

KIC 009776926

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})
009776926-01	OBS	No	323.873318	446.056265	615.8	8.494	10.3	8.7	1.32	5963	3.93	2.32
009776926-02	OBS	No	362.361171	207.998682	548.4	3.372	9.1	7.0	1.32	5963	3.30	1.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009776926-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009776926-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

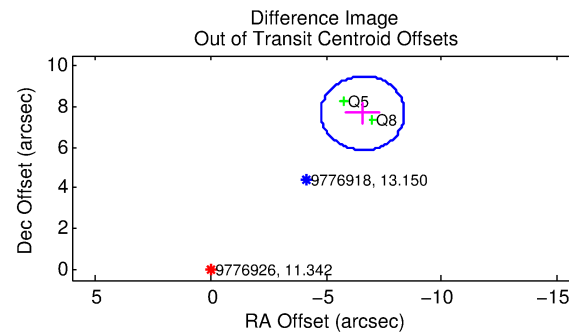
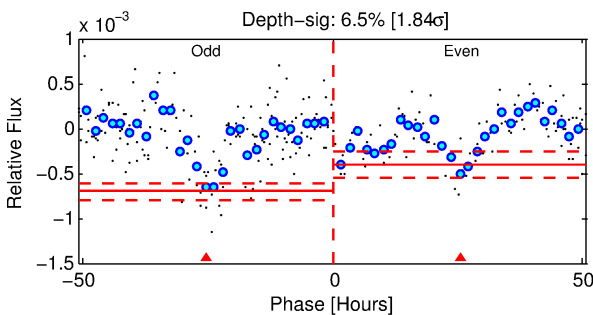
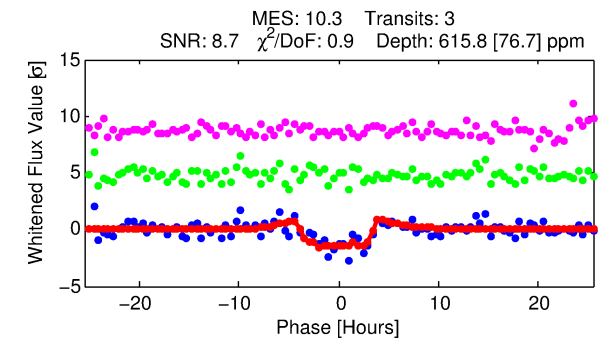
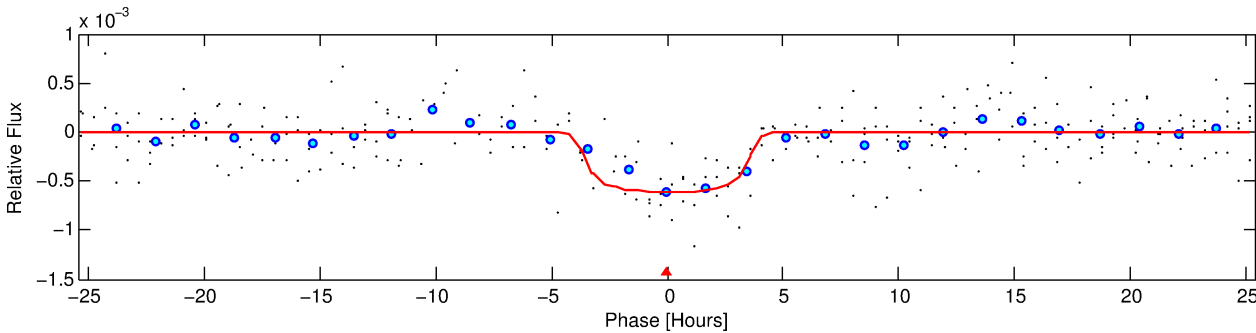
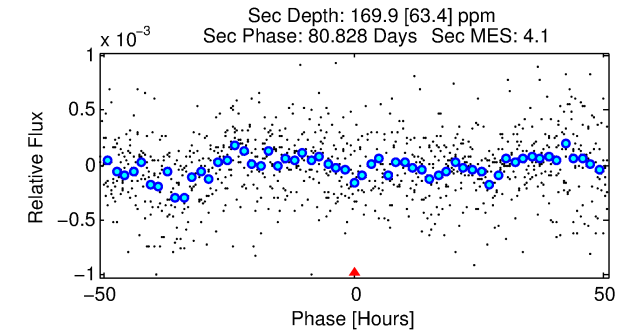
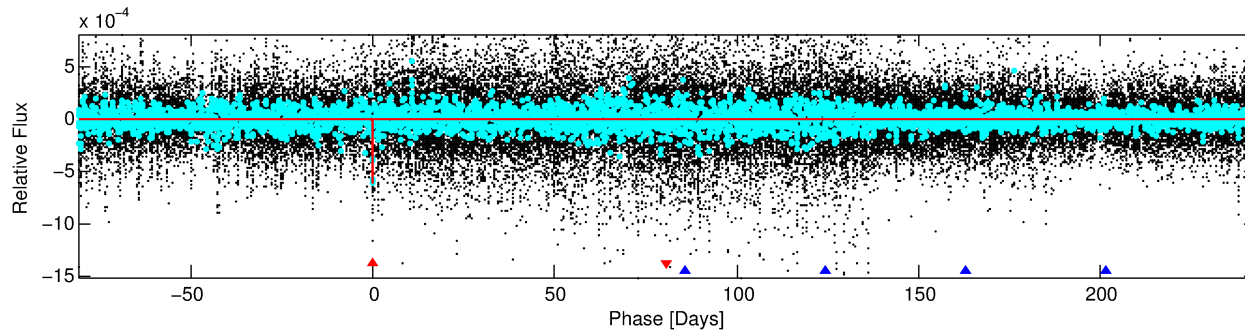
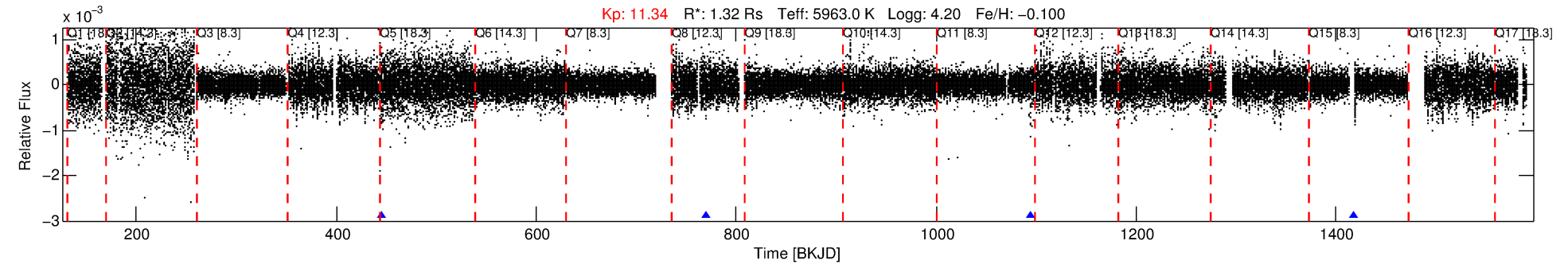
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009776926-01

No Significant Match Found

DV One-Page Summary

KIC: 9776926 Candidate: 1 of 2 Period: 323.873 d



DV Fit Results:

Period = 323.87332 [0.01295] d
Epoch = 446.0563 [0.0144] BKJD
Rp/R* = 0.0272 [0.0028]
a/R* = 136.94 [48.29]
b = 0.91 [0.06]
Seff = 2.32 [1.03]
Teq = 315 [35] K
Rp = 3.93 [1.17] Re
a = 0.9258 [0.2456] AU
Ag = 5183.58 [3098.67] [1.67 σ]
Teffp = 4127 [461] K [8.24 σ]

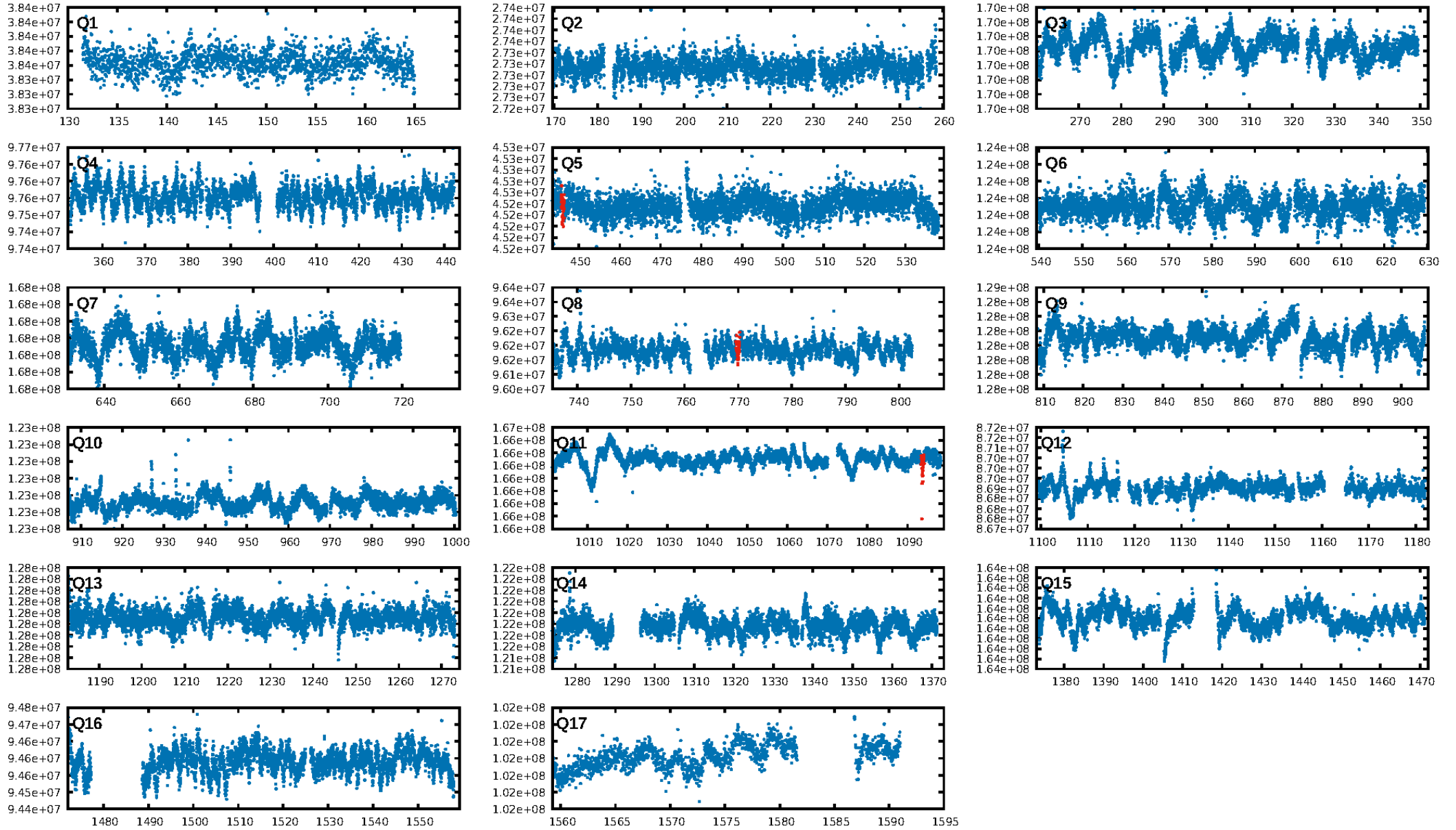
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [101.08 σ]
ModelChiSquare2-sig: 14.1%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 2.12e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.1687
Centroid-sig: 5.1%
Centroid-so: 1.153 arcsec [1.52 σ]
OotOffset-rm: 10.109 arcsec [16.77 σ]
KicOffset-rm: 5.887 arcsec [9.91 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

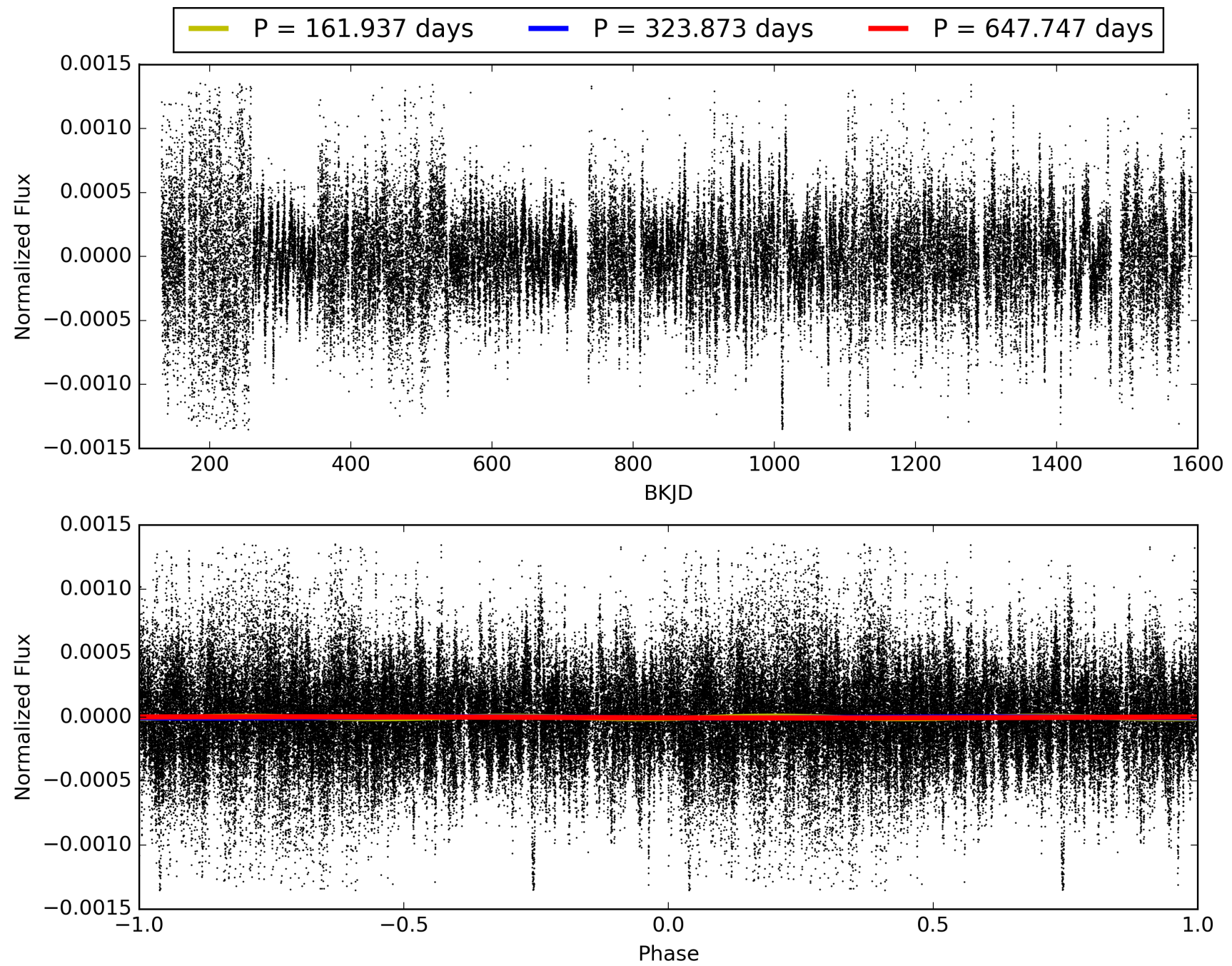
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:46:24 Z

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

TCE 009776926-01, PDC Light Curves

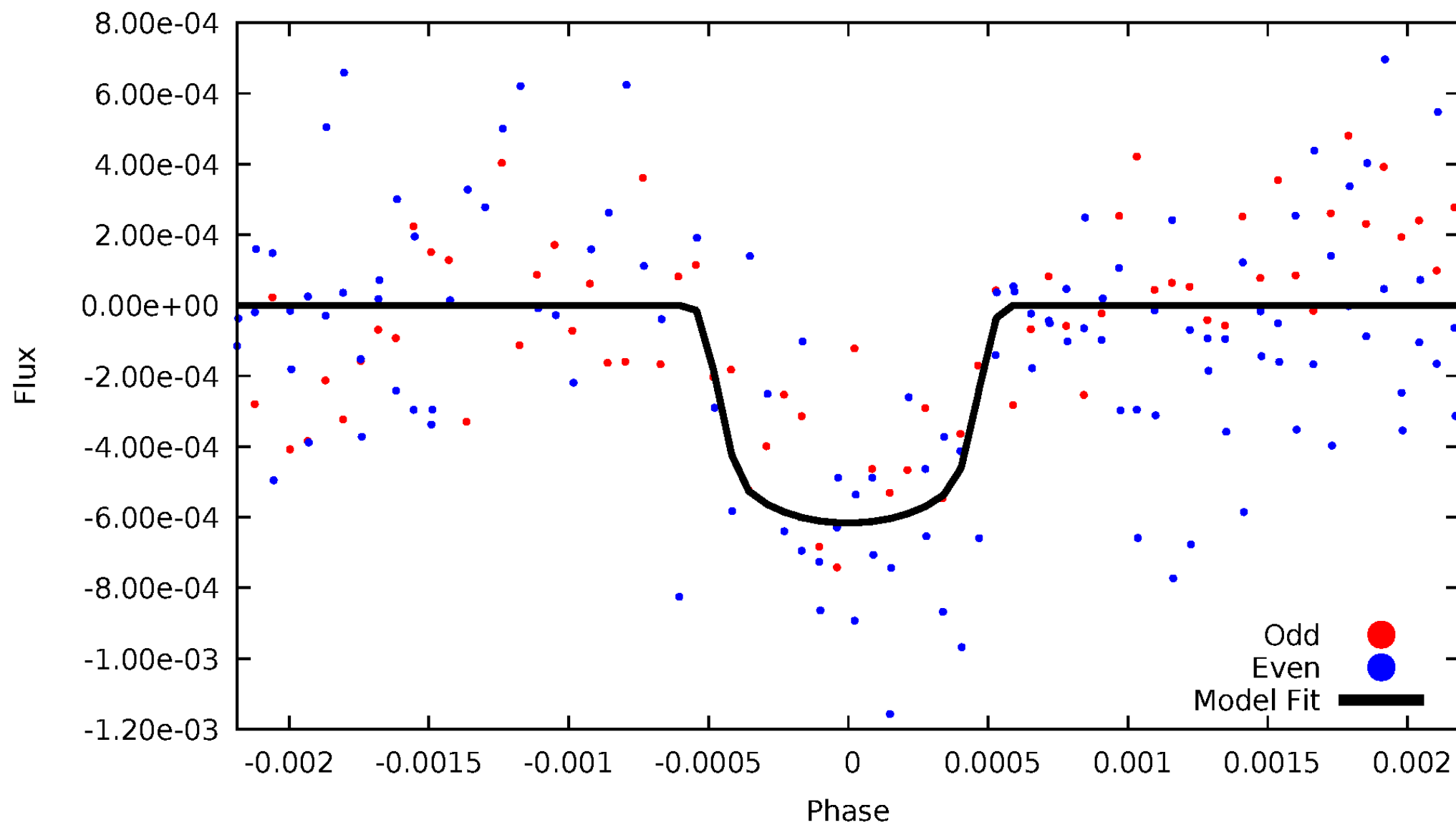


TCE 009776926-01



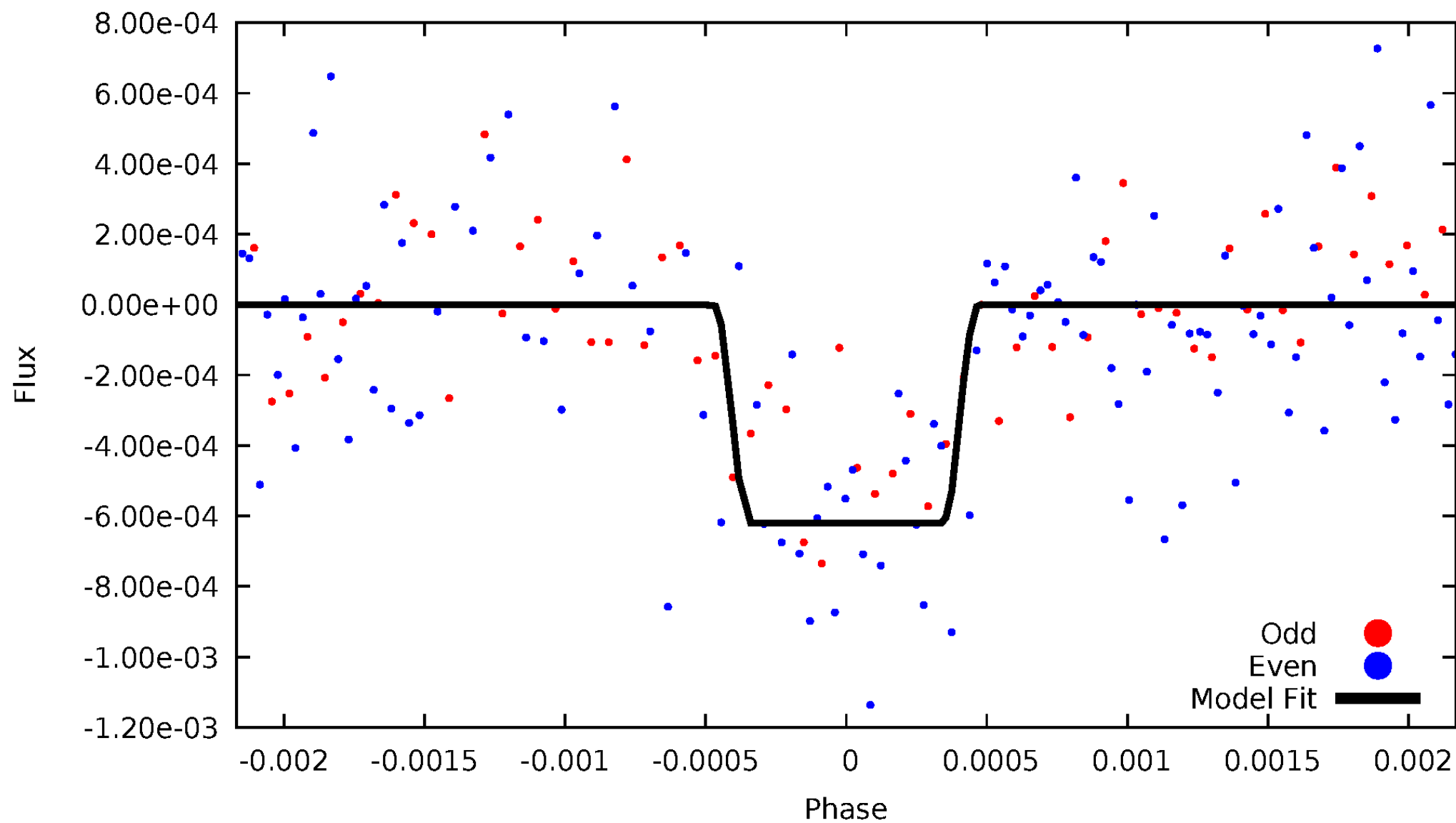
DV Odd/Even

TCE 009776926-01

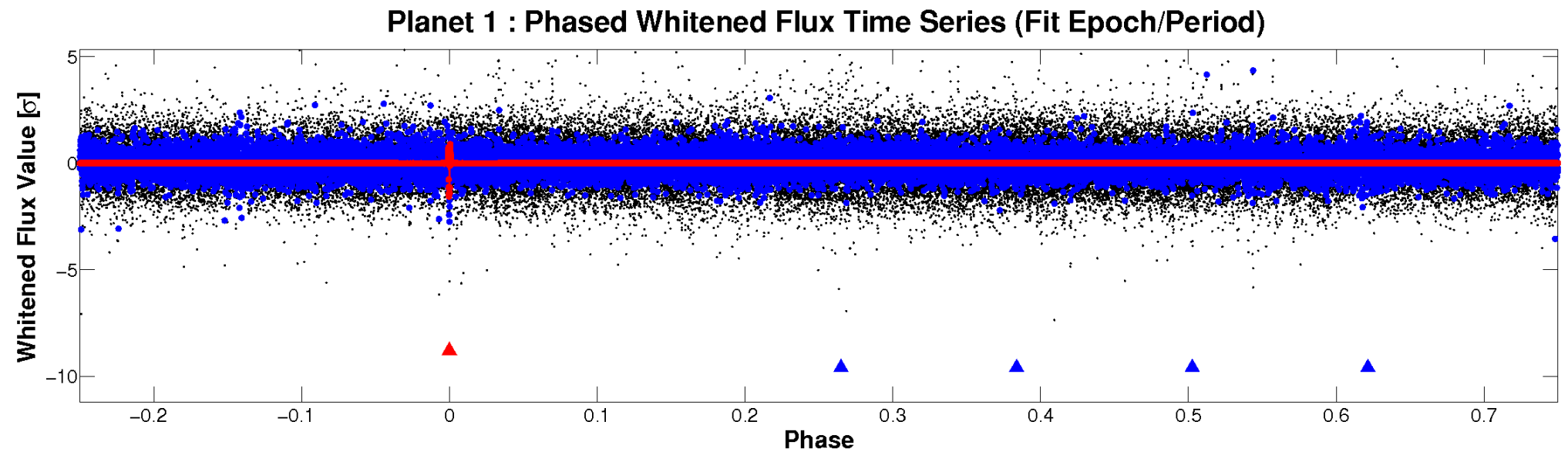
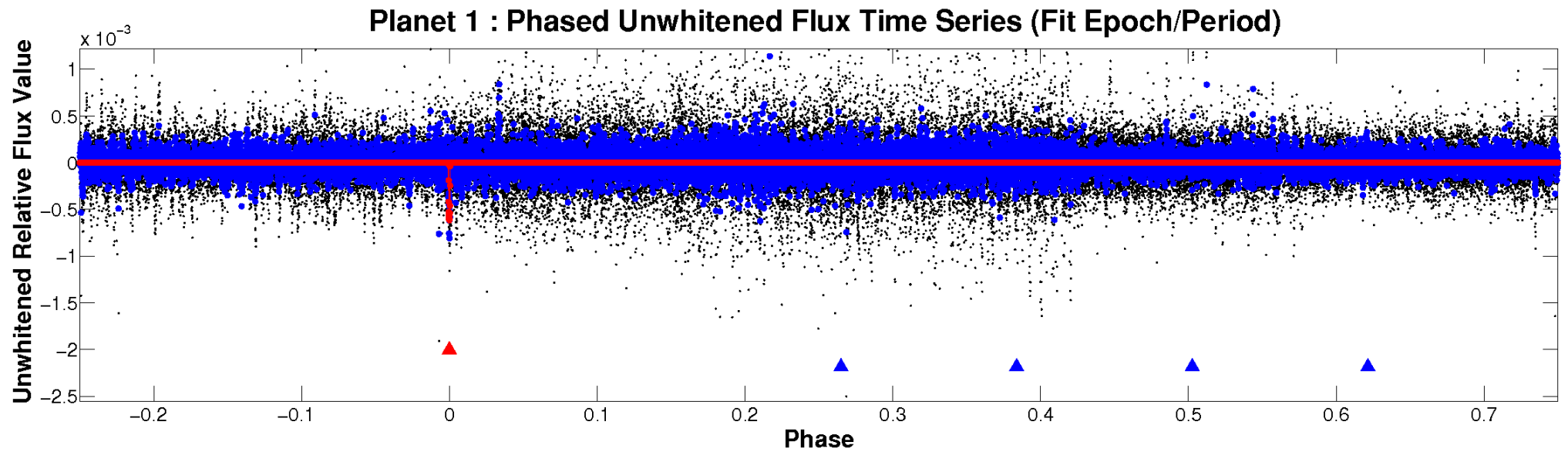


ALT Odd/Even

TCE 009776926-01



Non-Whitened Vs. Whitened Light Curve



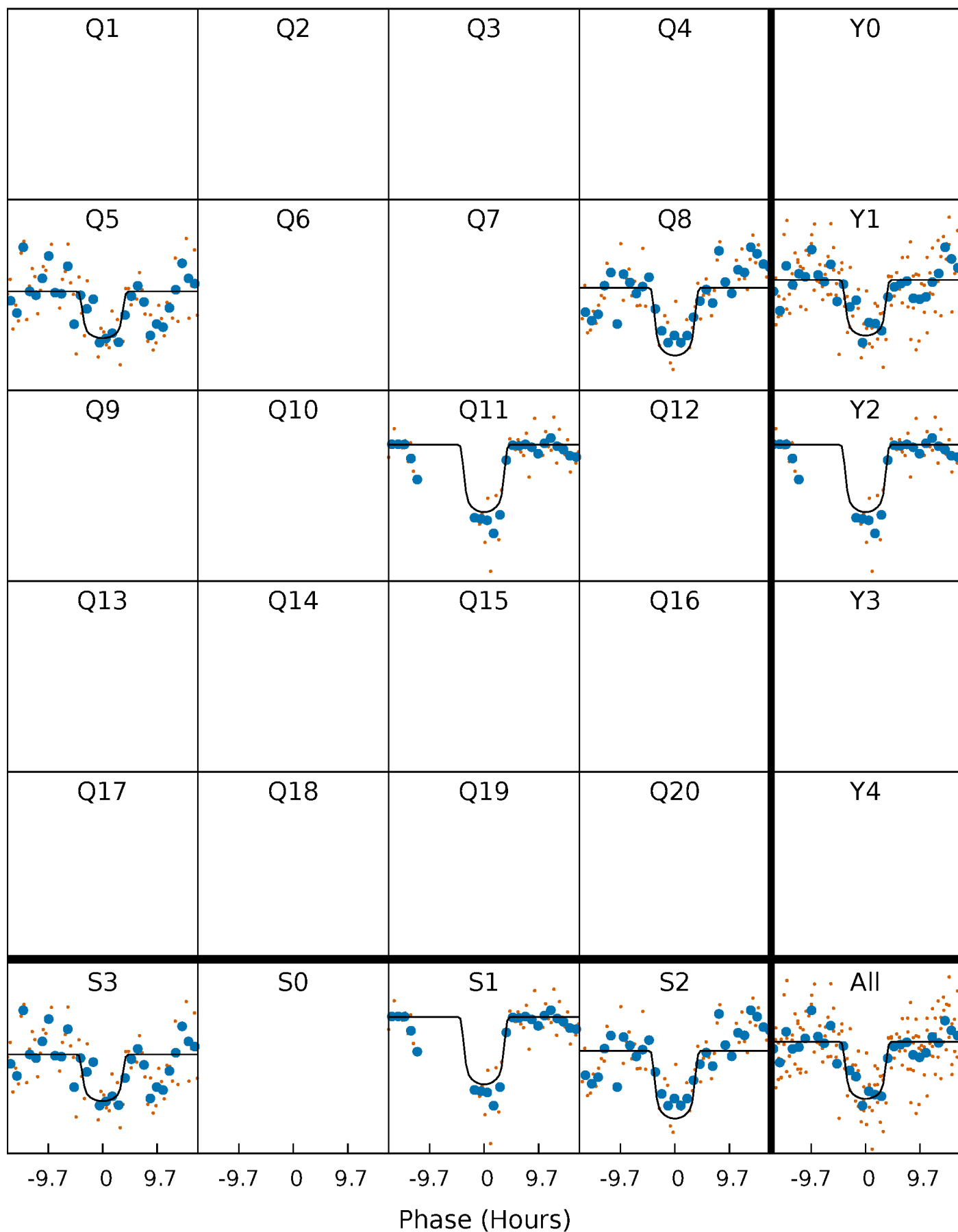
PDC Quarter-Phased Transit Curves

TCE 009776926-01 P=323.873318 Days $T_0=446.056265$ (BKJD)



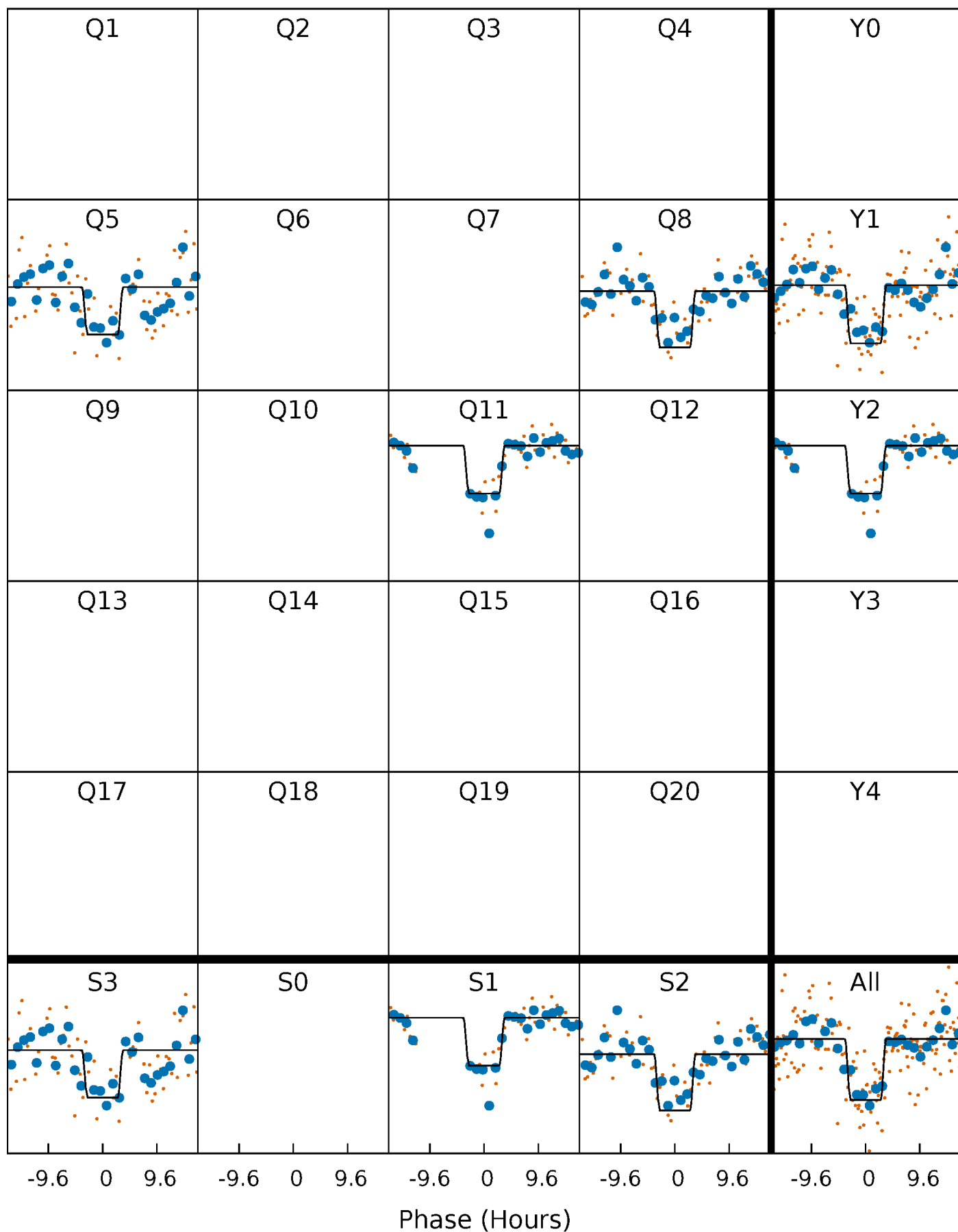
DV Quarter-Phased Transit Curves

TCE 009776926-01 $P=323.873318$ Days $T_0=446.056265$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

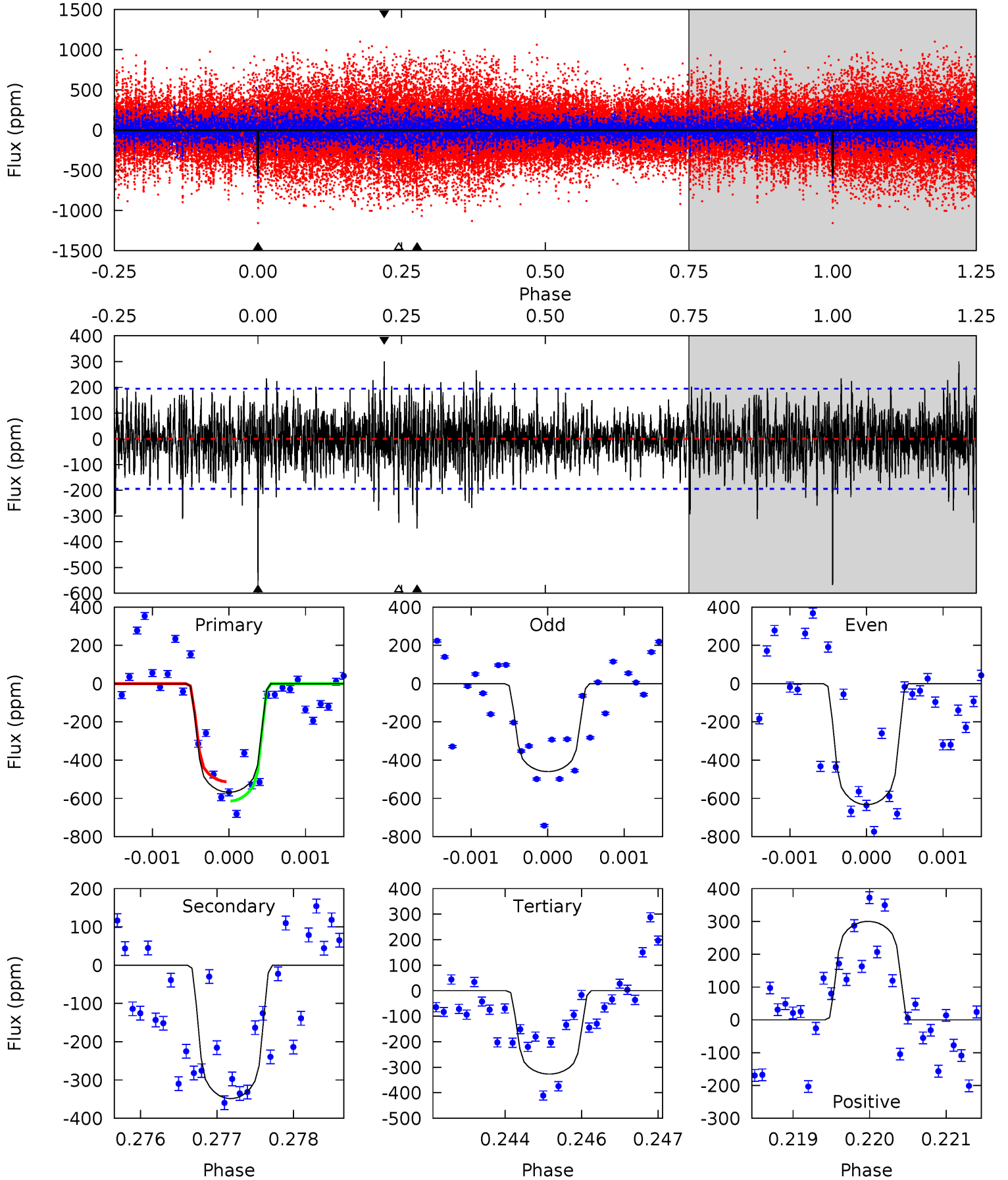
TCE 009776926-01 P=323.878737 Days $T_0=446.065886$ (BKJD)



DV Model-Shift Uniqueness Test

009776926-01, P = 323.873318 Days, E = 122.182947 Days

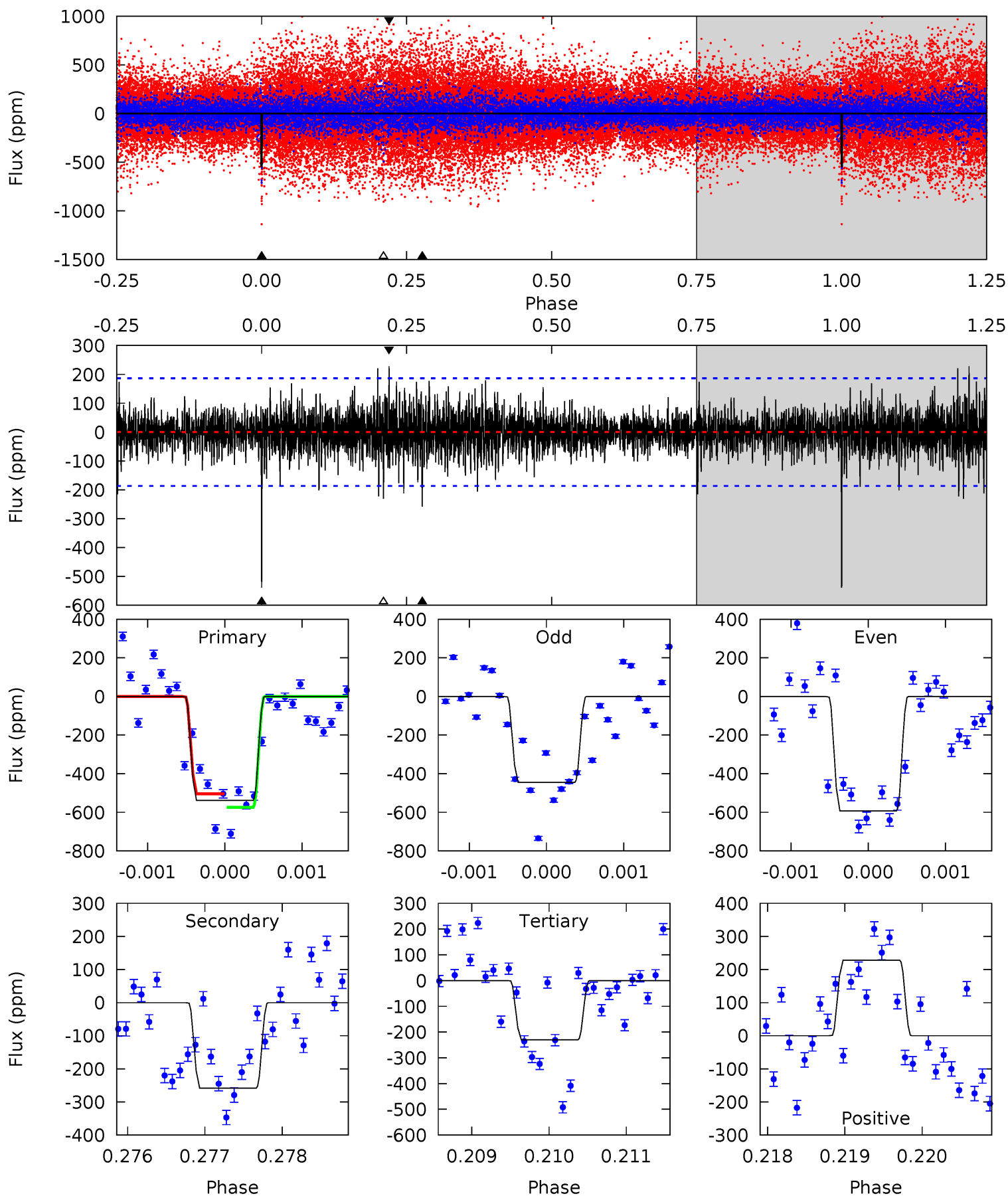
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	9.75	9.14	8.40	5.44	3.27	2.07	6.75	7.49	0.61	1.35	2.33	1.07	0.35	1.43



Alt Model-Shift Uniqueness Test

009776926-01, P = 323.878737 Days, E = 122.187149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	7.56	6.75	6.69	5.47	3.31	1.42	9.05	9.11	0.82	0.88	2.08	1.06	0.30	1.04



Stellar Parameters For KIC 009776926

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5963^{+189}_{-210}	$4.198^{+0.246}_{-0.164}$	$-0.100^{+0.300}_{-0.300}$	$1.324^{+0.370}_{-0.370}$	$1.010^{+0.153}_{-0.126}$	$0.613^{+0.820}_{-0.286}$
	+3%/-4%	+6%/-4%	+300%/-300%	+28%/-28%	+15%/-12%	+134%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009776926-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-348 ± 36	$3.83^{+0.75}_{-0.60}$	435^{+33}_{-37}	5021^{+307}_{-282}	11282^{+4839}_{-3382}
Alt.	-258 ± 34	$3.47^{+0.77}_{-0.64}$	434^{+34}_{-38}	4917^{+293}_{-285}	10237^{+5113}_{-3280}

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

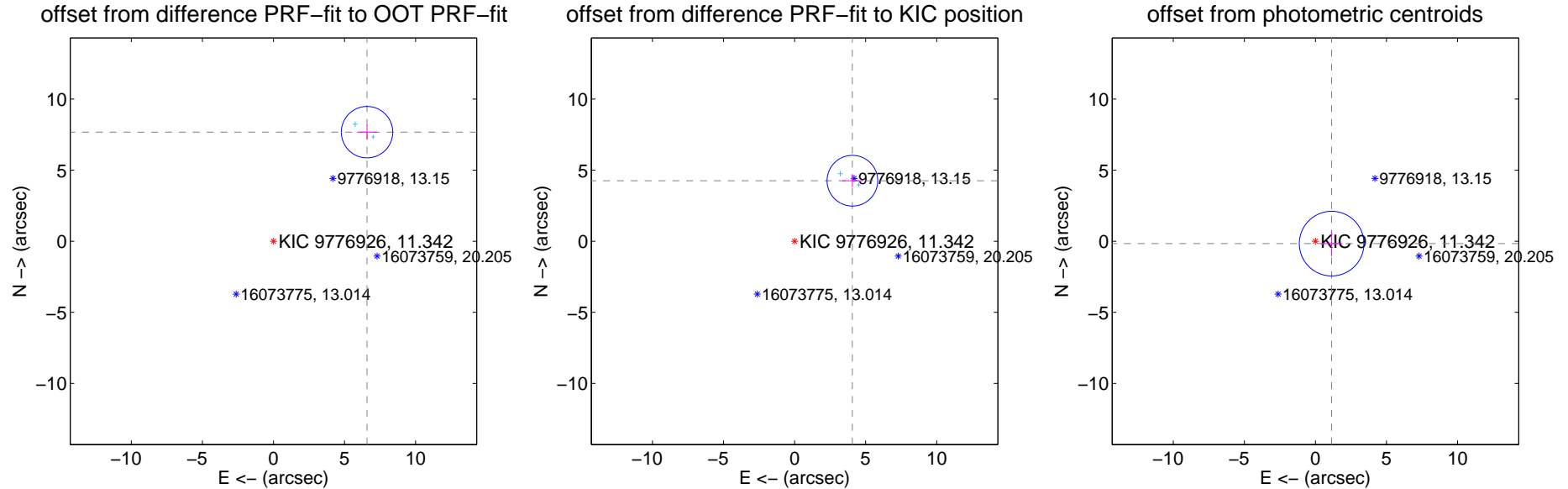
DV Centroid Data

Supplemental centroid analysis for 009776926-01. **Kepler magnitude: 11.34.** Transit SNR 8.70

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.20 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	10.109 ± 0.603	16.77	-6.585 ± 0.707	7.670 ± 0.513
PRF-fit source offset from KIC position	5.887 ± 0.594	9.91	-4.067 ± 0.721	4.256 ± 0.448
photometric centroid source offset	1.15 ± 0.76	1.52	-1.14 ± 0.75	-0.17 ± 0.88

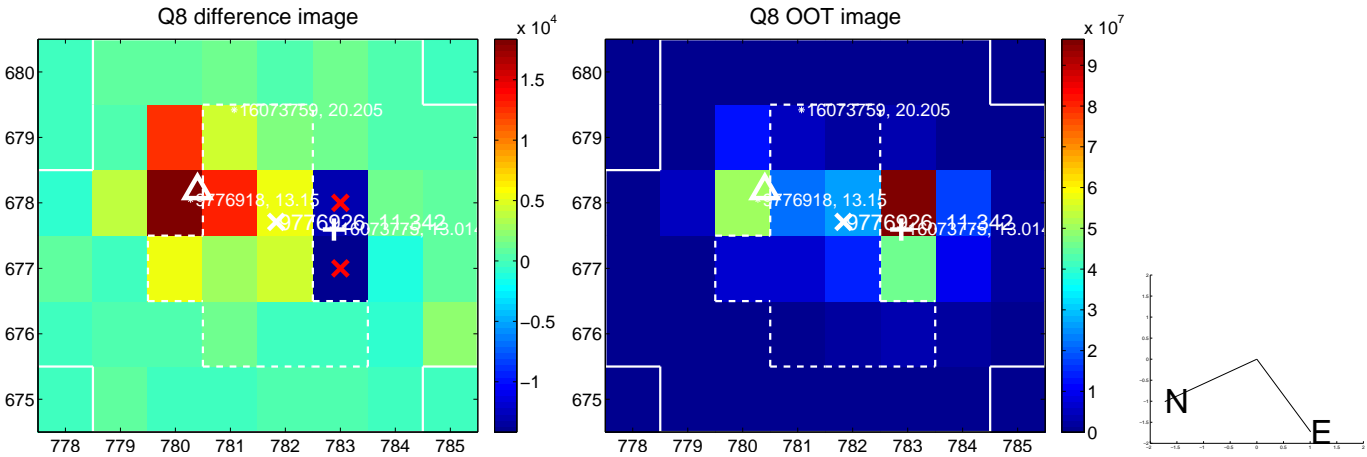
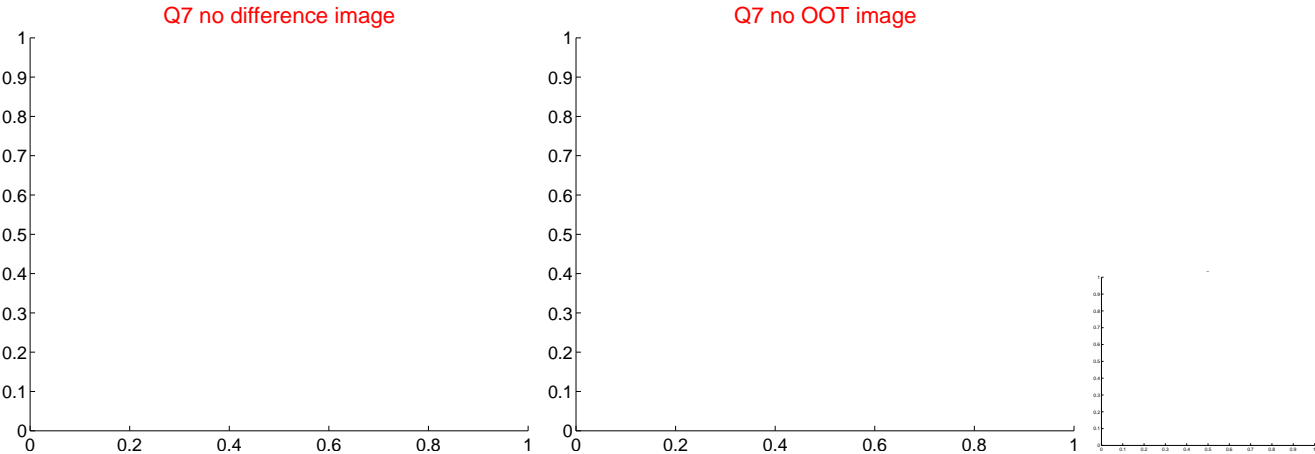
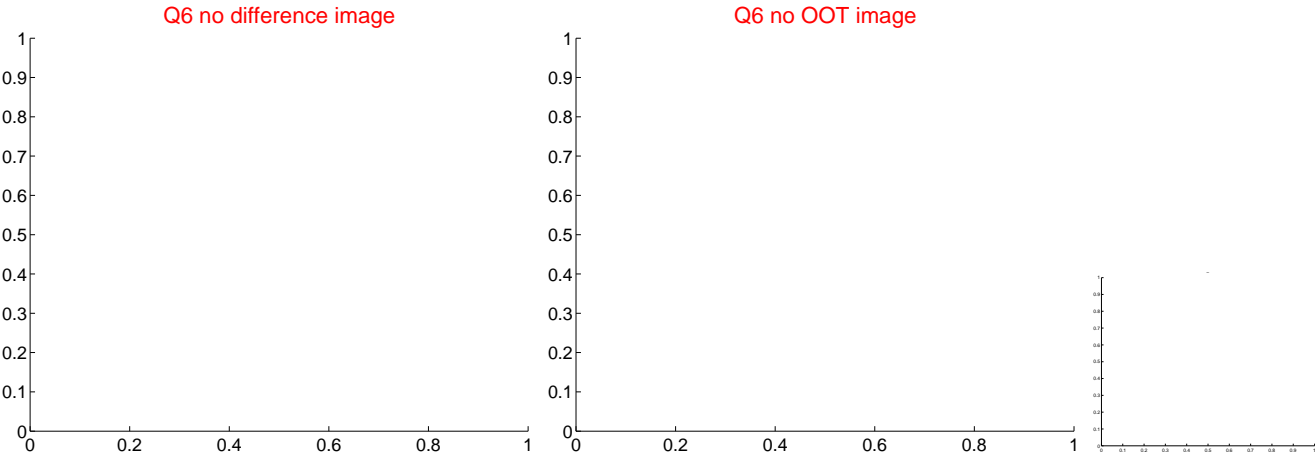
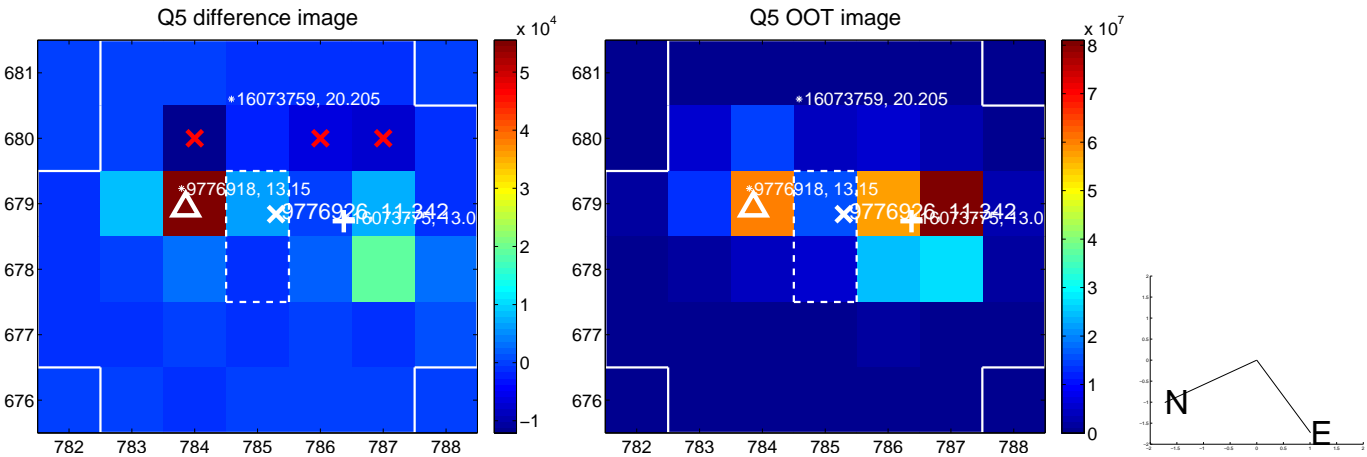


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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



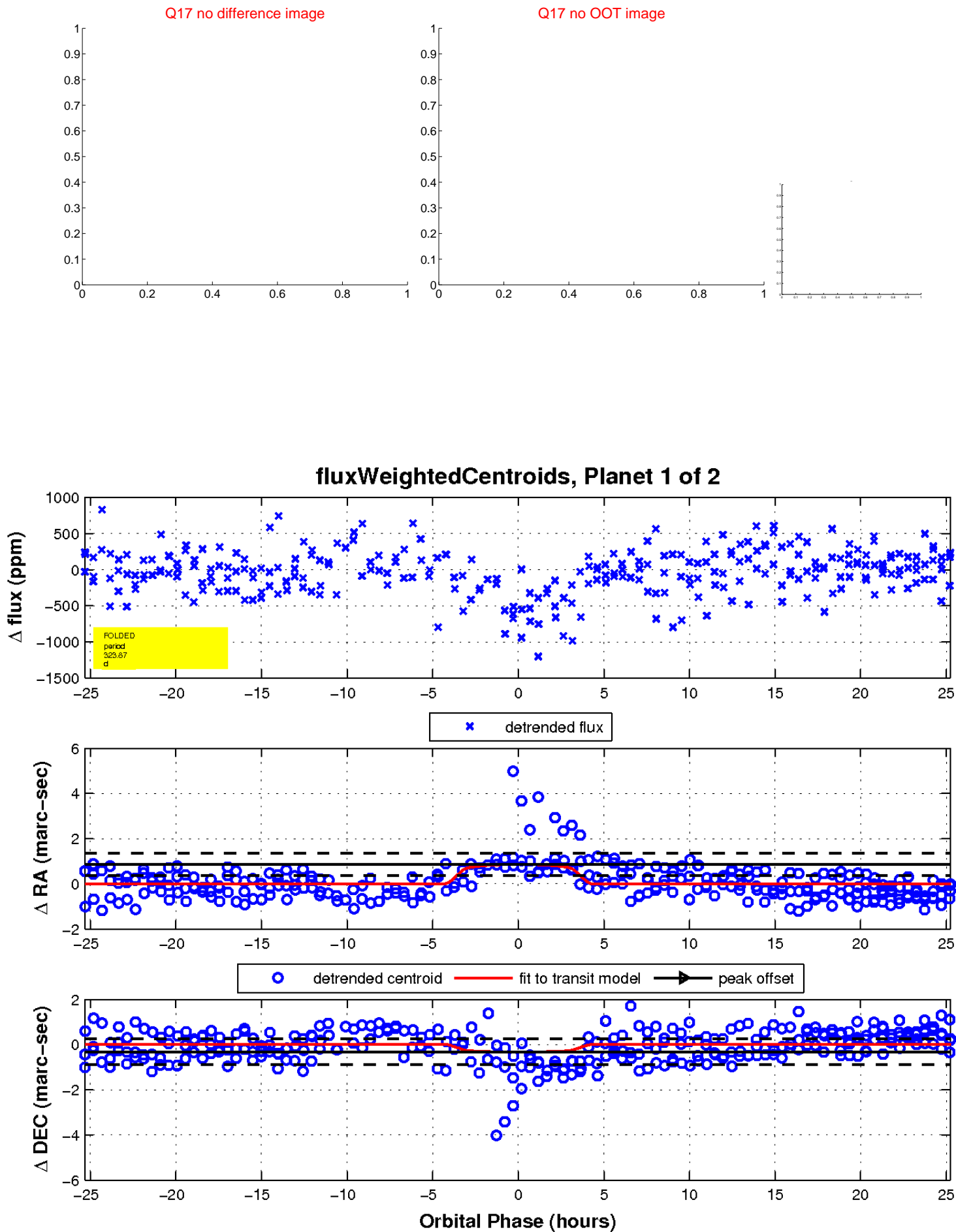
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

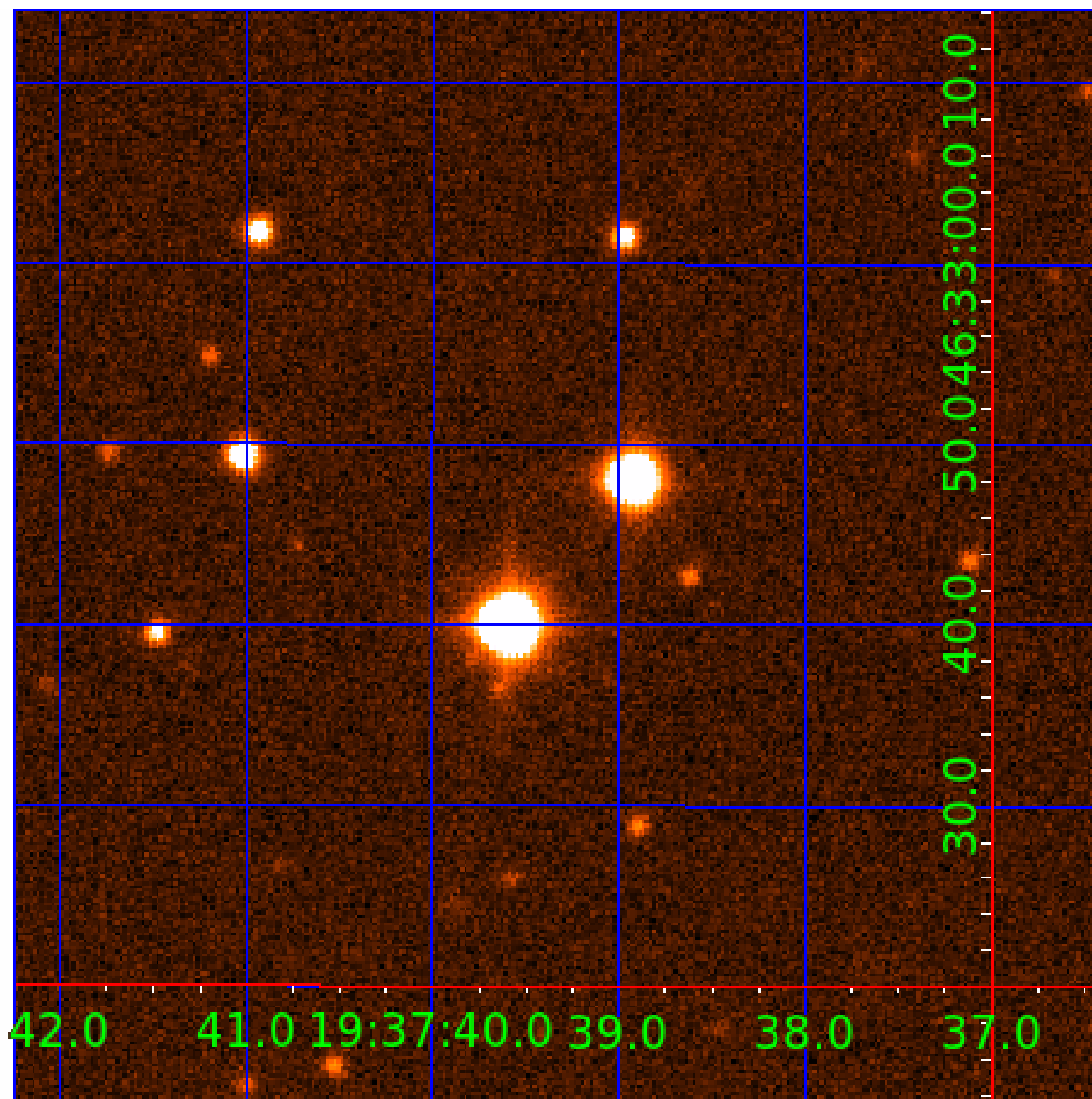


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009776926

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})
009776926-01	OBS	No	323.873318	446.056265	615.8	8.494	10.3	8.7	1.32	5963	3.93	2.32
009776926-02	OBS	No	362.361171	207.998682	548.4	3.372	9.1	7.0	1.32	5963	3.30	1.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009776926-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009776926-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQU_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

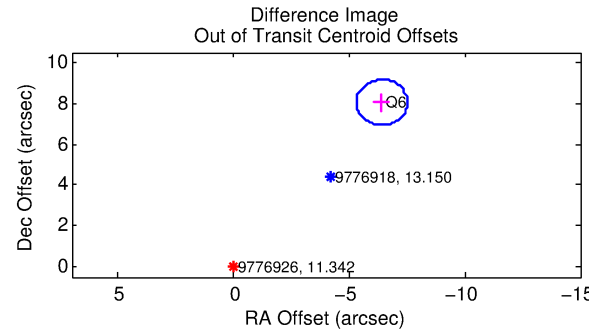
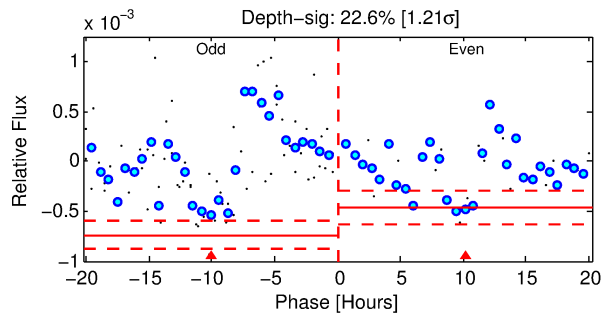
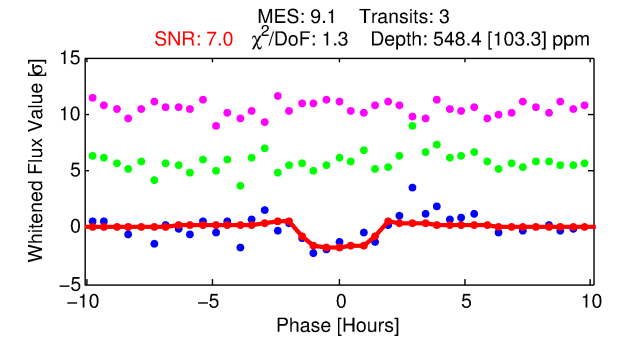
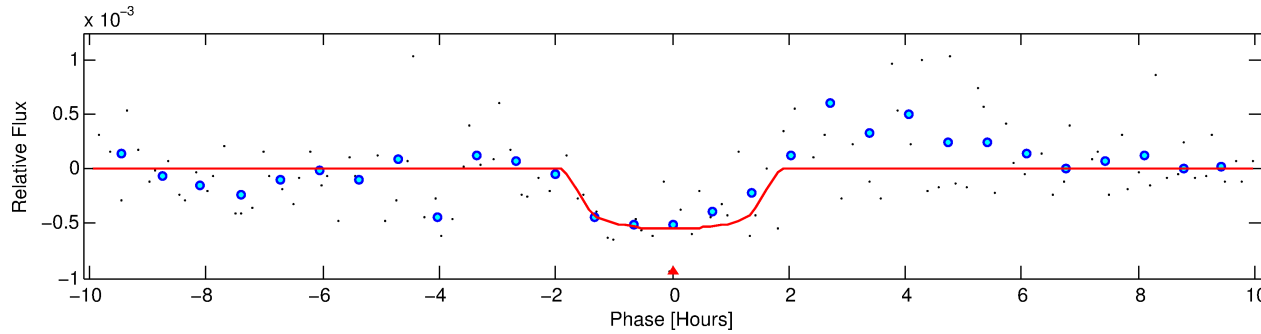
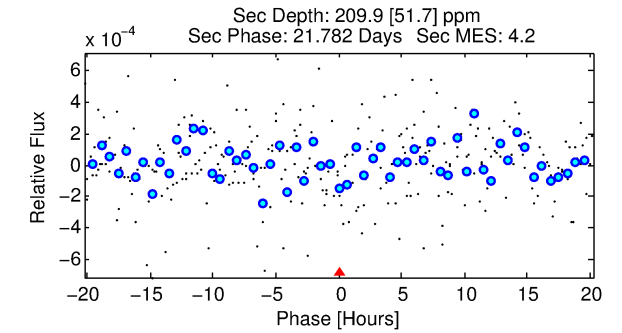
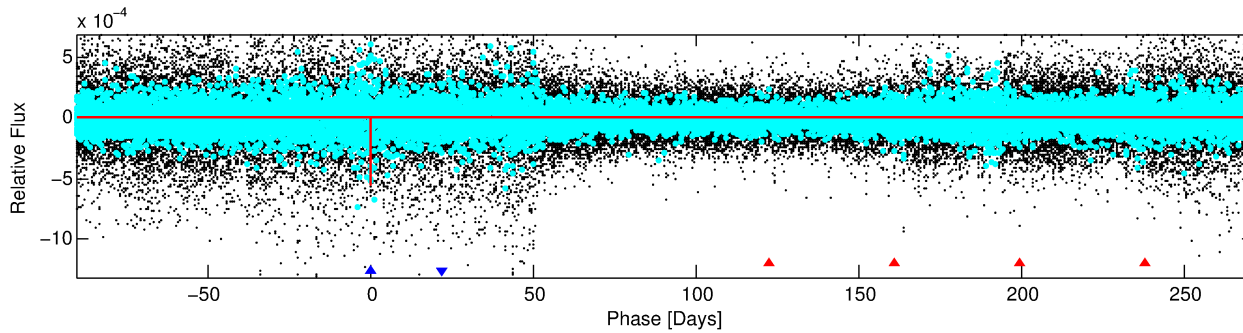
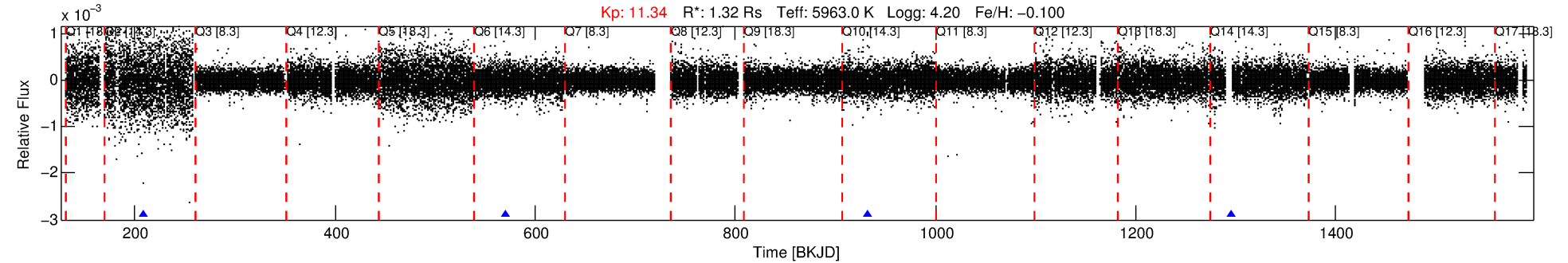
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009776926-02

No Significant Match Found

DV One-Page Summary

KIC: 9776926 Candidate: 2 of 2 Period: 362.361 d



DV Fit Results:

Period = 362.36117 [0.00869] d
Epoch = 207.9987 [0.0125] BKJD
Rp/R* = 0.0229 [0.0491]
a/R* = 623.30 [6335.49]
b = 0.69 [7.97]
Seff = 1.99 [0.89]
Teq = 303 [34] K
Rp = 3.30 [7.16] Re
a = 0.9978 [0.2647] AU
Ag = 10548.87 [45653.69] [0.23σ]
Teffp = 4748 [5116] K [0.87σ]

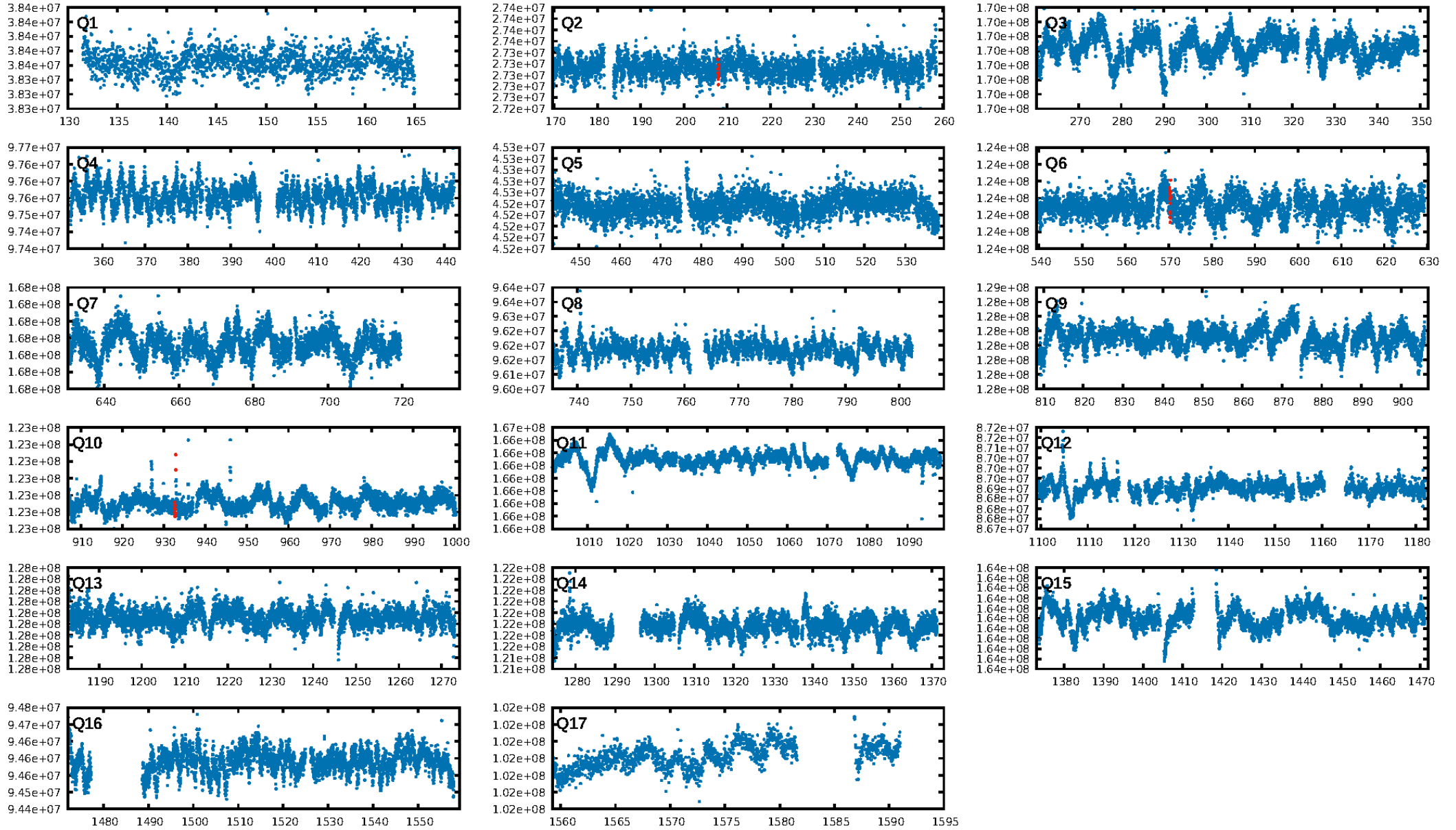
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [101.08σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 26.4%
ModelChiSquareGof-sig: 87.0%
Bootstrap-pfa: 5.71e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.244
Centroid-sig: 77.6%
Centroid-so: 0.837 arcsec [1.13σ]
OotOffset-rm: 10.291 arcsec [27.84σ]
KicOffset-rm: 5.929 arcsec [16.16σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

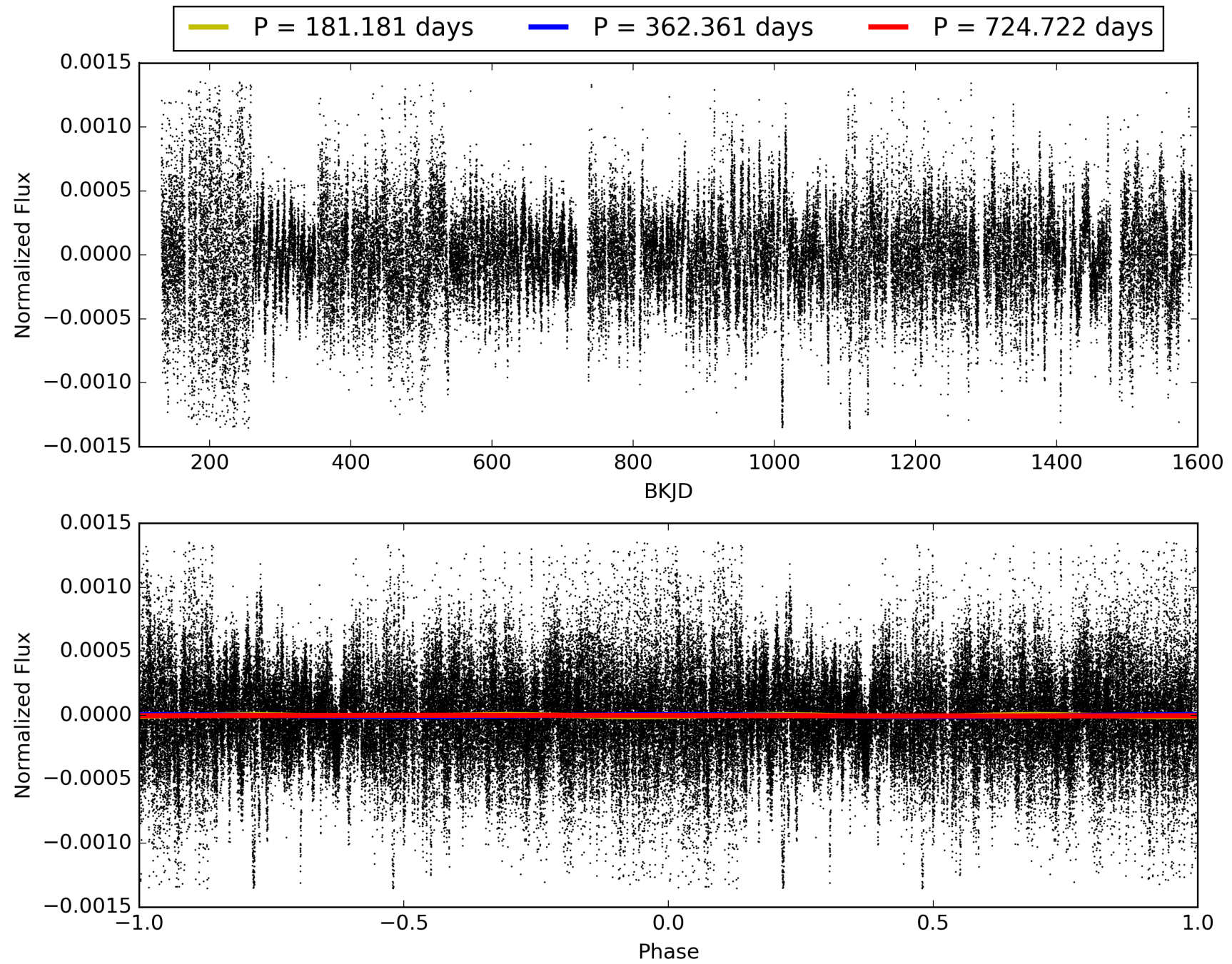
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:46:41 Z

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

TCE 009776926-02, PDC Light Curves

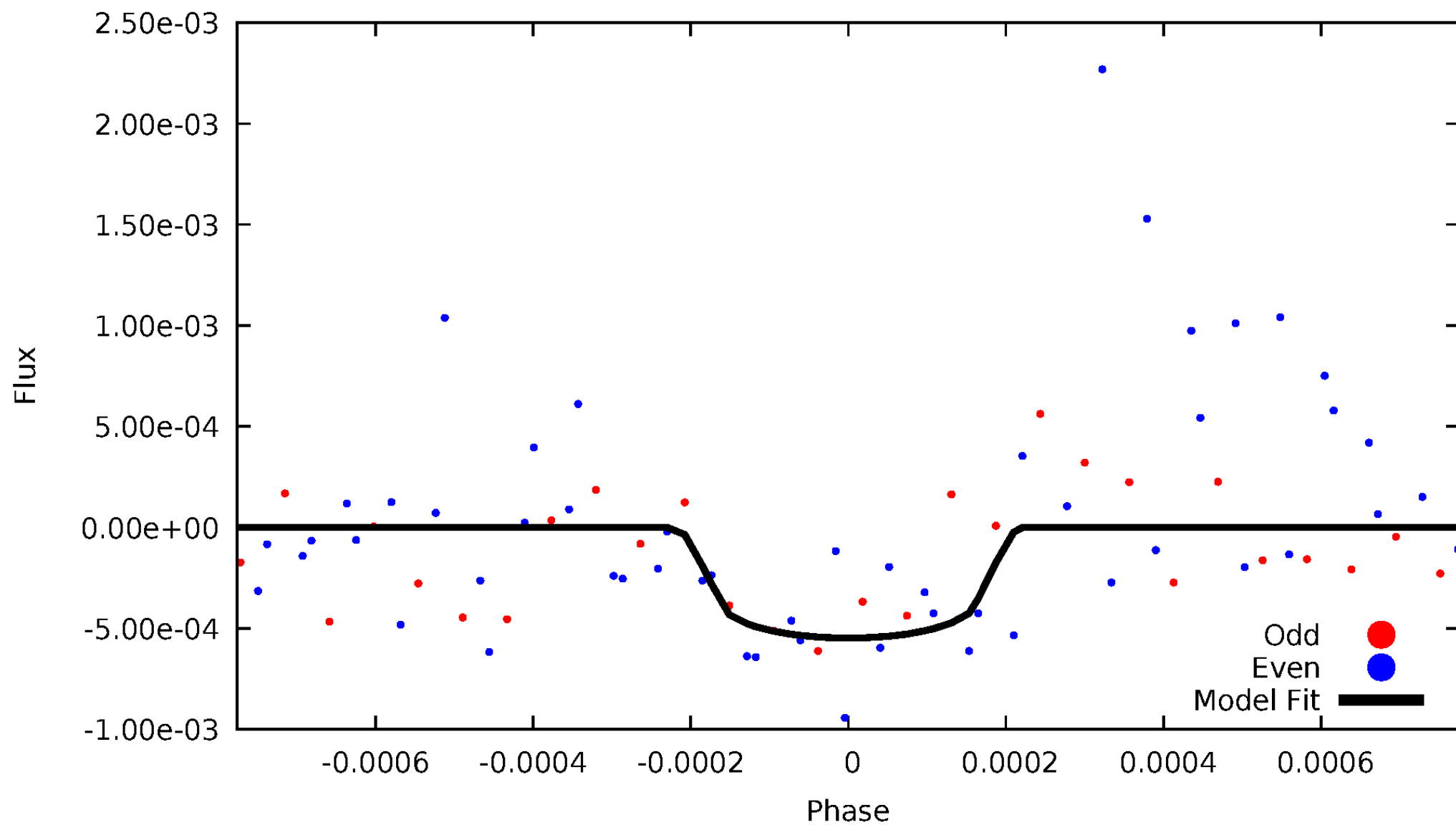


TCE 009776926-02



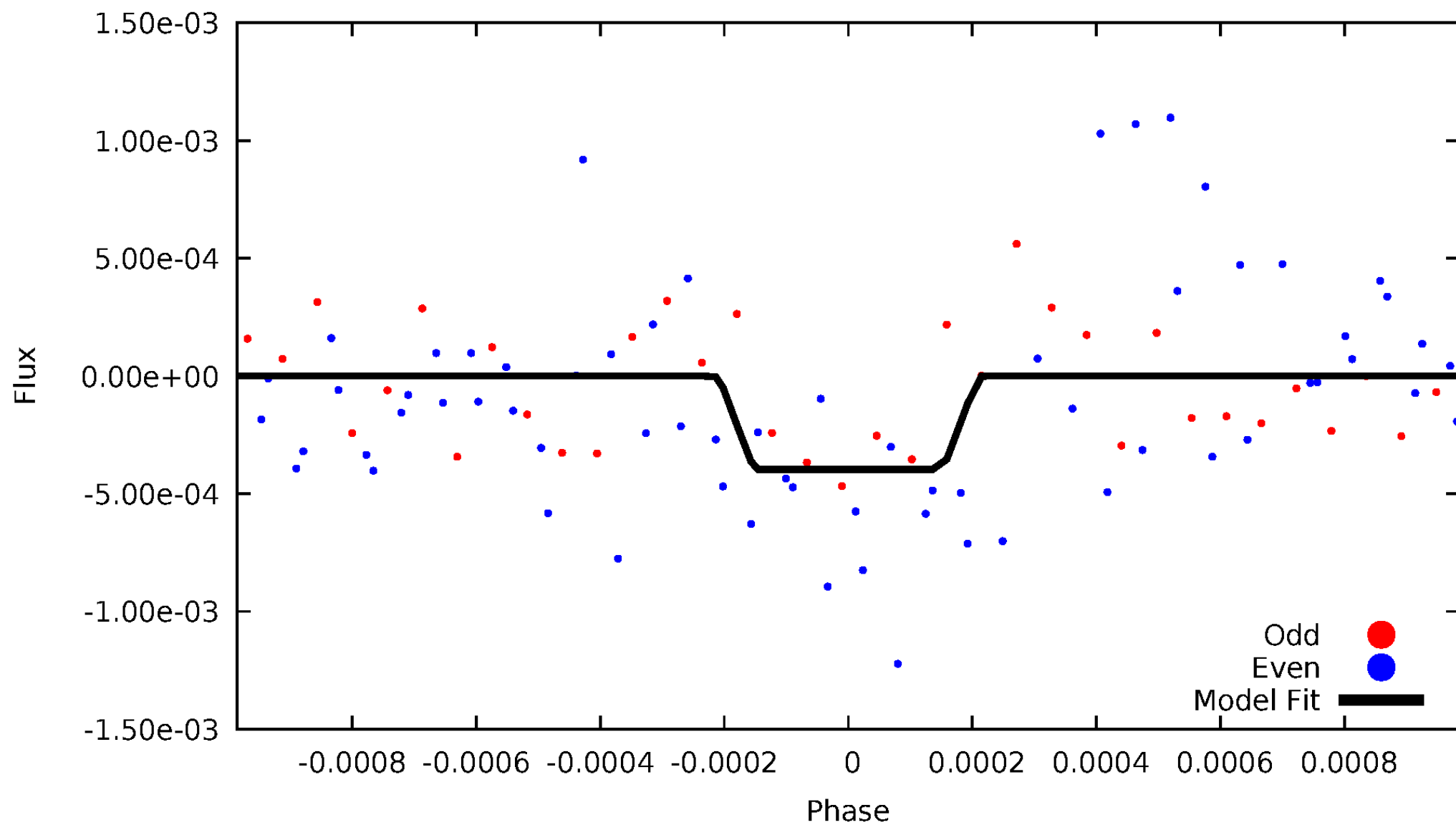
DV Odd/Even

TCE 009776926-02



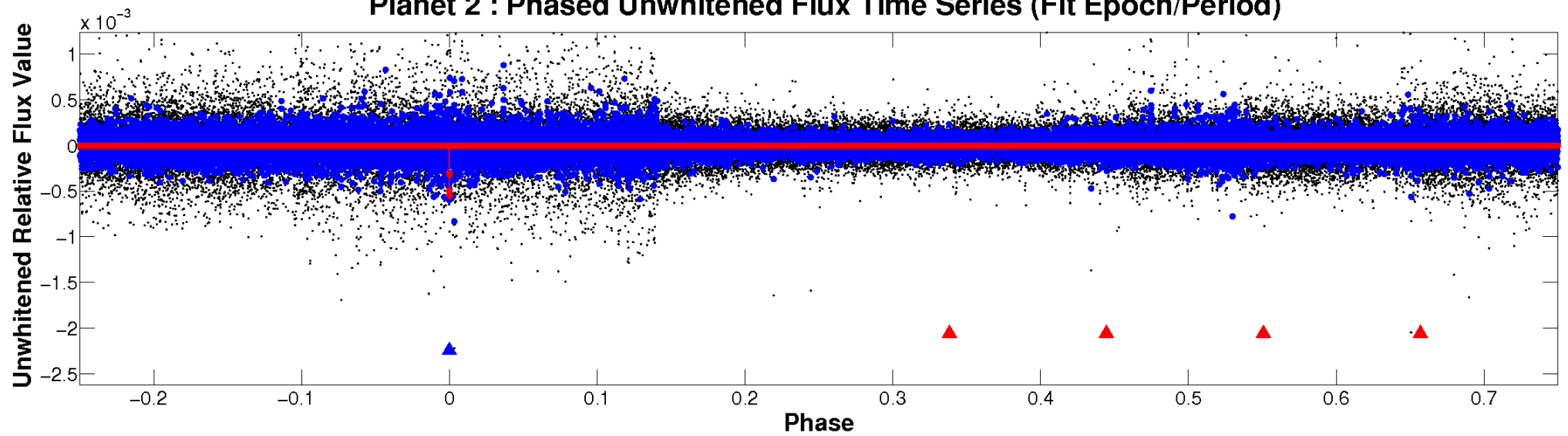
ALT Odd/Even

TCE 009776926-02

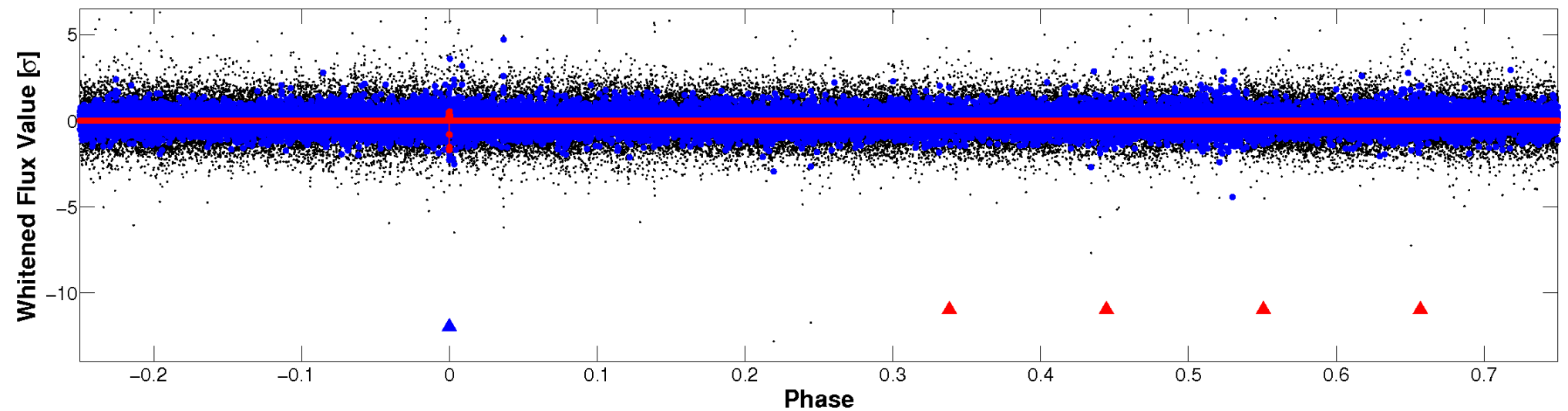


Non-Whitened Vs. Whitened Light Curve

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

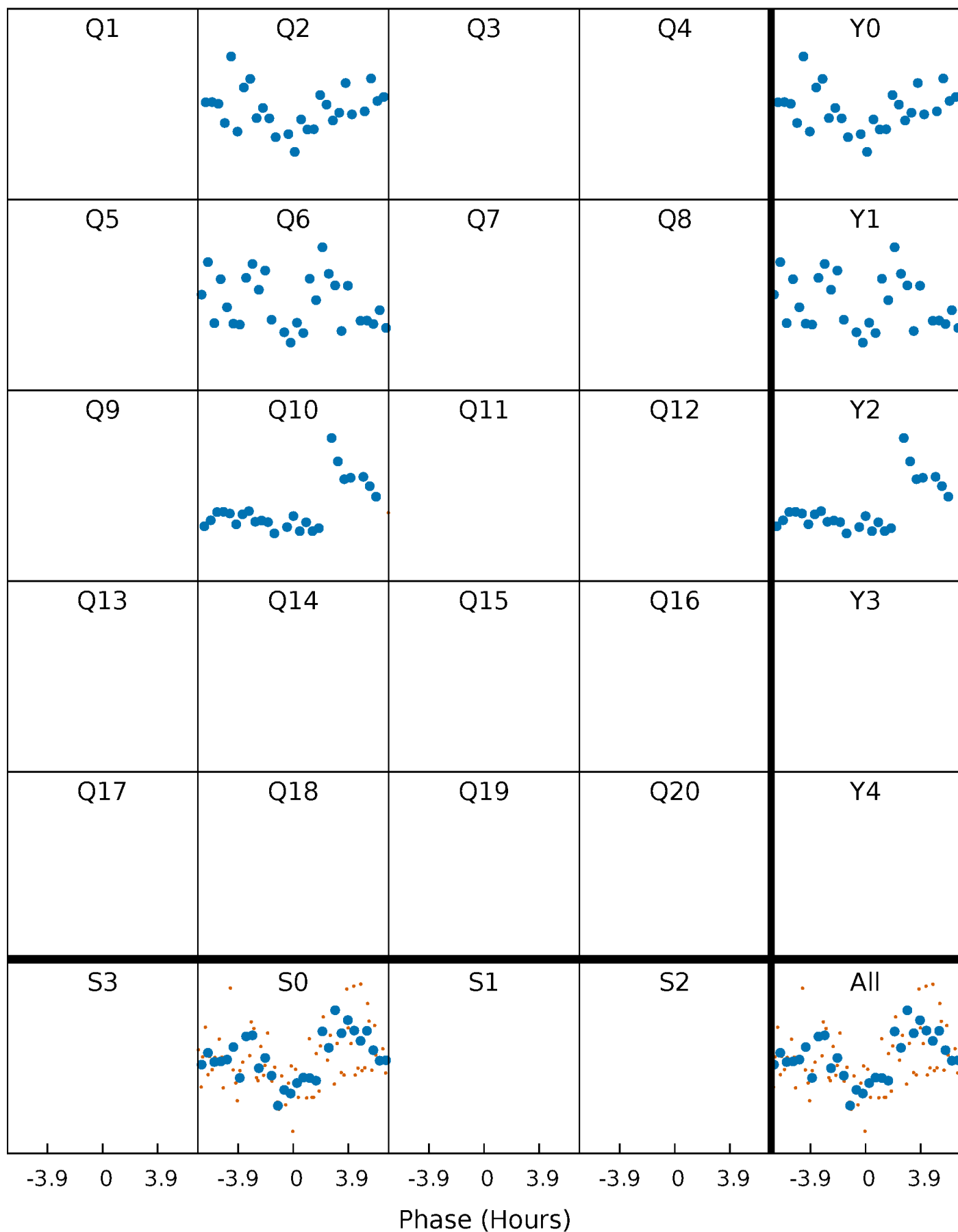


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



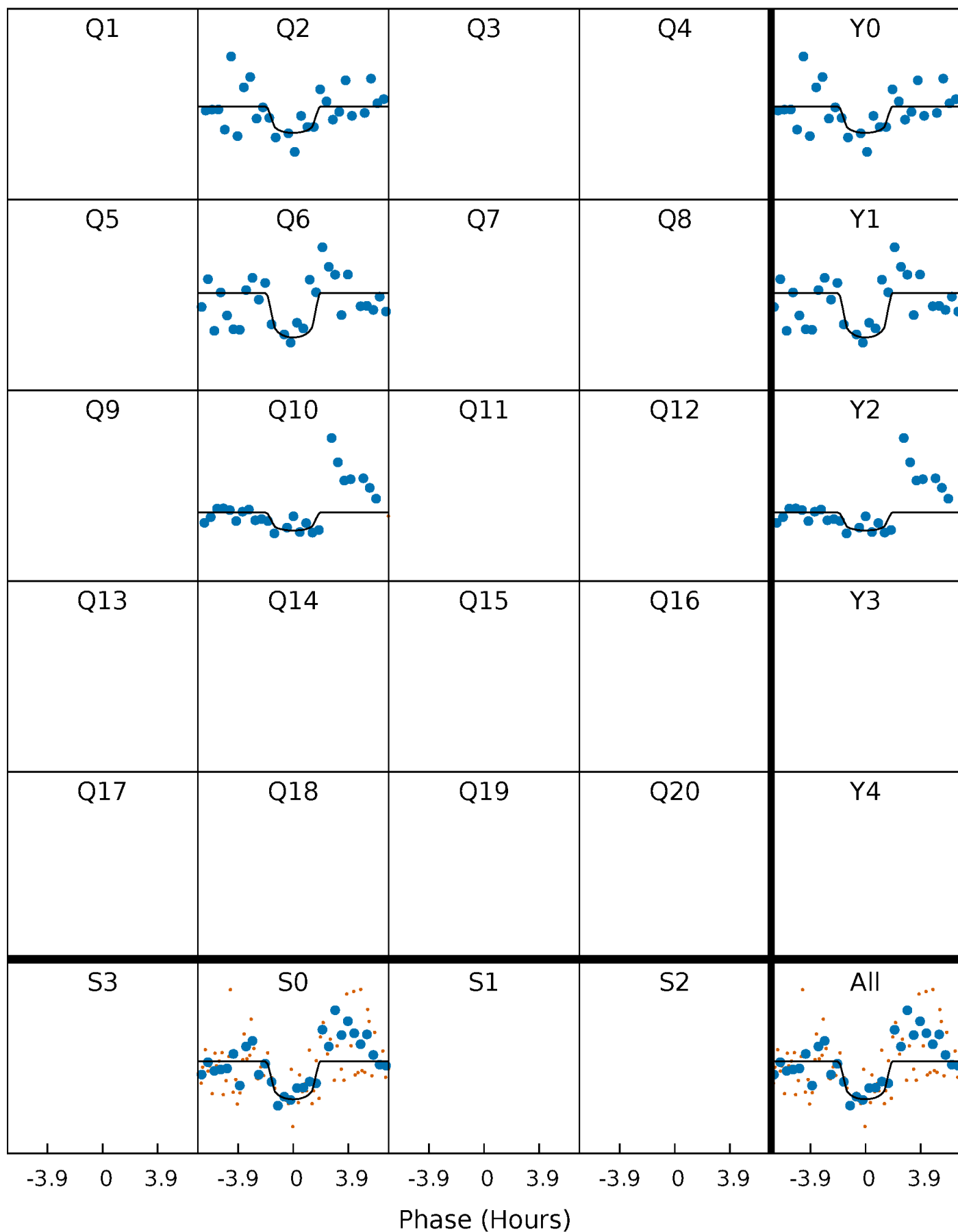
PDC Quarter-Phased Transit Curves

TCE 009776926-02 P=362.361171 Days $T_0=207.998682$ (BKJD)



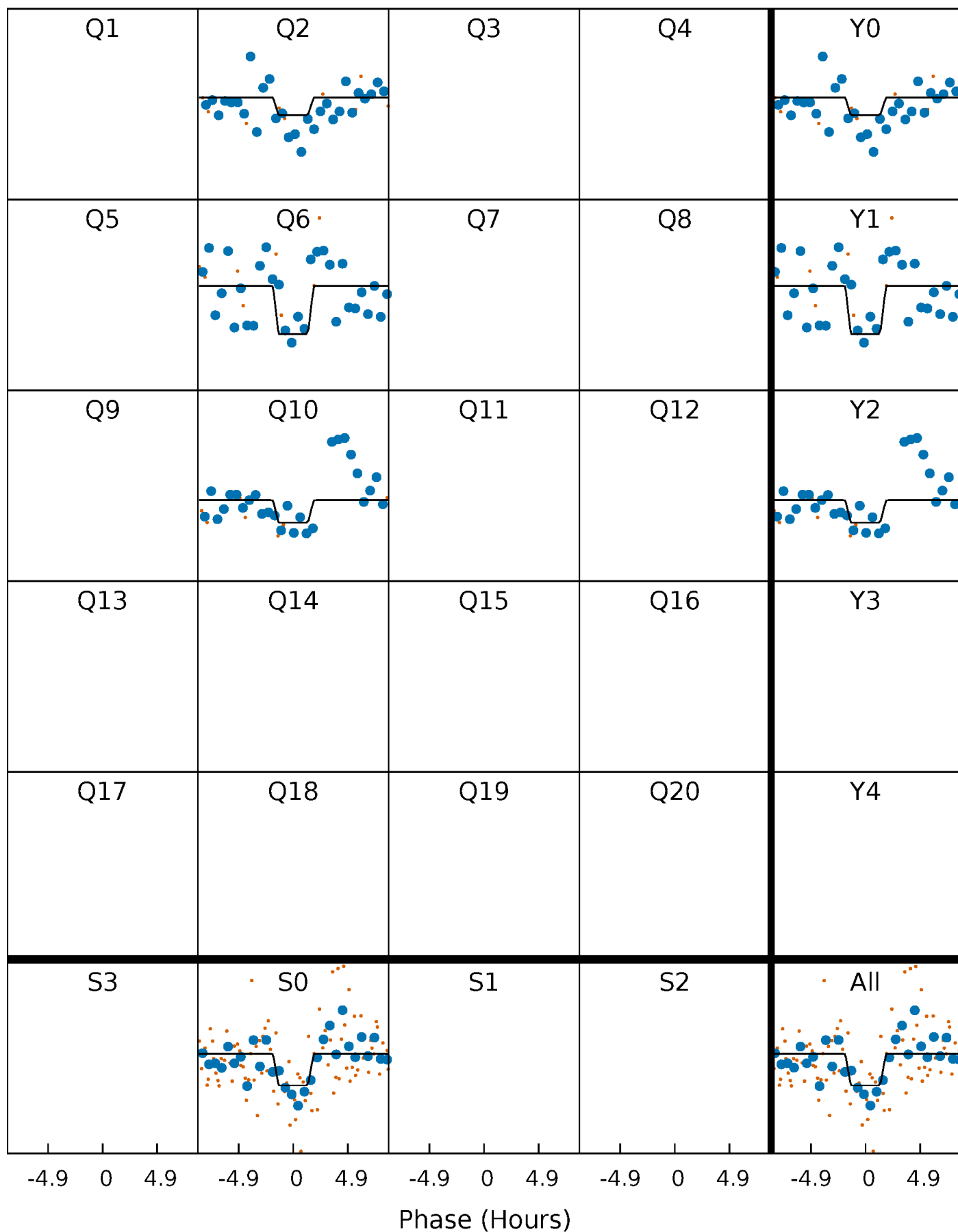
DV Quarter-Phased Transit Curves

TCE 009776926-02 P=362.361171 Days $T_0=207.998682$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

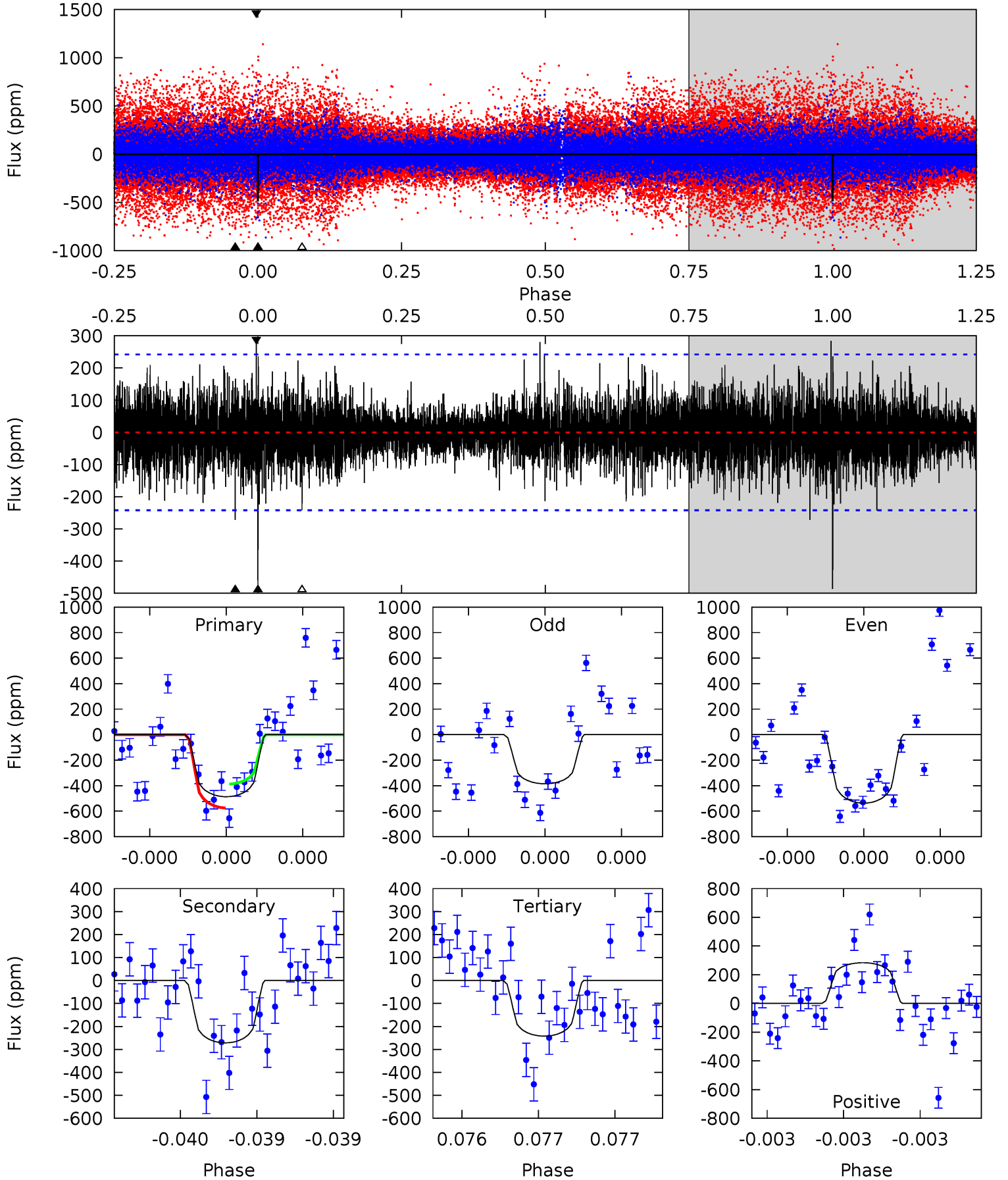
TCE 009776926-02 P=362.381579 Days $T_0=207.968181$ (BKJD)



DV Model-Shift Uniqueness Test

009776926-02, P = 362.361171 Days, E = 207.998682 Days

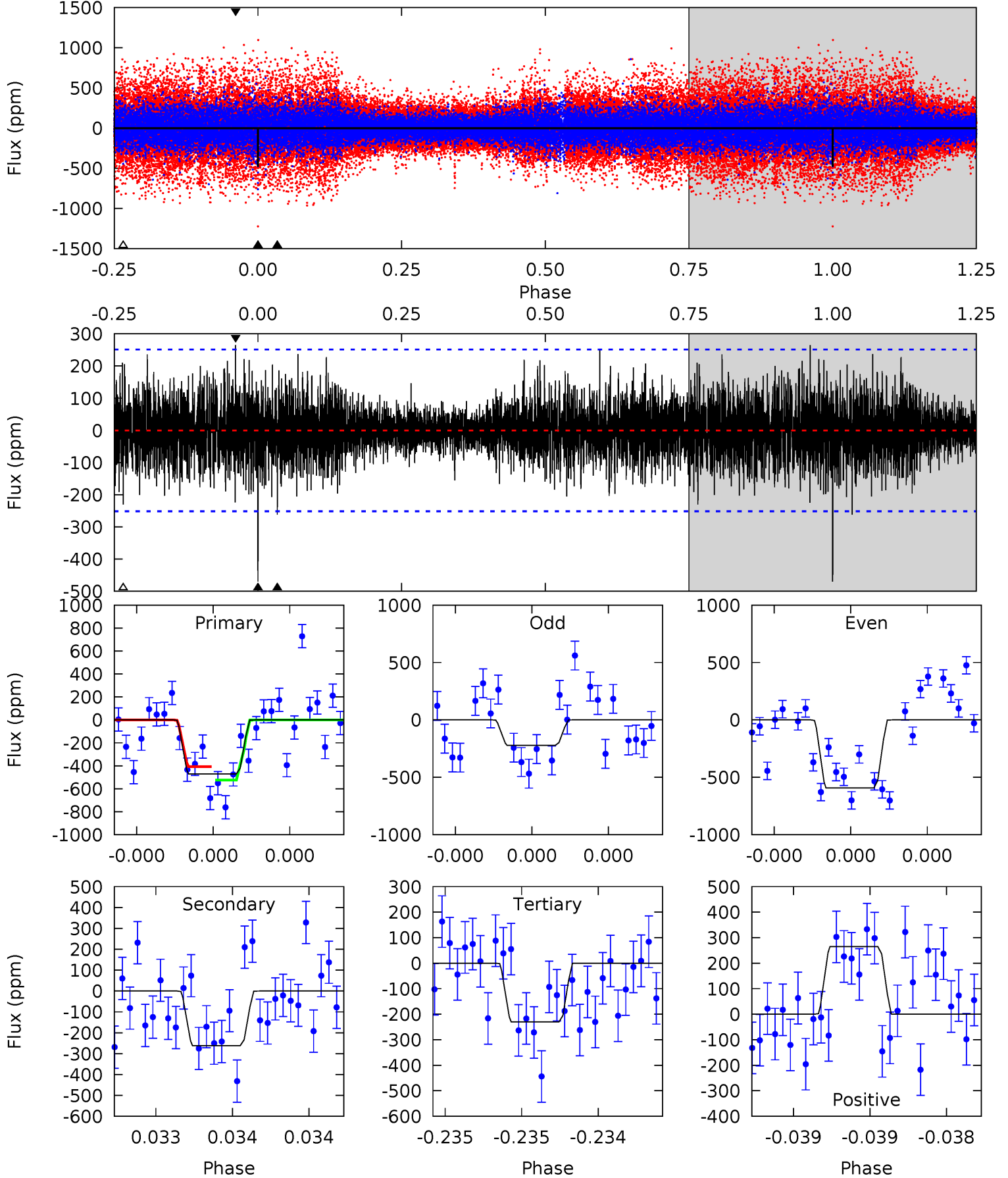
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	6.28	5.60	6.56	5.60	3.52	1.36	5.65	4.69	0.68	-0.28	1.64	0.99	0.37	2.17



Alt Model-Shift Uniqueness Test

009776926-02, P = 362.381579 Days, E = 207.968181 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	5.82	5.12	5.89	5.59	3.51	1.34	5.33	4.55	0.70	-0.08	3.96	1.01	0.36	1.24



Stellar Parameters For KIC 009776926

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5963^{+189}_{-210}	$4.198^{+0.246}_{-0.164}$	$-0.100^{+0.300}_{-0.300}$	$1.324^{+0.370}_{-0.370}$	$1.010^{+0.153}_{-0.126}$	$0.613^{+0.820}_{-0.286}$
	+3%/-4%	+6%/-4%	+300%/-300%	+28%/-28%	+15%/-12%	+134%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009776926-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-272 ± 43	$6.40^{+5.42}_{-4.19}$	421^{+32}_{-40}	3930^{+2228}_{-725}	3777^{+26917}_{-2714}
Alt.	-262 ± 45	$6.31^{+5.63}_{-4.43}$	421^{+34}_{-37}	3929^{+2776}_{-730}	3699^{+40882}_{-2731}

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 $A_{obs} \gg 1.0$

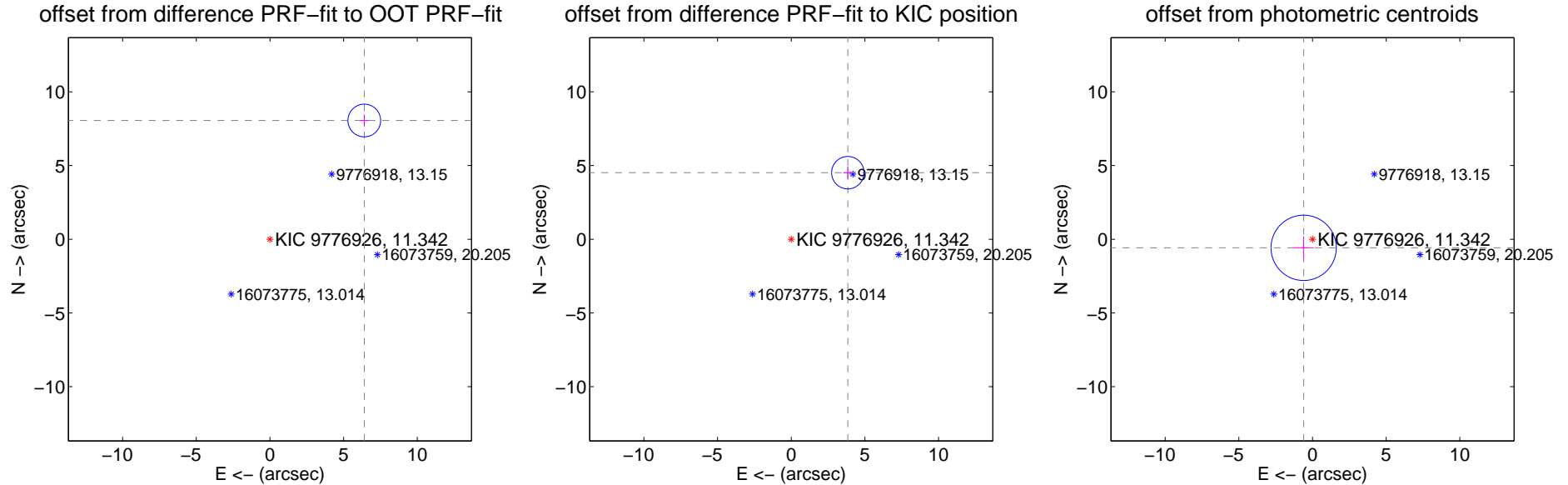
DV Centroid Data

Supplemental centroid analysis for 009776926-02. **Kepler magnitude: 11.34.** Transit SNR 7.04

There are 1 quarters with good PRF difference image offsets

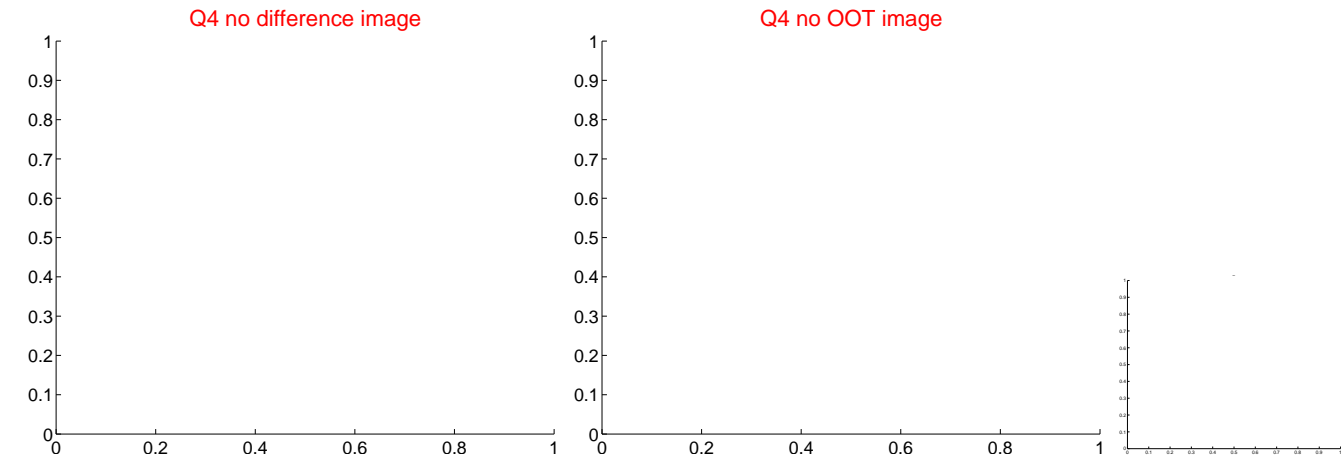
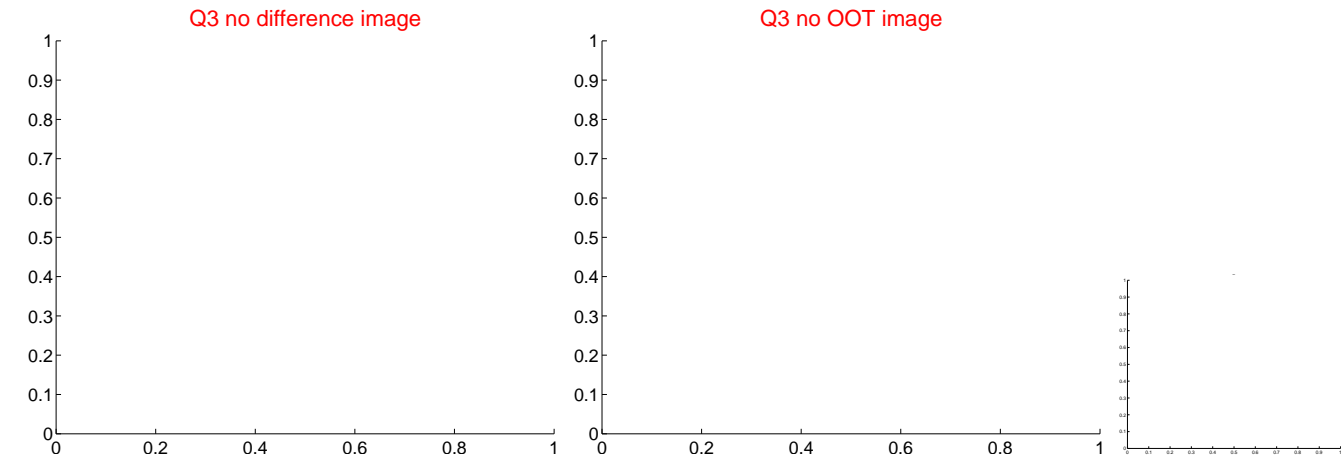
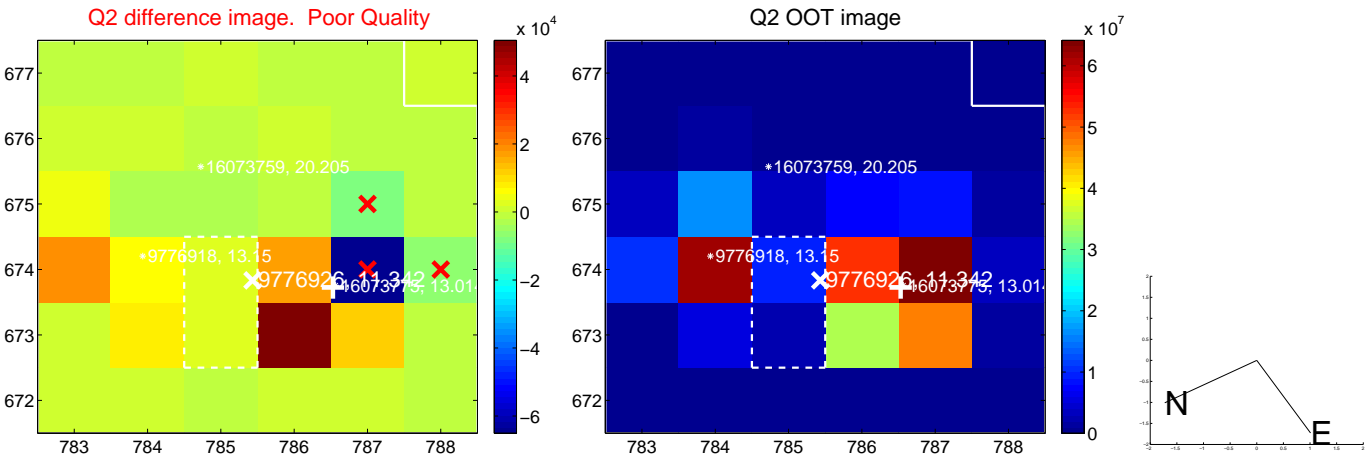
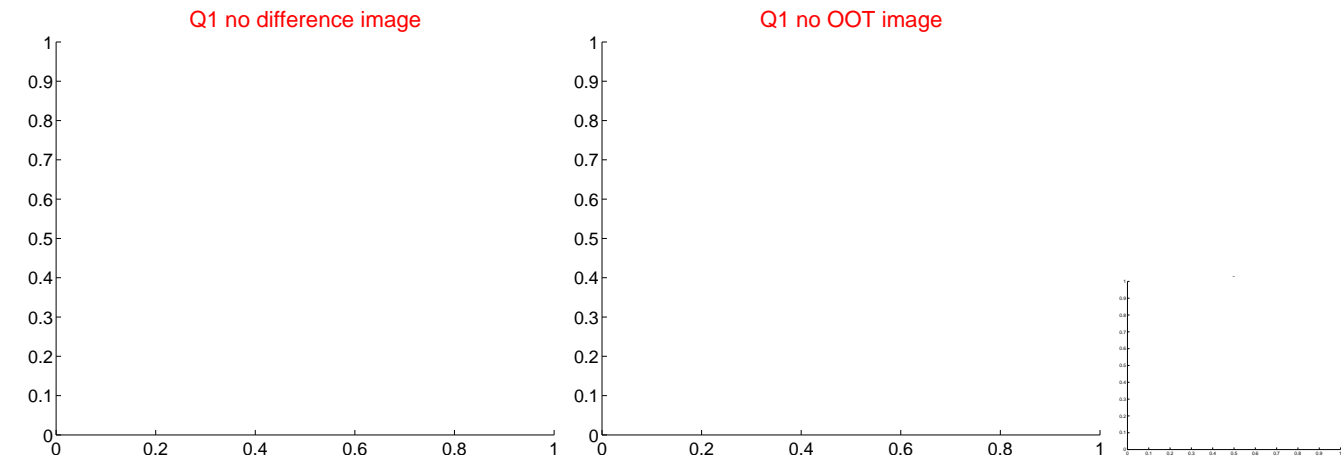
The OOT PRF centroid is offset from the target star catalog position by about 4.37 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.291 ± 0.370	27.84	-6.405 ± 0.311	8.055 ± 0.402
PRF-fit source offset from KIC position	5.929 ± 0.367	16.16	-3.841 ± 0.311	4.516 ± 0.402
photometric centroid source offset	0.84 ± 0.74	1.13	0.60 ± 0.69	-0.58 ± 0.79

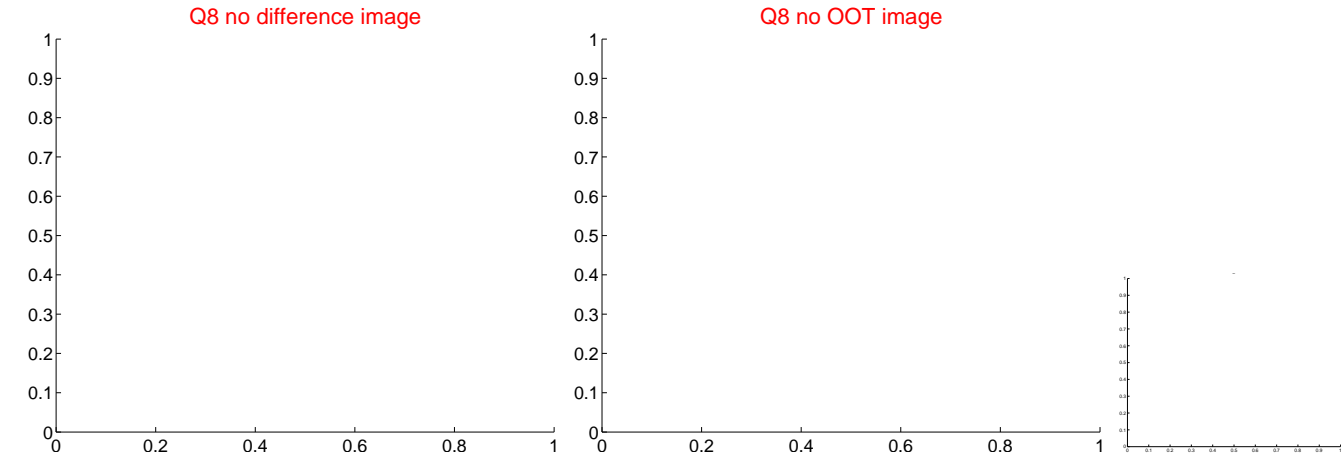
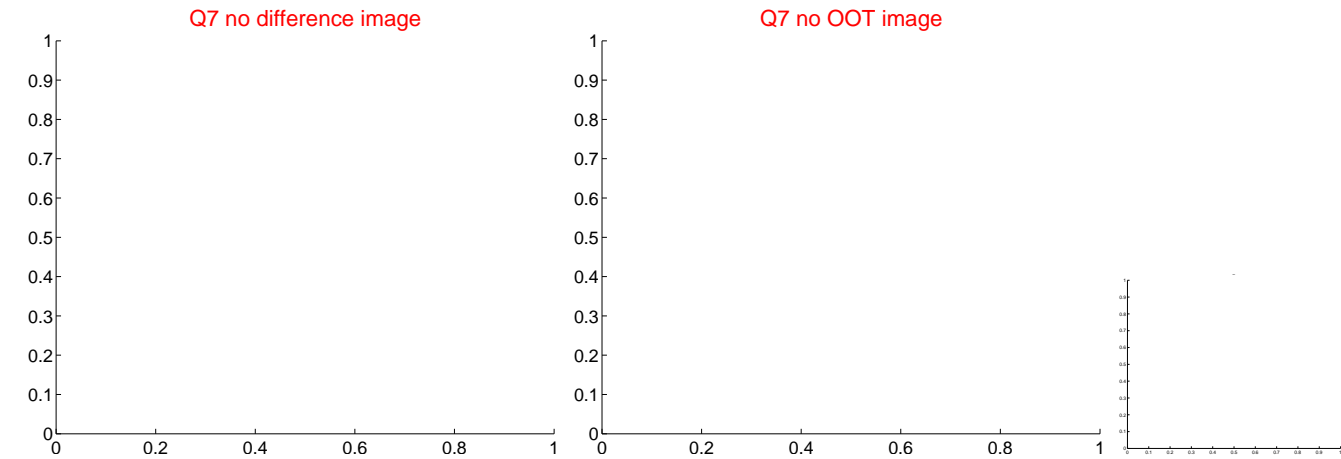
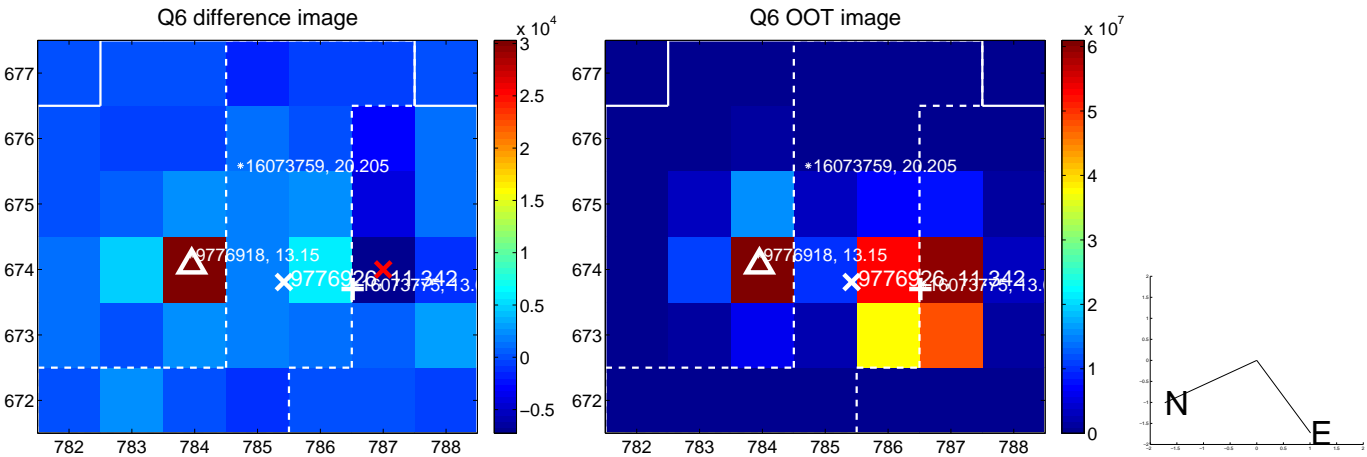
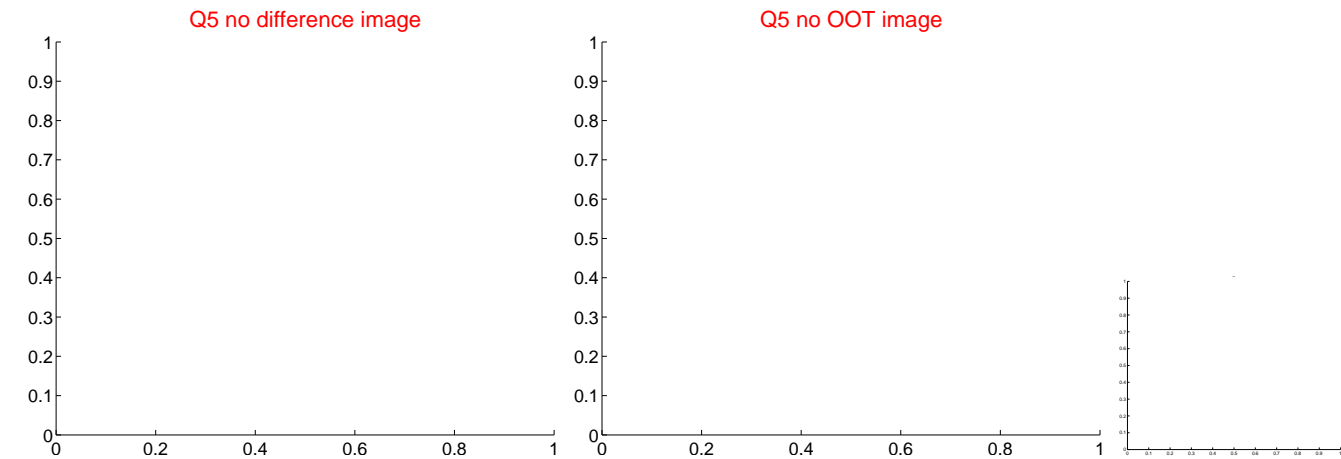


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

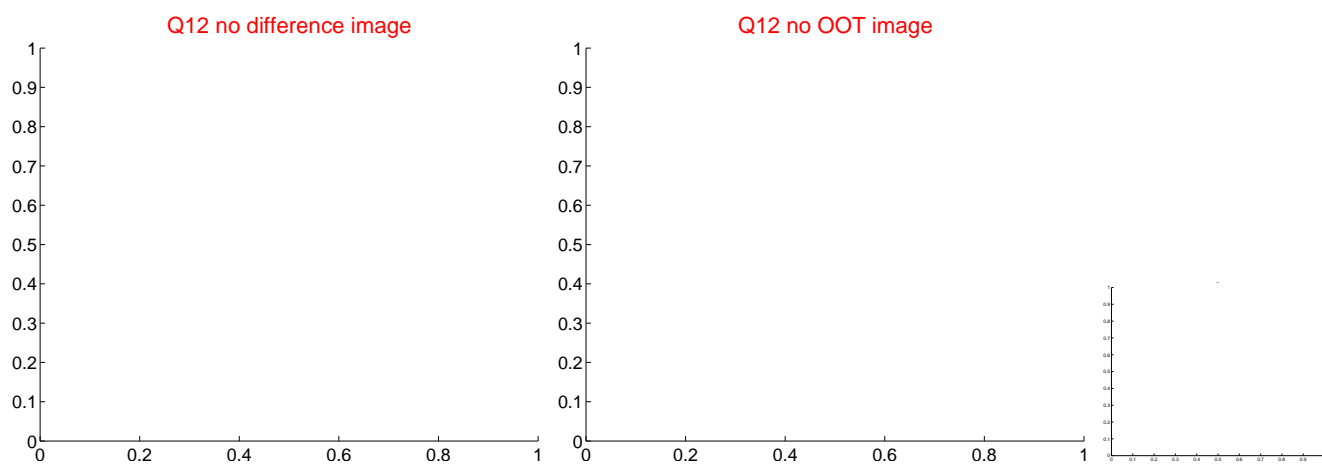
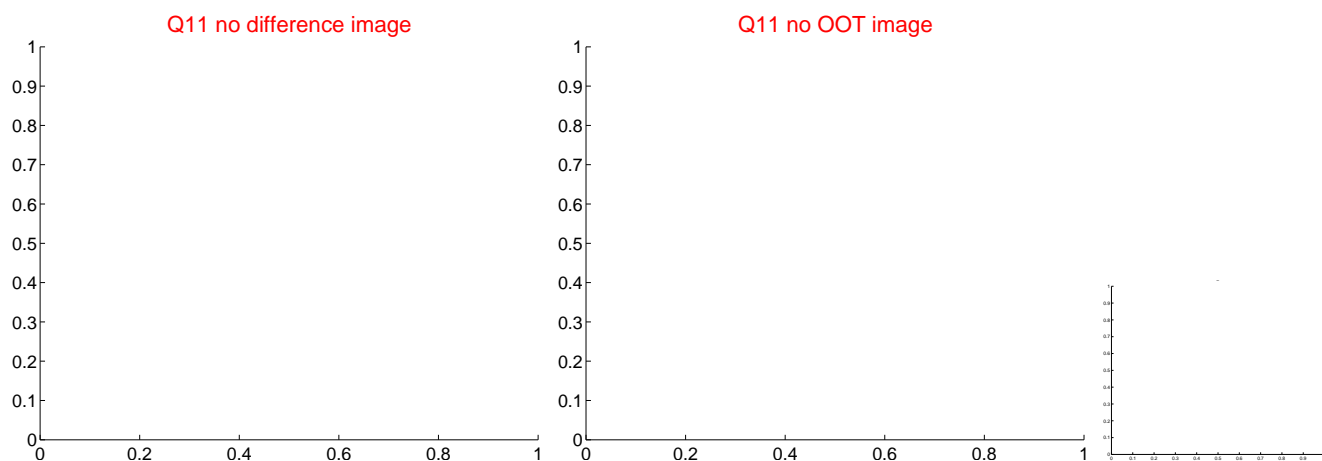
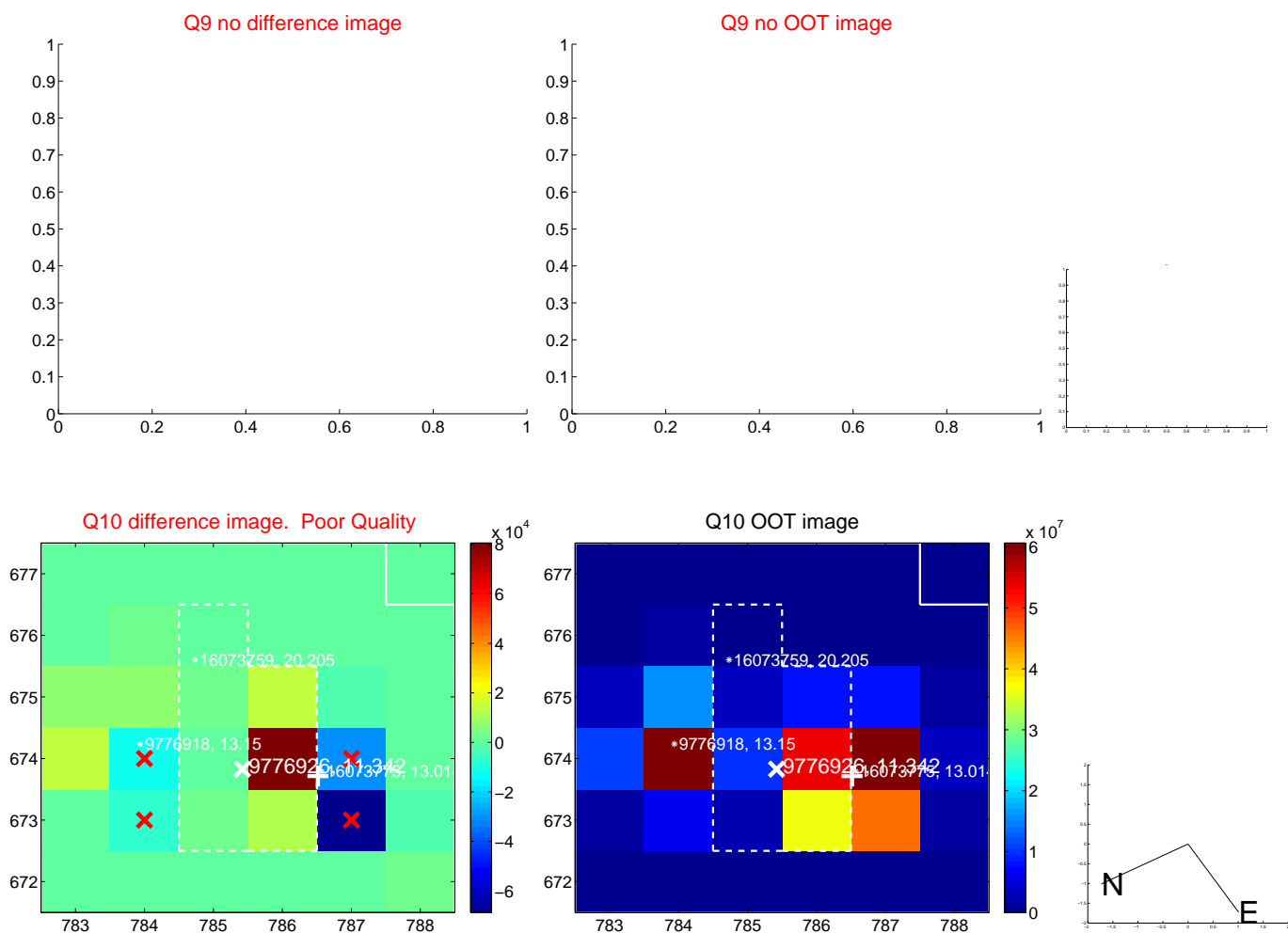
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



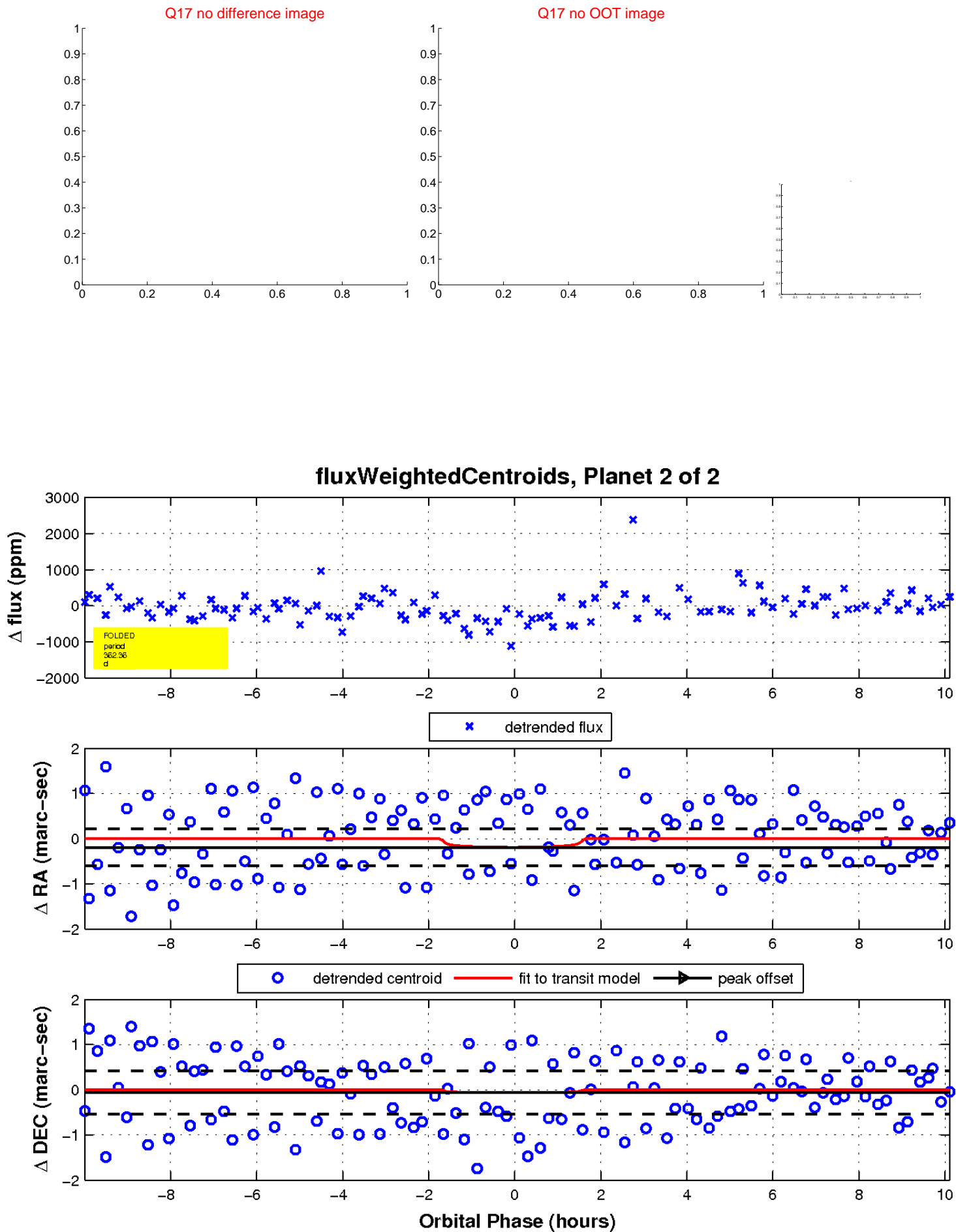
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image

Declination

