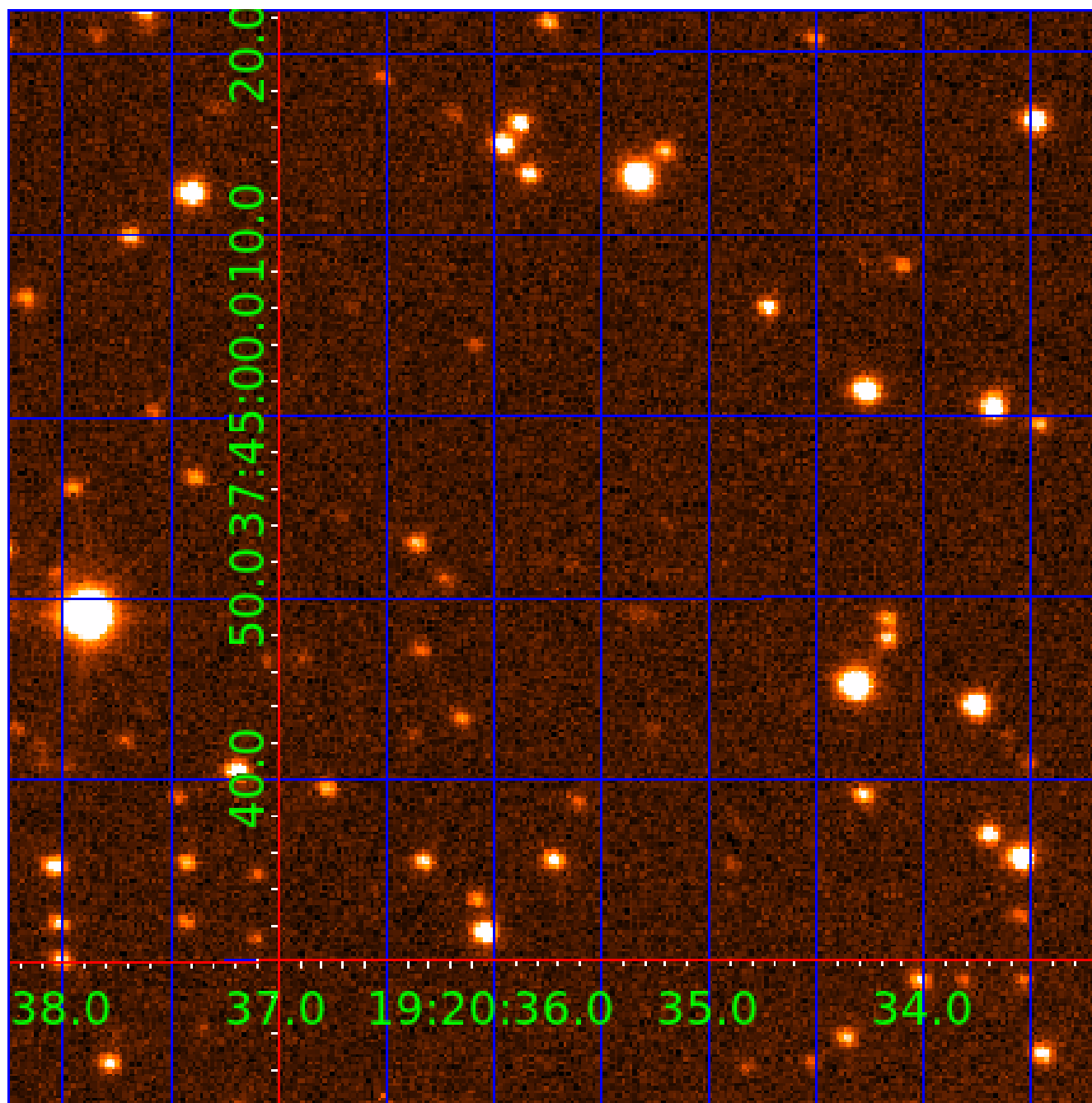


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002436450

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})
002436450-01	OBS	No	347.411387	189.685339	120394.5	12.500	15.3	-1.0	1.00	5780	34.56	1.07
002436450-02	OBS	No	249.664047	200.682000	123720.6	12.000	15.8	-1.0	1.00	5780	35.04	1.66
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002436450-06	OBS	No	313.702824	278.918696	68858.6	15.000	10.3	-1.0	1.00	5780	26.07	1.22
002436450-07	OBS	No	223.018685	234.540409	67577.2	9.000	10.0	-1.0	1.00	5780	25.82	1.93
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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002436450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
002436450-06	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
002436450-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

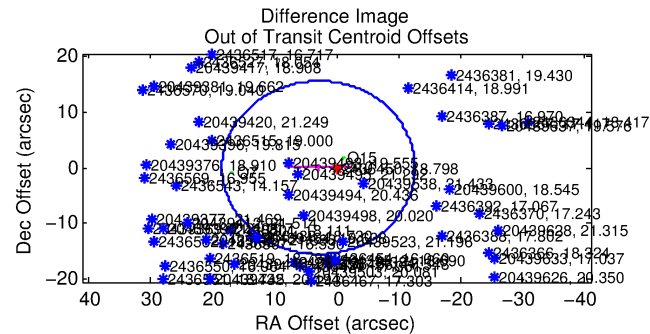
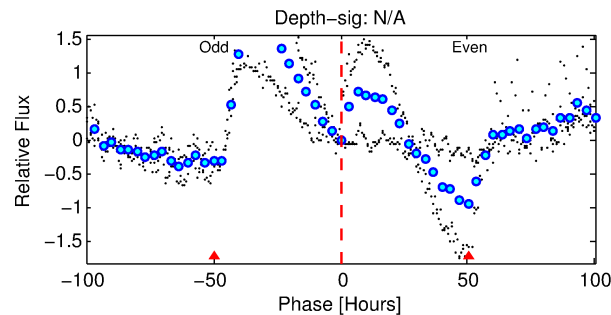
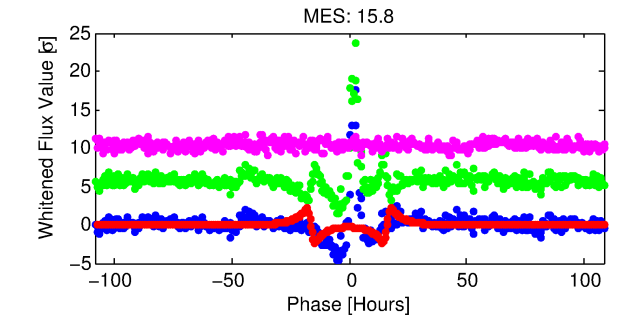
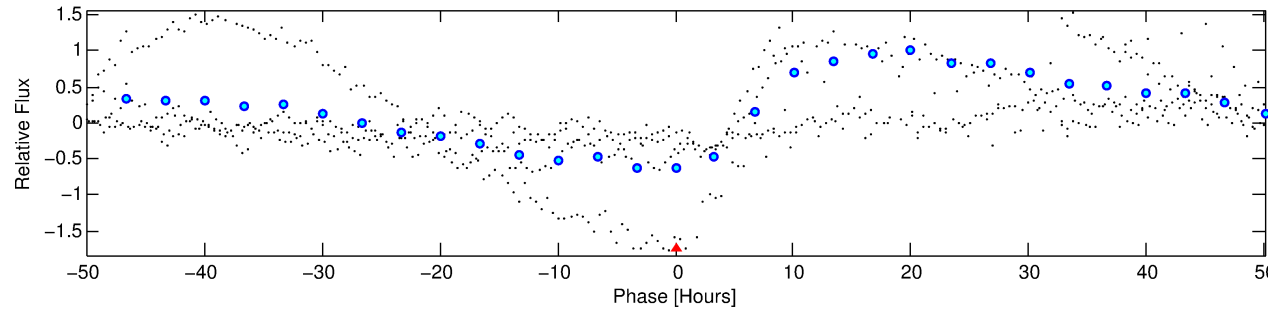
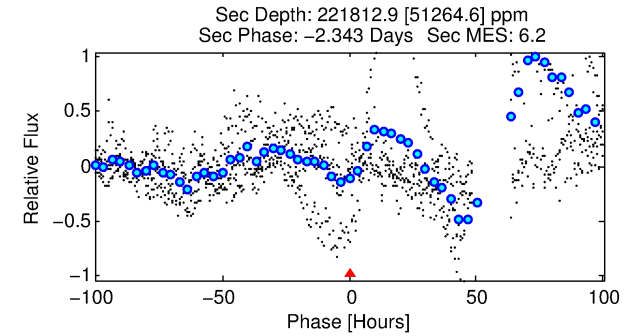
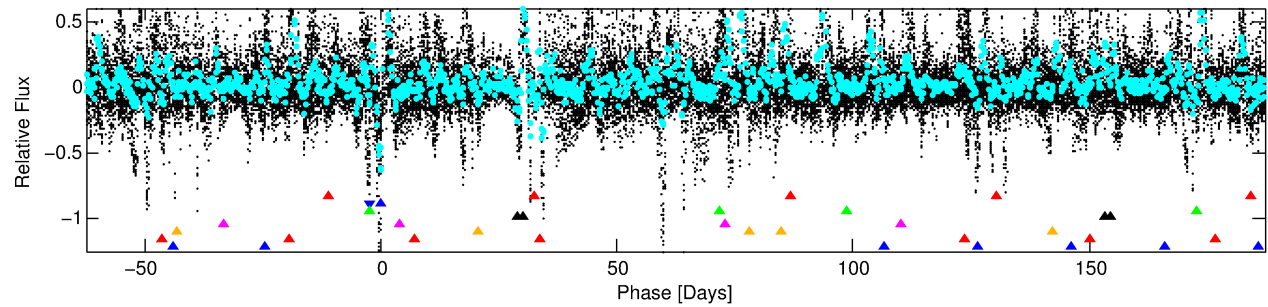
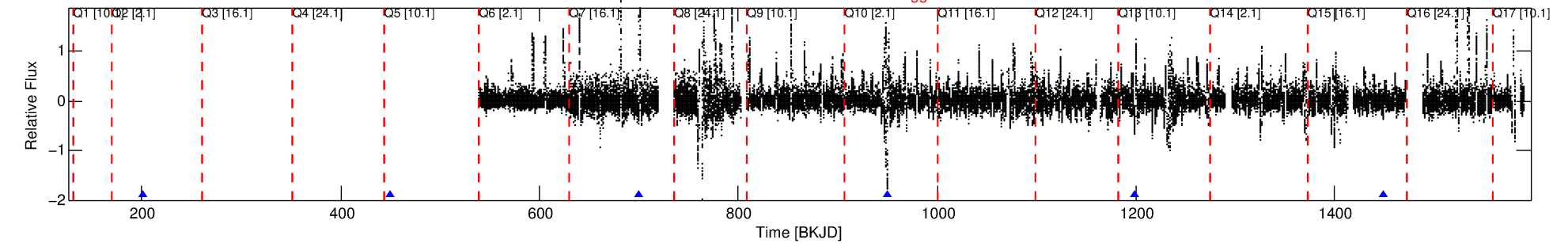
Ephemeris Match Information For 002436450-02

No Significant Match Found

DV One-Page Summary

KIC: 2436450 Candidate: 2 of 8 Period: 249.664 d

Kp: 18.80 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



TPS TCE Results:

Period = 249.66405 d
Epoch = 200.6820 BKJD

DV fit results are unavailable

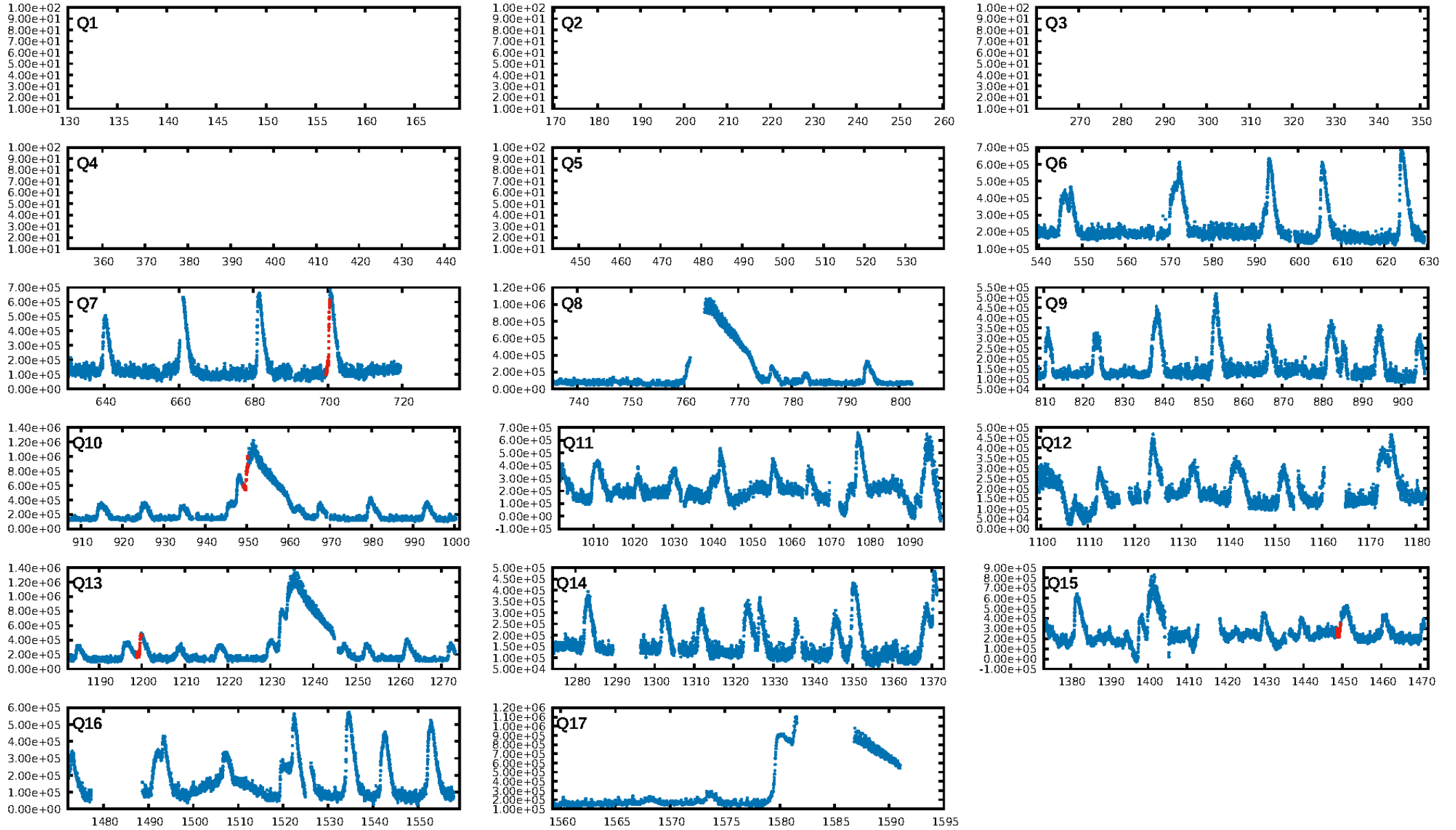
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [24.66σ]
LongPeriod-sig: 100.0% [80.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.2875
Centroid-sig: 48.7%
Centroid-so: 2.291 arcsec [8.71σ]
OotOffset-rm: 2.892 arcsec [0.56σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.536 arcsec [7.14σ]
KicOffset-st: 1/2/0/0 [3]
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DiffImageOverlap-fno: 1.00 [3/3]

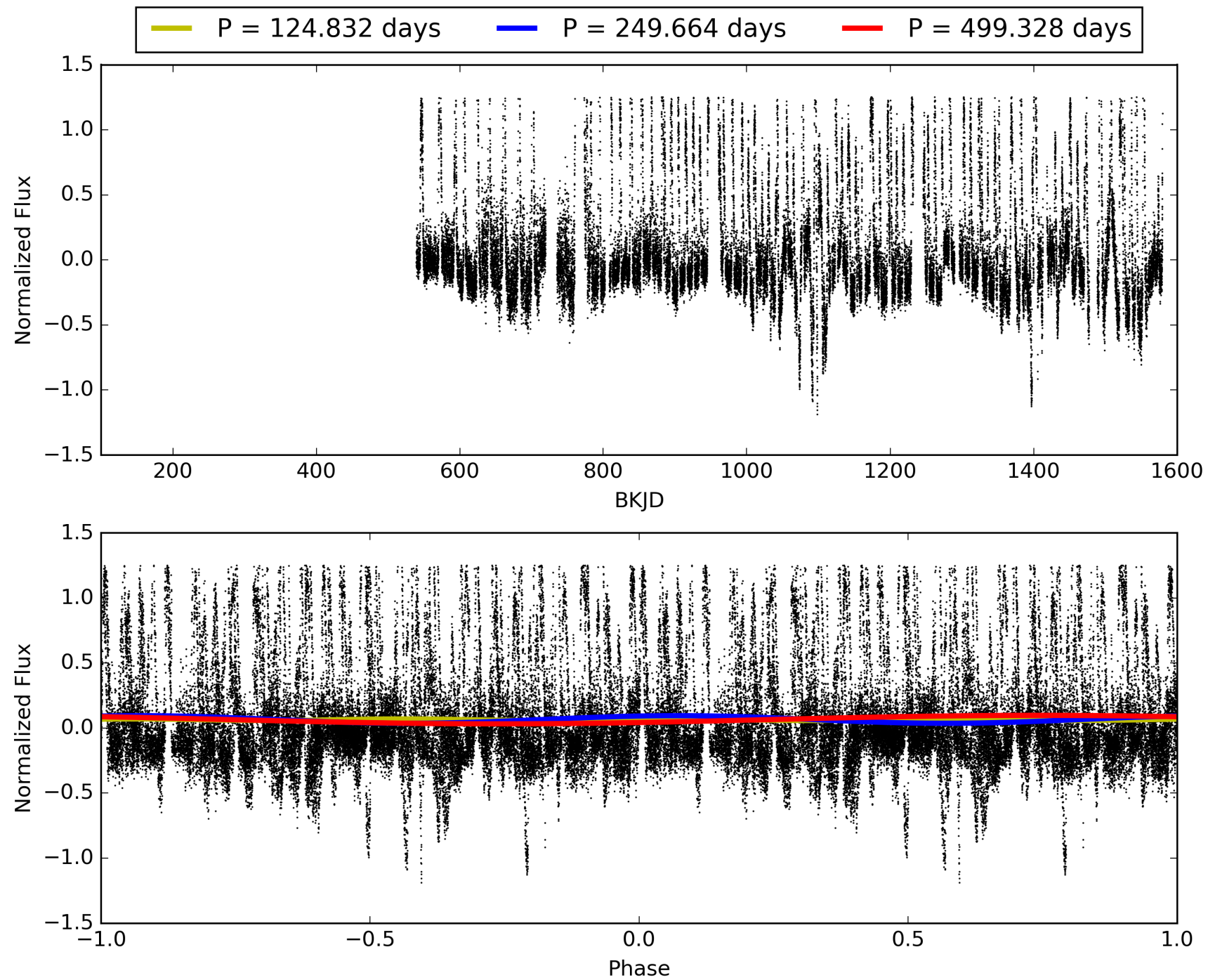
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:13:15 Z

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

TCE 002436450-02, PDC Light Curves

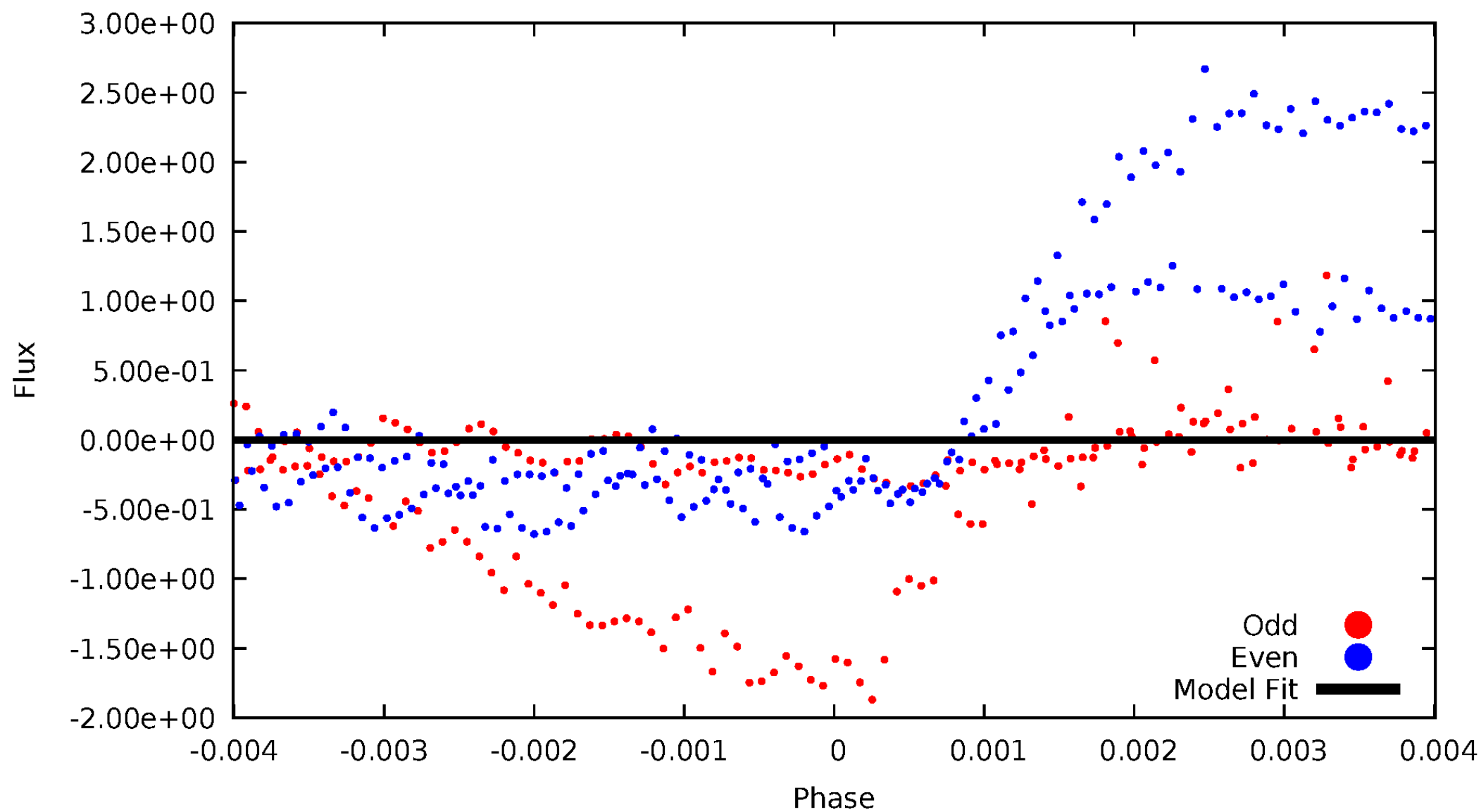


TCE 002436450-02



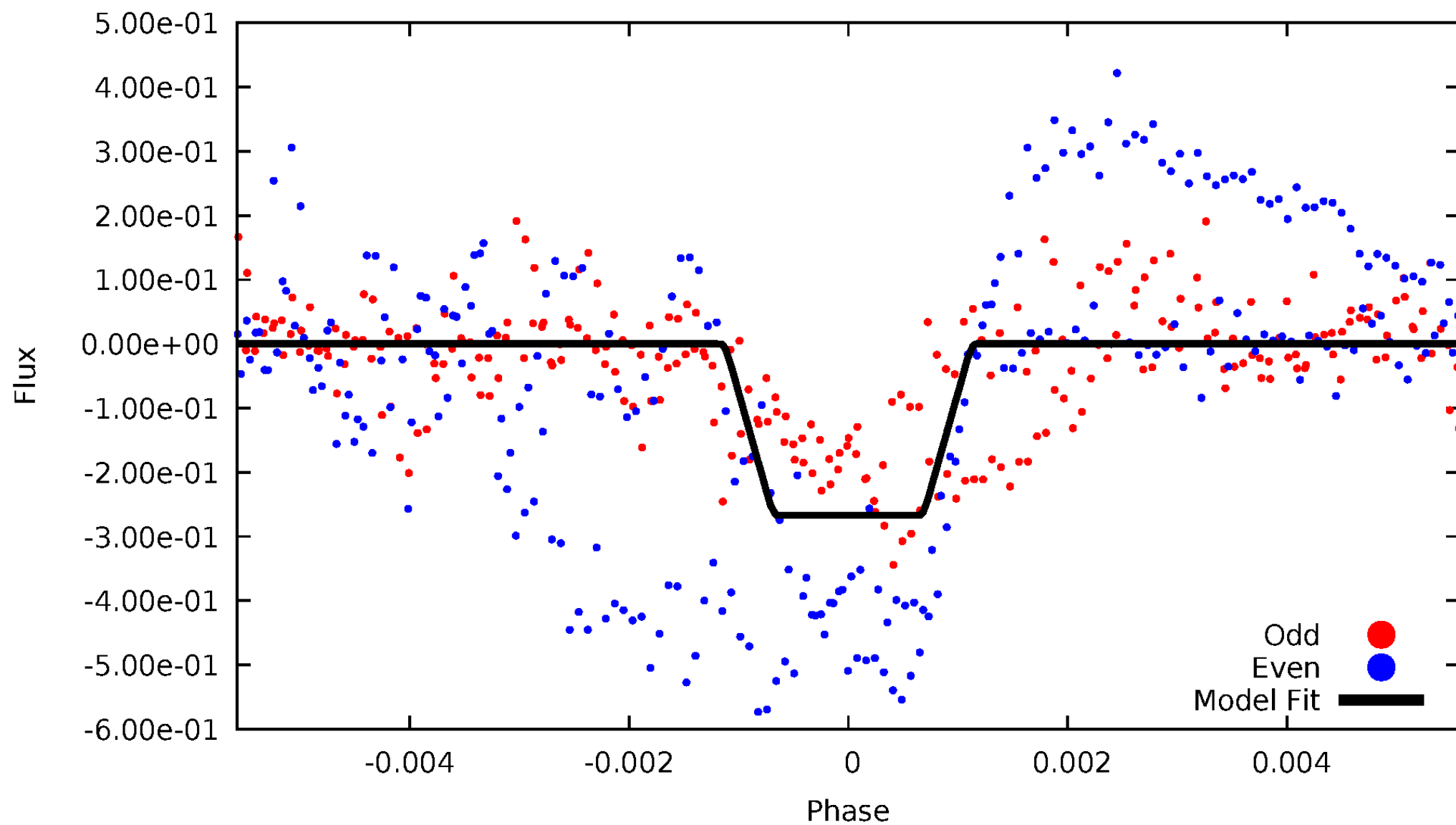
DV Odd/Even

TCE 002436450-02



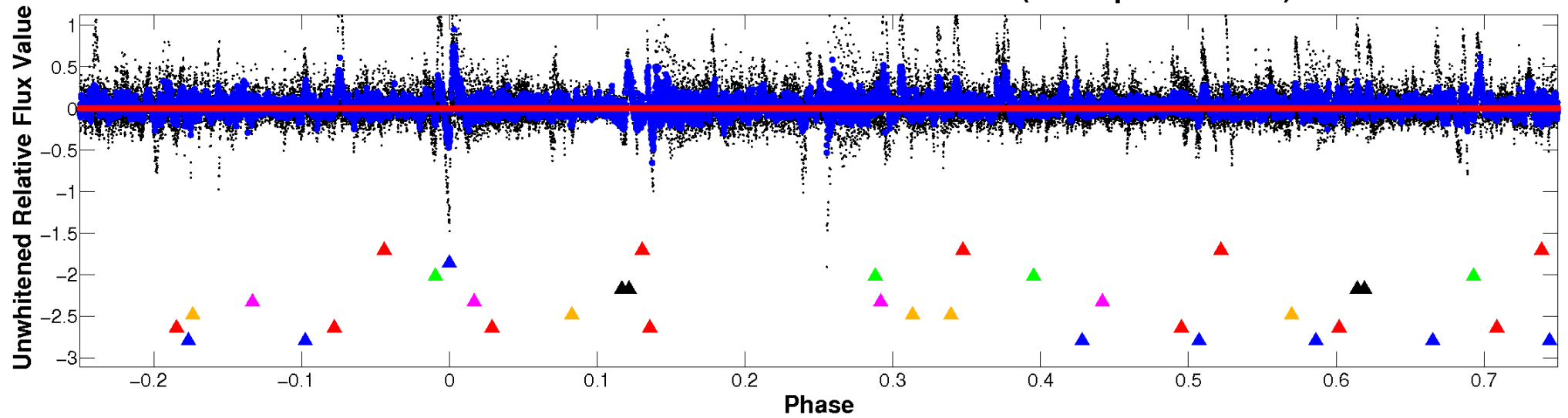
ALT Odd/Even

TCE 002436450-02



Non-Whitened Vs. Whitened Light Curve

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

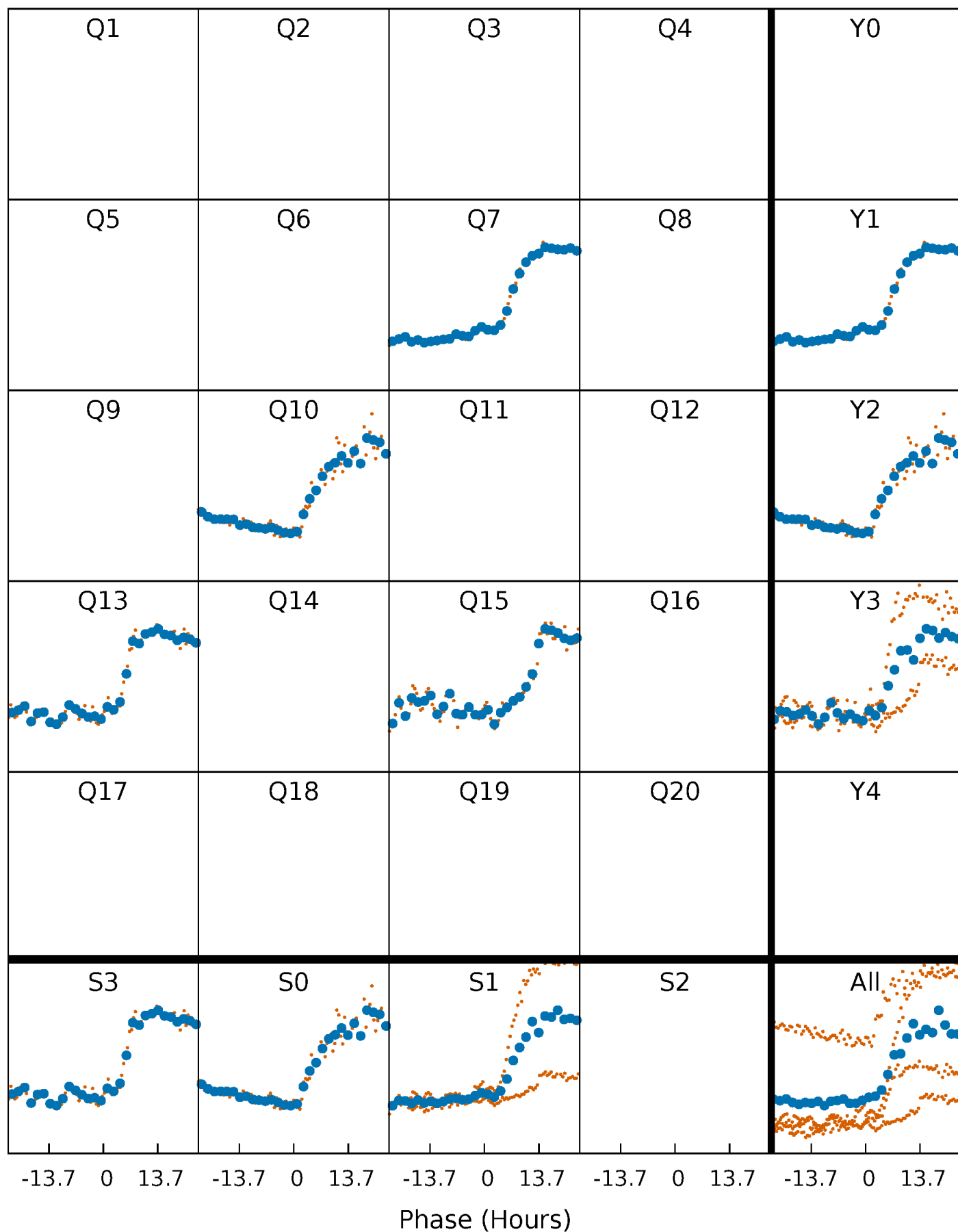


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



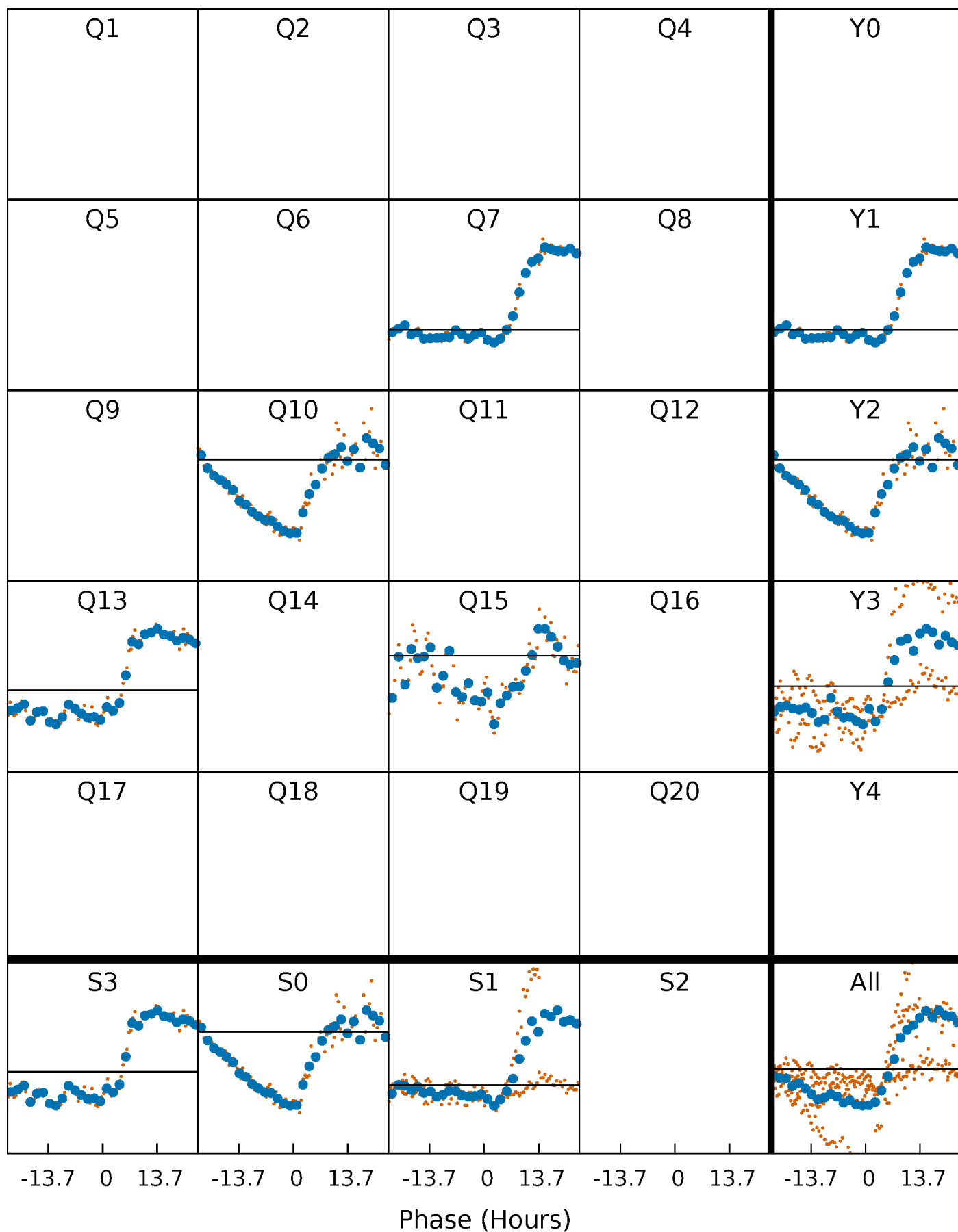
PDC Quarter-Phased Transit Curves

TCE 002436450-02 $P=249.664047$ Days $T_0=200.682000$ (BKJD)



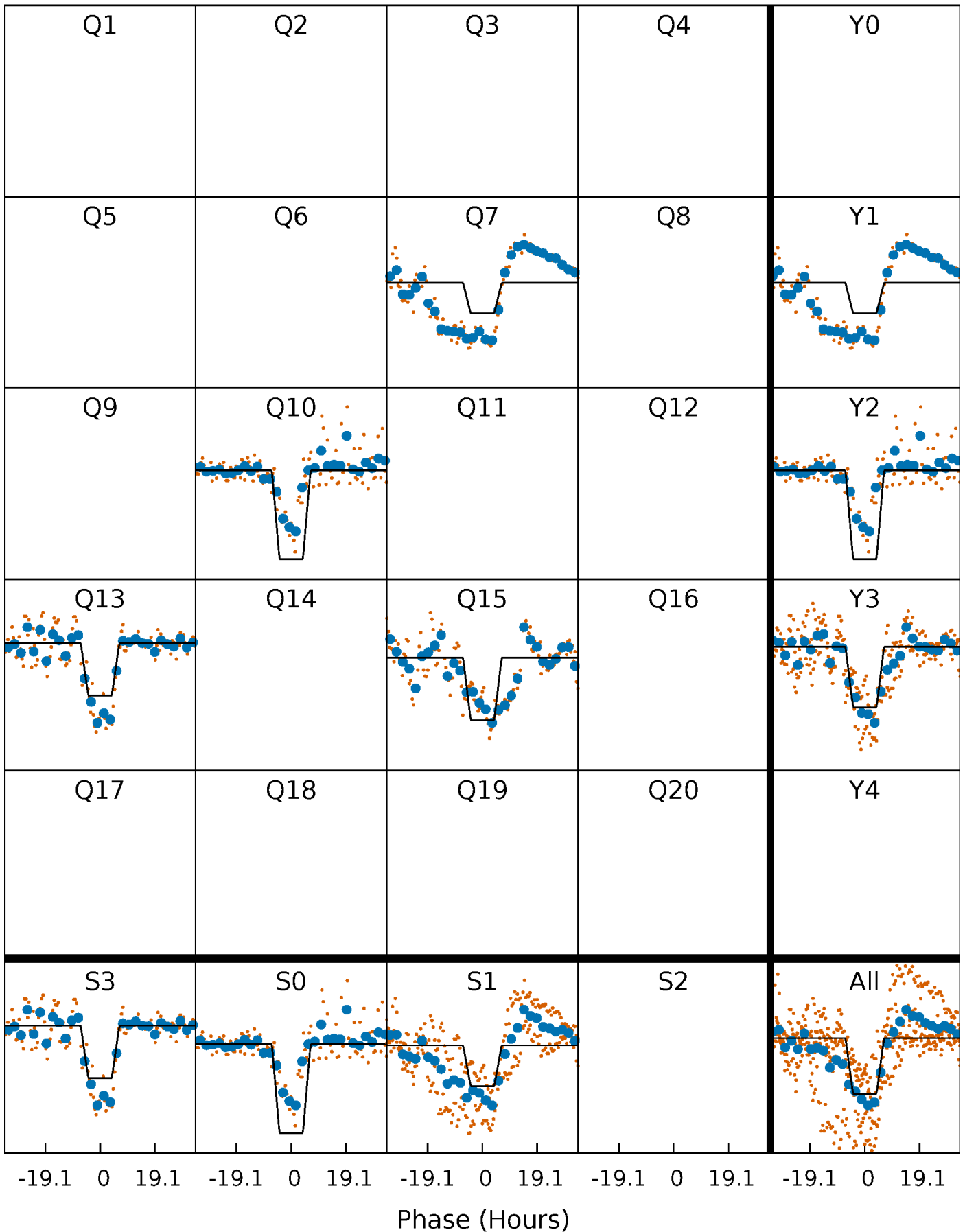
DV Quarter-Phased Transit Curves

TCE 002436450-02 $P=249.664047$ Days $T_0=200.682000$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

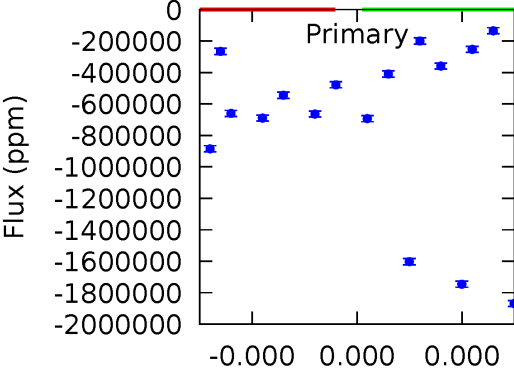
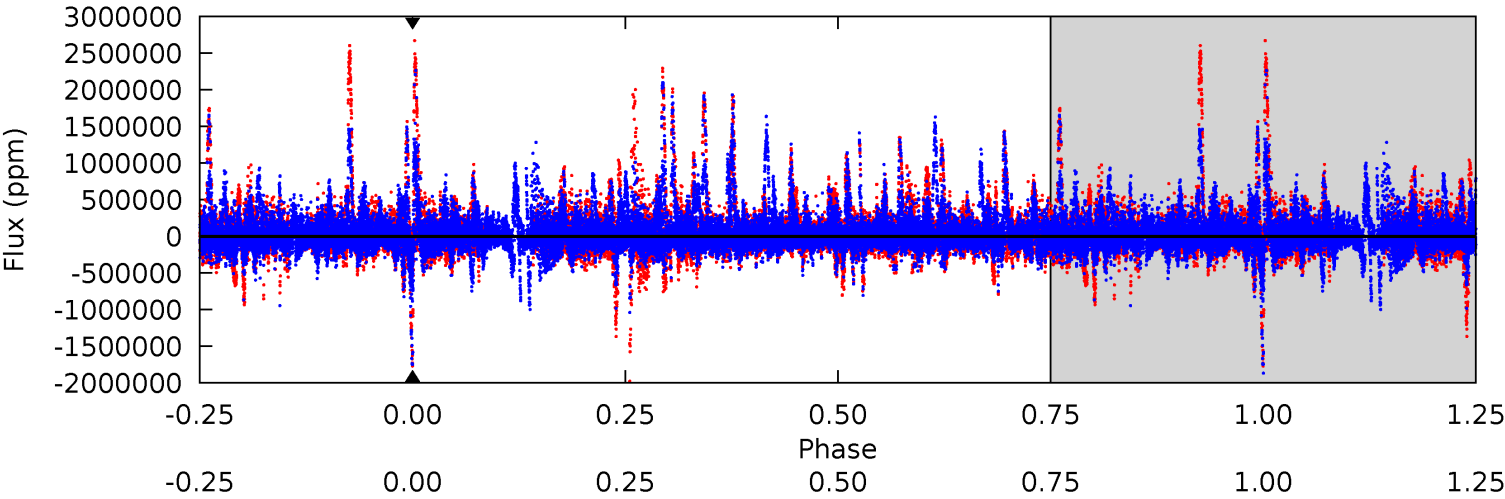
TCE 002436450-02 $P=249.664047$ Days $T_0=200.686796$ (BKJD)



DV Model-Shift Uniqueness Test

002436450-02, P = 249.664047 Days, E = 200.682000 Days

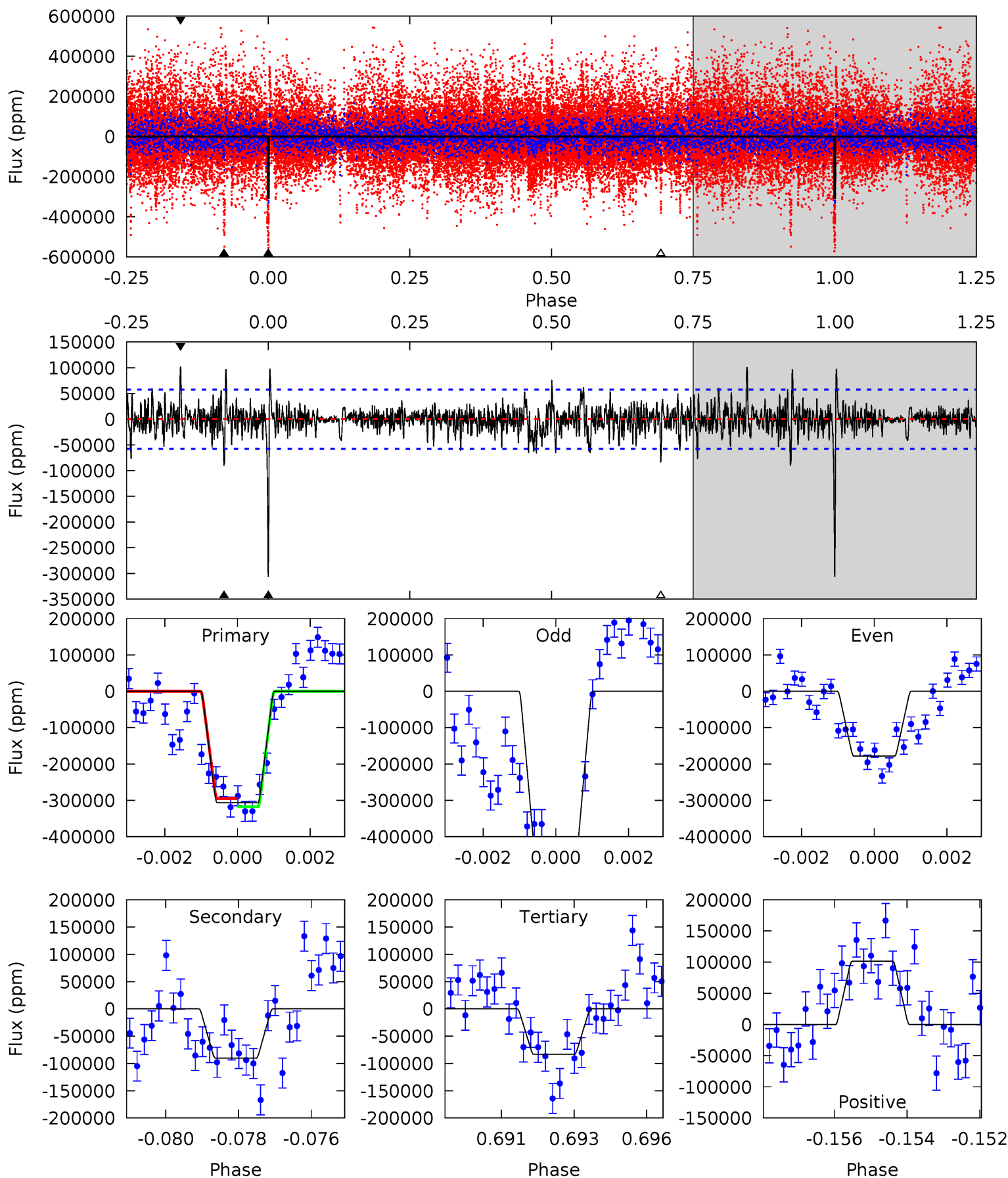
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002436450-02, P = 249.664047 Days, E = 200.686796 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	8.35	7.68	9.35	5.30	3.05	1.93	20.6	18.9	0.66	-1.00	11.5	1.05	0.25	1.05



Stellar Parameters For KIC 002436450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436450-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$34.70^{+11.31}_{-10.49}$	405^{+19}_{-18}	3094^{+3017}_{-8835}	762^{+33359}_{-28160}
Alt.	-90430 ± 10832	$56.37^{+12.01}_{-10.83}$	404^{+19}_{-20}	4651^{+485}_{-364}	10238^{+6172}_{-3311}

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

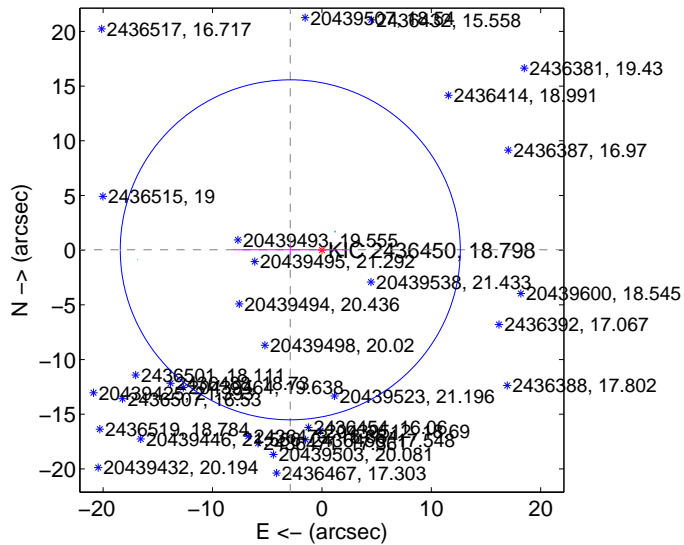
Supplemental centroid analysis for 002436450-02. Kepler magnitude: 18.80. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

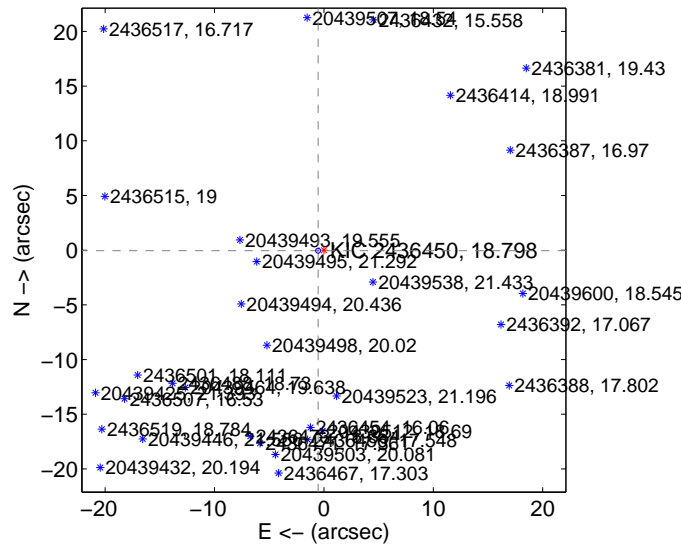
The OOT PRF centroid is offset from the target star catalog position by about 2.24 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.892 ± 5.181	0.56	2.892 ± 5.181	0.032 ± 0.458
PRF-fit source offset from KIC position	0.536 ± 0.075	7.14	0.533 ± 0.072	-0.051 ± 0.096
photometric centroid source offset	2.29 ± 0.26	8.71	0.88 ± 0.13	-2.11 ± 0.28

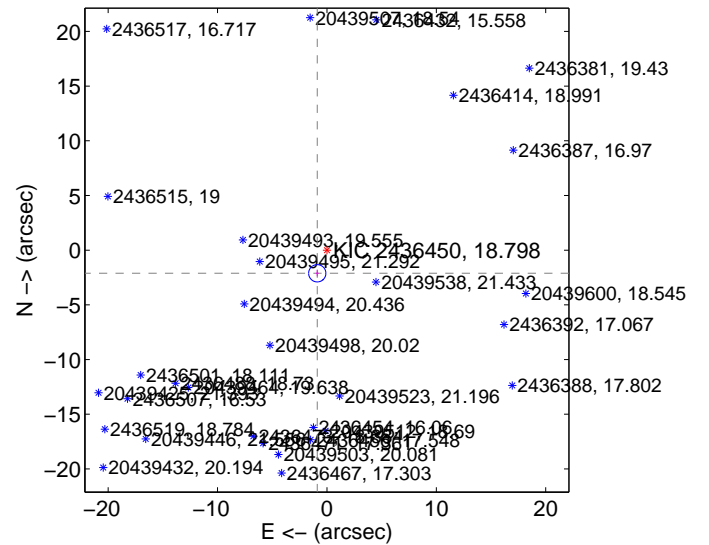
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

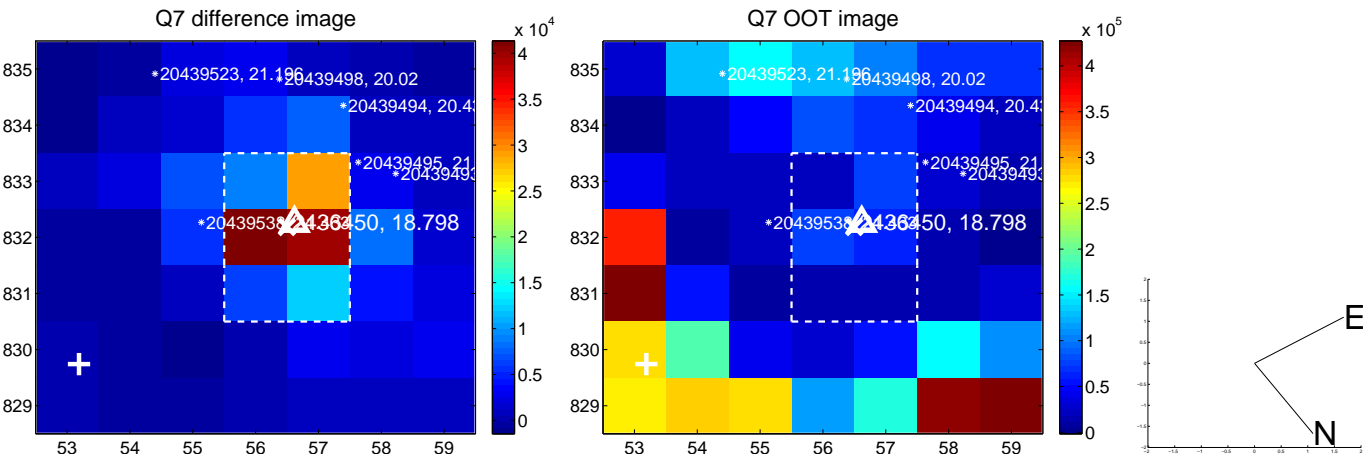


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

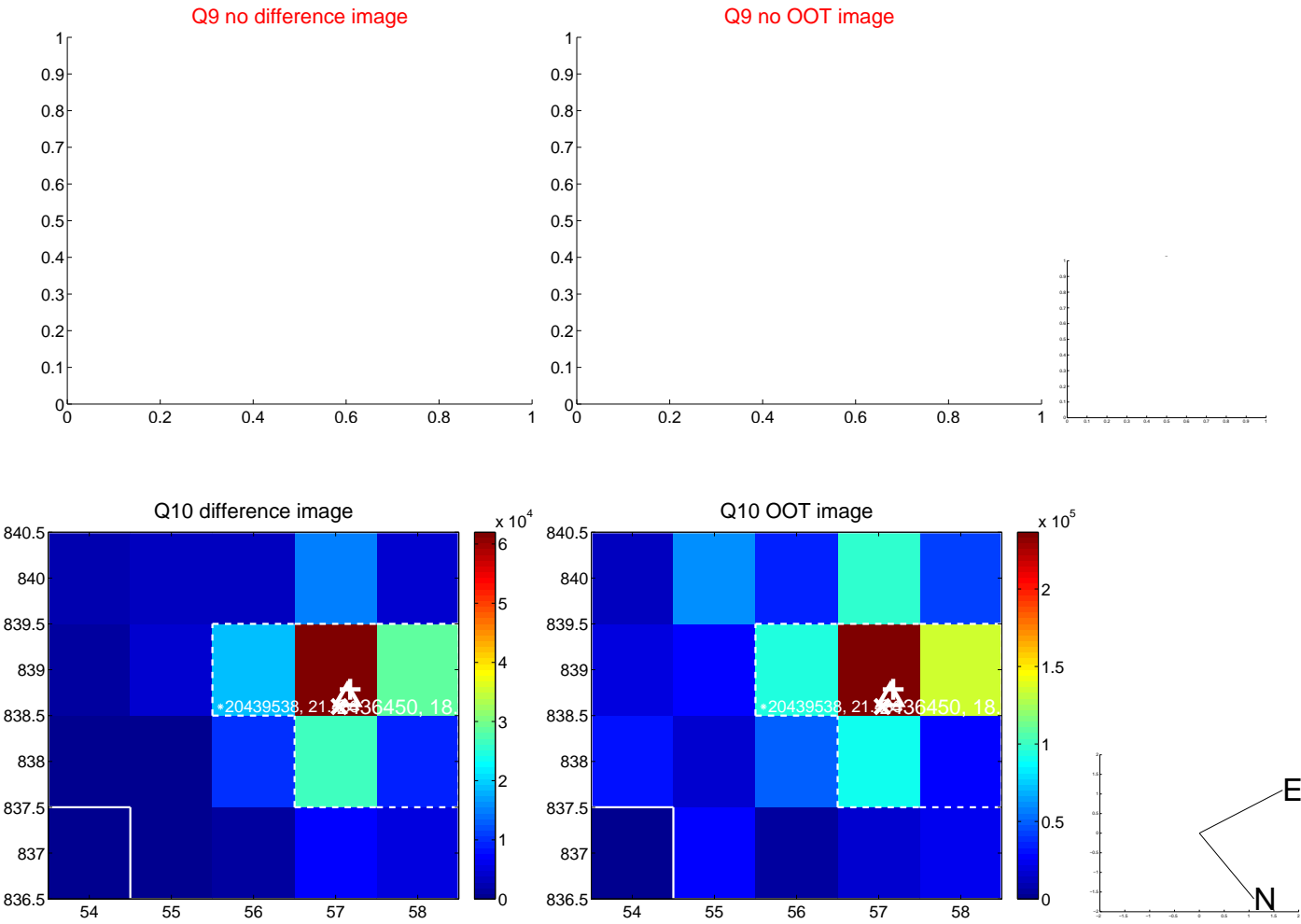
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



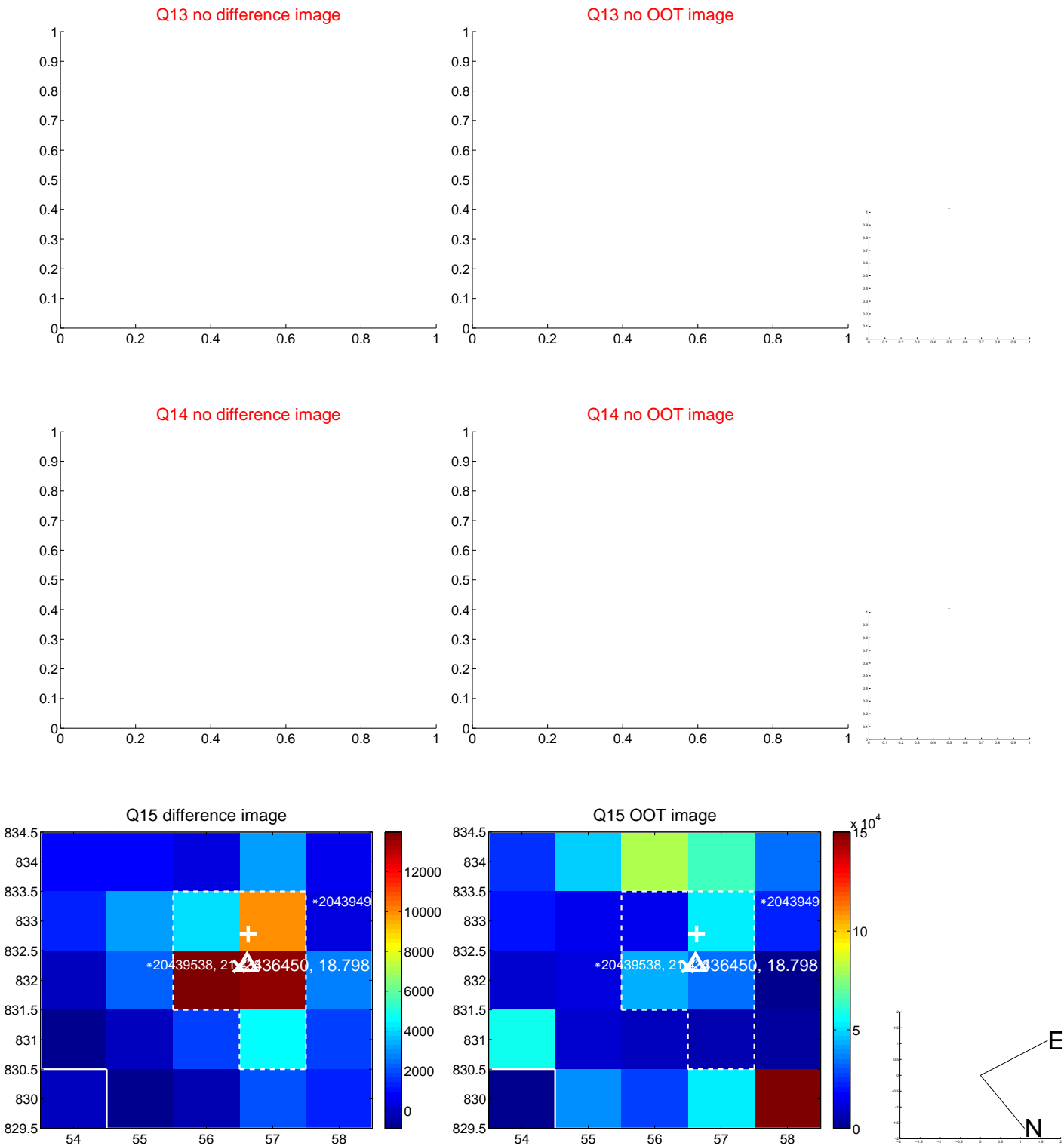
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



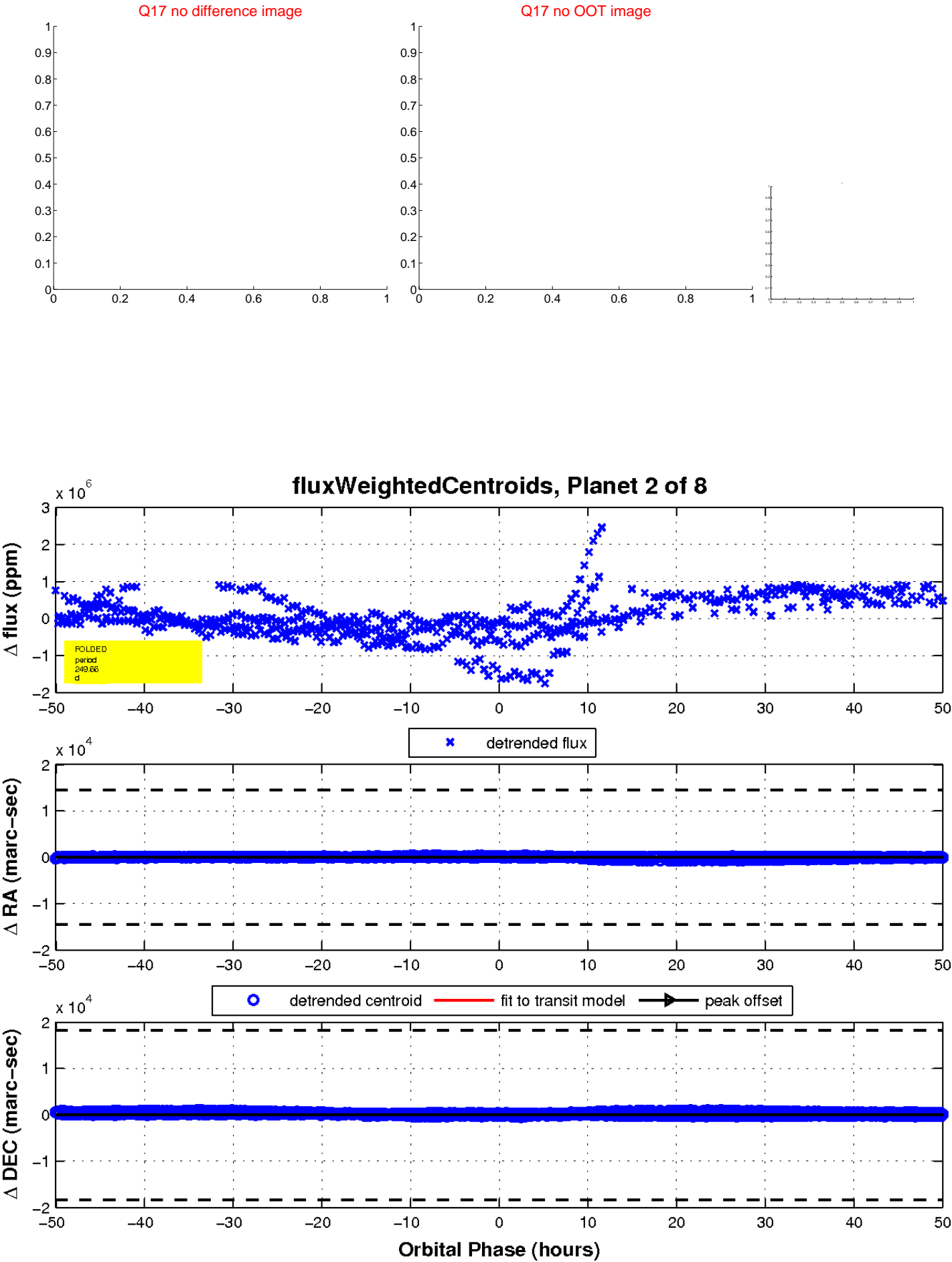
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

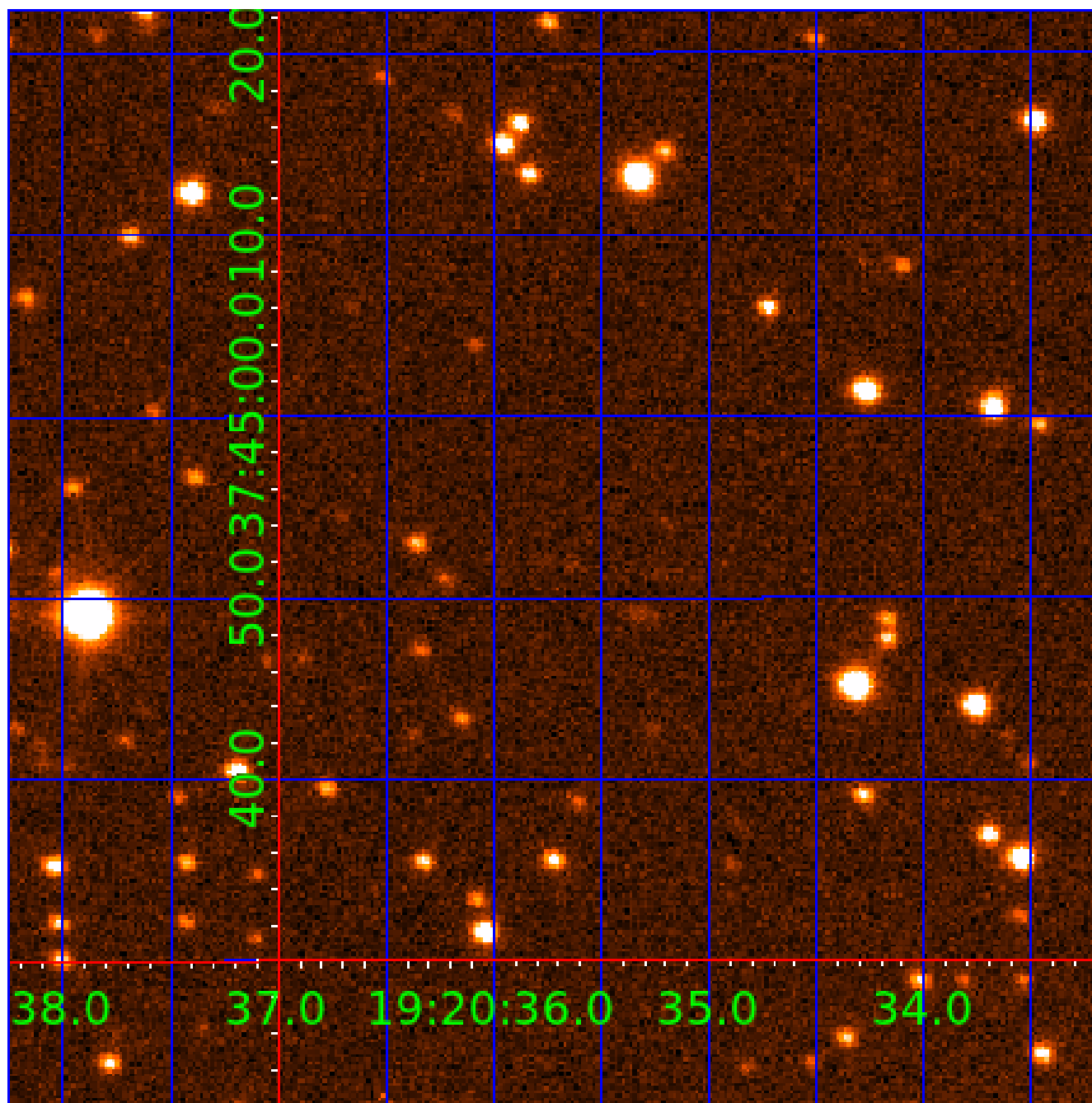


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002436450

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})
002436450-01	OBS	No	347.411387	189.685339	120394.5	12.500	15.3	-1.0	1.00	5780	34.56	1.07
002436450-02	OBS	No	249.664047	200.682000	123720.6	12.000	15.8	-1.0	1.00	5780	35.04	1.66
002436450-04	OBS	No	373.893281	231.029242	95139.1	12.500	12.2	-1.0	1.00	5780	30.68	0.97
002436450-06	OBS	No	313.702824	278.918696	68858.6	15.000	10.3	-1.0	1.00	5780	26.07	1.22
002436450-07	OBS	No	223.018685	234.540409	67577.2	9.000	10.0	-1.0	1.00	5780	25.82	1.93
002436450-08	OBS	No	229.925228	176.342224	65060.7	15.000	9.7	-1.0	1.00	5780	25.33	1.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
002436450-06	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
002436450-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

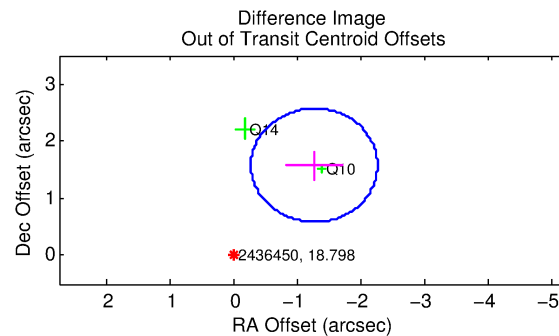
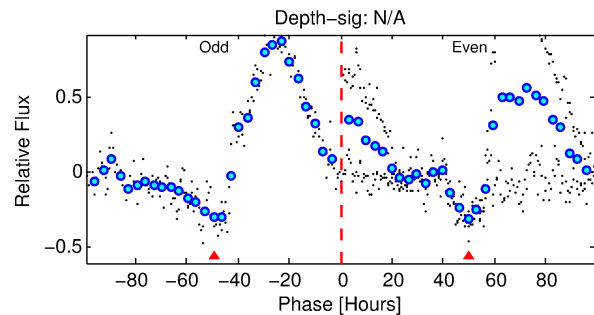
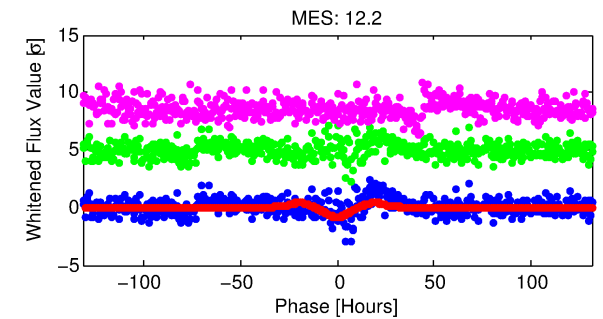
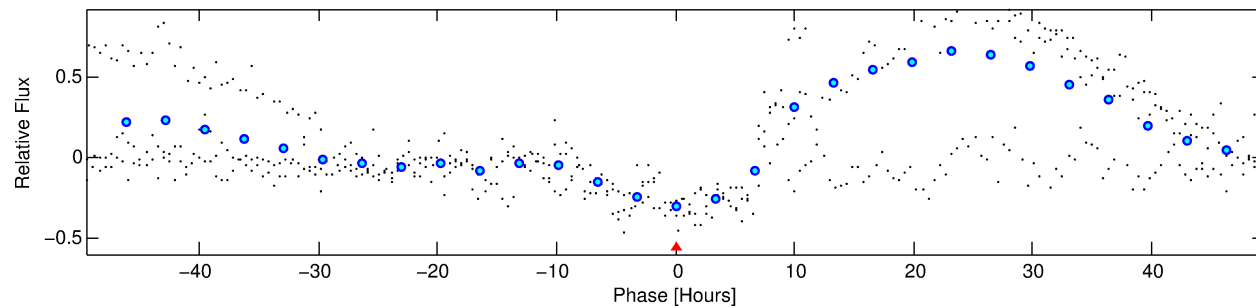
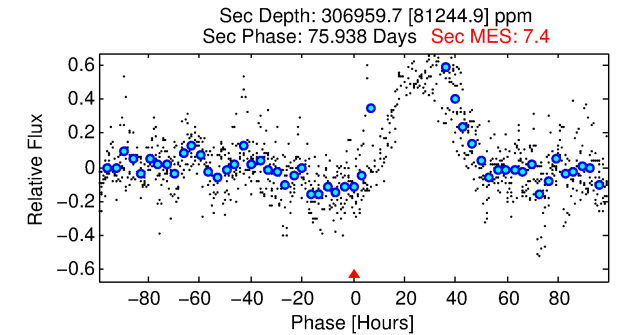
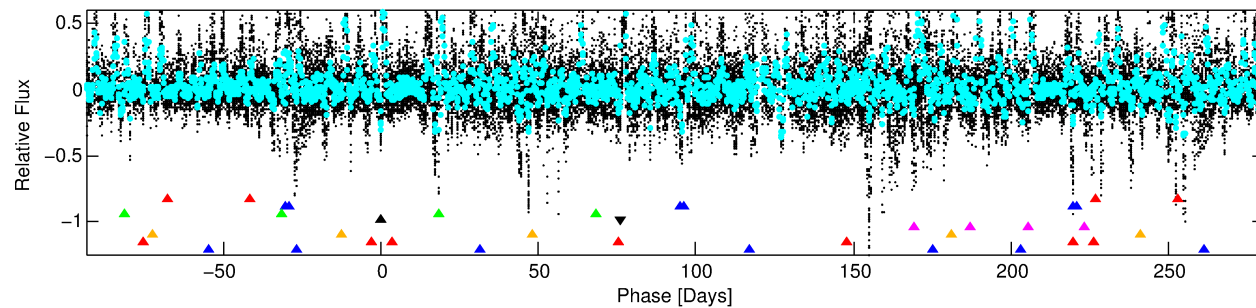
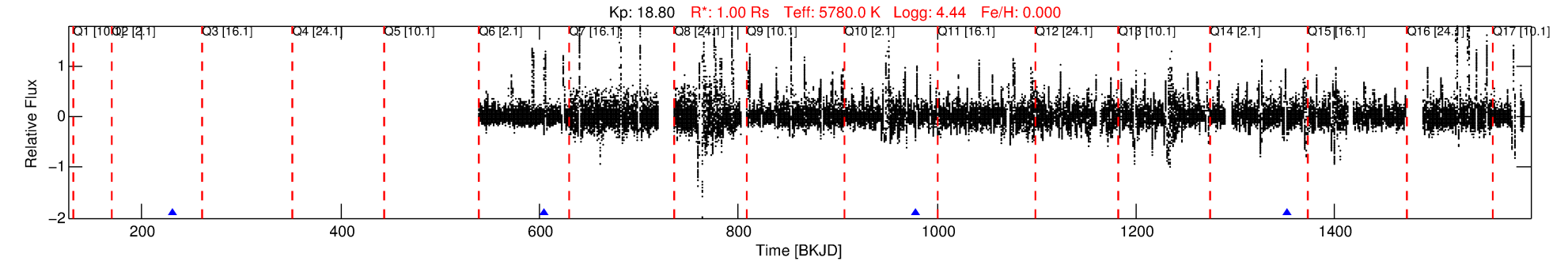
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002436450-04

No Significant Match Found

DV One-Page Summary

KIC: 2436450 Candidate: 4 of 8 Period: 373.893 d



TPS TCE Results:

Period = 373.89328 d
Epoch = 231.0292 BKJD

DV fit results are unavailable

DV Diagnostic Results:

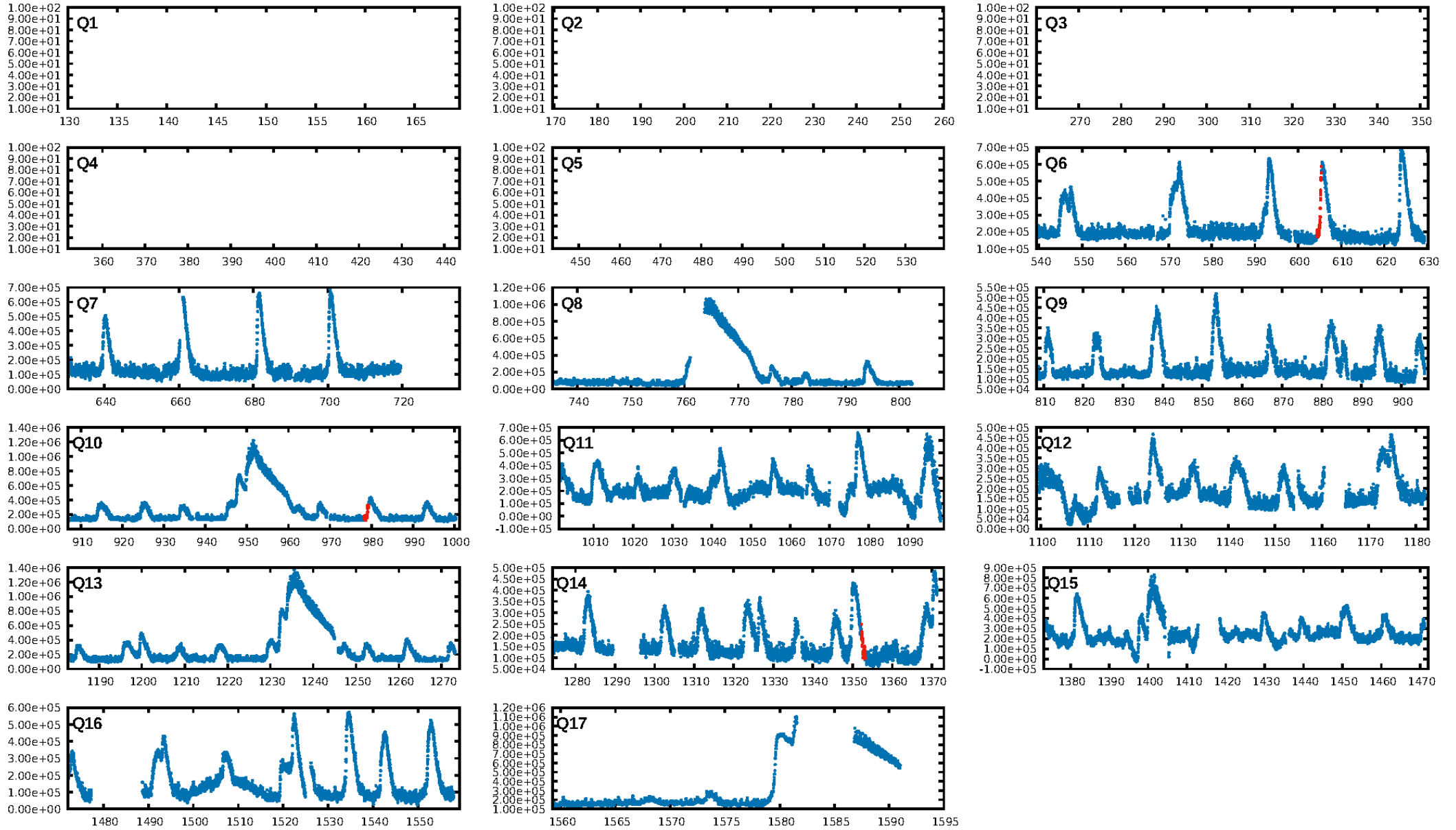
ShortPeriod-sig: 100.0% [26.64σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.183

Centroid-sig: 0.3%
Centroid-so: 1.491 arcsec [2.85σ]
OotOffset-rm: 2.022 arcsec [6.10σ]
KicOffset-rm: 0.470 arcsec [5.62σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

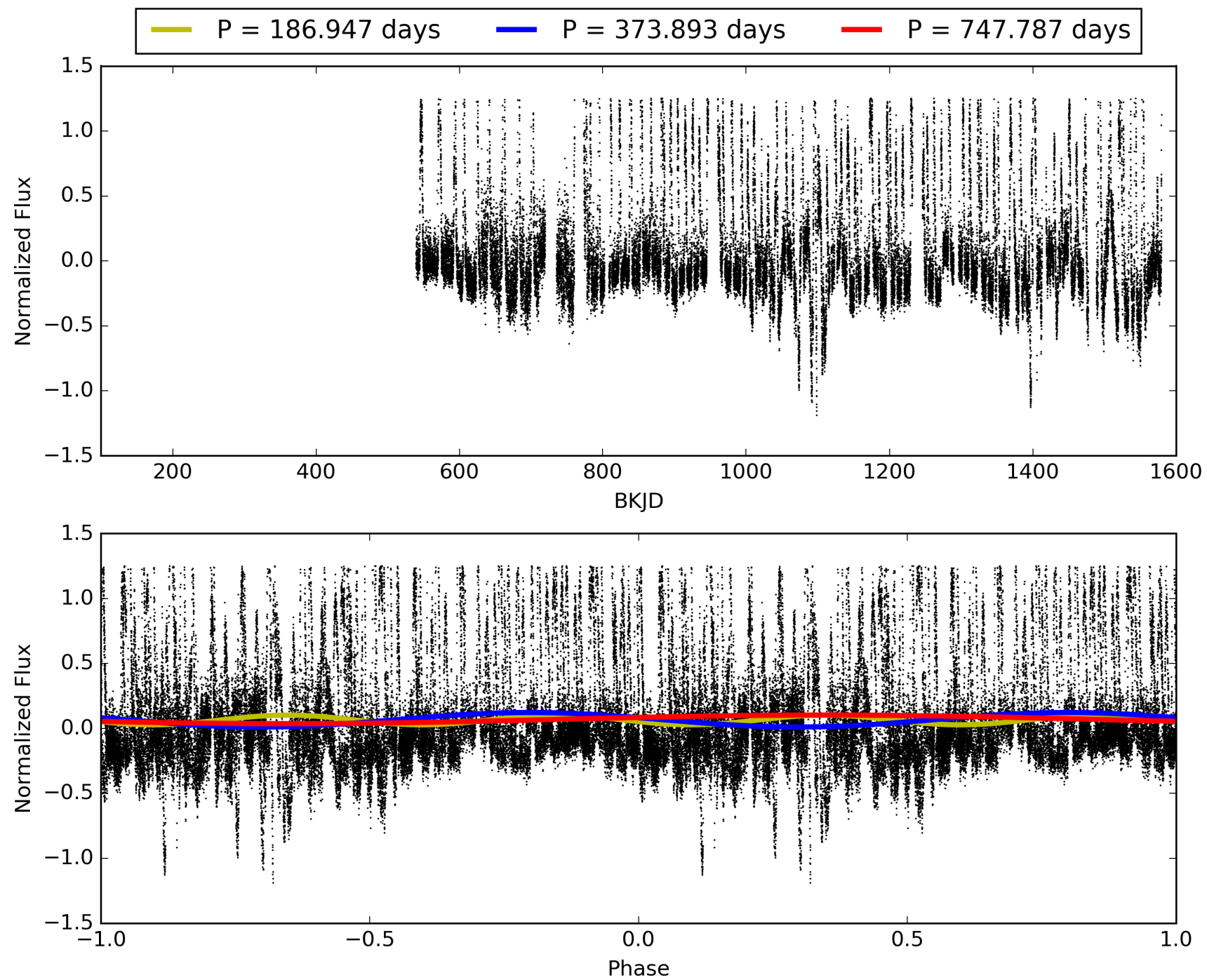
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:13:28 Z

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

TCE 002436450-04, PDC Light Curves

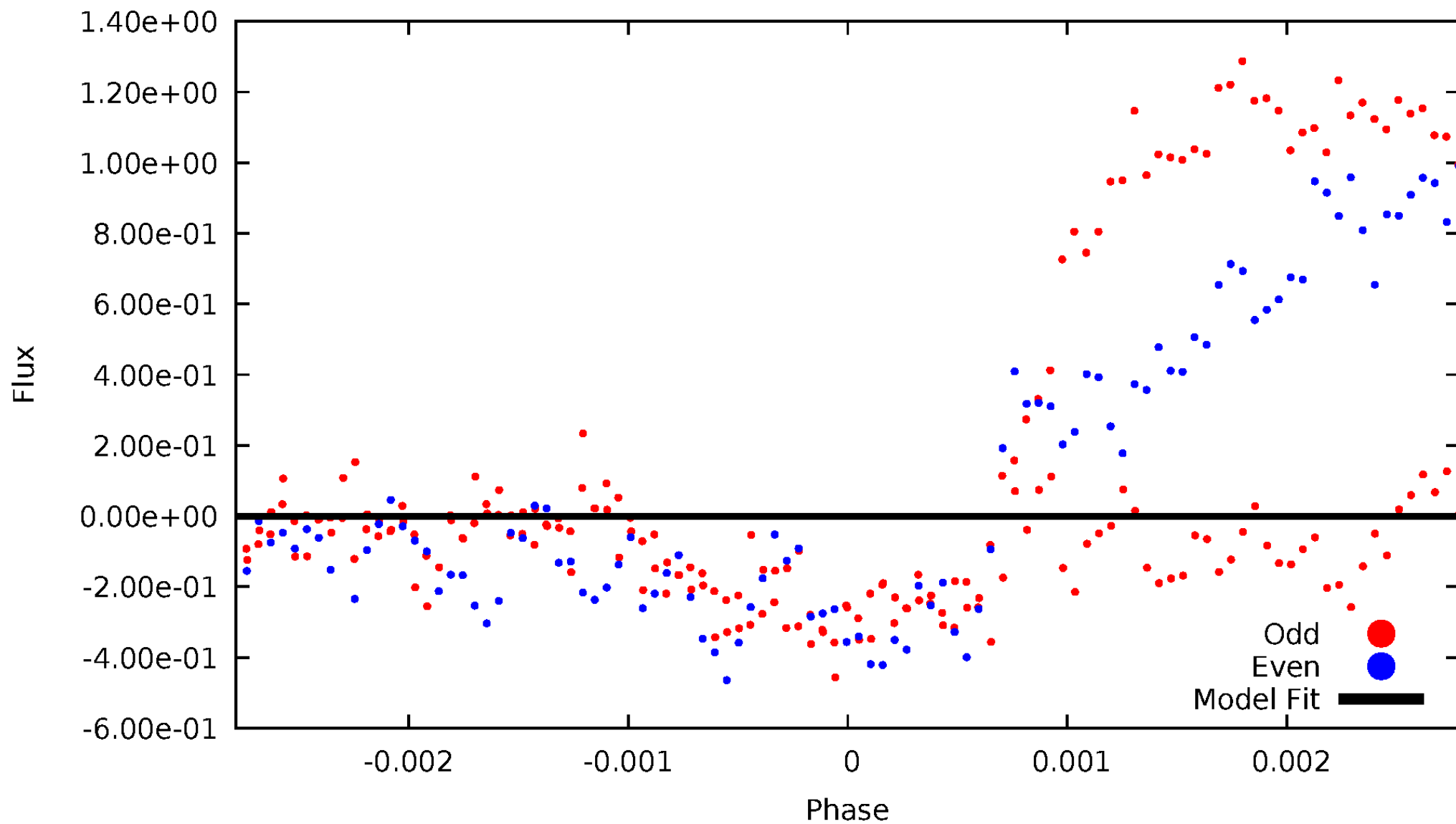


TCE 002436450-04



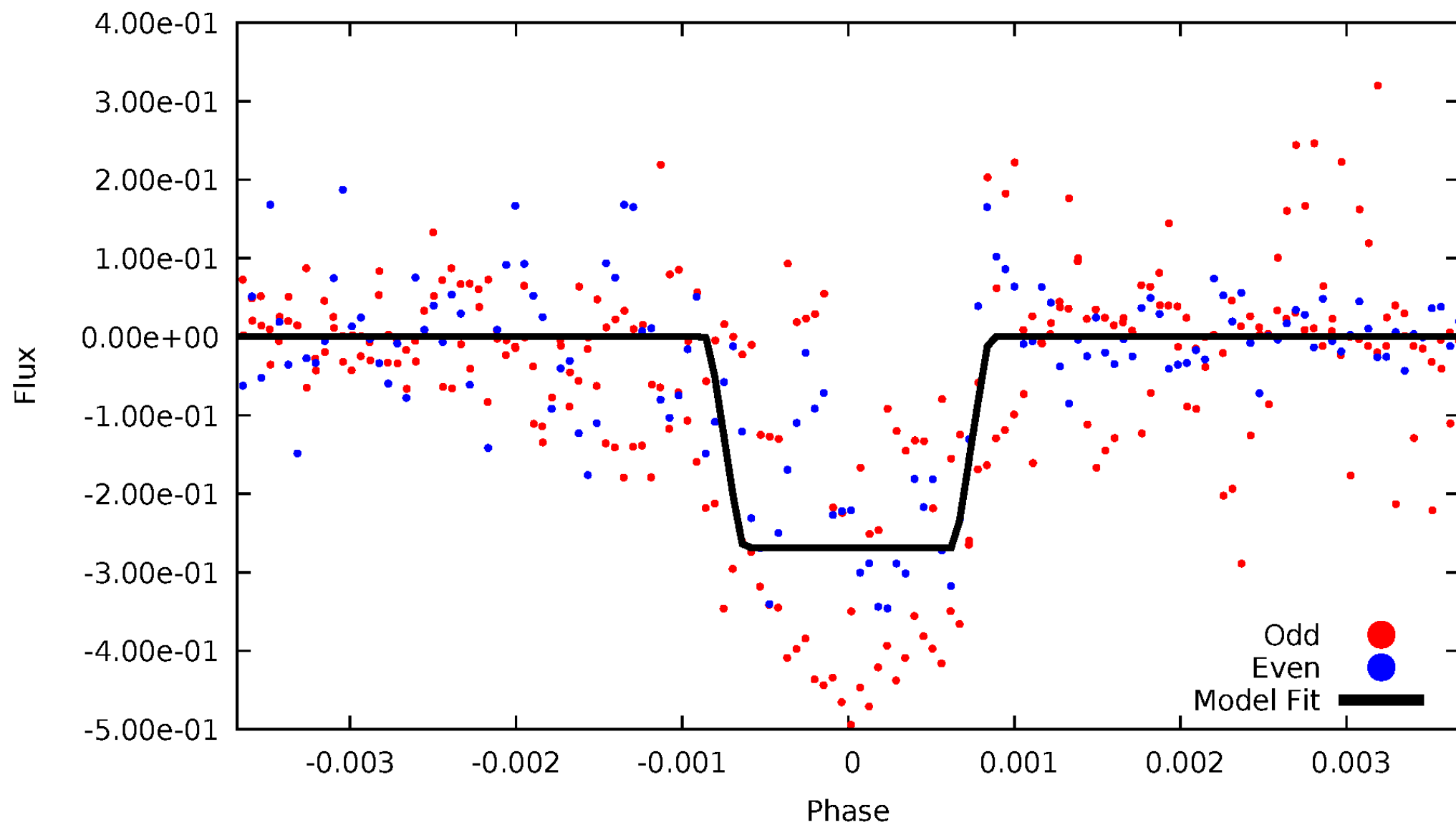
DV Odd/Even

TCE 002436450-04



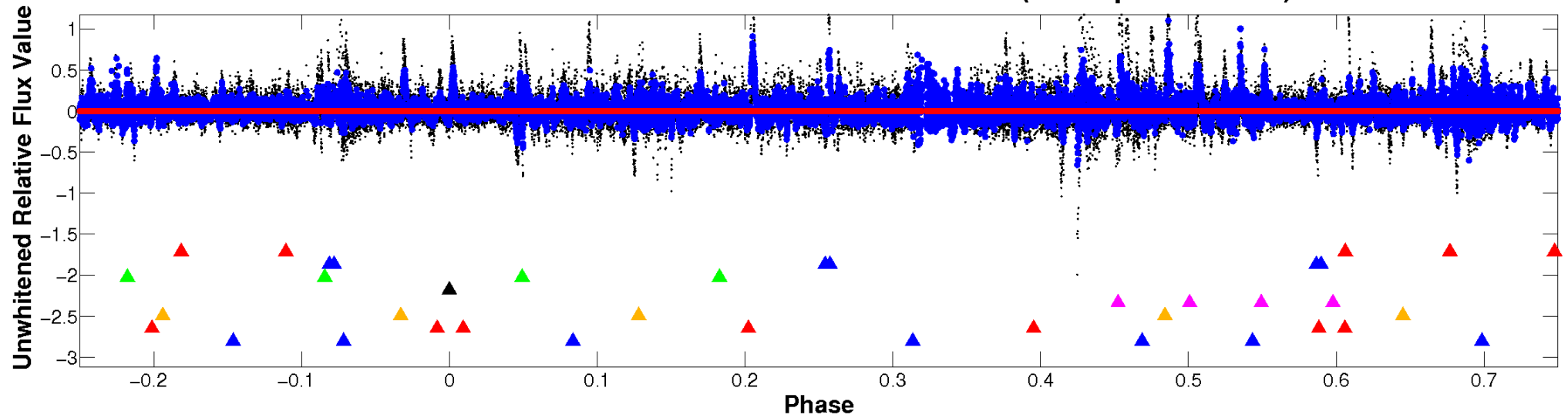
ALT Odd/Even

TCE 002436450-04

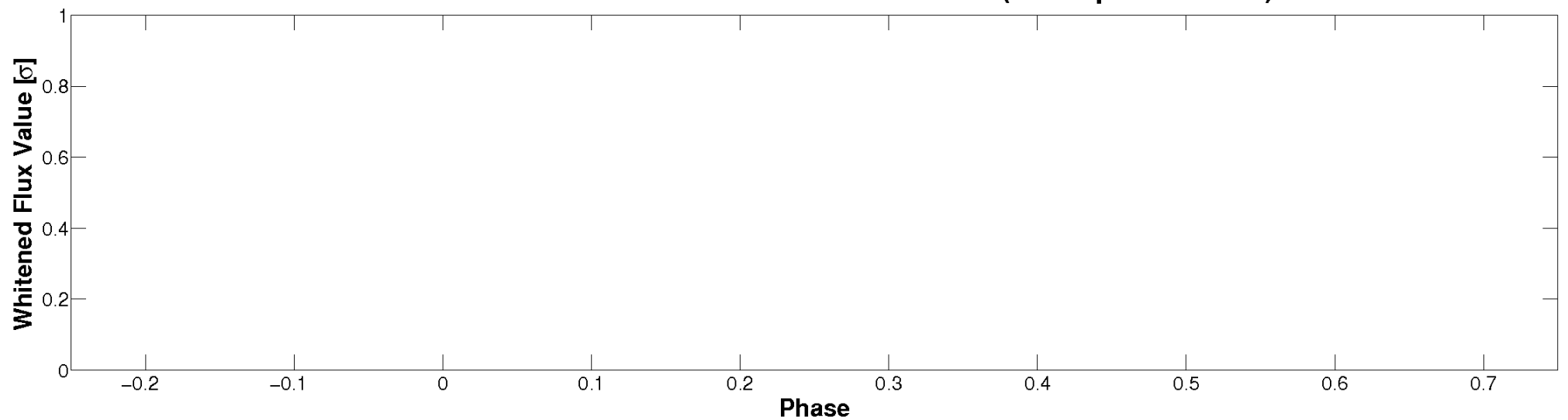


Non-Whitened Vs. Whitened Light Curve

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

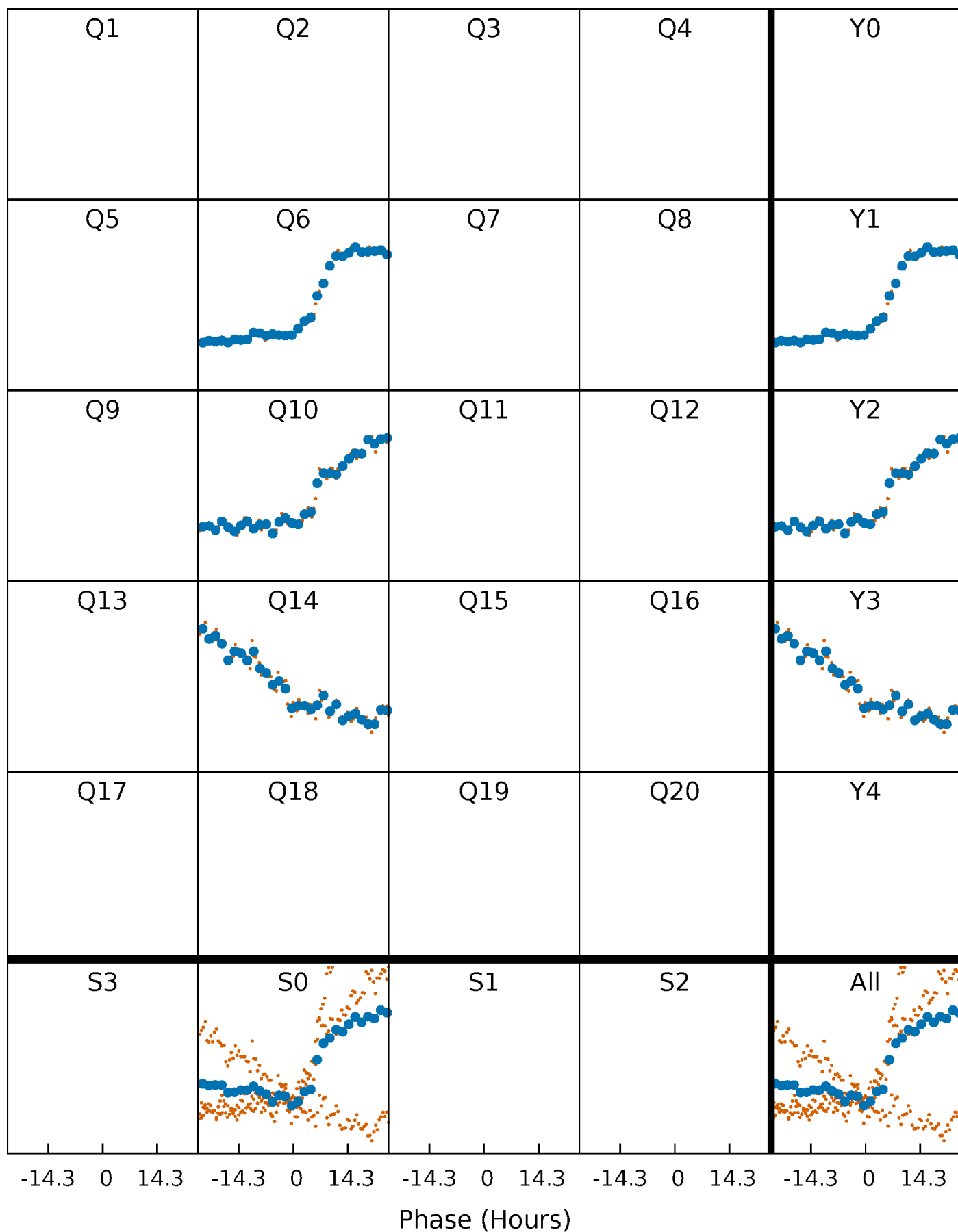


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



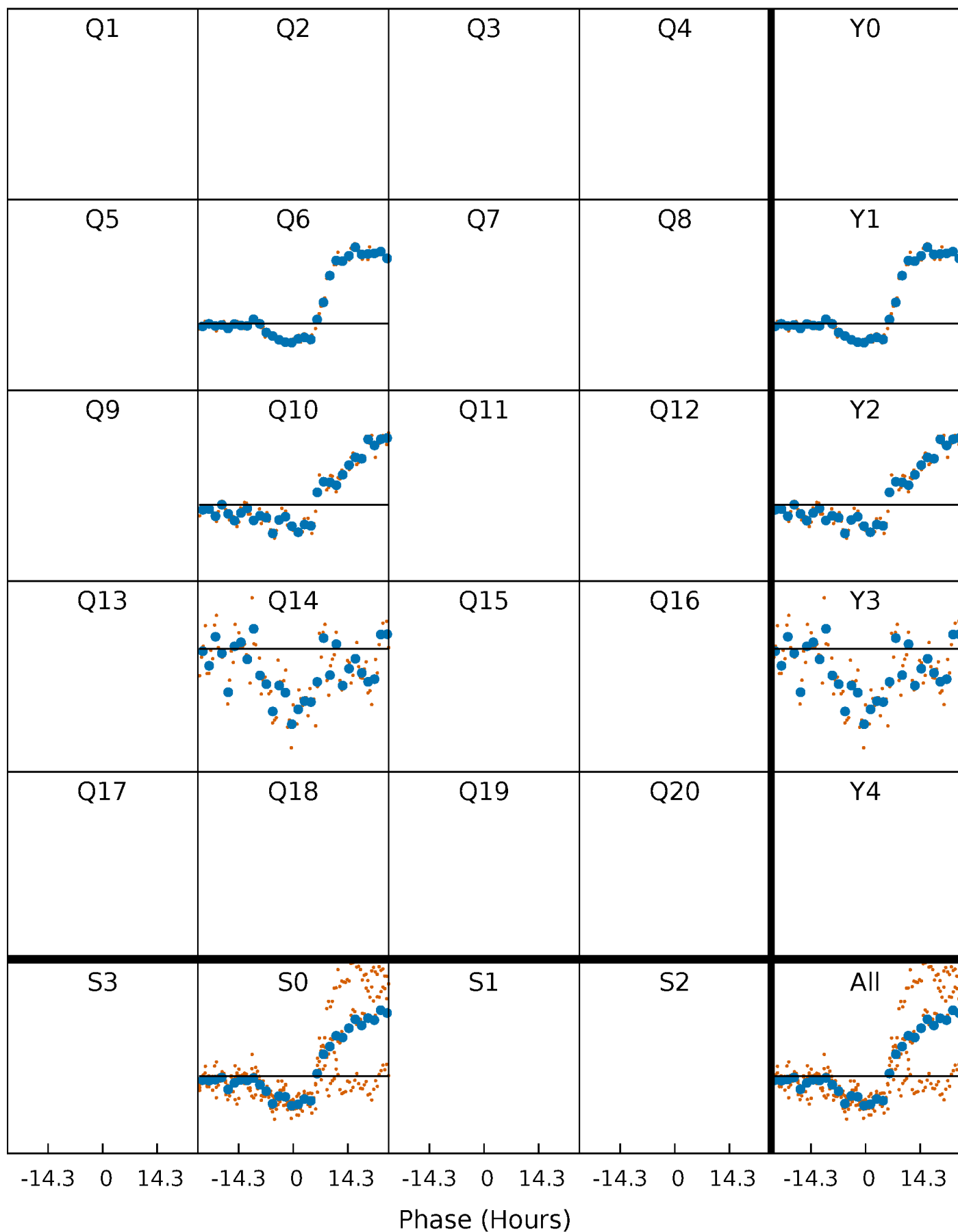
PDC Quarter-Phased Transit Curves

TCE 002436450-04 $P=373.893281$ Days $T_0=231.029242$ (BKJD)



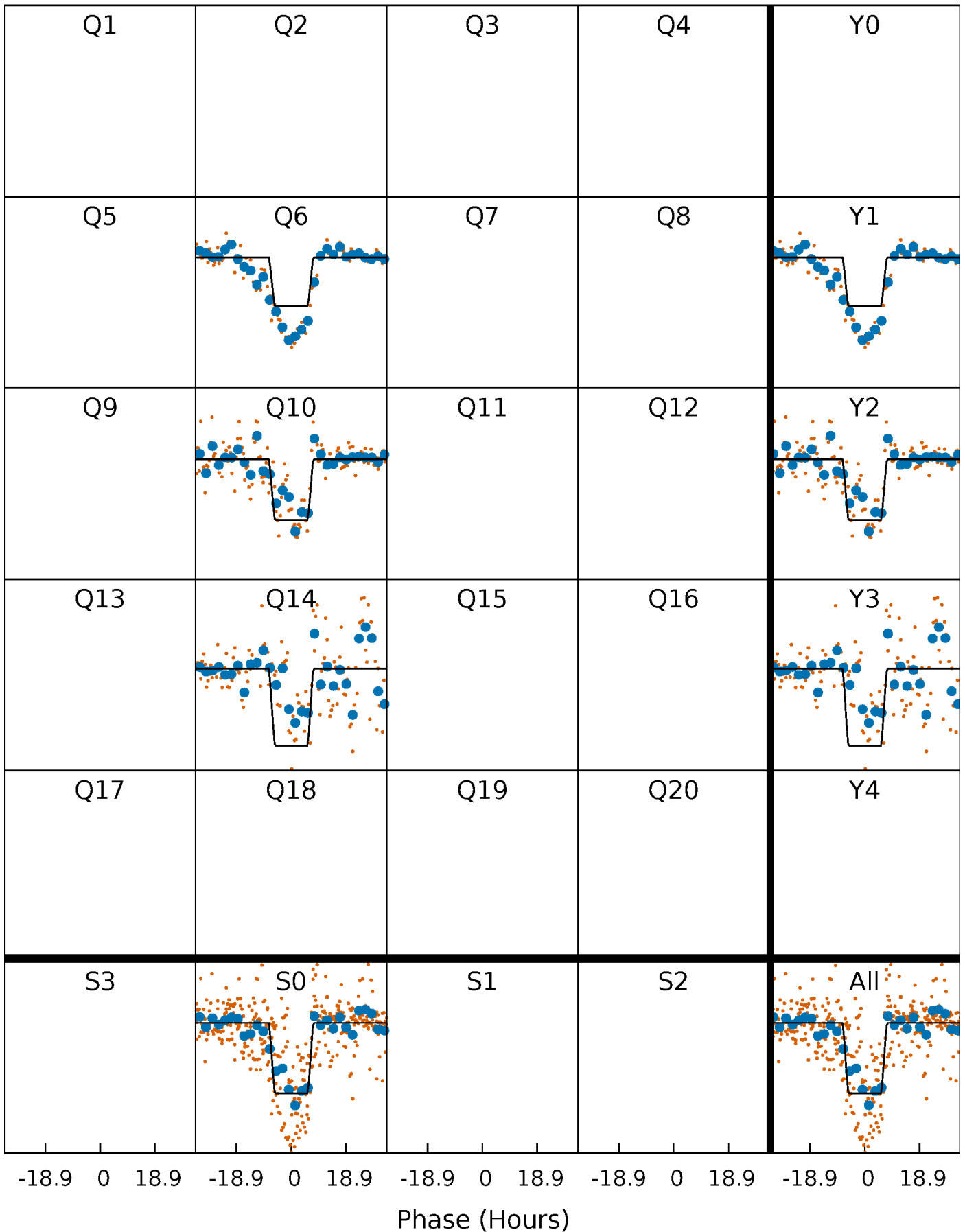
DV Quarter-Phased Transit Curves

TCE 002436450-04 P=373.893281 Days $T_0=231.029242$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

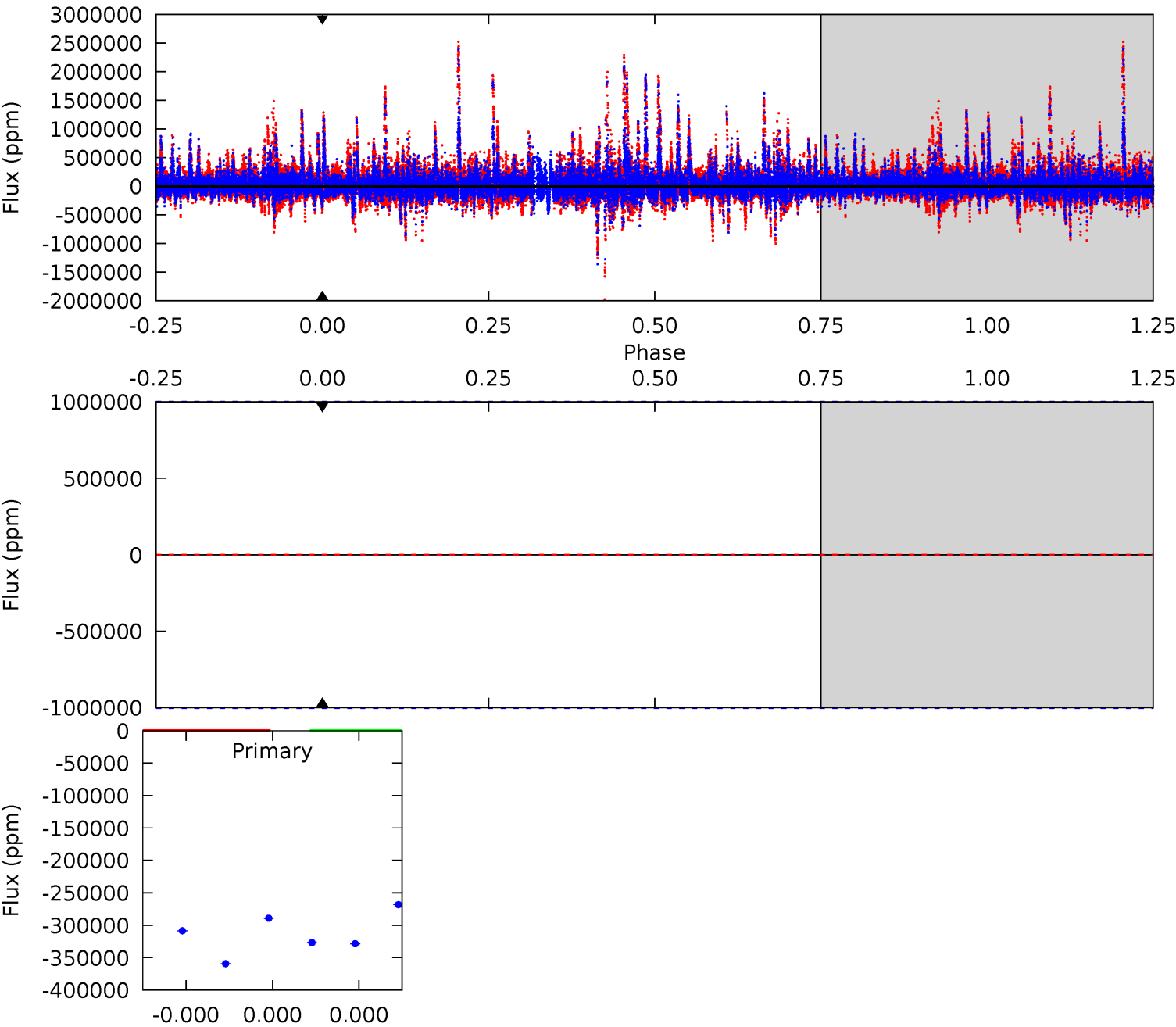
TCE 002436450-04 $P=373.893281$ Days $T_0=231.001006$ (BKJD)



DV Model-Shift Uniqueness Test

002436450-04, P = 373.893281 Days, E = 231.029242 Days

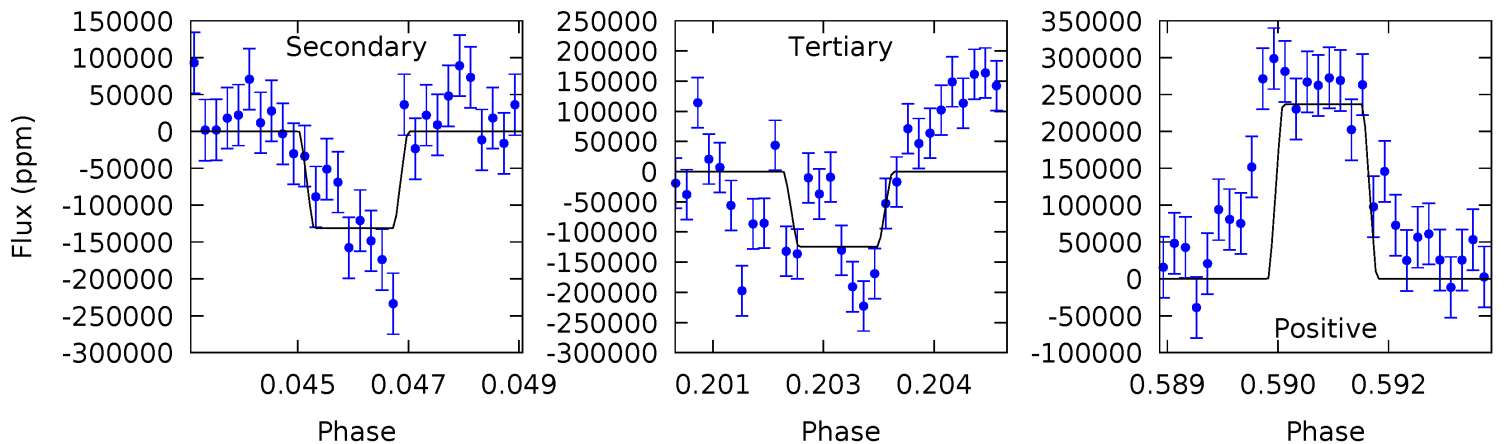
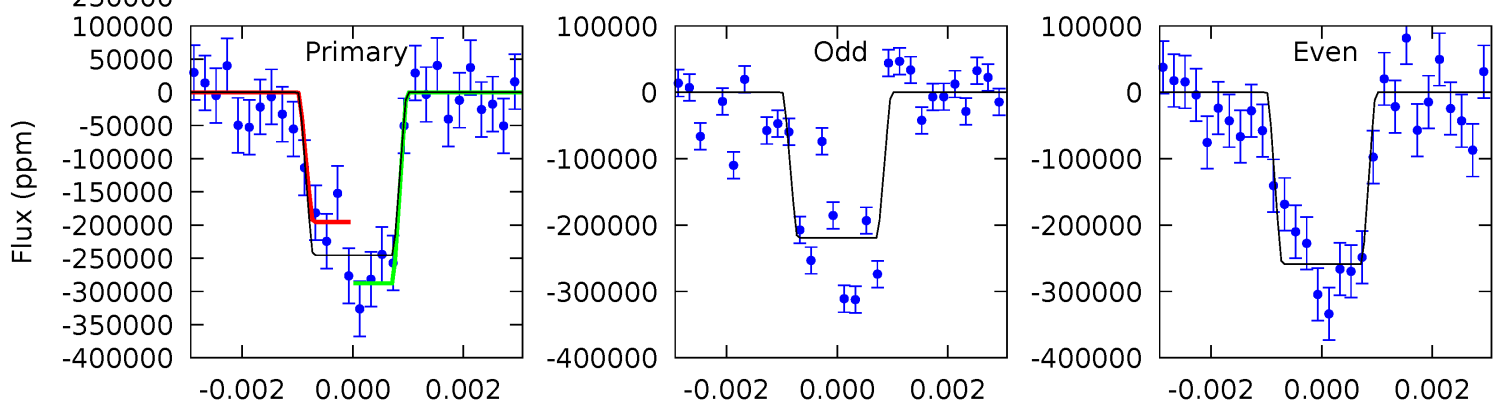
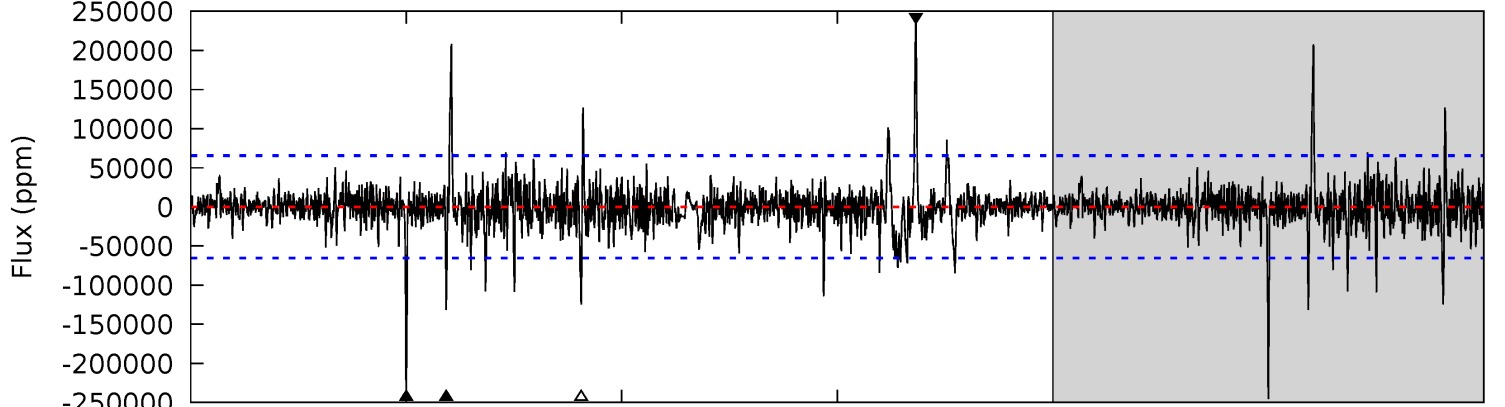
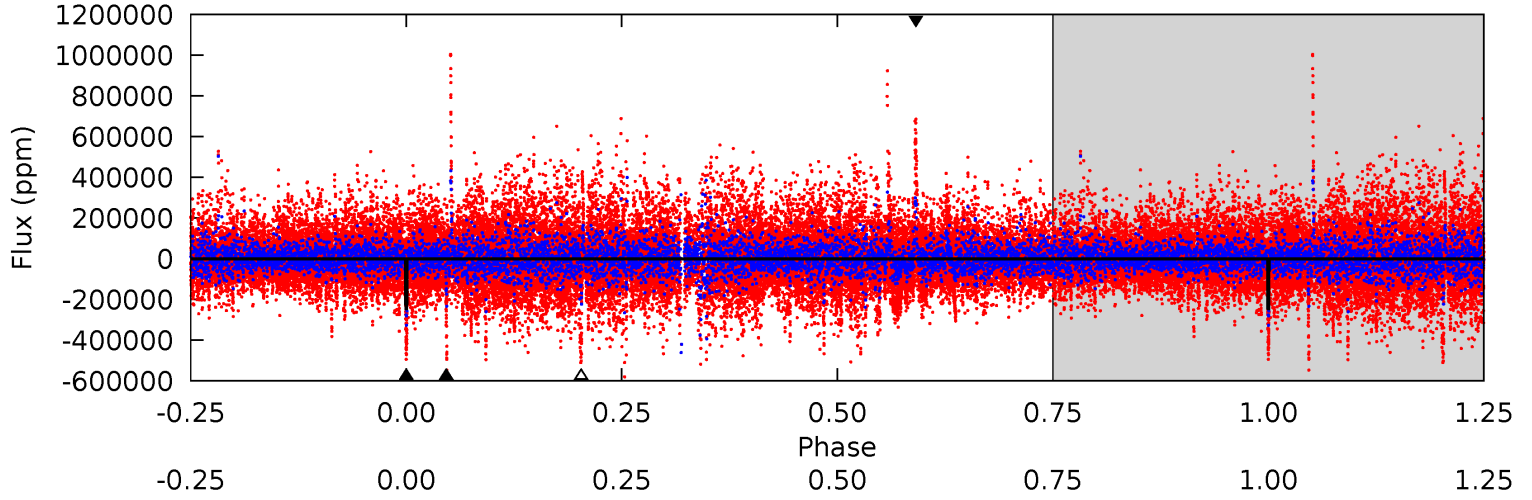
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002436450-04, P = 373.893281 Days, E = 231.001006 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	10.7	10.2	19.4	5.35	3.13	2.00	9.91	0.71	0.56	-8.64	1.19	1.12	0.49	3.79



Stellar Parameters For KIC 002436450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436450-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$30.52^{+11.03}_{-10.55}$	354^{+17}_{-17}	3688^{+2970}_{-9770}	4785^{+77780}_{-65186}
Alt.	-131275 ± 12212	$55.84^{+13.38}_{-11.66}$	353^{+17}_{-16}	5085^{+633}_{-419}	27437^{+17595}_{-9376}

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 $A_{obs} \gg 1.0$

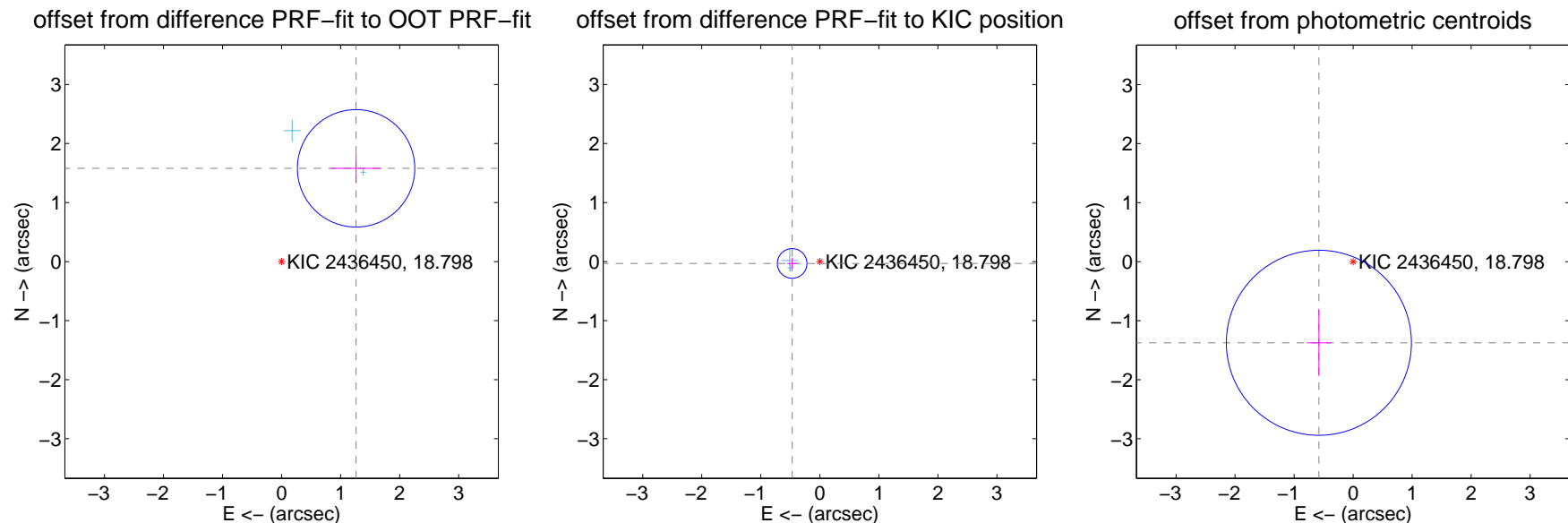
DV Centroid Data

Supplemental centroid analysis for 002436450-04. Kepler magnitude: 18.80. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.30 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.022 ± 0.331	6.10	-1.262 ± 0.431	1.579 ± 0.248
PRF-fit source offset from KIC position	0.470 ± 0.084	5.62	0.469 ± 0.084	-0.032 ± 0.094
photometric centroid source offset	1.49 ± 0.52	2.85	0.58 ± 0.21	-1.37 ± 0.56

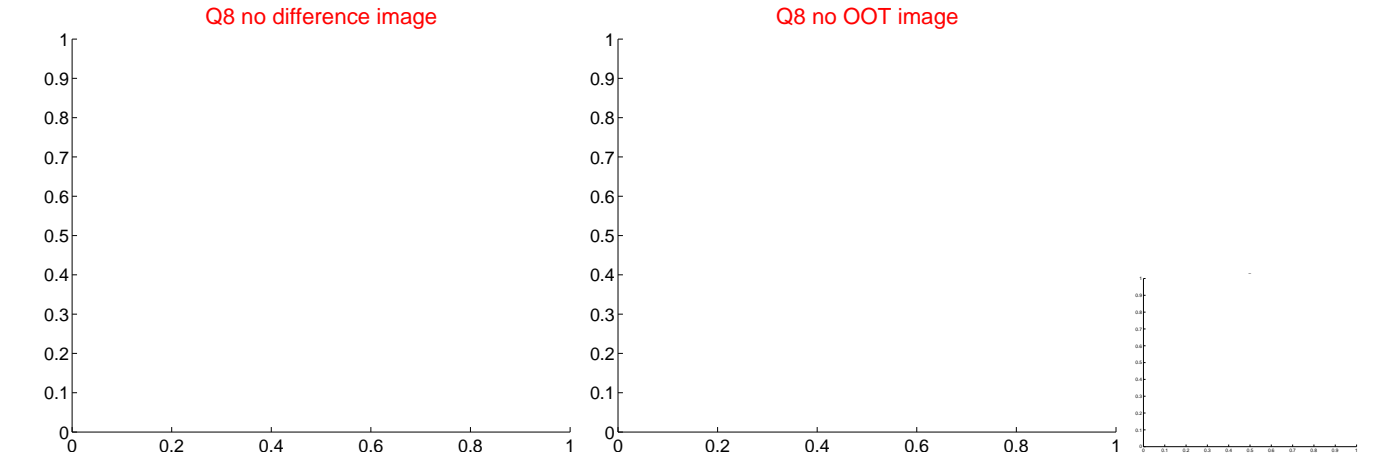
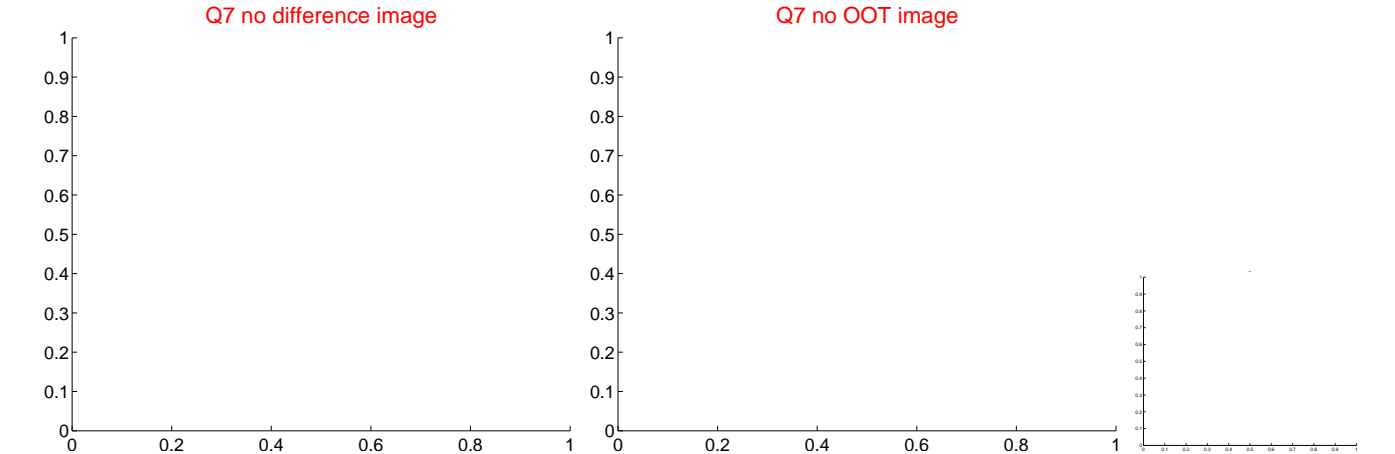
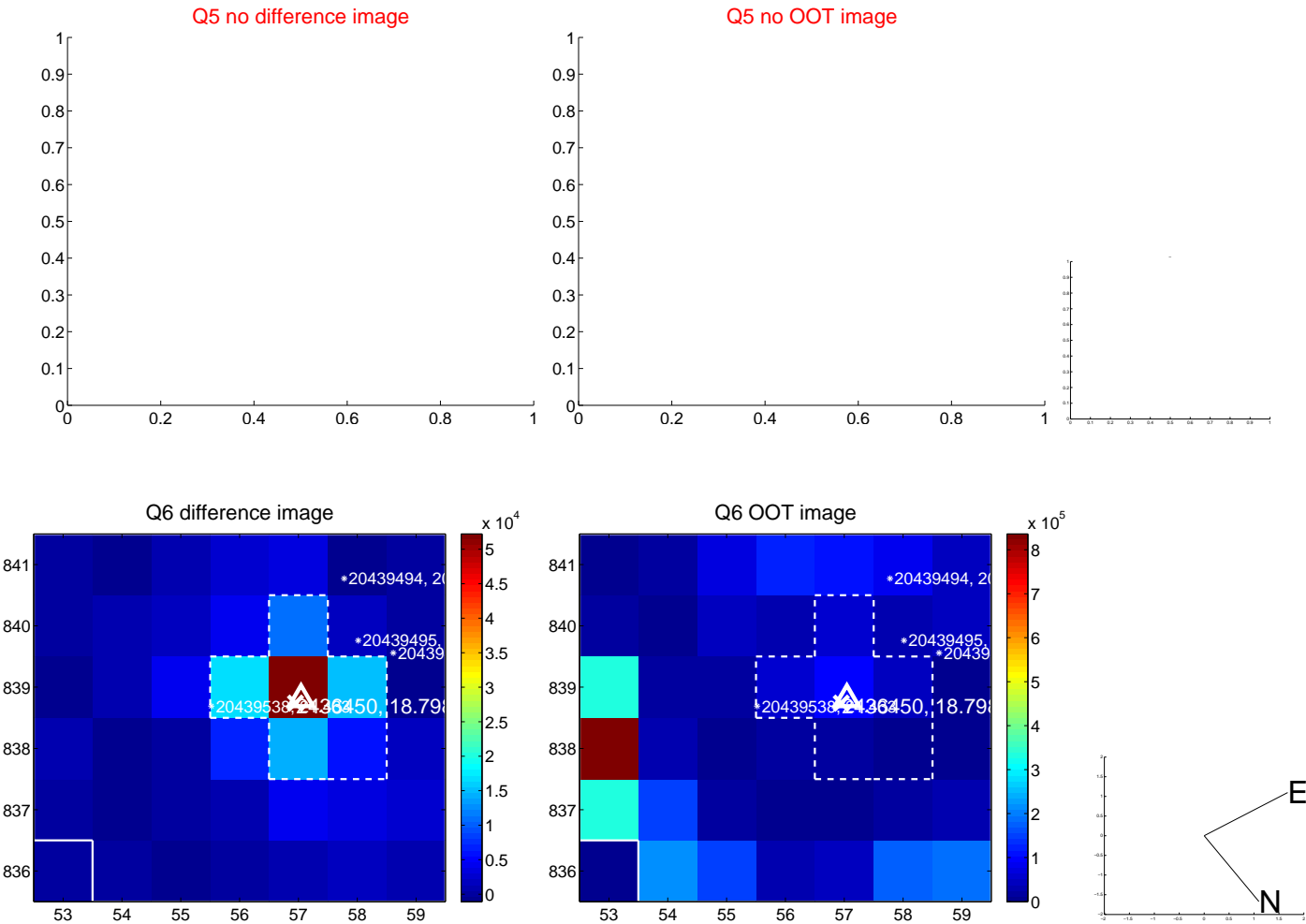


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

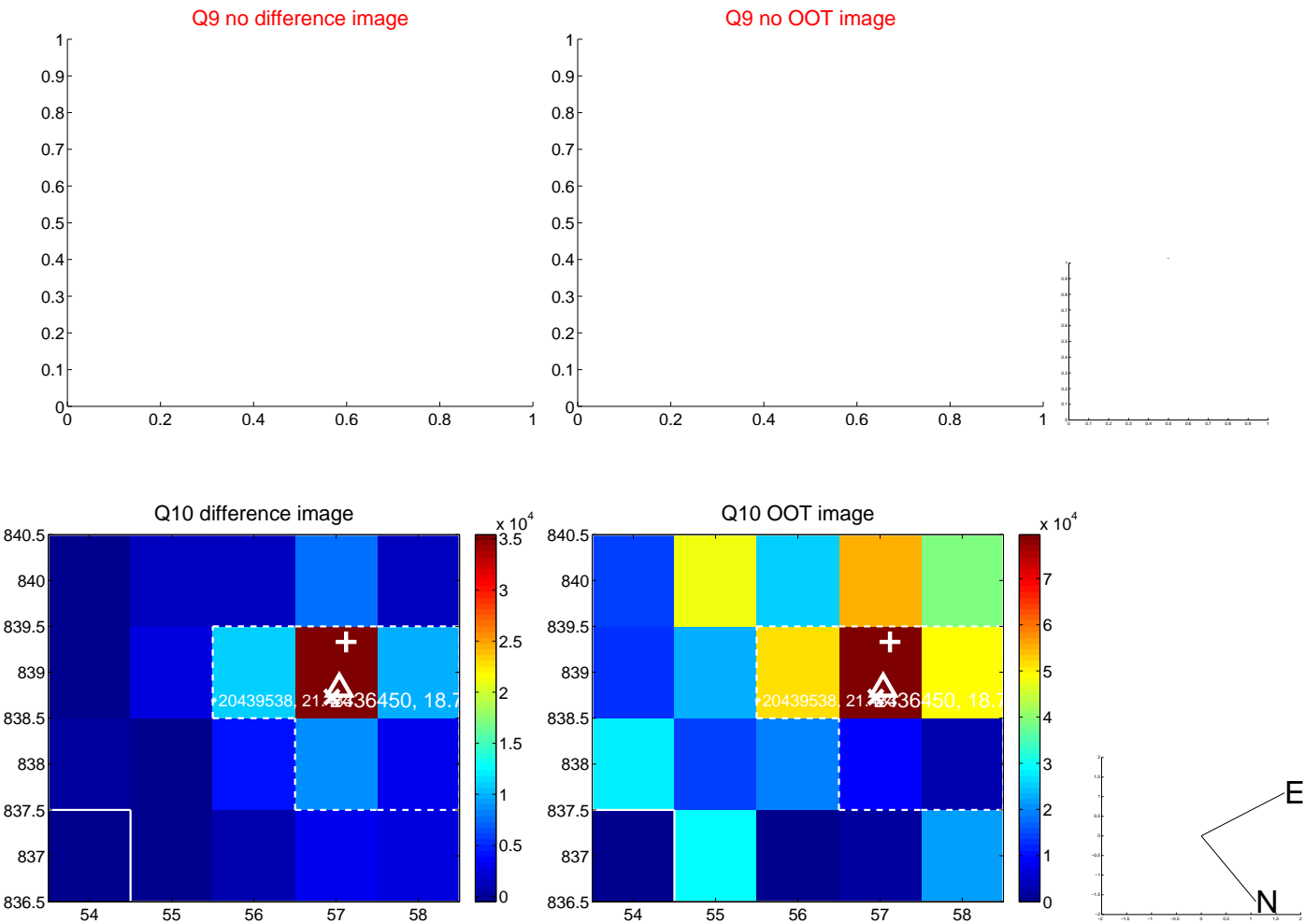
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



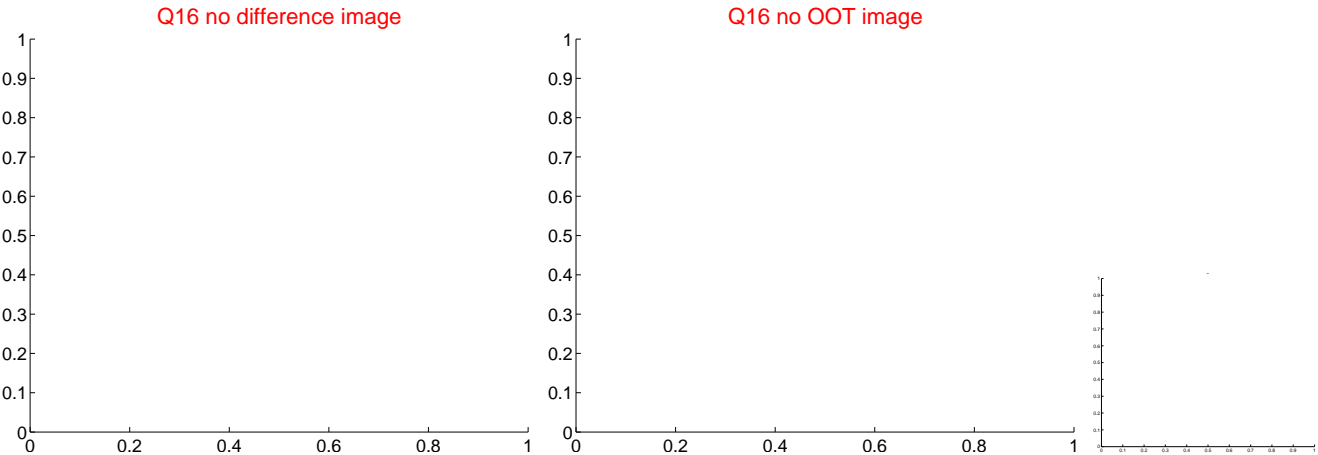
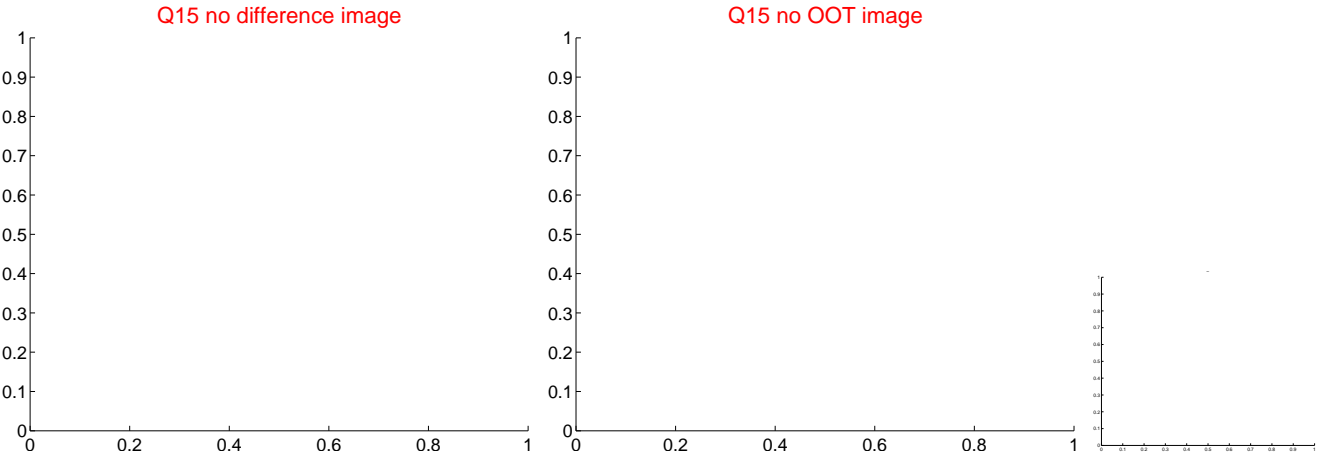
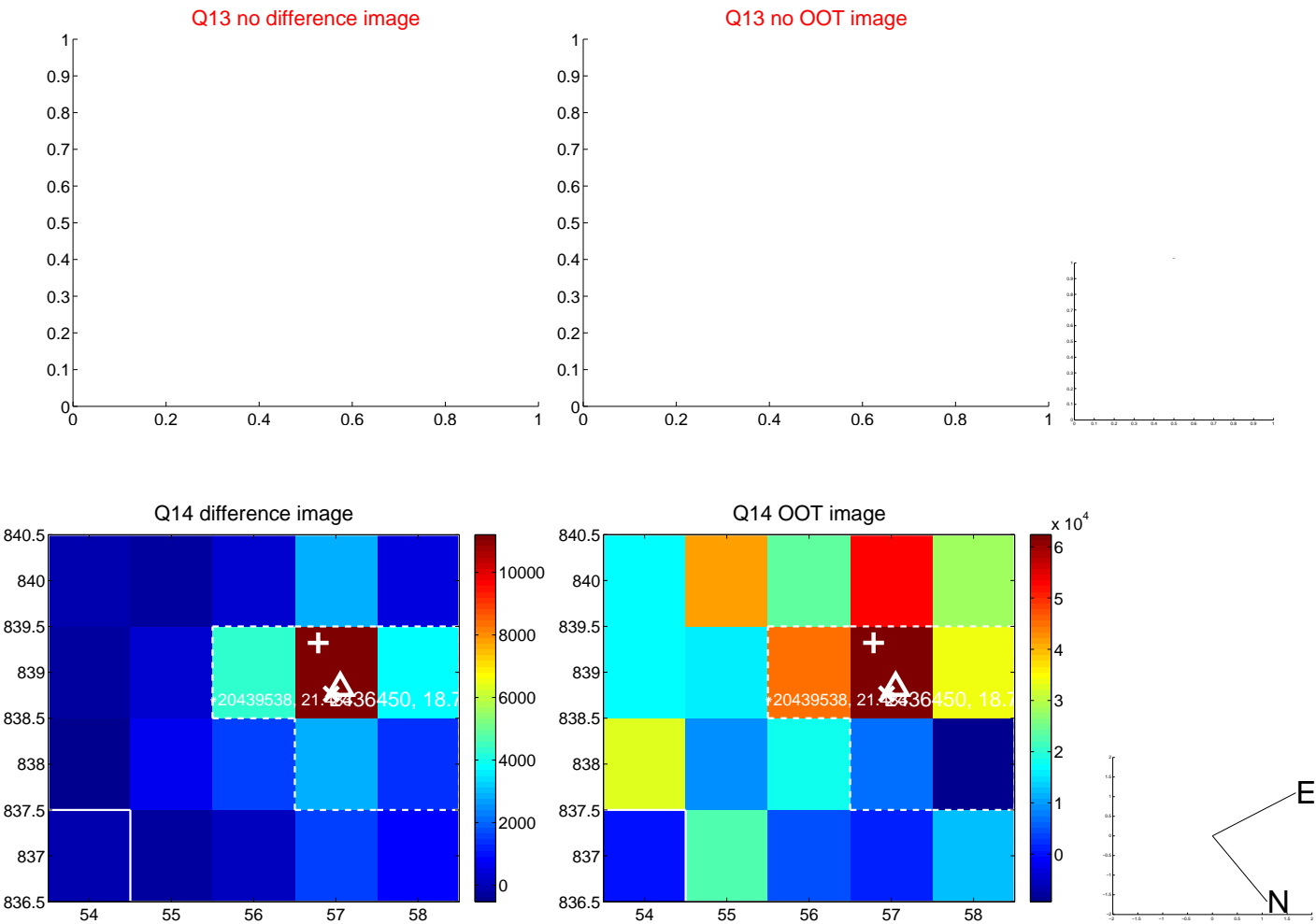
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



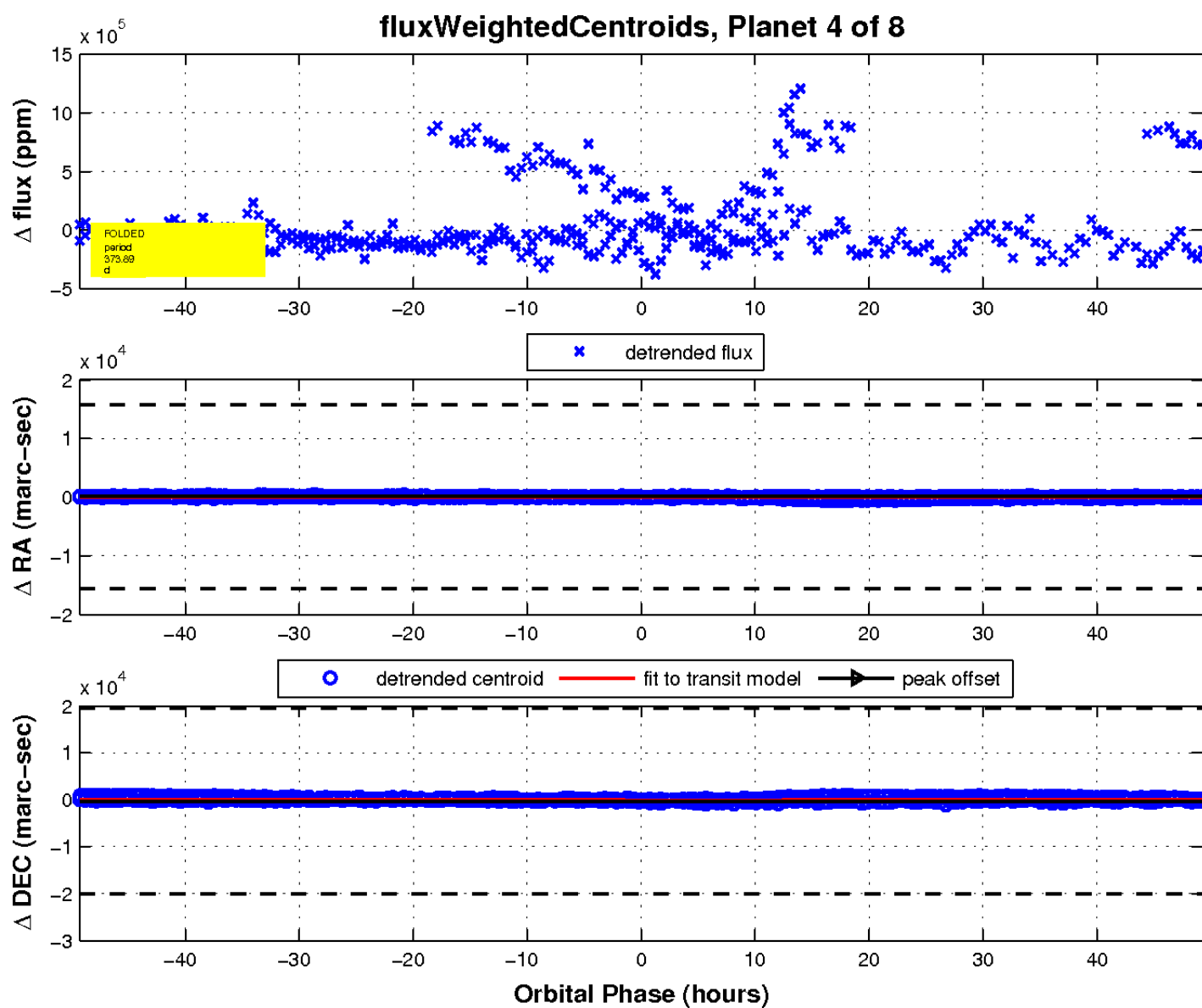
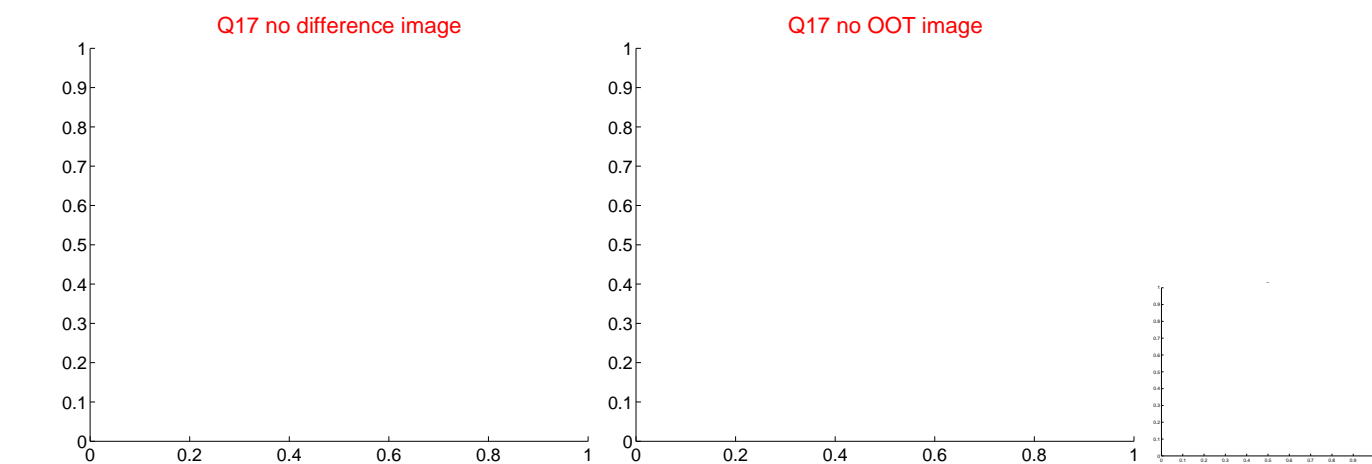
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

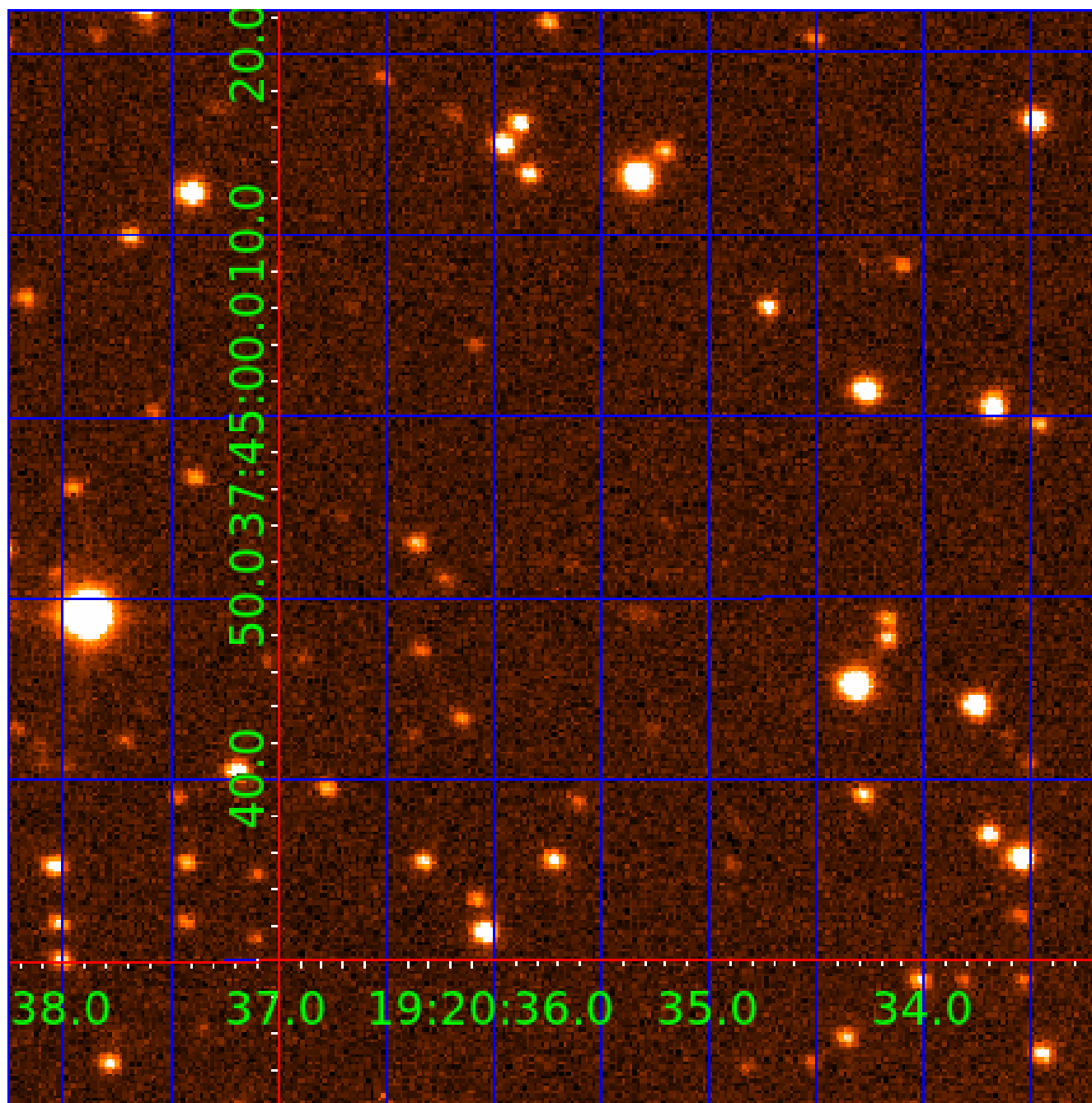


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002436450

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})
002436450-01	OBS	No	347.411387	189.685339	120394.5	12.500	15.3	-1.0	1.00	5780	34.56	1.07
002436450-02	OBS	No	249.664047	200.682000	123720.6	12.000	15.8	-1.0	1.00	5780	35.04	1.66
002436450-04	OBS	No	373.893281	231.029242	95139.1	12.500	12.2	-1.0	1.00	5780	30.68	0.97
002436450-06	OBS	No	313.702824	278.918696	68858.6	15.000	10.3	-1.0	1.00	5780	26.07	1.22
002436450-07	OBS	No	223.018685	234.540409	67577.2	9.000	10.0	-1.0	1.00	5780	25.82	1.93
002436450-08	OBS	No	229.925228	176.342224	65060.7	15.000	9.7	-1.0	1.00	5780	25.33	1.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
002436450-06	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
002436450-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

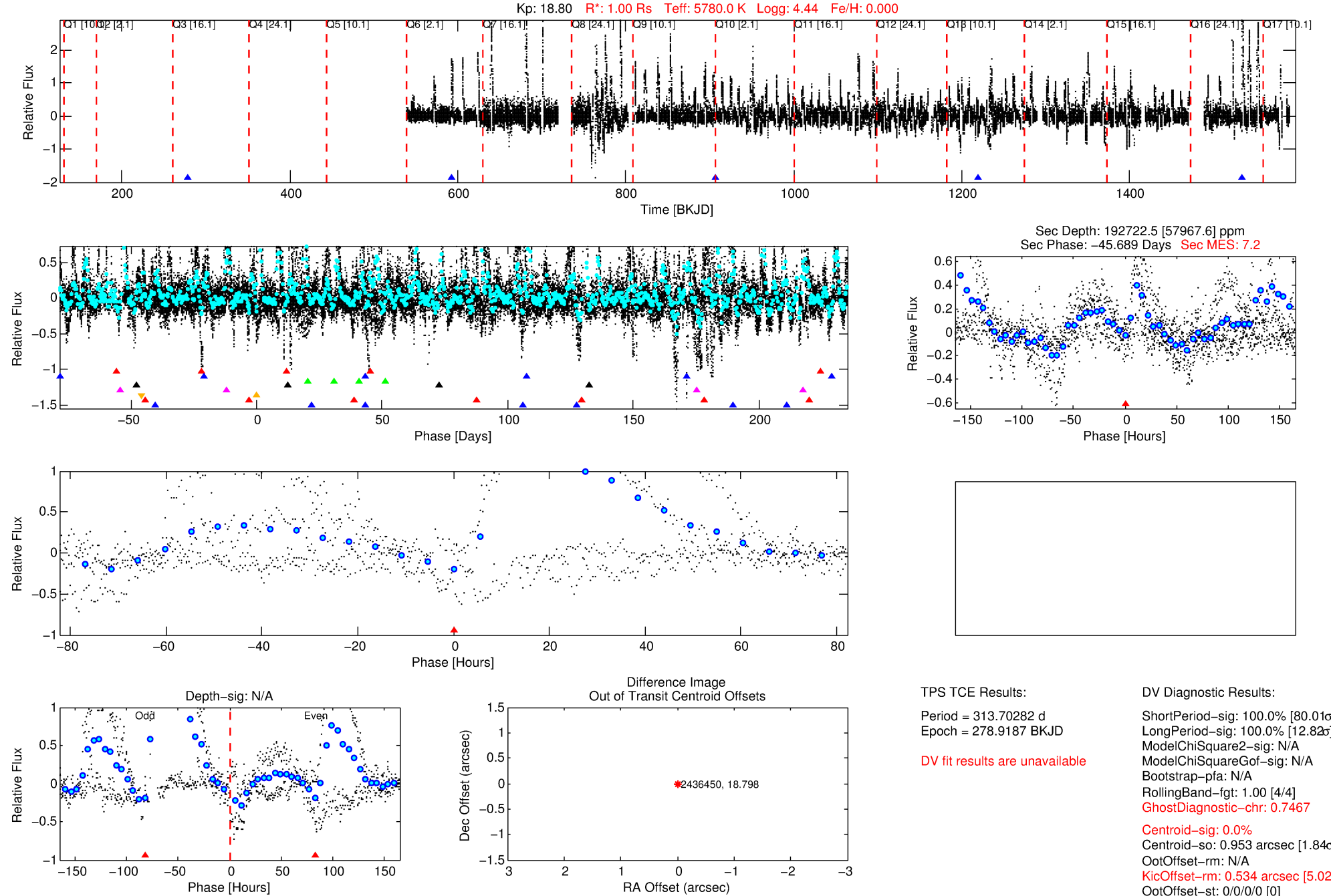
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002436450-06

No Significant Match Found

DV One-Page Summary

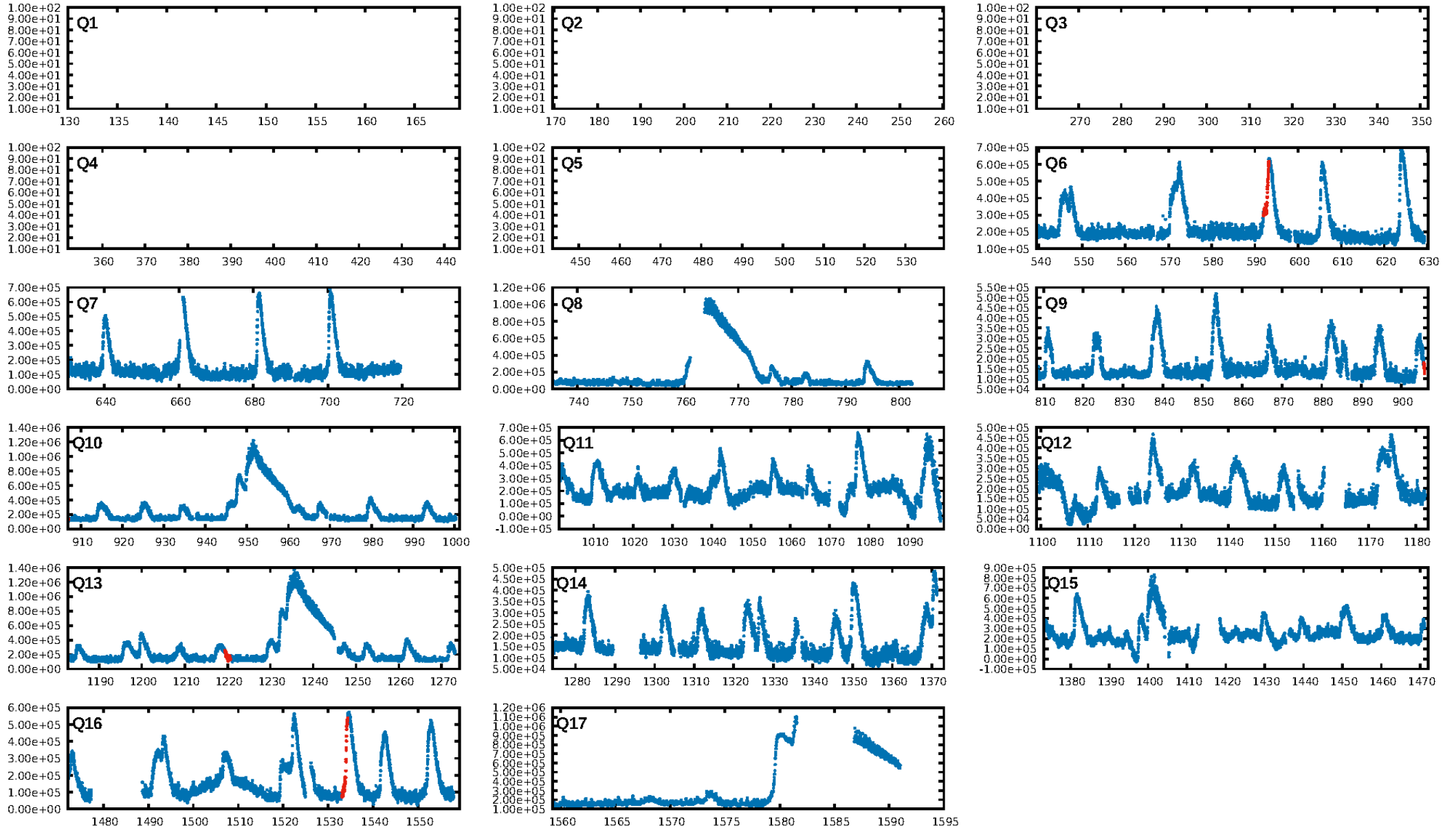
KIC: 2436450 Candidate: 6 of 8 Period: 313.703 d



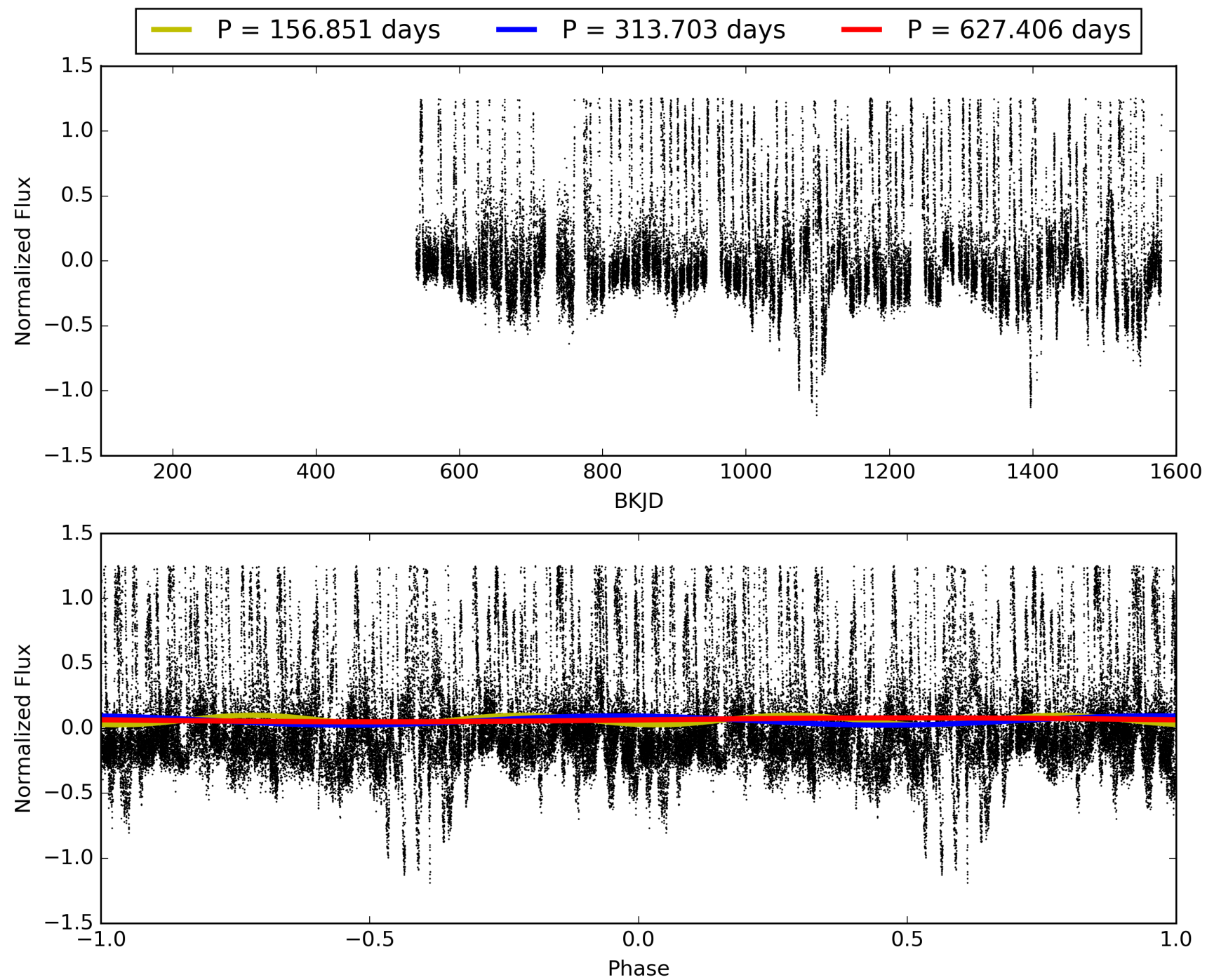
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:13:40 Z

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

TCE 002436450-06, PDC Light Curves

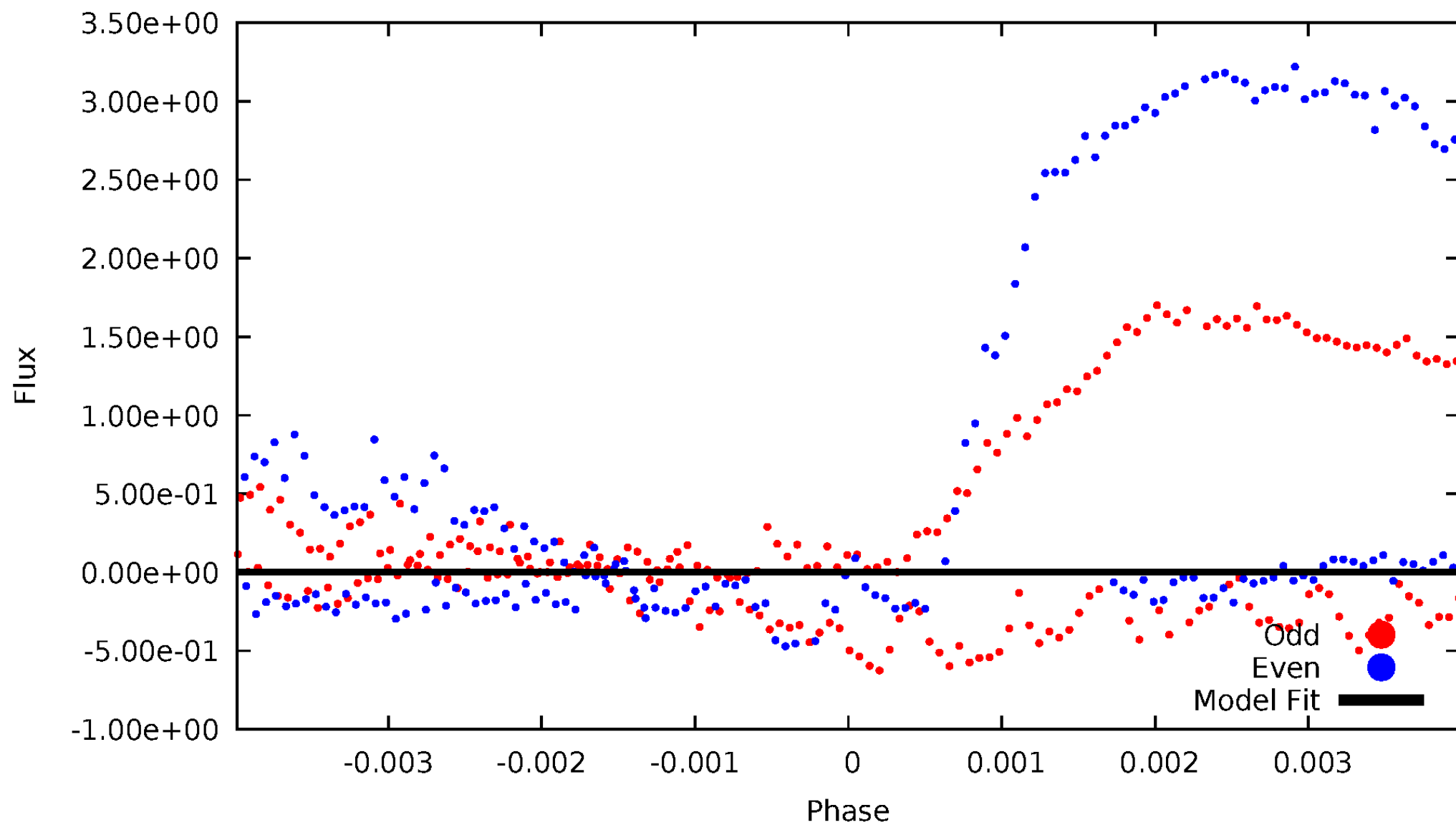


TCE 002436450-06



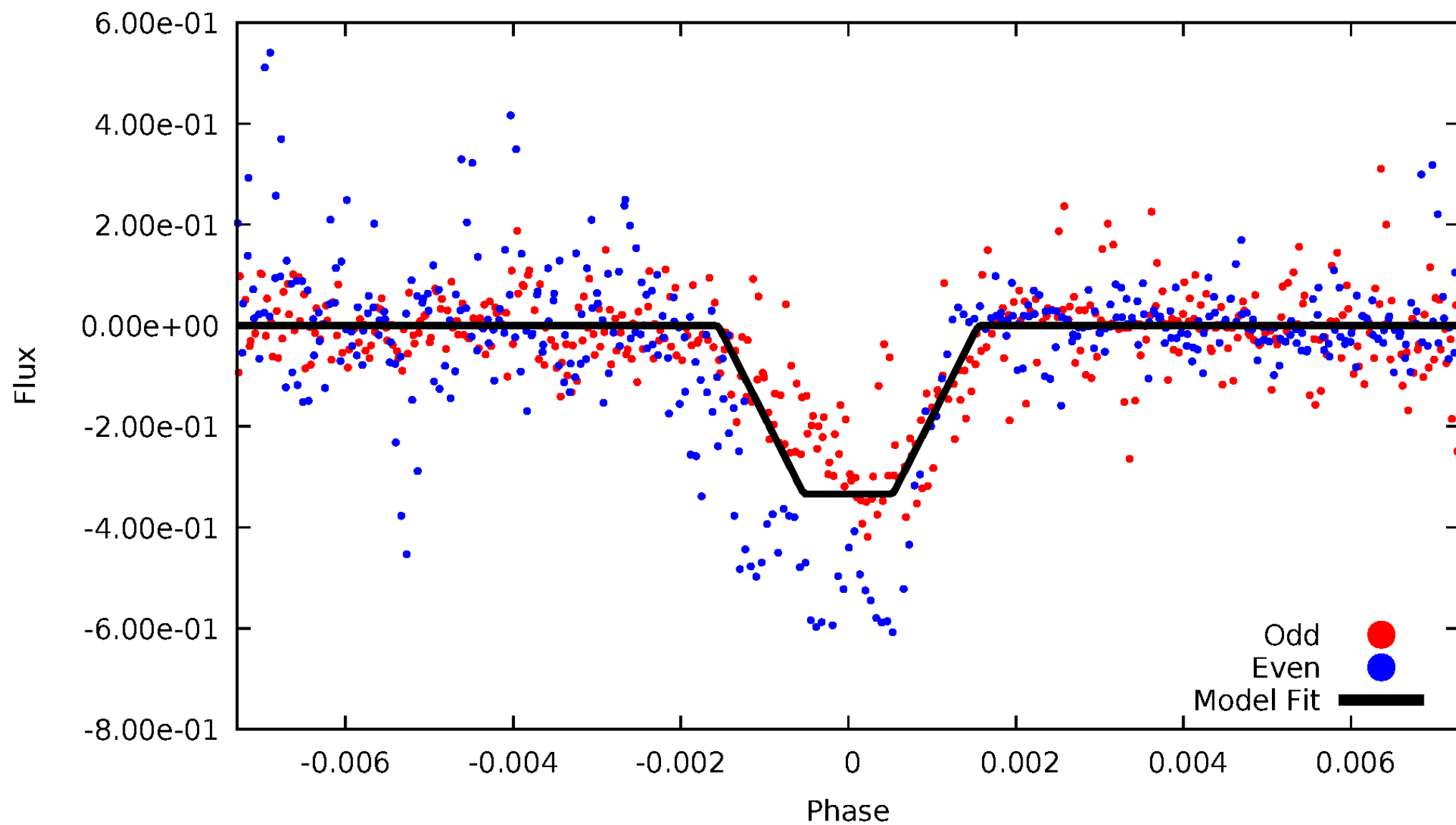
DV Odd/Even

TCE 002436450-06



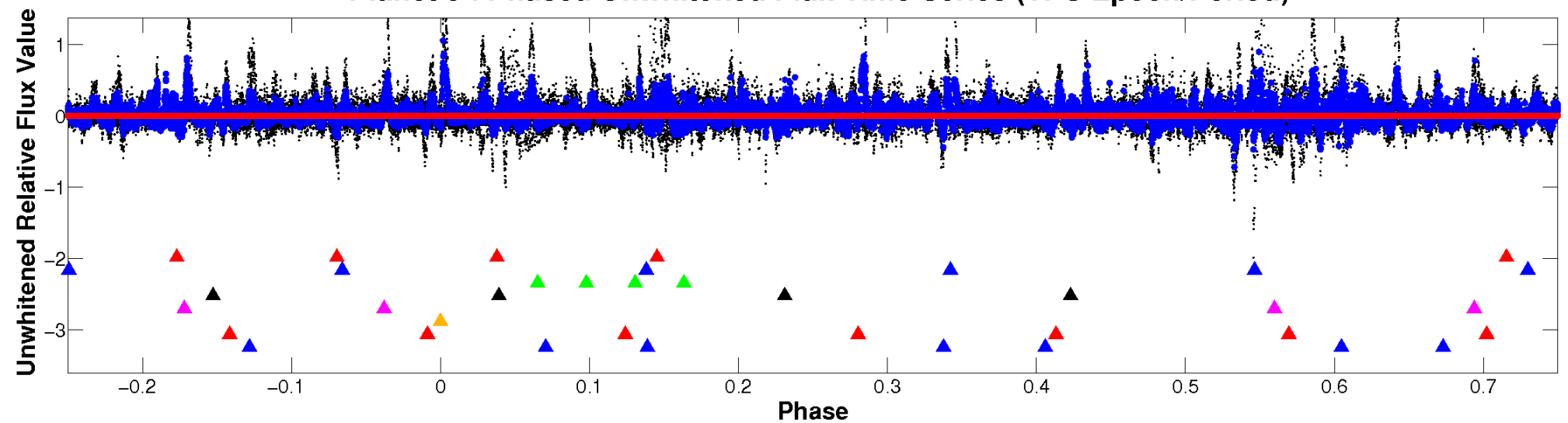
ALT Odd/Even

TCE 002436450-06



Non-Whitened Vs. Whitened Light Curve

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

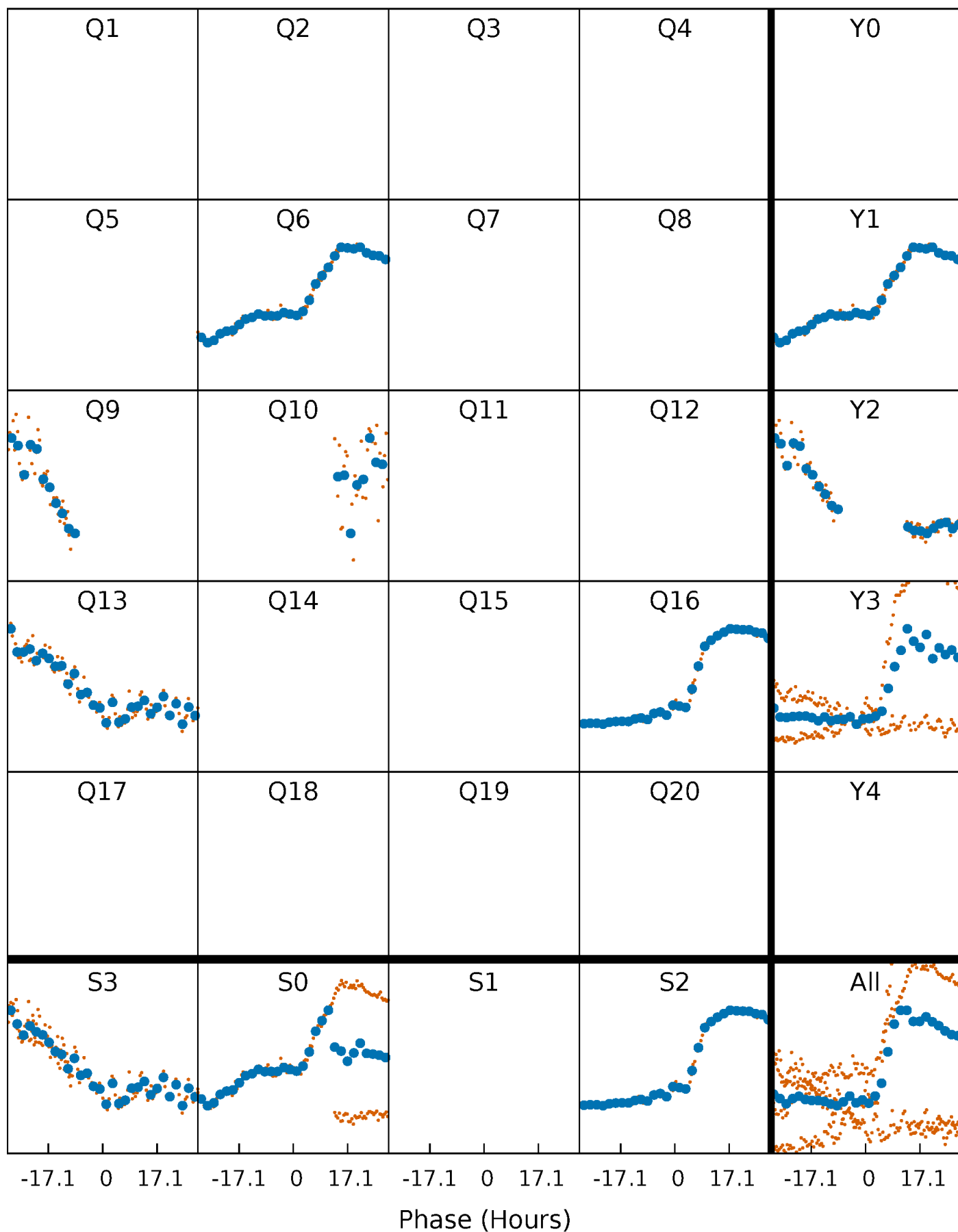


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



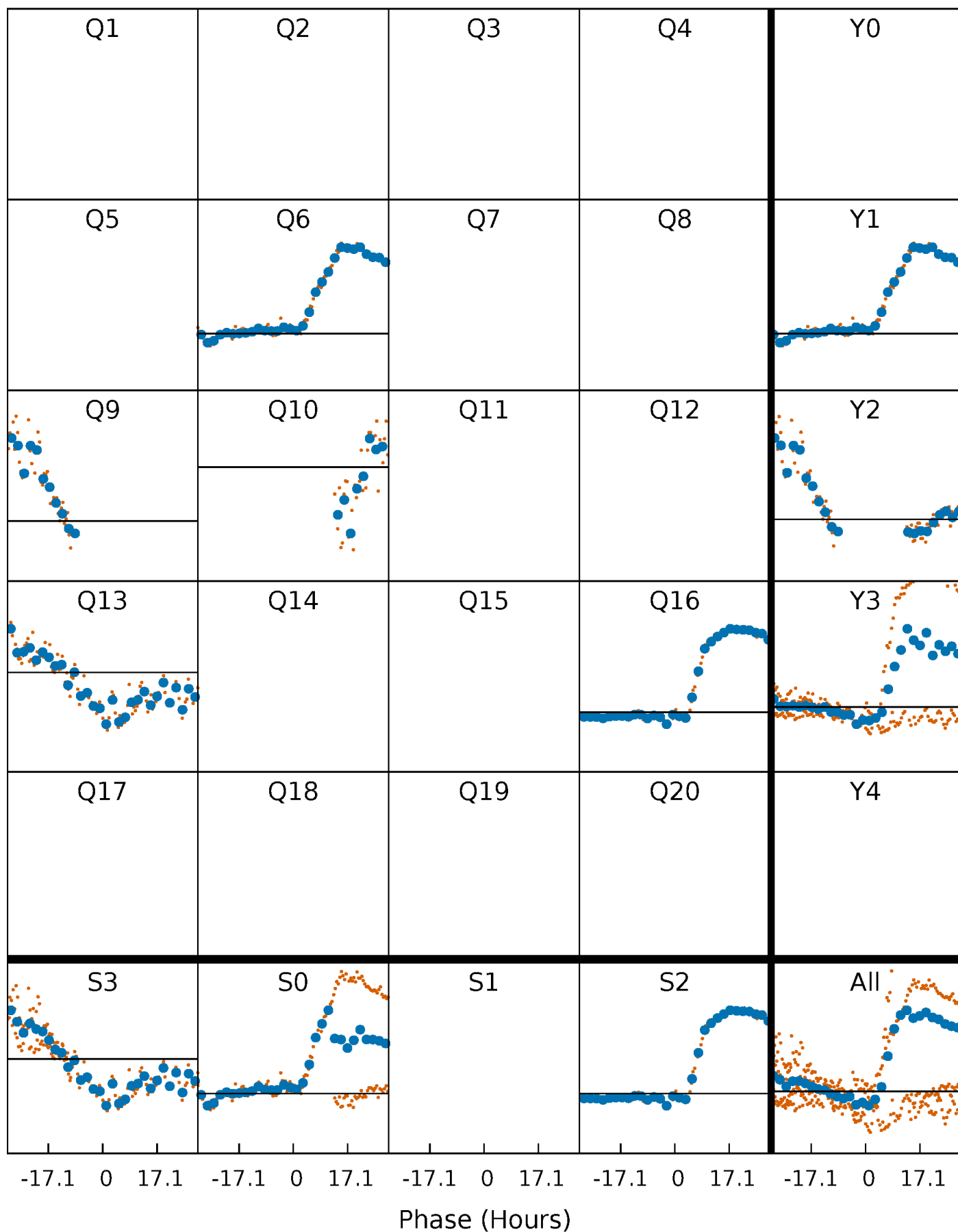
PDC Quarter-Phased Transit Curves

TCE 002436450-06 $P=313.702824$ Days $T_0=278.918696$ (BKJD)



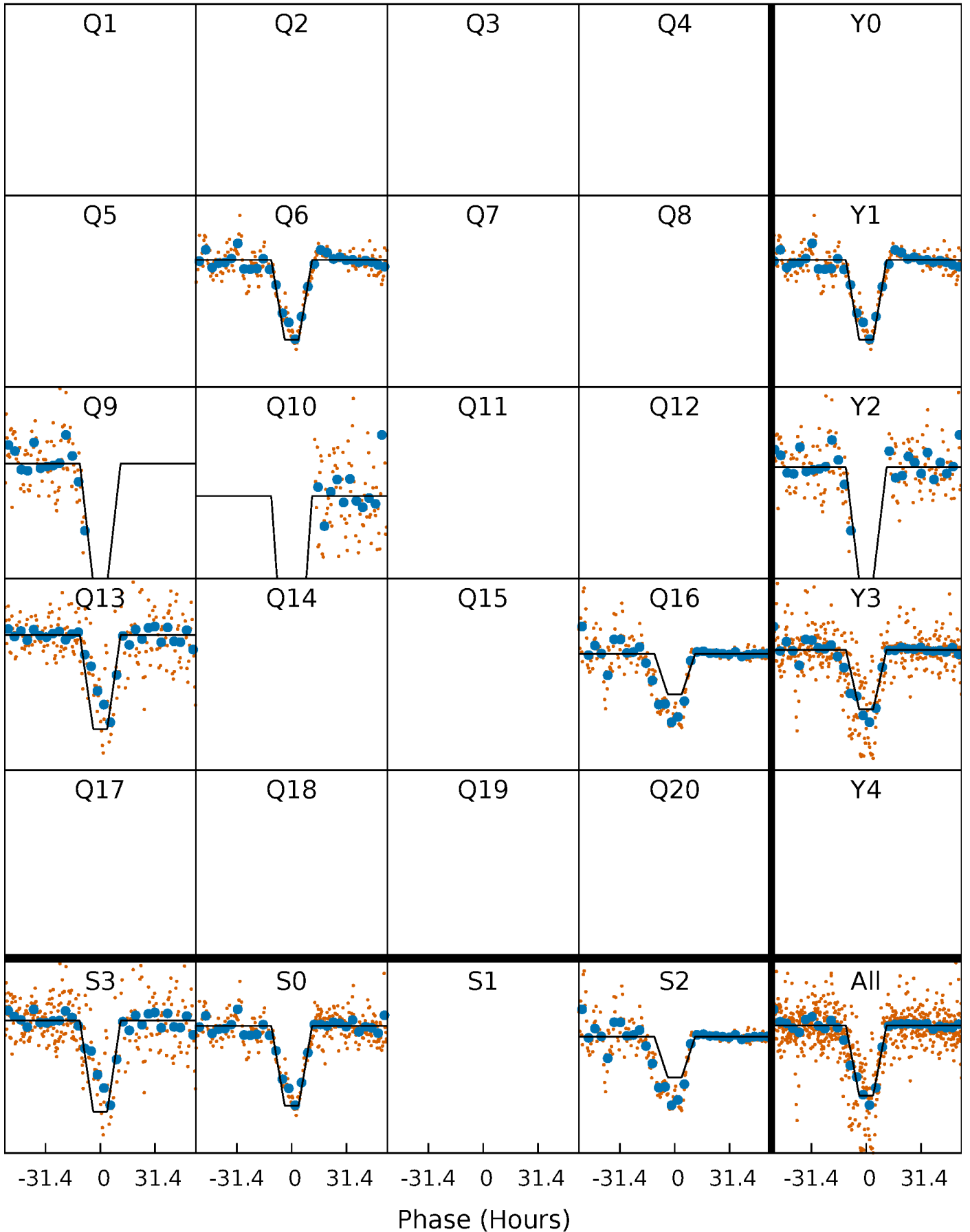
DV Quarter-Phased Transit Curves

TCE 002436450-06 $P=313.702824$ Days $T_0=278.918696$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

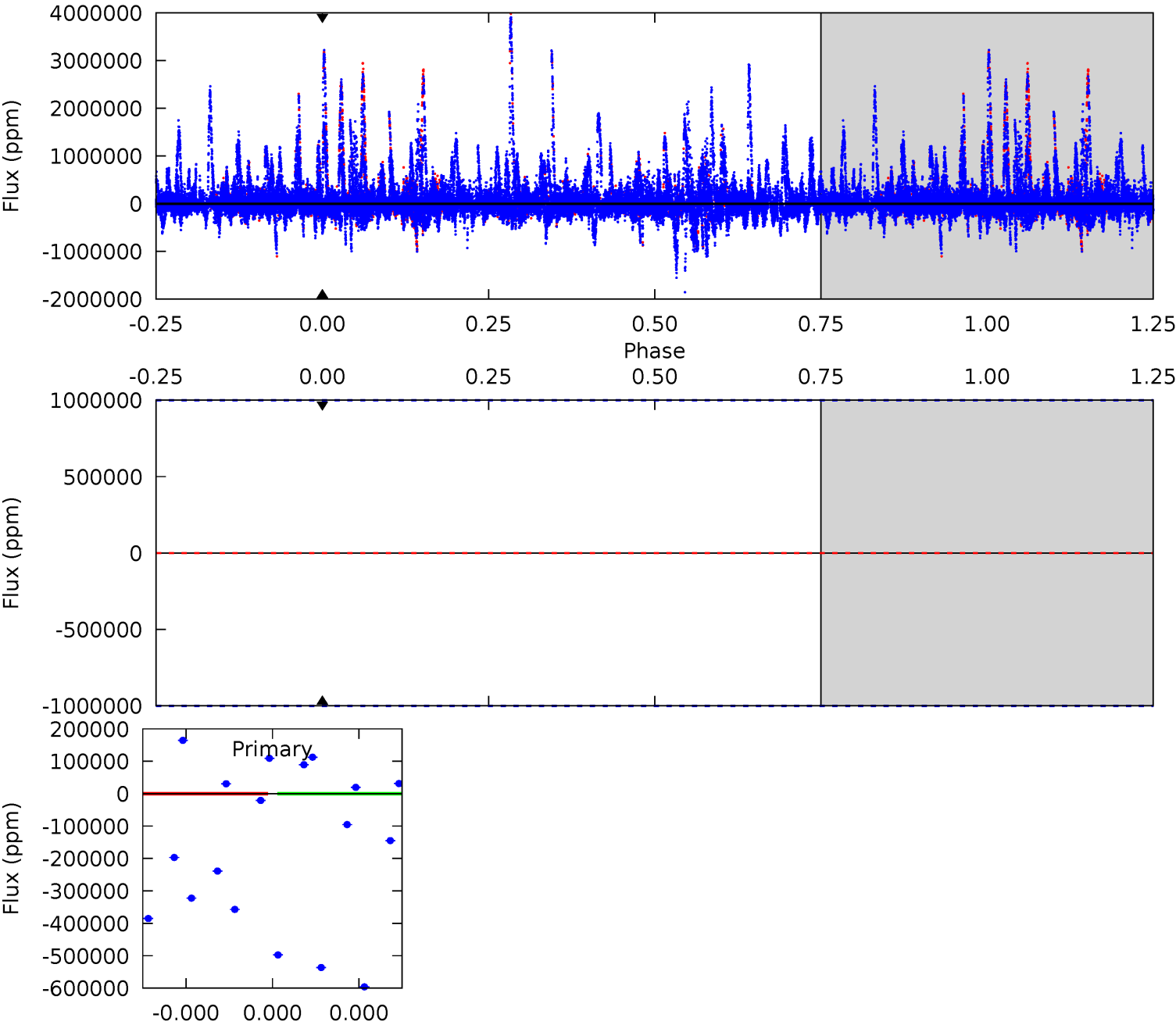
TCE 002436450-06 $P=313.702824$ Days $T_0=278.910094$ (BKJD)



DV Model-Shift Uniqueness Test

002436450-06, P = 313.702824 Days, E = 278.918696 Days

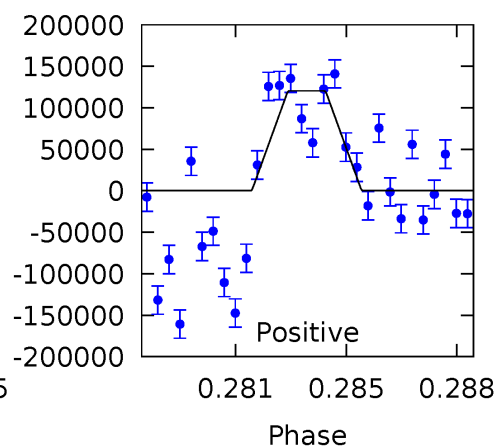
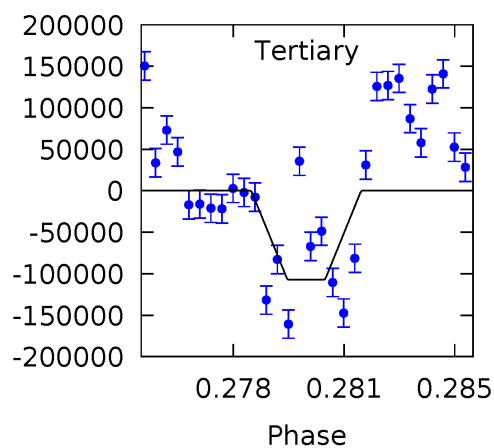
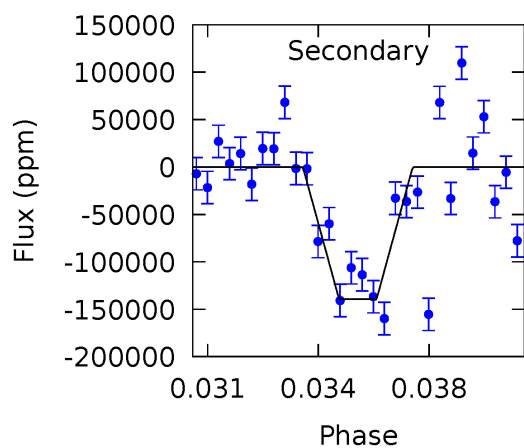
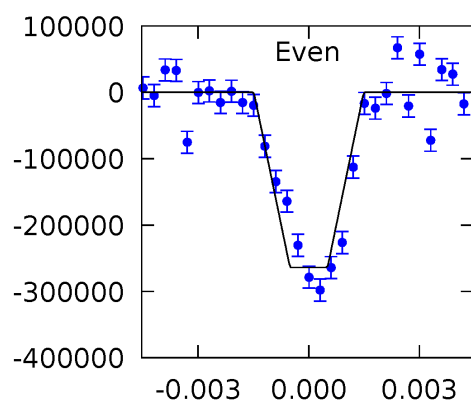
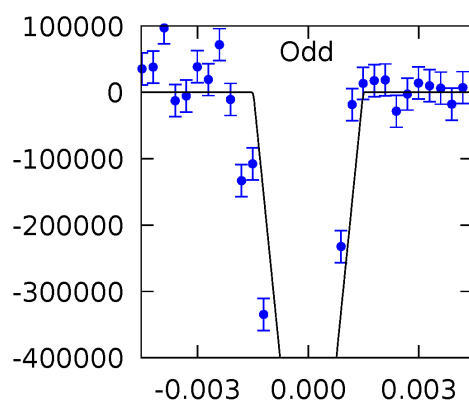
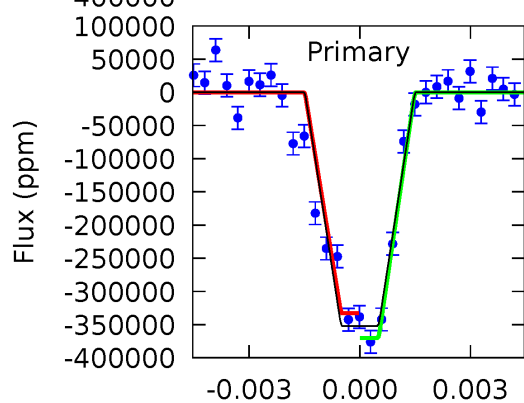
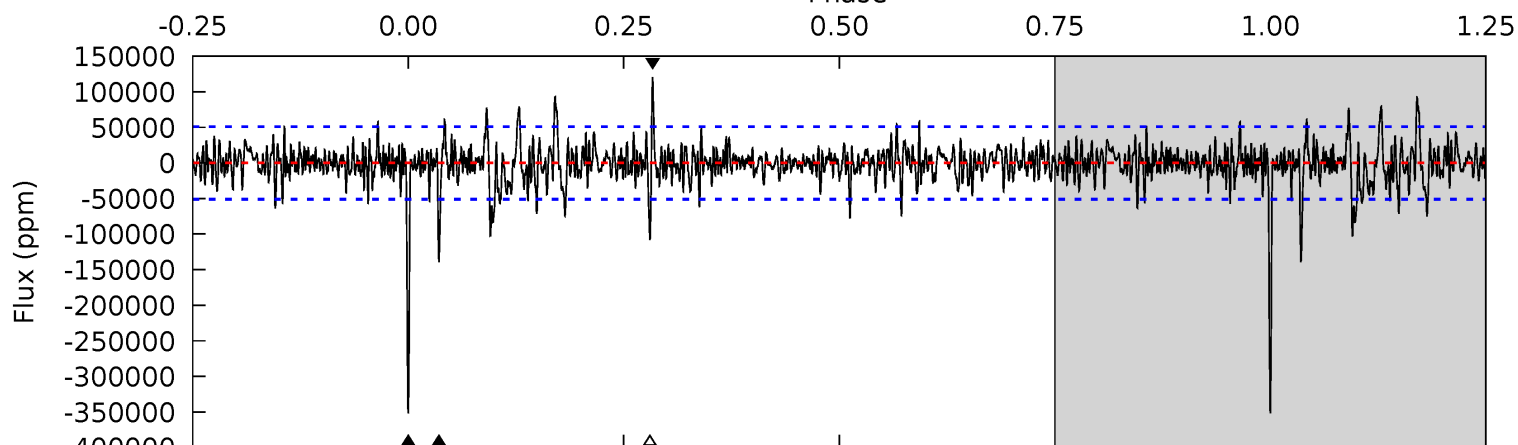
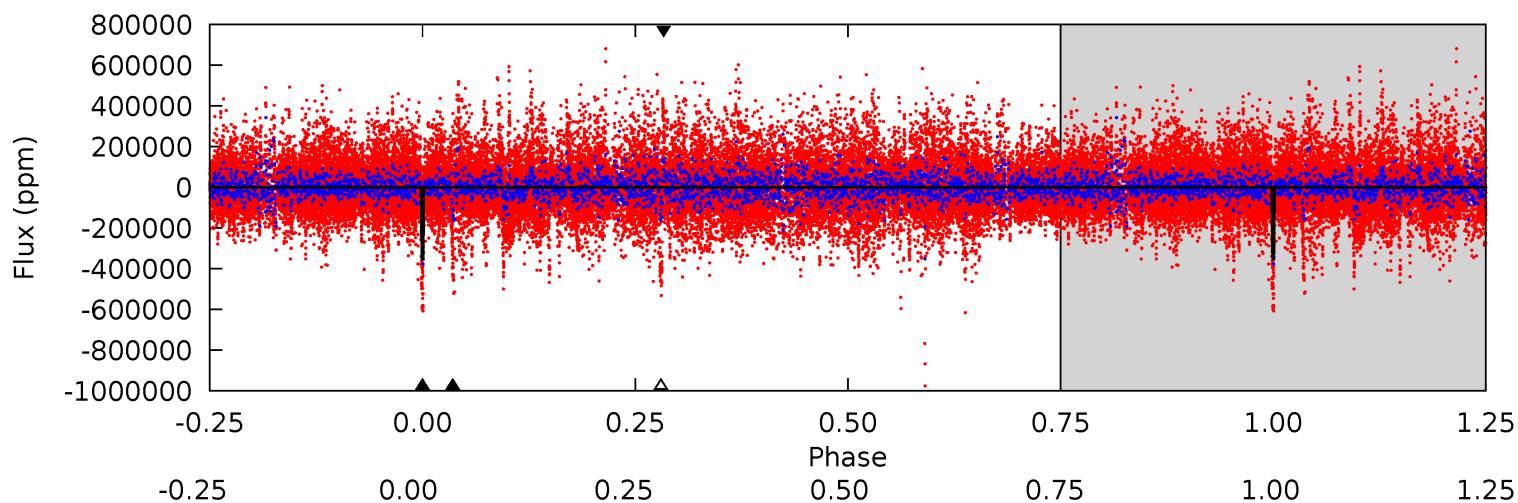
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002436450-06, P = 313.702824 Days, E = 278.910094 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.1	14.3	11.0	12.4	5.24	2.96	2.23	25.1	23.7	3.28	1.92	10.3	1.07	0.25	1.92



Stellar Parameters For KIC 002436450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436450-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$26.52^{+10.26}_{-10.88}$	375^{+19}_{-17}	-2712^{+9917}_{-4138}	$-429.045^{+88699.320}_{-73097.835}$
Alt.	-139144 ± 9745	$62.40^{+12.52}_{-10.72}$	375^{+19}_{-18}	4936^{+441}_{-351}	18666^{+8854}_{-5840}

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

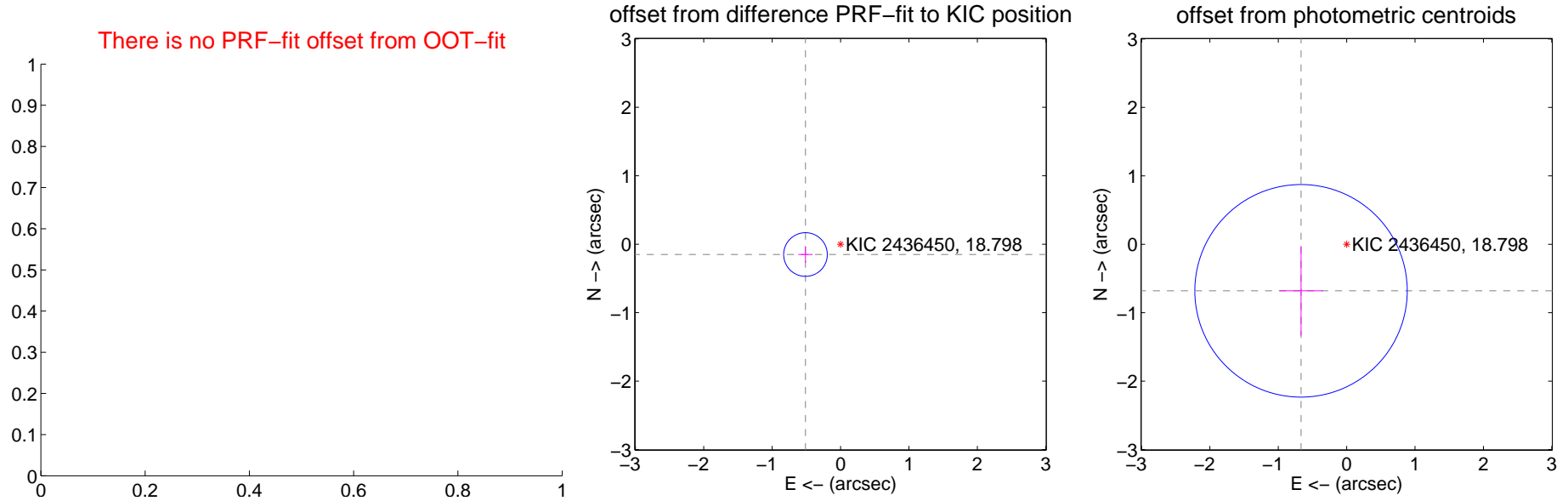
DV Centroid Data

Supplemental centroid analysis for 002436450-06. Kepler magnitude: 18.80. 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 NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	0.534 ± 0.106	5.02	0.513 ± 0.105	-0.151 ± 0.122
photometric centroid source offset	0.95 ± 0.52	1.84	0.67 ± 0.32	-0.68 ± 0.65

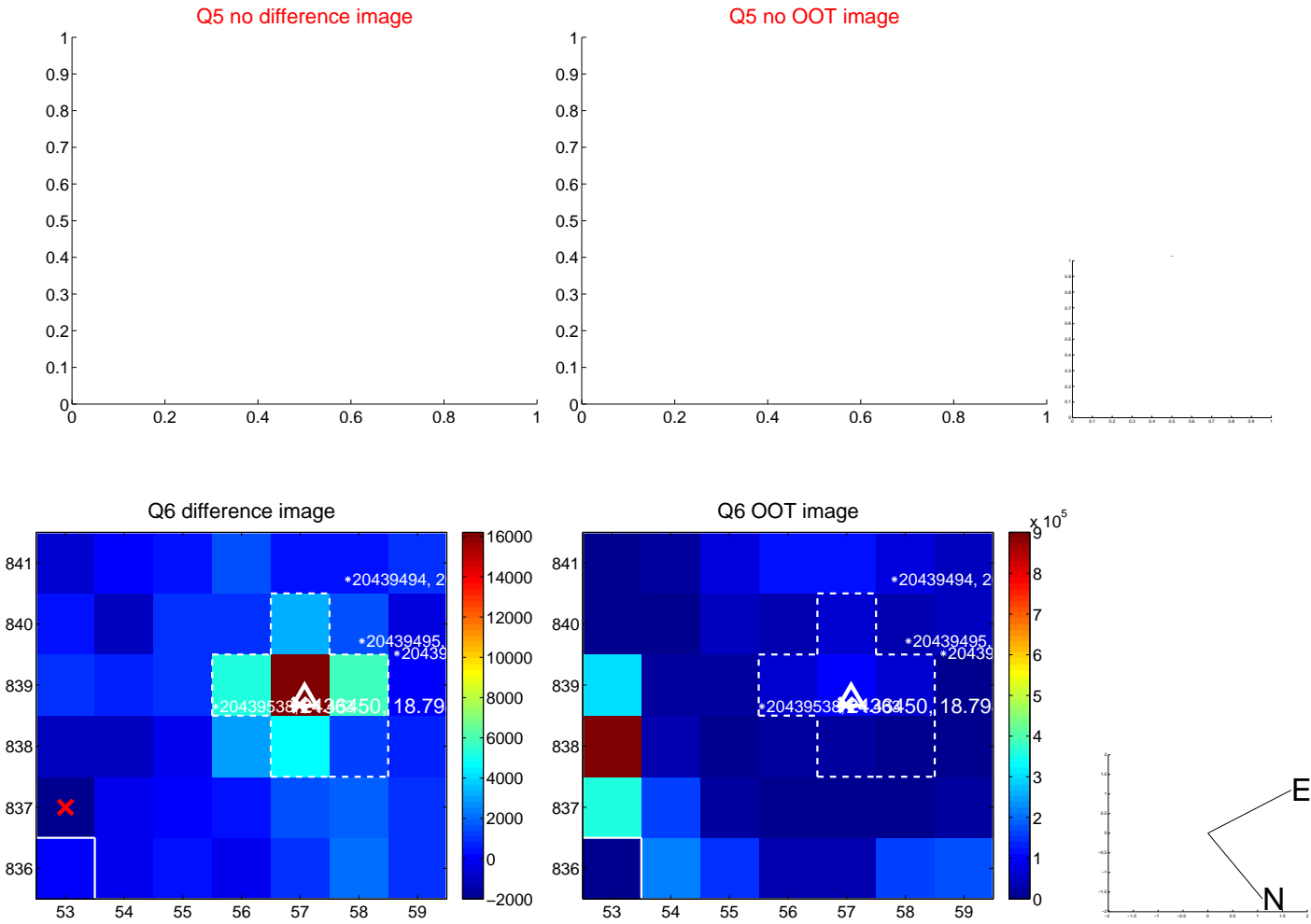


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

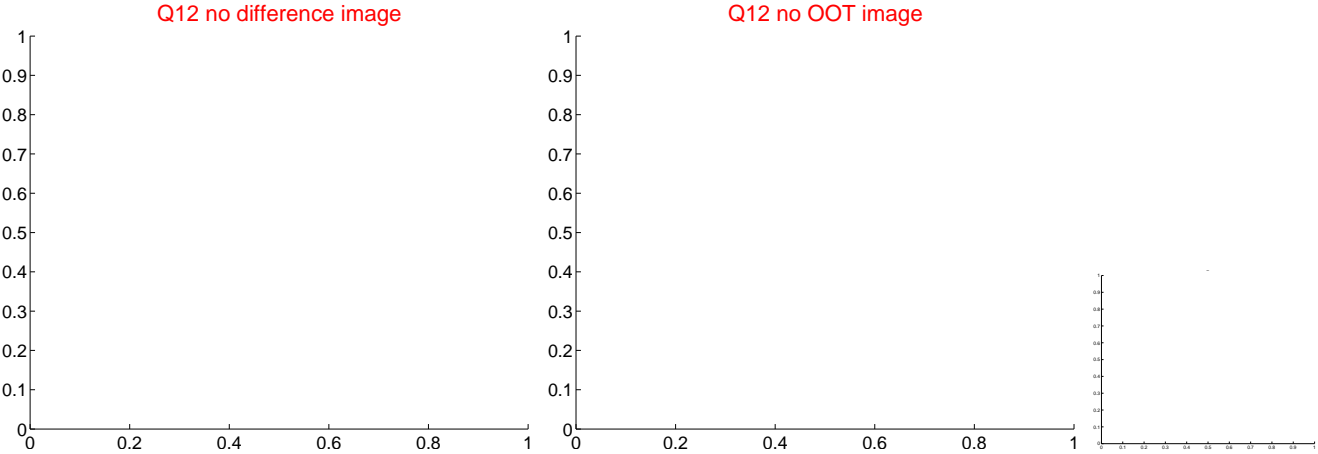
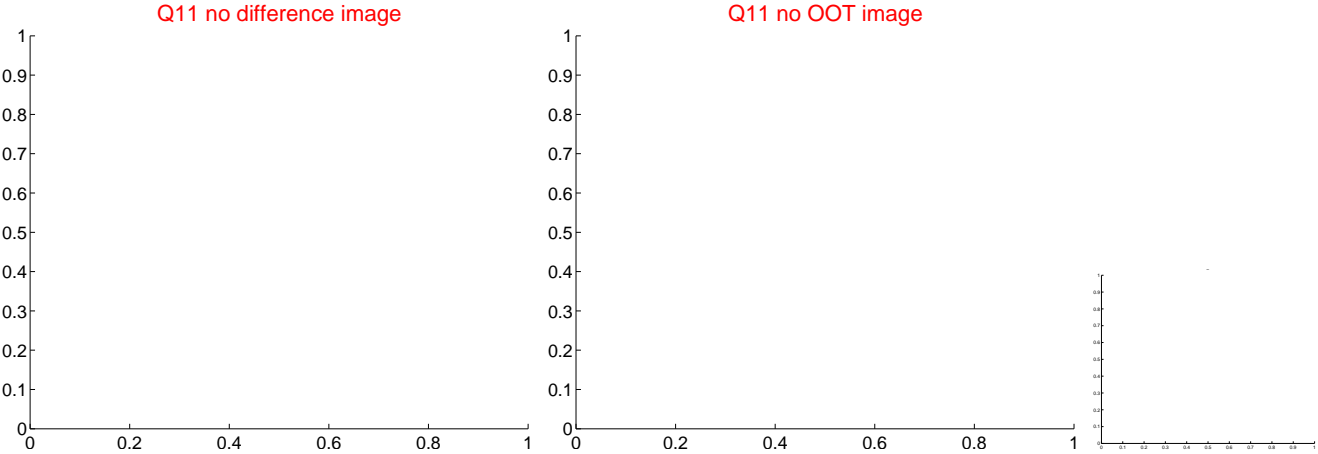
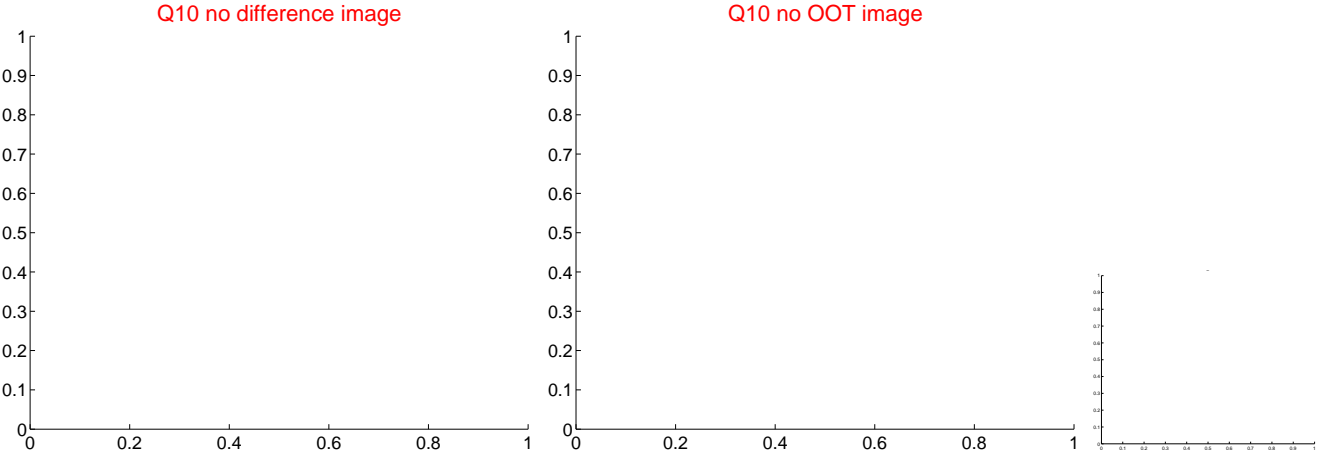
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



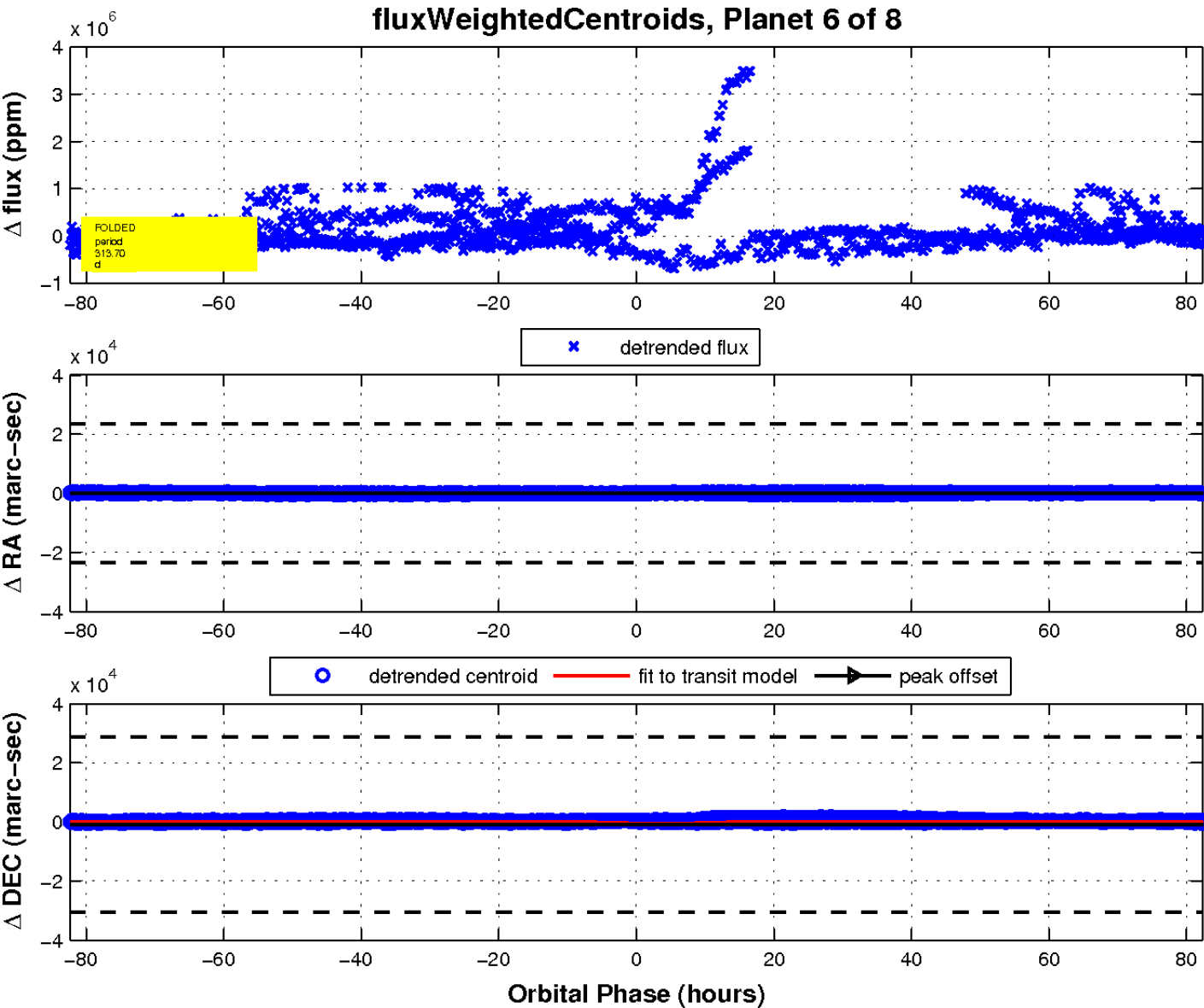
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

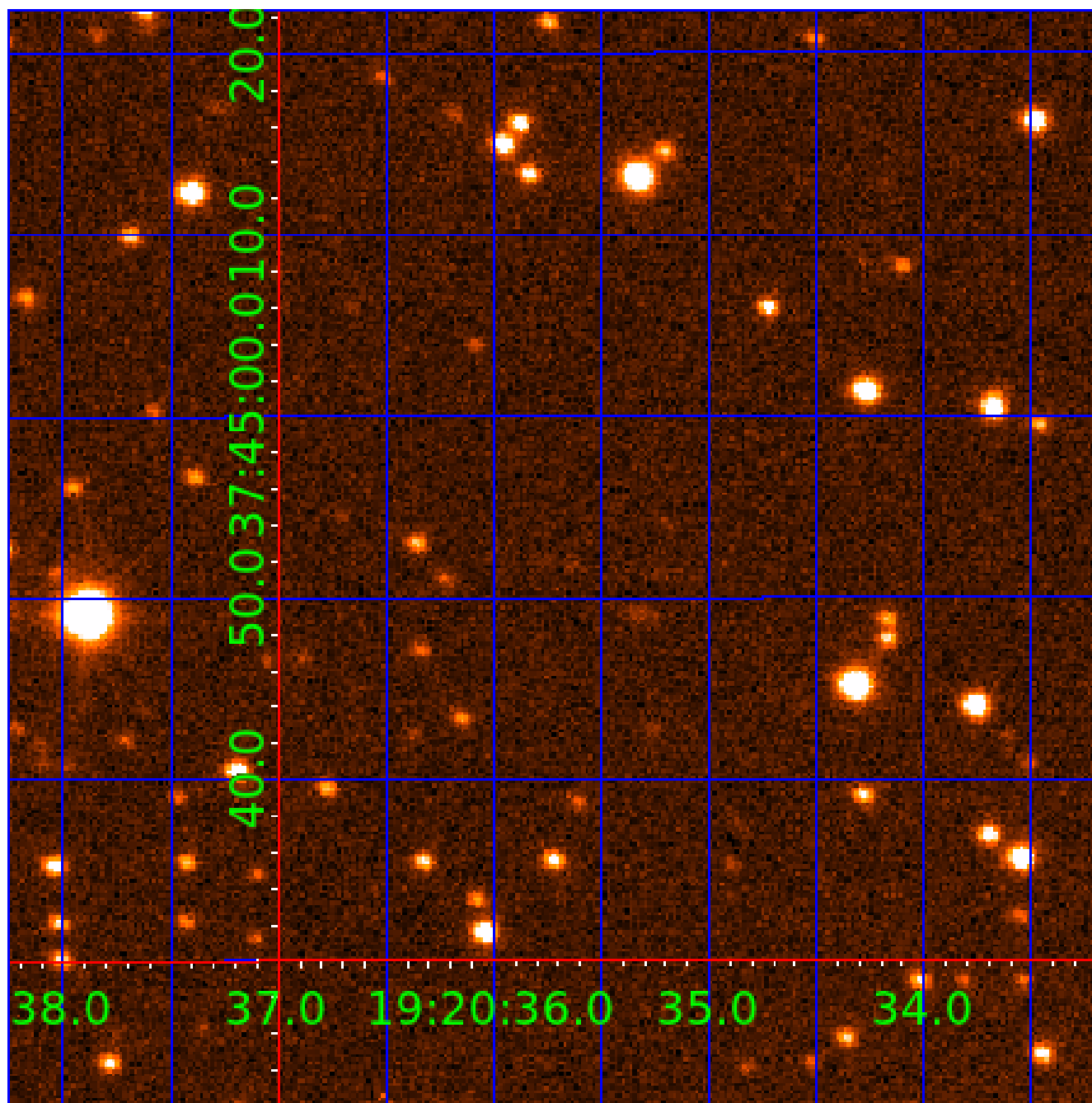


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002436450

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})
002436450-01	OBS	No	347.411387	189.685339	120394.5	12.500	15.3	-1.0	1.00	5780	34.56	1.07
002436450-02	OBS	No	249.664047	200.682000	123720.6	12.000	15.8	-1.0	1.00	5780	35.04	1.66
002436450-04	OBS	No	373.893281	231.029242	95139.1	12.500	12.2	-1.0	1.00	5780	30.68	0.97
002436450-06	OBS	No	313.702824	278.918696	68858.6	15.000	10.3	-1.0	1.00	5780	26.07	1.22
002436450-07	OBS	No	223.018685	234.540409	67577.2	9.000	10.0	-1.0	1.00	5780	25.82	1.93
002436450-08	OBS	No	229.925228	176.342224	65060.7	15.000	9.7	-1.0	1.00	5780	25.33	1.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
002436450-06	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
002436450-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

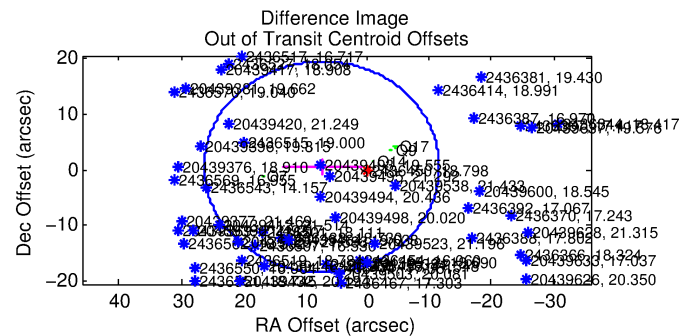
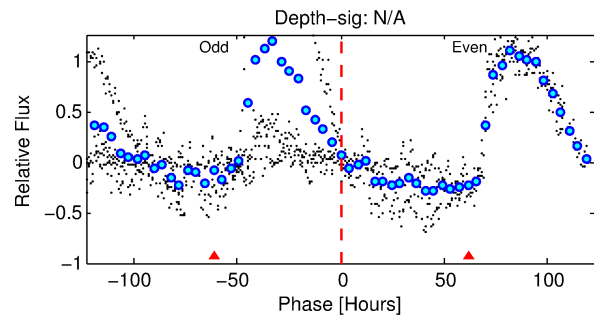
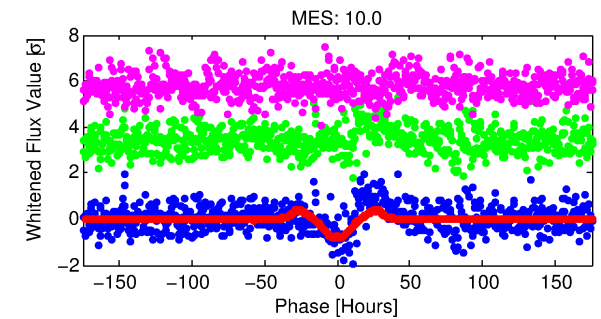
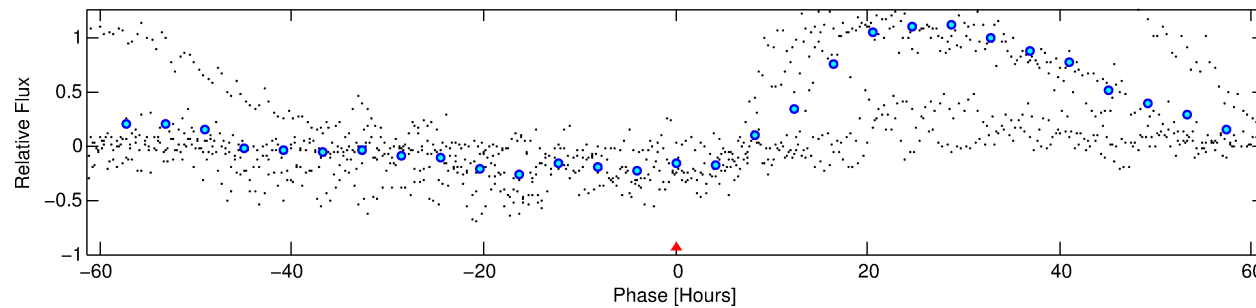
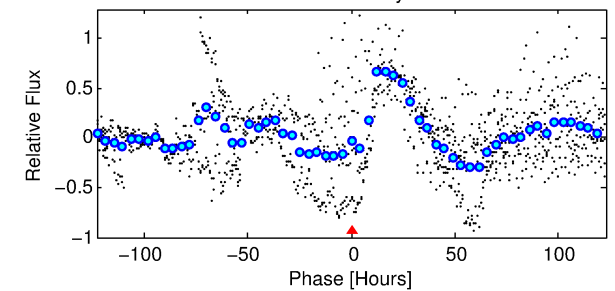
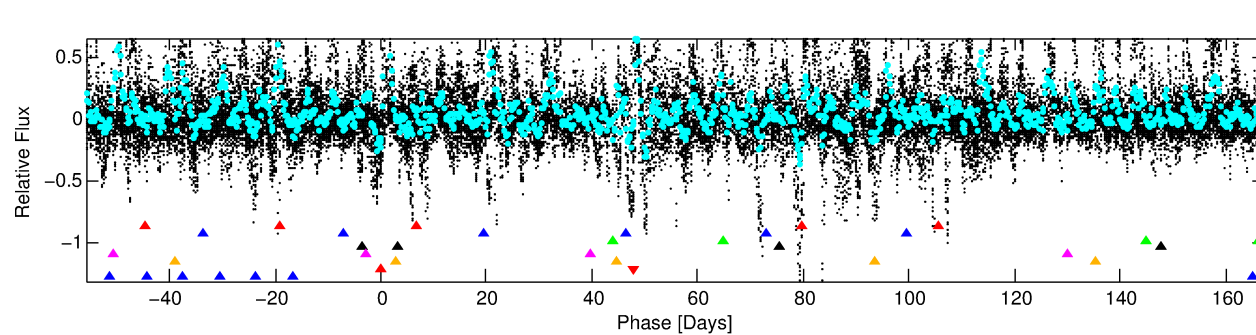
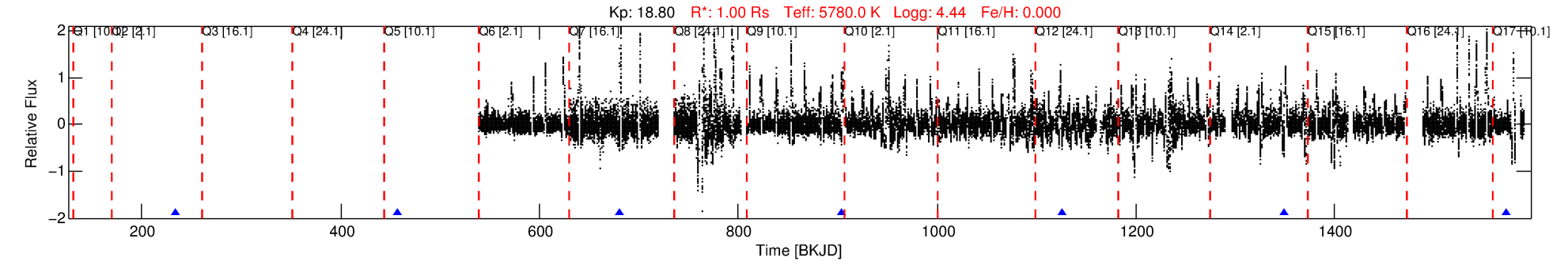
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002436450-07

No Significant Match Found

DV One-Page Summary

KIC: 2436450 Candidate: 7 of 8 Period: 223.019 d



TPS TCE Results:

Period = 223.01869 d
Epoch = 234.5404 BKJD

DV fit results are unavailable

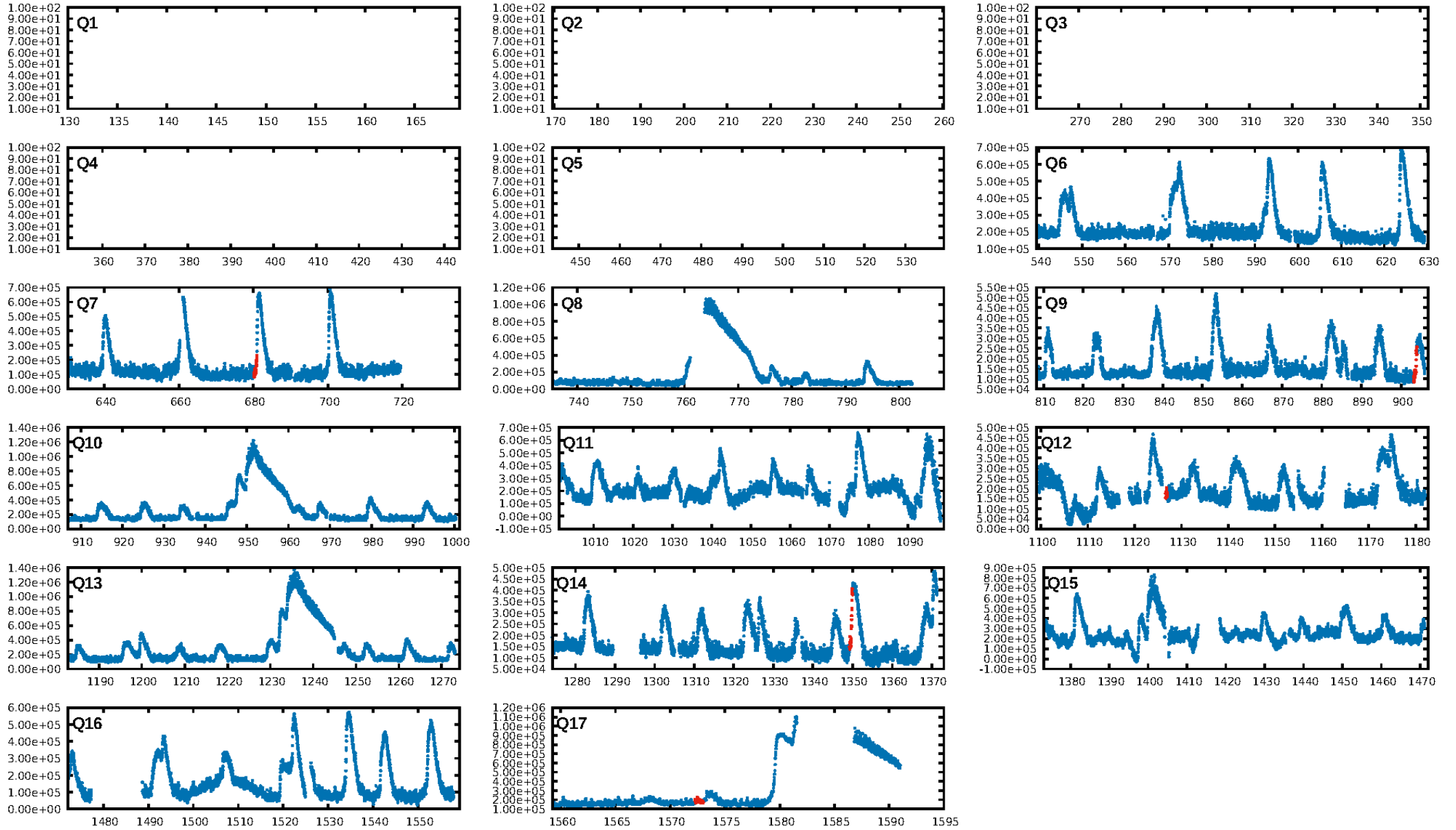
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [9.48σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 3.043
Centroid-sig: 0.0%
Centroid-so: 1.252 arcsec [4.21σ]
OotOffset-rm: 7.376 arcsec [1.17σ]
OotOffset-st: 1/1/0/2 [4]
KicOffset-rm: 0.471 arcsec [4.76σ]
KicOffset-st: 1/1/0/2 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

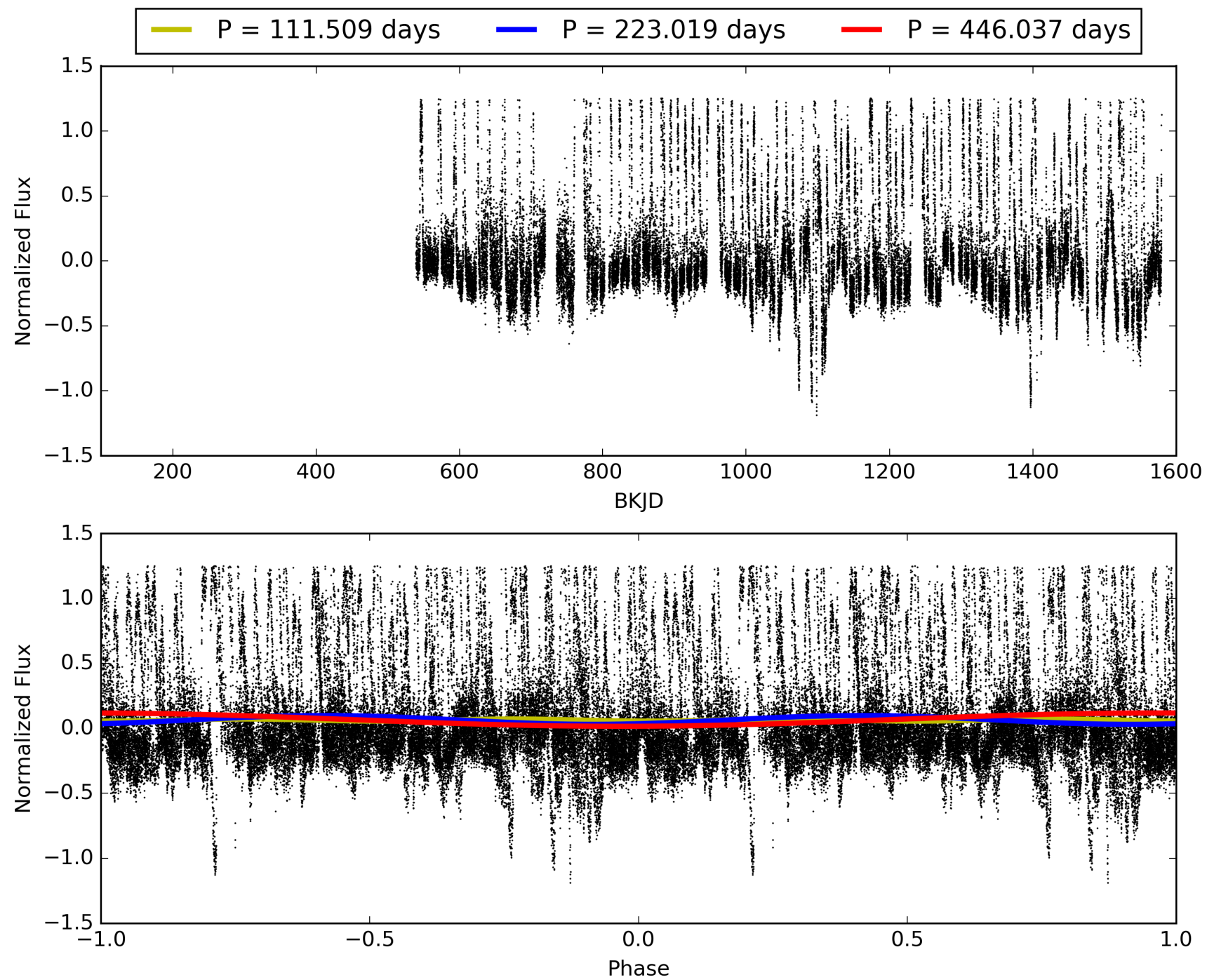
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:13:46 Z

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

TCE 002436450-07, PDC Light Curves

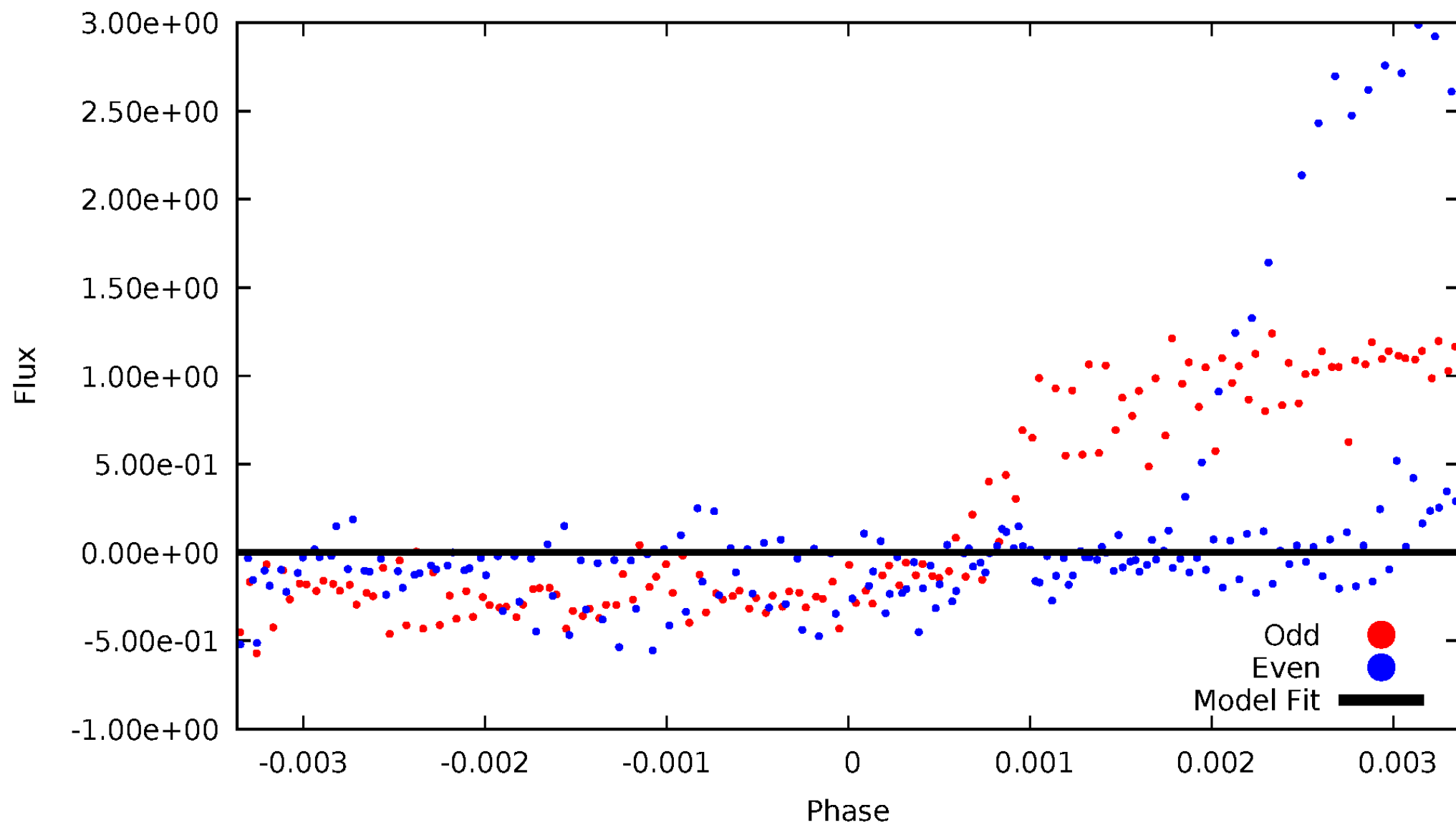


TCE 002436450-07



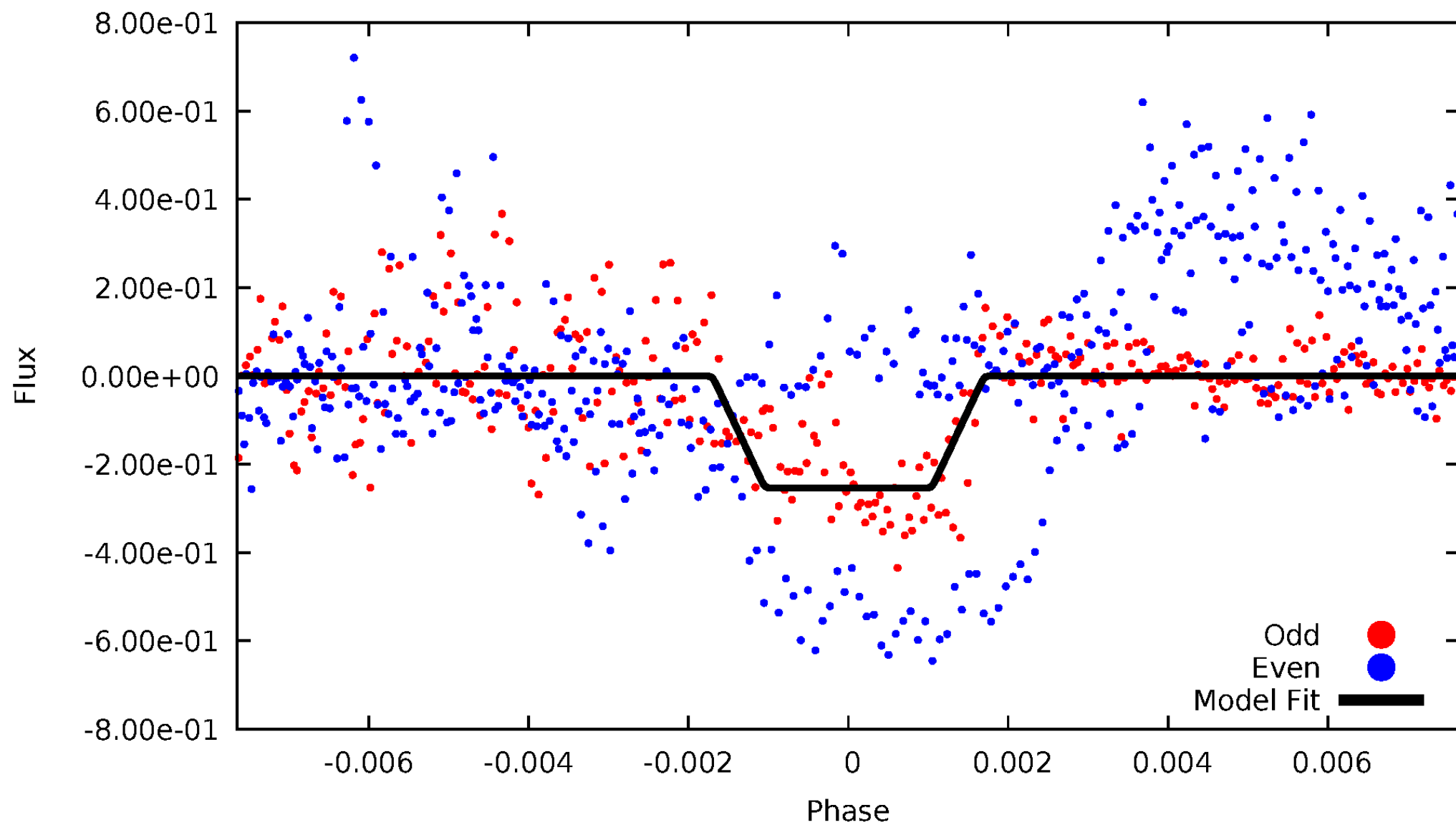
DV Odd/Even

TCE 002436450-07



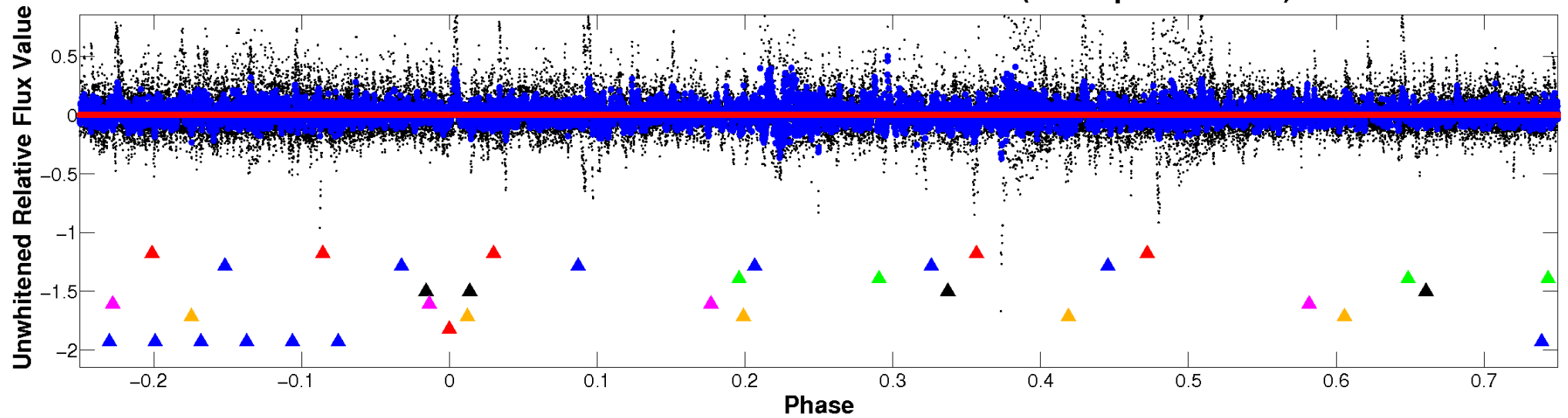
ALT Odd/Even

TCE 002436450-07



Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

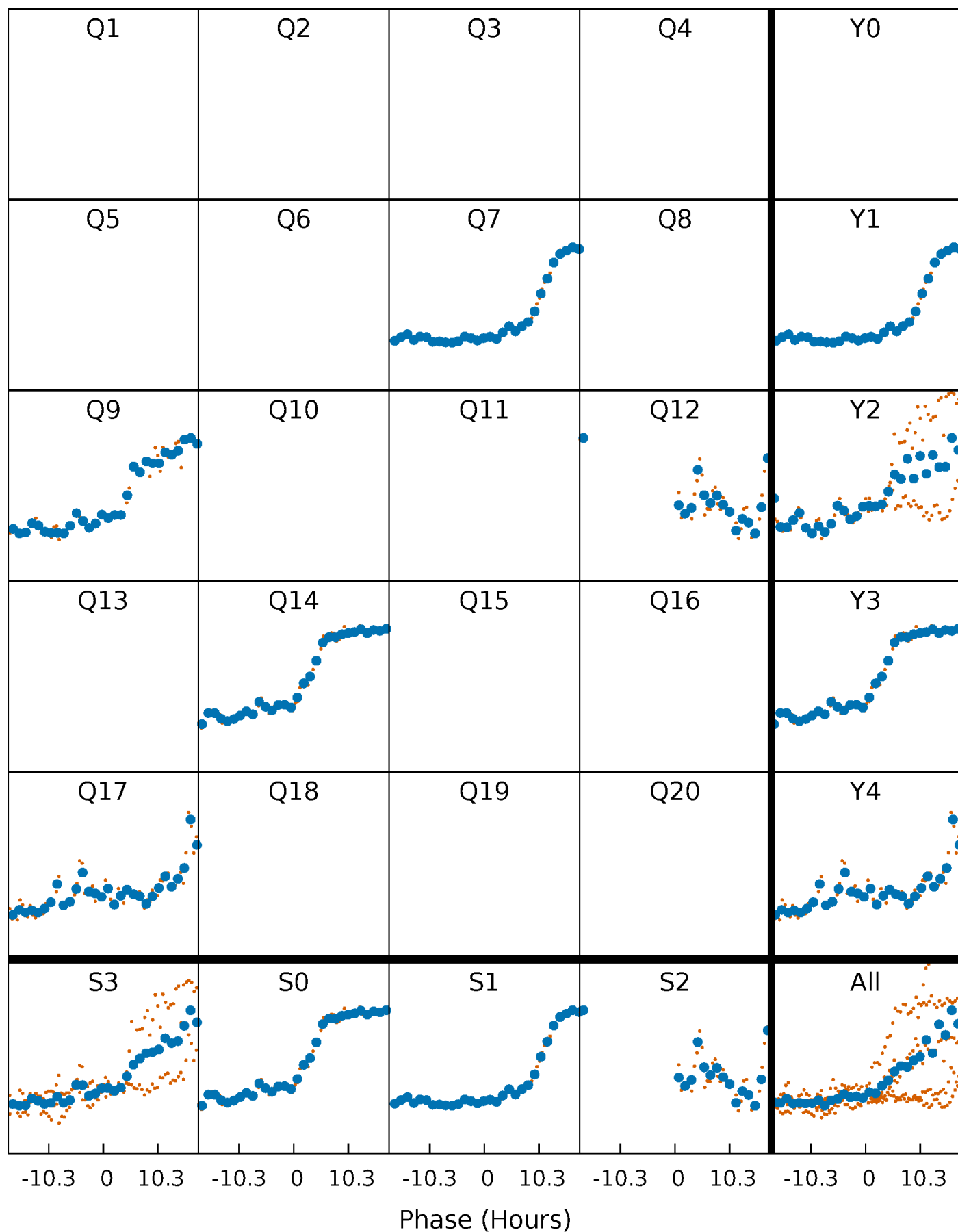


Planet 7 : Phased Whitened Flux Time Series (TPS Epoch/Period)



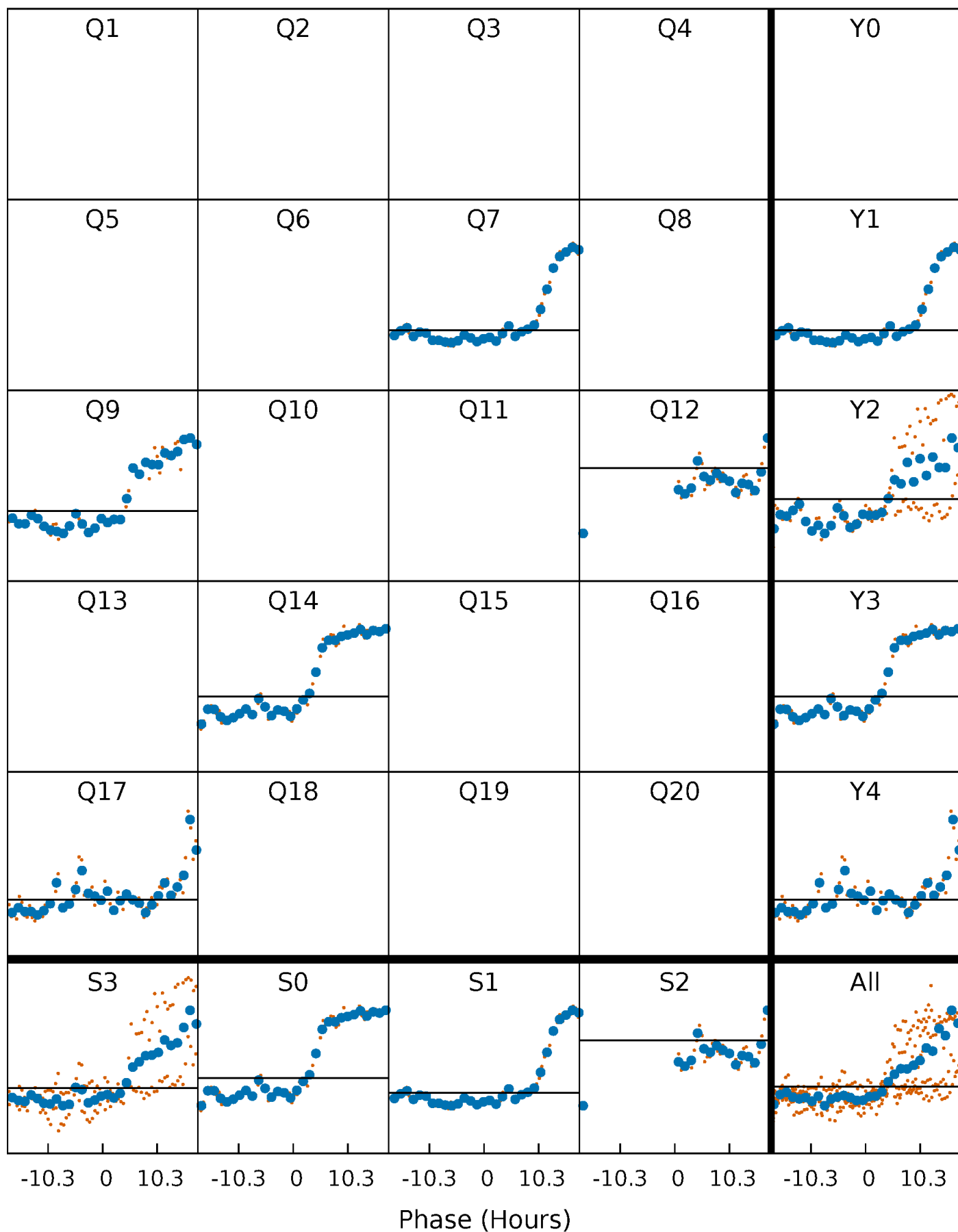
PDC Quarter-Phased Transit Curves

TCE 002436450-07 $P=223.018685$ Days $T_0=234.540409$ (BKJD)



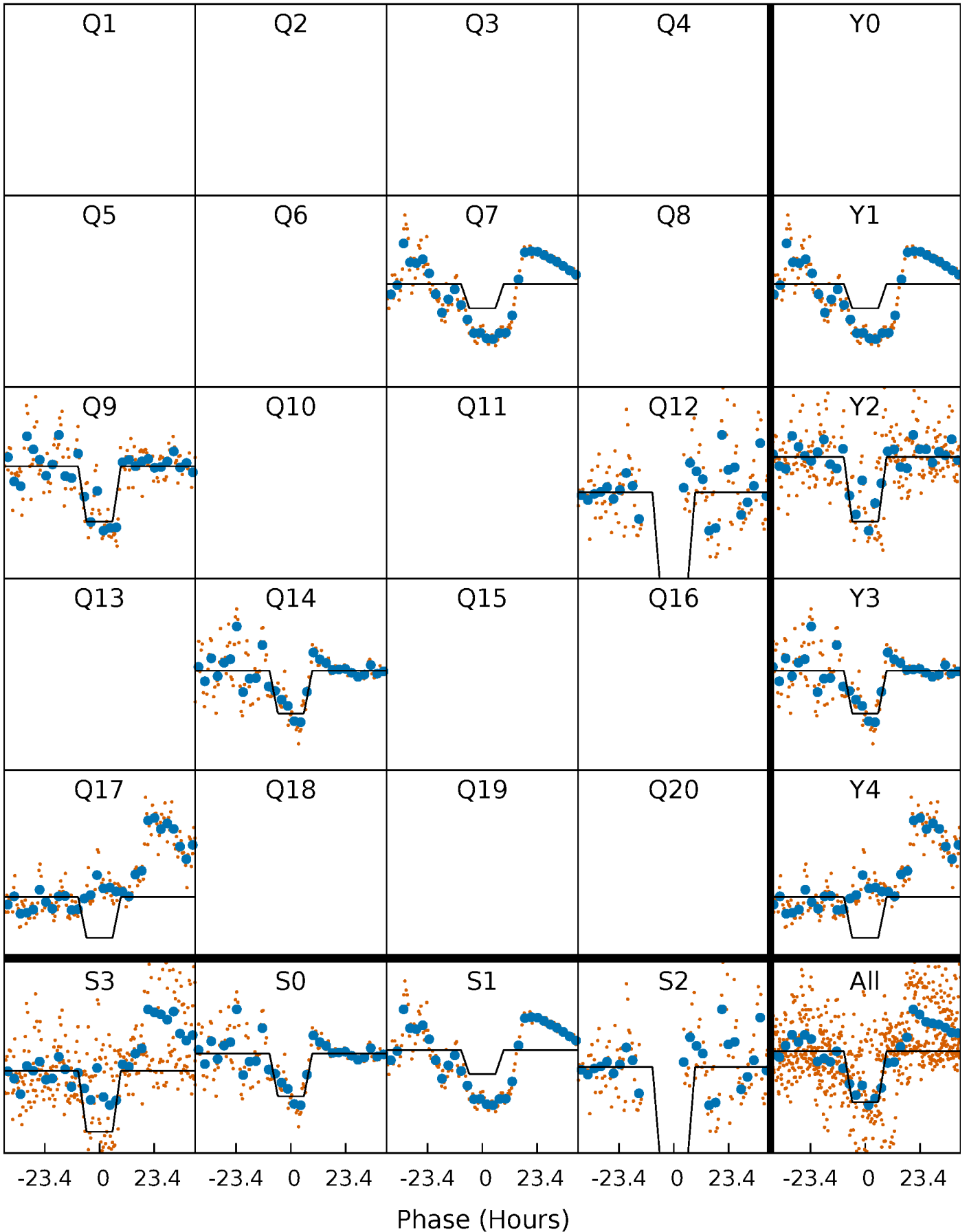
DV Quarter-Phased Transit Curves

TCE 002436450-07 $P=223.018685$ Days $T_0=234.540409$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

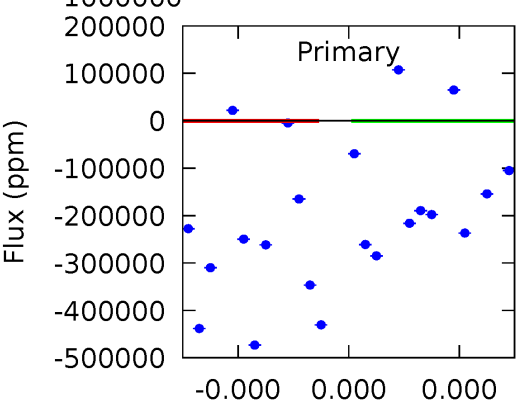
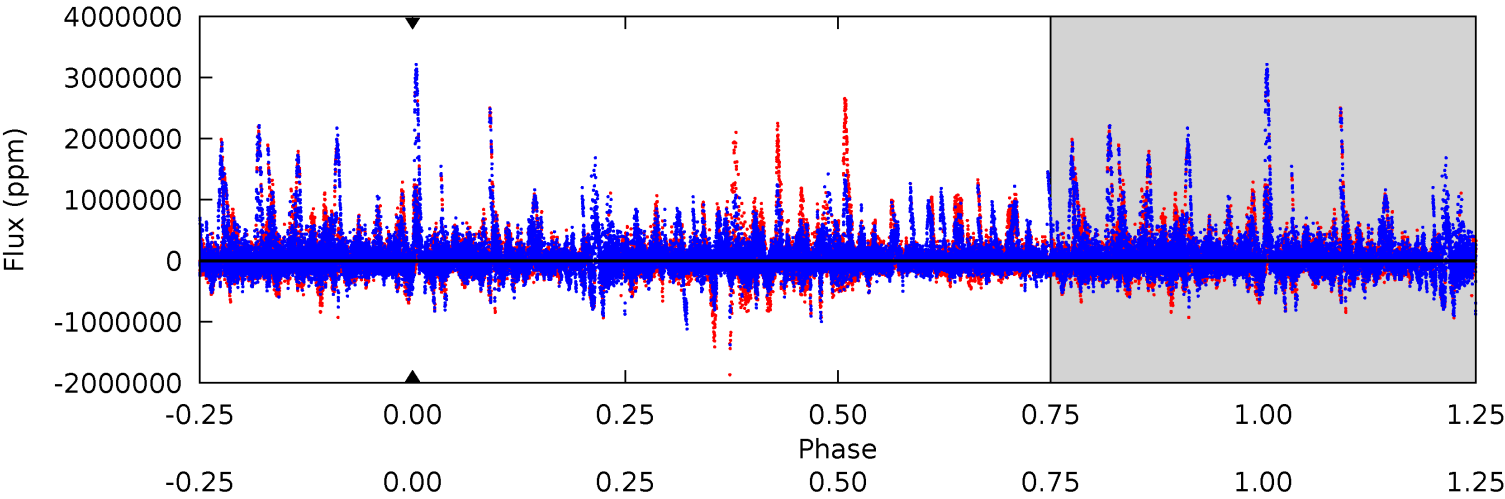
TCE 002436450-07 $P=223.018685$ Days $T_0=234.392068$ (BKJD)



DV Model-Shift Uniqueness Test

002436450-07, P = 223.018685 Days, E = 234.540409 Days

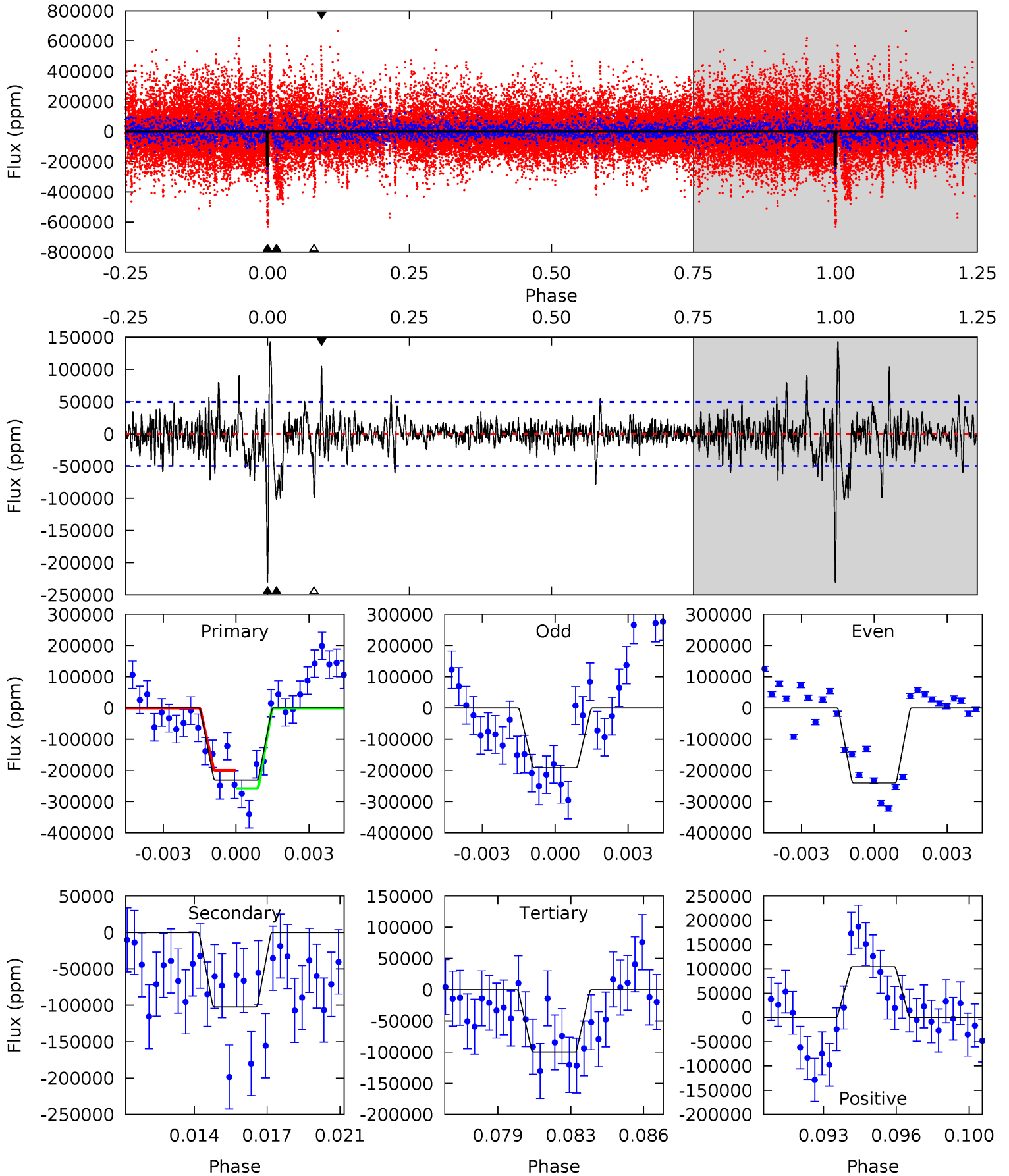
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002436450-07, P = 223.018685 Days, E = 234.392068 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	10.8	10.5	11.0	5.23	2.93	2.30	13.8	13.3	0.25	-0.25	2.35	0.81	0.38	3.02



Stellar Parameters For KIC 002436450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436450-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$25.17^{+11.22}_{-9.20}$	420^{+21}_{-19}	2754^{+4738}_{-9682}	310^{+61073}_{-48371}
Alt.	-102247 ± 9503	$54.71^{+12.02}_{-10.57}$	422^{+19}_{-19}	4863^{+523}_{-363}	10831^{+6162}_{-3563}

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 $A_{obs} \gg 1.0$

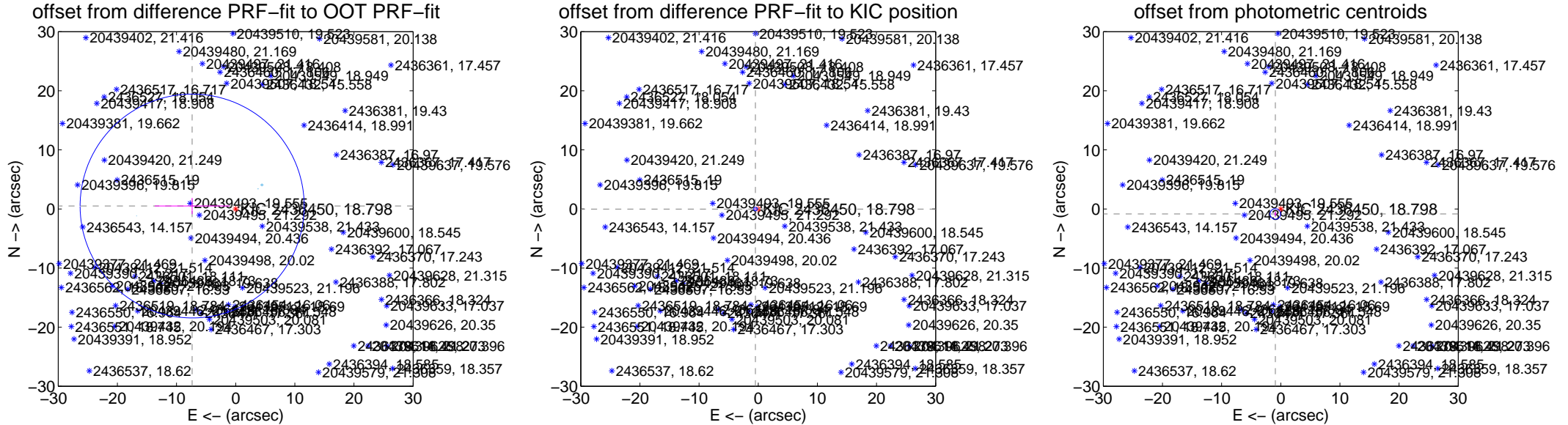
DV Centroid Data

Supplemental centroid analysis for 002436450-07. Kepler magnitude: 18.80. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 6.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.376 ± 6.313	1.17	7.359 ± 6.327	0.498 ± 1.374
PRF-fit source offset from KIC position	0.471 ± 0.099	4.76	0.471 ± 0.099	-0.017 ± 0.092
photometric centroid source offset	1.25 ± 0.30	4.21	0.92 ± 0.18	-0.85 ± 0.39

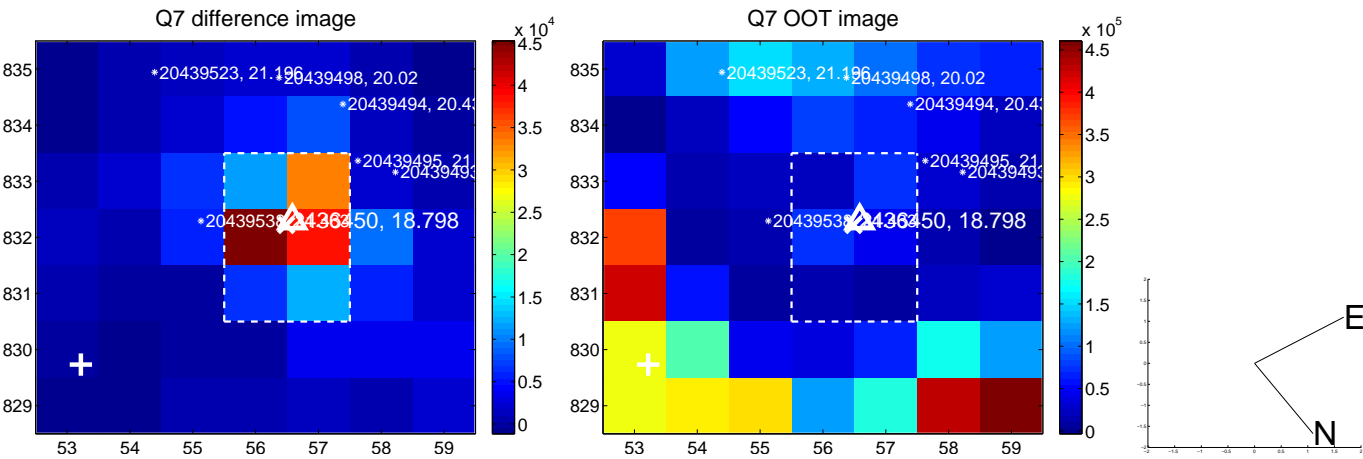


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

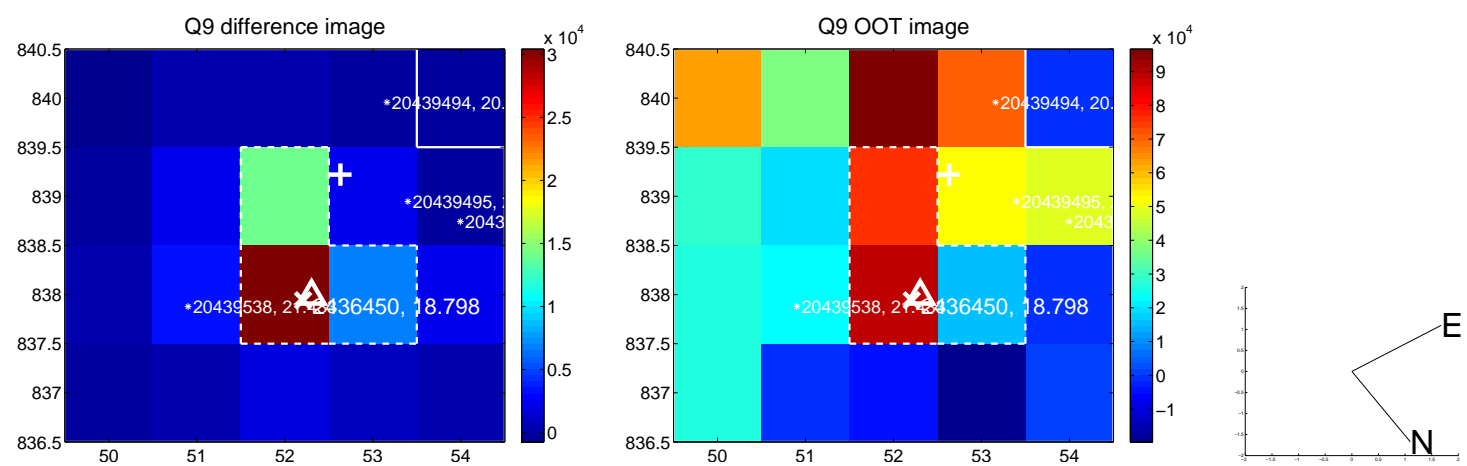
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



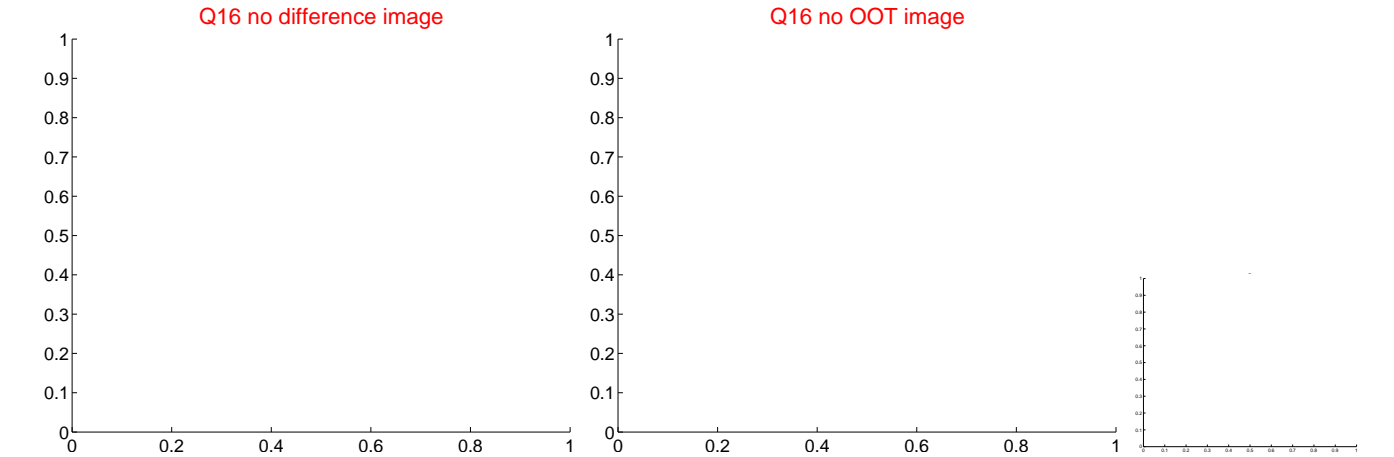
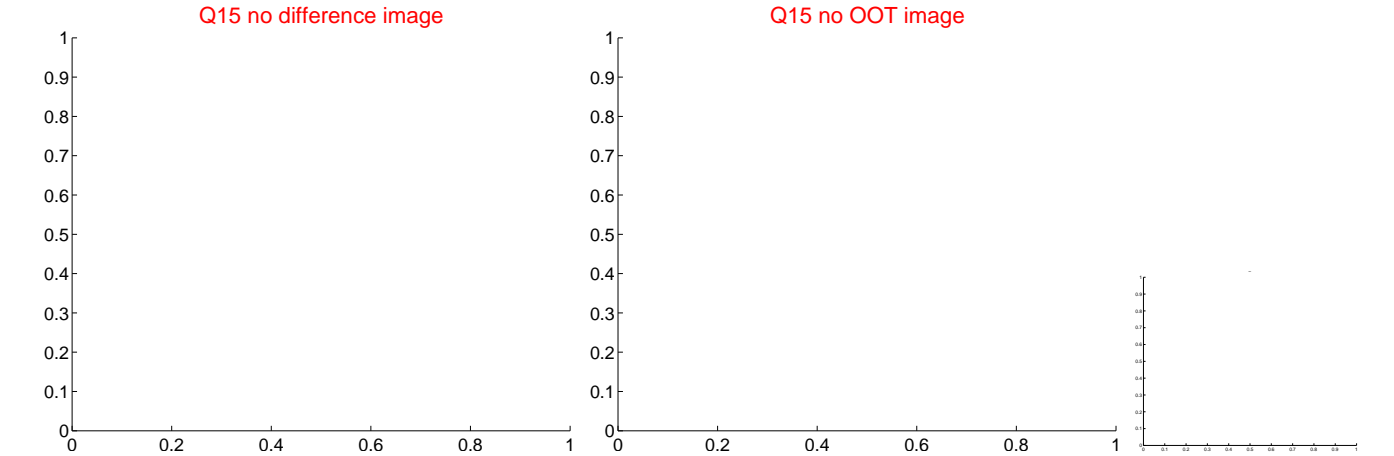
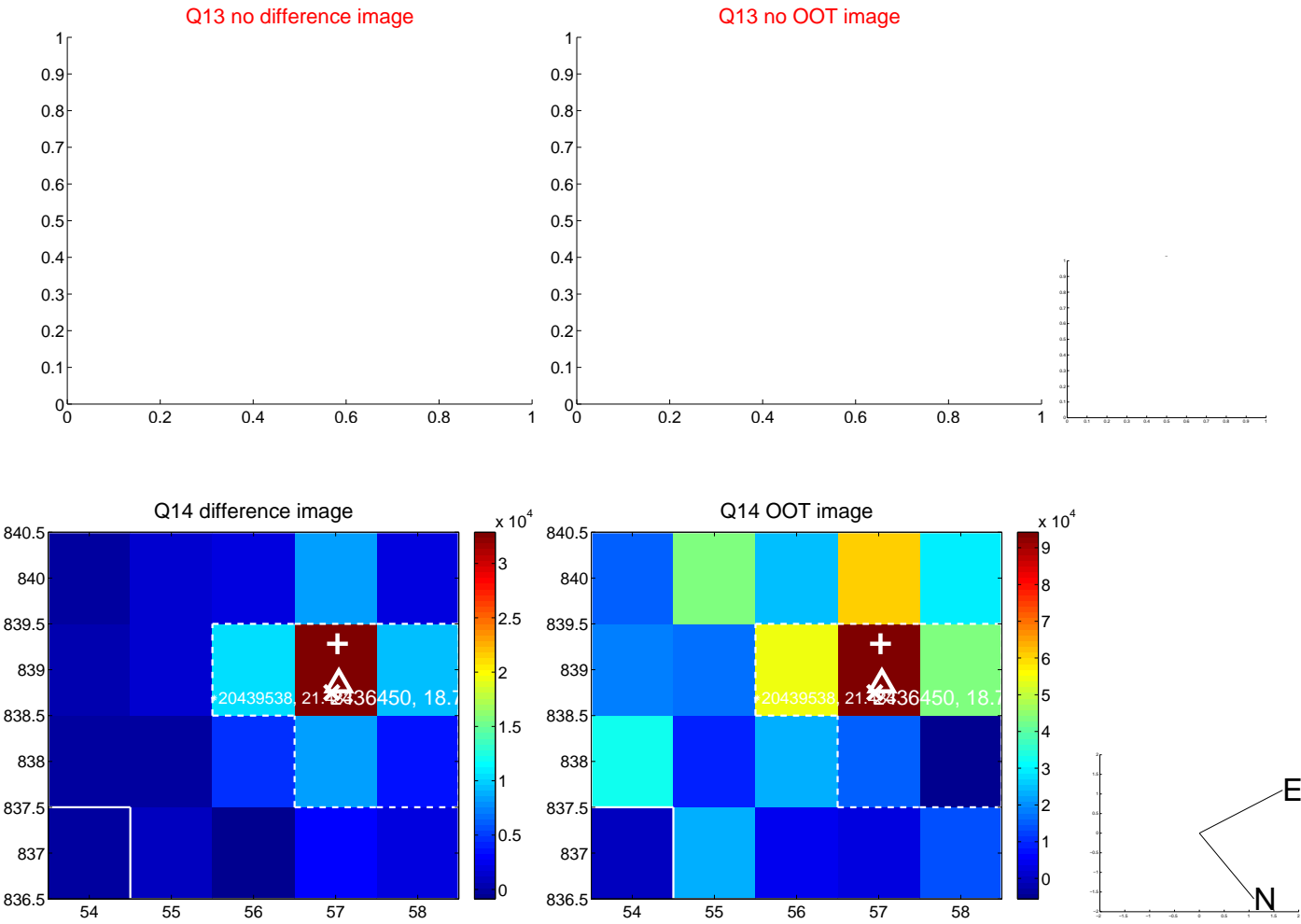
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



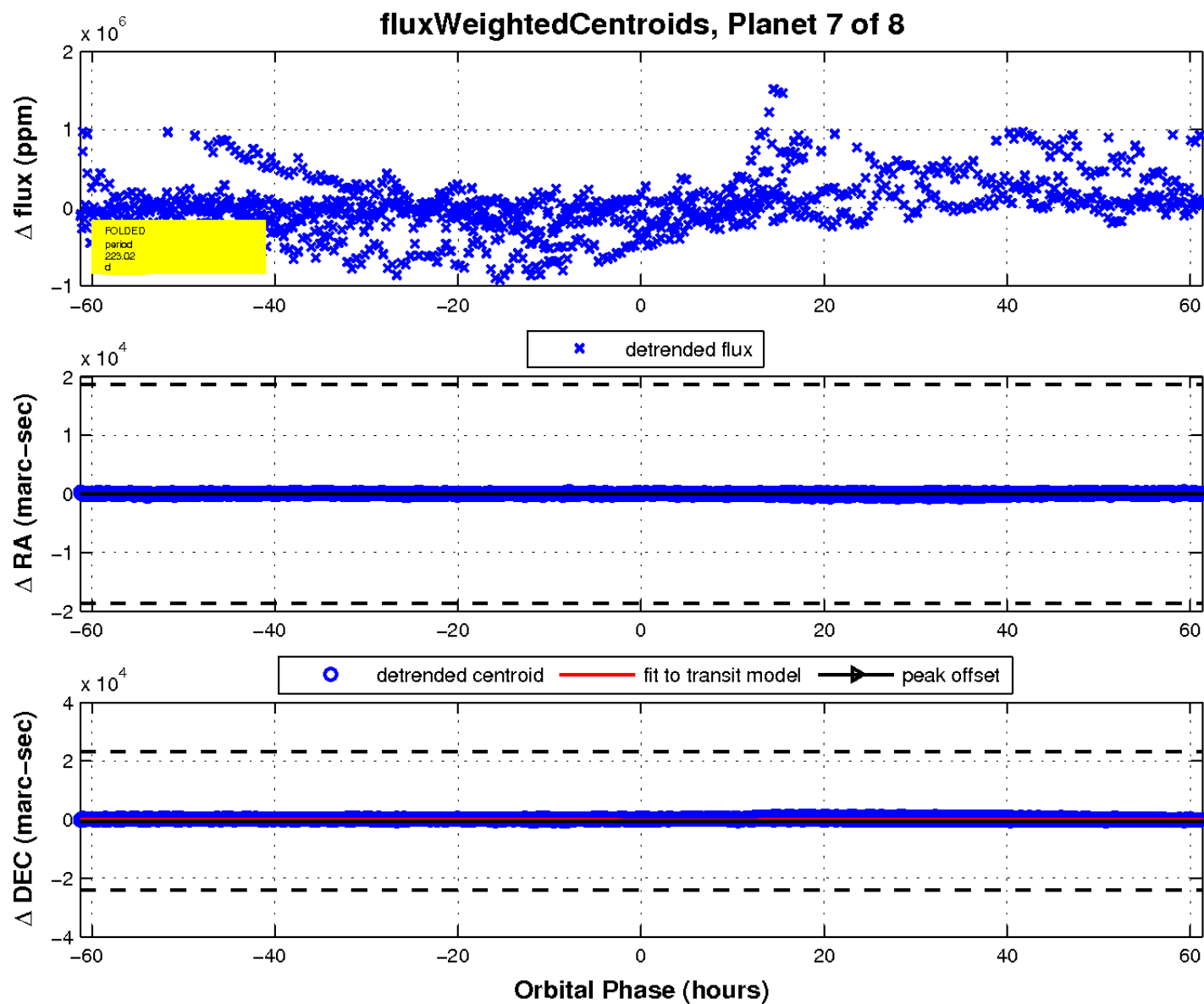
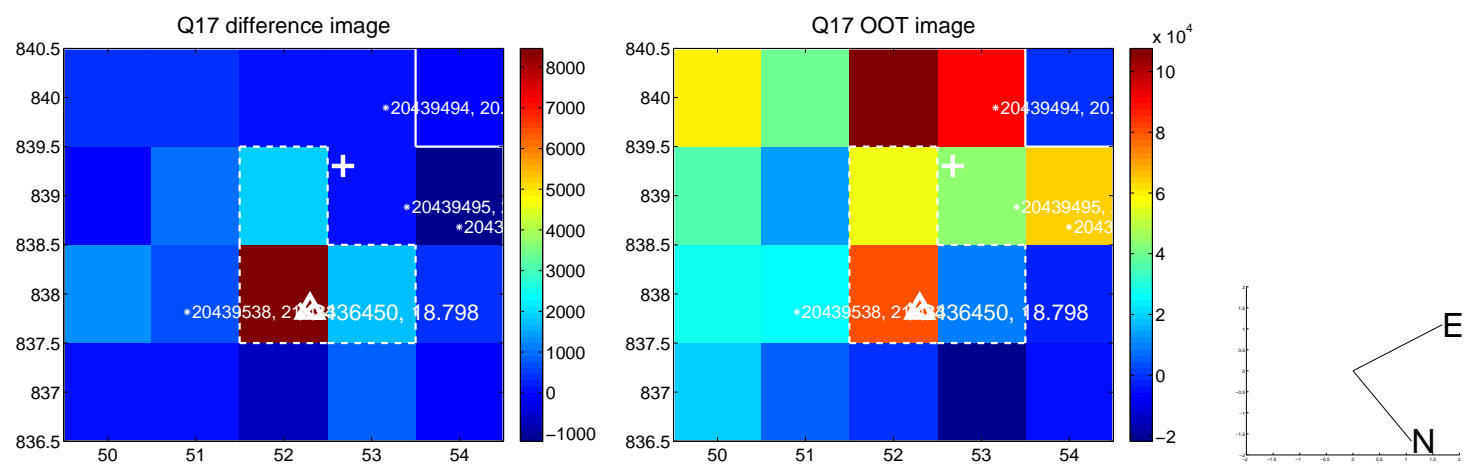
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

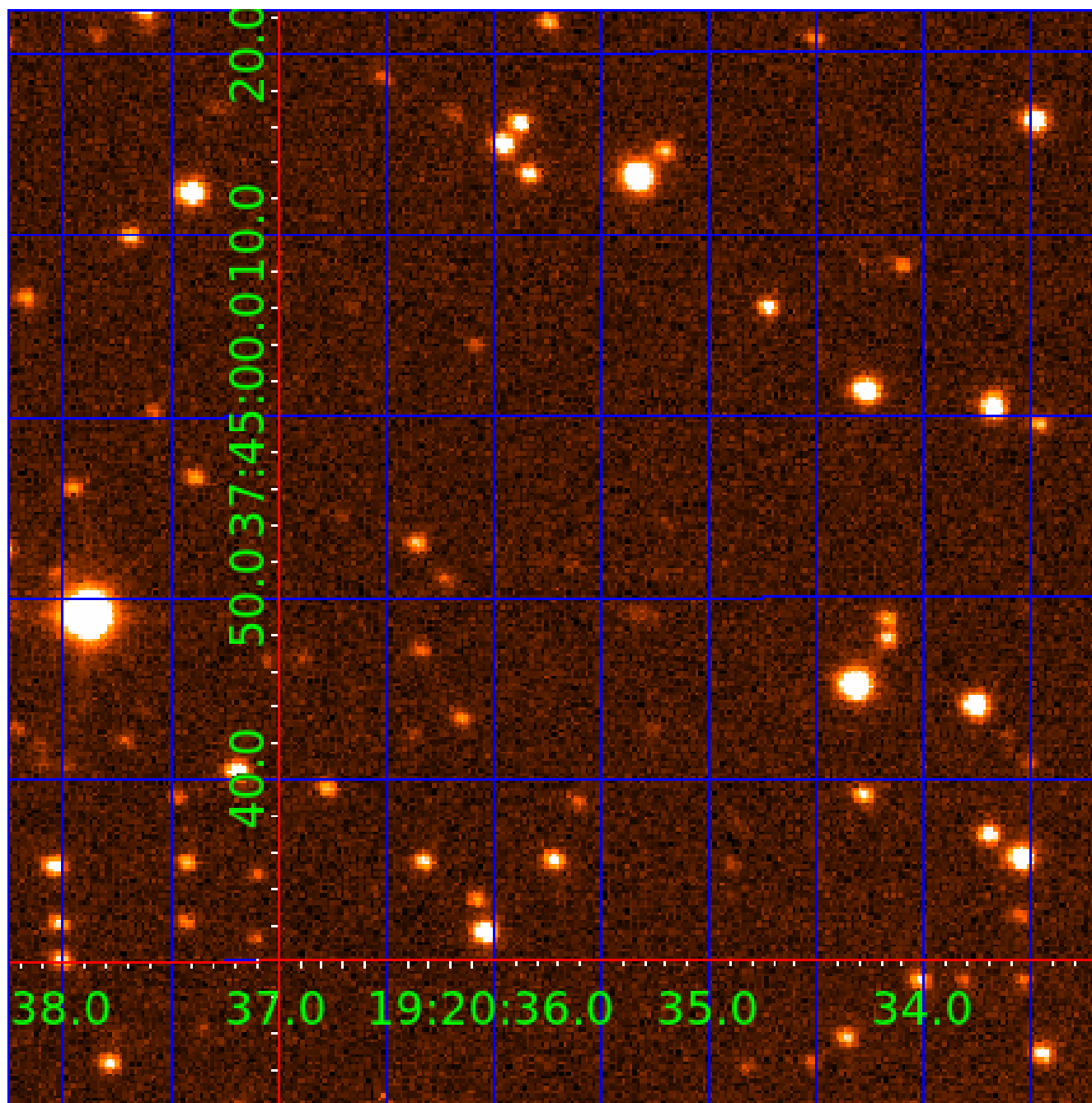


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002436450

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})
002436450-01	OBS	No	347.411387	189.685339	120394.5	12.500	15.3	-1.0	1.00	5780	34.56	1.07
002436450-02	OBS	No	249.664047	200.682000	123720.6	12.000	15.8	-1.0	1.00	5780	35.04	1.66
002436450-04	OBS	No	373.893281	231.029242	95139.1	12.500	12.2	-1.0	1.00	5780	30.68	0.97
002436450-06	OBS	No	313.702824	278.918696	68858.6	15.000	10.3	-1.0	1.00	5780	26.07	1.22
002436450-07	OBS	No	223.018685	234.540409	67577.2	9.000	10.0	-1.0	1.00	5780	25.82	1.93
002436450-08	OBS	No	229.925228	176.342224	65060.7	15.000	9.7	-1.0	1.00	5780	25.33	1.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436450-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
002436450-06	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS
002436450-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
002436450-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

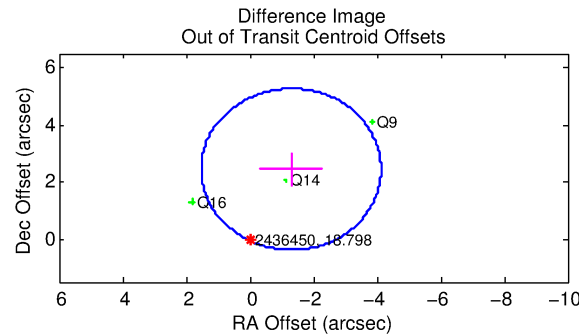
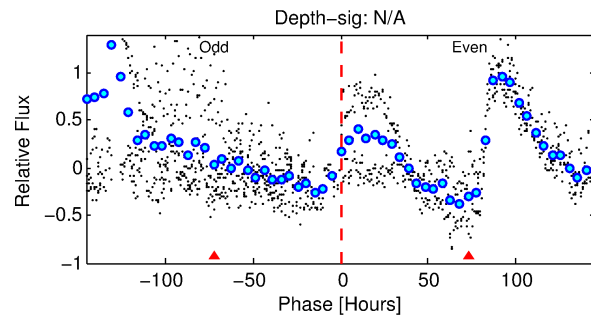
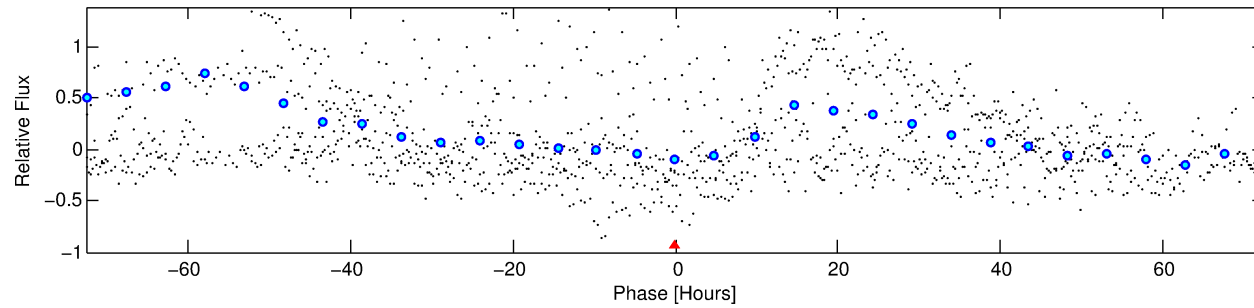
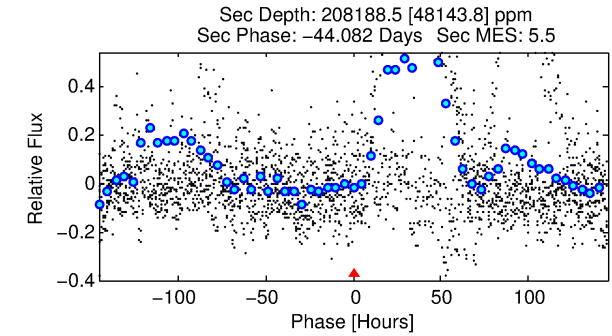
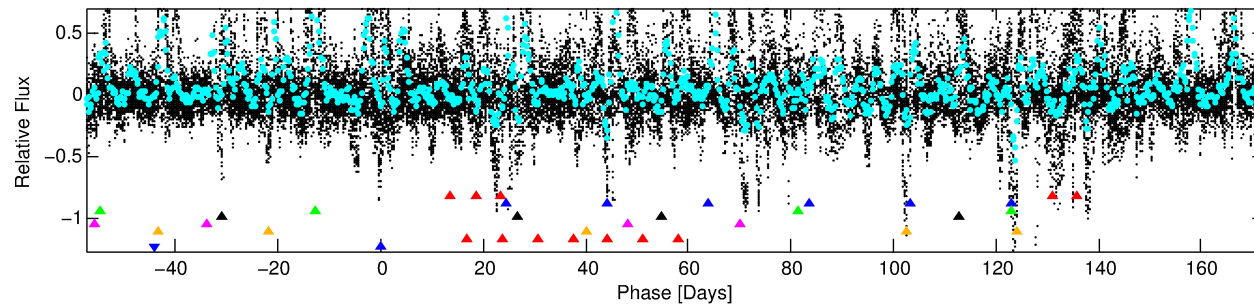
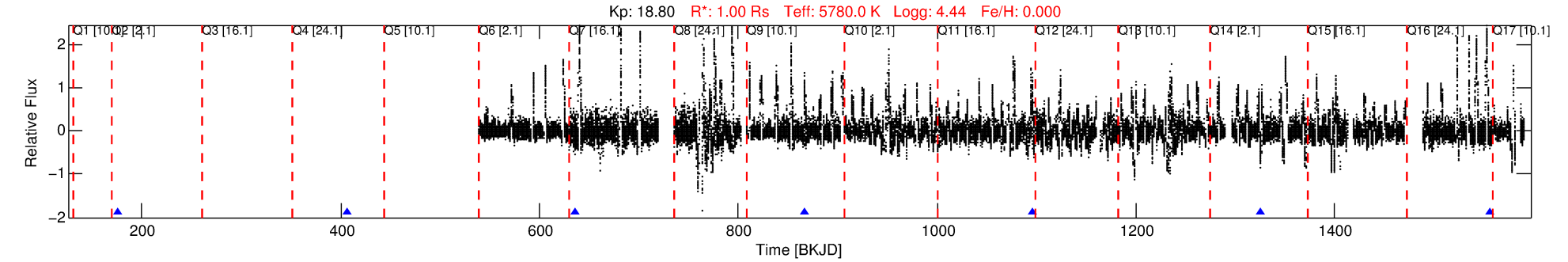
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002436450-08

No Significant Match Found

DV One-Page Summary

KIC: 2436450 Candidate: 8 of 8 Period: 229.925 d



TPS TCE Results:

Period = 229.92523 d
Epoch = 176.3422 BKJD

DV fit results are unavailable

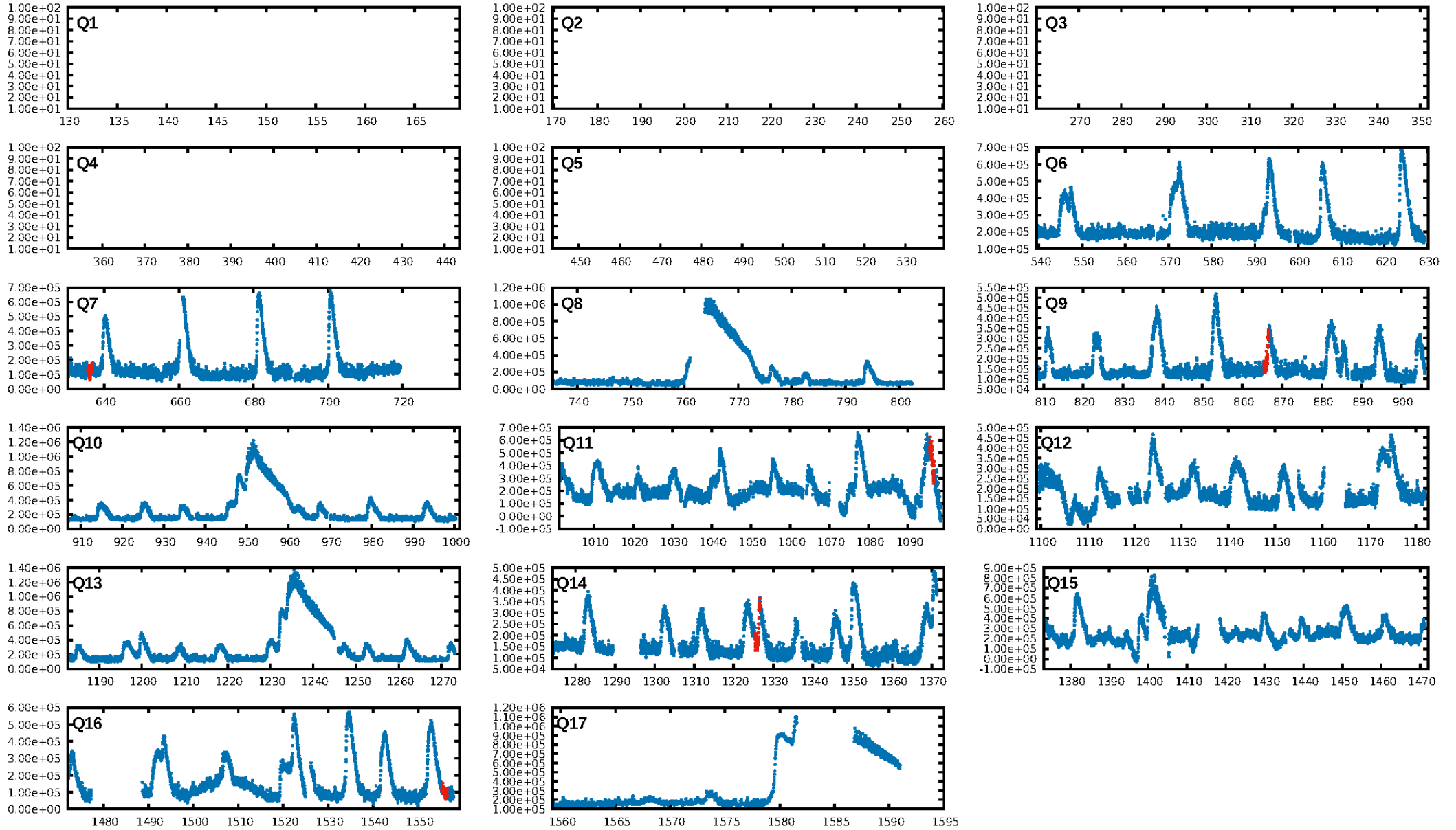
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.48 σ]
LongPeriod-sig: 100.0% [24.66 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.6638
Centroid-sig: 3.5%
Centroid-so: 1.911 arcsec [4.75 σ]
OotOffset-rm: 2.770 arcsec [2.94 σ]
KicOffset-rm: 0.472 arcsec [4.93 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [4/4]

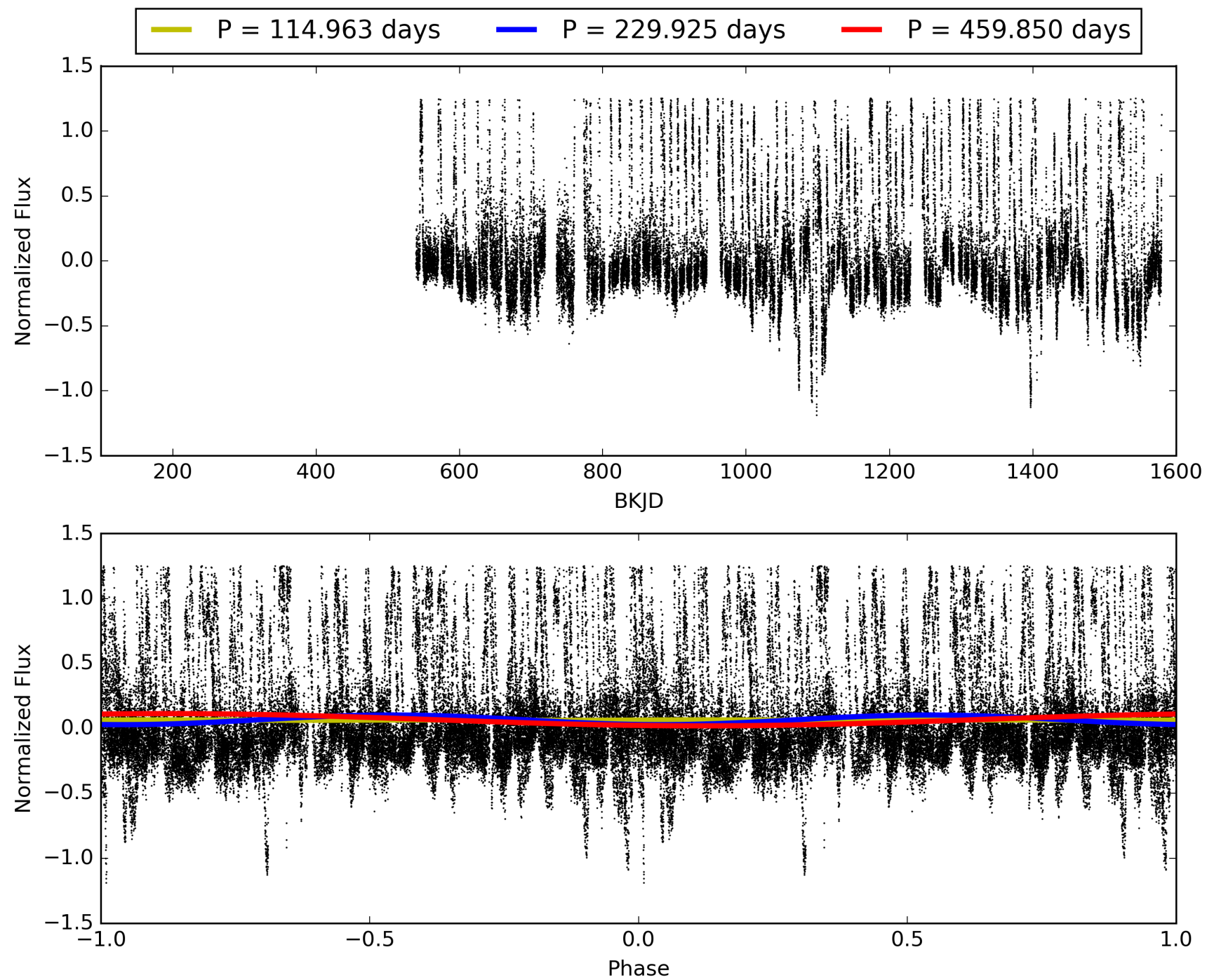
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:13:52 Z

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

TCE 002436450-08, PDC Light Curves

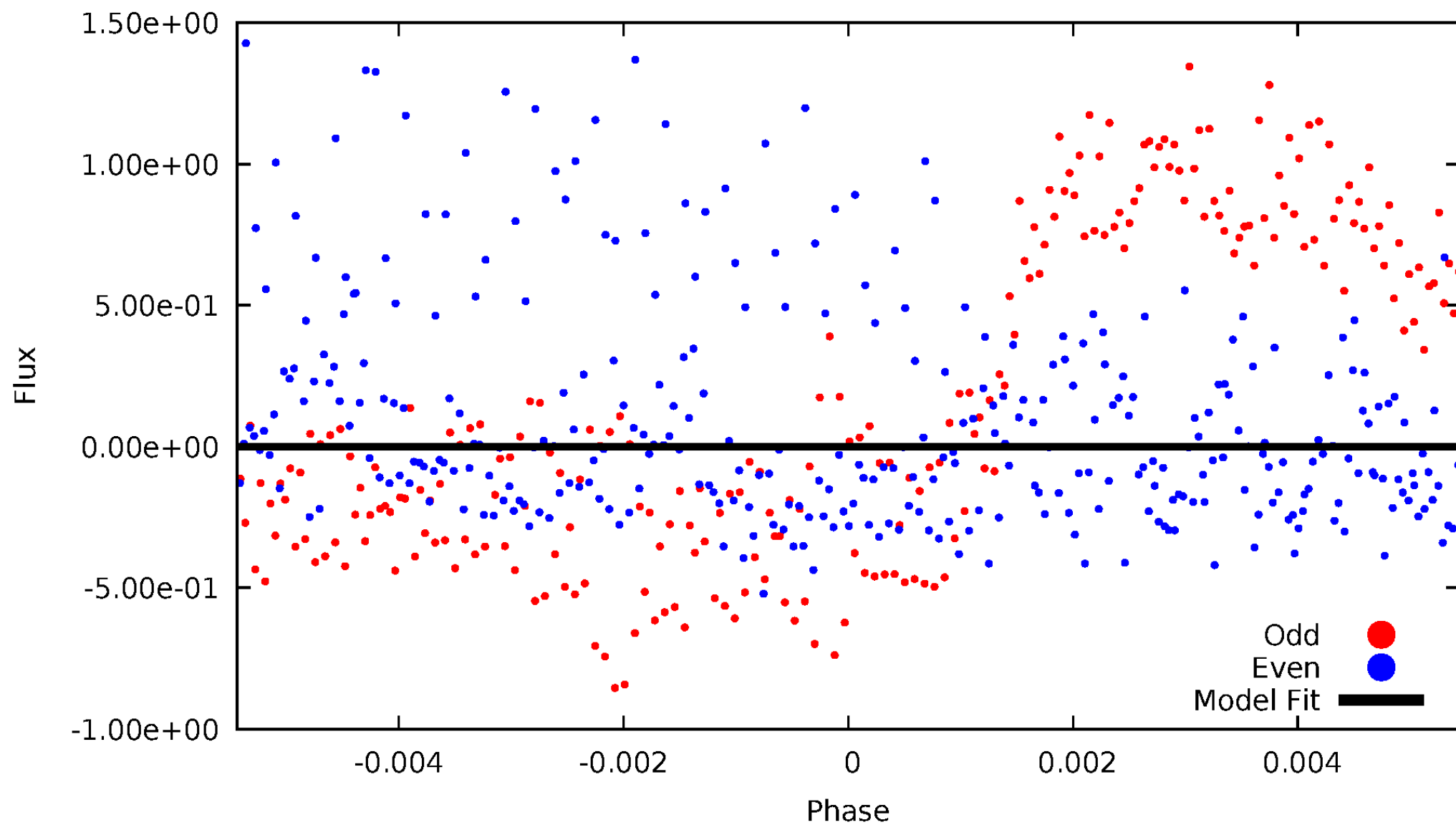


TCE 002436450-08



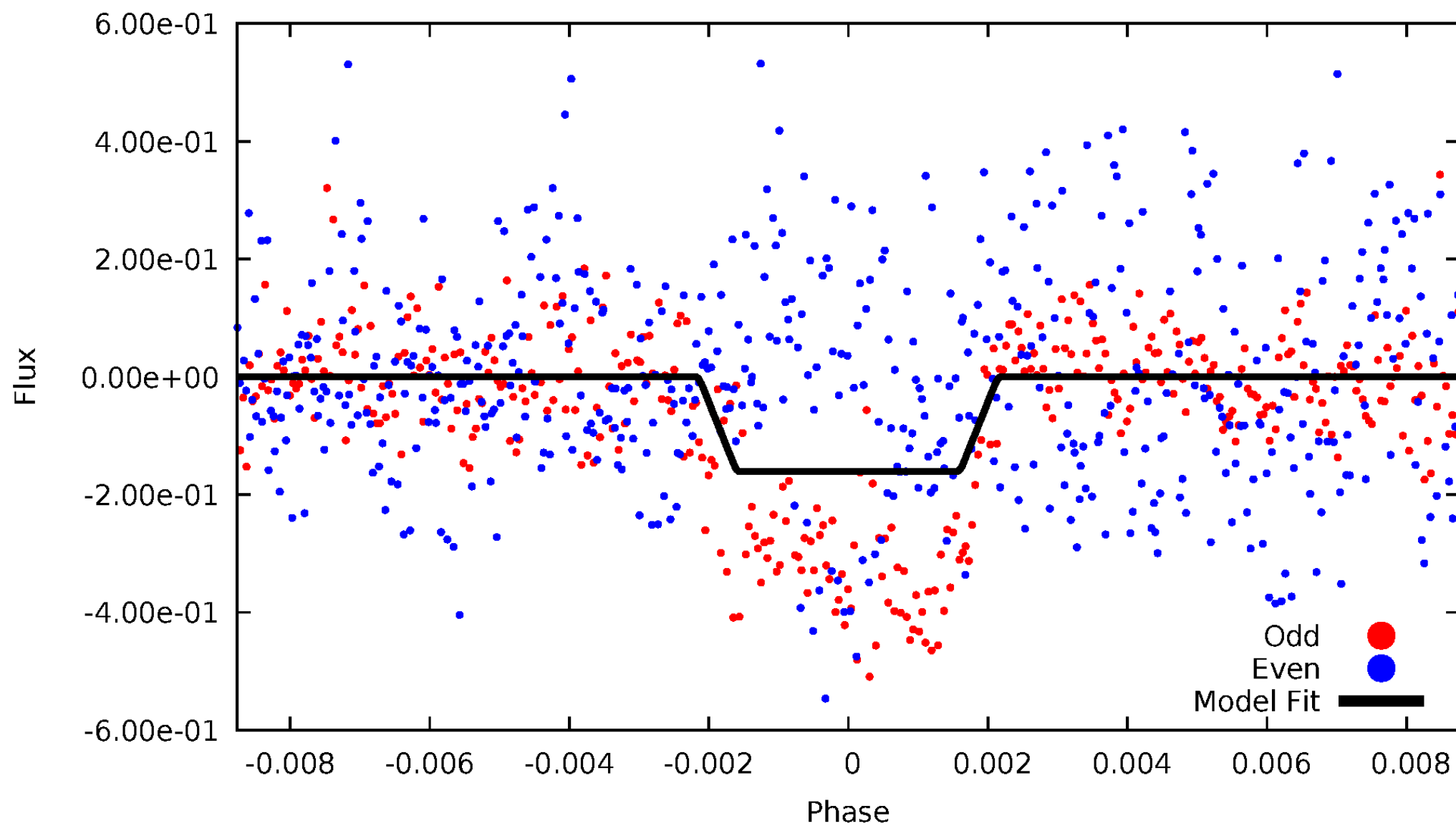
DV Odd/Even

TCE 002436450-08



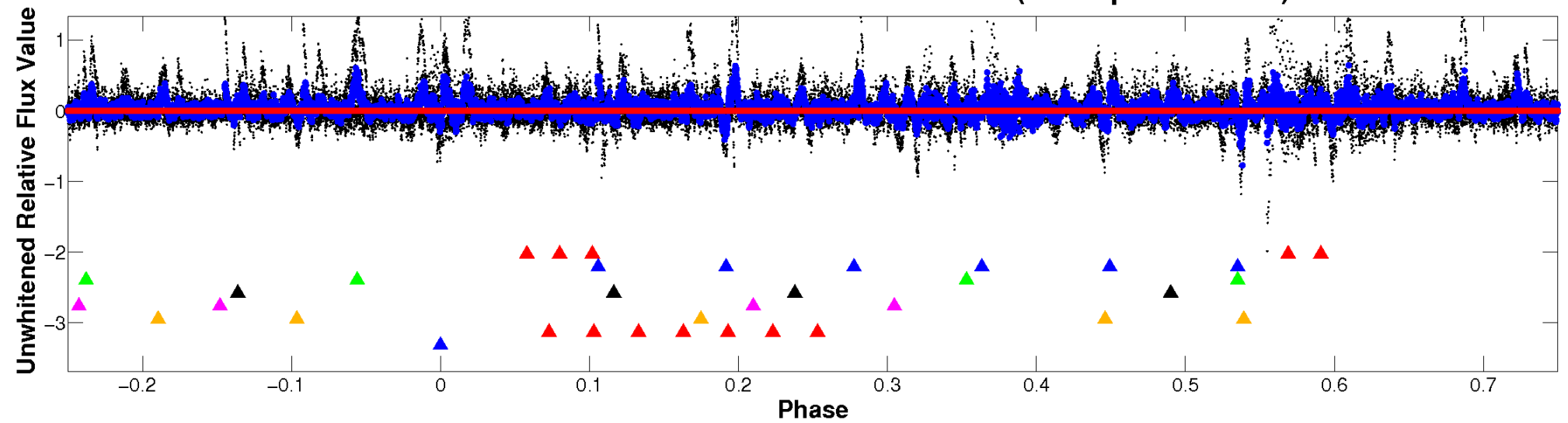
ALT Odd/Even

TCE 002436450-08



Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

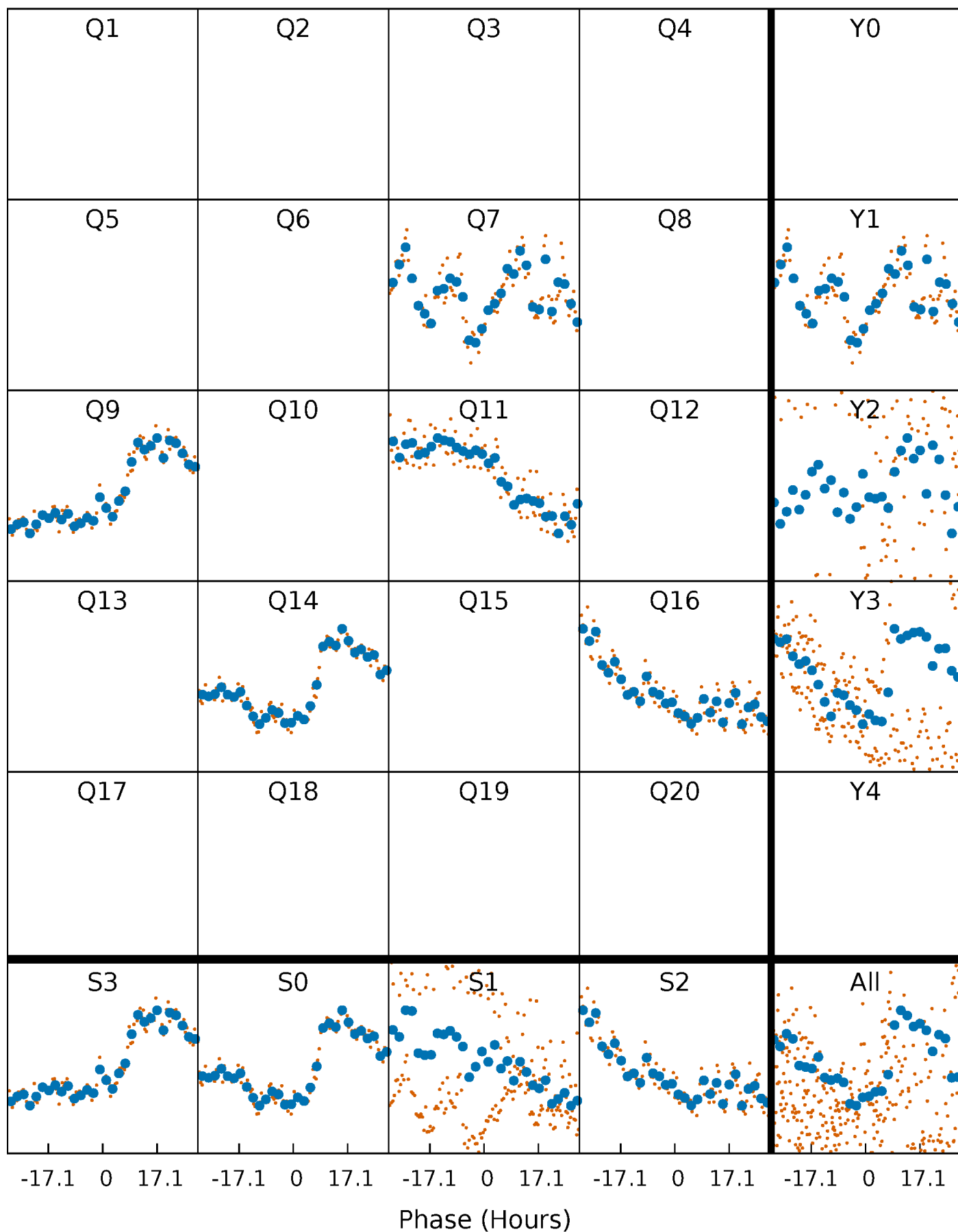


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



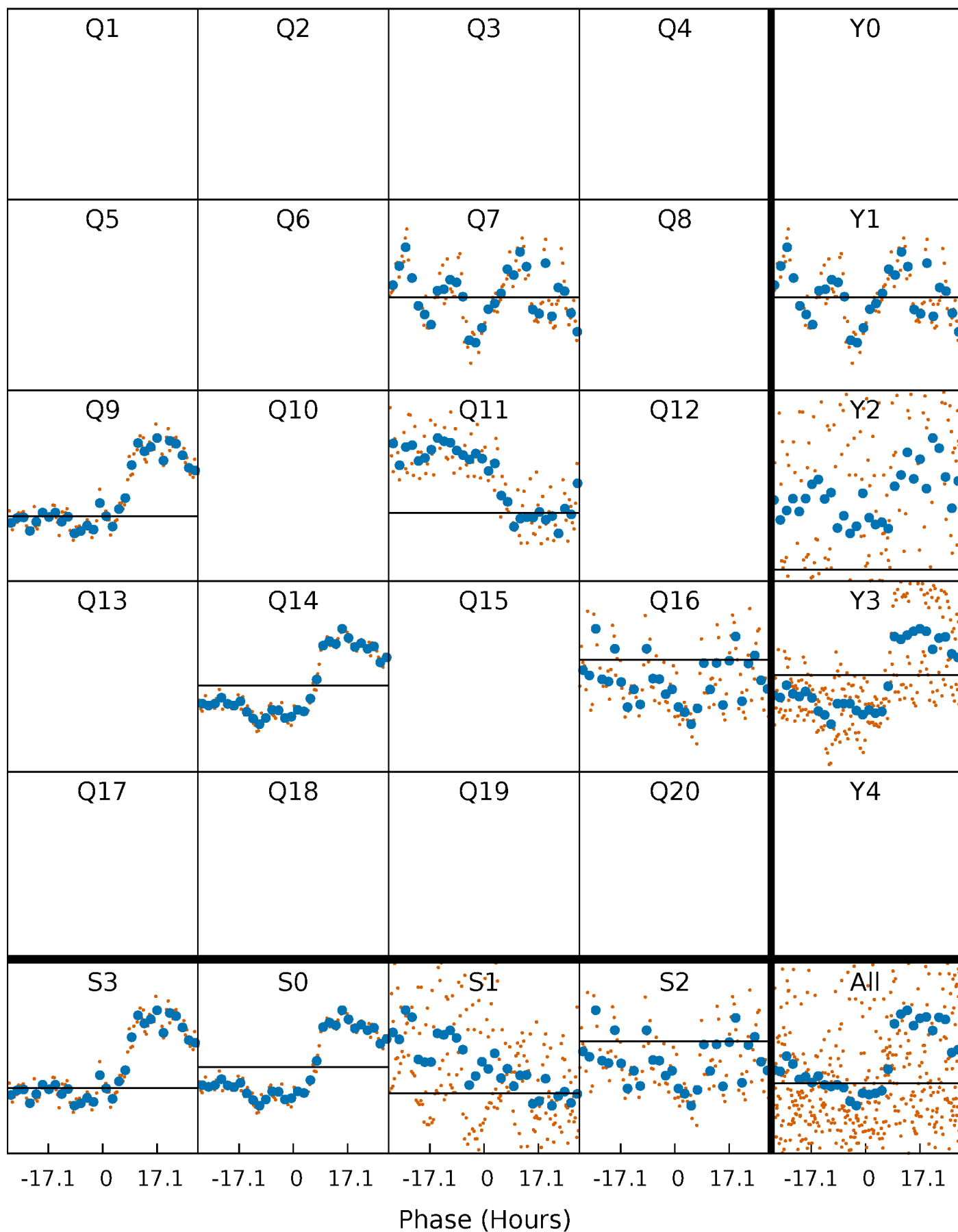
PDC Quarter-Phased Transit Curves

TCE 002436450-08 $P=229.925228$ Days $T_0=176.342224$ (BKJD)



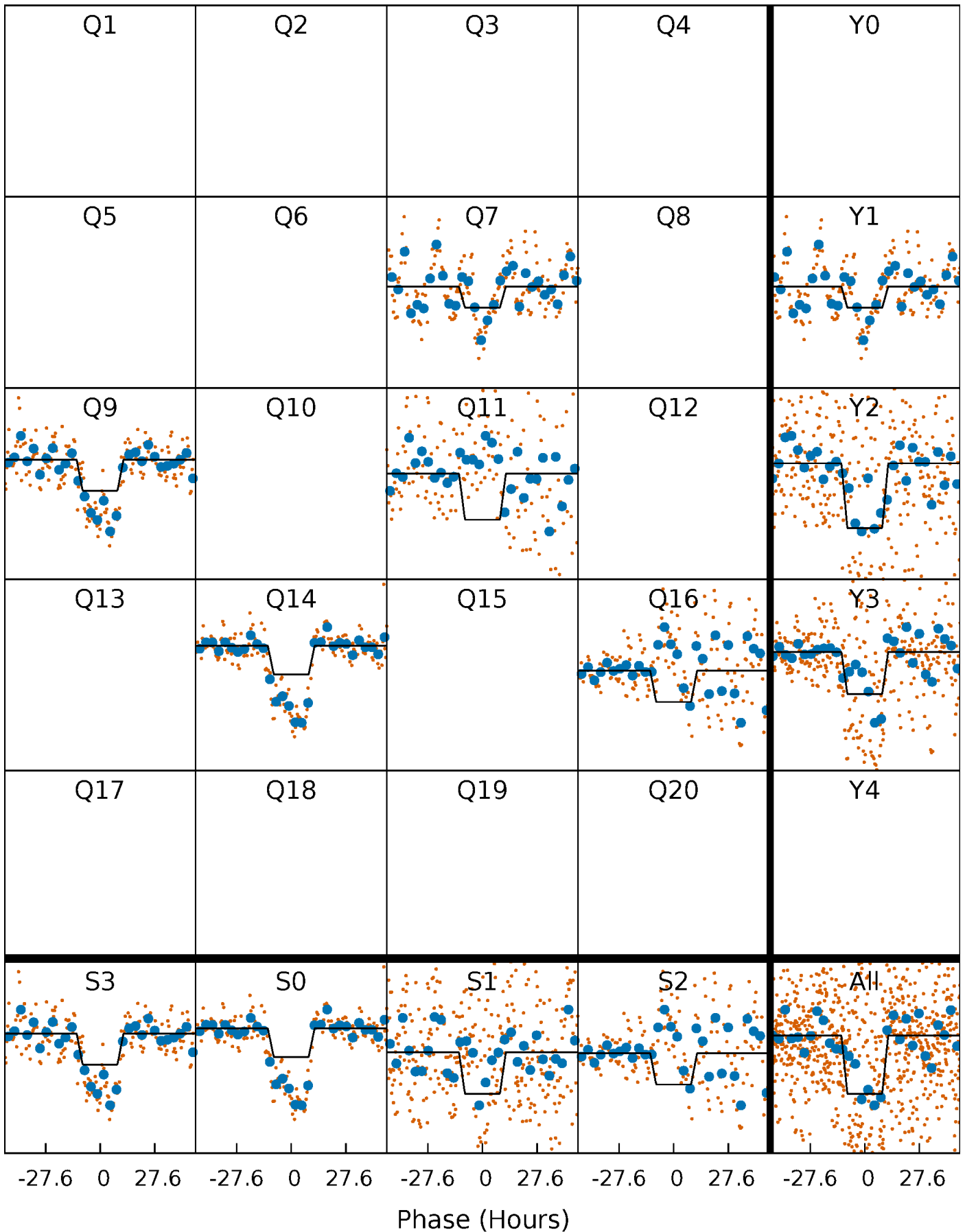
DV Quarter-Phased Transit Curves

TCE 002436450-08 $P=229.925228$ Days $T_0=176.342224$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

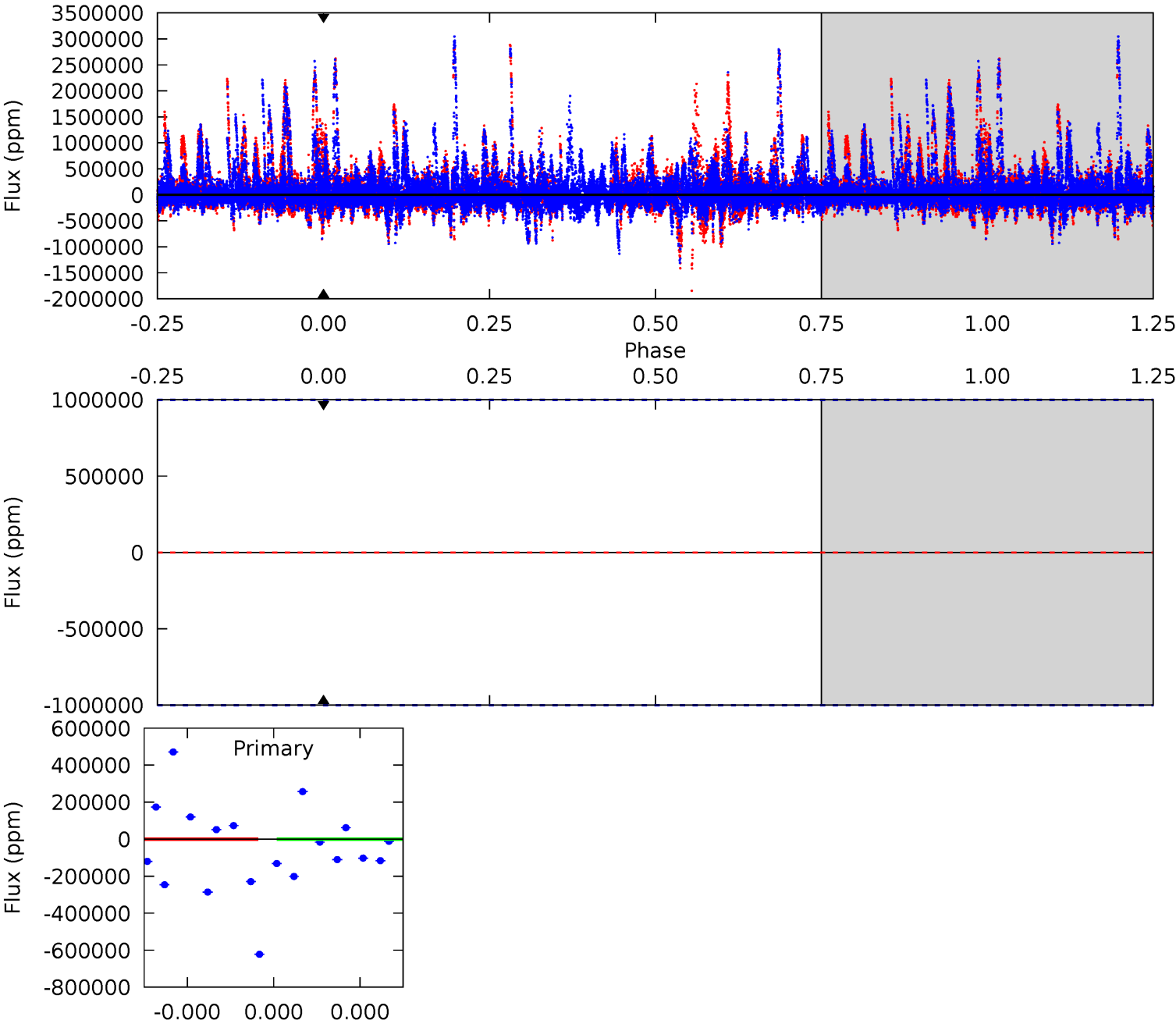
TCE 002436450-08 $P=229.925228$ Days $T_0=176.244125$ (BKJD)



DV Model-Shift Uniqueness Test

002436450-08, P = 229.925228 Days, E = 176.342224 Days

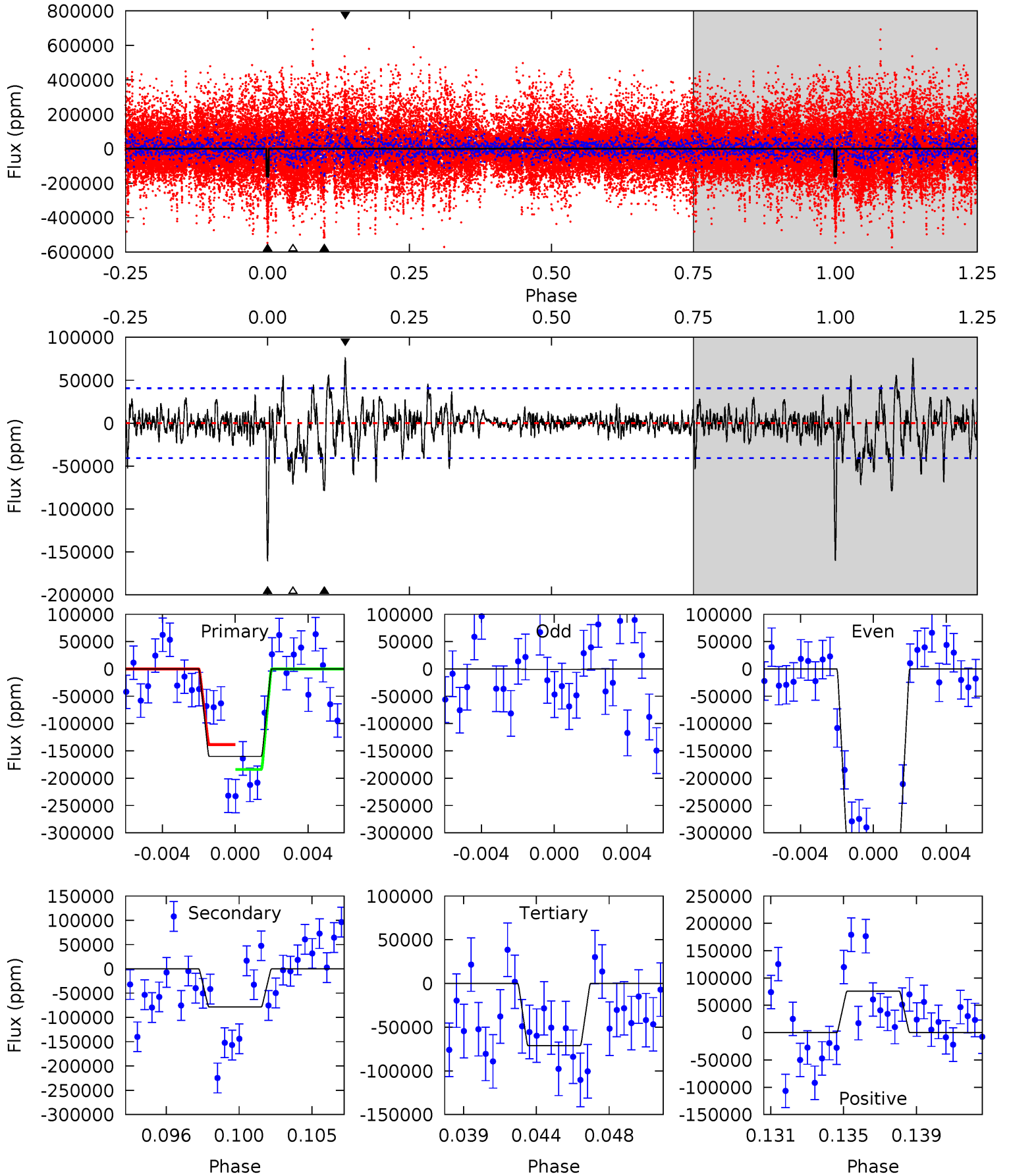
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002436450-08, P = 229.925228 Days, E = 176.244125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	10.0	9.08	9.67	5.18	2.85	2.03	11.3	10.7	0.95	0.36	18.6	0.90	0.32	2.85



Stellar Parameters For KIC 002436450

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436450-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$25.50^{+11.19}_{-10.59}$	416^{+19}_{-19}	3623^{+3545}_{-10343}	2171^{+53693}_{-49618}
Alt.	-78654 ± 7842	$43.80^{+10.86}_{-11.19}$	417^{+21}_{-21}	5034^{+742}_{-489}	13129^{+10802}_{-4705}

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

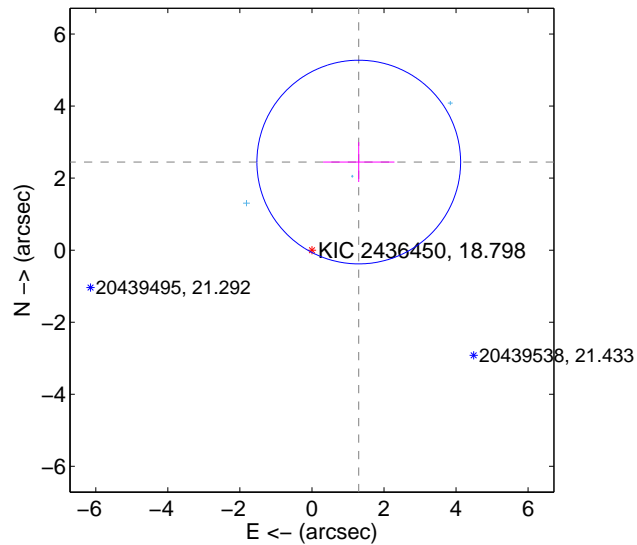
Supplemental centroid analysis for 002436450-08. Kepler magnitude: 18.80. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

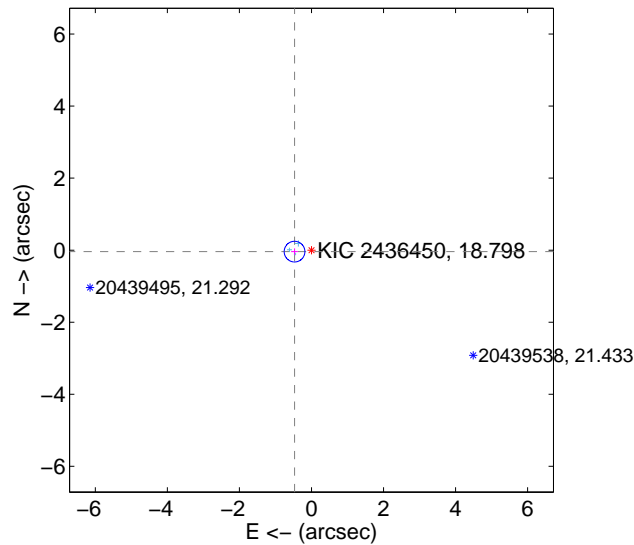
The direct PRF centroid is offset from the target star catalog position by about 1.83 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.770 ± 0.942	2.94	-1.299 ± 0.989	2.446 ± 0.554
PRF-fit source offset from KIC position	0.472 ± 0.096	4.93	0.470 ± 0.093	-0.040 ± 0.089
photometric centroid source offset	1.91 ± 0.40	4.75	0.62 ± 0.24	-1.81 ± 0.42

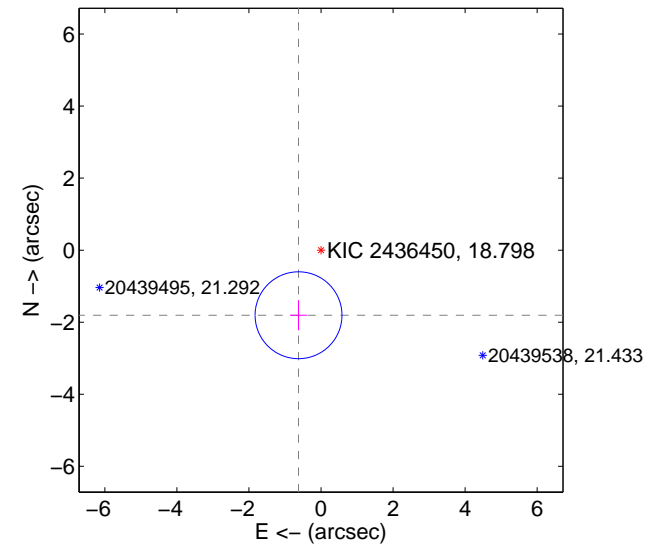
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

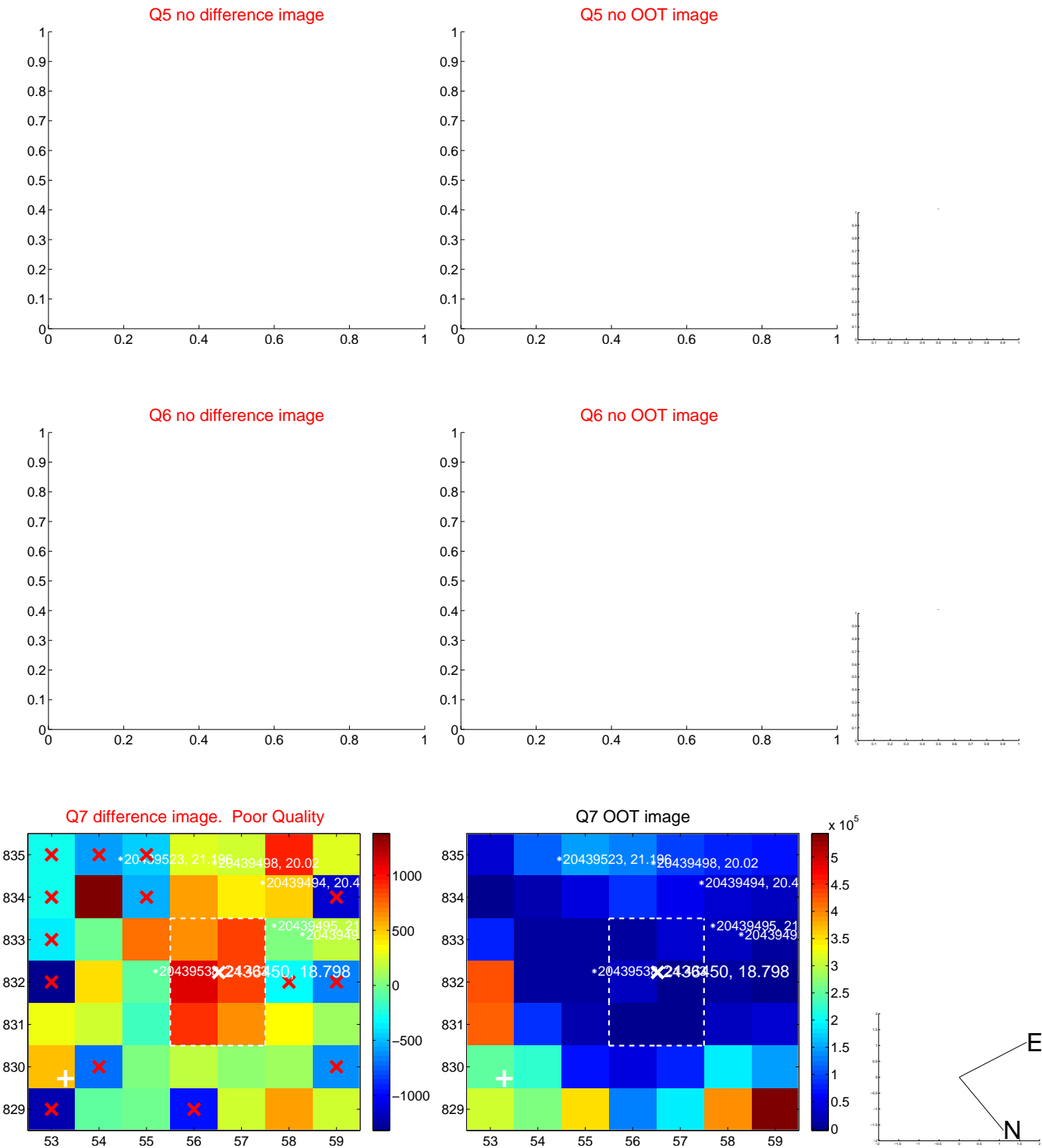


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

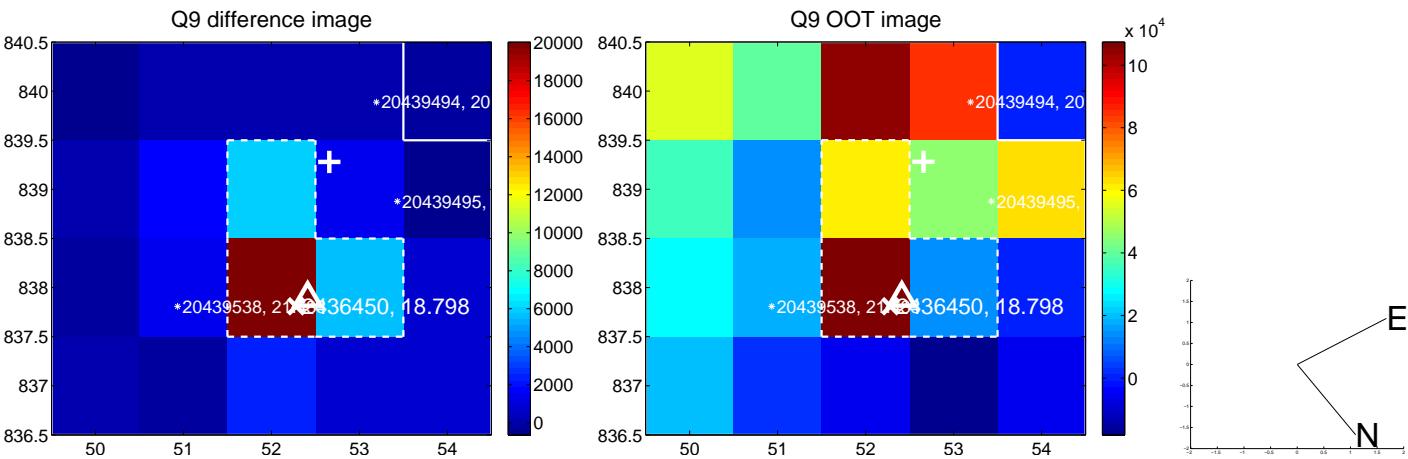
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



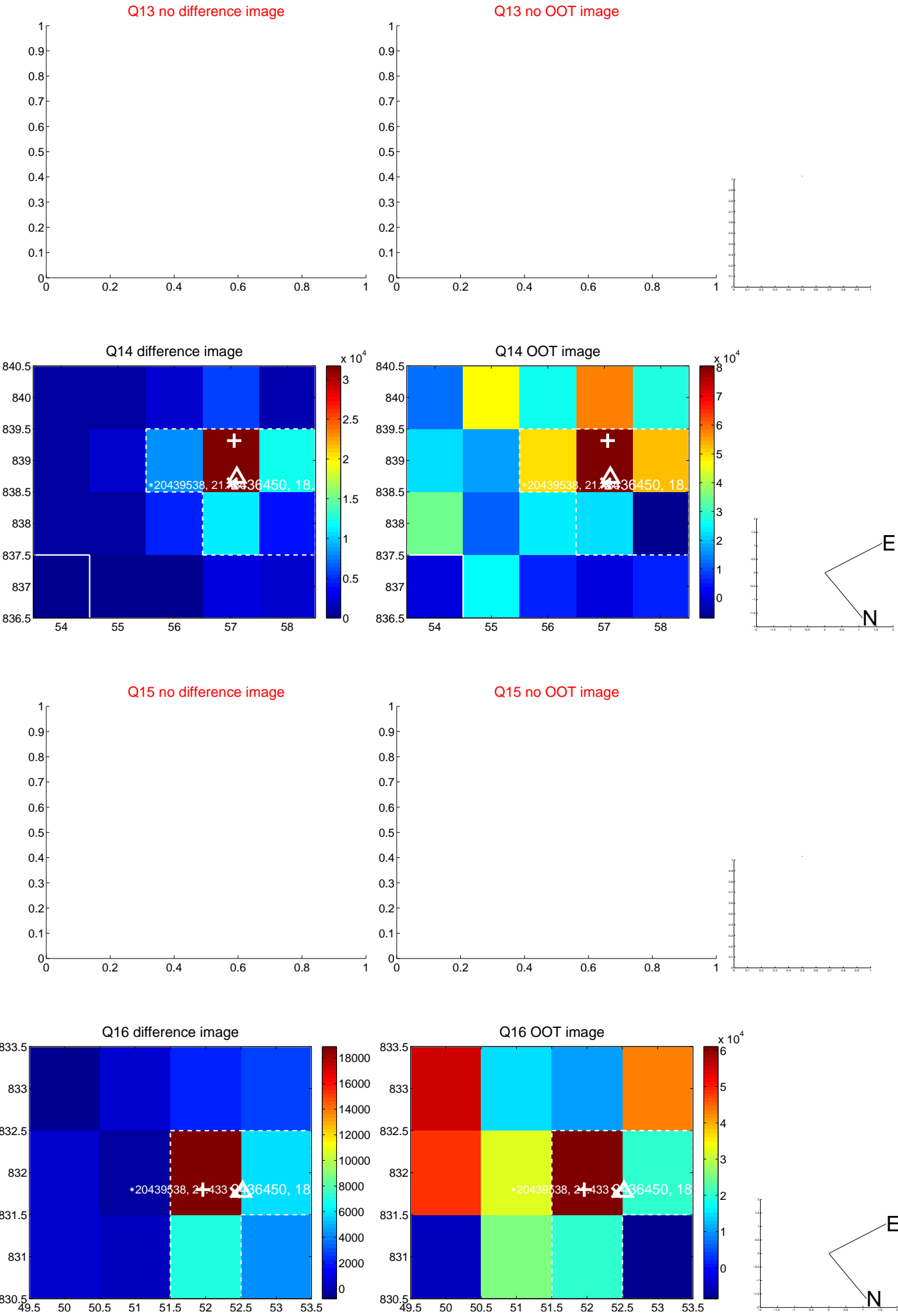
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



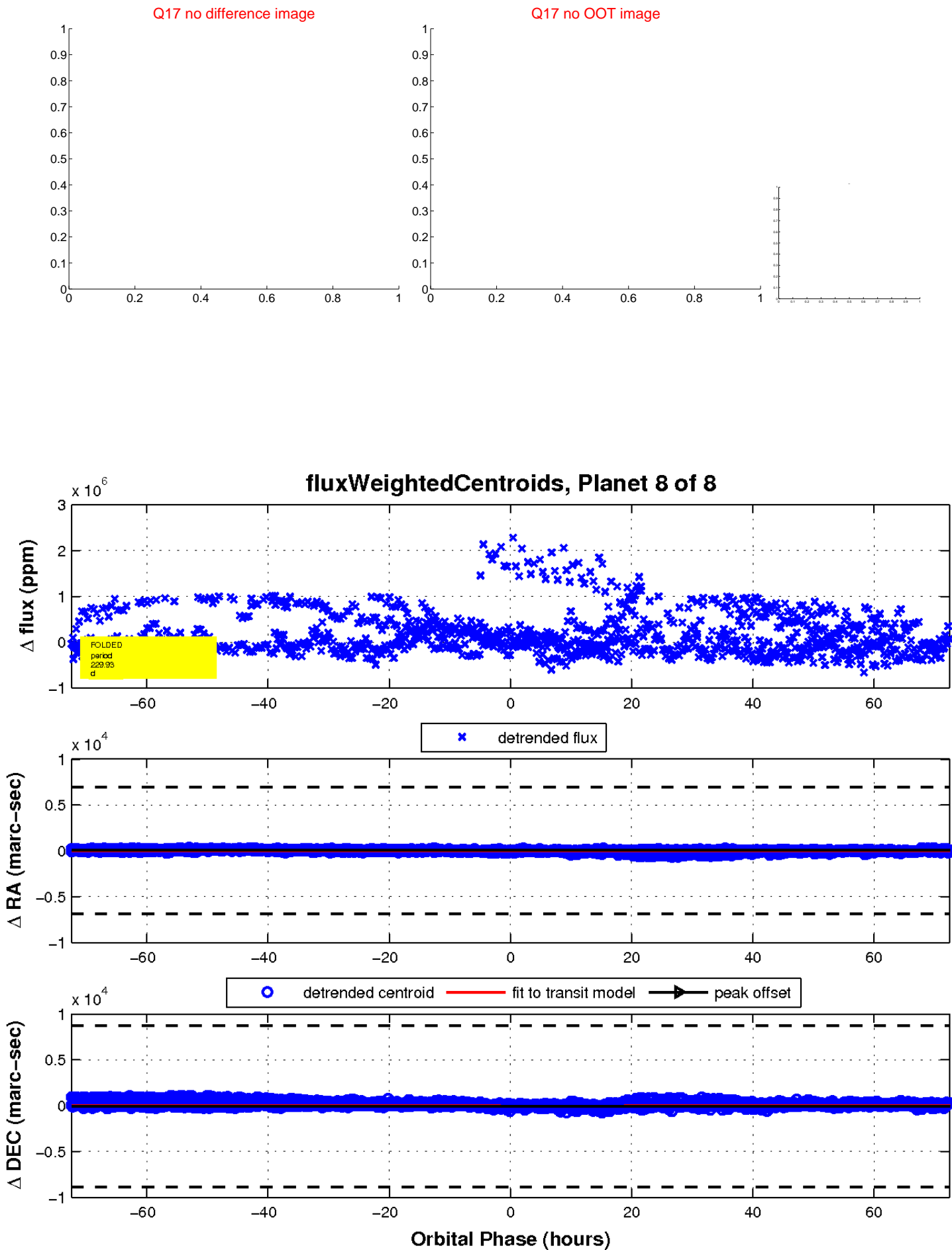
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

