

KIC 005202404

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})
005202404-01	OBS	No	303.900647	411.340747	451.4	4.851	14.1	7.2	1.07	5999	2.36	1.78
005202404-02	OBS	No	291.112014	147.067000	271.7	3.856	12.8	4.9	1.07	5999	2.16	1.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005202404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005202404-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_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.

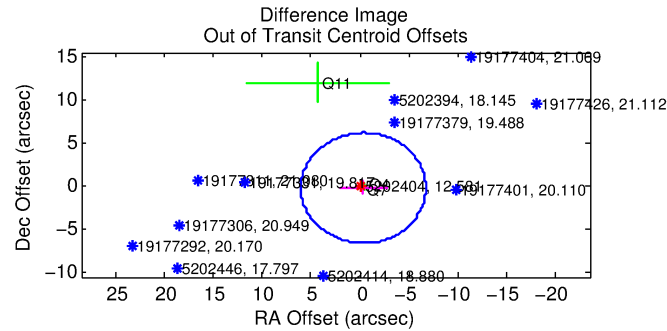
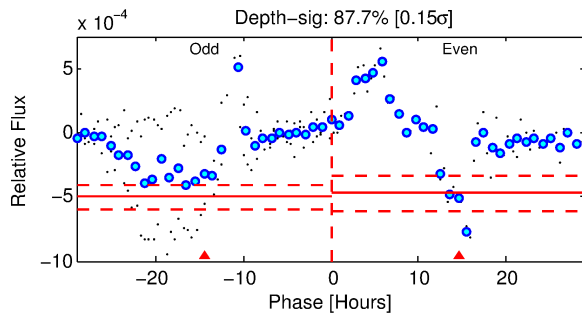
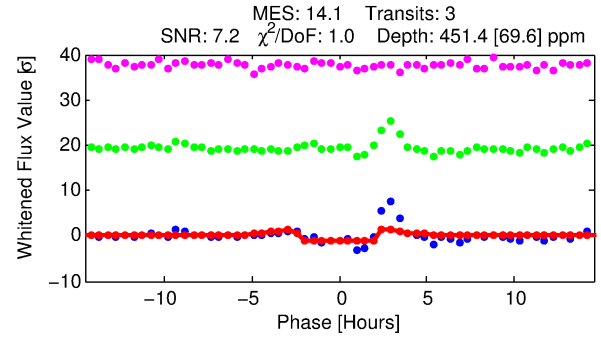
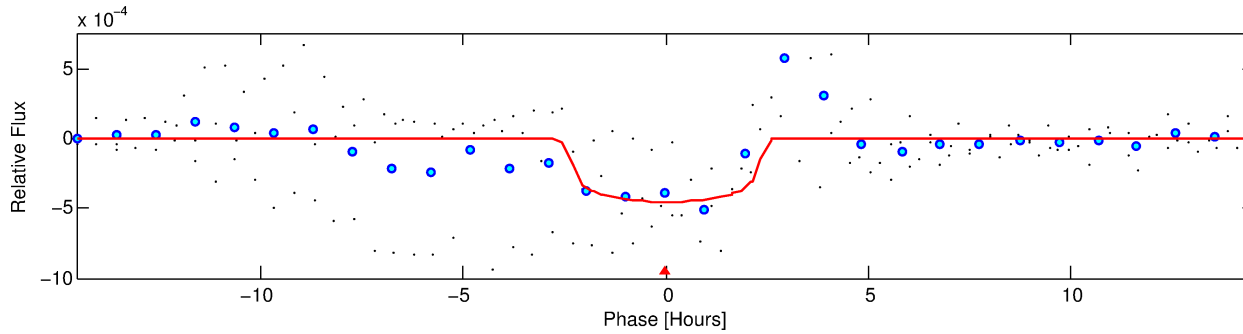
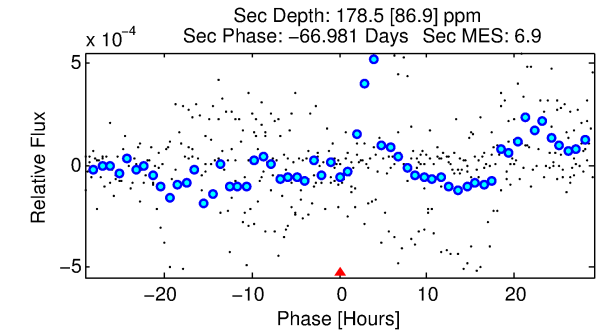
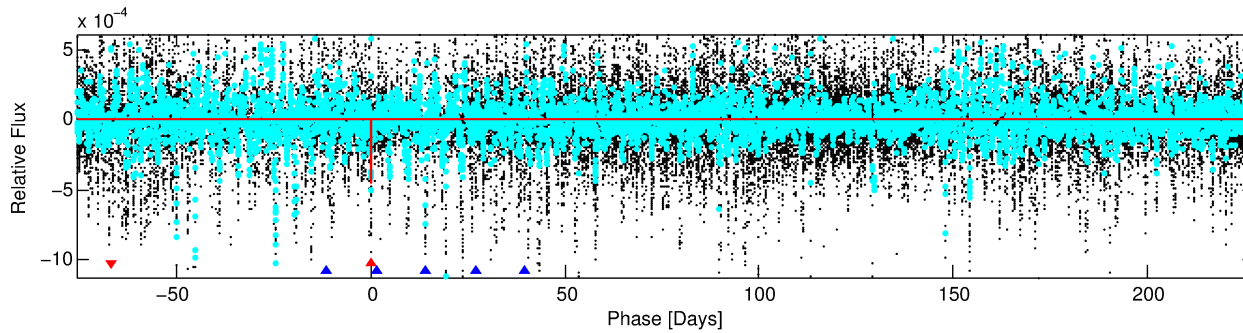
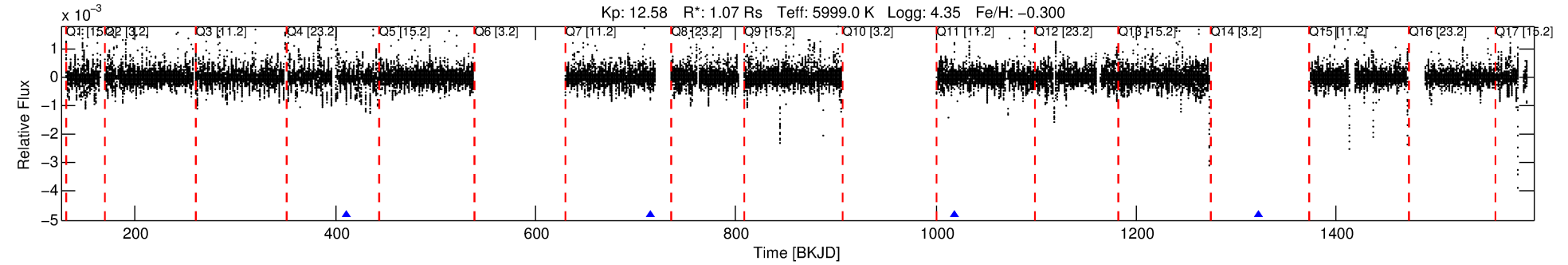
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005202404-01

No Significant Match Found

DV One-Page Summary

KIC: 5202404 Candidate: 1 of 2 Period: 303.901 d



DV Fit Results:

Period = 303.90065 [0.00439] d
Epoch = 411.3407 [0.0063] BKJD
Rp/R* = 0.0203 [0.0138]
a/R* = 403.10 [1313.03]
b = 0.58 [3.80]
Seff = 1.78 [0.64]
Teq = 294 [26] K
Rp = 2.36 [1.73] Re
a = 0.8633 [0.1985] AU
Ag = 13109.52 [19503.08] [0.67 σ]
Teffp = 4872 [1771] K [2.59 σ]

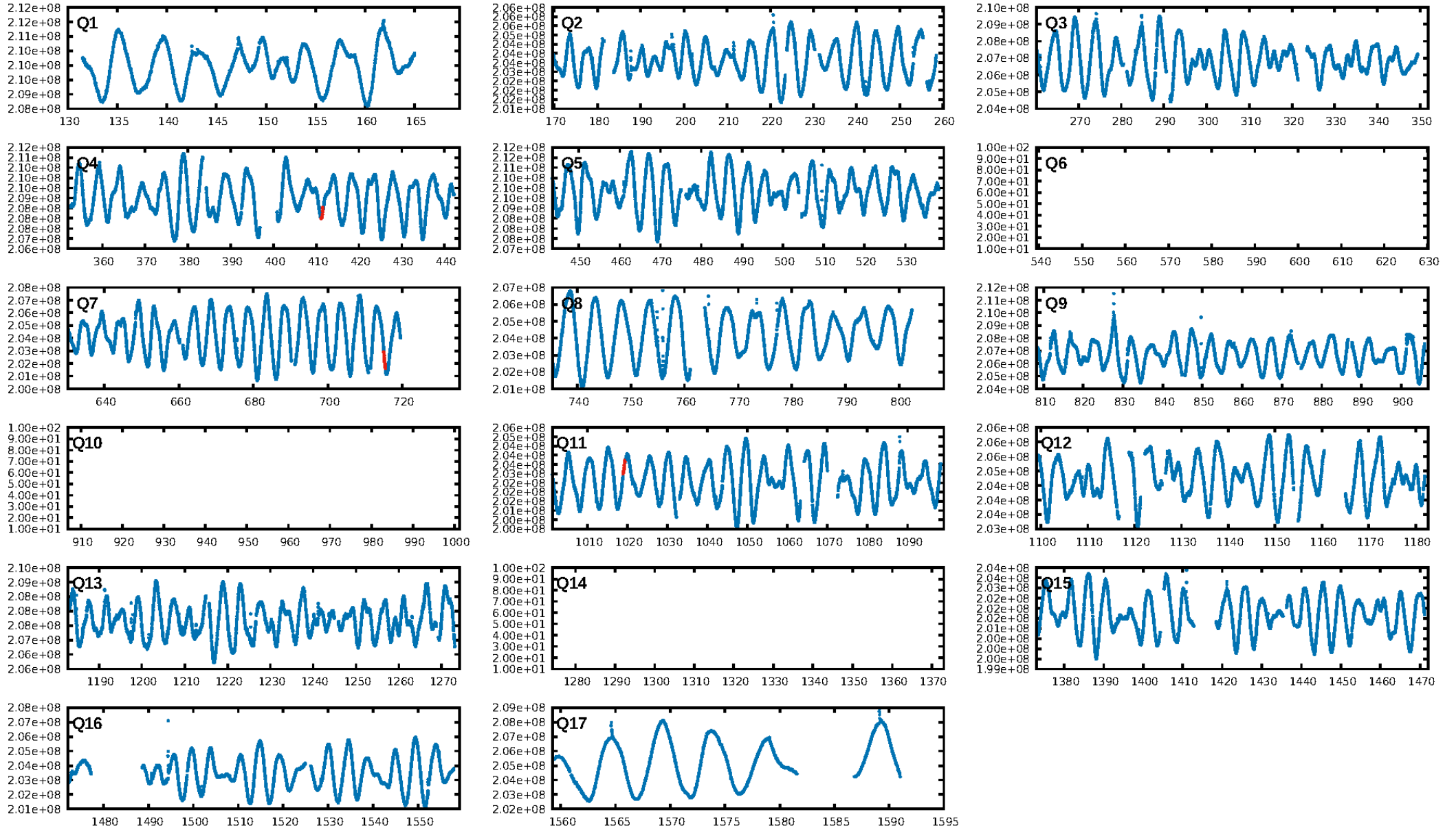
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.53 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 15.4%
ModelChiSquareGof-sig: 94.4%
Bootstrap-pfa: 1.68e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 22.15
Centroid-sig: 10.2%
Centroid-so: 0.975 arcsec [1.56 σ]
OotOffset-rm: 0.387 arcsec [0.18 σ]
OotOffset-st: 0.2/1/0 [3]
KicOffset-rm: 0.502 arcsec [0.13 σ]
KicOffset-st: 0.2/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

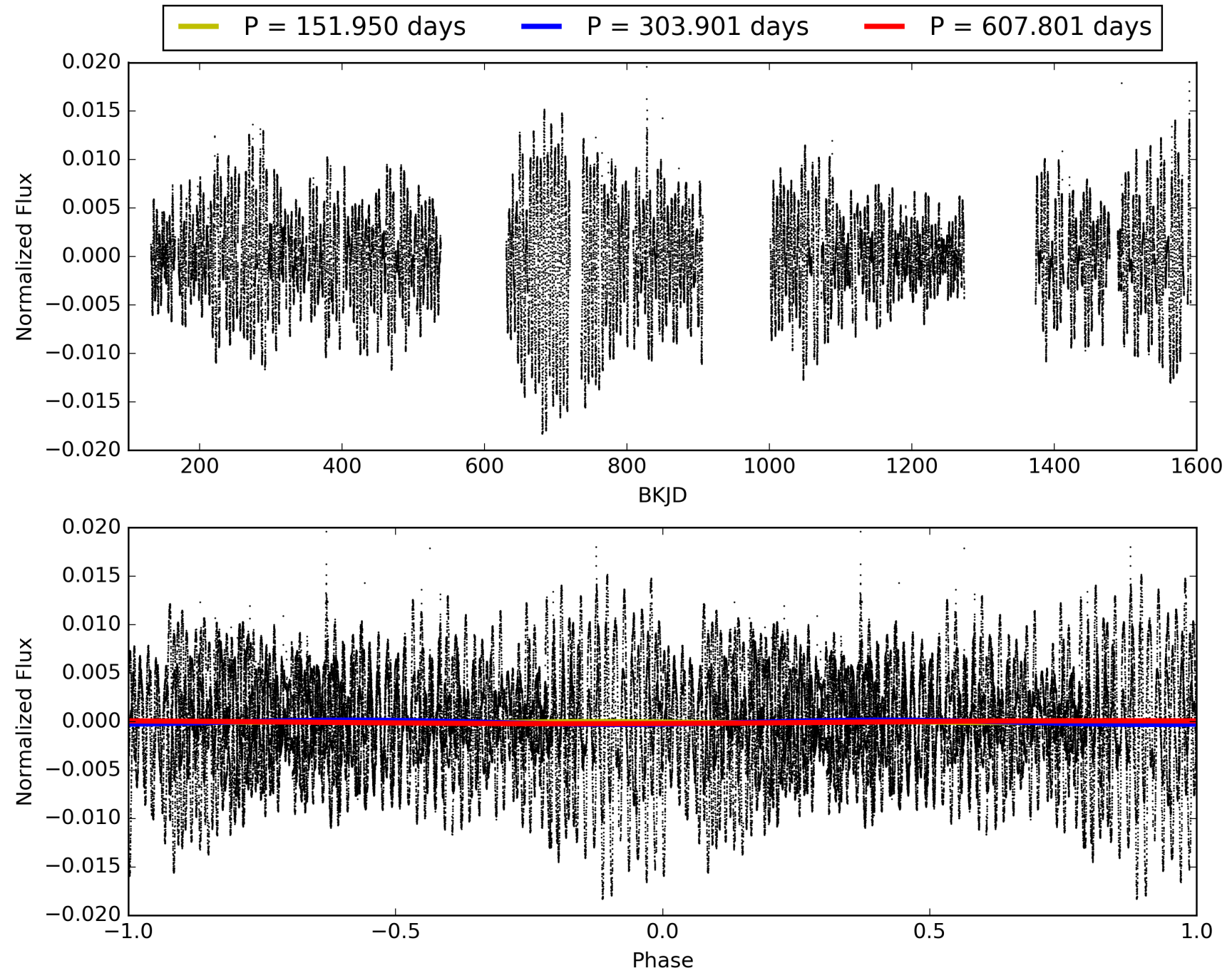
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:17:05 Z

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

TCE 005202404-01, PDC Light Curves

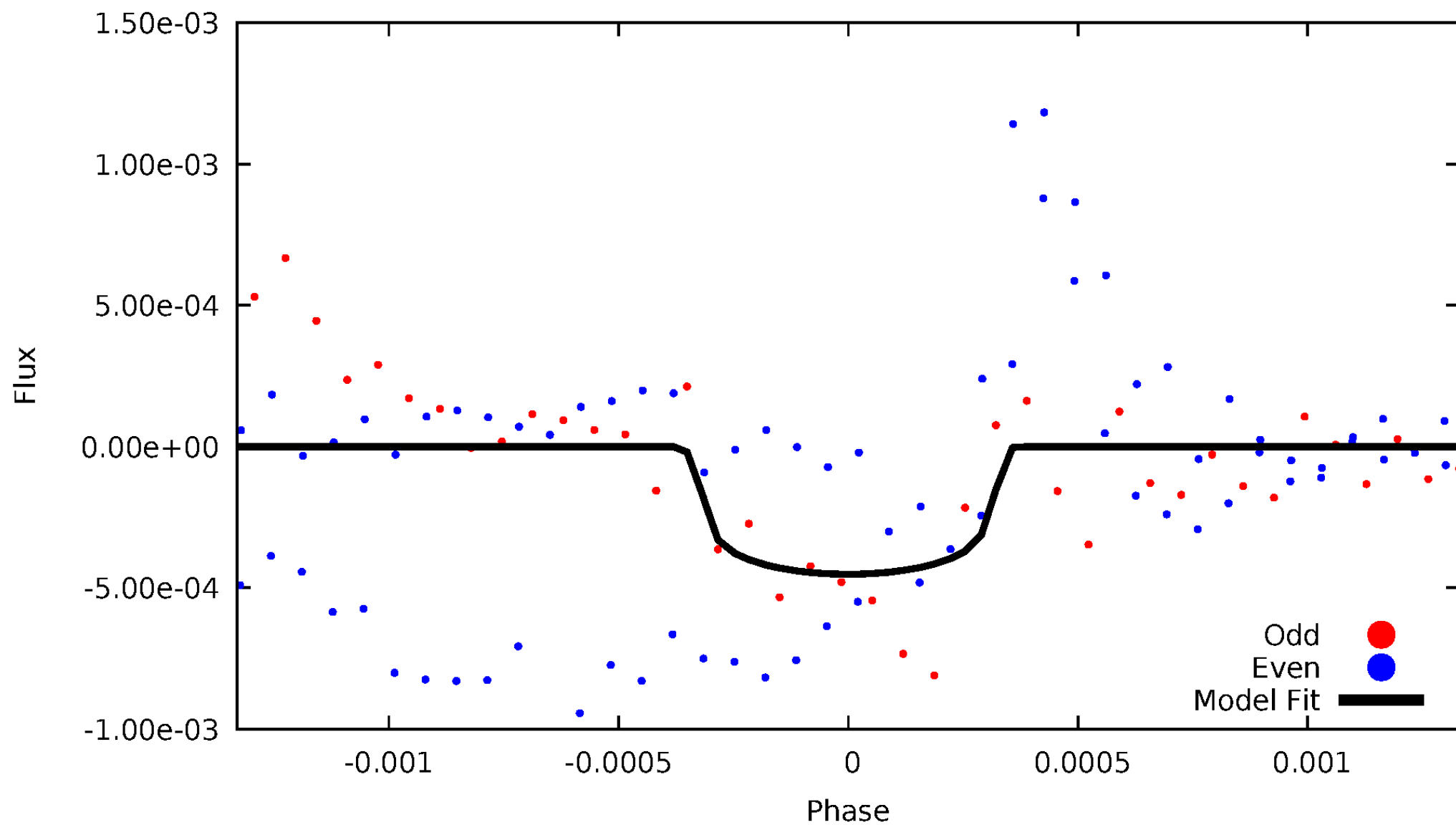


TCE 005202404-01



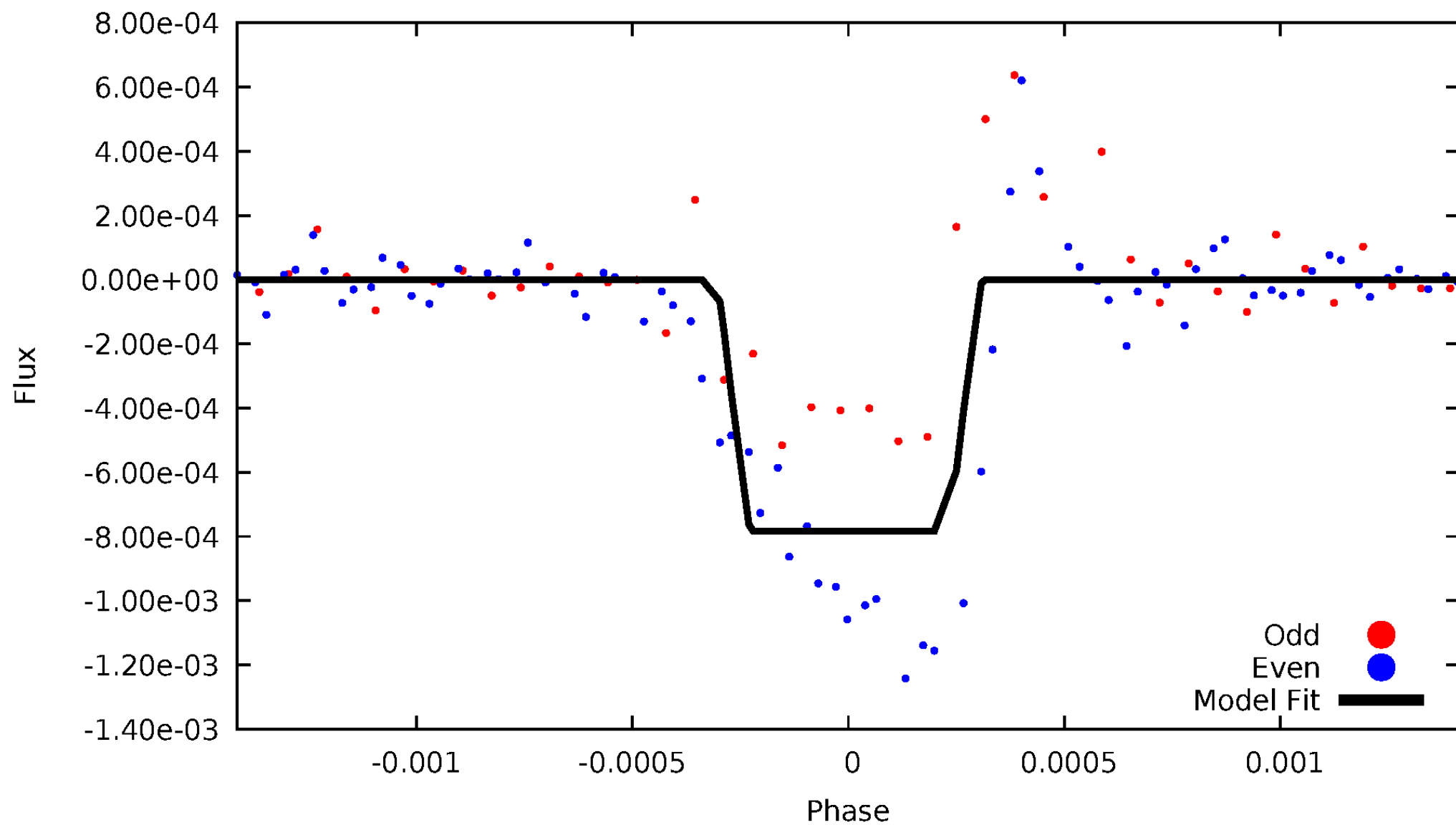
DV Odd/Even

TCE 005202404-01



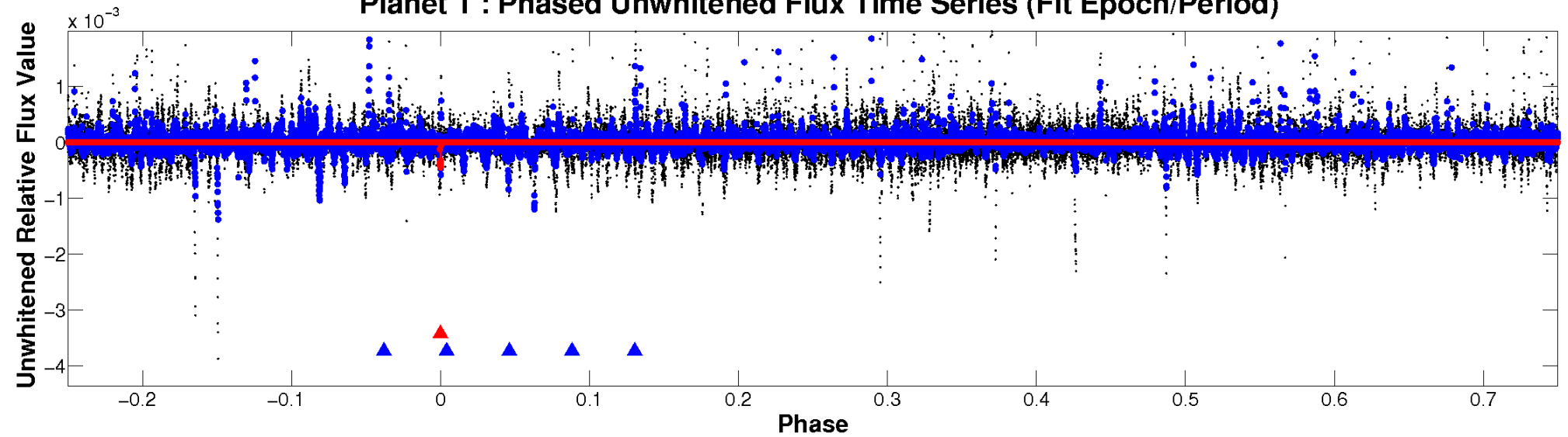
ALT Odd/Even

TCE 005202404-01

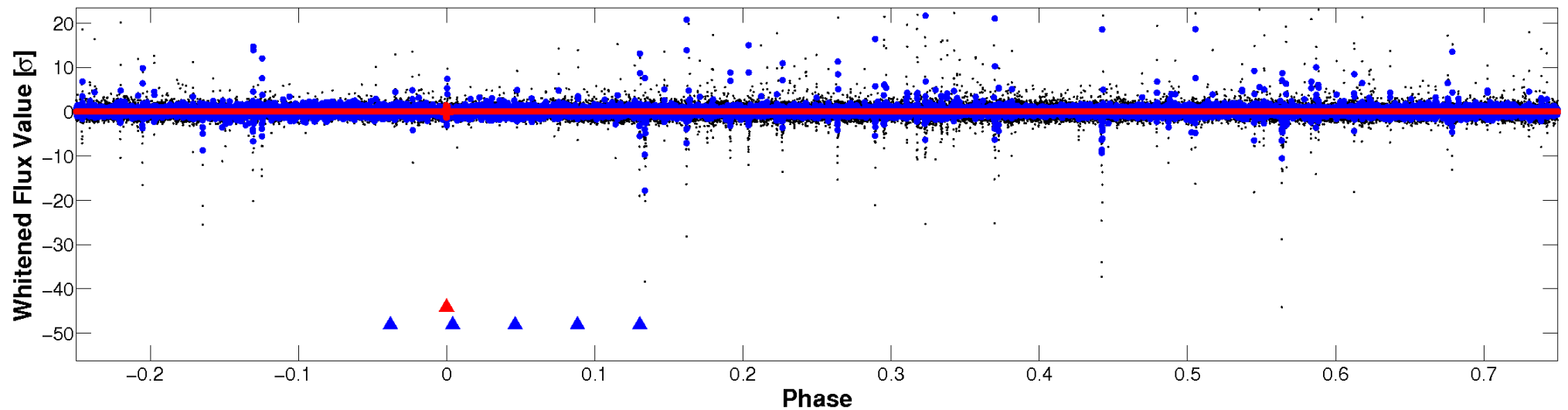


Non-Whitened Vs. Whitened Light Curve

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

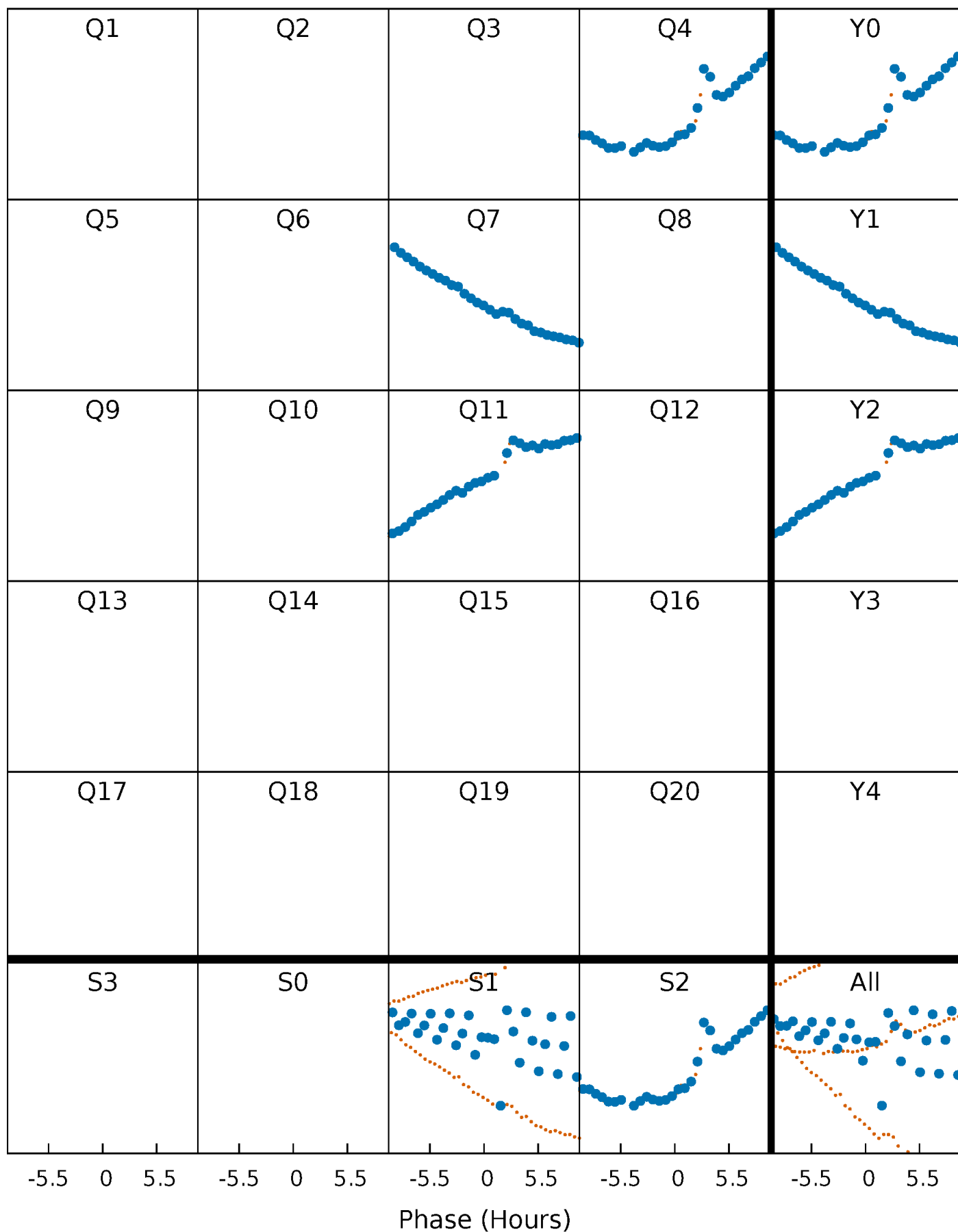


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



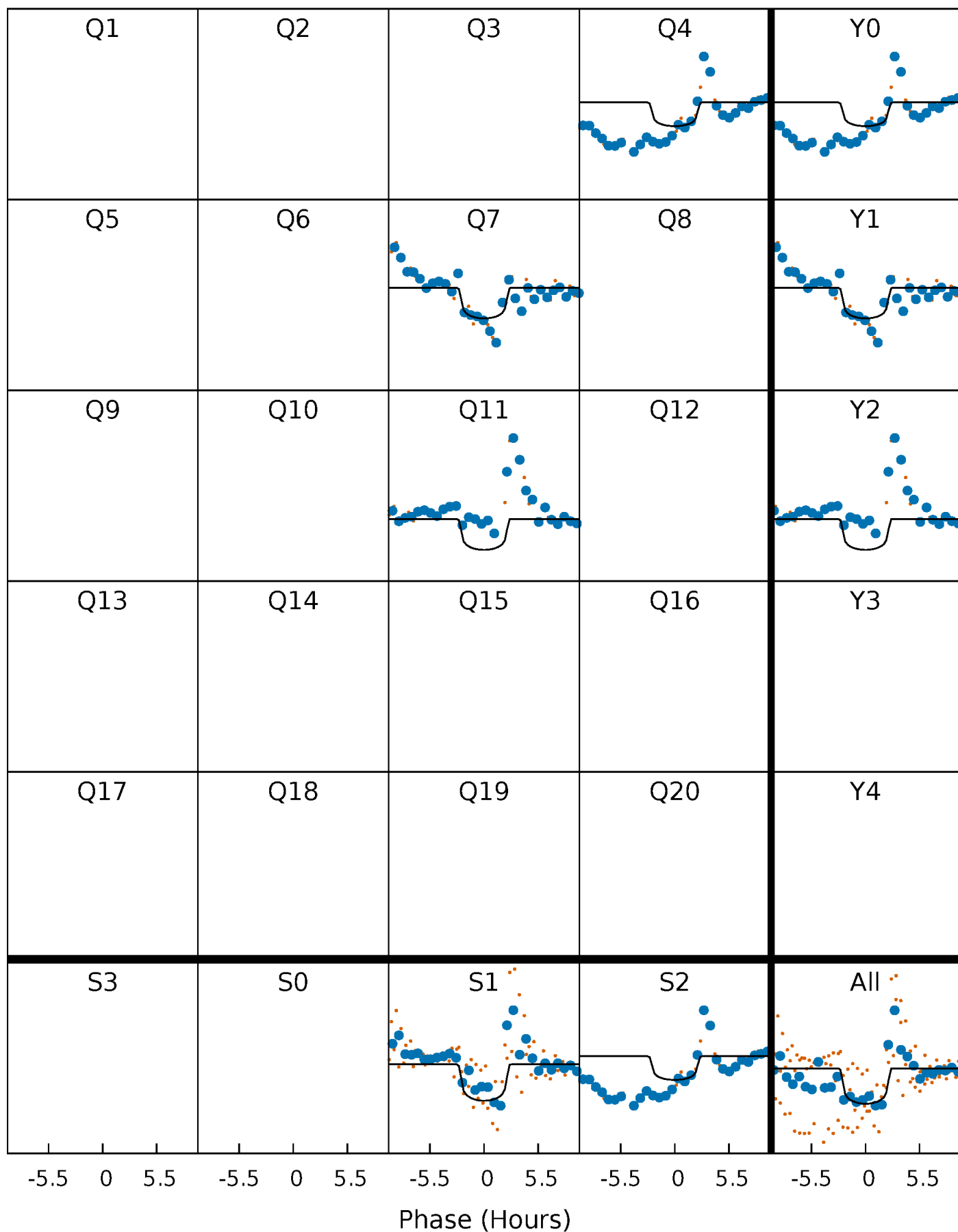
PDC Quarter-Phased Transit Curves

TCE 005202404-01 P=303.900647 Days $T_0=411.340748$ (BKJD)



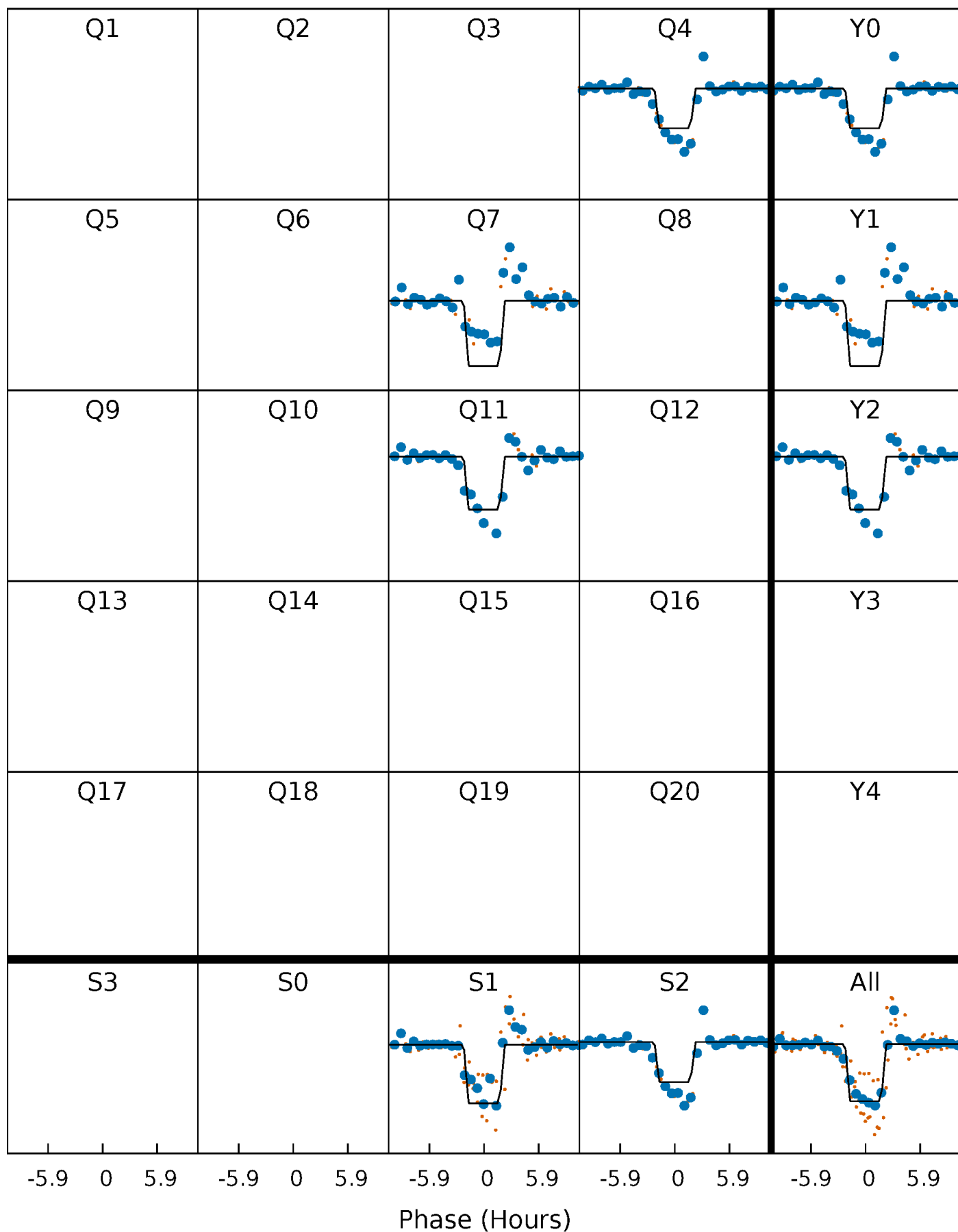
DV Quarter-Phased Transit Curves

TCE 005202404-01 P=303.900647 Days $T_0=411.340748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

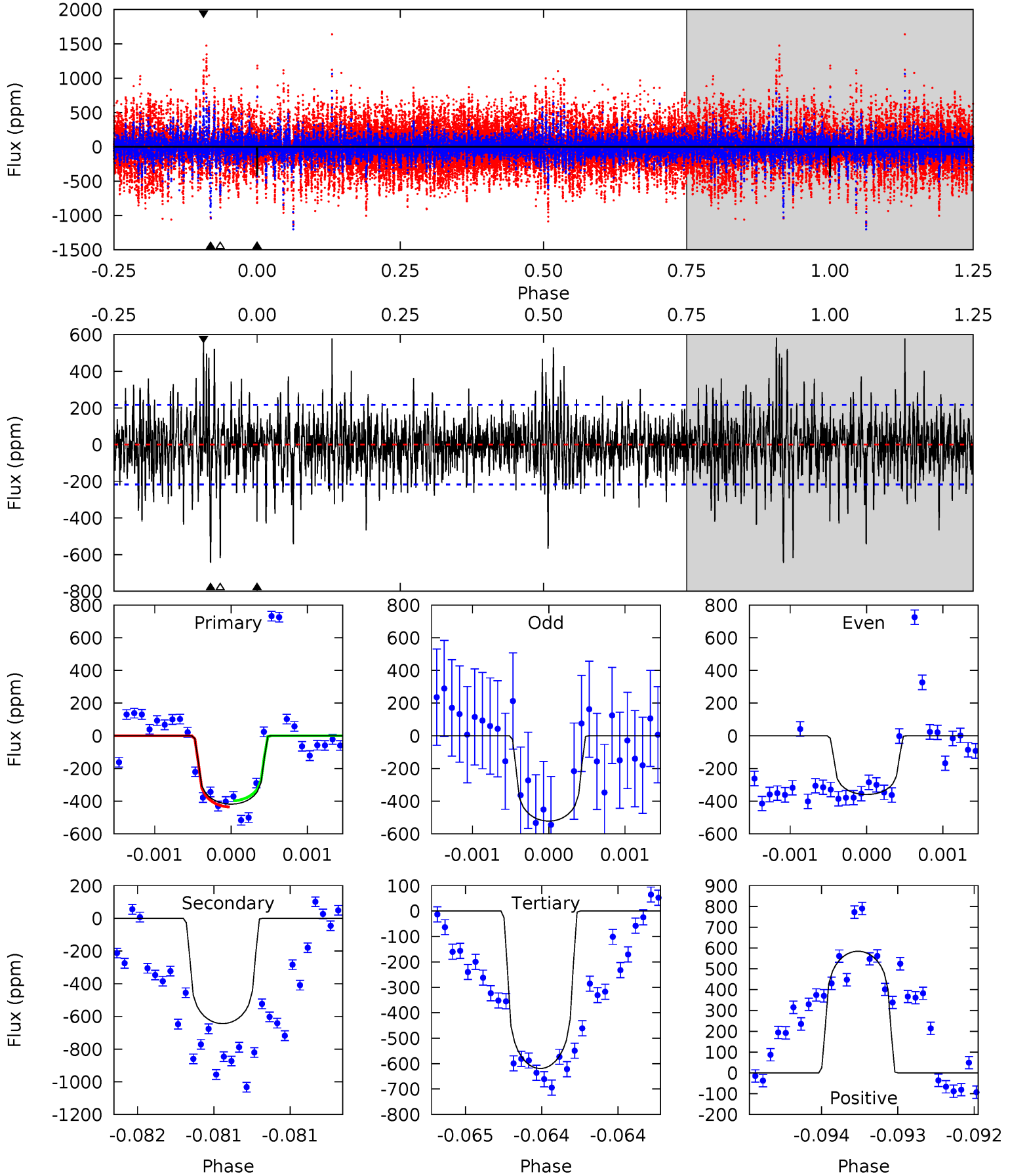
TCE 005202404-01 P=303.894716 Days $T_0=411.347789$ (BKJD)



DV Model-Shift Uniqueness Test

005202404-01, P = 303.900647 Days, E = 107.440101 Days

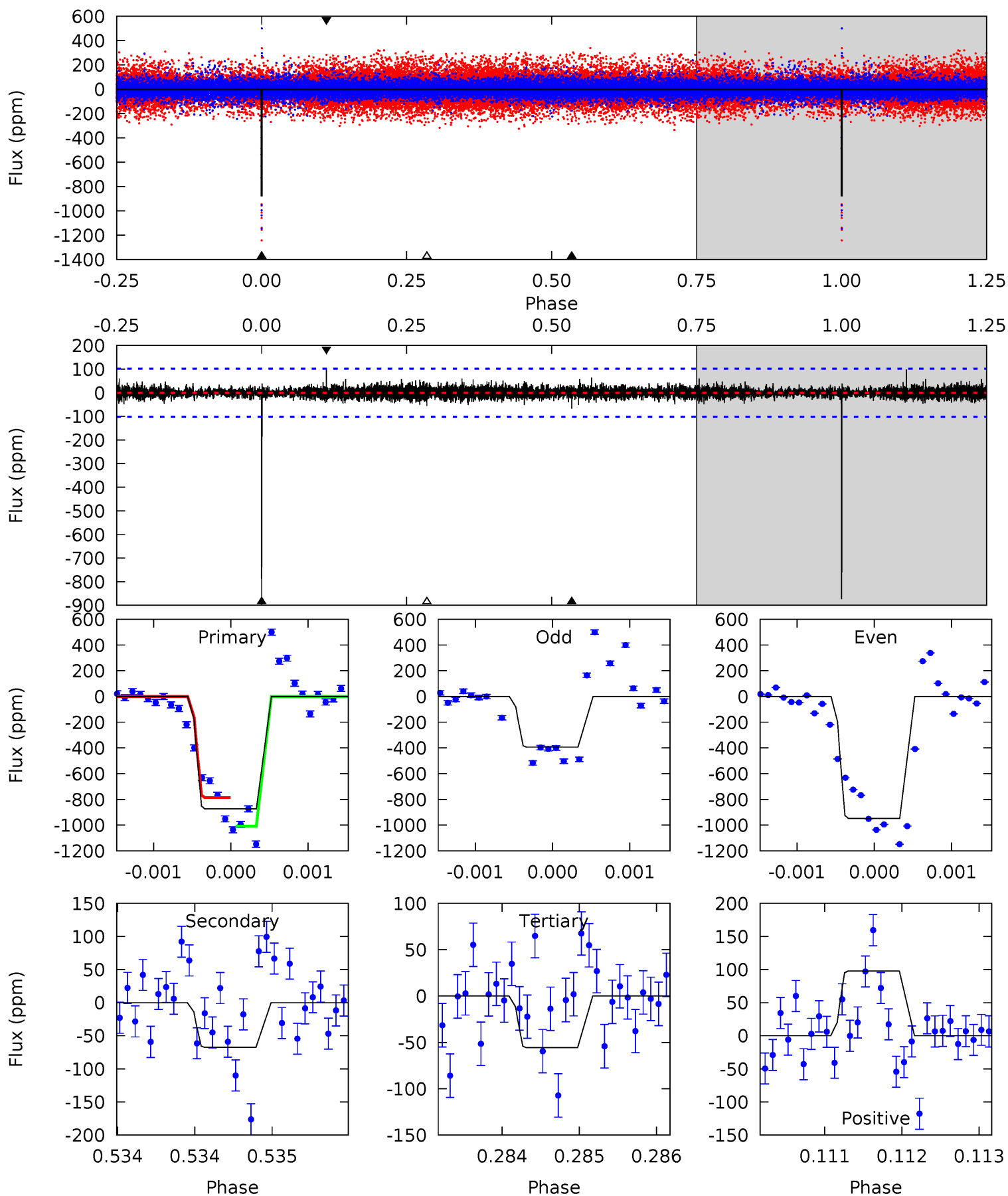
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	16.3	15.7	14.8	5.50	3.37	2.87	-5.09	-4.22	0.63	1.51	1.69	0.74	0.48	0.47



Alt Model-Shift Uniqueness Test

005202404-01, P = 303.894716 Days, E = 107.453073 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.6	3.67	3.03	5.32	5.54	3.43	0.71	44.6	42.3	0.64	-1.64	15.9	0.89	0.10	5.78



Stellar Parameters For KIC 005202404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5999^{+162}_{-180}	$4.348^{+0.153}_{-0.187}$	$-0.300^{+0.300}_{-0.300}$	$1.069^{+0.288}_{-0.192}$	$0.930^{+0.132}_{-0.096}$	$1.073^{+0.758}_{-0.512}$
	+3%/-3%	+4%/-4%	+100%/-100%	+27%/-18%	+14%/-10%	+71%/-48%
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 005202404-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-644 ± 39	$2.54^{+1.64}_{-1.37}$	414^{+31}_{-26}	6594^{+4080}_{-1434}	$41626^{+157789}_{-26664}$
Alt.	-67 ± 18	$3.31^{+1.82}_{-1.46}$	413^{+29}_{-27}	3633^{+859}_{-460}	2367^{+5430}_{-1421}

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

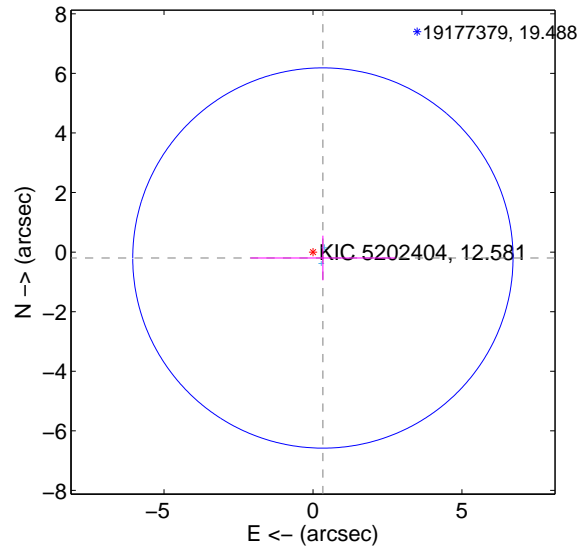
Supplemental centroid analysis for 005202404-01. Kepler magnitude: 12.58. Transit SNR 7.17

There are 2 quarters with good PRF difference image offsets

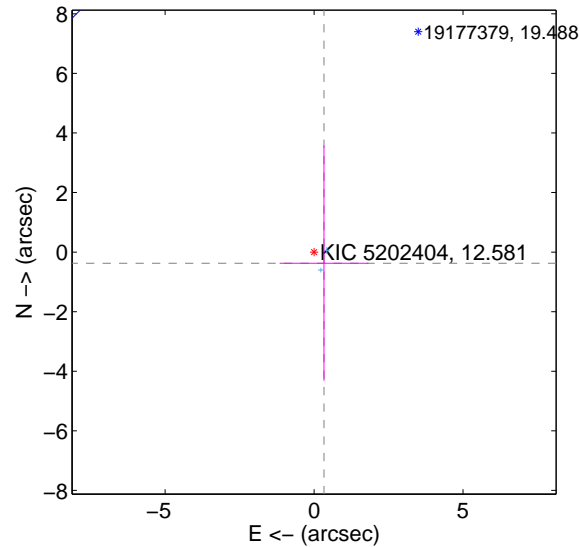
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.387 ± 2.128	0.18	-0.333 ± 2.436	-0.198 ± 0.749
PRF-fit source offset from KIC position	0.502 ± 3.933	0.13	-0.334 ± 1.490	-0.374 ± 3.947
photometric centroid source offset	0.97 ± 0.62	1.56	0.11 ± 0.59	-0.97 ± 0.62

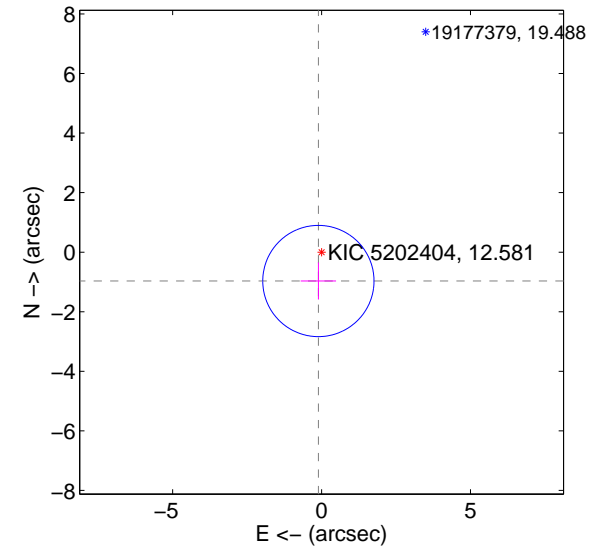
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

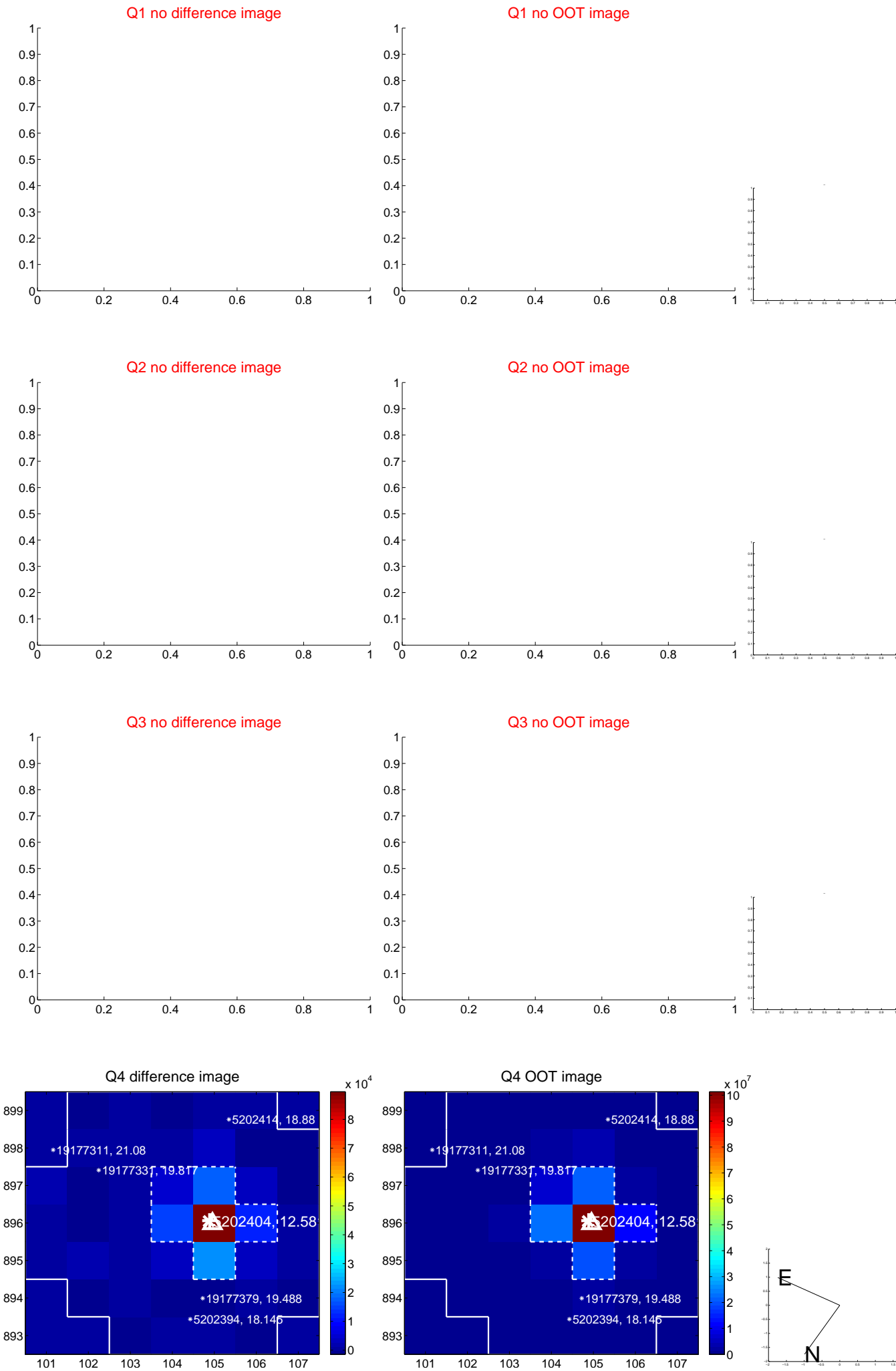


offset from photometric centroids

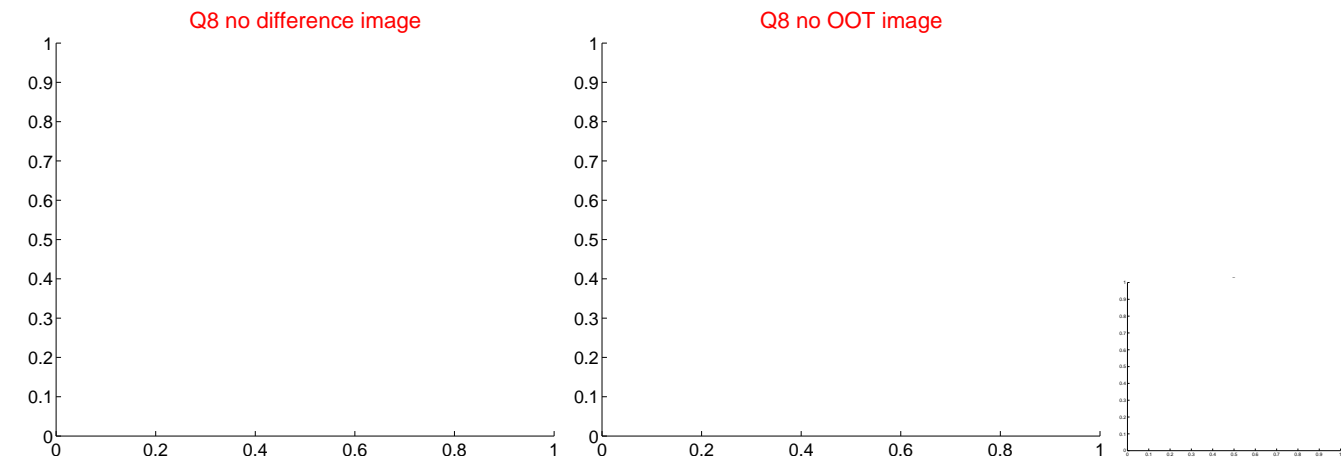
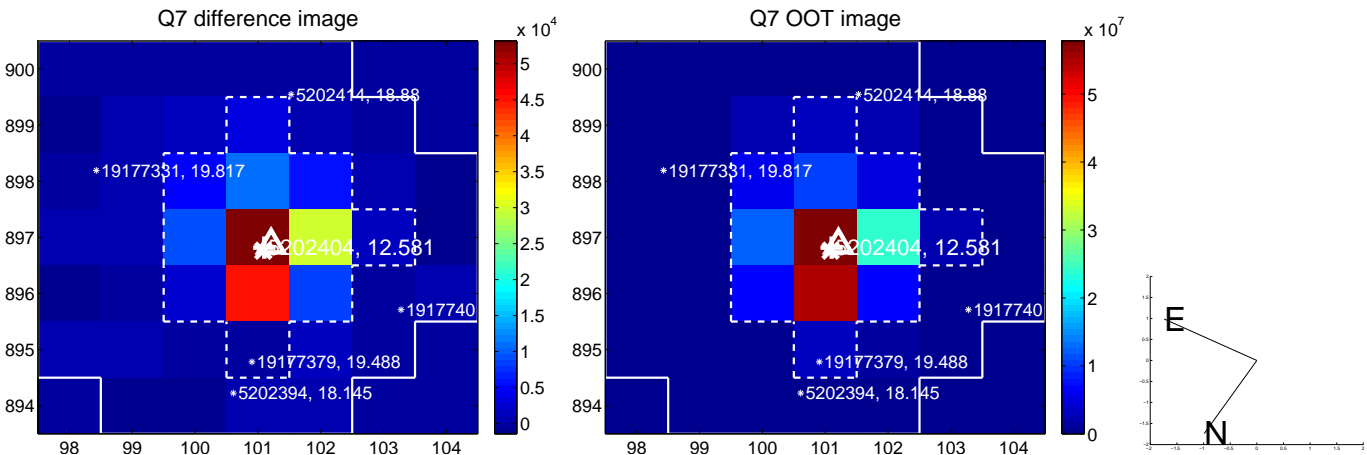


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

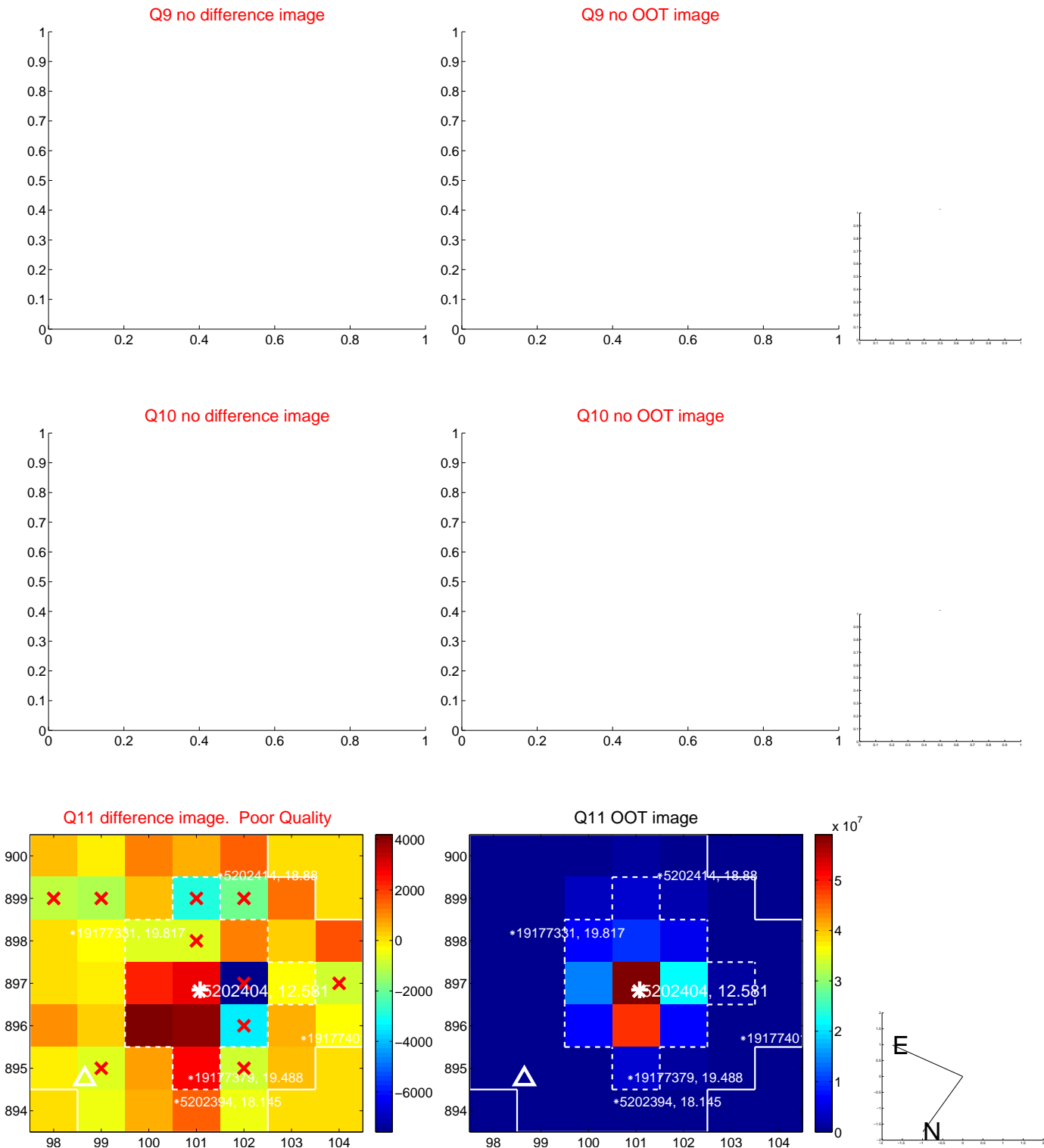
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



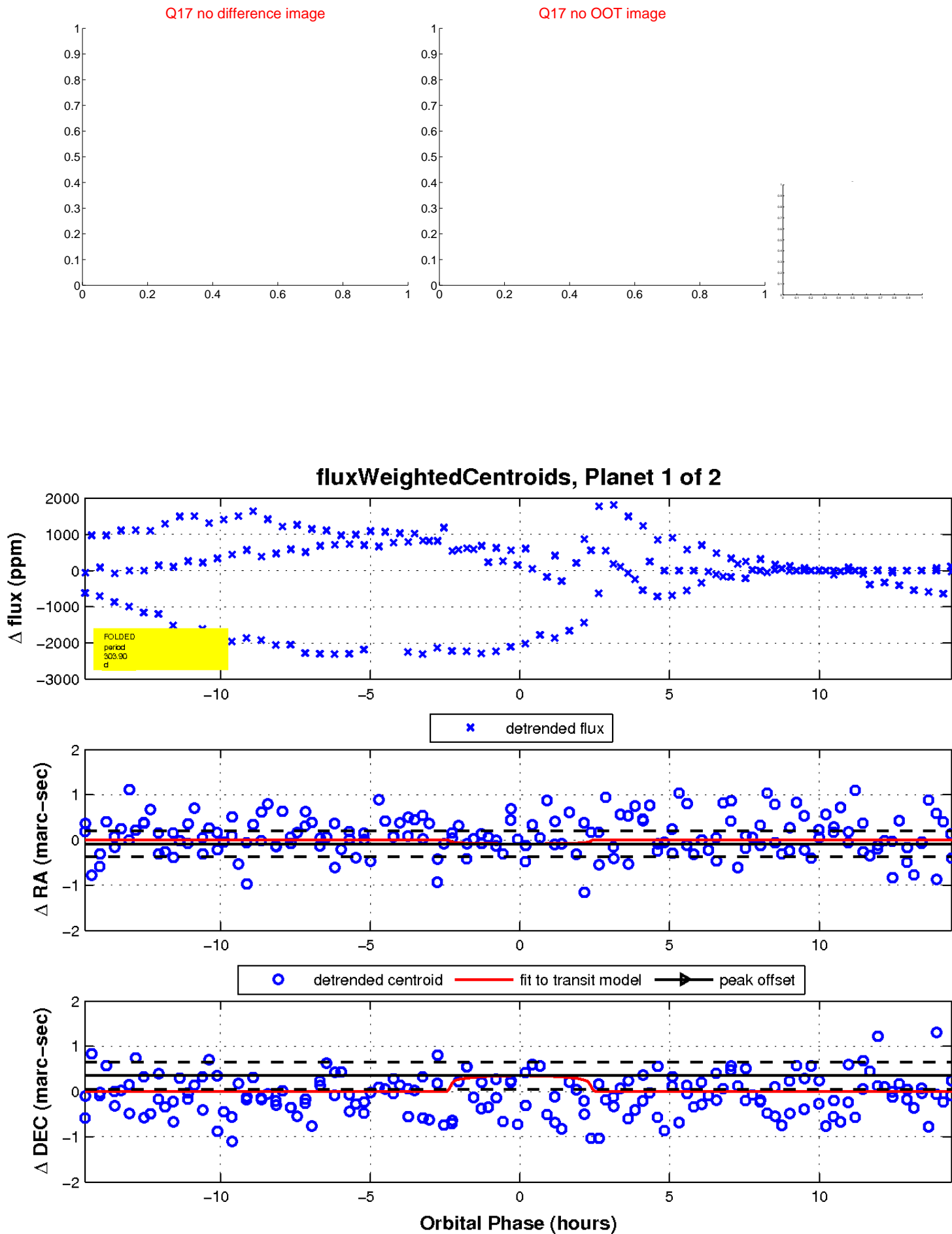
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

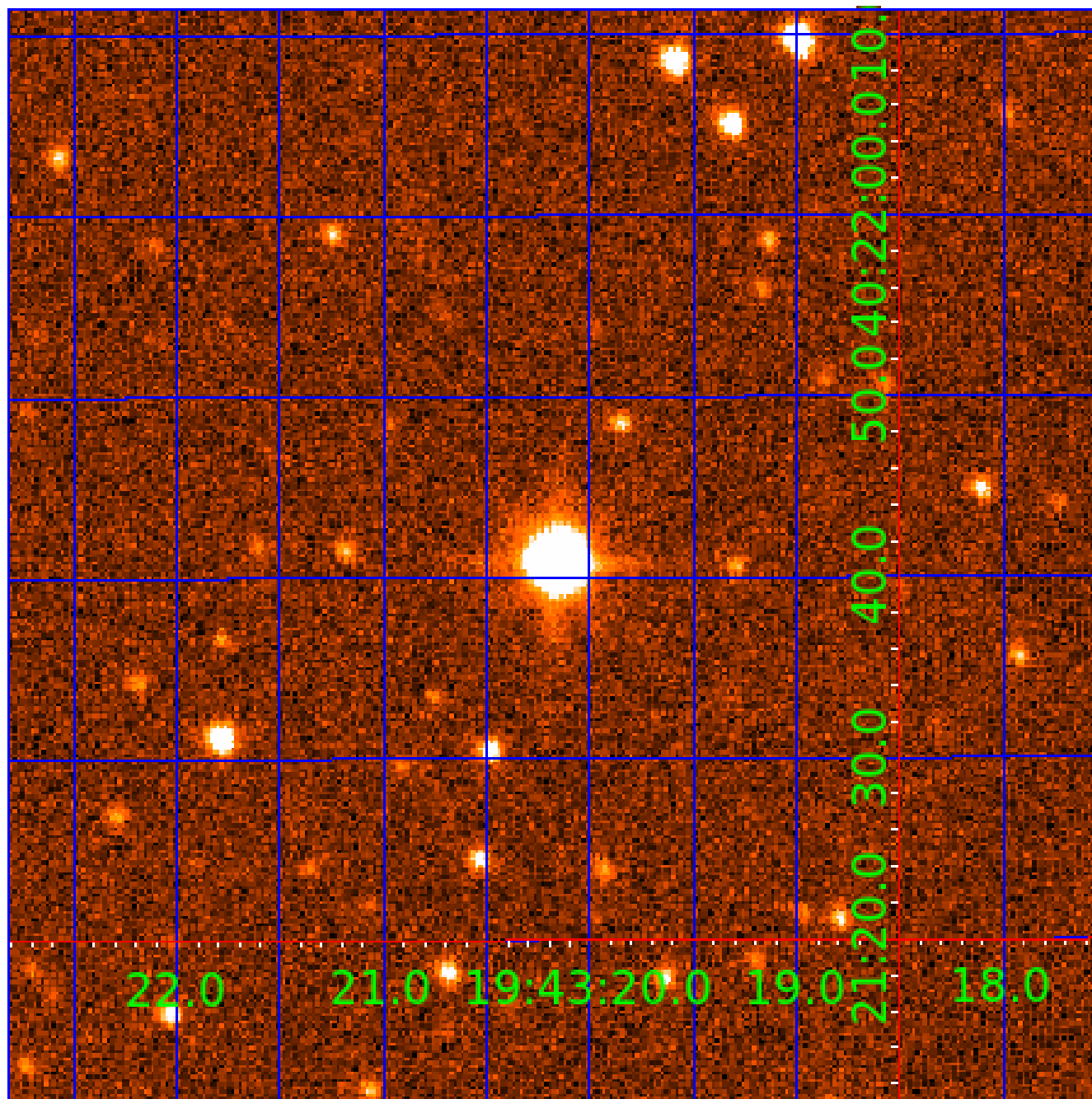


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005202404

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})
005202404-01	OBS	No	303.900647	411.340747	451.4	4.851	14.1	7.2	1.07	5999	2.36	1.78
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005202404-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
005202404-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_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.

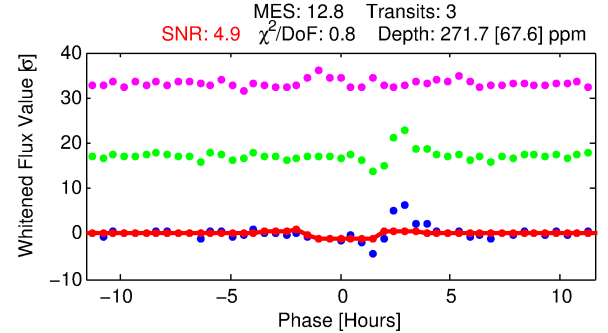
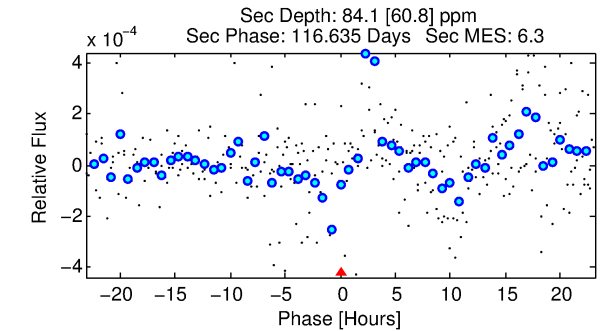
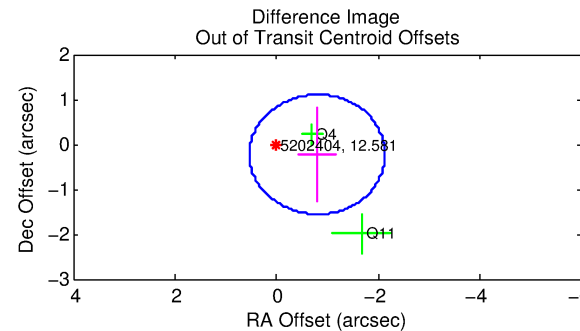
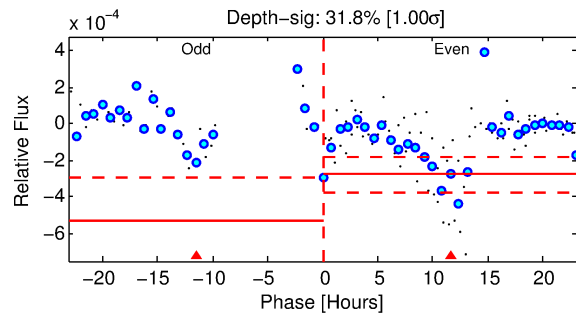
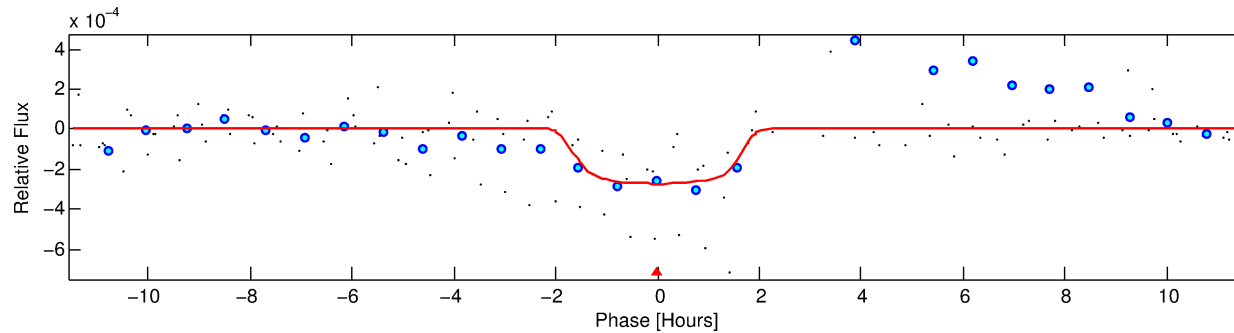
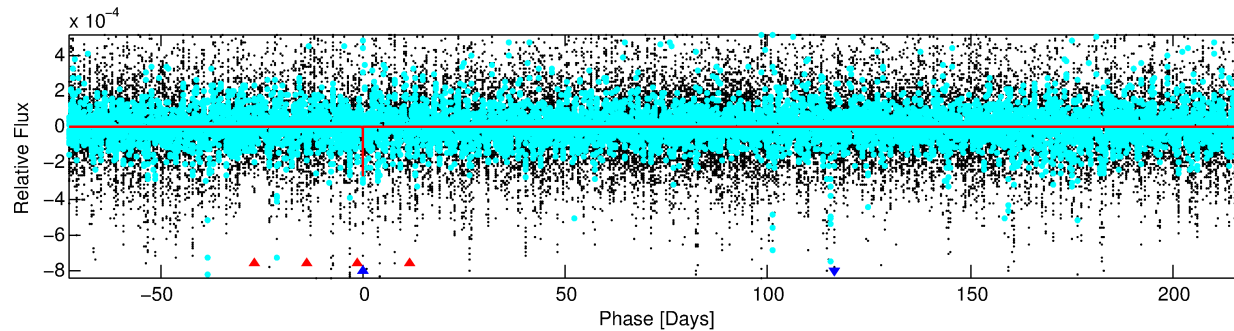
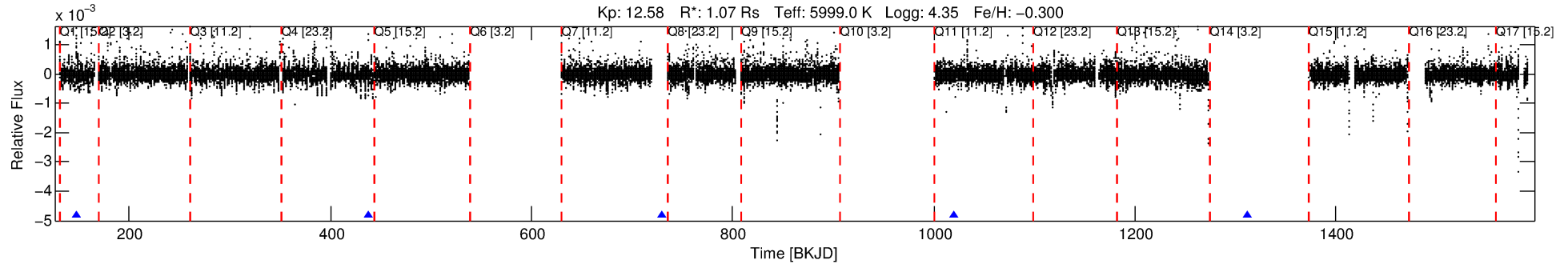
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005202404-02

No Significant Match Found

DV One-Page Summary

KIC: 5202404 Candidate: 2 of 2 Period: 291.112 d



DV Fit Results:

Period = 291.11201 [0.00412] d
Epoch = 147.0670 [0.0097] BKJD
Rp/R* = 0.0185 [0.0043]
a/R* = 230.06 [206.20]
b = 0.94 [0.12]
Seff = 1.88 [0.68]
Teq = 299 [27] K
Rp = 2.16 [0.77] Re
a = 0.8389 [0.1929] AU
Ag = 6975.21 [6434.32] [1.08σ]
Teffp = 4221 [914] K [4.29σ]

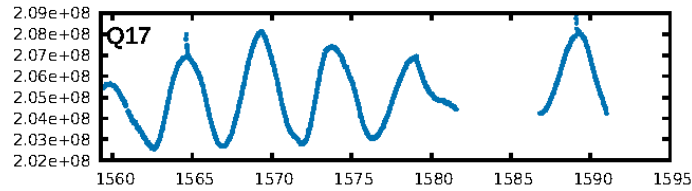
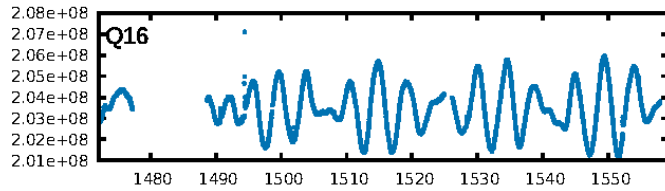
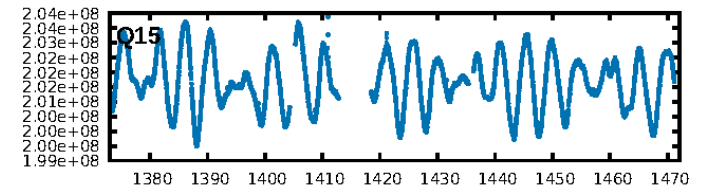
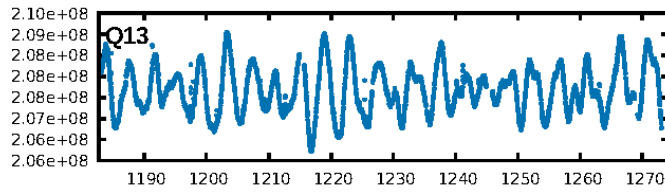
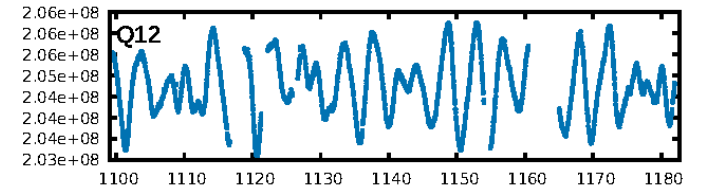
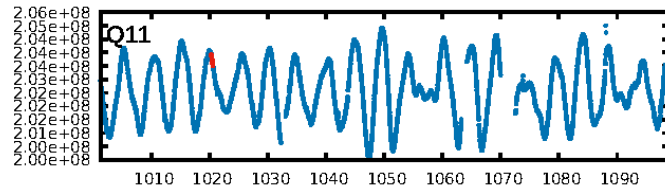
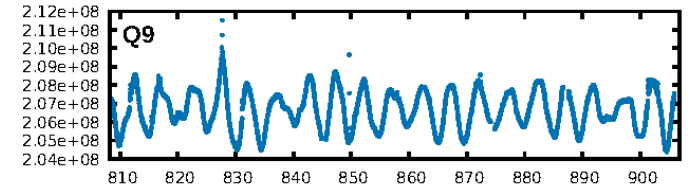
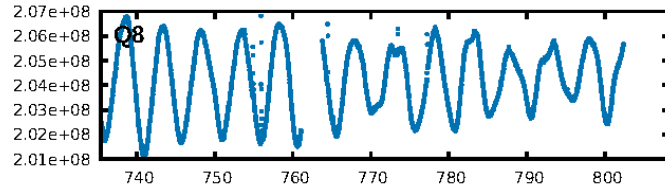
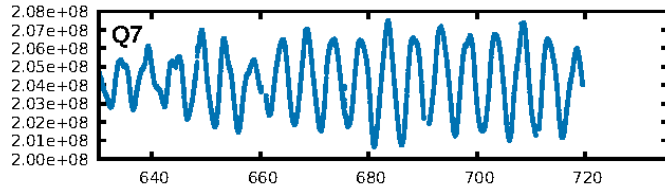
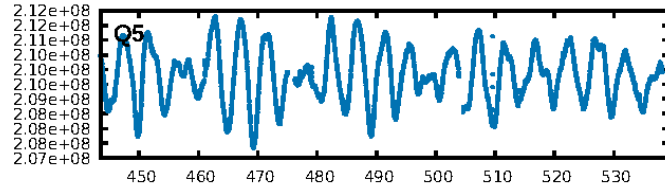
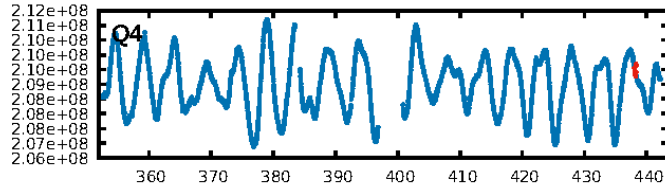
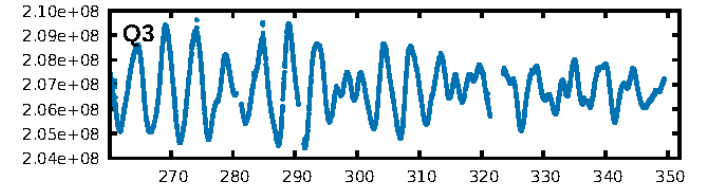
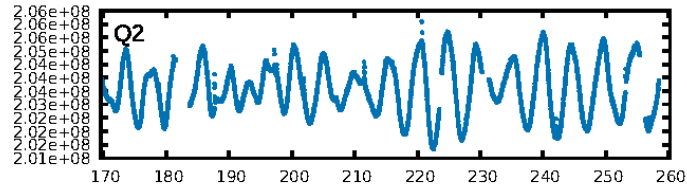
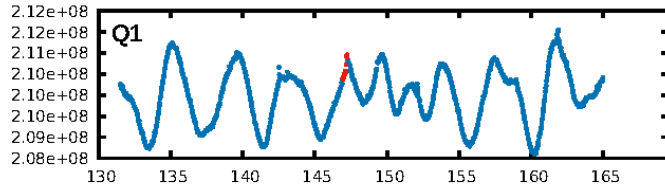
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [49.53σ]
ModelChiSquare2-sig: 62.5%
ModelChiSquareGof-sig: 97.0%
Bootstrap-pfa: 3.57e-10
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.4857
Centroid-sig: 79.7%
Centroid-so: 0.533 arcsec [0.54σ]
OotOffset-rm: 0.830 arcsec [1.87σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.894 arcsec [1.79σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

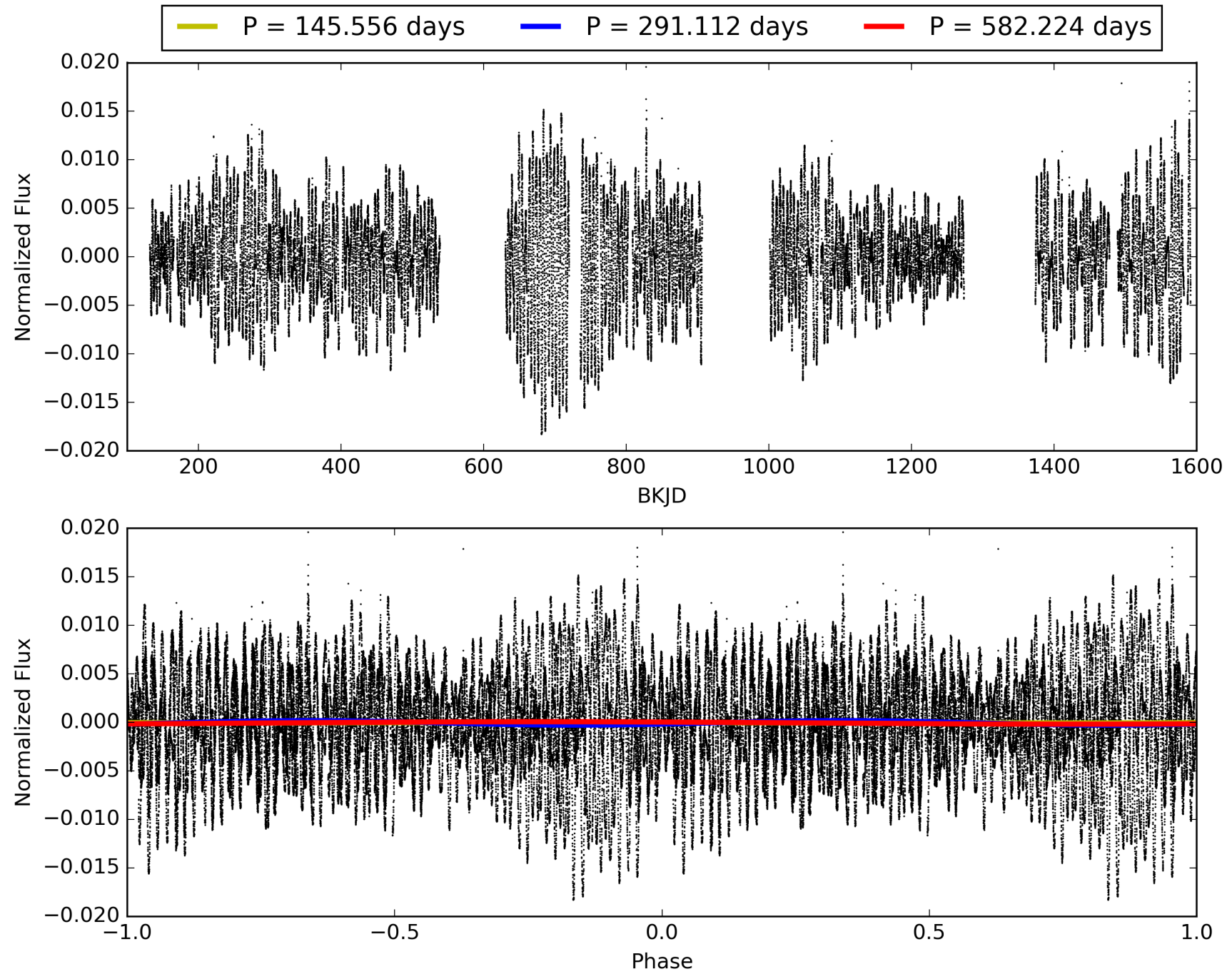
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:17:17 Z

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

TCE 005202404-02, PDC Light Curves

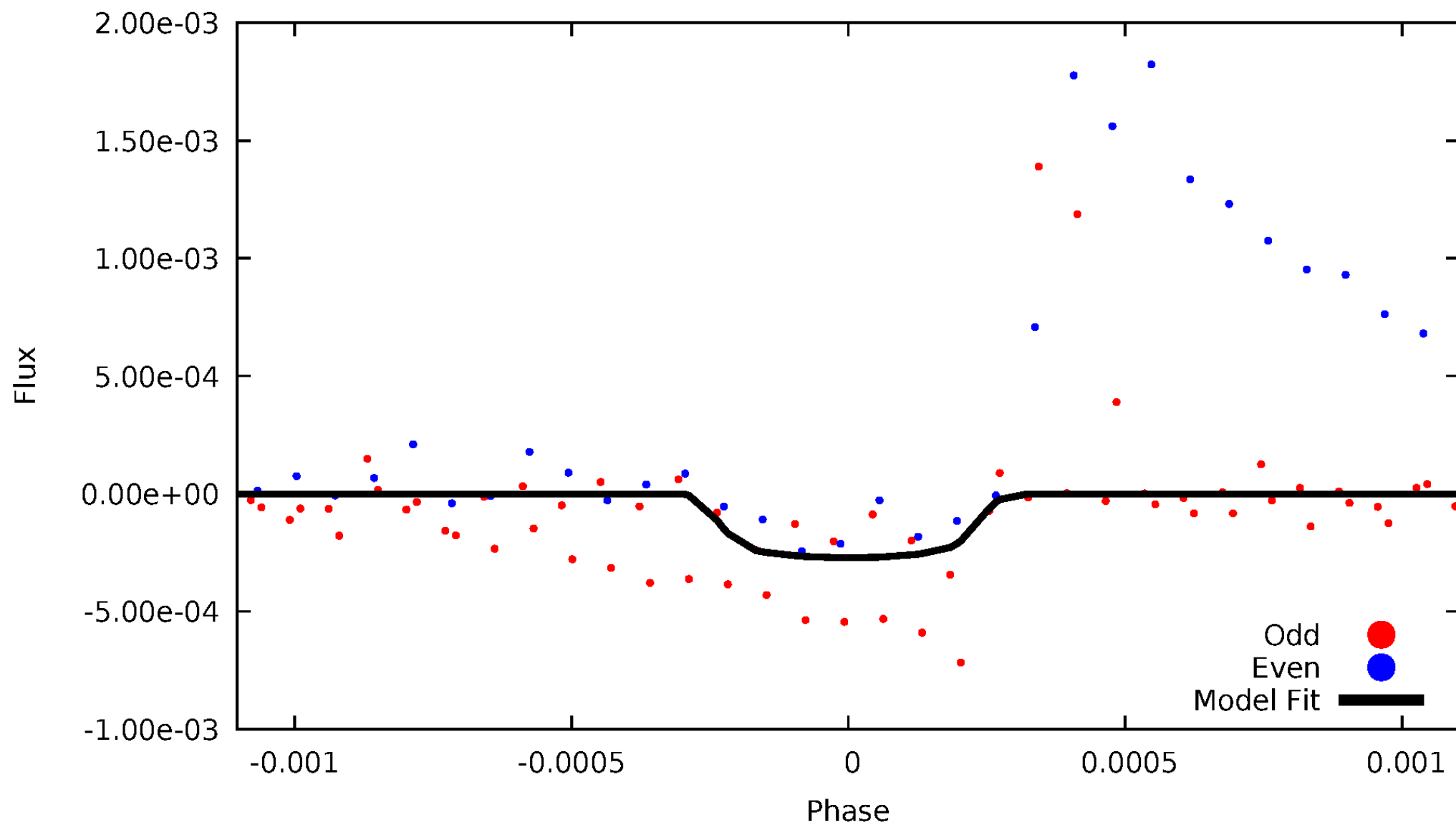


TCE 005202404-02



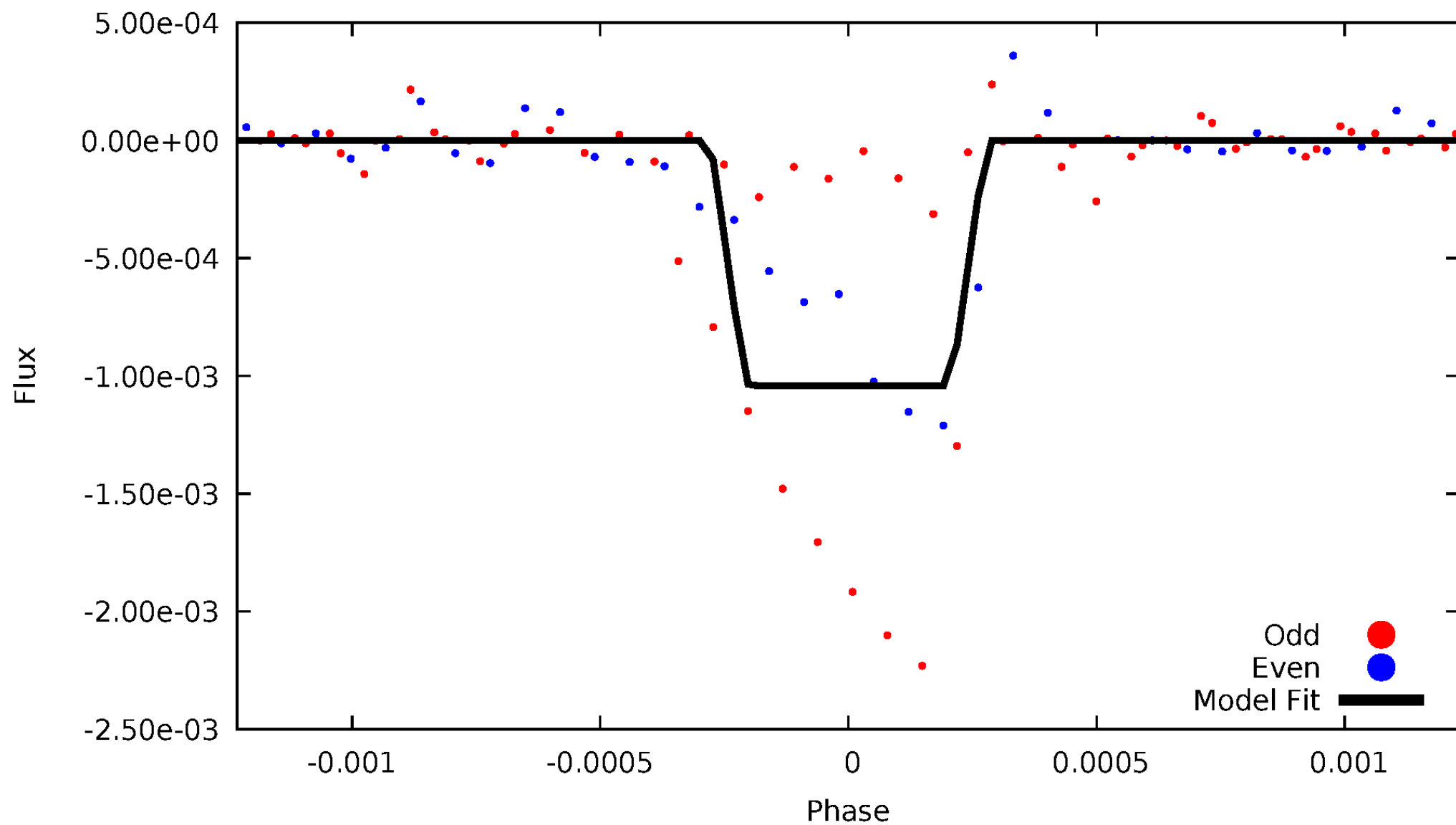
DV Odd/Even

TCE 005202404-02



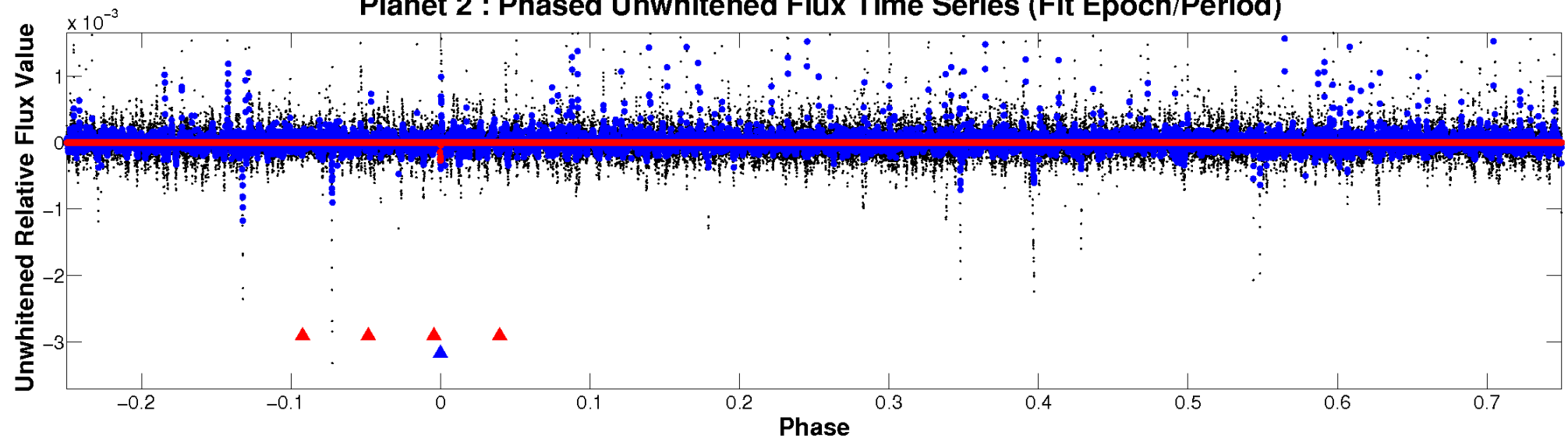
ALT Odd/Even

TCE 005202404-02

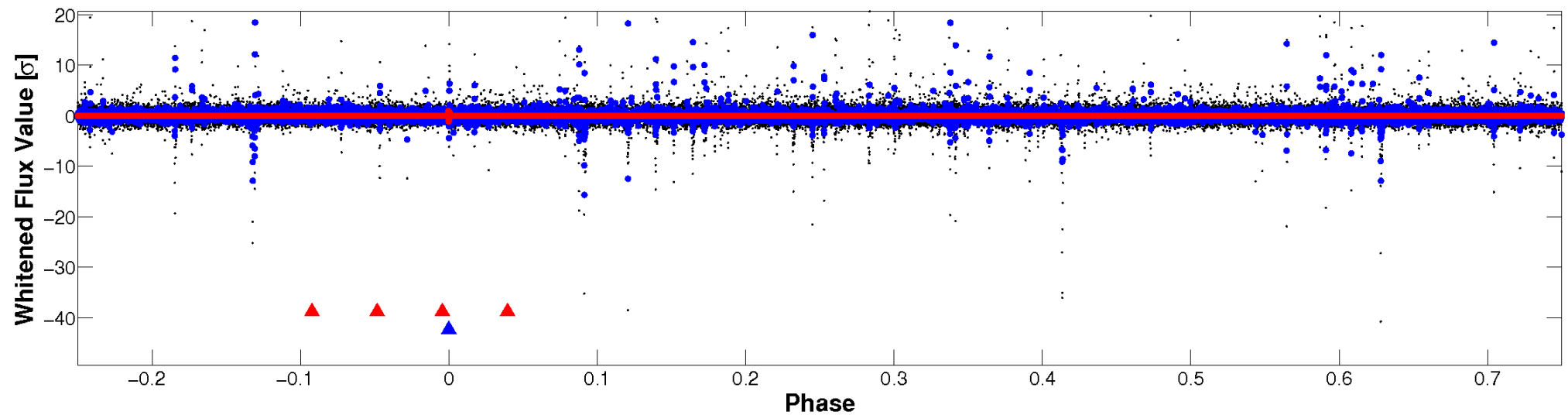


Non-Whitened Vs. Whitened Light Curve

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

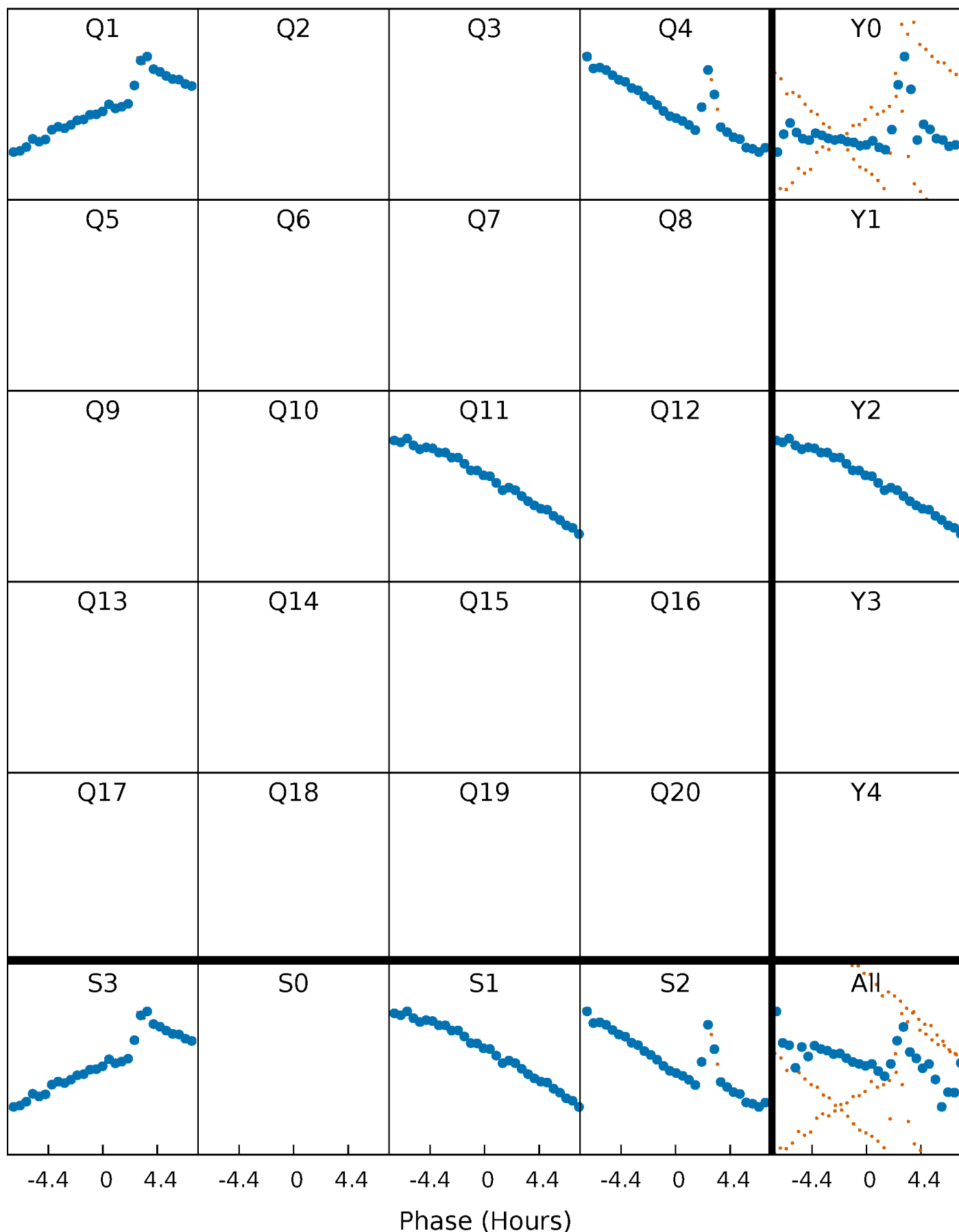


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



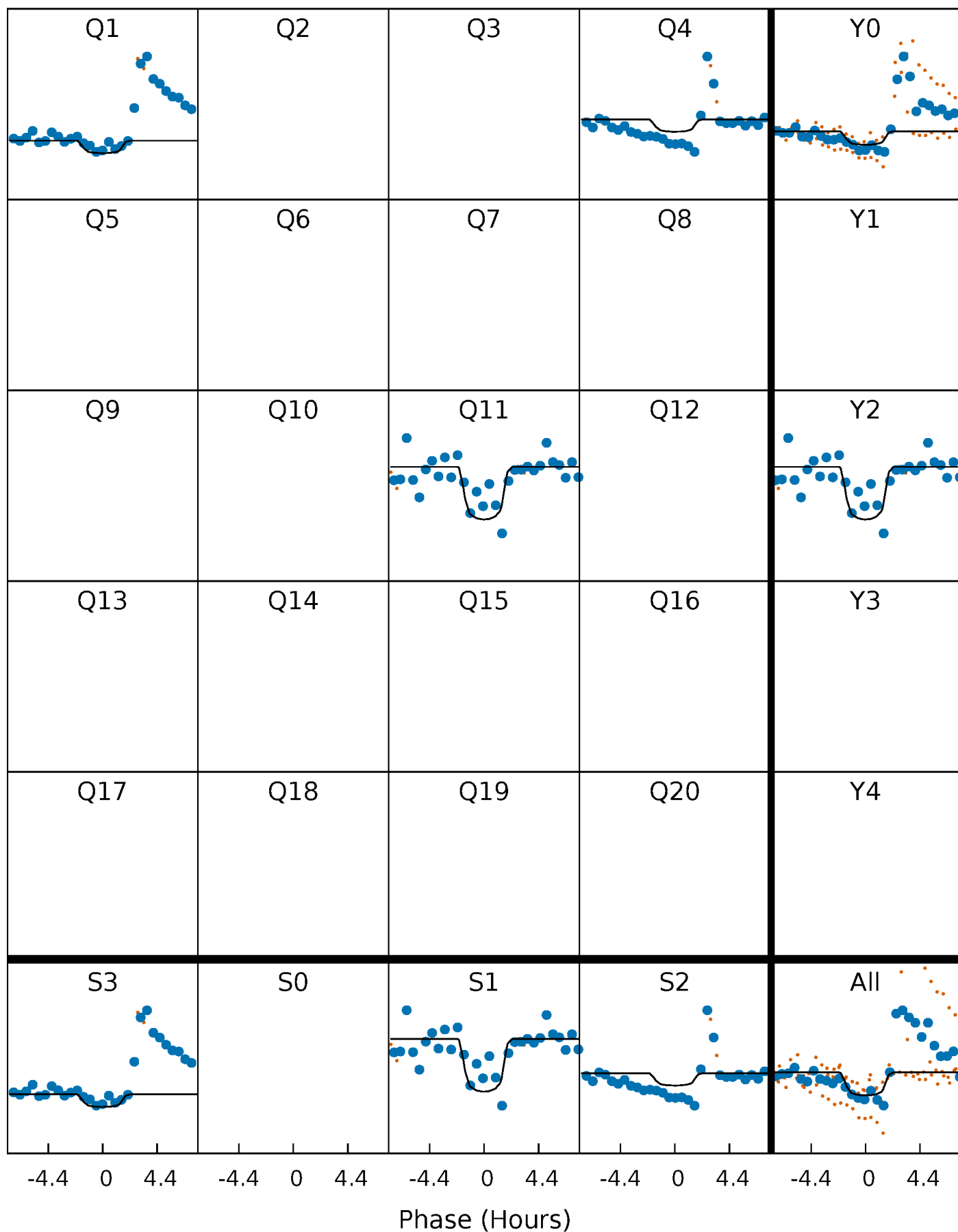
PDC Quarter-Phased Transit Curves

TCE 005202404-02 P=291.112014 Days $T_0=147.067000$ (BKJD)



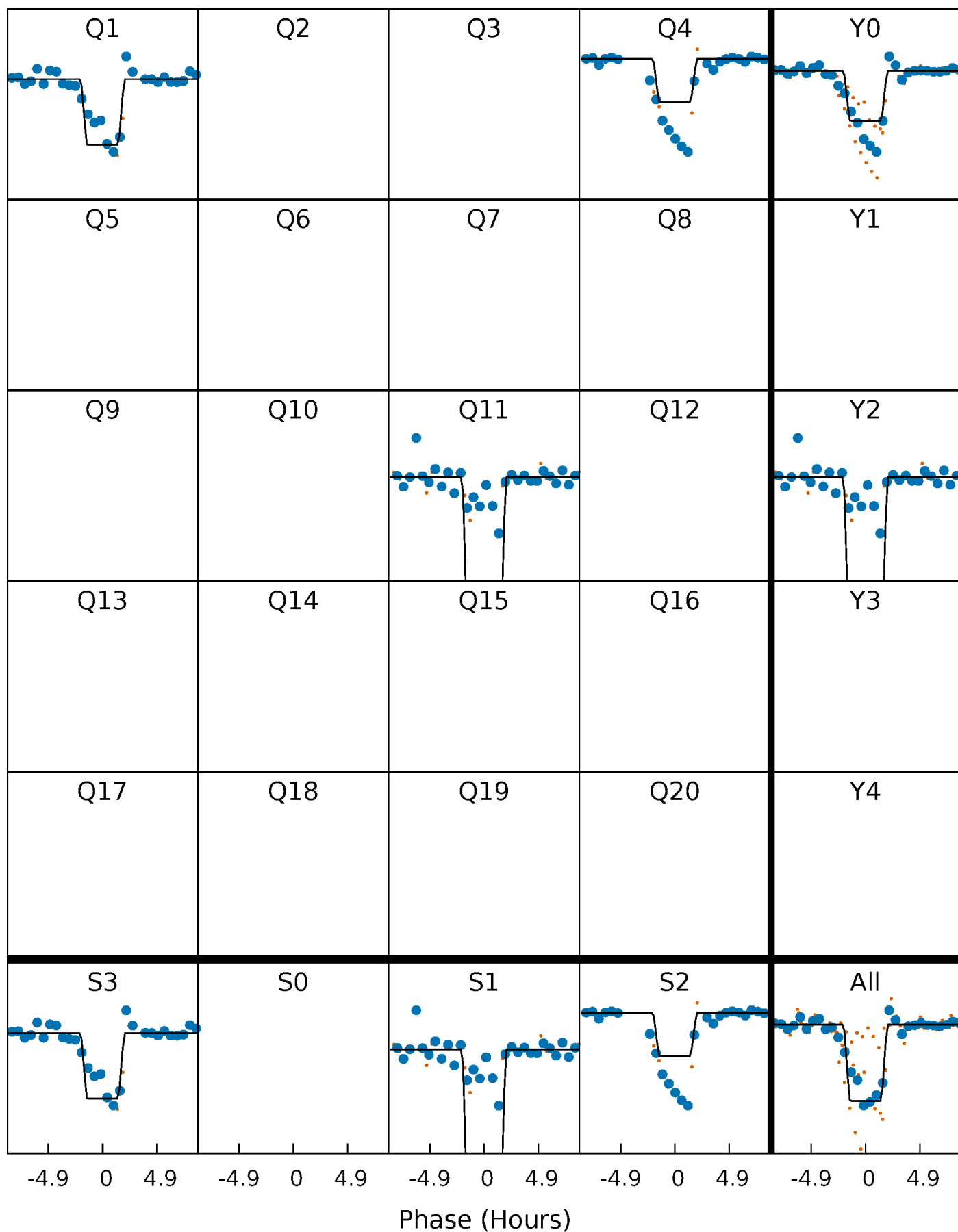
DV Quarter-Phased Transit Curves

TCE 005202404-02 P=291.112014 Days $T_0=147.067000$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

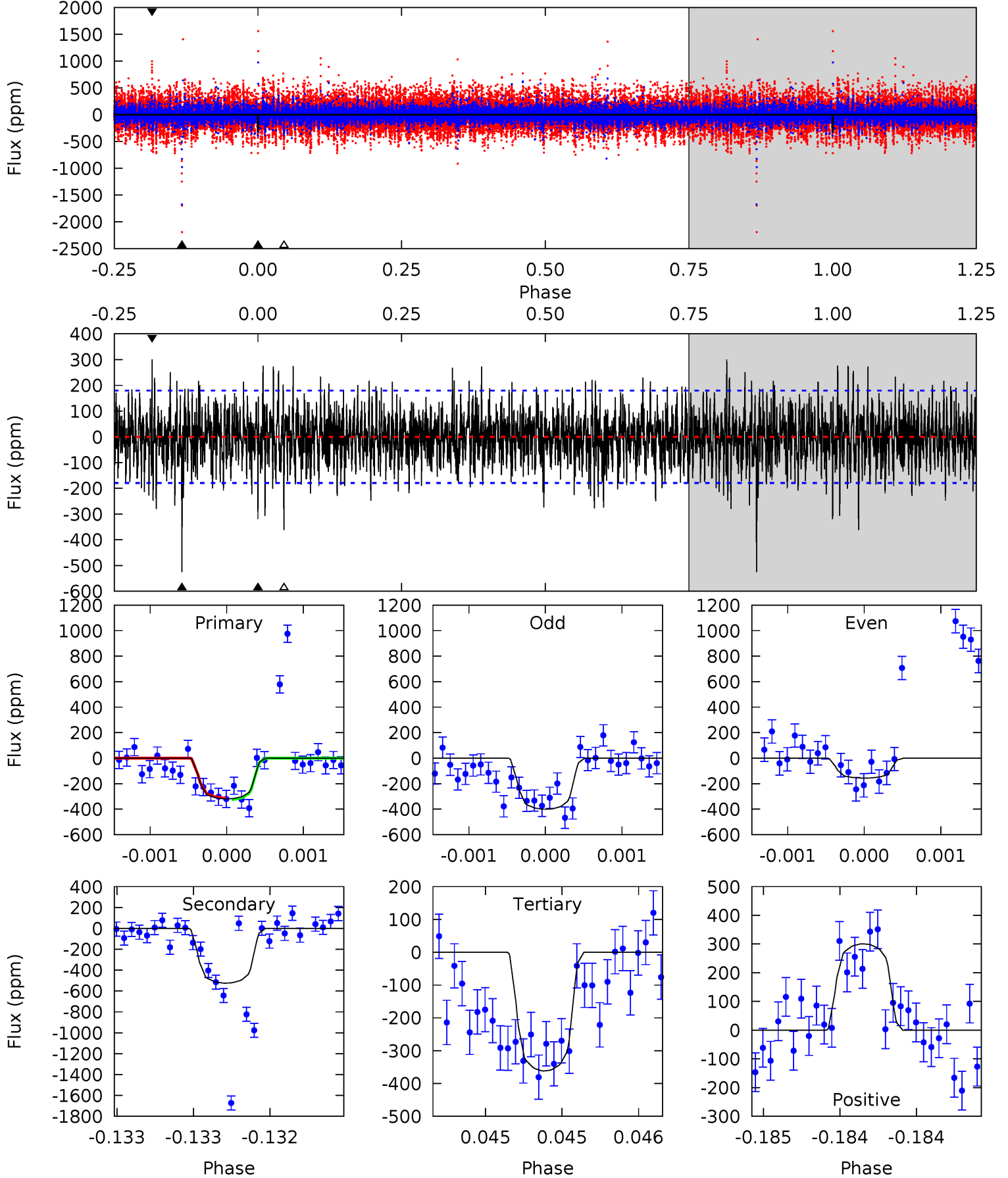
TCE 005202404-02 P=291.106007 Days $T_0=147.088900$ (BKJD)



DV Model-Shift Uniqueness Test

005202404-02, P = 291.112014 Days, E = 147.067000 Days

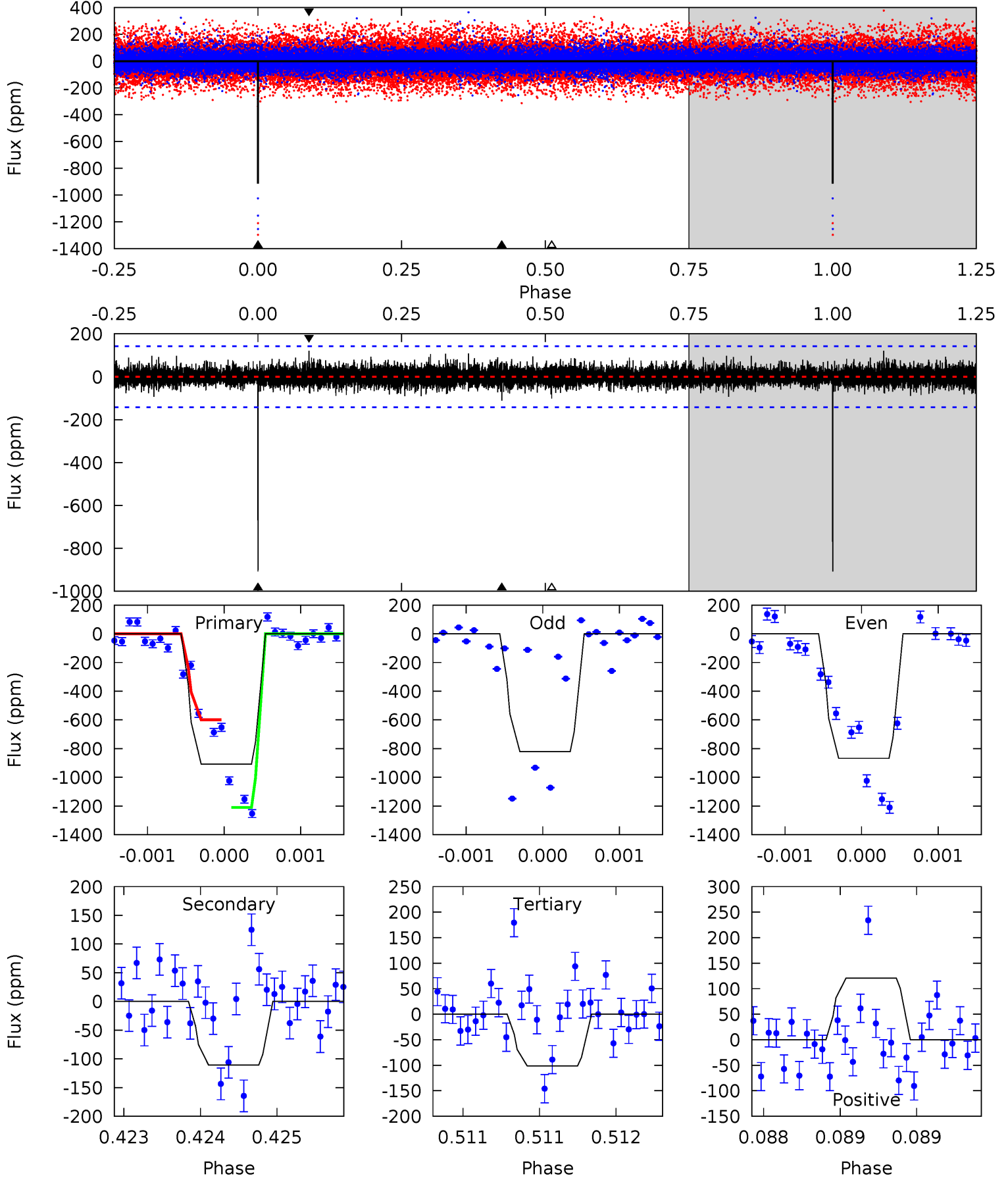
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.85	16.2	11.2	9.28	5.53	3.42	2.37	-1.32	0.56	5.03	6.91	3.13	1.53	0.36	0.20



Alt Model-Shift Uniqueness Test

005202404-02, P = 291.106007 Days, E = 147.088900 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.5	4.33	3.97	4.72	5.56	3.46	0.92	31.5	30.8	0.36	-0.39	1.26	1.07	0.12	11.9



Stellar Parameters For KIC 005202404

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5999^{+162}_{-180}	$4.348^{+0.153}_{-0.187}$	$-0.300^{+0.300}_{-0.300}$	$1.069^{+0.288}_{-0.192}$	$0.930^{+0.132}_{-0.096}$	$1.073^{+0.758}_{-0.512}$
	+3%/-3%	+4%/-4%	+100%/-100%	+27%/-18%	+14%/-10%	+71%/-48%
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 005202404-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-525 ± 32	$2.20^{+0.60}_{-0.54}$	419^{+31}_{-25}	6671^{+1023}_{-722}	42259^{+32302}_{-16712}
Alt.	-111 ± 26	$3.81^{+0.76}_{-0.65}$	419^{+30}_{-25}	3823^{+234}_{-239}	2953^{+1570}_{-1080}

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

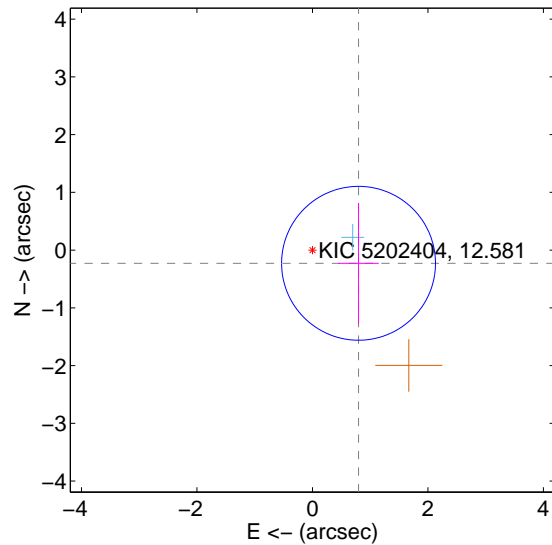
Supplemental centroid analysis for 005202404-02. Kepler magnitude: 12.58. Transit SNR 4.88

There are 1 quarters with good PRF difference image offsets

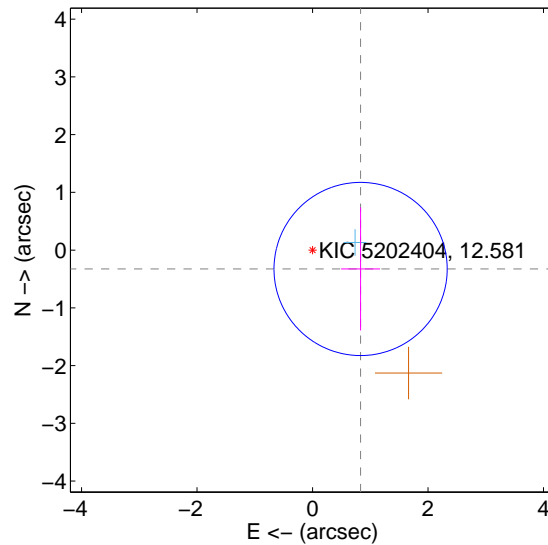
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.830 ± 0.444	1.87	-0.798 ± 0.352	-0.228 ± 1.045
PRF-fit source offset from KIC position	0.894 ± 0.500	1.79	-0.832 ± 0.337	-0.327 ± 1.065
photometric centroid source offset	0.53 ± 0.99	0.54	0.51 ± 0.98	-0.14 ± 1.02

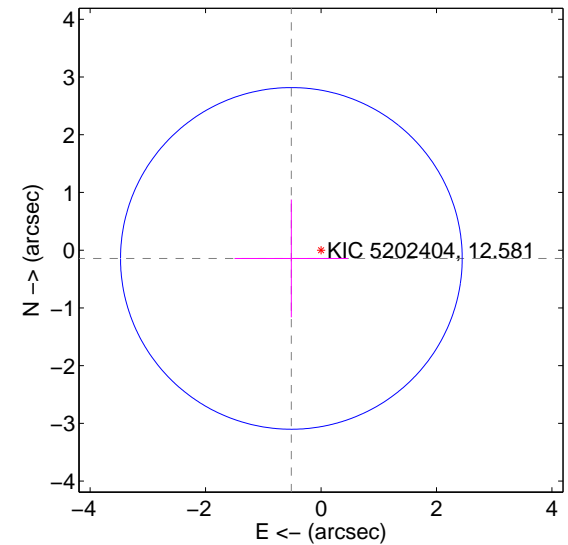
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

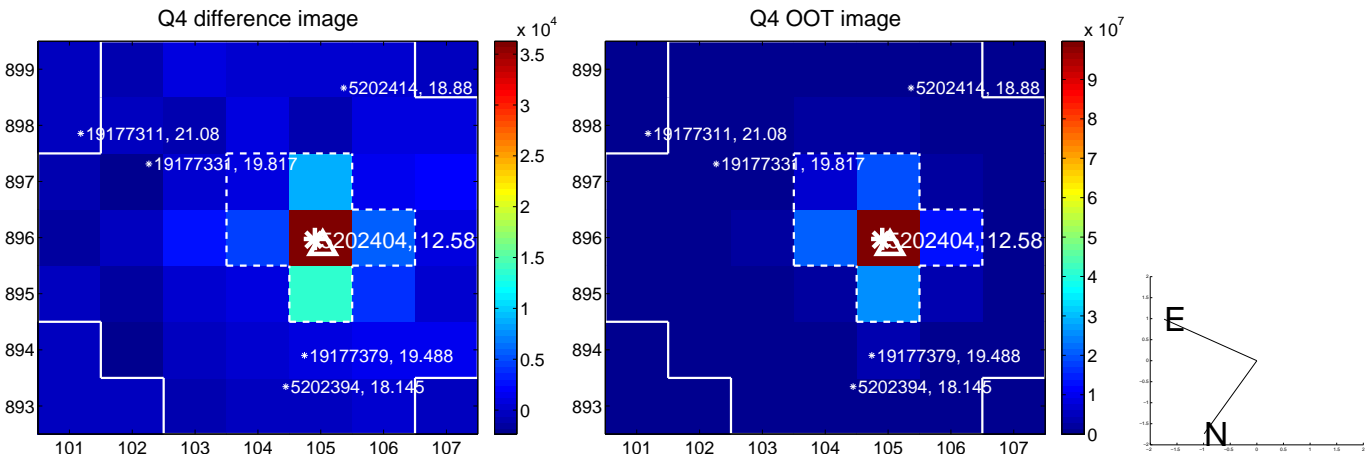
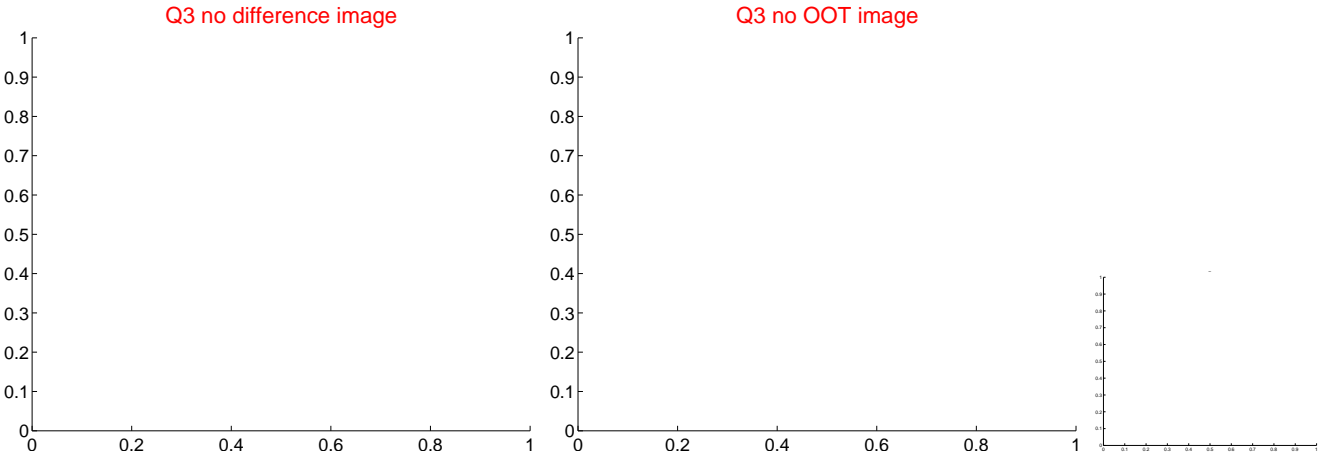
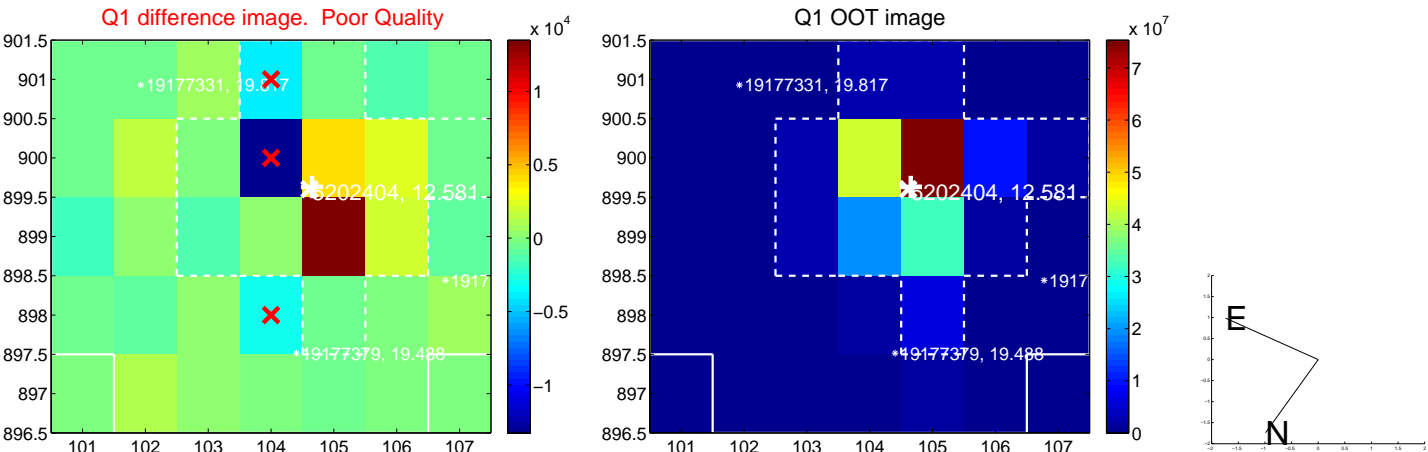


offset from photometric centroids



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.

Q9 no difference image



Q9 no OOT image



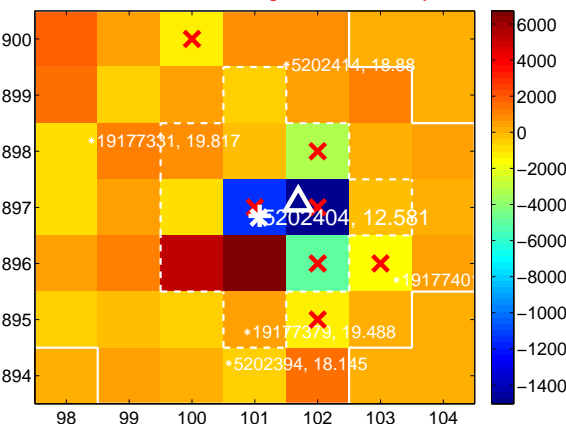
Q10 no difference image



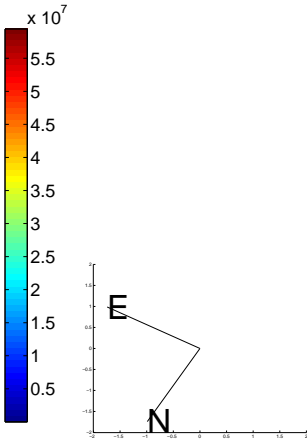
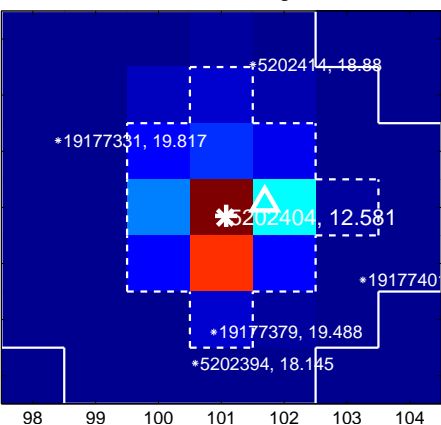
Q10 no OOT image



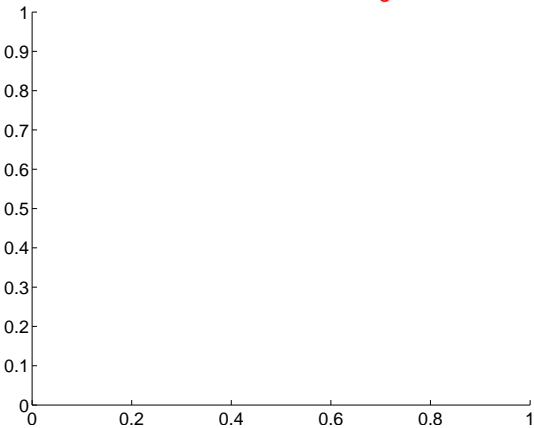
Q11 difference image. Poor Quality



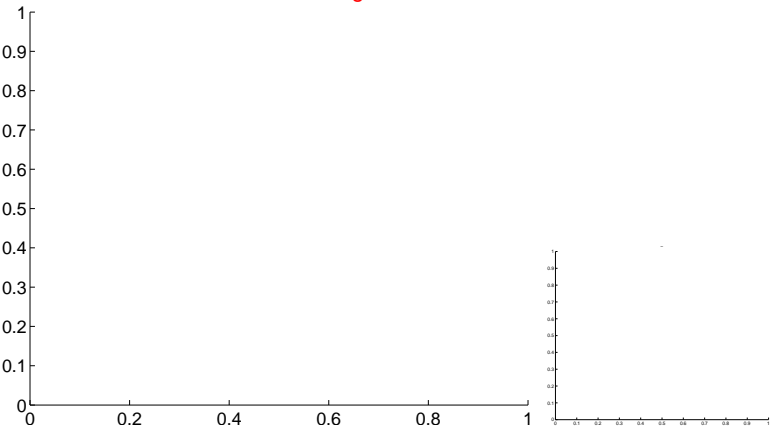
Q11 OOT image



Q12 no difference image



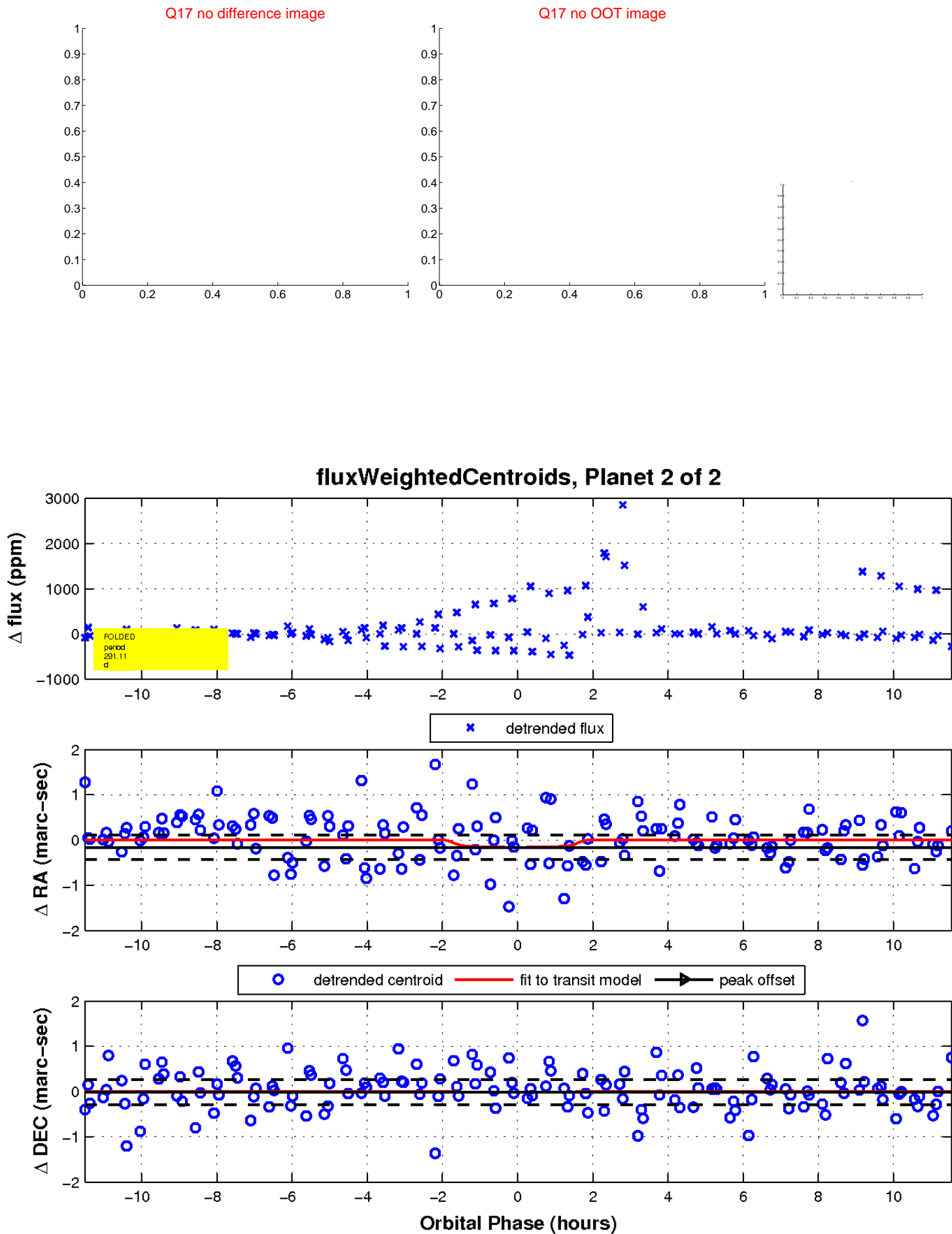
Q12 no OOT image



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



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



UKIRT Image

Declination

