

KIC 008776920

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})
008776920-01	OBS	No	0.981812	132.456216	23.1	4.849	10.8	11.5	2.85	6211	1.39	23752.19
008776920-02	OBS	No	128.071033	132.953418	213.3	3.045	8.6	9.0	2.85	6211	4.85	35.90
008776920-03	OBS	No	182.012158	136.231974	252.3	2.715	7.8	6.9	2.85	6211	5.14	22.47
008776920-04	OBS	No	131.750421	149.178308	270.1	4.949	7.5	7.9	2.85	6211	5.29	34.57
008776920-05	OBS	No	217.394646	173.222992	241.6	2.722	7.3	7.7	2.85	6211	5.12	17.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008776920-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008776920-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008776920-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008776920-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST
008776920-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

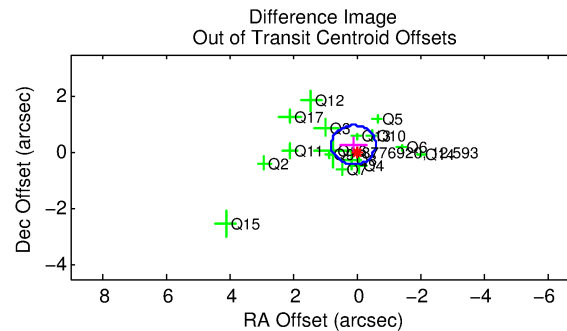
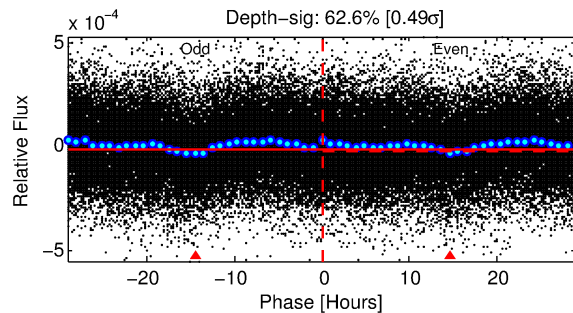
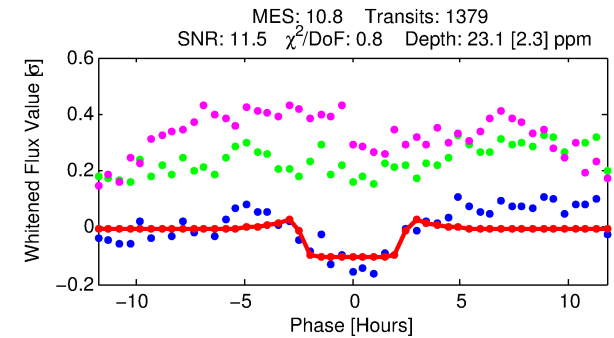
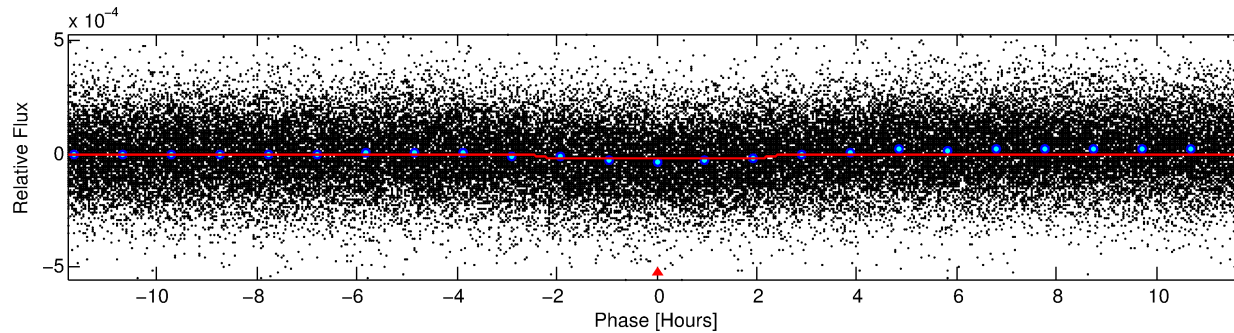
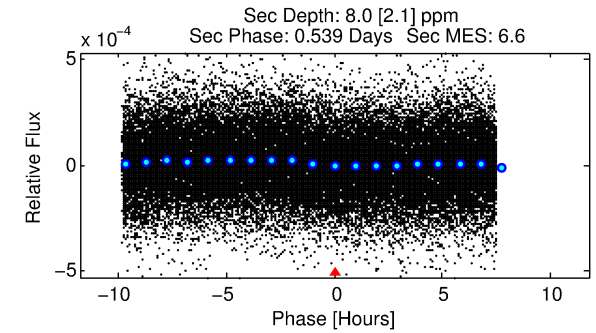
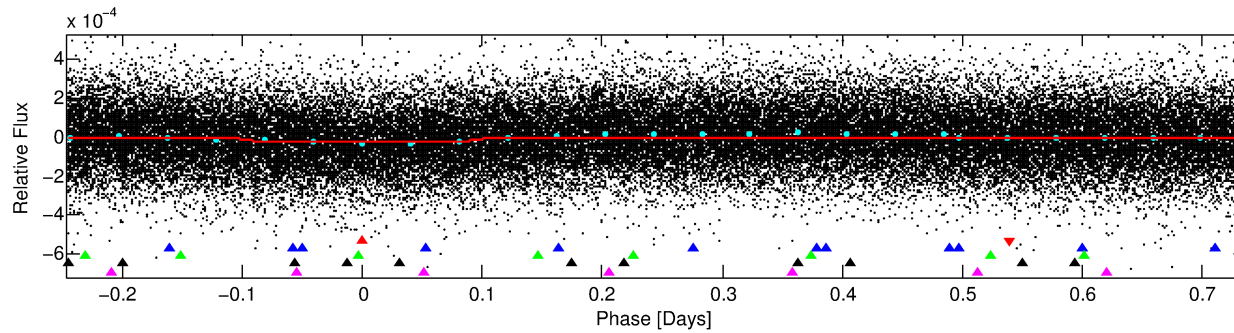
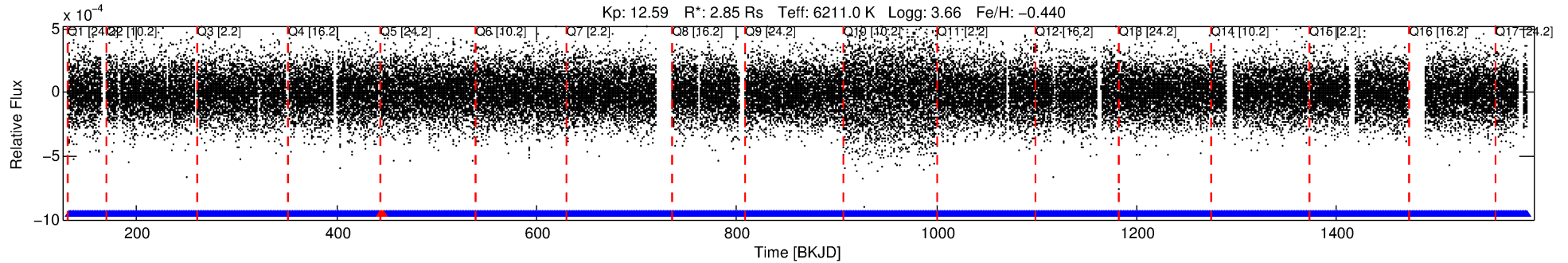
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008776920-01

No Significant Match Found

DV One-Page Summary

KIC: 8776920 Candidate: 1 of 5 Period: 0.982 d



DV Fit Results:

Period = 0.98181 [0.00001] d
Epoch = 132.4562 [0.0031] BKJD
Rp/R* = 0.0045 [0.0021]
a/R* = 1.62 [2.40]
b = 0.31 [7.05]
Seff = 23752.19 [14114.97]
Teq = 3166 [470] K
Rp = 1.39 [0.86] Re
a = 0.0214 [0.0079] AU
Ag = 1.04 [1.18] [0.03σ]
Teffp = 4942 [1213] K [1.37σ]

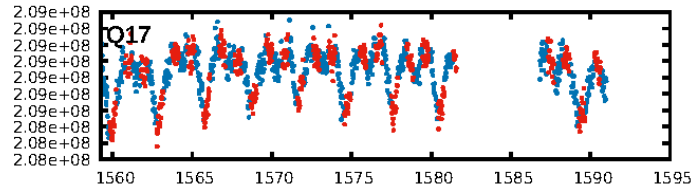
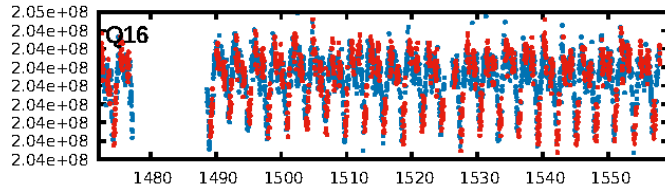
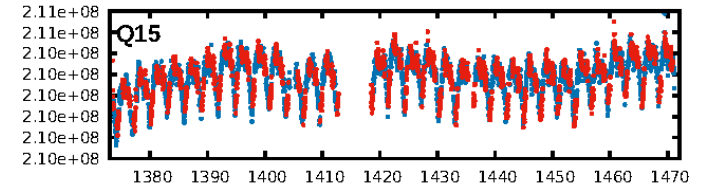
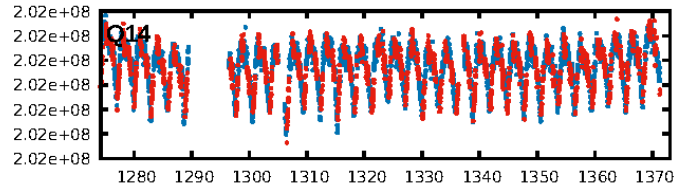
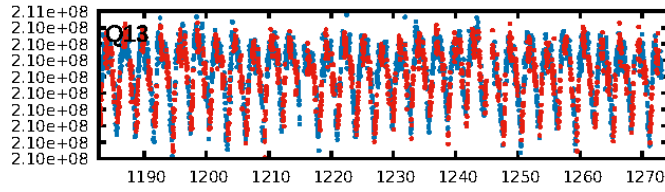
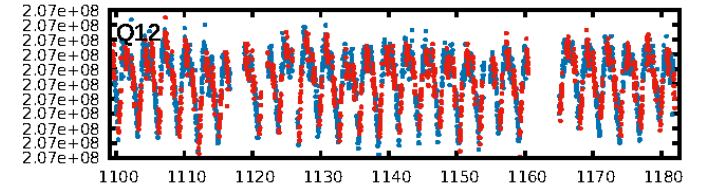
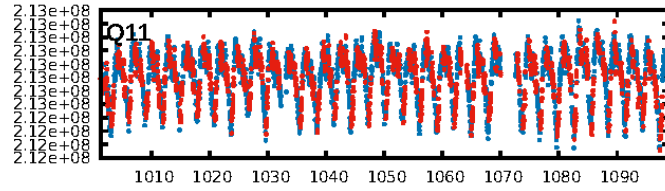
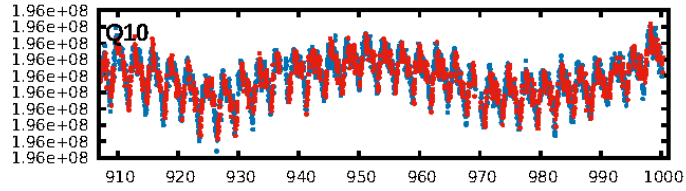
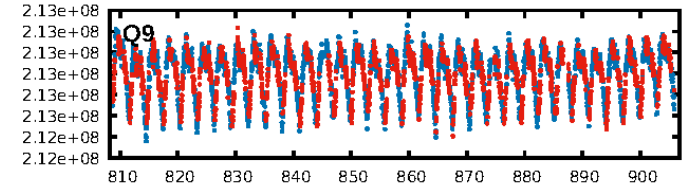
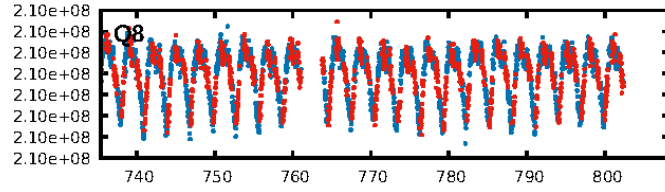
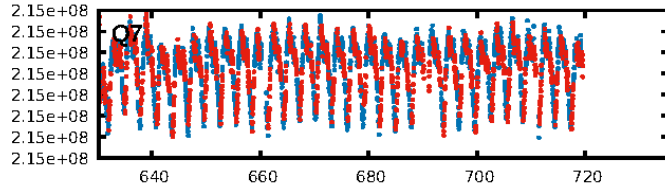
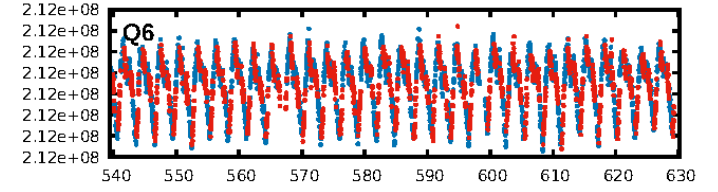
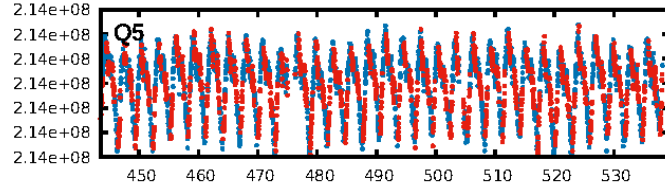
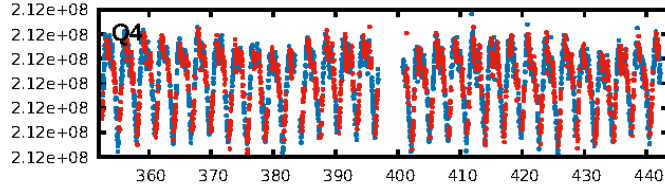
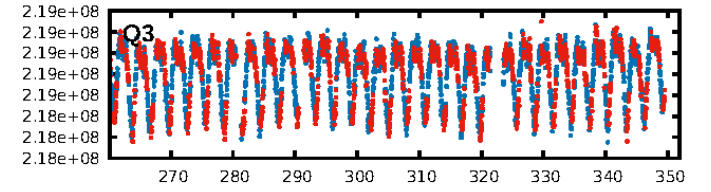
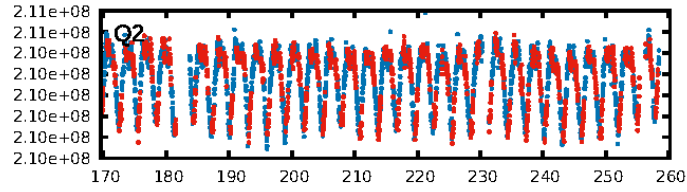
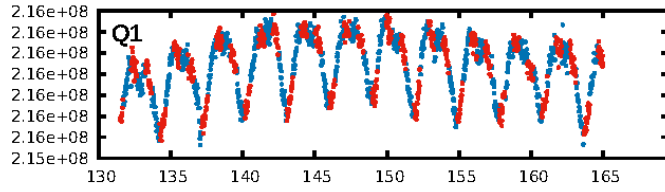
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [532.70σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.67e-17
RollingBand-fgt: 1.00 [1314/1317]
GhostDiagnostic-chr: 1.896
Centroid-sig: 8.4%
Centroid-so: 0.770 arcsec [1.46σ]
OotOffset-rm: 0.292 arcsec [1.26σ]
KicOffset-rm: 0.429 arcsec [1.91σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [17/17]

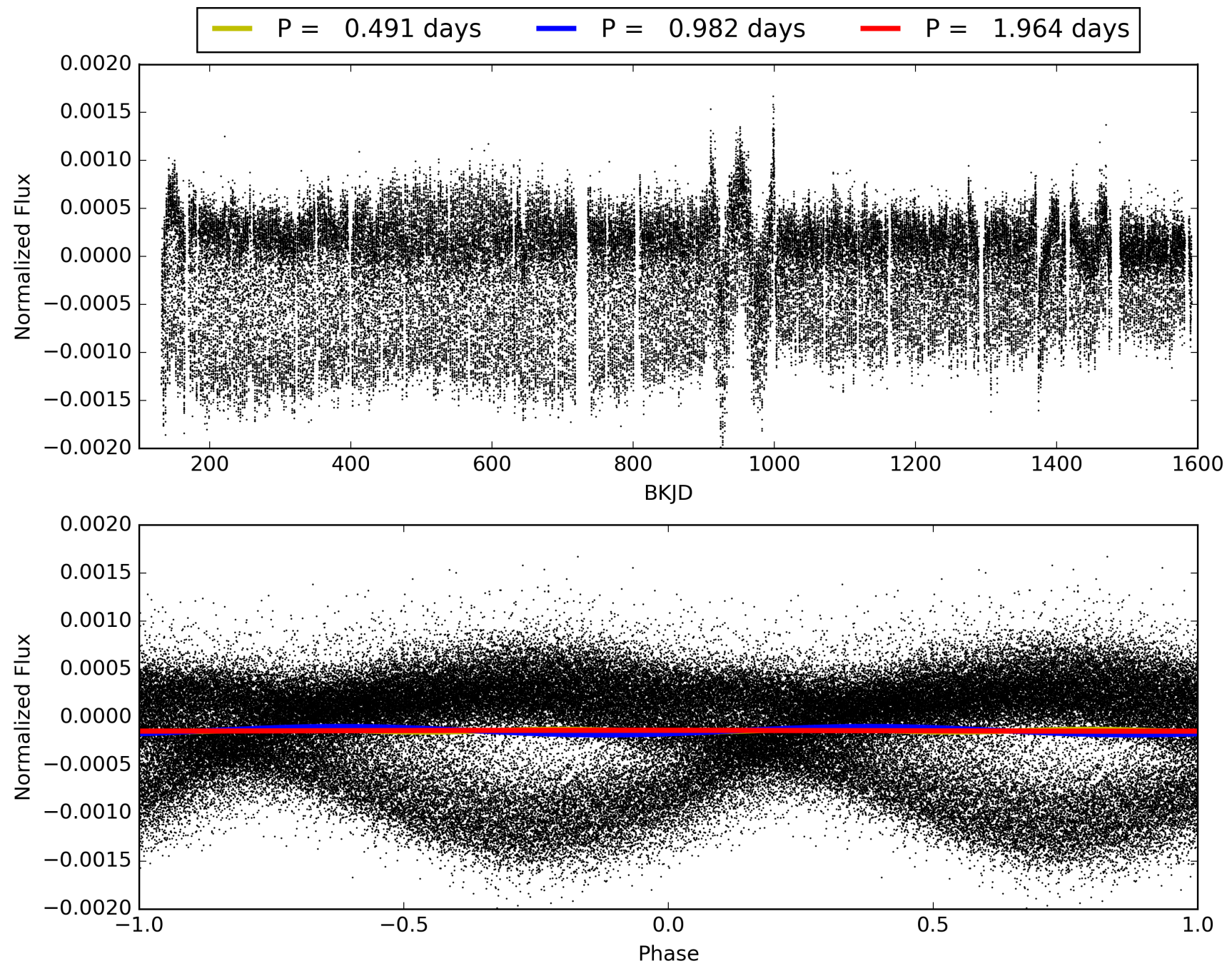
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008776920-01, PDC Light Curves

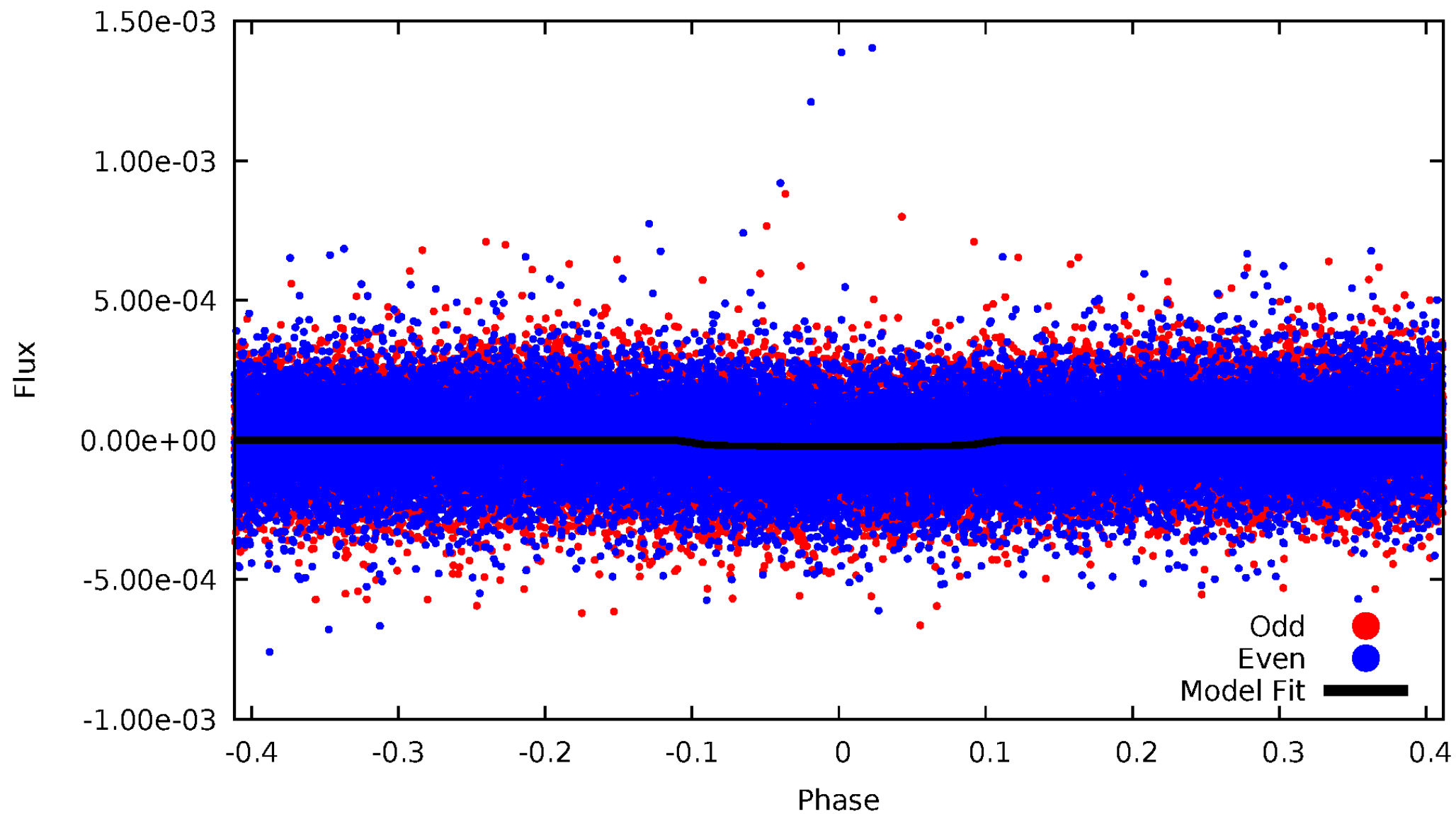


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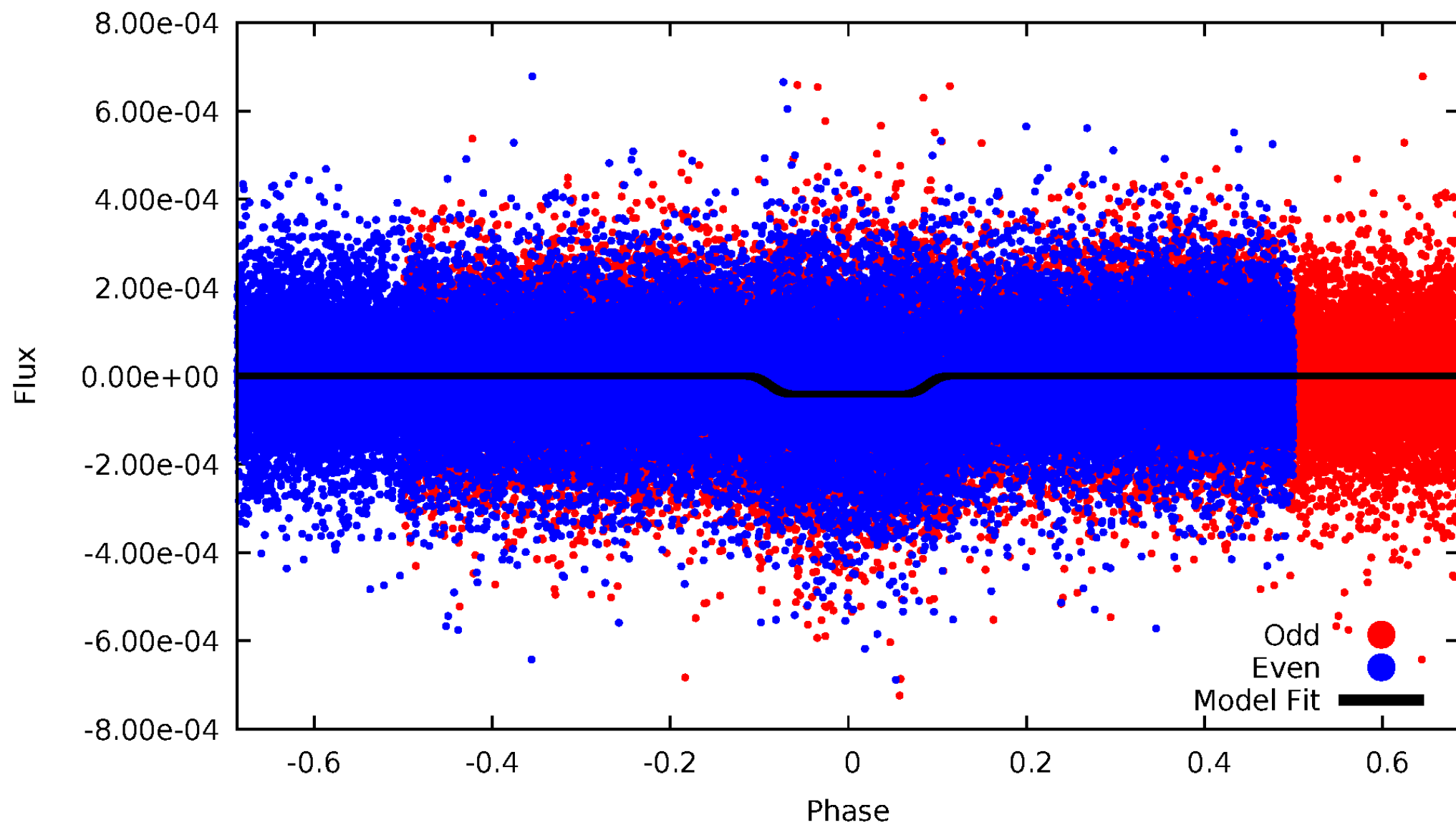
DV Odd/Even

TCE 008776920-01

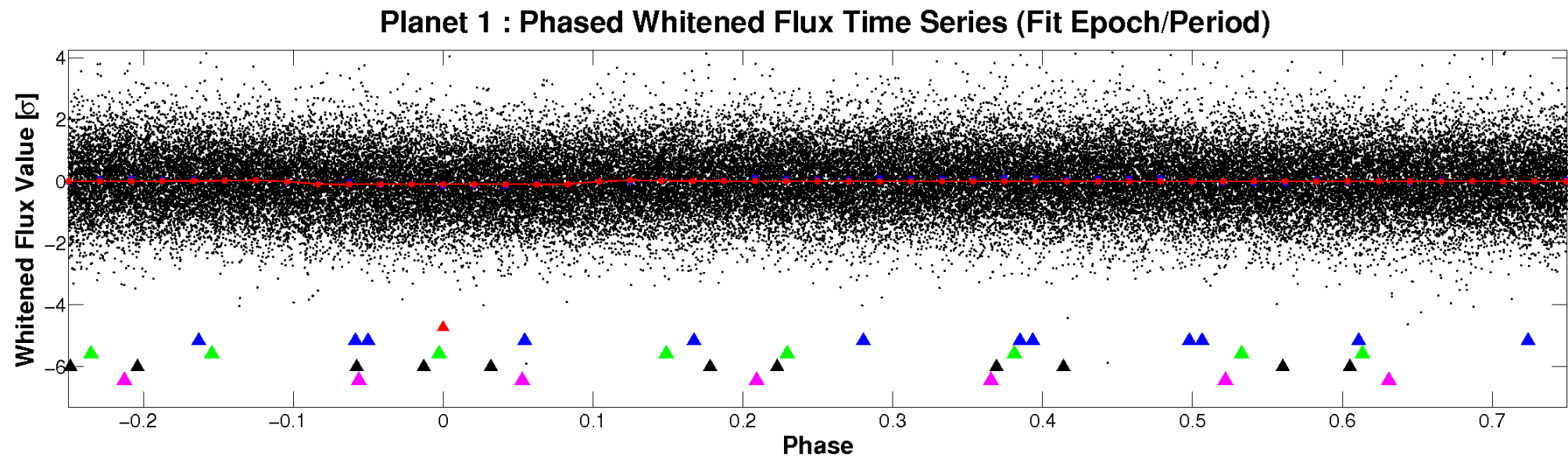
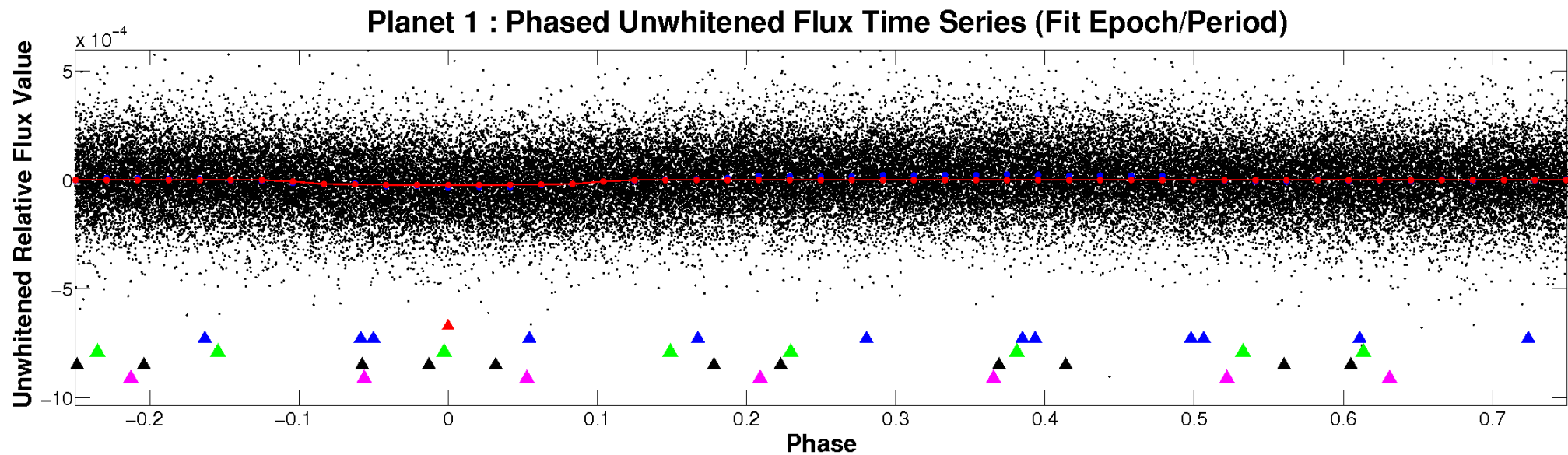


ALT Odd/Even

TCE 008776920-01

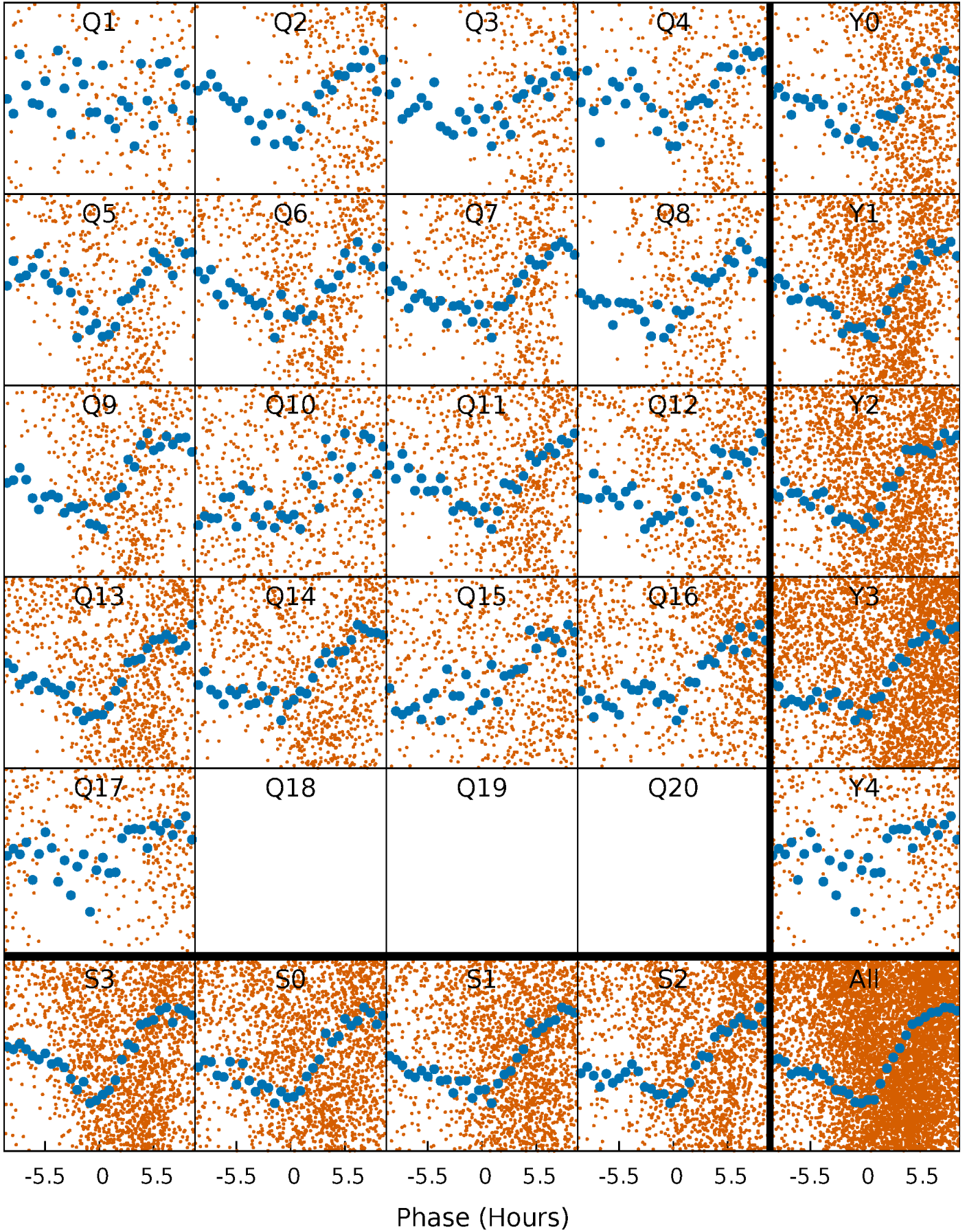


Non-Whitened Vs. Whitened Light Curve



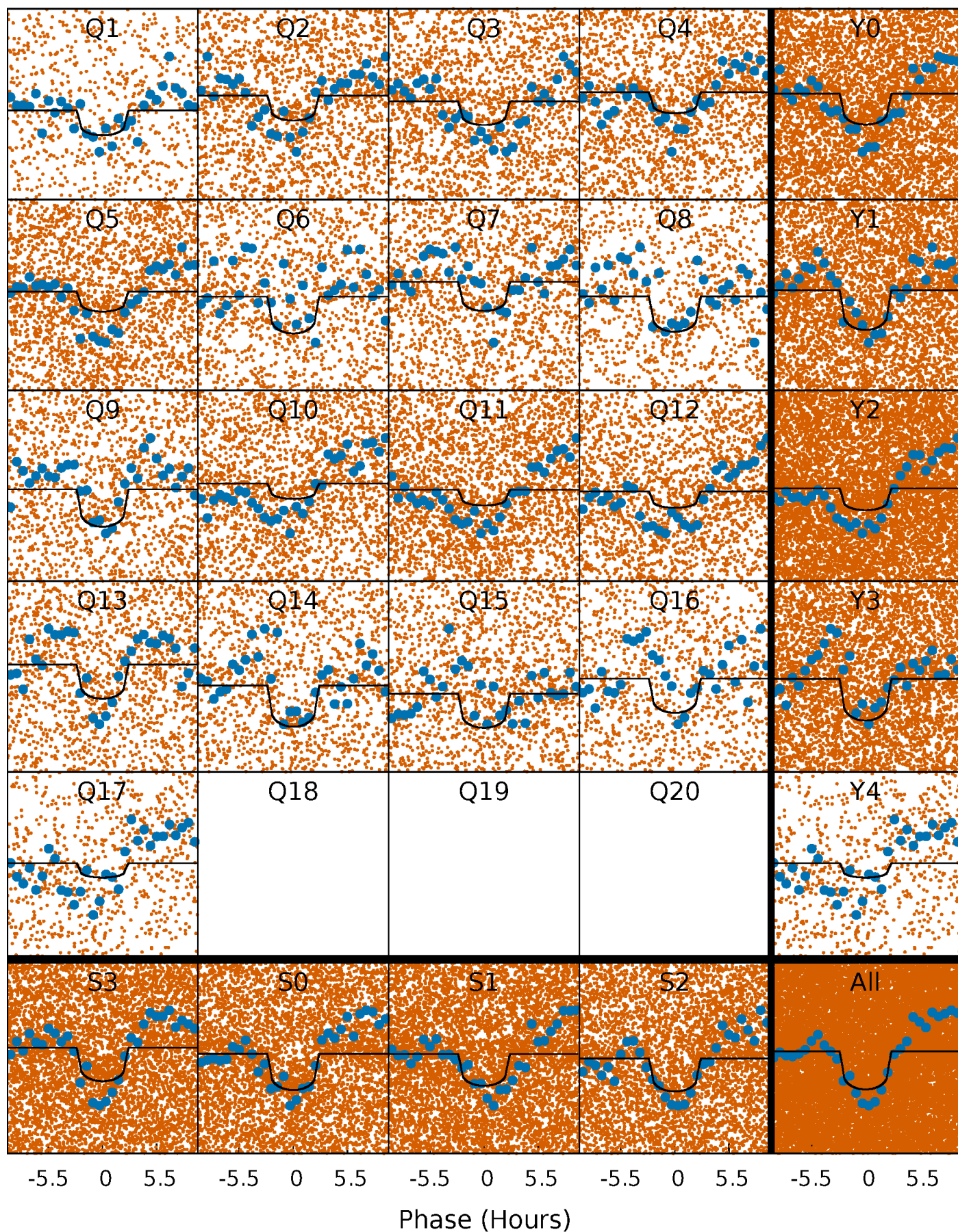
PDC Quarter-Phased Transit Curves

TCE 008776920-01 P= 0.981812 Days $T_0=132.456216$ (BKJD)



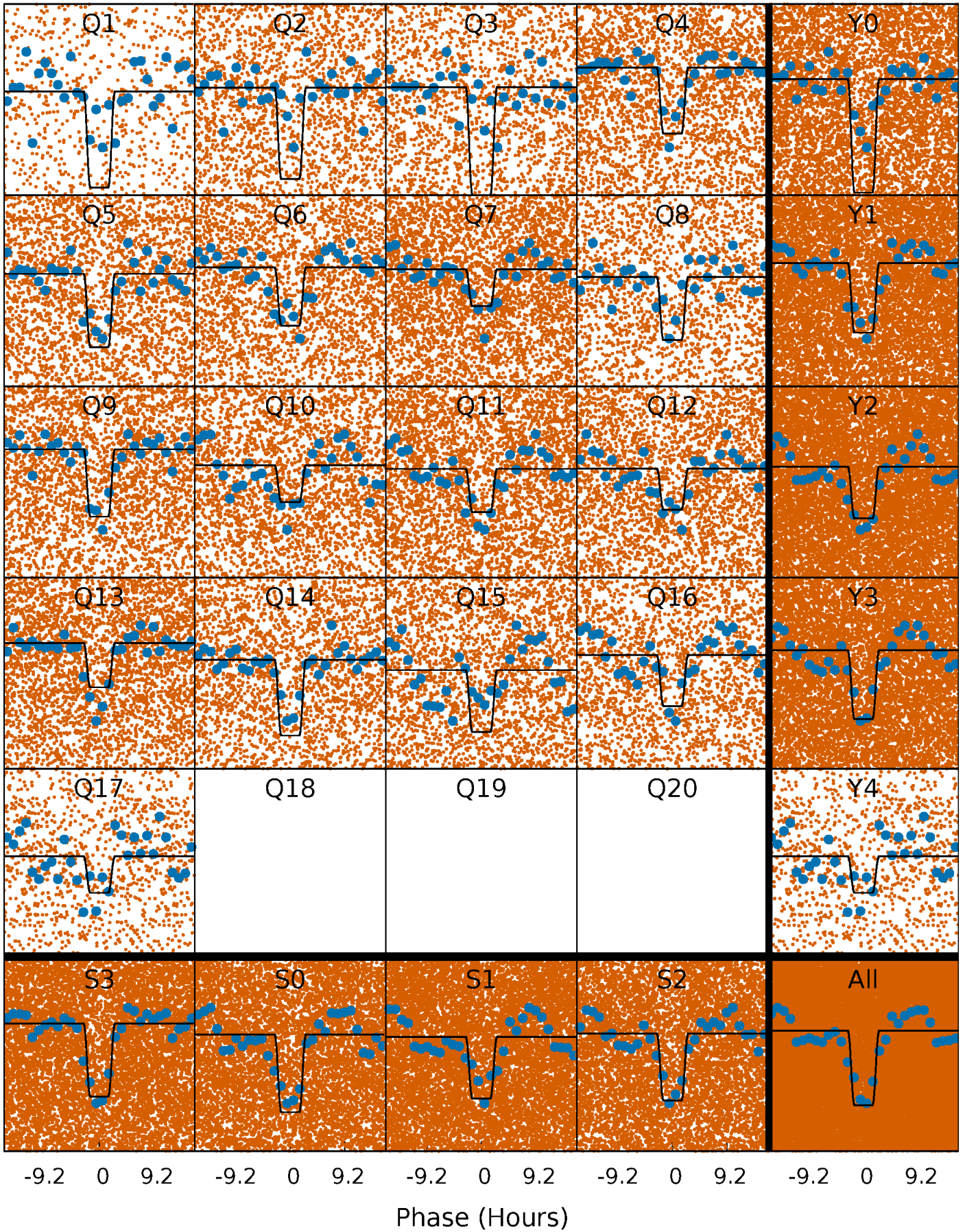
DV Quarter-Phased Transit Curves

TCE 008776920-01 P= 0.981812 Days $T_0=132.456216$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

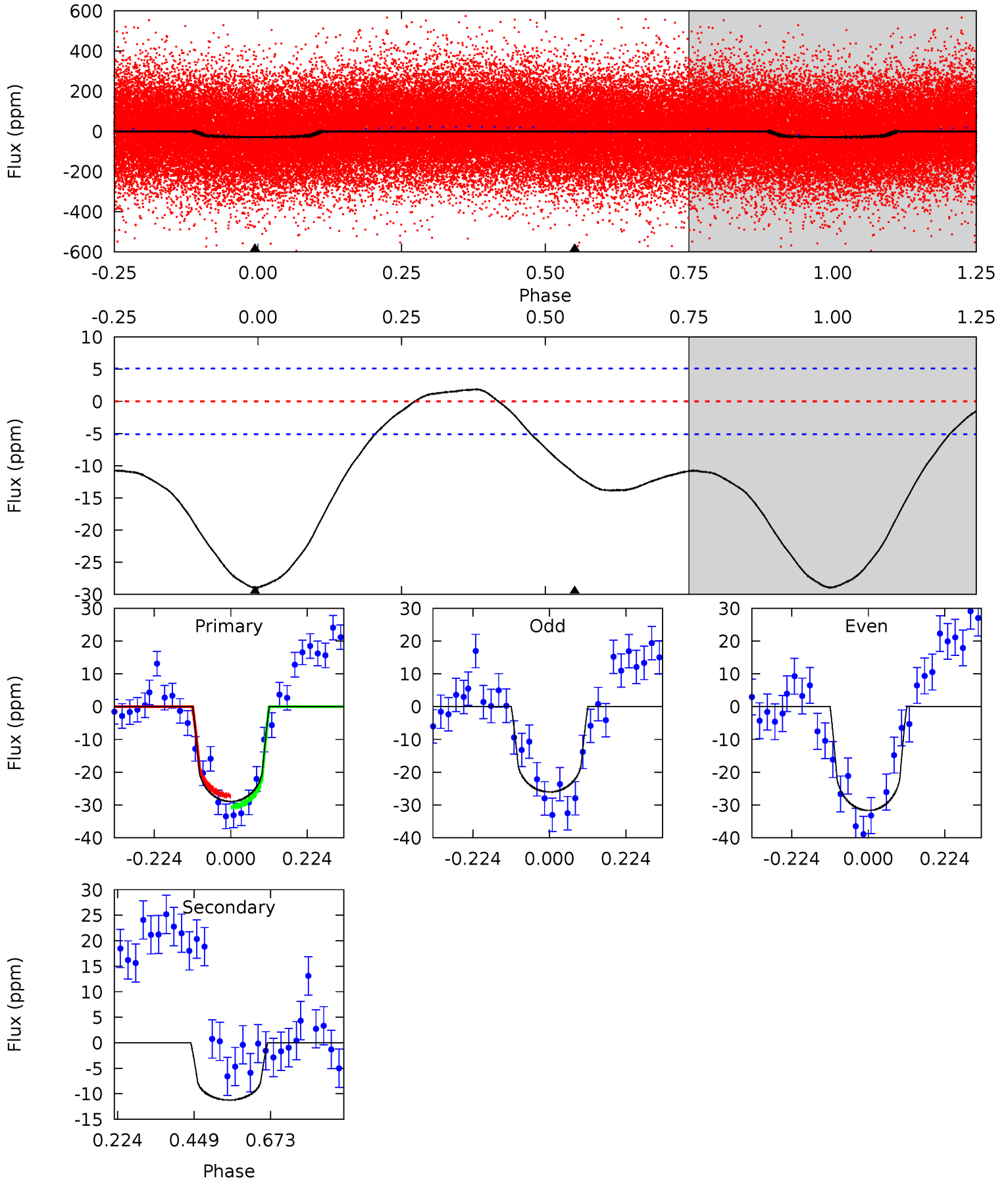
TCE 008776920-01 P= 0.981813 Days $T_0=132.463406$ (BKJD)



DV Model-Shift Uniqueness Test

008776920-01, P = 0.981812 Days, E = 131.474404 Days

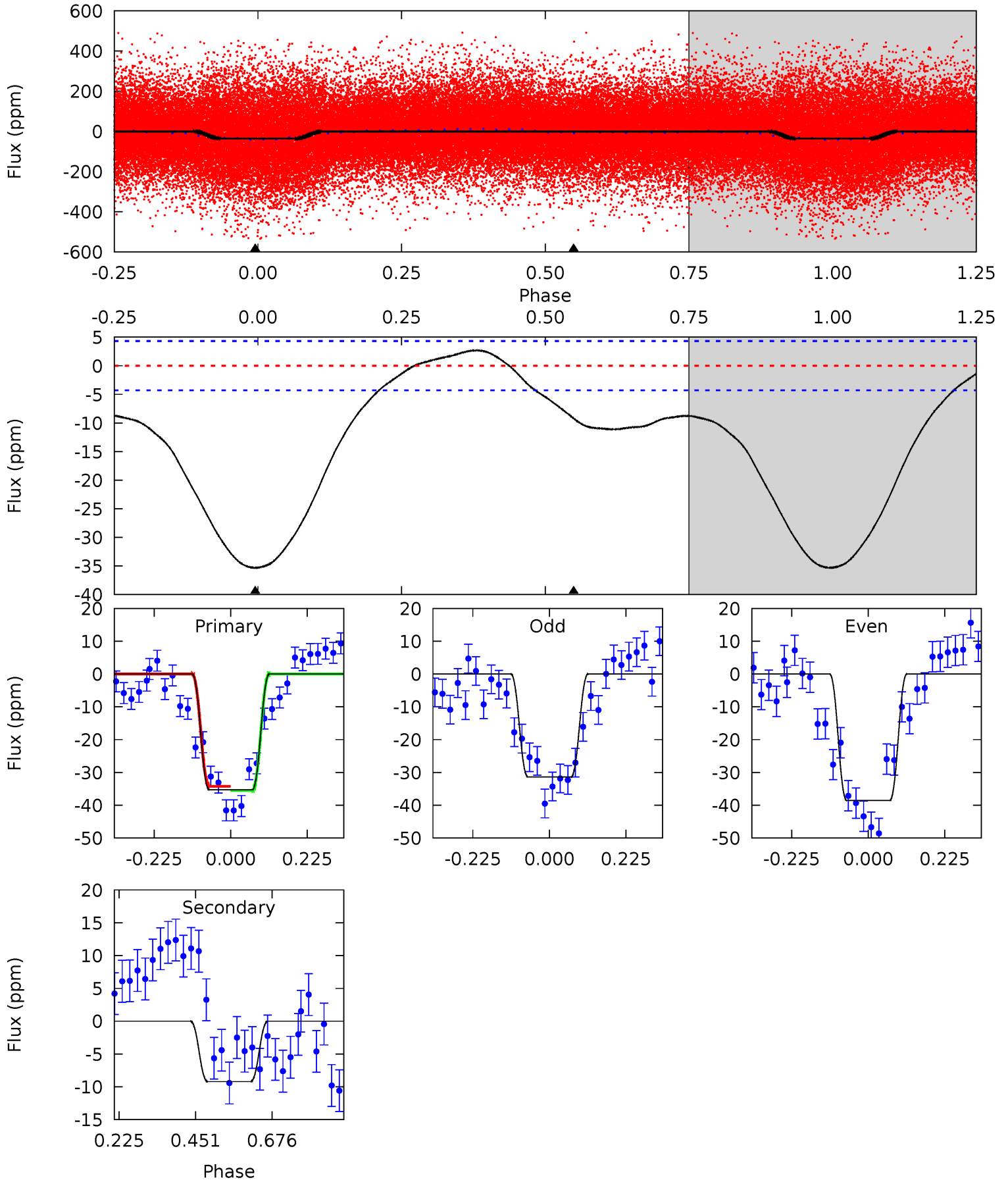
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	9.66	0	0	4.39	1.21	1.36	24.9	24.9	9.66	9.66	2.45	1.04	0.06	1.44



Alt Model-Shift Uniqueness Test

008776920-01, P = 0.981813 Days, E = 131.481593 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.0	9.39	0	0	4.39	1.21	1.48	36.0	36.0	9.39	9.39	3.67	0.96	0.07	0.66



Stellar Parameters For KIC 008776920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6211^{+185}_{-166}	$3.658^{+0.337}_{-0.112}$	$-0.440^{+0.400}_{-0.250}$	$2.853^{+0.490}_{-1.143}$	$1.349^{+0.234}_{-0.313}$	$0.082^{+0.208}_{-0.029}$
	+3%/-3%	+9%/-3%	+91%/-57%	+17%/-40%	+17%/-23%	+254%/-35%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008776920-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-11 ± 1	$1.31^{+0.71}_{-0.60}$	4366^{+293}_{-431}	5159^{+1846}_{-1042}	$1.614^{+4.069}_{-0.912}$
Alt.	-9 ± 1	$1.84^{+0.79}_{-0.65}$	4357^{+274}_{-393}	4019^{+1140}_{-1088}	$0.683^{+1.003}_{-0.340}$

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 $A_{obs} \gg 1.0$

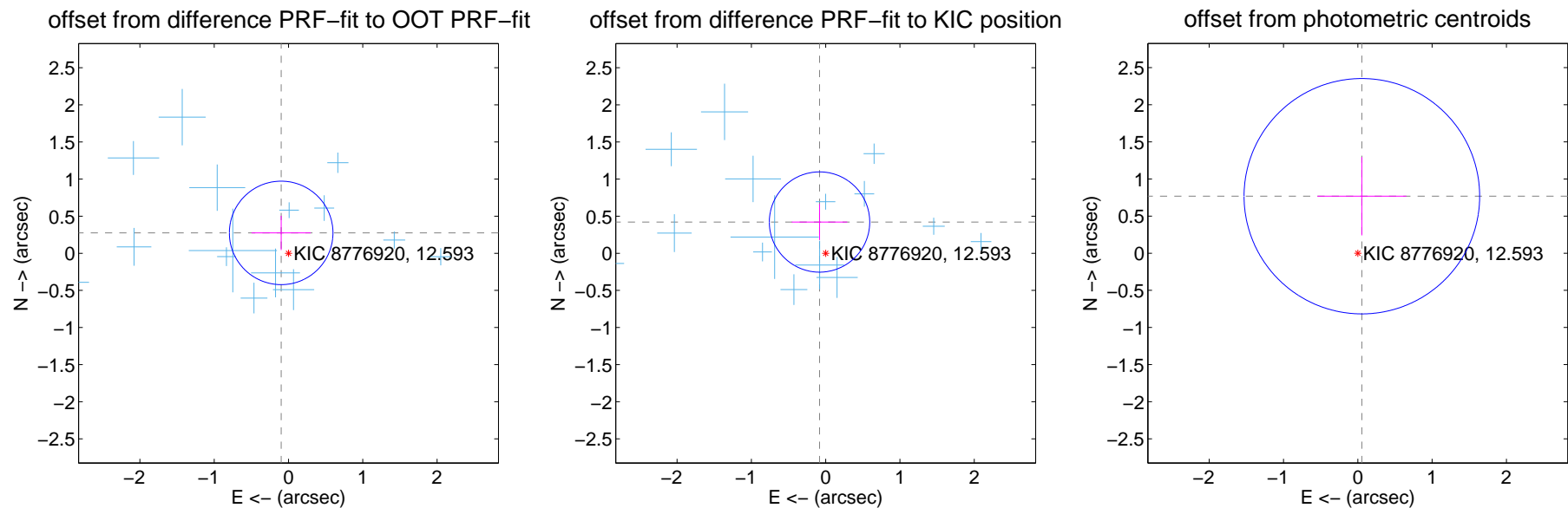
DV Centroid Data

Supplemental centroid analysis for 008776920-01. Kepler magnitude: 12.59. Transit SNR 11.53

There are 15 quarters with good PRF difference image offsets

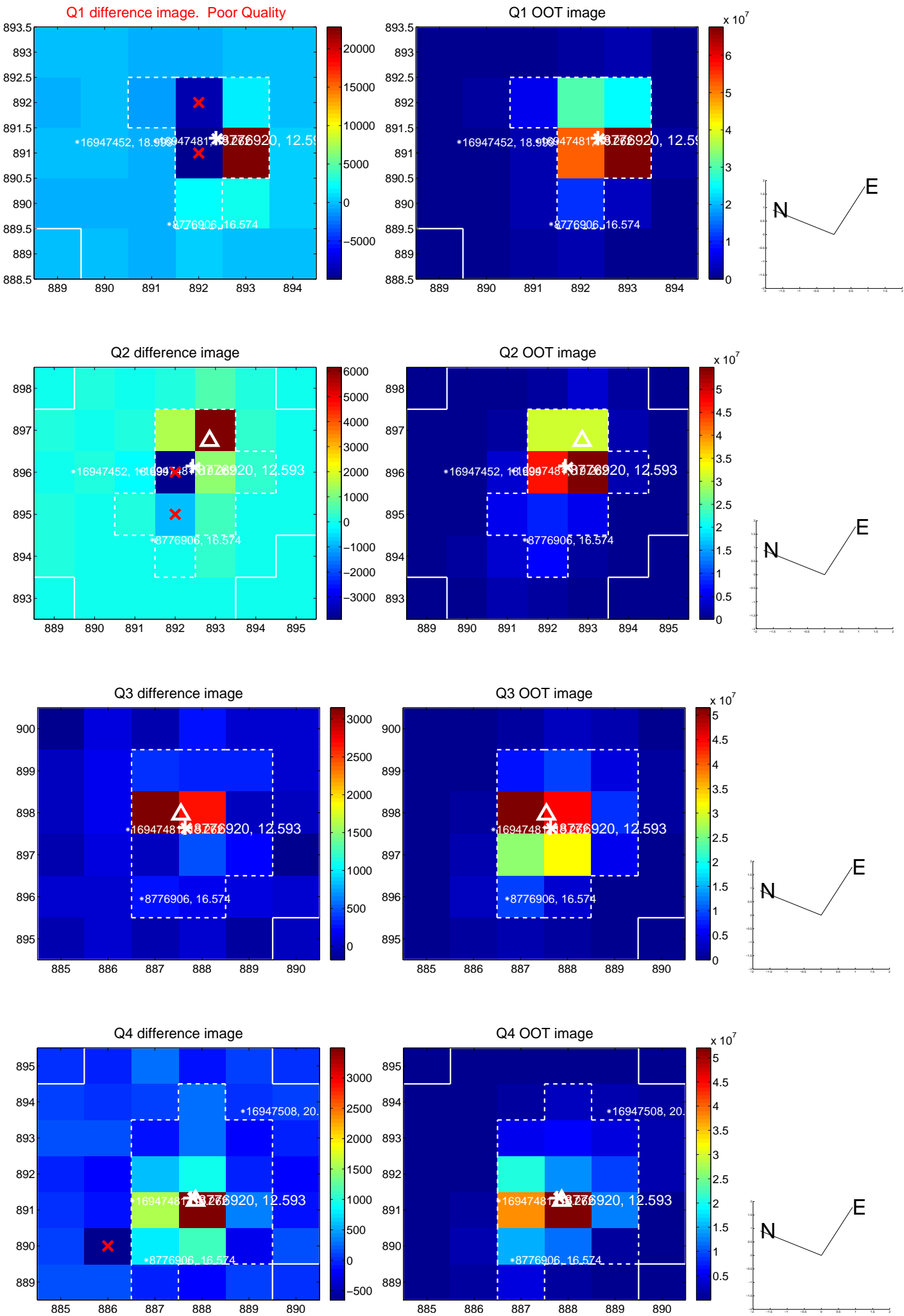
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.292 ± 0.232	1.26	0.099 ± 0.398	0.275 ± 0.231
PRF-fit source offset from KIC position	0.429 ± 0.225	1.91	0.083 ± 0.373	0.421 ± 0.243
photometric centroid source offset	0.77 ± 0.53	1.46	-0.05 ± 0.60	0.77 ± 0.53

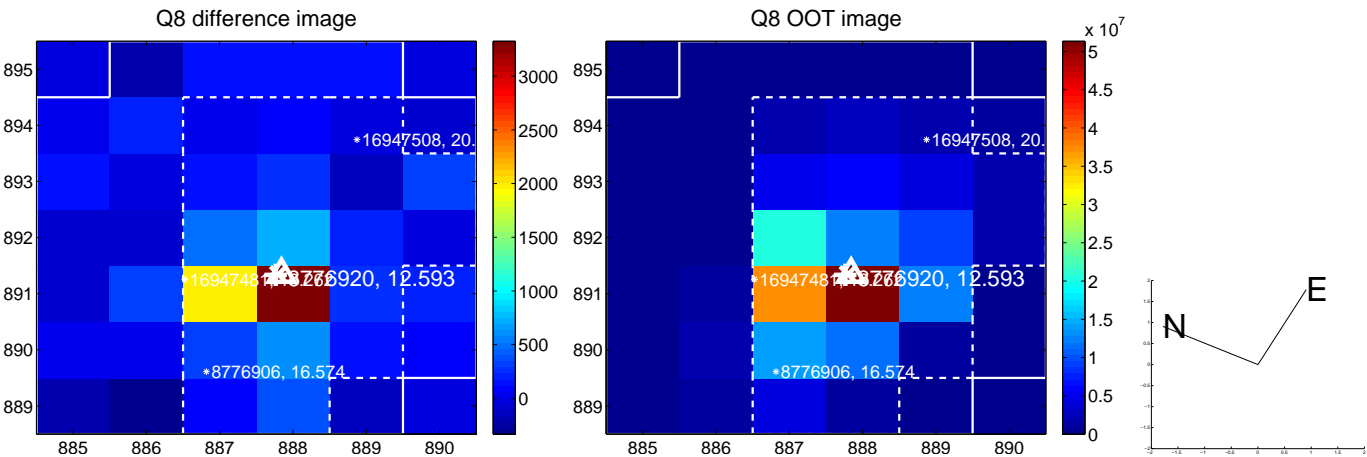
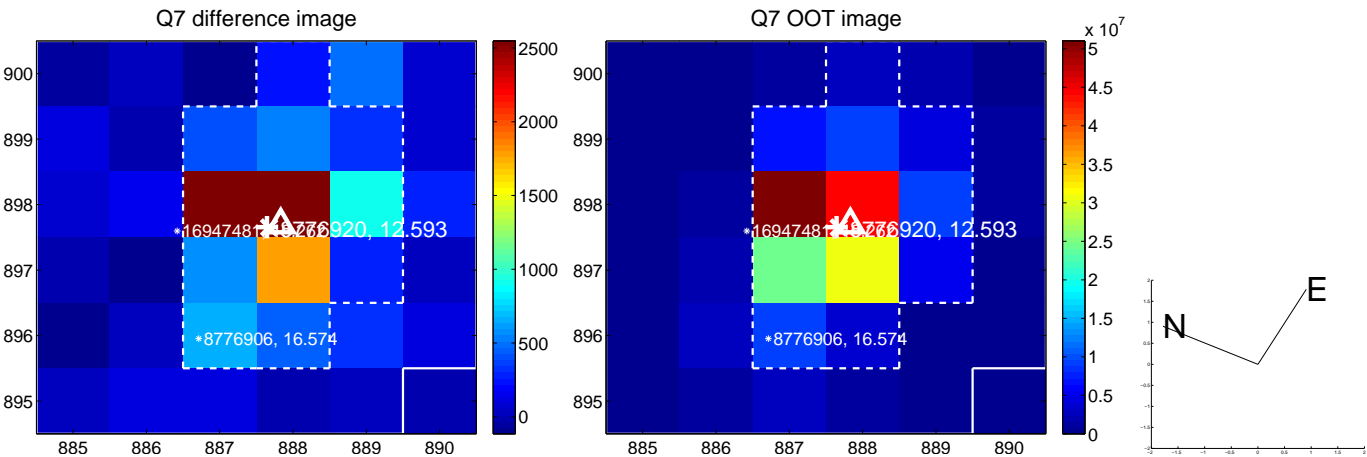
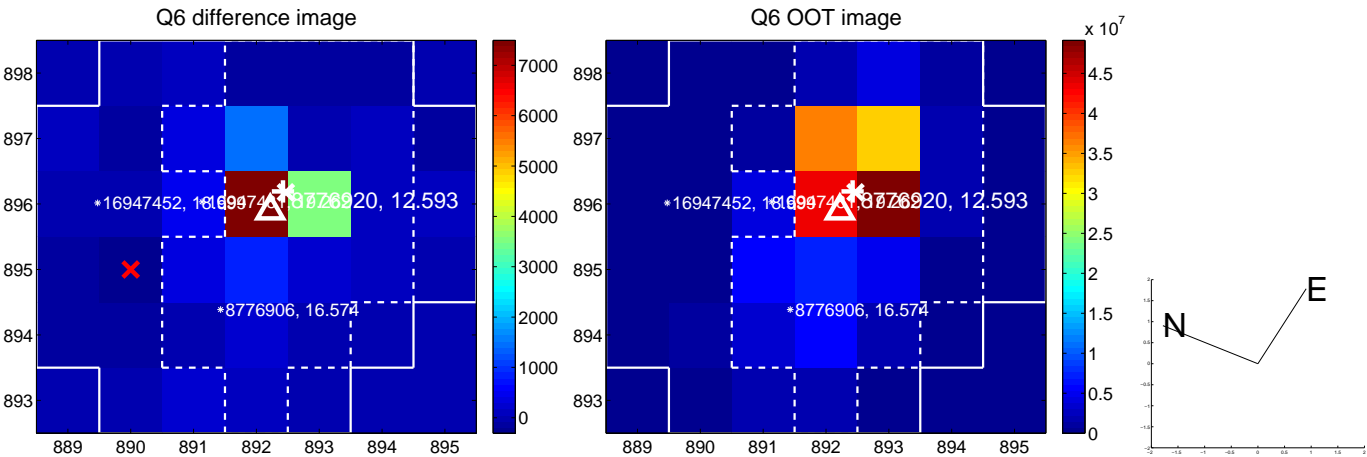
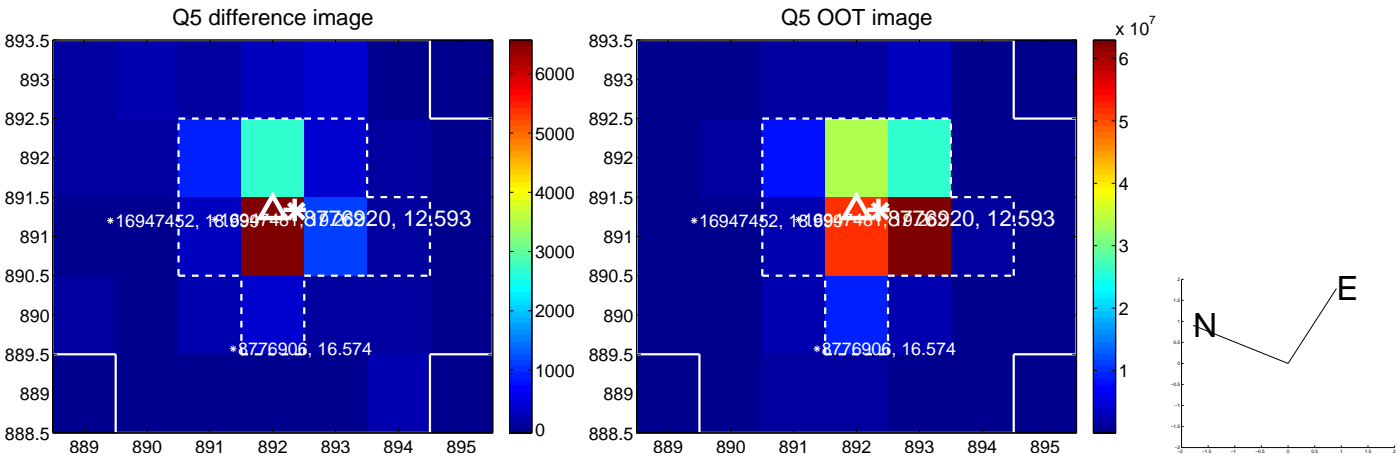


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

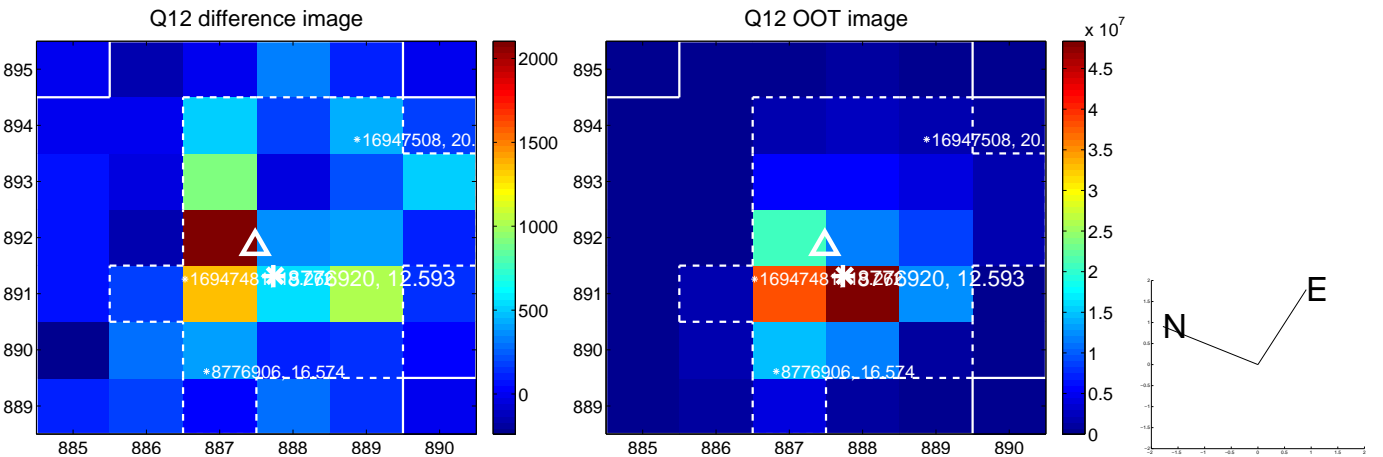
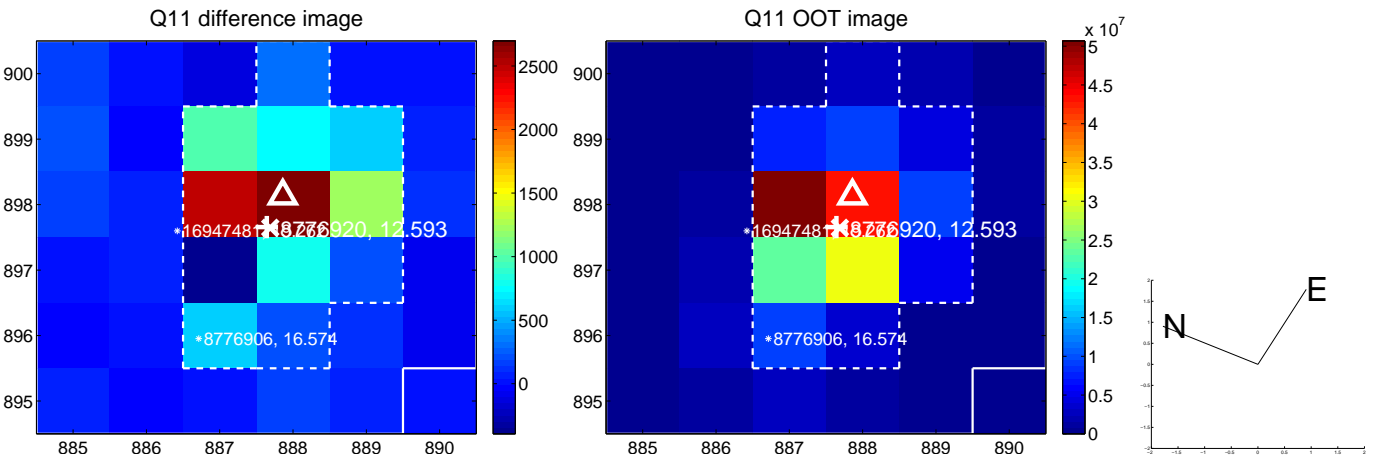
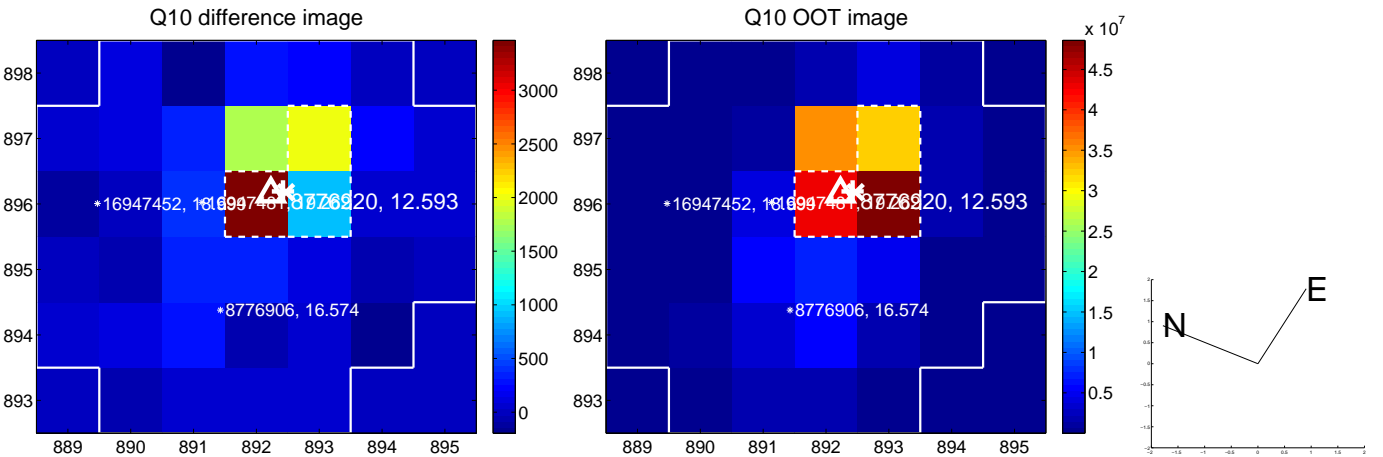
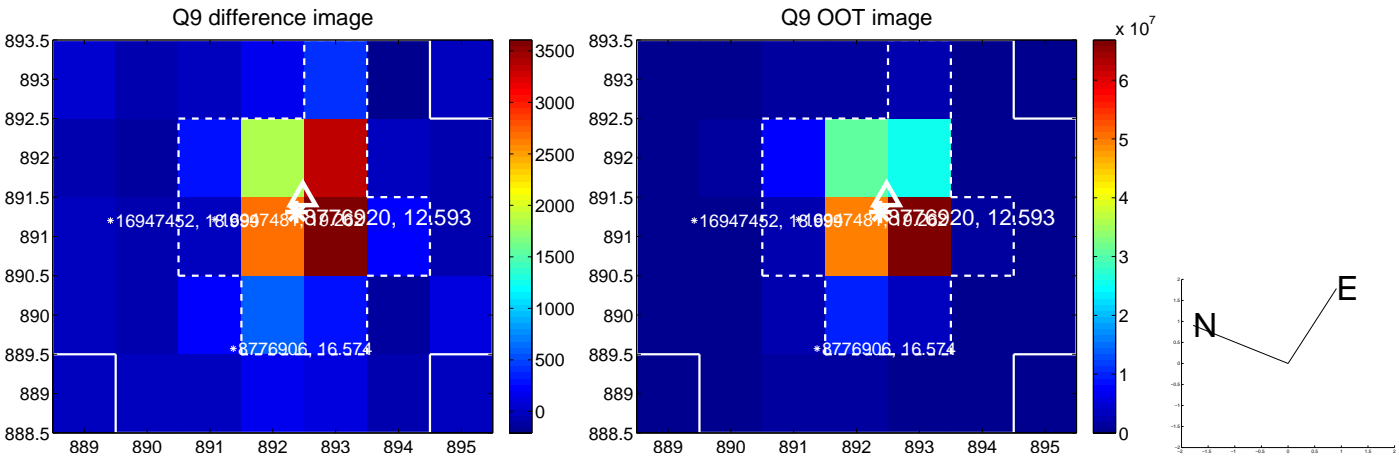
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



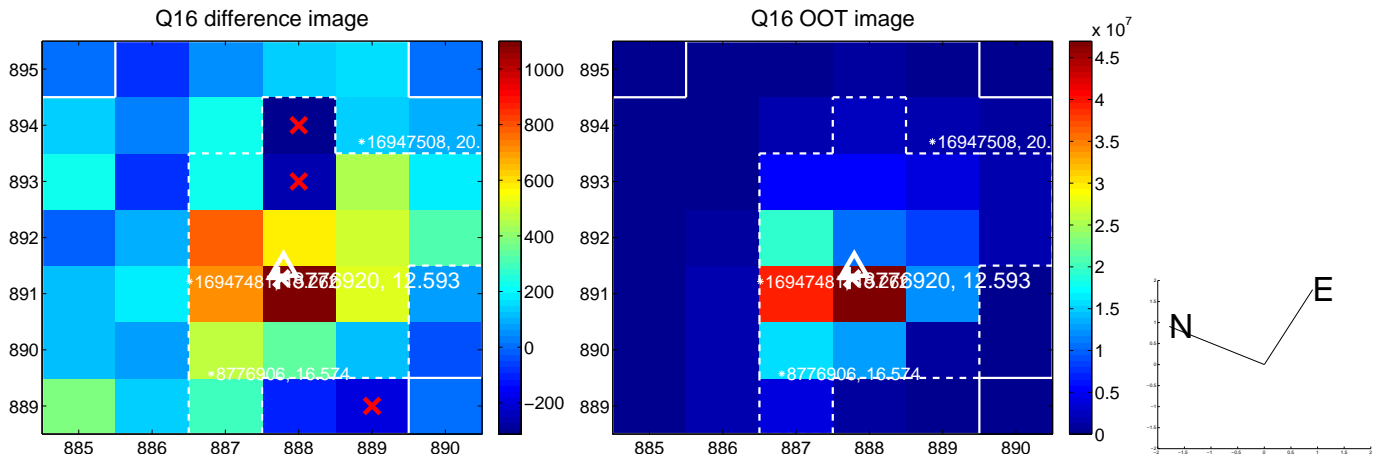
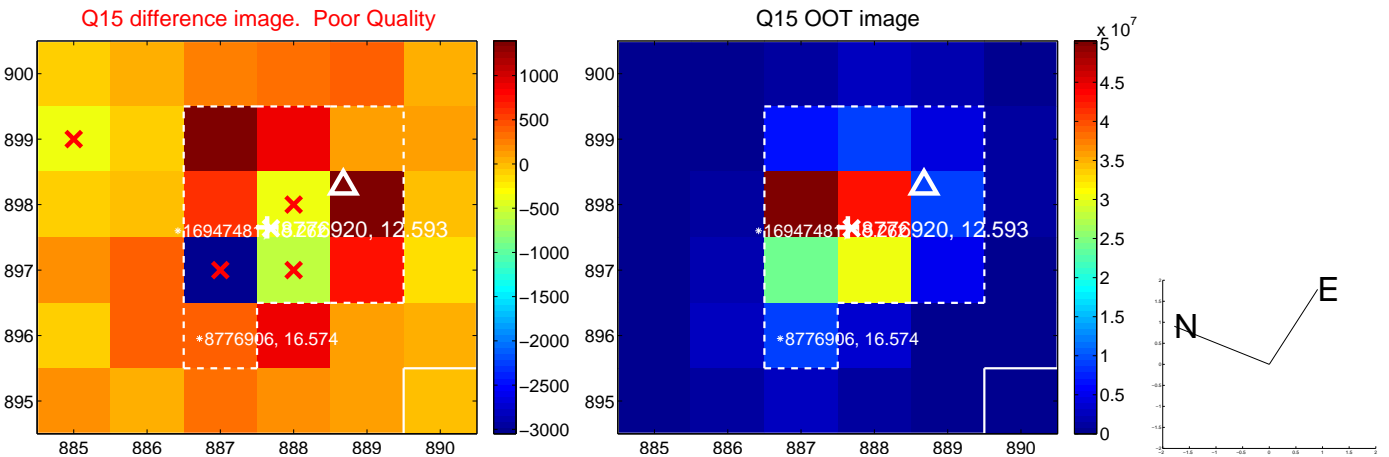
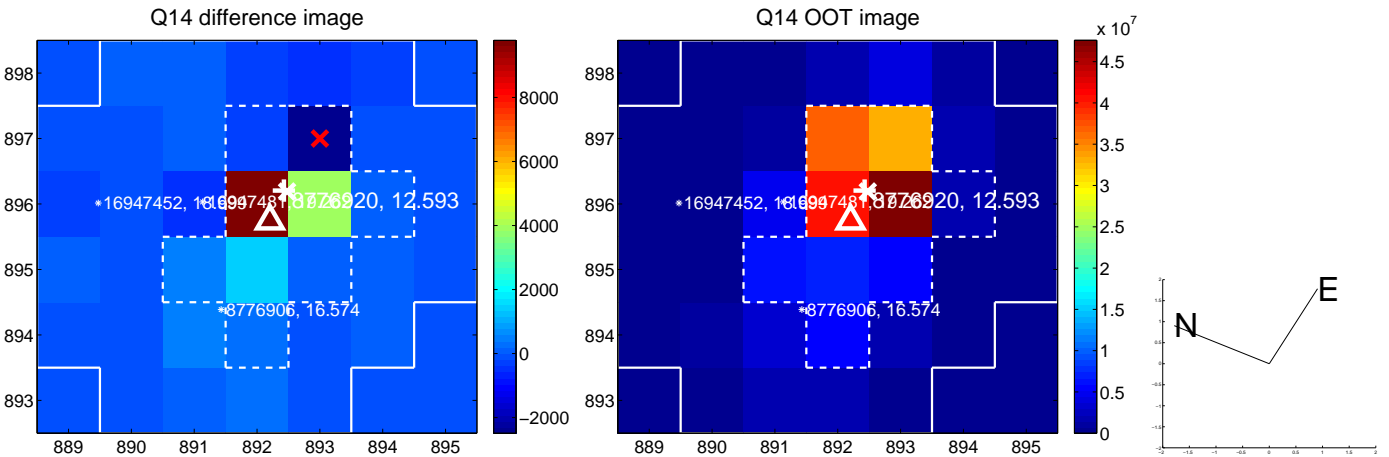
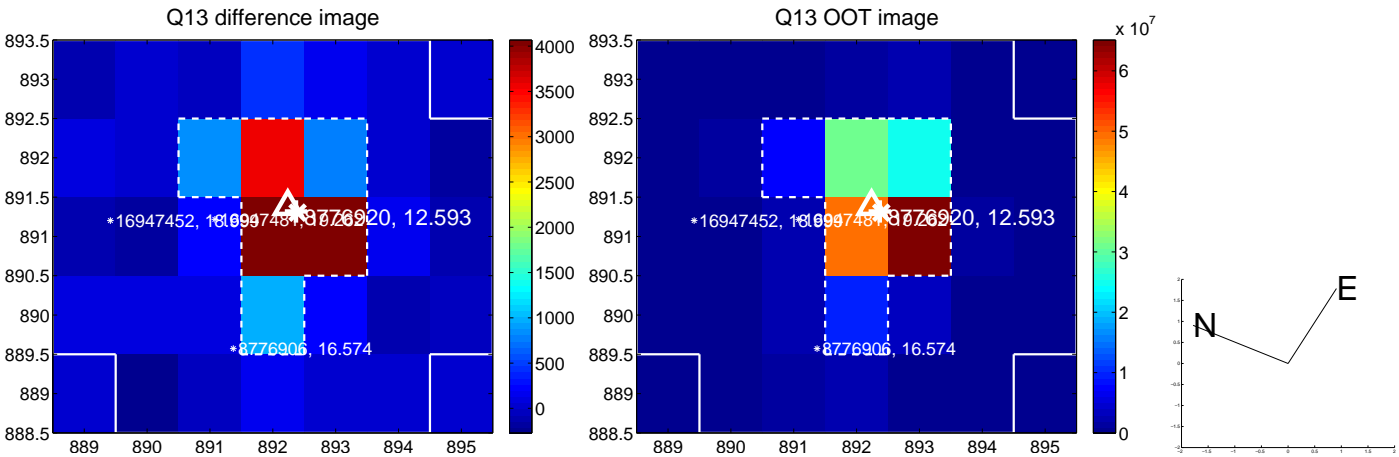
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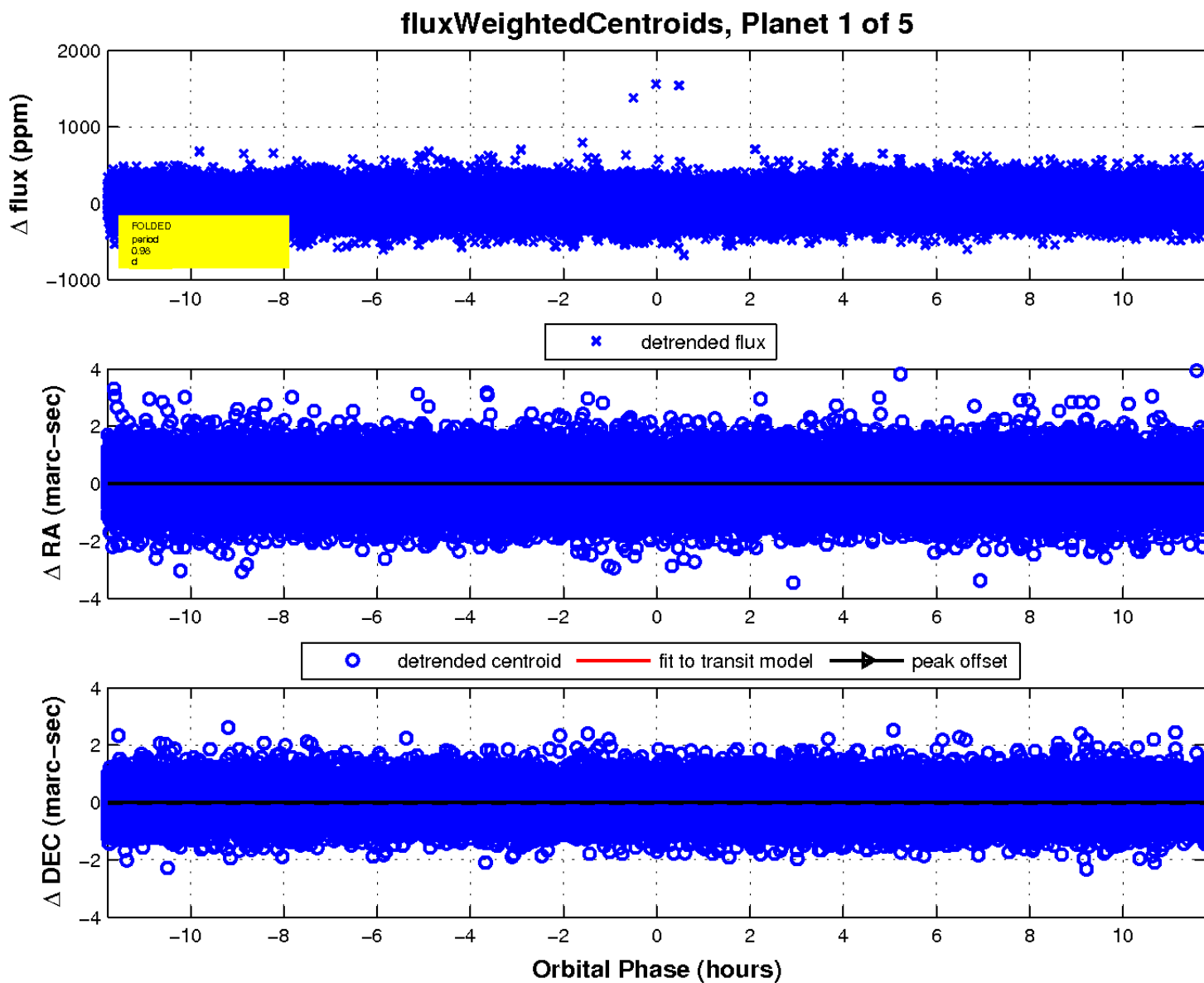
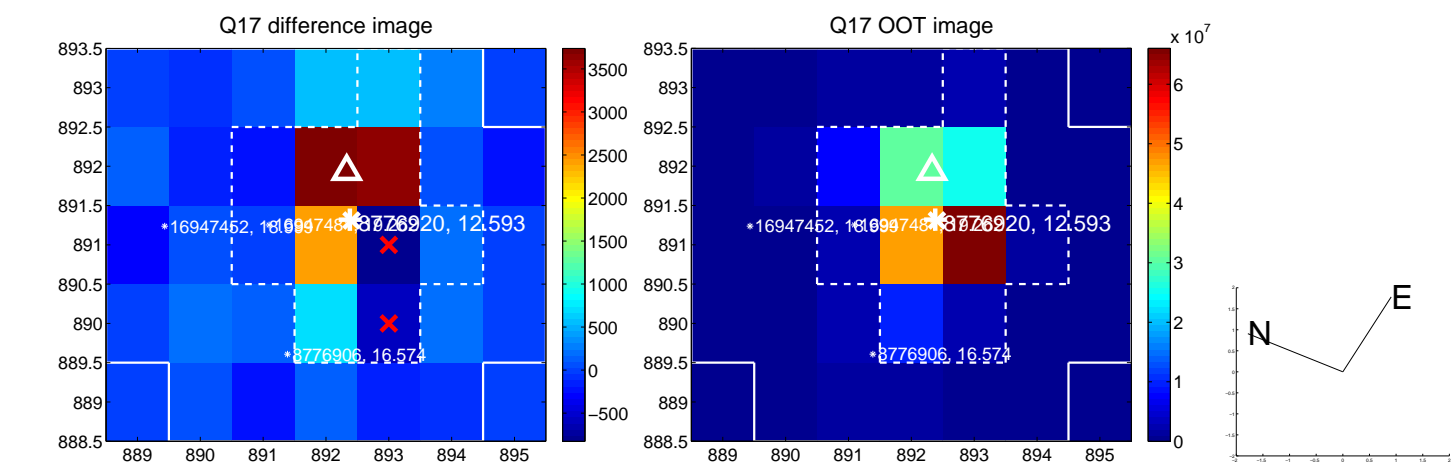
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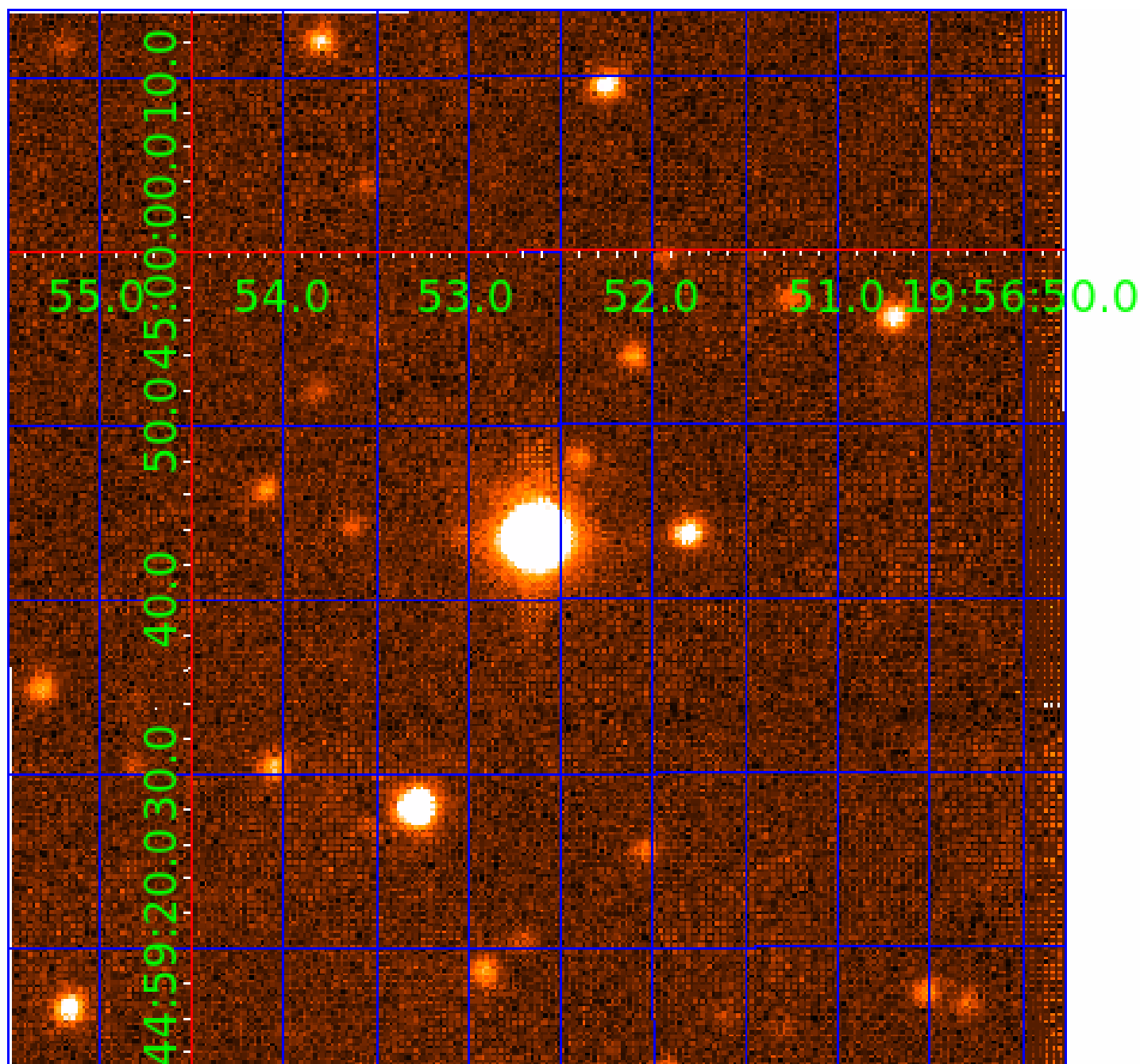


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UKIRT Image

Declination



KIC 008776920

Q1-17 DR25 TCE Parameters

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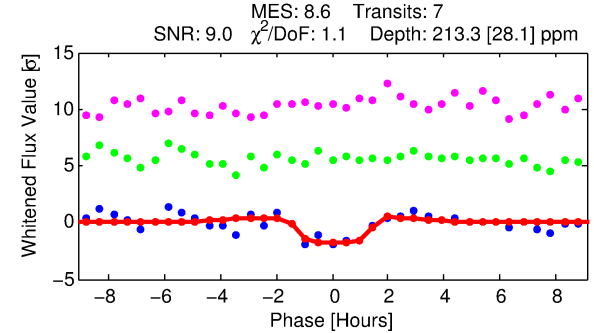
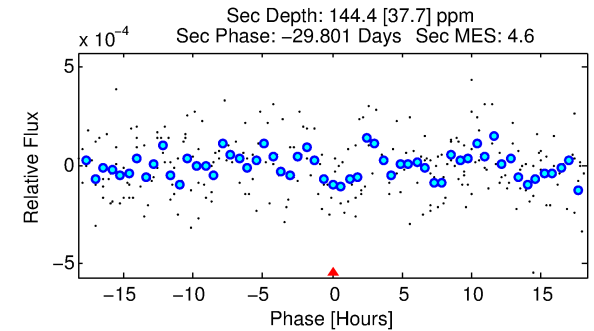
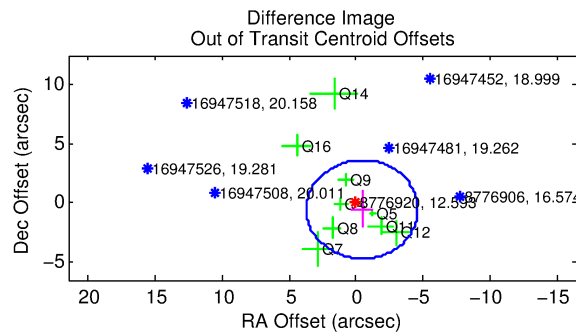
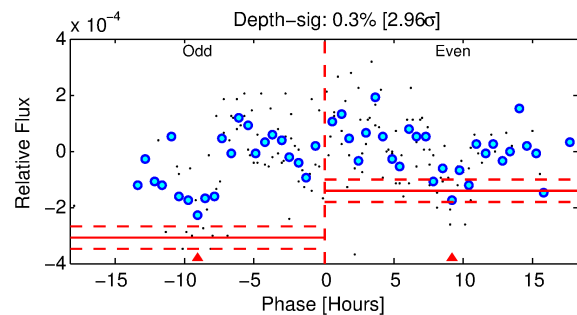
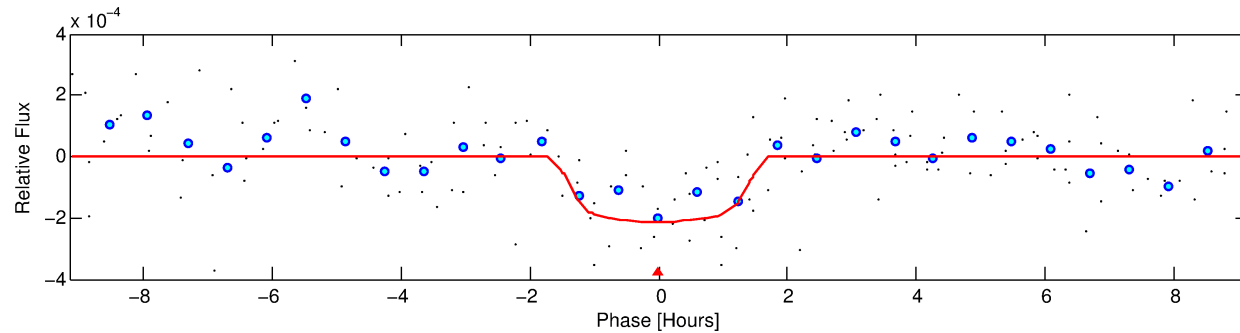
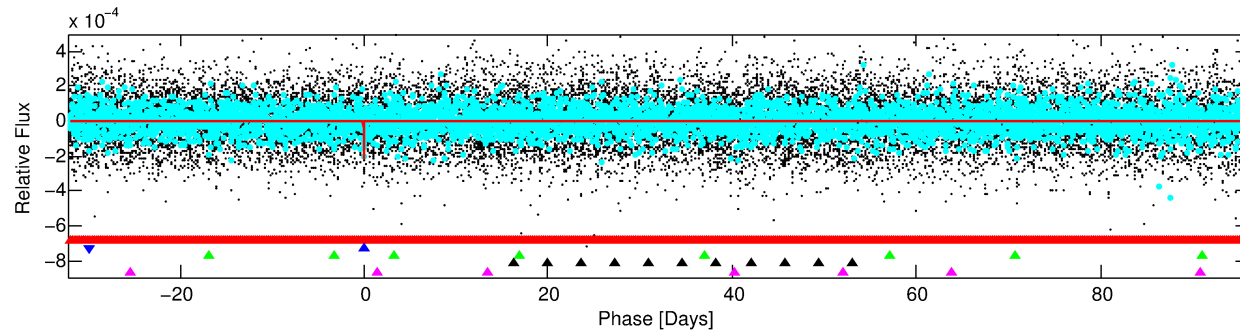
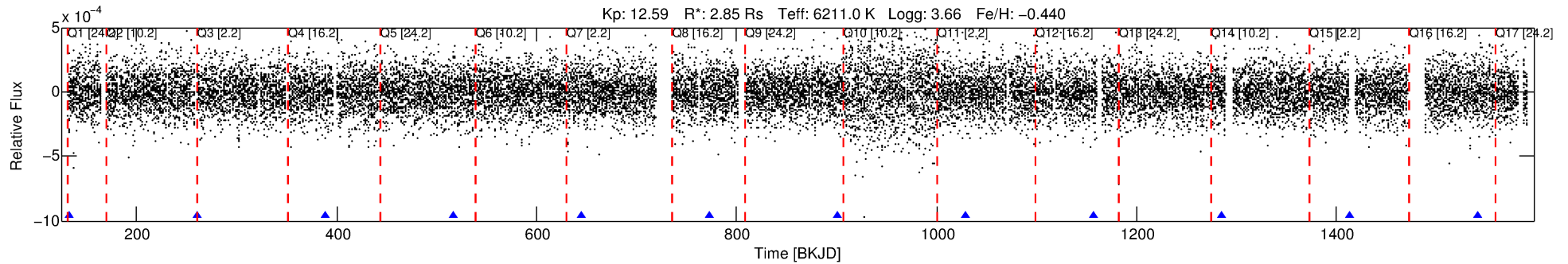
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008776920-02

No Significant Match Found

DV One-Page Summary

KIC: 8776920 Candidate: 2 of 5 Period: 128.071 d



DV Fit Results:

Period = 128.07103 [0.00096] d
Epoch = 132.9534 [0.0067] BKJD
Rp/R* = 0.0156 [0.0086]
a/R* = 156.39 [477.17]
b = 0.89 [0.71]
Seff = 35.90 [21.34]
Teff = 624 [93] K
Rp = 4.85 [3.30] Re
a = 0.5498 [0.2044] AU
Ag = 1021.50 [1300.20] [0.78σ]
Teffp = 5456 [1552] K [3.11σ]

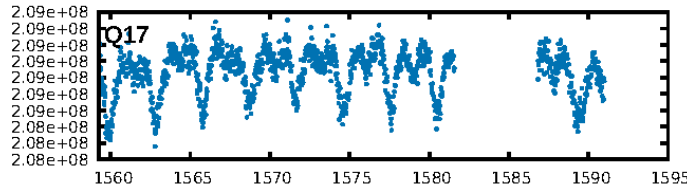
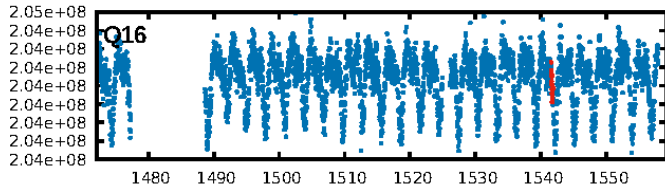
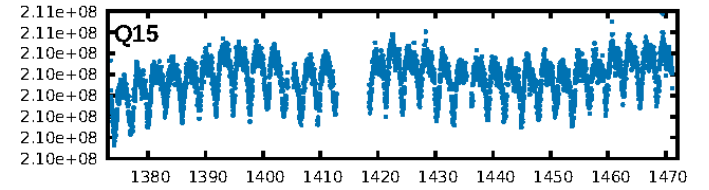
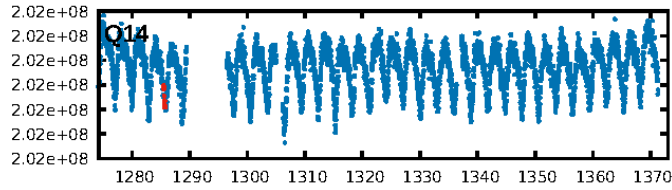
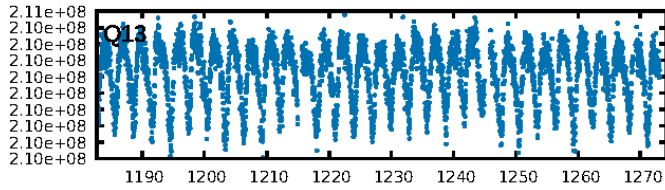
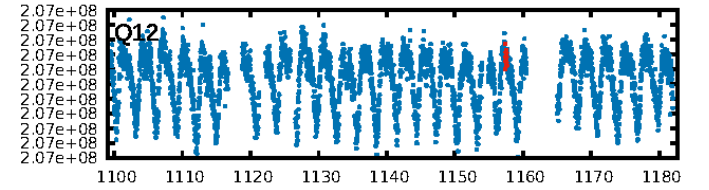
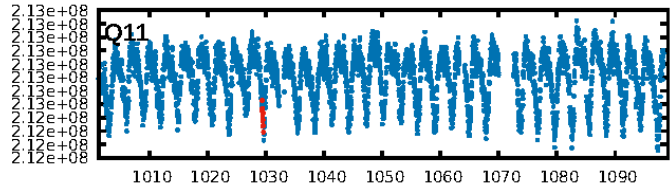
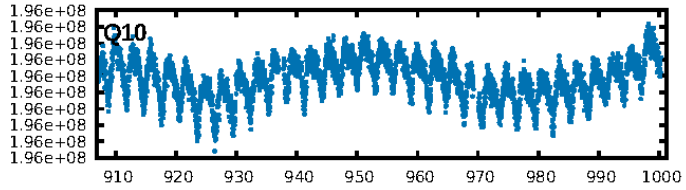
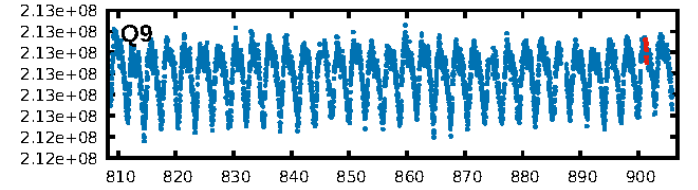
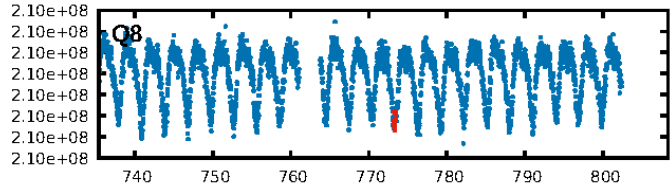
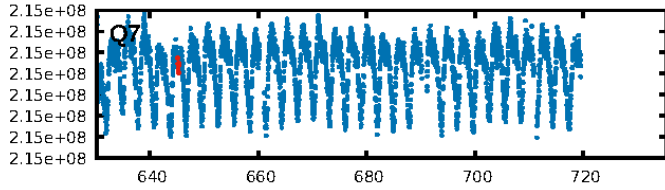
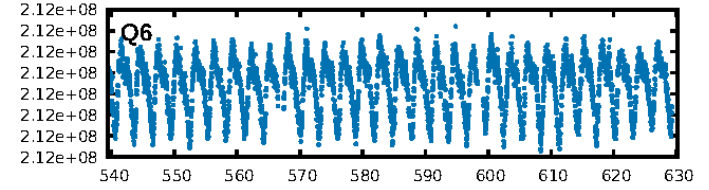
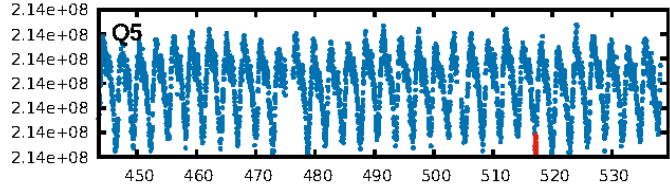
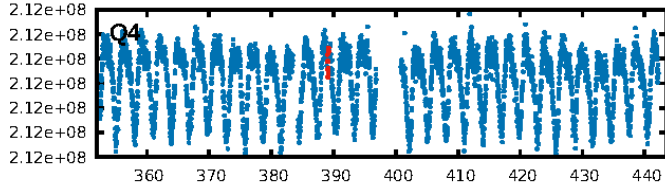
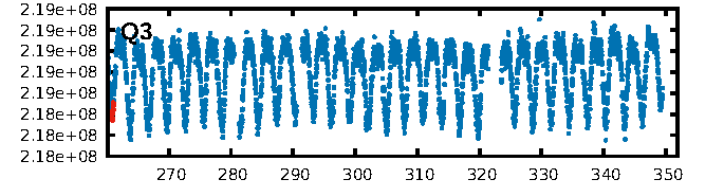
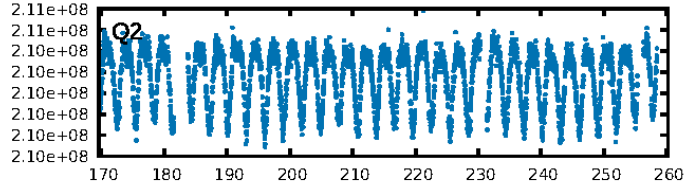
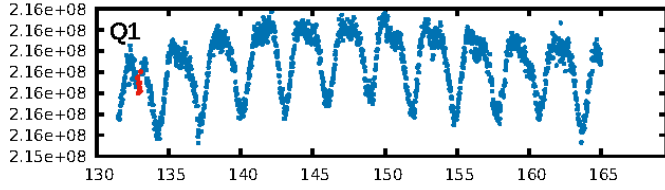
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [532.70σ]
LongPeriod-sig: 100.0% [15.20σ]
ModelChiSquare2-sig: 20.8%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 2.92e-11
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -2.834
Centroid-sig: 8.3%
Centroid-so: 1.595 arcsec [1.60σ]
OotOffset-rm: 0.692 arcsec [0.50σ]
KicOffset-rm: 0.605 arcsec [0.48σ]
OotOffset-st: 1/2/4/2 [9]
KicOffset-st: 1/2/4/2 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.20 [2/10]

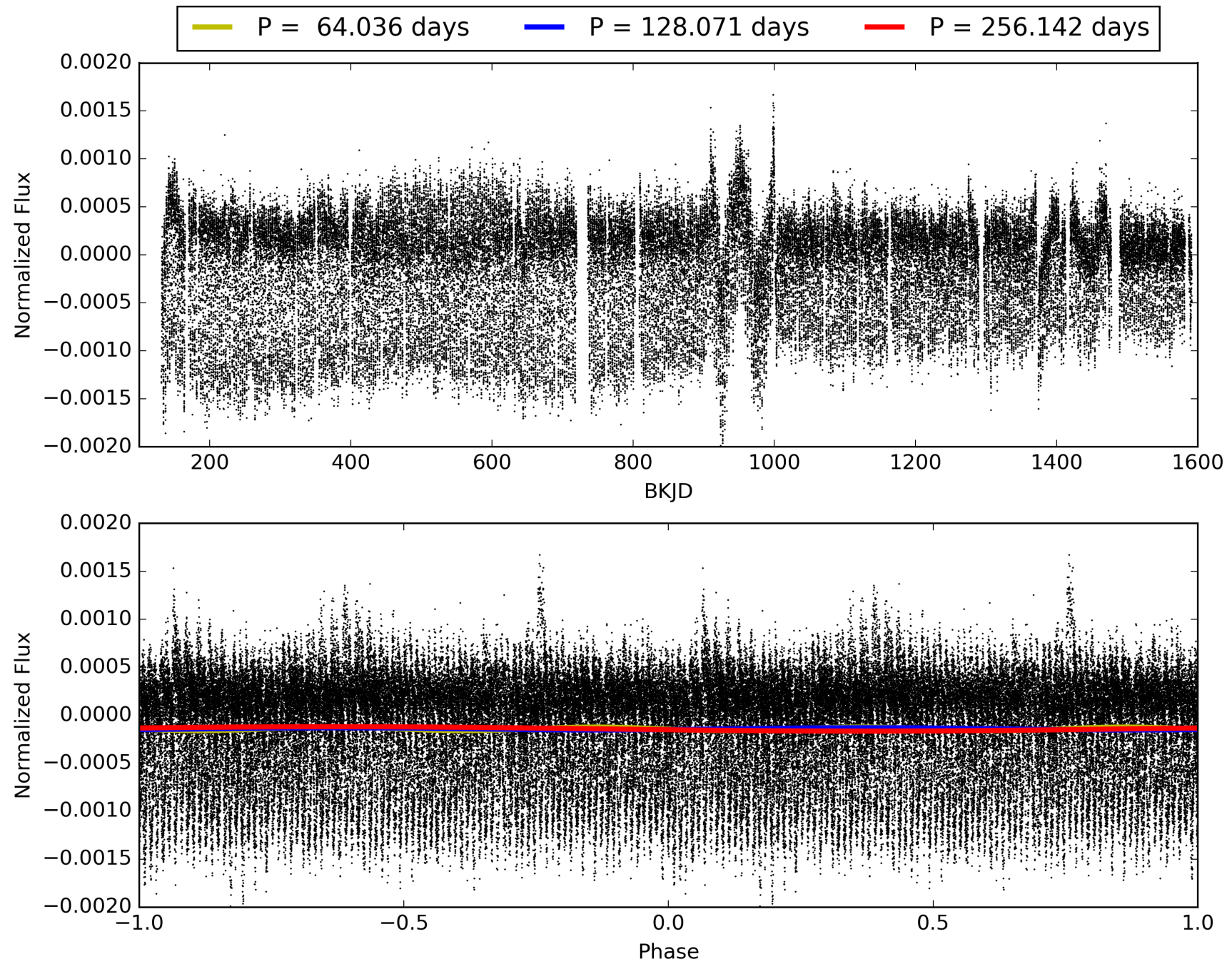
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:02:15 Z

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

TCE 008776920-02, PDC Light Curves

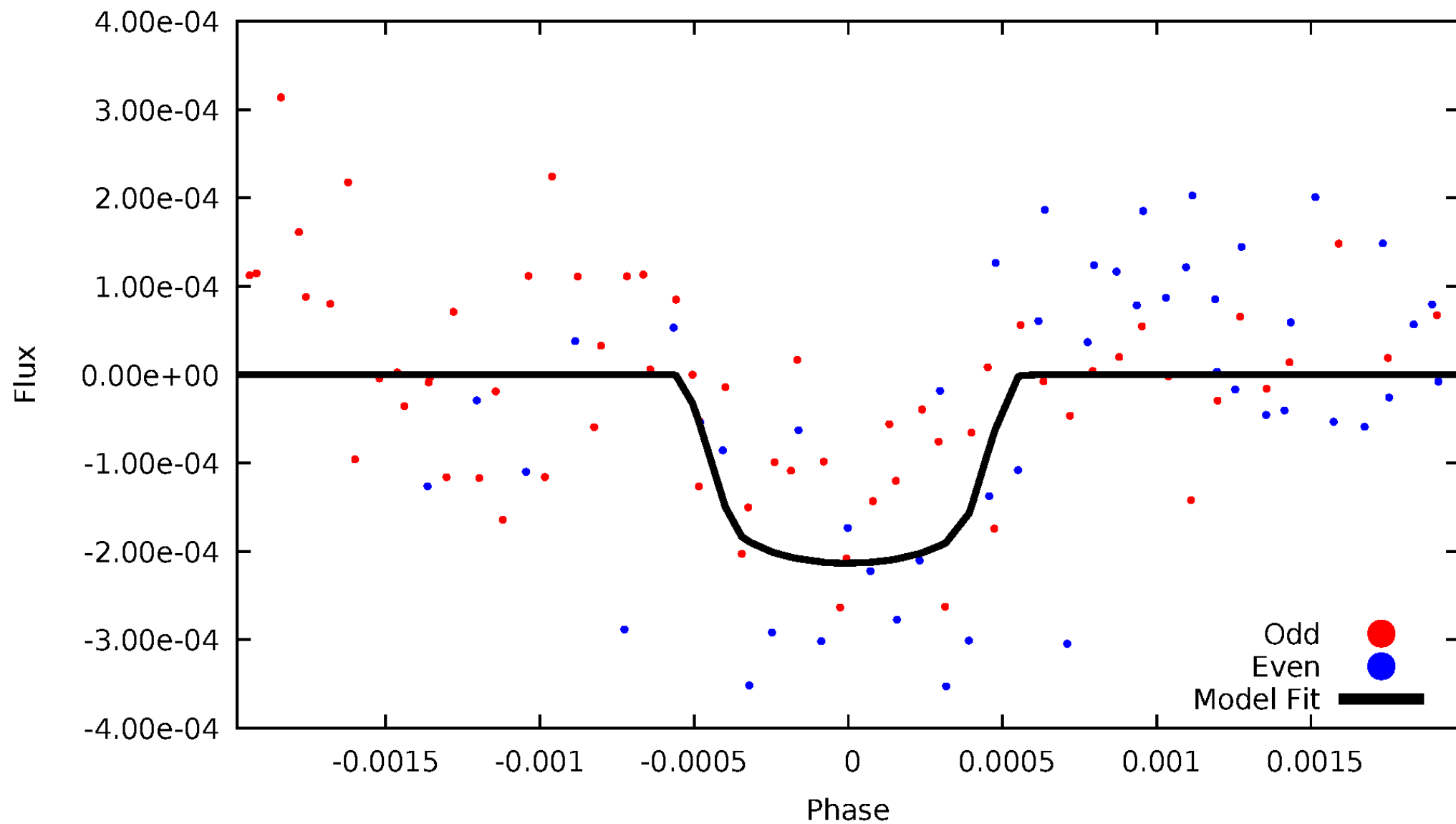


TCE 008776920-02



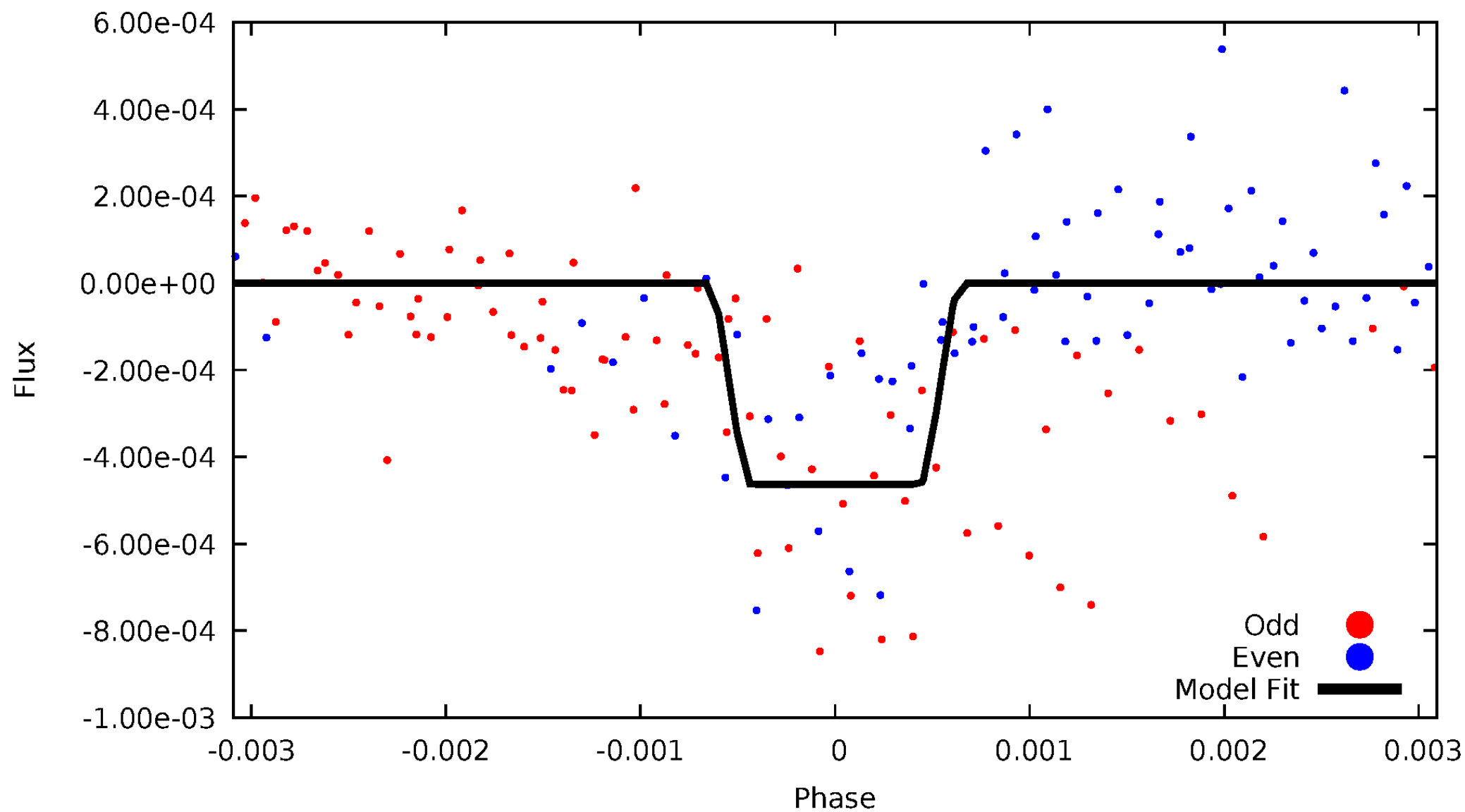
DV Odd/Even

TCE 008776920-02



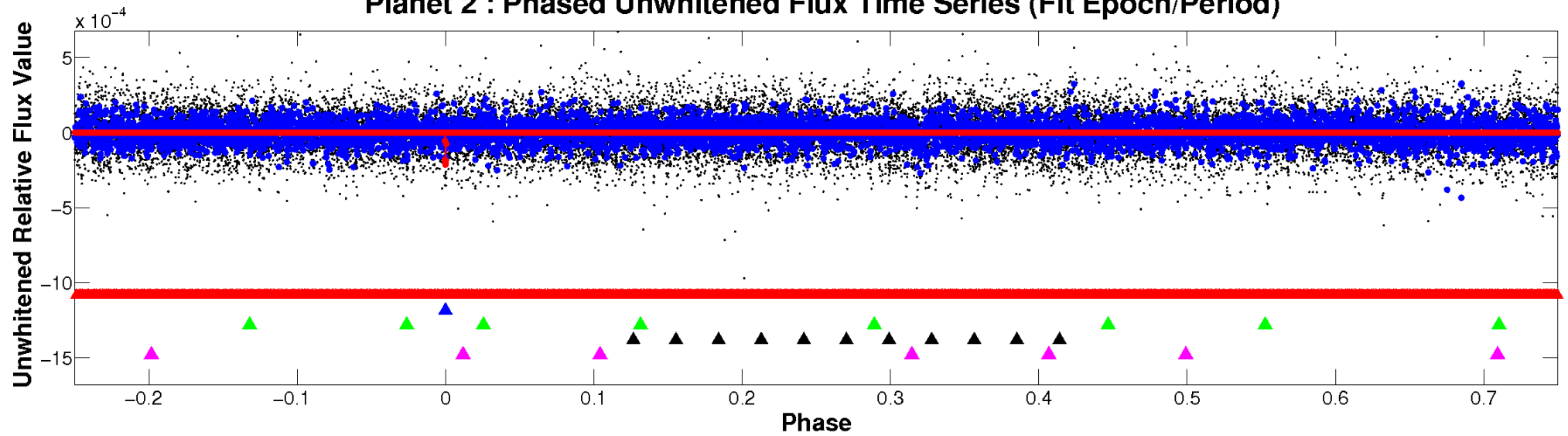
ALT Odd/Even

TCE 008776920-02

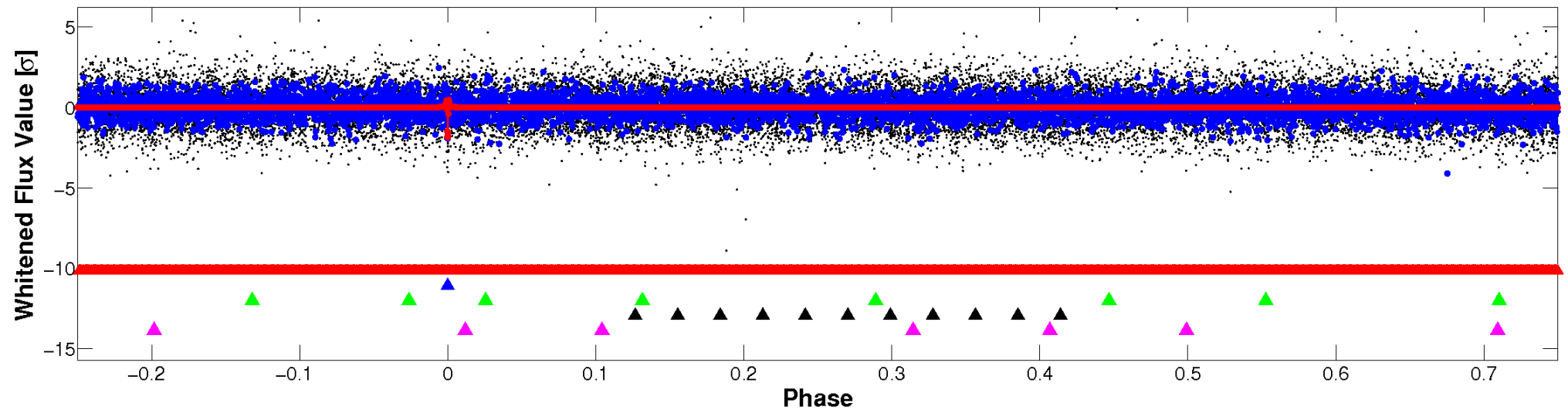


Non-Whitened Vs. Whitened Light Curve

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

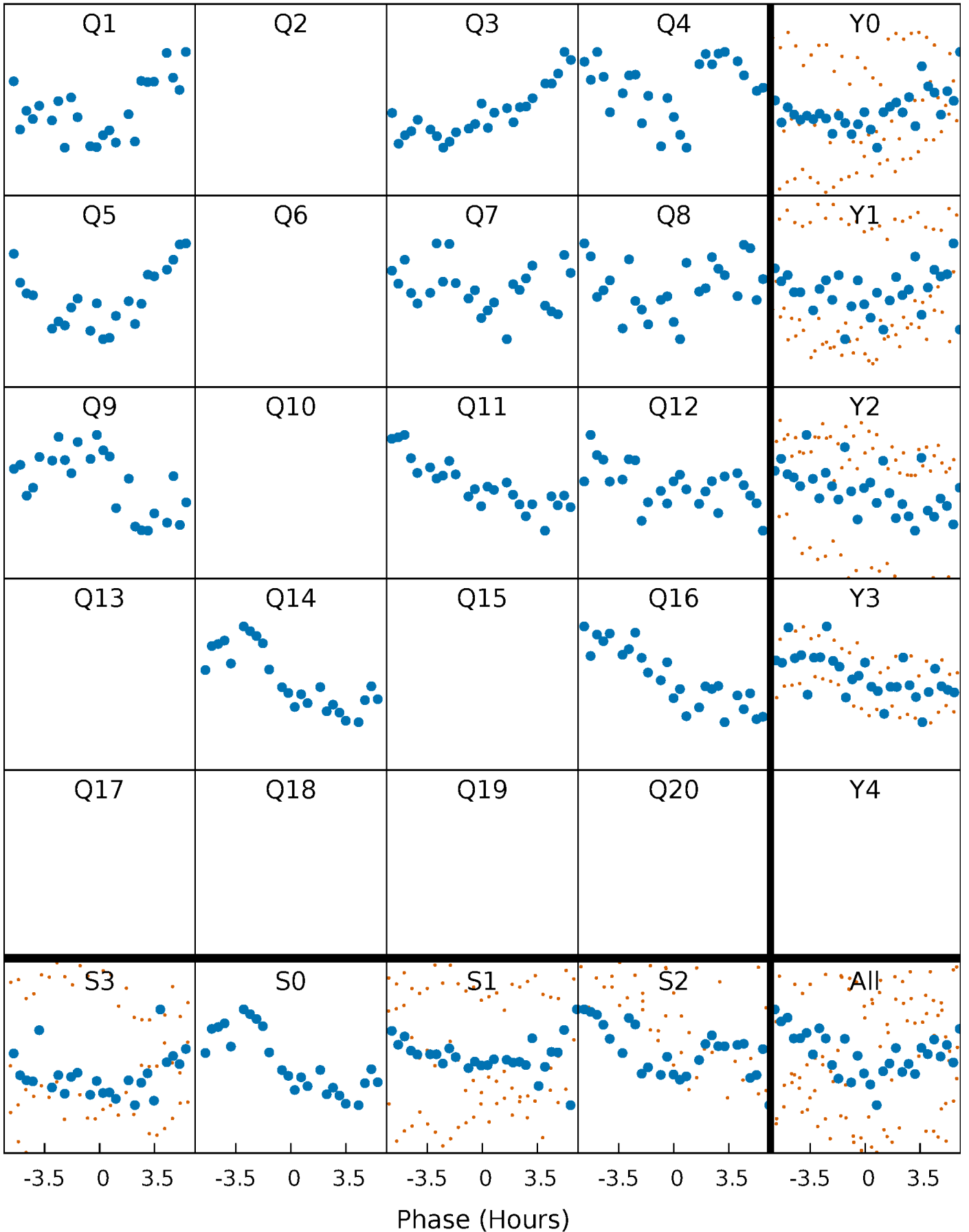


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



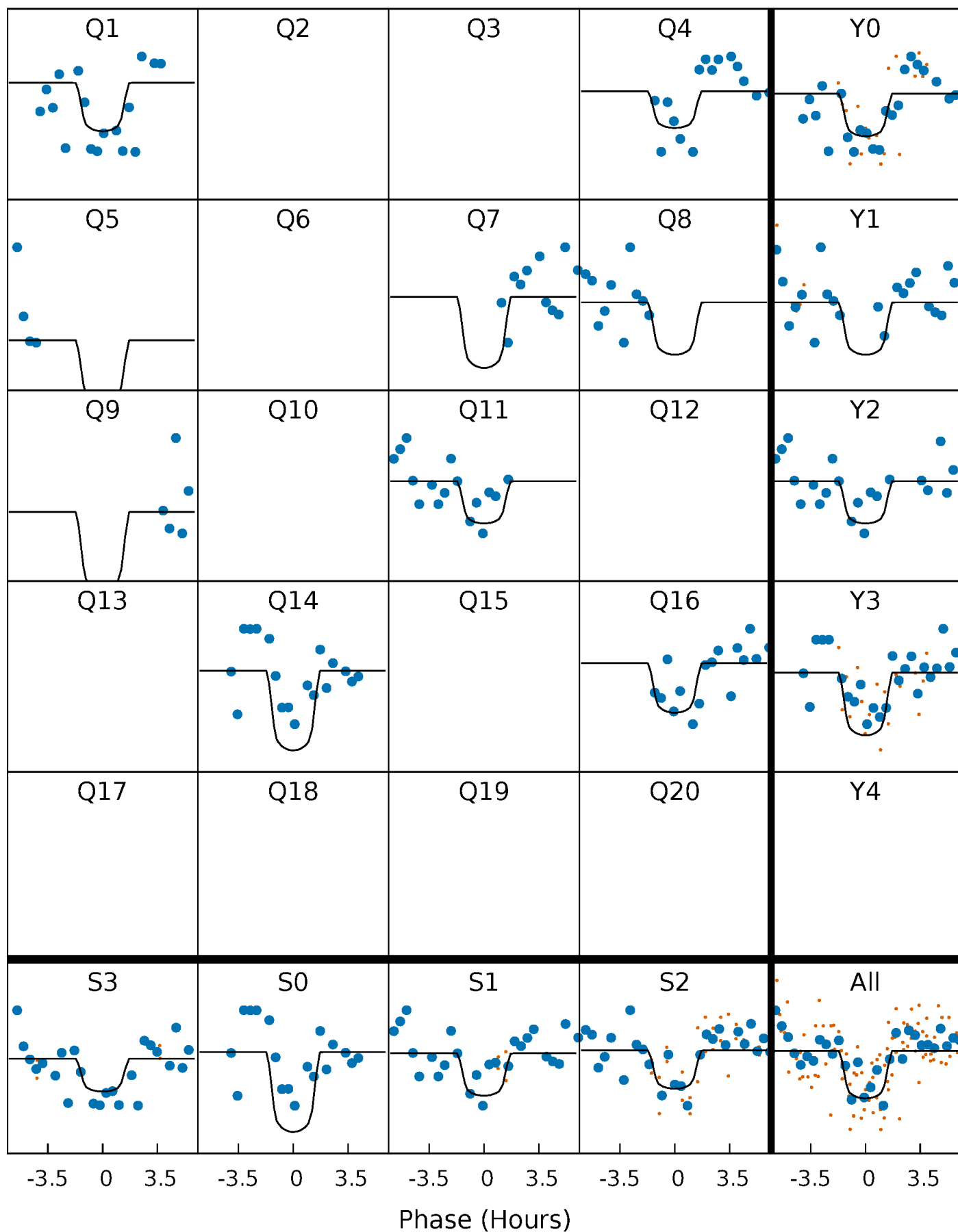
PDC Quarter-Phased Transit Curves

TCE 008776920-02 P=128.071033 Days $T_0=132.953418$ (BKJD)



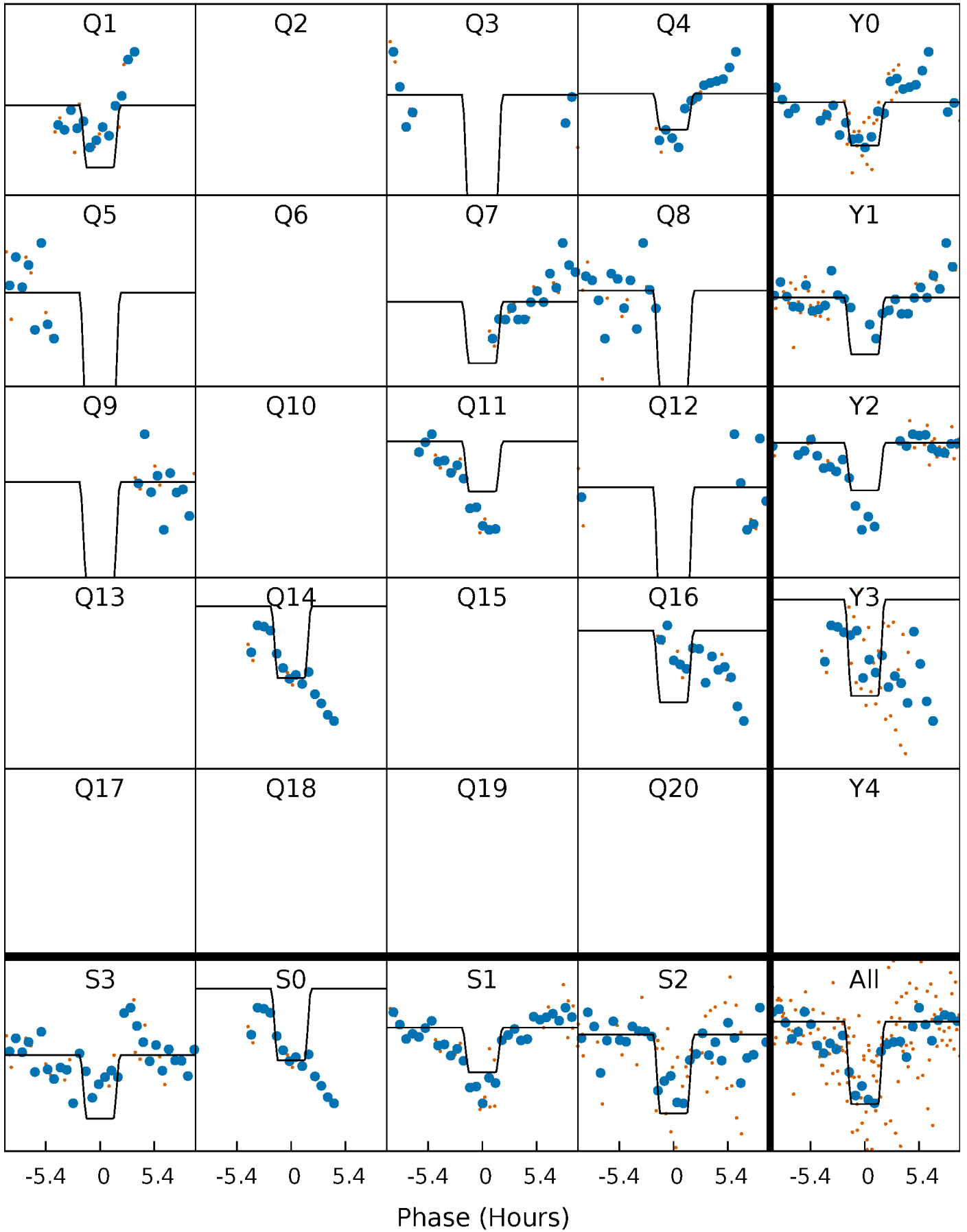
DV Quarter-Phased Transit Curves

TCE 008776920-02 P=128.071033 Days $T_0=132.953418$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

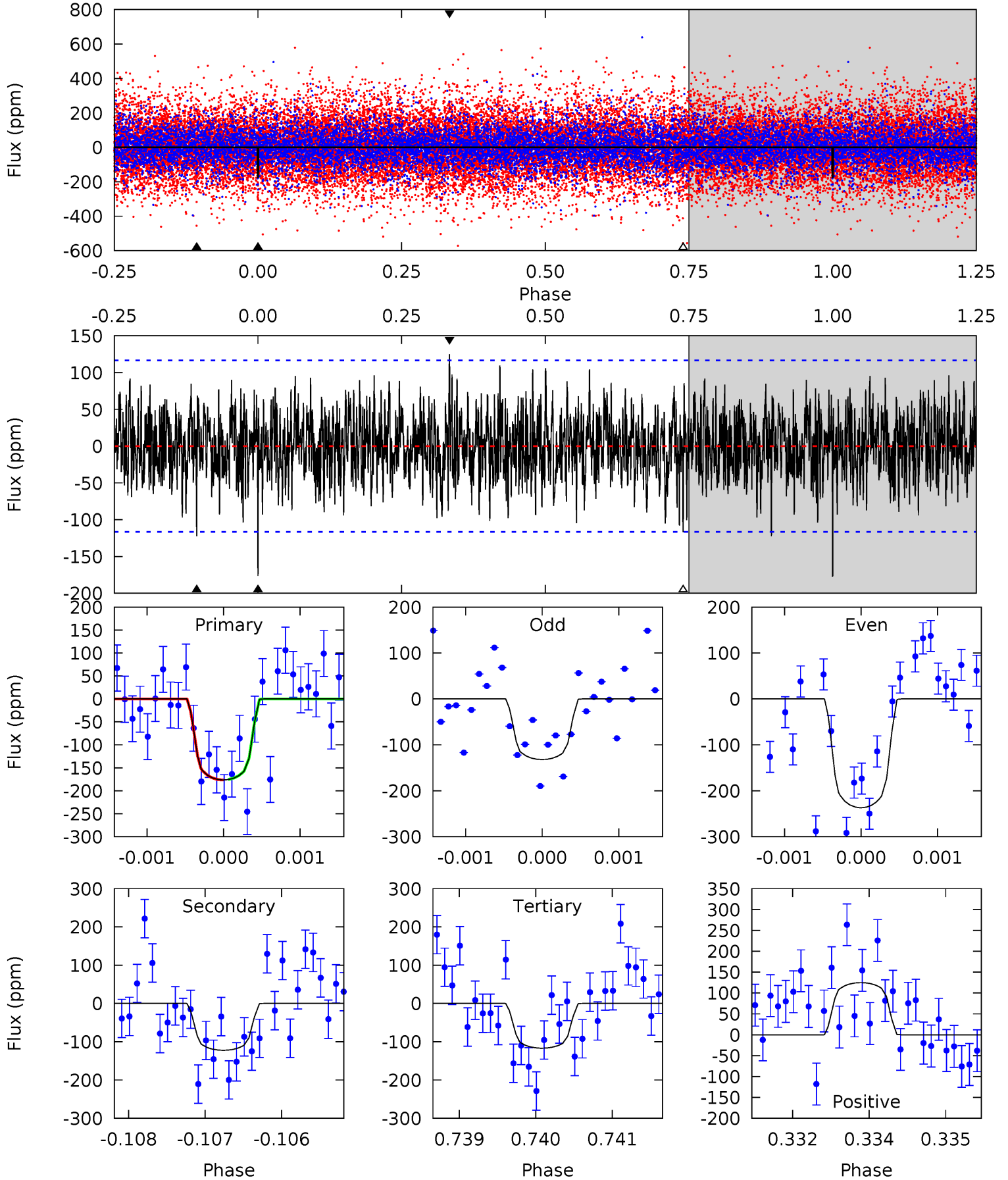
TCE 008776920-02 P=128.070226 Days $T_0=132.965770$ (BKJD)



DV Model-Shift Uniqueness Test

008776920-02, P = 128.071033 Days, E = 4.882385 Days

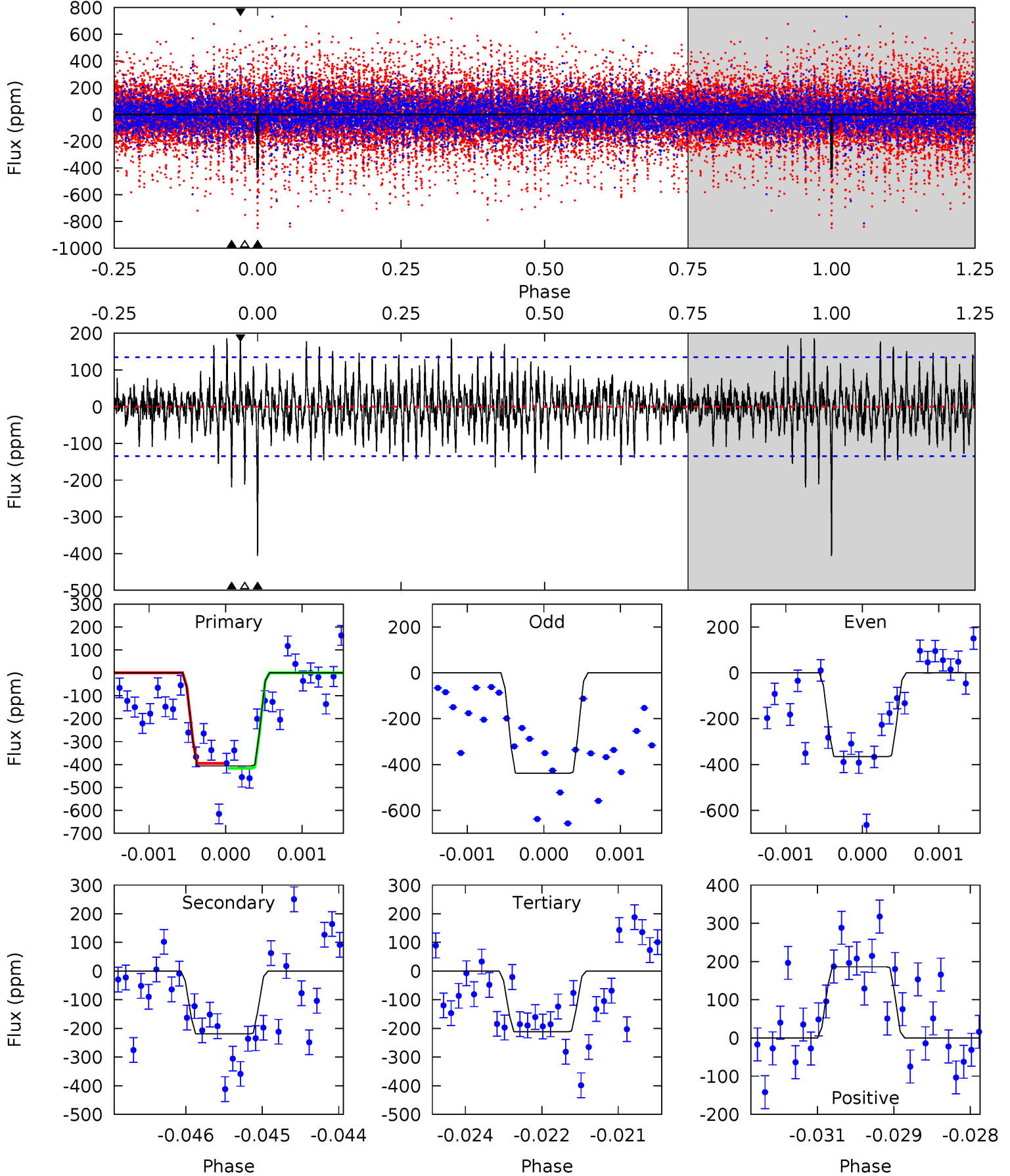
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.21	5.69	5.44	5.81	5.42	3.25	1.69	2.77	2.40	0.26	-0.12	2.41	1.06	0.41	0.03



Alt Model-Shift Uniqueness Test

008776920-02, P = 128.070226 Days, E = 4.895544 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	8.81	8.52	7.50	5.42	3.24	2.00	7.83	8.86	0.29	1.32	1.40	1.09	0.31	0.42



Stellar Parameters For KIC 008776920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6211^{+185}_{-166}	$3.658^{+0.337}_{-0.112}$	$-0.440^{+0.400}_{-0.250}$	$2.853^{+0.490}_{-1.143}$	$1.349^{+0.234}_{-0.313}$	$0.082^{+0.208}_{-0.029}$
	+3%/-3%	+9%/-3%	+91%/-57%	+17%/-40%	+17%/-23%	+254%/-35%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008776920-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-122 ± 21	$4.42^{+2.87}_{-2.16}$	855^{+54}_{-83}	5279^{+2307}_{-914}	1035^{+3121}_{-659}
Alt.	-219 ± 25	$6.28^{+3.05}_{-2.71}$	859^{+55}_{-85}	5183^{+1432}_{-691}	903^{+1853}_{-483}

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

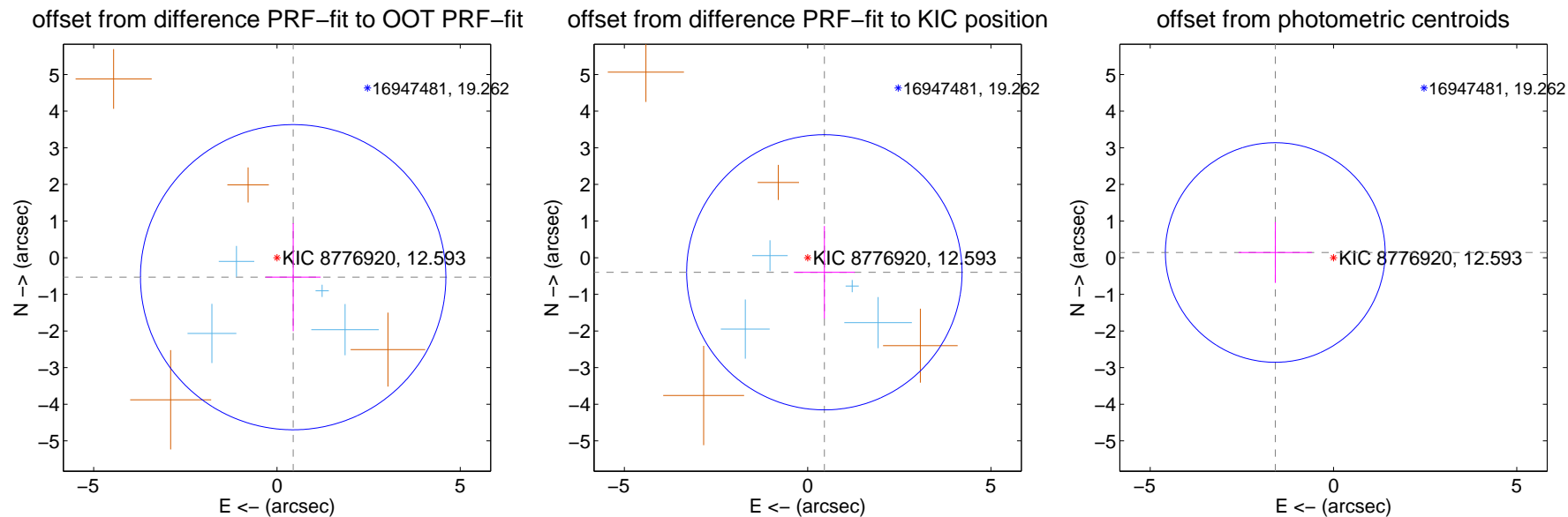
DV Centroid Data

Supplemental centroid analysis for 008776920-02. Kepler magnitude: 12.59. Transit SNR 8.99

There are 4 quarters with good PRF difference image offsets

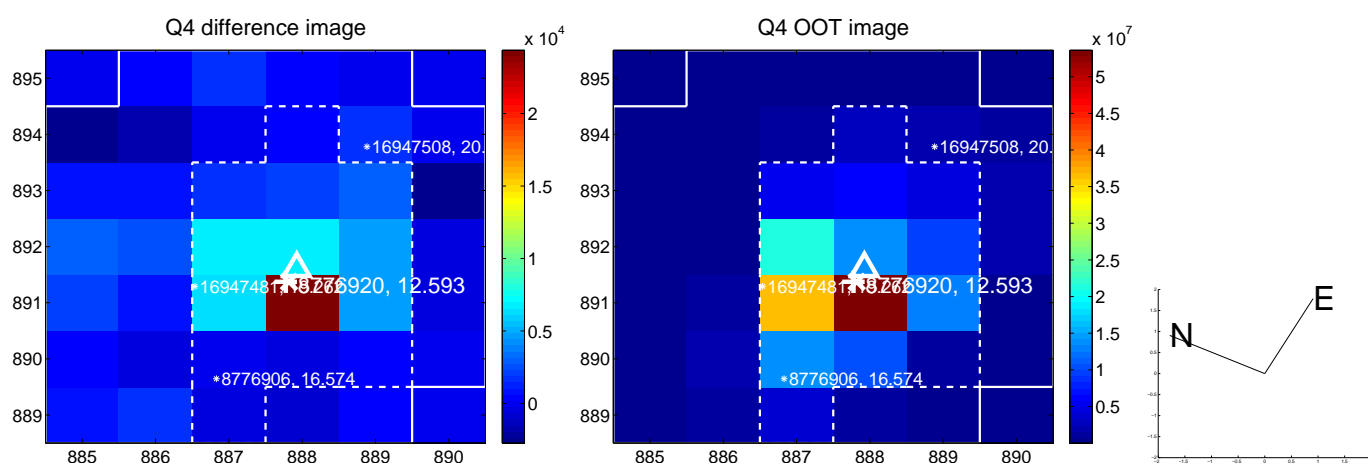
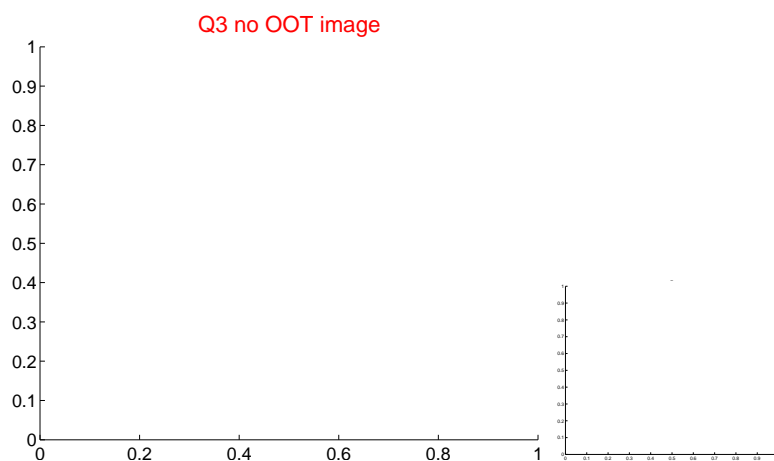
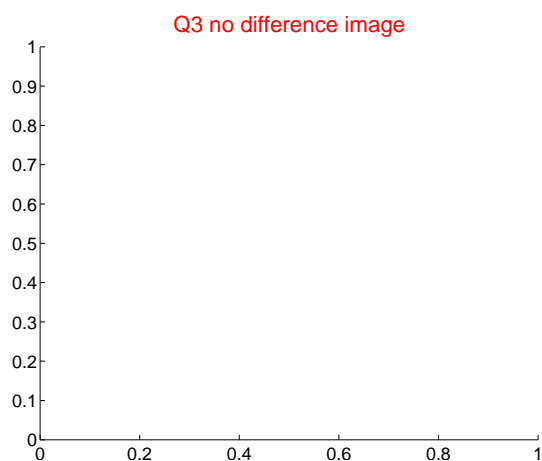
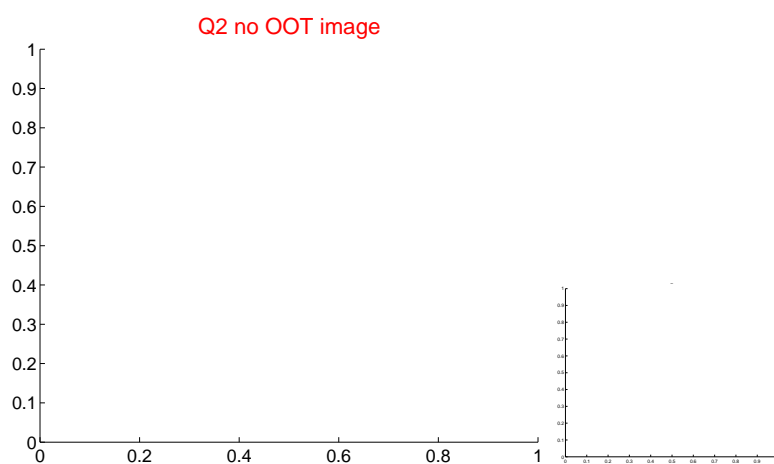
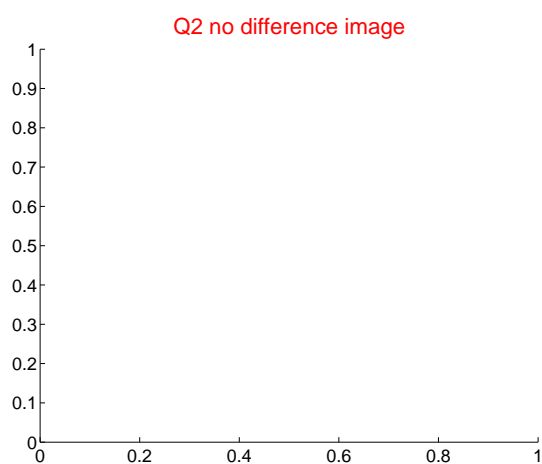
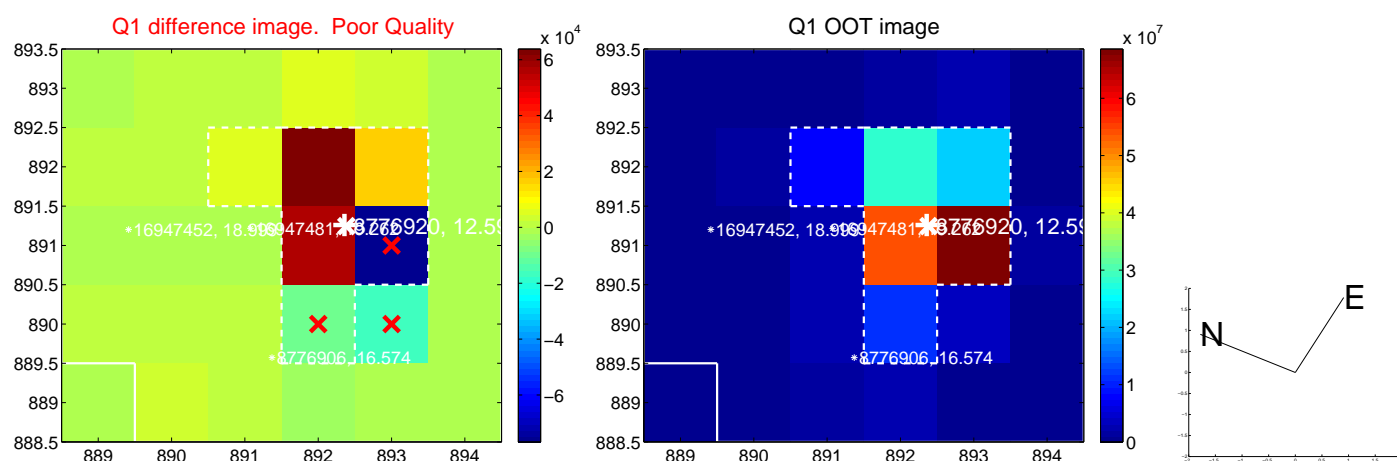
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.692 ± 1.388	0.50	-0.442 ± 0.752	-0.532 ± 1.474
PRF-fit source offset from KIC position	0.605 ± 1.252	0.48	-0.455 ± 0.831	-0.398 ± 1.262
photometric centroid source offset	1.59 ± 1.00	1.60	1.59 ± 1.00	0.14 ± 0.83

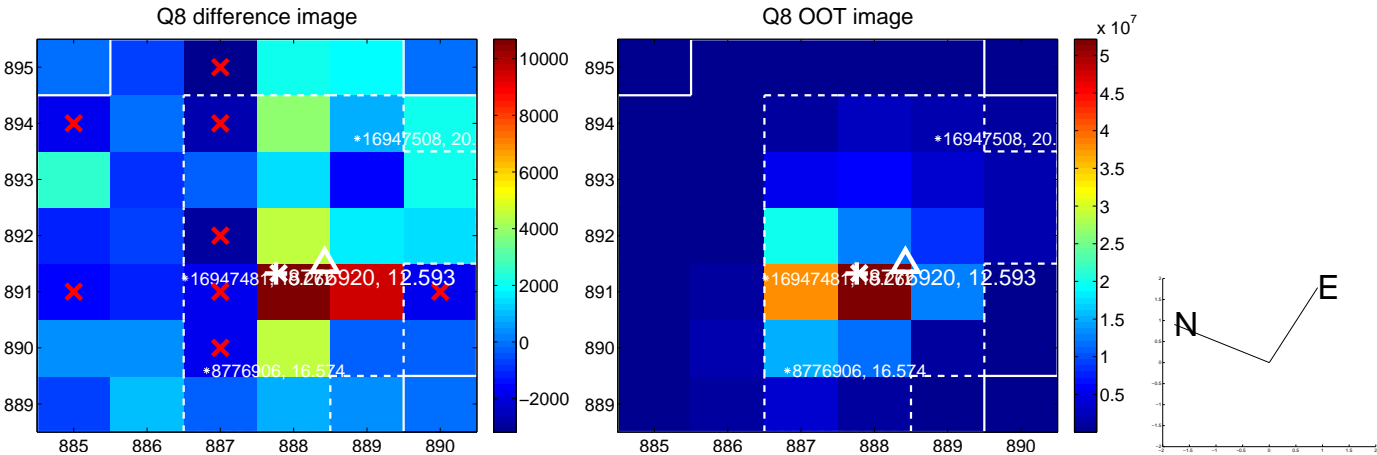
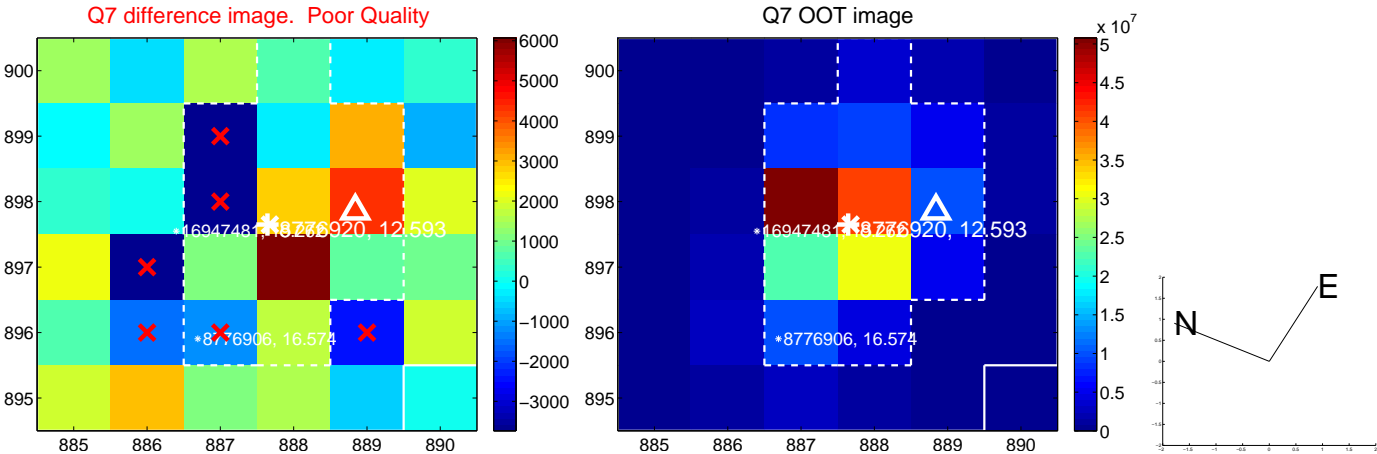
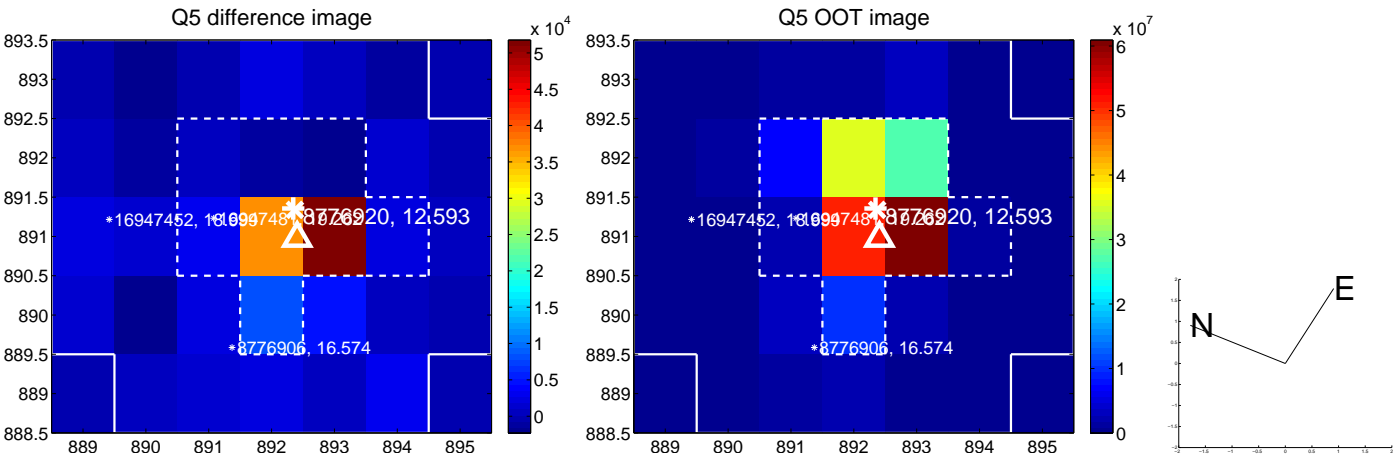


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

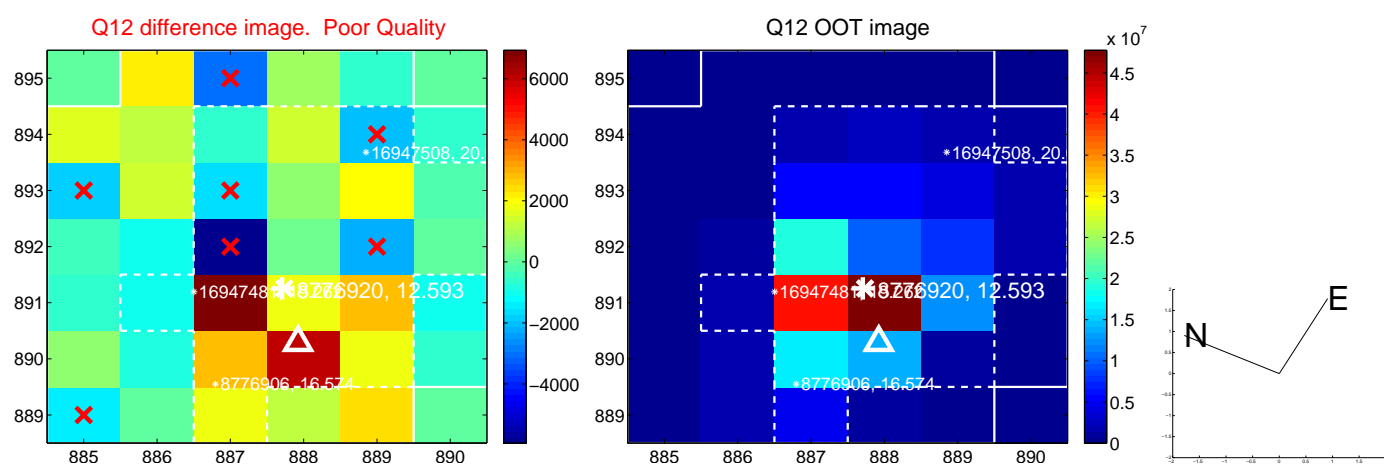
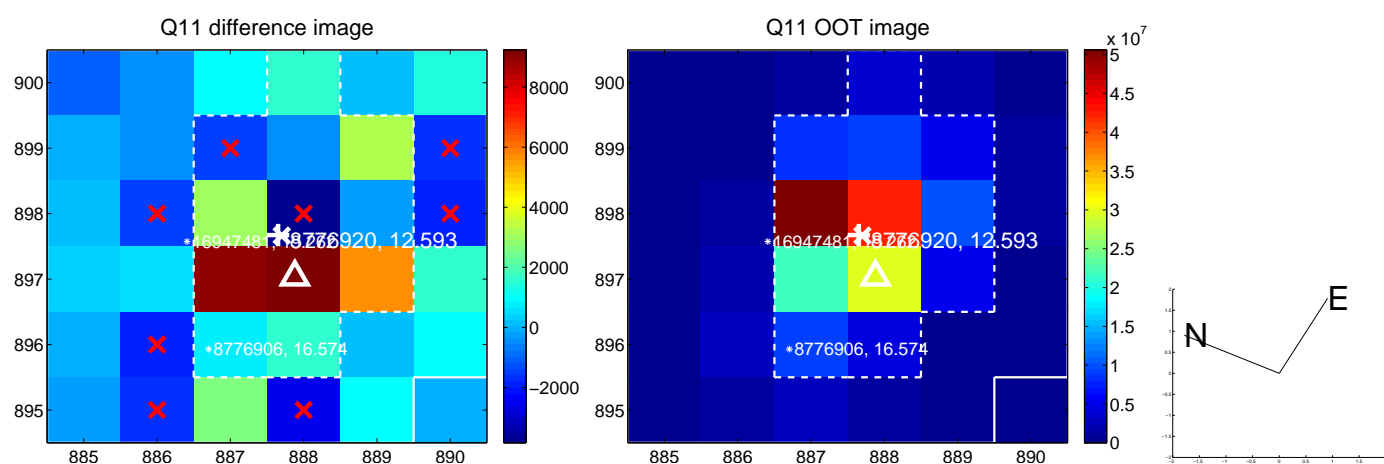
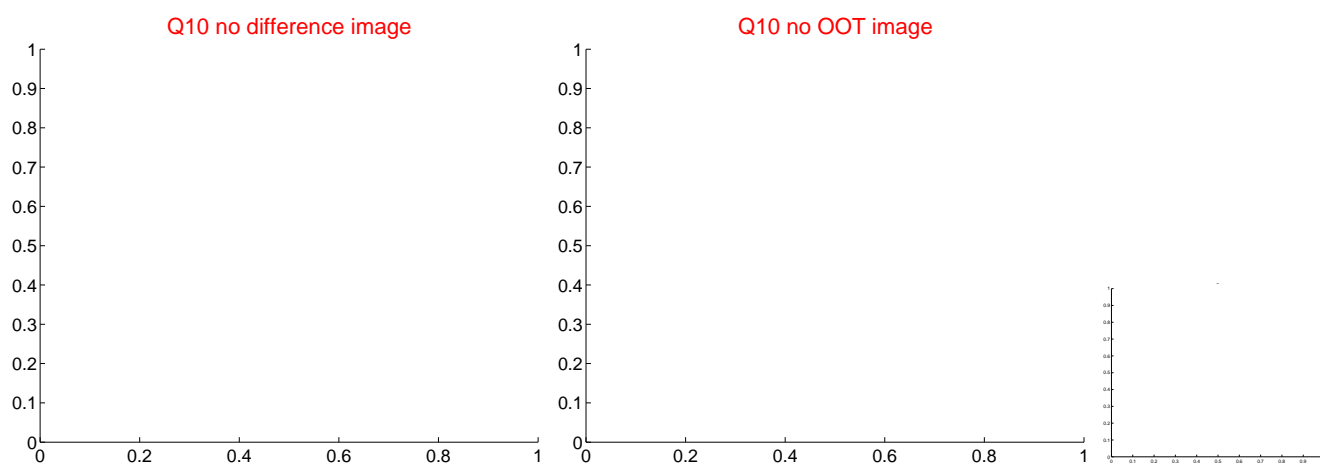
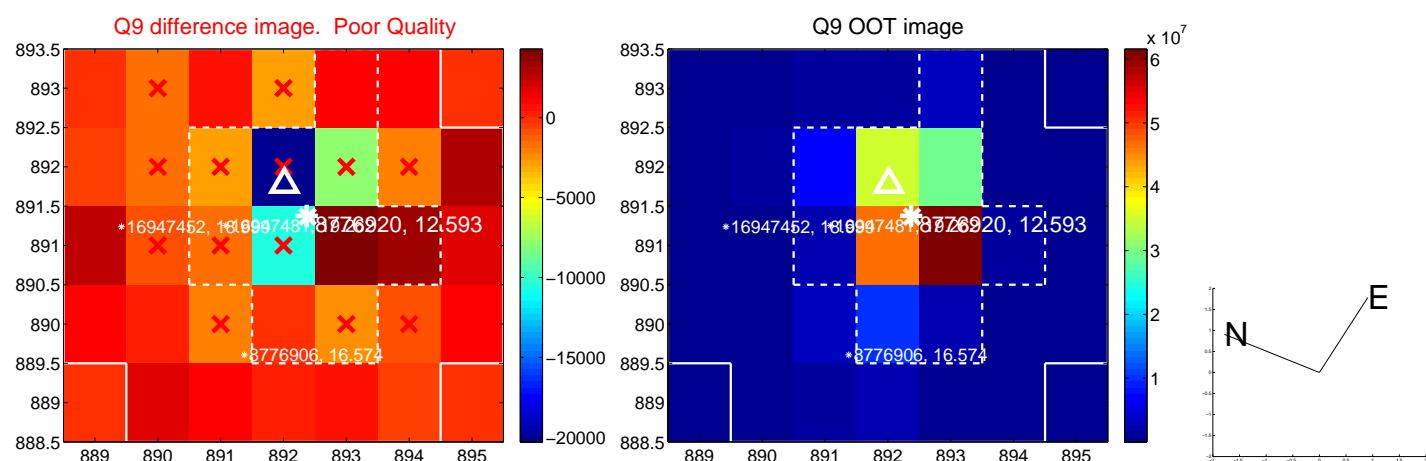
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



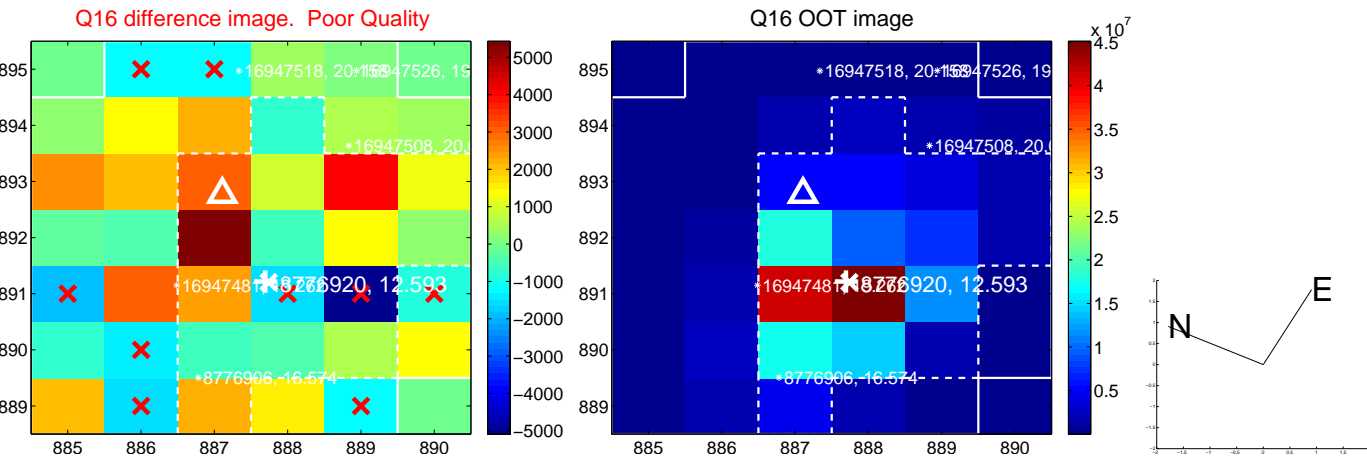
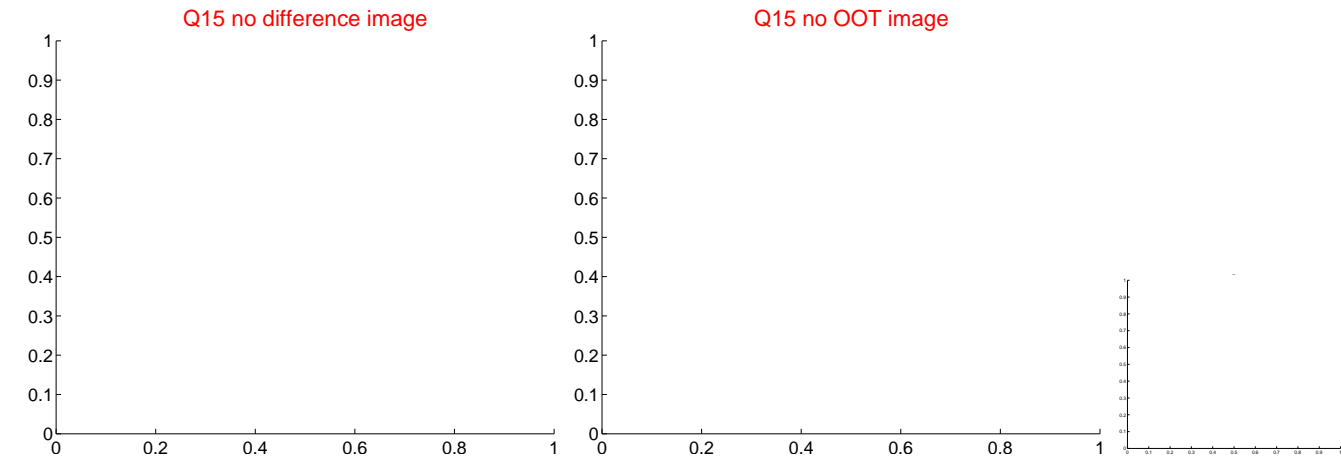
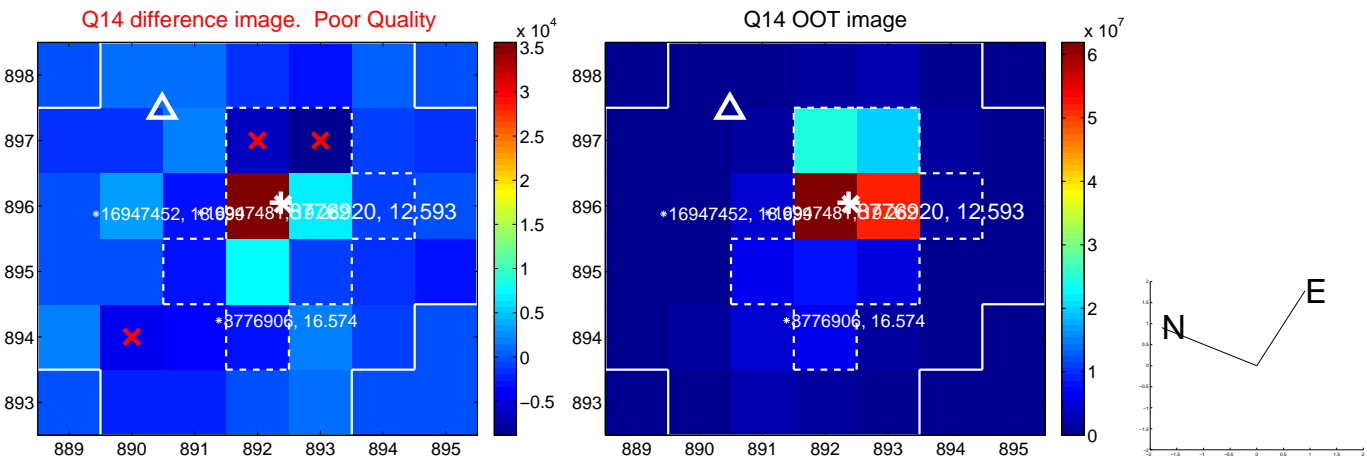
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



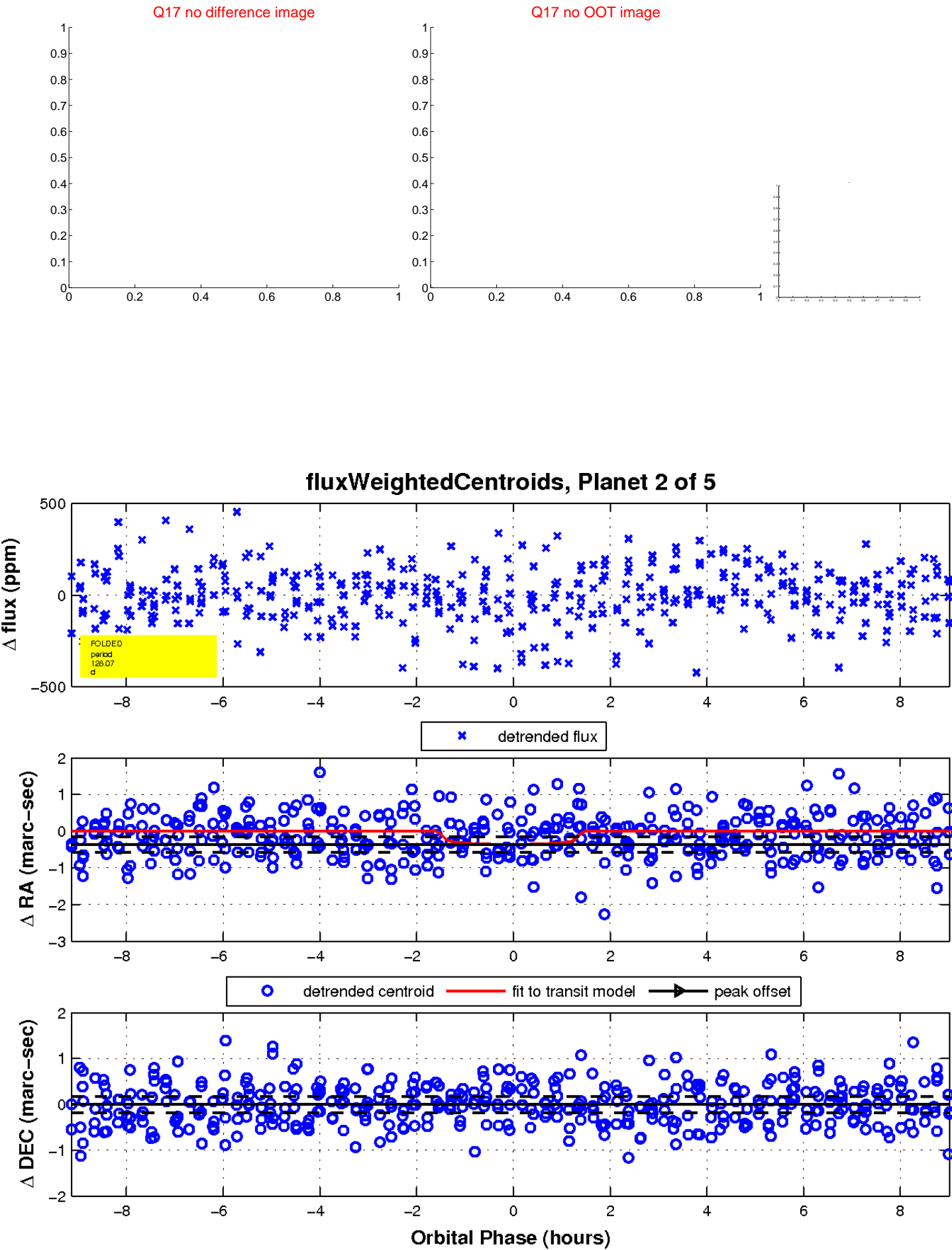
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

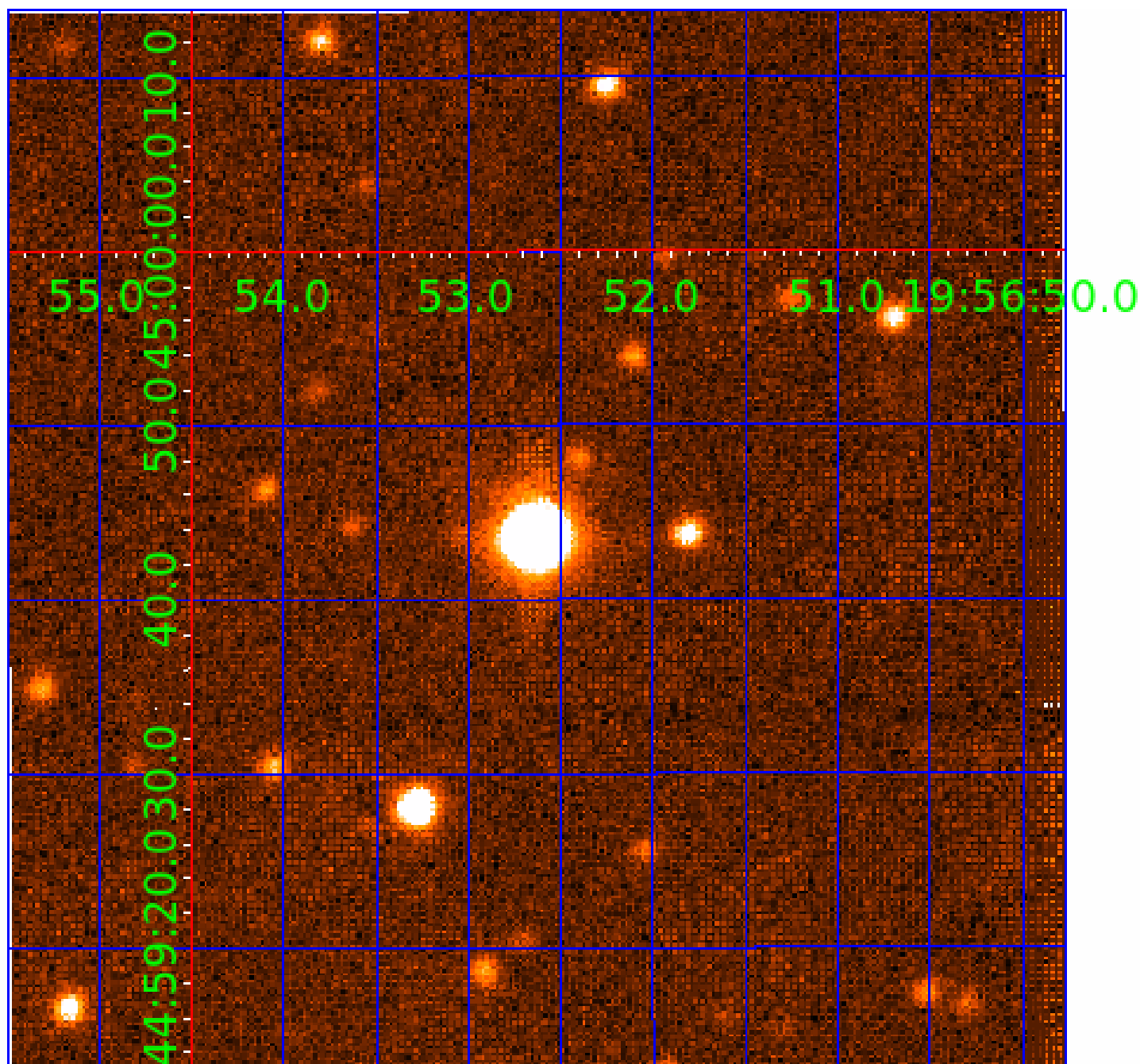


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008776920

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})
008776920-01	OBS	No	0.981812	132.456216	23.1	4.849	10.8	11.5	2.85	6211	1.39	23752.19
008776920-02	OBS	No	128.071033	132.953418	213.3	3.045	8.6	9.0	2.85	6211	4.85	35.90
008776920-03	OBS	No	182.012158	136.231974	252.3	2.715	7.8	6.9	2.85	6211	5.14	22.47
008776920-04	OBS	No	131.750421	149.178308	270.1	4.949	7.5	7.9	2.85	6211	5.29	34.57
008776920-05	OBS	No	217.394646	173.222992	241.6	2.722	7.3	7.7	2.85	6211	5.12	17.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008776920-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008776920-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008776920-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008776920-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST
008776920-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

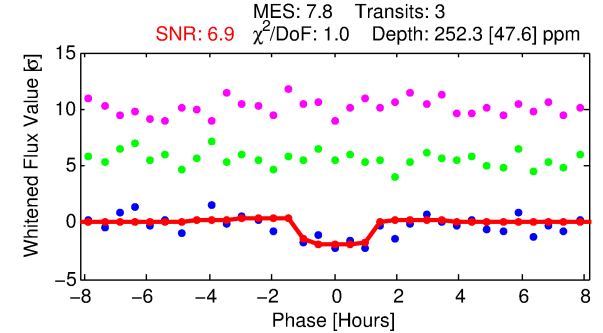
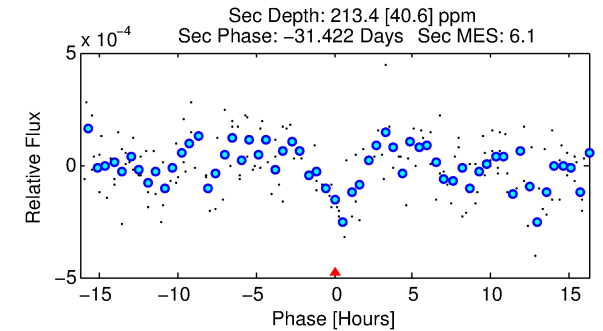
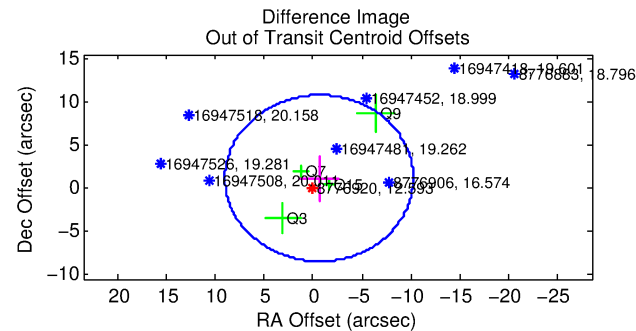
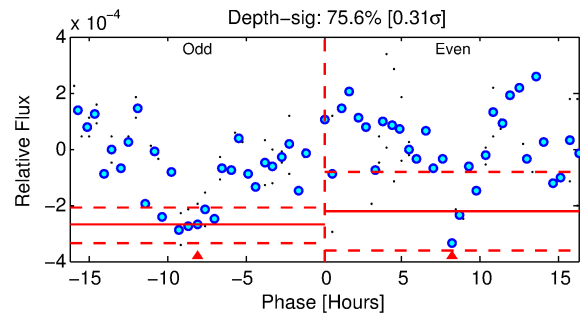
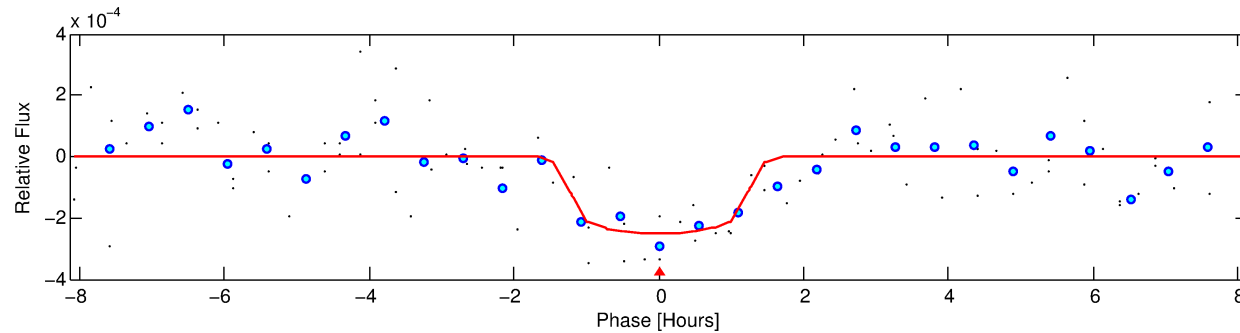
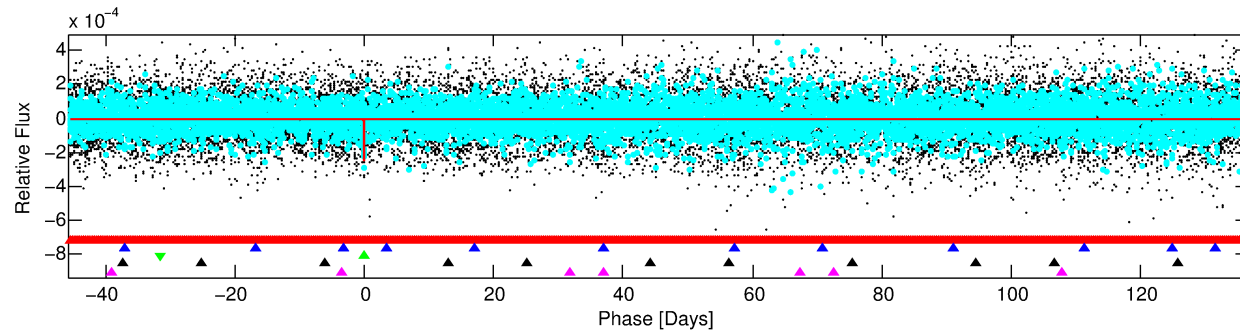
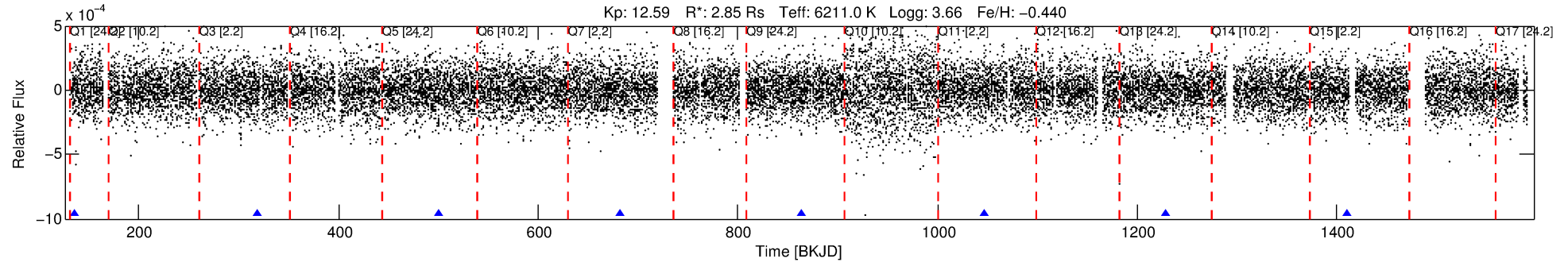
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008776920-03

No Significant Match Found

DV One-Page Summary

KIC: 8776920 Candidate: 3 of 5 Period: 182.012 d



DV Fit Results:

Period = 182.01216 [0.00257] d
Epoch = 136.2320 [0.0147] BKJD
Rp/R* = 0.0165 [0.0166]
a/R* = 282.88 [1520.15]
b = 0.85 [1.73]
Seff = 22.47 [13.35]
Teq = 555 [82] K
Rp = 5.14 [5.57] Re
a = 0.6950 [0.2584] AU
Ag = 2143.12 [4504.14] [0.48σ]
Teffp = 5840 [2954] K [1.79σ]

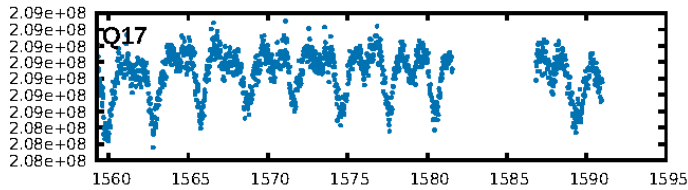
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [213.68σ]
LongPeriod-sig: 100.0% [220.86σ]
ModelChiSquare2-sig: 59.1%
ModelChiSquareGof-sig: 98.9%
Bootstrap-pfa: 1.75e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.8515
Centroid-sig: 2.4%
Centroid-so: 1.450 arcsec [1.86σ]
OotOffset-rm: 1.310 arcsec [0.41σ]
OotOffset-st: 0/3/0/1 [4]
KicOffset-rm: 1.463 arcsec [0.45σ]
KicOffset-st: 0/3/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.12 [1/8]

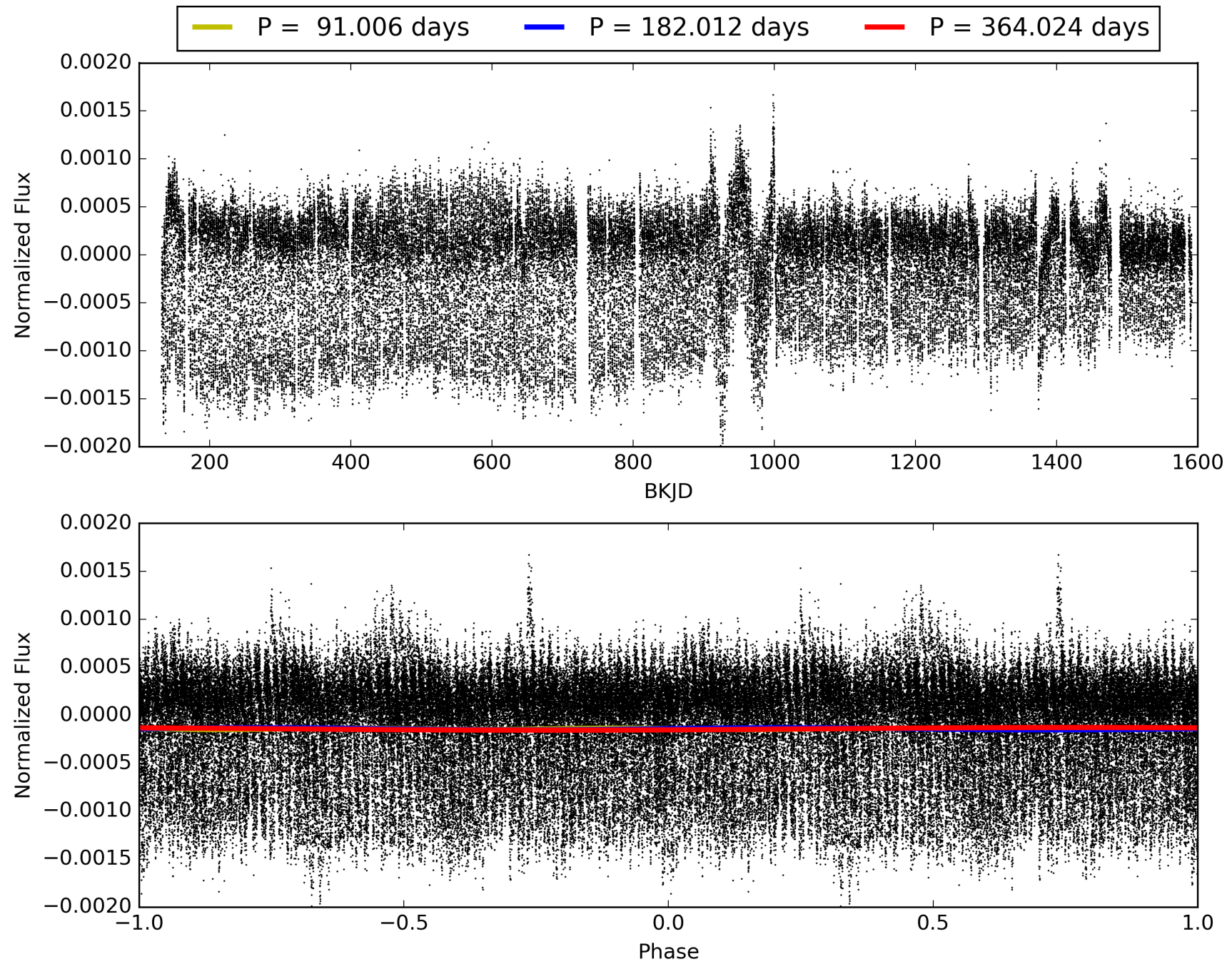
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:02:22 Z

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

TCE 008776920-03, PDC Light Curves

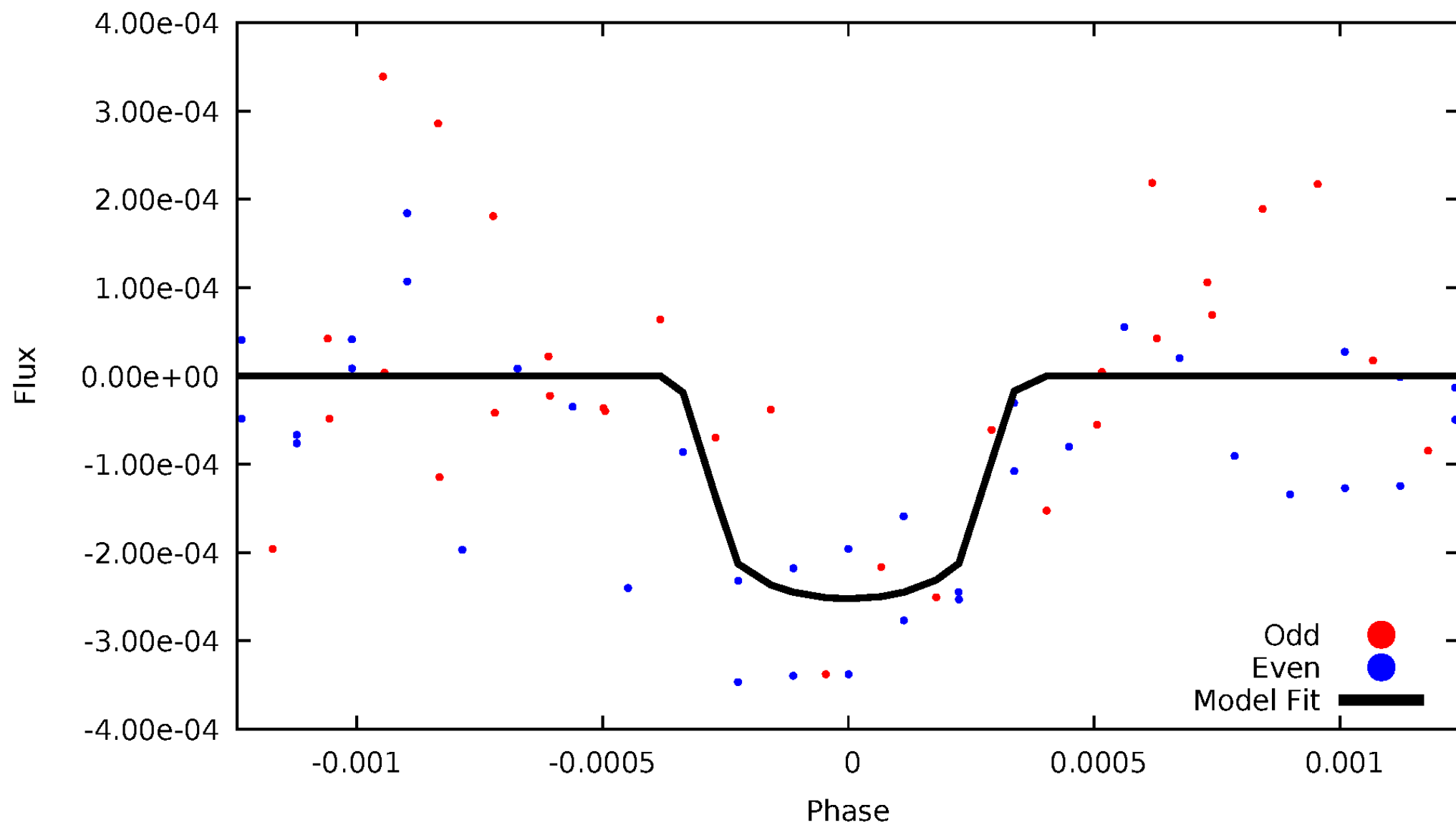


TCE 008776920-03



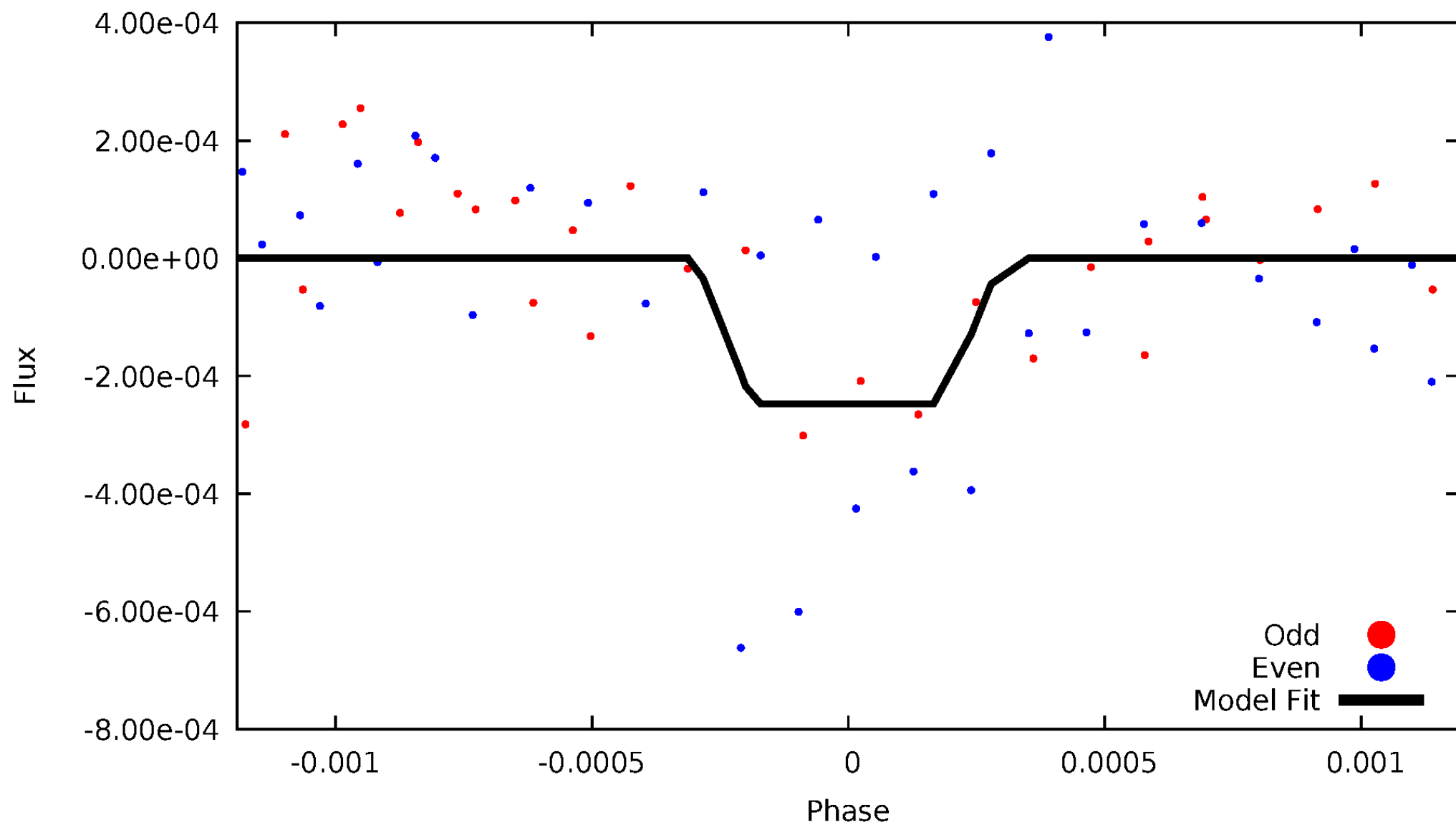
DV Odd/Even

TCE 008776920-03



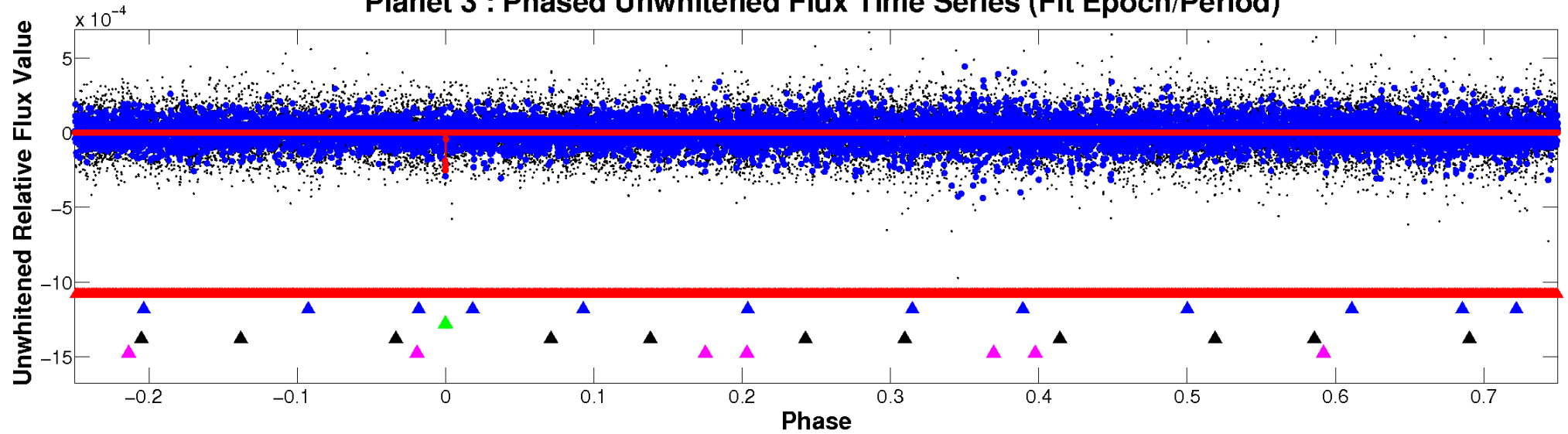
ALT Odd/Even

TCE 008776920-03

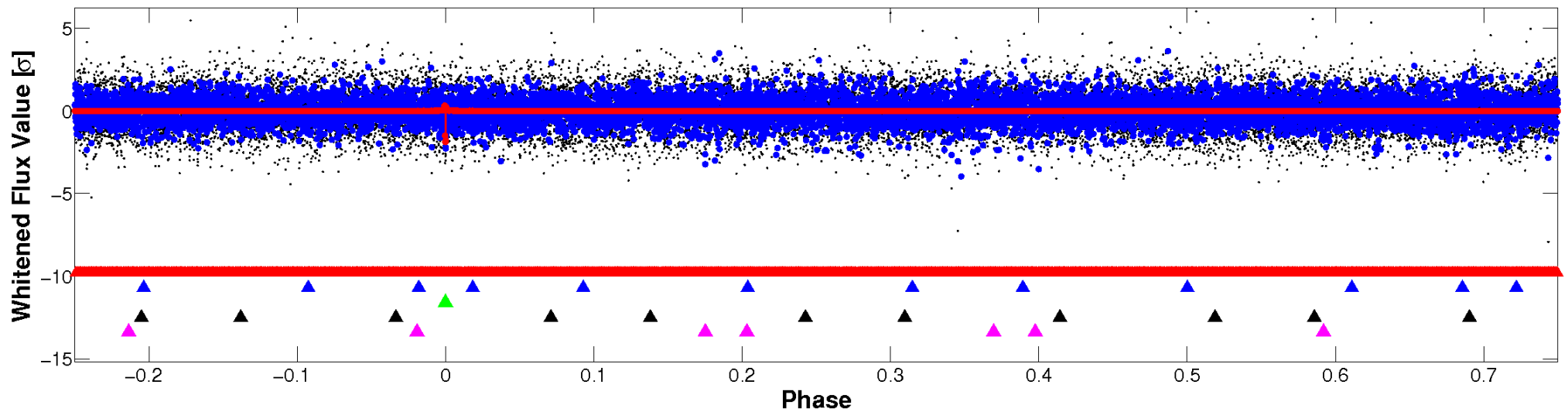


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

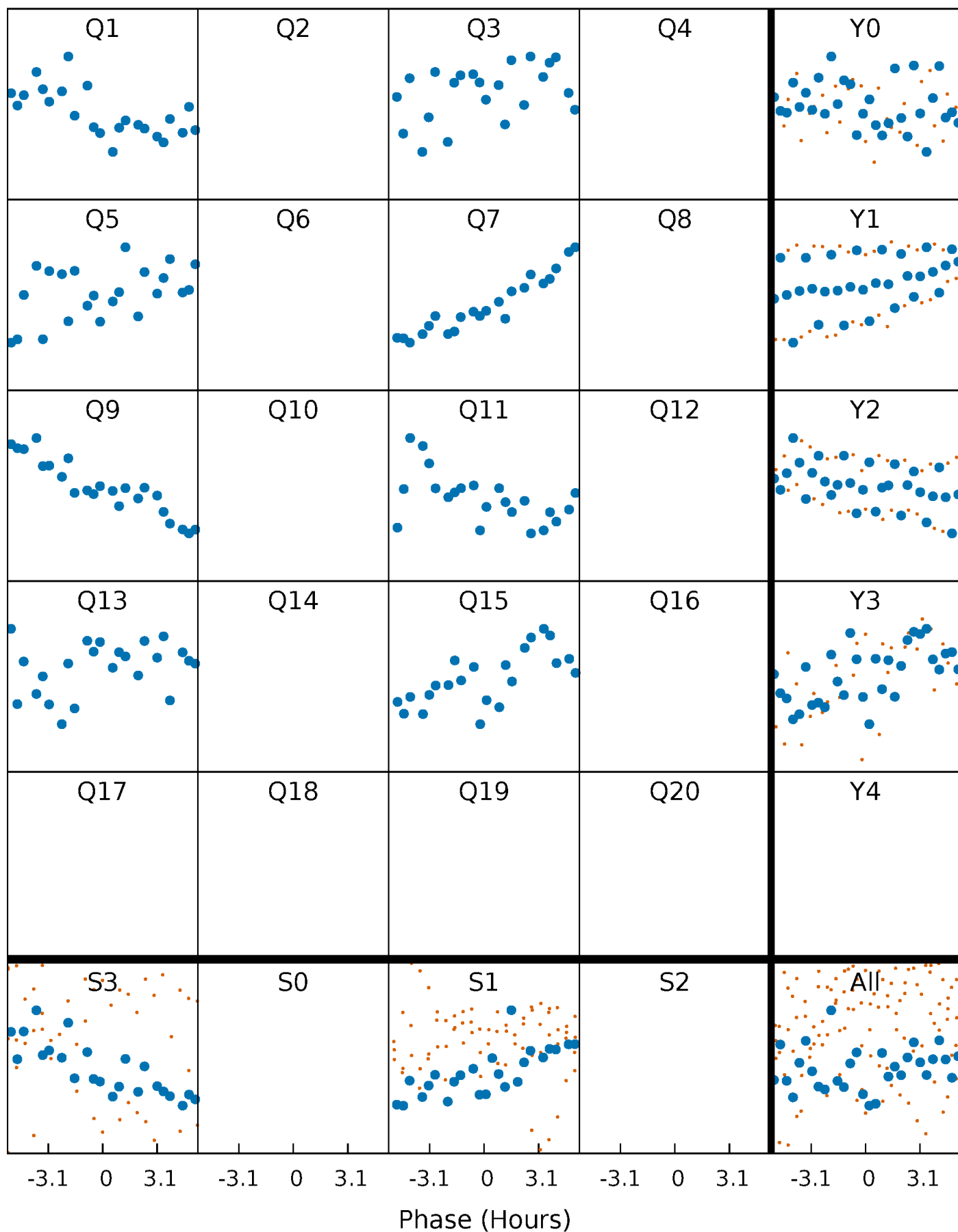


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



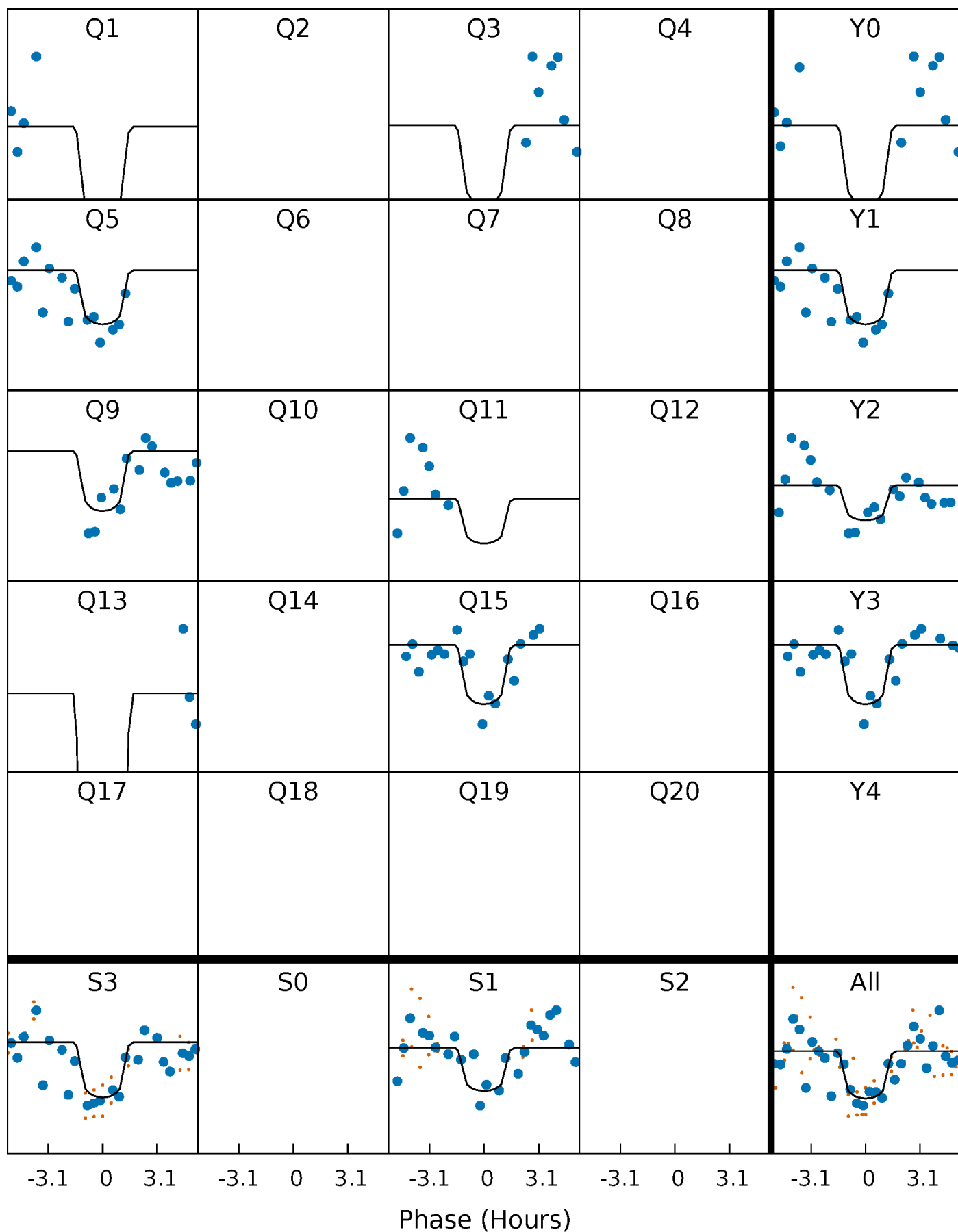
PDC Quarter-Phased Transit Curves

TCE 008776920-03 P=182.012158 Days $T_0=136.231974$ (BKJD)



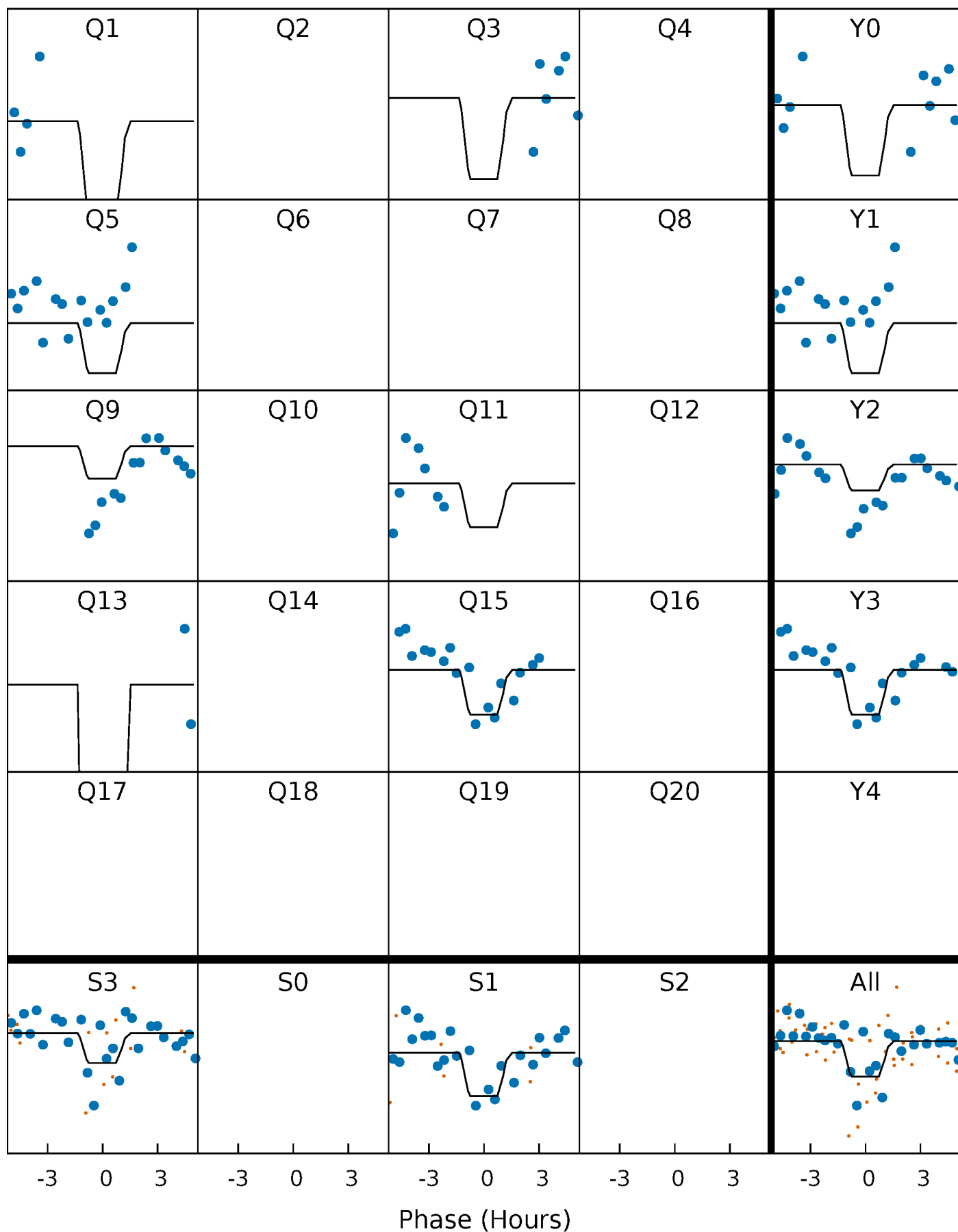
DV Quarter-Phased Transit Curves

TCE 008776920-03 P=182.012158 Days $T_0=136.231974$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

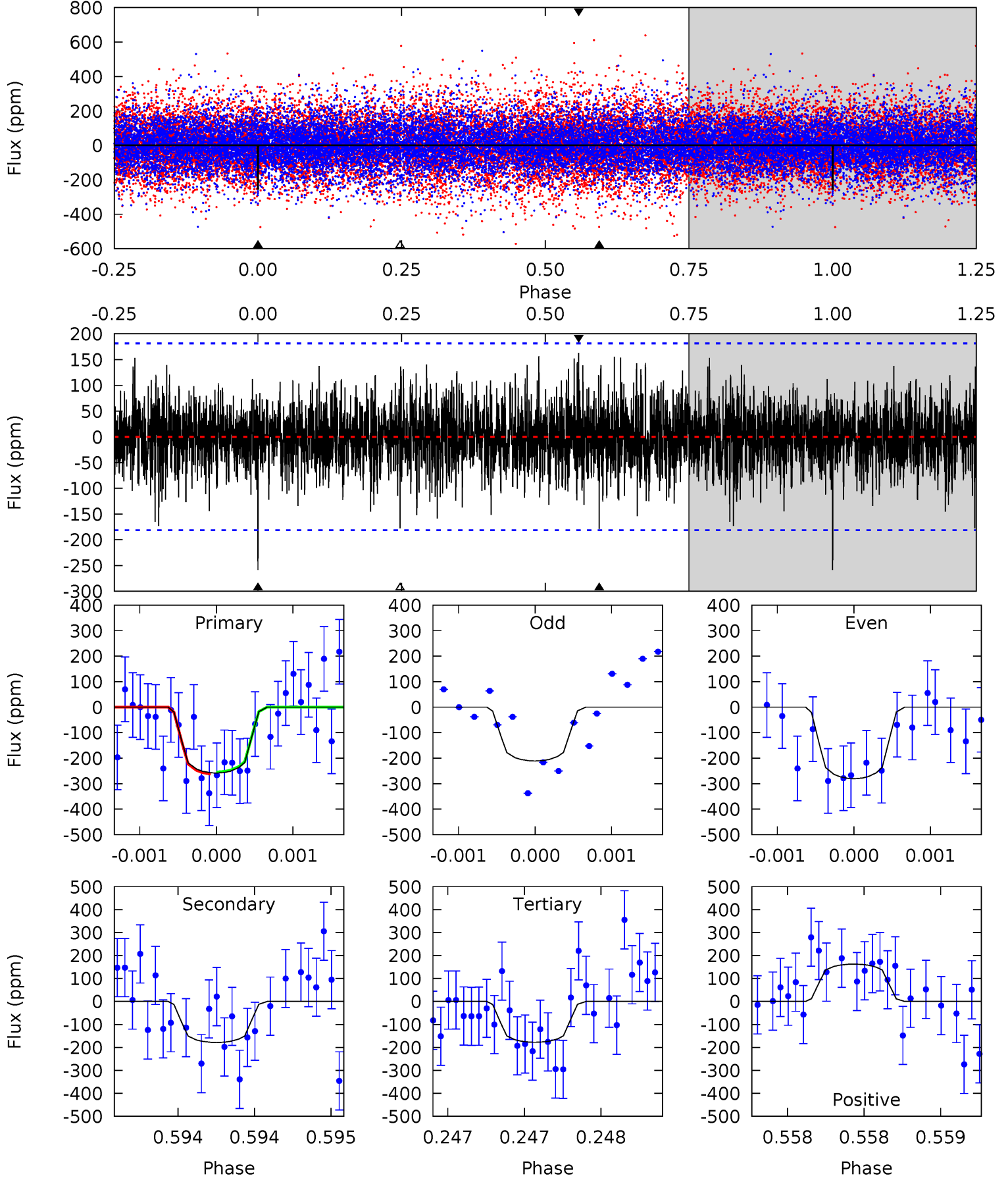
TCE 008776920-03 P=182.015643 Days $T_0=136.215323$ (BKJD)



DV Model-Shift Uniqueness Test

008776920-03, P = 182.012158 Days, E = 136.231974 Days

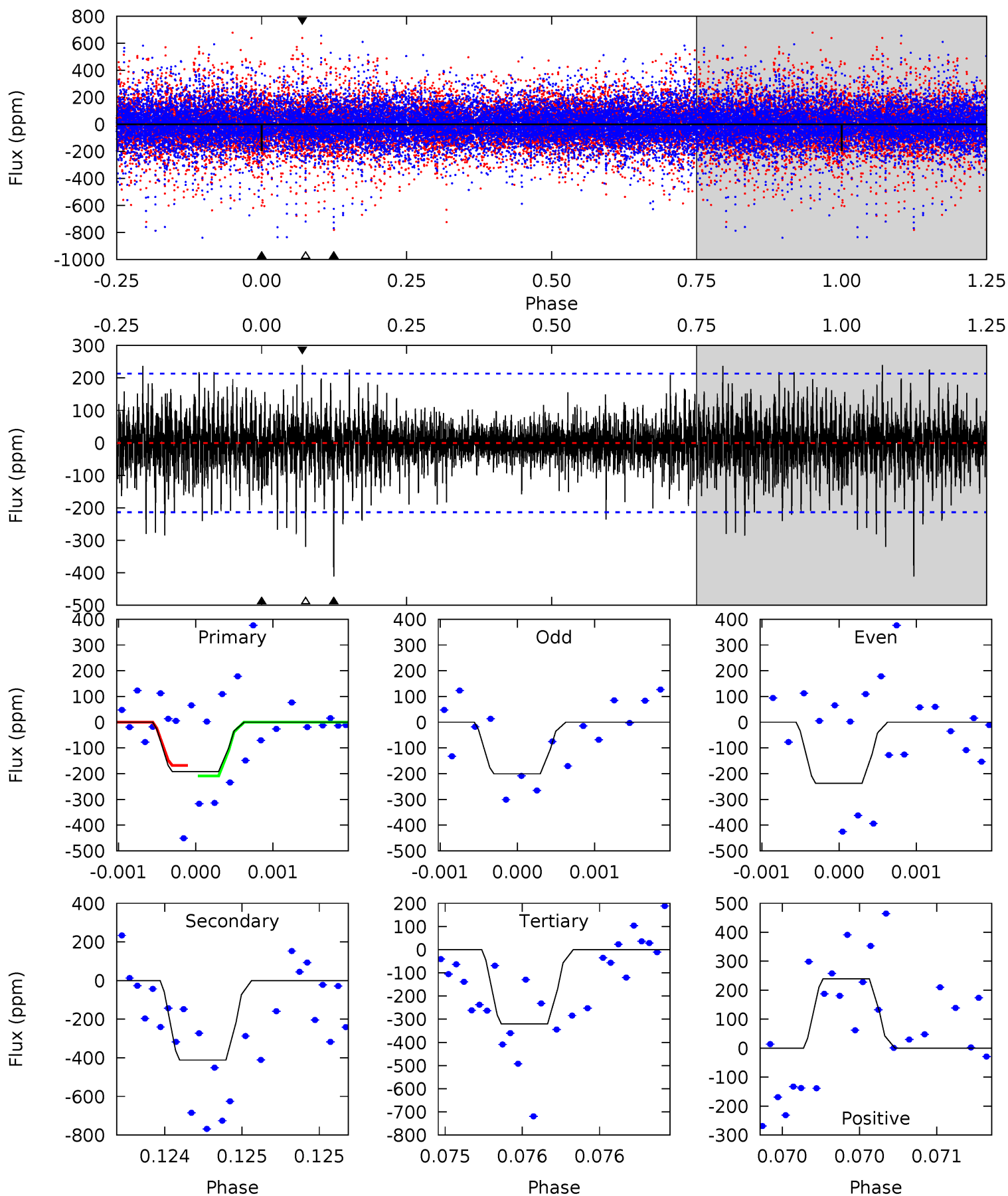
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.89	5.46	5.43	4.97	5.54	3.43	1.41	2.46	2.92	0.03	0.49	0.98	0.94	0.39	0.12



Alt Model-Shift Uniqueness Test

008776920-03, P = 182.015643 Days, E = 136.215323 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.98	10.7	8.33	6.22	5.55	3.45	1.54	-3.35	-1.25	2.38	4.48	0.48	1.14	0.37	0.51



Stellar Parameters For KIC 008776920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6211^{+185}_{-166}	$3.658^{+0.337}_{-0.112}$	$-0.440^{+0.400}_{-0.250}$	$2.853^{+0.490}_{-1.143}$	$1.349^{+0.234}_{-0.313}$	$0.082^{+0.208}_{-0.029}$
	+3%/-3%	+9%/-3%	+91%/-57%	+17%/-40%	+17%/-23%	+254%/-35%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008776920-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-179 ± 33	$5.83^{+4.61}_{-3.78}$	759^{+55}_{-69}	5130^{+3466}_{-1039}	1342^{+9108}_{-917}
Alt.	-412 ± 38	$5.61^{+4.69}_{-3.40}$	765^{+49}_{-68}	6354^{+5004}_{-1467}	3419^{+19641}_{-2403}

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 $A_{obs} \gg 1.0$

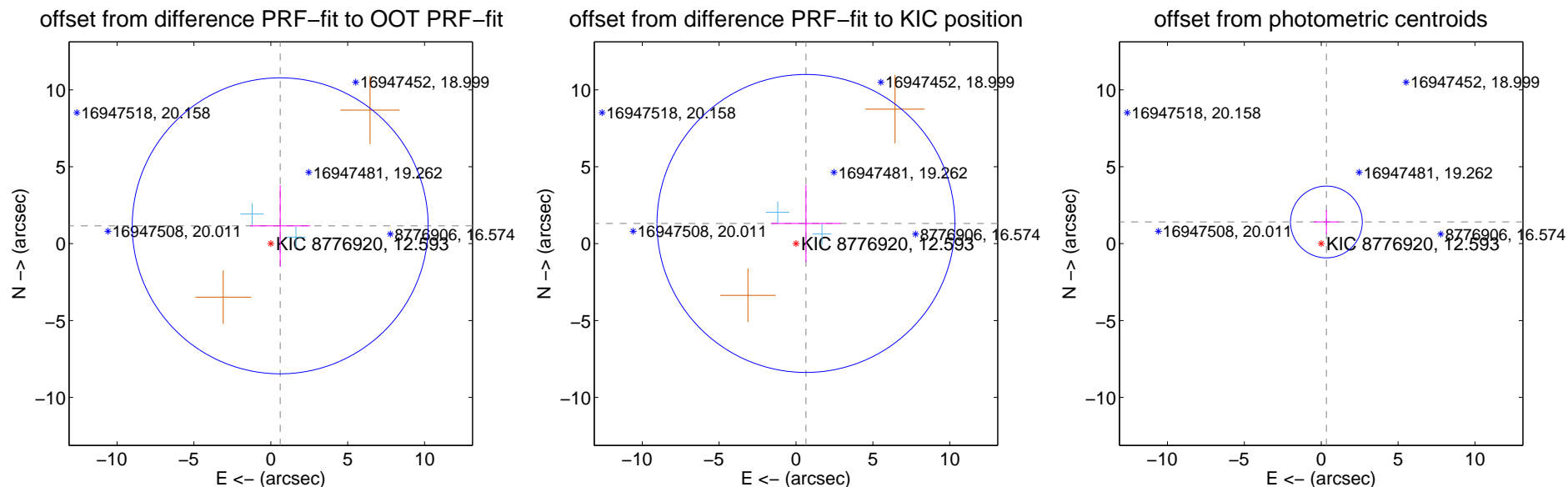
DV Centroid Data

Supplemental centroid analysis for 008776920-03. Kepler magnitude: 12.59. Transit SNR 6.88

There are 2 quarters with good PRF difference image offsets

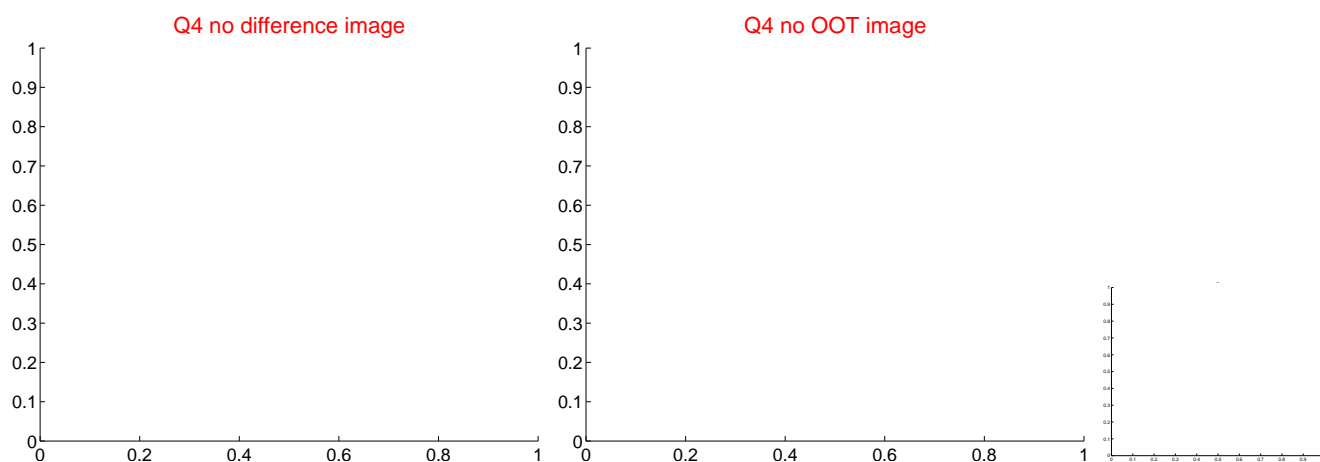
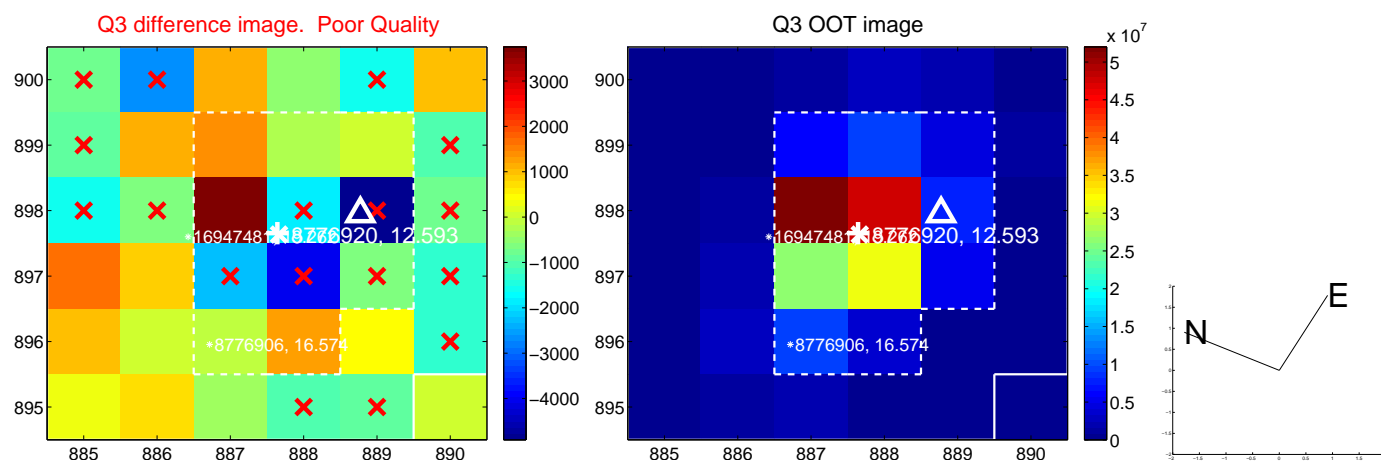
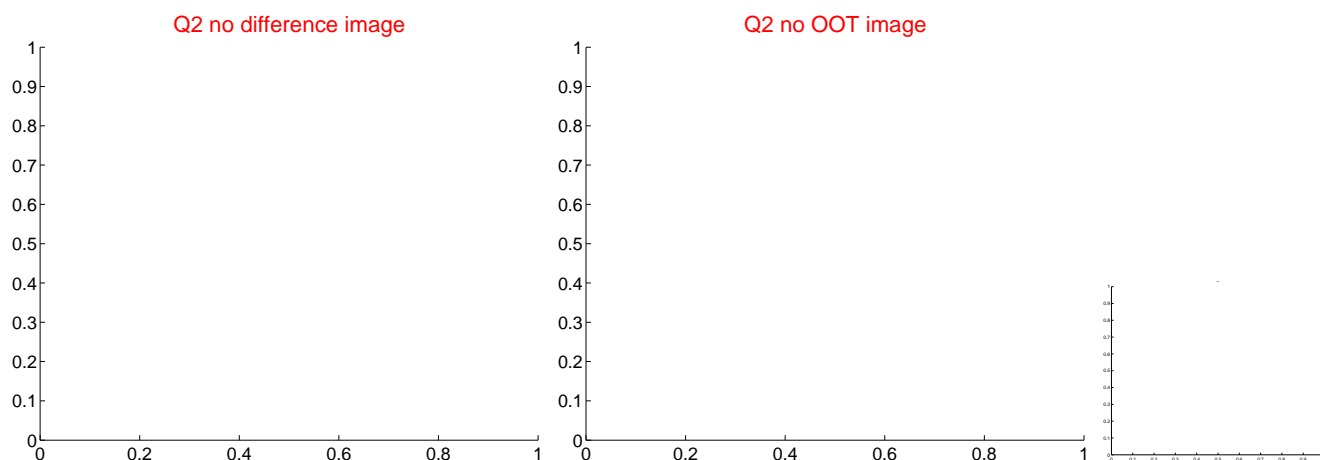
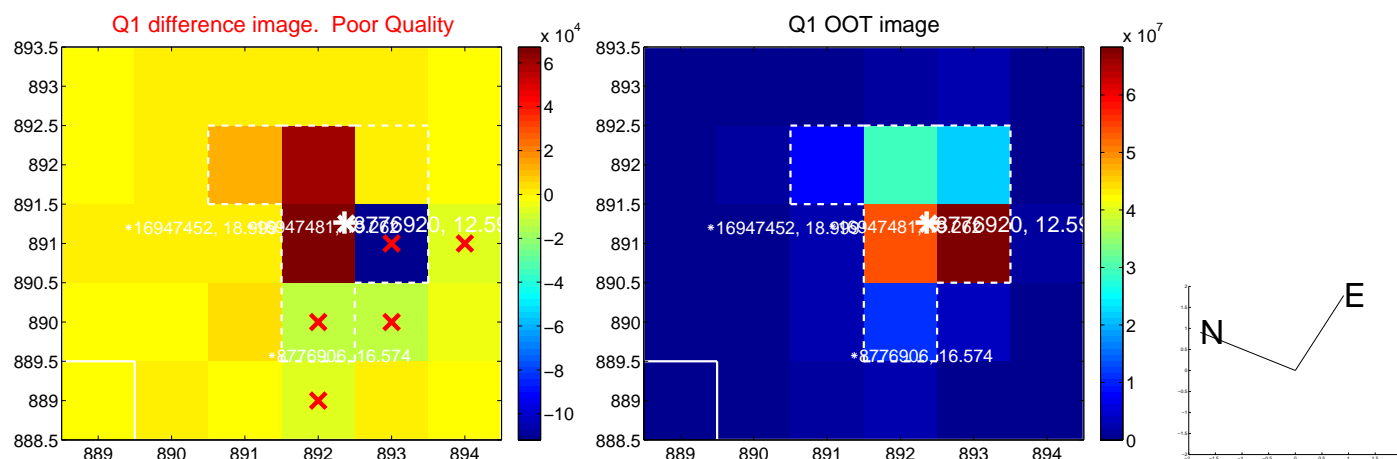
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.310 ± 3.208	0.41	-0.611 ± 1.960	1.159 ± 2.638
PRF-fit source offset from KIC position	1.463 ± 3.230	0.45	-0.646 ± 2.255	1.313 ± 2.518
photometric centroid source offset	1.45 ± 0.78	1.86	-0.34 ± 0.82	1.41 ± 0.78

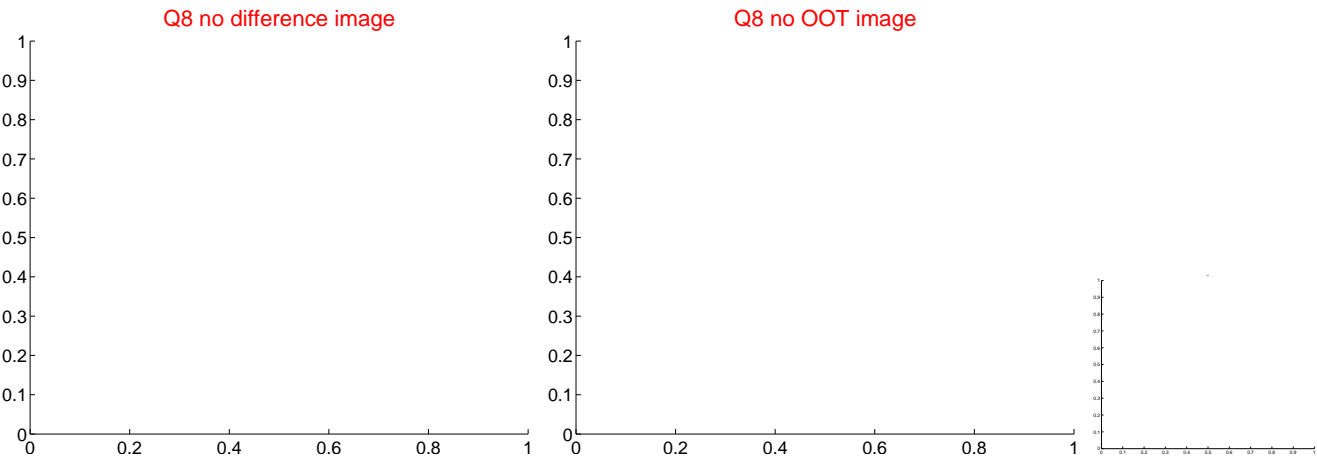
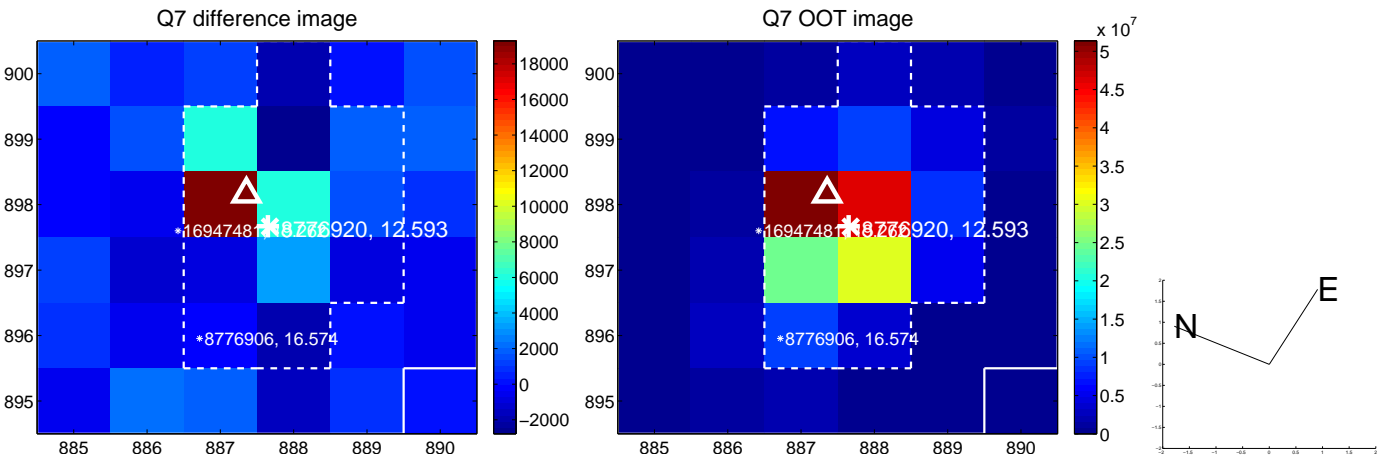
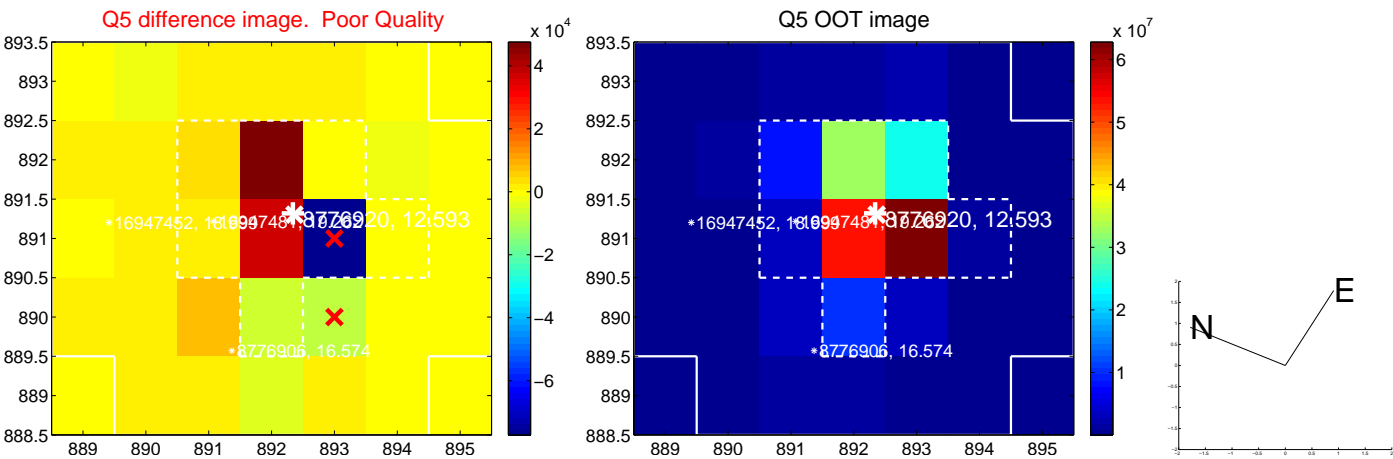


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

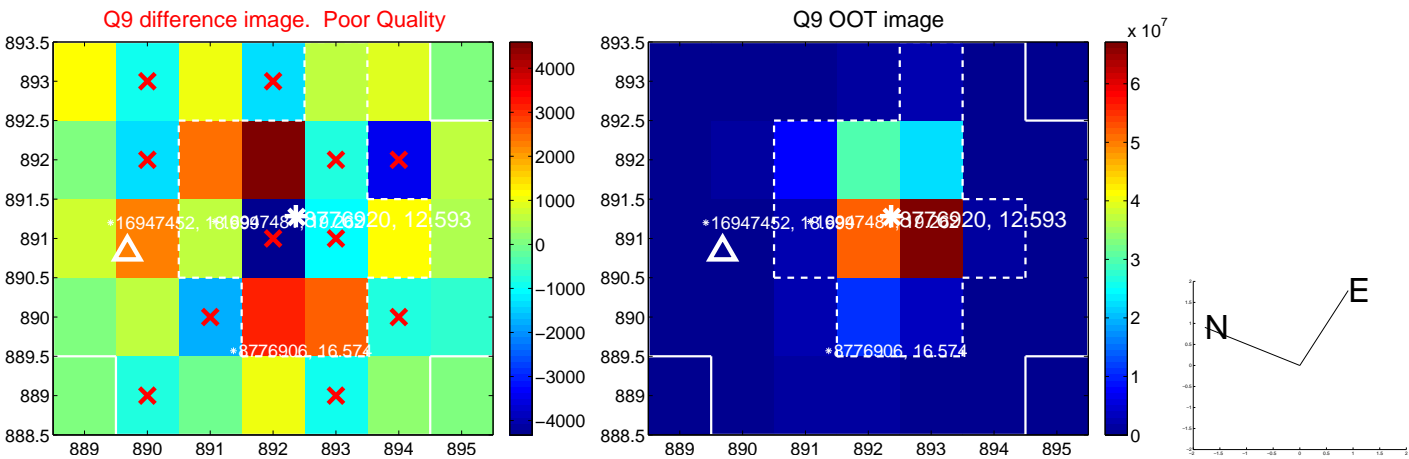
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



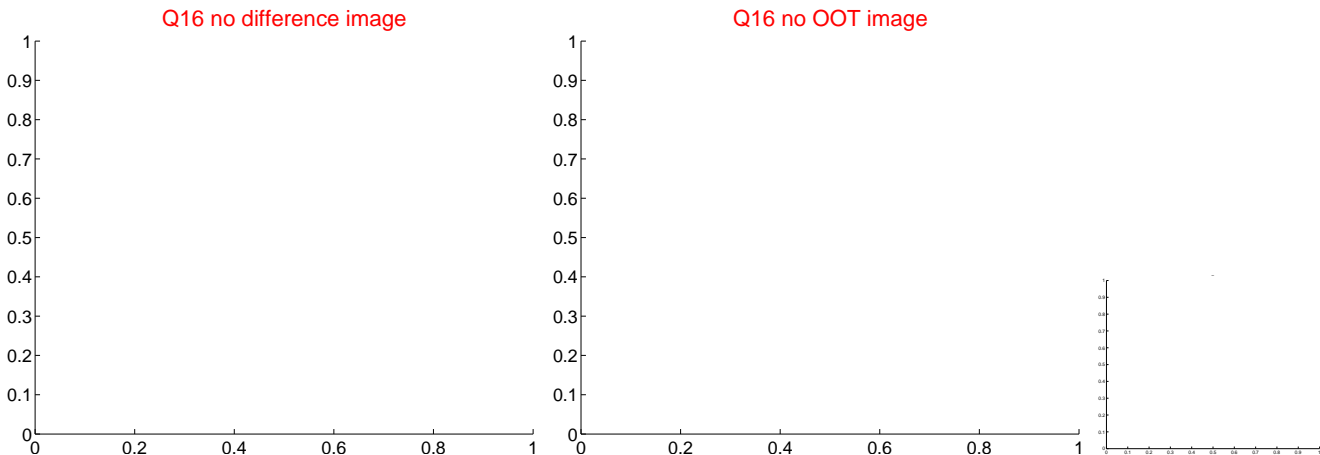
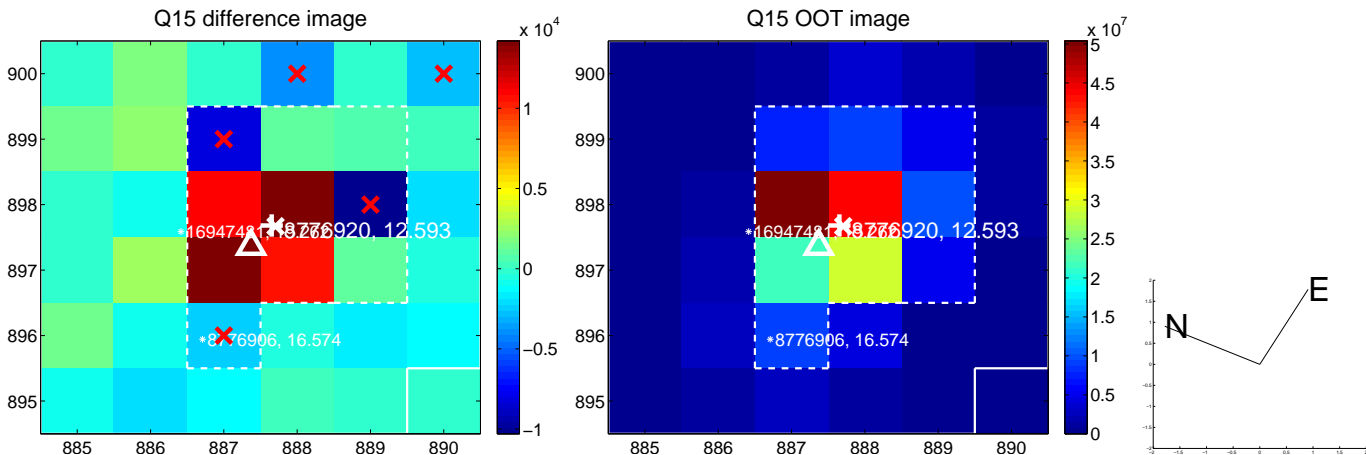
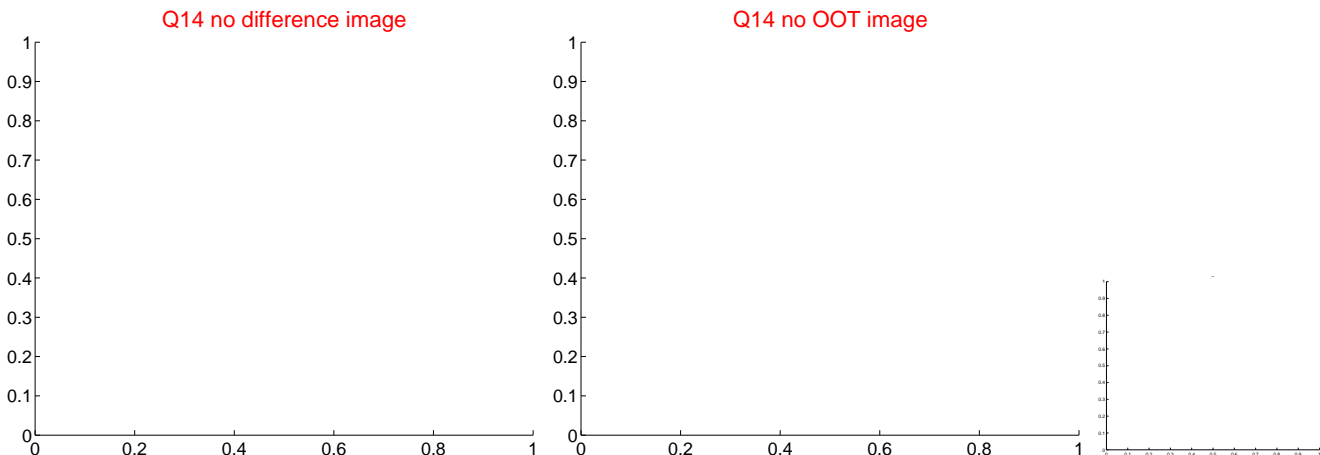
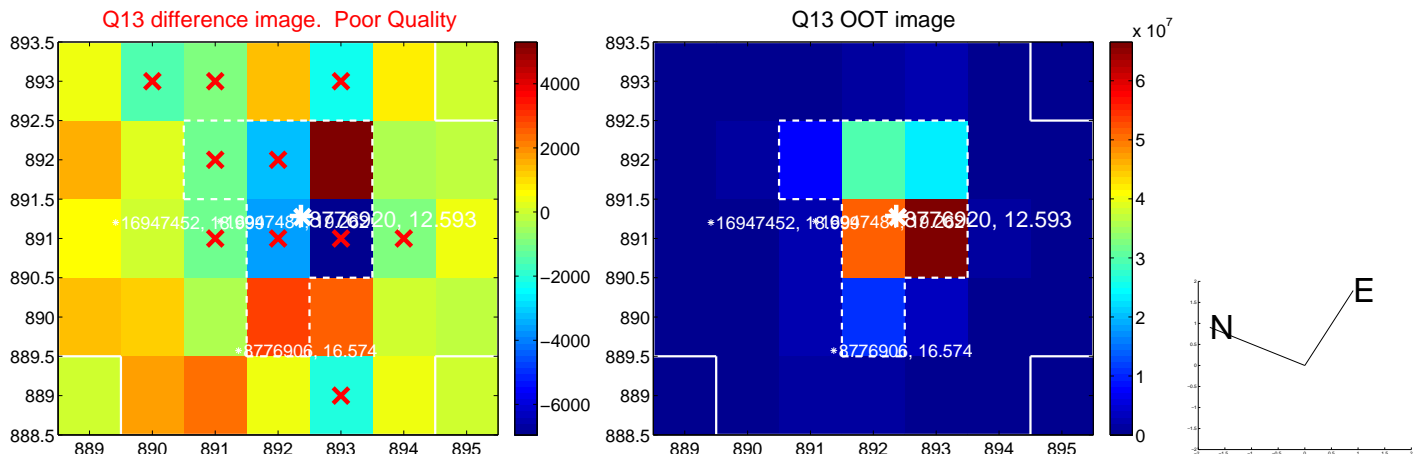
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



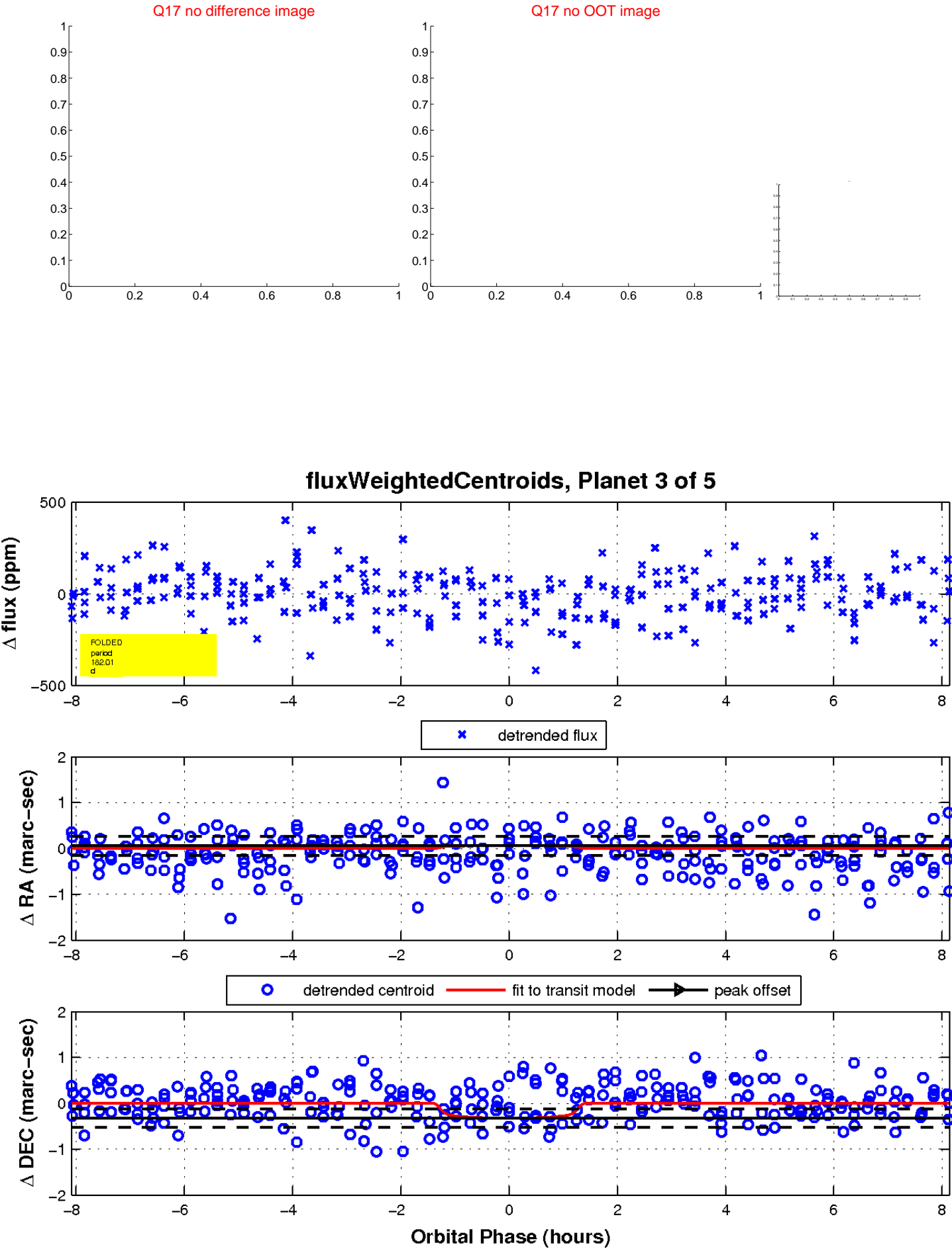
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

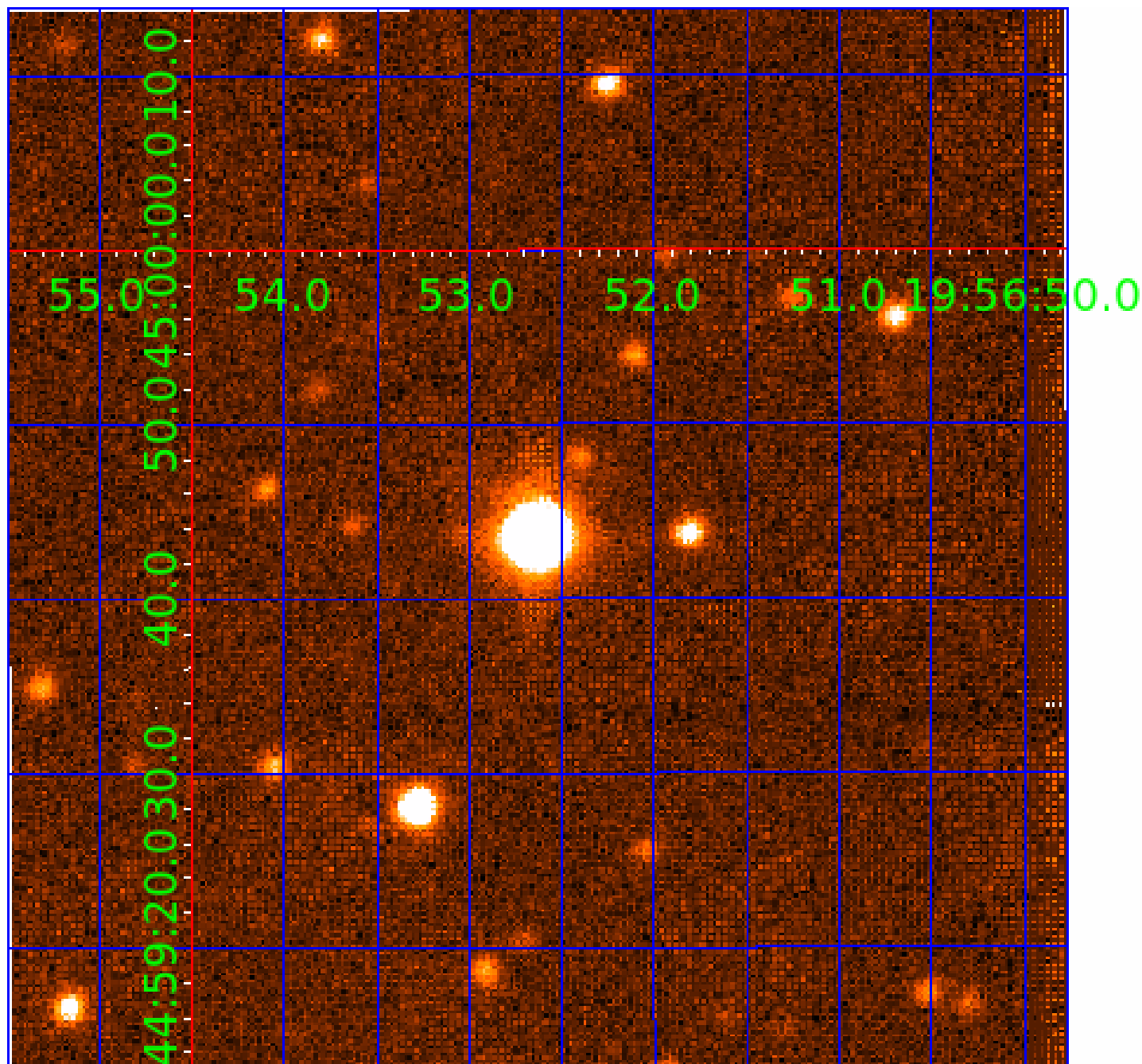


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008776920

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})
008776920-01	OBS	No	0.981812	132.456216	23.1	4.849	10.8	11.5	2.85	6211	1.39	23752.19
008776920-02	OBS	No	128.071033	132.953418	213.3	3.045	8.6	9.0	2.85	6211	4.85	35.90
008776920-03	OBS	No	182.012158	136.231974	252.3	2.715	7.8	6.9	2.85	6211	5.14	22.47
008776920-04	OBS	No	131.750421	149.178308	270.1	4.949	7.5	7.9	2.85	6211	5.29	34.57
008776920-05	OBS	No	217.394646	173.222992	241.6	2.722	7.3	7.7	2.85	6211	5.12	17.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008776920-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008776920-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008776920-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008776920-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST
008776920-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

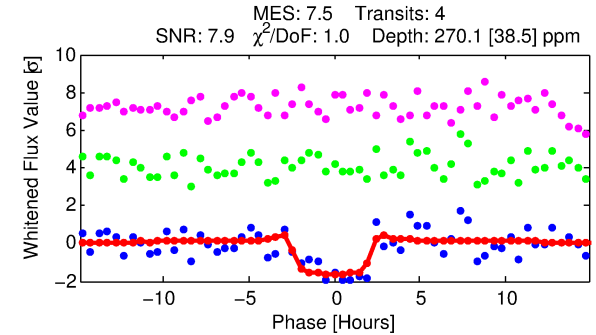
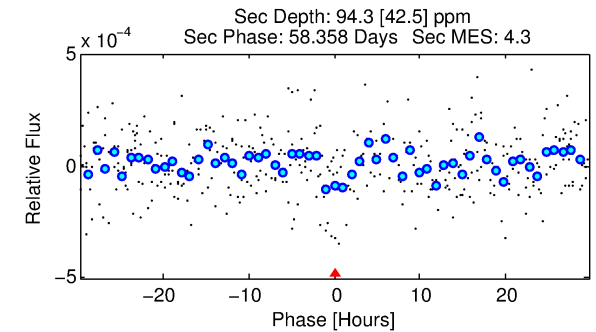
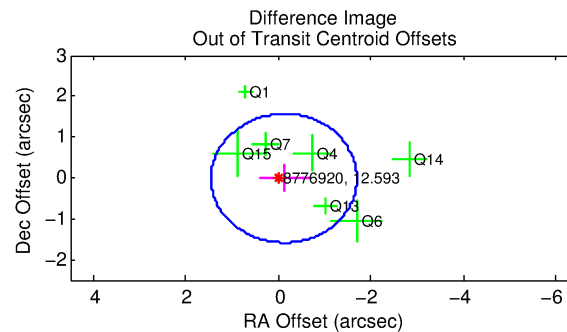
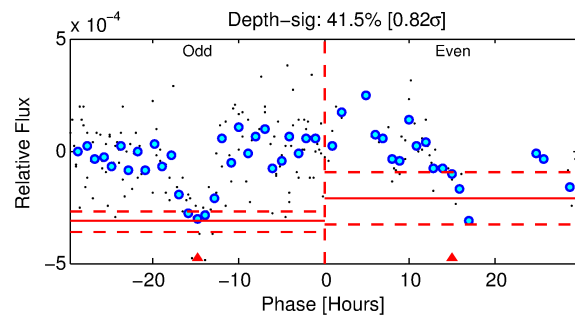
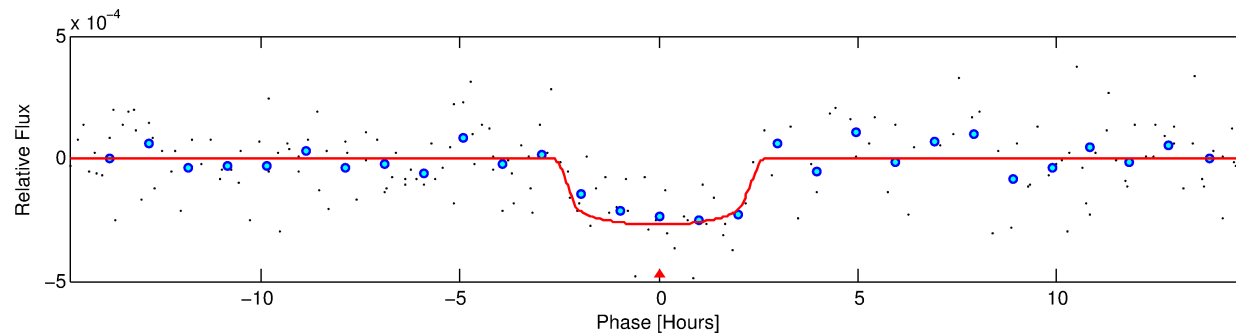
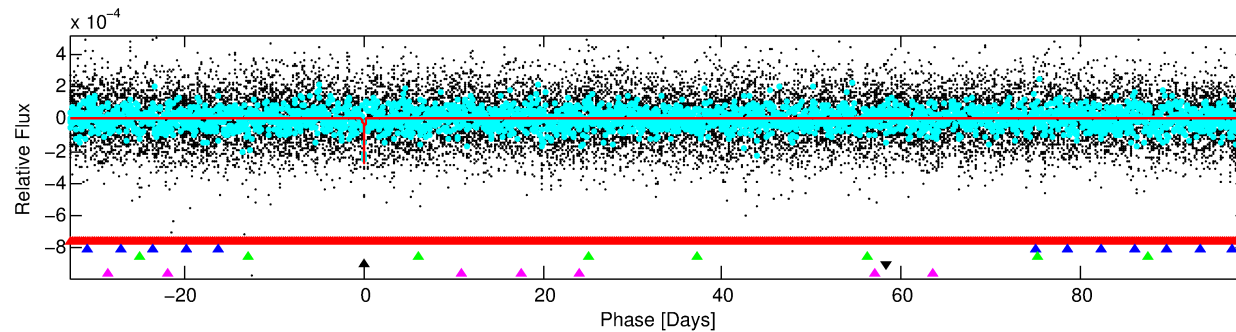
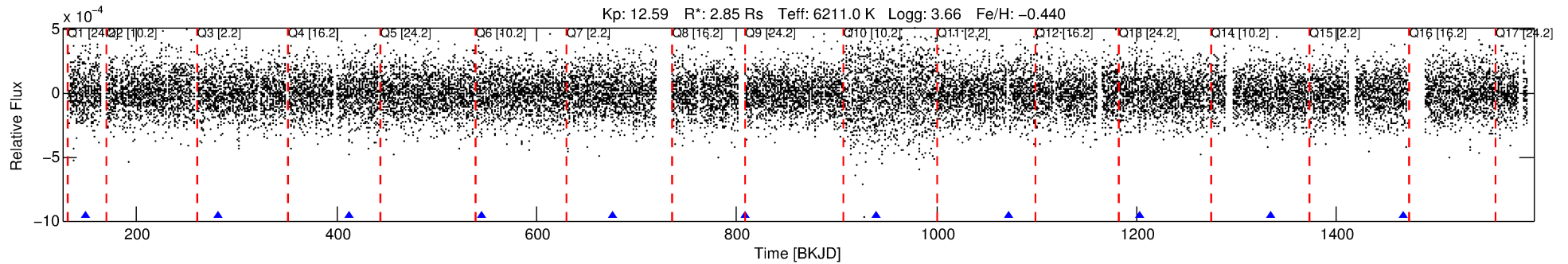
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008776920-04

No Significant Match Found

DV One-Page Summary

KIC: 8776920 Candidate: 4 of 5 Period: 131.750 d



DV Fit Results:

Period = 131.75042 [0.00234] d
Epoch = 149.1783 [0.0149] BKJD
Rp/R* = 0.0170 [0.0200]
a/R* = 115.73 [745.15]
b = 0.84 [2.23]
Seff = 34.57 [20.55]
Teq = 618 [92] K
Rp = 5.29 [6.58] Re
a = 0.5603 [0.2083] AU
Ag = 582.93 [1439.01] [0.40 σ]
Teffp = 4697 [2821] K [1.45 σ]

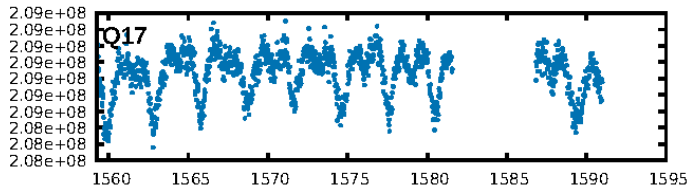
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.20 σ]
LongPeriod-sig: 100.0% [213.68 σ]
ModelChiSquare2-sig: 22.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.63e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.02724
Centroid-sig: 78.0%
Centroid-so: 0.469 arcsec [0.72 σ]
OotOffset-rm: 0.120 arcsec [0.23 σ]
OotOffset-st: 2/2/1/2 [7]
KicOffset-rm: 0.855 arcsec [2.57 σ]
KicOffset-st: 2/2/1/2 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/8]

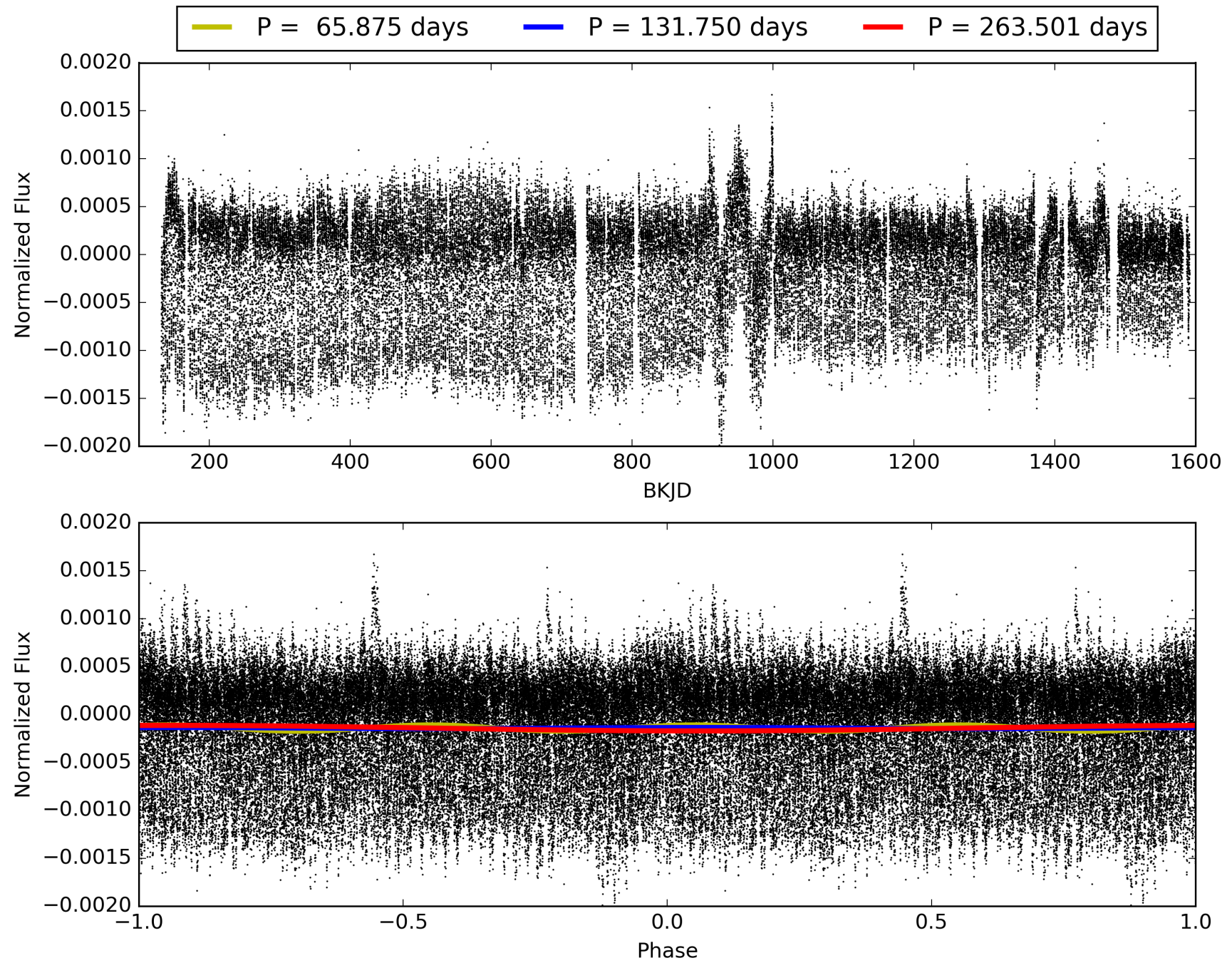
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:02:27 Z

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

TCE 008776920-04, PDC Light Curves

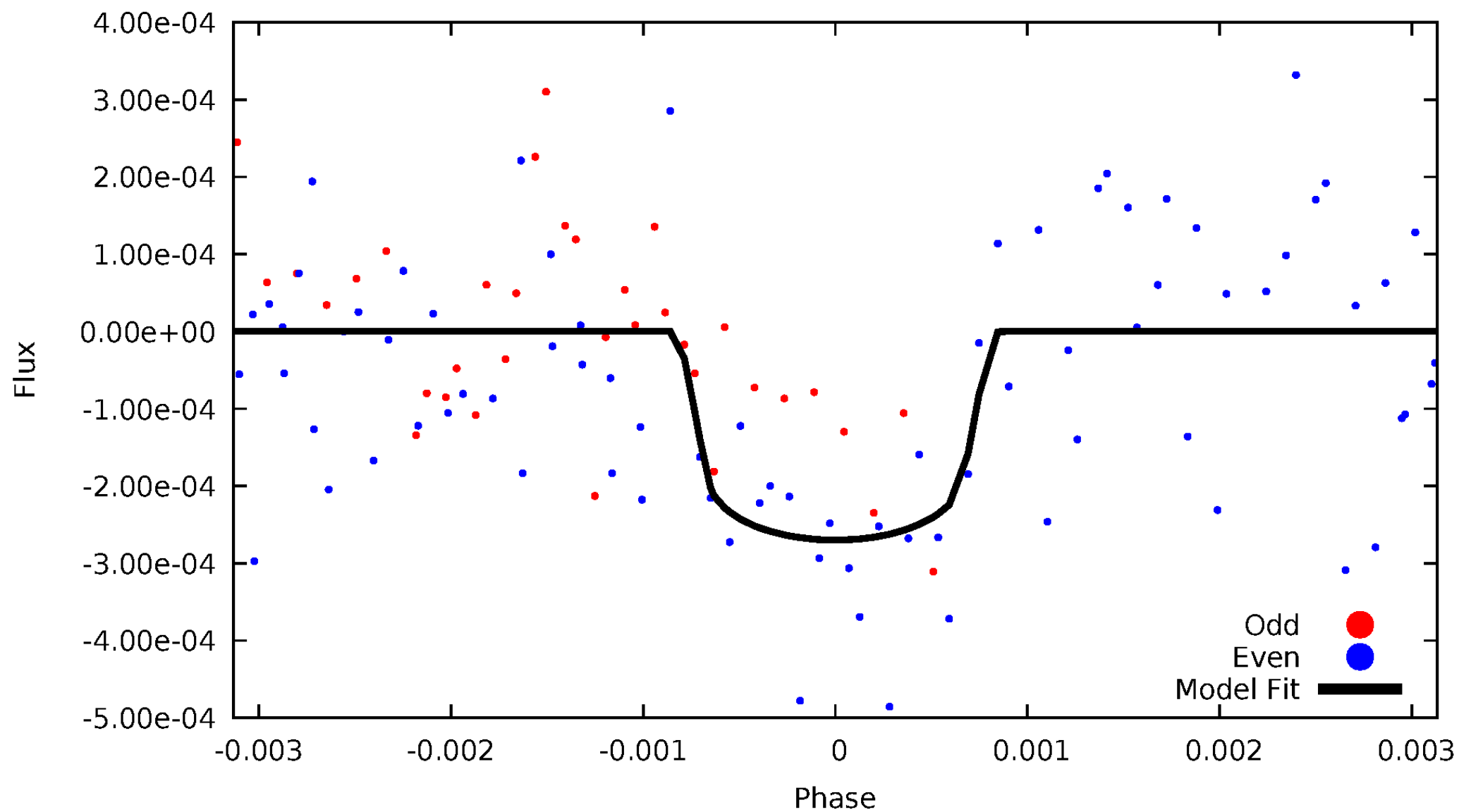


TCE 008776920-04



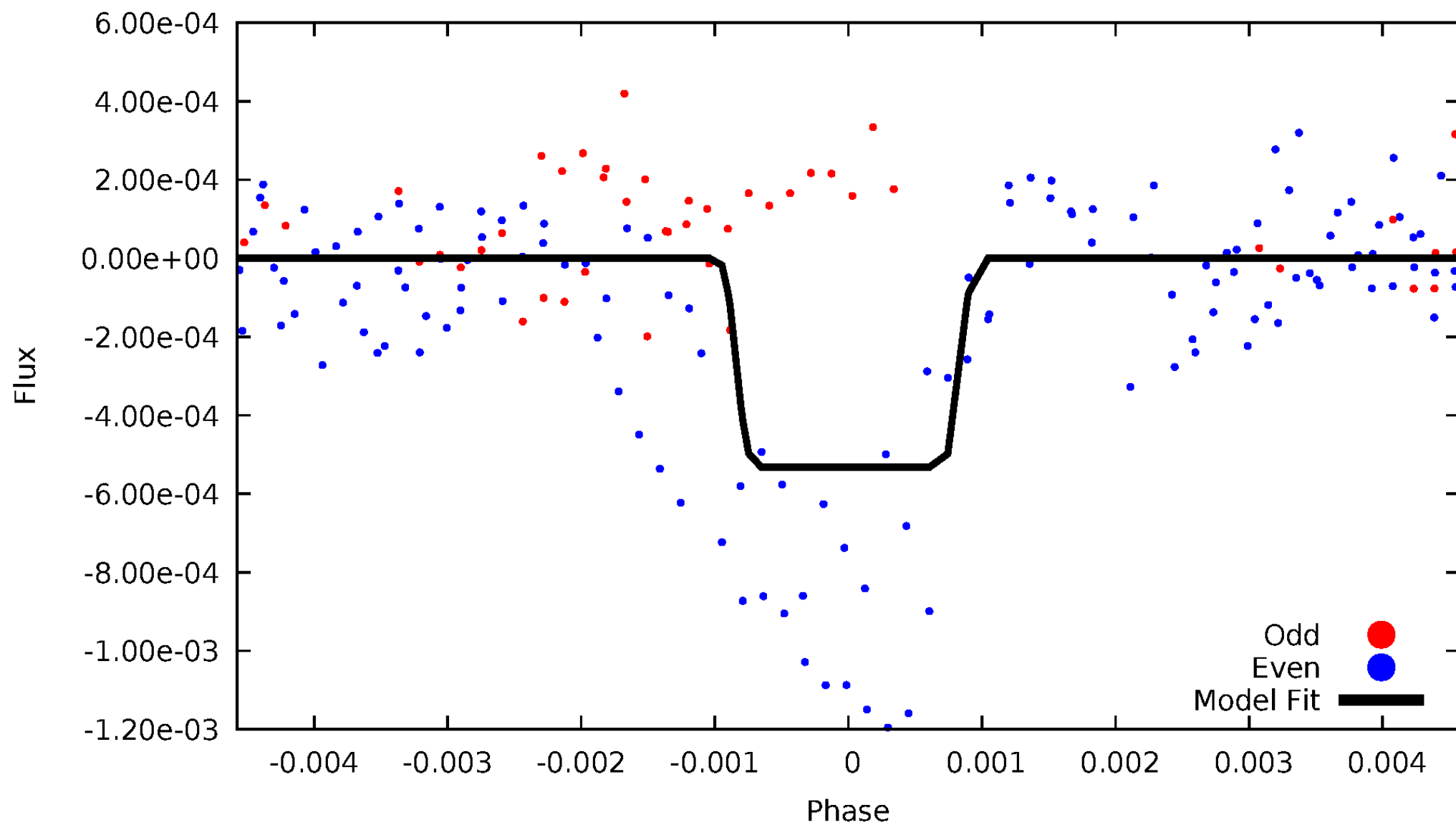
DV Odd/Even

TCE 008776920-04



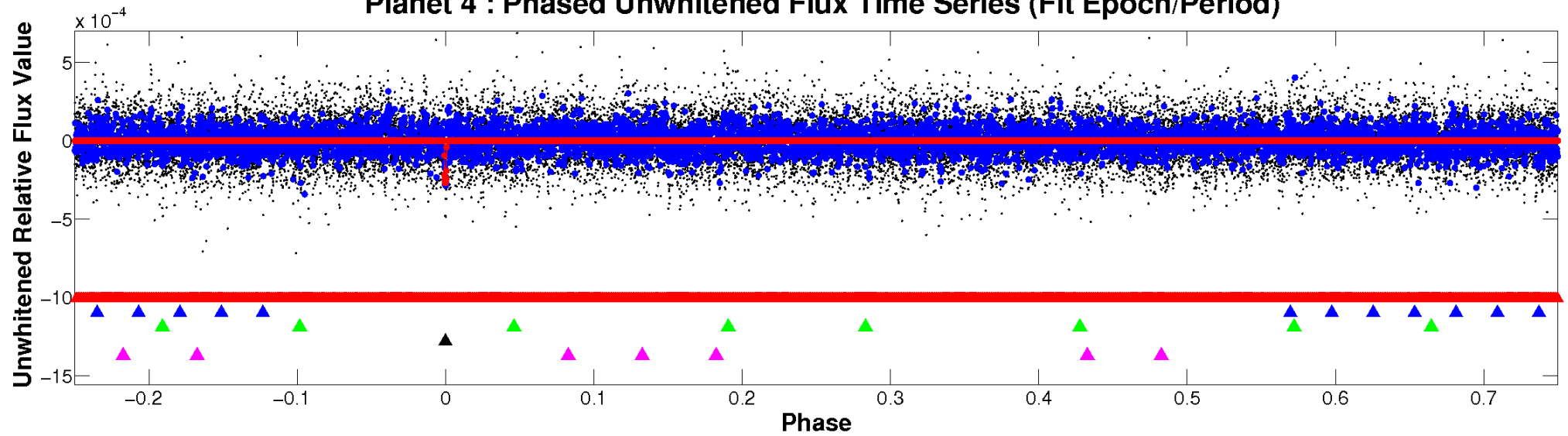
ALT Odd/Even

TCE 008776920-04

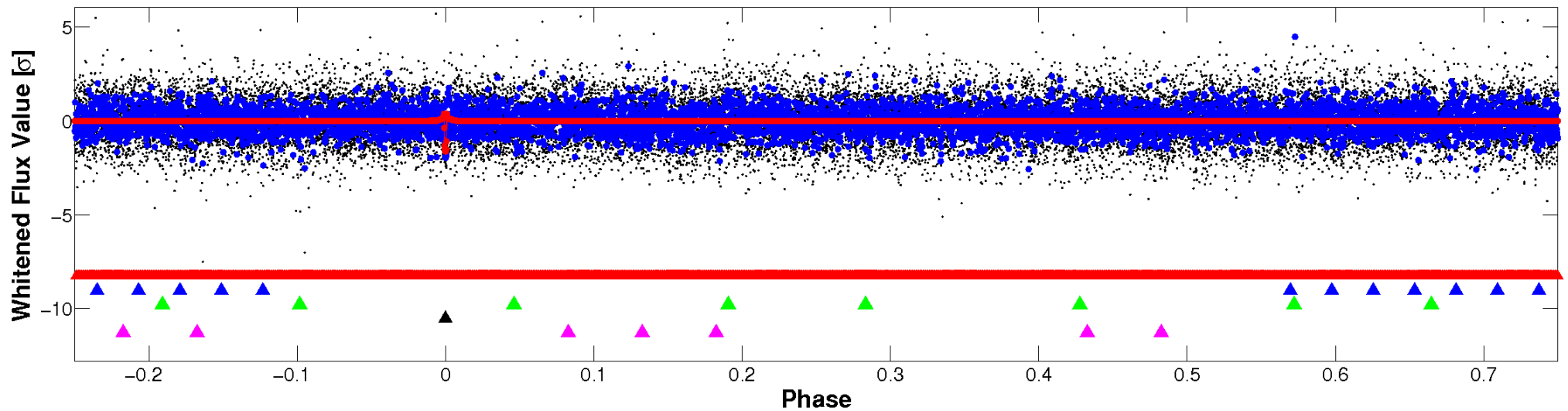


Non-Whitened Vs. Whitened Light Curve

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

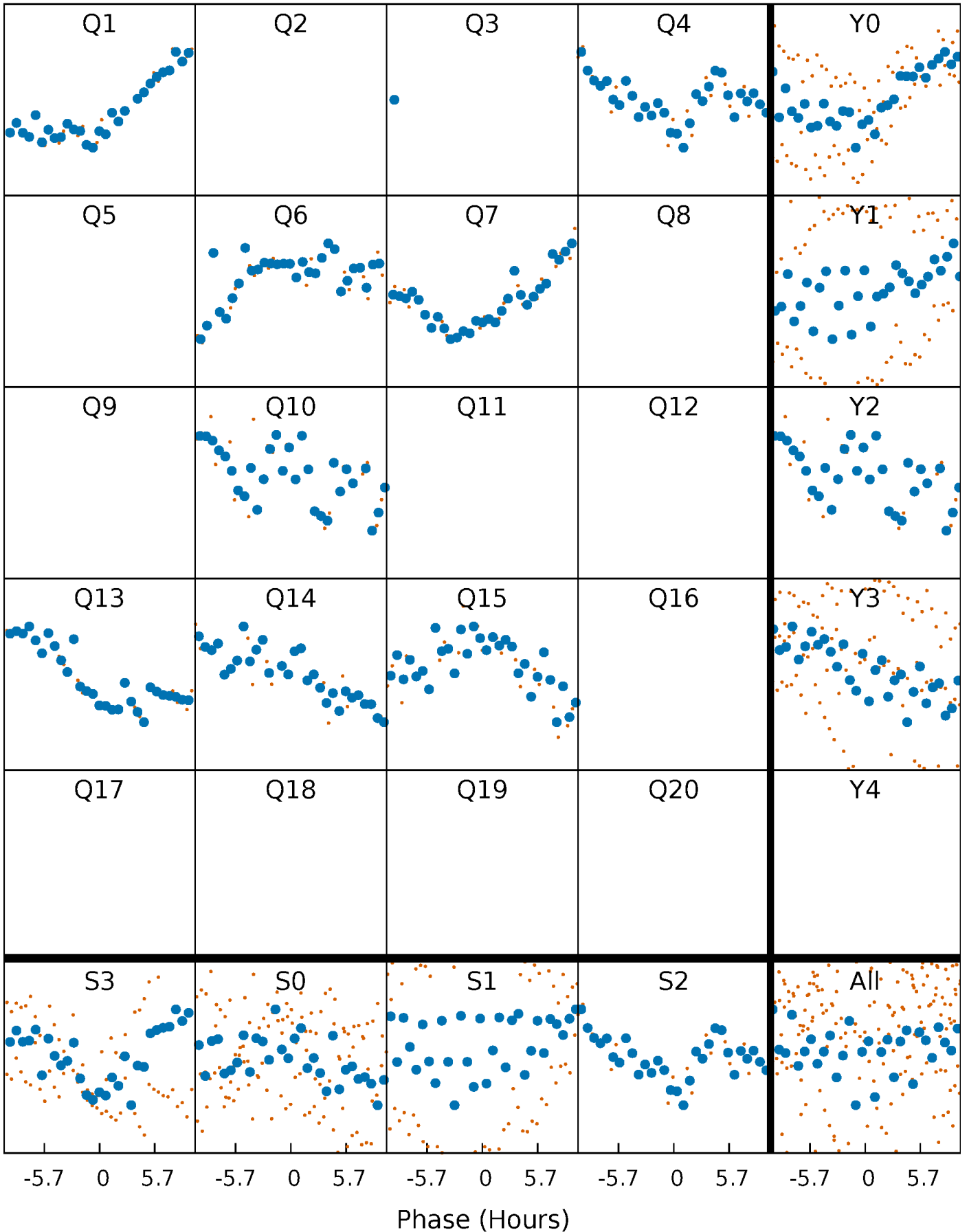


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



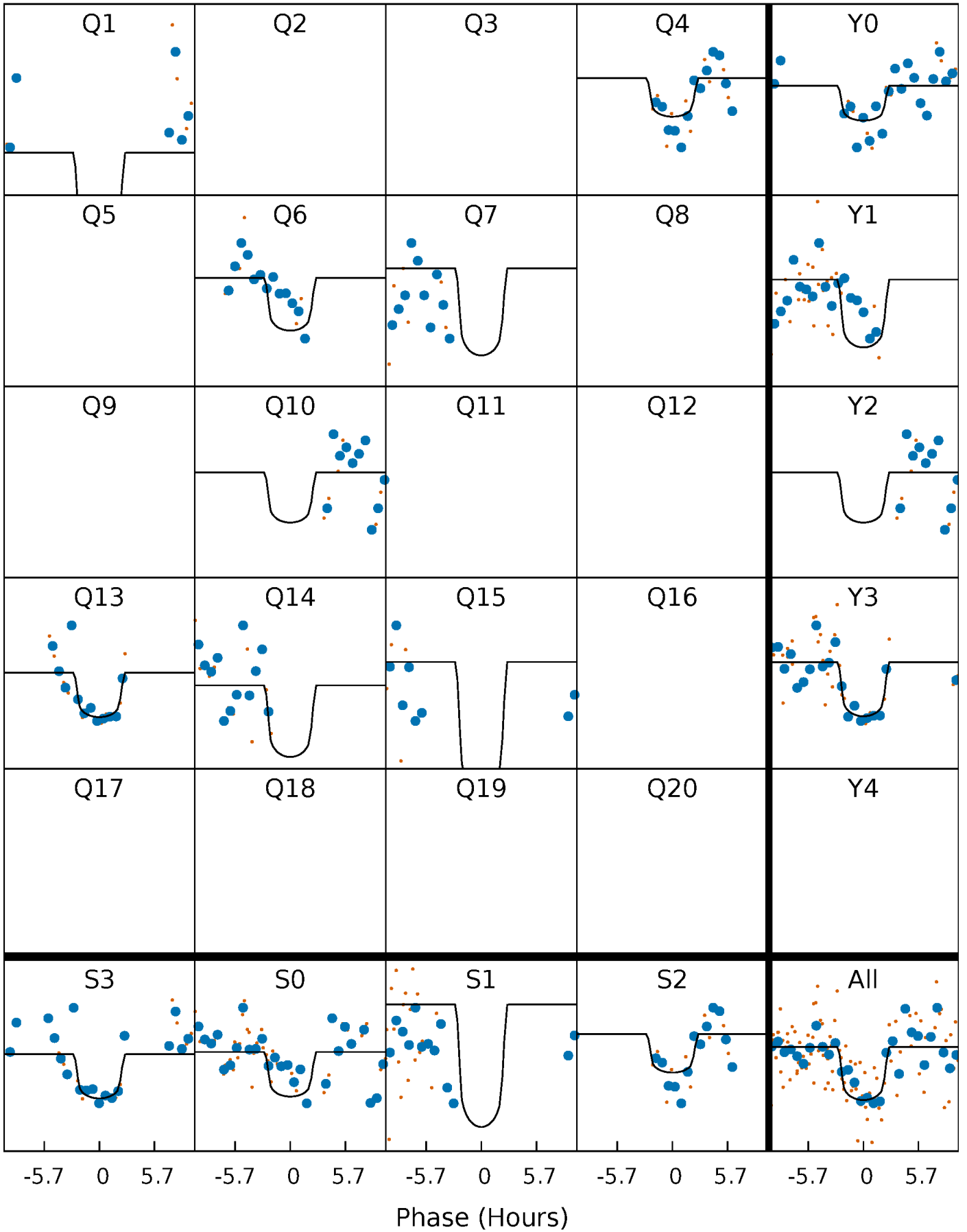
PDC Quarter-Phased Transit Curves

TCE 008776920-04 P=131.750421 Days $T_0=149.178308$ (BKJD)



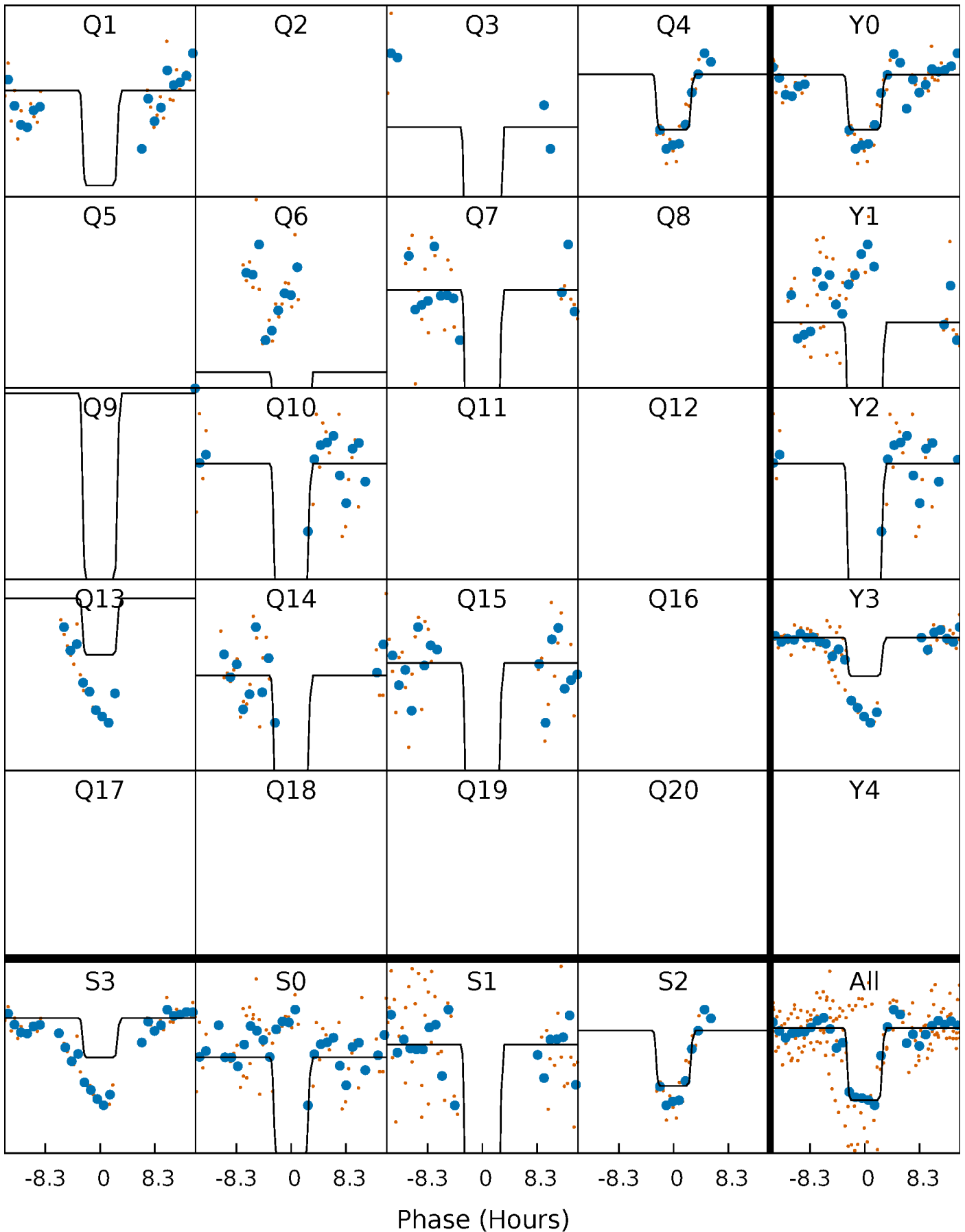
DV Quarter-Phased Transit Curves

TCE 008776920-04 P=131.750421 Days $T_0=149.178308$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

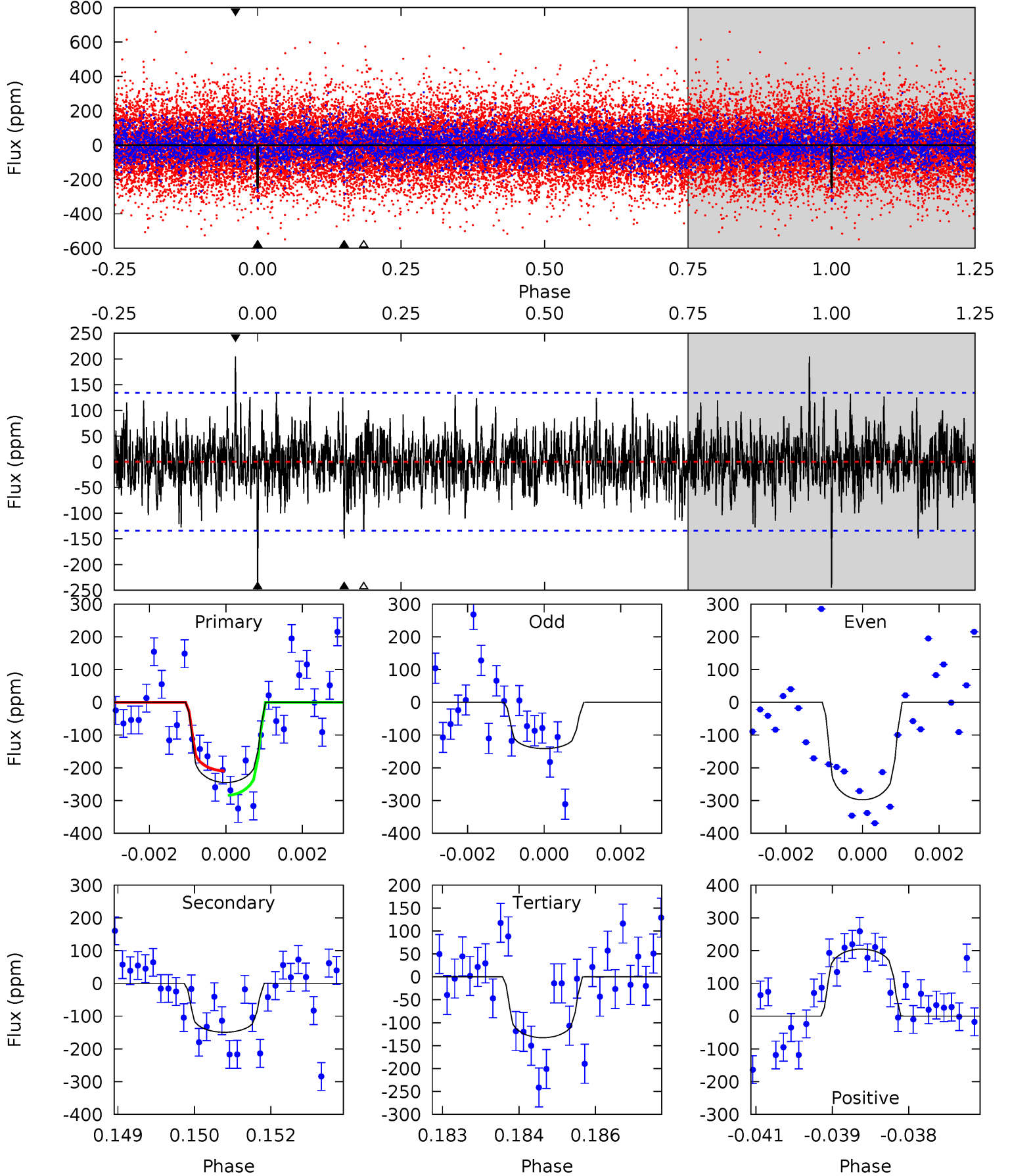
TCE 008776920-04 P=131.752243 Days $T_0=149.195425$ (BKJD)



DV Model-Shift Uniqueness Test

008776920-04, P = 131.750421 Days, E = 17.427887 Days

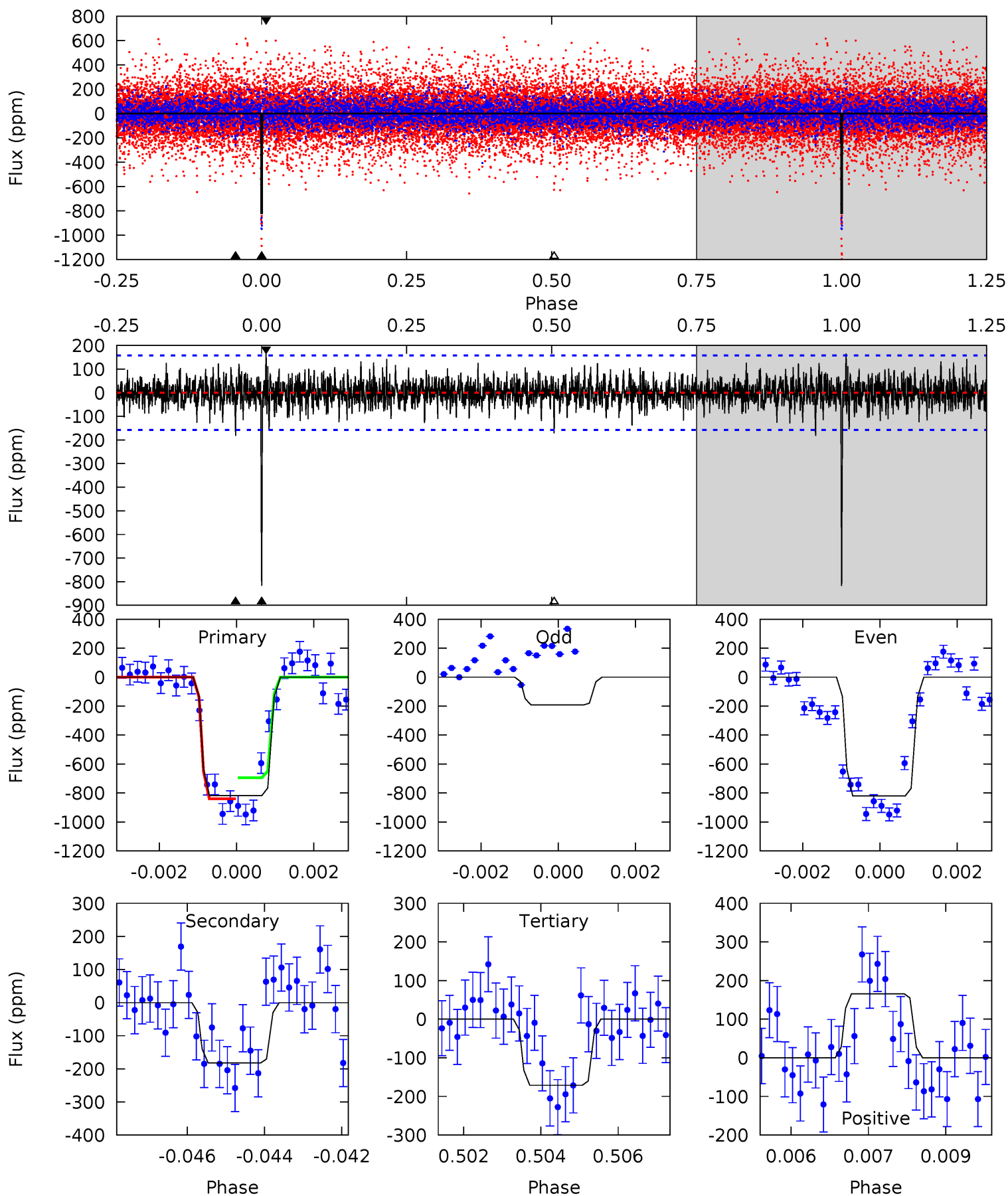
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.81	5.97	5.31	8.19	5.36	3.15	1.59	4.50	1.62	0.66	-2.21	2.98	0.95	0.45	1.49



Alt Model-Shift Uniqueness Test

008776920-04, P = 131.752243 Days, E = 17.443182 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	6.16	5.79	5.61	5.34	3.11	1.35	21.9	22.0	0.37	0.55	11.2	0.80	0.17	2.50



Stellar Parameters For KIC 008776920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6211^{+185}_{-166}	$3.658^{+0.337}_{-0.112}$	$-0.440^{+0.400}_{-0.250}$	$2.853^{+0.490}_{-1.143}$	$1.349^{+0.234}_{-0.313}$	$0.082^{+0.208}_{-0.029}$
	+3%/-3%	+9%/-3%	+91%/-57%	+17%/-40%	+17%/-23%	+254%/-35%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008776920-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-149 ± 25	$6.00^{+6.04}_{-3.63}$	851^{+56}_{-82}	4789^{+2979}_{-993}	684^{+3895}_{-514}
Alt.	-182 ± 30	$7.57^{+5.85}_{-4.53}$	846^{+62}_{-79}	4616^{+2445}_{-833}	551^{+2847}_{-386}

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 $A_{obs} \gg 1.0$

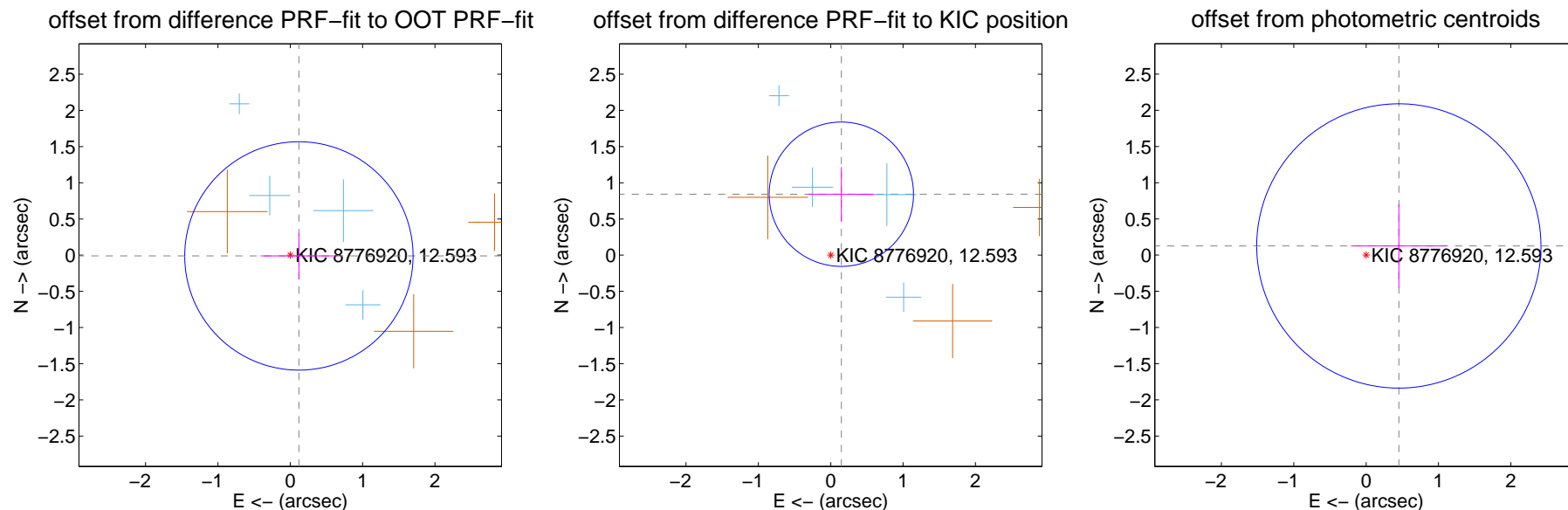
DV Centroid Data

Supplemental centroid analysis for 008776920-04. Kepler magnitude: 12.59. Transit SNR 7.88

There are 4 quarters with good PRF difference image offsets

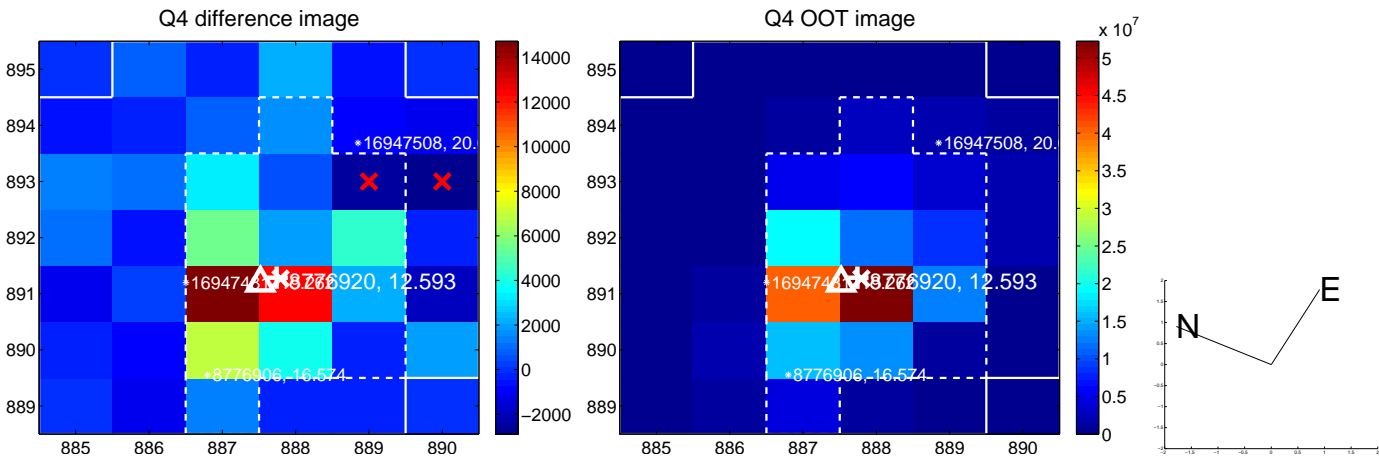
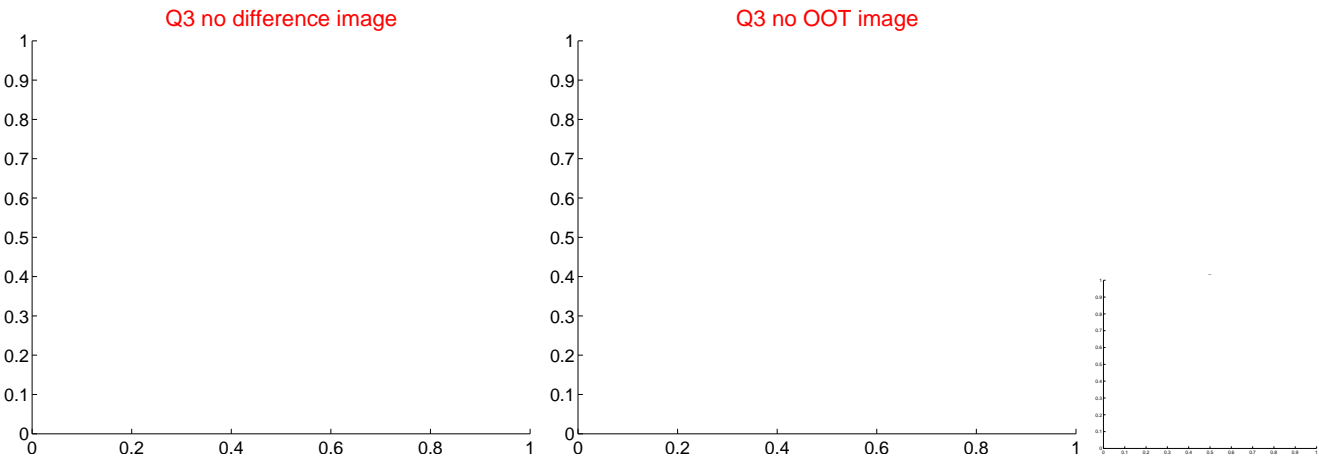
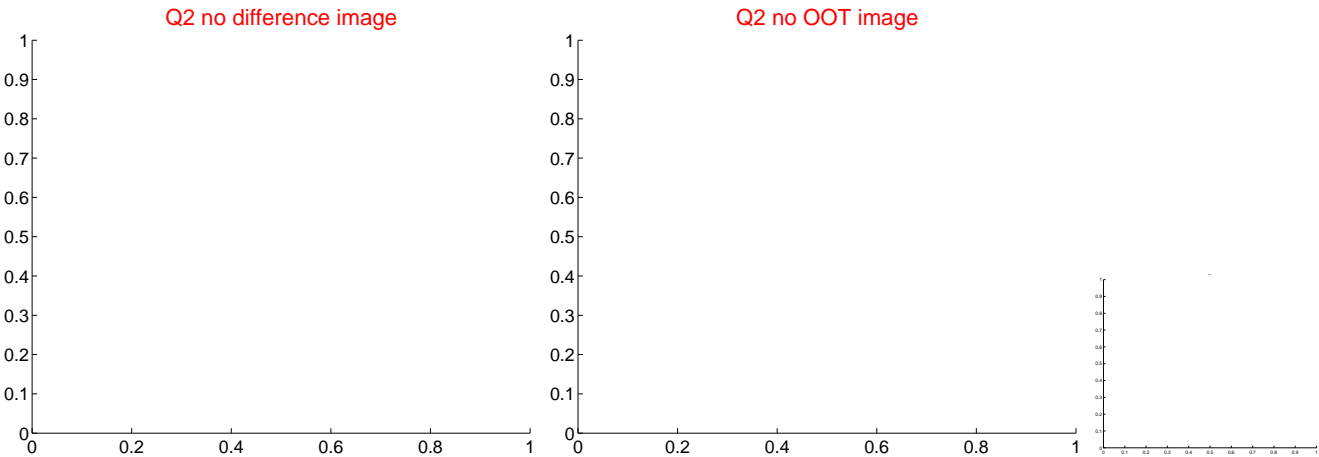
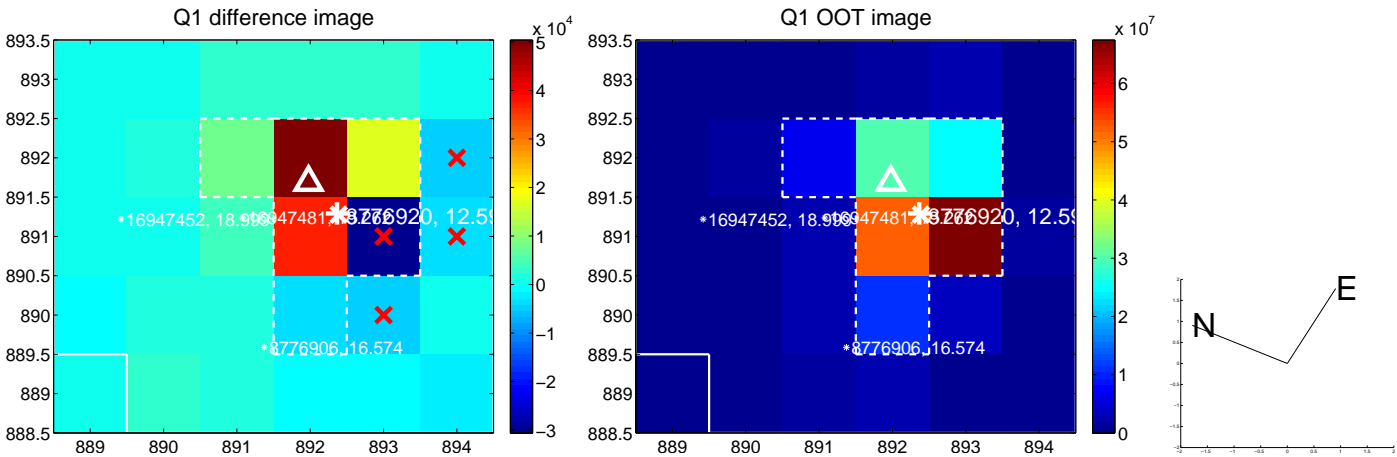
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.120 ± 0.526	0.23	-0.119 ± 0.527	-0.011 ± 0.324
PRF-fit source offset from KIC position	0.855 ± 0.332	2.57	-0.147 ± 0.454	0.842 ± 0.375
photometric centroid source offset	0.47 ± 0.65	0.72	-0.45 ± 0.66	0.13 ± 0.58



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.

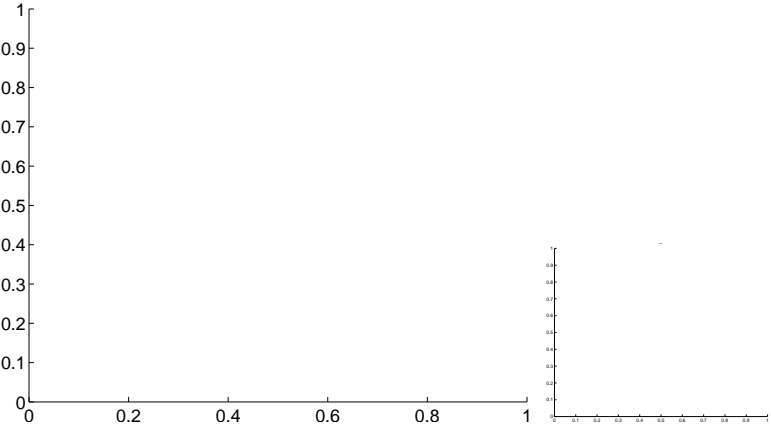


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

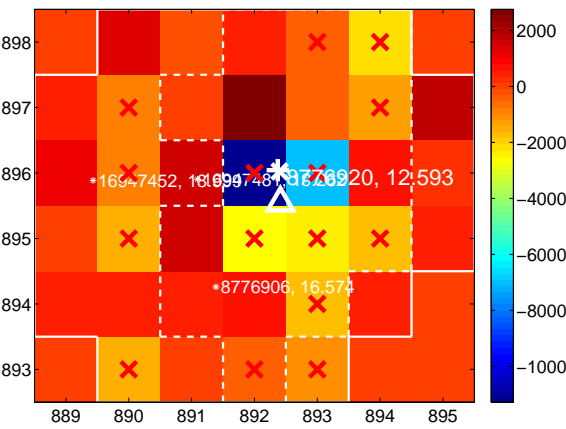
Q5 no difference image



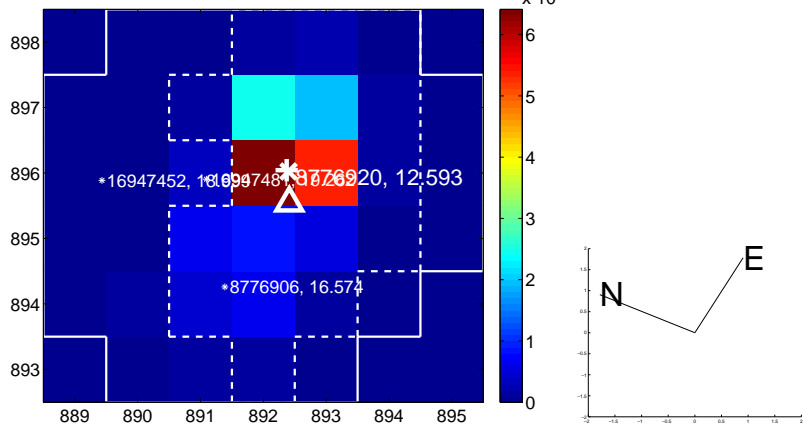
Q5 no OOT image



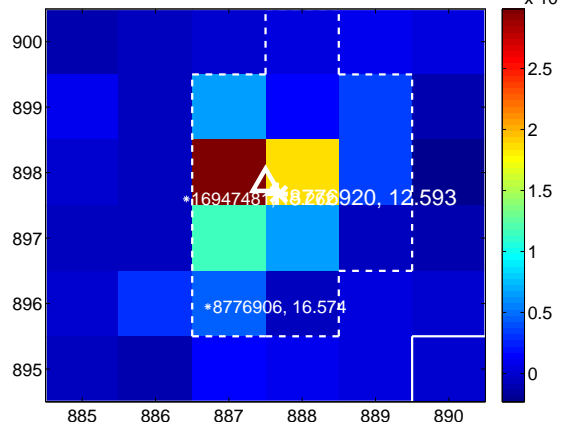
Q6 difference image. Poor Quality



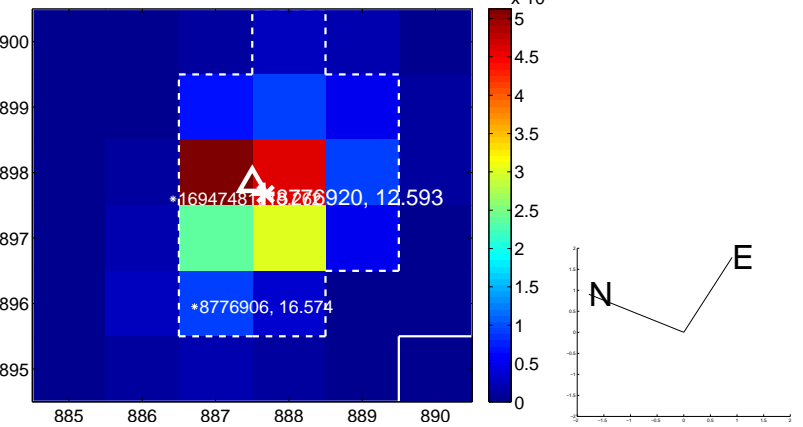
Q6 OOT image



Q7 difference image



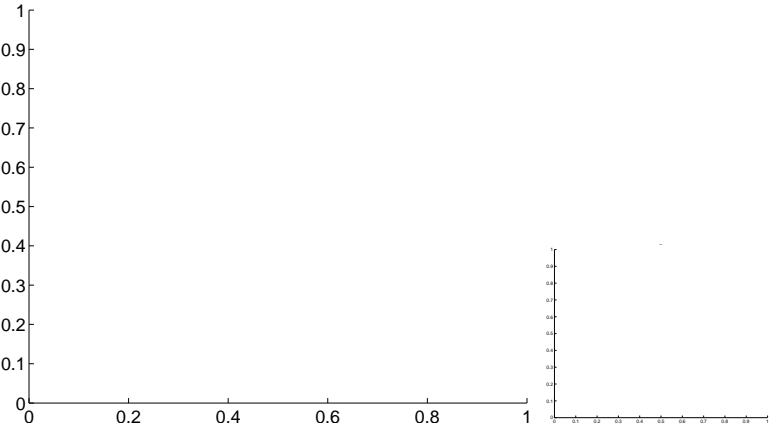
Q7 OOT image



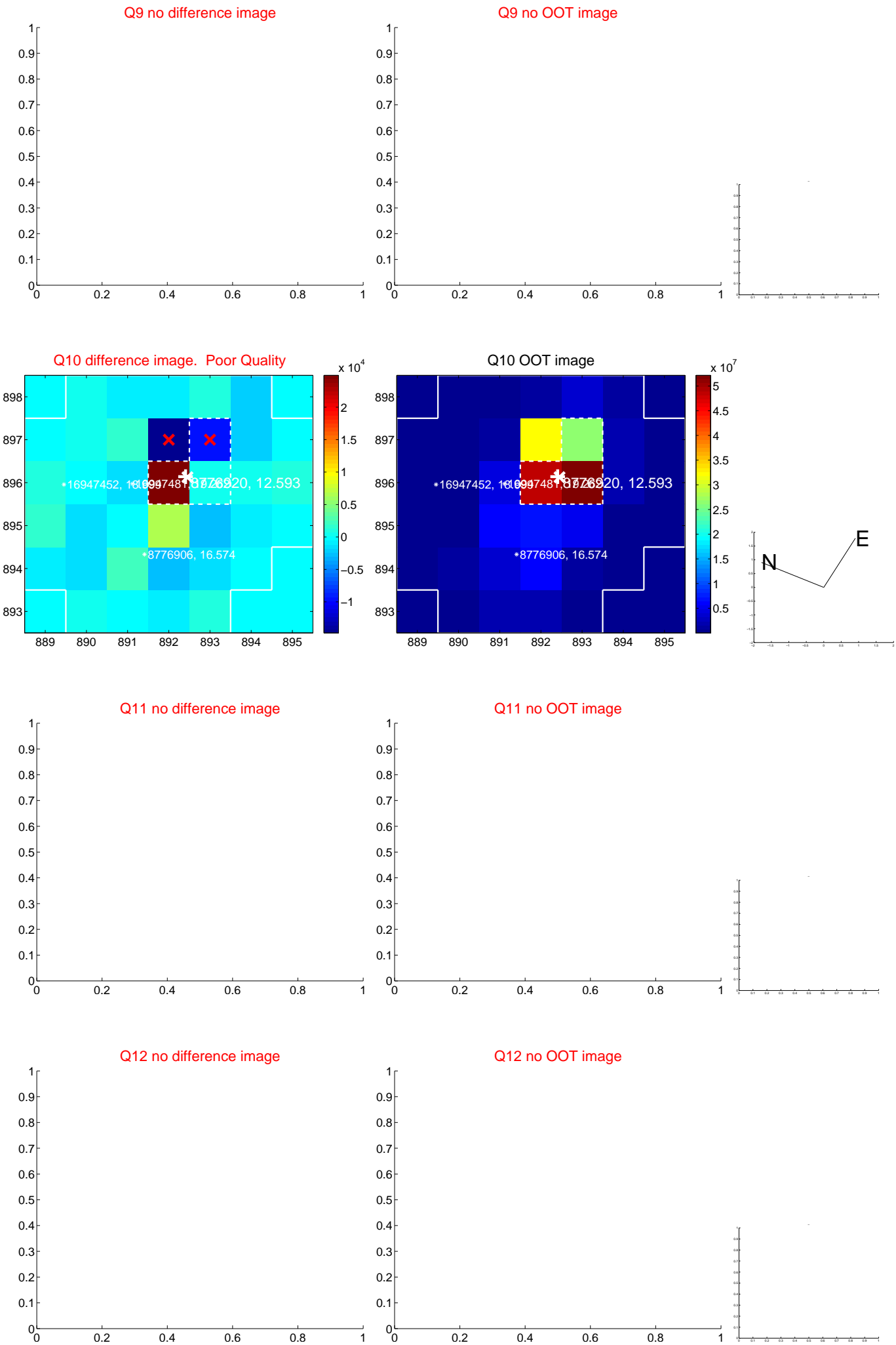
Q8 no difference image



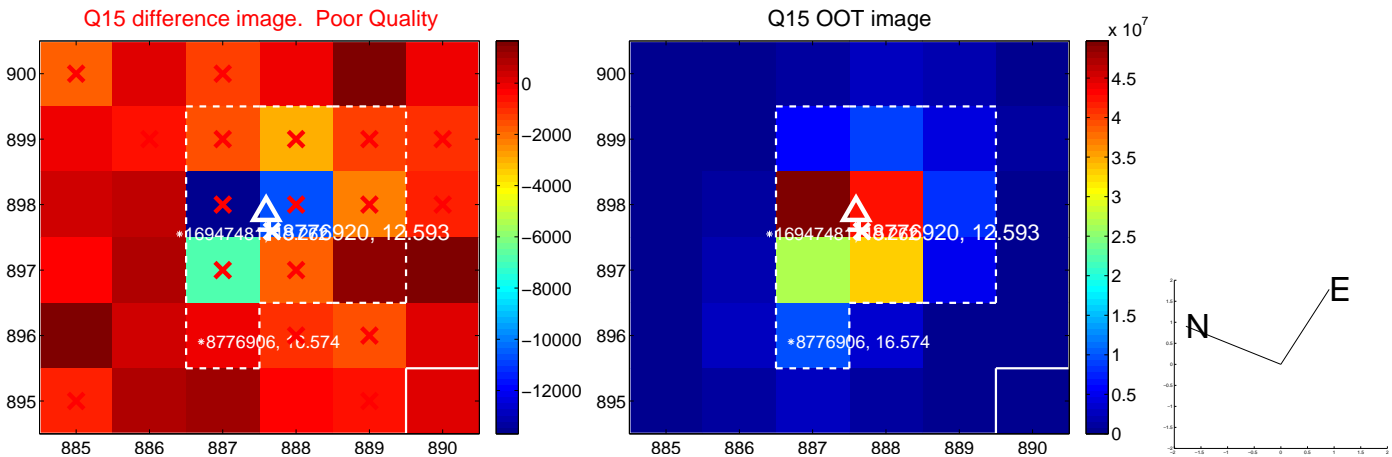
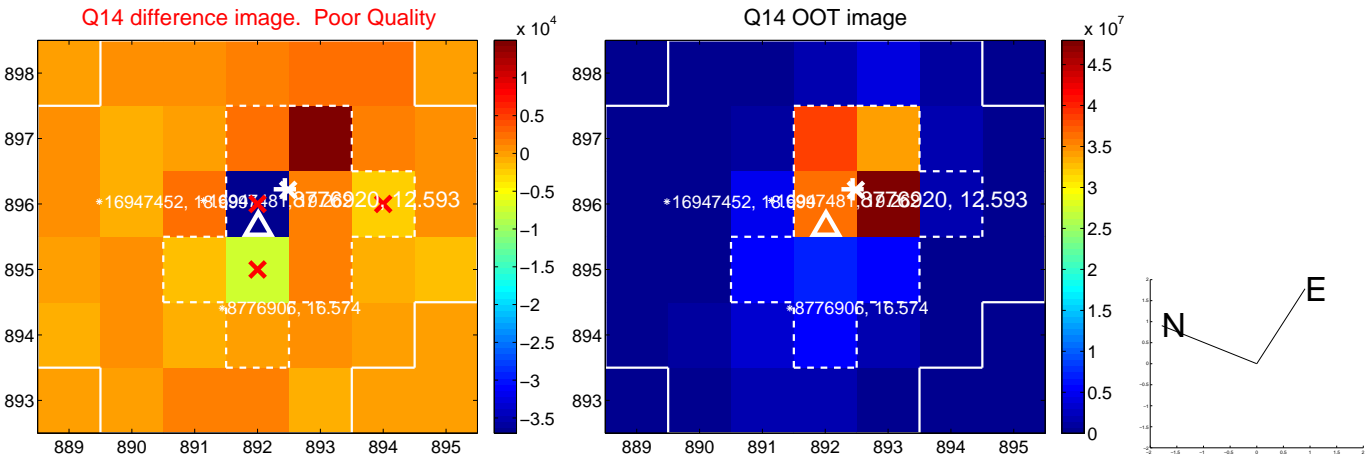
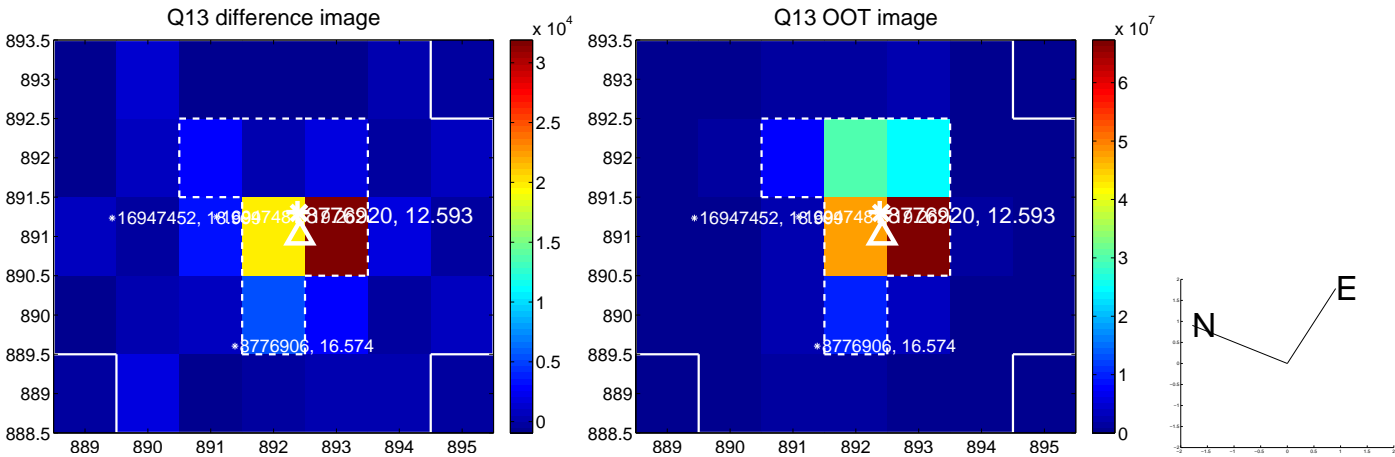
Q8 no OOT image



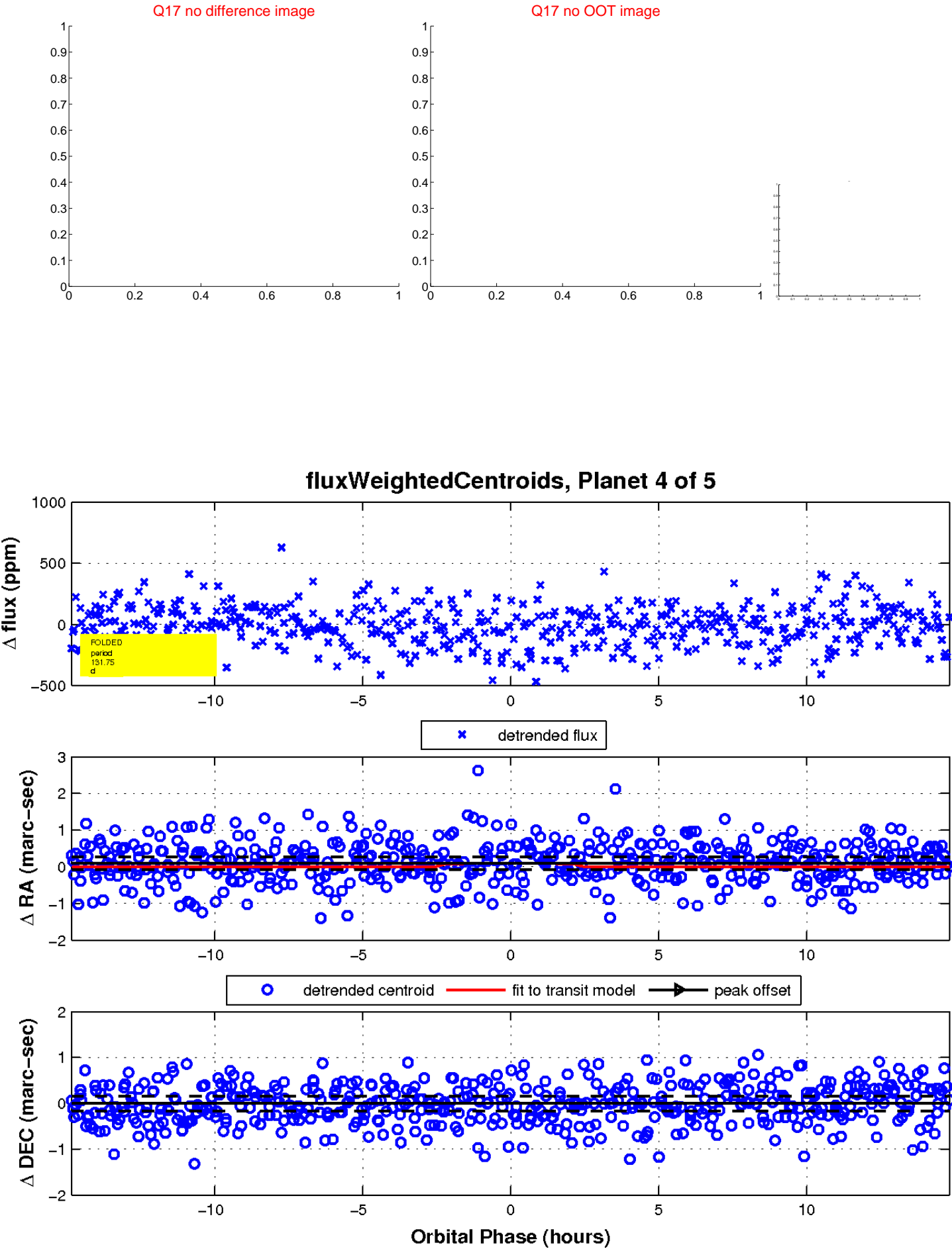
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

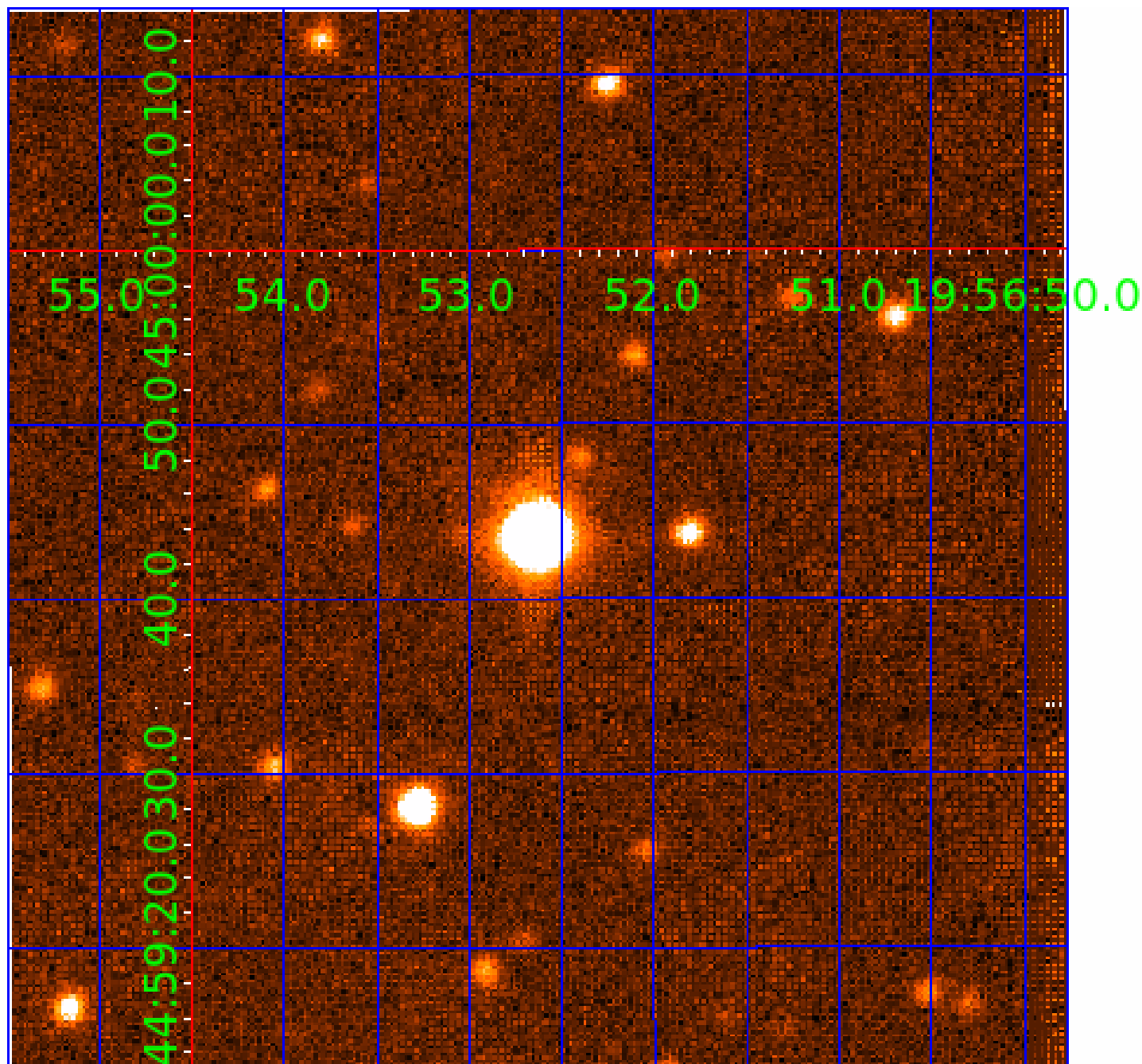


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008776920

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})
008776920-01	OBS	No	0.981812	132.456216	23.1	4.849	10.8	11.5	2.85	6211	1.39	23752.19
008776920-02	OBS	No	128.071033	132.953418	213.3	3.045	8.6	9.0	2.85	6211	4.85	35.90
008776920-03	OBS	No	182.012158	136.231974	252.3	2.715	7.8	6.9	2.85	6211	5.14	22.47
008776920-04	OBS	No	131.750421	149.178308	270.1	4.949	7.5	7.9	2.85	6211	5.29	34.57
008776920-05	OBS	No	217.394646	173.222992	241.6	2.722	7.3	7.7	2.85	6211	5.12	17.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008776920-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008776920-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
008776920-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008776920-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST
008776920-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

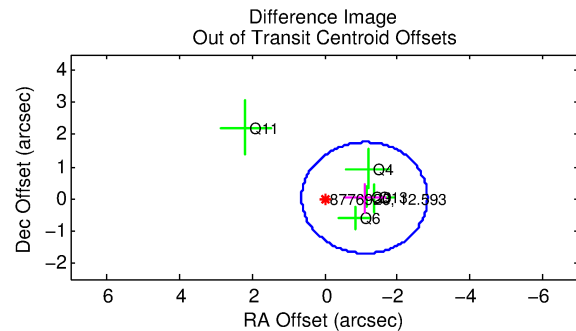
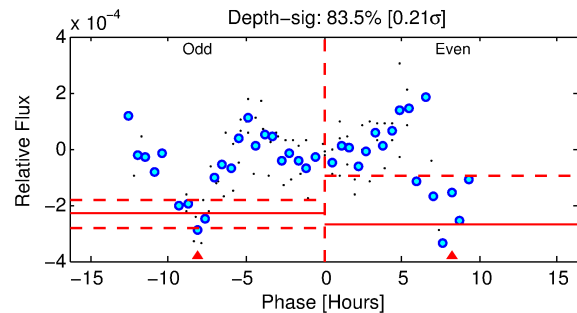
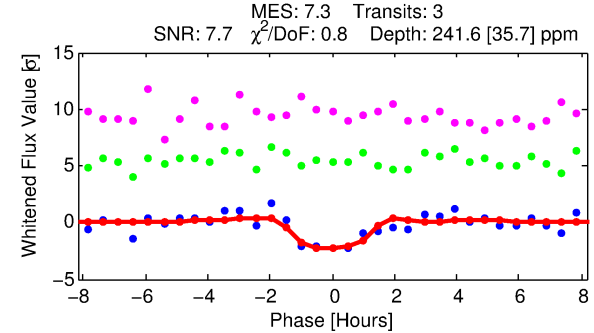
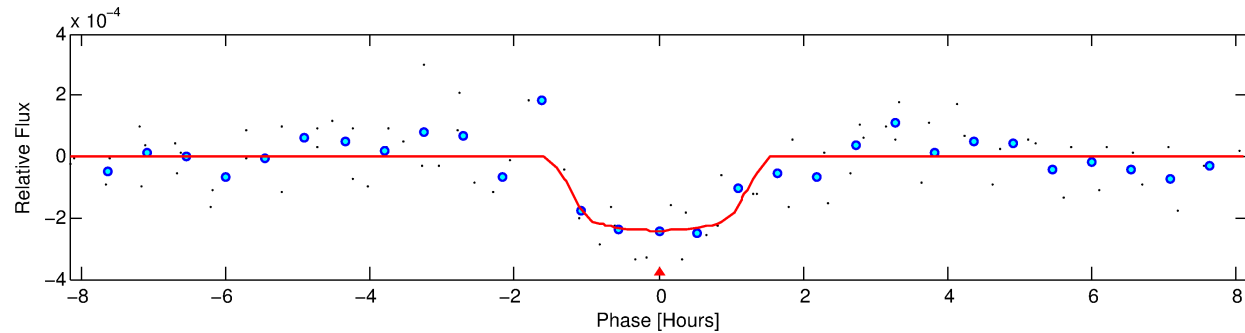
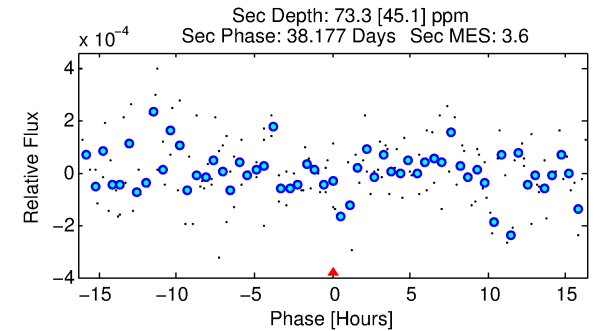
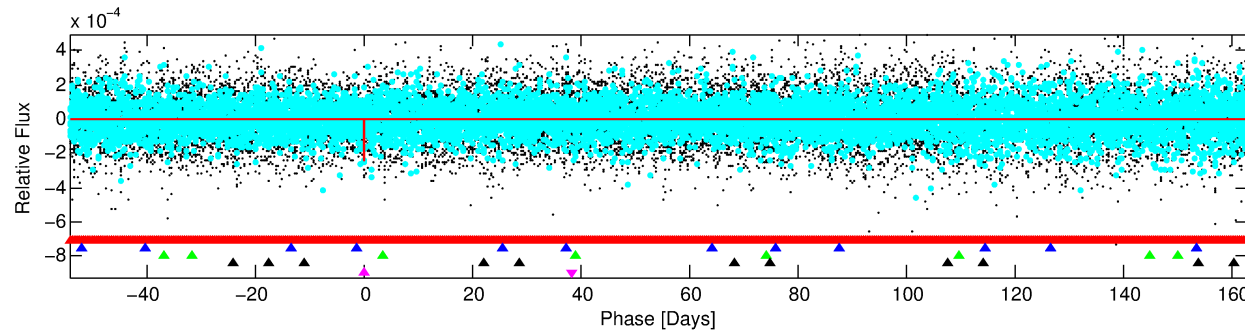
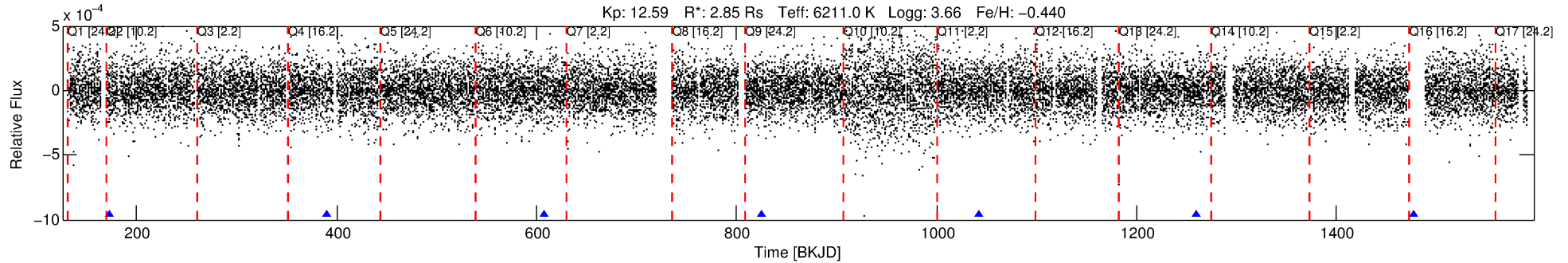
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008776920-05

No Significant Match Found

DV One-Page Summary

KIC: 8776920 Candidate: 5 of 5 Period: 217.395 d



DV Fit Results:

Period = 217.39465 [0.00202] d
Epoch = 173.2230 [0.0078] BKJD
Rp/R* = 0.0165 [0.0402]
a/R* = 308.79 [4252.46]
b = 0.88 [3.51]
Seff = 17.73 [10.54]
Teq = 523 [78] K
Rp = 5.12 [12.69] Re
a = 0.7823 [0.2909] AU
Ag = 940.04 [4662.04] [0.20σ]
Teffp = 4480 [5517] K [0.72σ]

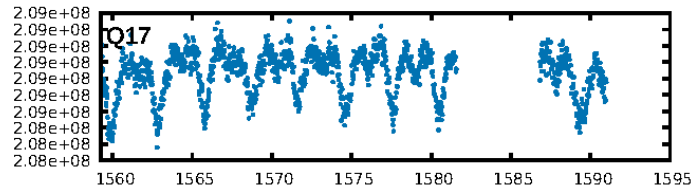
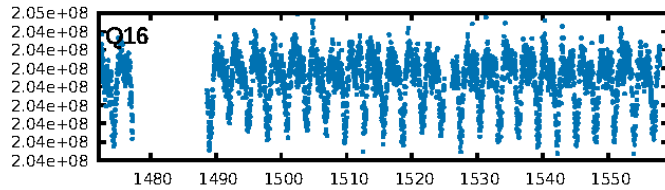
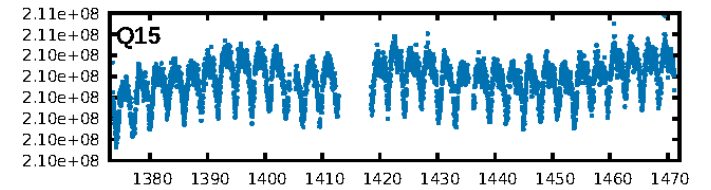
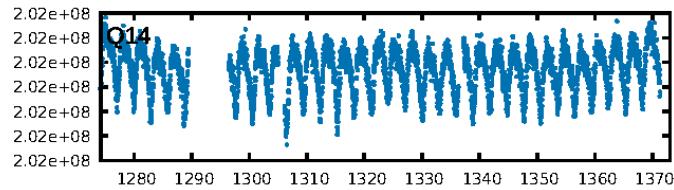
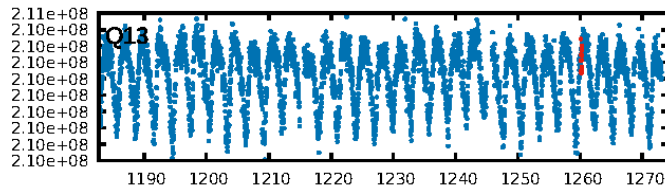
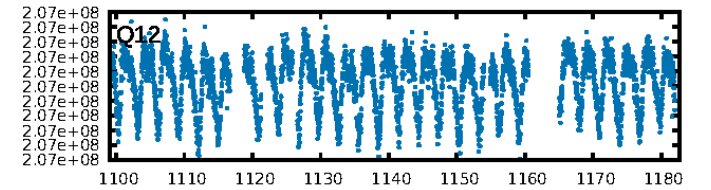
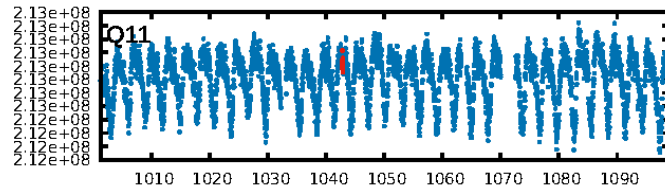
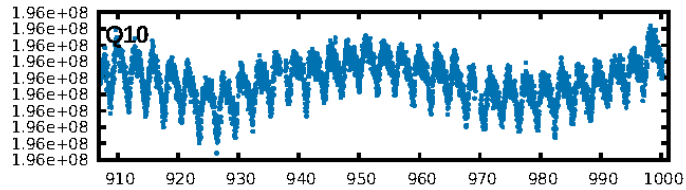
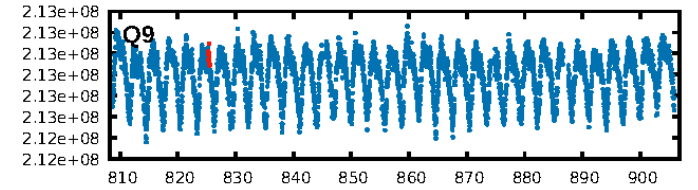
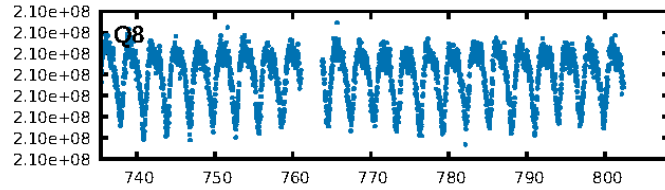
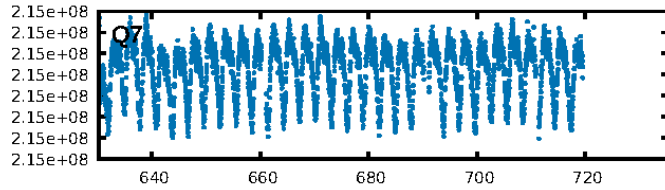
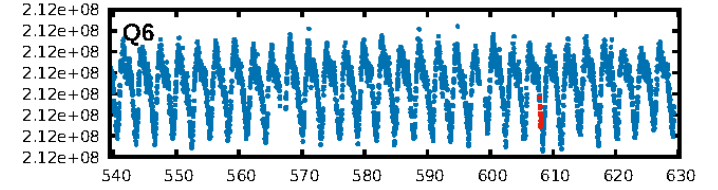
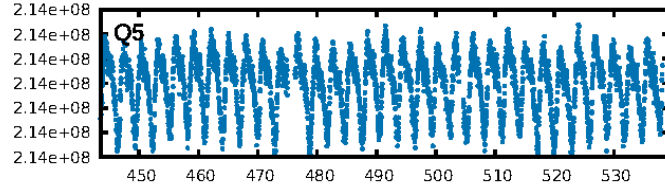
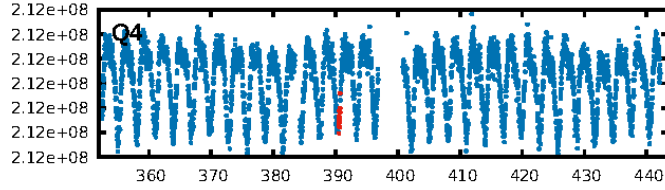
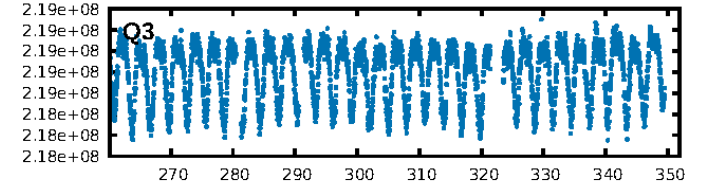
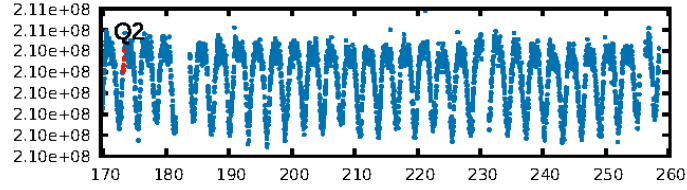
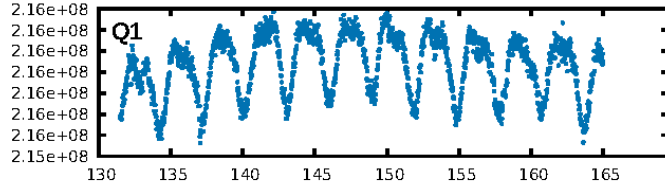
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [220.86σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 62.9%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: 5.24e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.8395
Centroid-sig: 28.4%
Centroid-so: 1.208 arcsec [1.05σ]
OotOffset-rm: 1.103 arcsec [1.91σ]
KicOffset-rm: 1.136 arcsec [1.81σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.17 [1/6]

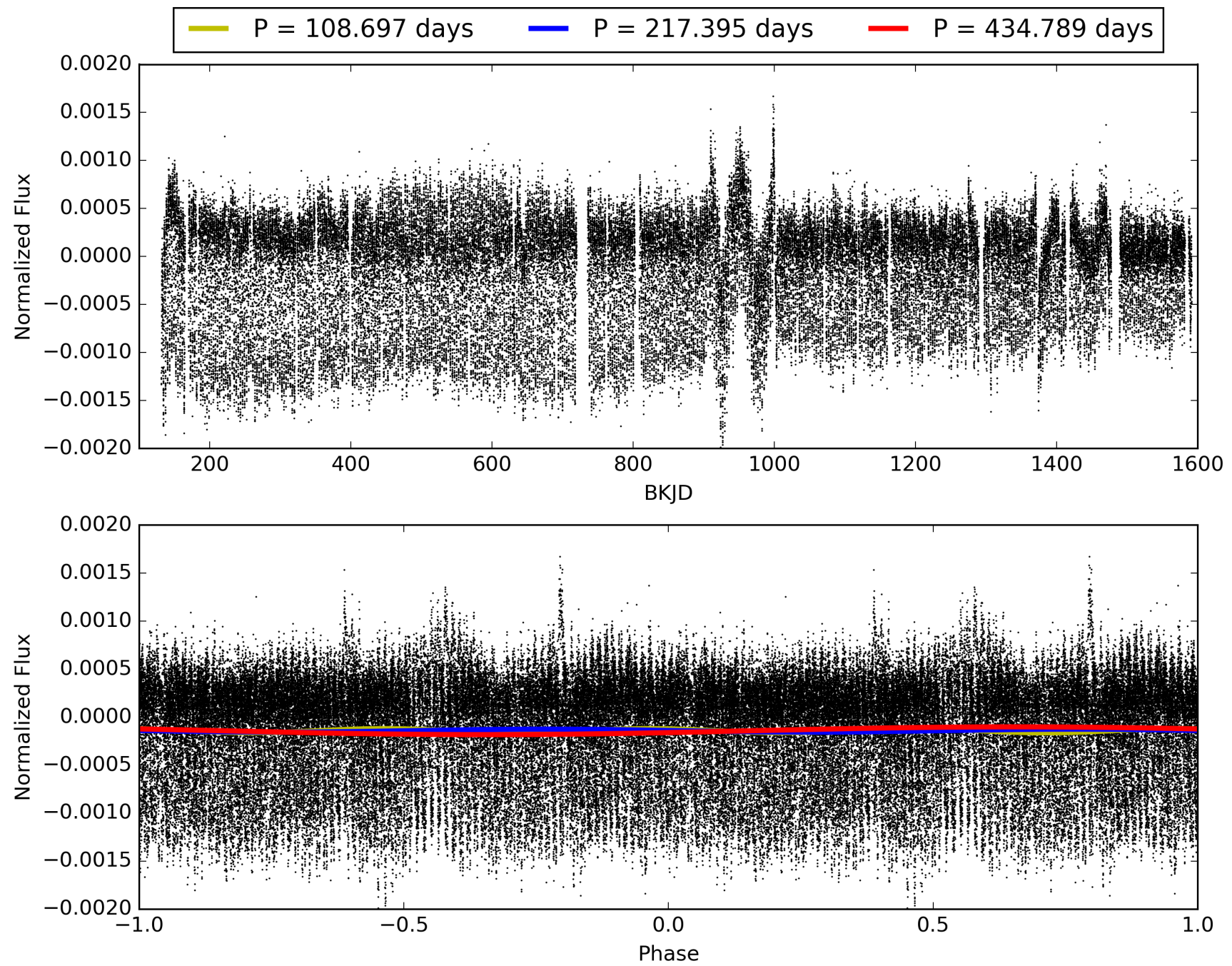
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:02:34 Z

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

TCE 008776920-05, PDC Light Curves

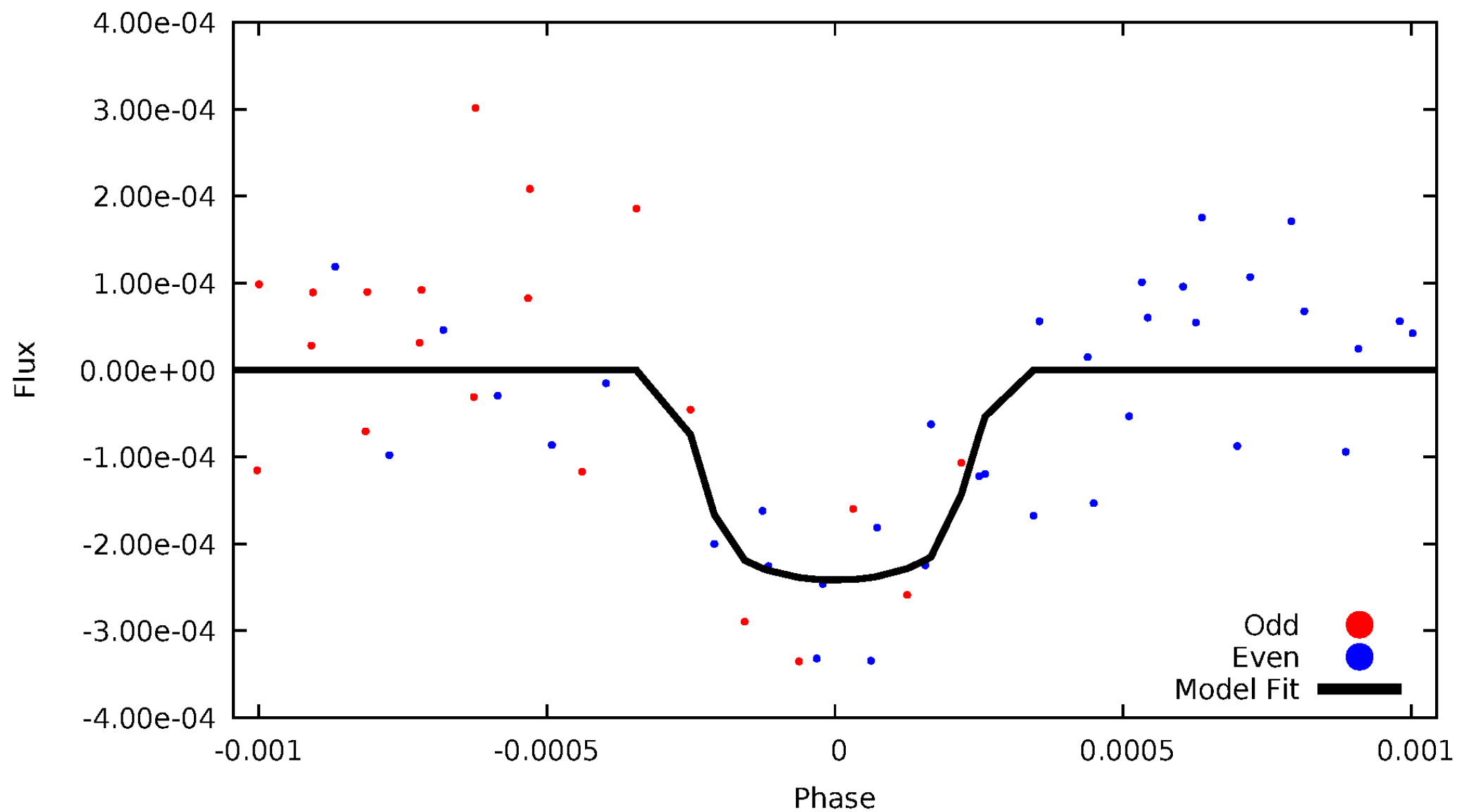


TCE 008776920-05



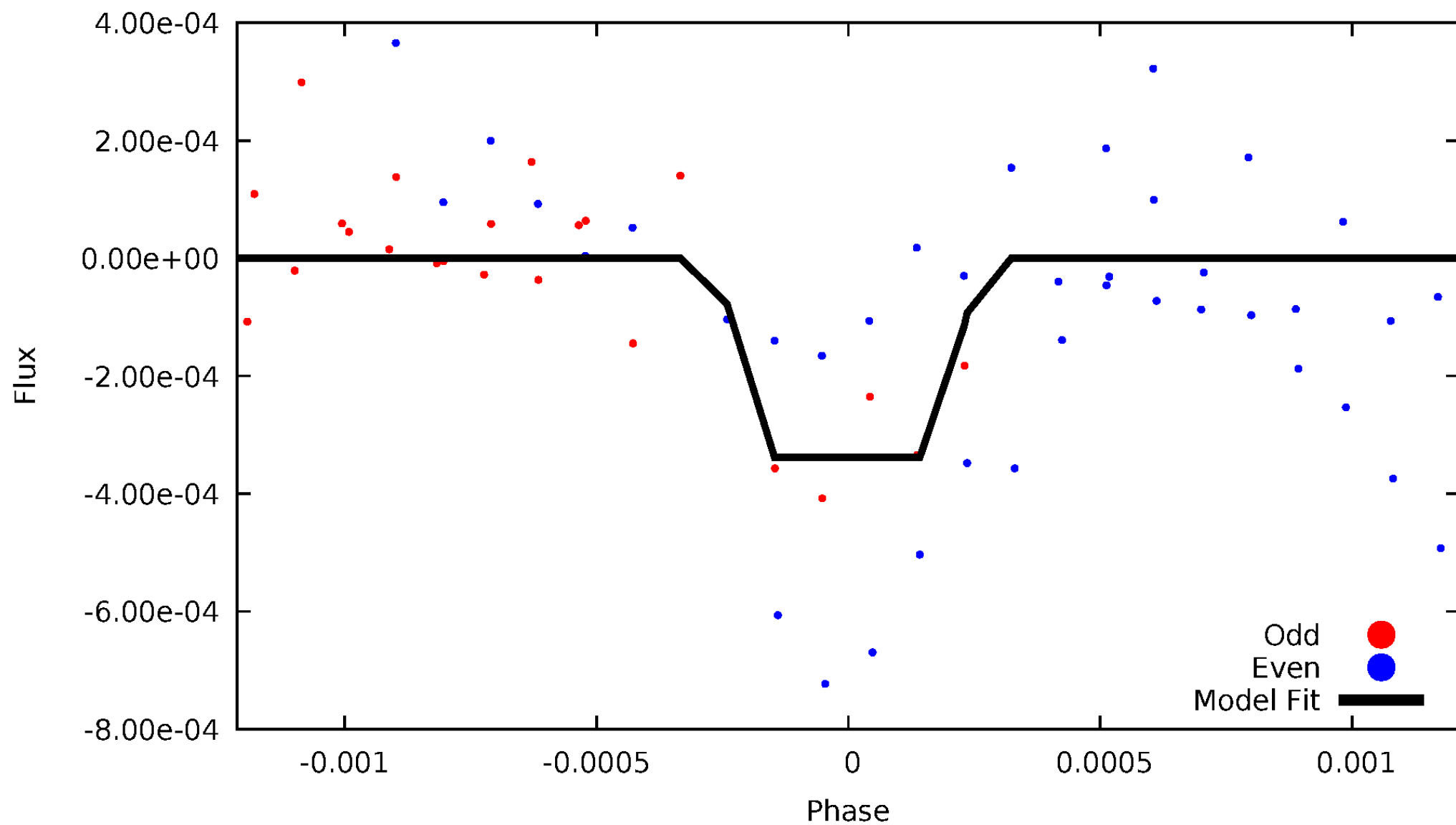
DV Odd/Even

TCE 008776920-05



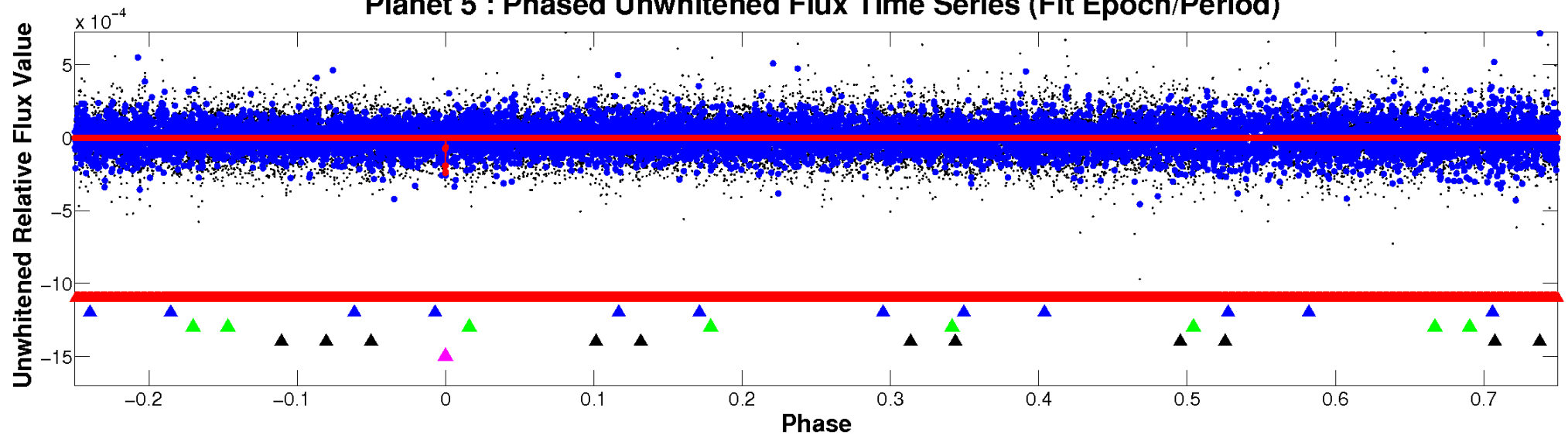
ALT Odd/Even

TCE 008776920-05

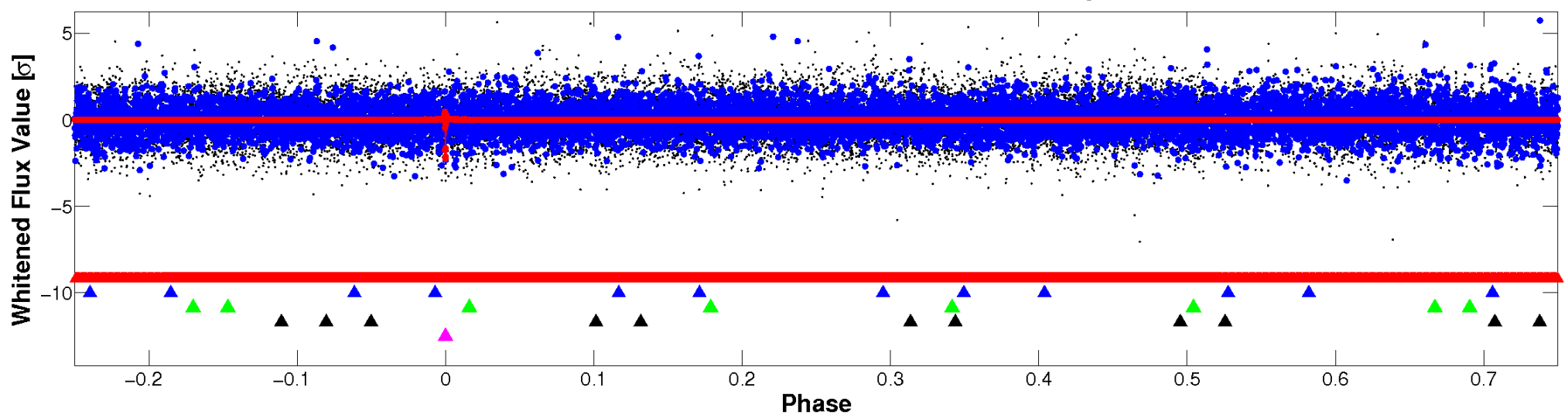


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

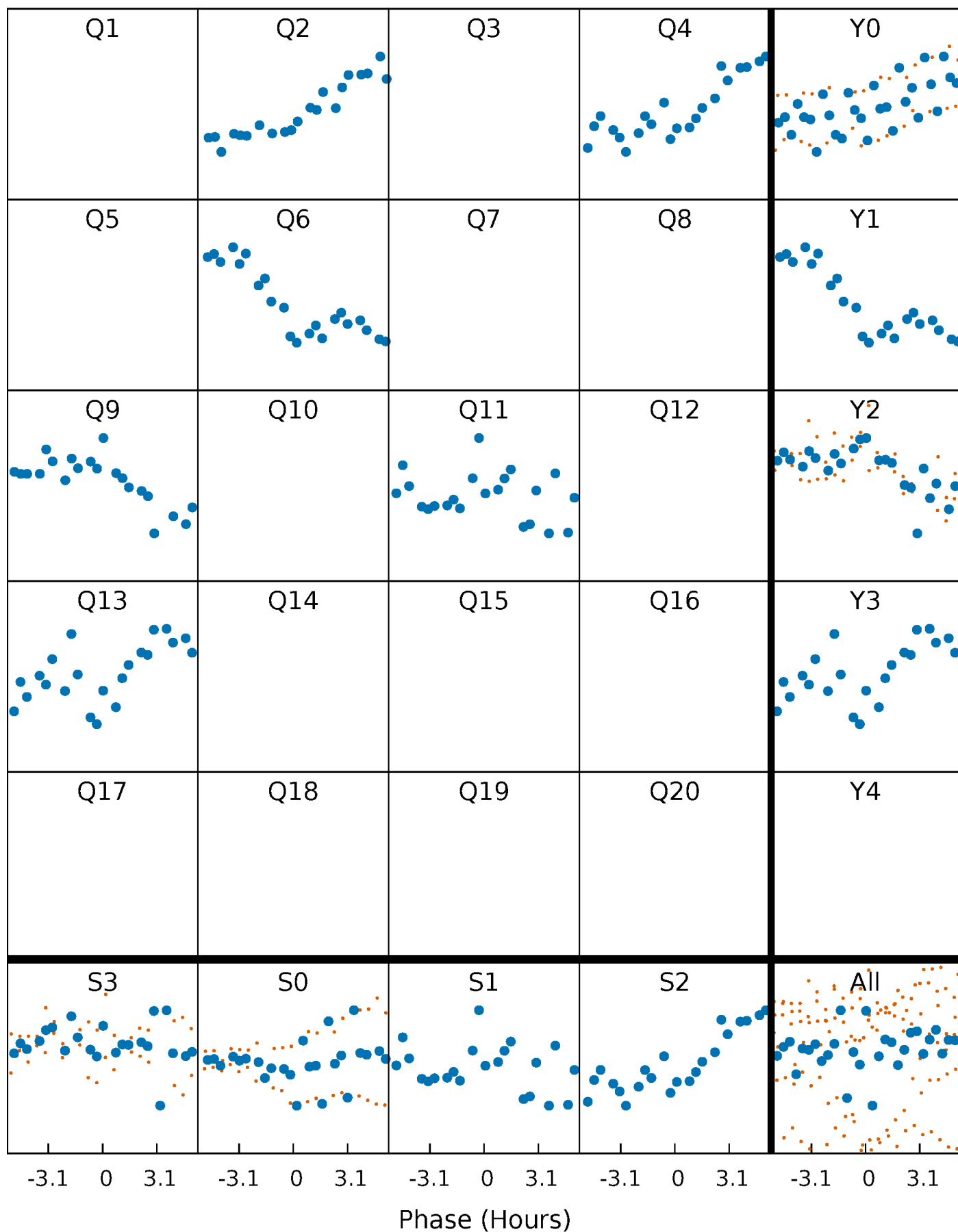


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



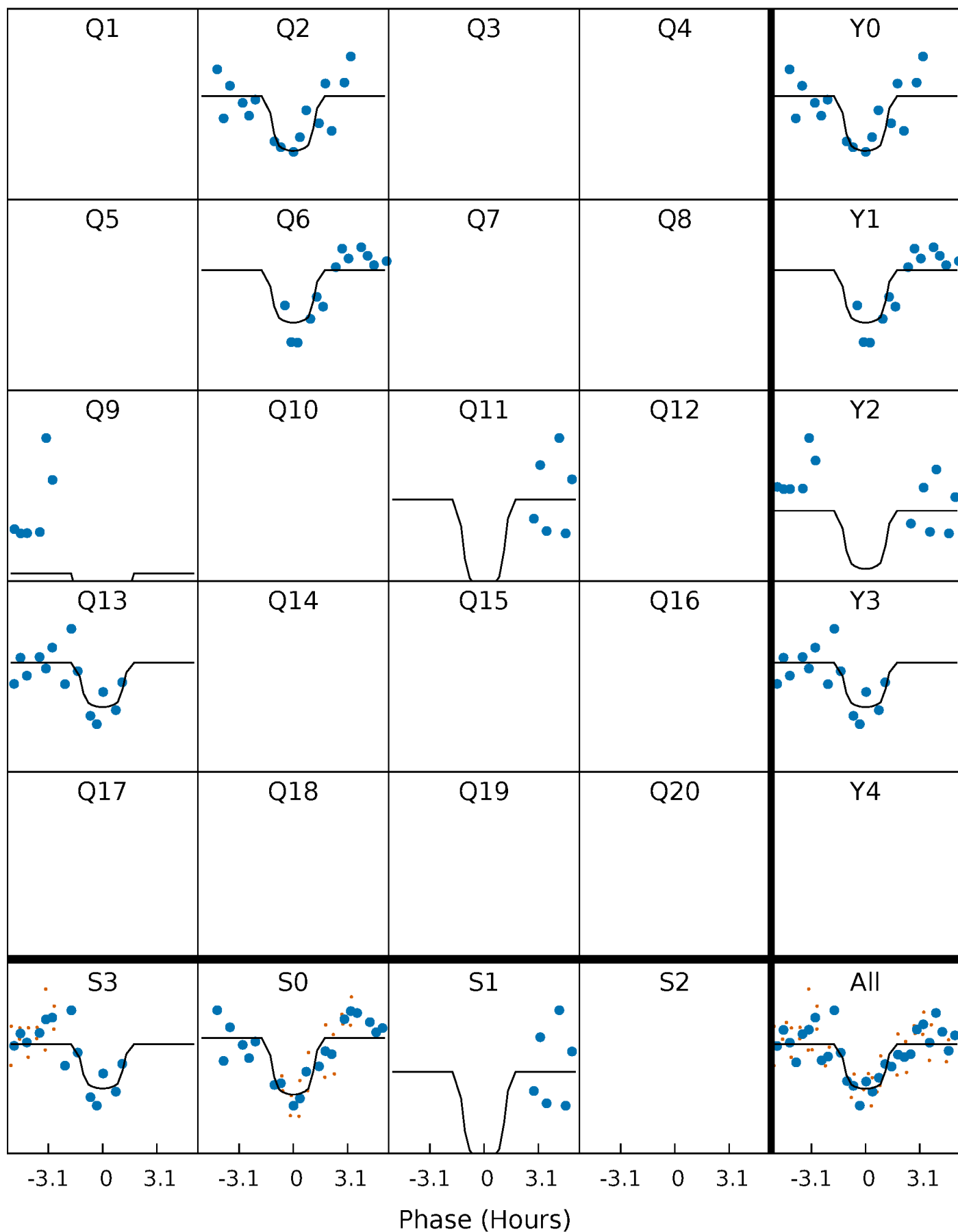
PDC Quarter-Phased Transit Curves

TCE 008776920-05 $P=217.394646$ Days $T_0=173.222992$ (BKJD)



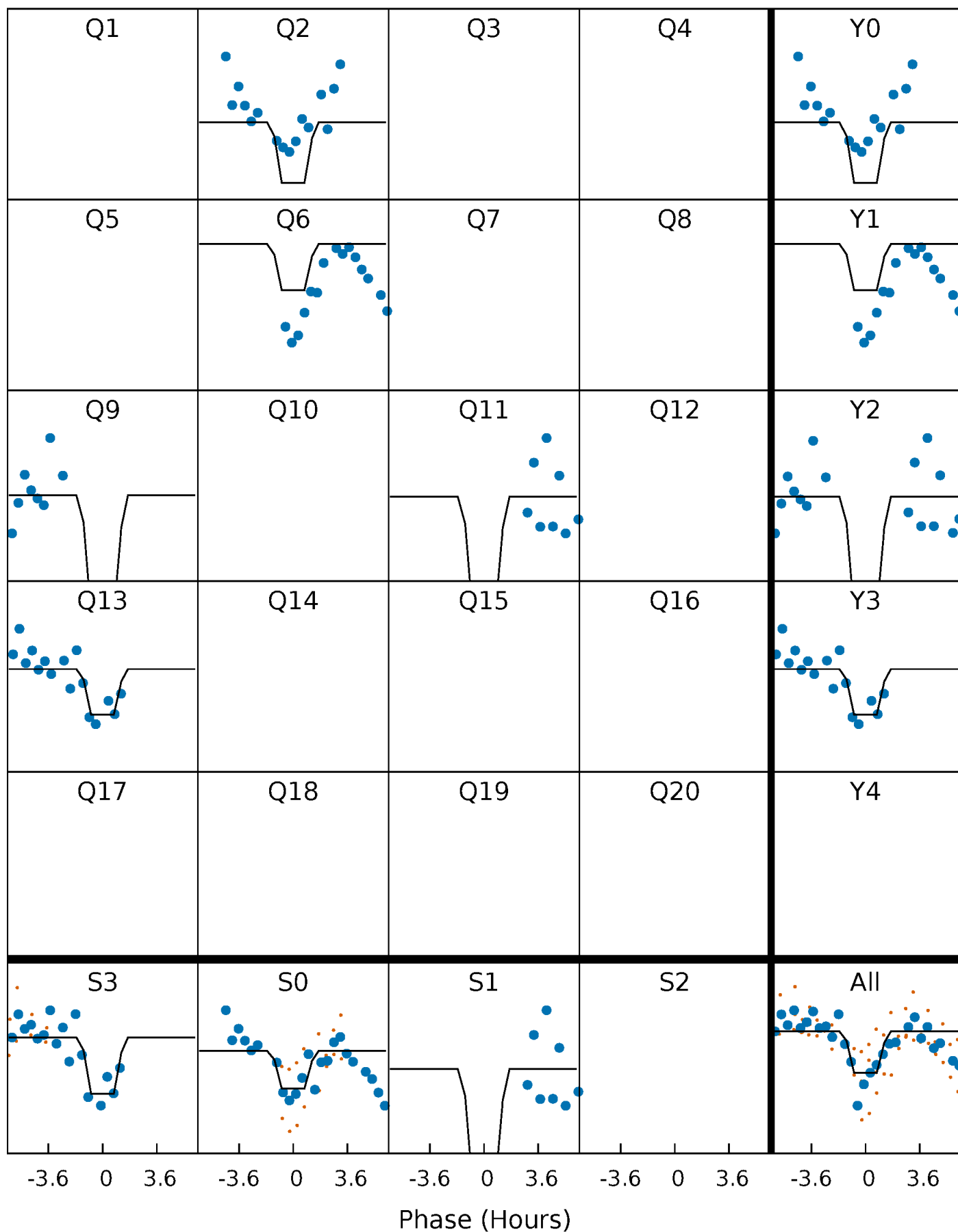
DV Quarter-Phased Transit Curves

TCE 008776920-05 $P=217.394646$ Days $T_0=173.222992$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

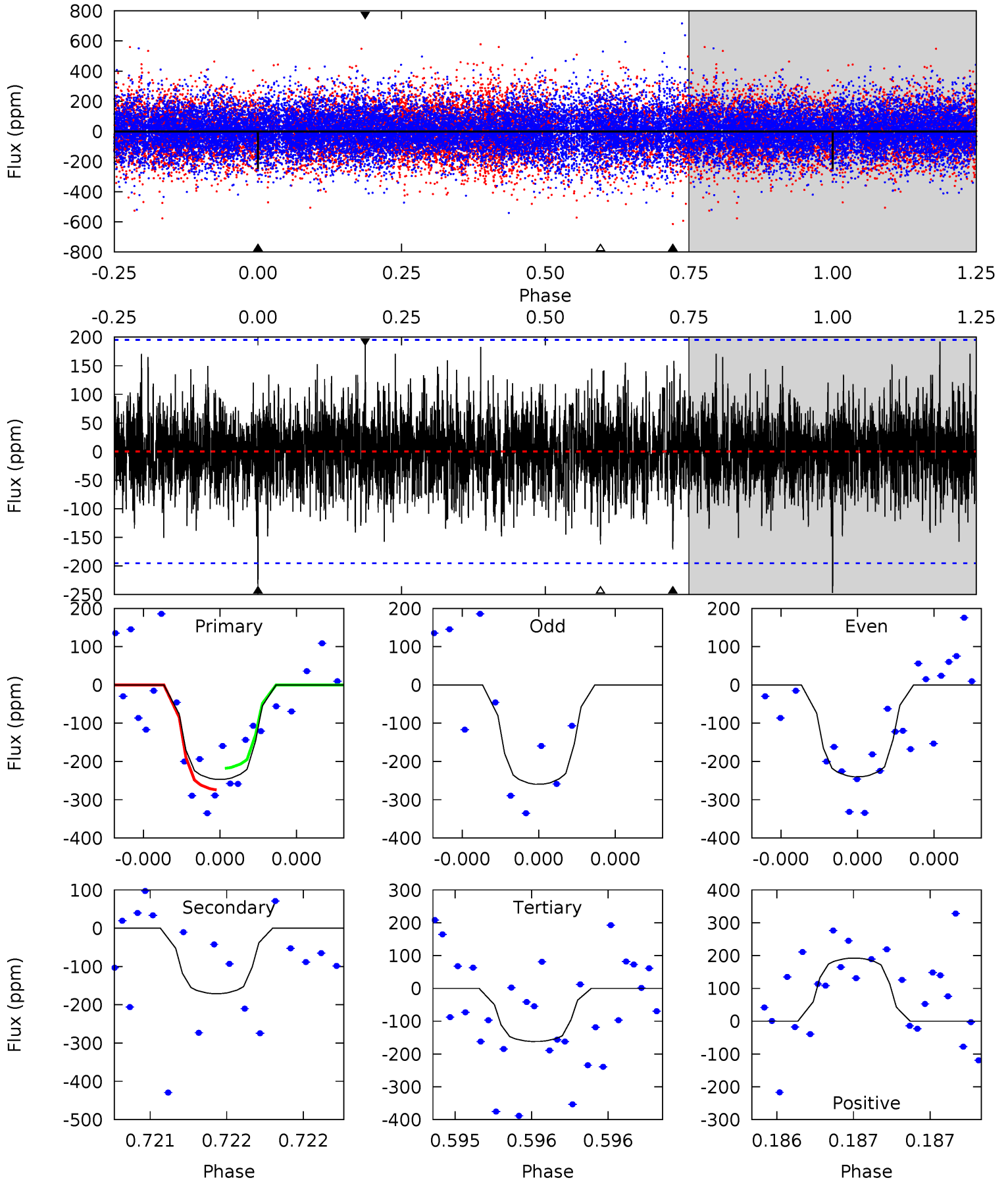
TCE 008776920-05 $P=217.392814$ Days $T_0=173.229765$ (BKJD)



DV Model-Shift Uniqueness Test

008776920-05, P = 217.394646 Days, E = 173.222992 Days

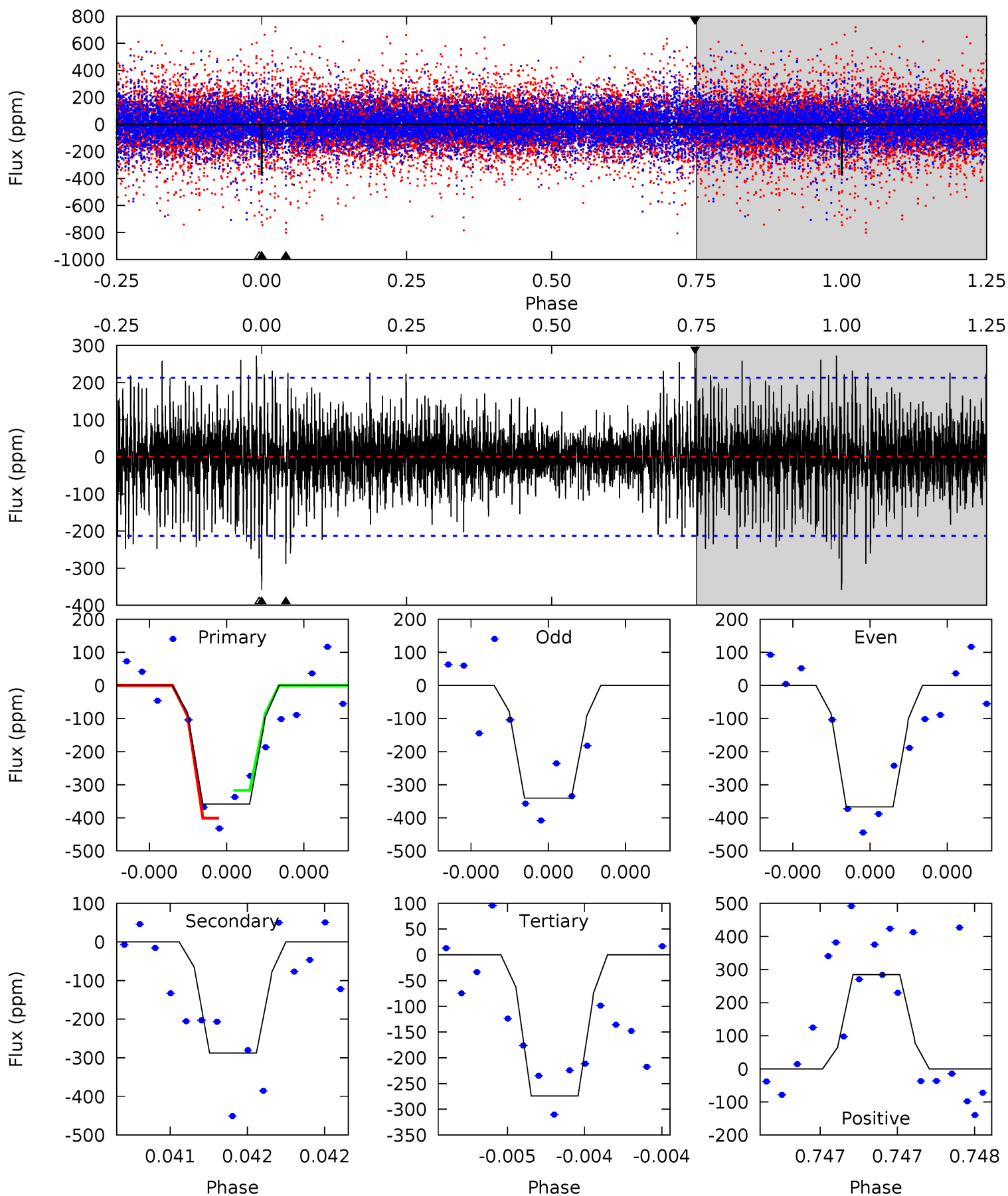
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.06	4.89	4.63	5.49	5.58	3.50	1.39	2.42	1.56	0.25	-0.61	0.27	0.95	0.44	0.79



Alt Model-Shift Uniqueness Test

008776920-05, P = 217.392814 Days, E = 173.229765 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.39	7.54	7.19	7.46	5.58	3.49	1.63	2.20	1.94	0.35	0.08	0.34	1.06	0.44	1.09



Stellar Parameters For KIC 008776920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6211^{+185}_{-166}	$3.658^{+0.337}_{-0.112}$	$-0.440^{+0.400}_{-0.250}$	$2.853^{+0.490}_{-1.143}$	$1.349^{+0.234}_{-0.313}$	$0.082^{+0.208}_{-0.029}$
	+3%/-3%	+9%/-3%	+91%/-57%	+17%/-40%	+17%/-23%	+254%/-35%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008776920-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-171 ± 35	$10.13^{+10.14}_{-6.89}$	721^{+45}_{-68}	4098^{+2638}_{-850}	578^{+5184}_{-443}
Alt.	-287 ± 38	$10.55^{+10.63}_{-7.58}$	719^{+43}_{-66}	4461^{+3625}_{-950}	862^{+10323}_{-644}

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

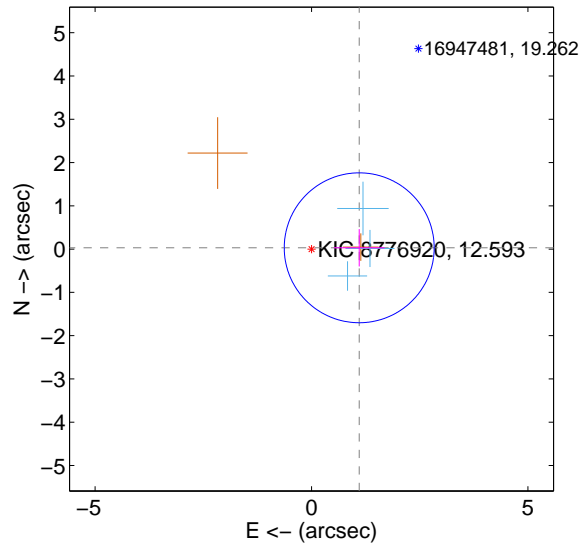
Supplemental centroid analysis for 008776920-05. Kepler magnitude: 12.59. Transit SNR 7.72

There are 3 quarters with good PRF difference image offsets

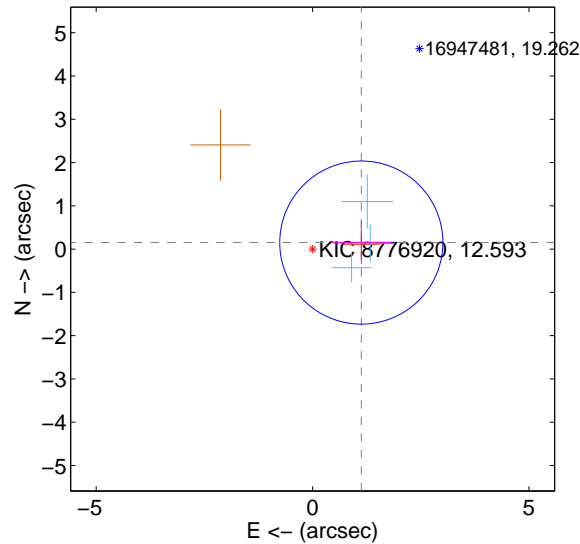
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.103 ± 0.577	1.91	-1.102 ± 0.586	0.030 ± 0.432
PRF-fit source offset from KIC position	1.136 ± 0.628	1.81	-1.126 ± 0.689	0.151 ± 0.492
photometric centroid source offset	1.21 ± 1.15	1.05	1.18 ± 1.16	0.26 ± 1.04

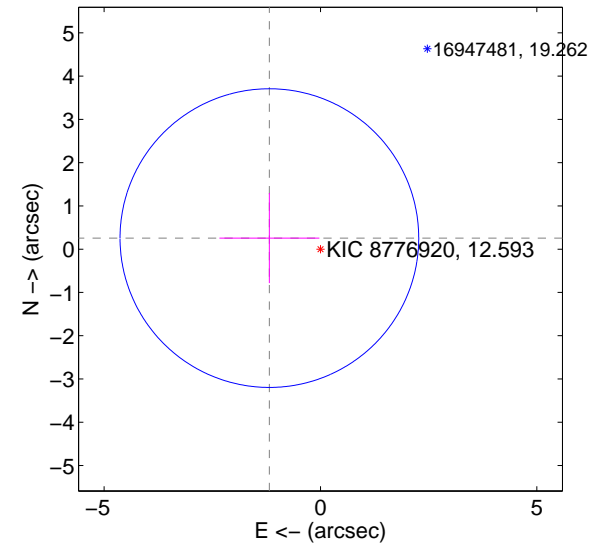
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

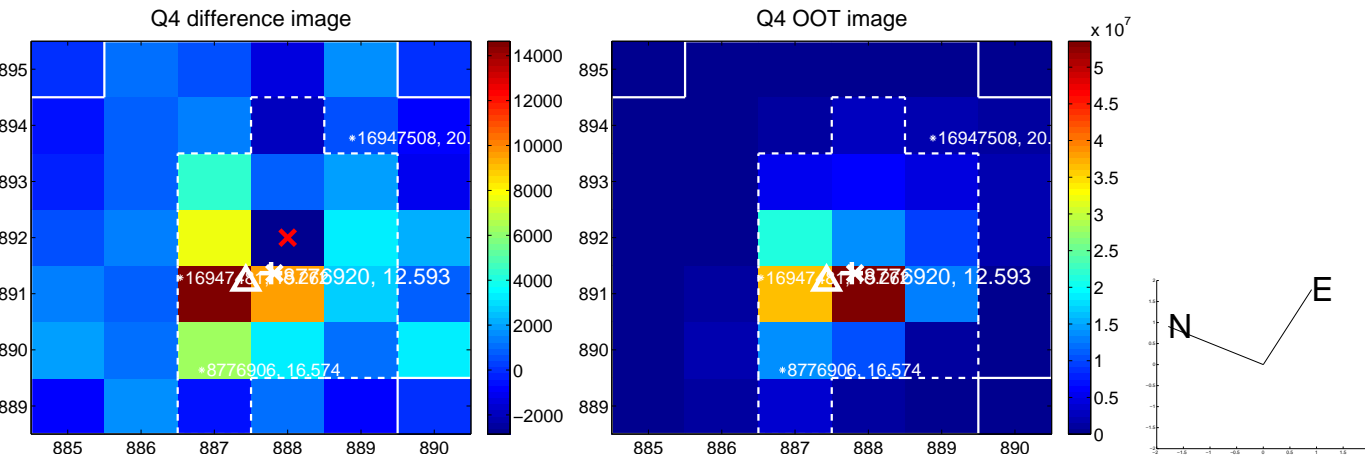
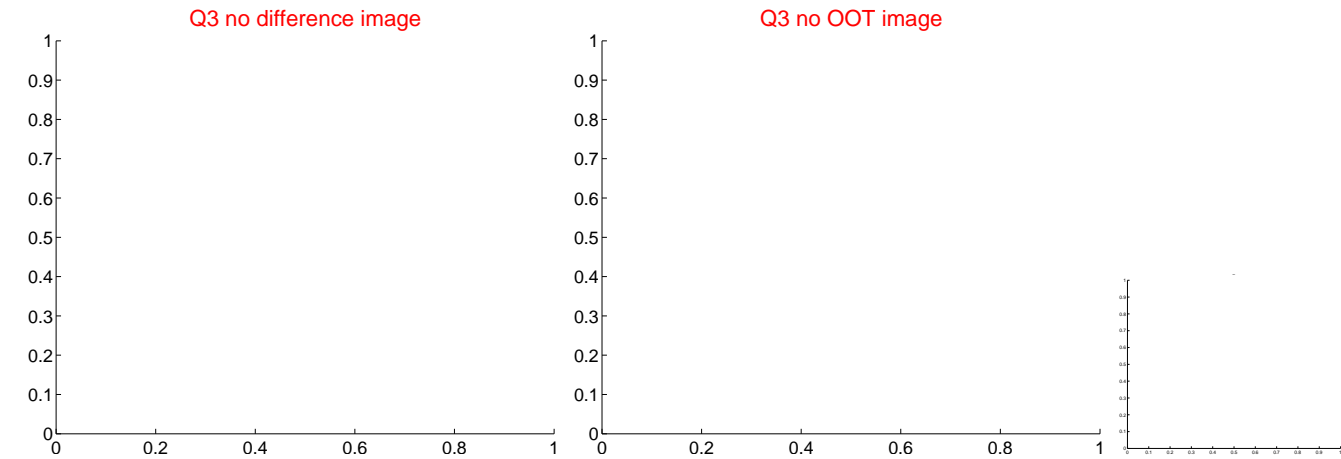
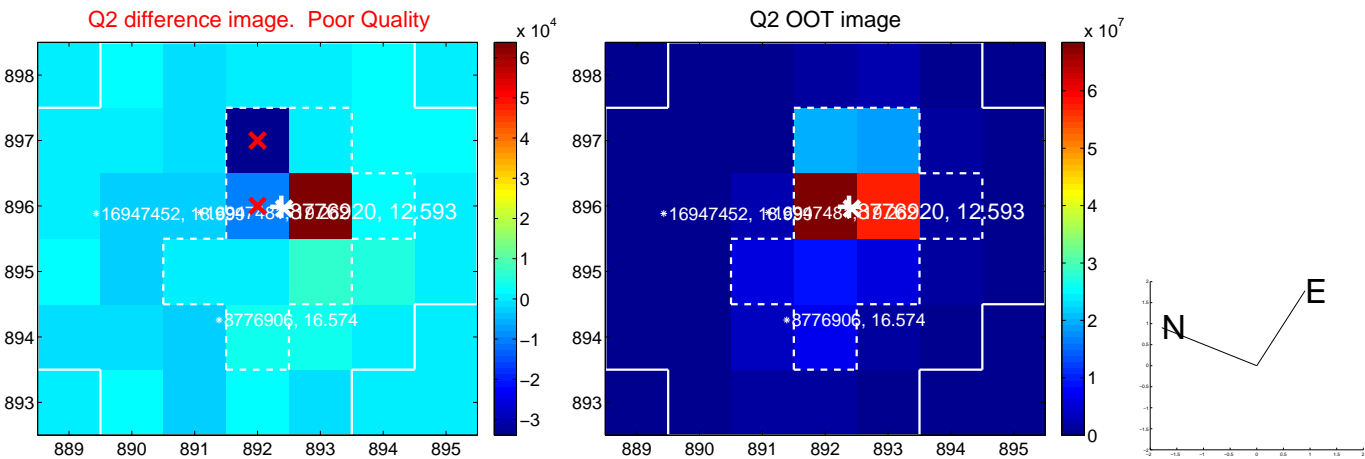
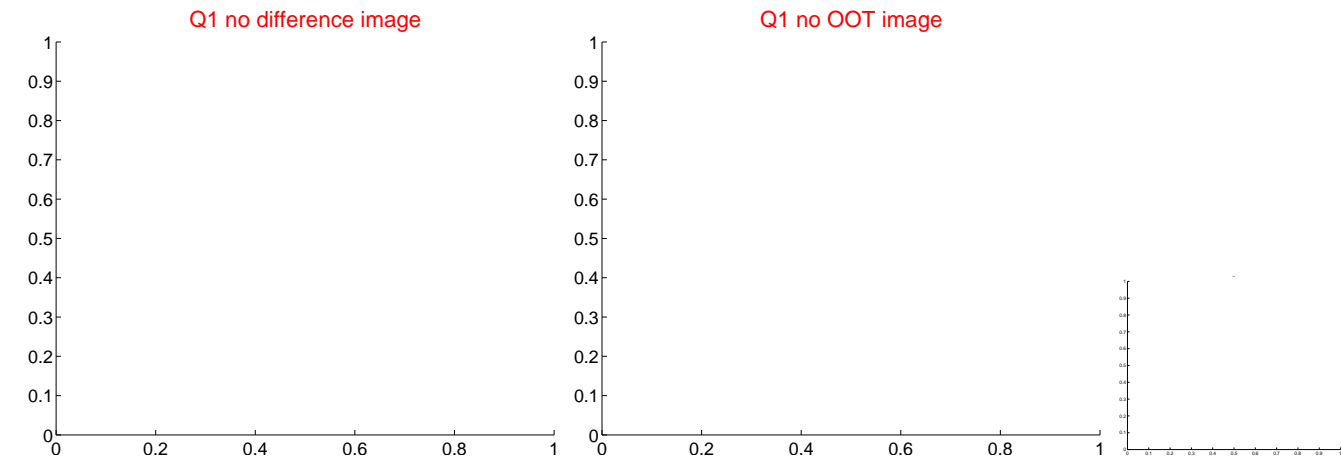


offset from photometric centroids

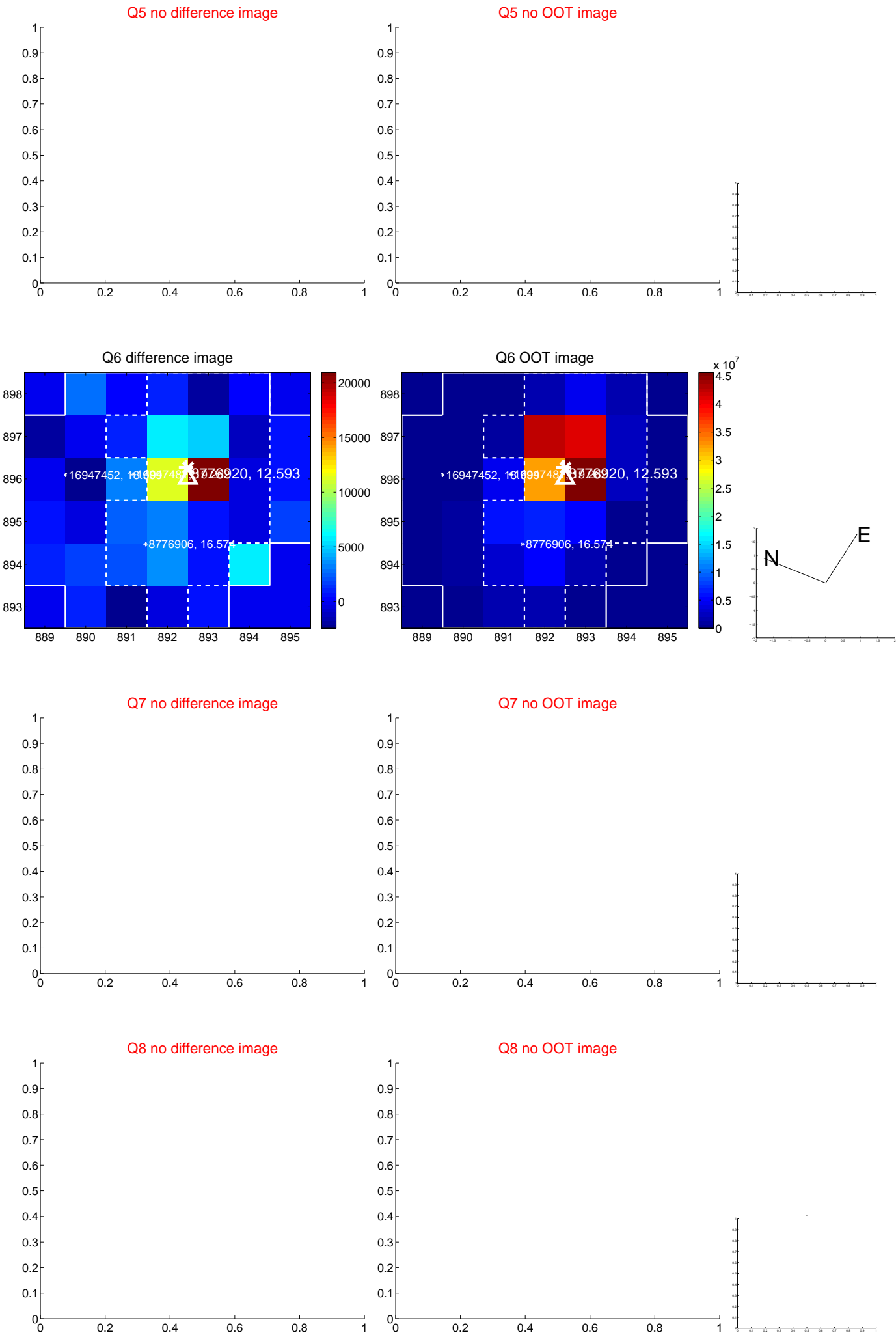


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

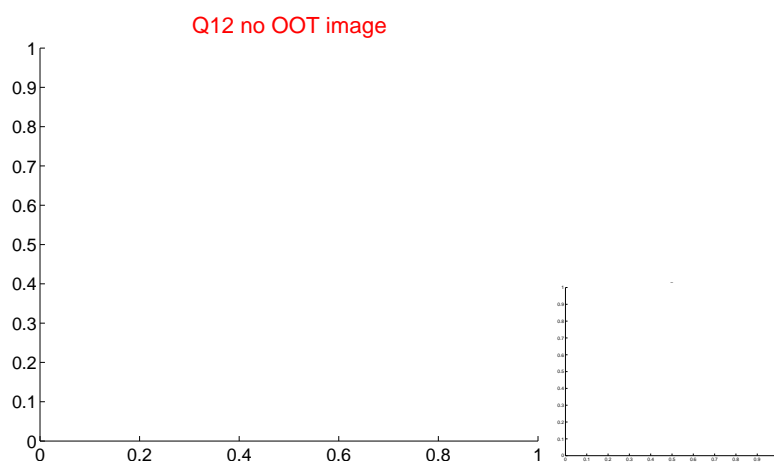
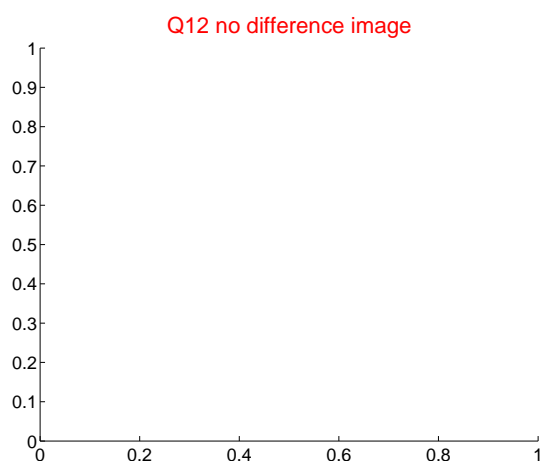
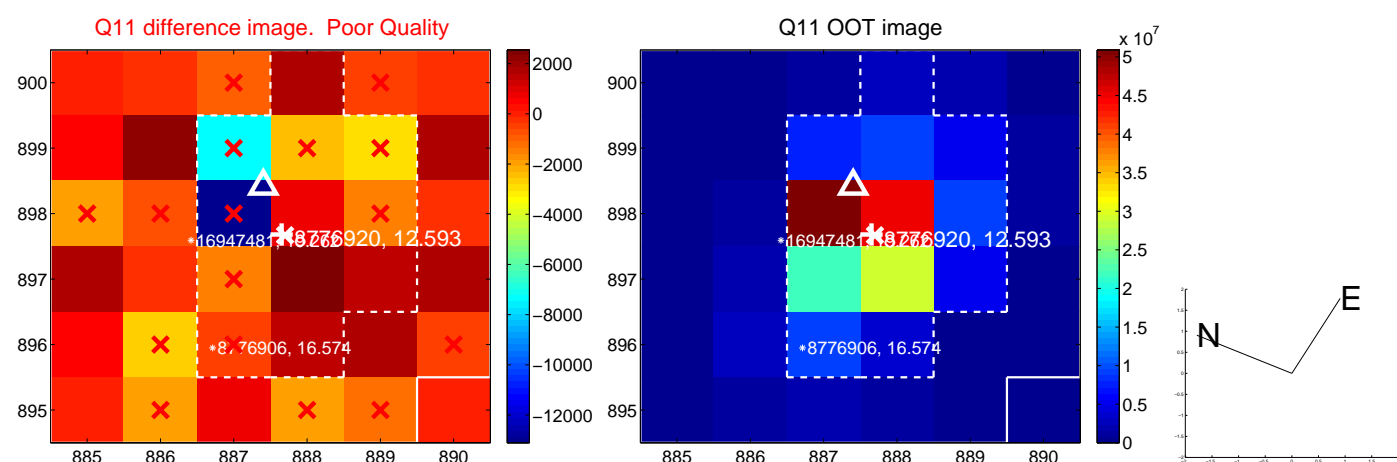
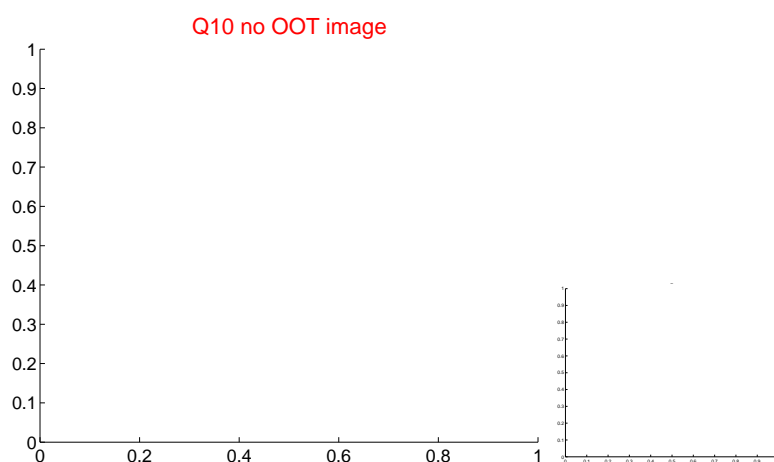
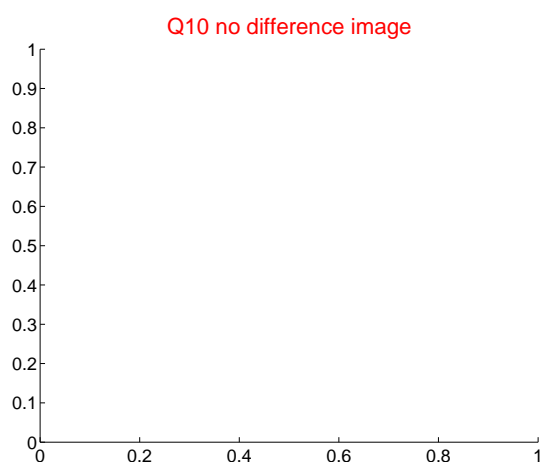
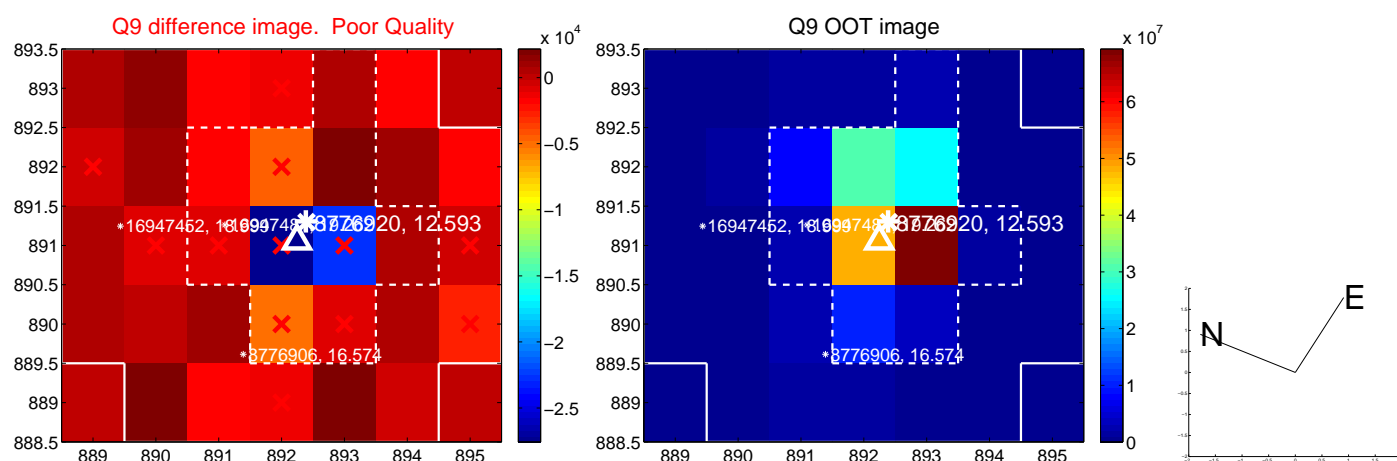
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



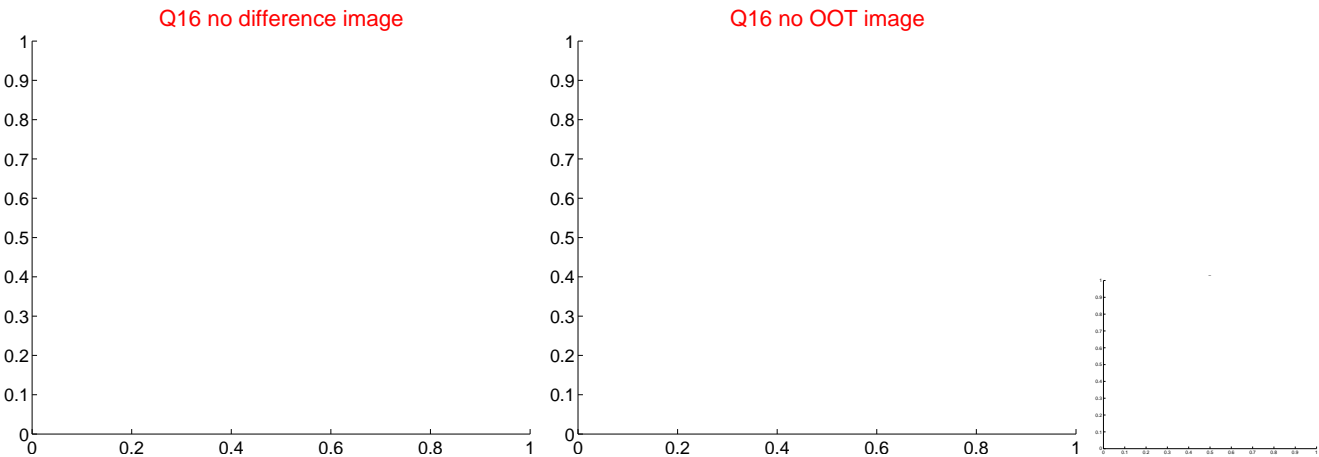
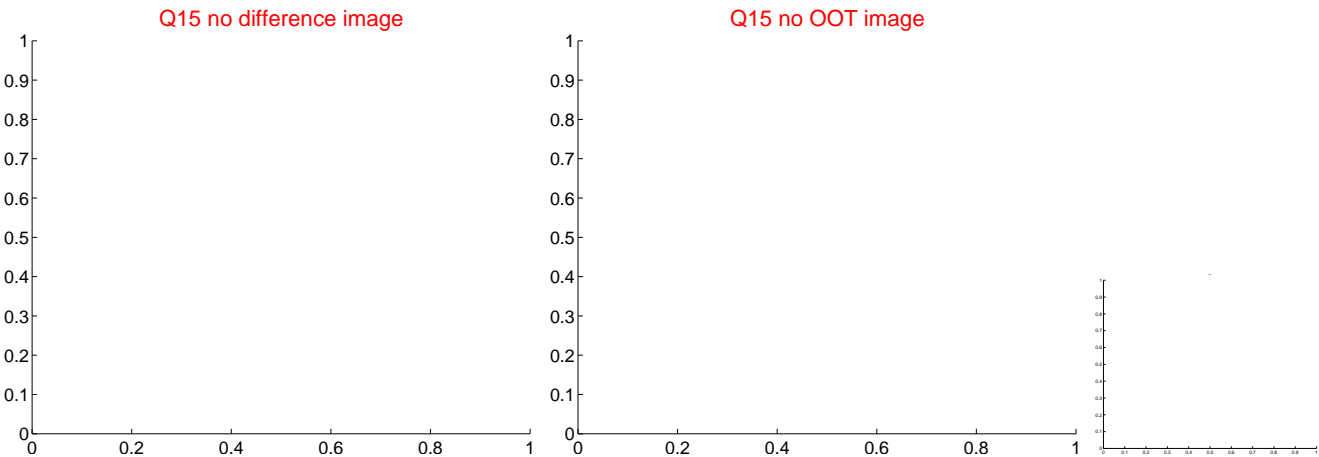
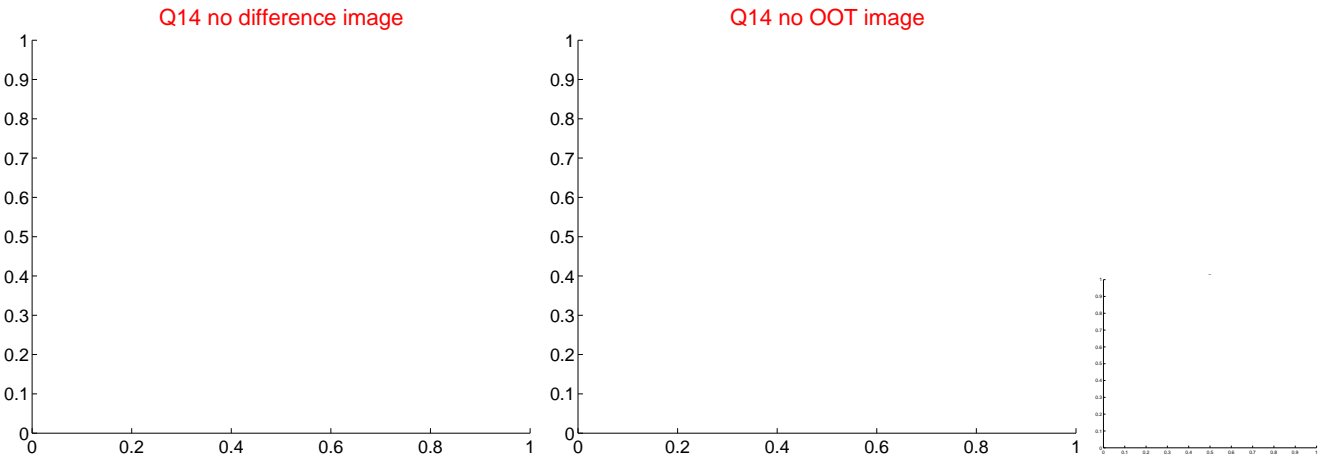
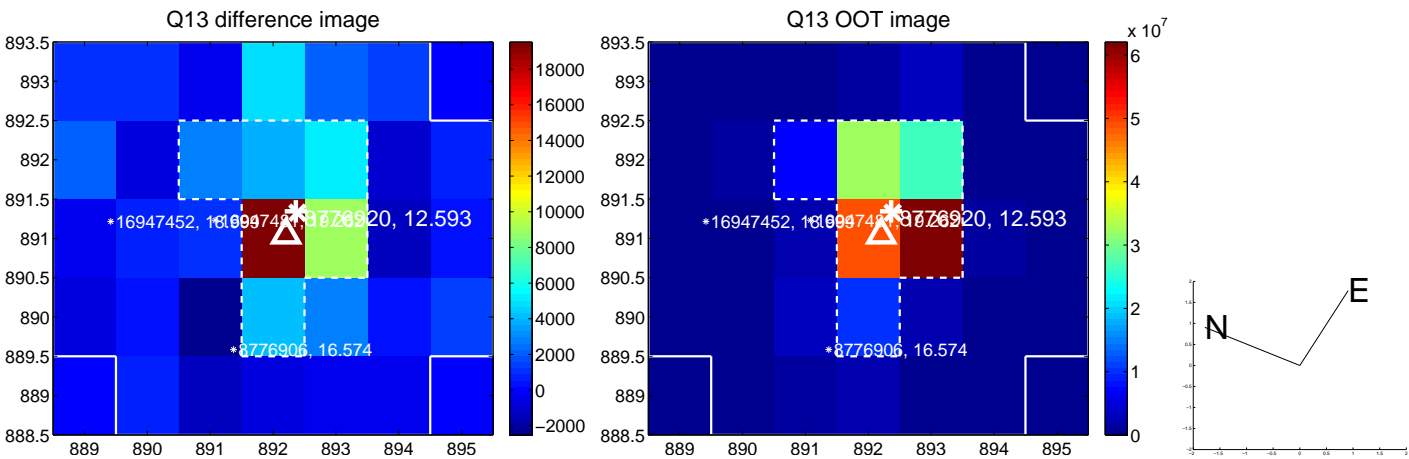
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



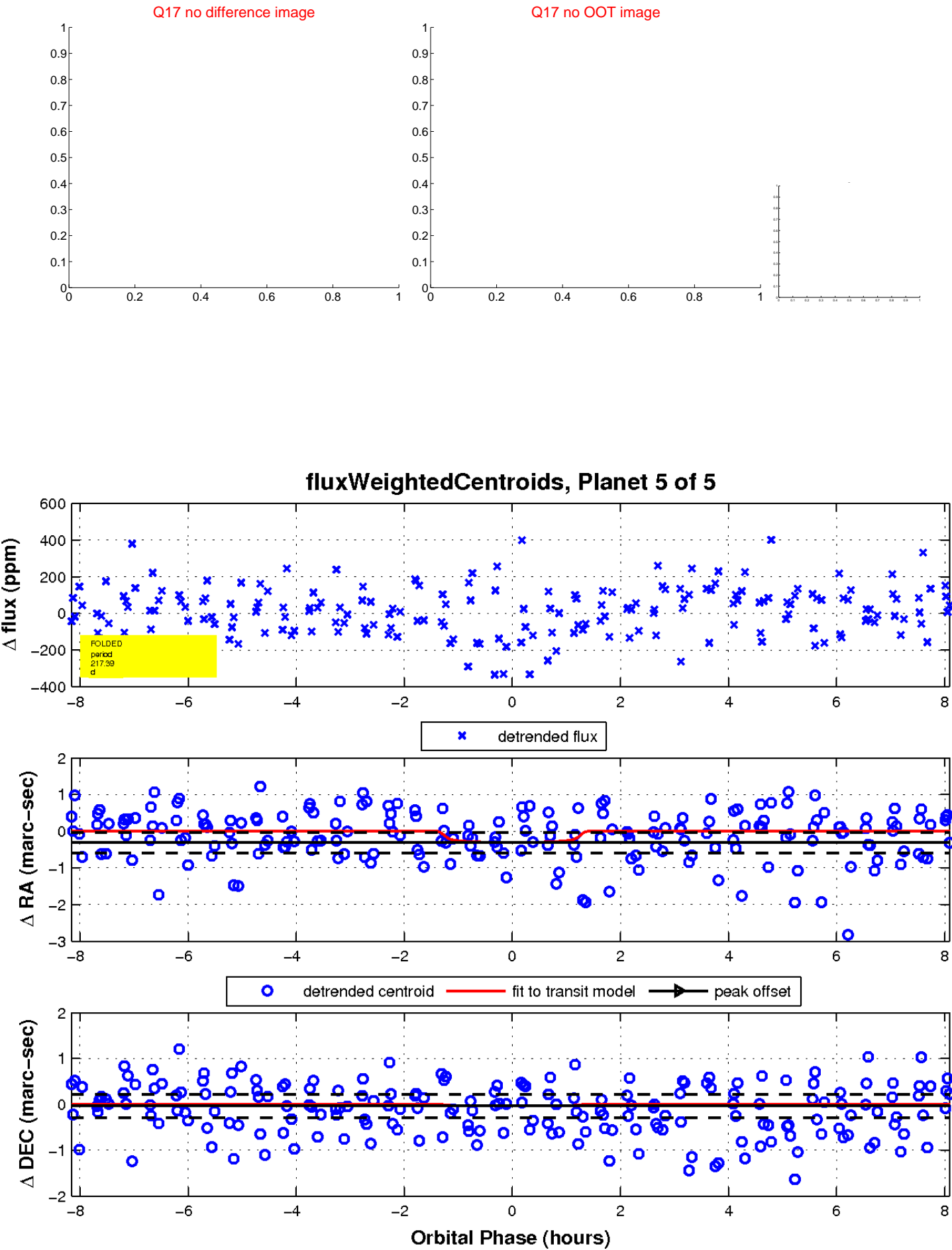
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

Declination

