

KIC 007866921

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})
007866921-01	OBS	3360.01	91.500084	182.768861	66247.1	19.580	1155.9	1105.3	0.77	5263	22.01	2.99
007866921-02	OBS	No	91.500106	217.659738	38249.2	15.780	871.2	720.7	0.77	5263	15.51	2.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007866921-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
007866921-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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 007866921-01

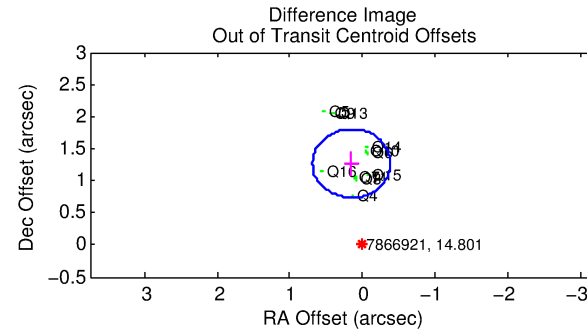
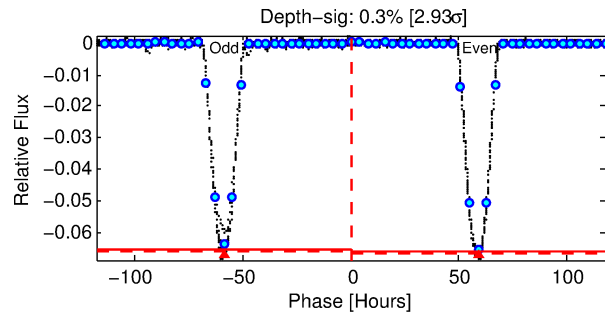
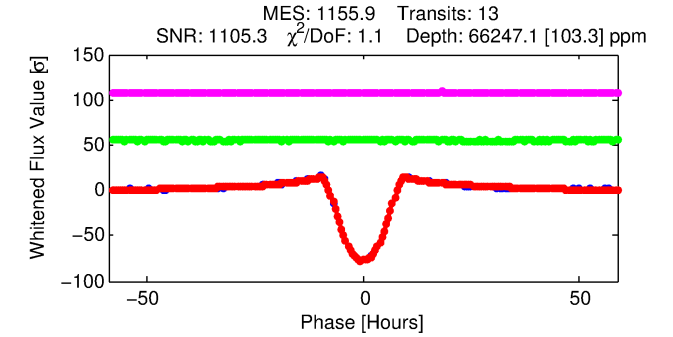
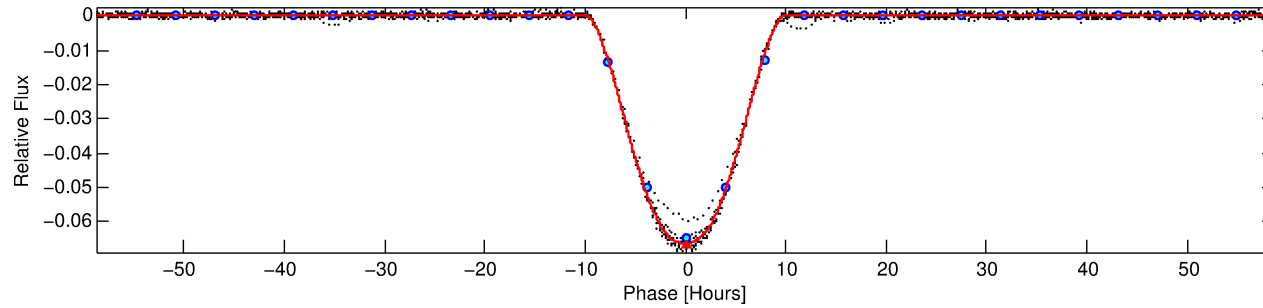
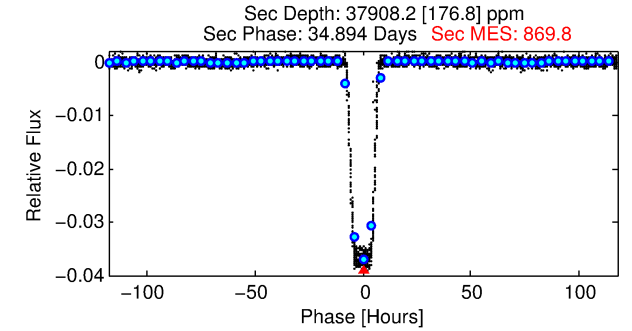
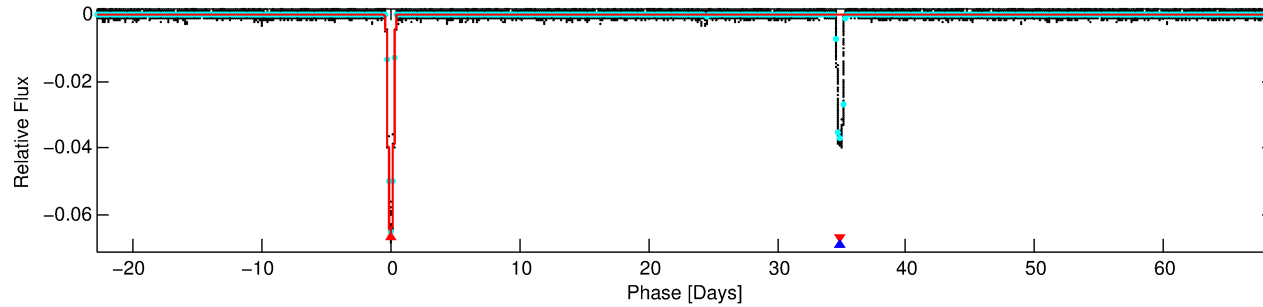
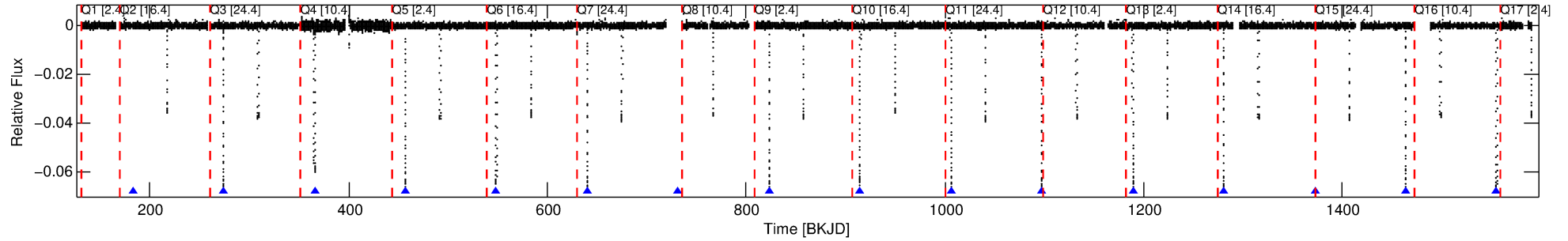
No Significant Match Found

DV One-Page Summary

KIC: 7866921 Candidate: 1 of 2 Period: 91.500 d

KOI: K03360.01 Corr: 0.997

Kp: 14.80 R*: 0.77 Rs Teff: 5263.0 K Logg: 4.57 Fe/H: -0.140



DV Fit Results:

Period = 91.50008 [0.00004] d
Epoch = 182.7689 [0.0004] BKJD
Rp/R* = 0.2606 [0.0004]
a/R* = 36.52 [0.05]
b = 0.74 [0.00]
Seff = 2.99 [0.62]
Teff = 335 [17] K
Rp = 22.01 [3.19] Re
a = 0.3714 [0.0442] AU
Ag = 5937.04 [1008.45] [5.89σ]
Teffp = 4549 [137] K [30.57σ]

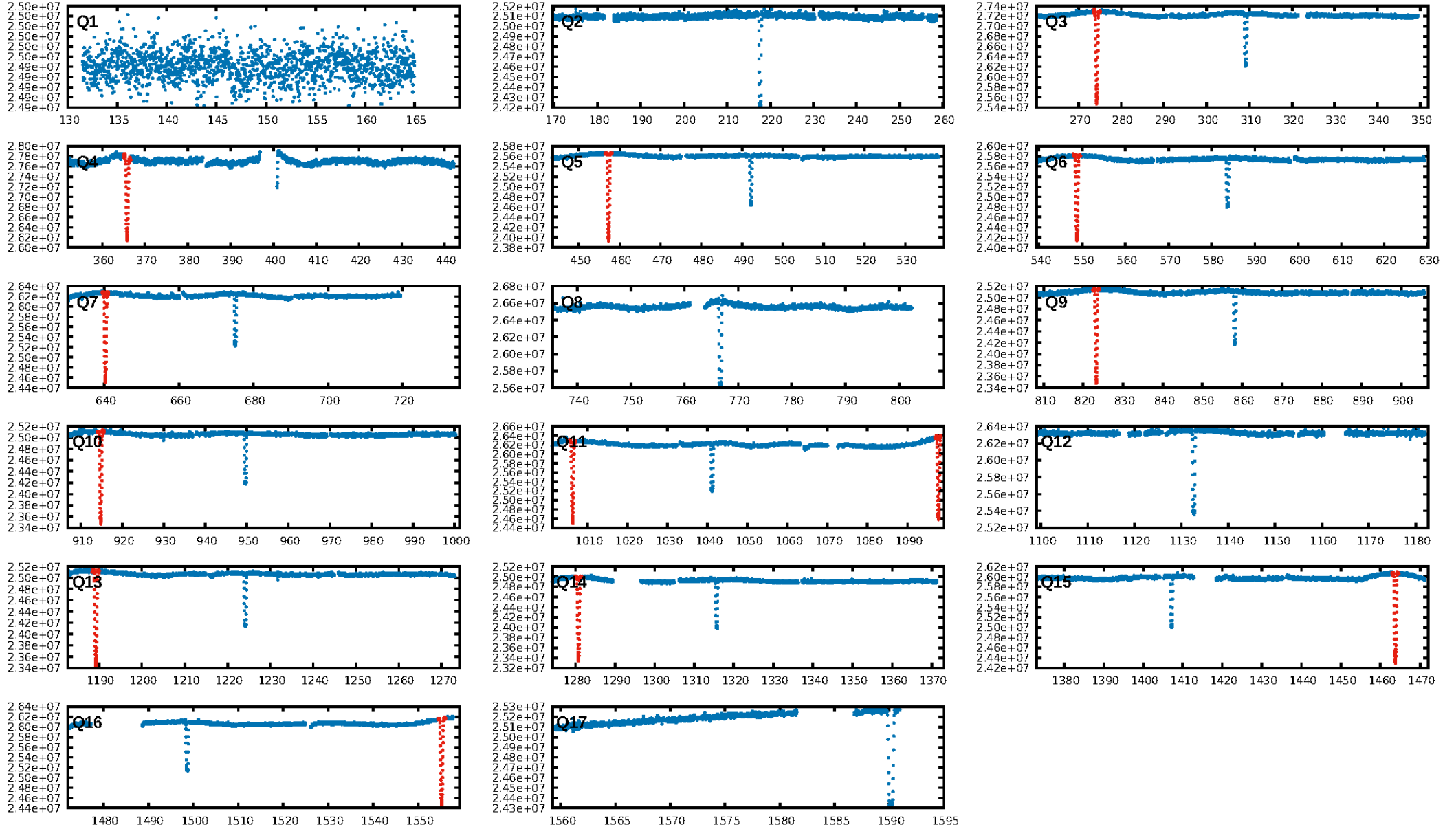
DV Diagnostic Results:

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 [13/13]
GhostDiagnostic-chr: 1.455
Centroid-sig: 0.0%
Centroid-so: 1.569 arcsec [355.95σ]
OotOffset-rm: 1.278 arcsec [7.17σ]
KicOffset-rm: 0.163 arcsec [2.18σ]
OotOffset-st: 3/4/2/3 [12]
KicOffset-st: 3/4/2/3 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [12/12]

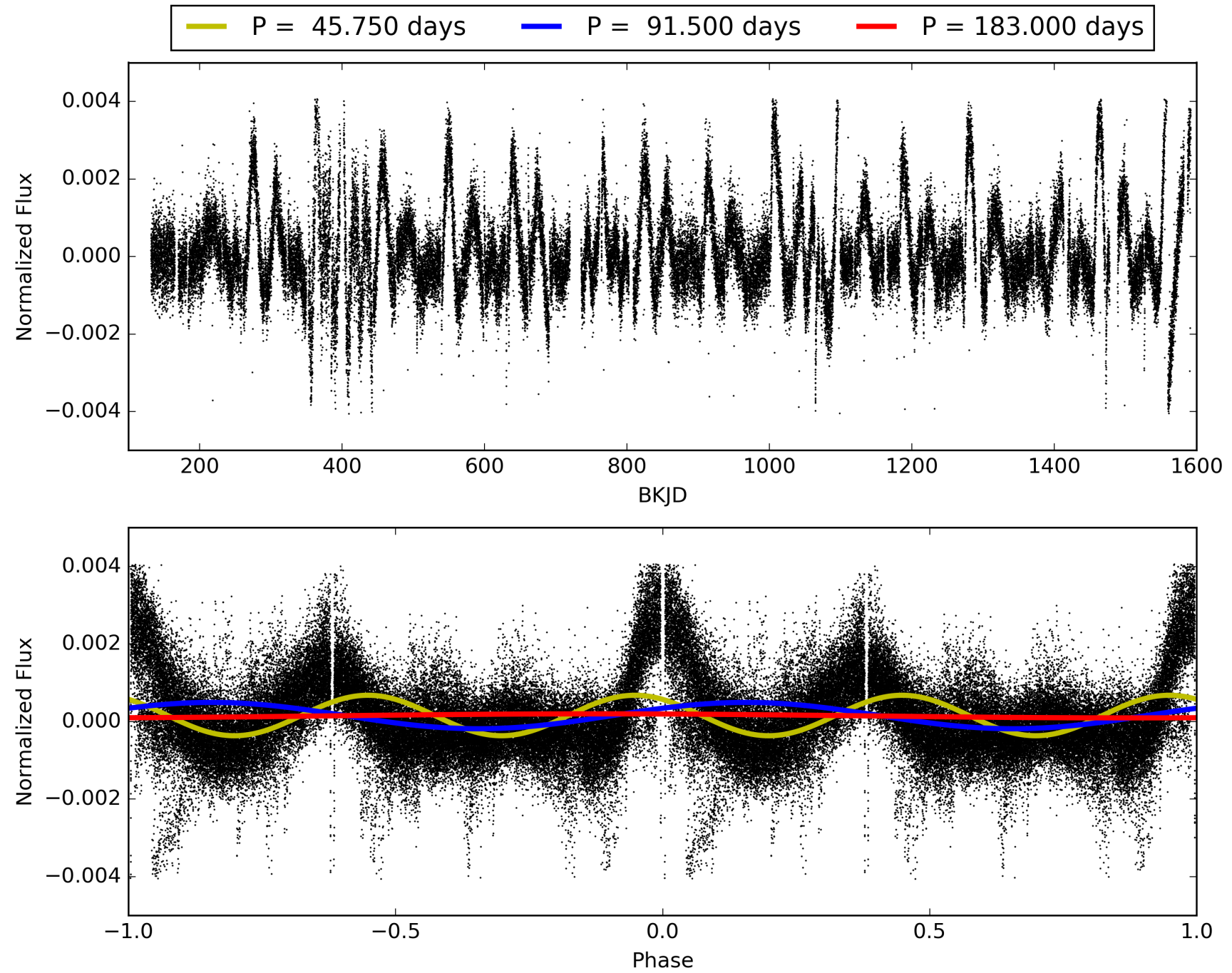
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:45:54 Z

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

TCE 007866921-01, PDC Light Curves

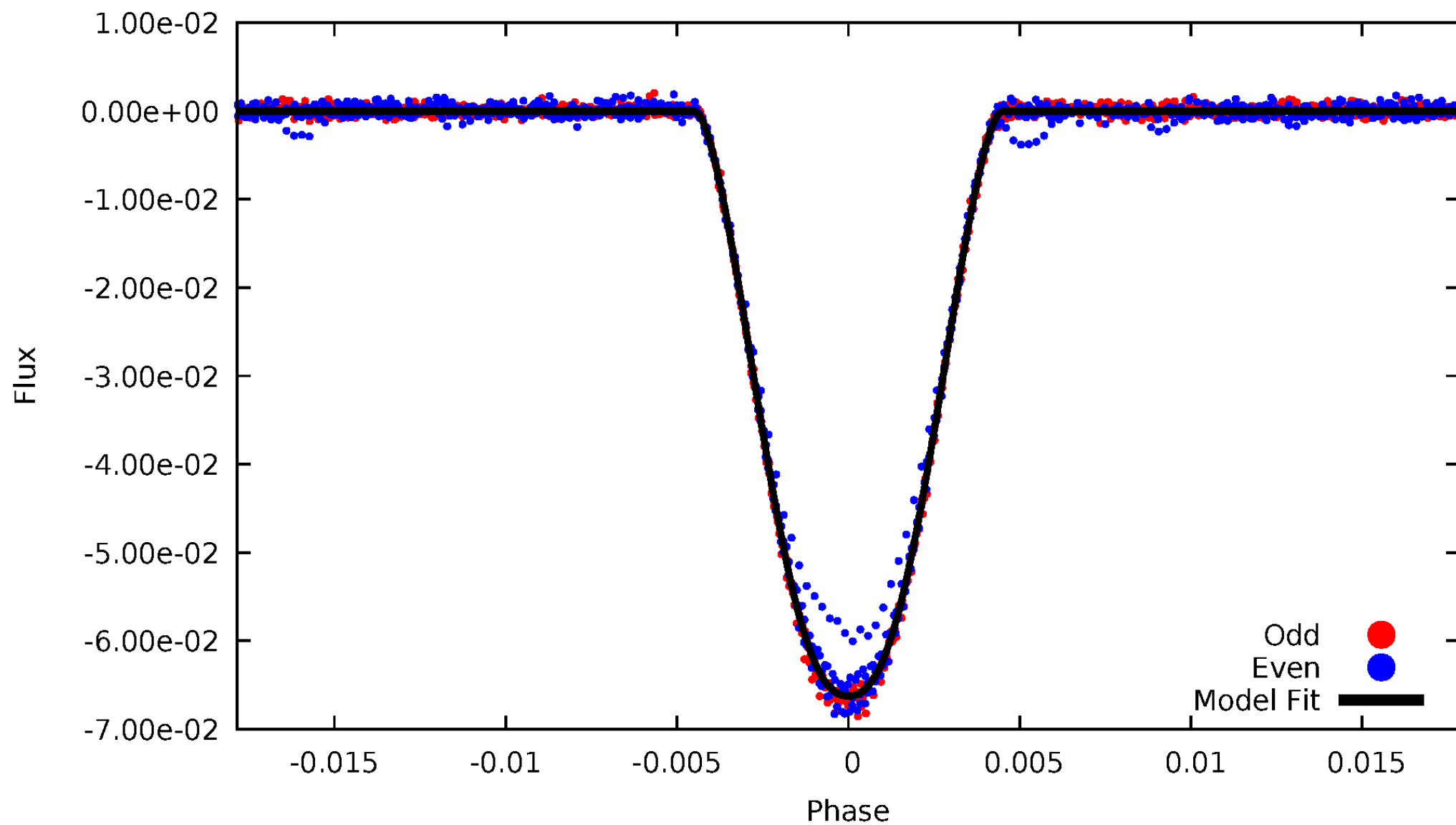


TCE 007866921-01



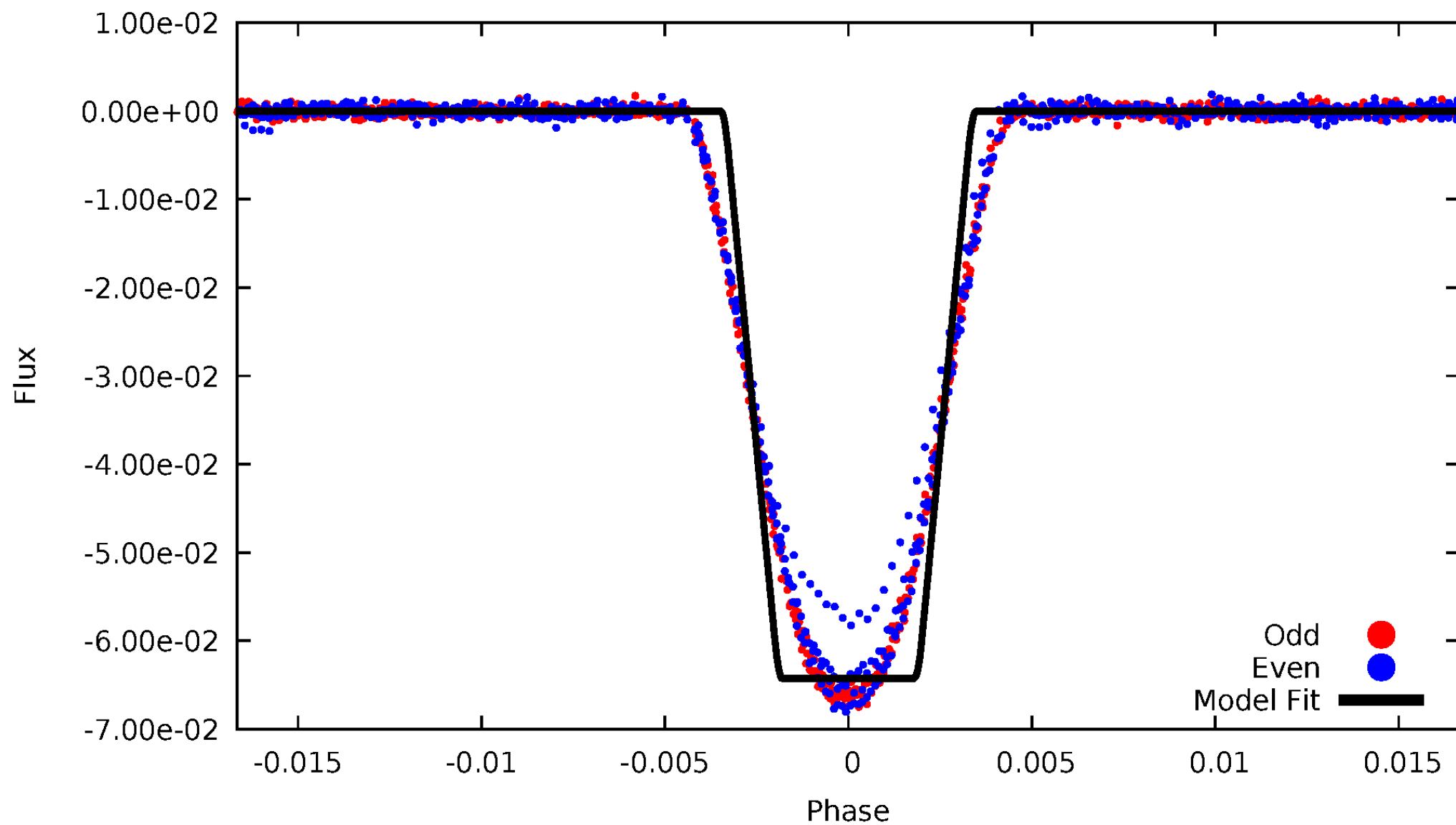
DV Odd/Even

TCE 007866921-01



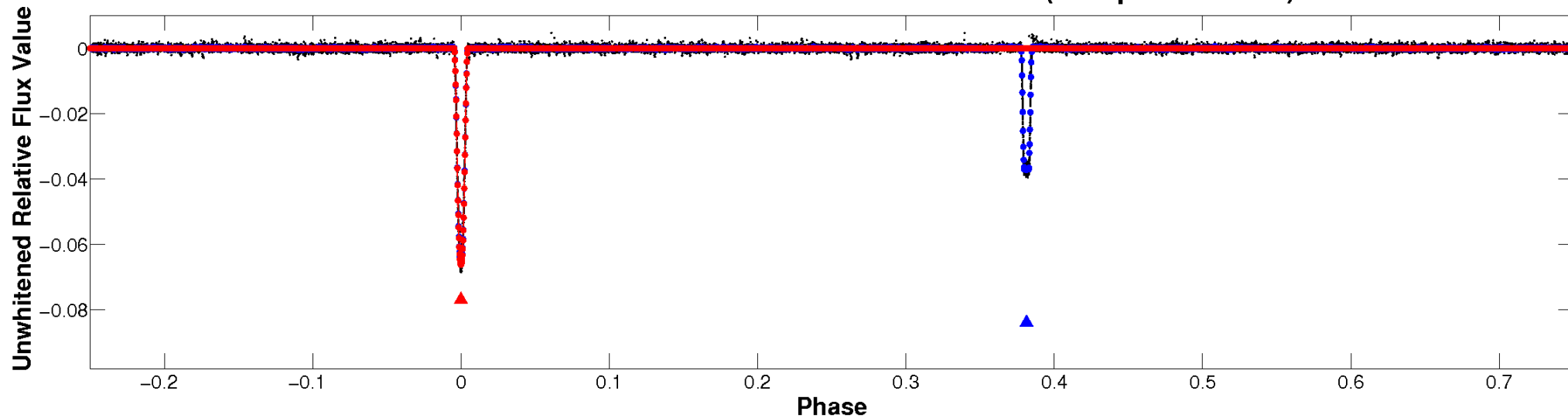
ALT Odd/Even

TCE 007866921-01

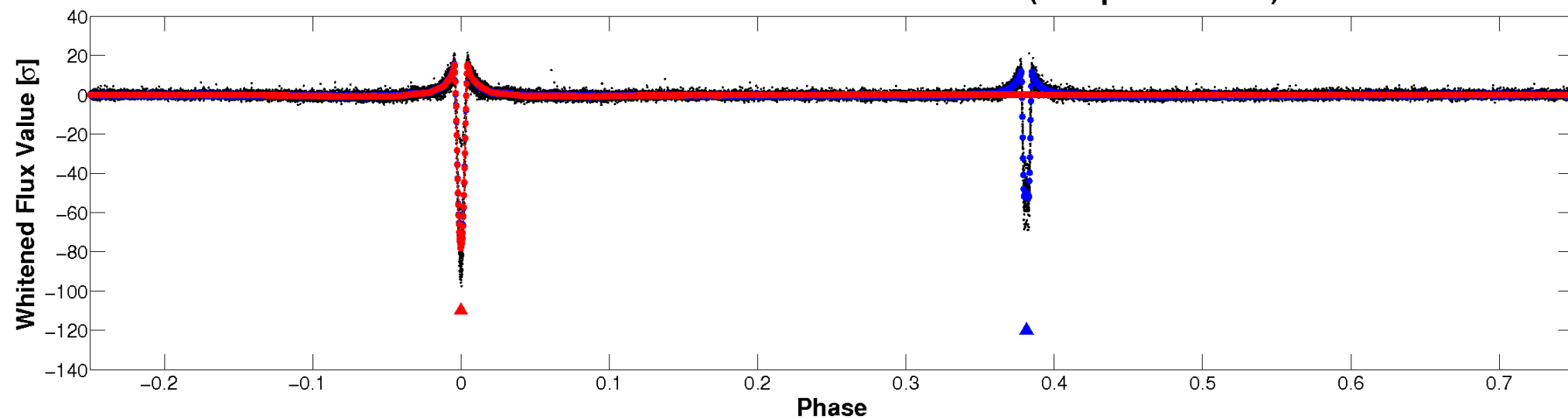


Non-Whitened Vs. Whitened Light Curve

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

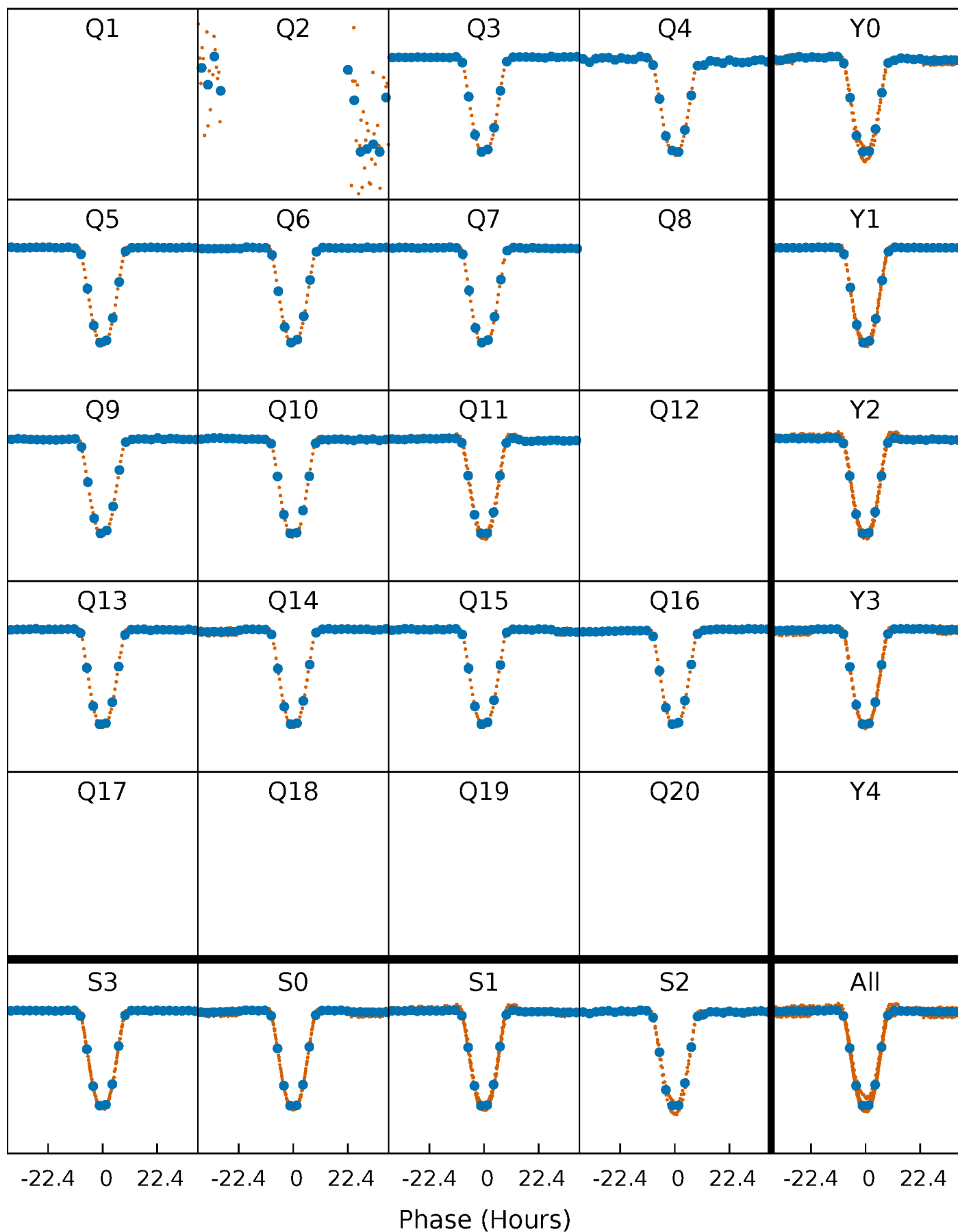


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



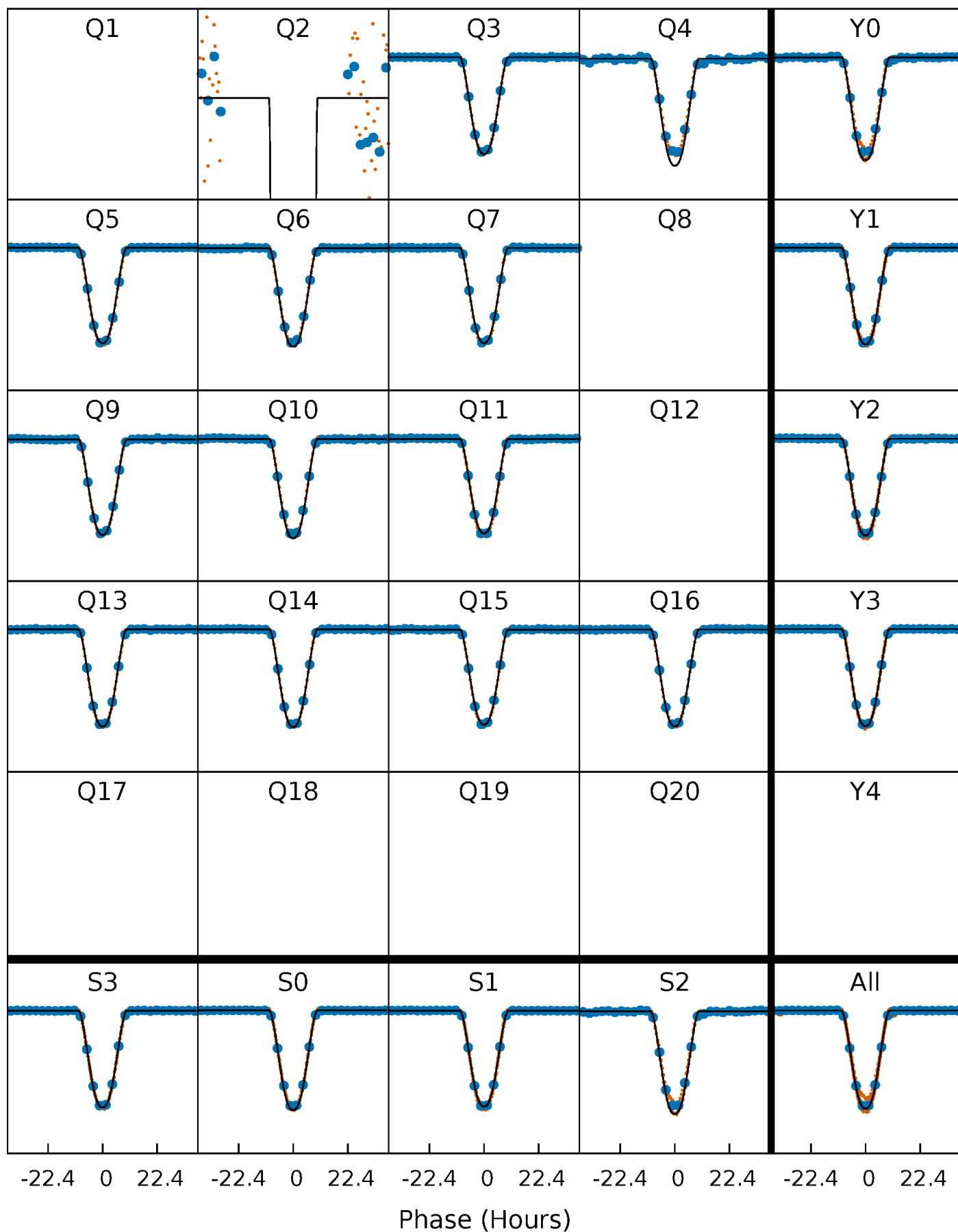
PDC Quarter-Phased Transit Curves

TCE 007866921-01 P= 91.500084 Days $T_0=182.768861$ (BKJD)



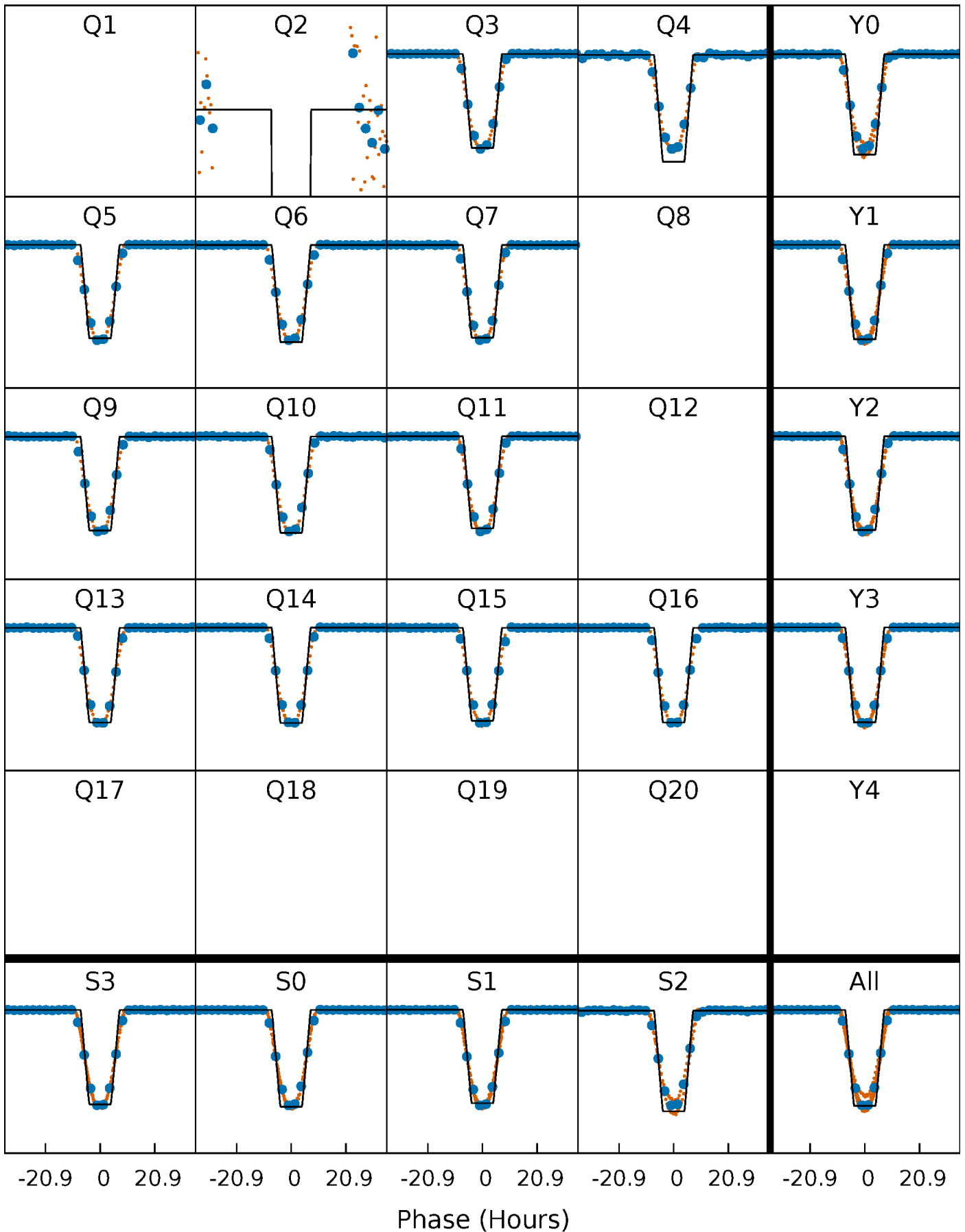
DV Quarter-Phased Transit Curves

TCE 007866921-01 P= 91.500084 Days $T_0=182.768861$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

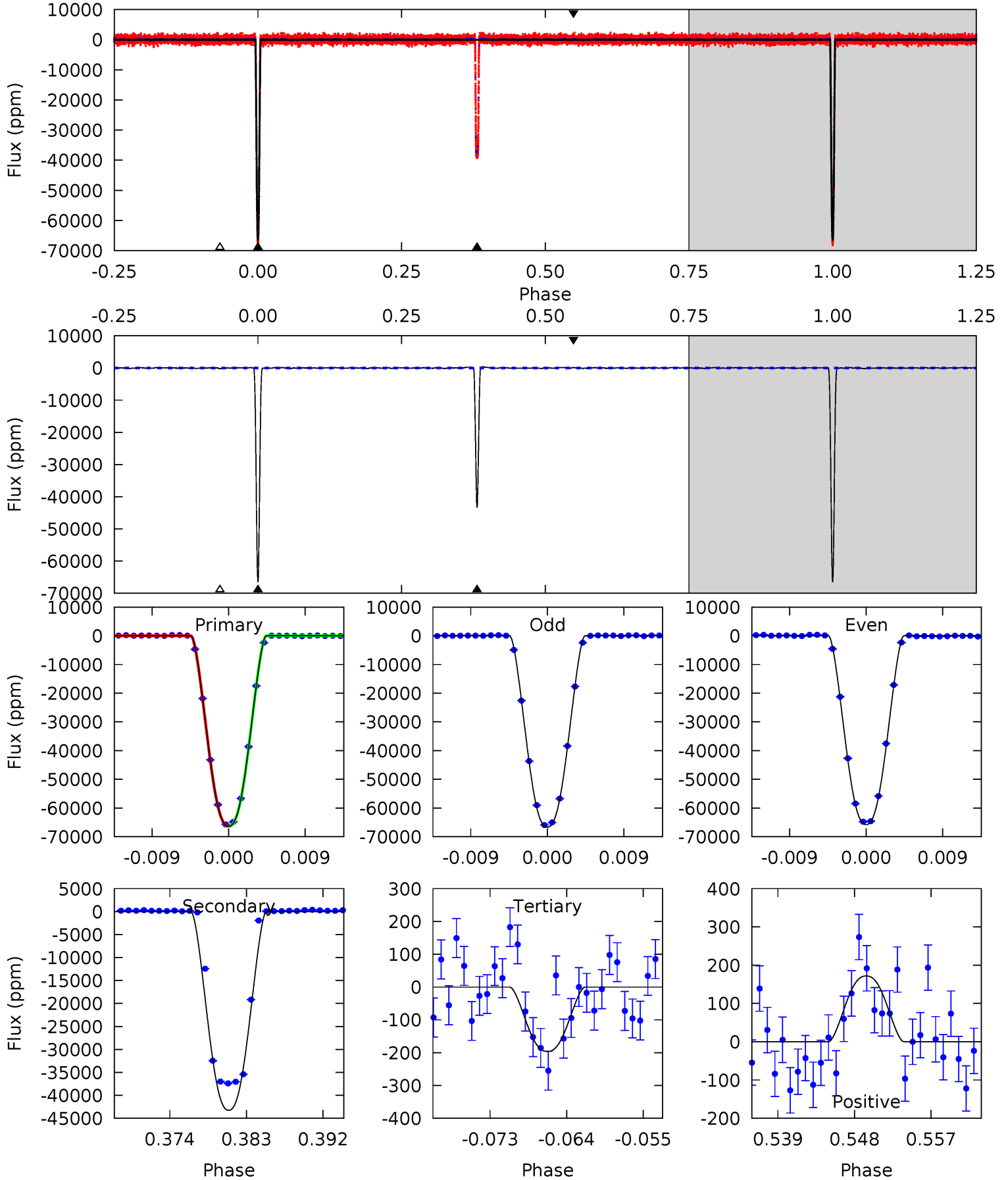
TCE 007866921-01 P= 91.499341 Days $T_0=182.774970$ (BKJD)



DV Model-Shift Uniqueness Test

007866921-01, P = 91.500084 Days, E = 91.268777 Days

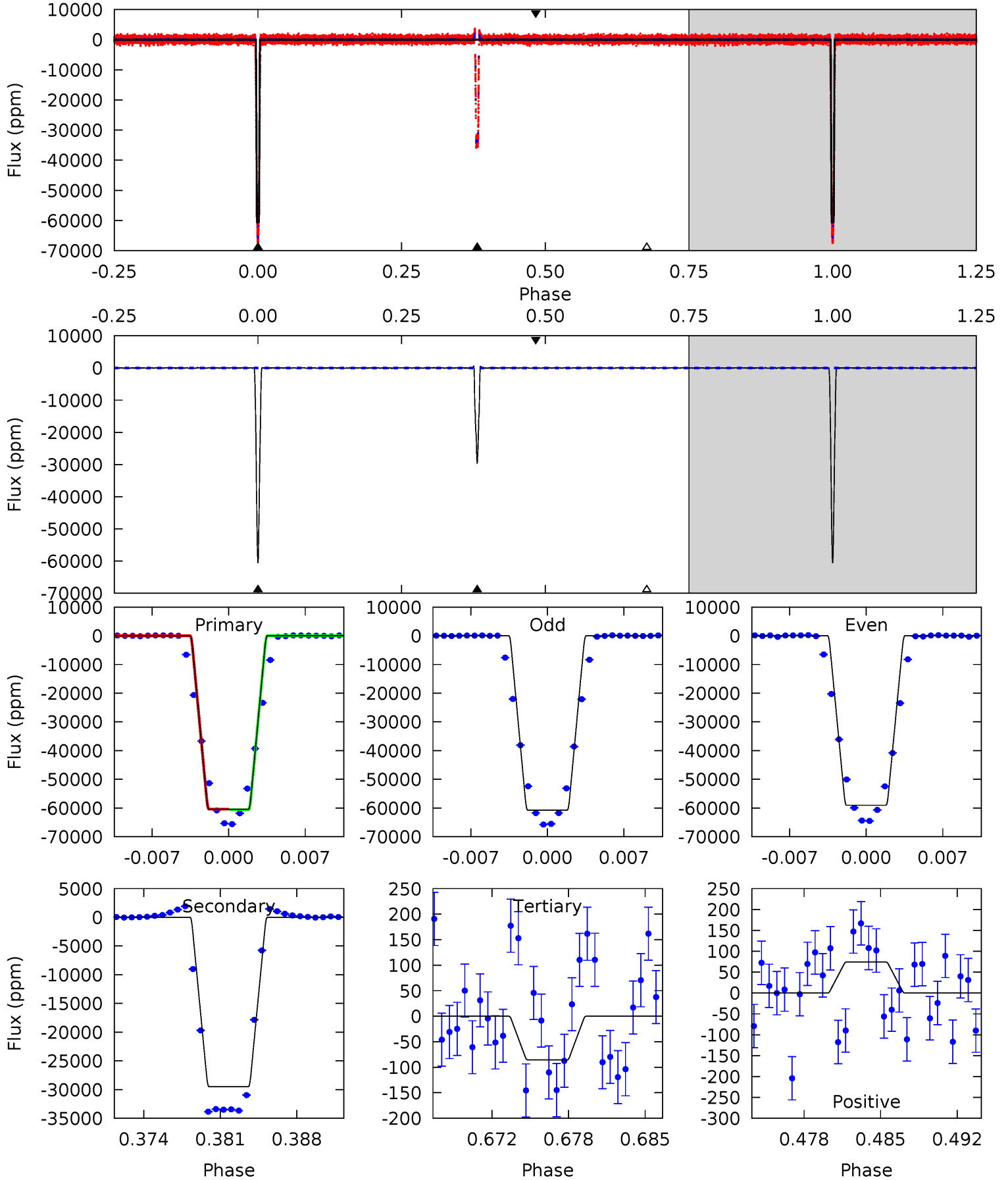
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2793	1820	8.27	7.23	5.04	2.61	3.08	2785	2786	1812	1813	18.0	0.99	0.00	0.32



Alt Model-Shift Uniqueness Test

007866921-01, P = 91.499341 Days, E = 91.275629 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2316	1130	3.28	2.84	5.10	2.70	0.89	2313	2313	1127	1127	31.8	0.99	0.01	1.02



Stellar Parameters For KIC 007866921

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5263^{+158}_{-142}	$4.572^{+0.045}_{-0.091}$	$-0.140^{+0.300}_{-0.300}$	$0.774^{+0.112}_{-0.069}$	$0.816^{+0.085}_{-0.078}$	$2.482^{+0.505}_{-0.723}$
	+3%/-3%	+1%/-2%	+214%/-214%	+14%/-9%	+10%/-10%	+20%/-29%
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 007866921-01 / KOI 3360.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-43266 ± 24	$22.28^{+1.74}_{-1.18}$	474^{+20}_{-16}	4836^{+128}_{-127}	6868^{+630}_{-810}
Alt.	-29491 ± 26	$21.64^{+1.75}_{-1.21}$	474^{+20}_{-19}	4508^{+127}_{-97}	4903^{+483}_{-595}

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

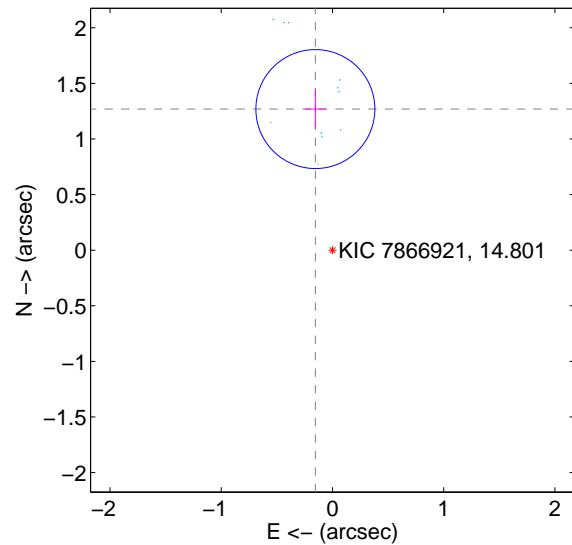
Supplemental centroid analysis for 007866921-01. Kepler magnitude: 14.80. Transit SNR 1105.32

There are 12 quarters with good PRF difference image offsets

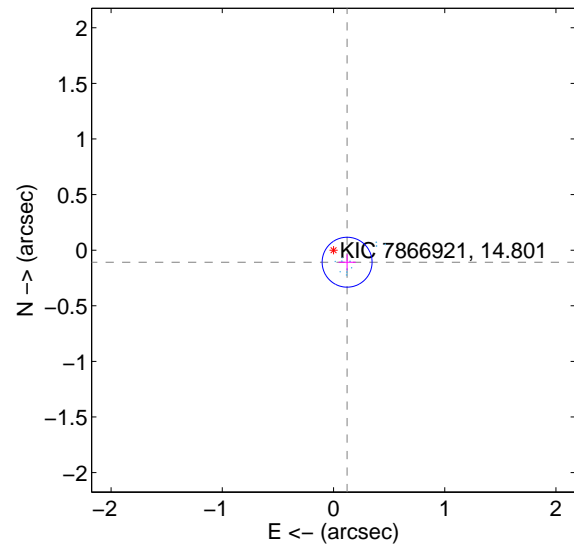
The direct PRF centroid is offset from the target star catalog position by about 1.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.278 ± 0.178	7.17	0.154 ± 0.095	1.269 ± 0.179
PRF-fit source offset from KIC position	0.163 ± 0.075	2.18	-0.122 ± 0.077	-0.108 ± 0.072
photometric centroid source offset	1.57 ± 0.00	355.95	-1.40 ± 0.00	-0.70 ± 0.00

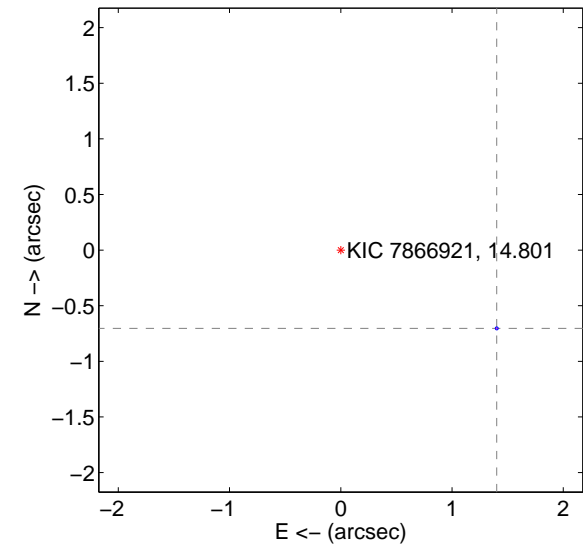
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

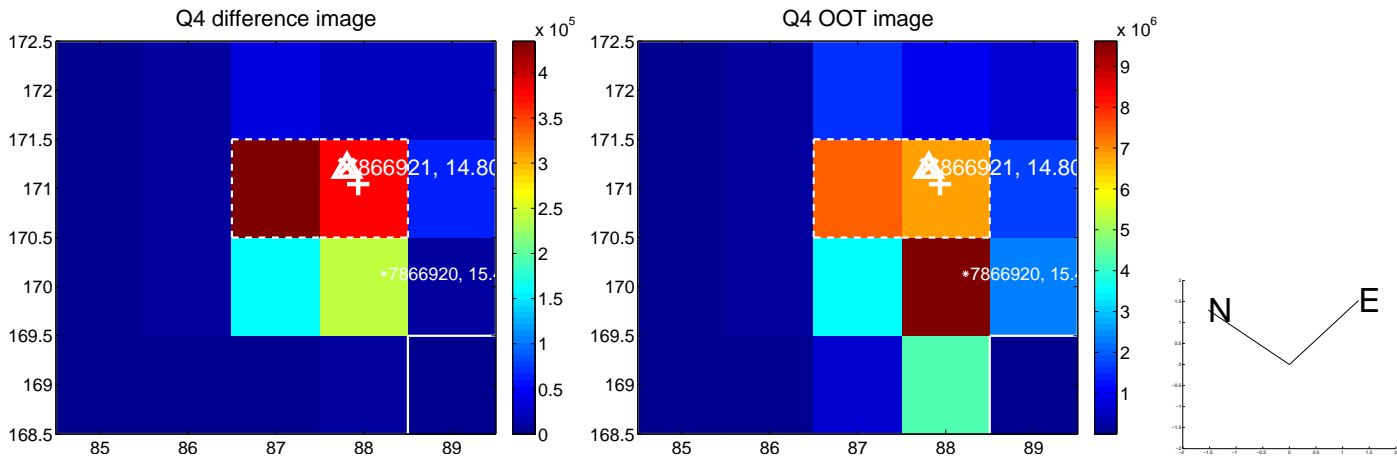
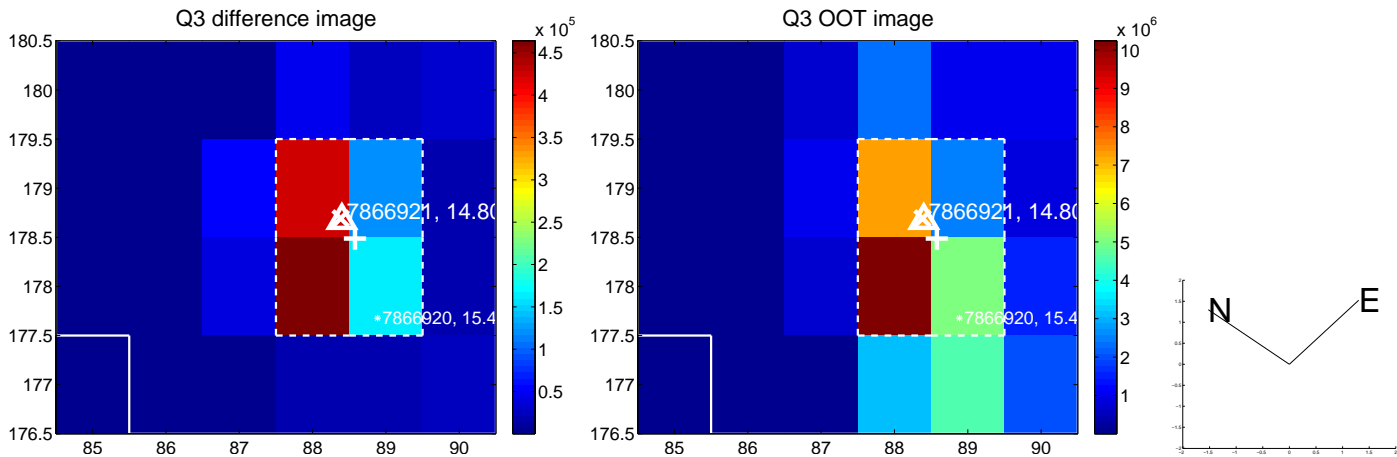
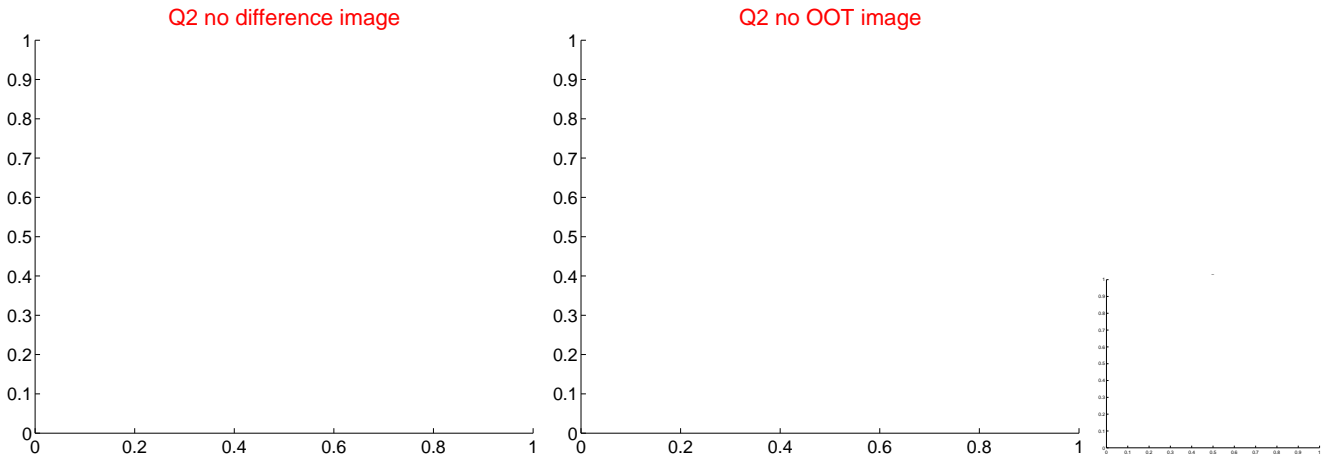


offset from photometric centroids

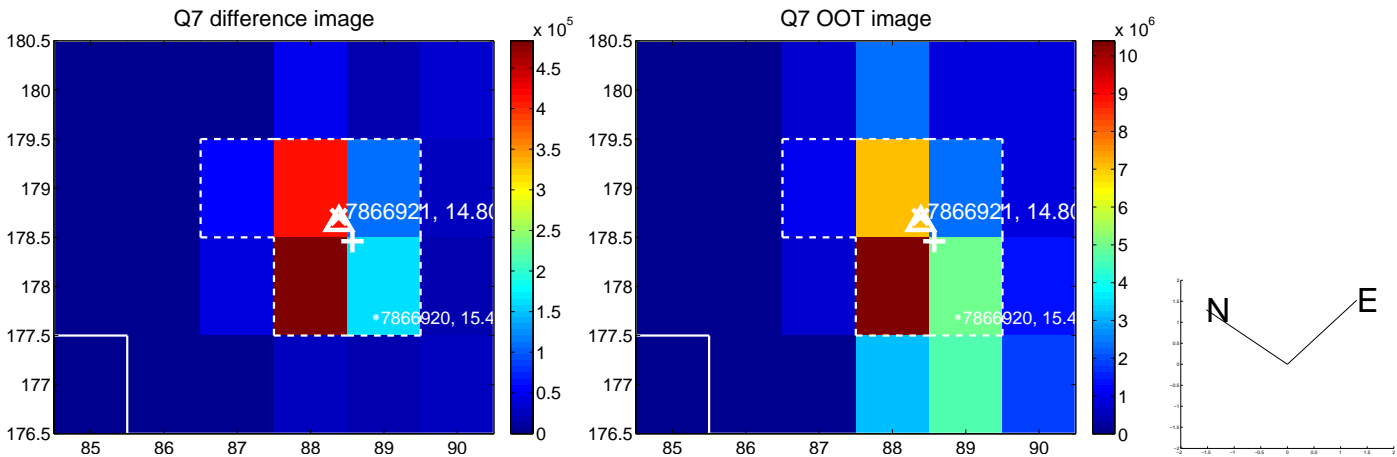
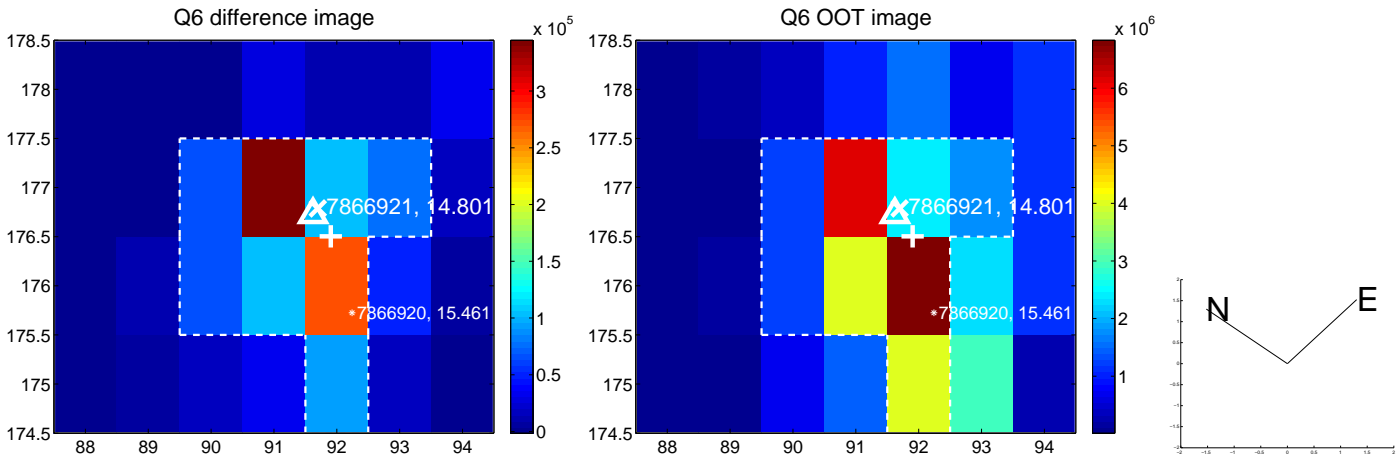
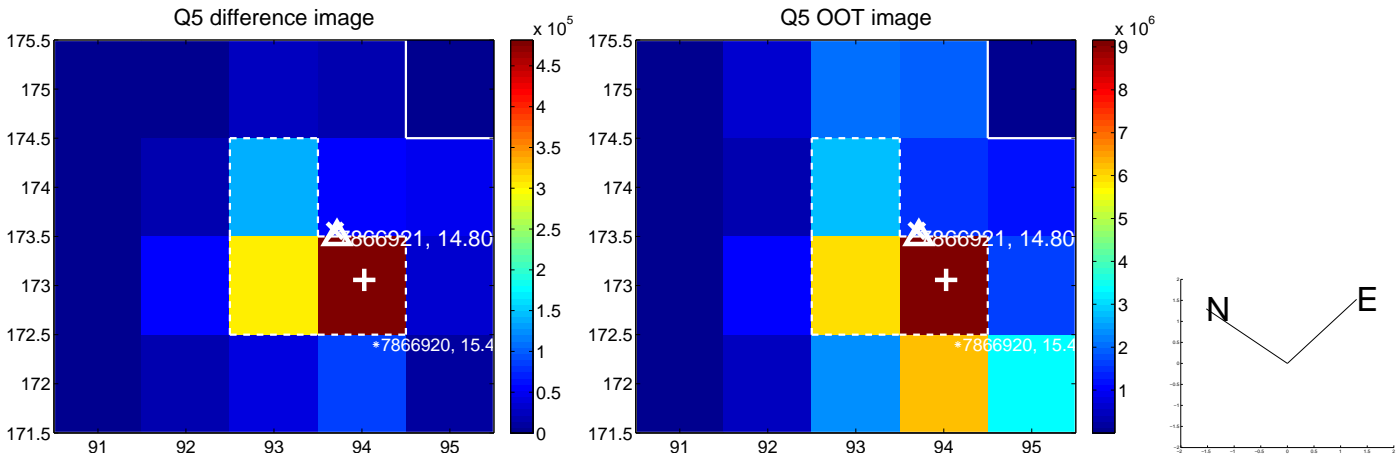


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

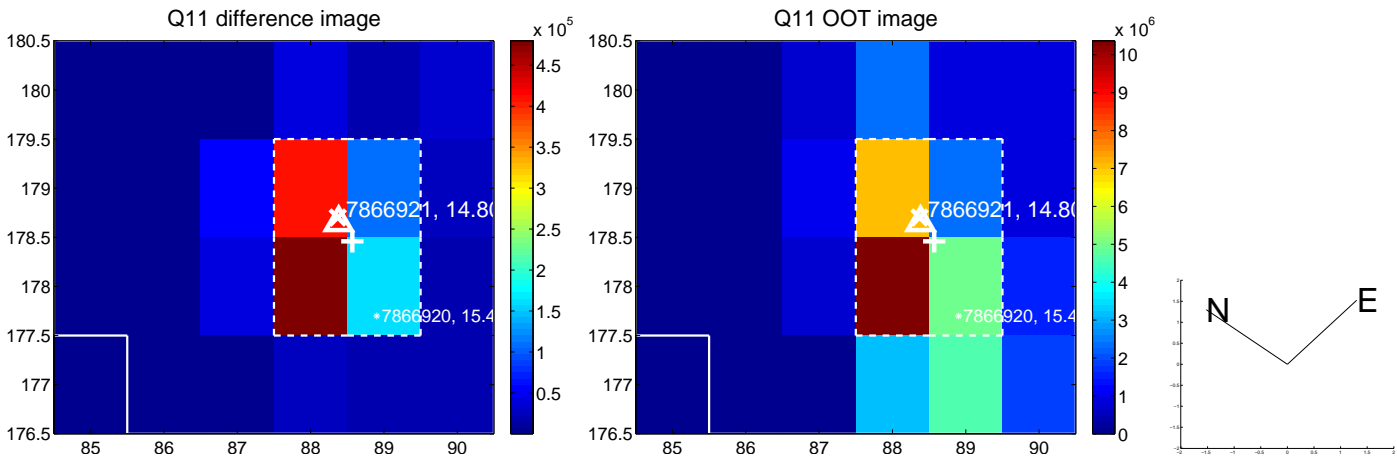
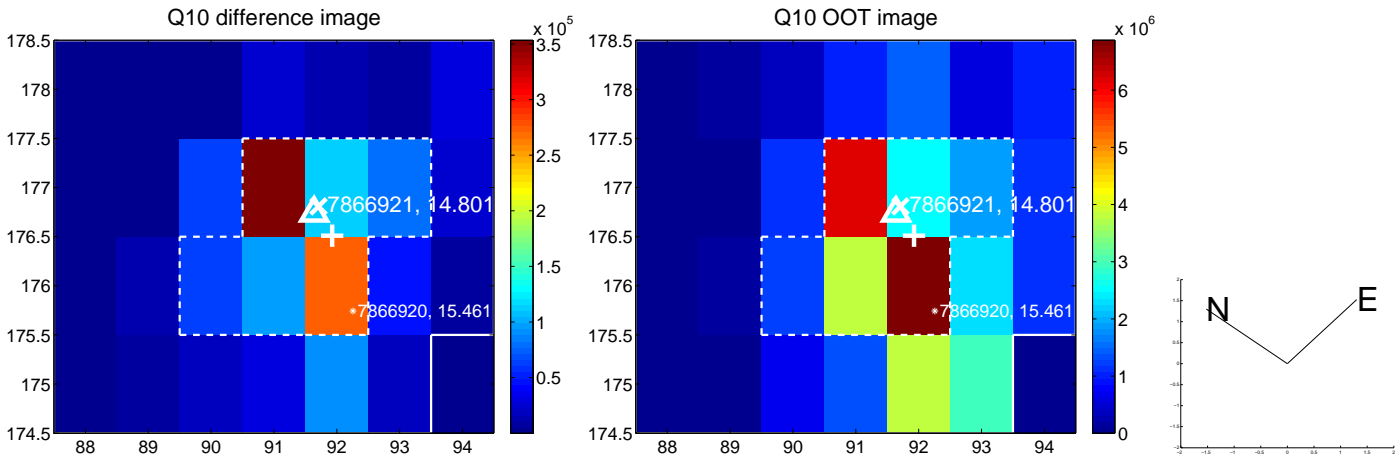
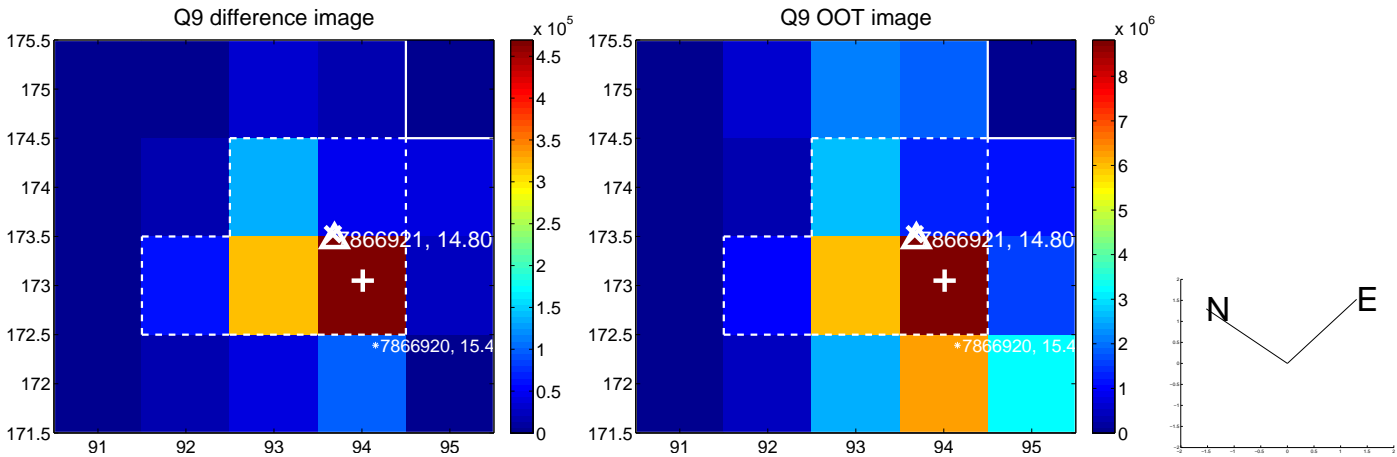
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



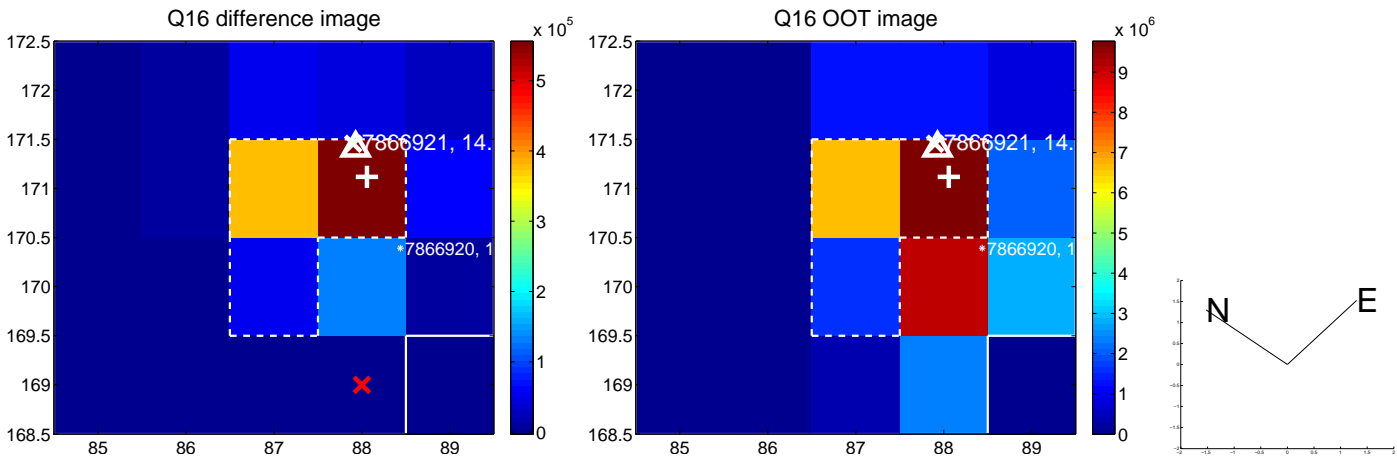
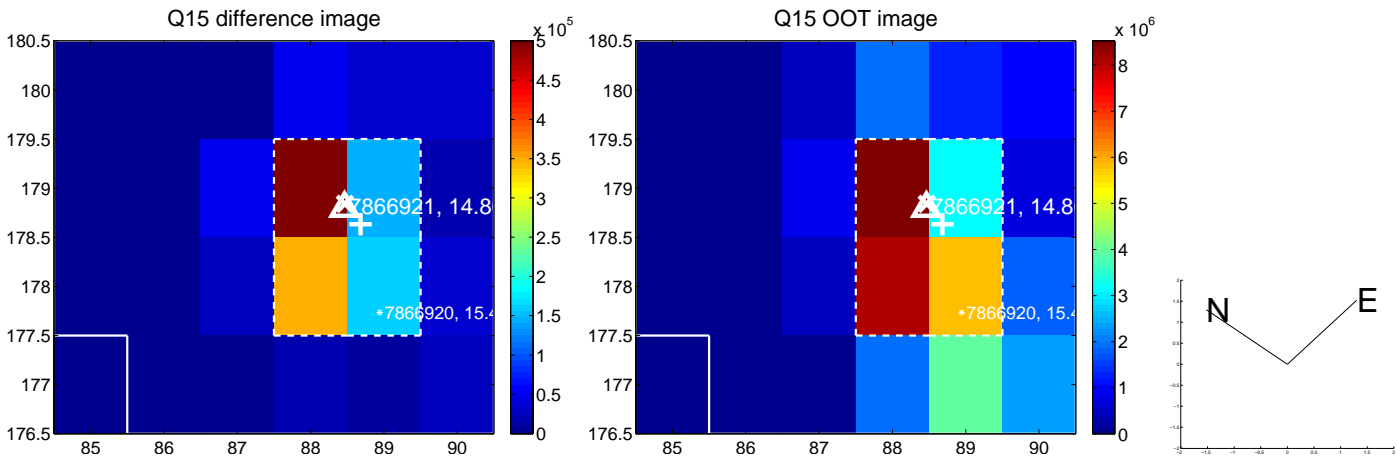
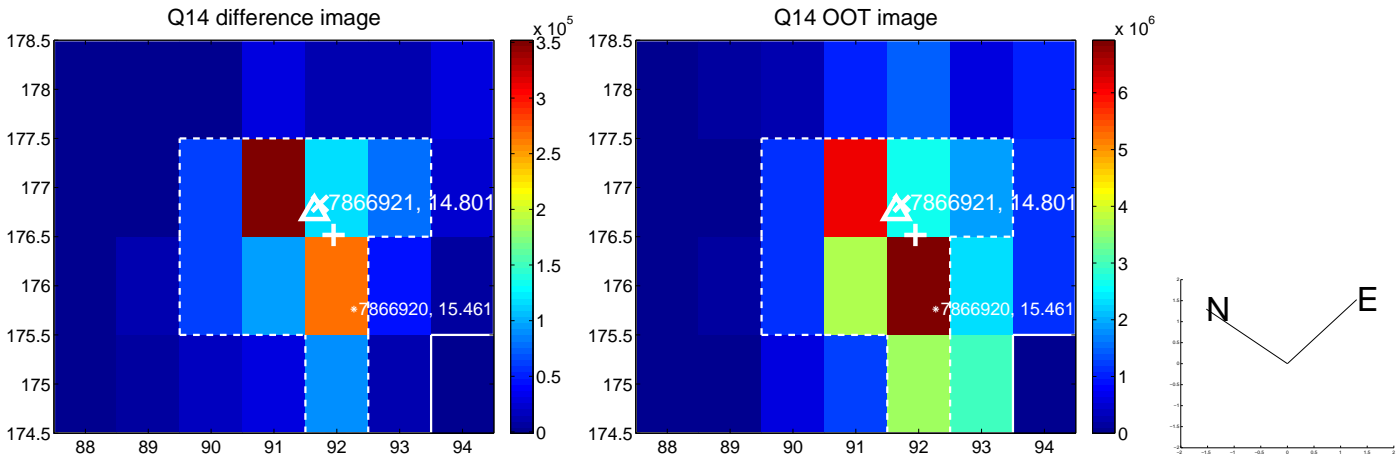
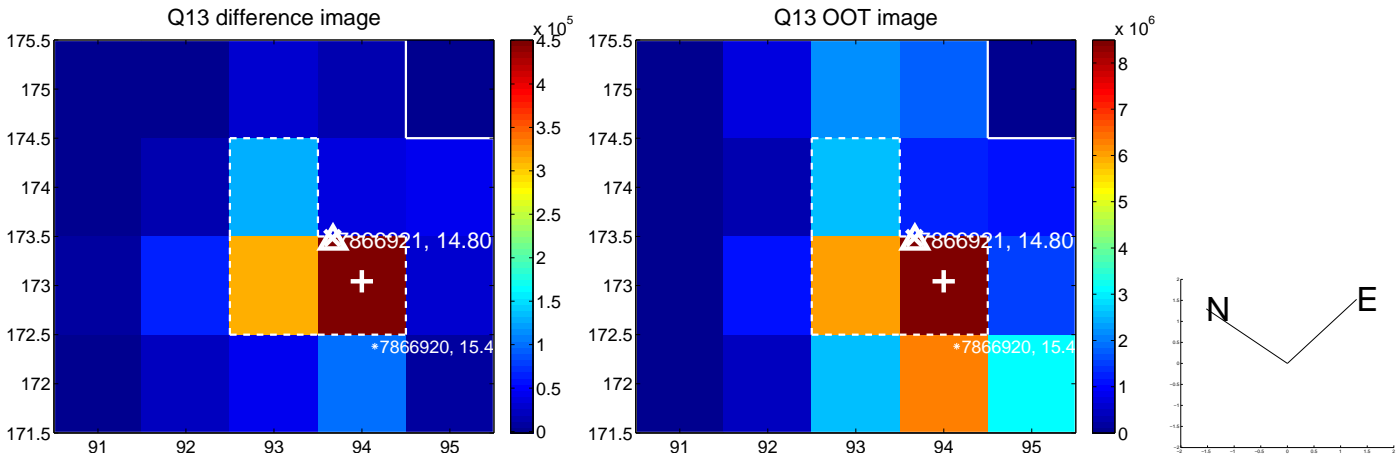
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



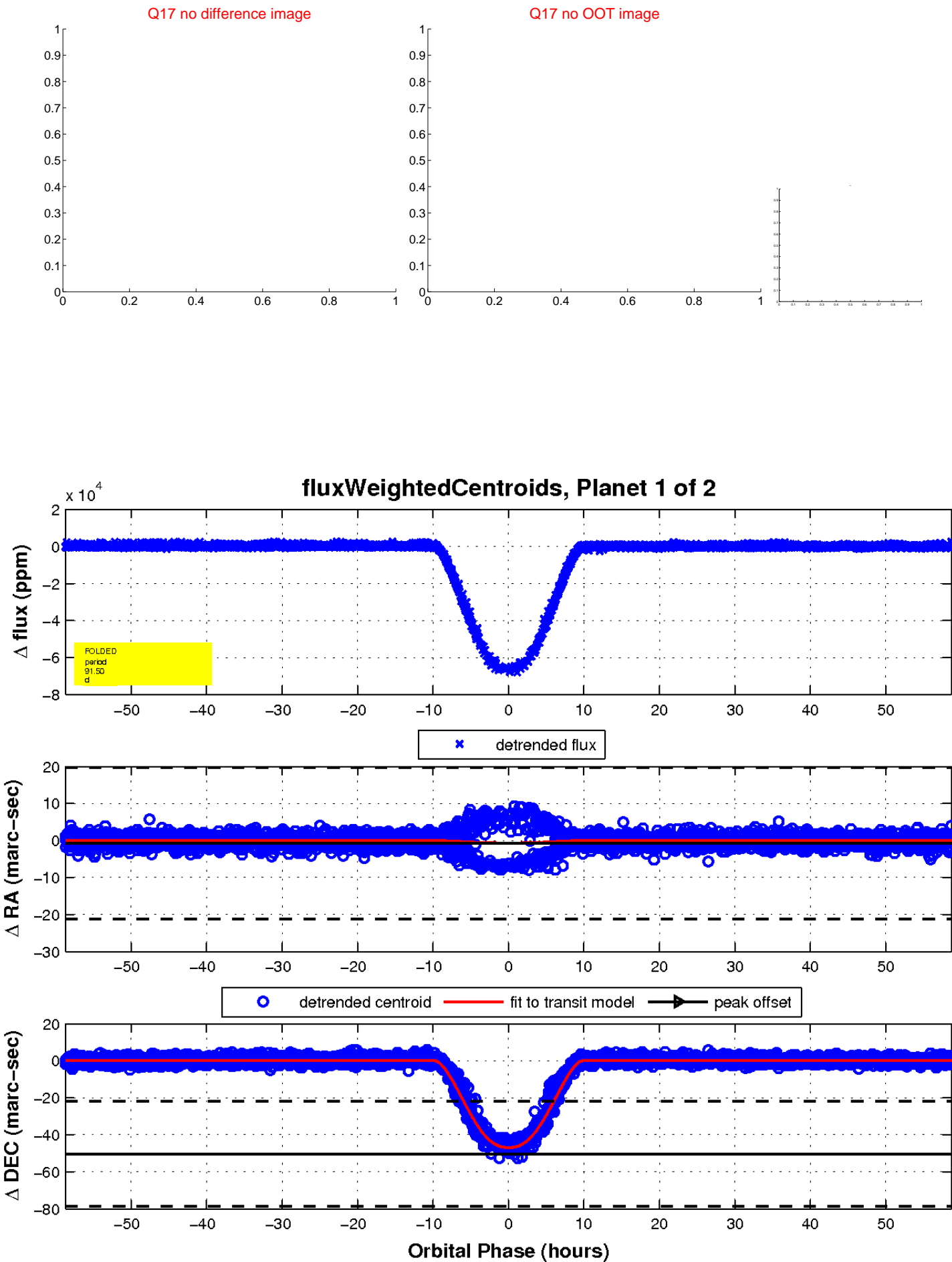
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

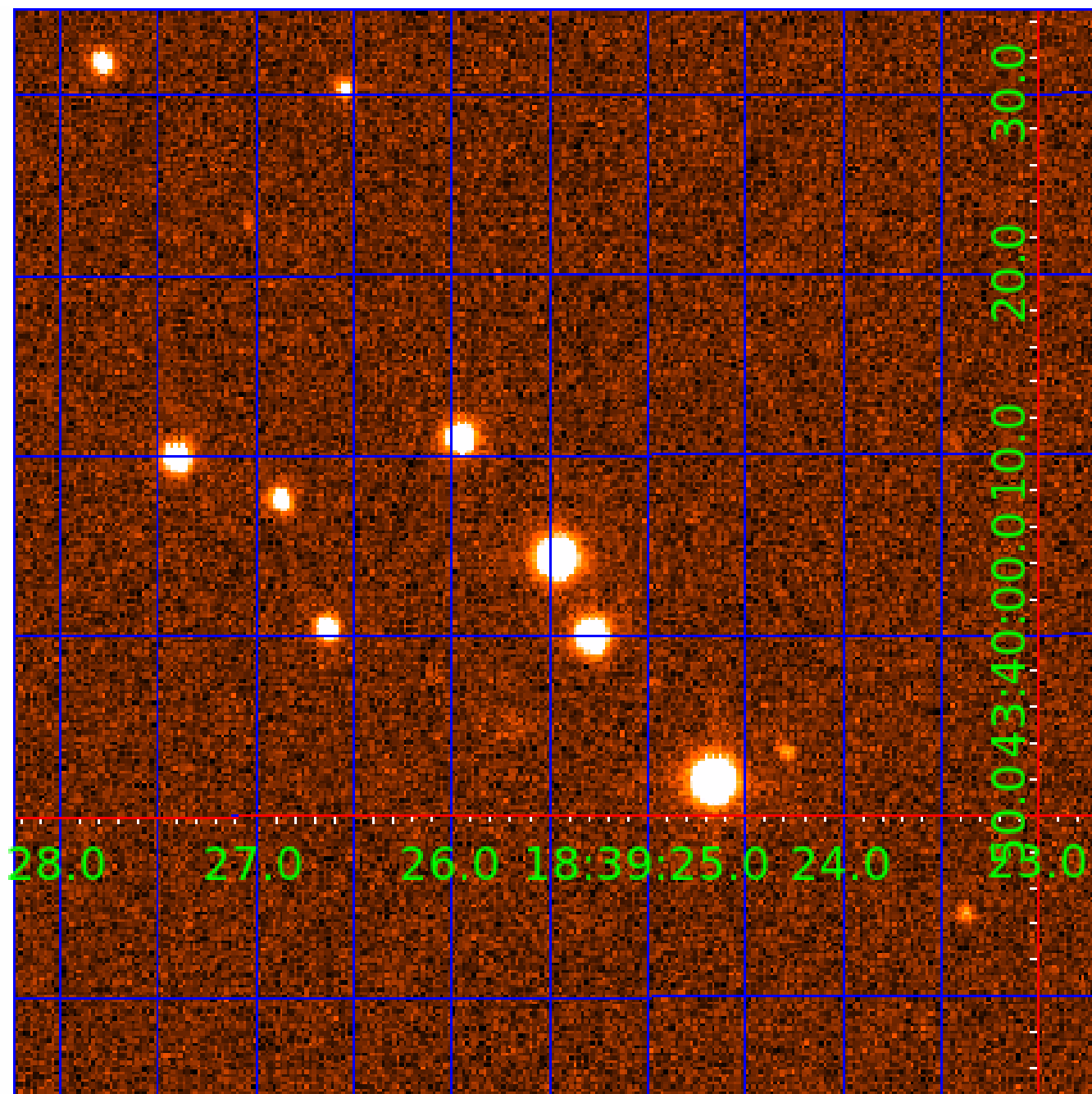


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007866921

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})
007866921-01	OBS	3360.01	91.500084	182.768861	66247.1	19.580	1155.9	1105.3	0.77	5263	22.01	2.99
007866921-02	OBS	No	91.500106	217.659738	38249.2	15.780	871.2	720.7	0.77	5263	15.51	2.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007866921-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
007866921-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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 007866921-02

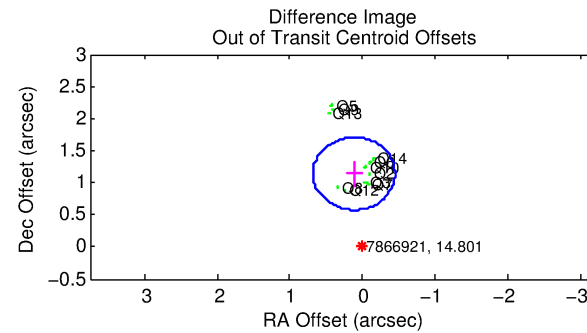
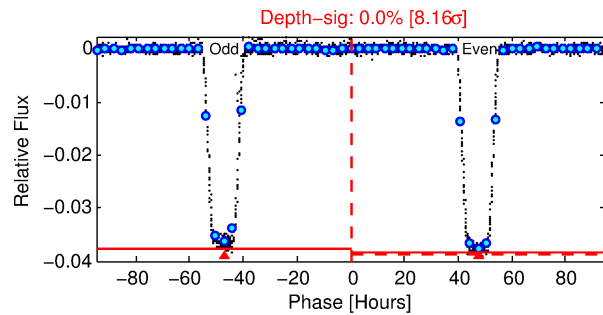
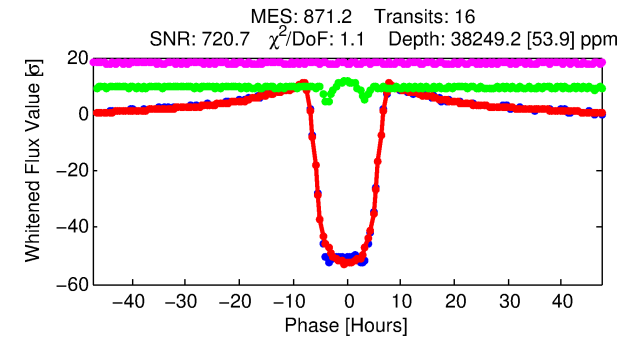
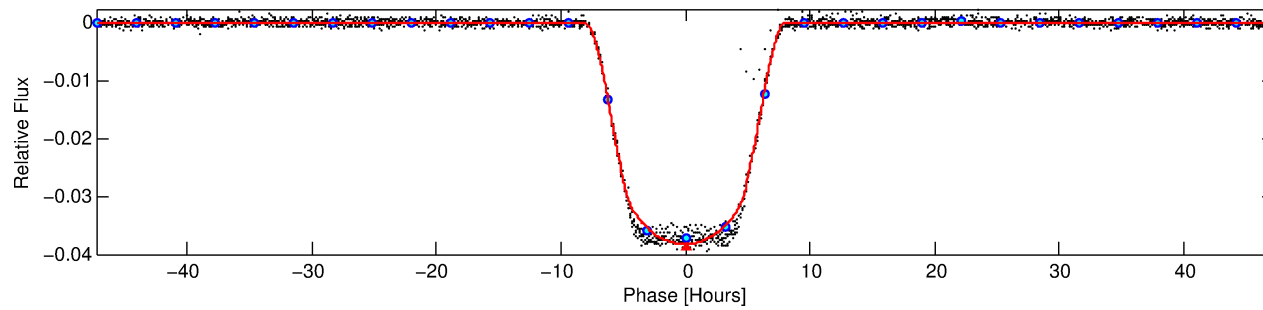
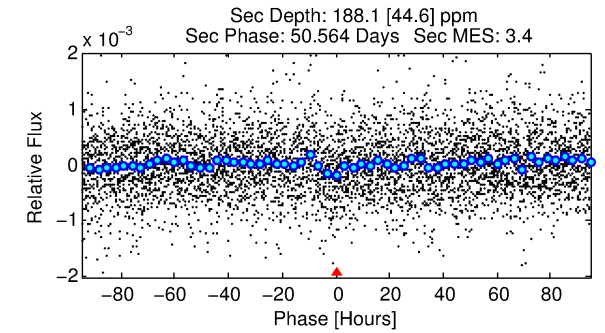
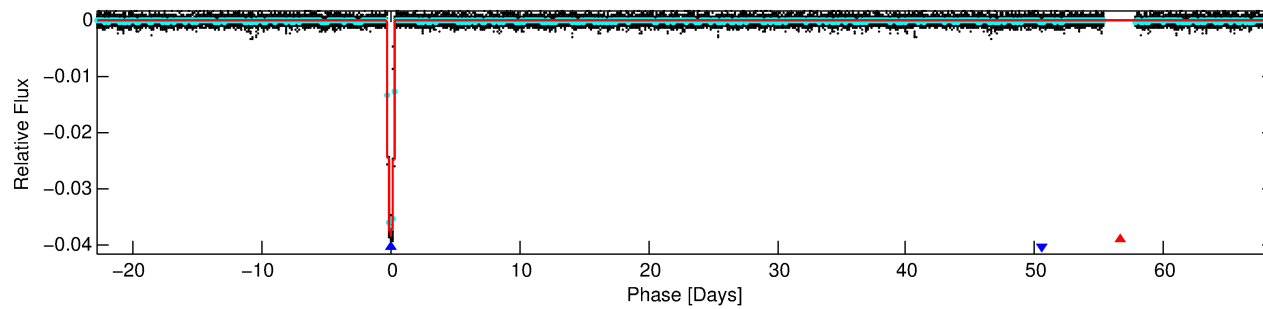
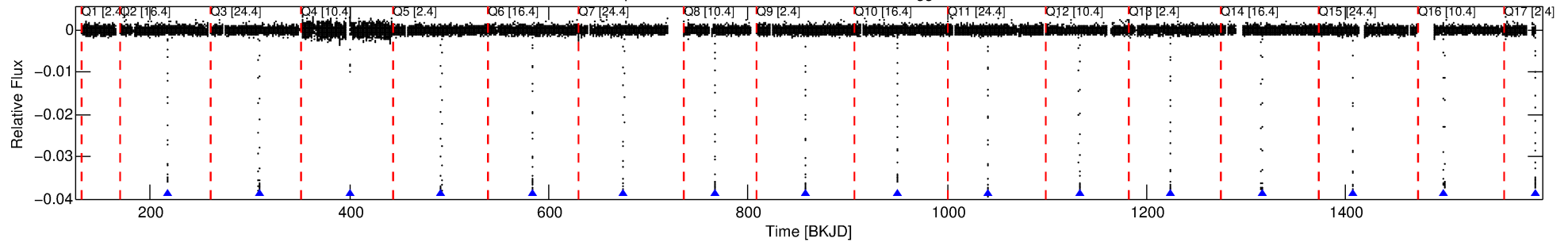
No Significant Match Found

DV One-Page Summary

KIC: 7866921 Candidate: 2 of 2 Period: 91.500 d

KOI: K03360 Corr: No Ephemeris Match

Kp: 14.80 R*: 0.77 Rs Teff: 5263.0 K Logg: 4.57 Fe/H: -0.140



DV Fit Results:

Period = 91.50011 [0.00004] d
Epoch = 217.6597 [0.0004] BKJD
Rp/R* = 0.1837 [0.0002]
a/R* = 46.74 [0.16]
b = 0.54 [0.00]
Seff = 2.99 [0.62]
Teff = 335 [17] K
Rp = 15.51 [2.24] Re
a = 0.3714 [0.0442] AU
Ag = 59.31 [17.29] [3.37σ]
Teffp = 1438 [96] K [11.36σ]

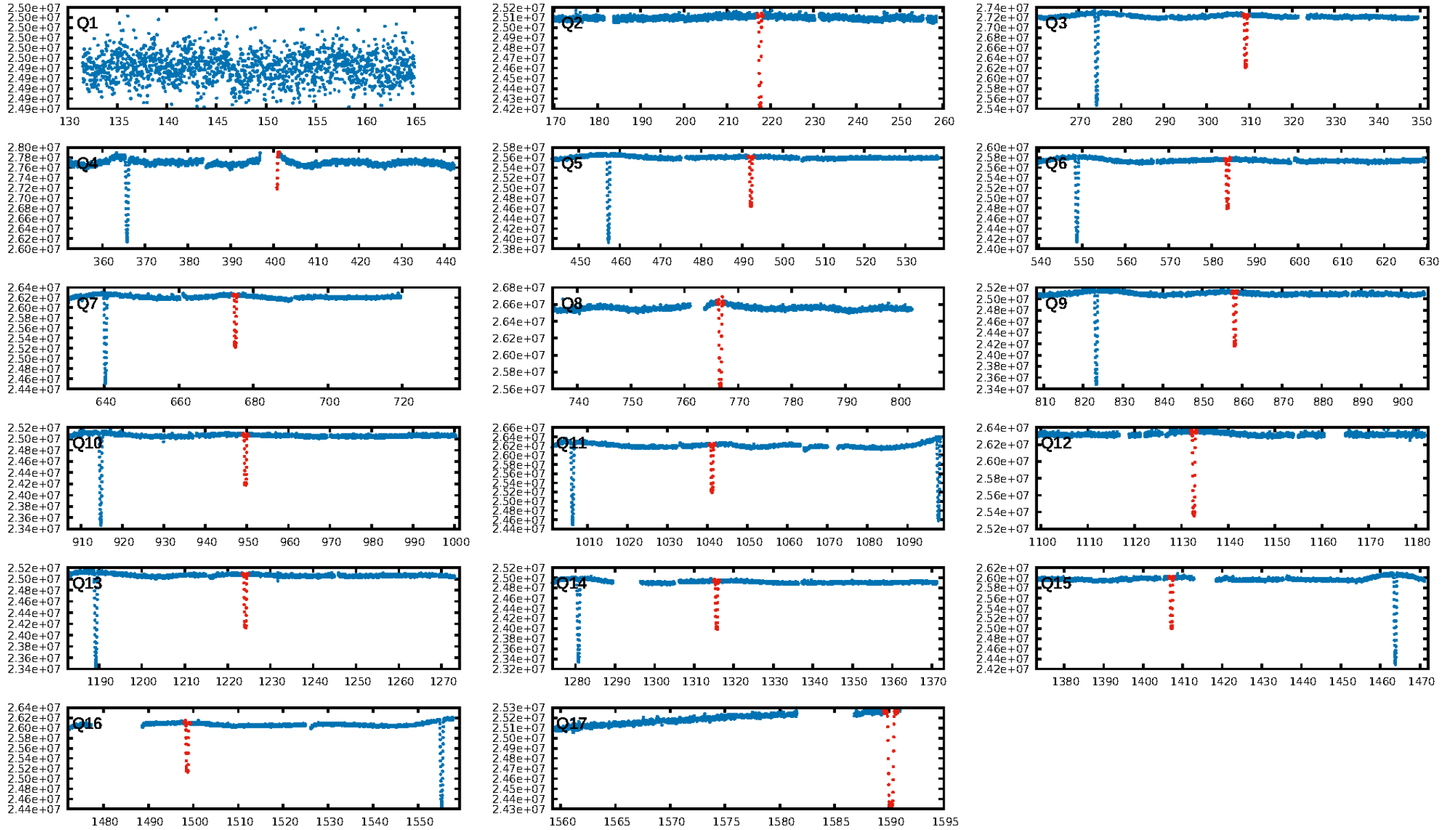
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 1.874
Centroid-sig: 0.0%
Centroid-so: 1.577 arcsec [234.59σ]
OotOffset-rm: 1.147 arcsec [6.09σ]
KicOffset-rm: 0.164 arcsec [2.11σ]
OotOffset-st: 4/2/2/3 [11]
KicOffset-st: 4/2/2/3 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [11/11]

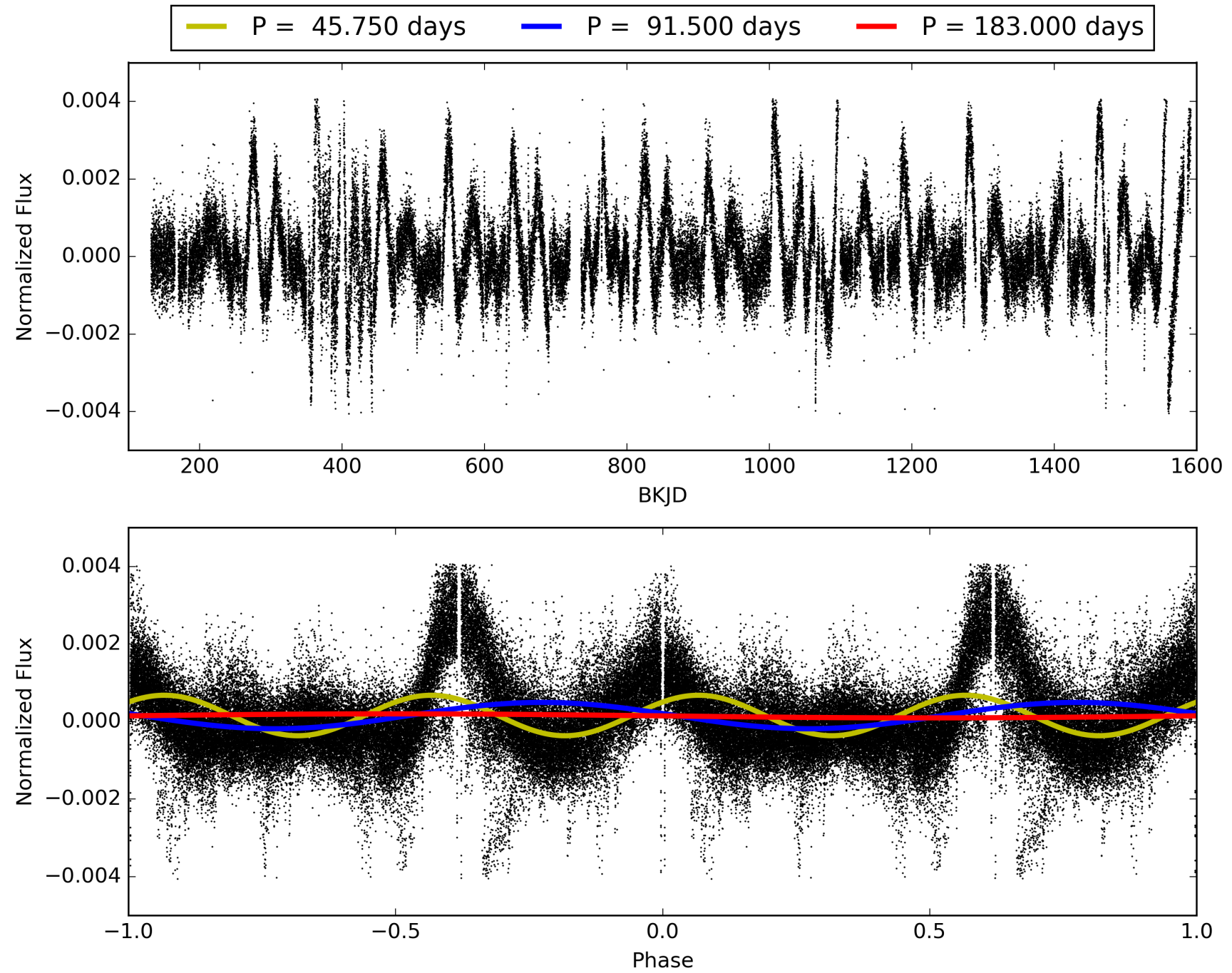
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:46:00 Z

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

TCE 007866921-02, PDC Light Curves

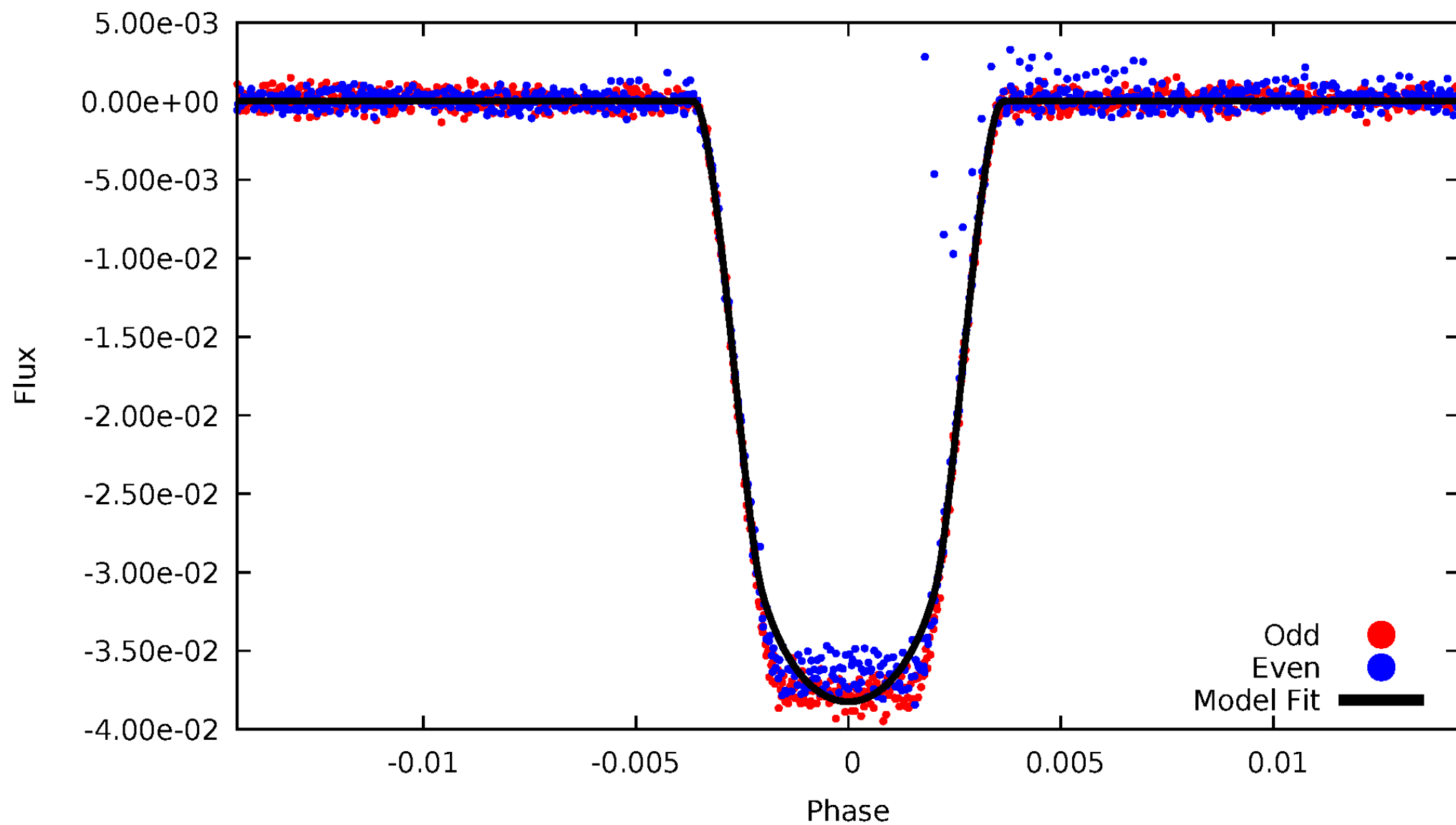


TCE 007866921-02



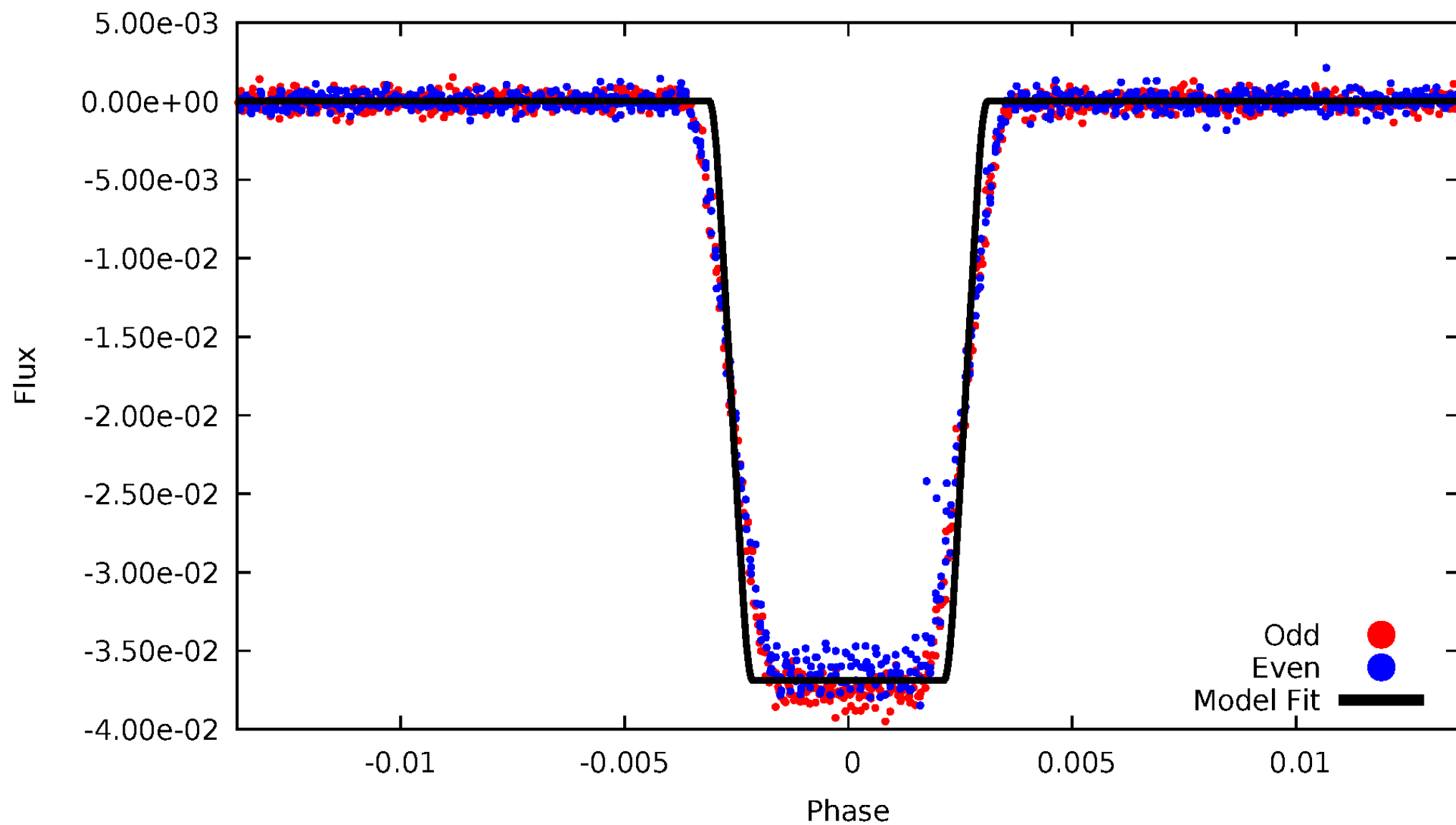
DV Odd/Even

TCE 007866921-02



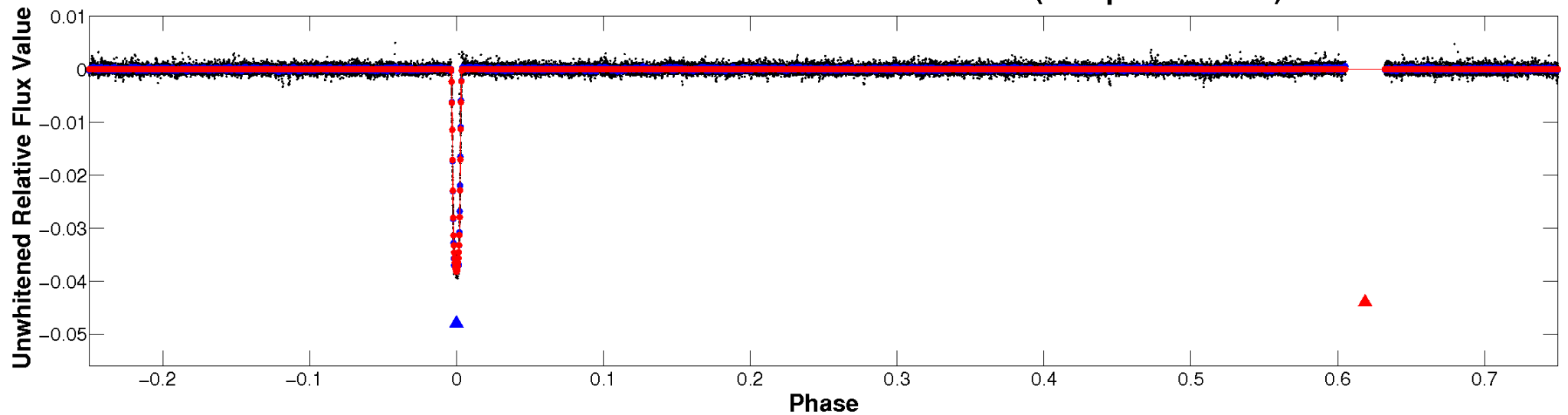
ALT Odd/Even

TCE 007866921-02

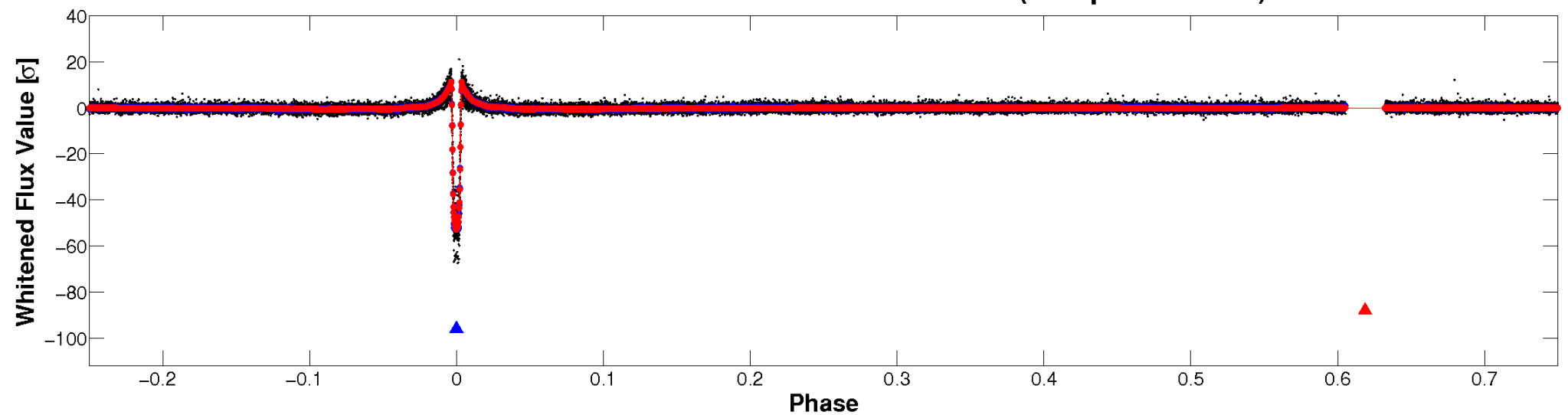


Non-Whitened Vs. Whitened Light Curve

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

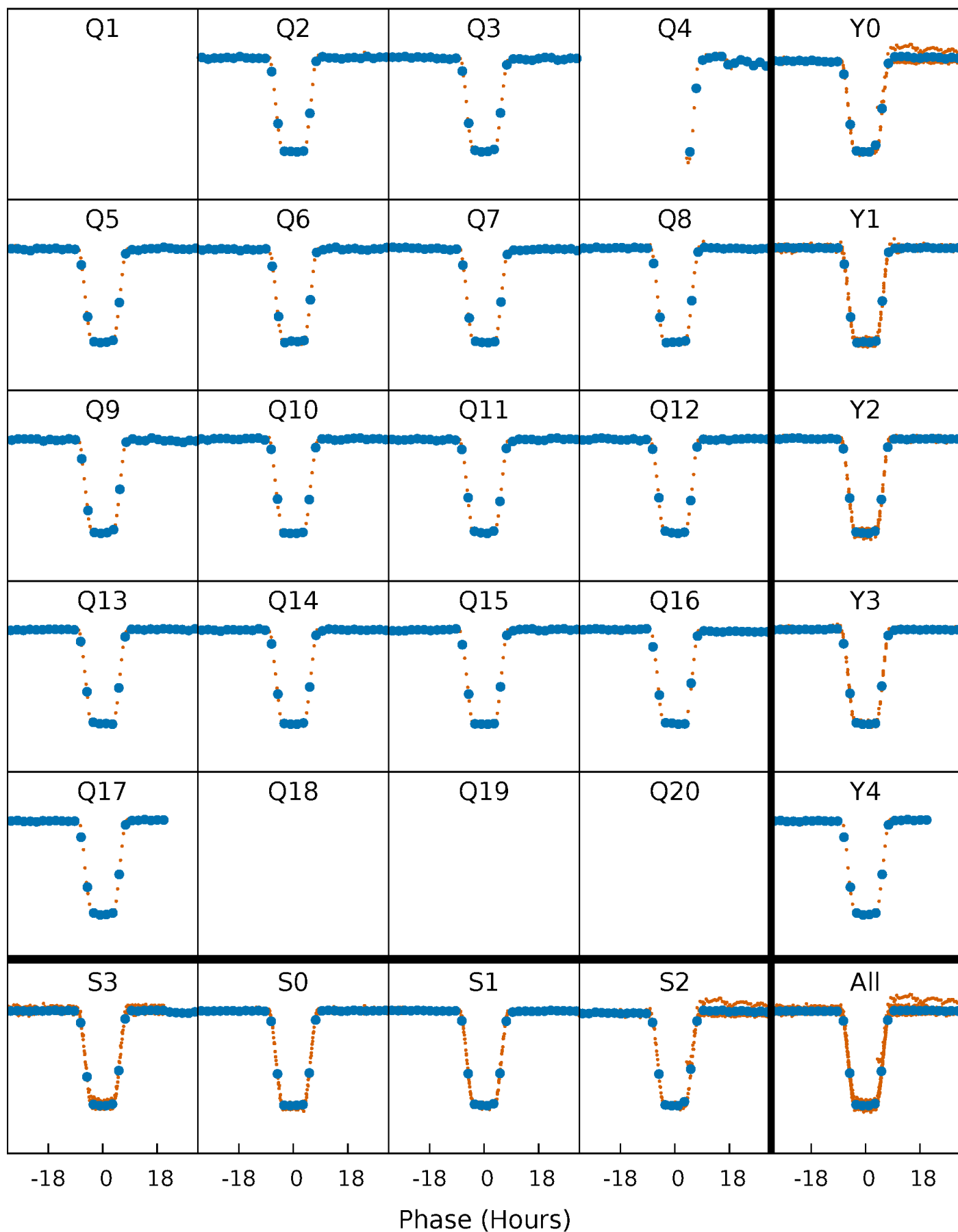


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



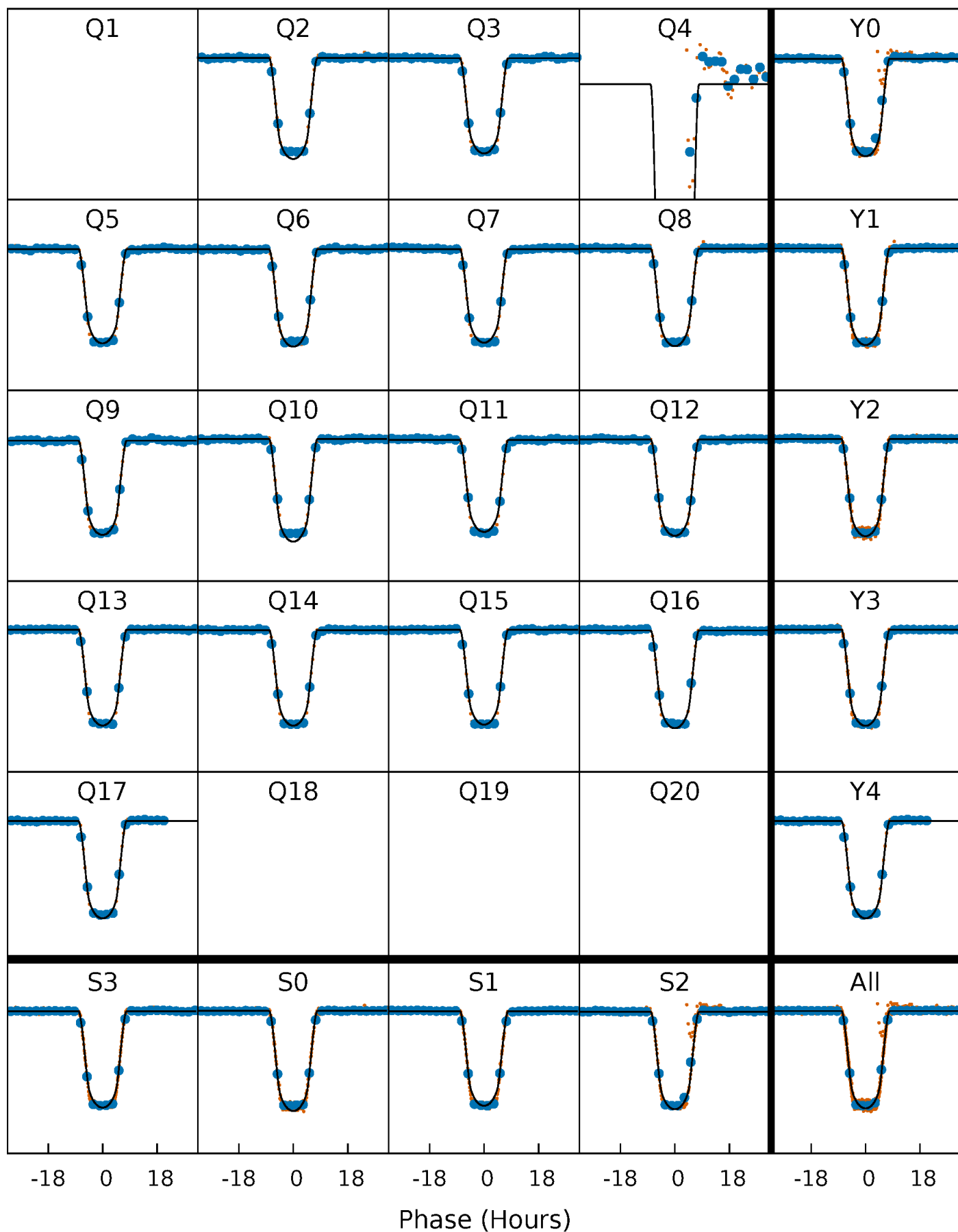
PDC Quarter-Phased Transit Curves

TCE 007866921-02 P= 91.500106 Days $T_0=217.659738$ (BKJD)



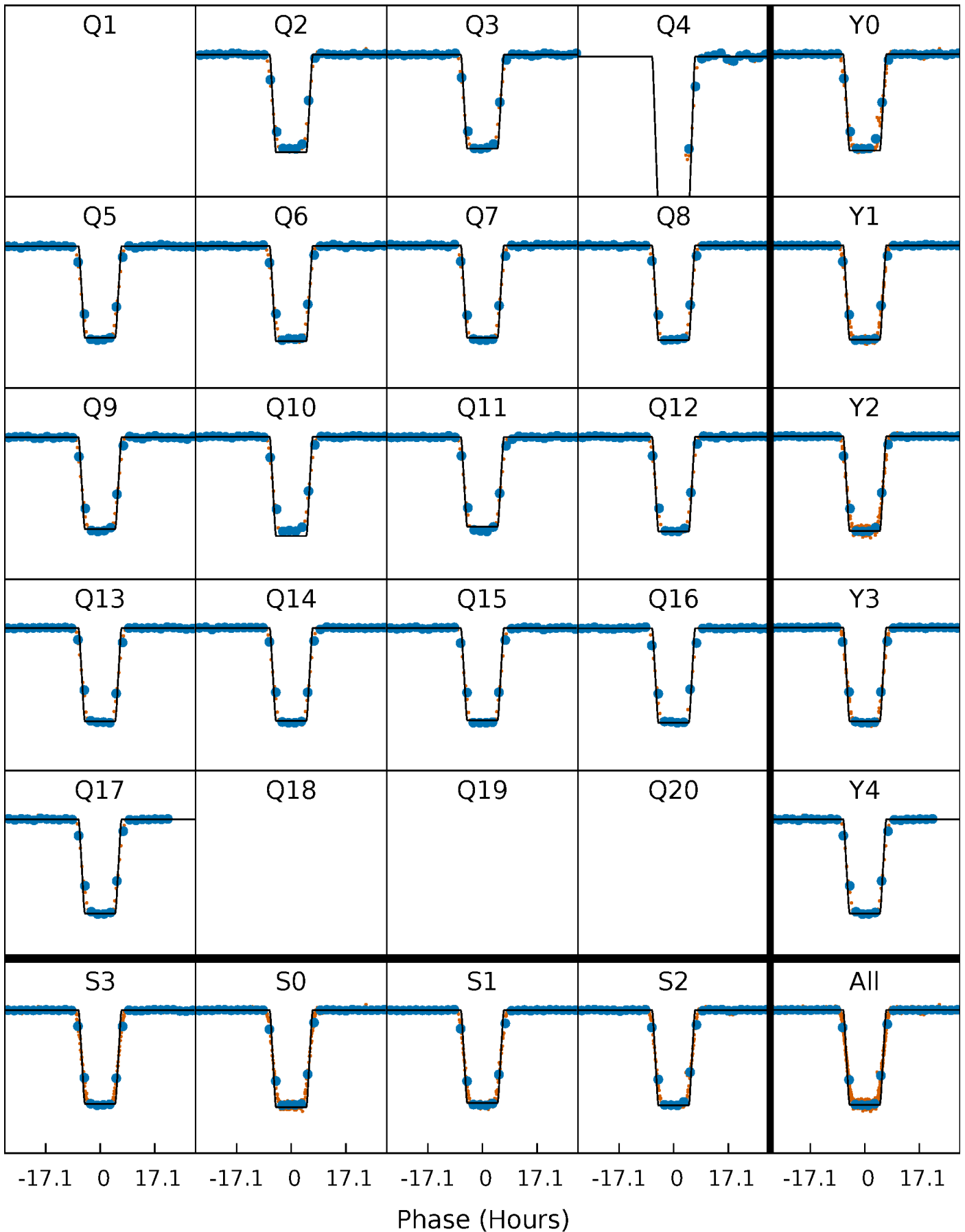
DV Quarter-Phased Transit Curves

TCE 007866921-02 P= 91.500106 Days $T_0=217.659738$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

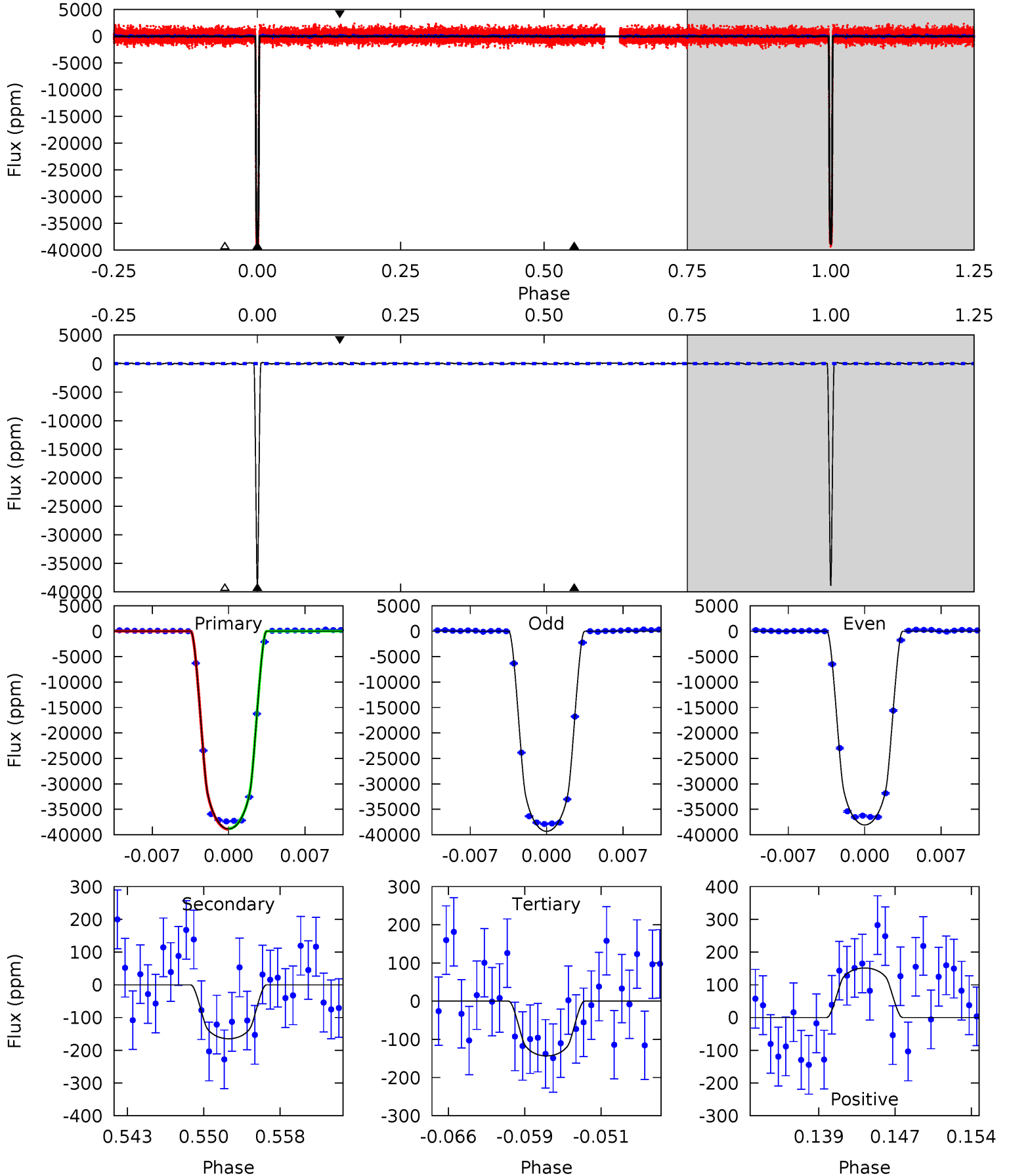
TCE 007866921-02 P= 91.499341 Days $T_0=217.665668$ (BKJD)



DV Model-Shift Uniqueness Test

007866921-02, P = 91.500106 Days, E = 126.159632 Days

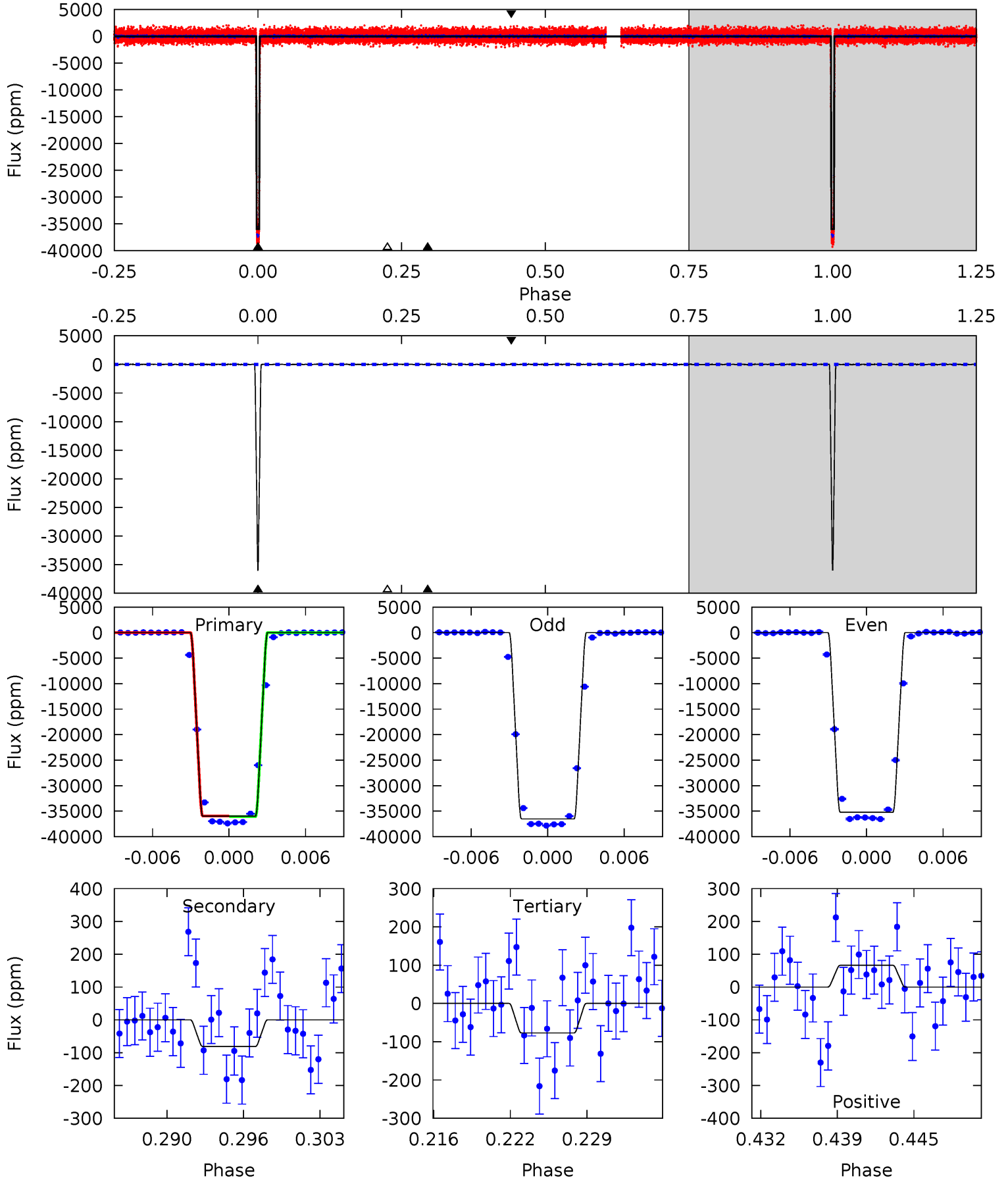
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1609	6.83	5.94	6.27	5.09	2.68	2.33	1603	1603	0.89	0.56	26.1	0.95	0.00	2.59



Alt Model-Shift Uniqueness Test

007866921-02, P = 91.499341 Days, E = 126.166327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1426	3.21	3.05	2.63	5.12	2.74	0.83	1423	1424	0.16	0.59	25.8	0.99	0.00	2.01



Stellar Parameters For KIC 007866921

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5263^{+158}_{-142}	$4.572^{+0.045}_{-0.091}$	$-0.140^{+0.300}_{-0.300}$	$0.774^{+0.112}_{-0.069}$	$0.816^{+0.085}_{-0.078}$	$2.482^{+0.505}_{-0.723}$
	+3%/-3%	+1%/-2%	+214%/-214%	+14%/-9%	+10%/-10%	+20%/-29%
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 007866921-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-165 ± 24	$15.68^{+1.35}_{-0.88}$	473^{+20}_{-18}	2297^{+52}_{-51}	50^{+10}_{-9}
Alt.	-81 ± 25	$16.34^{+1.33}_{-0.89}$	473^{+20}_{-17}	2103^{+71}_{-91}	22^{+8}_{-7}

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

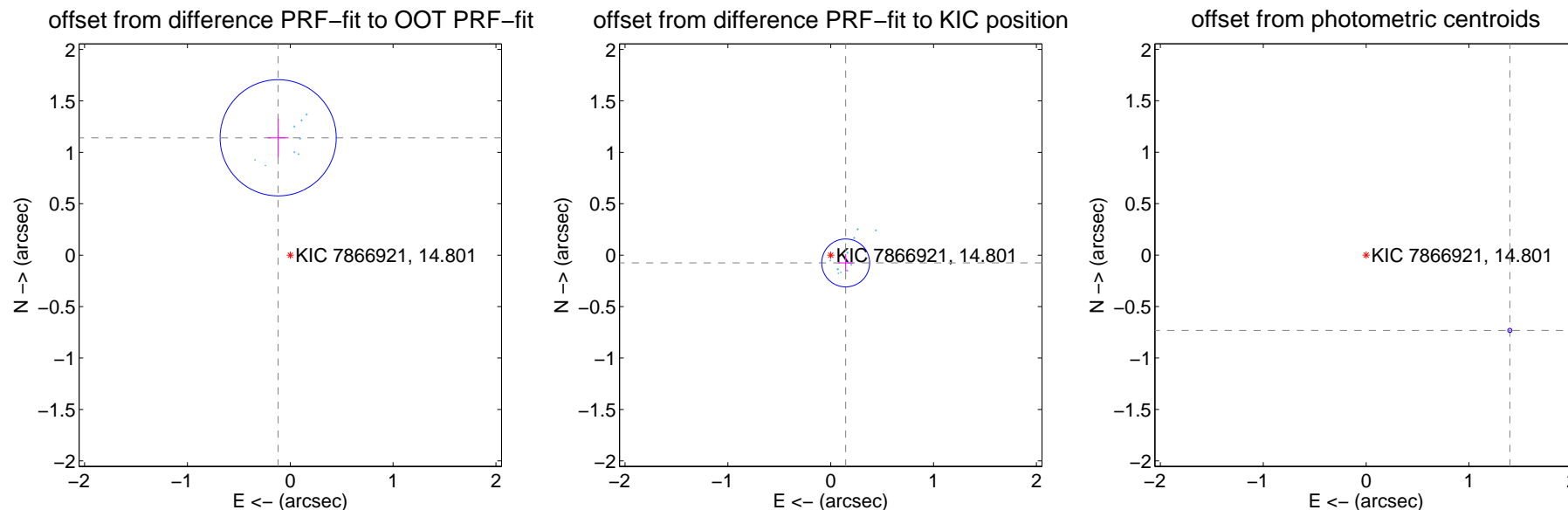
DV Centroid Data

Supplemental centroid analysis for 007866921-02. Kepler magnitude: 14.80. Transit SNR 720.73

There are 11 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.147 ± 0.188	6.09	0.118 ± 0.101	1.141 ± 0.189
PRF-fit source offset from KIC position	0.164 ± 0.078	2.11	-0.146 ± 0.075	-0.076 ± 0.086
photometric centroid source offset	1.58 ± 0.01	234.59	-1.40 ± 0.01	-0.73 ± 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.

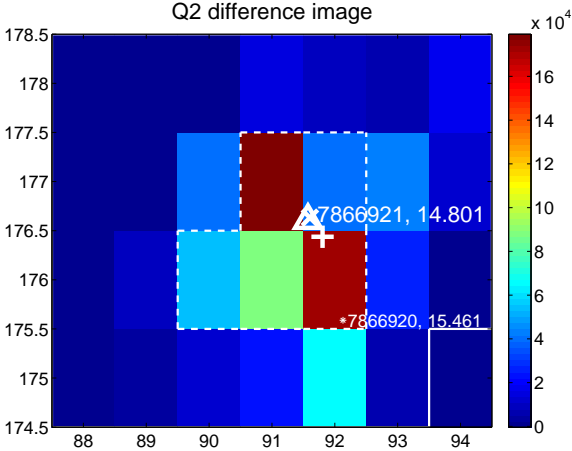
Q1 no difference image



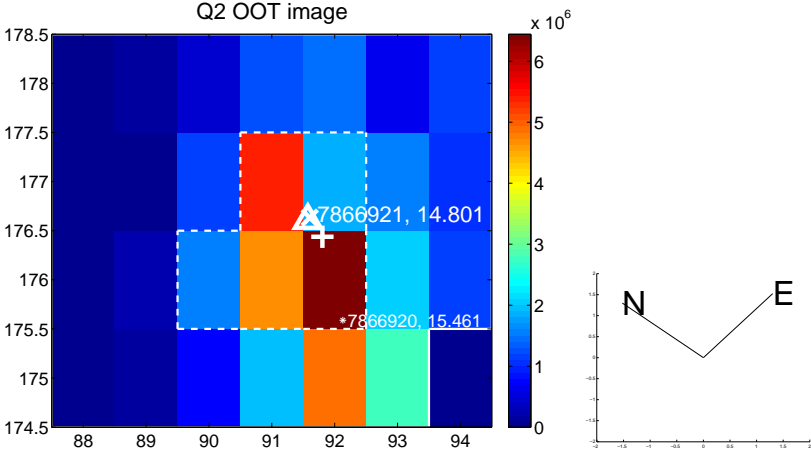
Q1 no OOT image



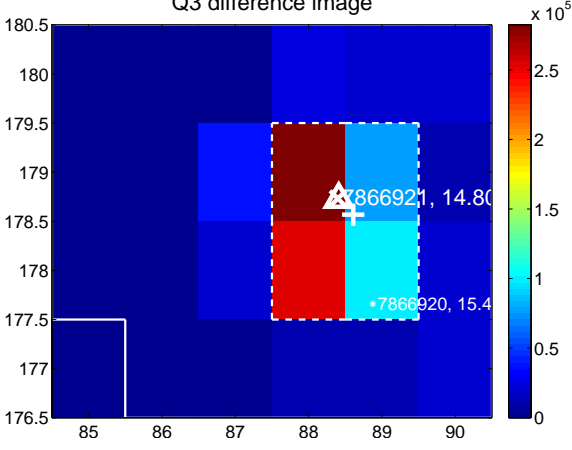
Q2 difference image



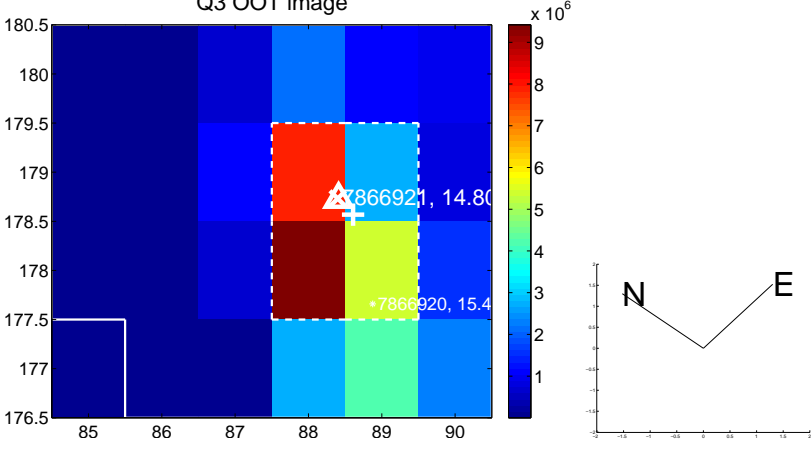
Q2 OOT image



Q3 difference image



Q3 OOT image



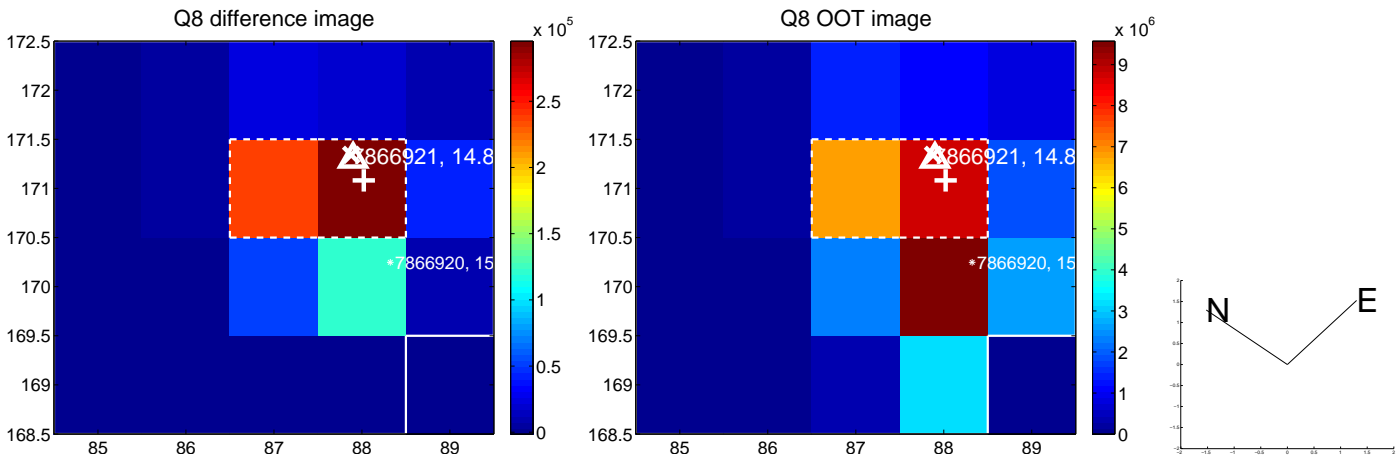
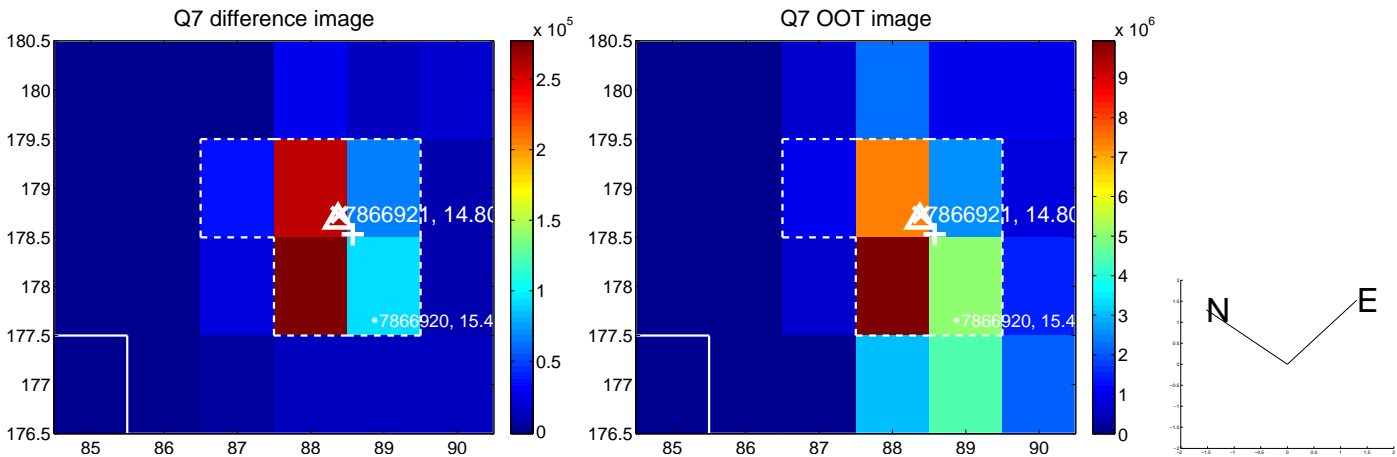
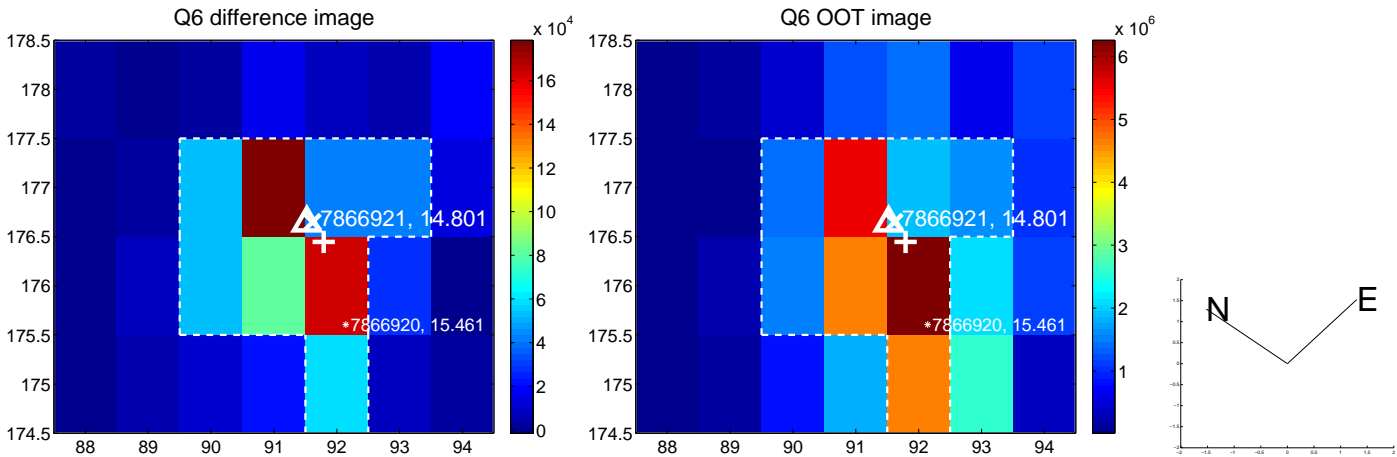
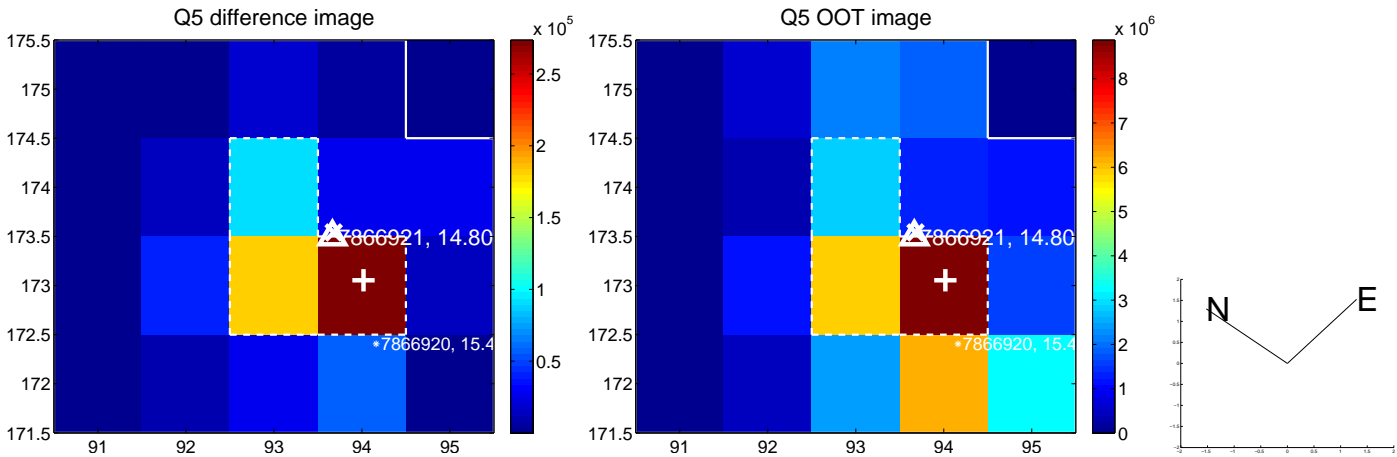
Q4 no difference image



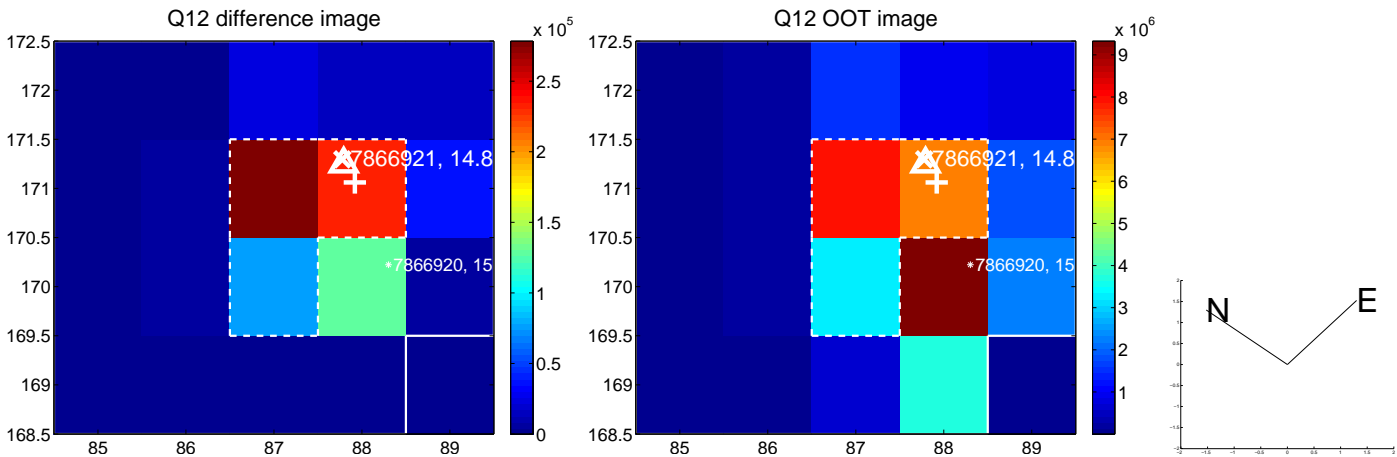
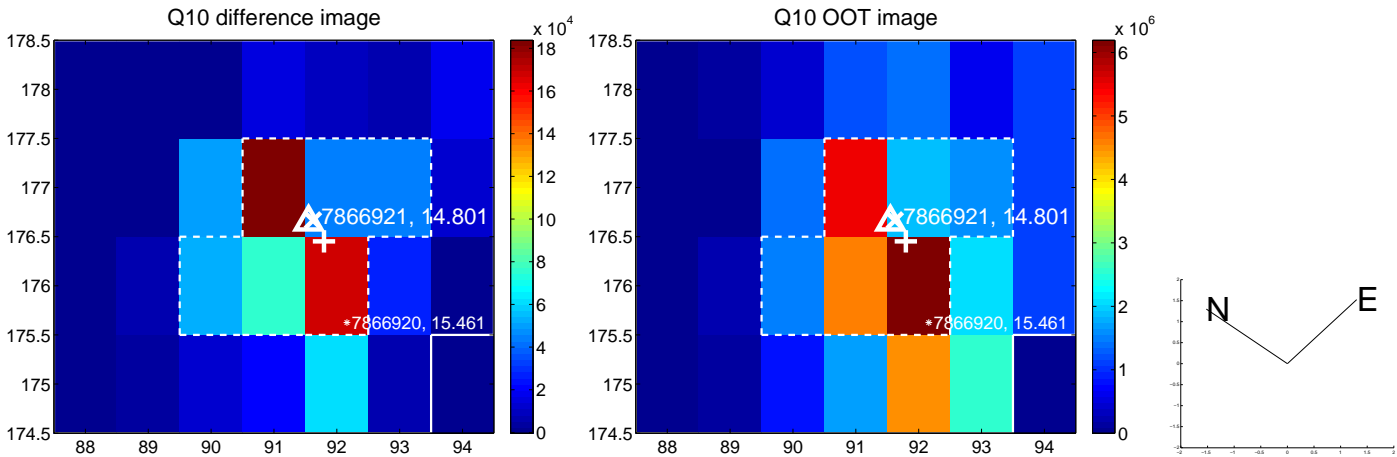
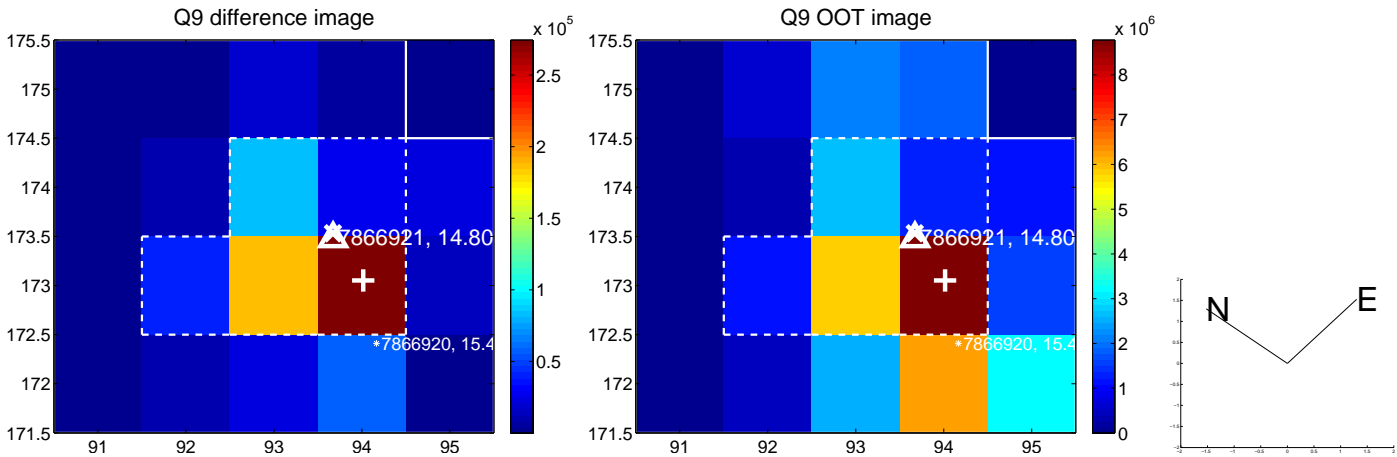
Q4 no OOT image



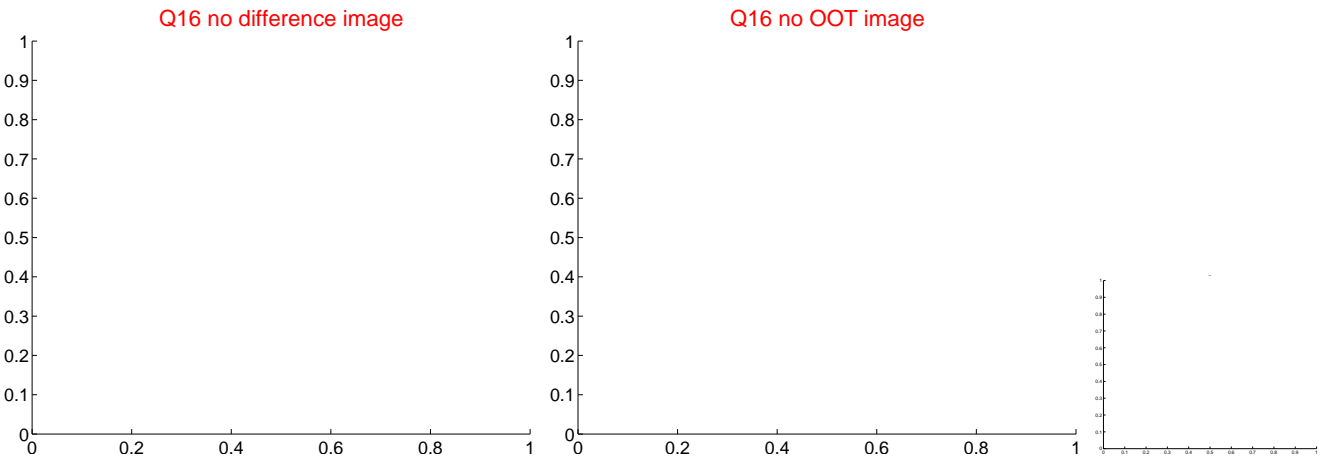
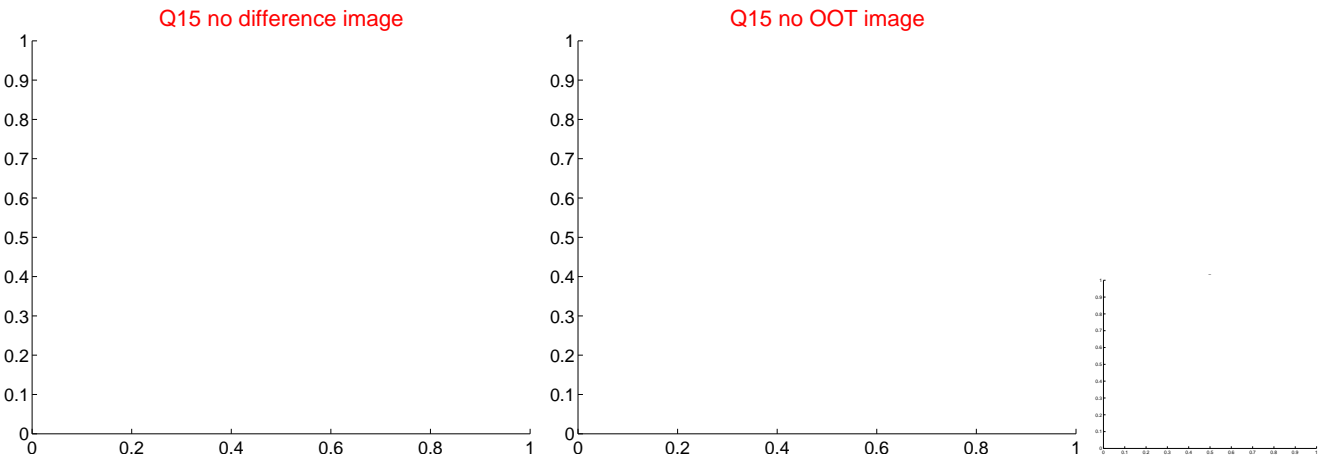
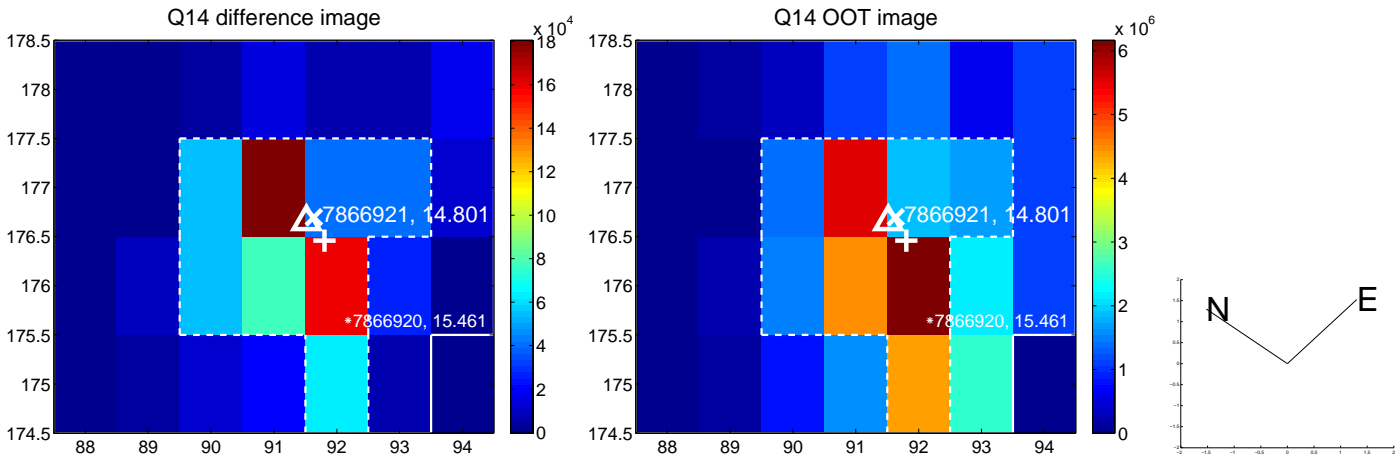
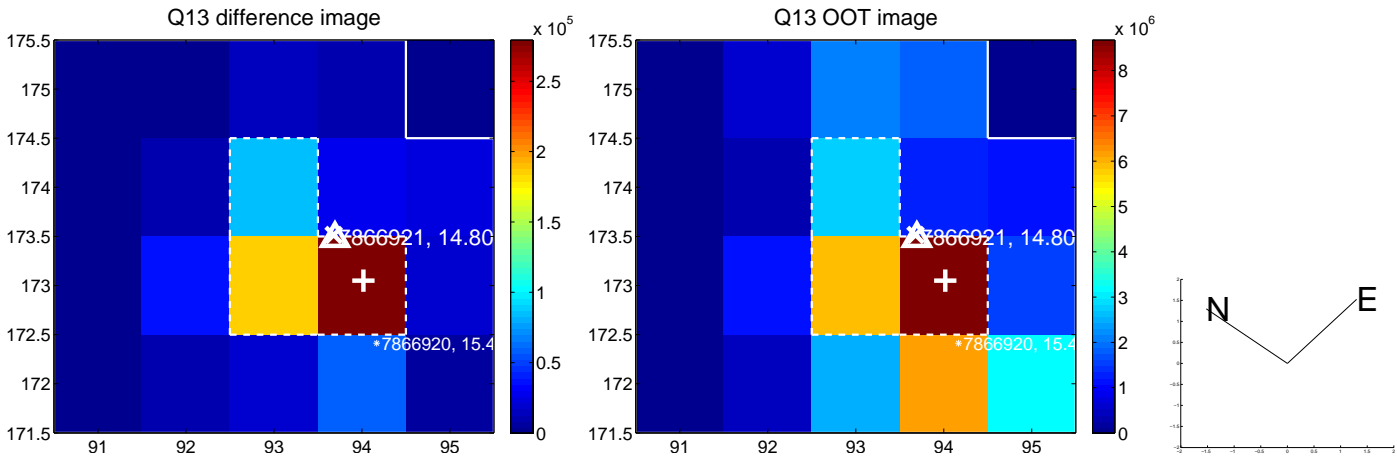
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



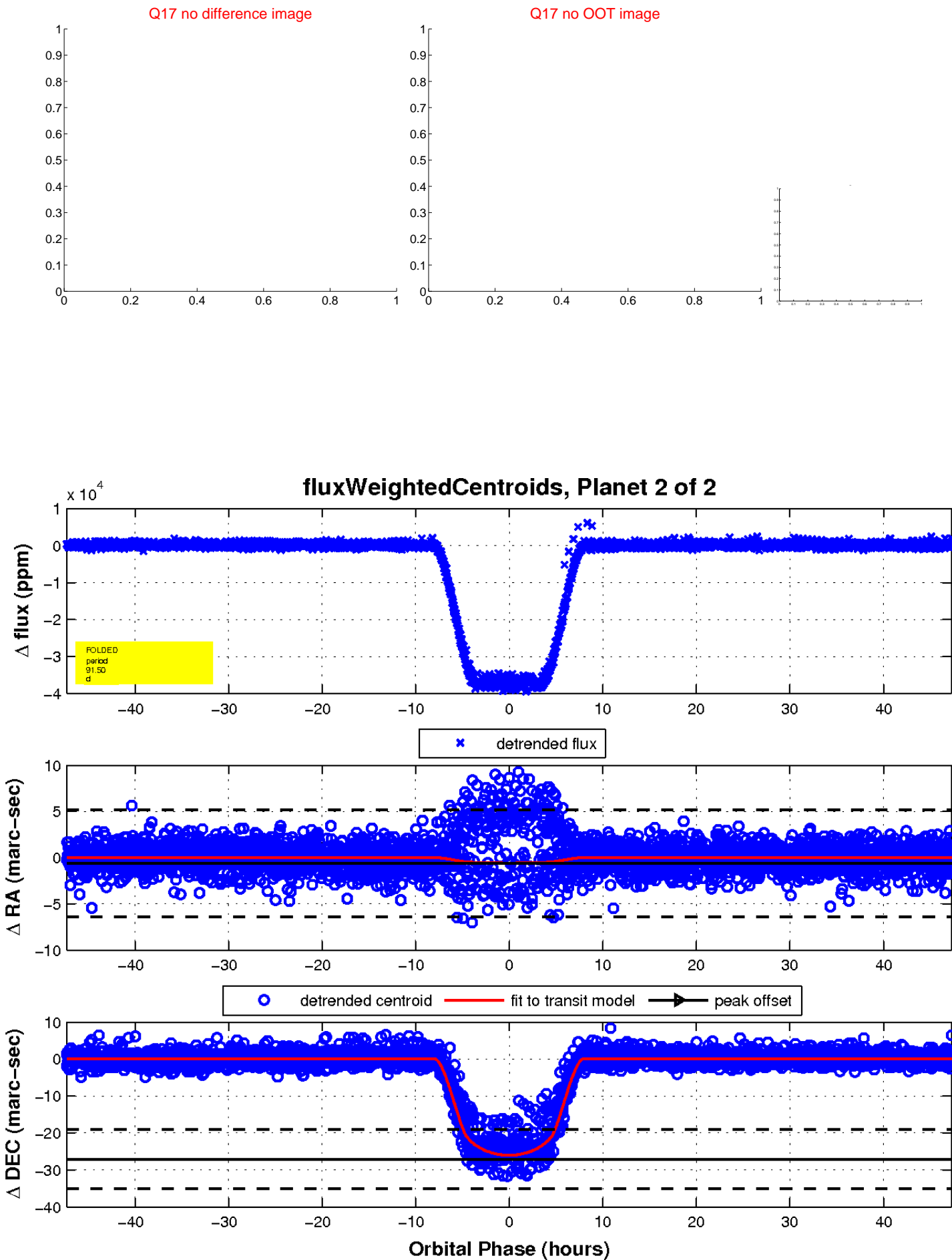
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

