

KIC 006946985

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})
006946985-01	OBS	8266.01	440.609876	564.083304	76.6	11.131	10.0	8.6	2.00	9935	1.91	15.40
006946985-02	OBS	No	275.299844	175.106107	49.5	9.866	8.9	5.9	2.00	9935	1.58	28.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006946985-01	OBS	FP	0.39	1	0	0	0	MOD_NONUNIQ_DV—CENT_SATURATED
006946985-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED

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

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

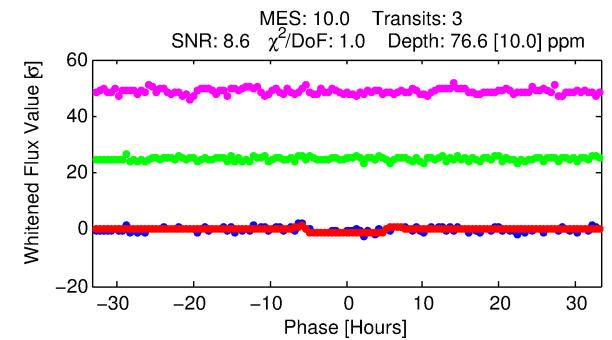
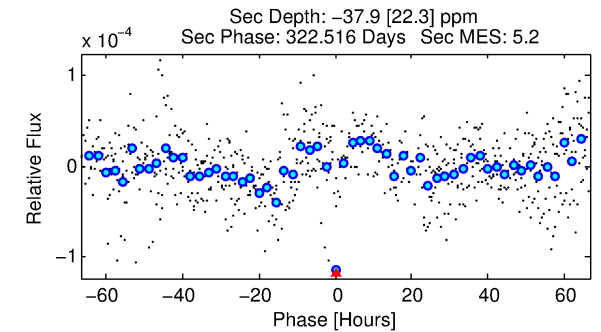
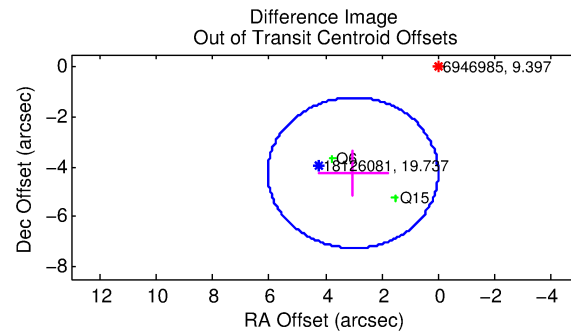
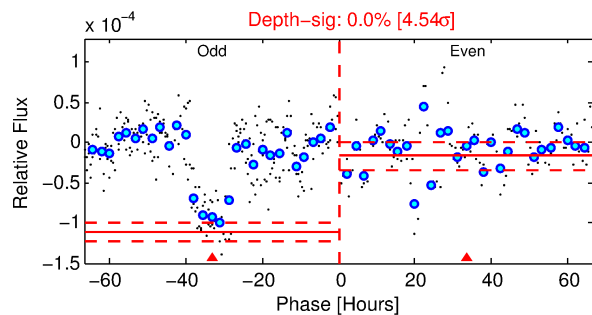
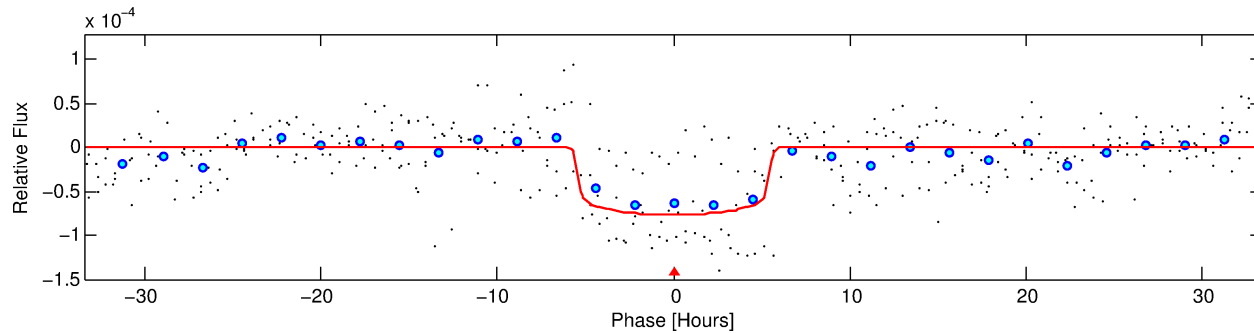
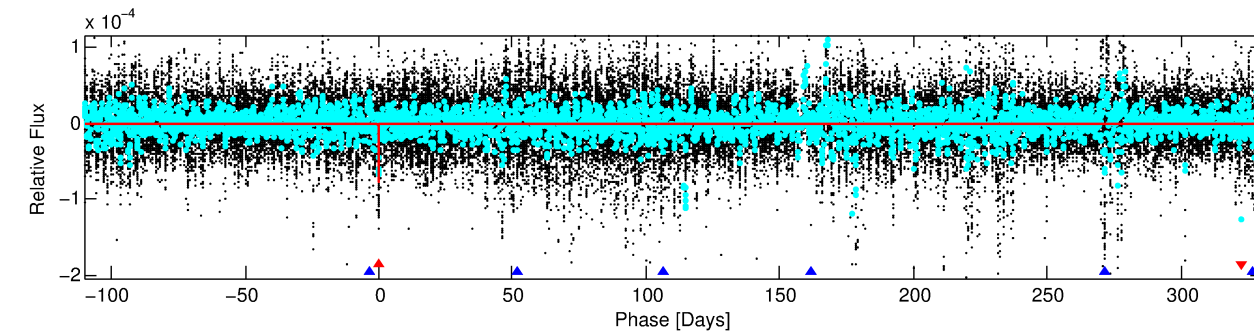
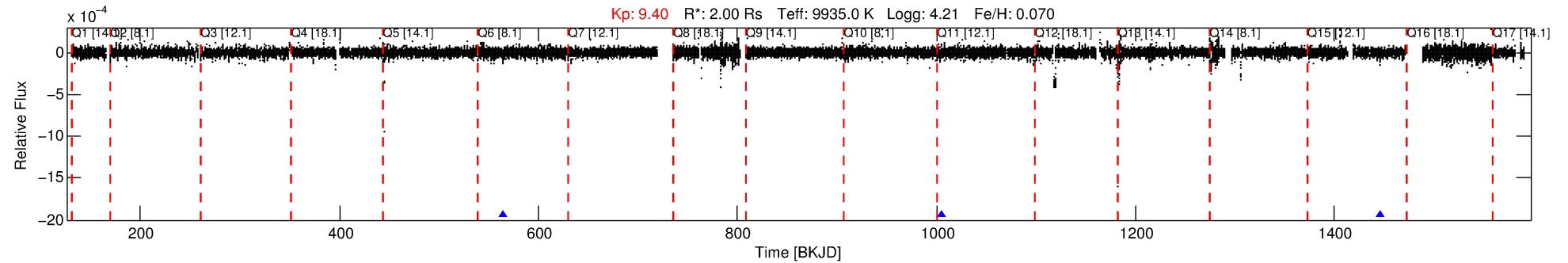
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006946985-01

No Significant Match Found

DV One-Page Summary

KIC: 6946985 Candidate: 1 of 2 Period: 440.610 d



DV Fit Results:

Period = 440.60988 [0.00577] d
Epoch = 564.0833 [0.0085] BKJD
Rp/R* = 0.0088 [0.0010]
a/R* = 193.44 [122.73]
b = 0.78 [0.32]
Seff = 15.40 [8.31]
Teq = 505 [68] K
Rp = 1.91 [0.91] Re
a = 1.5026 [0.5562] AU
Ag = N/A
Teffp = N/A

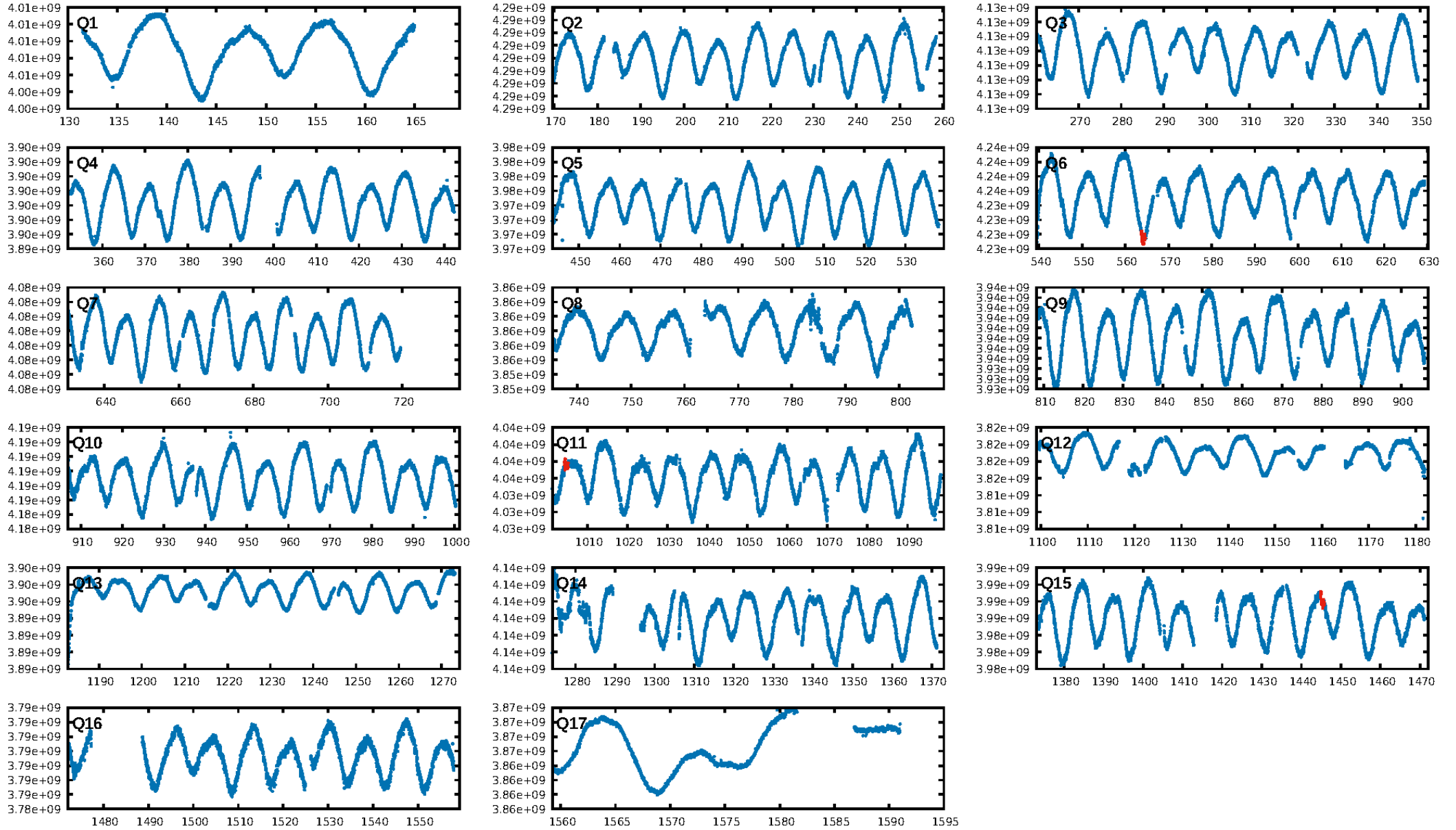
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [266.73 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: 7.29e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 5.511 arcsec [3.02 σ]
OotOffset-rm: 5.216 arcsec [5.19 σ]
KicOffset-rm: 5.385 arcsec [2.29 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

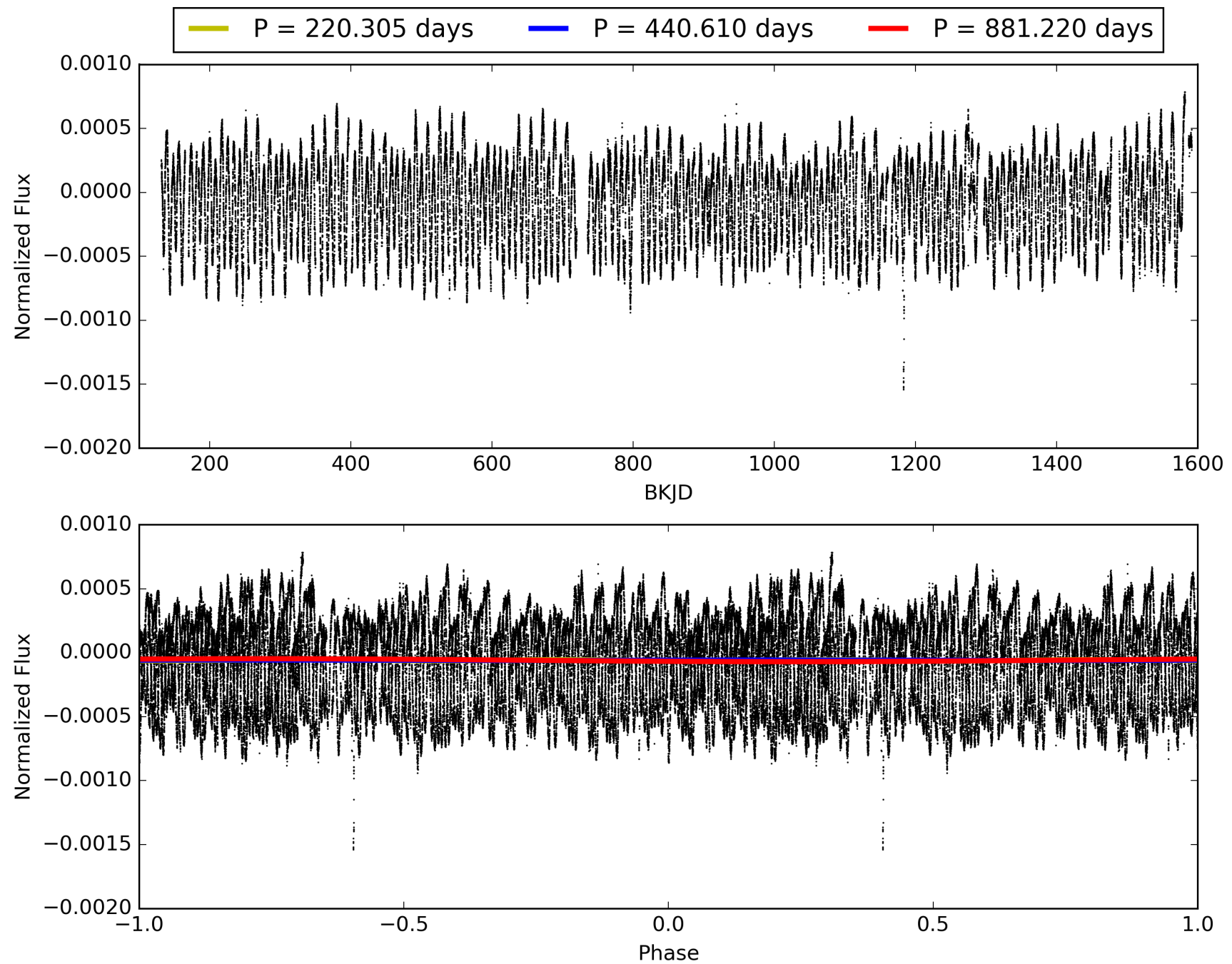
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:49:32 Z

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

TCE 006946985-01, PDC Light Curves

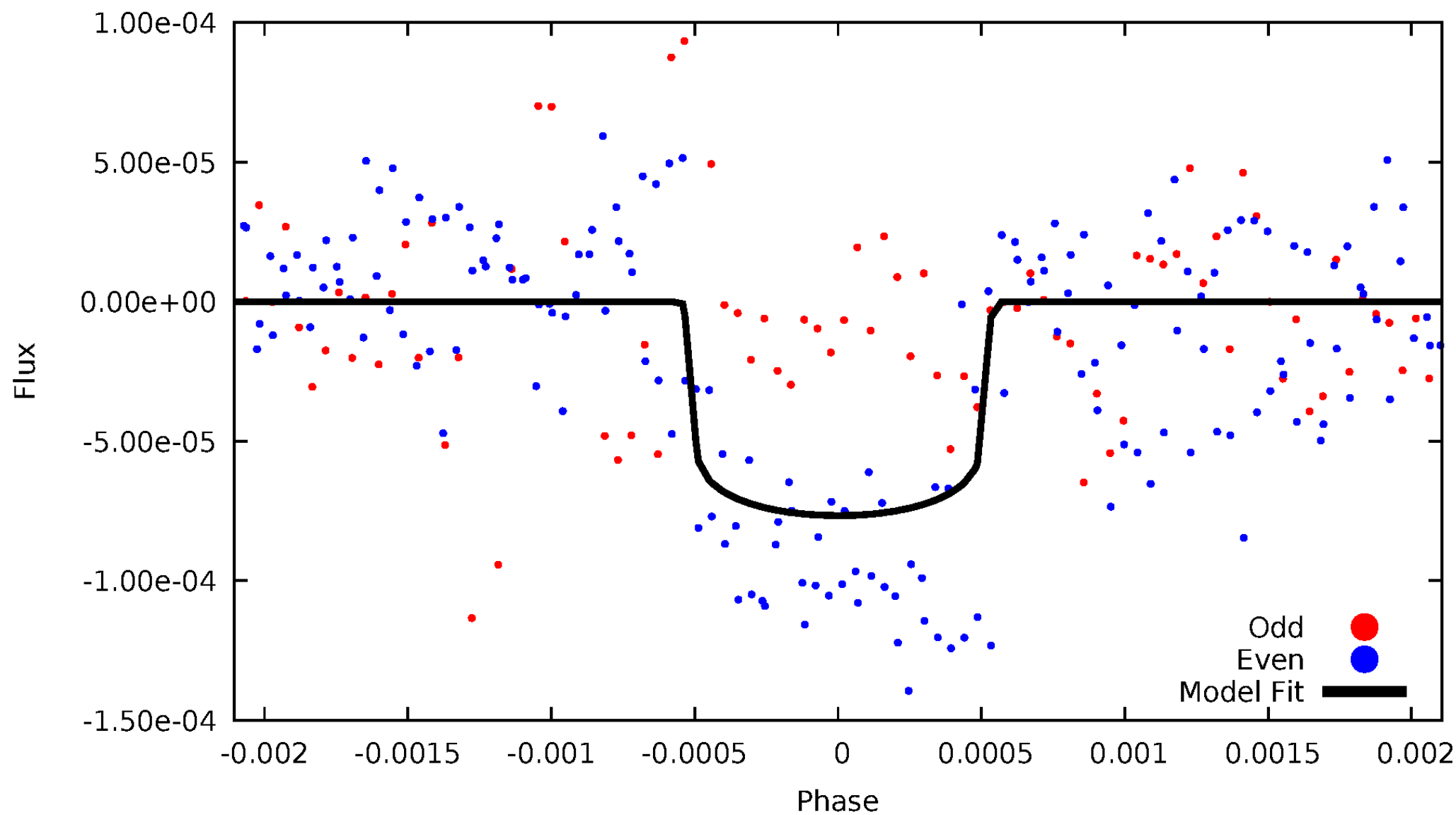


TCE 006946985-01



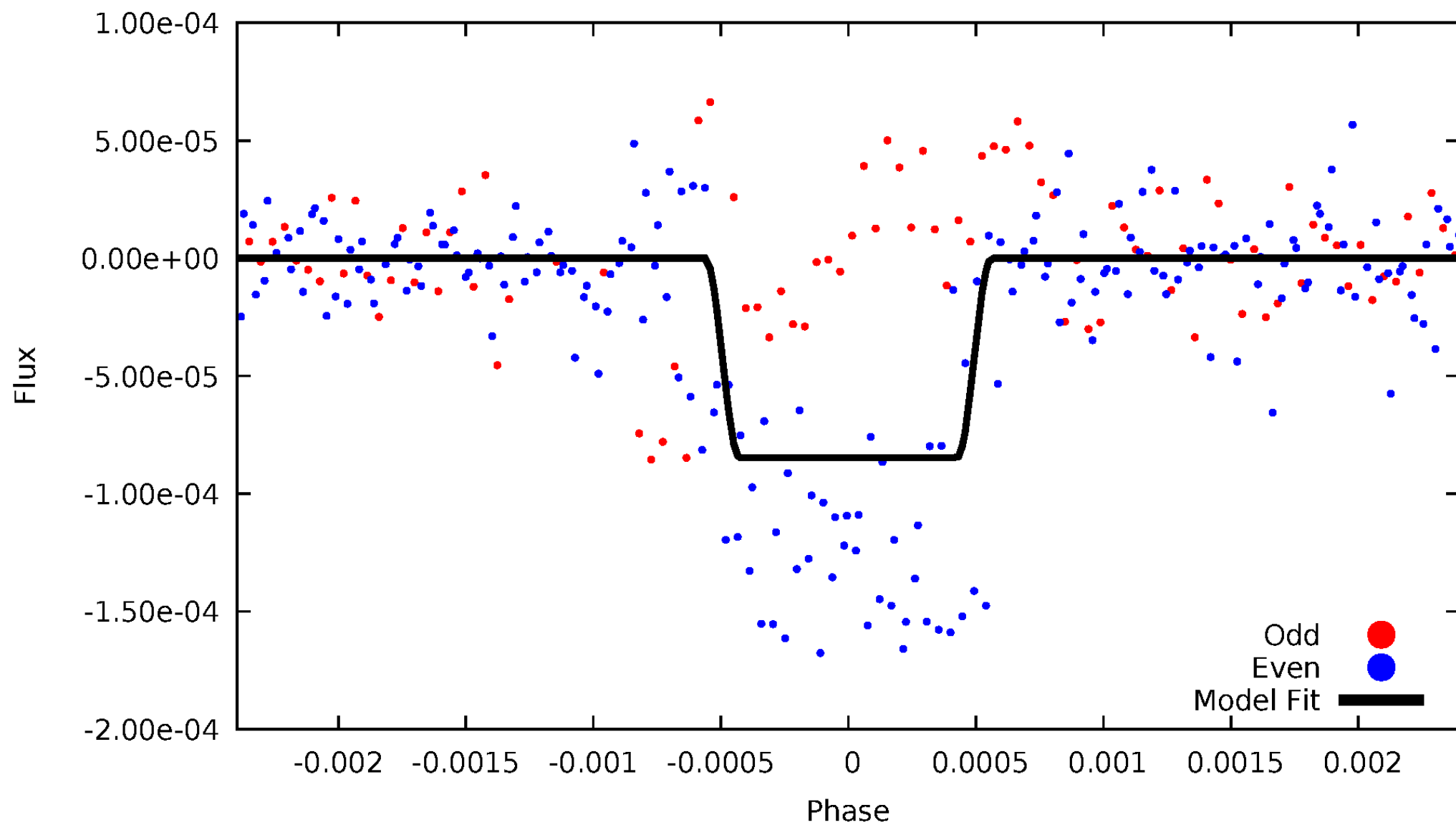
DV Odd/Even

TCE 006946985-01



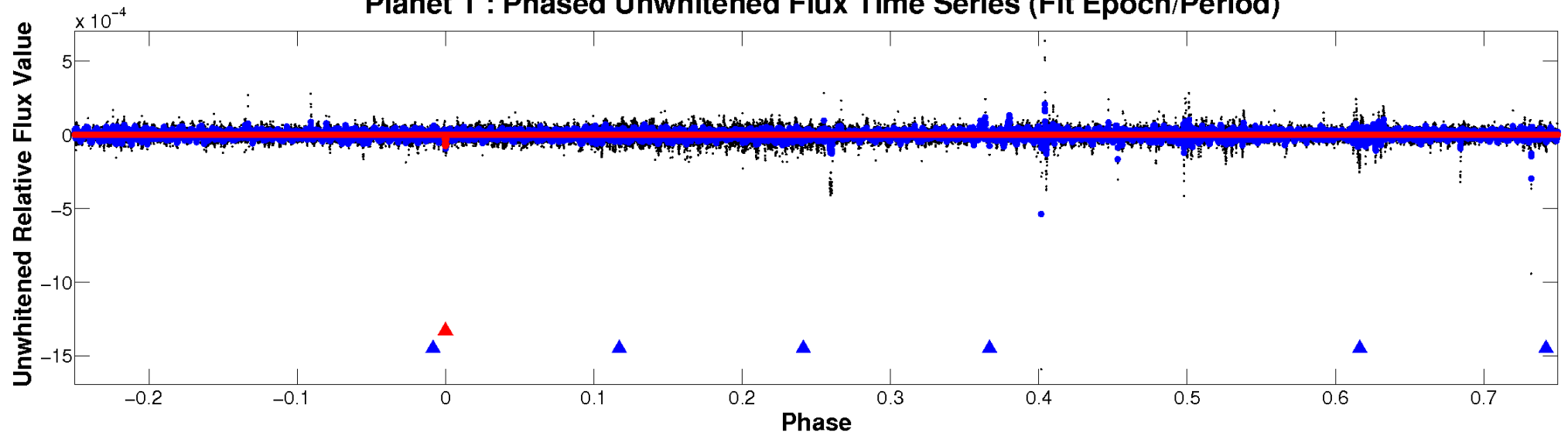
ALT Odd/Even

TCE 006946985-01

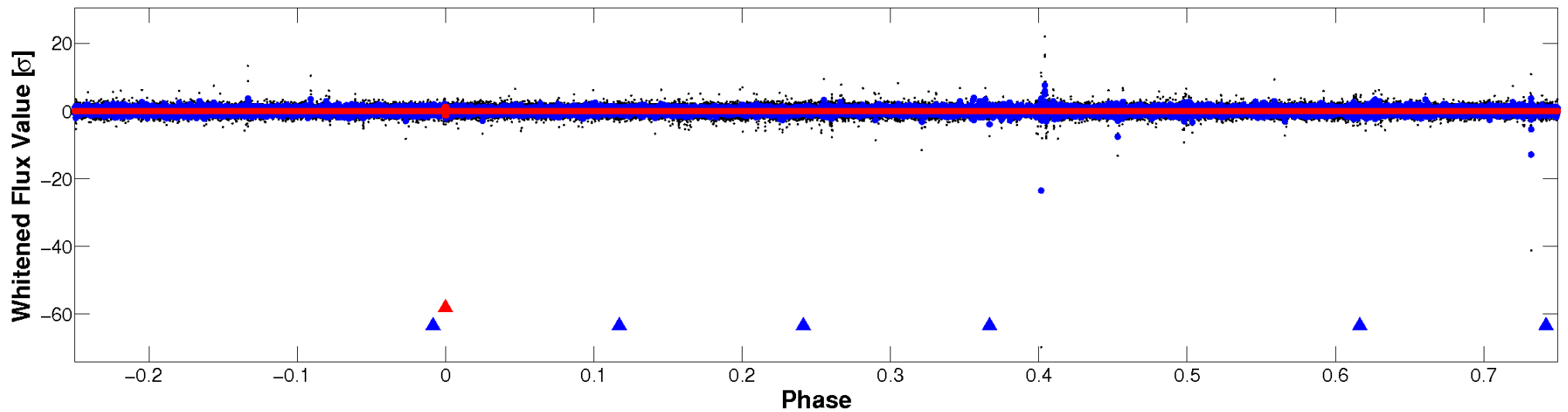


Non-Whitened Vs. Whitened Light Curve

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

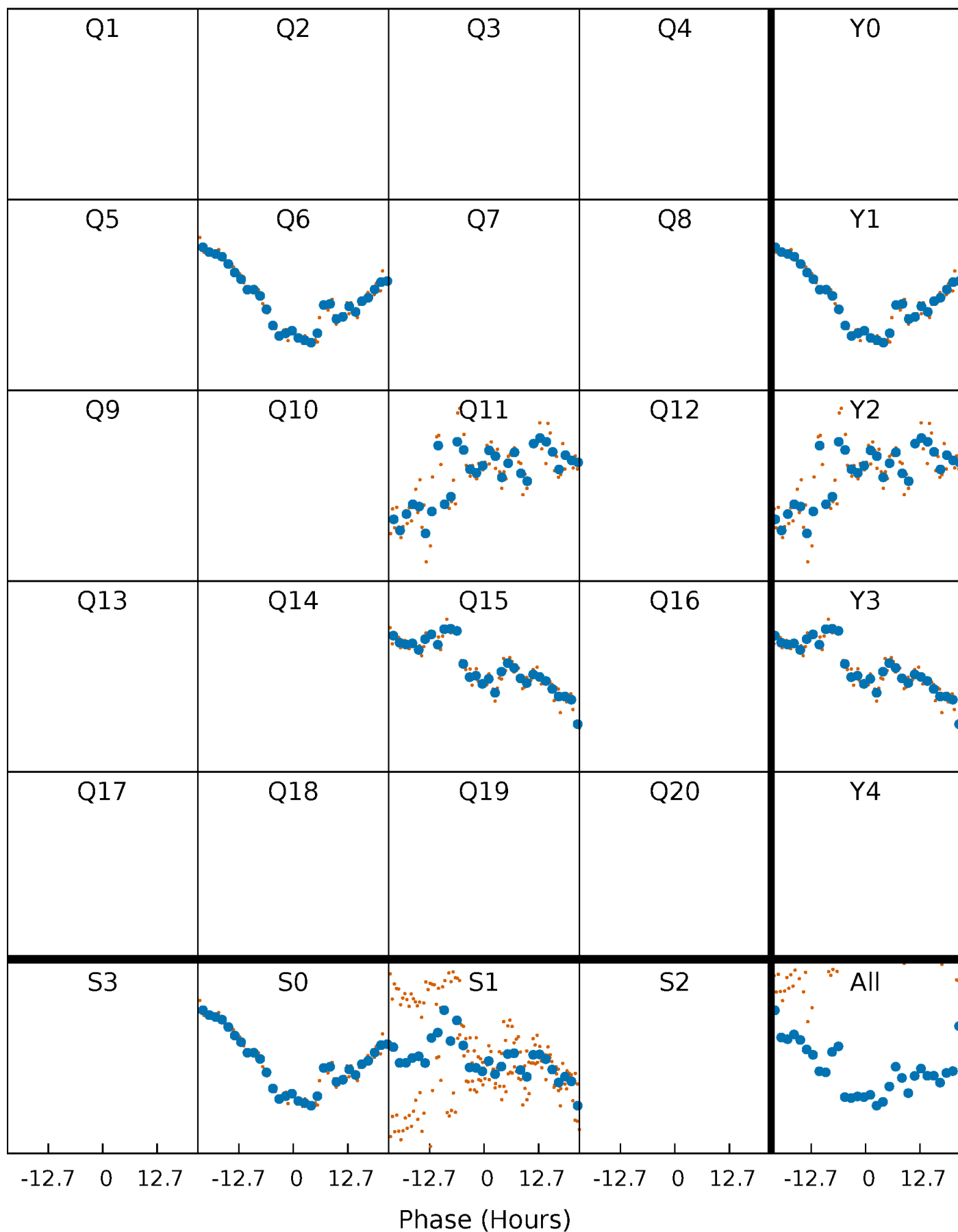


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



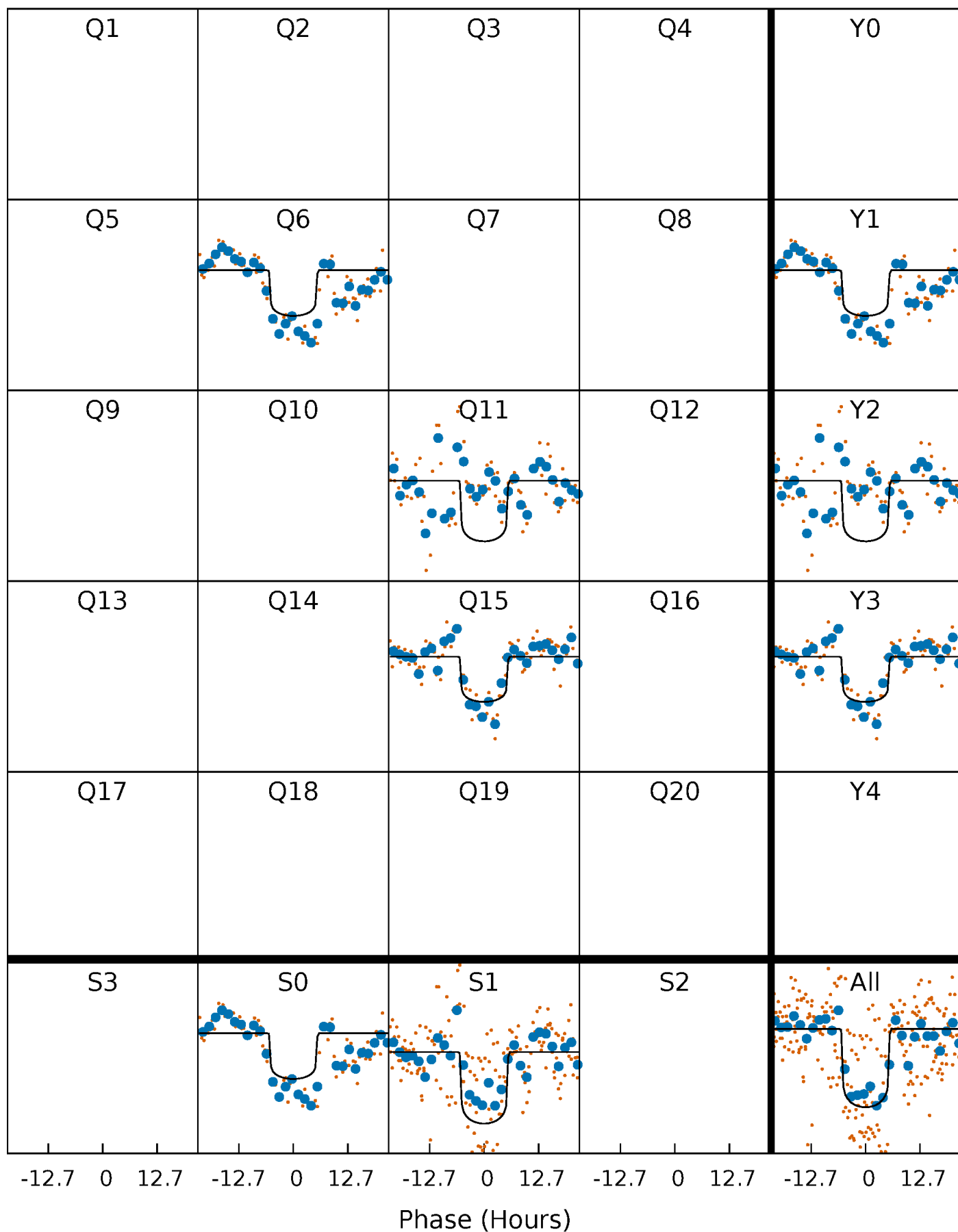
PDC Quarter-Phased Transit Curves

TCE 006946985-01 P=440.609876 Days $T_0=564.083304$ (BKJD)



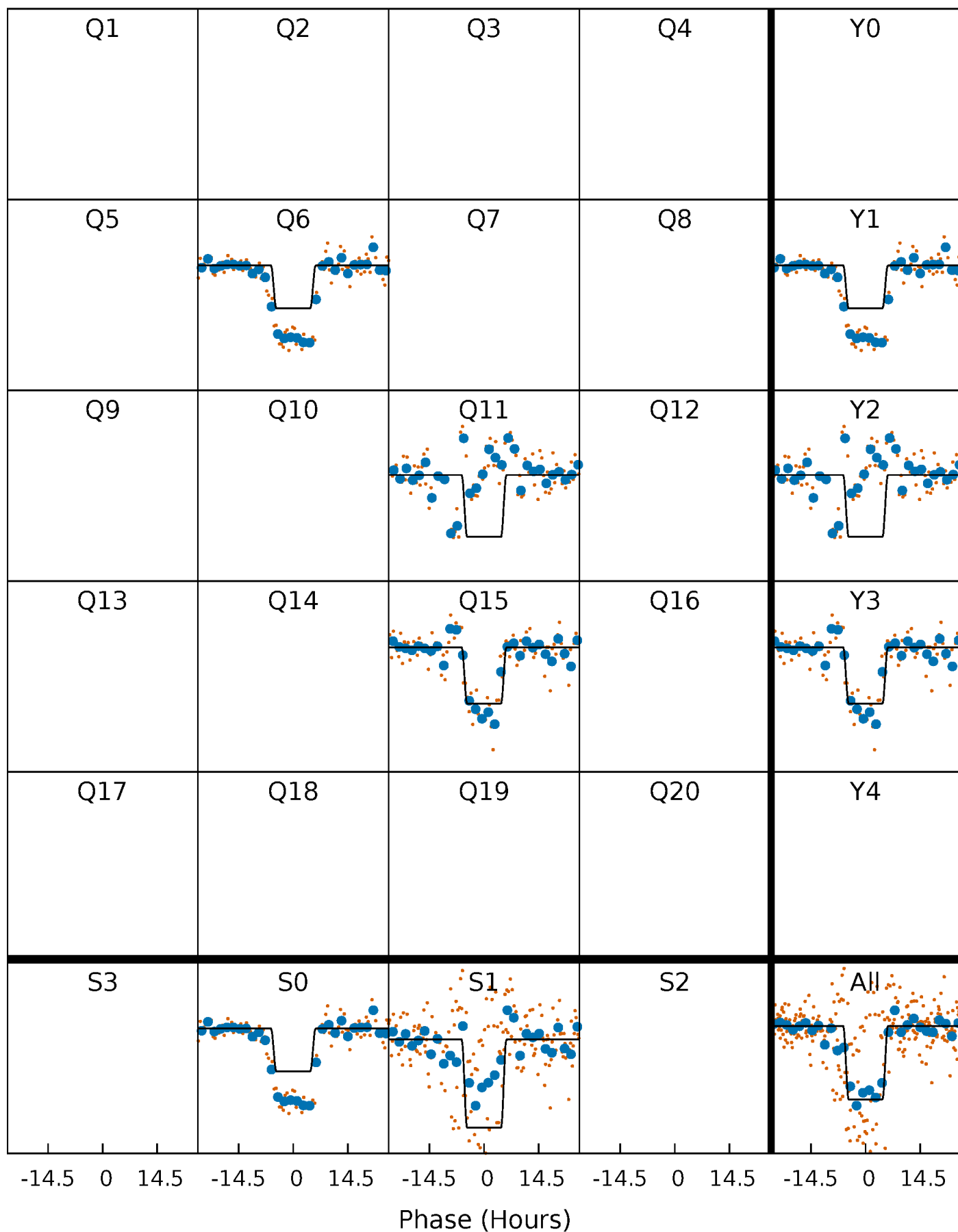
DV Quarter-Phased Transit Curves

TCE 006946985-01 P=440.609876 Days $T_0=564.083304$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

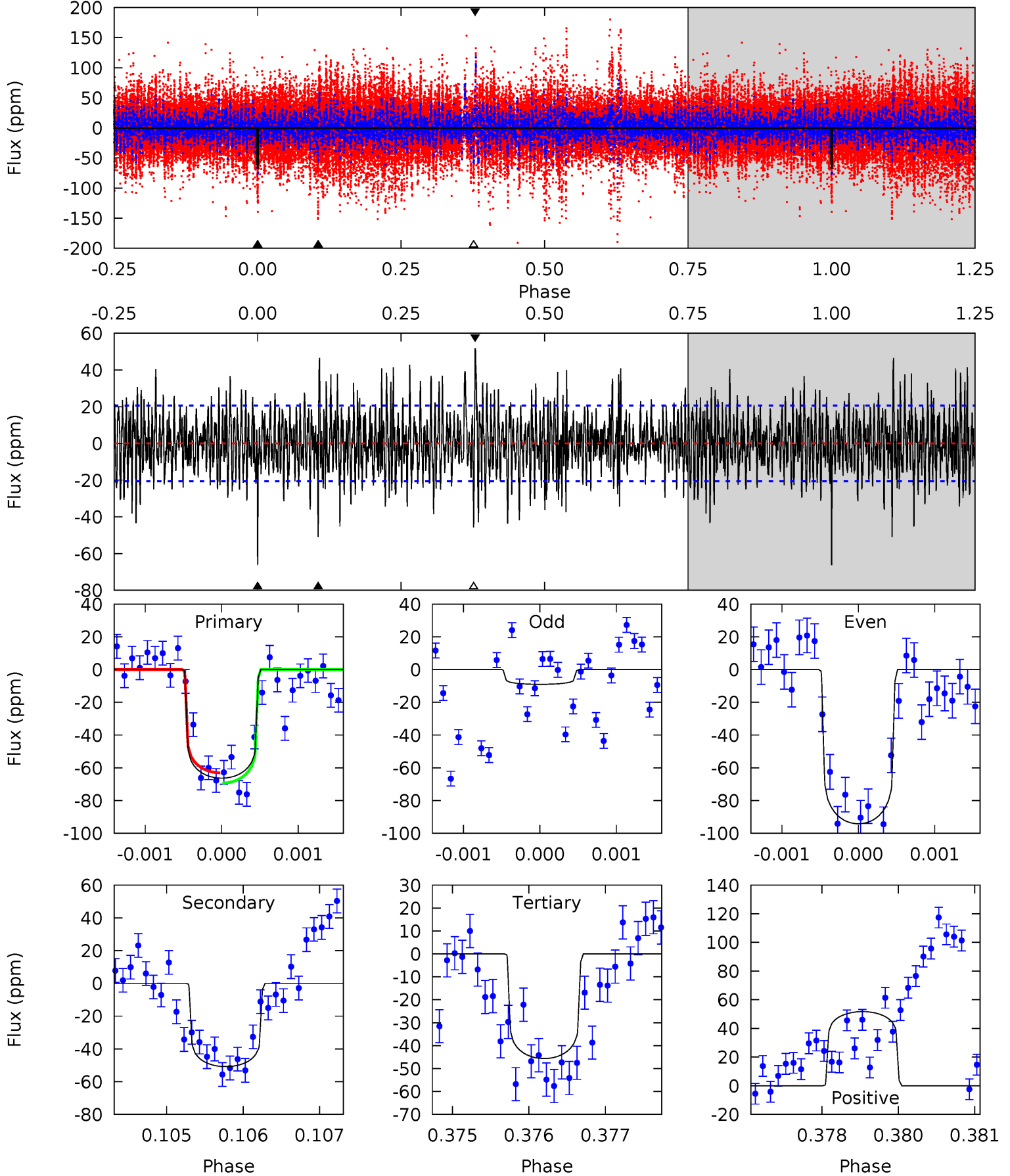
TCE 006946985-01 P=440.615665 Days $T_0=564.080473$ (BKJD)



DV Model-Shift Uniqueness Test

006946985-01, P = 440.609876 Days, E = 123.473428 Days

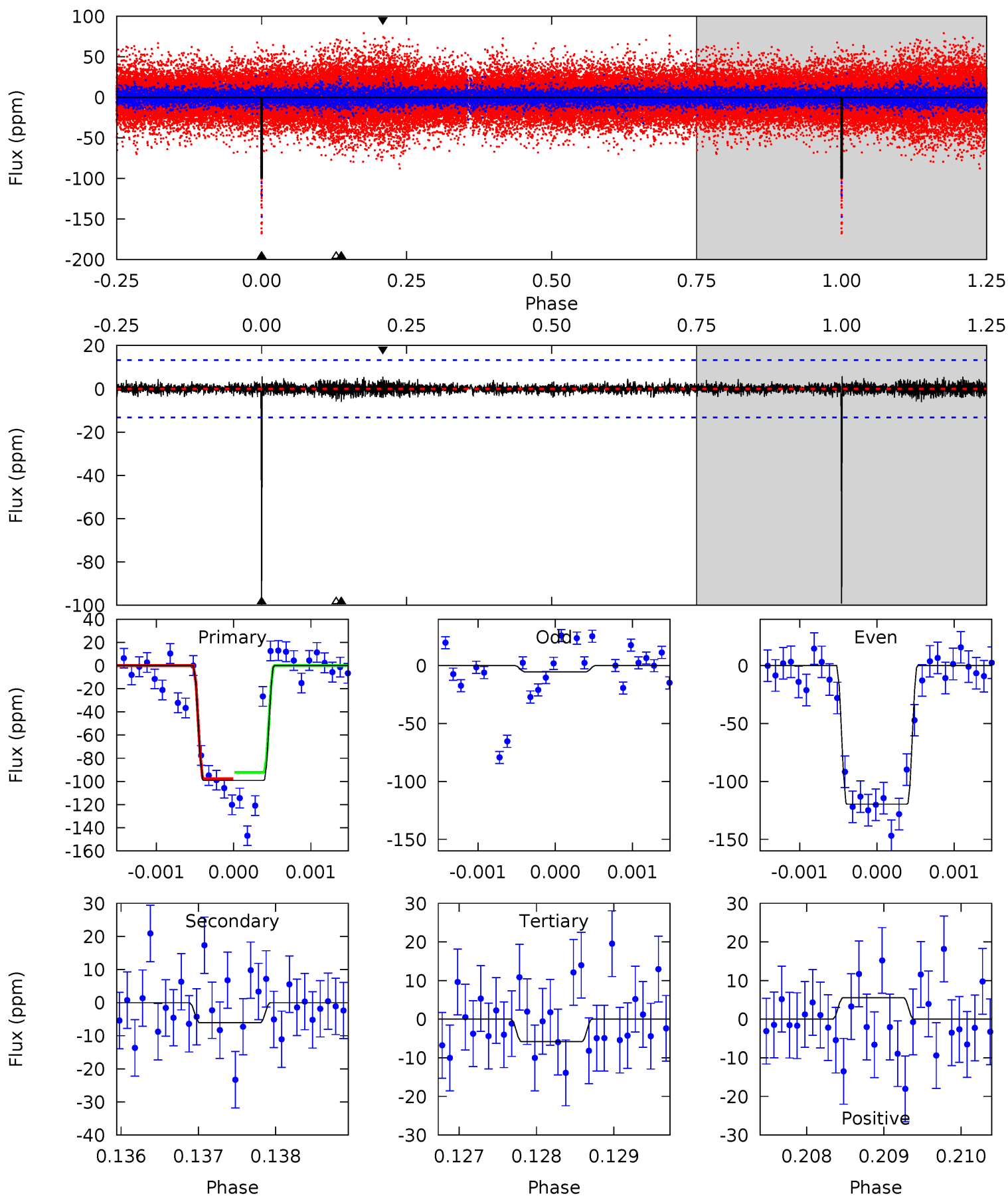
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	13.4	12.0	13.6	5.43	3.26	3.62	5.44	3.84	1.37	-0.23	10.2	0.80	0.44	0.83



Alt Model-Shift Uniqueness Test

006946985-01, P = 440.615665 Days, E = 123.464808 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.7	2.50	2.38	2.28	5.44	3.27	0.48	38.3	38.4	0.12	0.22	25.8	0.86	0.05	1.15



Stellar Parameters For KIC 006946985

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9935^{+276}_{-415}	$4.205^{+0.144}_{-0.267}$	$0.070^{+0.150}_{-0.550}$	$1.996^{+0.923}_{-0.497}$	$2.332^{+0.461}_{-0.507}$	$0.413^{+0.361}_{-0.247}$
	+3%/-4%	+3%/-6%	+214%/-786%	+46%/-25%	+20%/-22%	+87%/-60%
Source	KIC0	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 006946985-01 / KOI 8266.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-51 ± 4	$2.00^{+0.51}_{-0.40}$	717^{+74}_{-54}	8568^{+882}_{-677}	15693^{+7732}_{-5428}
Alt.	-6 ± 2	$2.09^{+0.54}_{-0.38}$	717^{+78}_{-54}	4854^{+436}_{-560}	1681^{+1048}_{-826}

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

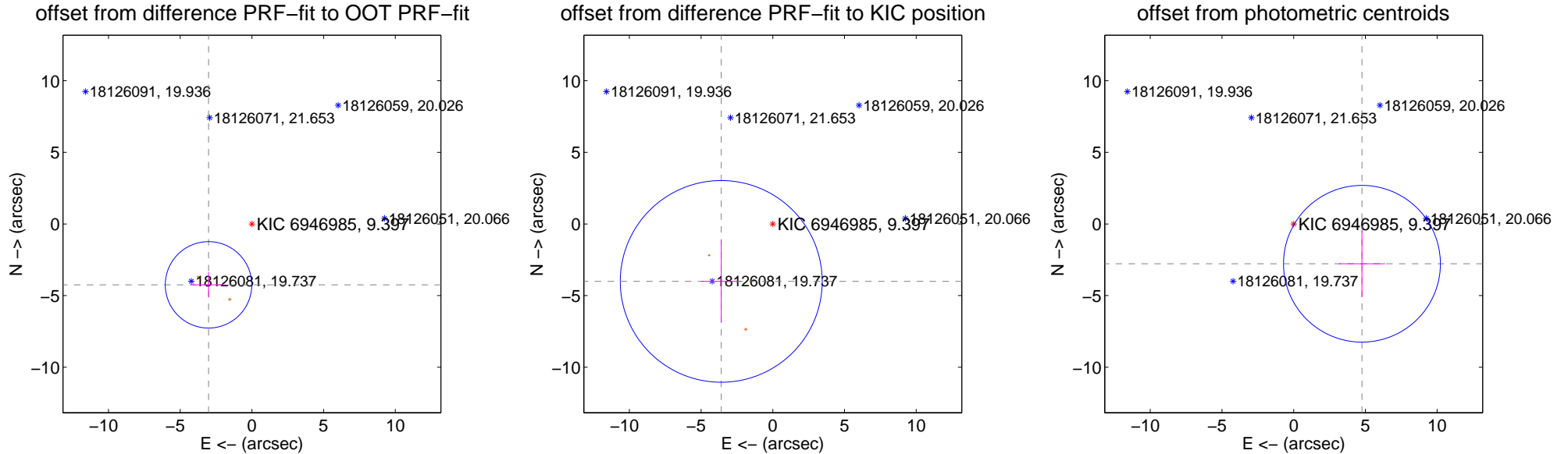
DV Centroid Data

Supplemental centroid analysis for 006946985-01. **Kepler magnitude: 9.40.** Transit SNR 8.57

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.12 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.216 ± 1.005	5.19	3.024 ± 1.218	-4.250 ± 0.878
PRF-fit source offset from KIC position	5.385 ± 2.346	2.29	3.595 ± 1.404	-4.009 ± 2.889
photometric centroid source offset	5.51 ± 1.82	3.02	-4.76 ± 1.62	-2.78 ± 2.32



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.

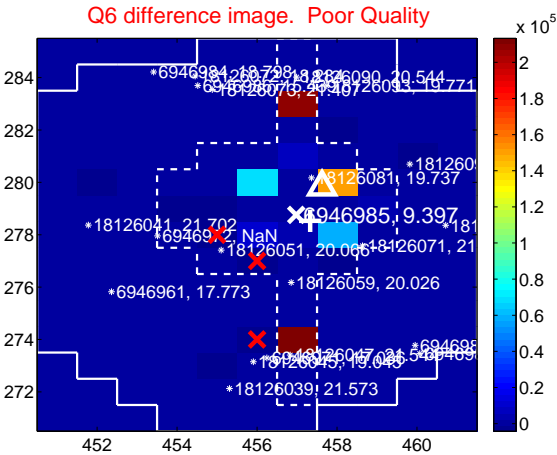
Q5 no difference image



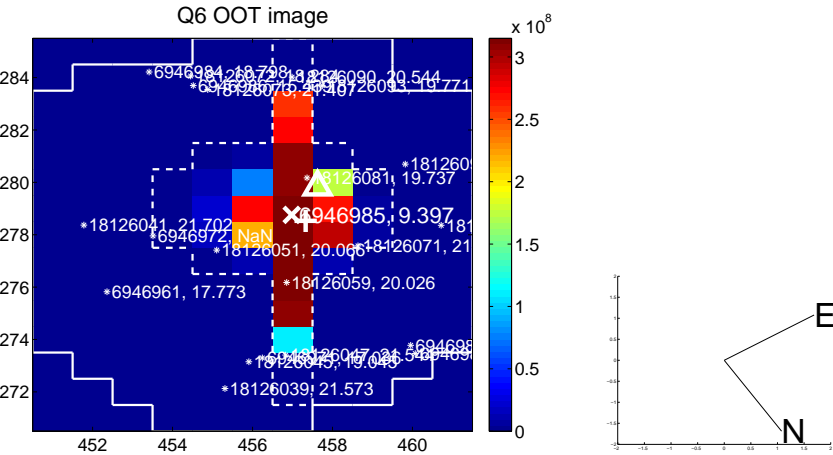
Q5 no OOT image



Q6 difference image. Poor Quality



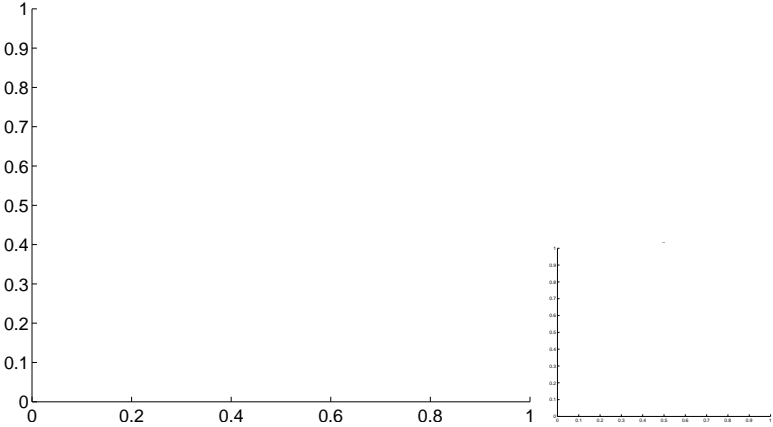
Q6 OOT image



Q7 no difference image



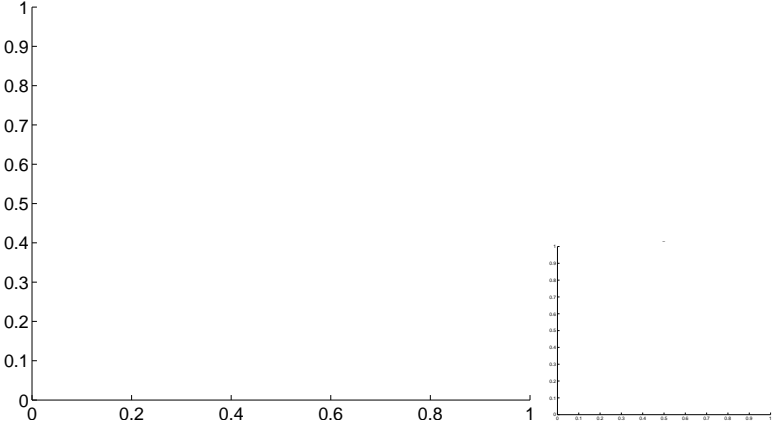
Q7 no OOT image



Q8 no difference image



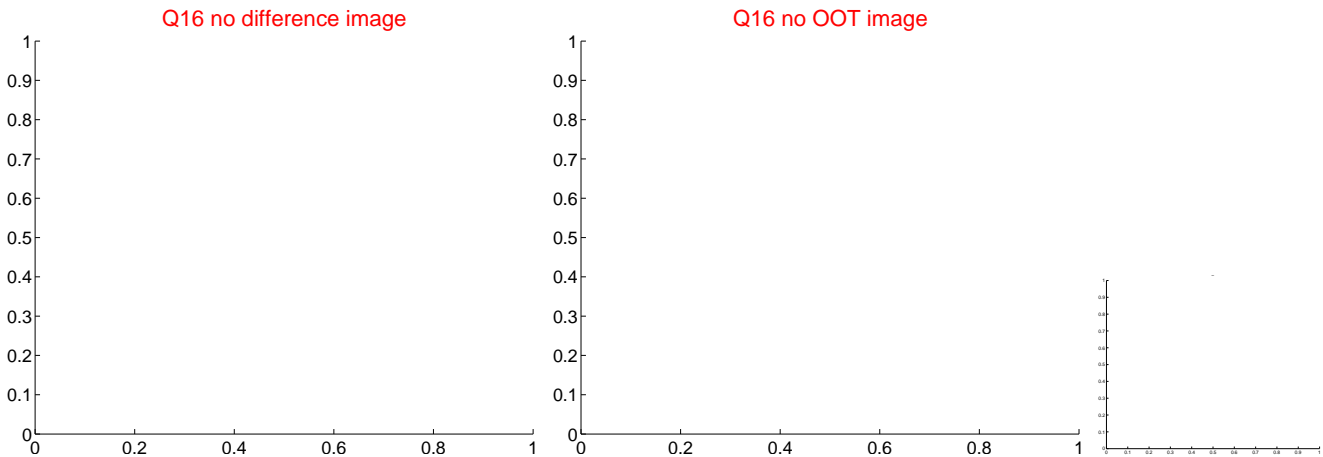
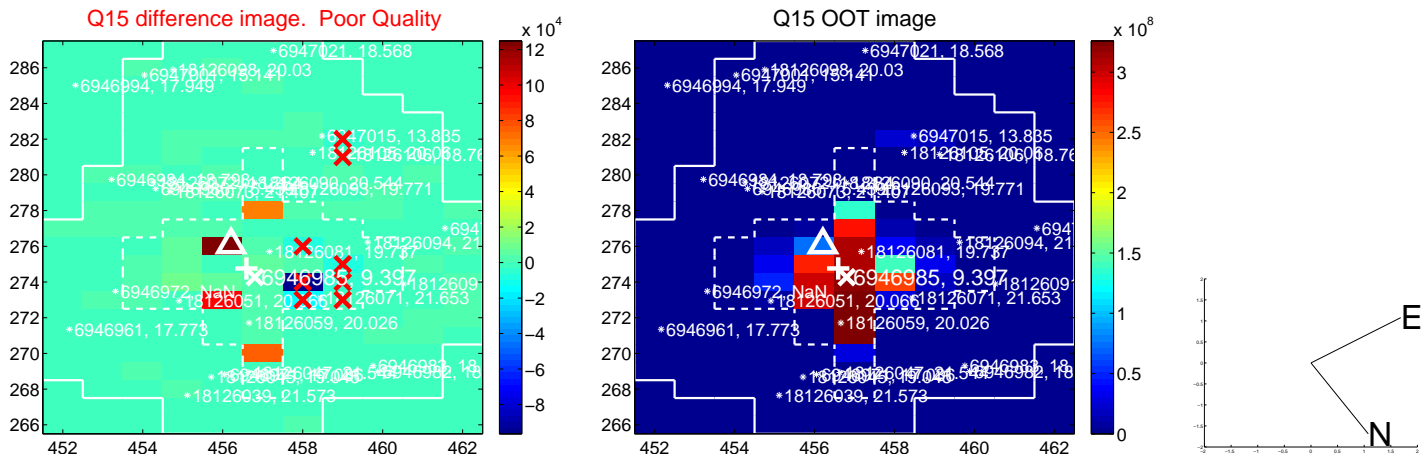
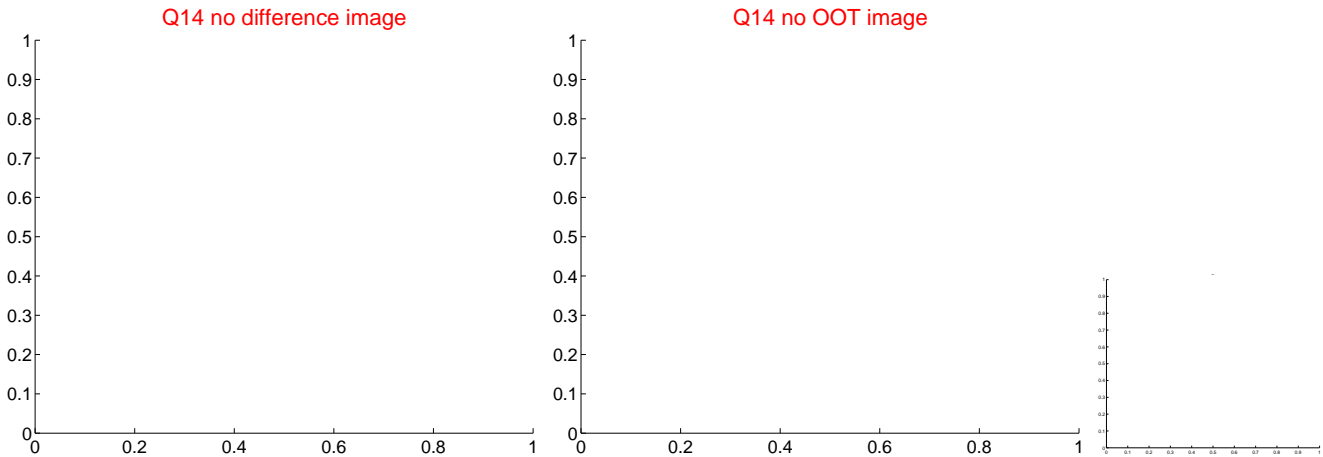
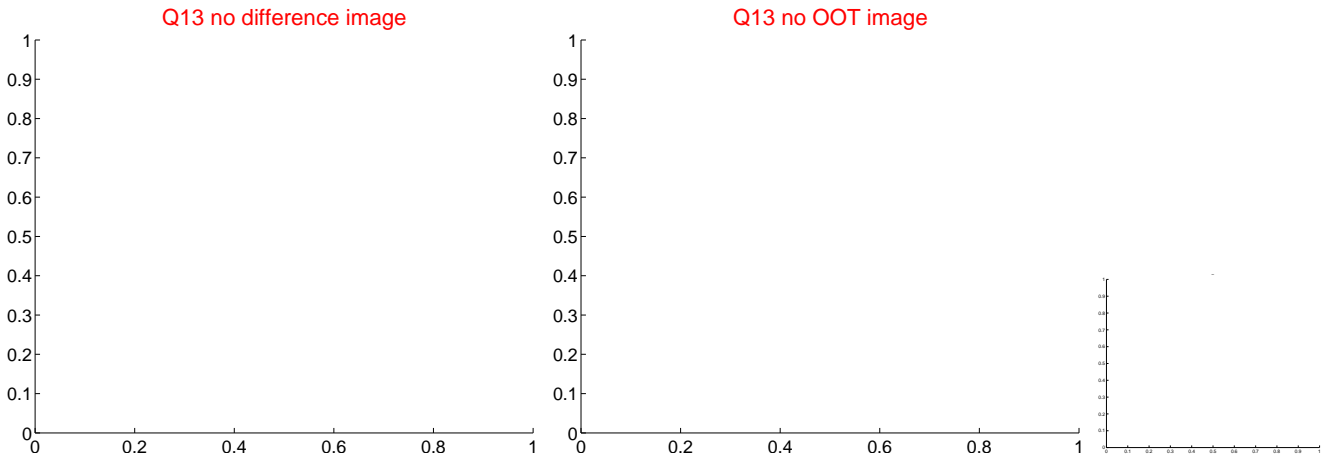
Q8 no OOT image



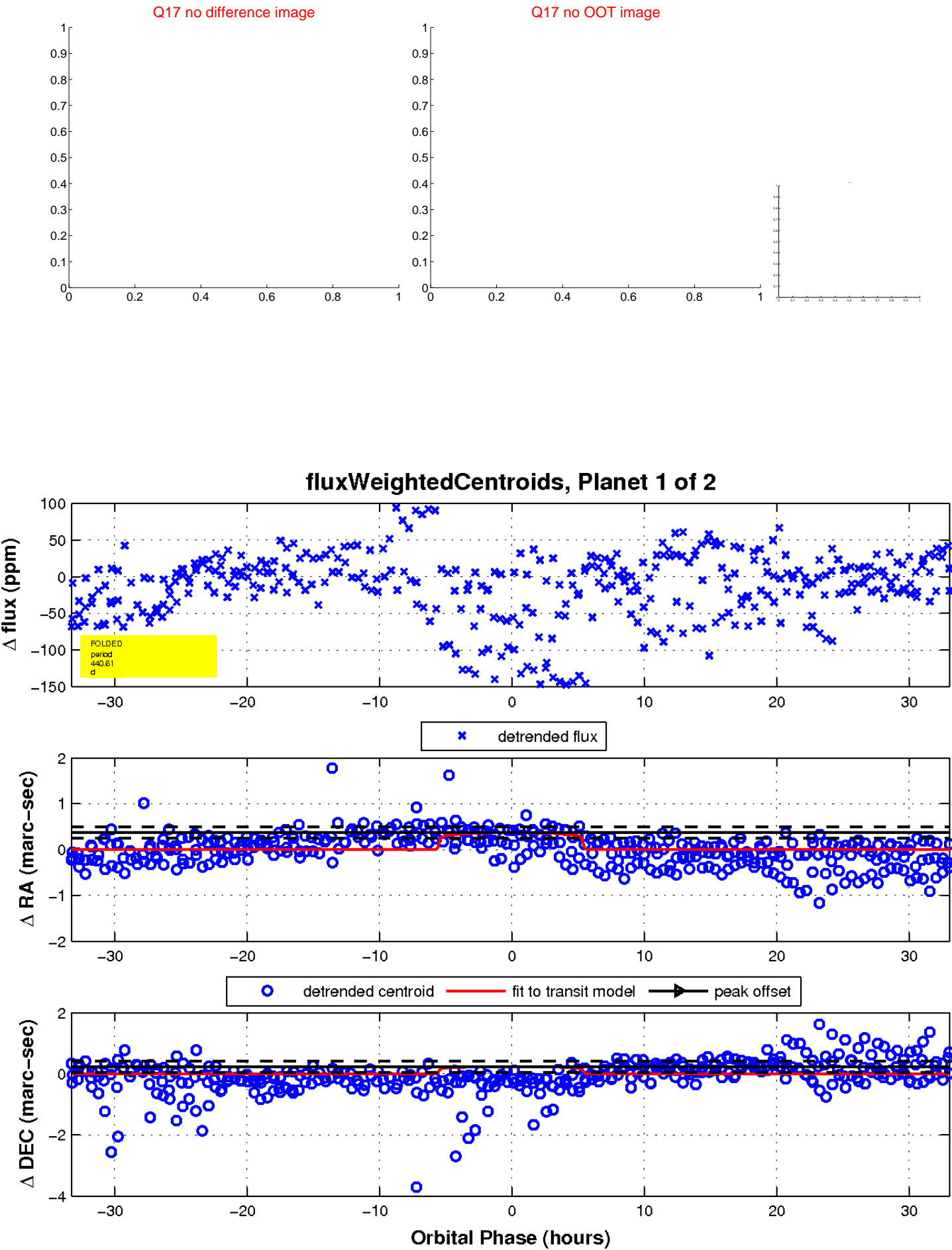
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



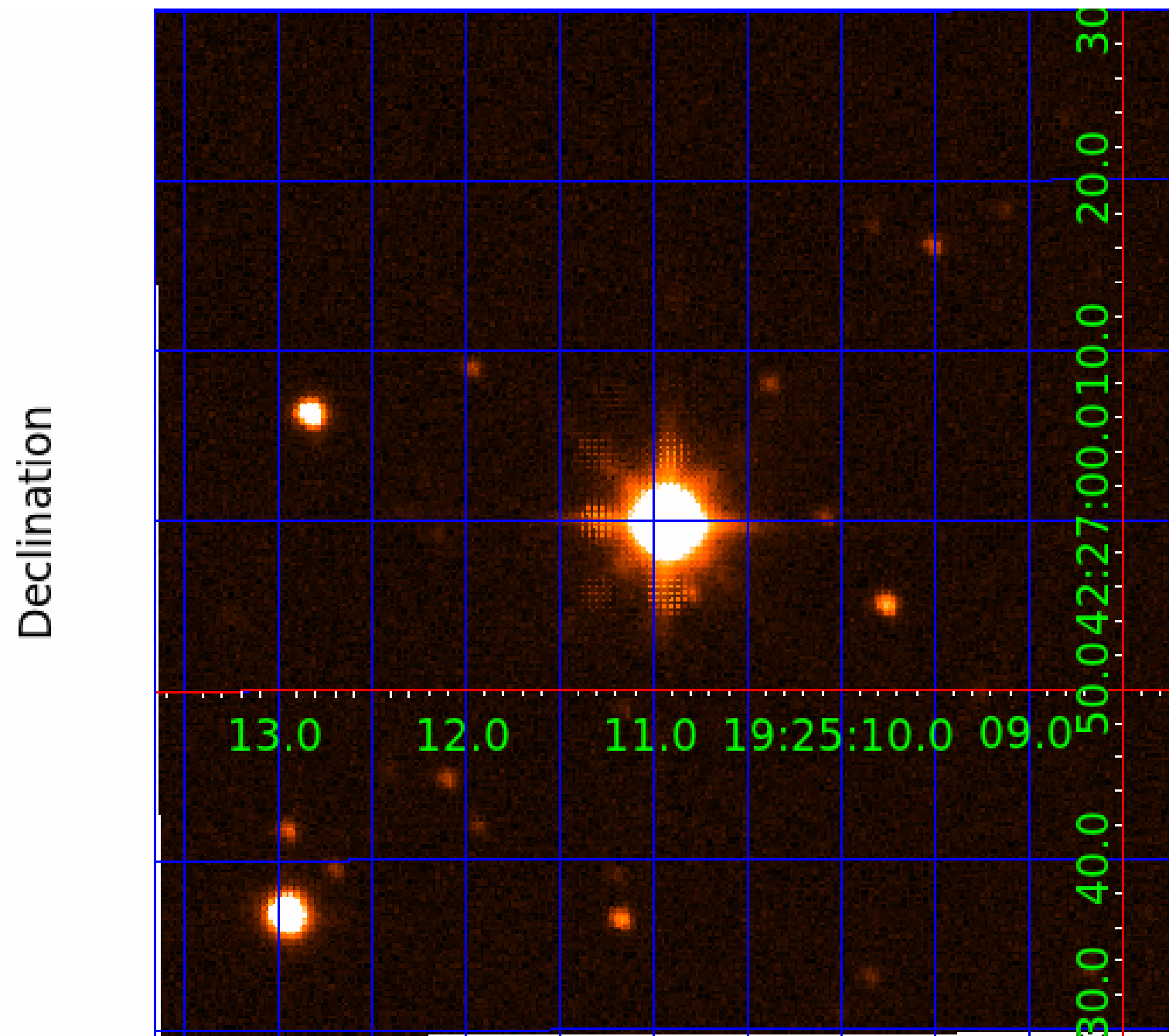
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006946985

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})
006946985-01	OBS	8266.01	440.609876	564.083304	76.6	11.131	10.0	8.6	2.00	9935	1.91	15.40
006946985-02	OBS	No	275.299844	175.106107	49.5	9.866	8.9	5.9	2.00	9935	1.58	28.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006946985-01	OBS	FP	0.39	1	0	0	0	MOD_NONUNIQ_DV—CENT_SATURATED
006946985-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED

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

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

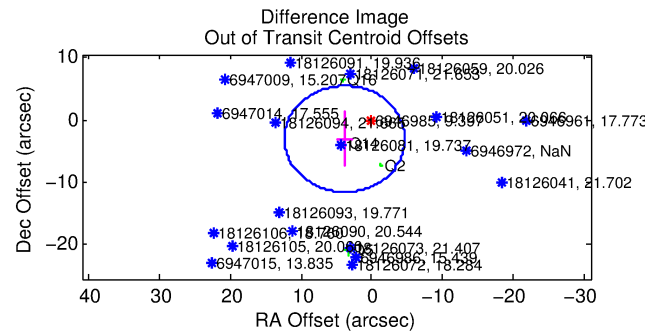
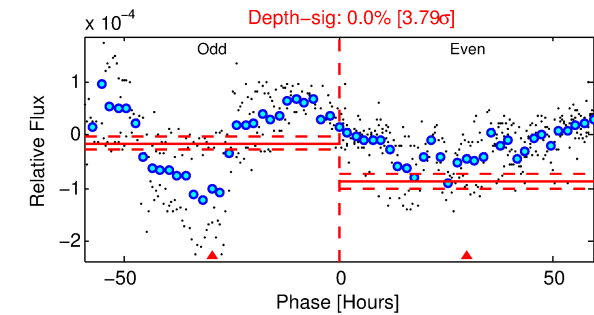
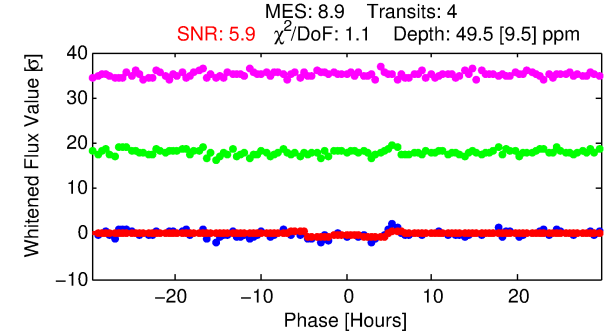
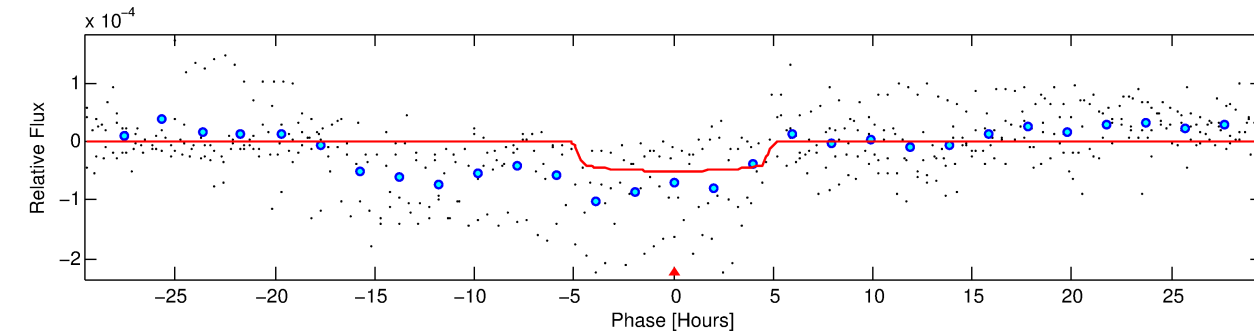
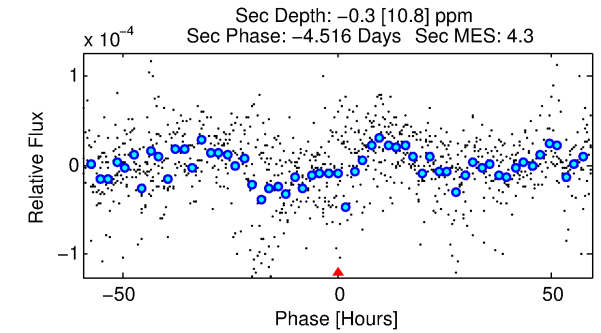
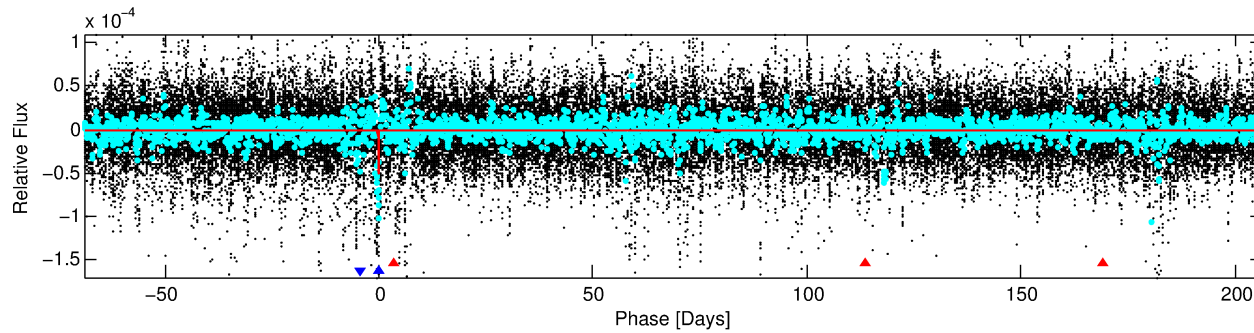
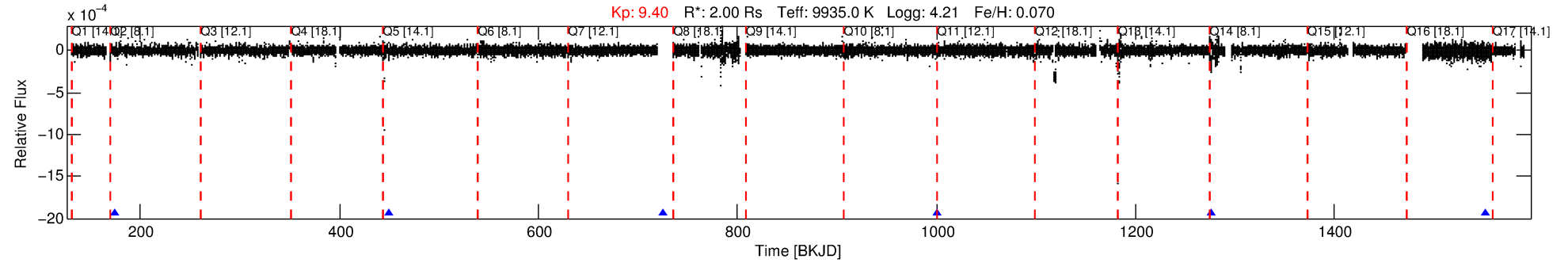
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006946985-02

No Significant Match Found

DV One-Page Summary

KIC: 6946985 Candidate: 2 of 2 Period: 275.300 d



DV Fit Results:

Period = 275.29984 [0.00293] d
Epoch = 175.1061 [0.0084] BKJD
Rp/R* = 0.0073 [0.0016]
a/R* = 108.27 [156.99]
b = 0.87 [0.41]
Seff = 28.84 [15.55]
Teff = 591 [80] K
Rp = 1.58 [0.81] Re
a = 1.0982 [0.4065] AU
Ag = N/A
Teffp = N/A

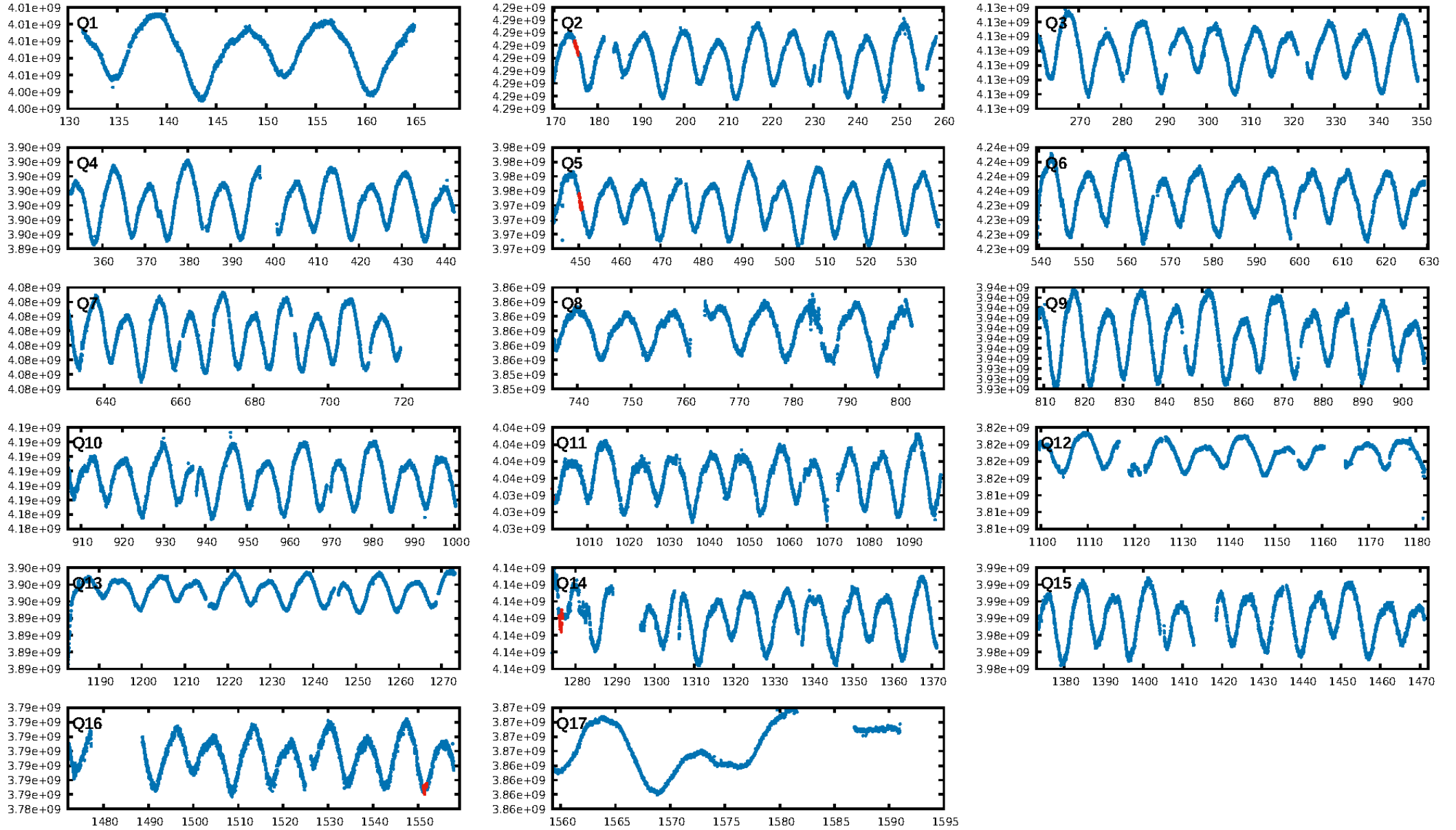
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [266.73σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 97.0%
Bootstrap-pfa: 2.68e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 29.2%
Centroid-so: 3.451 arcsec [1.11σ]
OotOffset-rm: 4.930 arcsec [1.74σ]
KicOffset-rm: 4.180 arcsec [2.30σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [4/4]

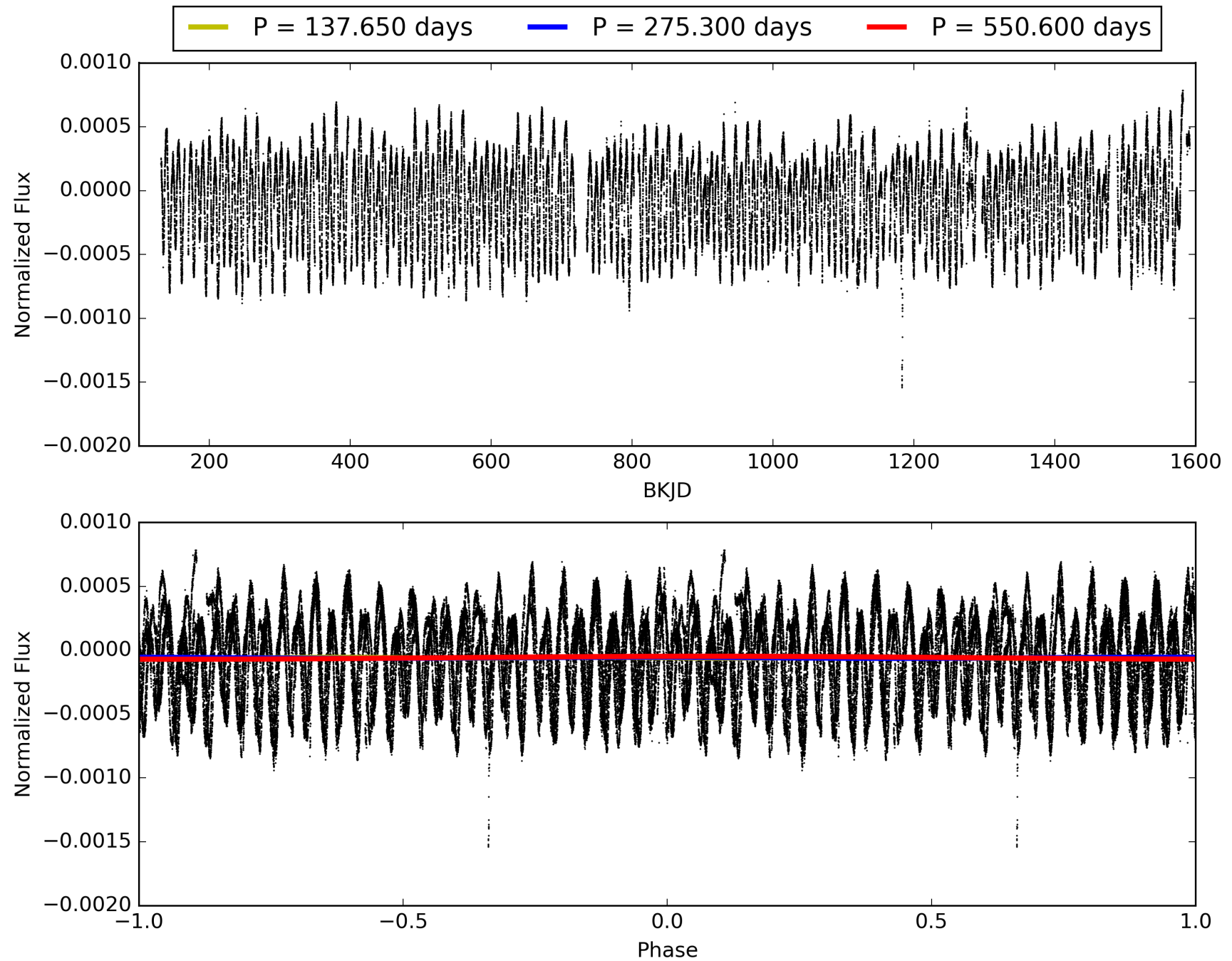
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:49:41 Z

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

TCE 006946985-02, PDC Light Curves

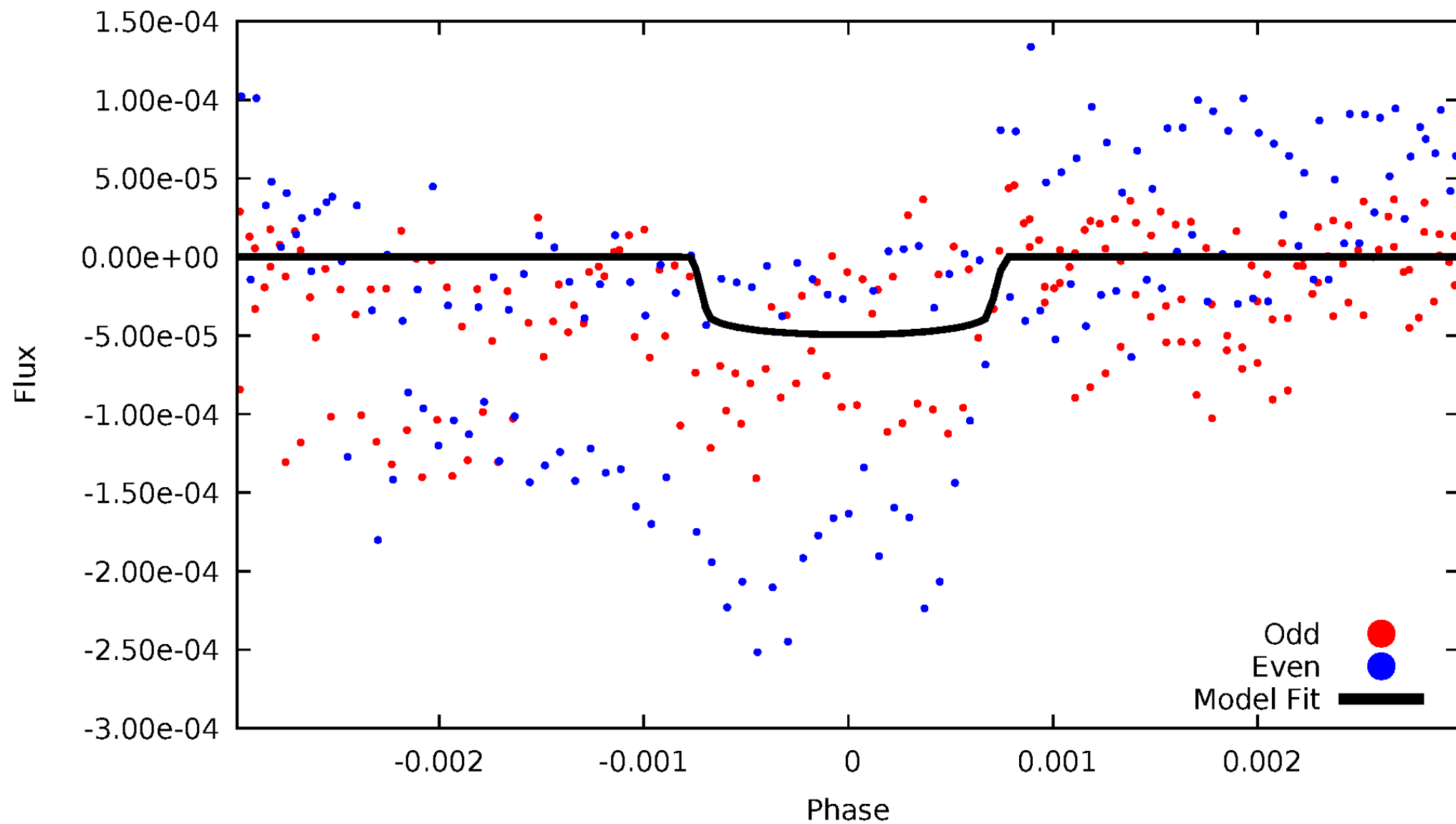


TCE 006946985-02



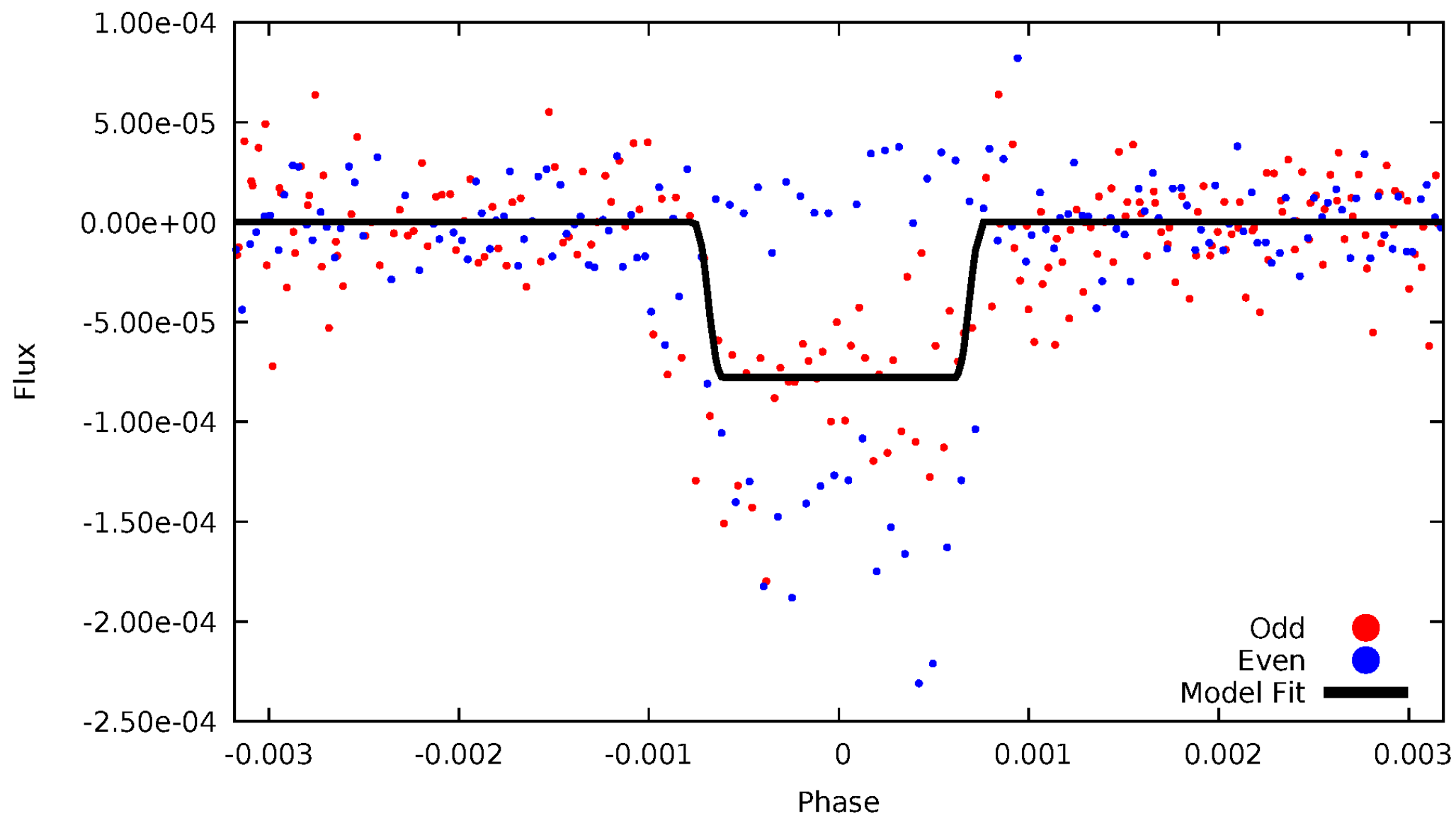
DV Odd/Even

TCE 006946985-02



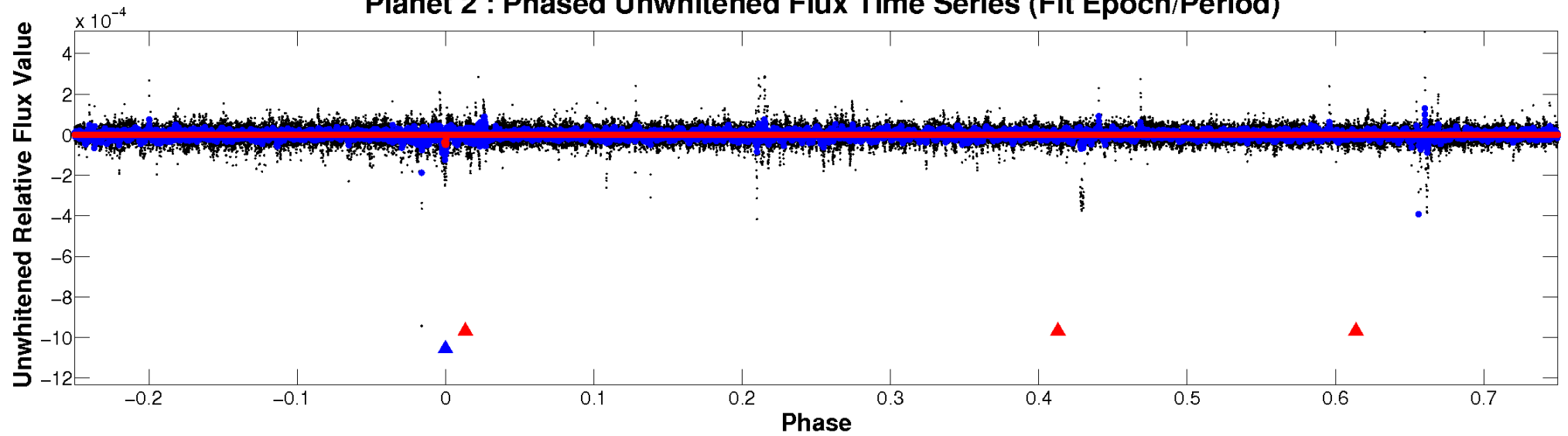
ALT Odd/Even

TCE 006946985-02

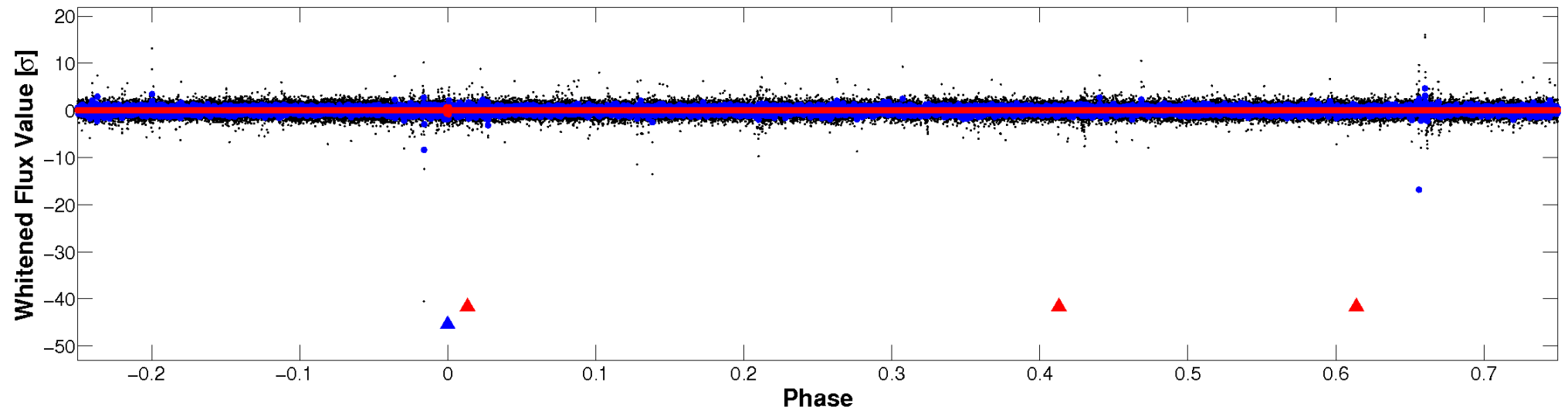


Non-Whitened Vs. Whitened Light Curve

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

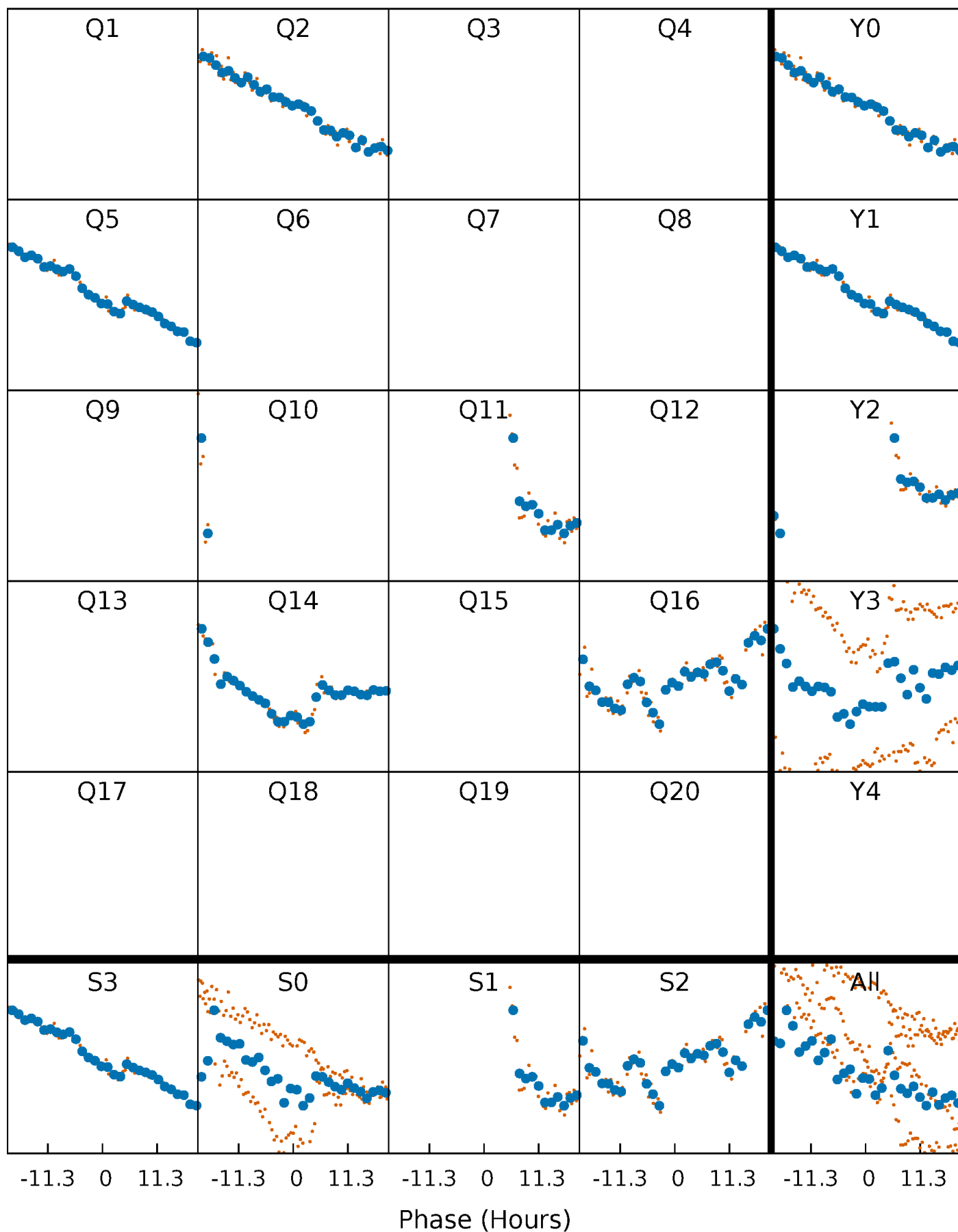


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



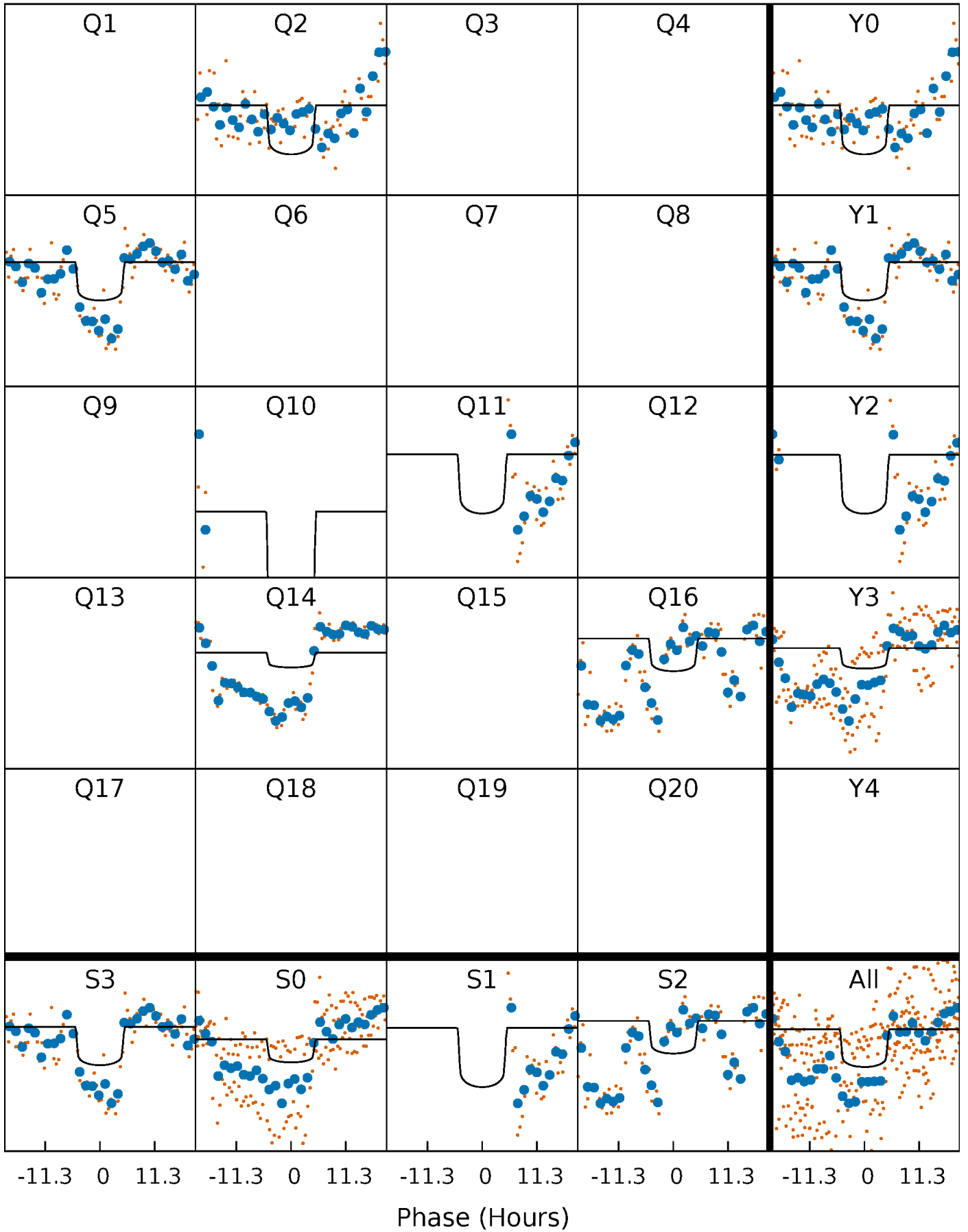
PDC Quarter-Phased Transit Curves

TCE 006946985-02 $P=275.299844$ Days $T_0=175.106107$ (BKJD)



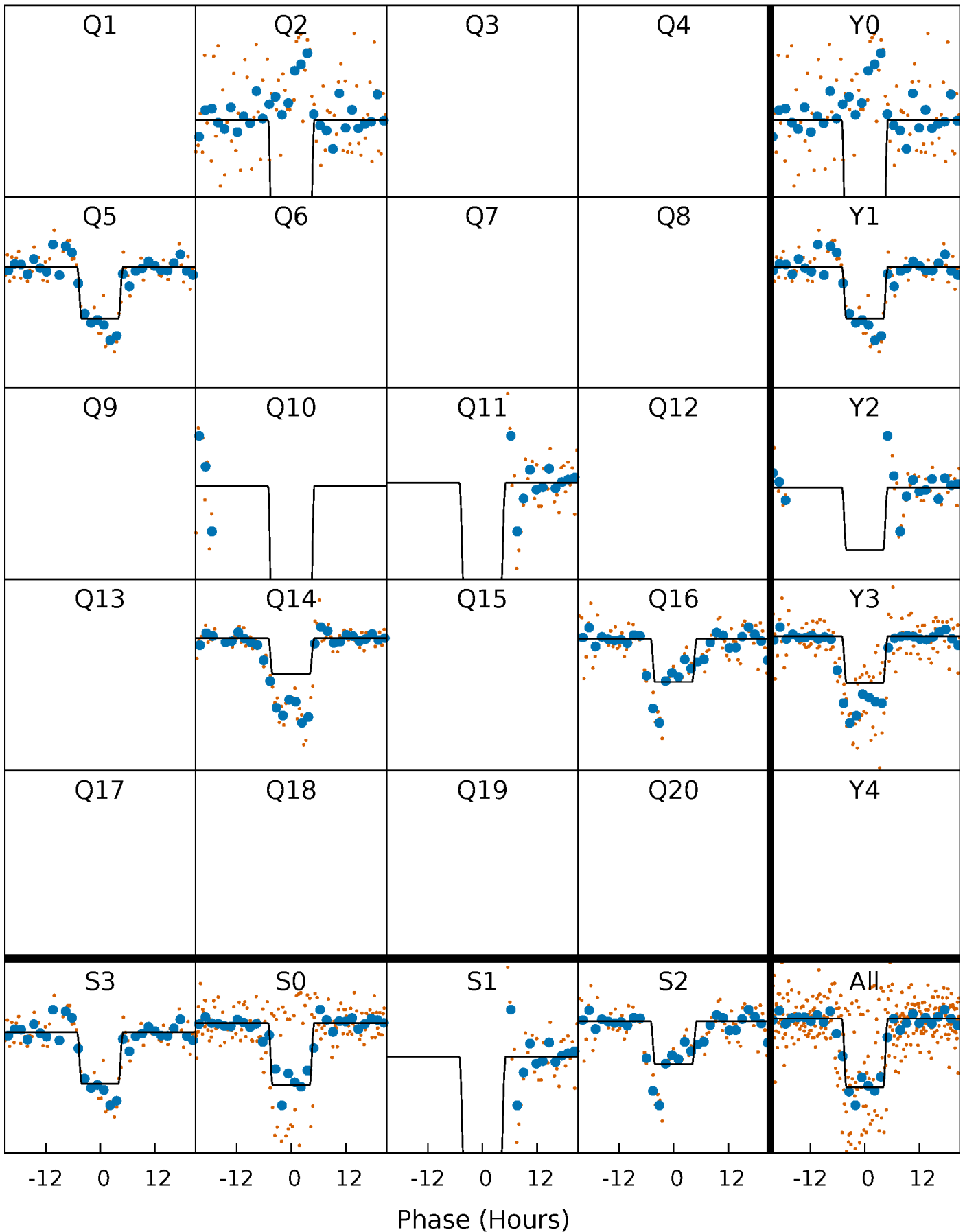
DV Quarter-Phased Transit Curves

TCE 006946985-02 $P=275.299844$ Days $T_0=175.106107$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

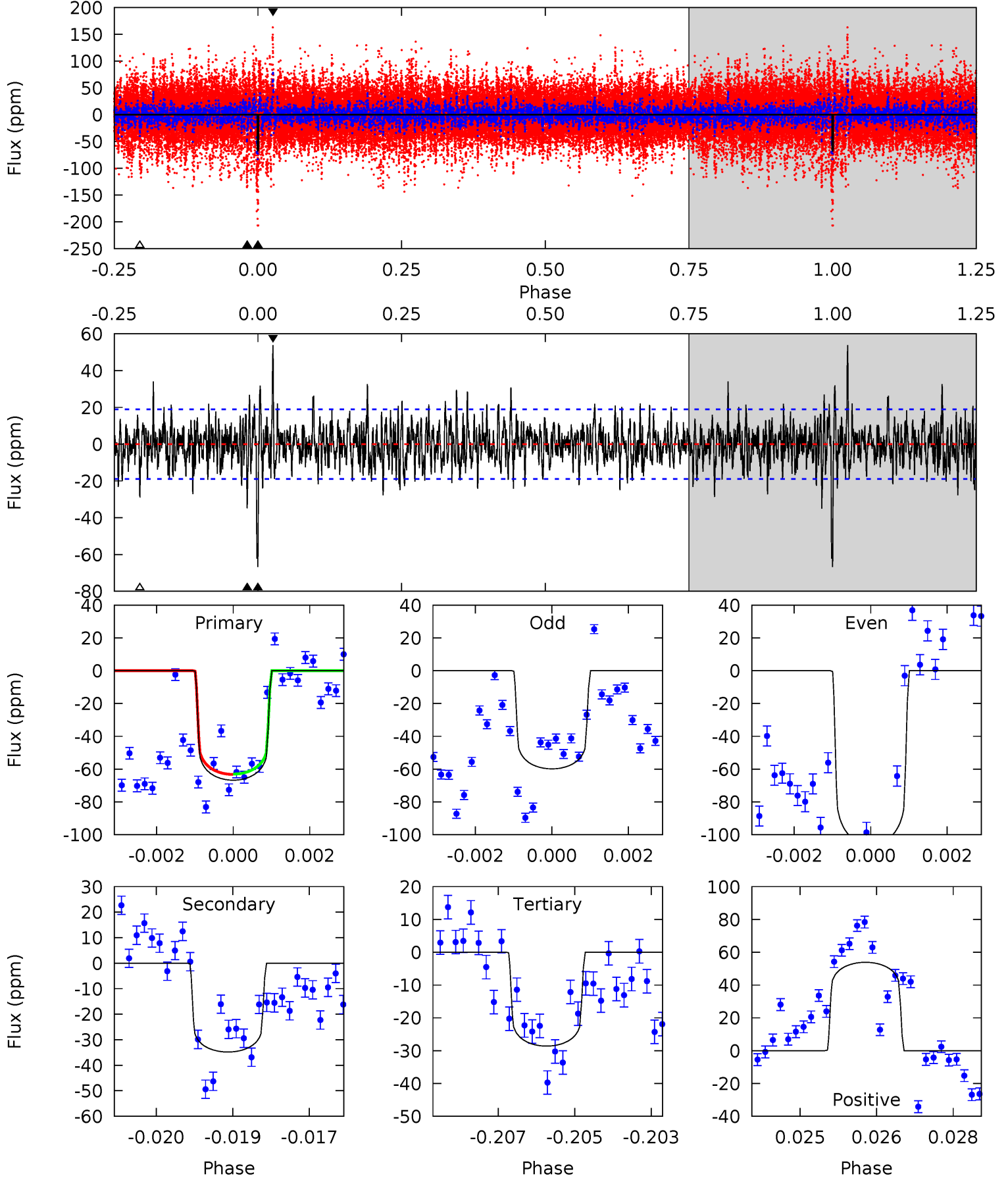
TCE 006946985-02 P=275.294543 Days $T_0=175.113802$ (BKJD)



DV Model-Shift Uniqueness Test

006946985-02, $P = 275.299844$ Days, $E = 175.106107$ Days

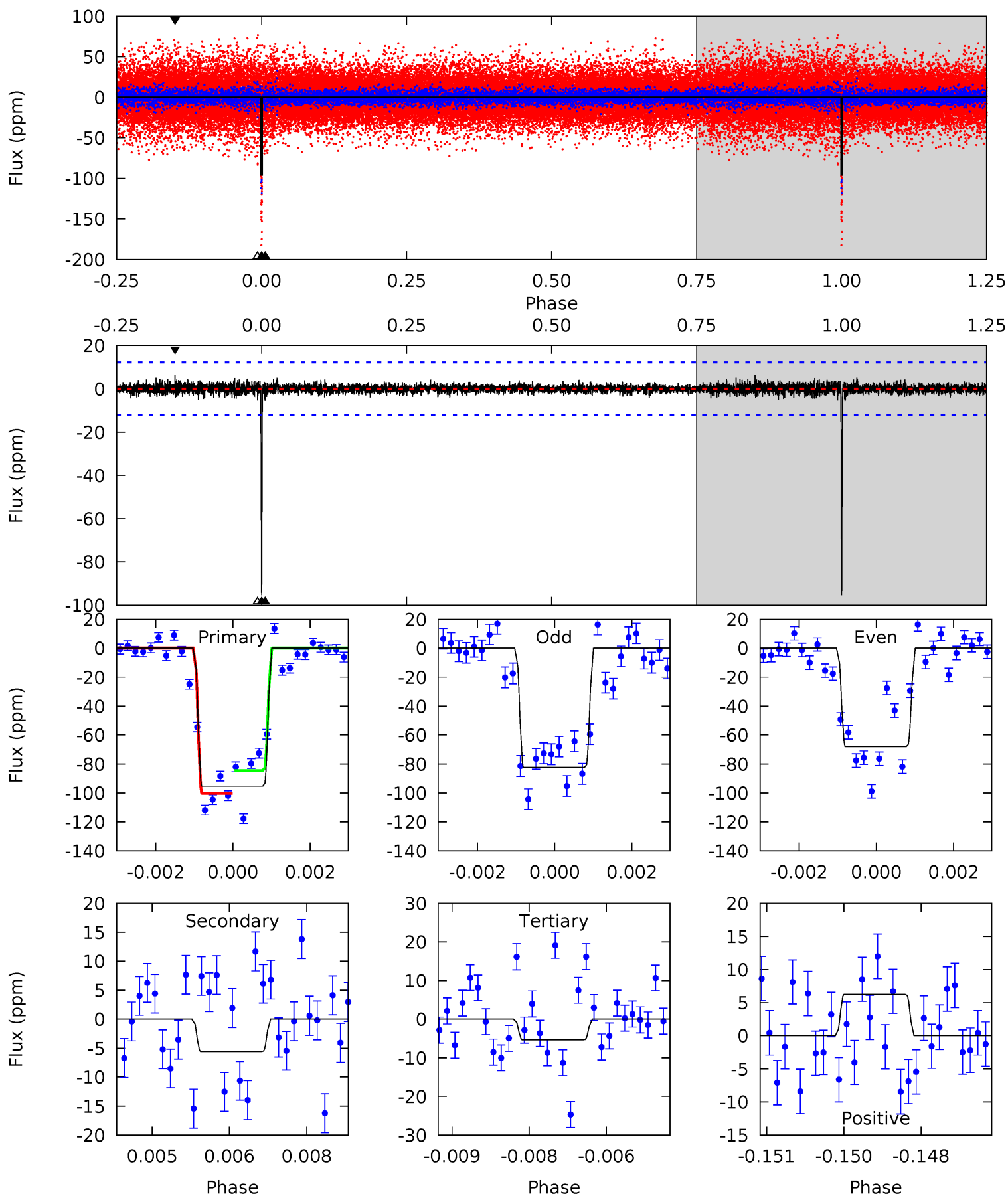
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	9.89	8.13	15.3	5.37	3.16	2.53	10.8	3.67	1.76	-5.41	6.84	1.37	0.45	0.03



Alt Model-Shift Uniqueness Test

006946985-02, P = 275.294543 Days, E = 175.113802 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.1	2.47	2.37	2.75	5.38	3.17	0.53	39.7	39.3	0.10	-0.29	3.57	0.91	0.06	3.42



Stellar Parameters For KIC 006946985

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9935^{+276}_{-415}	$4.205^{+0.144}_{-0.267}$	$0.070^{+0.150}_{-0.550}$	$1.996^{+0.923}_{-0.497}$	$2.332^{+0.461}_{-0.507}$	$0.413^{+0.361}_{-0.247}$
	+3%/-4%	+3%/-6%	+214%/-786%	+46%/-25%	+20%/-22%	+87%/-60%
Source	KIC0	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 006946985-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-35 ± 4	$1.64^{+0.52}_{-0.43}$	836^{+84}_{-62}	8555^{+1759}_{-1033}	8520^{+7013}_{-3621}
Alt.	-6 ± 2	$1.96^{+0.63}_{-0.43}$	838^{+84}_{-60}	4788^{+616}_{-568}	848^{+758}_{-437}

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

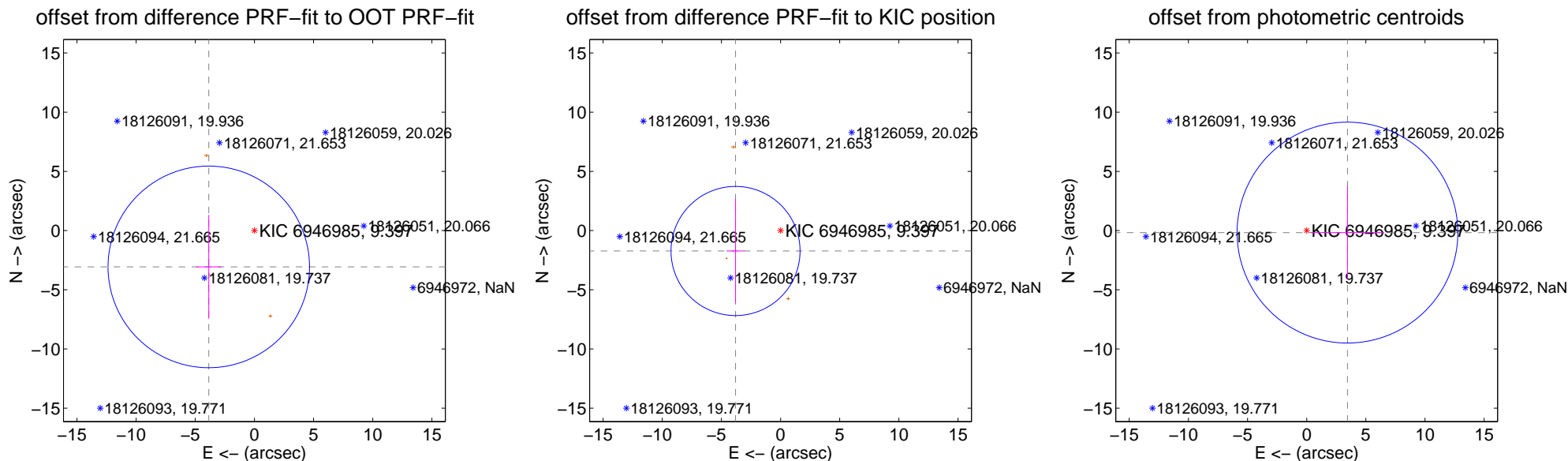
DV Centroid Data

Supplemental centroid analysis for 006946985-02. **Kepler magnitude: 9.40.** Transit SNR 5.89

There are 0 quarters with good PRF difference image offsets

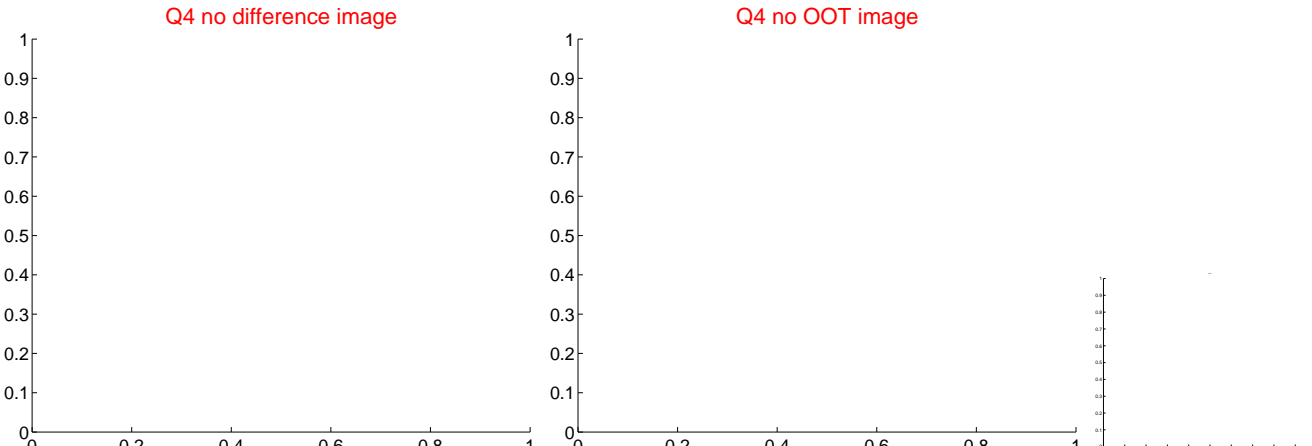
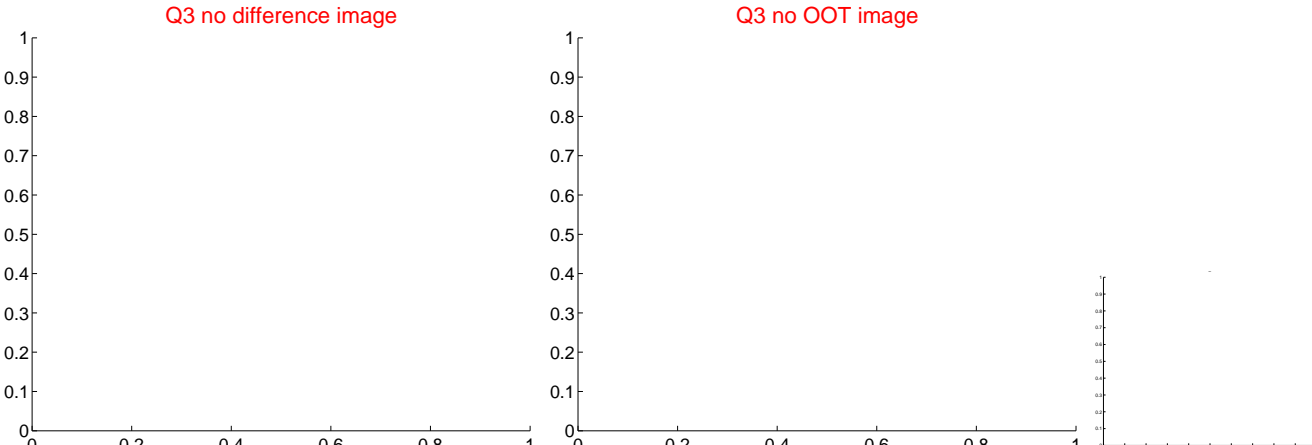
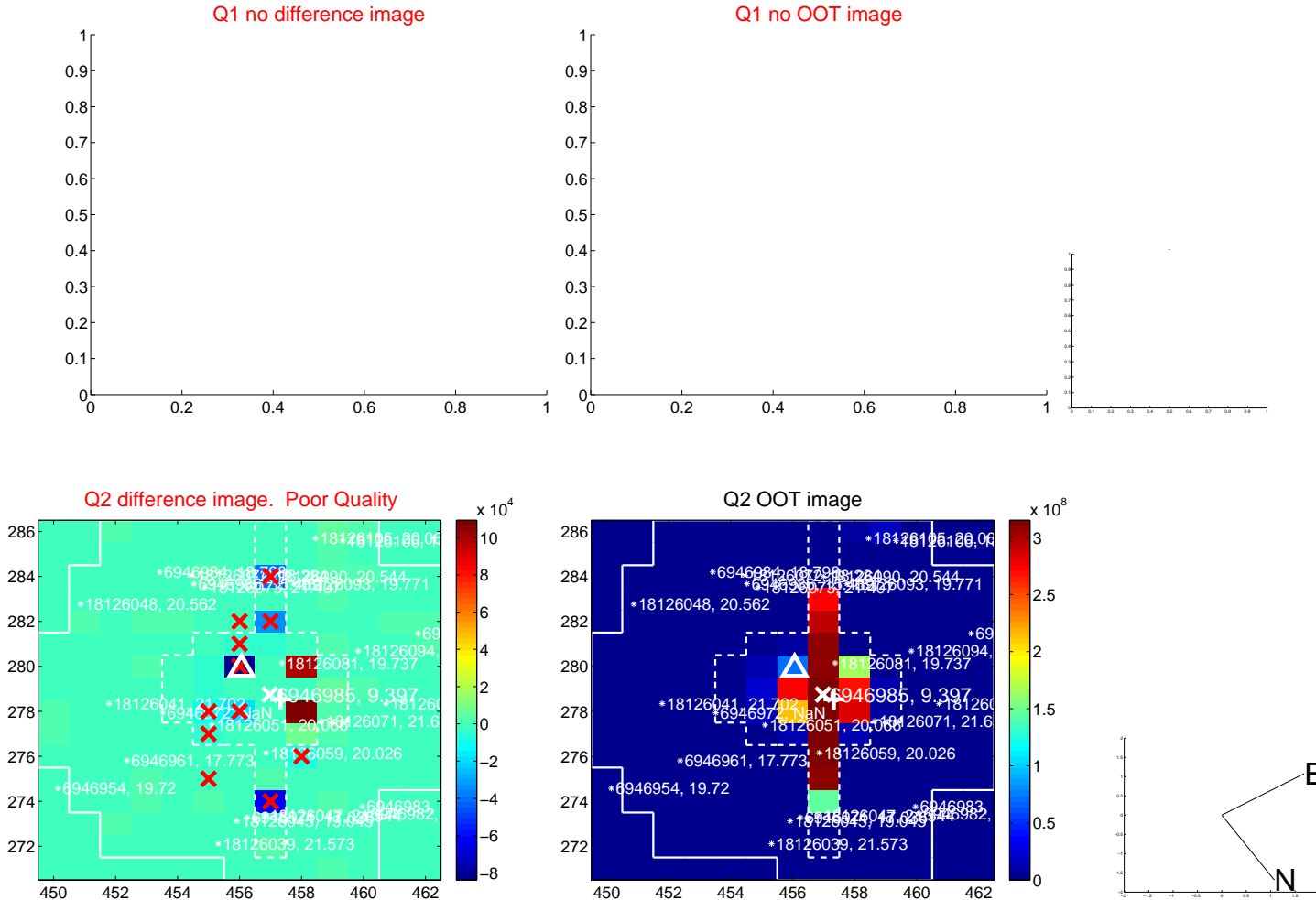
The direct PRF centroid is offset from the target star catalog position by about 0.72 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.930 ± 2.839	1.74	3.860 ± 1.070	-3.068 ± 4.384
PRF-fit source offset from KIC position	4.180 ± 1.818	2.30	3.808 ± 0.761	-1.725 ± 4.374
photometric centroid source offset	3.45 ± 3.11	1.11	-3.45 ± 3.11	-0.17 ± 3.94

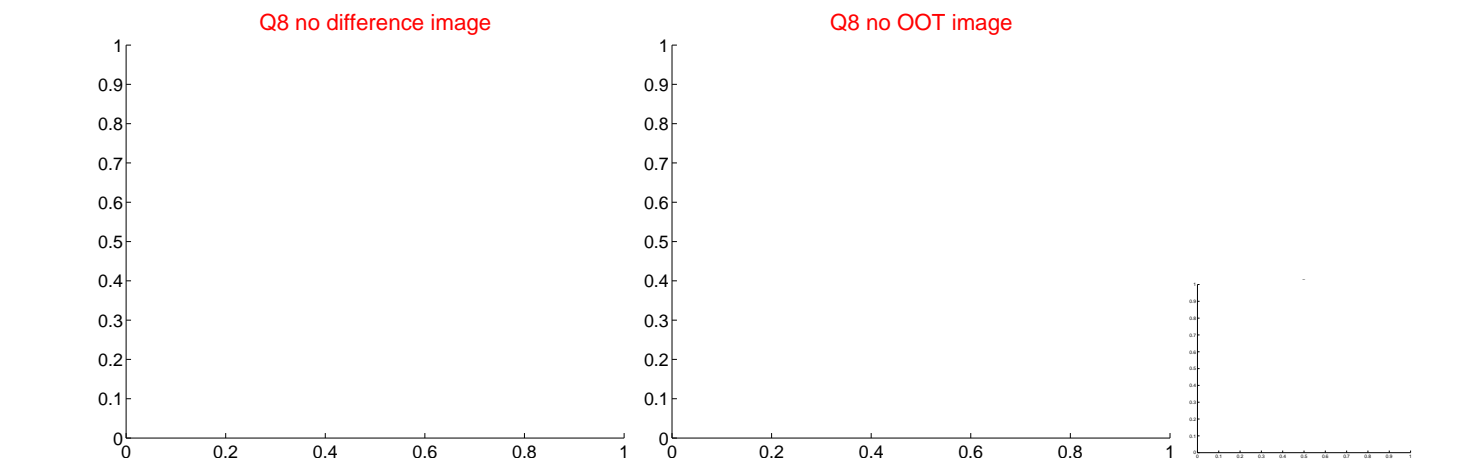
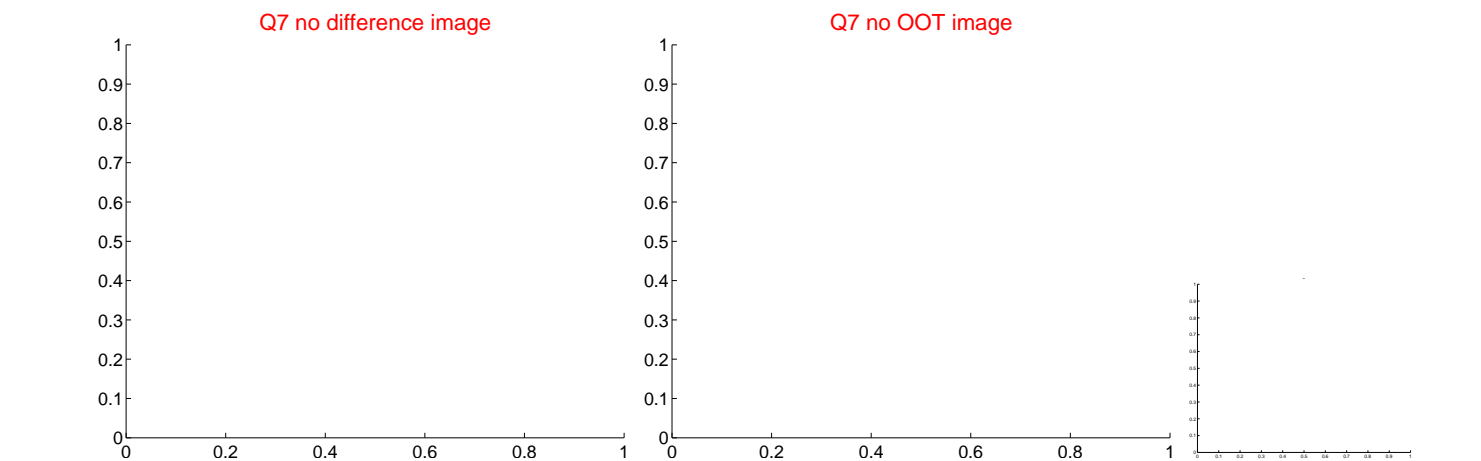
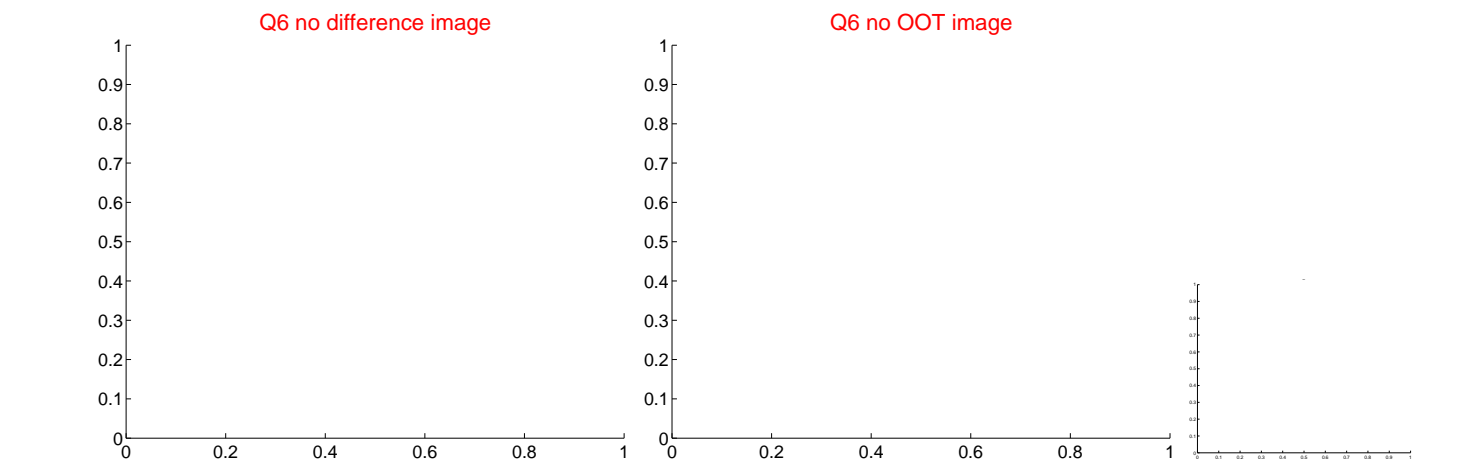
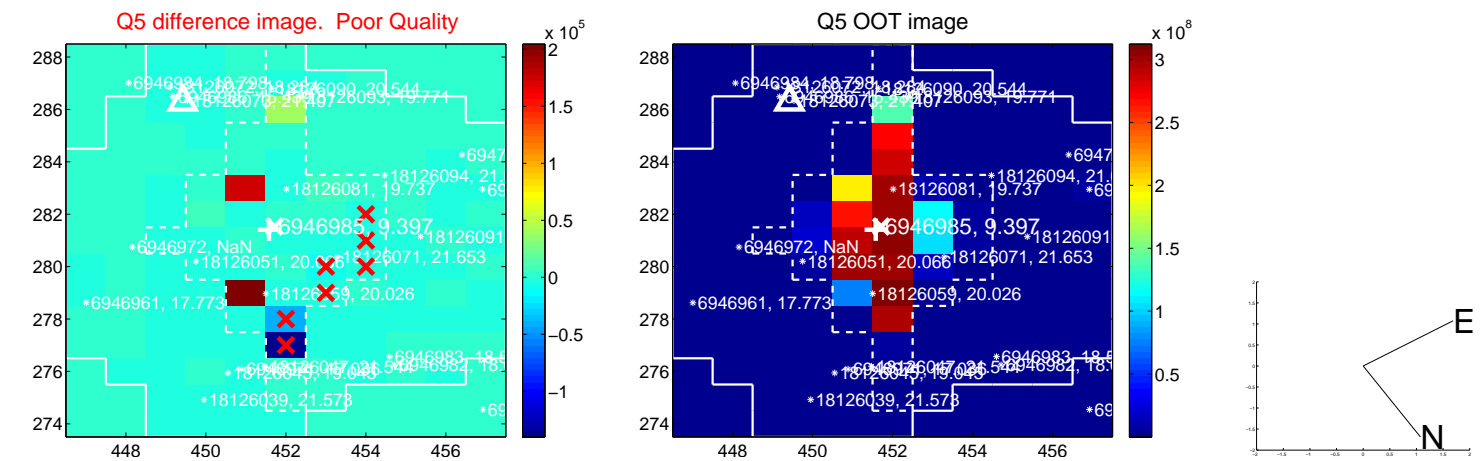


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

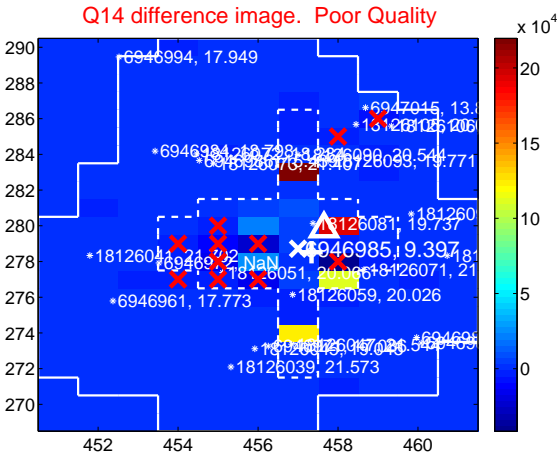
Q13 no difference image



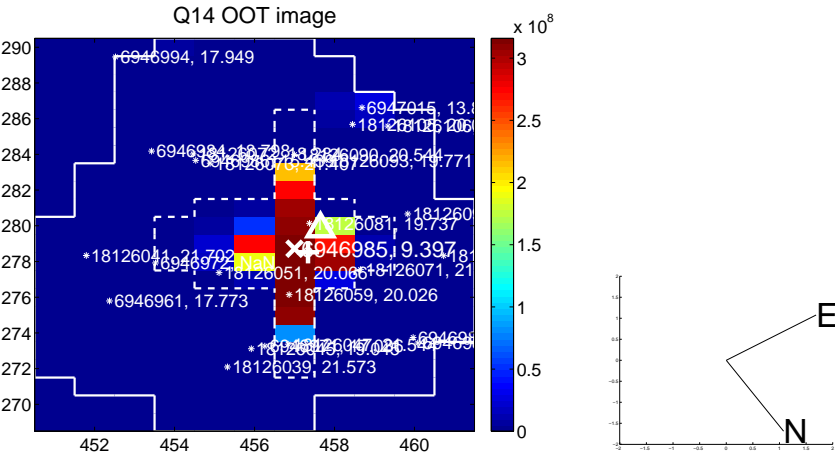
Q13 no OOT image



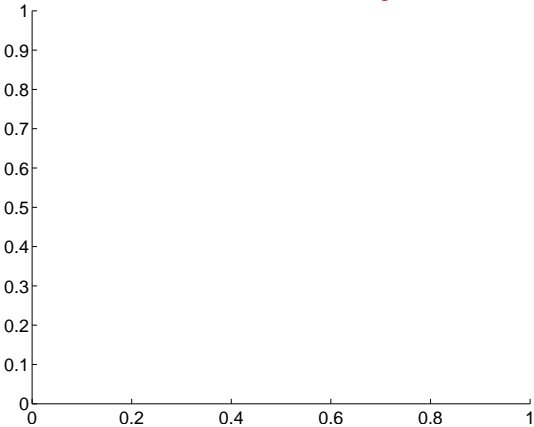
Q14 difference image. Poor Quality



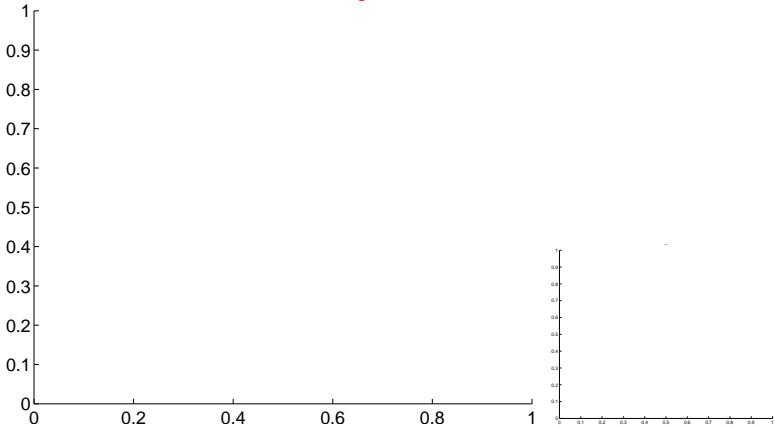
Q14 OOT image



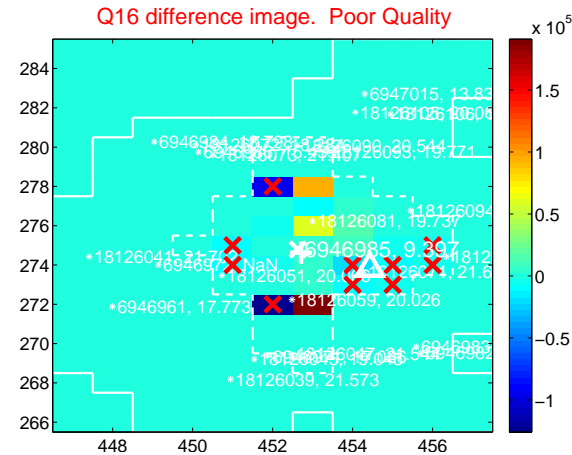
Q15 no difference image



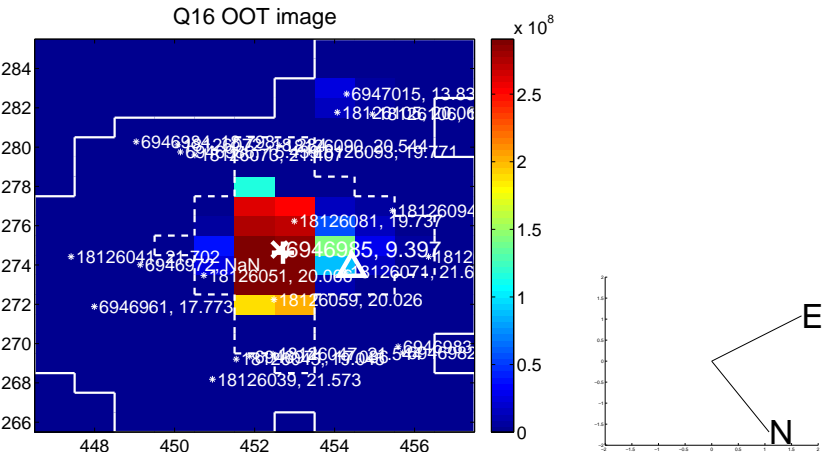
Q15 no OOT image



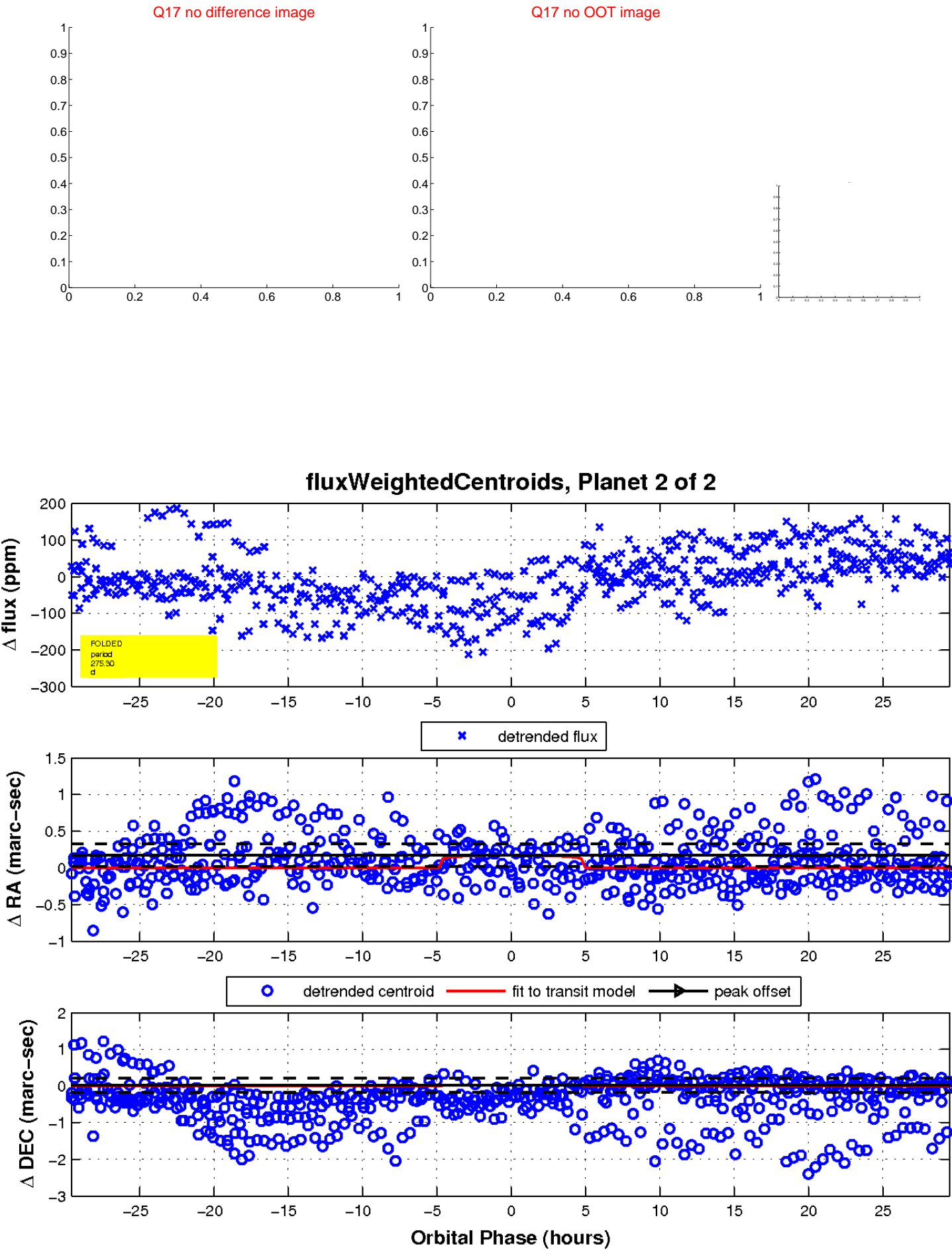
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

