

KIC 005019498

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})
005019498-01	OBS	No	508.811775	375.621649	237.4	8.419	7.7	6.9	1.02	6038	1.80	0.78
005019498-02	OBS	No	446.128777	373.868330	201.9	11.799	7.9	6.8	1.02	6038	1.68	0.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019498-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005019498-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

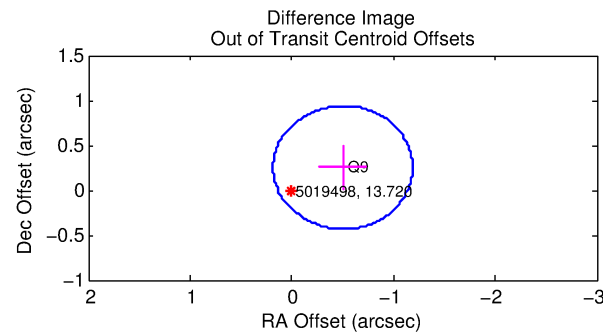
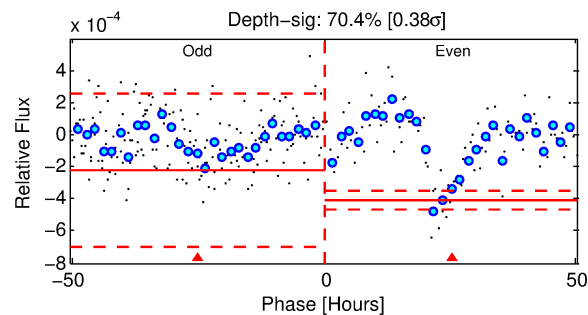
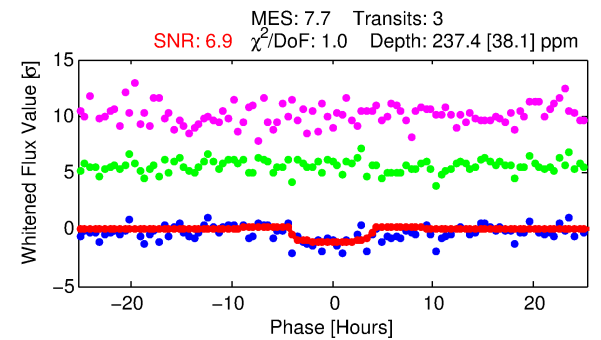
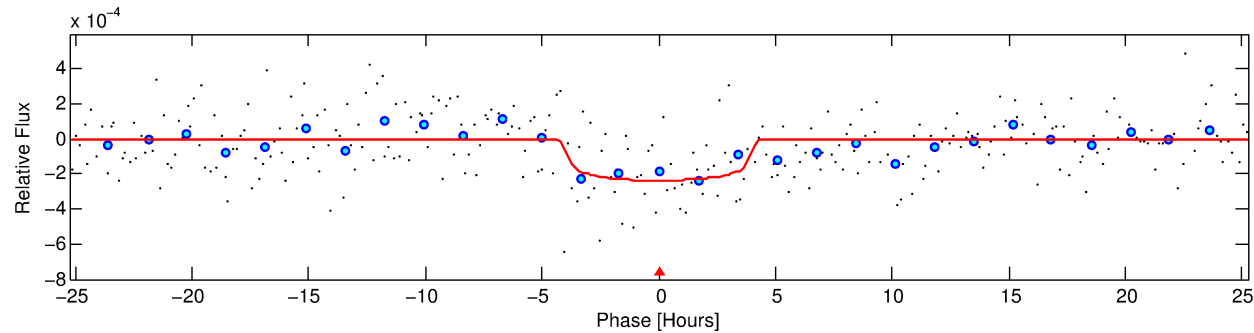
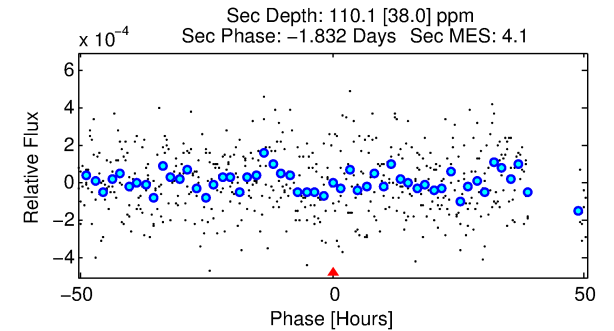
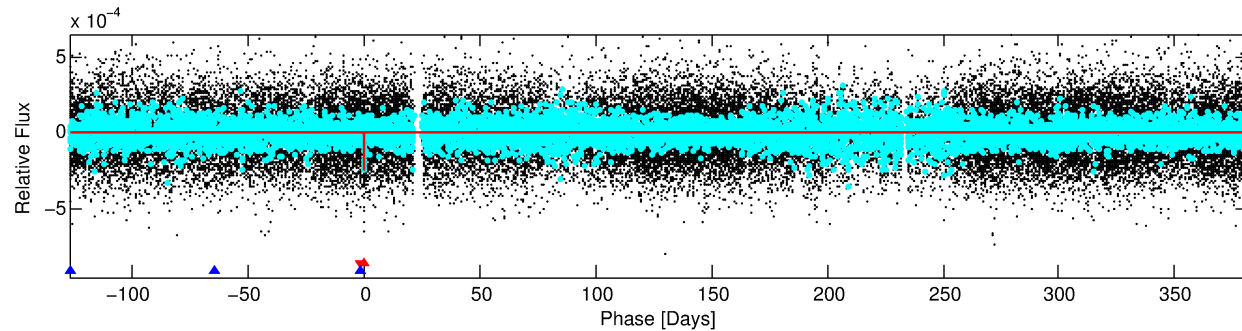
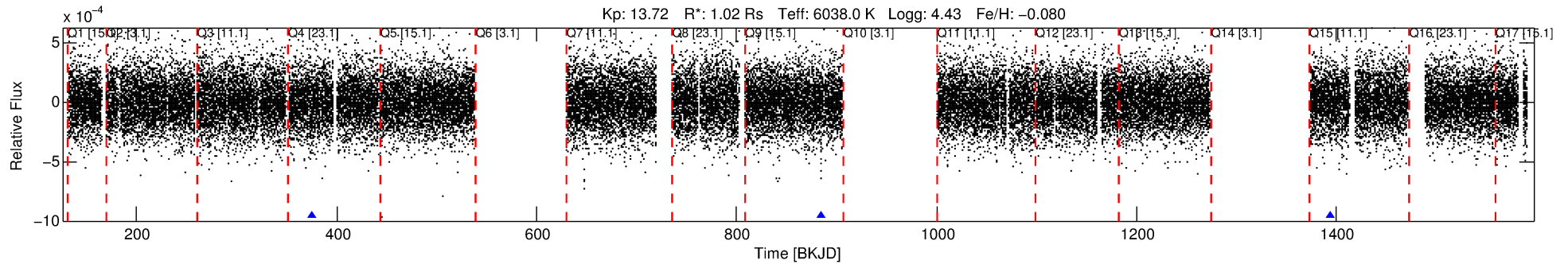
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019498-01

No Significant Match Found

DV One-Page Summary

KIC: 5019498 Candidate: 1 of 2 Period: 508.812 d



DV Fit Results:

Period = 508.81177 [0.01667] d
Epoch = 375.6216 [0.0192] BKJD
Rp/R* = 0.0161 [0.0070]
a/R* = 250.63 [541.53]
b = 0.86 [0.66]
Seff = 0.78 [0.32]
Teq = 240 [24] K
Rp = 1.80 [0.98] Re
a = 1.2600 [0.3388] AU
Ag = 29695.28 [30095.83] [0.99σ]
Teffp = 4869 [1149] K [4.03σ]

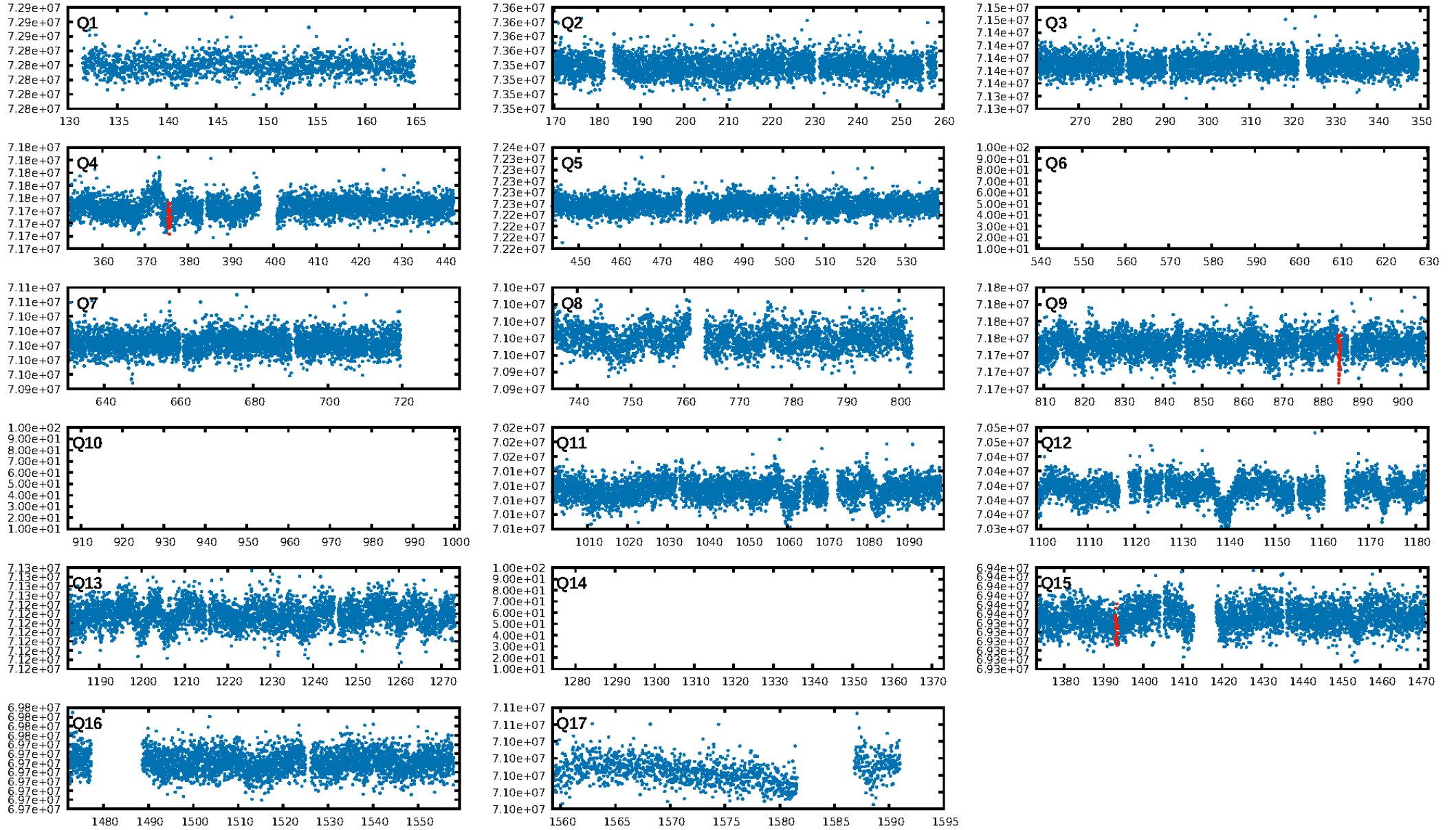
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [103.79σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 11.3%
ModelChiSquareGof-sig: 94.9%
Bootstrap-pfa: 1.81e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -51.59
Centroid-sig: 33.1%
Centroid-so: 1.391 arcsec [0.98σ]
OotOffset-rm: 0.562 arcsec [2.46σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-rm: 0.401 arcsec [1.76σ]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

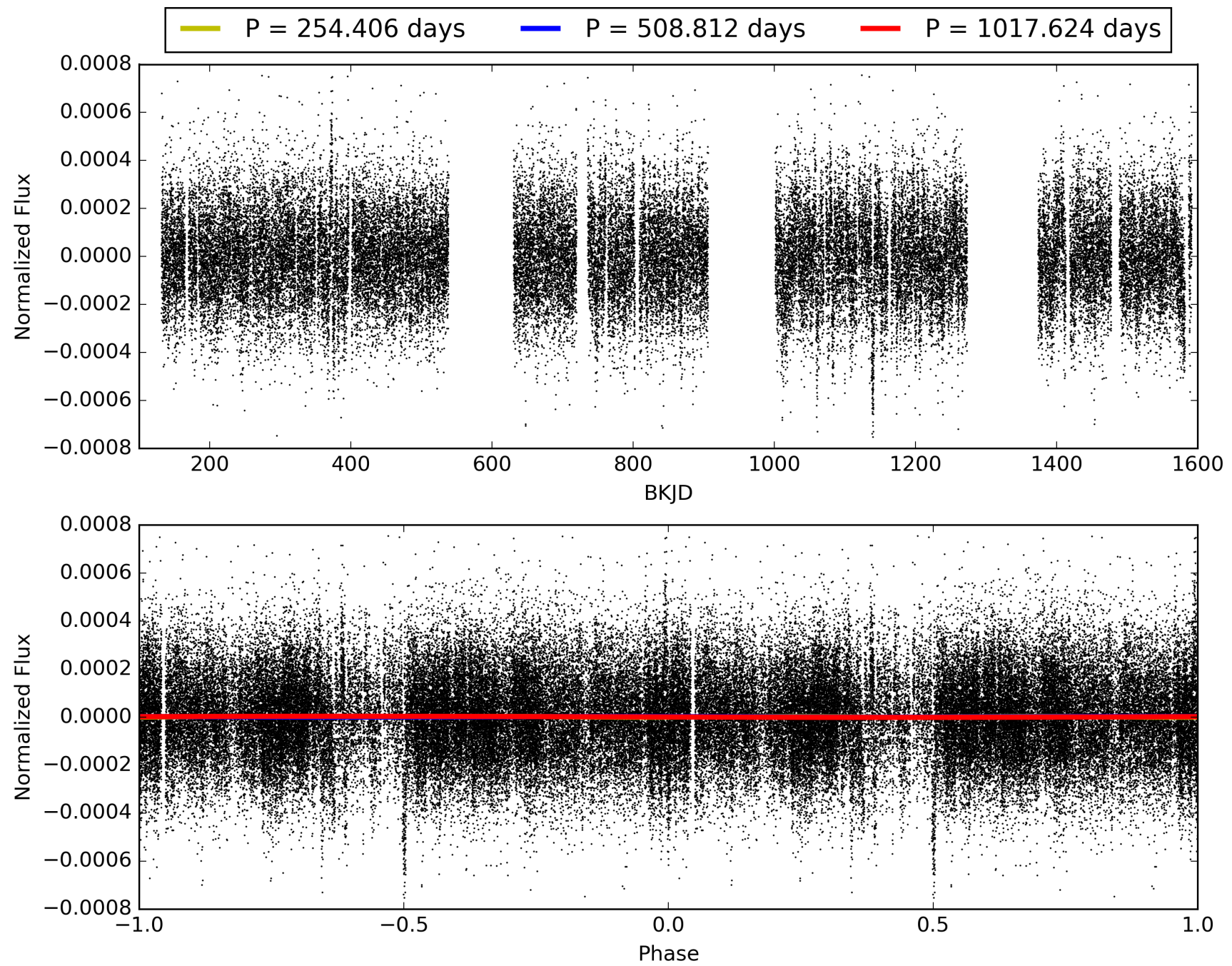
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:05:10 Z

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

TCE 005019498-01, PDC Light Curves

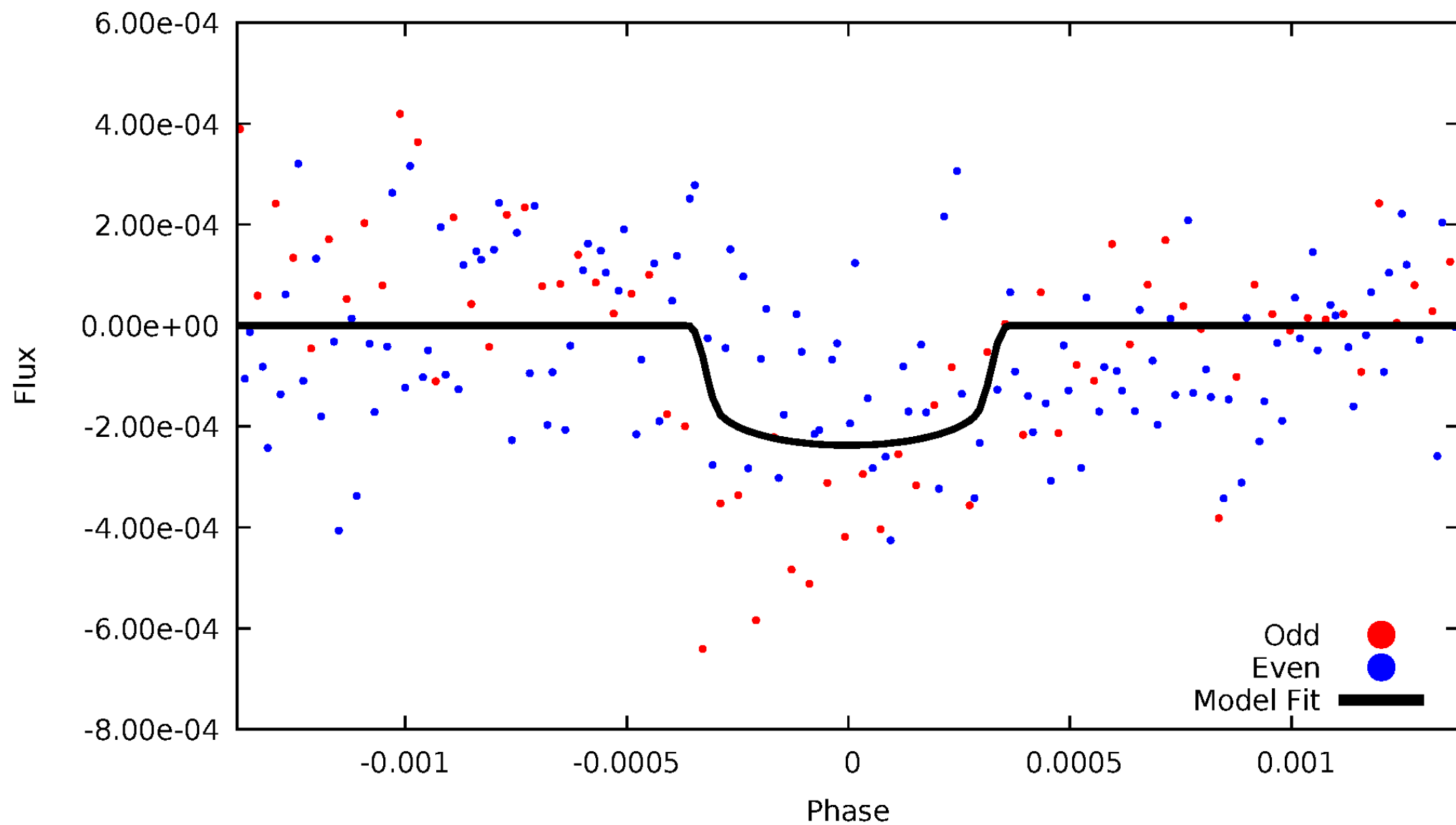


TCE 005019498-01



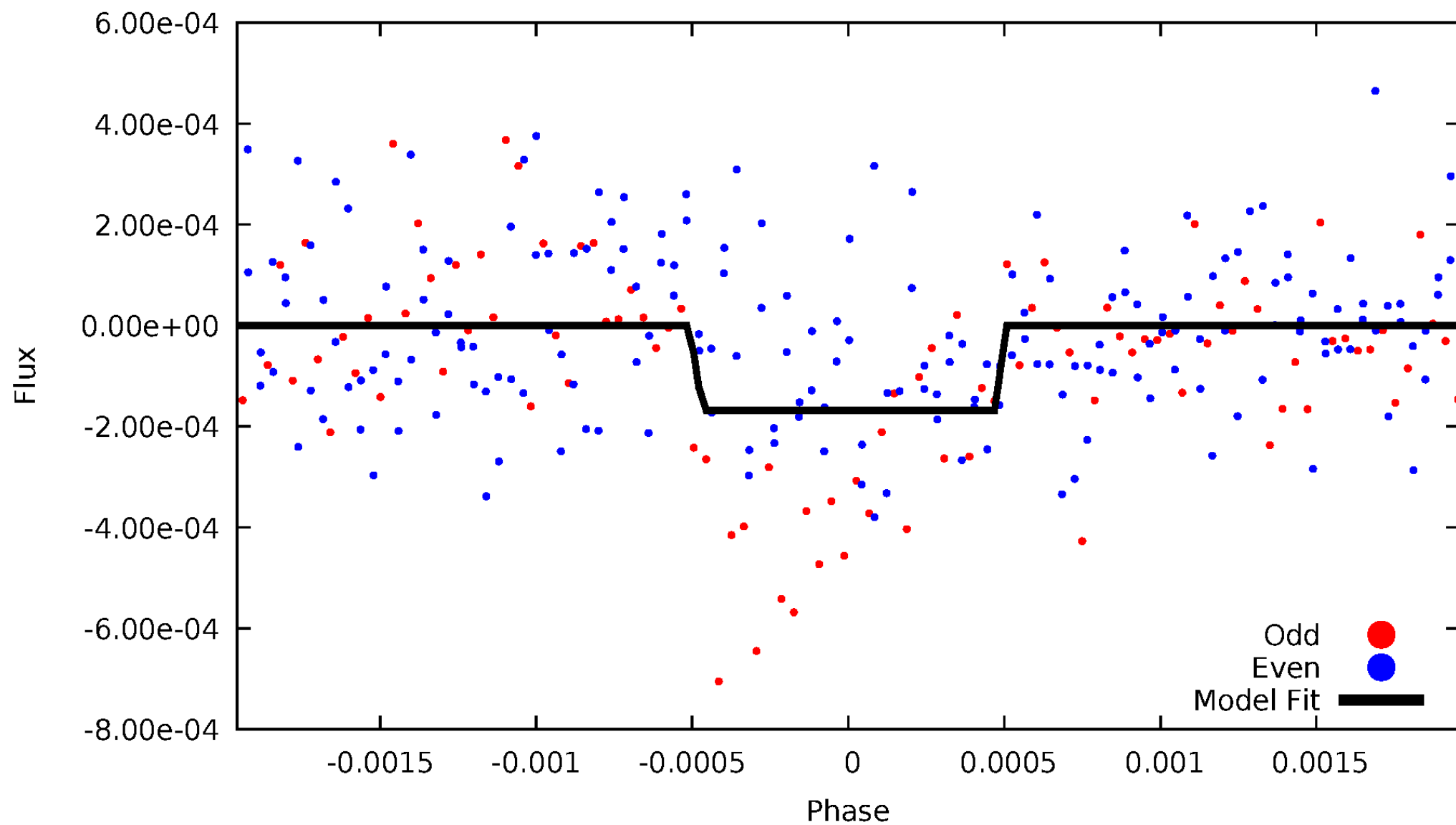
DV Odd/Even

TCE 005019498-01



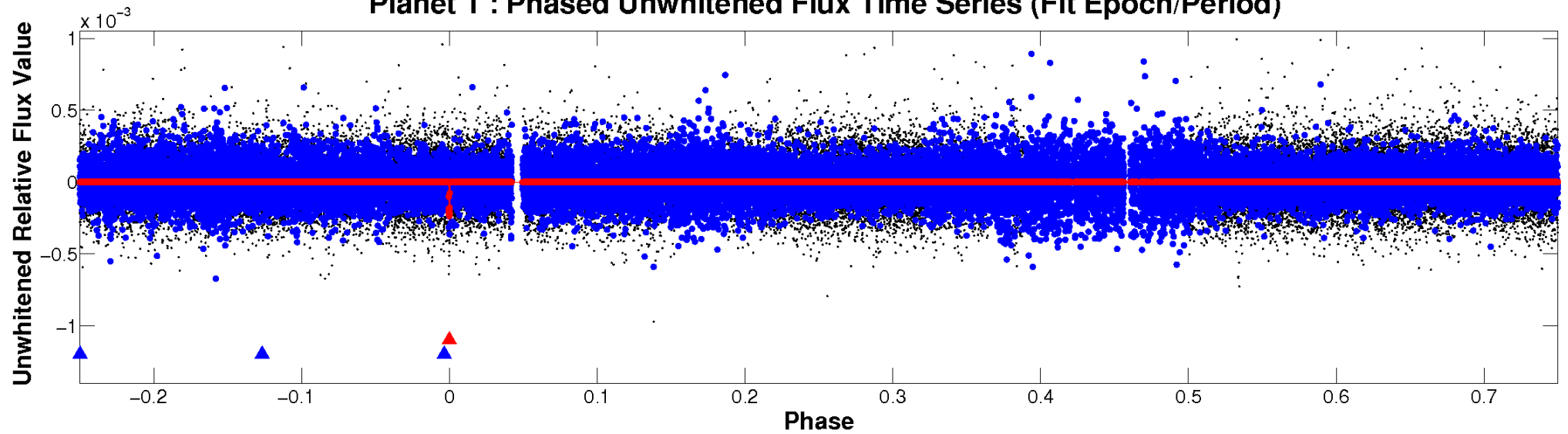
ALT Odd/Even

TCE 005019498-01

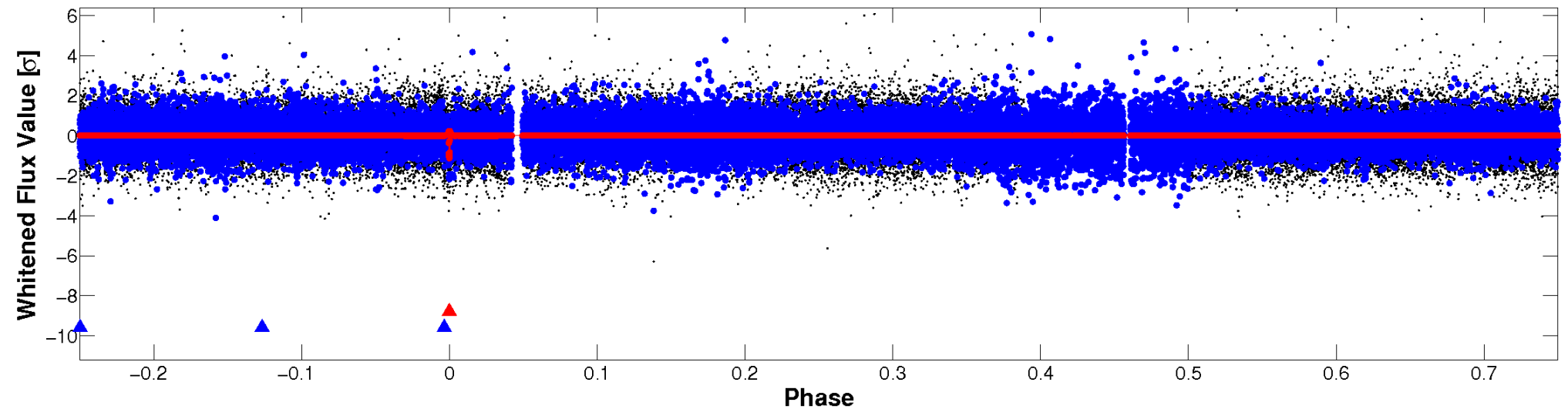


Non-Whitened Vs. Whitened Light Curve

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

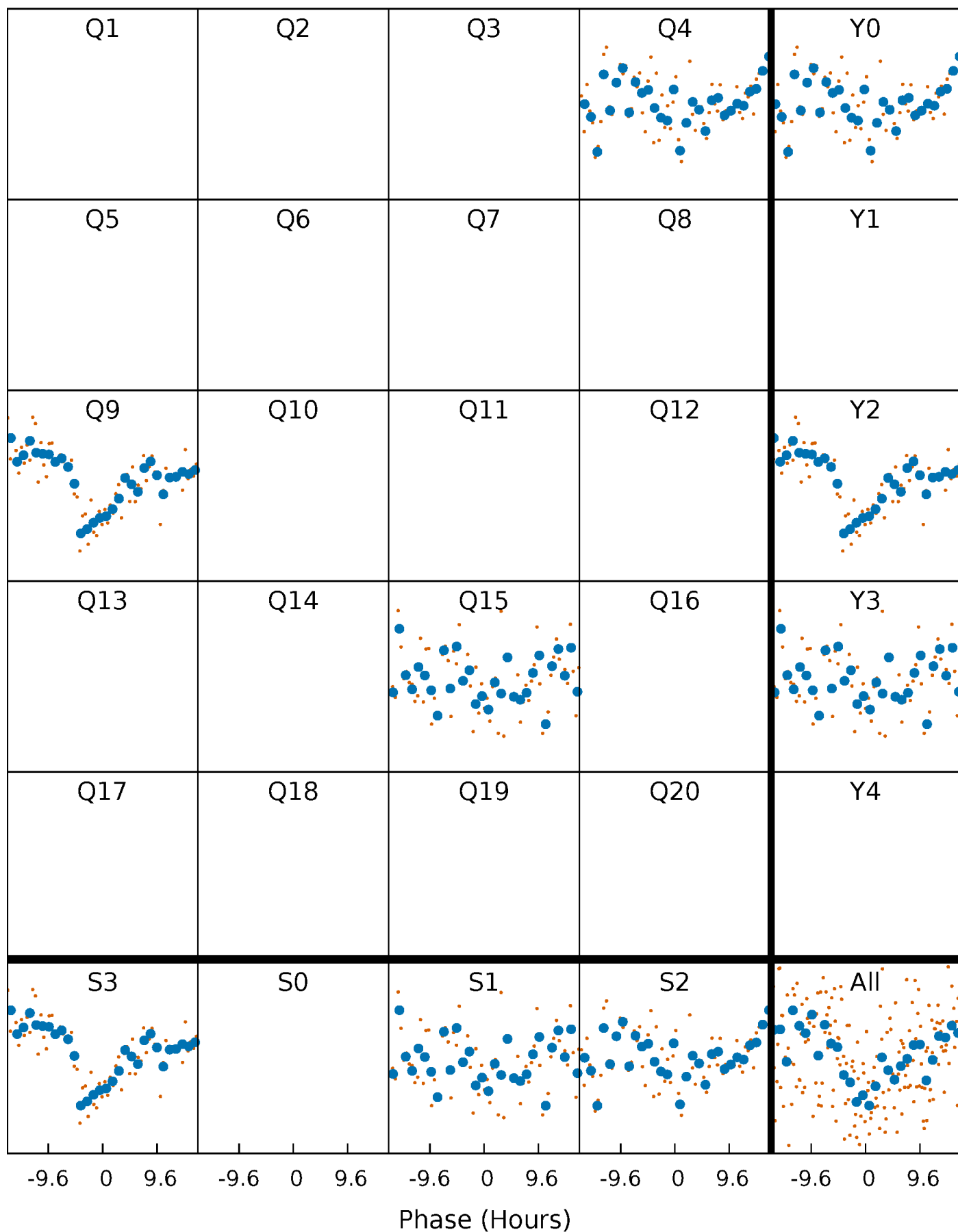


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



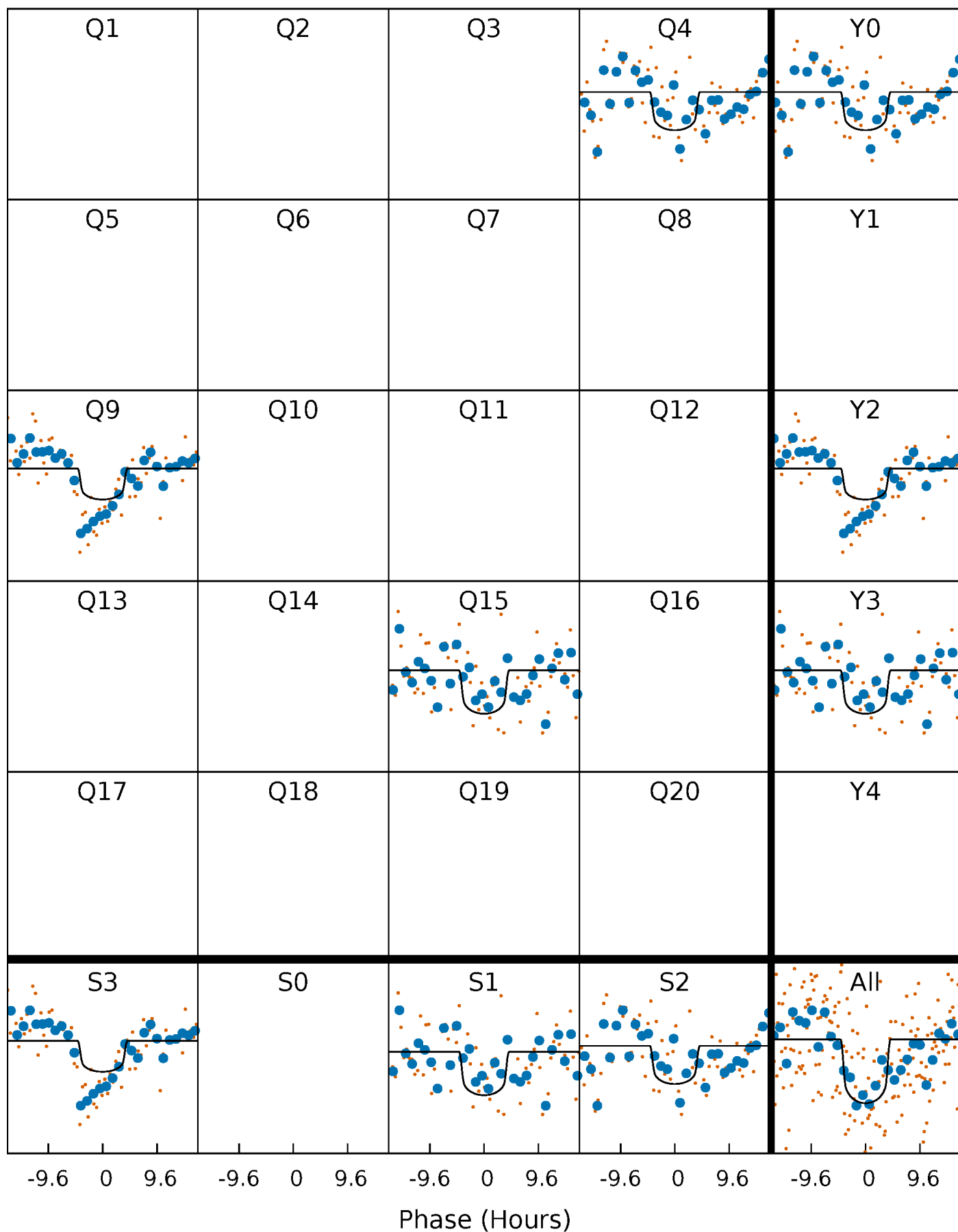
PDC Quarter-Phased Transit Curves

TCE 005019498-01 P=508.811775 Days $T_0=375.621649$ (BKJD)



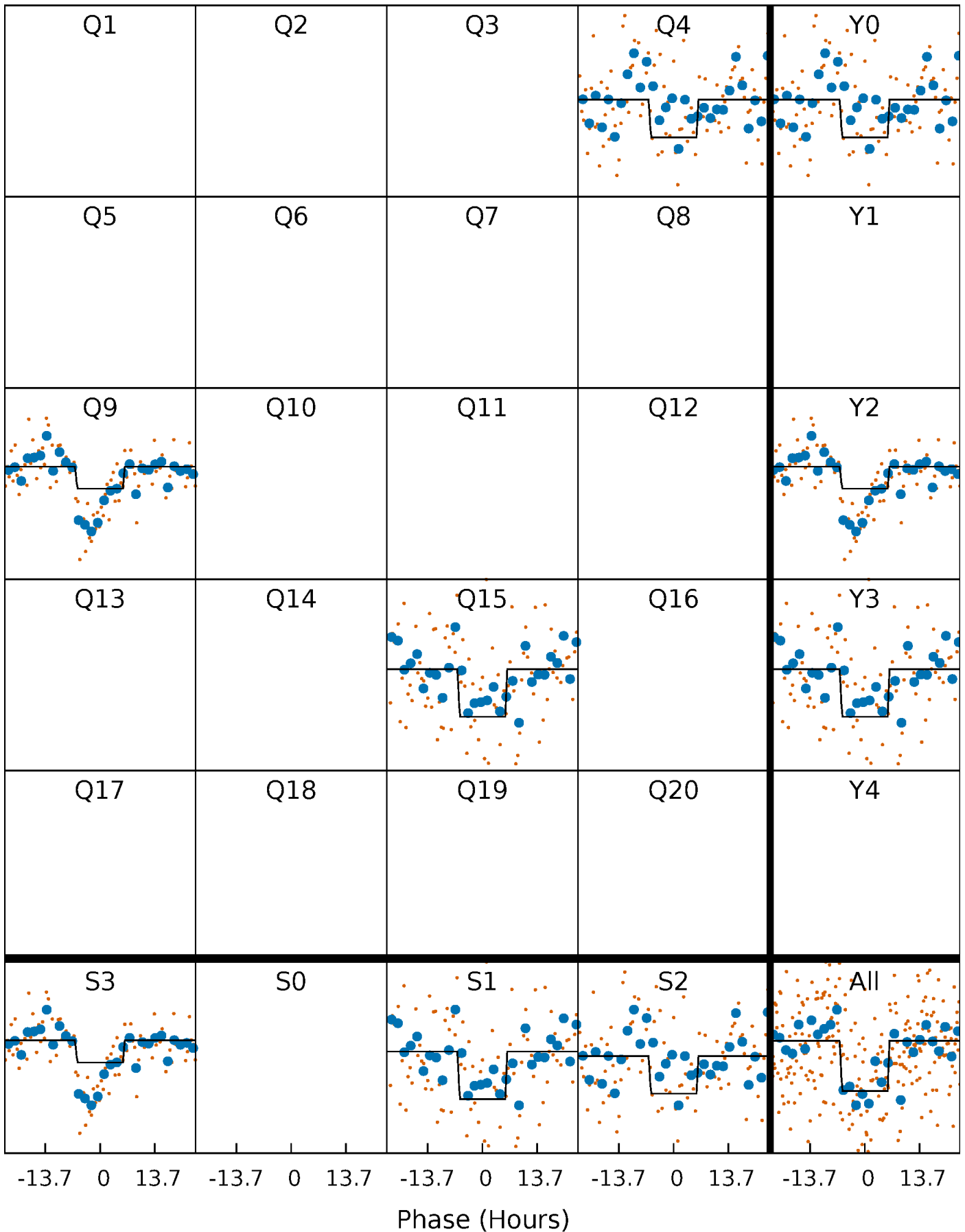
DV Quarter-Phased Transit Curves

TCE 005019498-01 P=508.811775 Days $T_0=375.621649$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

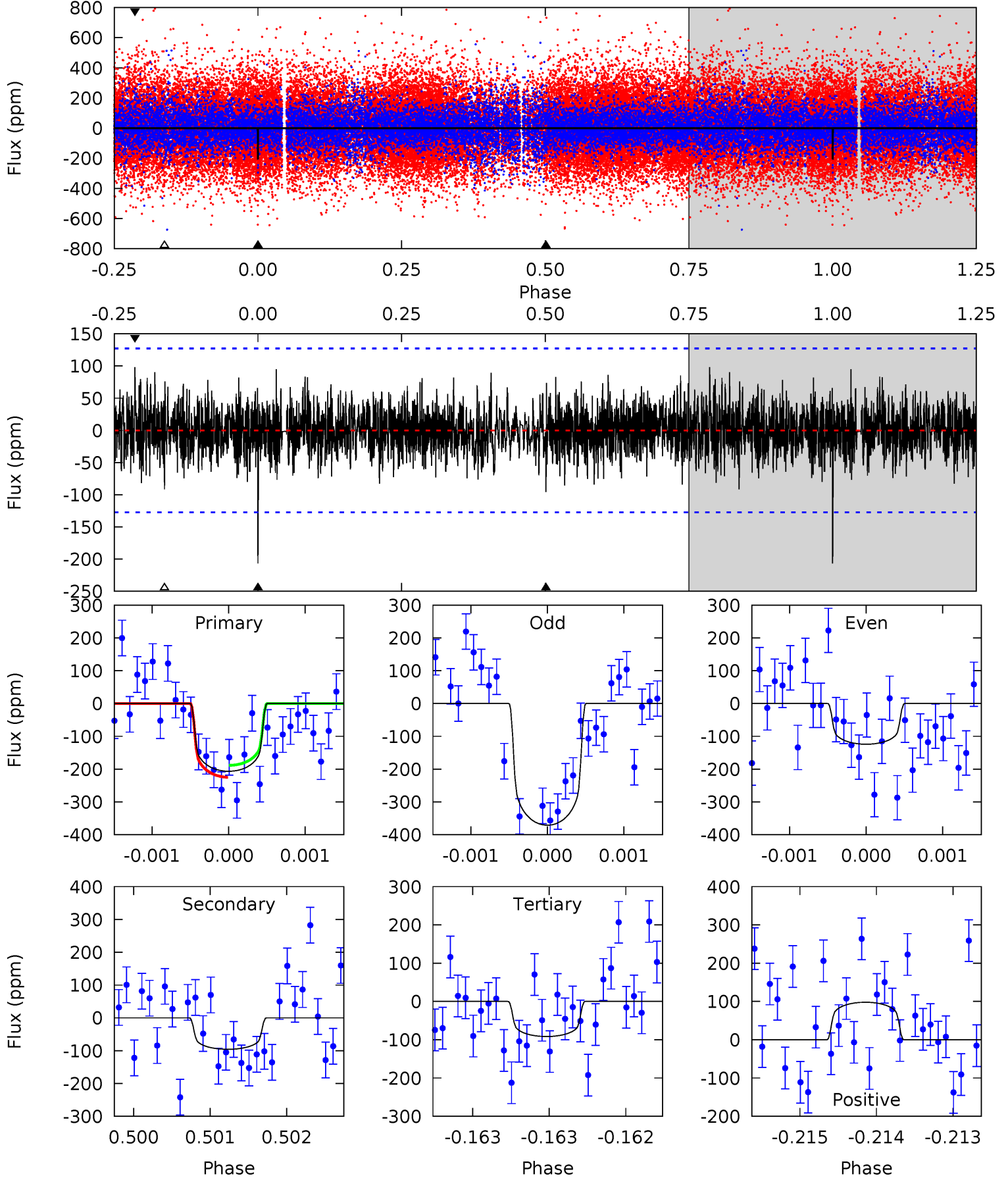
TCE 005019498-01 P=508.850134 Days $T_0=375.627317$ (BKJD)



DV Model-Shift Uniqueness Test

005019498-01, P = 508.811775 Days, E = 375.621649 Days

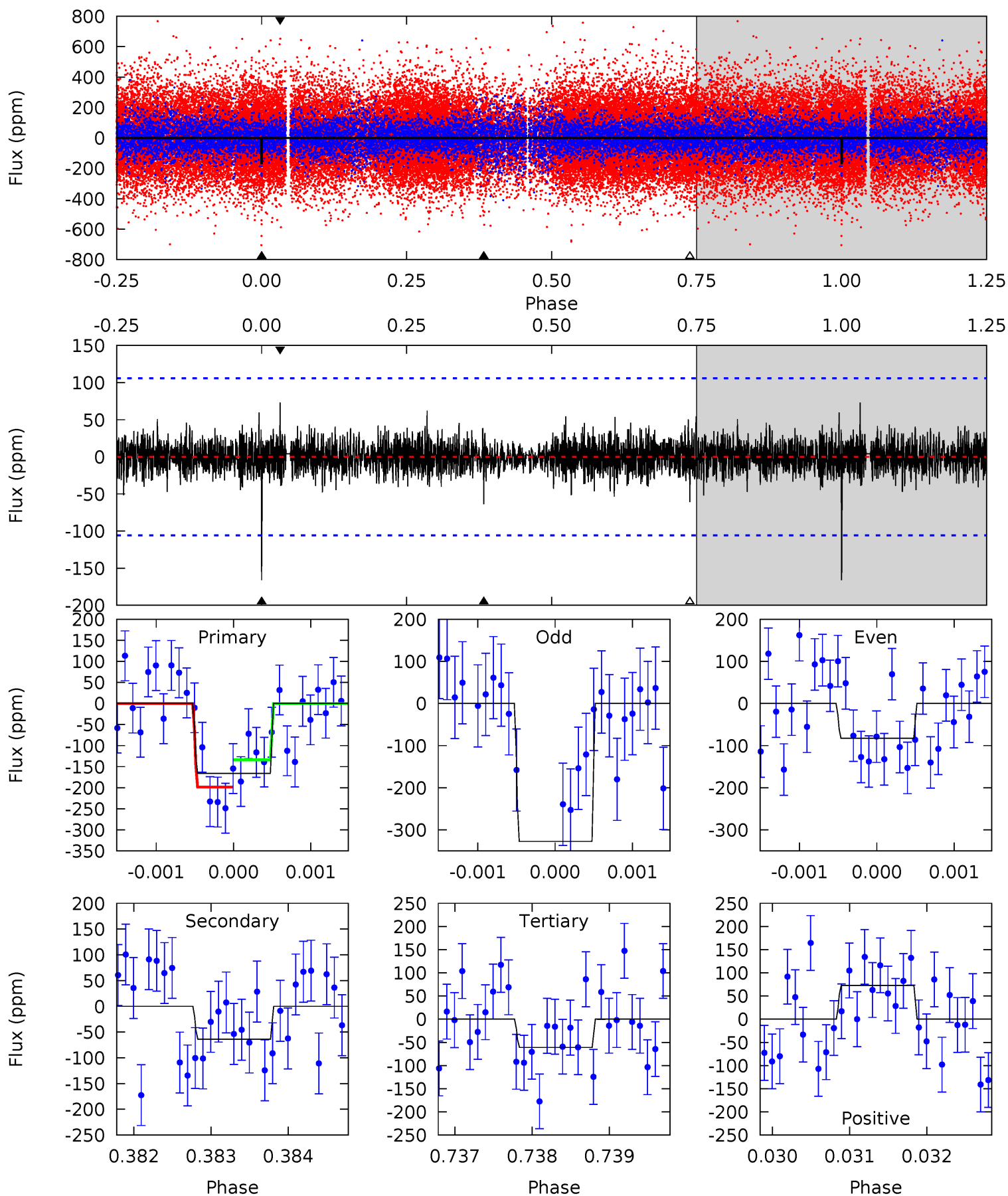
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.94	4.15	3.96	4.24	5.51	3.38	1.18	4.98	4.70	0.18	-0.09	5.08	1.60	0.32	0.79



Alt Model-Shift Uniqueness Test

005019498-01, P = 508.850134 Days, E = 375.627317 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.57	3.30	3.15	3.77	5.45	3.30	0.79	5.42	4.80	0.15	-0.47	5.93	1.62	0.31	1.67



Stellar Parameters For KIC 005019498

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6038^{+162}_{-180}	$4.432^{+0.070}_{-0.210}$	$-0.080^{+0.250}_{-0.300}$	$1.022^{+0.330}_{-0.132}$	$1.027^{+0.153}_{-0.126}$	$1.354^{+0.496}_{-0.694}$
	+3%/-3%	+2%/-5%	+312%/-375%	+32%/-13%	+15%/-12%	+37%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005019498-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-96 ± 23	$1.92^{+0.92}_{-0.84}$	342^{+26}_{-17}	4745^{+1376}_{-624}	21868^{+47810}_{-12097}
Alt.	-64 ± 19	$1.51^{+0.78}_{-0.74}$	341^{+25}_{-16}	4812^{+1953}_{-764}	24269^{+69399}_{-15129}

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

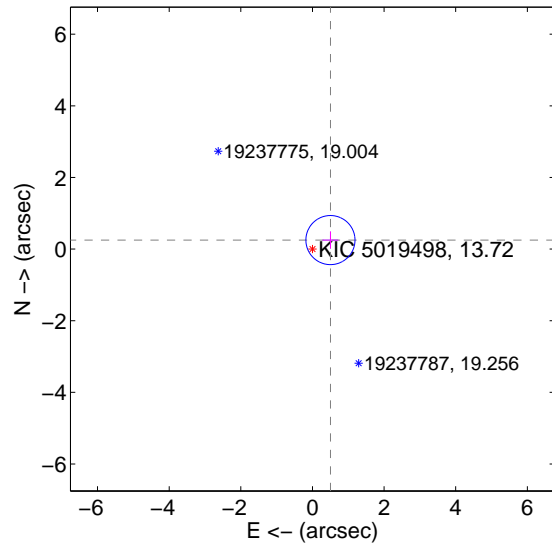
Supplemental centroid analysis for 005019498-01. Kepler magnitude: 13.72. Transit SNR 6.94

There are 1 quarters with good PRF difference image offsets

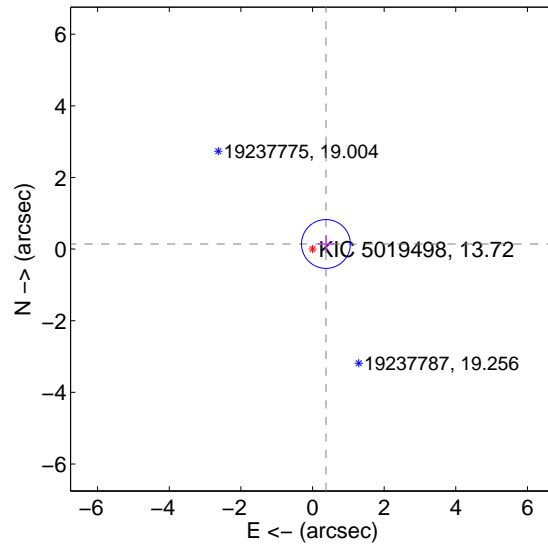
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.562 ± 0.228	2.46	-0.503 ± 0.225	0.252 ± 0.241
PRF-fit source offset from KIC position	0.401 ± 0.227	1.76	-0.374 ± 0.225	0.143 ± 0.241
photometric centroid source offset	1.39 ± 1.41	0.98	-1.24 ± 1.38	-0.64 ± 1.52

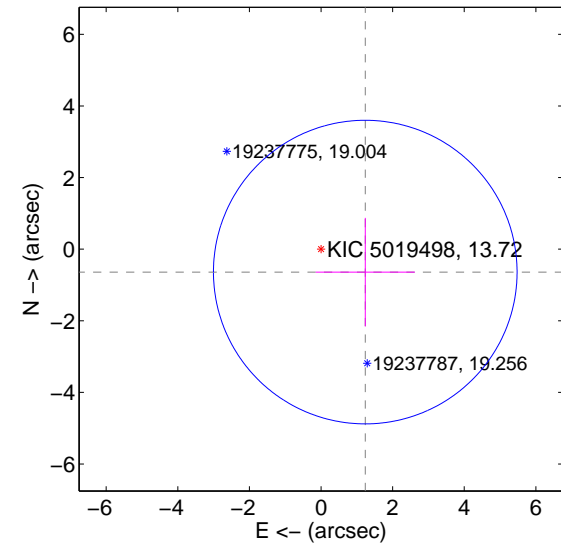
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

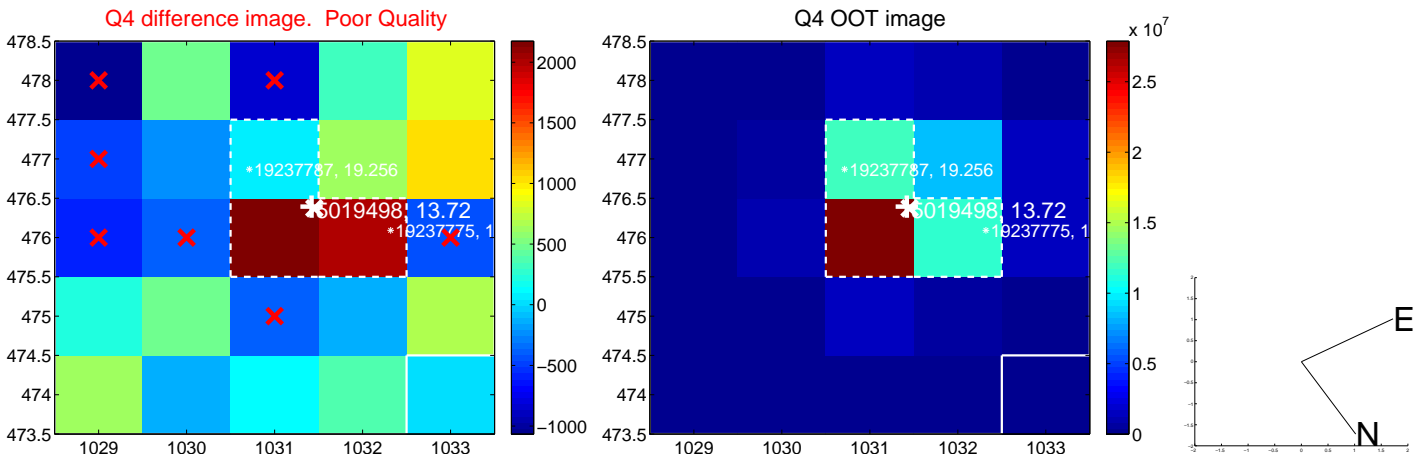


offset from photometric centroids



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.

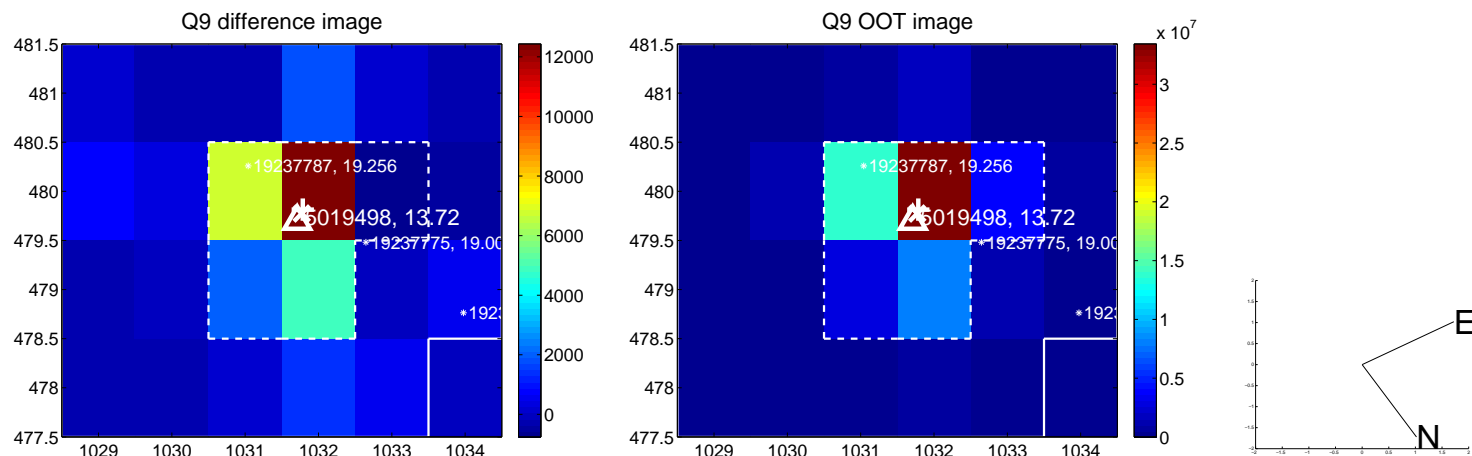
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



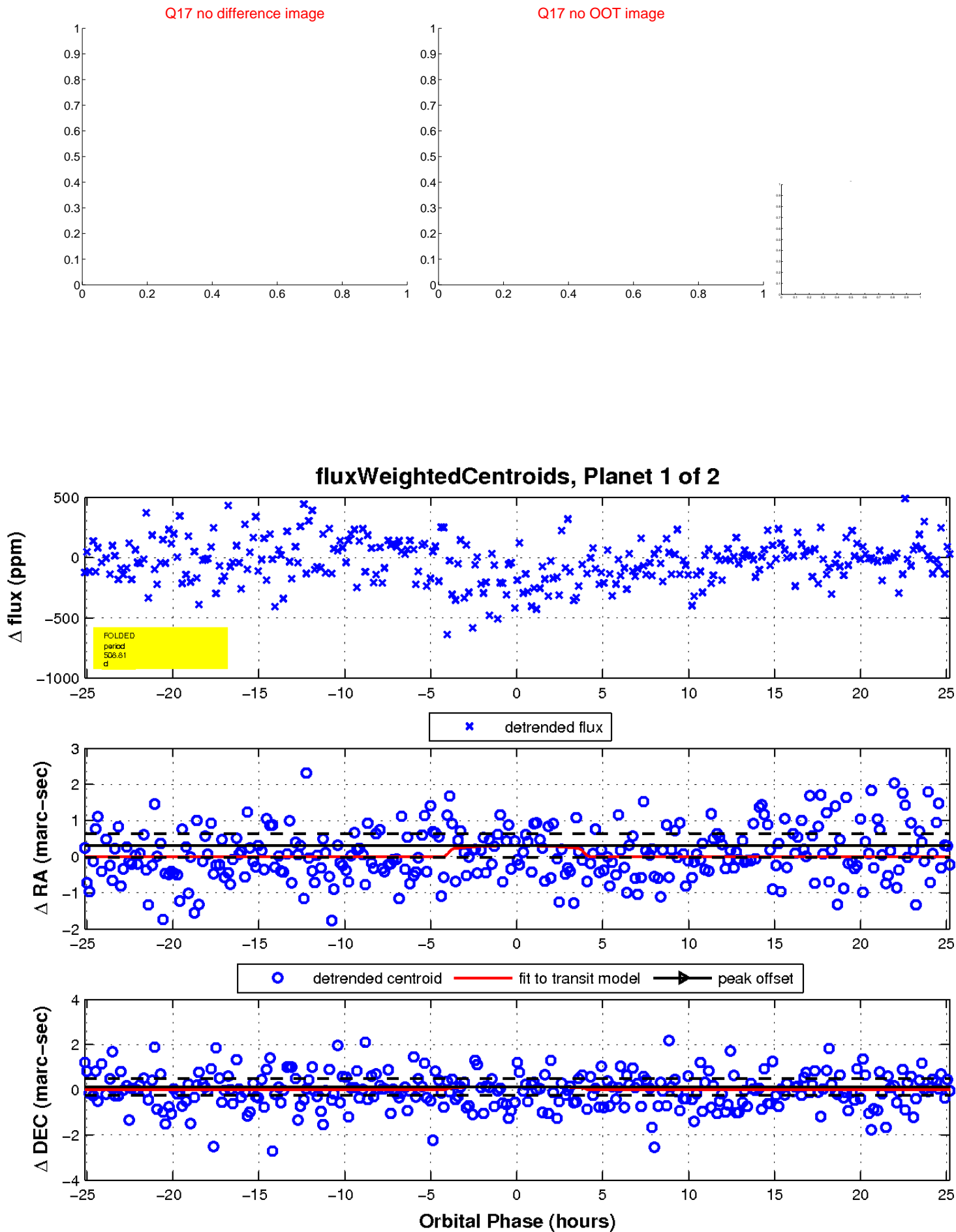
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

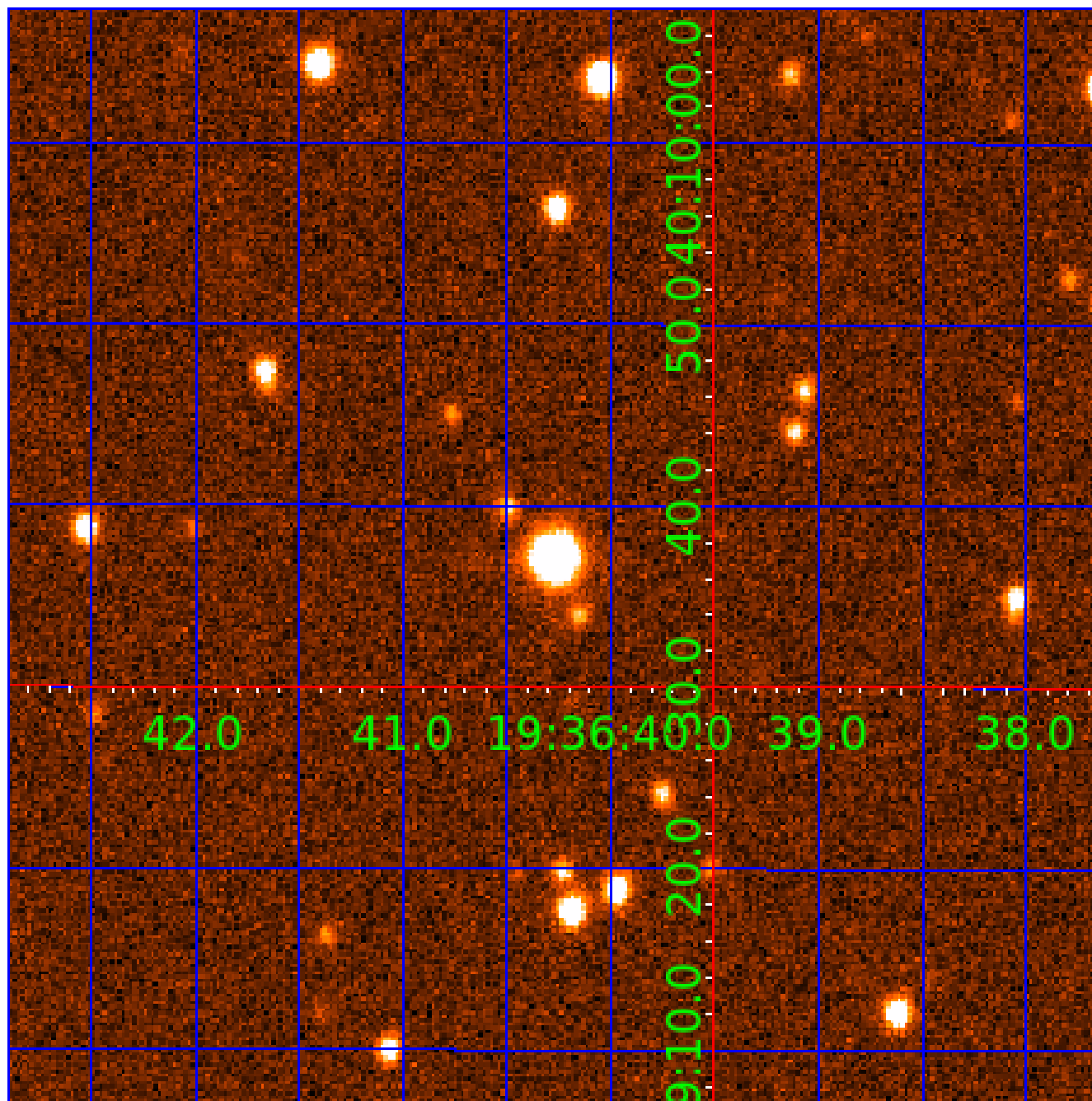


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005019498

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})
005019498-01	OBS	No	508.811775	375.621649	237.4	8.419	7.7	6.9	1.02	6038	1.80	0.78
005019498-02	OBS	No	446.128777	373.868330	201.9	11.799	7.9	6.8	1.02	6038	1.68	0.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019498-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005019498-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

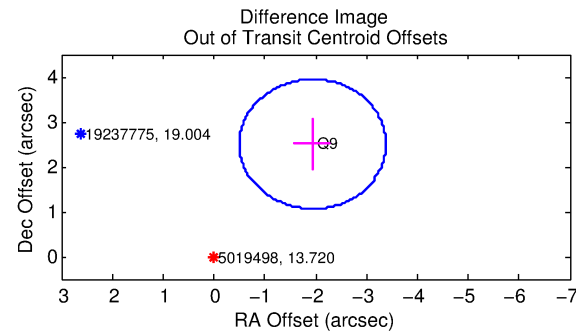
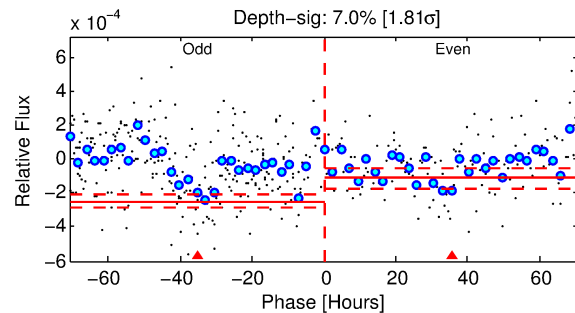
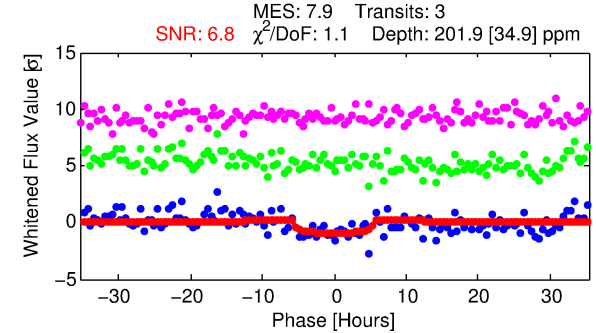
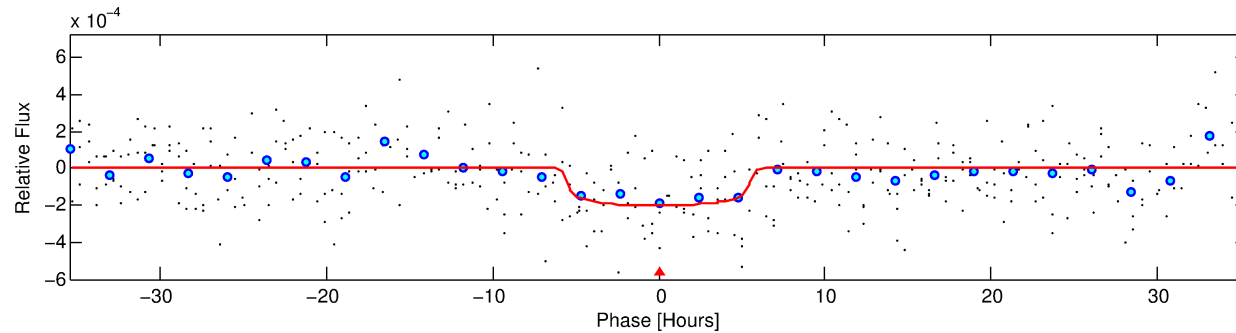
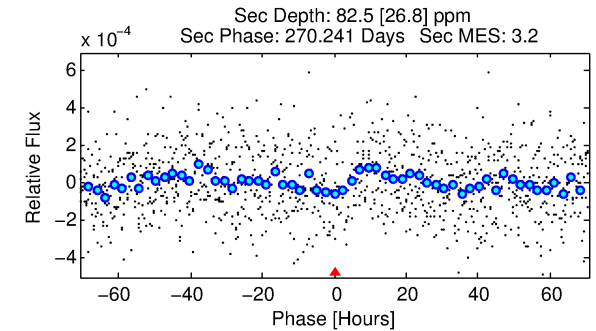
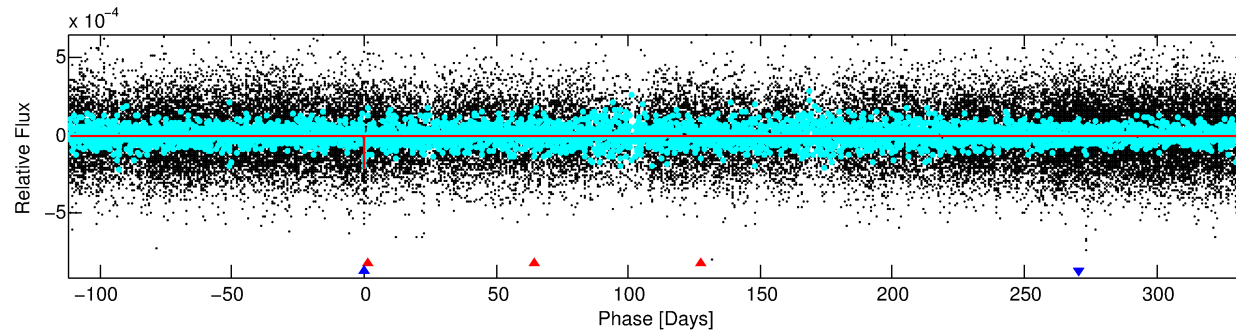
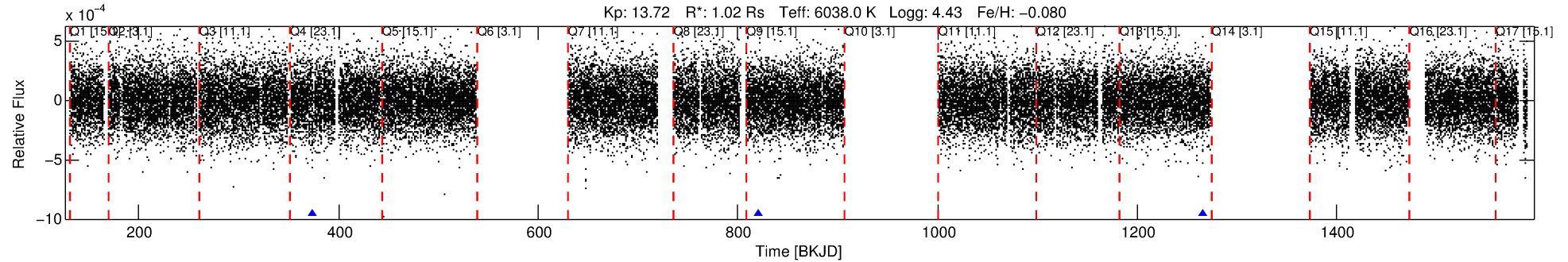
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019498-02

No Significant Match Found

DV One-Page Summary

KIC: 5019498 Candidate: 2 of 2 Period: 446.129 d



DV Fit Results:

Period = 446.12878 [0.01839] d
Epoch = 373.8683 [0.0258] BKJD
Rp/R* = 0.0150 [0.0044]
a/R* = 149.22 [212.13]
b = 0.87 [0.39]
Seff = 0.93 [0.38]
Teq = 251 [25] K
Rp = 1.68 [0.73] Re
a = 1.1543 [0.3104] AU
Ag = 21520.13 [16669.55] [1.29σ]
Teffp = 4694 [799] K [5.56σ]

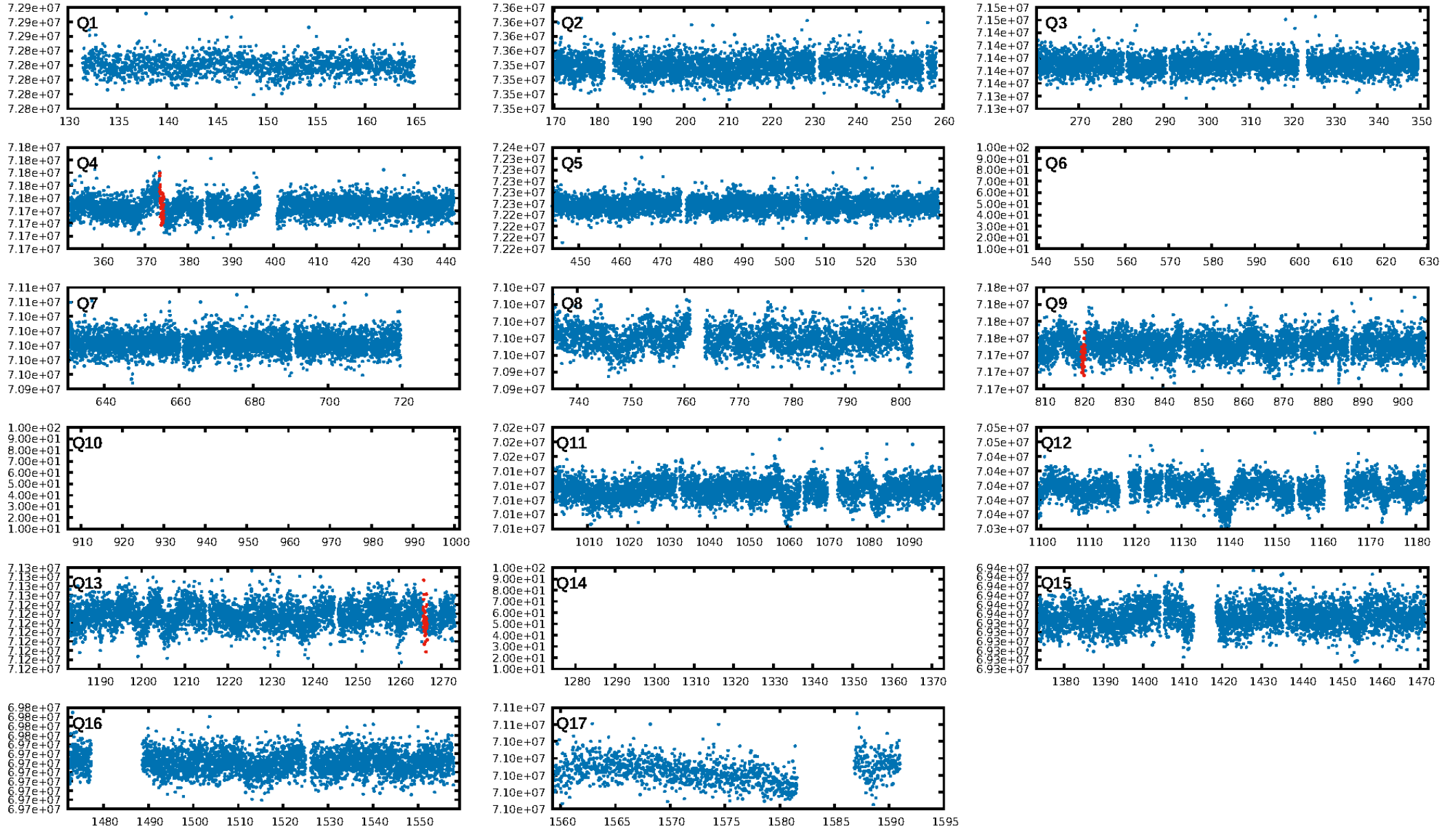
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [103.79σ]
ModelChiSquare2-sig: 5.6%
ModelChiSquareGof-sig: 93.4%
Bootstrap-pfa: 3.11e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.702
Centroid-sig: 34.4%
Centroid-so: 1.305 arcsec [0.86σ]
OotOffset-rm: 3.166 arcsec [6.59σ]
KicOffset-rm: 3.006 arcsec [6.27σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

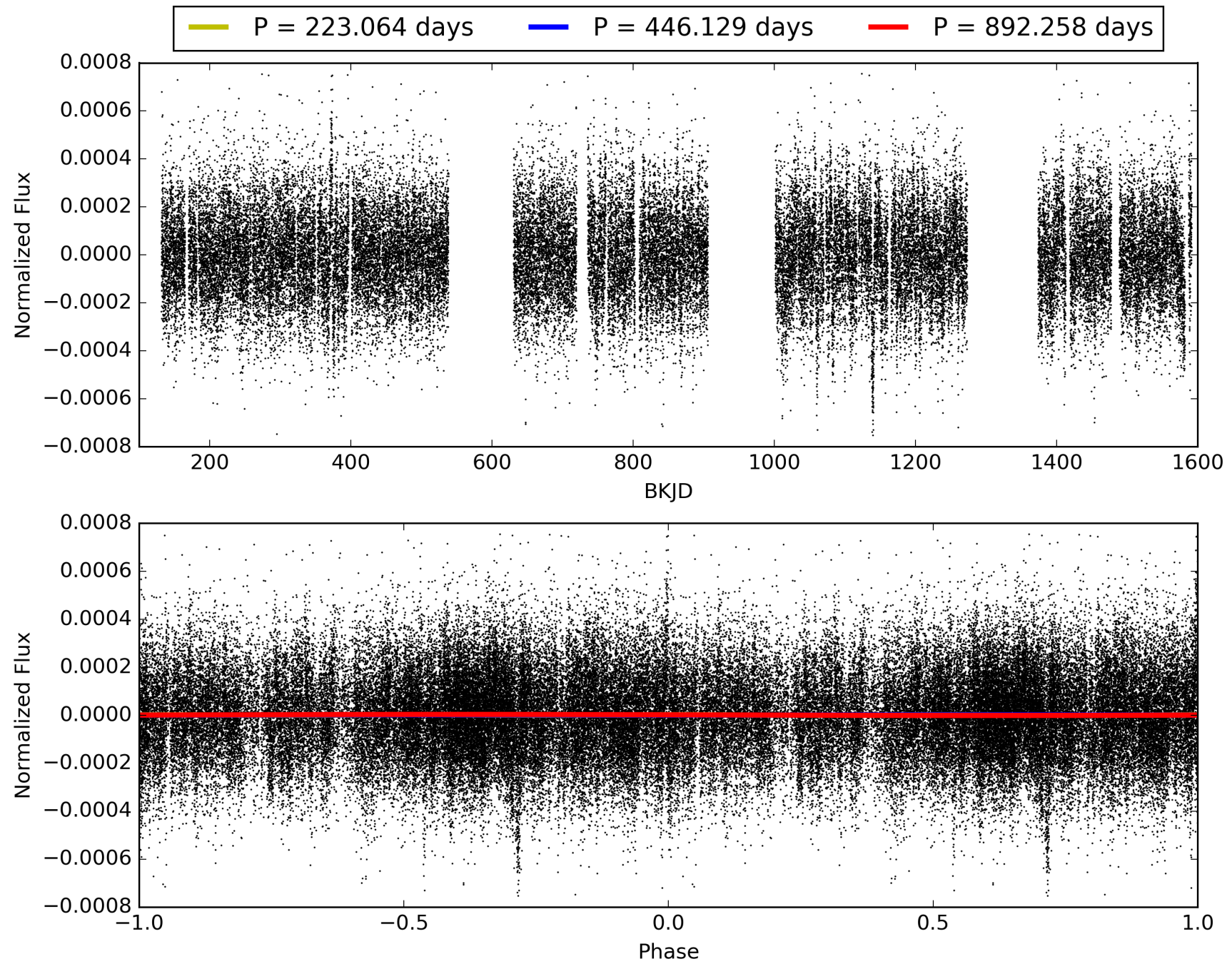
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:05:19 Z

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

TCE 005019498-02, PDC Light Curves

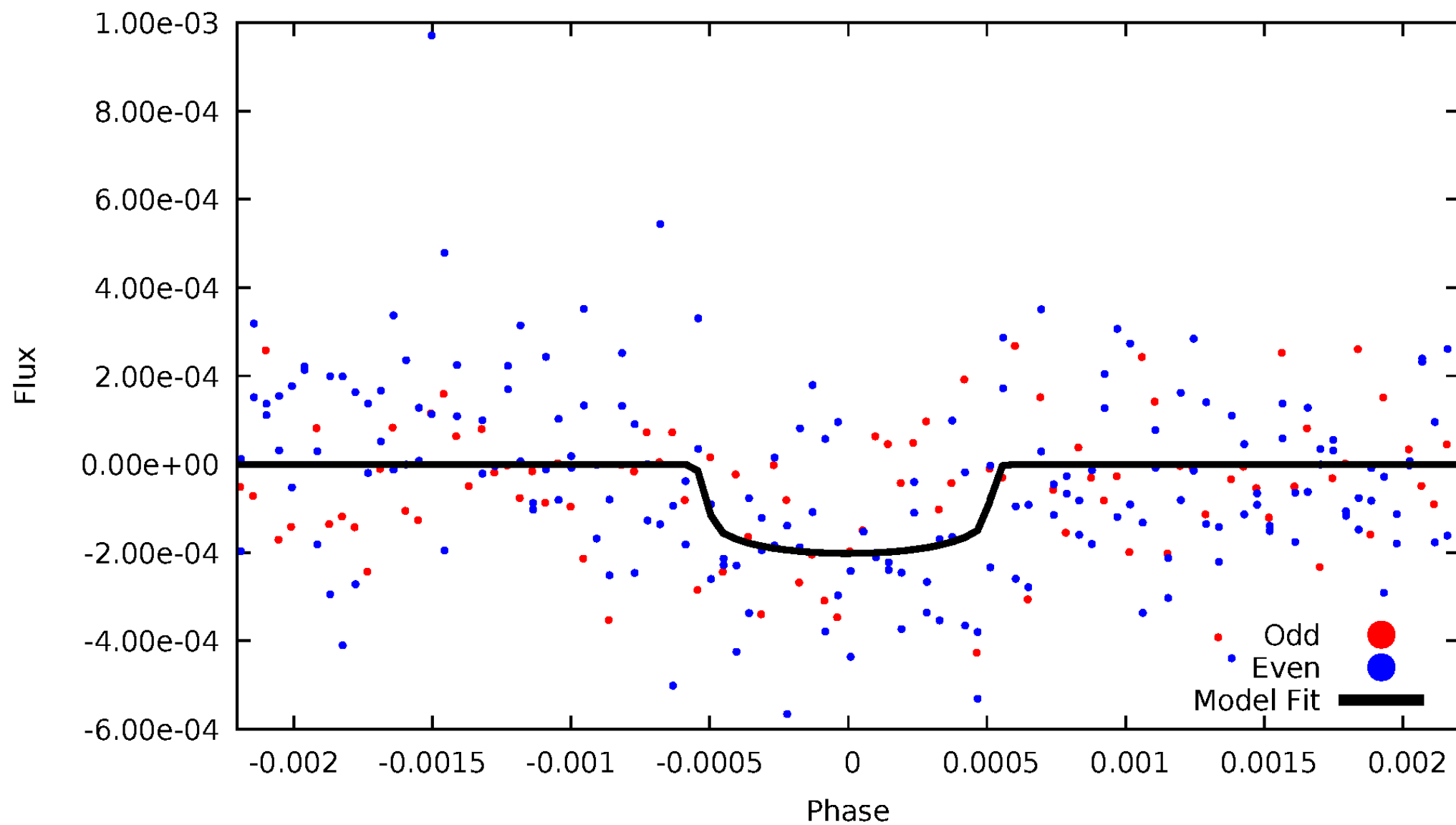


TCE 005019498-02



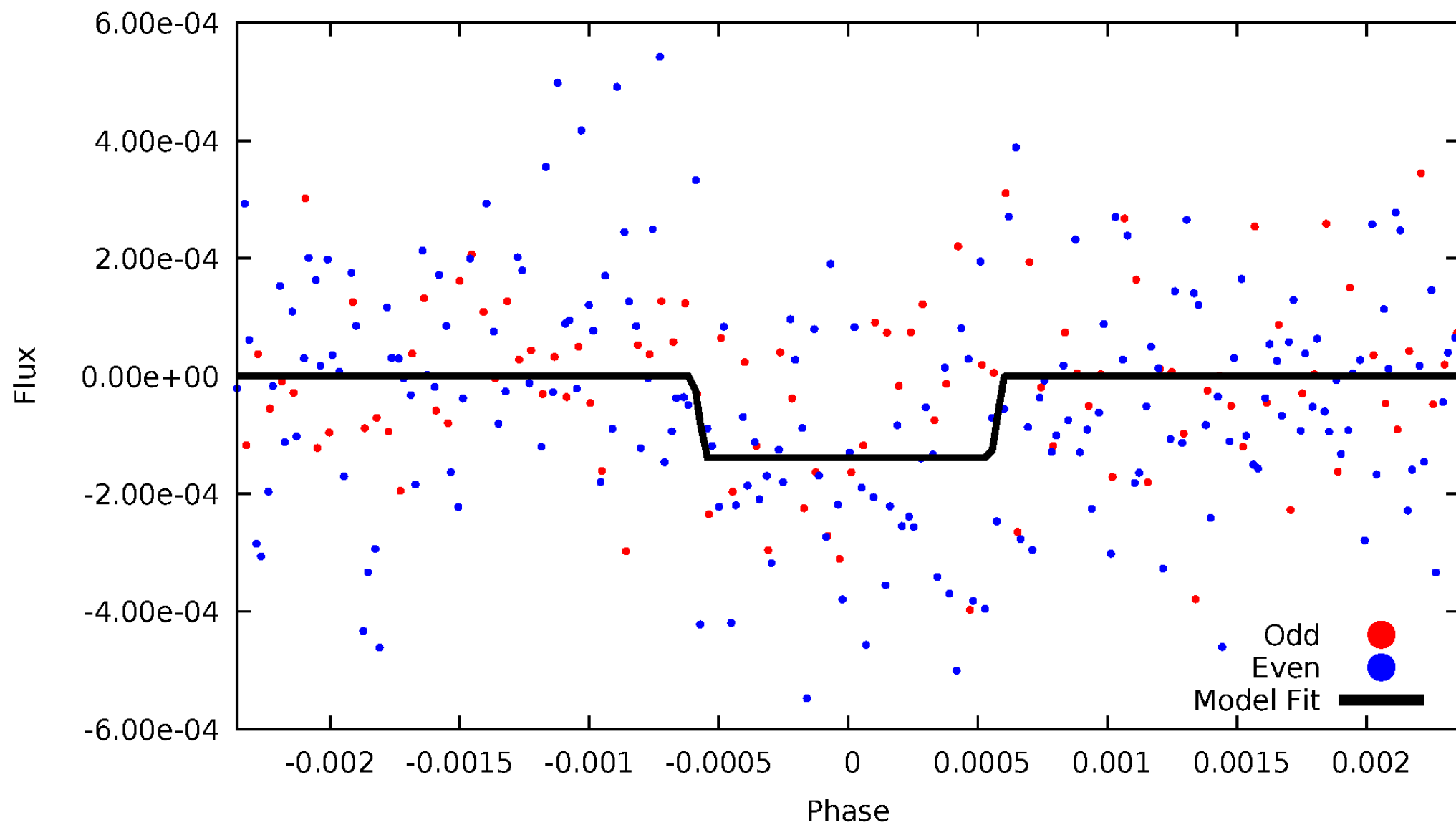
DV Odd/Even

TCE 005019498-02



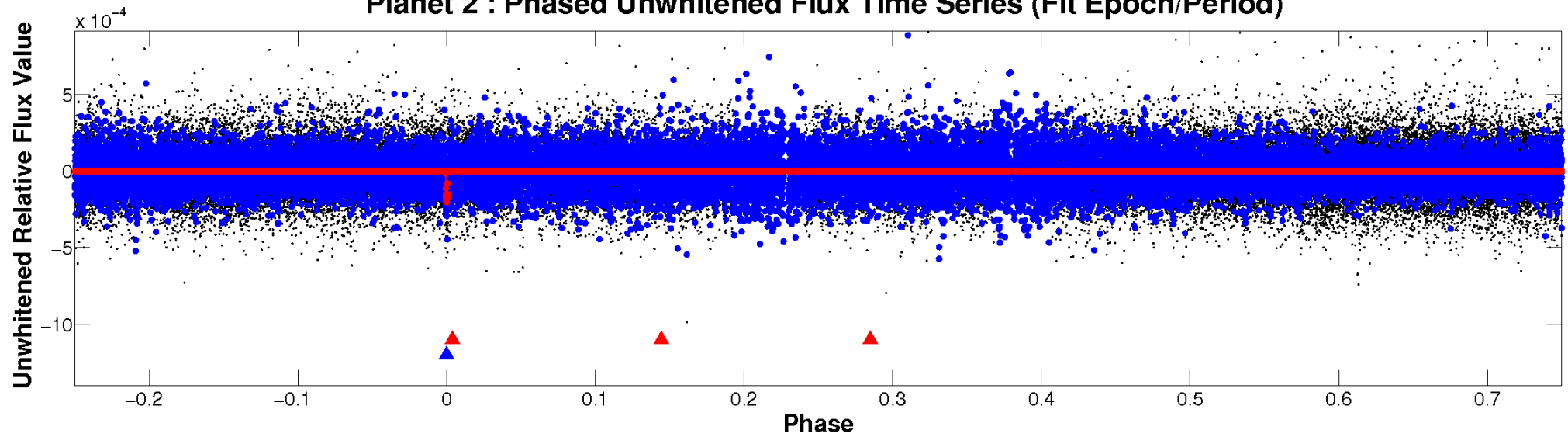
ALT Odd/Even

TCE 005019498-02

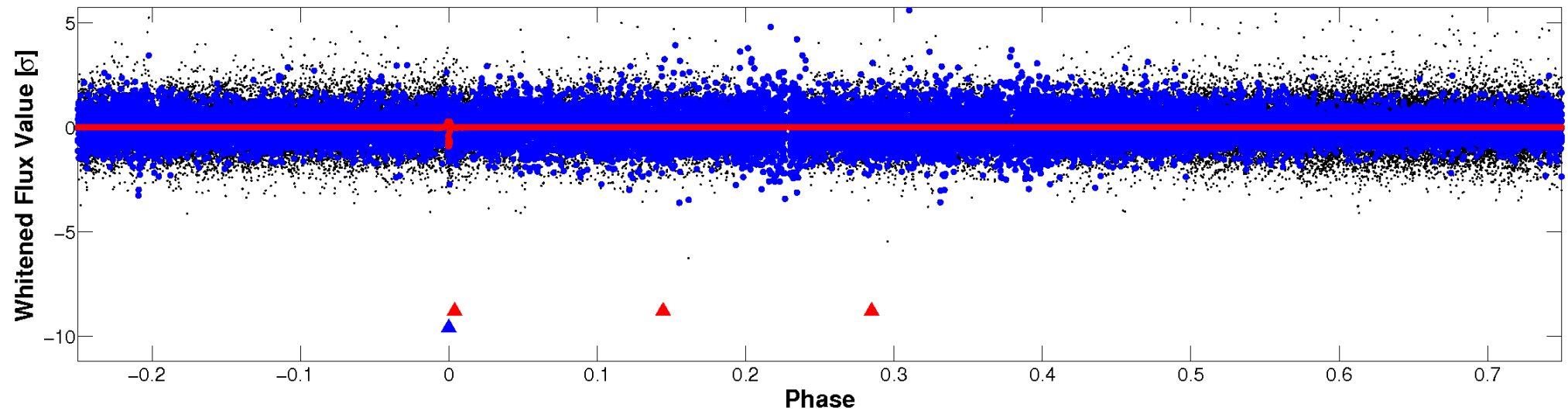


Non-Whitened Vs. Whitened Light Curve

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

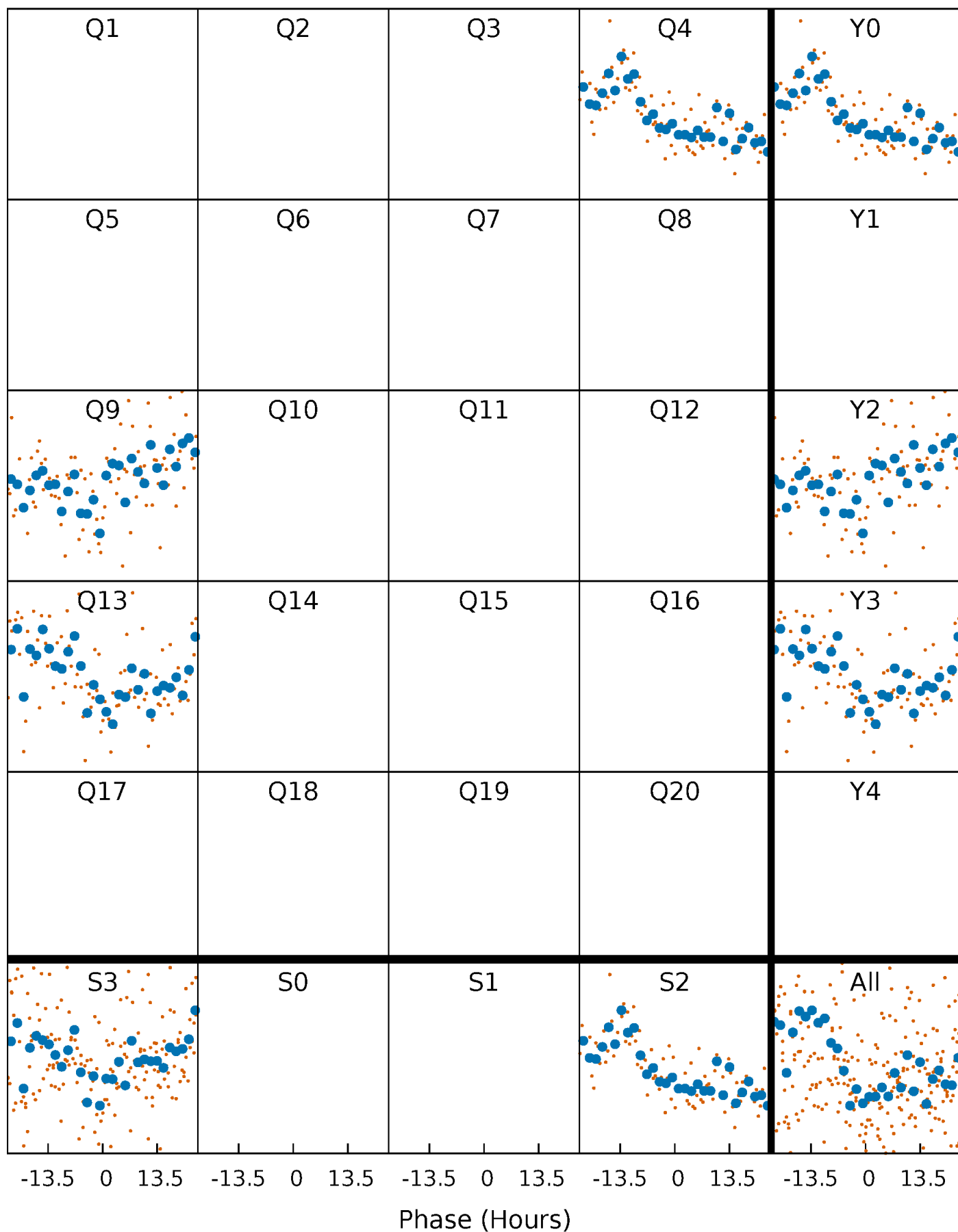


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



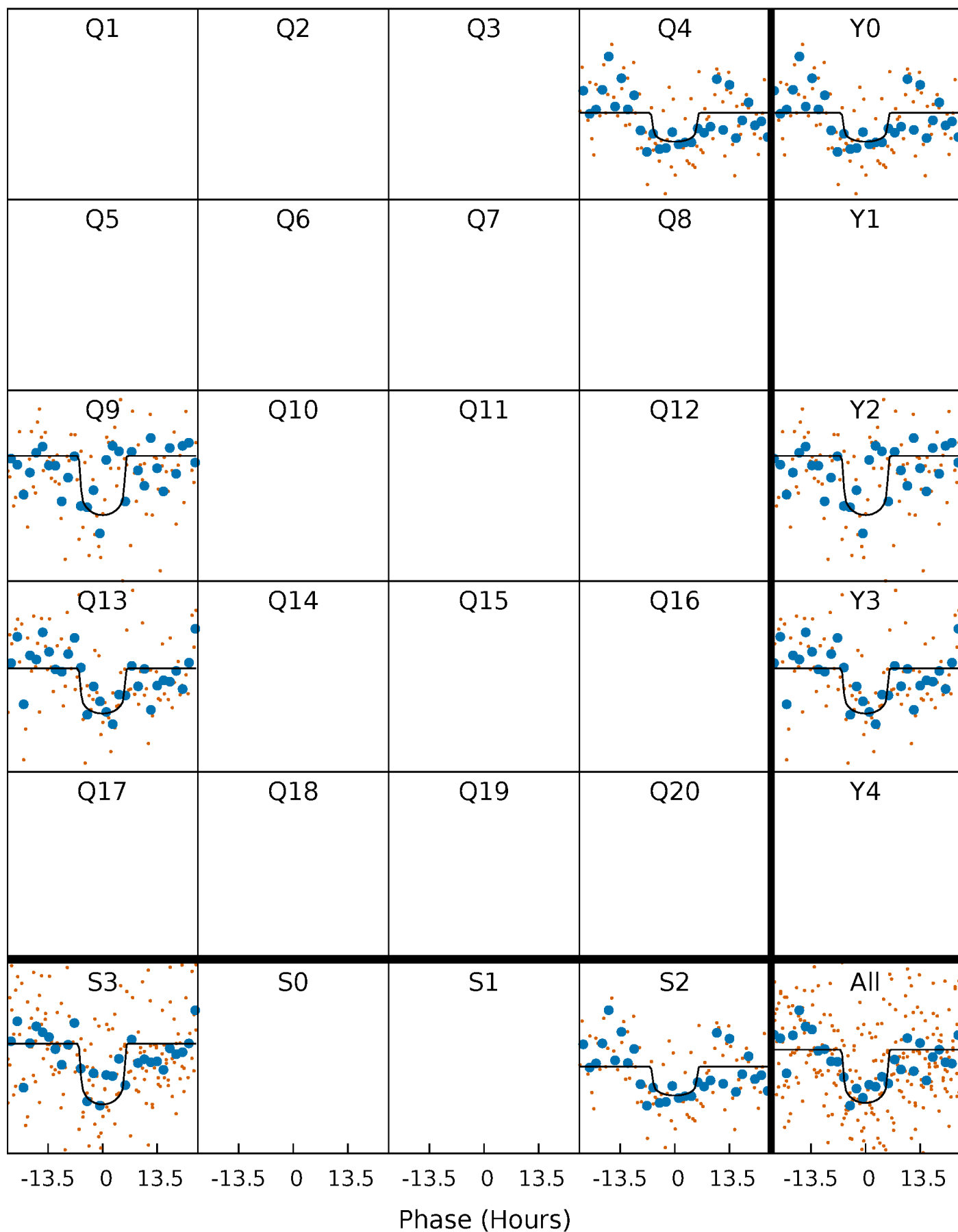
PDC Quarter-Phased Transit Curves

TCE 005019498-02 P=446.128777 Days $T_0=373.868330$ (BKJD)



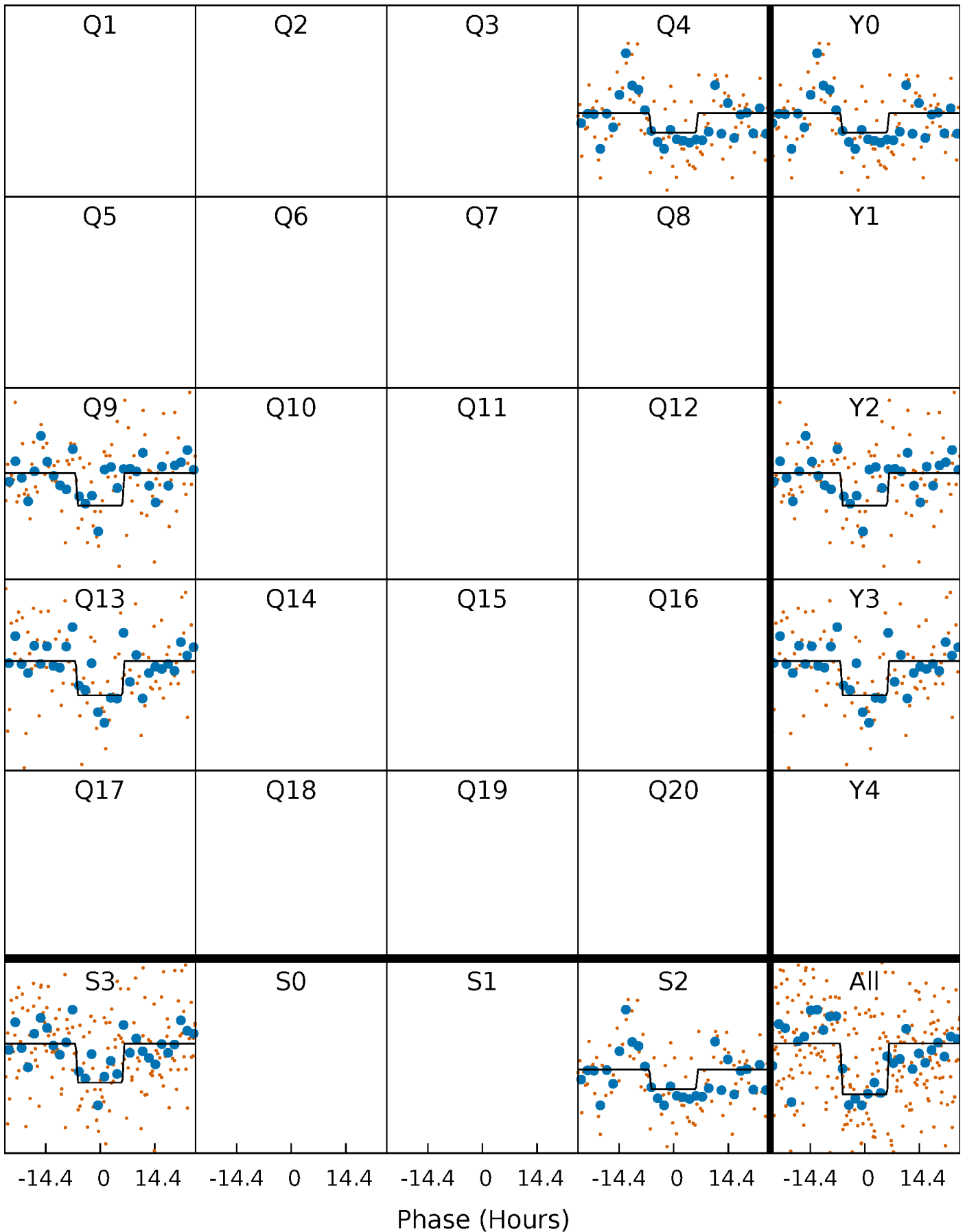
DV Quarter-Phased Transit Curves

TCE 005019498-02 $P=446.128777$ Days $T_0=373.868330$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

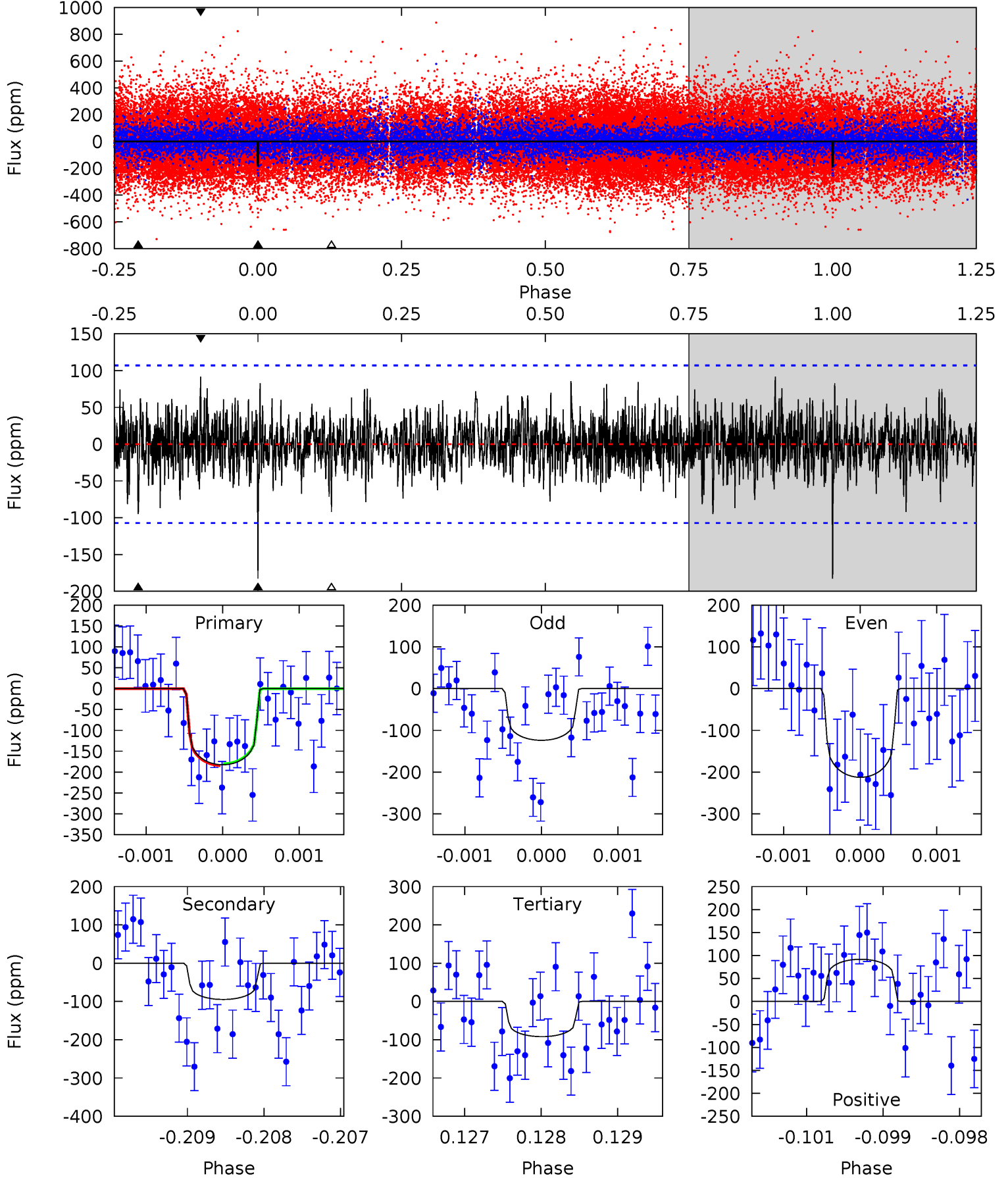
TCE 005019498-02 $P=446.153160$ Days $T_0=373.841171$ (BKJD)



DV Model-Shift Uniqueness Test

005019498-02, P = 446.128777 Days, E = 373.868330 Days

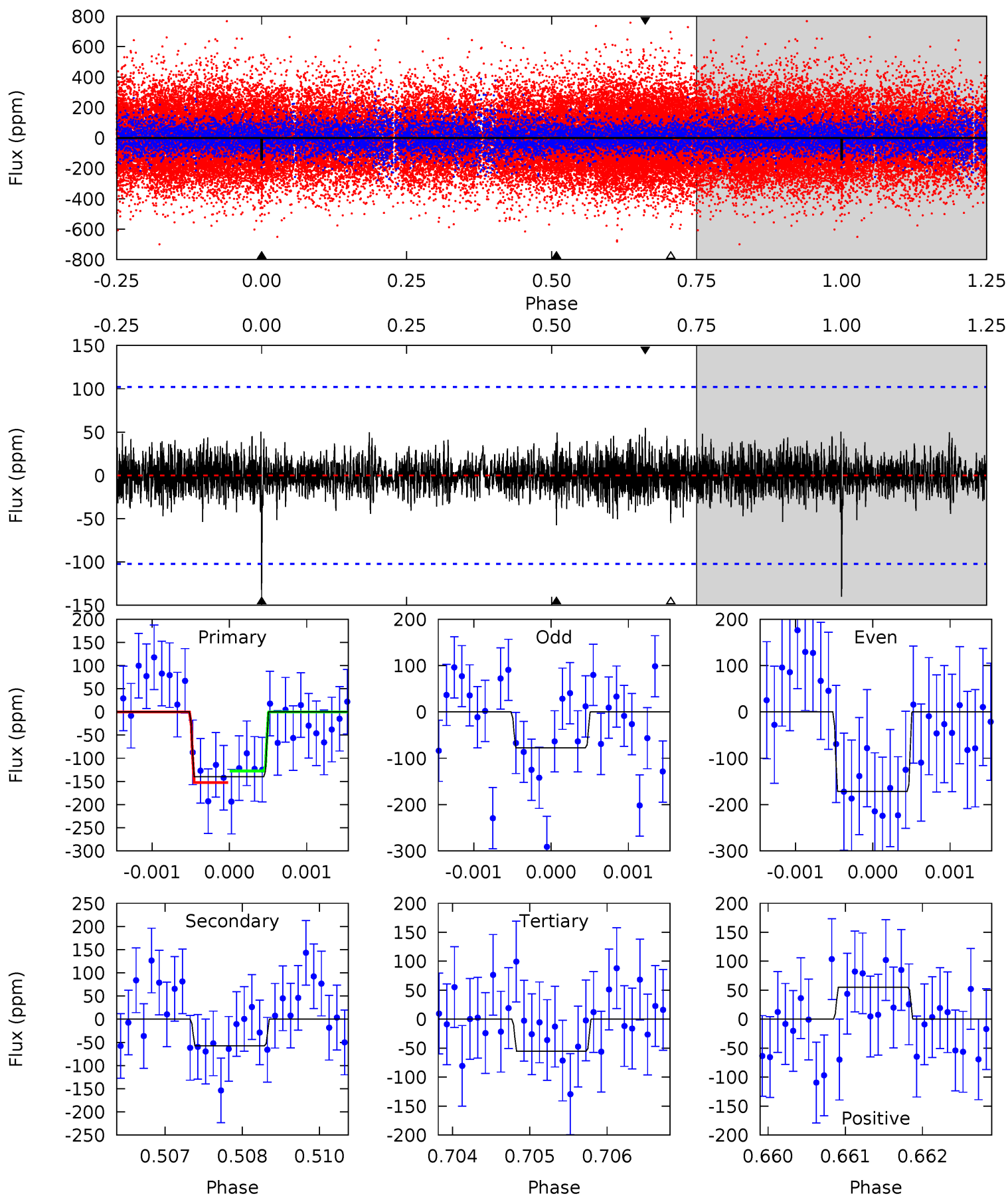
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.25	4.80	4.66	4.65	5.43	3.25	1.25	4.59	4.59	0.15	0.15	2.11	0.96	0.33	0.11



Alt Model-Shift Uniqueness Test

005019498-02, P = 446.153160 Days, E = 373.841171 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.42	3.05	2.93	2.92	5.42	3.24	0.78	4.49	4.50	0.12	0.13	2.34	1.04	0.28	0.66



Stellar Parameters For KIC 005019498

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6038^{+162}_{-180}	$4.432^{+0.070}_{-0.210}$	$-0.080^{+0.250}_{-0.300}$	$1.022^{+0.330}_{-0.132}$	$1.027^{+0.153}_{-0.126}$	$1.354^{+0.496}_{-0.694}$
	+3%/-3%	+2%/-5%	+312%/-375%	+32%/-13%	+15%/-12%	+37%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005019498-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-95 ± 20	$1.77^{+0.56}_{-0.53}$	356^{+26}_{-17}	4900^{+838}_{-511}	21529^{+22923}_{-9952}
Alt.	-58 ± 19	$1.37^{+0.62}_{-0.52}$	357^{+26}_{-18}	4872^{+1251}_{-667}	21562^{+35906}_{-12407}

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

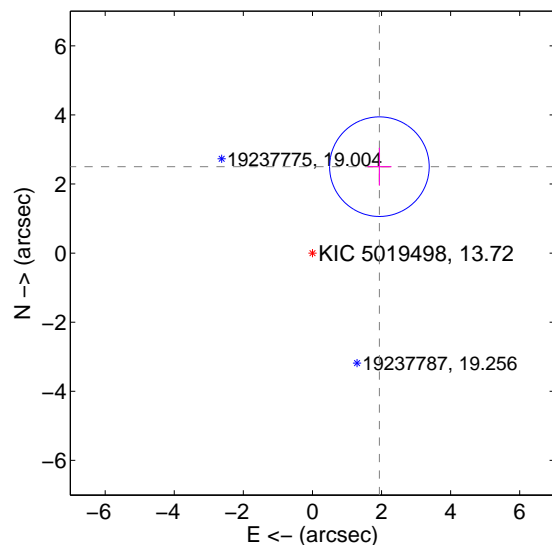
Supplemental centroid analysis for 005019498-02. Kepler magnitude: 13.72. Transit SNR 6.78

There are 0 quarters with good PRF difference image offsets

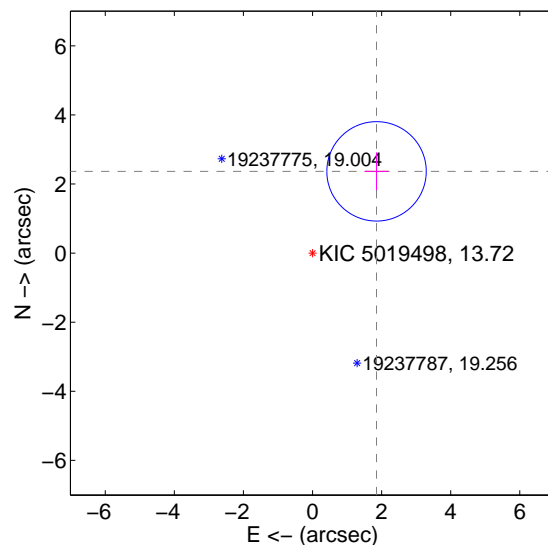
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.166 ± 0.481	6.59	-1.939 ± 0.347	2.503 ± 0.546
PRF-fit source offset from KIC position	3.006 ± 0.480	6.27	-1.854 ± 0.347	2.367 ± 0.546
photometric centroid source offset	1.31 ± 1.51	0.86	0.06 ± 1.42	-1.30 ± 1.51

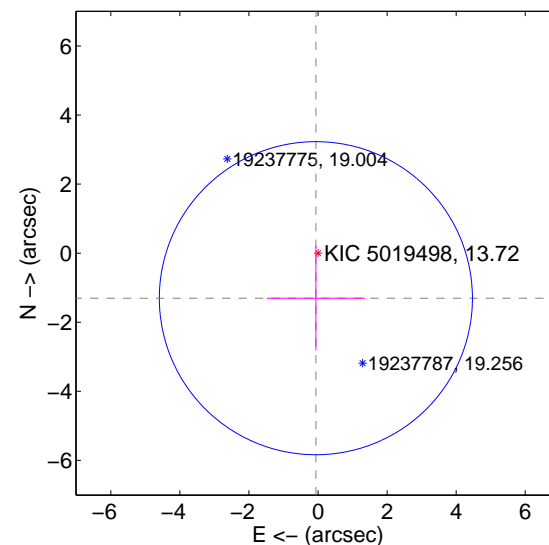
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

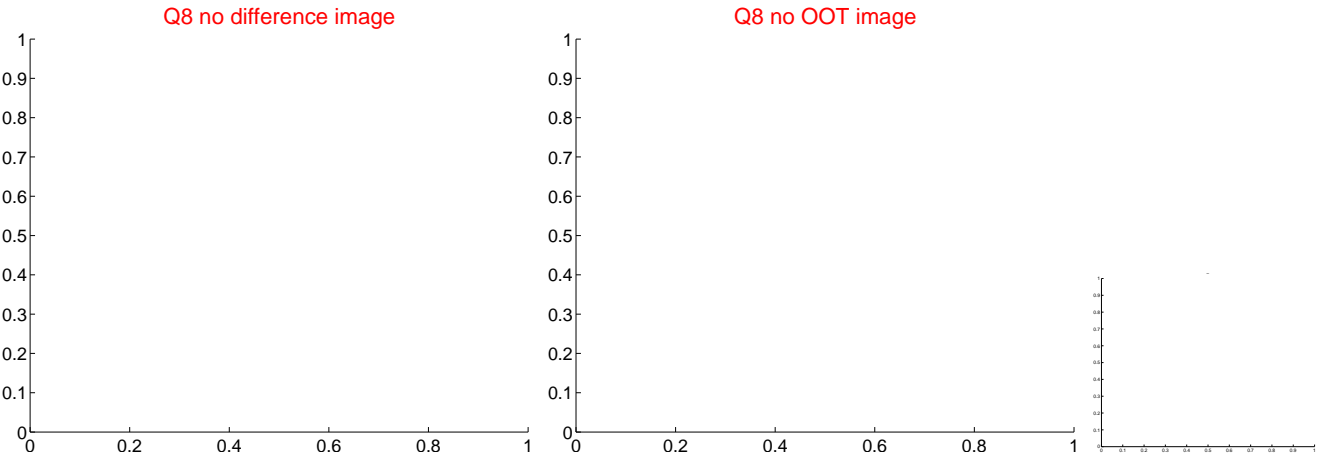
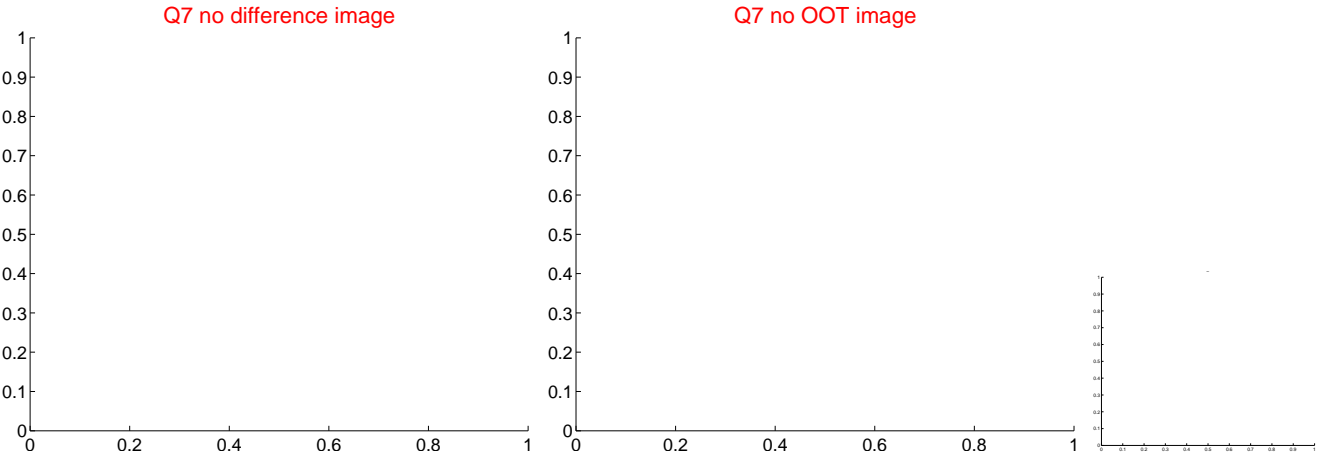
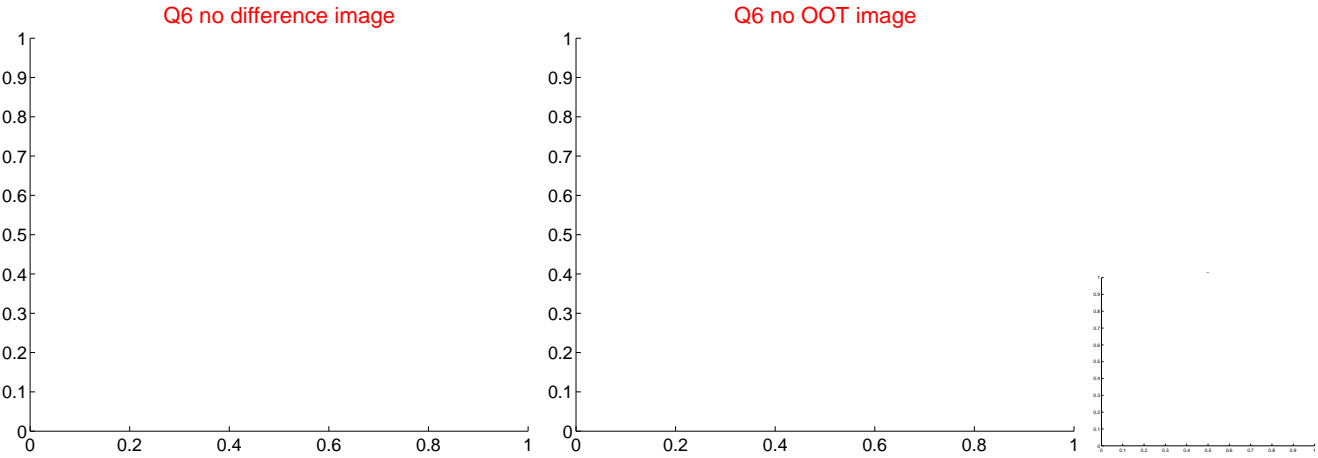
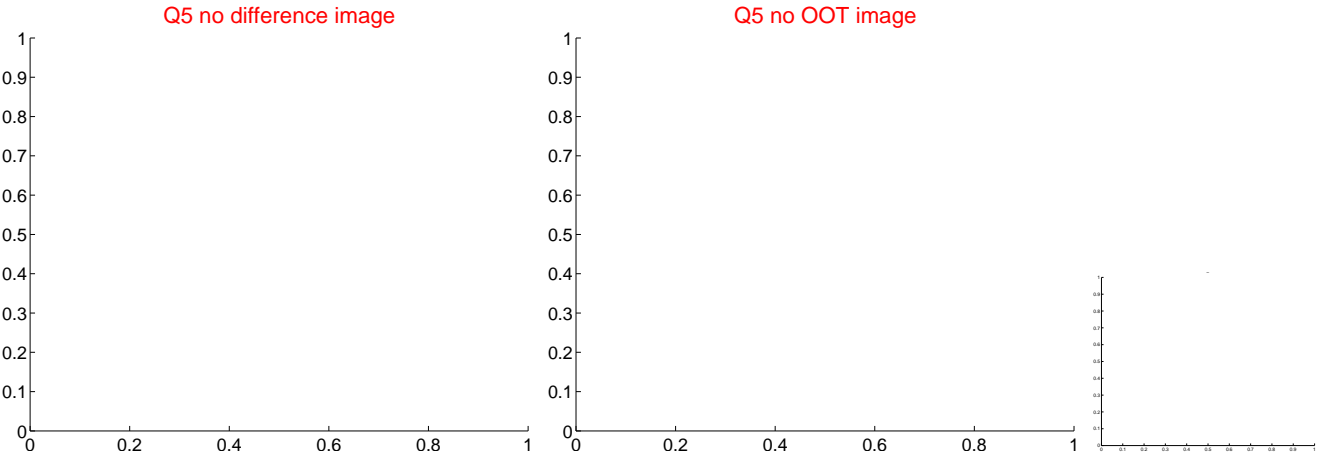


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

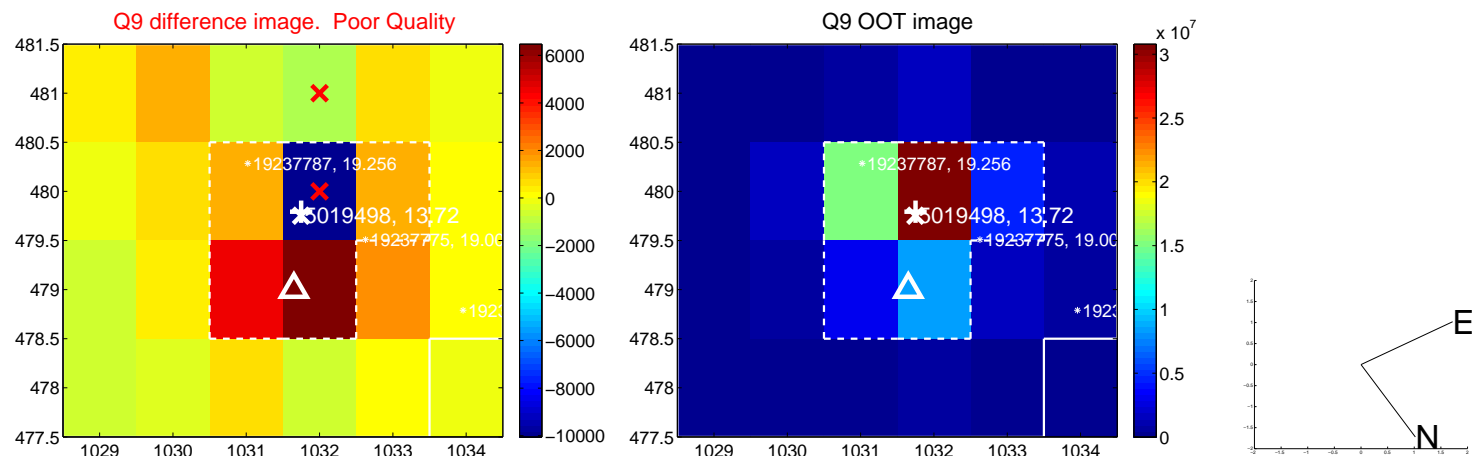
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



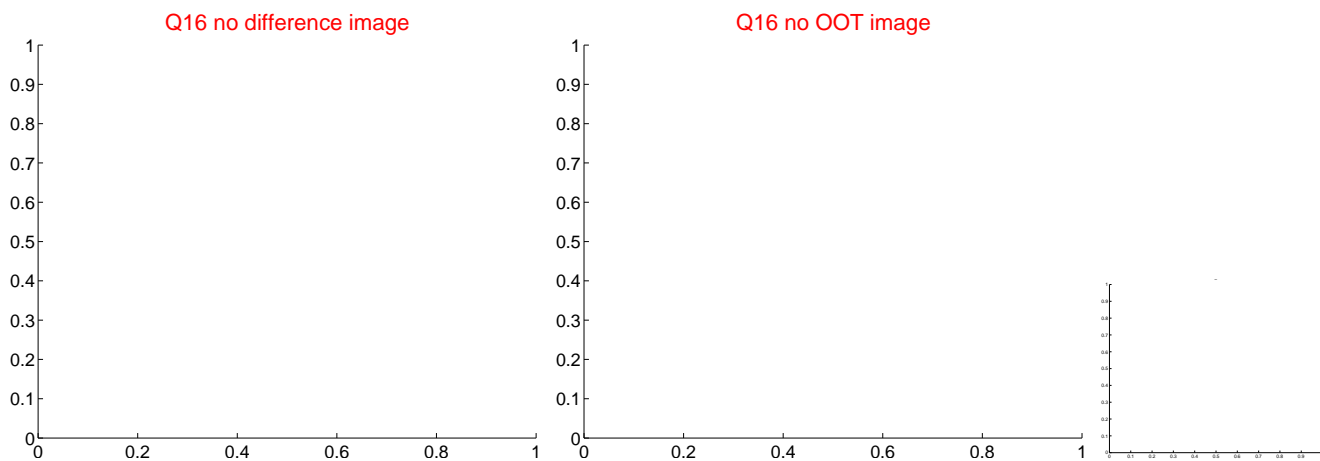
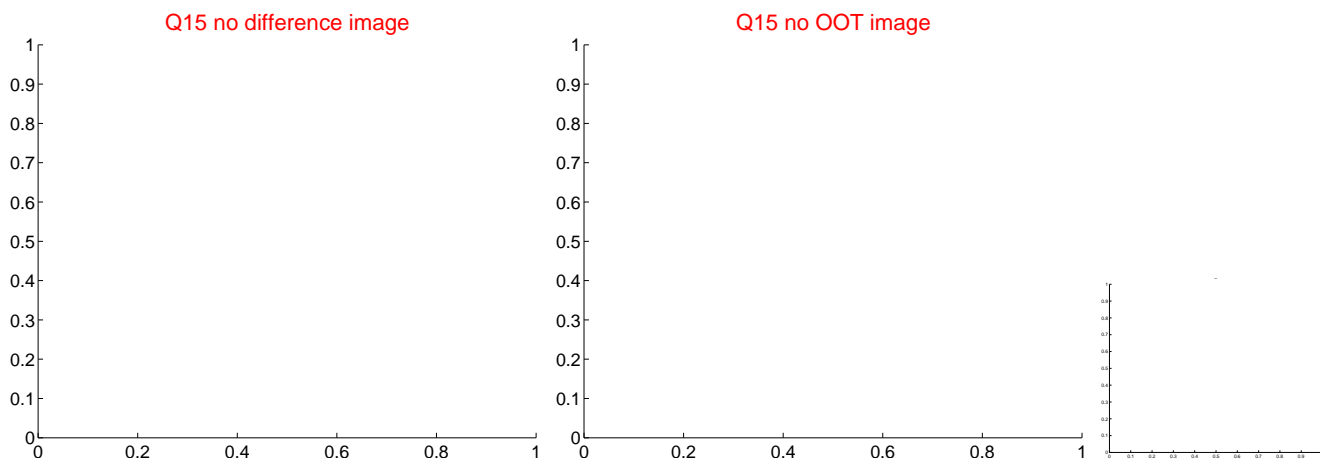
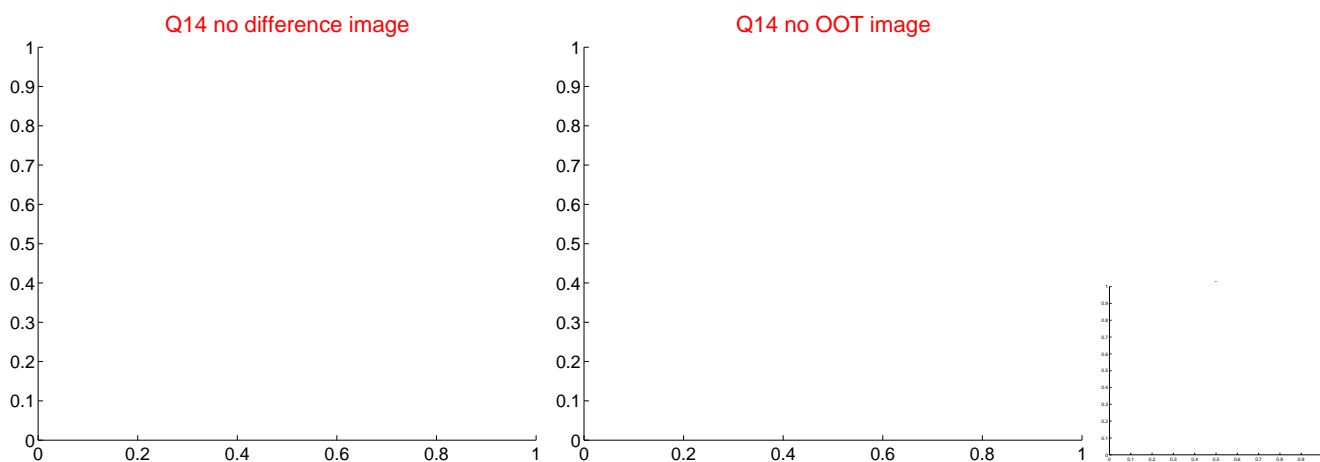
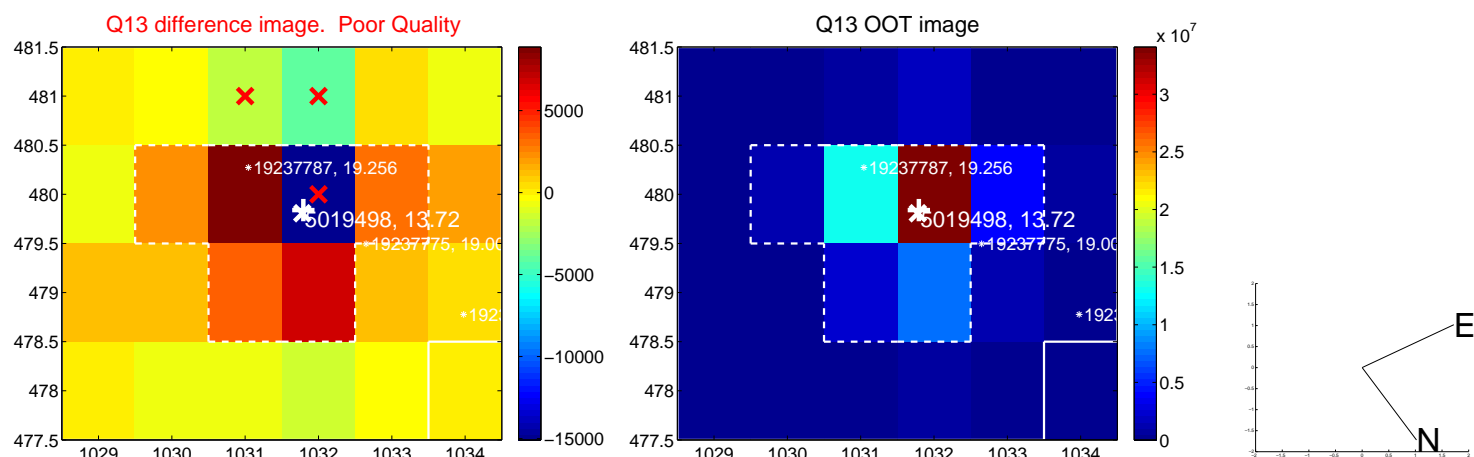
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



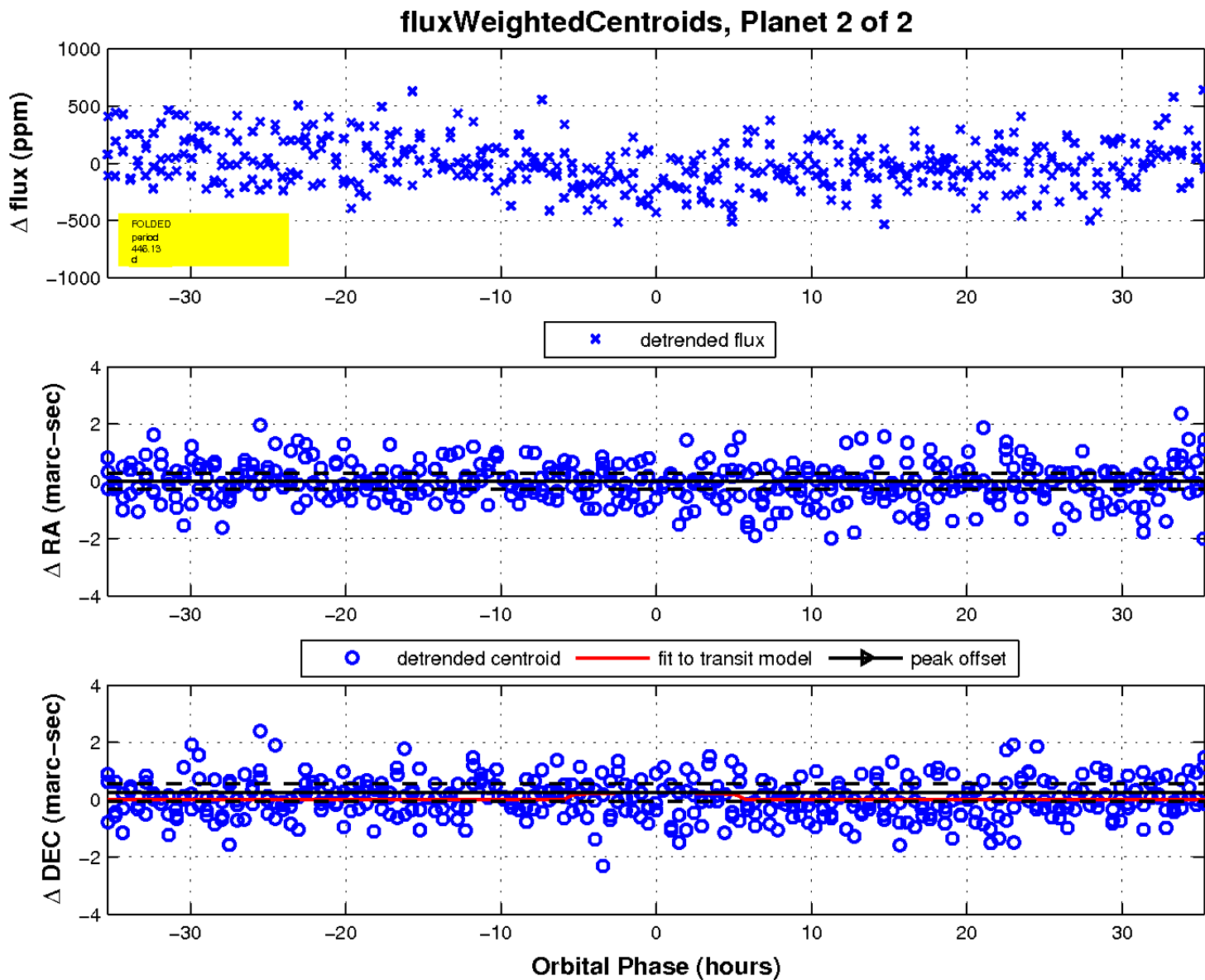
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

