

KIC 009884104

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})
009884104-01	OBS	0718.01	4.585467	133.177313	373.1	3.540	62.9	68.3	1.50	5788	3.40	690.12
009884104-02	OBS	0718.02	22.714547	147.294151	551.3	6.132	46.5	50.2	1.50	5788	4.05	81.73
009884104-03	OBS	0718.03	47.903560	141.981334	371.3	6.267	22.8	25.0	1.50	5788	3.54	30.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009884104-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009884104-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009884104-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

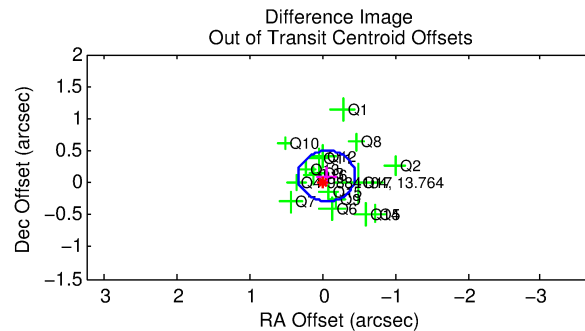
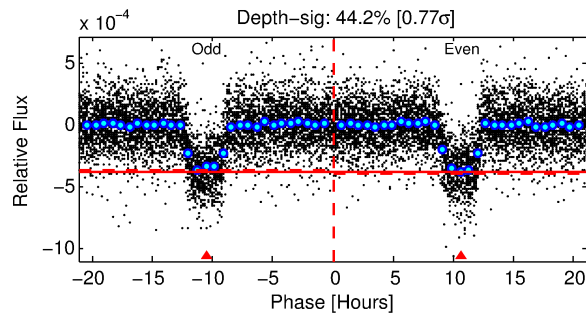
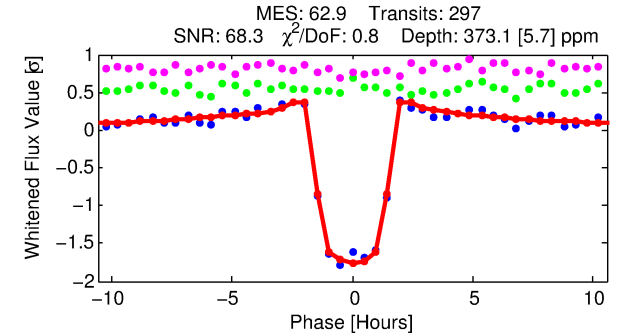
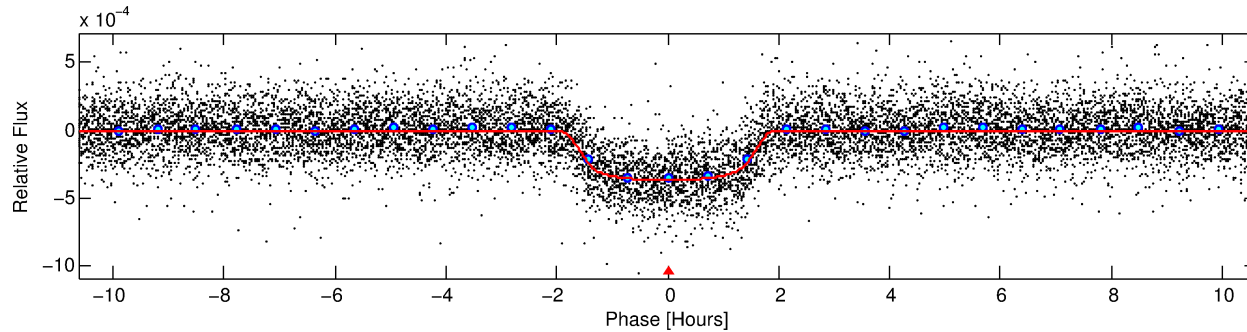
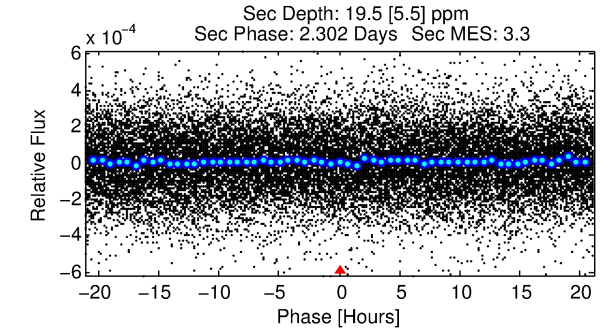
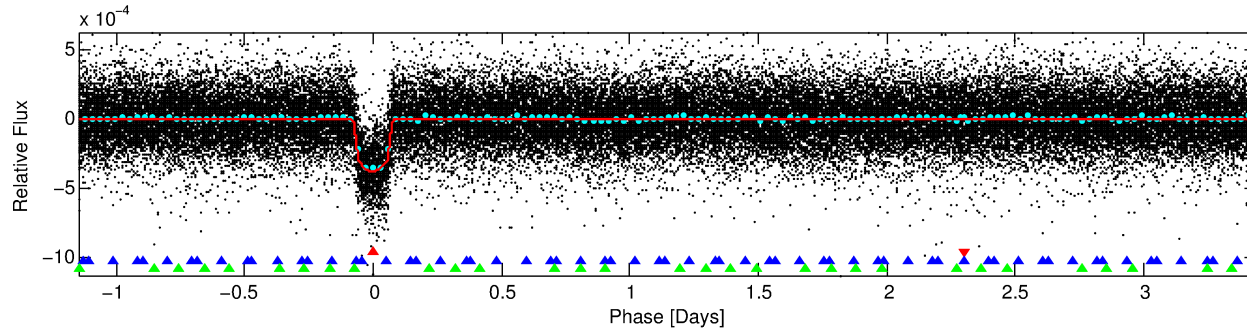
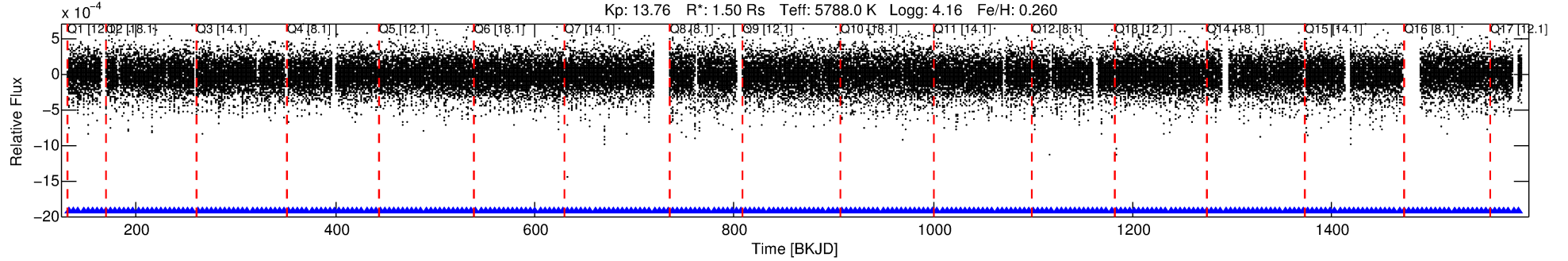
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009884104-01

No Significant Match Found

DV One-Page Summary

KIC: 9884104 Candidate: 1 of 3 Period: 4.585 d
KOI: K00718.01 Name: Kepler-219b Corr: 0.969



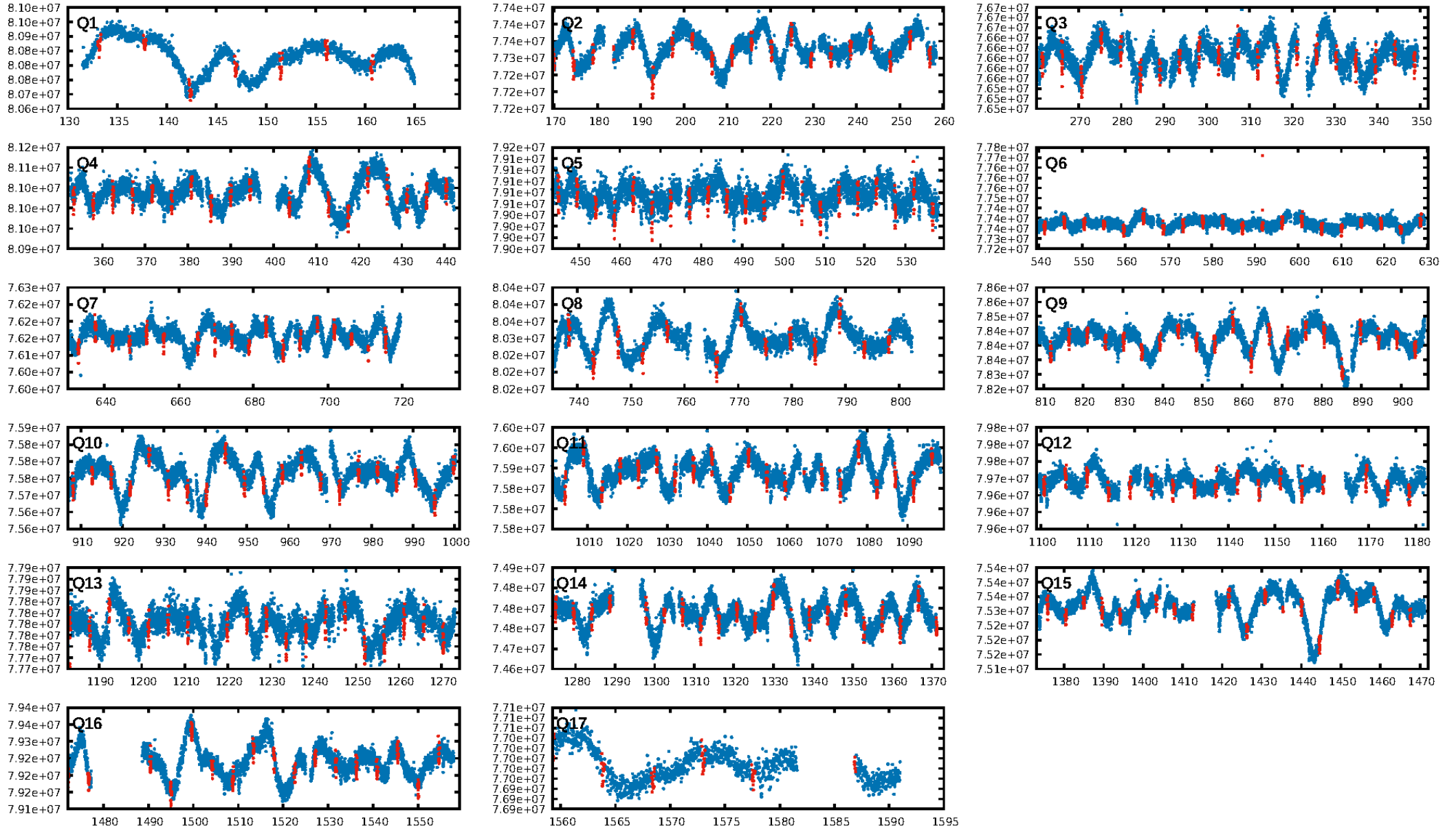
DV Fit Results:

Period = 4.58547 [0.00000] d
Epoch = 133.1773 [0.0007] BKJD
Rp/R* = 0.0208 [0.0011]
a/R* = 5.11 [1.16]
b = 0.89 [0.06]
Seff = 690.12 [206.22]
Teq = 1307 [98] K
Rp = 3.40 [0.76] Re
a = 0.0571 [0.0109] AU
Ag = 3.03 [1.26] [1.60σ]
Teffp = 2665 [208] K [5.91σ]

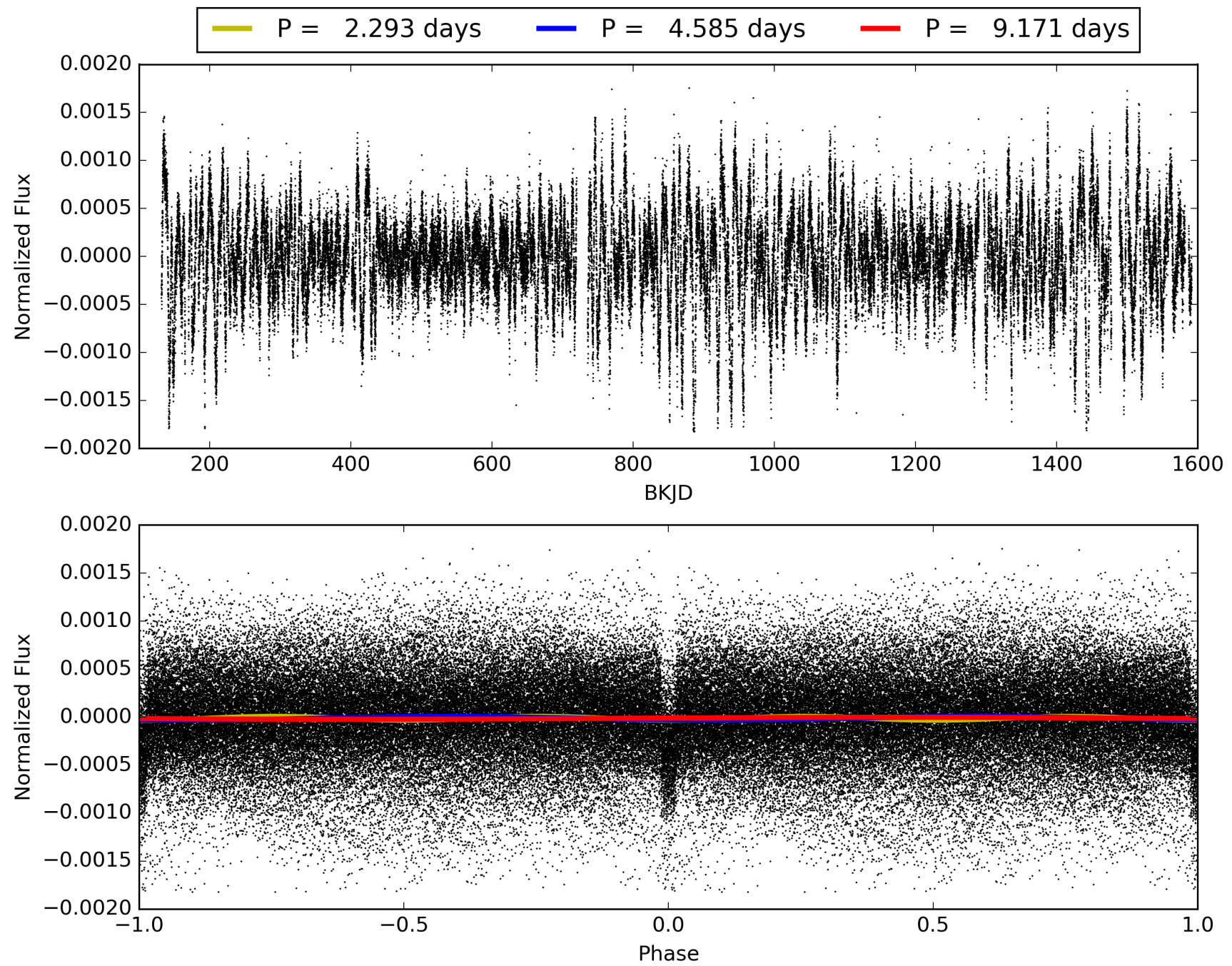
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [61.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [284/284]
GhostDiagnostic-chr: 10.97
Centroid-sig: 13.9%
Centroid-so: 0.118 arcsec [0.83σ]
OotOffset-rm: 0.118 arcsec [0.90σ]
KicOffset-rm: 0.264 arcsec [2.00σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009884104-01, PDC Light Curves

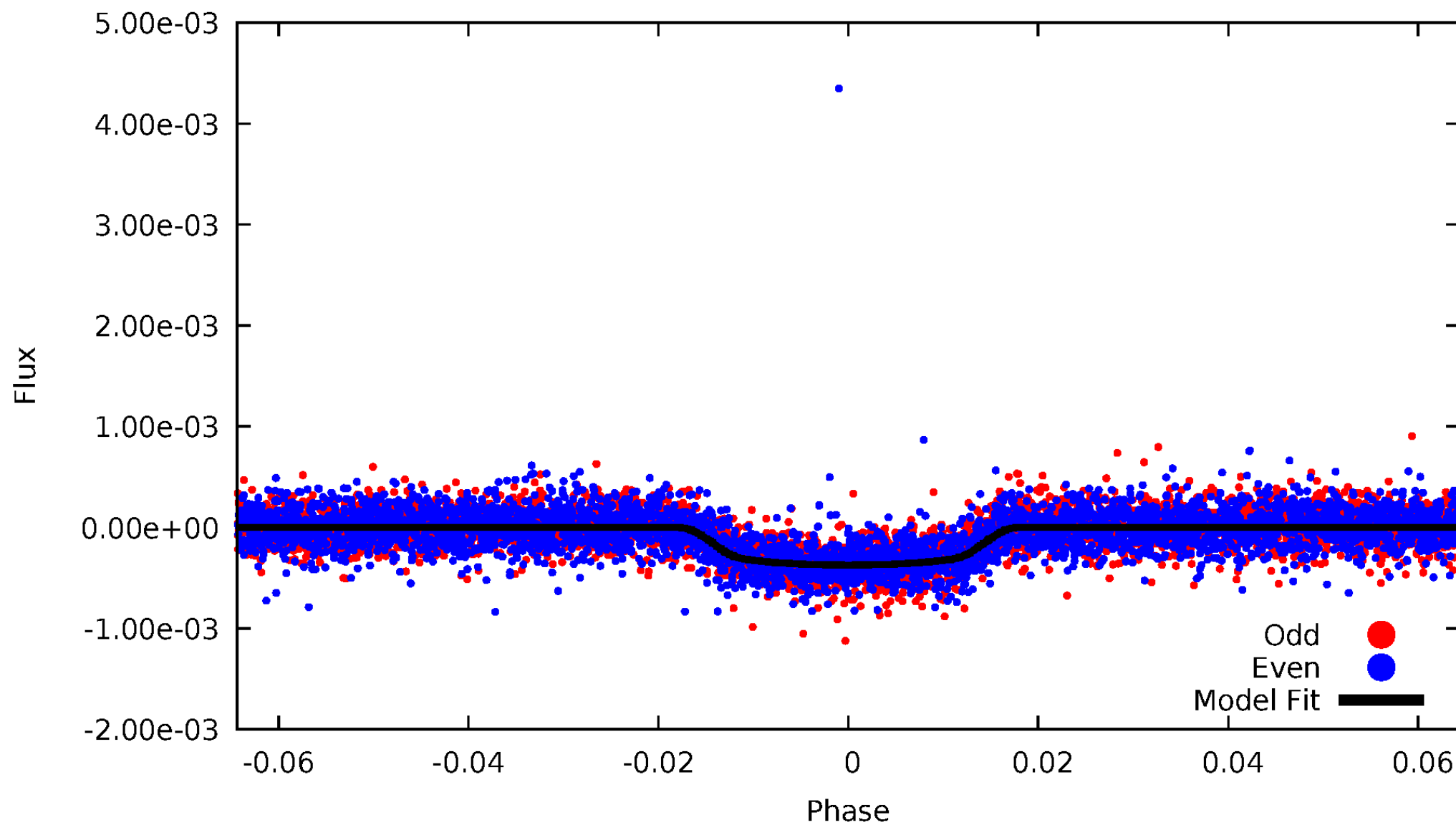


TCE 009884104-01



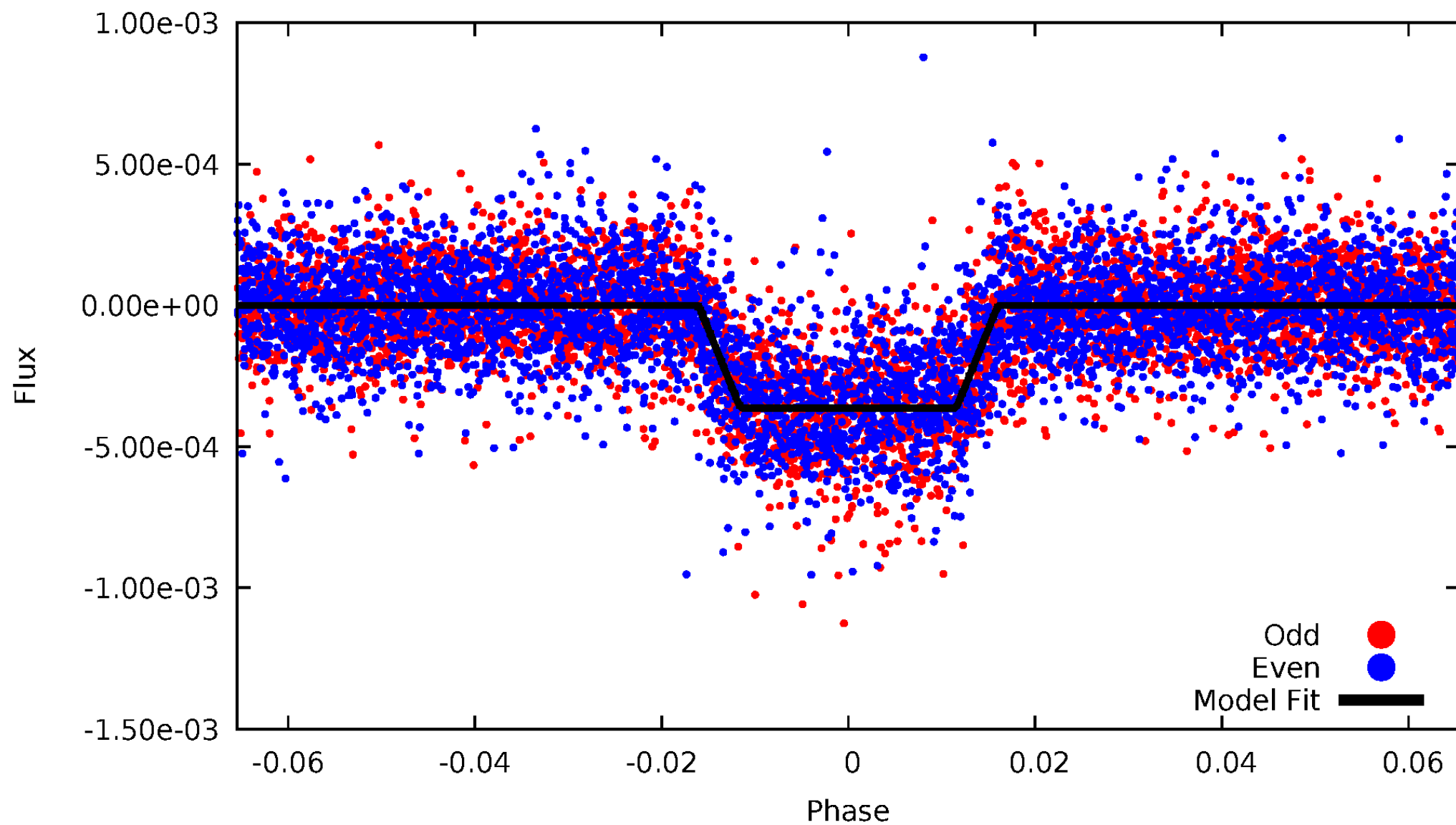
DV Odd/Even

TCE 009884104-01



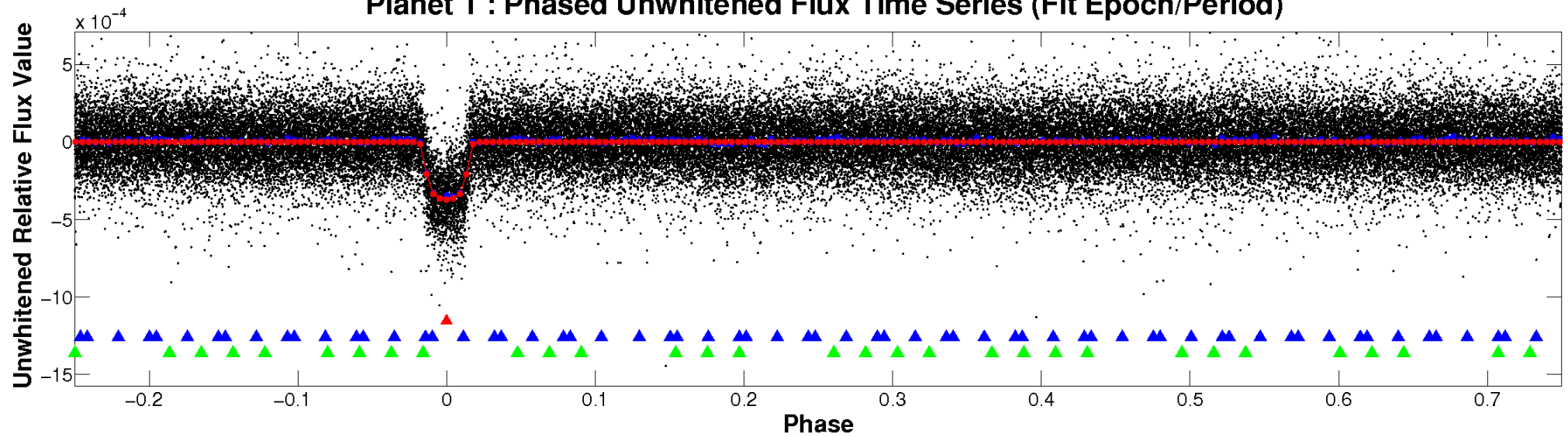
ALT Odd/Even

TCE 009884104-01

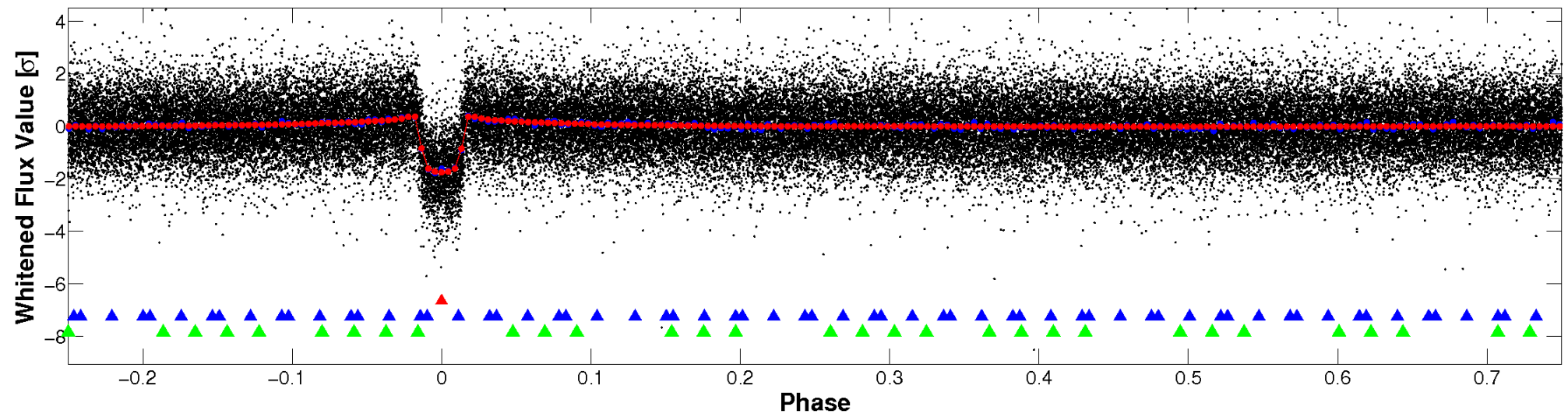


Non-Whitened Vs. Whitened Light Curve

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

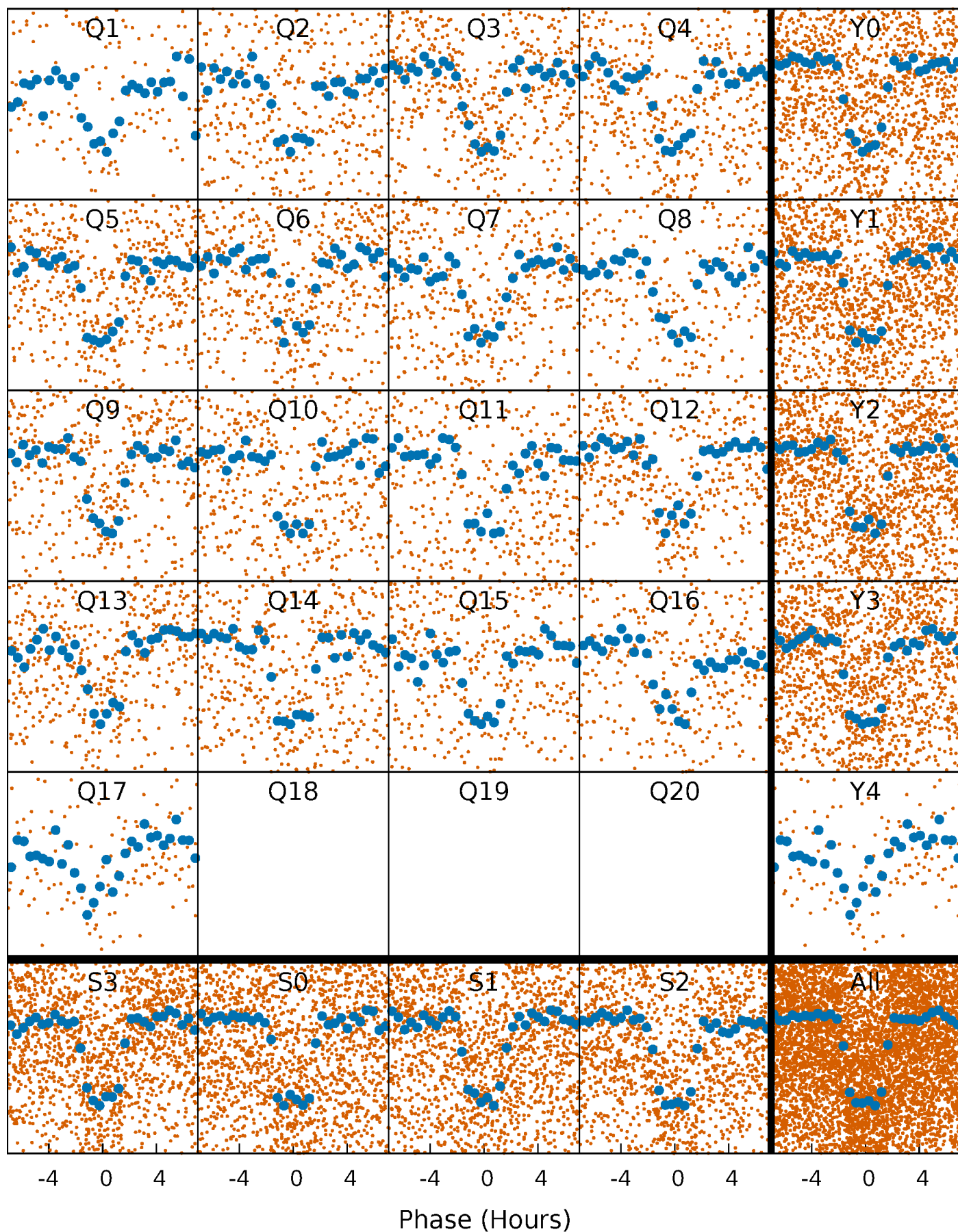


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



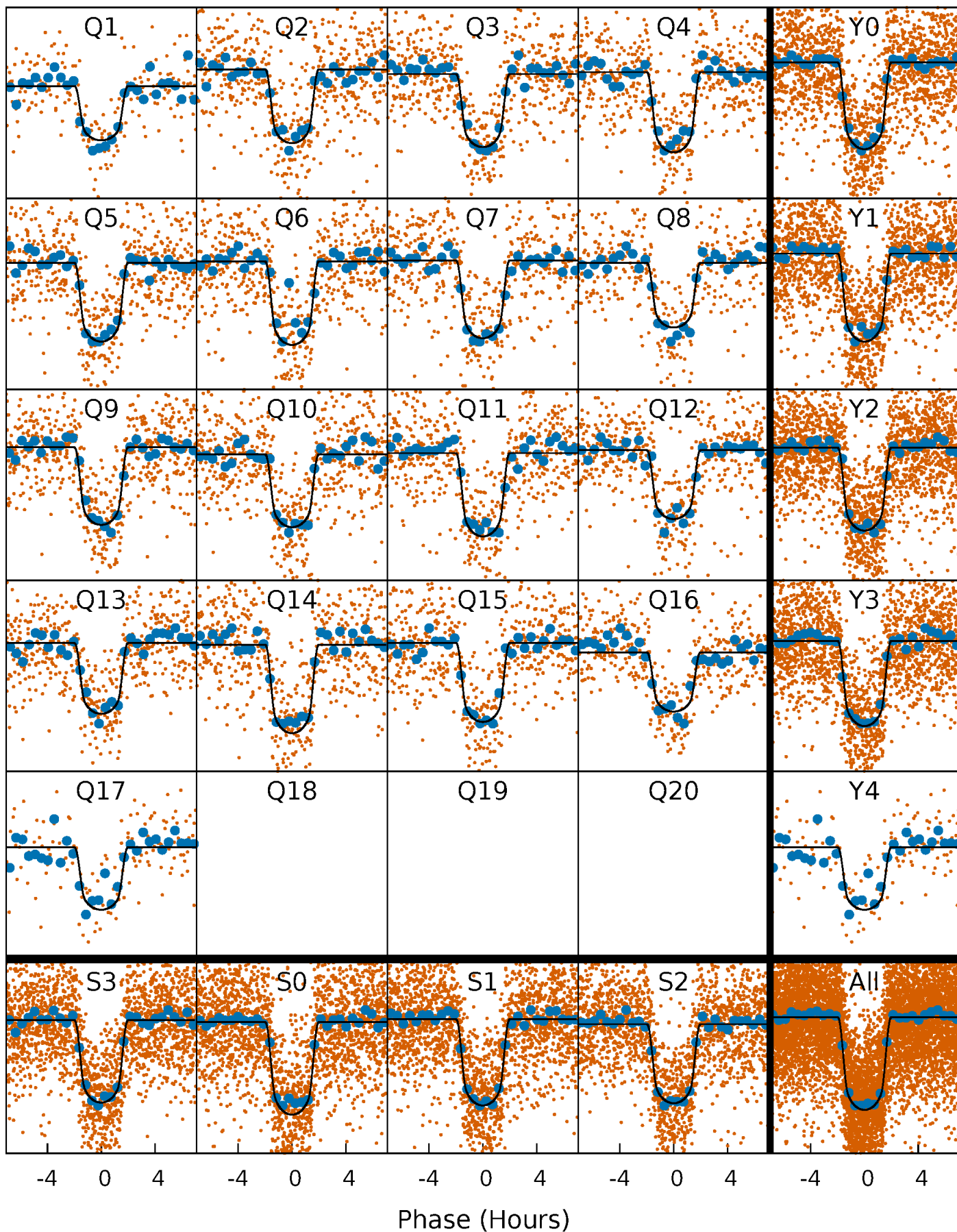
PDC Quarter-Phased Transit Curves

TCE 009884104-01 P= 4.585467 Days $T_0=133.177313$ (BKJD)



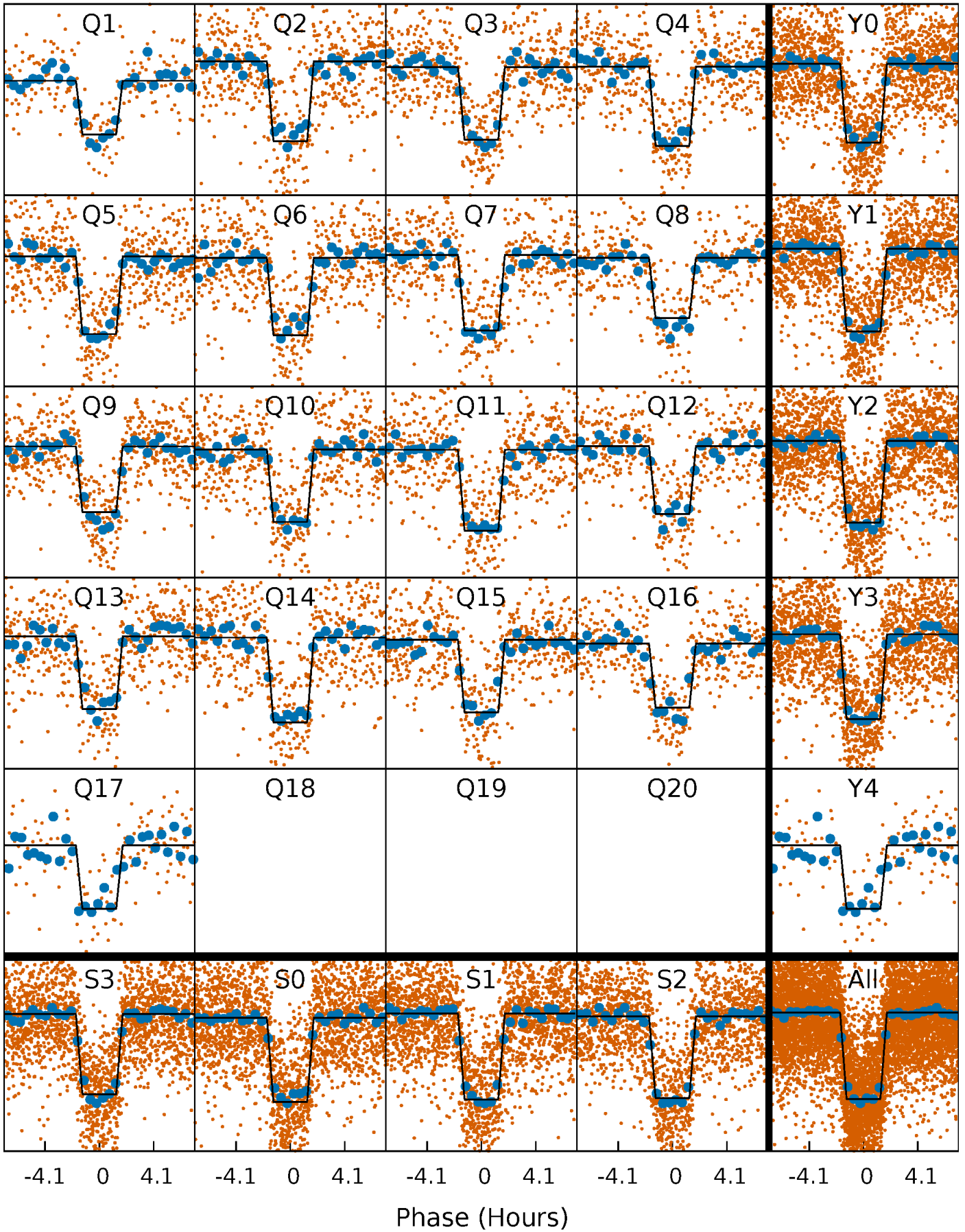
DV Quarter-Phased Transit Curves

TCE 009884104-01 P= 4.585467 Days $T_0=133.177313$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

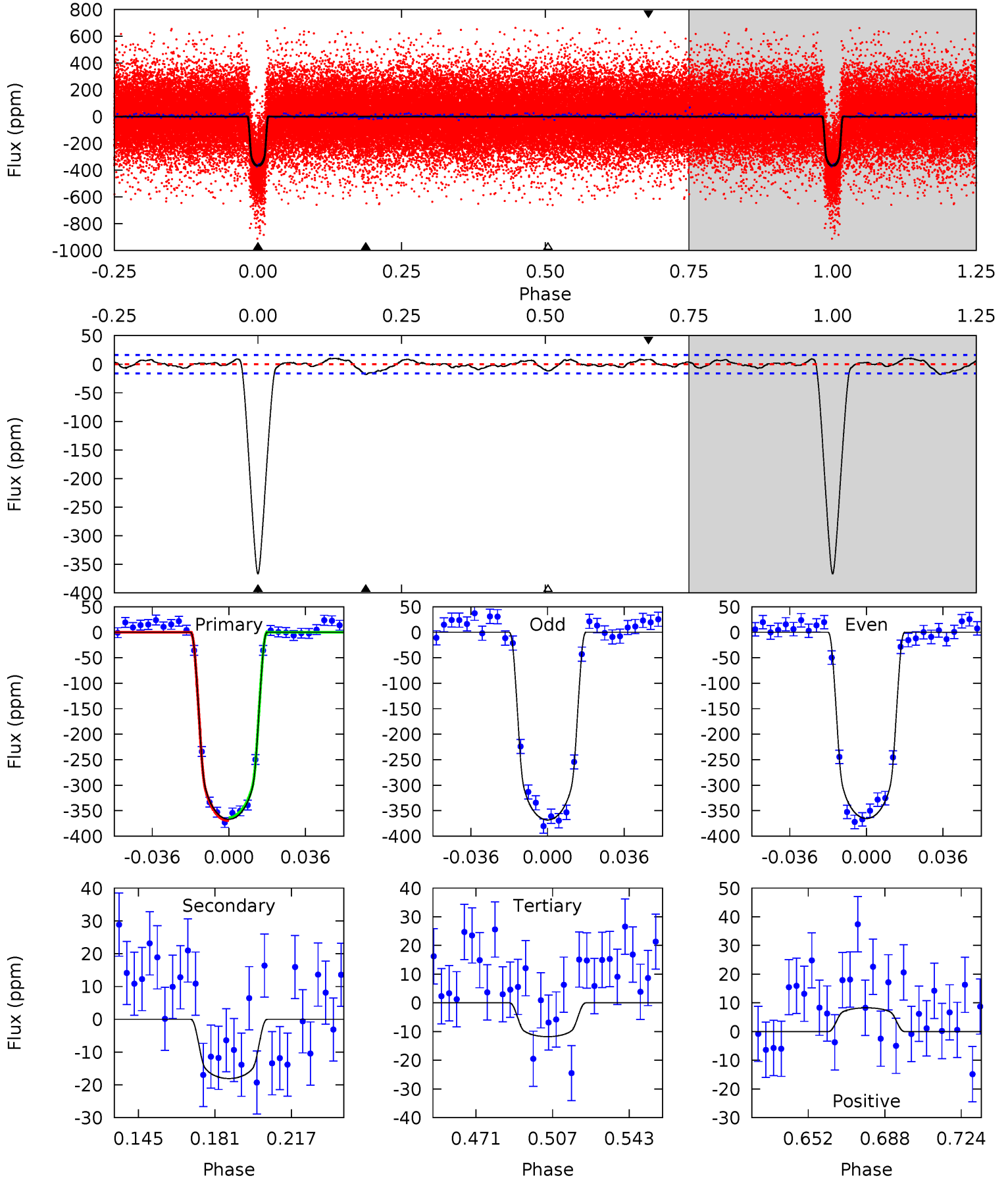
TCE 009884104-01 P= 4.585477 Days $T_0=133.175763$ (BKJD)



DV Model-Shift Uniqueness Test

009884104-01, P = 4.585467 Days, E = 128.591846 Days

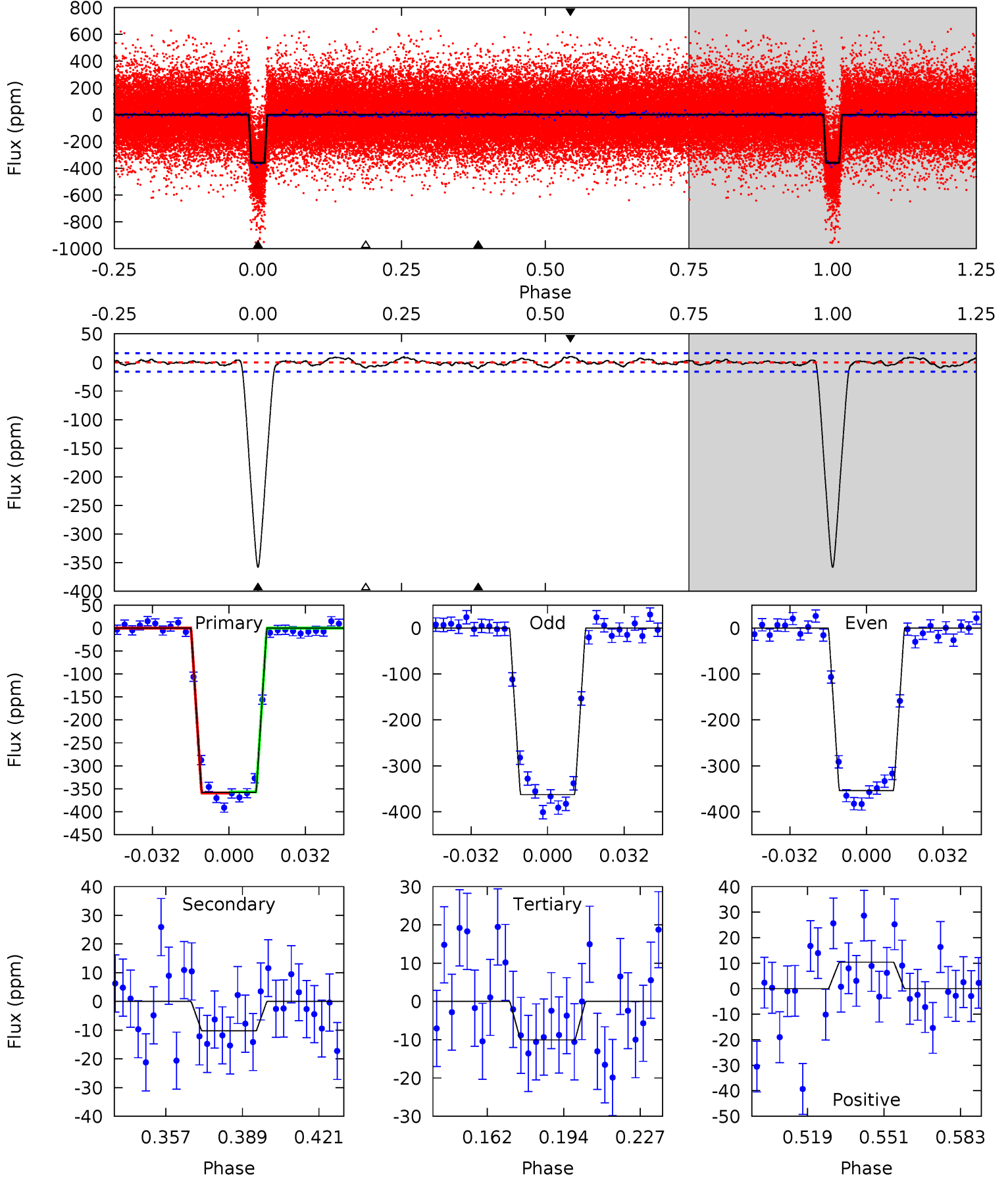
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
108.7	5.36	3.49	2.45	4.77	2.09	1.36	105.2	106.2	1.87	2.91	0.42	0.99	0.03	0.80



Alt Model-Shift Uniqueness Test

009884104-01, P = 4.585477 Days, E = 128.590286 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
106.1	3.04	2.98	3.08	4.80	2.14	1.23	103.1	103.0	0.06	-0.04	1.24	1.01	0.03	0.38



Stellar Parameters For KIC 009884104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5788^{+104}_{-115}	$4.160^{+0.162}_{-0.108}$	$0.260^{+0.150}_{-0.150}$	$1.495^{+0.245}_{-0.326}$	$1.179^{+0.093}_{-0.139}$	$0.497^{+0.417}_{-0.166}$
	+2%/-2%	+4%/-3%	+58%/-58%	+16%/-22%	+8%/-12%	+84%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009884104-01 / KOI 0718.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-18 ± 3	$3.36^{+0.38}_{-0.37}$	1816^{+86}_{-100}	3150^{+124}_{-126}	$2.879^{+1.003}_{-0.752}$
Alt.	-10 ± 3	$3.08^{+0.34}_{-0.39}$	1820^{+84}_{-102}	2960^{+158}_{-206}	$1.952^{+0.891}_{-0.720}$

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 $A_{obs} \gg 1.0$

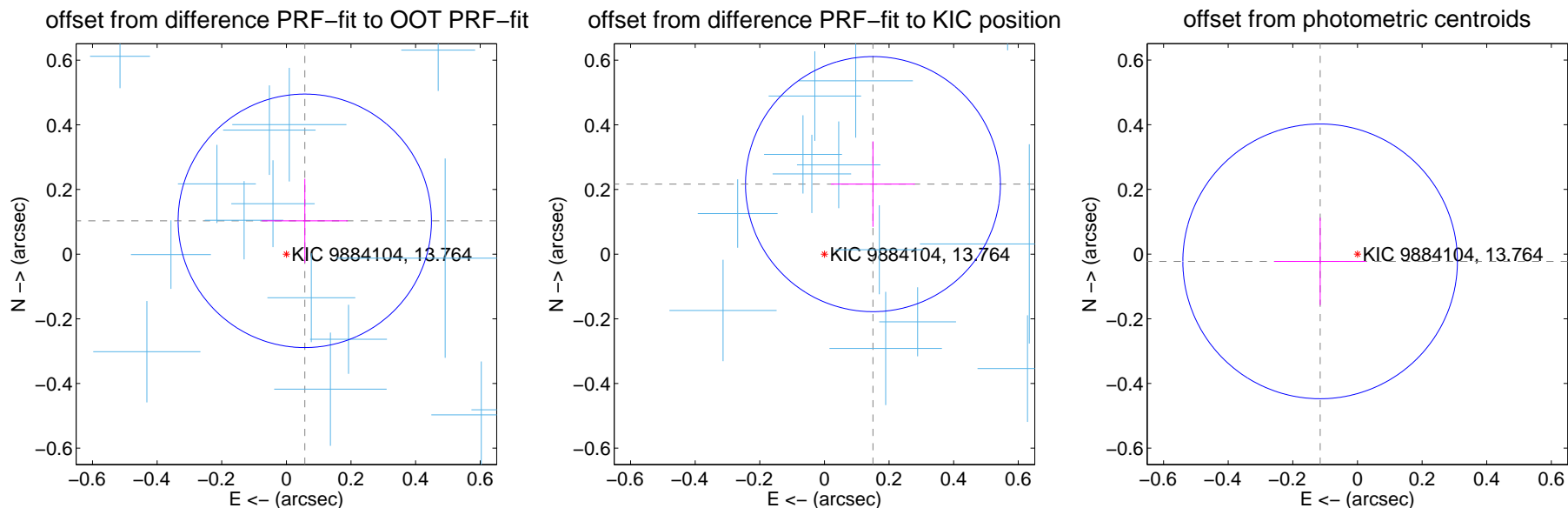
DV Centroid Data

Supplemental centroid analysis for 009884104-01. Kepler magnitude: 13.76. Transit SNR 68.31

There are 17 quarters with good PRF difference image offsets

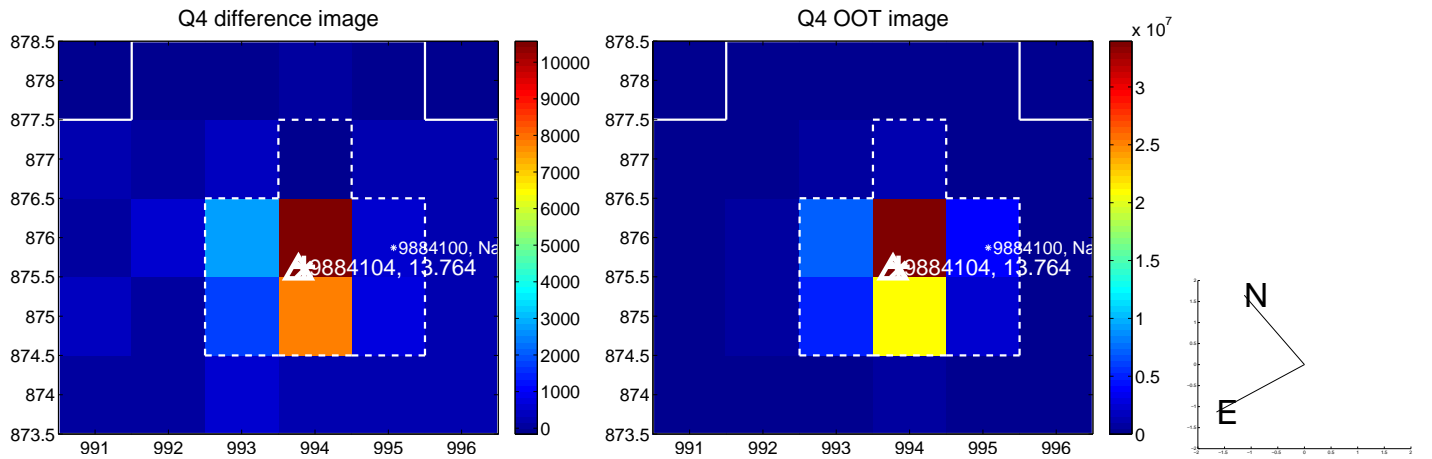
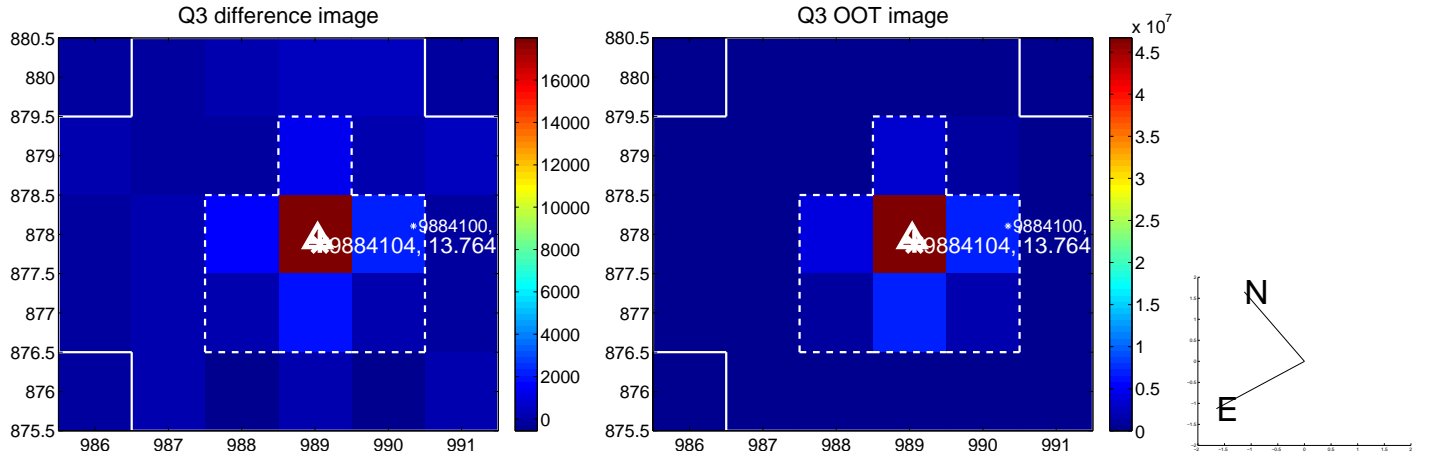
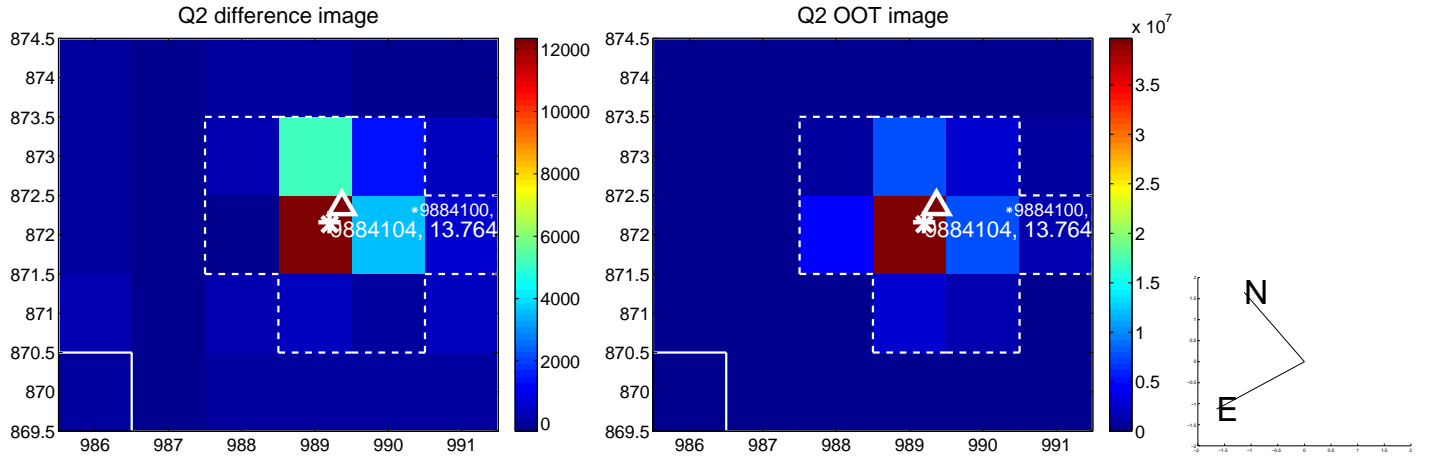
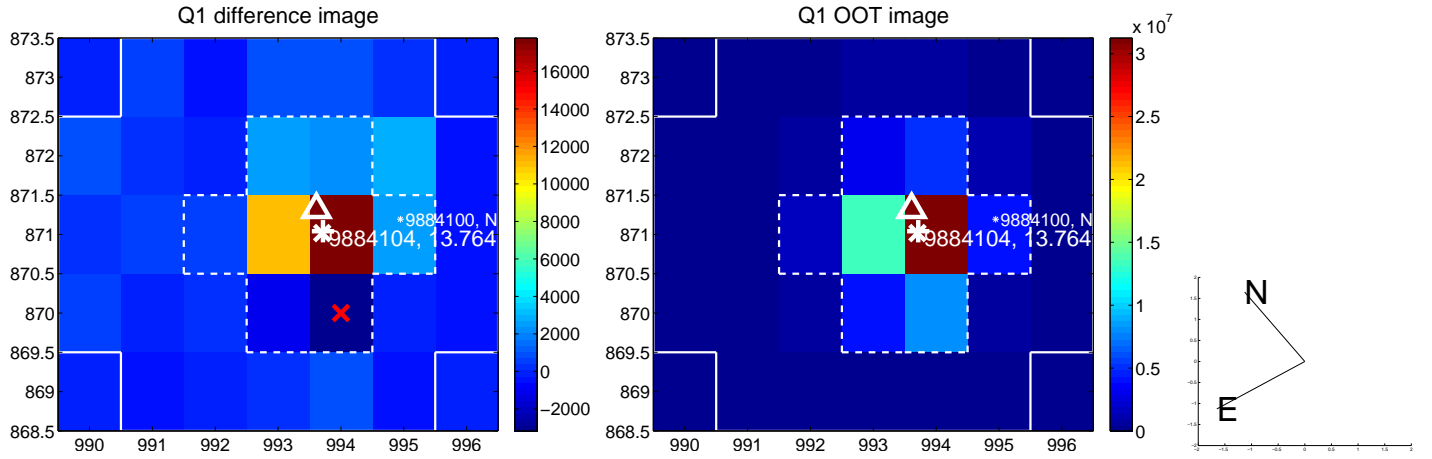
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.118 ± 0.131	0.90	-0.057 ± 0.133	0.103 ± 0.130
PRF-fit source offset from KIC position	0.264 ± 0.131	2.00	-0.150 ± 0.130	0.217 ± 0.132
photometric centroid source offset	0.12 ± 0.14	0.83	0.12 ± 0.14	-0.02 ± 0.14

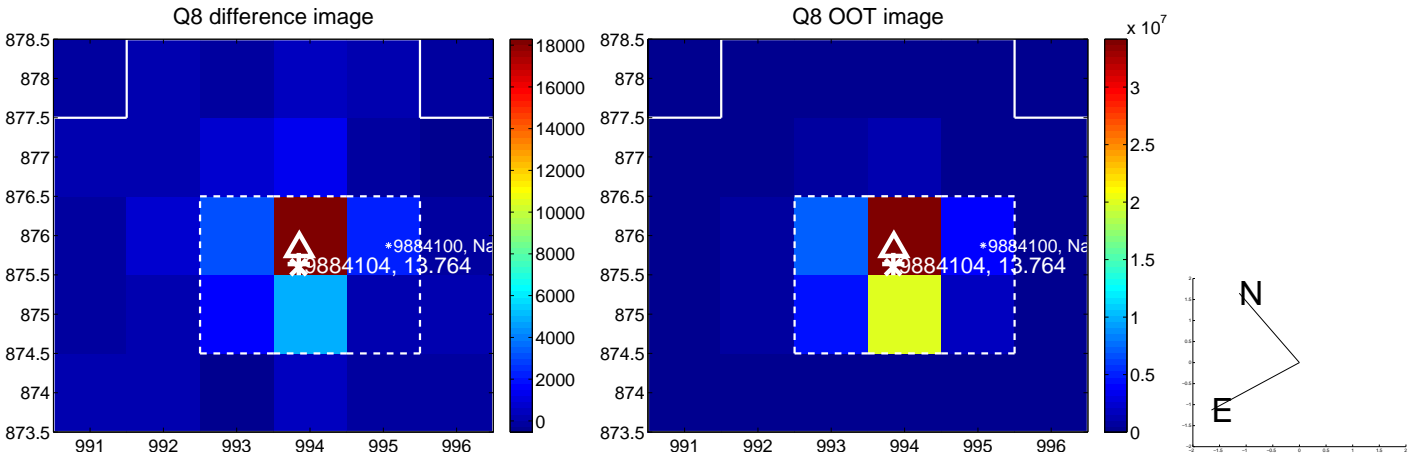
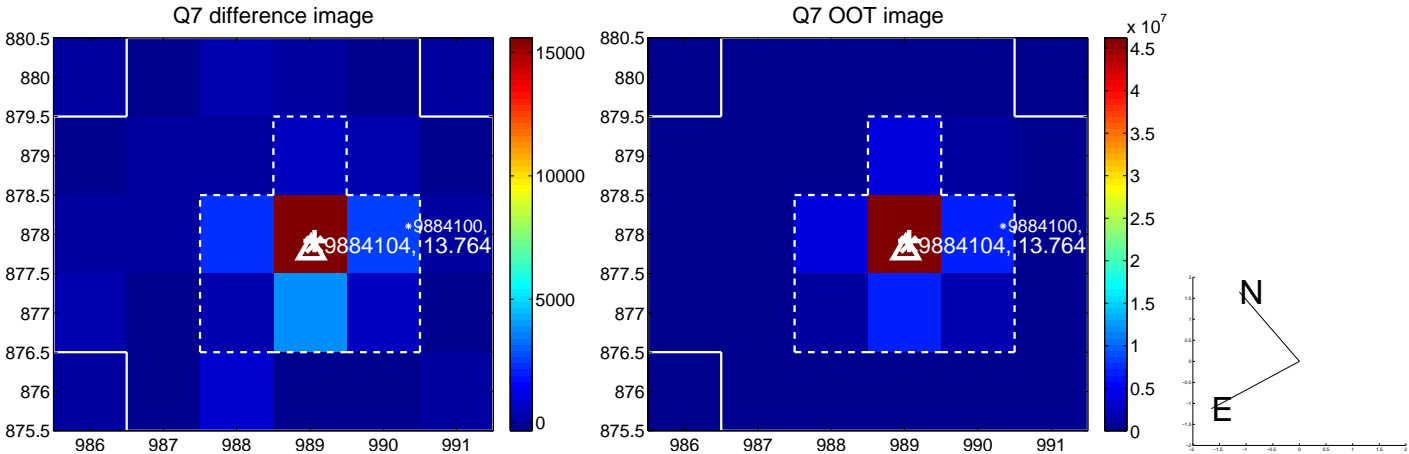
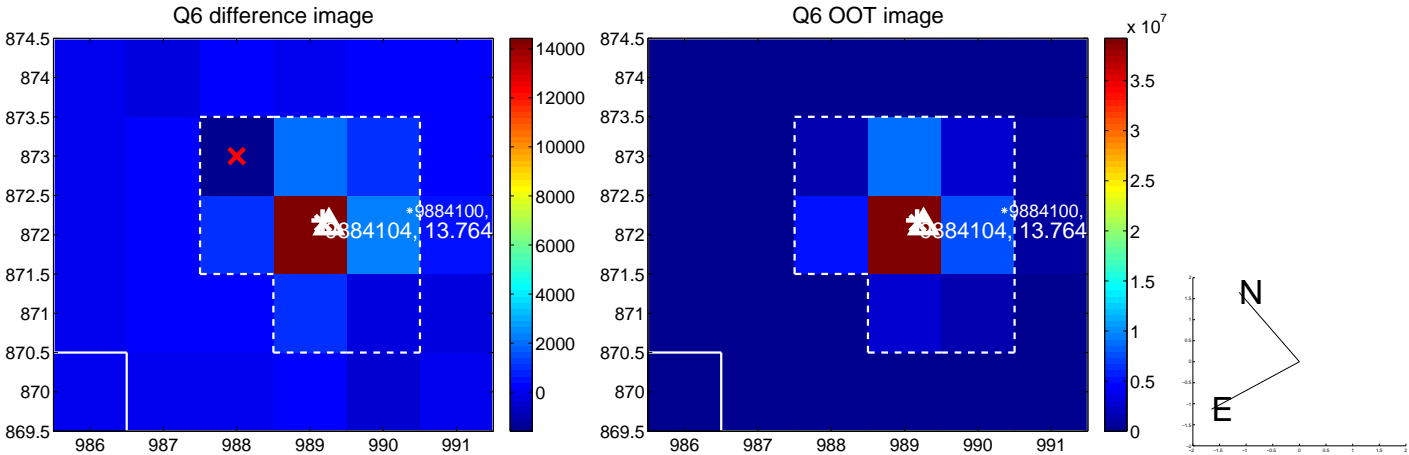
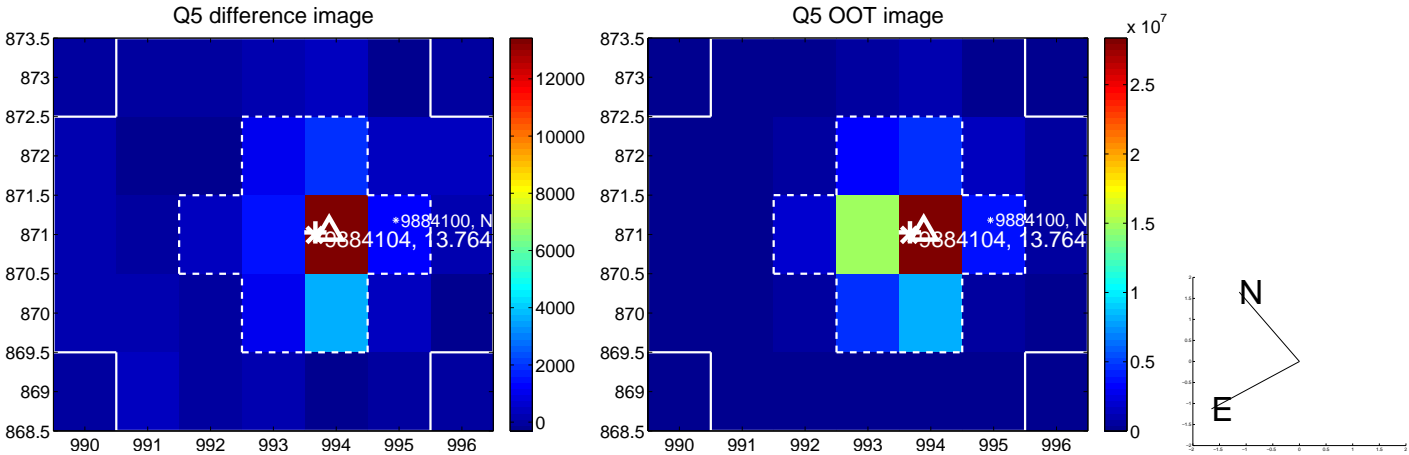


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

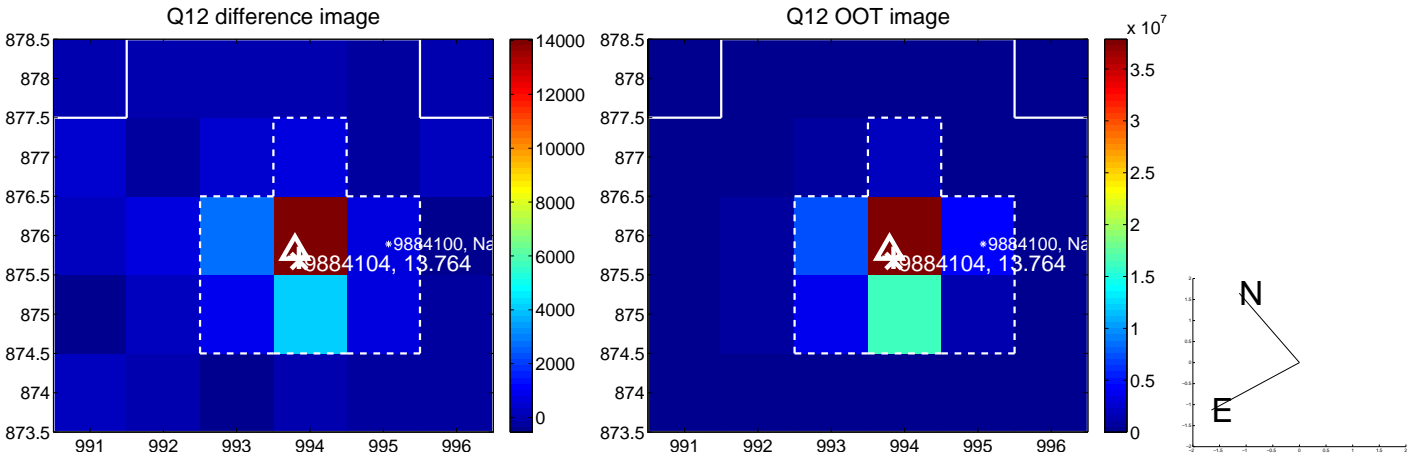
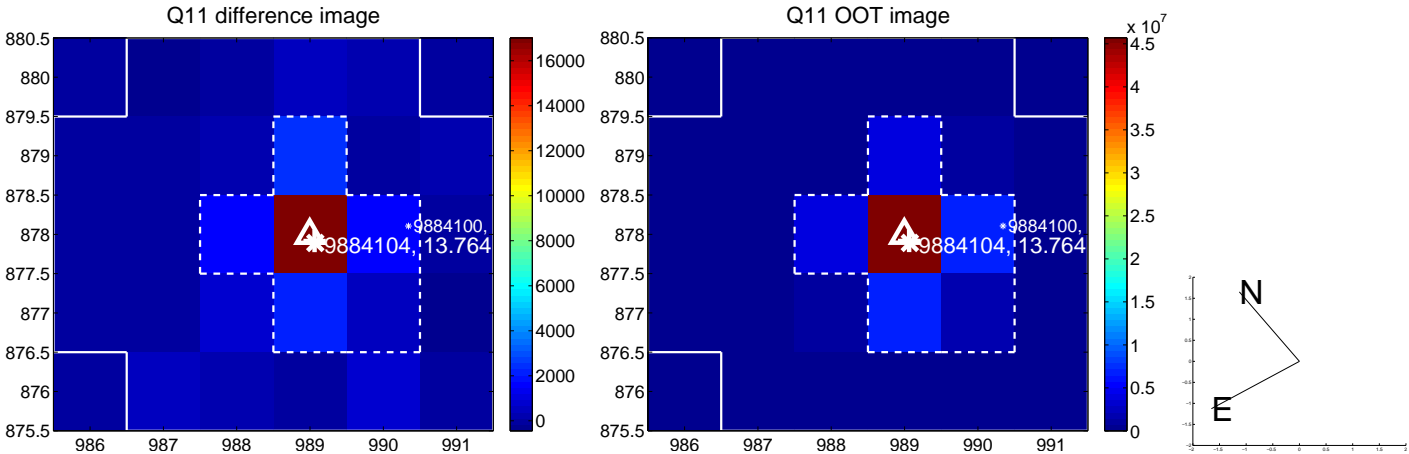
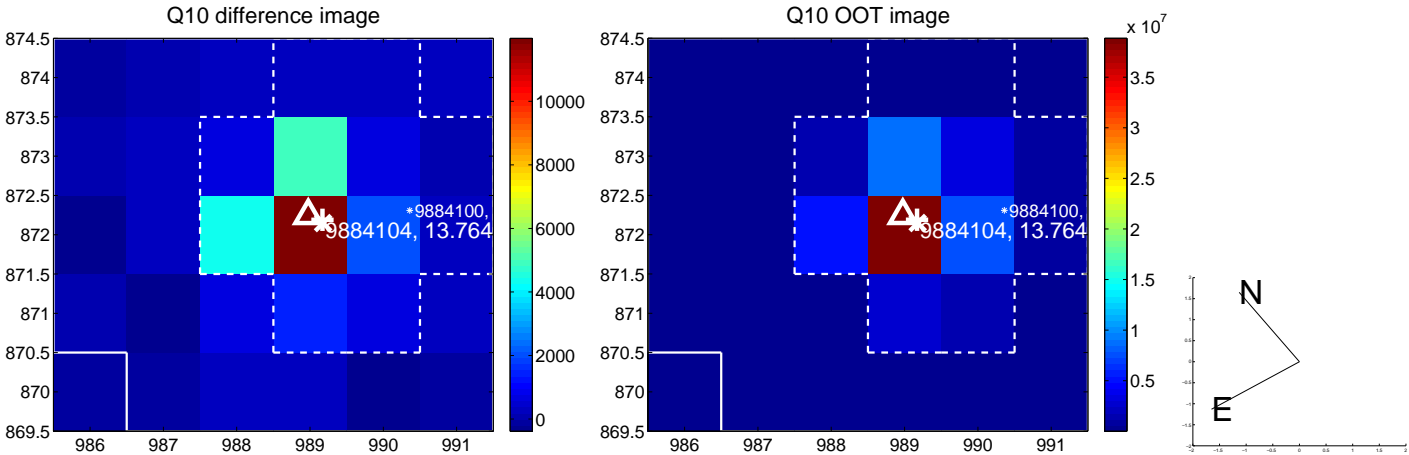
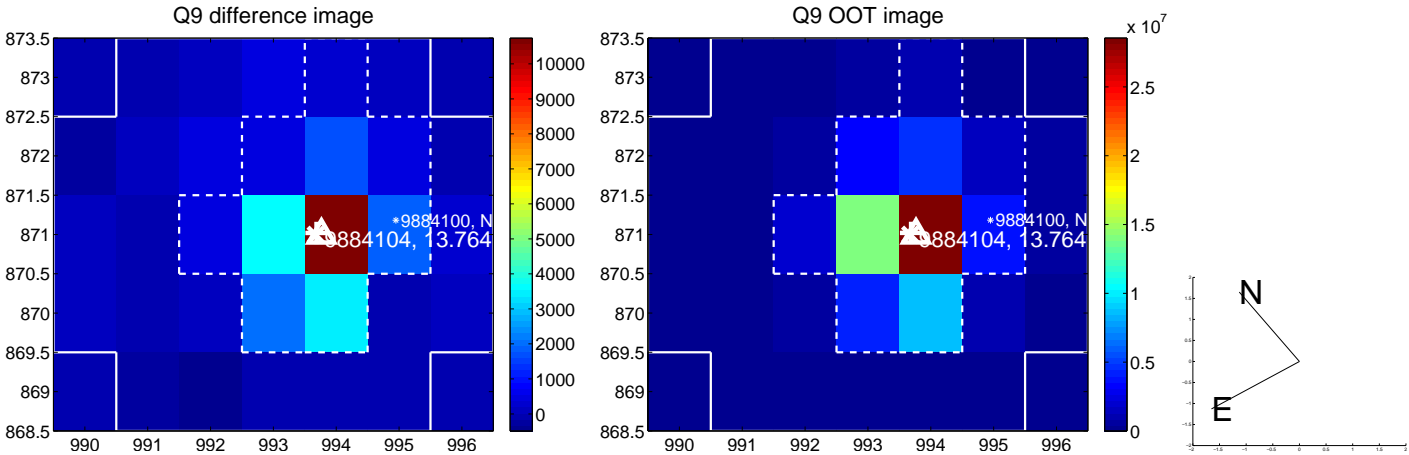
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



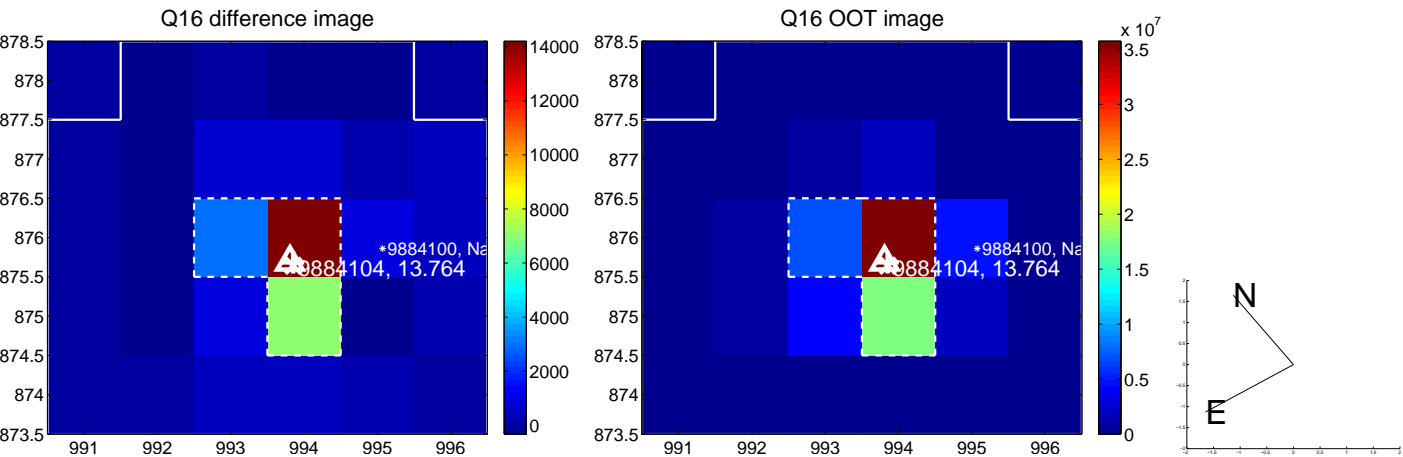
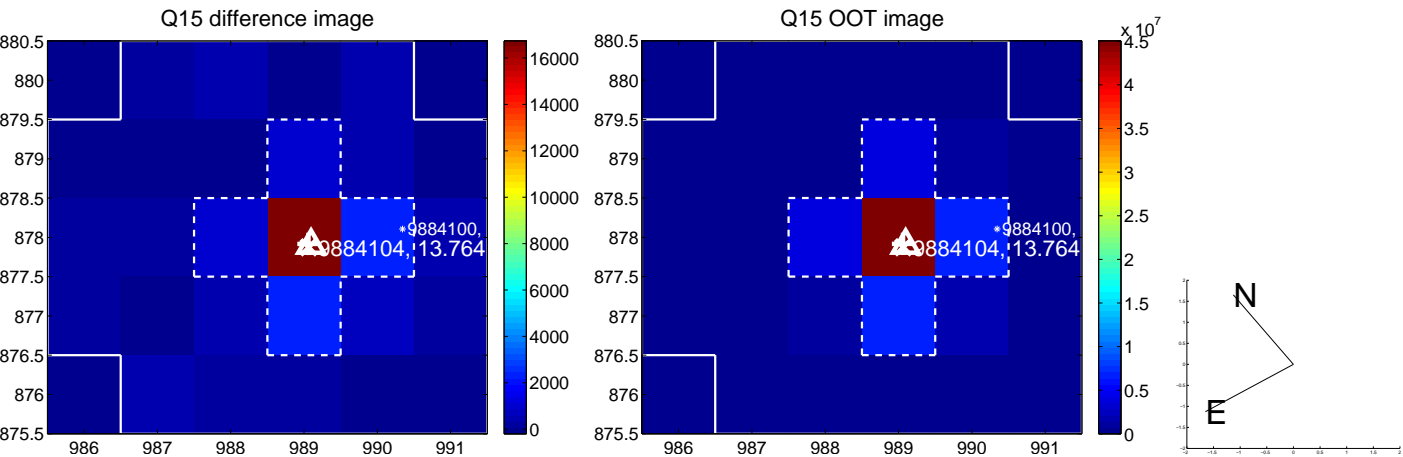
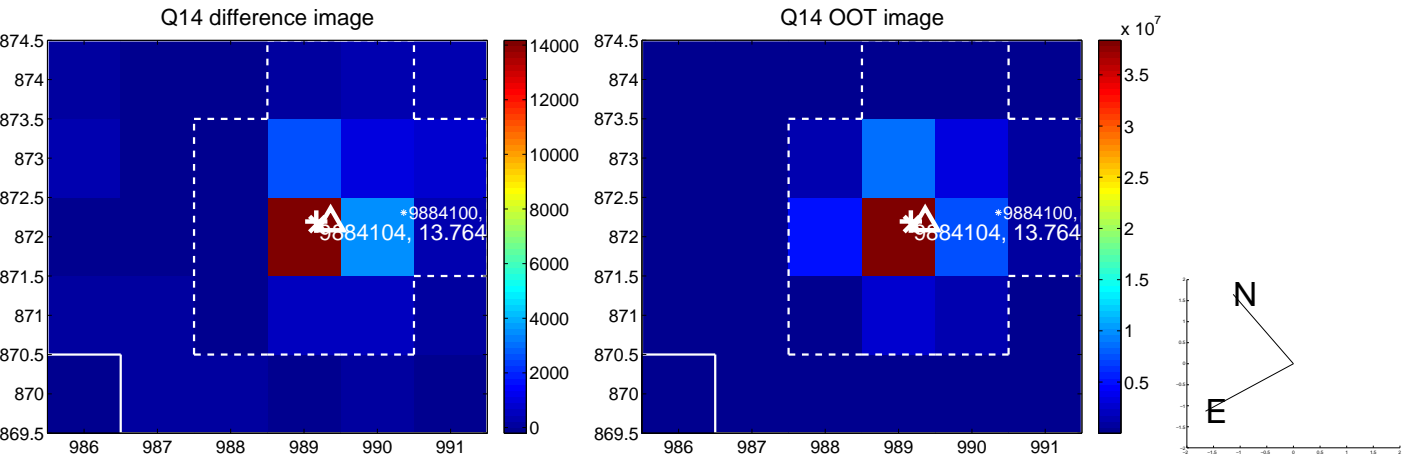
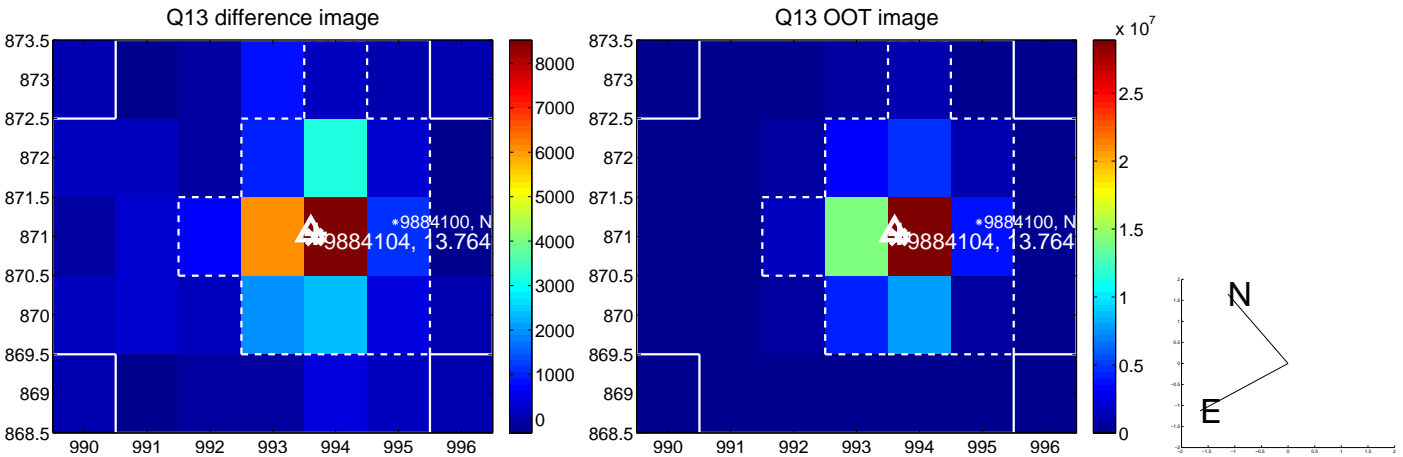
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



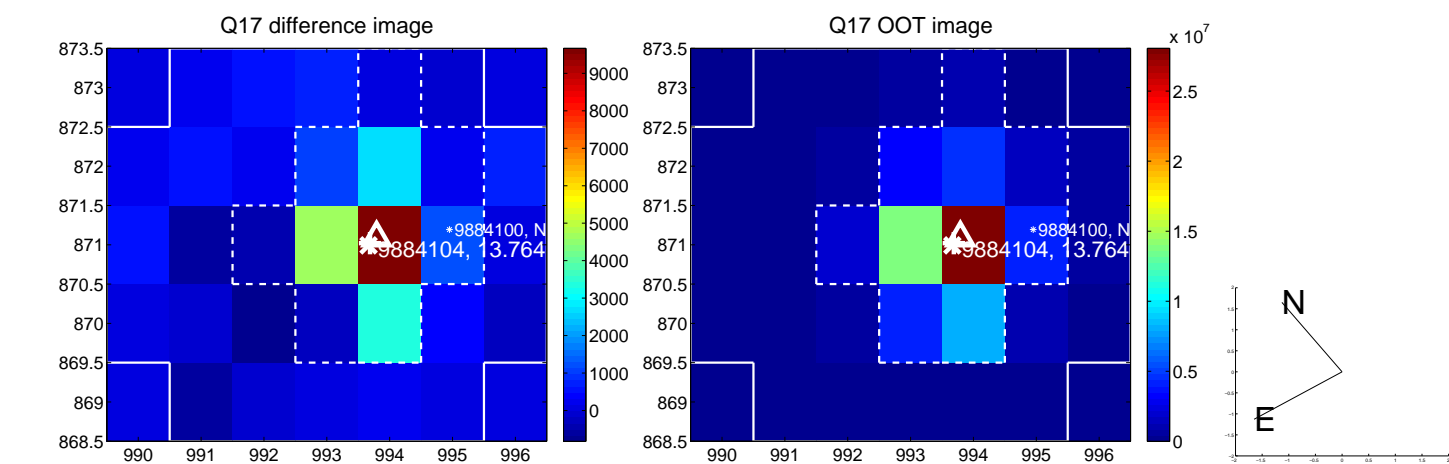
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



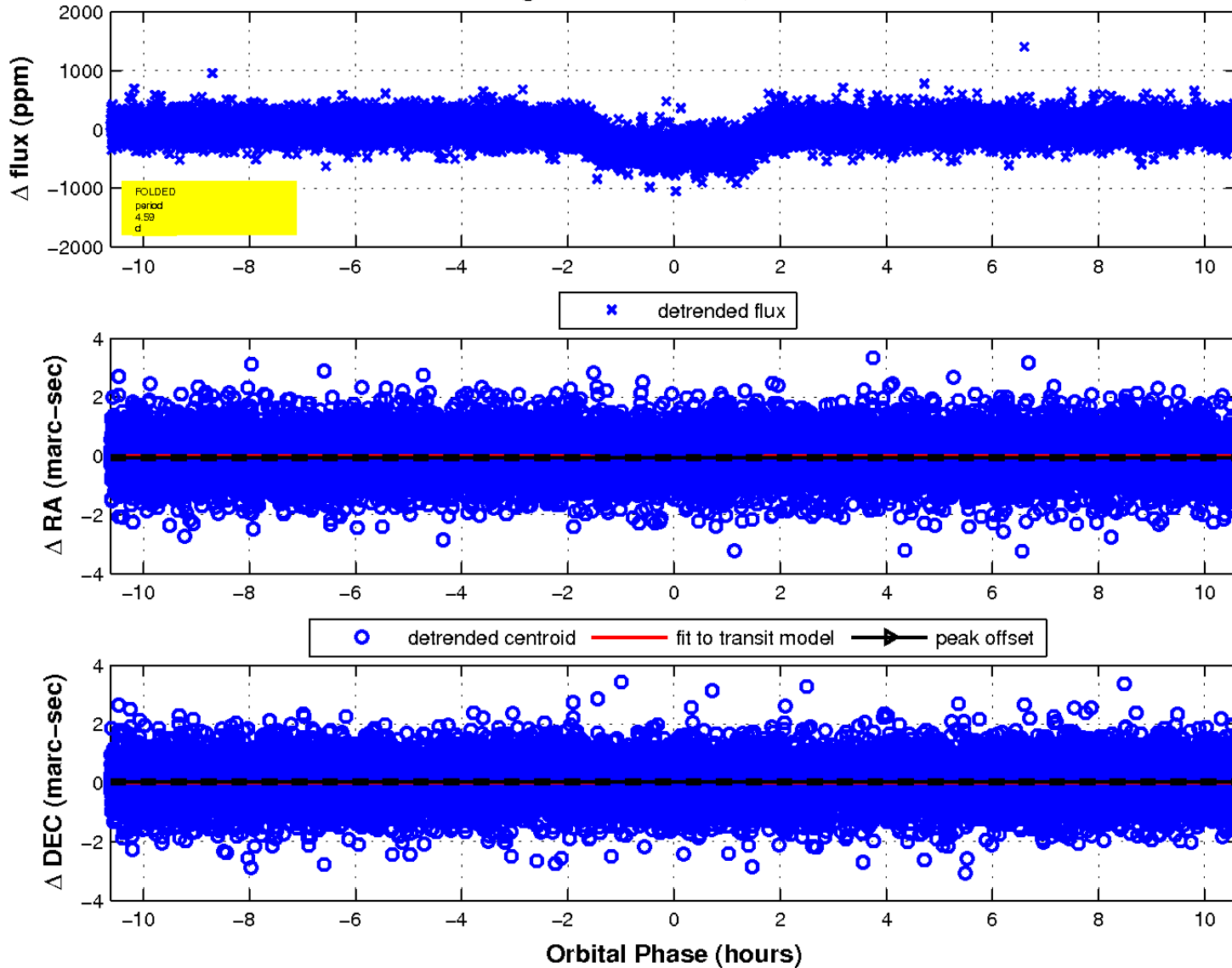
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

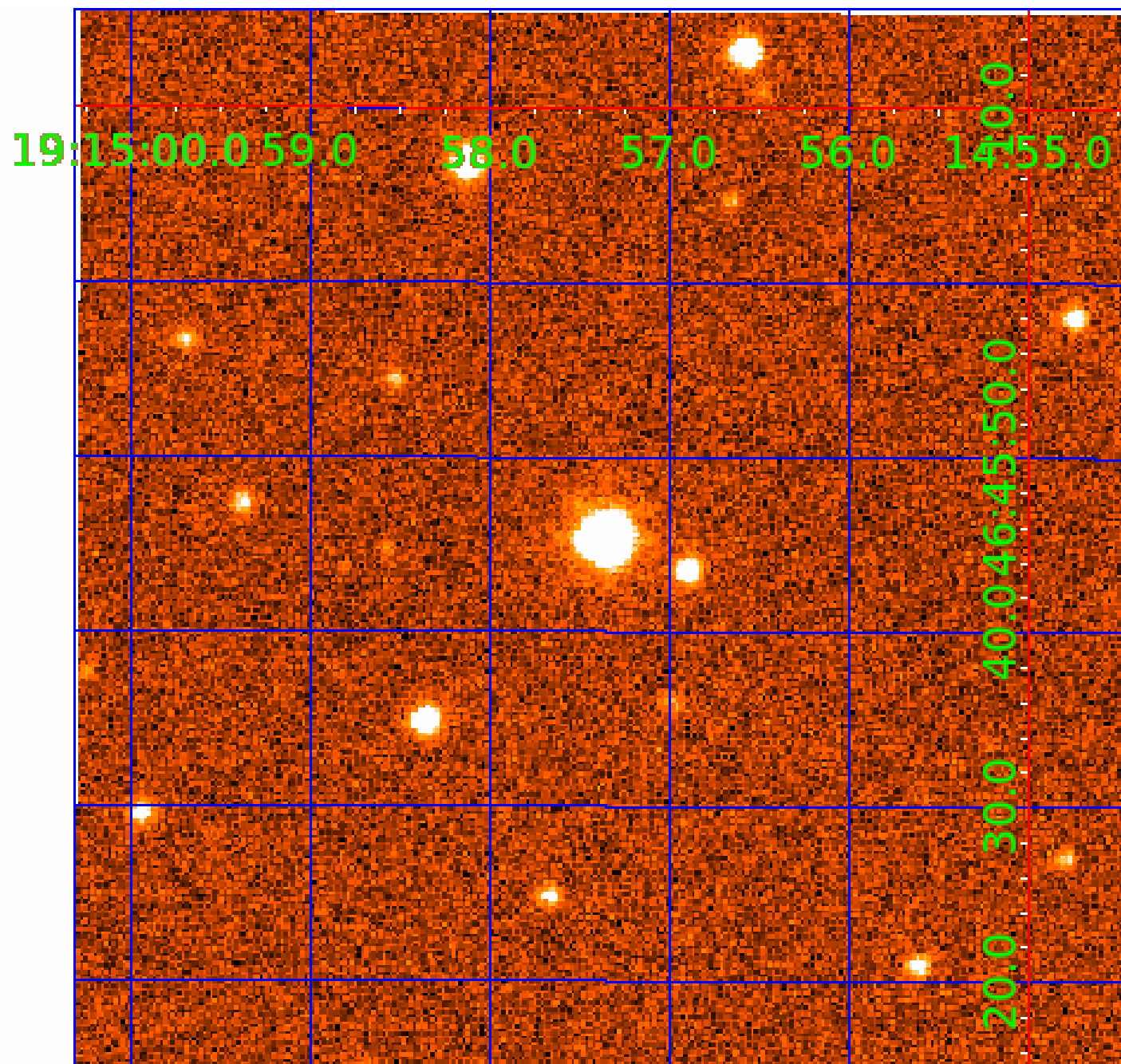


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 009884104

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009884104-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009884104-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009884104-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

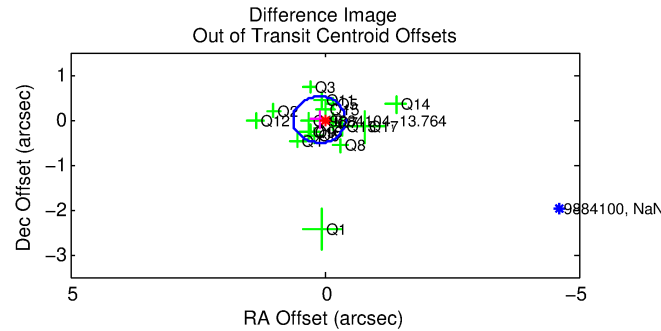
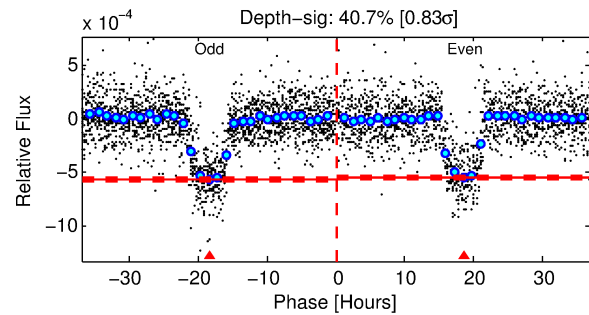
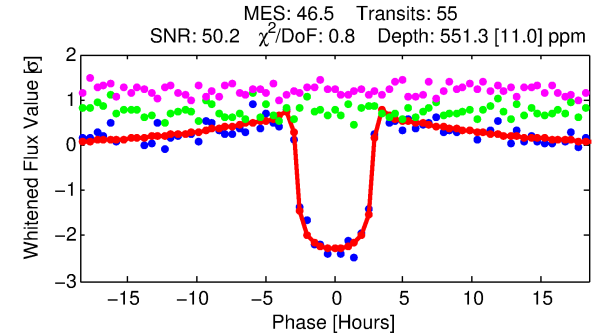
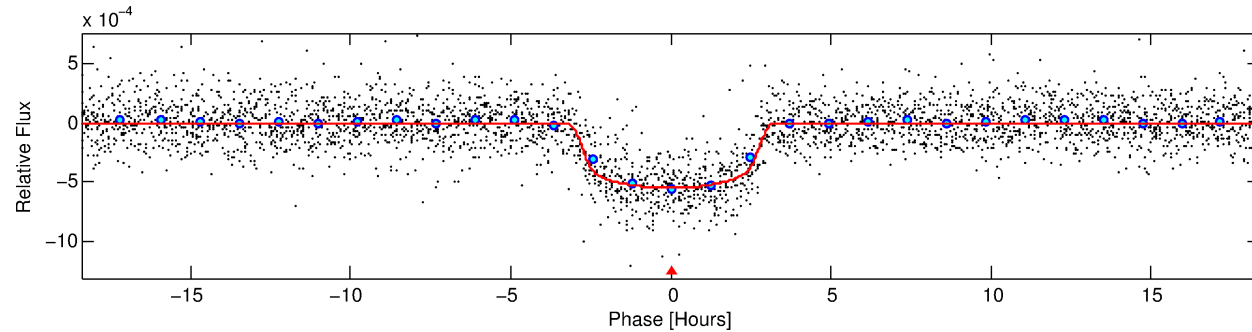
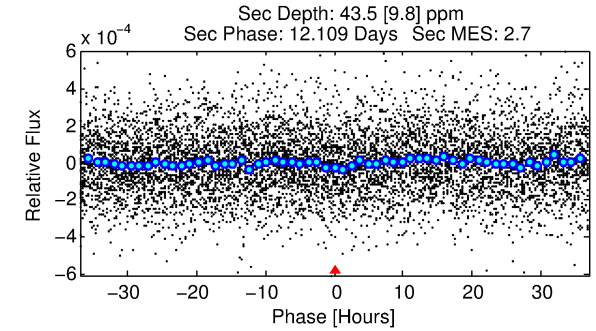
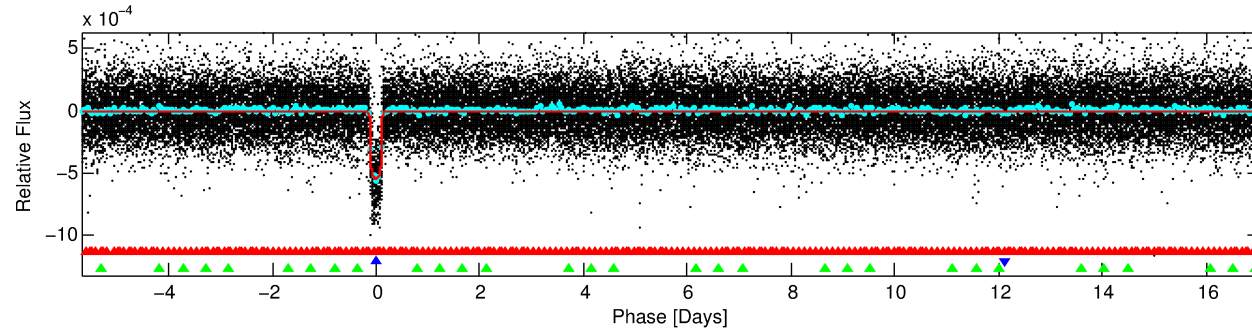
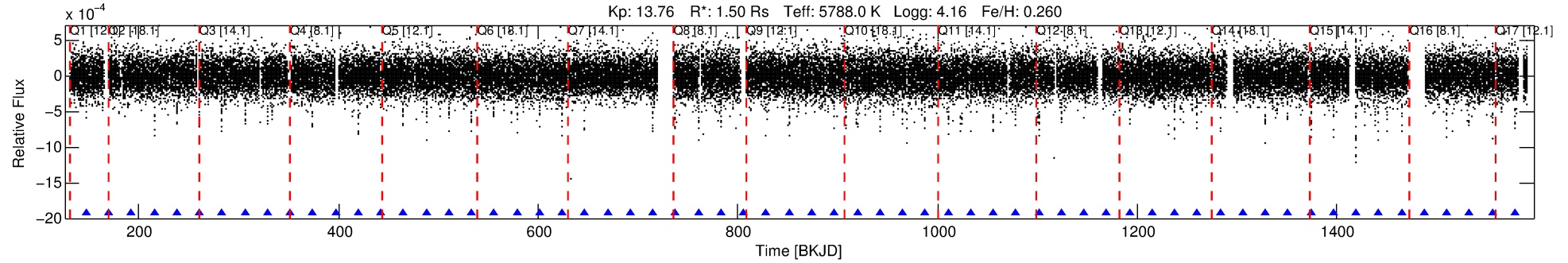
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009884104-02

No Significant Match Found

DV One-Page Summary

KIC: 9884104 Candidate: 2 of 3 Period: 22.715 d
KOI: K00718.02 Name: Kepler-219c Corr: 0.976



DV Fit Results:

Period = 22.71455 [0.00005] d
Epoch = 147.2942 [0.0019] BKJD
Rp/R* = 0.0248 [0.0010]
a/R* = 15.70 [2.59]
b = 0.86 [0.05]
Seff = 81.73 [24.42]
Teff = 767 [57] K
Rp = 4.05 [0.90] Re
a = 0.1658 [0.0317] AU
Ag = 40.12 [14.99] [2.61σ]
Teffp = 2983 [187] K [11.33σ]

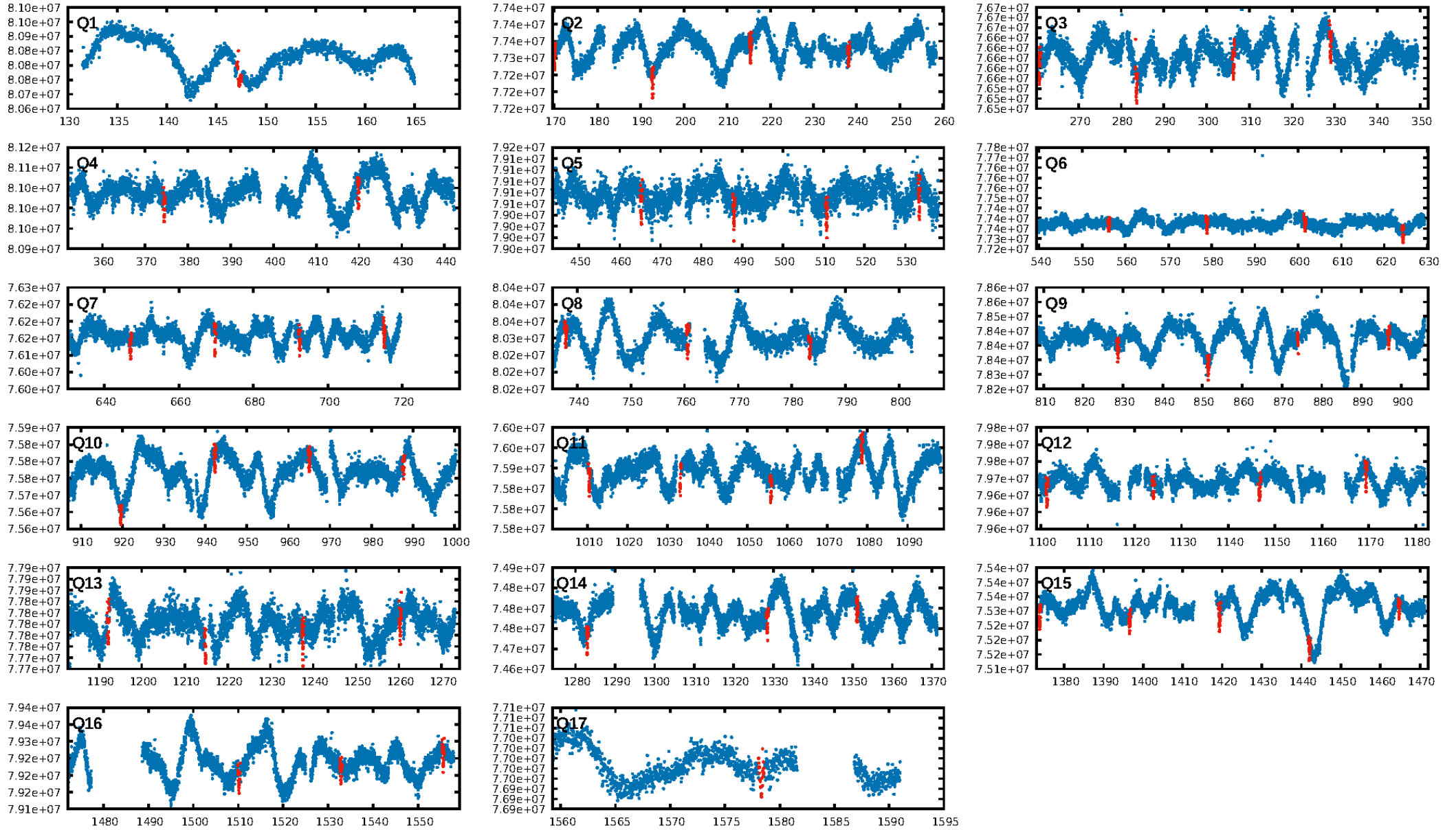
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [61.45σ]
LongPeriod-sig: 100.0% [68.95σ]
ModelChiSquare2-sig: 5.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [53/53]
GhostDiagnostic-chr: 4.921
Centroid-sig: 9.2%
Centroid-so: 0.126 arcsec [0.78σ]
OotOffset-rm: 0.106 arcsec [0.62σ]
KicOffset-rm: 0.125 arcsec [0.70σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.82 [14/17]

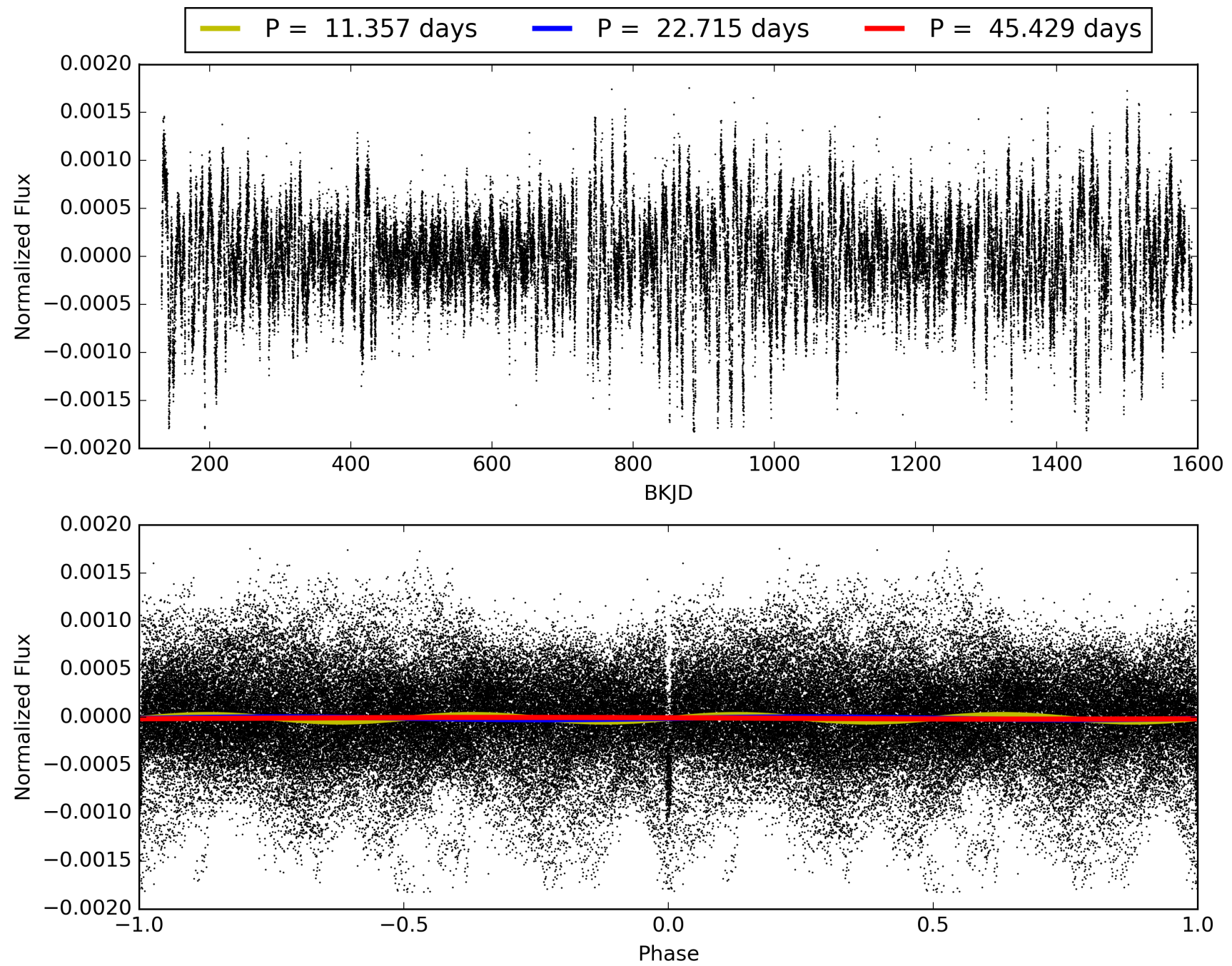
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:02:43 Z

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

TCE 009884104-02, PDC Light Curves

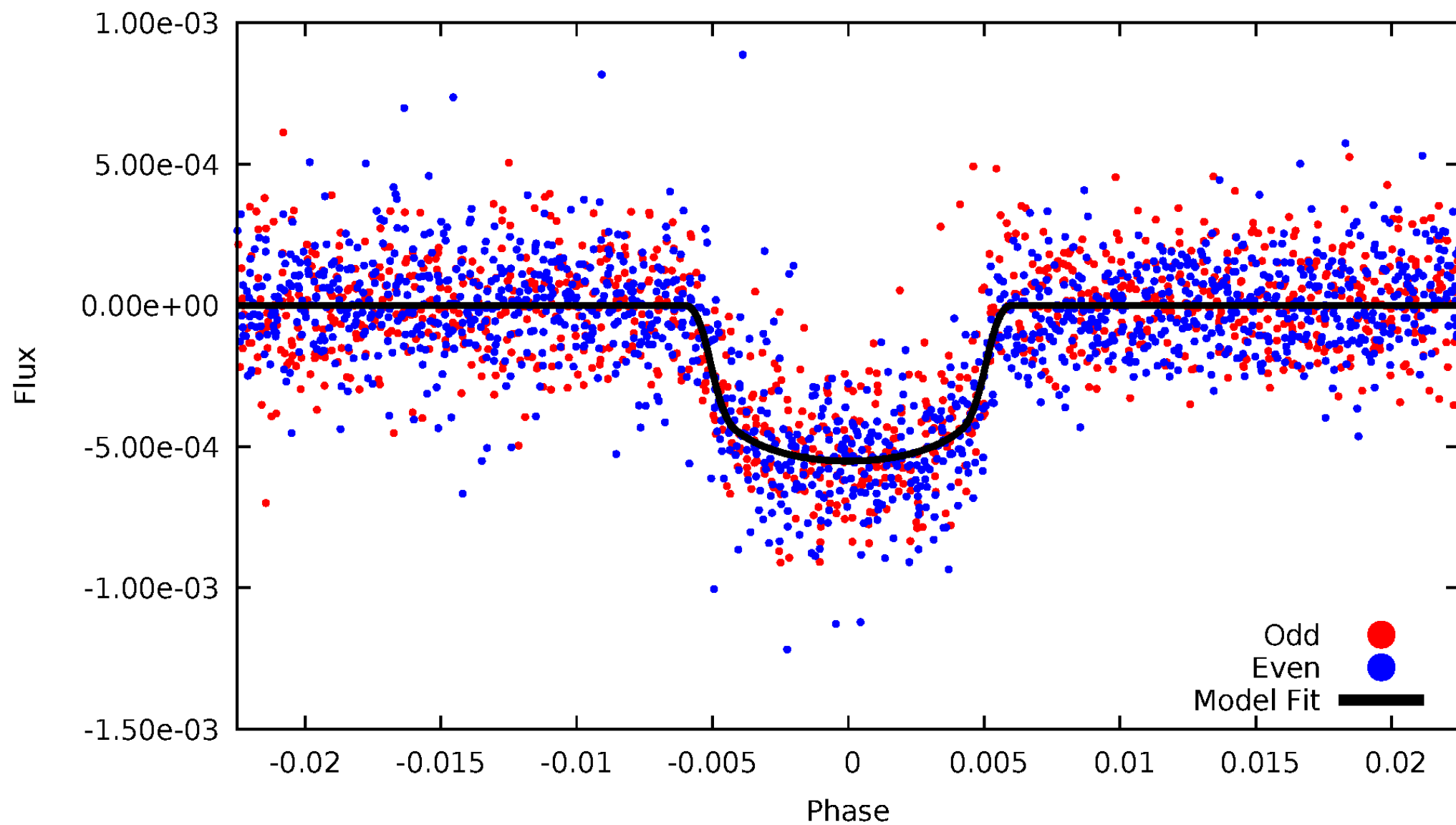


TCE 009884104-02



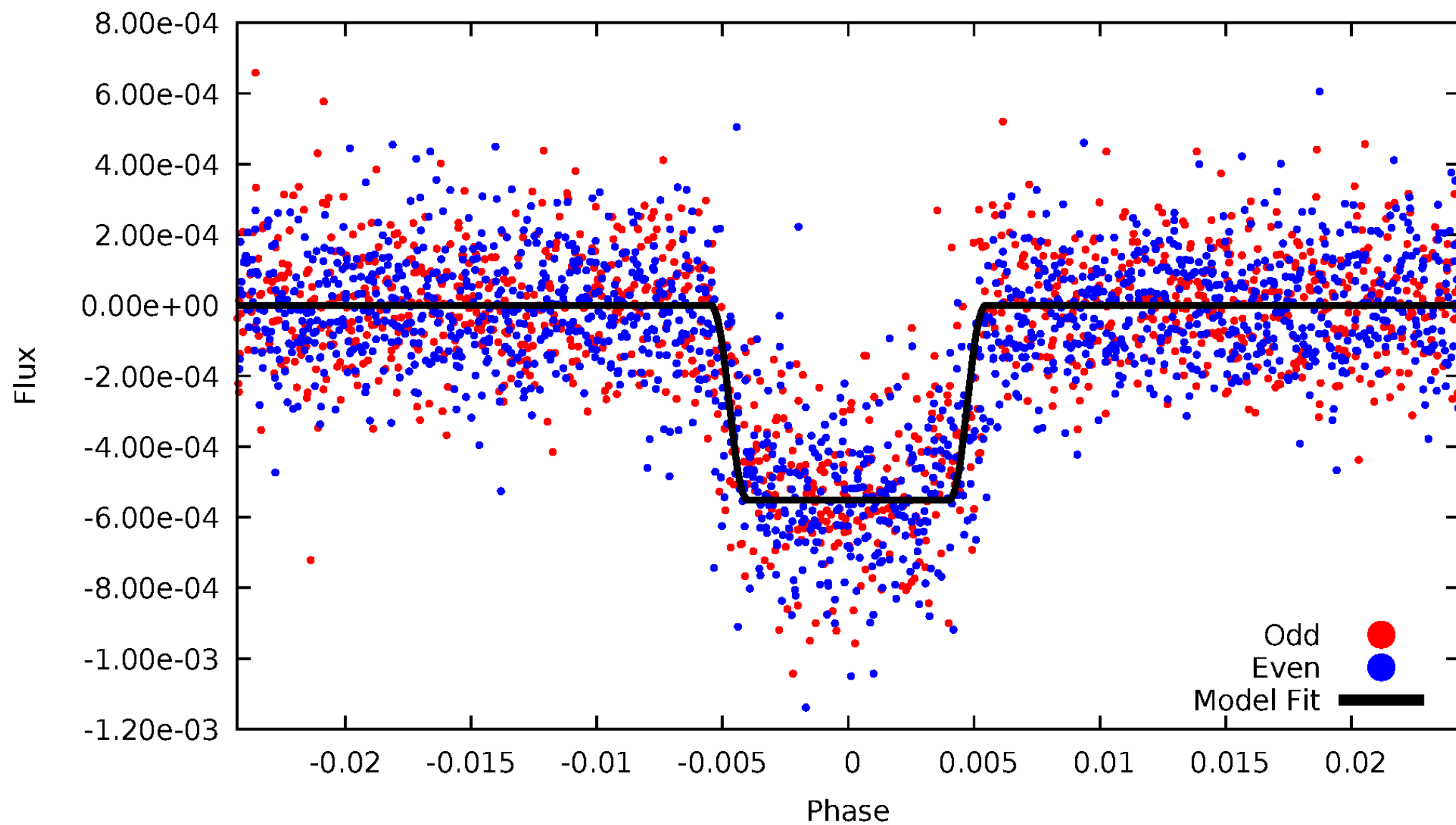
DV Odd/Even

TCE 009884104-02



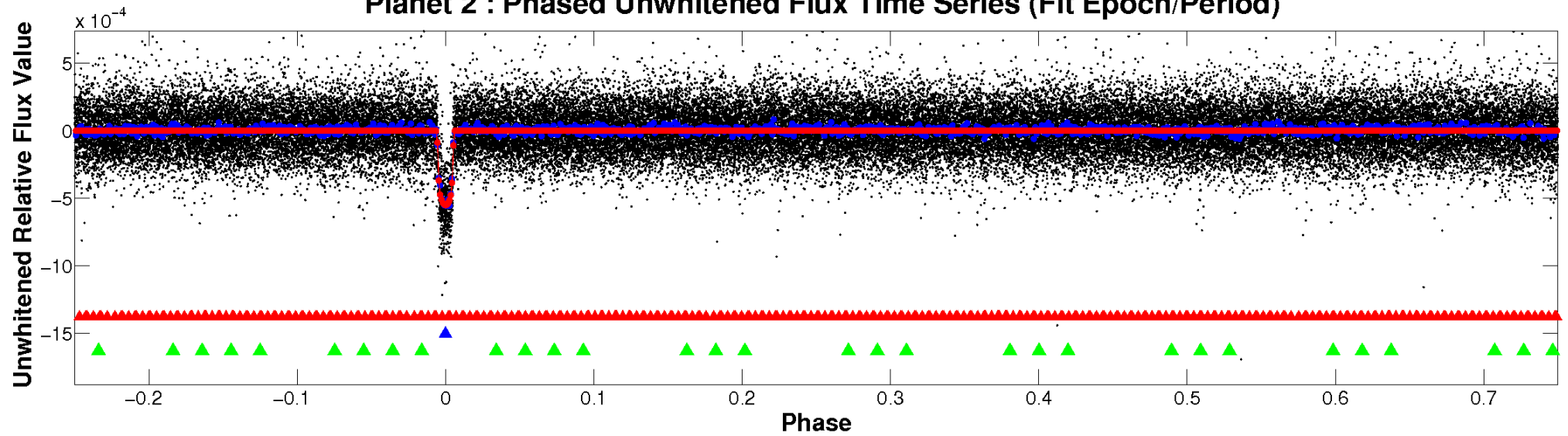
ALT Odd/Even

TCE 009884104-02

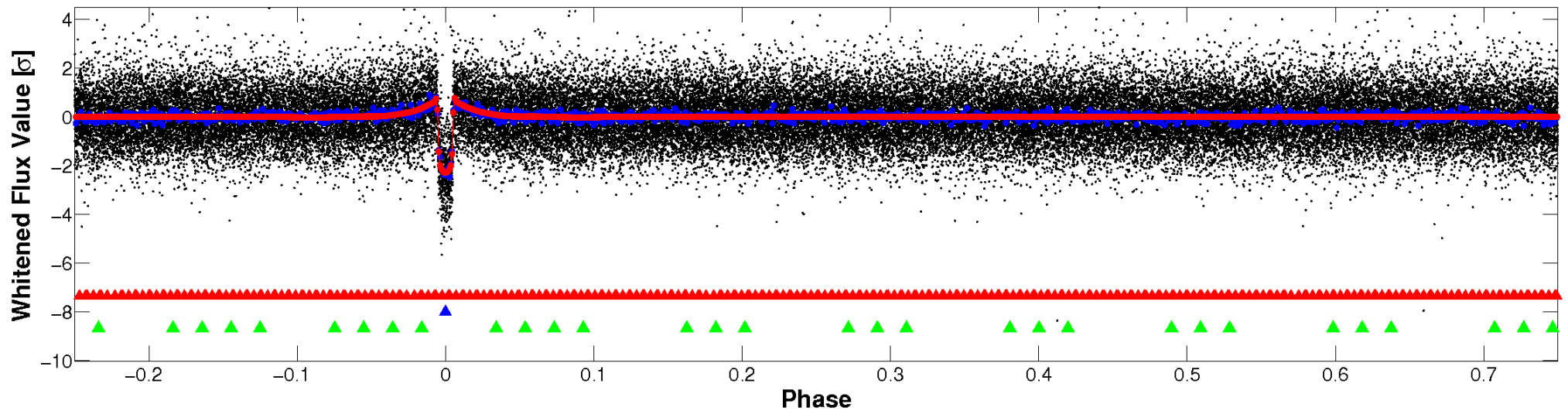


Non-Whitened Vs. Whitened Light Curve

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

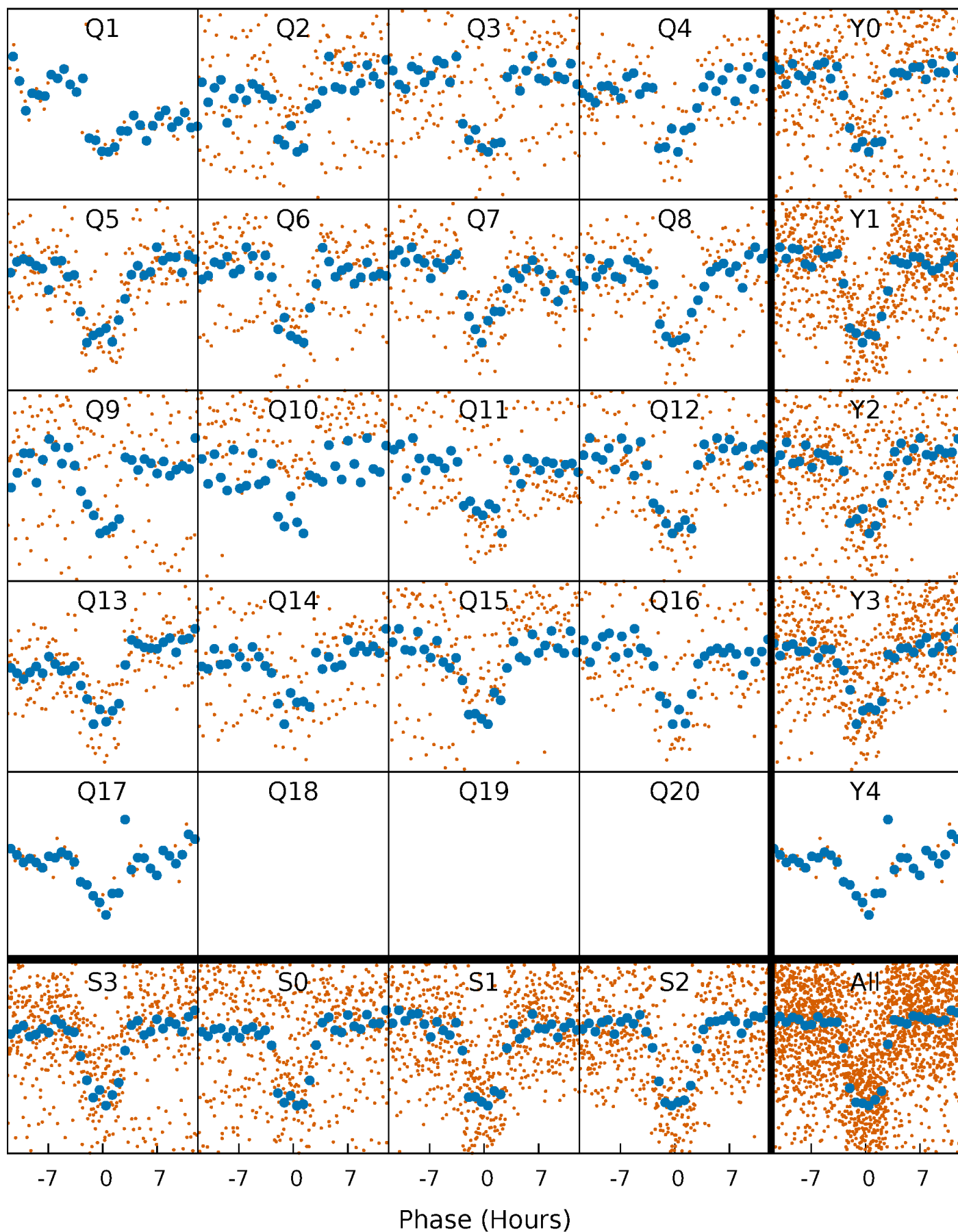


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



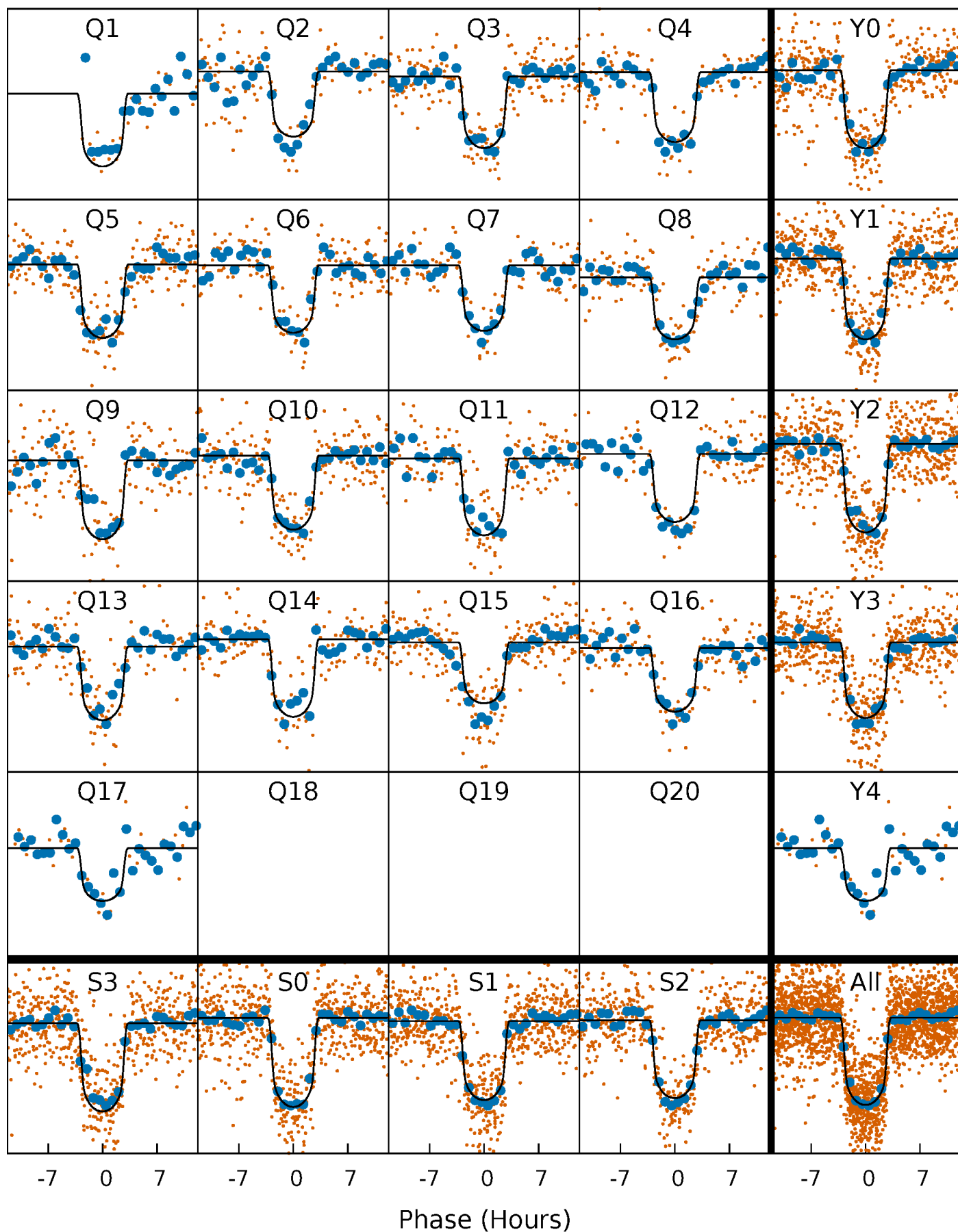
PDC Quarter-Phased Transit Curves

TCE 009884104-02 P= 22.714547 Days $T_0=147.294151$ (BKJD)



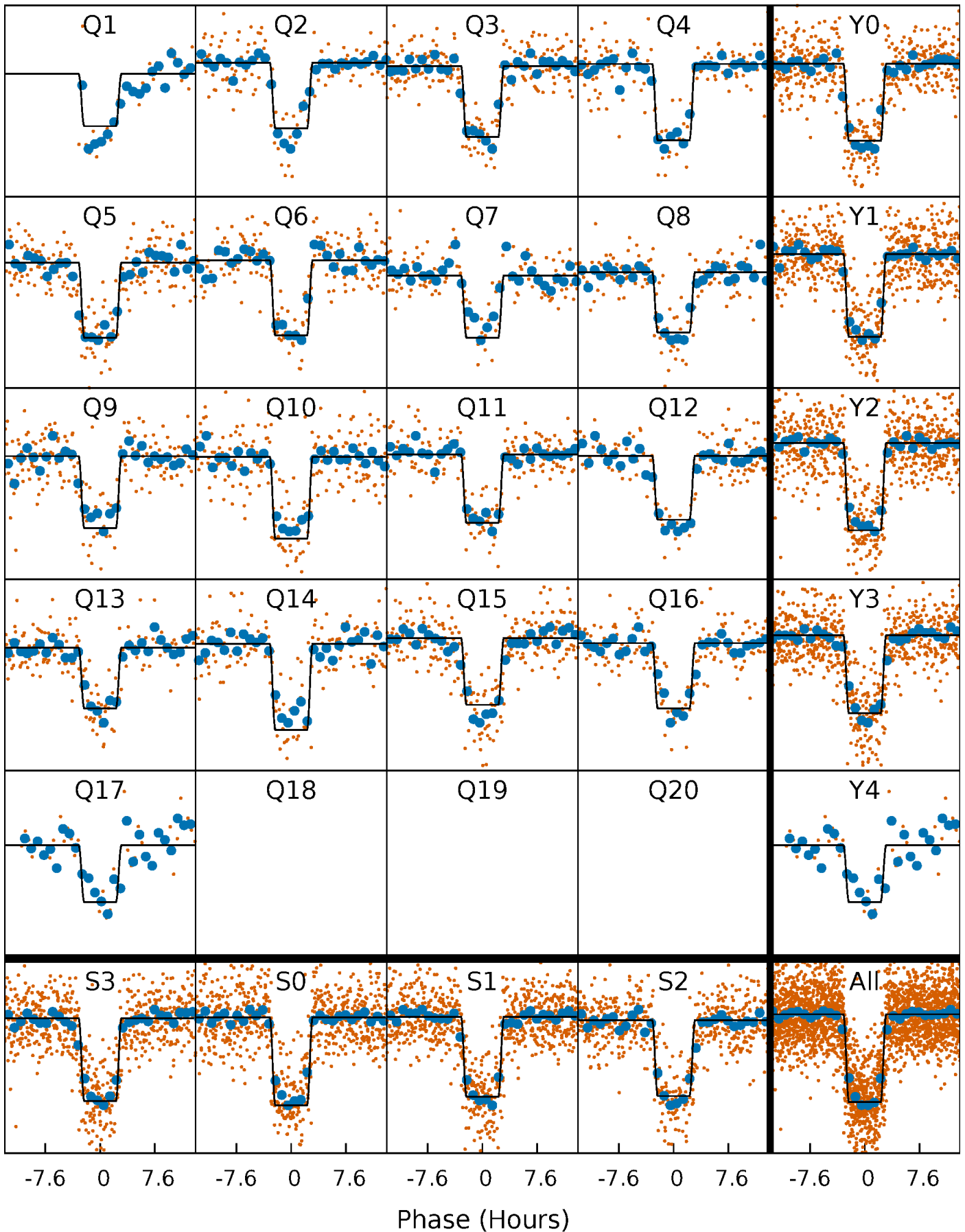
DV Quarter-Phased Transit Curves

TCE 009884104-02 P= 22.714547 Days $T_0=147.294151$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

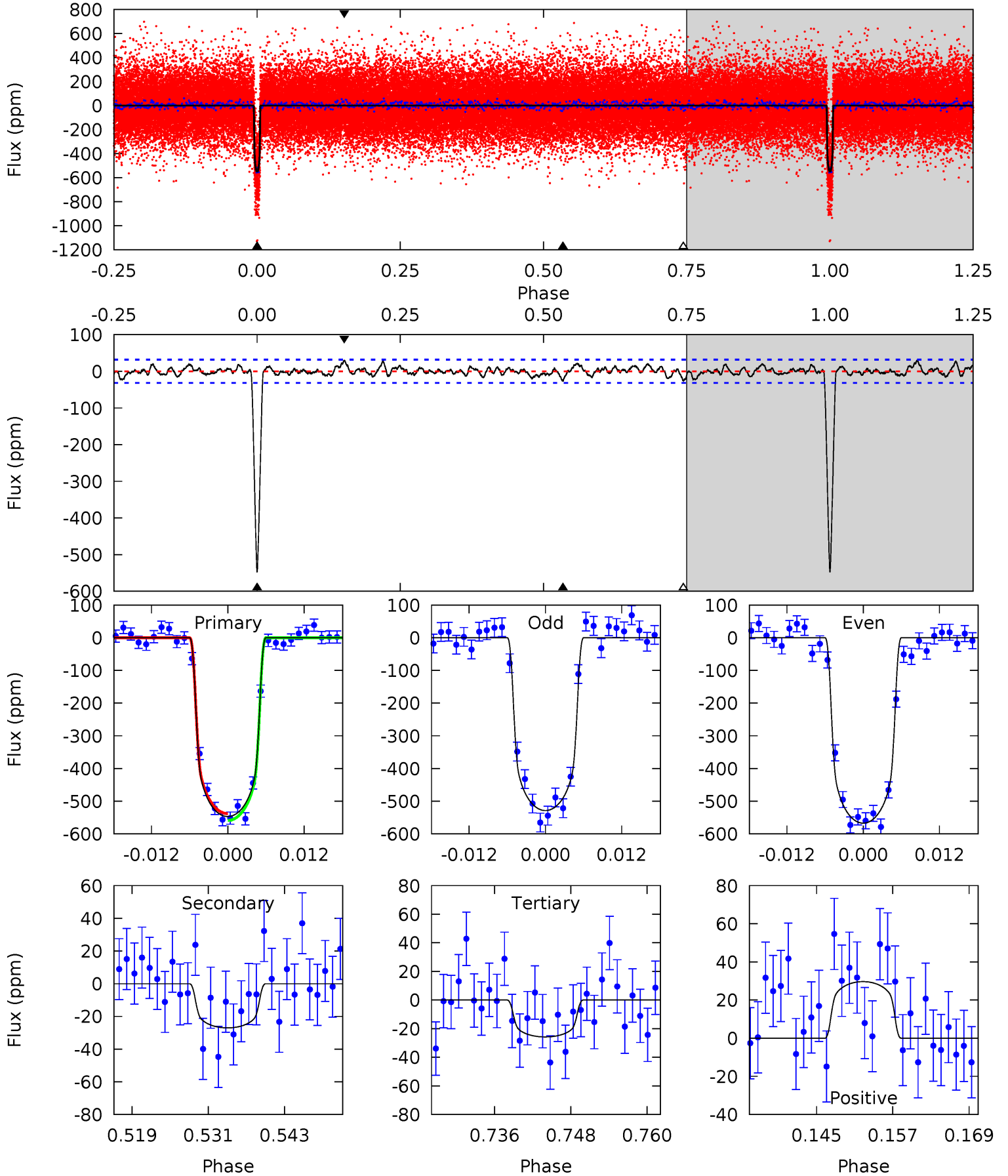
TCE 009884104-02 P= 22.714095 Days $T_0=147.306786$ (BKJD)



DV Model-Shift Uniqueness Test

009884104-02, P = 22.714547 Days, E = 124.579604 Days

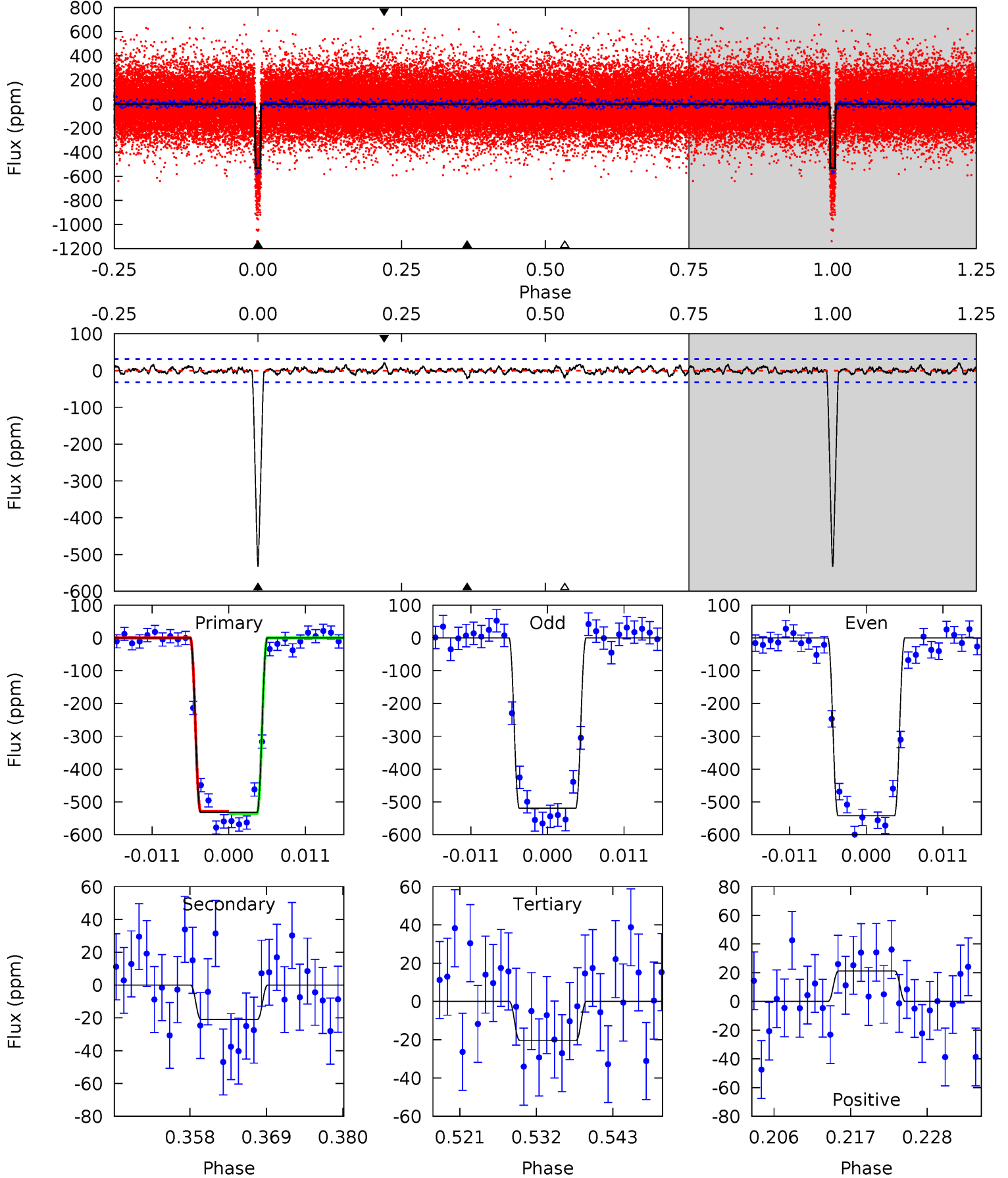
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.0	4.25	4.05	4.66	4.99	2.51	1.40	82.0	81.3	0.20	-0.42	3.02	0.98	0.05	1.64



Alt Model-Shift Uniqueness Test

009884104-02, P = 22.714095 Days, E = 124.592691 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
84.7	3.35	3.25	3.38	5.01	2.55	0.94	81.5	81.3	0.10	-0.03	1.84	1.00	0.04	0.52



Stellar Parameters For KIC 009884104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5788^{+104}_{-115}	$4.160^{+0.162}_{-0.108}$	$0.260^{+0.150}_{-0.150}$	$1.495^{+0.245}_{-0.326}$	$1.179^{+0.093}_{-0.139}$	$0.497^{+0.417}_{-0.166}$
	+2%/-2%	+4%/-3%	+58%/-58%	+16%/-22%	+8%/-12%	+84%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009884104-02 / KOI 0718.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-27 ± 6	$4.05^{+0.39}_{-0.50}$	1071^{+51}_{-60}	3223^{+124}_{-141}	25^{+9}_{-7}
Alt.	-21 ± 6	$3.83^{+0.41}_{-0.49}$	1067^{+52}_{-64}	3148^{+139}_{-164}	22^{+10}_{-7}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

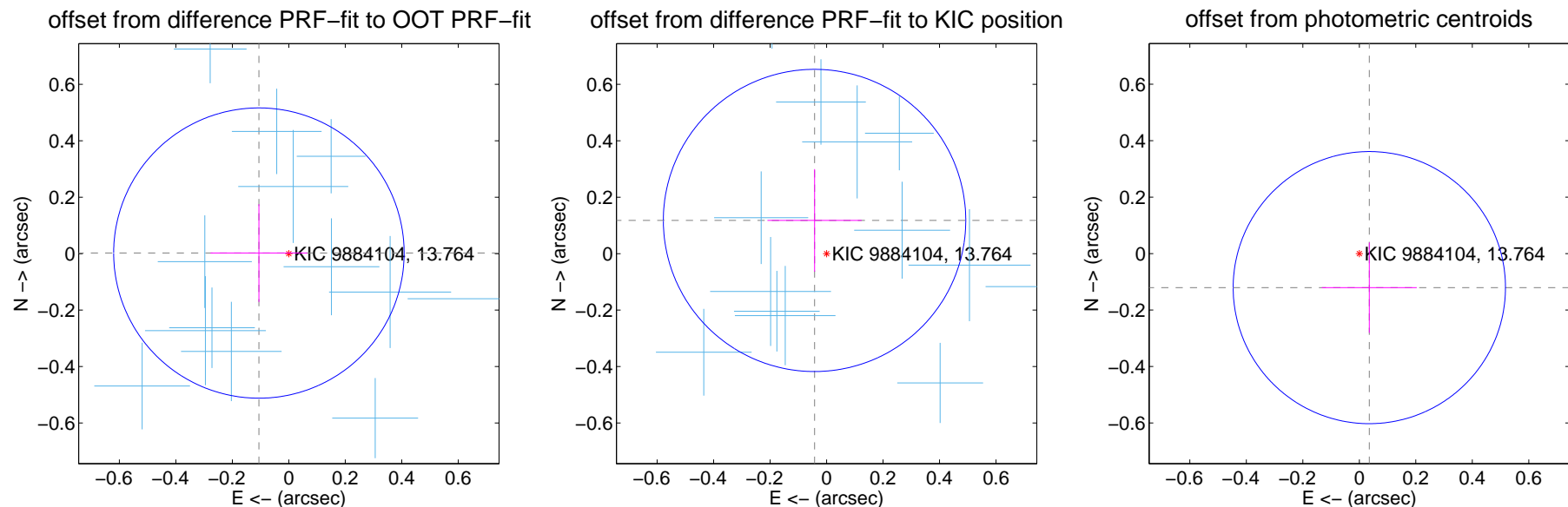
DV Centroid Data

Supplemental centroid analysis for 009884104-02. Kepler magnitude: 13.76. Transit SNR 50.17

There are 17 quarters with good PRF difference image offsets

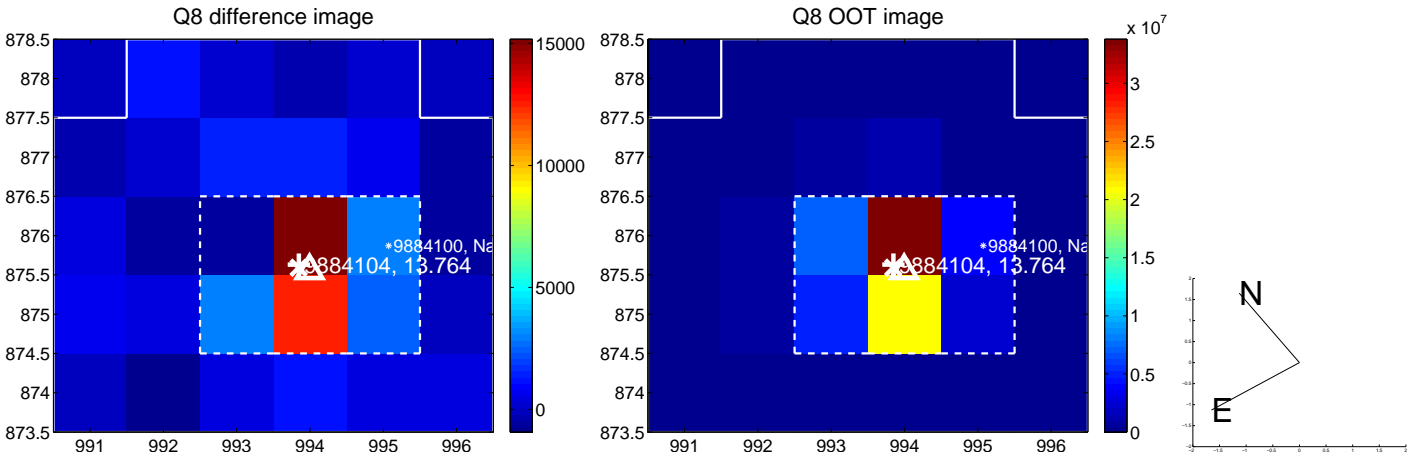
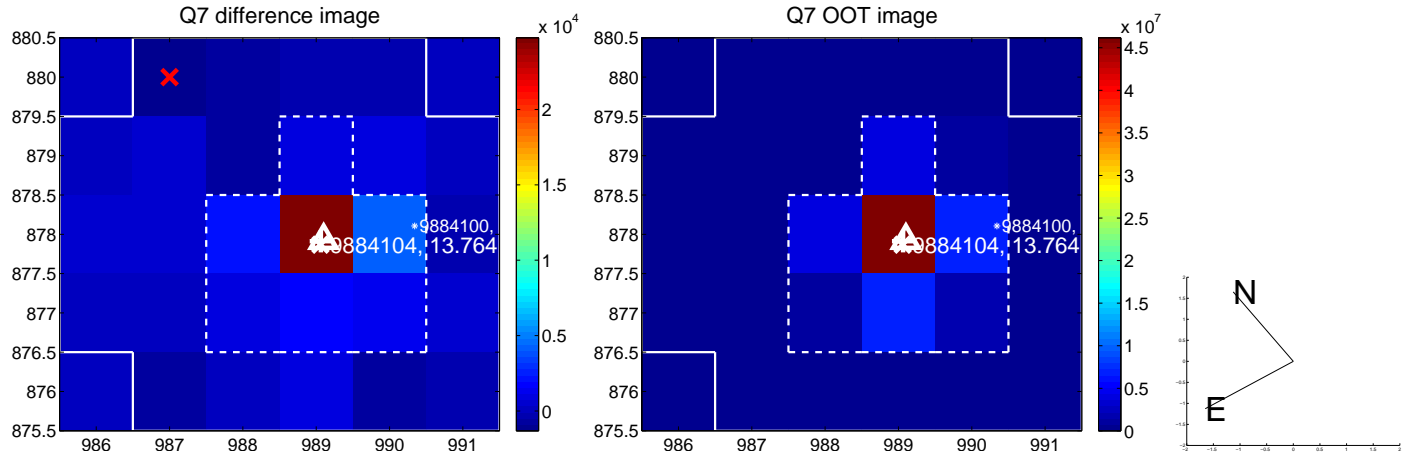
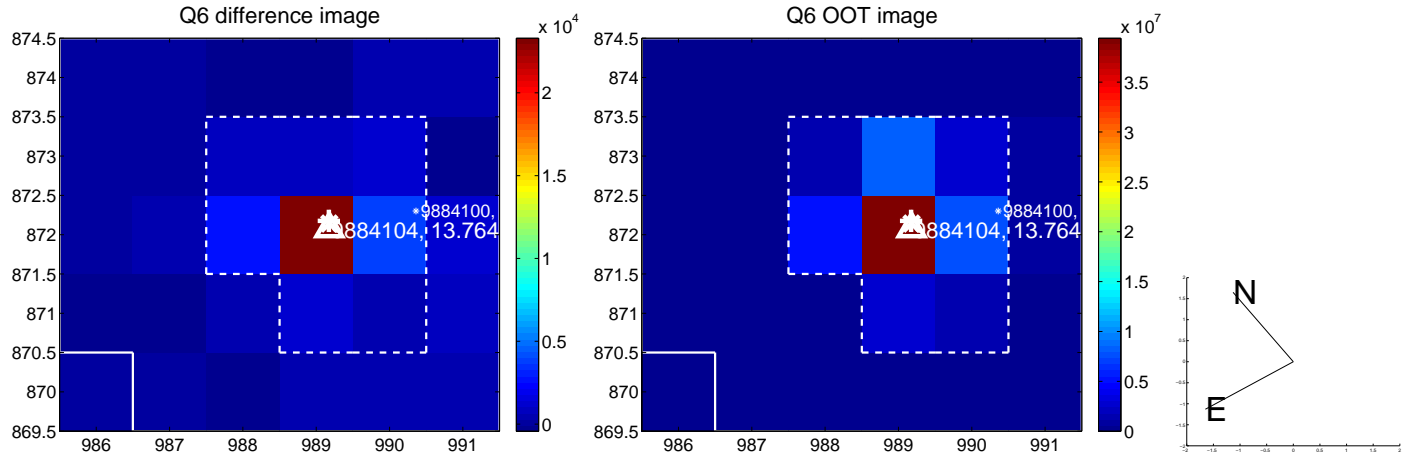
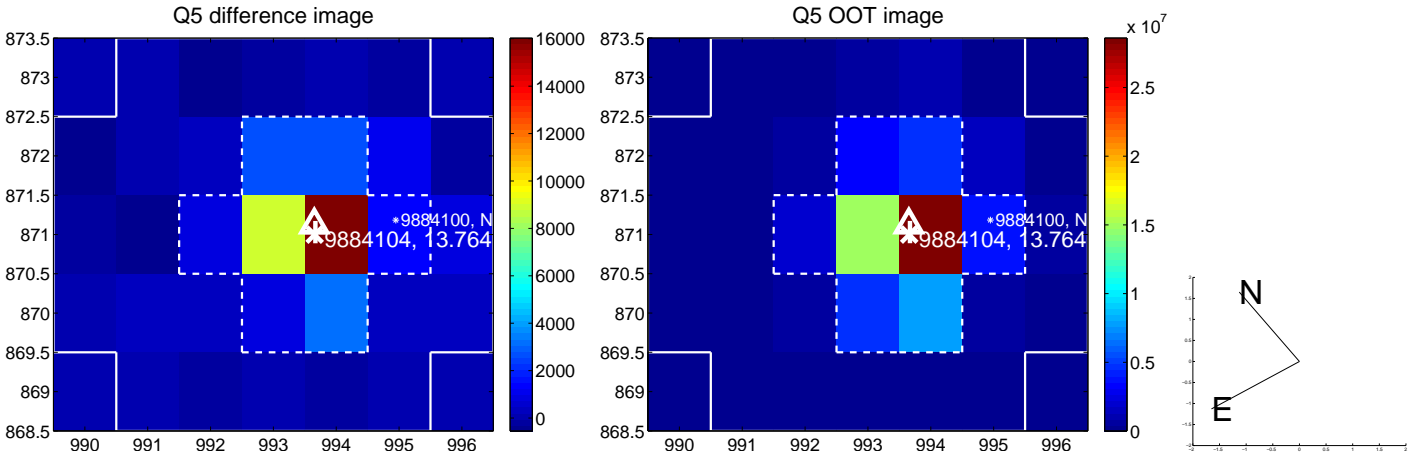
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.106 ± 0.171	0.62	0.106 ± 0.172	0.002 ± 0.173
PRF-fit source offset from KIC position	0.125 ± 0.178	0.70	0.043 ± 0.167	0.118 ± 0.182
photometric centroid source offset	0.13 ± 0.16	0.78	-0.04 ± 0.17	-0.12 ± 0.16

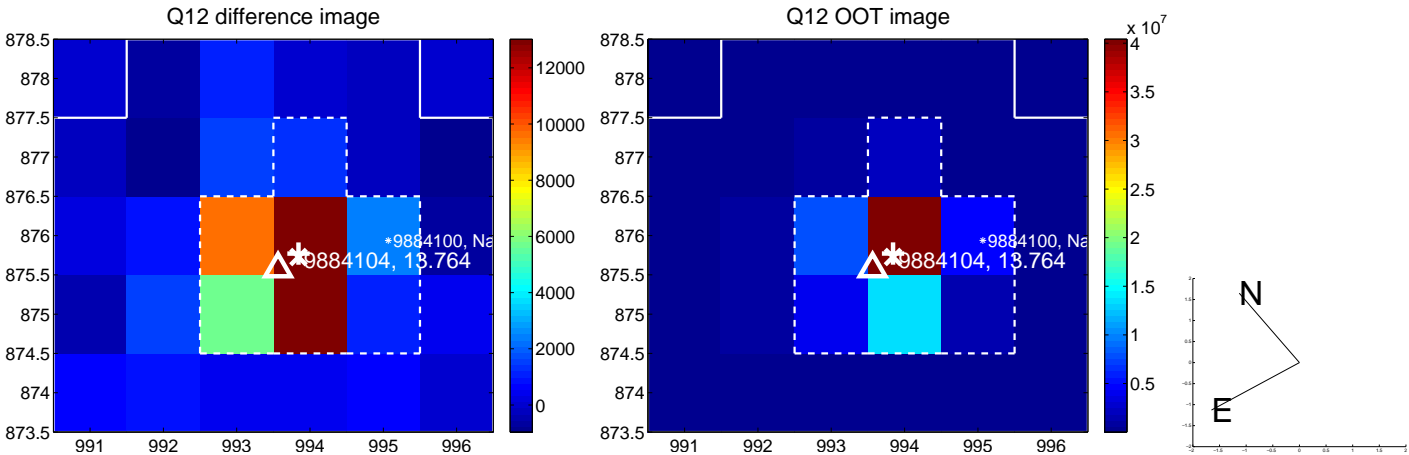
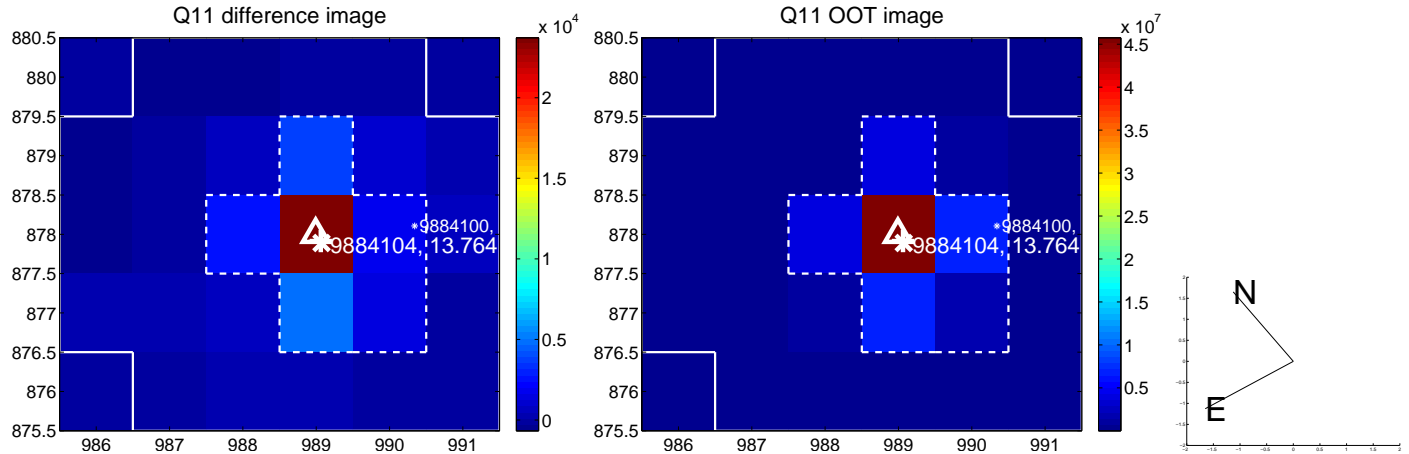
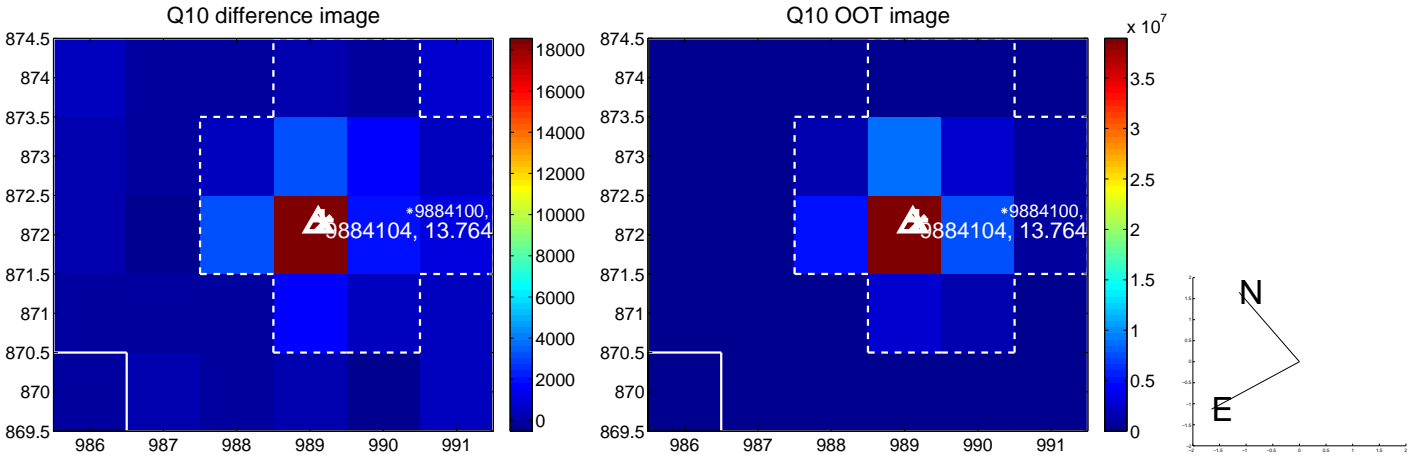
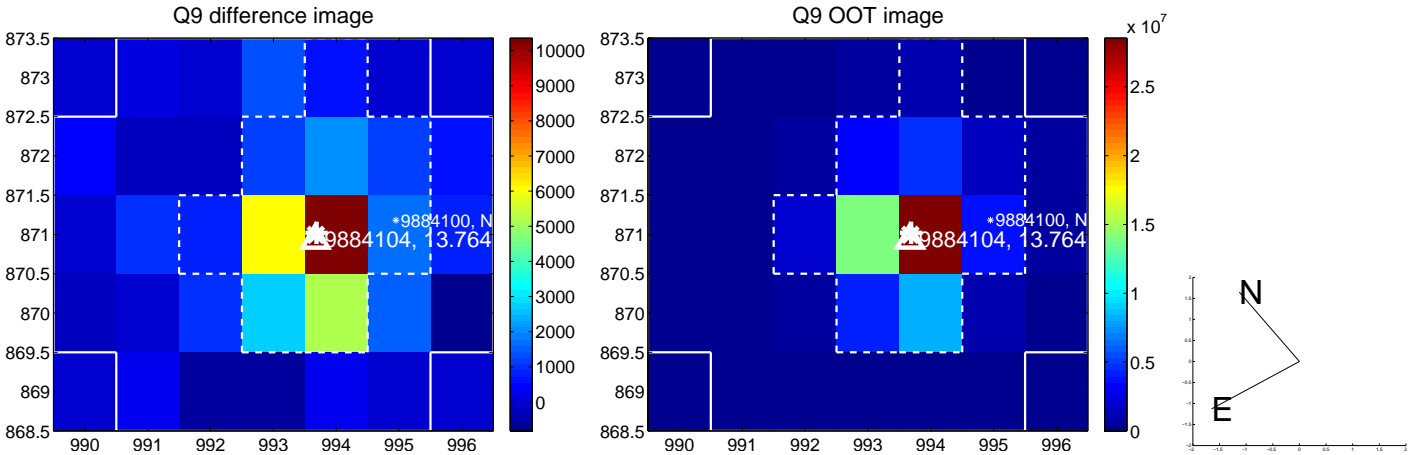


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

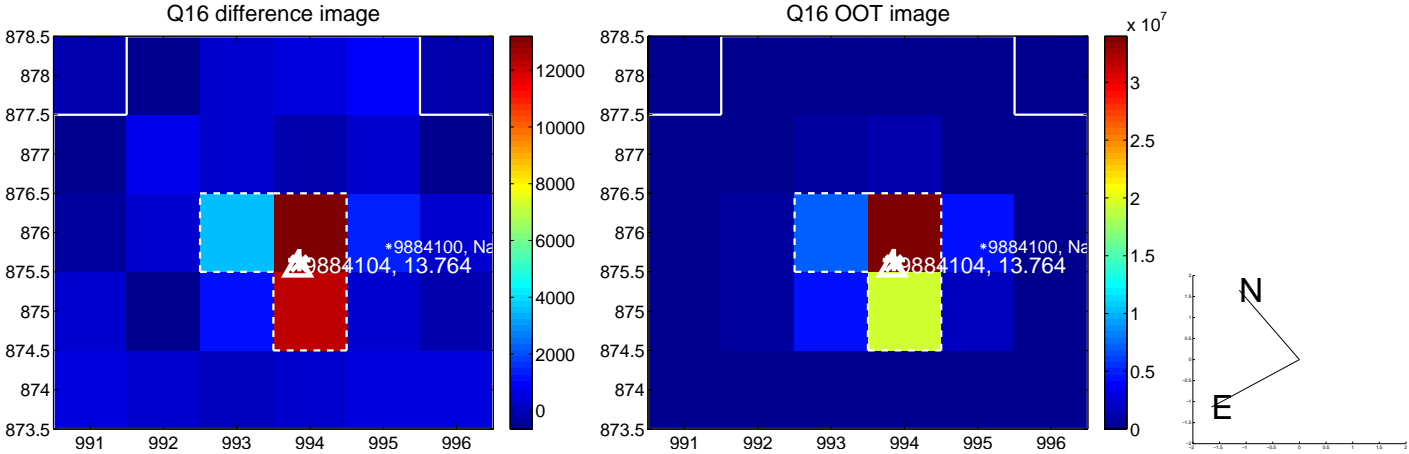
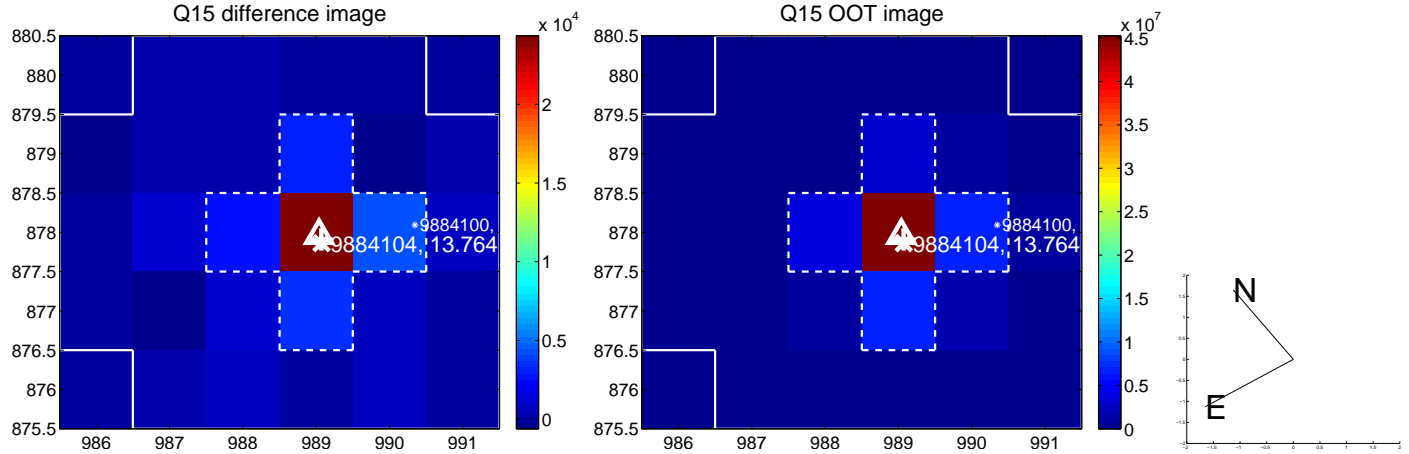
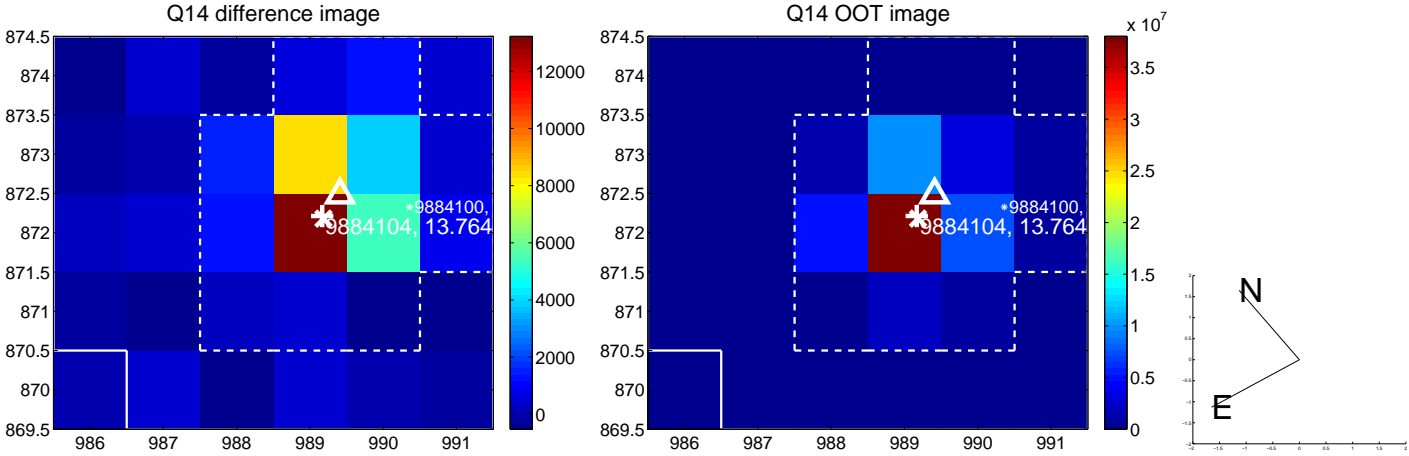
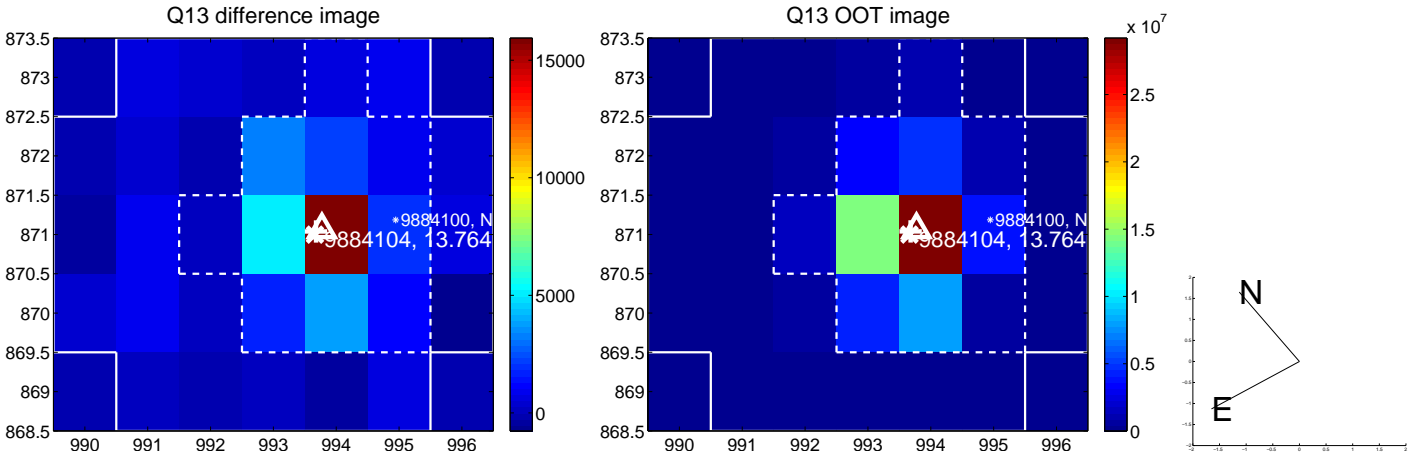
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



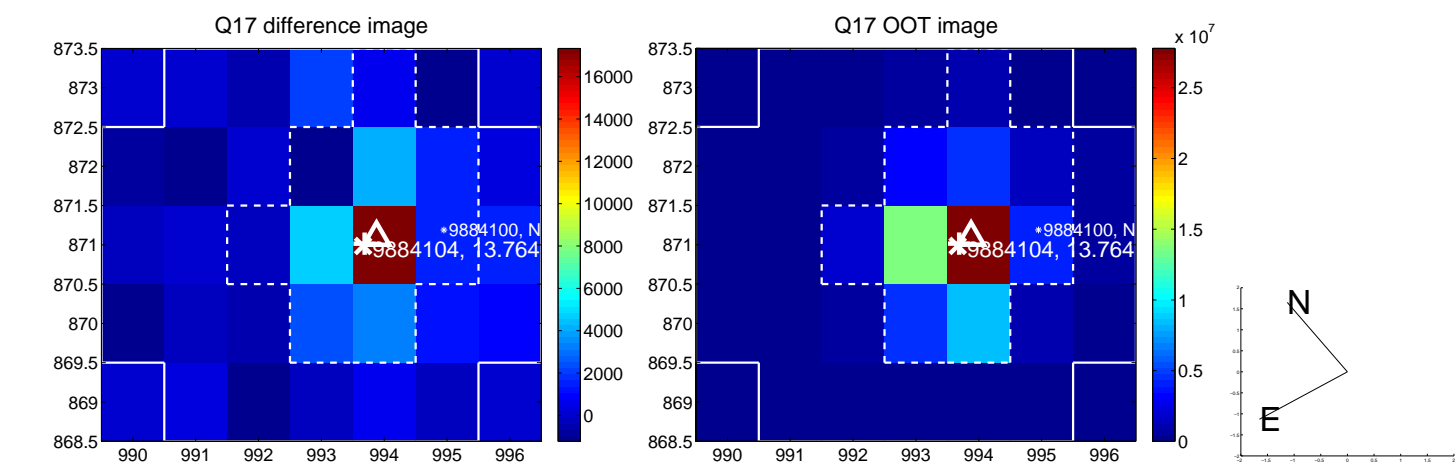
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



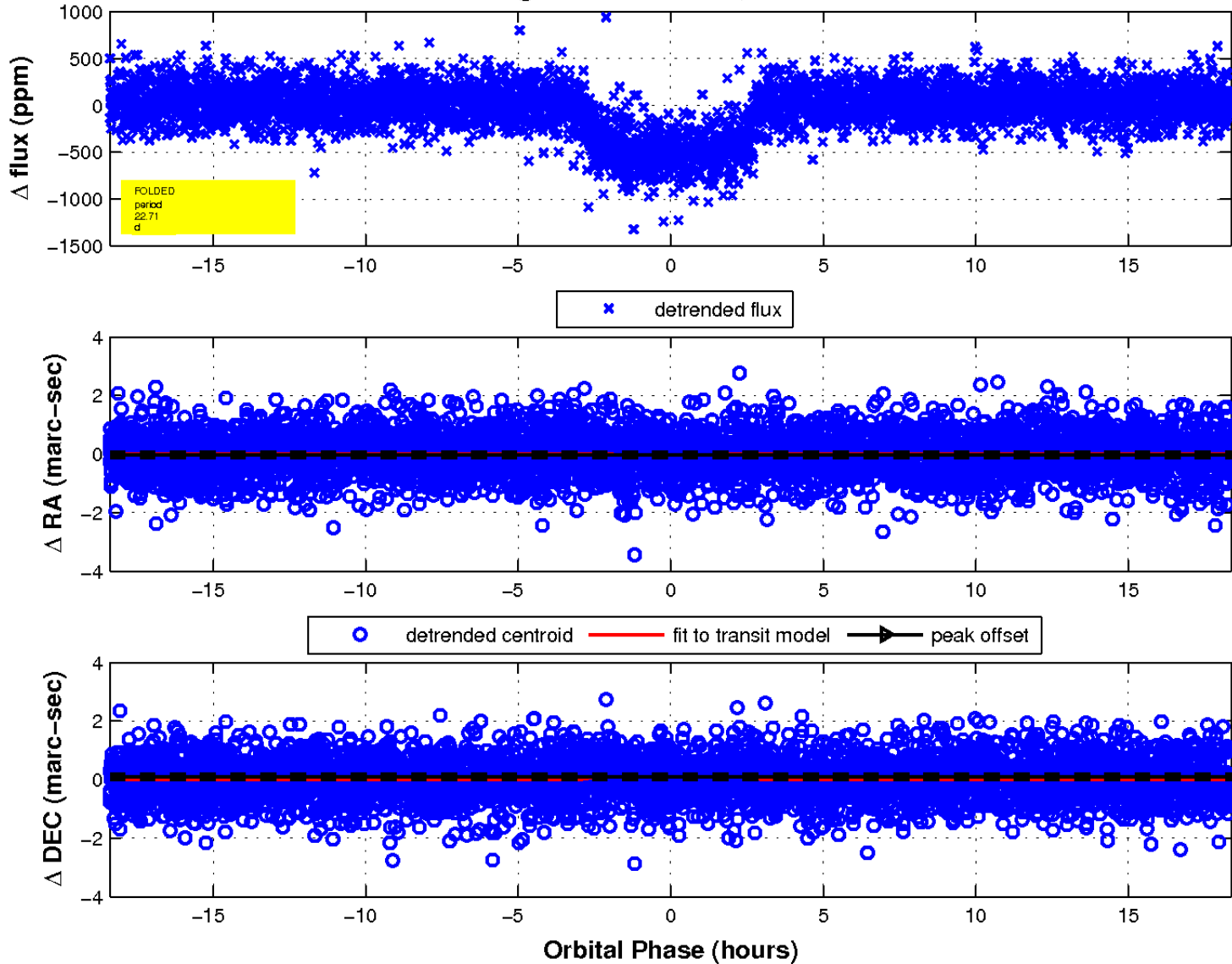
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

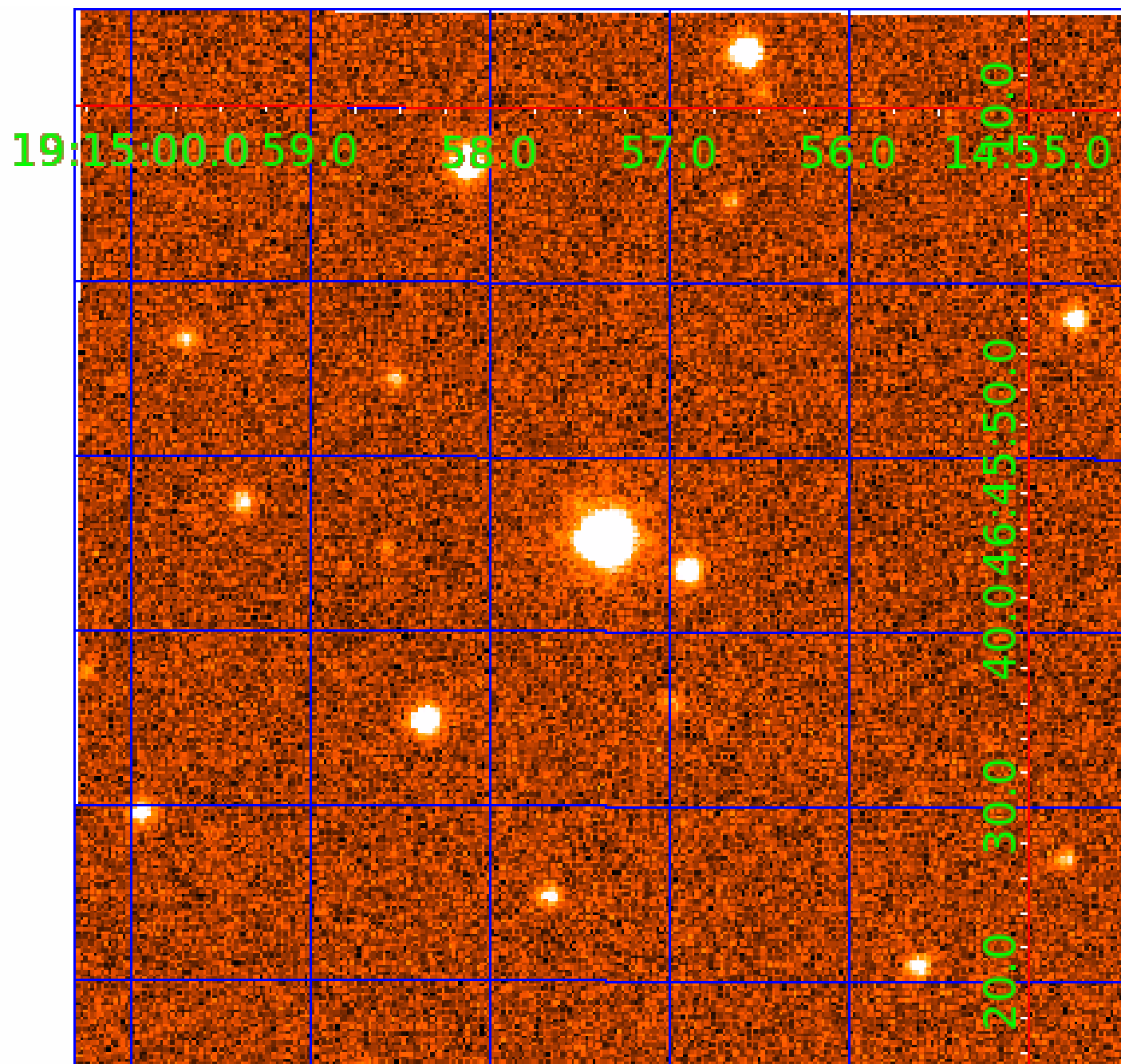


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 009884104

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})
009884104-01	OBS	0718.01	4.585467	133.177313	373.1	3.540	62.9	68.3	1.50	5788	3.40	690.12
009884104-02	OBS	0718.02	22.714547	147.294151	551.3	6.132	46.5	50.2	1.50	5788	4.05	81.73
009884104-03	OBS	0718.03	47.903560	141.981334	371.3	6.267	22.8	25.0	1.50	5788	3.54	30.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009884104-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009884104-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009884104-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

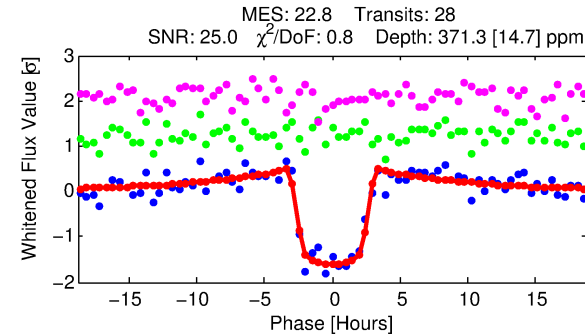
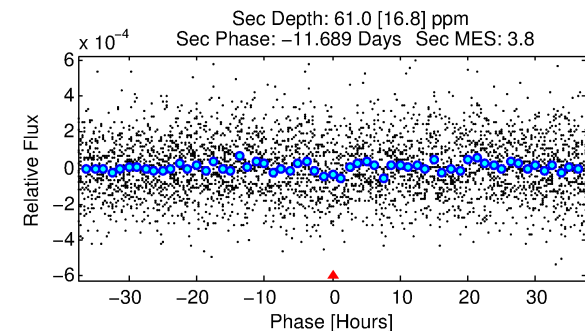
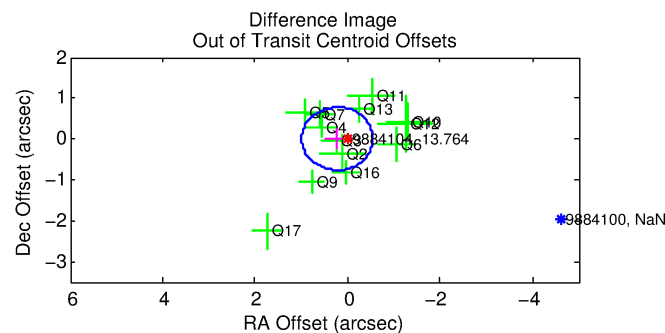
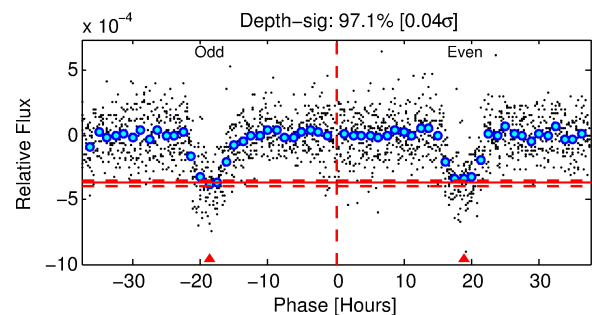
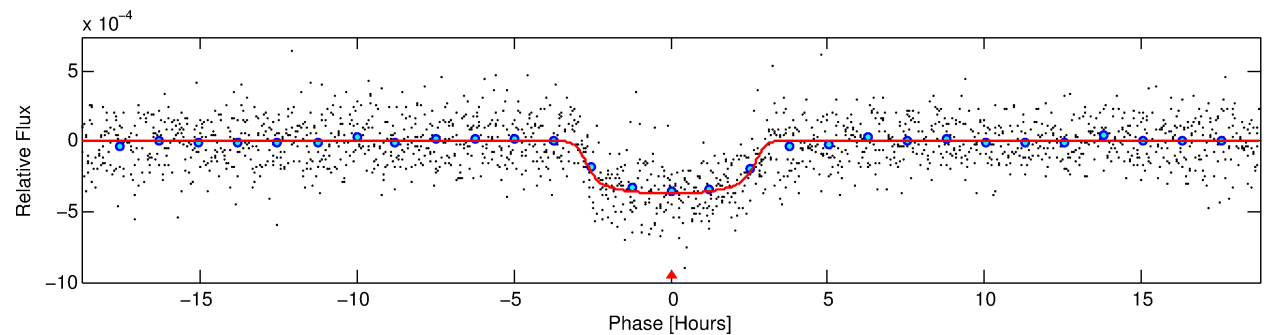
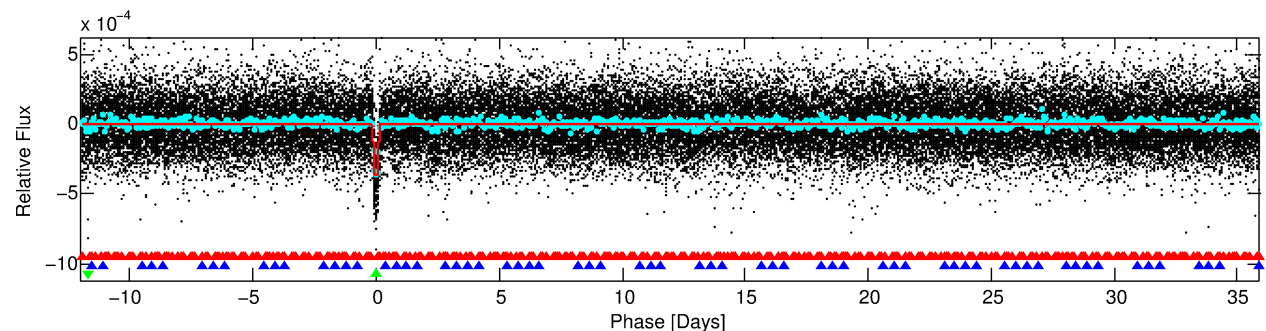
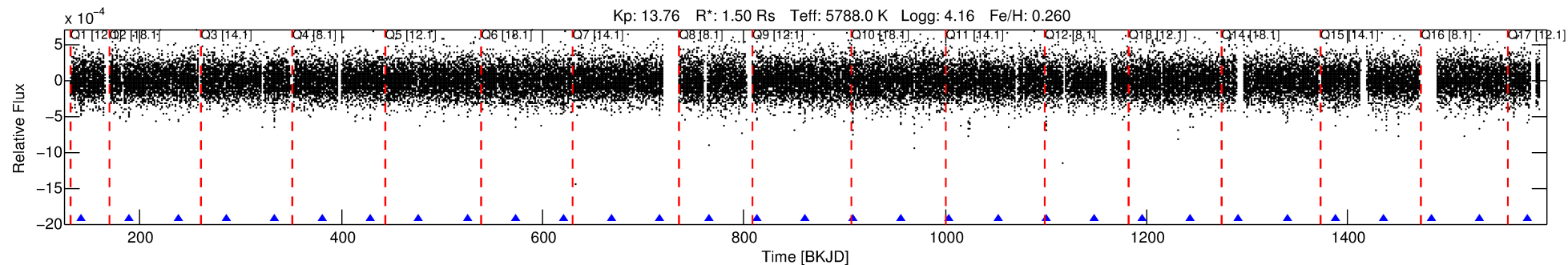
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009884104-03

No Significant Match Found

DV One-Page Summary

KIC: 9884104 Candidate: 3 of 3 Period: 47.904 d
KOI: K00718.03 Name: Kepler-219d Corr: 0.958



DV Fit Results:

Period = 47.90356 [0.00024] d
Epoch = 141.9813 [0.0039] BKJD
Rp/R* = 0.0217 [0.0010]
a/R* = 25.26 [4.83]
b = 0.93 [0.03]
Seff = 30.22 [9.03]
Teff = 598 [45] K
Rp = 3.54 [0.79] Re
a = 0.2727 [0.0522] AU
Ag = 199.34 [81.72] [2.43 σ]
Teffp = 3473 [263] K [10.80 σ]

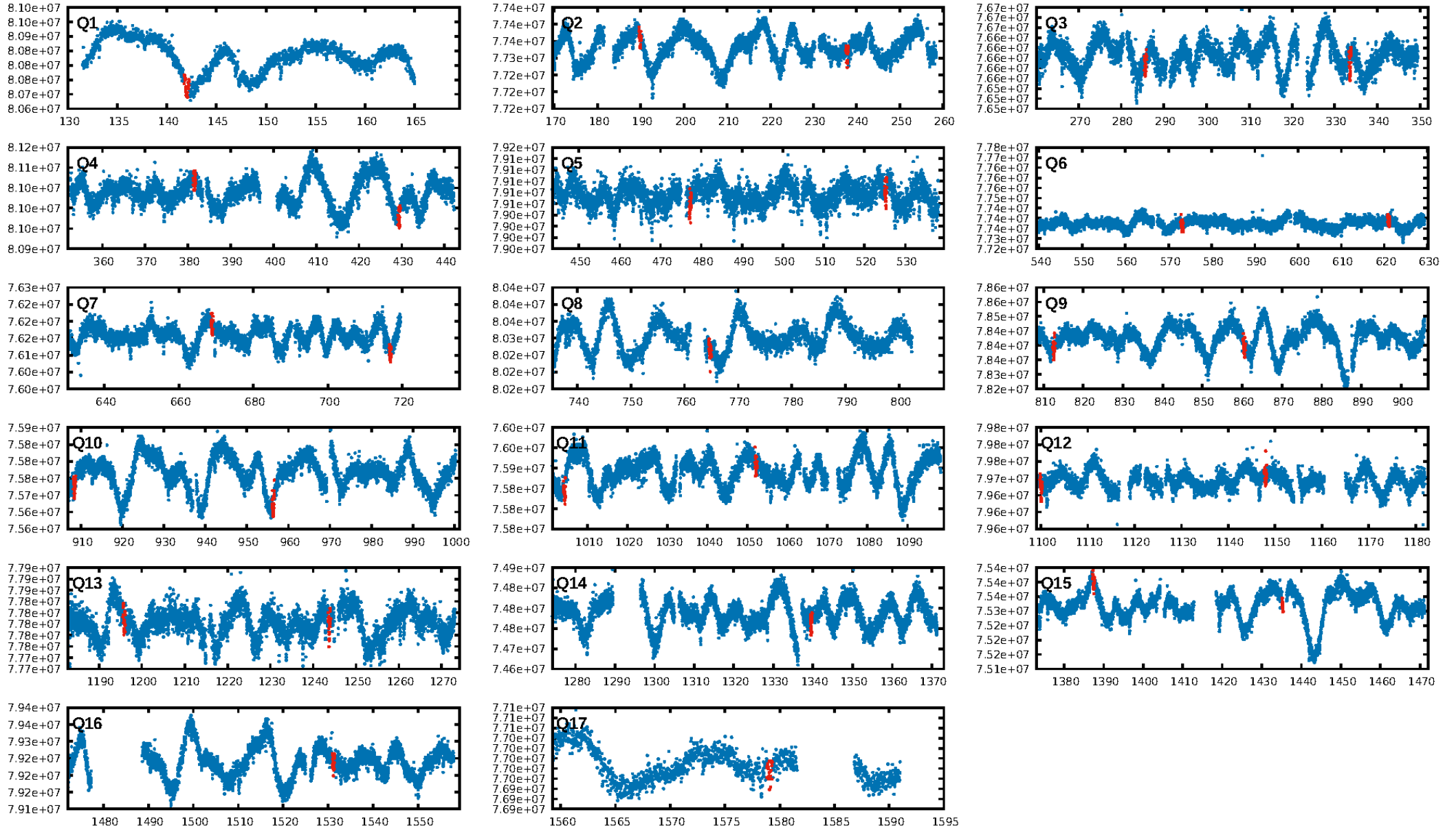
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.95 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 80.9%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 1.04e-89
RollingBand-fgt: 1.00 [26/26]
GhostDiagnostic-chr: 8.548
Centroid-sig: 0.1%
Centroid-so: 0.715 arcsec [2.05 σ]
OotOffset-rm: 0.230 arcsec [0.90 σ]
KicOffset-rm: 0.187 arcsec [0.75 σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 0.86 [12/14]

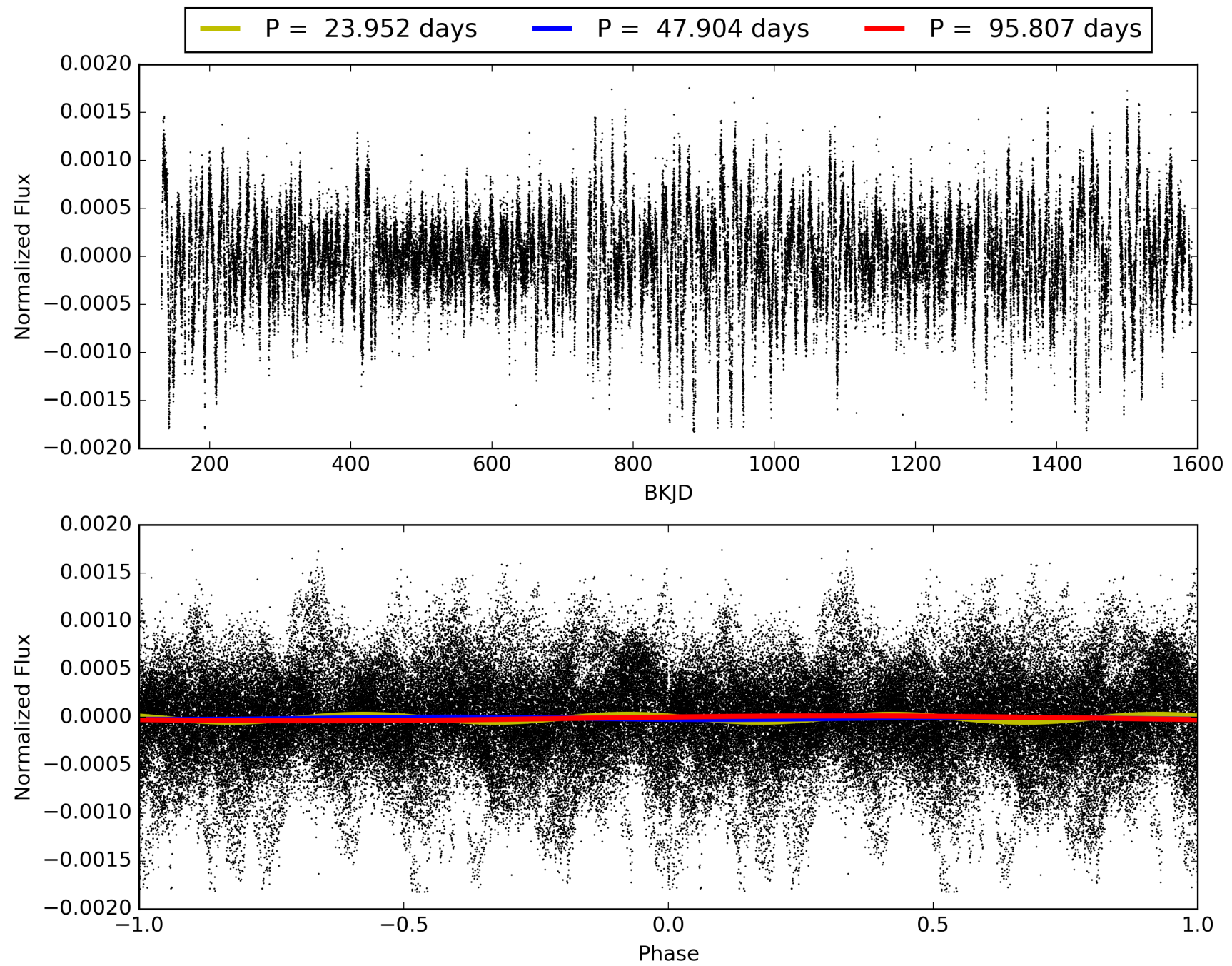
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:02:50 Z

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

TCE 009884104-03, PDC Light Curves

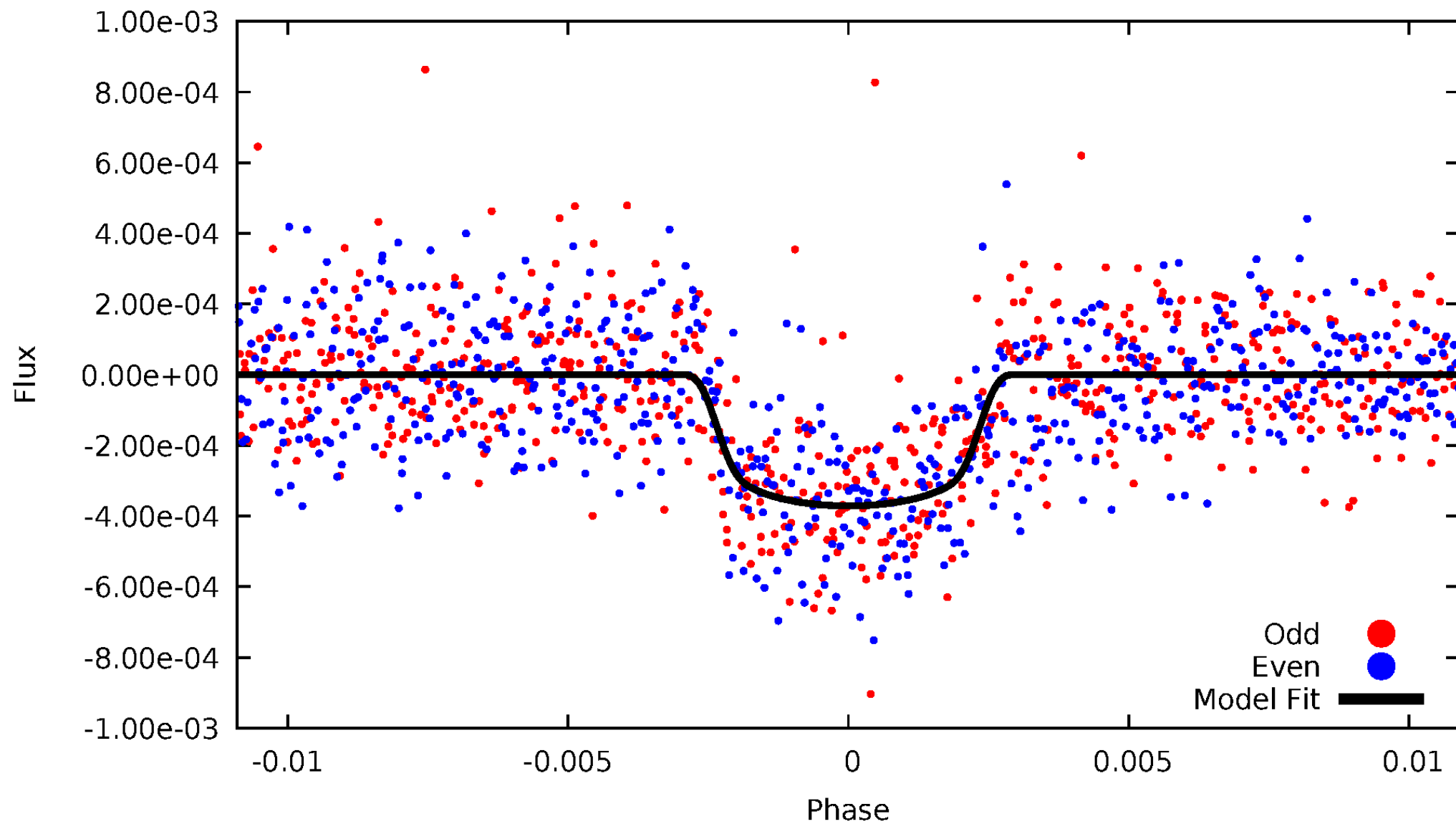


TCE 009884104-03



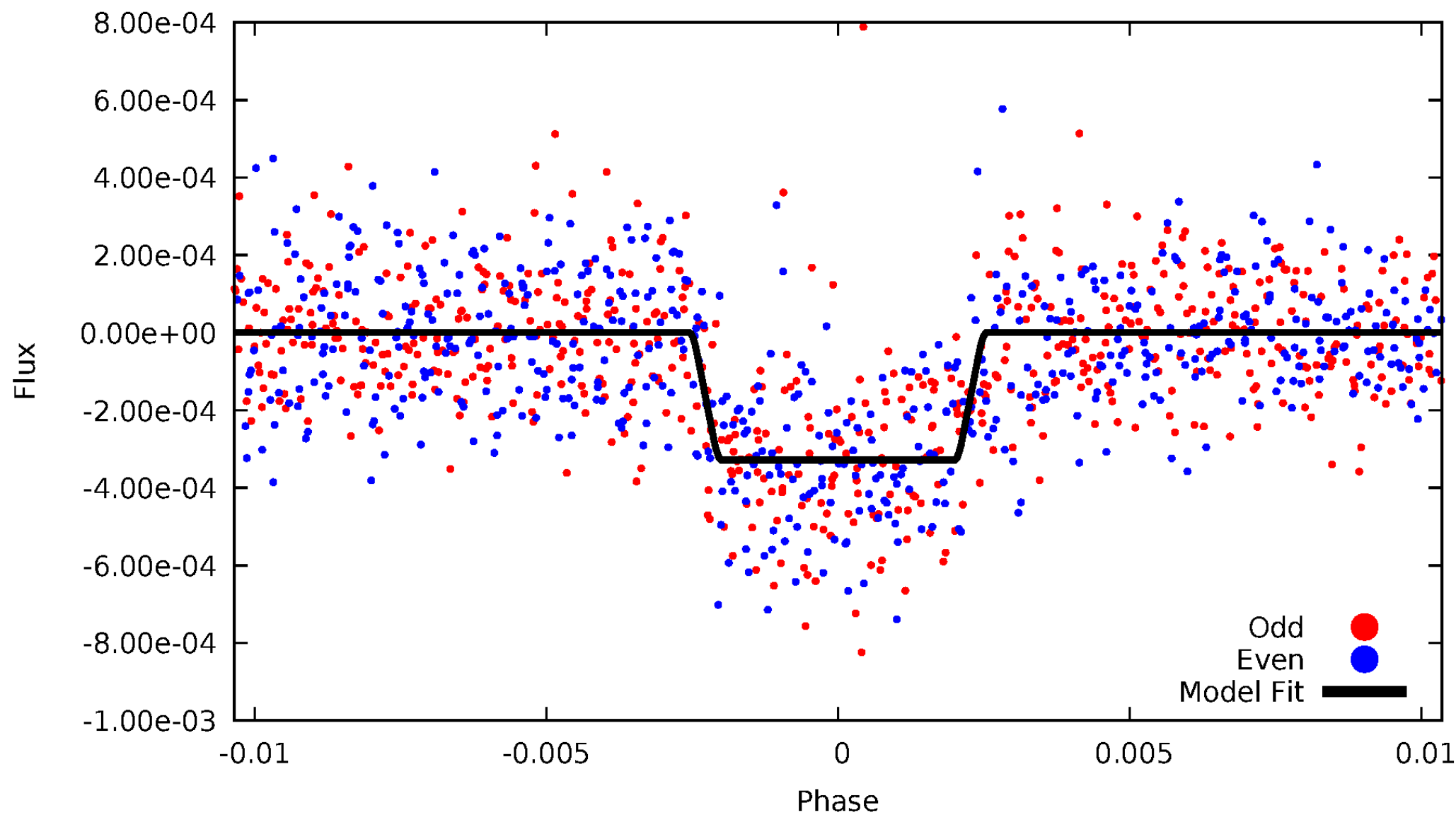
DV Odd/Even

TCE 009884104-03



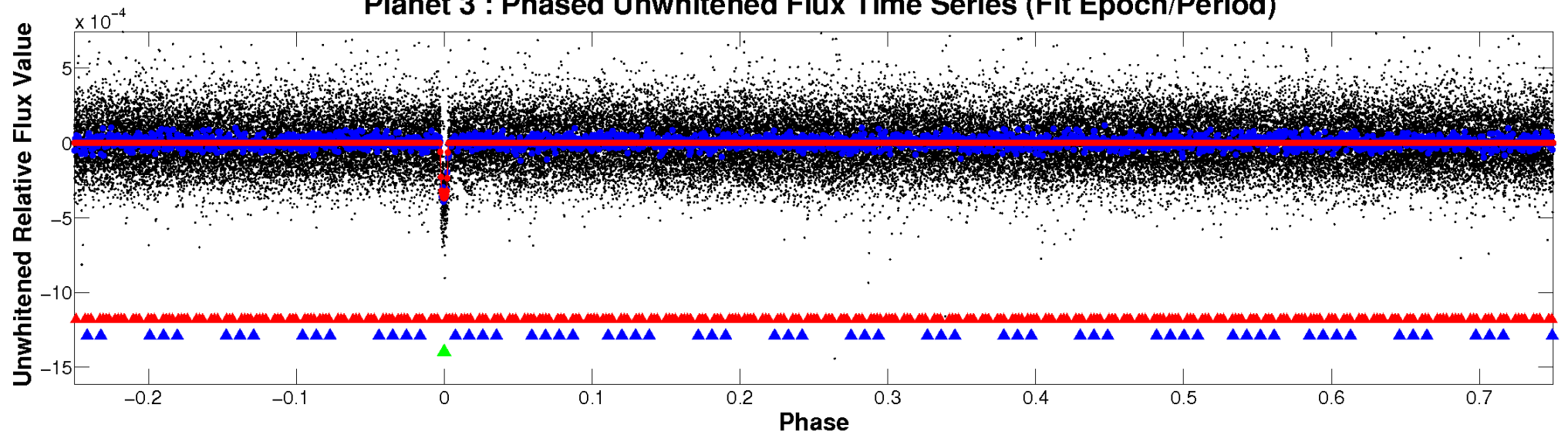
ALT Odd/Even

TCE 009884104-03

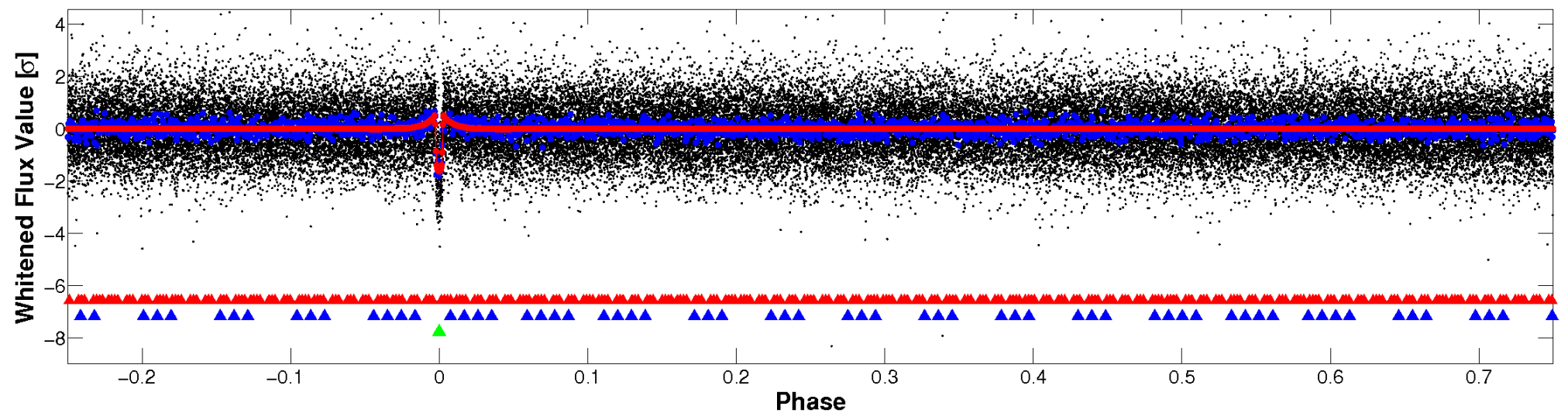


Non-Whitened Vs. Whitened Light Curve

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

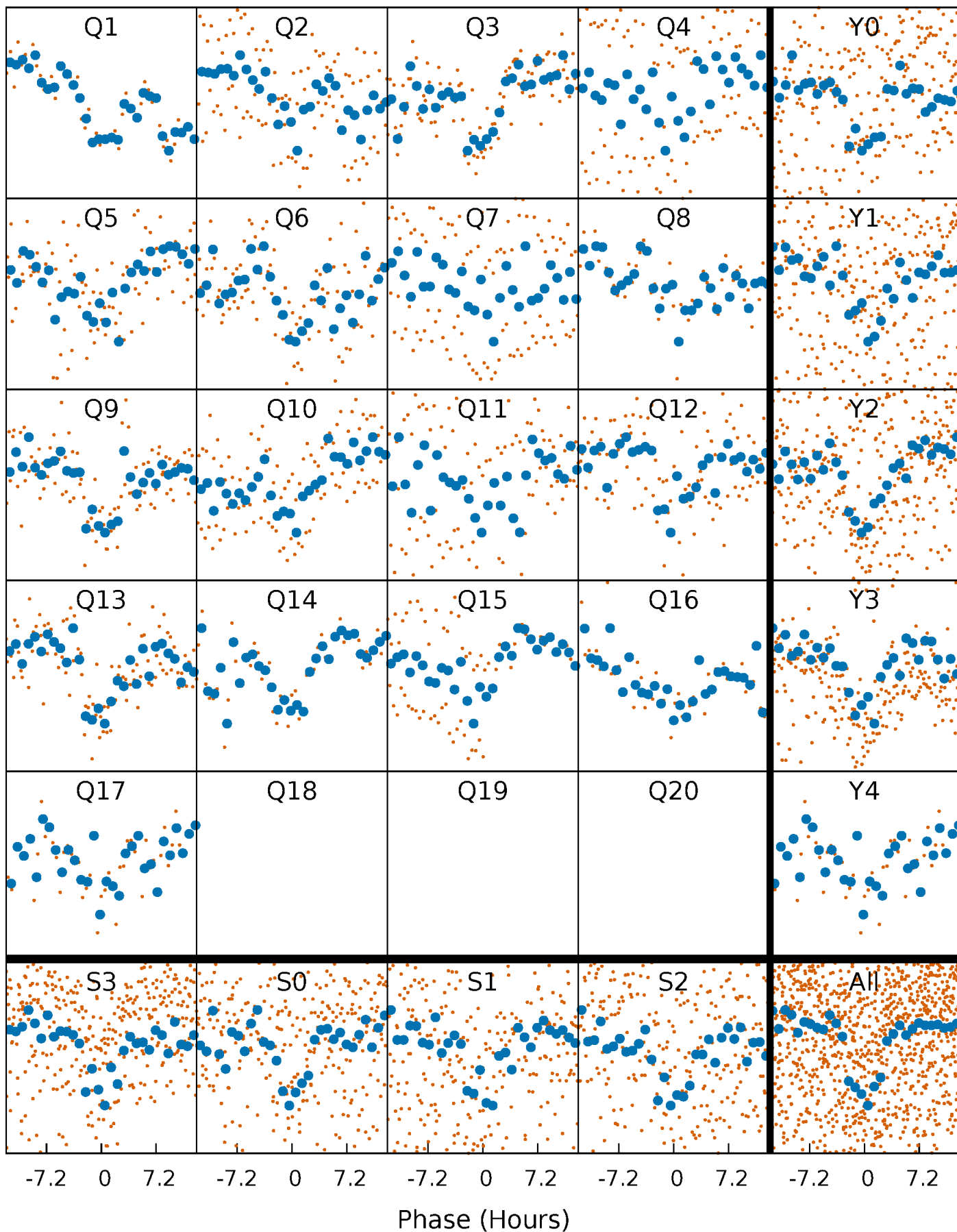


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



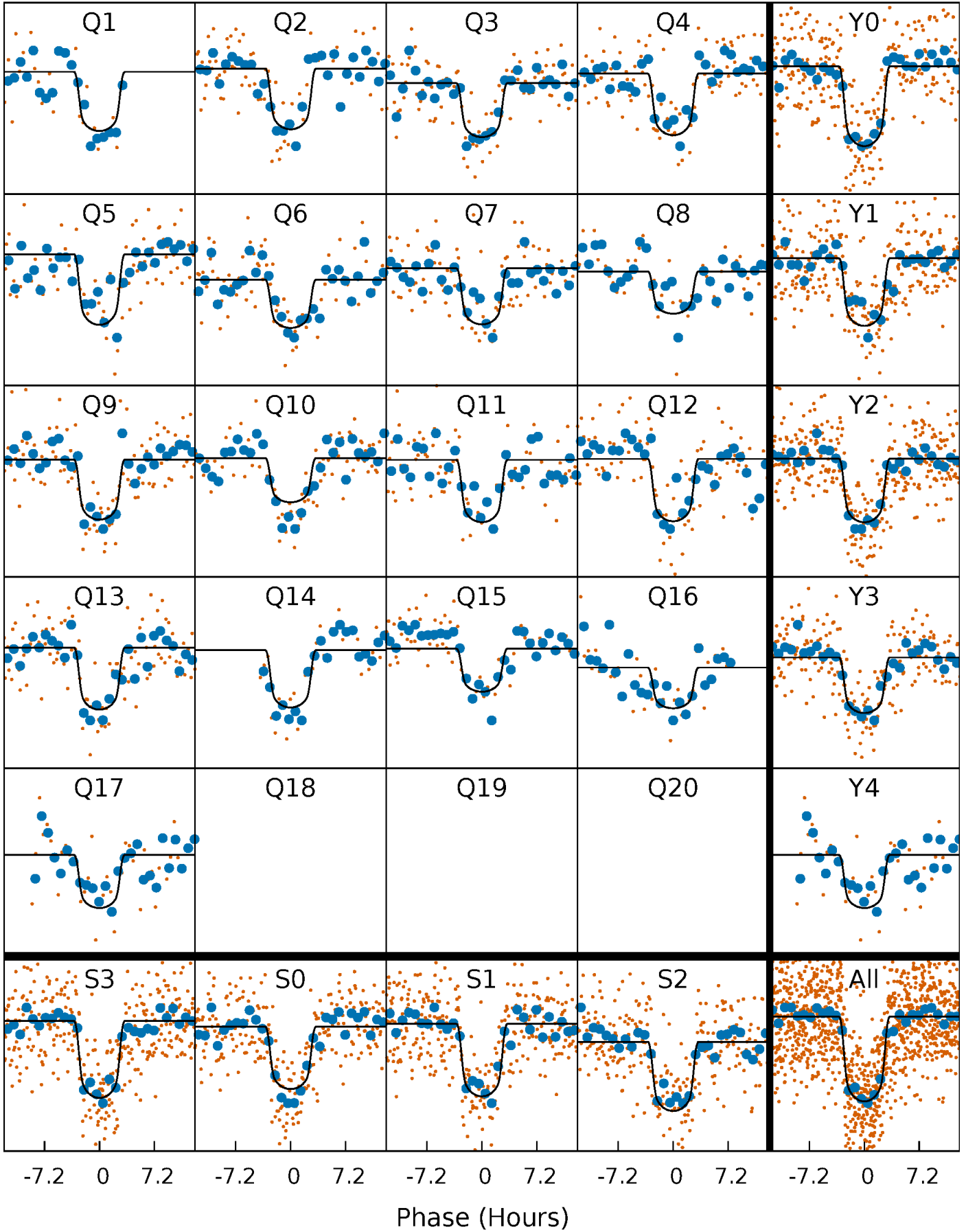
PDC Quarter-Phased Transit Curves

TCE 009884104-03 P= 47.903560 Days $T_0=141.981334$ (BKJD)



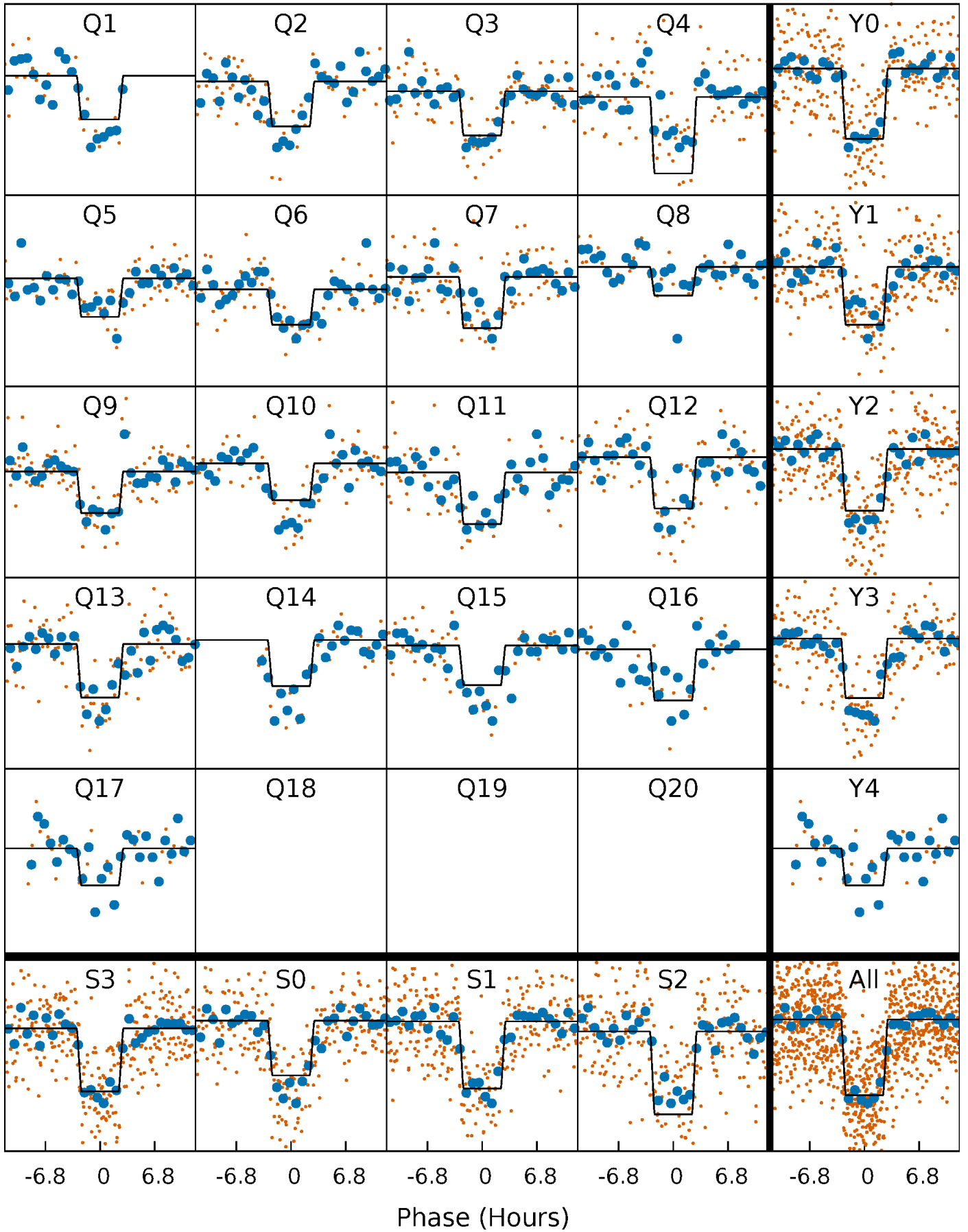
DV Quarter-Phased Transit Curves

TCE 009884104-03 P= 47.903560 Days $T_0=141.981334$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

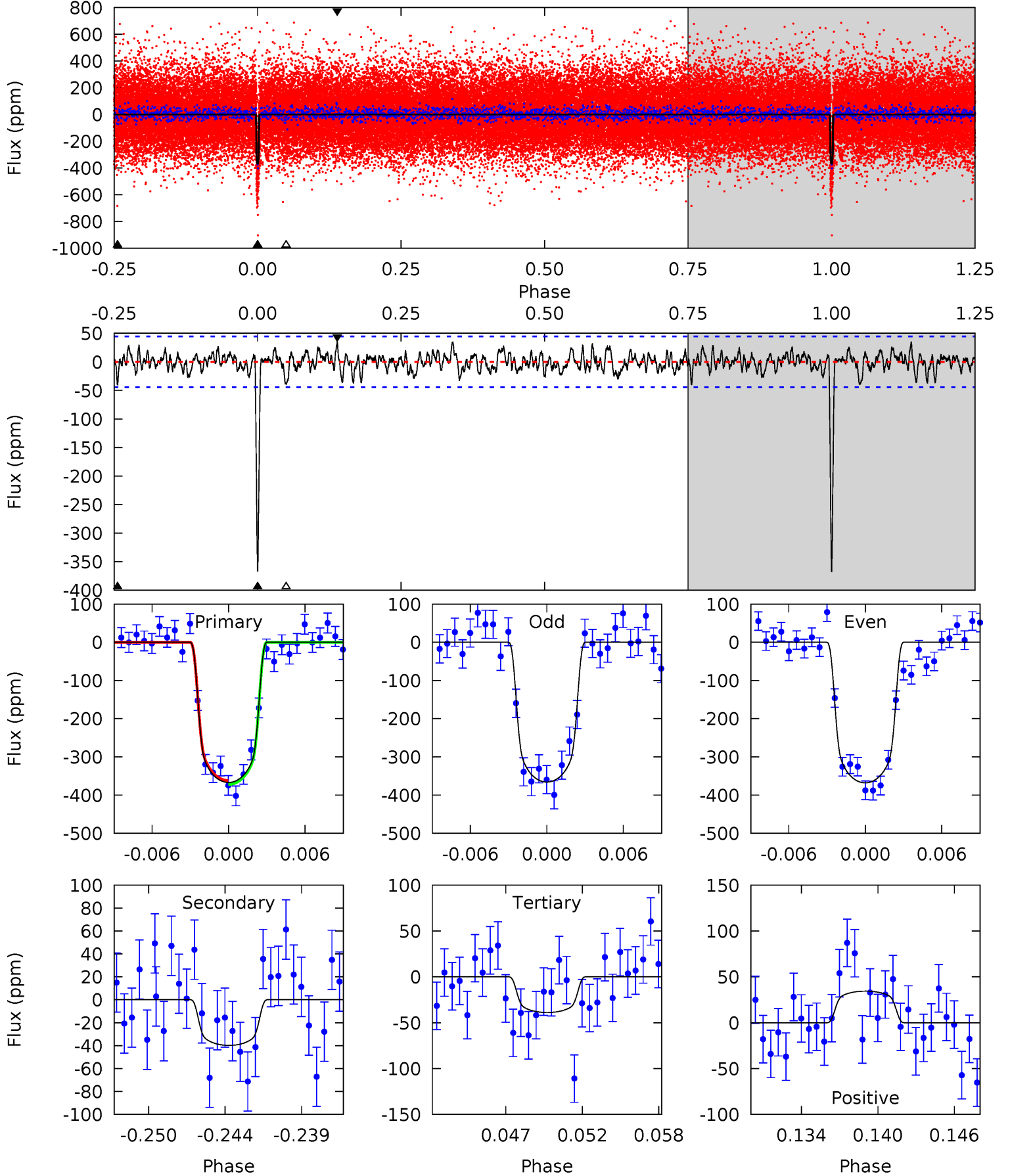
TCE 009884104-03 P= 47.903838 Days $T_0=141.977536$ (BKJD)



DV Model-Shift Uniqueness Test

009884104-03, P = 47.903560 Days, E = 94.077774 Days

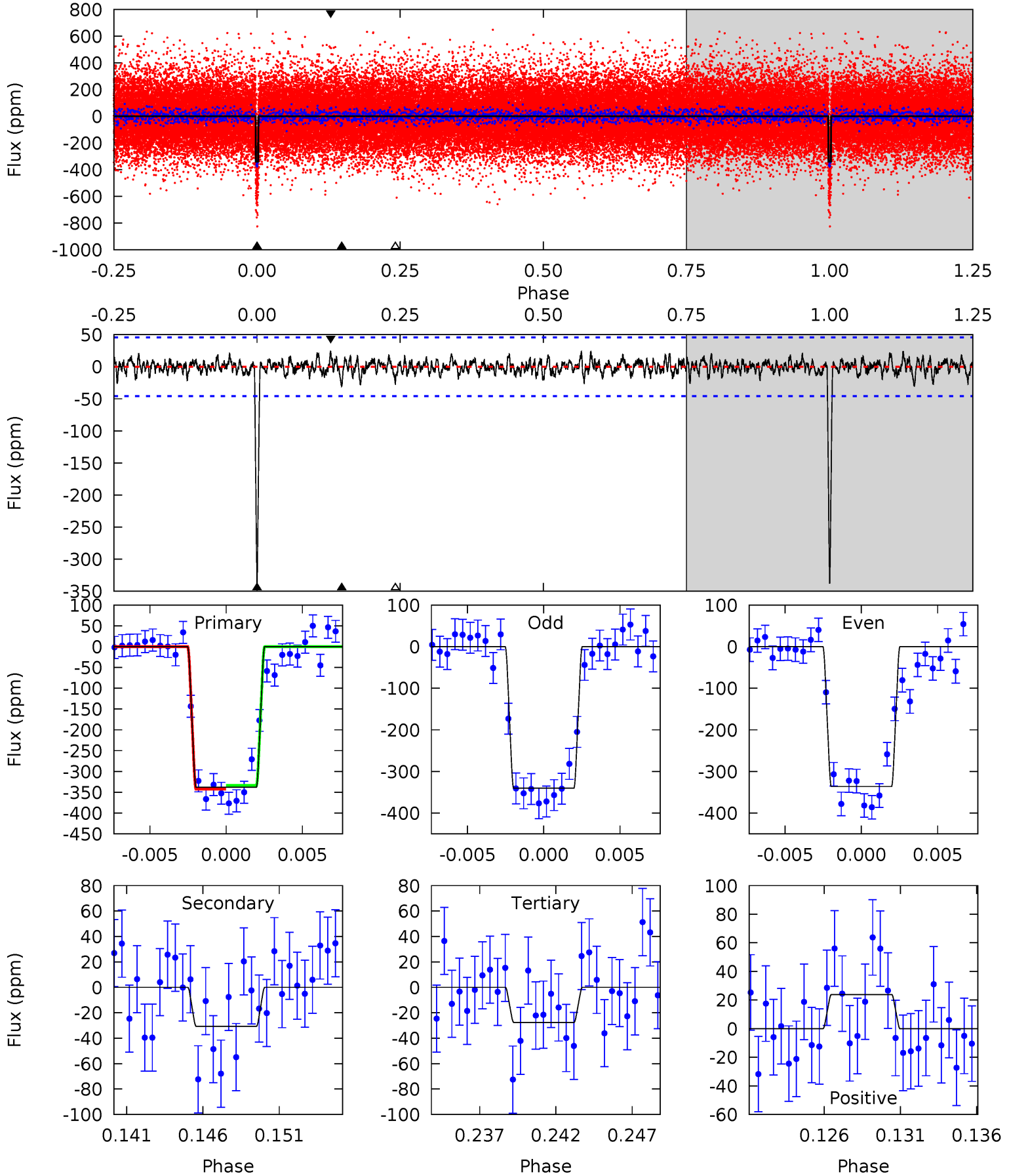
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.2	4.58	4.48	3.96	5.13	2.76	1.45	37.7	38.3	0.10	0.62	0.12	1.03	0.09	0.58



Alt Model-Shift Uniqueness Test

009884104-03, P = 47.903838 Days, E = 94.073698 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.2	3.46	3.11	2.70	5.16	2.80	0.92	35.1	35.5	0.35	0.76	0.22	1.08	0.07	0.49



Stellar Parameters For KIC 009884104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5788^{+104}_{-115}	$4.160^{+0.162}_{-0.108}$	$0.260^{+0.150}_{-0.150}$	$1.495^{+0.245}_{-0.326}$	$1.179^{+0.093}_{-0.139}$	$0.497^{+0.417}_{-0.166}$
	+2%/-2%	+4%/-3%	+58%/-58%	+16%/-22%	+8%/-12%	+84%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009884104-03 / KOI 0718.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-40 ± 9	$3.49^{+0.37}_{-0.38}$	833^{+38}_{-45}	3571^{+145}_{-142}	132^{+48}_{-34}
Alt.	-31 ± 9	$2.92^{+0.36}_{-0.34}$	832^{+44}_{-44}	3635^{+177}_{-203}	147^{+55}_{-48}

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

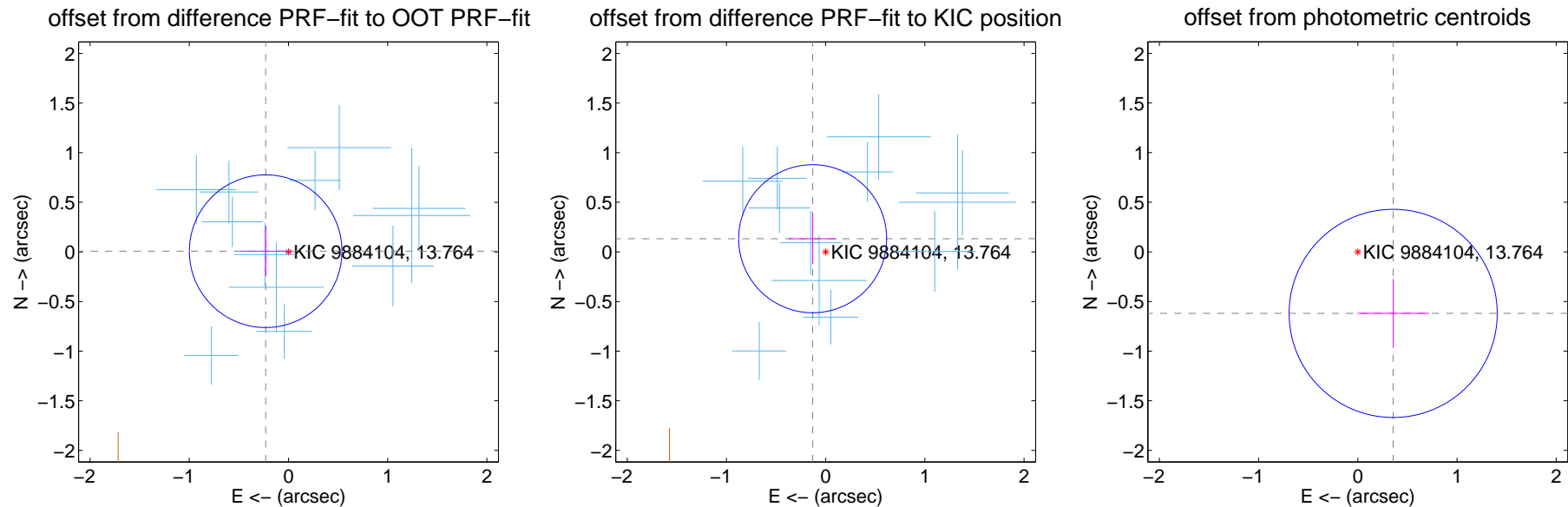
DV Centroid Data

Supplemental centroid analysis for 009884104-03. Kepler magnitude: 13.76. Transit SNR 24.99

There are 12 quarters with good PRF difference image offsets

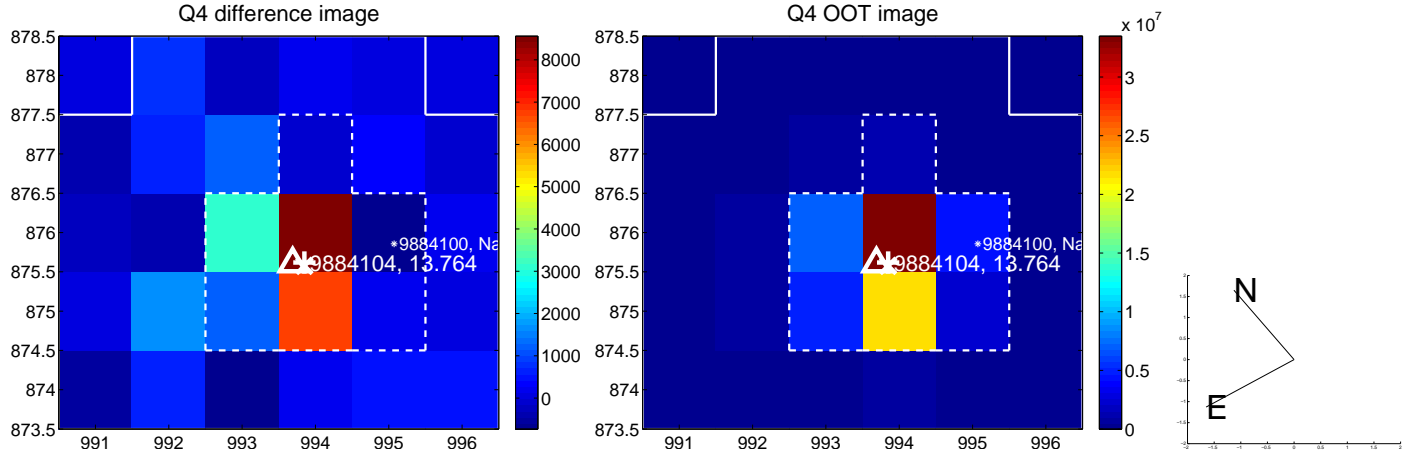
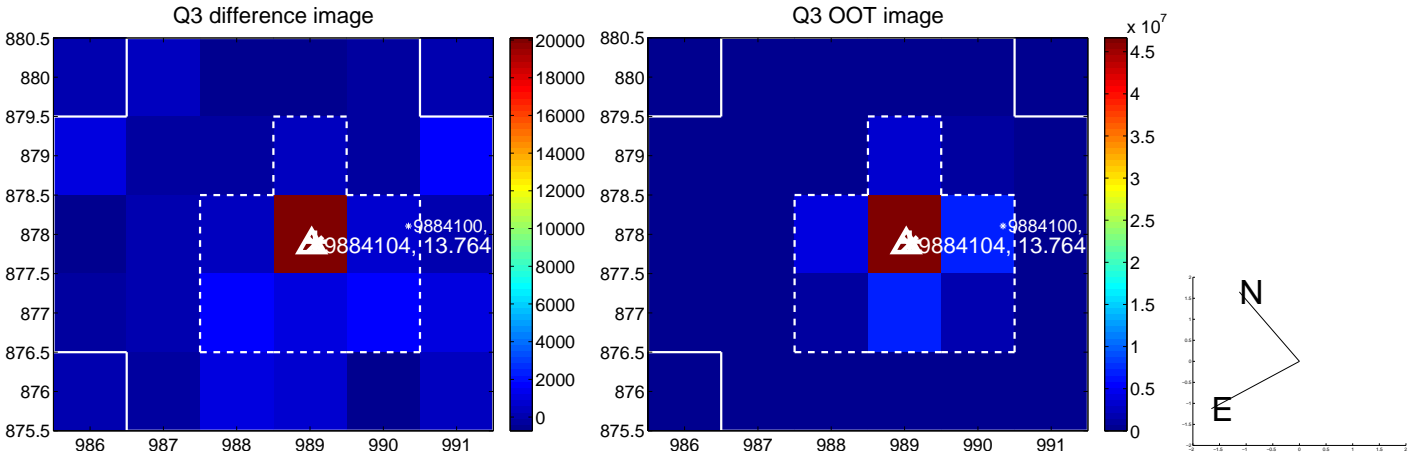
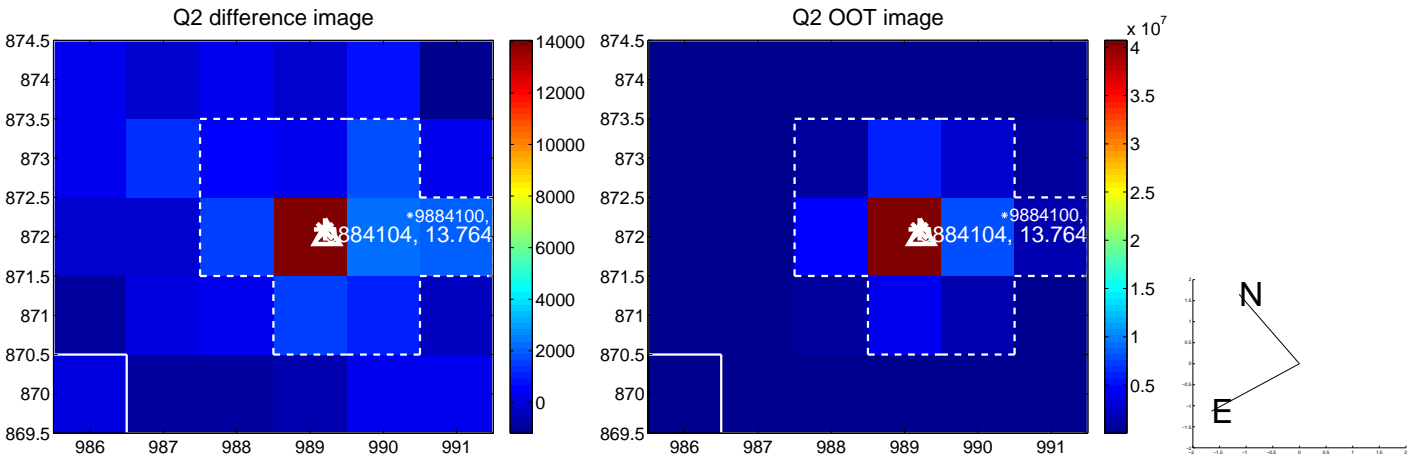
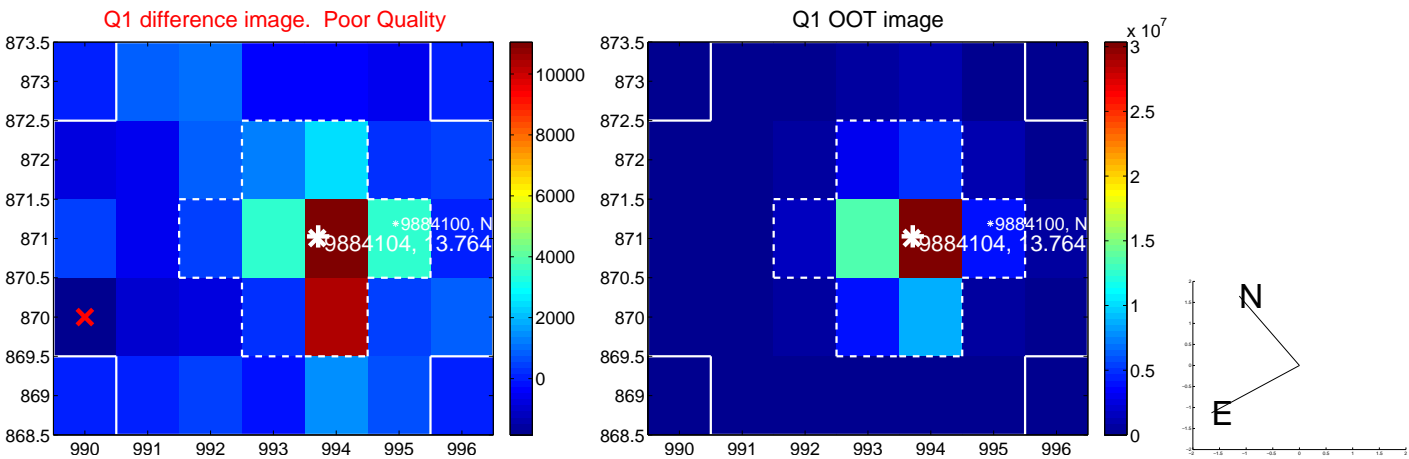
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.230 ± 0.256	0.90	0.230 ± 0.260	0.007 ± 0.250
PRF-fit source offset from KIC position	0.187 ± 0.249	0.75	0.131 ± 0.241	0.133 ± 0.256
photometric centroid source offset	0.72 ± 0.35	2.05	-0.36 ± 0.36	-0.62 ± 0.35

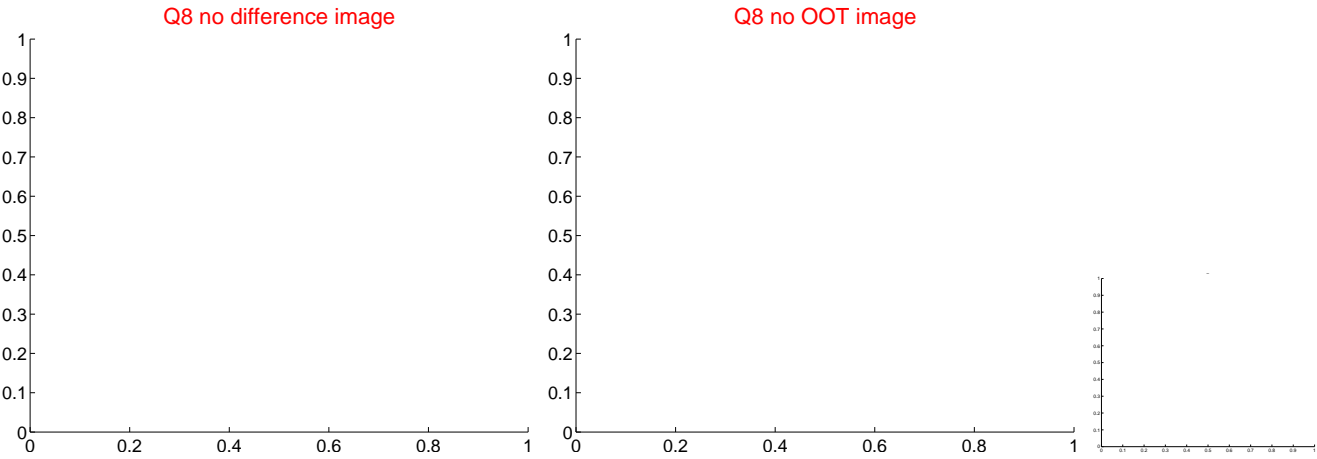
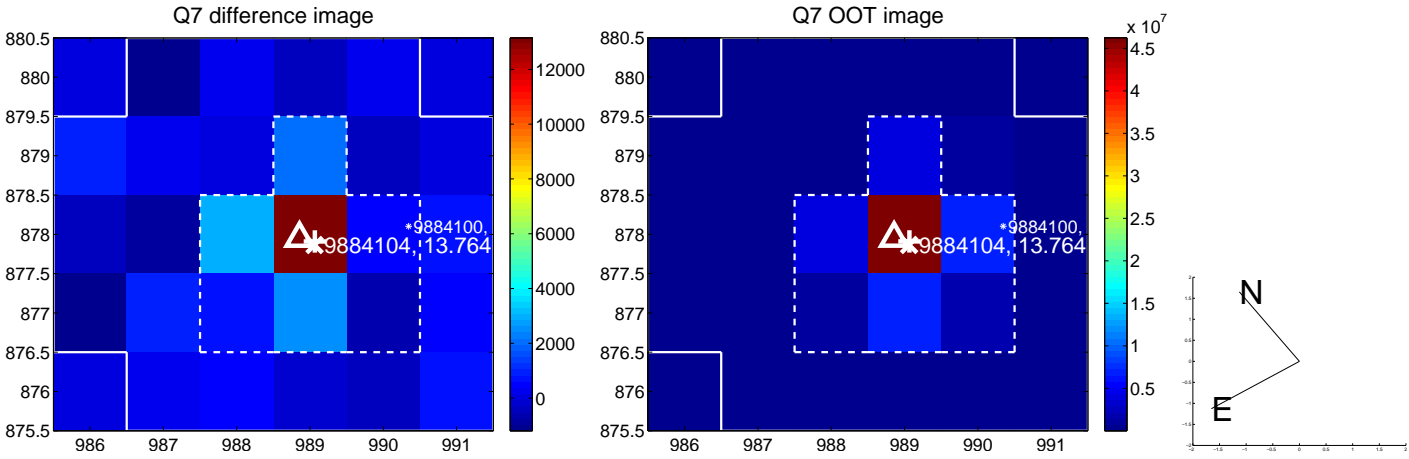
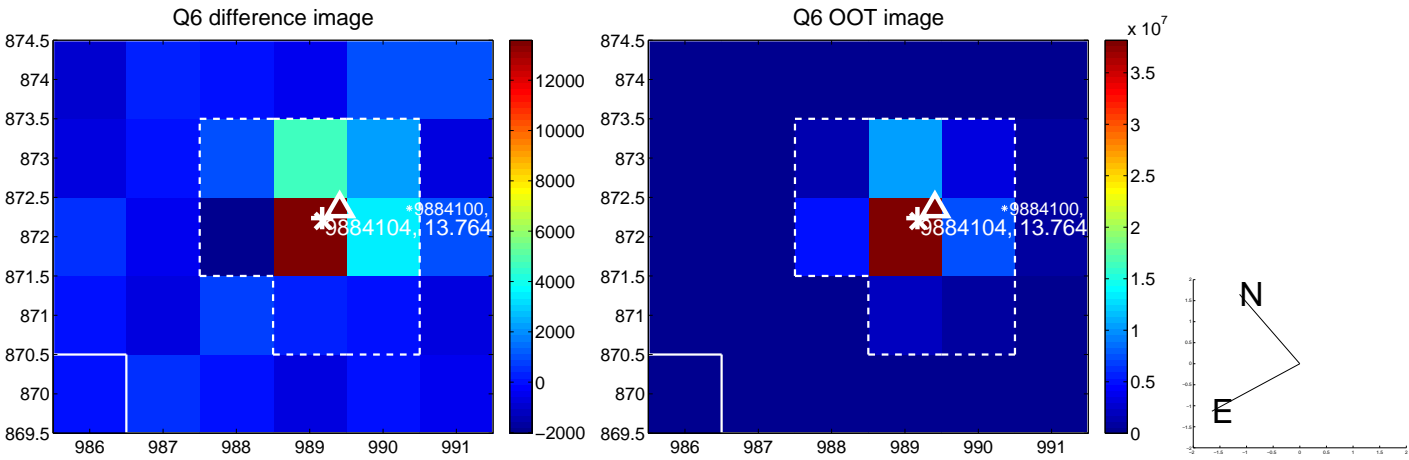
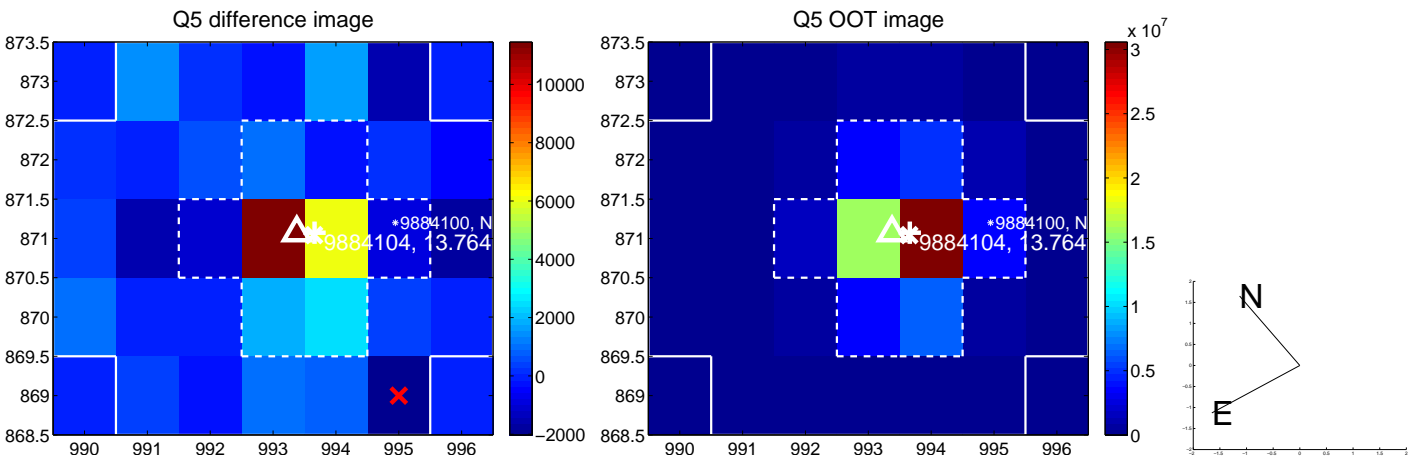


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

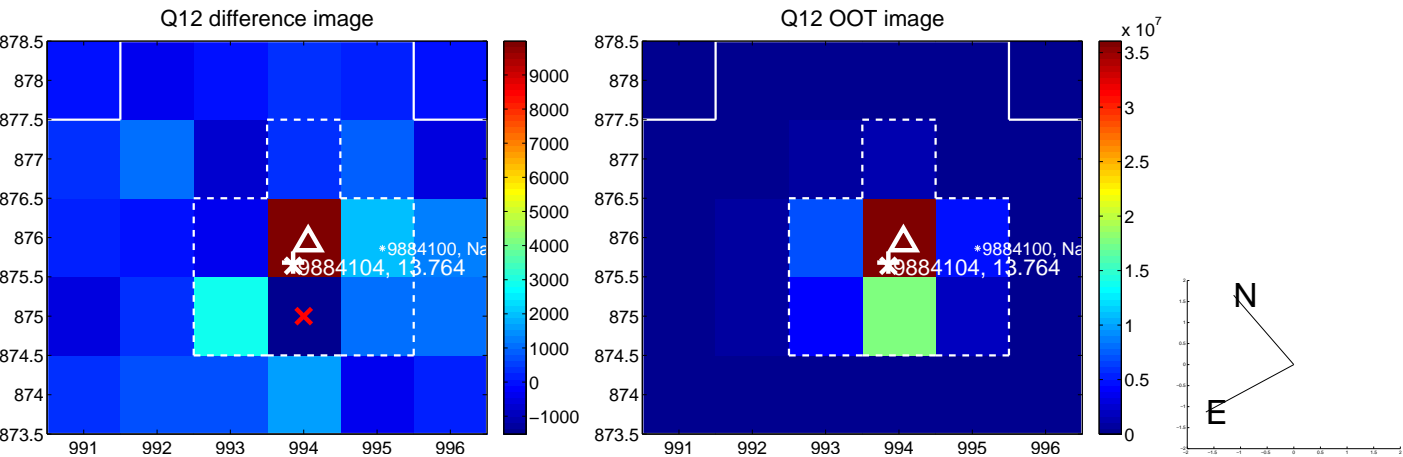
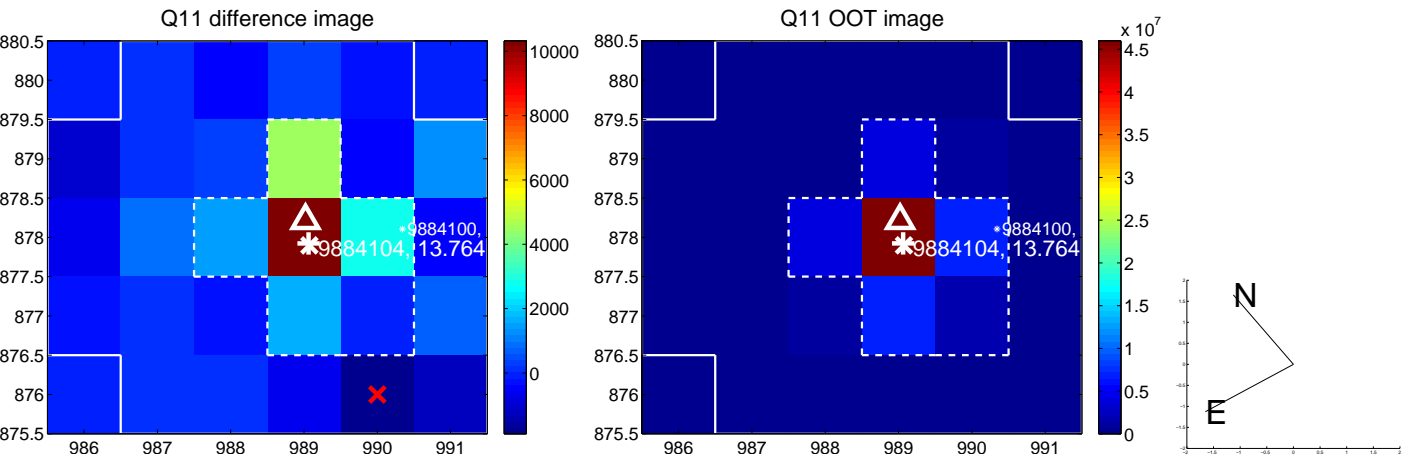
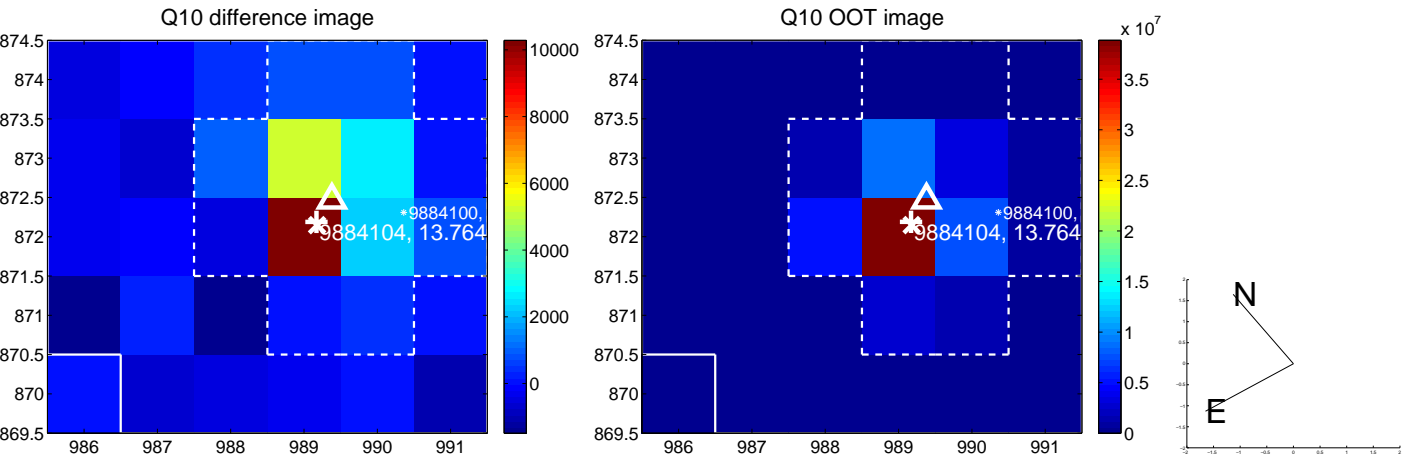
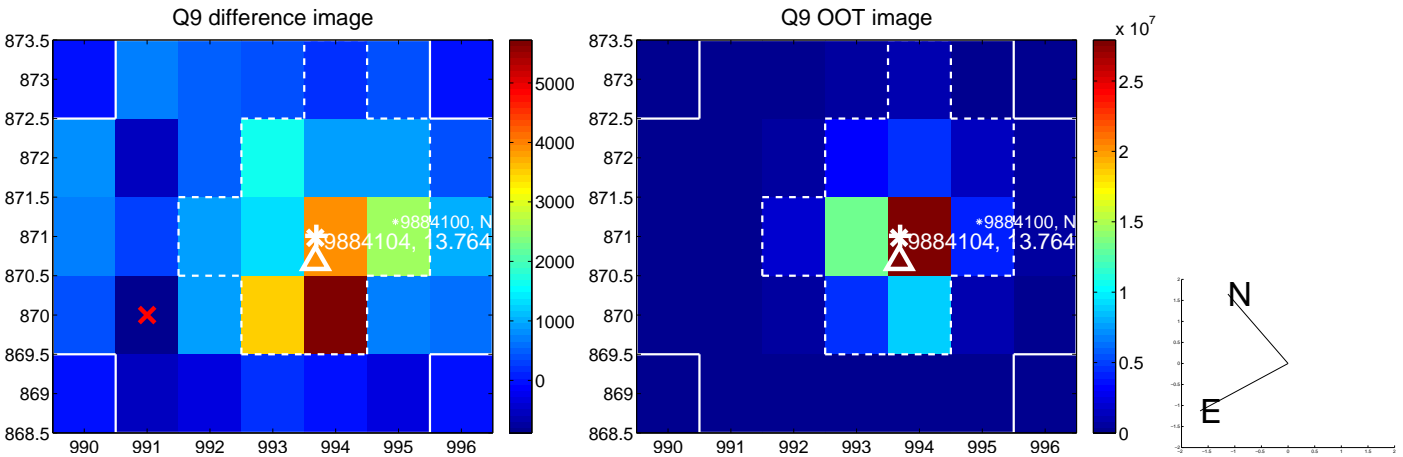
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



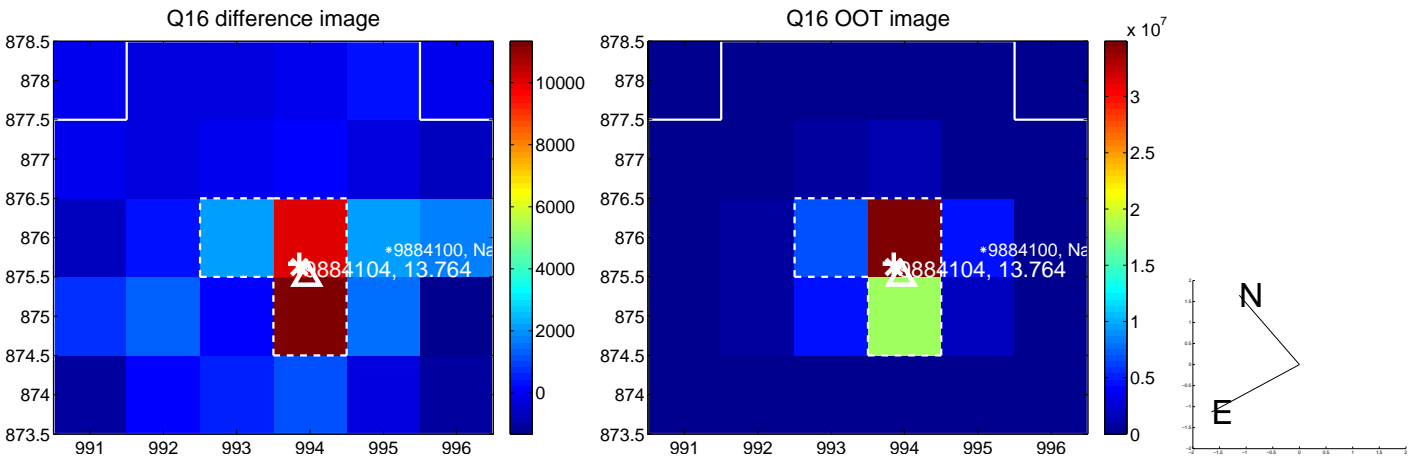
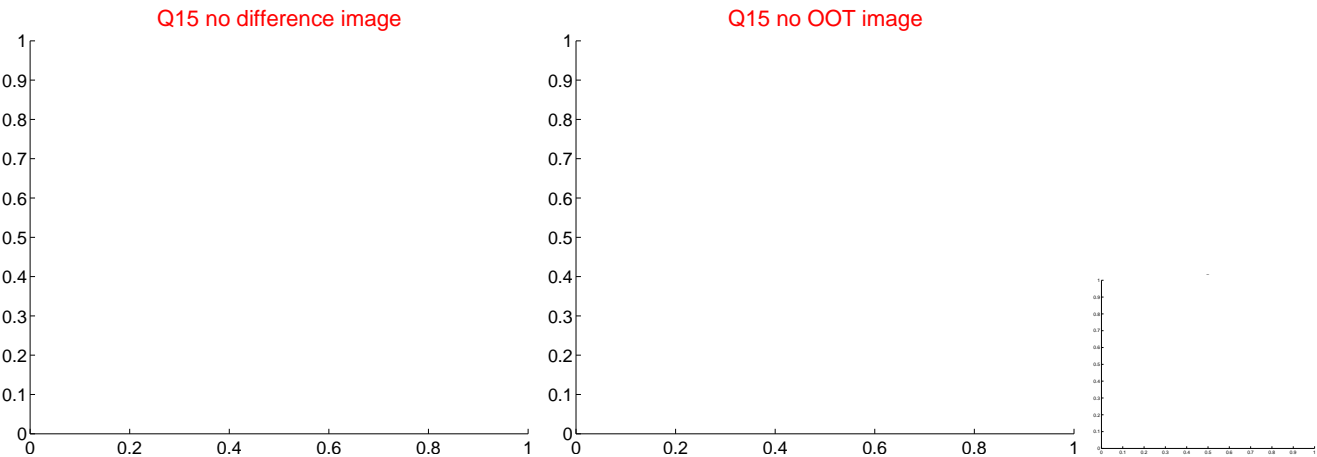
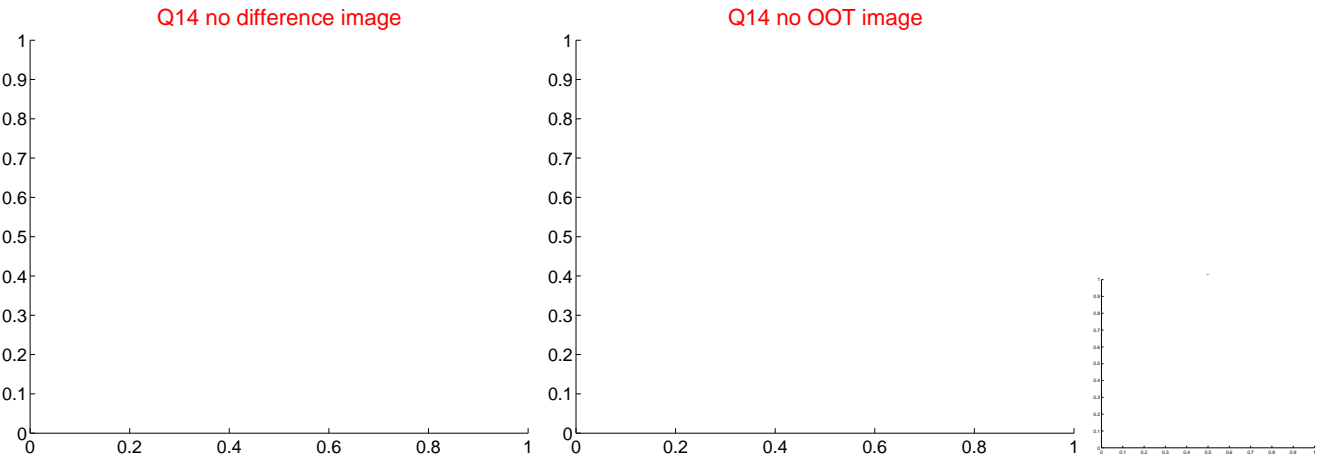
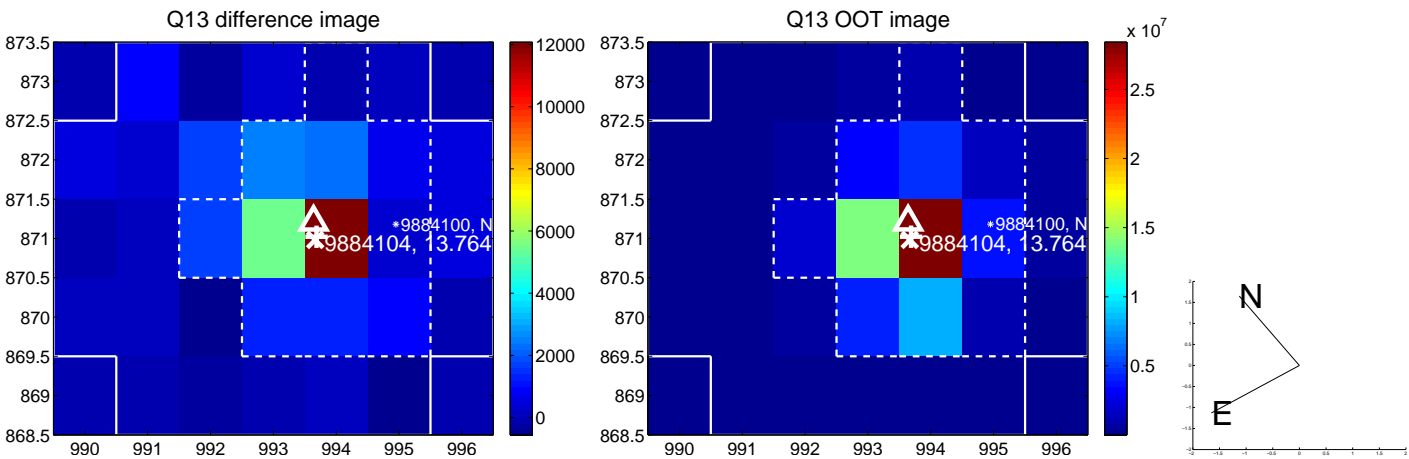
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



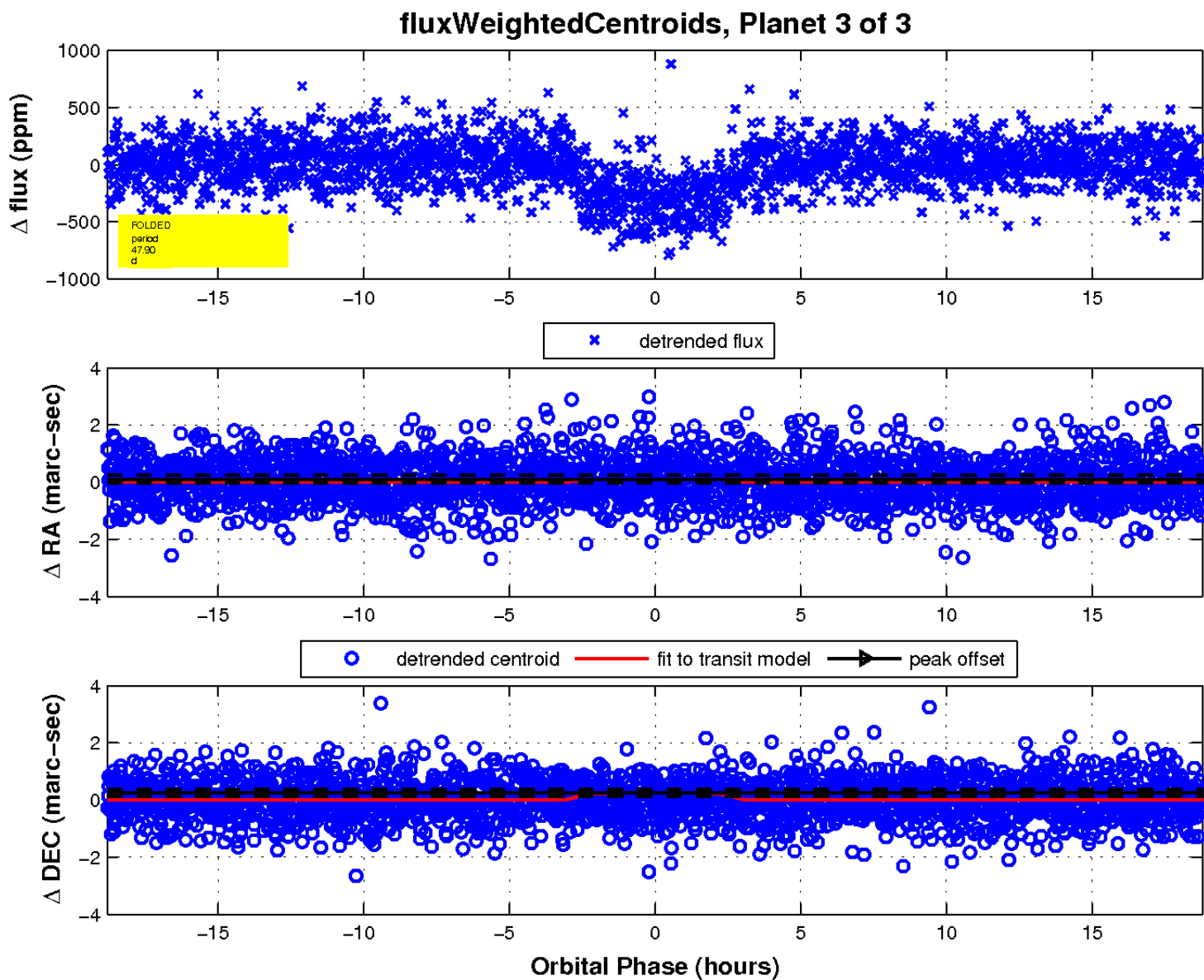
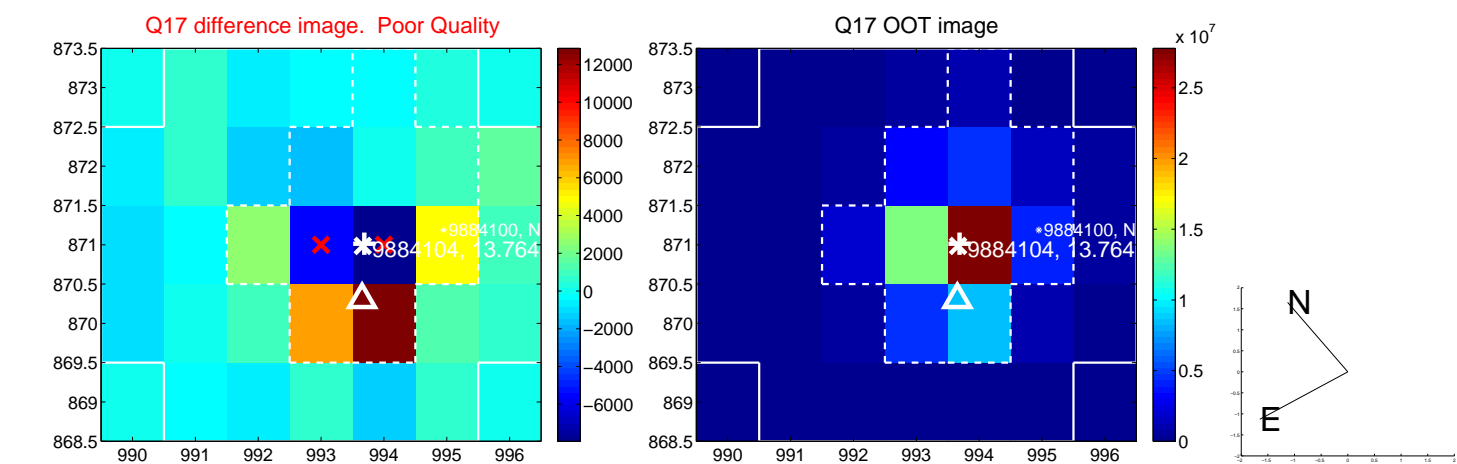
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

