

KIC 010920420

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})
010920420-01	OBS	8038.01	0.943888	132.288269	21.3	2.277	8.7	9.9	2.30	6947	1.25	23566.61
010920420-02	OBS	No	0.943892	131.815702	21.2	1.794	7.9	9.7	2.30	6947	1.28	23566.47
010920420-03	OBS	No	283.247513	407.918466	831.7	8.985	9.4	9.6	2.30	6947	12.38	11.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010920420-01	OBS	FP	0.00	1	0	1	1	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010920420-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010920420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS

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.

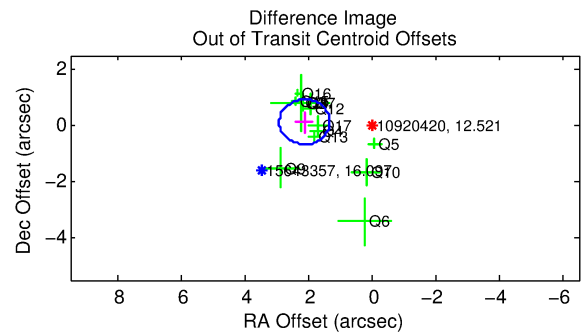
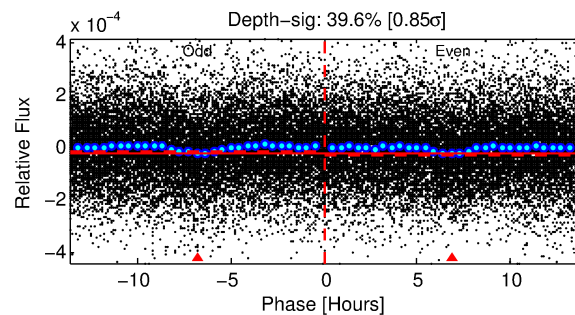
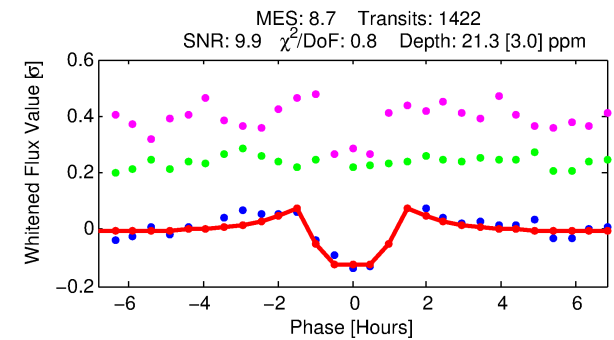
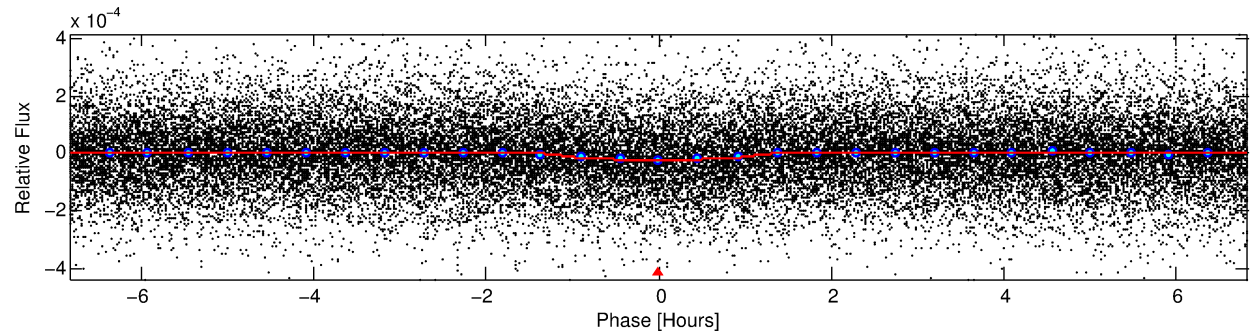
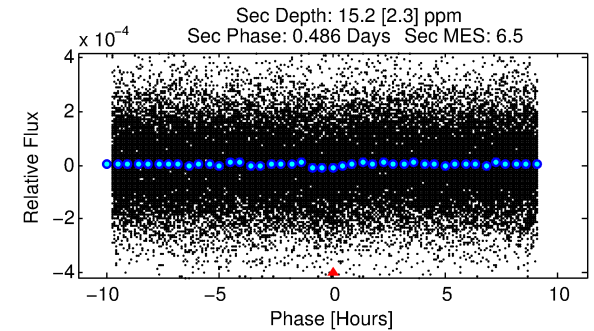
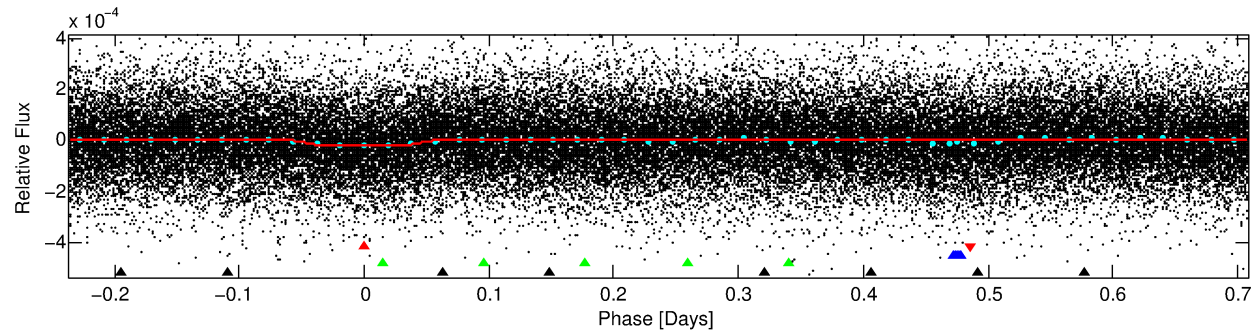
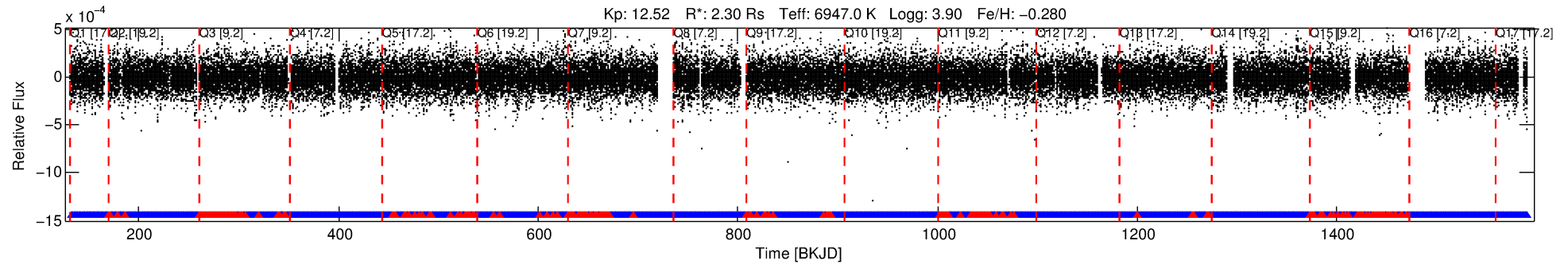
Ephemeris Match Information For 010920420-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
010920420-01	10920420	010861842-pri	10861842	2:1	290.1	73	0	14.29	12.52	16490.00	Col-Anomaly	0	0.33	0.14

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10920420 Candidate: 1 of 4 Period: 0.944 d



DV Fit Results:

Period = 0.94389 [0.00001] d
Epoch = 132.2883 [0.0019] BKJD
Rp/R* = 0.0050 [0.0011]
a/R* = 1.60 [1.28]
b = 0.92 [0.22]
Seff = 23566.61 [11570.44]
Teq = 3159 [388] K
Rp = 1.25 [0.52] Re
a = 0.0216 [0.0067] AU
Ag = 2.49 [1.66] [0.90σ]
Teffp = 6135 [750] K [3.52σ]

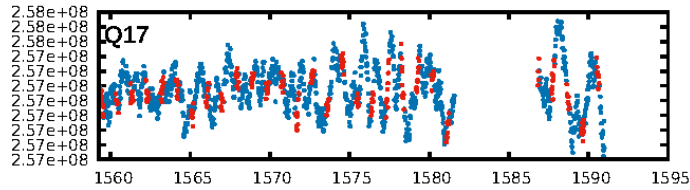
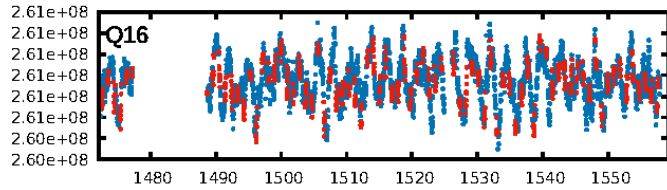
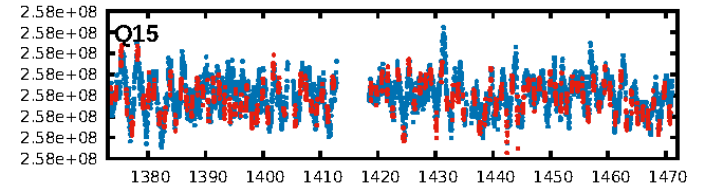
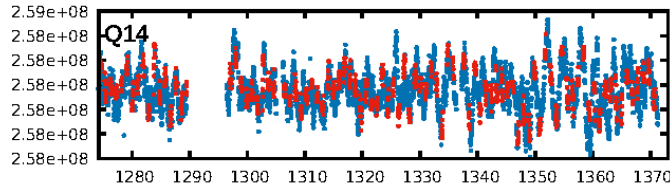
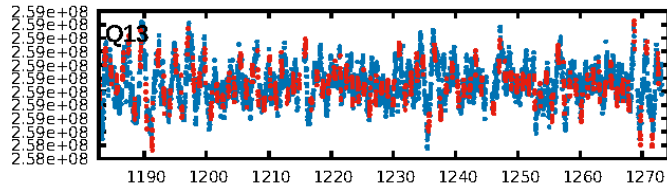
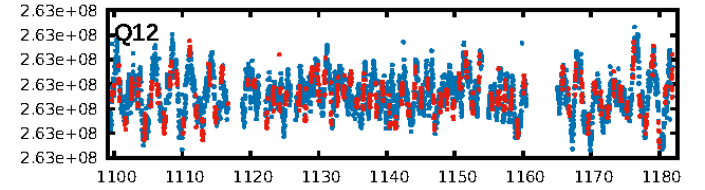
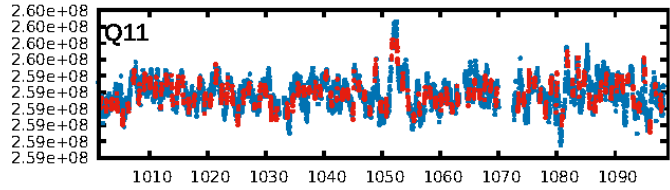
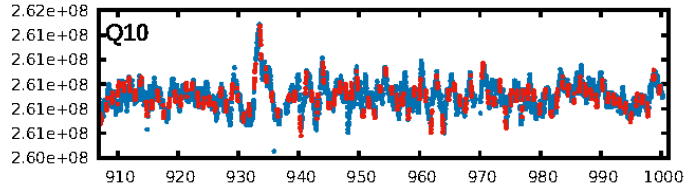
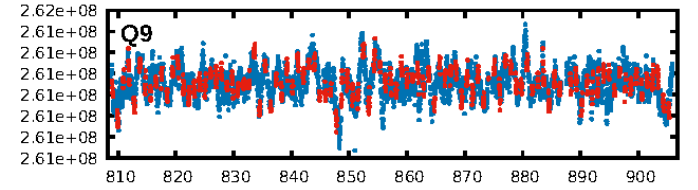
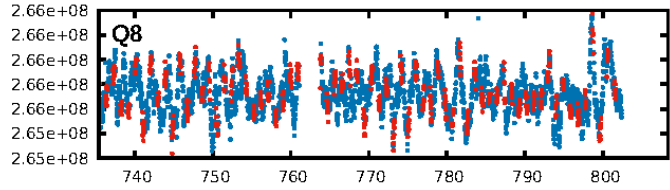
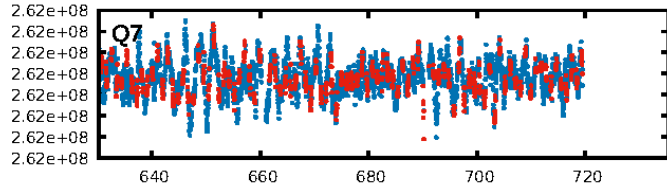
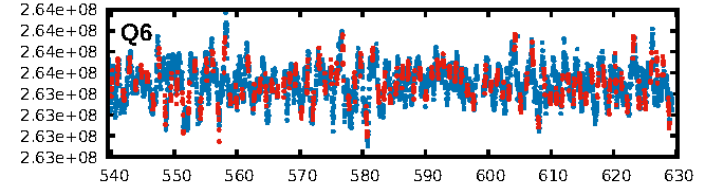
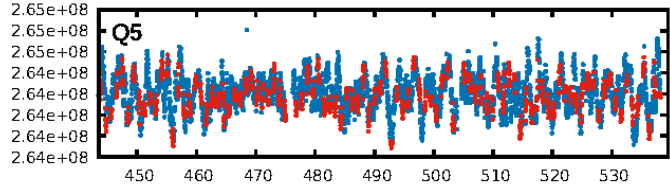
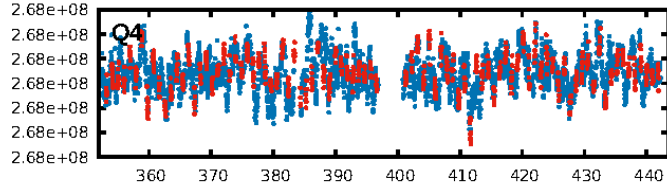
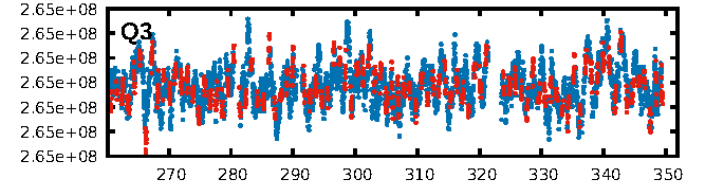
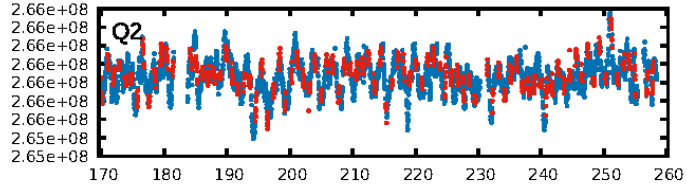
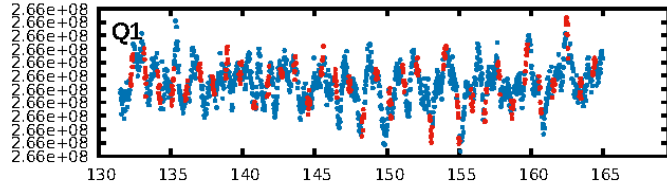
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.28e-16
RollingBand-fgt: 0.84 [1136/1358]
GhostDiagnostic-chr: 17.01
Centroid-sig: 0.1%
Centroid-so: 2.193 arcsec [2.78σ]
OotOffset-rm: 2.135 arcsec [8.03σ]
KicOffset-rm: 2.168 arcsec [7.04σ]
OotOffset-st: 2/3/4/4 [13]
KicOffset-st: 2/3/4/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [17/17]

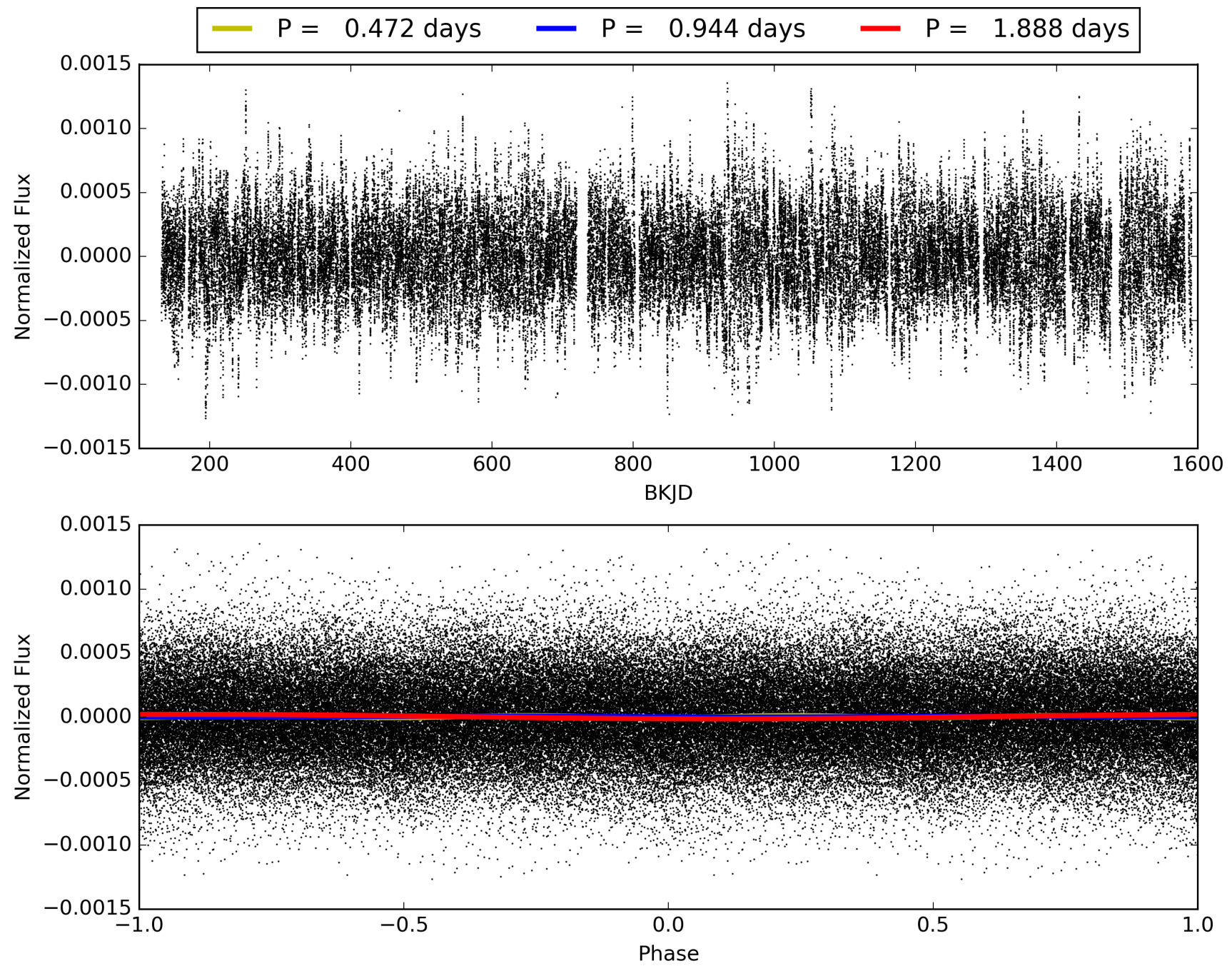
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:10:04 Z

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

TCE 010920420-01, PDC Light Curves

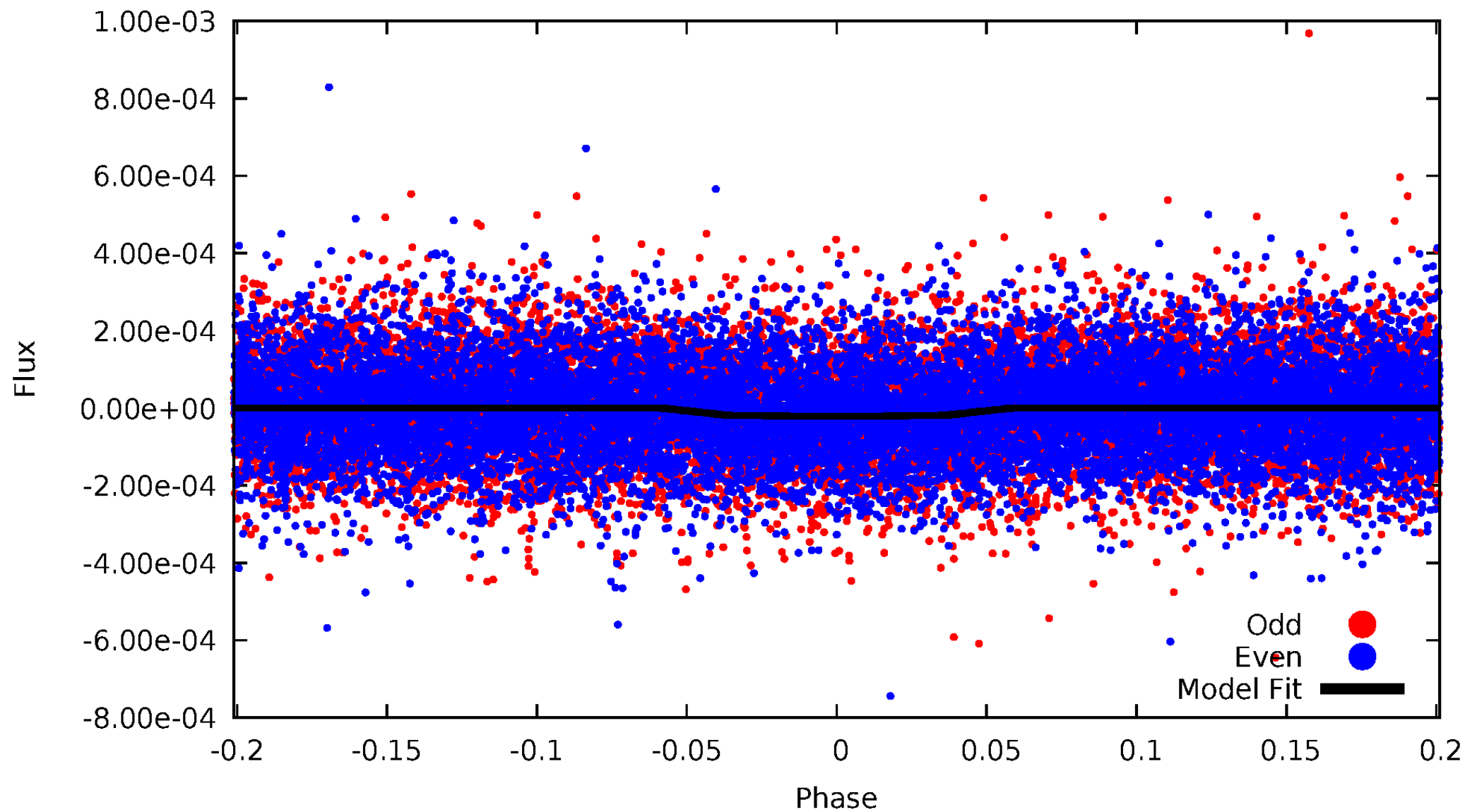


TCE 010920420-01



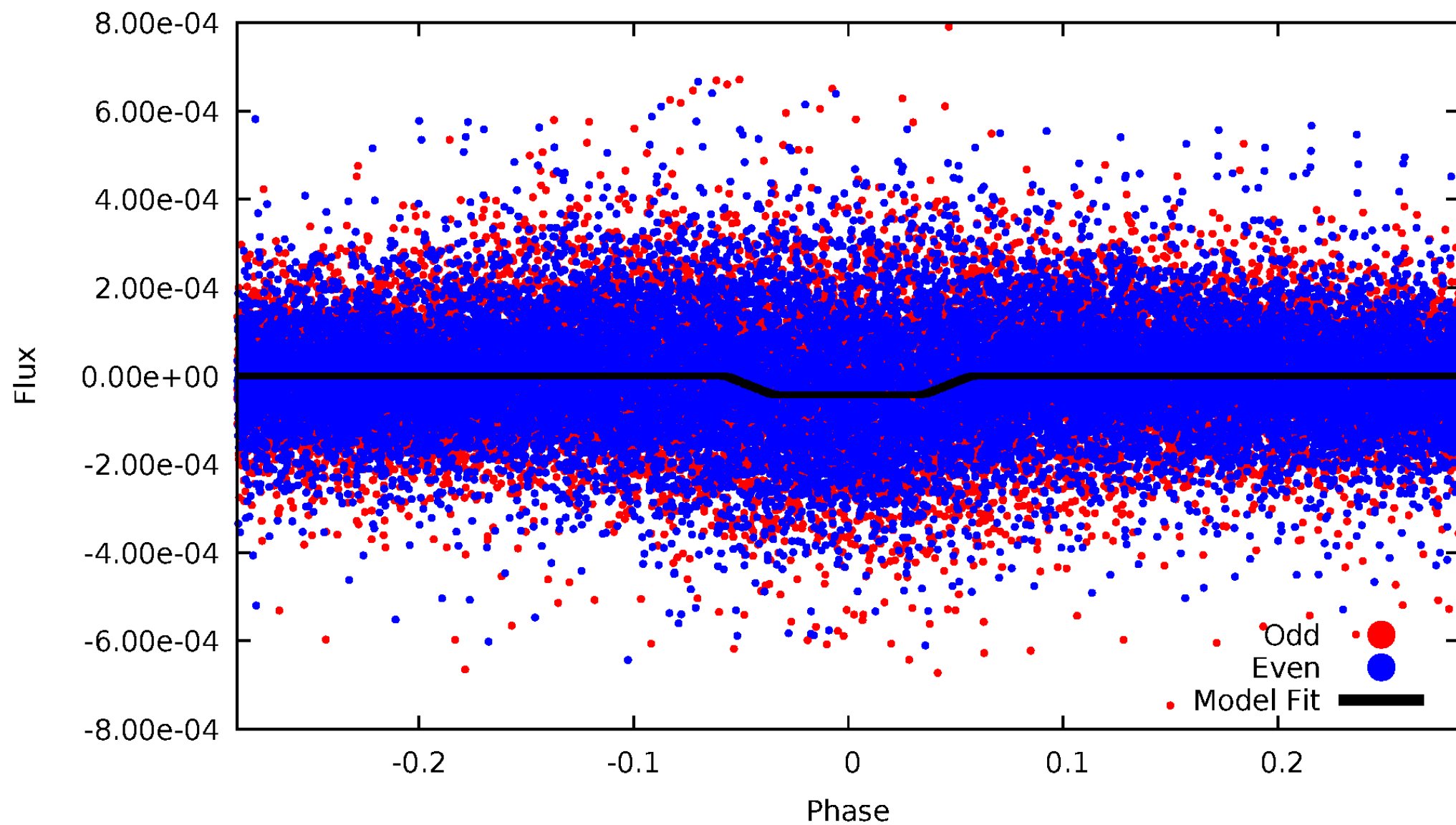
DV Odd/Even

TCE 010920420-01



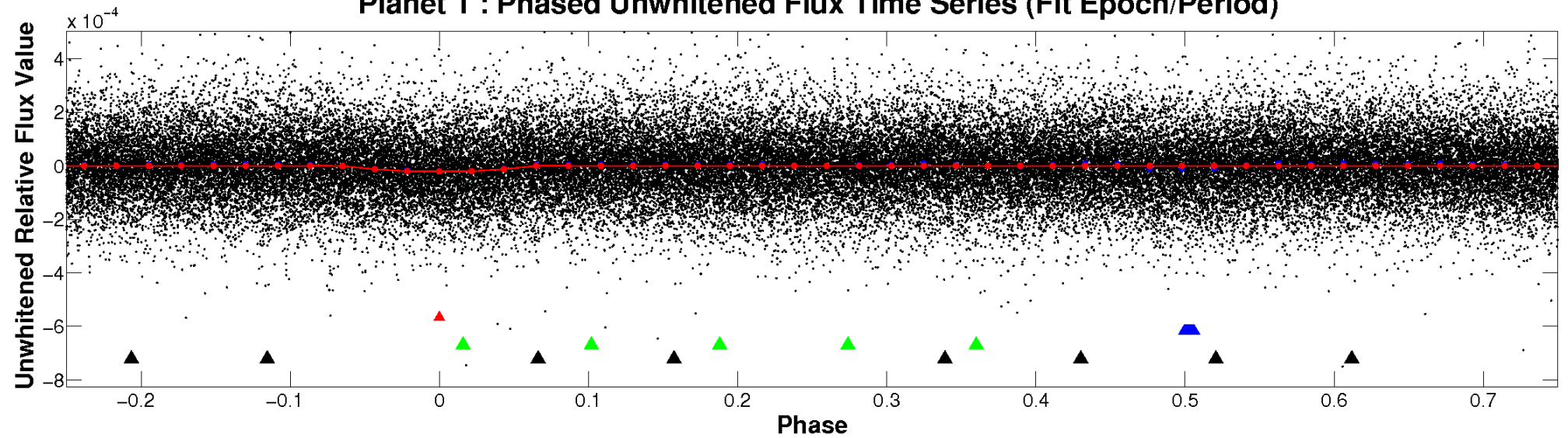
ALT Odd/Even

TCE 010920420-01

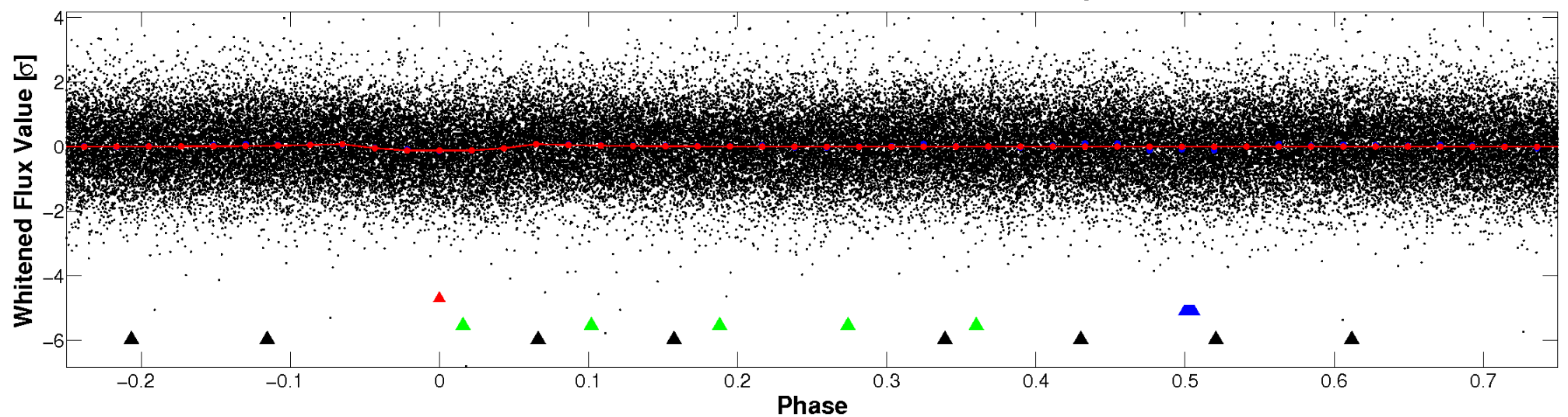


Non-Whitened Vs. Whitened Light Curve

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

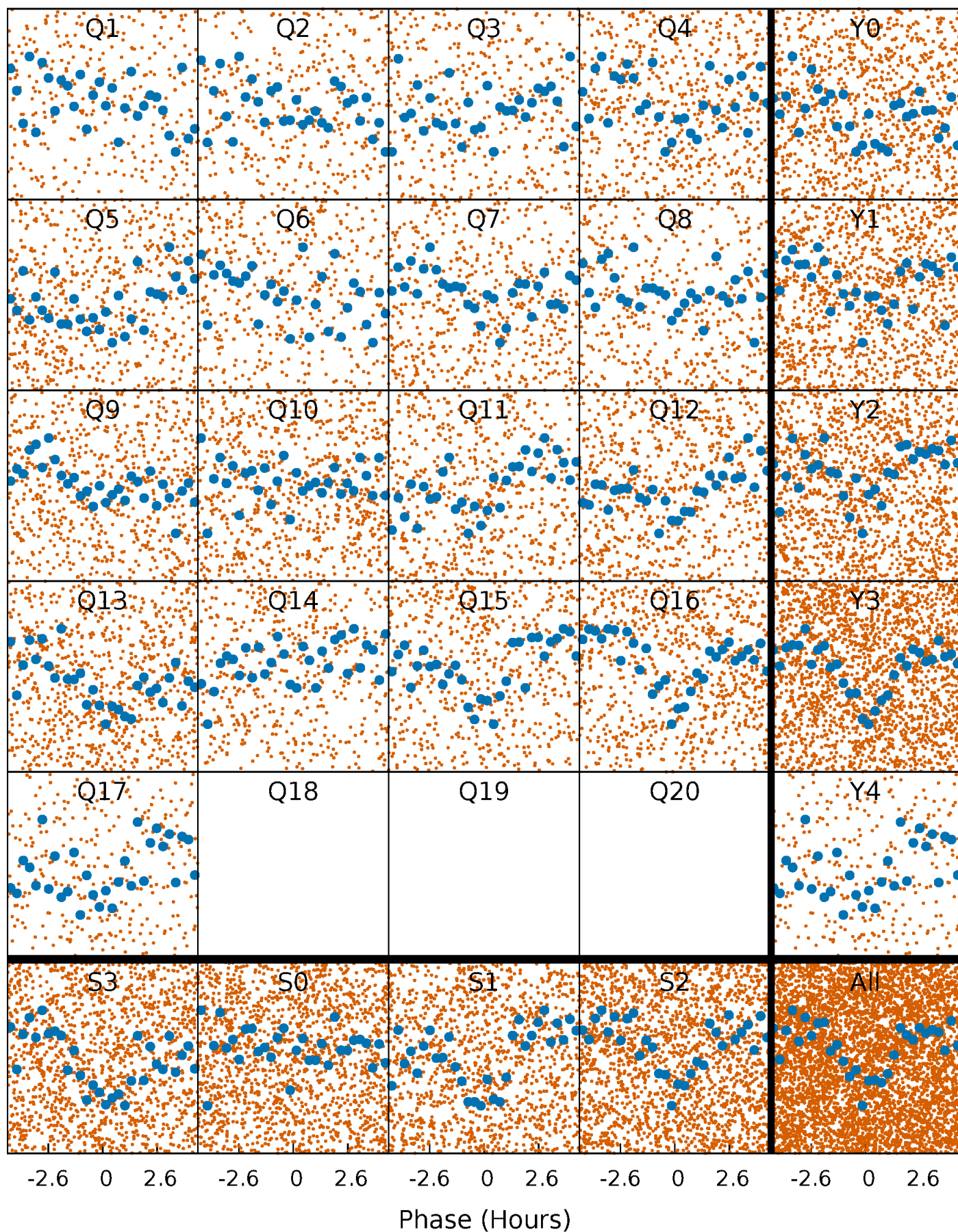


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



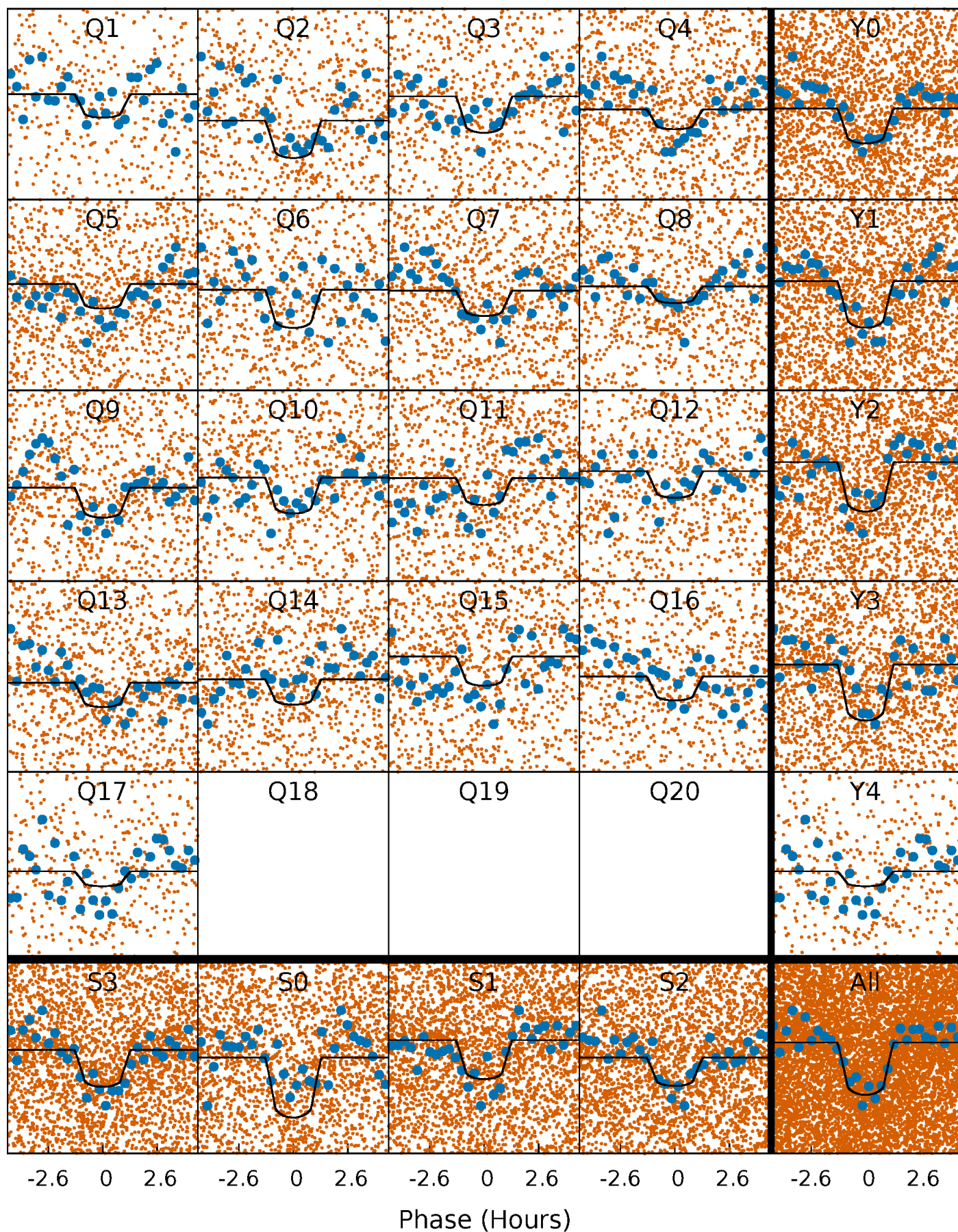
PDC Quarter-Phased Transit Curves

TCE 010920420-01 P= 0.943888 Days $T_0=132.288269$ (BKJD)



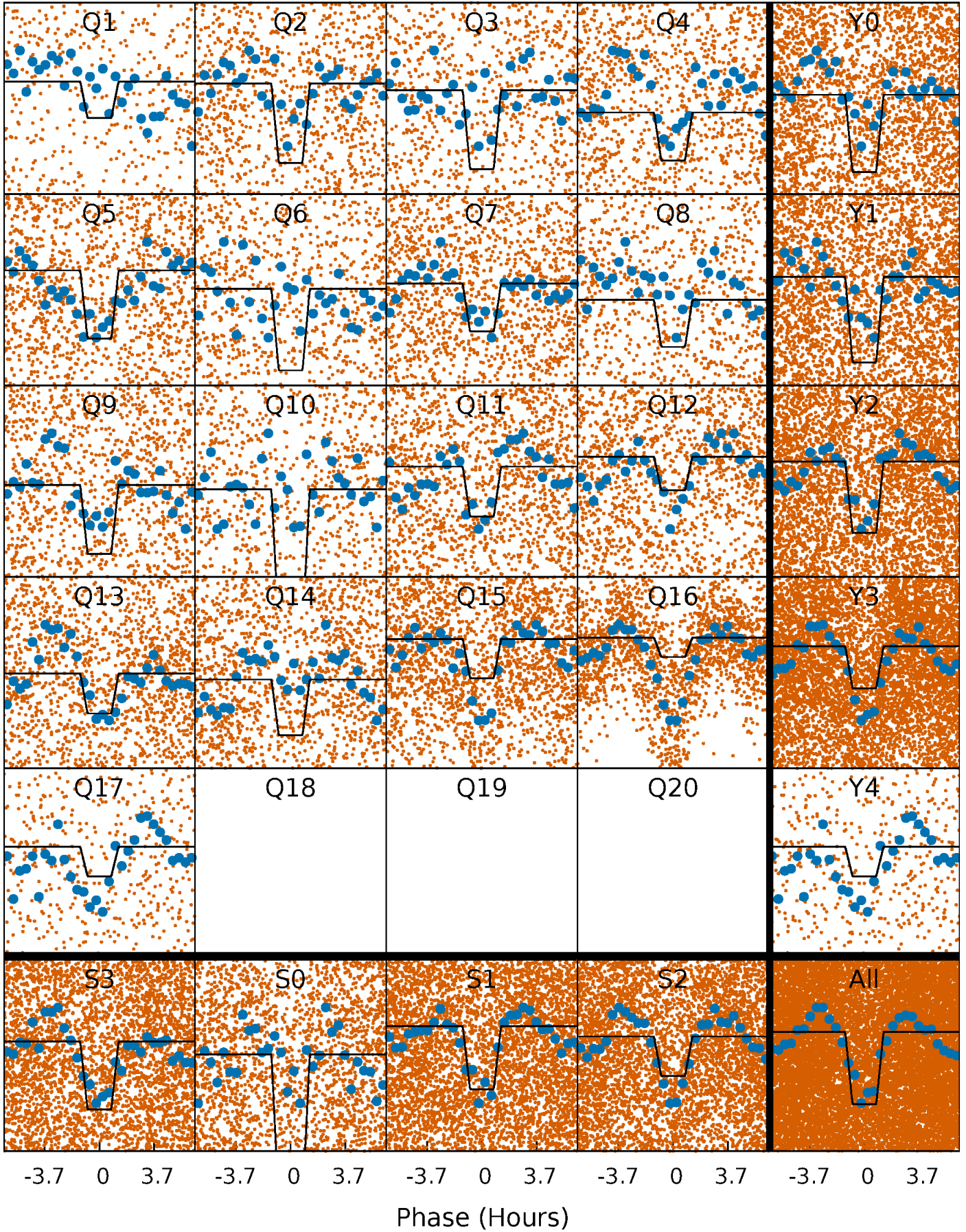
DV Quarter-Phased Transit Curves

TCE 010920420-01 P= 0.943888 Days $T_0=132.288269$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

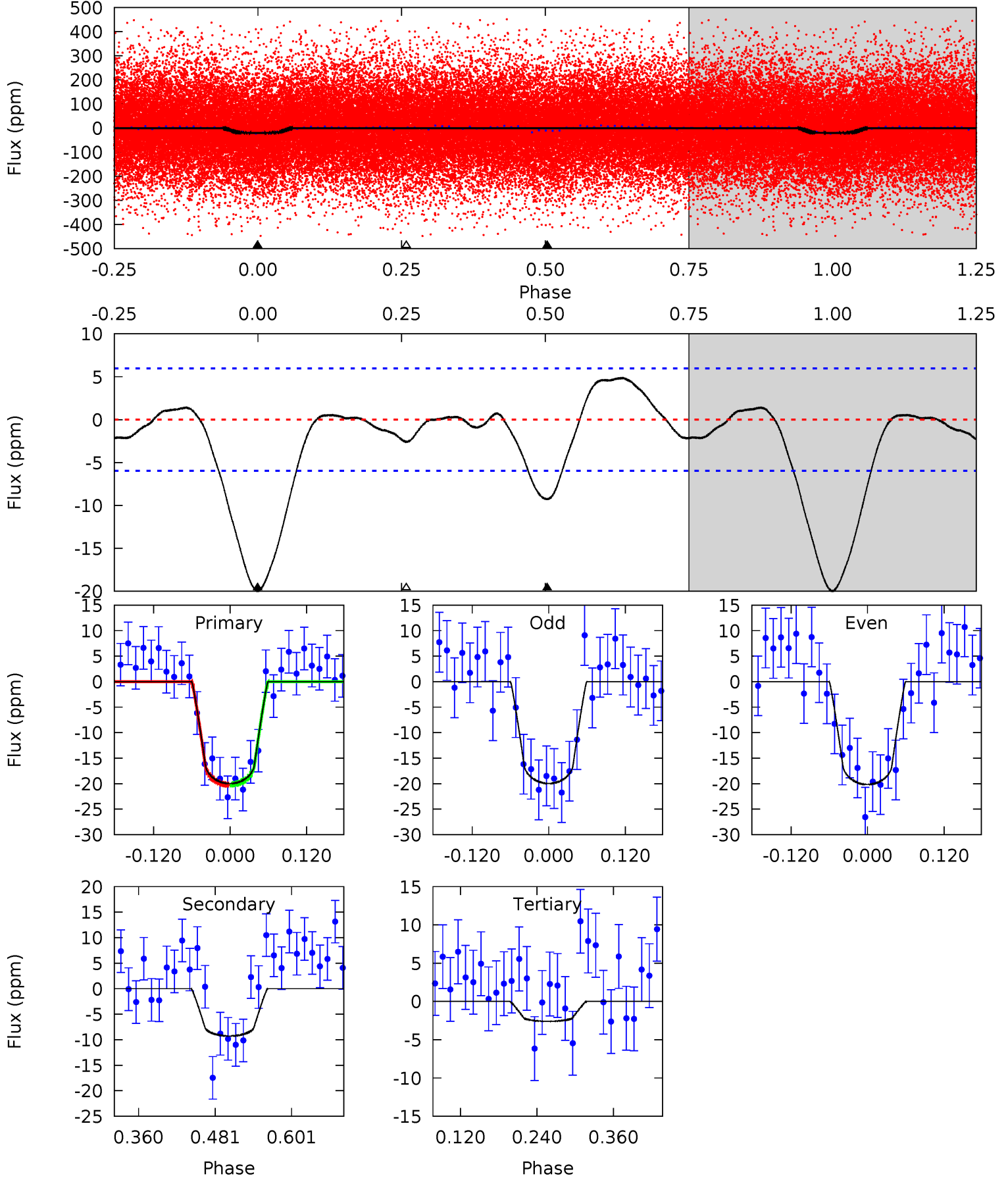
TCE 010920420-01 P= 0.943881 Days $T_0=132.298593$ (BKJD)



DV Model-Shift Uniqueness Test

010920420-01, P = 0.943888 Days, E = 131.344381 Days

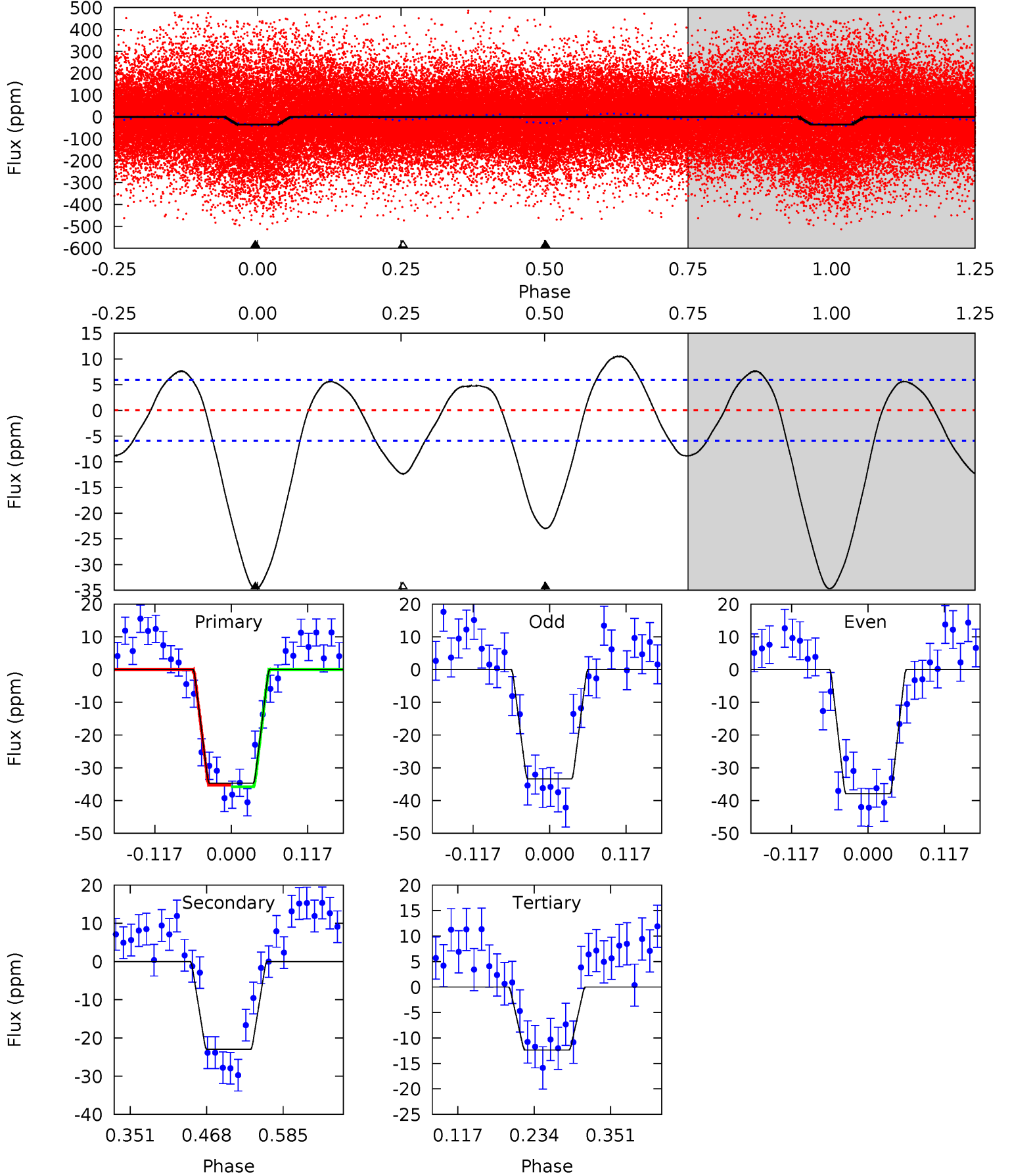
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	7.04	1.97	0	4.53	1.55	1.35	13.2	15.2	5.06	7.04	0.07	0.81	0.20	0.02



Alt Model-Shift Uniqueness Test

010920420-01, P = 0.943881 Days, E = 131.354712 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	17.6	9.45	0	4.53	1.57	5.00	17.0	26.5	8.11	17.6	1.76	0.86	0.23	0.20



Stellar Parameters For KIC 010920420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6947^{+166}_{-238}	$3.895^{+0.266}_{-0.114}$	$-0.280^{+0.300}_{-0.250}$	$2.297^{+0.406}_{-0.812}$	$1.511^{+0.180}_{-0.308}$	$0.176^{+0.317}_{-0.063}$
	+2%/-3%	+7%/-3%	+107%/-89%	+18%/-35%	+12%/-20%	+180%/-36%
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 010920420-01 / KOI 8038.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 1	$1.22^{+0.34}_{-0.31}$	4354^{+267}_{-346}	5145^{+737}_{-589}	$1.639^{+1.397}_{-0.639}$
Alt.	-23 ± 1	$1.59^{+0.34}_{-0.39}$	4363^{+265}_{-370}	5706^{+642}_{-513}	$2.348^{+1.567}_{-0.786}$

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

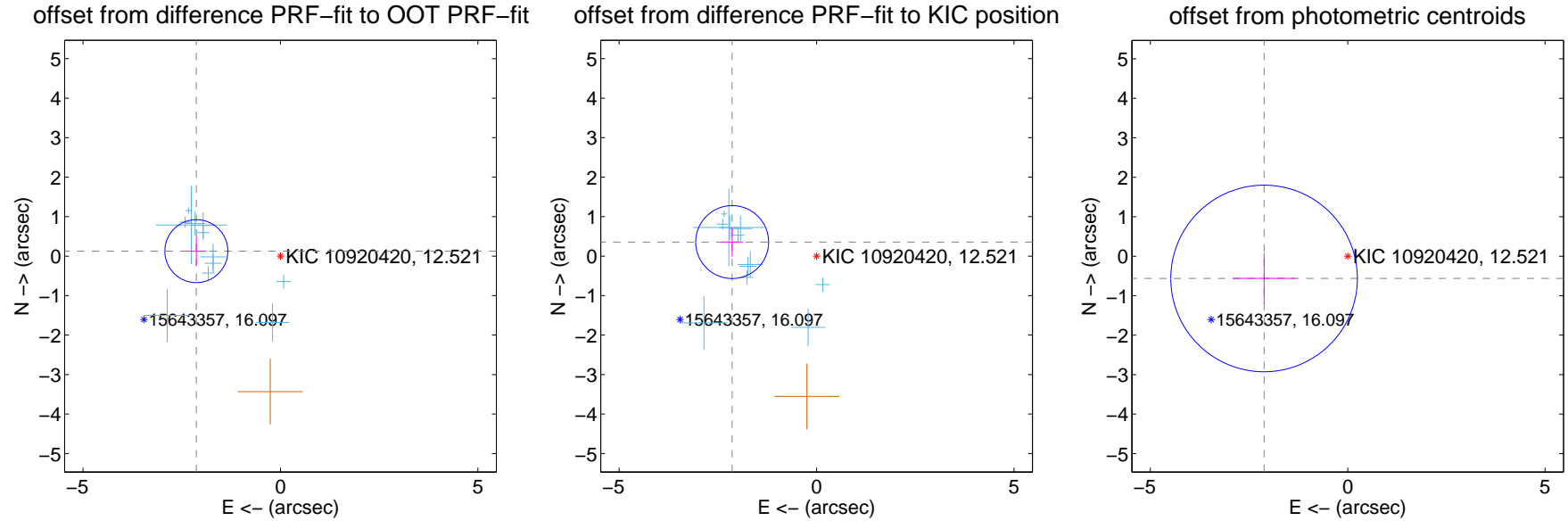
DV Centroid Data

Supplemental centroid analysis for 010920420-01. Kepler magnitude: 12.52. Transit SNR 9.85

There are 12 quarters with good PRF difference image offsets

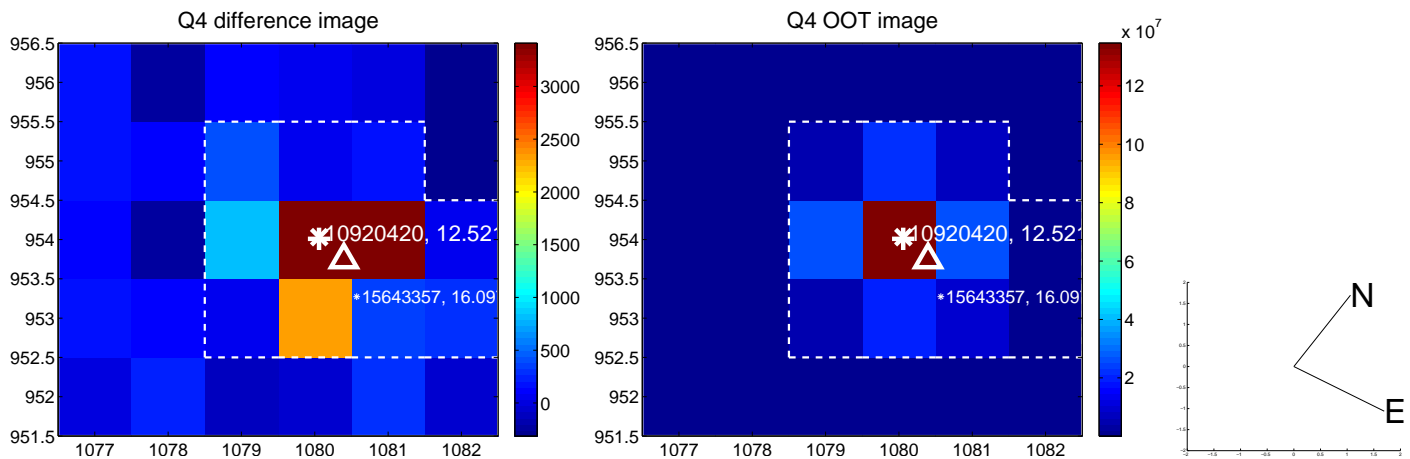
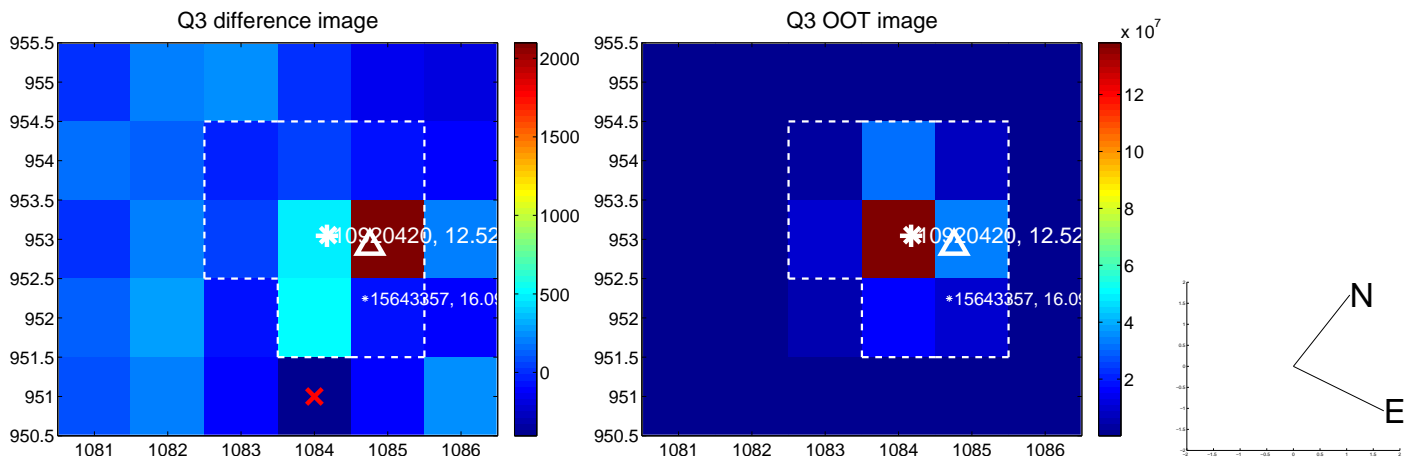
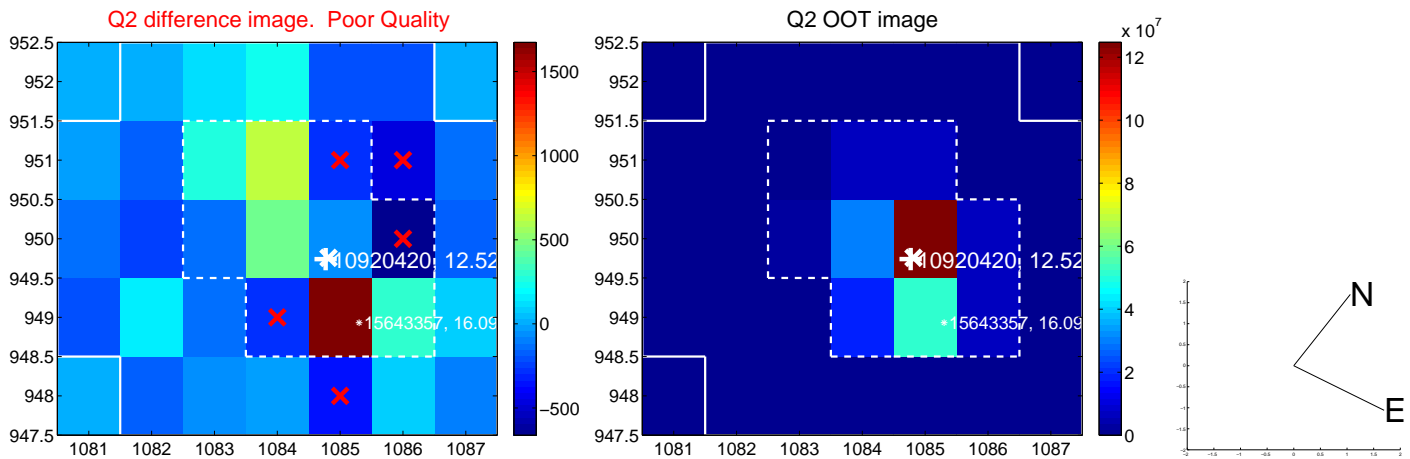
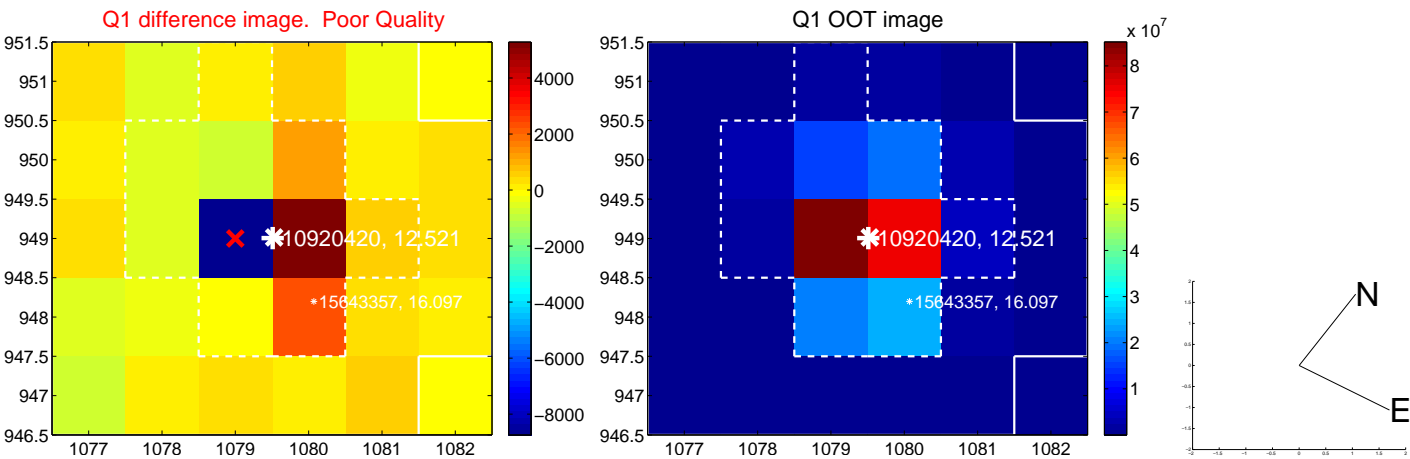
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.135 \pm 0.266	8.03	2.131 \pm 0.252	0.126 \pm 0.365
PRF-fit source offset from KIC position	2.168 \pm 0.308	7.04	2.138 \pm 0.274	0.356 \pm 0.365
photometric centroid source offset	2.19 \pm 0.79	2.78	2.12 \pm 0.80	-0.56 \pm 0.65

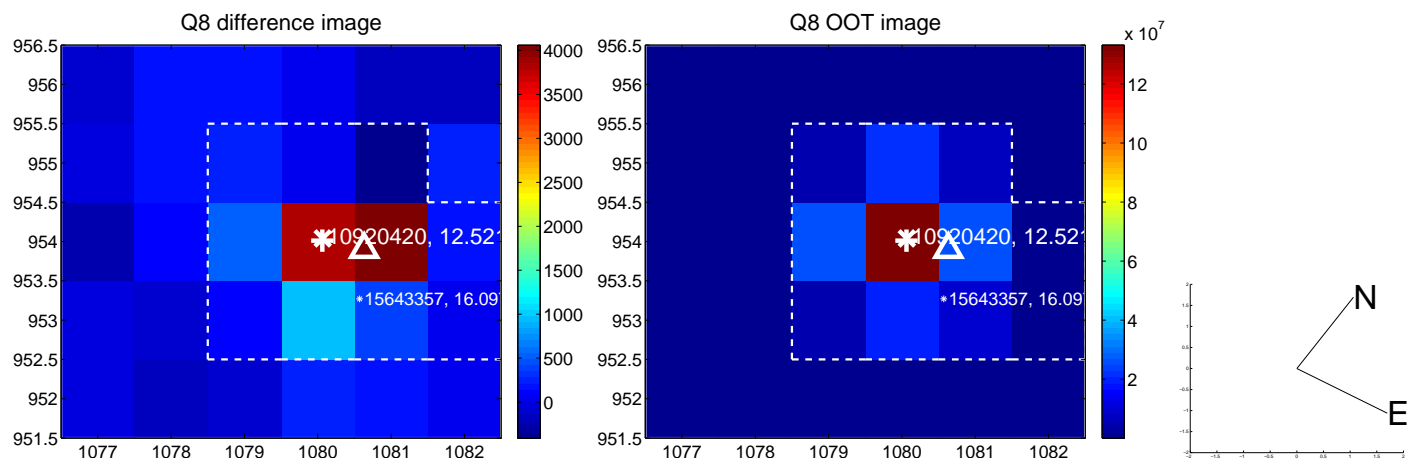
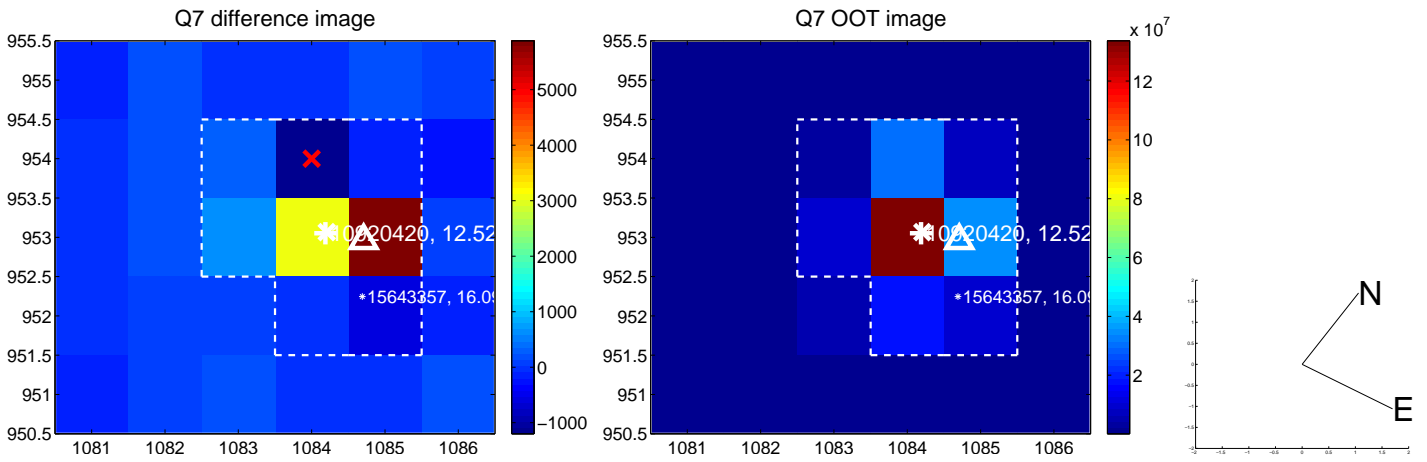
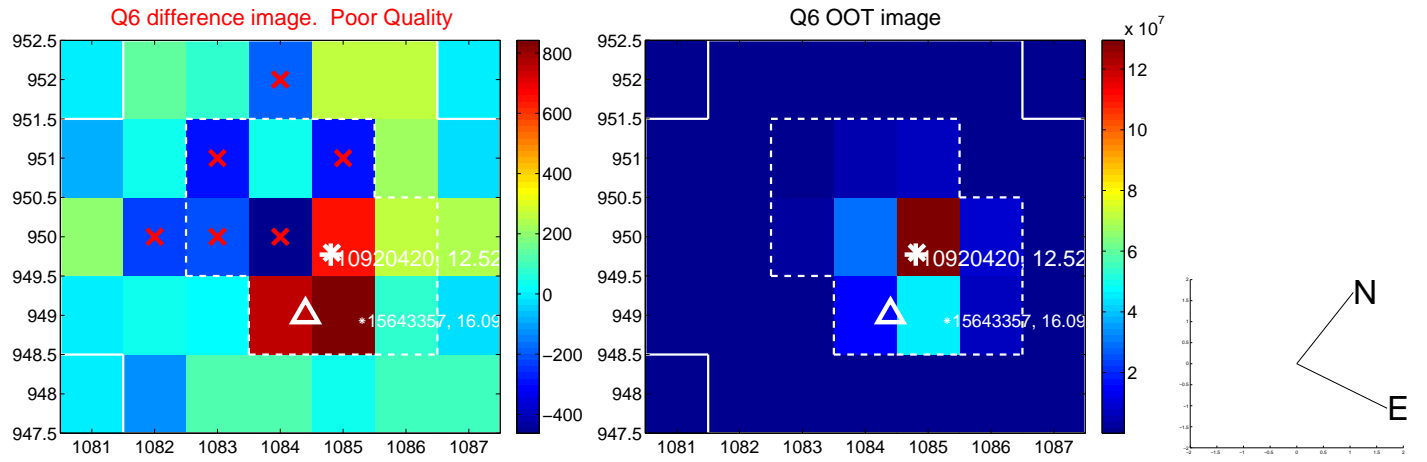
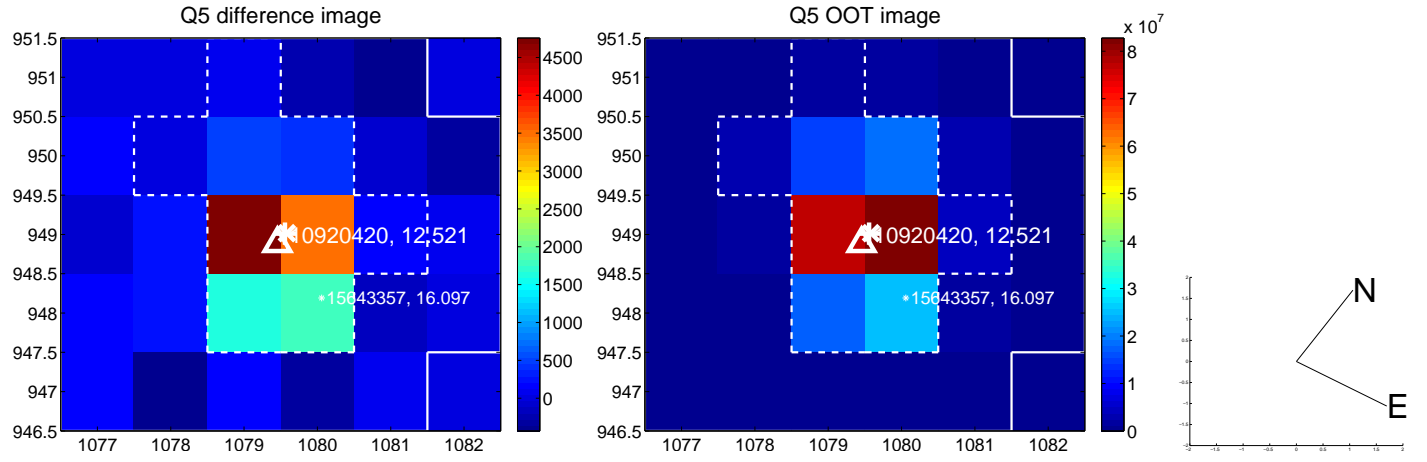


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

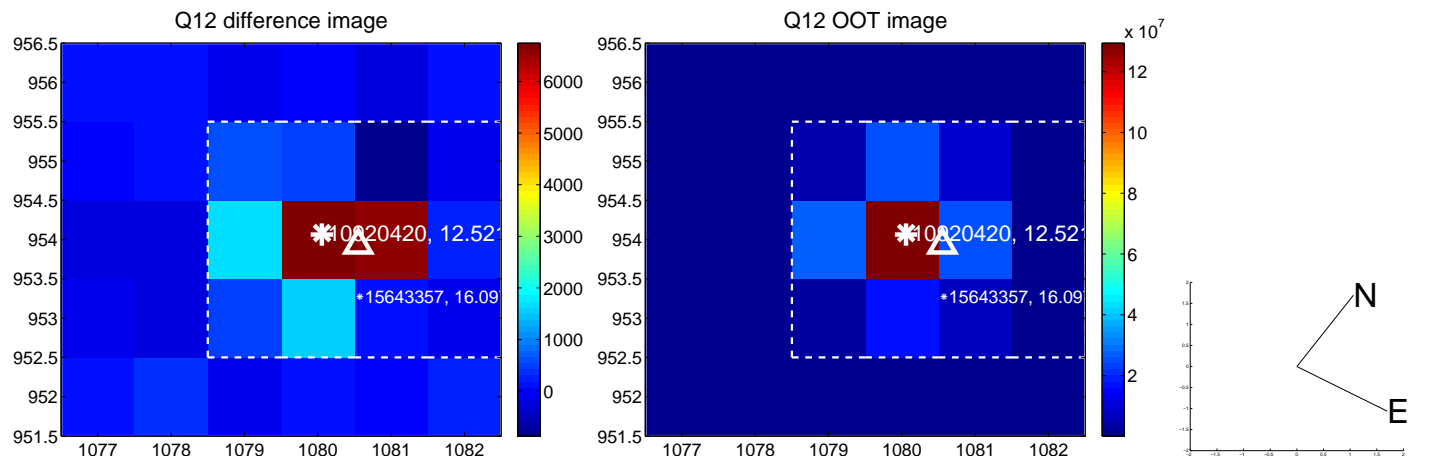
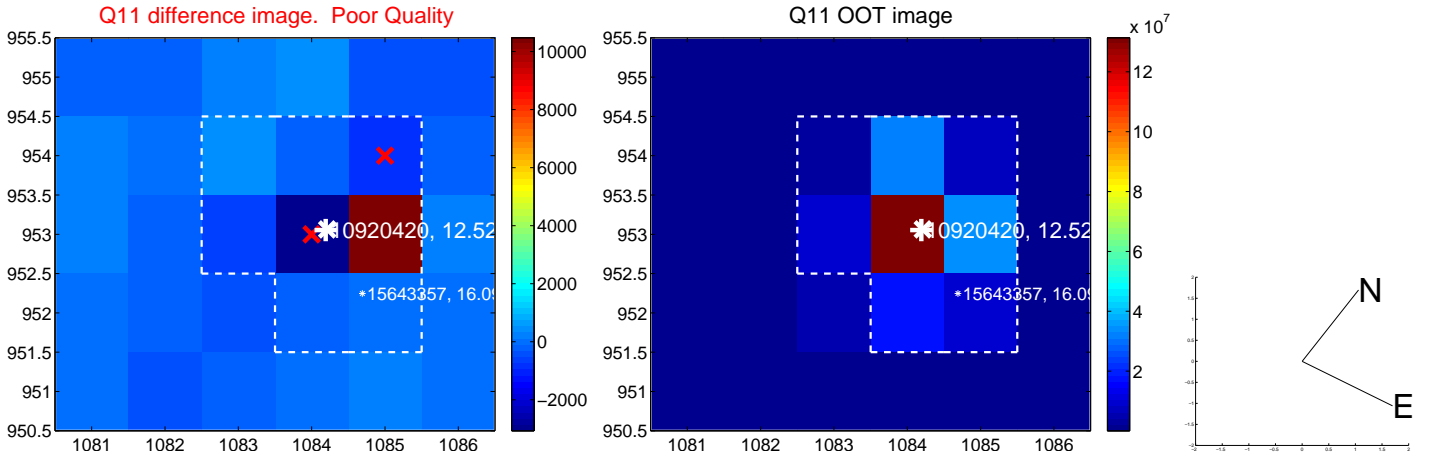
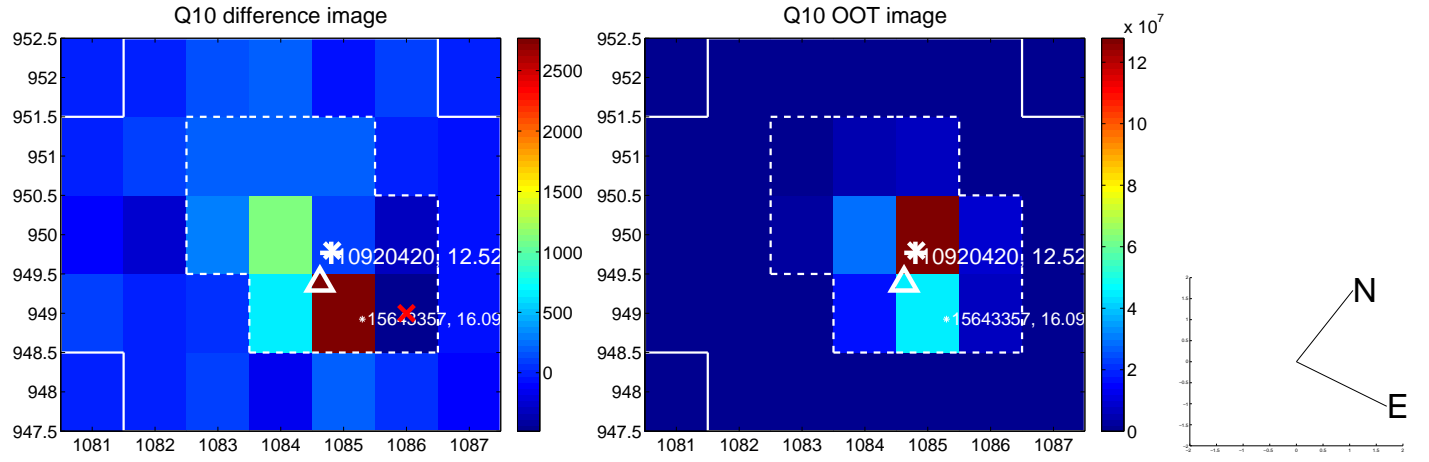
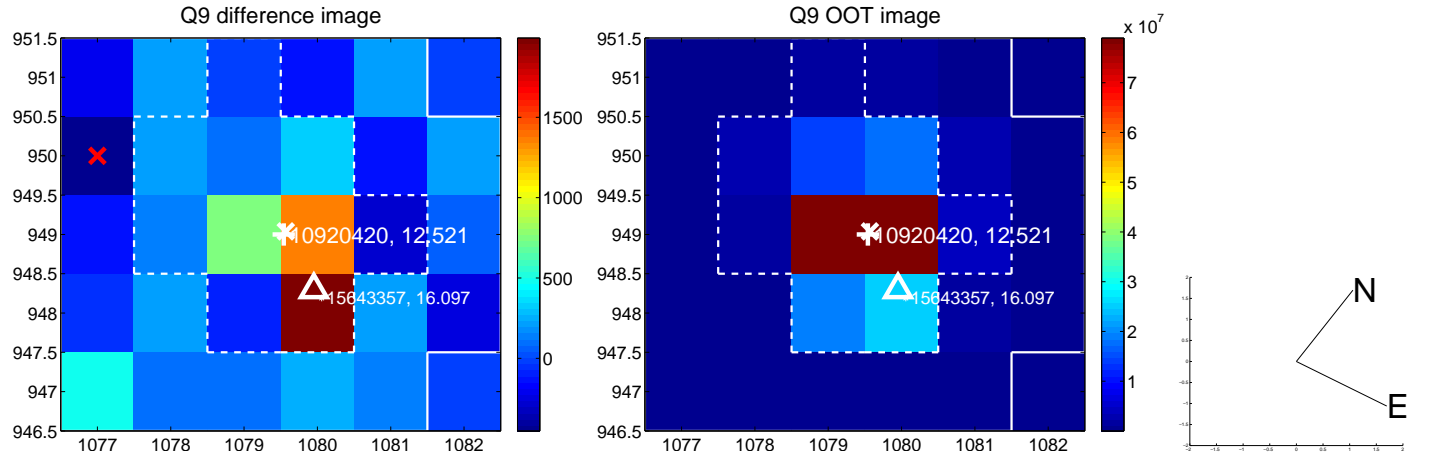
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



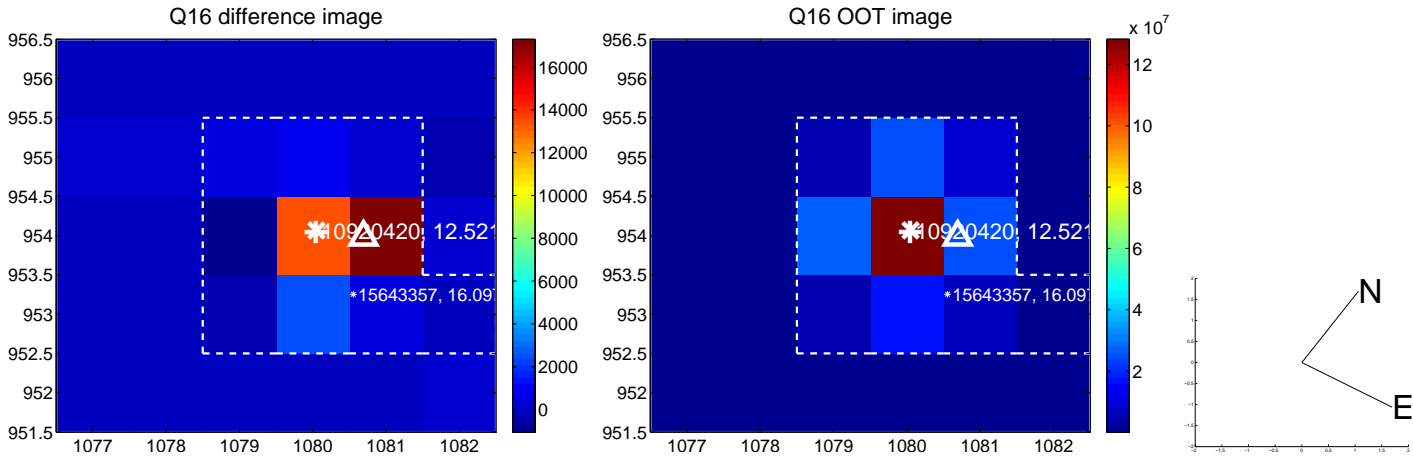
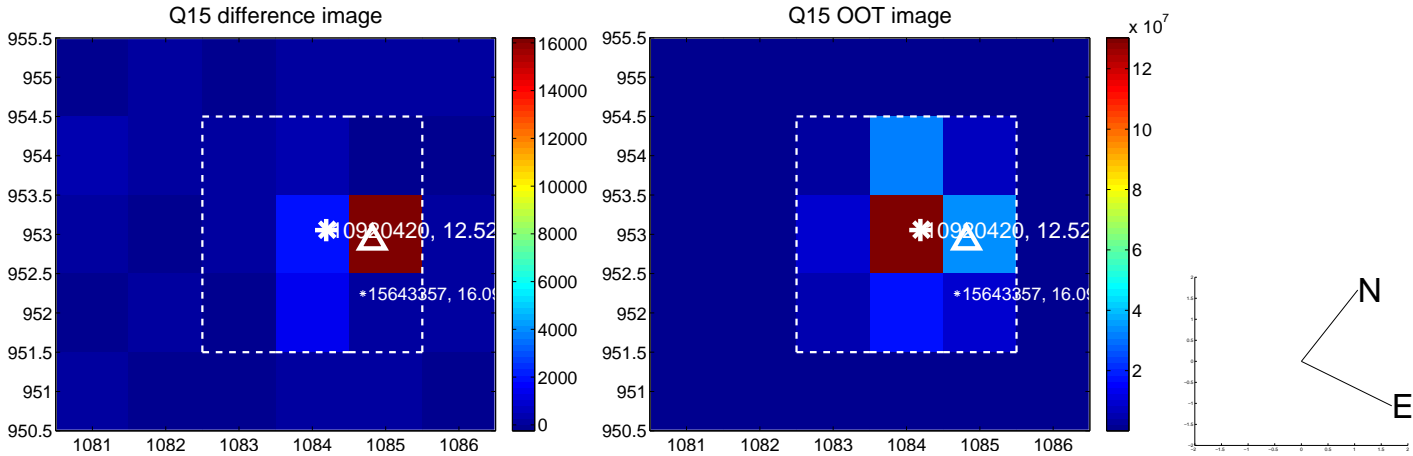
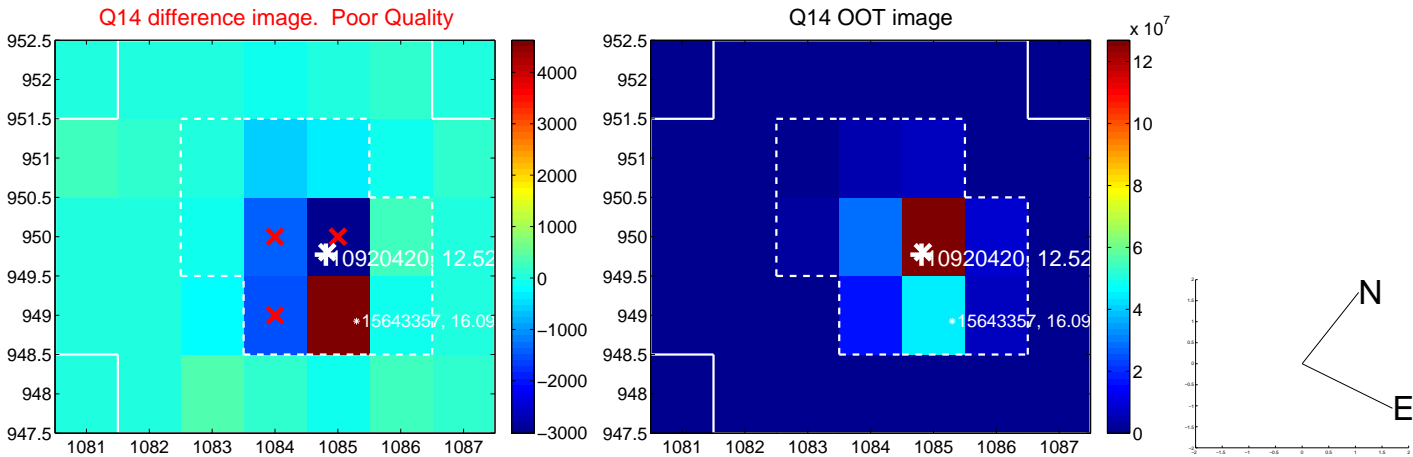
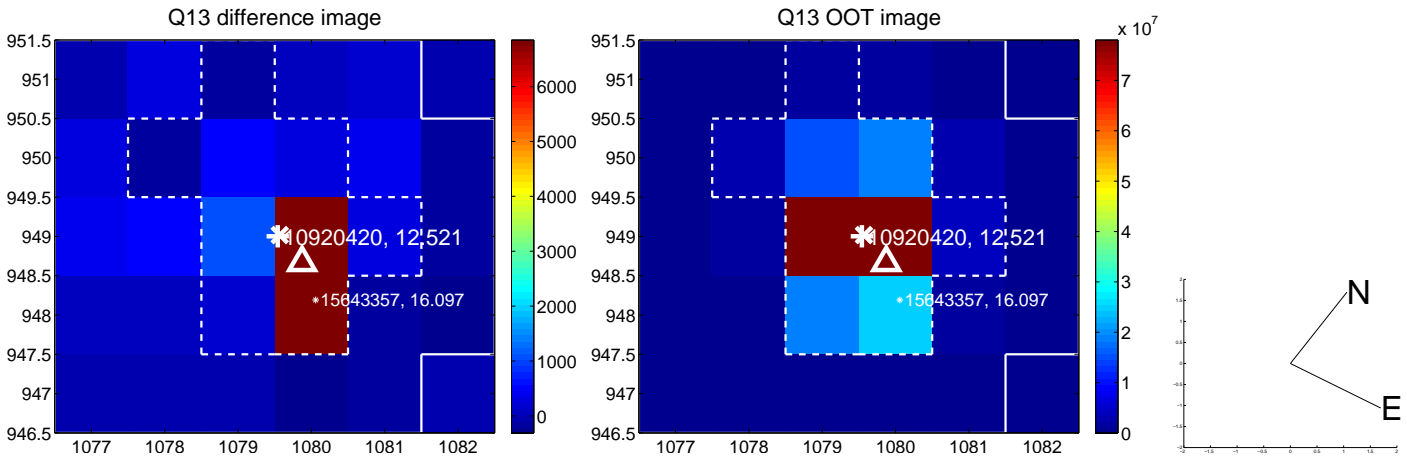
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



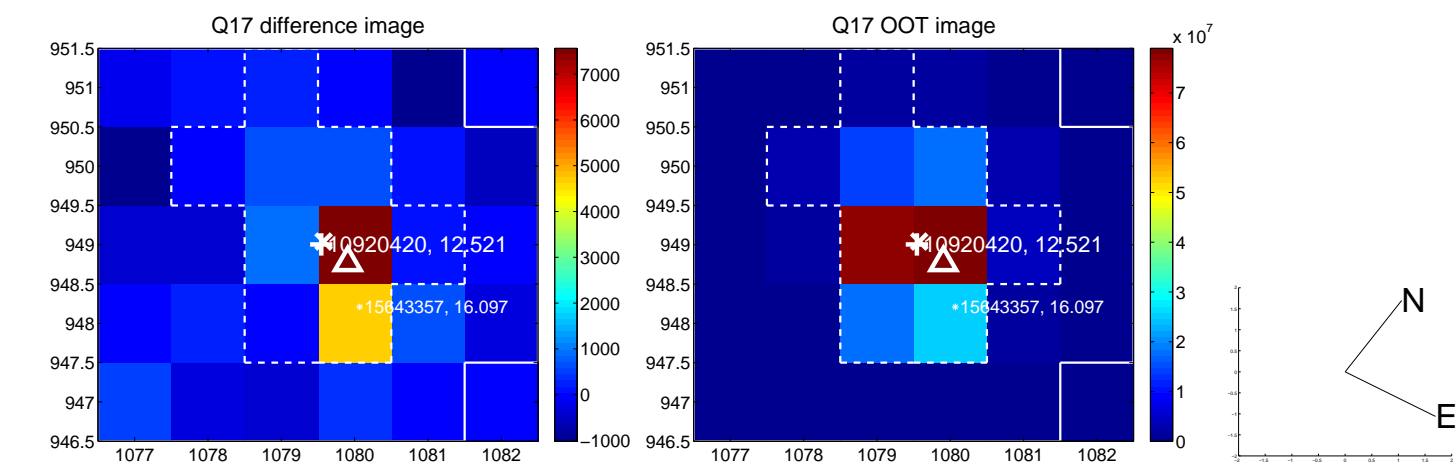
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



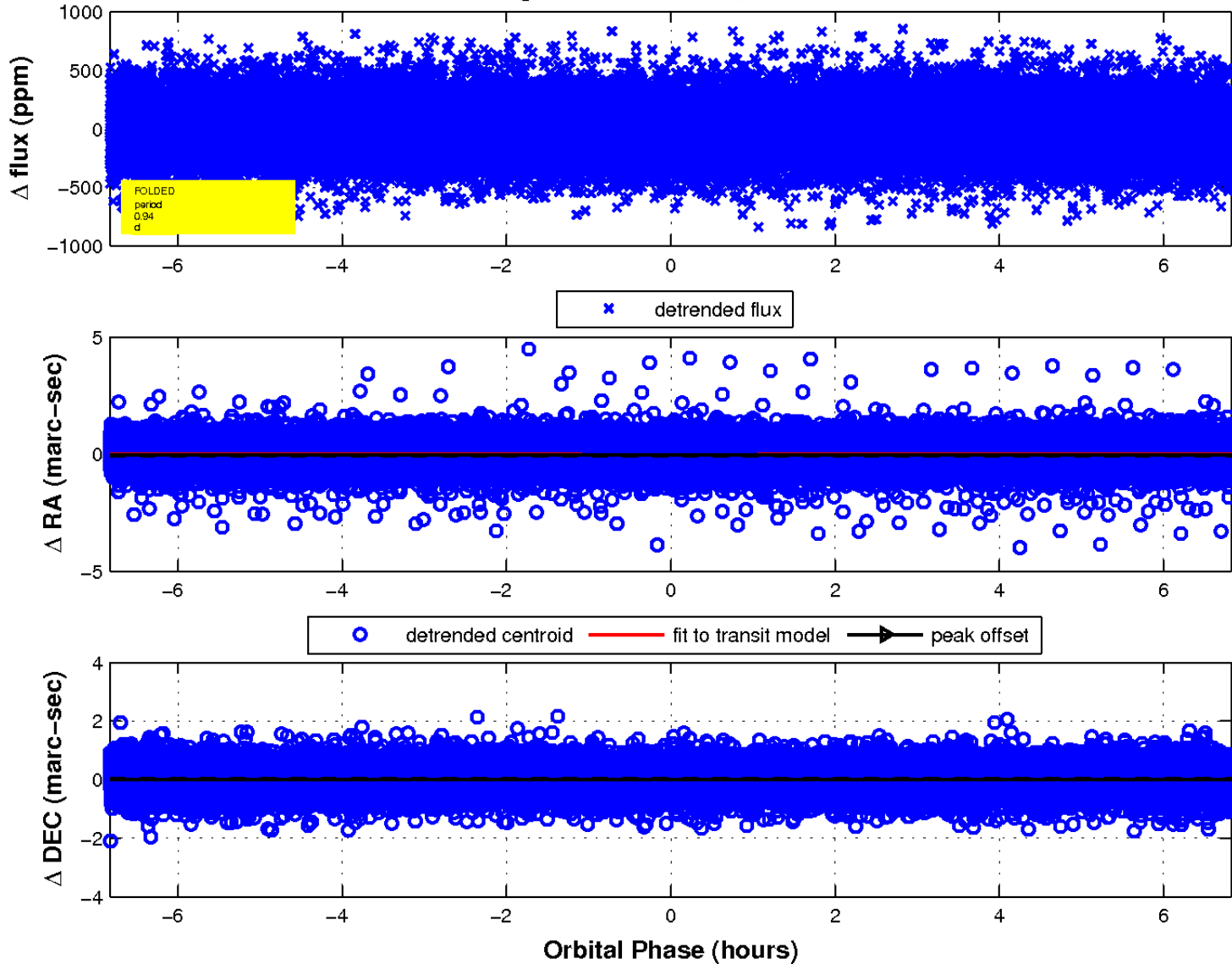
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

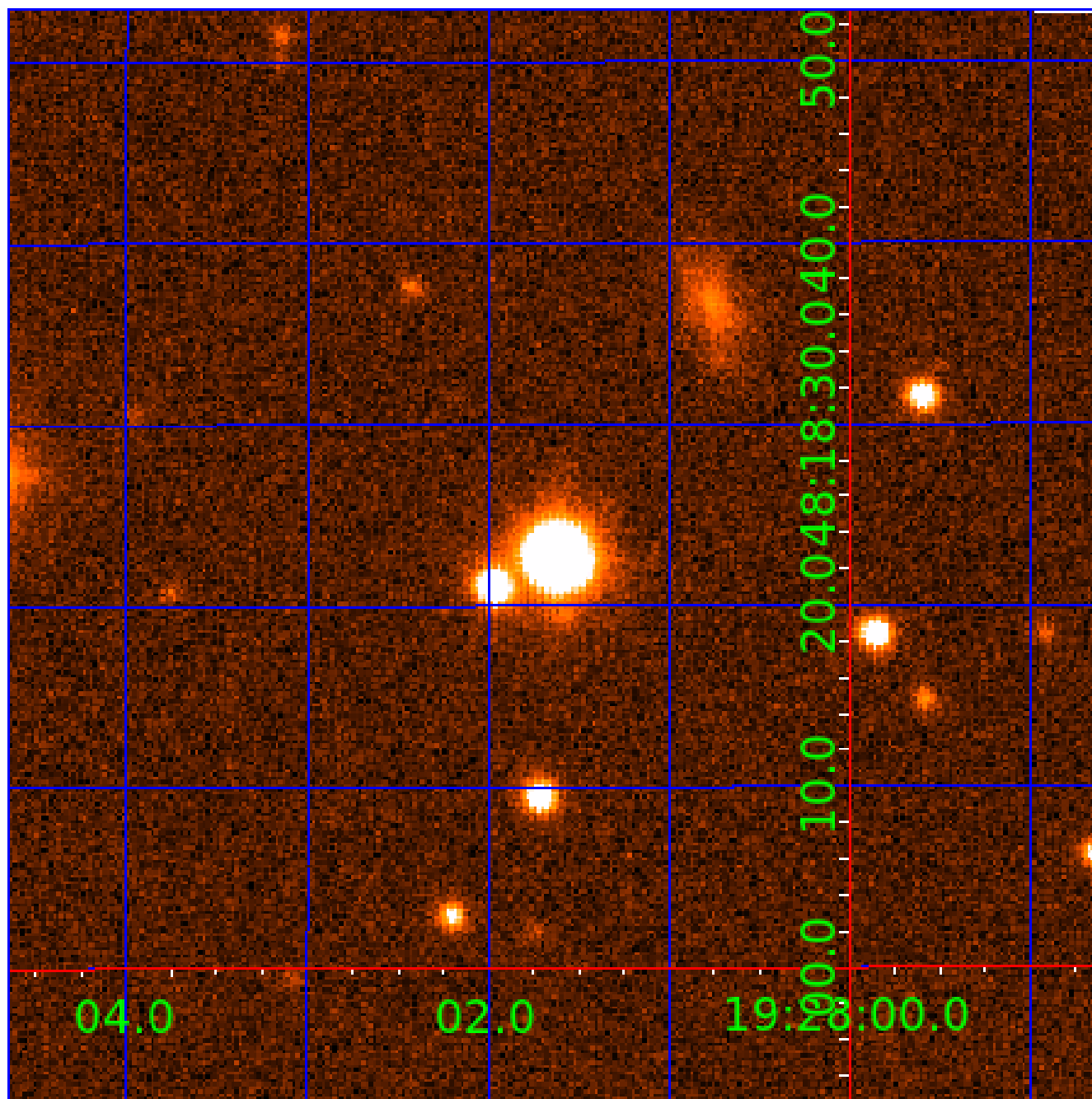


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 010920420

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})
010920420-01	OBS	8038.01	0.943888	132.288269	21.3	2.277	8.7	9.9	2.30	6947	1.25	23566.61
010920420-02	OBS	No	0.943892	131.815702	21.2	1.794	7.9	9.7	2.30	6947	1.28	23566.47
010920420-03	OBS	No	283.247513	407.918466	831.7	8.985	9.4	9.6	2.30	6947	12.38	11.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010920420-01	OBS	FP	0.00	1	0	1	1	MOD_NONUNIQU_ALT—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010920420-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—MOD_NONUNIQU_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010920420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQU_DV—INCONSISTENT_TRANS

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.

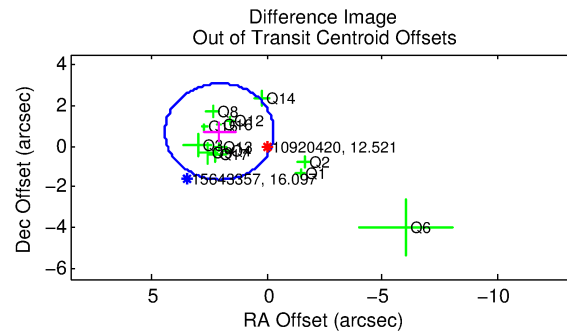
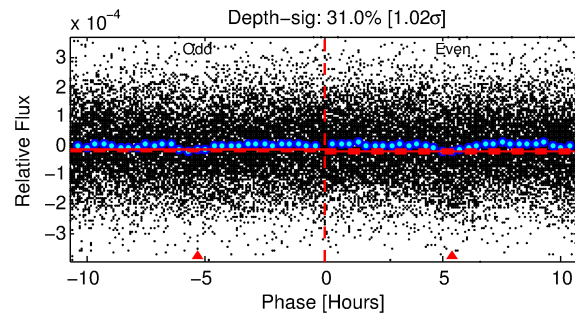
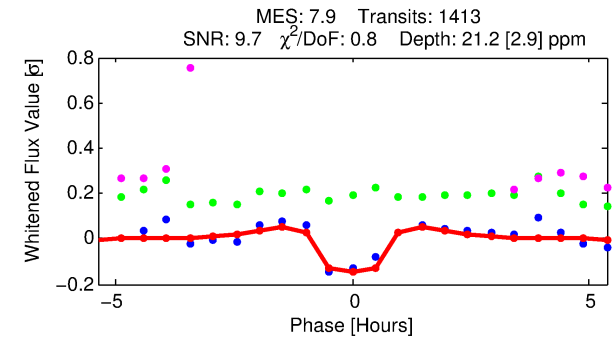
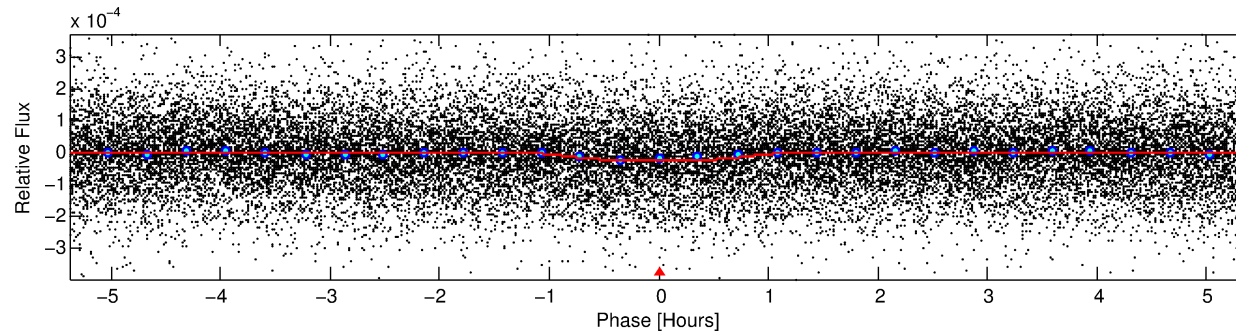
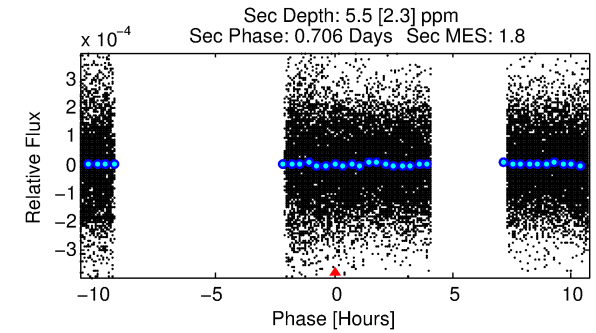
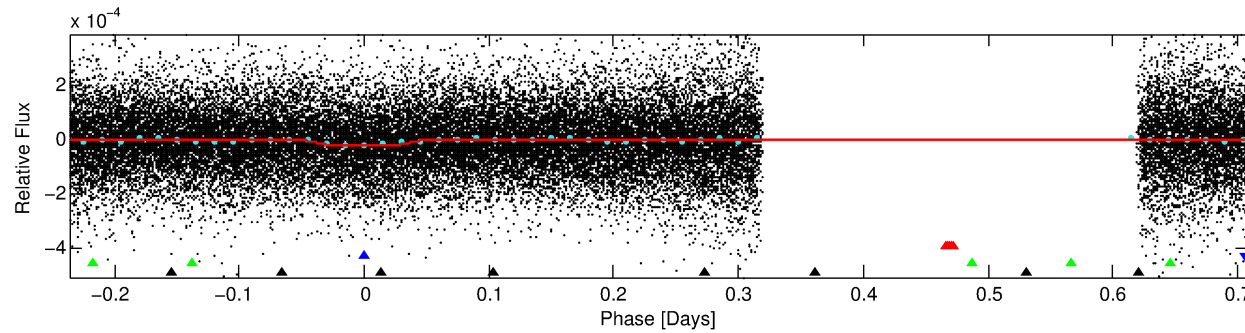
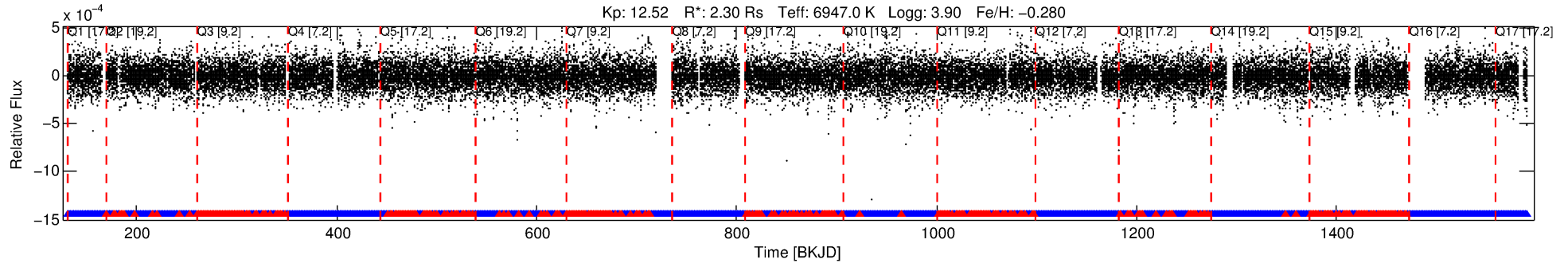
Ephemeris Match Information For 010920420-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010920420-02	10920420	010861842-pri	10861842	2:1	290.1	73	0	14.29	12.52	16490.00	Col-Anomaly	0	1.44	0.20

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10920420 Candidate: 2 of 4 Period: 0.944 d



DV Fit Results:

Period = 0.94389 [0.00001] d
Epoch = 131.8157 [0.0018] BKJD
Rp/R* = 0.0051 [0.0012]
a/R* = 1.71 [1.65]
b = 0.94 [0.18]
Seff = 23566.47 [11570.37]
Teq = 3159 [388] K
Rp = 1.28 [0.55] Re
a = 0.0216 [0.0067] AU
Ag = 0.87 [0.69] [-0.20σ]
Teffp = 4711 [768] K [1.80σ]

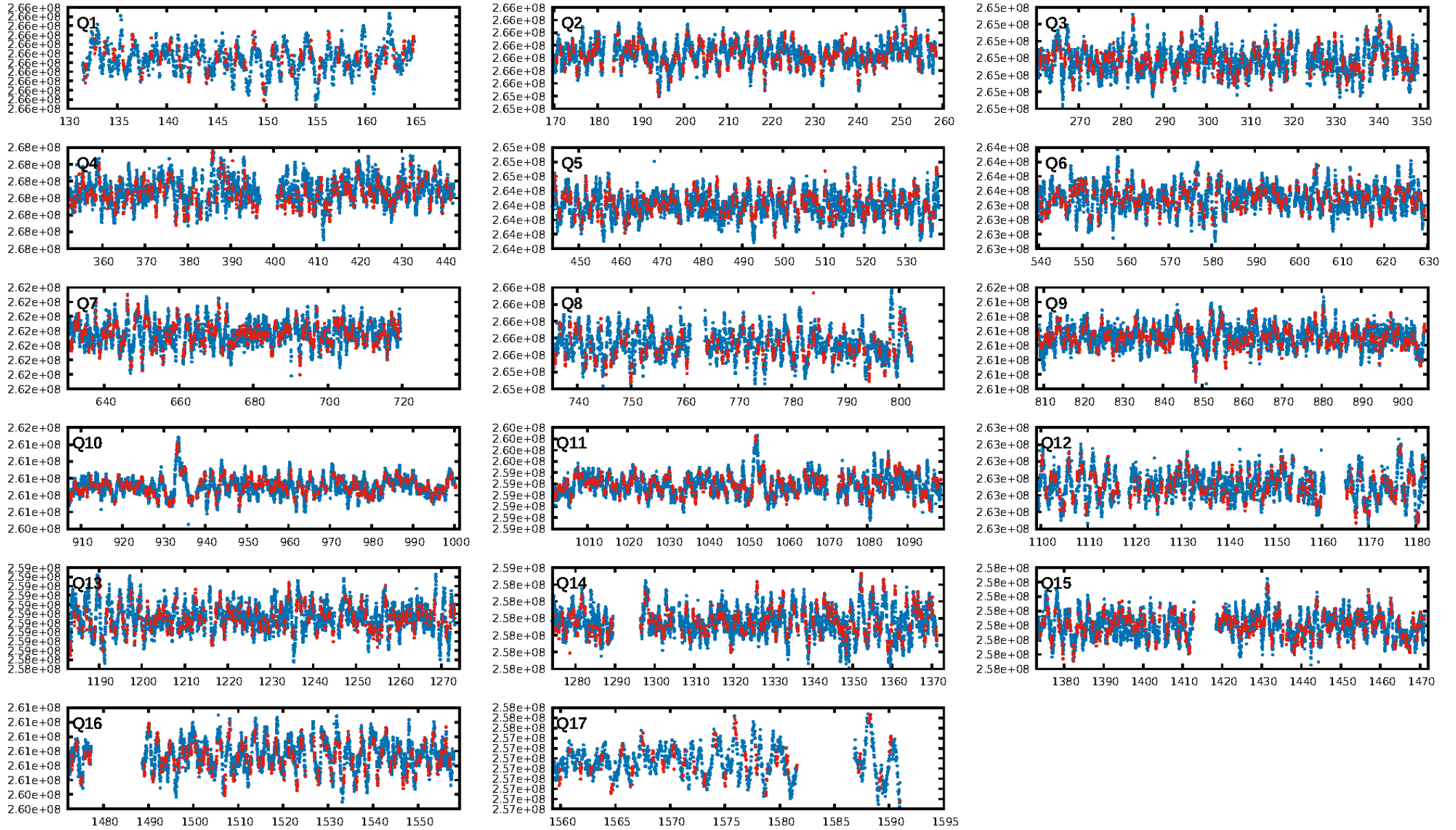
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [831.28σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.36e-16
RollingBand-fgt: 0.72 [974/1350]
GhostDiagnostic-chr: 11.24
Centroid-sig: 0.0%
Centroid-so: 2.707 arcsec [3.03σ]
OotOffset-rm: 2.171 arcsec [2.76σ]
KicOffset-rm: 2.151 arcsec [2.83σ]
OotOffset-st: 3/2/4/4 [13]
KicOffset-st: 3/2/4/4 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 1.00 [17/17]

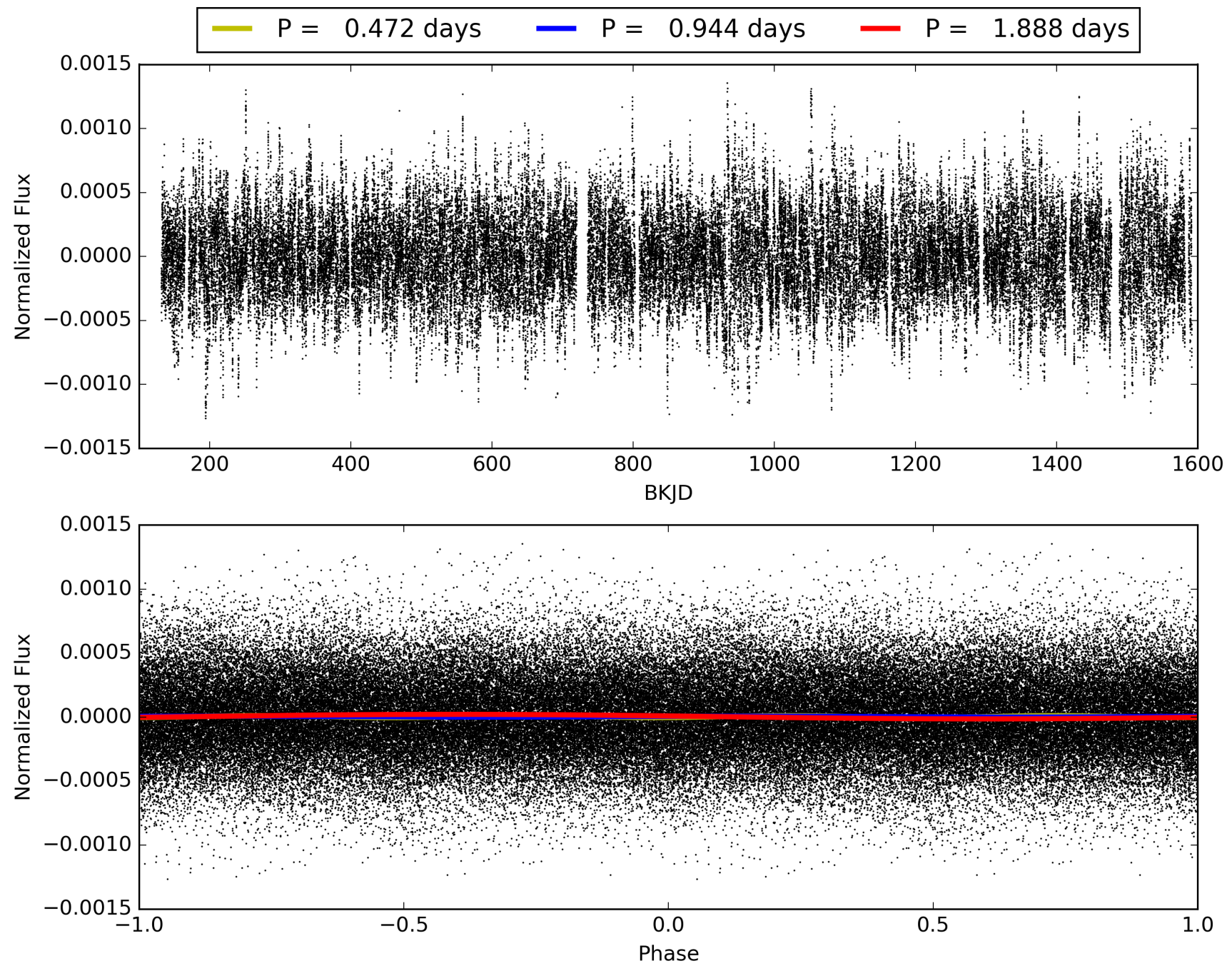
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:10:15 Z

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

TCE 010920420-02, PDC Light Curves

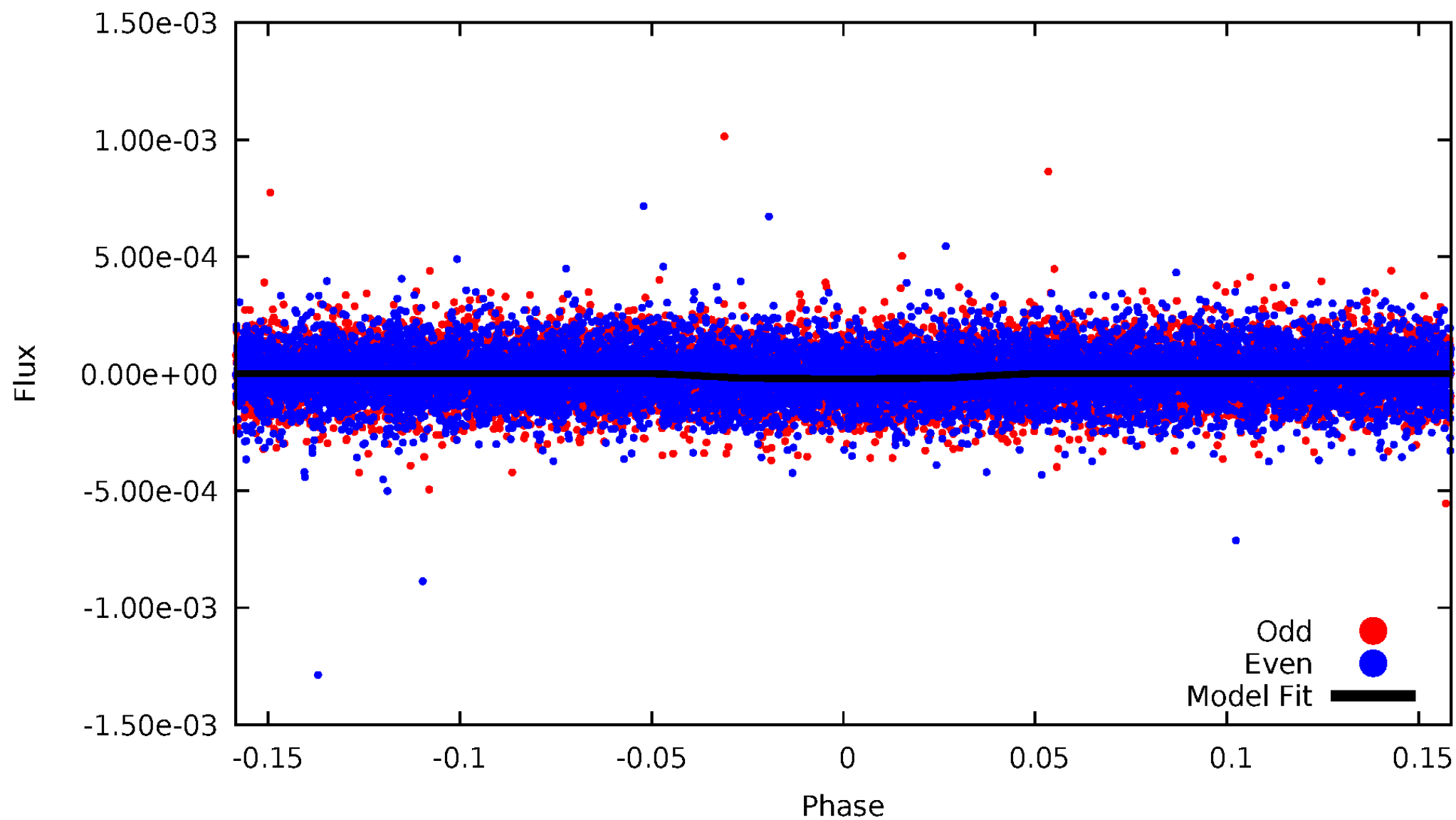


TCE 010920420-02



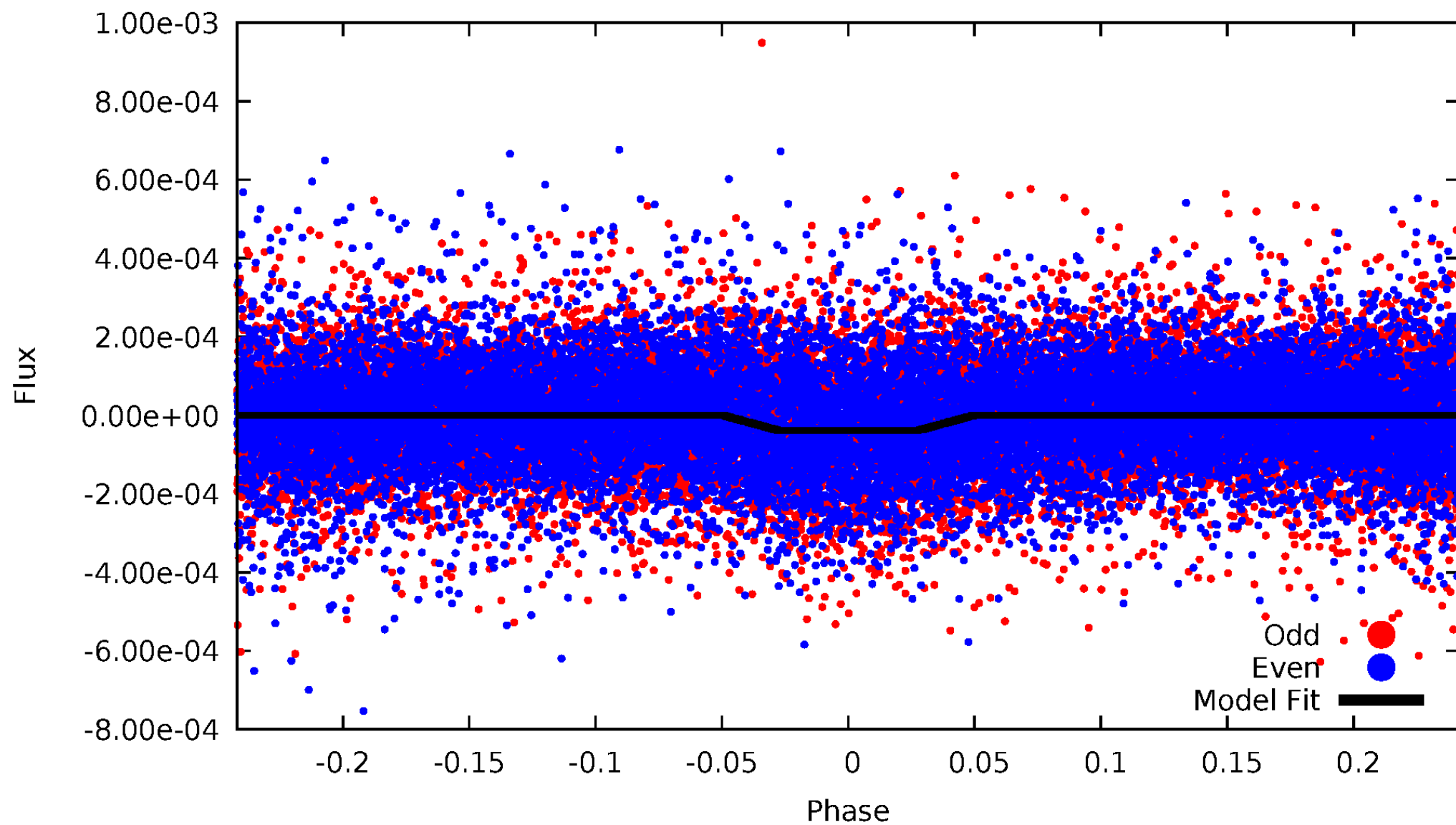
DV Odd/Even

TCE 010920420-02



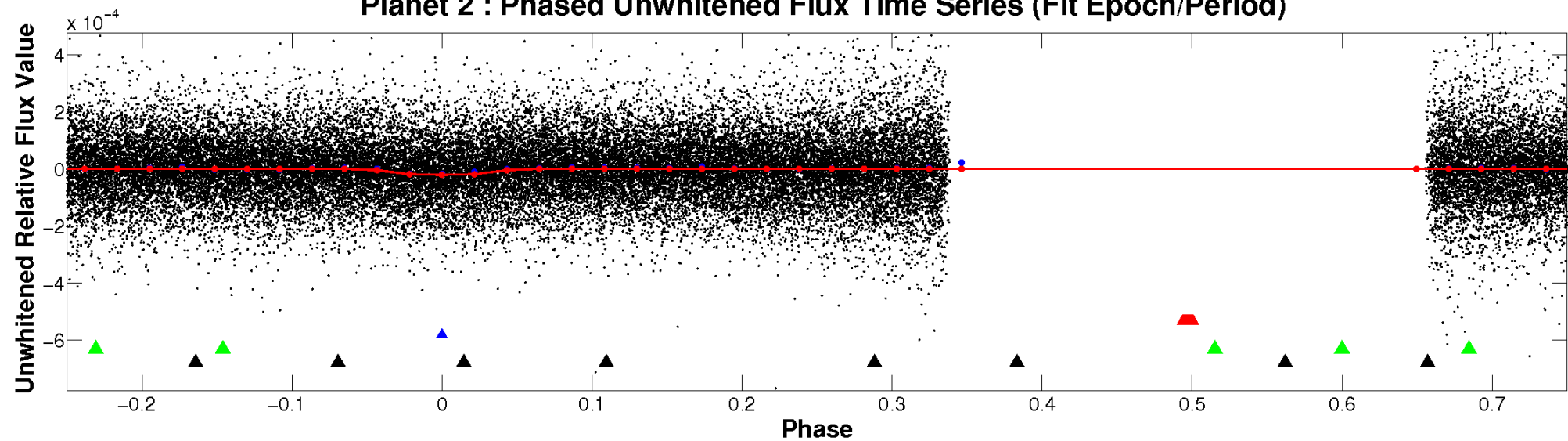
ALT Odd/Even

TCE 010920420-02

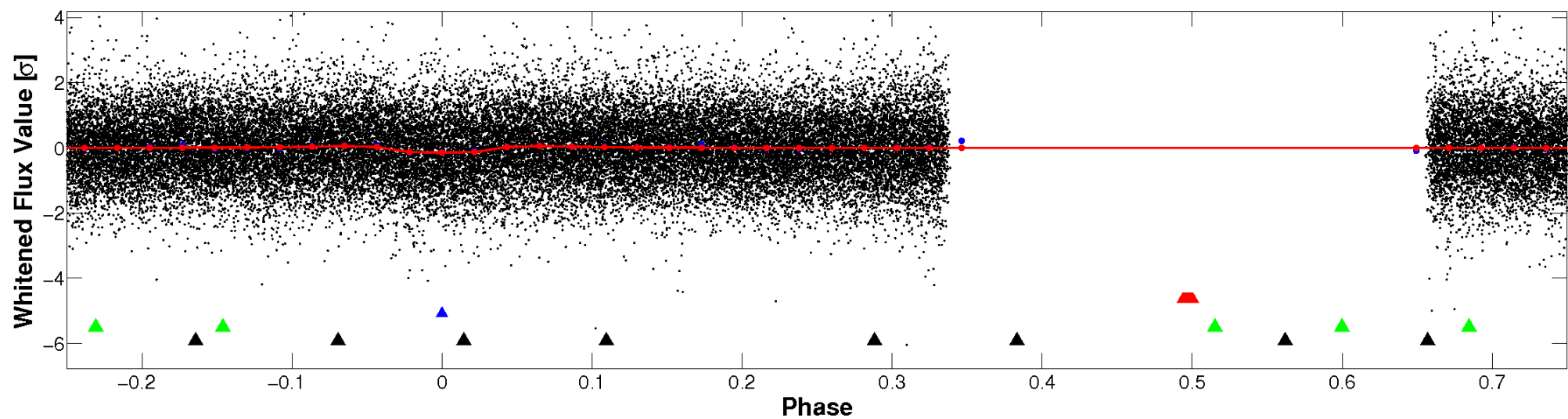


Non-Whitened Vs. Whitened Light Curve

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

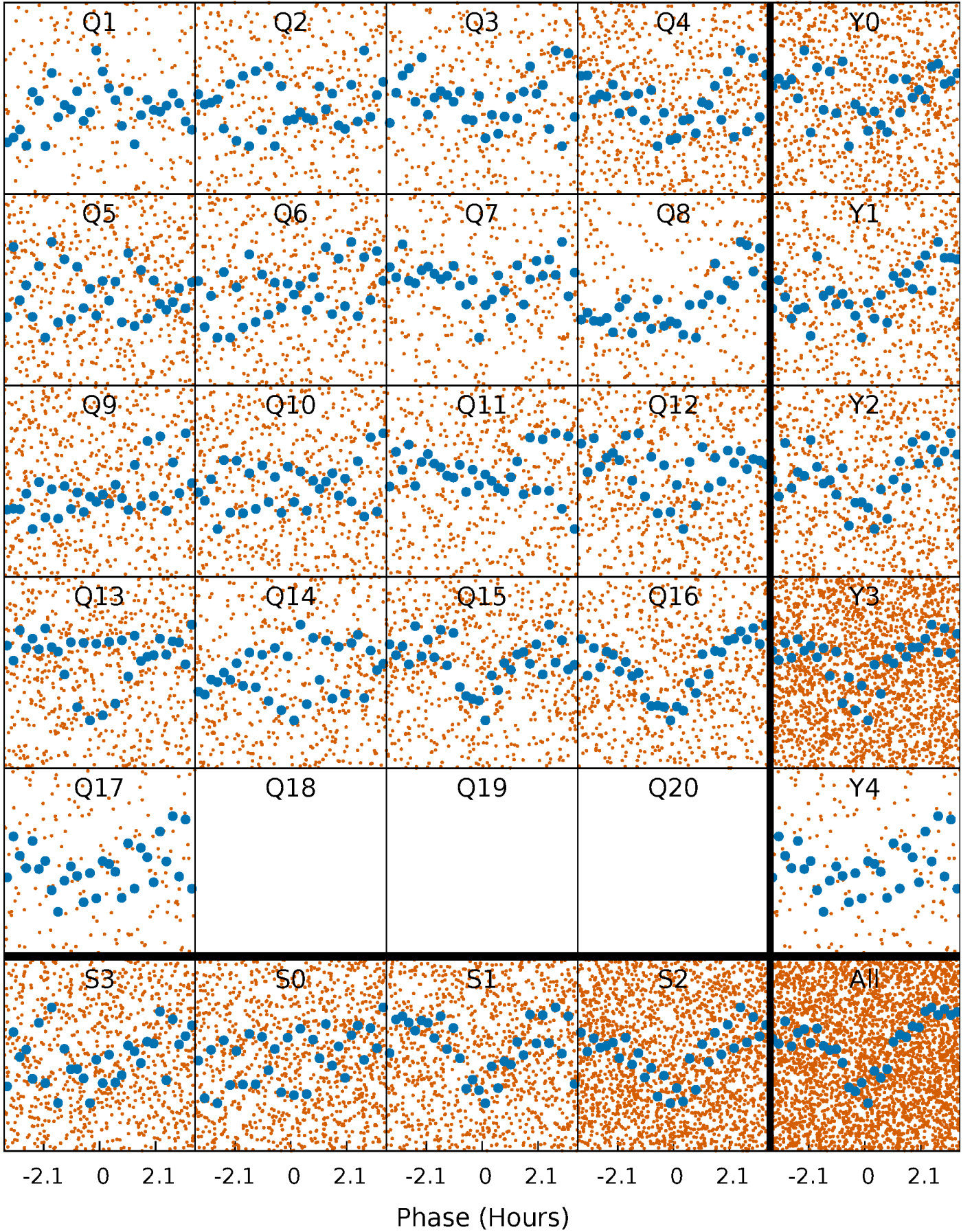


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



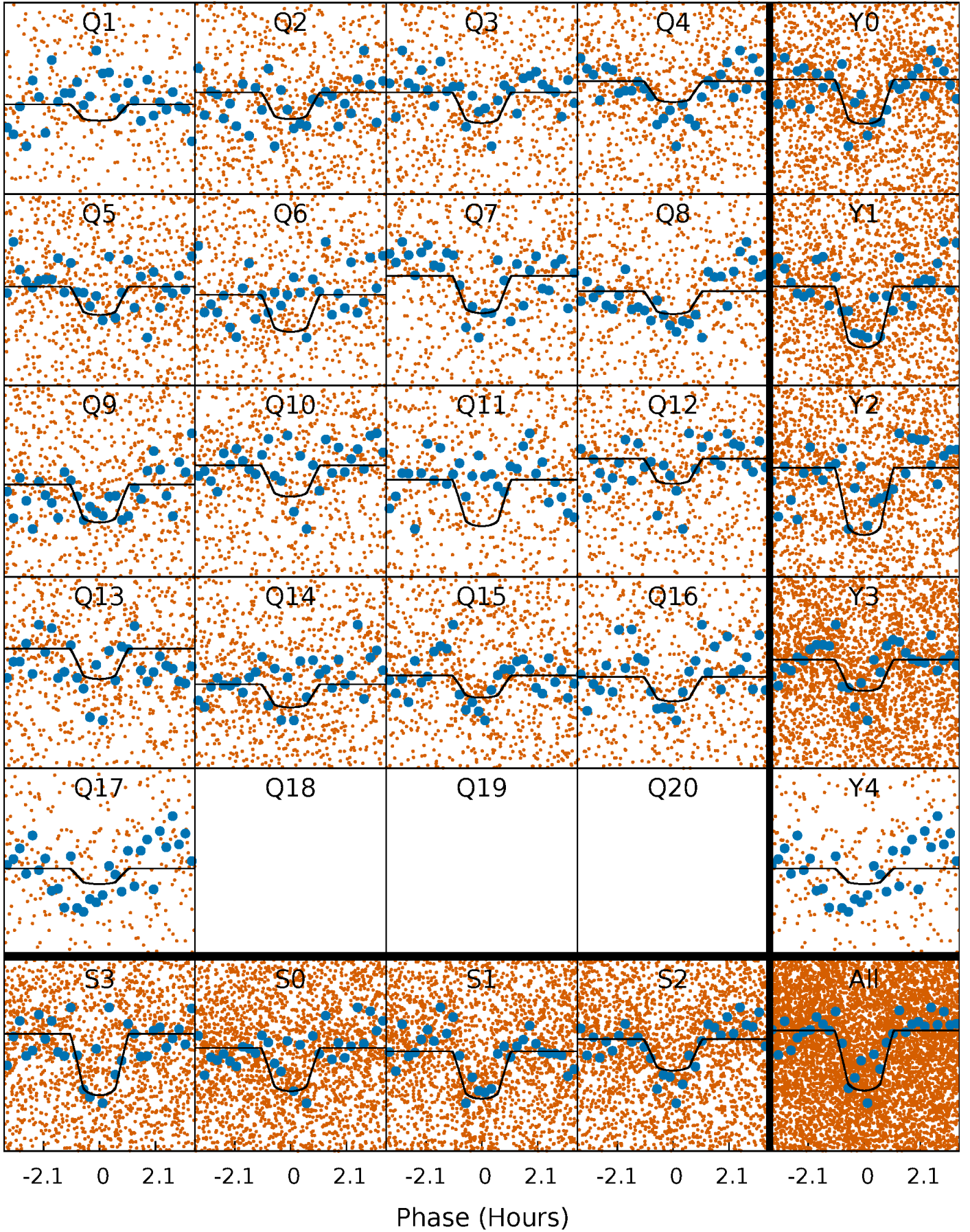
PDC Quarter-Phased Transit Curves

TCE 010920420-02 P= 0.943892 Days $T_0=131.815702$ (BKJD)



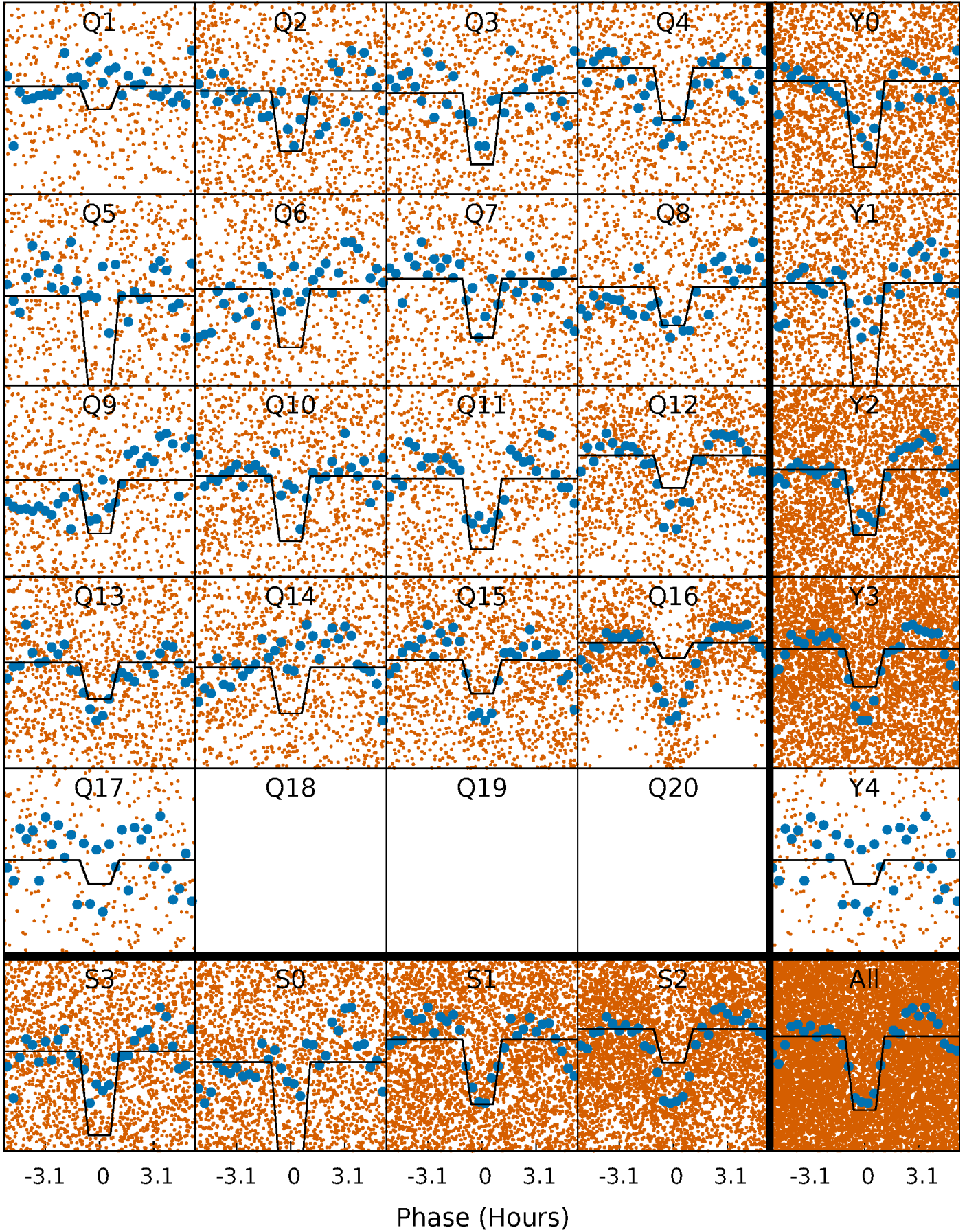
DV Quarter-Phased Transit Curves

TCE 010920420-02 $P = 0.943892$ Days $T_0 = 131.815702$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

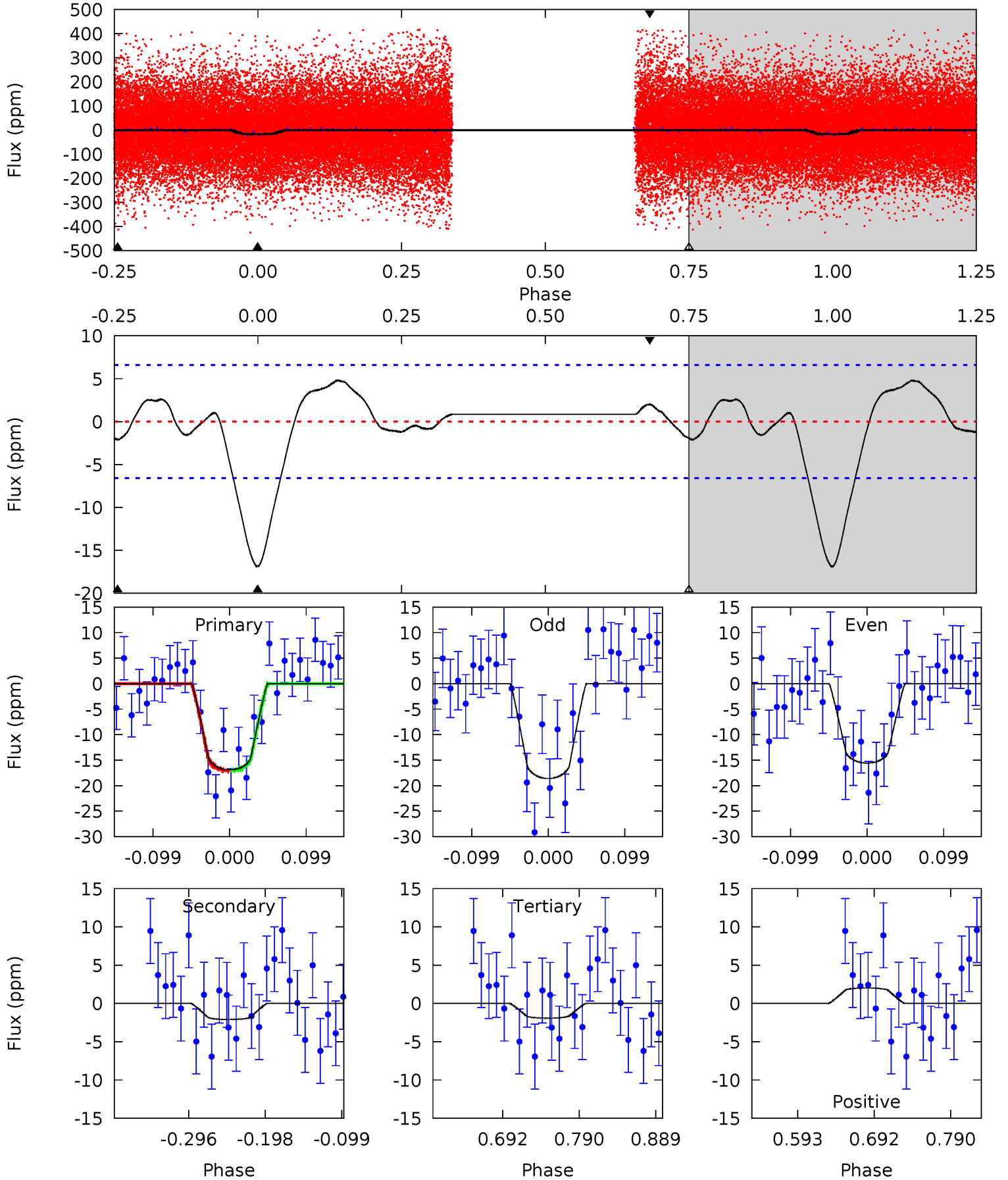
TCE 010920420-02 P= 0.943882 Days $T_0=131.825270$ (BKJD)



DV Model-Shift Uniqueness Test

010920420-02, P = 0.943892 Days, E = 130.871810 Days

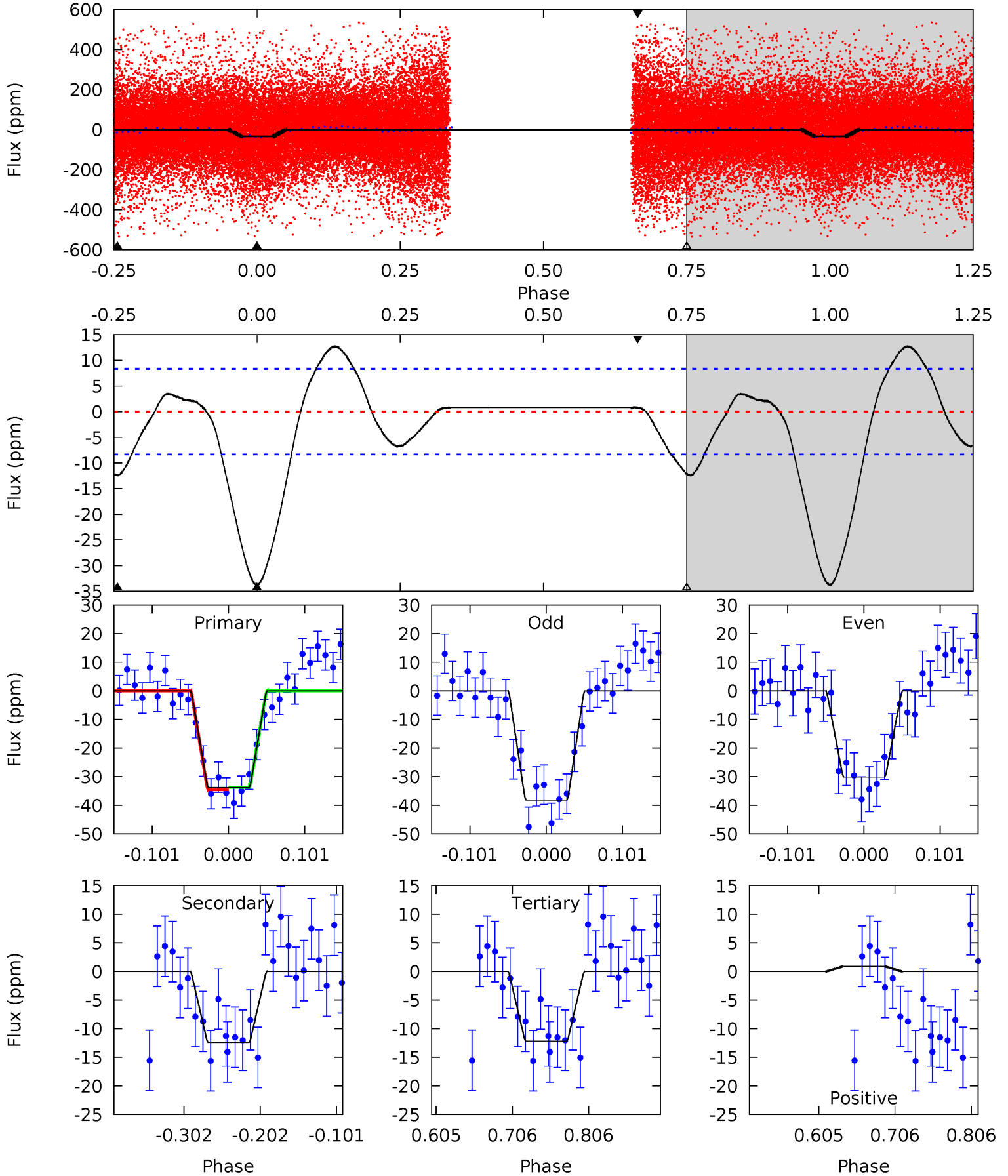
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	1.46	1.33	1.40	4.57	1.65	1.40	10.4	10.3	0.13	0.05	1.06	0.99	0.22	0.01



Alt Model-Shift Uniqueness Test

010920420-02, P = 0.943882 Days, E = 130.881388 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	6.79	6.65	0.47	4.56	1.64	3.58	11.8	18.0	0.14	6.31	2.22	0.99	0.27	0.29



Stellar Parameters For KIC 010920420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6947^{+166}_{-238}	$3.895^{+0.266}_{-0.114}$	$-0.280^{+0.300}_{-0.250}$	$2.297^{+0.406}_{-0.812}$	$1.511^{+0.180}_{-0.308}$	$0.176^{+0.317}_{-0.063}$
	+2%/-3%	+7%/-3%	+107%/-89%	+18%/-35%	+12%/-20%	+180%/-36%
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 010920420-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2 ± 1	$1.24^{+0.36}_{-0.36}$	4370^{+267}_{-333}	2809^{+1399}_{-6481}	$0.334^{+0.466}_{-0.229}$
Alt.	-12 ± 2	$1.48^{+0.43}_{-0.37}$	4361^{+258}_{-348}	4988^{+713}_{-551}	$1.440^{+1.162}_{-0.574}$

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 $A_{obs} \gg 1.0$

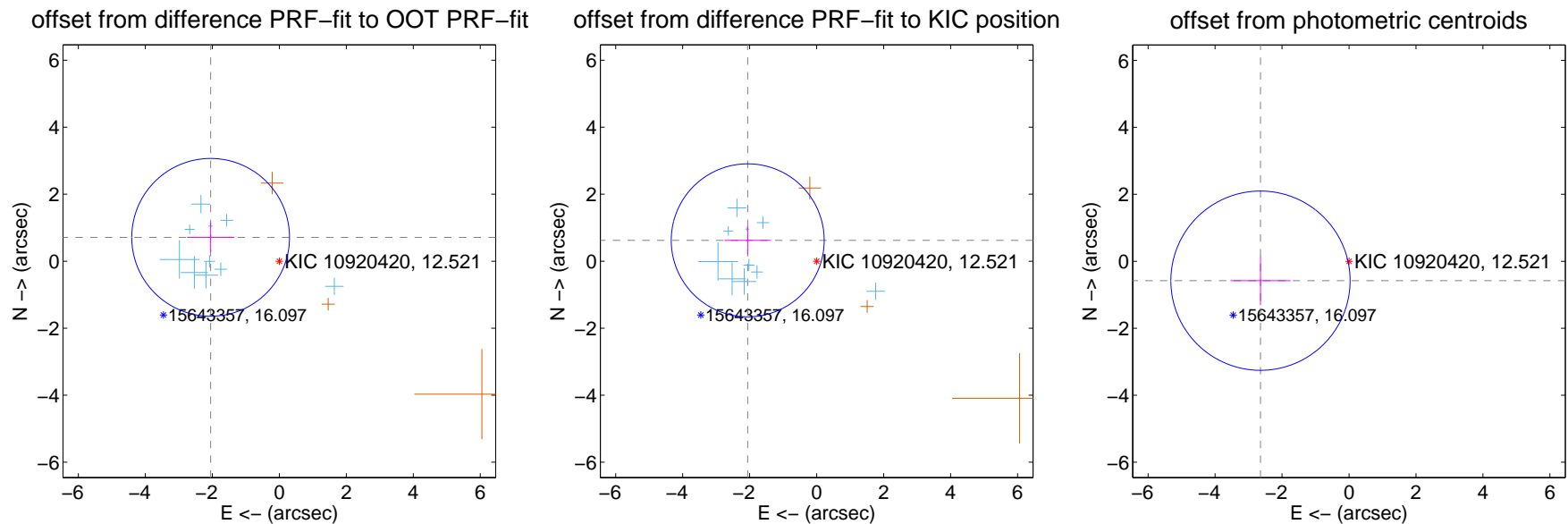
DV Centroid Data

Supplemental centroid analysis for 010920420-02. Kepler magnitude: 12.52. Transit SNR 9.73

There are 10 quarters with good PRF difference image offsets

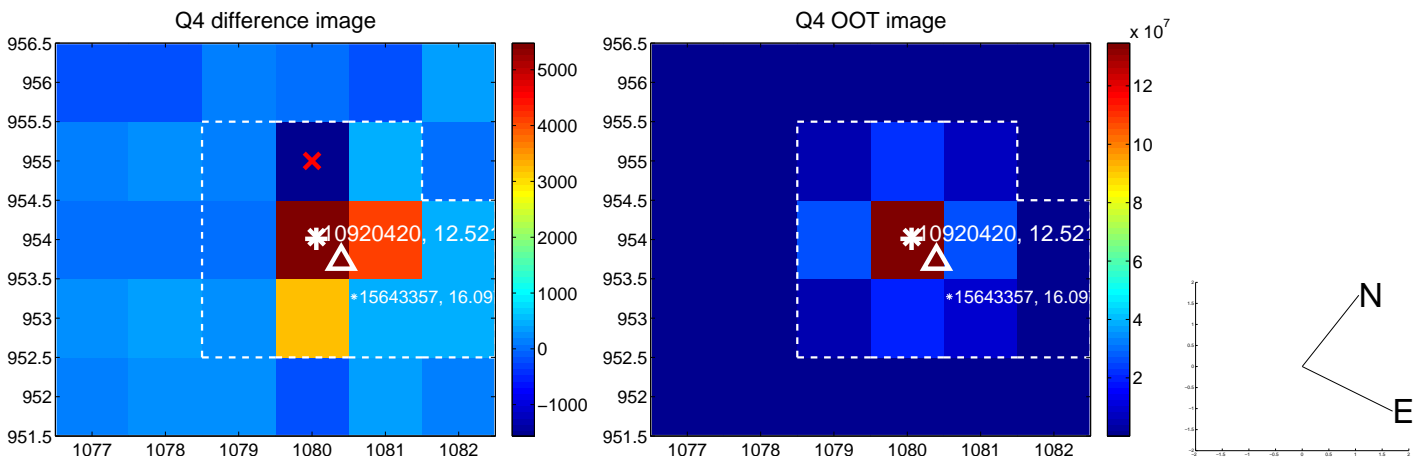
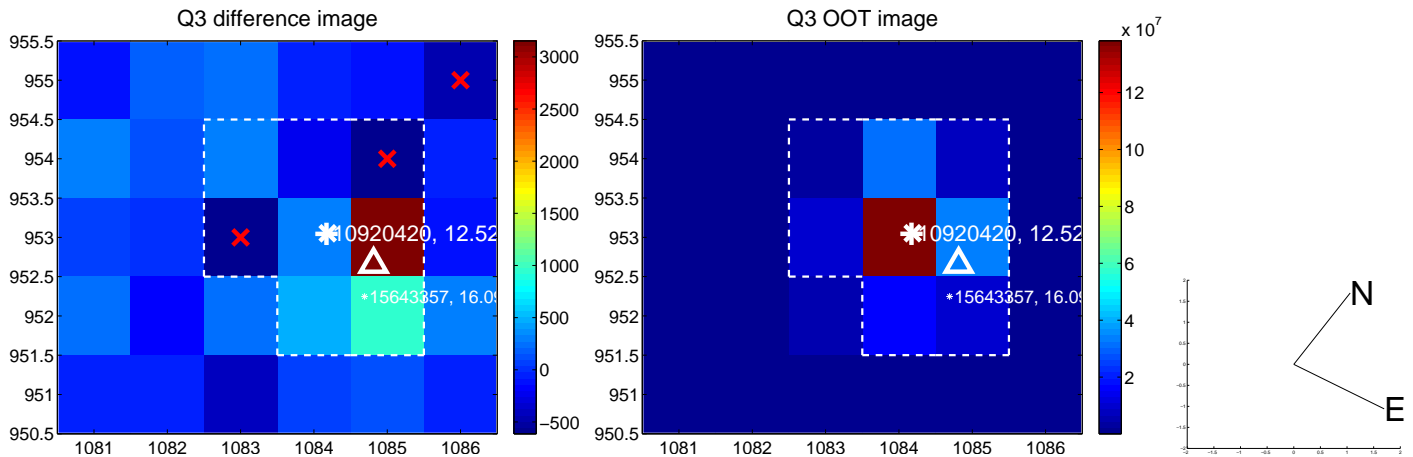
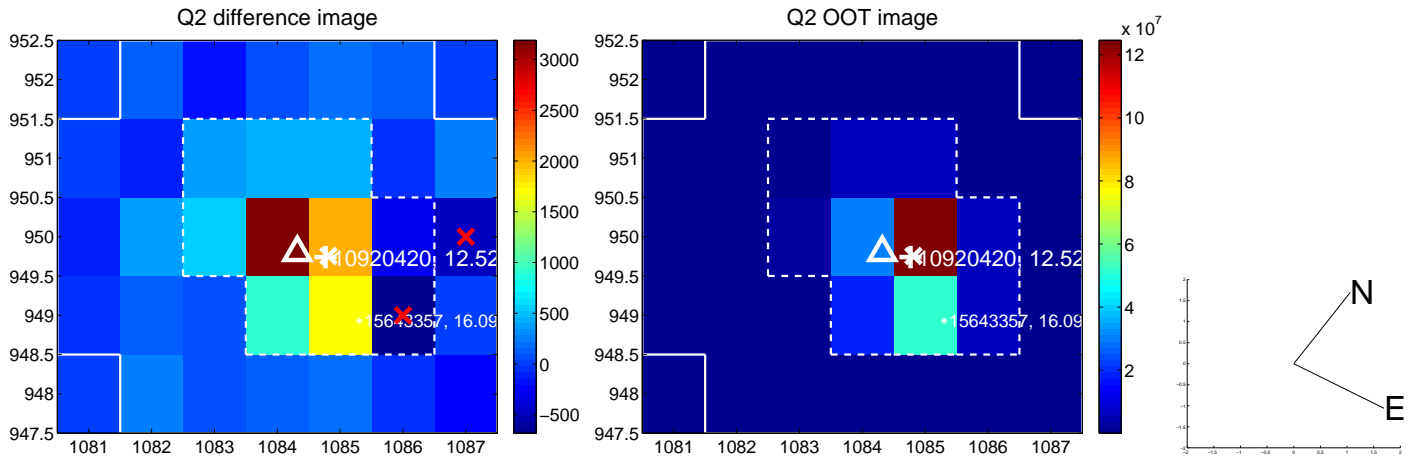
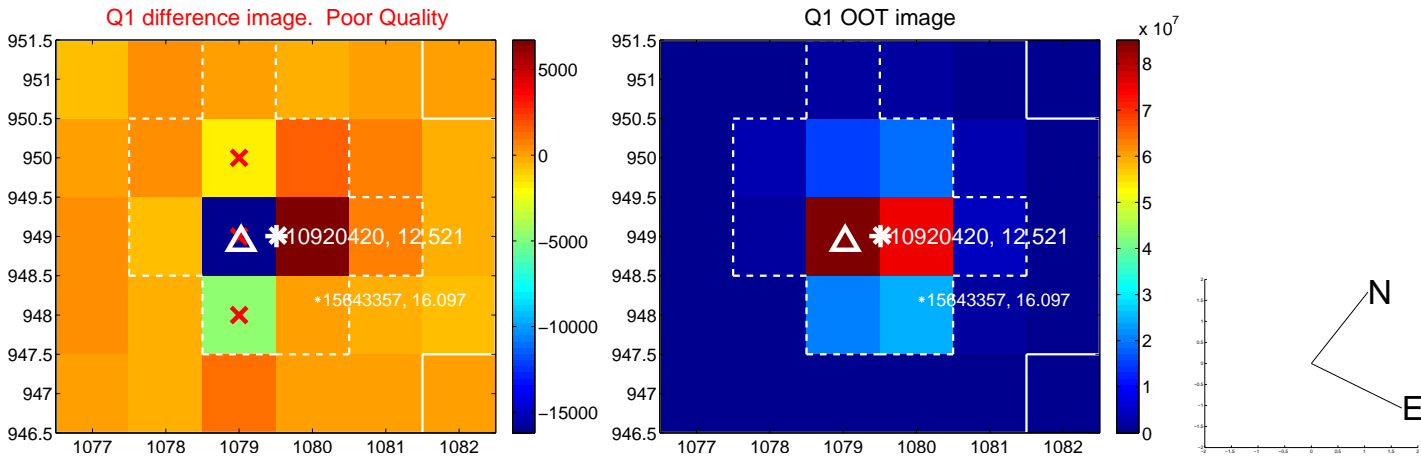
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.171 ± 0.785	2.76	2.051 ± 0.706	0.712 ± 0.446
PRF-fit source offset from KIC position	2.151 ± 0.761	2.83	2.059 ± 0.695	0.623 ± 0.422
photometric centroid source offset	2.71 ± 0.89	3.03	2.64 ± 0.90	-0.58 ± 0.73

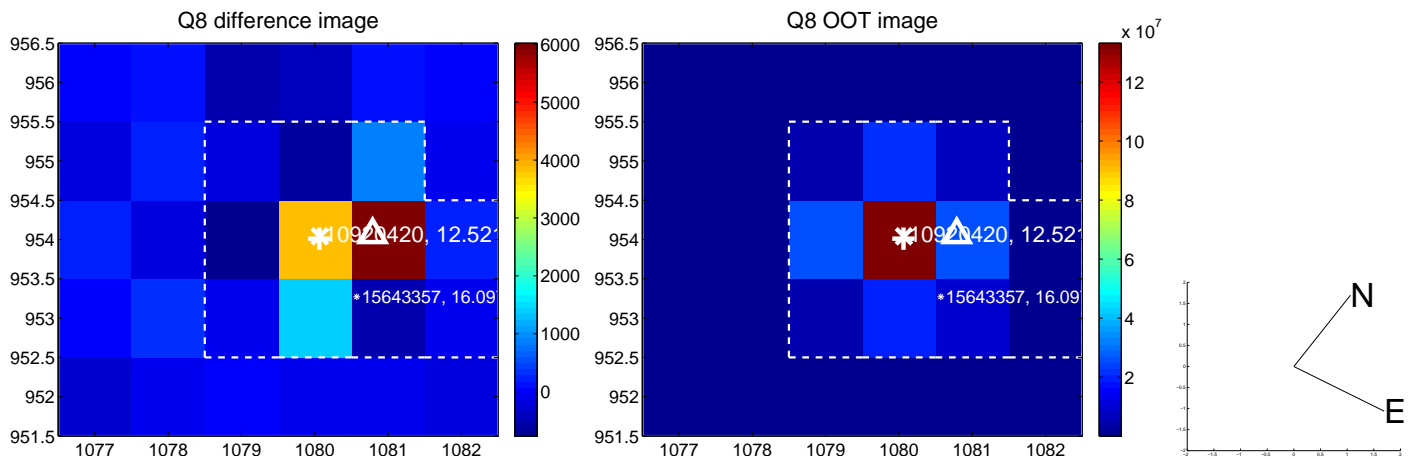
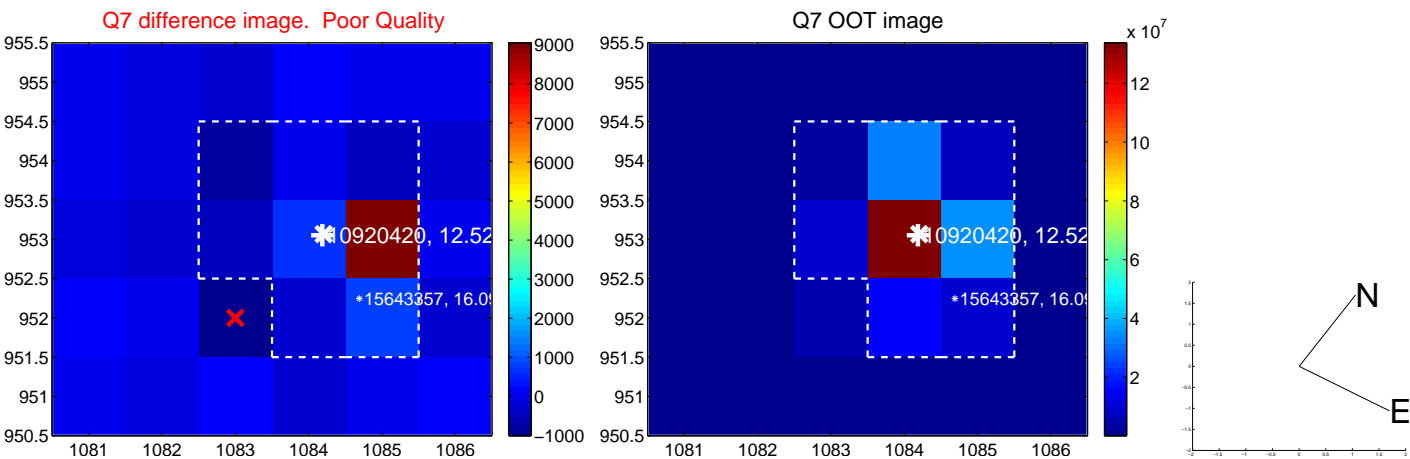
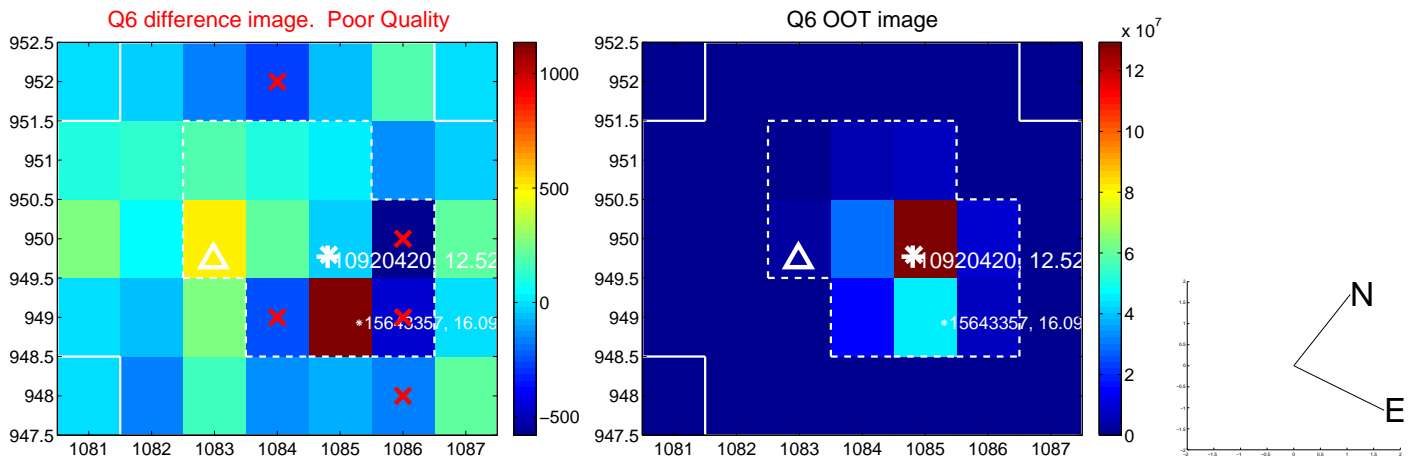
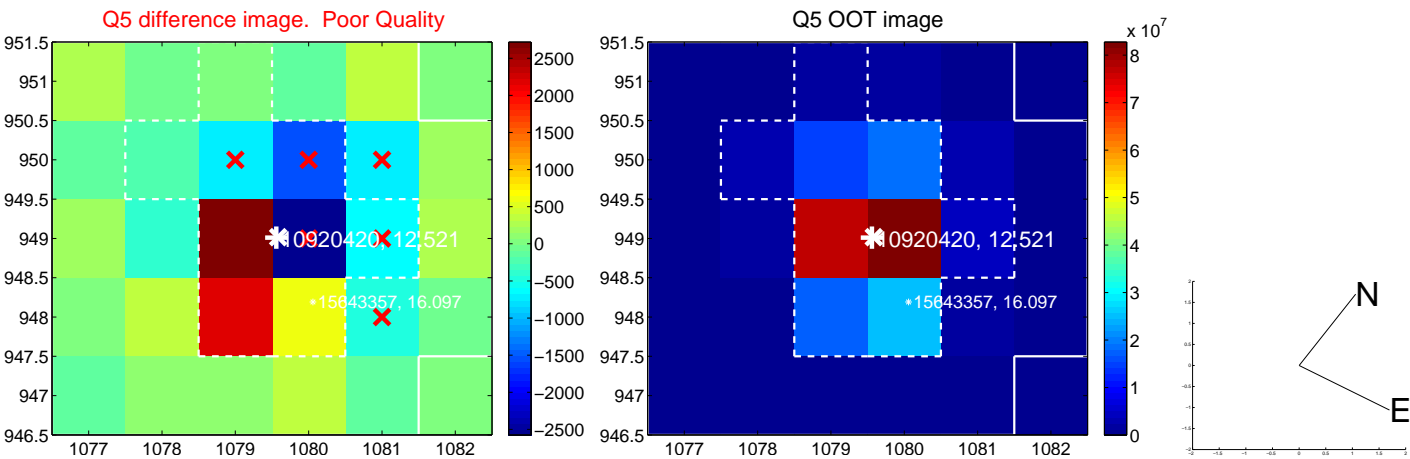


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

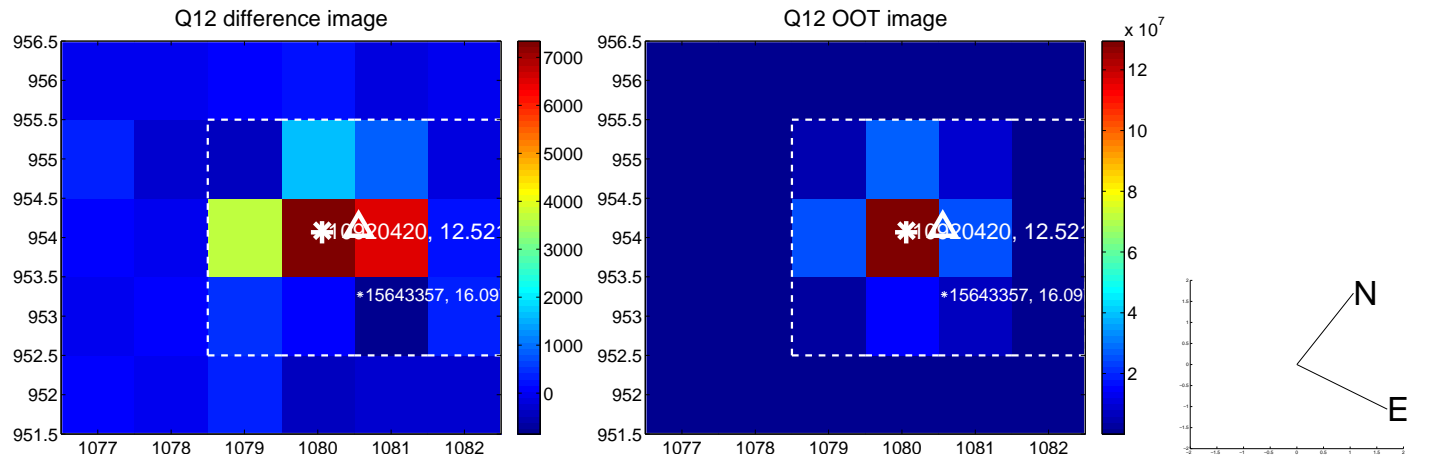
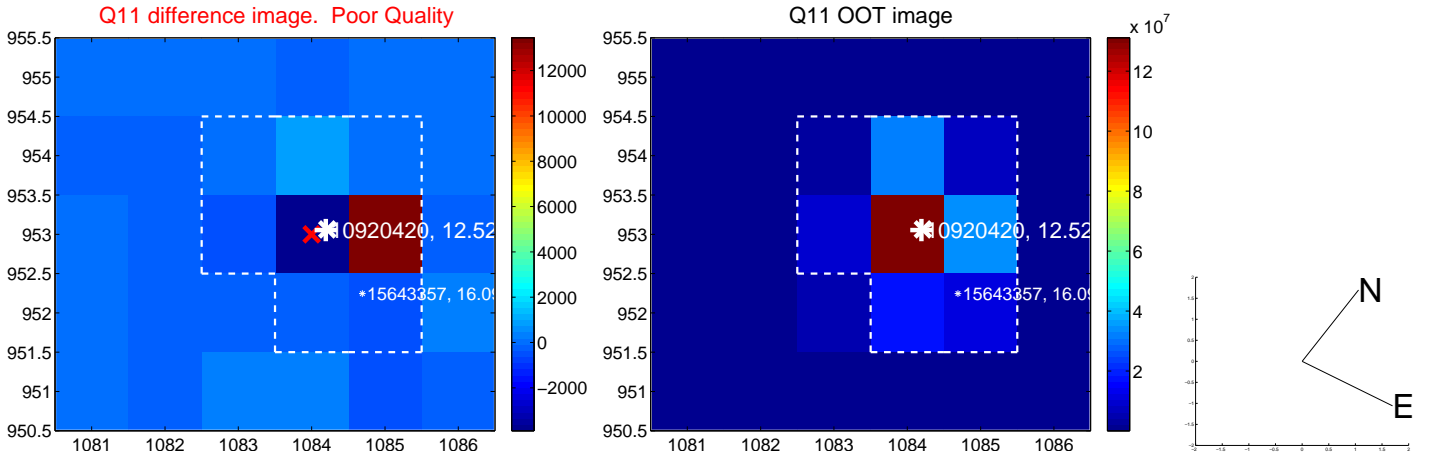
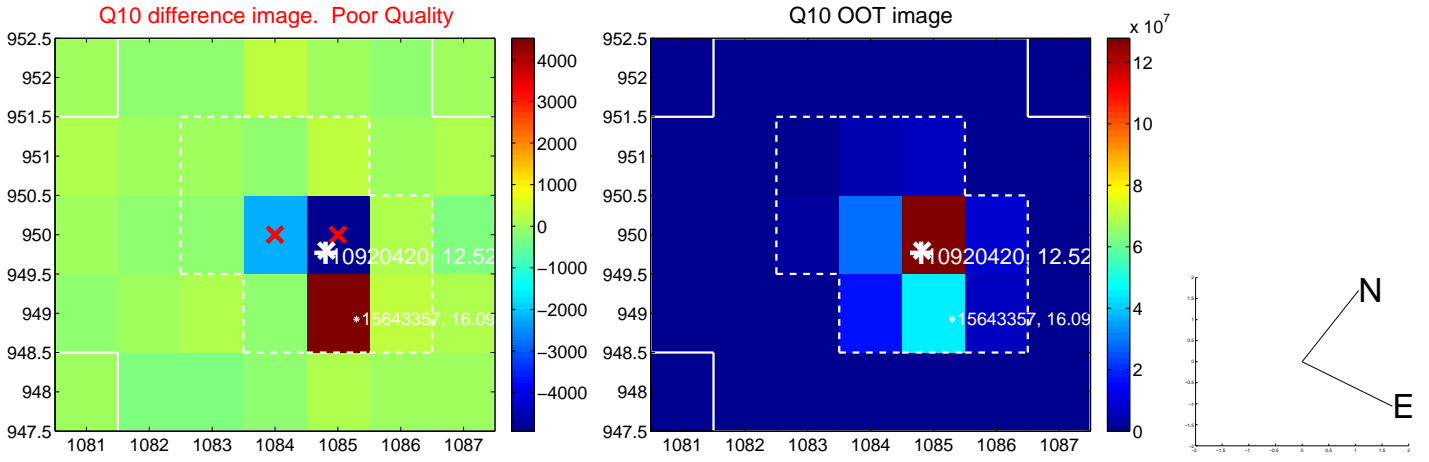
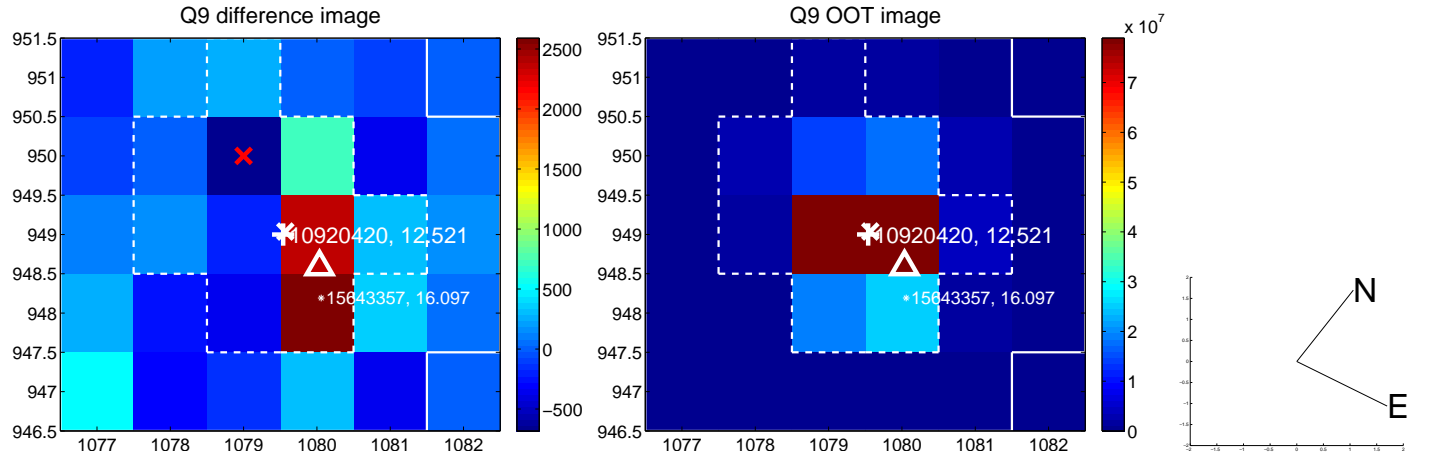
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



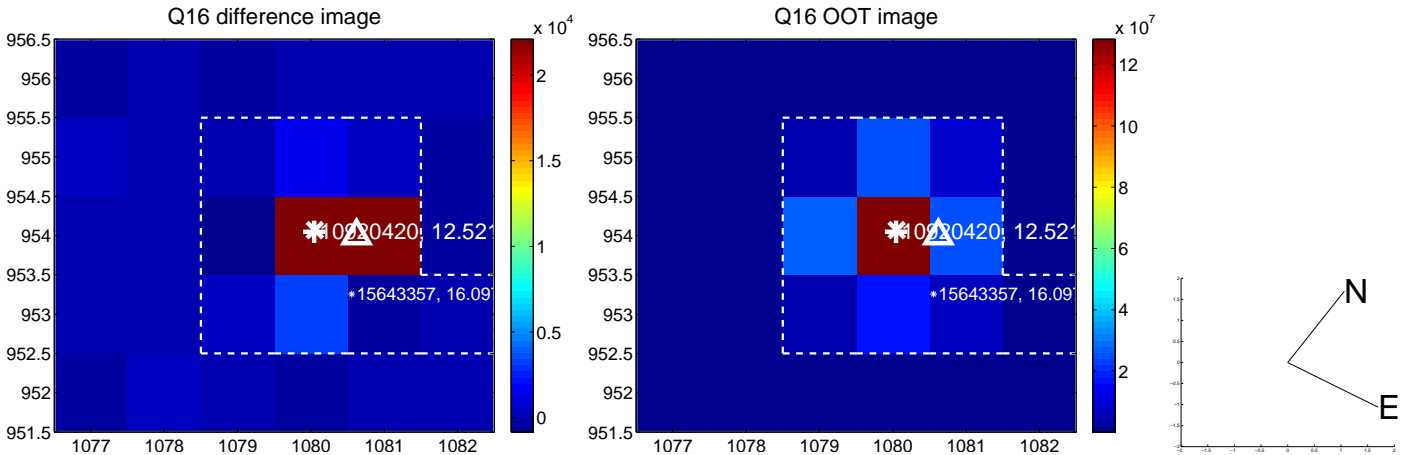
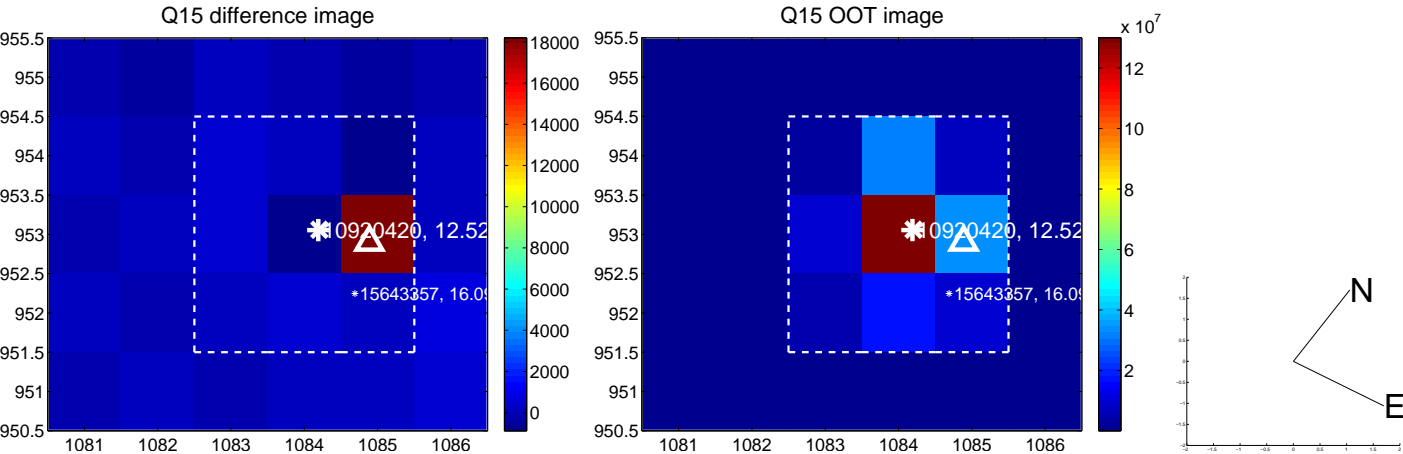
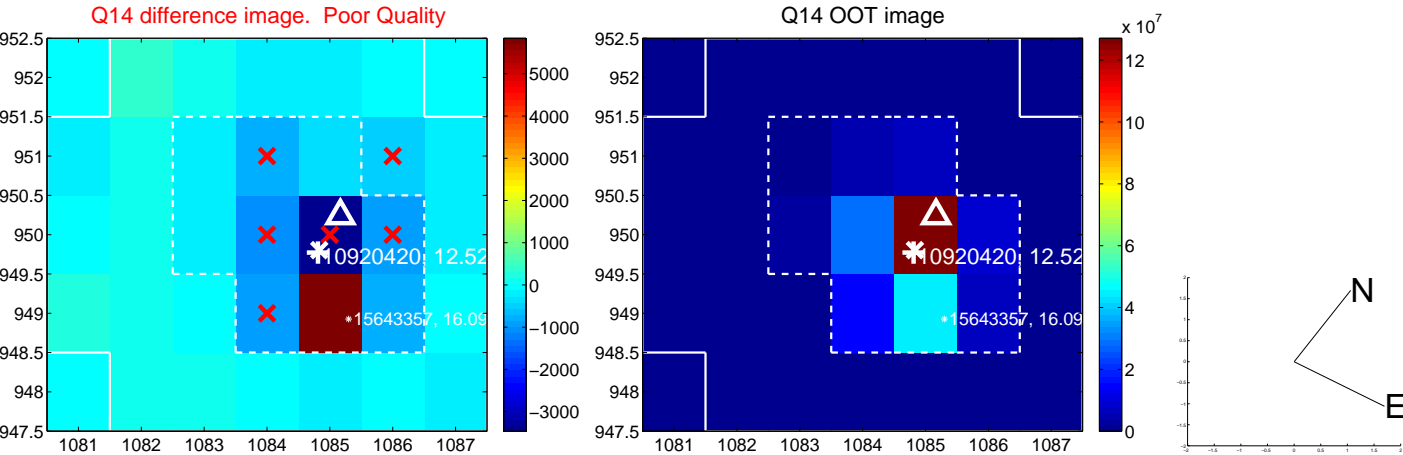
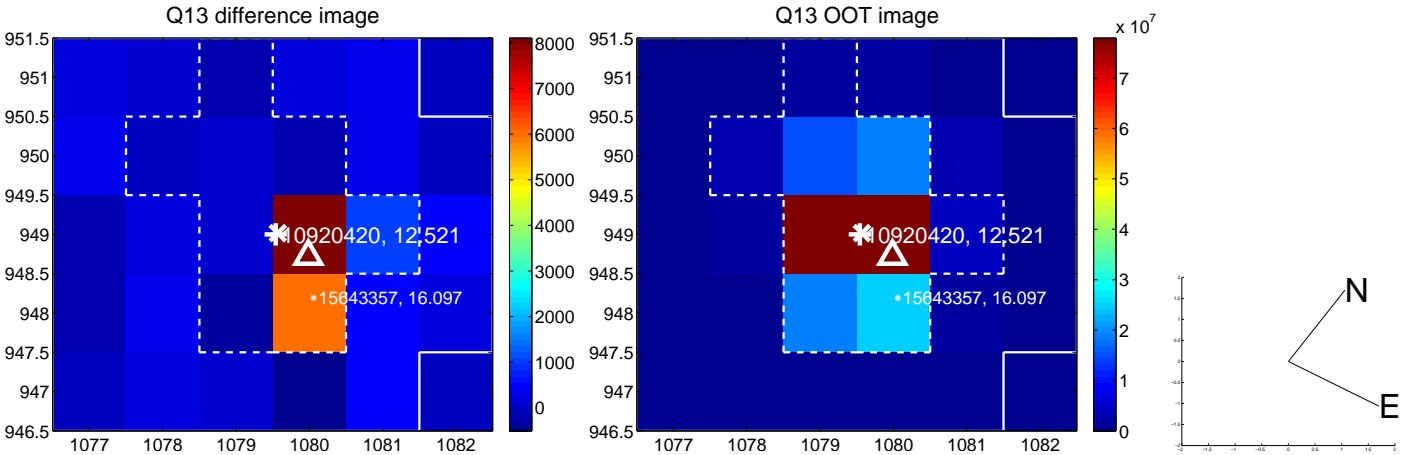
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



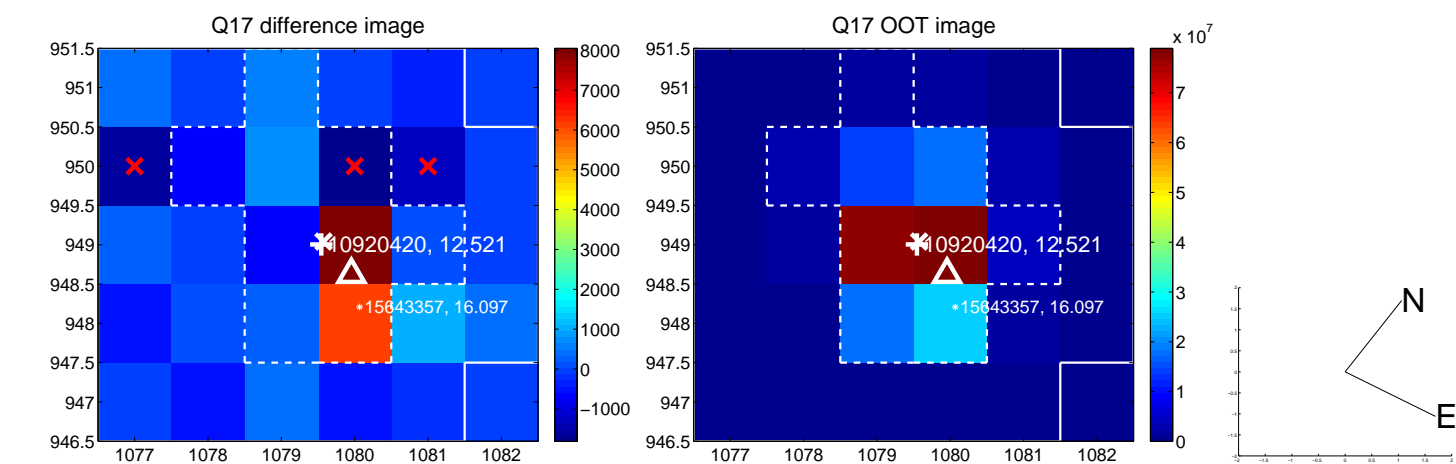
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



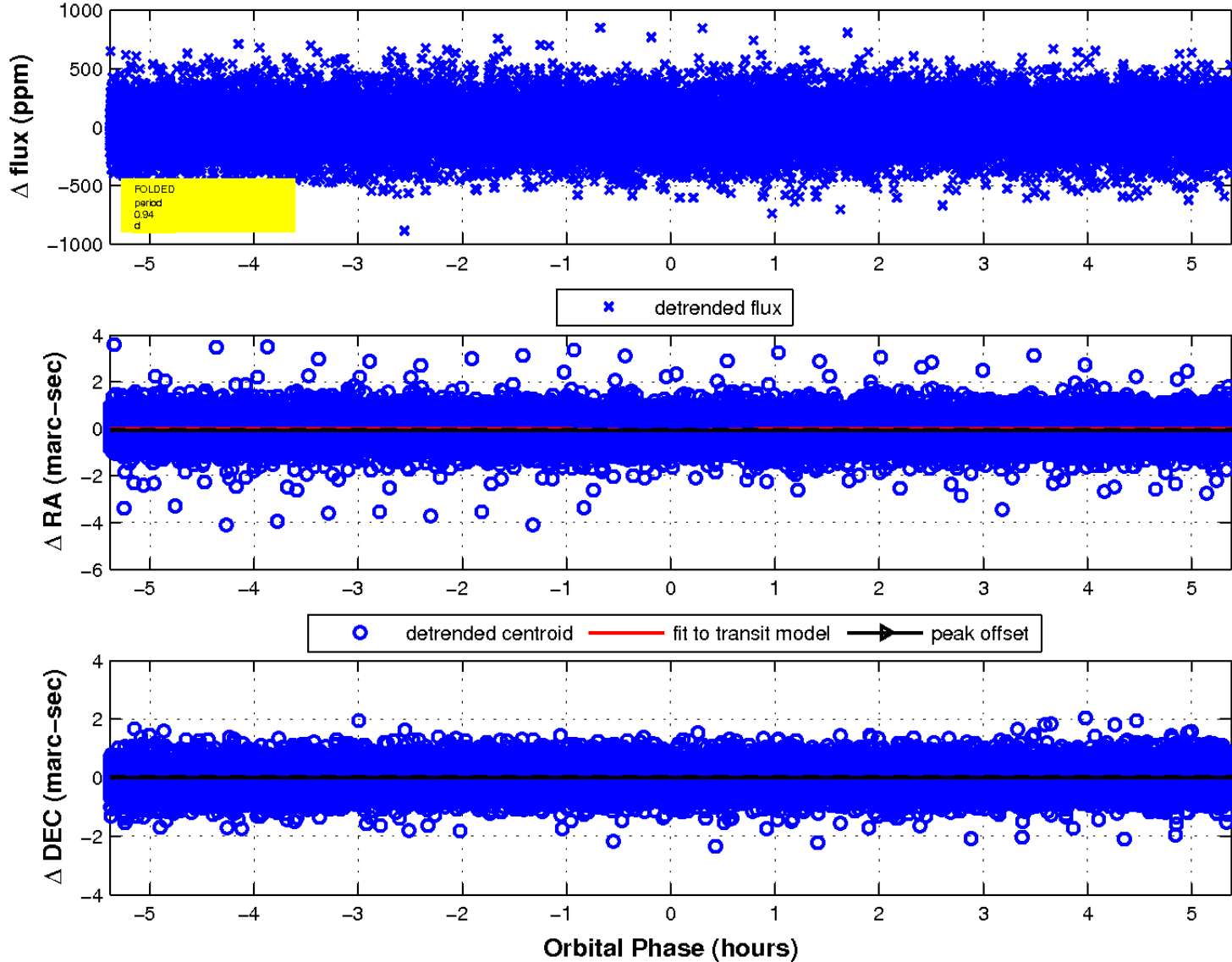
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

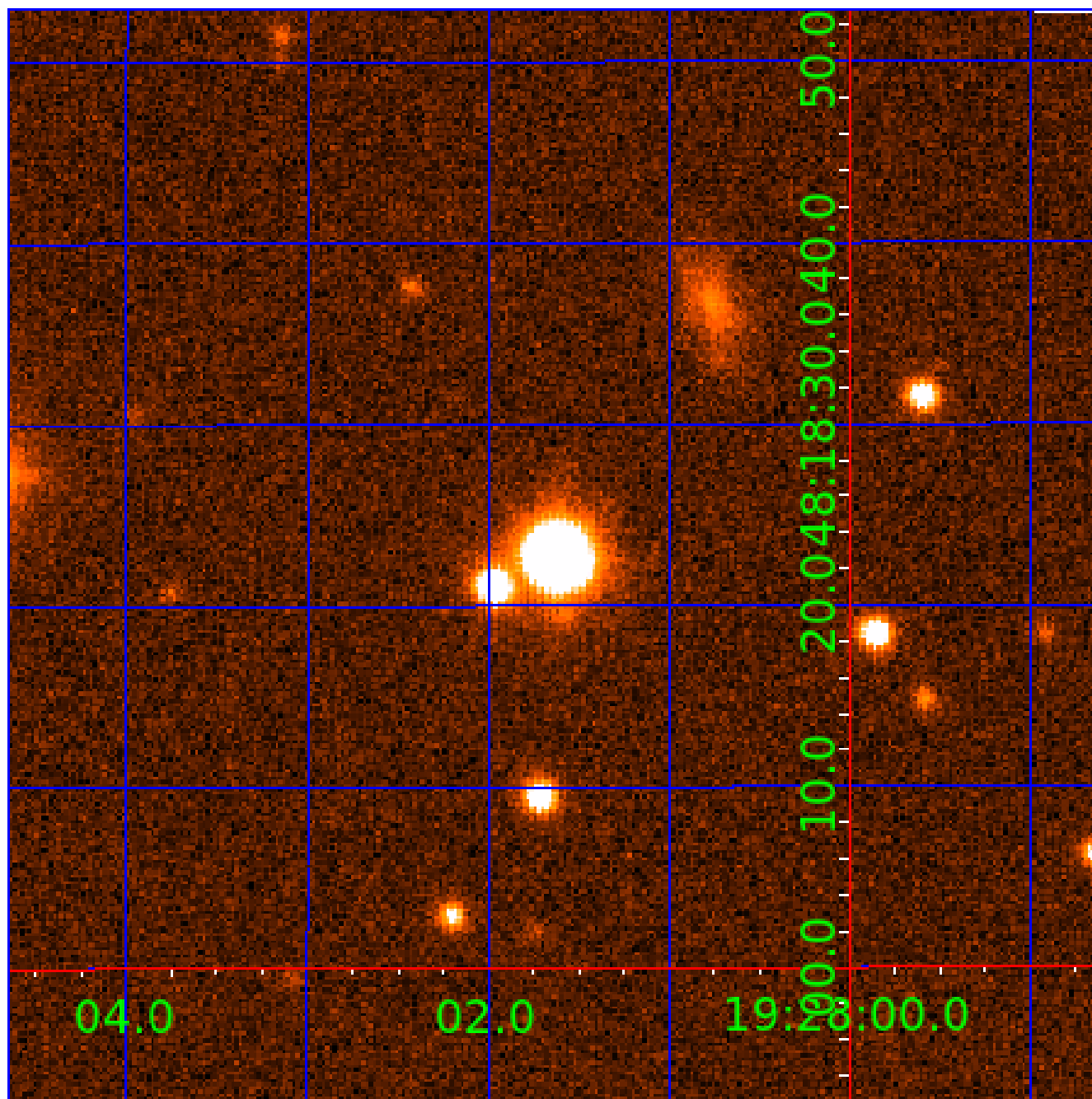


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 010920420

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})
010920420-01	OBS	8038.01	0.943888	132.288269	21.3	2.277	8.7	9.9	2.30	6947	1.25	23566.61
010920420-02	OBS	No	0.943892	131.815702	21.2	1.794	7.9	9.7	2.30	6947	1.28	23566.47
010920420-03	OBS	No	283.247513	407.918466	831.7	8.985	9.4	9.6	2.30	6947	12.38	11.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010920420-01	OBS	FP	0.00	1	0	1	1	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010920420-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010920420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS

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

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

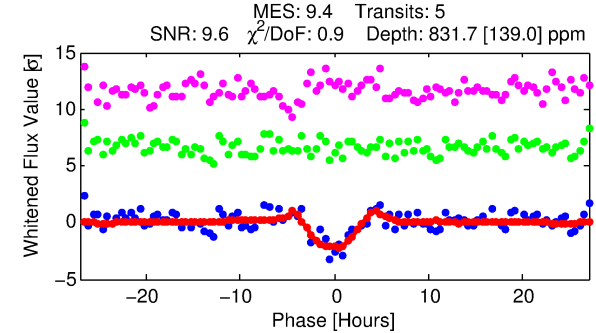
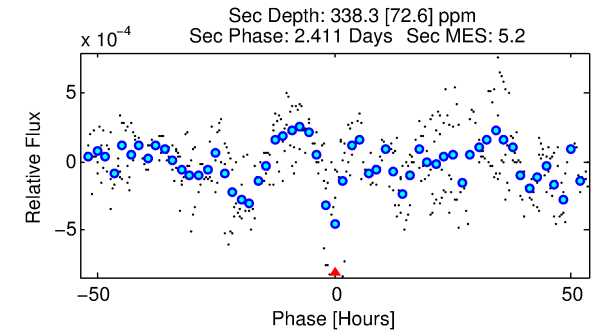
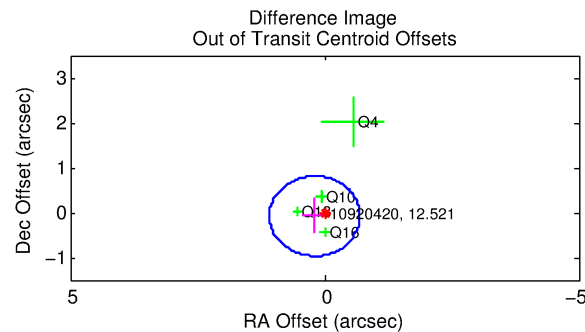
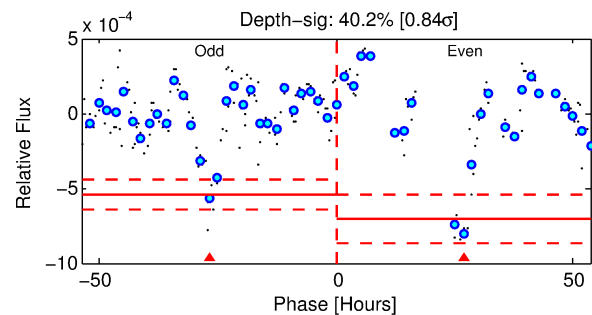
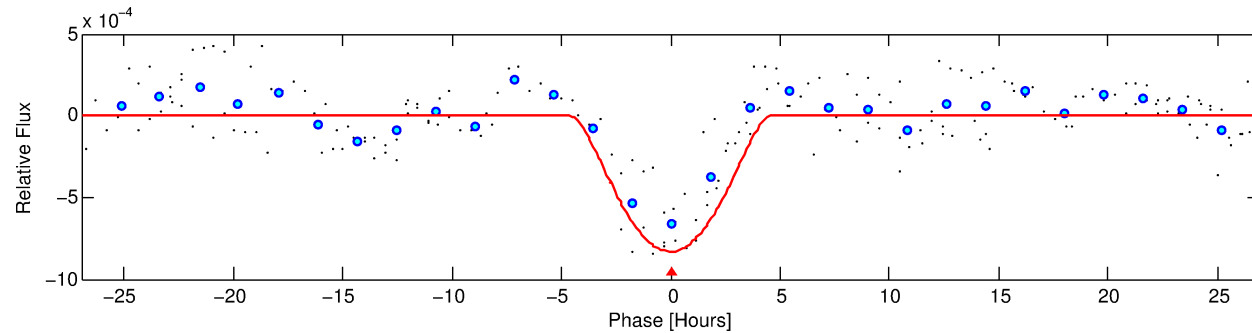
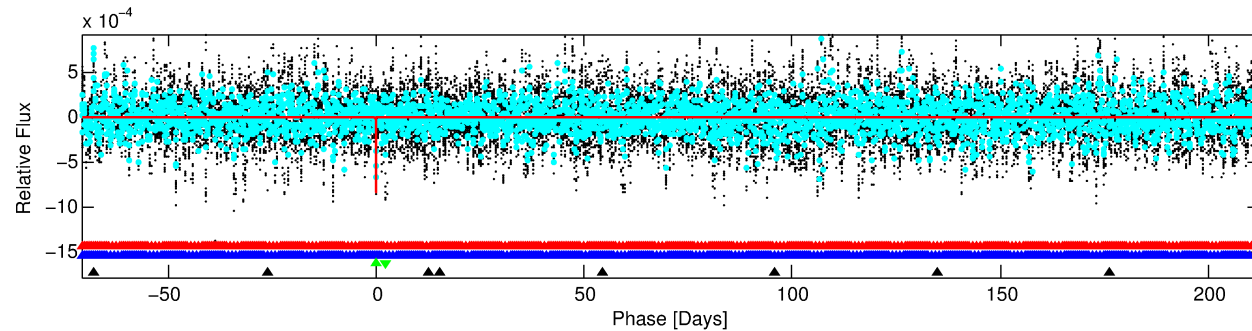
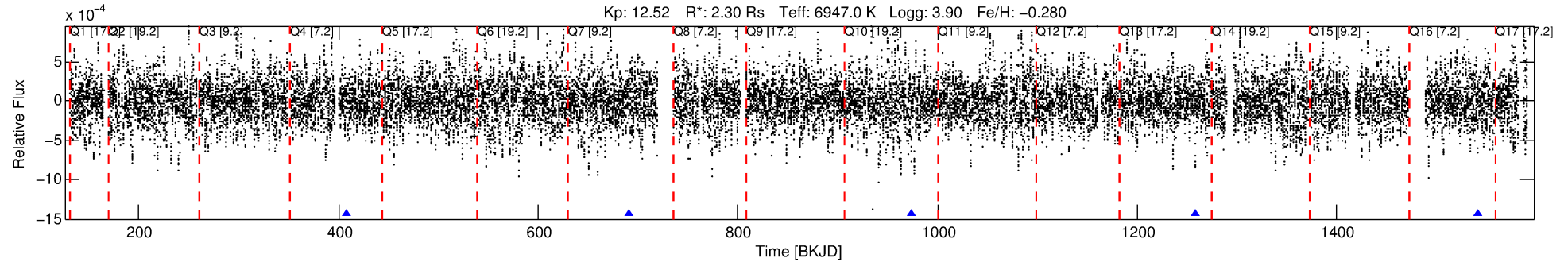
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010920420-03

No Significant Match Found

DV One-Page Summary

KIC: 10920420 Candidate: 3 of 4 Period: 283.248 d



DV Fit Results:

Period = 283.24751 [0.00918] d
Epoch = 407.9185 [0.0245] BKJD
Rp/R* = 0.0494 [0.0703]
a/R* = 76.86 [28.24]
b = 1.00 [0.11]
Seff = 11.73 [5.76]
Teq = 472 [58] K
Rp = 12.38 [18.17] Re
a = 0.9688 [0.3021] AU
Ag = 1139.96 [3300.50] [0.35 σ]
Teffp = 4239 [3031] K [1.24 σ]

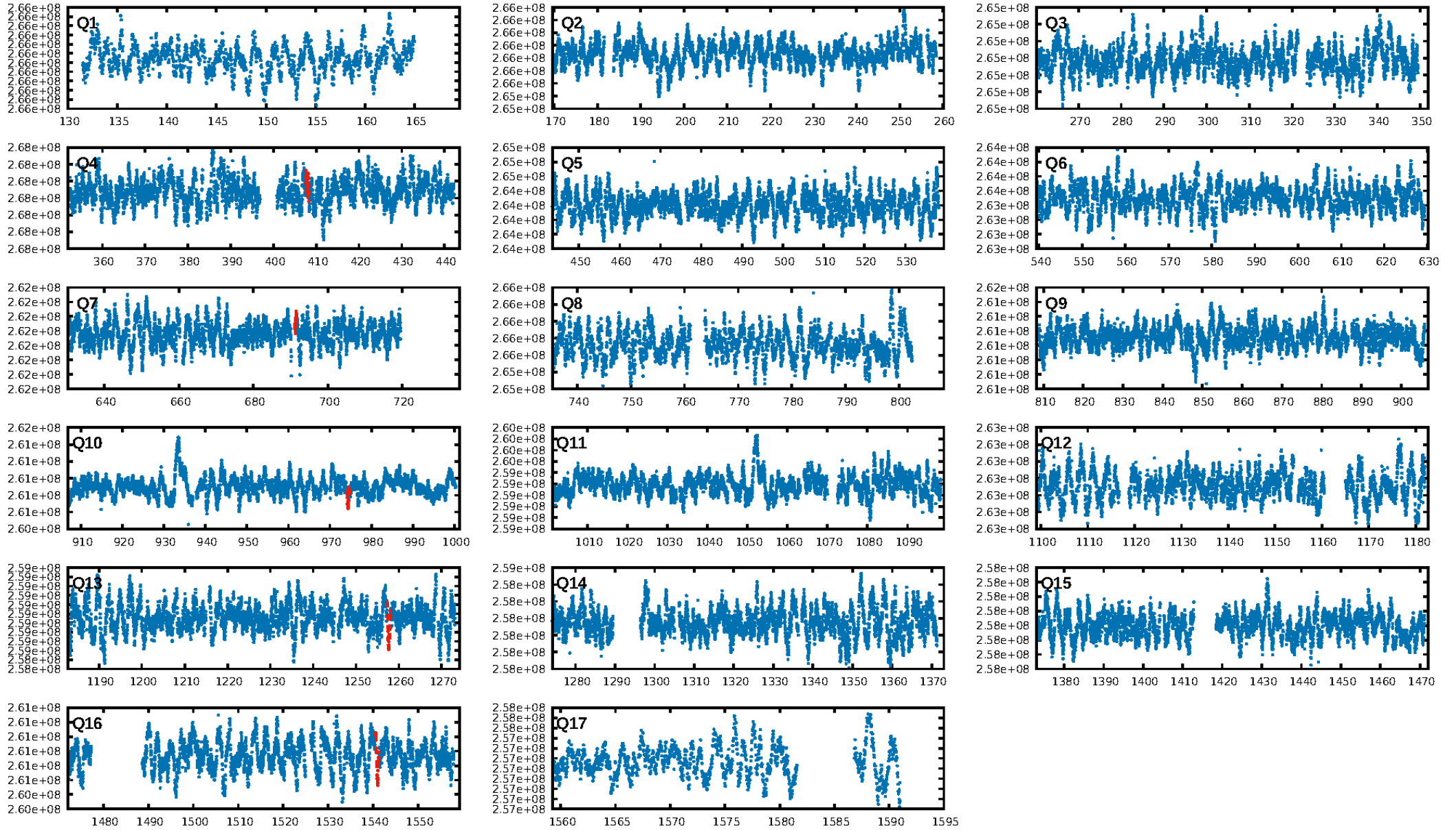
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [183.18 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 64.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.46e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -4.826
Centroid-sig: 13.9%
Centroid-so: 0.103 arcsec [0.40 σ]
OotOffset-rm: 0.212 arcsec [0.72 σ]
OotOffset-st: 1/0/2/1 [4]
KicOffset-rm: 0.259 arcsec [0.57 σ]
KicOffset-st: 1/0/2/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

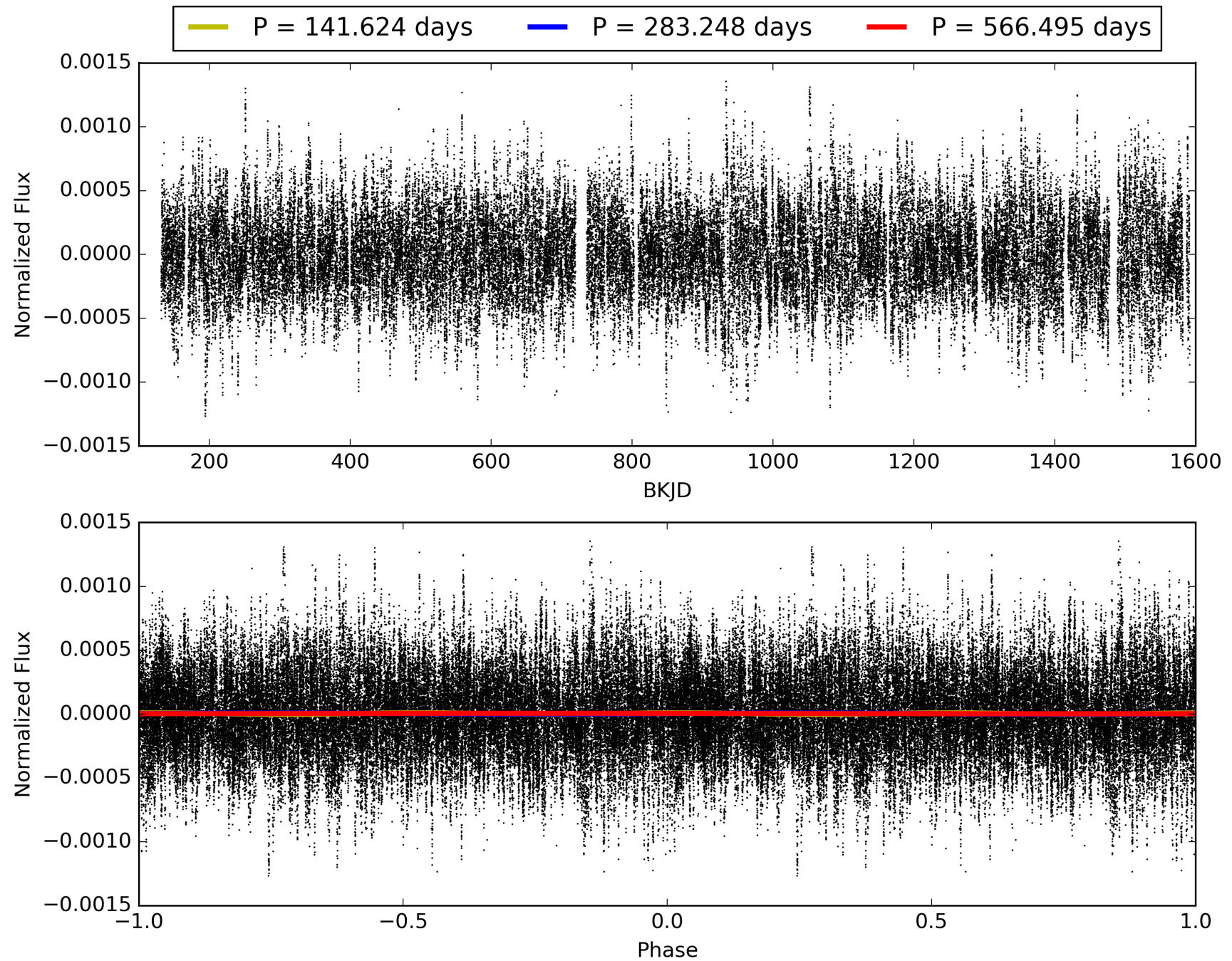
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:10:23 Z

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

TCE 010920420-03, PDC Light Curves

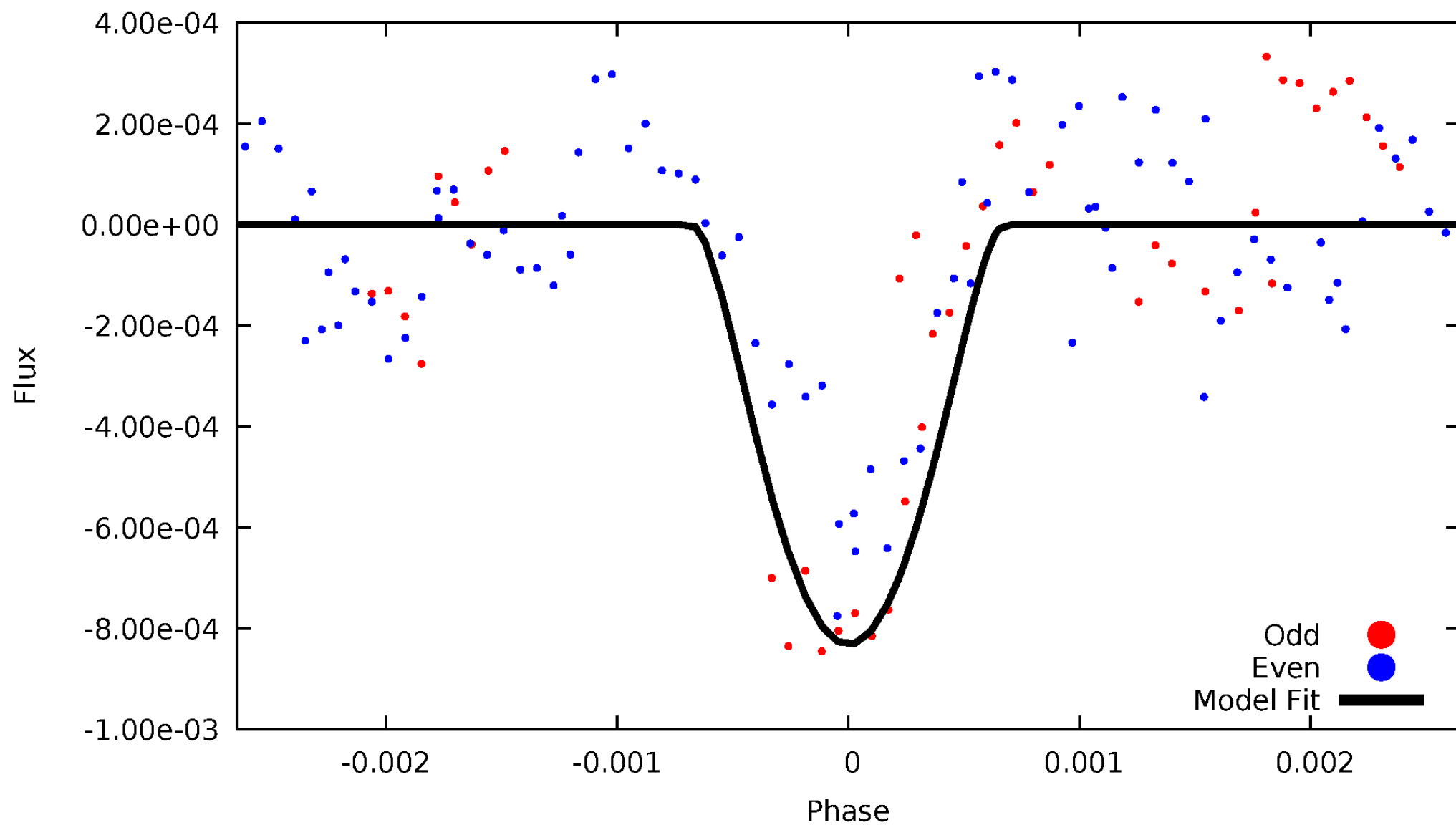


TCE 010920420-03



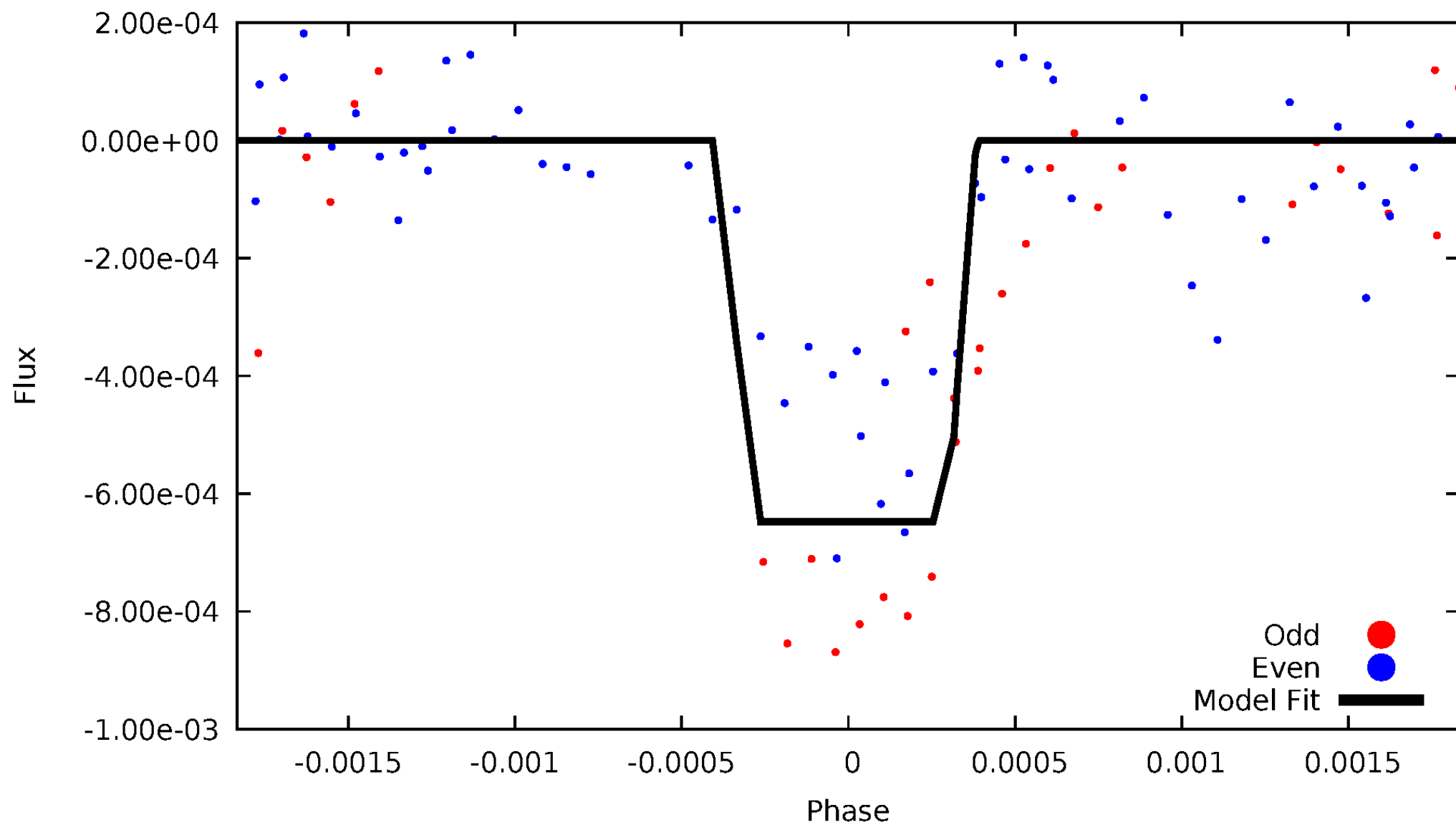
DV Odd/Even

TCE 010920420-03

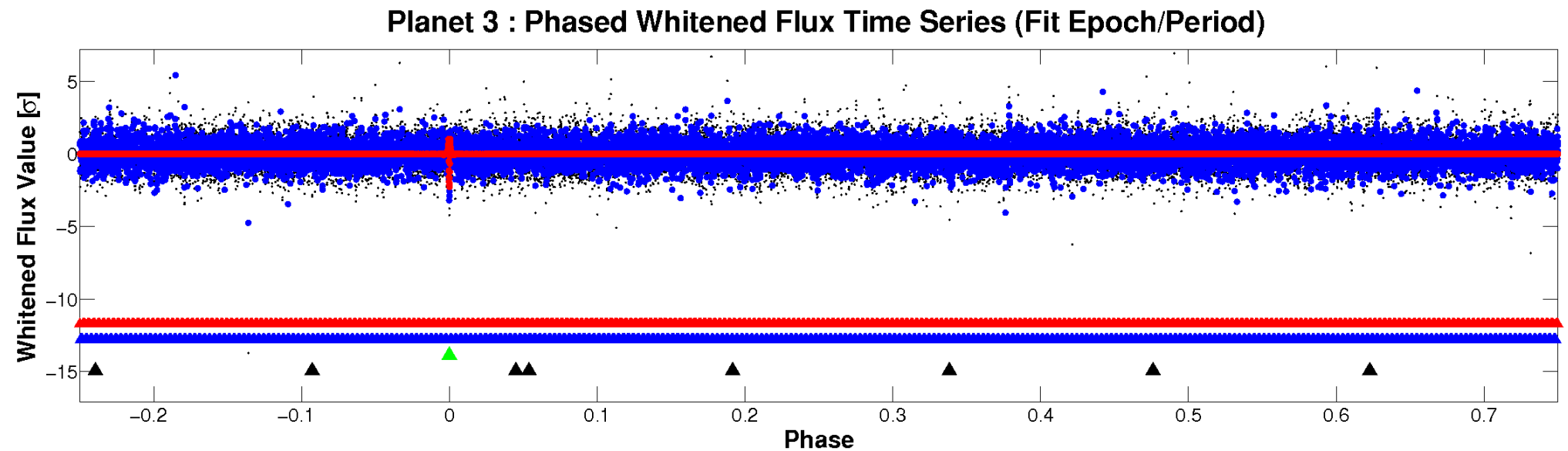
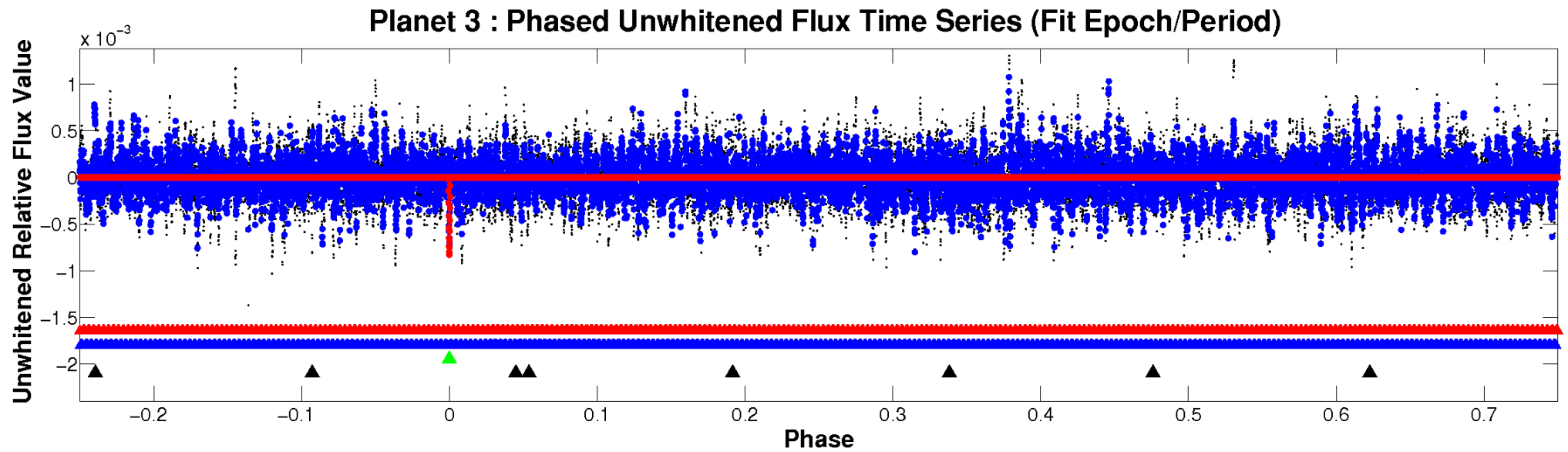


ALT Odd/Even

TCE 010920420-03

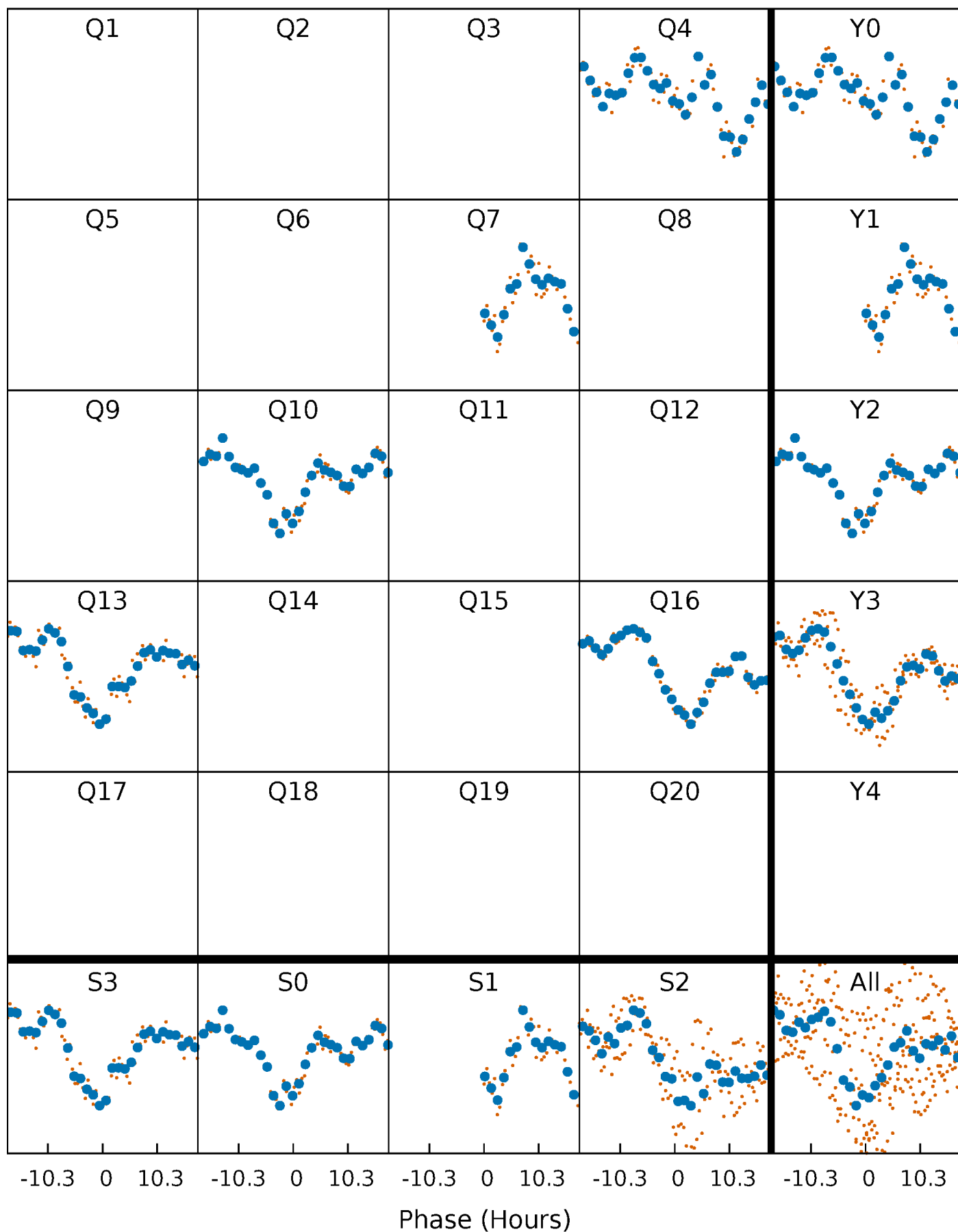


Non-Whitened Vs. Whitened Light Curve



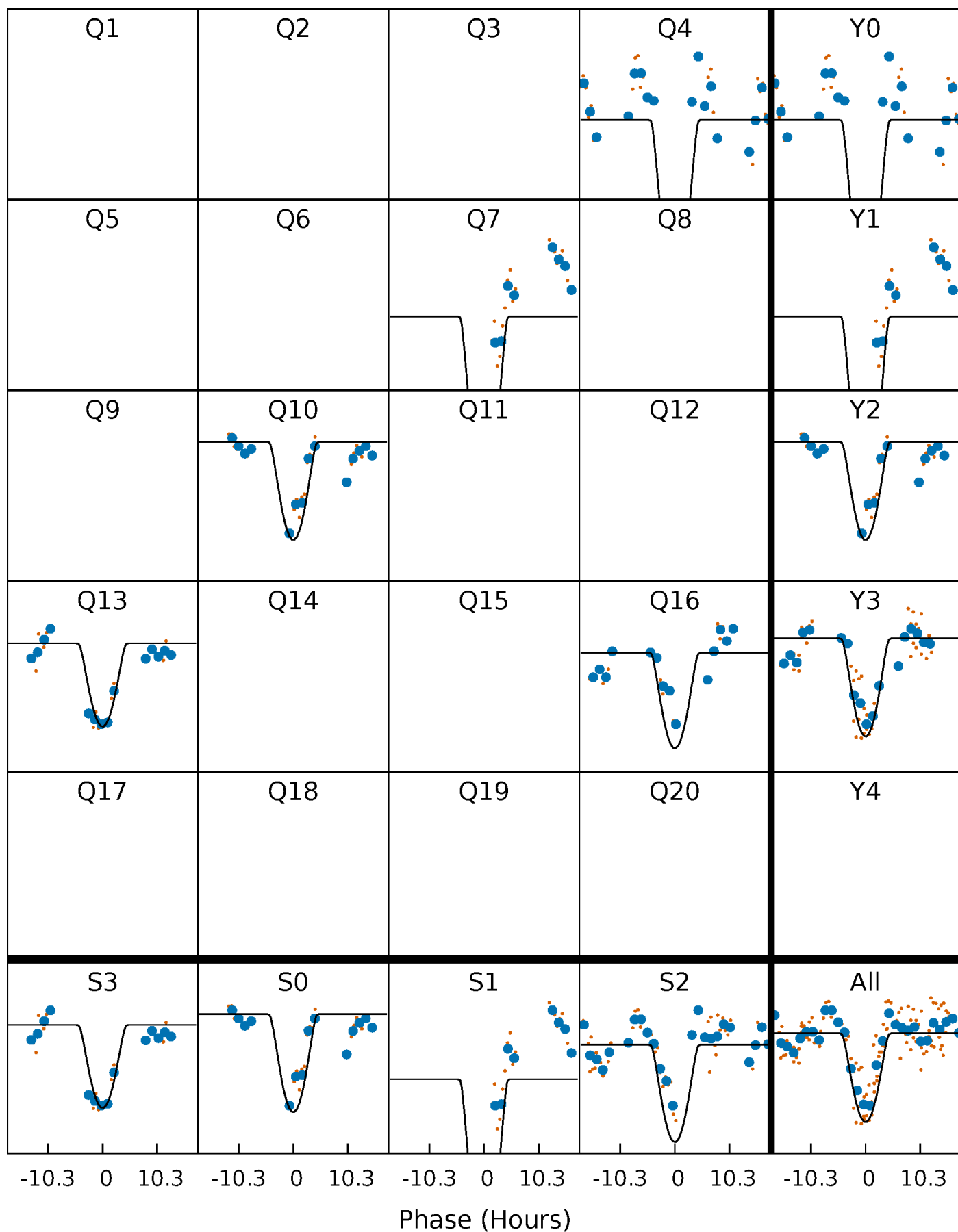
PDC Quarter-Phased Transit Curves

TCE 010920420-03 $P=283.247513$ Days $T_0=407.918466$ (BKJD)



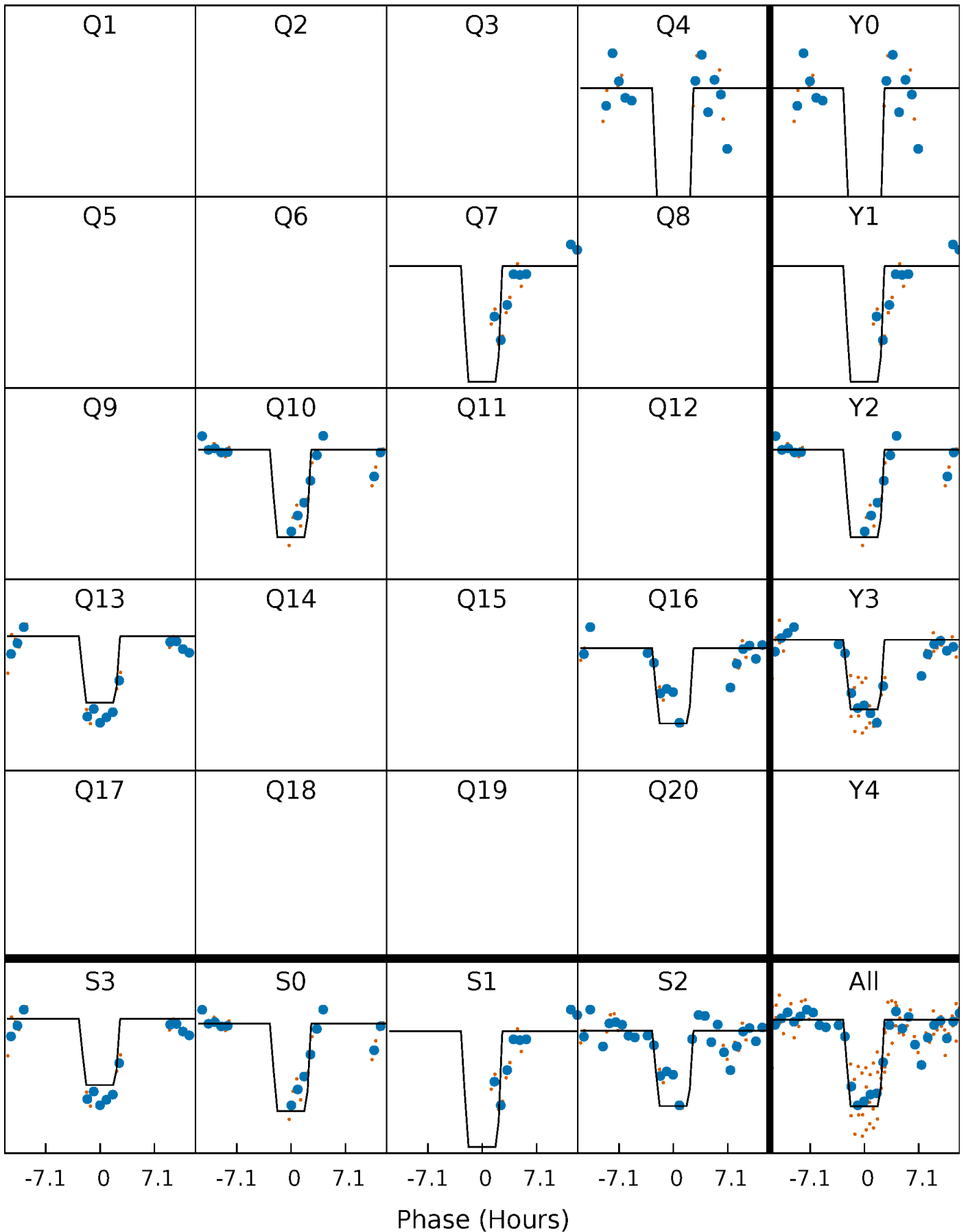
DV Quarter-Phased Transit Curves

TCE 010920420-03 $P=283.247513$ Days $T_0=407.918466$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

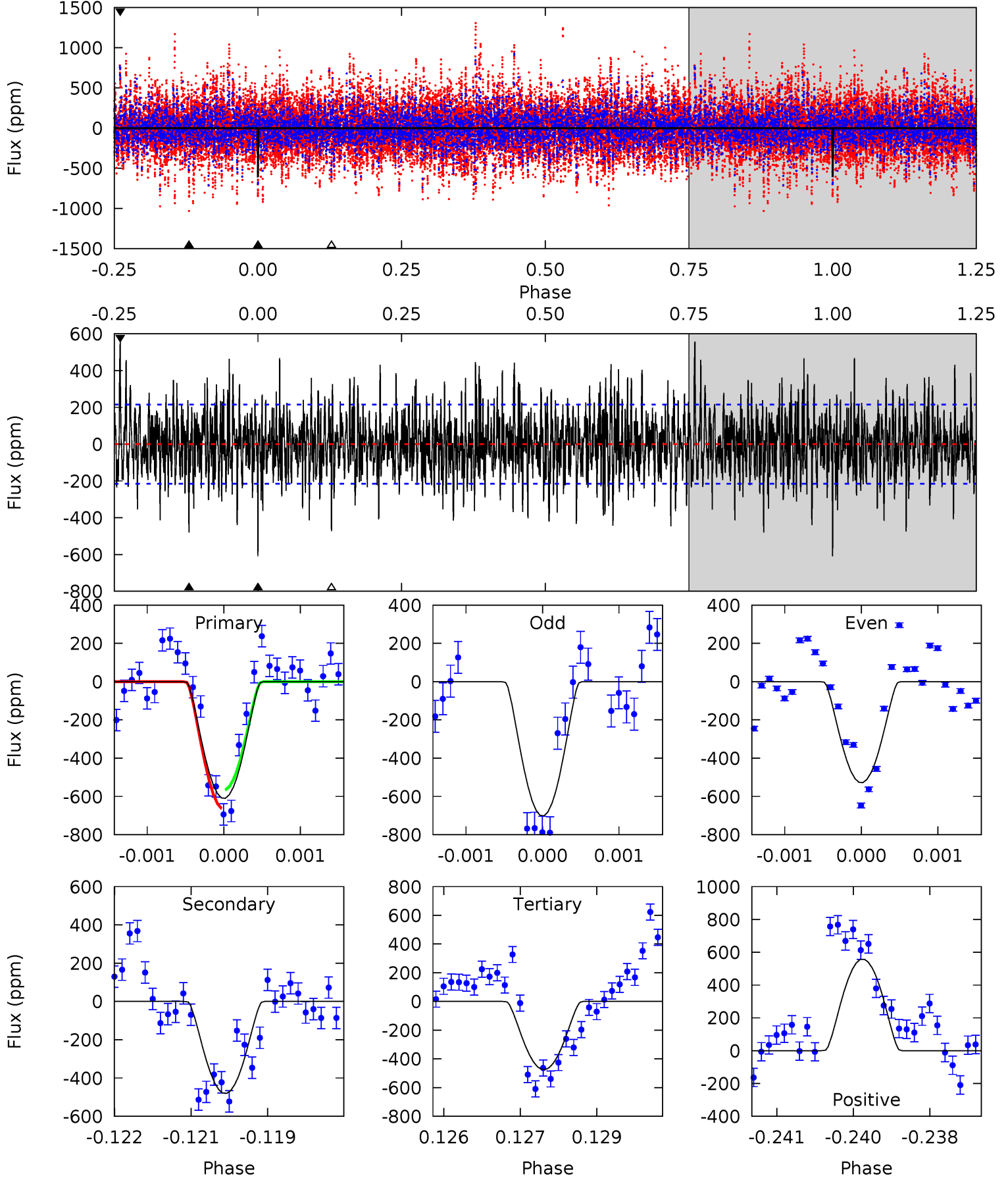
TCE 010920420-03 $P=283.229803$ Days $T_0=407.949966$ (BKJD)



DV Model-Shift Uniqueness Test

010920420-03, P = 283.247513 Days, E = 124.670953 Days

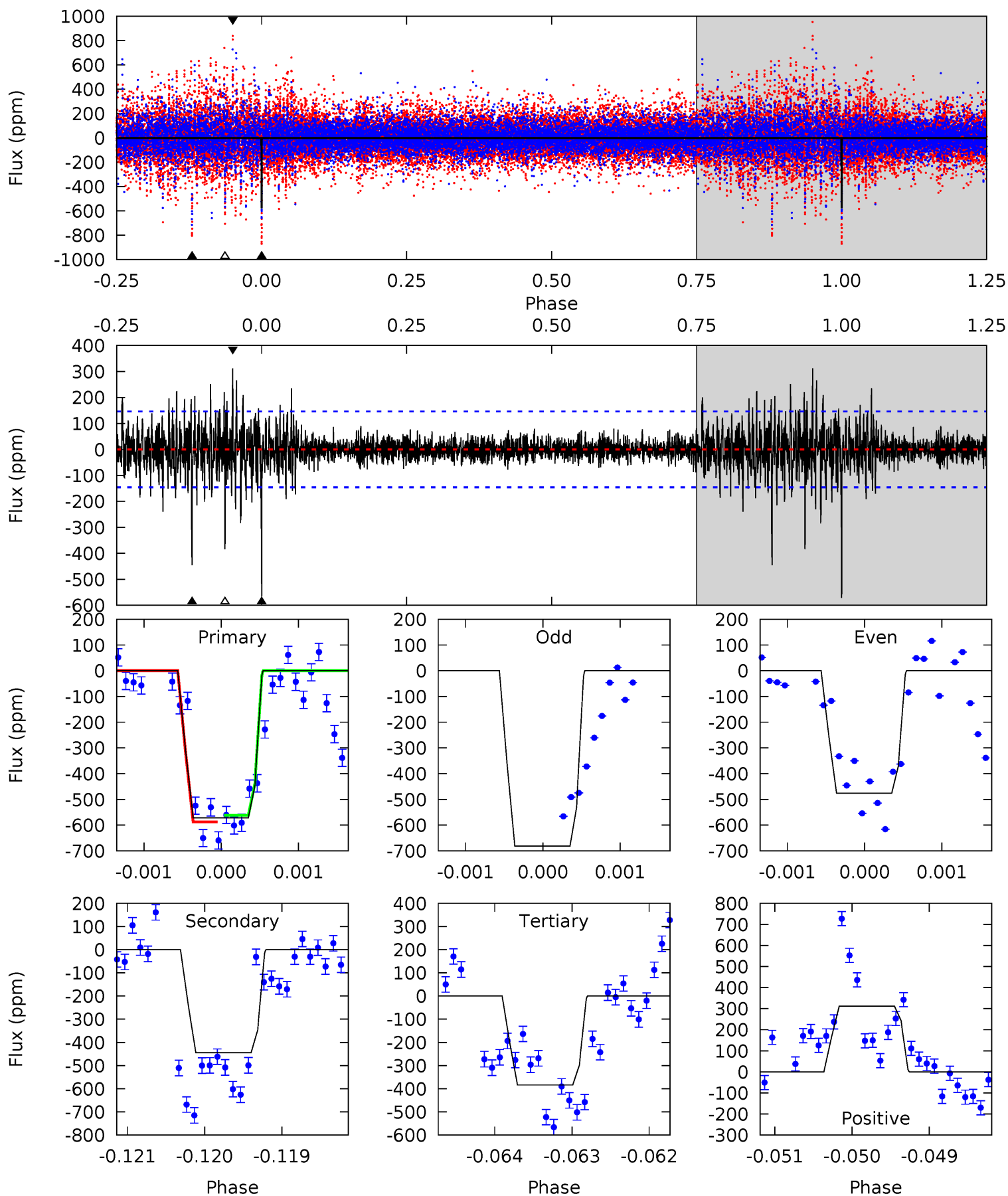
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	12.0	11.9	14.0	5.39	3.20	3.62	3.40	1.31	0.15	-1.93	2.16	0.59	0.48	1.17



Alt Model-Shift Uniqueness Test

010920420-03, P = 283.229803 Days, E = 124.720163 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	16.8	14.5	11.8	5.51	3.38	1.88	7.09	9.80	2.30	5.02	3.79	1.09	0.35	0.44



Stellar Parameters For KIC 010920420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6947^{+166}_{-238}	$3.895^{+0.266}_{-0.114}$	$-0.280^{+0.300}_{-0.250}$	$2.297^{+0.406}_{-0.812}$	$1.511^{+0.180}_{-0.308}$	$0.176^{+0.317}_{-0.063}$
	+2%/-3%	+7%/-3%	+107%/-89%	+18%/-35%	+12%/-20%	+180%/-36%
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 010920420-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-480 ± 40	$17.33^{+13.89}_{-10.83}$	654^{+41}_{-54}	4116^{+2013}_{-729}	838^{+4861}_{-588}
Alt.	-445 ± 27	$13.25^{+13.17}_{-9.40}$	650^{+41}_{-53}	4484^{+3421}_{-1011}	1343^{+13483}_{-1023}

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

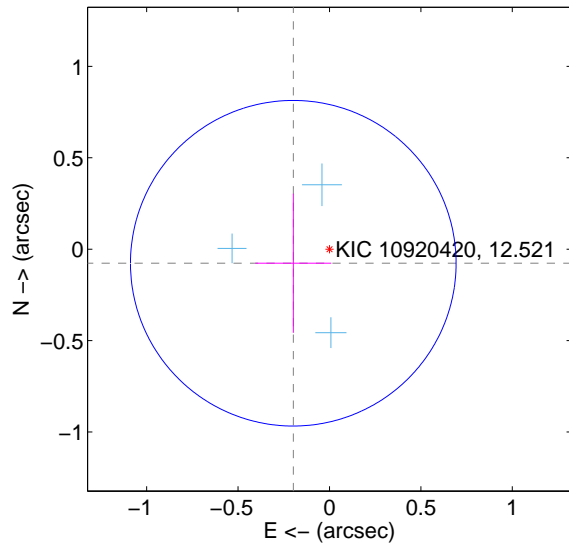
Supplemental centroid analysis for 010920420-03. Kepler magnitude: 12.52. Transit SNR 9.56

There are 3 quarters with good PRF difference image offsets

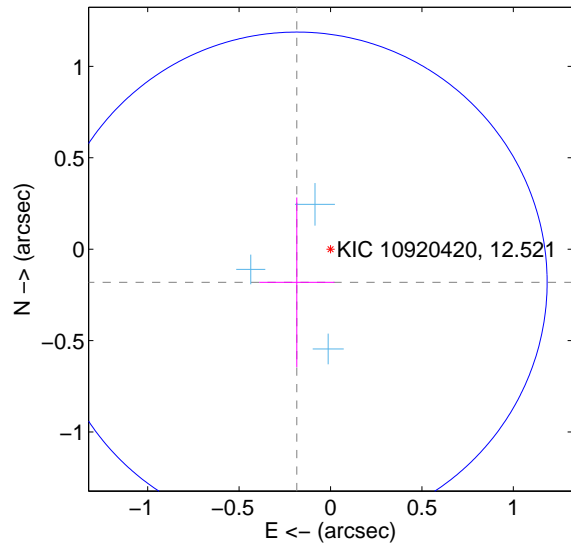
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.212 ± 0.297	0.72	0.198 ± 0.207	-0.077 ± 0.380
PRF-fit source offset from KIC position	0.259 ± 0.456	0.57	0.184 ± 0.206	-0.181 ± 0.464
photometric centroid source offset	0.10 ± 0.26	0.40	0.07 ± 0.29	0.08 ± 0.23

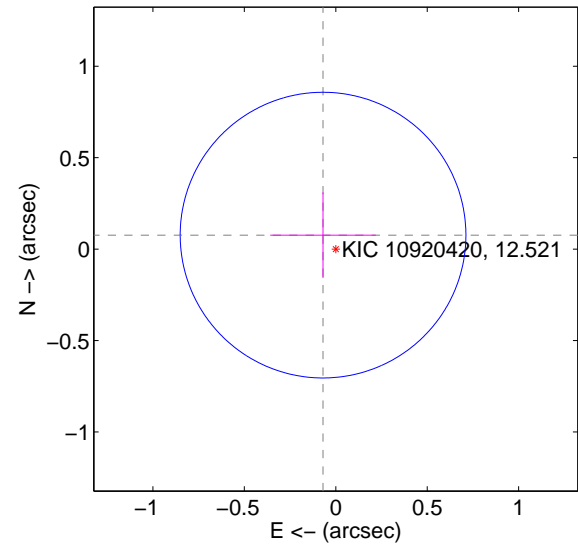
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



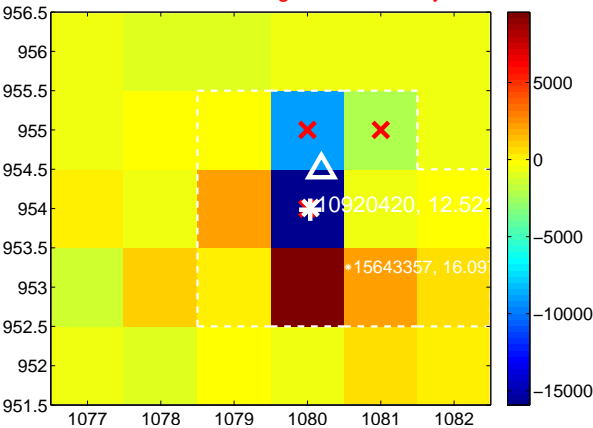
Q3 no difference image



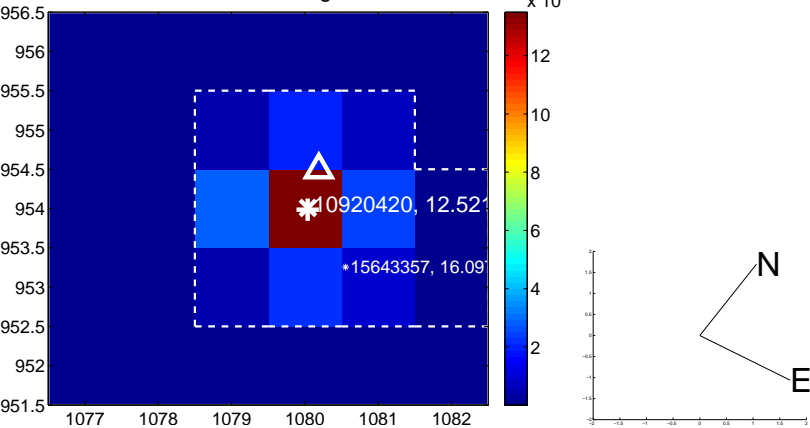
Q3 no OOT image



Q4 difference image. Poor Quality



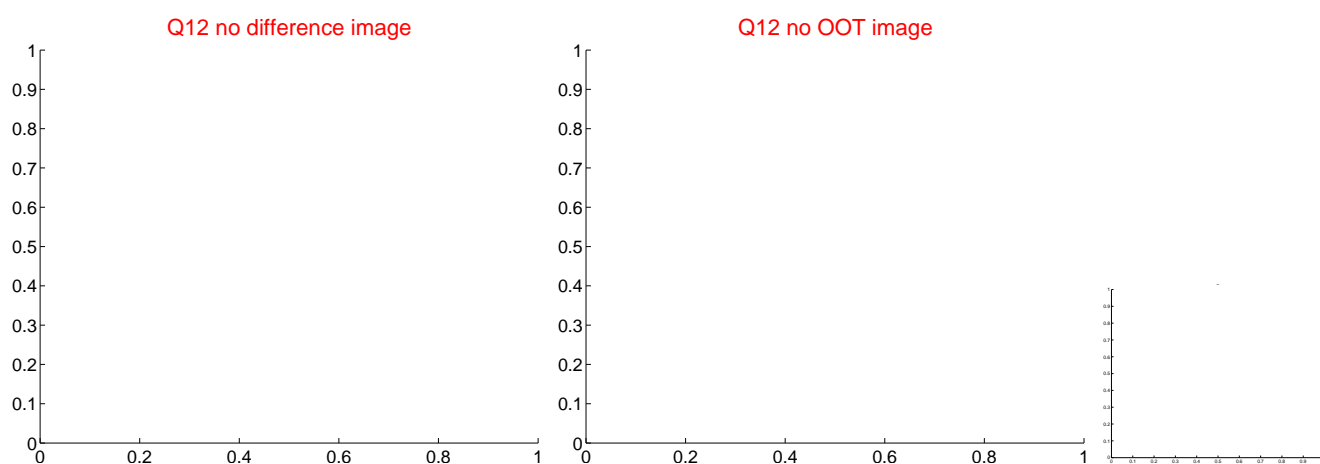
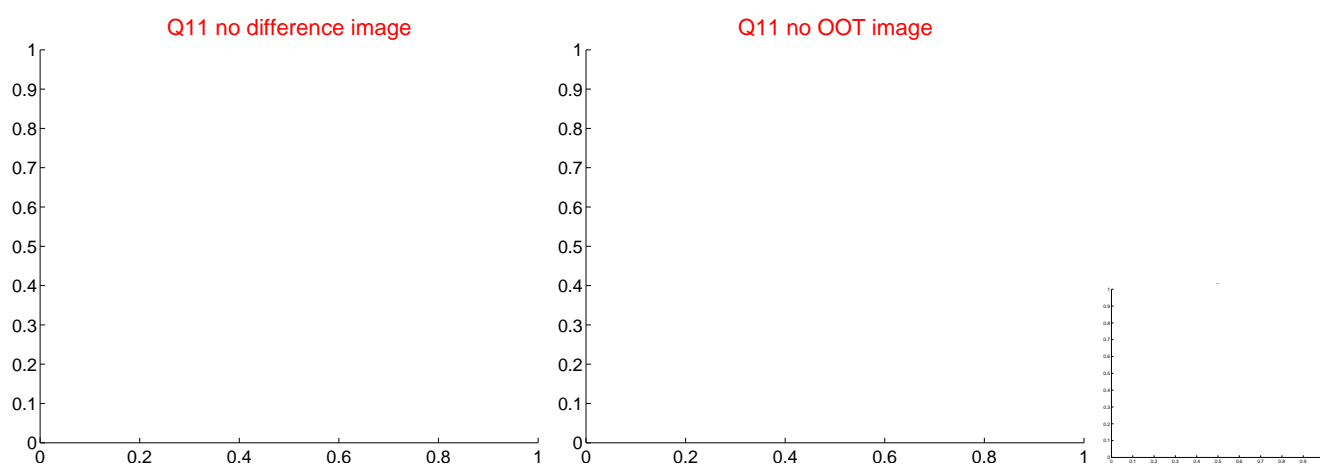
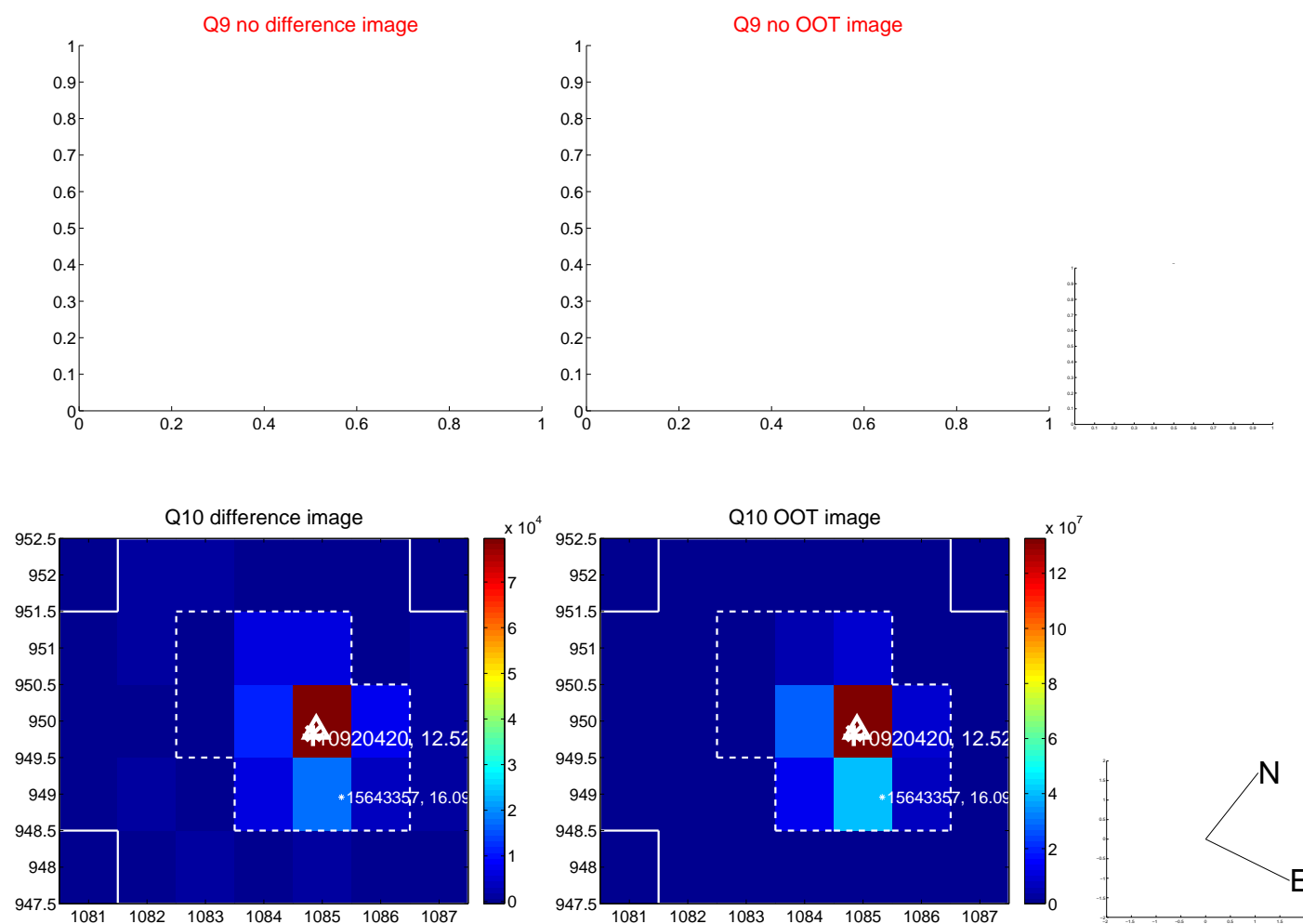
Q4 OOT image



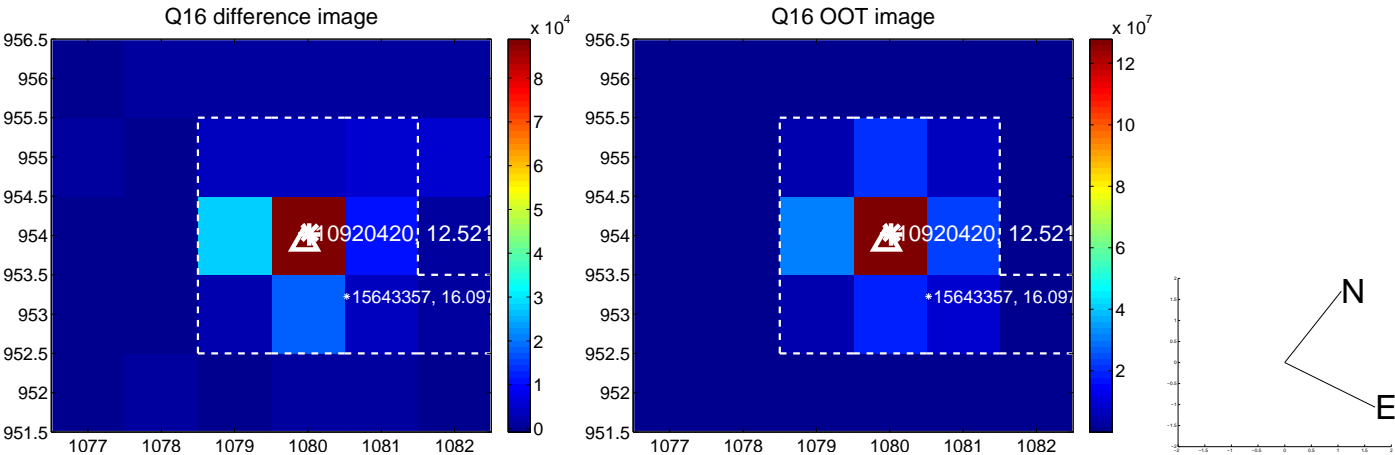
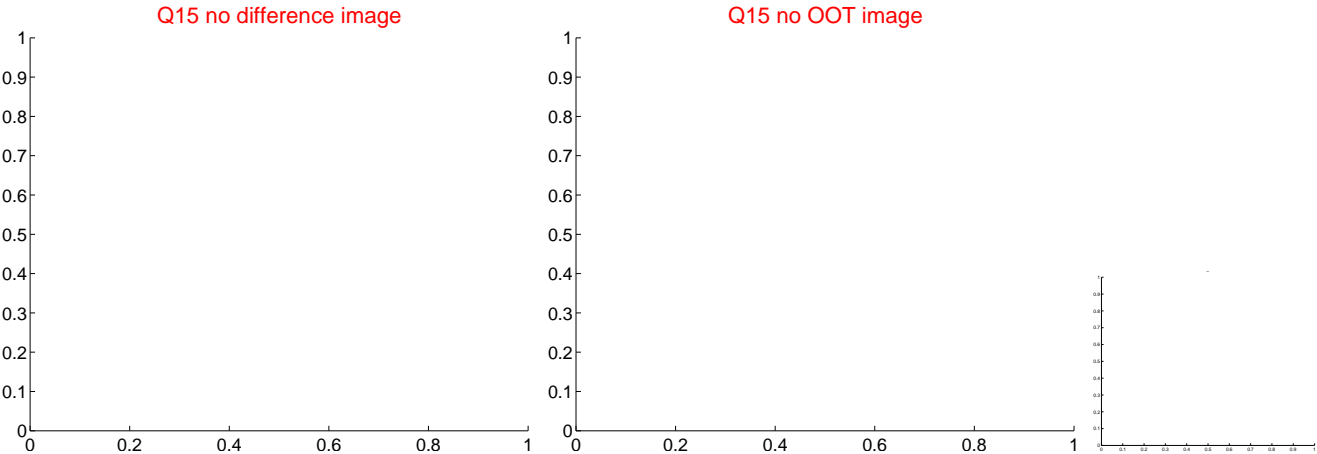
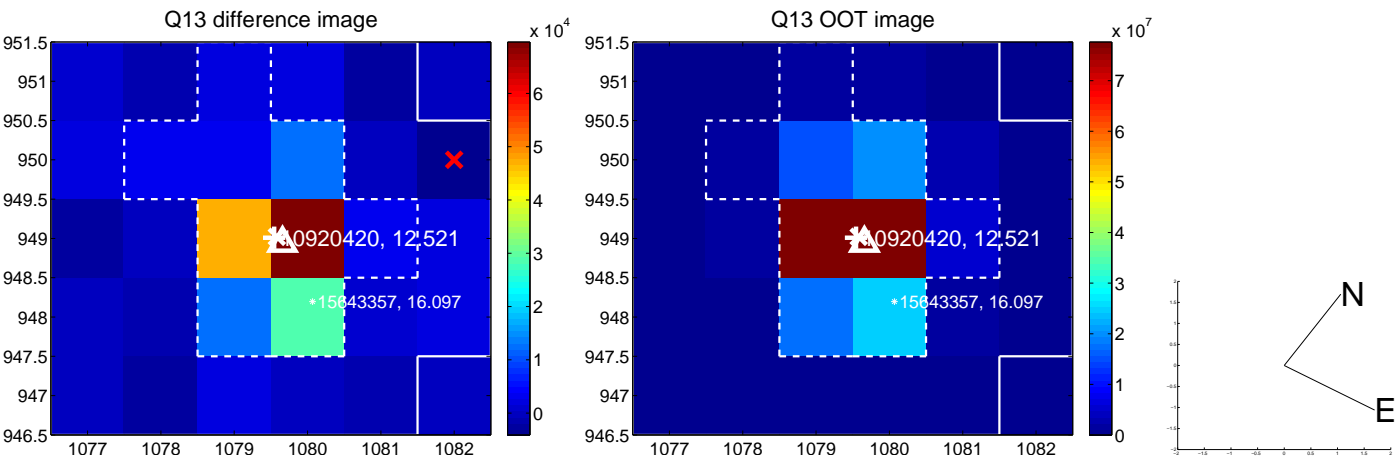
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



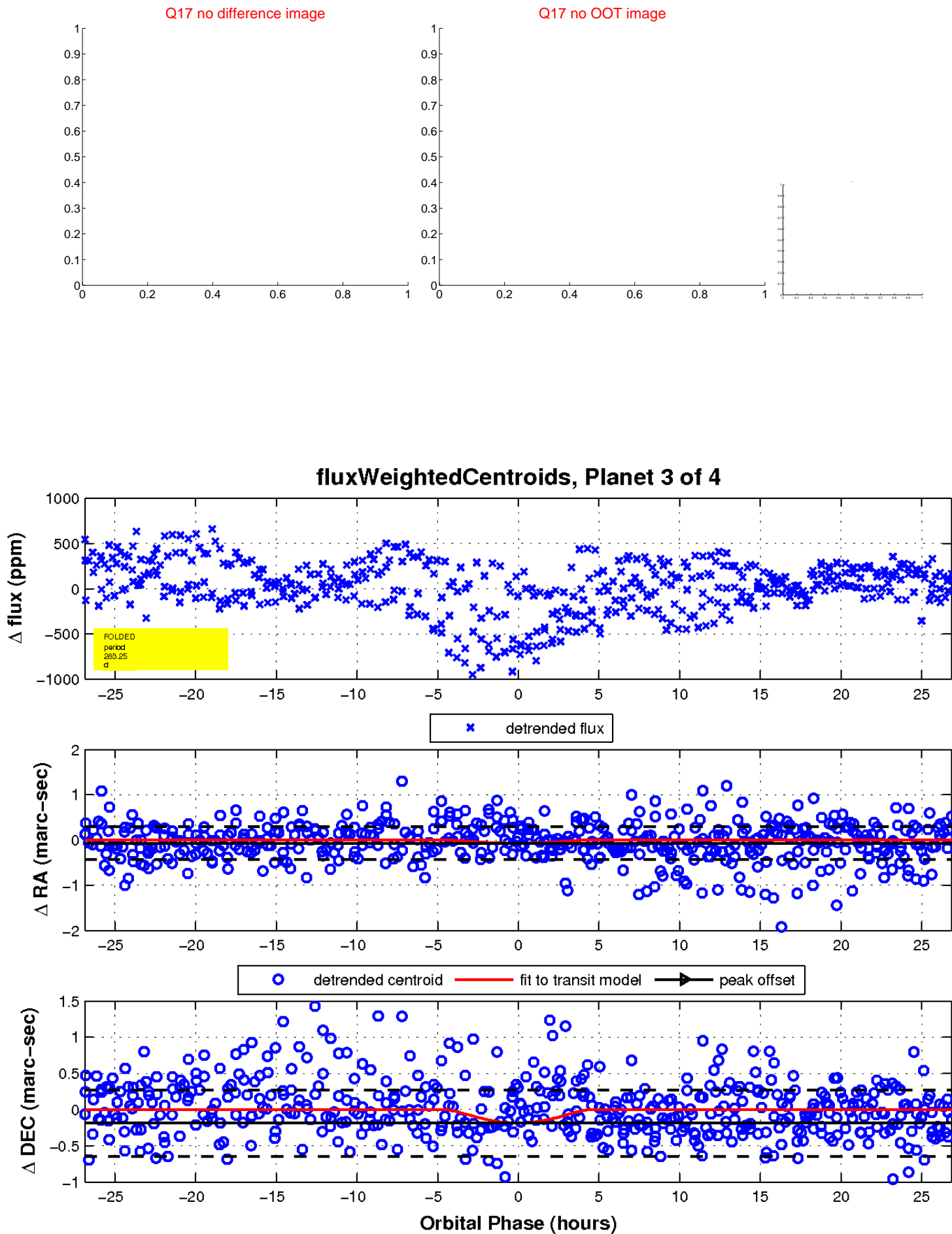
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



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



UKIRT Image

Declination

