

KIC 009950316

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})
009950316-01	OBS	No	368.878344	146.180269	748.1	22.435	7.9	8.1	0.81	5628	2.86	0.62
009950316-02	OBS	No	363.259676	151.903475	877.9	17.040	8.3	8.4	0.81	5628	2.95	0.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009950316-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009950316-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—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.

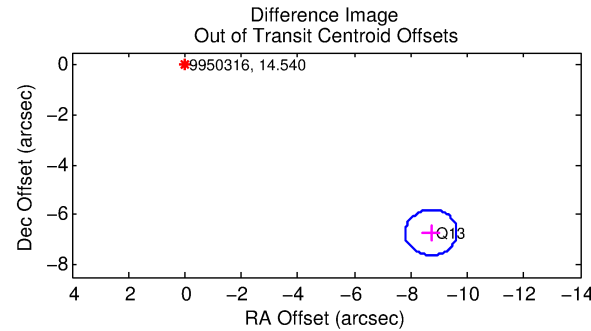
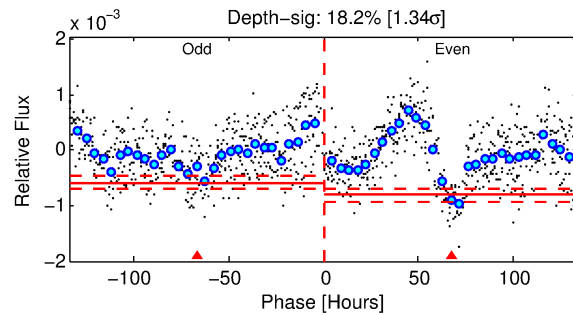
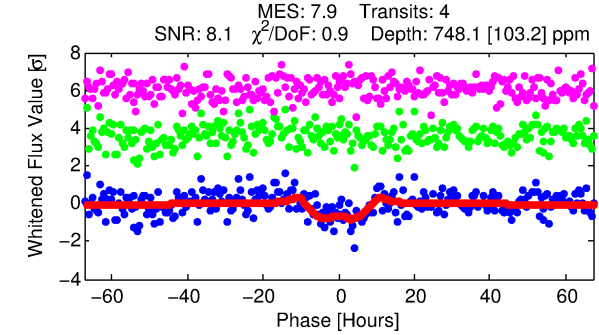
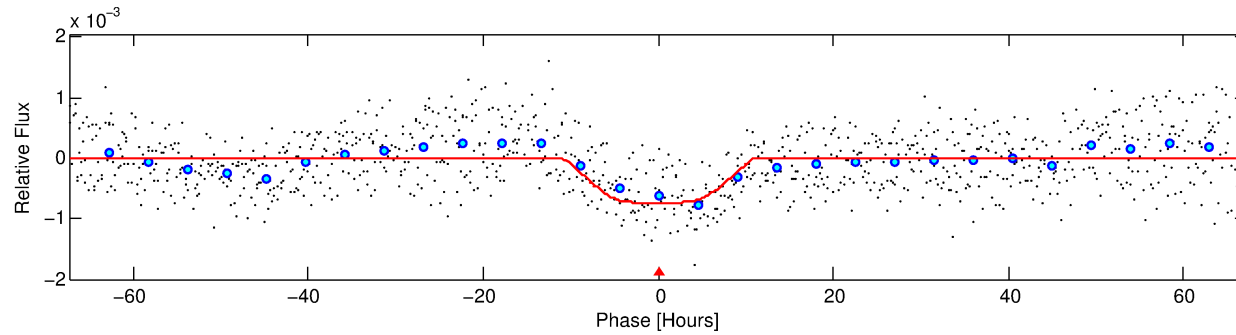
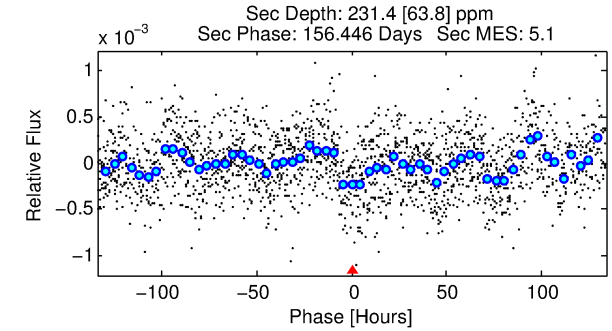
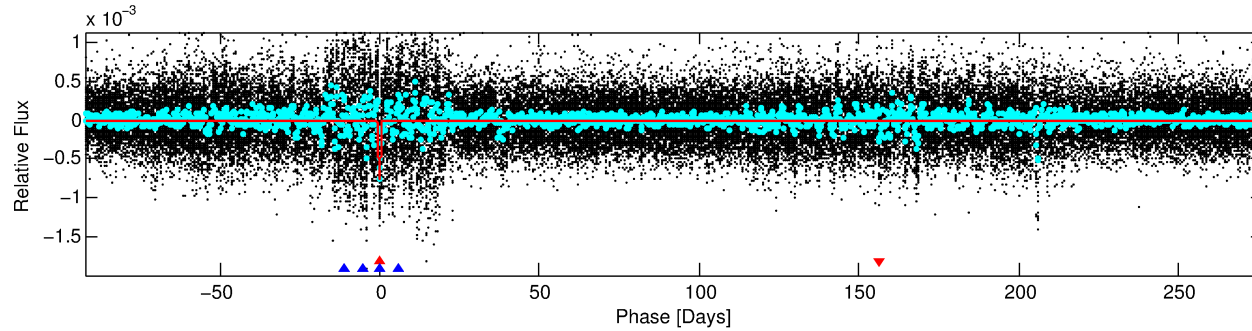
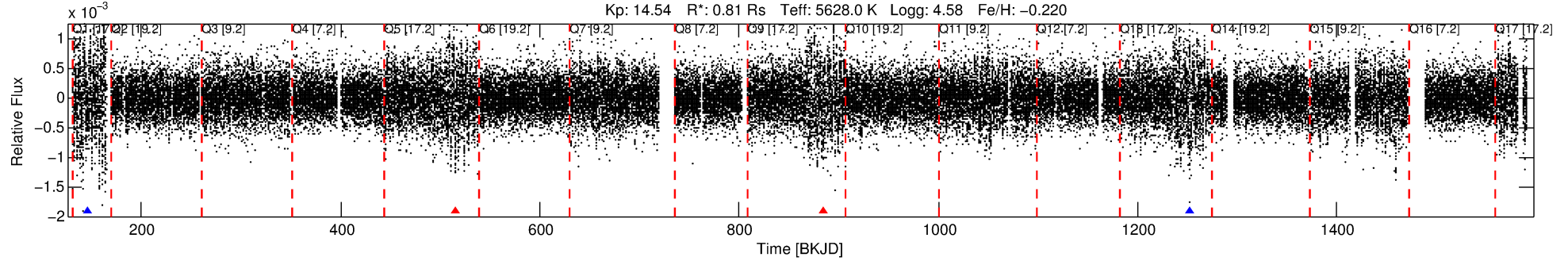
Ephemeris Match Information For 009950316-01

No Significant Match Found

DV One-Page Summary

KIC: 9950316 Candidate: 1 of 2 Period: 368.878 d
KOI: K02947 Corr: No Ephemeris Match

Kp: 14.54 R*: 0.81 Rs Teff: 5628.0 K Logg: 4.58 Fe/H: -0.220



DV Fit Results:

Period = 368.87834 [0.02105] d
Epoch = 146.1803 [0.0428] BKJD
Rp/R* = 0.0324 [0.0027]
a/R* = 48.74 [6.38]
b = 0.96 [0.01]
Seff = 0.62 [0.17]
Teq = 227 [15] K
Rp = 2.86 [0.64] Re
a = 0.9703 [0.1690] AU
Ag = 14641.34 [5968.62] [2.45σ]
Teffp = 3853 [326] K [11.10σ]

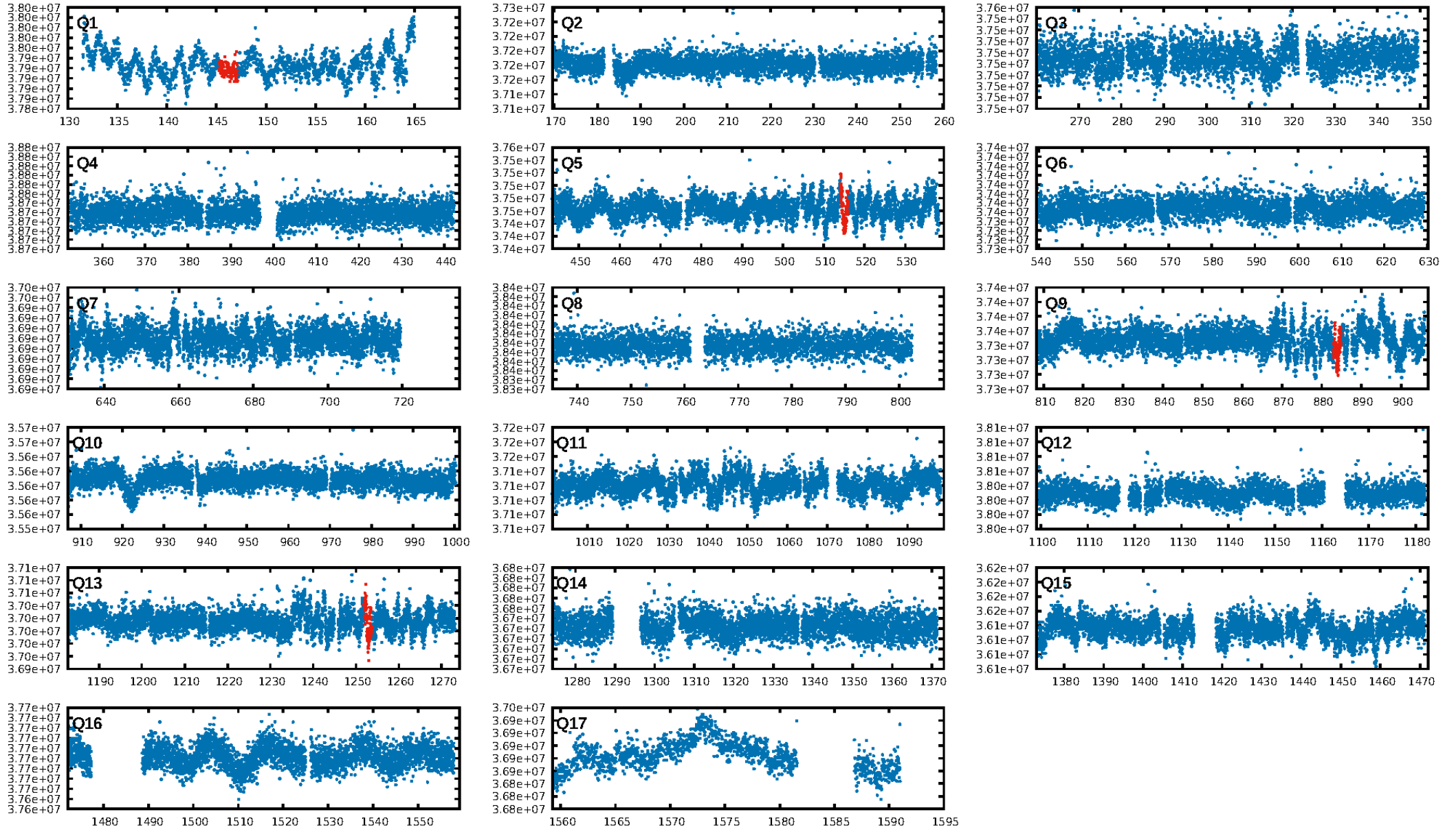
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.79σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 36.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.42e-09
RollingBand-fgt: 0.33 [1/3]
GhostDiagnostic-chr: -1.34
Centroid-sig: 25.3%
Centroid-so: 2.231 arcsec [1.18σ]
OotOffset-rm: 11.001 arcsec [36.10σ]
KicOffset-rm: 11.142 arcsec [36.57σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.75 [3/4]

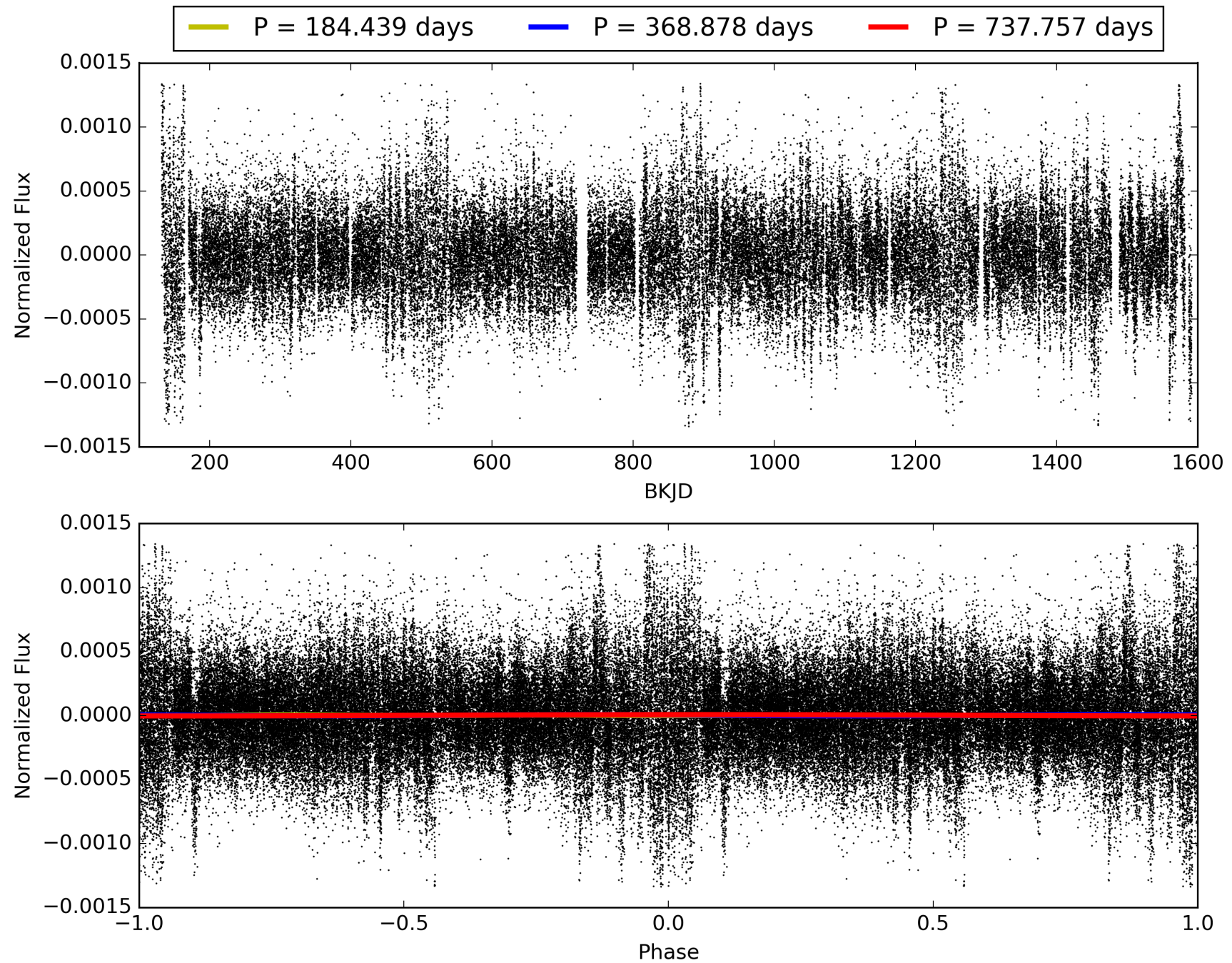
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:44:21 Z

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

TCE 009950316-01, PDC Light Curves

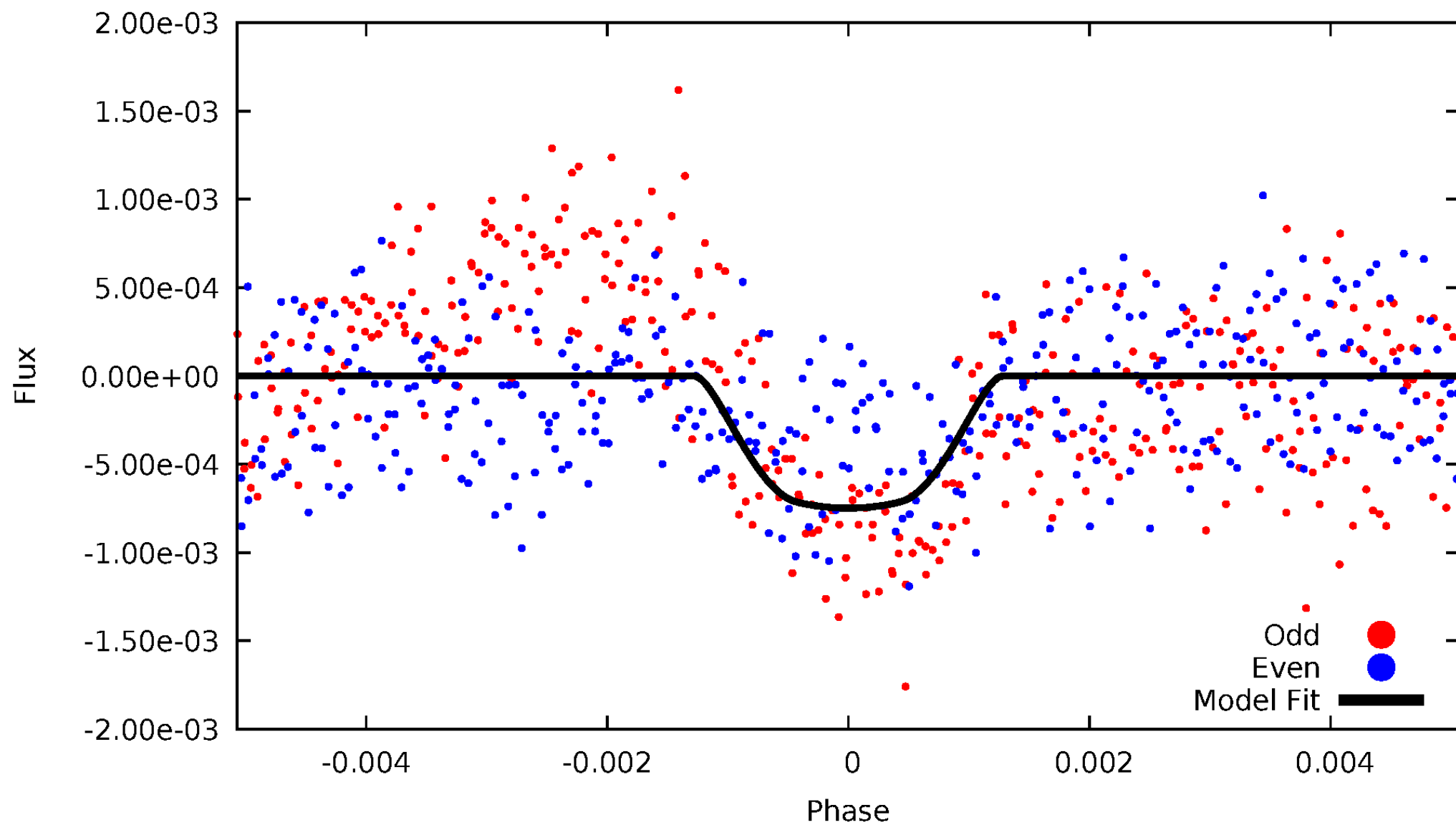


TCE 009950316-01



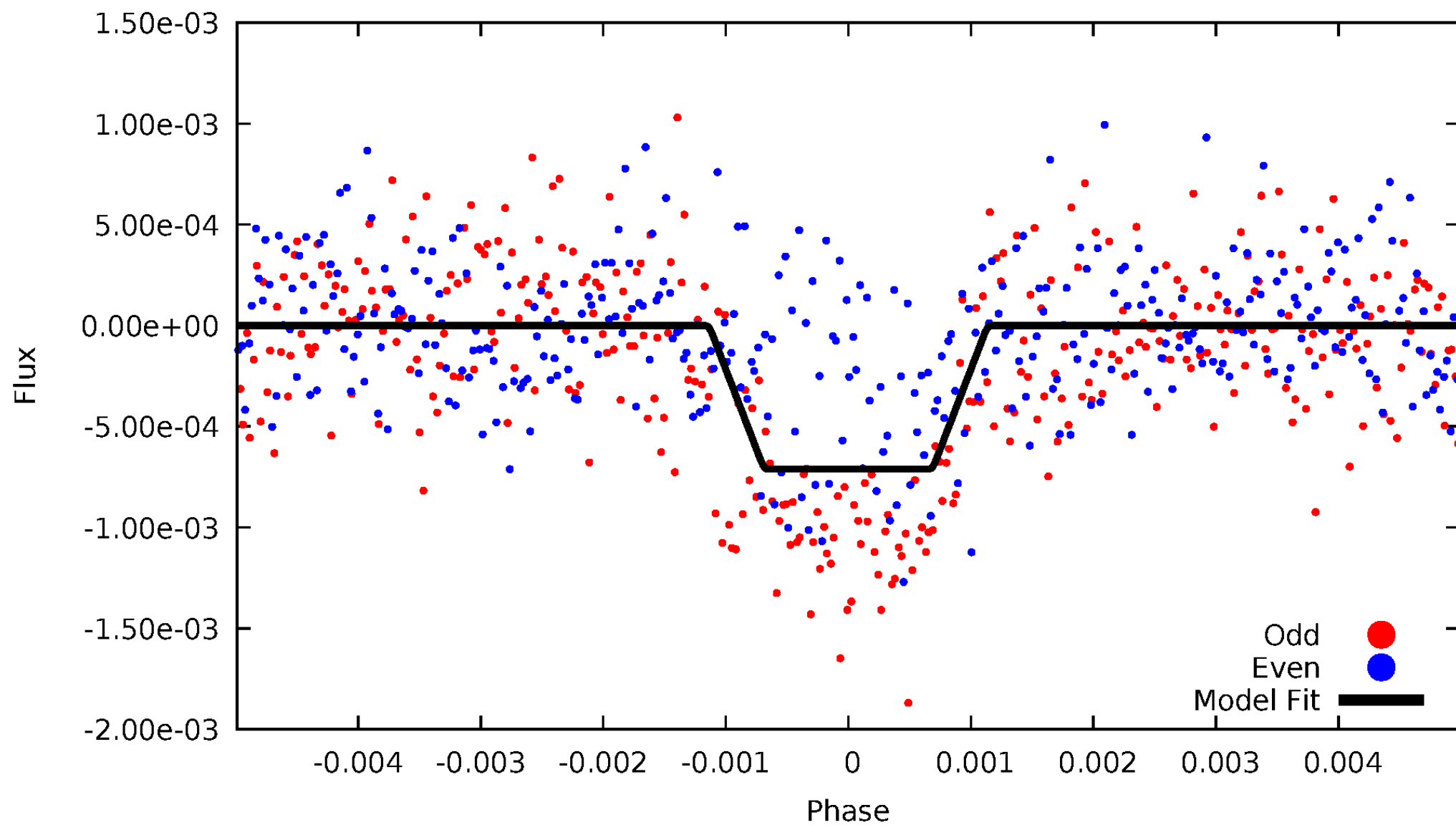
DV Odd/Even

TCE 009950316-01



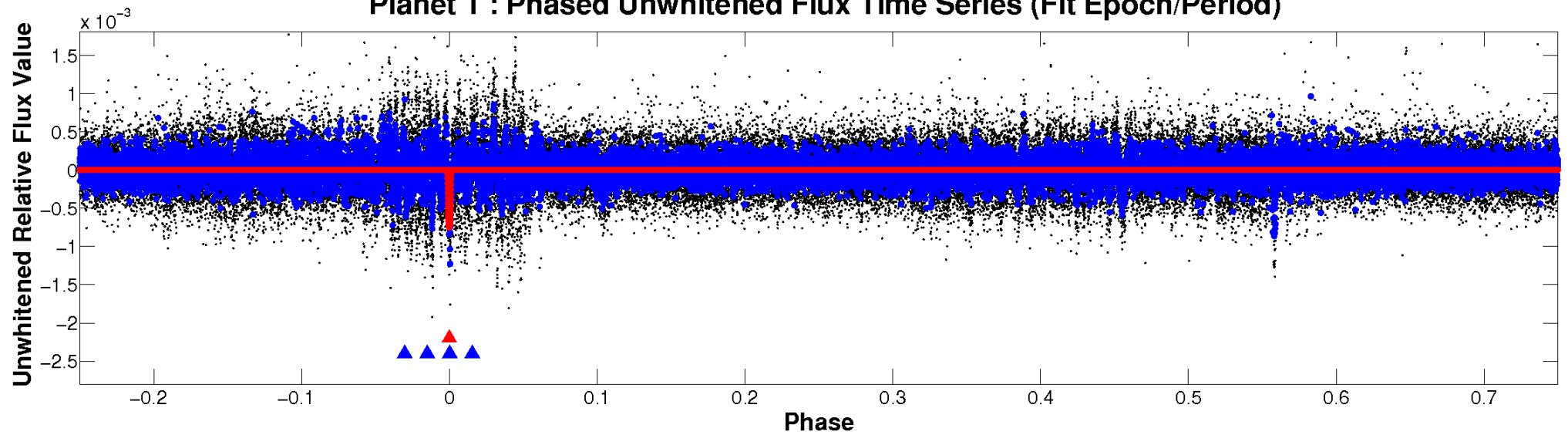
ALT Odd/Even

TCE 009950316-01

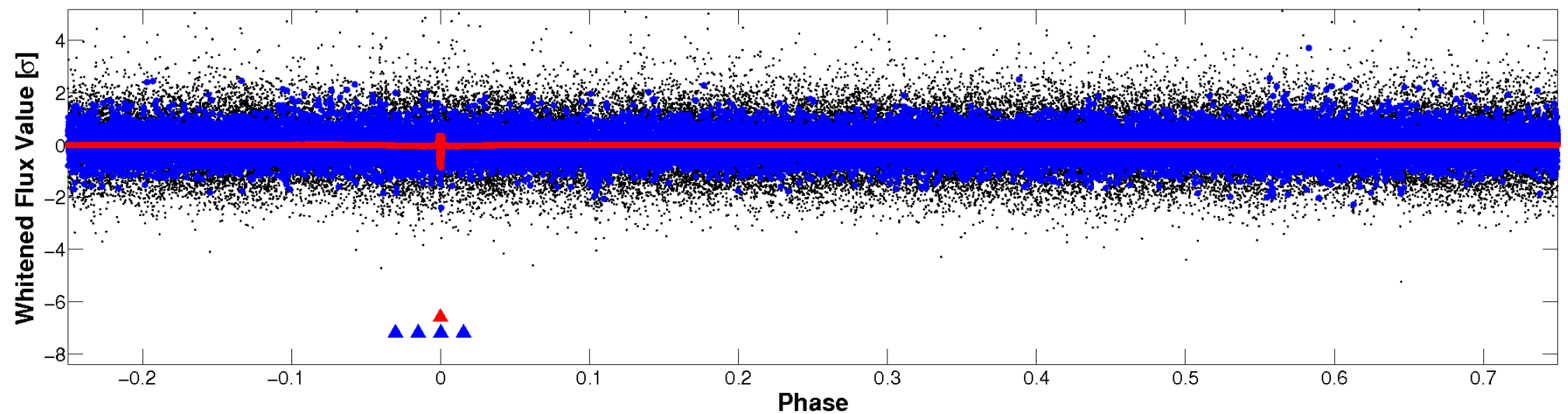


Non-Whitened Vs. Whitened Light Curve

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

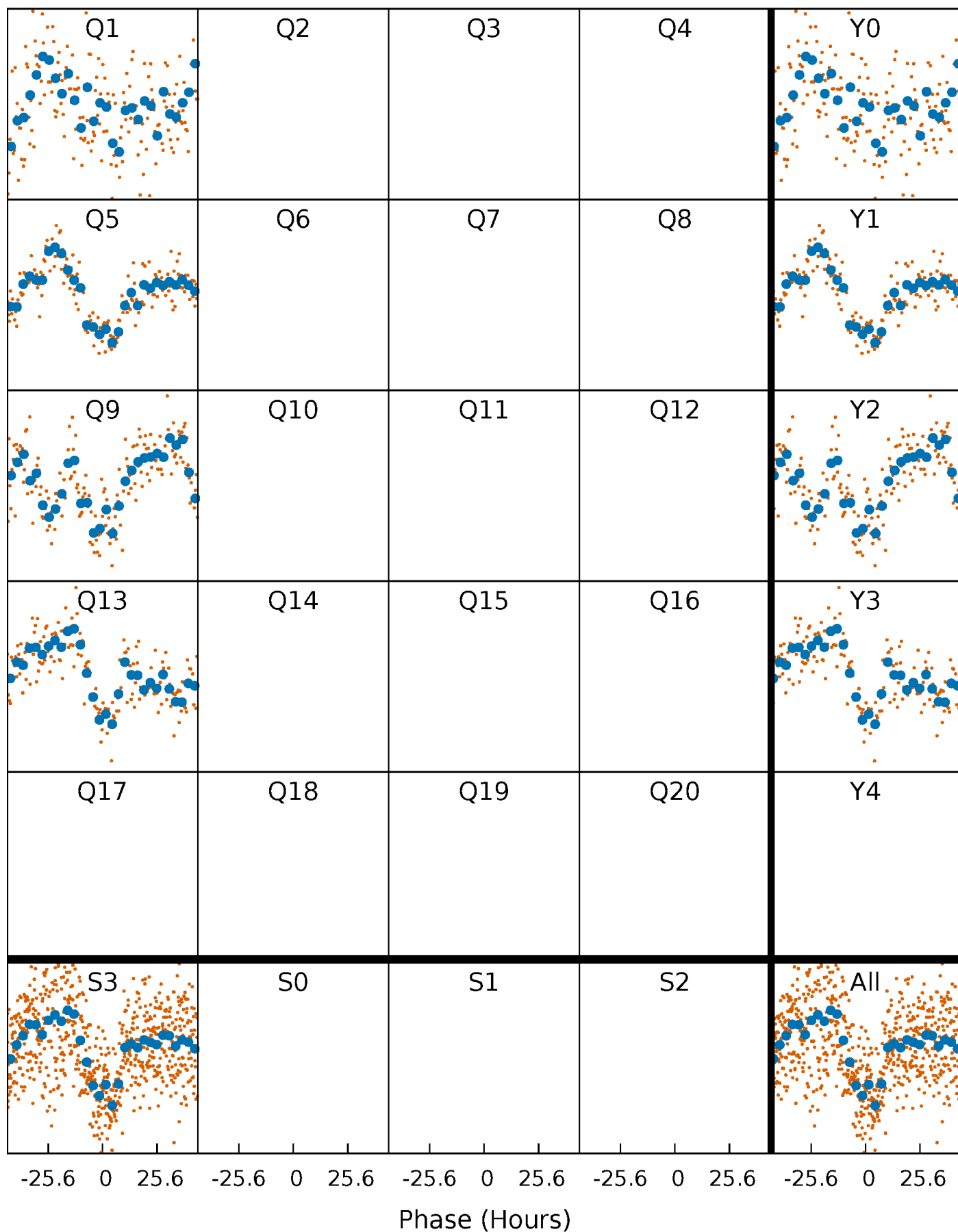


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



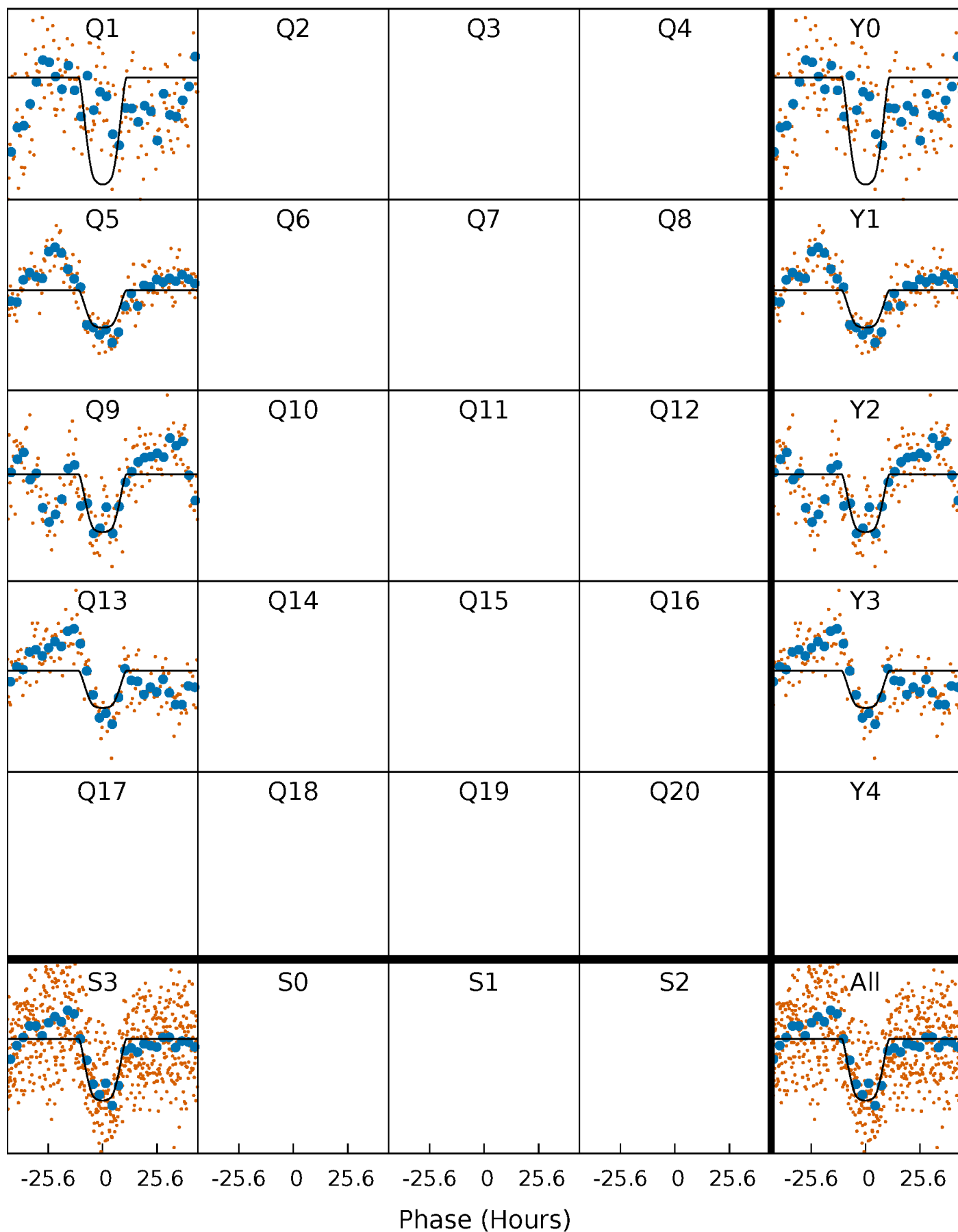
PDC Quarter-Phased Transit Curves

TCE 009950316-01 P=368.878344 Days $T_0=146.180269$ (BKJD)



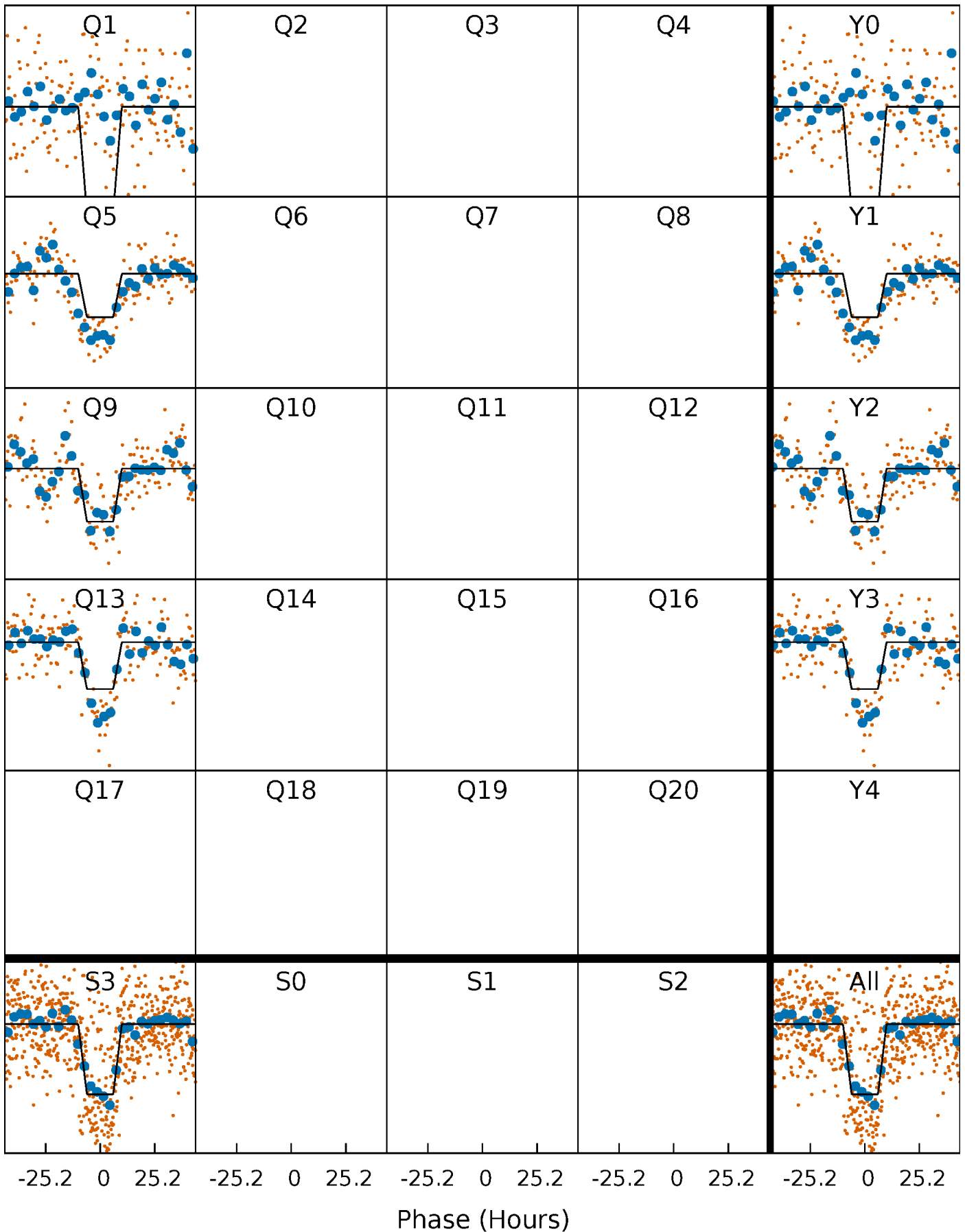
DV Quarter-Phased Transit Curves

TCE 009950316-01 P=368.878344 Days $T_0=146.180269$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

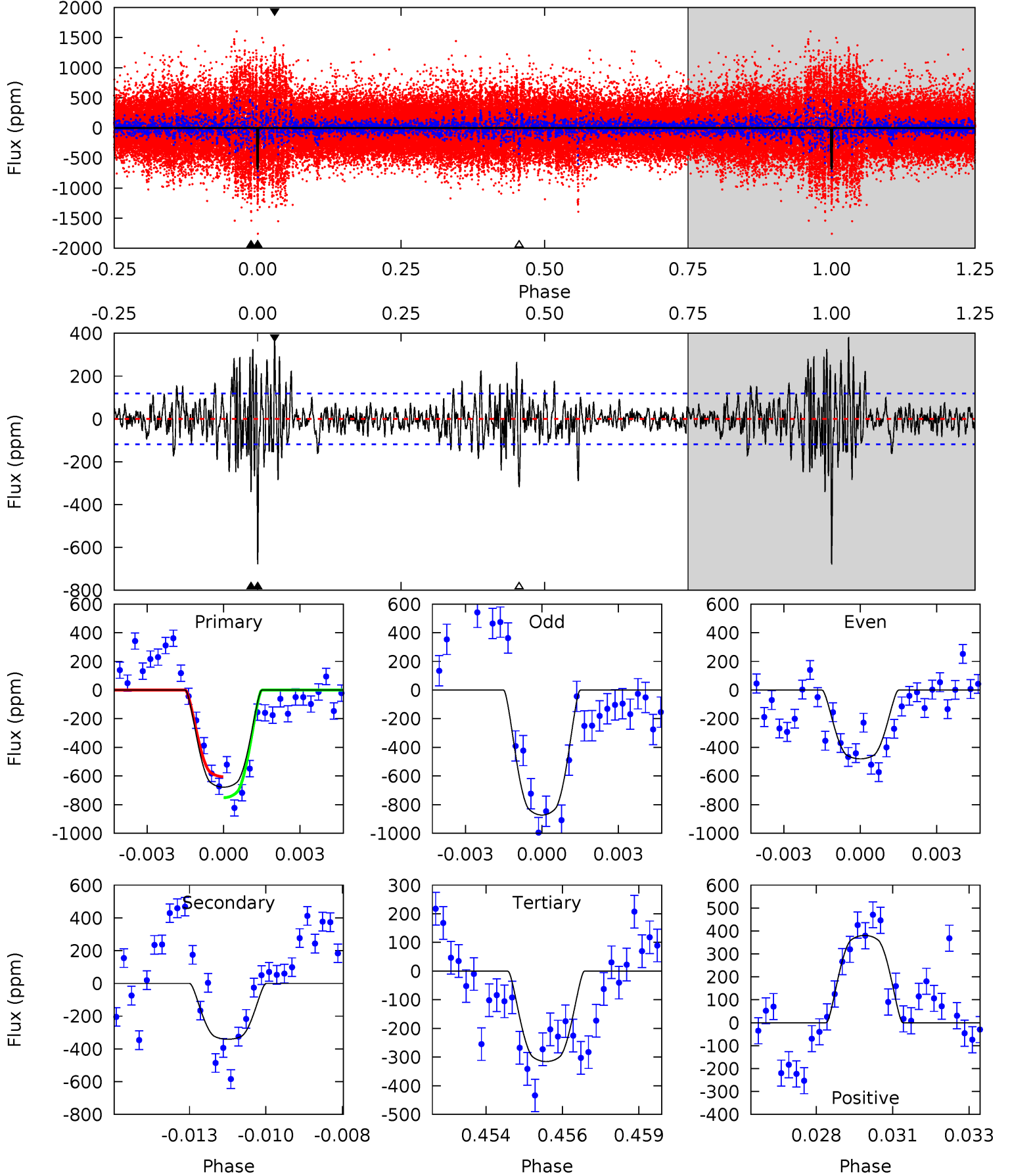
TCE 009950316-01 P=368.853003 Days $T_0=146.250536$ (BKJD)



DV Model-Shift Uniqueness Test

009950316-01, P = 368.878344 Days, E = 146.180269 Days

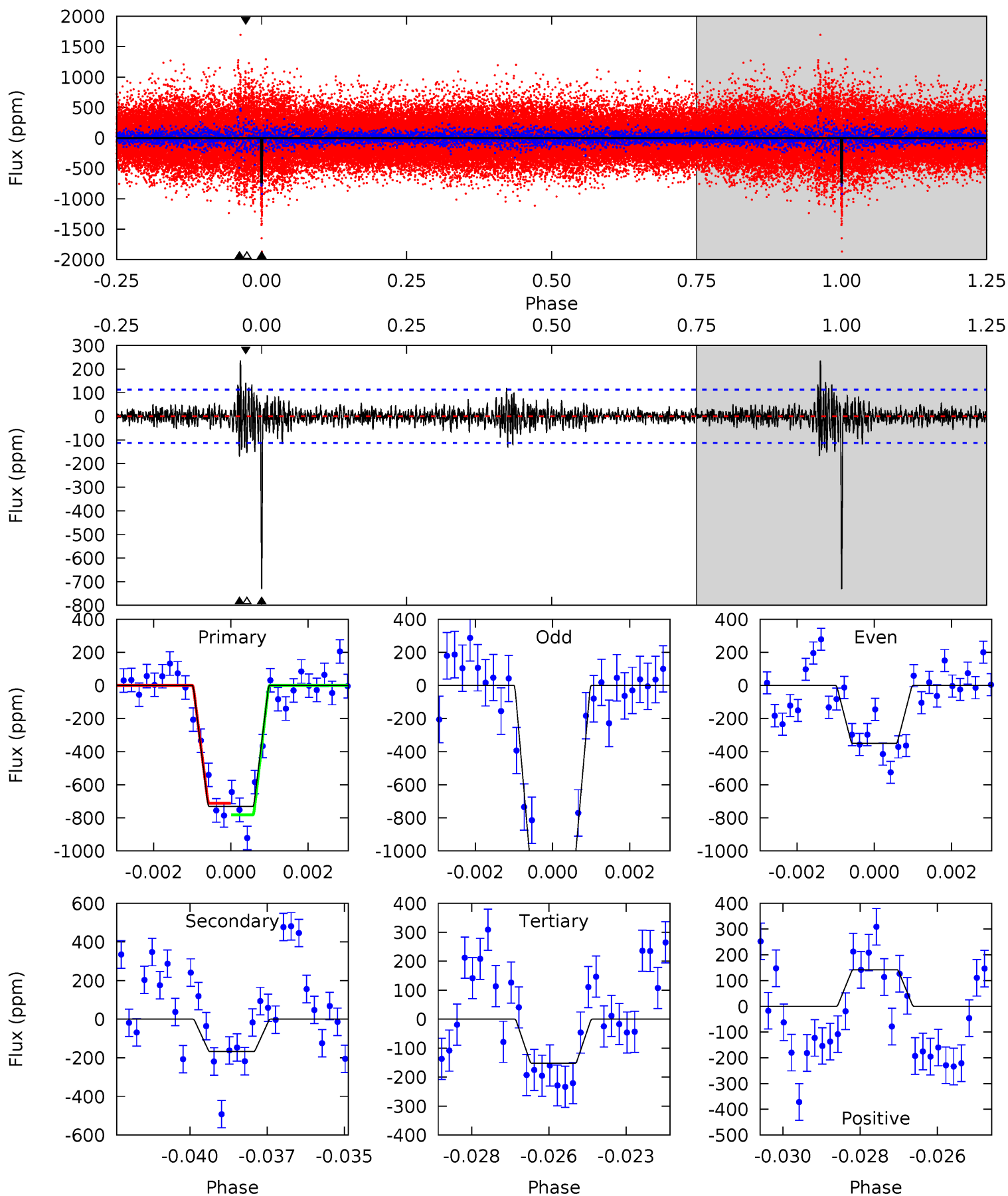
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.2	15.2	14.0	16.9	5.28	3.02	3.26	16.1	13.2	1.14	-1.75	8.70	0.91	0.36	3.26



Alt Model-Shift Uniqueness Test

009950316-01, P = 368.853003 Days, E = 146.250536 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.4	7.89	7.15	6.69	5.30	3.05	1.35	27.3	27.7	0.74	1.20	16.4	0.81	0.24	1.62



Stellar Parameters For KIC 009950316

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5628^{+135}_{-152}	$4.575^{+0.034}_{-0.136}$	$-0.220^{+0.300}_{-0.300}$	$0.808^{+0.169}_{-0.072}$	$0.903^{+0.085}_{-0.104}$	$2.412^{+0.434}_{-0.940}$
	+2%/-3%	+1%/-3%	+136%/-136%	+21%/-9%	+9%/-12%	+18%/-39%
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 009950316-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-341 ± 22	$2.94^{+0.40}_{-0.28}$	321^{+16}_{-11}	4423^{+185}_{-171}	19918^{+4975}_{-4245}
Alt.	-168 ± 21	$2.45^{+0.34}_{-0.31}$	322^{+17}_{-12}	4166^{+207}_{-188}	14350^{+4267}_{-3449}

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

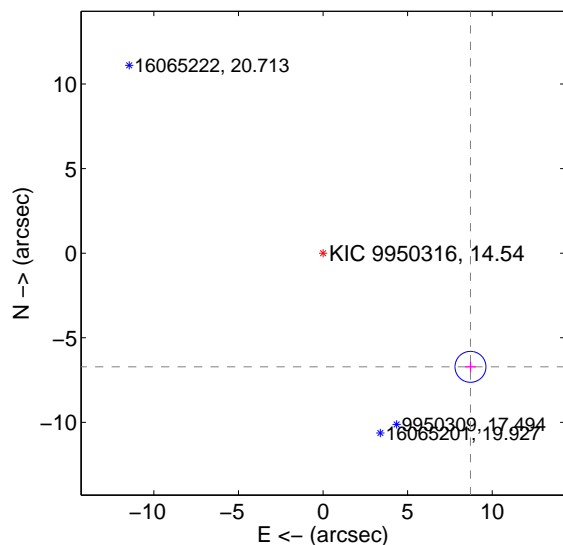
Supplemental centroid analysis for 009950316-01. Kepler magnitude: 14.54. Transit SNR 8.09

There are 0 quarters with good PRF difference image offsets

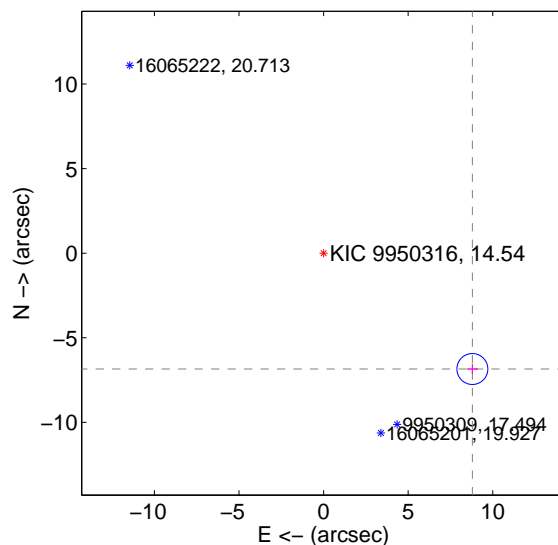
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.001 \pm 0.305	36.10	-8.712 \pm 0.311	-6.716 \pm 0.294
PRF-fit source offset from KIC position	11.142 \pm 0.305	36.57	-8.792 \pm 0.311	-6.845 \pm 0.294
photometric centroid source offset	2.23 \pm 1.89	1.18	-1.60 \pm 1.98	-1.55 \pm 1.79

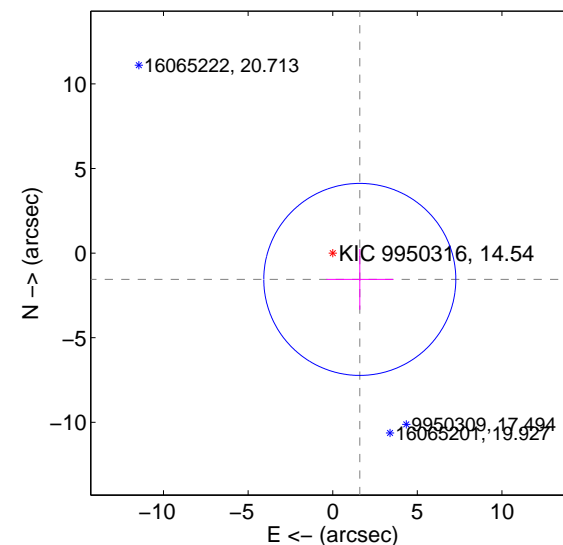
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

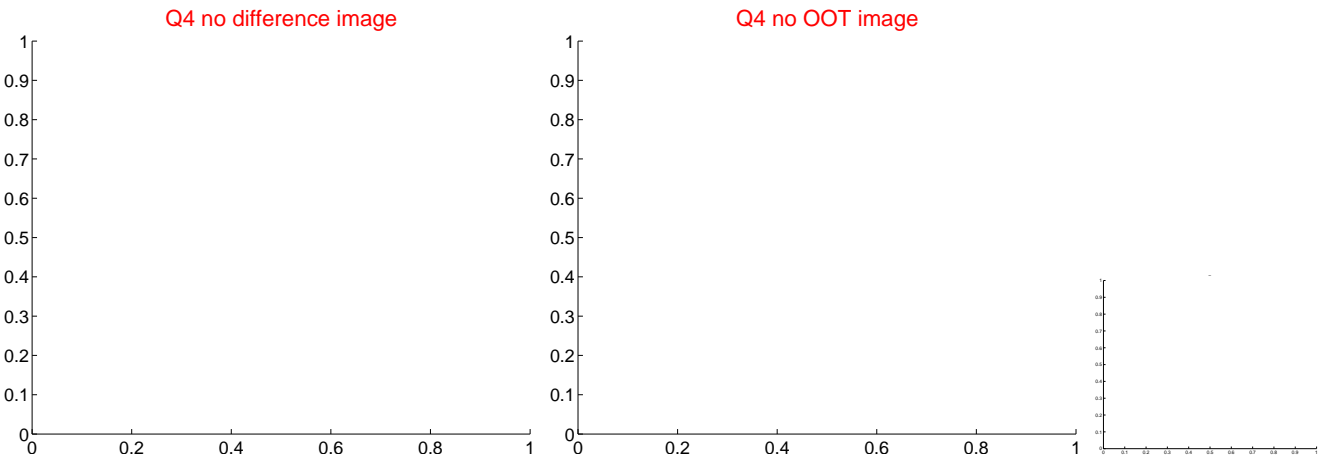
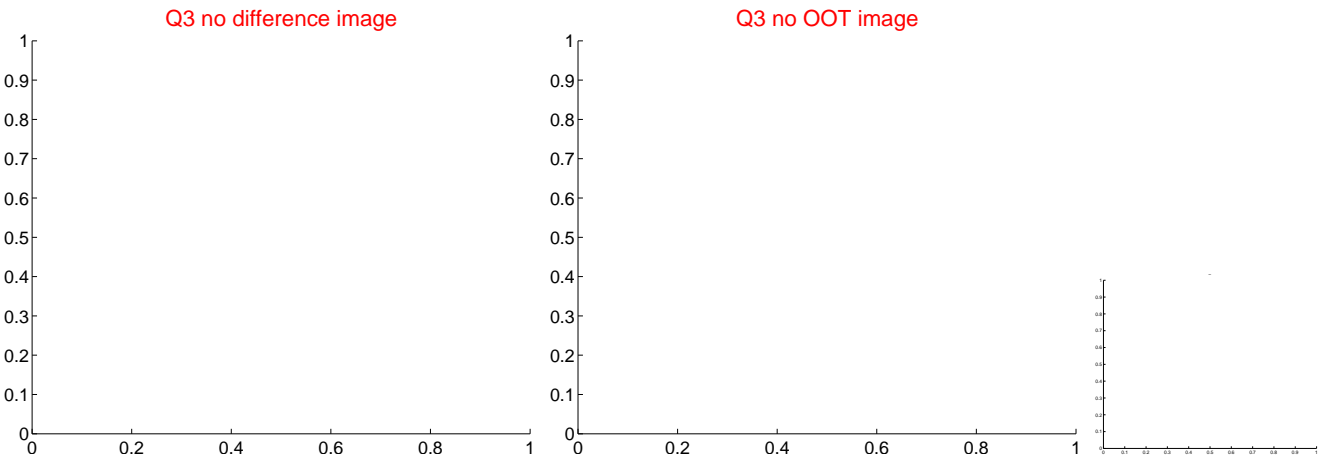
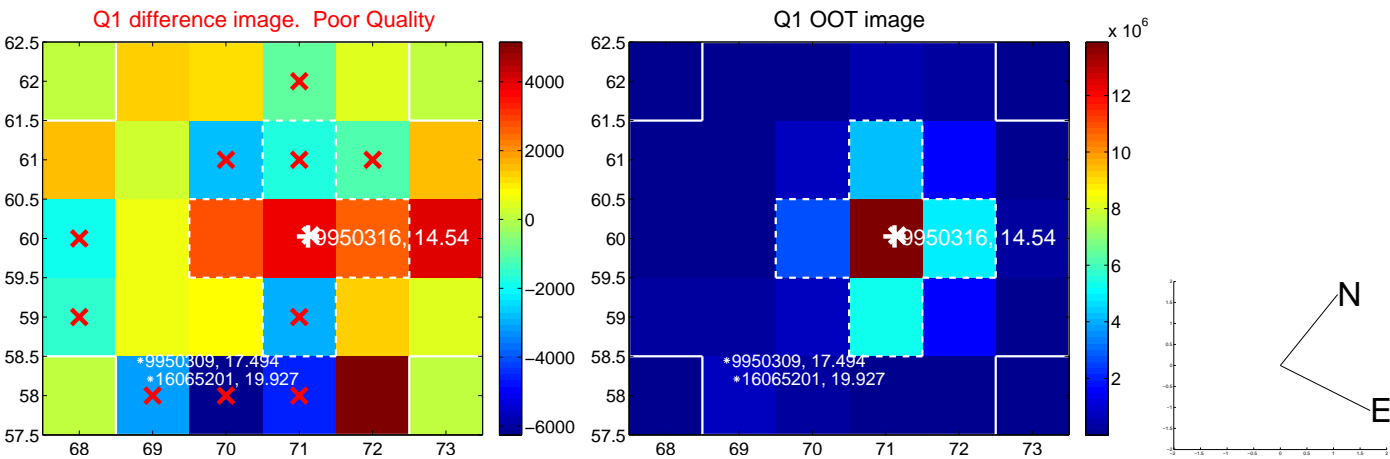


offset from photometric centroids

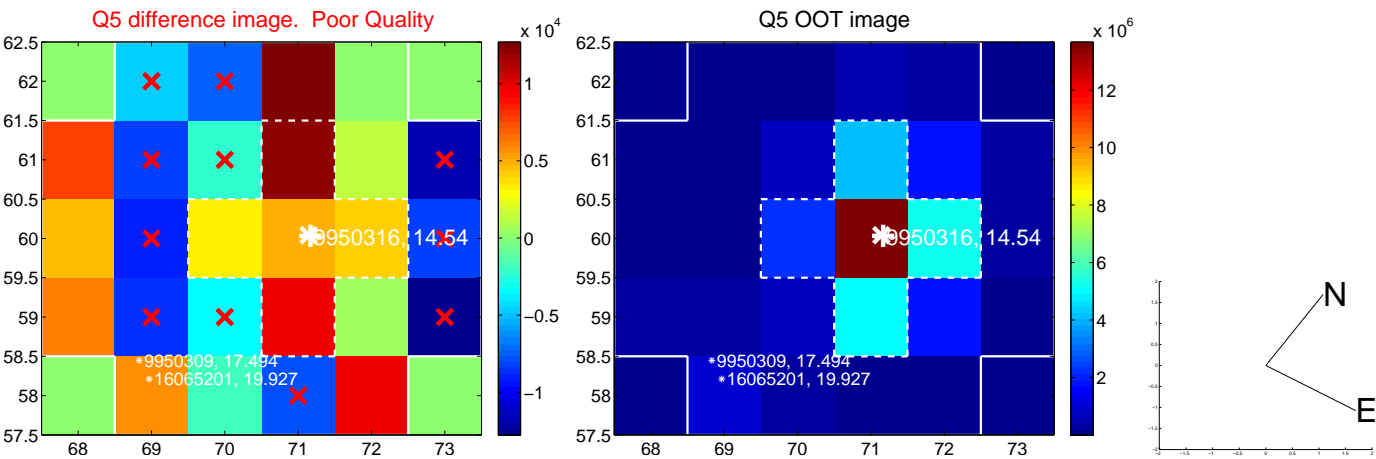


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

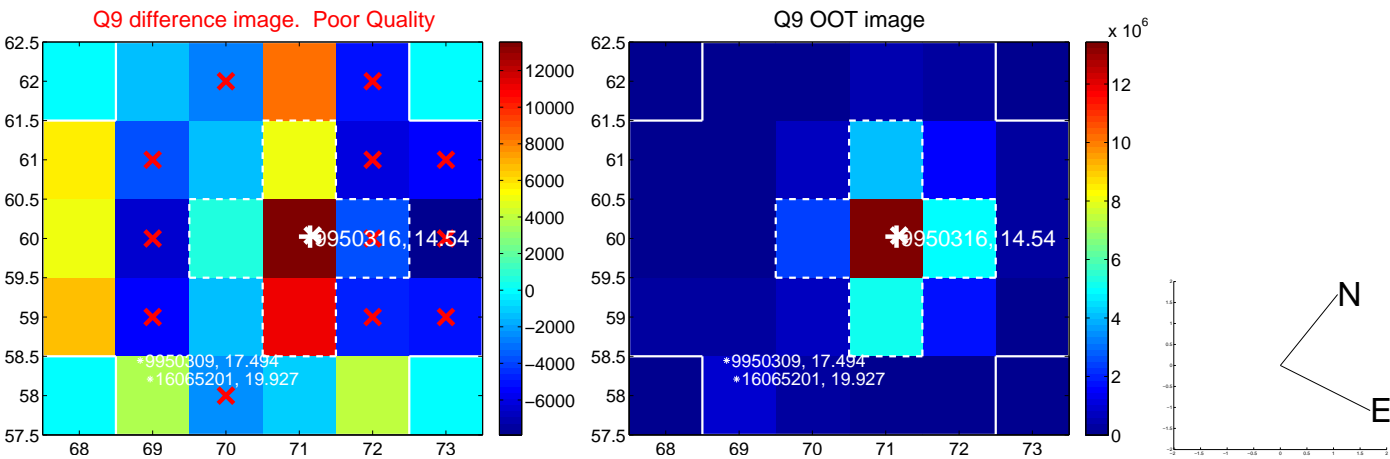
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



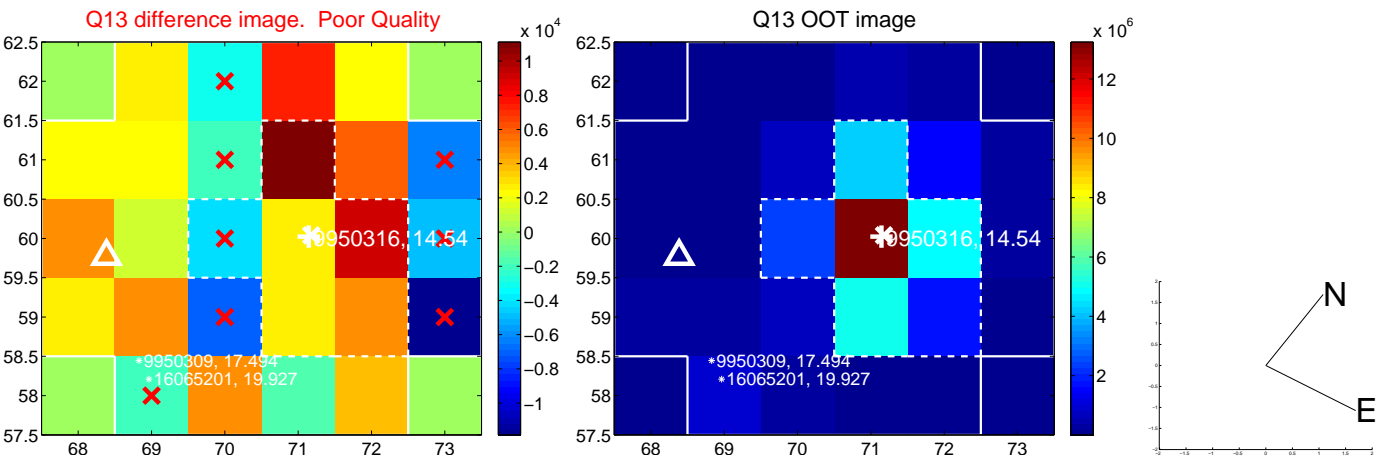
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



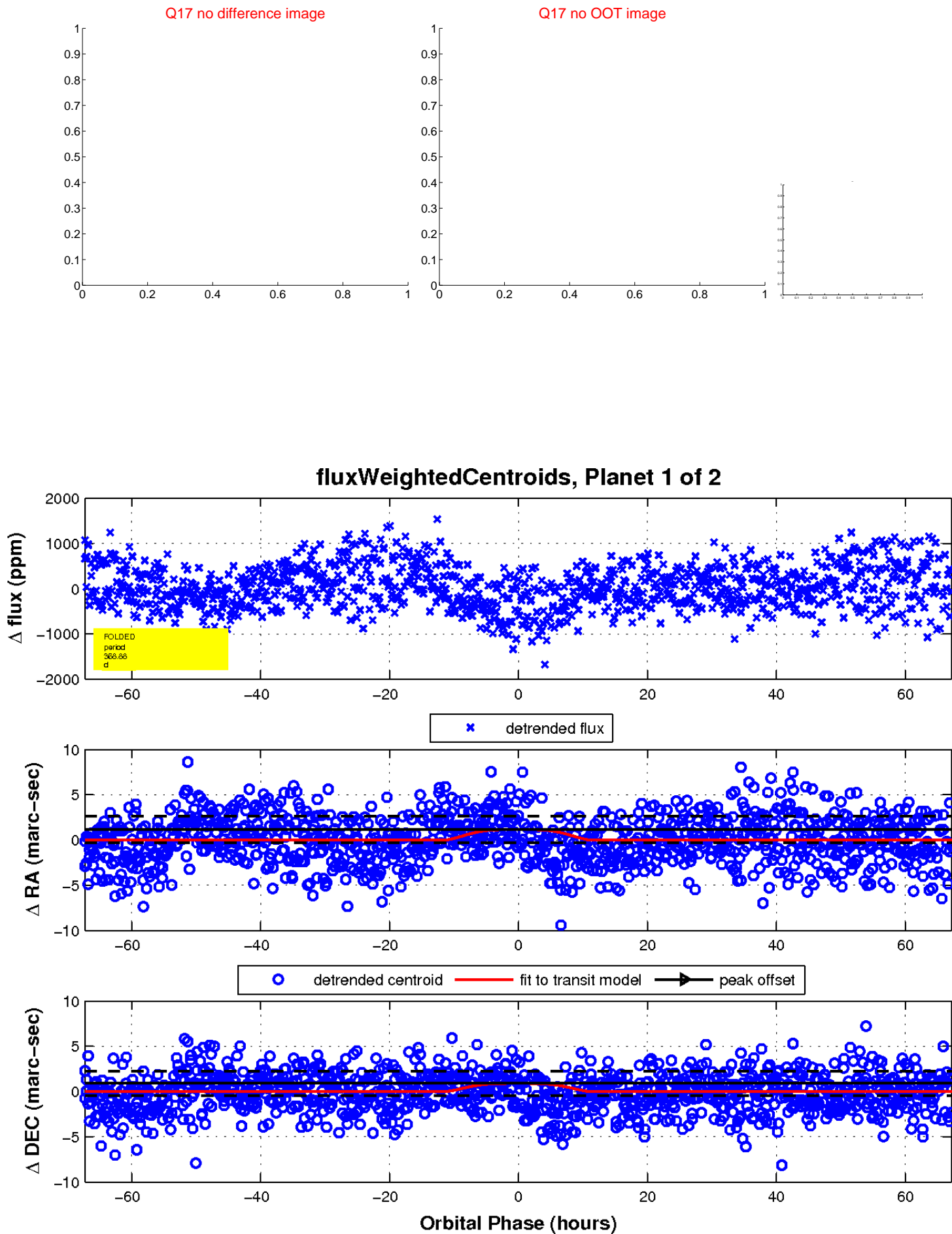
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

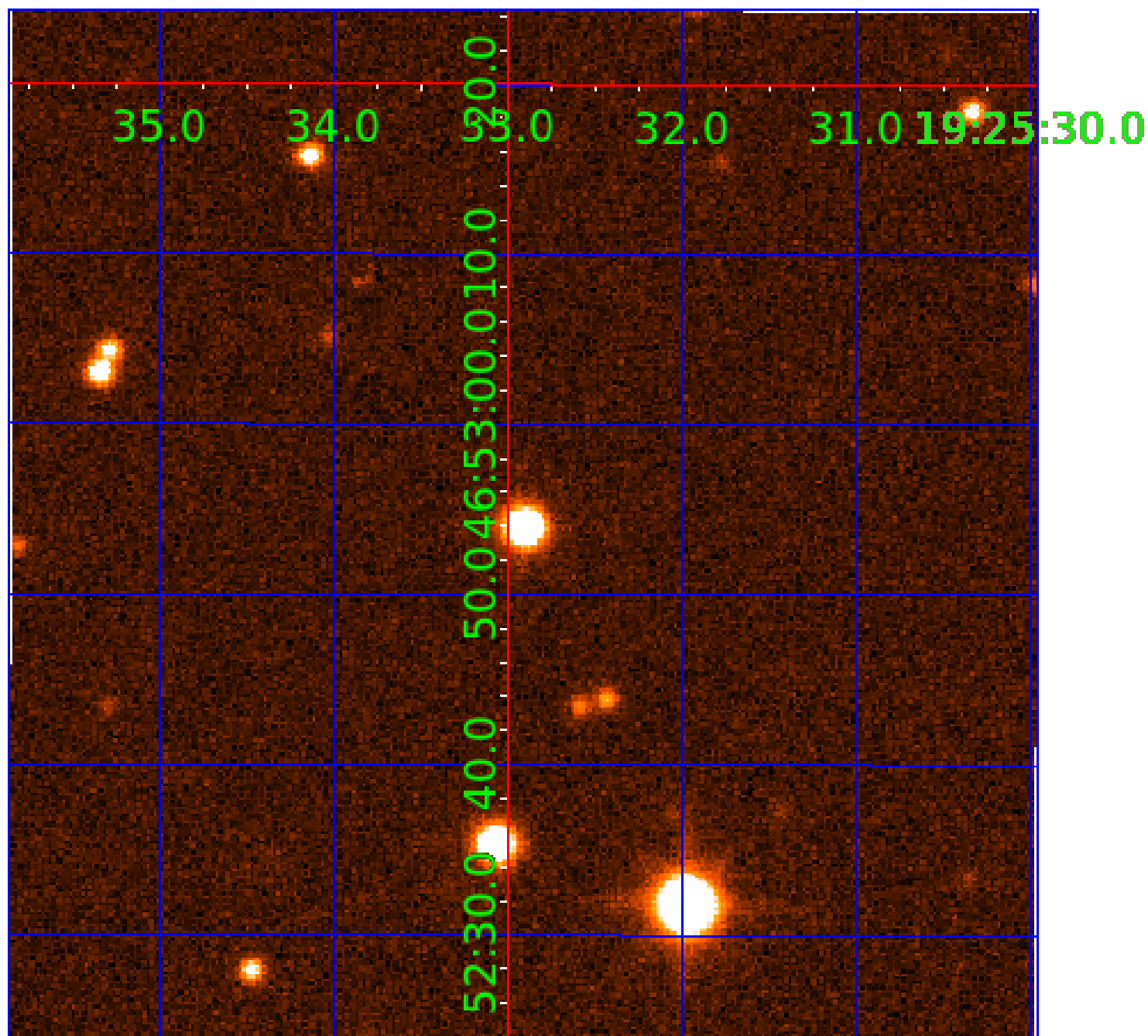


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009950316

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})
009950316-01	OBS	No	368.878344	146.180269	748.1	22.435	7.9	8.1	0.81	5628	2.86	0.62
009950316-02	OBS	No	363.259676	151.903475	877.9	17.040	8.3	8.4	0.81	5628	2.95	0.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009950316-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009950316-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—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 009950316-02

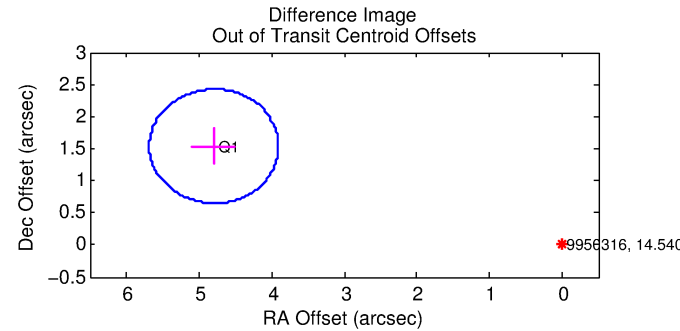
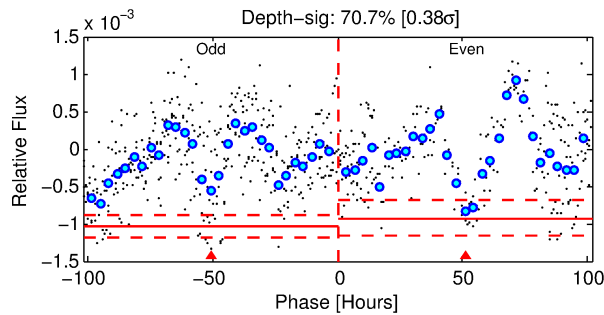
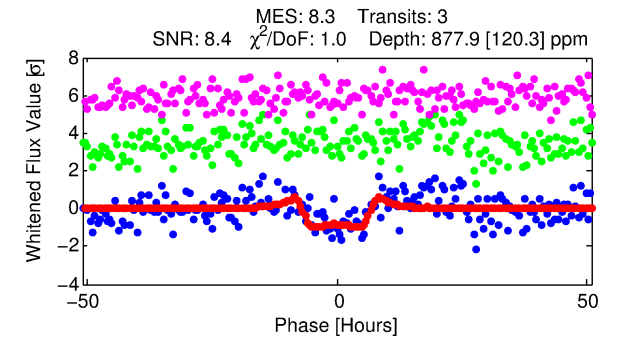
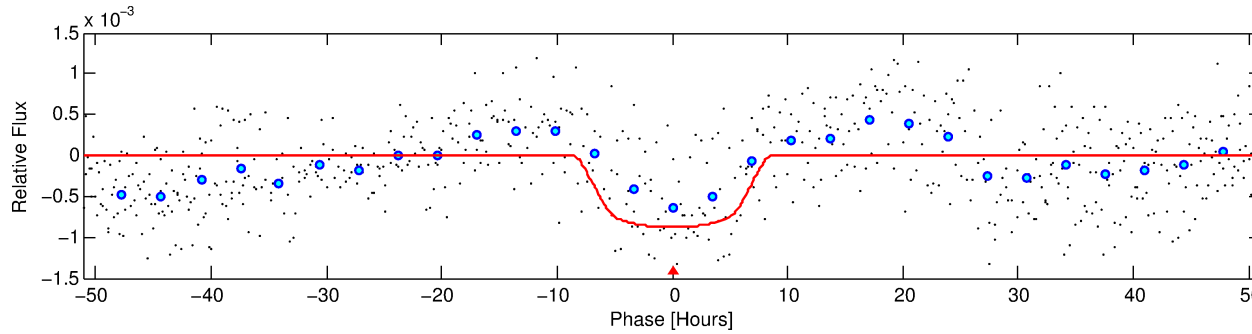
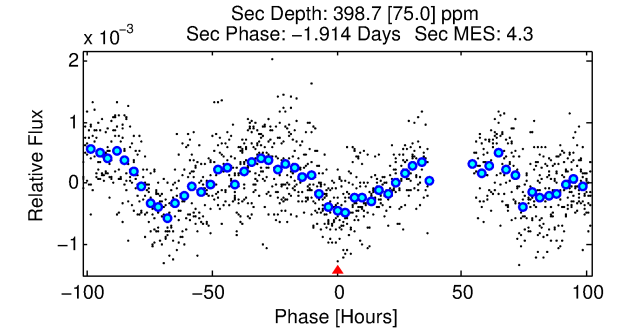
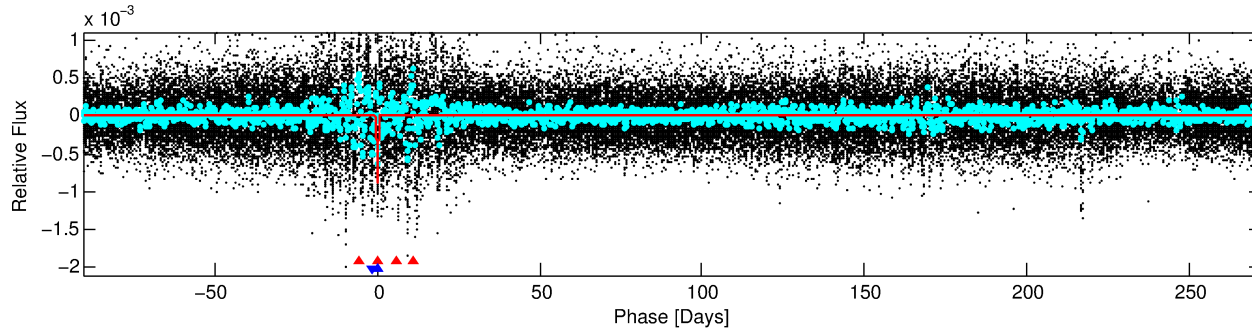
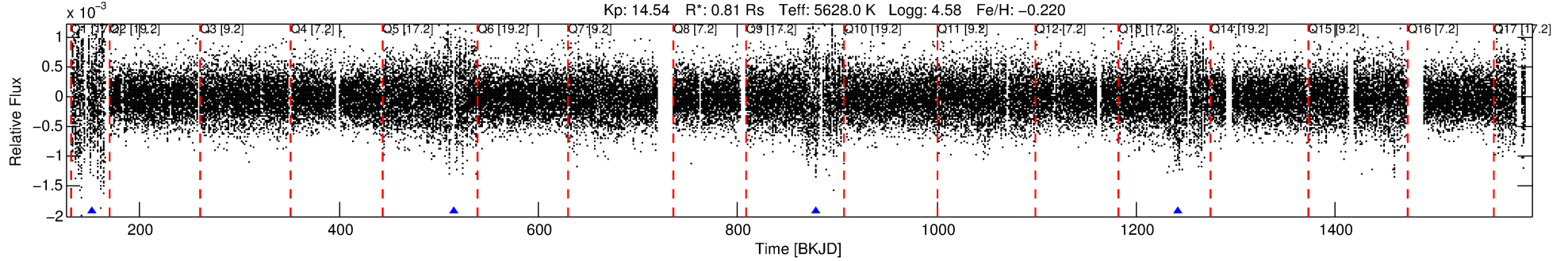
No Significant Match Found

DV One-Page Summary

KIC: 9950316 Candidate: 2 of 2 Period: 363.260 d

KOI: K02947 Corr: No Ephemeris Match

Kp: 14.54 R*: 0.81 Rs Teff: 5628.0 K Logg: 4.58 Fe/H: -0.220



DV Fit Results:

Period = 363.25968 [0.01347] d
Epoch = 151.9035 [0.0296] BKJD
Rp/R* = 0.0334 [0.0029]
a/R* = 73.91 [14.58]
b = 0.93 [0.03]
Seff = 0.64 [0.17]
Teff = 228 [16] K
Rp = 2.95 [0.67] Re
a = 0.9604 [0.1673] AU
Ag = 23264.75 [8344.33] [2.79σ]
Teffp = 4349 [302] K [13.62σ]

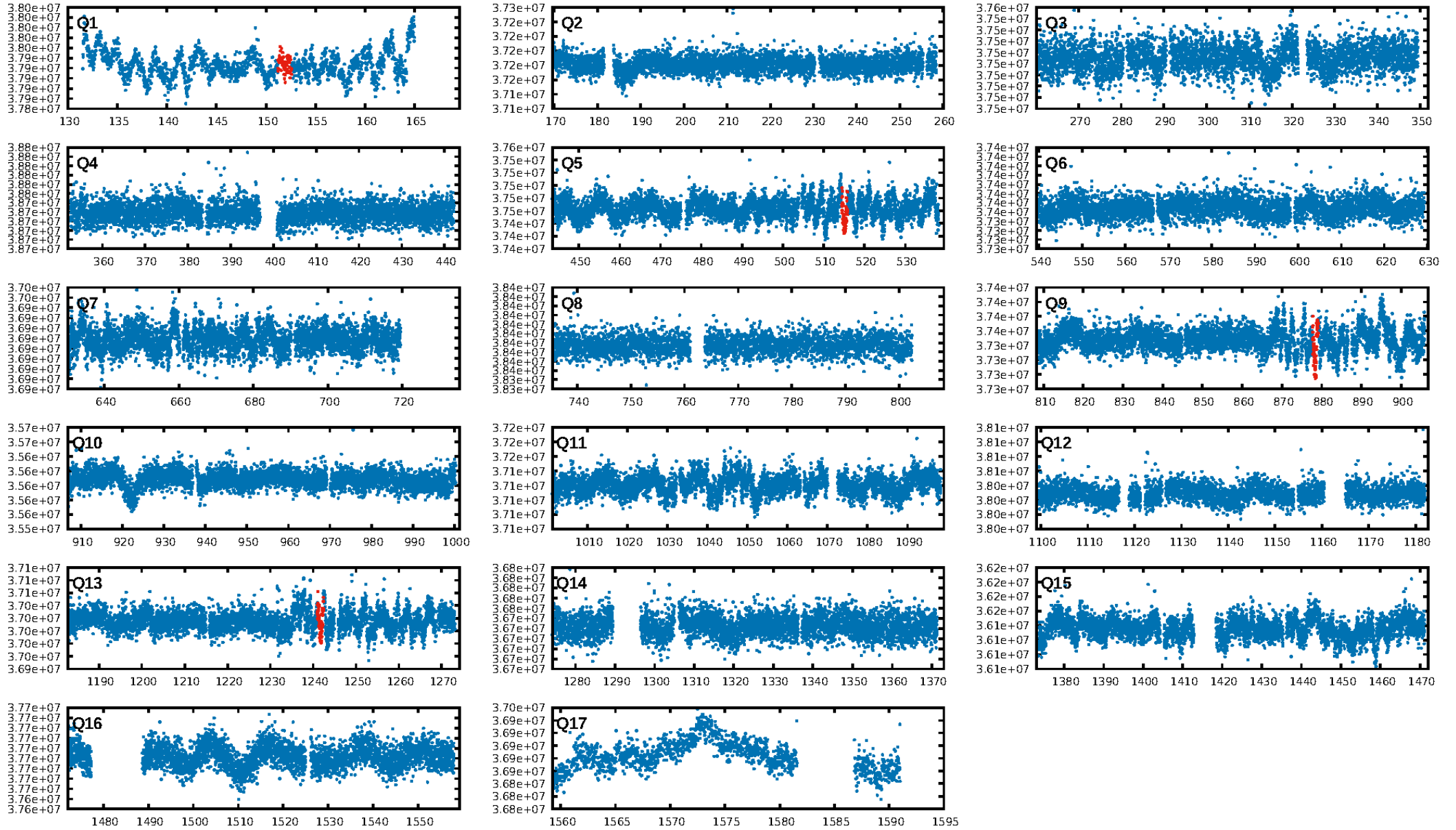
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.79σ]
ModelChiSquare2-sig: 8.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.53e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.516
Centroid-sig: 60.2%
Centroid-so: 0.592 arcsec [0.37σ]
OotOffset-rm: 5.034 arcsec [16.99σ]
KicOffset-rm: 4.911 arcsec [16.56σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.67 [2/3]

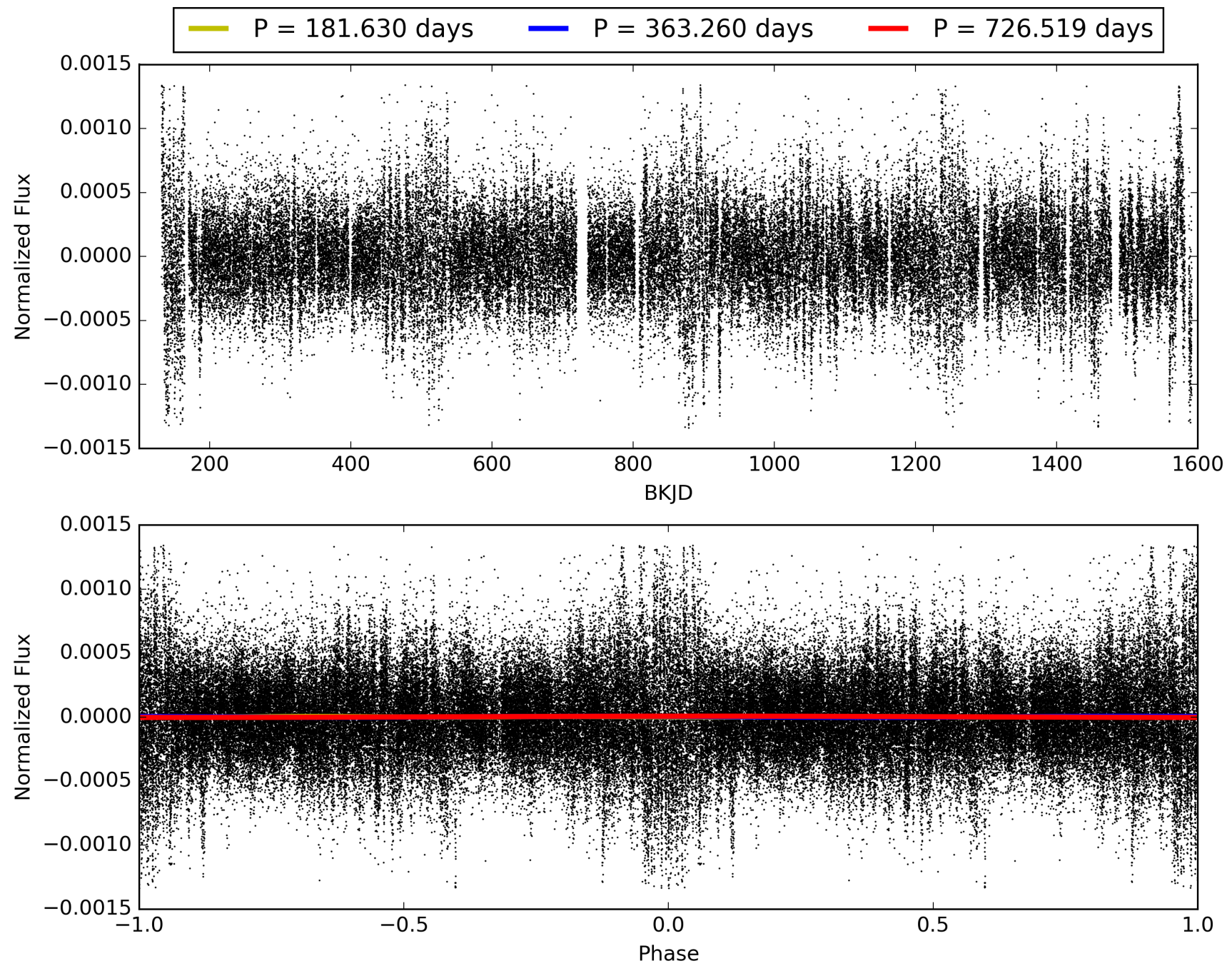
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:44:29 Z

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

TCE 009950316-02, PDC Light Curves

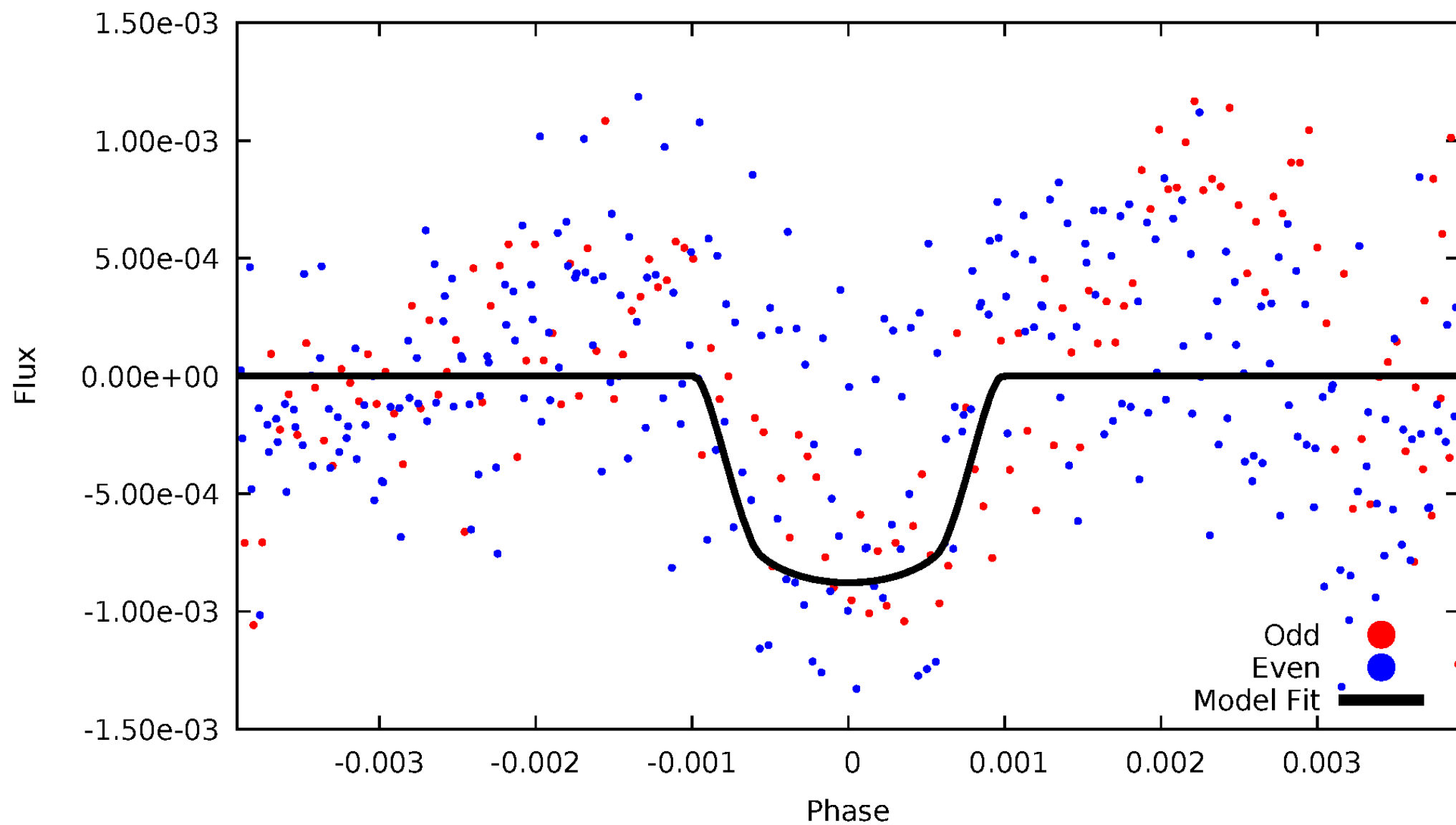


TCE 009950316-02



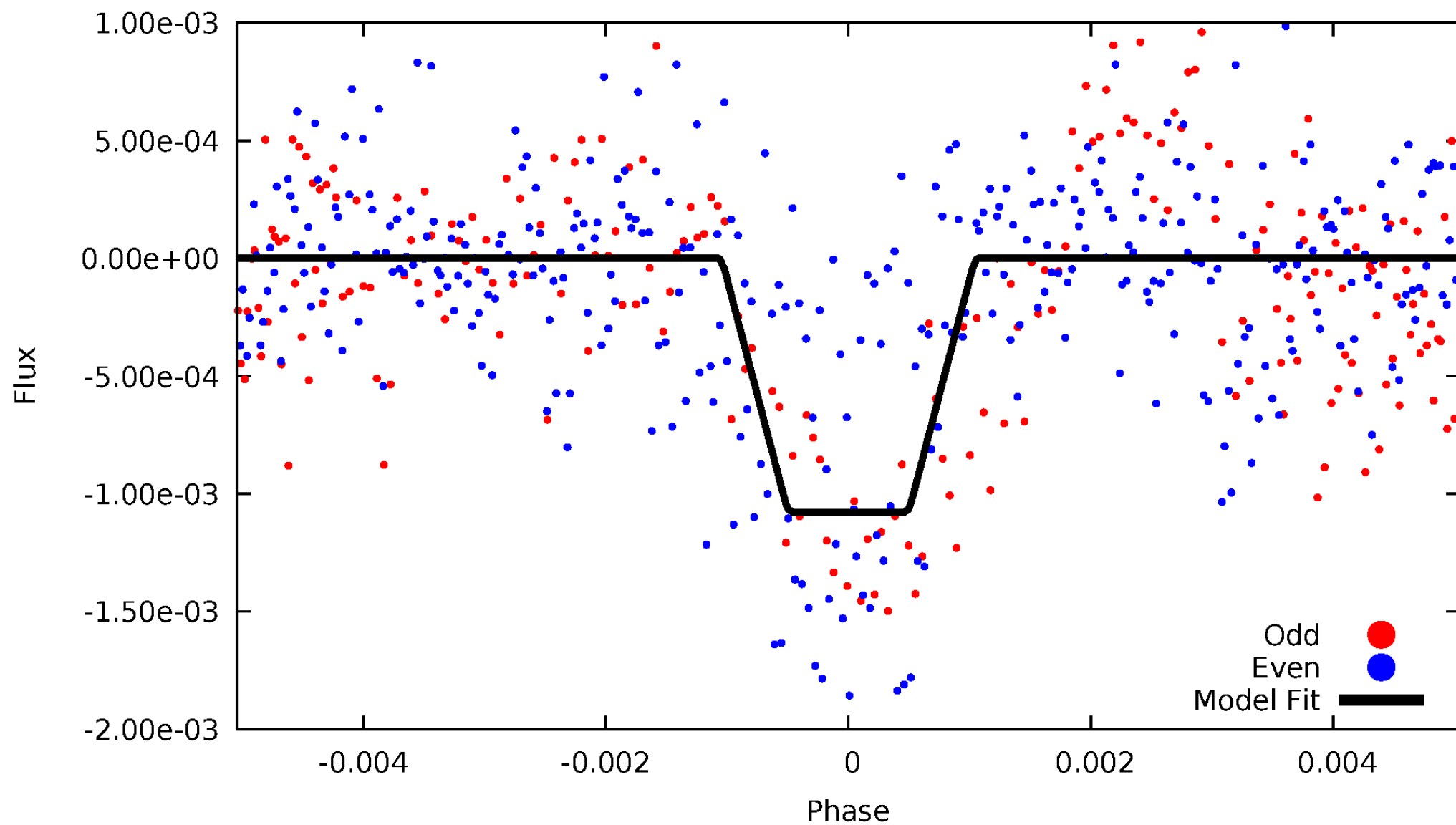
DV Odd/Even

TCE 009950316-02



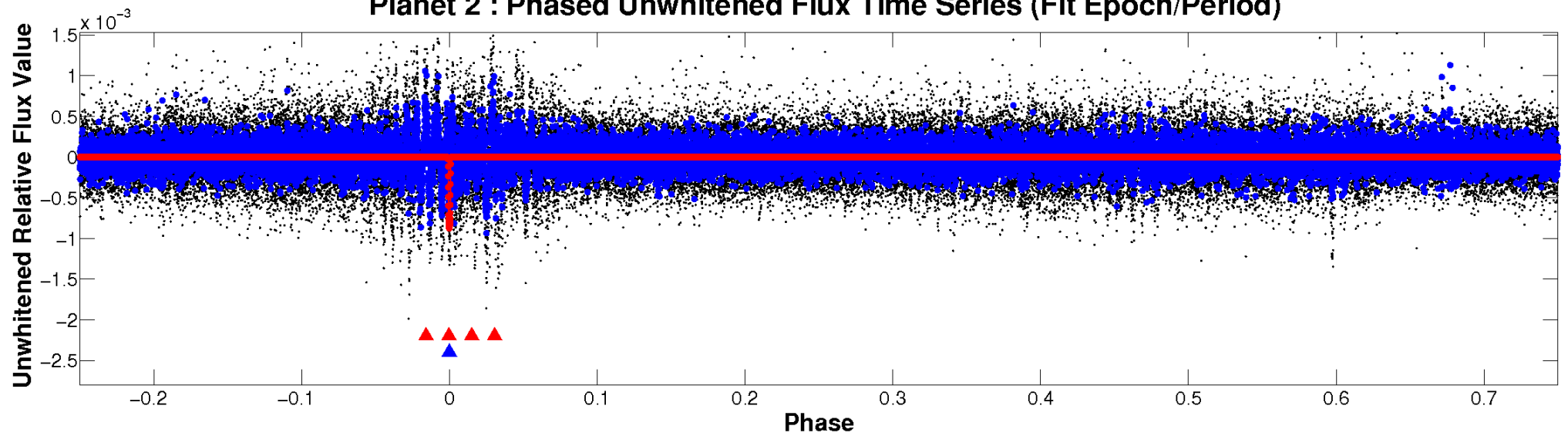
ALT Odd/Even

TCE 009950316-02

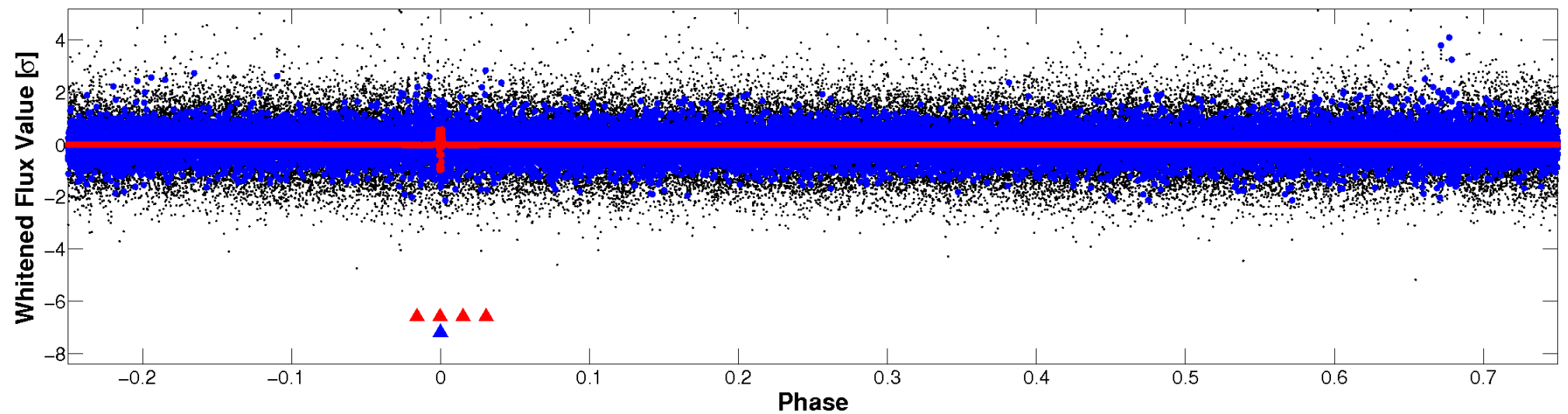


Non-Whitened Vs. Whitened Light Curve

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

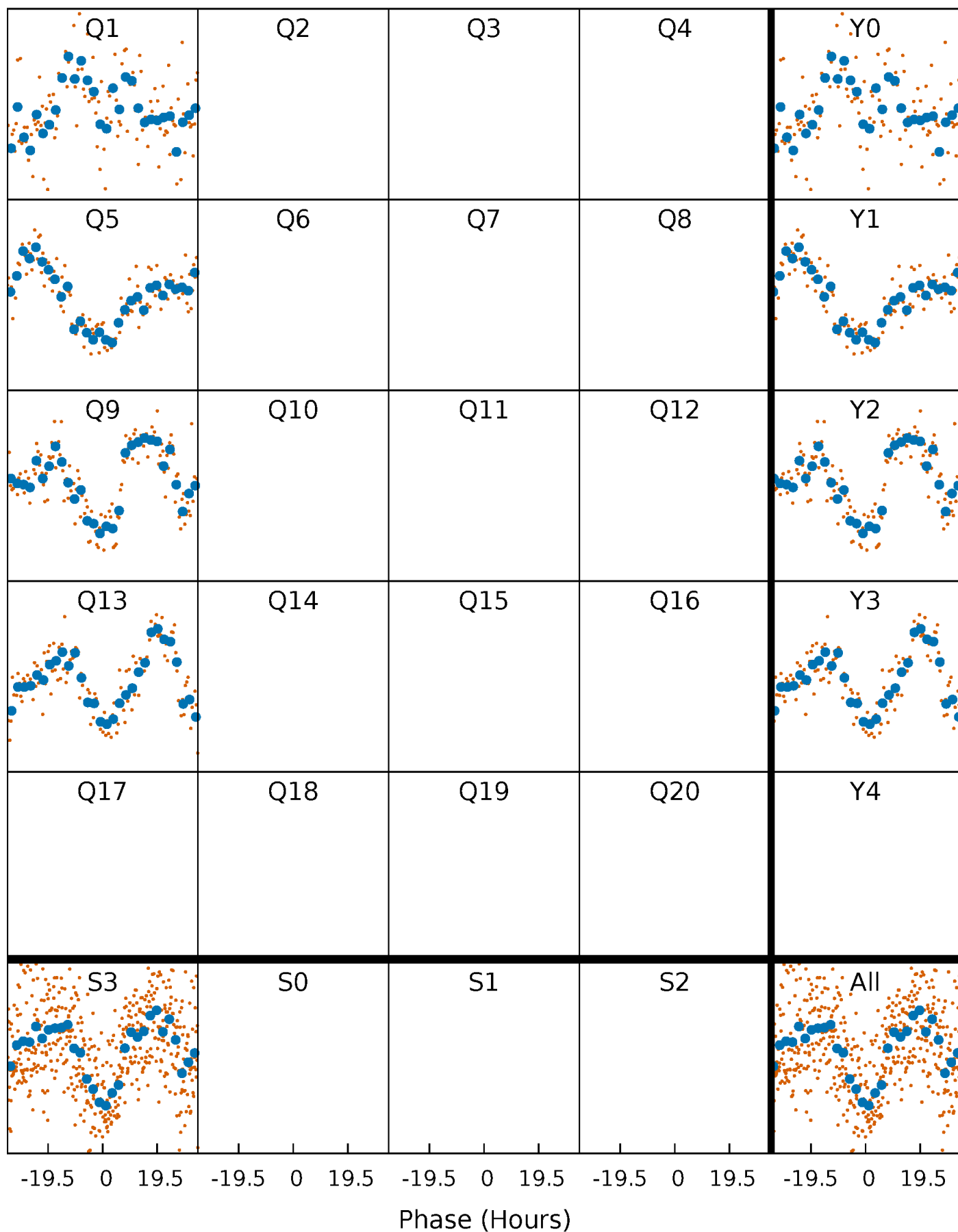


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



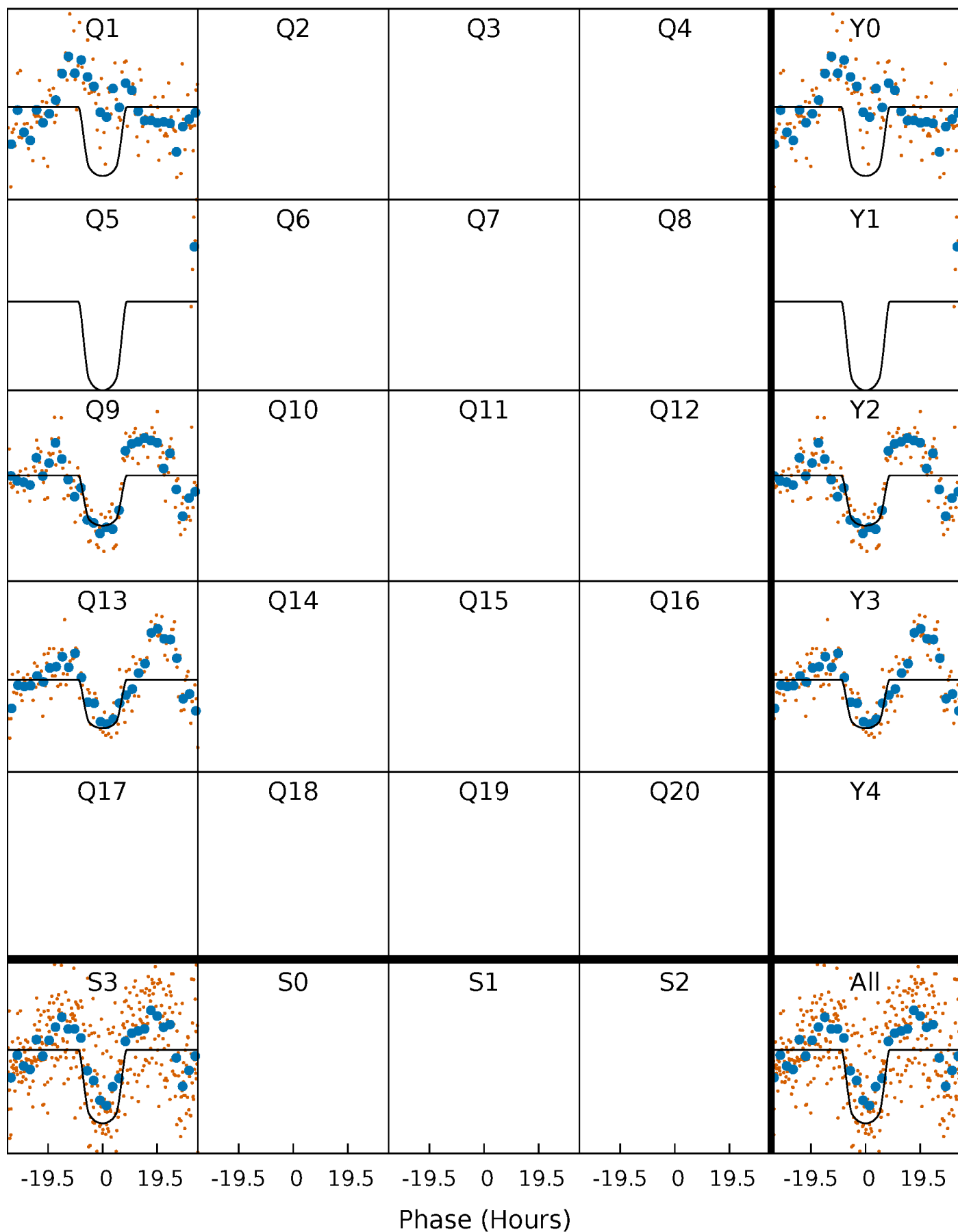
PDC Quarter-Phased Transit Curves

TCE 009950316-02 $P=363.259676$ Days $T_0=151.903475$ (BKJD)



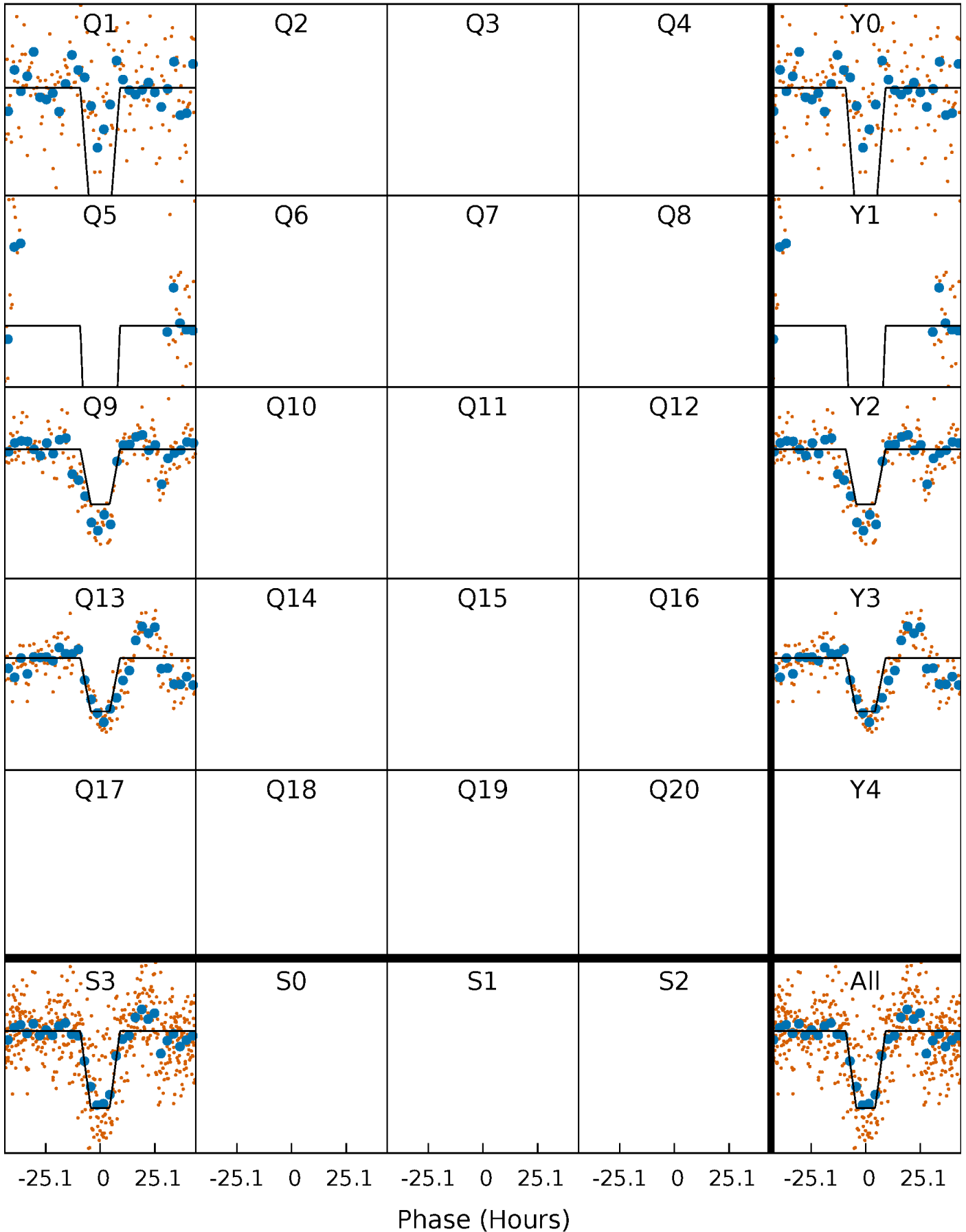
DV Quarter-Phased Transit Curves

TCE 009950316-02 $P=363.259676$ Days $T_0=151.903475$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

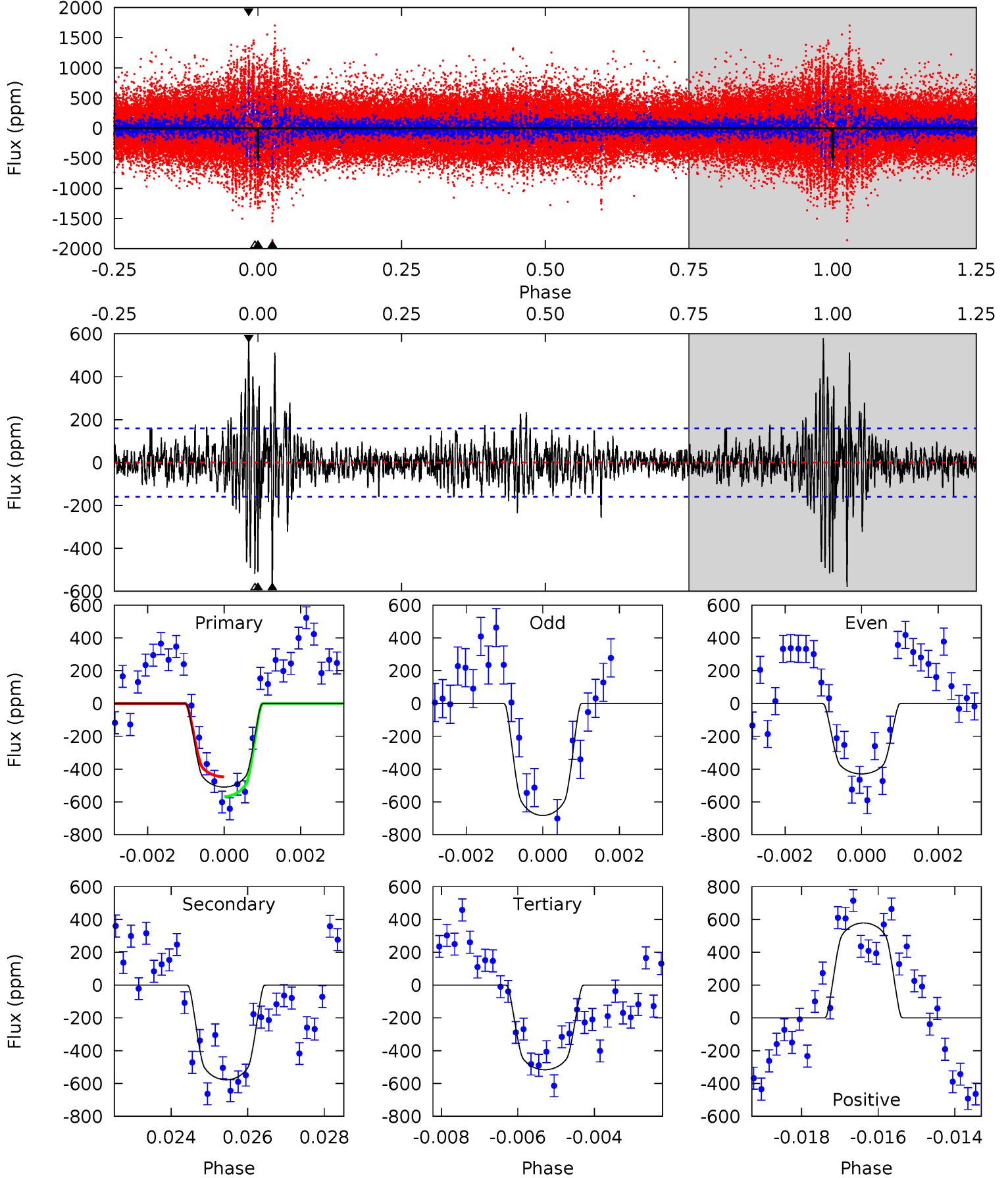
TCE 009950316-02 P=363.254207 Days $T_0=151.930248$ (BKJD)



DV Model-Shift Uniqueness Test

009950316-02, P = 363.259676 Days, E = 151.903475 Days

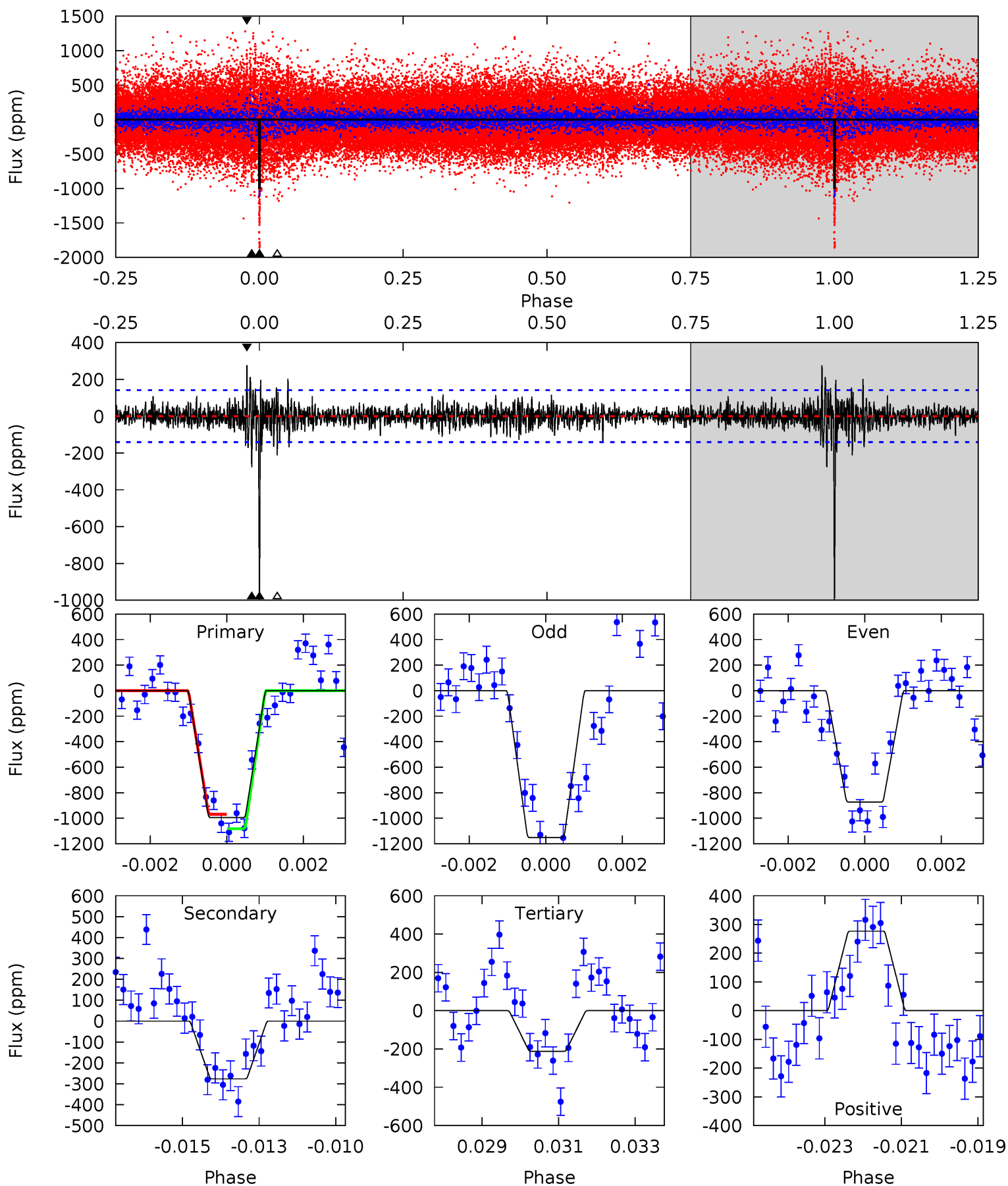
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	19.3	17.2	19.3	5.33	3.09	2.72	-0.22	-2.30	2.05	-0.03	3.97	0.75	0.50	2.02



Alt Model-Shift Uniqueness Test

009950316-02, P = 363.254207 Days, E = 151.930248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.4	10.4	7.98	10.4	5.32	3.08	1.51	29.5	27.0	2.43	-0.00	4.94	0.84	0.22	2.10



Stellar Parameters For KIC 009950316

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5628^{+135}_{-152}	$4.575^{+0.034}_{-0.136}$	$-0.220^{+0.300}_{-0.300}$	$0.808^{+0.169}_{-0.072}$	$0.903^{+0.085}_{-0.104}$	$2.412^{+0.434}_{-0.940}$
	+2%/-3%	+1%/-3%	+136%/-136%	+21%/-9%	+9%/-12%	+18%/-39%
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 009950316-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-578 ± 30	$3.05^{+0.39}_{-0.34}$	323^{+16}_{-13}	4841^{+255}_{-194}	30852^{+7477}_{-6270}
Alt.	-277 ± 27	$3.01^{+0.40}_{-0.35}$	323^{+15}_{-12}	4232^{+187}_{-164}	15460^{+3994}_{-3397}

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

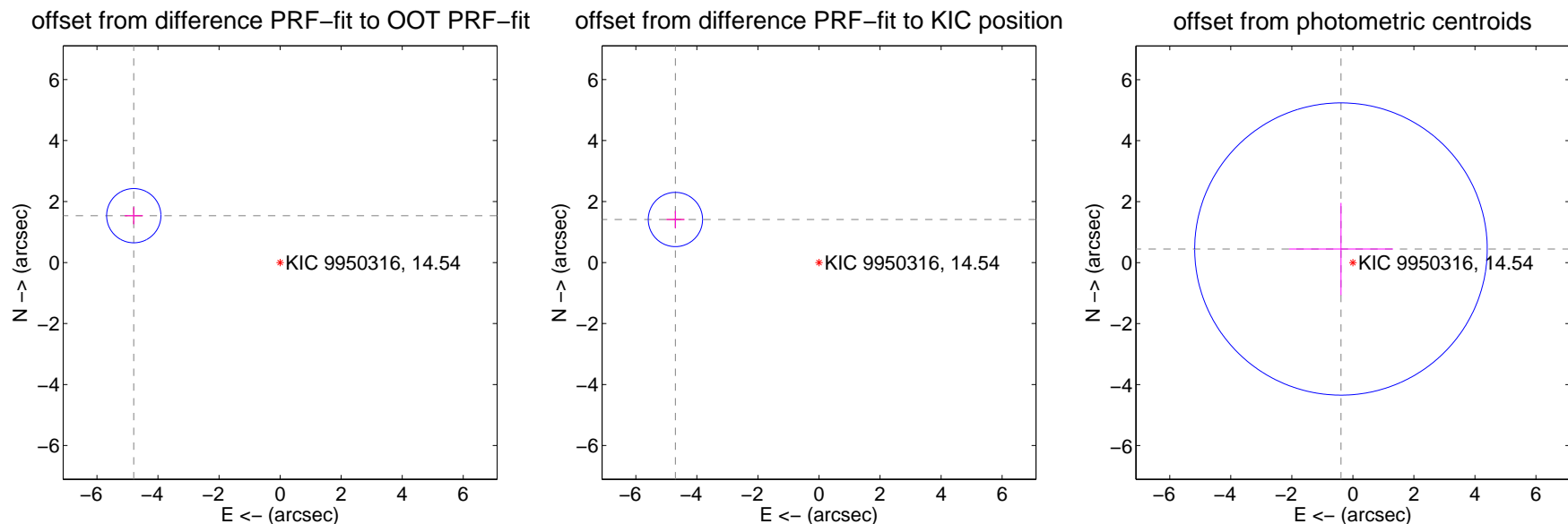
DV Centroid Data

Supplemental centroid analysis for 009950316-02. Kepler magnitude: 14.54. Transit SNR 8.39

There are 0 quarters with good PRF difference image offsets

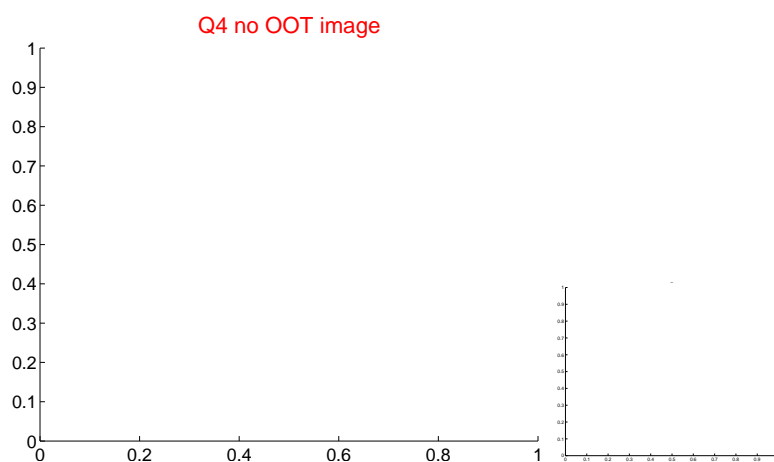
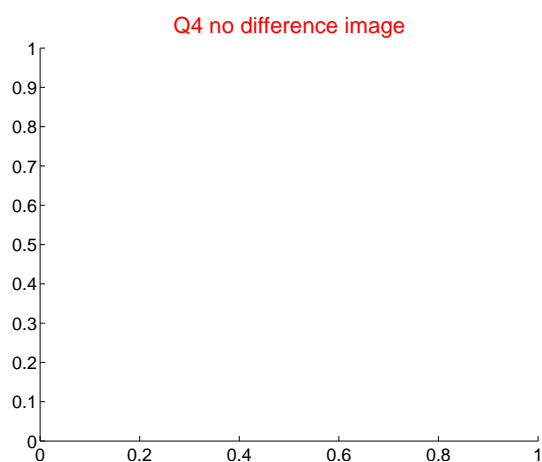
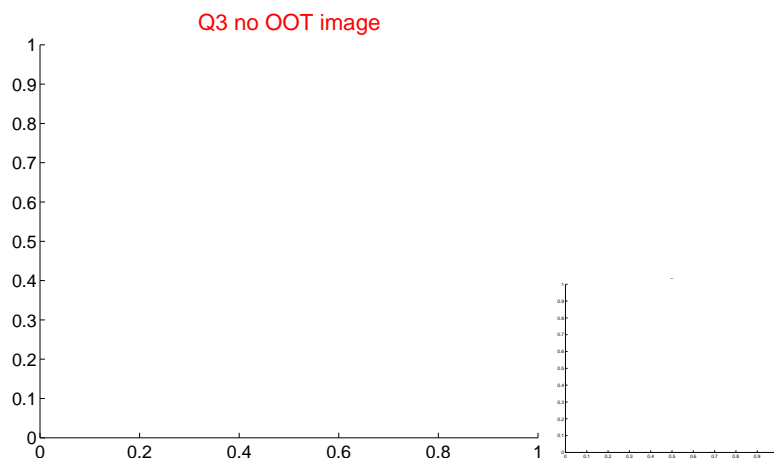
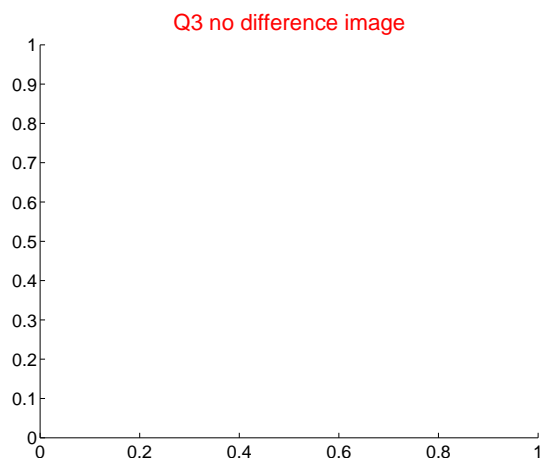
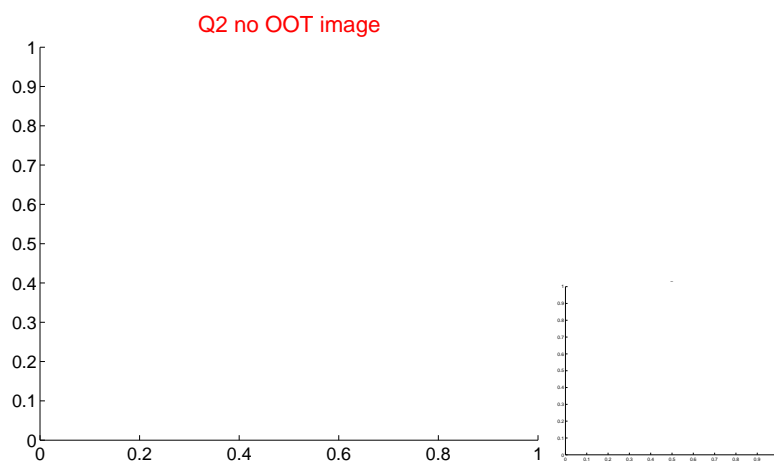
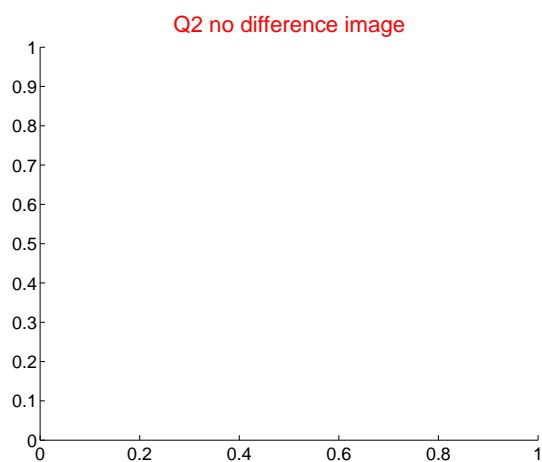
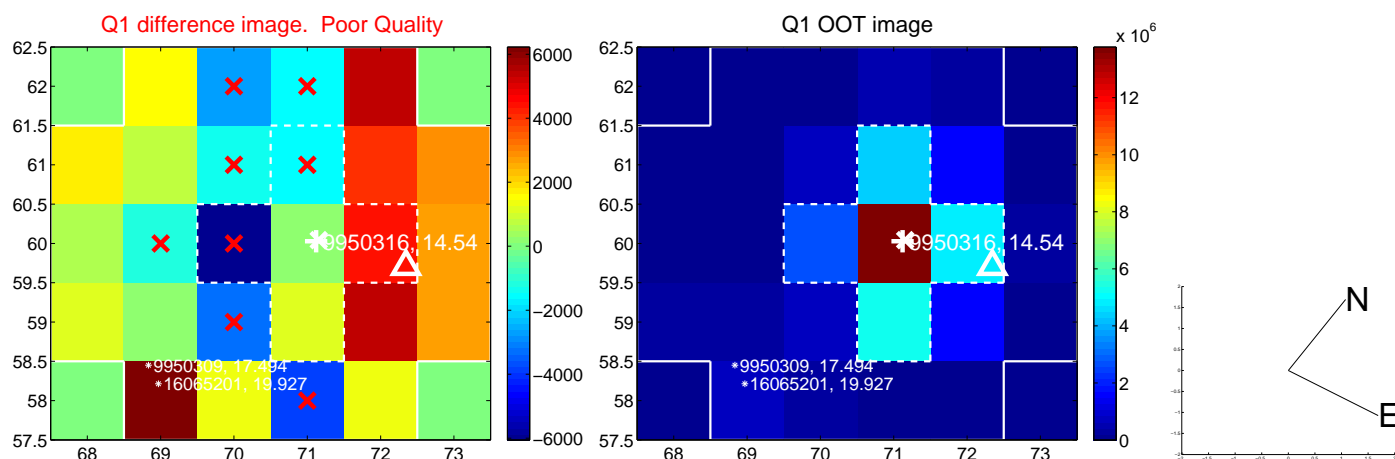
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.034 ± 0.296	16.99	4.794 ± 0.298	1.537 ± 0.283
PRF-fit source offset from KIC position	4.911 ± 0.297	16.56	4.704 ± 0.298	1.411 ± 0.283
photometric centroid source offset	0.59 ± 1.60	0.37	0.39 ± 1.70	0.45 ± 1.51

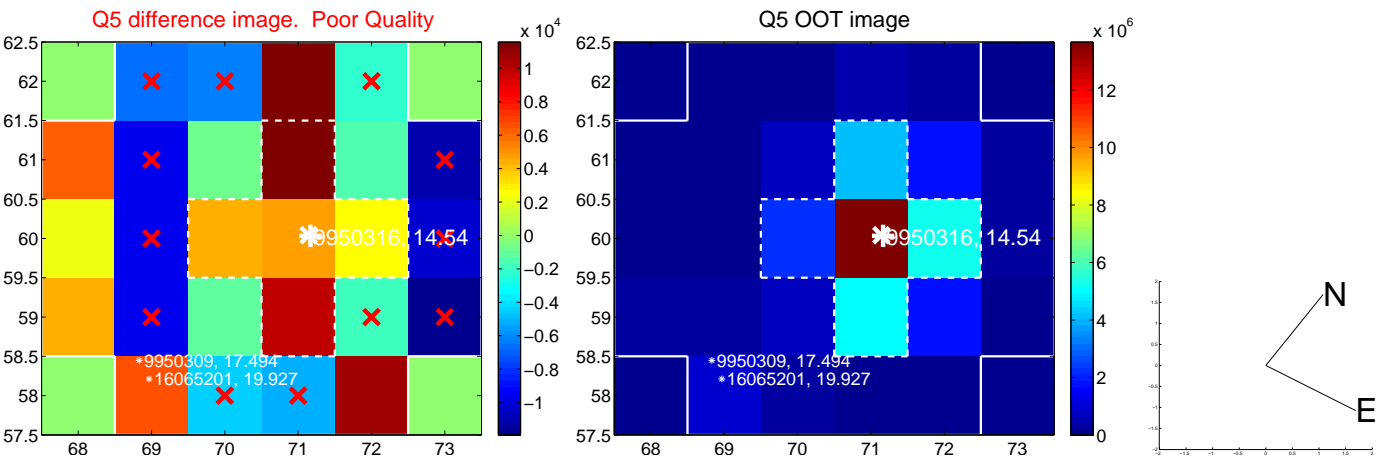


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

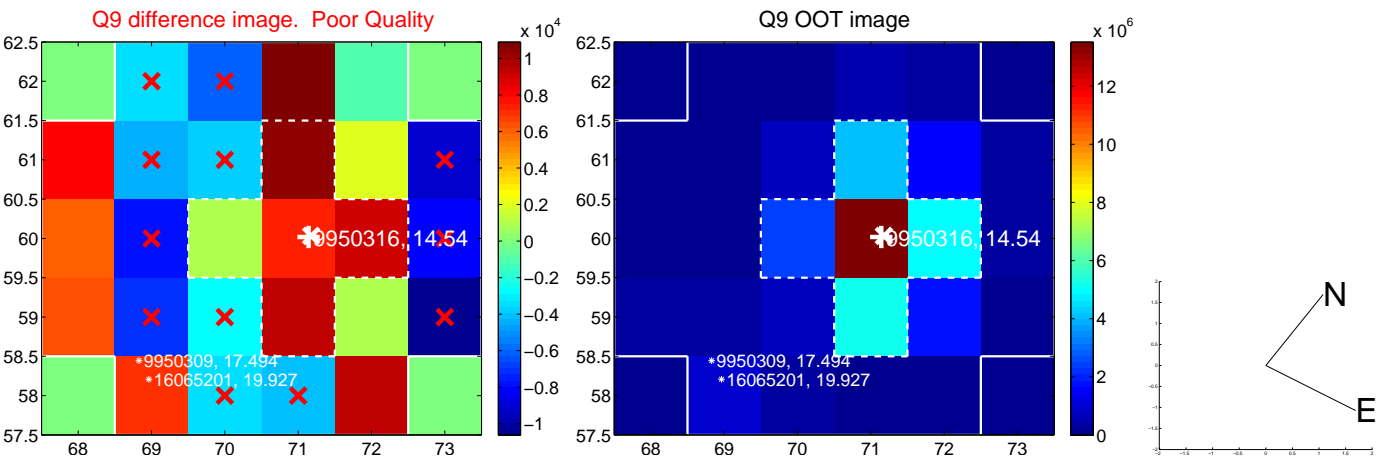
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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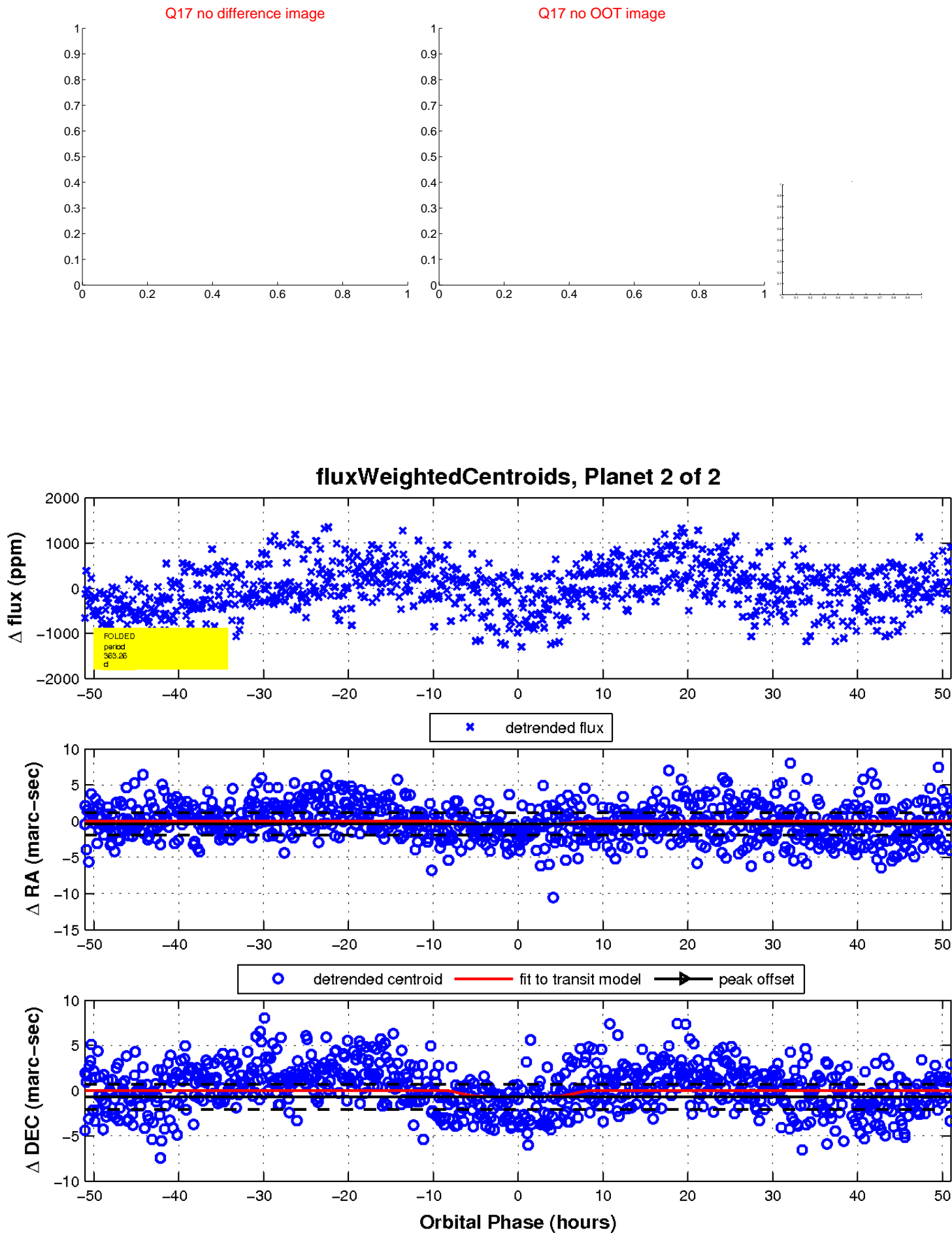
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UKIRT Image

Declination

