

KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

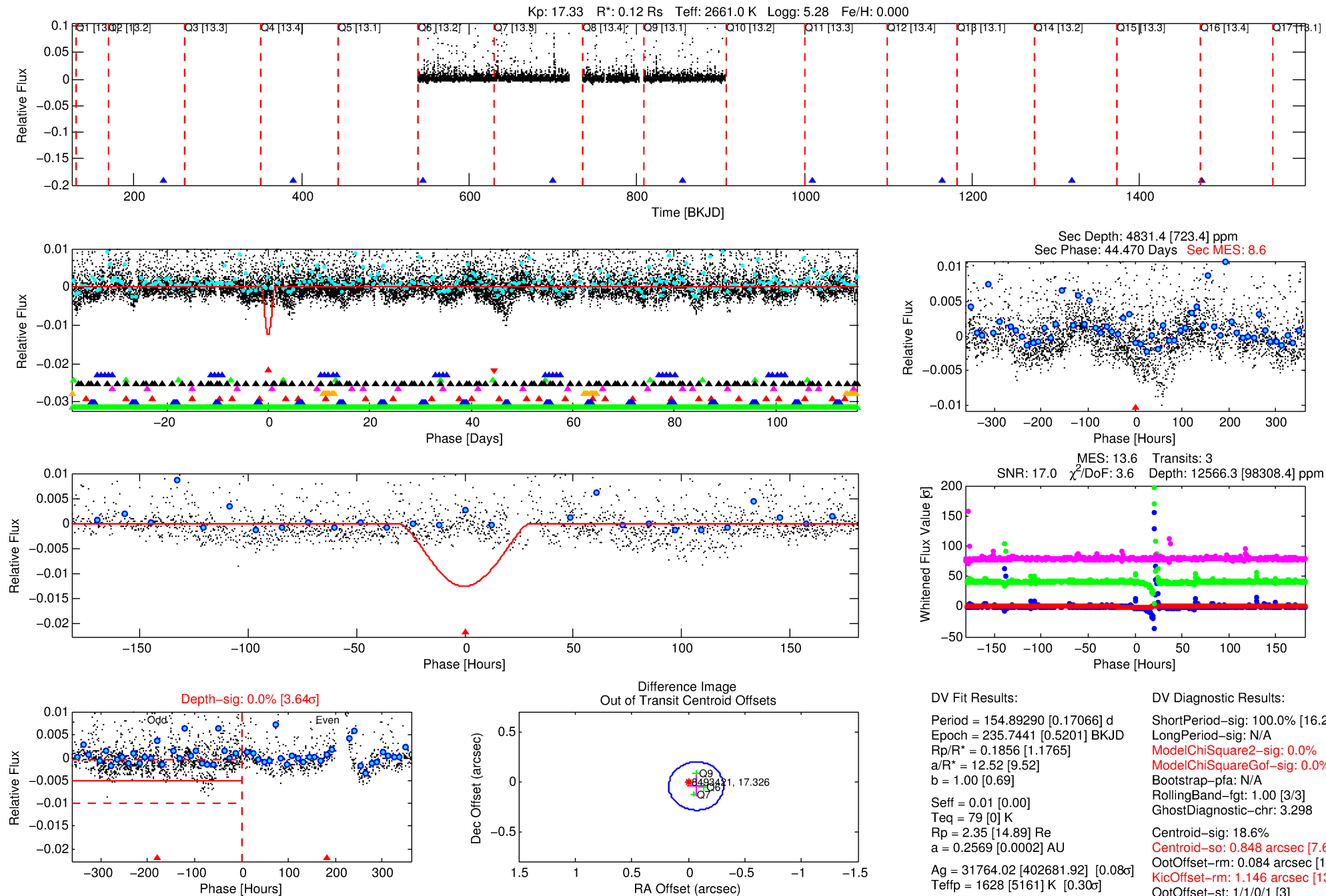
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-01

No Significant Match Found

DV One-Page Summary

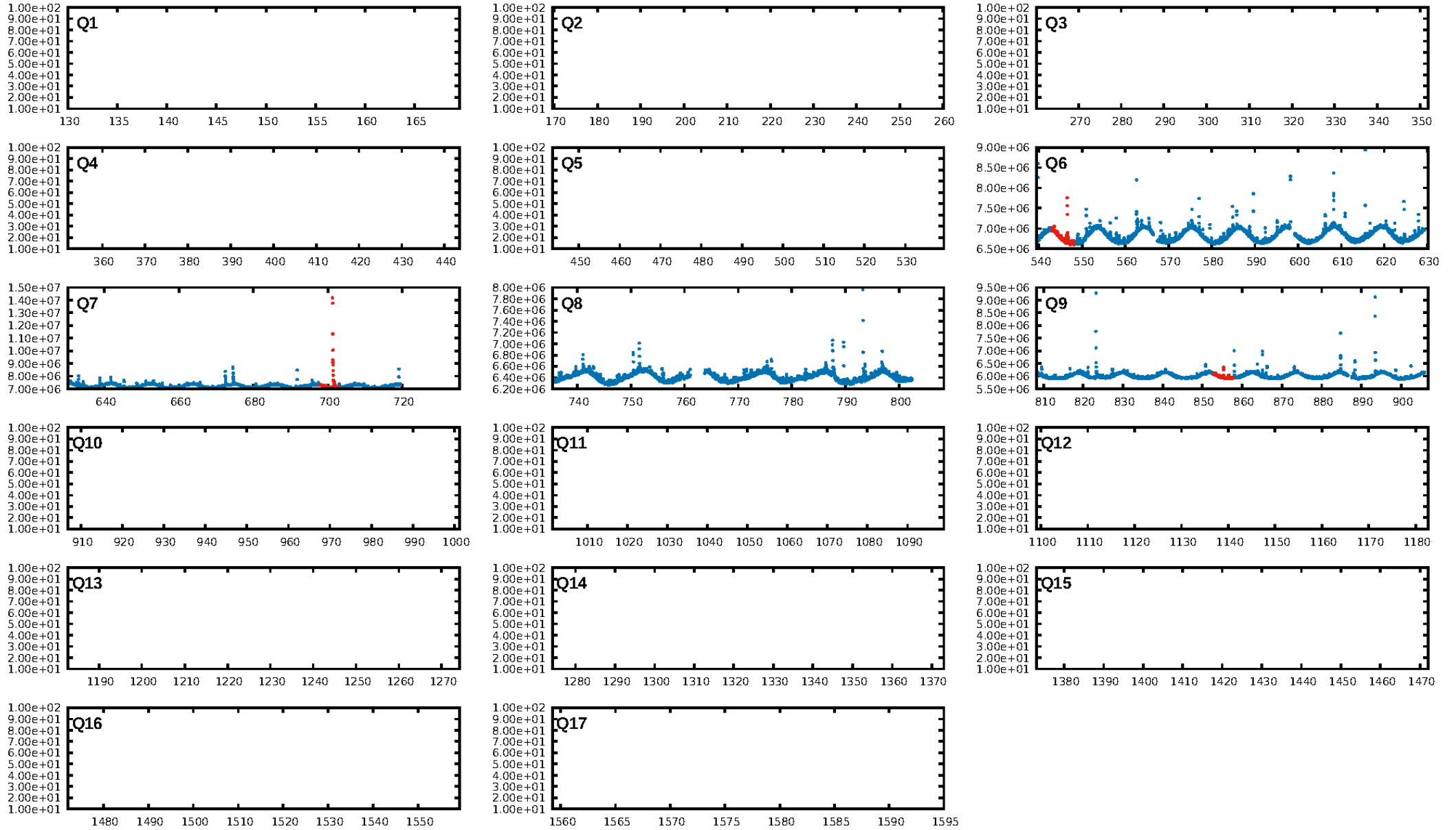
KIC: 8493421 Candidate: 1 of 9 Period: 154.893 d



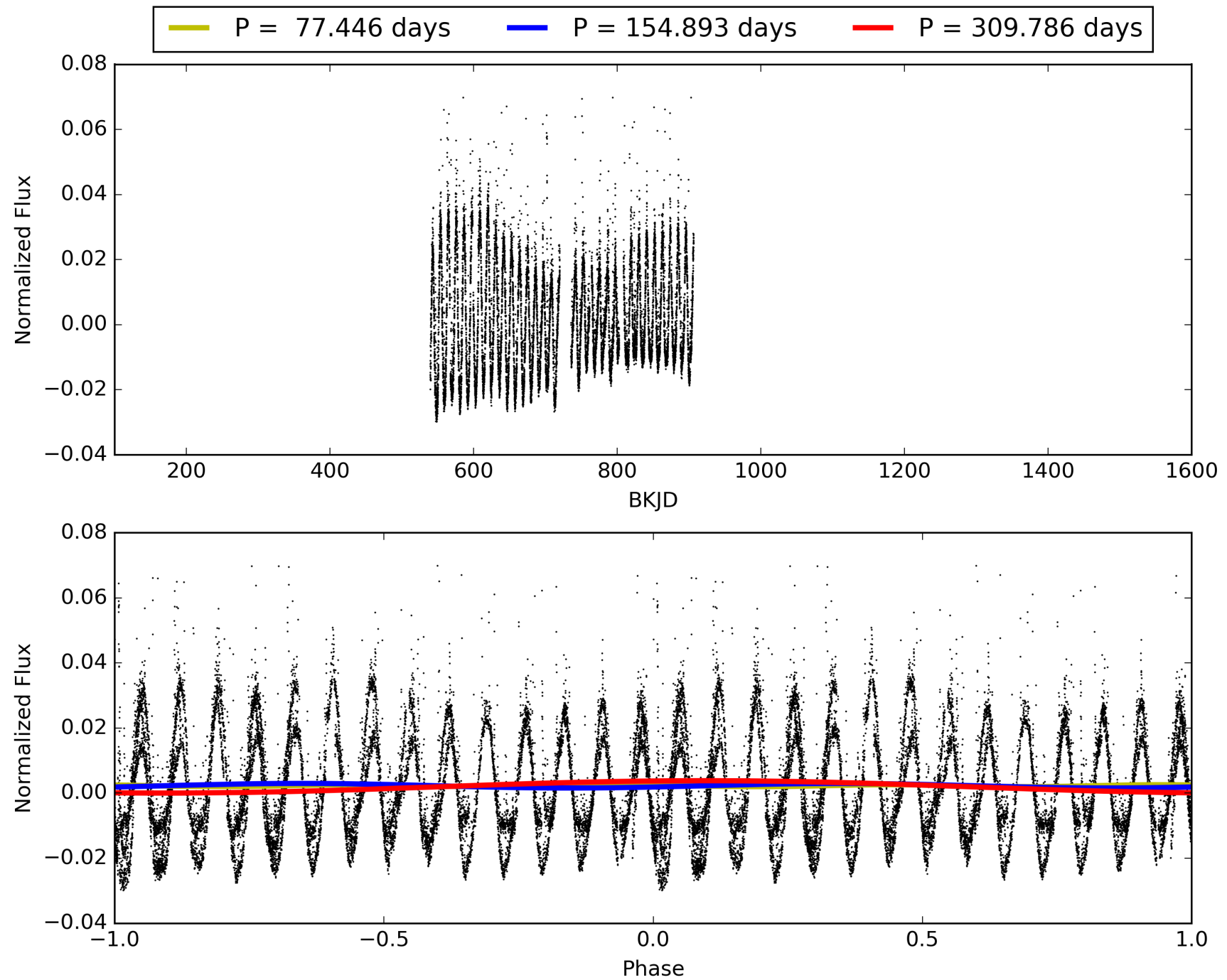
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:20 Z

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

TCE 008493421-01, PDC Light Curves

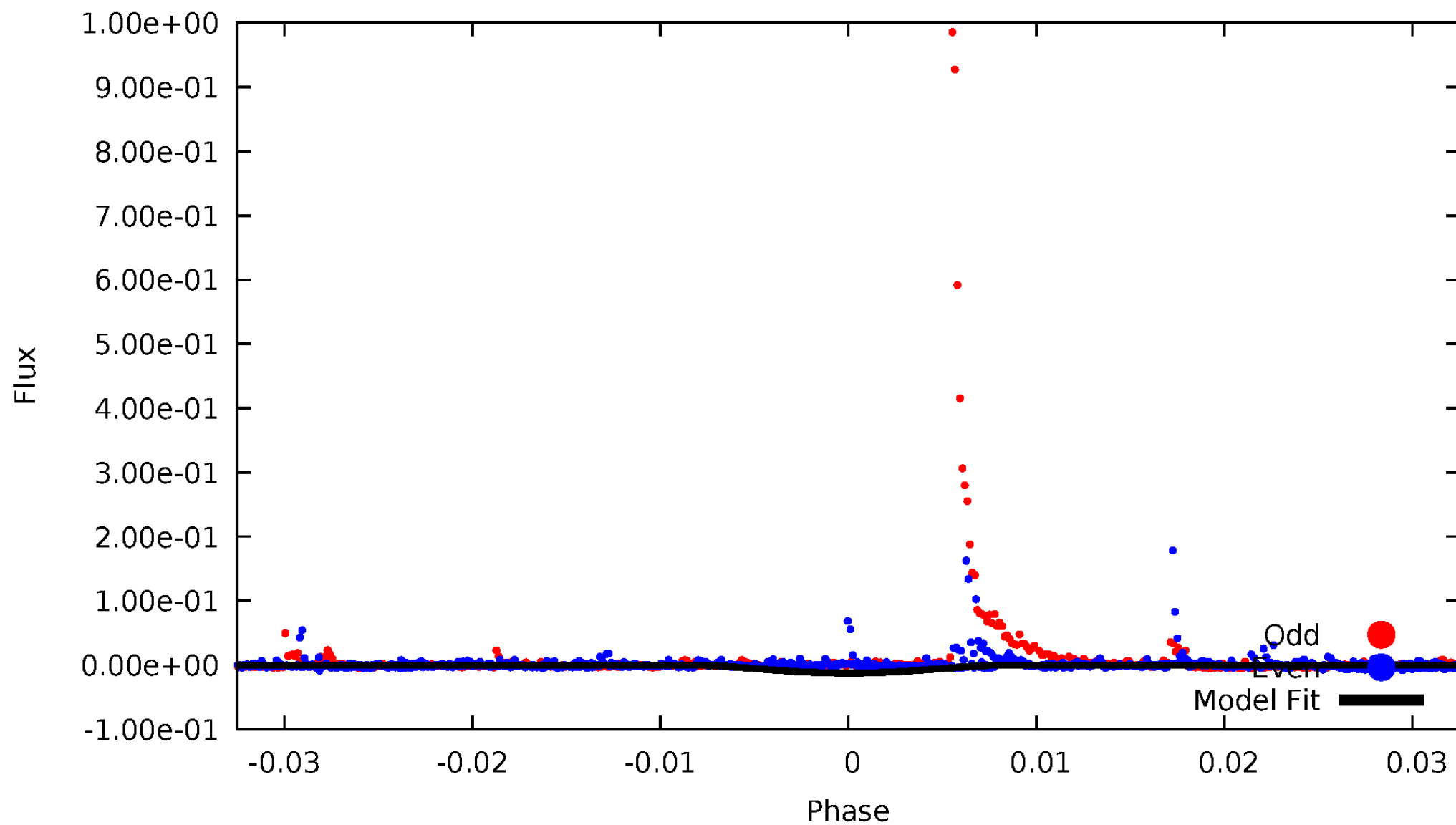


TCE 008493421-01



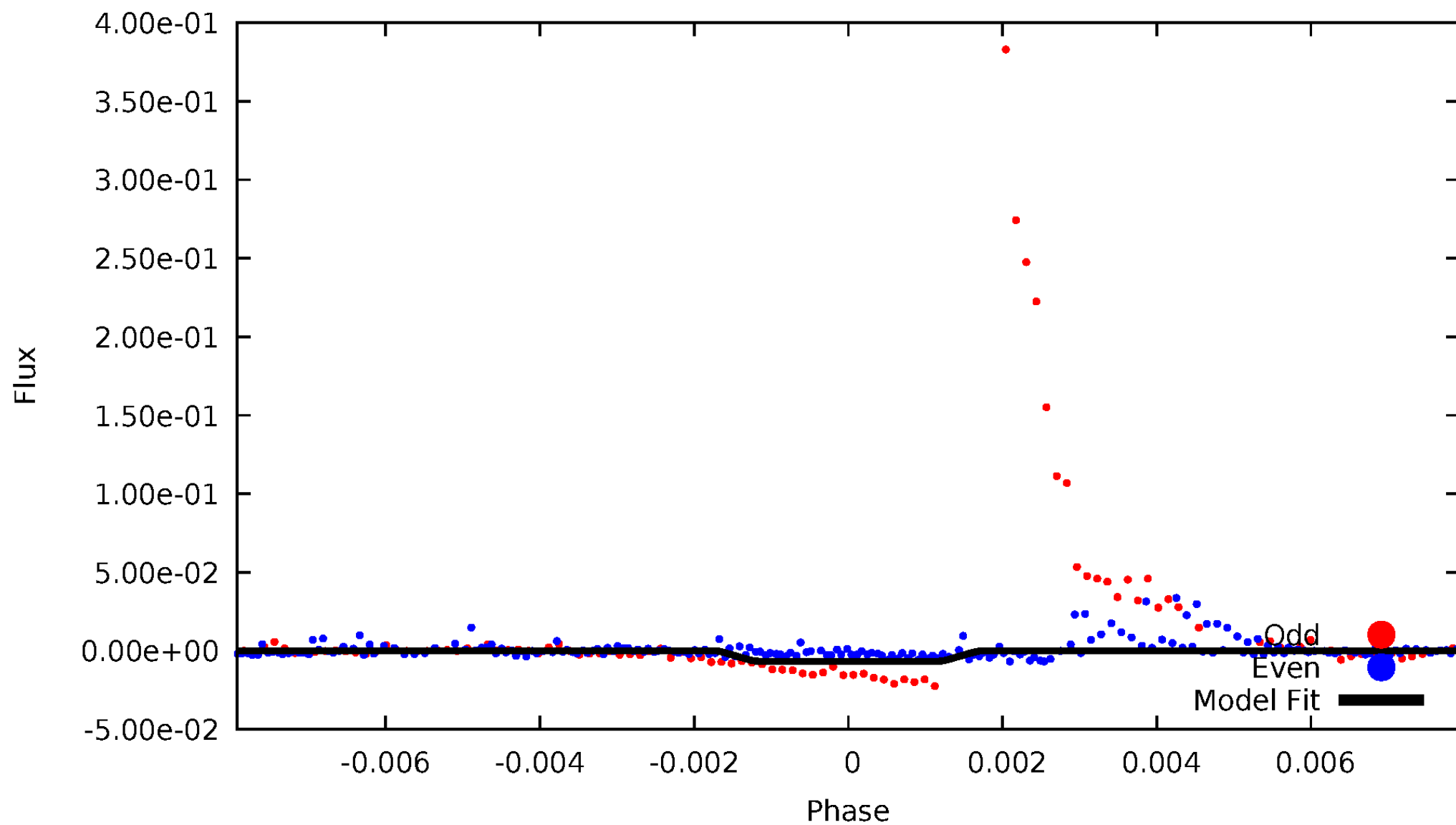
DV Odd/Even

TCE 008493421-01



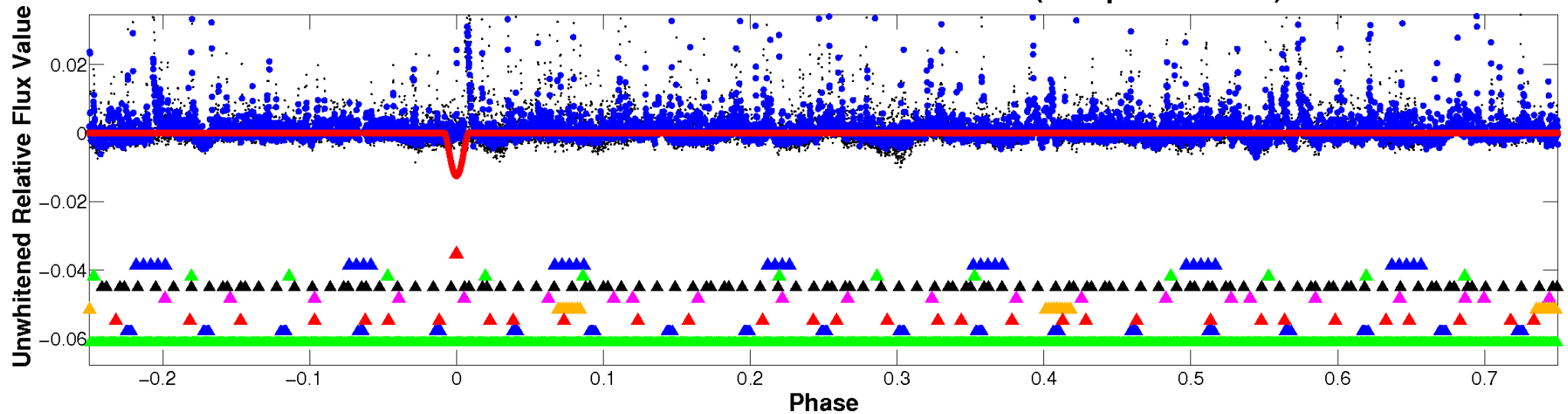
ALT Odd/Even

TCE 008493421-01

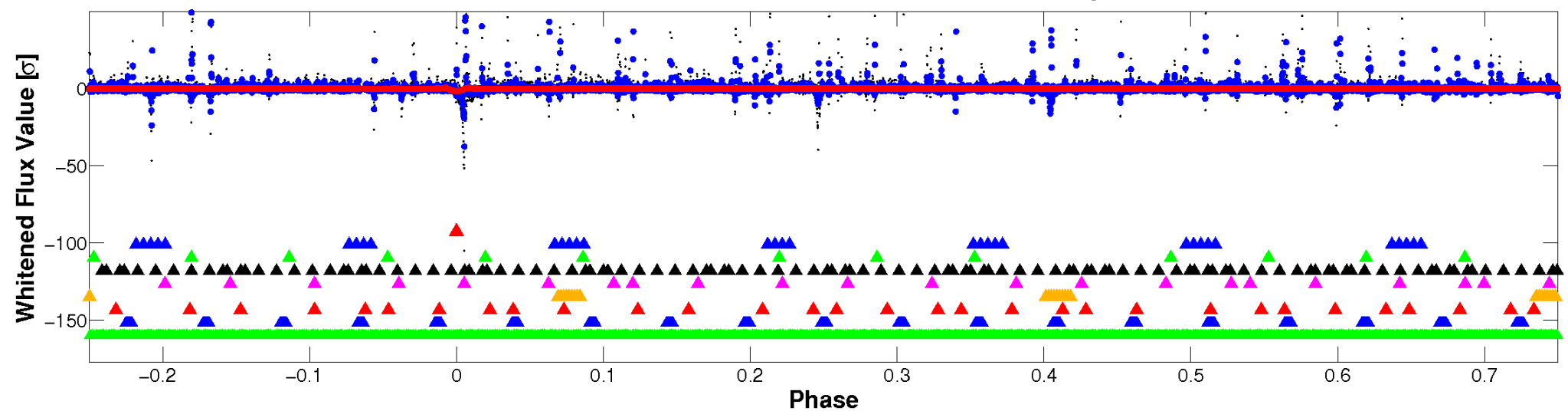


Non-Whitened Vs. Whitened Light Curve

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

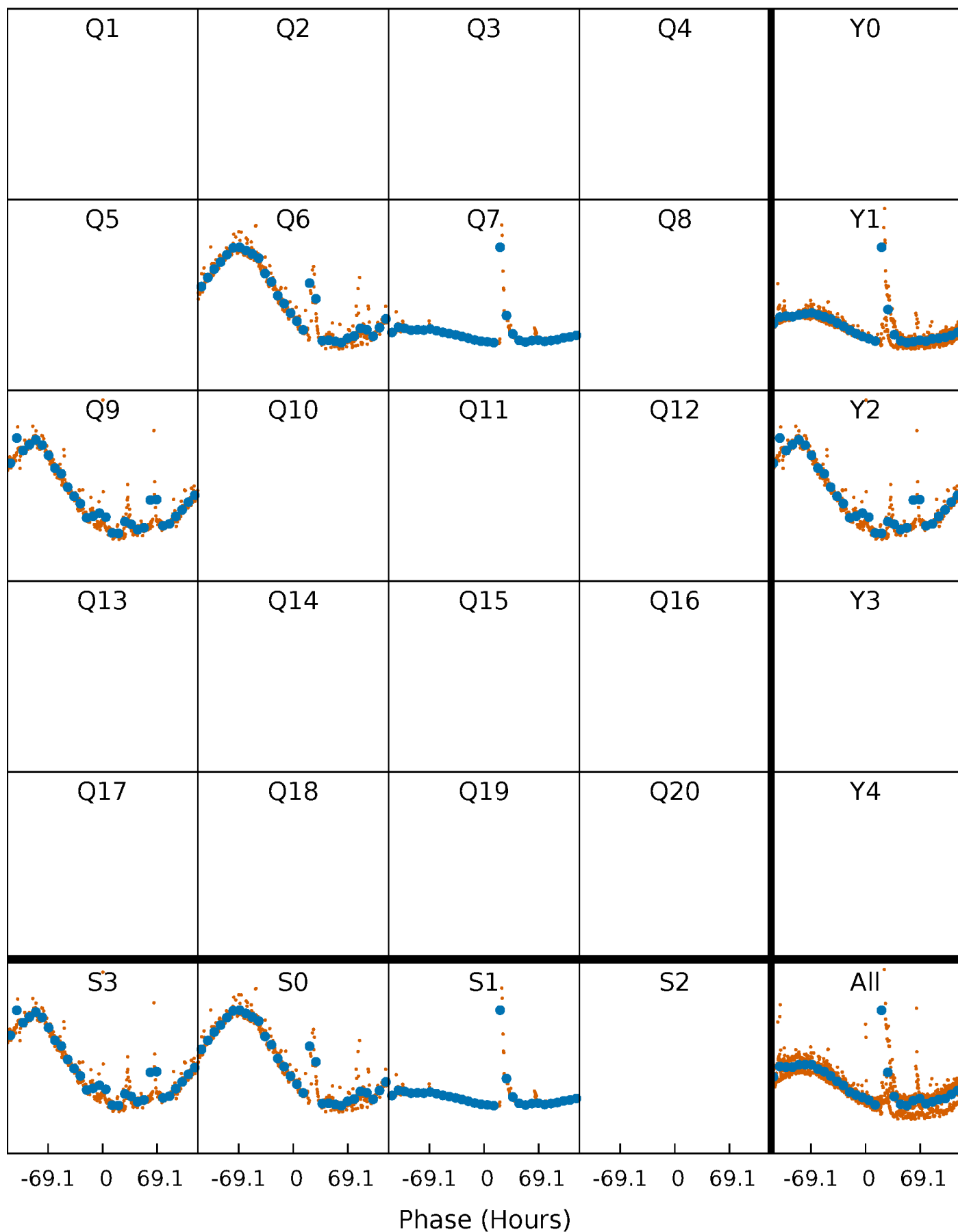


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



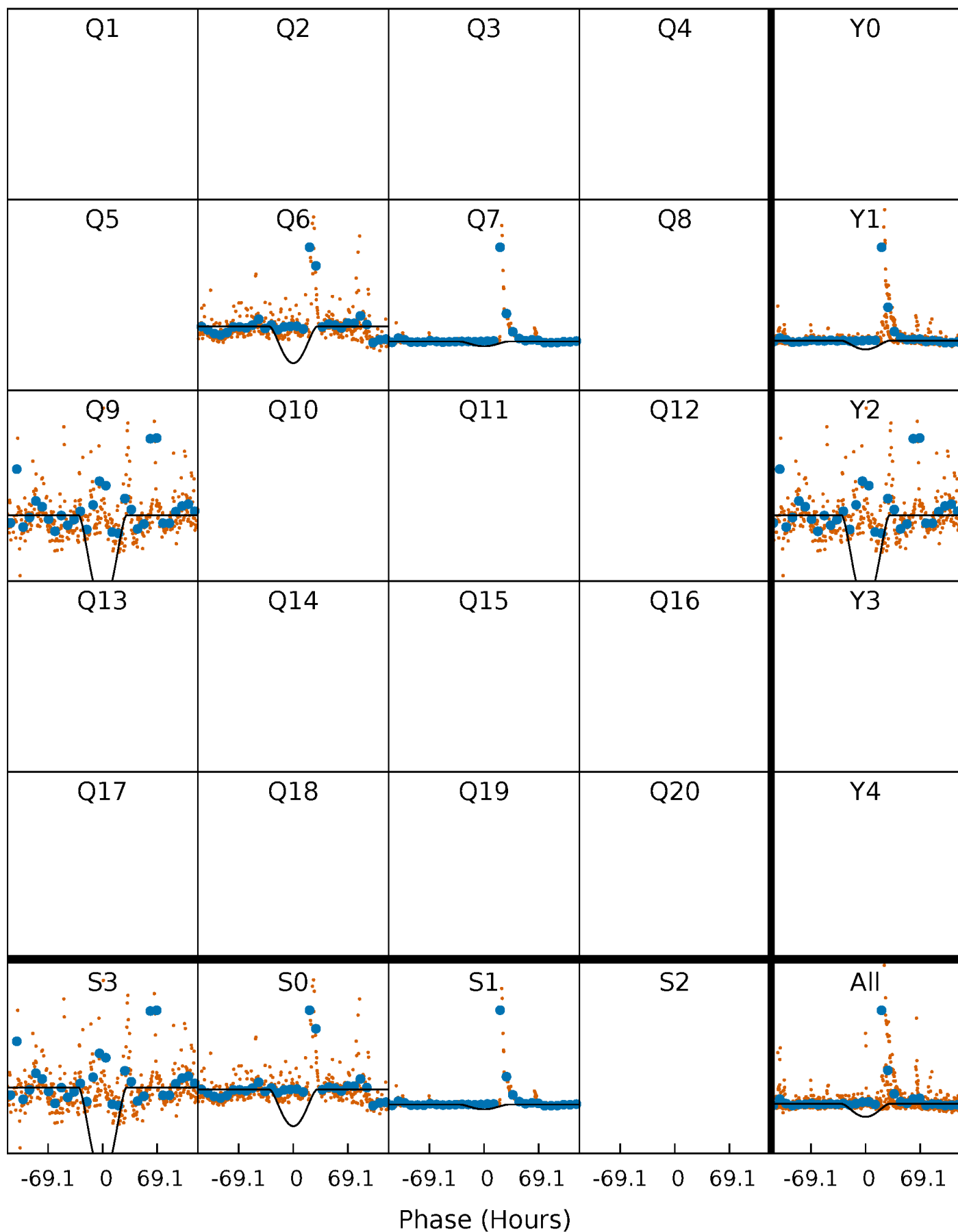
PDC Quarter-Phased Transit Curves

TCE 008493421-01 P=154.892905 Days $T_0=235.744136$ (BKJD)



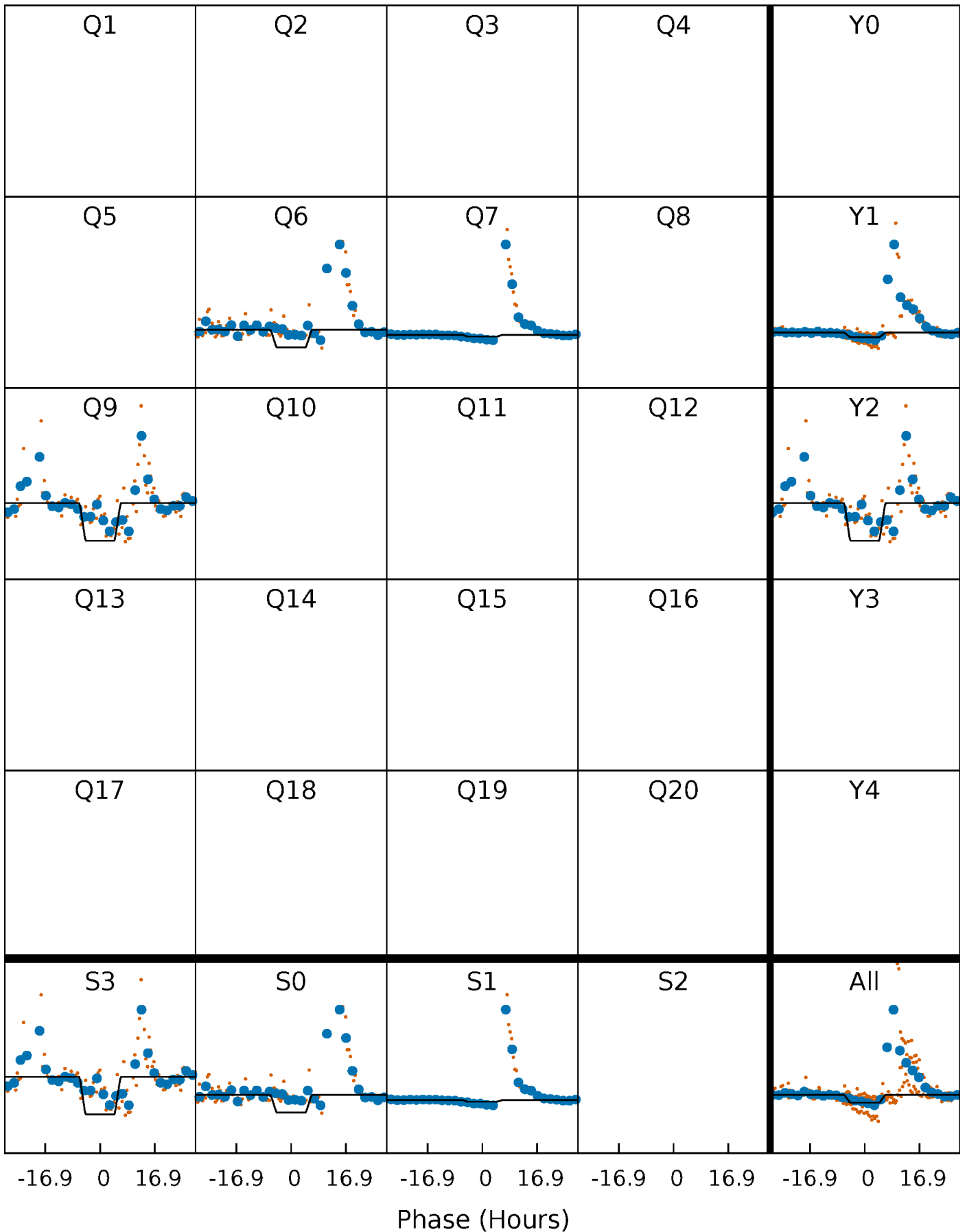
DV Quarter-Phased Transit Curves

TCE 008493421-01 P=154.892905 Days $T_0=235.744136$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

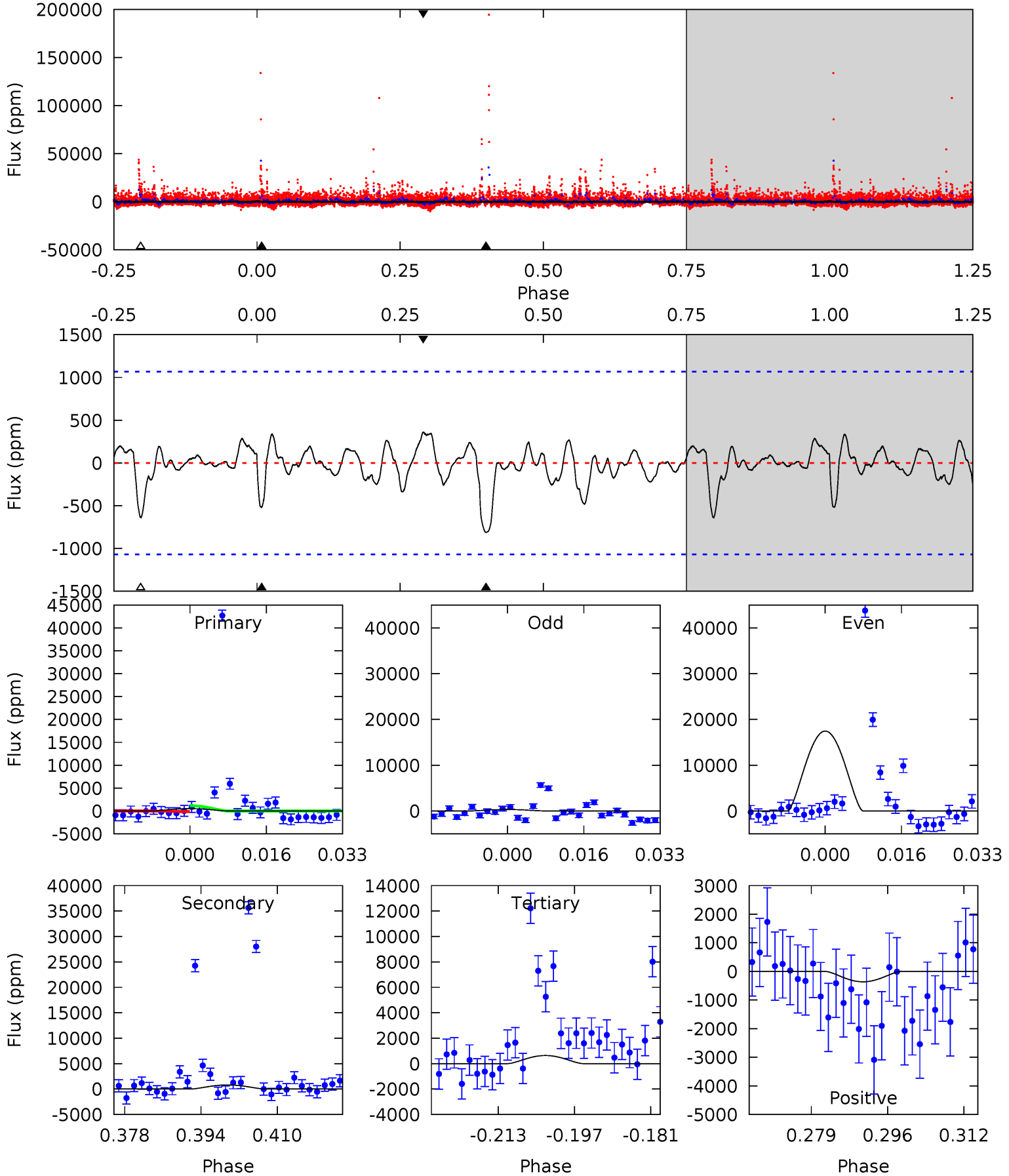
TCE 008493421-01 P=155.083909 Days $T_0=235.774035$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-01, P = 154.892905 Days, E = 235.744136 Days

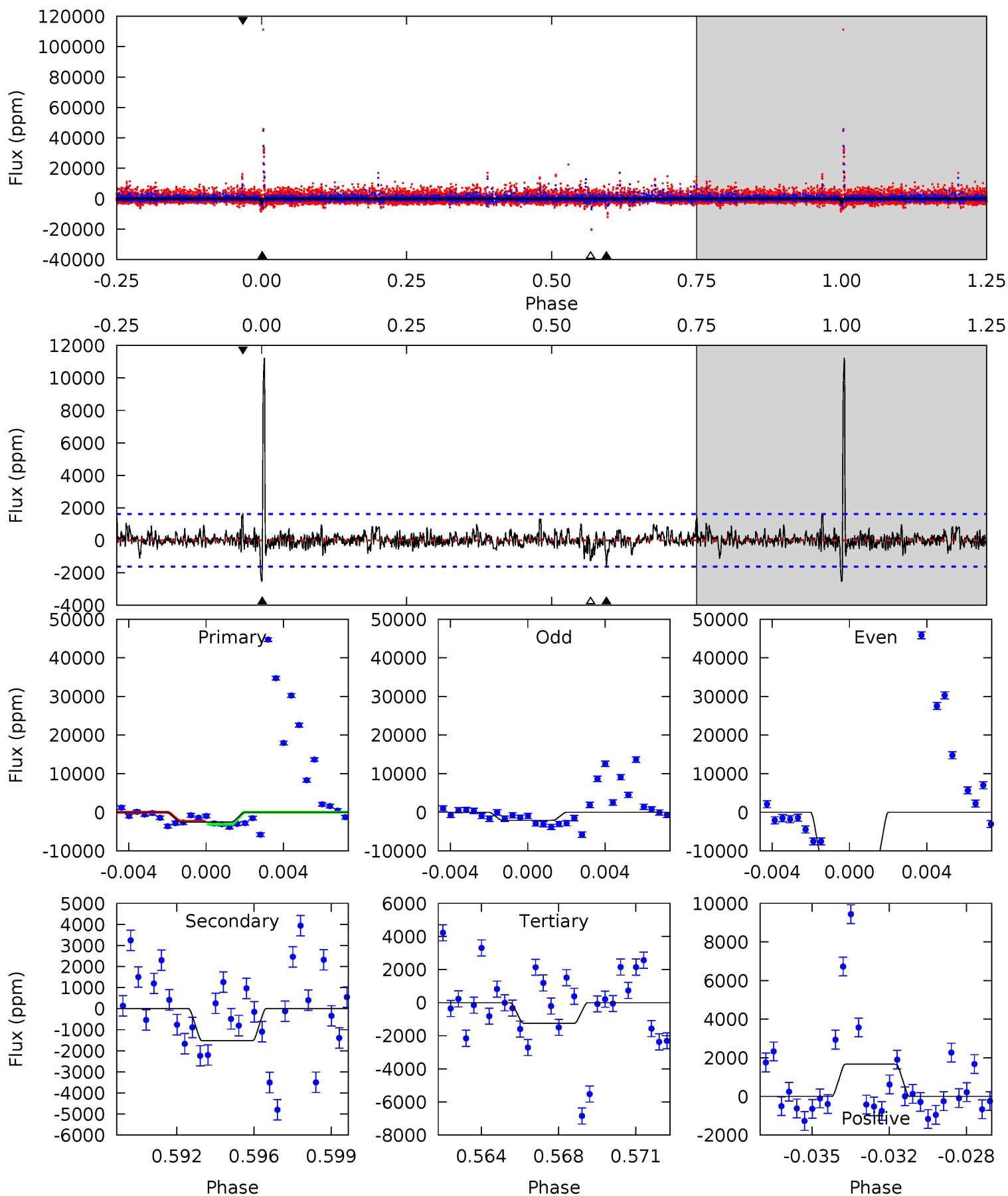
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.38	3.74	2.94	1.67	4.93	2.40	0.76	-0.55	0.71	0.80	2.07	21.4	4.51	0.31	0



Alt Model-Shift Uniqueness Test

008493421-01, P = 155.083909 Days, E = 235.774035 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.15	4.92	4.03	5.40	5.22	2.92	1.43	4.11	2.75	0.89	-0.47	19.7	2.10	0.82	1.33



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-811±217	$12.55^{+15.32}_{-9.30}$	112^{+12}_{-11}	1356^{+317}_{-140}	217^{+2387}_{-167}
Alt.	-1523±309	$12.77^{+13.87}_{-9.27}$	114^{+10}_{-11}	1442^{+334}_{-151}	424^{+4680}_{-321}

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

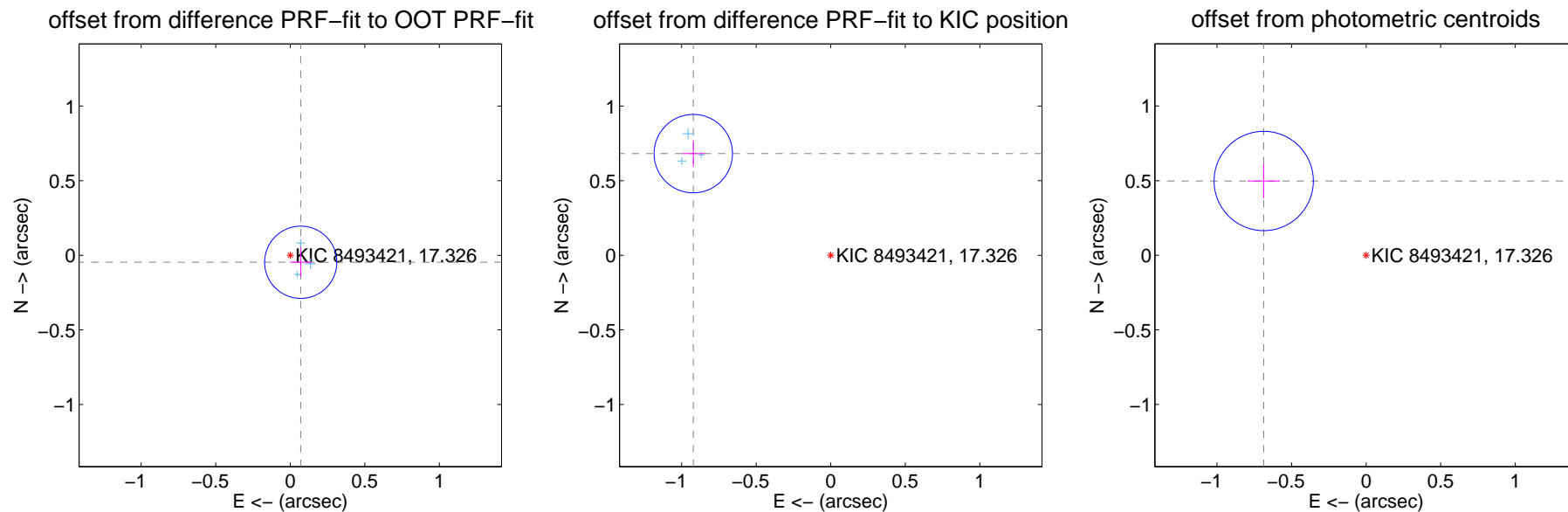
DV Centroid Data

Supplemental centroid analysis for 008493421-01. Kepler magnitude: 17.33. Transit SNR 17.00

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.084 ± 0.081	1.05	-0.070 ± 0.071	-0.047 ± 0.098
PRF-fit source offset from KIC position	1.146 ± 0.088	13.08	0.922 ± 0.076	0.681 ± 0.088
photometric centroid source offset	0.85 ± 0.11	7.64	0.69 ± 0.11	0.50 ± 0.12



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.



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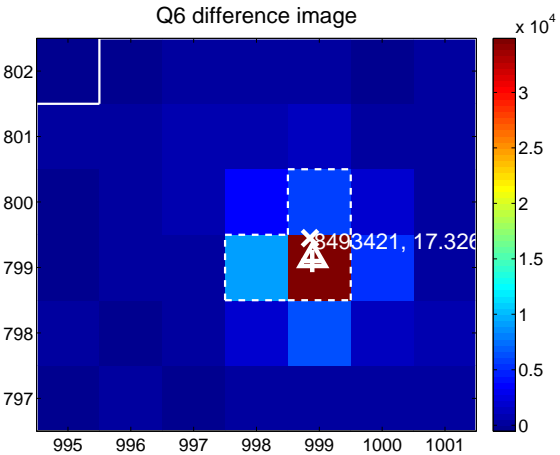
Q5 no difference image



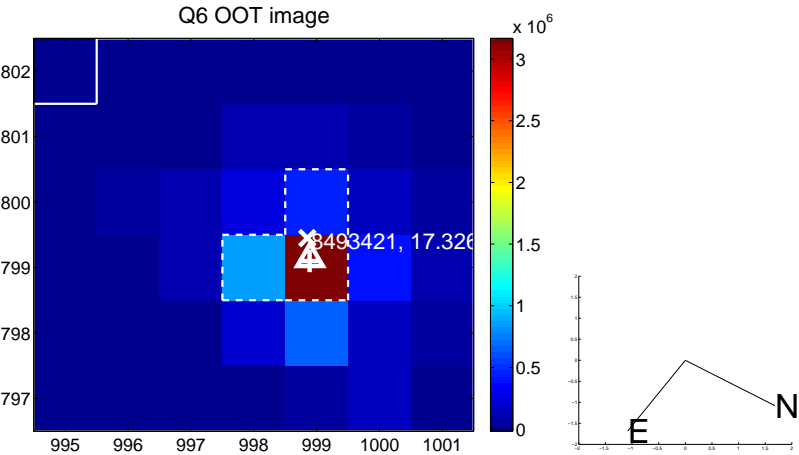
Q5 no OOT image



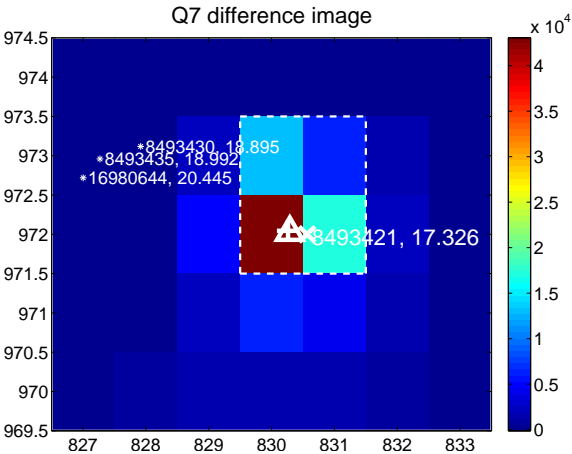
Q6 difference image



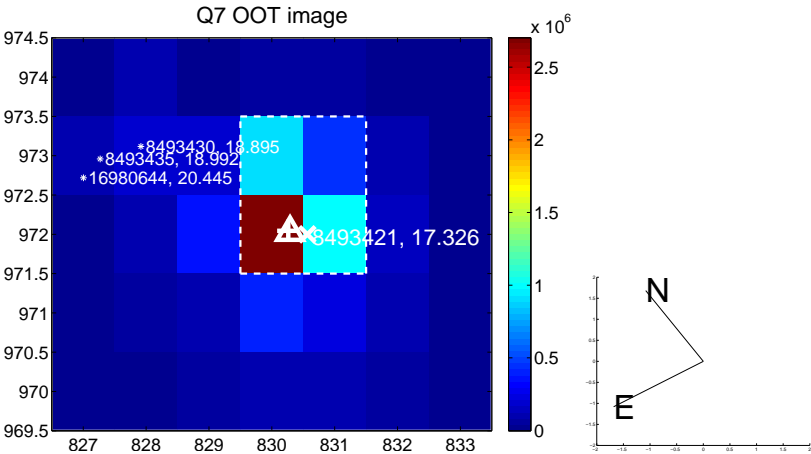
Q6 OOT image



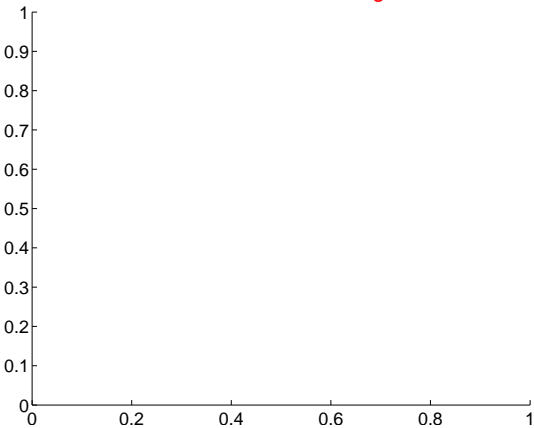
Q7 difference image



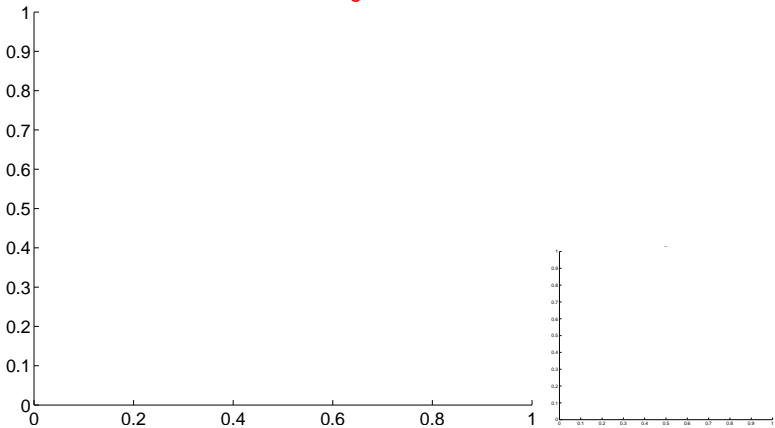
Q7 OOT image



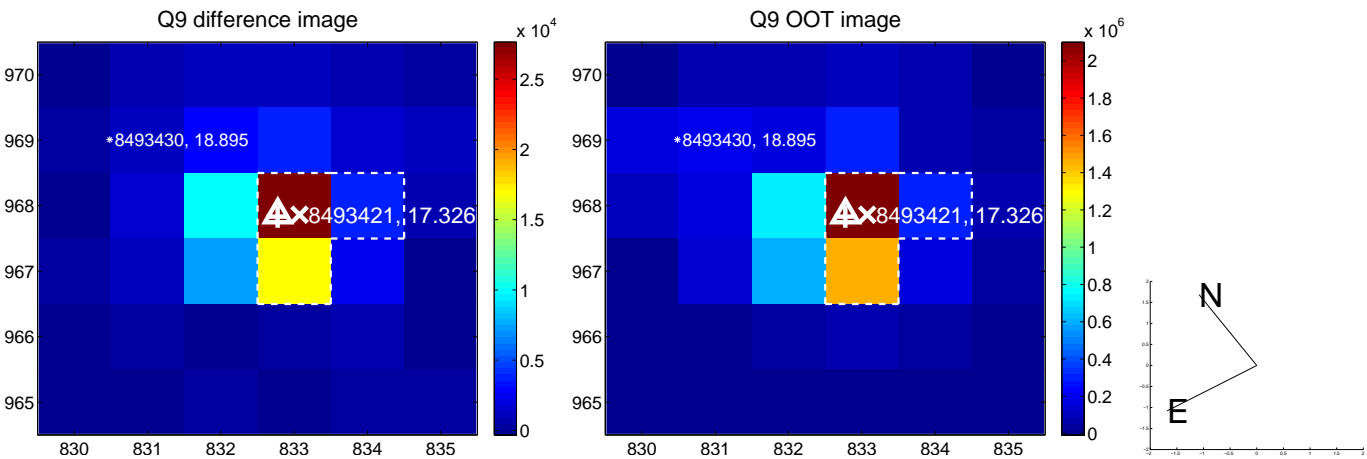
Q8 no difference image



Q8 no OOT image



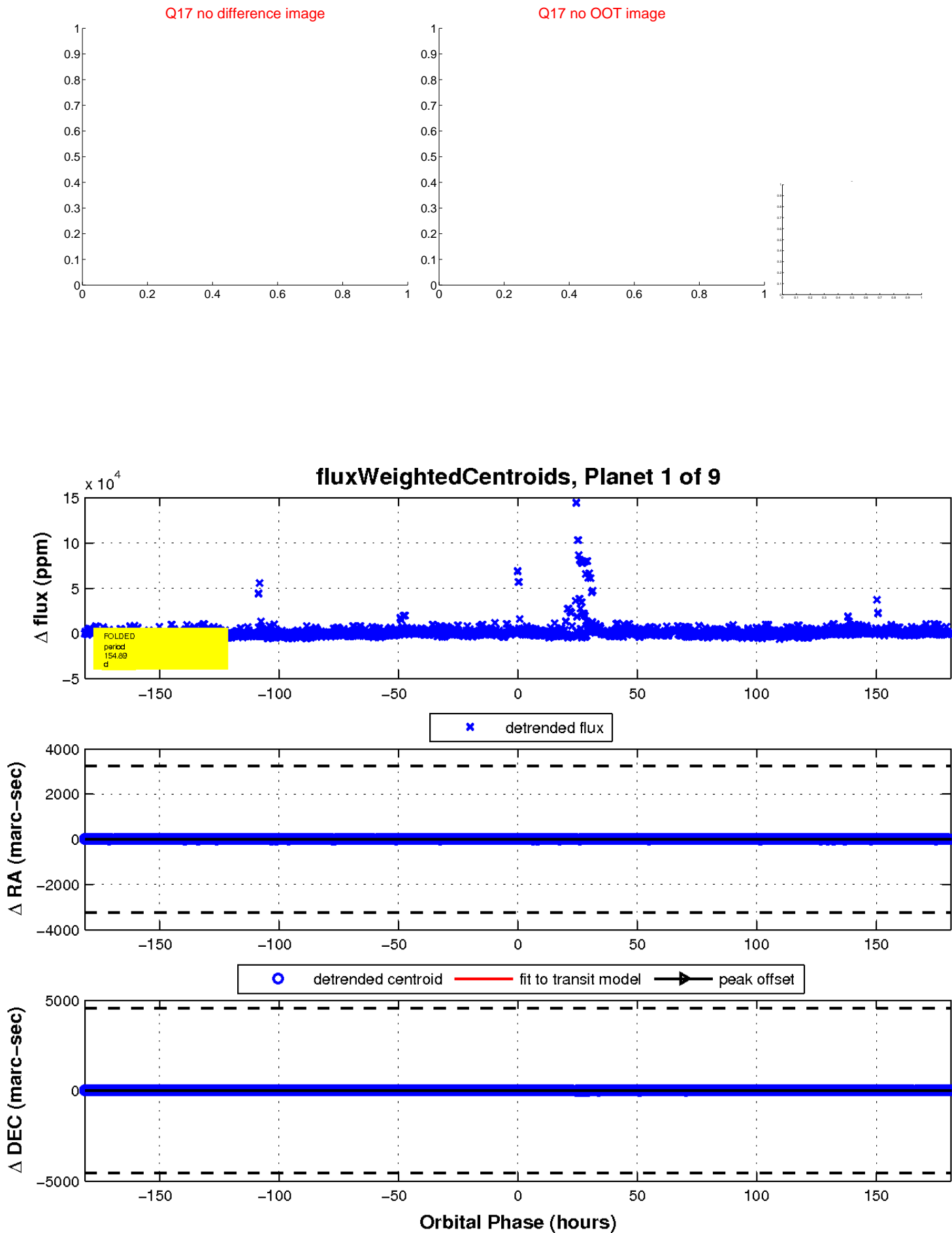
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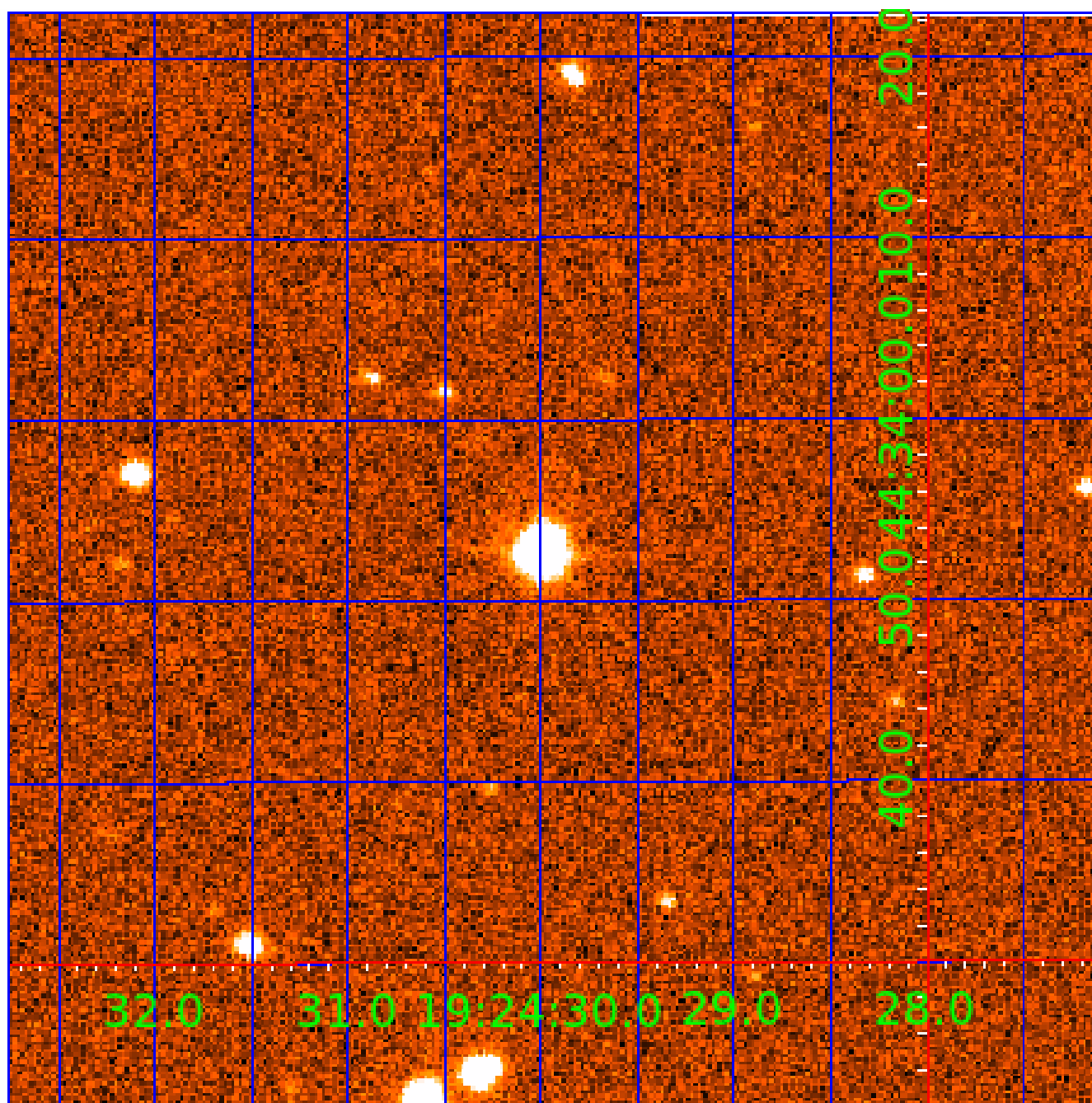


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UKIRT Image

Declination



KIC 008493421

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

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008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

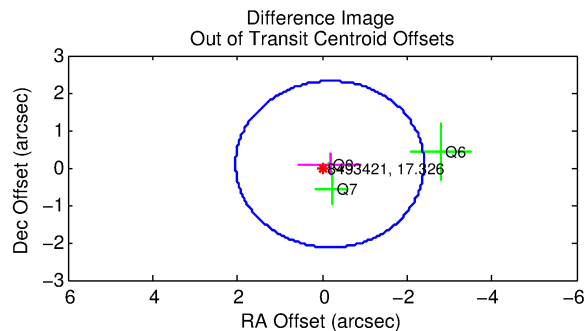
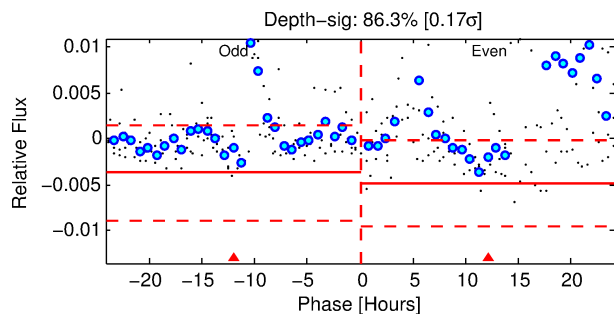
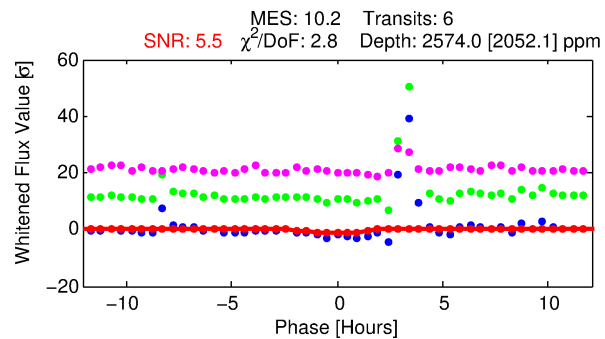
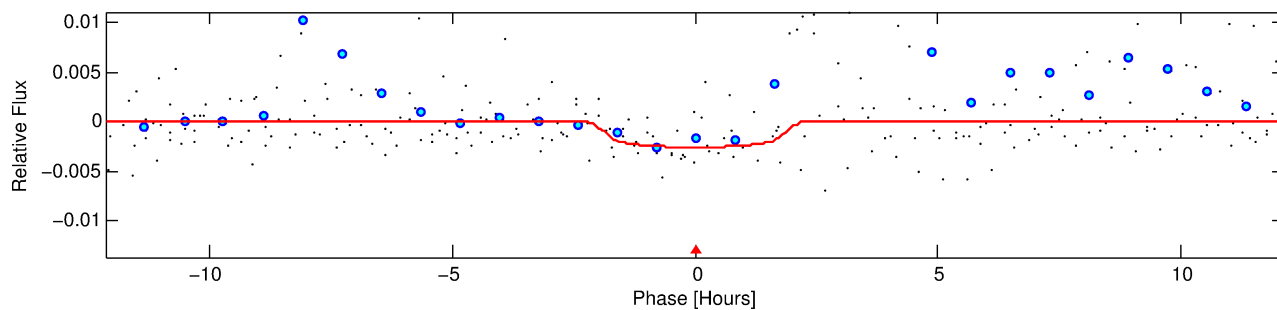
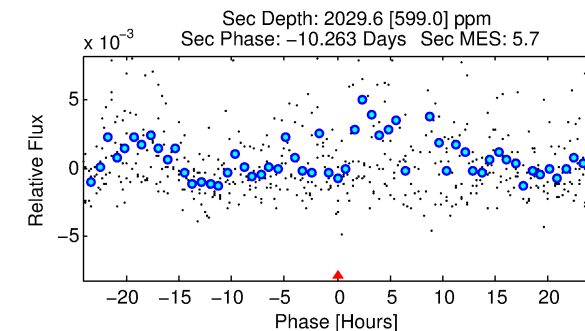
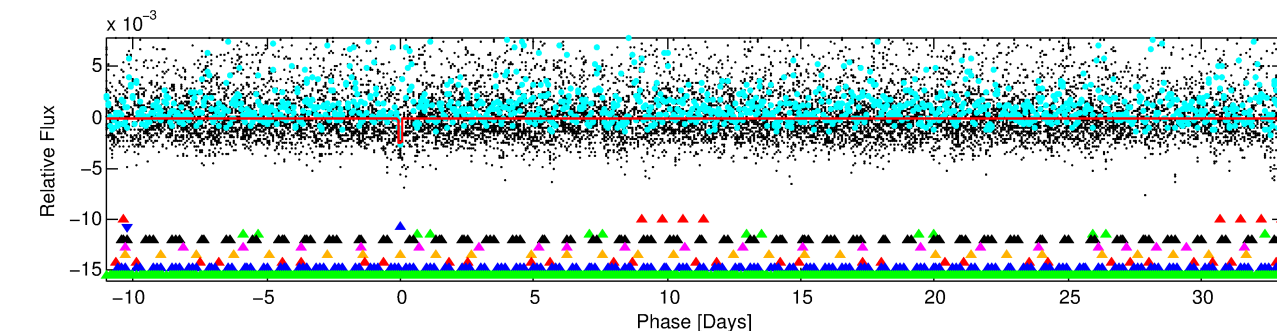
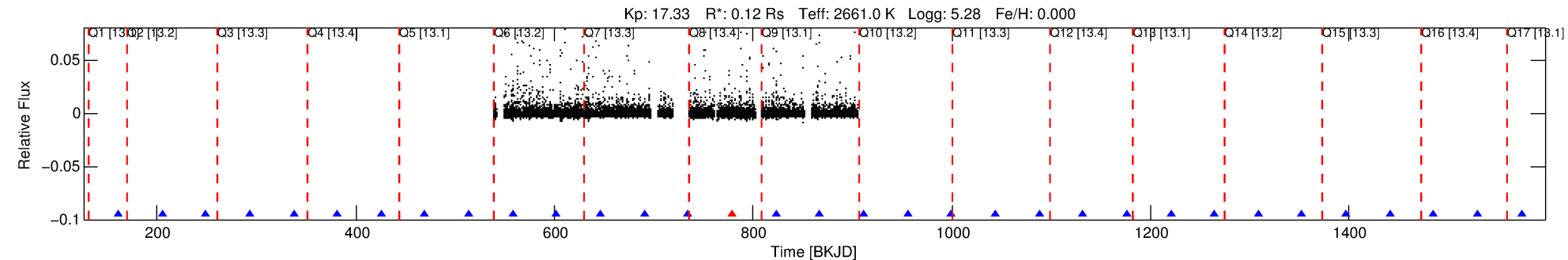
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-02

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 2 of 9 Period: 44.146 d



DV Fit Results:

Period = 44.14557 [0.00903] d
Epoch = 160.8898 [0.1249] BKJD
Rp/R* = 0.0459 [0.2907]
a/R* = 87.23 [2396.99]
b = 0.01 [3153.59]
Seff = 0.05 [0.00]
Teq = 120 [0] K
Rp = 0.58 [3.68] Re
a = 0.1112 [0.0000] AU
Ag = 40975.76 [519426.08] [0.08σ]
Teff = 2637 [8357] K [0.30σ]

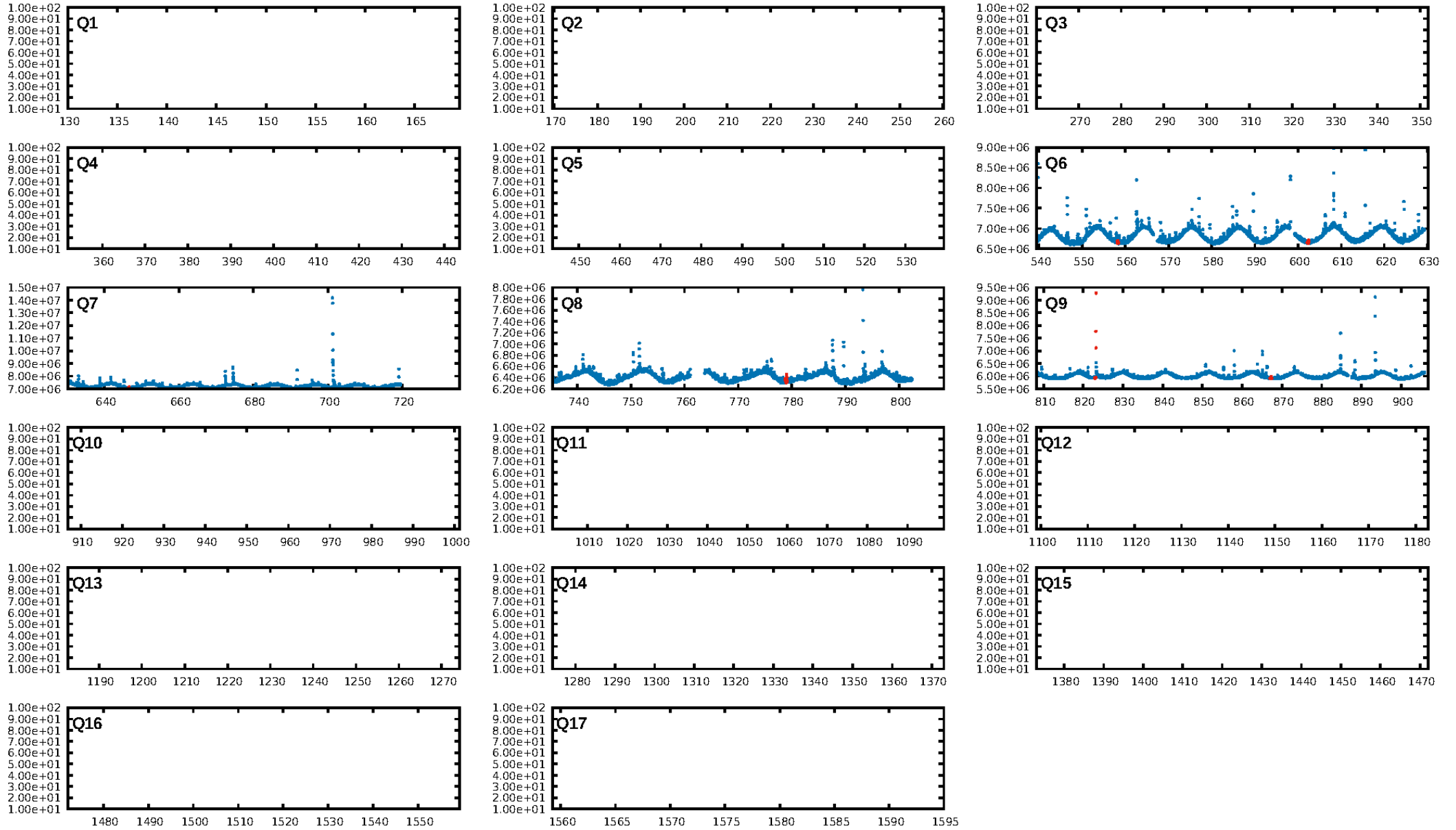
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [61.74σ]
LongPeriod-sig: 100.0% [5.30σ]
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 30.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.83 [5/6]
GhostDiagnostic-chr: 0.6437
Centroid-sig: 94.2%
Centroid-so: 1.132 arcsec [1.10σ]
OotOffset-rm: 0.204 arcsec [0.28σ]
KicOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.75 [3/4]

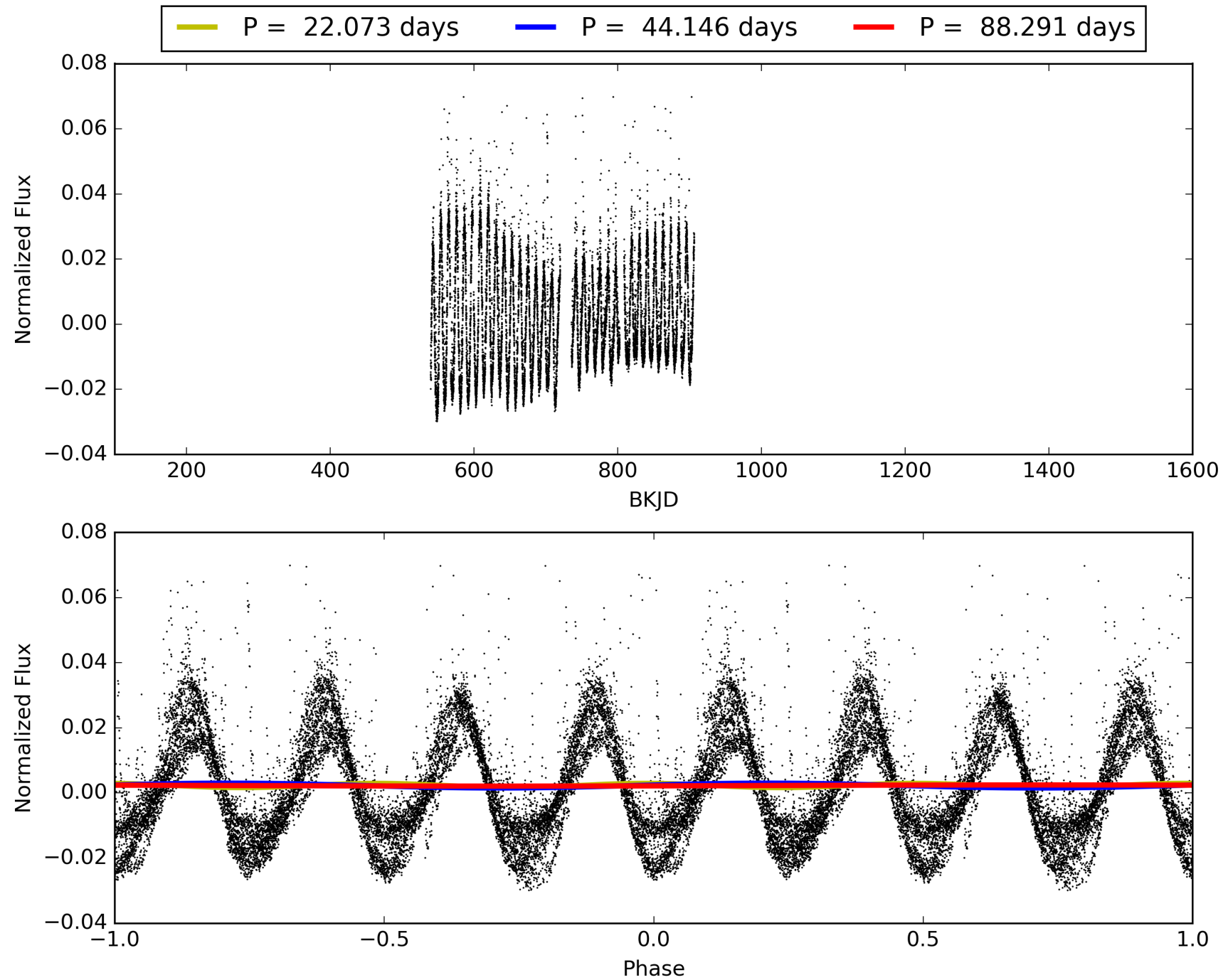
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:23 Z

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

TCE 008493421-02, PDC Light Curves

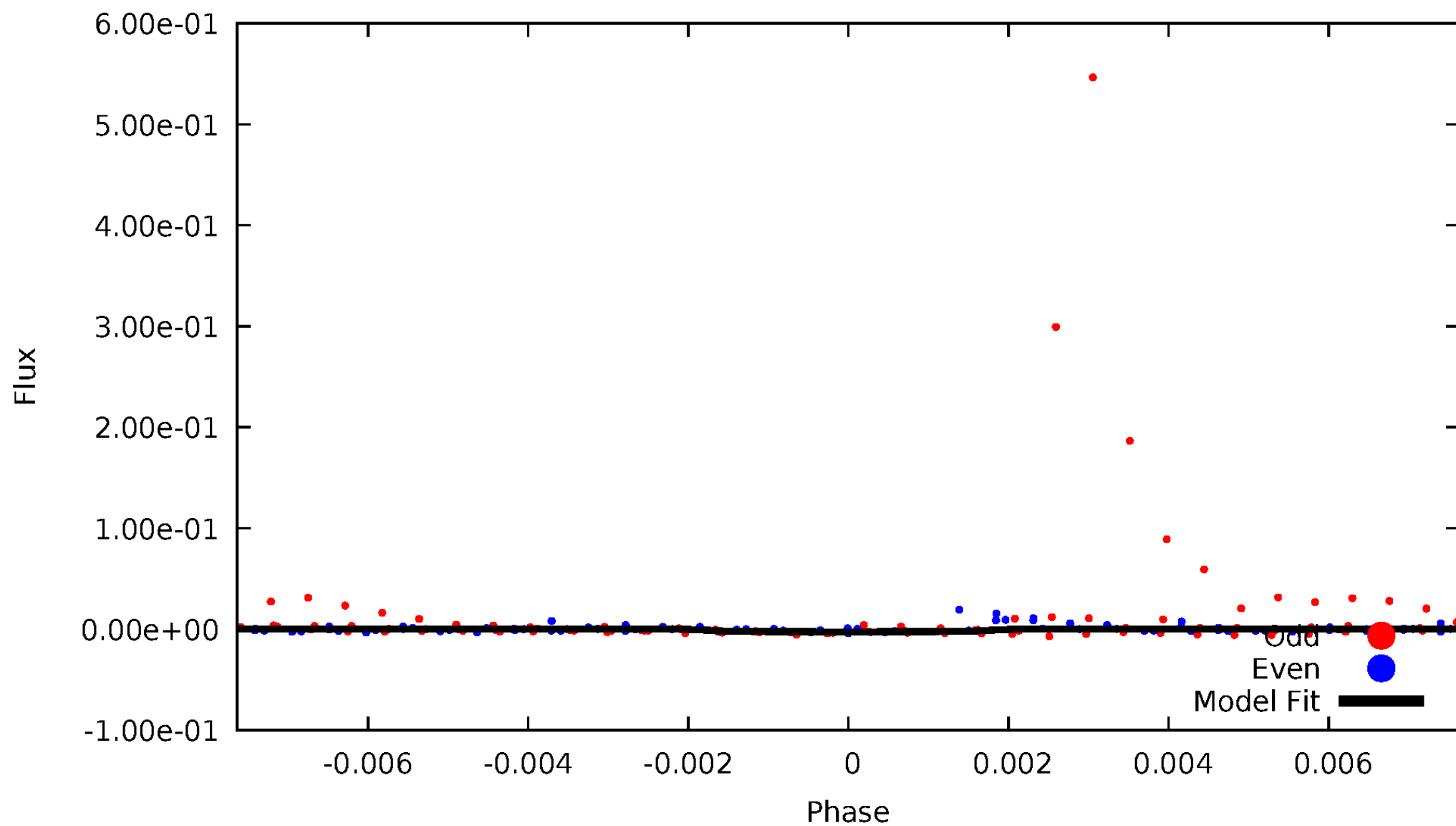


TCE 008493421-02



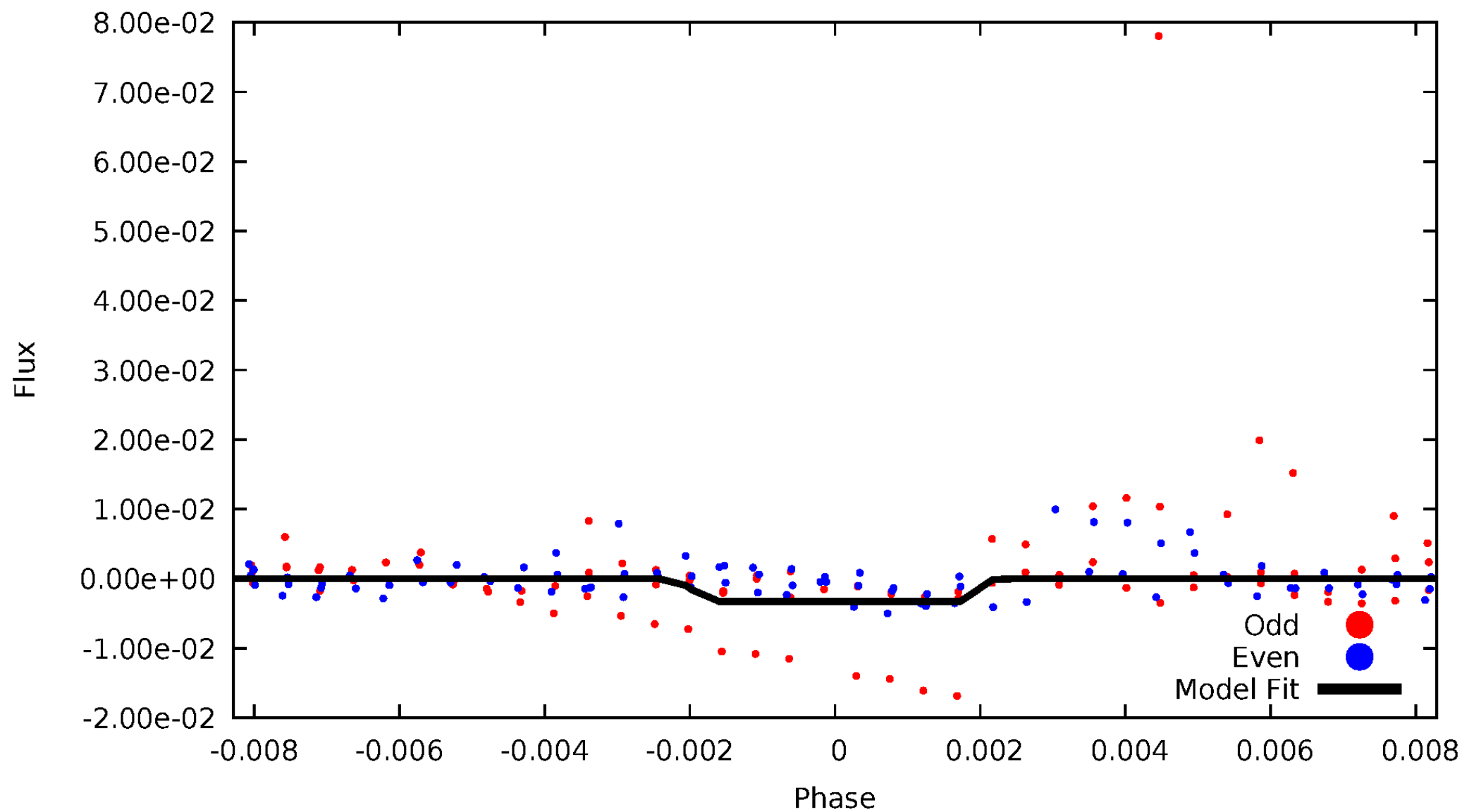
DV Odd/Even

TCE 008493421-02



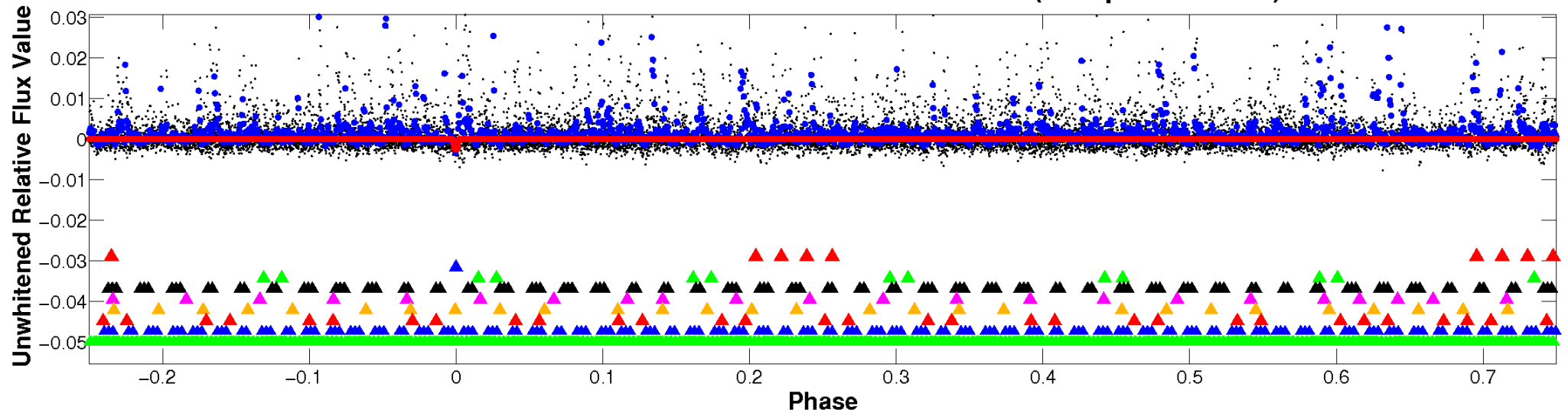
ALT Odd/Even

TCE 008493421-02

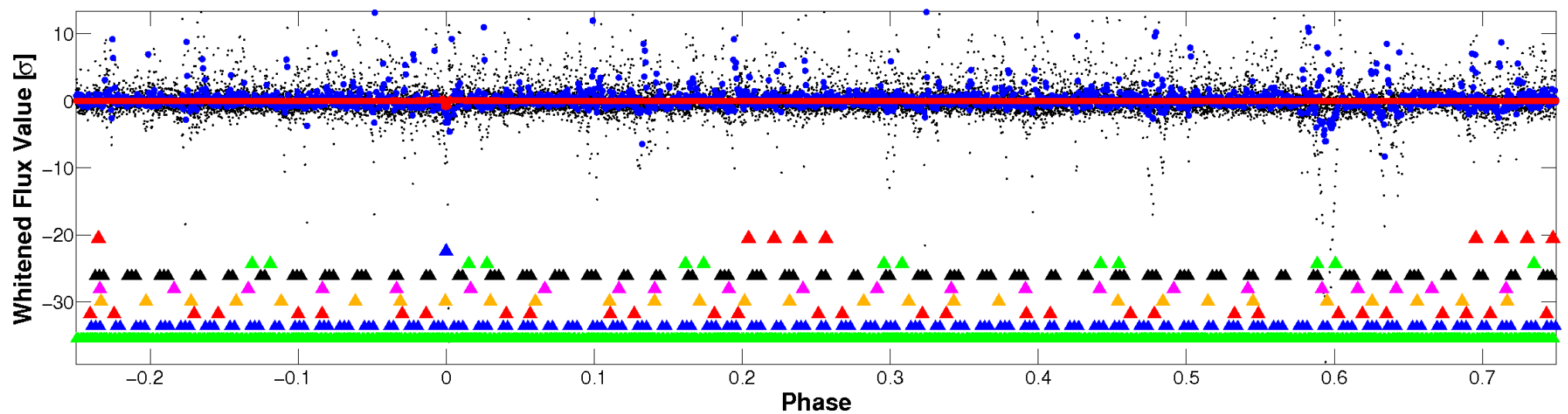


Non-Whitened Vs. Whitened Light Curve

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

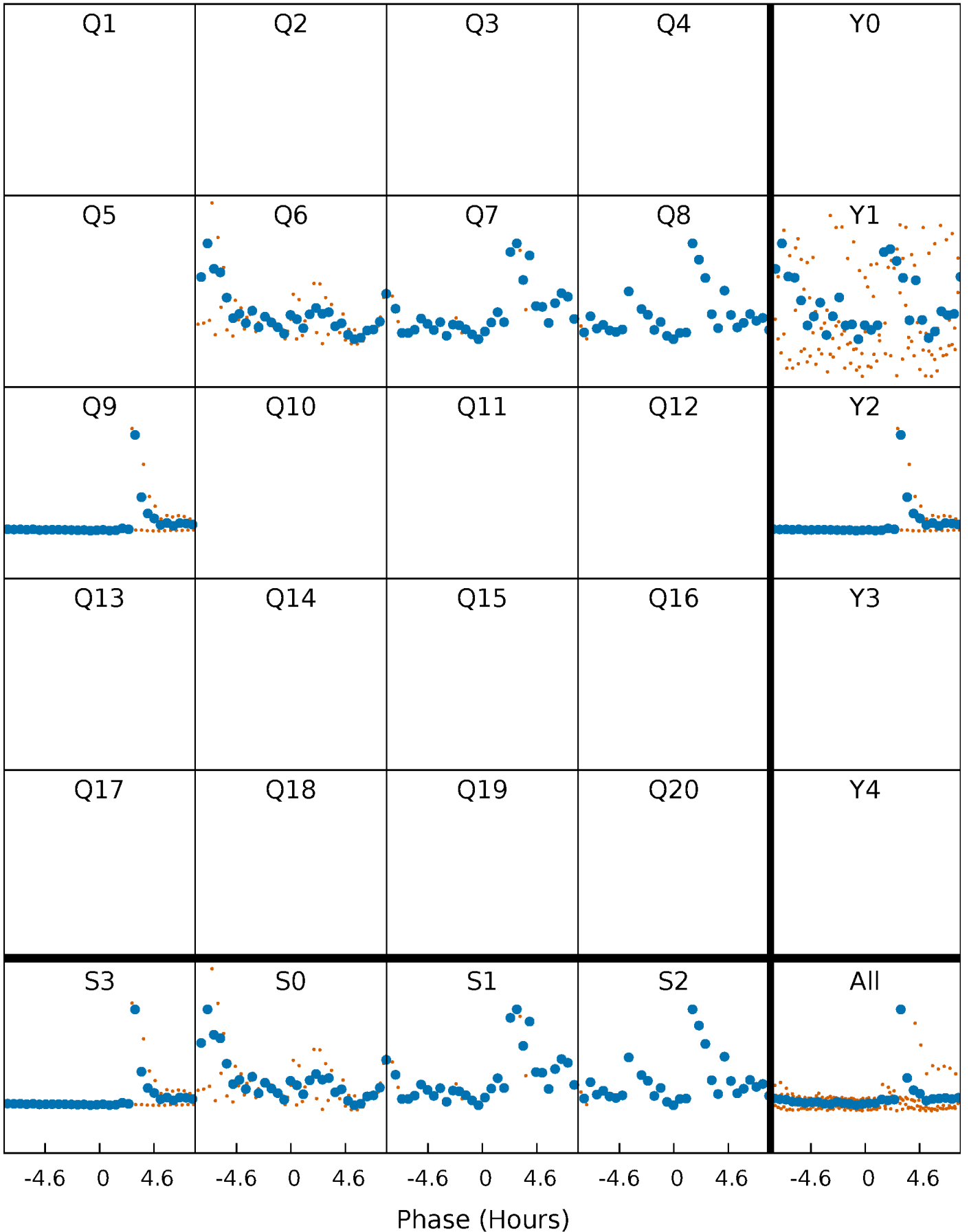


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



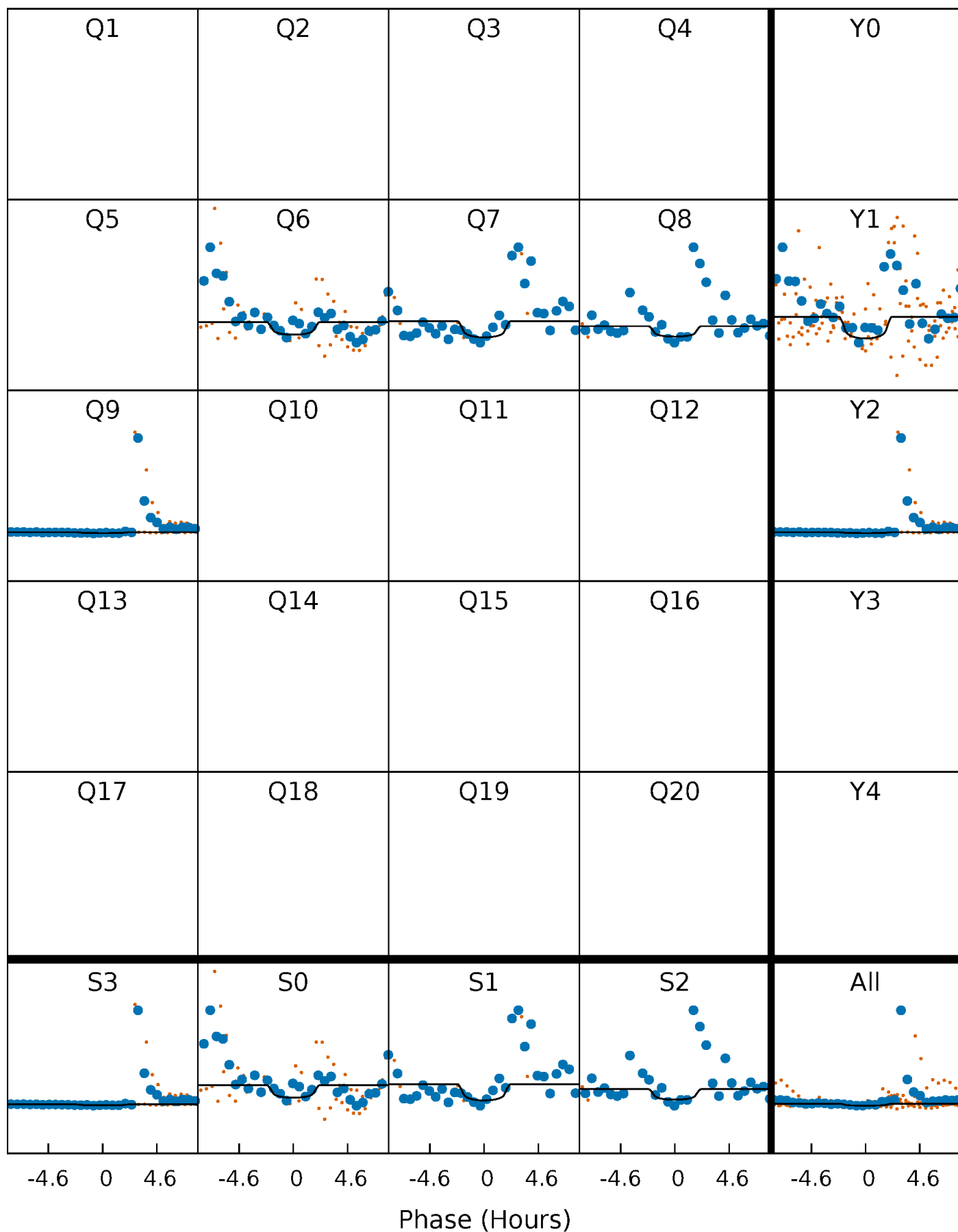
PDC Quarter-Phased Transit Curves

TCE 008493421-02 P= 44.145565 Days $T_0=160.889752$ (BKJD)



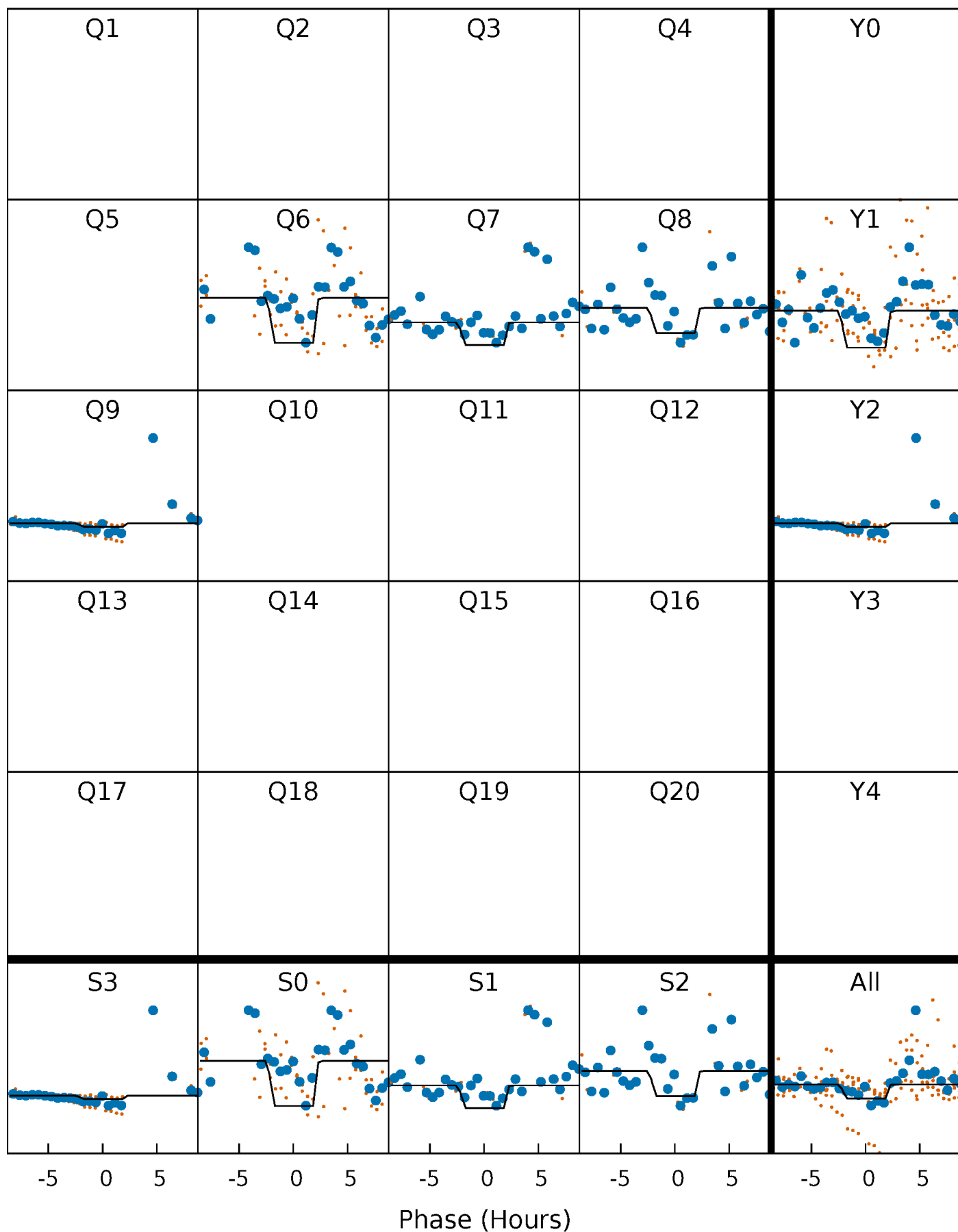
DV Quarter-Phased Transit Curves

TCE 008493421-02 P= 44.145565 Days $T_0=160.889752$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

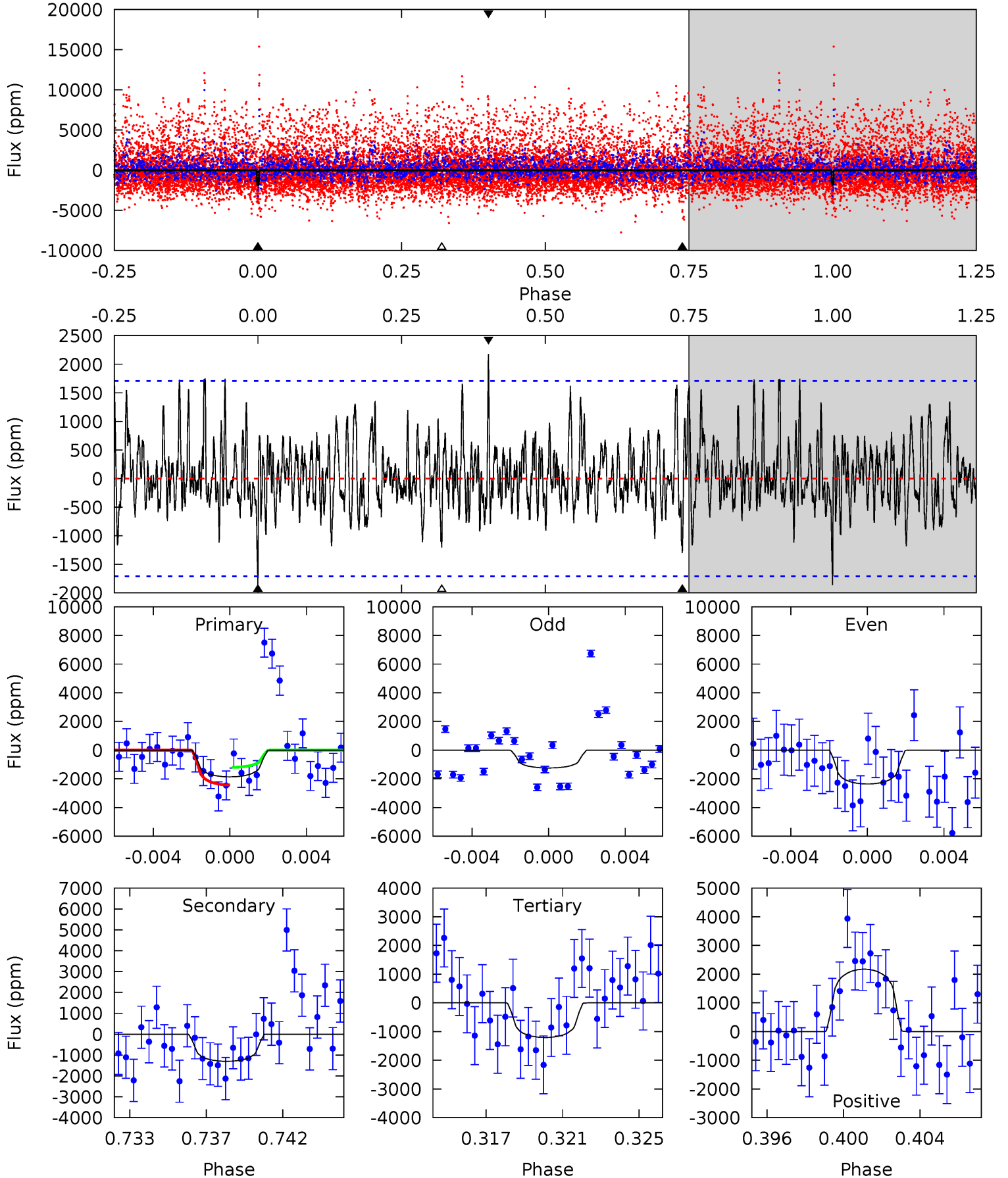
TCE 008493421-02 $P = 44.156540$ Days $T_0 = 160.704030$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-02, P = 44.145565 Days, E = 160.889752 Days

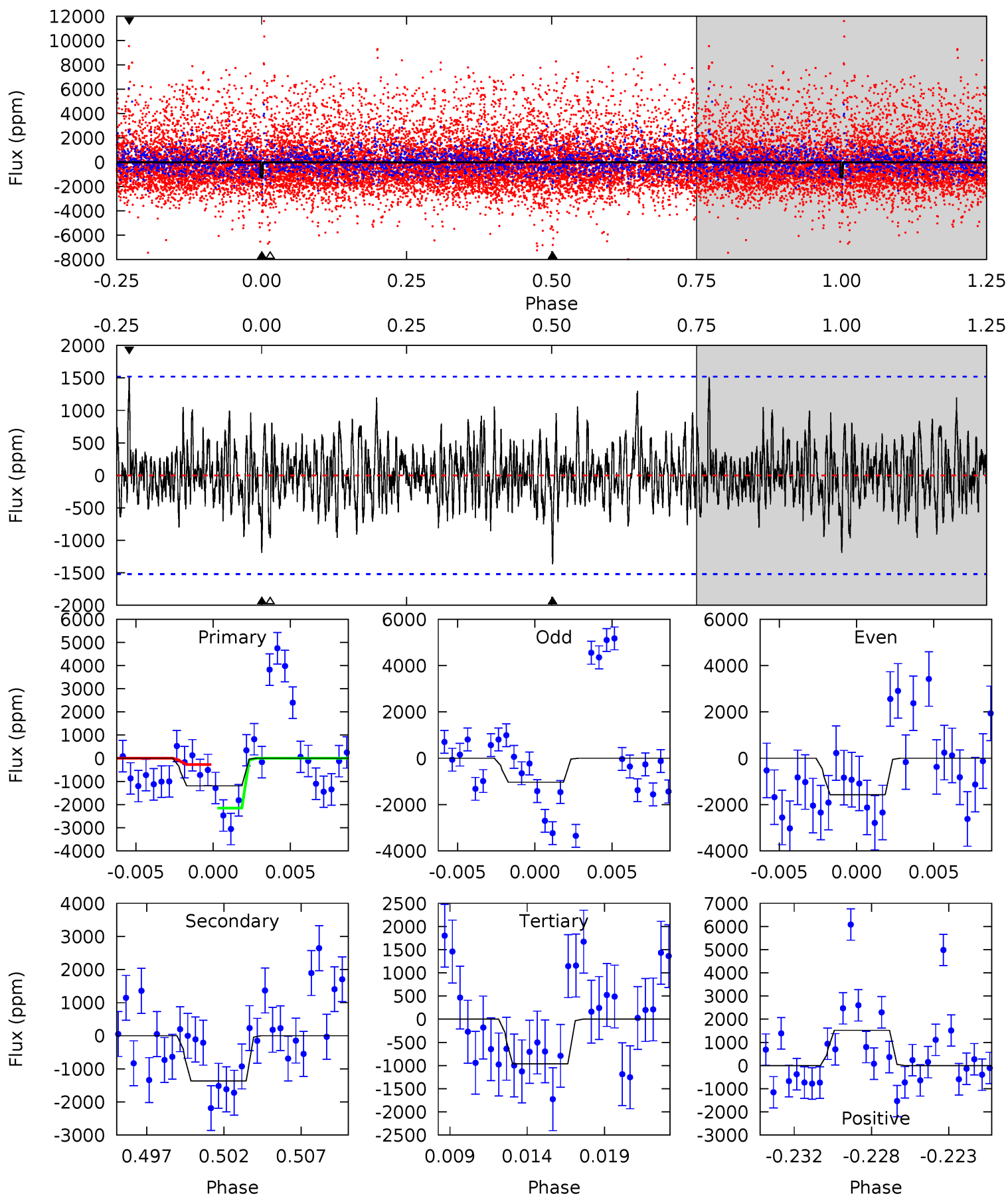
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.66	3.96	3.67	6.61	5.19	2.87	1.52	1.99	-0.95	0.28	-2.66	1.58	1.19	0.54	1.90



Alt Model-Shift Uniqueness Test

008493421-02, P = 44.156540 Days, E = 160.704030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.05	4.65	3.28	5.16	5.17	2.83	1.18	0.77	-1.11	1.37	-0.51	0.88	2.29	0.53	3.27



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1301 ± 329	$3.19^{+3.59}_{-2.22}$	172^{+17}_{-18}	1784^{+465}_{-222}	999^{+9382}_{-775}
Alt.	-1366 ± 294	$3.21^{+3.56}_{-2.25}$	173^{+17}_{-17}	1812^{+493}_{-245}	1045^{+11042}_{-776}

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

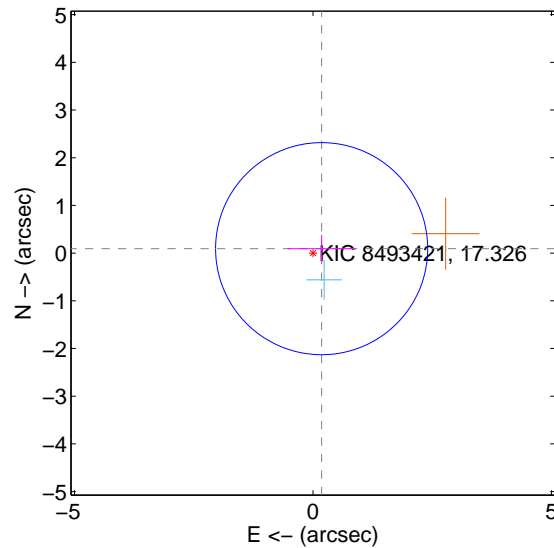
Supplemental centroid analysis for 008493421-02. Kepler magnitude: 17.33. Transit SNR 5.46

There are 2 quarters with good PRF difference image offsets

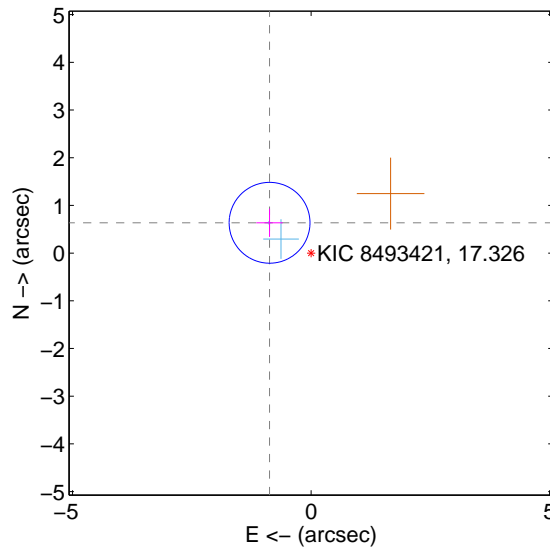
The direct PRF centroid is offset from the target star catalog position by about 1.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.204 ± 0.741	0.28	-0.182 ± 0.716	0.093 ± 0.291
PRF-fit source offset from KIC position	1.077 ± 0.282	3.81	0.870 ± 0.276	0.635 ± 0.295
photometric centroid source offset	1.13 ± 1.03	1.10	0.85 ± 1.07	0.75 ± 0.98

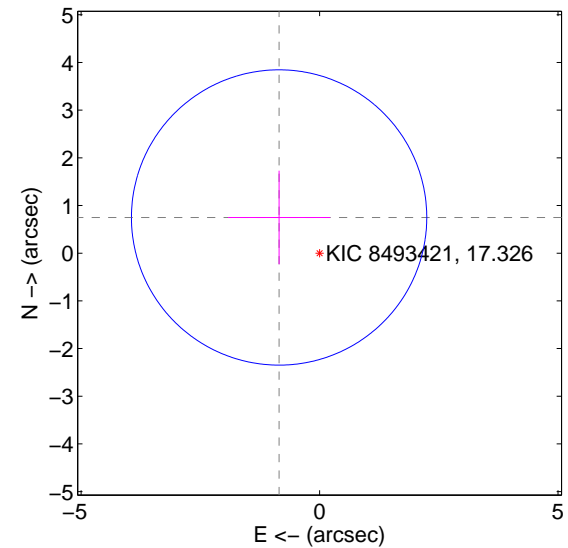
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

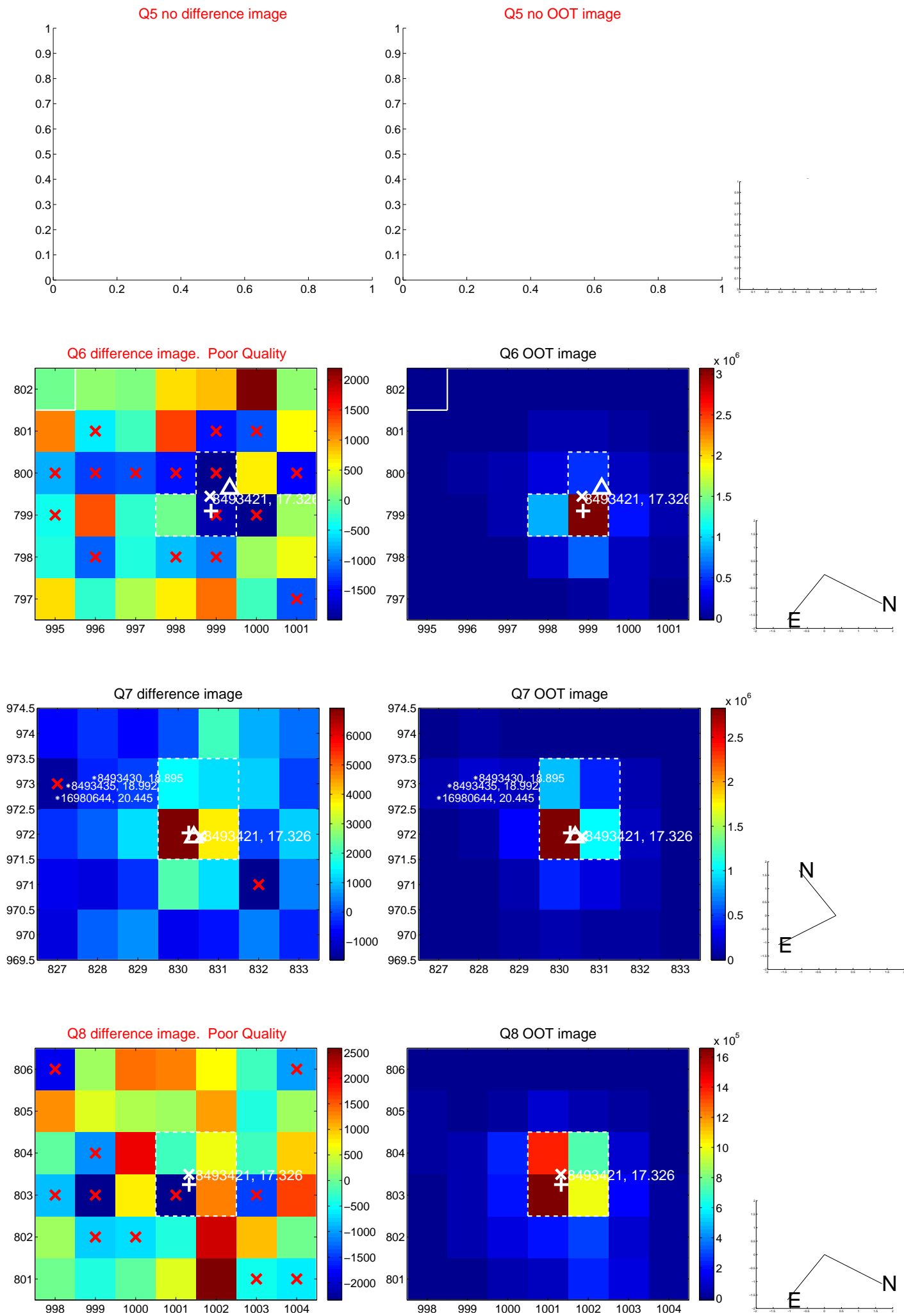


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

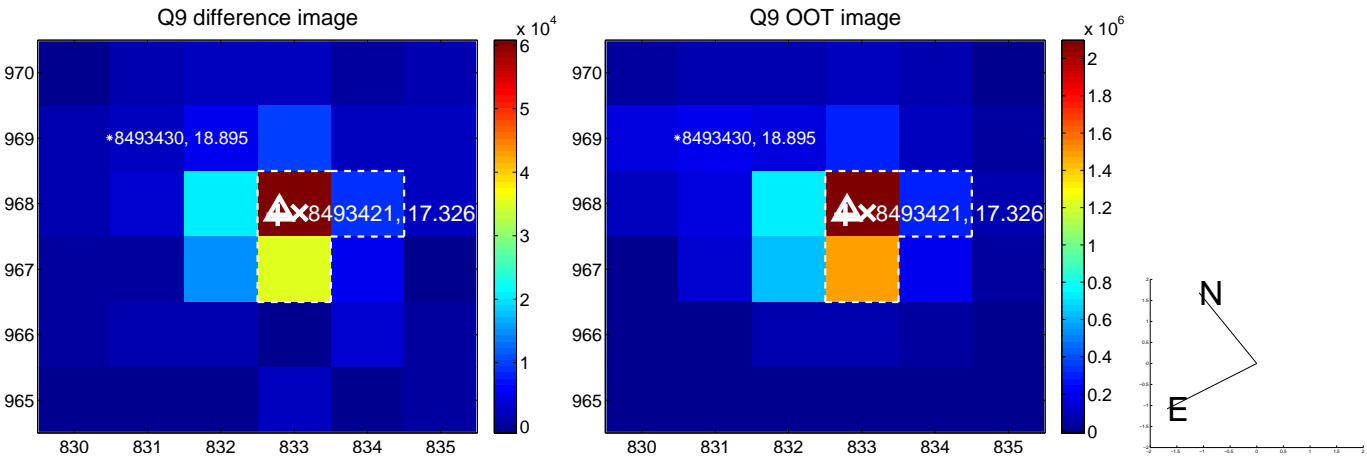
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



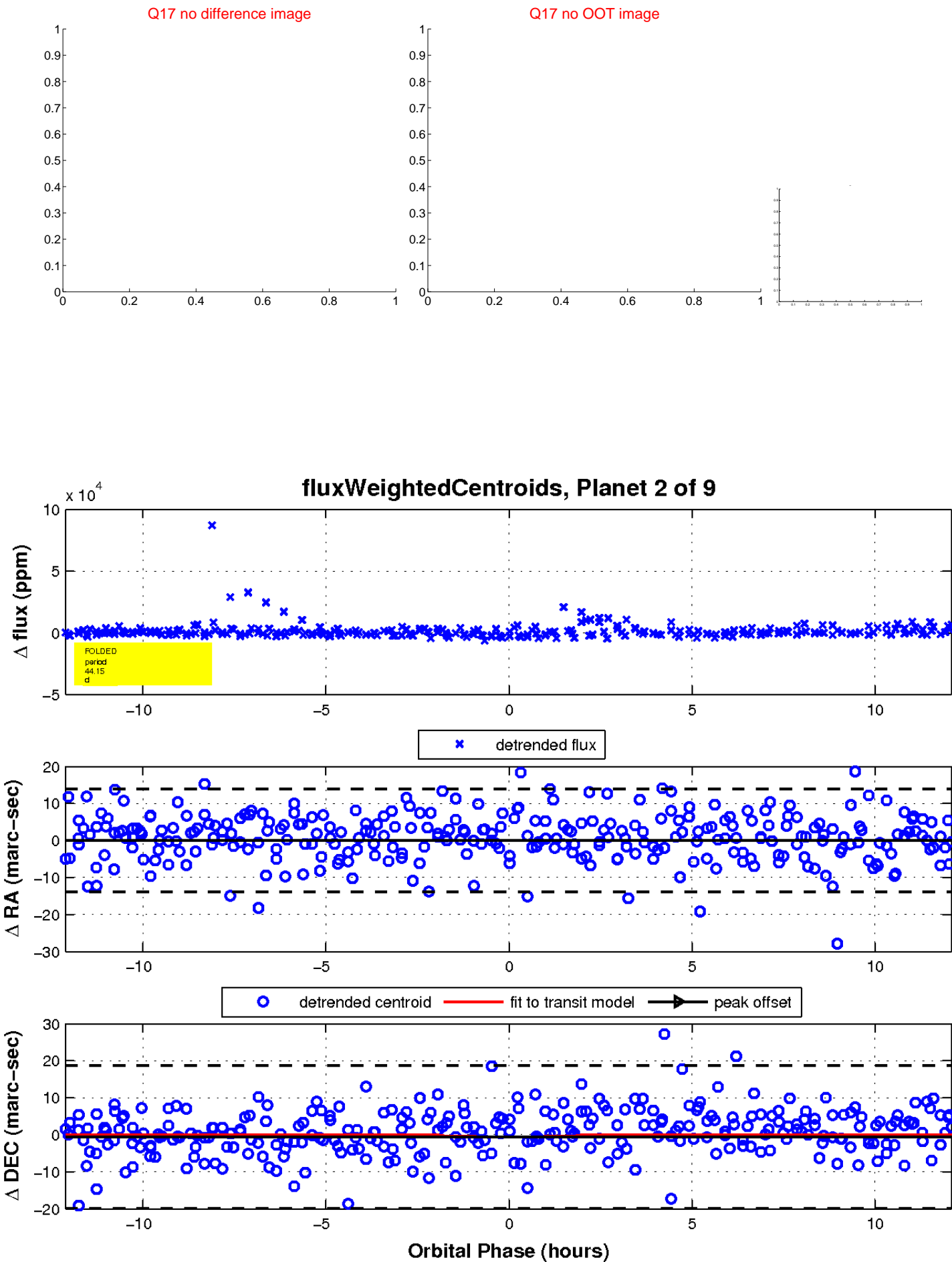
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

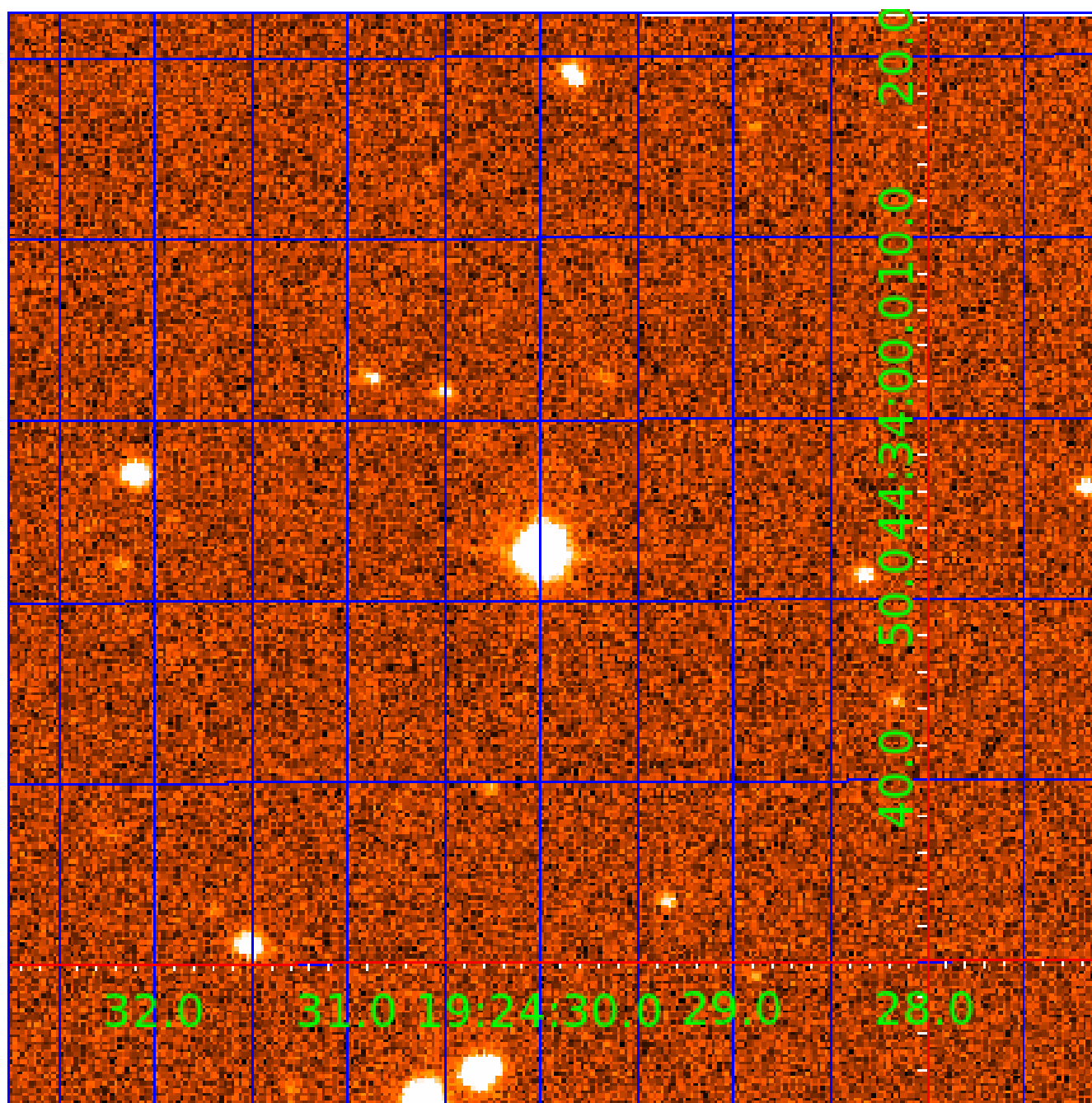


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

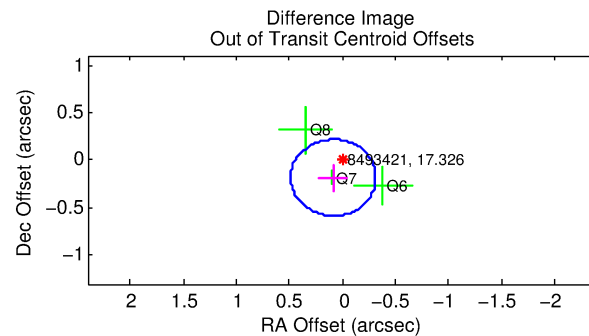
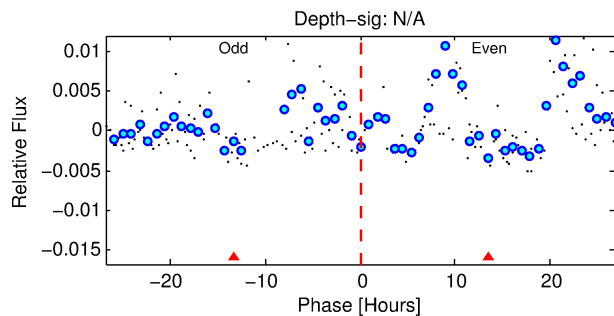
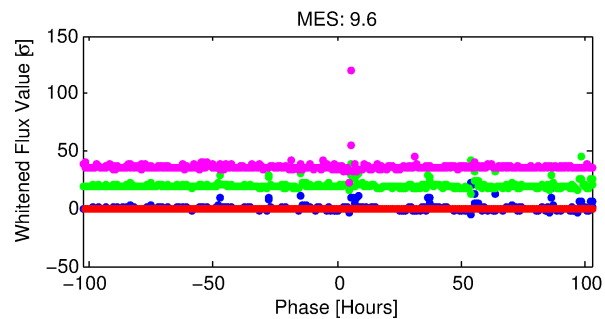
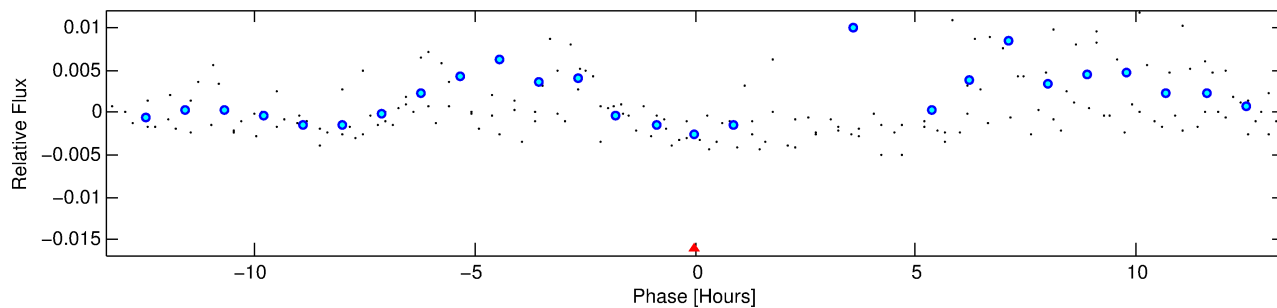
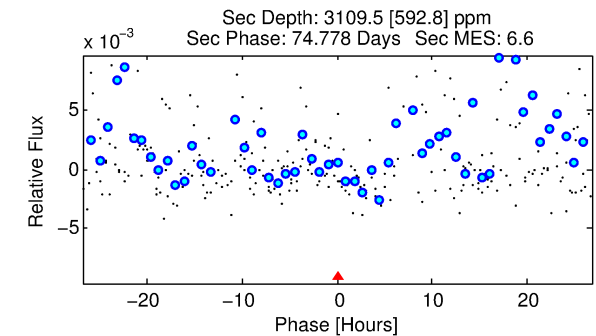
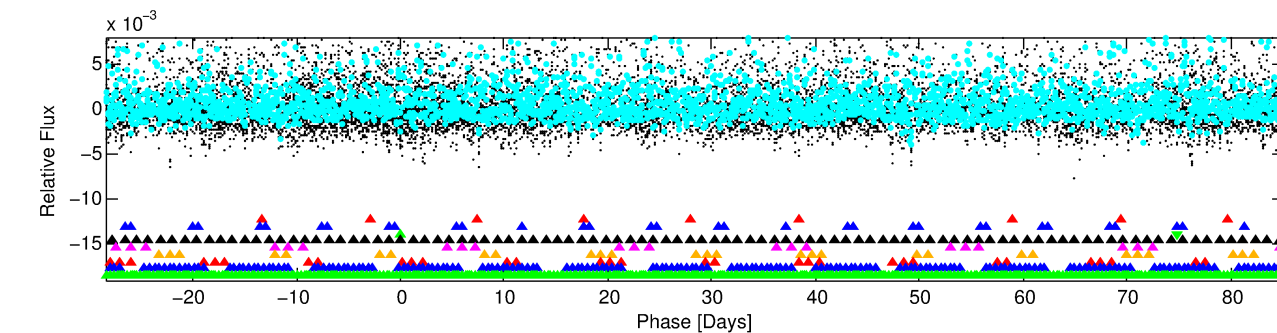
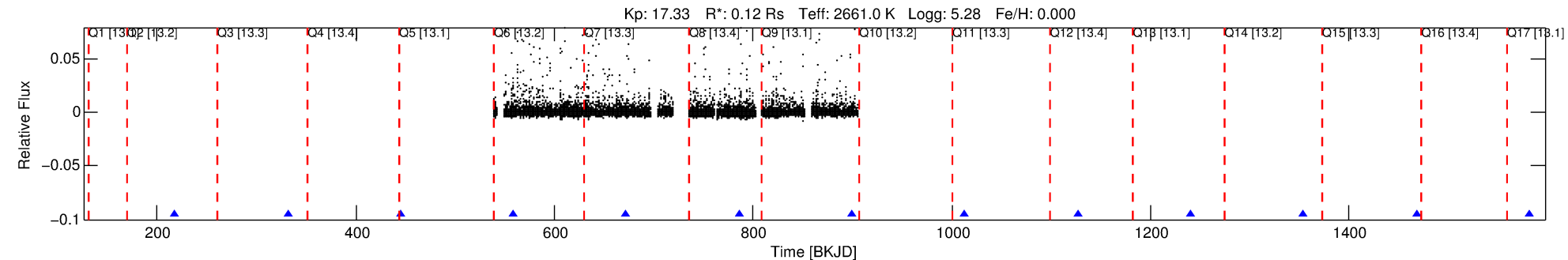
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-03

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 3 of 9 Period: 113.595 d



TPS TCE Results:

Period = 113.59458 d
Epoch = 218.0914 BKJD

DV fit results are unavailable

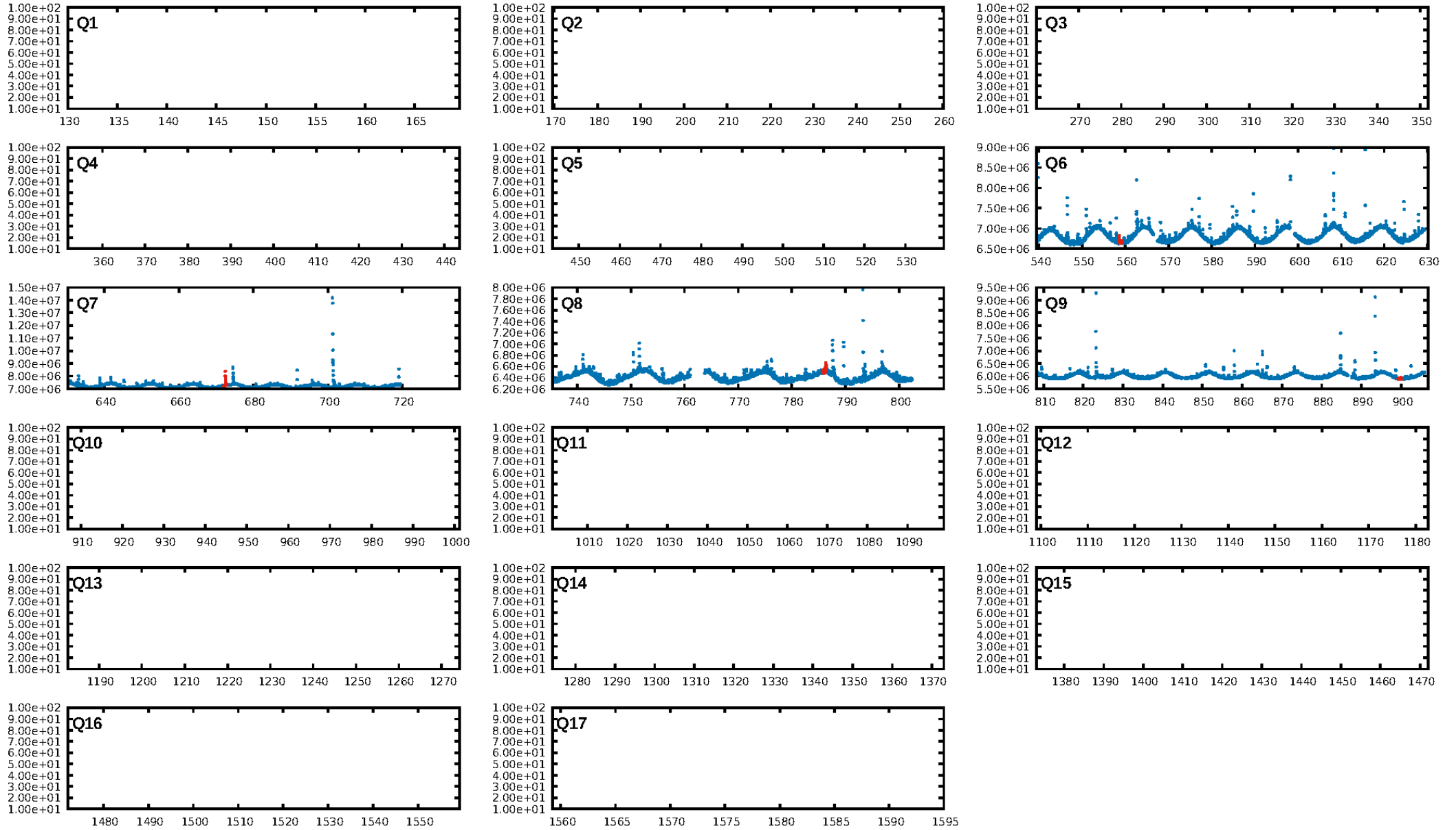
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [120.03σ]
LongPeriod-sig: 100.0% [16.22σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -23.29
Centroid-sig: 68.7%
Centroid-so: 0.892 arcsec [1.13σ]
OotOffset-rm: 0.202 arcsec [1.51σ]
KicOffset-rm: 1.173 arcsec [6.39σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.75 [3/4]

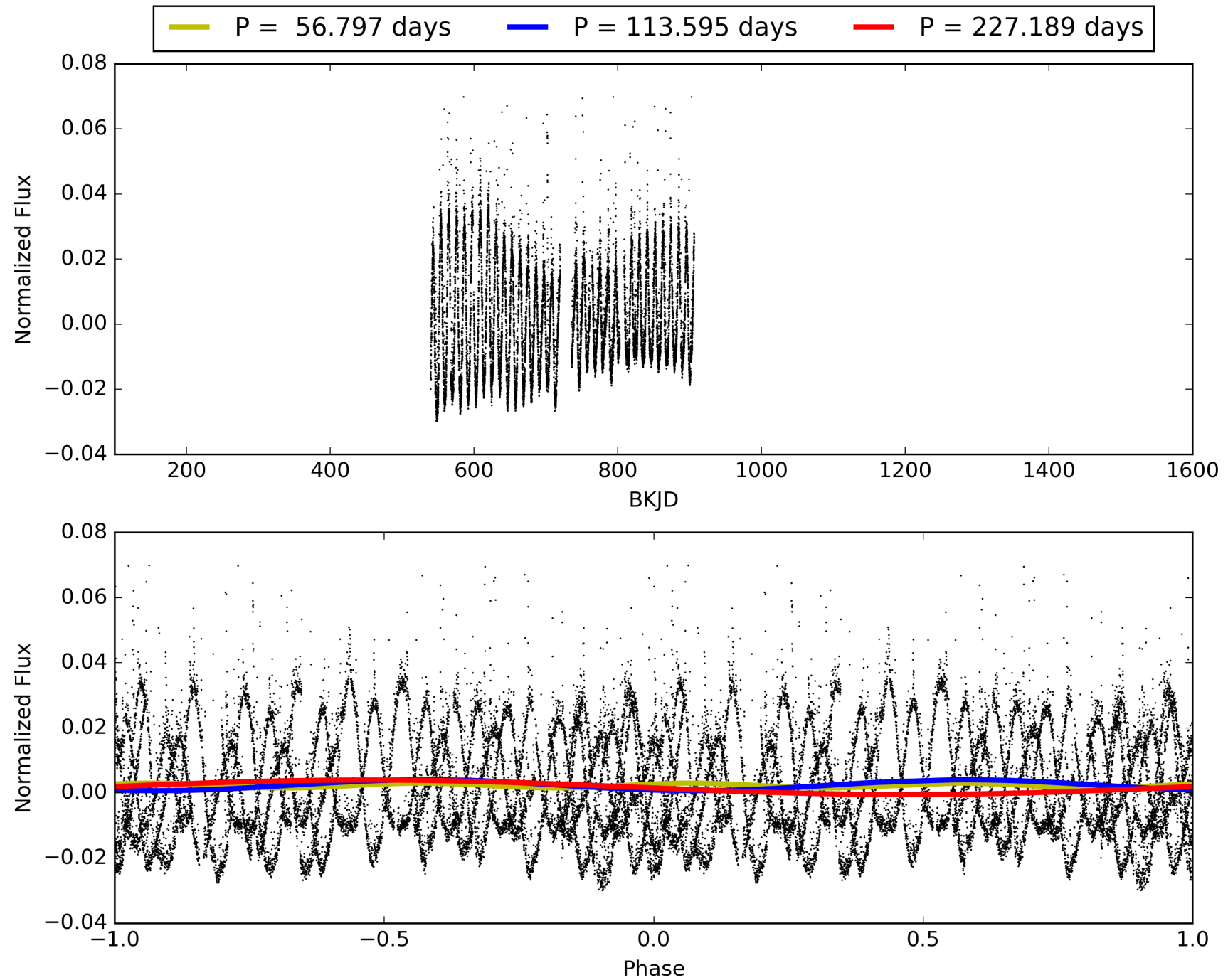
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:27 Z

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

TCE 008493421-03, PDC Light Curves

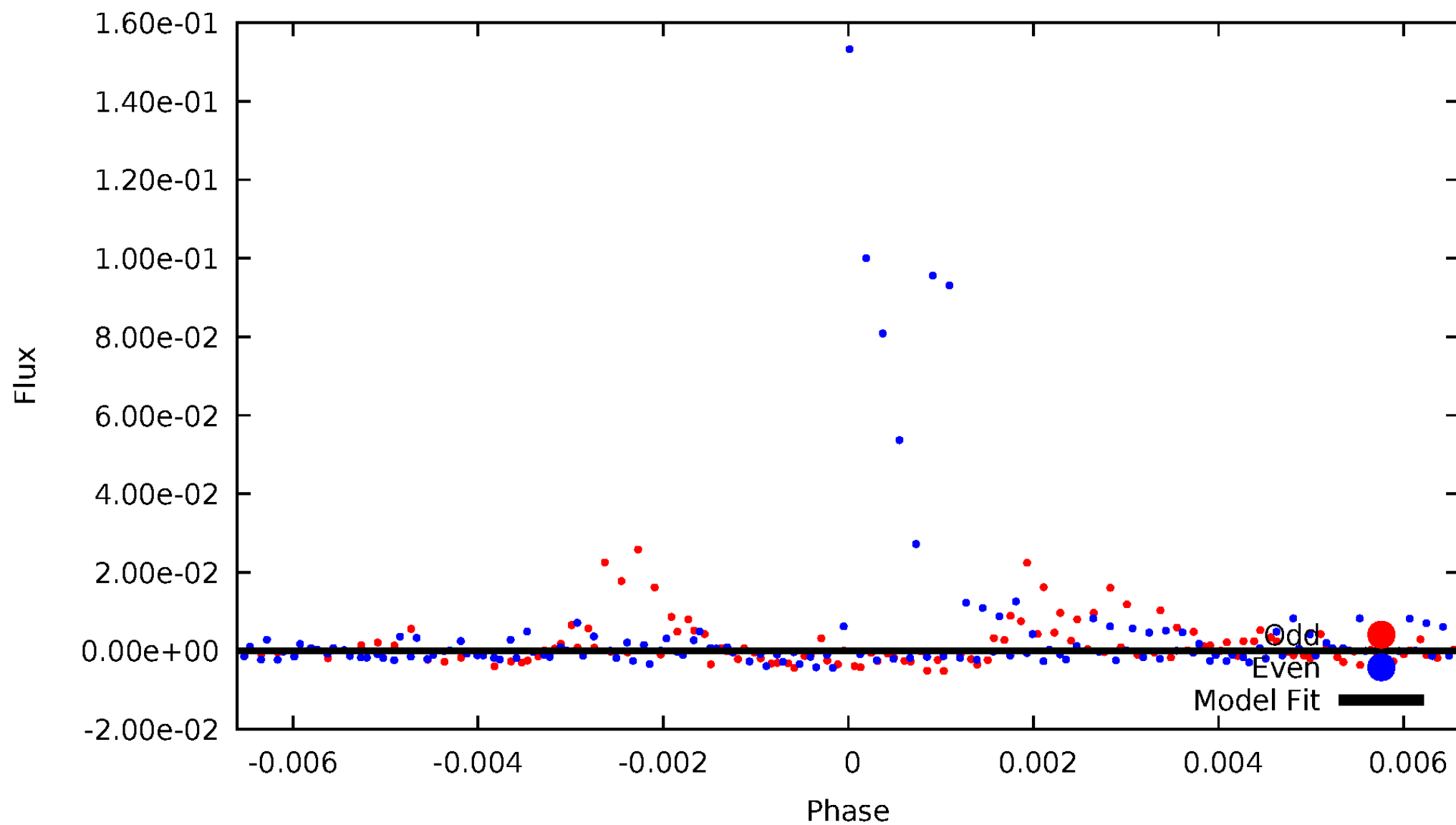


TCE 008493421-03



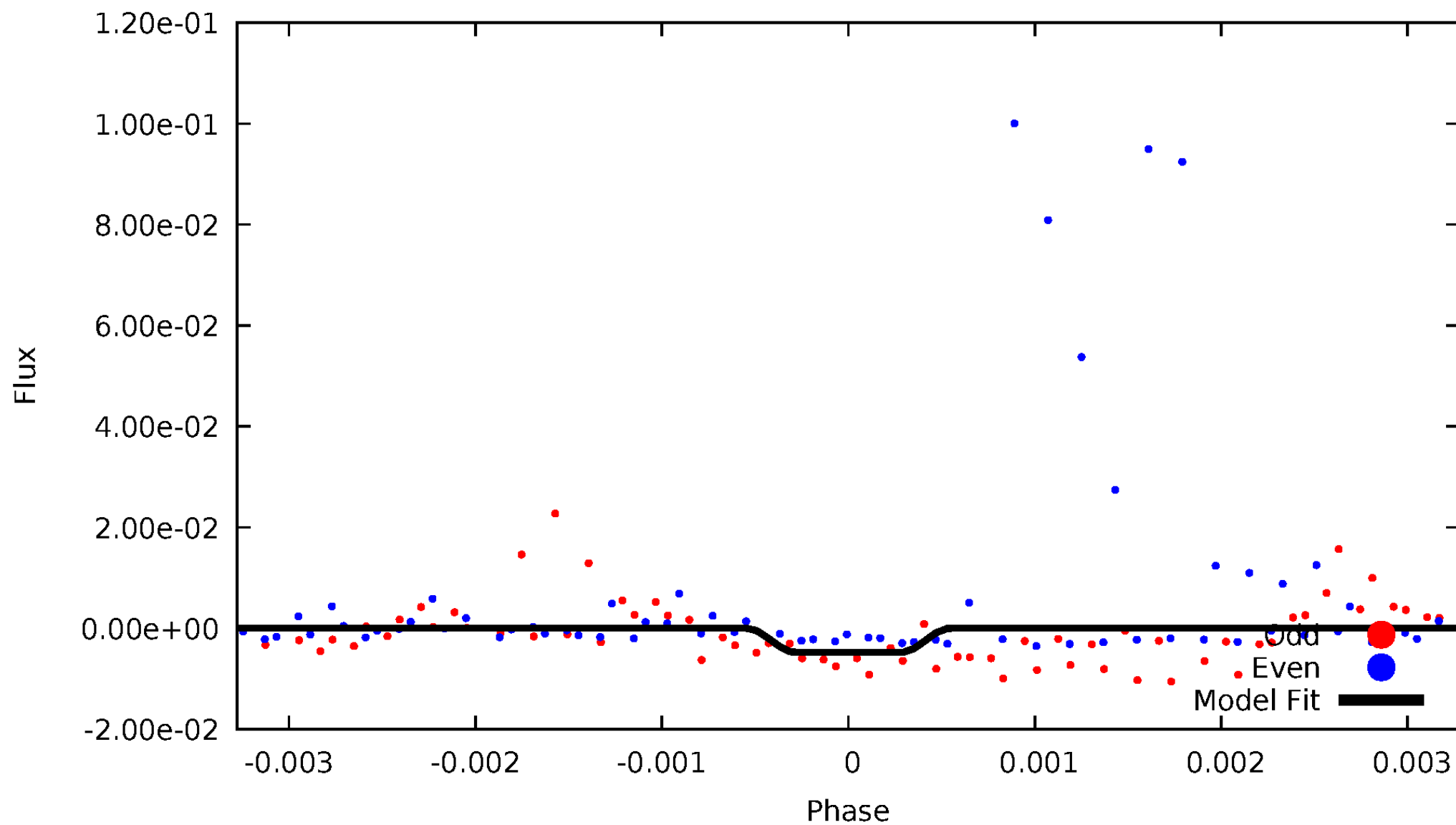
DV Odd/Even

TCE 008493421-03



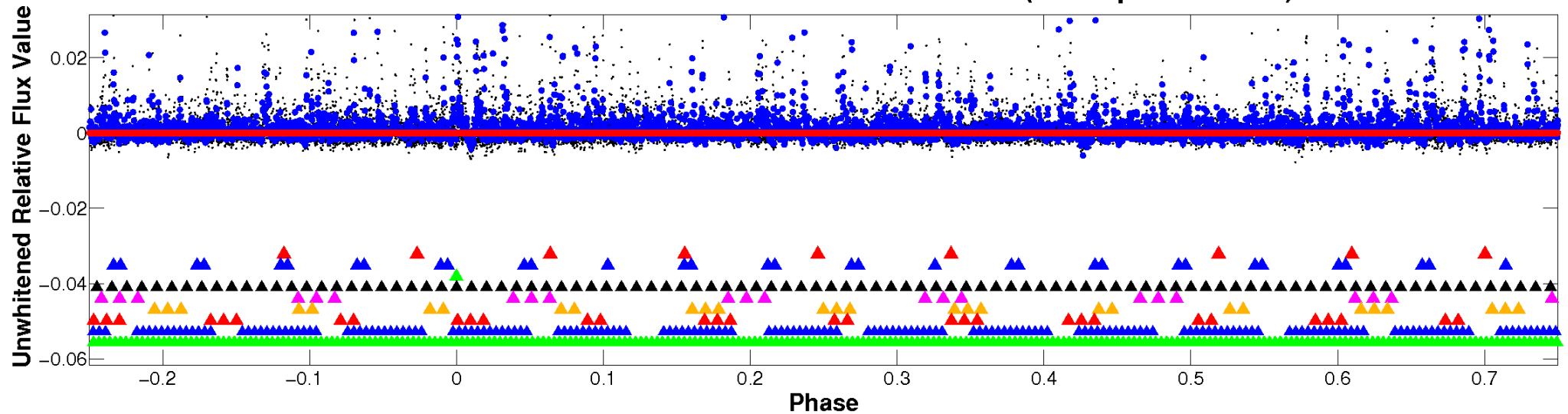
ALT Odd/Even

TCE 008493421-03

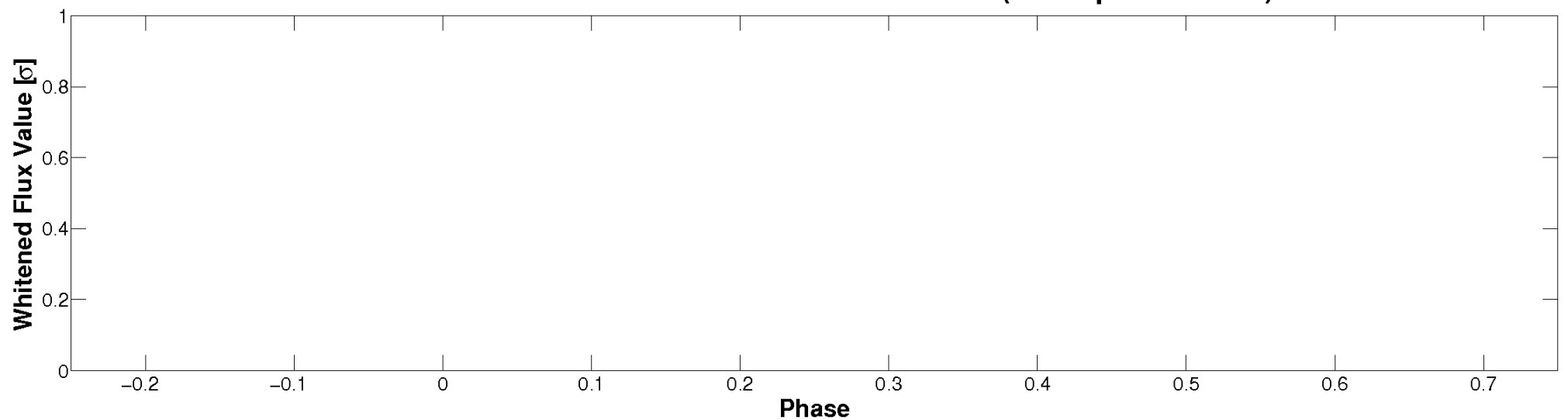


Non-Whitened Vs. Whitened Light Curve

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

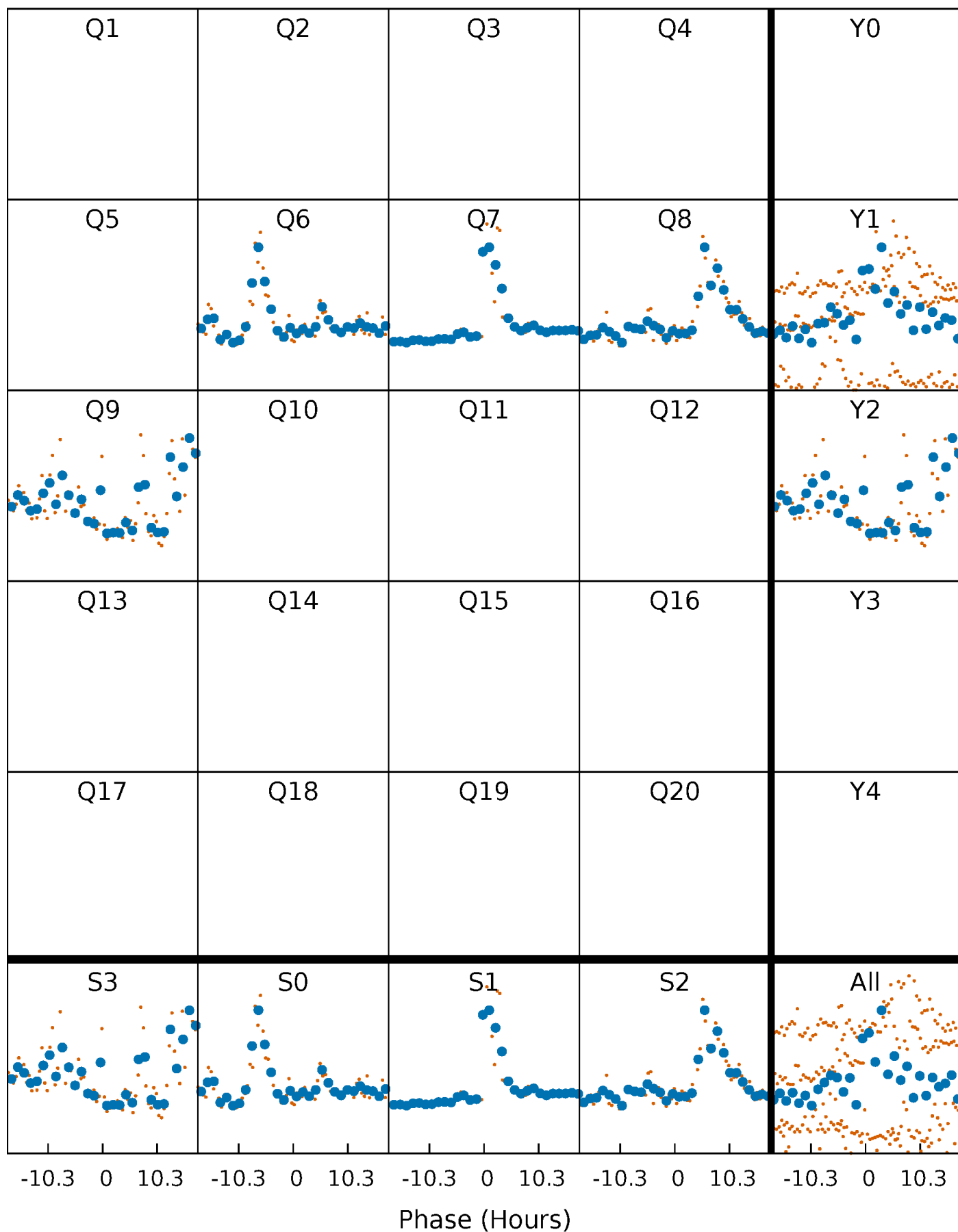


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



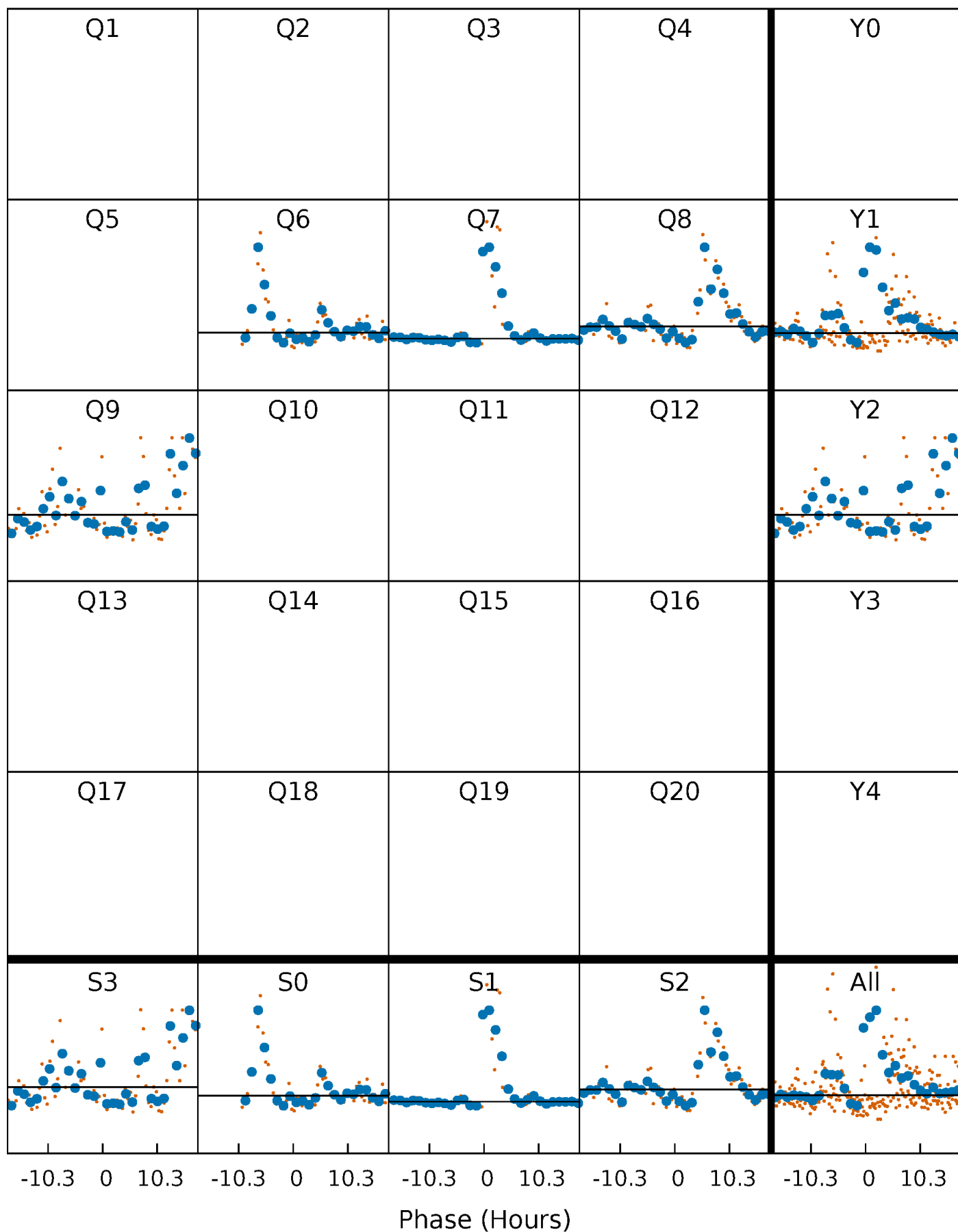
PDC Quarter-Phased Transit Curves

TCE 008493421-03 P=113.594576 Days $T_0=218.091393$ (BKJD)



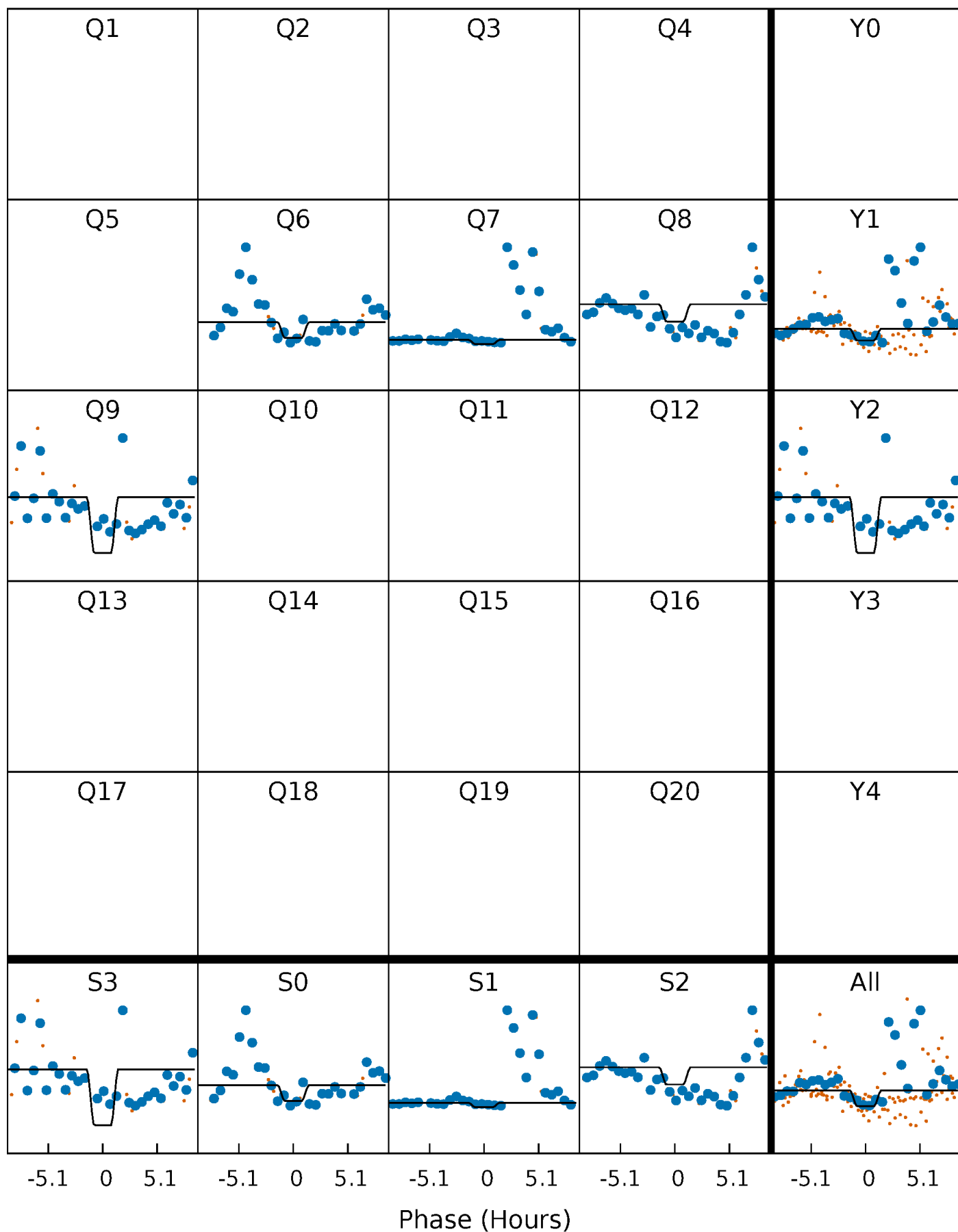
DV Quarter-Phased Transit Curves

TCE 008493421-03 $P=113.594576$ Days $T_0=218.091393$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

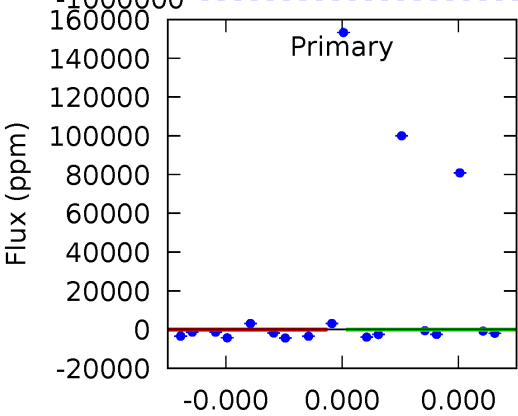
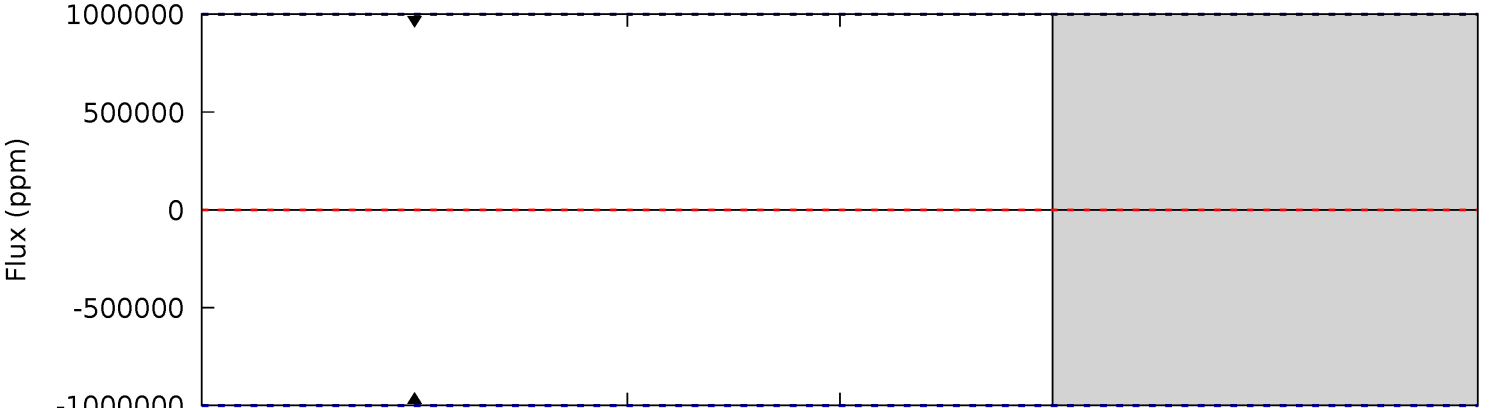
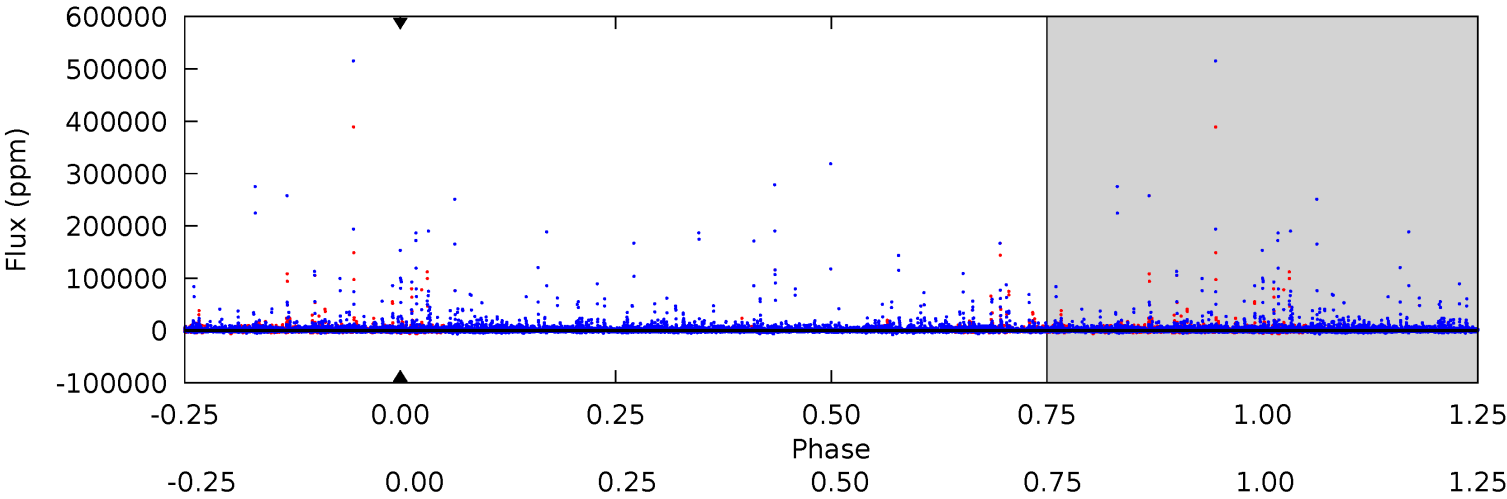
TCE 008493421-03 $P=113.594576$ Days $T_0=218.012000$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-03, P = 113.594576 Days, E = 218.091393 Days

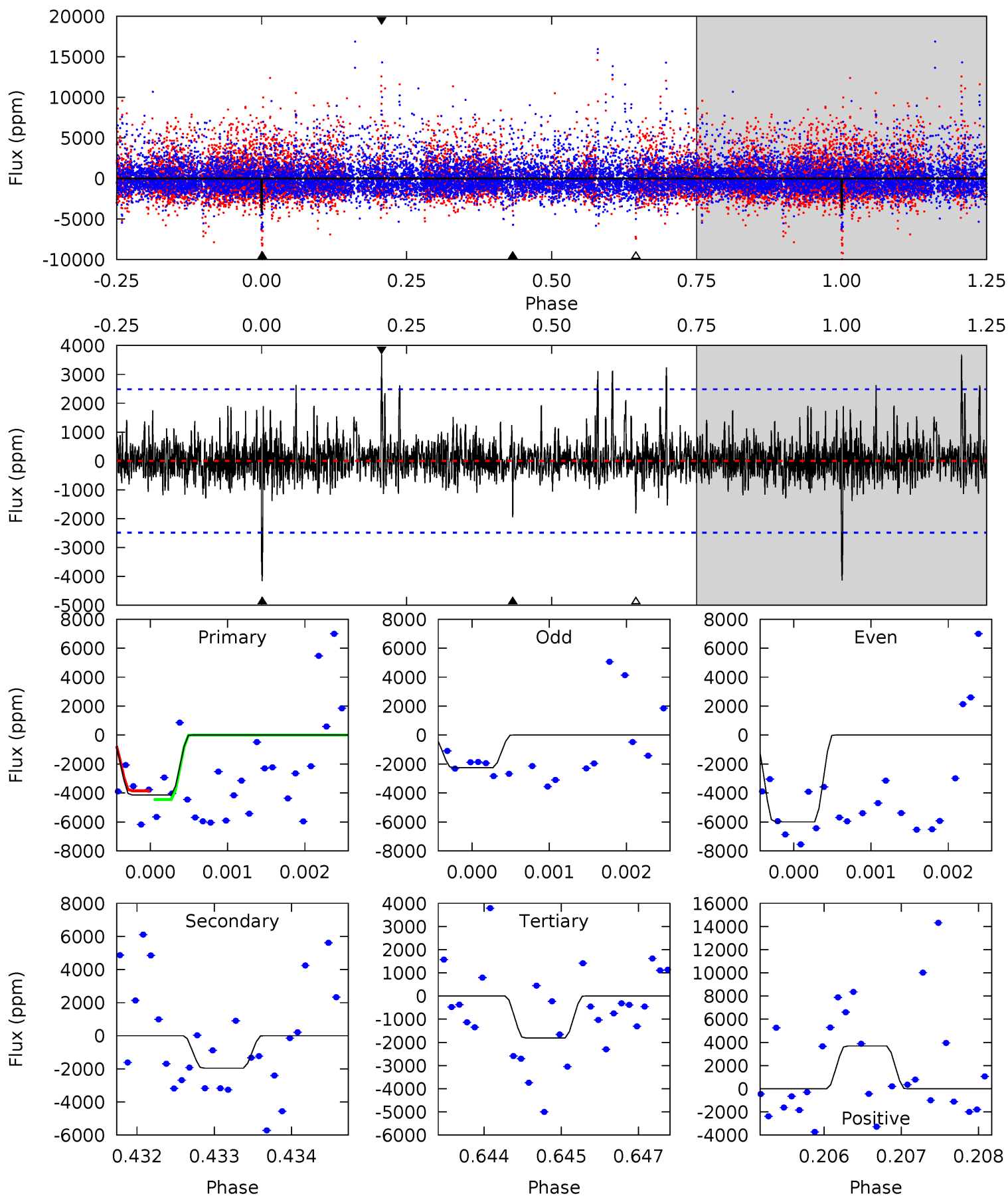
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008493421-03, P = 113.594576 Days, E = 218.012000 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.07	4.29	3.97	8.08	5.44	3.27	1.19	5.10	0.98	0.31	-3.80	3.80	1.18	0.47	0.66



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$1.21^{+1.31}_{-0.85}$	125^{+12}_{-12}	-1984^{+6502}_{-2219}	$-15014.850^{+3830962.789}_{-2655553.678}$
Alt.	-1956 ± 456	$1.47^{+1.44}_{-1.00}$	125^{+14}_{-12}	2185^{+670}_{-286}	$24952^{+206957}_{-17916}$

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

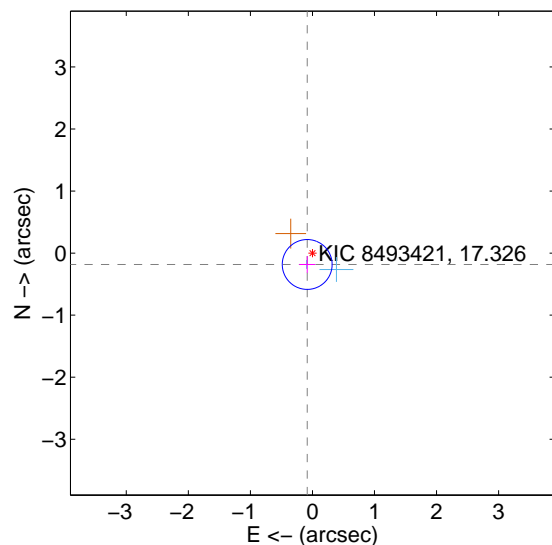
Supplemental centroid analysis for 008493421-03. Kepler magnitude: 17.33. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

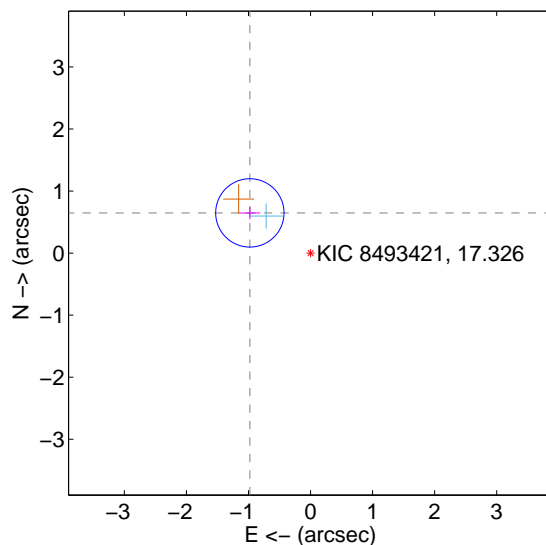
The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.202 ± 0.134	1.51	0.084 ± 0.130	-0.183 ± 0.135
PRF-fit source offset from KIC position	1.173 ± 0.184	6.39	0.978 ± 0.169	0.648 ± 0.104
photometric centroid source offset	0.89 ± 0.79	1.13	0.36 ± 0.84	0.81 ± 0.77

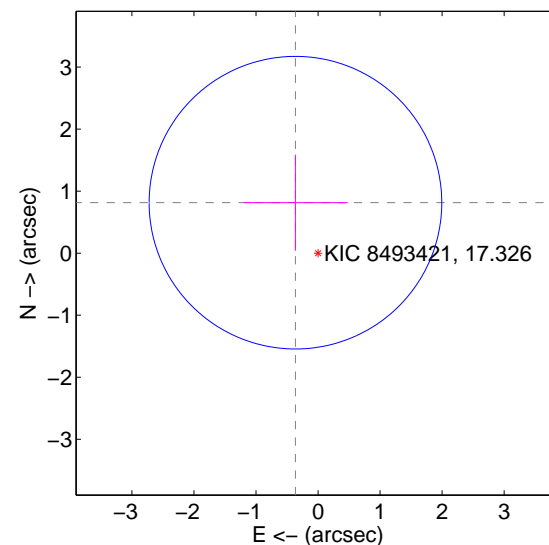
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

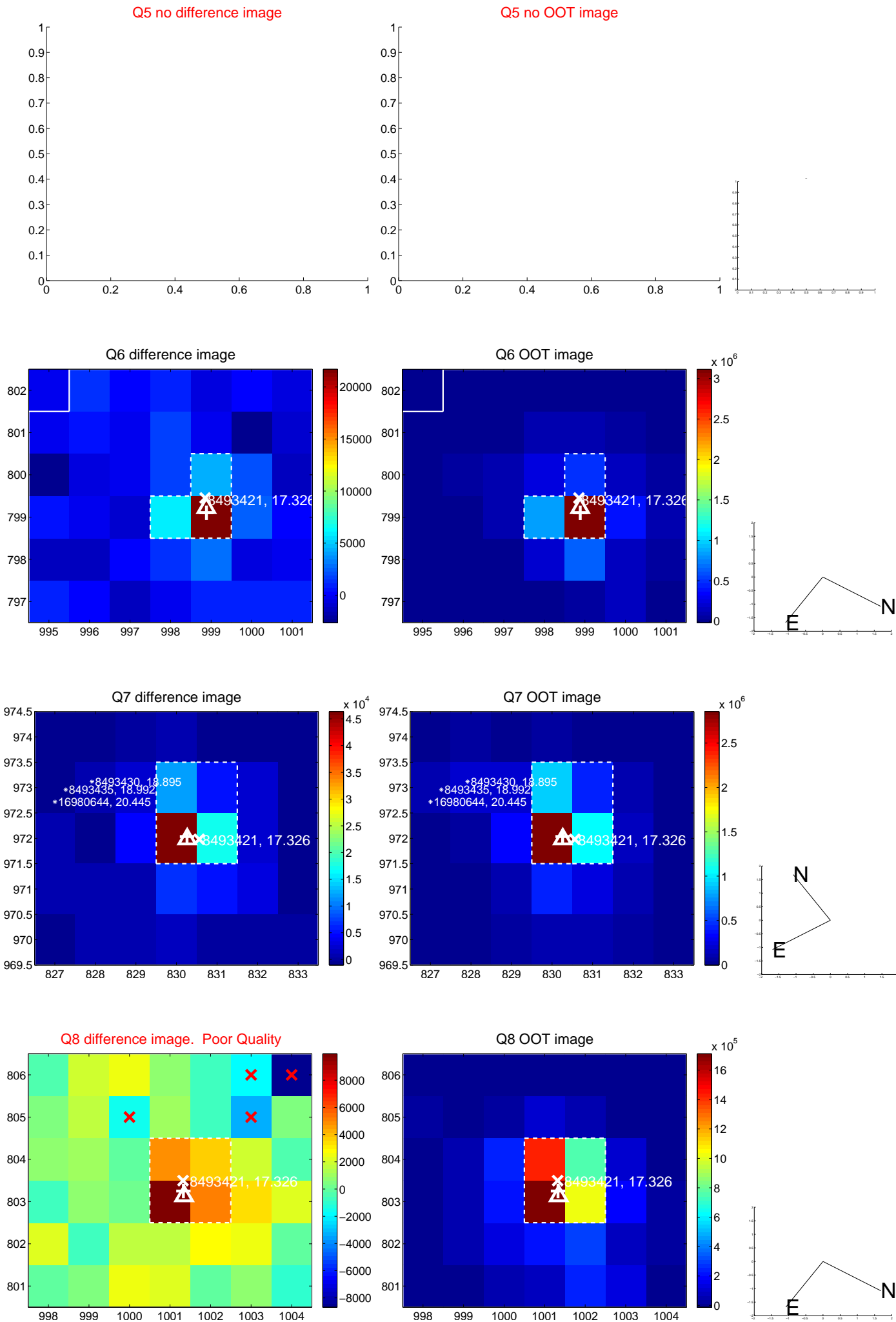


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

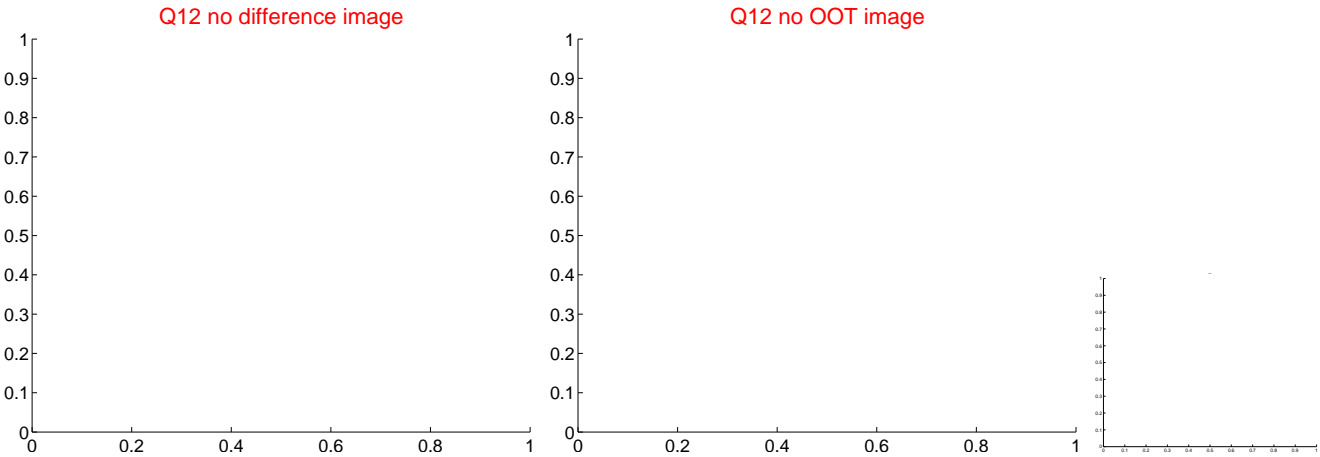
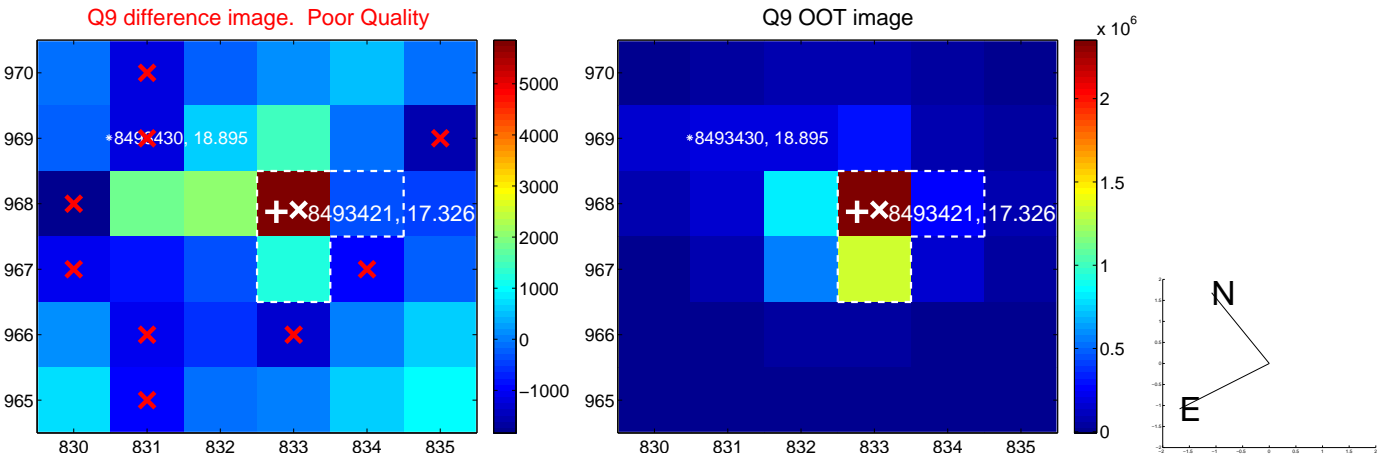
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



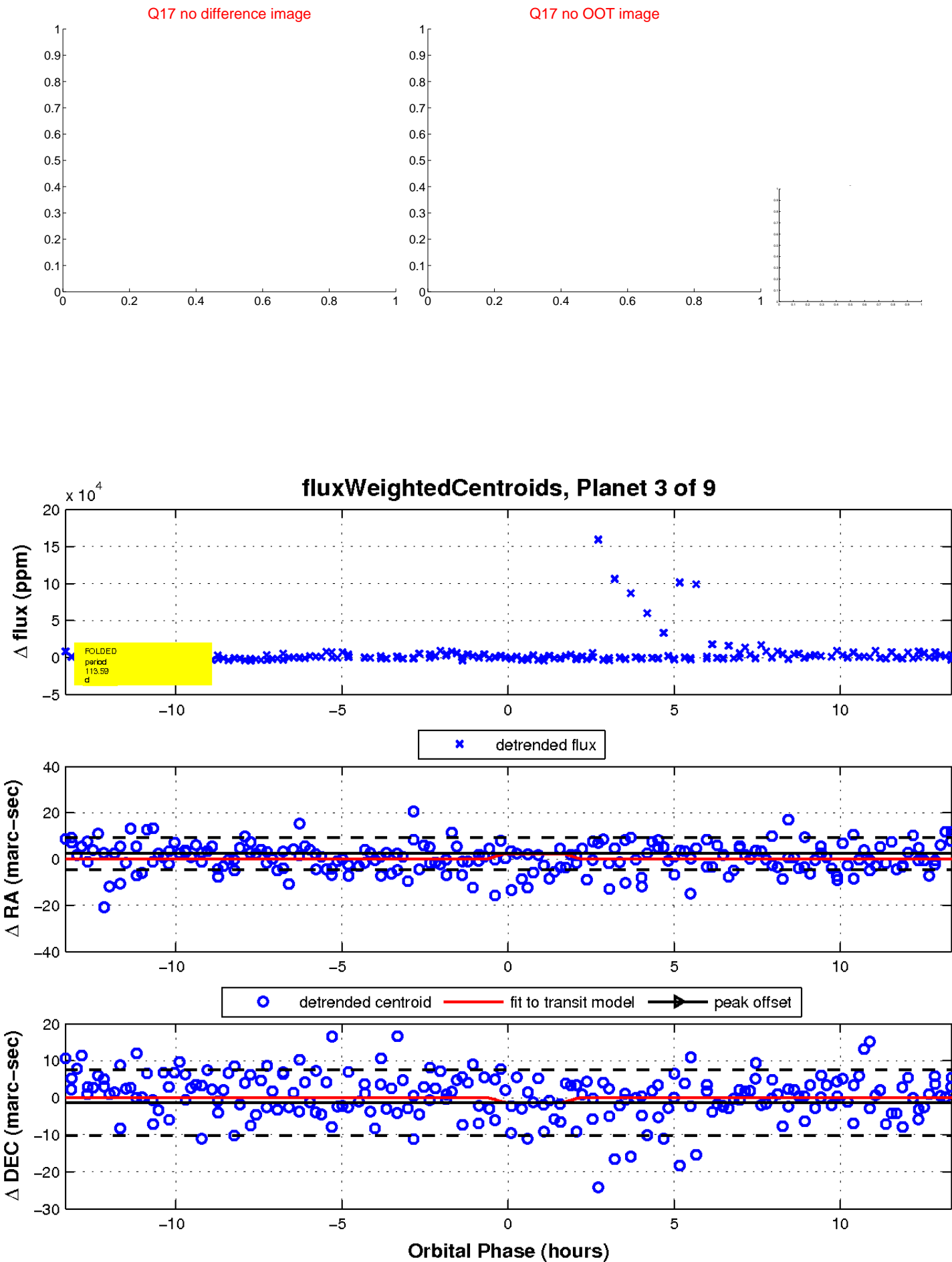
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

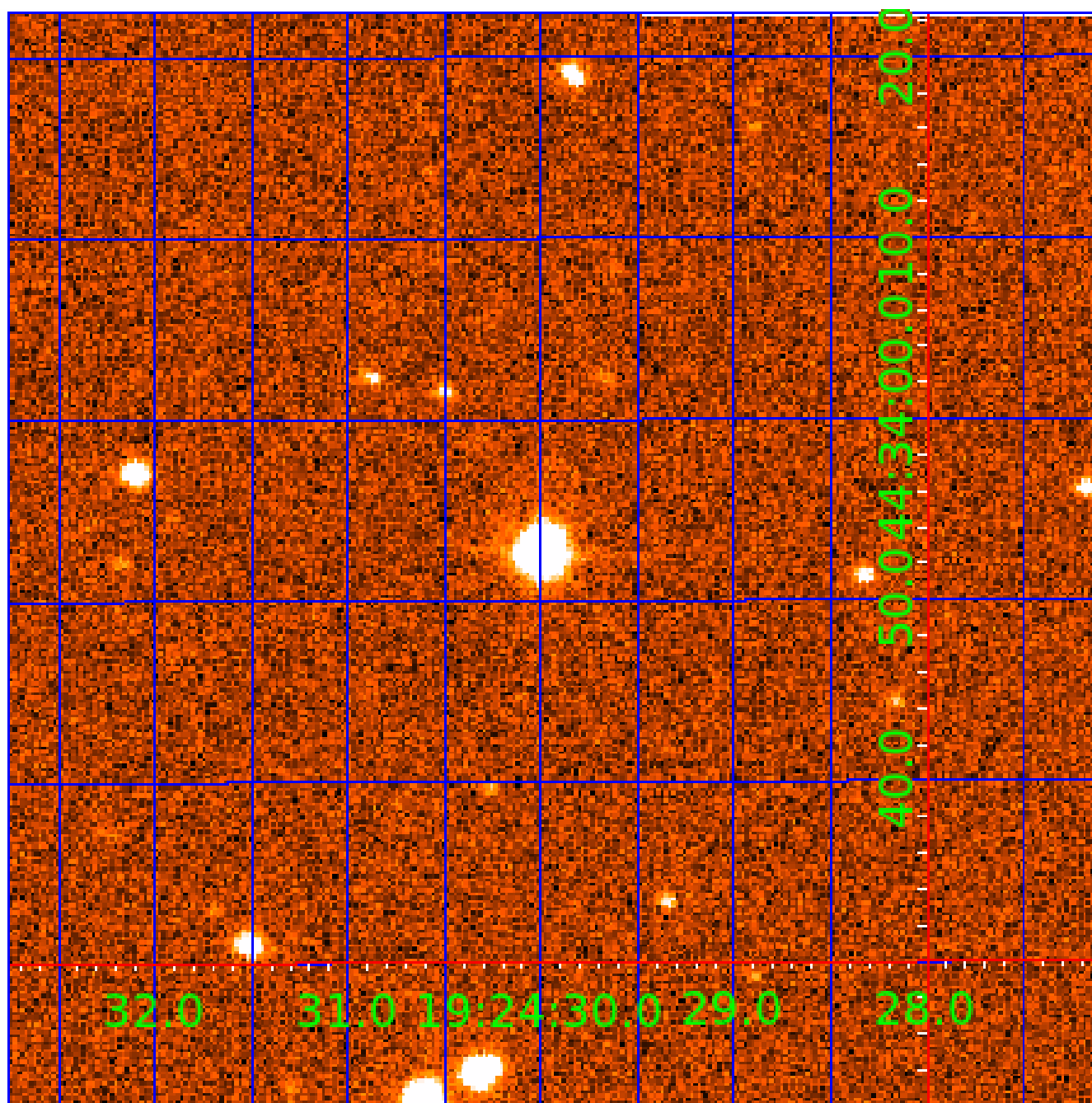


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

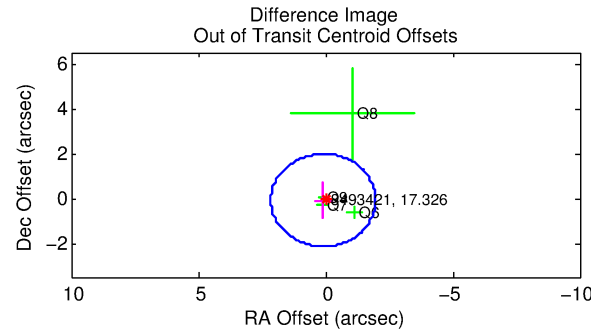
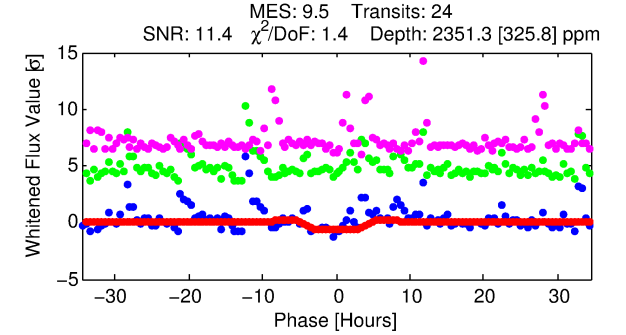
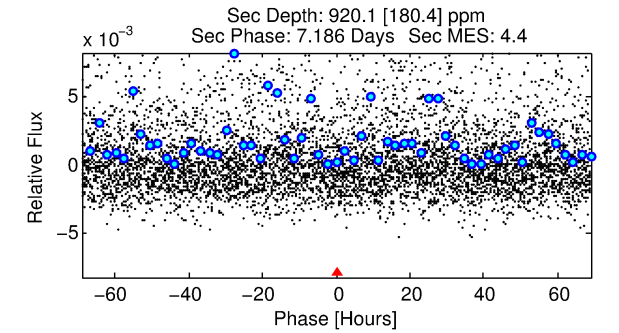
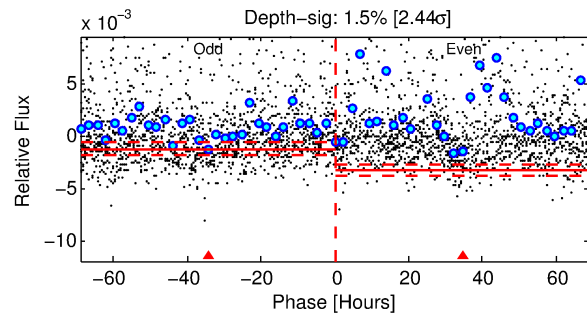
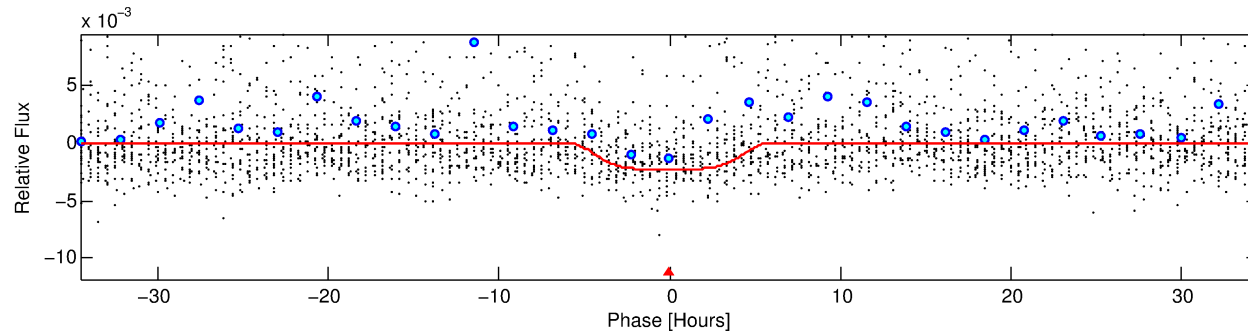
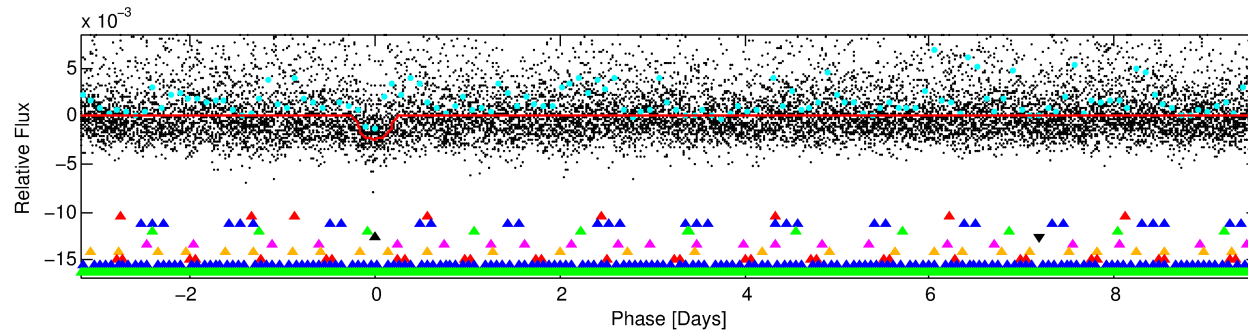
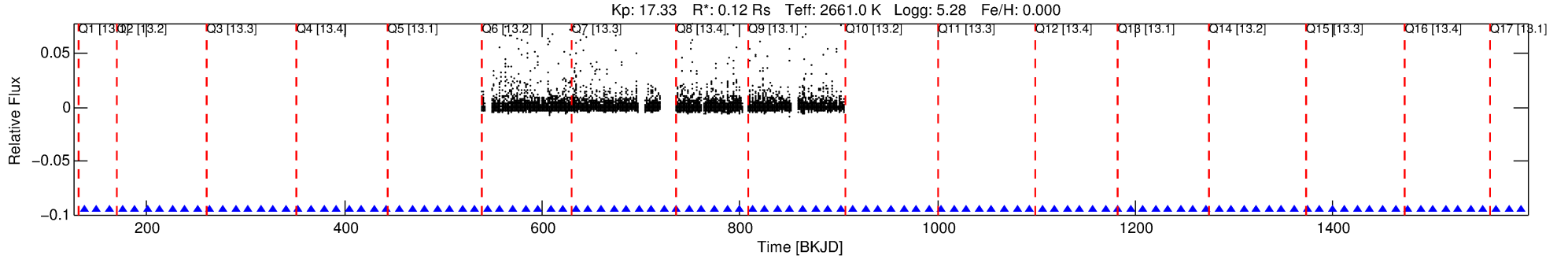
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-04

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 4 of 9 Period: 12.750 d



DV Fit Results:

Period = 12.75042 [0.00152] d
Epoch = 136.9596 [0.0739] BKJD
Rp/R* = 0.0537 [0.0056]
a/R* = 4.61 [1.05]
b = 0.91 [0.05]
Seff = 0.26 [0.00]
Teq = 181 [0] K
Rp = 0.68 [0.07] Re
a = 0.0486 [0.0000] AU
Ag = 2591.85 [741.01] [3.50 σ]
Teffp = 2001 [143] K [12.72 σ]

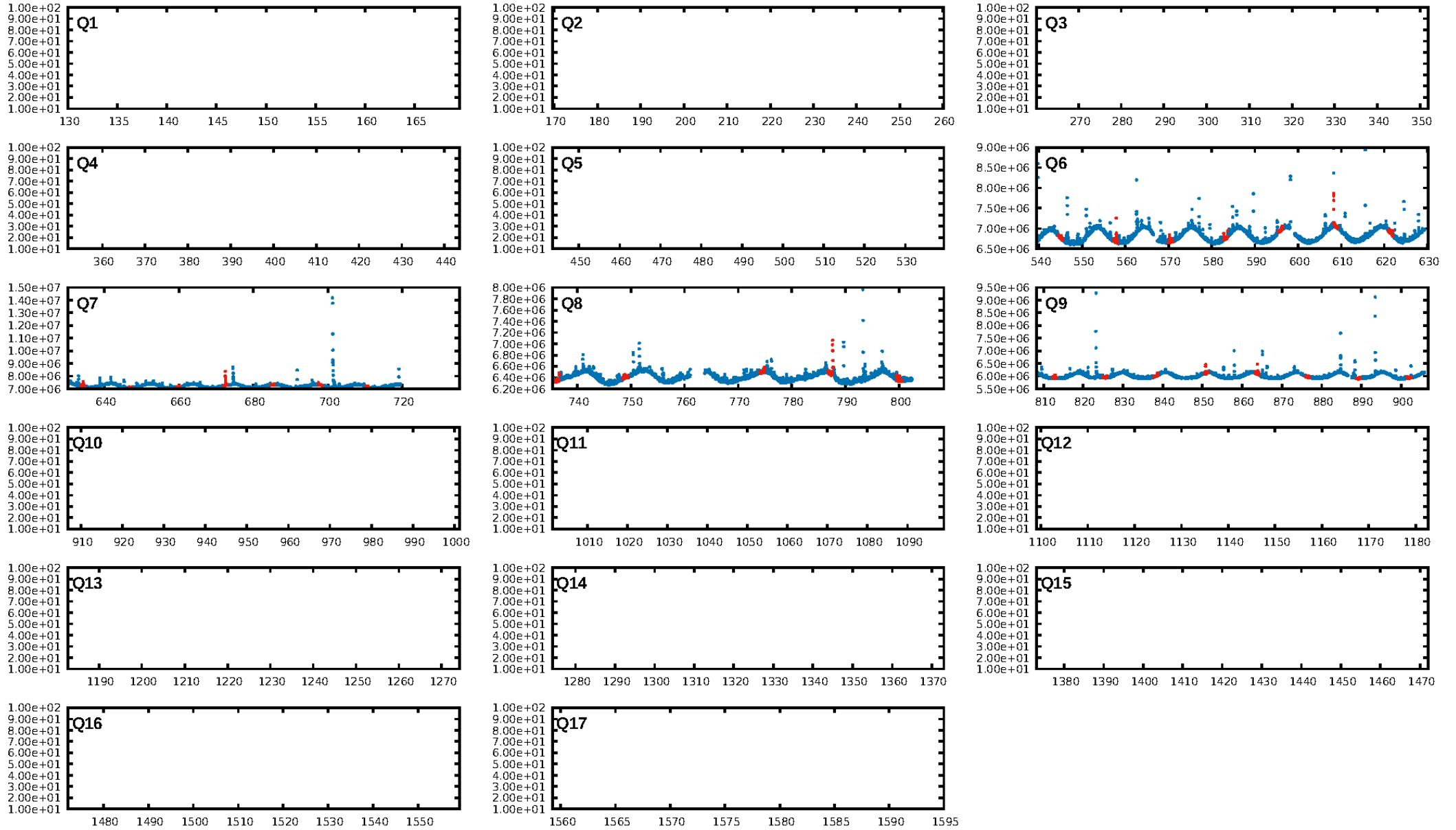
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.24 σ]
LongPeriod-sig: 100.0% [61.74 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 2.736
Centroid-sig: 44.5%
Centroid-so: 0.724 arcsec [1.94 σ]
OotOffset-rm: 0.126 arcsec [0.18 σ]
KicOffset-rm: 1.134 arcsec [1.90 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

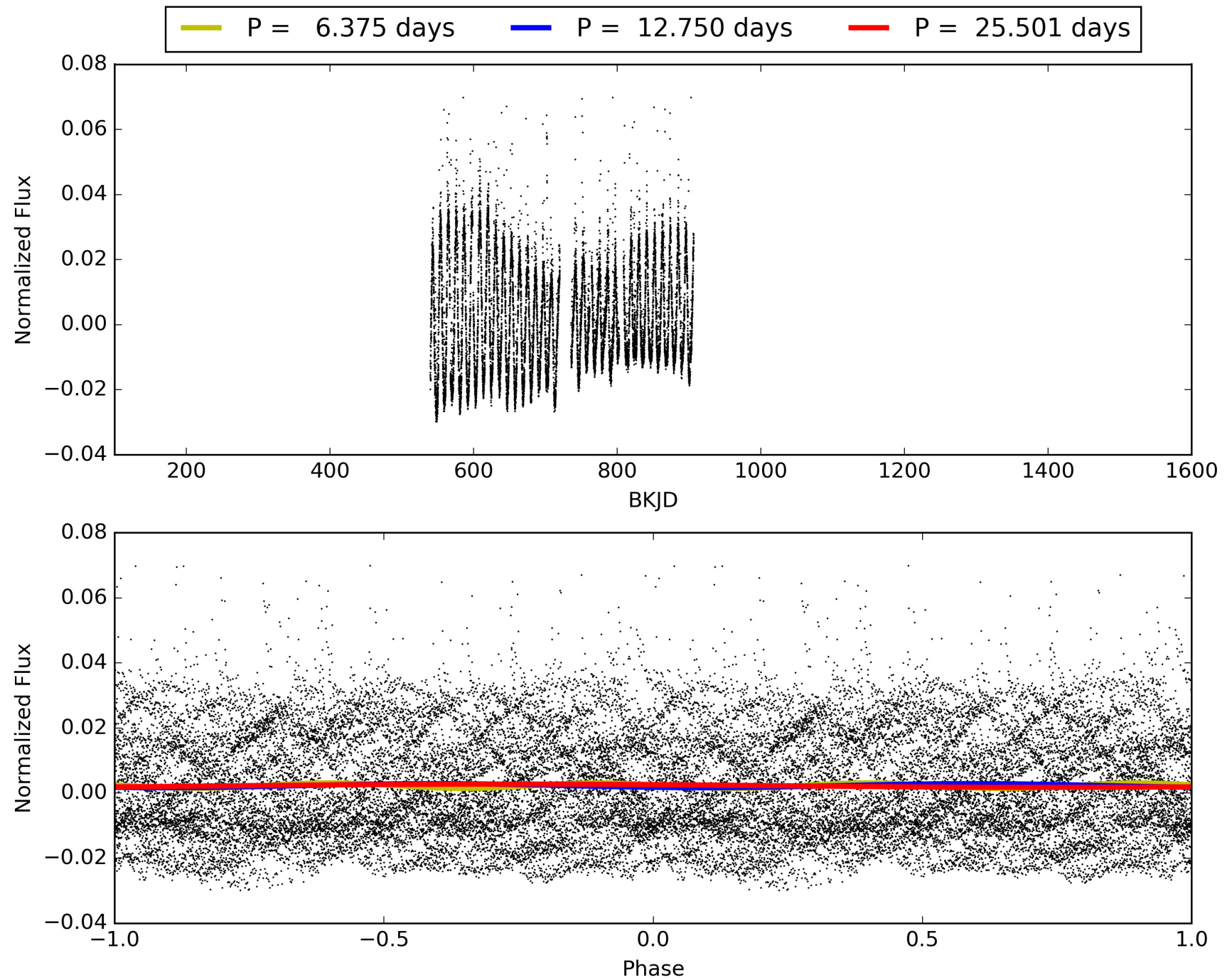
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:31 Z

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

TCE 008493421-04, PDC Light Curves

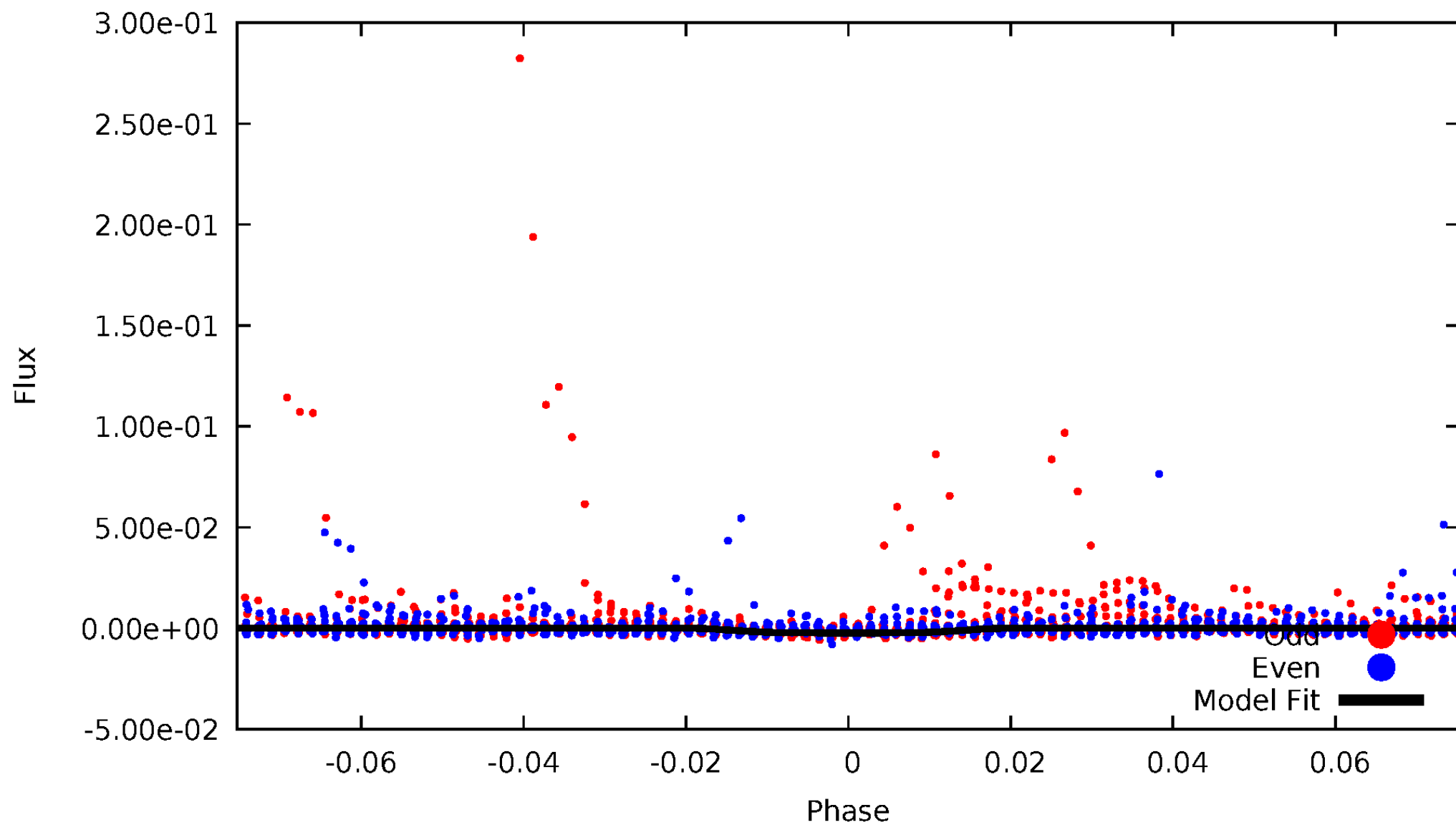


TCE 008493421-04



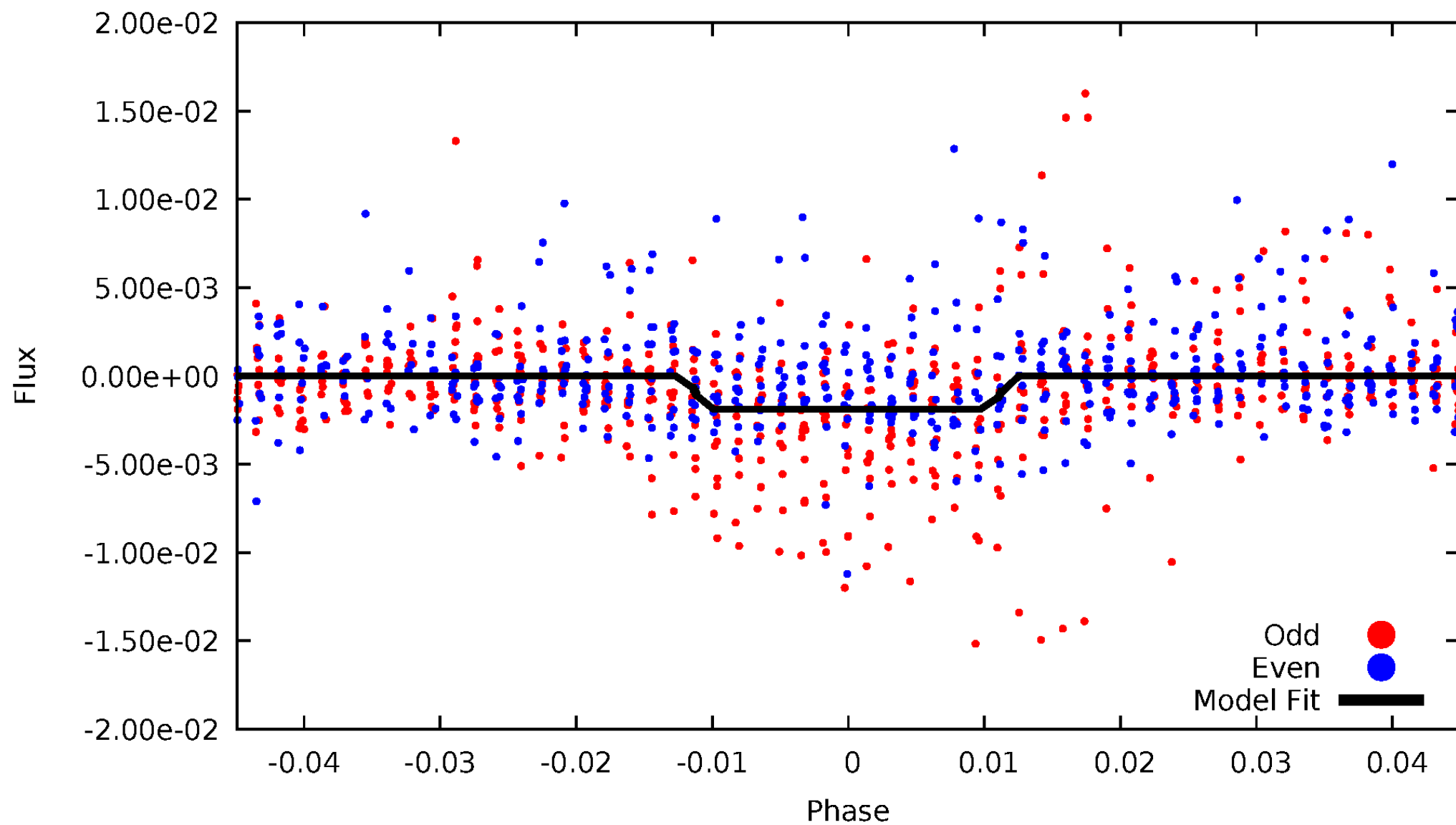
DV Odd/Even

TCE 008493421-04



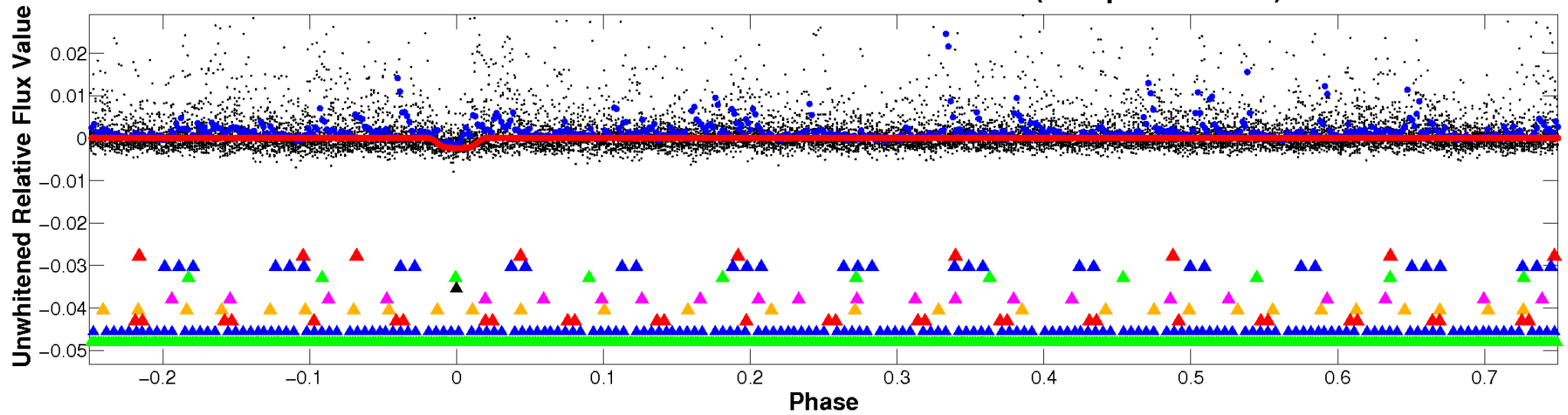
ALT Odd/Even

TCE 008493421-04

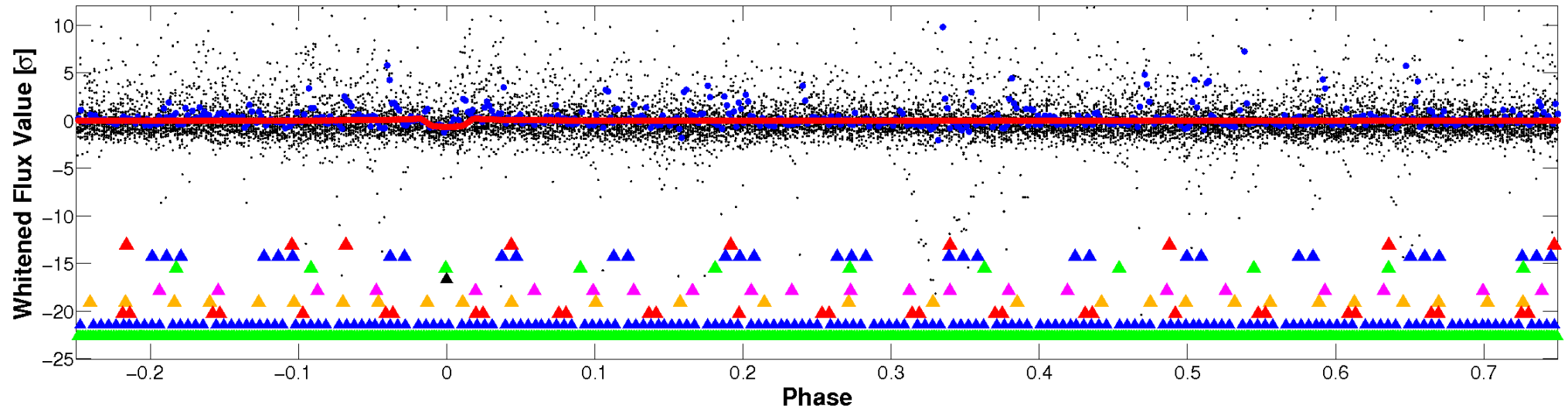


Non-Whitened Vs. Whitened Light Curve

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

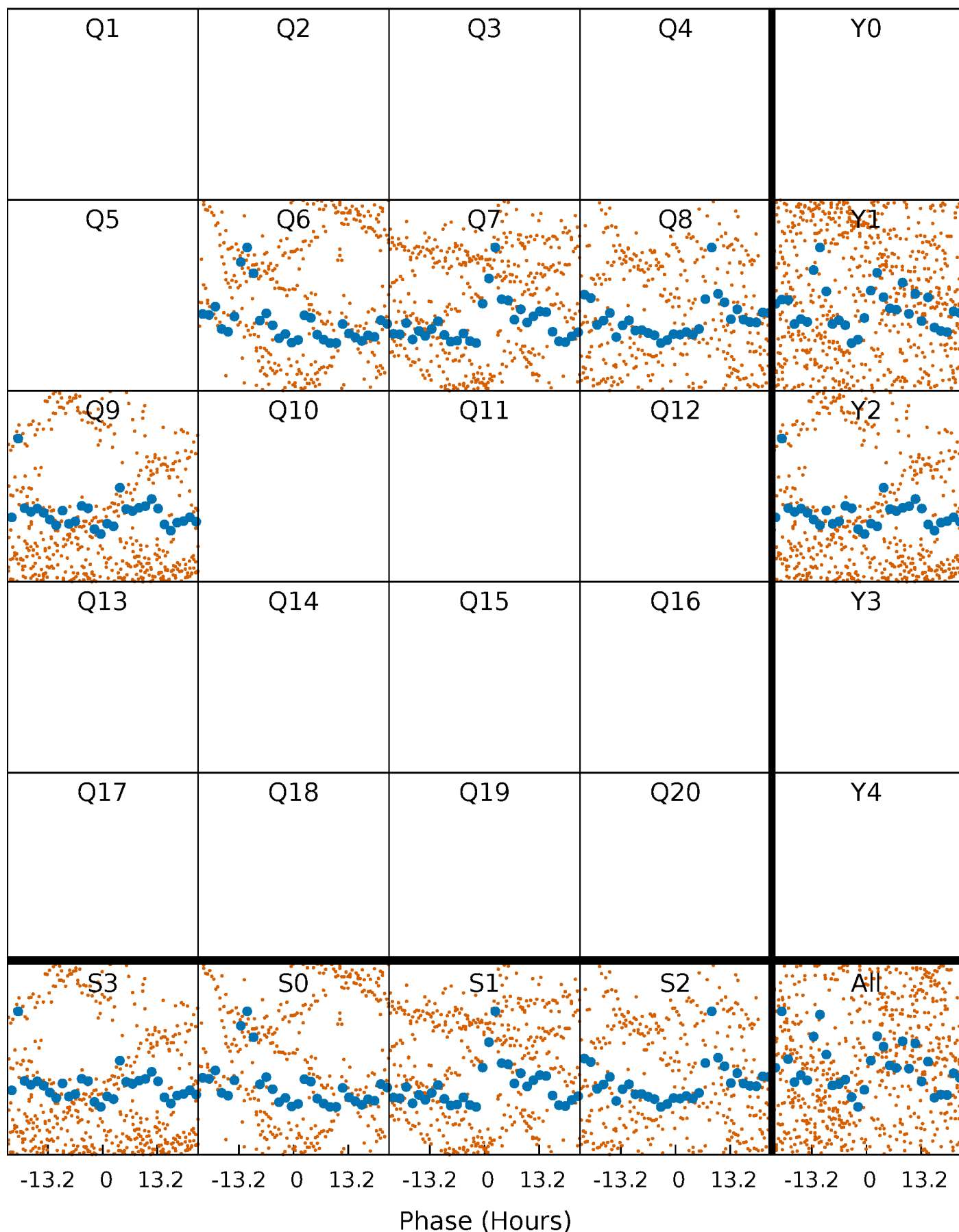


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



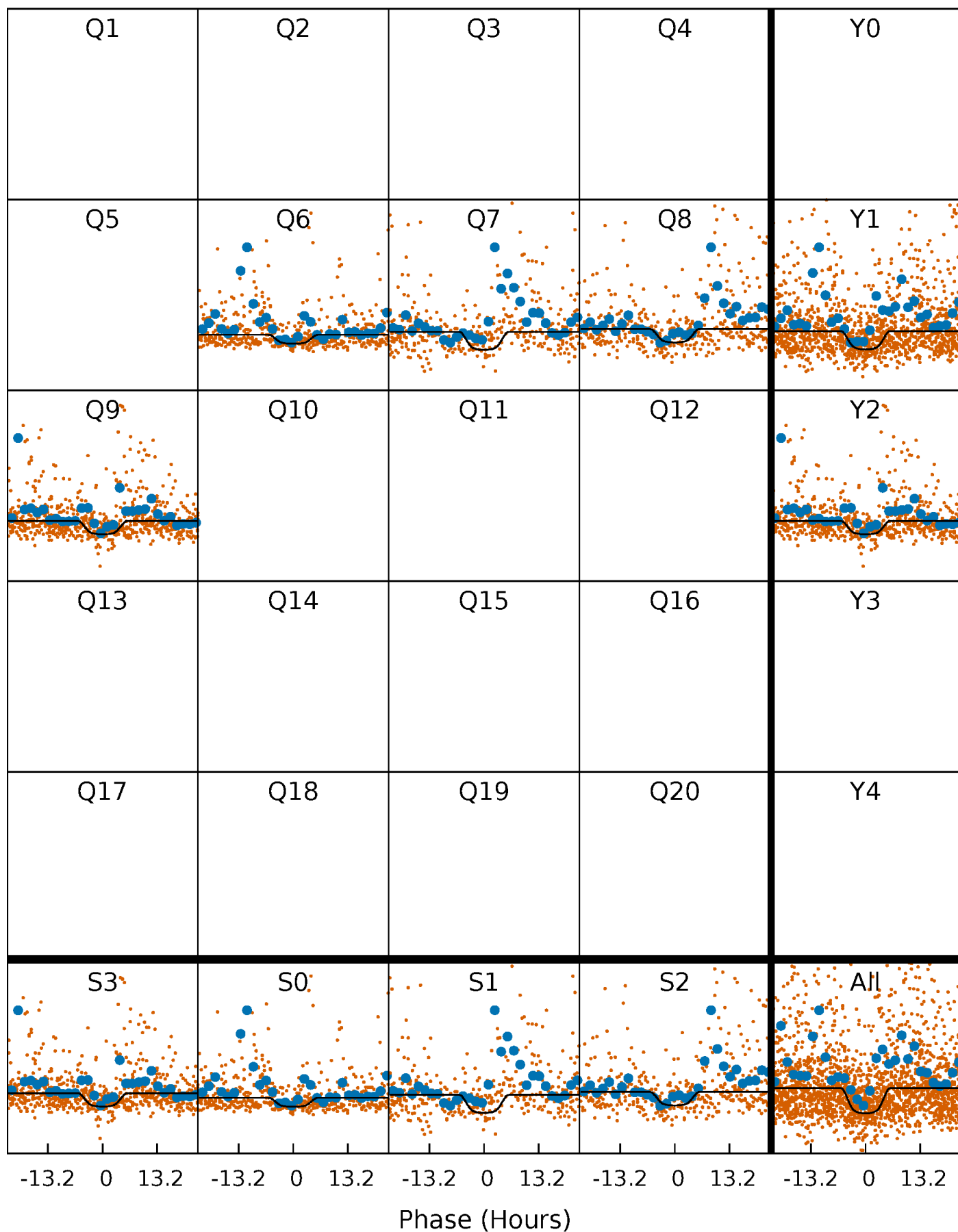
PDC Quarter-Phased Transit Curves

TCE 008493421-04 P= 12.750422 Days $T_0=136.959641$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008493421-04 P= 12.750422 Days $T_0=136.959641$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

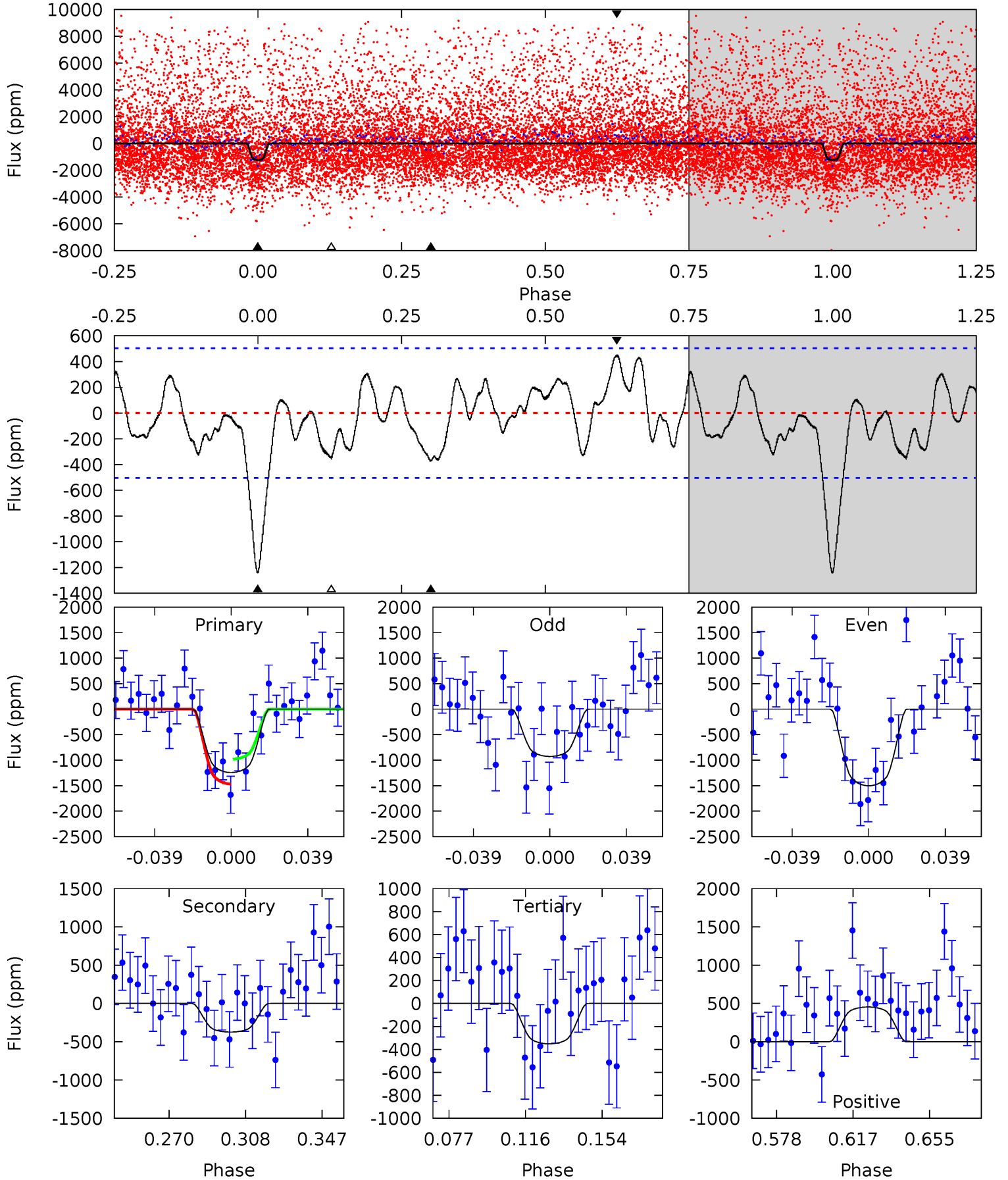
TCE 008493421-04 P= 12.750466 Days $T_0=136.932795$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-04, P = 12.750422 Days, E = 136.959641 Days

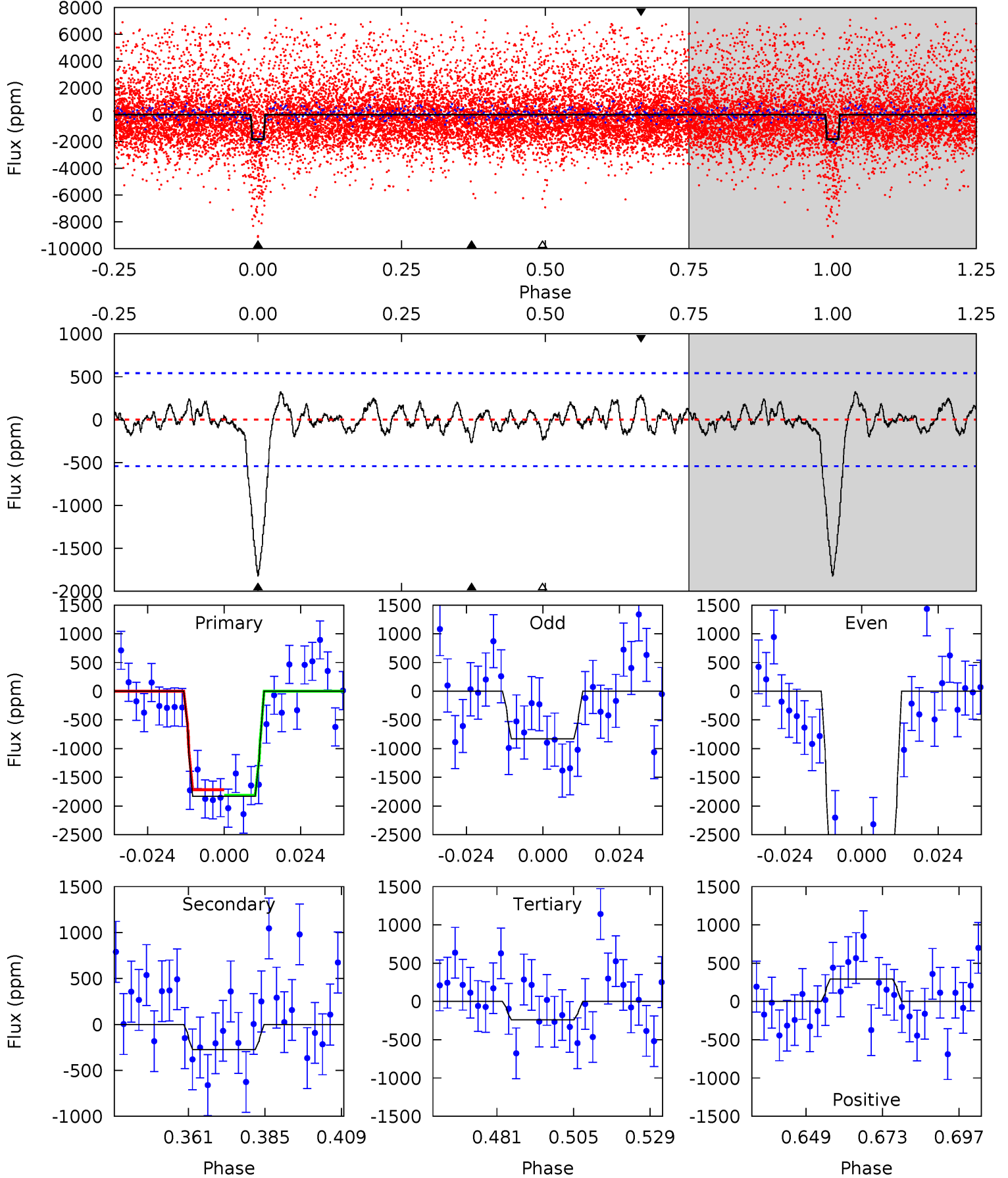
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	3.53	3.32	4.29	4.76	2.07	1.77	8.42	7.45	0.21	-0.76	2.77	-0.62	0.27	2.37



Alt Model-Shift Uniqueness Test

008493421-04, P = 12.750466 Days, E = 136.932795 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	2.45	2.16	2.62	4.86	2.26	0.94	14.2	13.7	0.29	-0.17	10.1	1.59	0.15	0.44



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-374±106	$0.81^{+0.25}_{-0.24}$	261^{+24}_{-25}	2087^{+147}_{-147}	925^{+540}_{-358}
Alt.	-274±112	$0.65^{+0.21}_{-0.20}$	261^{+27}_{-27}	2117^{+181}_{-185}	1040^{+808}_{-478}

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

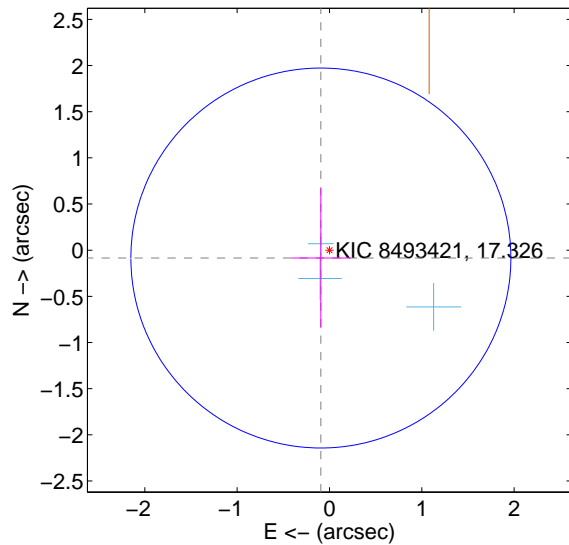
Supplemental centroid analysis for 008493421-04. Kepler magnitude: 17.33. Transit SNR 11.44

There are 3 quarters with good PRF difference image offsets

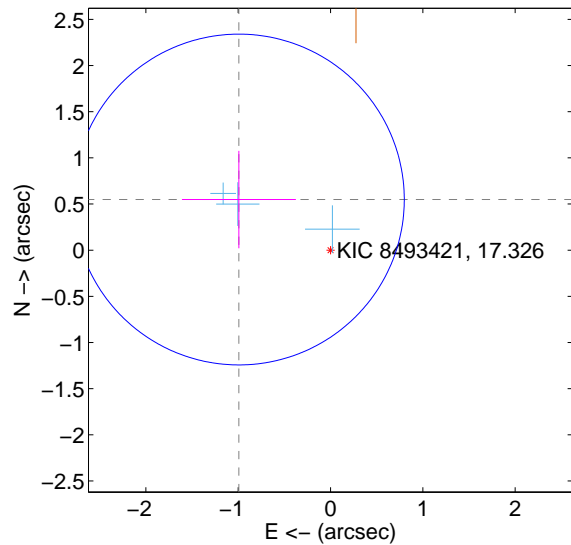
The direct PRF centroid is offset from the target star catalog position by about 1.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.126 ± 0.686	0.18	0.093 ± 0.322	-0.085 ± 0.756
PRF-fit source offset from KIC position	1.134 ± 0.597	1.90	0.993 ± 0.617	0.549 ± 0.528
photometric centroid source offset	0.72 ± 0.37	1.94	0.66 ± 0.38	0.30 ± 0.36

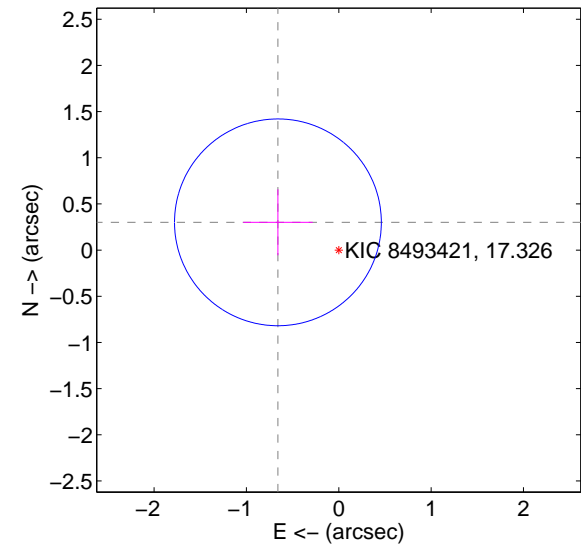
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

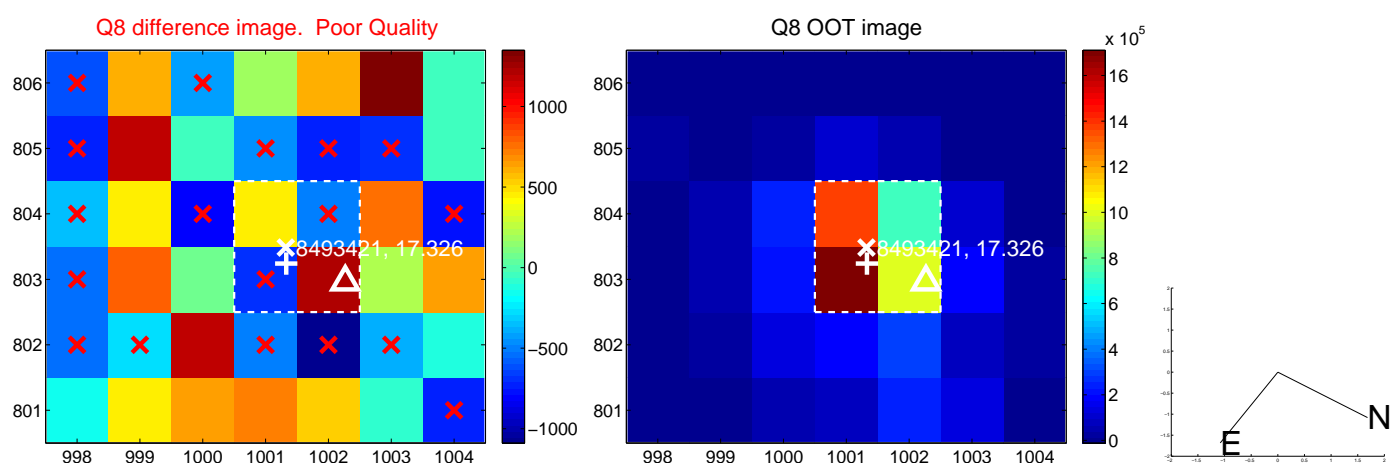
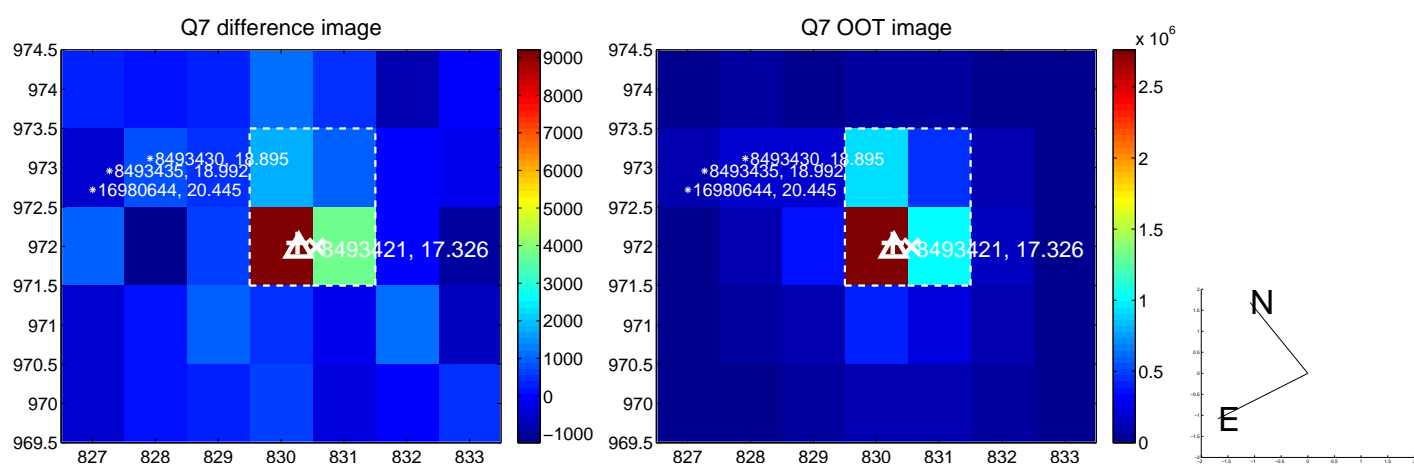
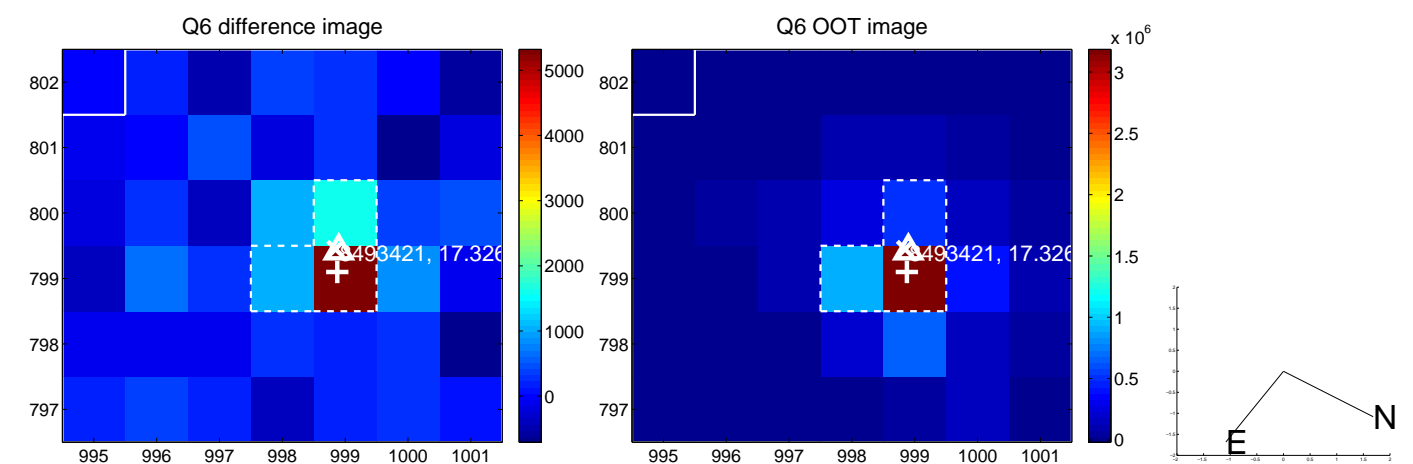
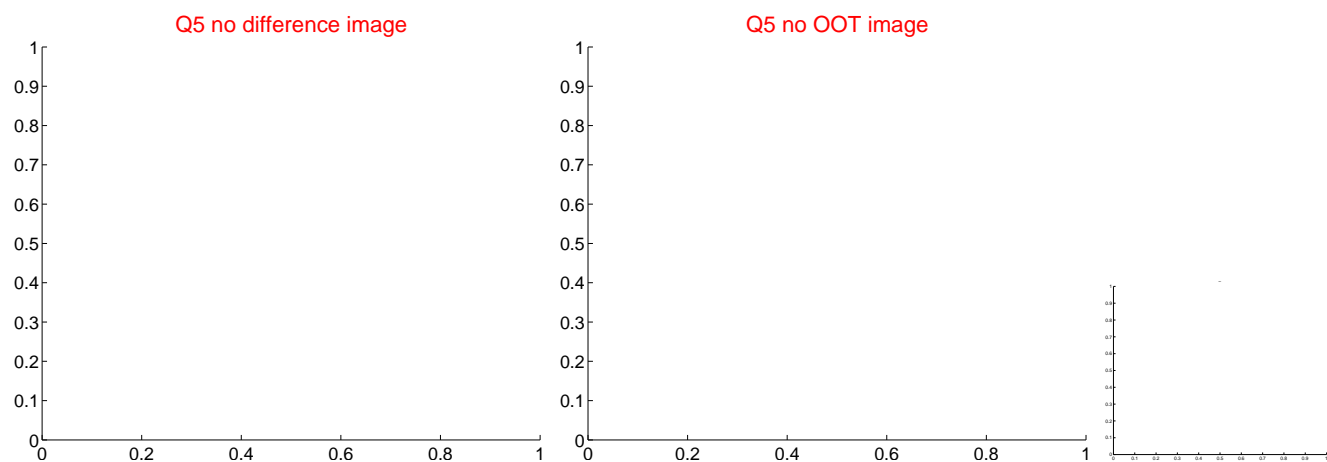


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

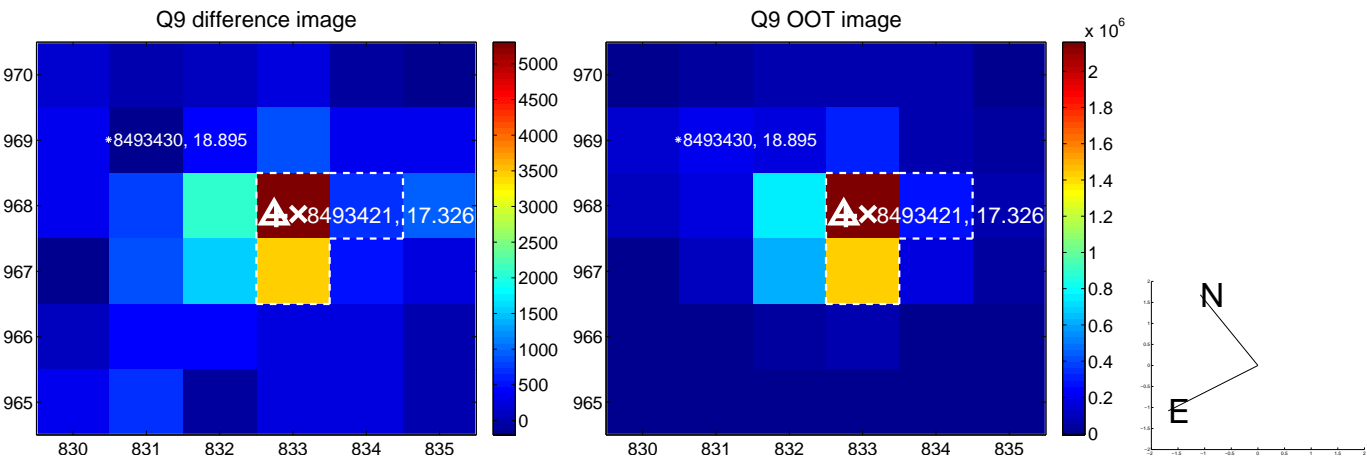
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



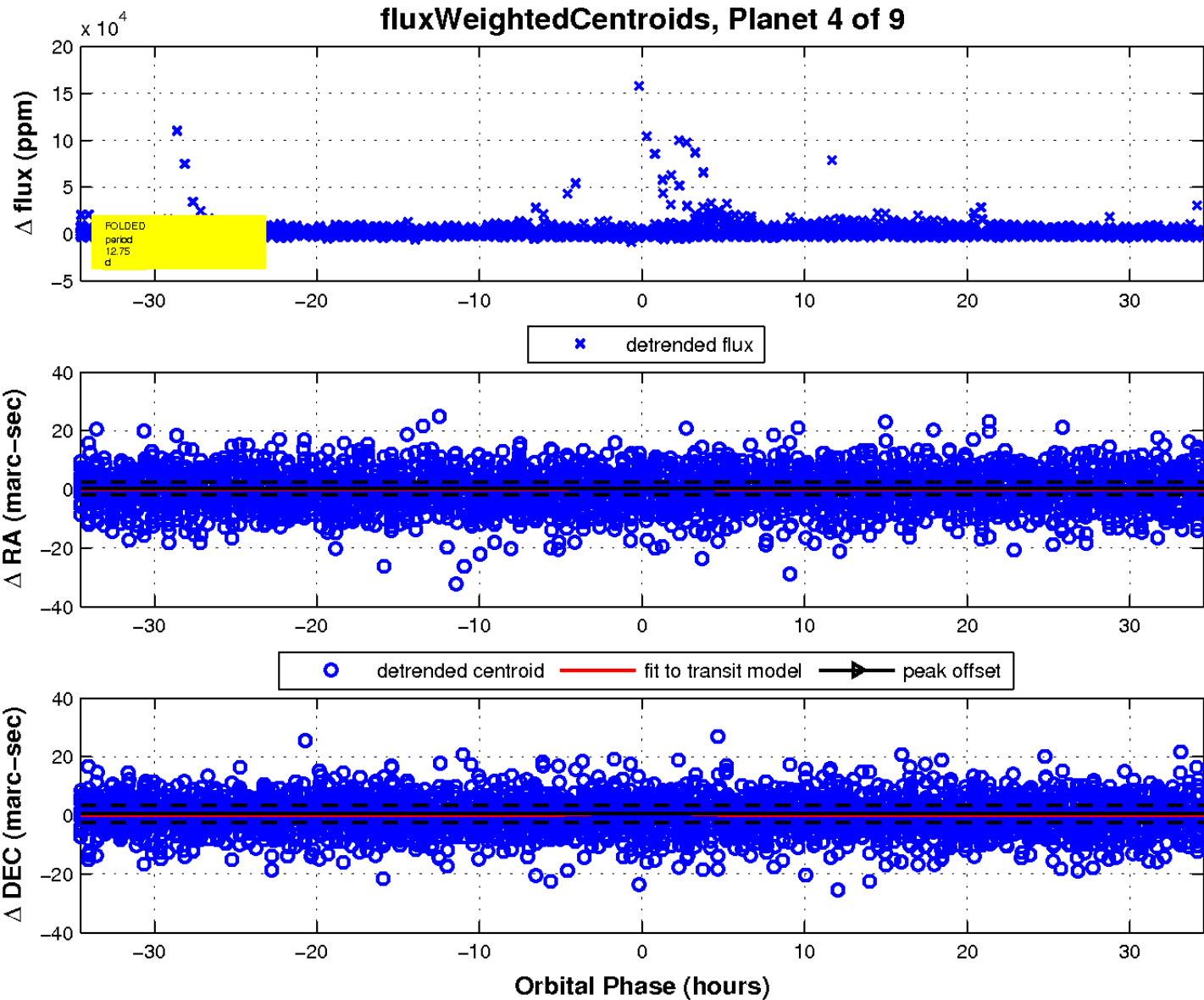
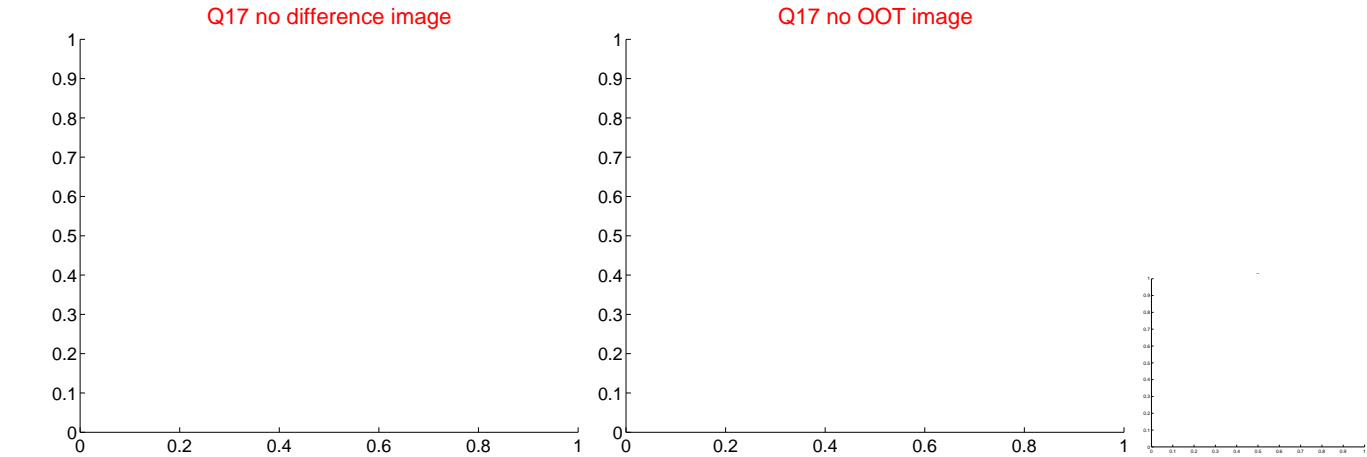
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

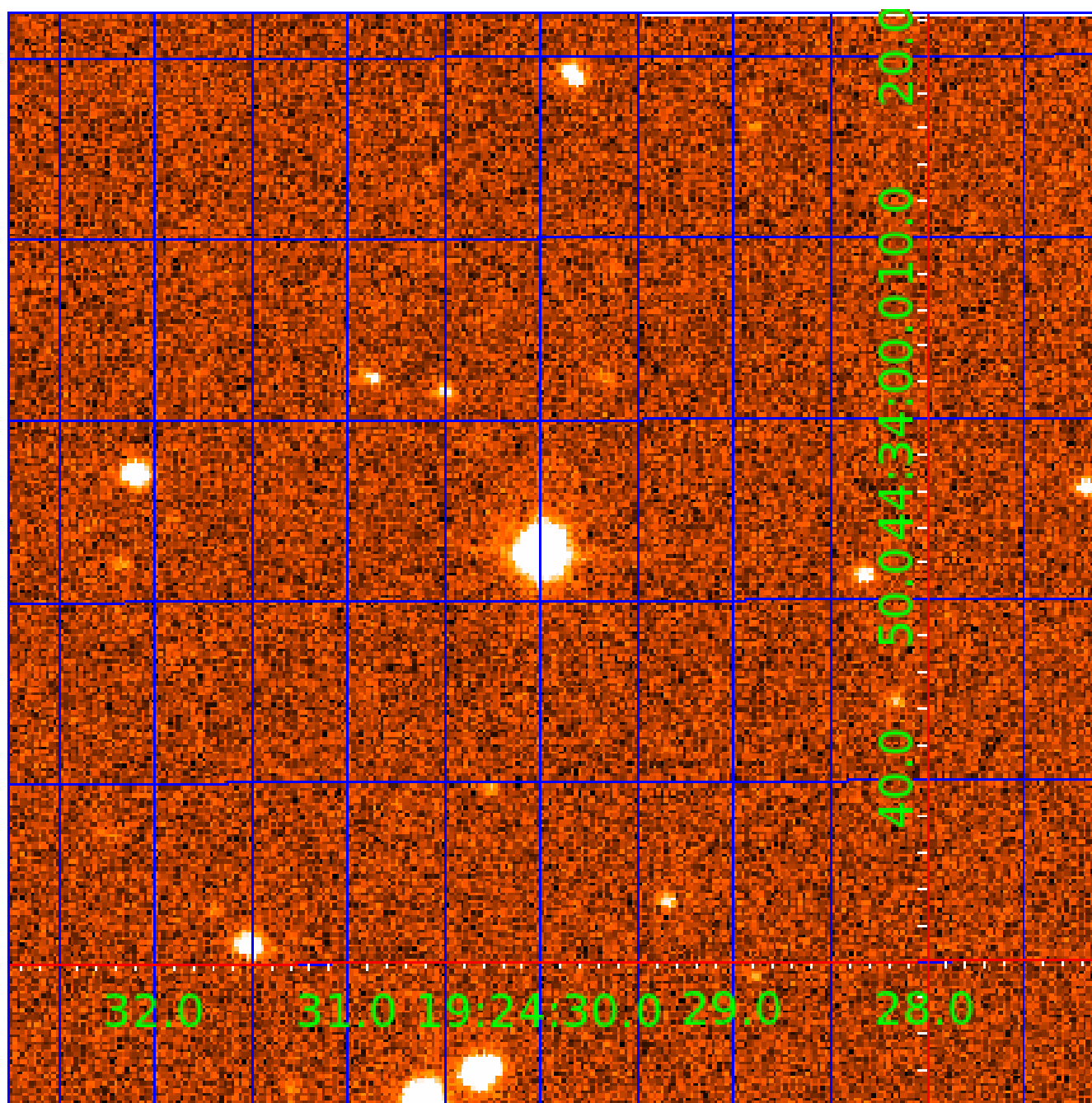


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

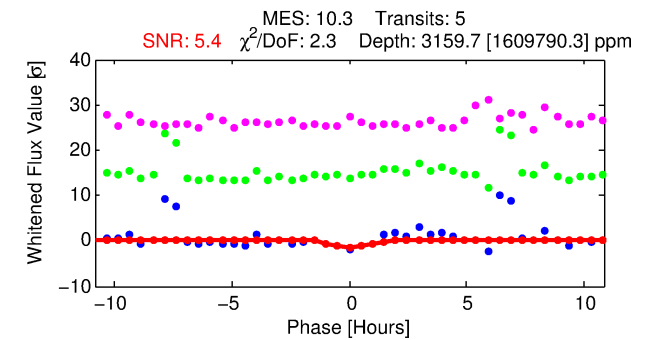
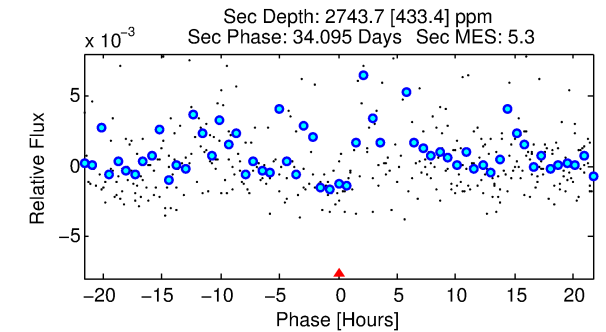
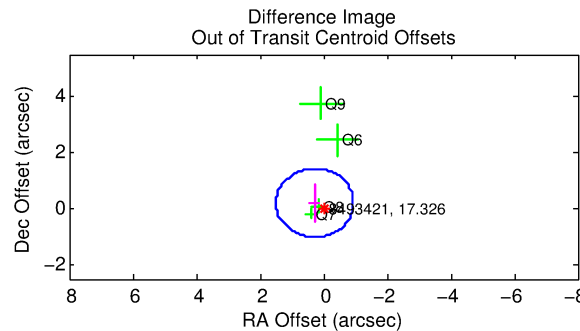
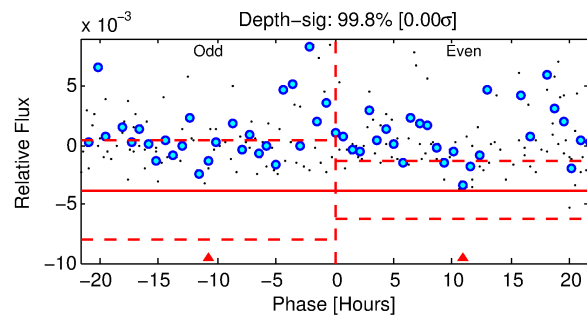
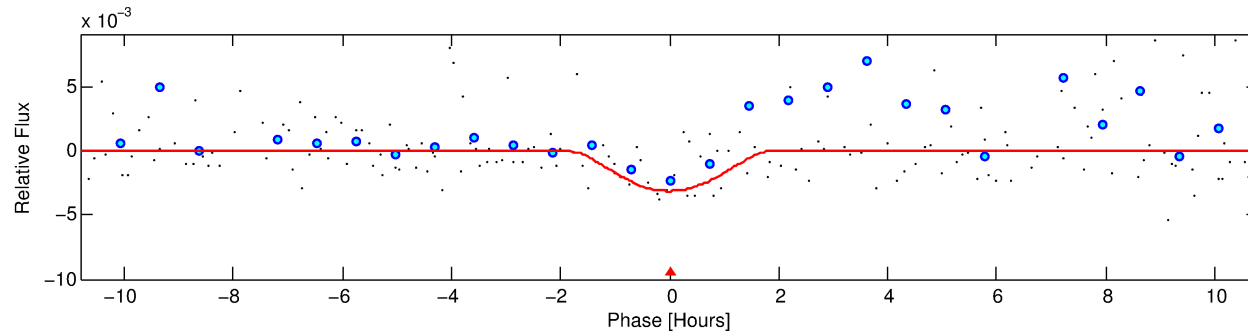
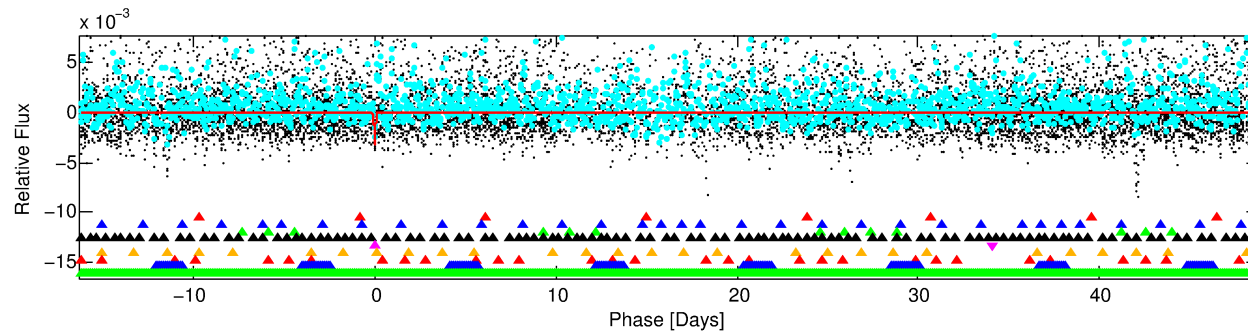
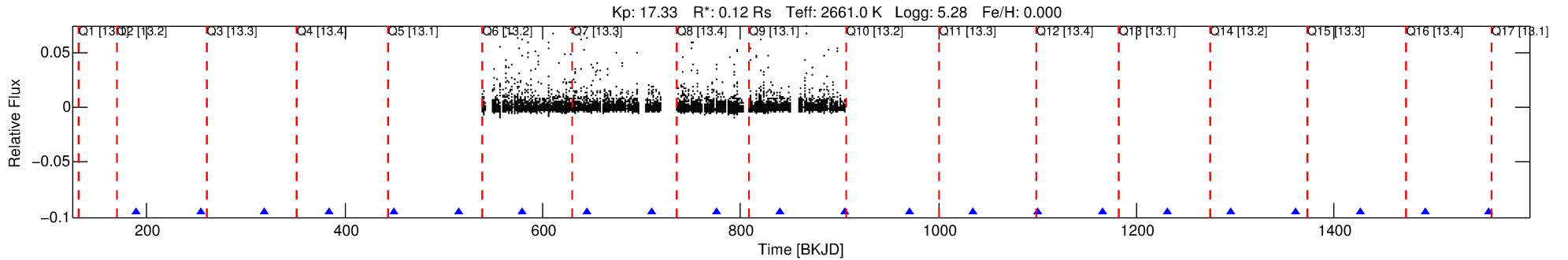
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-05

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 5 of 9 Period: 65.113 d



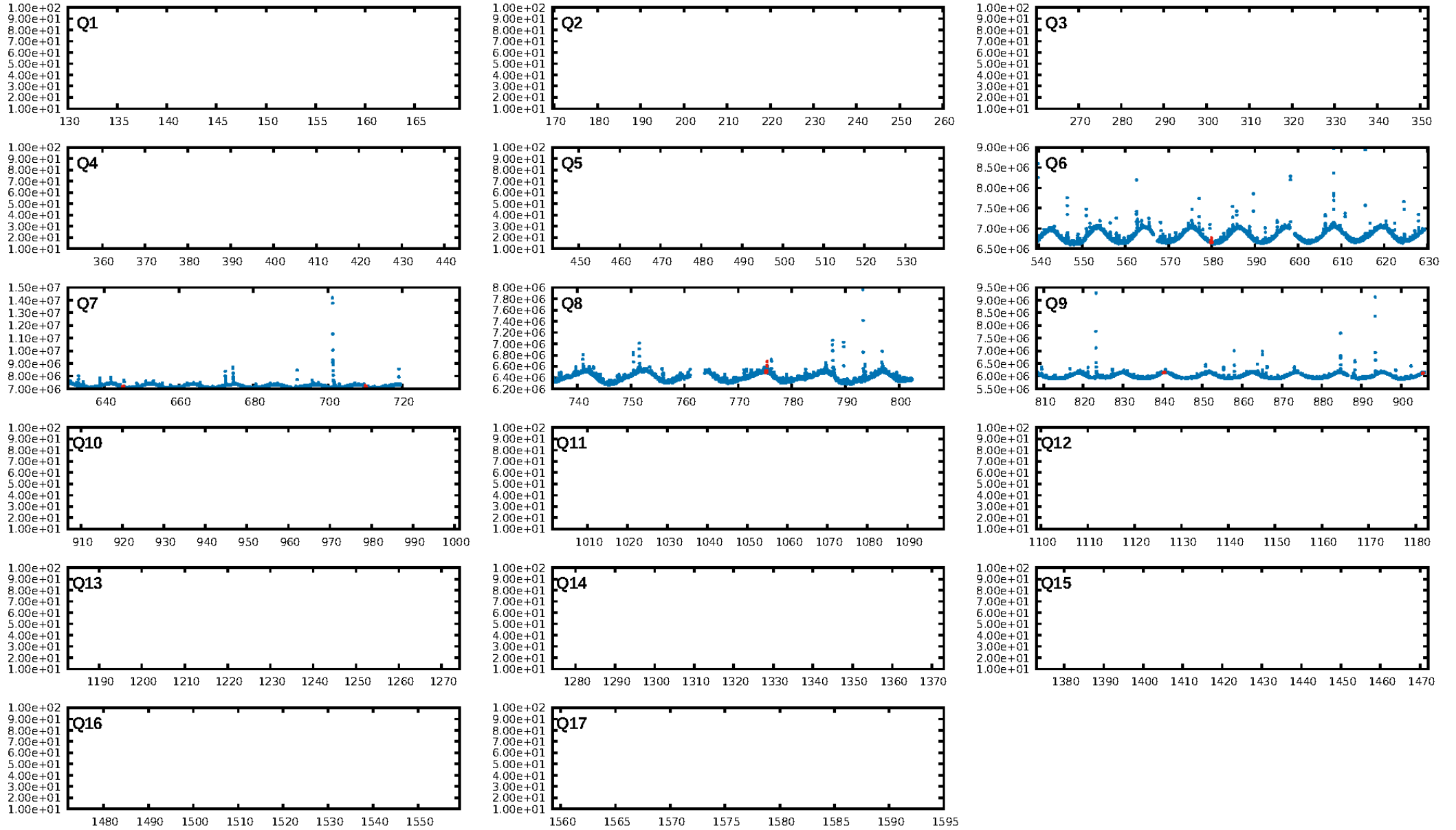
DV Fit Results:

Period = 65.11262 [0.00848] d
Epoch = 189.2226 [0.0736] BKJD
Rp/R* = 0.0987 [1.8634]
a/R* = 62.86 [227.50]
b = 1.00 [29.72]
Seff = 0.03 [0.00]
Teq = 105 [0] K
Rp = 1.25 [23.59] Re
a = 0.1441 [0.0000] AU
Ag = 20091.48 [758674.82] [0.03 σ]
Teffp = 1939 [18300] K [0.10 σ]

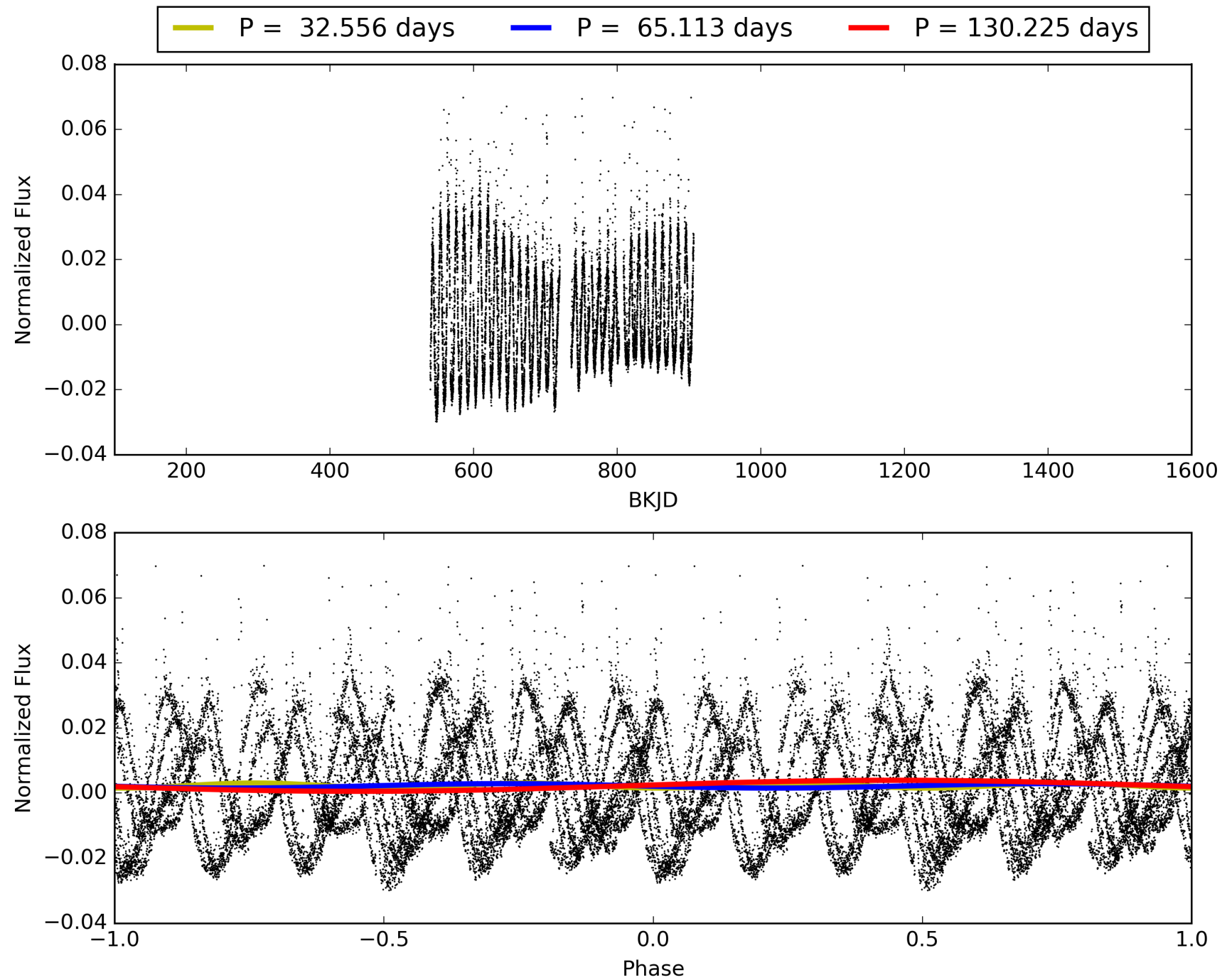
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.77 σ]
LongPeriod-sig: 100.0% [120.03 σ]
ModelChiSquare2-sig: 1.9%
ModelChiSquareGof-sig: 31.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -2.723
Centroid-sig: 72.8%
Centroid-so: 0.344 arcsec [0.30 σ]
OotOffset-rm: 0.349 arcsec [0.86 σ]
KicOffset-rm: 1.500 arcsec [2.87 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 008493421-05, PDC Light Curves

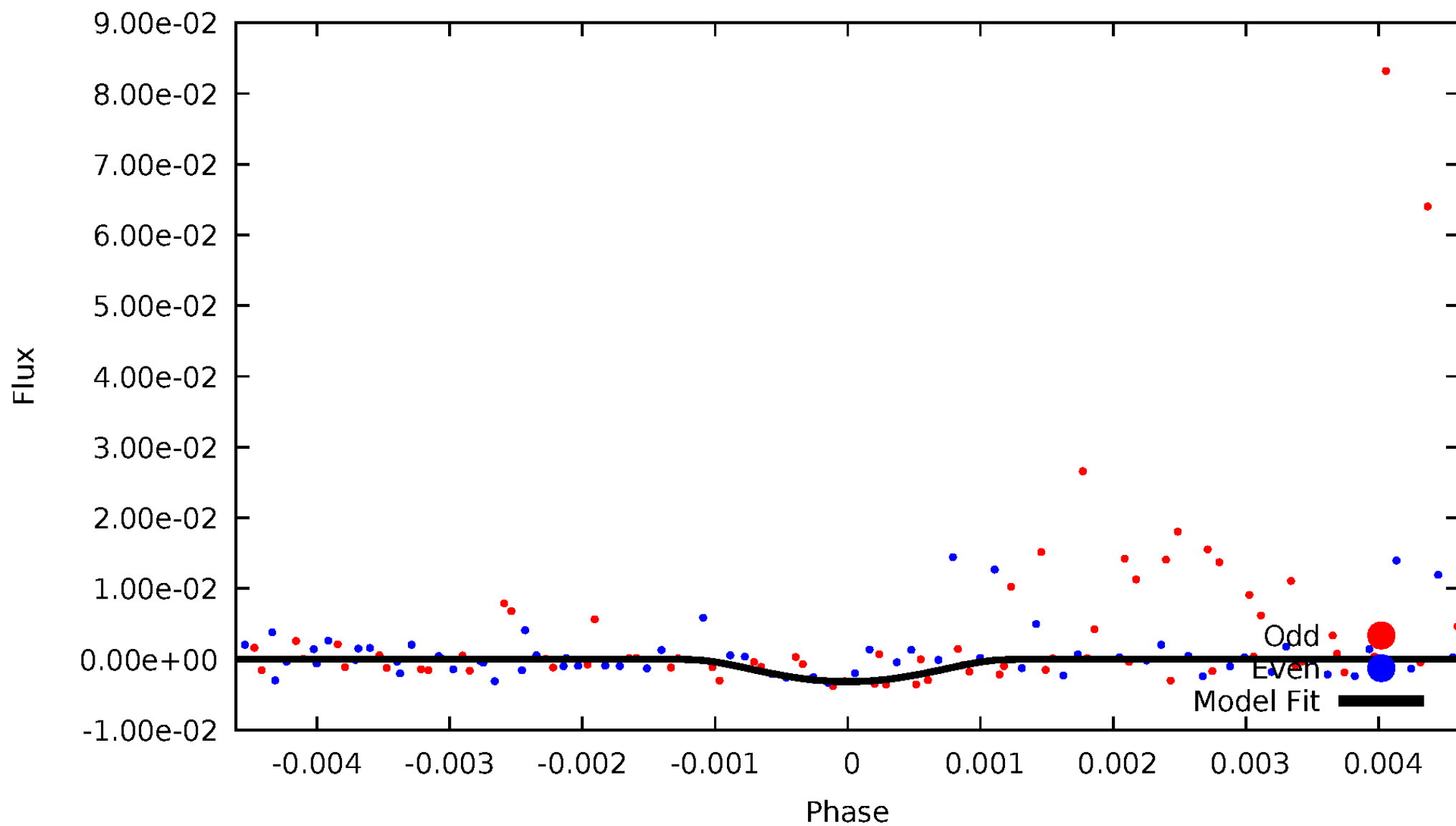


TCE 008493421-05



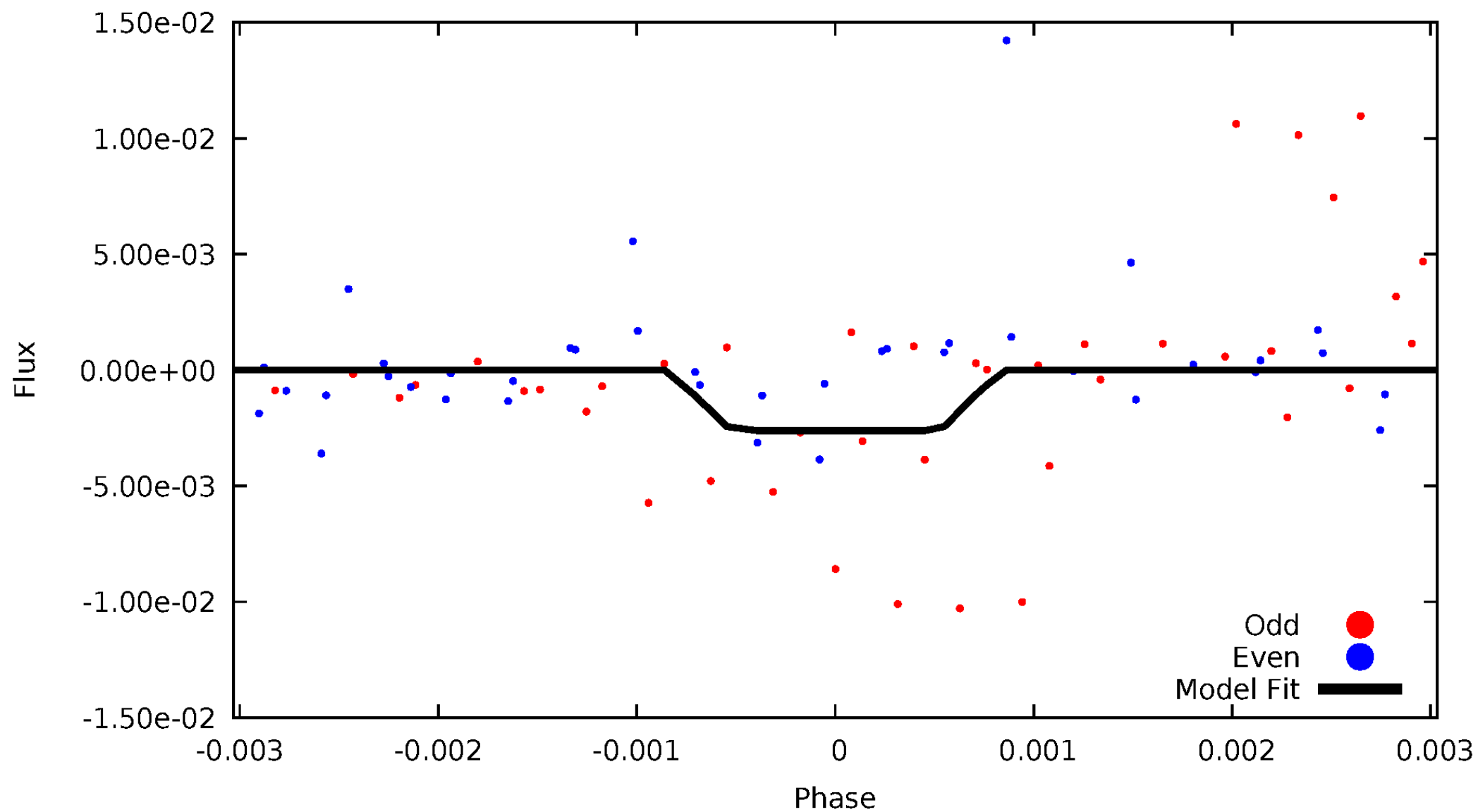
DV Odd/Even

TCE 008493421-05



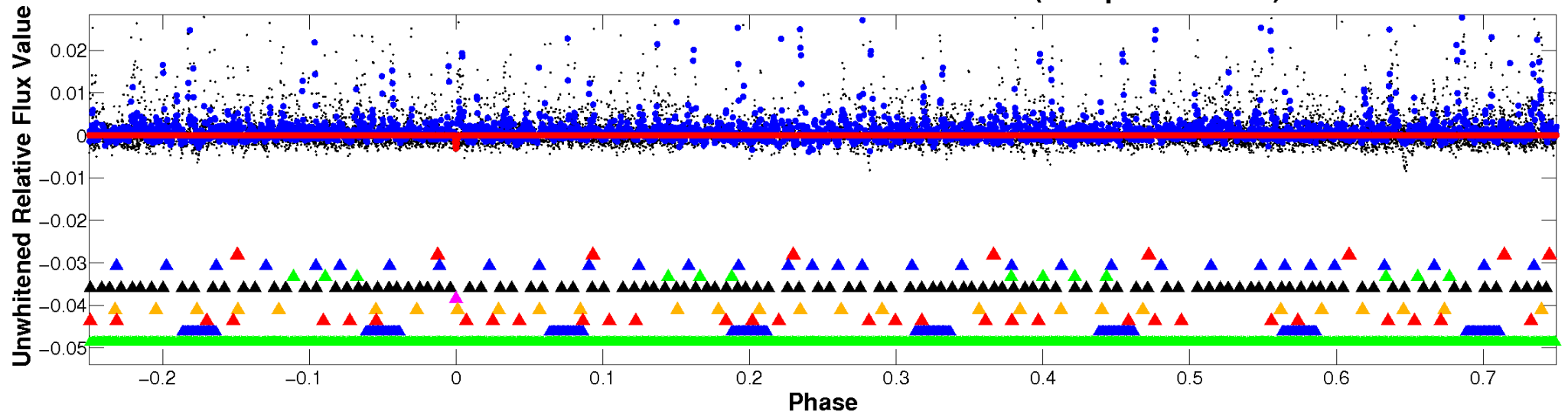
ALT Odd/Even

TCE 008493421-05

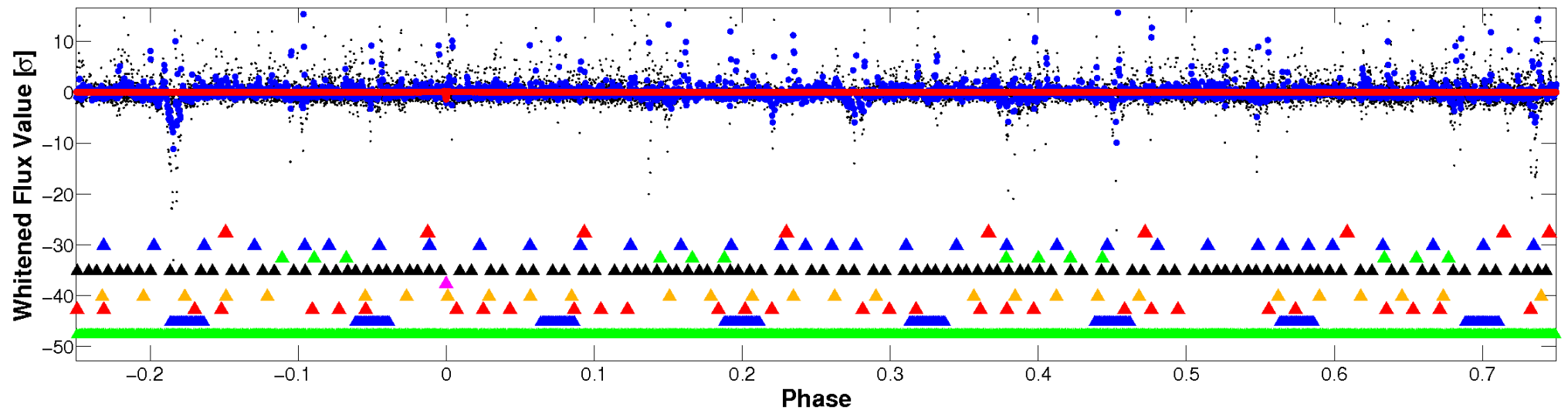


Non-Whitened Vs. Whitened Light Curve

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

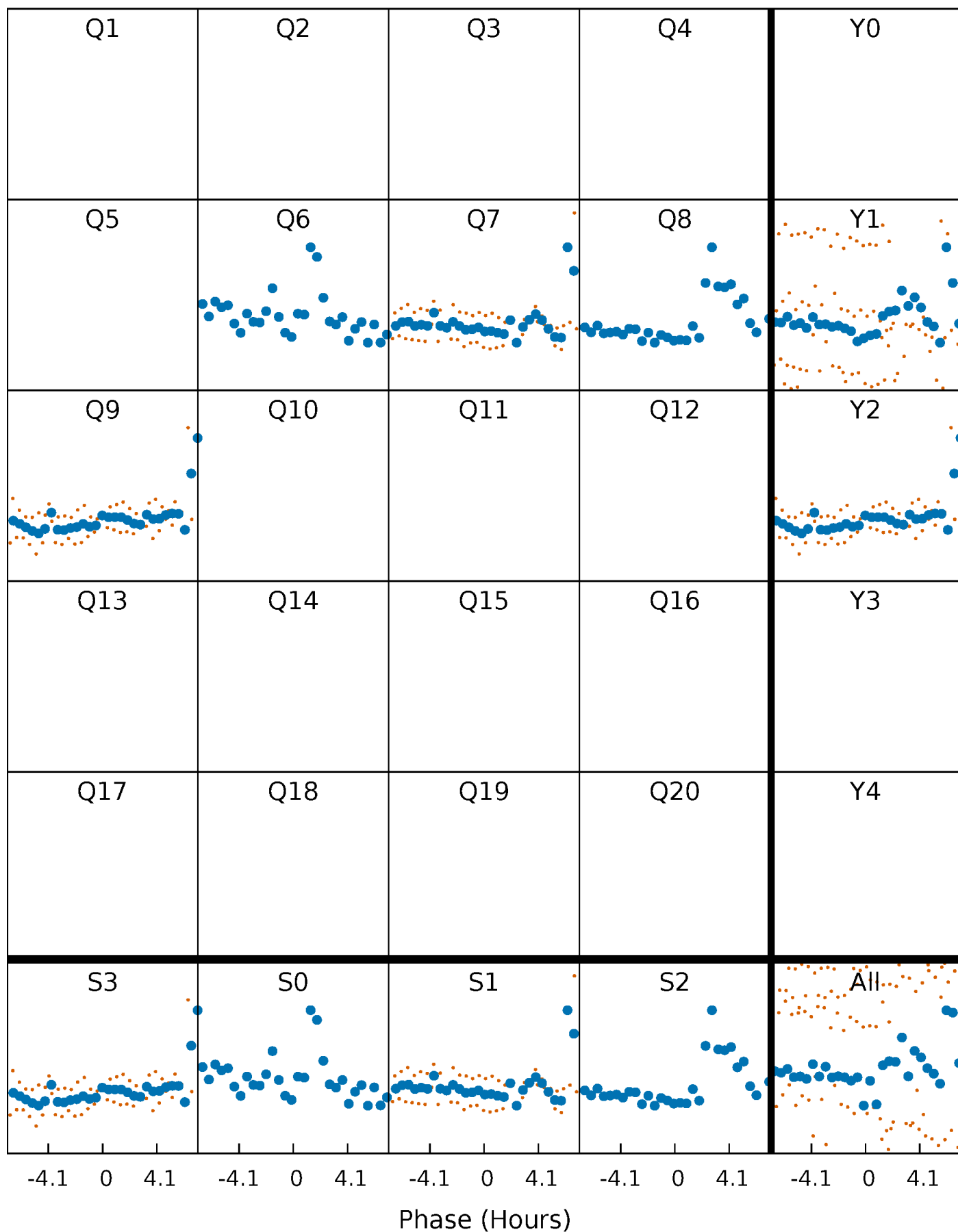


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



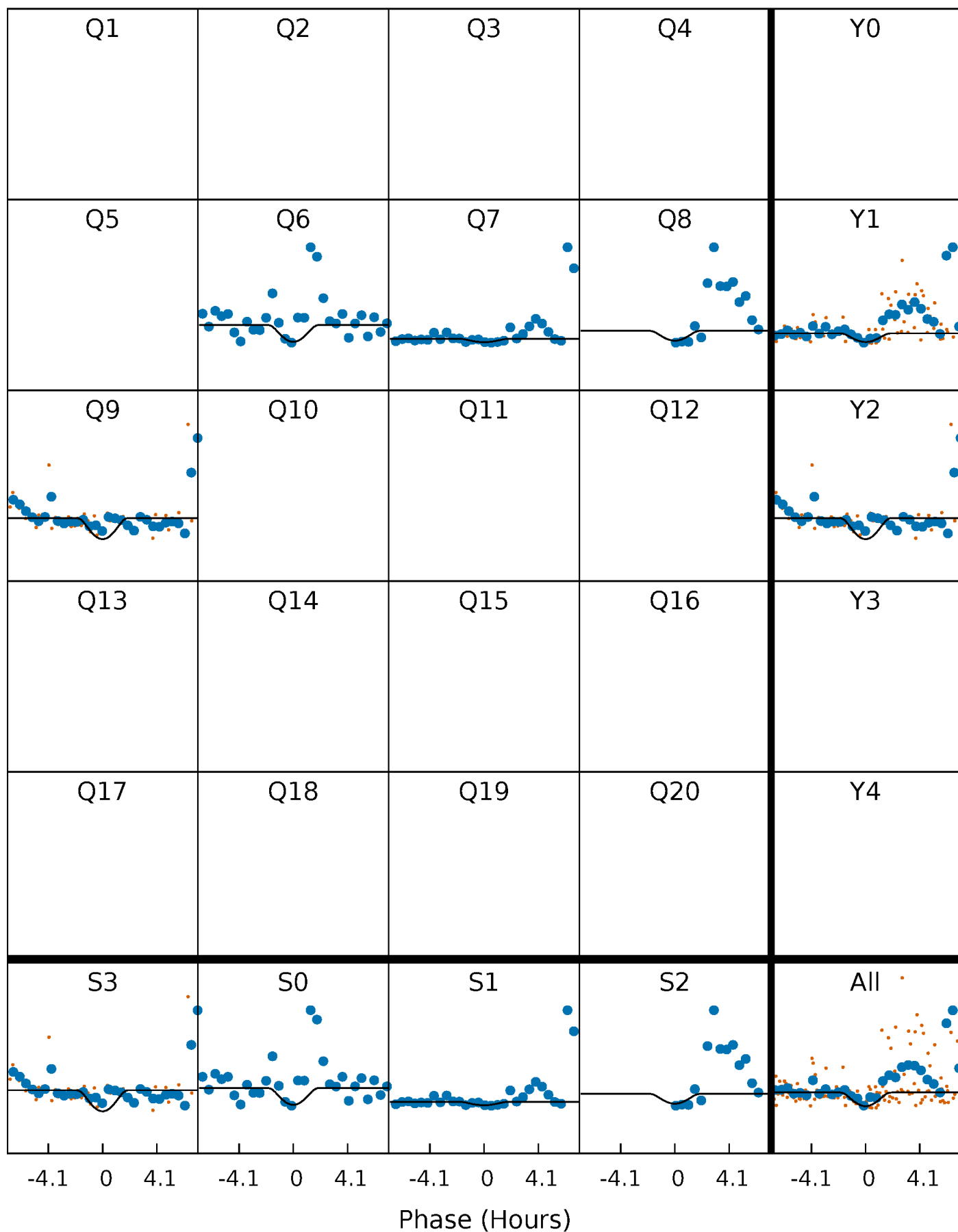
PDC Quarter-Phased Transit Curves

TCE 008493421-05 $P = 65.112624$ Days $T_0 = 189.222634$ (BKJD)



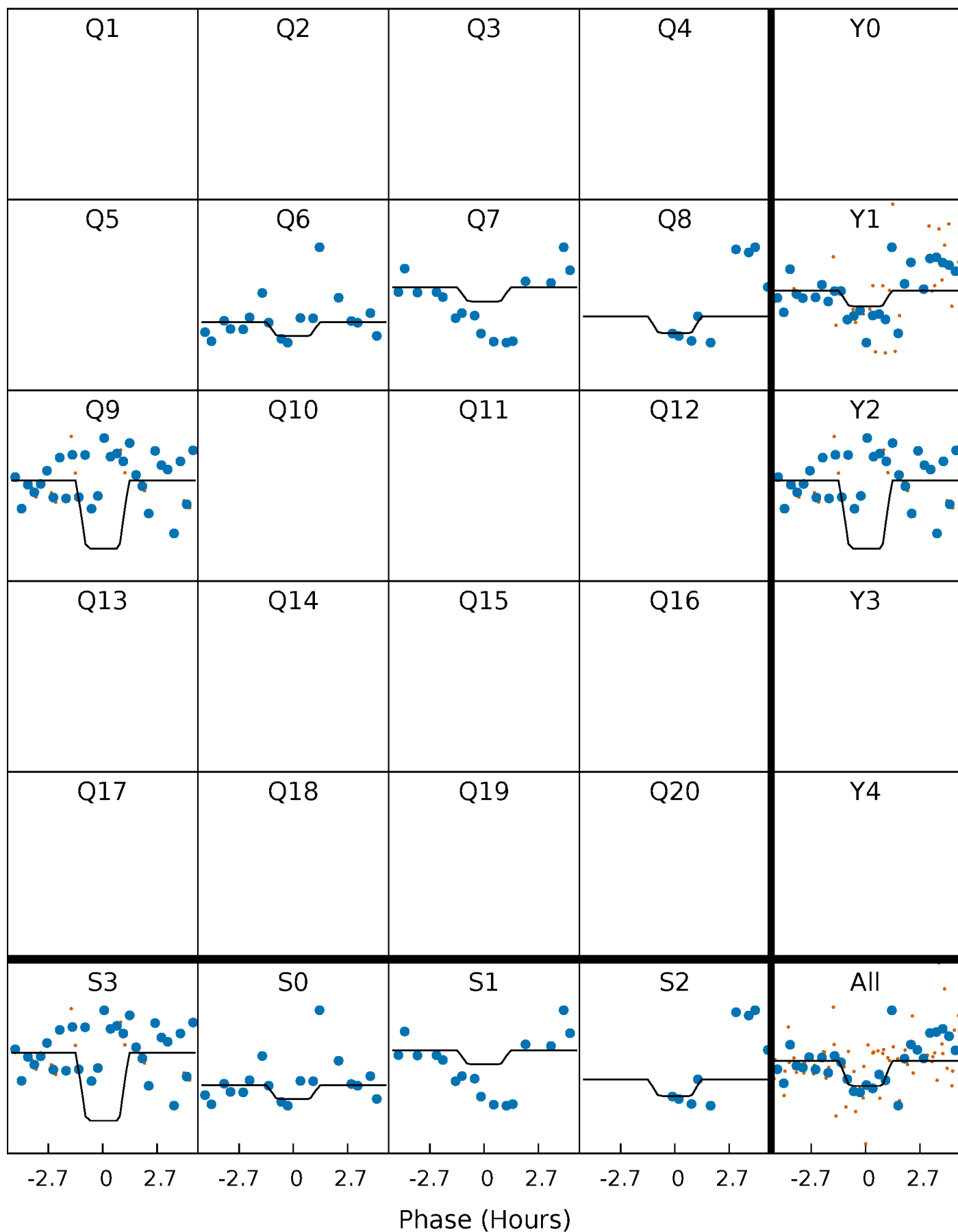
DV Quarter-Phased Transit Curves

TCE 008493421-05 $P = 65.112624$ Days $T_0 = 189.222634$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

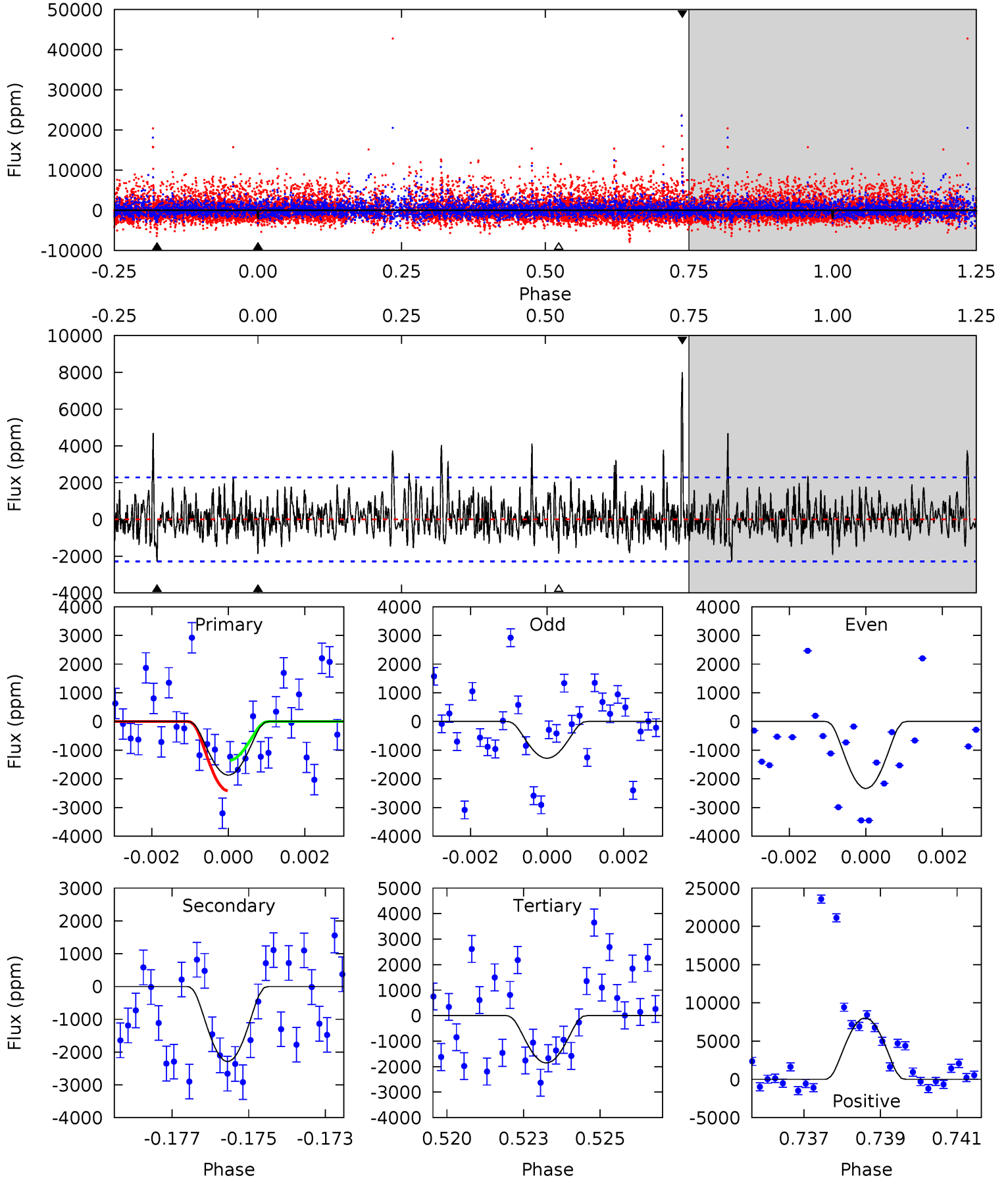
TCE 008493421-05 $P = 65.115551$ Days $T_0 = 189.200526$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-05, P = 65.112624 Days, E = 189.222634 Days

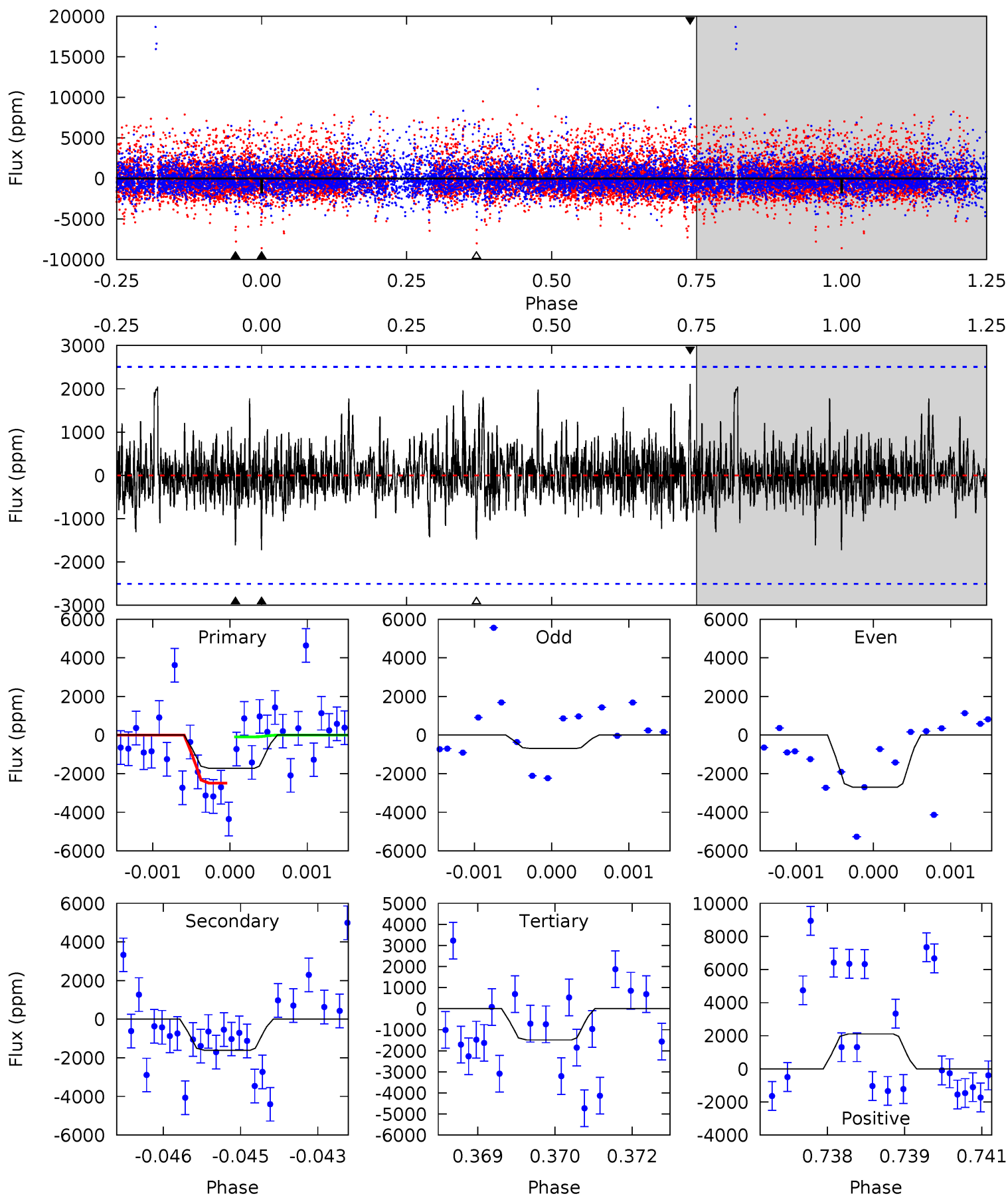
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.33	5.30	4.30	18.6	5.29	3.03	1.94	0.03	-14.2	1.00	-13.3	0.71	0.83	0.78	1.24



Alt Model-Shift Uniqueness Test

008493421-05, $P = 65.115551$ Days, $E = 189.200526$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.71	3.48	3.19	4.53	5.39	3.19	0.98	0.52	-0.82	0.29	-1.06	2.01	1.78	0.55	2.55



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2289±432	$17.67^{+24.63}_{-12.47}$	151^{+15}_{-15}	1407^{+302}_{-164}	99^{+944}_{-79}
Alt.	-1617±465	$17.49^{+22.97}_{-12.46}$	152^{+15}_{-15}	1368^{+318}_{-147}	66^{+682}_{-51}

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

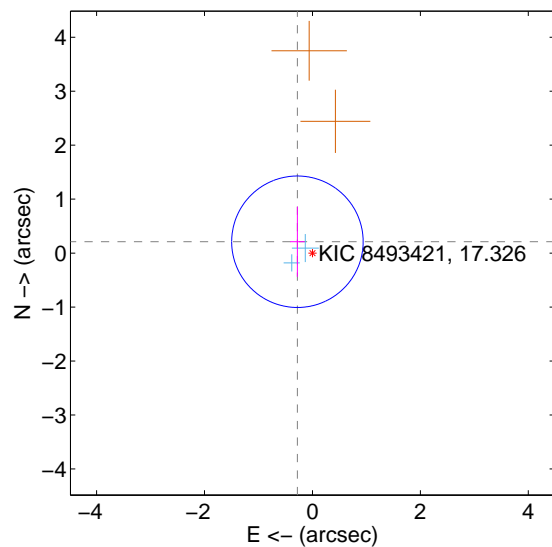
Supplemental centroid analysis for 008493421-05. Kepler magnitude: 17.33. Transit SNR 5.36

There are 2 quarters with good PRF difference image offsets

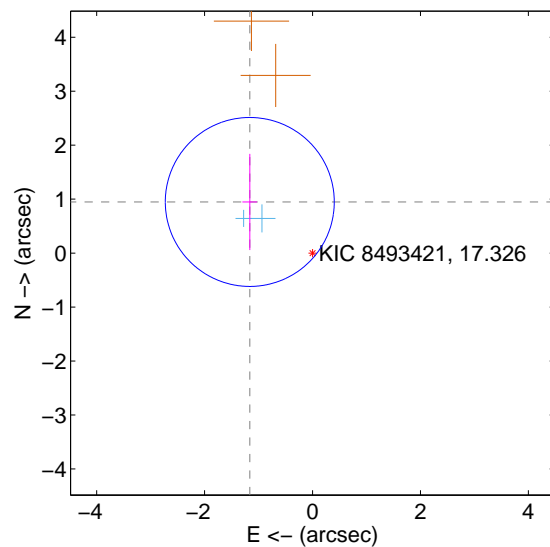
The direct PRF centroid is offset from the target star catalog position by about 1.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.349 ± 0.406	0.86	0.278 ± 0.134	0.211 ± 0.649
PRF-fit source offset from KIC position	1.500 ± 0.522	2.87	1.162 ± 0.137	0.948 ± 0.891
photometric centroid source offset	0.34 ± 1.13	0.30	0.30 ± 1.15	0.17 ± 1.07

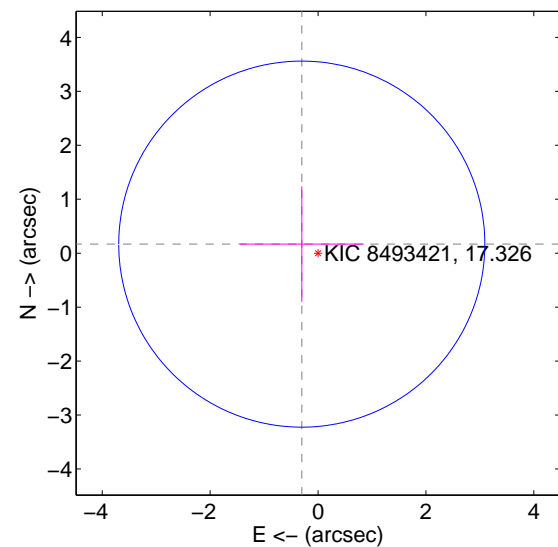
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

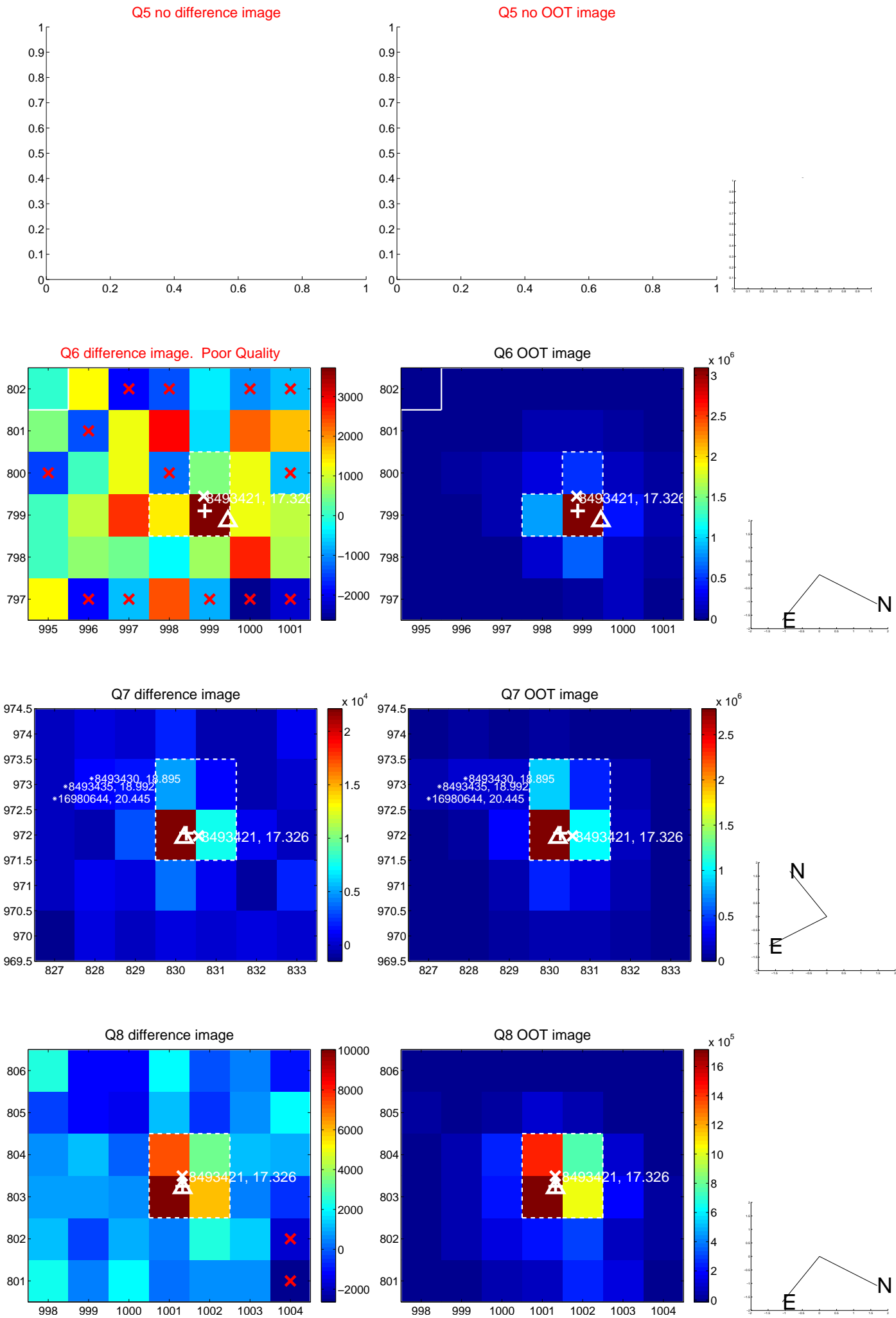


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

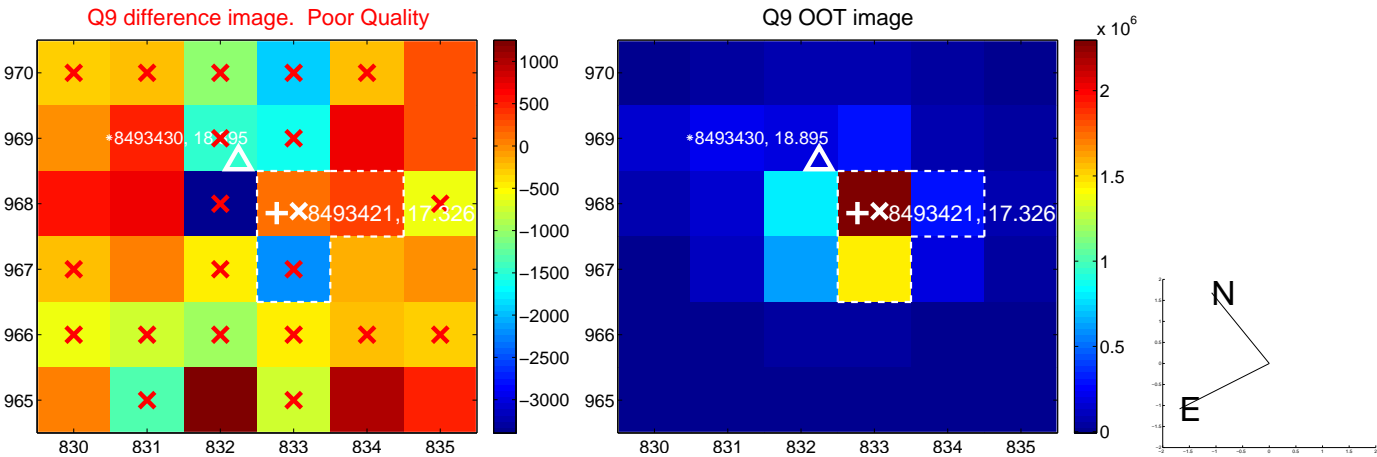
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



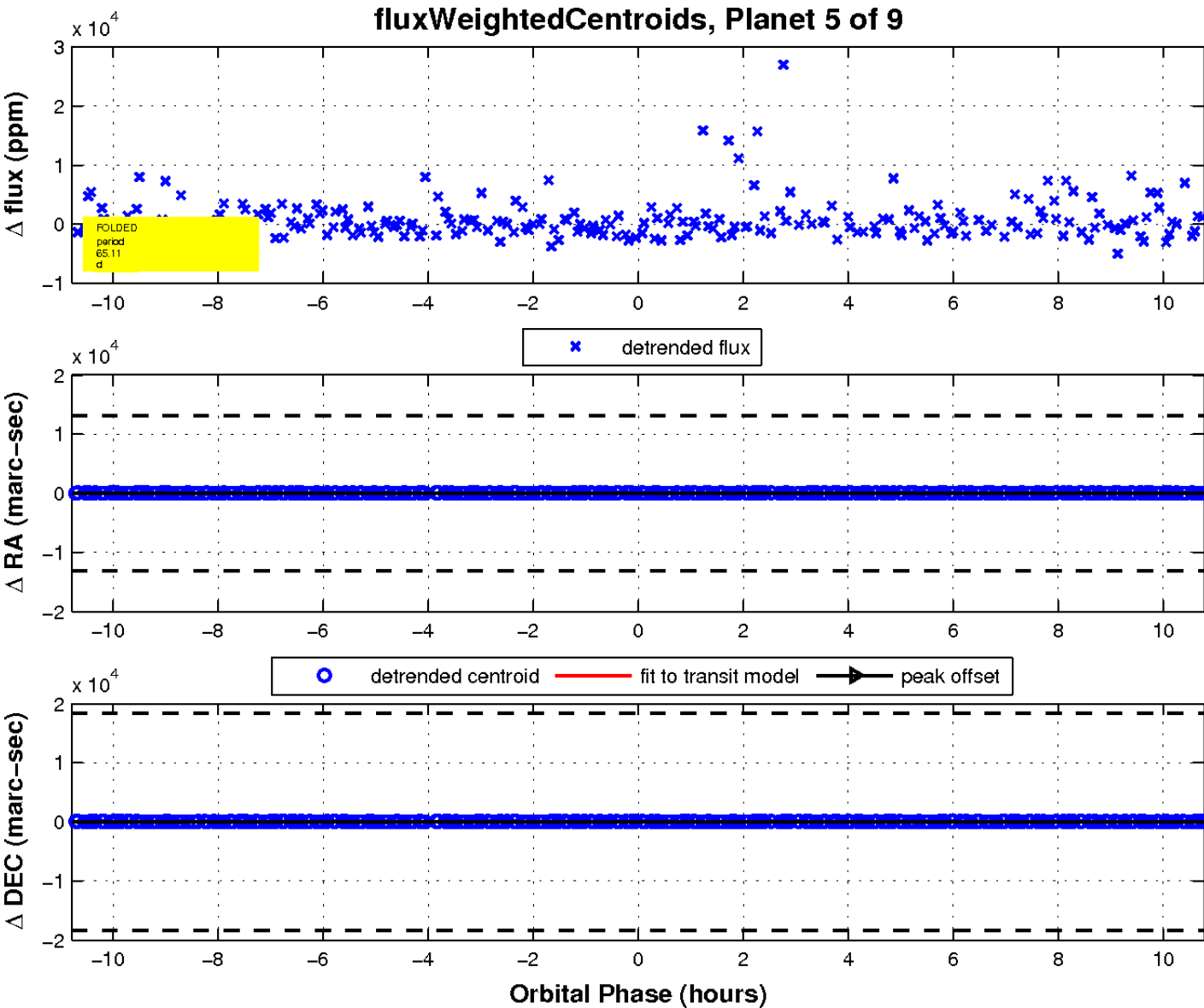
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

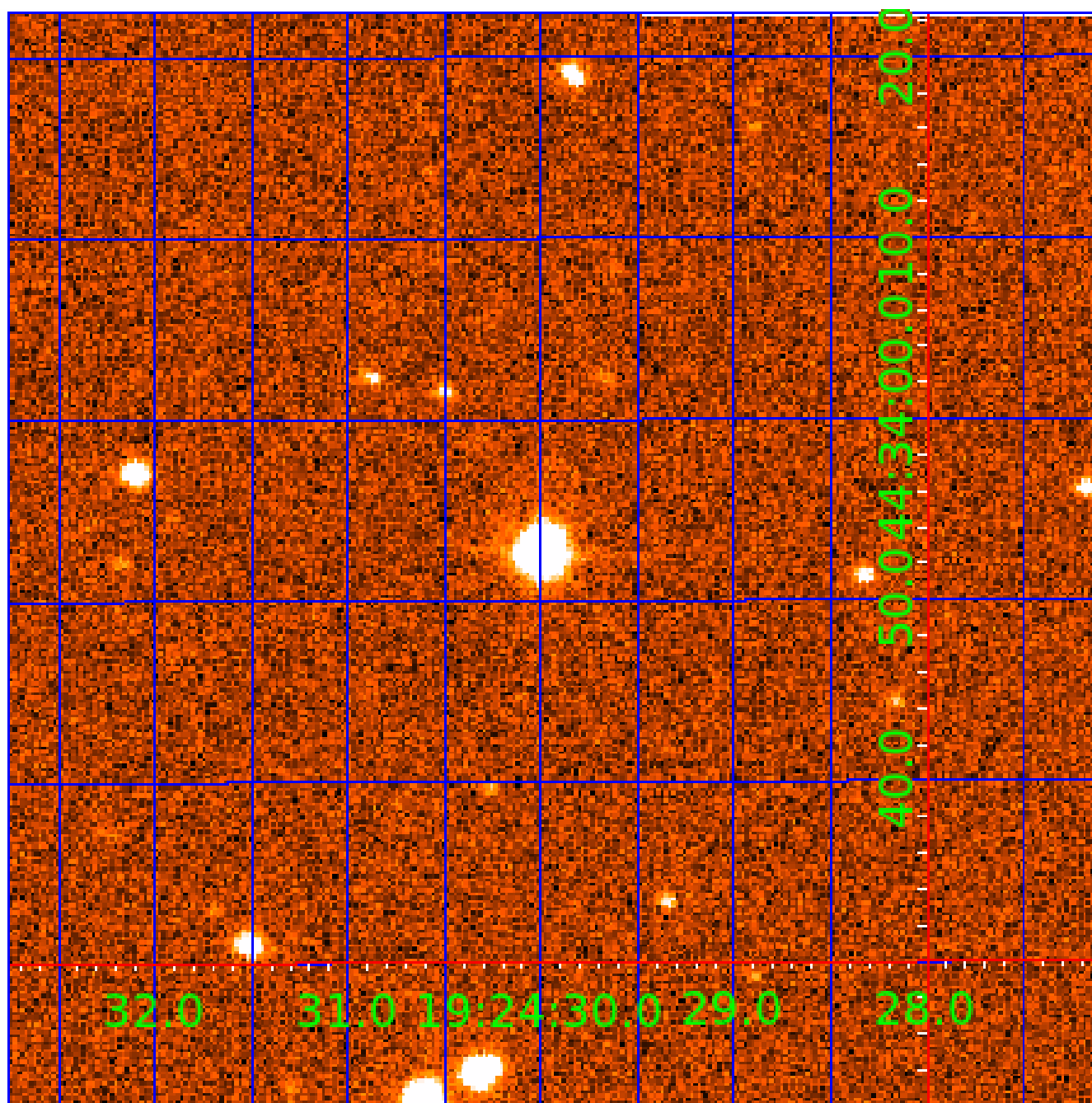


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

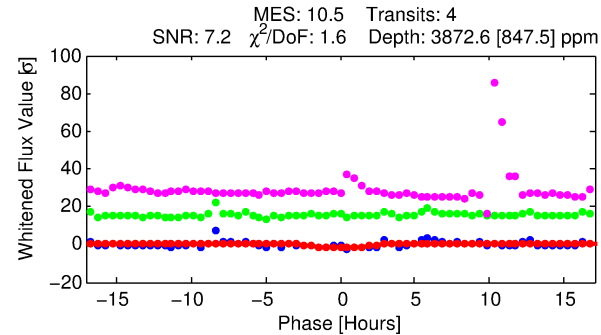
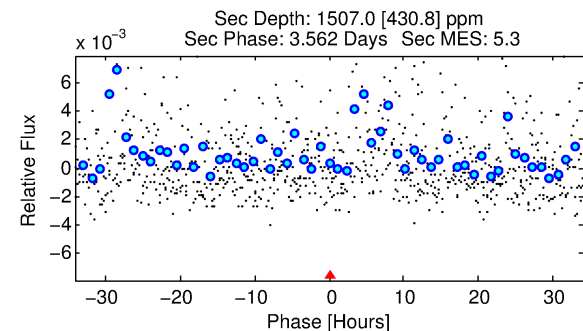
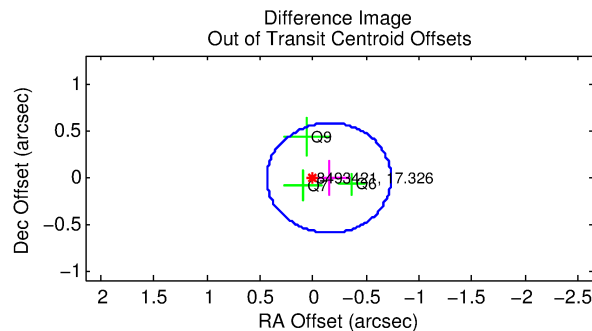
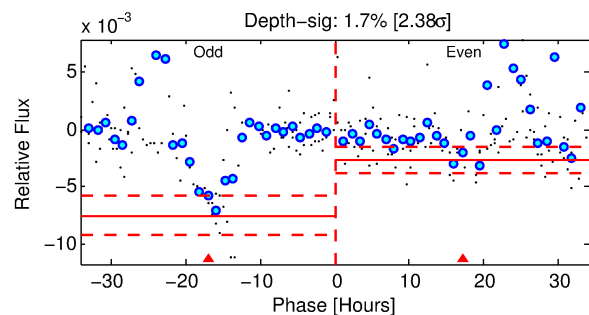
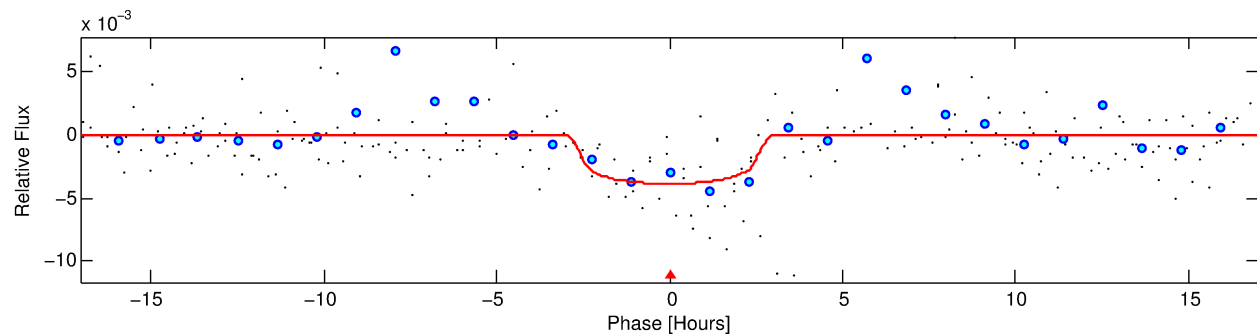
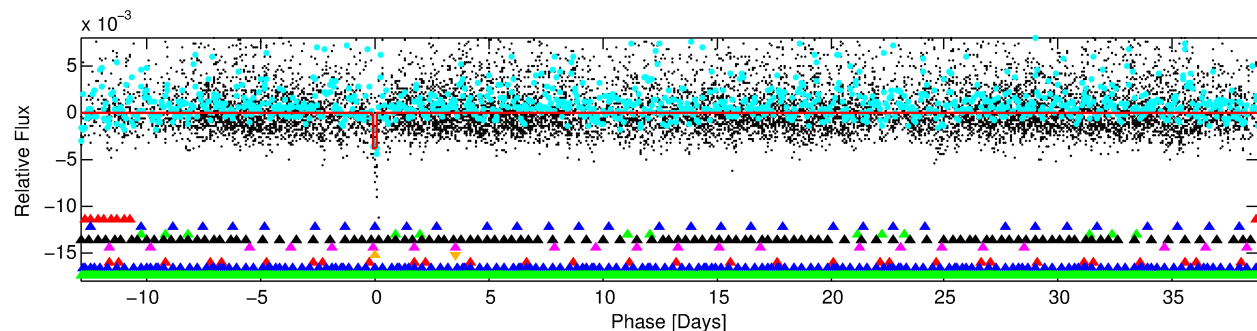
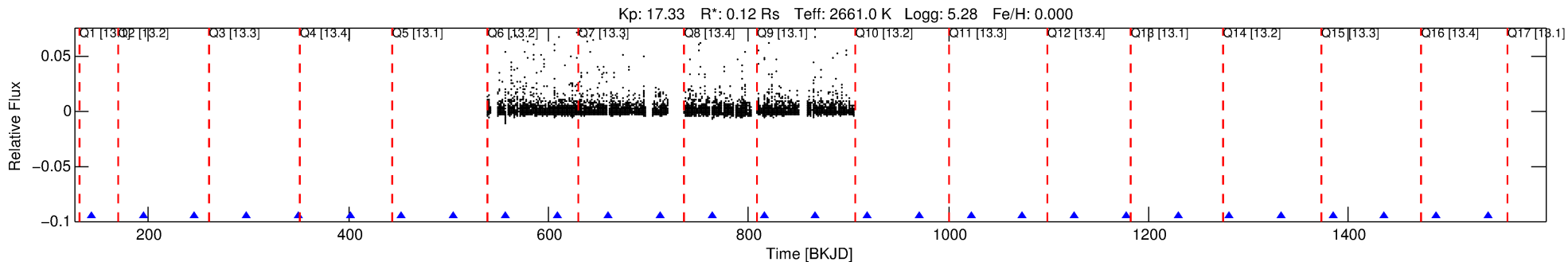
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-06

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 6 of 9 Period: 51.727 d



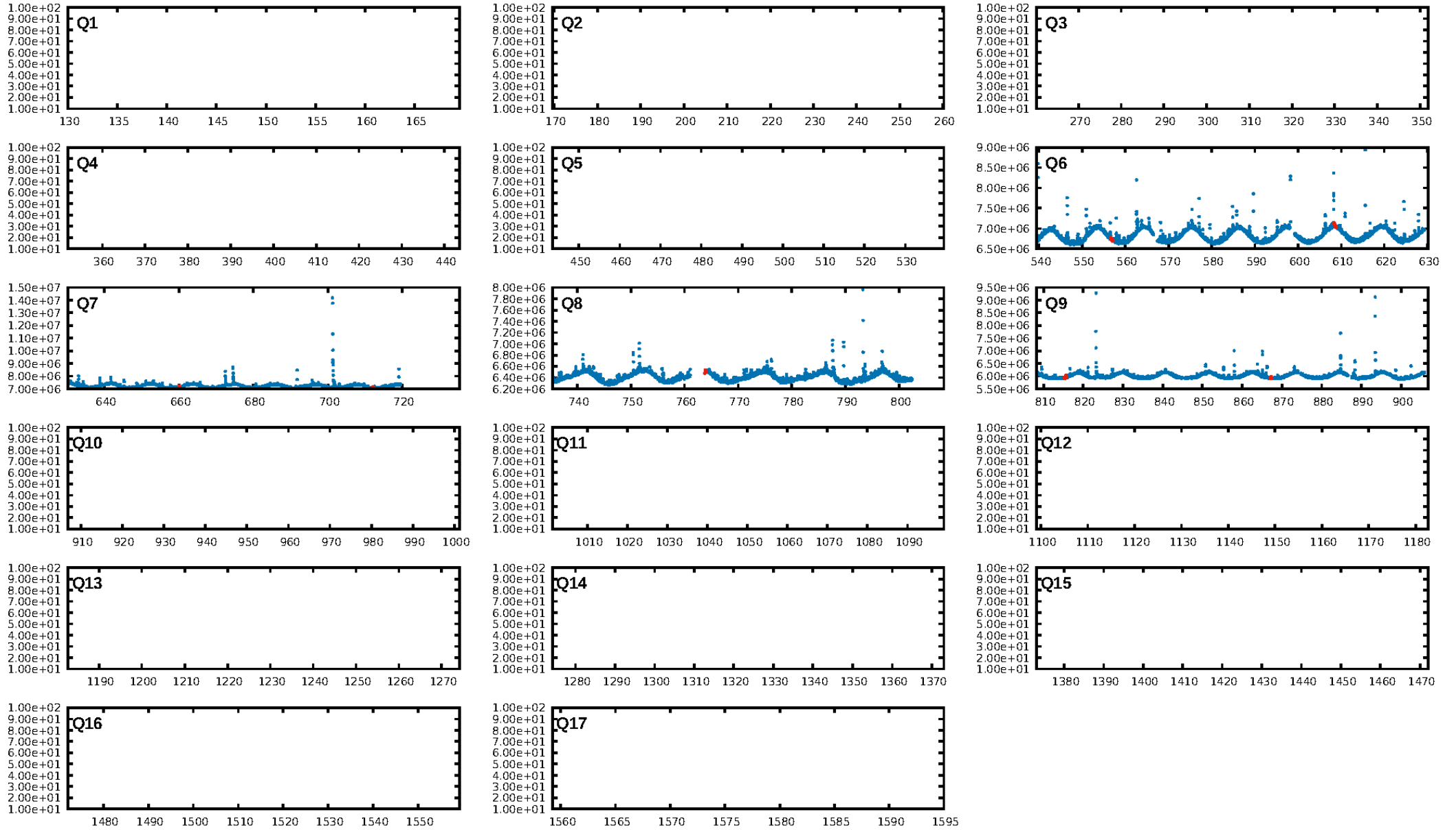
DV Fit Results:

Period = 51.72699 [0.00435] d
Epoch = 143.0158 [0.0493] BKJD
Rp/R* = 0.0578 [0.0449]
a/R* = 66.36 [216.61]
b = 0.46 [5.66]
Seff = 0.04 [0.00]
Teq = 114 [0] K
Rp = 0.73 [0.57] Re
a = 0.1236 [0.0000] AU
Ag = 23692.83 [37467.50] [0.63 σ]
Teffp = 2181 [862] K [2.40 σ]

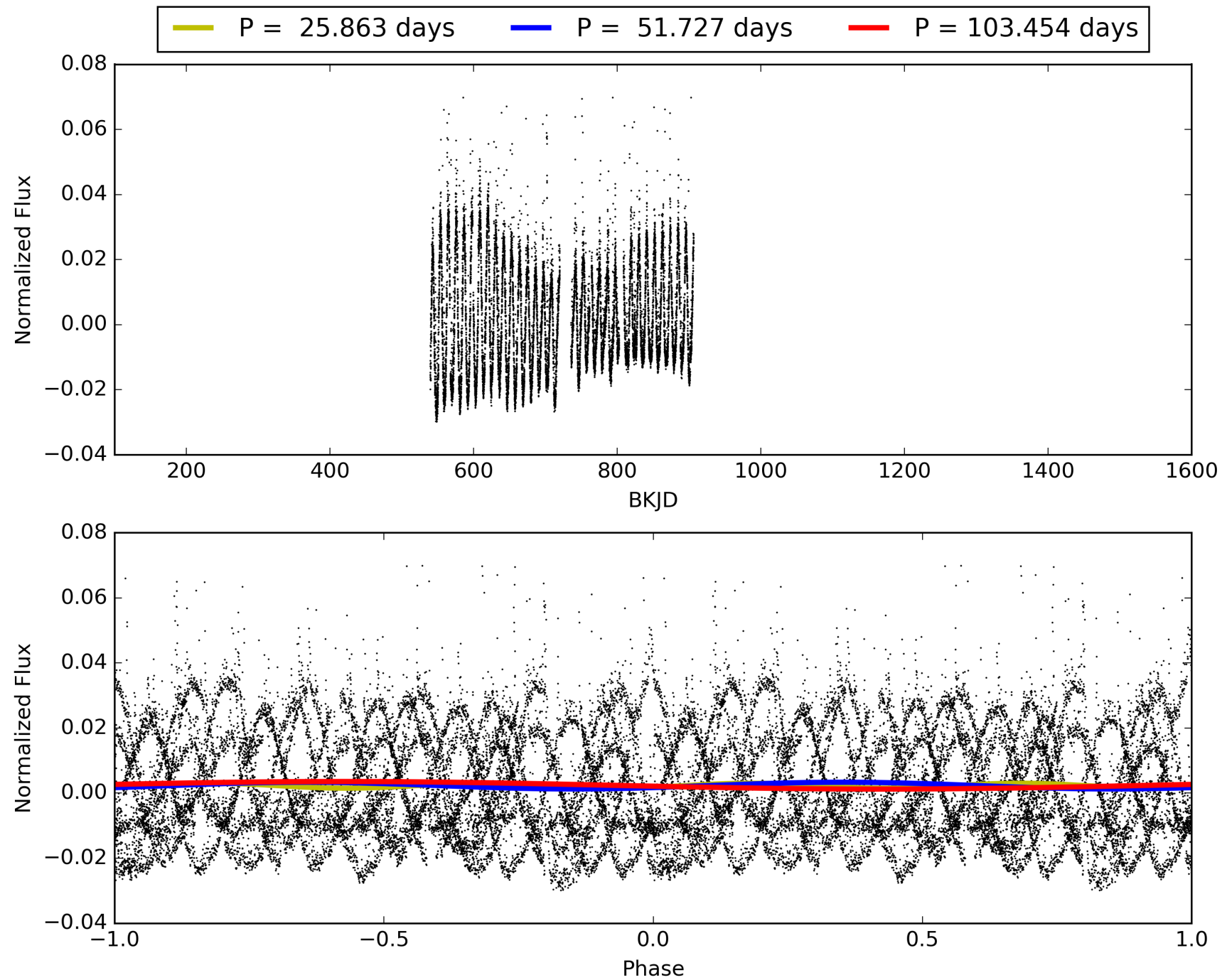
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.37 σ]
LongPeriod-sig: 100.0% [47.77 σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 93.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.1391
Centroid-sig: 21.5%
Centroid-so: 1.481 arcsec [2.42 σ]
OotOffset-rm: 0.151 arcsec [0.77 σ]
KicOffset-rm: 1.192 arcsec [9.14 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 008493421-06, PDC Light Curves

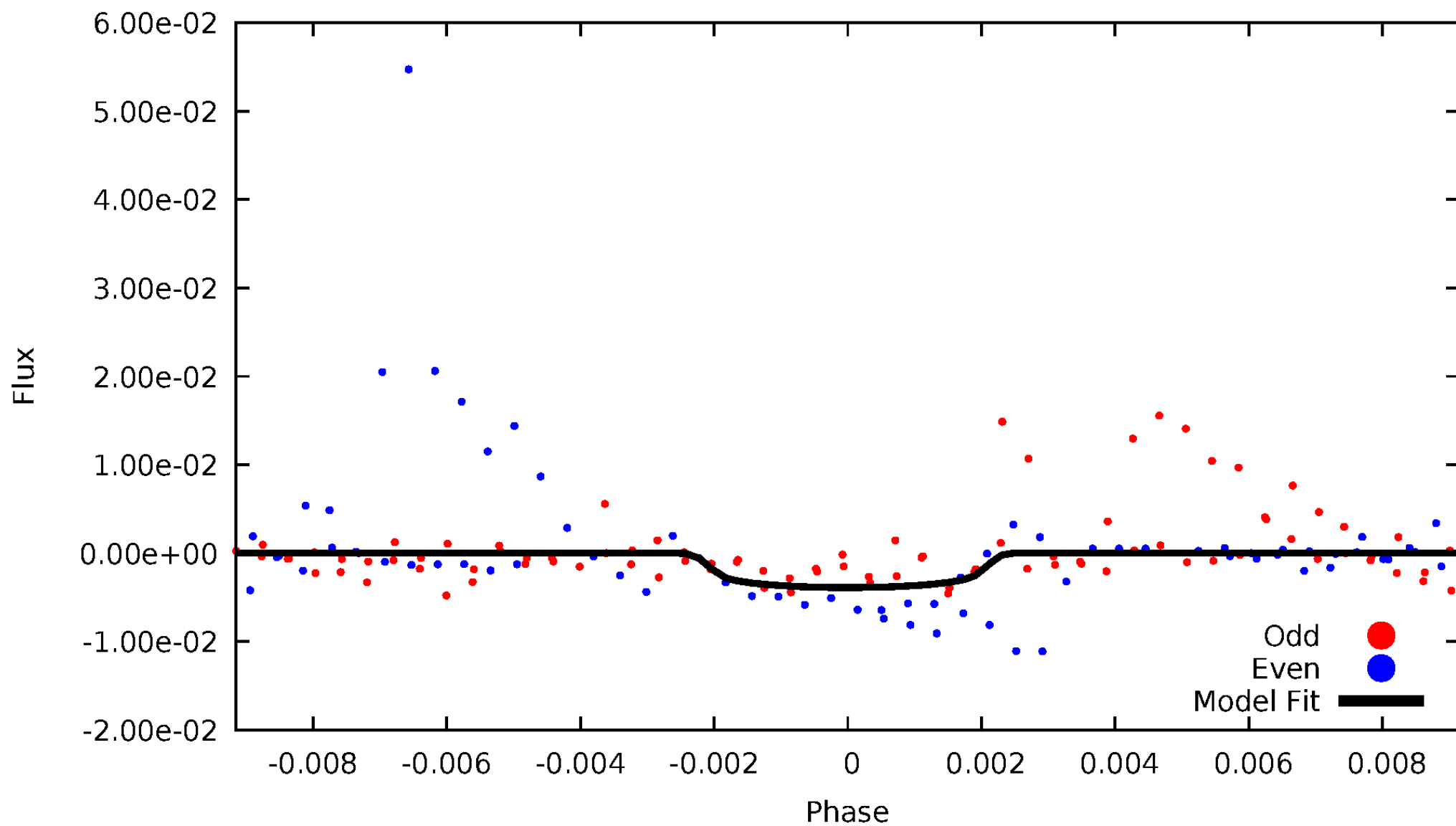


TCE 008493421-06



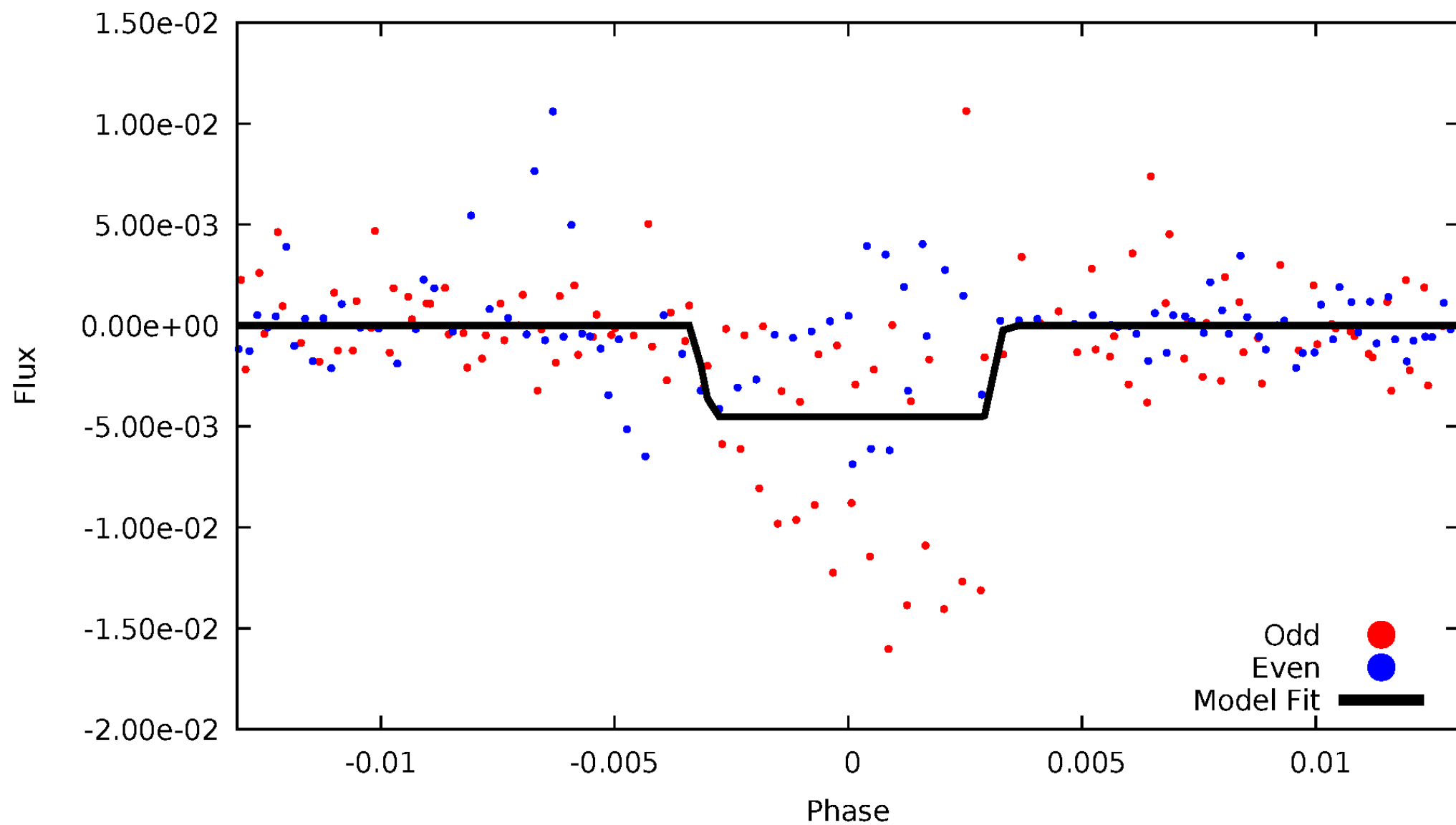
DV Odd/Even

TCE 008493421-06



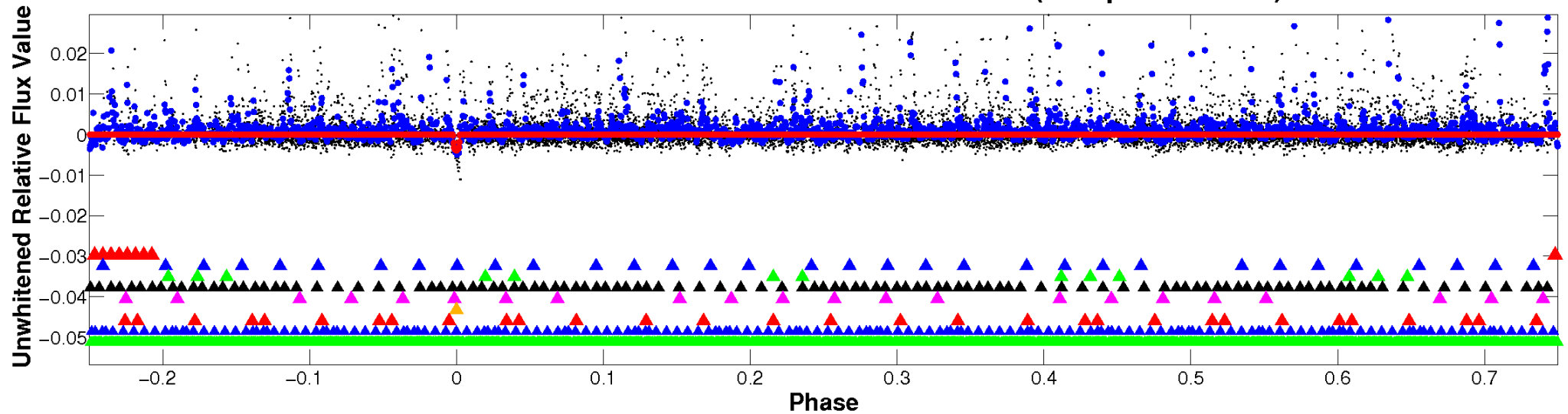
ALT Odd/Even

TCE 008493421-06

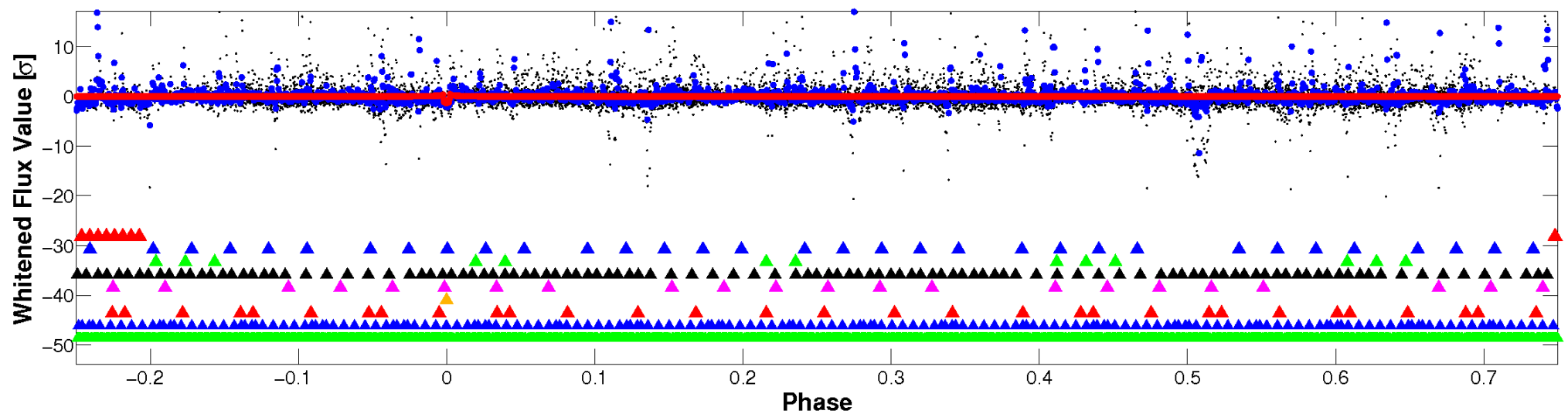


Non-Whitened Vs. Whitened Light Curve

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

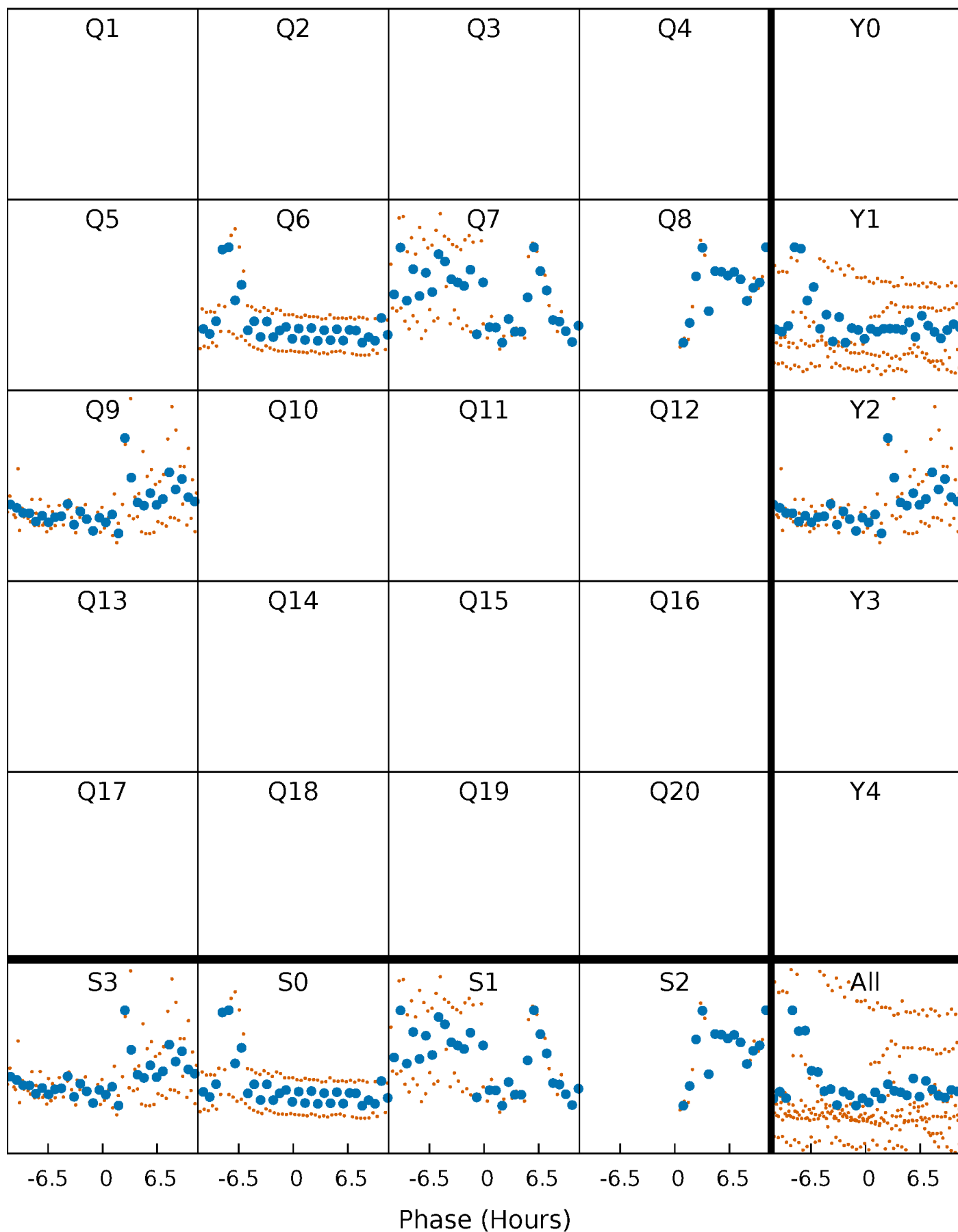


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



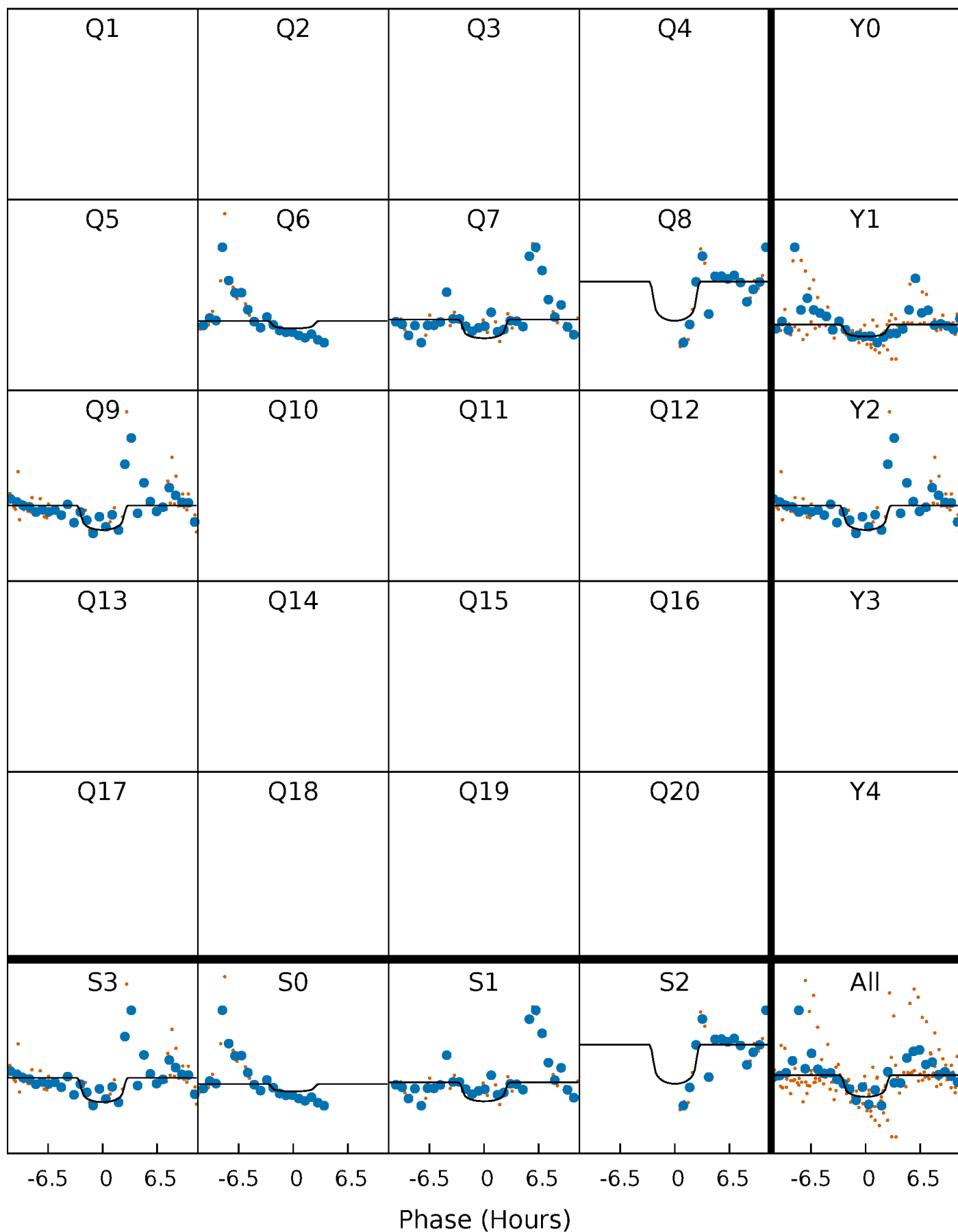
PDC Quarter-Phased Transit Curves

TCE 008493421-06 P= 51.726986 Days $T_0=143.015817$ (BKJD)



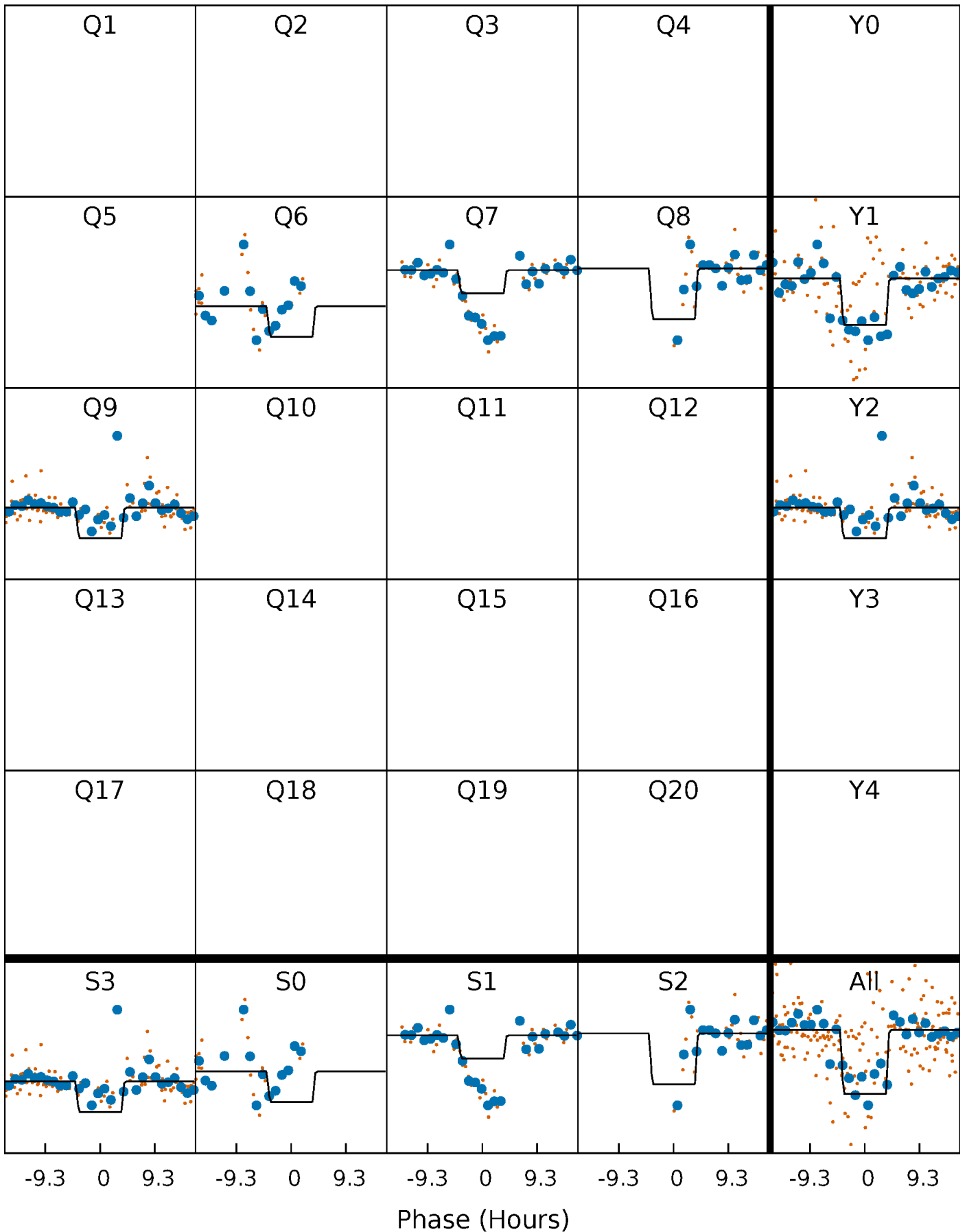
DV Quarter-Phased Transit Curves

TCE 008493421-06 P= 51.726986 Days $T_0=143.015817$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

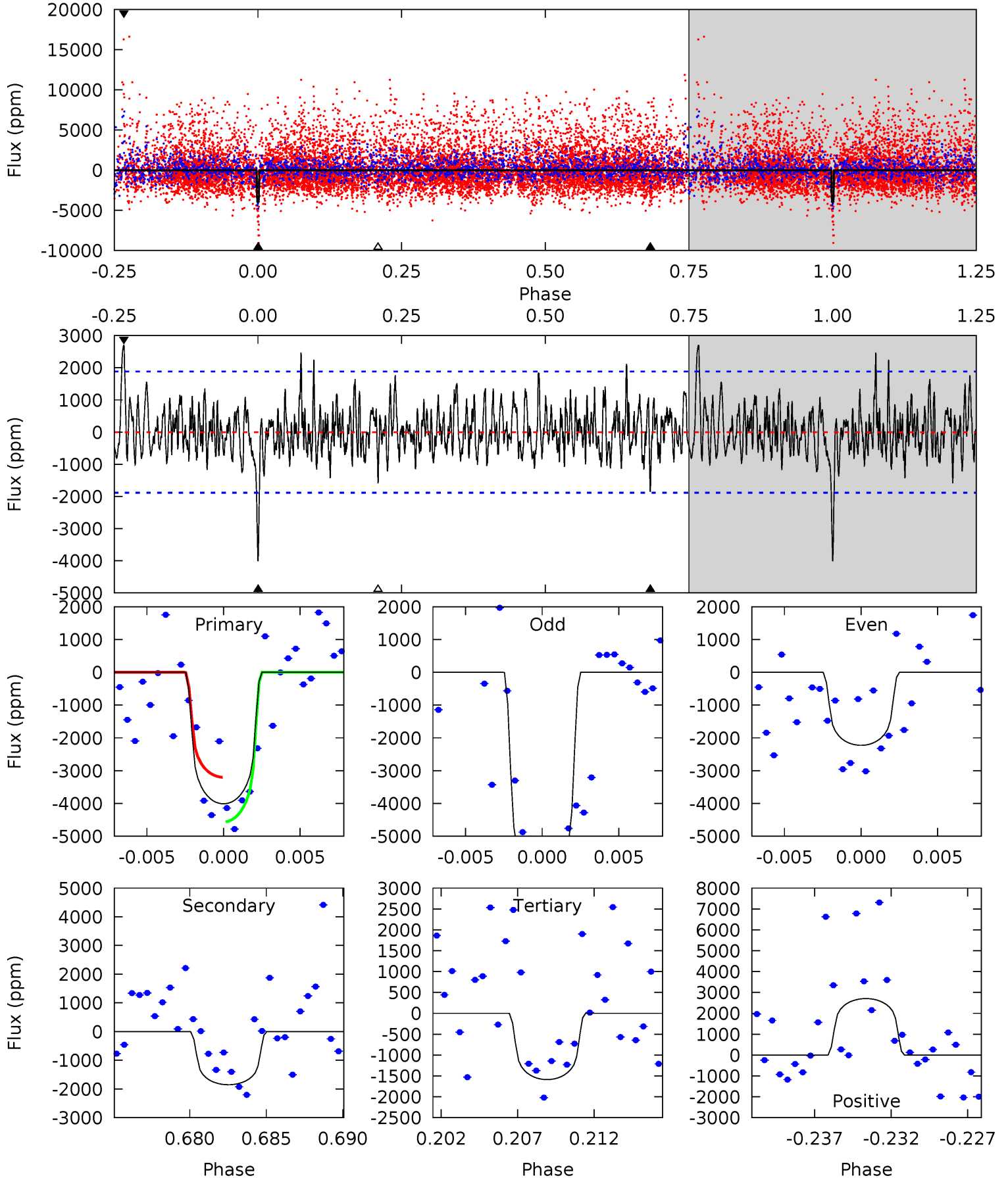
TCE 008493421-06 P= 51.715153 Days $T_0=143.179173$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-06, P = 51.726986 Days, E = 143.015817 Days

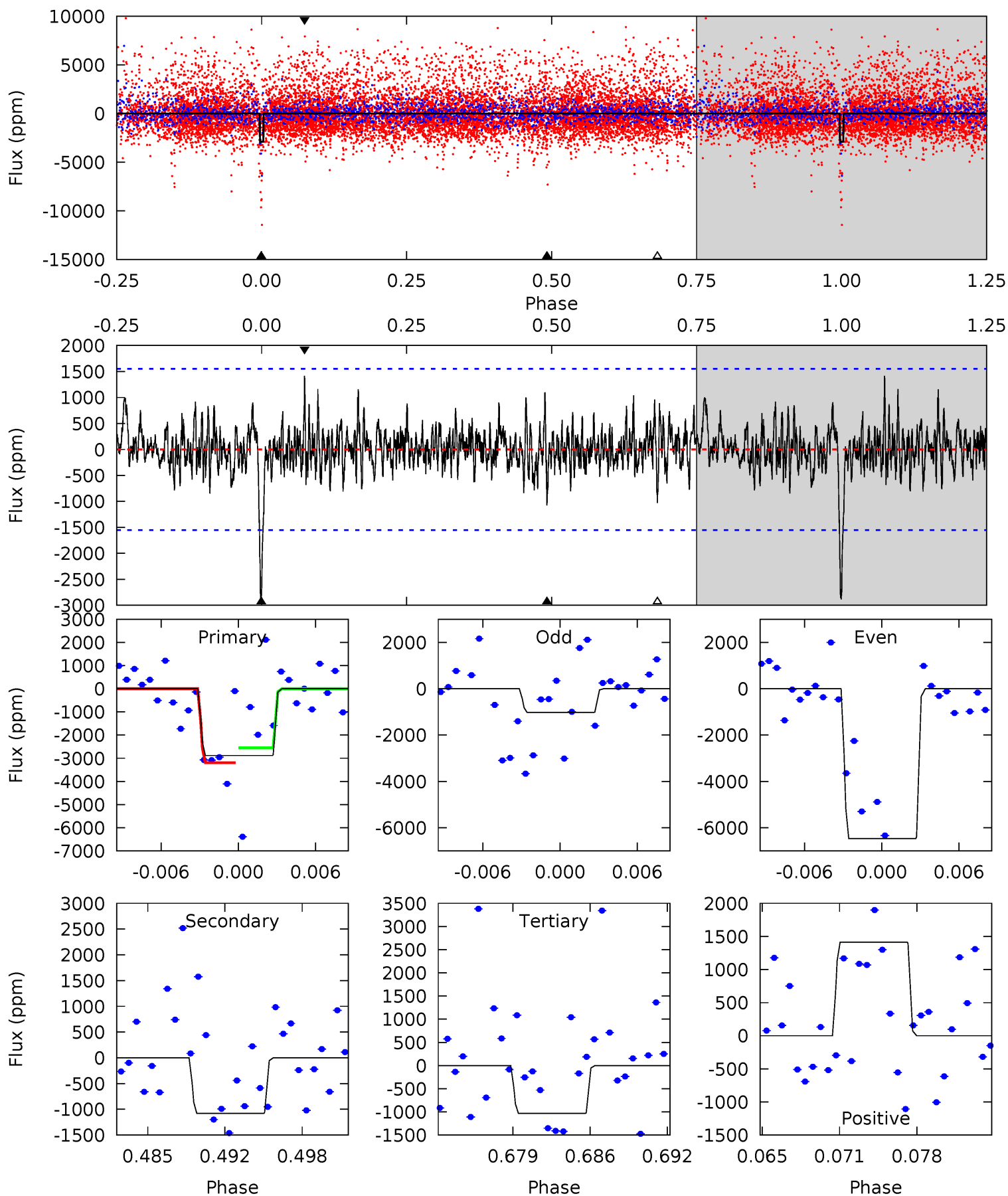
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	5.08	4.35	7.42	5.16	2.81	1.69	6.64	3.58	0.72	-2.34	3.99	1.04	0.40	1.87



Alt Model-Shift Uniqueness Test

008493421-06, P = 51.715153 Days, E = 143.179173 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.50	3.55	3.40	4.66	5.11	2.72	1.04	6.10	4.84	0.15	-1.11	9.46	1.94	0.33	1.08



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1852 ± 365	$0.89^{+0.79}_{-0.56}$	162^{+15}_{-16}	2441^{+654}_{-341}	$23715^{+118228}_{-16467}$
Alt.	-1077 ± 304	$1.03^{+0.80}_{-0.63}$	163^{+17}_{-16}	2206^{+538}_{-260}	9989^{+47096}_{-6645}

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

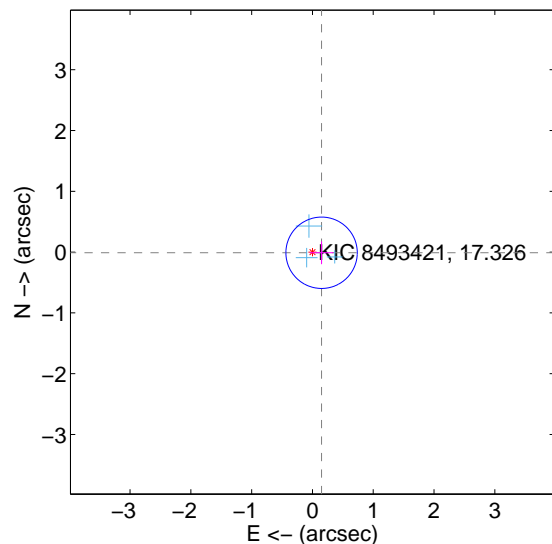
Supplemental centroid analysis for 008493421-06. Kepler magnitude: 17.33. Transit SNR 7.17

There are 3 quarters with good PRF difference image offsets

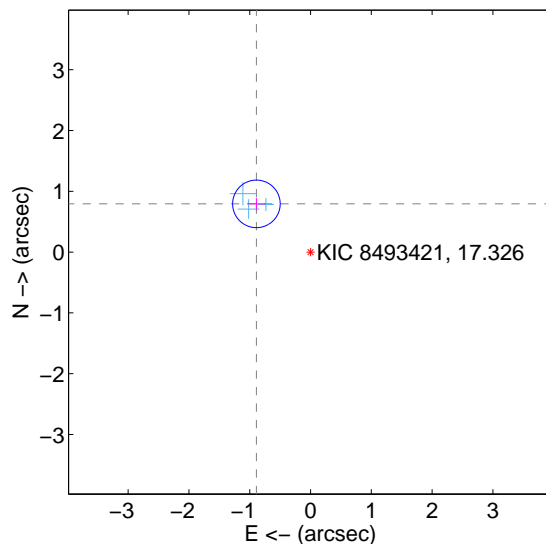
The direct PRF centroid is offset from the target star catalog position by about 1.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.151 ± 0.196	0.77	-0.150 ± 0.196	-0.011 ± 0.188
PRF-fit source offset from KIC position	1.192 ± 0.130	9.14	0.890 ± 0.153	0.793 ± 0.094
photometric centroid source offset	1.48 ± 0.61	2.42	1.47 ± 0.61	0.14 ± 0.56

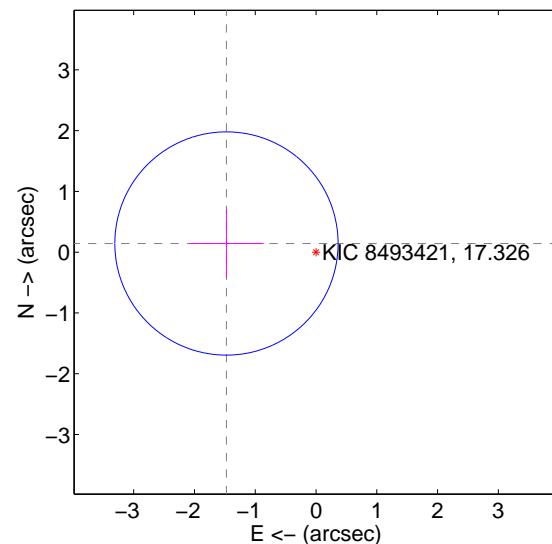
offset from difference PRF-fit to OOT PRF-fit



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.

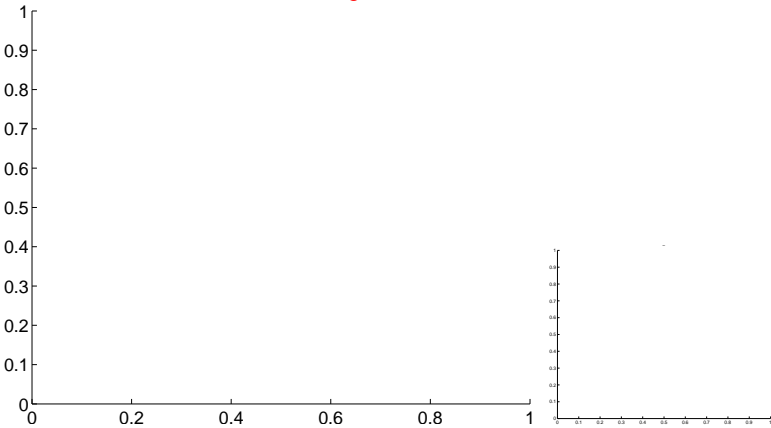


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

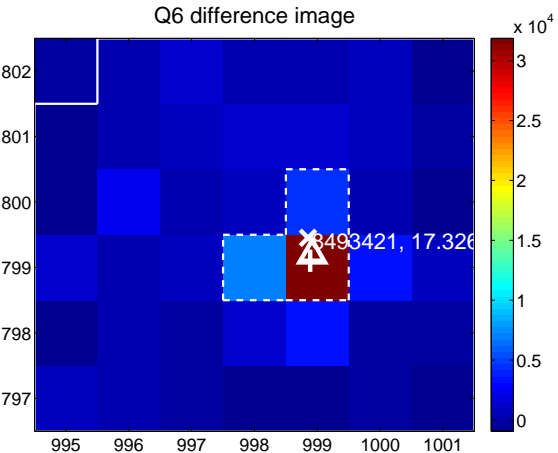
Q5 no difference image



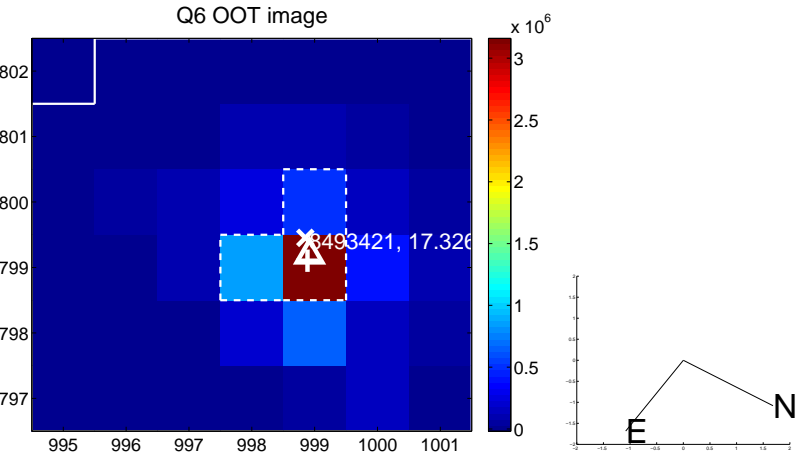
Q5 no OOT image



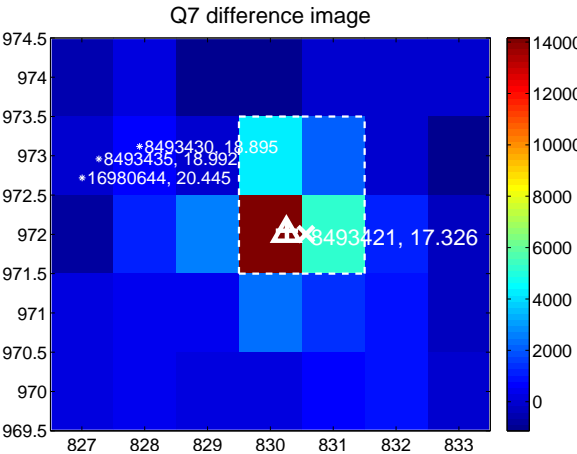
Q6 difference image



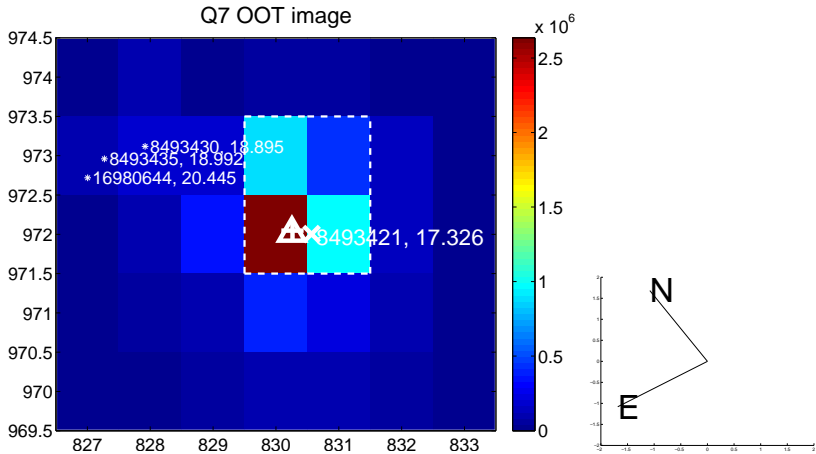
Q6 OOT image



Q7 difference image



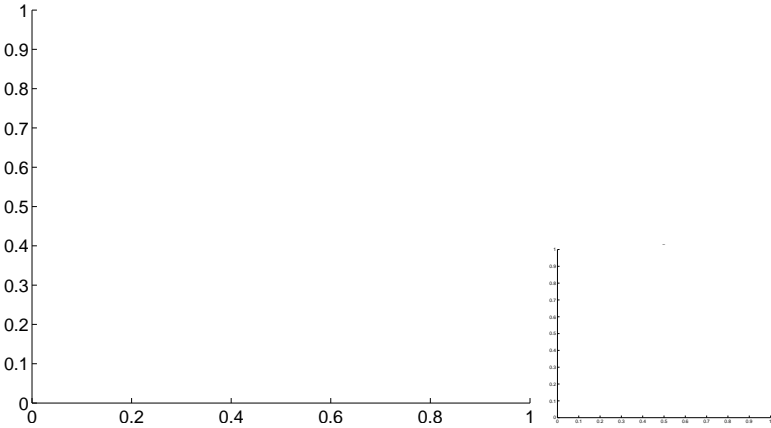
Q7 OOT image



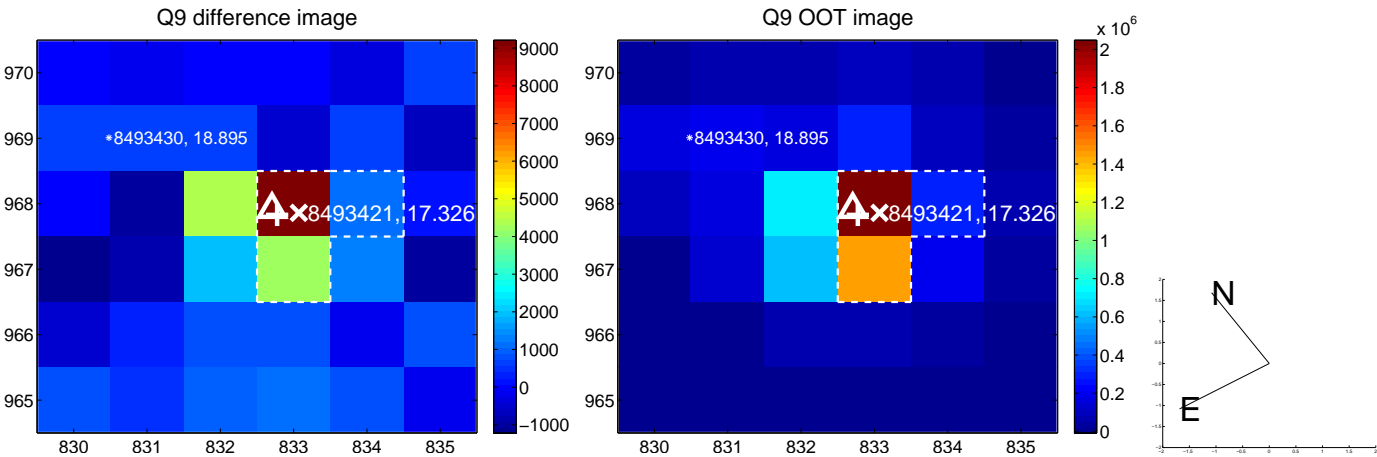
Q8 no difference image



Q8 no OOT image



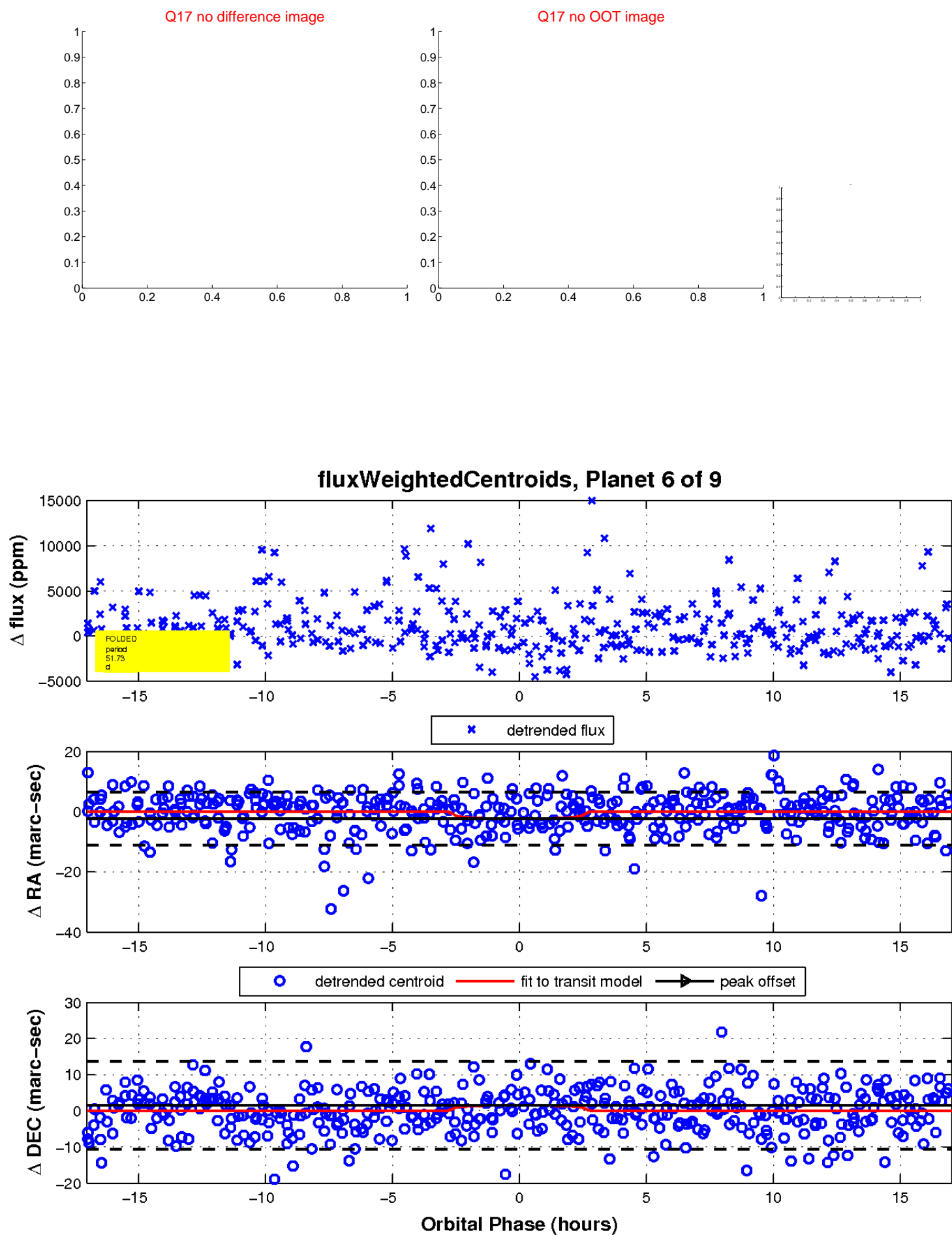
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

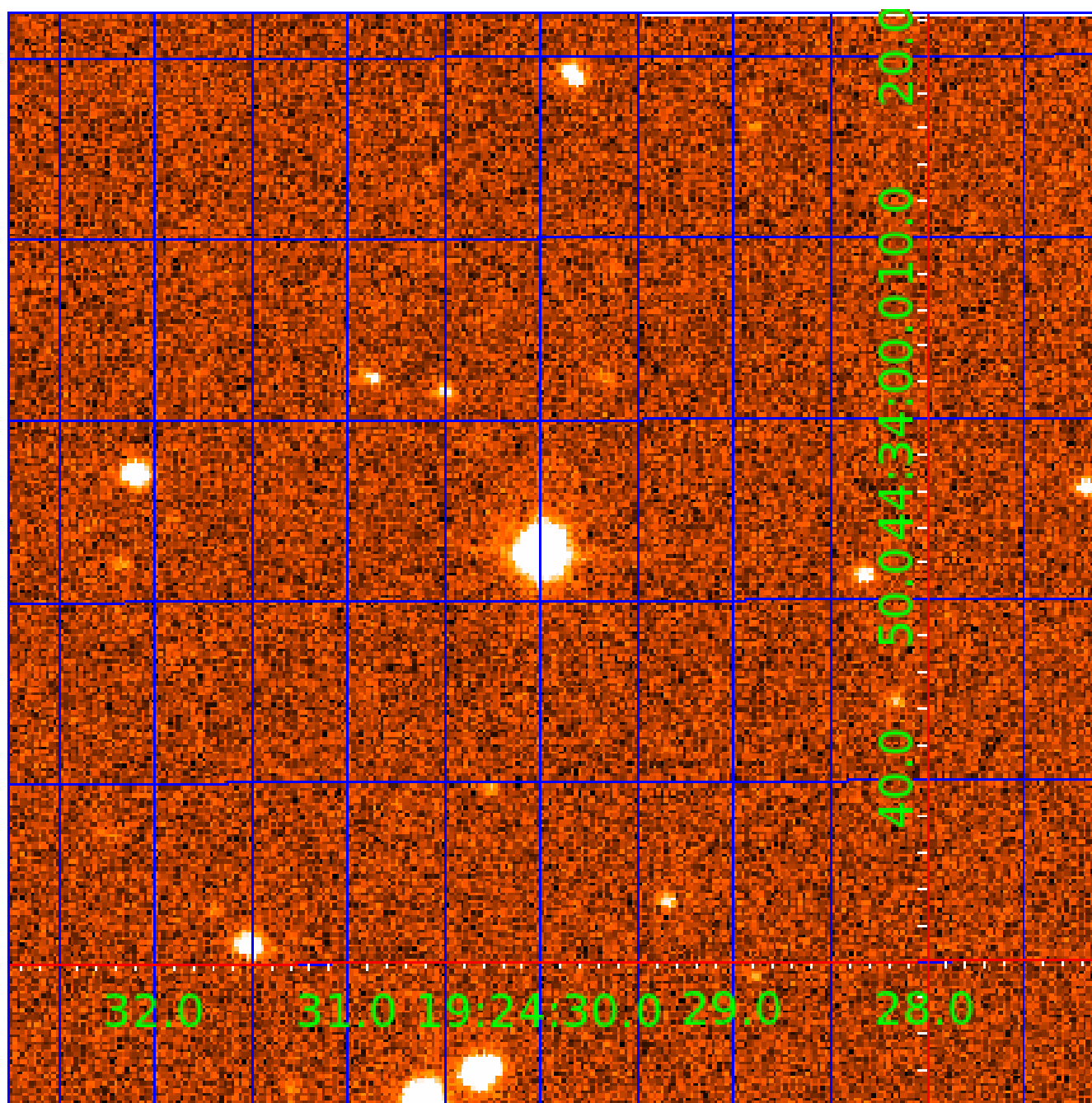


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

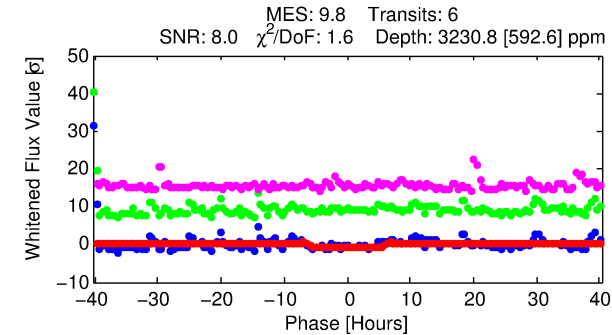
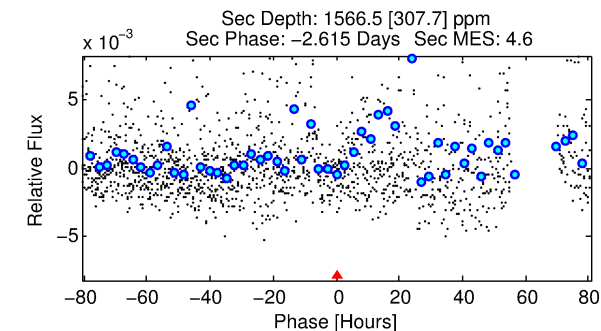
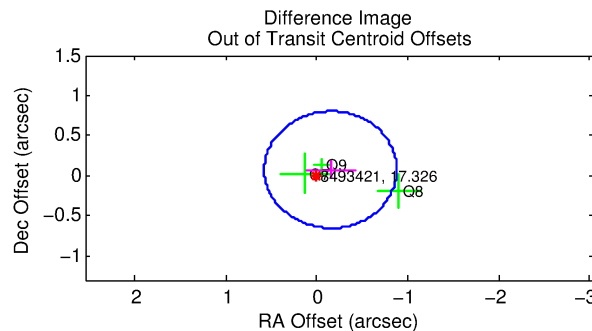
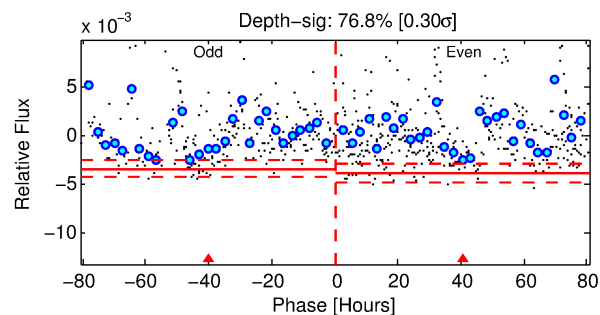
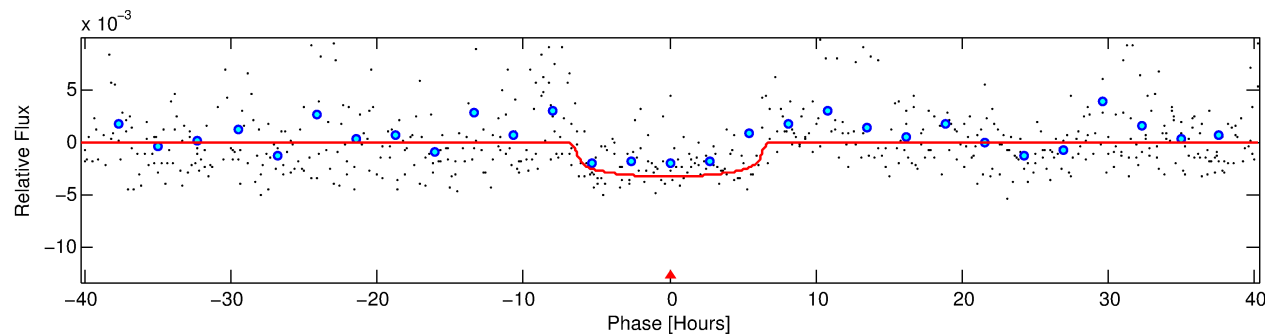
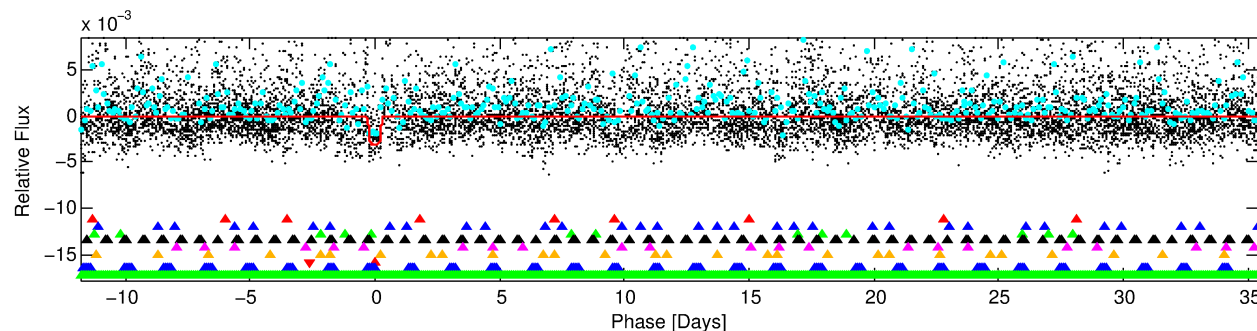
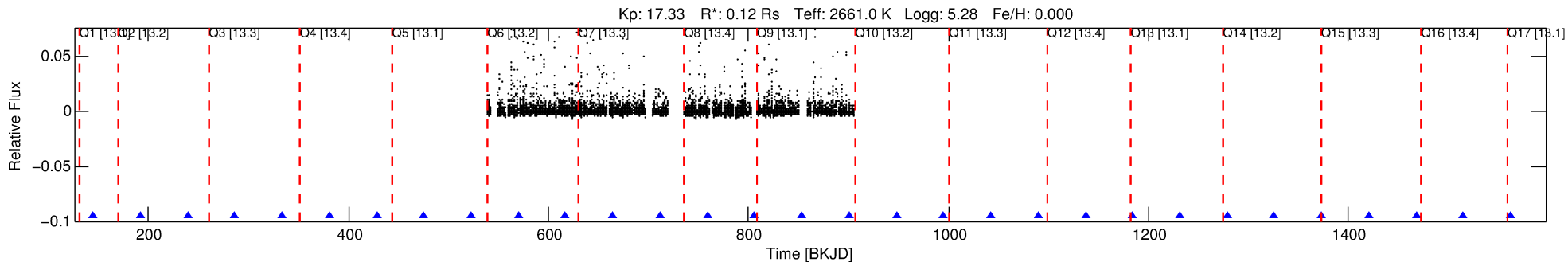
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-07

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 7 of 9 Period: 47.248 d



DV Fit Results:

Period = 47.24793 [0.00596] d
Epoch = 144.7811 [0.0762] BKJD
Rp/R* = 0.0514 [0.0221]
a/R* = 28.23 [50.30]
b = 0.01 [181.30]
Seff = 0.04 [0.00]
Teq = 117 [0] K
Rp = 0.65 [0.28] Re
a = 0.1164 [0.0000] AU
Ag = 27612.56 [24348.04] [1.13 σ]
Teffp = 2336 [515] K [4.31 σ]

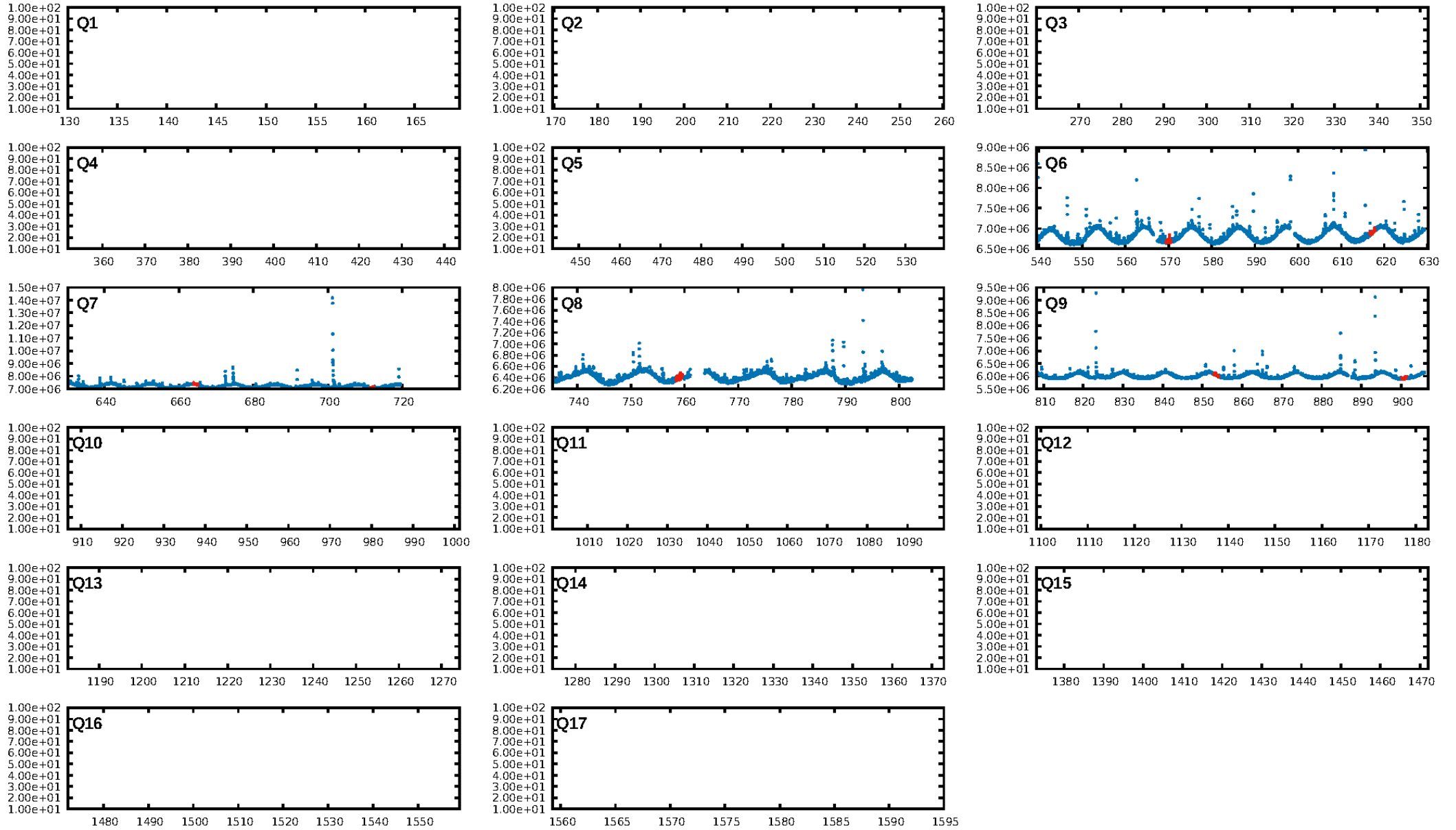
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.30 σ]
LongPeriod-sig: 100.0% [7.37 σ]
ModelChiSquare2-sig: 12.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.44
Centroid-sig: 67.5%
Centroid-so: 0.741 arcsec [1.71 σ]
OotOffset-rm: 0.168 arcsec [0.69 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 1.082 arcsec [3.39 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.75 [3/4]

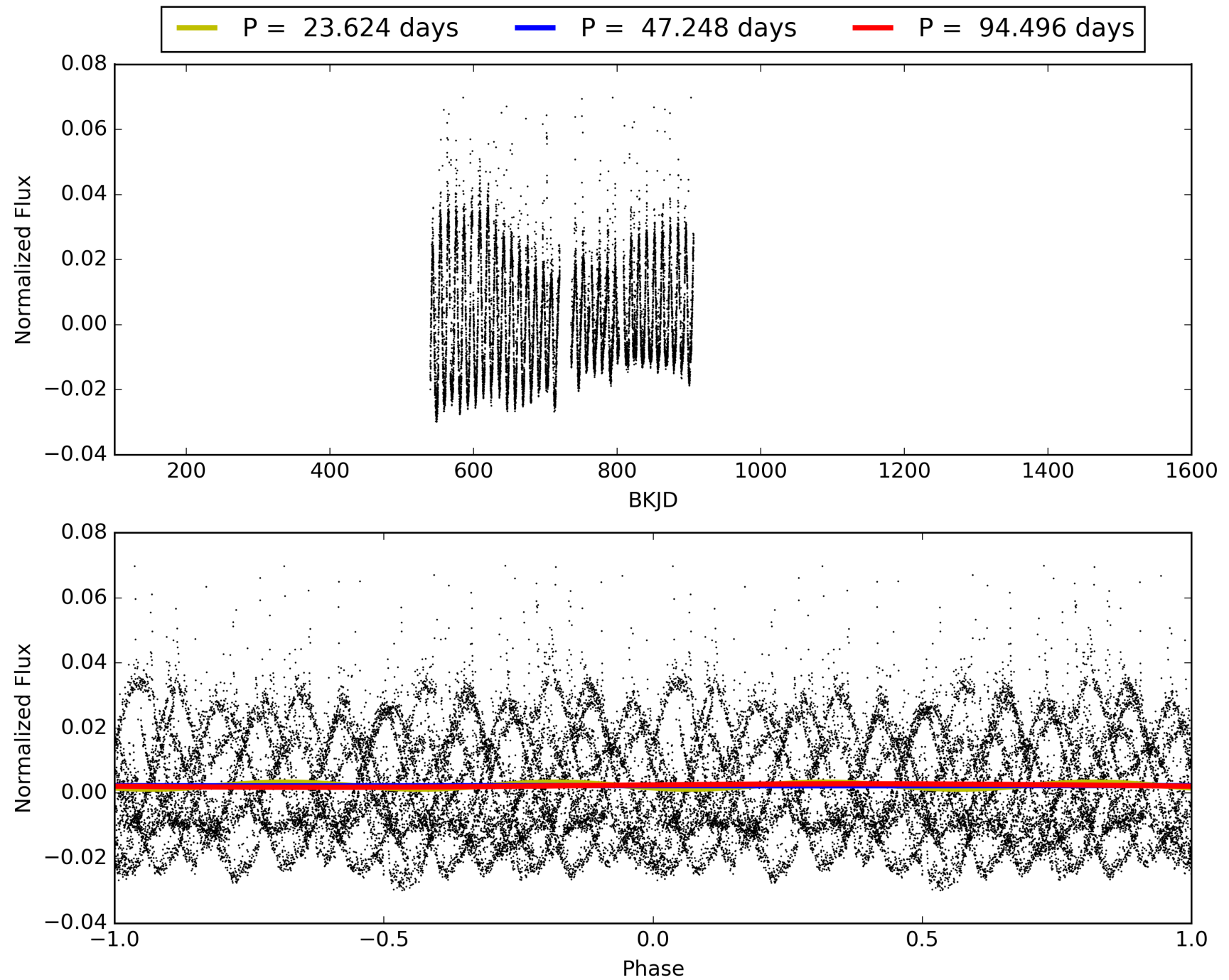
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:42 Z

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

TCE 008493421-07, PDC Light Curves

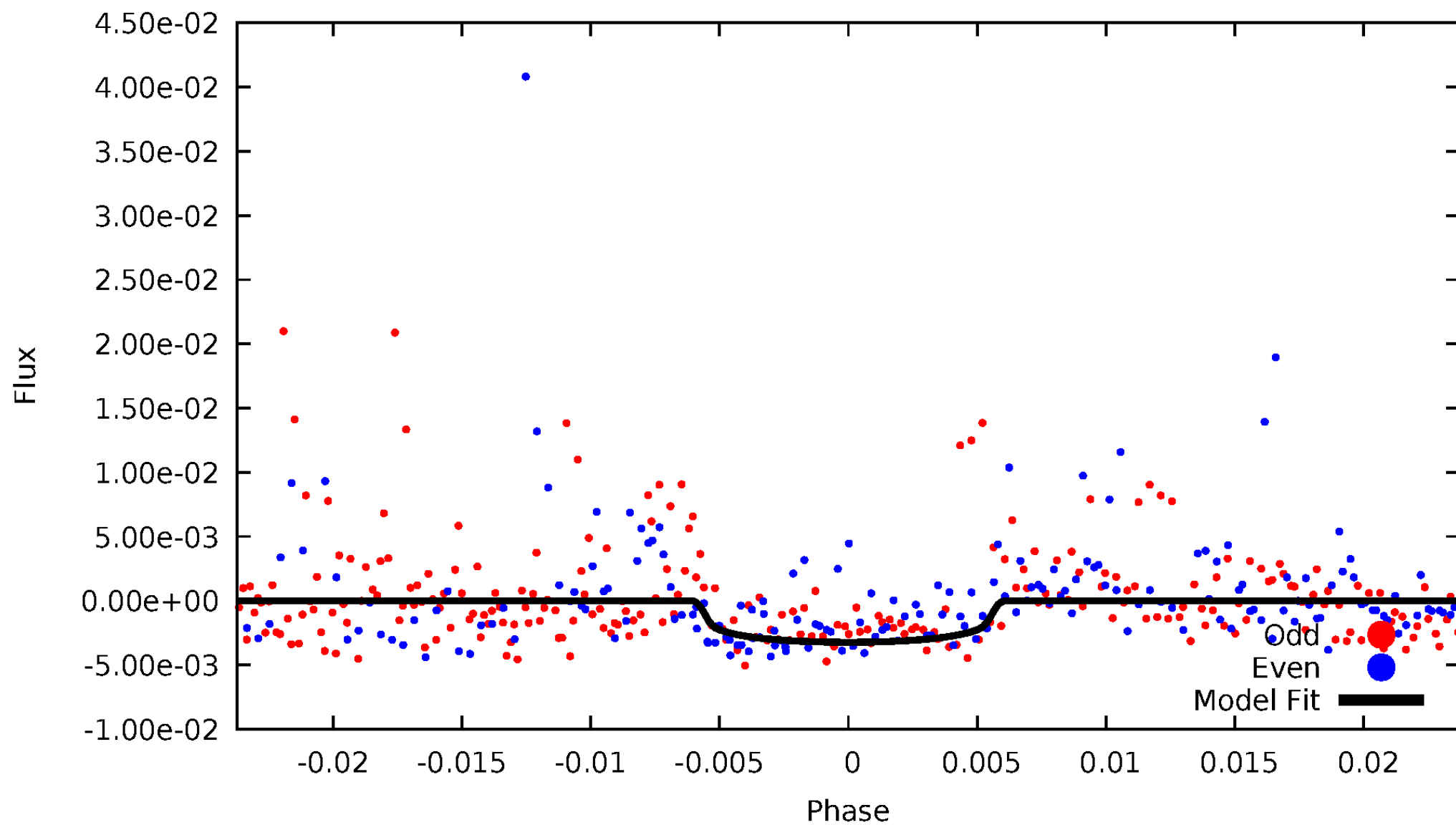


TCE 008493421-07



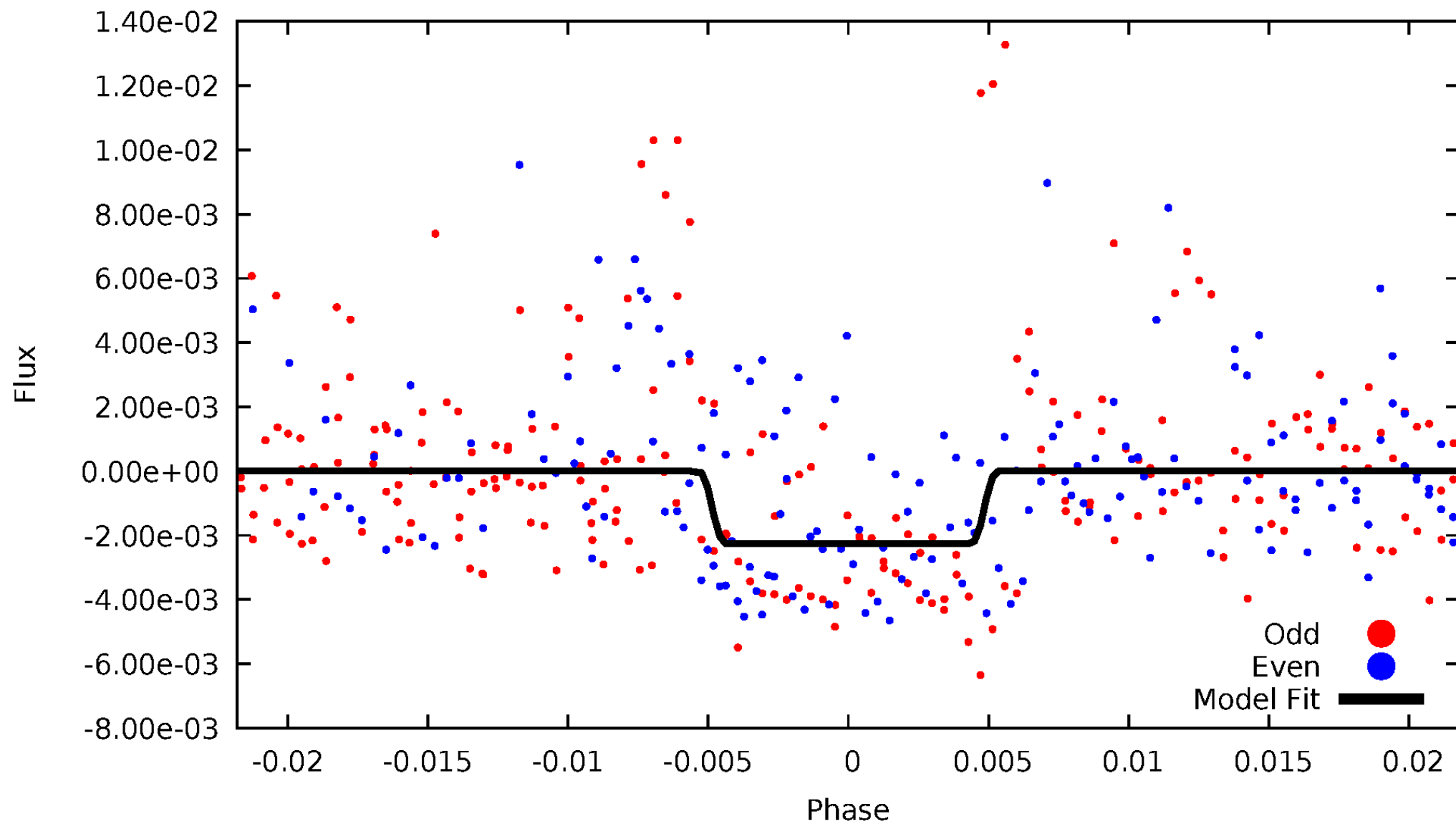
DV Odd/Even

TCE 008493421-07



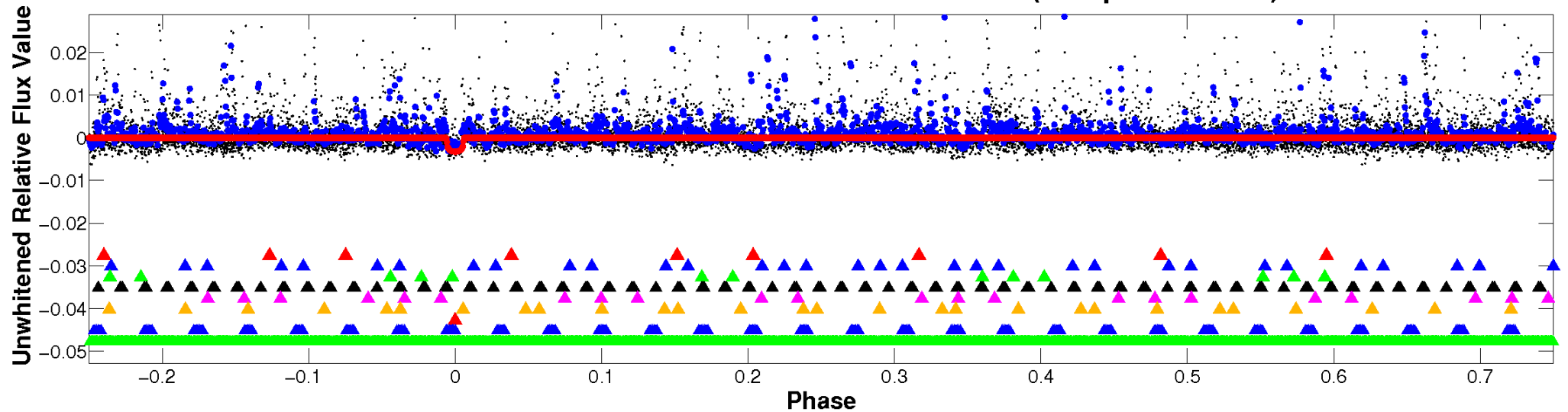
ALT Odd/Even

TCE 008493421-07

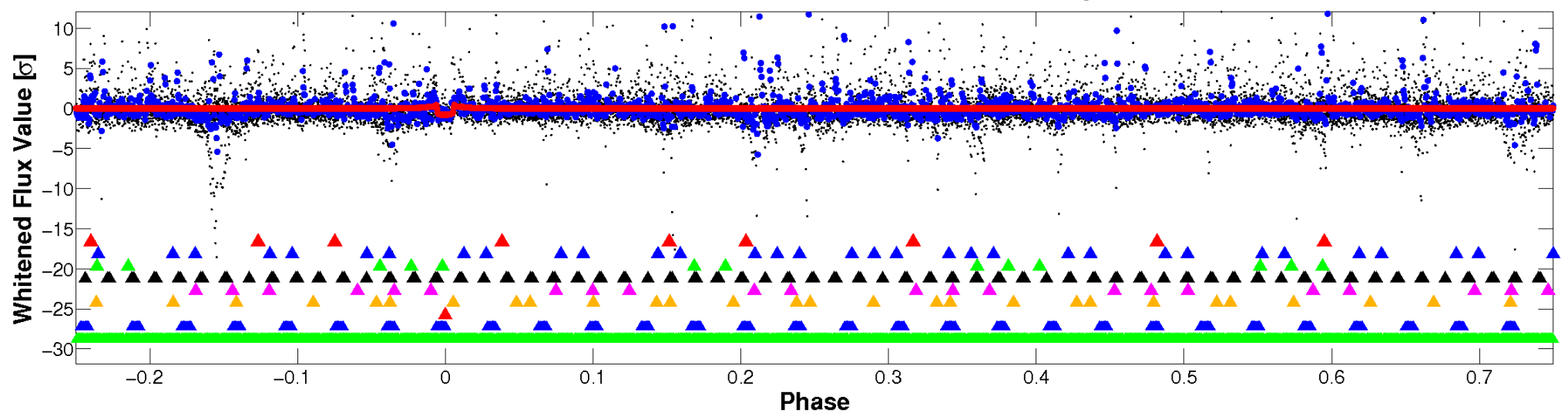


Non-Whitened Vs. Whitened Light Curve

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

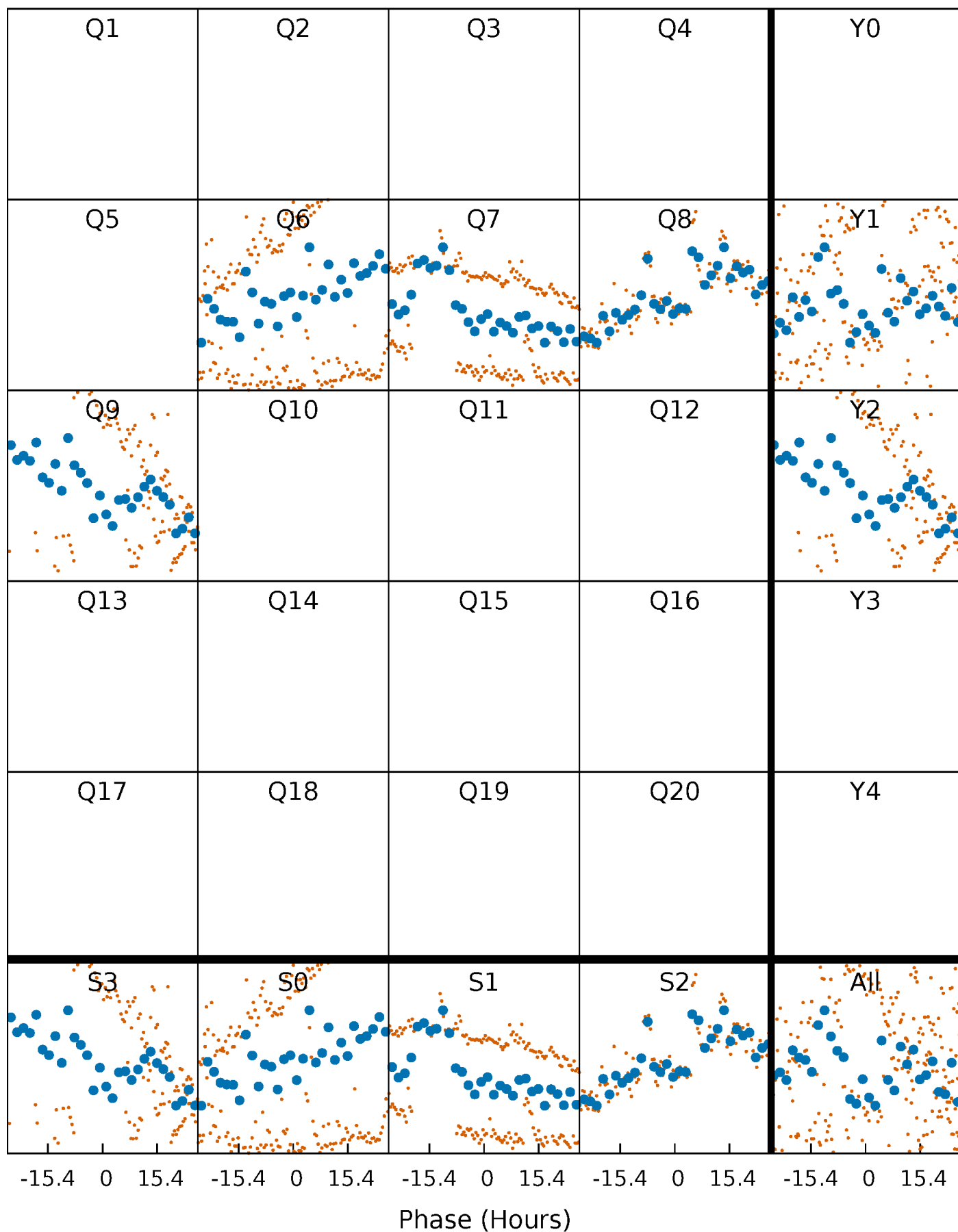


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



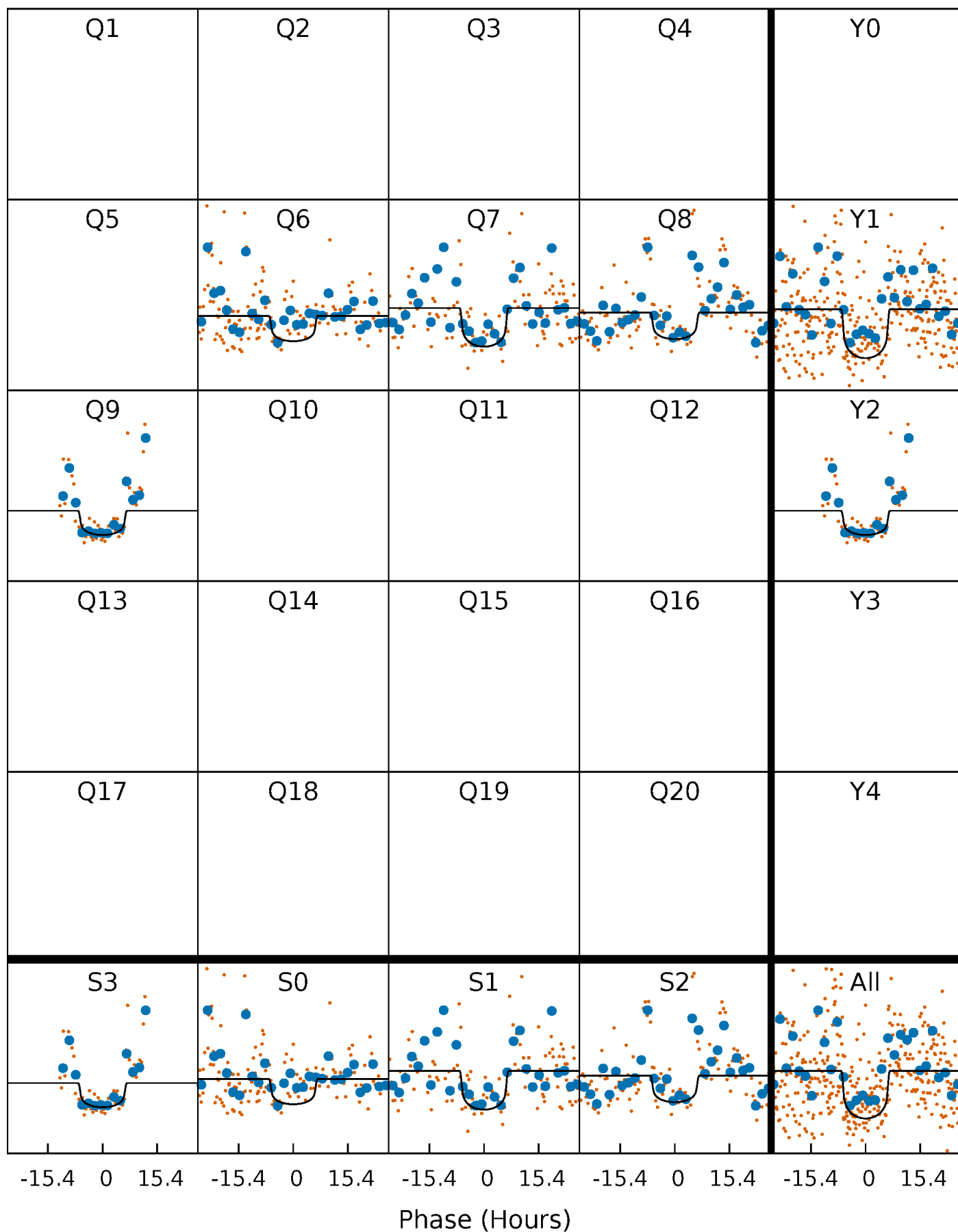
PDC Quarter-Phased Transit Curves

TCE 008493421-07 $P = 47.247927$ Days $T_0 = 144.781056$ (BKJD)



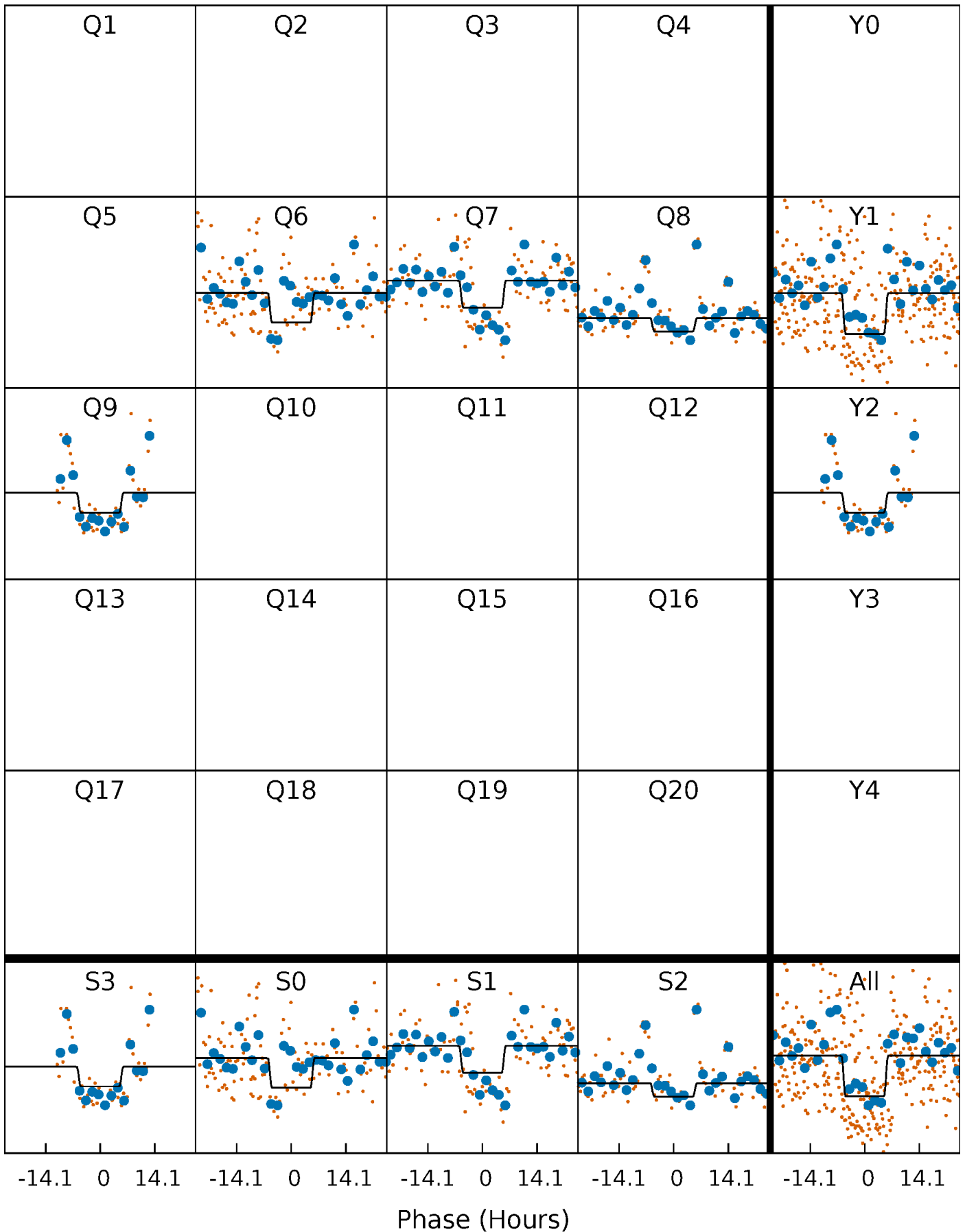
DV Quarter-Phased Transit Curves

TCE 008493421-07 $P = 47.247927$ Days $T_0 = 144.781056$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

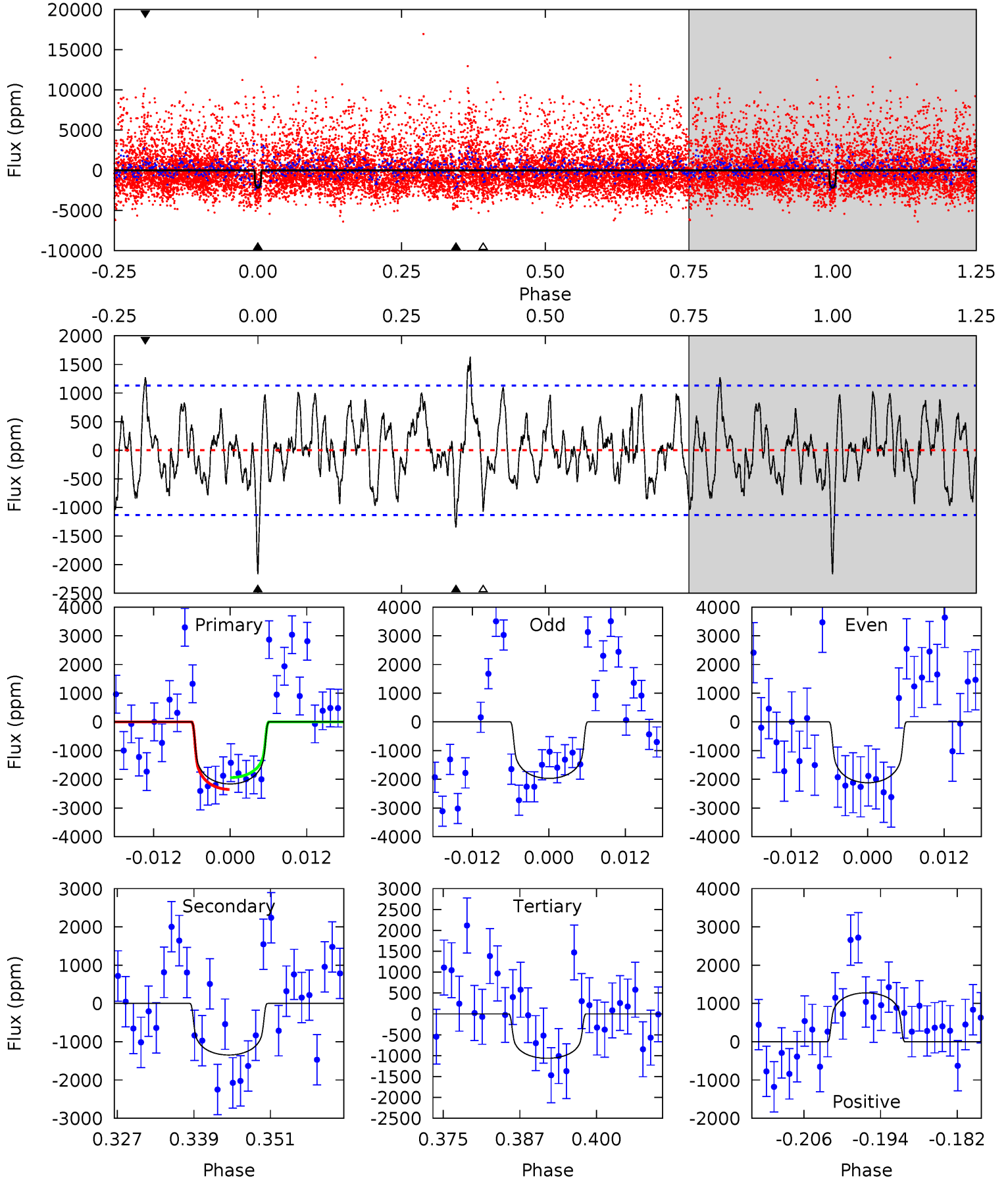
TCE 008493421-07 $P = 47.240627$ Days $T_0 = 144.857517$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-07, P = 47.247927 Days, E = 144.781056 Days

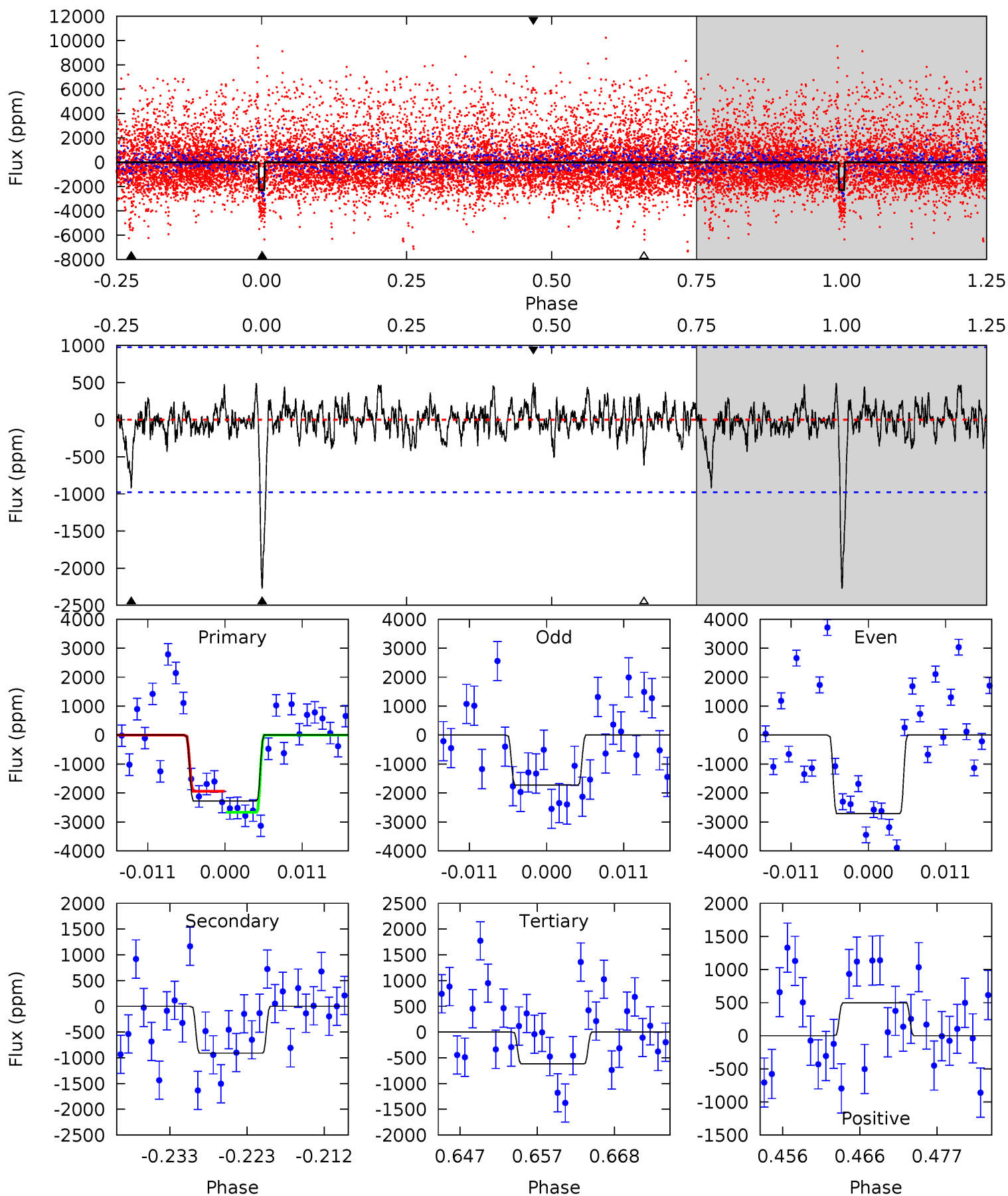
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.53	5.94	4.69	5.62	4.99	2.51	2.02	4.85	3.91	1.25	0.31	0.24	0.85	0.43	0.93



Alt Model-Shift Uniqueness Test

008493421-07, P = 47.240627 Days, E = 144.857517 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	4.67	3.17	2.56	5.02	2.56	0.83	8.51	9.12	1.50	2.11	2.48	1.33	0.18	1.89



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1347 ± 227	$0.76^{+0.44}_{-0.36}$	168^{+17}_{-17}	2448^{+401}_{-271}	21032^{+47929}_{-11172}
Alt.	-910 ± 195	$0.68^{+0.45}_{-0.33}$	168^{+16}_{-16}	2386^{+407}_{-266}	16961^{+34792}_{-9829}

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 $A_{obs} \gg 1.0$

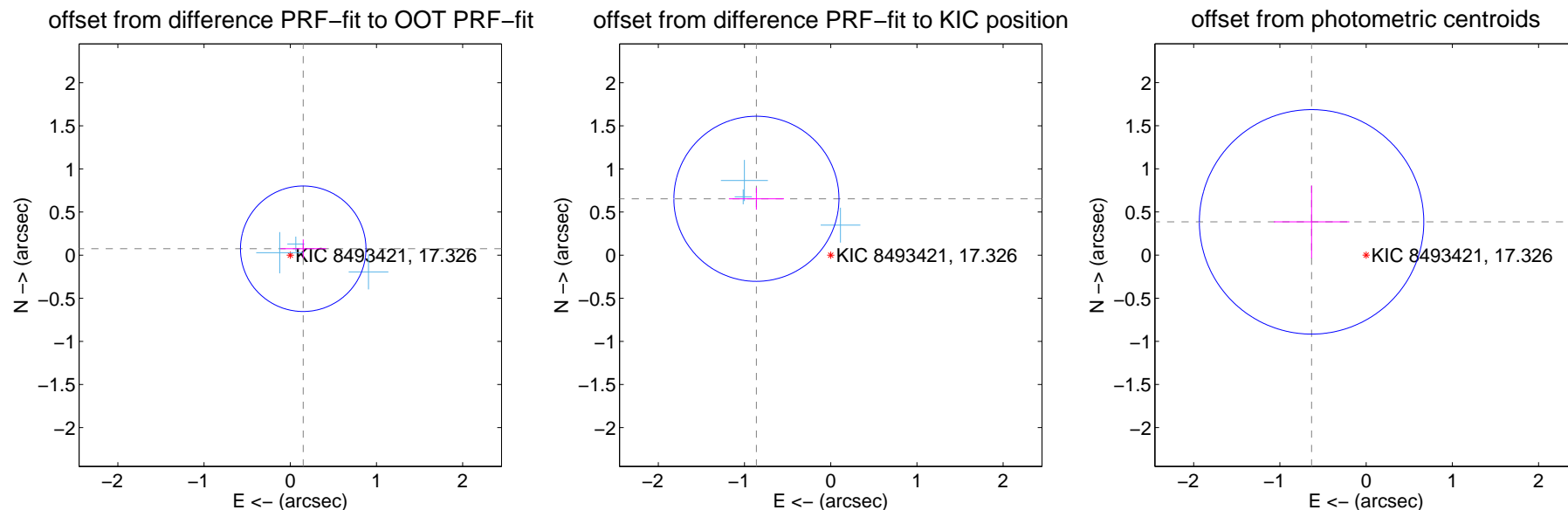
DV Centroid Data

Supplemental centroid analysis for 008493421-07. Kepler magnitude: 17.33. Transit SNR 8.01

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.168 ± 0.243	0.69	-0.150 ± 0.265	0.074 ± 0.108
PRF-fit source offset from KIC position	1.082 ± 0.319	3.39	0.862 ± 0.320	0.654 ± 0.127
photometric centroid source offset	0.74 ± 0.43	1.71	0.63 ± 0.44	0.39 ± 0.42

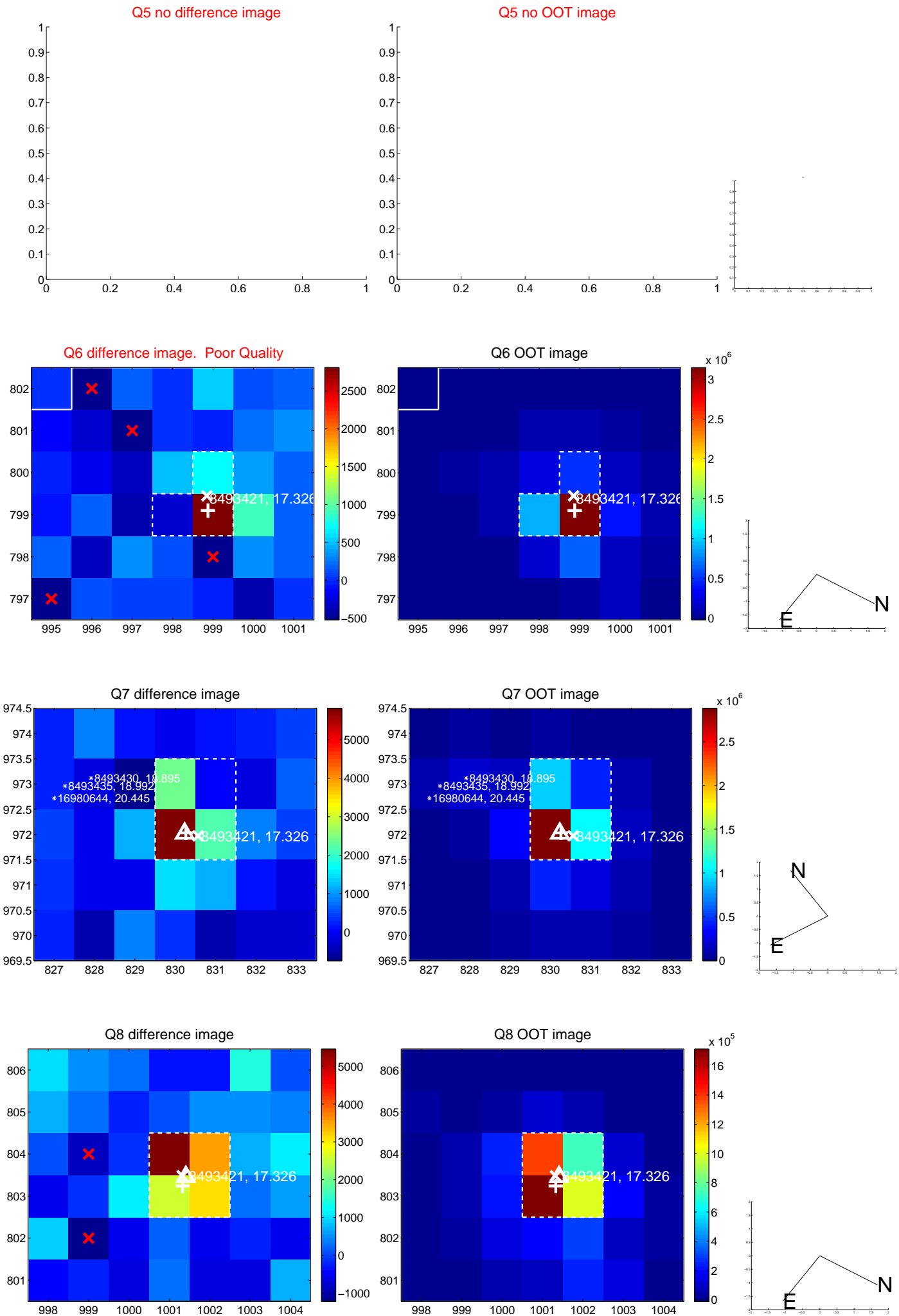


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

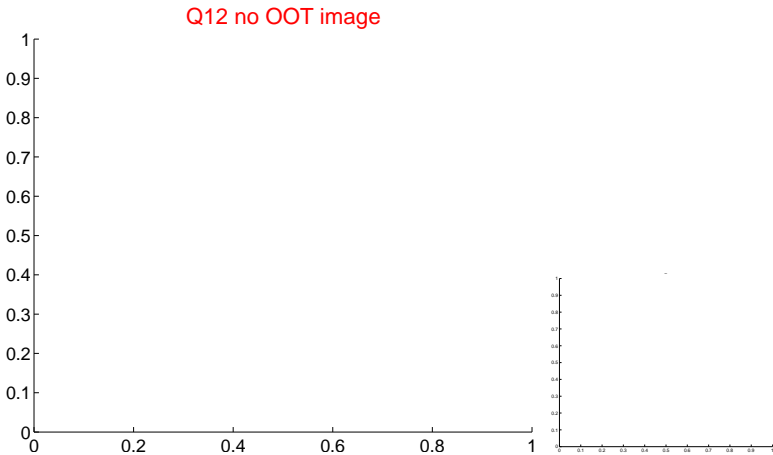
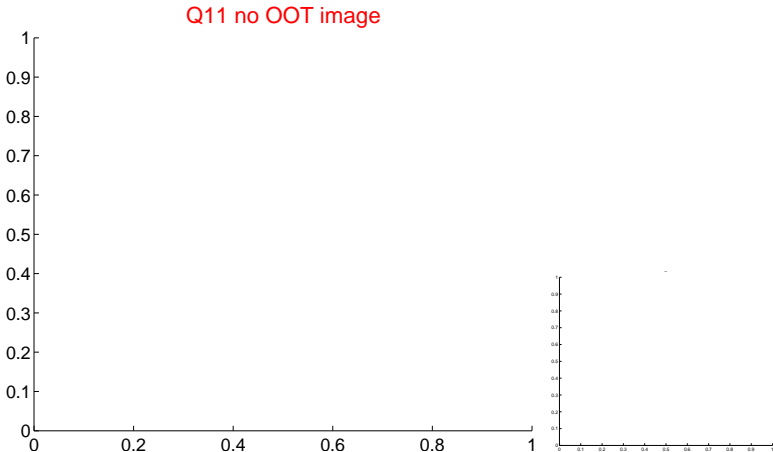
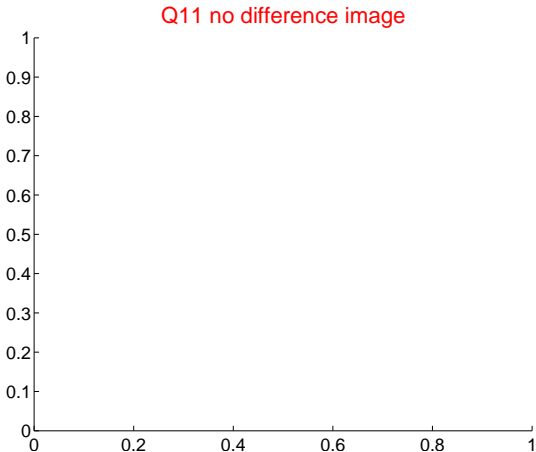
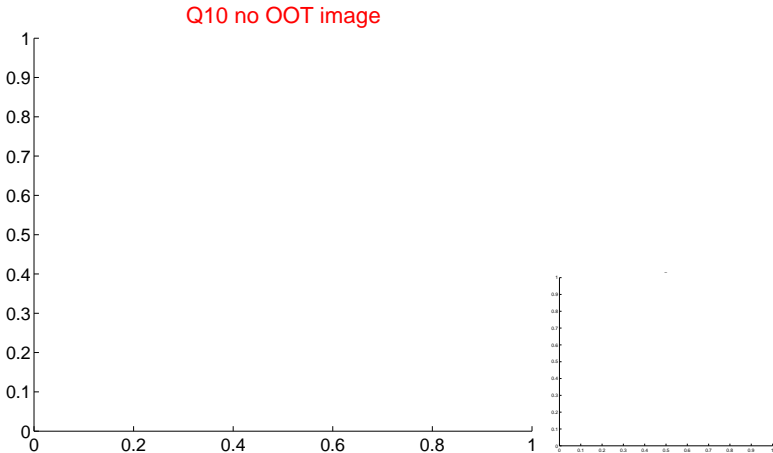
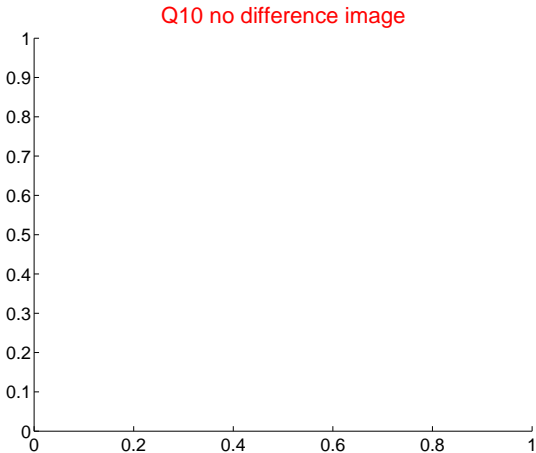
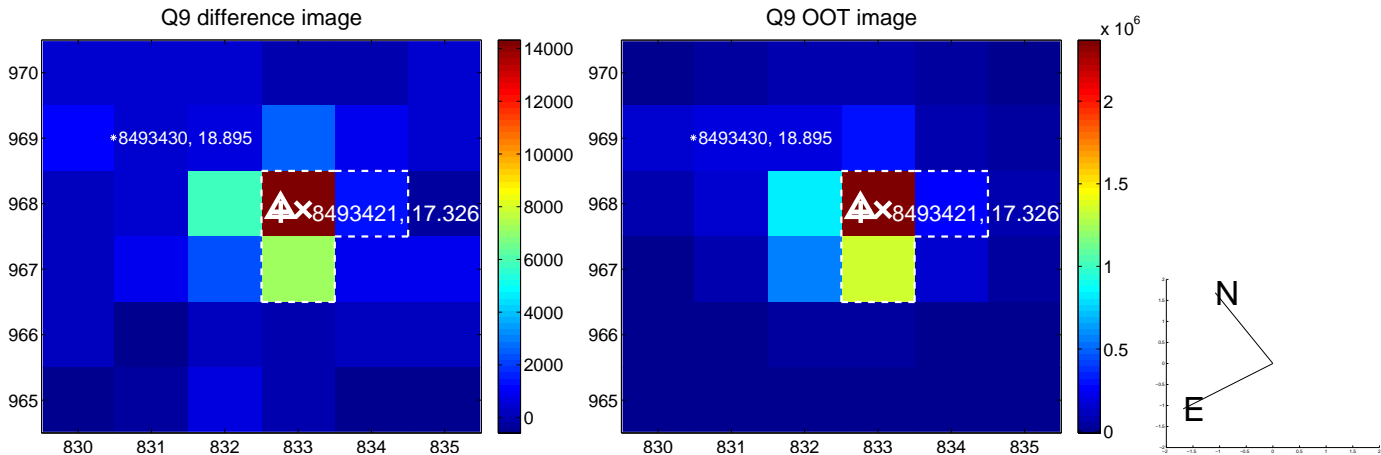
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



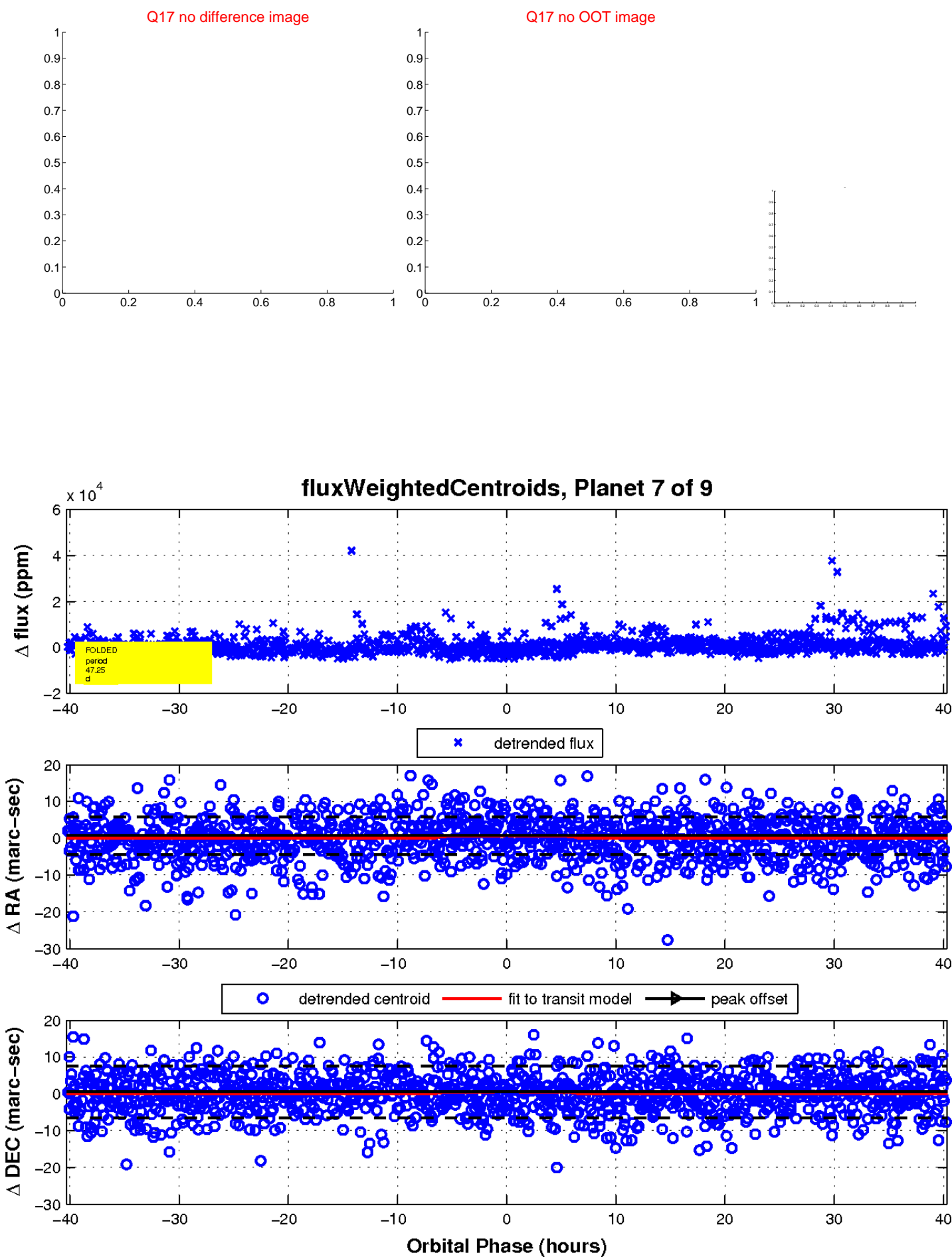
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

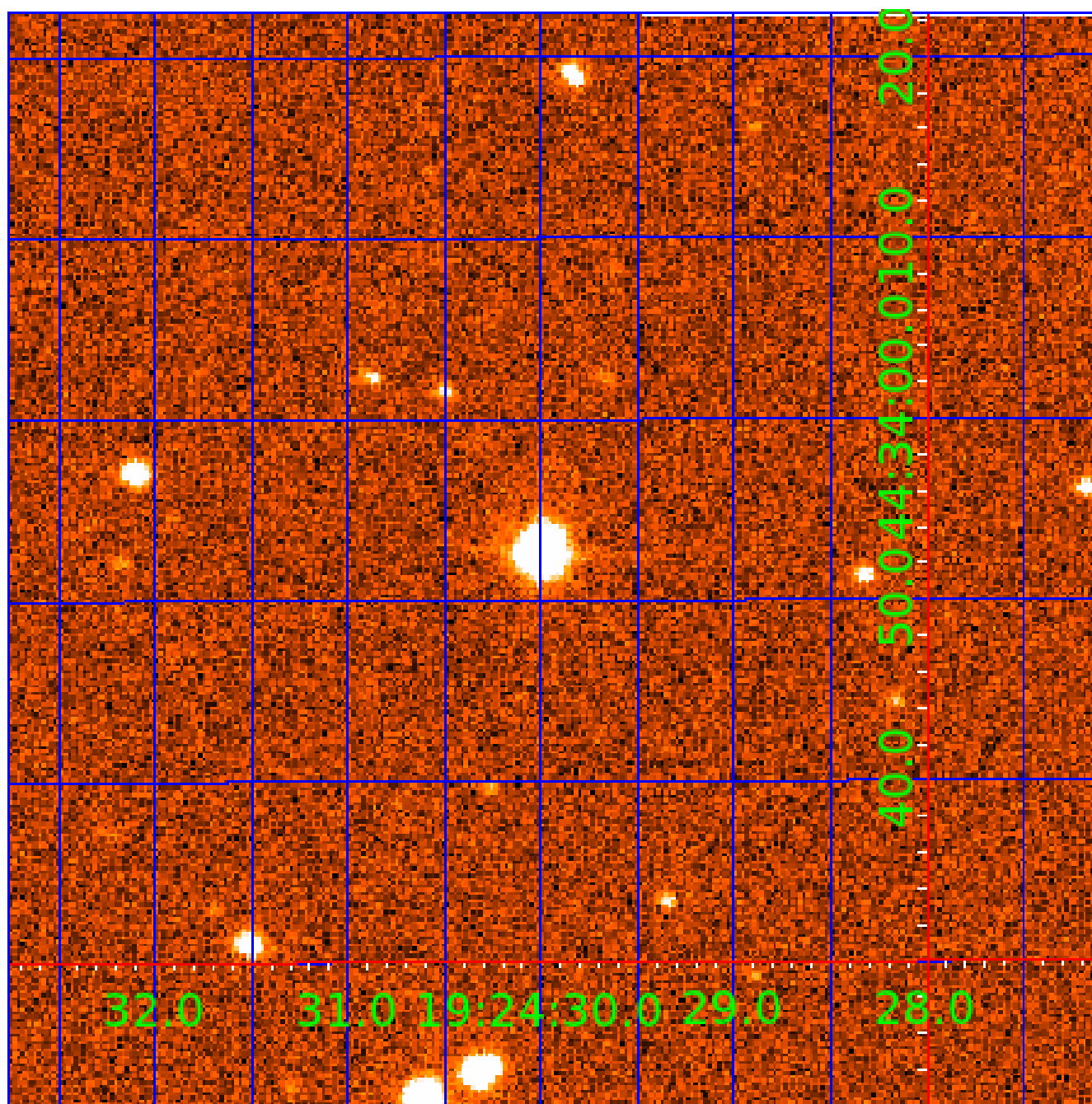


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—CENT_NOFITS

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

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

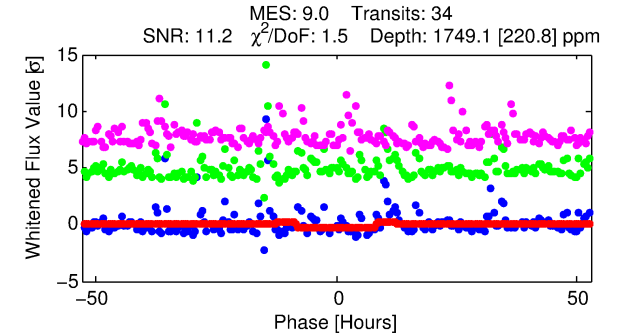
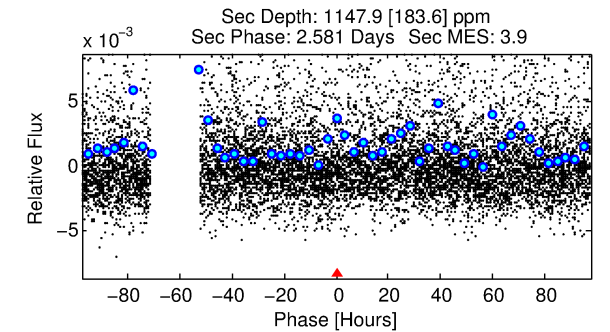
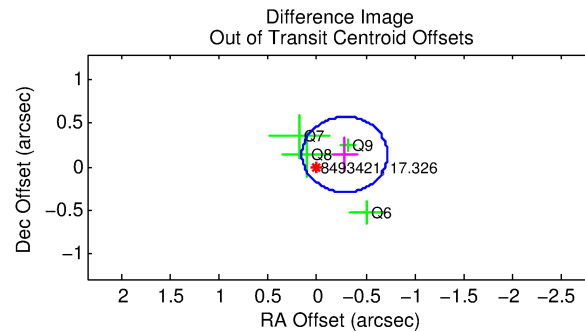
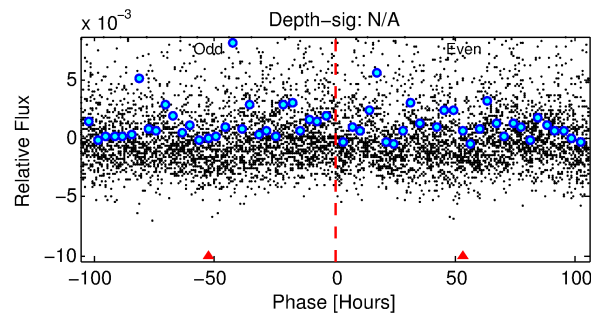
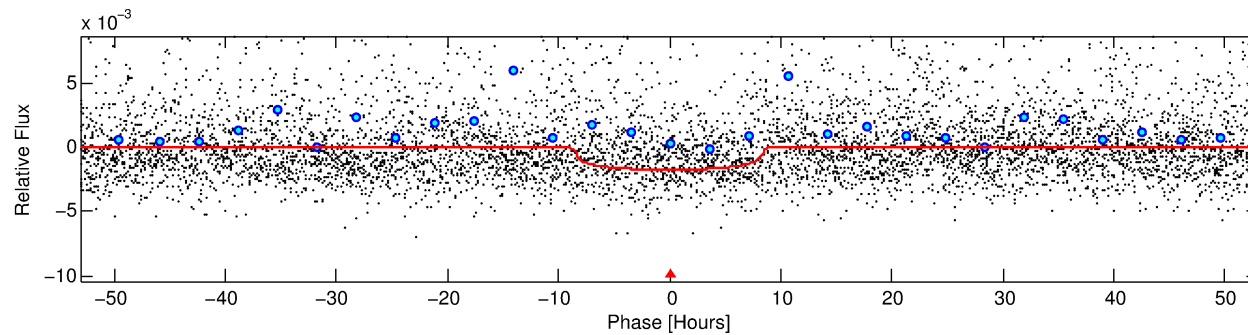
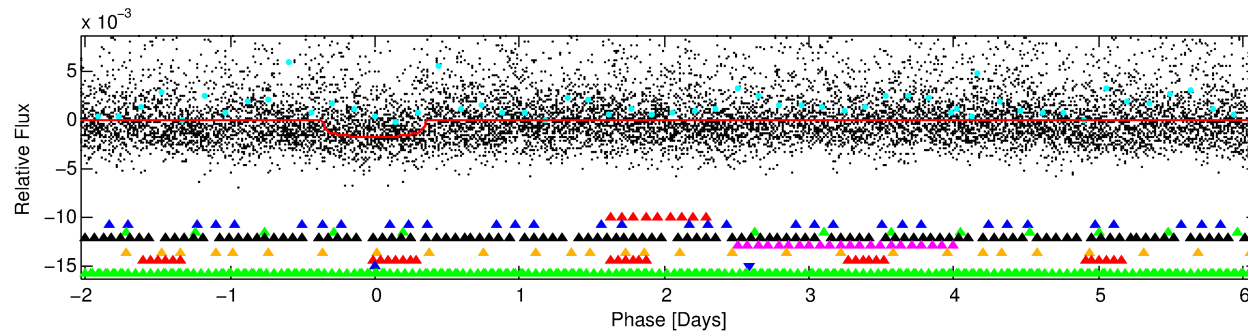
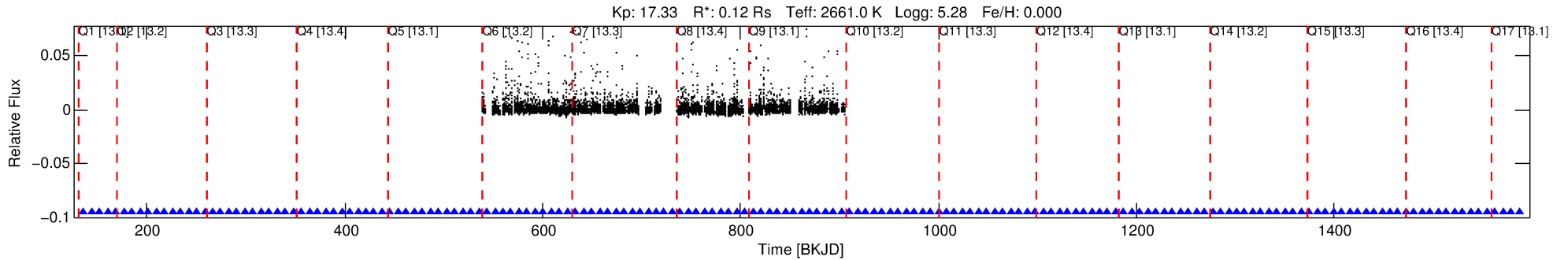
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008493421-08

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 8 of 9 Period: 8.148 d



DV Fit Results:

Period = 8.14791 [0.00074] d
Epoch = 136.3435 [0.0525] BKJD
Rp/R* = 0.0388 [0.0081]
a/R* = 3.36 [2.56]
b = 0.46 [1.44]
Seff = 0.46 [0.00]
Teq = 211 [0] K
Rp = 0.49 [0.10] Re
a = 0.0361 [0.0000] AU
Ag = 3401.27 [1518.04] [2.24σ]
Teffp = 2486 [277] K [8.20σ]

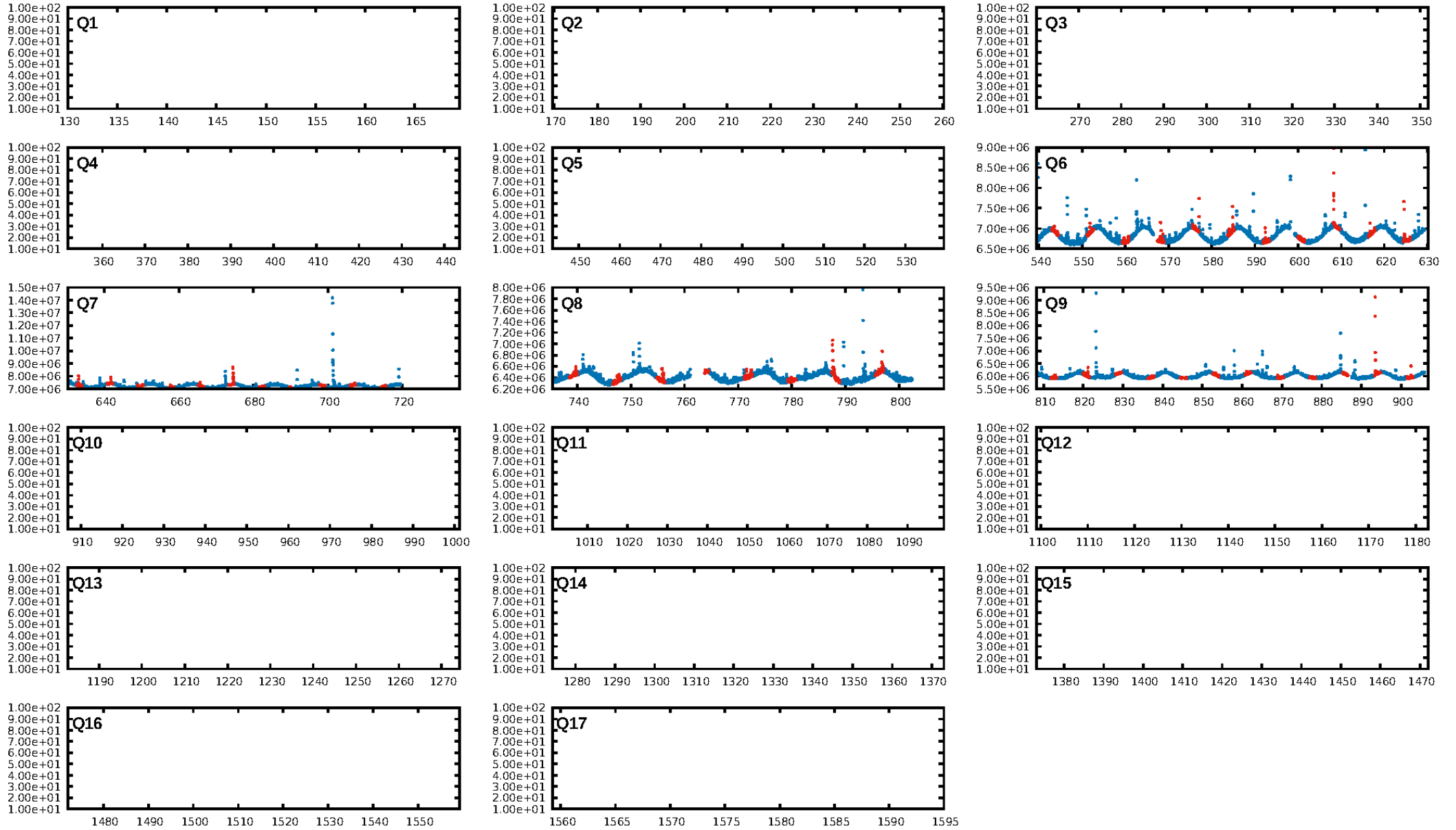
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.26σ]
LongPeriod-sig: 100.0% [5.24σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [34/34]
GhostDiagnostic-chr: 0.6074
Centroid-sig: 49.2%
Centroid-so: 0.831 arcsec [2.82σ]
OotOffset-rm: 0.315 arcsec [2.17σ]
KicOffset-rm: 1.059 arcsec [7.32σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

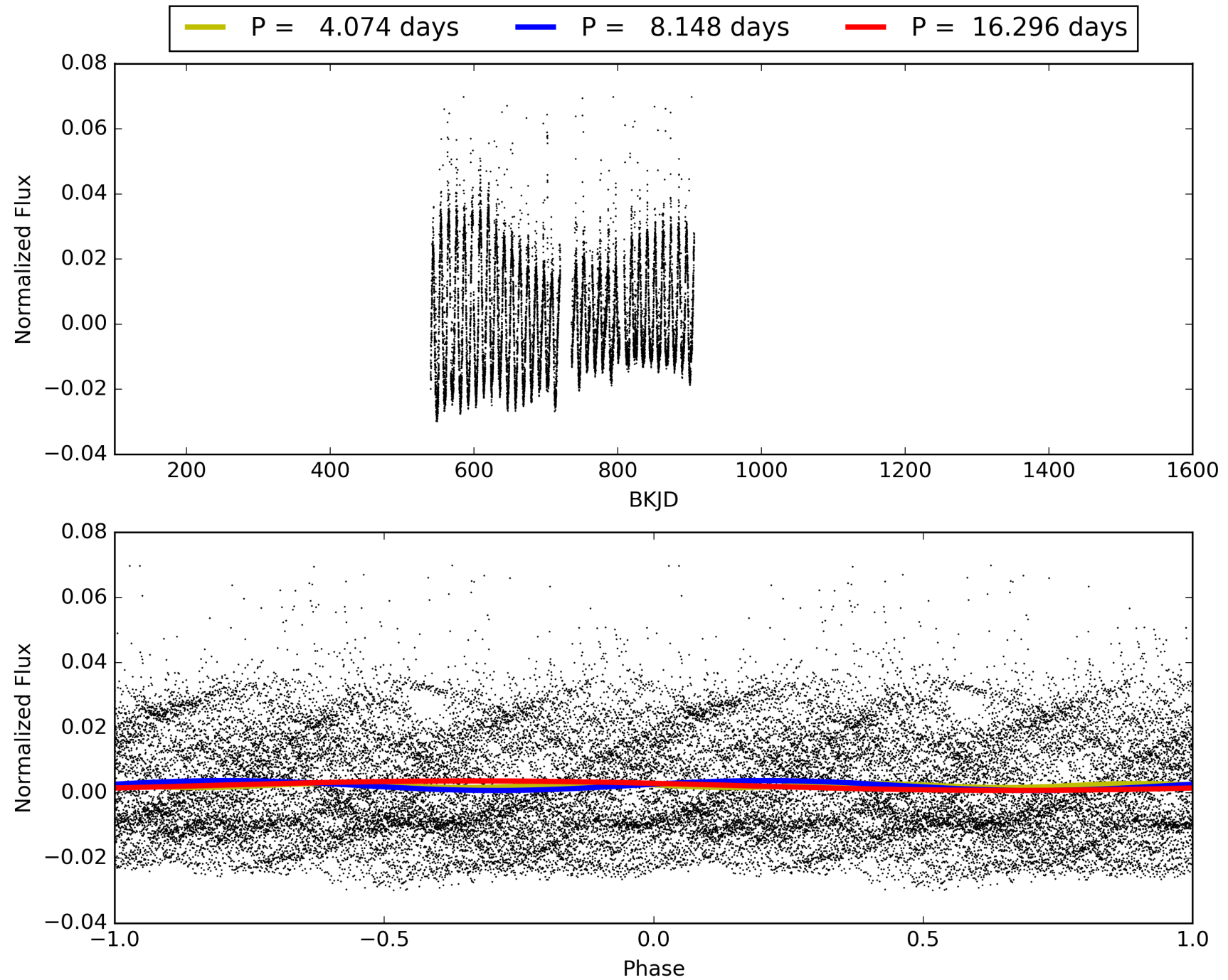
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:47 Z

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

TCE 008493421-08, PDC Light Curves

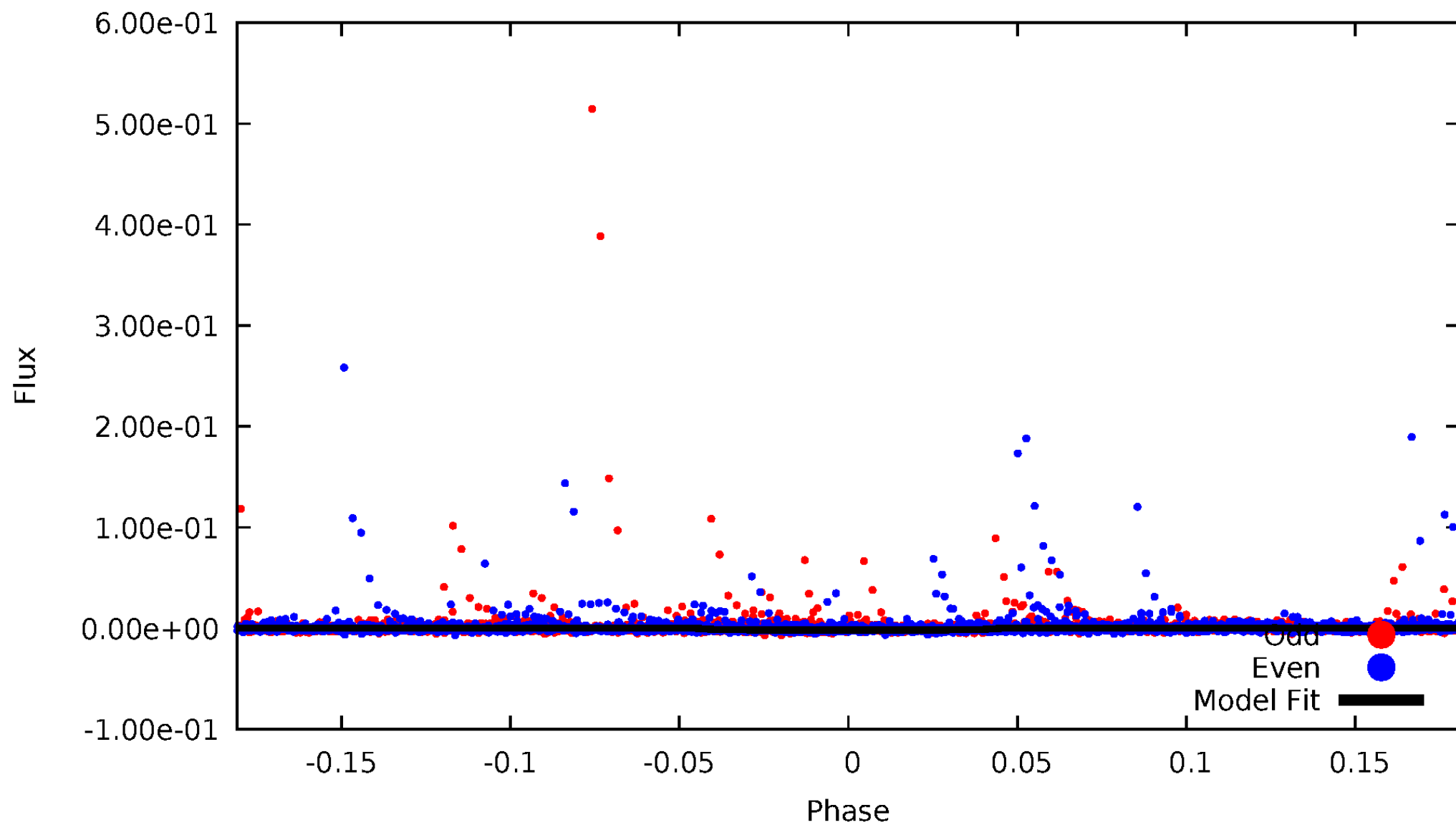


TCE 008493421-08



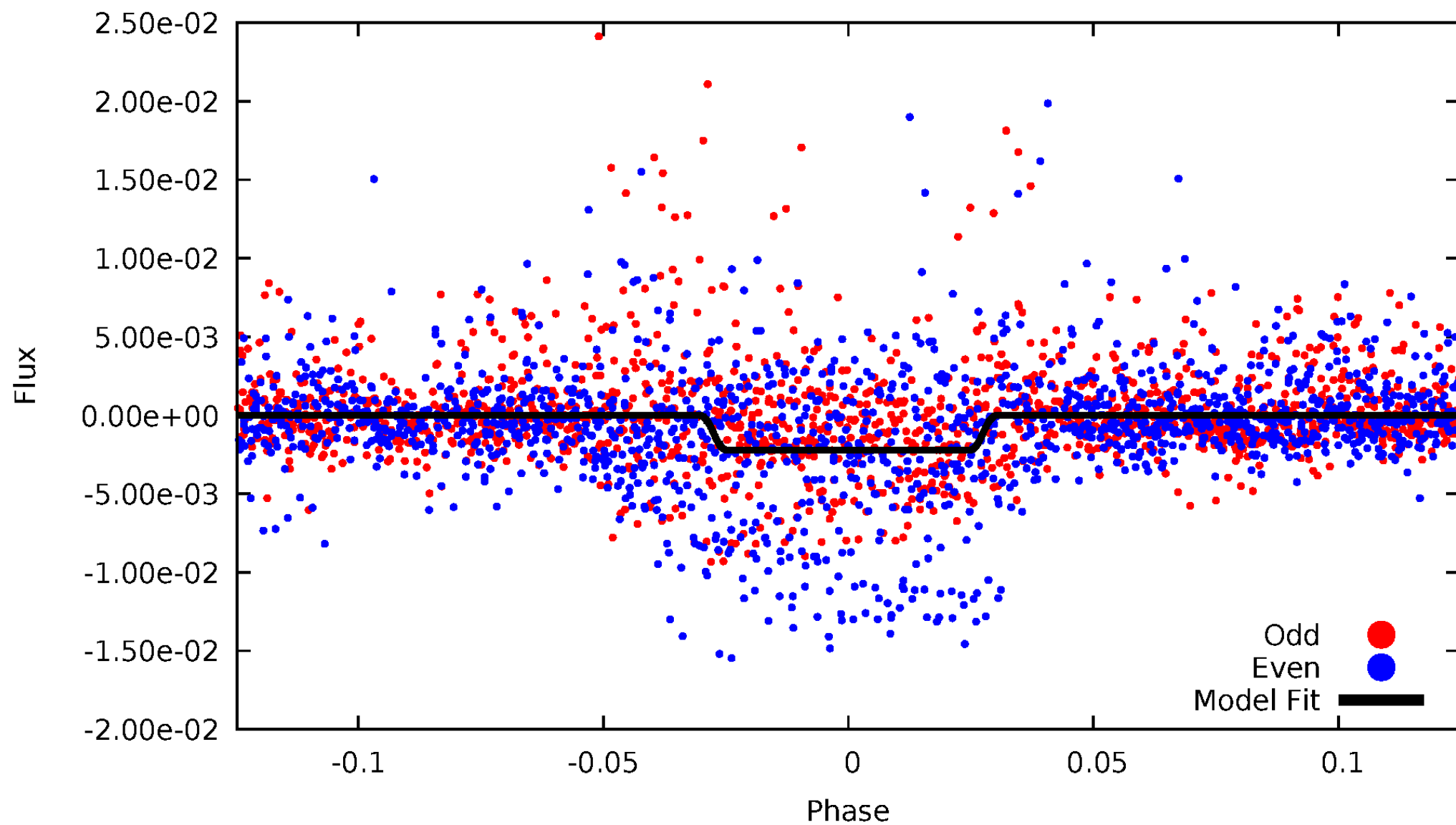
DV Odd/Even

TCE 008493421-08



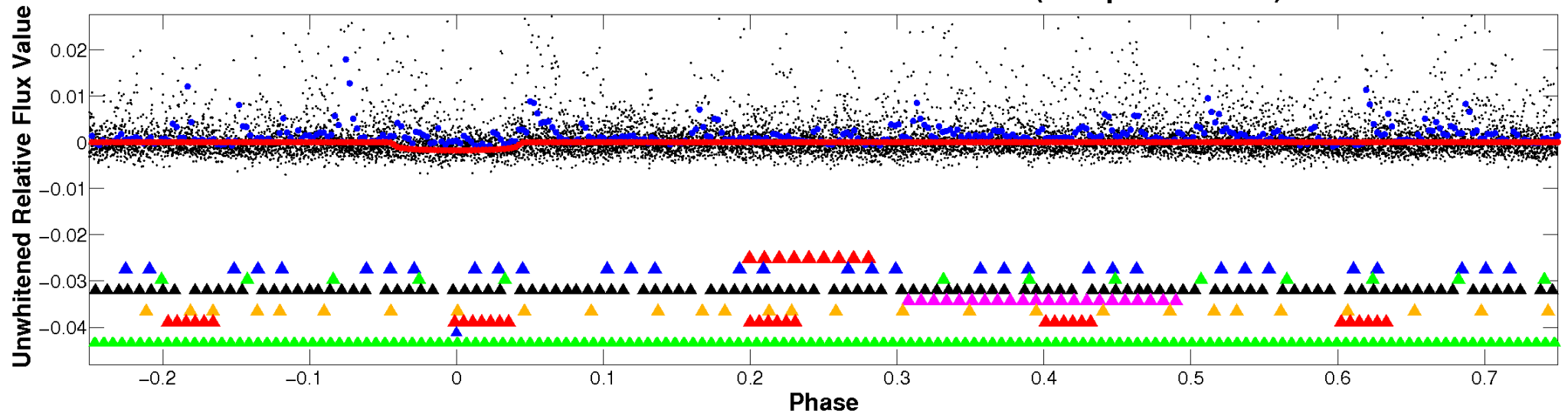
ALT Odd/Even

TCE 008493421-08

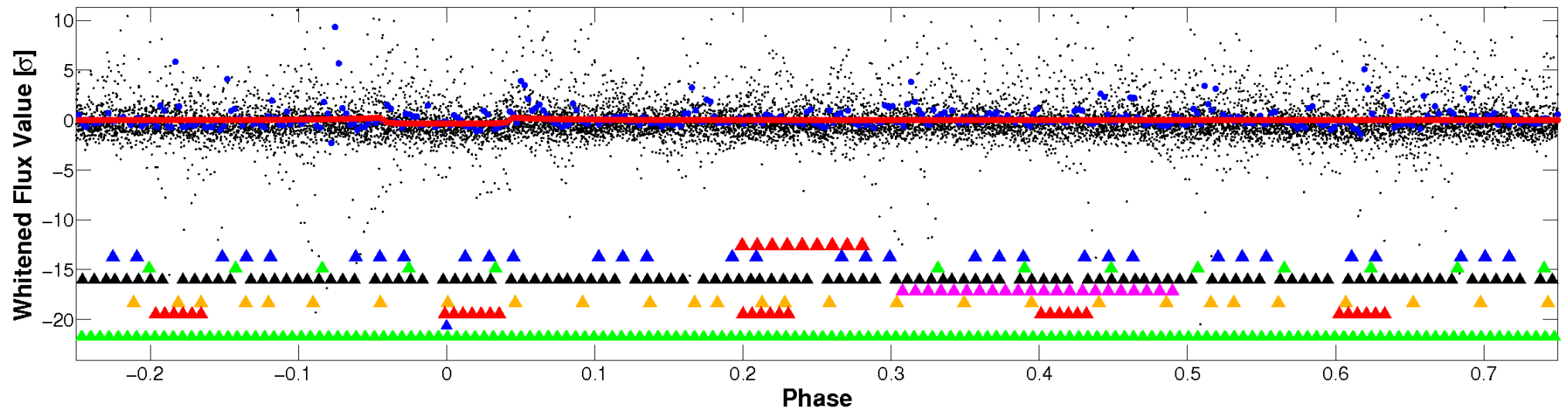


Non-Whitened Vs. Whitened Light Curve

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

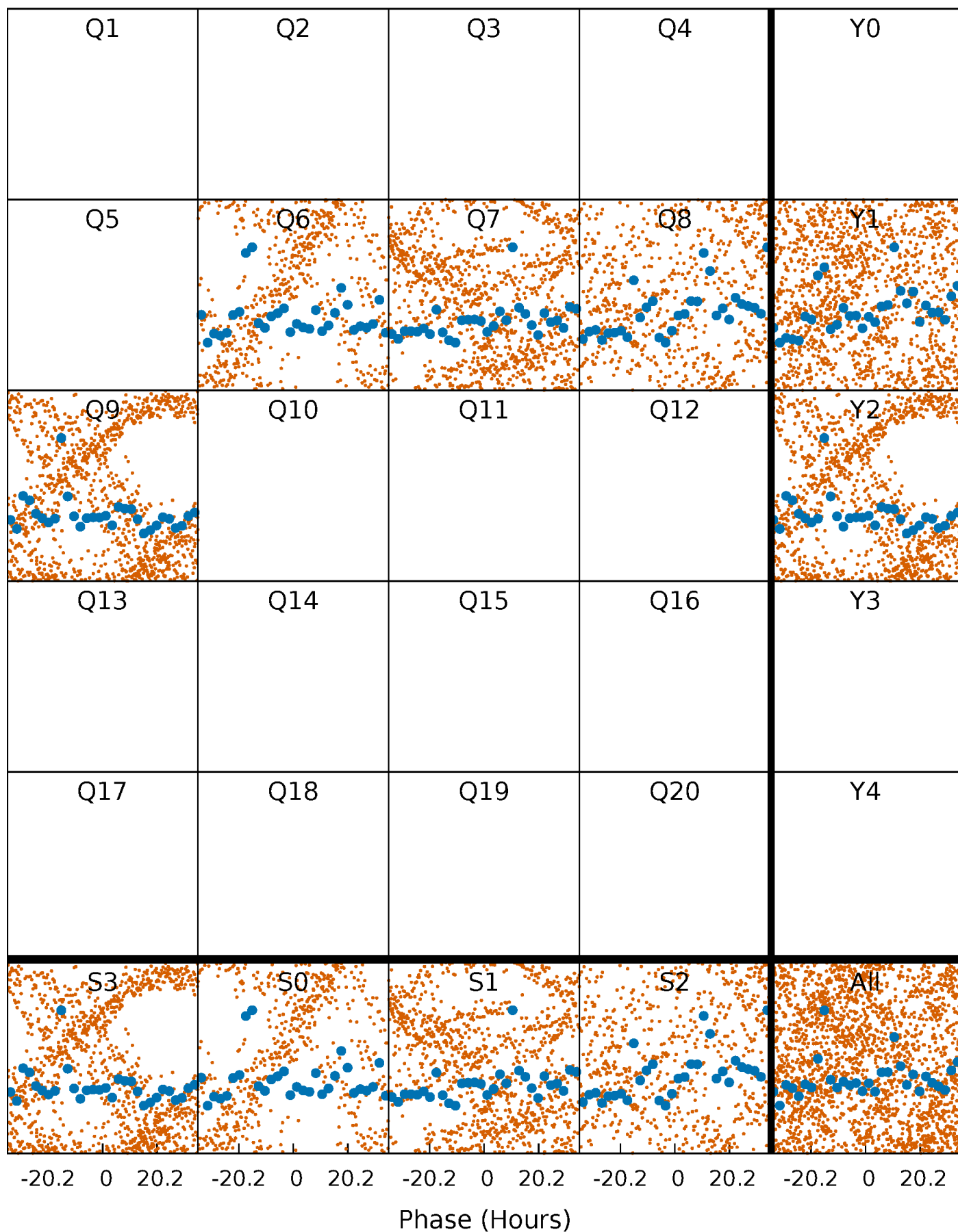


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



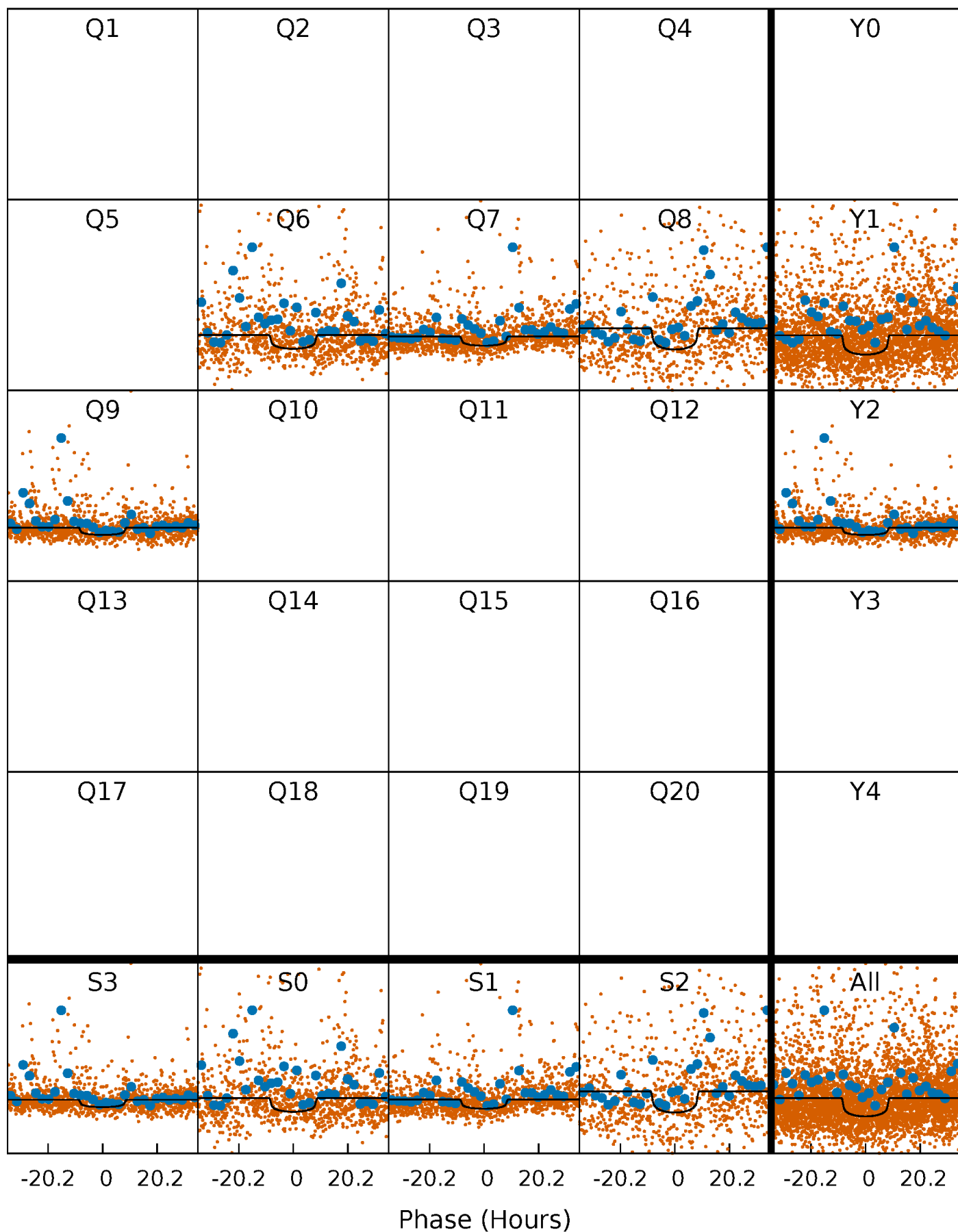
PDC Quarter-Phased Transit Curves

TCE 008493421-08 P= 8.147915 Days $T_0=136.343496$ (BKJD)



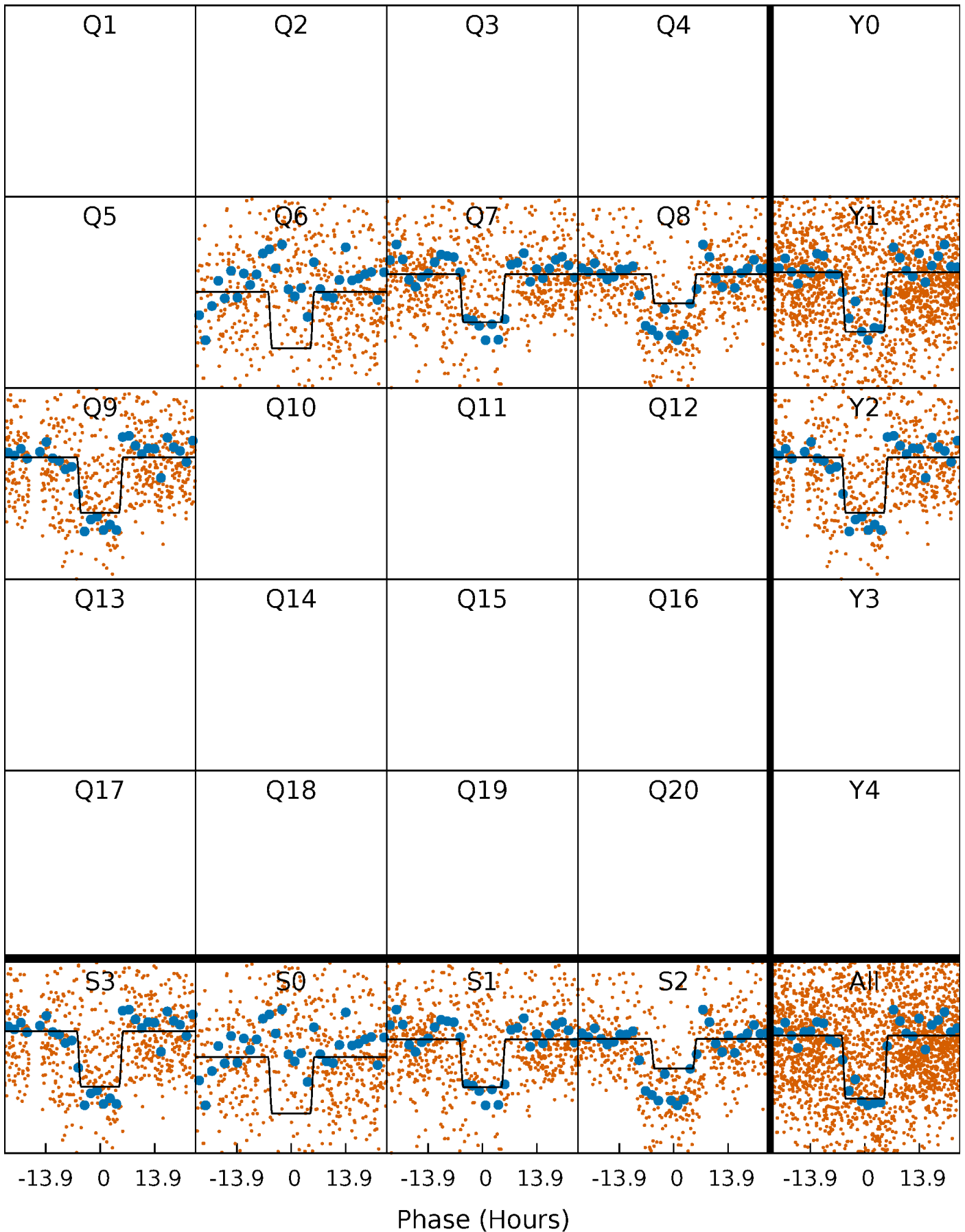
DV Quarter-Phased Transit Curves

TCE 008493421-08 P= 8.147915 Days $T_0=136.343496$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

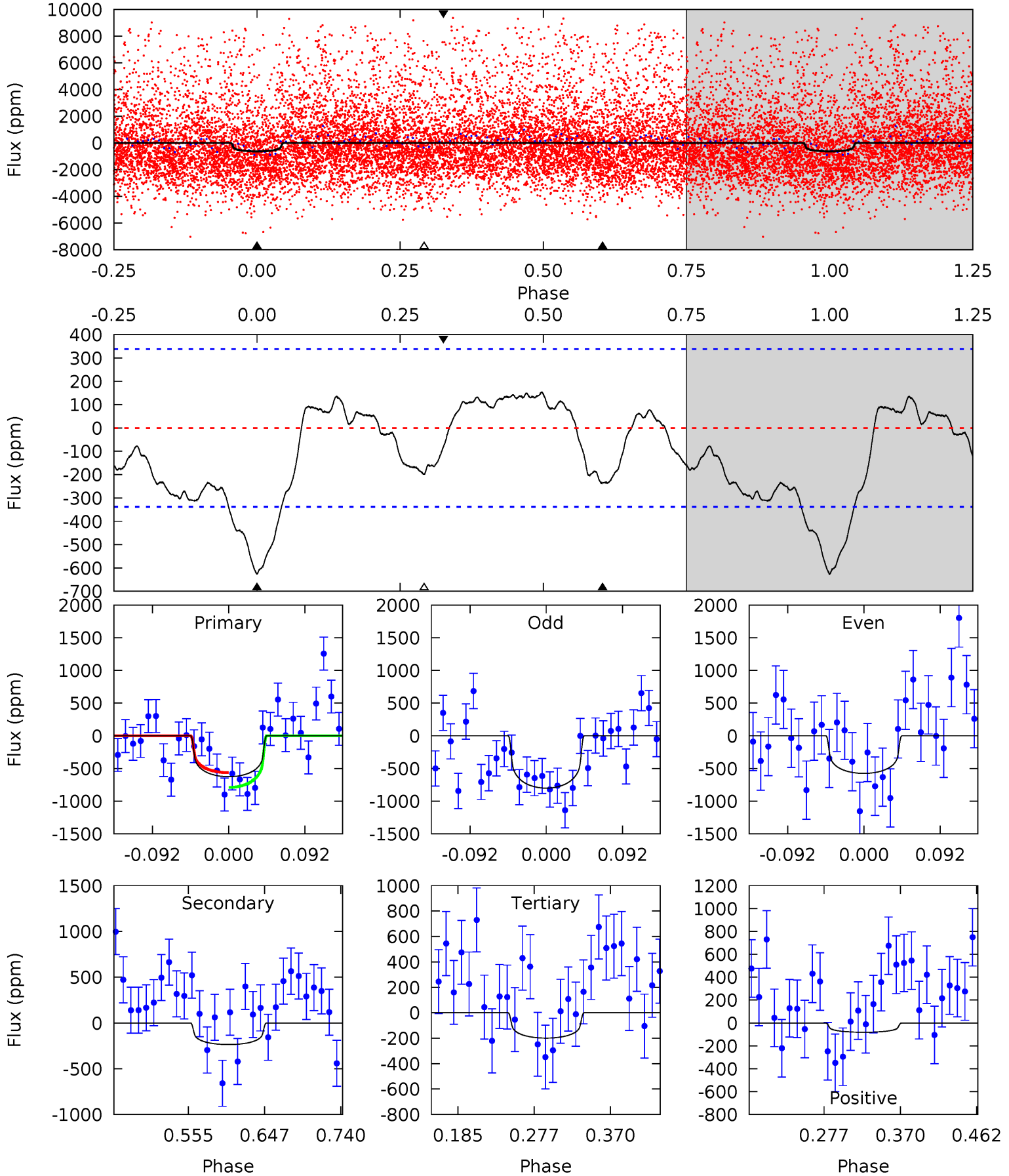
TCE 008493421-08 P= 8.146537 Days $T_0=136.573231$ (BKJD)



DV Model-Shift Uniqueness Test

008493421-08, P = 8.147915 Days, E = 136.343496 Days

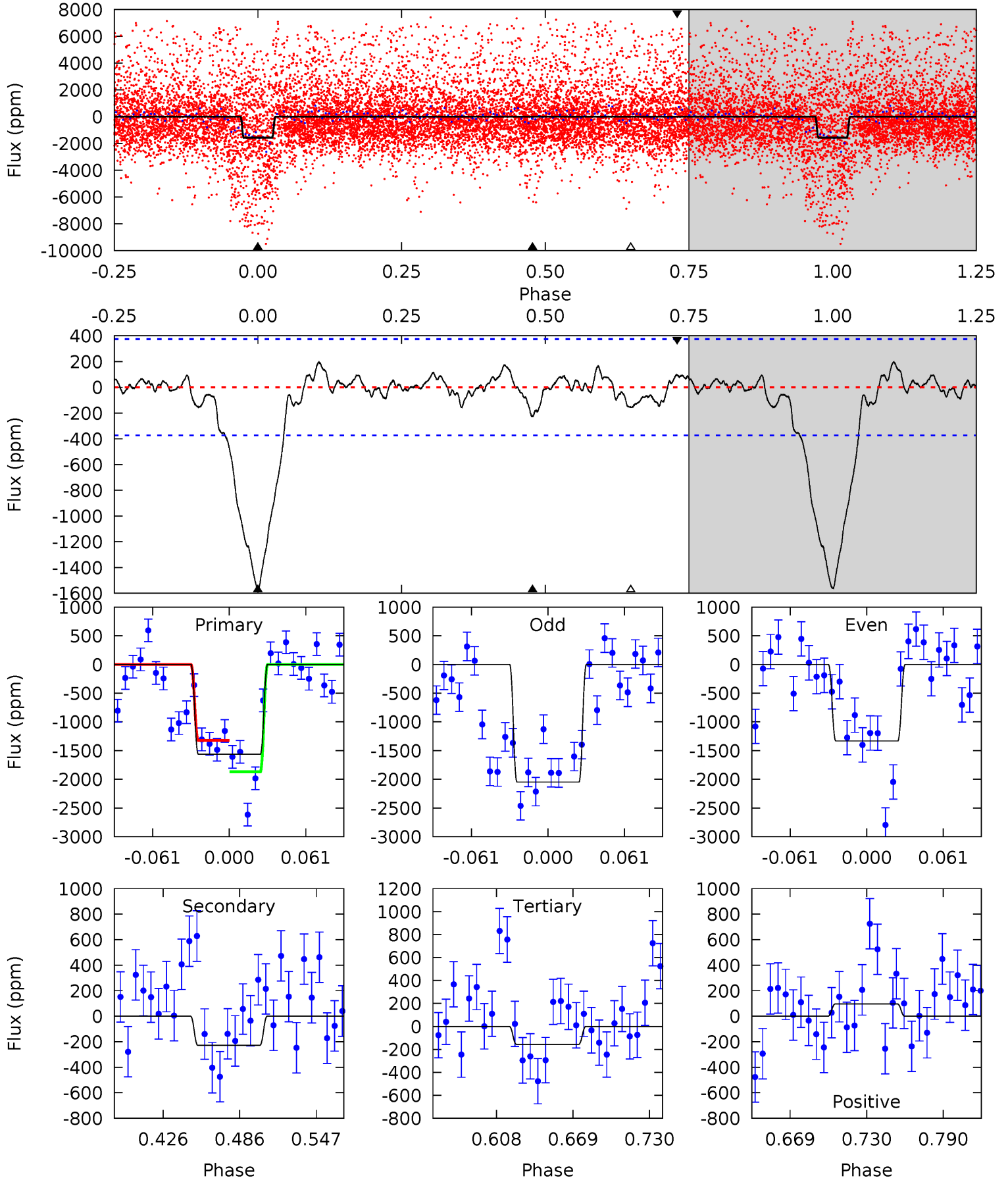
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.48	3.20	2.70	-1.10	4.58	1.68	1.92	5.78	9.59	0.50	4.31	1.53	1.60	0.20	1.54



Alt Model-Shift Uniqueness Test

008493421-08, P = 8.146537 Days, E = 136.573231 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	2.85	1.96	1.21	4.67	1.87	1.02	17.6	18.3	0.89	1.64	4.51	1.41	0.11	3.44



Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-236 ± 74	$0.56^{+0.22}_{-0.18}$	303^{+30}_{-32}	2144^{+204}_{-176}	640^{+508}_{-277}
Alt.	-228 ± 80	$0.70^{+0.25}_{-0.22}$	301^{+32}_{-31}	2034^{+164}_{-174}	398^{+323}_{-177}

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 $A_{obs} \gg 1.0$

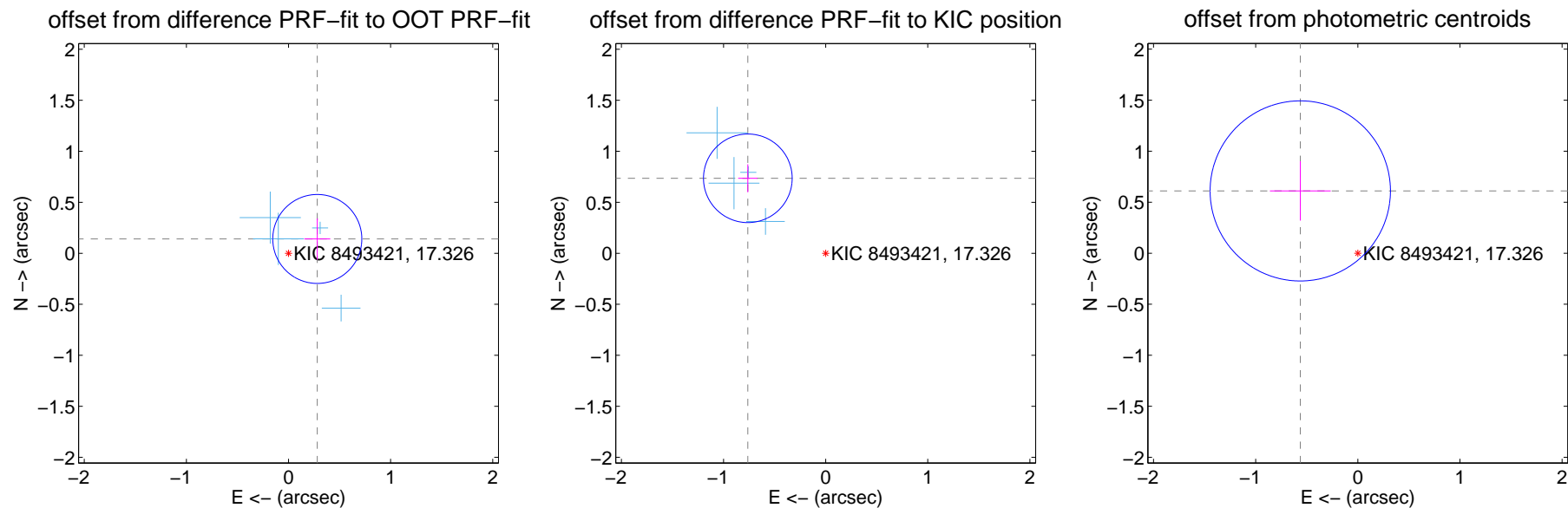
DV Centroid Data

Supplemental centroid analysis for 008493421-08. Kepler magnitude: 17.33. Transit SNR 11.17

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.315 ± 0.145	2.17	-0.282 ± 0.127	0.140 ± 0.202
PRF-fit source offset from KIC position	1.059 ± 0.145	7.32	0.762 ± 0.095	0.735 ± 0.137
photometric centroid source offset	0.83 ± 0.29	2.82	0.56 ± 0.30	0.61 ± 0.29

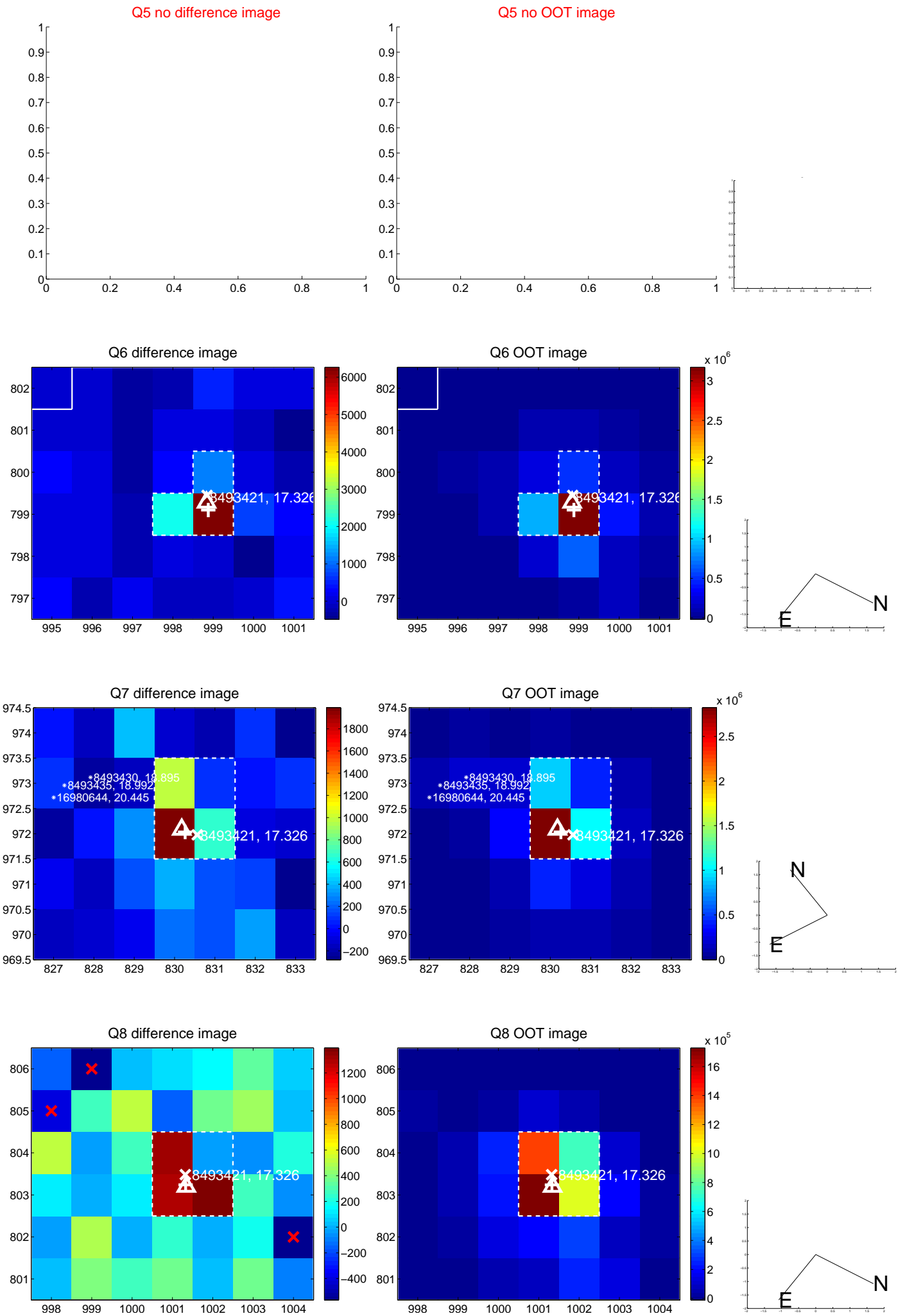


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

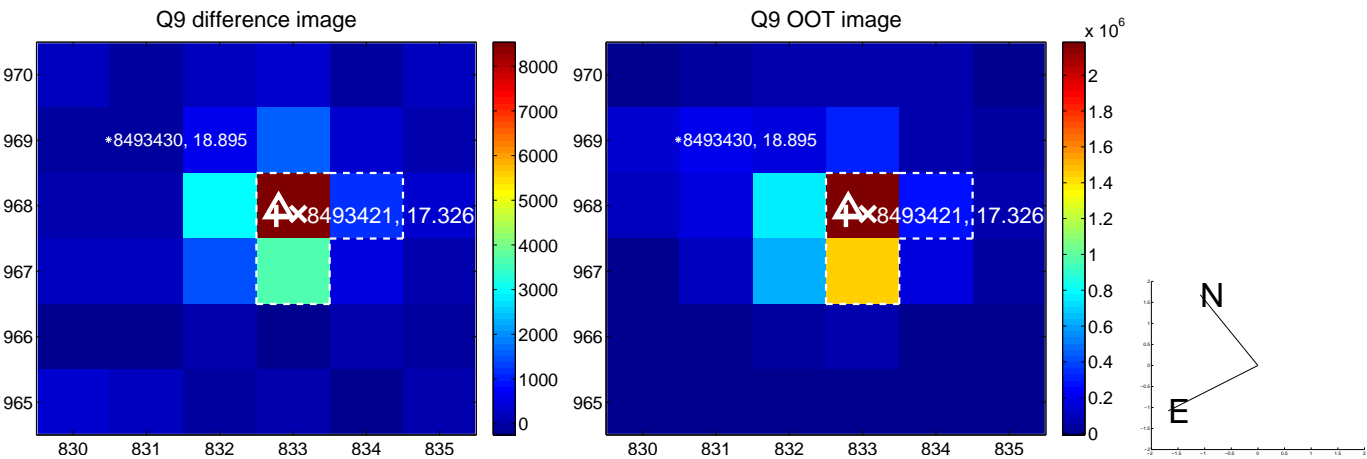
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



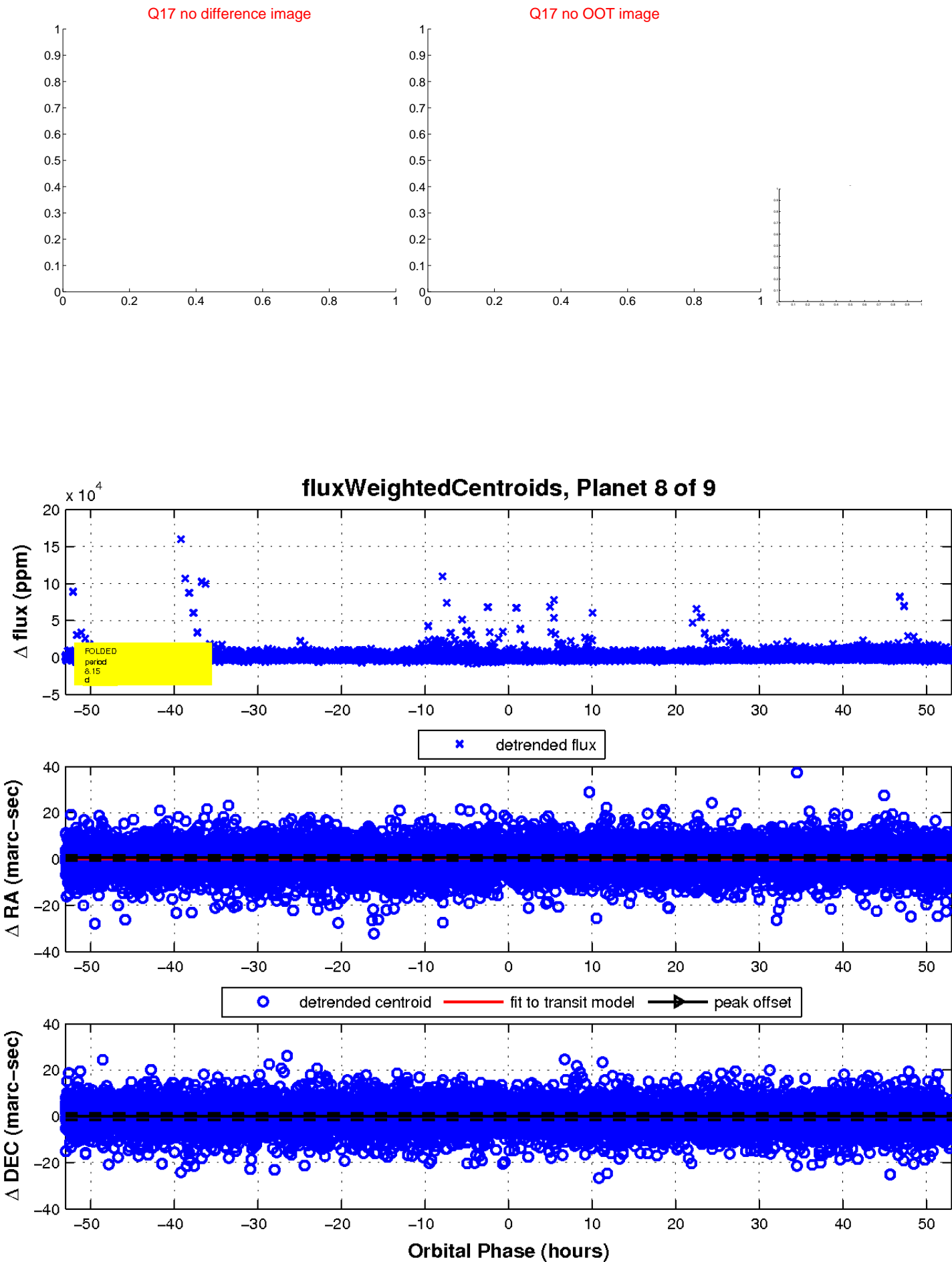
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

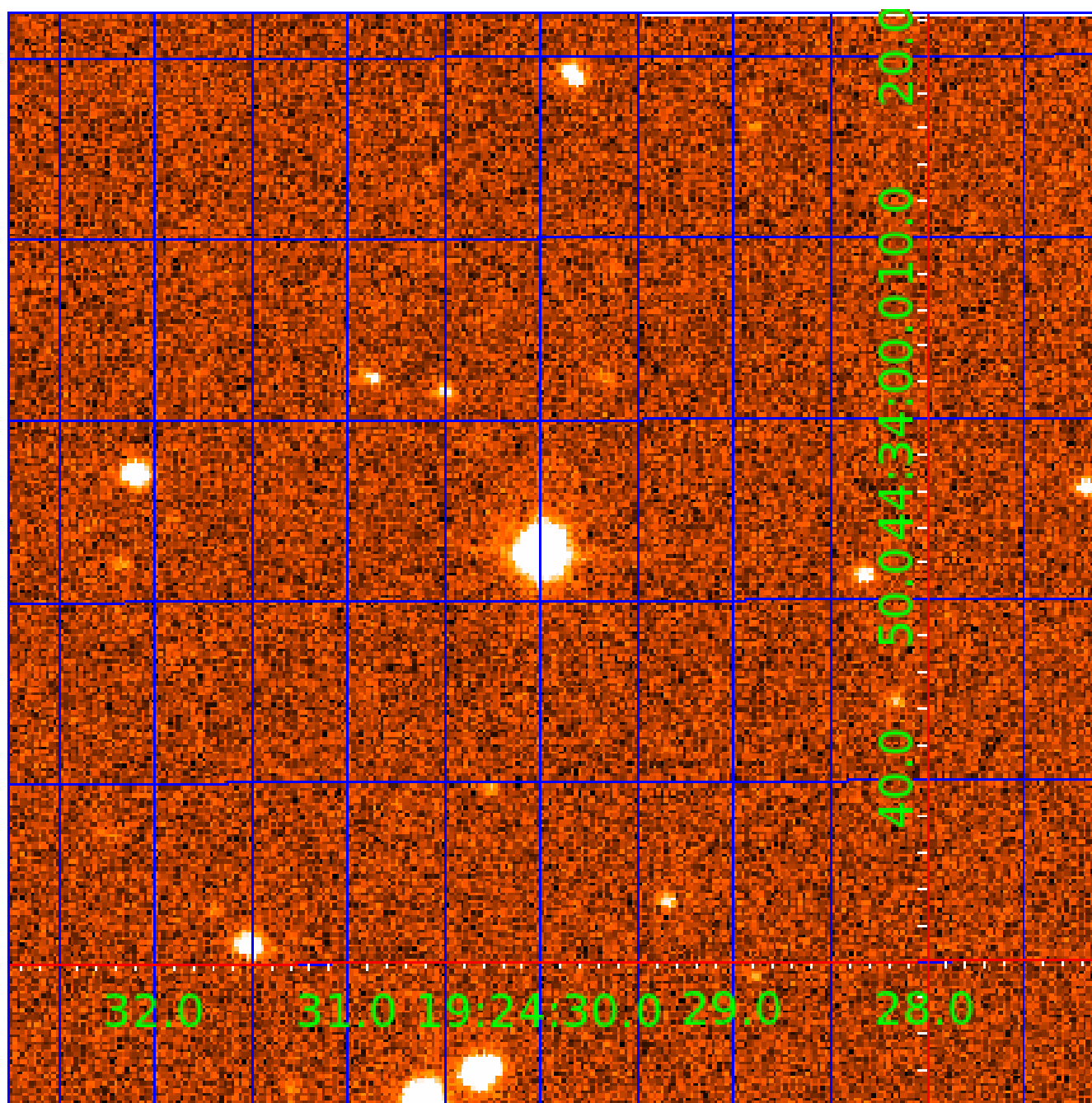


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008493421

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})
008493421-01	OBS	No	154.892905	235.744136	12566.3	60.423	13.6	17.0	0.12	2661	2.35	0.01
008493421-02	OBS	No	44.145565	160.889752	2574.0	4.043	10.2	5.5	0.12	2661	0.58	0.05
008493421-03	OBS	No	113.594576	218.091393	1927.7	9.000	9.6	-1.0	0.12	2661	0.50	0.01
008493421-04	OBS	No	12.750422	136.959641	2351.3	11.515	9.5	11.4	0.12	2661	0.68	0.26
008493421-05	OBS	No	65.112624	189.222634	3159.7	3.602	10.3	5.4	0.12	2661	1.25	0.03
008493421-06	OBS	No	51.726986	143.015817	3872.6	5.679	10.5	7.2	0.12	2661	0.73	0.04
008493421-07	OBS	No	47.247927	144.781056	3230.8	13.443	9.8	8.0	0.12	2661	0.65	0.04
008493421-08	OBS	No	8.147915	136.343496	1749.1	17.679	9.0	11.2	0.12	2661	0.49	0.47
008493421-09	OBS	No	1.257402	131.818286	2934.2	2.500	8.4	-1.0	0.12	2661	0.62	5.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008493421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
008493421-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
008493421-04	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008493421-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_KIC_POS—HALO_GHOST
008493421-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_KIC_POS
008493421-08	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008493421-09	OBS	FP	0.00	1	0	0	0	LPP_DV—NO_FITS—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.

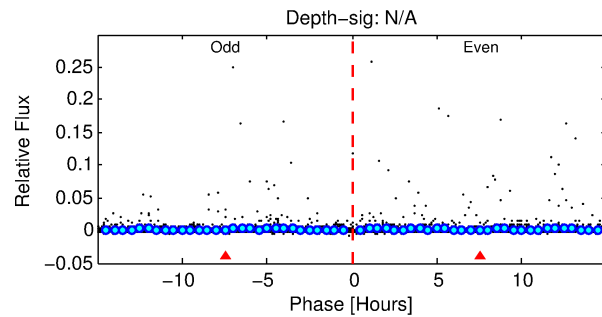
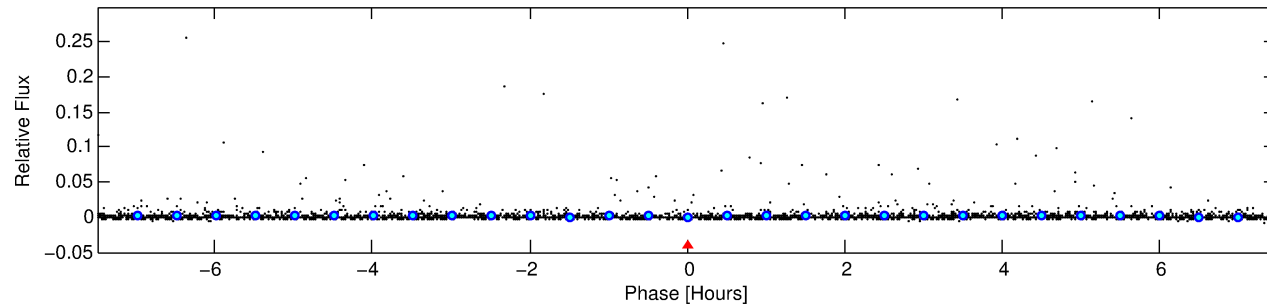
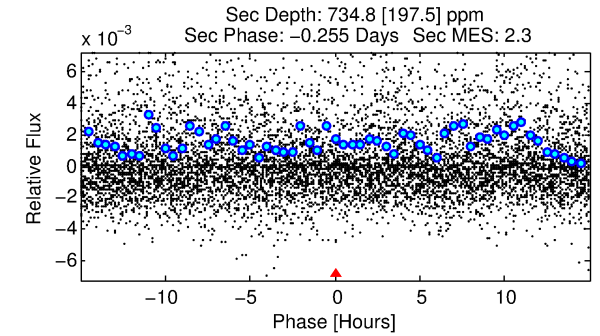
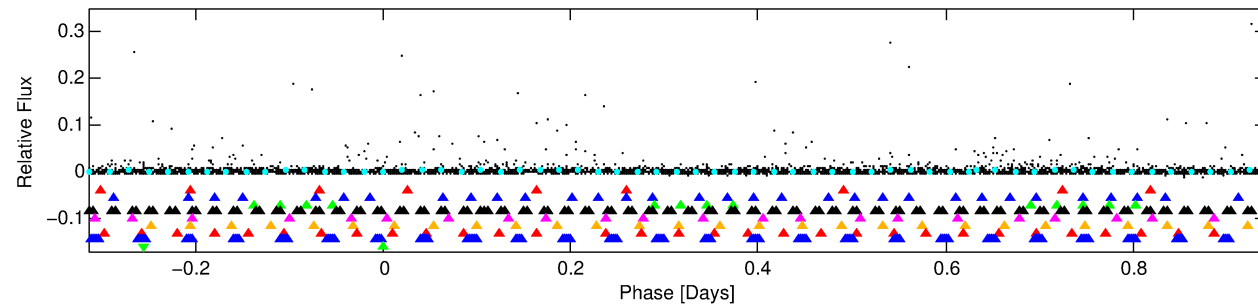
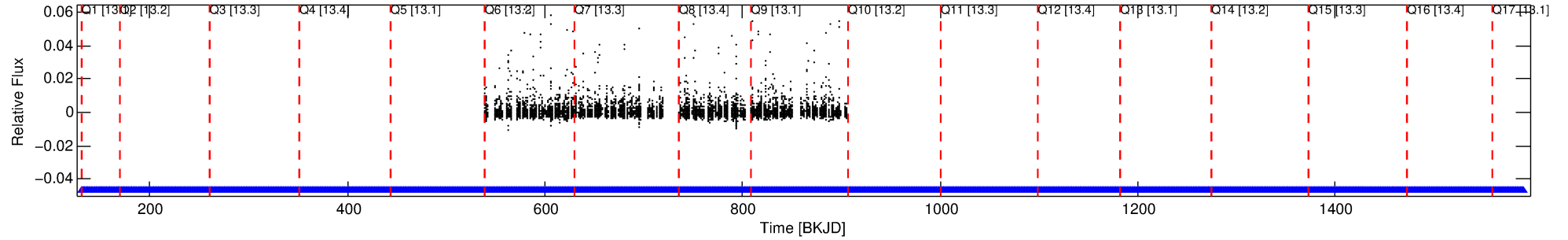
Ephemeris Match Information For 008493421-09

No Significant Match Found

DV One-Page Summary

KIC: 8493421 Candidate: 9 of 9 Period: 1.257 d

Kp: 17.33 R*: 0.12 Rs Teff: 2661.0 K Logg: 5.28 Fe/H: 0.000



TPS TCE Results:

Period = 1.25740 d
Epoch = 131.8183 BKJD

DV fit results are unavailable

DV Diagnostic Results:

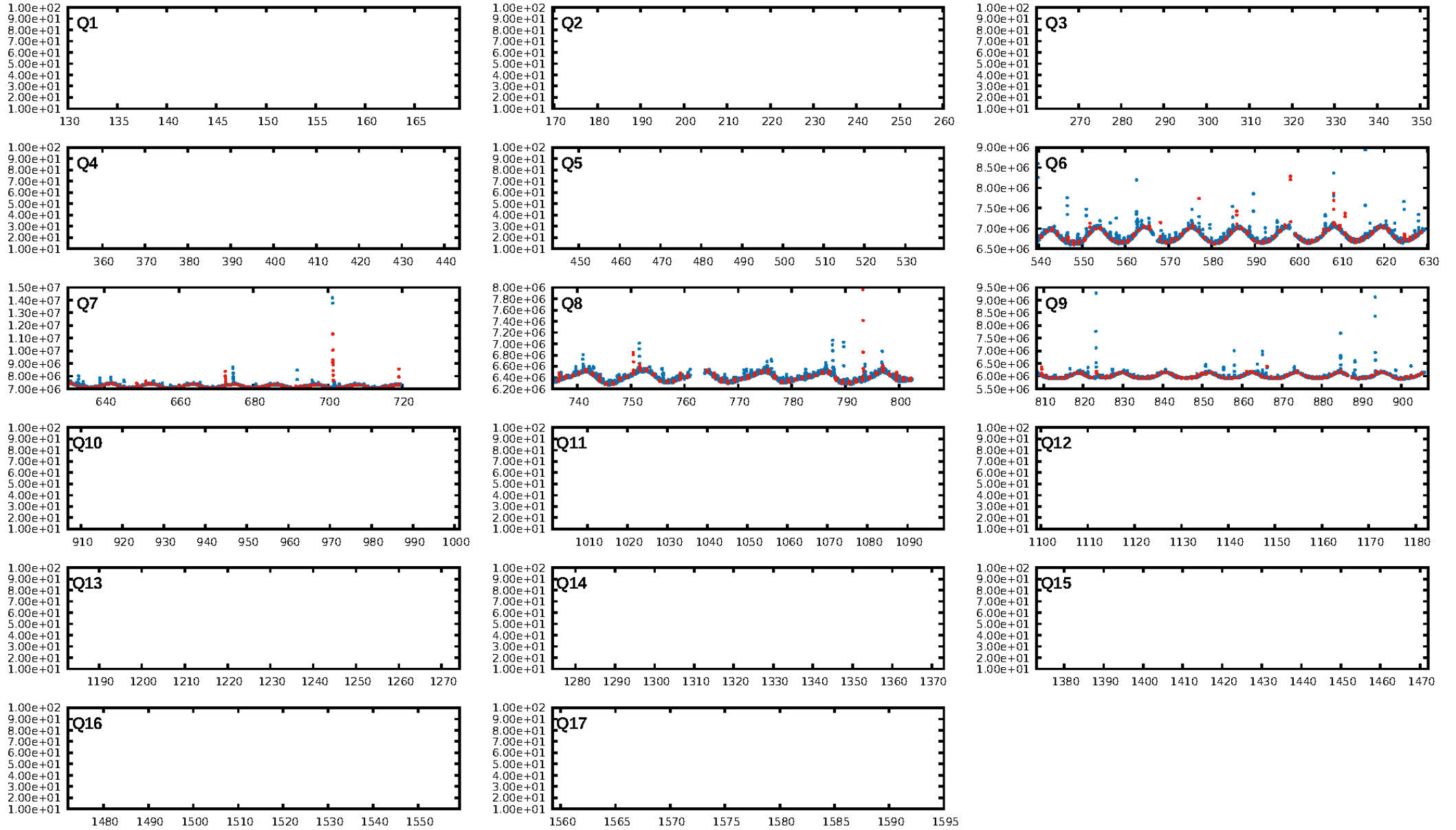
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [9.26σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: N/A
GhostDiagnostic-chr: N/A

Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

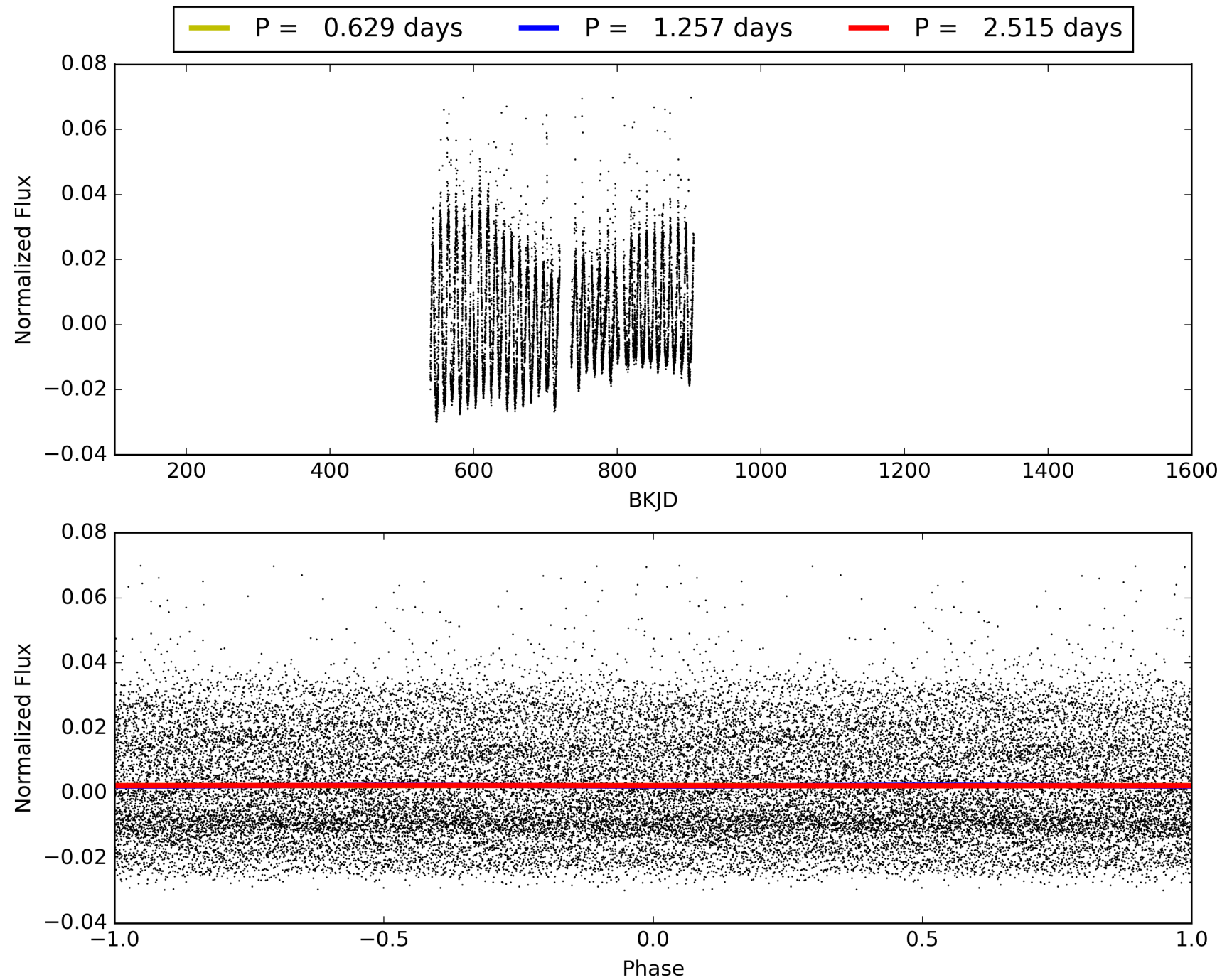
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:06:51 Z

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

TCE 008493421-09, PDC Light Curves

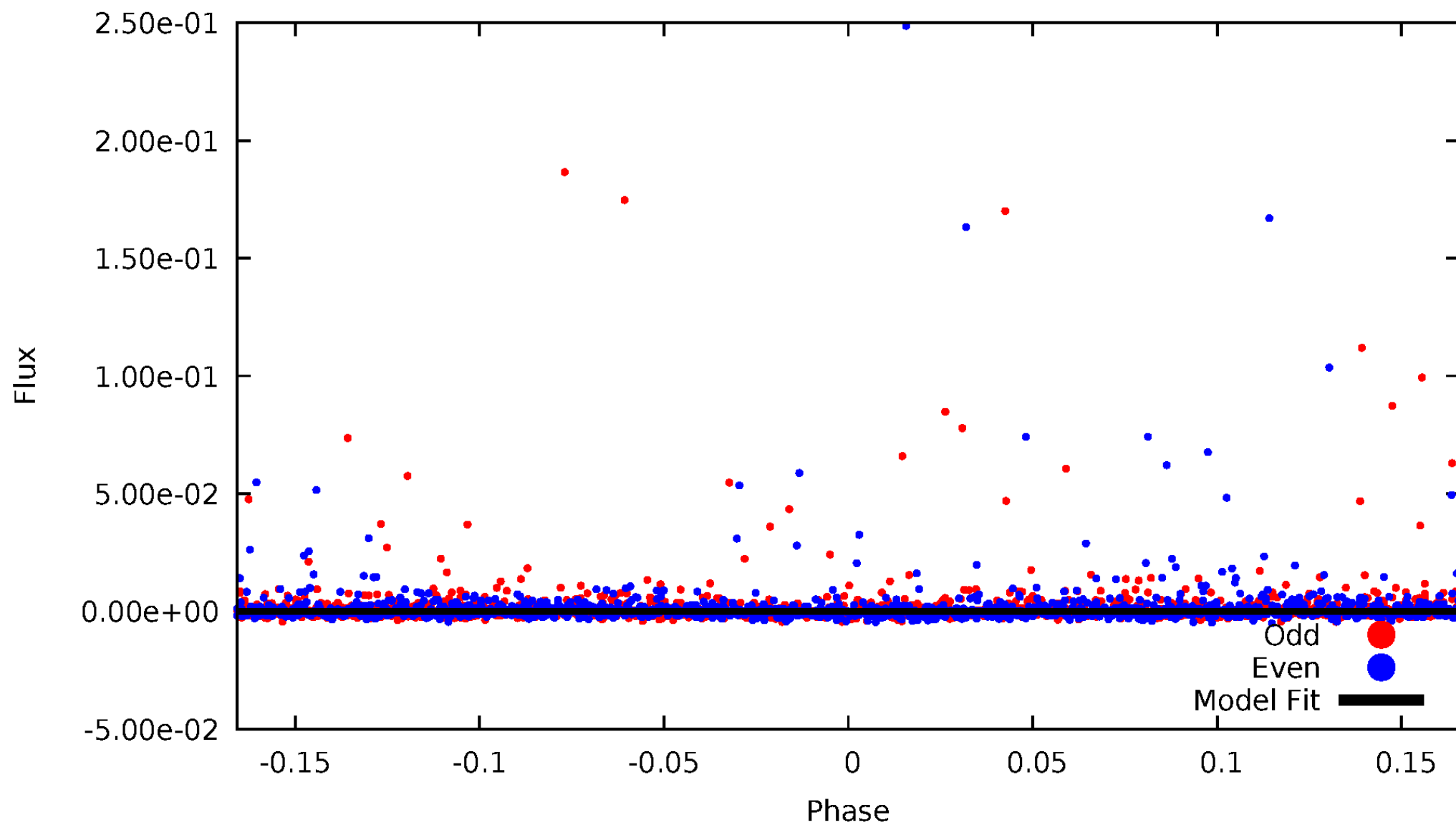


TCE 008493421-09



DV Odd/Even

TCE 008493421-09

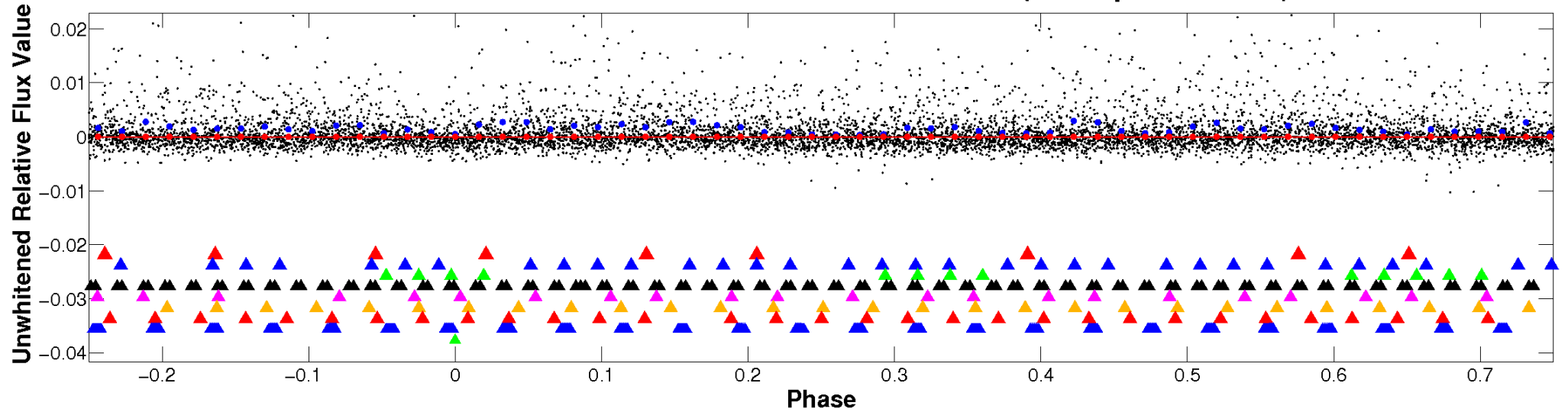


ALT Odd/Even

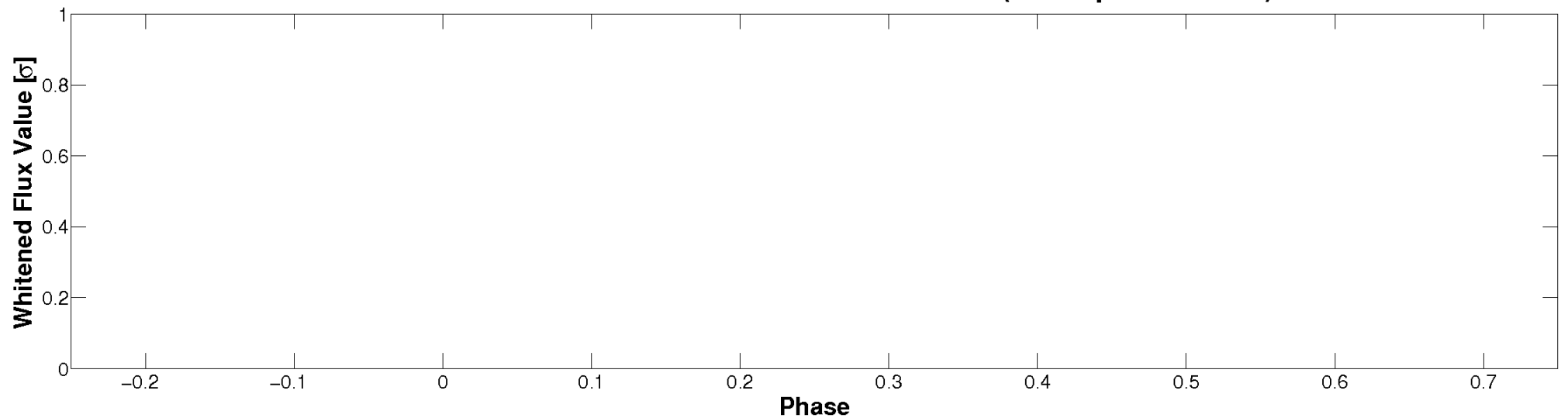
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

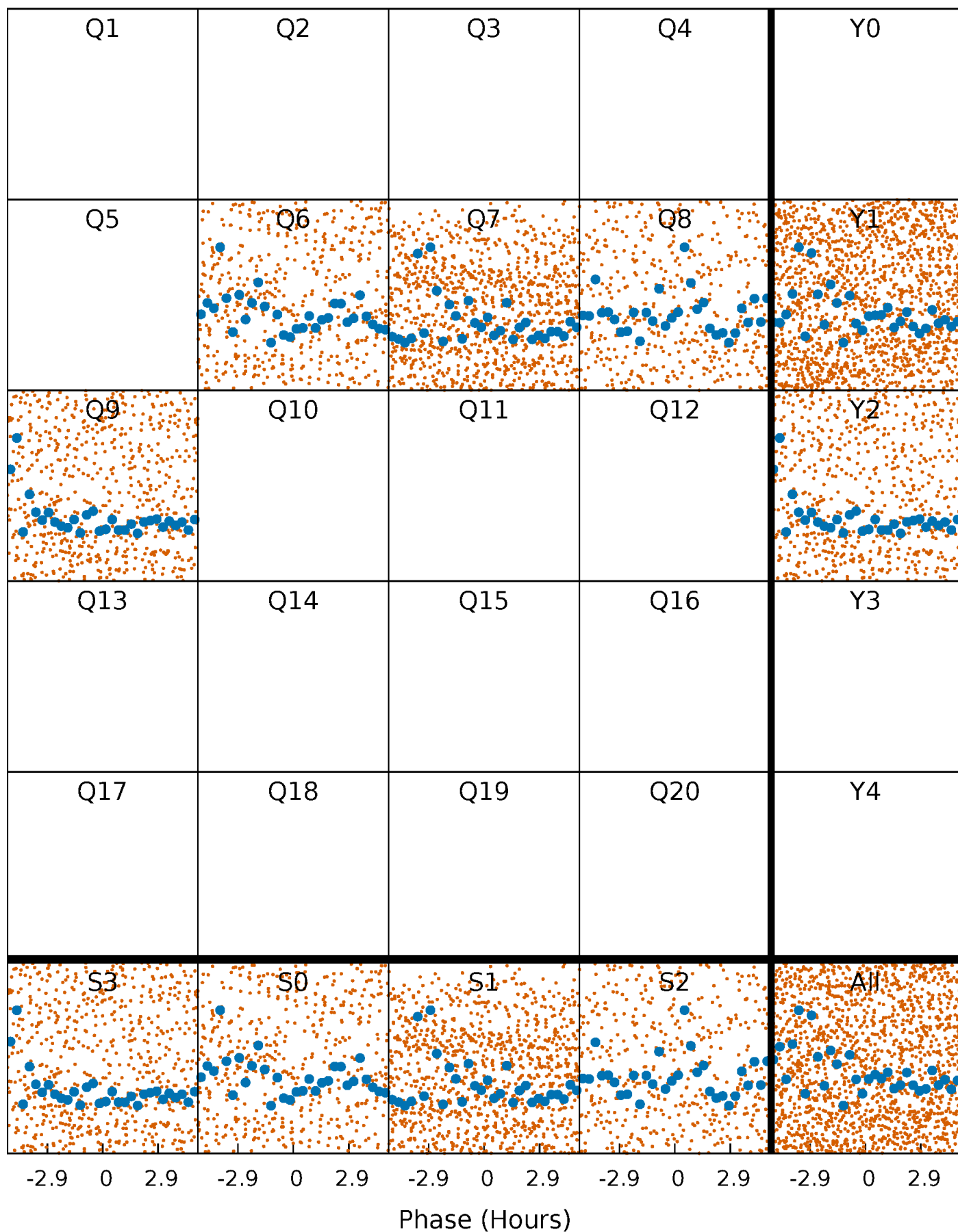


Planet 9 : Phased Whitened Flux Time Series (TPS Epoch/Period)



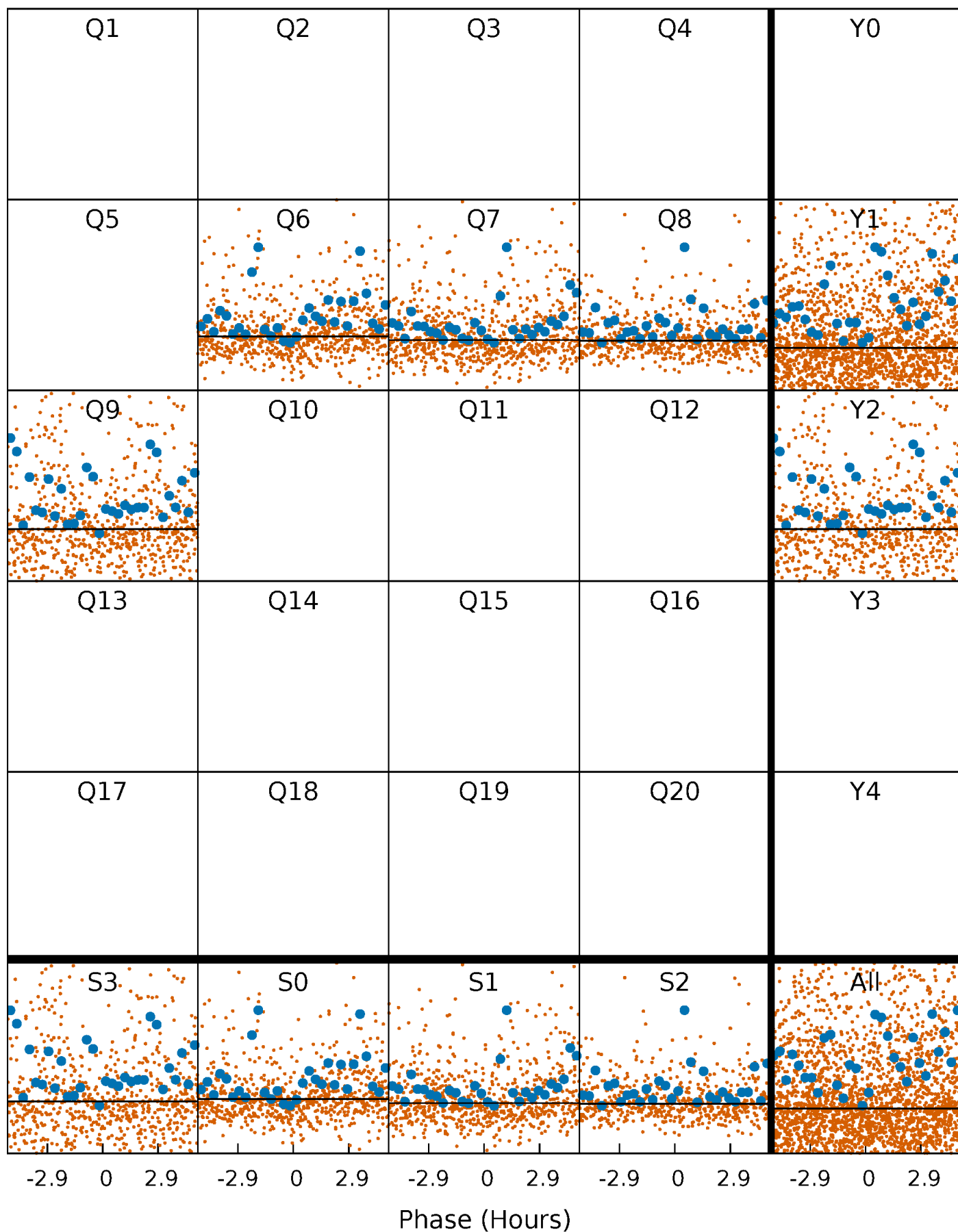
PDC Quarter-Phased Transit Curves

TCE 008493421-09 $P = 1.257402$ Days $T_0 = 131.818286$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008493421-09 P= 1.257402 Days $T_0=131.818286$ (BKJD)

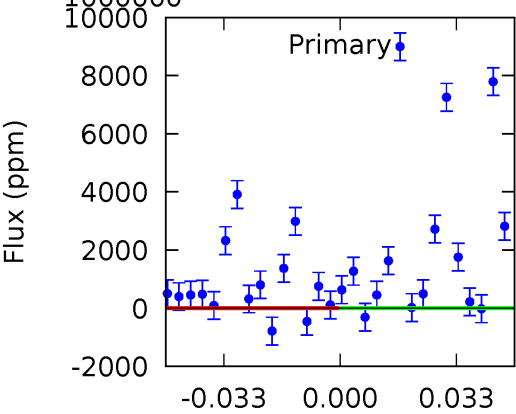
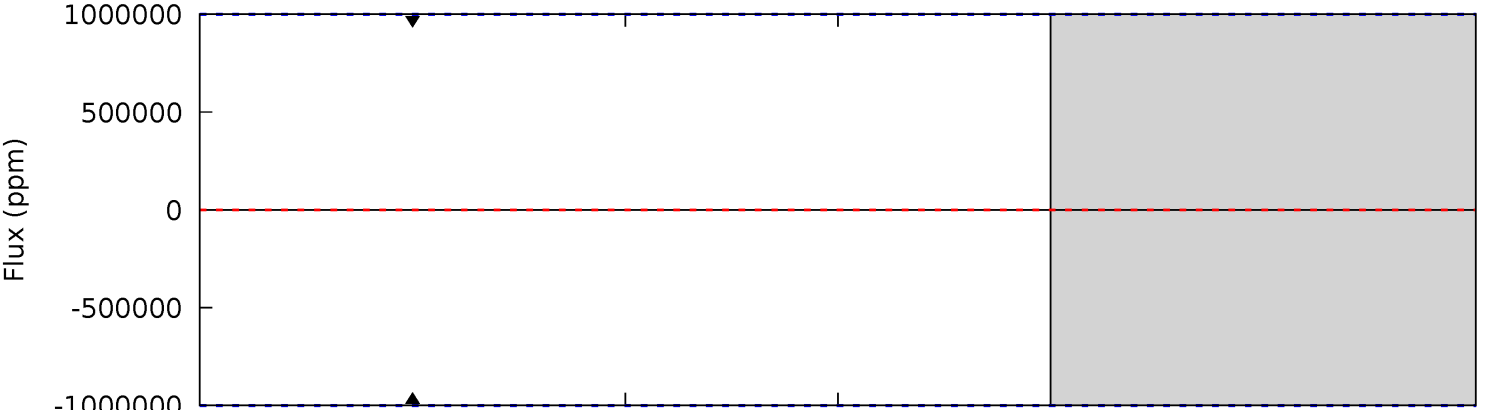
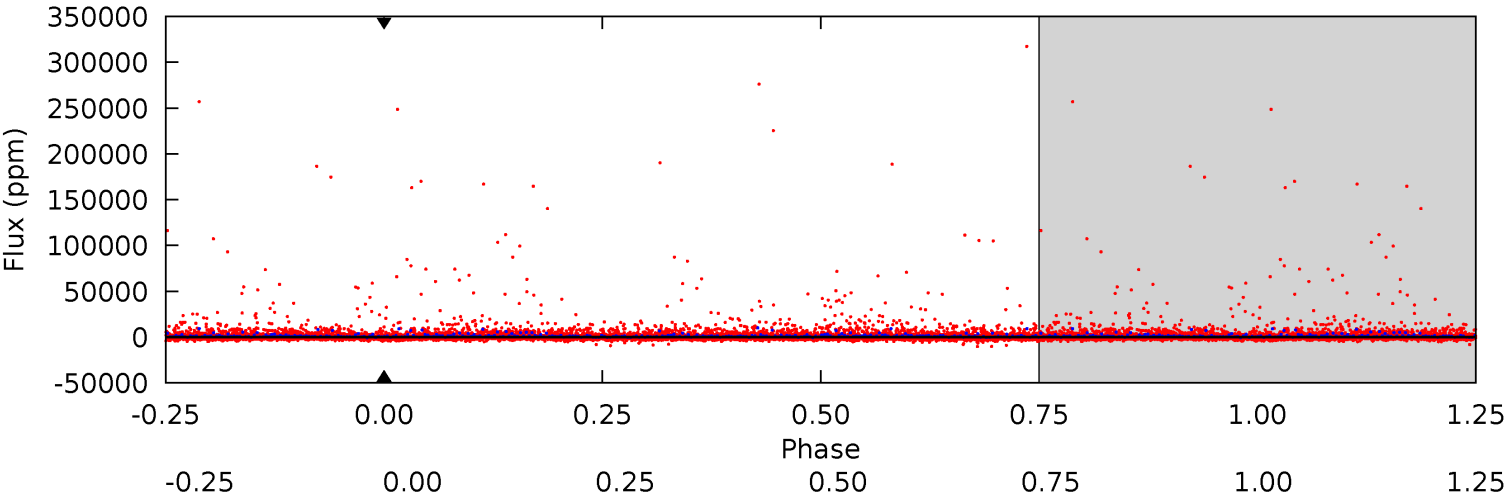


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

008493421-09, P = 1.257402 Days, E = 131.818286 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

This plot does not exist for this TCE.

Stellar Parameters For KIC 008493421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	2661^{+1}_{-1}	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

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

Secondary Eclipse Parameters for KIC 008493421-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$1.30^{+1.30}_{-0.94}$	561^{+59}_{-58}	2017^{+2290}_{-6254}	42^{+7632}_{-7294}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

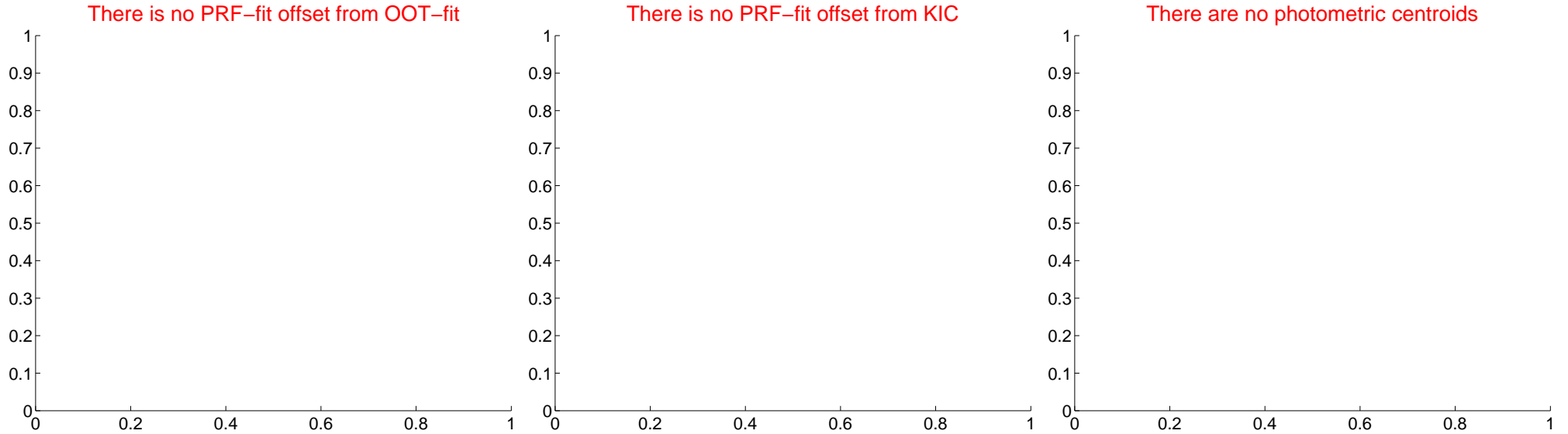
DV Centroid Data

Supplemental centroid analysis for 008493421-09. Kepler magnitude: 17.33. Transit SNR -1.00

There are 0 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	—	—	—	—
photometric centroid source offset	—	—	—	—



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

