

KIC 008491745

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})
008491745-01	OBS	3555.01	111.319856	226.648549	62687.4	22.979	2281.5	2332.1	2.58	5022	63.45	20.05
008491745-02	OBS	No	111.320008	181.816722	14655.1	22.807	586.3	527.0	2.58	5022	31.73	20.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008491745-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
008491745-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 008491745-01

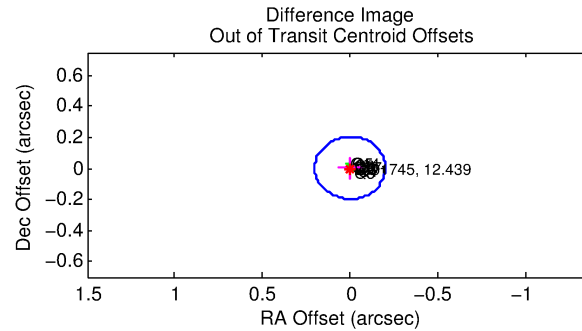
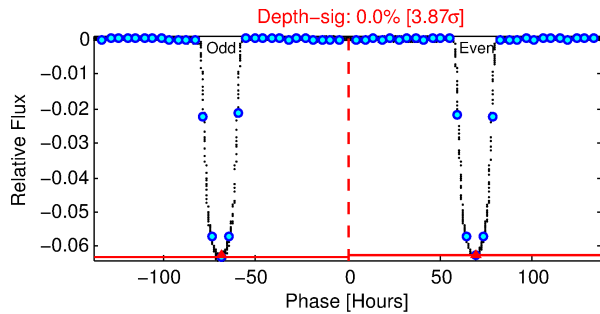
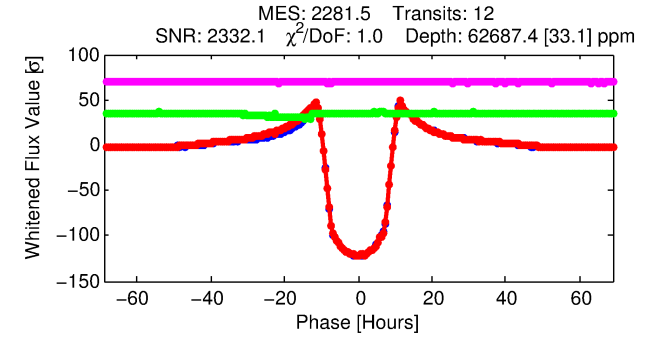
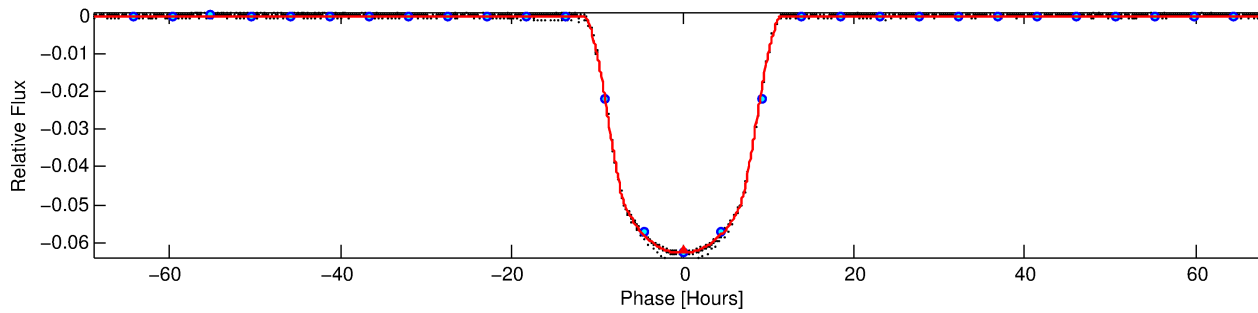
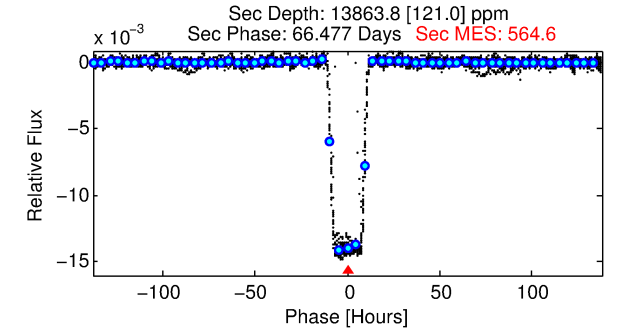
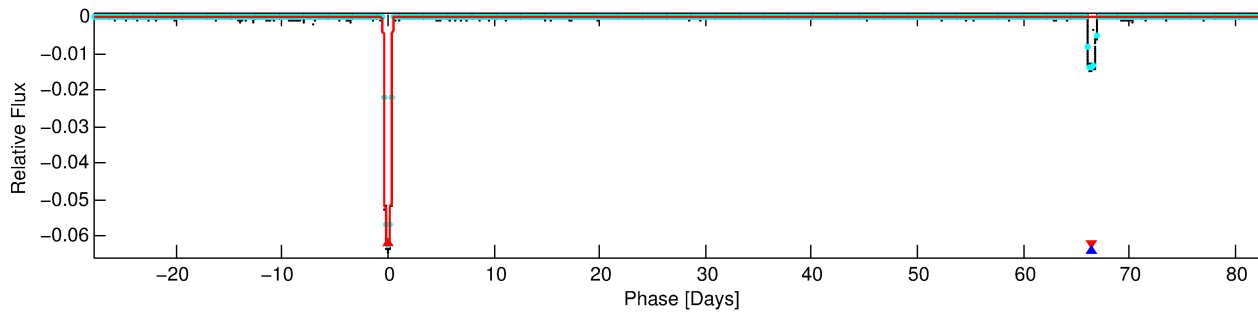
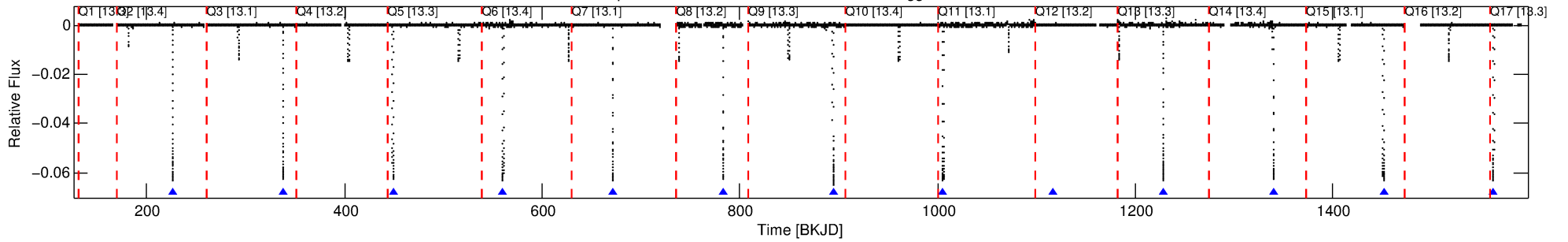
No Significant Match Found

DV One-Page Summary

KIC: 8491745 Candidate: 1 of 2 Period: 111.320 d

KOI: K03555.01 Corr: 1.000

Kp: 12.44 R*: 2.58 Rs Teff: 5022.0 K Logg: 3.56 Fe/H: -0.340



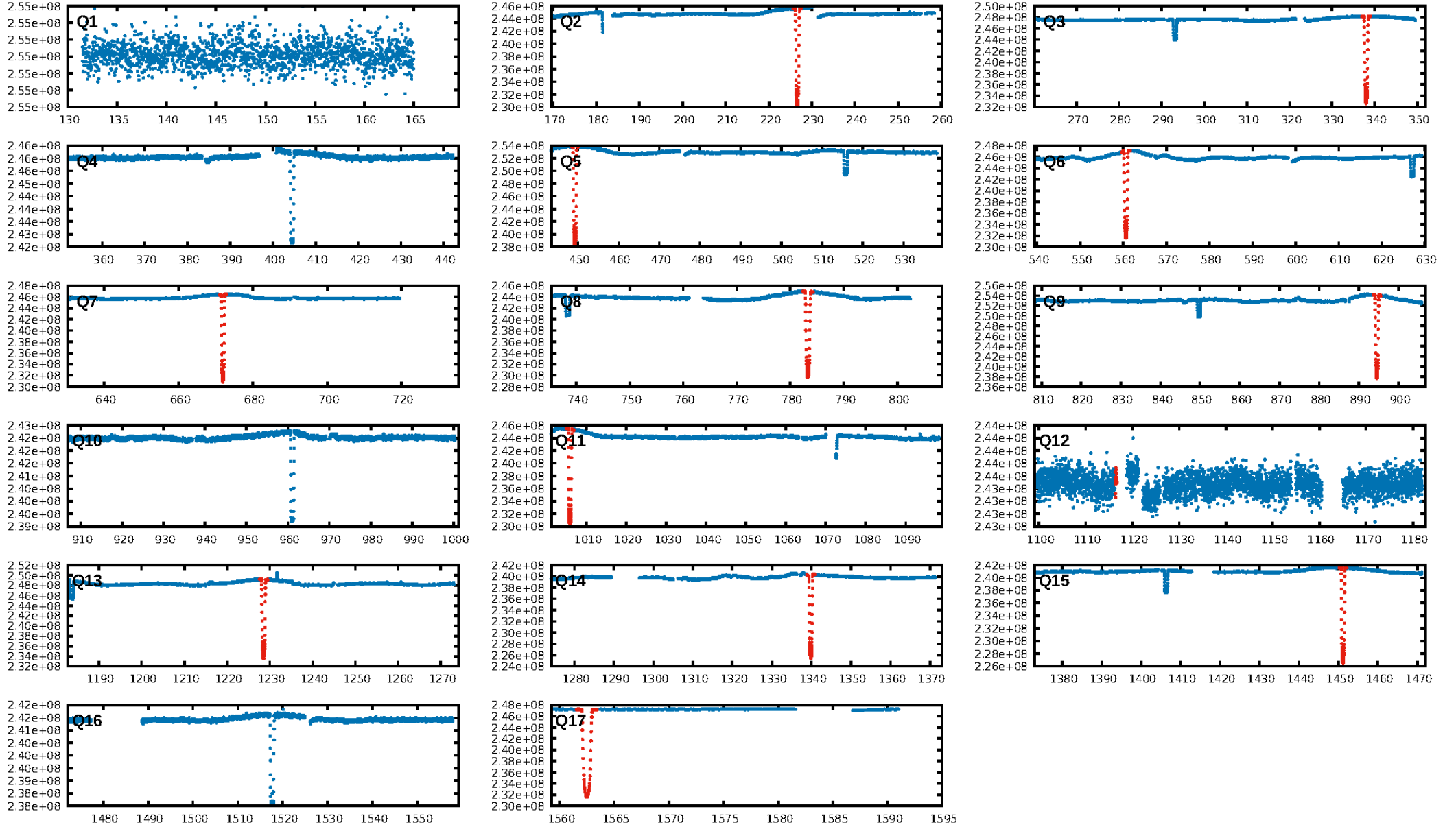
DV Fit Results:

Period = 111.31986 [0.00002] d
Epoch = 226.6485 [0.0002] BKJD
Rp/R* = 0.2254 [0.0001]
a/R* = 44.66 [0.05]
b = 0.21 [0.00]
Seff = 20.05 [7.46]
Teq = 540 [50] K
Rp = 63.45 [21.54] Re
a = 0.4350 [0.1155] AU
Ag = 358.54 [128.53] [2.78σ]
Teffp = 3630 [91] K [29.82σ]

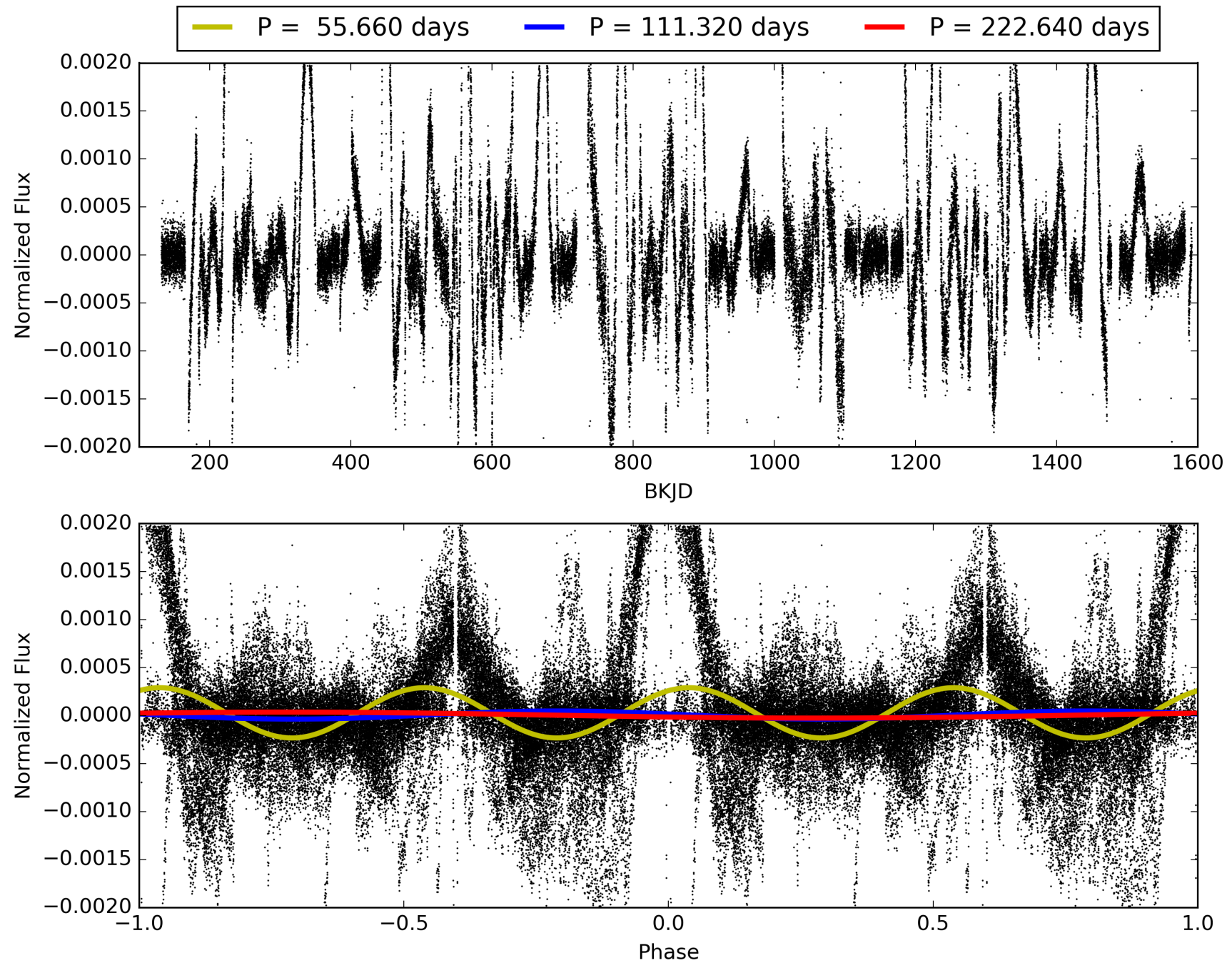
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 11.76
Centroid-sig: 0.0%
Centroid-so: 0.148 arcsec [94.66σ]
OotOffset-rm: 0.005 arcsec [0.08σ]
KicOffset-rm: 0.201 arcsec [2.95σ]
OotOffset-st: 3/3/1/3 [10]
KicOffset-st: 3/3/1/3 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [10/10]

TCE 008491745-01, PDC Light Curves

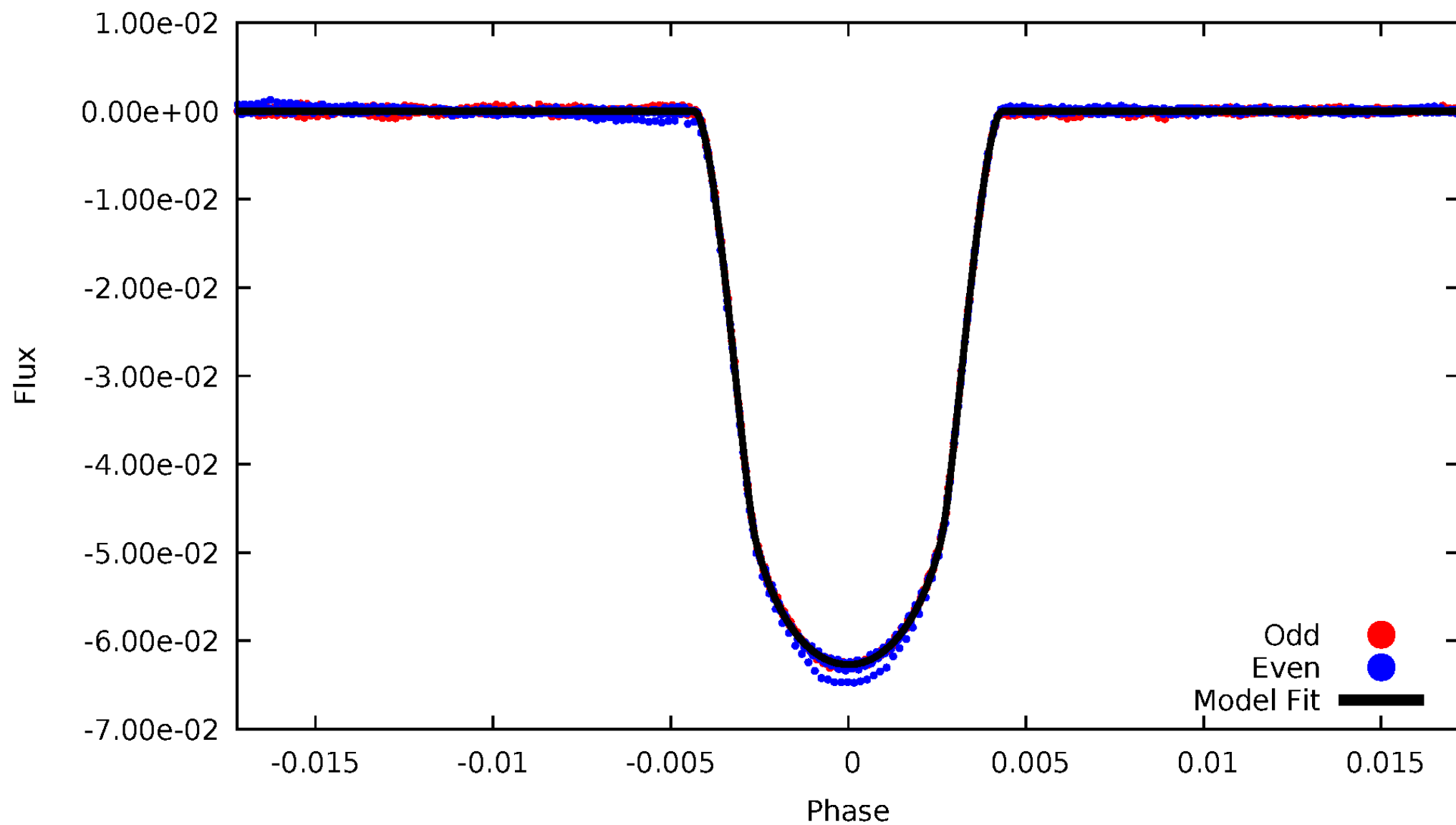


TCE 008491745-01



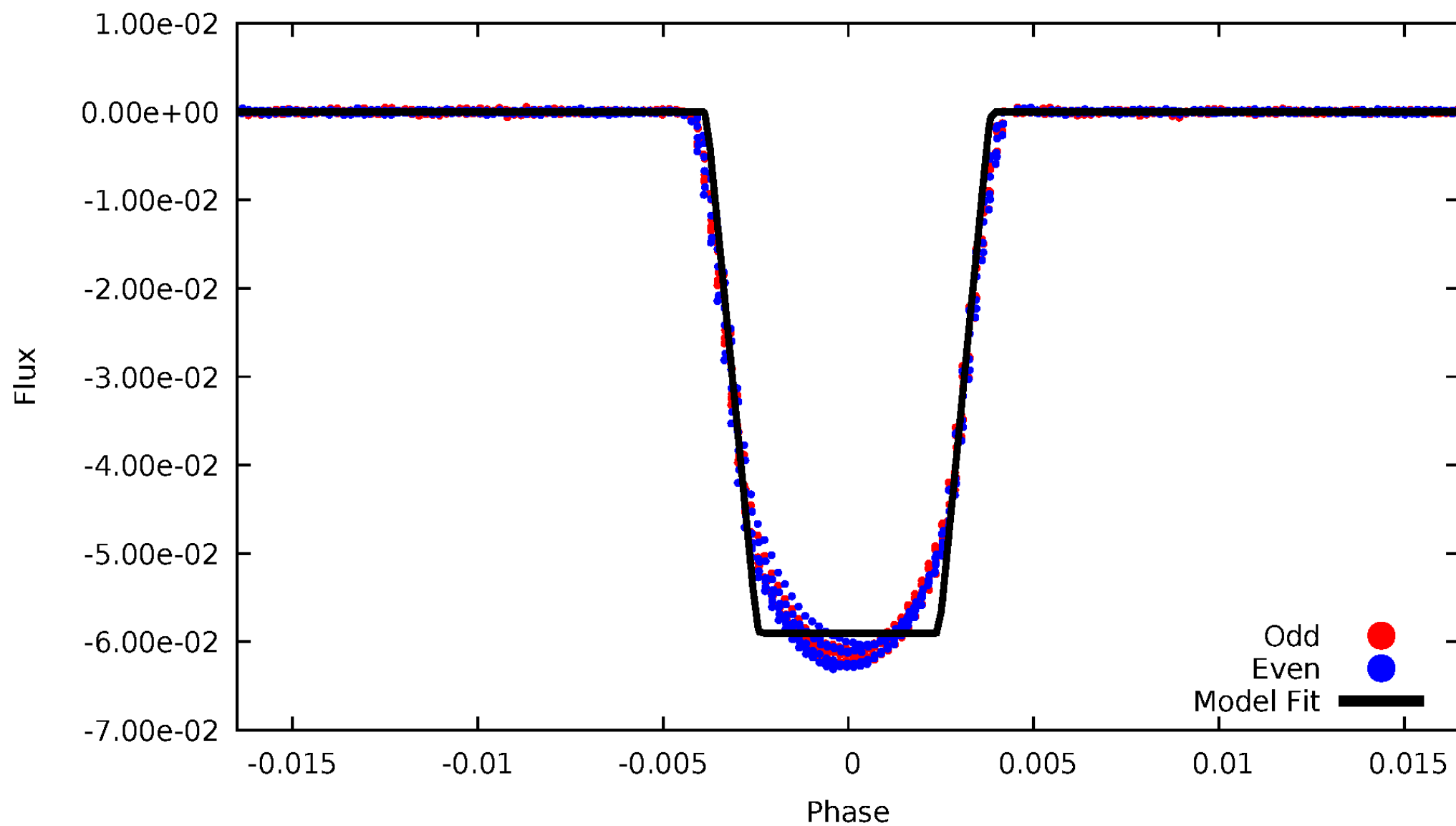
DV Odd/Even

TCE 008491745-01



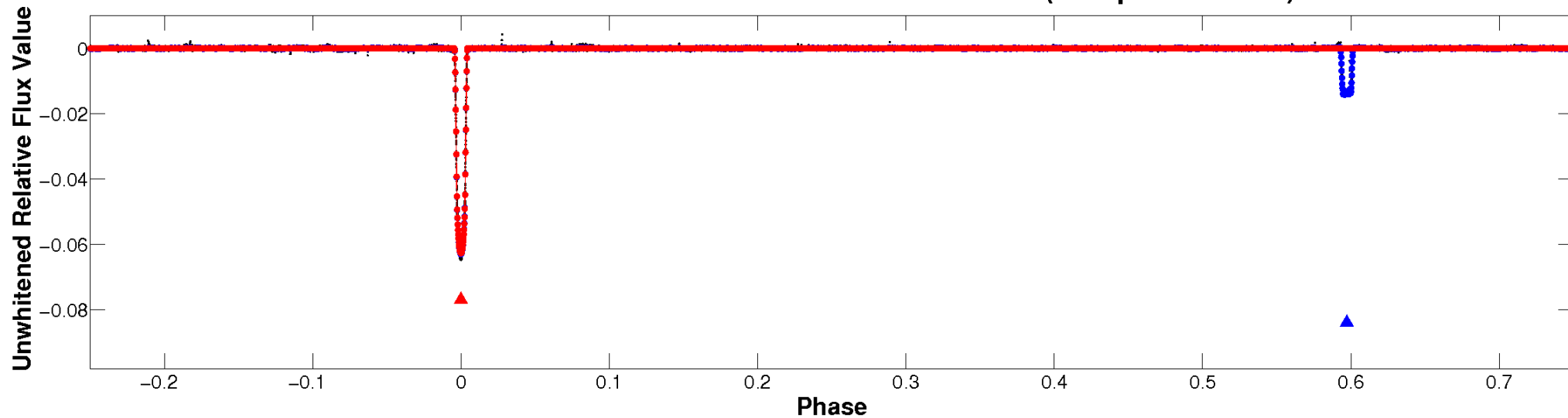
ALT Odd/Even

TCE 008491745-01

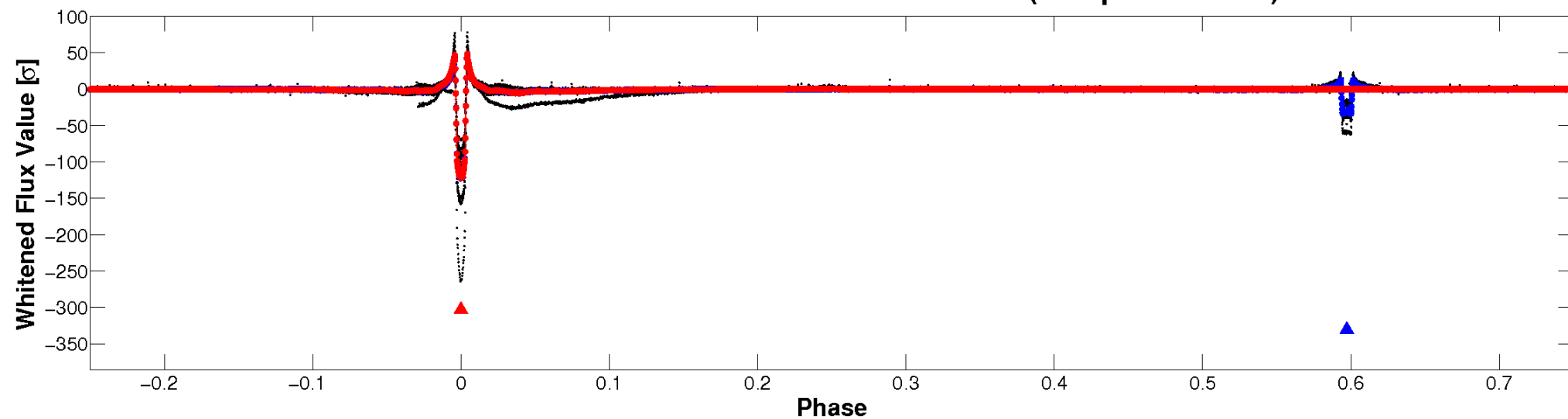


Non-Whitened Vs. Whitened Light Curve

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

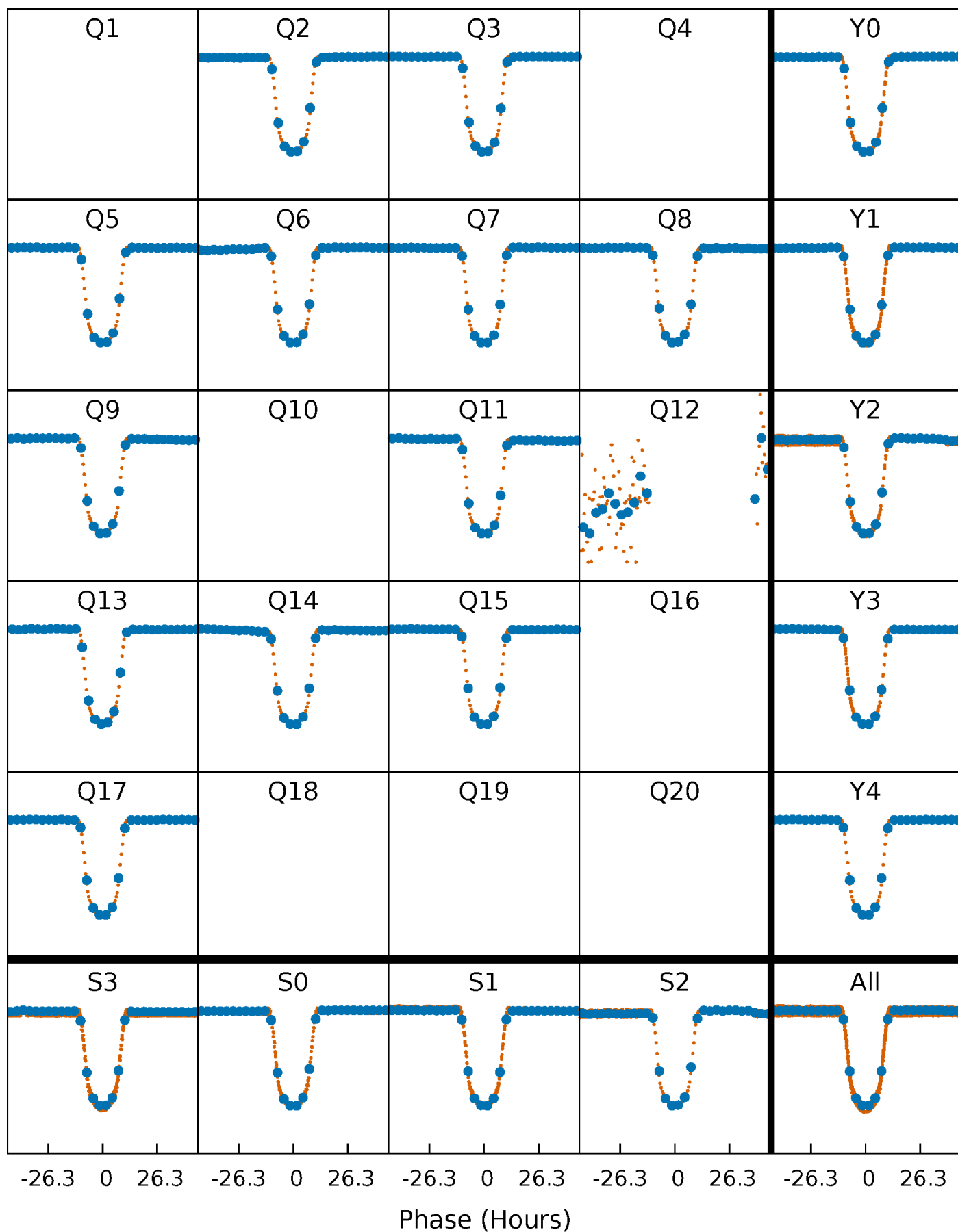


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



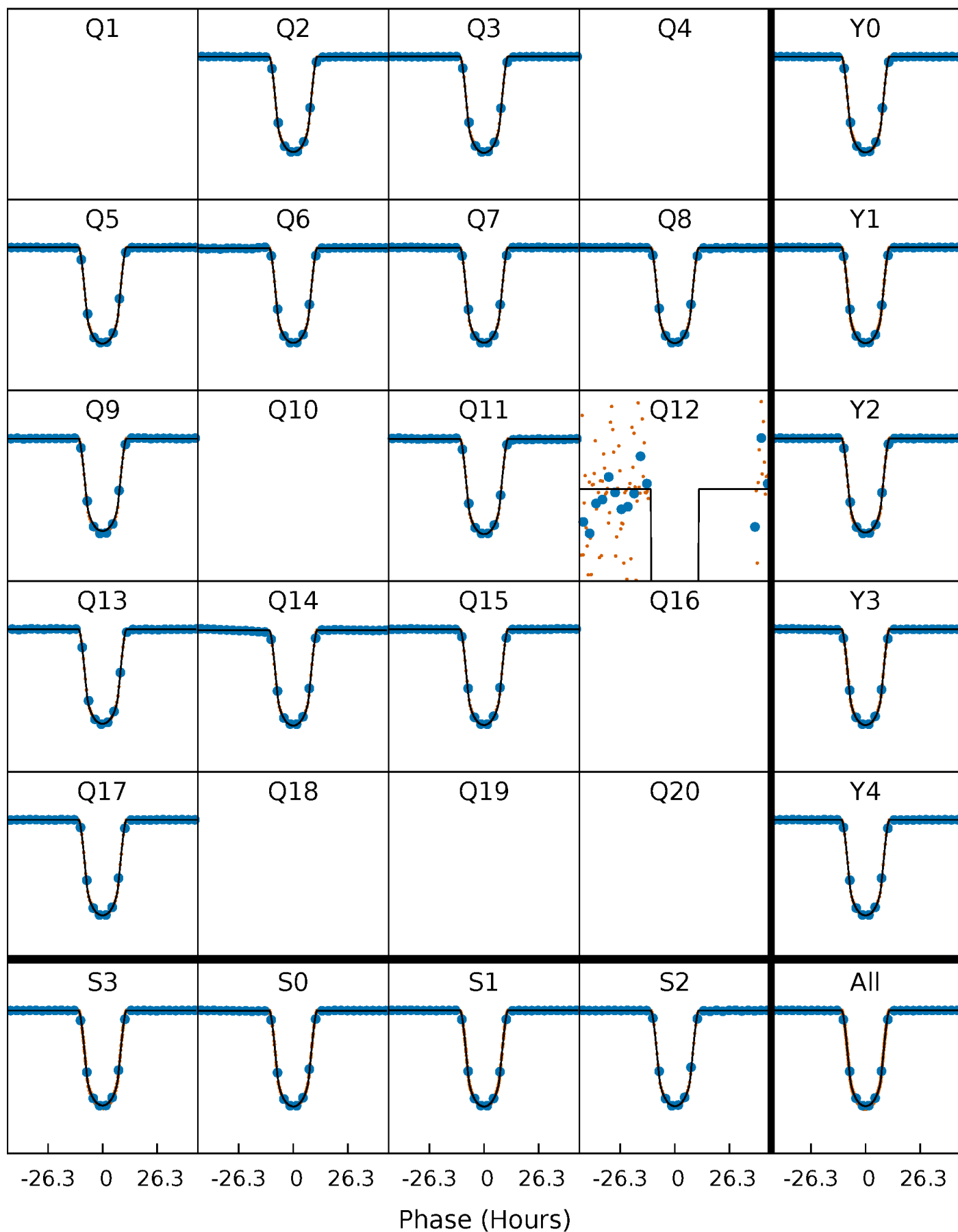
PDC Quarter-Phased Transit Curves

TCE 008491745-01 P=111.319856 Days $T_0=226.648549$ (BKJD)



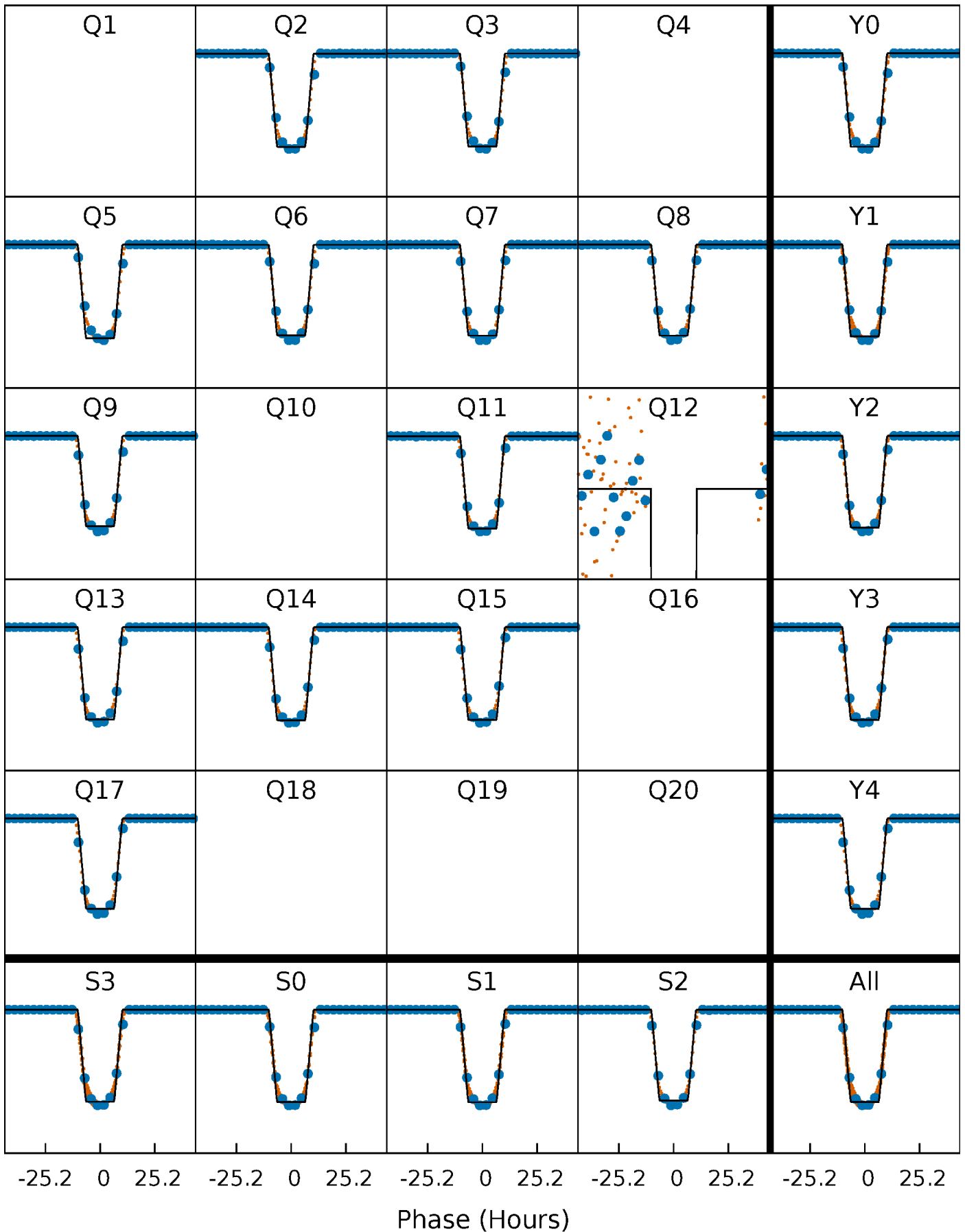
DV Quarter-Phased Transit Curves

TCE 008491745-01 P=111.319856 Days $T_0=226.648549$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

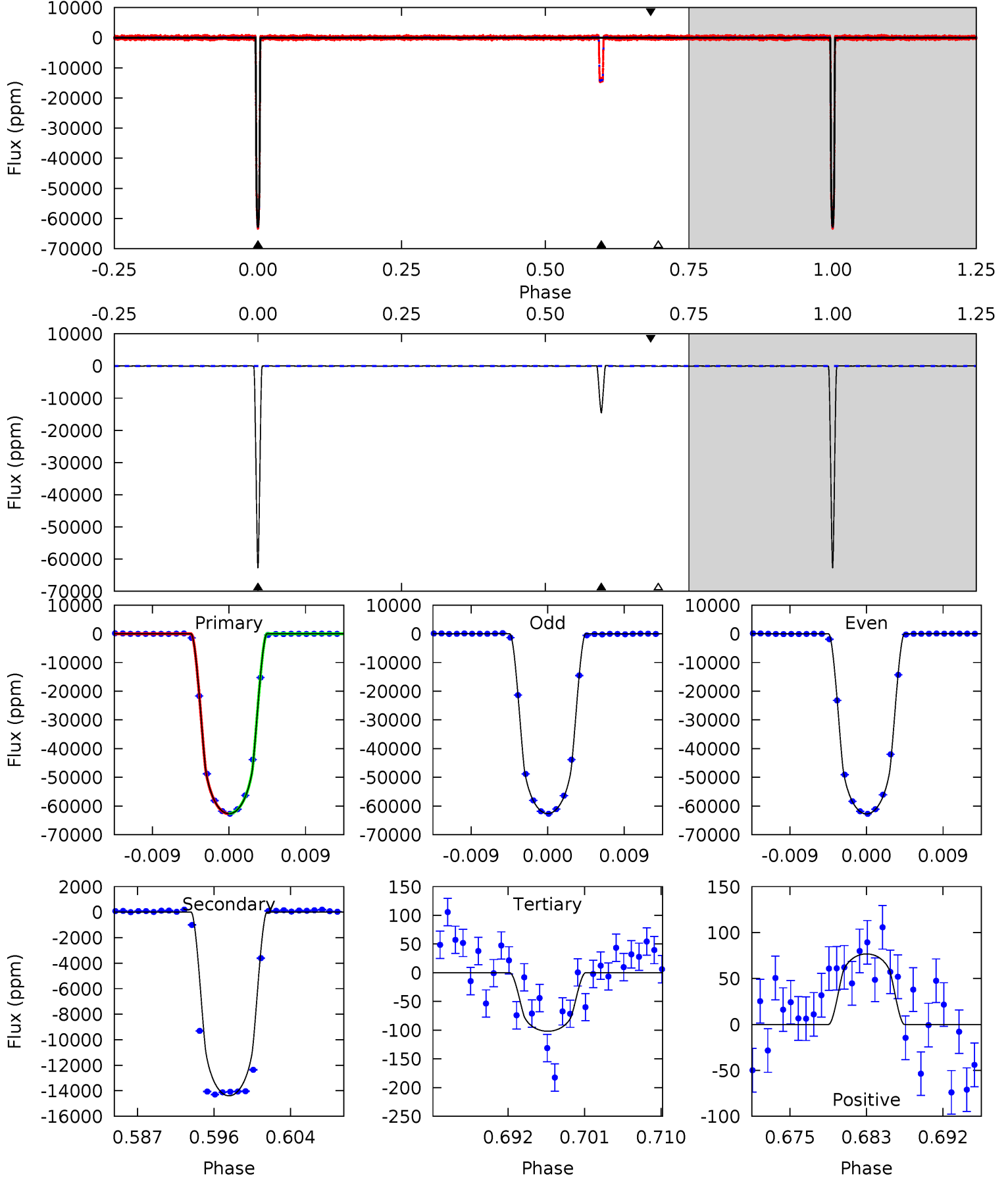
TCE 008491745-01 P=111.322035 Days $T_0=226.635801$ (BKJD)



DV Model-Shift Uniqueness Test

008491745-01, P = 111.319856 Days, E = 115.328693 Days

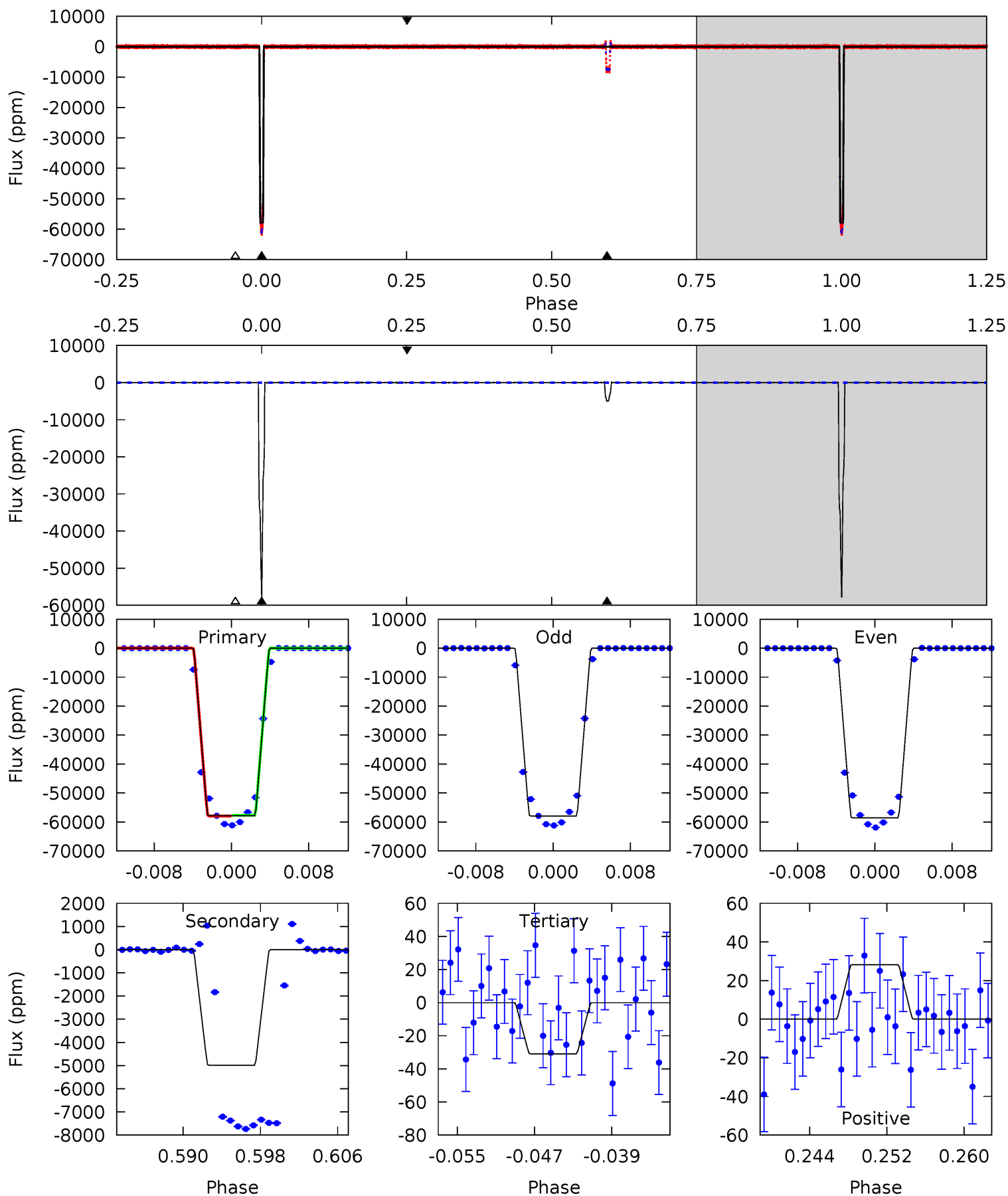
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6818	1566	11.1	8.35	5.05	2.62	3.42	6807	6810	1555	1557	6.57	1.00	0.00	0



Alt Model-Shift Uniqueness Test

008491745-01, P = 111.322035 Days, E = 115.313766 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5334	460.0	2.85	2.60	5.07	2.66	0.76	5332	5332	457.1	457.4	30.7	1.00	0.00	4.28



Stellar Parameters For KIC 008491745

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5022^{+125}_{-88}	$3.562^{+0.132}_{-0.181}$	$-0.340^{+0.300}_{-0.150}$	$2.580^{+0.876}_{-0.375}$	$0.887^{+0.254}_{-0.030}$	$0.073^{+0.043}_{-0.036}$
	+2%/-2%	+4%/-5%	+88%/-44%	+34%/-15%	+29%/-3%	+59%/-50%
Source	PHO1	FLK73	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 008491745-01 / KOI 3555.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14394 ± 9	$64.22^{+12.14}_{-5.75}$	756^{+56}_{-40}	3948^{+84}_{-55}	378^{+82}_{-91}
Alt.	-4988 ± 11	$68.47^{+12.49}_{-5.47}$	755^{+57}_{-38}	3244^{+59}_{-43}	113^{+24}_{-27}

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

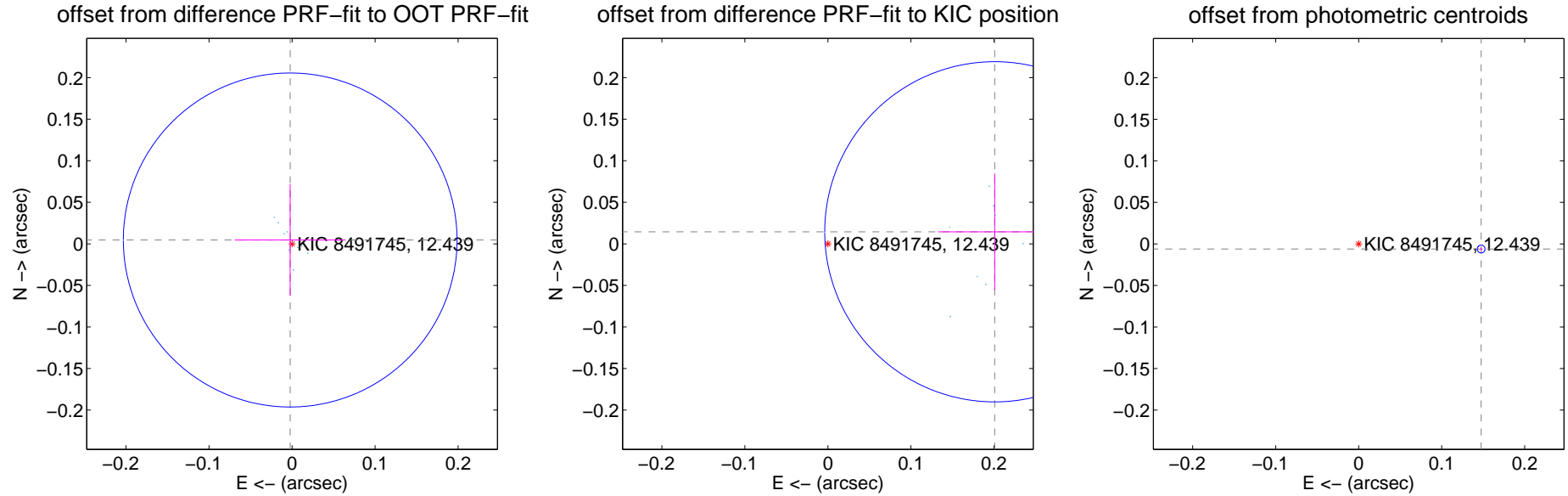
DV Centroid Data

Supplemental centroid analysis for 008491745-01. Kepler magnitude: 12.44. Transit SNR 2332.10

There are 10 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.005 ± 0.067	0.08	0.002 ± 0.067	0.005 ± 0.067
PRF-fit source offset from KIC position	0.201 ± 0.068	2.95	-0.201 ± 0.068	0.014 ± 0.070
photometric centroid source offset	0.15 ± 0.00	94.66	-0.15 ± 0.00	-0.01 ± 0.00



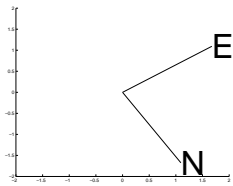
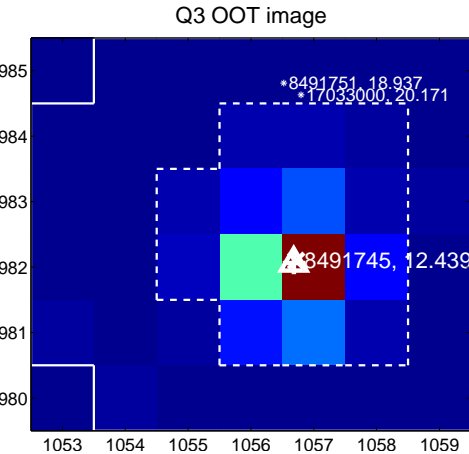
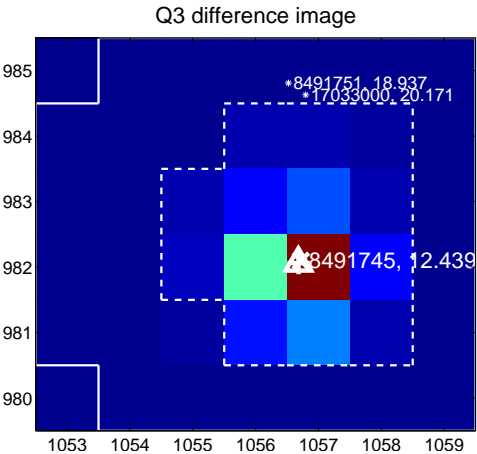
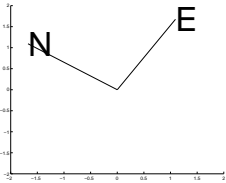
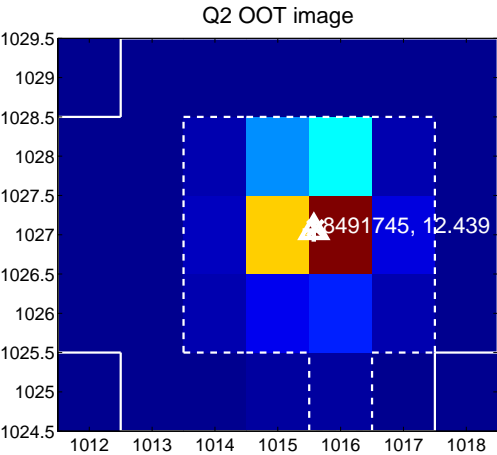
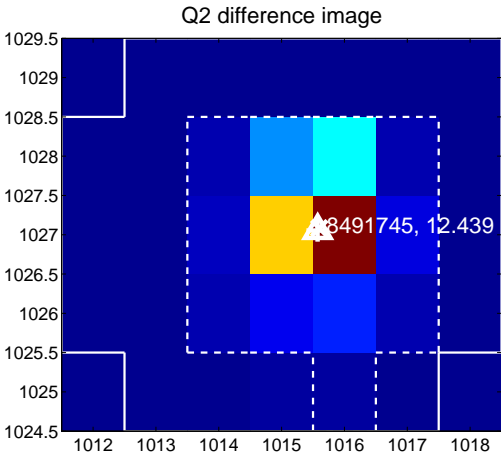
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

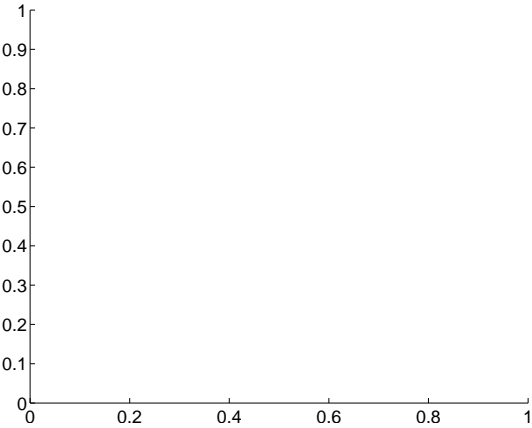
Q1 no difference image



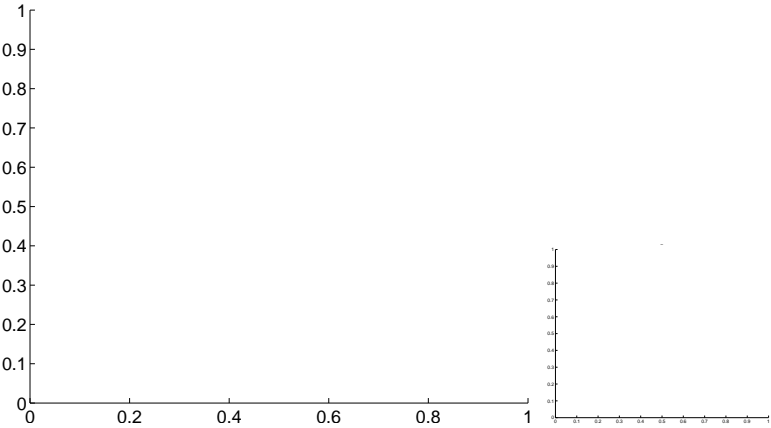
Q1 no OOT image



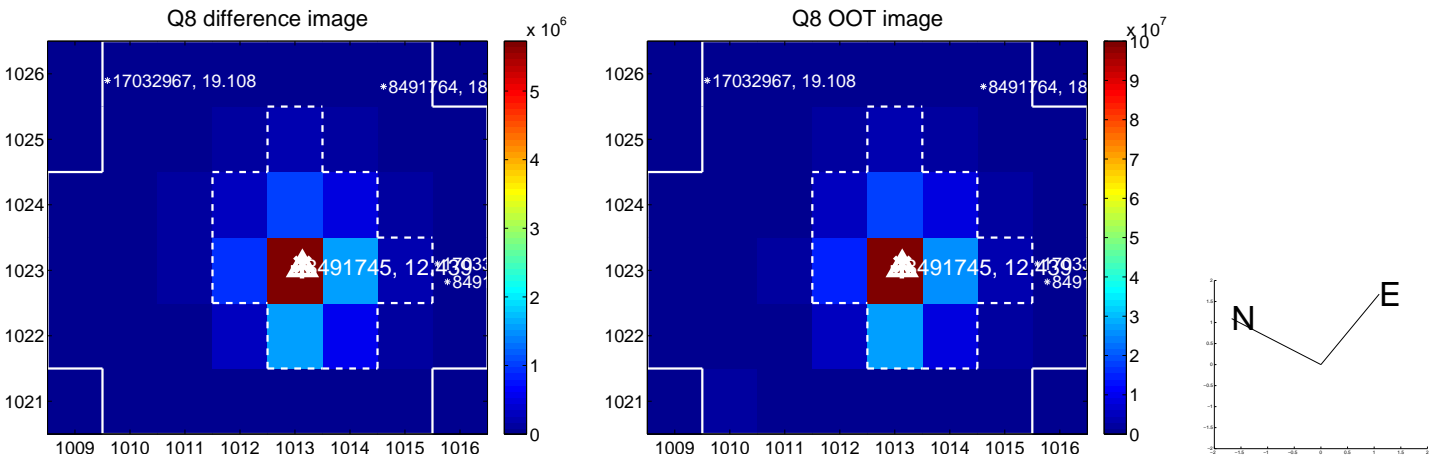
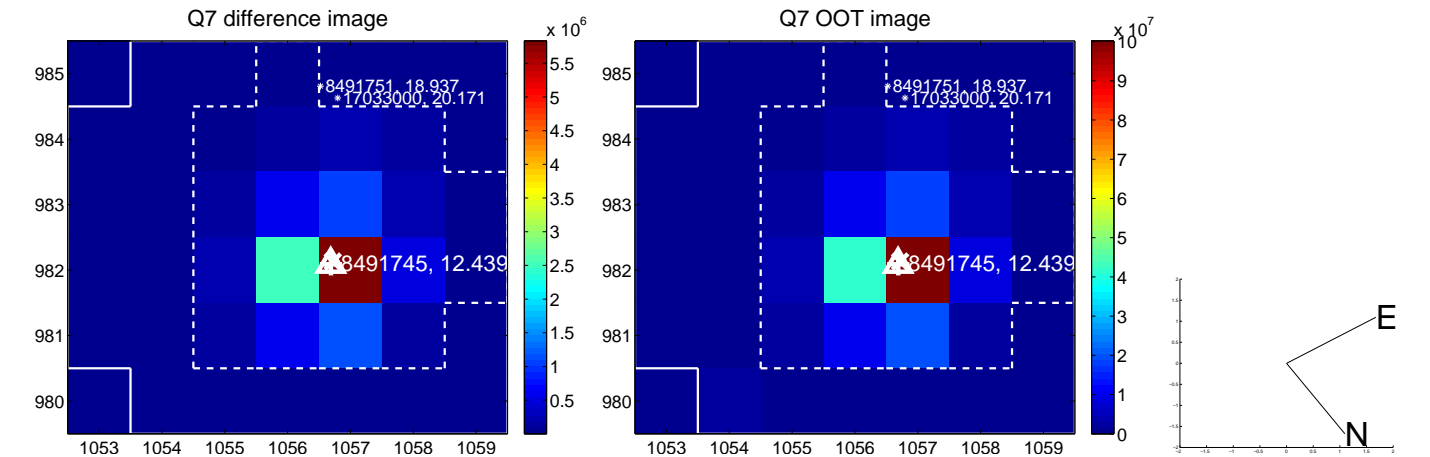
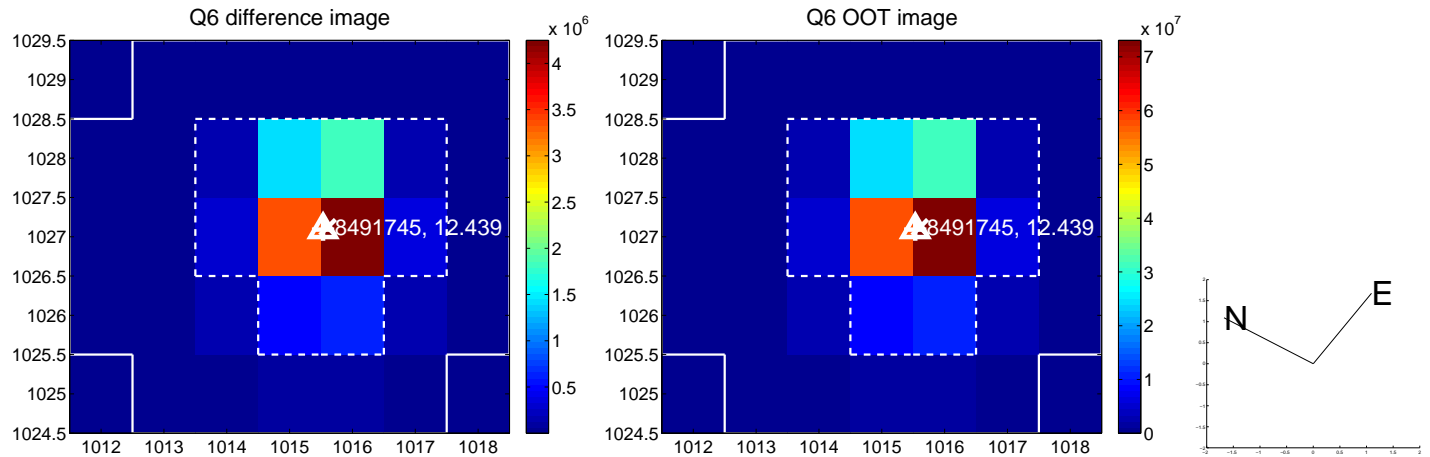
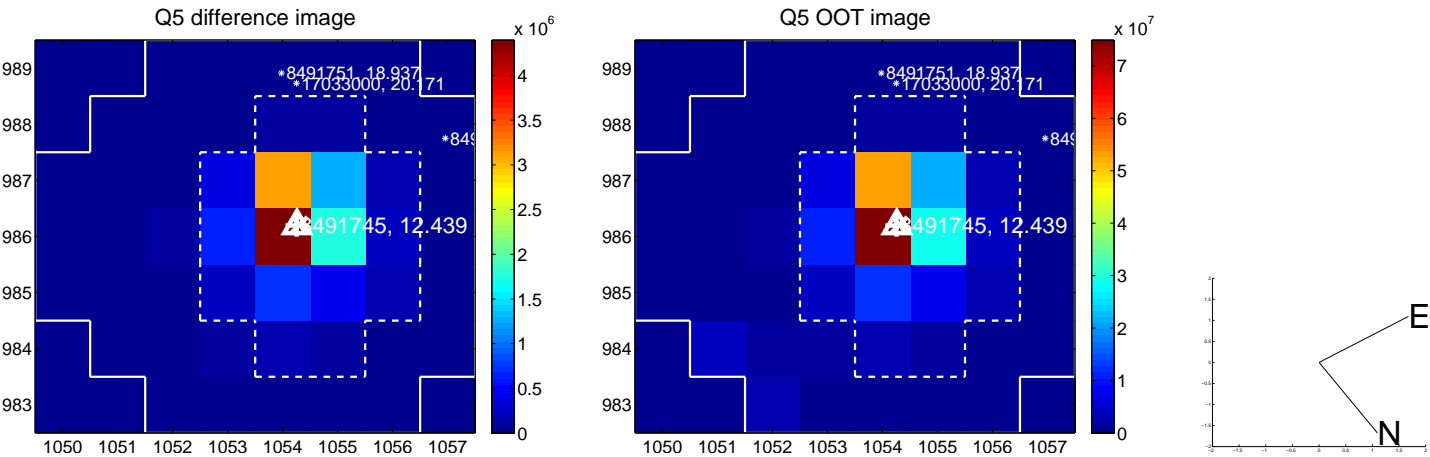
Q4 no difference image



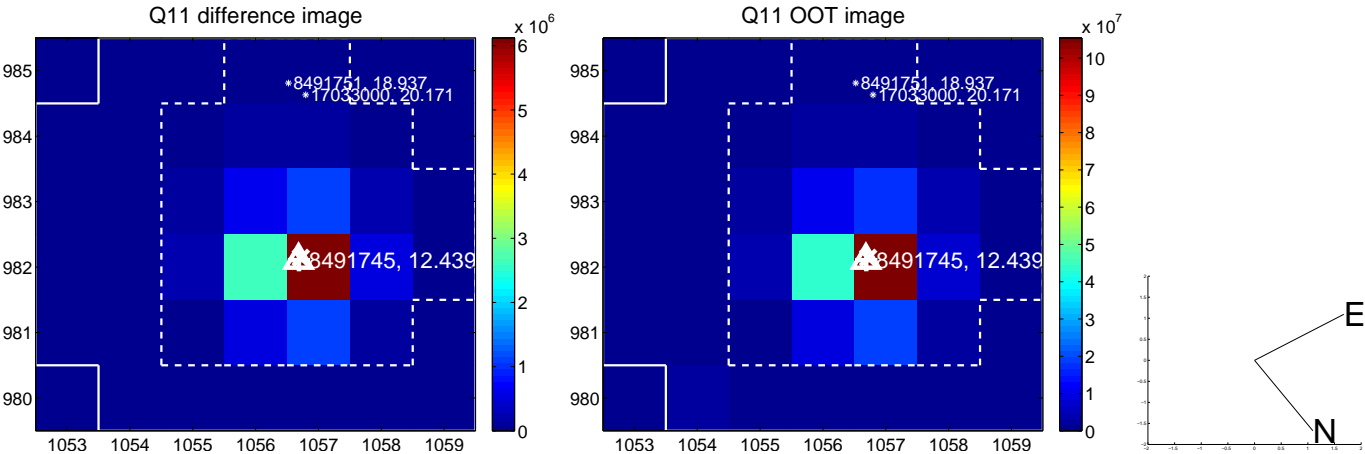
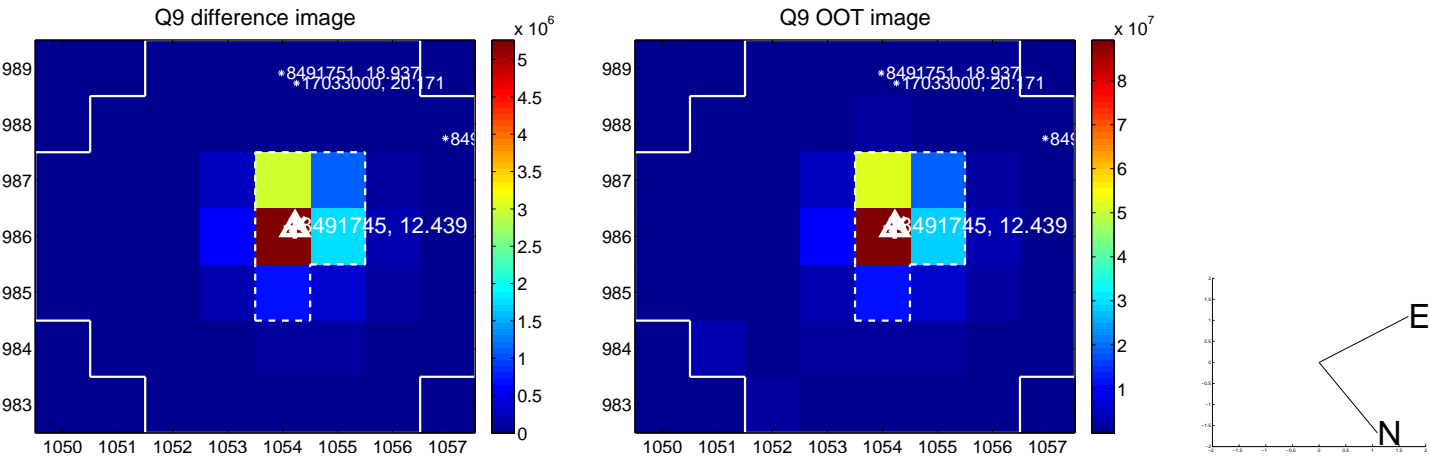
Q4 no OOT image



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.

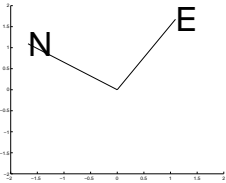
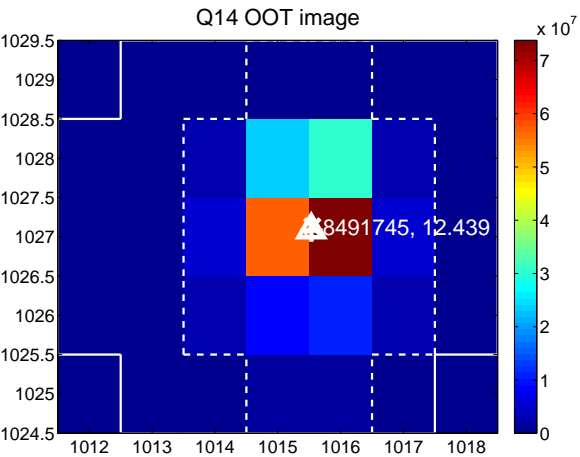
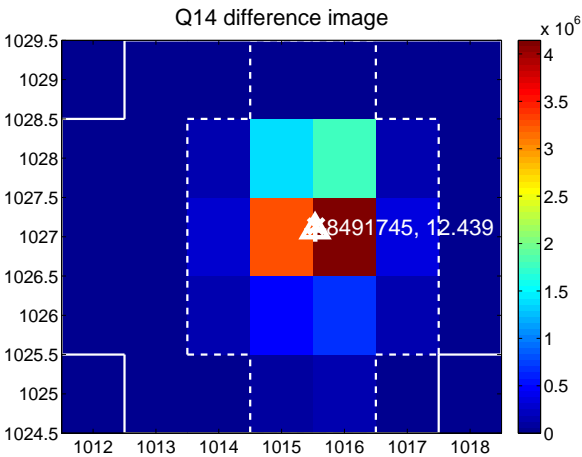


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

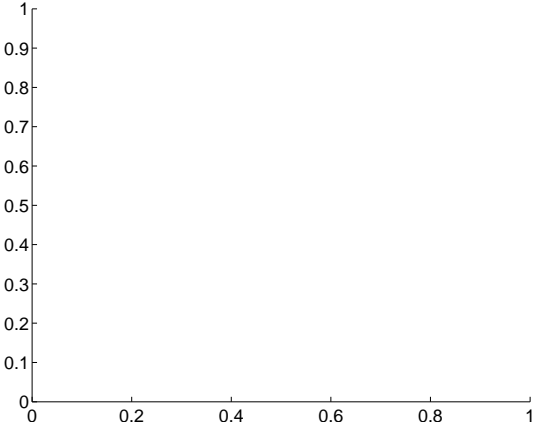
Q13 no difference image



Q13 no OOT image



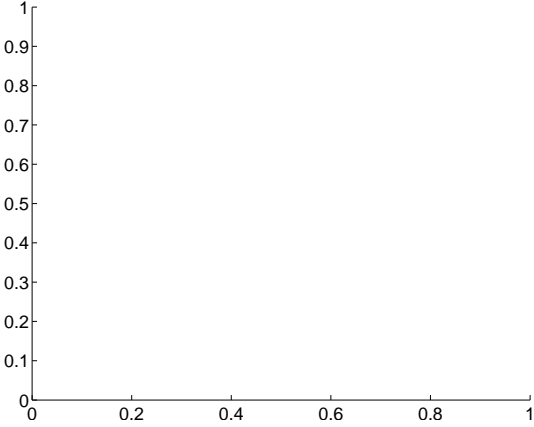
Q15 no difference image



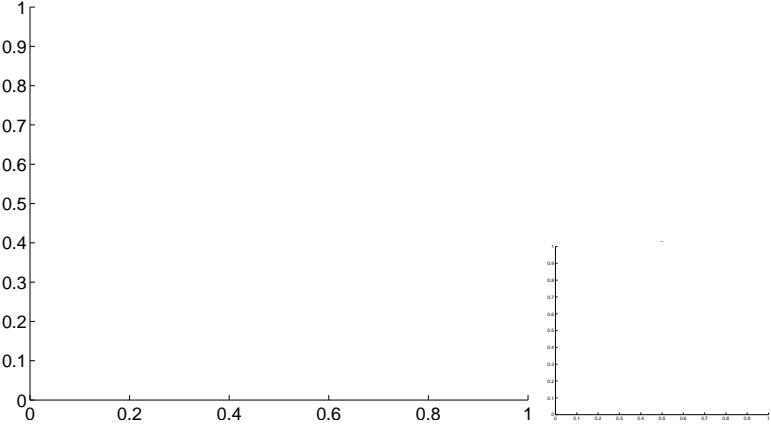
Q15 no OOT image



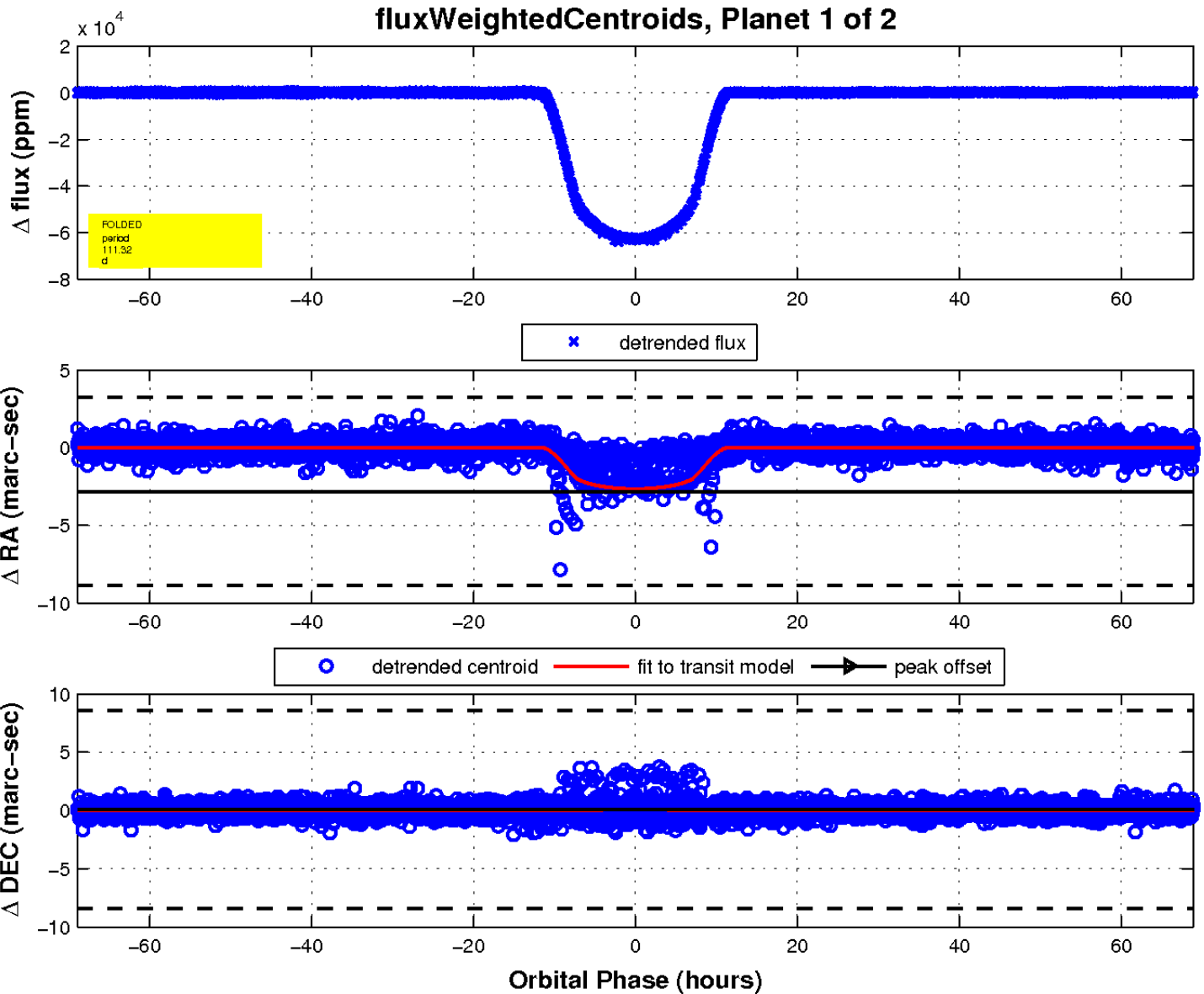
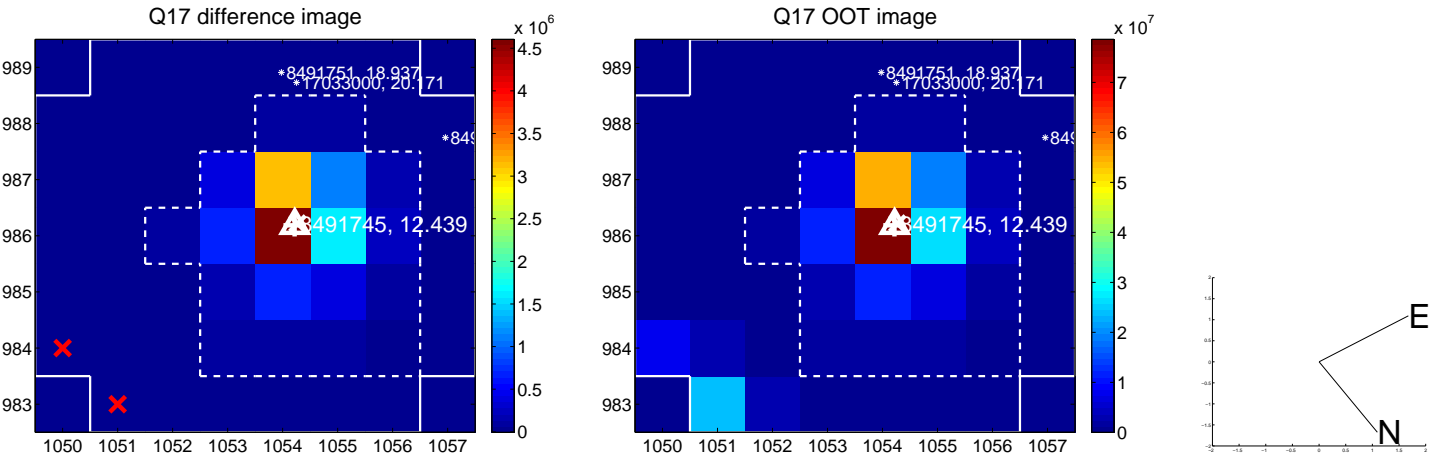
Q16 no difference image



Q16 no OOT image

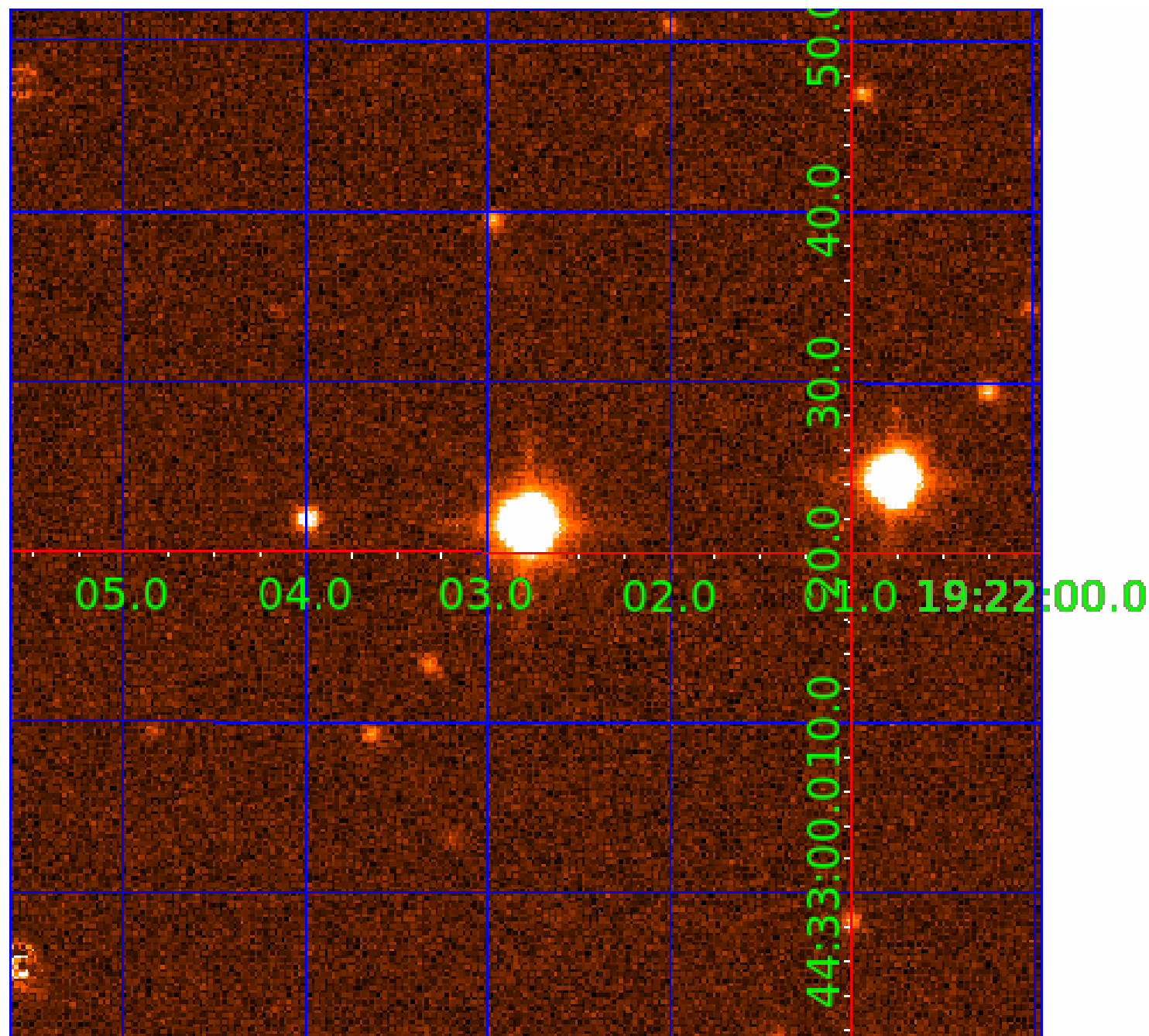


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008491745

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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008491745-02	OBS	No	111.320008	181.816722	14655.1	22.807	586.3	527.0	2.58	5022	31.73	20.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008491745-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
008491745-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 008491745-02

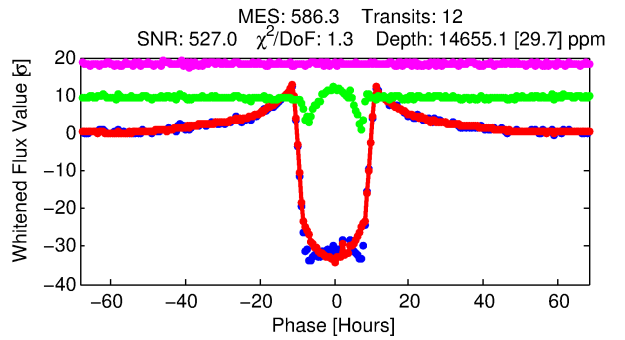
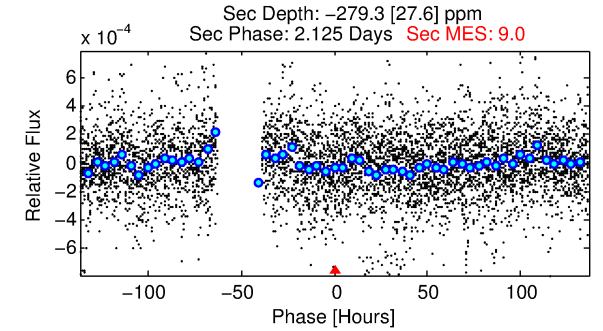
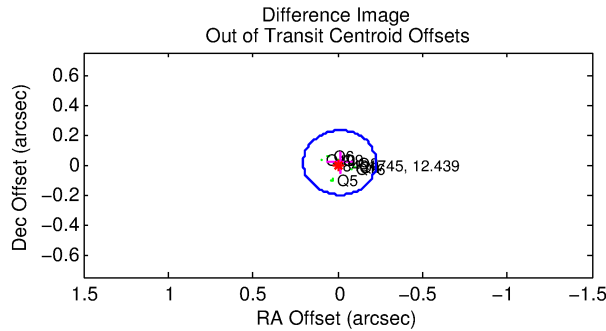
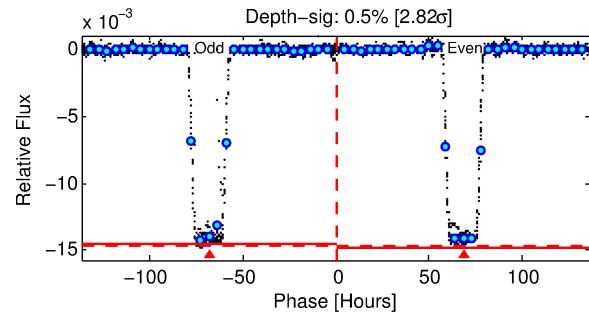
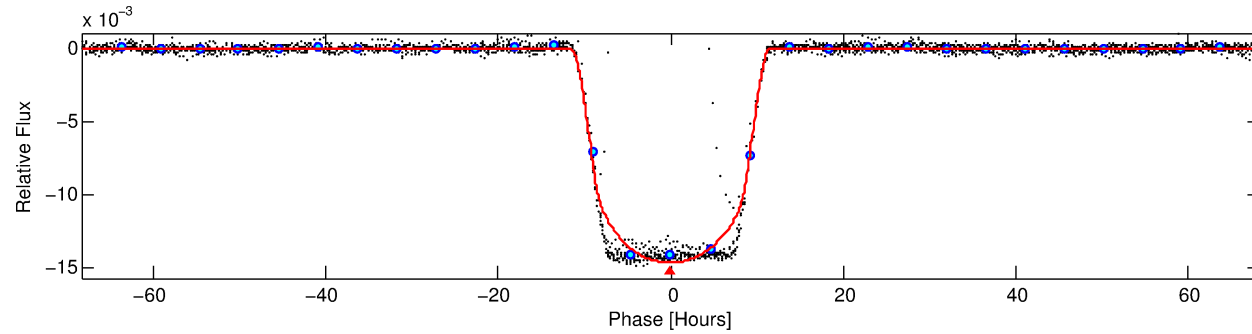
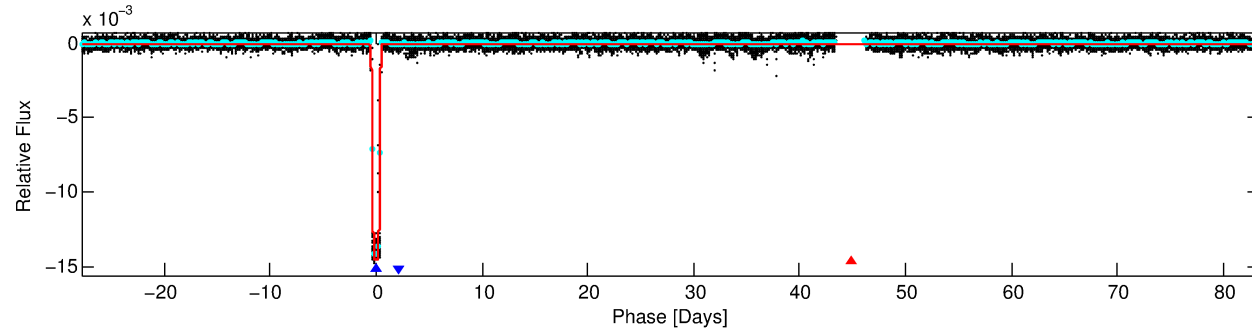
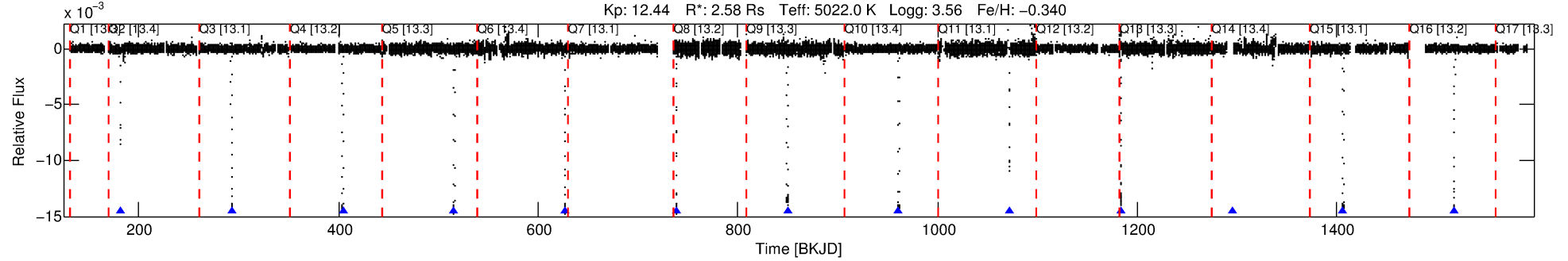
No Significant Match Found

DV One-Page Summary

KIC: 8491745 Candidate: 2 of 2 Period: 111.320 d

KOI: K03555 Corr: No Ephemeris Match

Kp: 12.44 R*: 2.58 Rs Teff: 5022.0 K Logg: 3.56 Fe/H: -0.340



DV Fit Results:

Period = 111.32001 [0.00008] d
Epoch = 181.8167 [0.0006] BKJD
Rp/R* = 0.1127 [0.0002]
a/R* = 36.74 [0.20]
b = 0.52 [0.01]
Seff = 20.05 [7.46]
Teq = 540 [50] K
Rp = 31.73 [10.77] Re
a = 0.4350 [0.1155] AU
Ag = N/A
Teffp = N/A

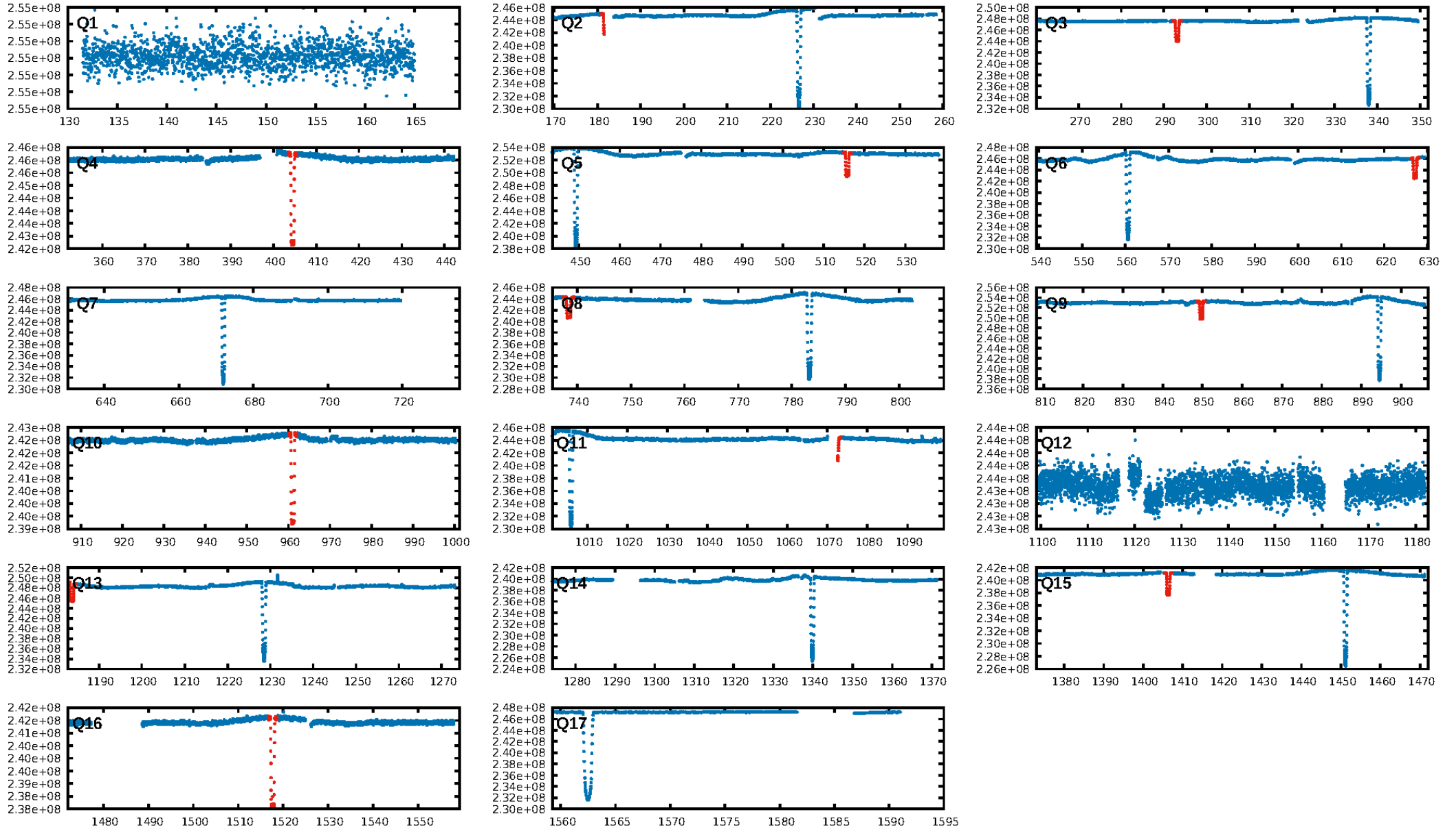
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00e]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 3.29
Centroid-sig: 0.1%
Centroid-so: 0.181 arcsec [27.46σ]
OotOffset-rm: 0.018 arcsec [0.25σ]
KicOffset-rm: 0.226 arcsec [3.23σ]
OotOffset-st: 2/0/3/2 [7]
KicOffset-st: 2/0/3/2 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 1.00 [7/7]

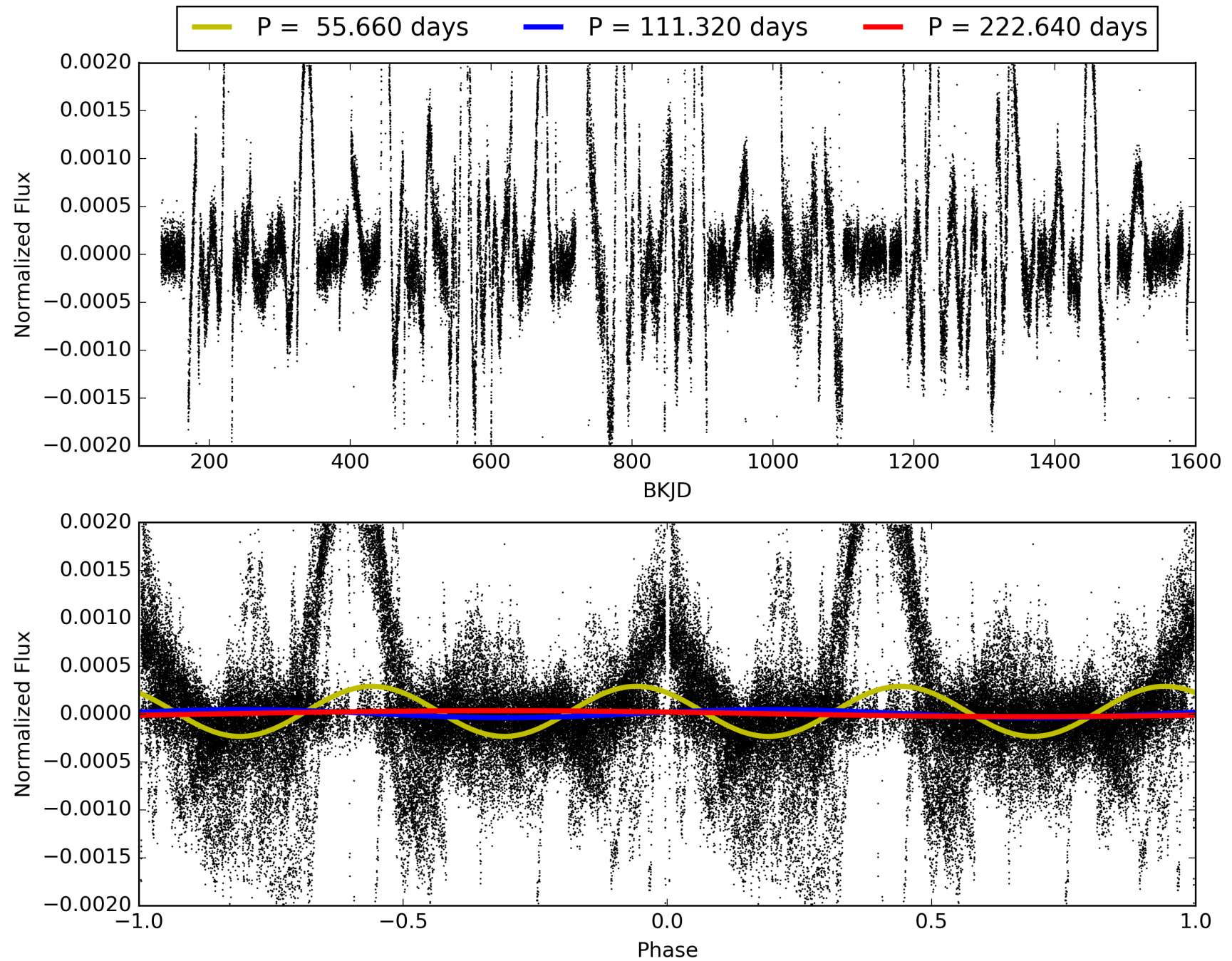
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:34:28 Z

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

TCE 008491745-02, PDC Light Curves

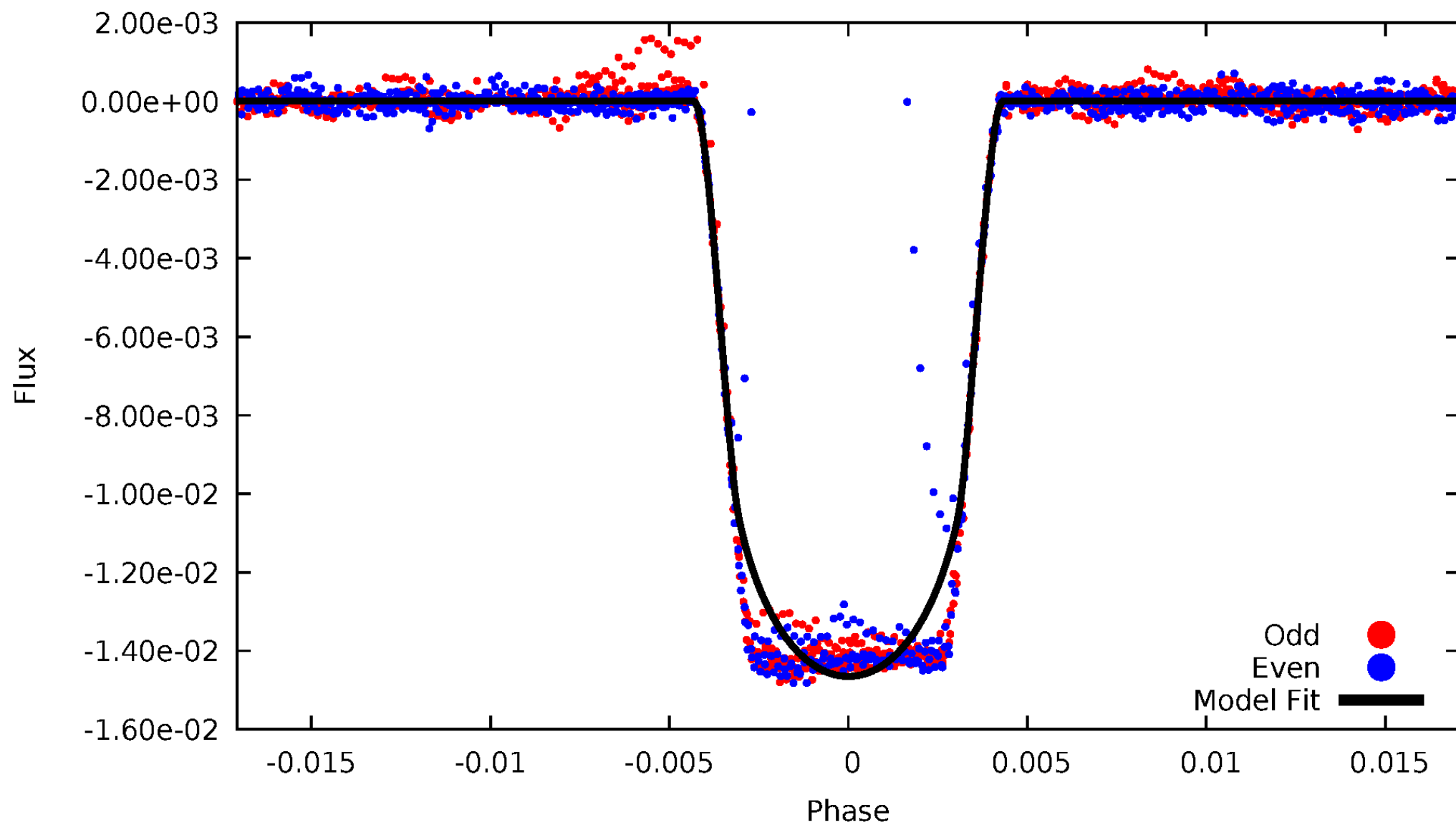


TCE 008491745-02



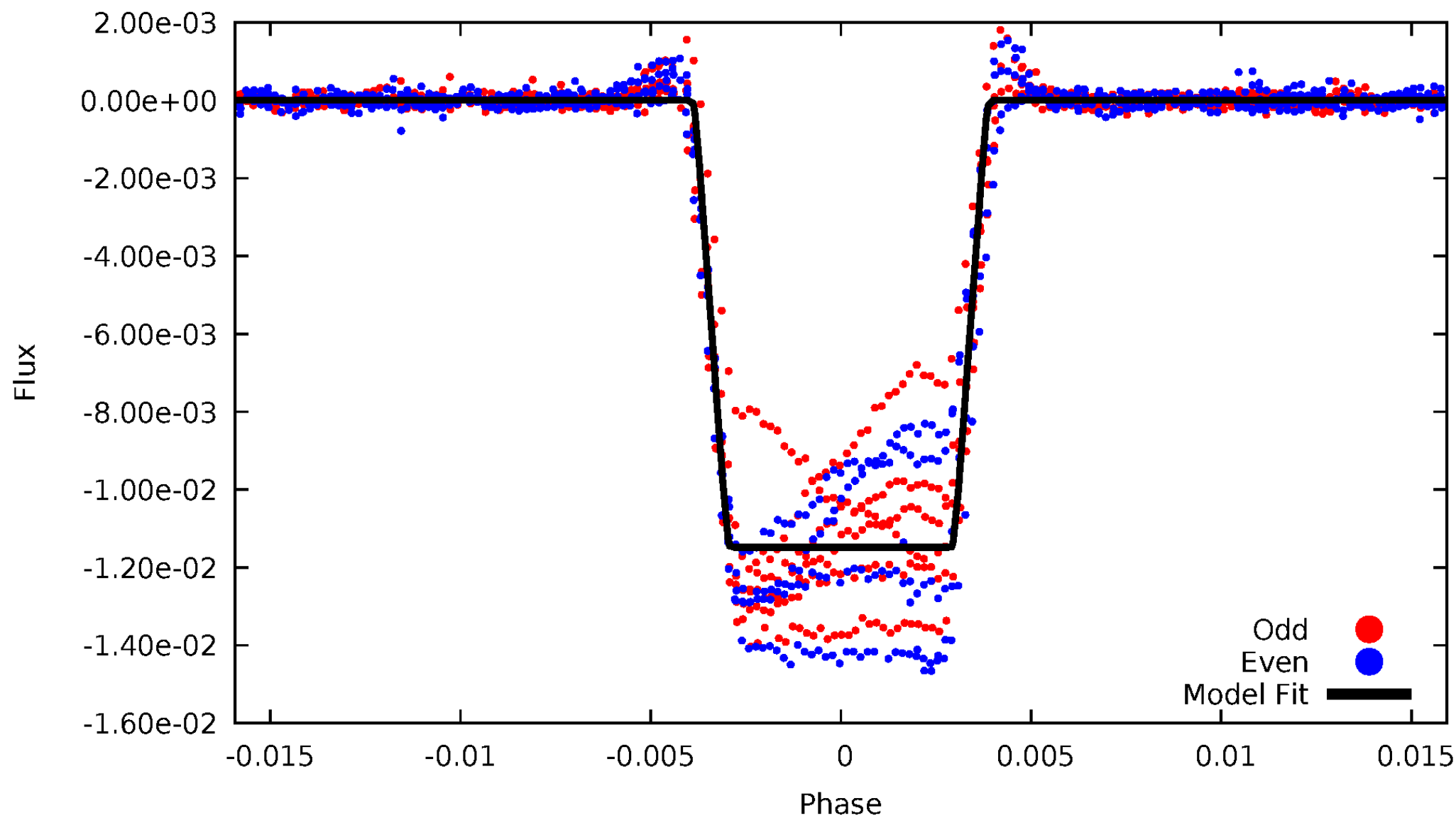
DV Odd/Even

TCE 008491745-02



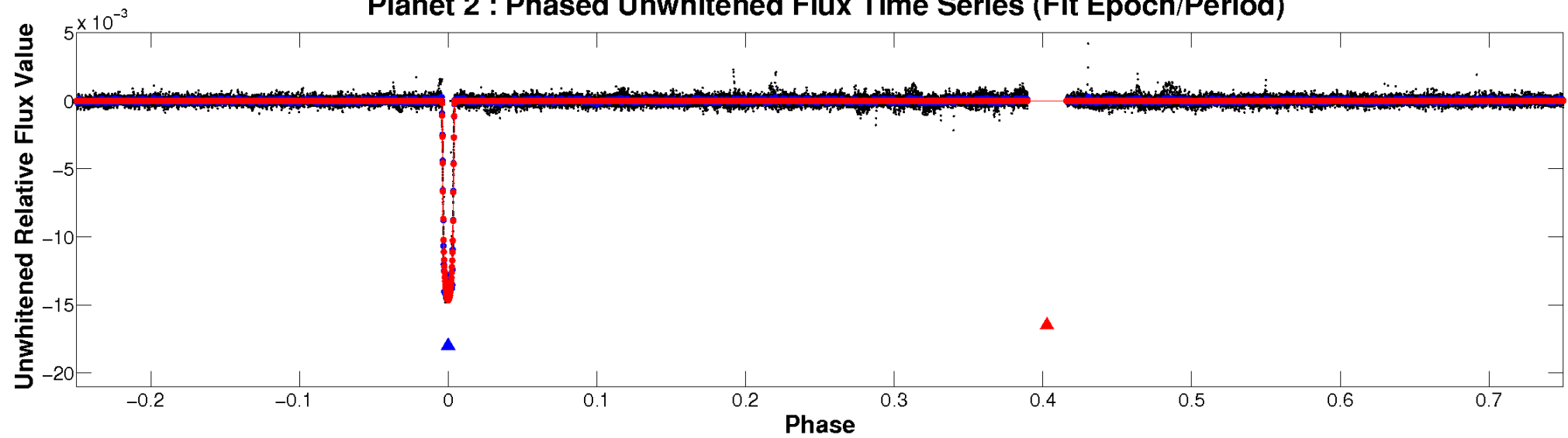
ALT Odd/Even

TCE 008491745-02

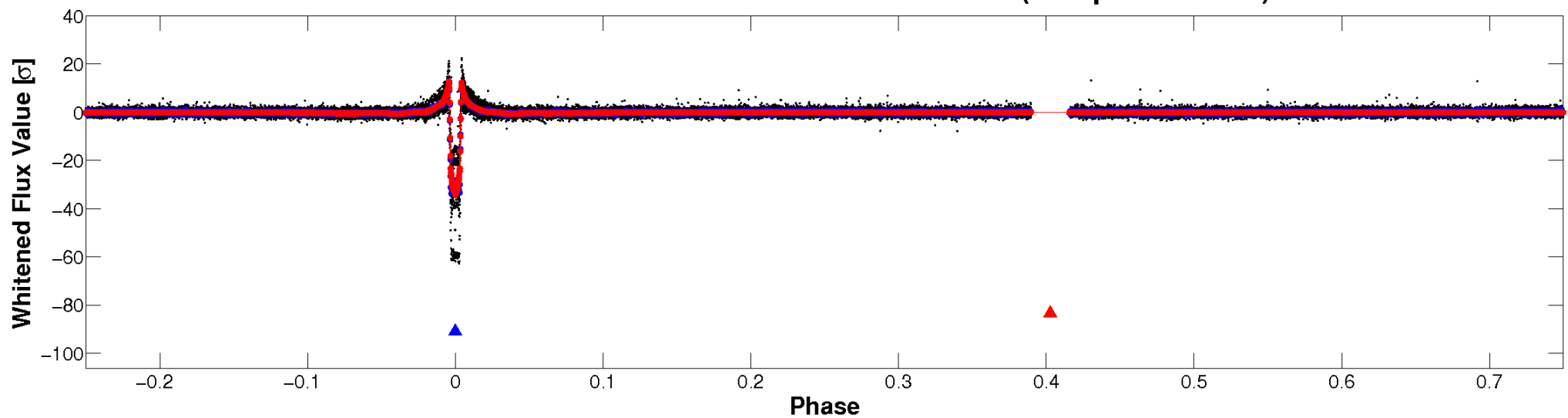


Non-Whitened Vs. Whitened Light Curve

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

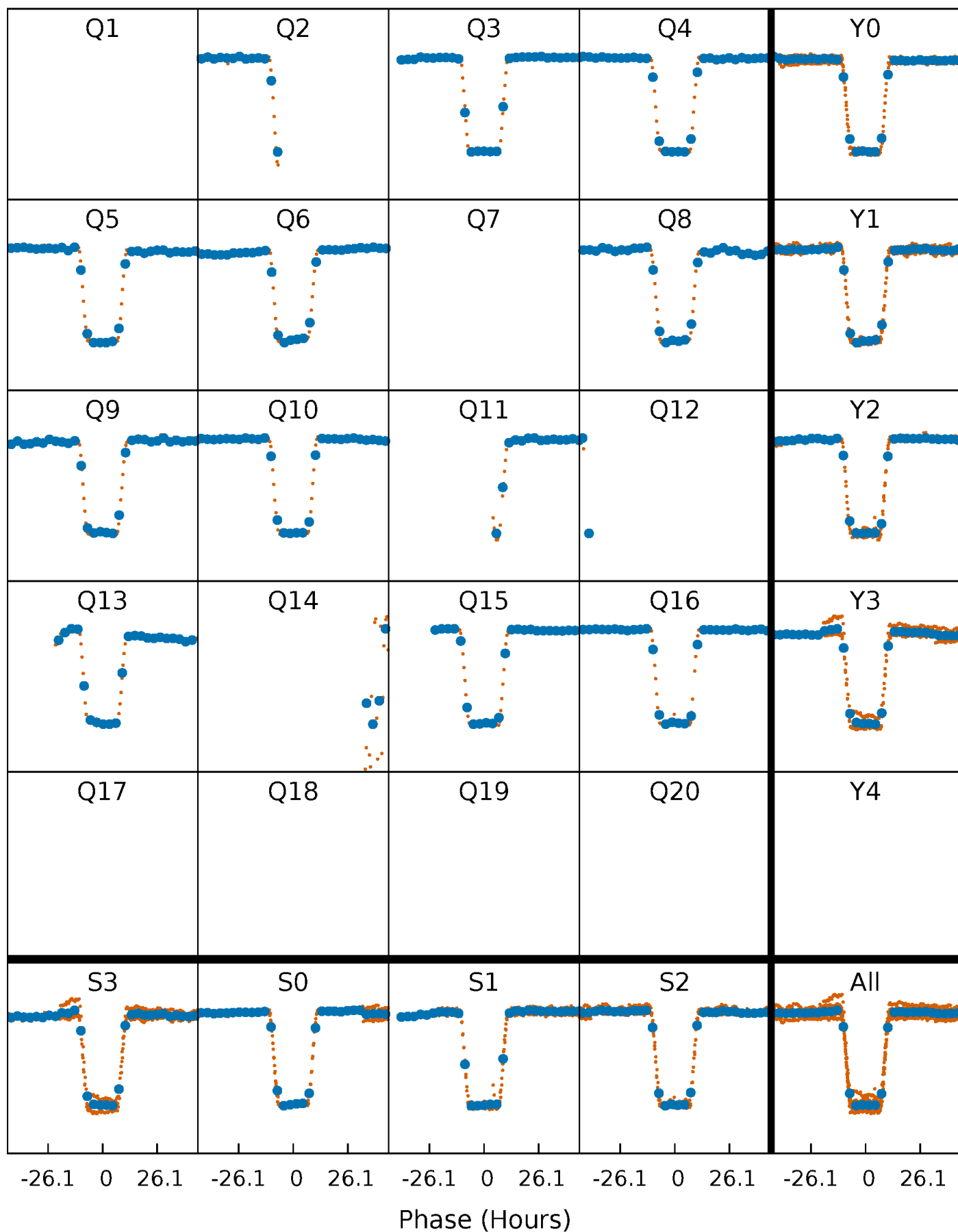


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



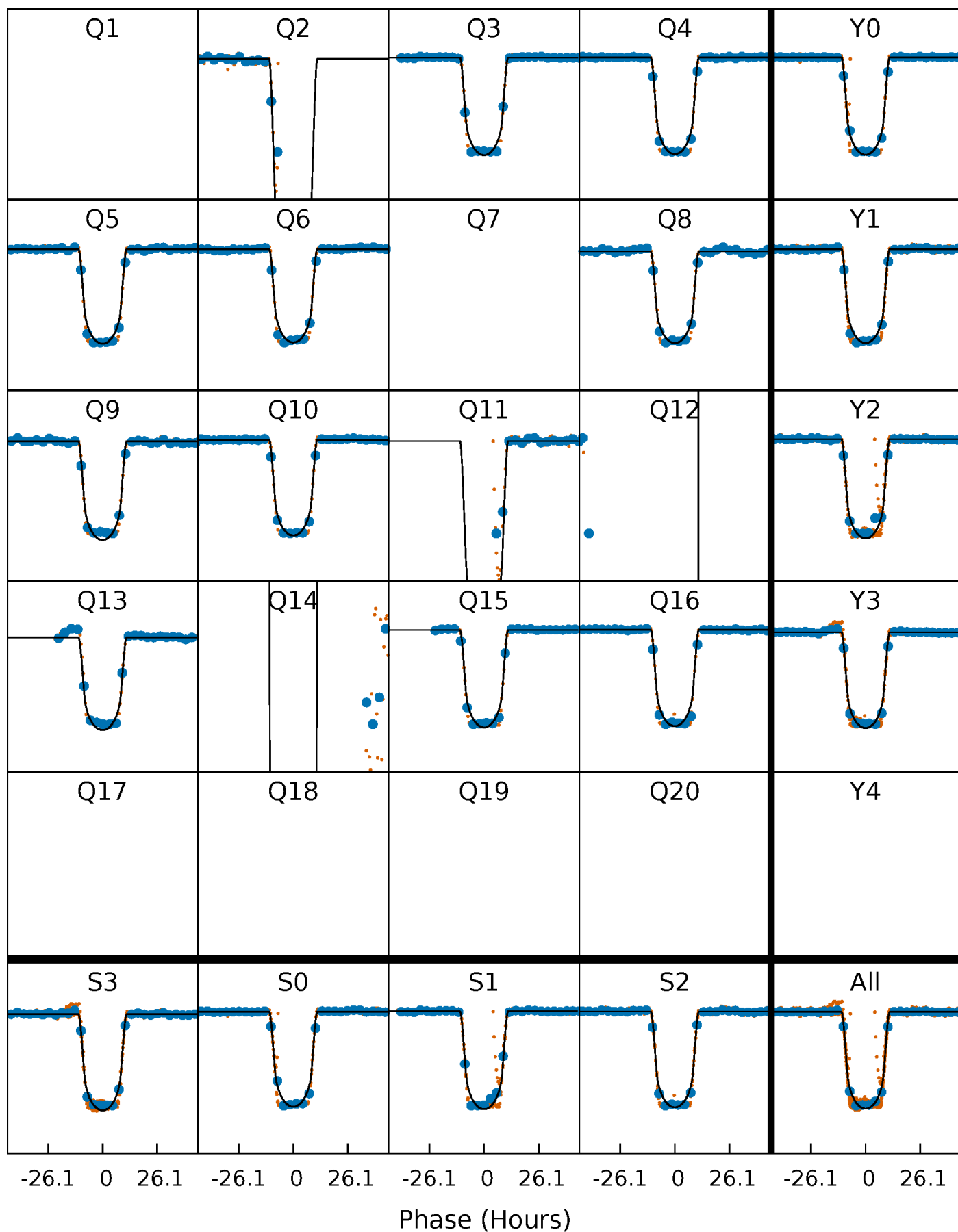
PDC Quarter-Phased Transit Curves

TCE 008491745-02 P=111.320008 Days $T_0=181.816722$ (BKJD)



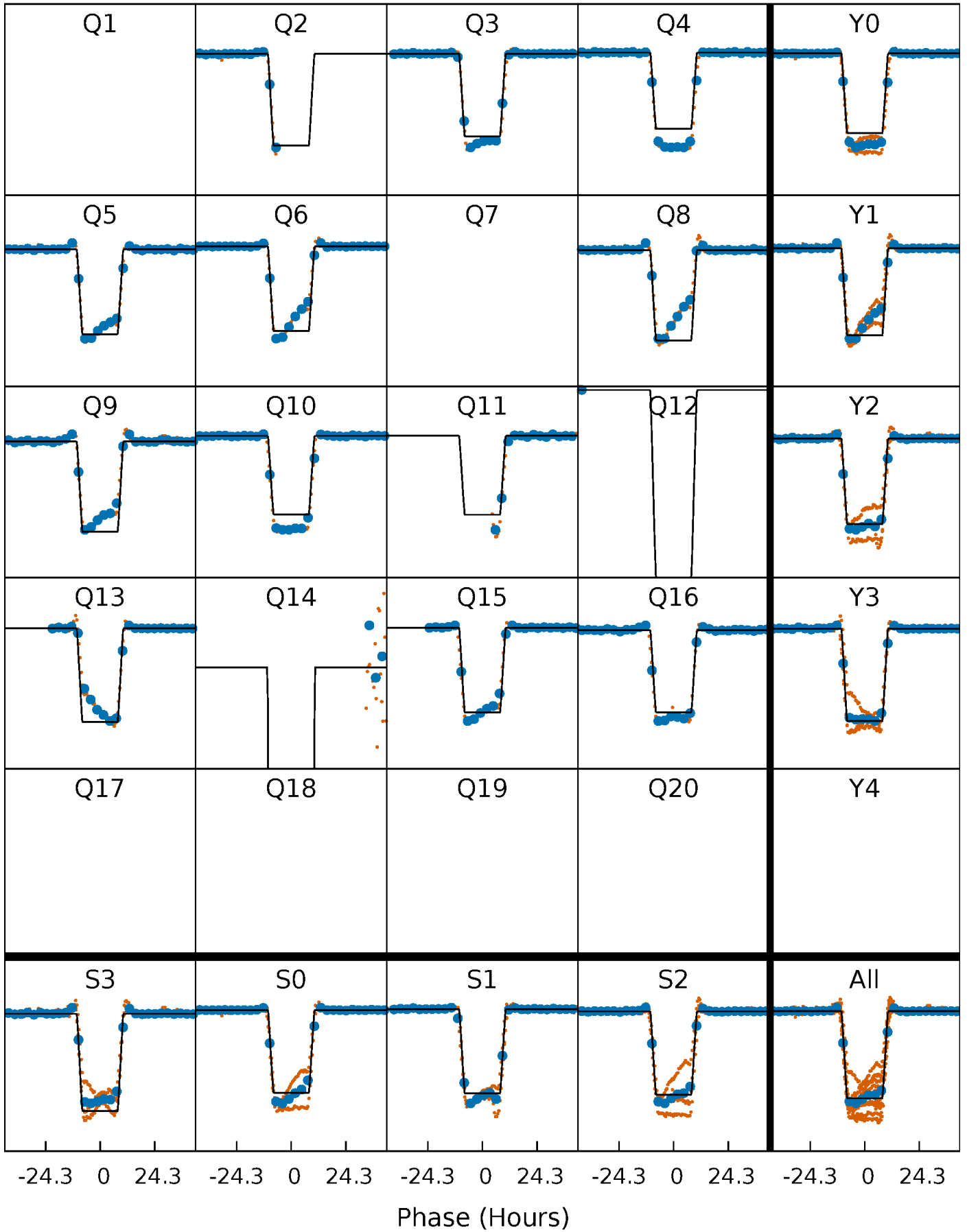
DV Quarter-Phased Transit Curves

TCE 008491745-02 P=111.320008 Days $T_0=181.816722$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

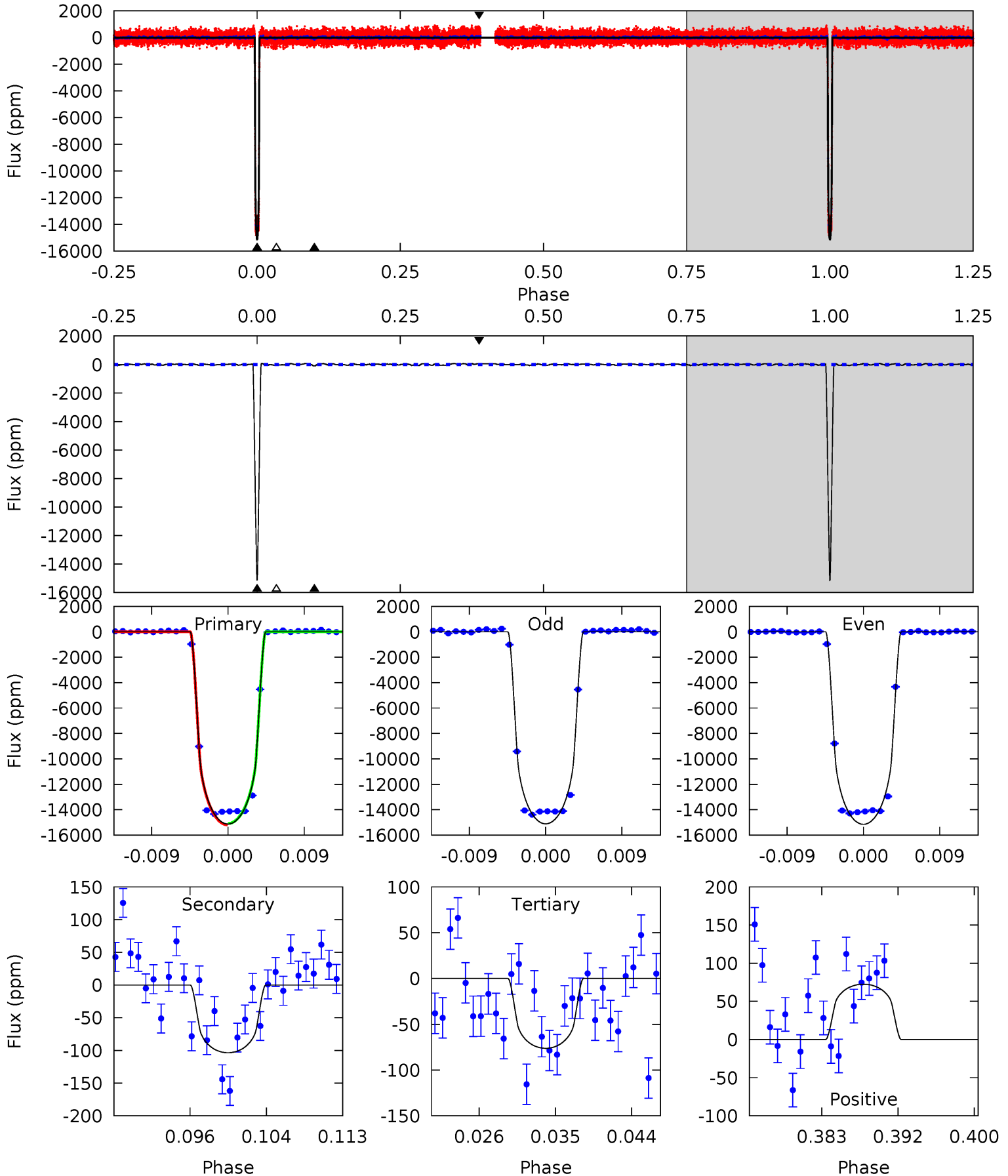
TCE 008491745-02 P=111.322035 Days $T_0=181.800748$ (BKJD)



DV Model-Shift Uniqueness Test

008491745-02, P = 111.320008 Days, E = 70.496714 Days

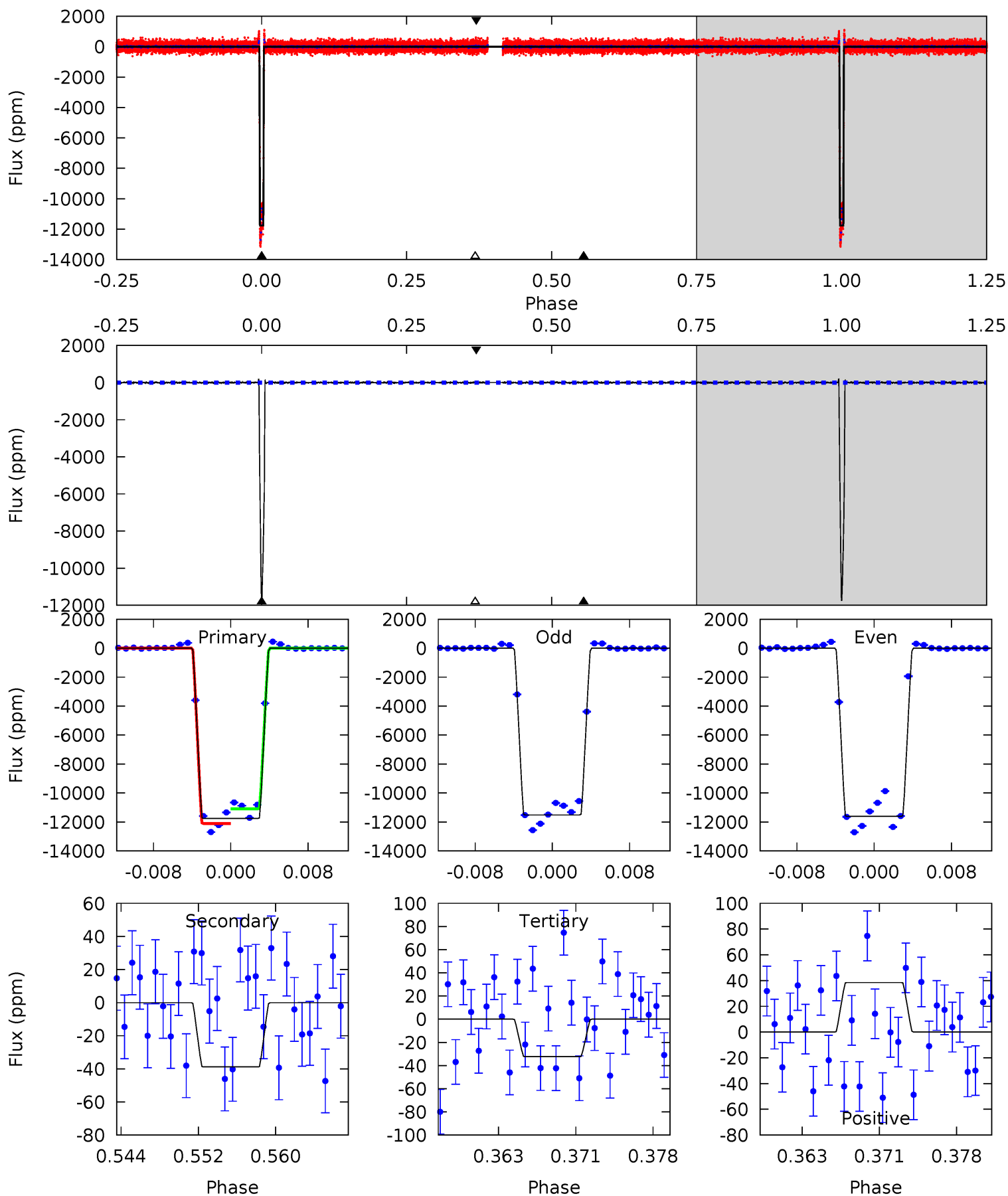
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1536	10.5	7.74	7.36	5.05	2.62	3.05	1528	1528	2.77	3.15	1.94	0.93	0.01	0



Alt Model-Shift Uniqueness Test

008491745-02, P = 111.322035 Days, E = 70.478713 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1044	3.44	2.87	3.41	5.07	2.66	0.93	1041	1041	0.58	0.03	4.78	1.01	0.02	43.0



Stellar Parameters For KIC 008491745

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5022^{+125}_{-88}	$3.562^{+0.132}_{-0.181}$	$-0.340^{+0.300}_{-0.150}$	$2.580^{+0.876}_{-0.375}$	$0.887^{+0.254}_{-0.030}$	$0.073^{+0.043}_{-0.036}$
	+2%/-2%	+4%/-5%	+88%/-44%	+34%/-15%	+29%/-3%	+59%/-50%
Source	PHO1	FLK73	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 008491745-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-104 ± 10	$32.12^{+6.10}_{-2.71}$	756^{+59}_{-37}	2375^{+38}_{-40}	11^{+2}_{-3}
Alt.	-39 ± 11	$30.25^{+5.83}_{-2.54}$	756^{+56}_{-38}	2138^{+65}_{-82}	$4.209^{+1.880}_{-1.425}$

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 $A_{obs} \gg 1.0$

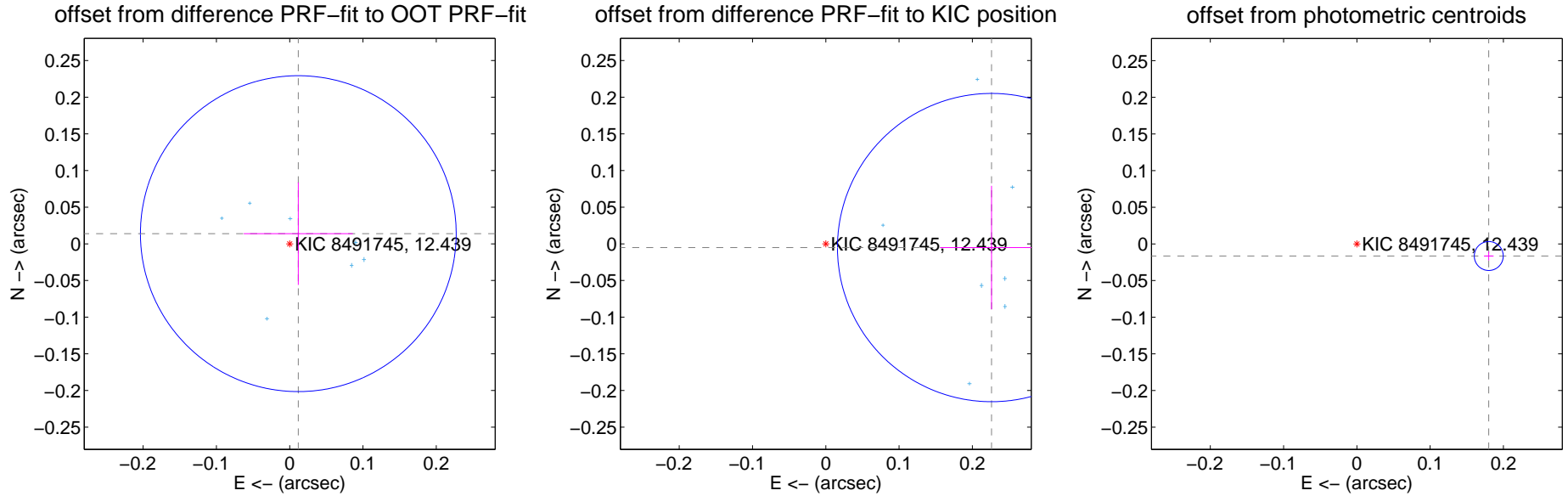
DV Centroid Data

Supplemental centroid analysis for 008491745-02. Kepler magnitude: 12.44. Transit SNR 526.99

There are 7 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	0.018 ± 0.072	0.25	-0.012 ± 0.074	0.014 ± 0.070
PRF-fit source offset from KIC position	0.226 ± 0.070	3.23	-0.226 ± 0.070	-0.005 ± 0.084
photometric centroid source offset	0.18 ± 0.01	27.46	-0.18 ± 0.01	-0.02 ± 0.01



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



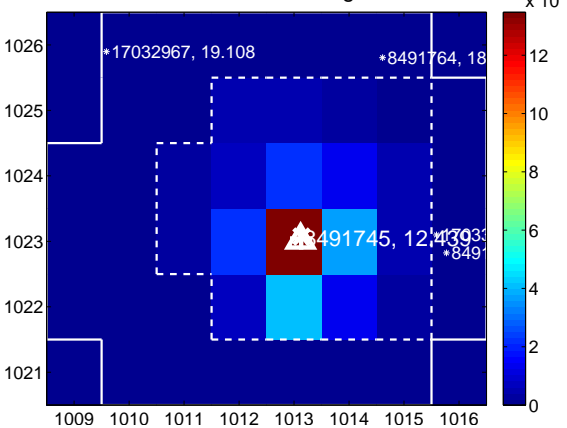
Q3 no difference image



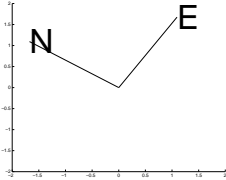
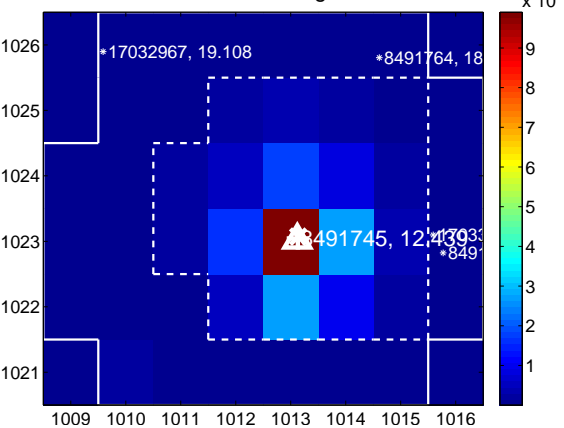
Q3 no OOT image



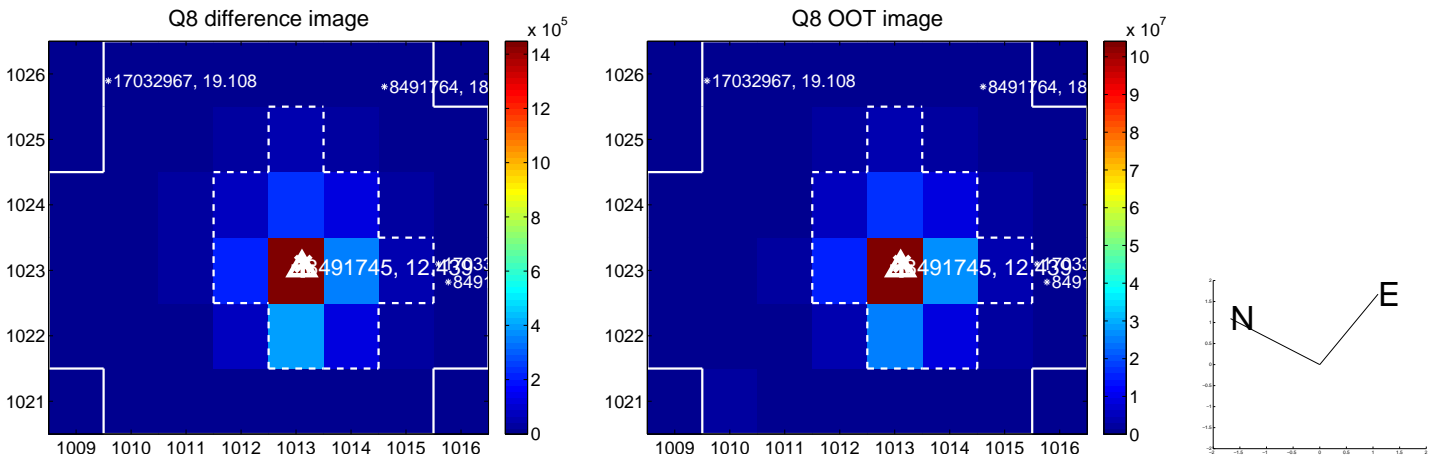
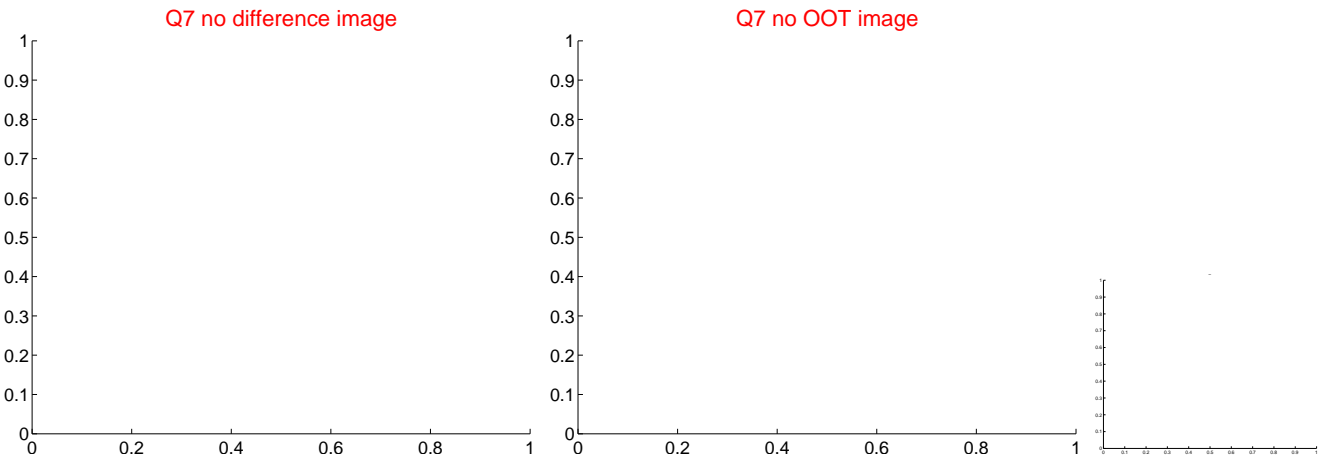
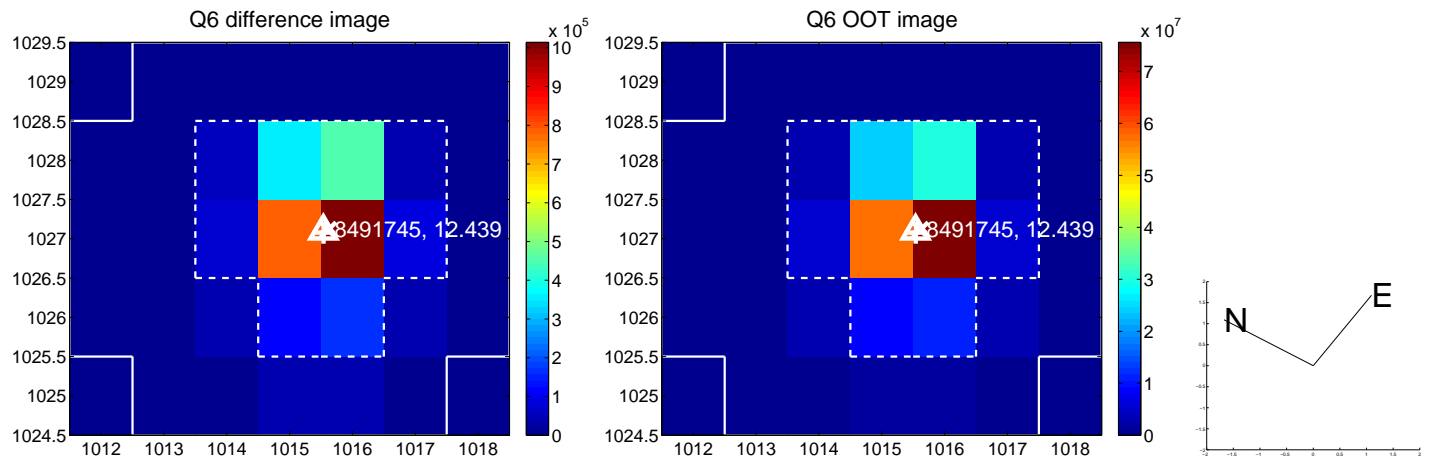
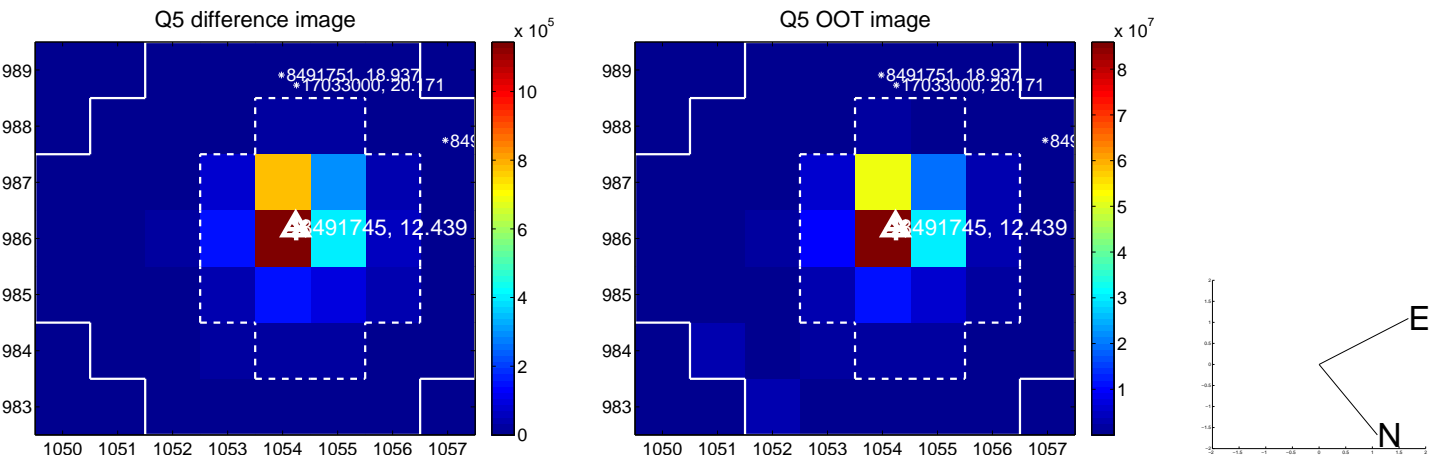
Q4 difference image



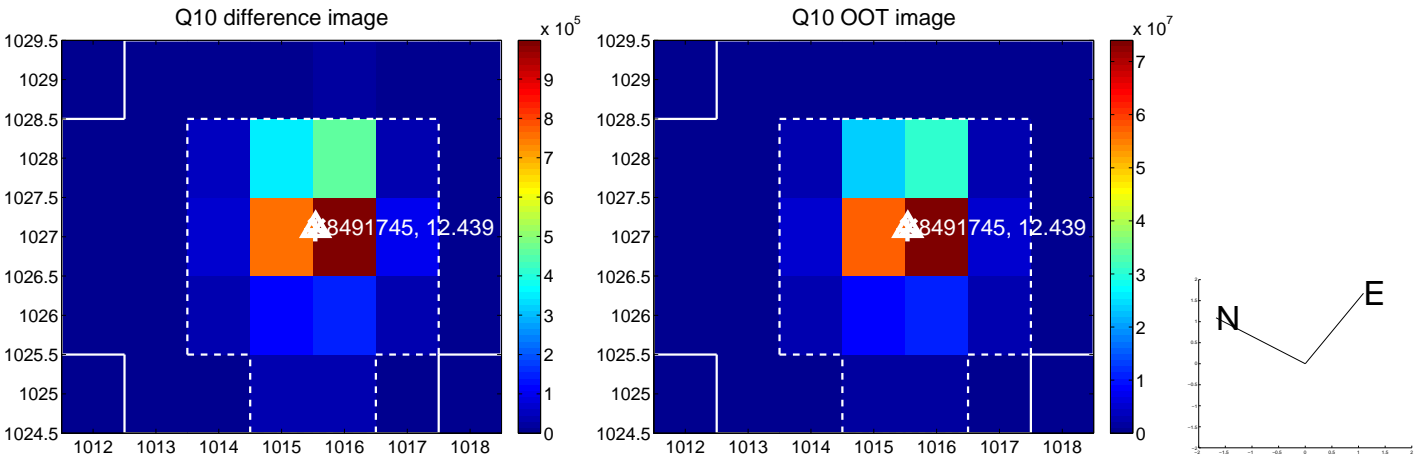
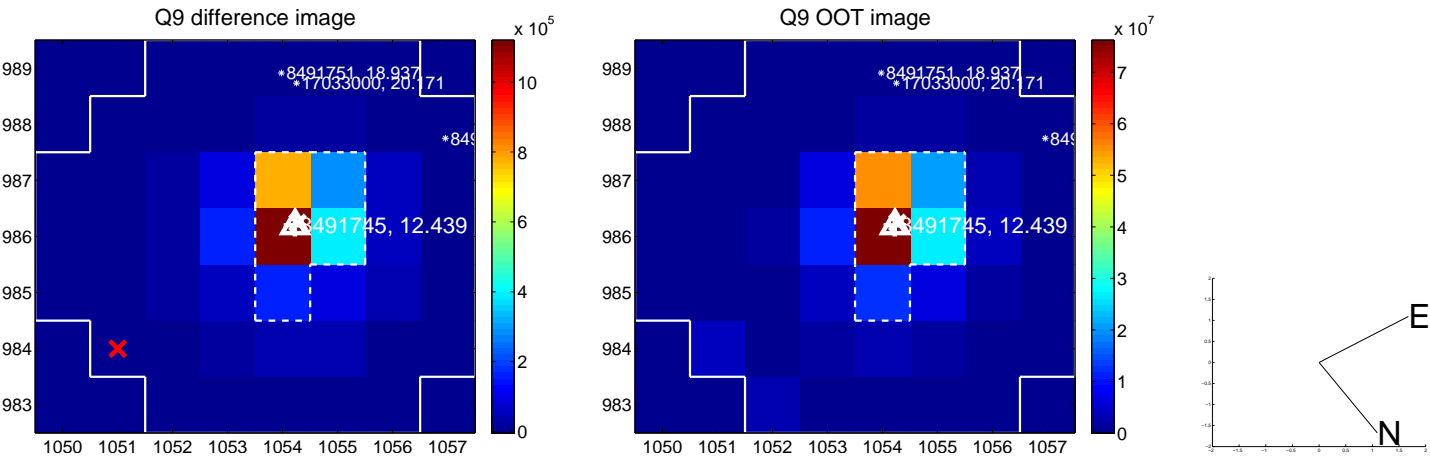
Q4 OOT image



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

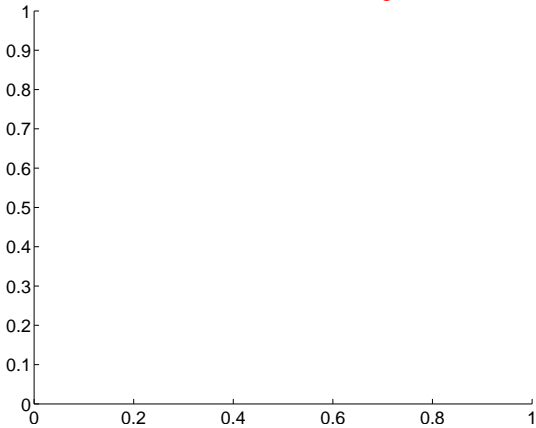


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

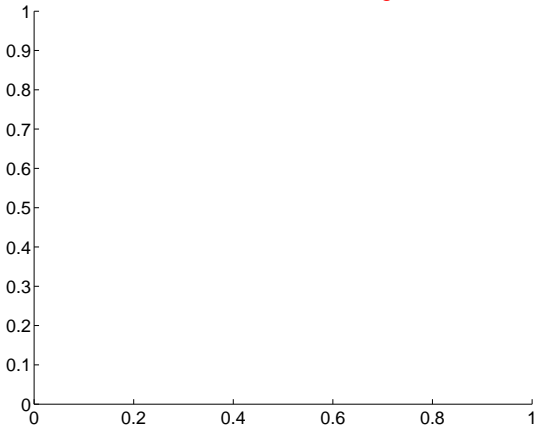
Q13 no difference image



Q13 no OOT image



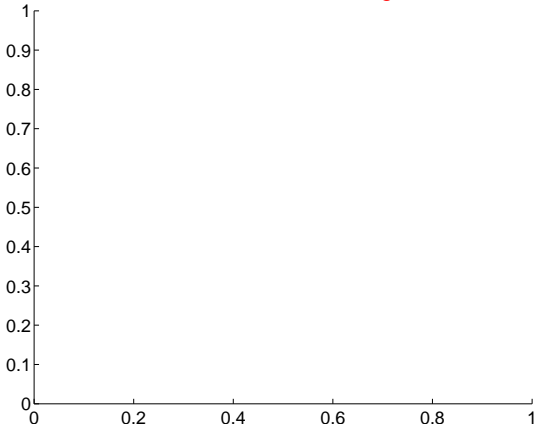
Q14 no difference image



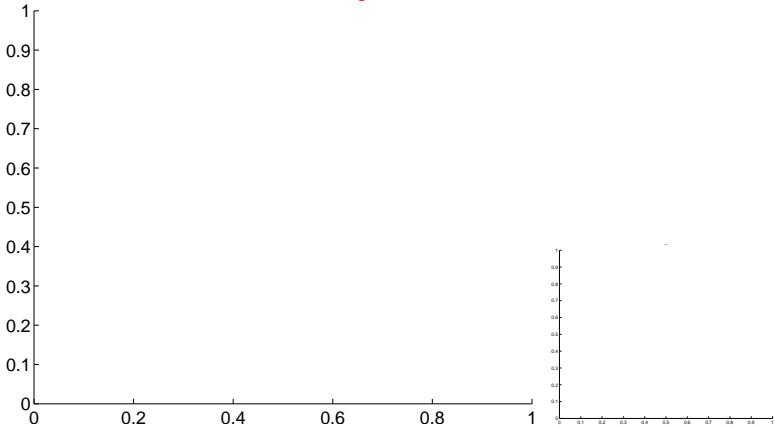
Q14 no OOT image



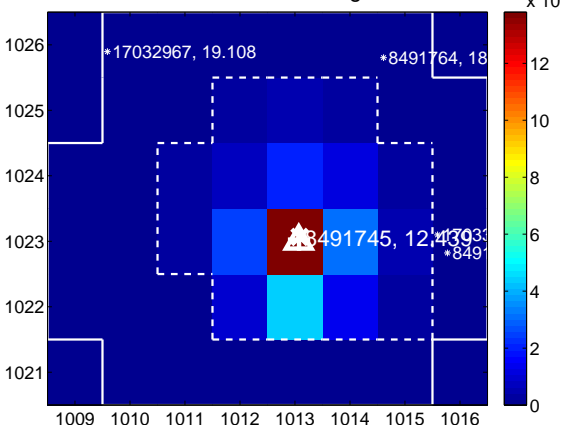
Q15 no difference image



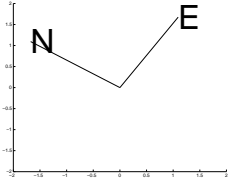
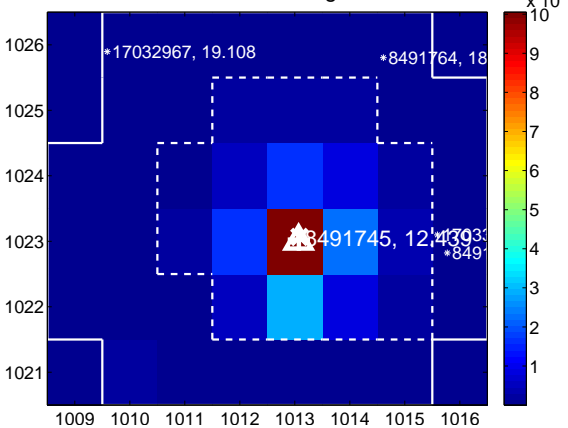
Q15 no OOT image



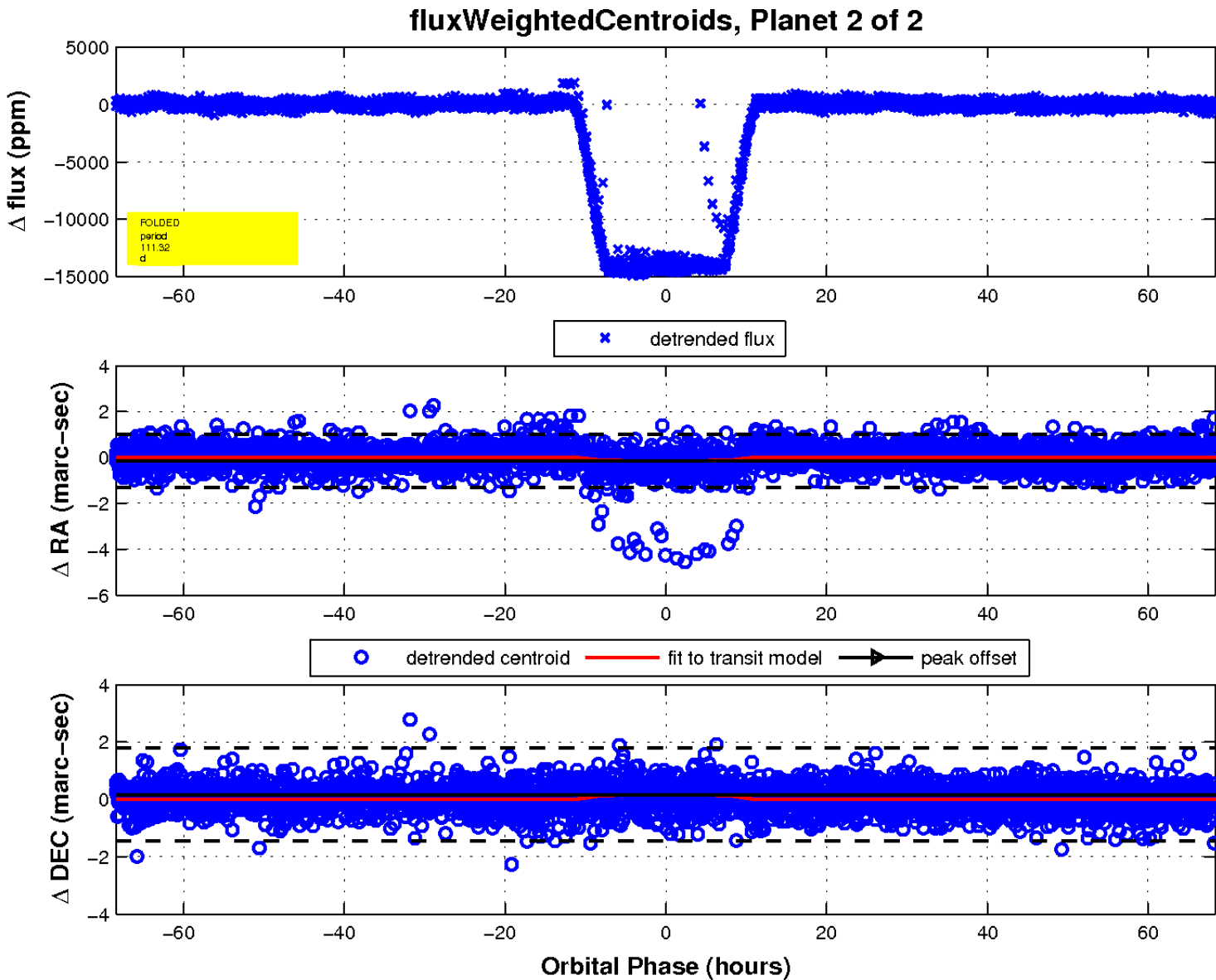
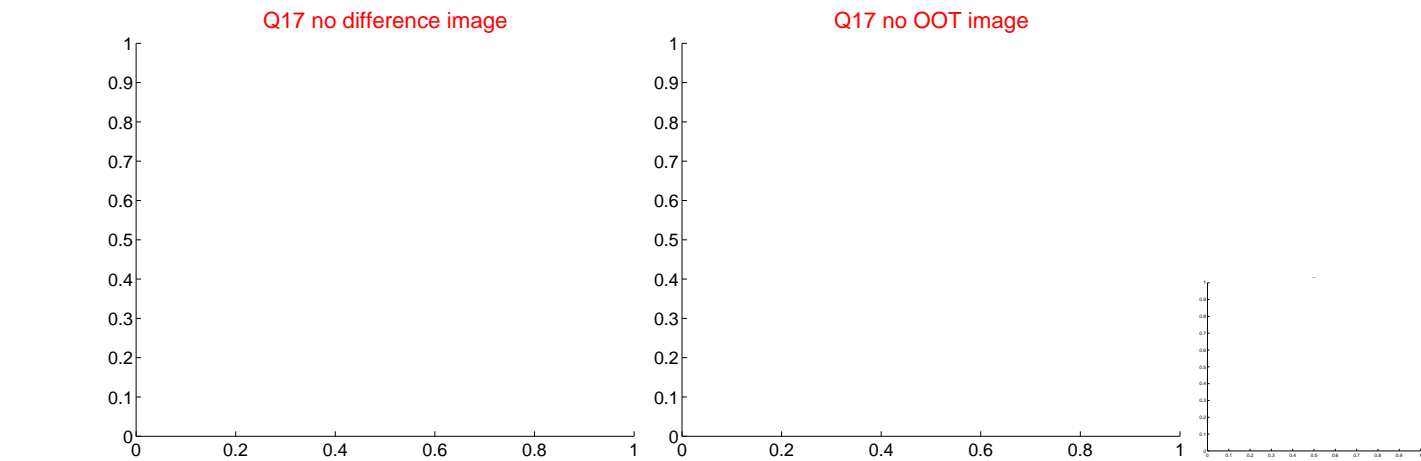
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

