

KIC 007376983

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})
007376983-01	OBS	1358.01	5.644892	136.588671	1378.1	2.566	51.4	57.3	0.71	4769	3.27	72.48
007376983-02	OBS	1358.02	8.742971	140.014230	779.5	2.860	25.1	27.0	0.71	4769	2.45	40.44
007376983-03	OBS	1358.03	3.648274	132.850560	370.6	2.066	15.5	17.7	0.71	4769	1.70	129.70
007376983-04	OBS	1358.04	2.345860	133.600976	294.7	1.794	14.6	16.6	0.71	4769	1.51	233.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007376983-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-03	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-04	OBS	PC	0.93	0	0	0	0	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 007376983-01

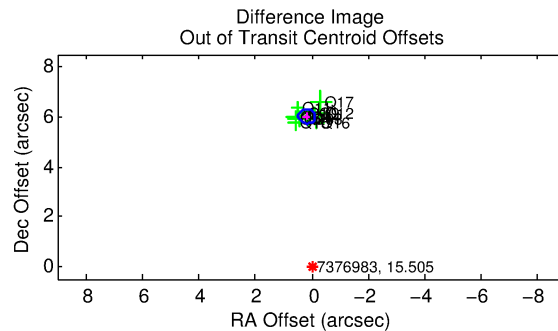
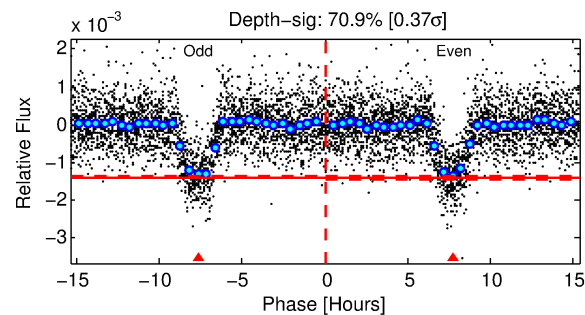
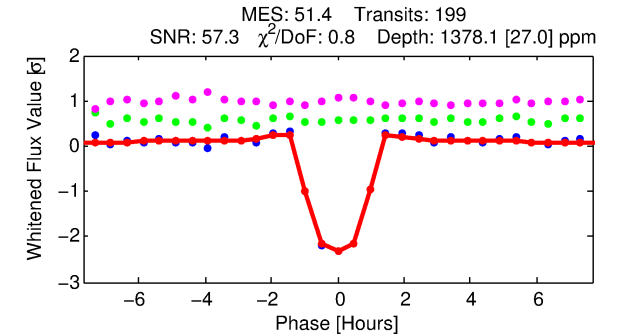
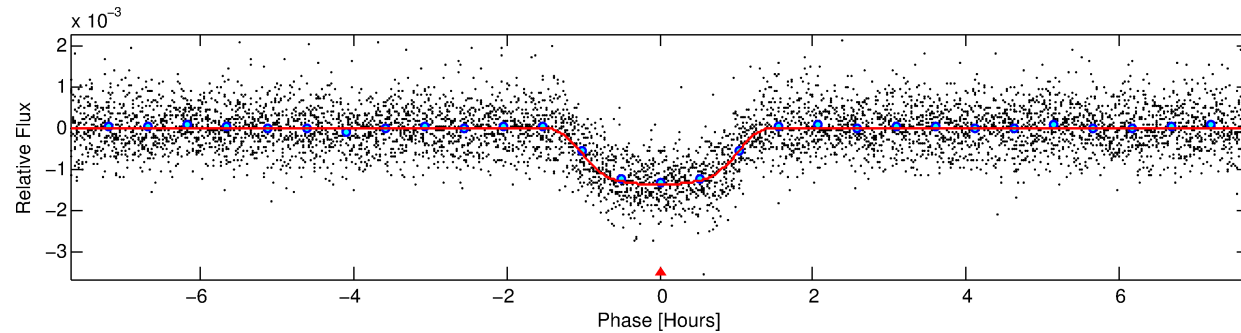
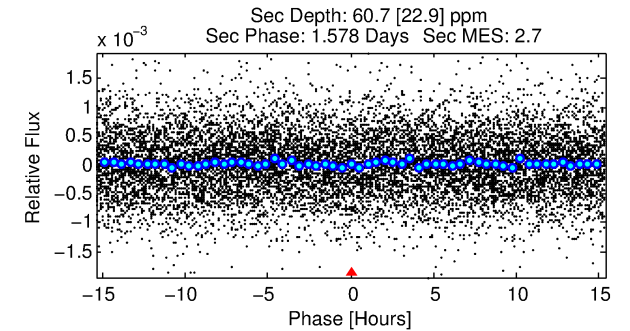
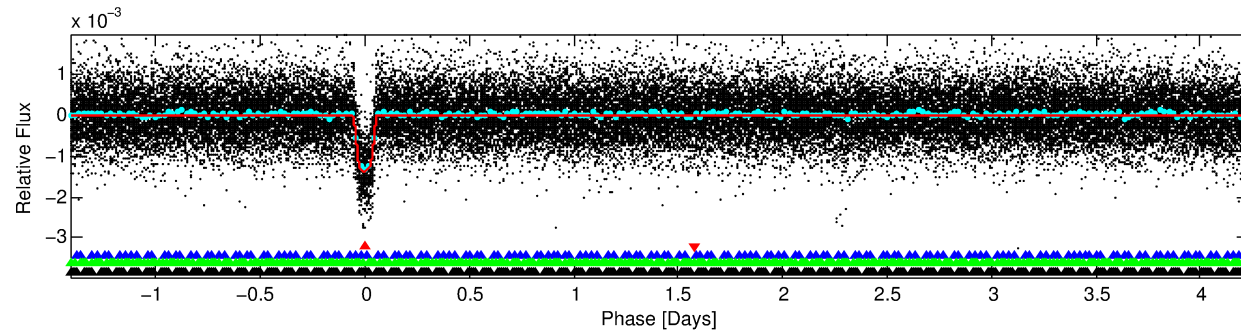
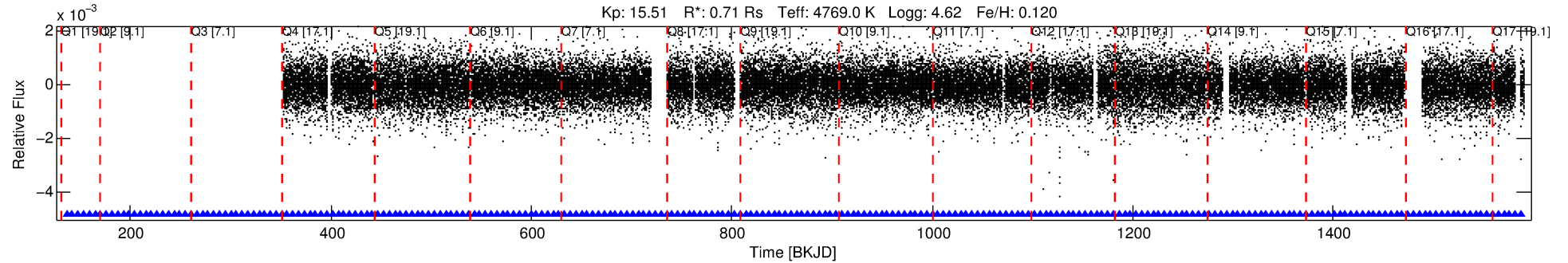
No Significant Match Found

DV One-Page Summary

KIC: 7376983 Candidate: 1 of 4 Period: 5.645 d

KOI: K01358.01 Corr: 0.950

Kp: 15.51 R*: 0.71 Rs Teff: 4769.0 K Logg: 4.62 Fe/H: 0.120



DV Fit Results:

Period = 5.64489 [0.00001] d
Epoch = 136.5887 [0.0010] BKJD
Rp/R* = 0.0419 [0.0018]
a/R* = 8.88 [1.25]
b = 0.90 [0.03]
Seff = 72.48 [13.23]
Teq = 744 [34] K
Rp = 3.27 [0.34] Re
a = 0.0571 [0.0045] AU
Ag = 10.21 [4.12] [2.24σ]
Teffp = 2056 [212] K [6.10σ]

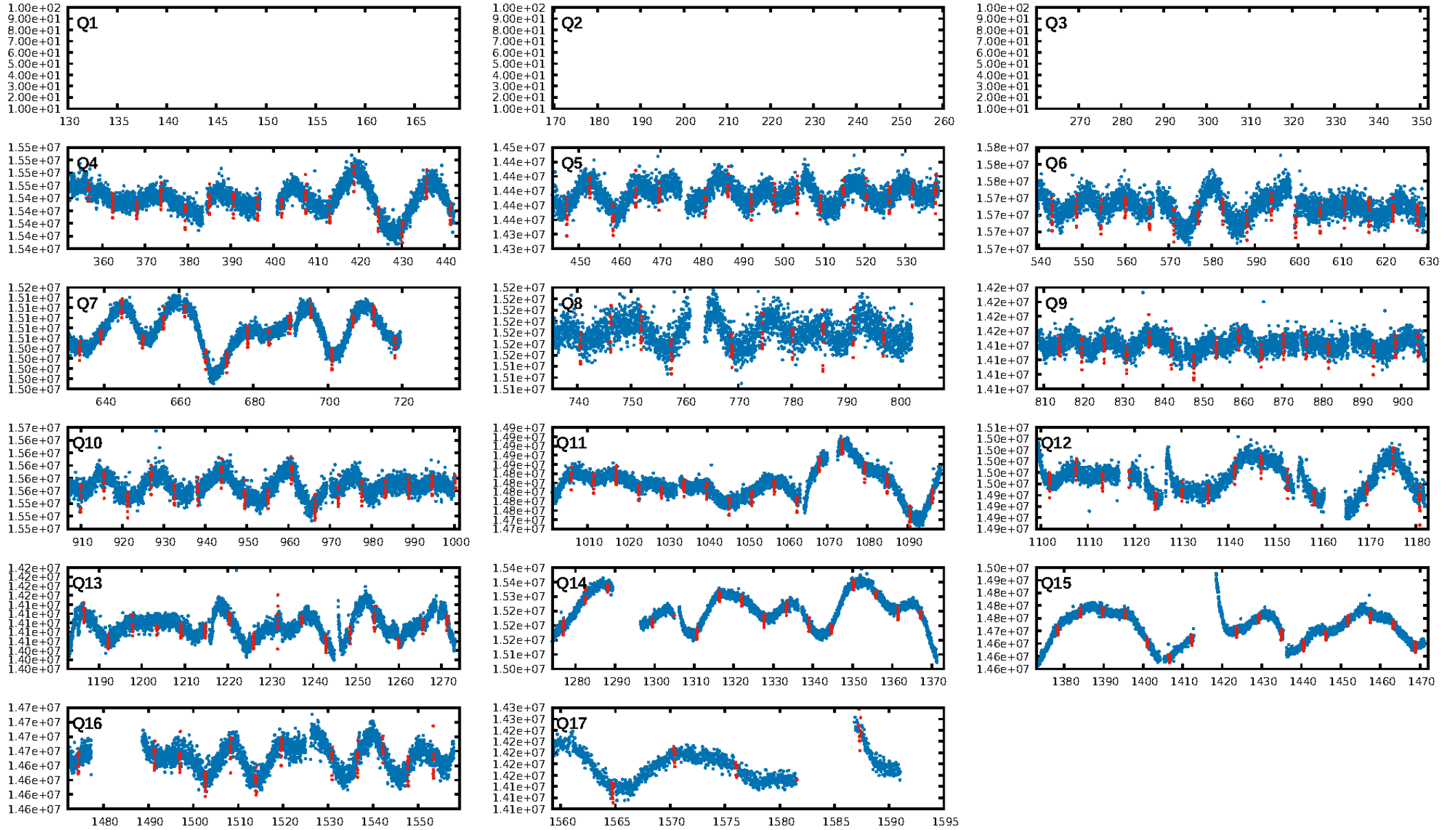
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.55σ]
LongPeriod-sig: 100.0% [19.35σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [195/195]
GhostDiagnostic-chr: 2.404
Centroid-sig: 0.0%
Centroid-so: 3.380 arcsec [51.53σ]
OotOffset-rm: 6.011 arcsec [63.03σ]
KicOffset-rm: 0.121 arcsec [1.07σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.93 [13/14]

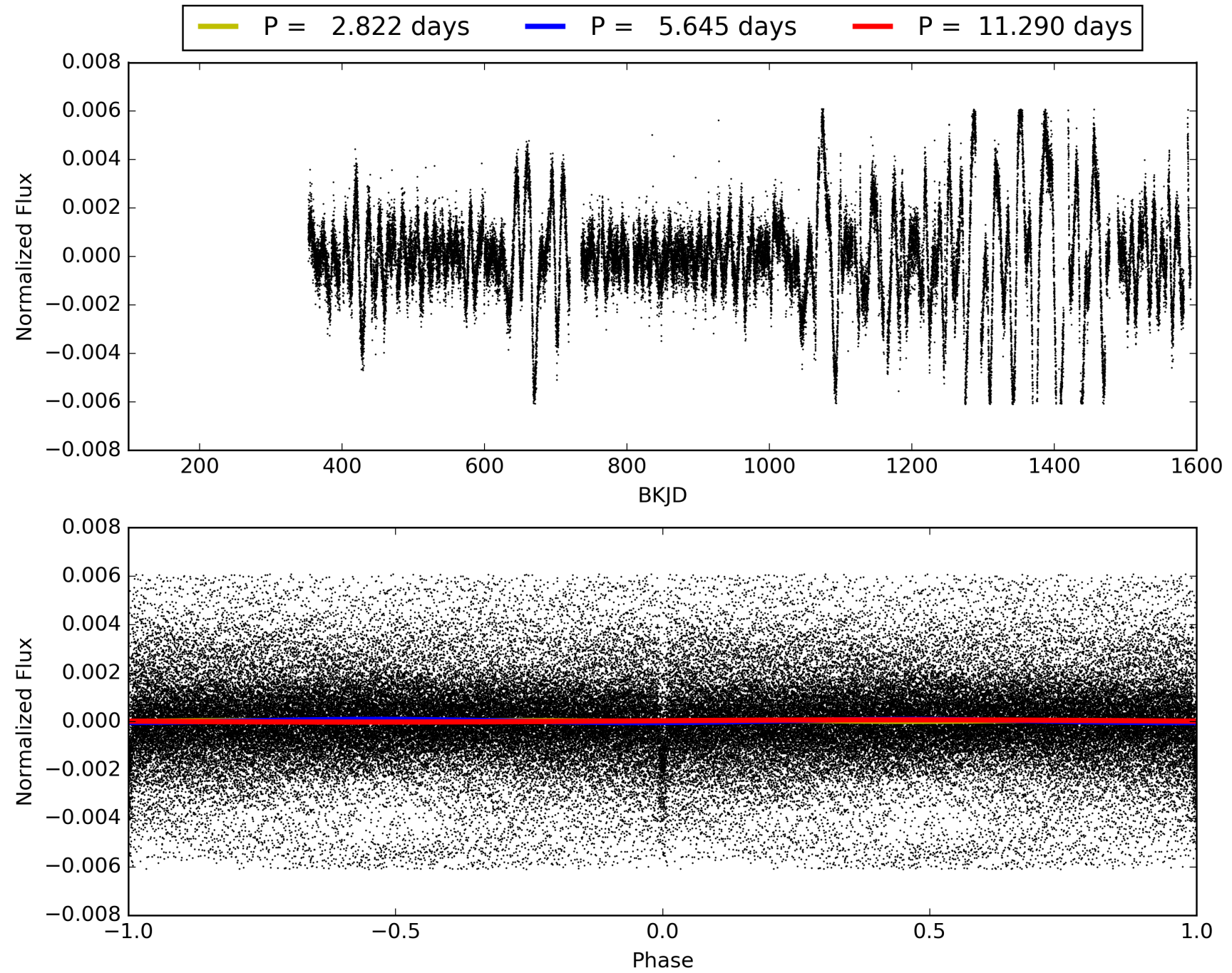
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:27:39 Z

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

TCE 007376983-01, PDC Light Curves

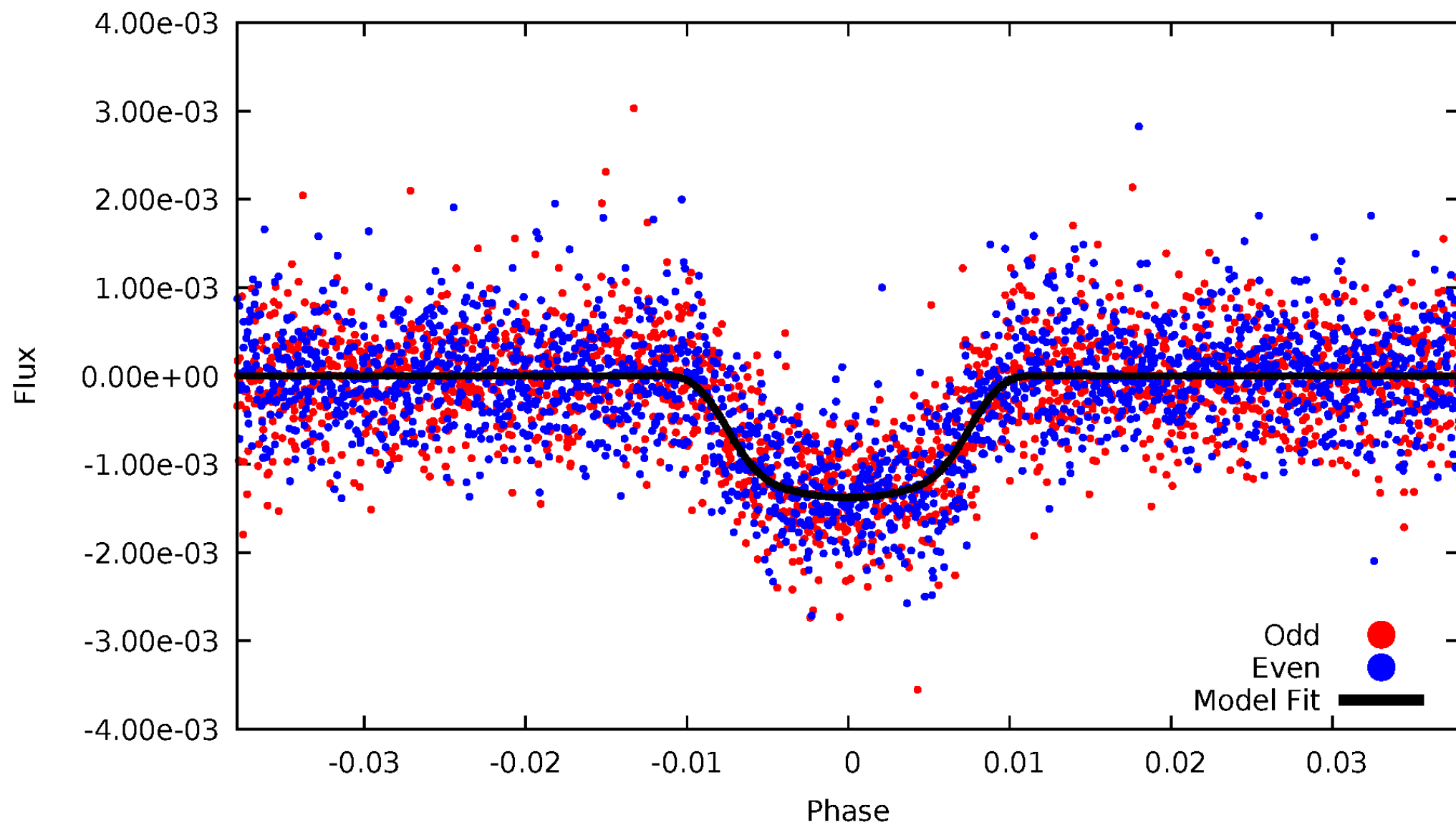


TCE 007376983-01



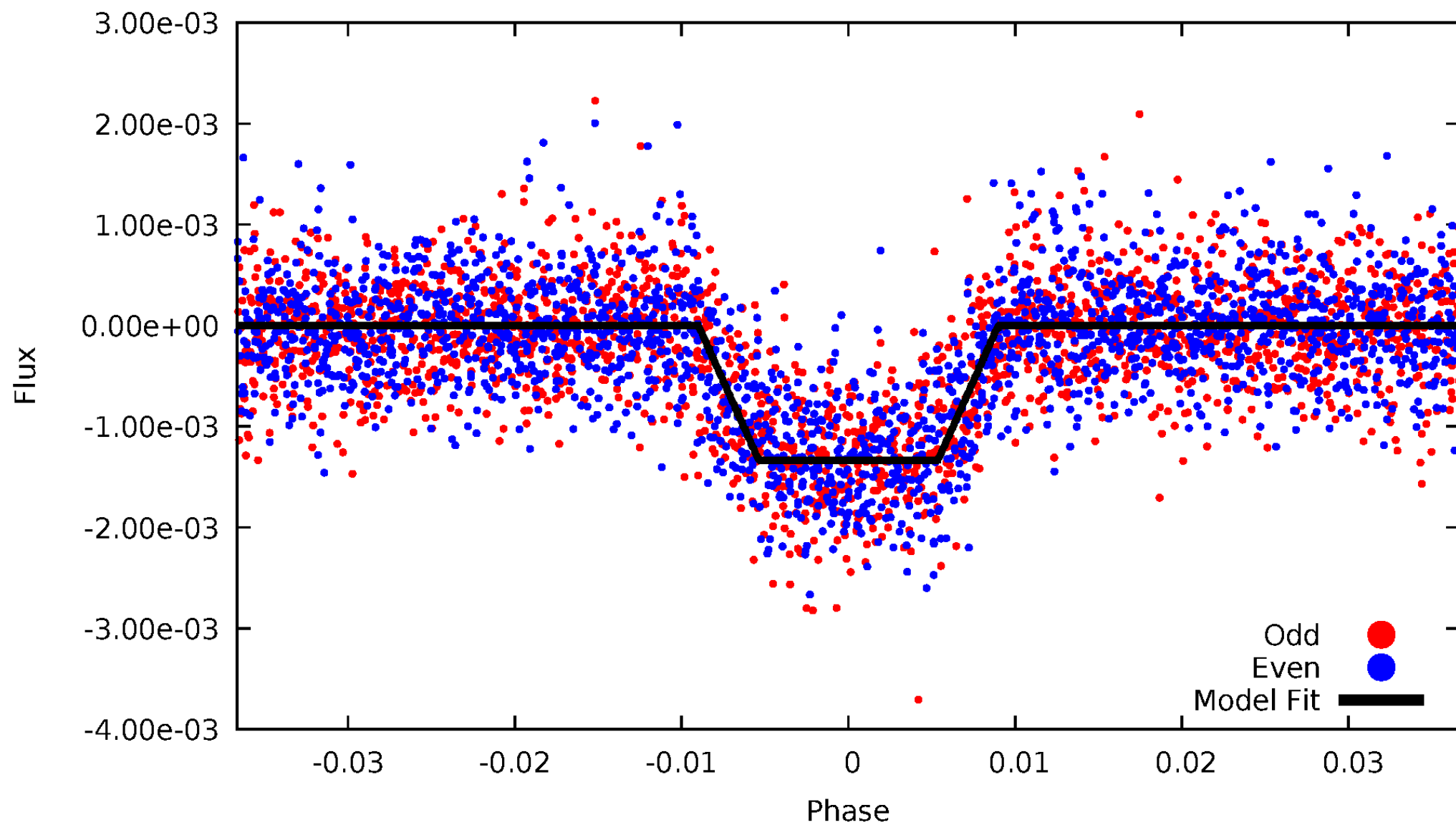
DV Odd/Even

TCE 007376983-01



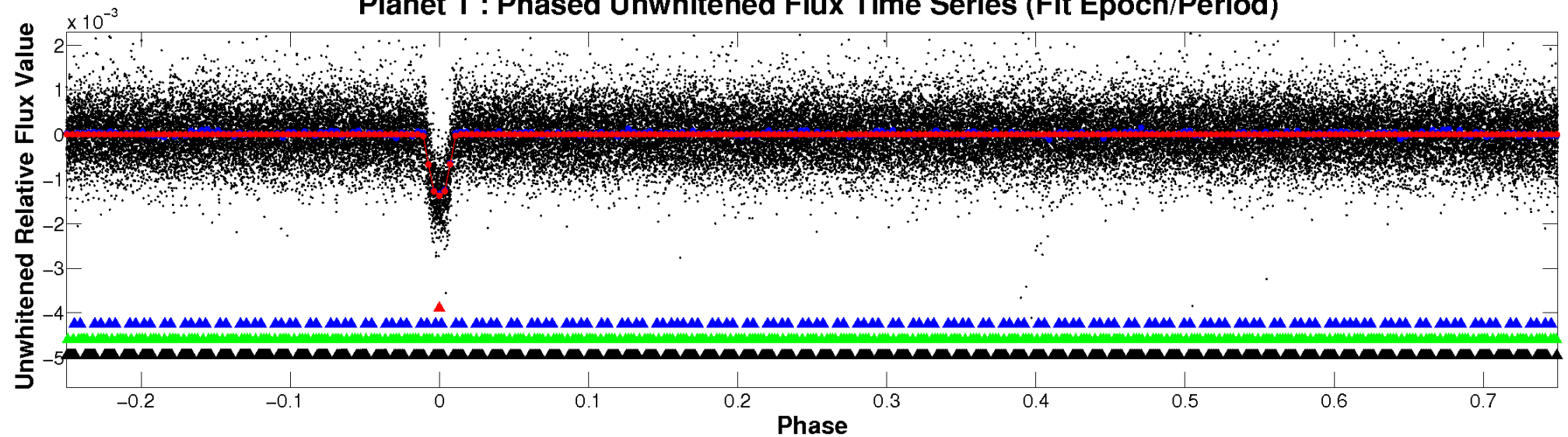
ALT Odd/Even

TCE 007376983-01

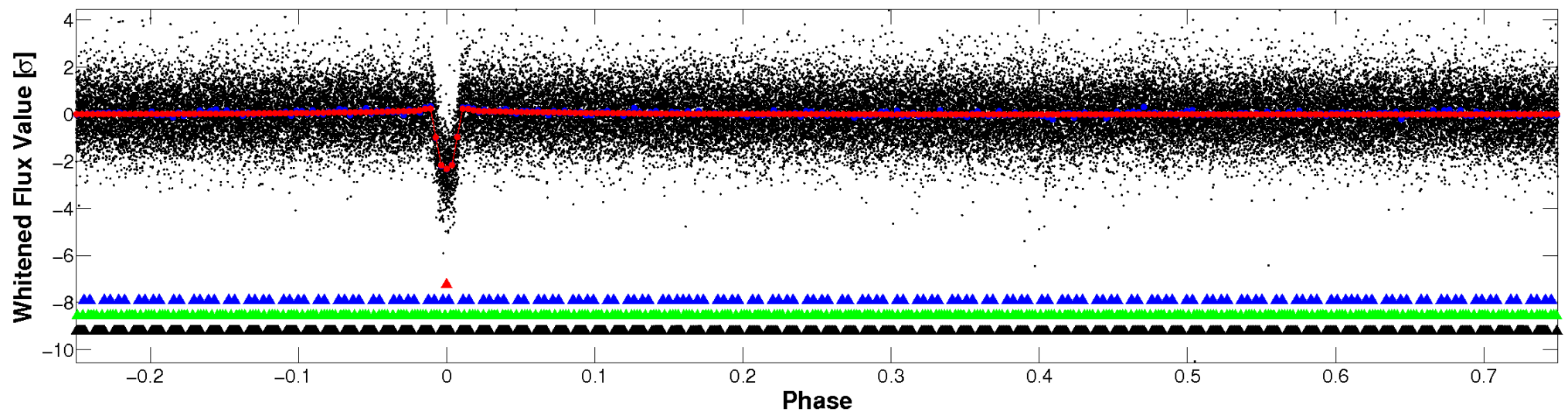


Non-Whitened Vs. Whitened Light Curve

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

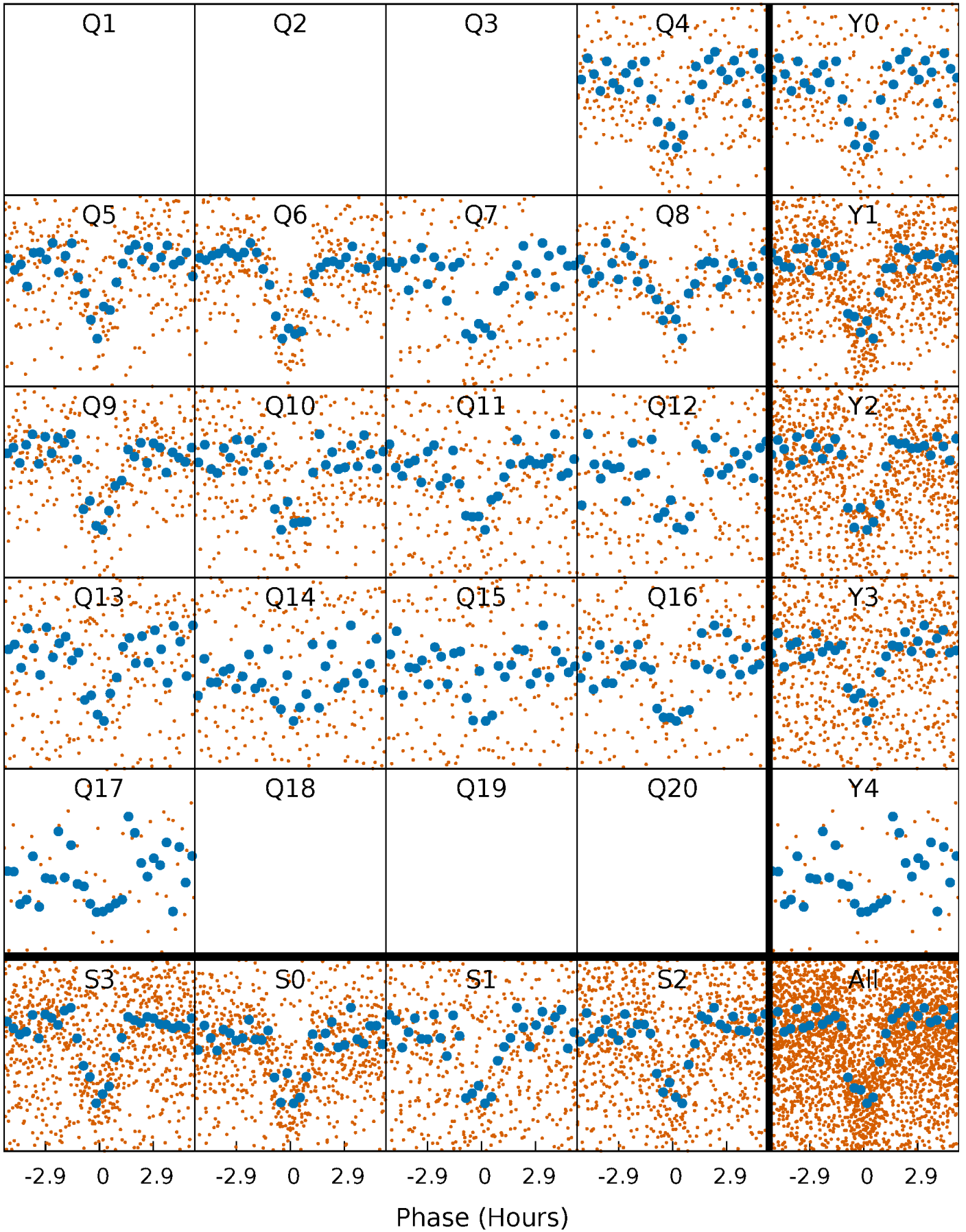


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



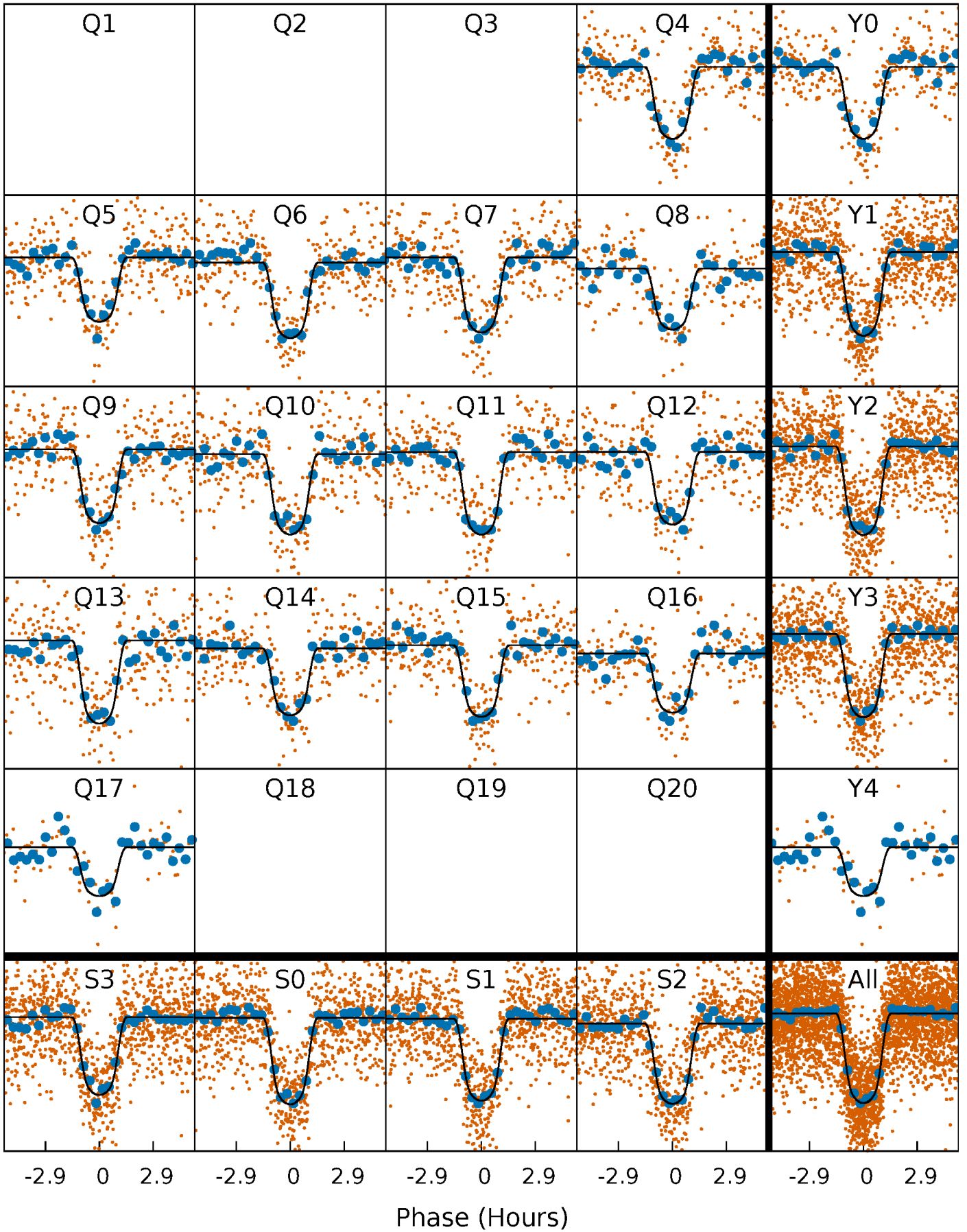
PDC Quarter-Phased Transit Curves

TCE 007376983-01 P= 5.644892 Days $T_0=136.588671$ (BKJD)



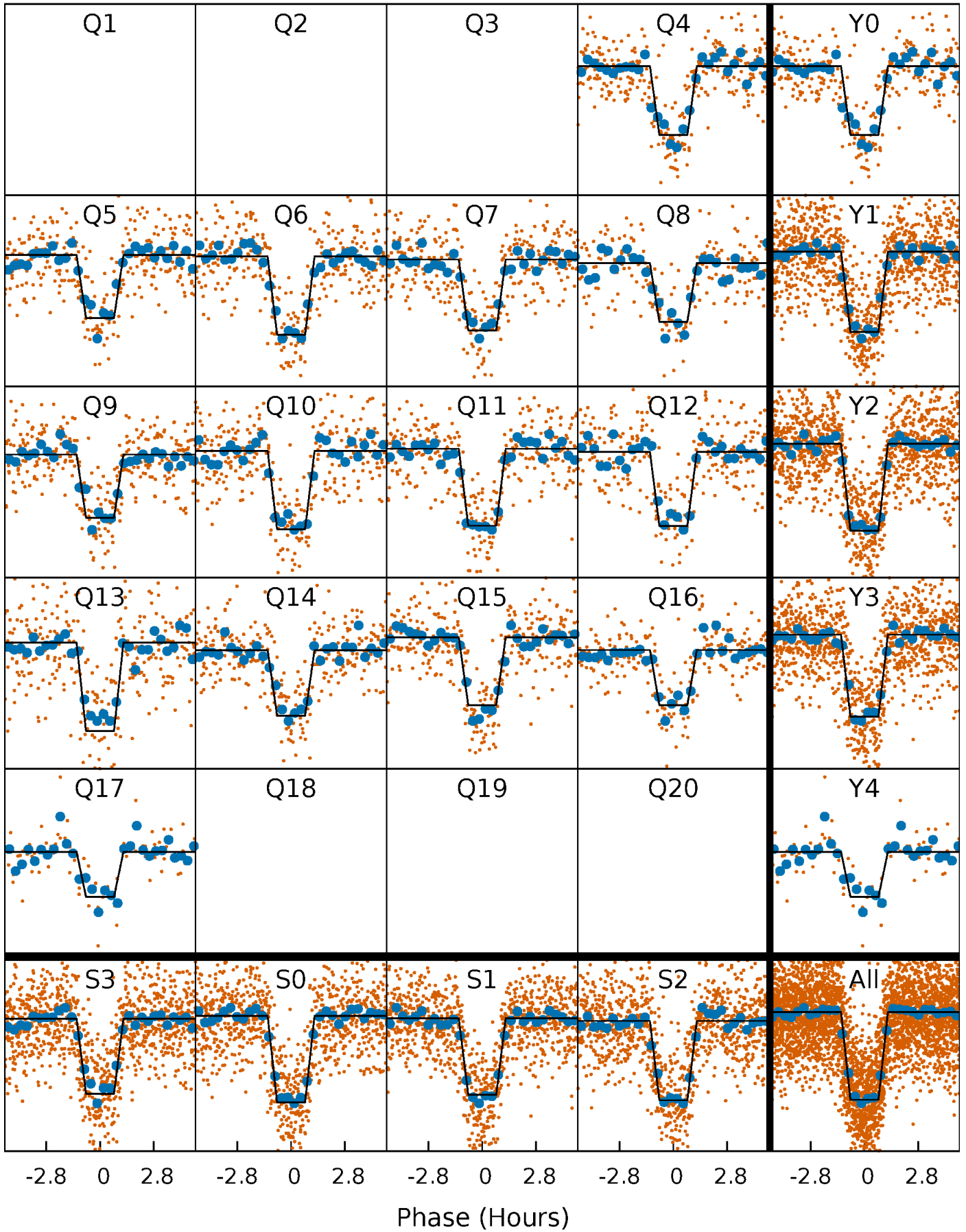
DV Quarter-Phased Transit Curves

TCE 007376983-01 P= 5.644892 Days $T_0=136.588671$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

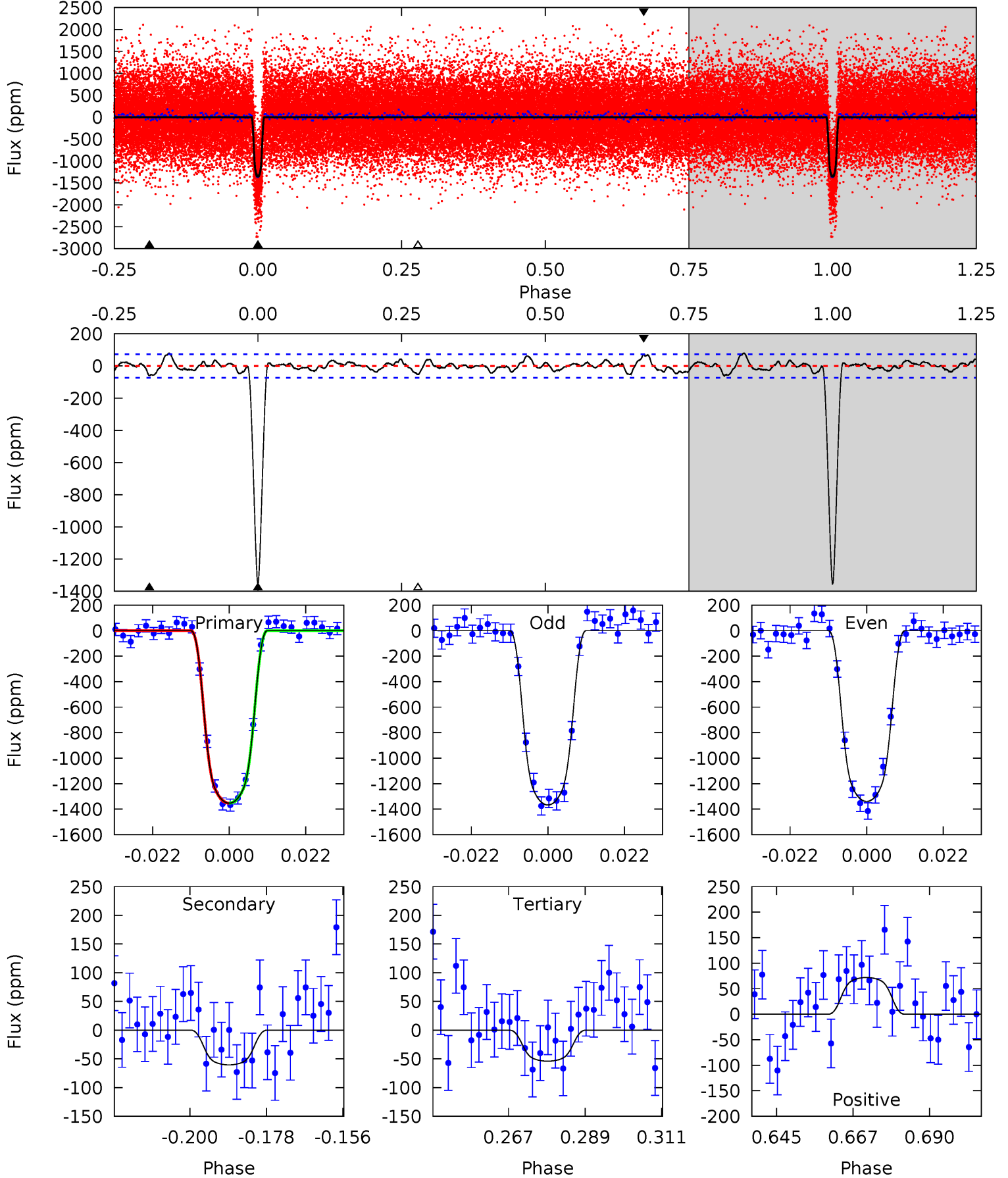
TCE 007376983-01 P= 5.644898 Days $T_0=136.588066$ (BKJD)



DV Model-Shift Uniqueness Test

007376983-01, P = 5.644892 Days, E = 136.588671 Days

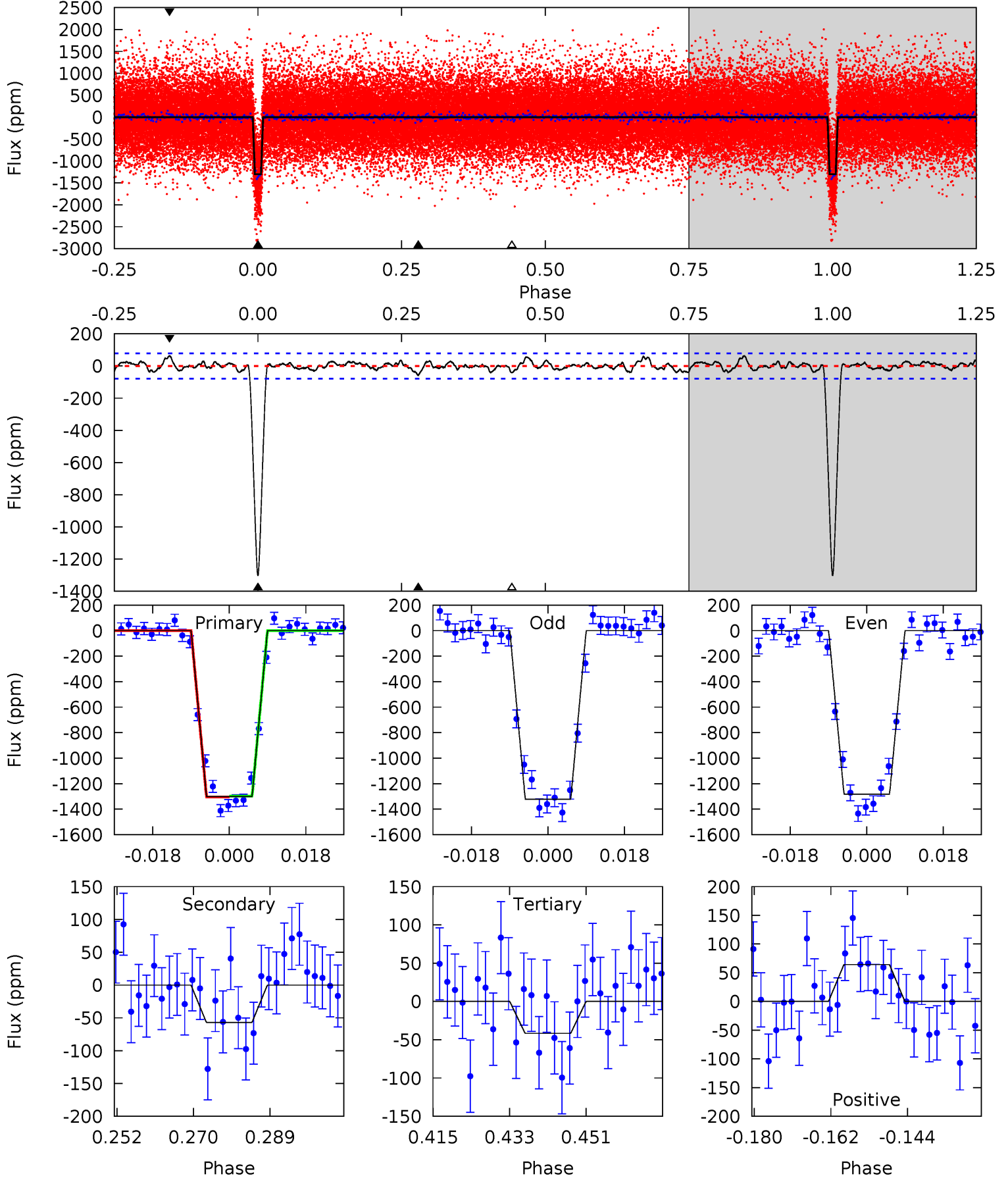
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
90.1	4.03	3.60	4.79	4.87	2.29	1.63	86.5	85.3	0.43	-0.76	0.92	1.03	0.06	0.03



Alt Model-Shift Uniqueness Test

007376983-01, P = 5.644898 Days, E = 136.588066 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
81.6	3.58	2.61	4.02	4.91	2.36	1.23	79.0	77.5	0.96	-0.45	1.23	1.01	0.05	0.22



Stellar Parameters For KIC 007376983

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4769^{+172}_{-172}	$4.622^{+0.024}_{-0.060}$	$0.120^{+0.250}_{-0.300}$	$0.714^{+0.068}_{-0.049}$	$0.799^{+0.041}_{-0.081}$	$3.091^{+0.398}_{-0.665}$
	+4%/-4%	+1%/-1%	+208%/-250%	+10%/-7%	+5%/-10%	+13%/-22%
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 007376983-01 / KOI 1358.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-61 ± 15	$3.32^{+0.23}_{-0.20}$	1047^{+48}_{-41}	2749^{+114}_{-130}	$9.942^{+2.616}_{-2.610}$
Alt.	-57 ± 16	$2.90^{+0.19}_{-0.19}$	1053^{+43}_{-40}	2826^{+134}_{-139}	12^{+4}_{-4}

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

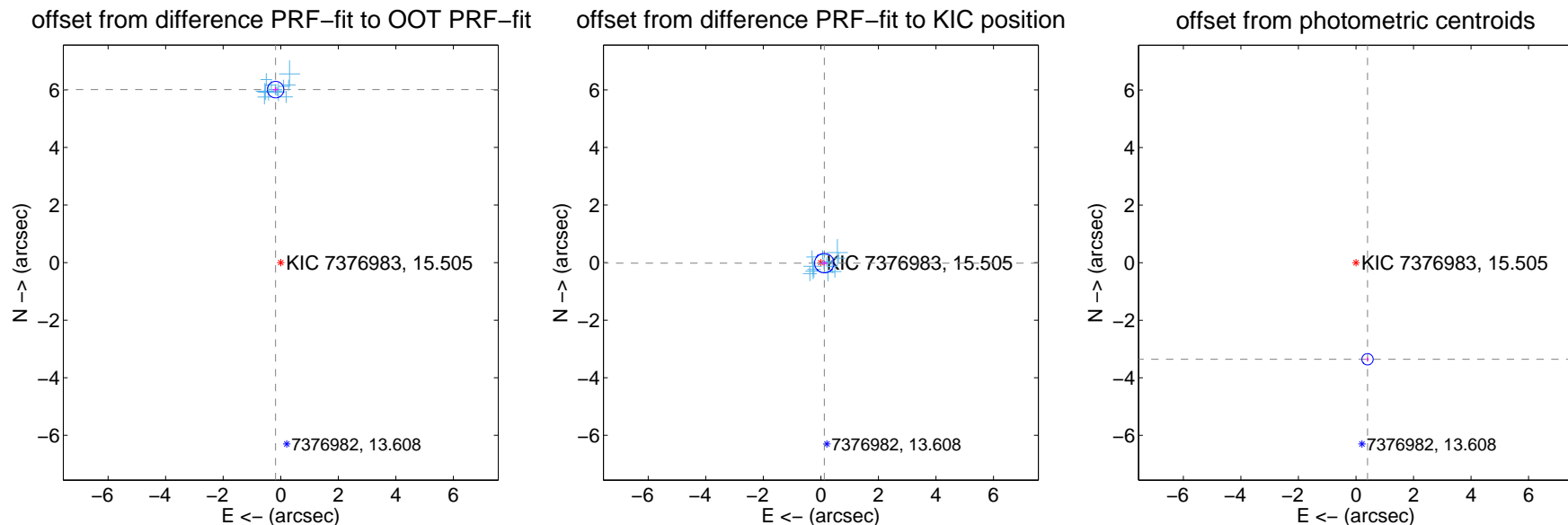
DV Centroid Data

Supplemental centroid analysis for 007376983-01. Kepler magnitude: 15.51. Transit SNR 57.26

There are 14 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 6.21 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	6.011 ± 0.095	63.03	0.179 ± 0.093	6.008 ± 0.095
PRF-fit source offset from KIC position	0.121 ± 0.113	1.07	-0.119 ± 0.113	-0.018 ± 0.089
photometric centroid source offset	3.38 ± 0.07	51.53	-0.40 ± 0.04	-3.36 ± 0.07



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



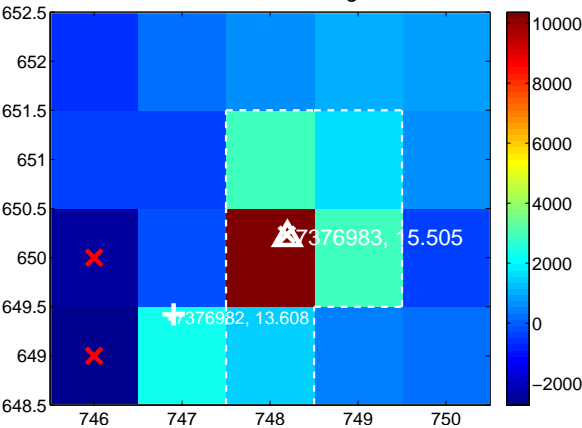
Q3 no difference image



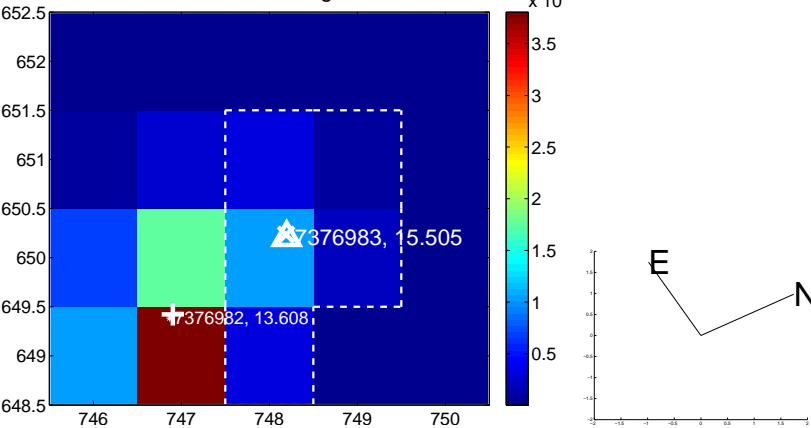
Q3 no OOT image



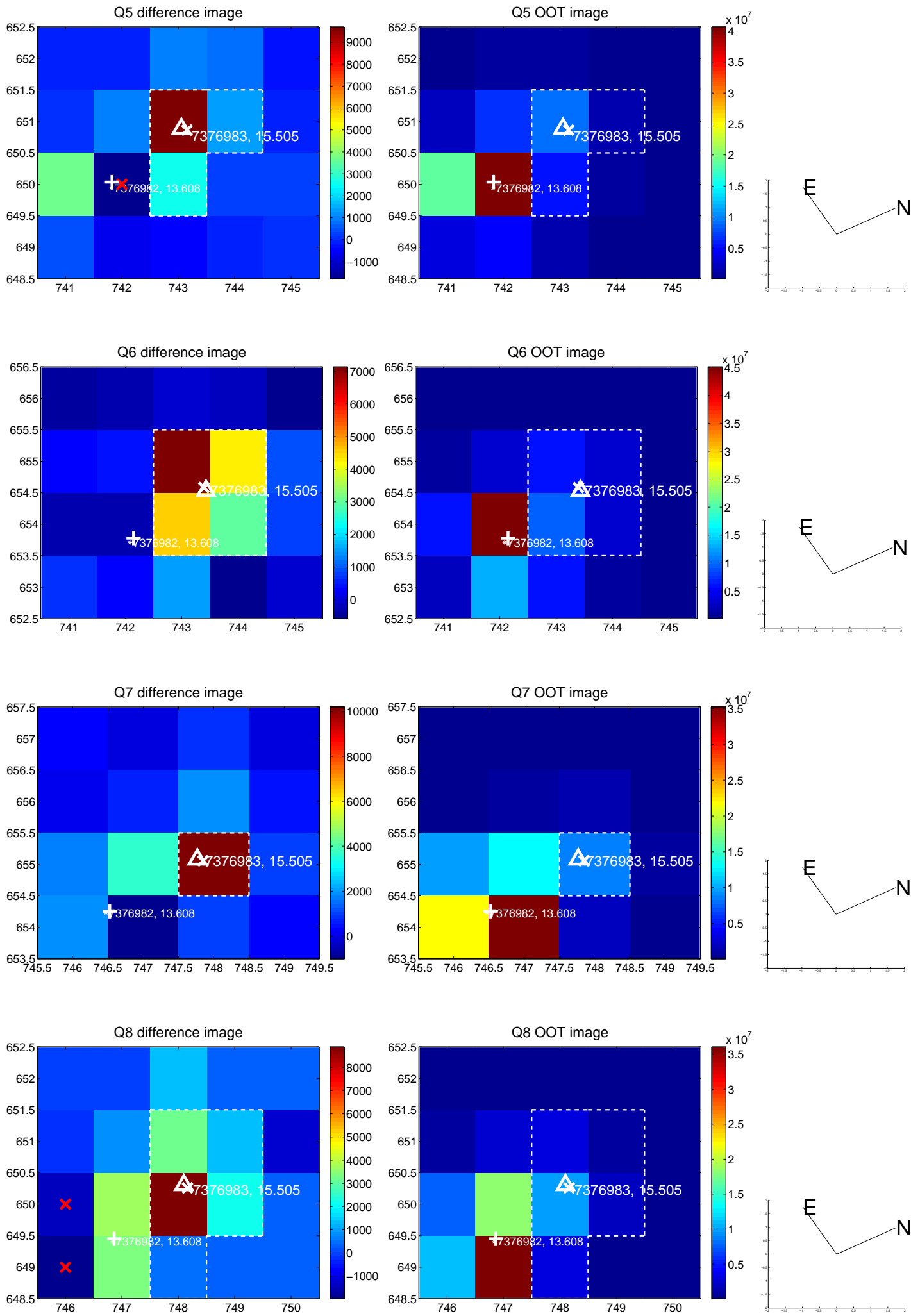
Q4 difference image



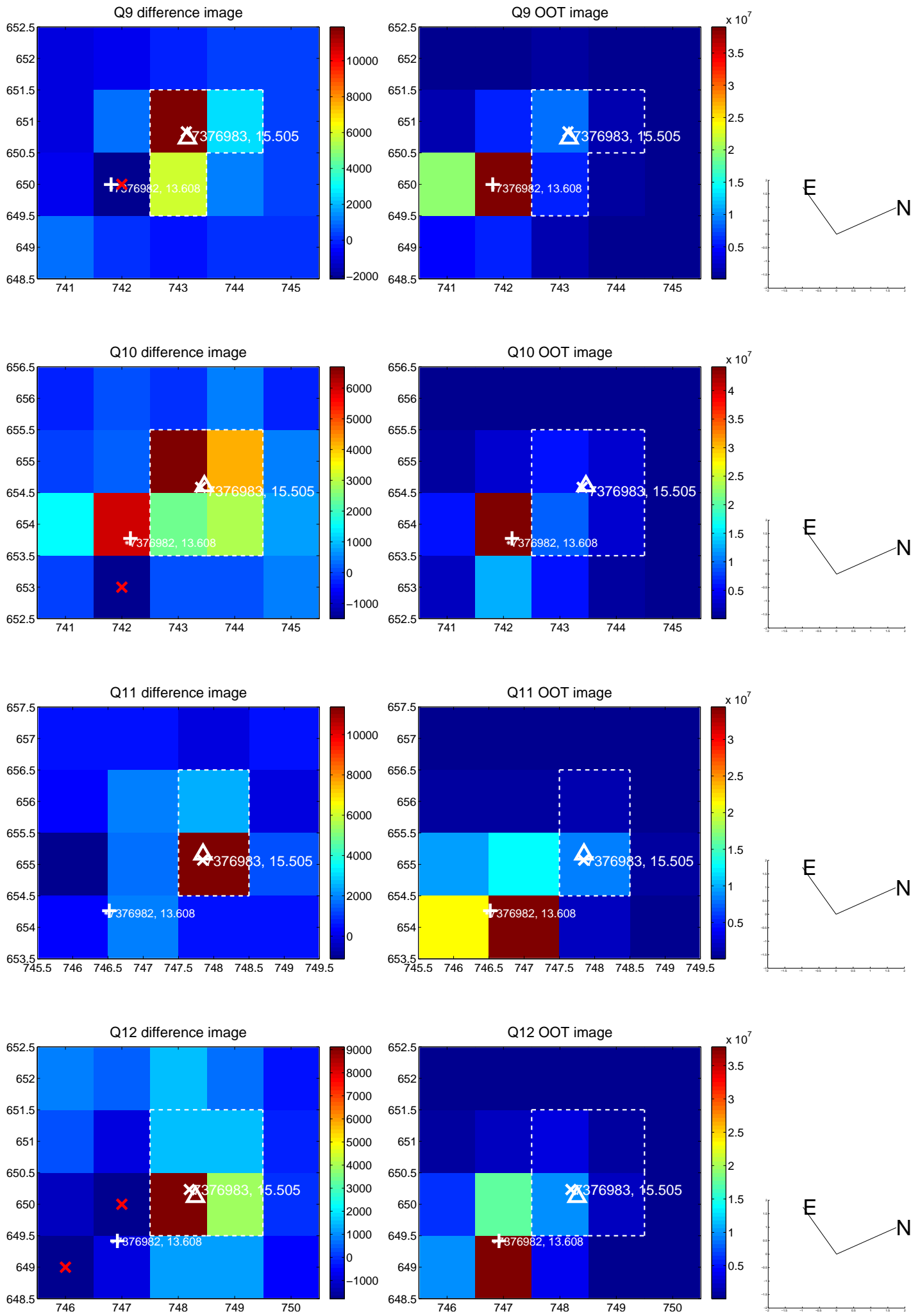
Q4 OOT image



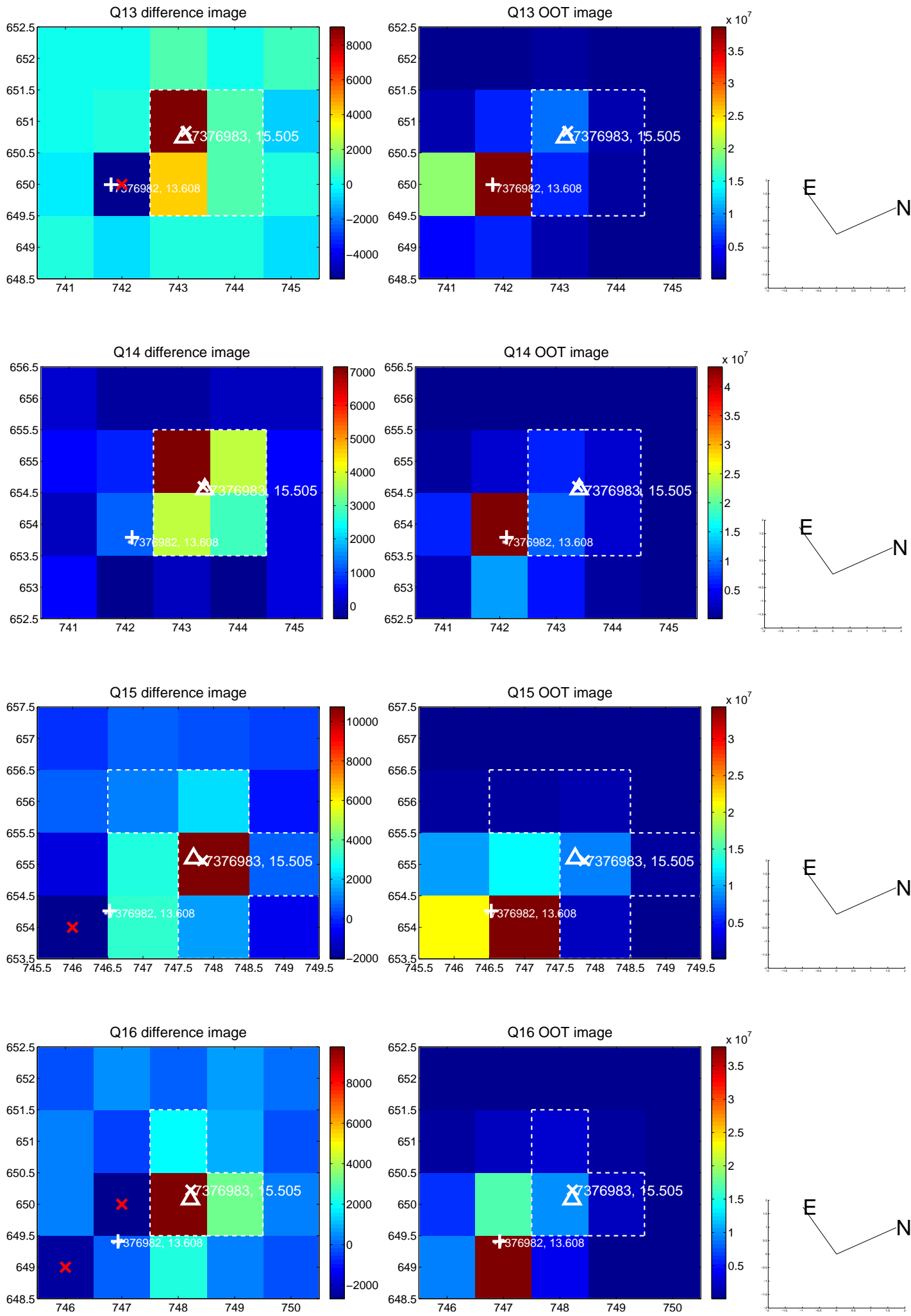
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



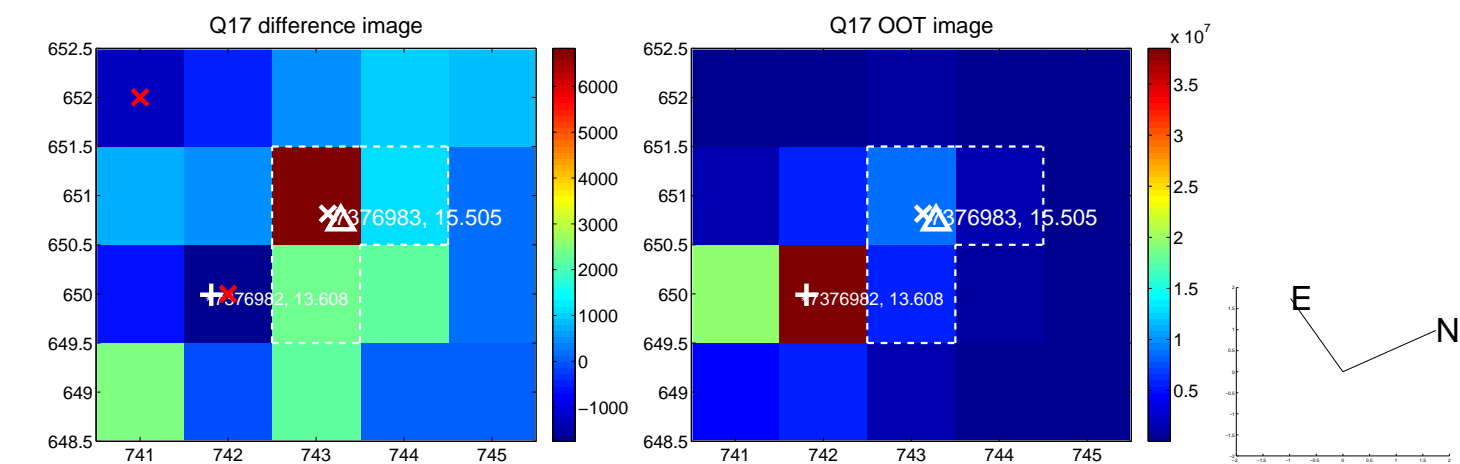
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



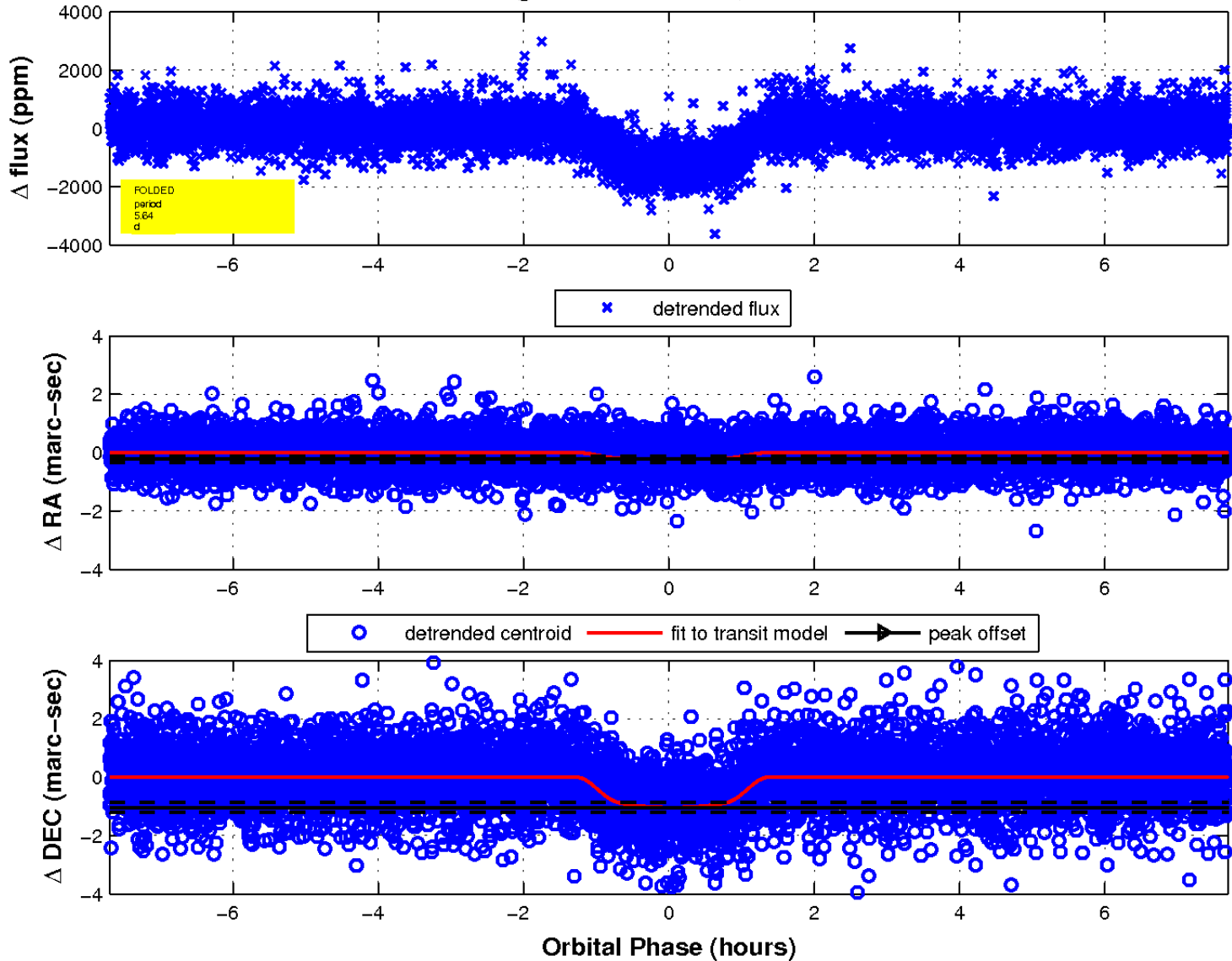
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

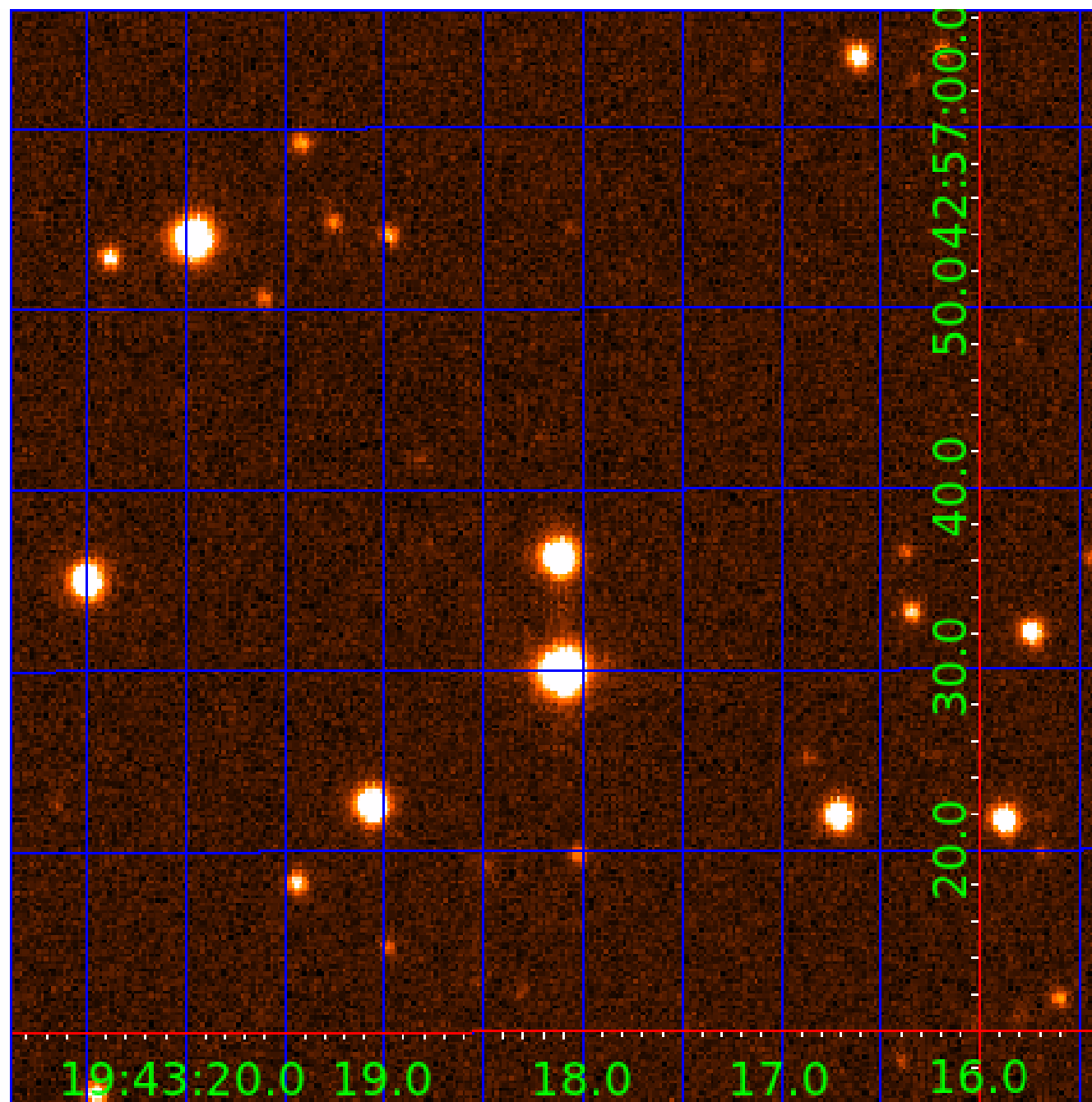


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 007376983

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})
007376983-01	OBS	1358.01	5.644892	136.588671	1378.1	2.566	51.4	57.3	0.71	4769	3.27	72.48
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007376983-04	OBS	1358.04	2.345860	133.600976	294.7	1.794	14.6	16.6	0.71	4769	1.51	233.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007376983-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-03	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-04	OBS	PC	0.93	0	0	0	0	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.

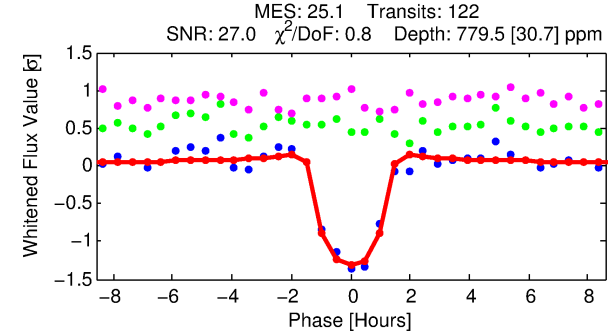
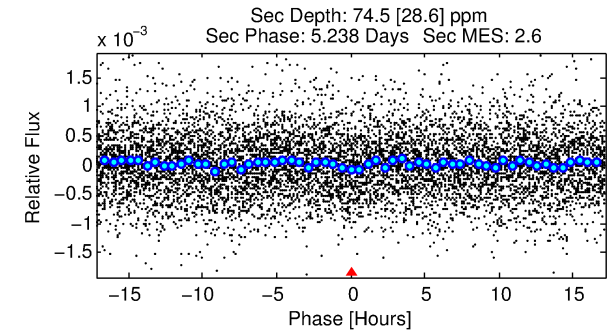
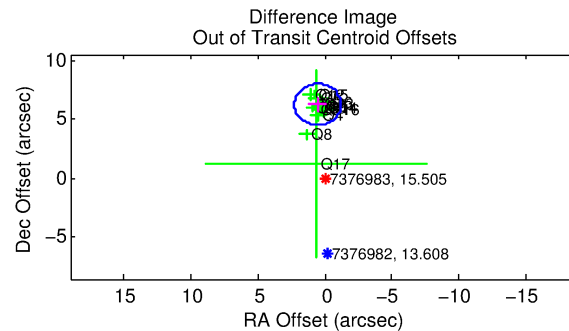
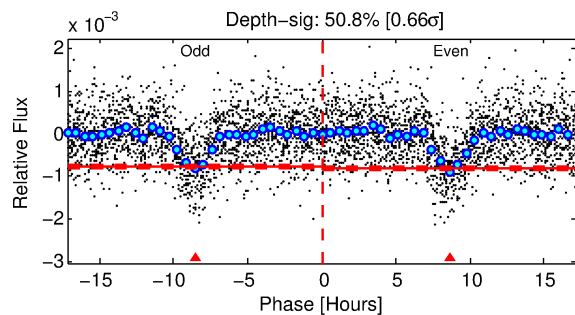
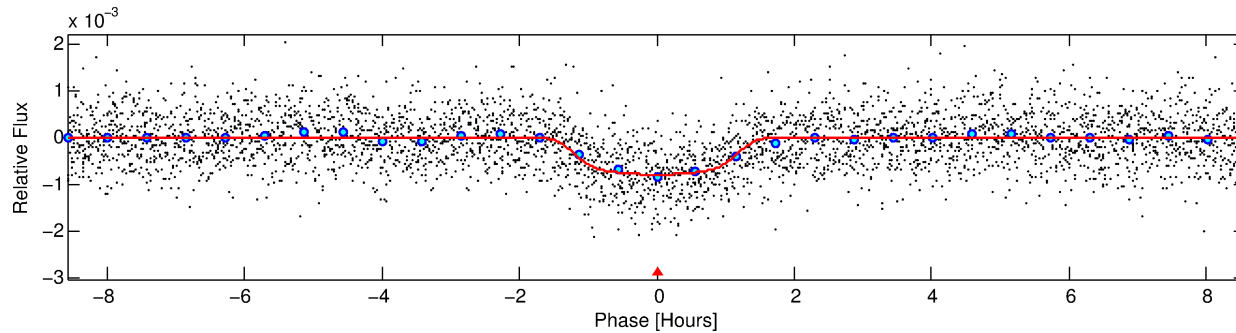
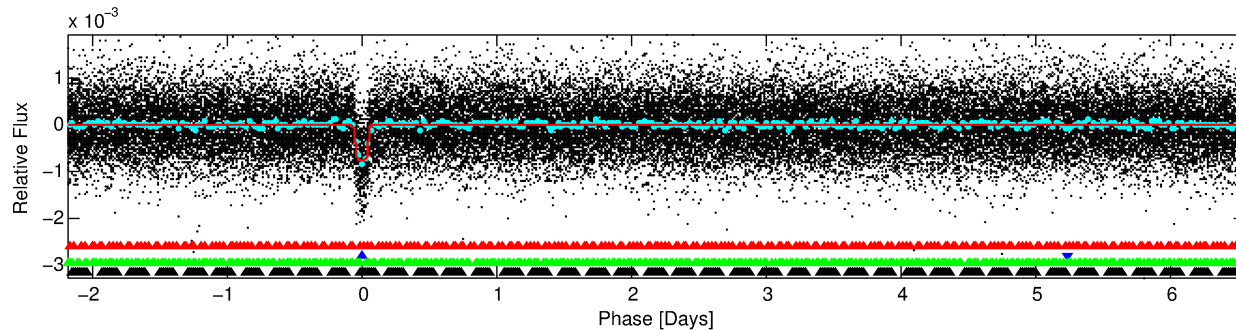
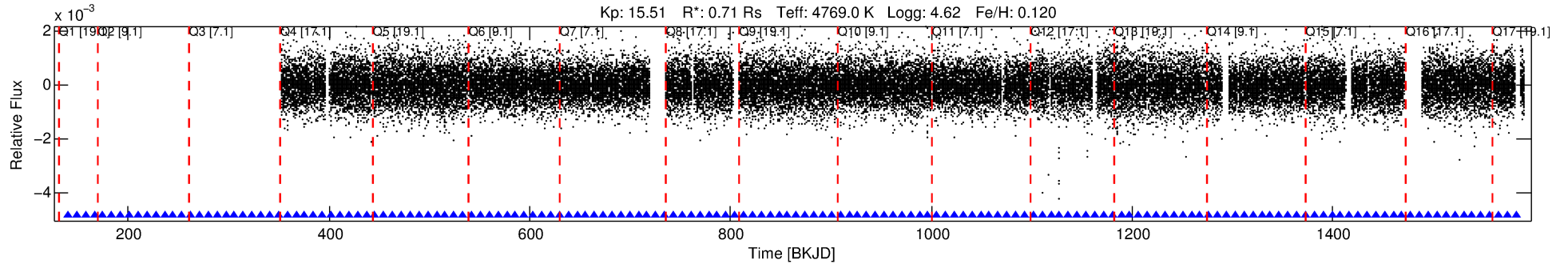
Ephemeris Match Information For 007376983-02

No Significant Match Found

DV One-Page Summary

KIC: 7376983 Candidate: 2 of 4 Period: 8.743 d
KOI: K01358.02 Corr: 0.946

Kp: 15.51 R*: 0.71 Rs Teff: 4769.0 K Logg: 4.62 Fe/H: 0.120



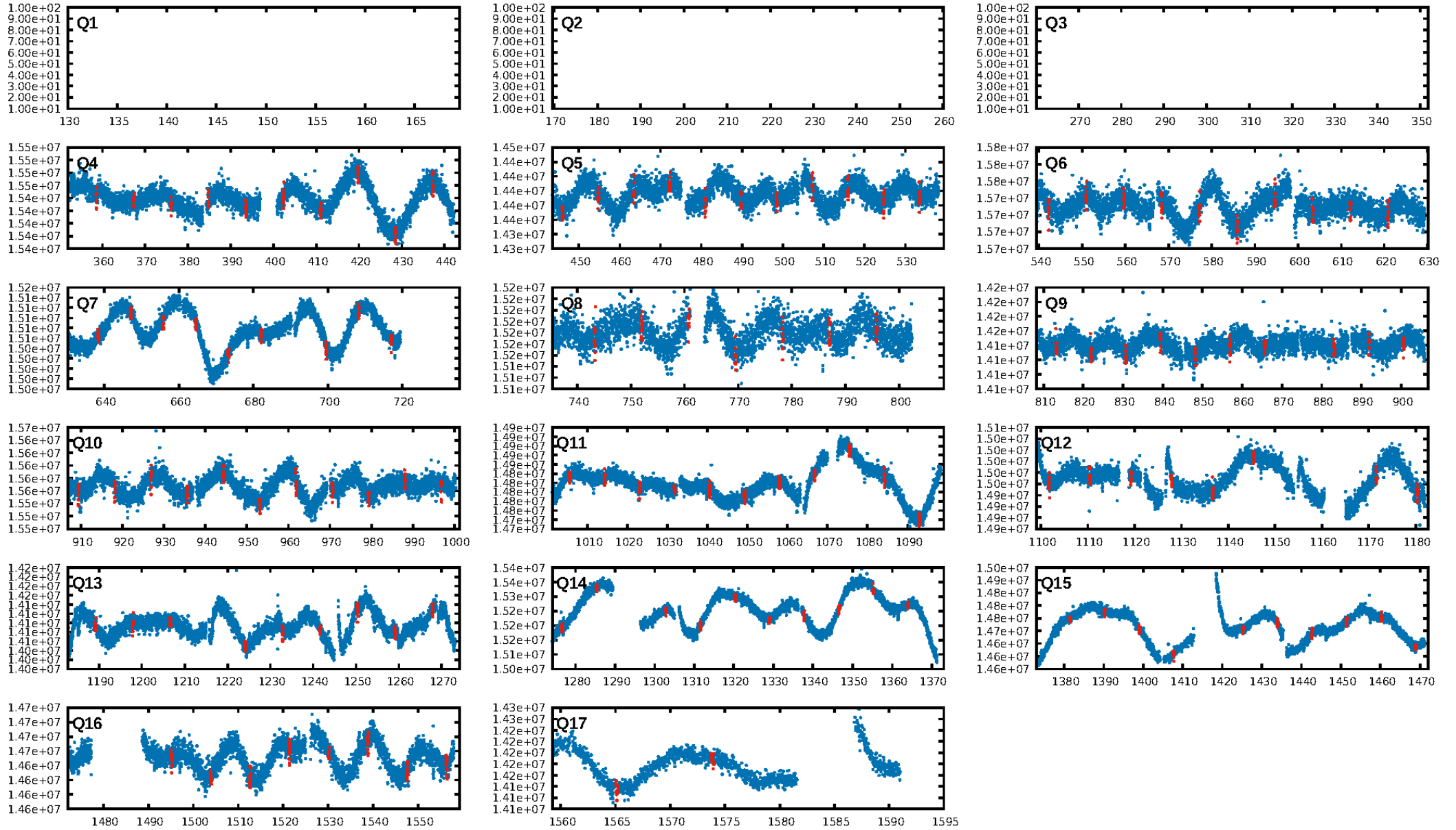
DV Fit Results:

Period = 8.74297 [0.00003] d
Epoch = 140.0142 [0.0027] BKJD
Rp/R* = 0.0315 [0.0036]
a/R* = 11.80 [4.72]
b = 0.90 [0.09]
Seff = 40.44 [7.38]
Teq = 643 [29] K
Rp = 2.45 [0.36] Re
a = 0.0764 [0.0060] AU
Ag = 39.79 [18.27] [2.12σ]
Teff = 2497 [292] K [6.31σ]

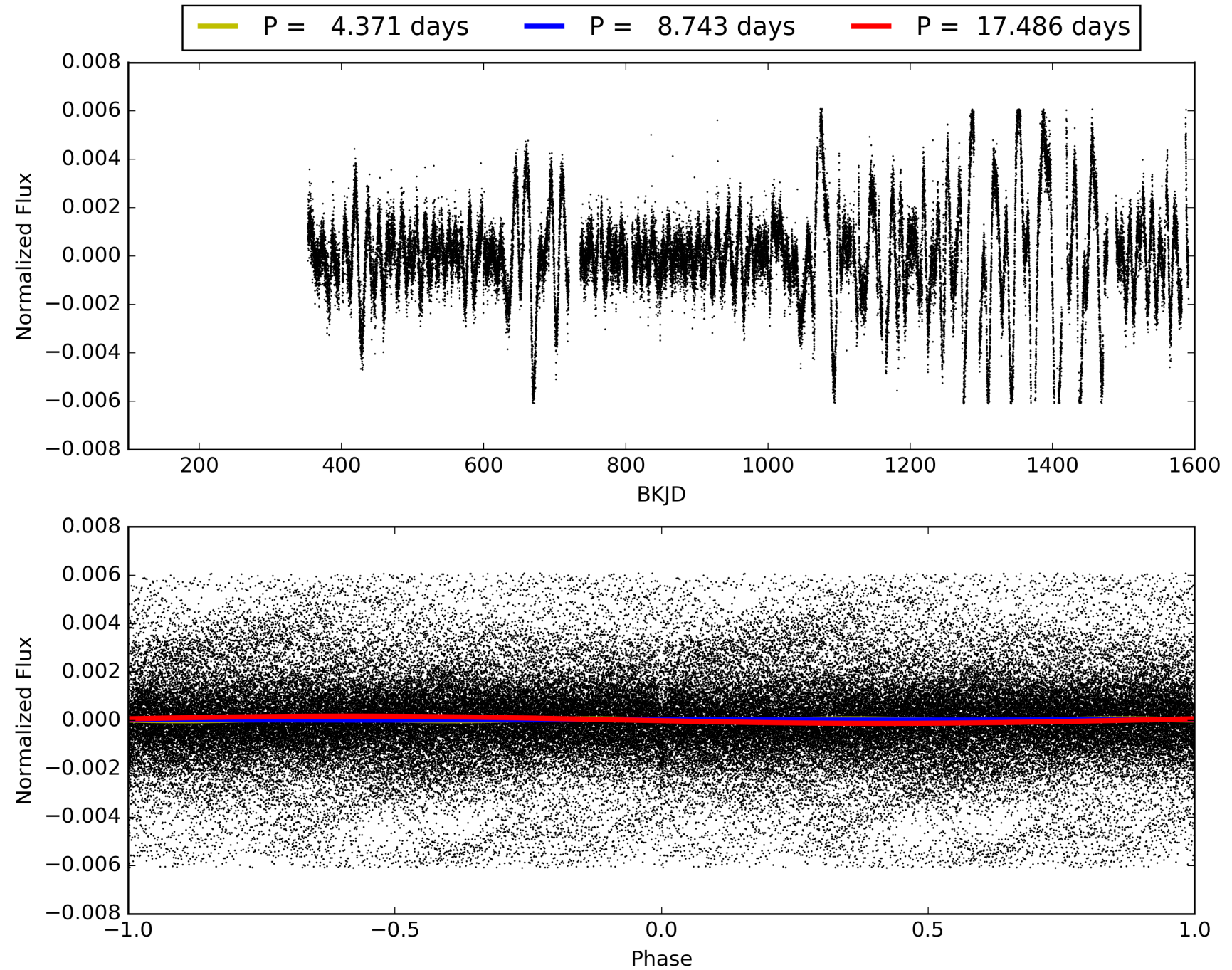
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.35σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.69e-129
RollingBand-fgt: 1.00 [120/120]
GhostDiagnostic-chr: 4.382
Centroid-sig: 0.0%
Centroid-so: 3.528 arcsec [26.16σ]
OotOffset-rm: 6.287 arcsec [10.80σ]
KicOffset-rm: 0.336 arcsec [0.56σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 007376983-02, PDC Light Curves

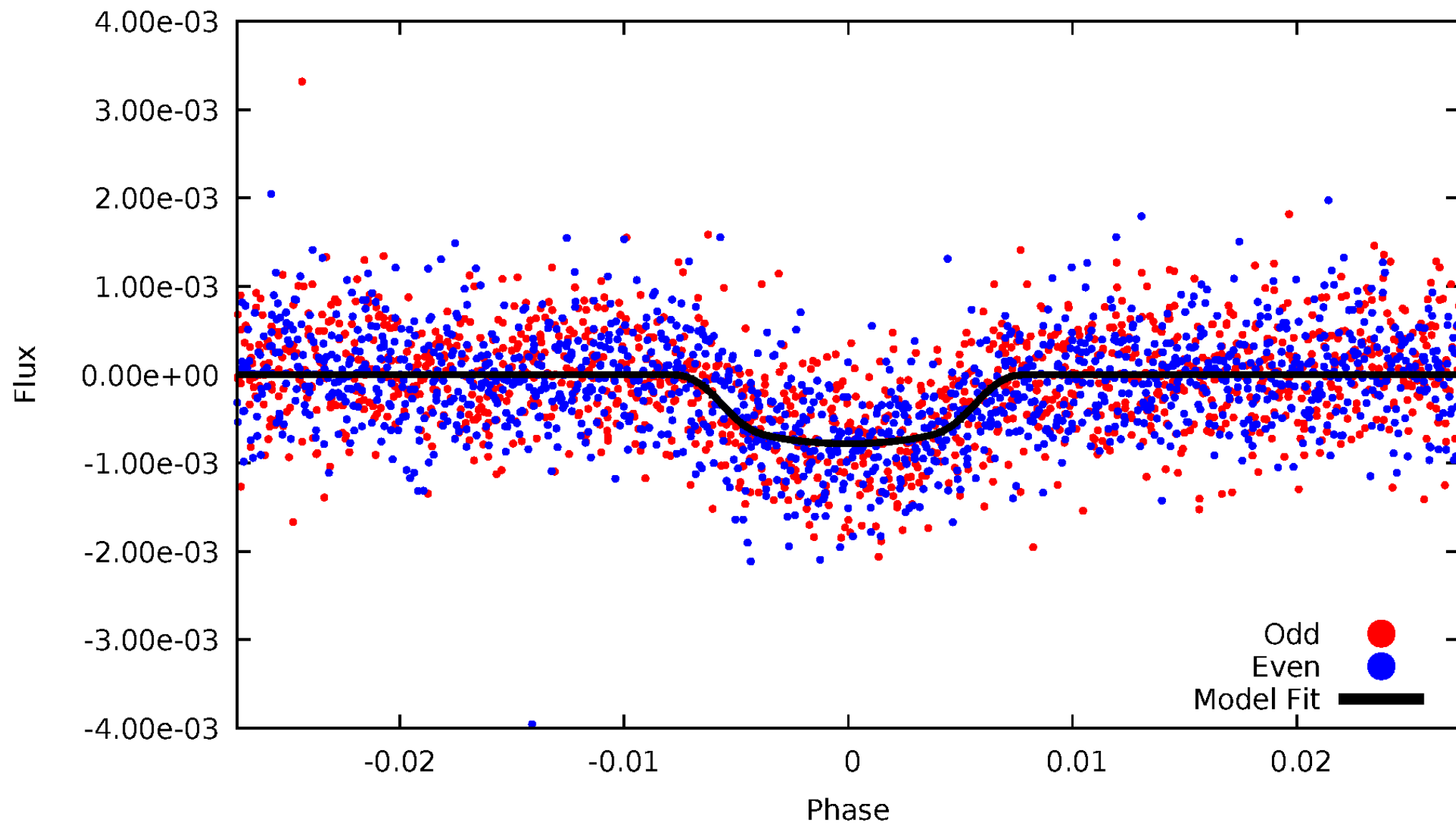


TCE 007376983-02



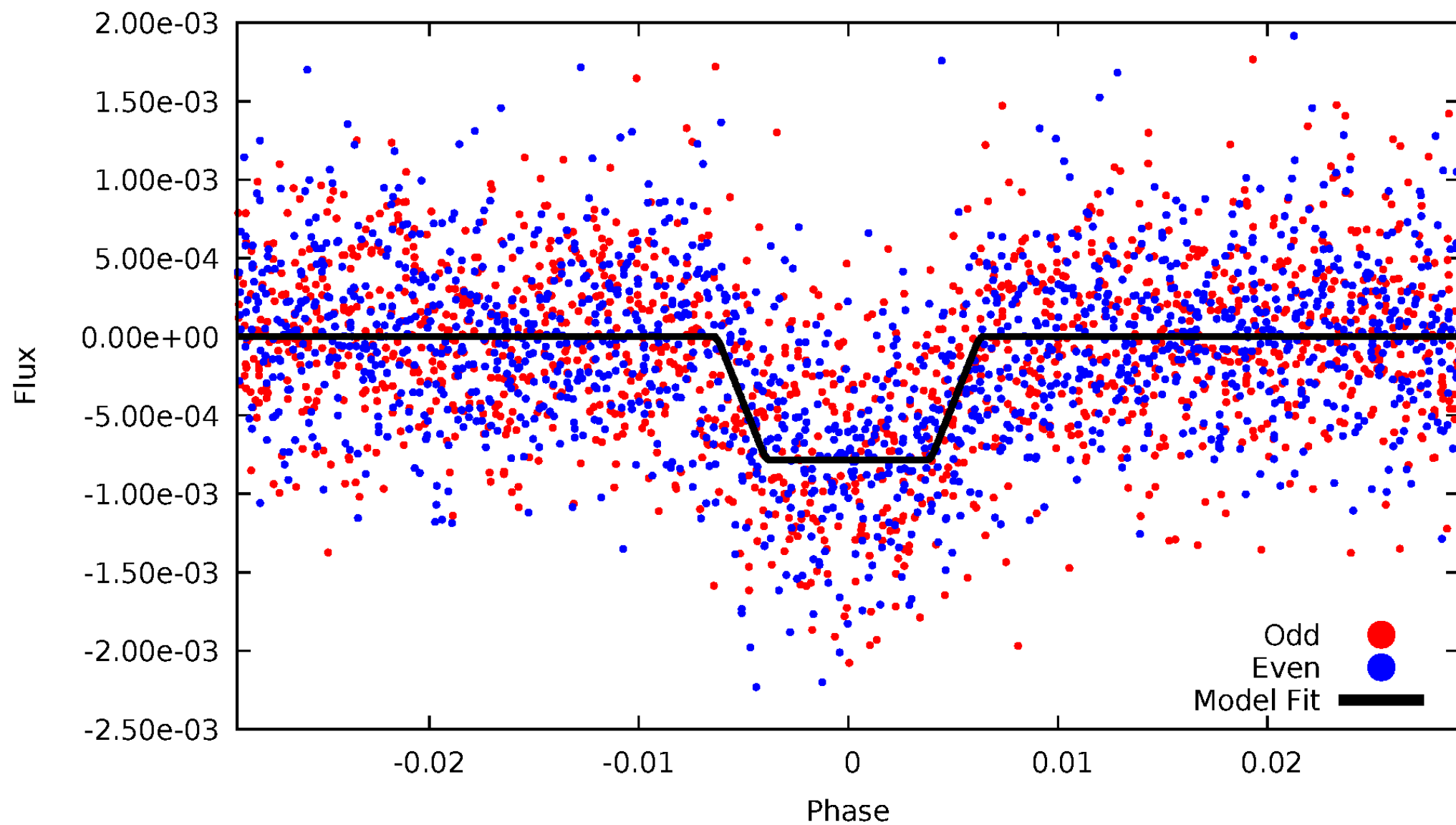
DV Odd/Even

TCE 007376983-02



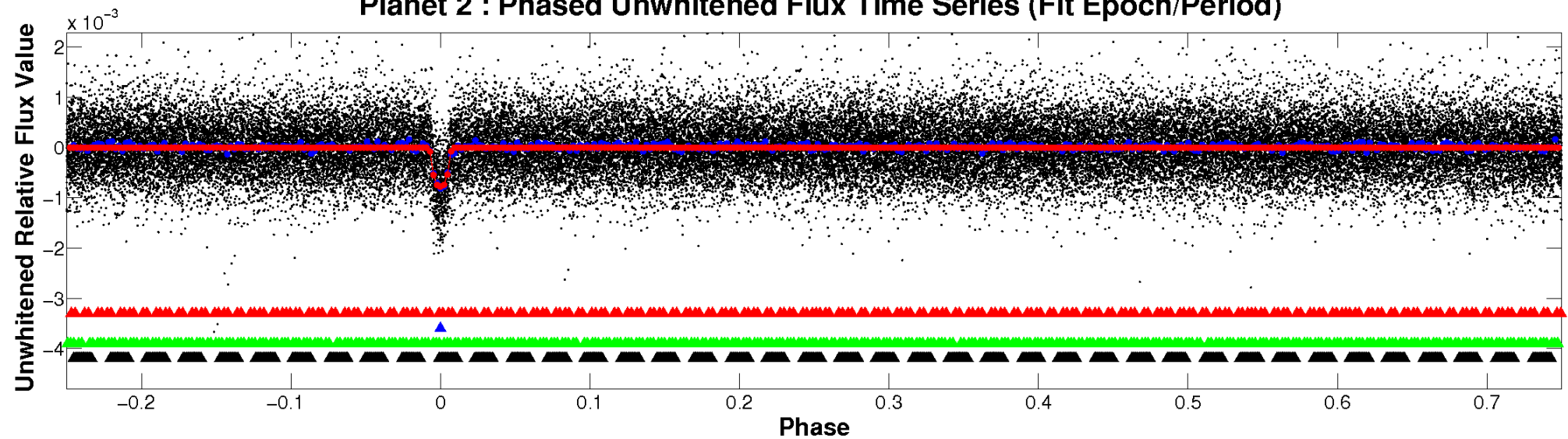
ALT Odd/Even

TCE 007376983-02

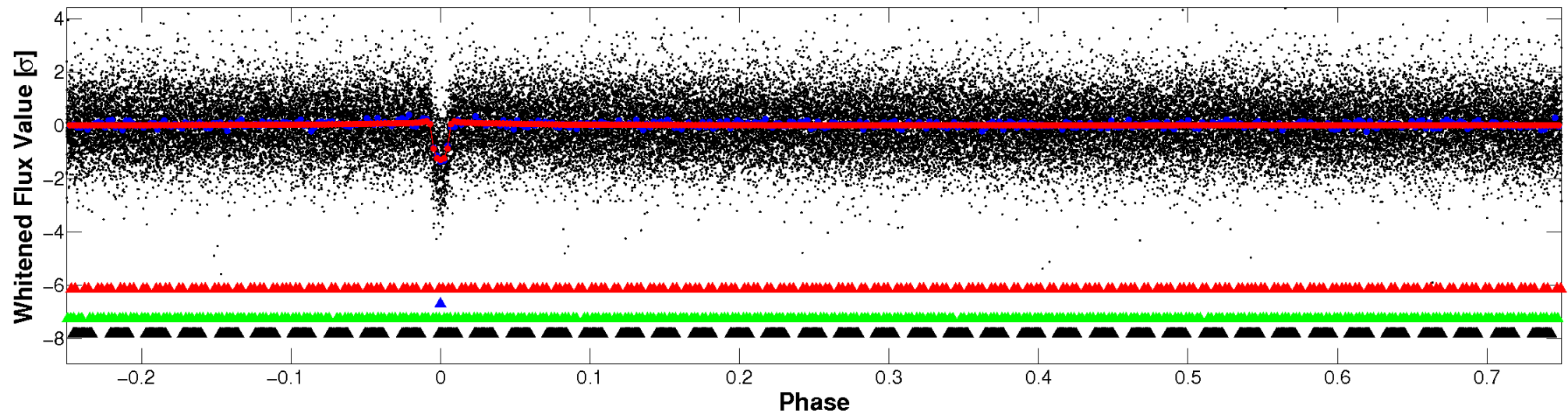


Non-Whitened Vs. Whitened Light Curve

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

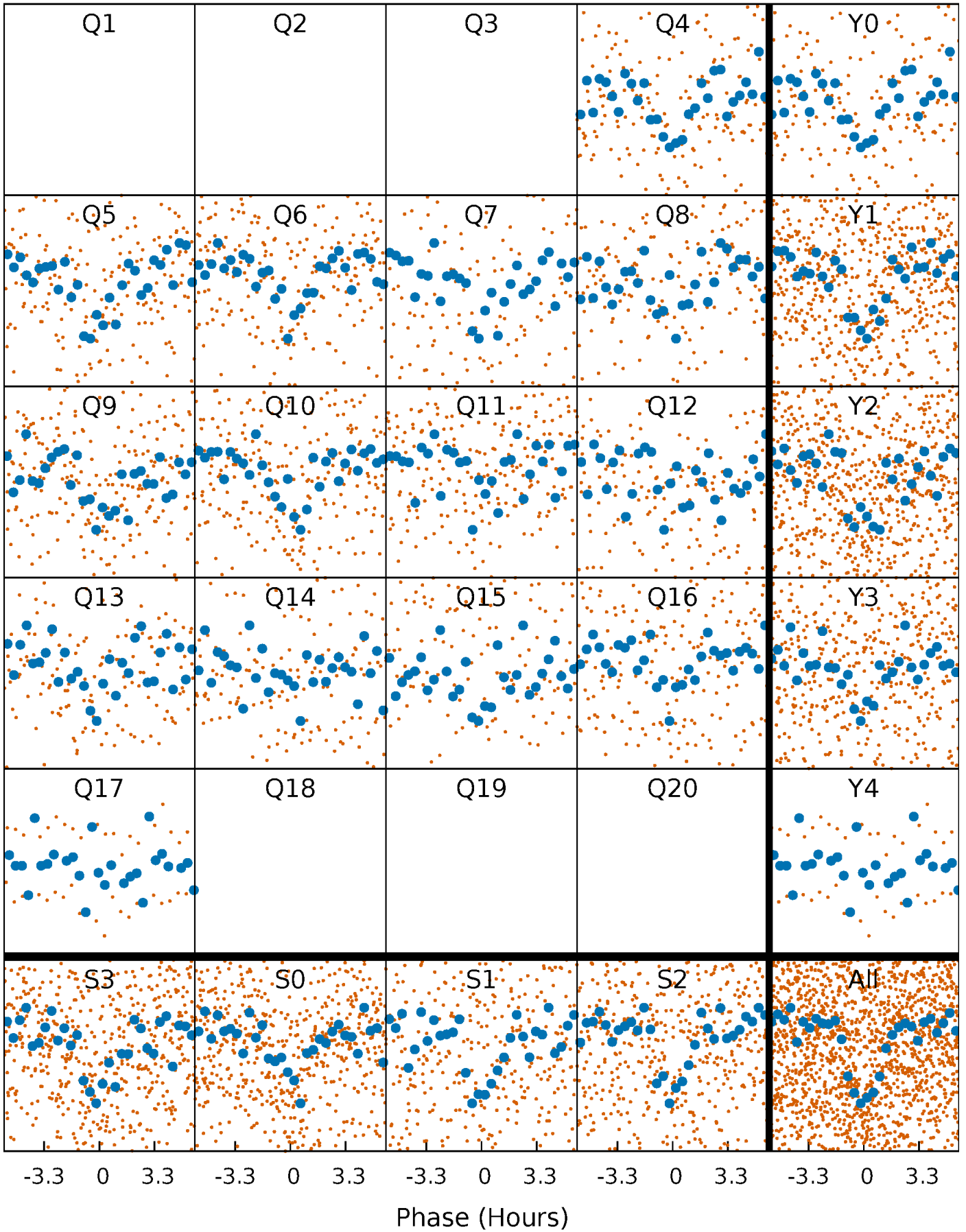


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



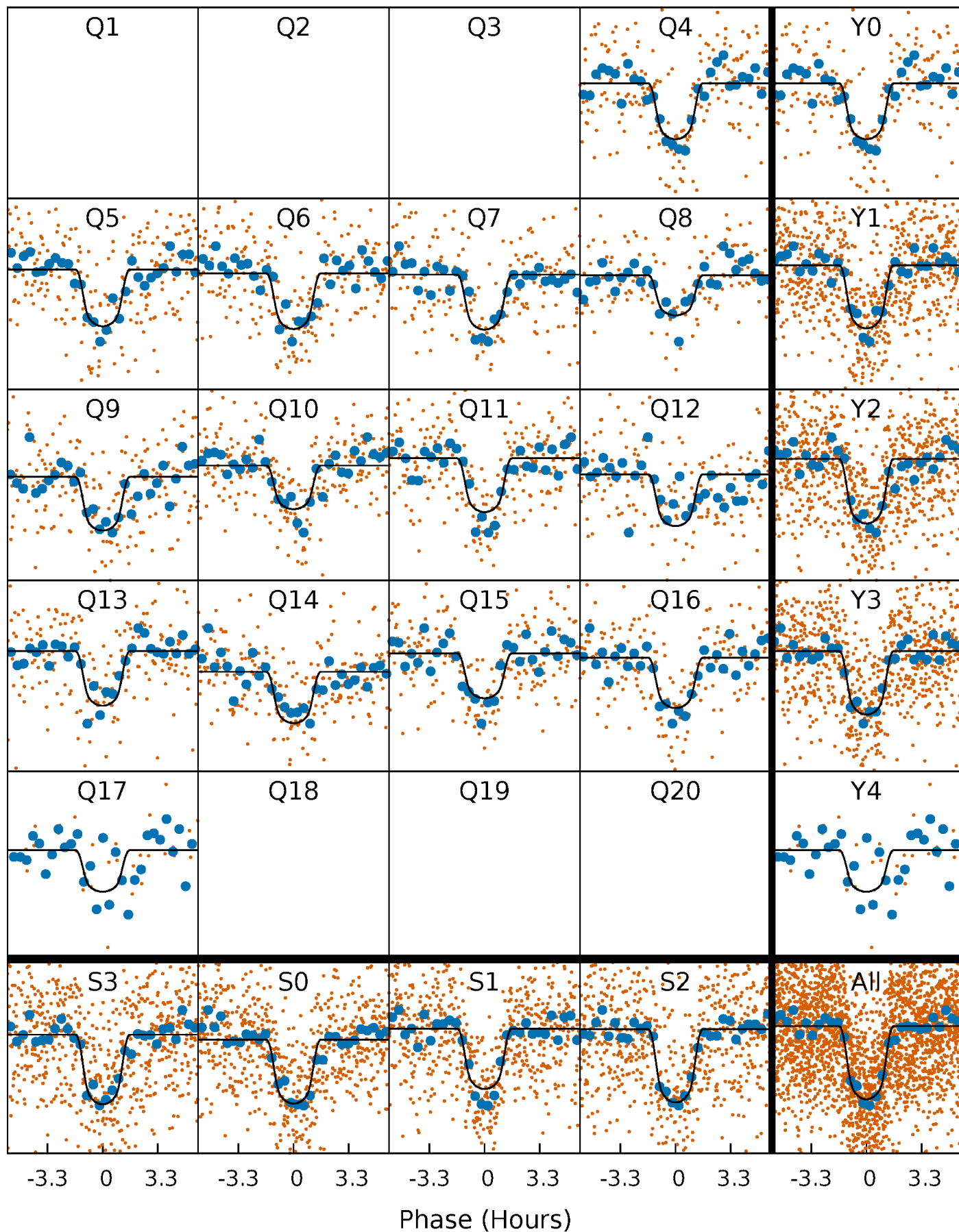
PDC Quarter-Phased Transit Curves

TCE 007376983-02 P= 8.742971 Days $T_0=140.014230$ (BKJD)



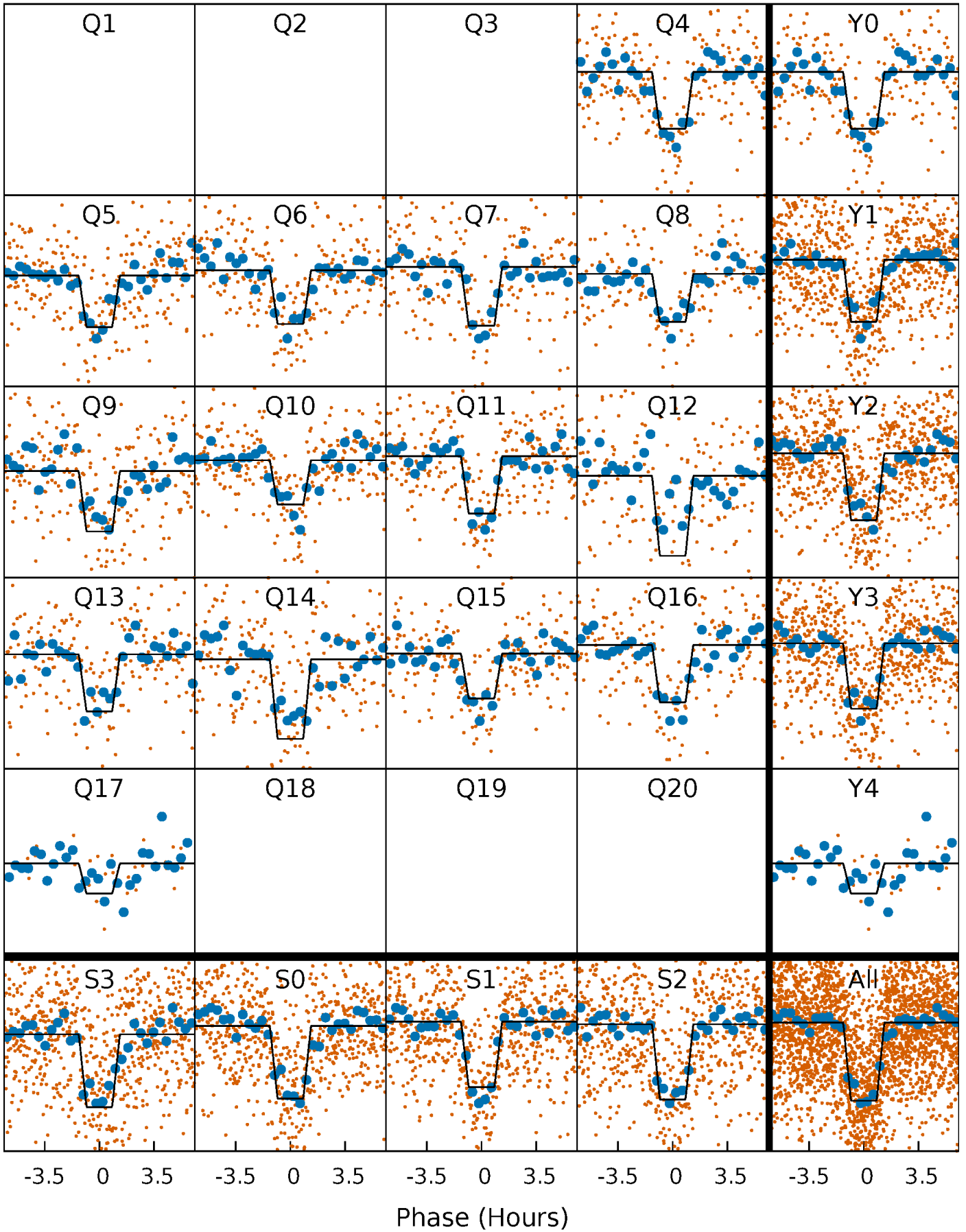
DV Quarter-Phased Transit Curves

TCE 007376983-02 P= 8.742971 Days $T_0=140.014230$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

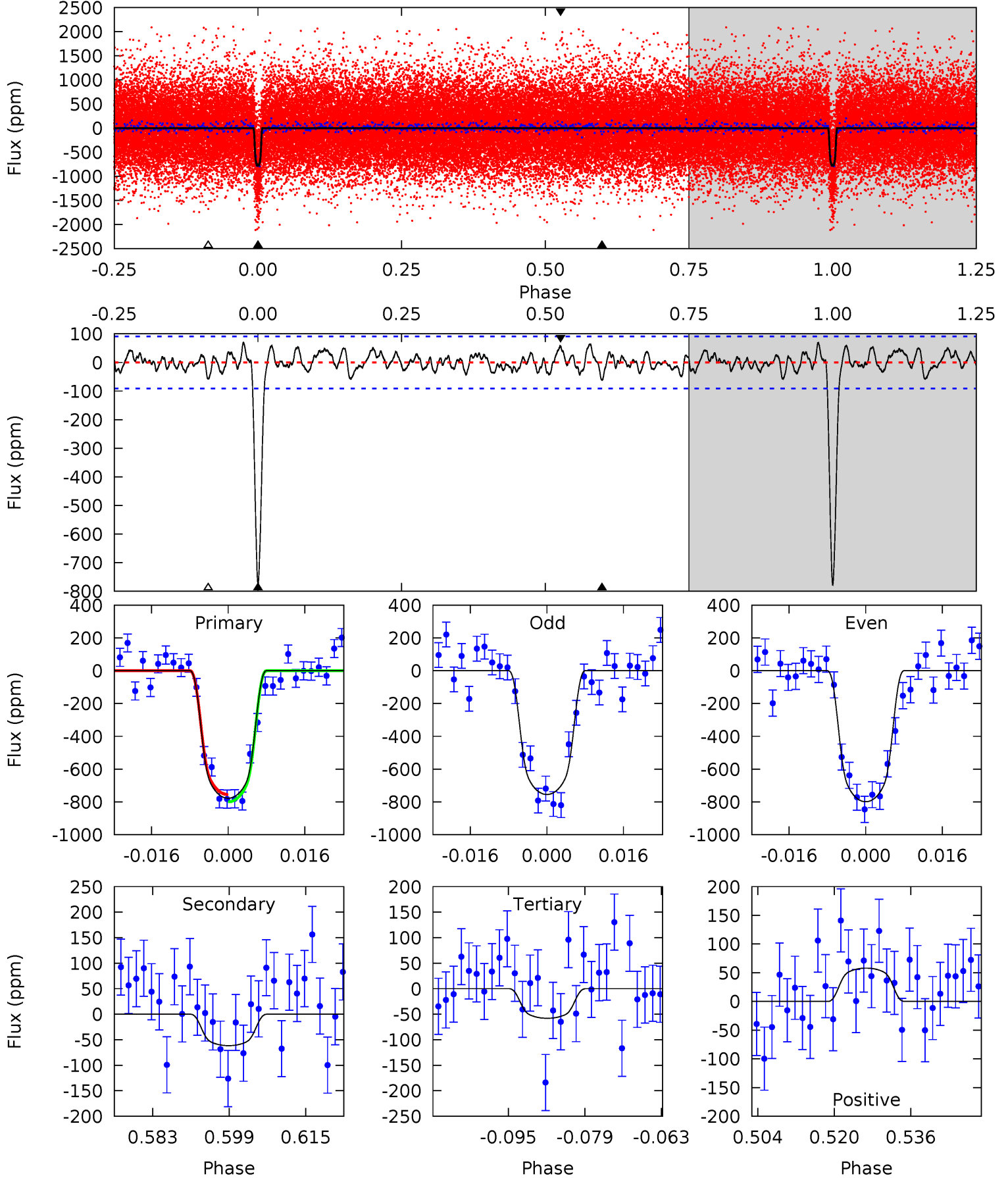
TCE 007376983-02 P= 8.742941 Days $T_0=140.018473$ (BKJD)



DV Model-Shift Uniqueness Test

007376983-02, P = 8.742971 Days, E = 140.014230 Days

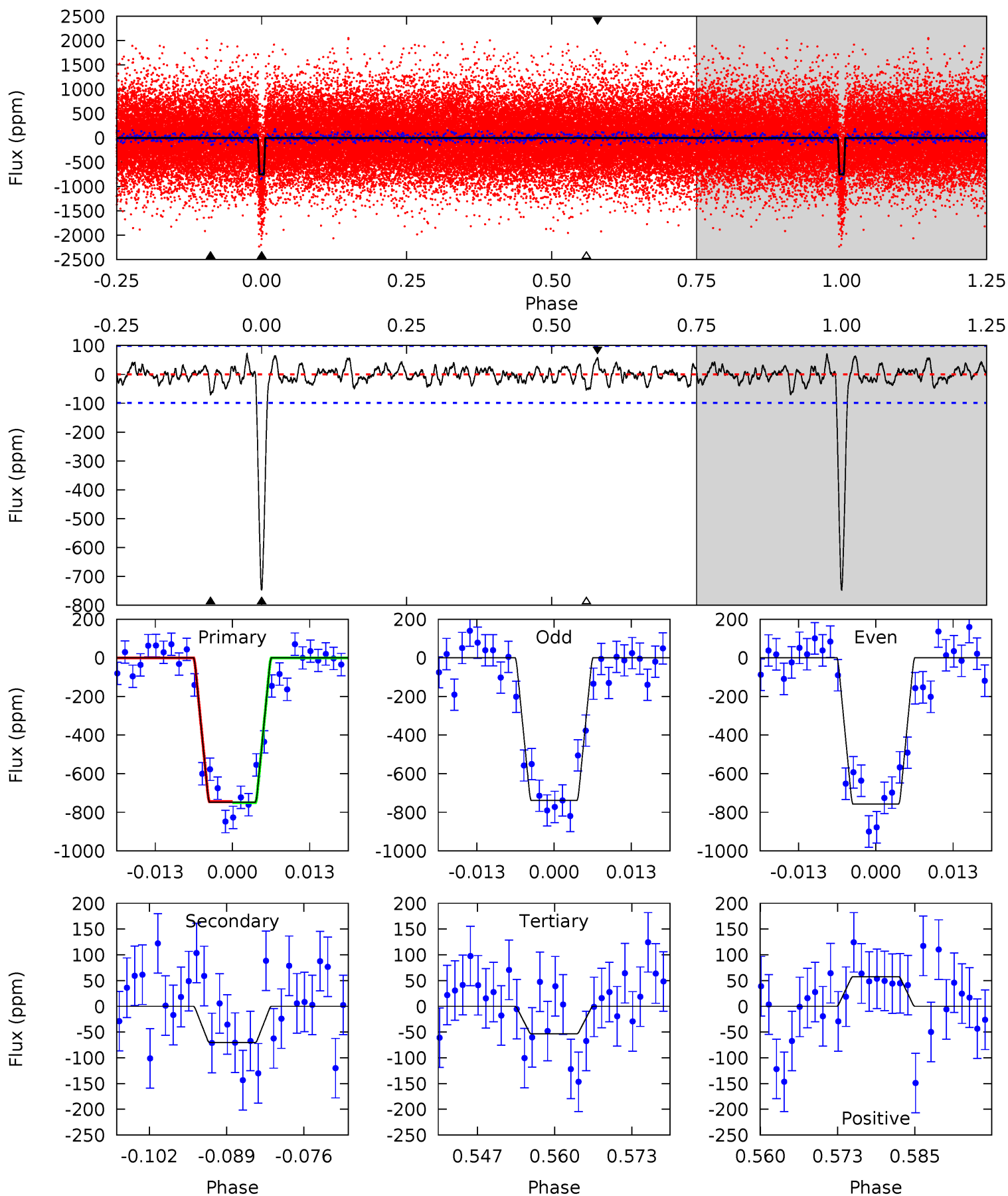
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.2	3.34	3.14	3.15	4.94	2.41	1.31	39.0	39.0	0.20	0.19	1.20	0.97	0.08	1.21



Alt Model-Shift Uniqueness Test

007376983-02, P = 8.742941 Days, E = 140.018473 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.6	3.54	2.69	2.90	4.98	2.49	1.07	34.9	34.7	0.85	0.64	0.48	1.00	0.09	0.15



Stellar Parameters For KIC 007376983

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4769^{+172}_{-172}	$4.622^{+0.024}_{-0.060}$	$0.120^{+0.250}_{-0.300}$	$0.714^{+0.068}_{-0.049}$	$0.799^{+0.041}_{-0.081}$	$3.091^{+0.398}_{-0.665}$
	+4%/-4%	+1%/-1%	+208%/-250%	+10%/-7%	+5%/-10%	+13%/-22%
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 007376983-02 / KOI 1358.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-62 ± 18	$2.49^{+0.33}_{-0.28}$	906^{+36}_{-37}	2978^{+164}_{-184}	31^{+14}_{-11}
Alt.	-70 ± 20	$2.19^{+0.30}_{-0.28}$	905^{+38}_{-36}	3144^{+215}_{-183}	46^{+22}_{-14}

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

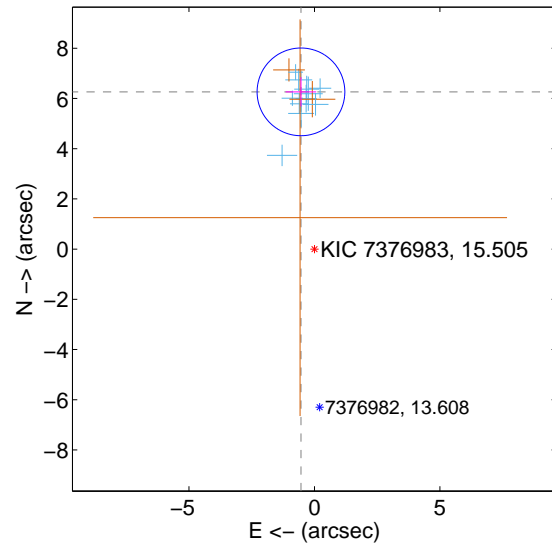
Supplemental centroid analysis for 007376983-02. Kepler magnitude: 15.51. Transit SNR 26.97

There are 11 quarters with good PRF difference image offsets

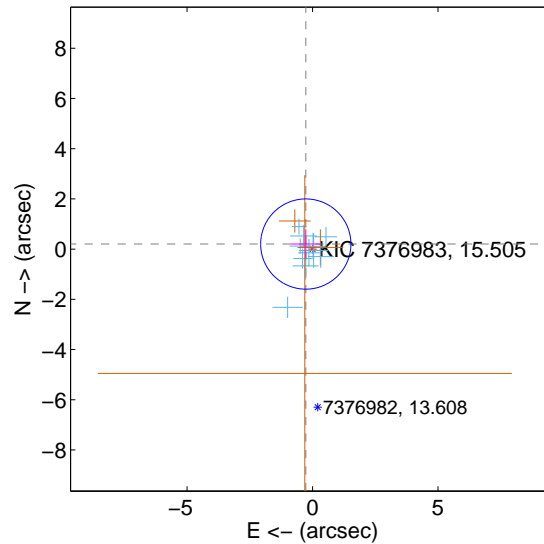
The OOT PRF centroid is offset from the target star catalog position by about 6.21 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.287 ± 0.582	10.80	0.537 ± 0.609	6.264 ± 0.582
PRF-fit source offset from KIC position	0.336 ± 0.599	0.56	0.268 ± 0.609	0.202 ± 0.582
photometric centroid source offset	3.53 ± 0.13	26.16	-0.64 ± 0.09	-3.47 ± 0.14

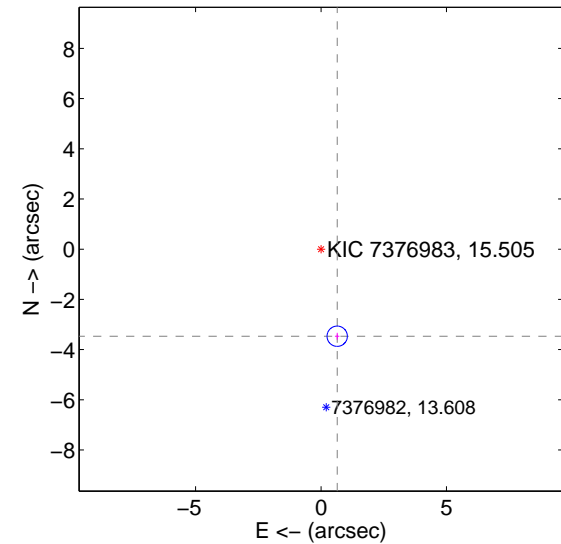
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

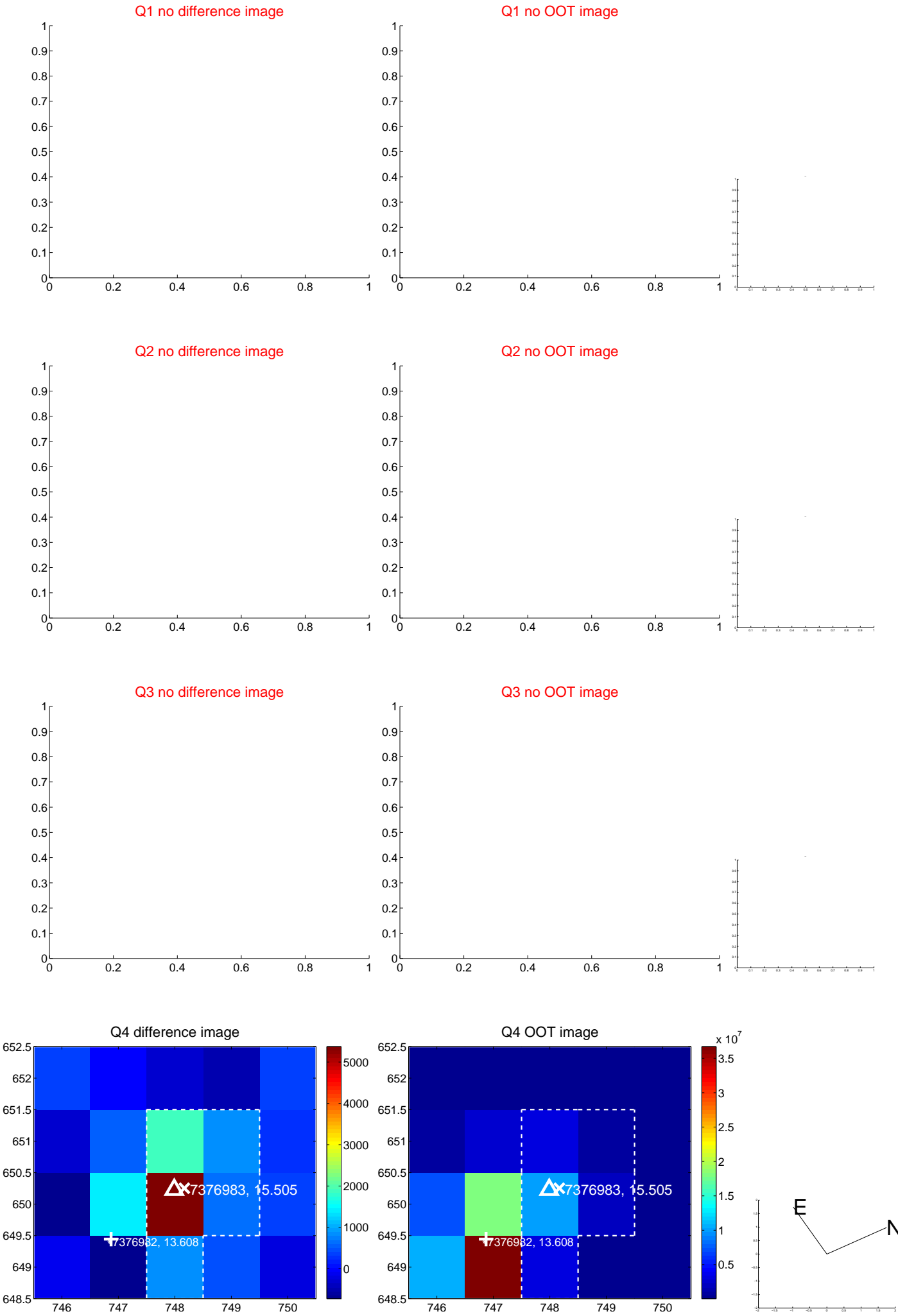


offset from photometric centroids

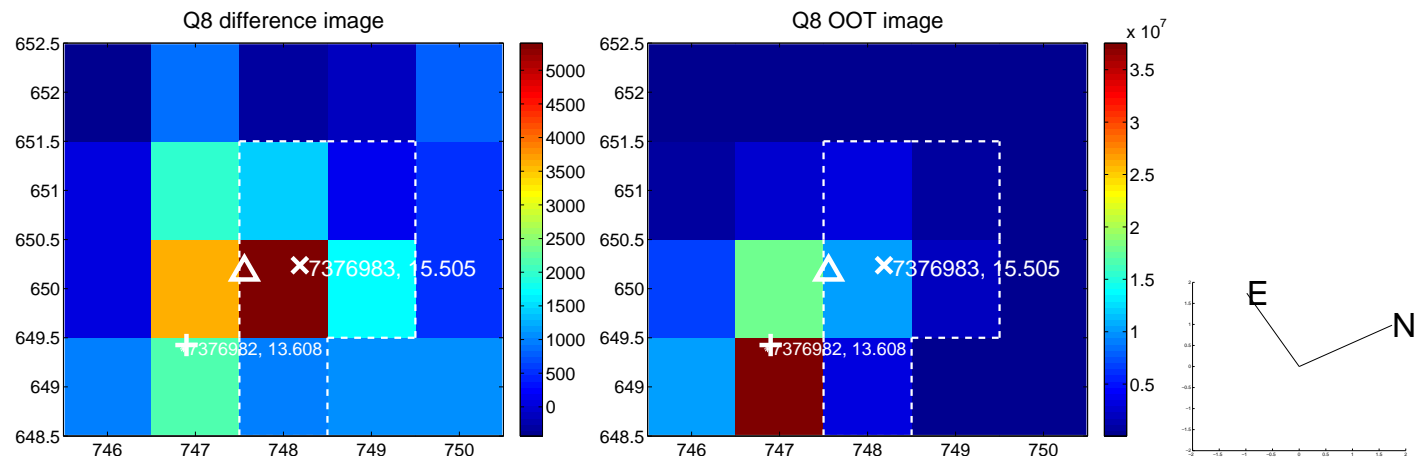
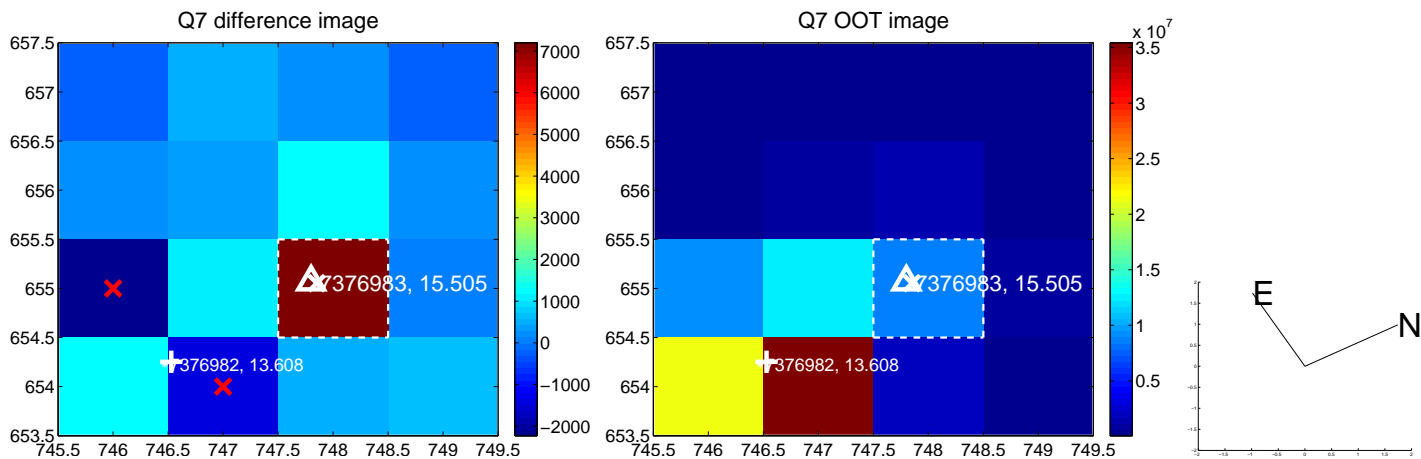
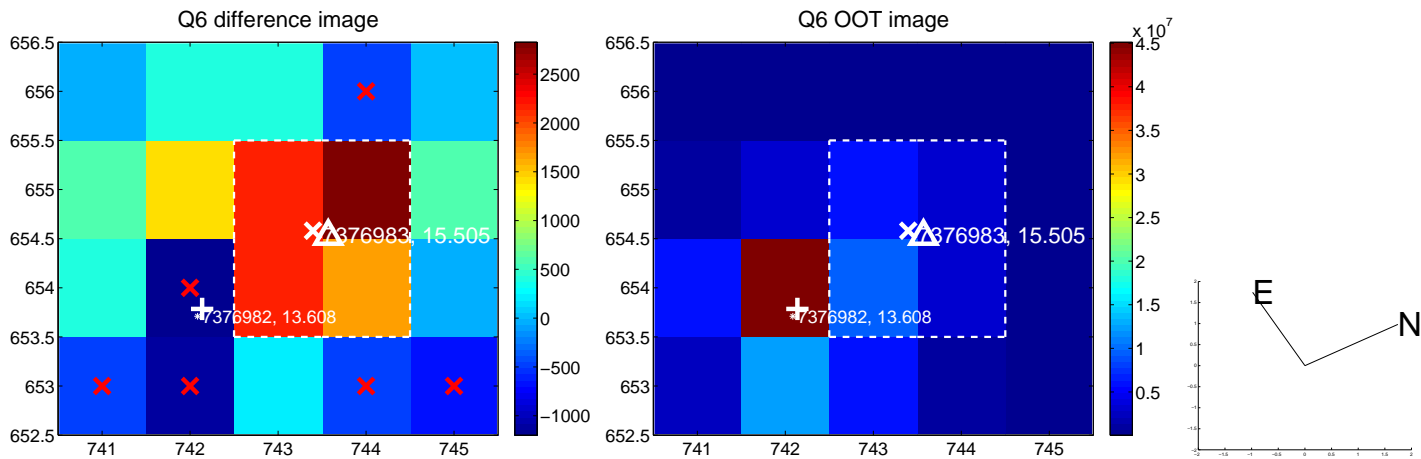
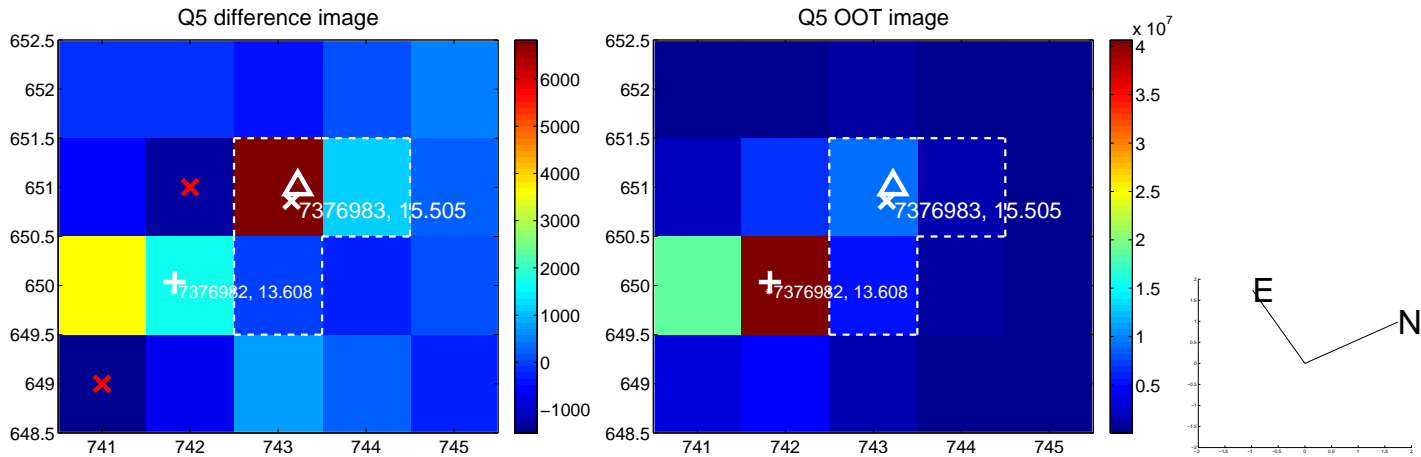


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

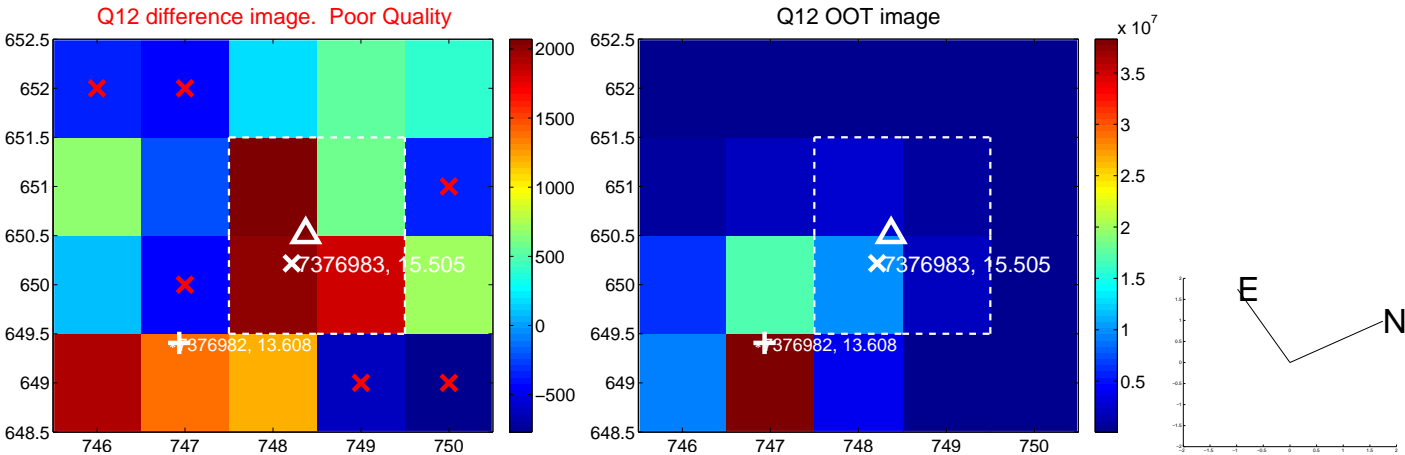
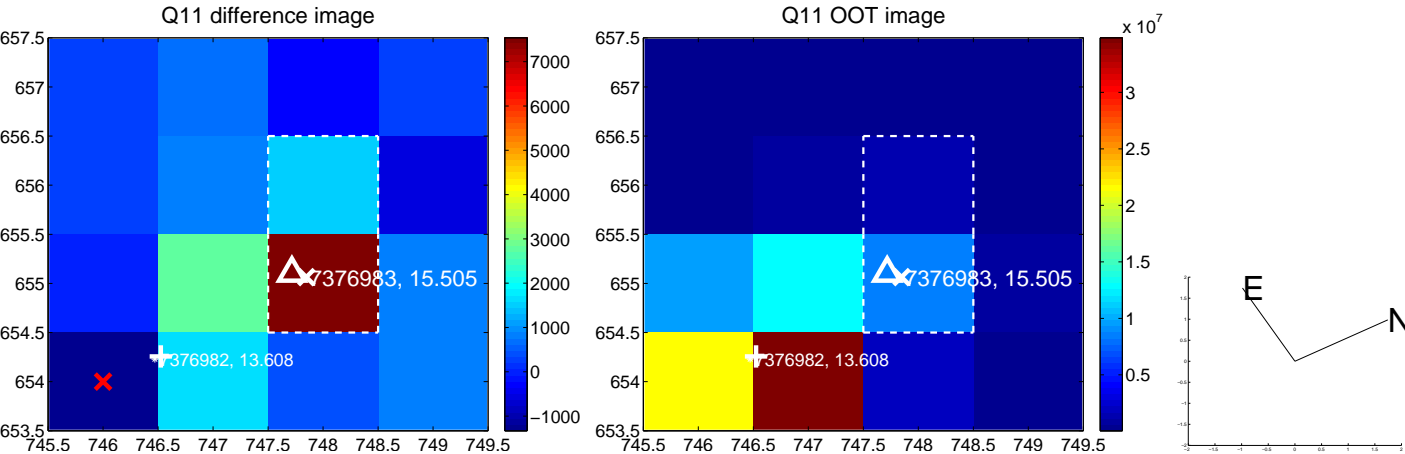
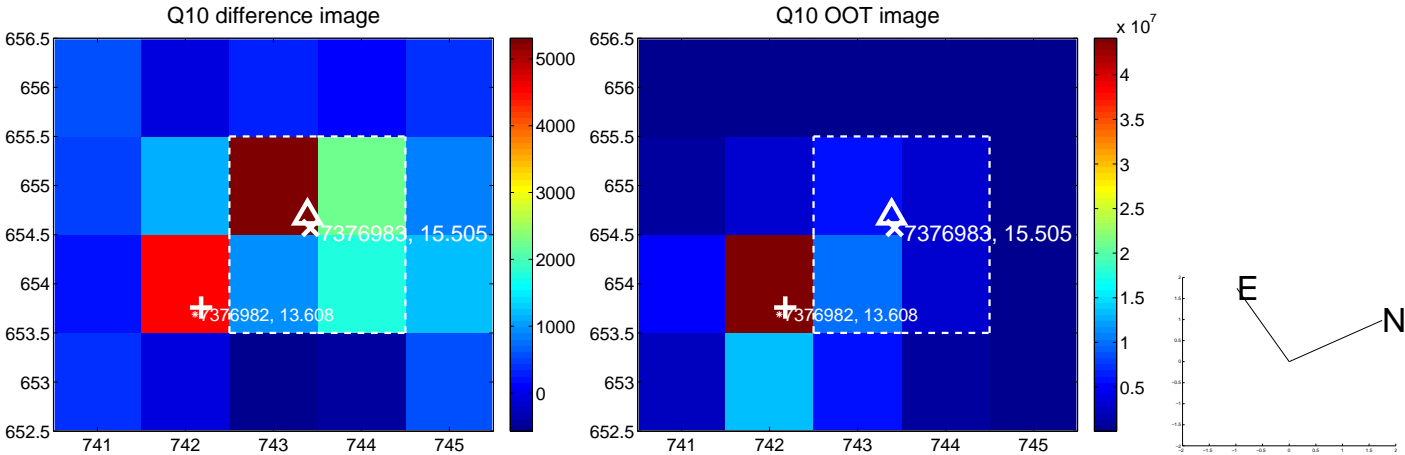
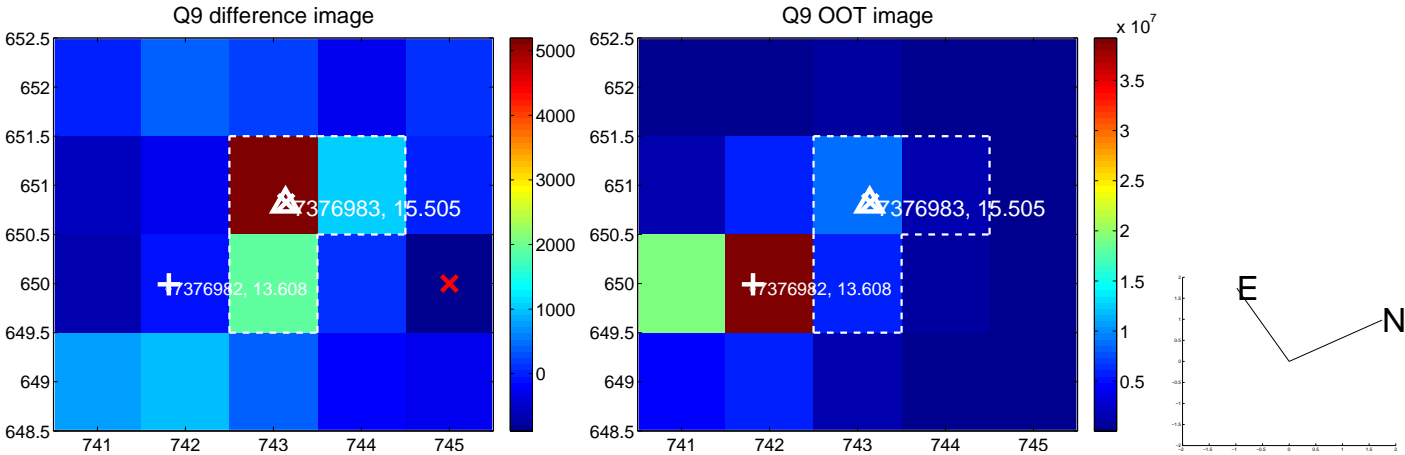
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



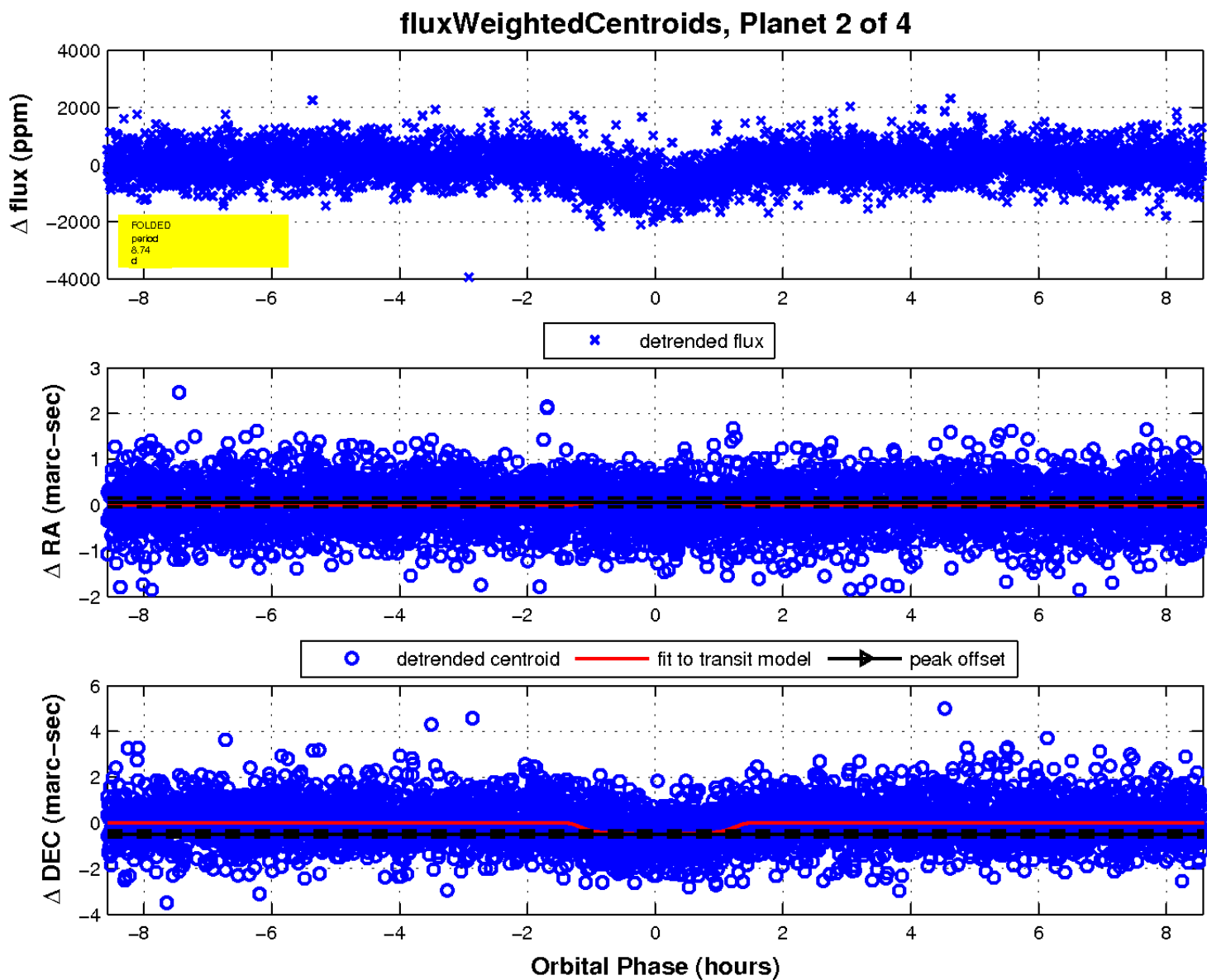
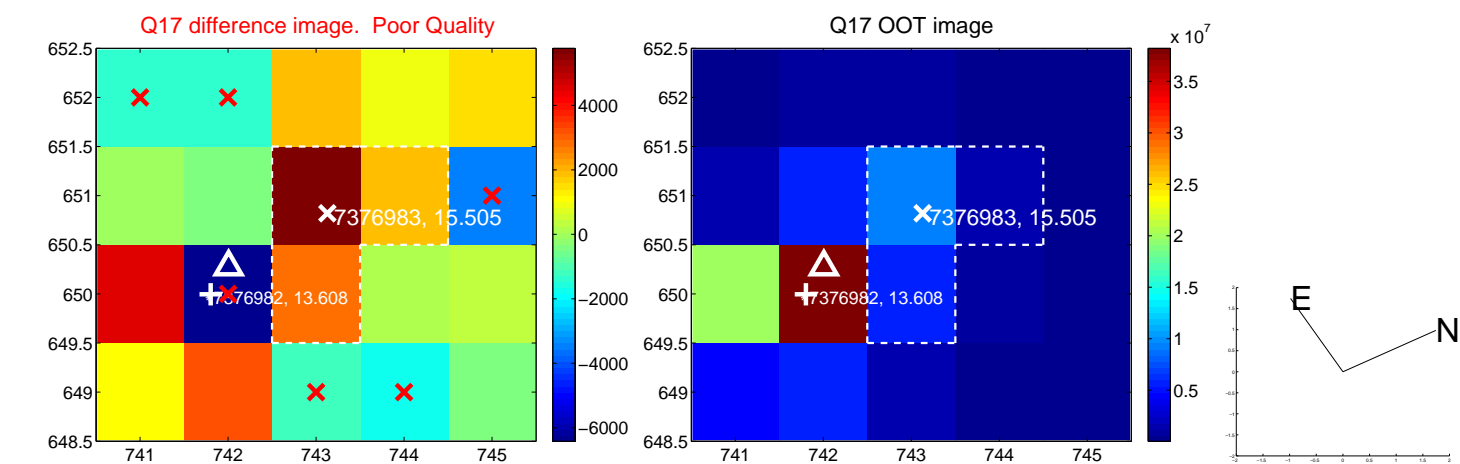
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

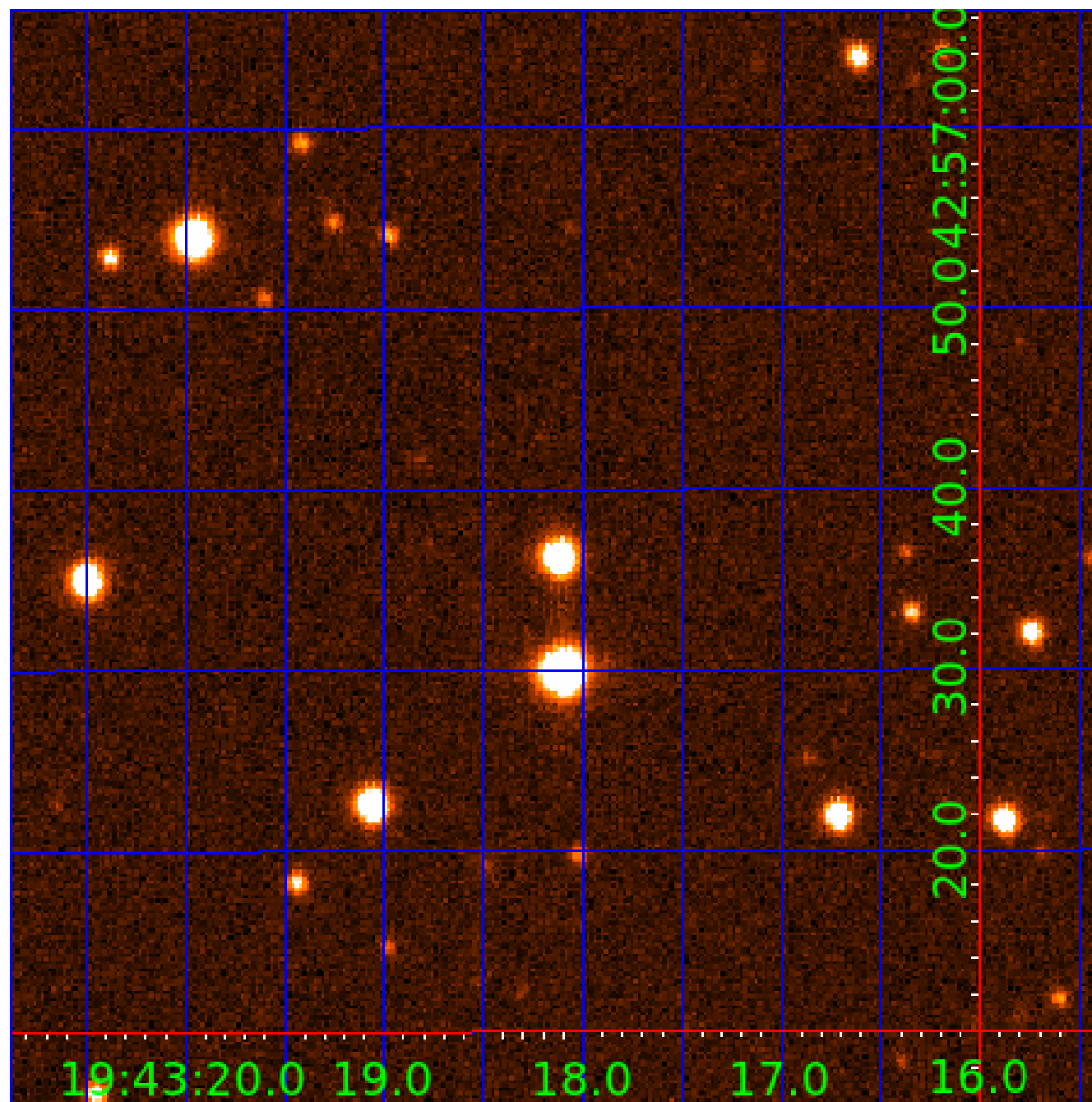


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007376983

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})
007376983-01	OBS	1358.01	5.644892	136.588671	1378.1	2.566	51.4	57.3	0.71	4769	3.27	72.48
007376983-02	OBS	1358.02	8.742971	140.014230	779.5	2.860	25.1	27.0	0.71	4769	2.45	40.44
007376983-03	OBS	1358.03	3.648274	132.850560	370.6	2.066	15.5	17.7	0.71	4769	1.70	129.70
007376983-04	OBS	1358.04	2.345860	133.600976	294.7	1.794	14.6	16.6	0.71	4769	1.51	233.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007376983-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-03	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-04	OBS	PC	0.93	0	0	0	0	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 007376983-03

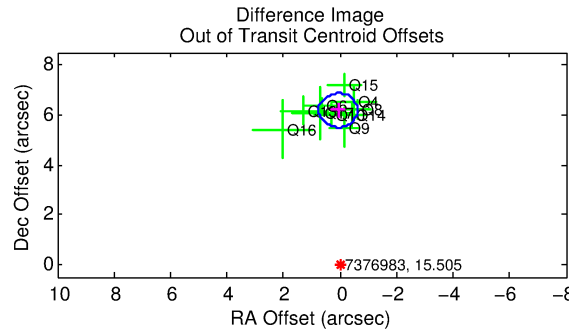
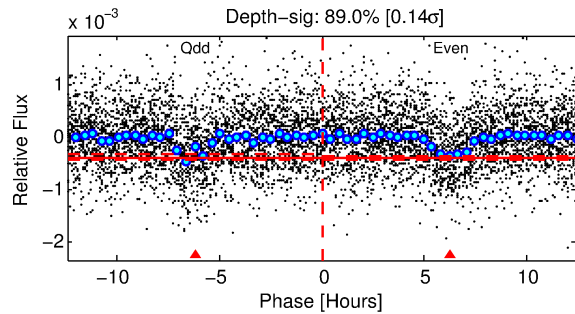
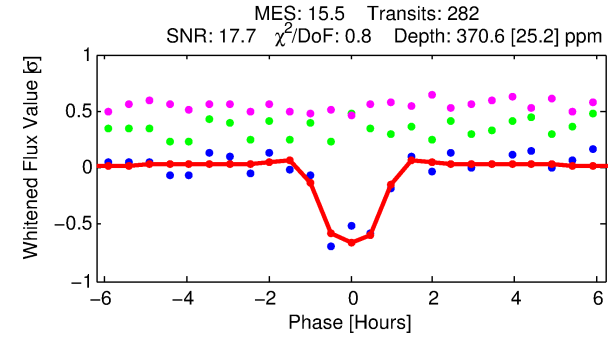
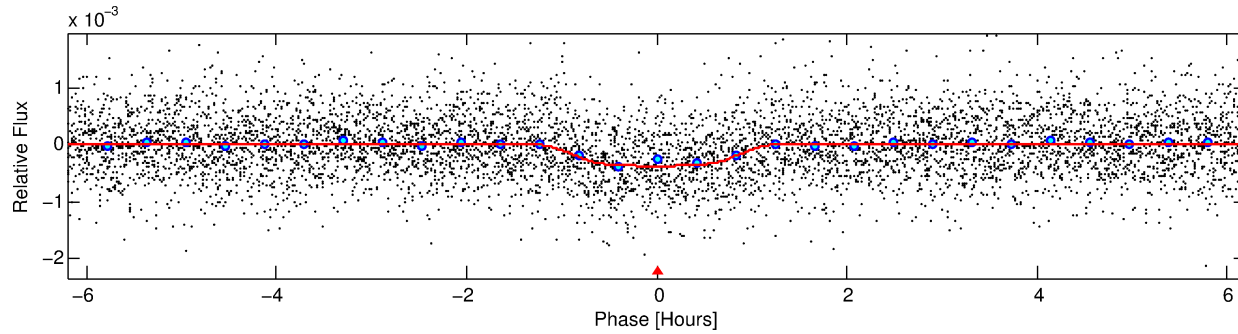
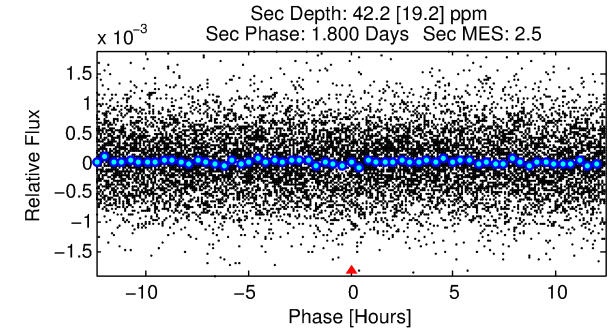
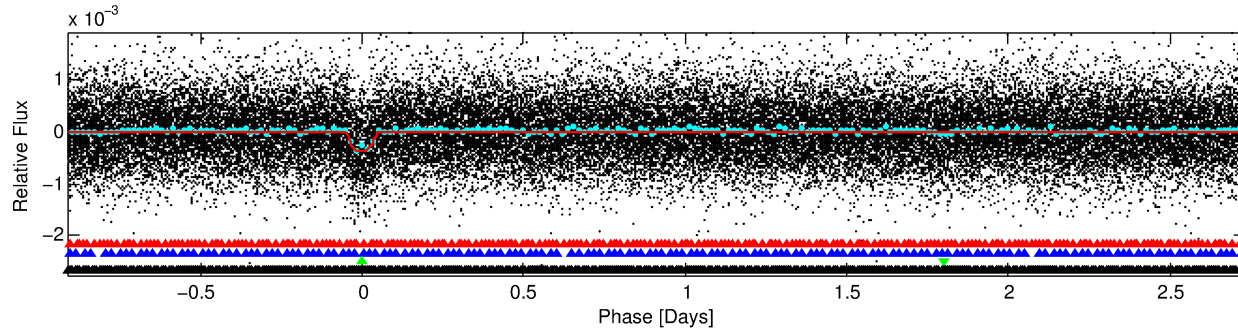
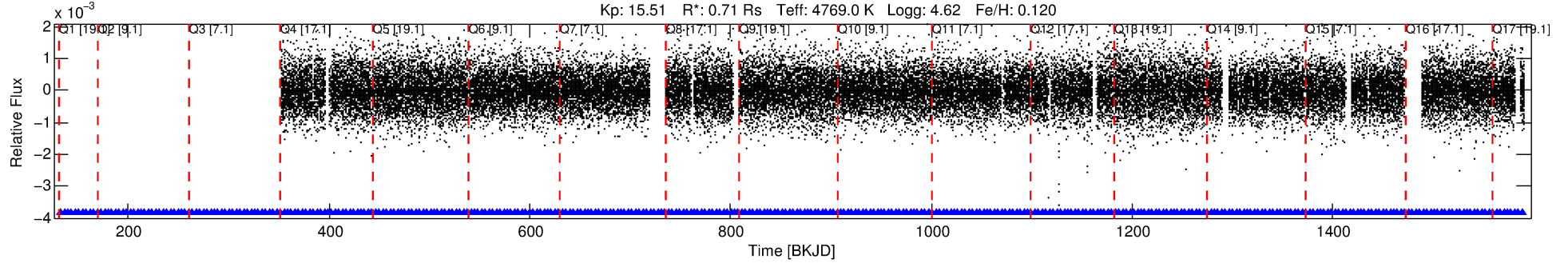
No Significant Match Found

DV One-Page Summary

KIC: 7376983 Candidate: 3 of 4 Period: 3.648 d

KOI: K01358.03 Corr: 0.974

Kp: 15.51 R*: 0.71 Rs Teff: 4769.0 K Logg: 4.62 Fe/H: 0.120



DV Fit Results:

Period = 3.64827 [0.00001] d
Epoch = 132.8506 [0.0021] BKJD
Rp/R* = 0.0218 [0.0085]
a/R* = 6.54 [9.33]
b = 0.90 [0.31]
Seff = 129.70 [23.68]
Teq = 861 [39] K
Rp = 1.70 [0.68] Re
a = 0.0427 [0.0033] AU
Ag = 14.68 [13.34] [1.03σ]
Teff = 2604 [594] K [2.93σ]

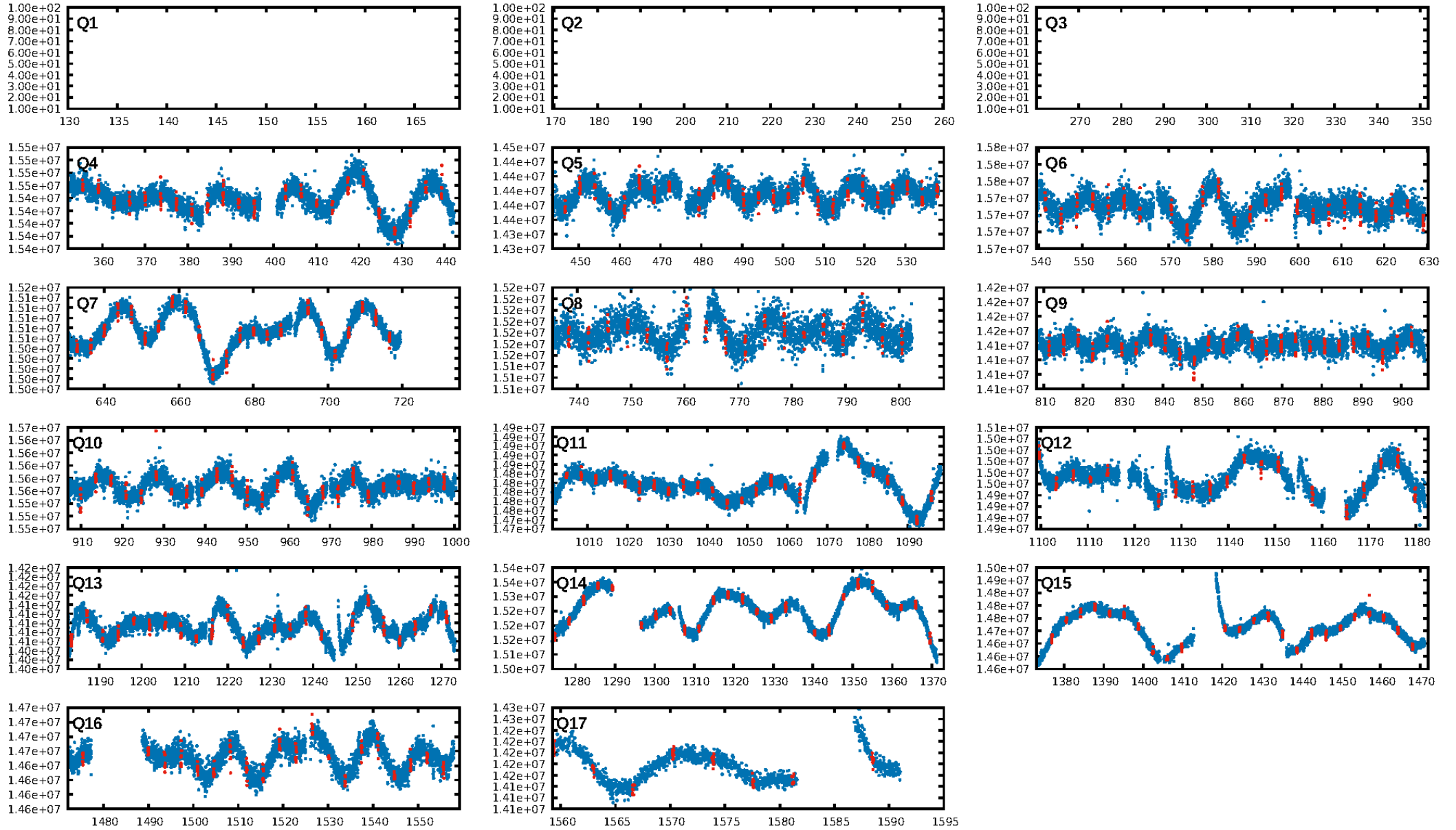
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.42σ]
LongPeriod-sig: 100.0% [14.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.93e-51
RollingBand-fgt: 1.00 [275/275]
GhostDiagnostic-chr: 5.159
Centroid-sig: 0.0%
Centroid-so: 3.522 arcsec [17.03σ]
OotOffset-rm: 6.178 arcsec [27.13σ]
KicOffset-rm: 0.289 arcsec [1.11σ]
OotOffset-st: 3/1/3/3 [10]
KicOffset-st: 3/1/3/3 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 1.00 [14/14]

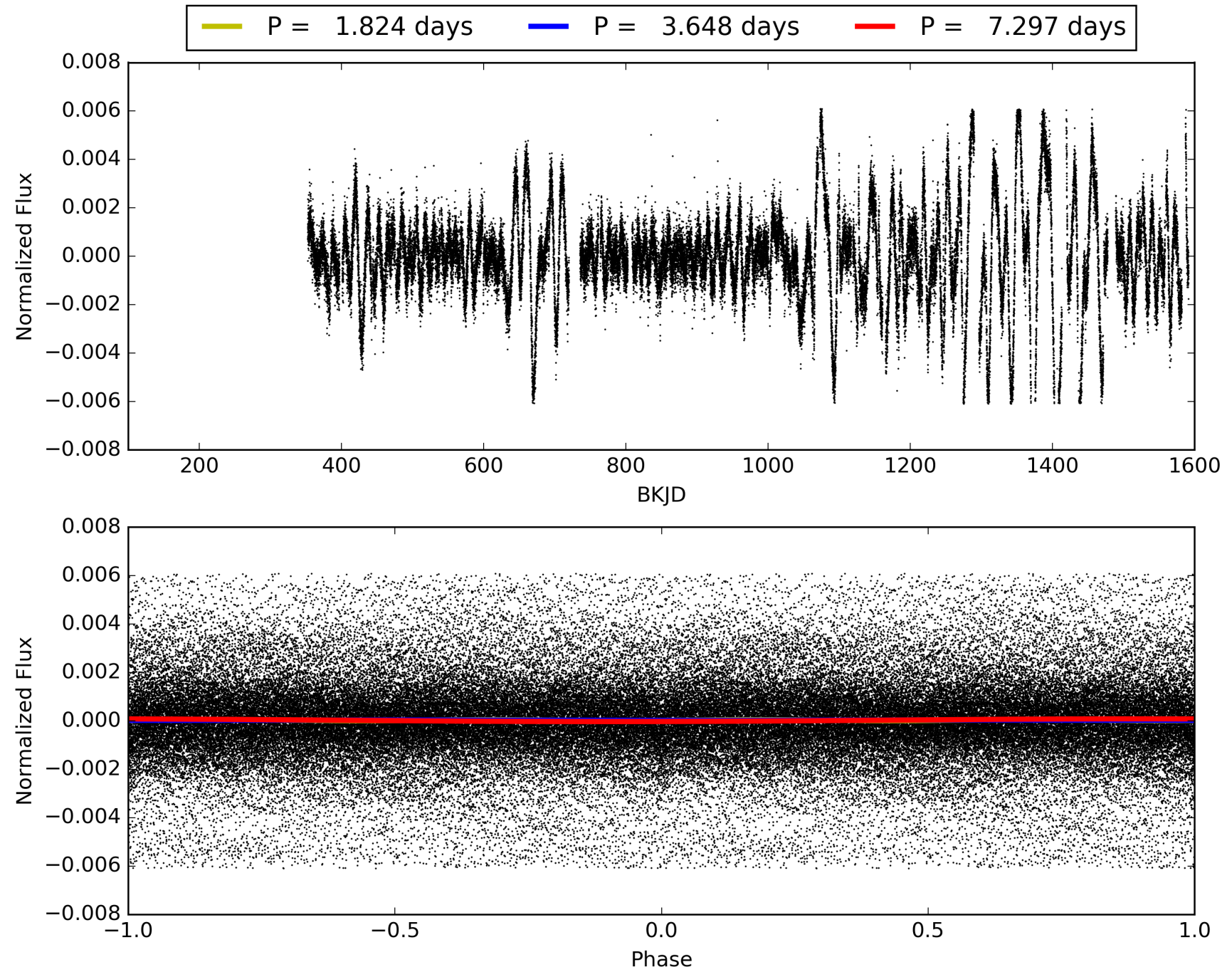
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:27:51 Z

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

TCE 007376983-03, PDC Light Curves

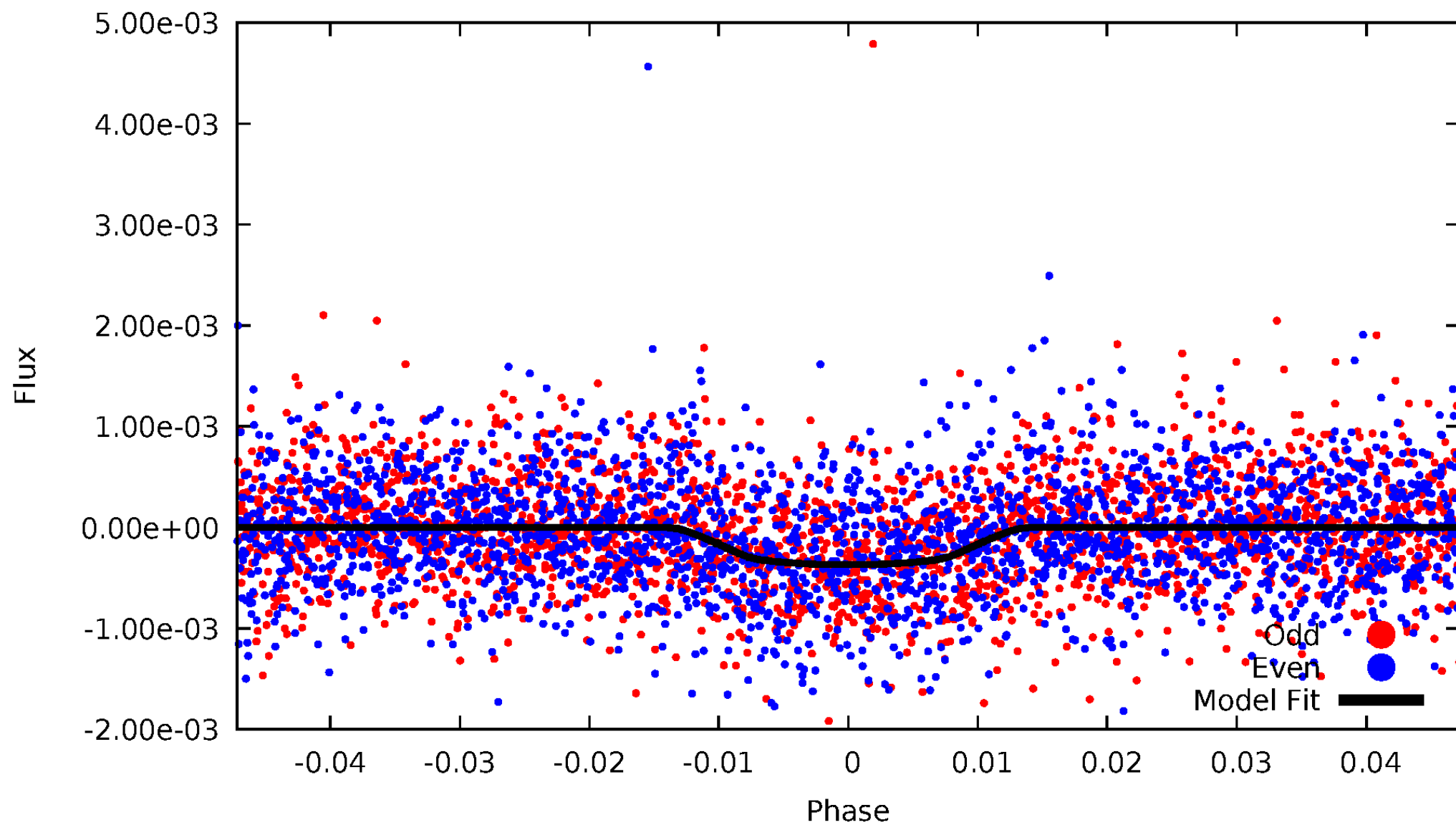


TCE 007376983-03



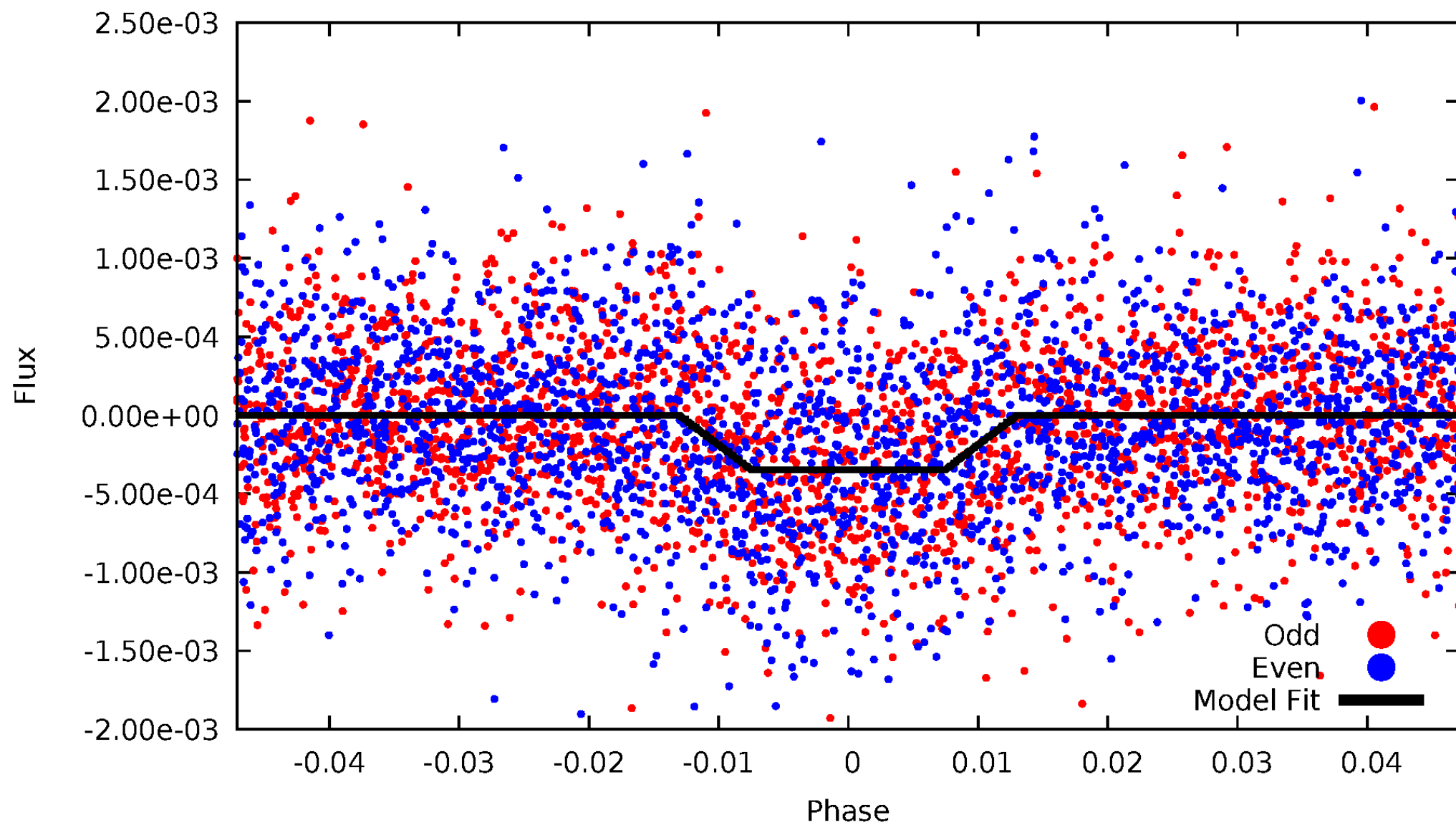
DV Odd/Even

TCE 007376983-03

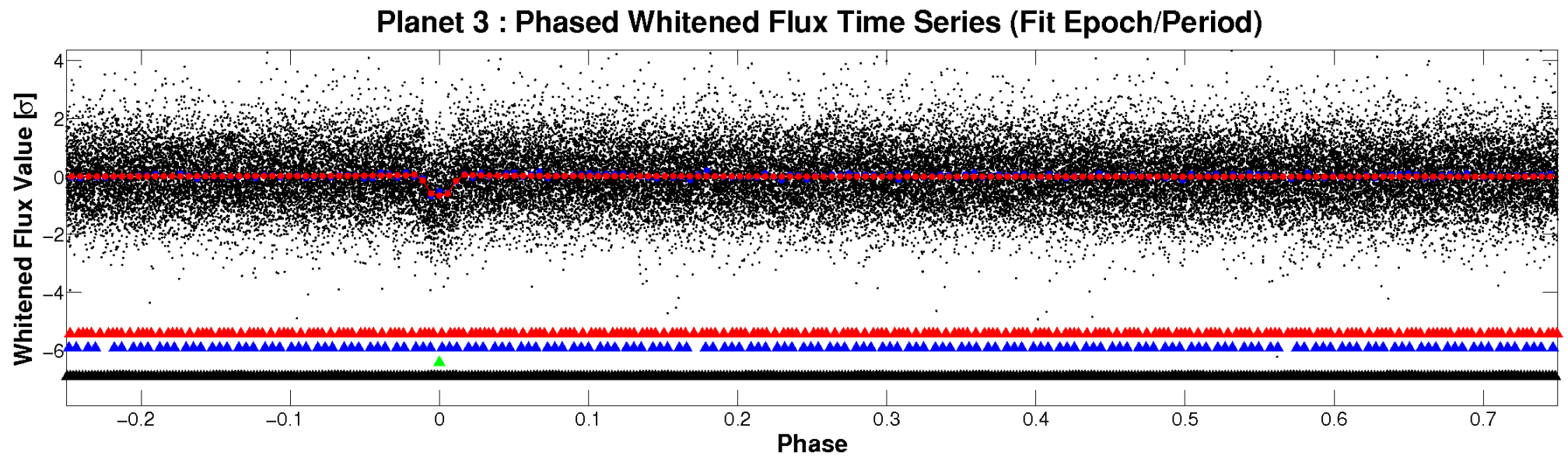
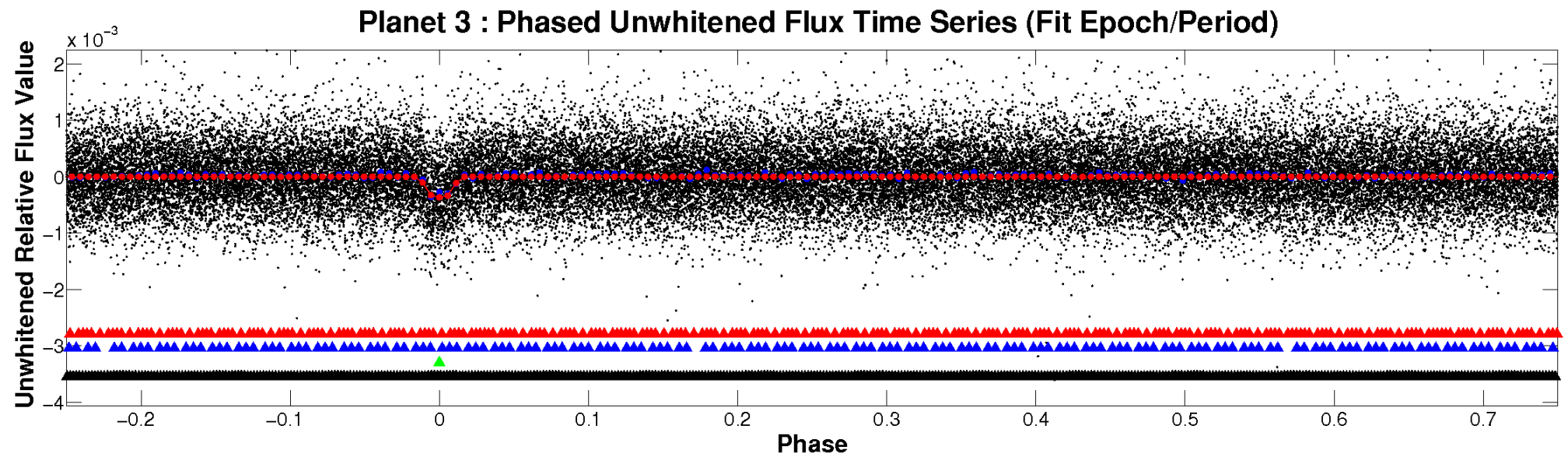


ALT Odd/Even

TCE 007376983-03

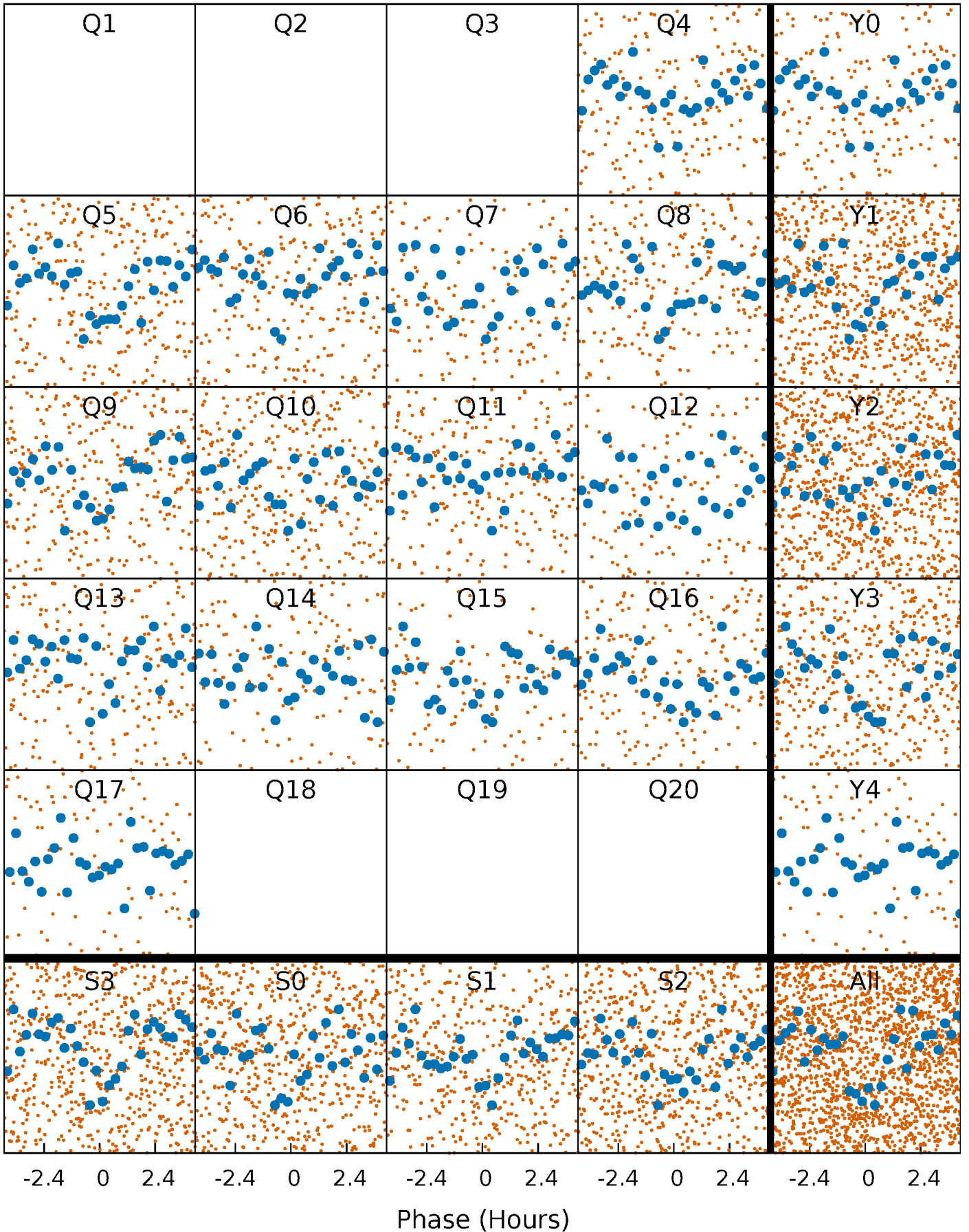


Non-Whitened Vs. Whitened Light Curve



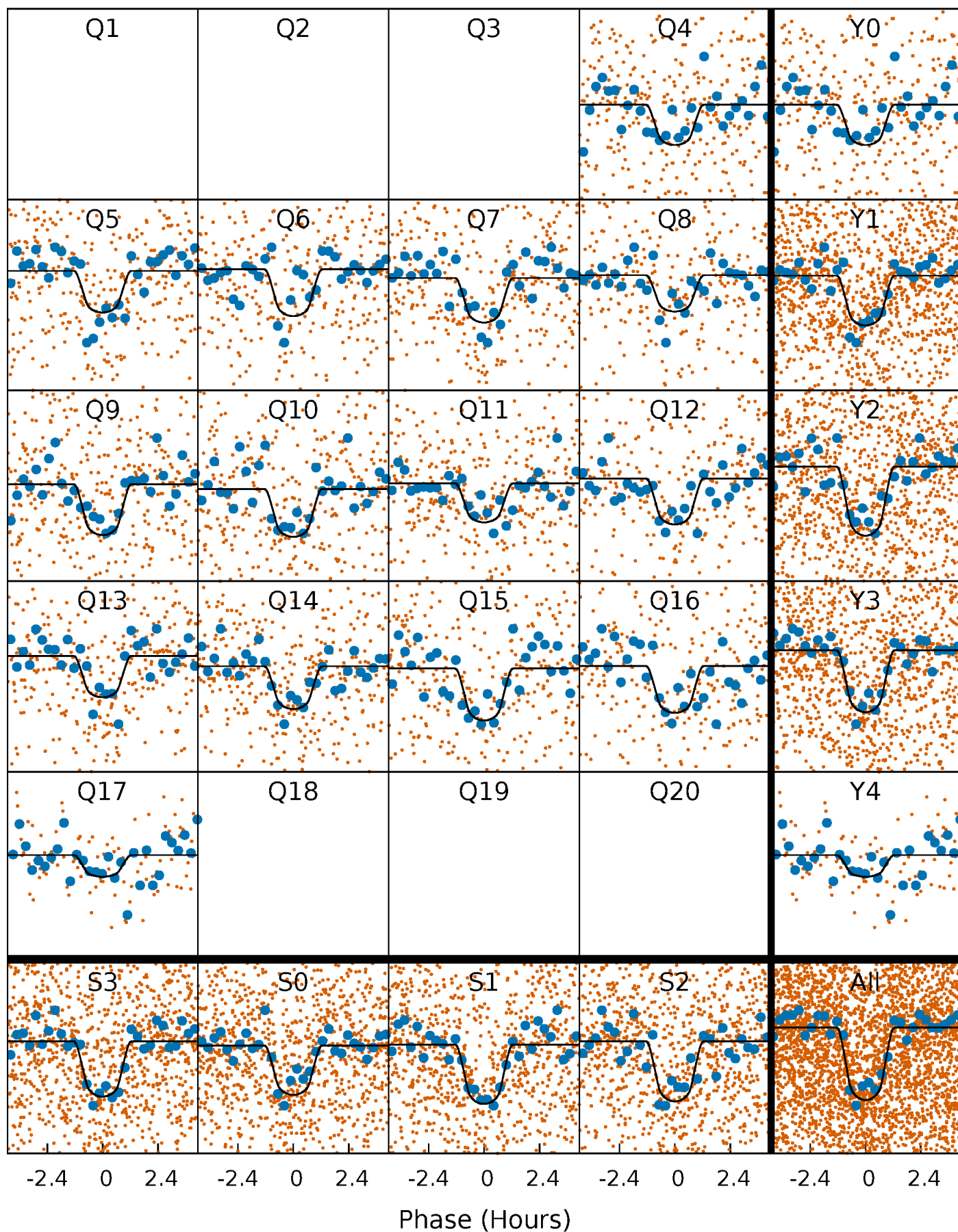
PDC Quarter-Phased Transit Curves

TCE 007376983-03 P= 3.648274 Days $T_0=132.850560$ (BKJD)



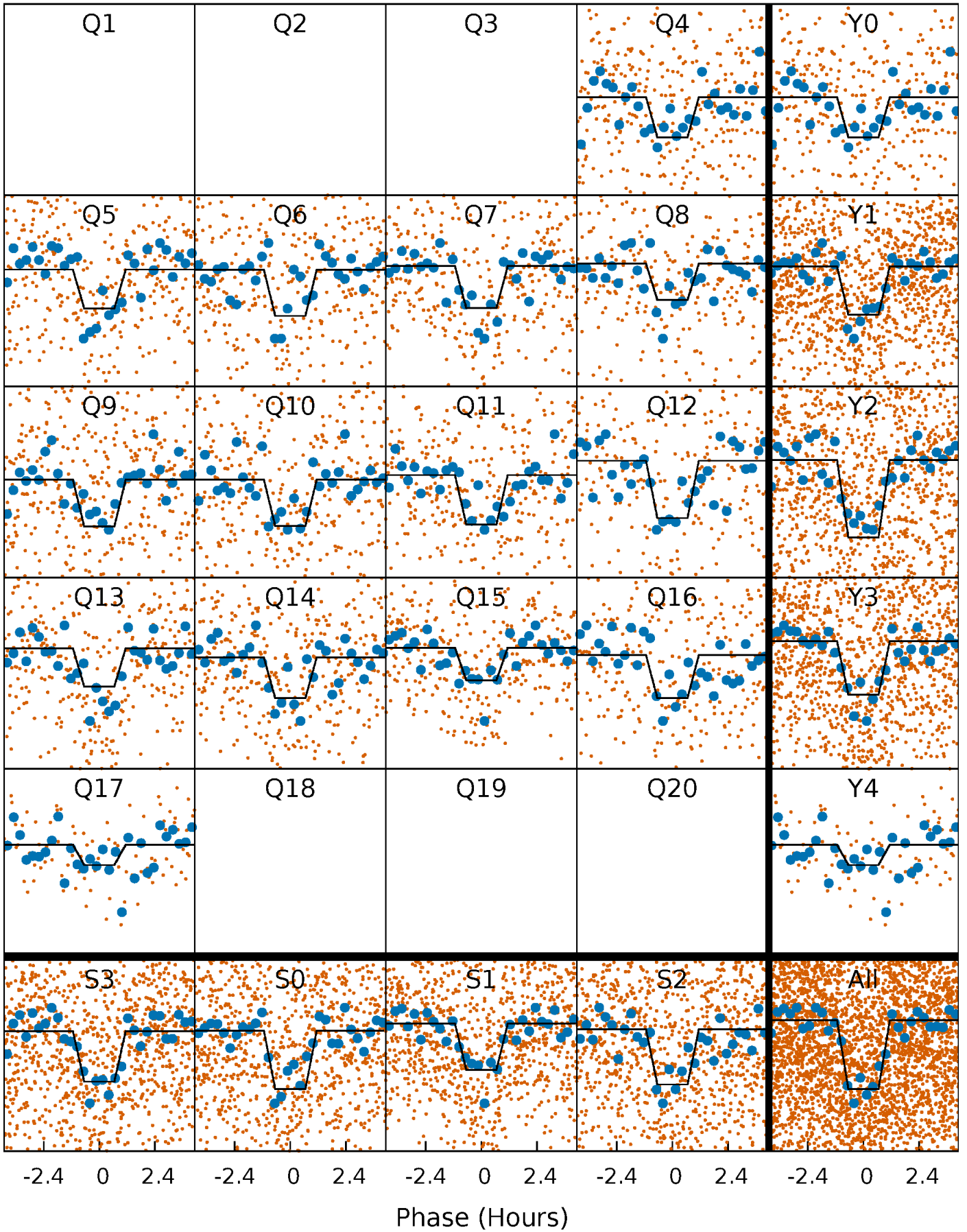
DV Quarter-Phased Transit Curves

TCE 007376983-03 P= 3.648274 Days $T_0=132.850560$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

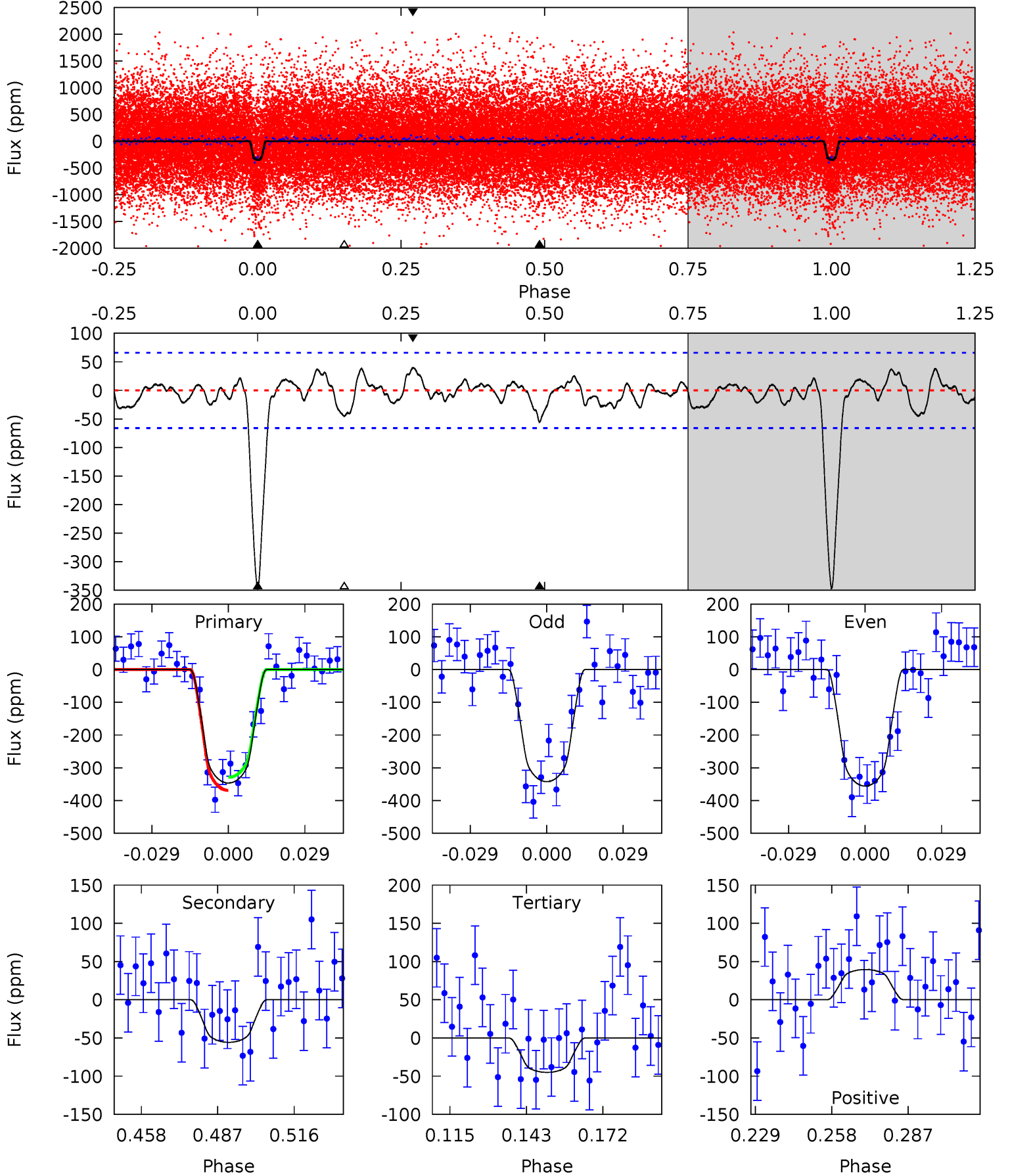
TCE 007376983-03 P= 3.648288 Days $T_0=132.848681$ (BKJD)



DV Model-Shift Uniqueness Test

007376983-03, P = 3.648274 Days, E = 132.850560 Days

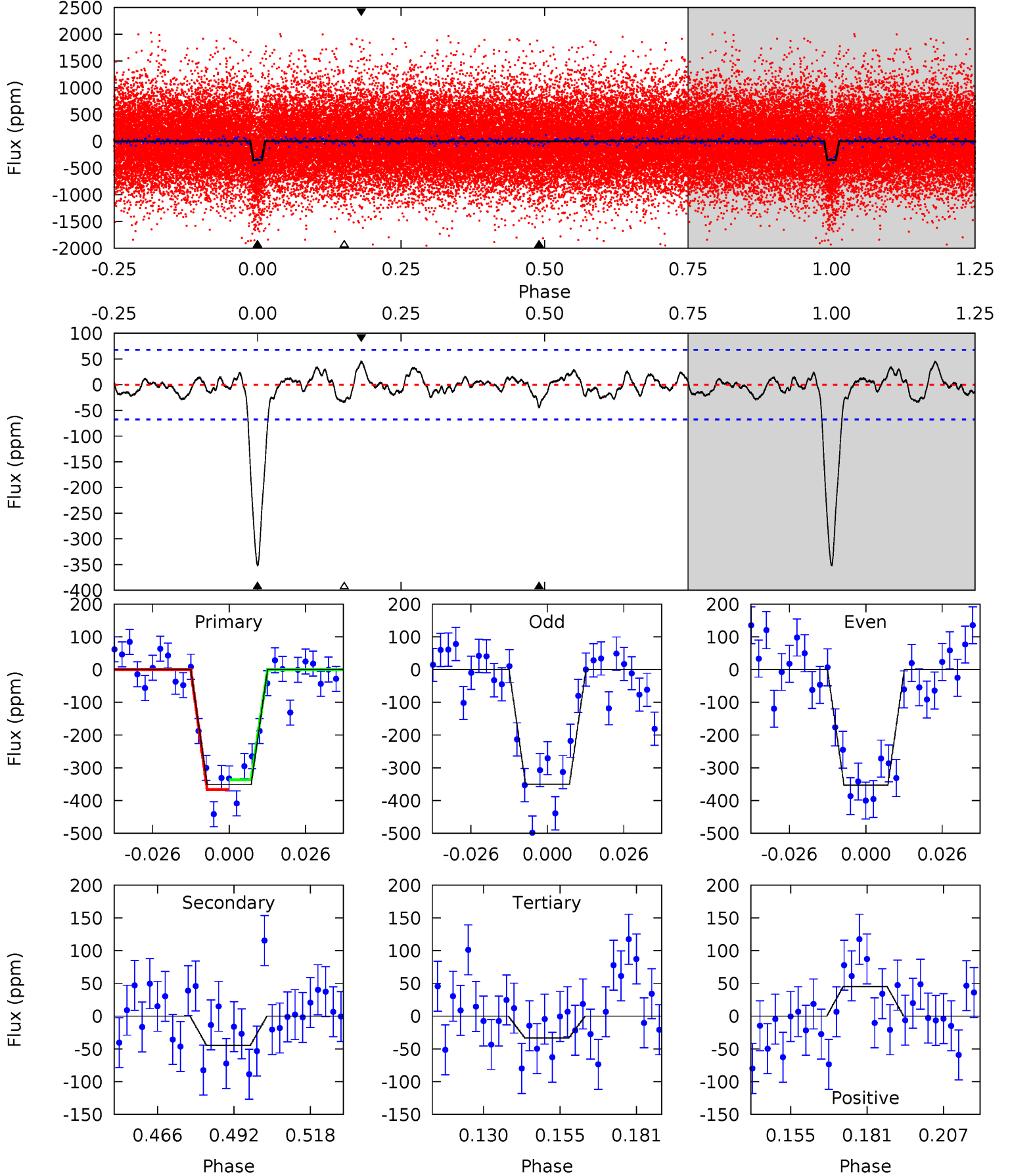
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	4.07	3.29	2.89	4.82	2.19	1.24	22.0	22.4	0.78	1.18	0.49	0.93	0.10	1.46



Alt Model-Shift Uniqueness Test

007376983-03, P = 3.648288 Days, E = 132.848681 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	3.18	2.38	3.23	4.84	2.23	1.07	22.7	21.9	0.80	-0.05	0.07	0.97	0.11	1.06



Stellar Parameters For KIC 007376983

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4769^{+172}_{-172}	$4.622^{+0.024}_{-0.060}$	$0.120^{+0.250}_{-0.300}$	$0.714^{+0.068}_{-0.049}$	$0.799^{+0.041}_{-0.081}$	$3.091^{+0.398}_{-0.665}$
	+4%/-4%	+1%/-1%	+208%/-250%	+10%/-7%	+5%/-10%	+13%/-22%
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 007376983-03 / KOI 1358.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-56 ± 14	$1.79^{+0.63}_{-0.70}$	1219^{+46}_{-49}	3239^{+576}_{-324}	18^{+30}_{-9}
Alt.	-45 ± 14	$1.47^{+0.71}_{-0.70}$	1213^{+48}_{-47}	3317^{+747}_{-418}	20^{+54}_{-12}

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

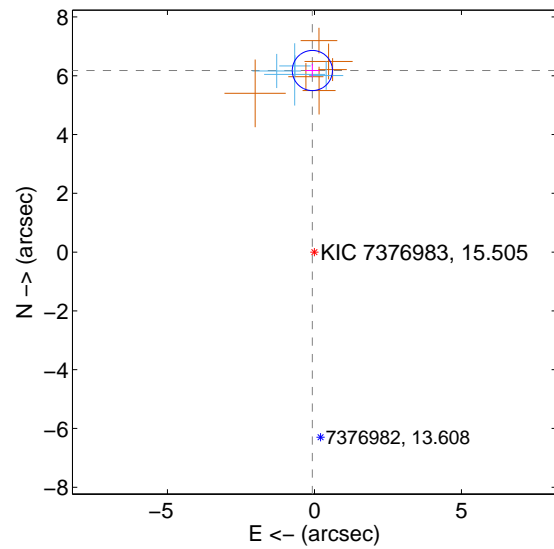
Supplemental centroid analysis for 007376983-03. Kepler magnitude: 15.51. Transit SNR 17.67

There are 4 quarters with good PRF difference image offsets

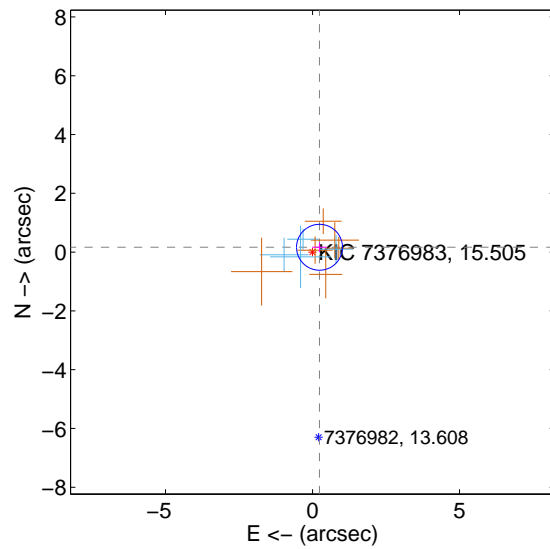
The OOT PRF centroid is offset from the target star catalog position by about 6.21 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.178 ± 0.228	27.13	0.071 ± 0.242	6.178 ± 0.228
PRF-fit source offset from KIC position	0.289 ± 0.260	1.11	-0.238 ± 0.254	0.164 ± 0.162
photometric centroid source offset	3.52 ± 0.21	17.03	-0.46 ± 0.14	-3.49 ± 0.21

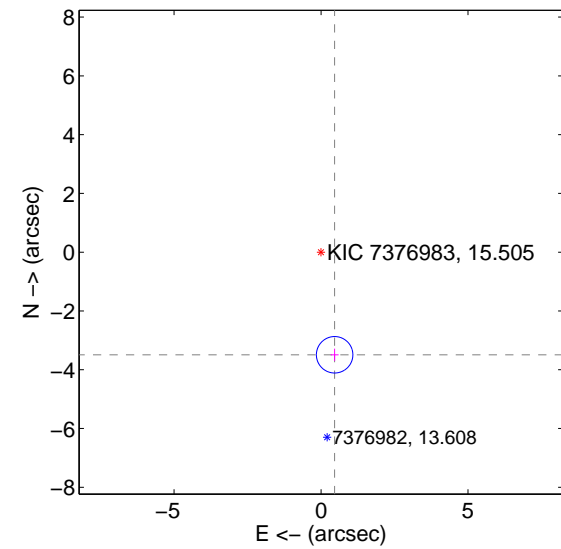
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

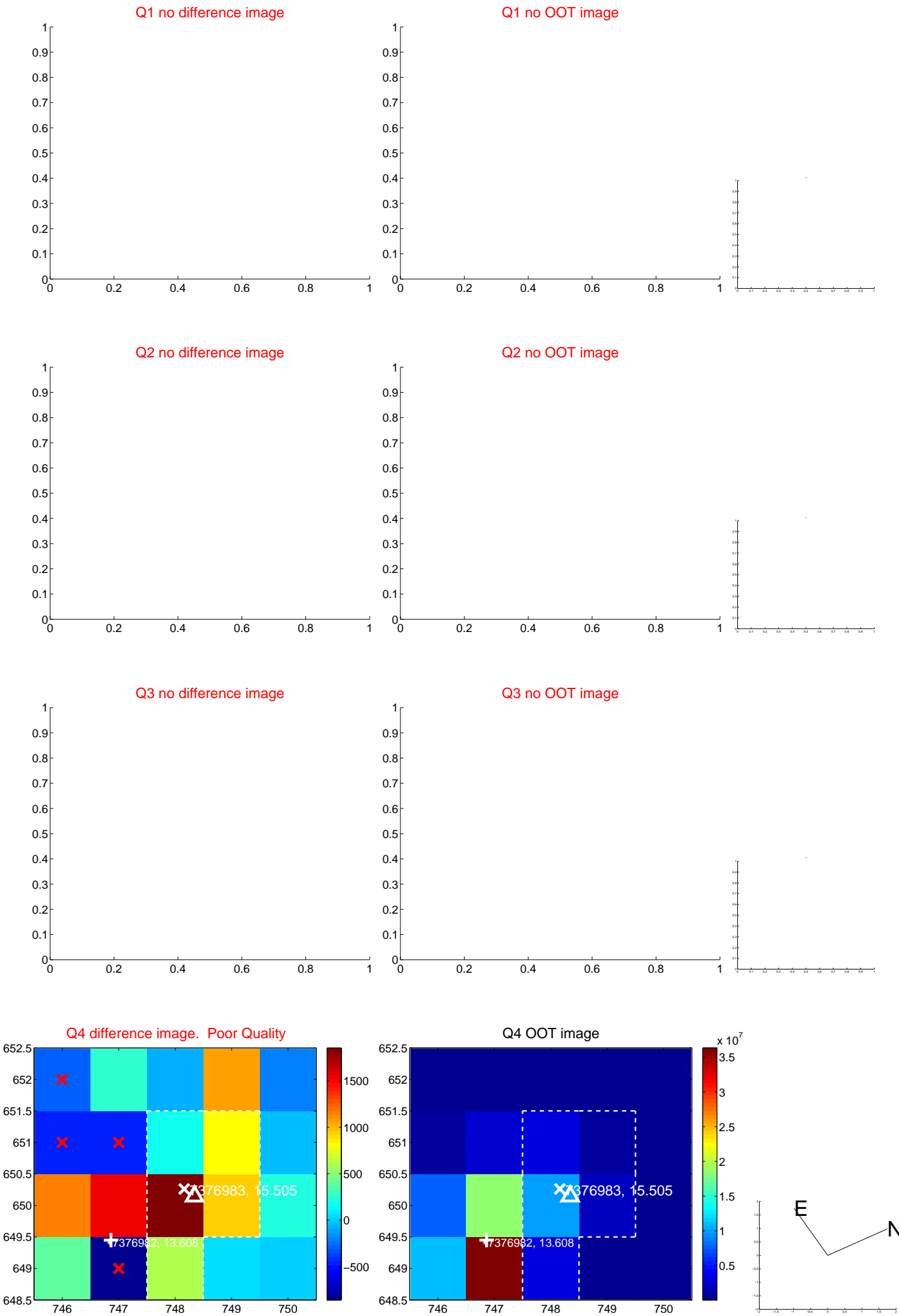


offset from photometric centroids

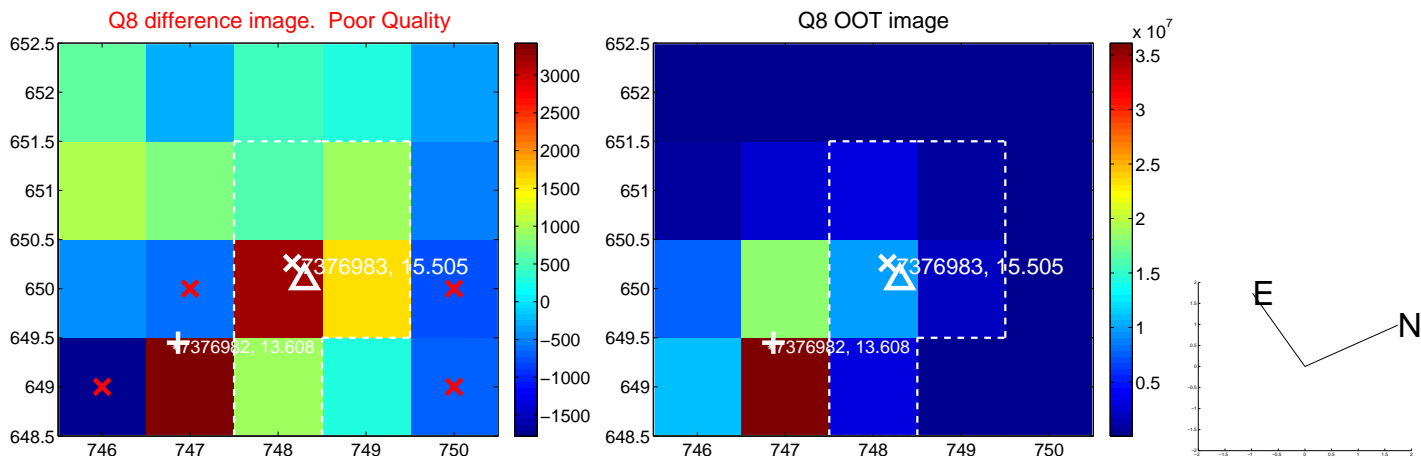
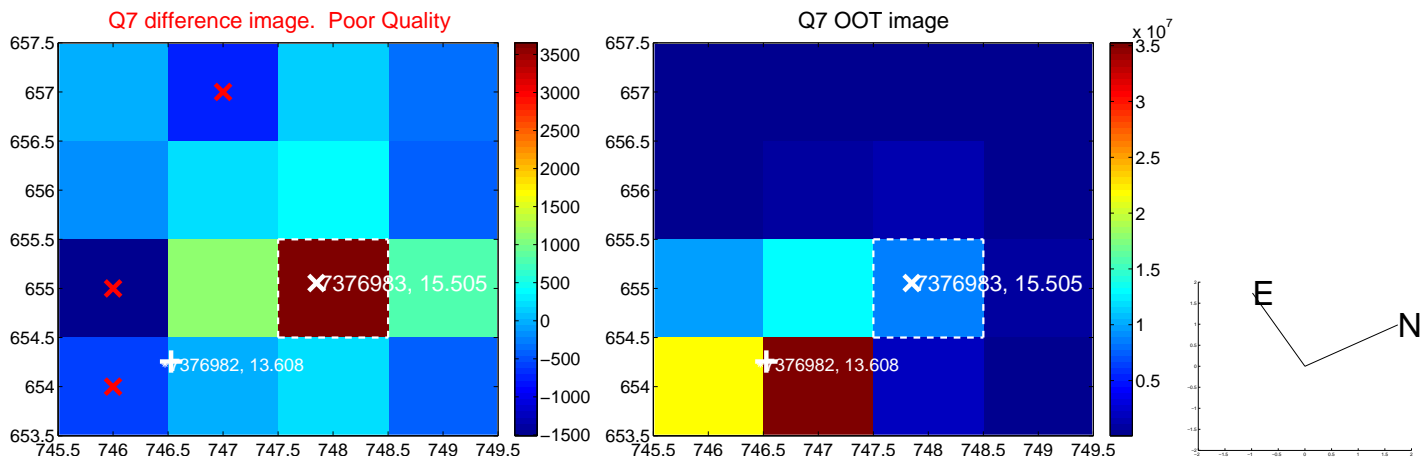
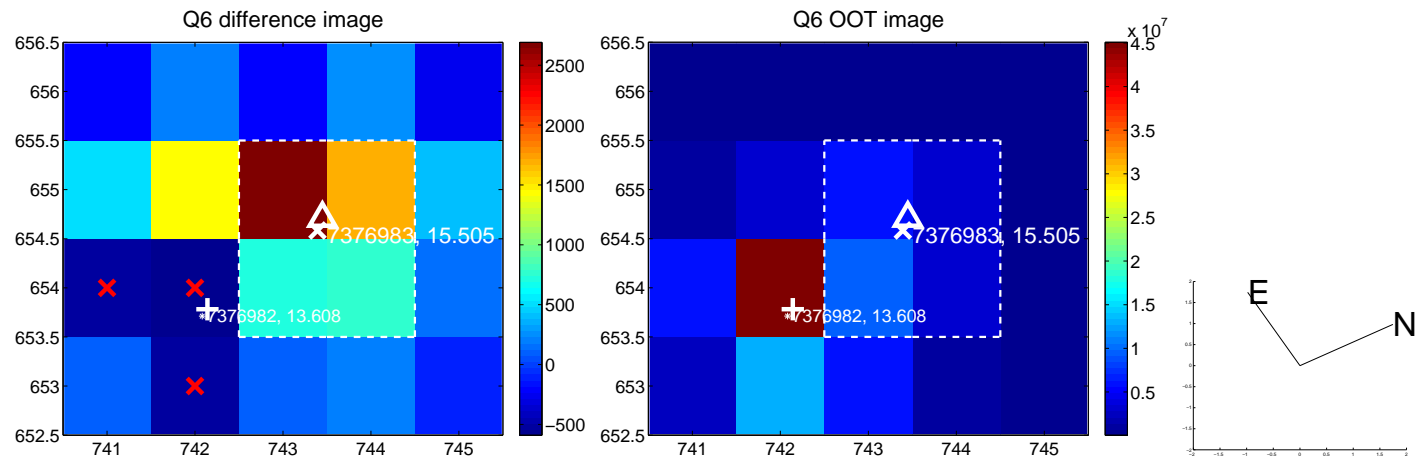
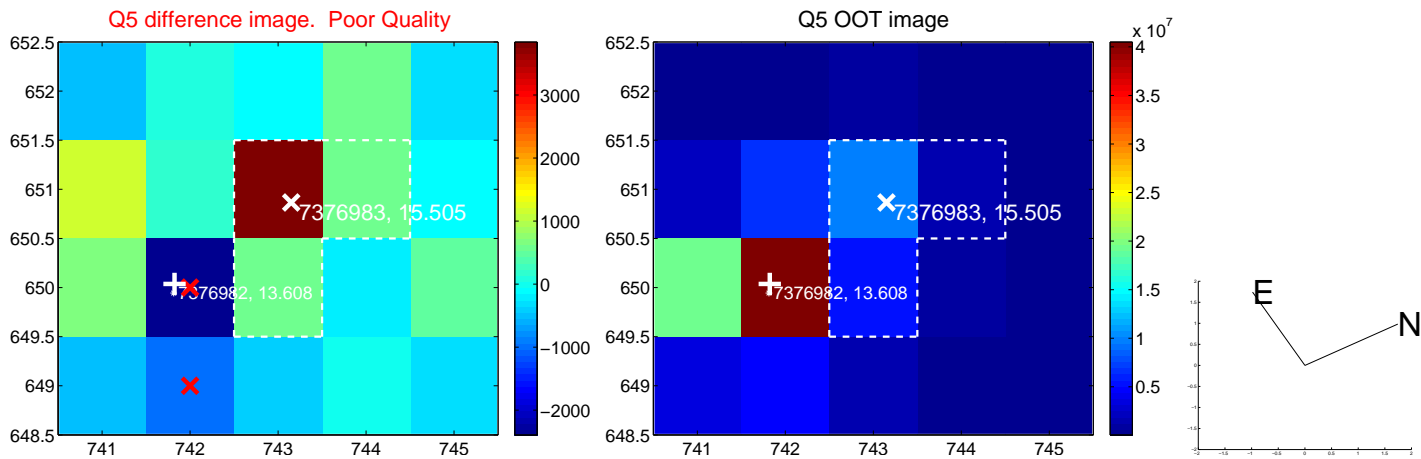


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

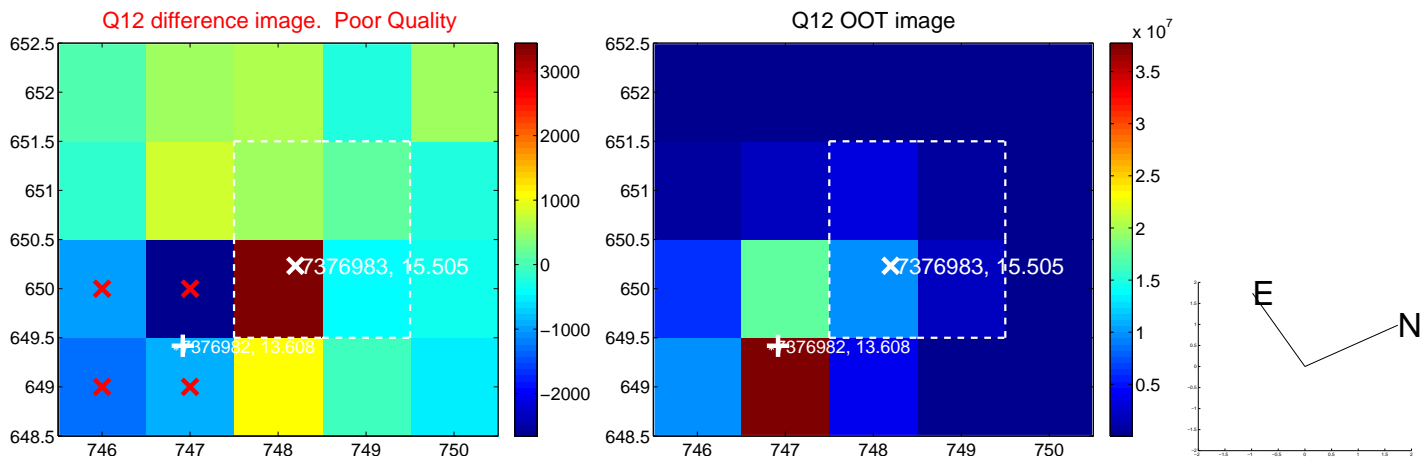
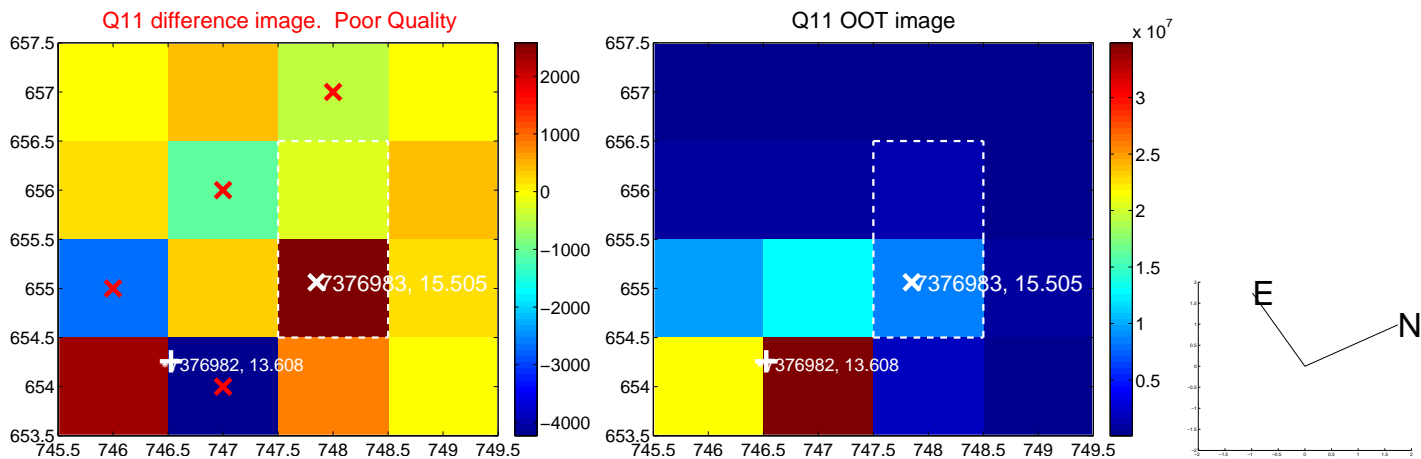
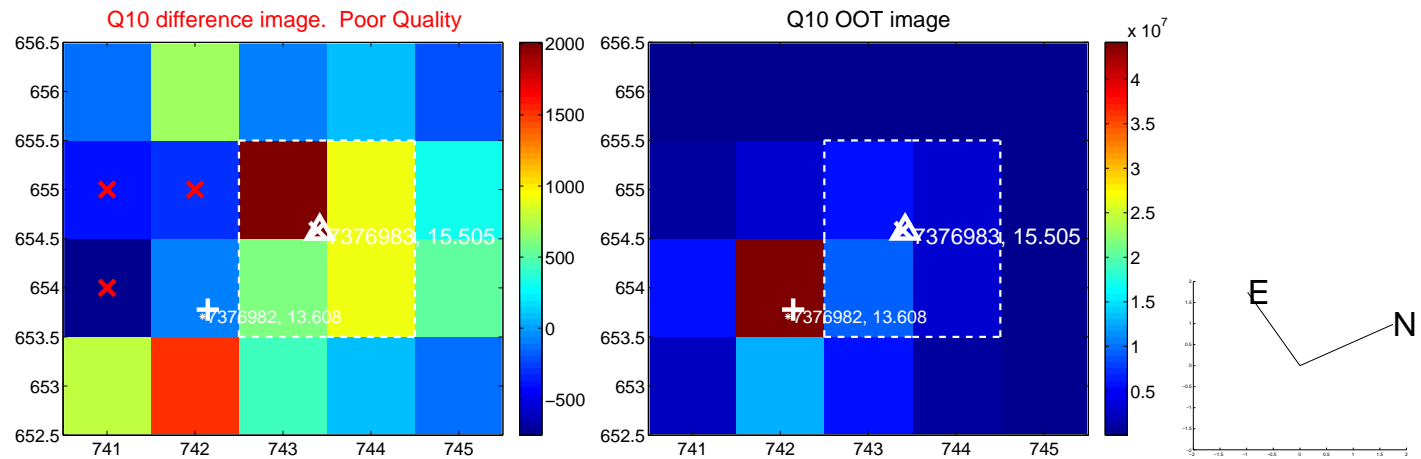
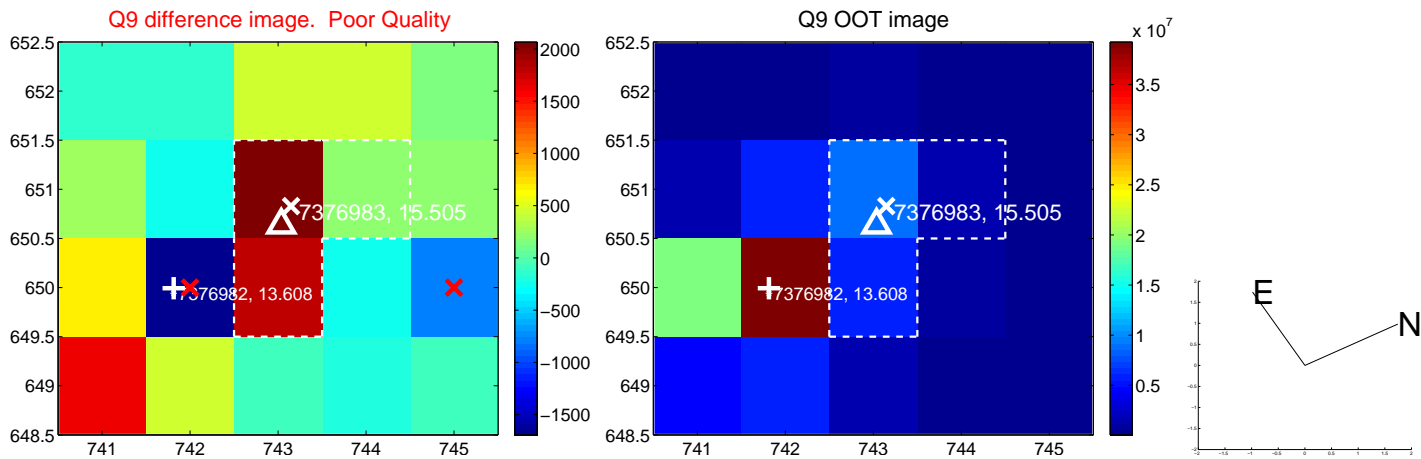
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



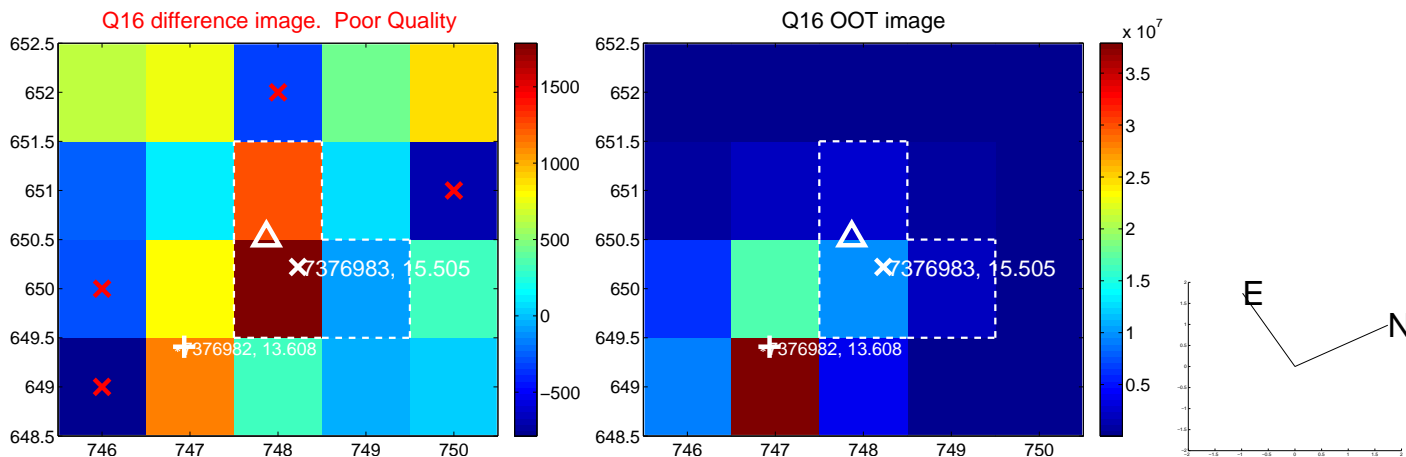
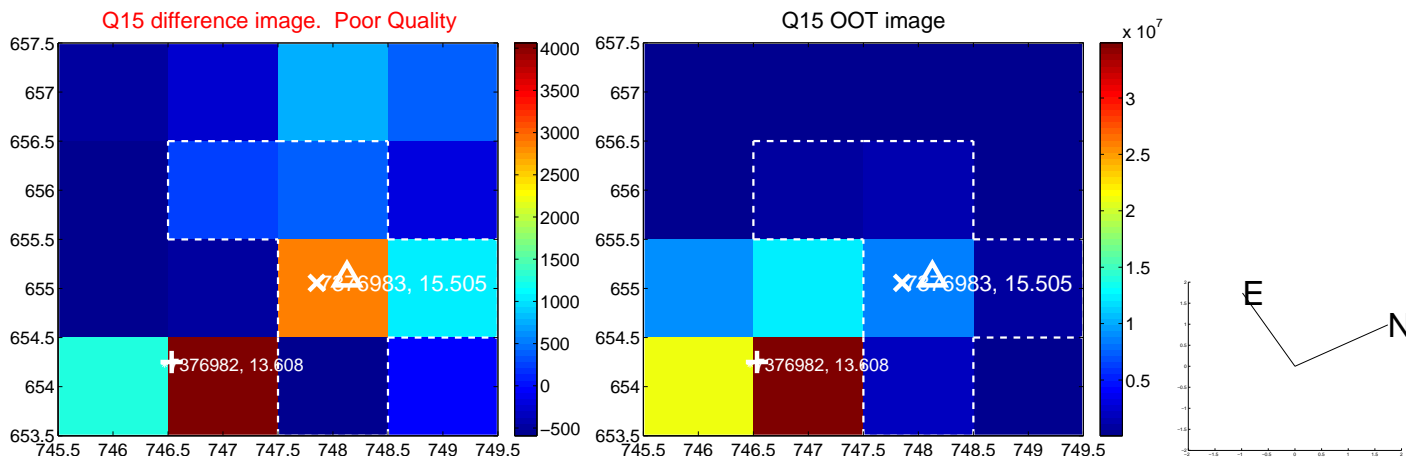
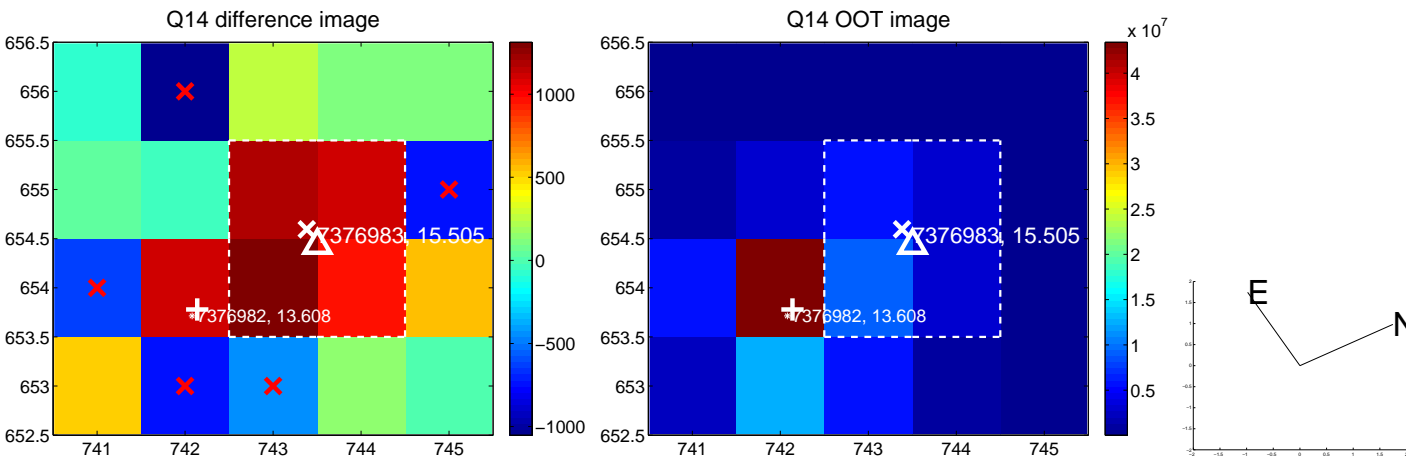
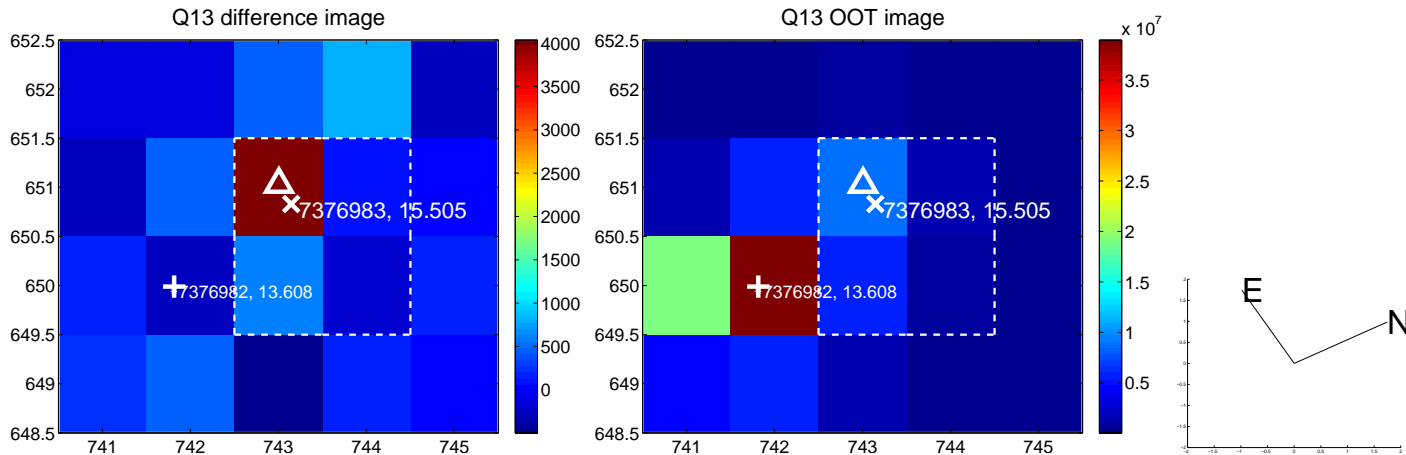
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



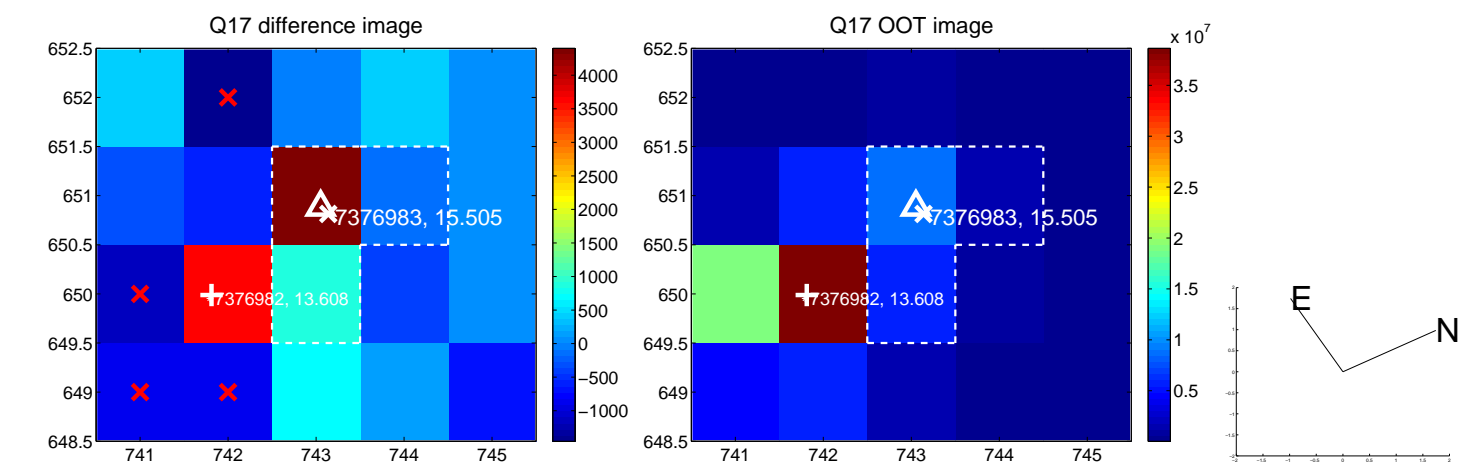
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



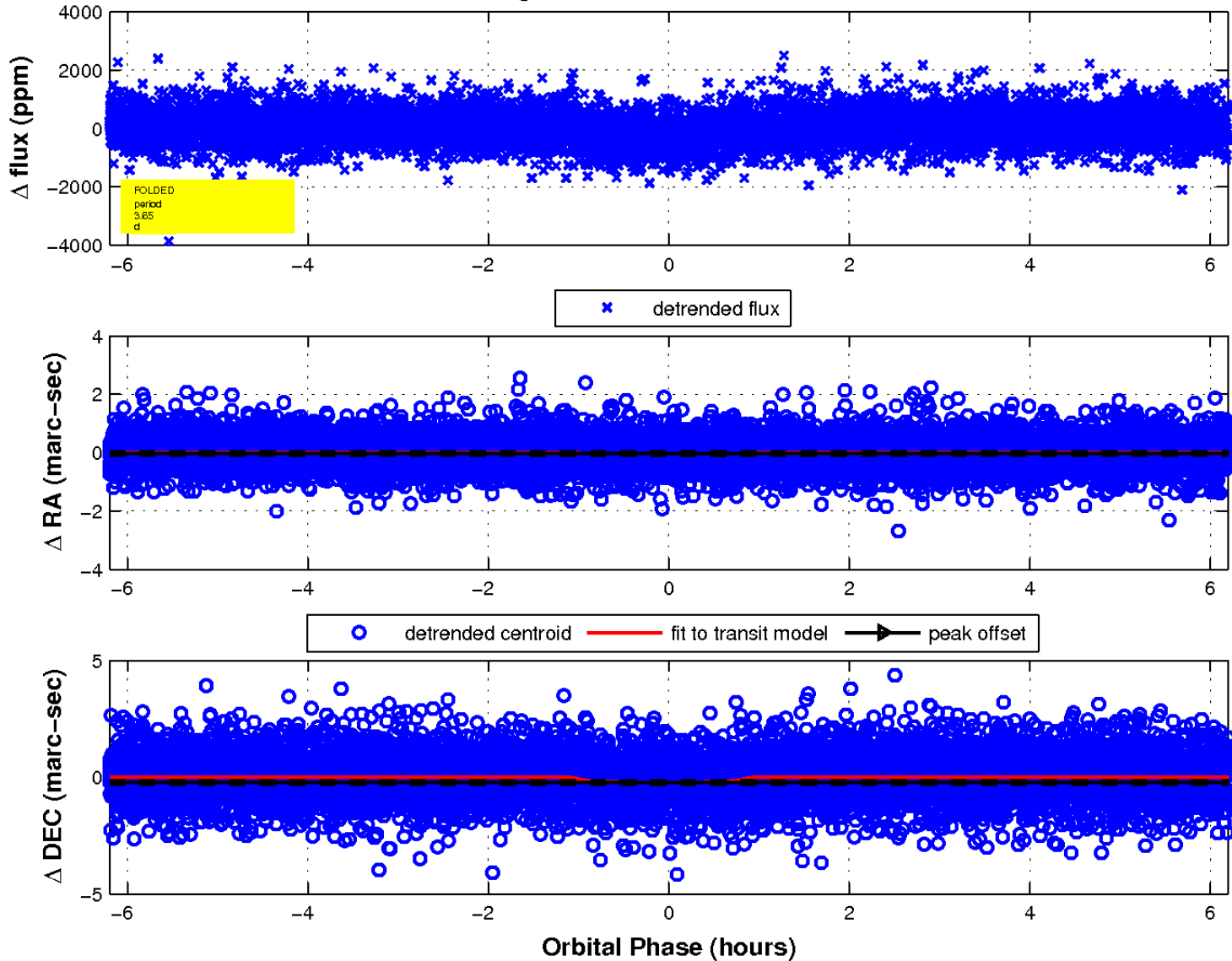
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

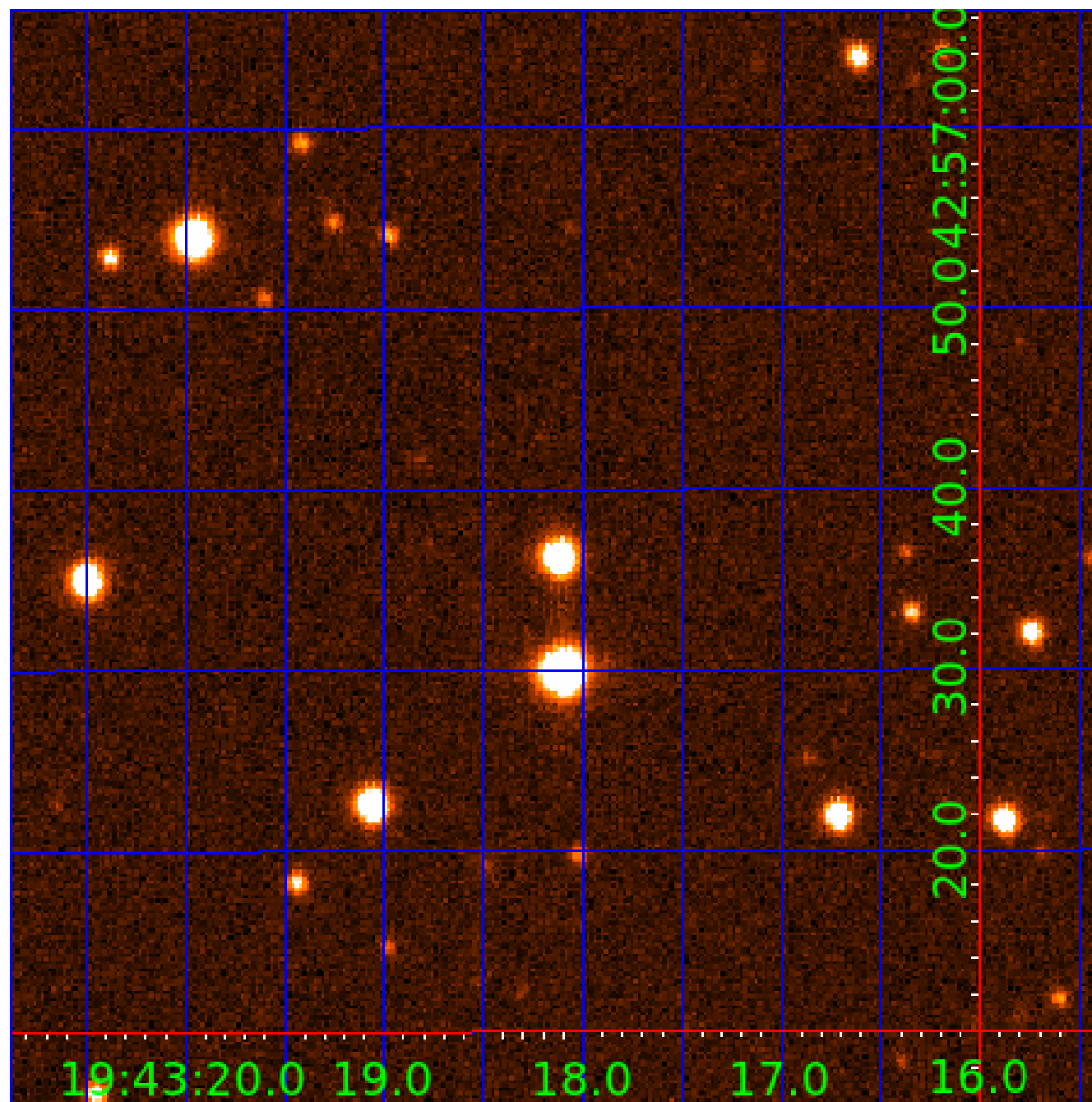


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 007376983

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})
007376983-01	OBS	1358.01	5.644892	136.588671	1378.1	2.566	51.4	57.3	0.71	4769	3.27	72.48
007376983-02	OBS	1358.02	8.742971	140.014230	779.5	2.860	25.1	27.0	0.71	4769	2.45	40.44
007376983-03	OBS	1358.03	3.648274	132.850560	370.6	2.066	15.5	17.7	0.71	4769	1.70	129.70
007376983-04	OBS	1358.04	2.345860	133.600976	294.7	1.794	14.6	16.6	0.71	4769	1.51	233.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007376983-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-03	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
007376983-04	OBS	PC	0.93	0	0	0	0	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 007376983-04

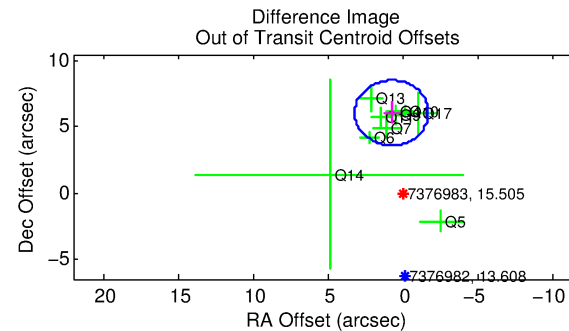
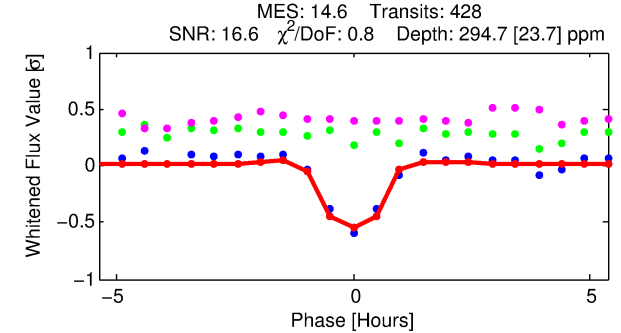
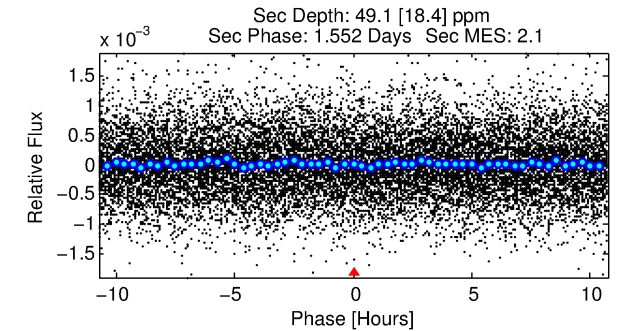
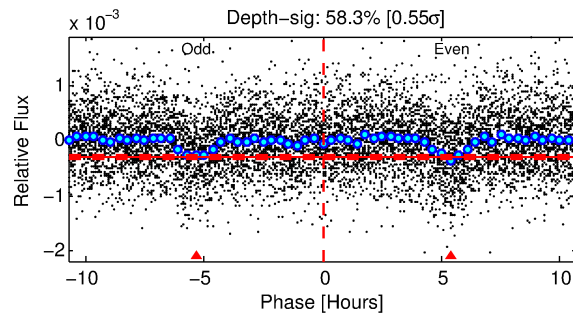
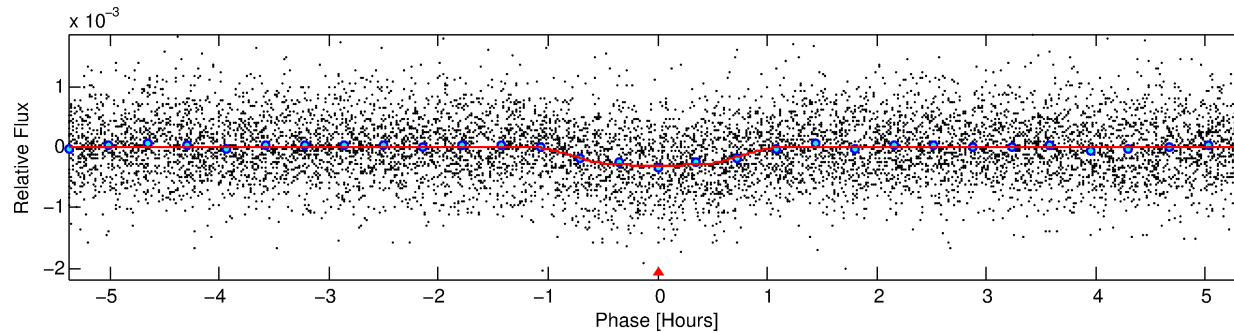
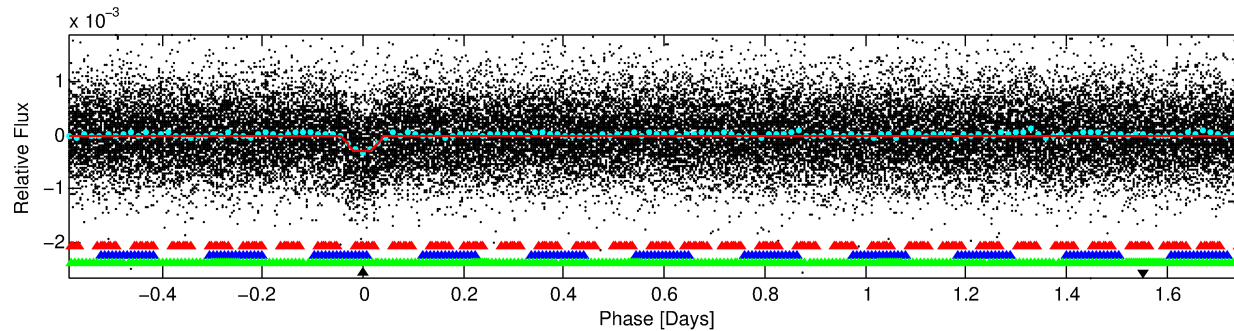
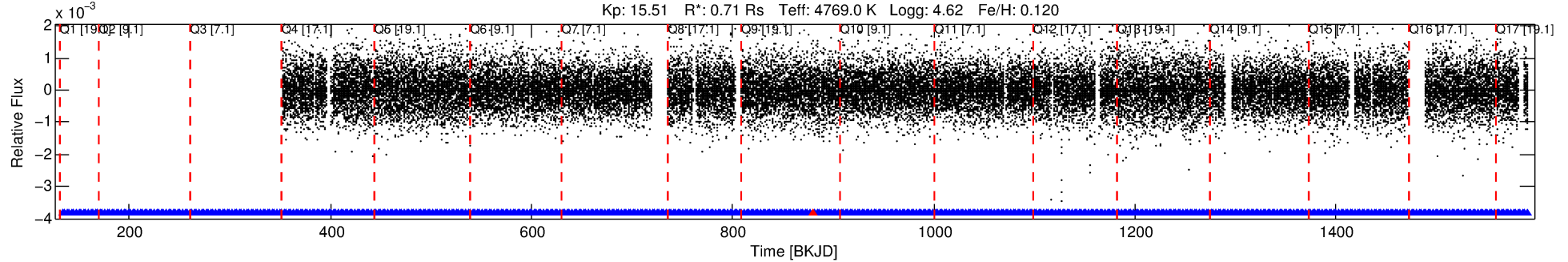
No Significant Match Found

DV One-Page Summary

KIC: 7376983 Candidate: 4 of 4 Period: 2.346 d

KOI: K01358.04 Corr: 0.990

Kp: 15.51 R*: 0.71 Rs Teff: 4769.0 K Logg: 4.62 Fe/H: 0.120



DV Fit Results:

Period = 2.34586 [0.00001] d
Epoch = 133.6010 [0.0017] BKJD
Rp/R* = 0.0194 [0.0103]
a/R* = 4.88 [9.33]
b = 0.90 [0.44]
Seff = 233.70 [42.66]
Teq = 997 [46] K
Rp = 1.51 [0.82] Re
a = 0.0318 [0.0025] AU
Ag = 11.97 [13.57] [0.81σ]
Teffp = 2867 [815] K [2.29σ]

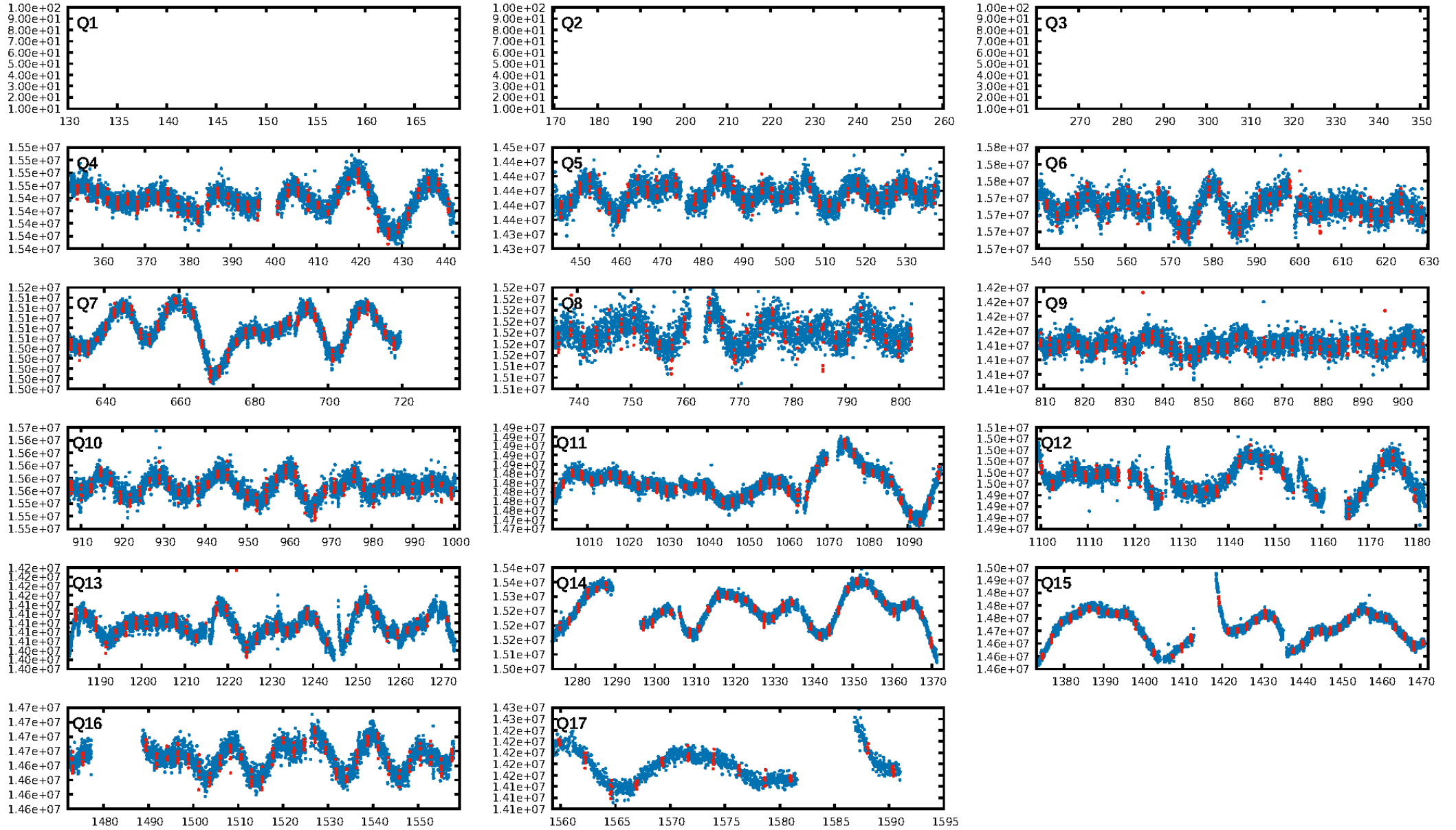
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.42σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.76e-46
RollingBand-fgt: 1.00 [416/417]
GhostDiagnostic-chr: -4.2
Centroid-sig: 0.0%
Centroid-so: 3.459 arcsec [15.96σ]
OotOffset-rm: 6.114 arcsec [7.44σ]
KicOffset-rm: 0.513 arcsec [0.58σ]
OotOffset-st: 3/2/1/4 [10]
KicOffset-st: 3/2/1/4 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 1.00 [14/14]

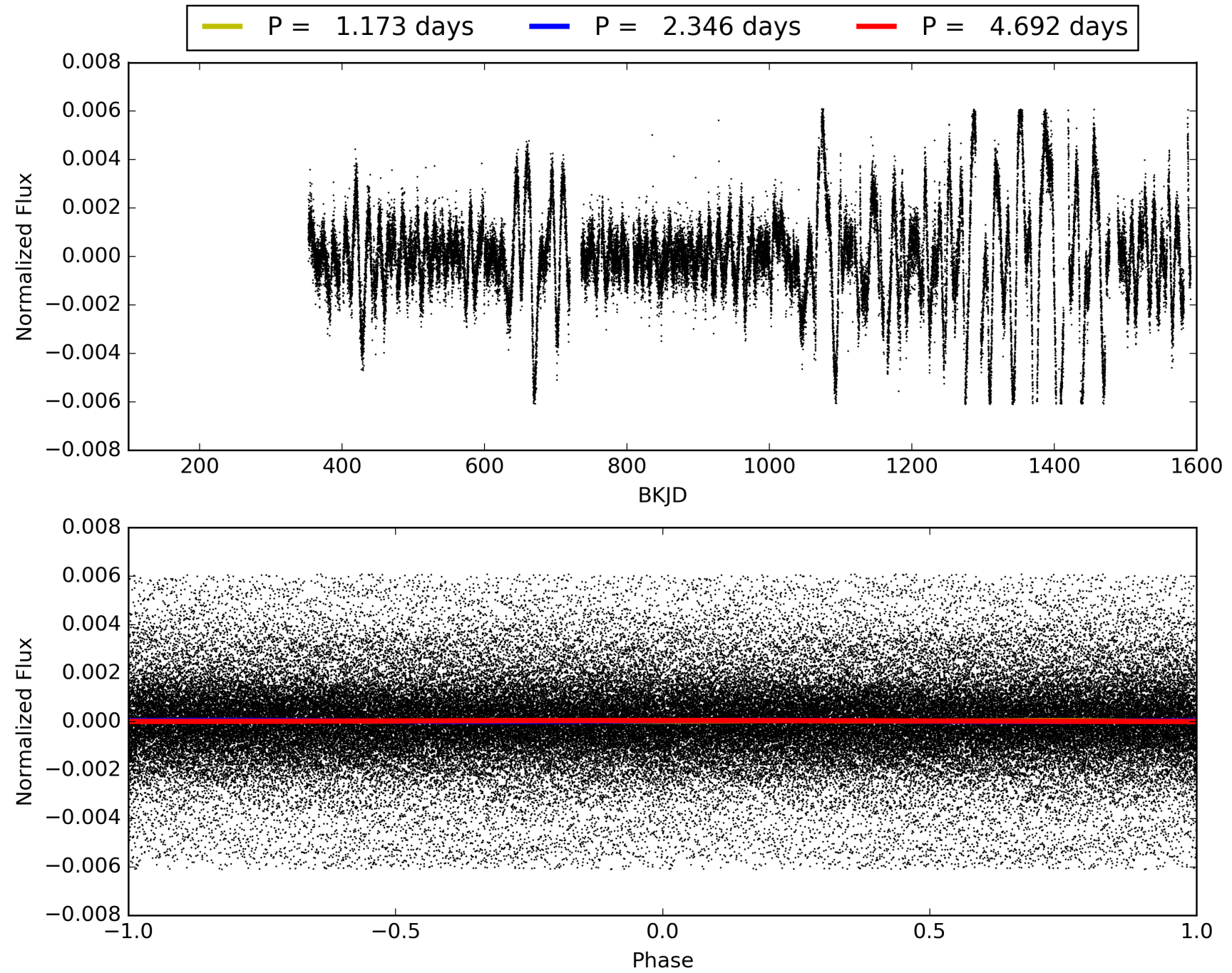
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:27:58 Z

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

TCE 007376983-04, PDC Light Curves

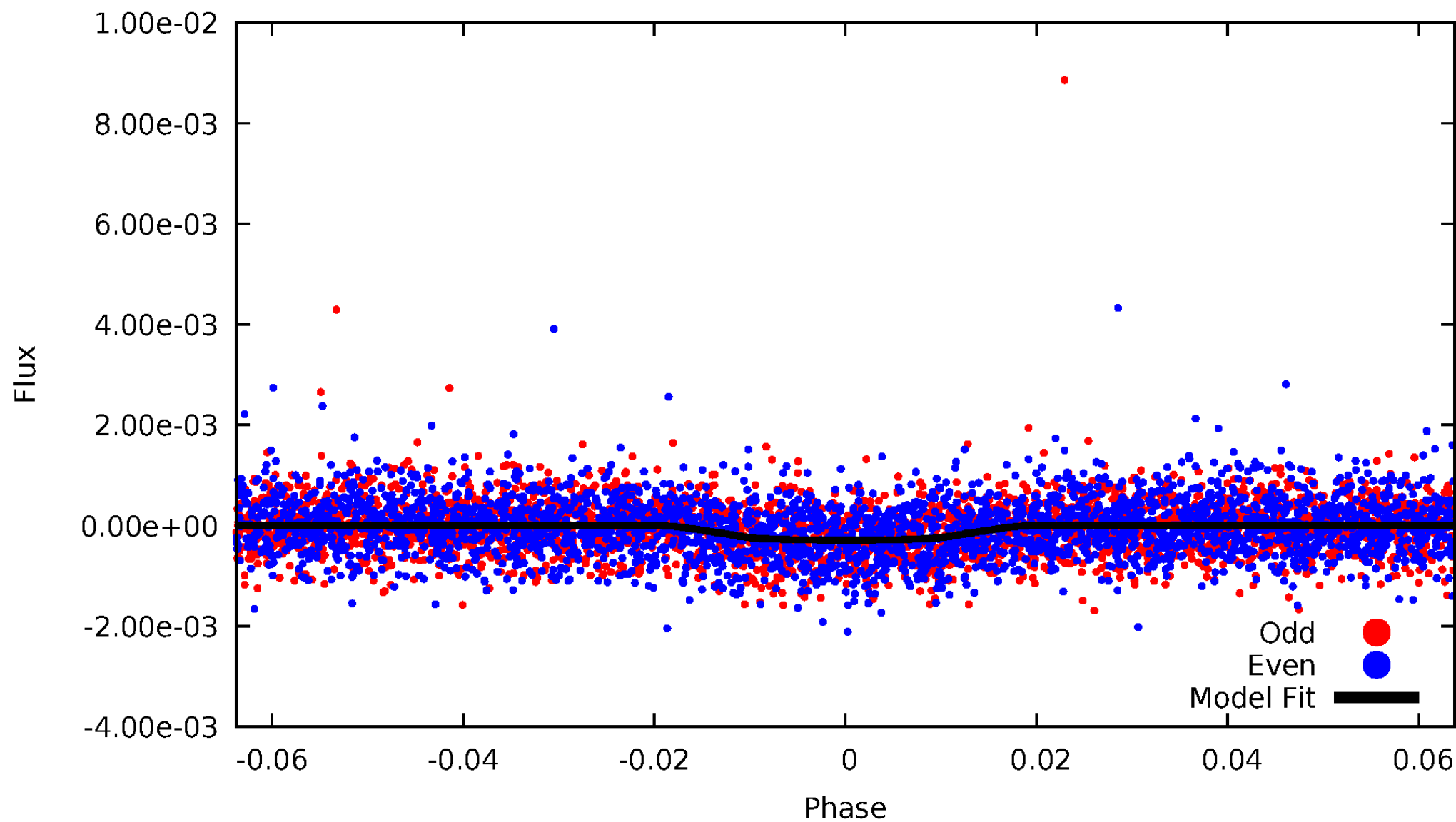


TCE 007376983-04



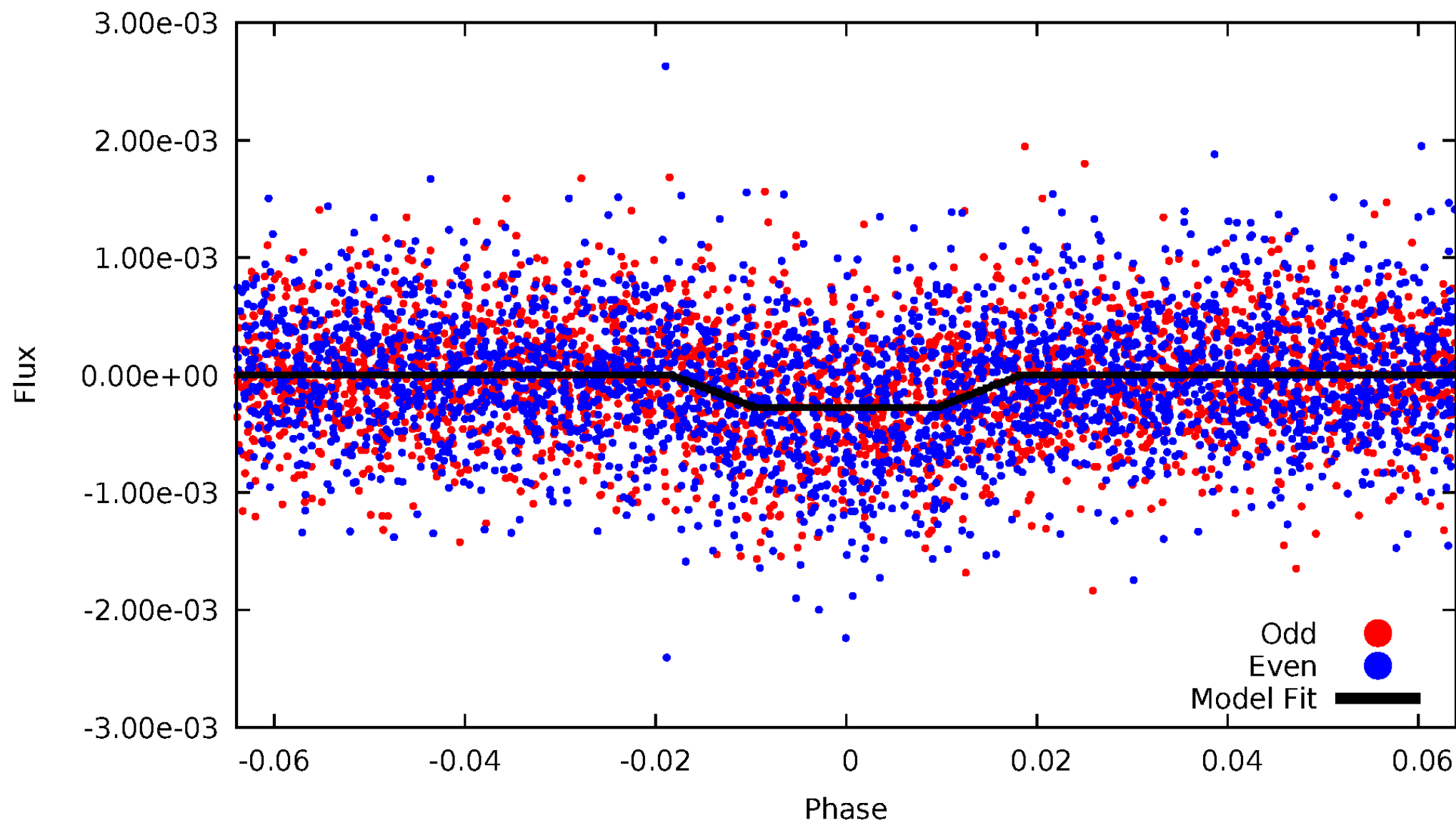
DV Odd/Even

TCE 007376983-04



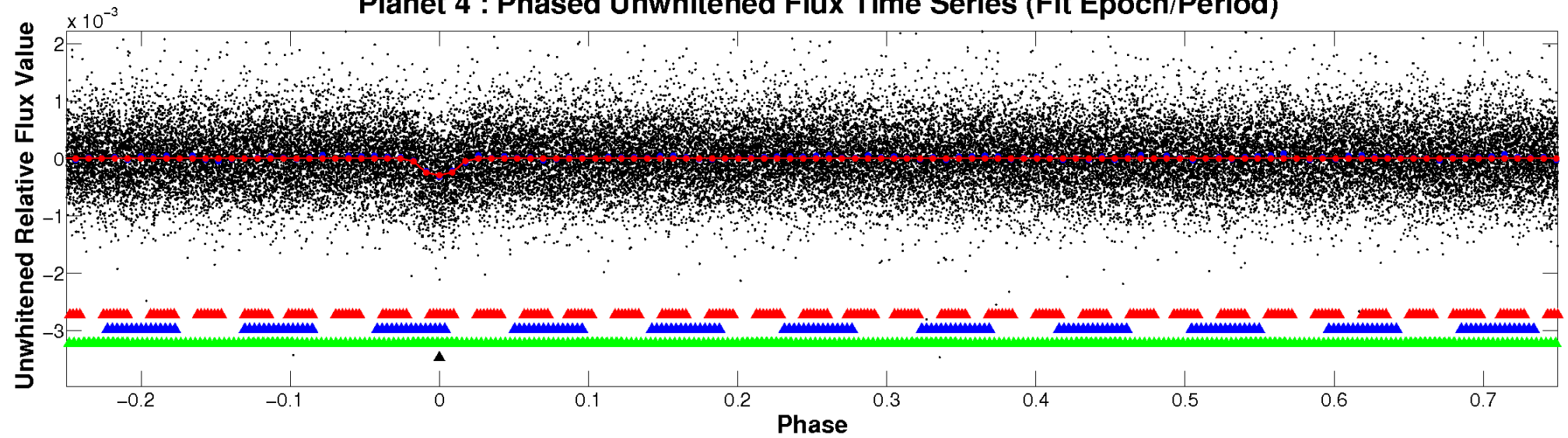
ALT Odd/Even

TCE 007376983-04

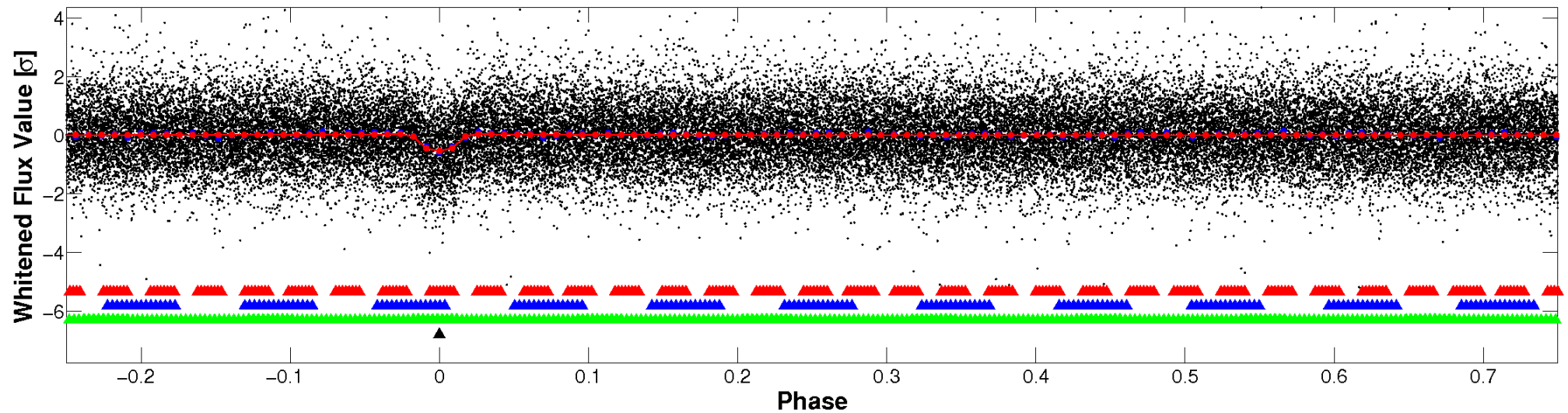


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

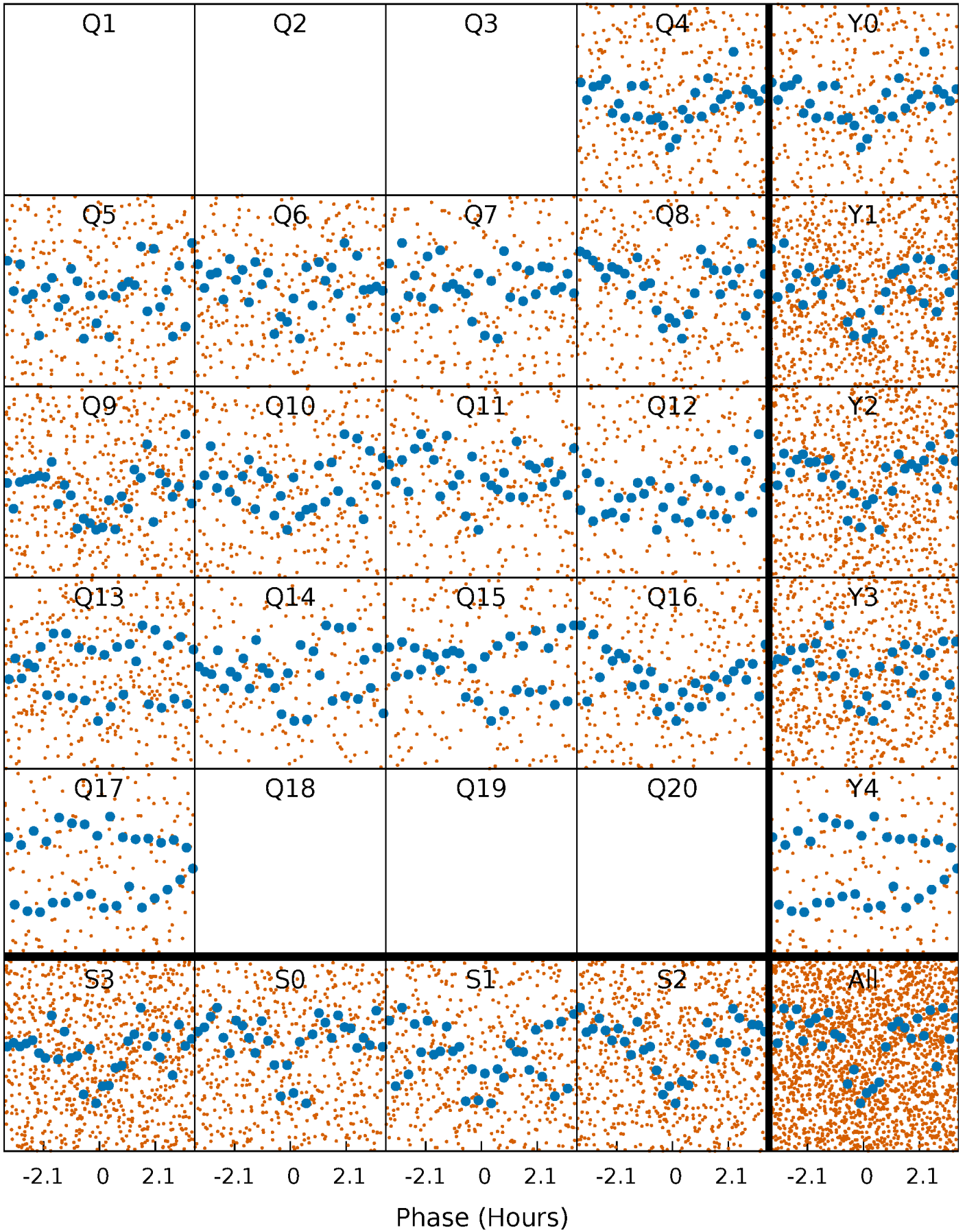


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



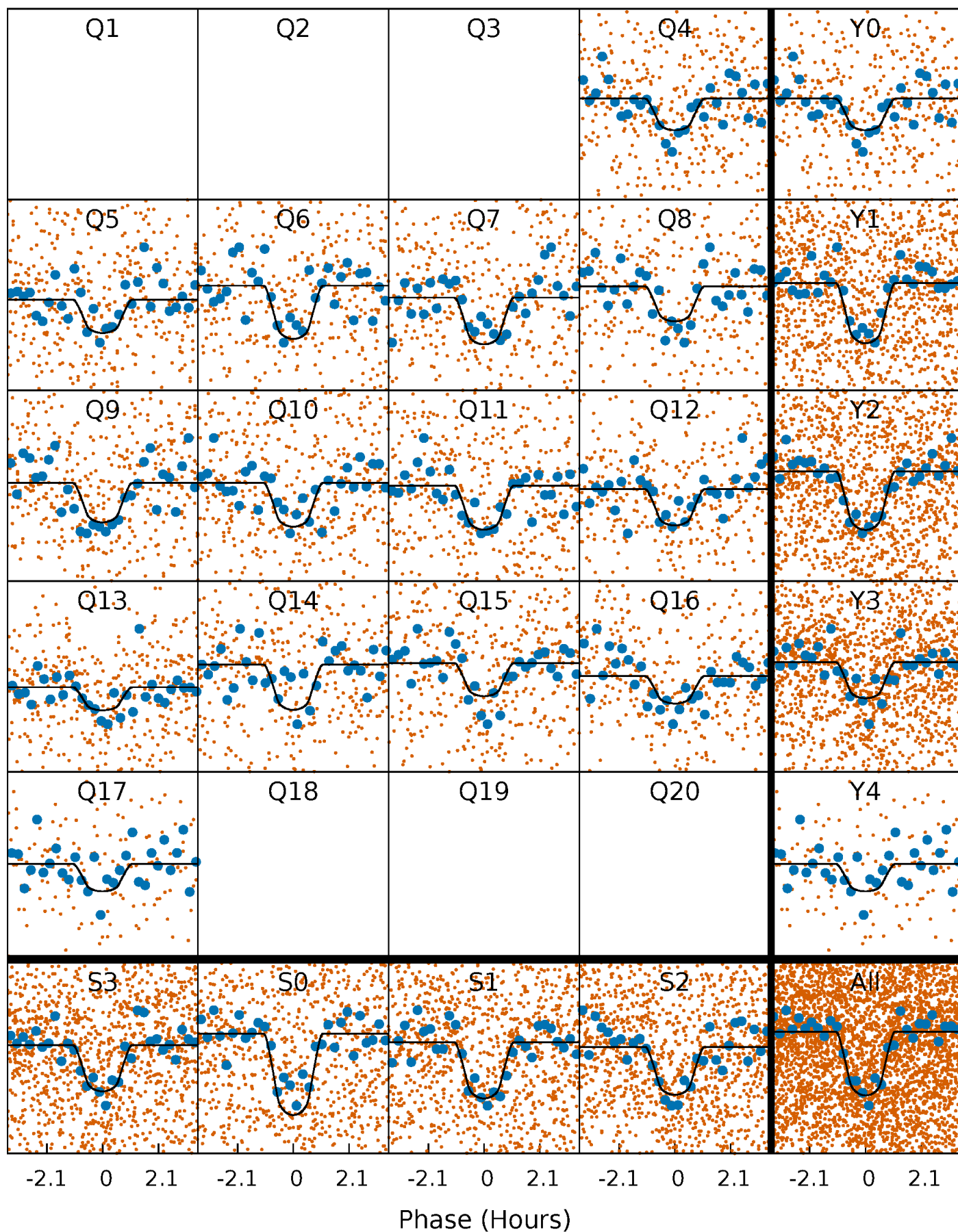
PDC Quarter-Phased Transit Curves

TCE 007376983-04 P= 2.345860 Days $T_0=133.600976$ (BKJD)



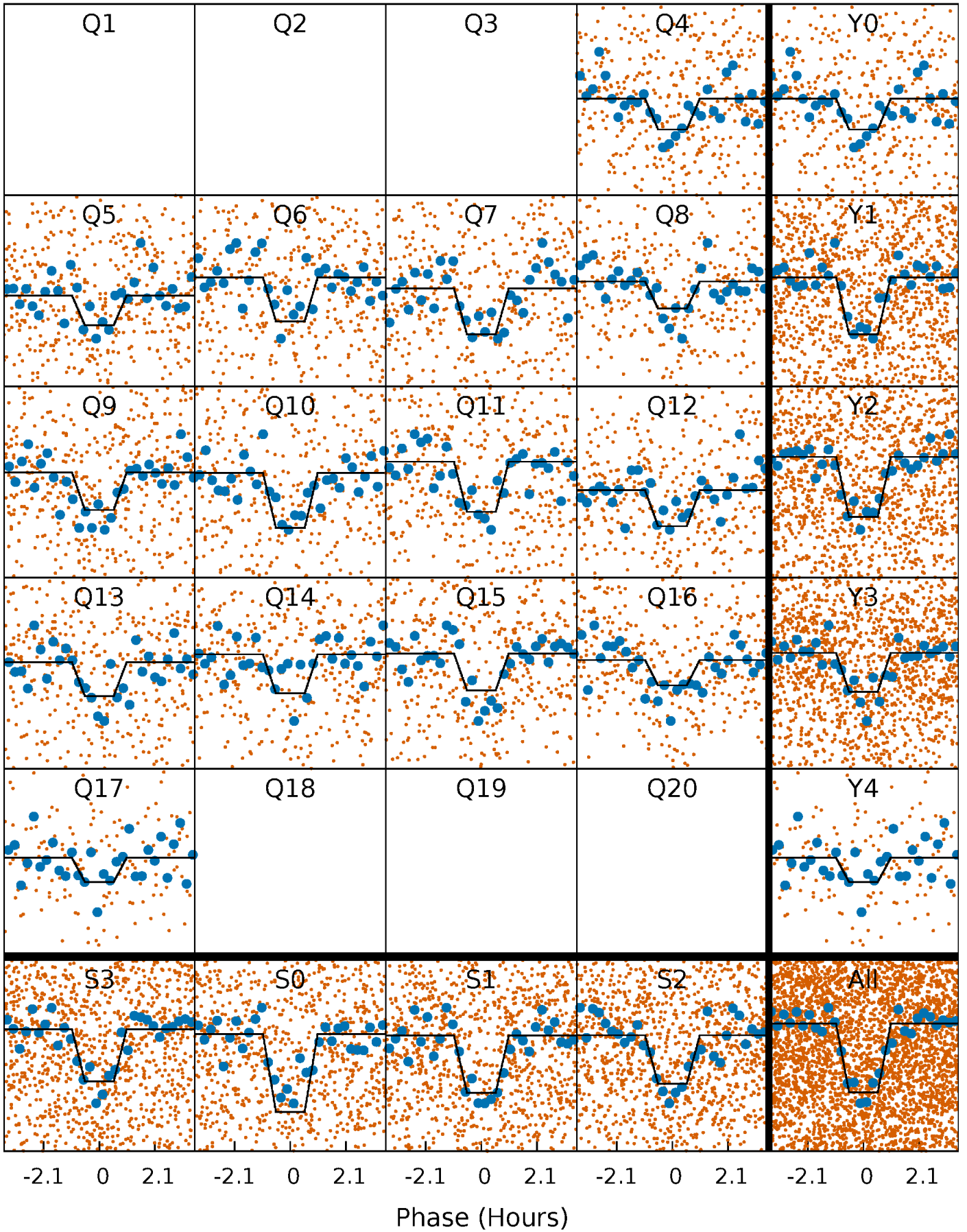
DV Quarter-Phased Transit Curves

TCE 007376983-04 P= 2.345860 Days $T_0=133.600976$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

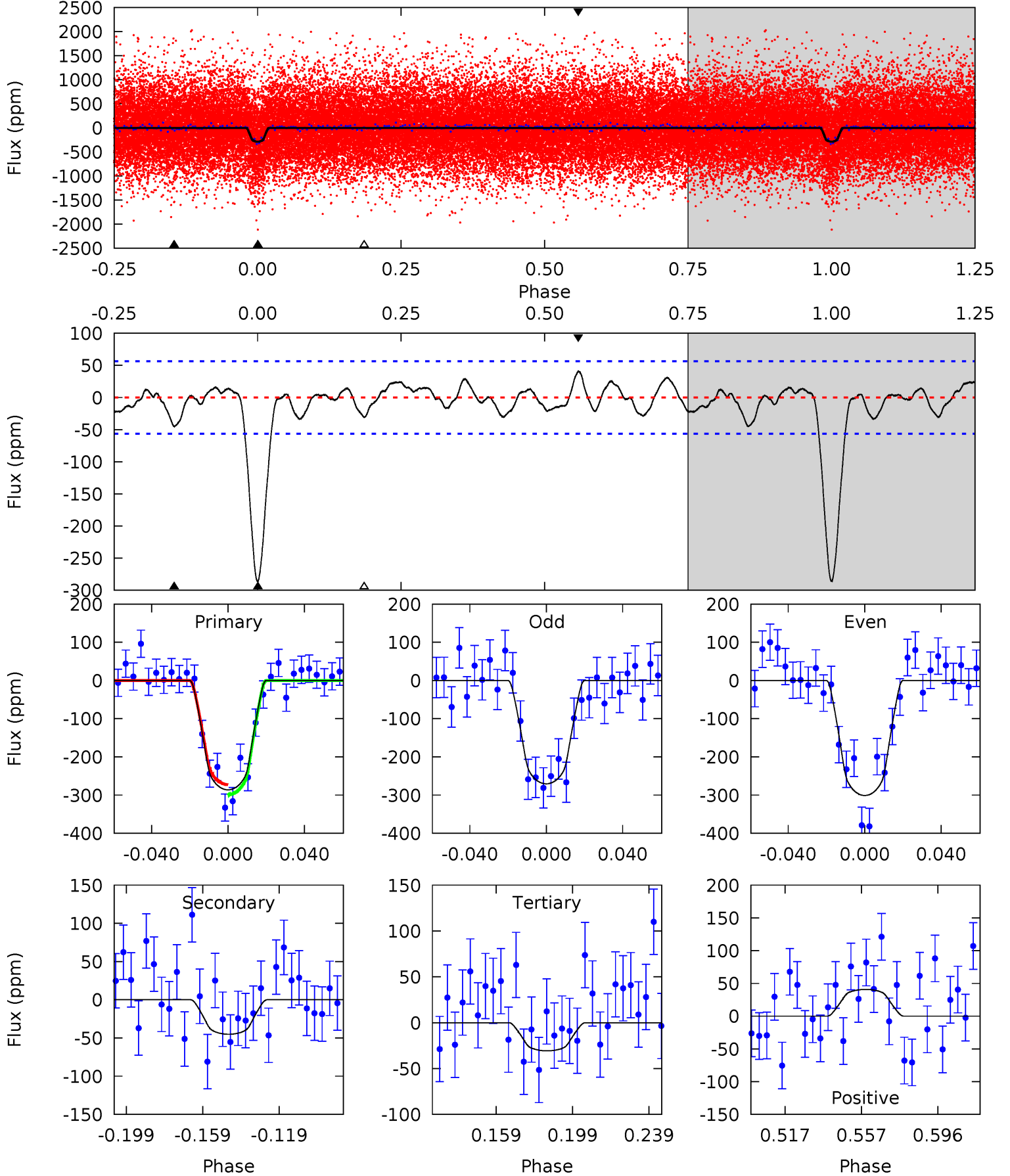
TCE 007376983-04 P= 2.345859 Days $T_0=133.602370$ (BKJD)



DV Model-Shift Uniqueness Test

007376983-04, P = 2.345860 Days, E = 133.600976 Days

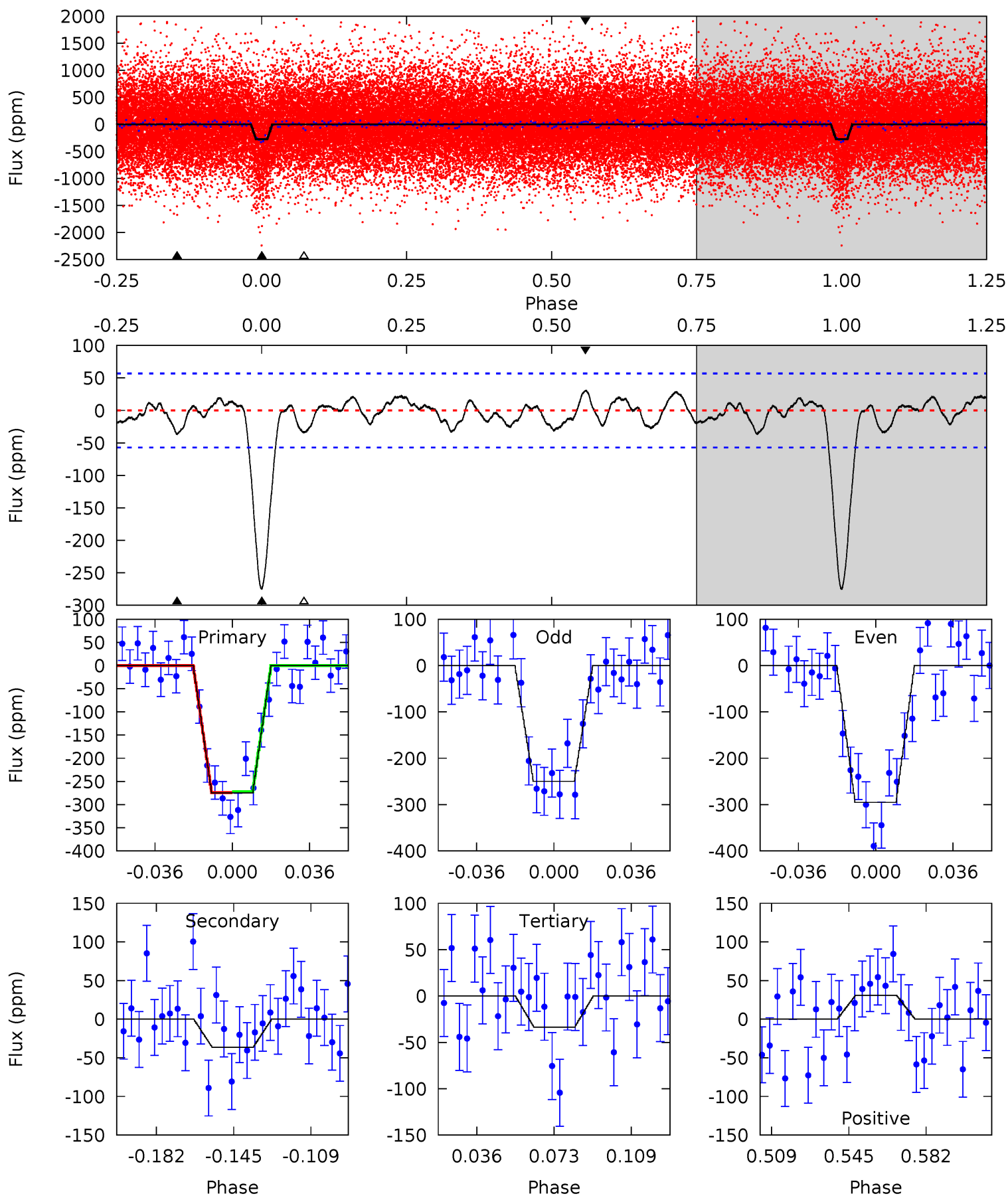
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	3.81	2.59	3.44	4.75	2.06	1.33	21.5	20.7	1.22	0.37	1.29	1.06	0.12	1.13



Alt Model-Shift Uniqueness Test

007376983-04, P = 2.345859 Days, E = 133.602370 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	3.06	2.81	2.60	4.77	2.09	1.25	20.2	20.4	0.25	0.46	1.90	1.04	0.10	0.09



Stellar Parameters For KIC 007376983

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4769^{+172}_{-172}	$4.622^{+0.024}_{-0.060}$	$0.120^{+0.250}_{-0.300}$	$0.714^{+0.068}_{-0.049}$	$0.799^{+0.041}_{-0.081}$	$3.091^{+0.398}_{-0.665}$
	+4%/-4%	+1%/-1%	+208%/-250%	+10%/-7%	+5%/-10%	+13%/-22%
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 007376983-04 / KOI 1358.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-45 ± 12	$1.55^{+0.86}_{-0.73}$	1409^{+57}_{-59}	3237^{+869}_{-404}	$9.880^{+29.604}_{-5.883}$
Alt.	-37 ± 12	$1.34^{+0.81}_{-0.68}$	1404^{+56}_{-56}	3284^{+1017}_{-471}	11^{+40}_{-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

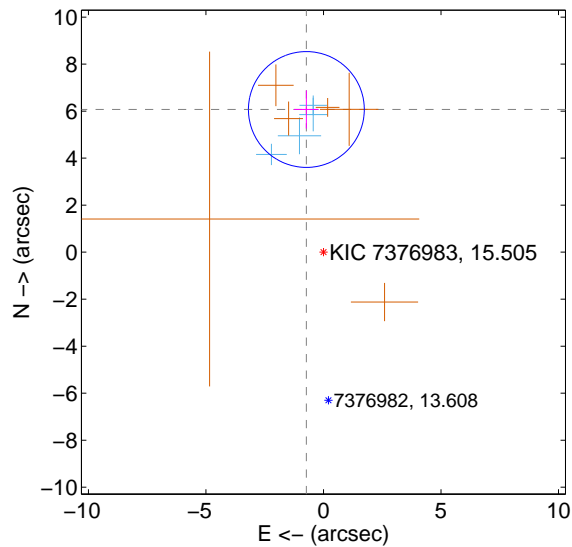
Supplemental centroid analysis for 007376983-04. Kepler magnitude: 15.51. Transit SNR 16.62

There are 4 quarters with good PRF difference image offsets

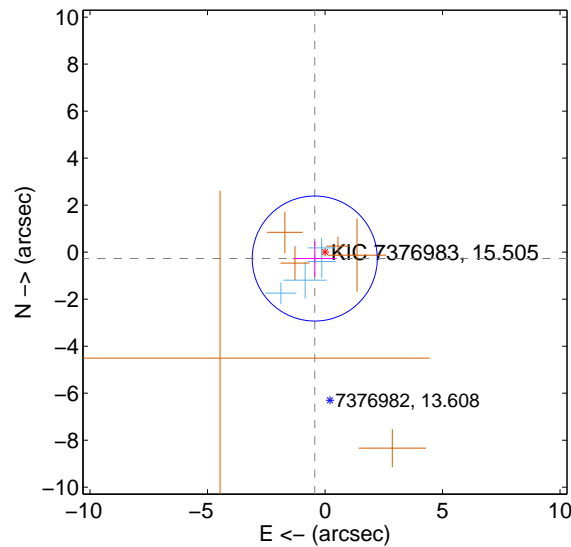
The OOT PRF centroid is offset from the target star catalog position by about 6.21 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.114 ± 0.821	7.44	0.728 ± 0.520	6.070 ± 0.811
PRF-fit source offset from KIC position	0.513 ± 0.887	0.58	0.437 ± 0.931	-0.270 ± 0.756
photometric centroid source offset	3.46 ± 0.22	15.96	-0.50 ± 0.14	-3.42 ± 0.22

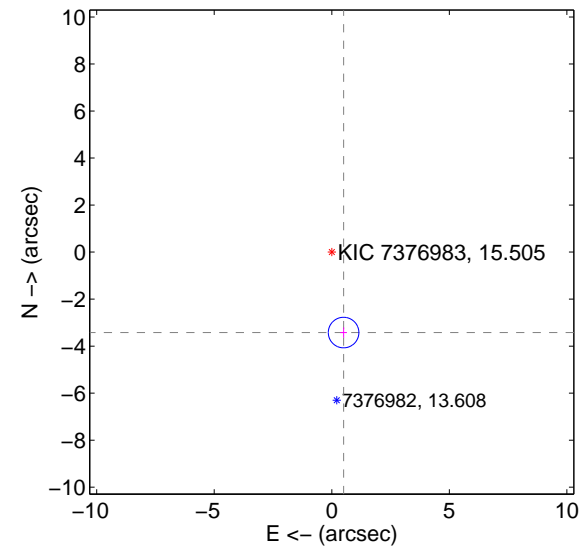
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

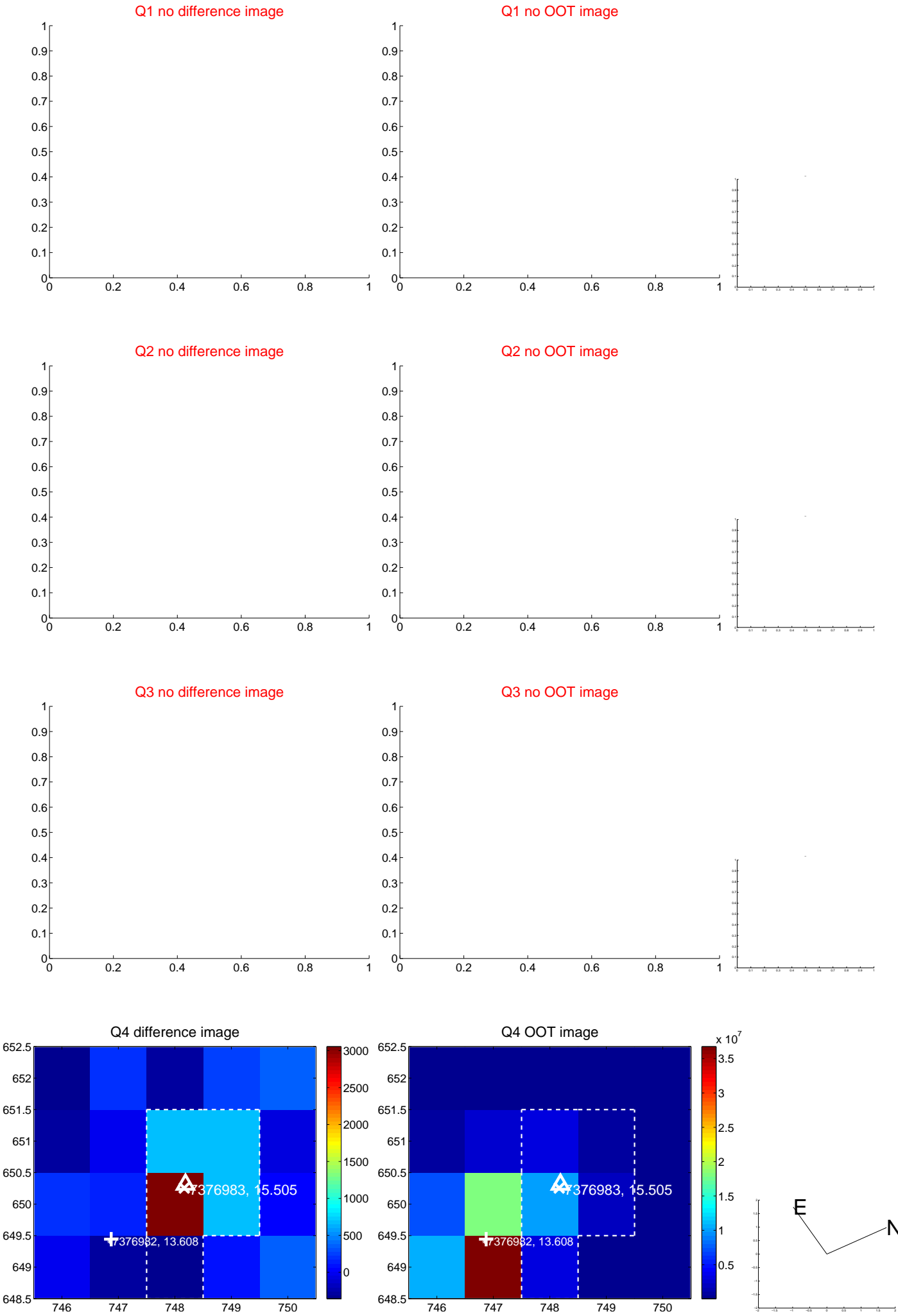


offset from photometric centroids

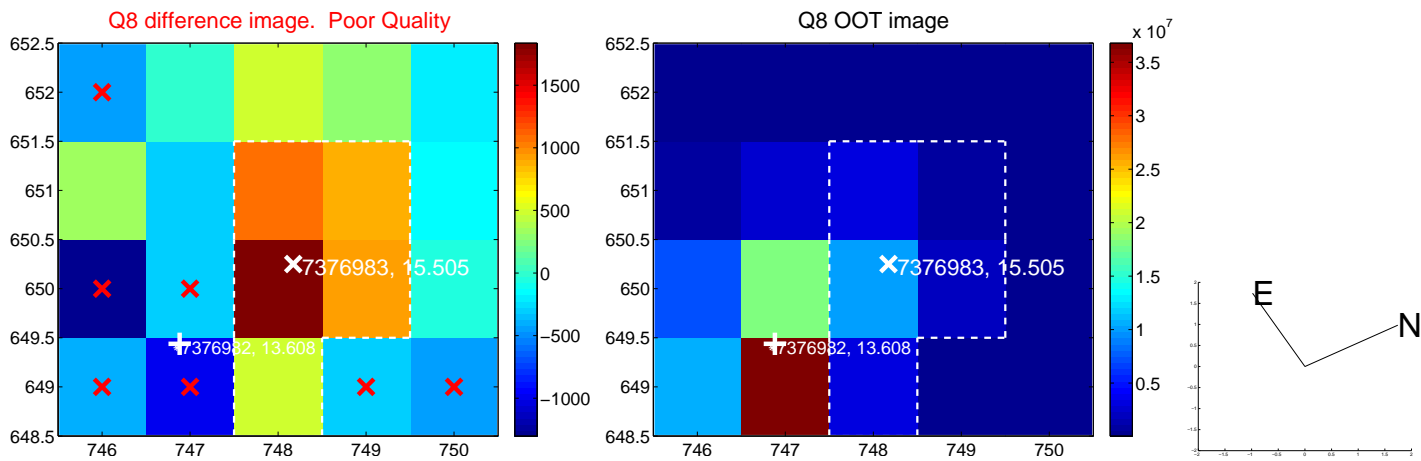
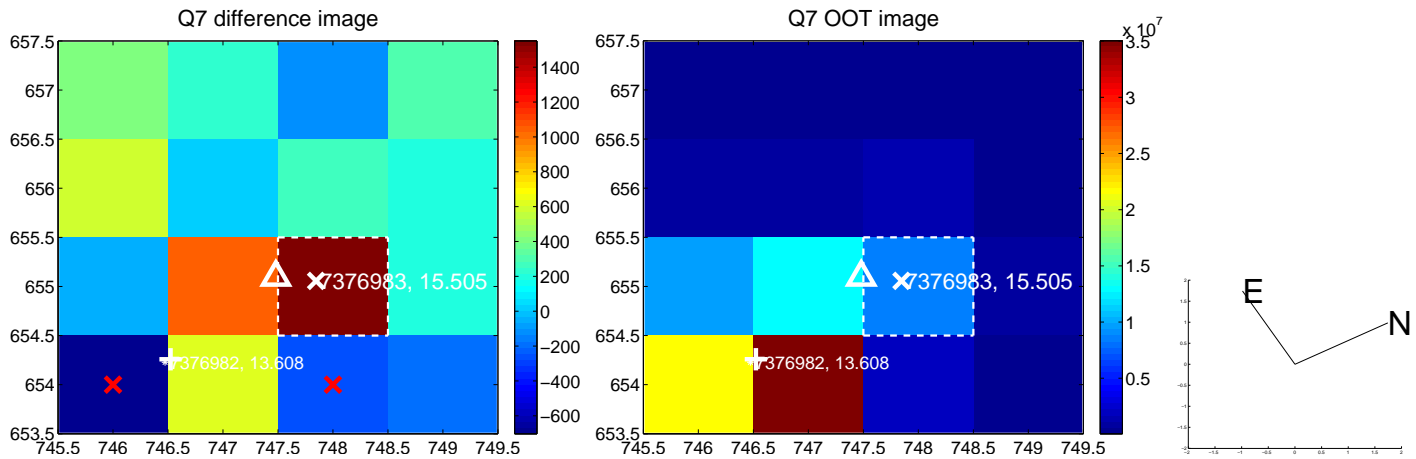
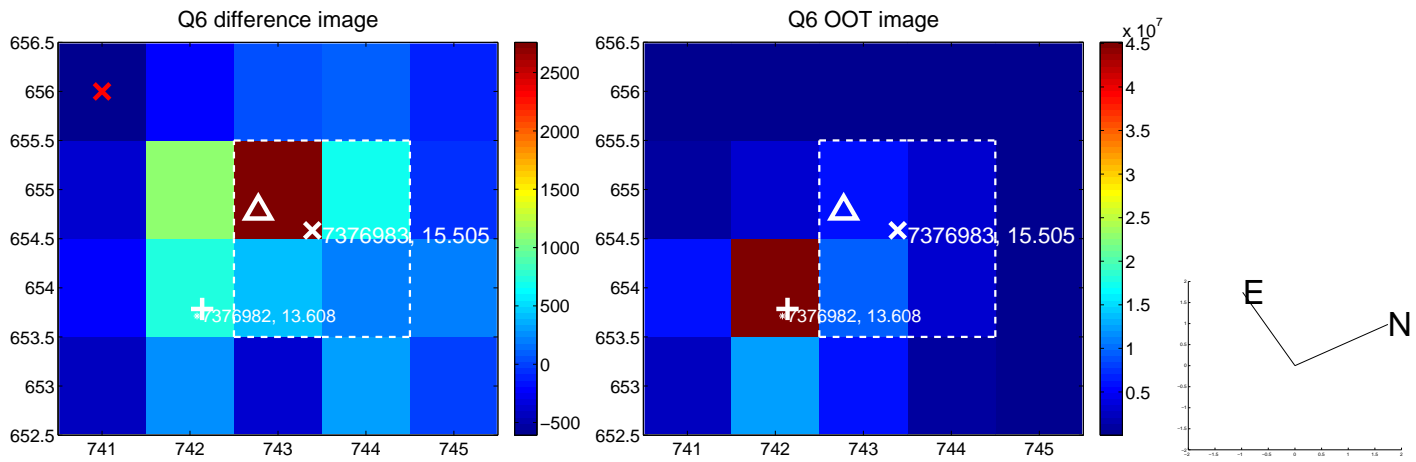
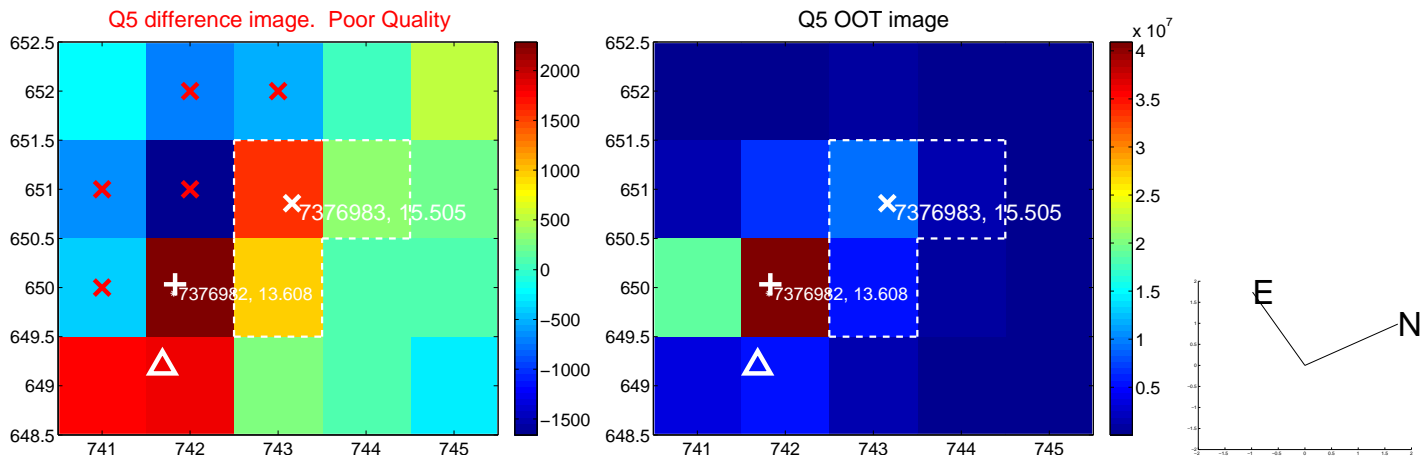


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

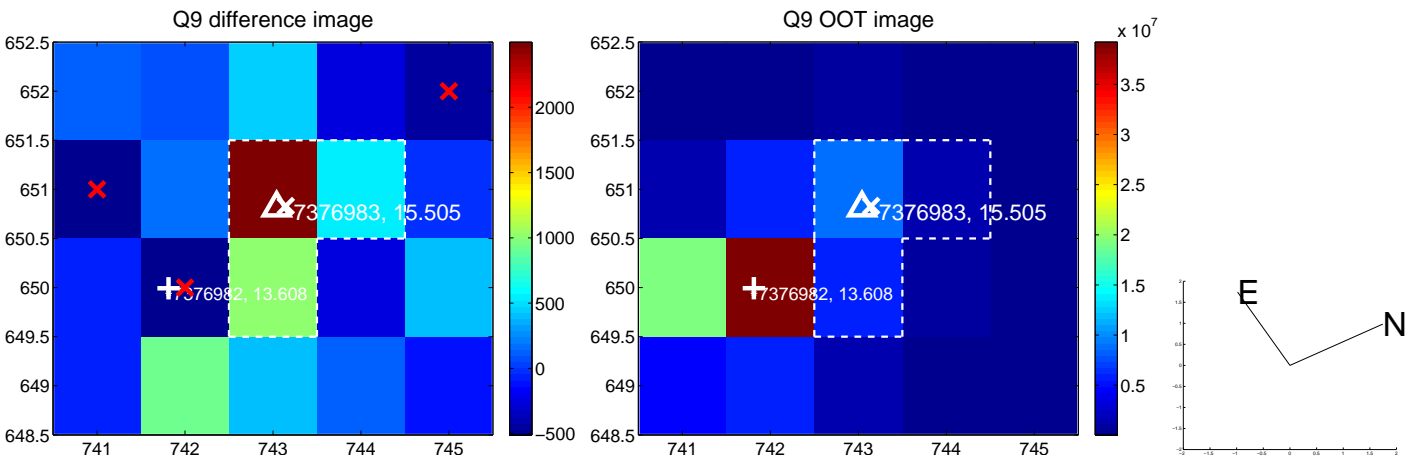
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



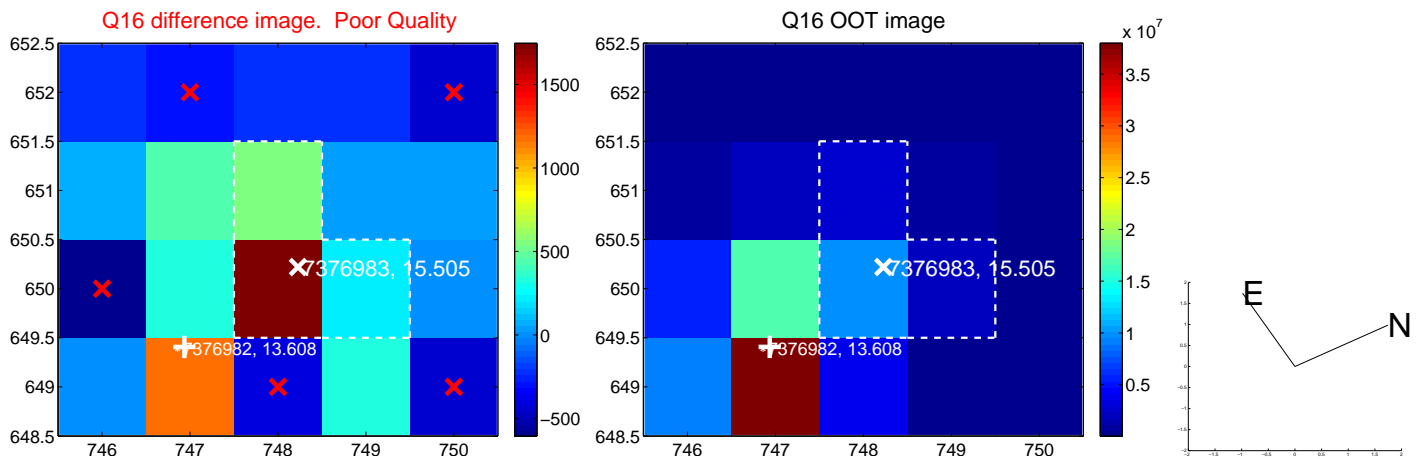
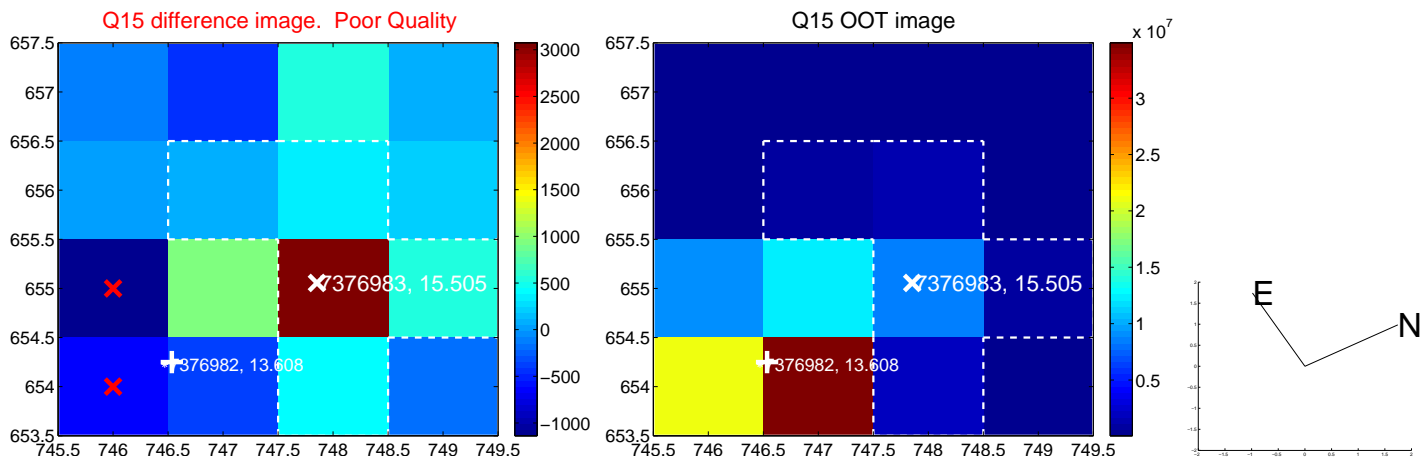
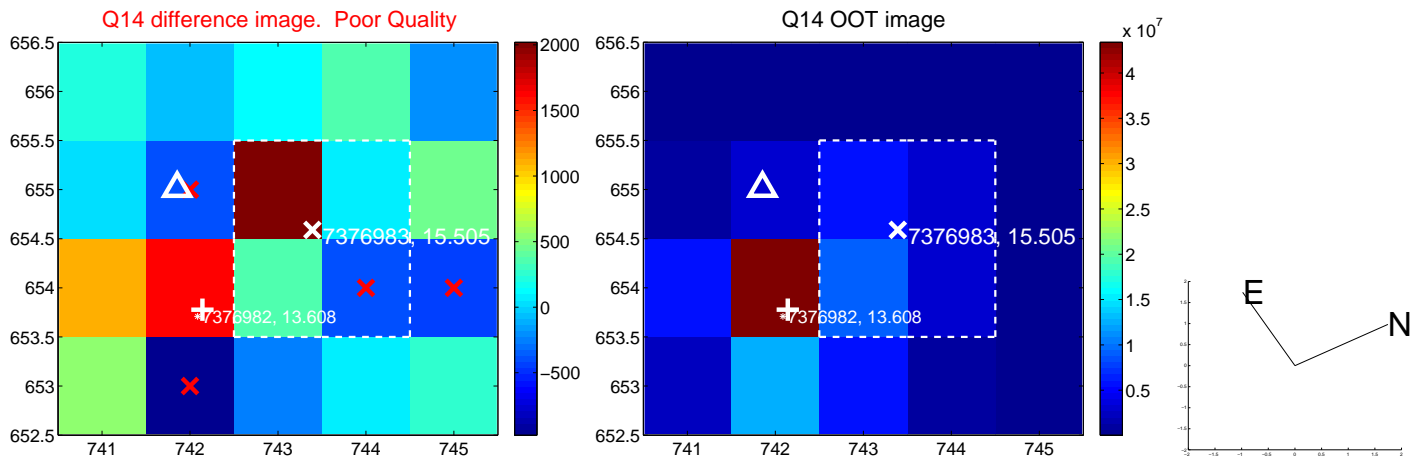
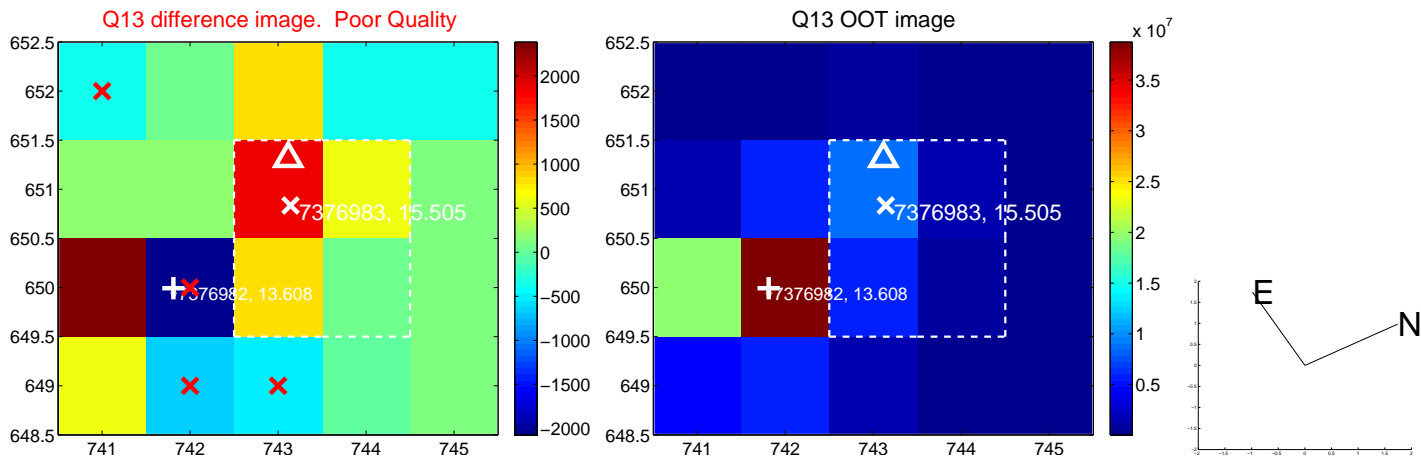
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



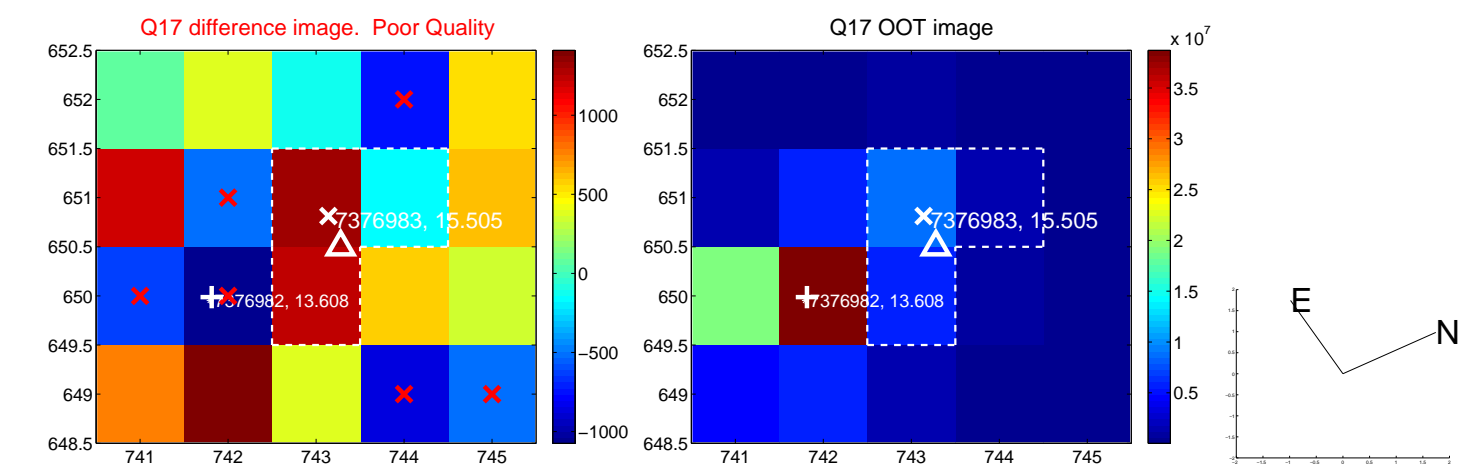
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



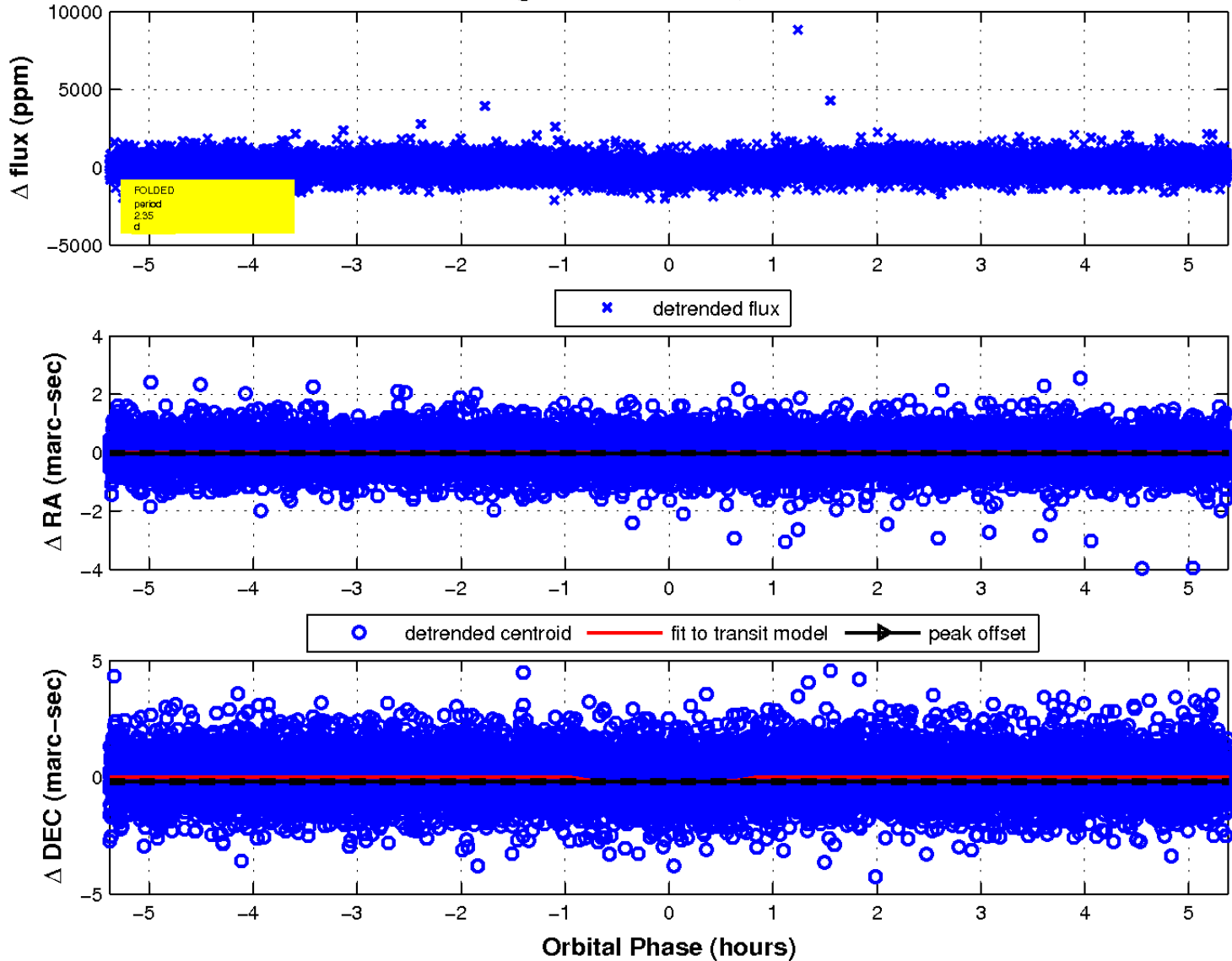
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

