

KIC 002697935

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})
002697935-01	OBS	3853.01	21.512980	132.464862	902.0	3.587	63.6	38.8	3.32	5088	20.24	242.88
002697935-02	OBS	No	21.513876	132.699273	1460.3	67.875	20.6	52.1	3.32	5088	25.18	242.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002697935-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED—CENT_SATURATED
002697935-02	OBS	FP	0.00	1	0	0	0	LPP_DV—RESIDUAL_TCE—CENT_SATURATED

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

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

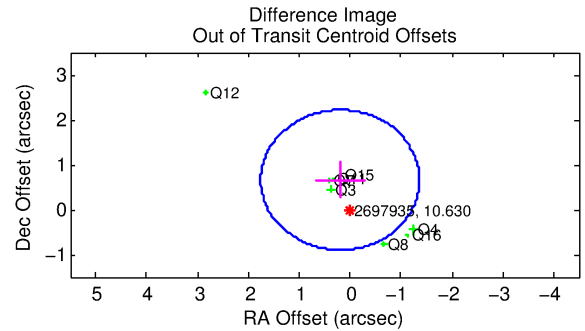
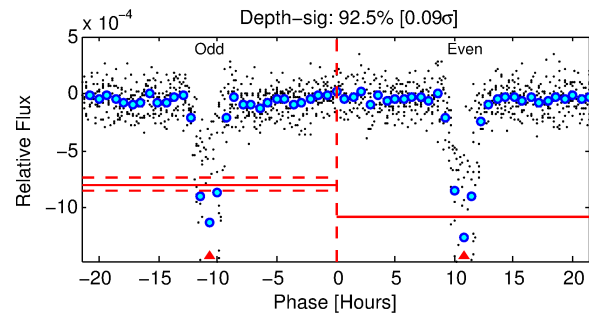
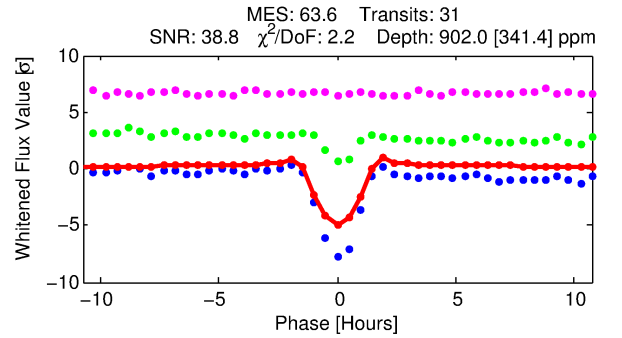
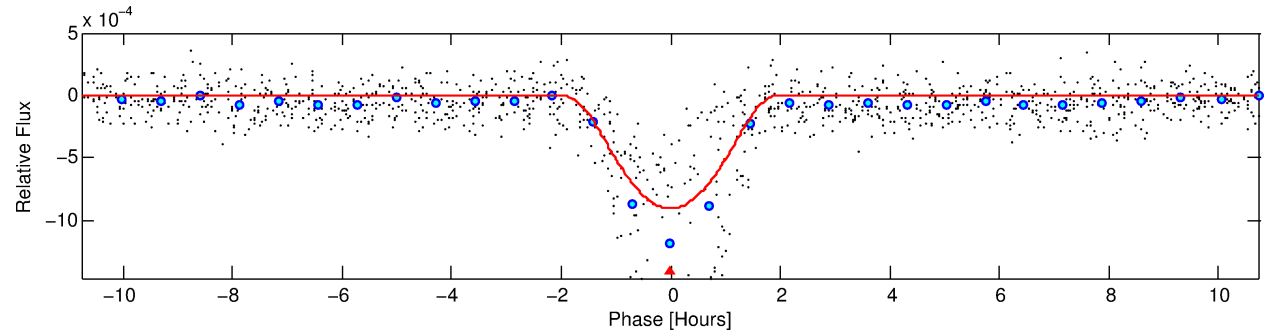
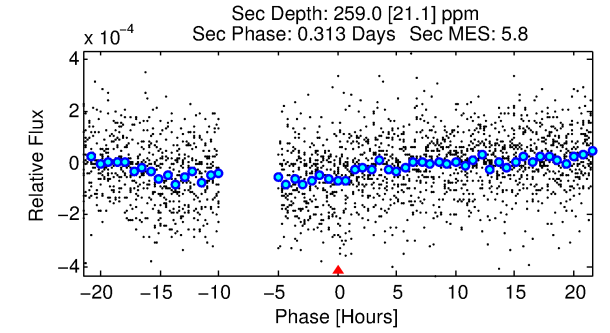
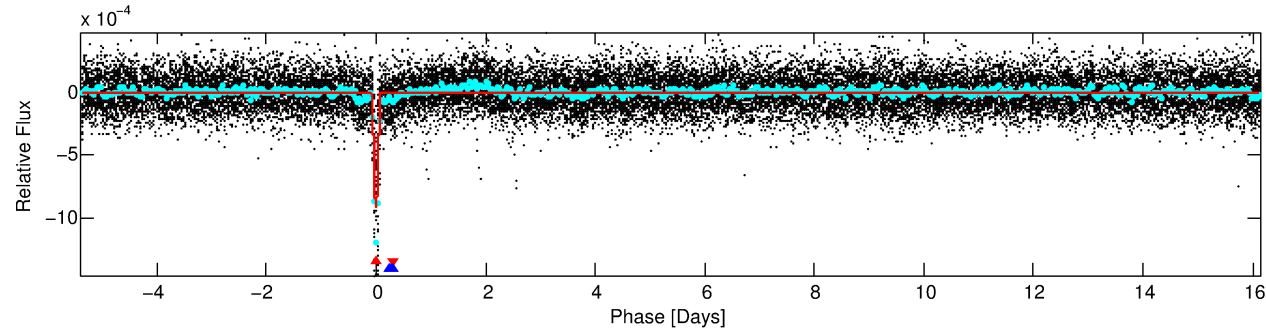
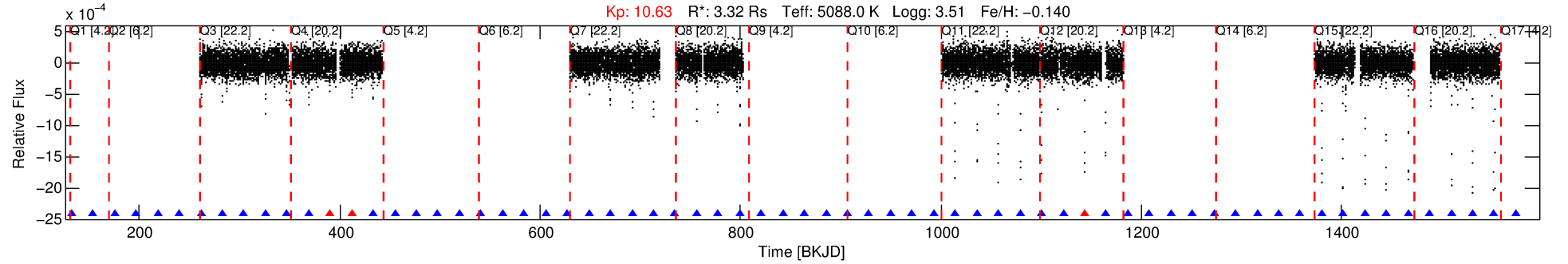
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002697935-01

No Significant Match Found

DV One-Page Summary

KIC: 2697935 Candidate: 1 of 2 Period: 21.513 d
KOI: K03853.01 Corr: 0.936



DV Fit Results:

Period = 21.51298 [0.00006] d
Epoch = 132.4649 [0.0025] BKJD
Rp/R* = 0.0559 [0.0536]
a/R* = 15.56 [3.46]
b = 1.00 [0.06]
Seff = 242.88 [84.62]
Teq = 1007 [88] K
Rp = 20.24 [20.02] Re
a = 0.1650 [0.0359] AU
Ag = 9.47 [18.44] [0.46 σ]
Teffp = 2730 [1312] K [1.31 σ]

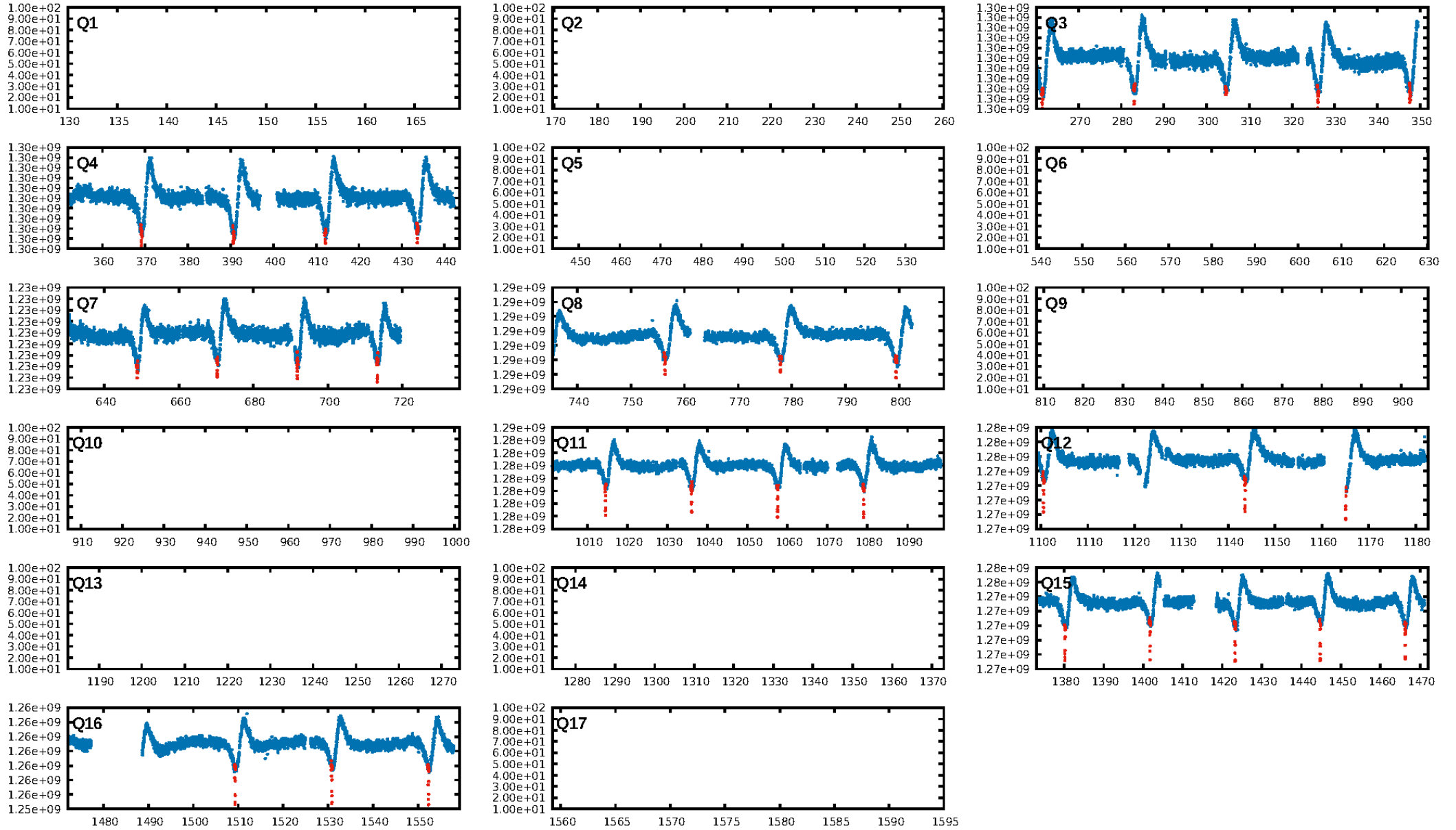
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.90 [28/31]
GhostDiagnostic-chr: 2.42
Centroid-sig: 0.0%
Centroid-so: 0.339 arcsec [3.35 σ]
OotOffset-rm: 0.688 arcsec [1.32 σ]
KicOffset-rm: 1.002 arcsec [1.65 σ]
OotOffset-st: 0/4/4/0 [8]
KicOffset-st: 0/4/4/0 [8]
DiffImageQuality-fgm: 0.12 [1/8]
DiffImageOverlap-fno: 0.00 [0/8]

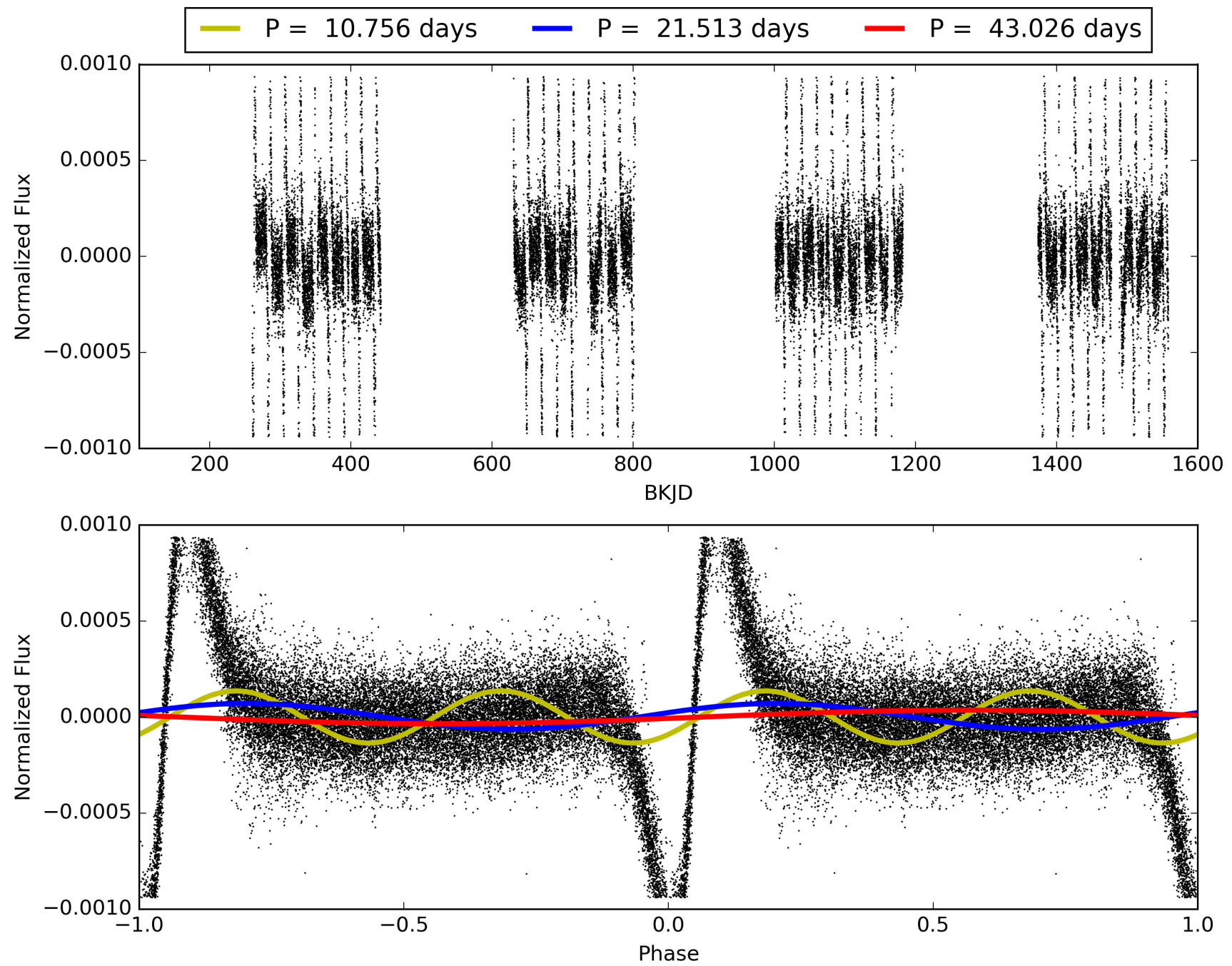
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:18:34 Z

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

TCE 002697935-01, PDC Light Curves

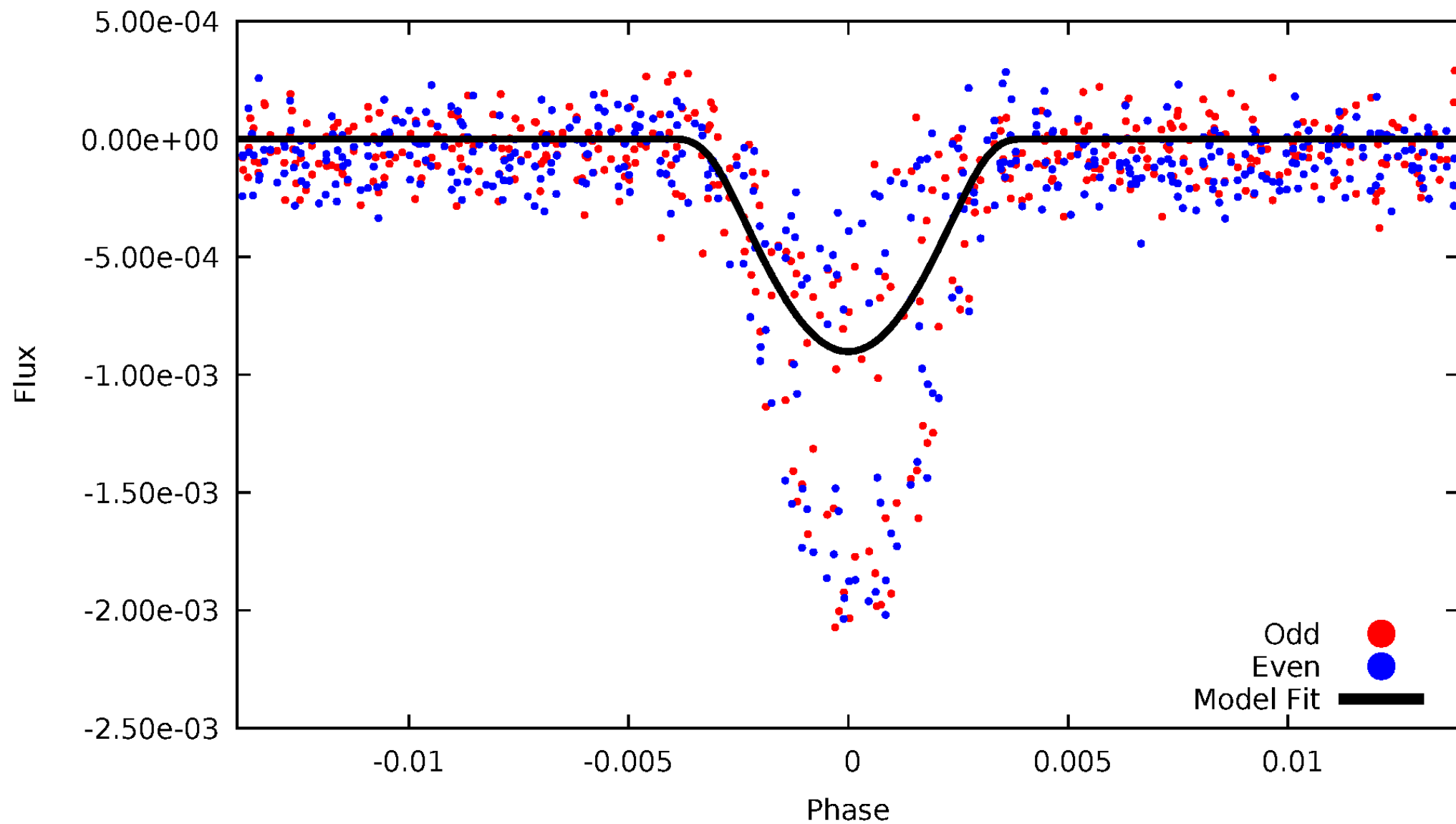


TCE 002697935-01



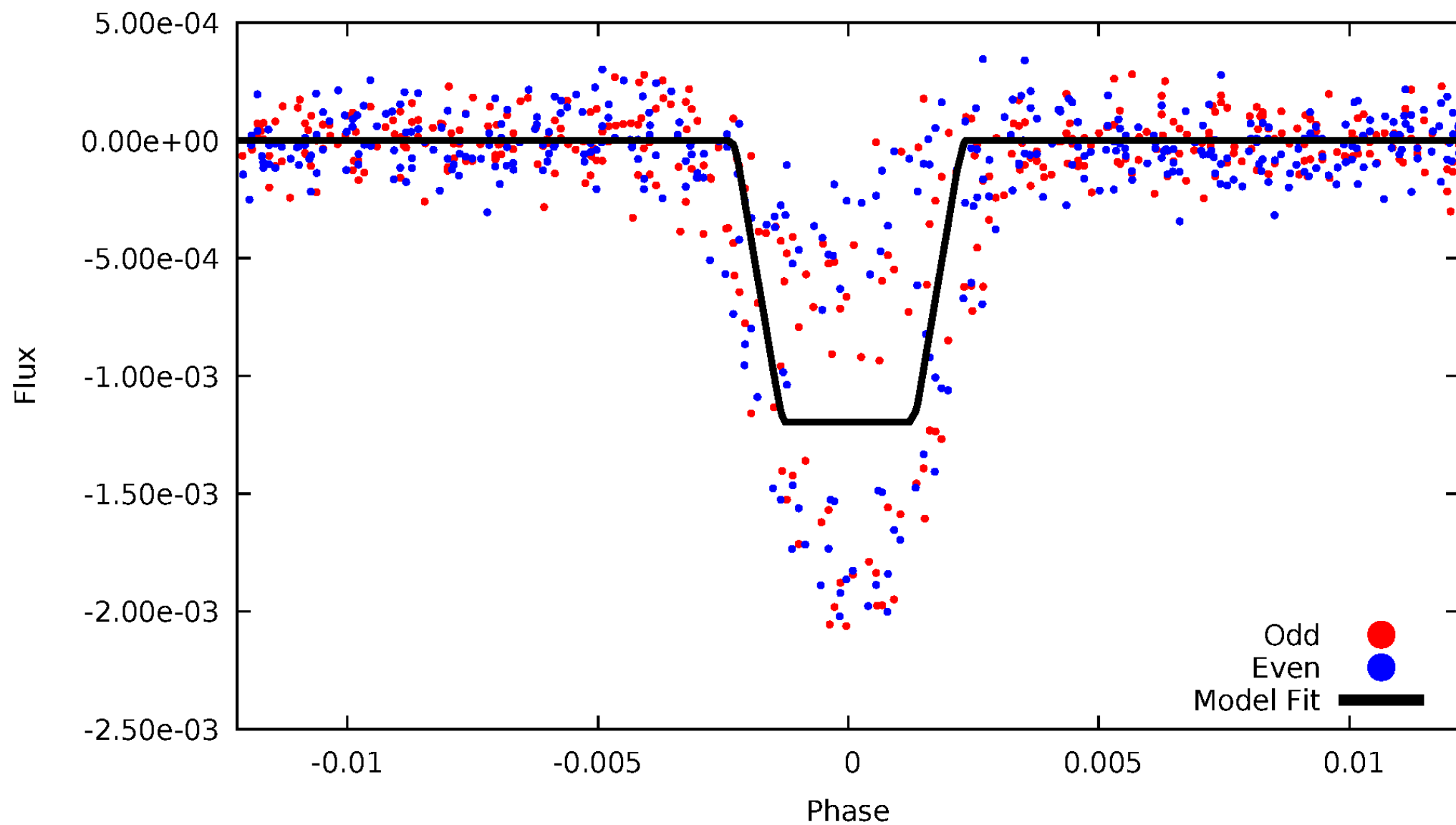
DV Odd/Even

TCE 002697935-01



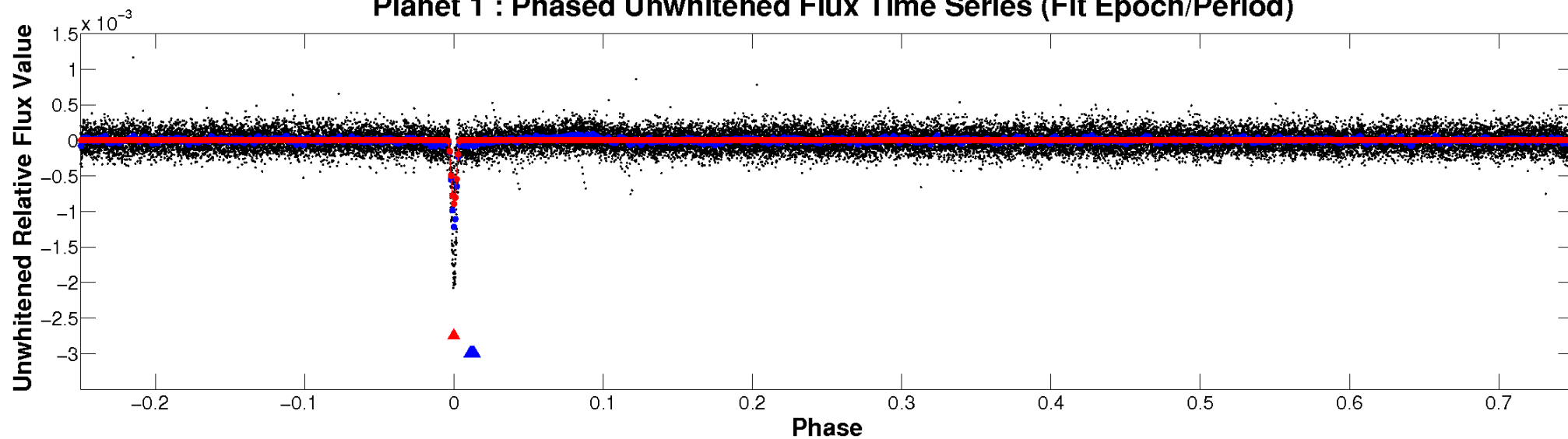
ALT Odd/Even

TCE 002697935-01

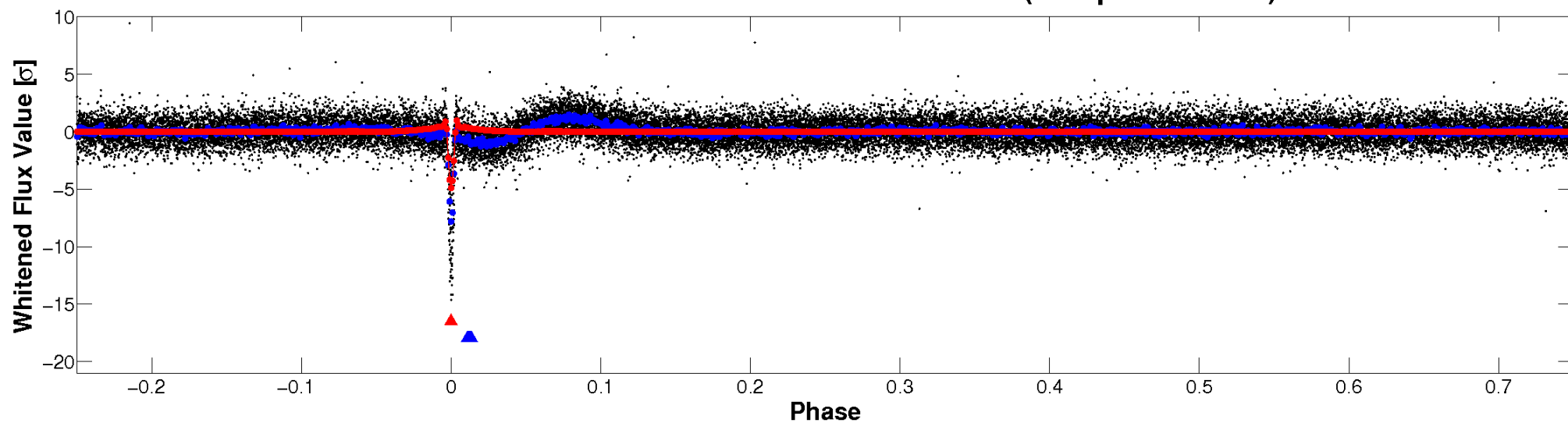


Non-Whitened Vs. Whitened Light Curve

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

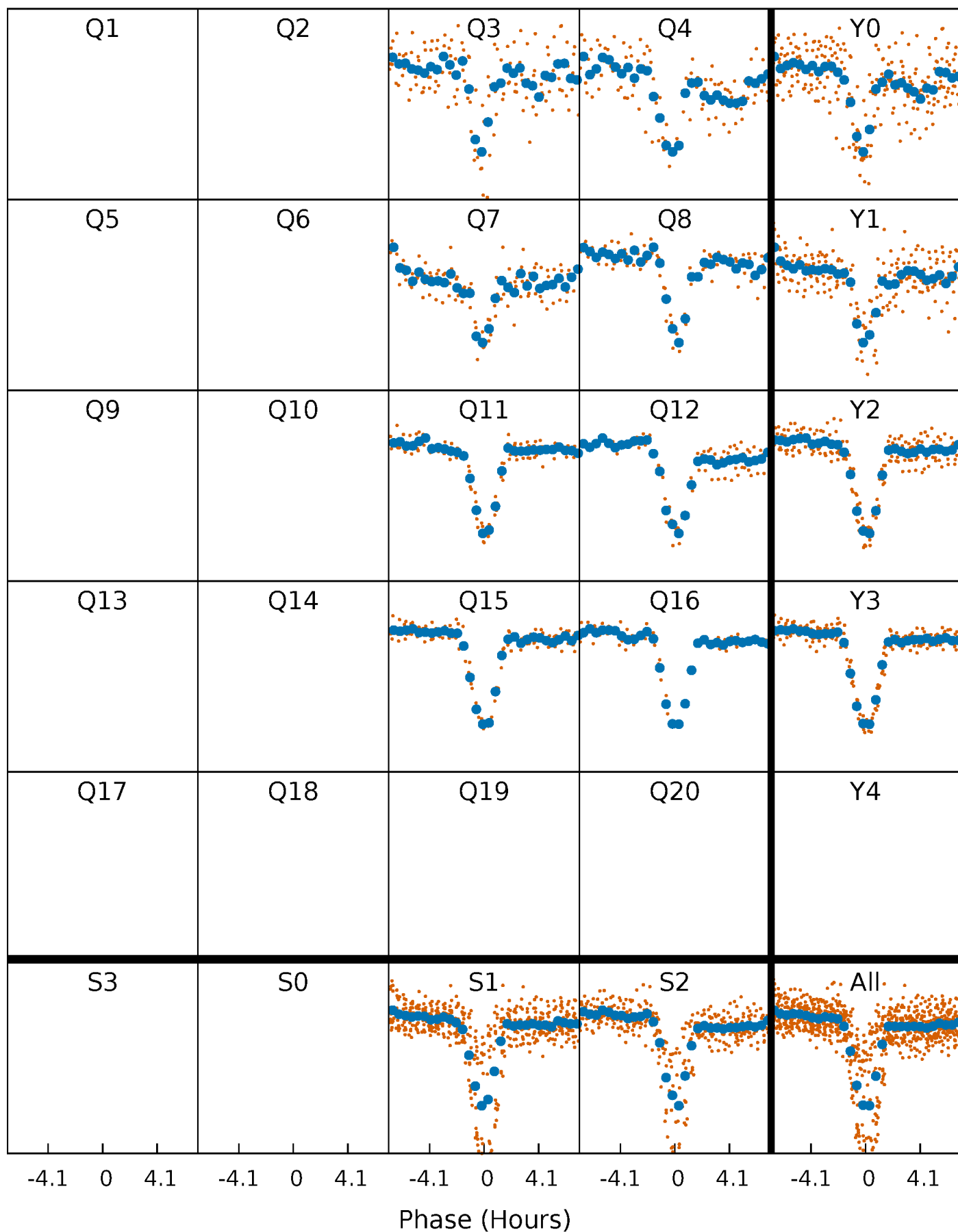


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



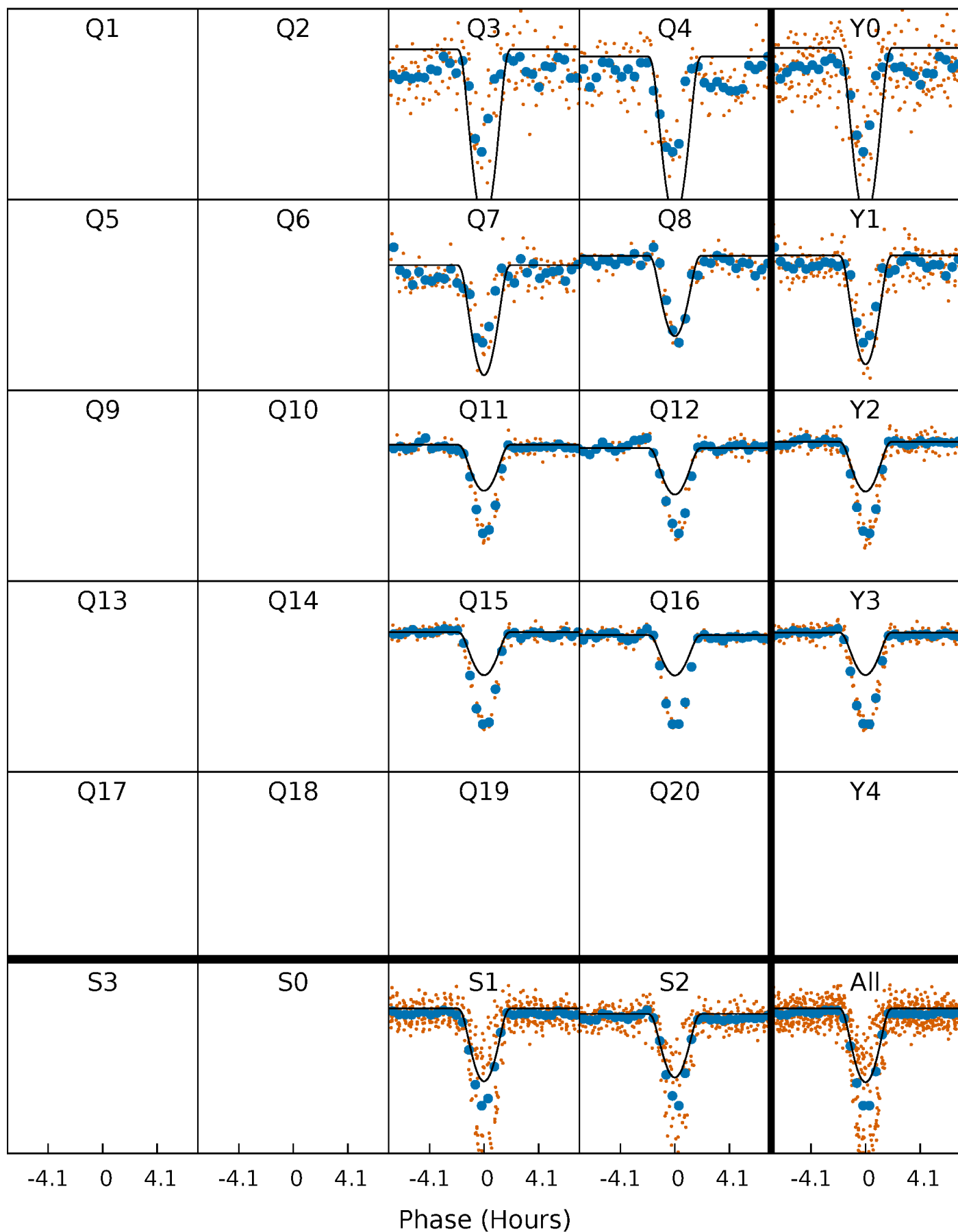
PDC Quarter-Phased Transit Curves

TCE 002697935-01 P= 21.512980 Days $T_0=132.464862$ (BKJD)



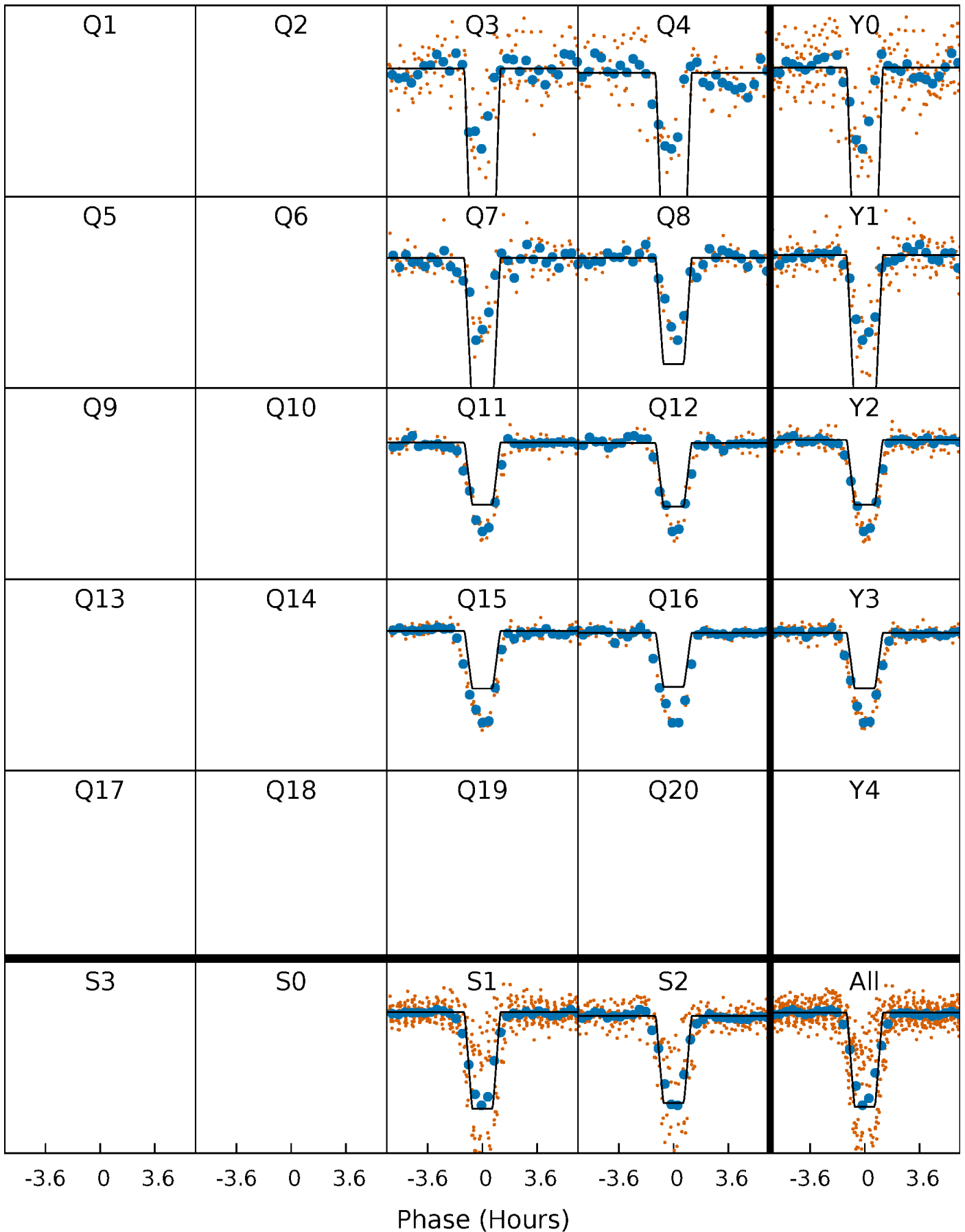
DV Quarter-Phased Transit Curves

TCE 002697935-01 P= 21.512980 Days $T_0=132.464862$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

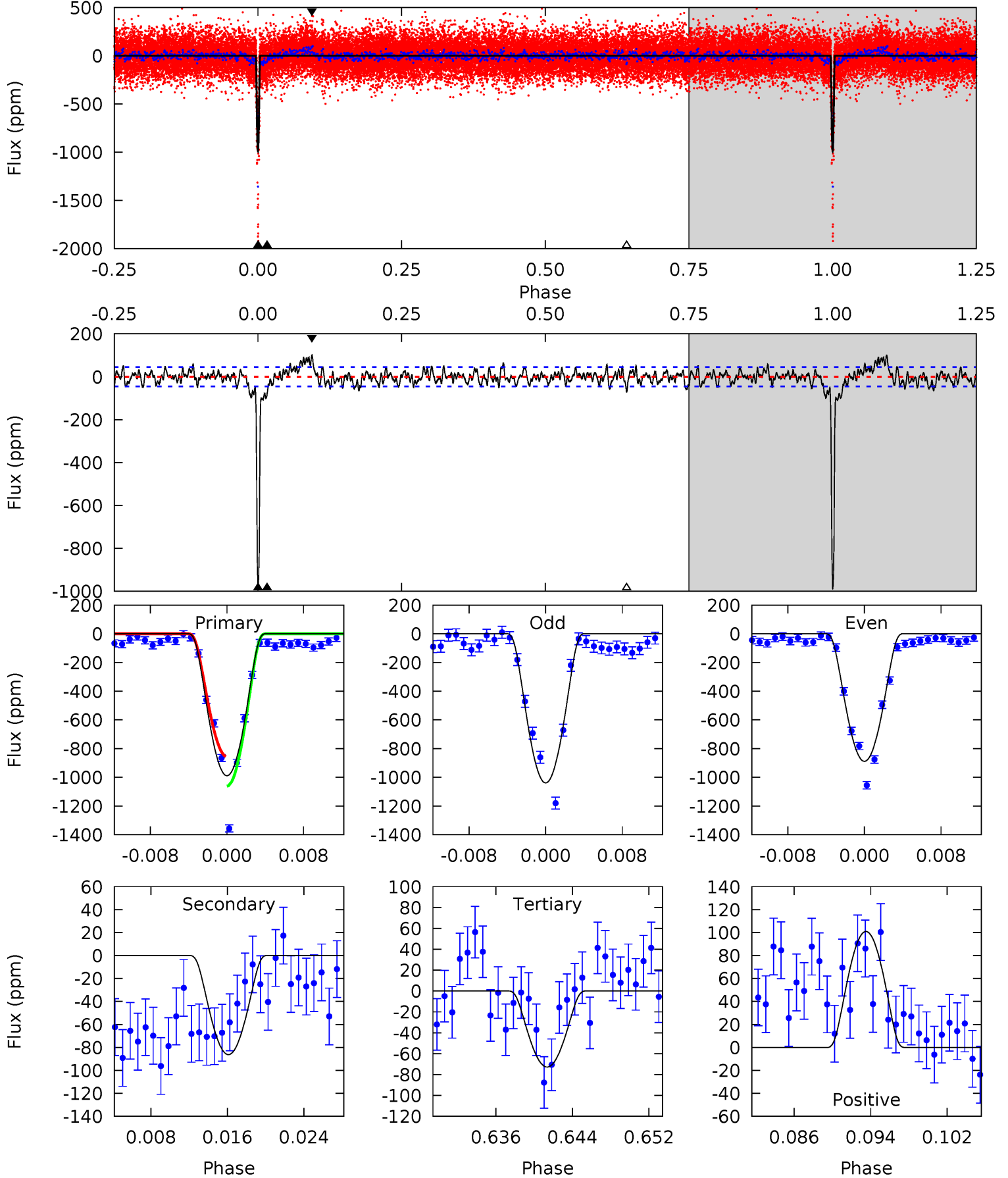
TCE 002697935-01 P= 21.512990 Days $T_0=132.465659$ (BKJD)



DV Model-Shift Uniqueness Test

002697935-01, P = 21.512980 Days, E = 132.464862 Days

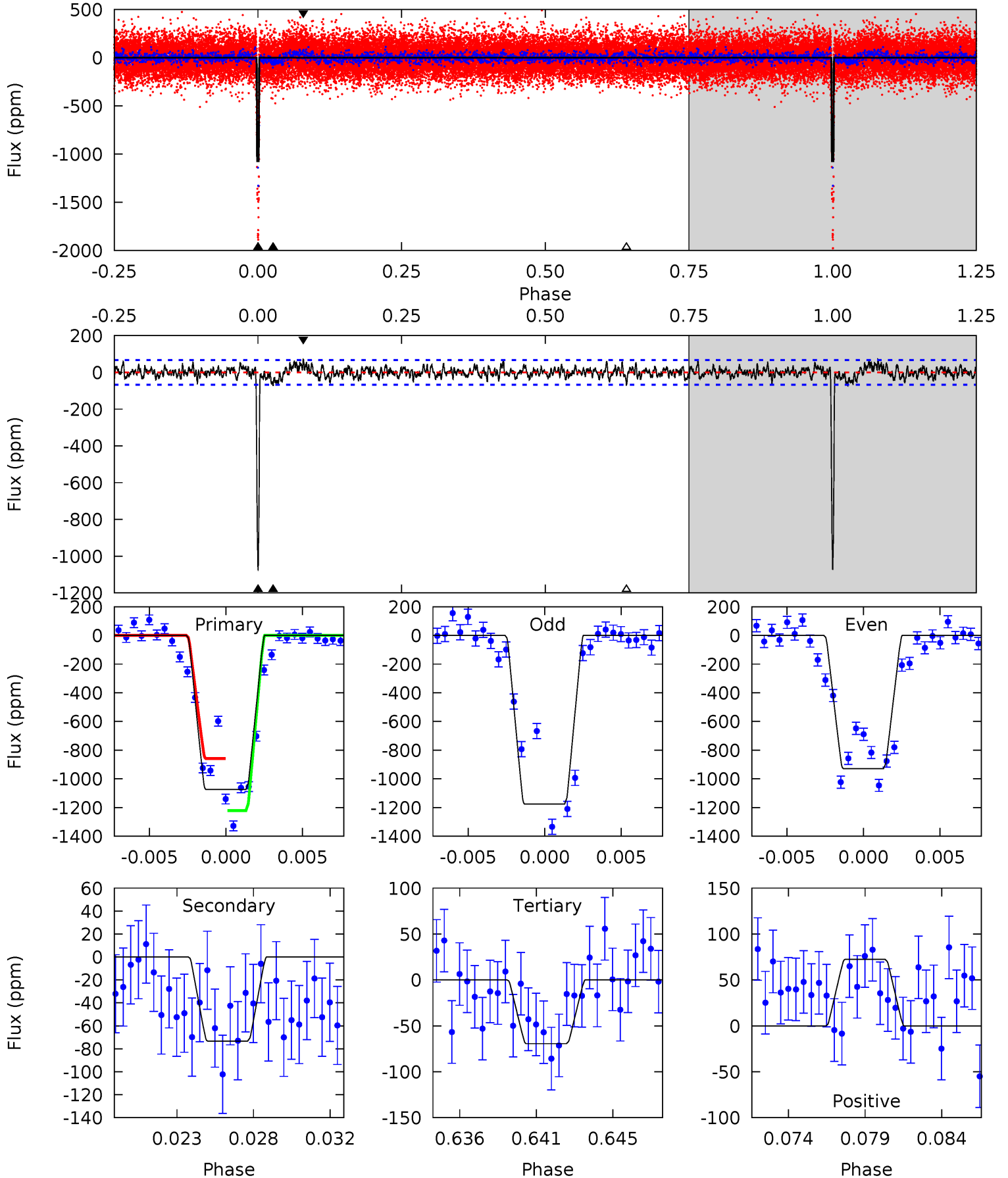
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
111.6	9.74	8.22	11.4	5.07	2.66	3.03	103.4	100.2	1.52	-1.65	8.36	1.27	0.09	0



Alt Model-Shift Uniqueness Test

002697935-01, P = 21.512990 Days, E = 132.465659 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.0	5.66	5.37	5.59	5.17	2.83	1.64	77.6	77.4	0.30	0.07	8.81	1.29	0.06	0



Stellar Parameters For KIC 002697935

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5088^{+128}_{-141}	$3.508^{+0.187}_{-0.153}$	$-0.140^{+0.250}_{-0.250}$	$3.318^{+0.665}_{-0.813}$	$1.294^{+0.157}_{-0.314}$	$0.050^{+0.048}_{-0.021}$
	+3%/-3%	+5%/-4%	+179%/-179%	+20%/-25%	+12%/-24%	+96%/-42%
Source	KIC0	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 002697935-01 / KOI 3853.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-86 ± 9	$22.45^{+17.74}_{-13.32}$	1407^{+92}_{-93}	2641^{+838}_{-423}	$2.478^{+12.910}_{-1.702}$
Alt.	-73 ± 13	$18.43^{+17.40}_{-12.69}$	1410^{+85}_{-98}	2755^{+1168}_{-518}	$3.061^{+26.610}_{-2.278}$

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

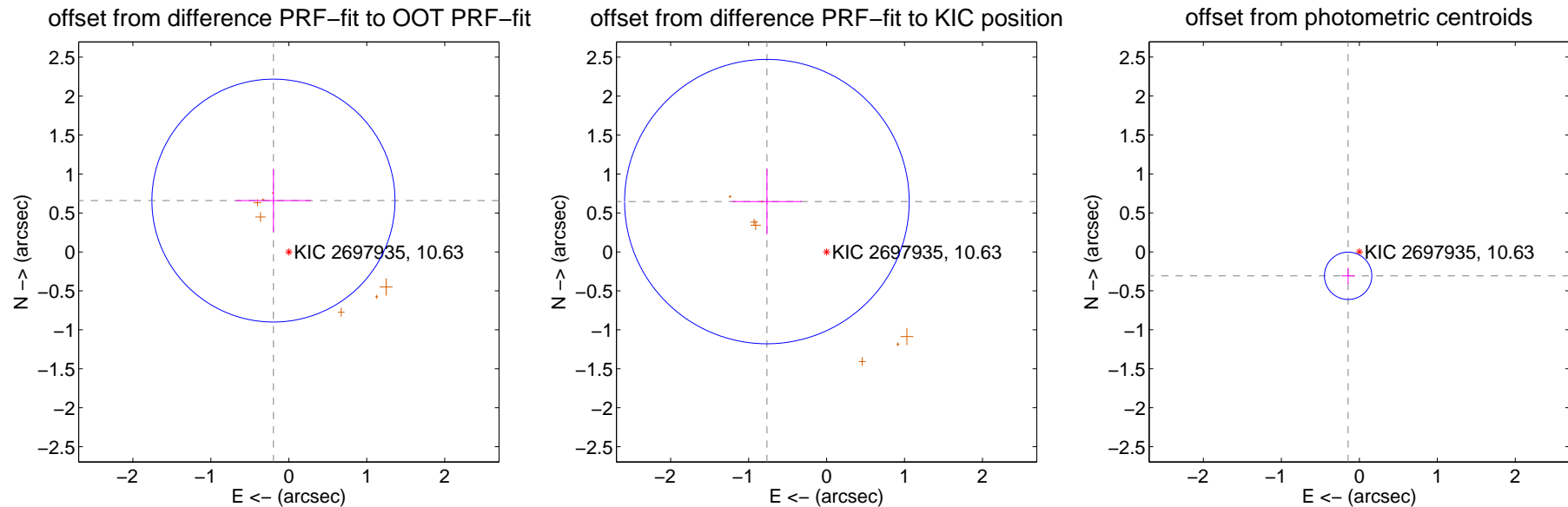
DV Centroid Data

Supplemental centroid analysis for 002697935-01. **Kepler magnitude: 10.63.** Transit SNR 38.83

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.64 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.688 ± 0.520	1.32	0.197 ± 0.481	0.659 ± 0.403
PRF-fit source offset from KIC position	1.002 ± 0.608	1.65	0.765 ± 0.449	0.646 ± 0.422
photometric centroid source offset	0.34 ± 0.10	3.35	0.14 ± 0.09	-0.31 ± 0.10



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



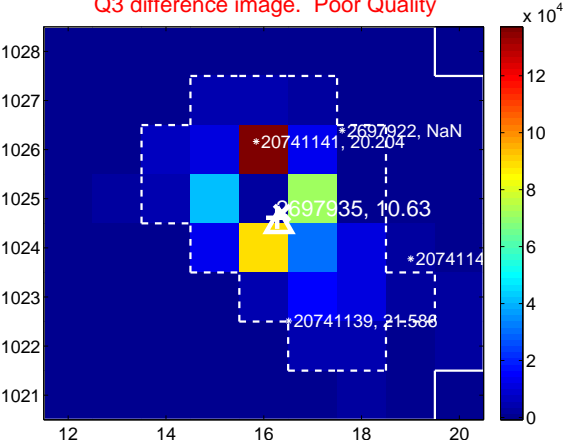
Q2 no difference image



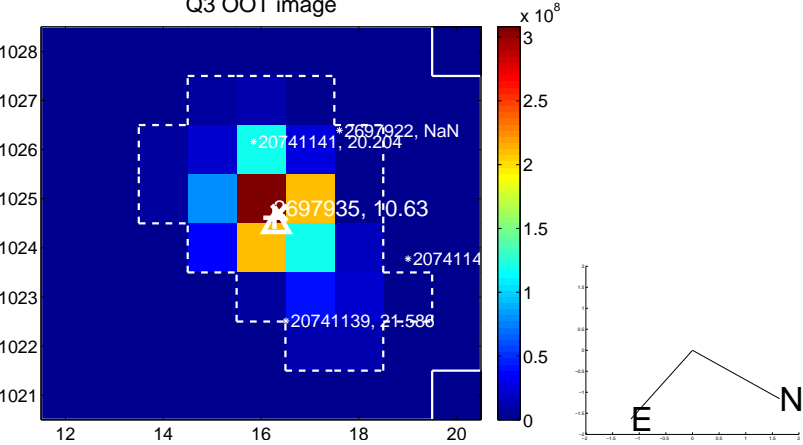
Q2 no OOT image



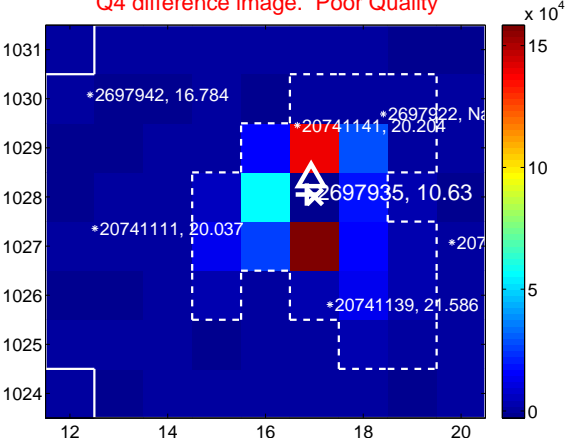
Q3 difference image. Poor Quality



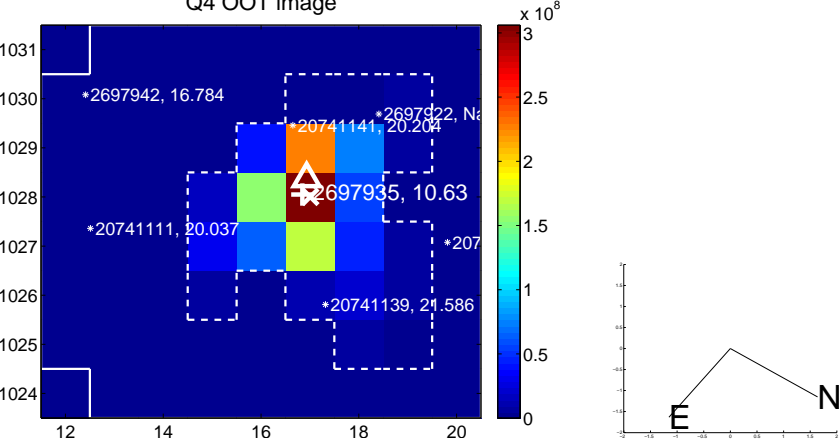
Q3 OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

Q5 no difference image



Q5 no OOT image



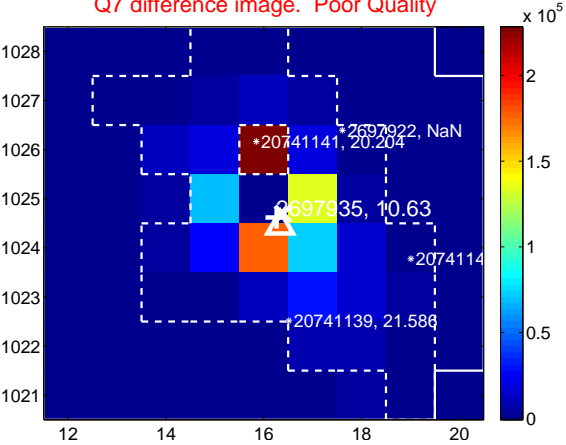
Q6 no difference image



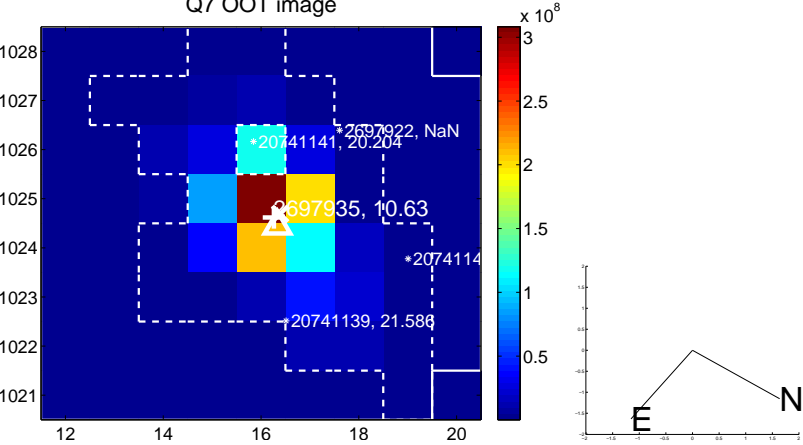
Q6 no OOT image



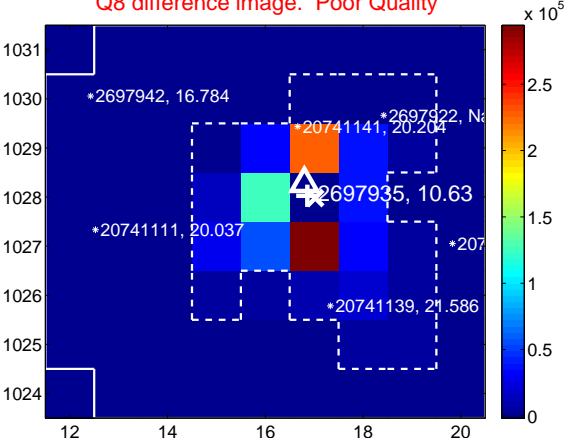
Q7 difference image. Poor Quality



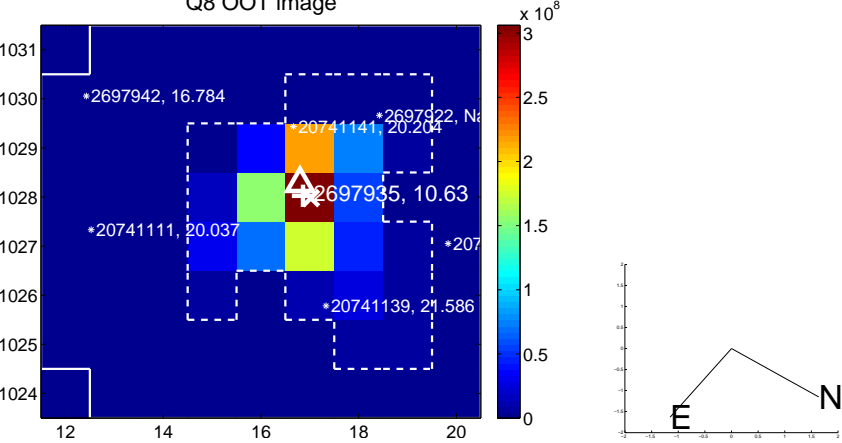
Q7 OOT image



Q8 difference image. Poor Quality



Q8 OOT image

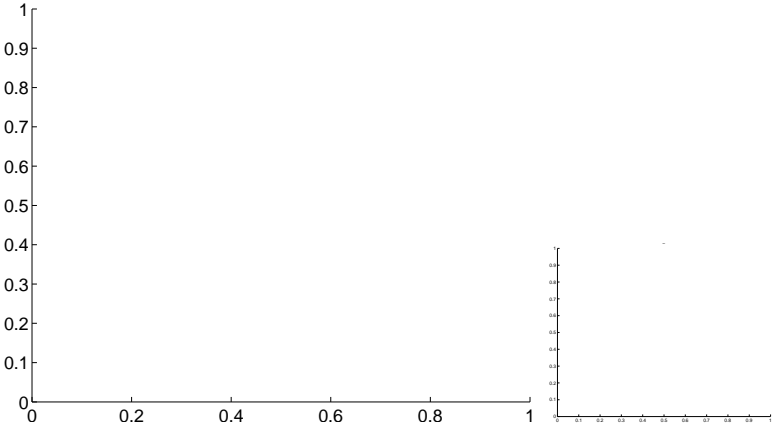


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q9 no difference image



Q9 no OOT image



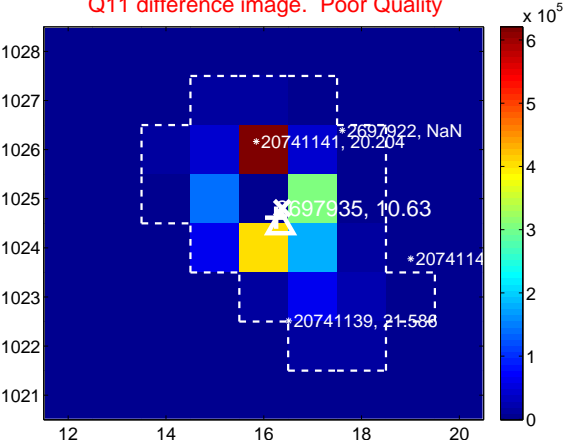
Q10 no difference image



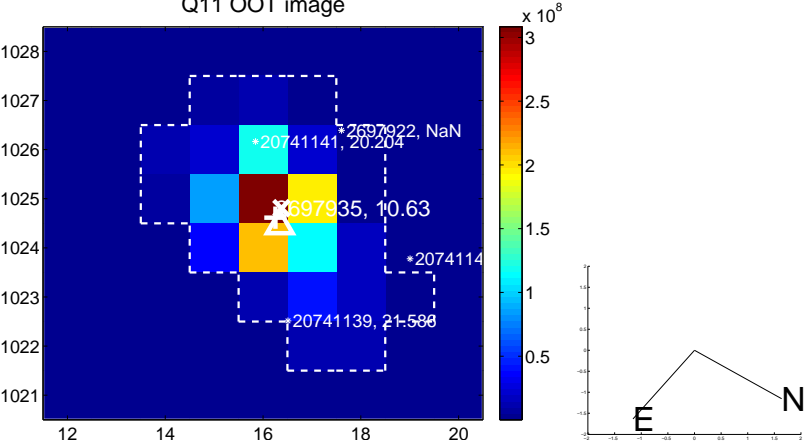
Q10 no OOT image



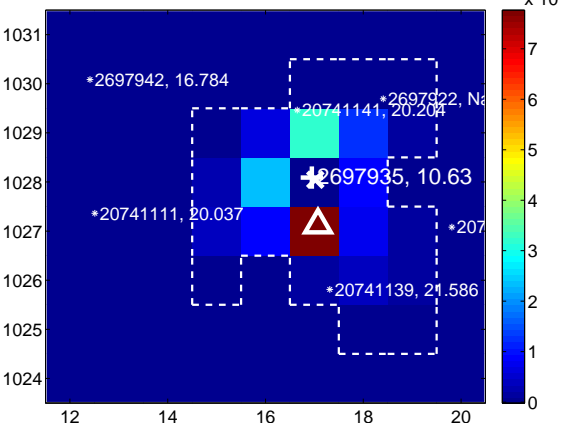
Q11 difference image. Poor Quality



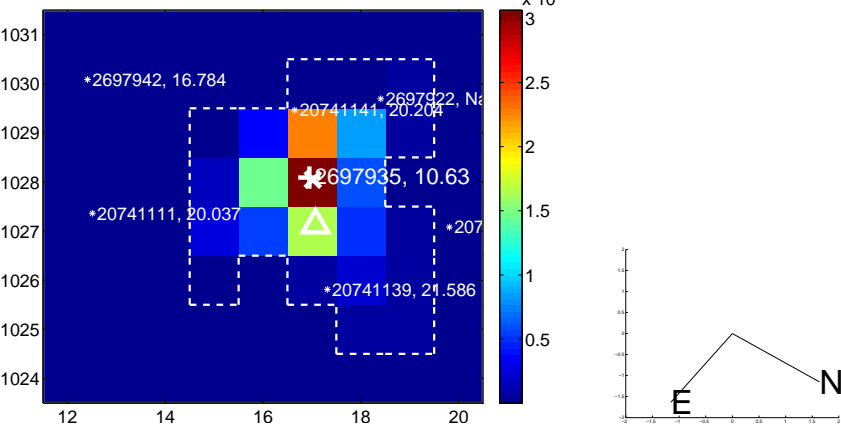
Q11 OOT image



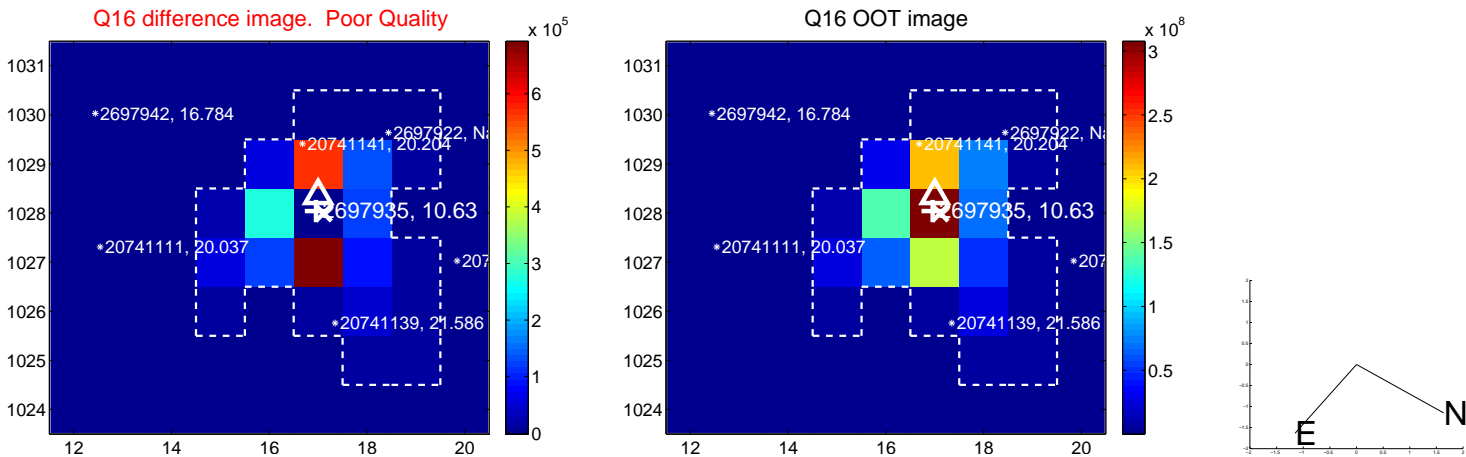
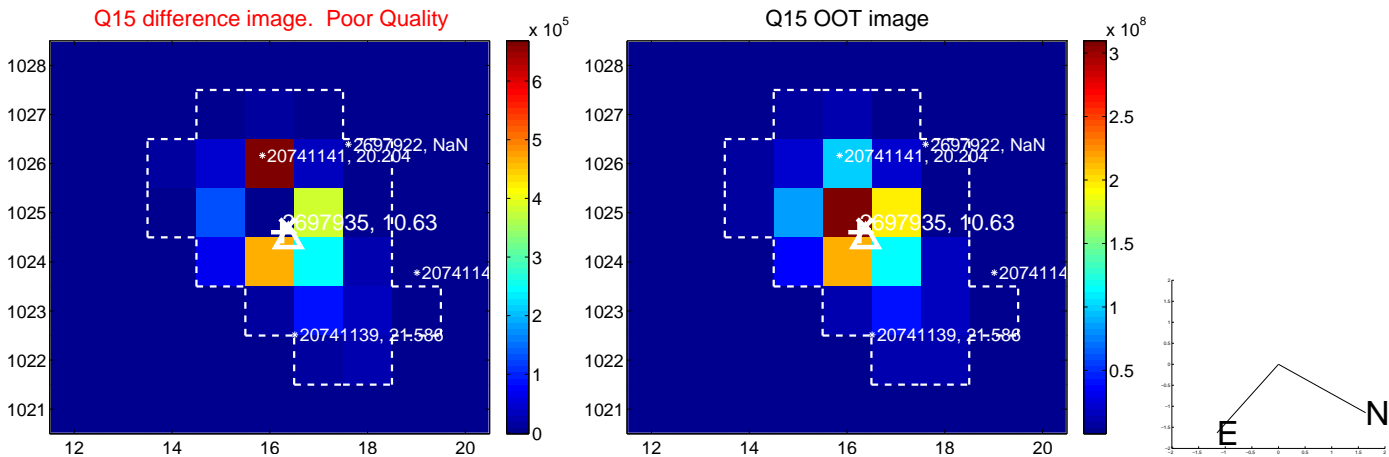
Q12 difference image



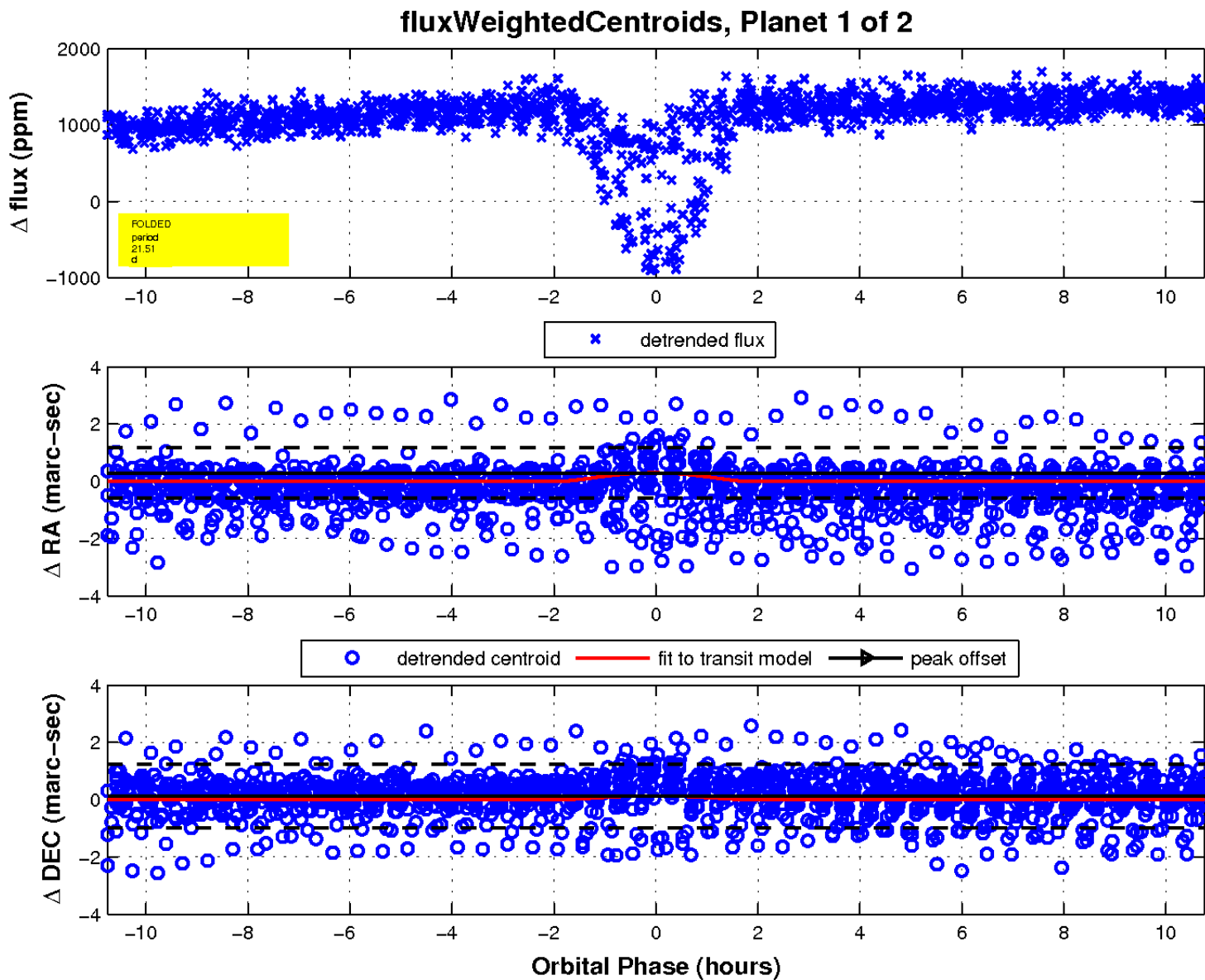
Q12 OOT image



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

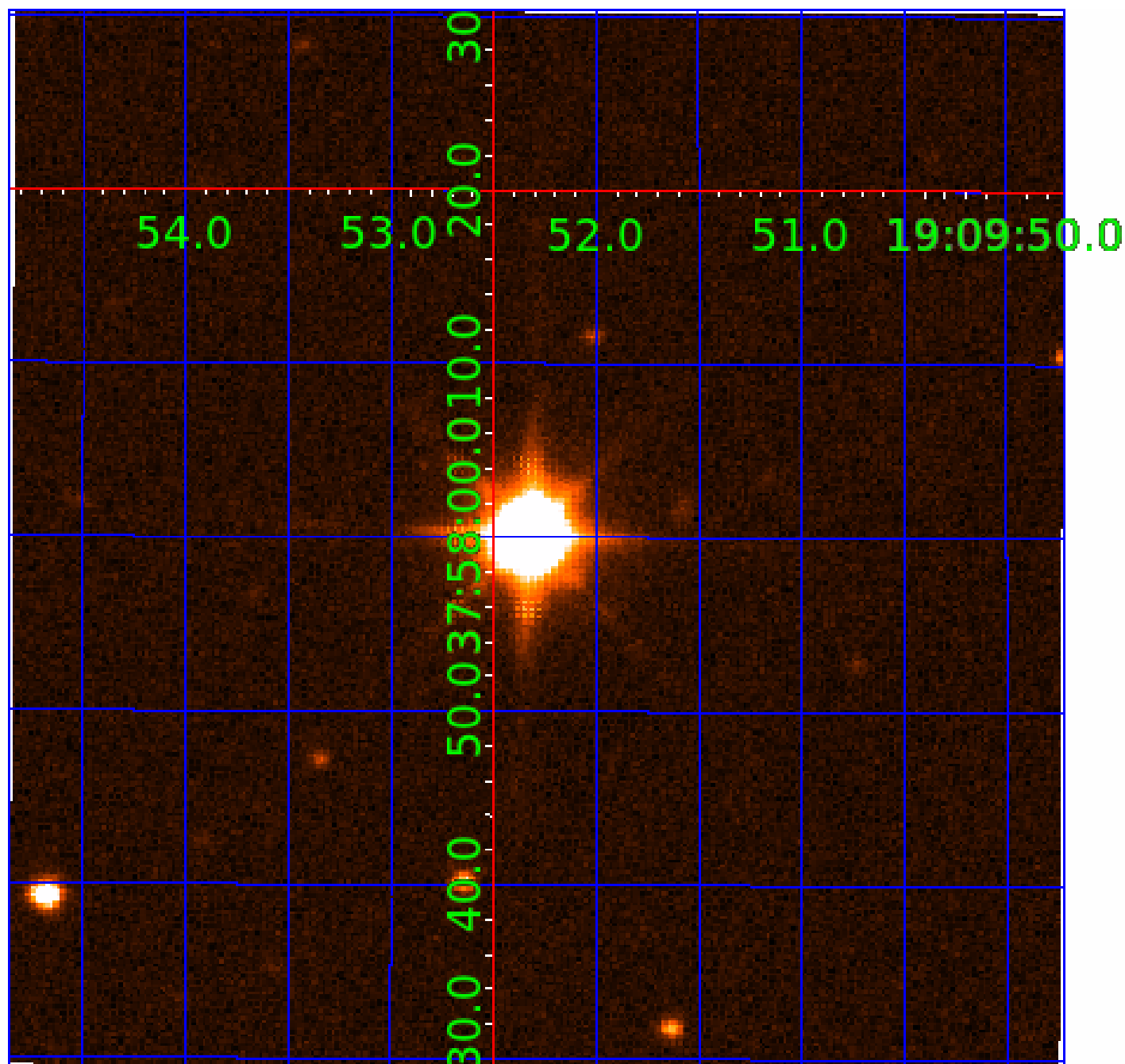


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002697935

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})
002697935-01	OBS	3853.01	21.512980	132.464862	902.0	3.587	63.6	38.8	3.32	5088	20.24	242.88
002697935-02	OBS	No	21.513876	132.699273	1460.3	67.875	20.6	52.1	3.32	5088	25.18	242.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002697935-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED—CENT_SATURATED
002697935-02	OBS	FP	0.00	1	0	0	0	LPP_DV—RESIDUAL_TCE—CENT_SATURATED

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 002697935-02

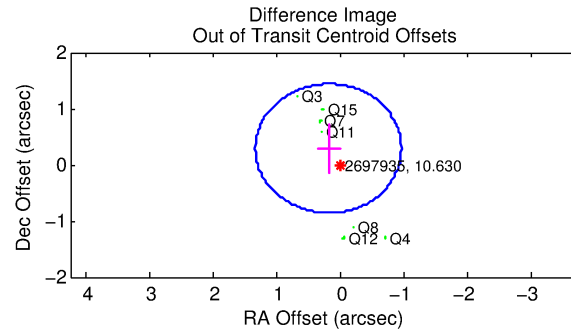
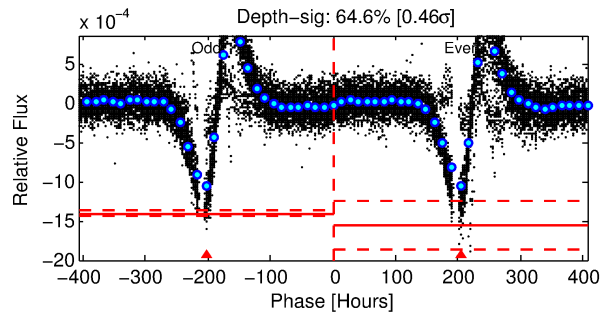
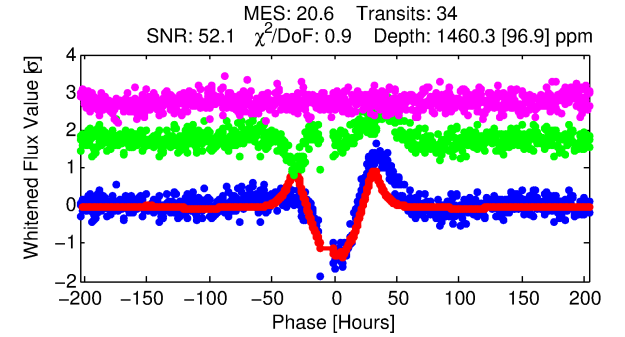
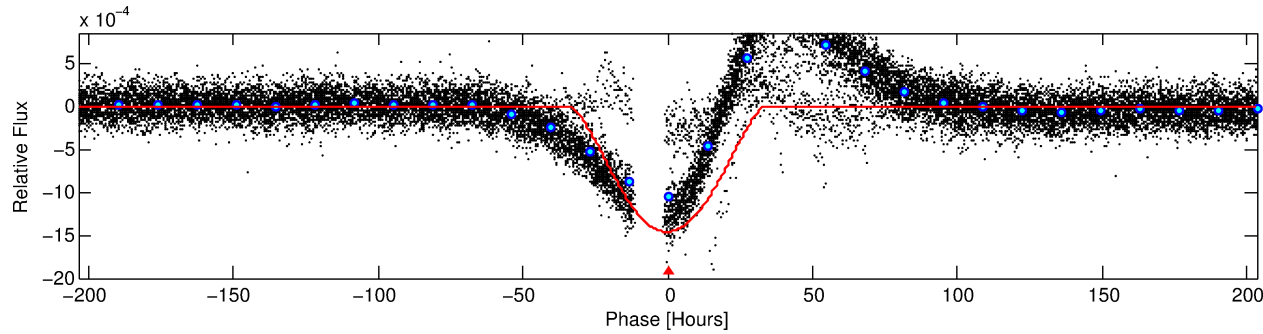
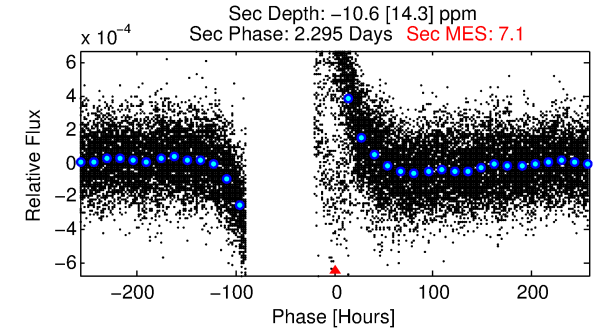
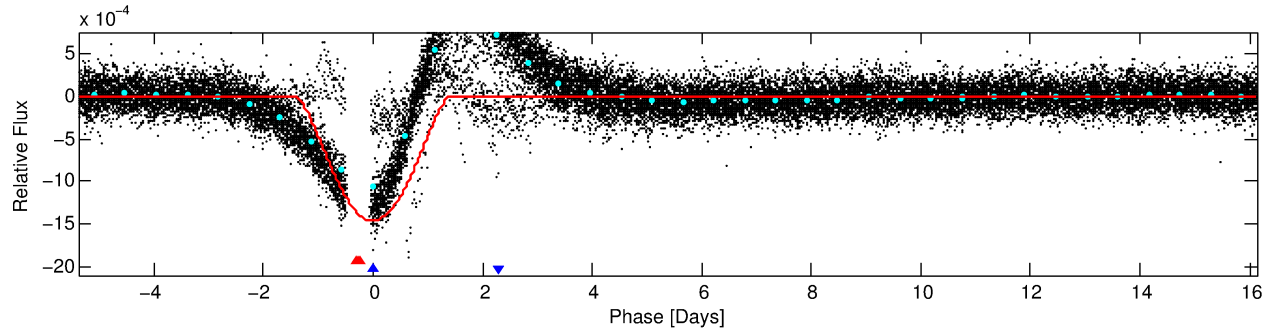
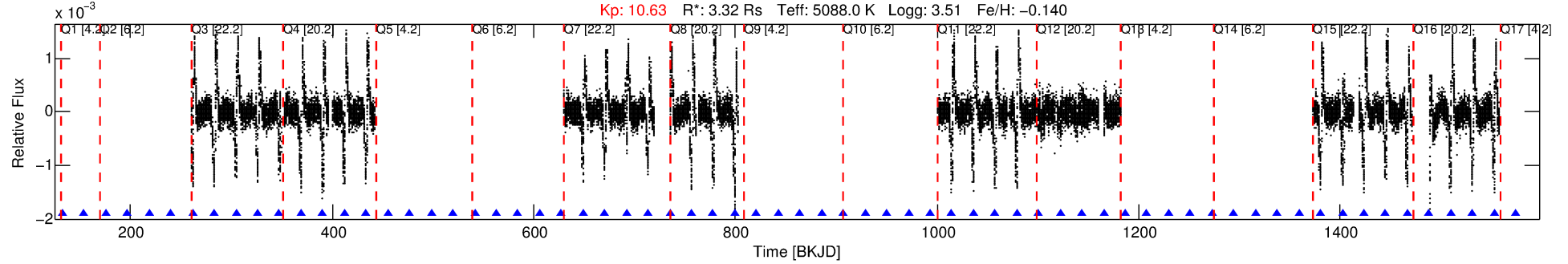
No Significant Match Found

DV One-Page Summary

KIC: 2697935 Candidate: 2 of 2 Period: 21.514 d

KOI: K03853 Corr: No Ephemeris Match

Kp: 10.63 R*: 3.32 Rs Teff: 5088.0 K Logg: 3.51 Fe/H: -0.140



DV Fit Results:

Period = 21.51388 [0.00040] d
Epoch = 132.6993 [0.0150] BKJD
Rp/R* = 0.0695 [0.0146]
a/R* = 1.38 [0.01]
b = 1.00 [0.02]
Seff = 242.87 [84.61]
Teq = 1007 [88] K
Rp = 25.18 [8.12] Re
a = 0.1650 [0.0359] AU
Ag = N/A
Teffp = N/A

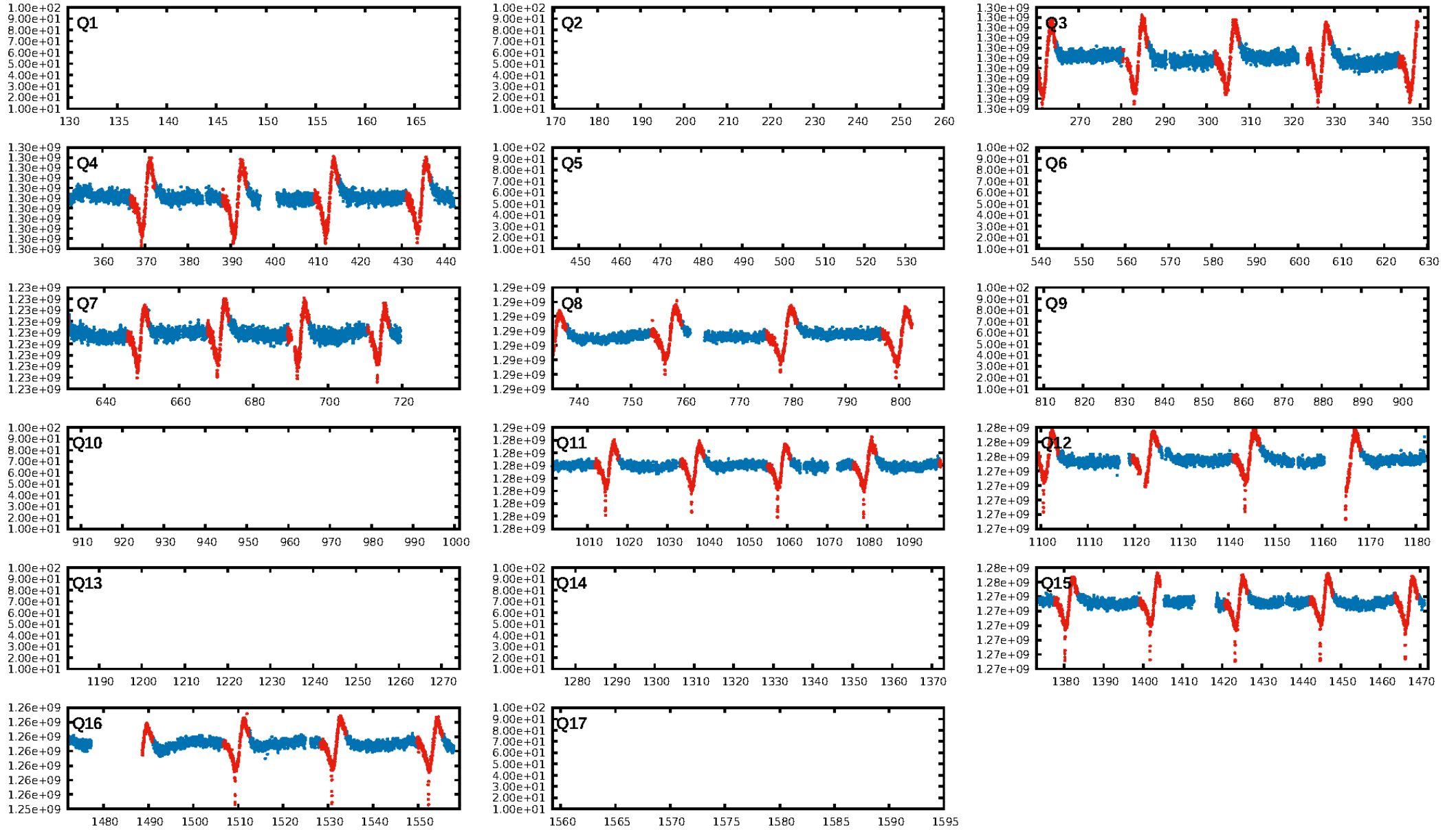
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.78e-94
RollingBand-fgt: 1.00 [34/34]
GhostDiagnostic-chr: 1.685
Centroid-sig: 0.0%
Centroid-so: 0.173 arcsec [1.90σ]
OotOffset-rm: 0.345 arcsec [0.90σ]
KicOffset-rm: 0.531 arcsec [1.76σ]
OotOffset-st: 0/4/3/0 [7]
KicOffset-st: 0/4/3/0 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.00 [0/7]

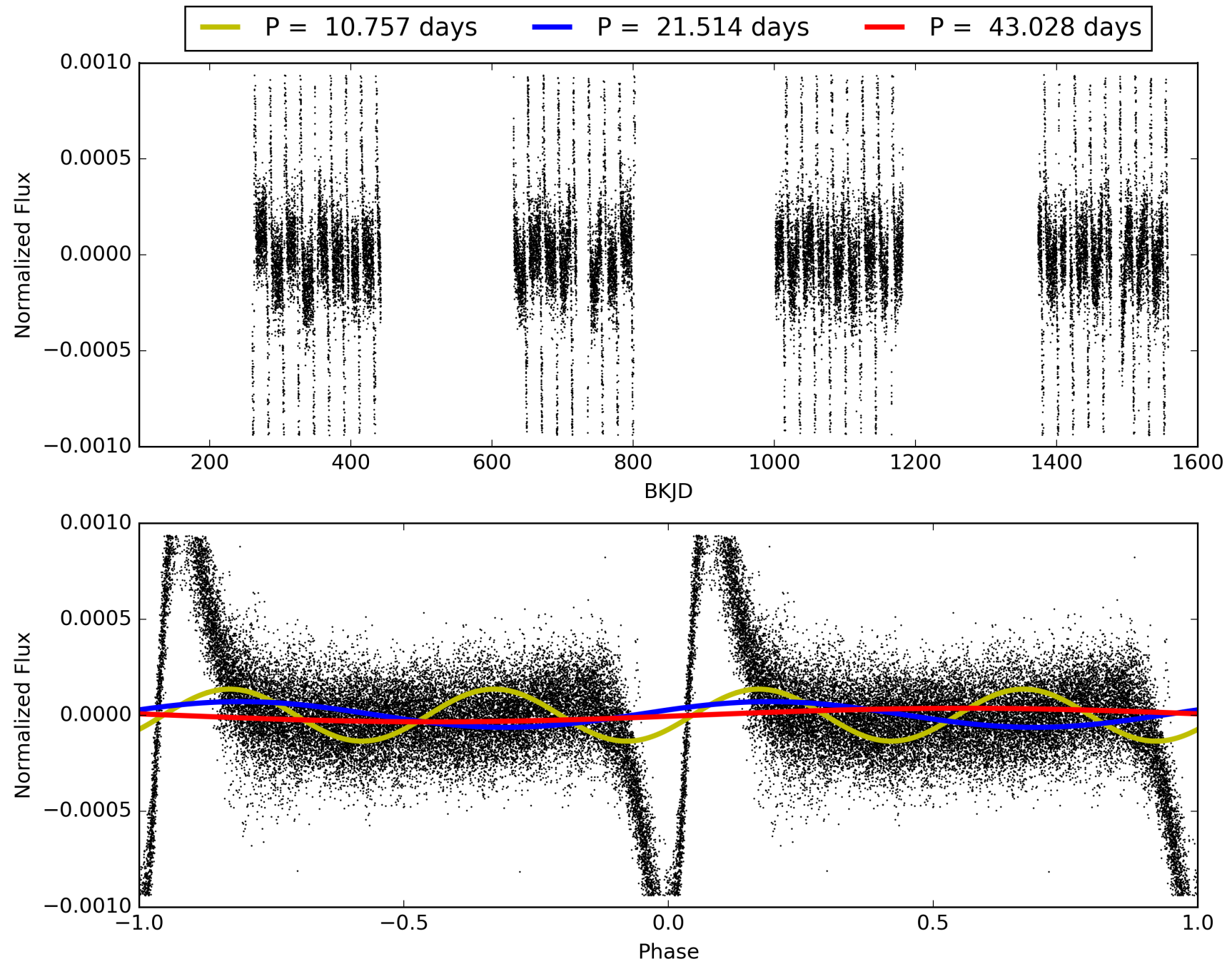
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:18:42 Z

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

TCE 002697935-02, PDC Light Curves

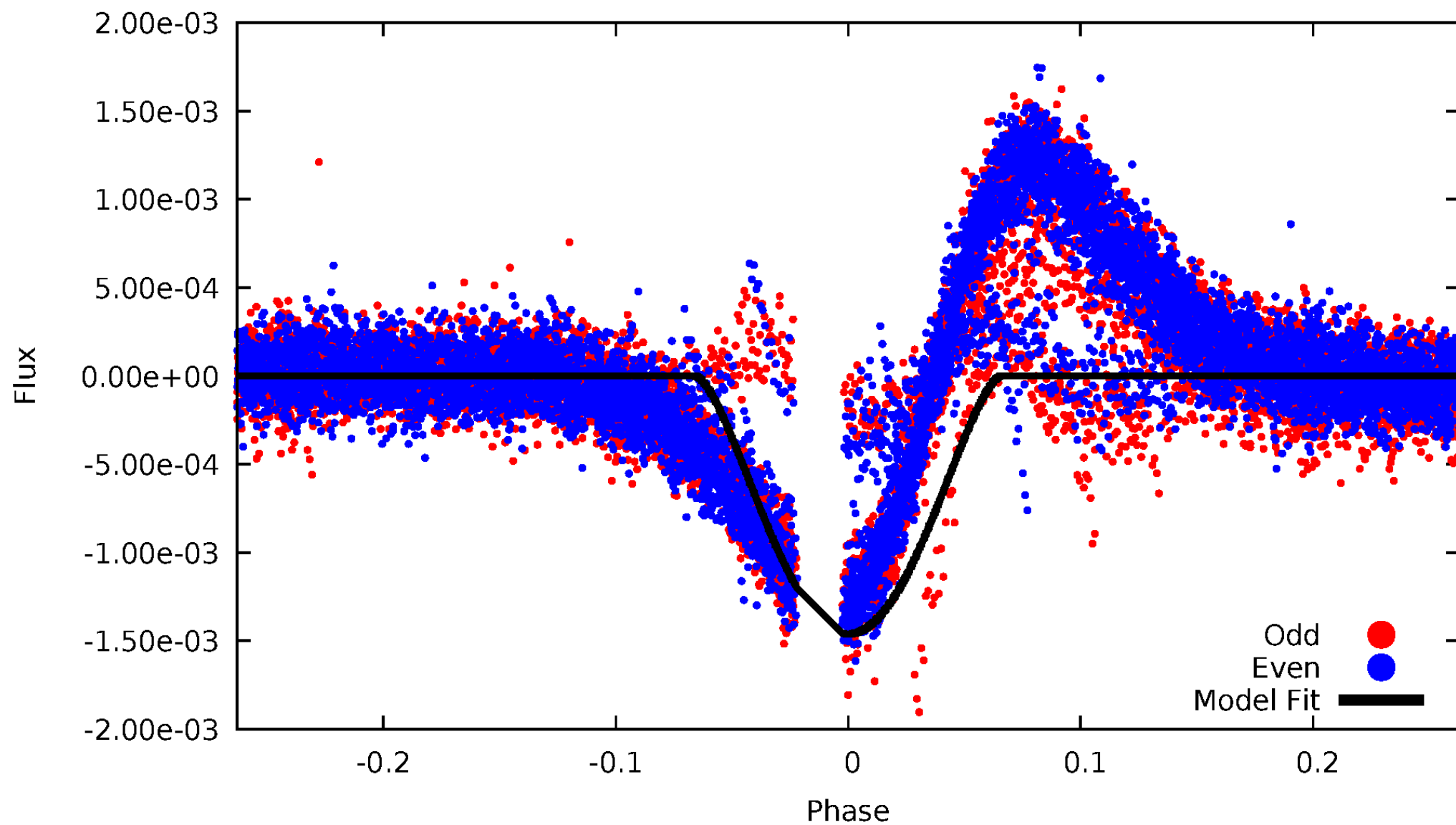


TCE 002697935-02



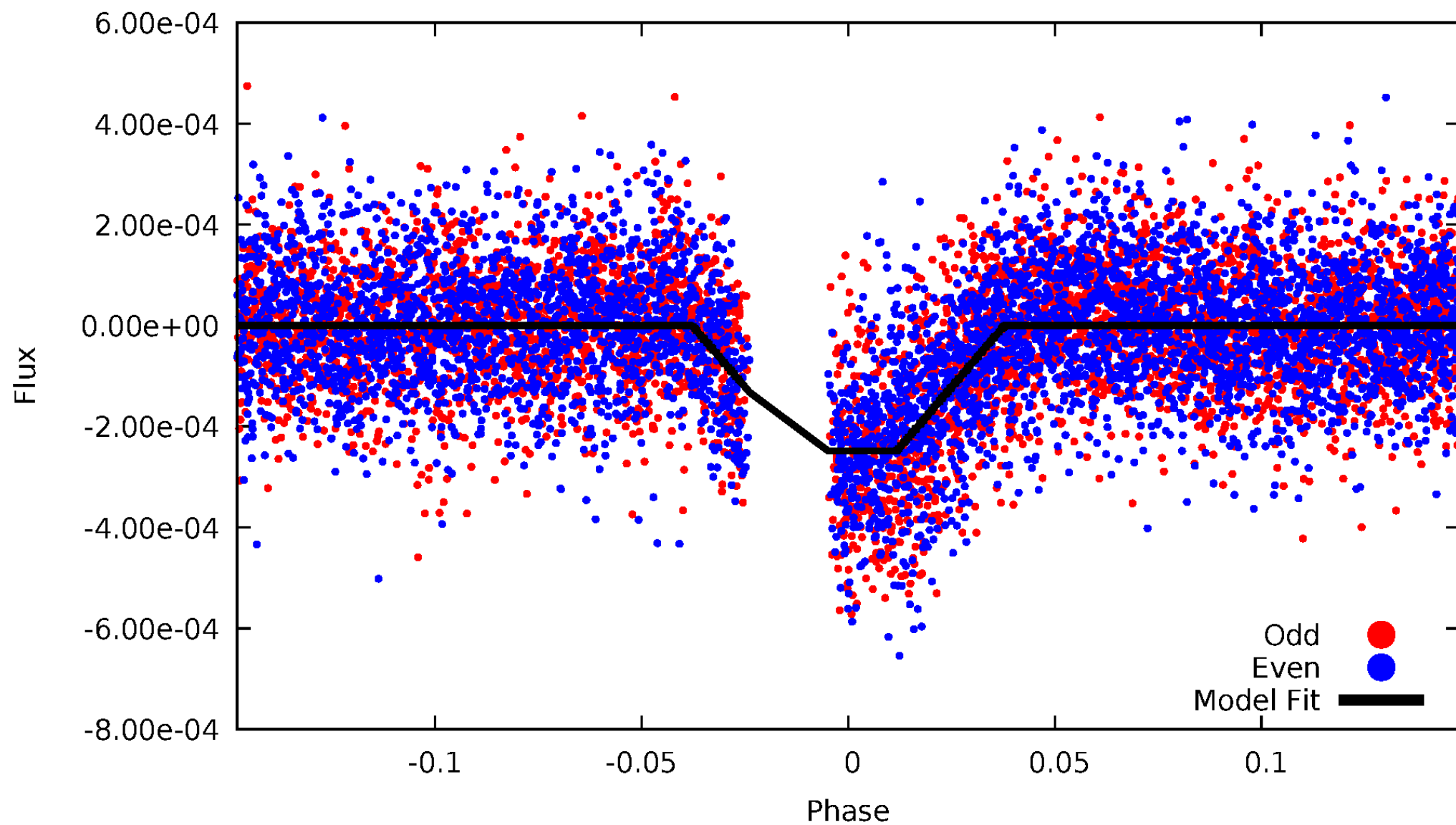
DV Odd/Even

TCE 002697935-02



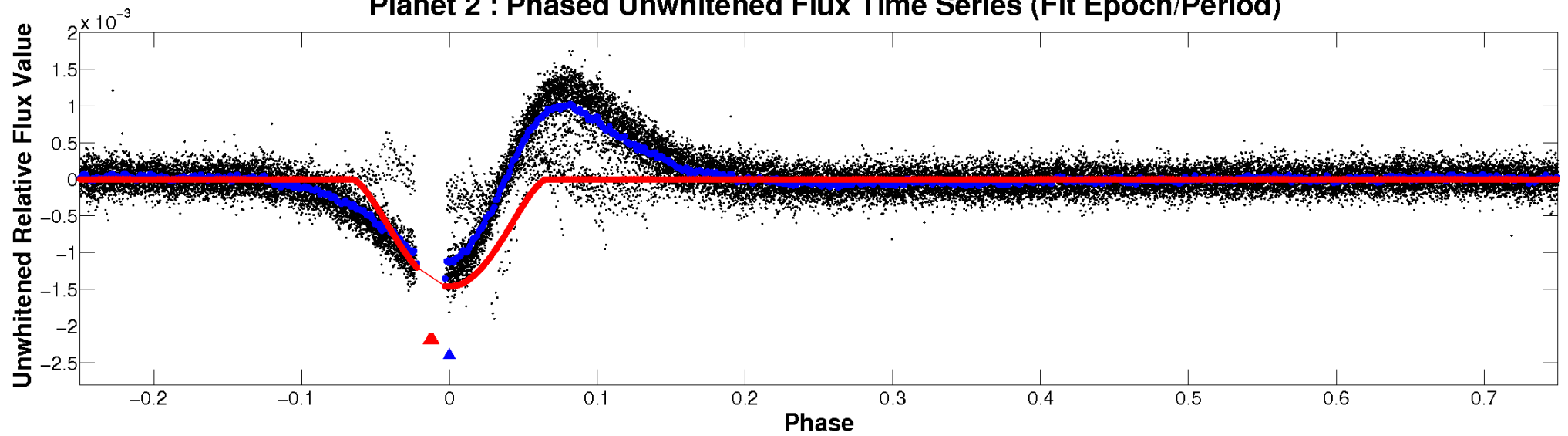
ALT Odd/Even

TCE 002697935-02

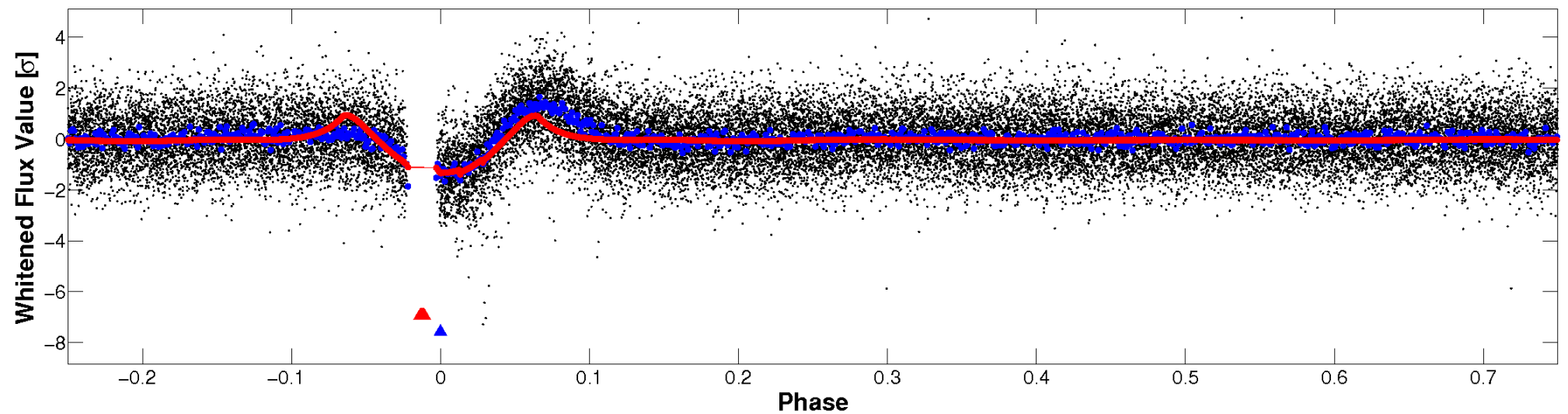


Non-Whitened Vs. Whitened Light Curve

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

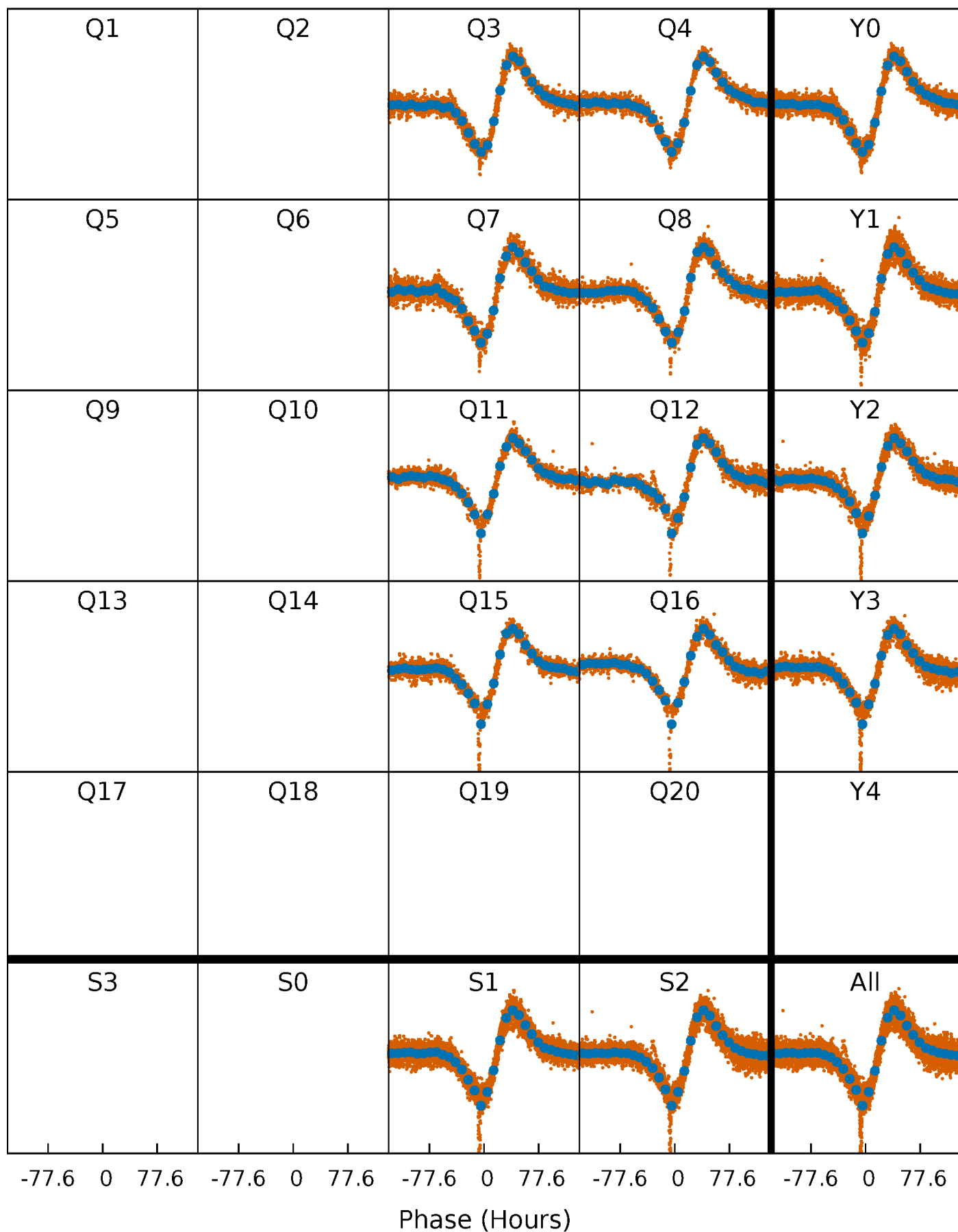


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



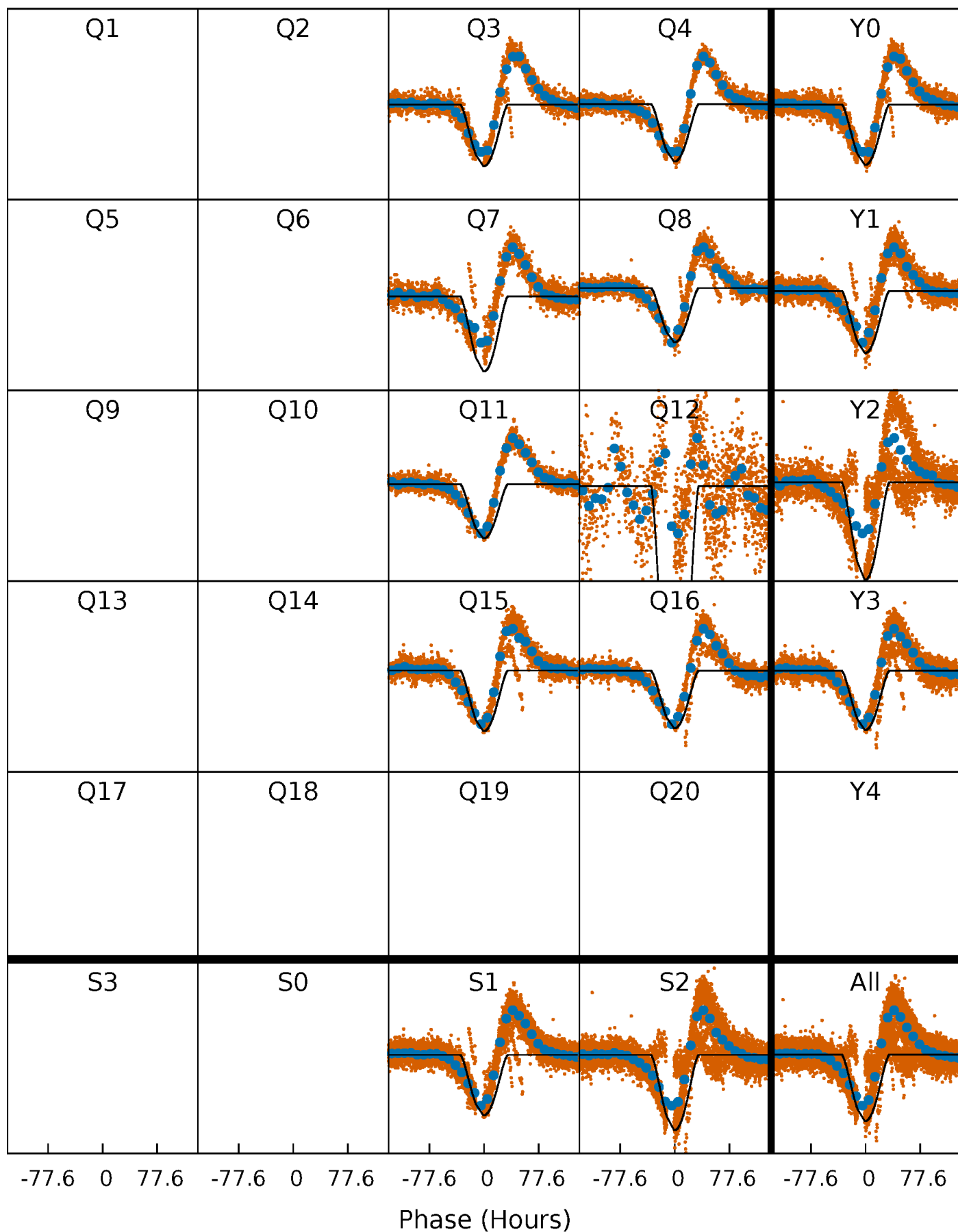
PDC Quarter-Phased Transit Curves

TCE 002697935-02 P= 21.513876 Days $T_0=132.699273$ (BKJD)



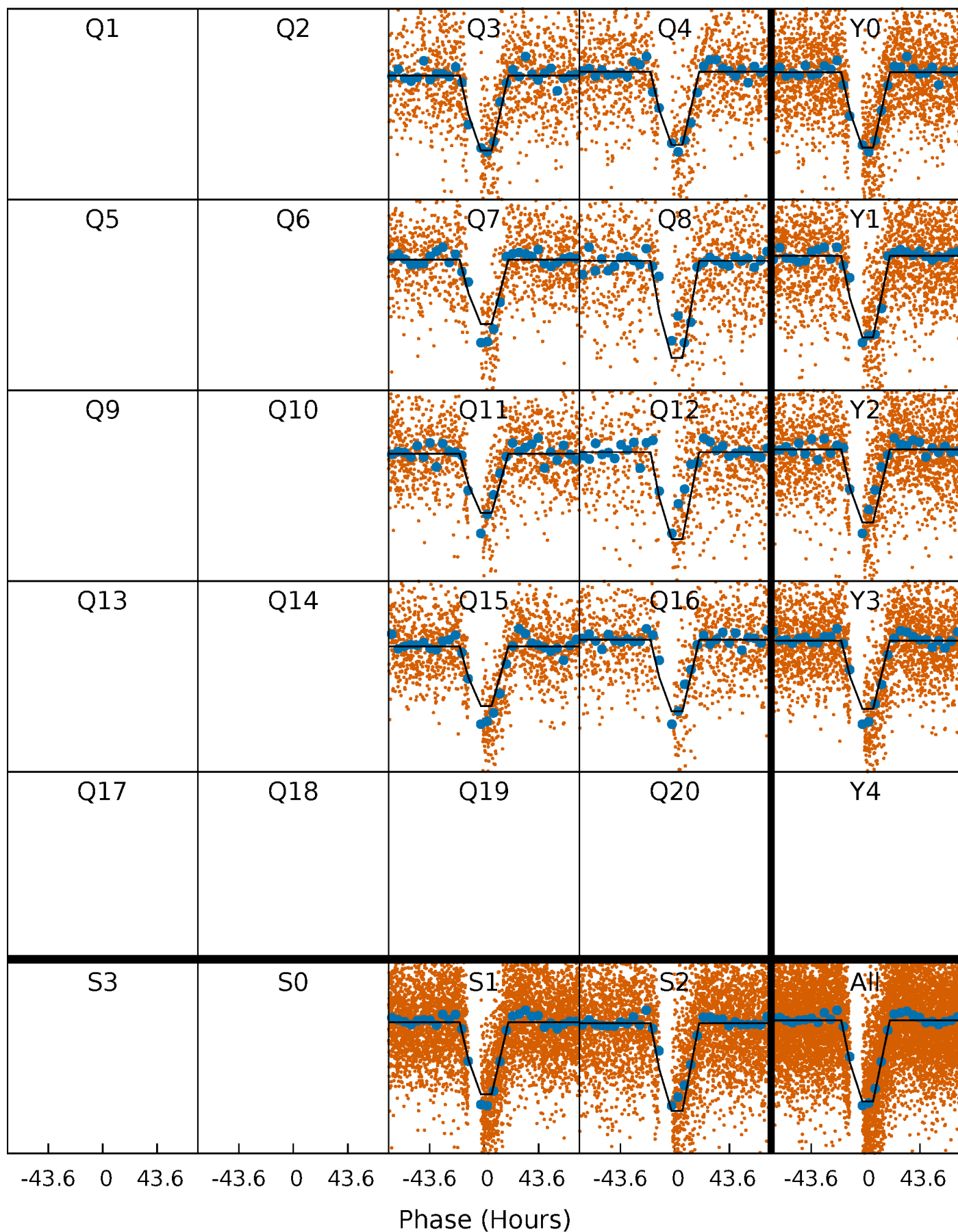
DV Quarter-Phased Transit Curves

TCE 002697935-02 P= 21.513876 Days $T_0=132.699273$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

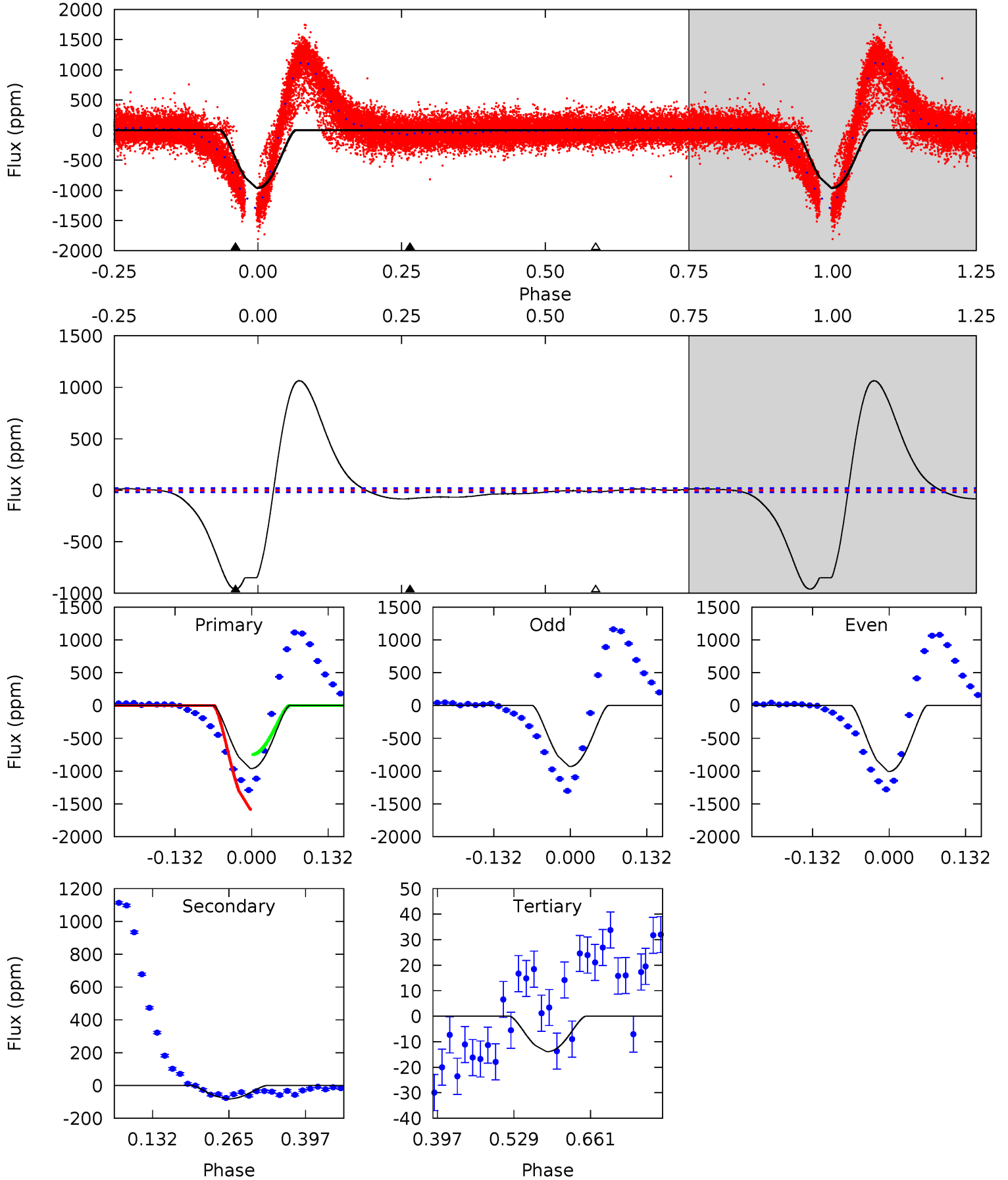
TCE 002697935-02 P= 21.511941 Days $T_0=132.810337$ (BKJD)



DV Model-Shift Uniqueness Test

002697935-02, P = 21.513876 Days, E = 132.699273 Days

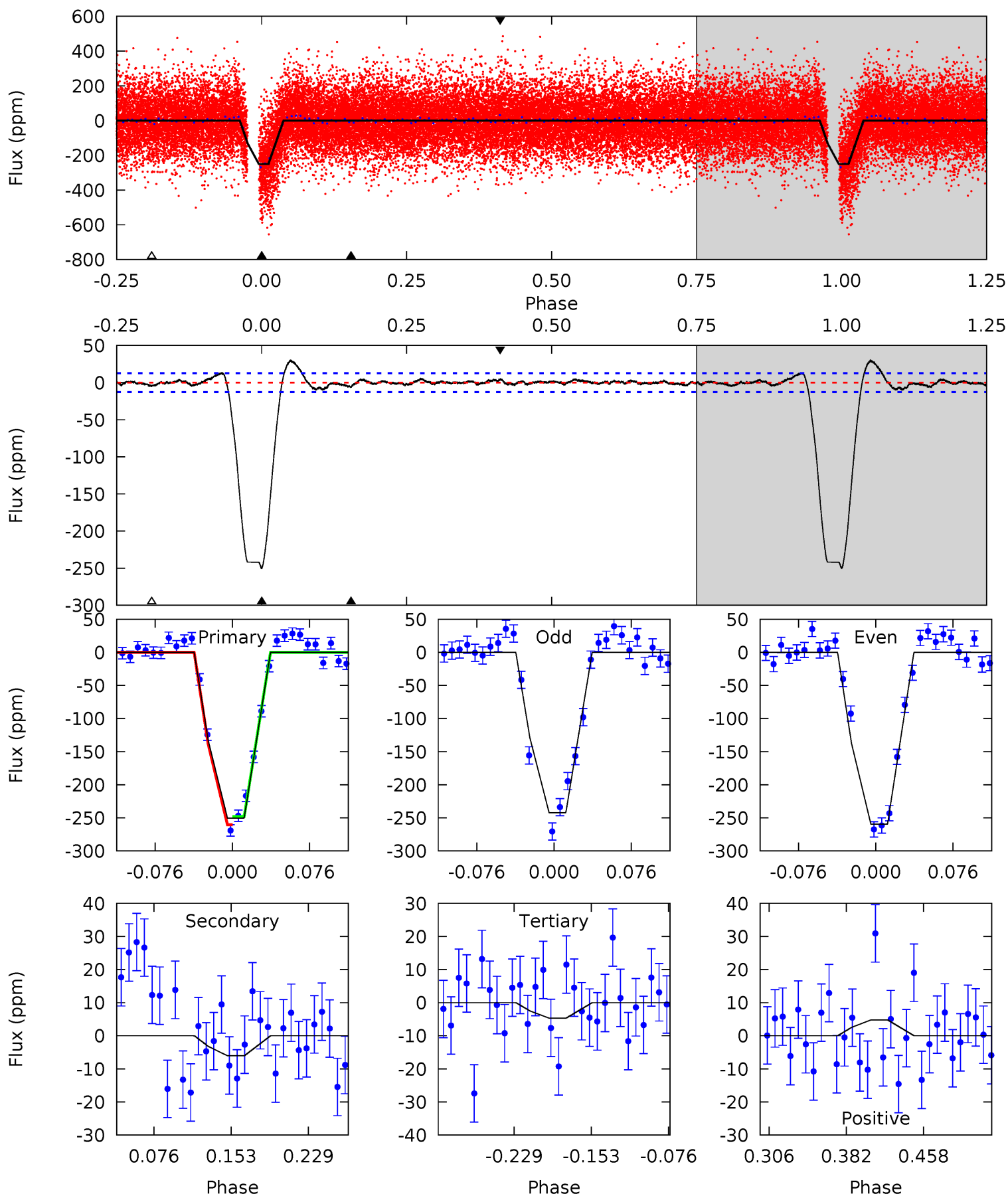
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
219.1	18.5	3.16	0	4.51	1.51	41.9	215.9	219.1	15.3	18.5	8.46	0.90	0.53	148.8



Alt Model-Shift Uniqueness Test

002697935-02, P = 21.511941 Days, E = 132.810337 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
90.5	2.19	1.70	1.72	4.62	1.77	0.76	88.8	88.7	0.49	0.47	3.09	1.06	0.11	2.03



Stellar Parameters For KIC 002697935

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5088^{+128}_{-141}	$3.508^{+0.187}_{-0.153}$	$-0.140^{+0.250}_{-0.250}$	$3.318^{+0.665}_{-0.813}$	$1.294^{+0.157}_{-0.314}$	$0.050^{+0.048}_{-0.021}$
	+3%/-3%	+5%/-4%	+179%/-179%	+20%/-25%	+12%/-24%	+96%/-42%
Source	KIC0	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 002697935-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-81 \pm 4	$24.41^{+6.35}_{-5.93}$	1400^{+91}_{-92}	2566^{+182}_{-140}	$1.974^{+1.393}_{-0.692}$
Alt.	-6 \pm 3	$6.43^{+5.13}_{-4.21}$	1404^{+92}_{-93}	2559^{+985}_{-509}	$1.930^{+13.359}_{-1.407}$

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 $A_{obs} \gg 1.0$

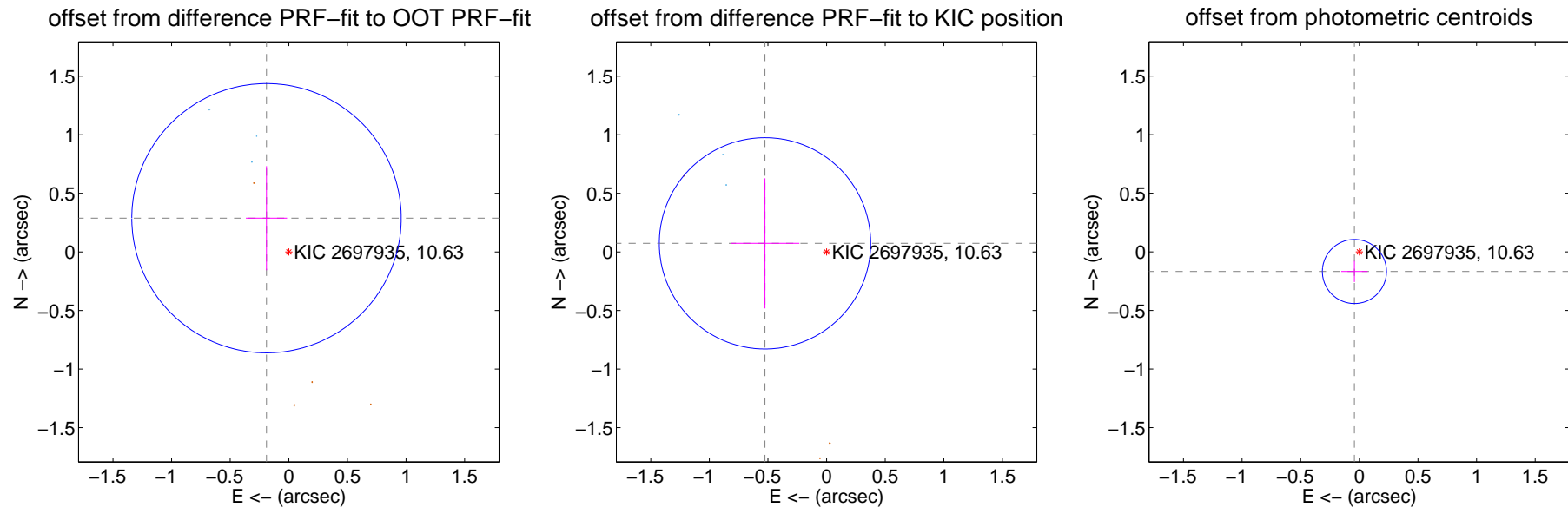
DV Centroid Data

Supplemental centroid analysis for 002697935-02. **Kepler magnitude: 10.63.** Transit SNR 52.07

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.345 ± 0.383	0.90	0.190 ± 0.176	0.288 ± 0.444
PRF-fit source offset from KIC position	0.531 ± 0.301	1.76	0.525 ± 0.293	0.073 ± 0.555
photometric centroid source offset	0.17 ± 0.09	1.90	0.04 ± 0.11	-0.17 ± 0.09



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



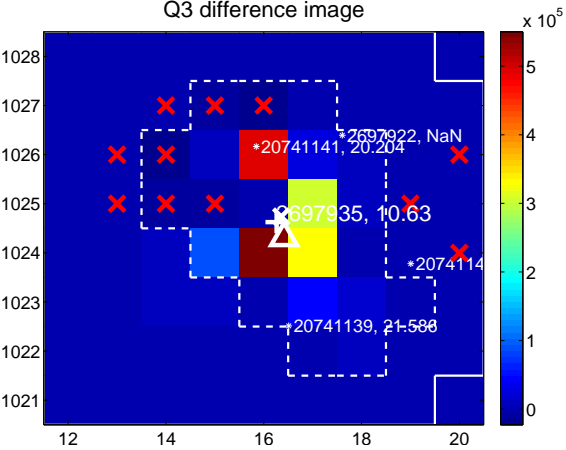
Q2 no difference image



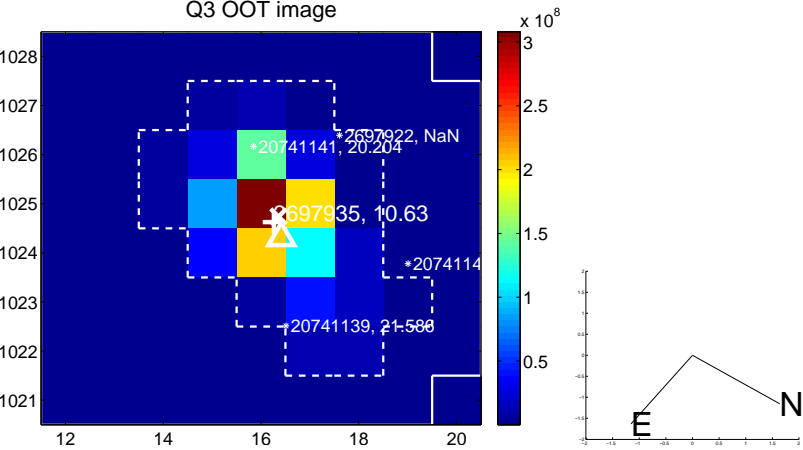
Q2 no OOT image



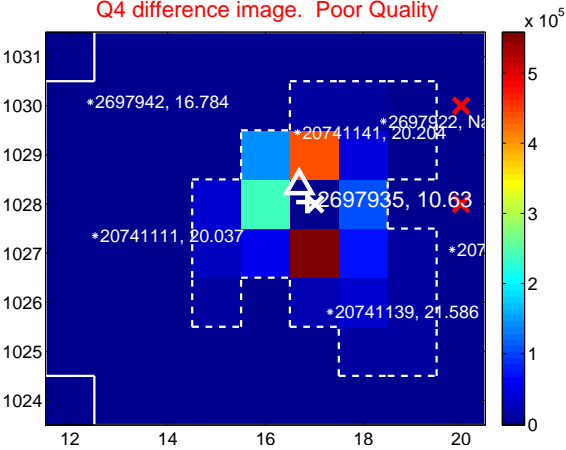
Q3 difference image



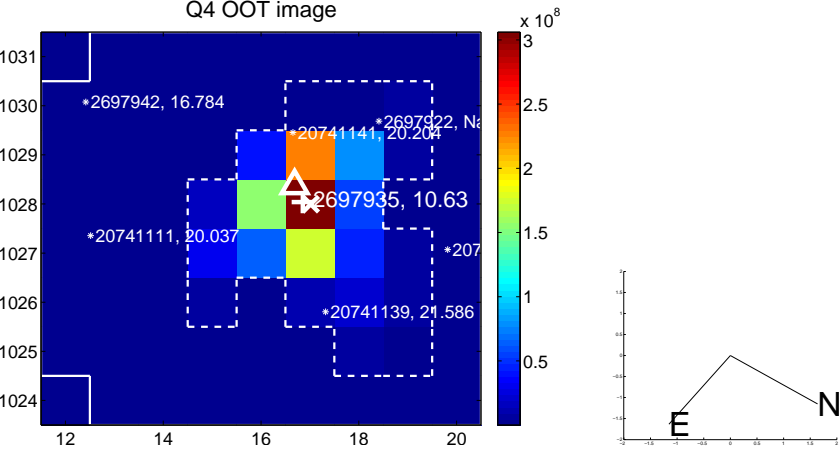
Q3 OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

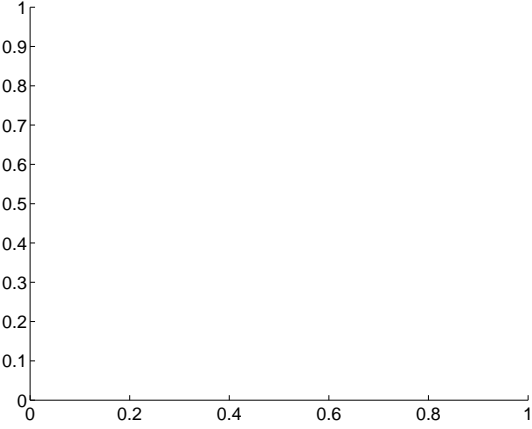
Q5 no difference image



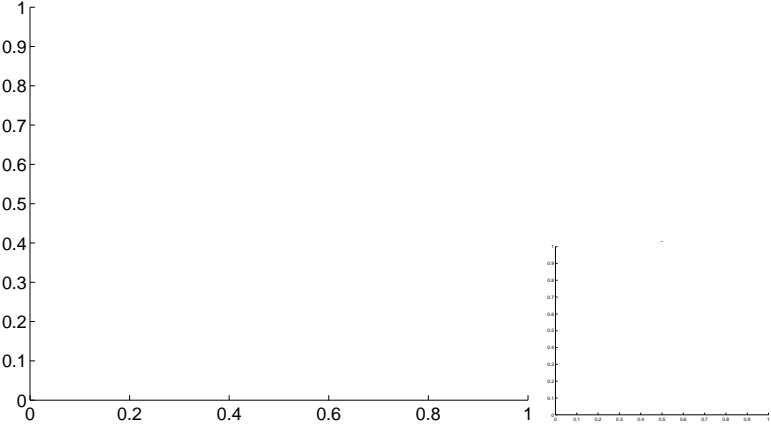
Q5 no OOT image



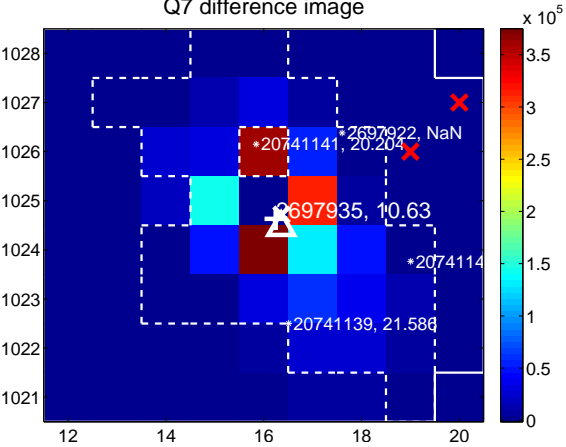
Q6 no difference image



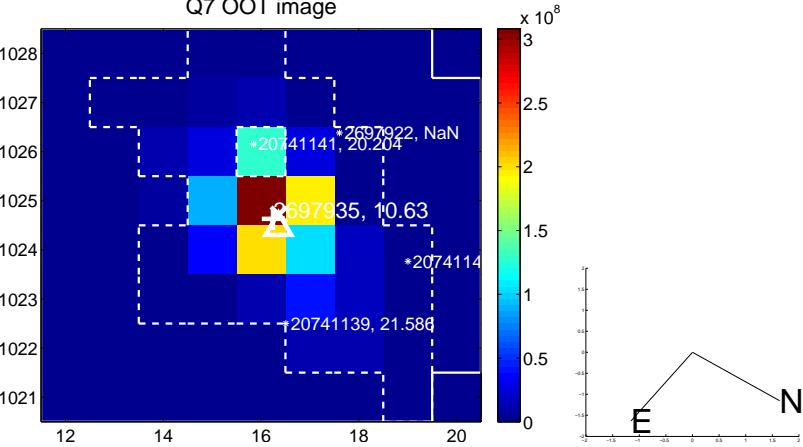
Q6 no OOT image



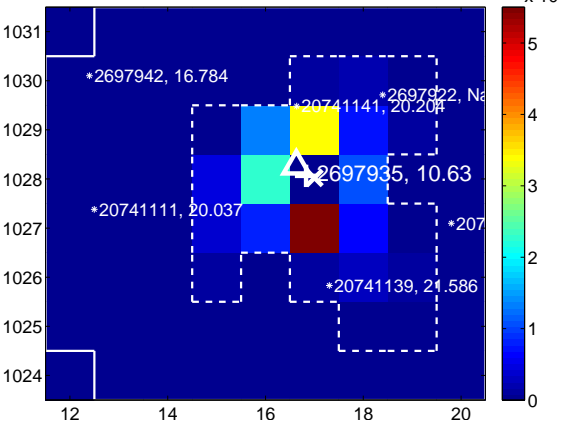
Q7 difference image



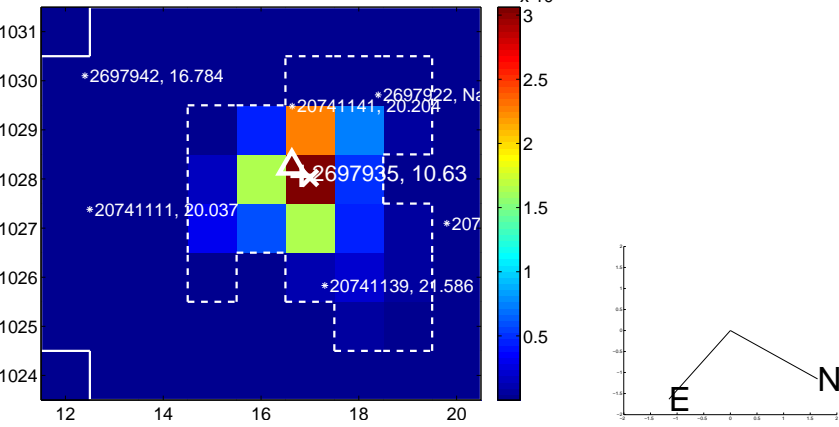
Q7 OOT image



Q8 difference image. Poor Quality



Q8 OOT image



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

Q9 no difference image



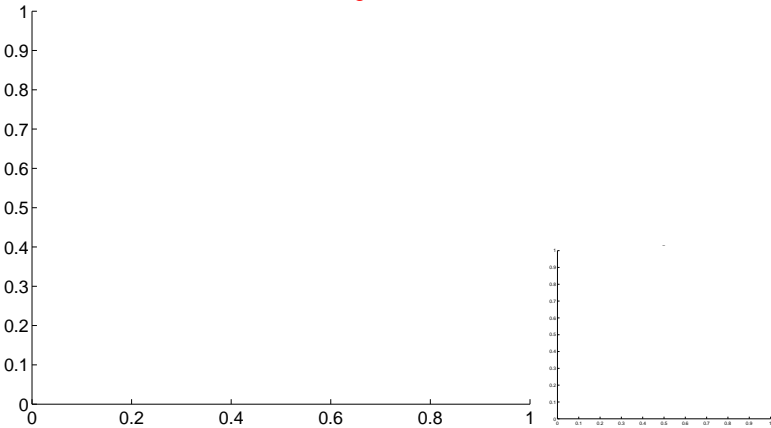
Q9 no OOT image



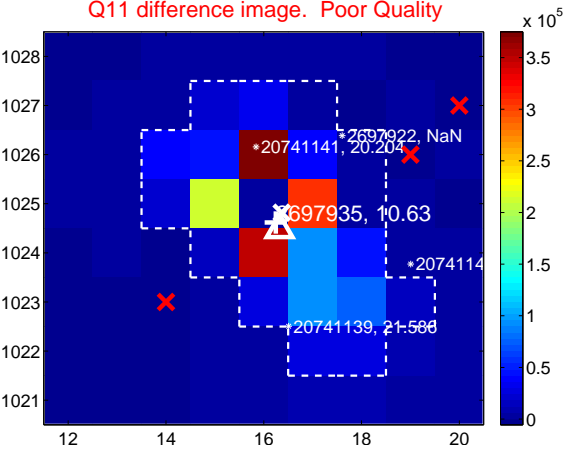
Q10 no difference image



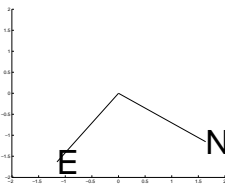
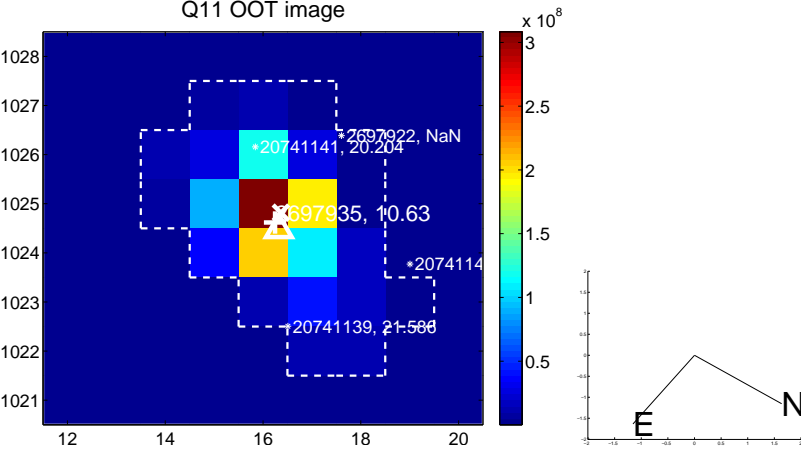
Q10 no OOT image



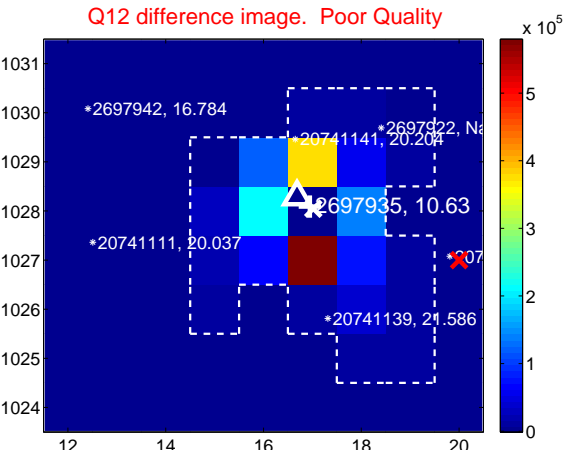
Q11 difference image. Poor Quality



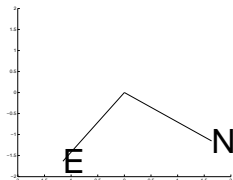
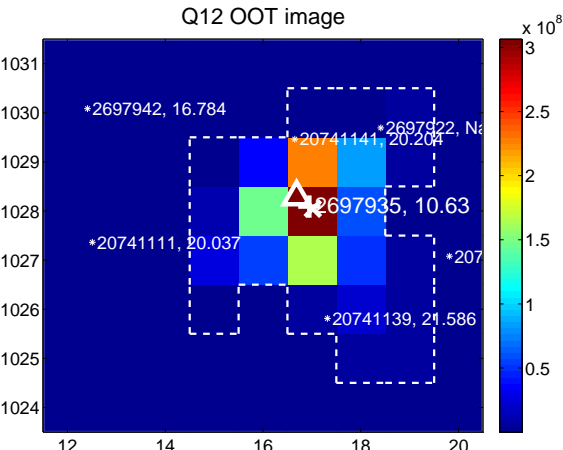
Q11 OOT image



Q12 difference image. Poor Quality



Q12 OOT image



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

Q13 no difference image



Q13 no OOT image



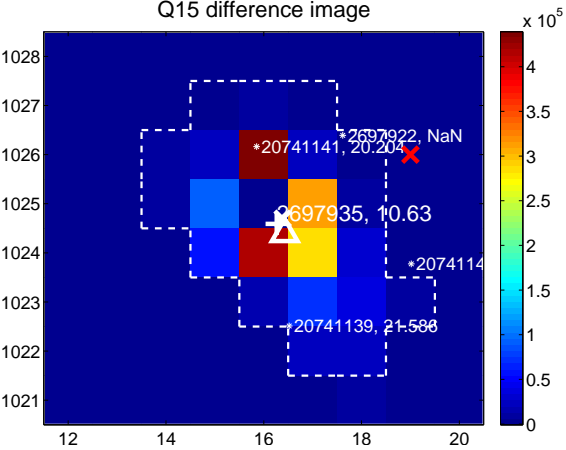
Q14 no difference image



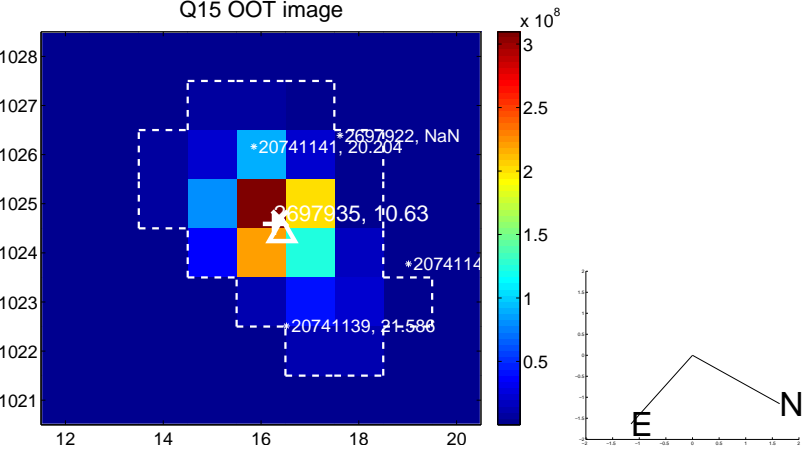
Q14 no OOT image



Q15 difference image



Q15 OOT image



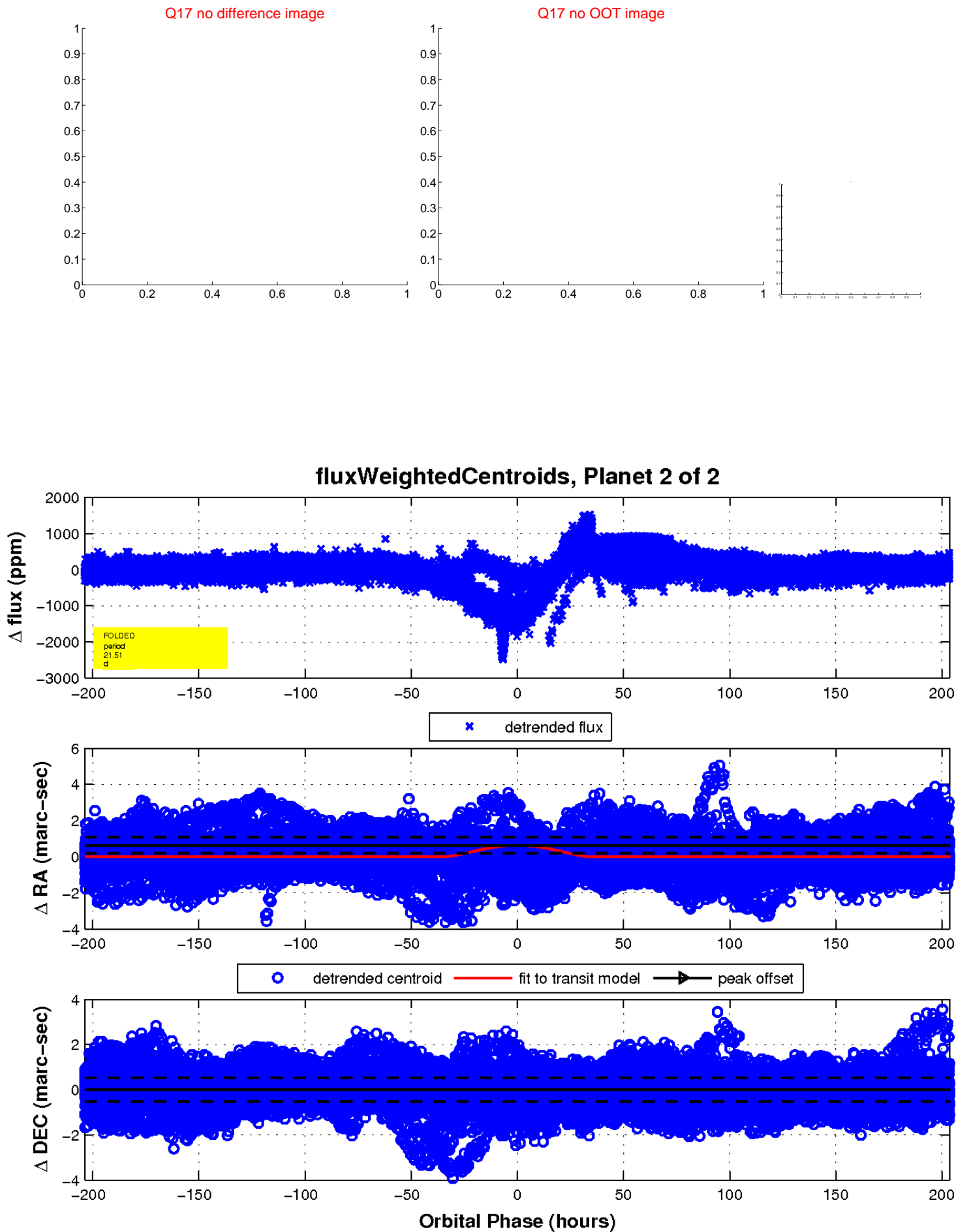
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

