

KIC 009100953

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})
009100953-01	OBS	4500.01	8.701737	138.252487	303.1	3.197	10.9	11.4	0.80	5295	1.68	74.75
009100953-02	OBS	4500.02	44.985308	150.566761	616.0	4.266	10.7	11.6	0.80	5295	2.21	8.36
009100953-03	OBS	4500.03	14.751162	141.152253	375.1	2.645	8.6	9.2	0.80	5295	2.01	36.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009100953-01	OBS	PC	0.81	0	0	0	0	CENT_FEW_DIFFS
009100953-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009100953-03	OBS	PC	0.98	0	0	0	0	CENT_FEW_DIFFS

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 009100953-01

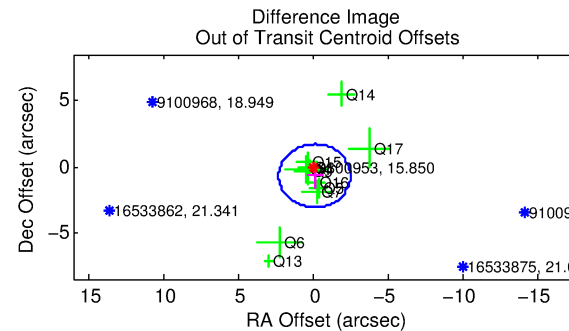
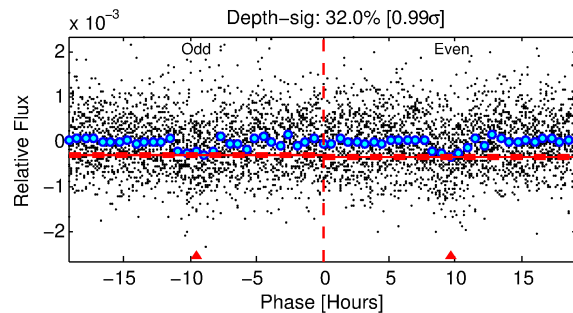
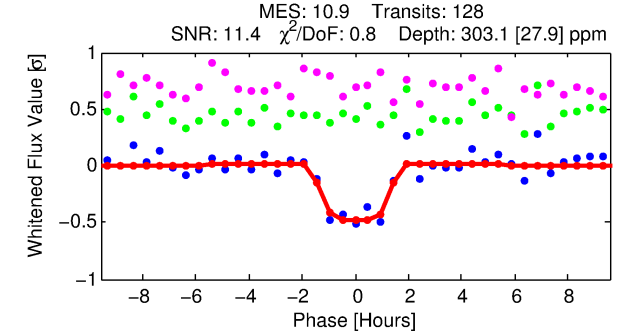
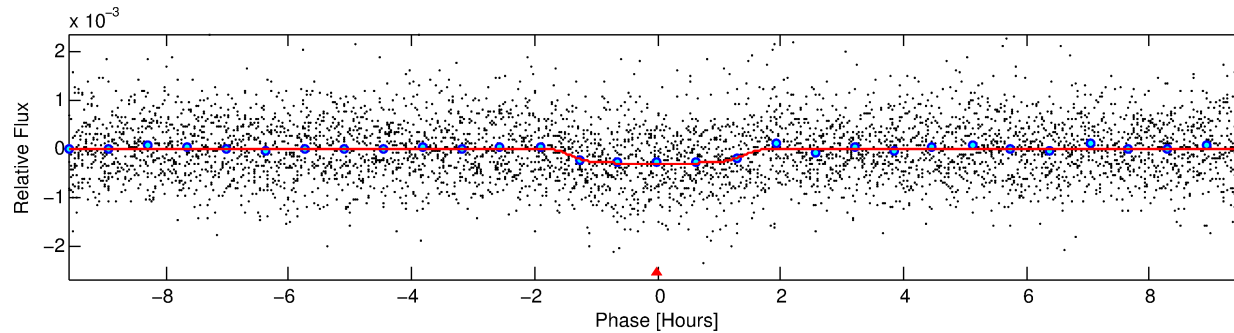
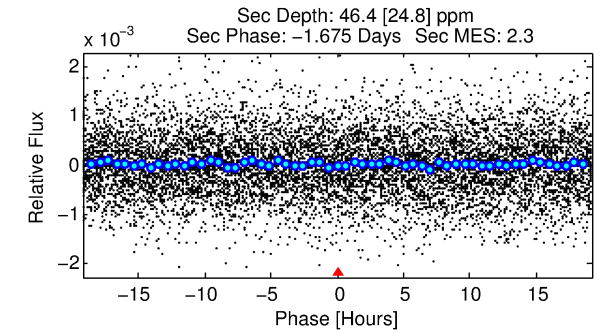
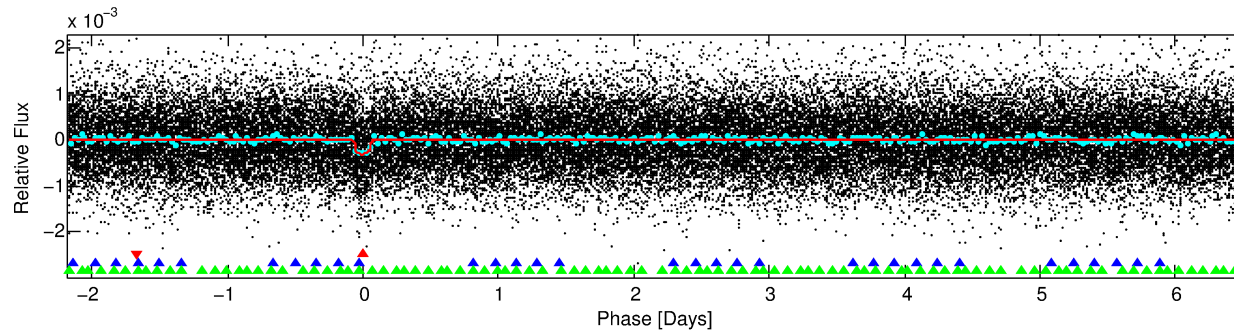
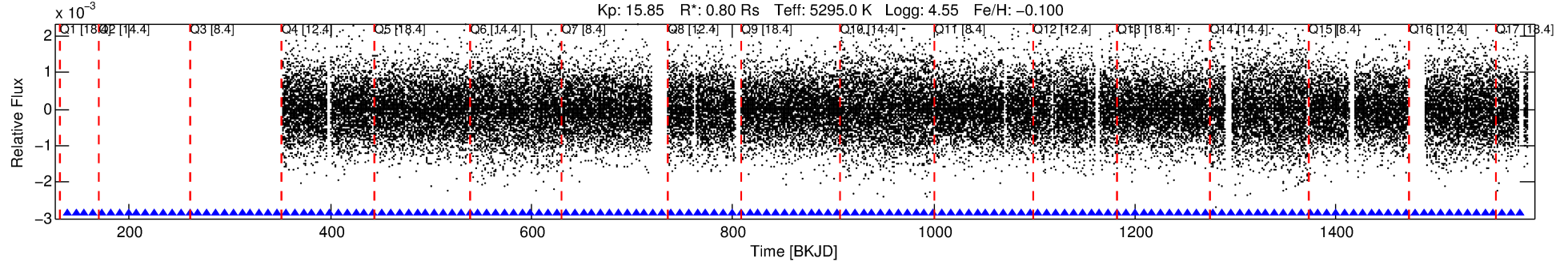
No Significant Match Found

DV One-Page Summary

KIC: 9100953 Candidate: 1 of 3 Period: 8.702 d

KOI: K04500.01 Corr: 0.964

Kp: 15.85 R*: 0.80 Rs Teff: 5295.0 K Logg: 4.55 Fe/H: -0.100



DV Fit Results:

Period = 8.70174 [0.00008] d
Epoch = 138.2525 [0.0075] BKJD
Rp/R* = 0.0192 [0.0087]
a/R* = 10.01 [19.07]
b = 0.90 [0.42]
Seff = 74.75 [17.37]
Teq = 750 [44] K
Rp = 1.68 [0.81] Re
a = 0.0777 [0.0104] AU
Ag = 54.66 [58.33] [0.92σ]
Teffp = 3152 [835] K [2.87σ]

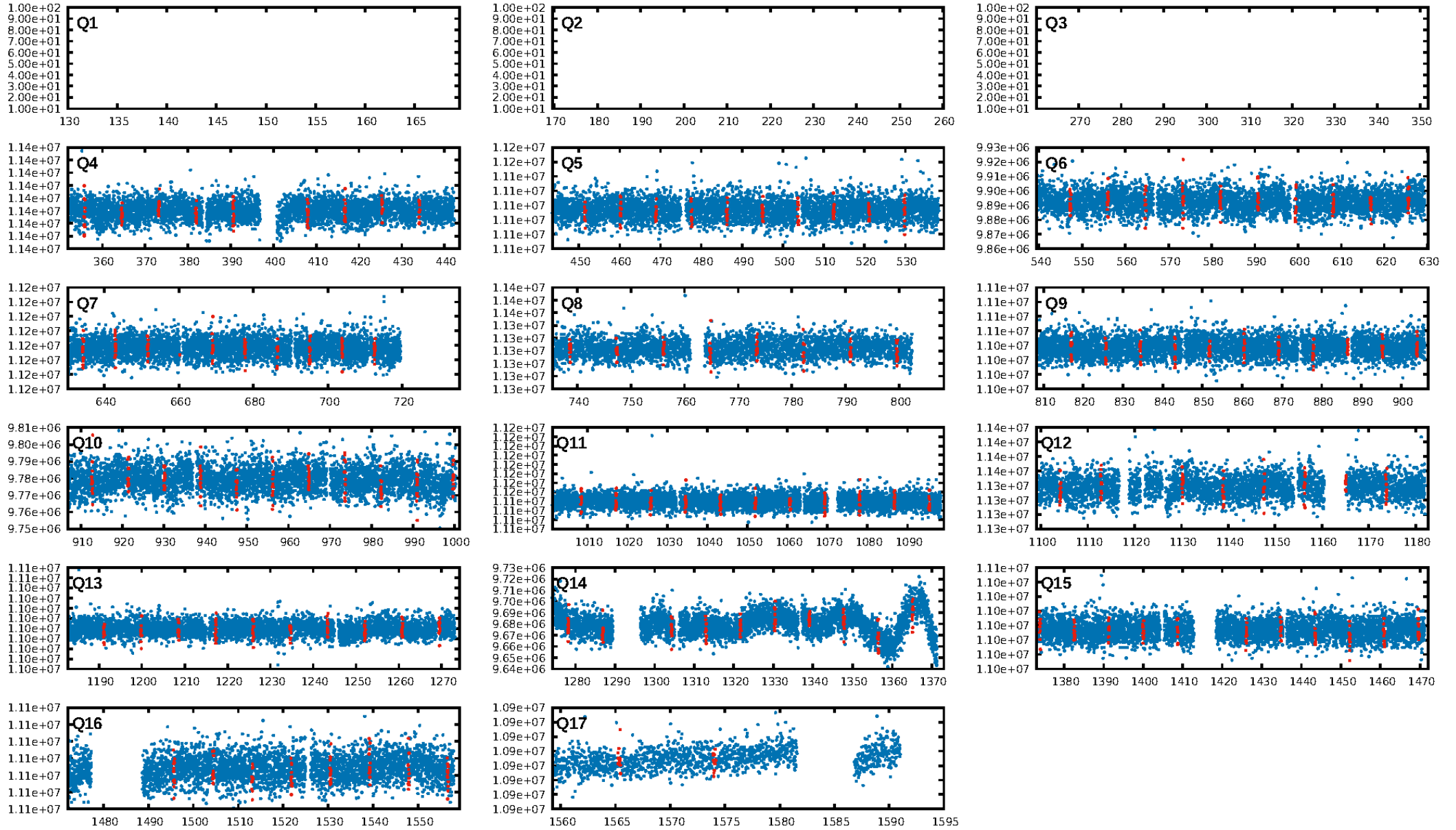
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [34.99σ]
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.56e-28
RollingBand-fgt: 1.00 [126/126]
GhostDiagnostic-chr: 19.19
Centroid-sig: 8.2%
Centroid-so: 2.207 arcsec [1.51σ]
OotOffset-rm: 0.704 arcsec [0.88σ]
KicOffset-rm: 0.599 arcsec [0.72σ]
OotOffset-st: 2/2/3/4 [11]
KicOffset-st: 2/2/3/4 [11]
DiffImageQuality-fgm: 0.64 [7/11]
DiffImageOverlap-fno: 1.00 [14/14]

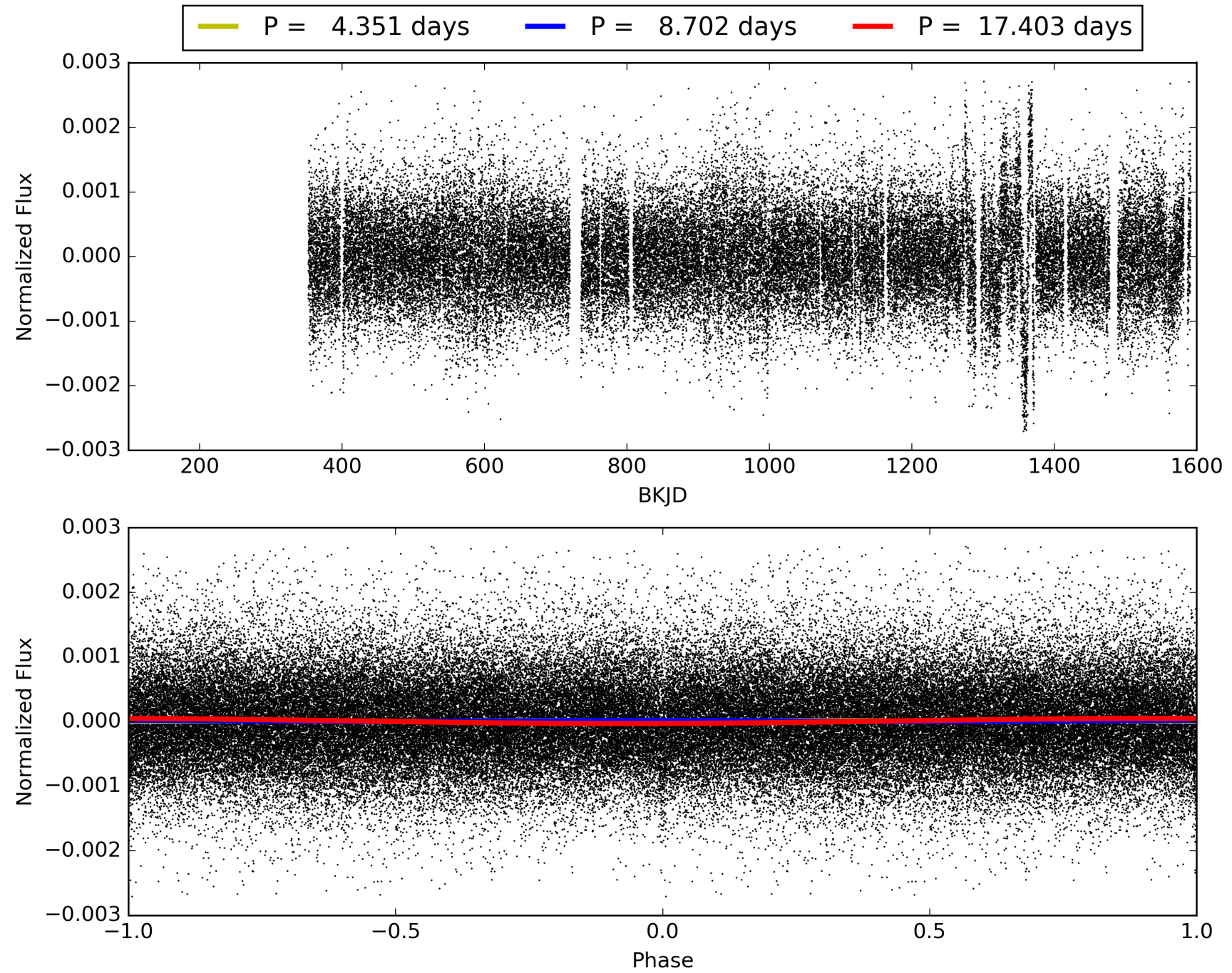
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:26:40 Z

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

TCE 009100953-01, PDC Light Curves

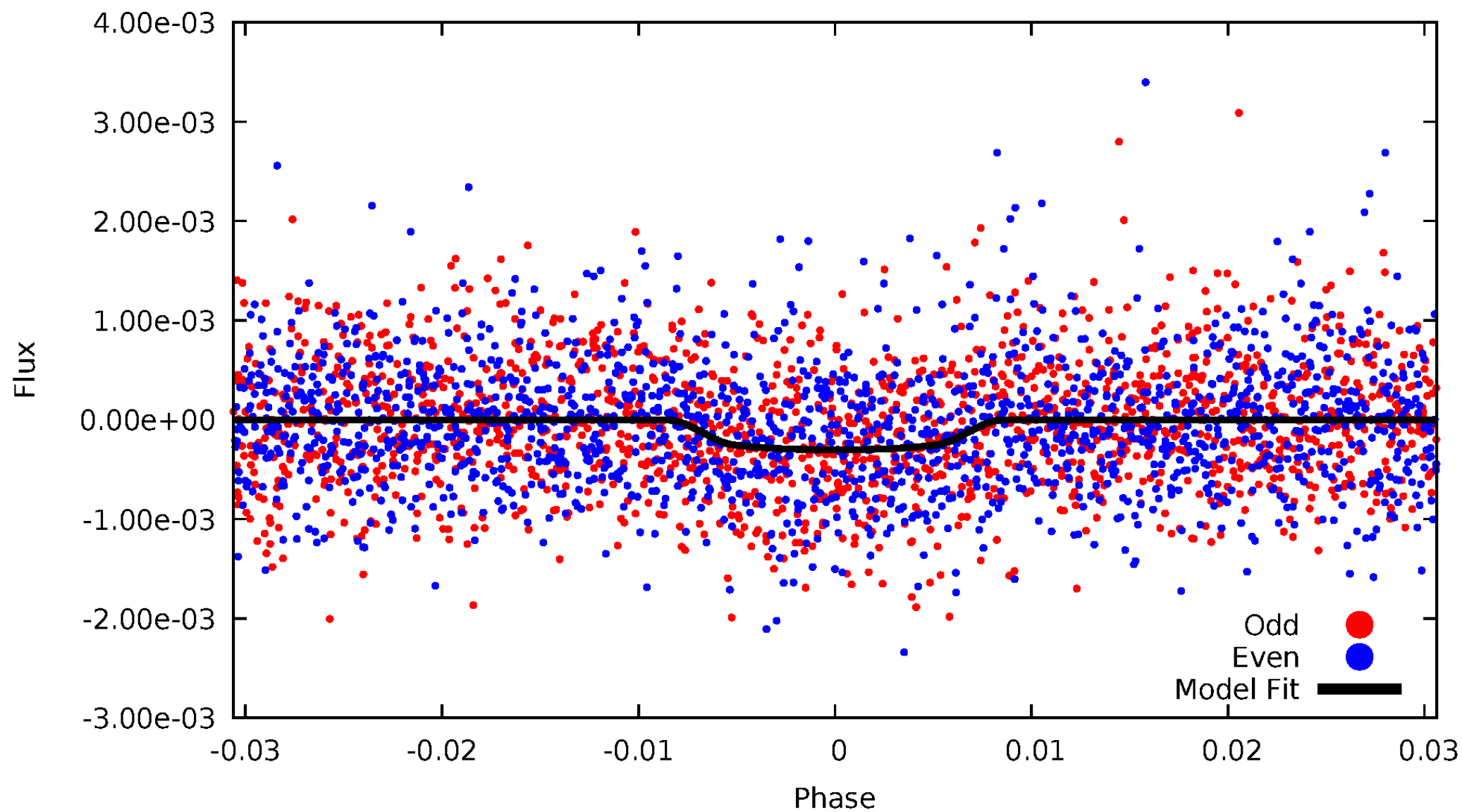


TCE 009100953-01



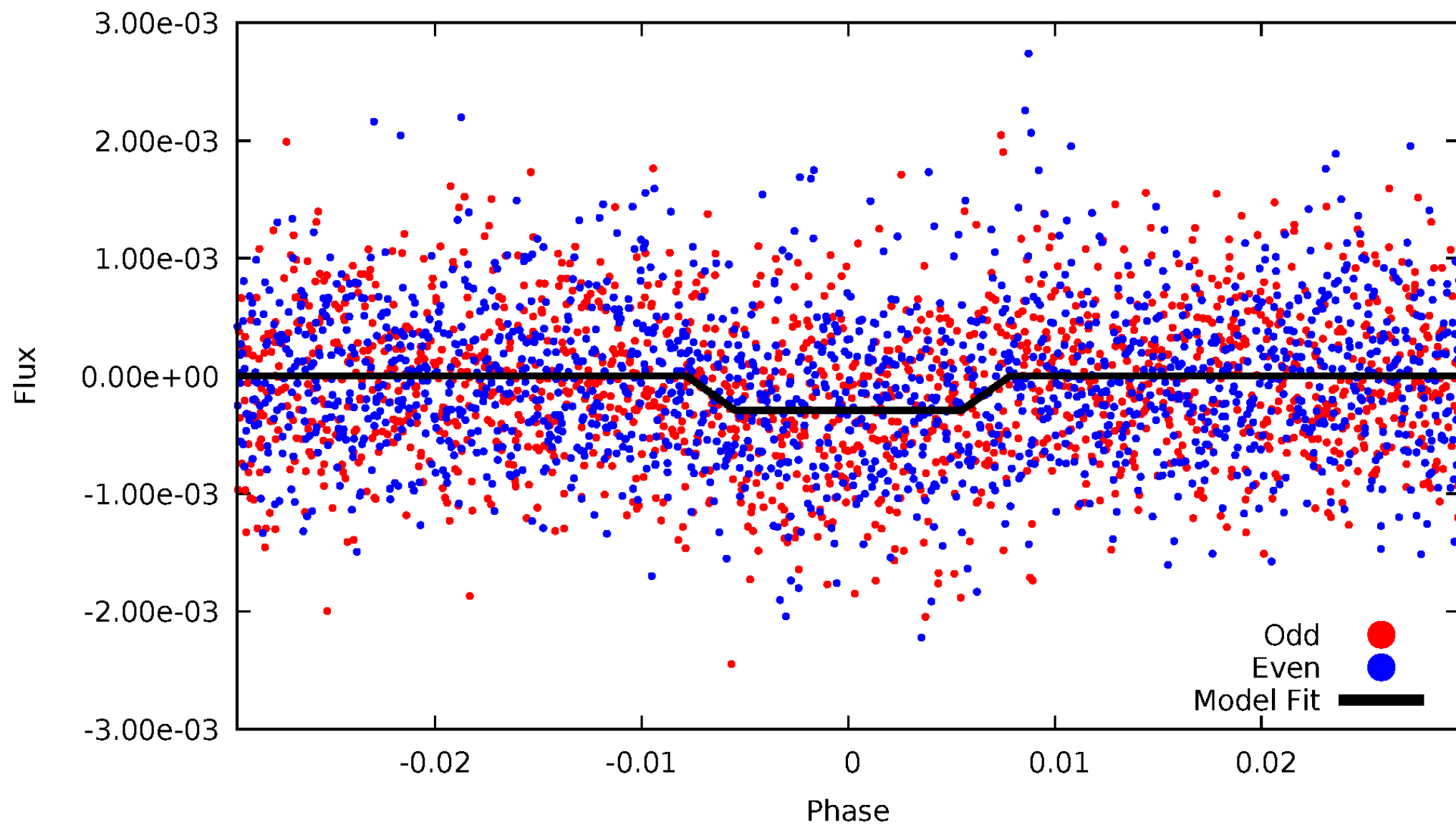
DV Odd/Even

TCE 009100953-01

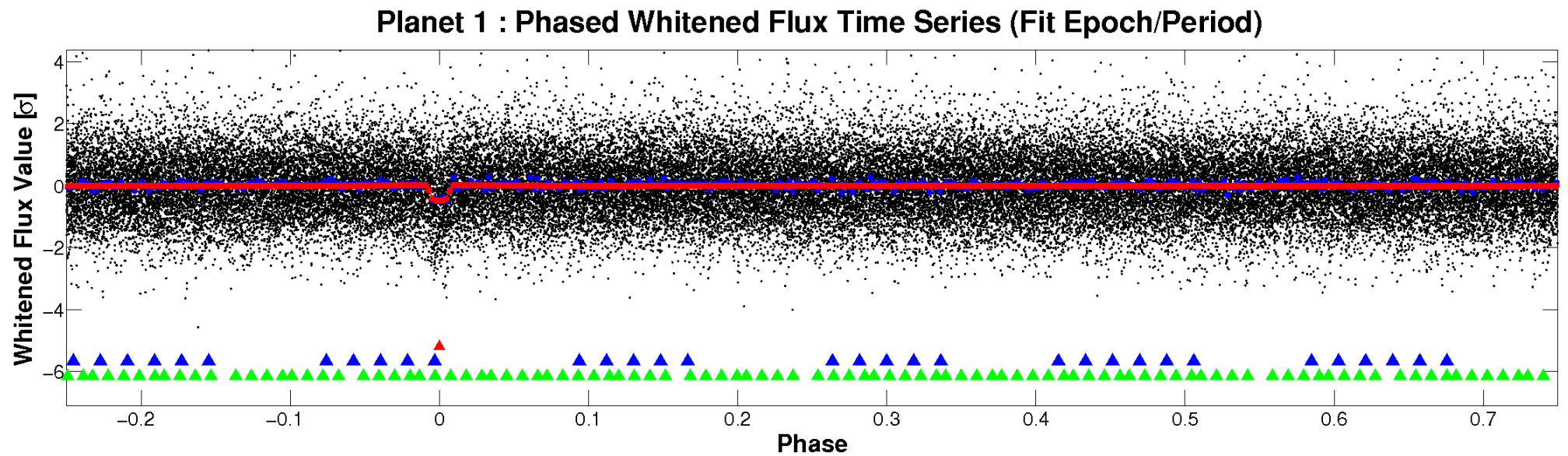
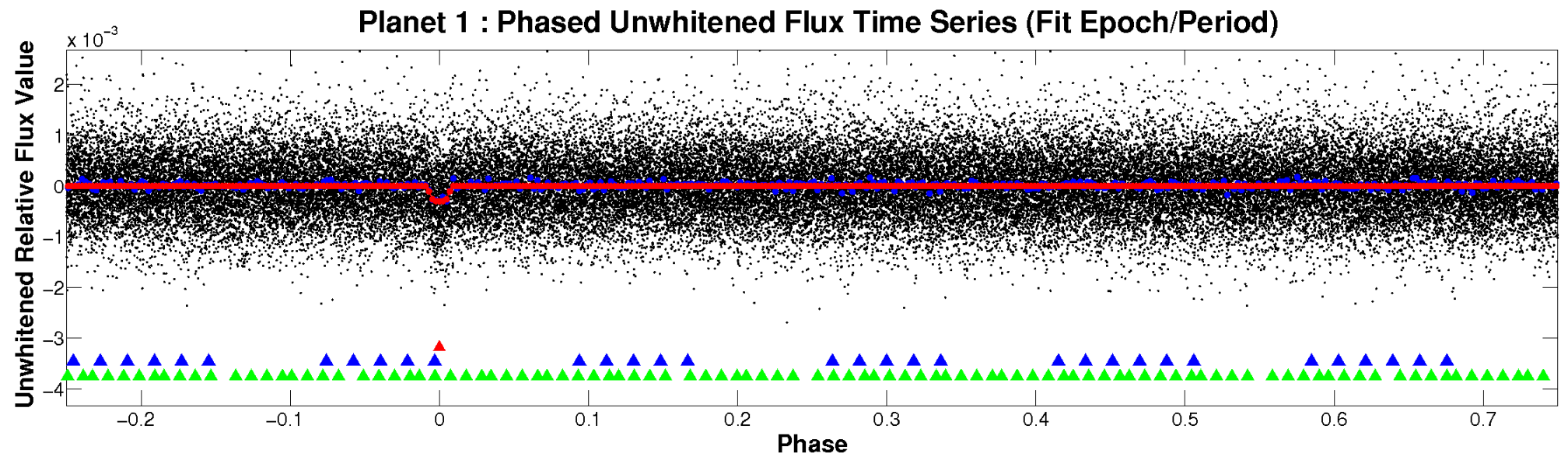


ALT Odd/Even

TCE 009100953-01

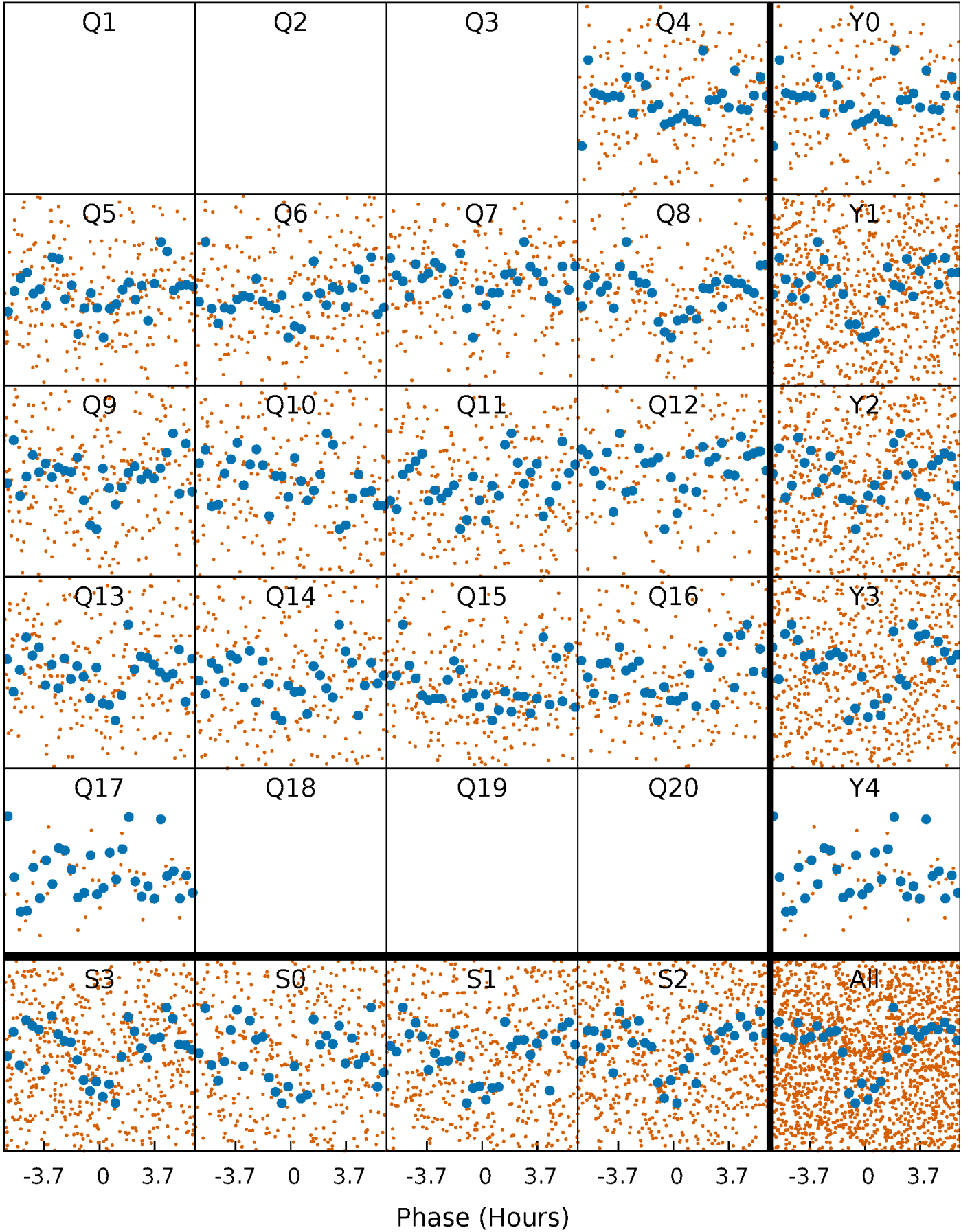


Non-Whitened Vs. Whitened Light Curve



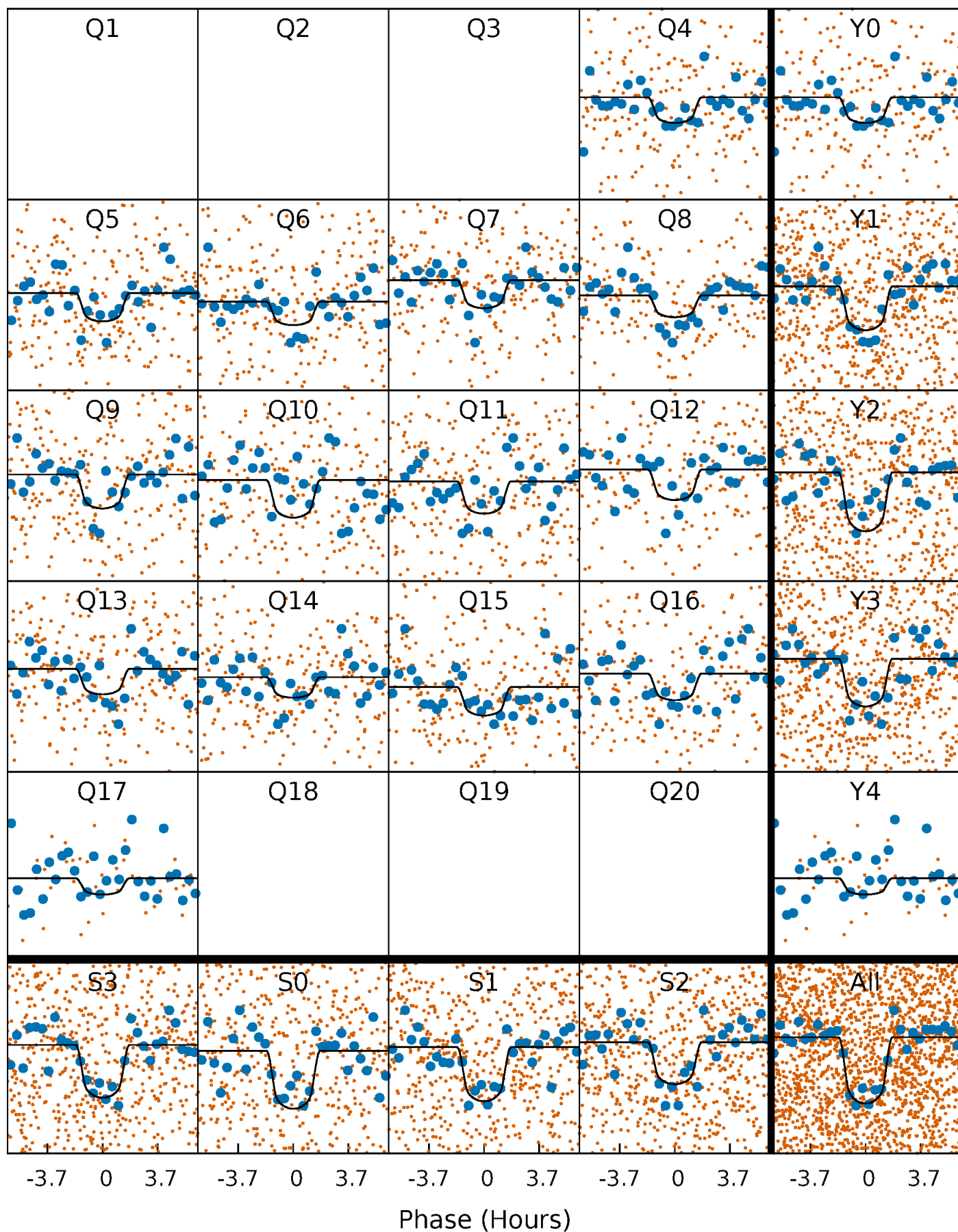
PDC Quarter-Phased Transit Curves

TCE 009100953-01 P= 8.701737 Days $T_0=138.252488$ (BKJD)



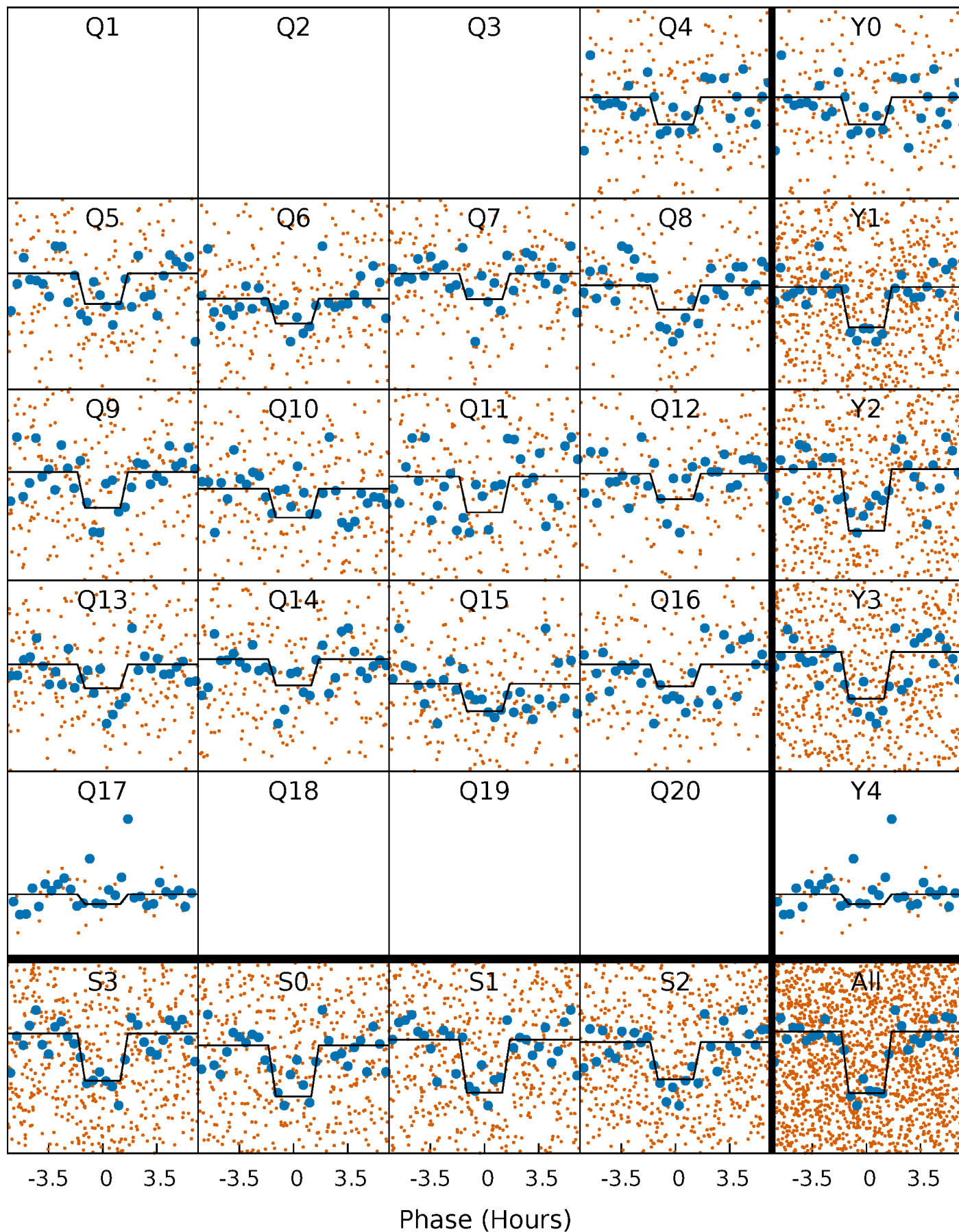
DV Quarter-Phased Transit Curves

TCE 009100953-01 P= 8.701737 Days $T_0=138.252488$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

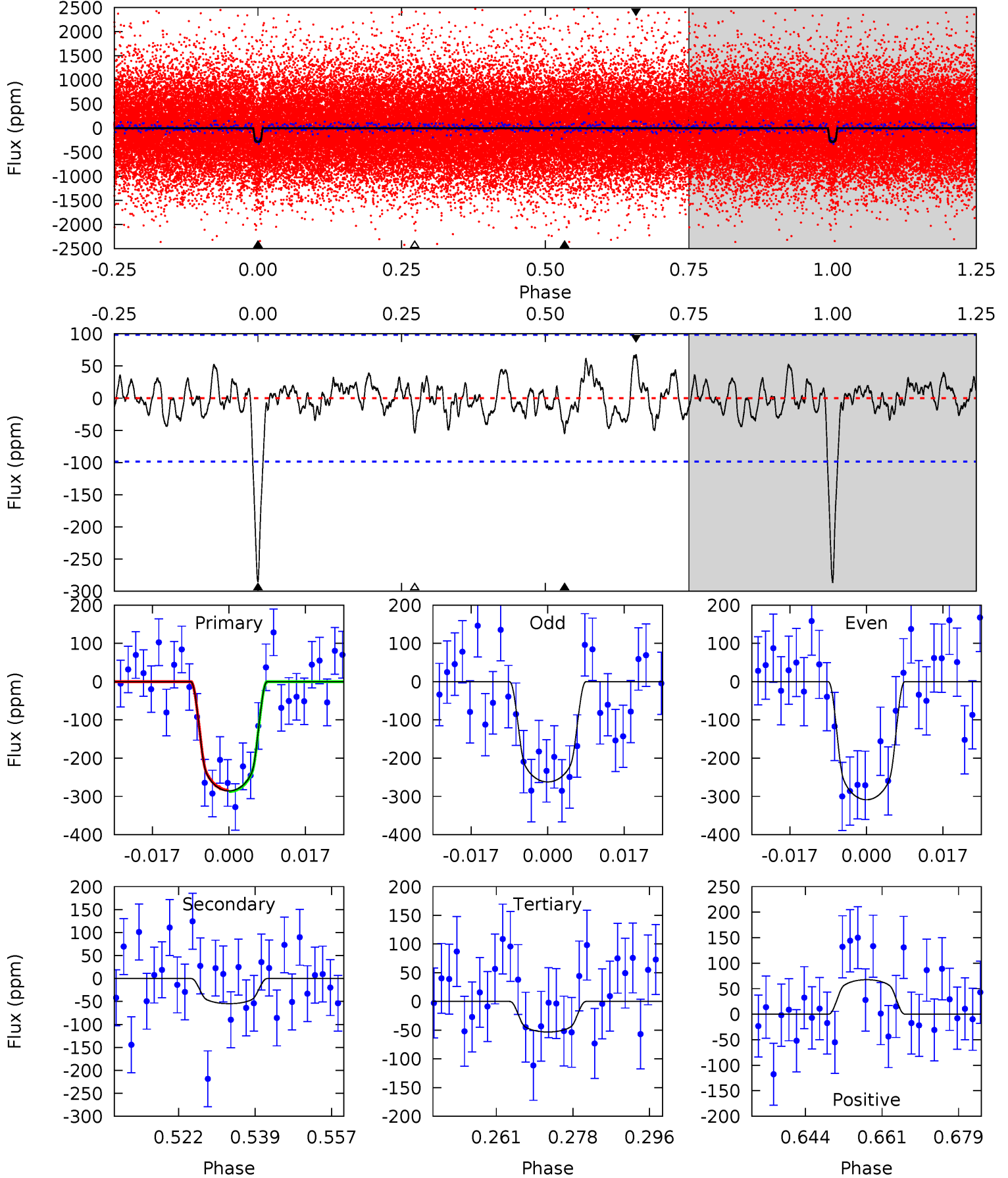
TCE 009100953-01 P= 8.701820 Days $T_0=138.244265$ (BKJD)



DV Model-Shift Uniqueness Test

009100953-01, P = 8.701737 Days, E = 138.252488 Days

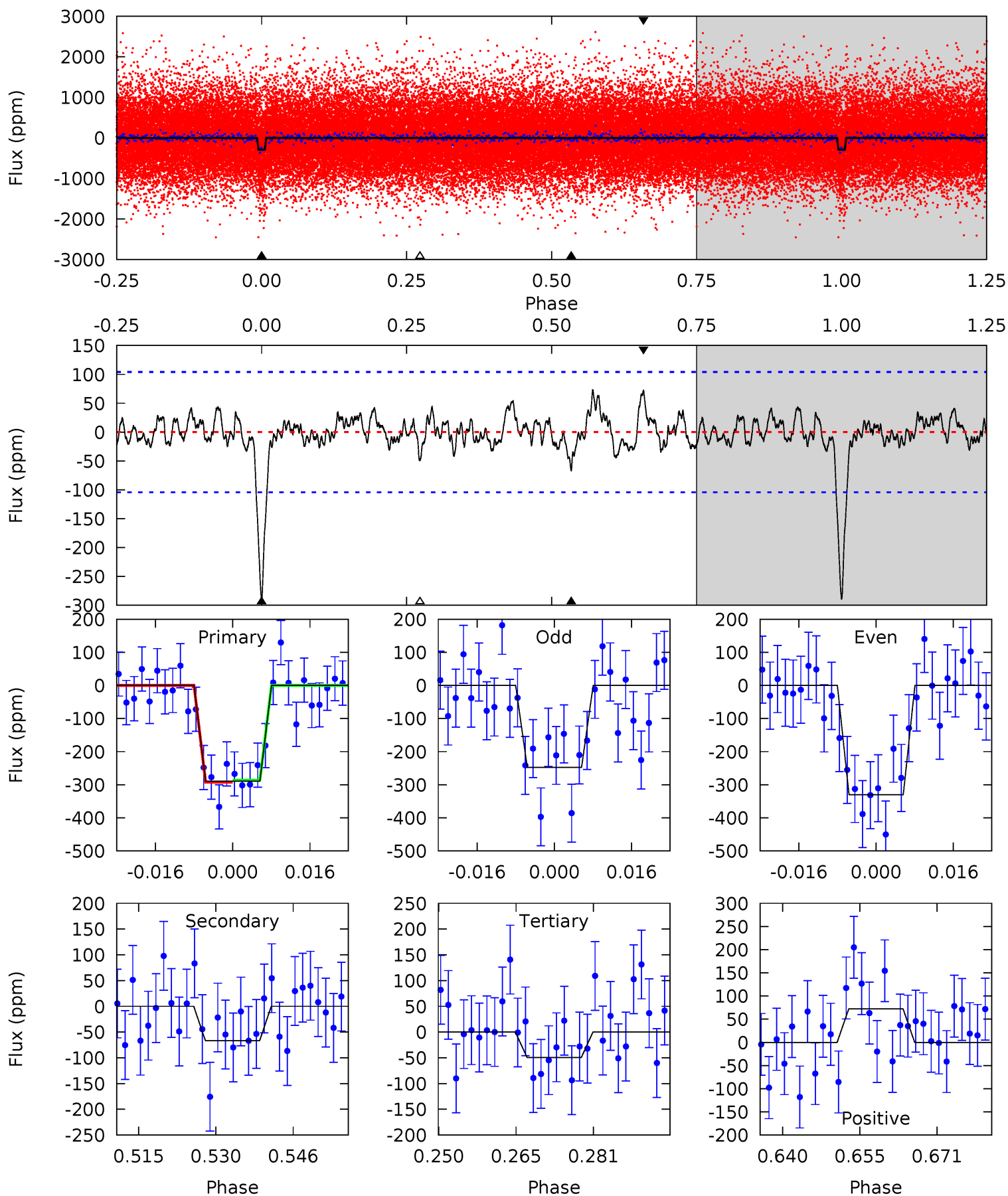
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	2.74	2.66	3.38	4.92	2.38	1.10	11.6	10.9	0.09	-0.64	1.17	1.08	0.19	0.09



Alt Model-Shift Uniqueness Test

009100953-01, P = 8.701820 Days, E = 138.244265 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	3.16	2.34	3.44	4.94	2.42	1.01	11.4	10.3	0.82	-0.28	1.96	1.11	0.20	0.15



Stellar Parameters For KIC 009100953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5295^{+185}_{-185}	$4.548^{+0.052}_{-0.097}$	$-0.100^{+0.300}_{-0.300}$	$0.800^{+0.133}_{-0.082}$	$0.825^{+0.096}_{-0.078}$	$2.266^{+0.534}_{-0.738}$
	+3%/-3%	+1%/-2%	+300%/-300%	+17%/-10%	+12%/-9%	+24%/-33%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009100953-01 / KOI 4500.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-55 ± 20	$1.71^{+0.87}_{-0.74}$	1056^{+51}_{-47}	3640^{+906}_{-487}	59^{+134}_{-36}
Alt.	-67 ± 21	$1.53^{+0.78}_{-0.74}$	1060^{+49}_{-50}	3959^{+1281}_{-584}	95^{+277}_{-58}

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 $A_{obs} \gg 1.0$

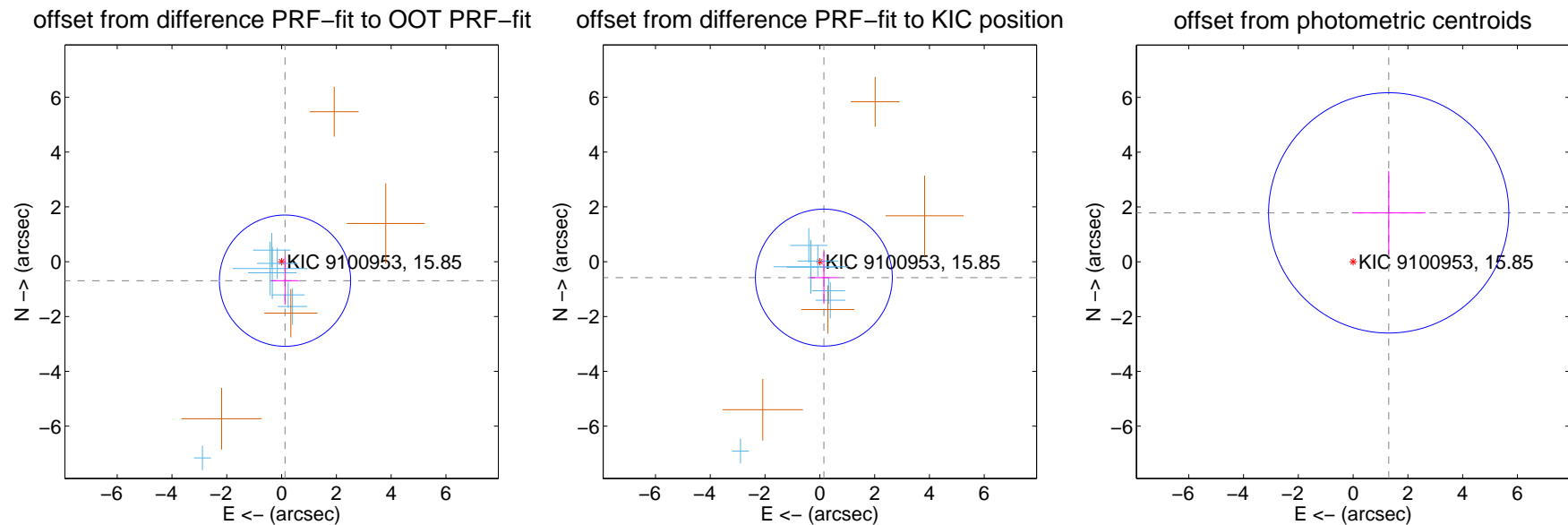
DV Centroid Data

Supplemental centroid analysis for 009100953-01. Kepler magnitude: 15.85. Transit SNR 11.44

There are 7 quarters with good PRF difference image offsets

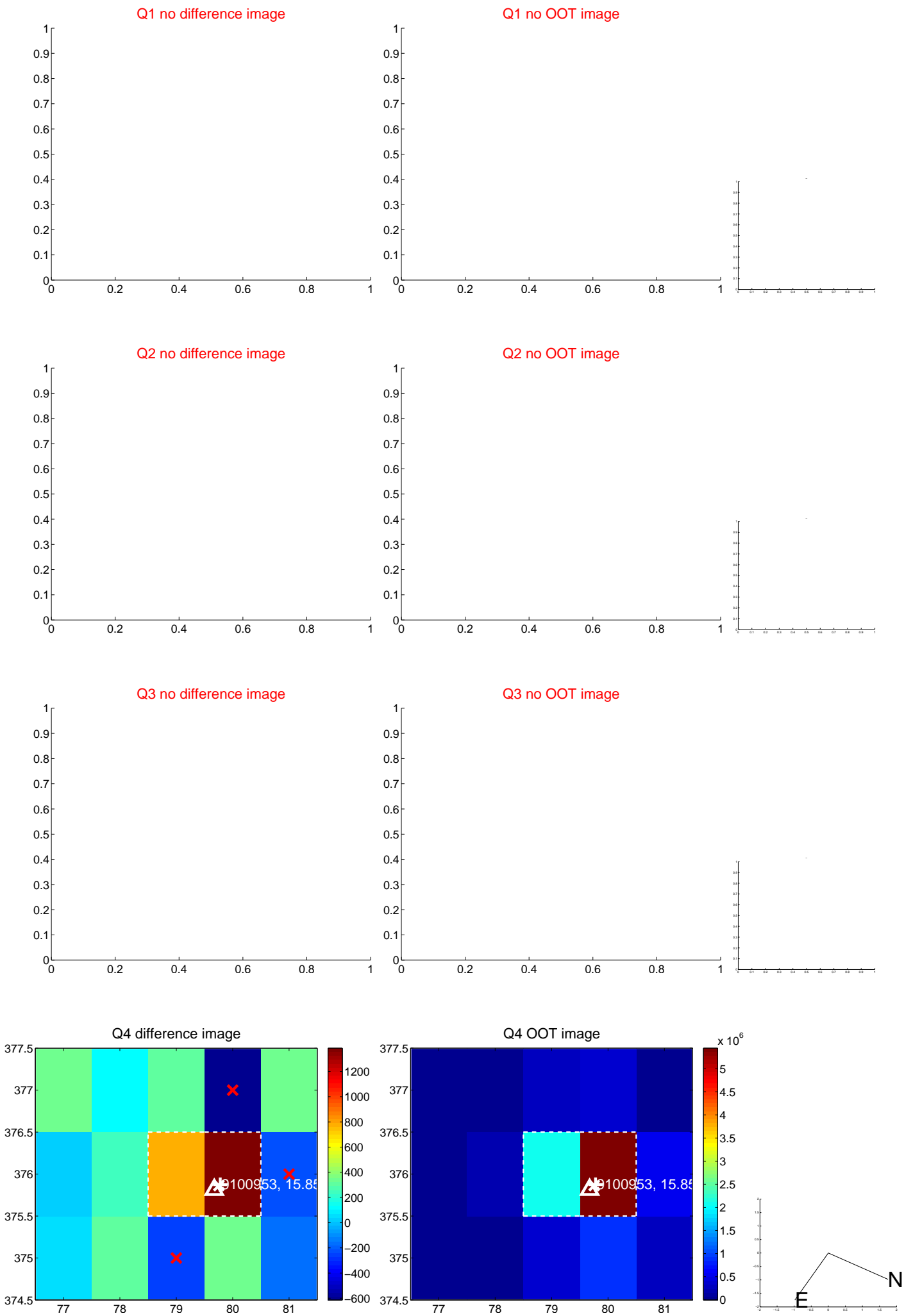
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.704 ± 0.799	0.88	-0.126 ± 0.499	-0.693 ± 0.879
PRF-fit source offset from KIC position	0.599 ± 0.833	0.72	-0.147 ± 0.502	-0.581 ± 0.955
photometric centroid source offset	2.21 ± 1.46	1.51	-1.30 ± 1.34	1.78 ± 1.52

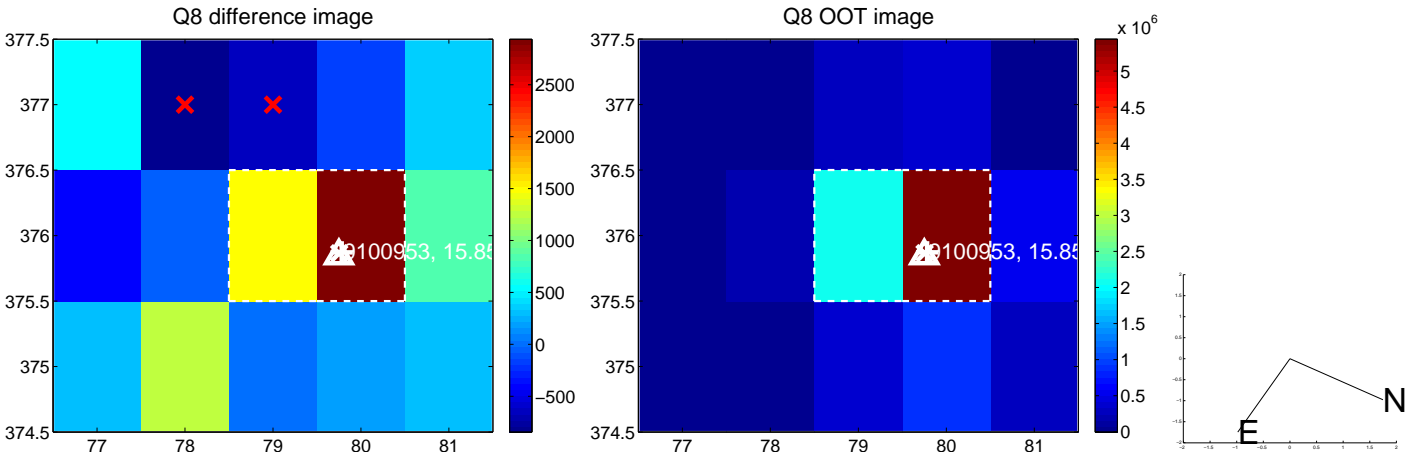
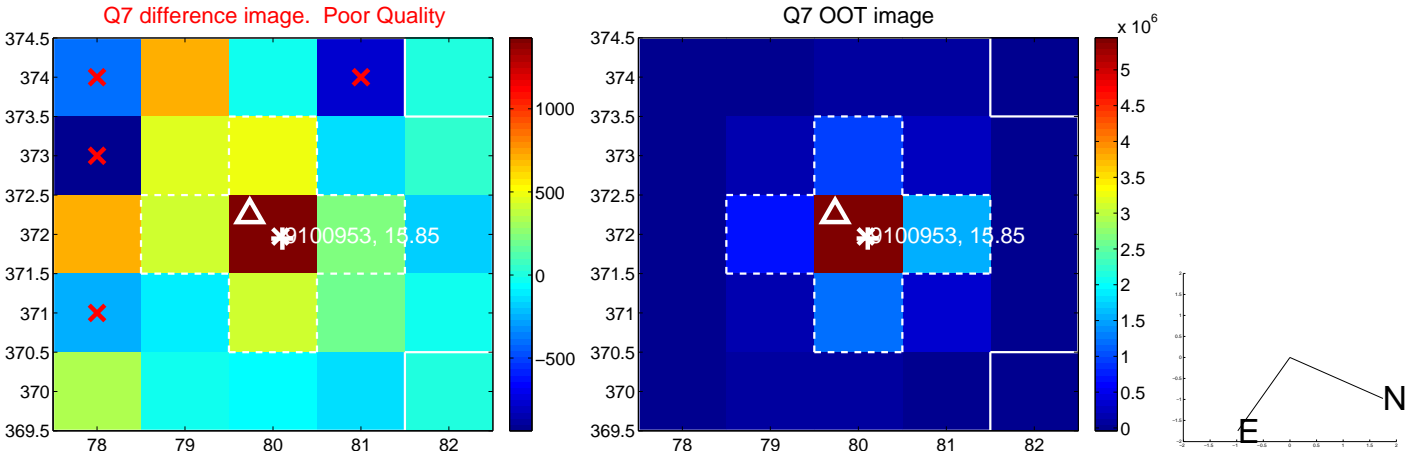
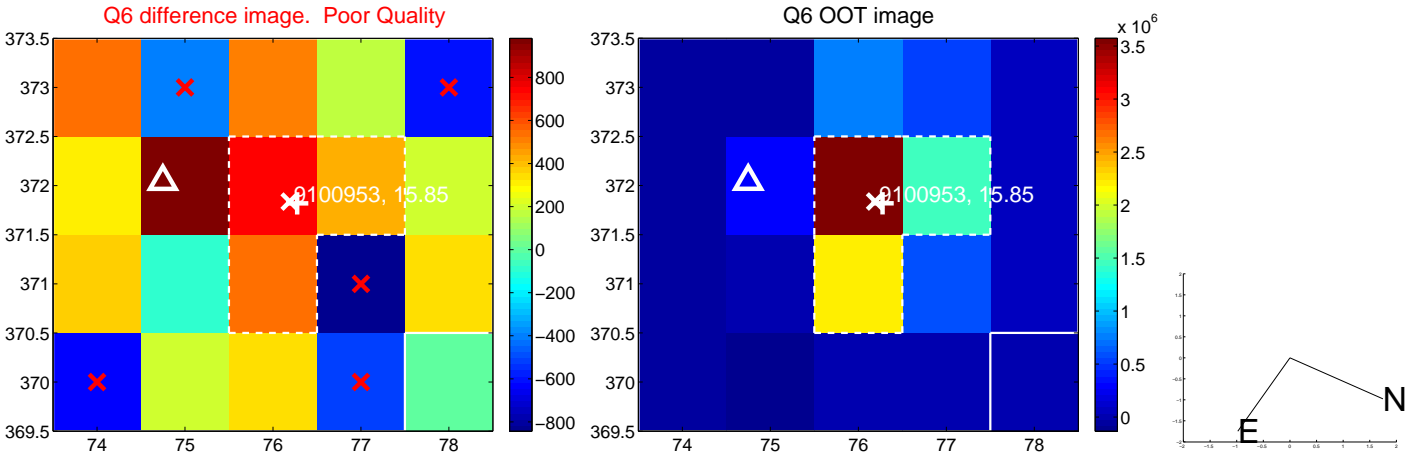
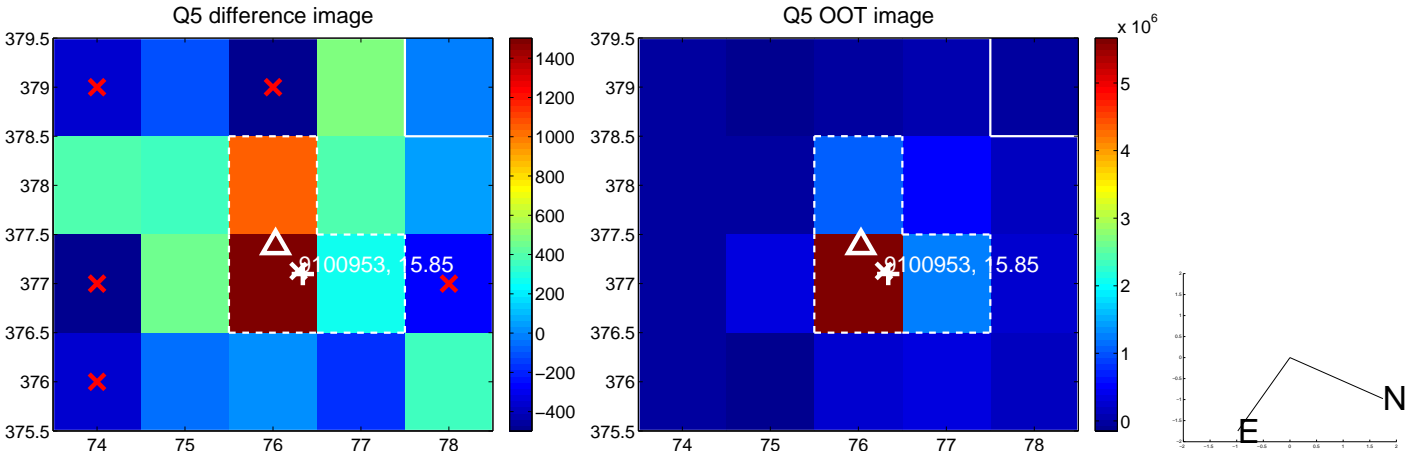


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

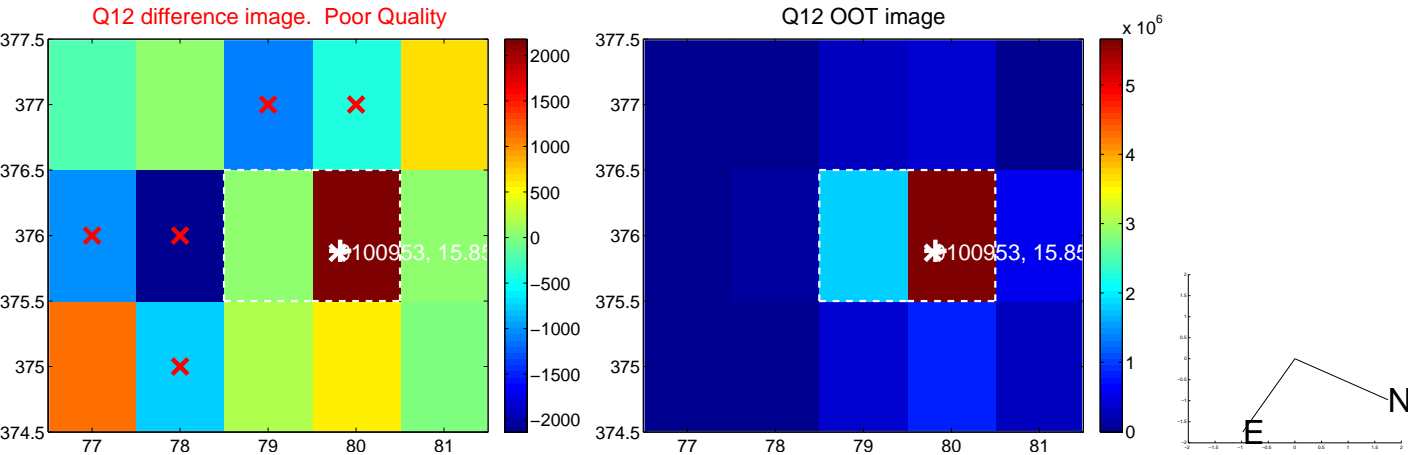
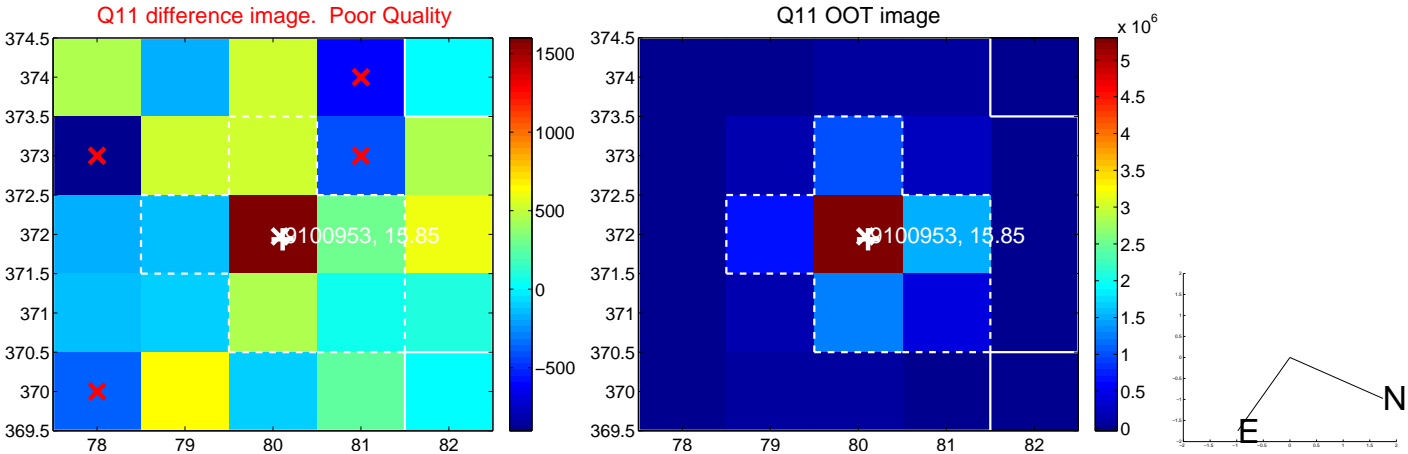
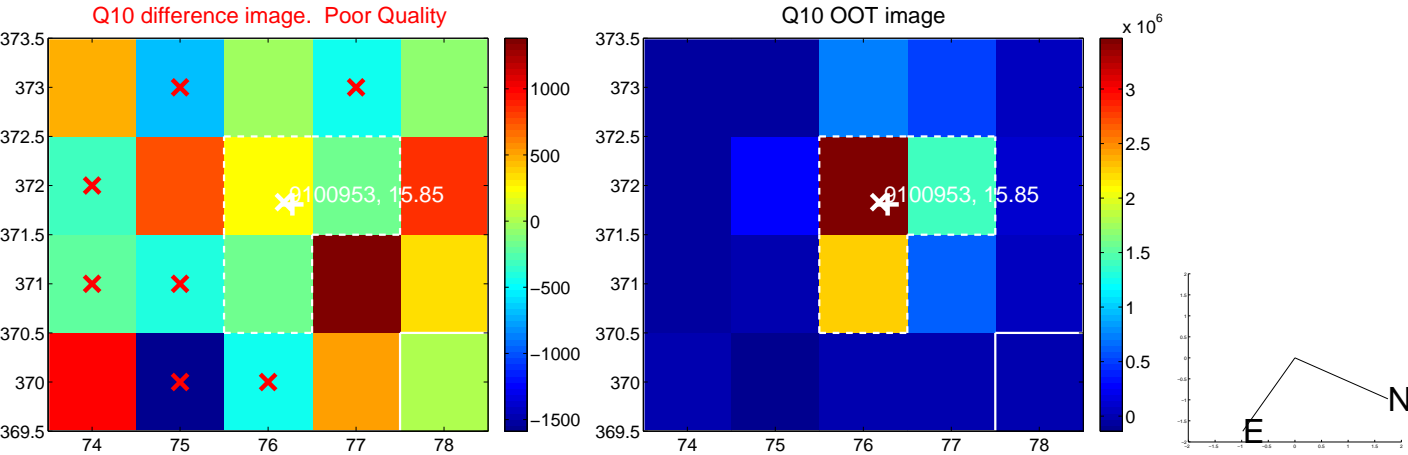
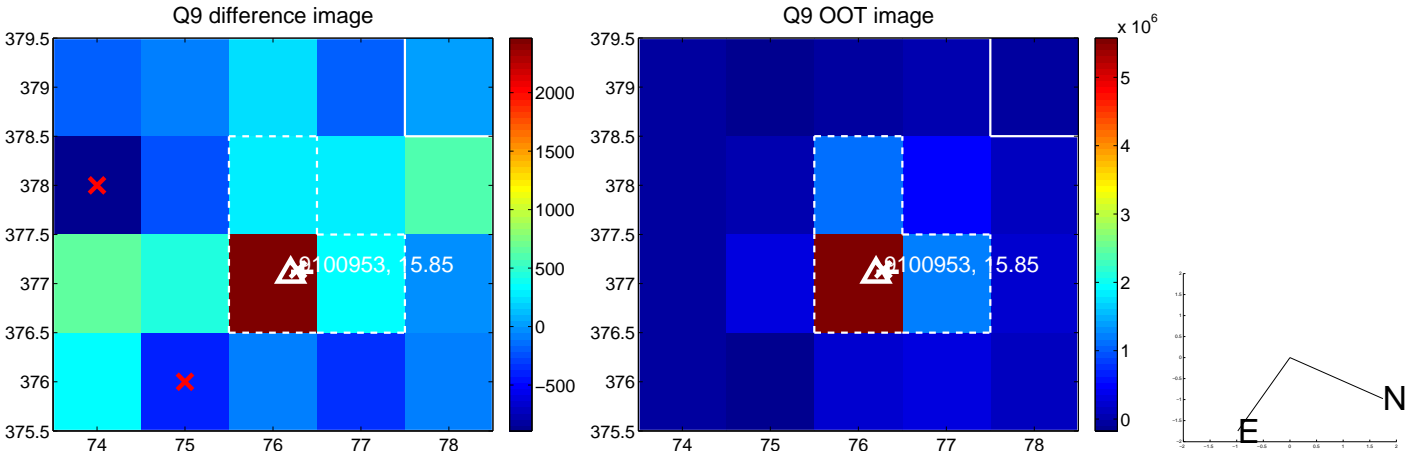
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



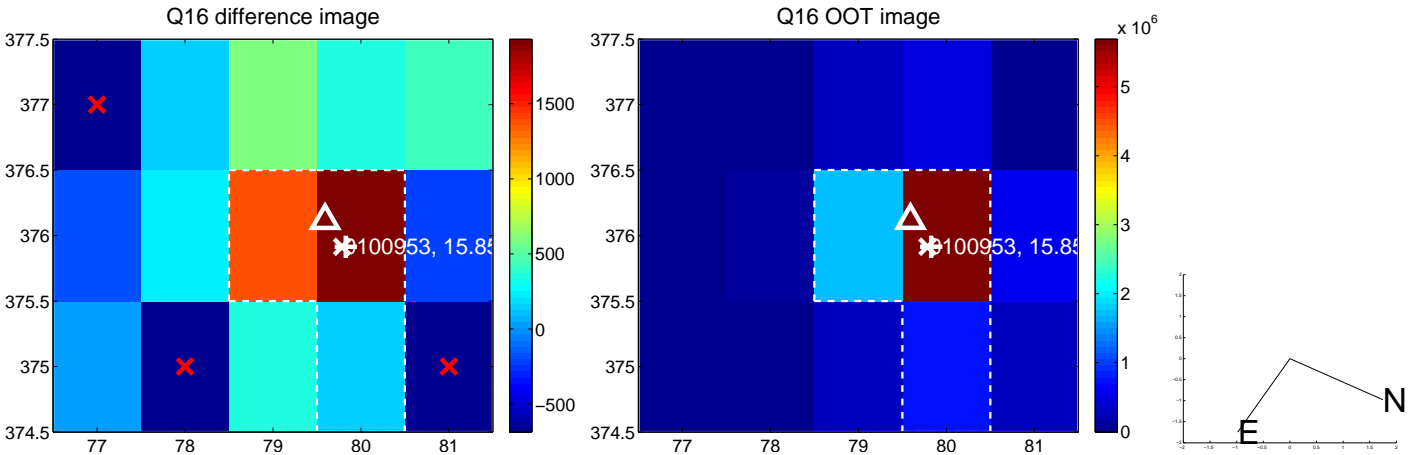
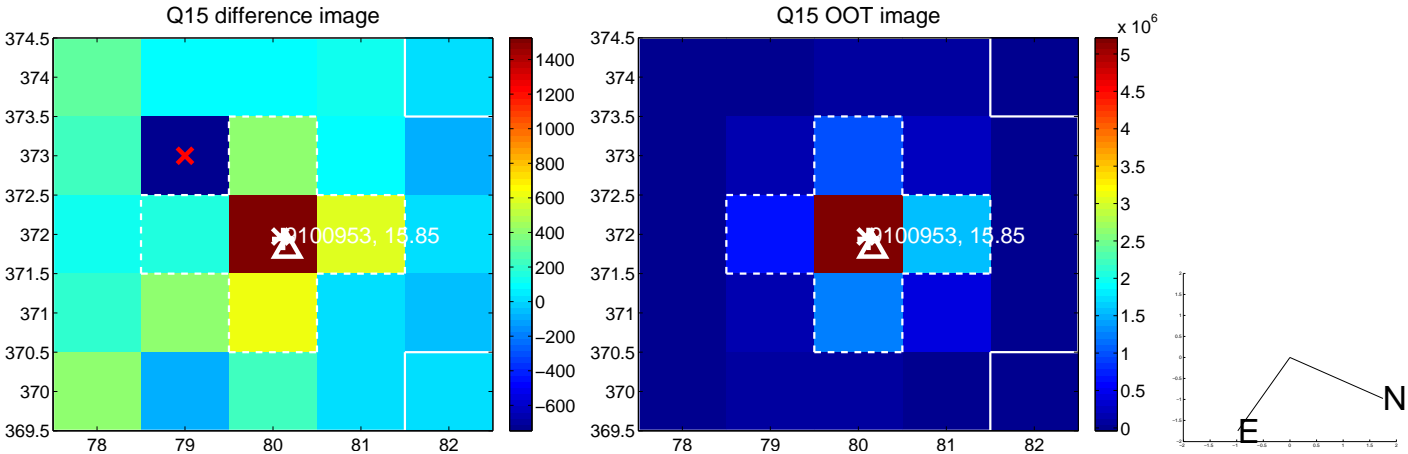
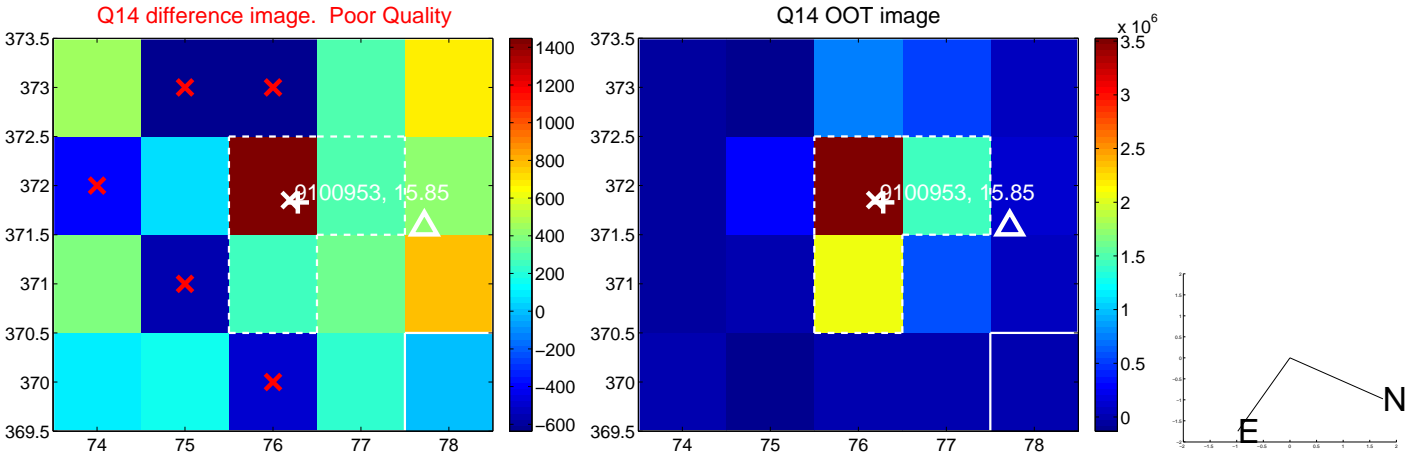
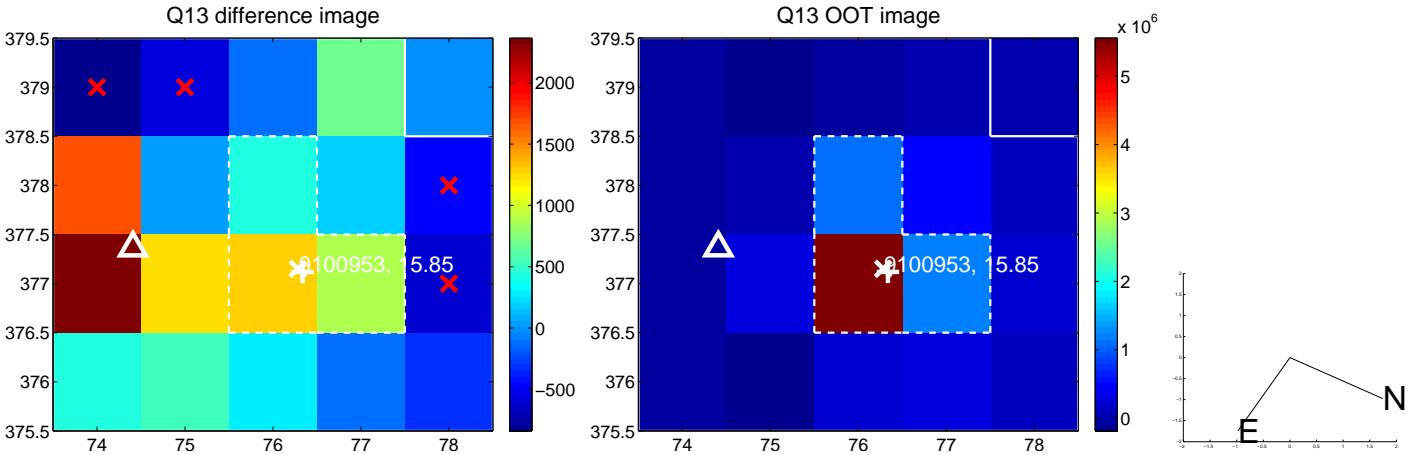
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



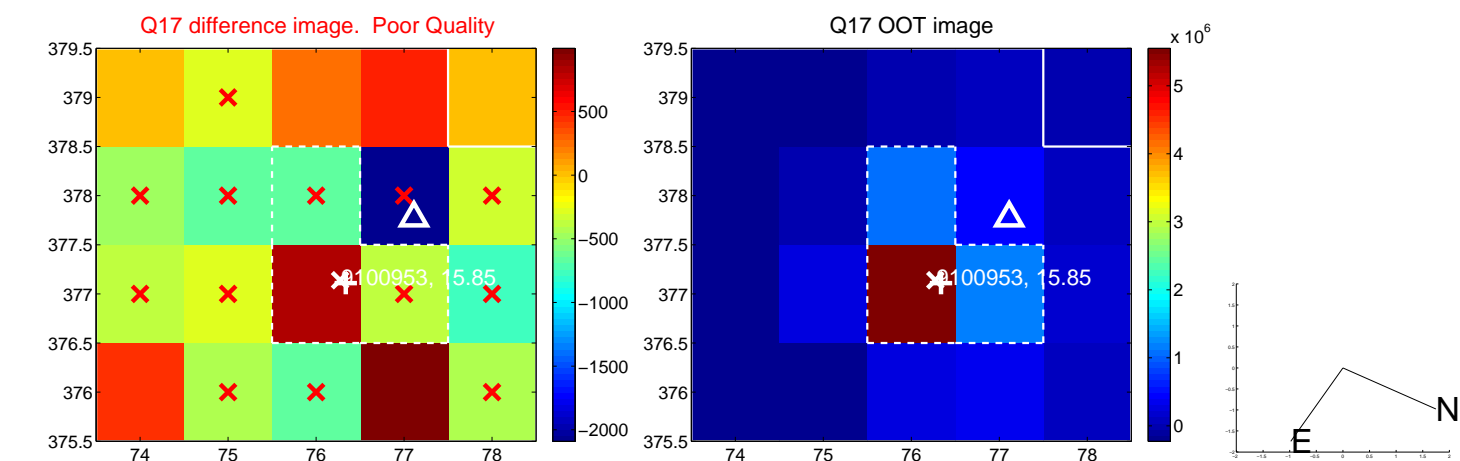
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



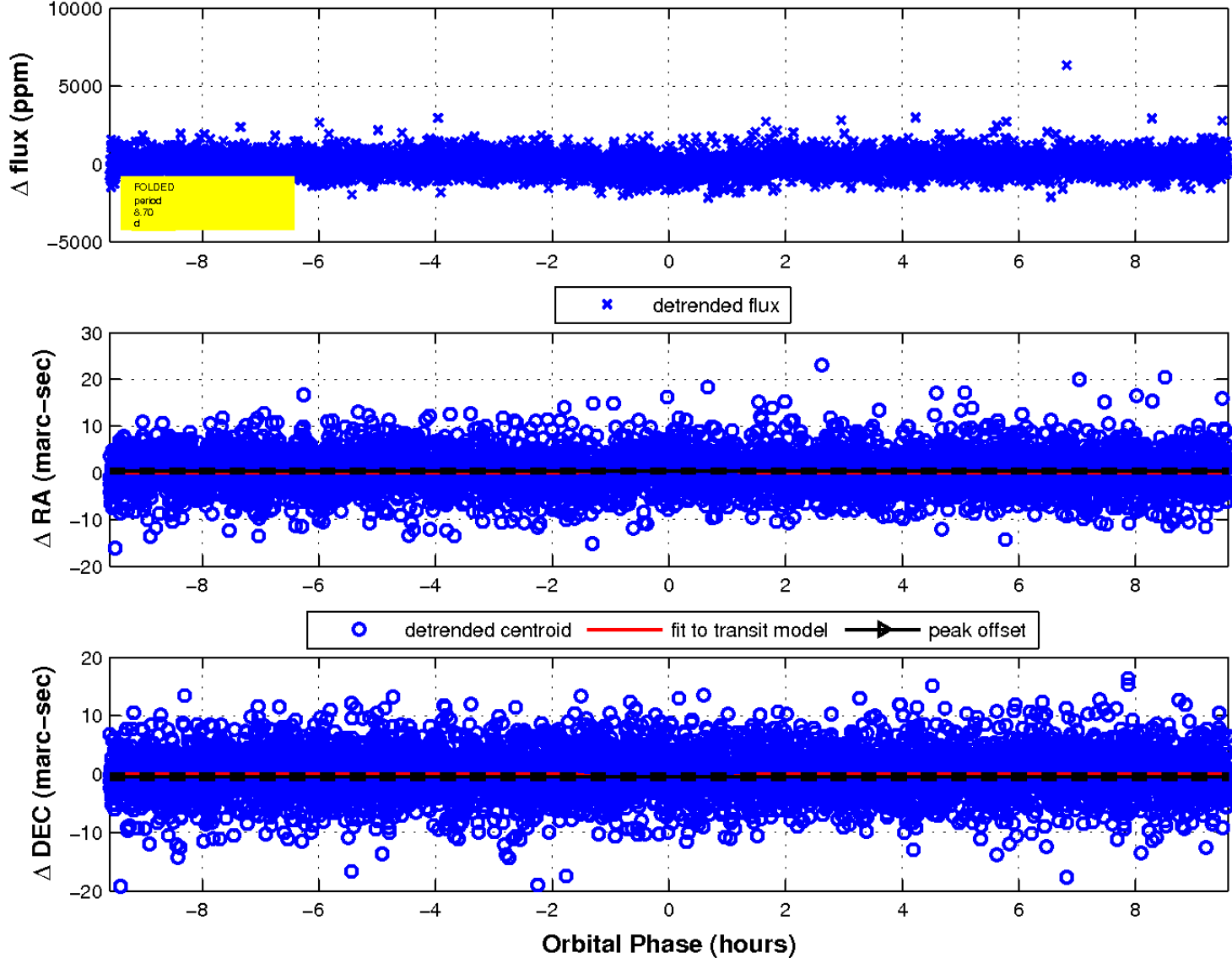
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

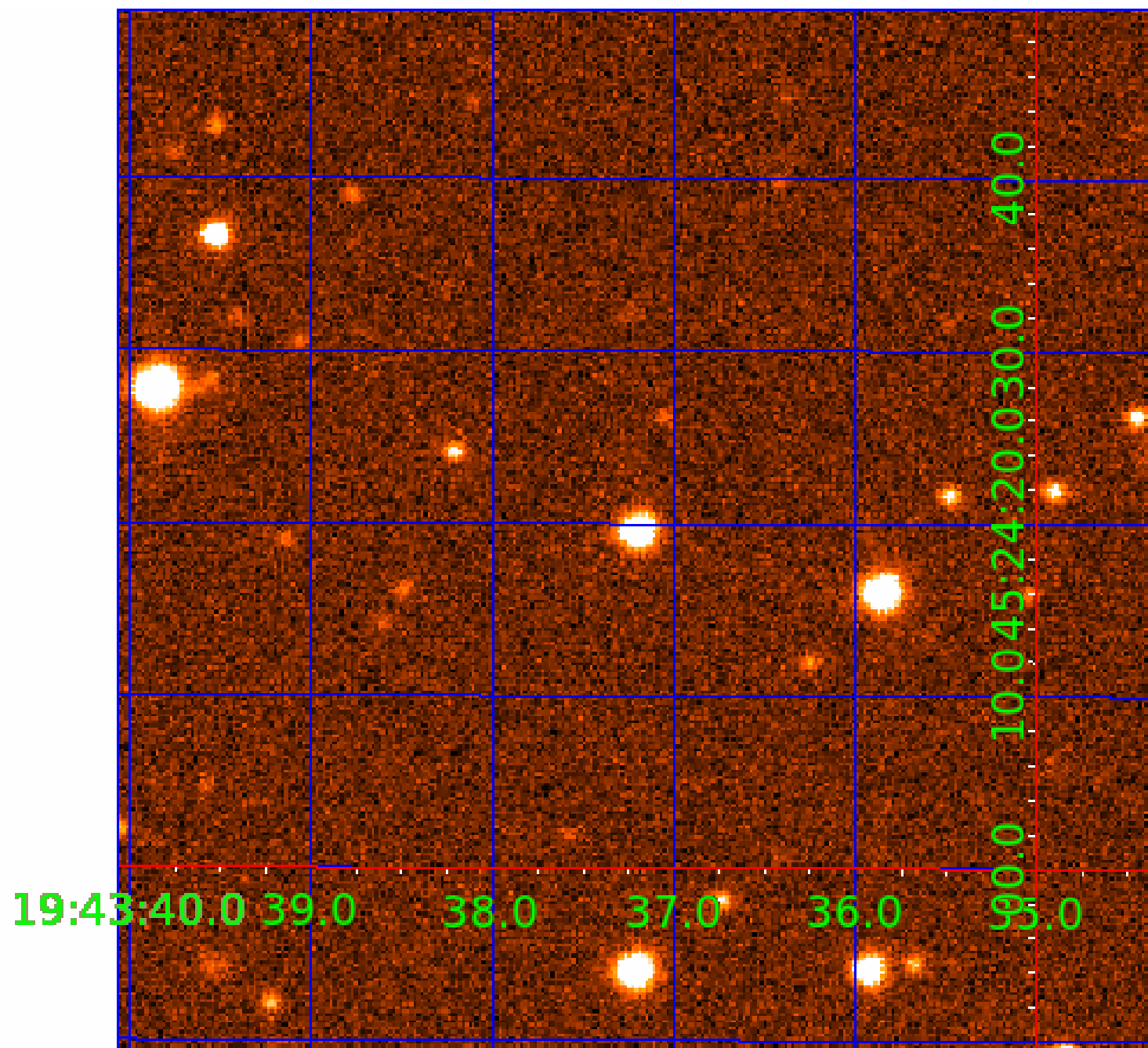


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 009100953

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})
009100953-01	OBS	4500.01	8.701737	138.252487	303.1	3.197	10.9	11.4	0.80	5295	1.68	74.75
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009100953-03	OBS	4500.03	14.751162	141.152253	375.1	2.645	8.6	9.2	0.80	5295	2.01	36.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009100953-01	OBS	PC	0.81	0	0	0	0	CENT_FEW_DIFFS
009100953-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009100953-03	OBS	PC	0.98	0	0	0	0	CENT_FEW_DIFFS

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 009100953-02

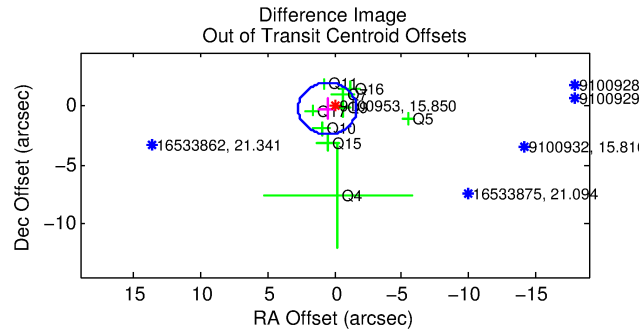
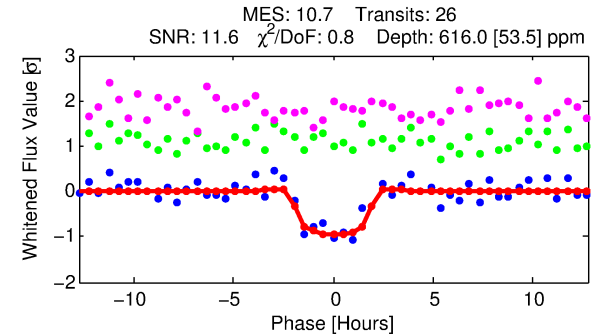
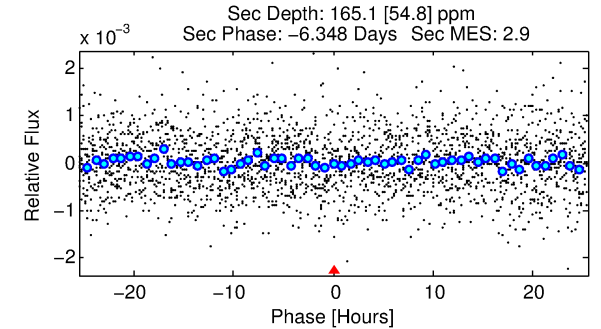
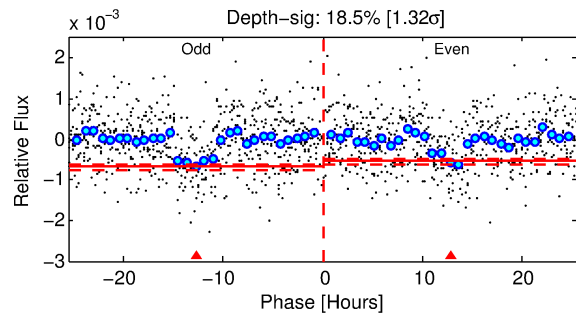
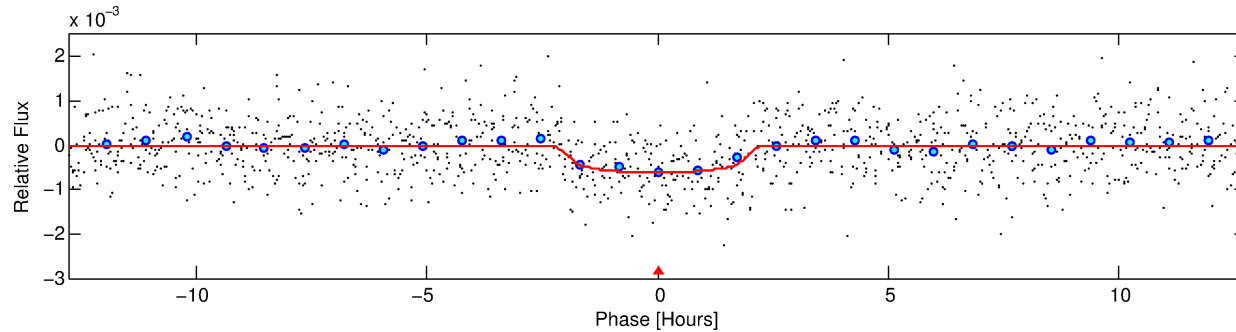
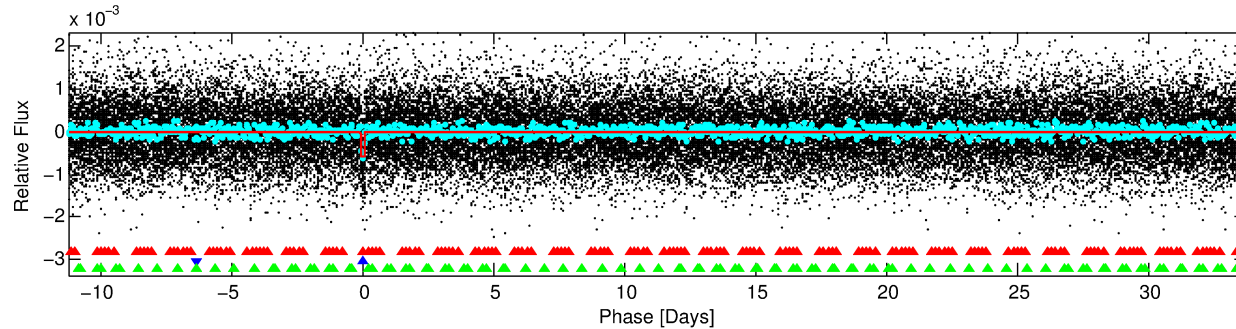
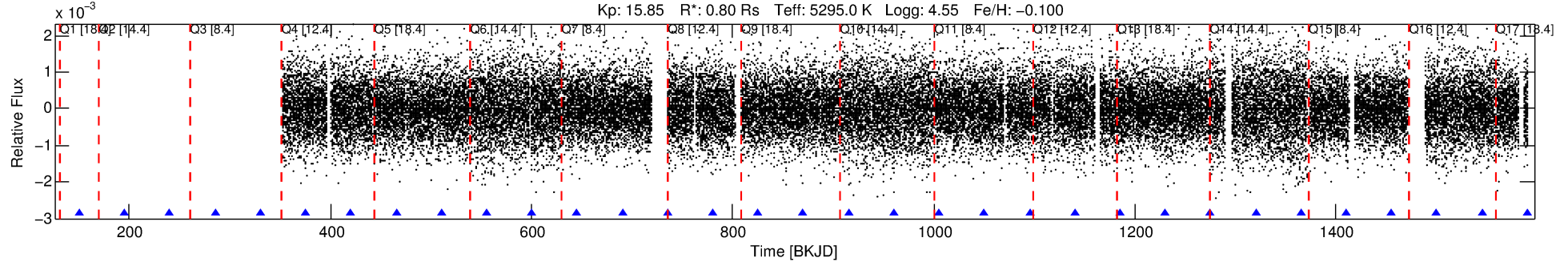
No Significant Match Found

DV One-Page Summary

KIC: 9100953 Candidate: 2 of 3 Period: 44.985 d

KOI: K04500.02 Corr: 0.974

Kp: 15.85 R*: 0.80 Rs Teff: 5295.0 K Logg: 4.55 Fe/H: -0.100



DV Fit Results:

Period = 44.98531 [0.00050] d
Epoch = 150.5668 [0.0103] BKJD
Rp/R* = 0.0253 [0.0164]
a/R* = 52.37 [132.94]
b = 0.79 [1.21]
Seff = 8.36 [1.94]
Teq = 434 [25] K
Rp = 2.21 [1.47] Re
a = 0.2322 [0.0310] AU
Ag = 1005.90 [1357.04] [0.74σ]
Teffp = 3776 [1268] K [2.63σ]

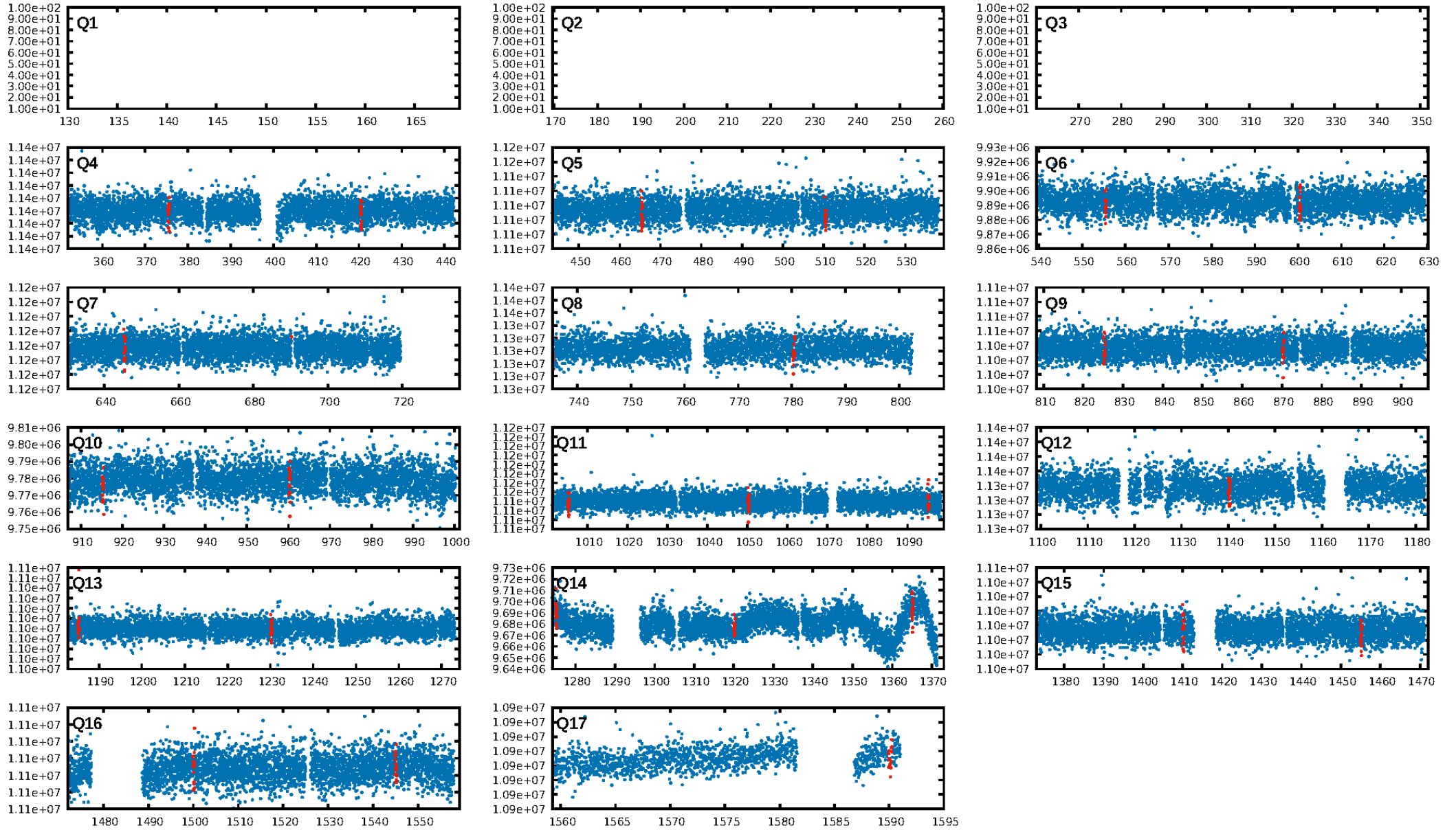
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [144.57σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.63e-27
RollingBand-fgt: 1.00 [25/25]
GhostDiagnostic-chr: 3.006
Centroid-sig: 69.6%
Centroid-so: 0.814 arcsec [0.59σ]
OotOffset-rm: 0.597 arcsec [0.82σ]
KicOffset-rm: 0.553 arcsec [0.84σ]
OotOffset-st: 1/3/2/3 [9]
KicOffset-st: 1/3/2/3 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 1.00 [14/14]

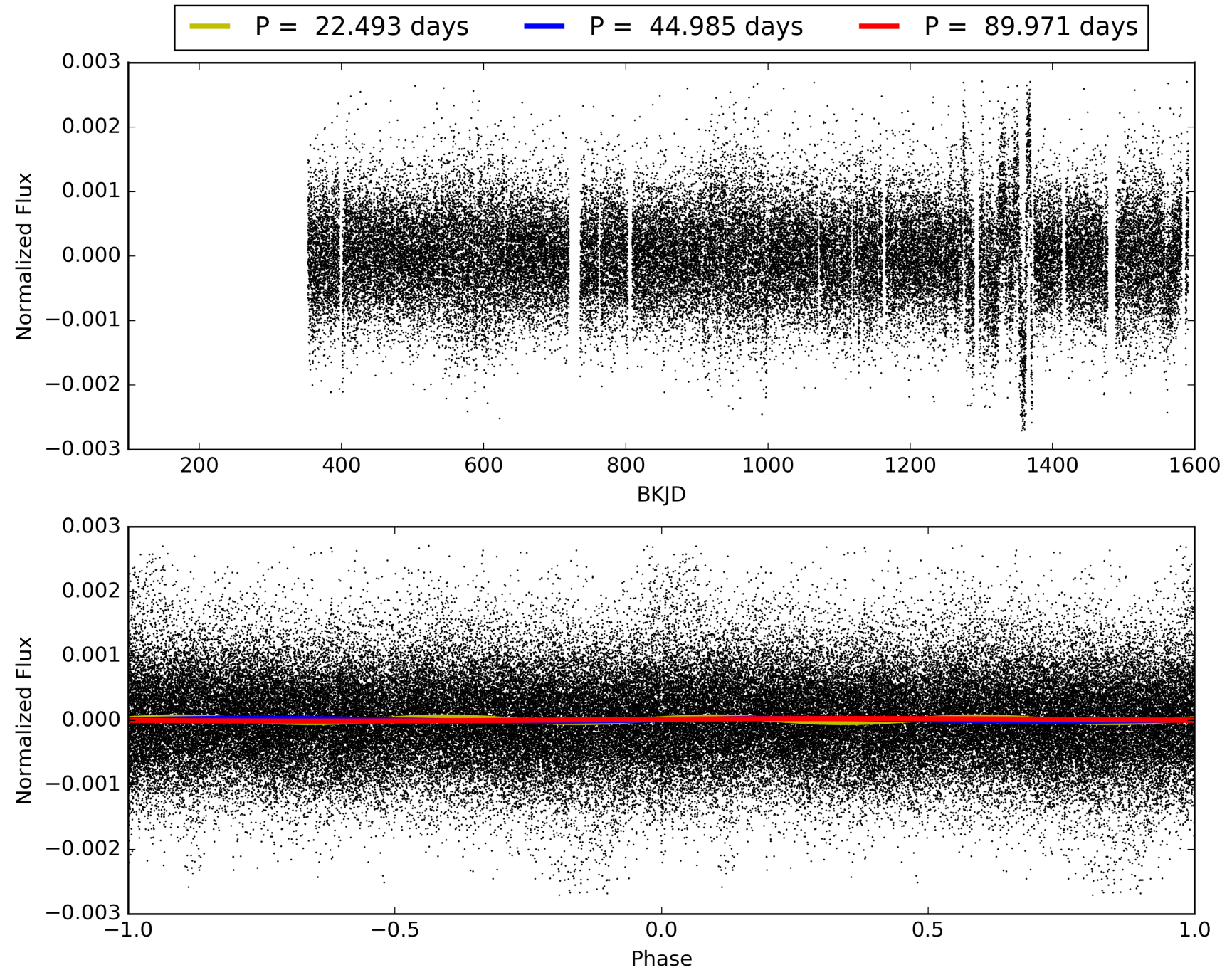
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:26:47 Z

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

TCE 009100953-02, PDC Light Curves

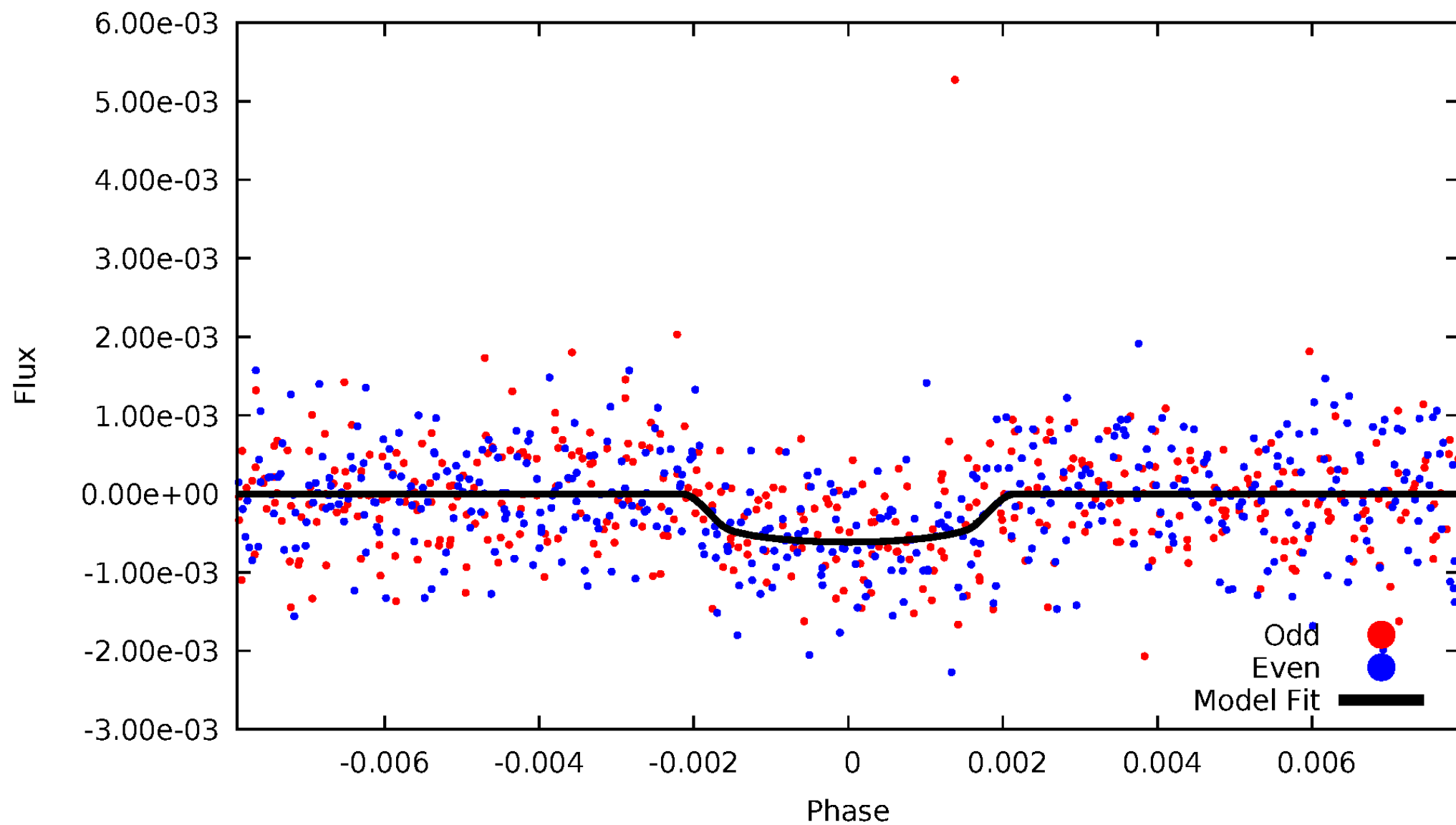


TCE 009100953-02



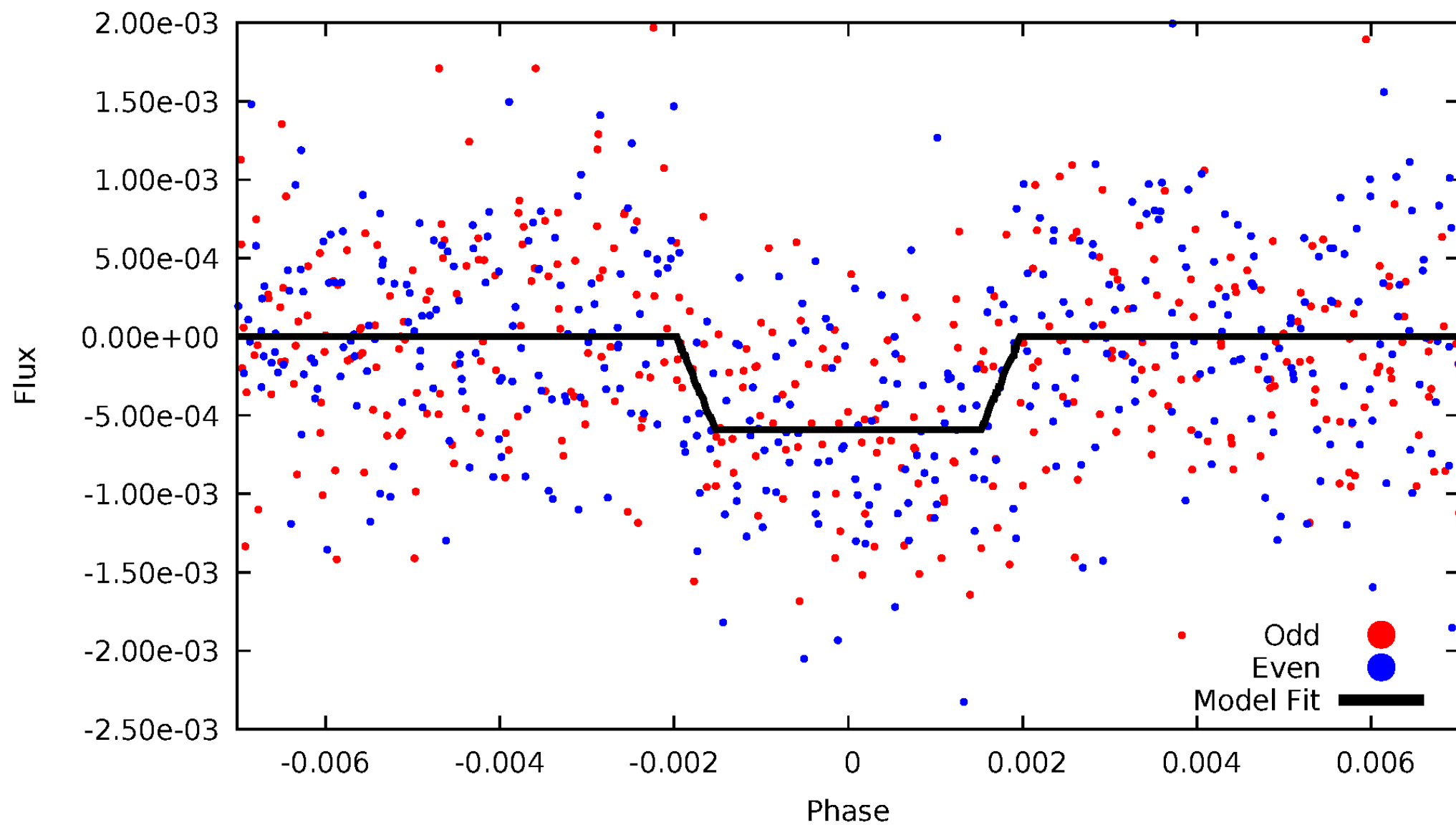
DV Odd/Even

TCE 009100953-02



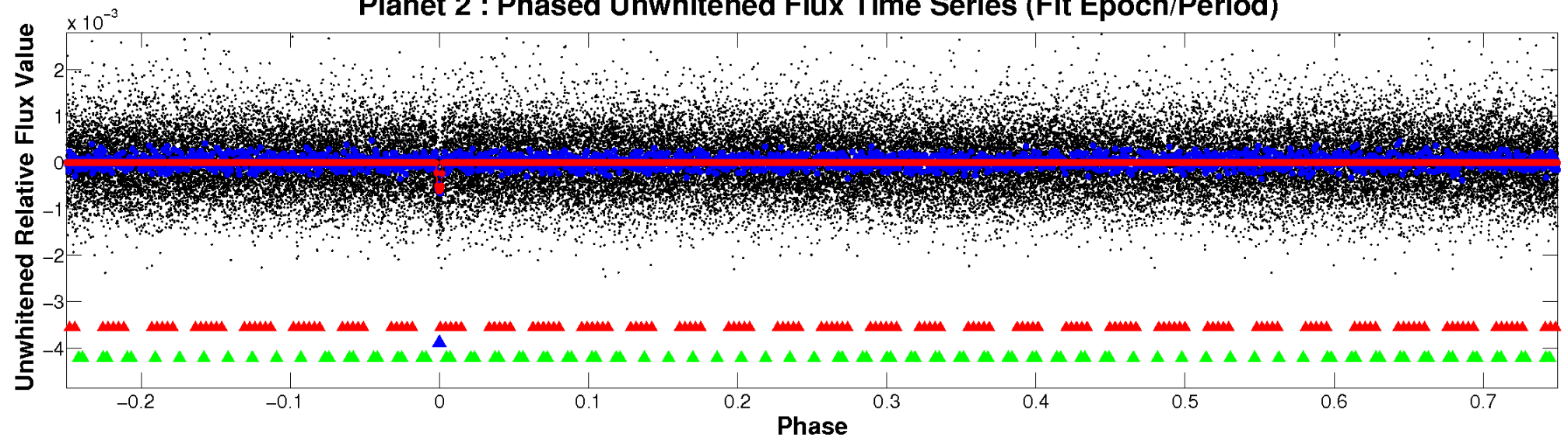
ALT Odd/Even

TCE 009100953-02

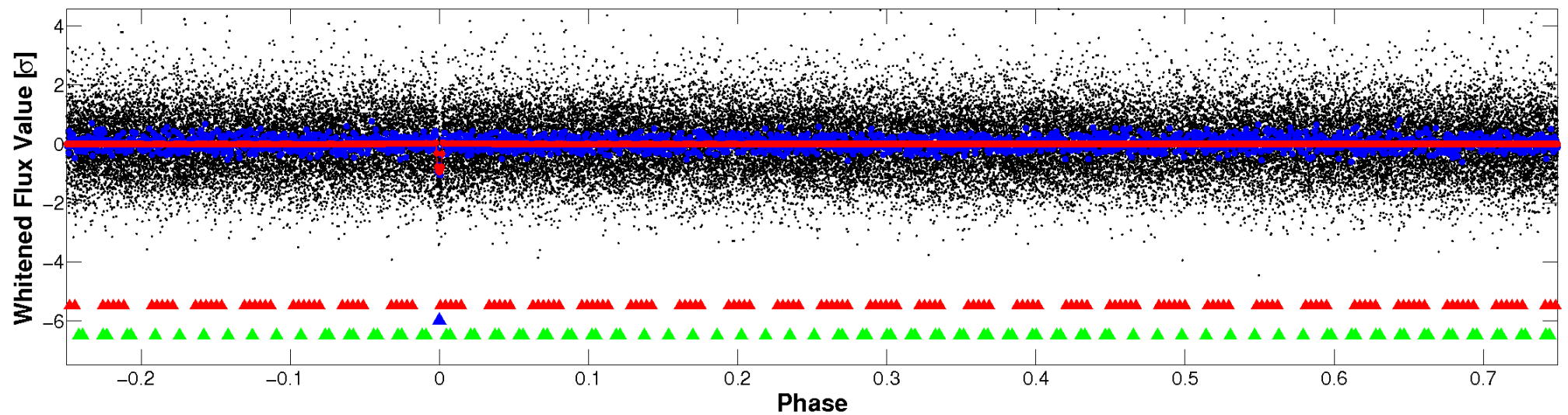


Non-Whitened Vs. Whitened Light Curve

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

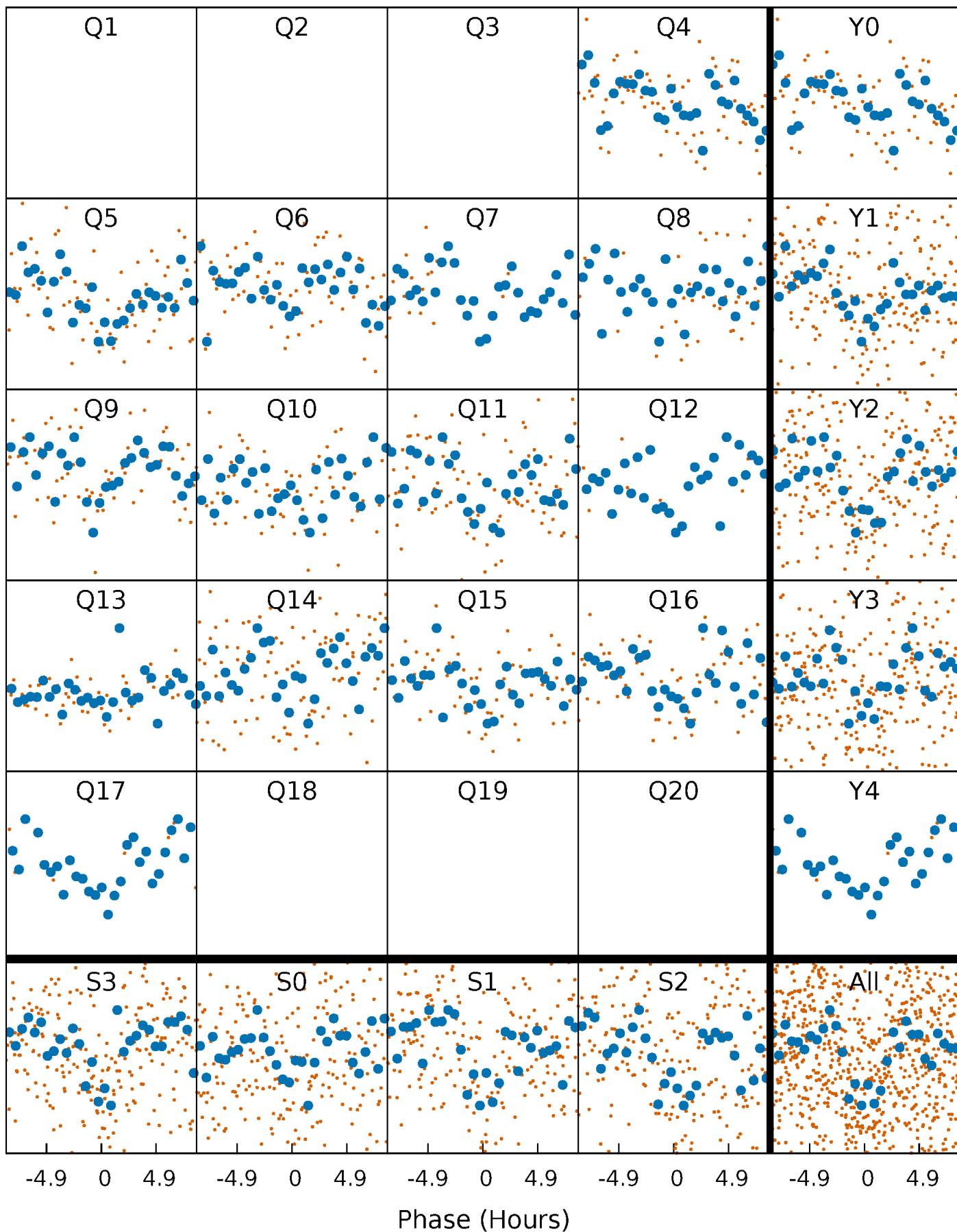


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



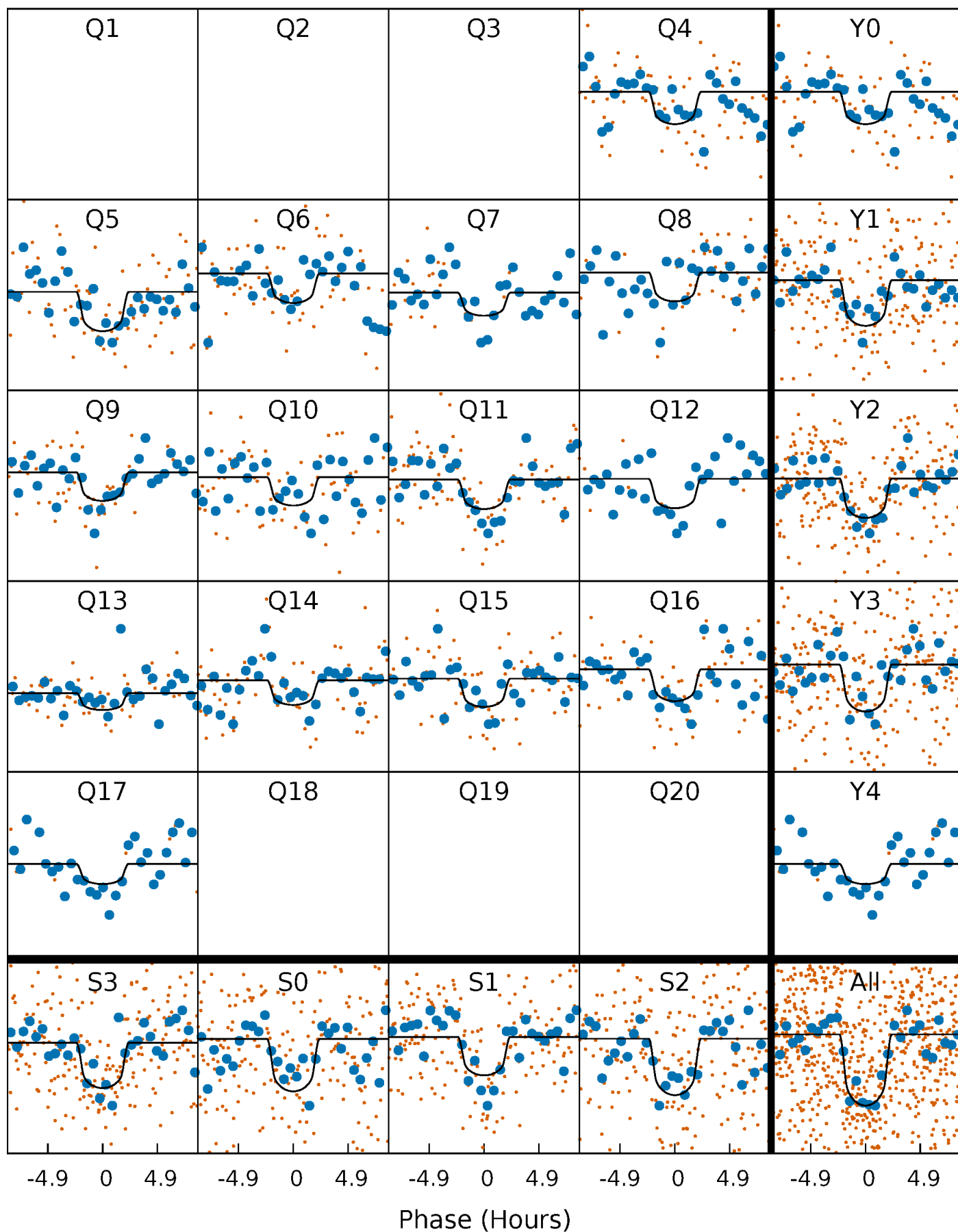
PDC Quarter-Phased Transit Curves

TCE 009100953-02 P= 44.985308 Days $T_0=150.566761$ (BKJD)



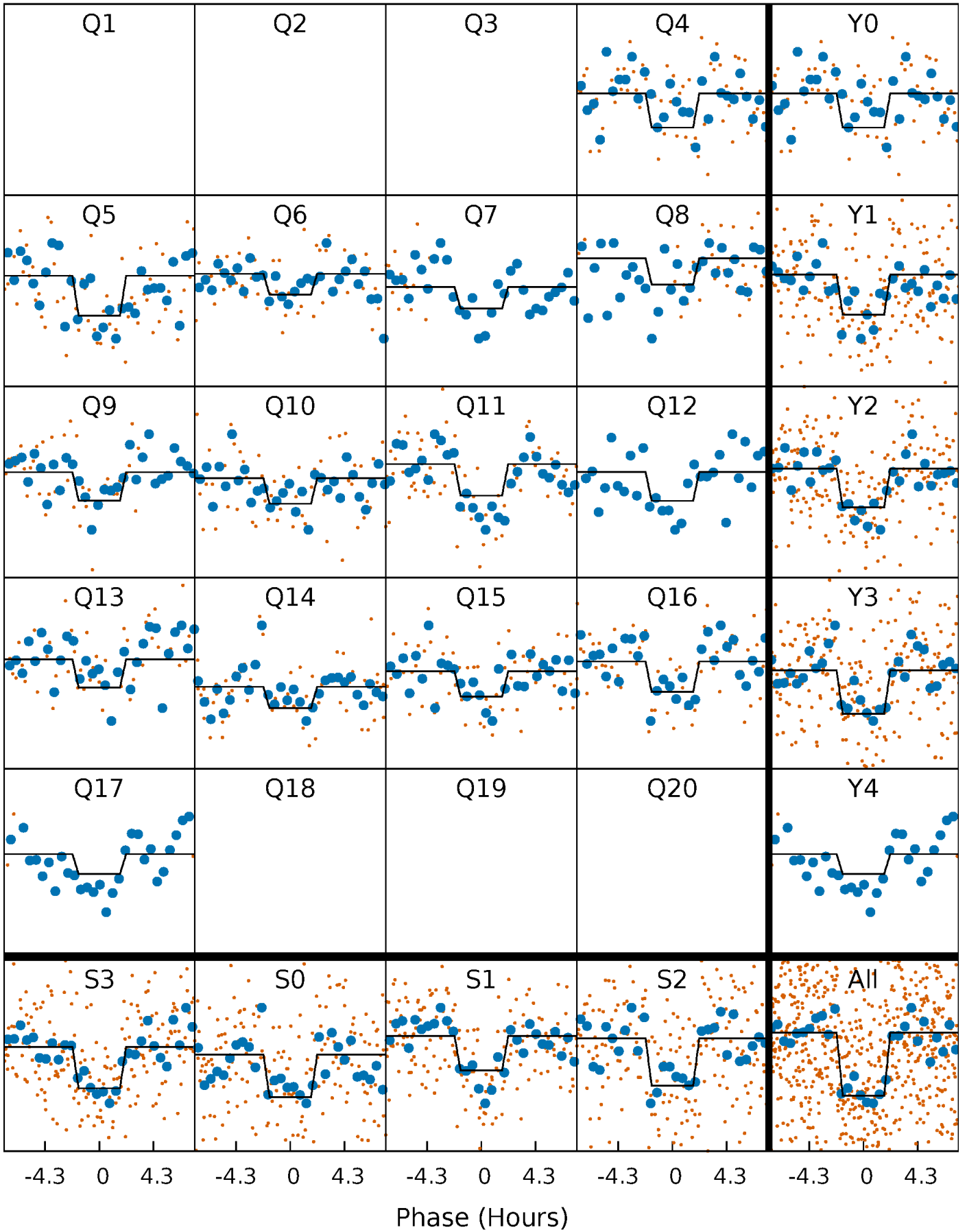
DV Quarter-Phased Transit Curves

TCE 009100953-02 P= 44.985308 Days $T_0=150.566761$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

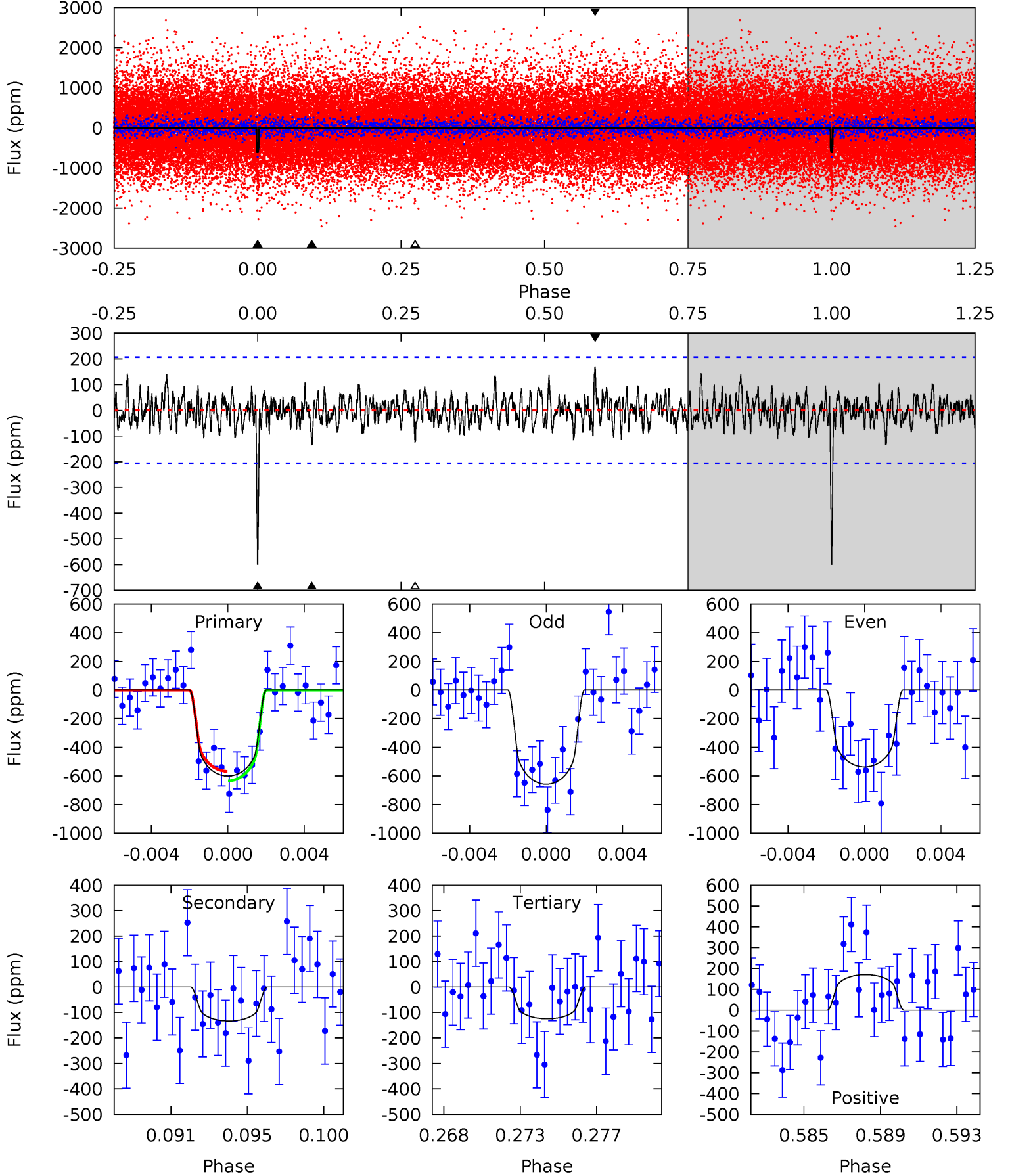
TCE 009100953-02 P= 44.985404 Days $T_0=150.565384$ (BKJD)



DV Model-Shift Uniqueness Test

009100953-02, P = 44.985308 Days, E = 150.566761 Days

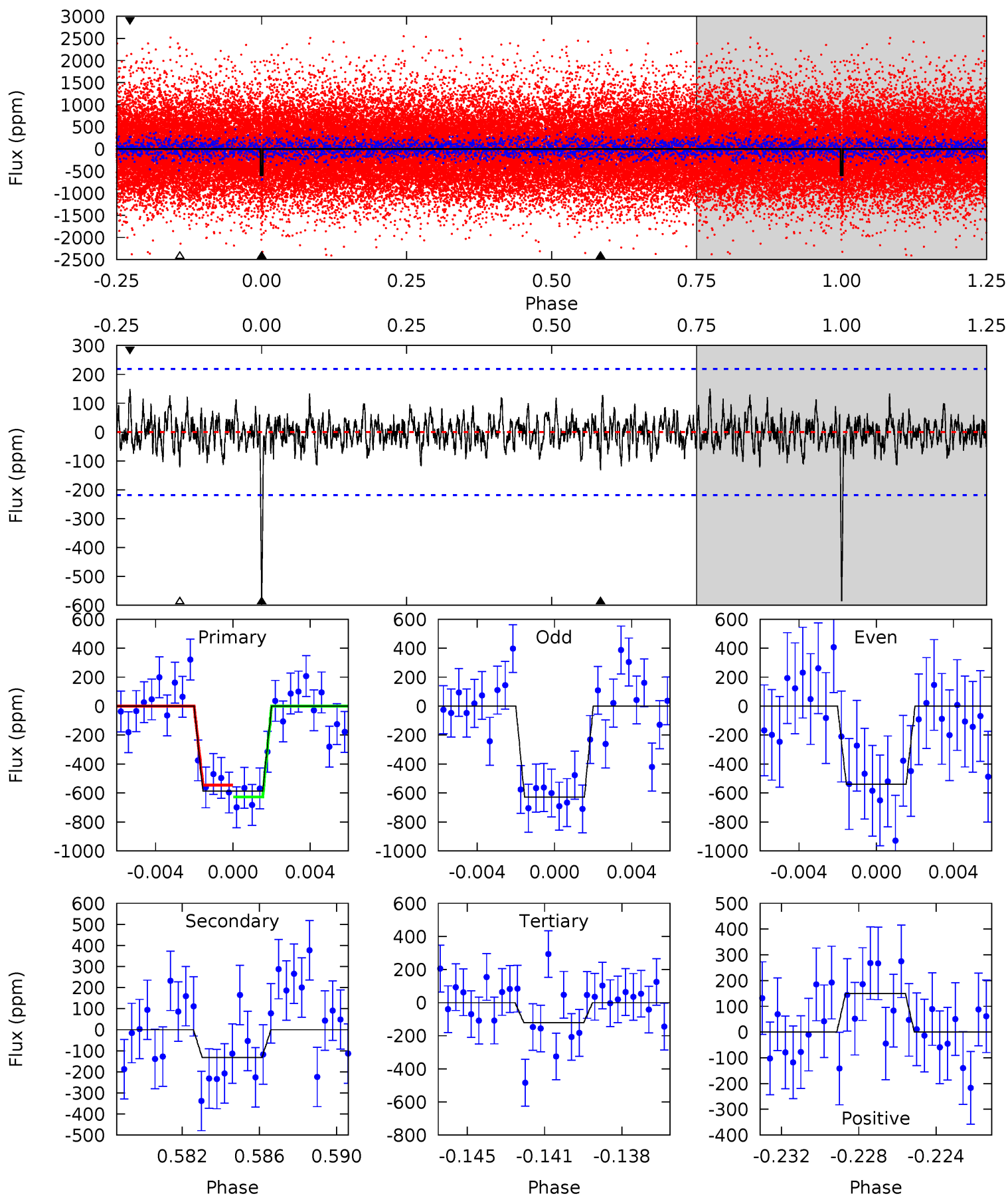
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	3.34	3.13	4.28	5.18	2.85	1.13	11.9	10.8	0.22	-0.94	1.52	0.90	0.22	0.83



Alt Model-Shift Uniqueness Test

009100953-02, P = 44.985404 Days, E = 150.565384 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	3.15	2.88	3.56	5.20	2.88	0.99	11.1	10.4	0.27	-0.41	1.05	0.91	0.20	0.98



Stellar Parameters For KIC 009100953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5295^{+185}_{-185}	$4.548^{+0.052}_{-0.097}$	$-0.100^{+0.300}_{-0.300}$	$0.800^{+0.133}_{-0.082}$	$0.825^{+0.096}_{-0.078}$	$2.266^{+0.534}_{-0.738}$
	+3%/-3%	+1%/-2%	+300%/-300%	+17%/-10%	+12%/-9%	+24%/-33%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009100953-02 / KOI 4500.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-133 ± 40	$2.36^{+1.47}_{-1.22}$	610^{+30}_{-25}	3809^{+1152}_{-595}	695^{+2022}_{-462}
Alt.	-132 ± 42	$2.31^{+1.46}_{-1.25}$	613^{+26}_{-27}	3809^{+1291}_{-557}	665^{+2646}_{-414}

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 $A_{obs} \gg 1.0$

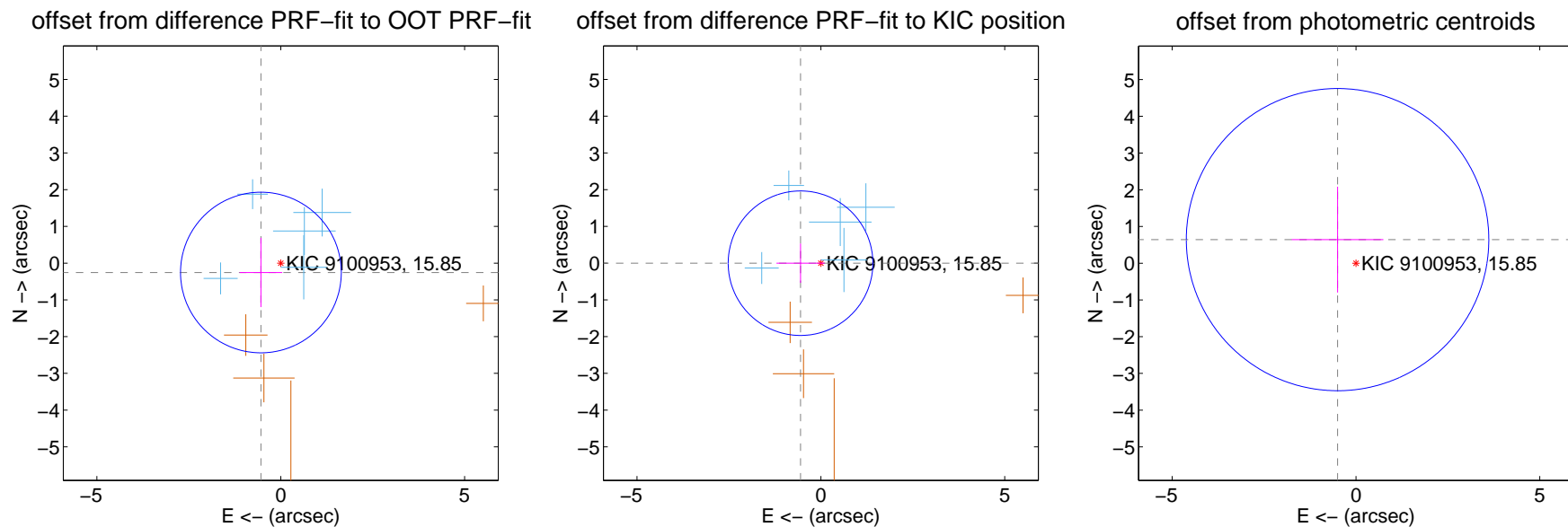
DV Centroid Data

Supplemental centroid analysis for 009100953-02. Kepler magnitude: 15.85. Transit SNR 11.59

There are 5 quarters with good PRF difference image offsets

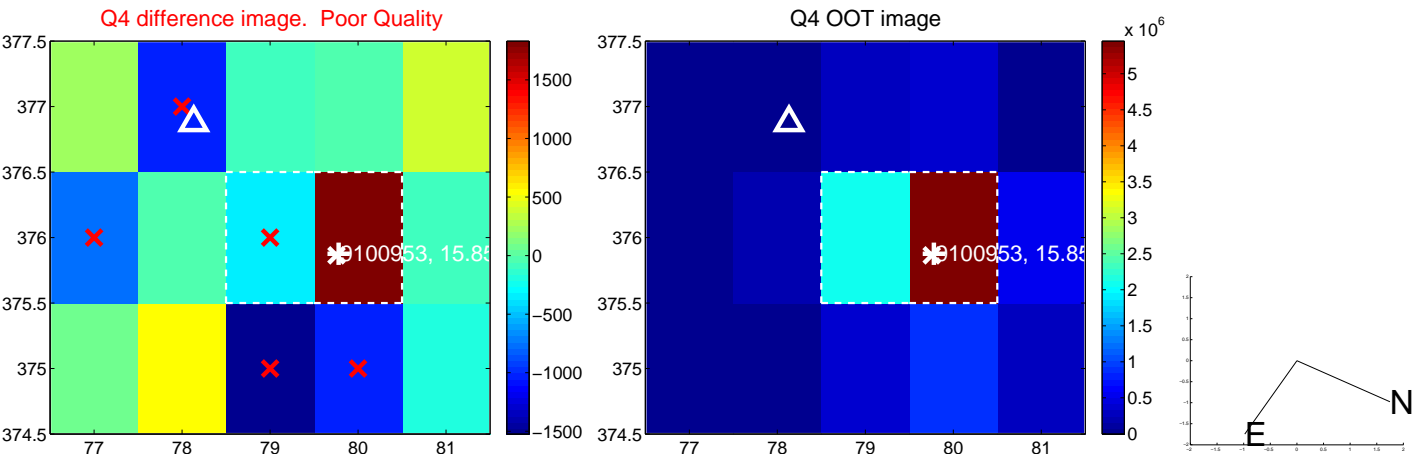
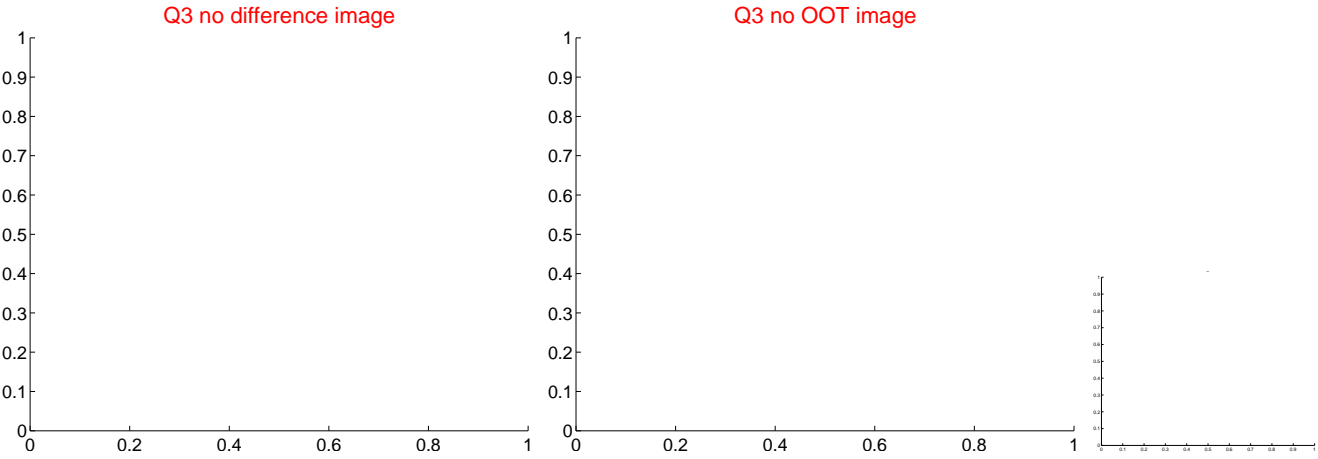
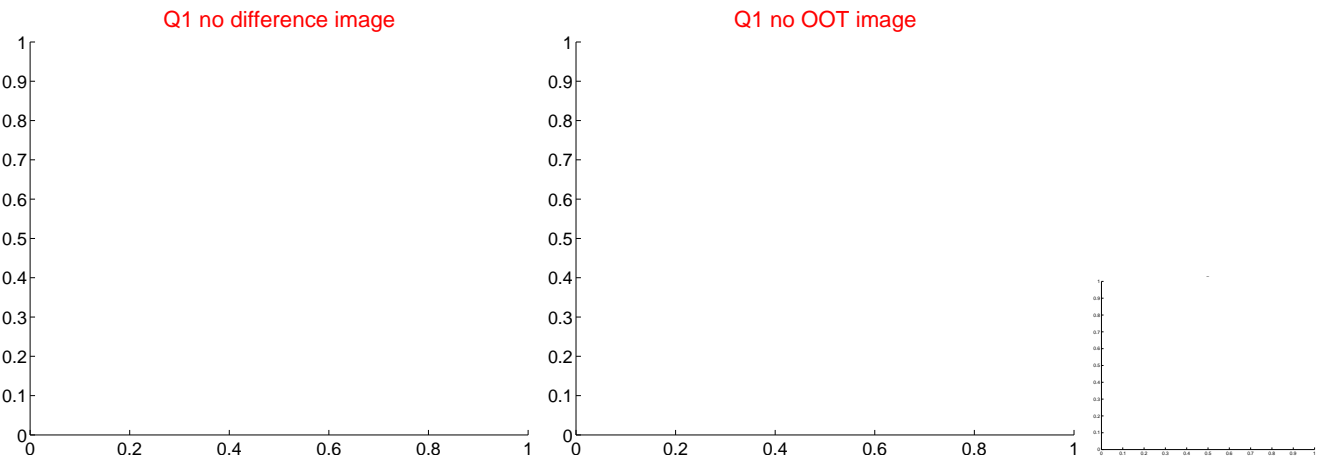
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.597 ± 0.729	0.82	0.540 ± 0.580	-0.255 ± 0.942
PRF-fit source offset from KIC position	0.553 ± 0.656	0.84	0.553 ± 0.656	-0.002 ± 0.535
photometric centroid source offset	0.81 ± 1.37	0.59	0.50 ± 1.25	0.64 ± 1.44

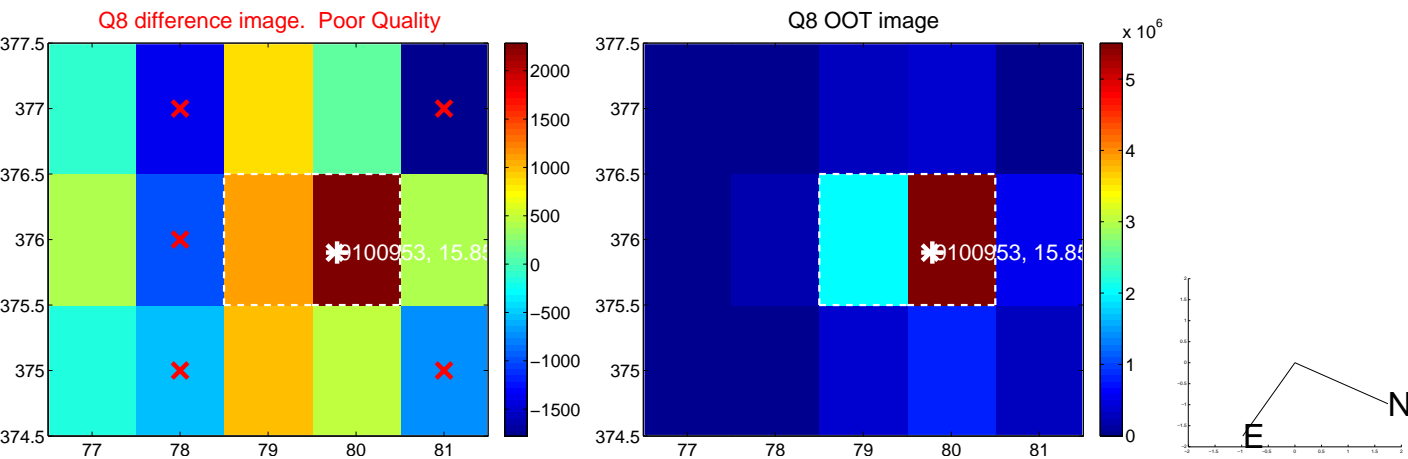
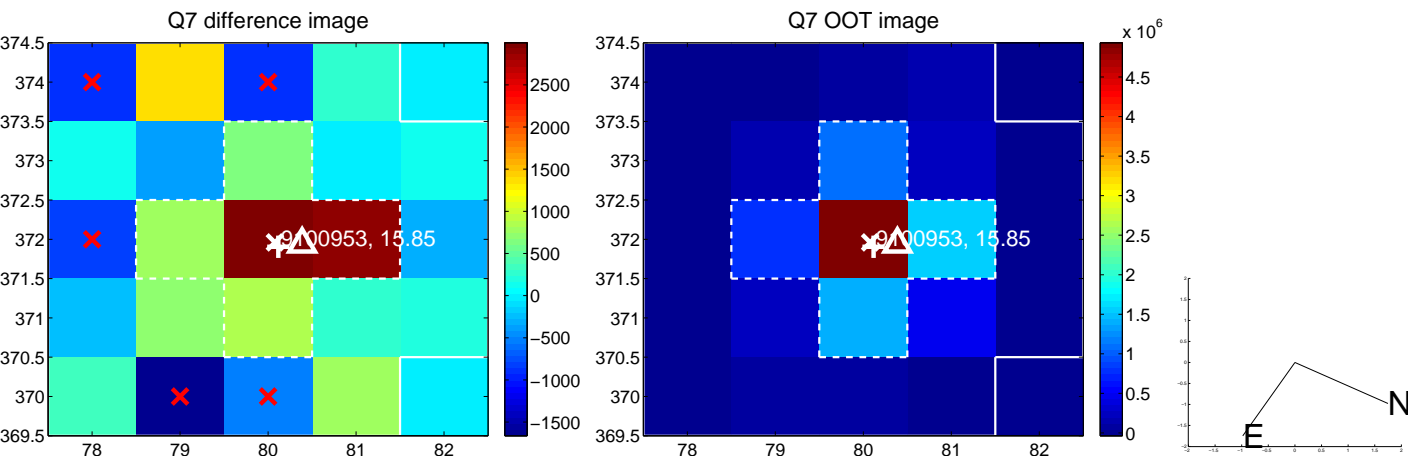
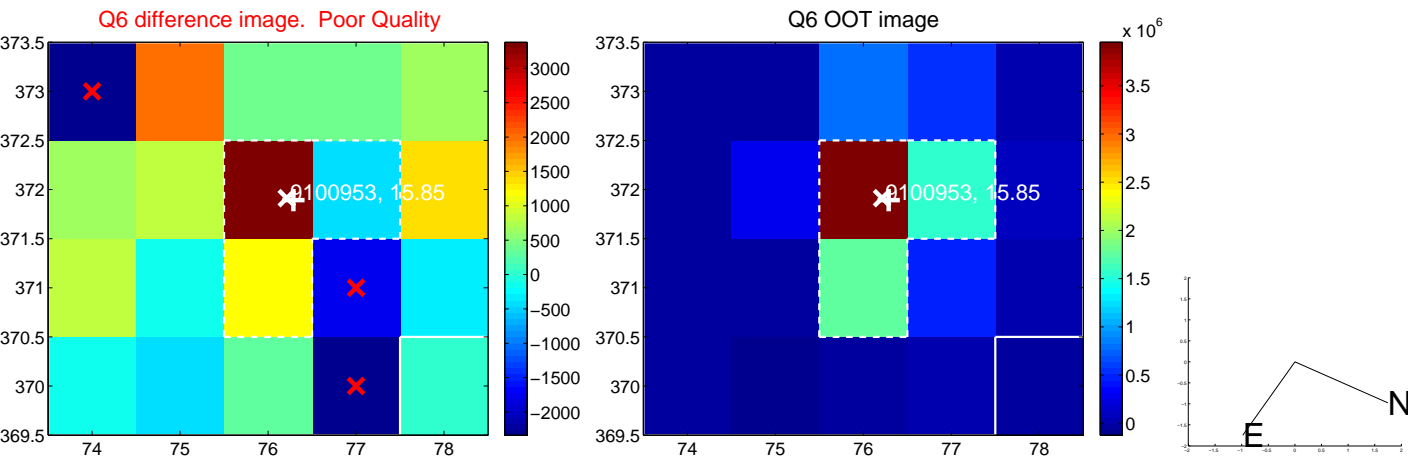
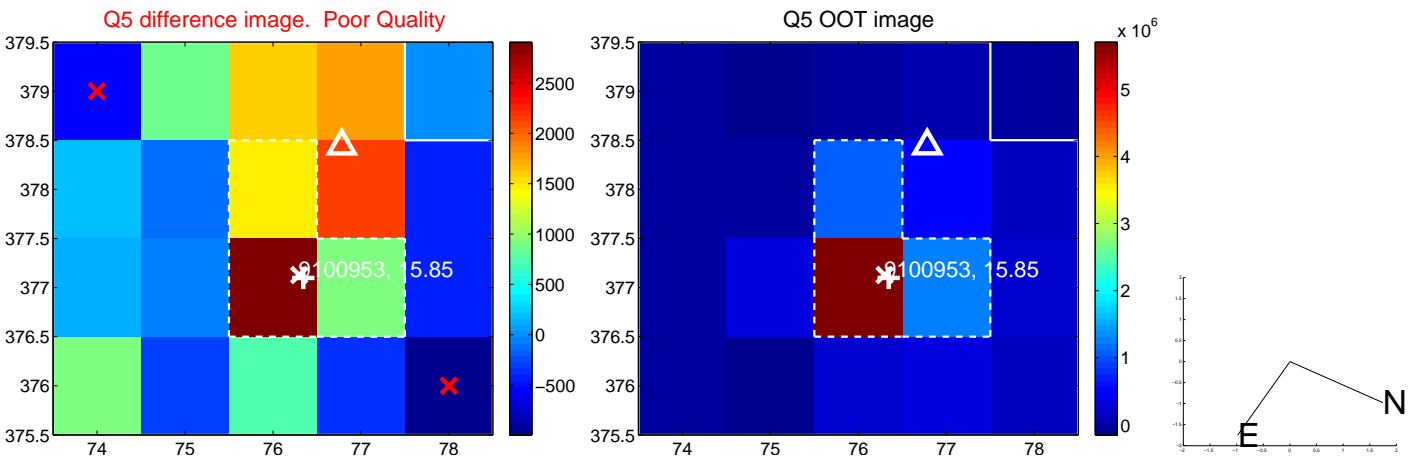


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

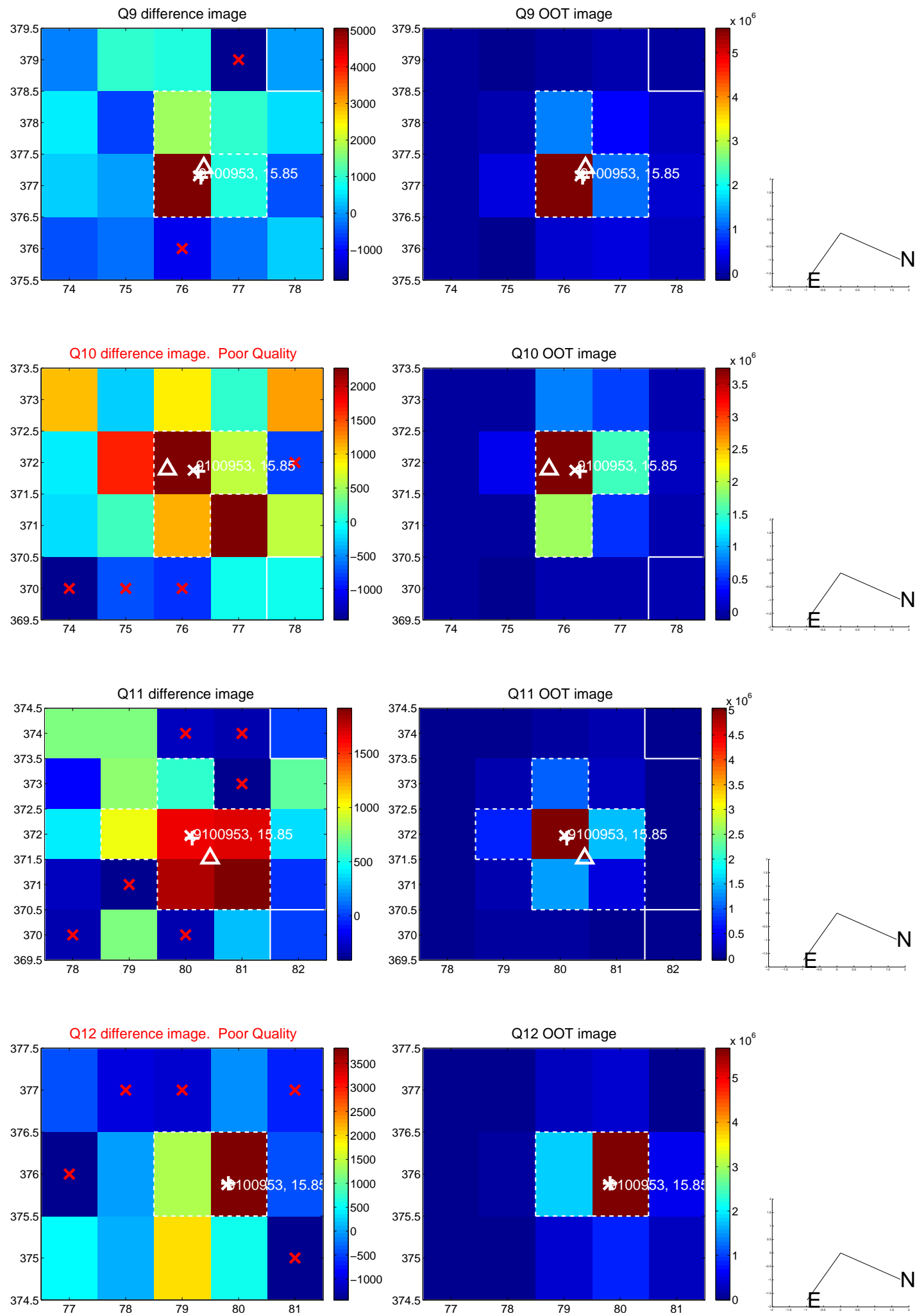
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



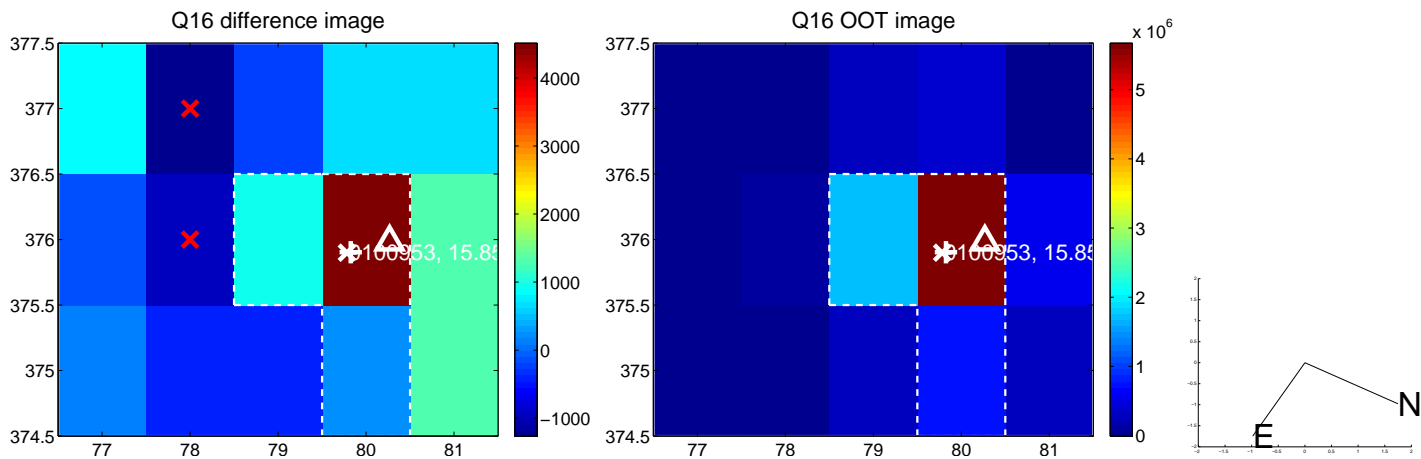
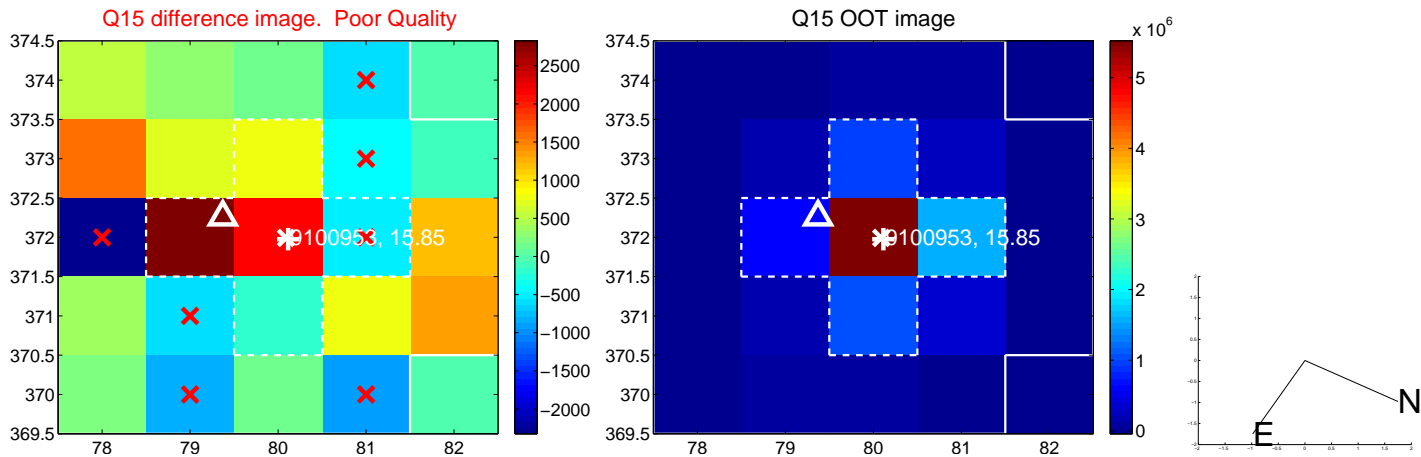
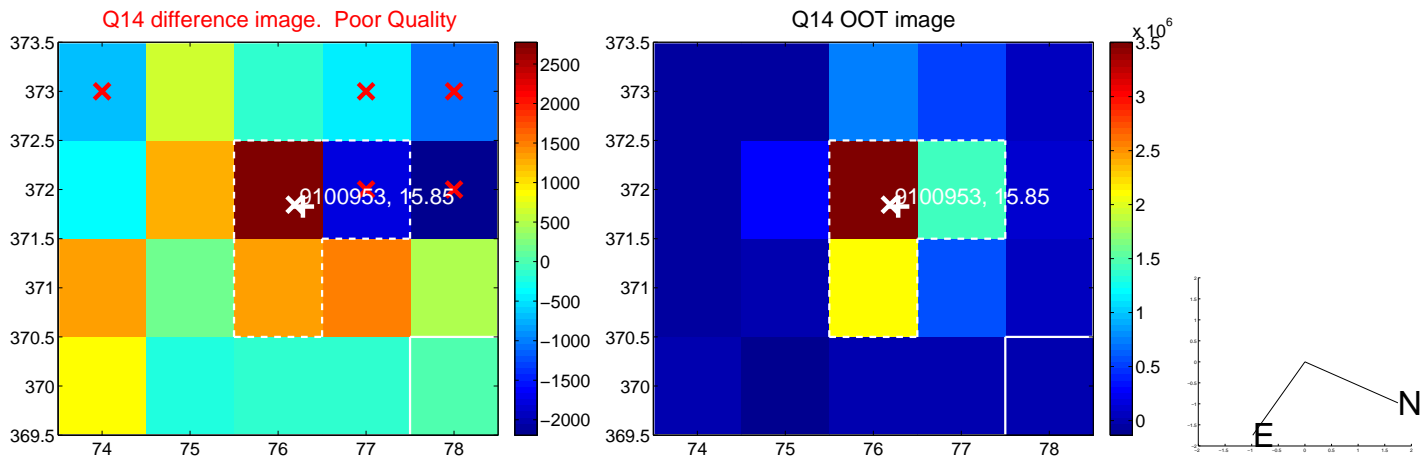
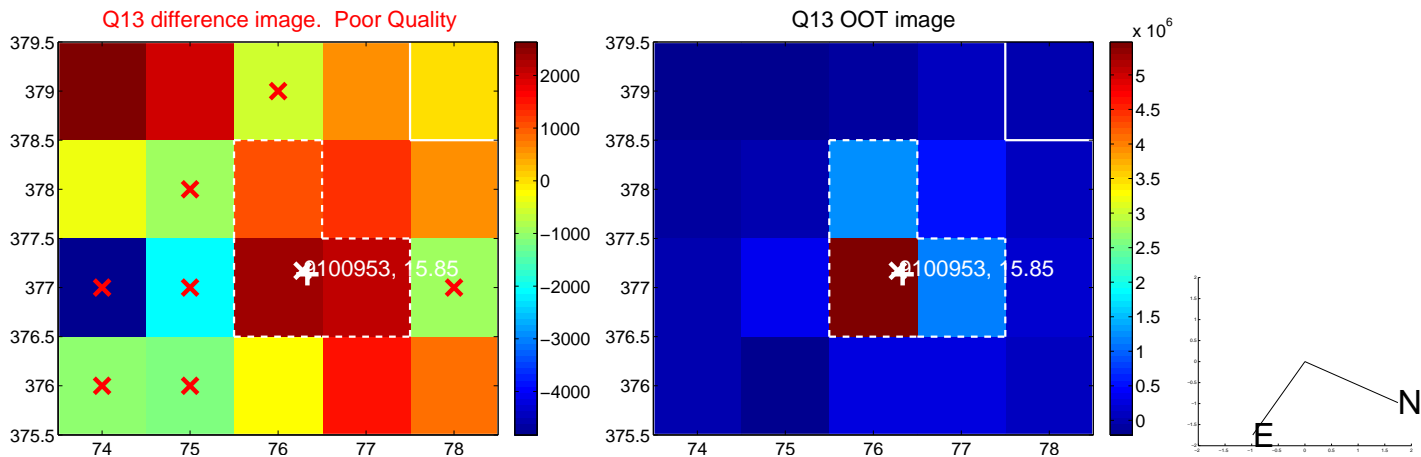
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



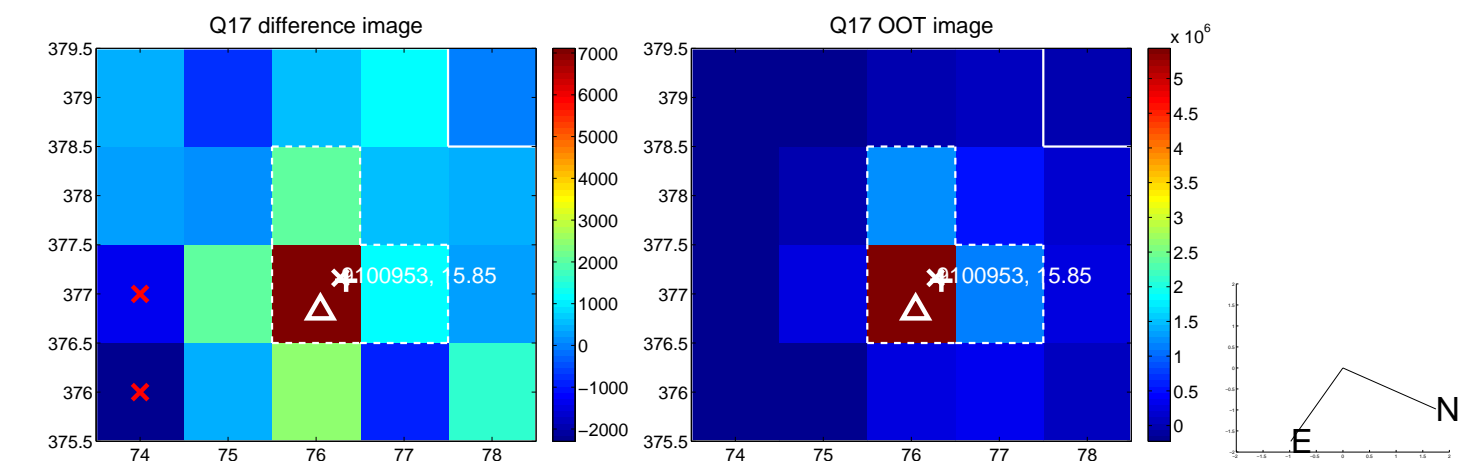
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



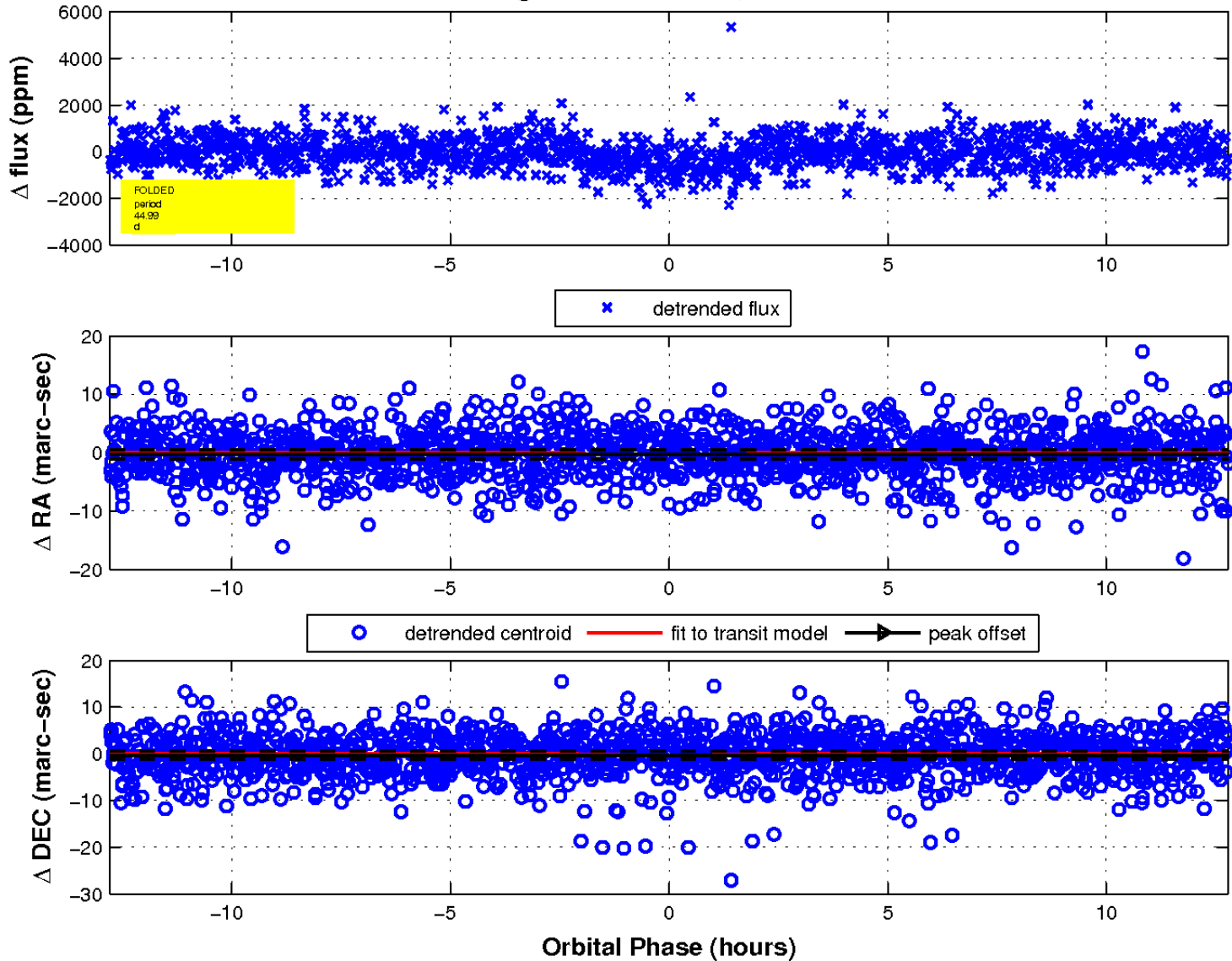
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

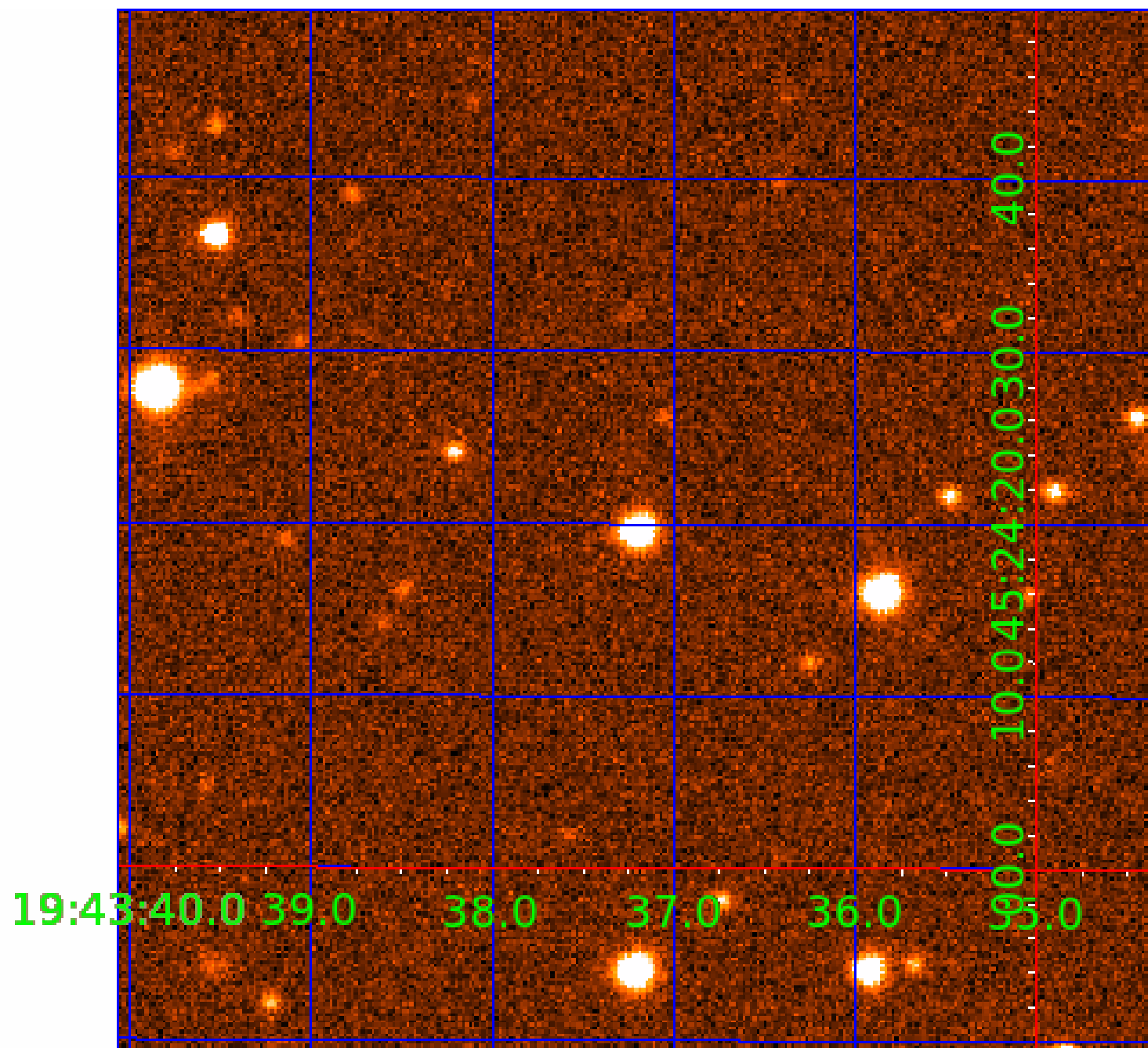


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 009100953

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})
009100953-01	OBS	4500.01	8.701737	138.252487	303.1	3.197	10.9	11.4	0.80	5295	1.68	74.75
009100953-02	OBS	4500.02	44.985308	150.566761	616.0	4.266	10.7	11.6	0.80	5295	2.21	8.36
009100953-03	OBS	4500.03	14.751162	141.152253	375.1	2.645	8.6	9.2	0.80	5295	2.01	36.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009100953-01	OBS	PC	0.81	0	0	0	0	CENT_FEW_DIFFS
009100953-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009100953-03	OBS	PC	0.98	0	0	0	0	CENT_FEW_DIFFS

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 009100953-03

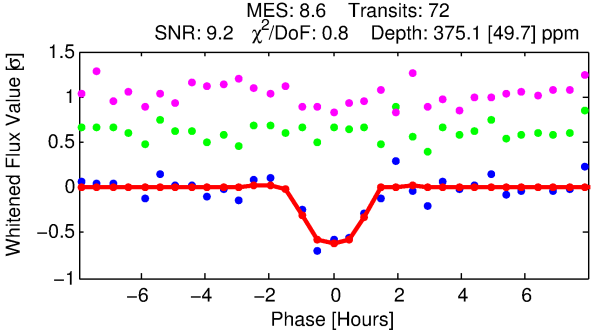
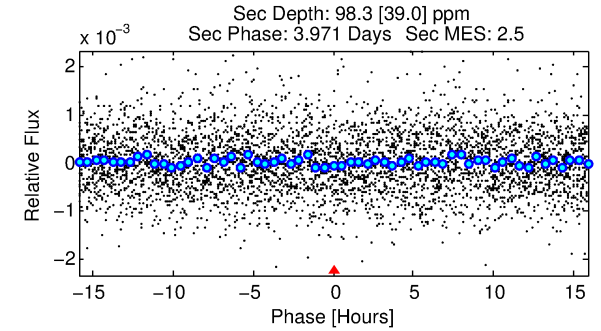
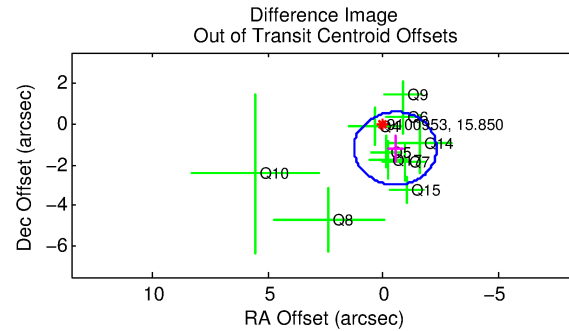
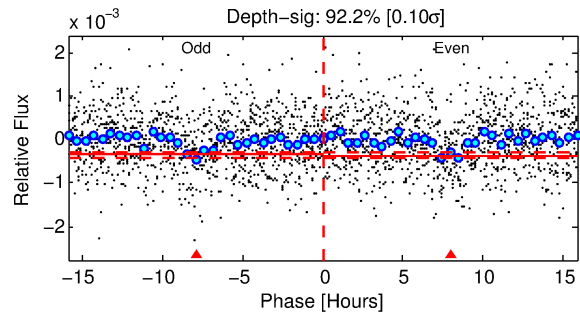
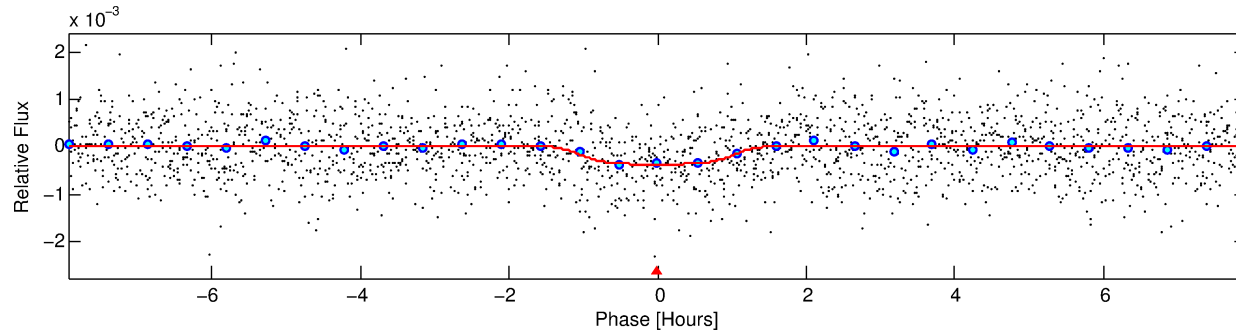
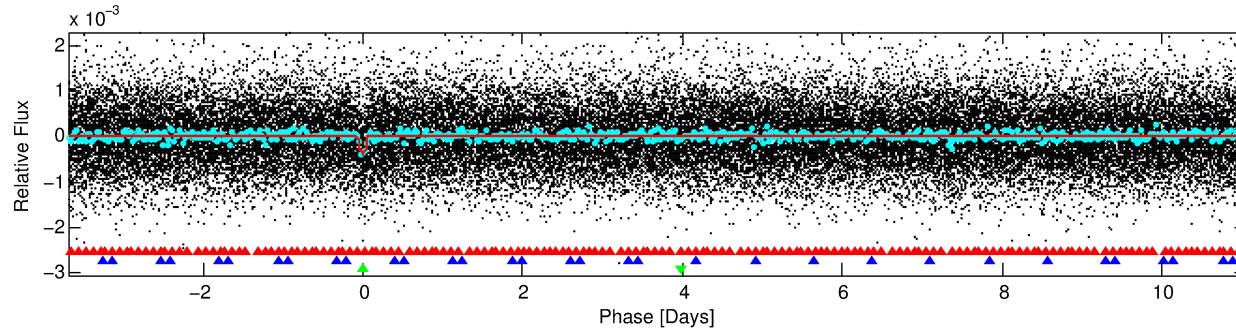
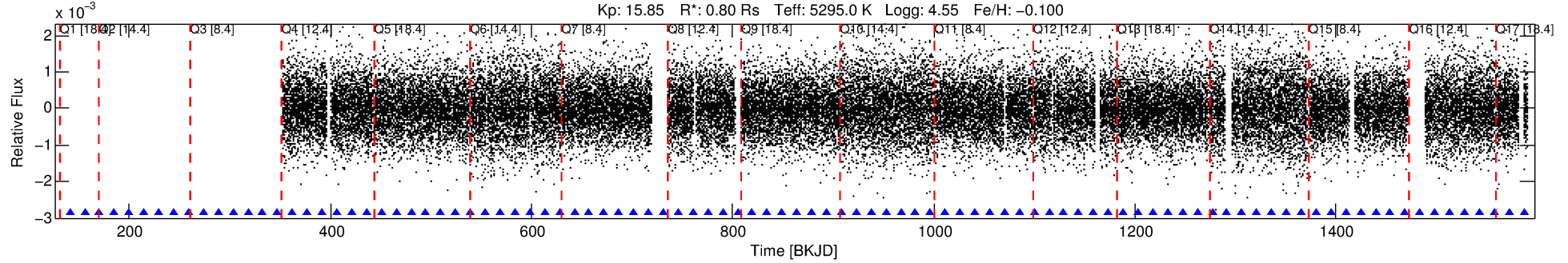
No Significant Match Found

DV One-Page Summary

KIC: 9100953 Candidate: 3 of 3 Period: 14.751 d

KOI: K04500.03 Corr: 0.878

Kp: 15.85 R*: 0.80 Rs Teff: 5295.0 K Logg: 4.55 Fe/H: -0.100



DV Fit Results:

Period = 14.75116 [0.00016] d
Epoch = 141.1523 [0.0095] BKJD
Rp/R* = 0.0231 [0.0047]
a/R* = 16.17 [13.02]
b = 0.95 [0.09]
Seff = 36.98 [8.59]
Teq = 629 [37] K
Rp = 2.01 [0.53] Re
a = 0.1104 [0.0147] AU
Ag = 162.76 [97.61] [1.66σ]
Teffp = 3473 [510] K [5.57σ]

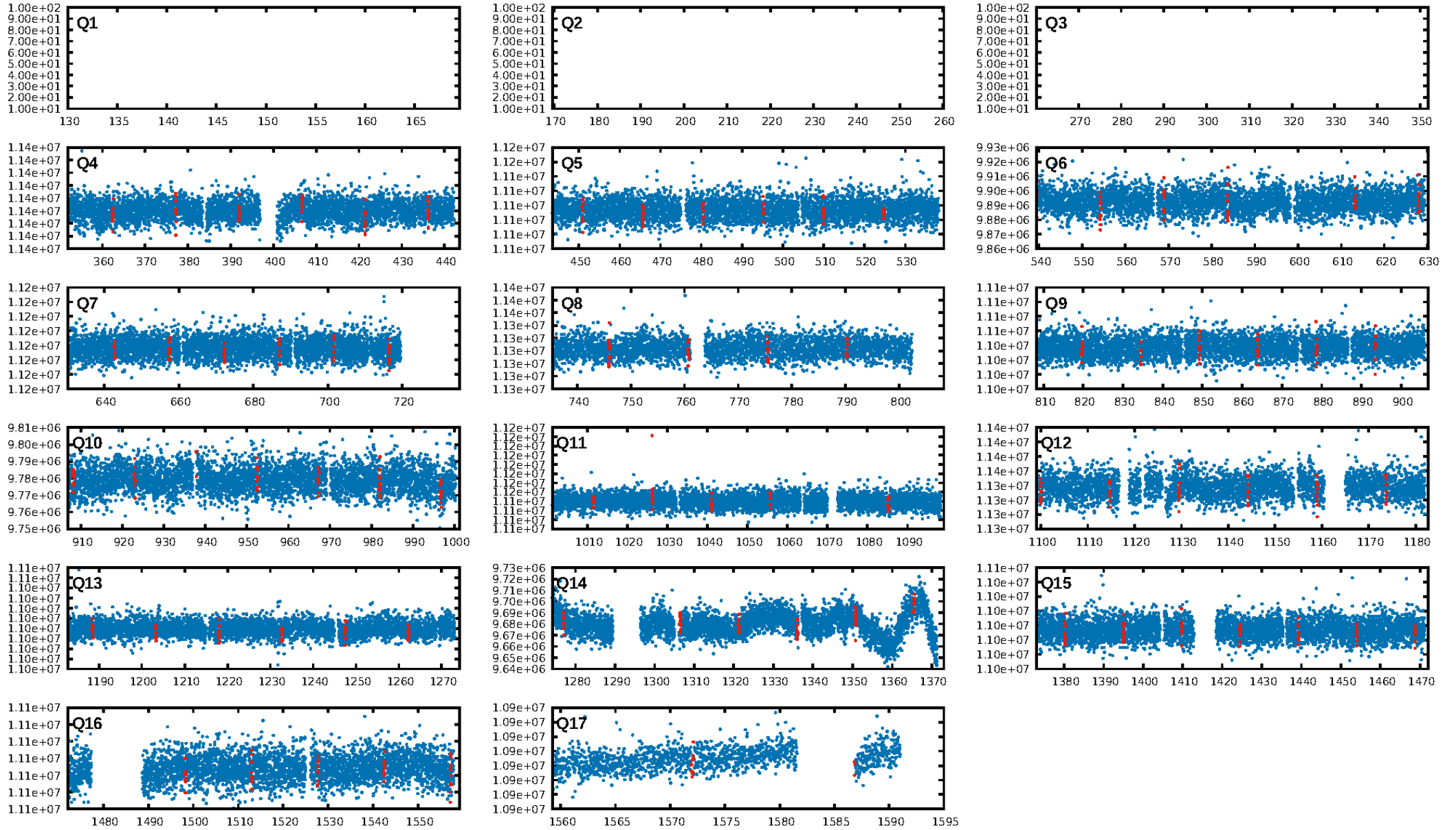
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.99σ]
LongPeriod-sig: 100.0% [144.57σ]
ModelChiSquare2-sig: 94.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.39e-18
RollingBand-fgt: 1.00 [71/71]
GhostDiagnostic-chr: 68.72
Centroid-sig: 24.6%
Centroid-so: 2.017 arcsec [1.15σ]
OotOffset-rm: 1.311 arcsec [2.20σ]
KicOffset-rm: 1.157 arcsec [1.93σ]
OotOffset-st: 3/2/2/3 [10]
KicOffset-st: 3/2/2/3 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 1.00 [14/14]

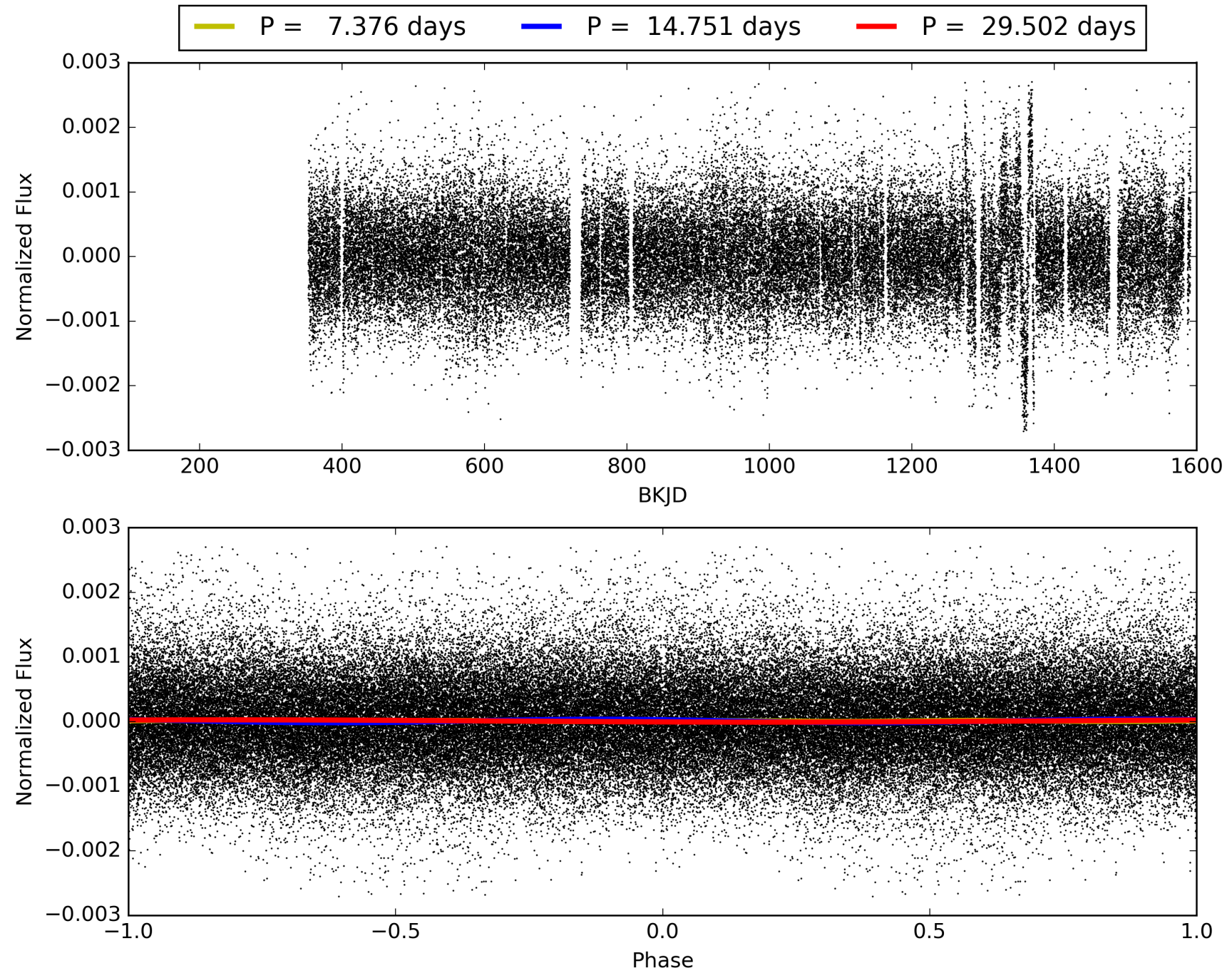
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:26:53 Z

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

TCE 009100953-03, PDC Light Curves

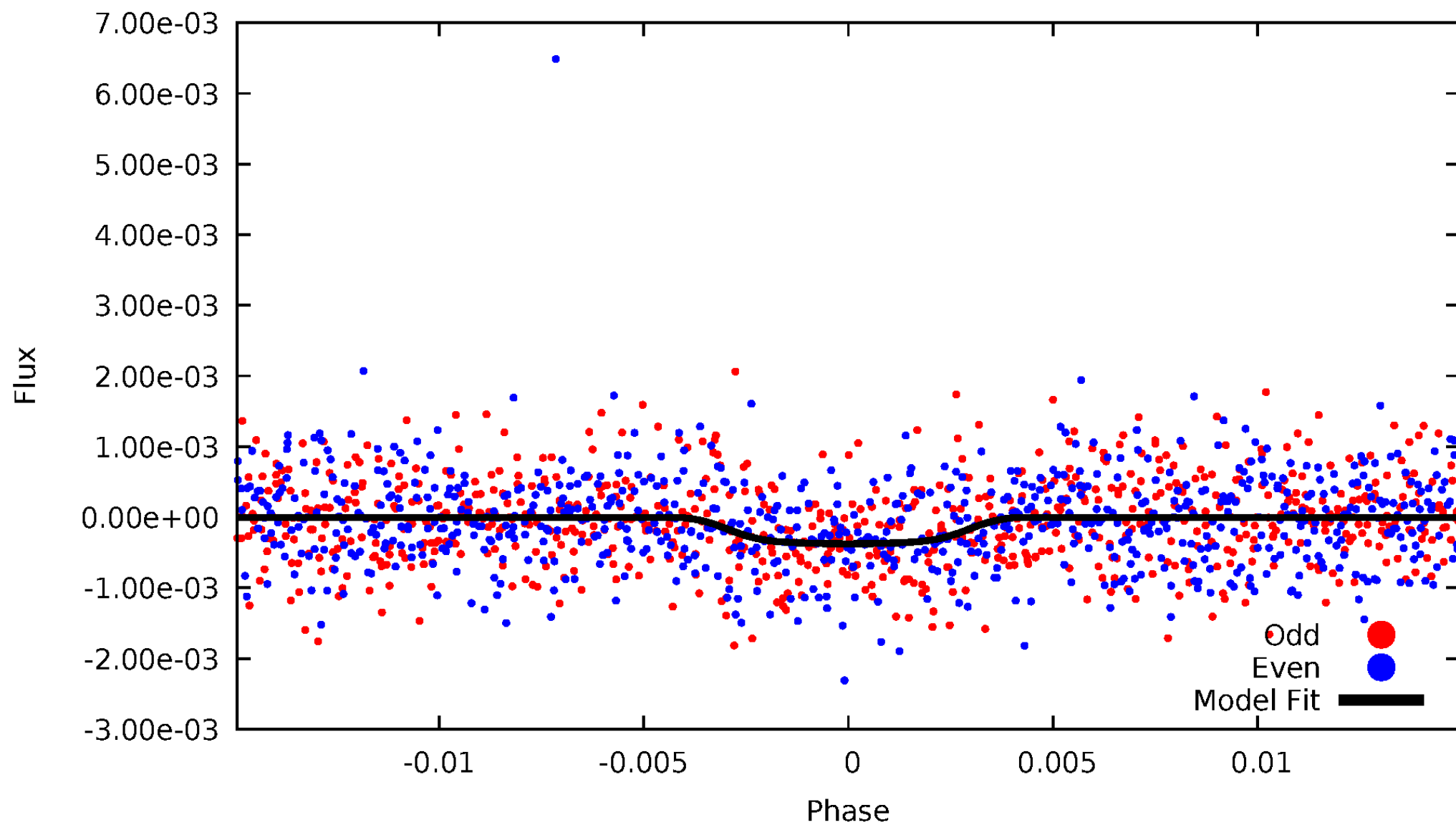


TCE 009100953-03



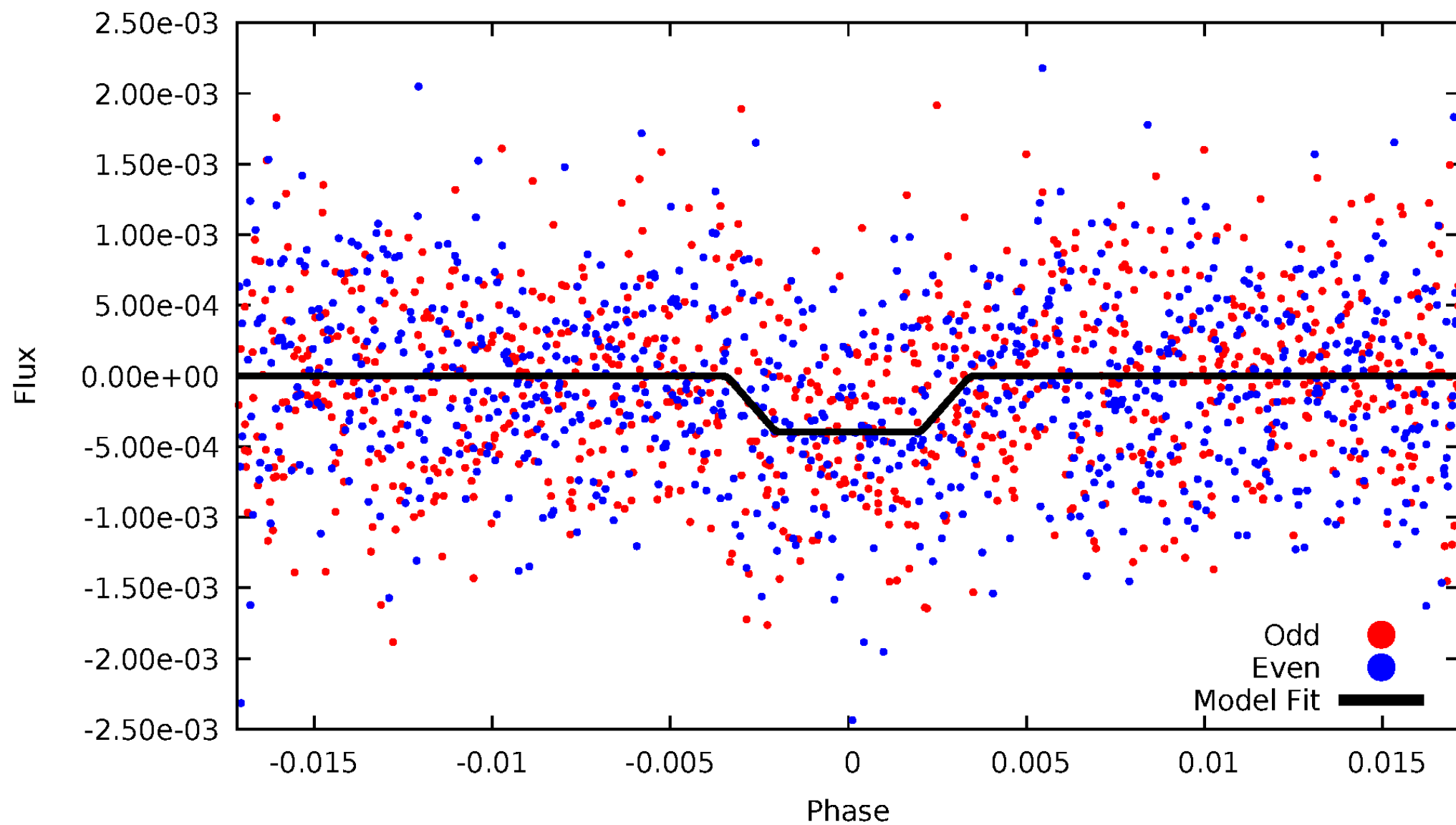
DV Odd/Even

TCE 009100953-03

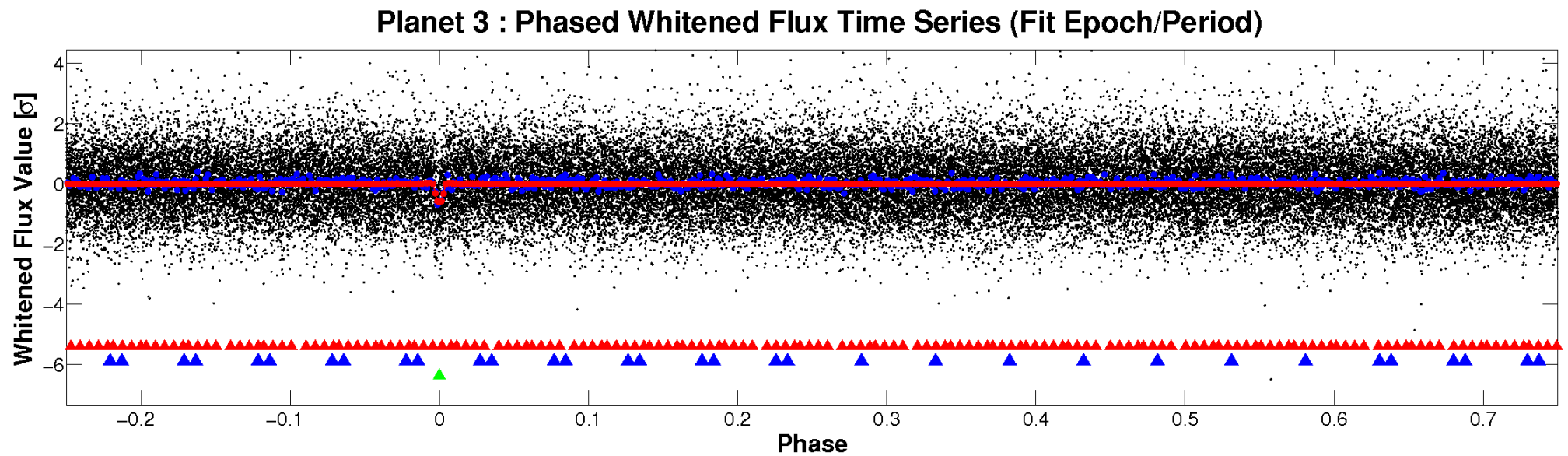
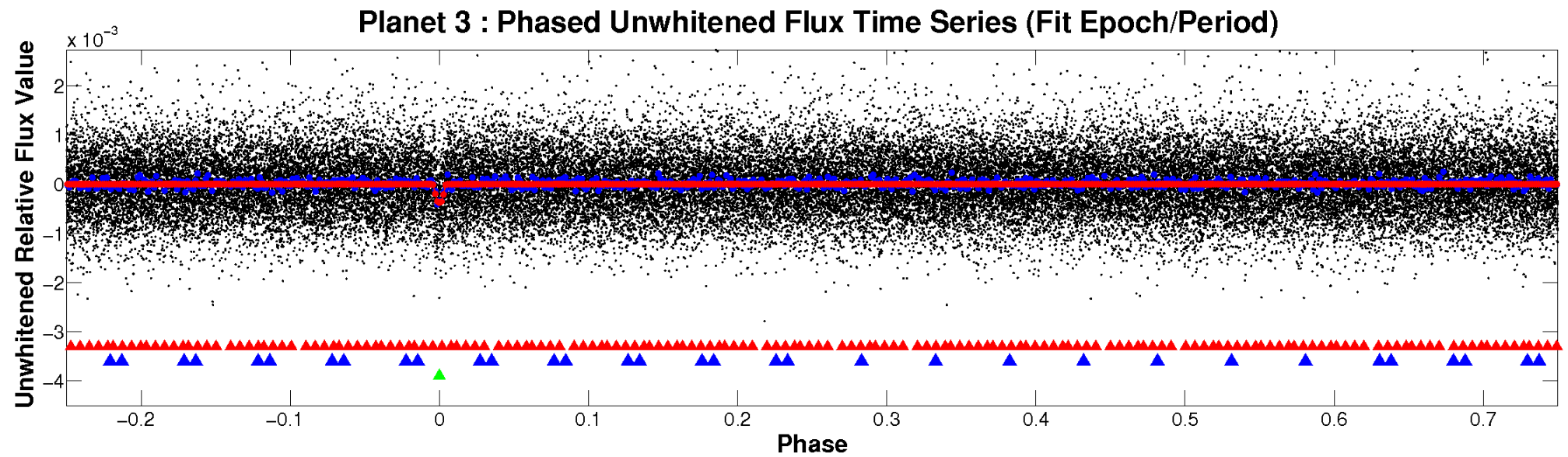


ALT Odd/Even

TCE 009100953-03

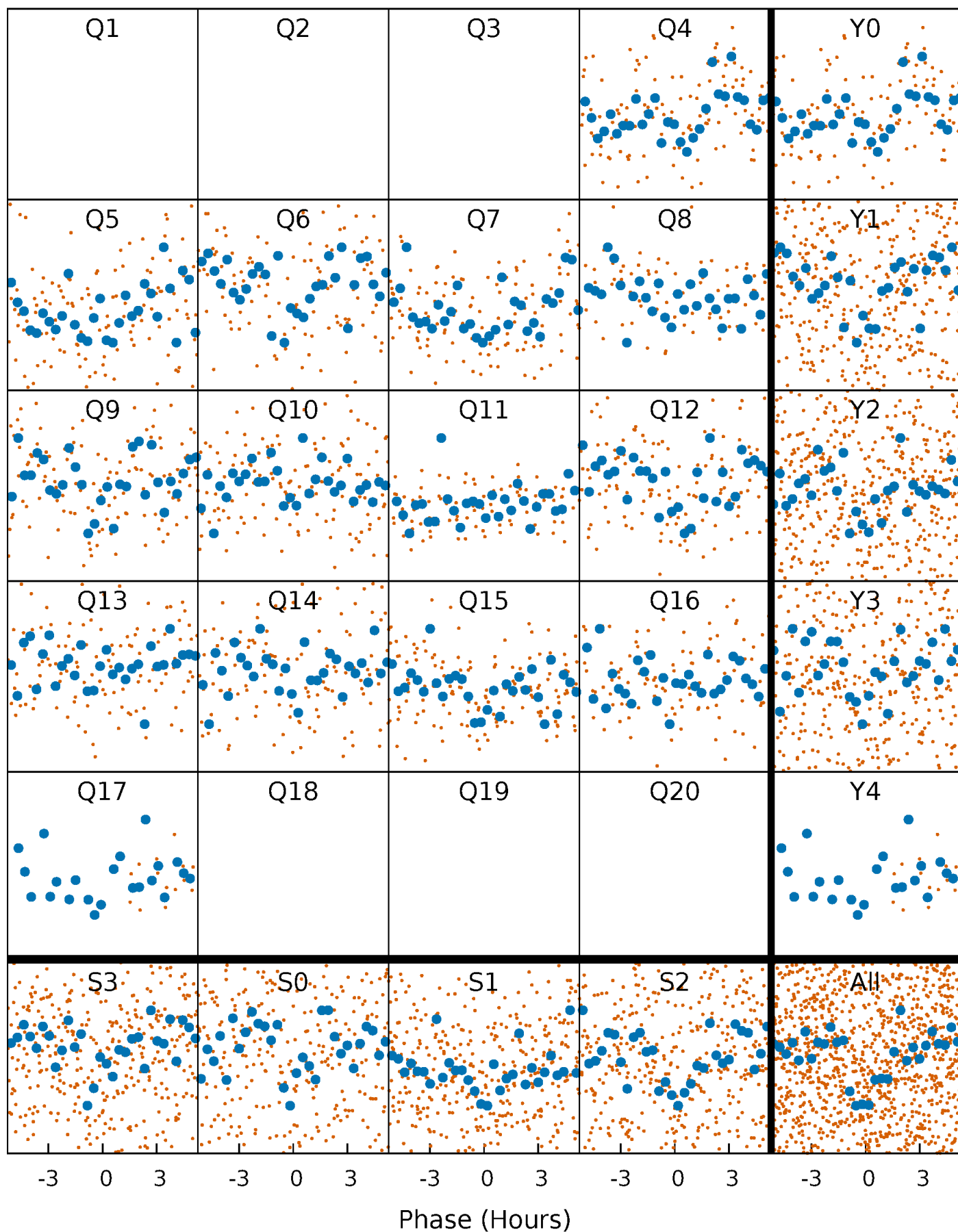


Non-Whitened Vs. Whitened Light Curve



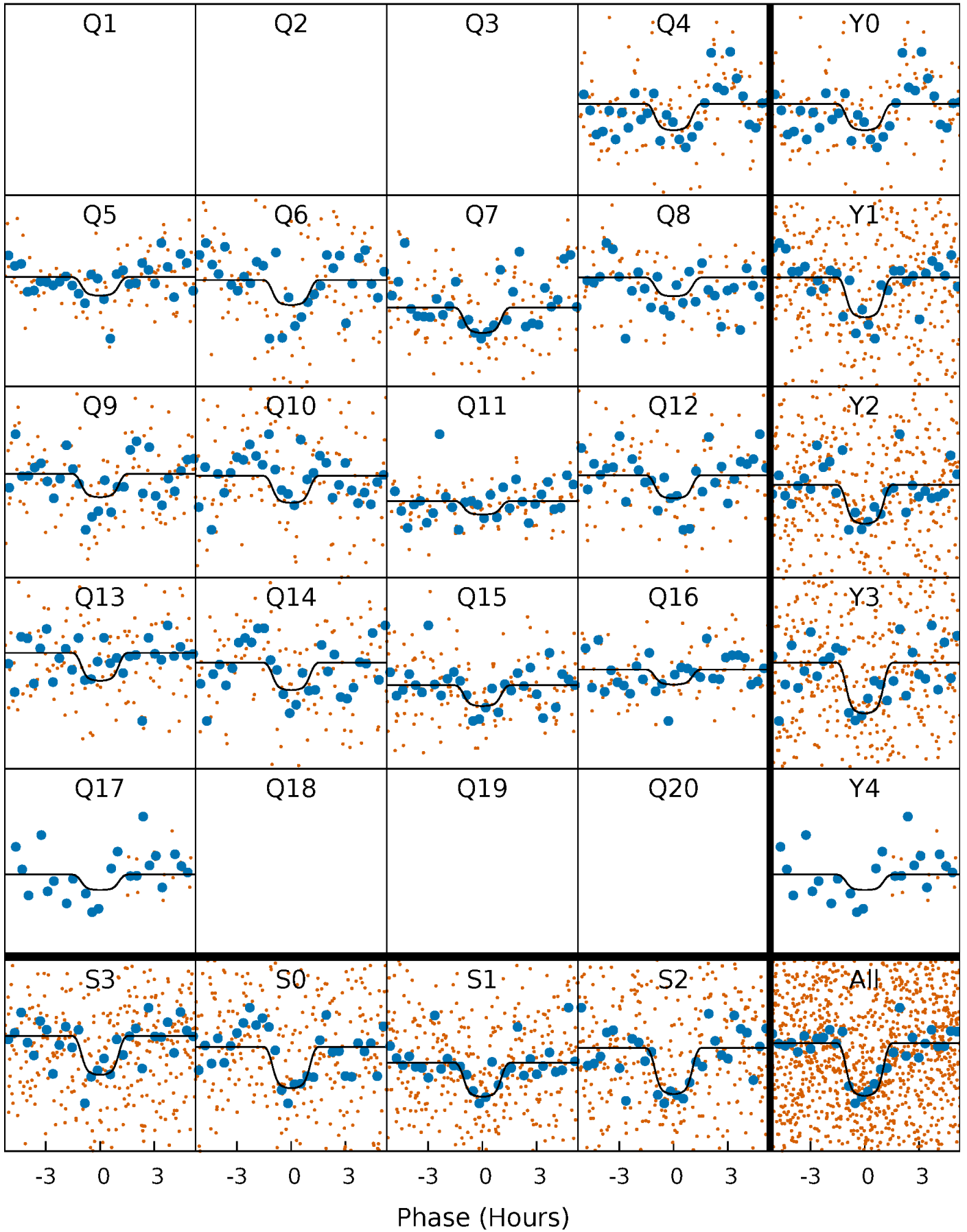
PDC Quarter-Phased Transit Curves

TCE 009100953-03 P= 14.751162 Days $T_0=141.152253$ (BKJD)



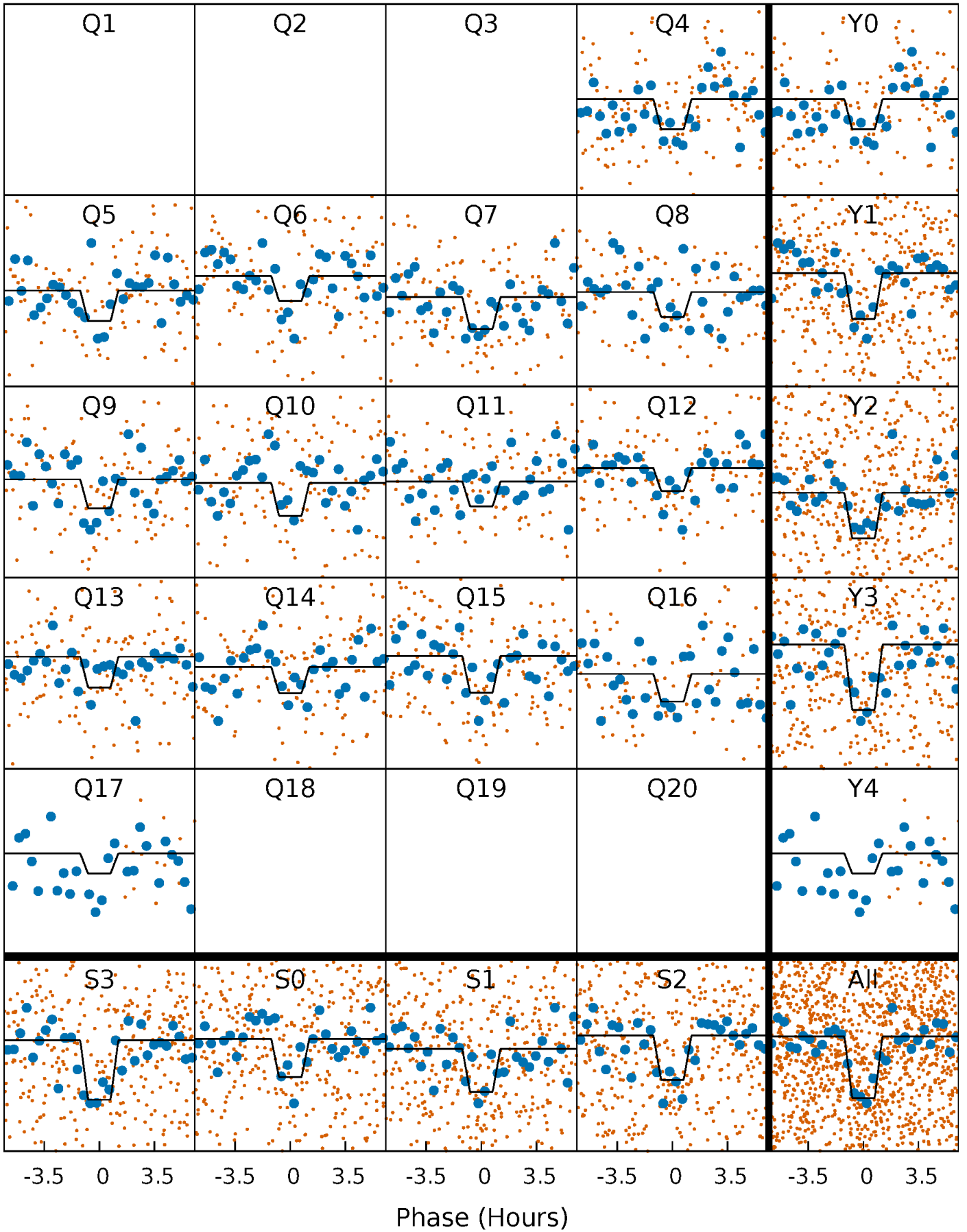
DV Quarter-Phased Transit Curves

TCE 009100953-03 P= 14.751162 Days $T_0=141.152253$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

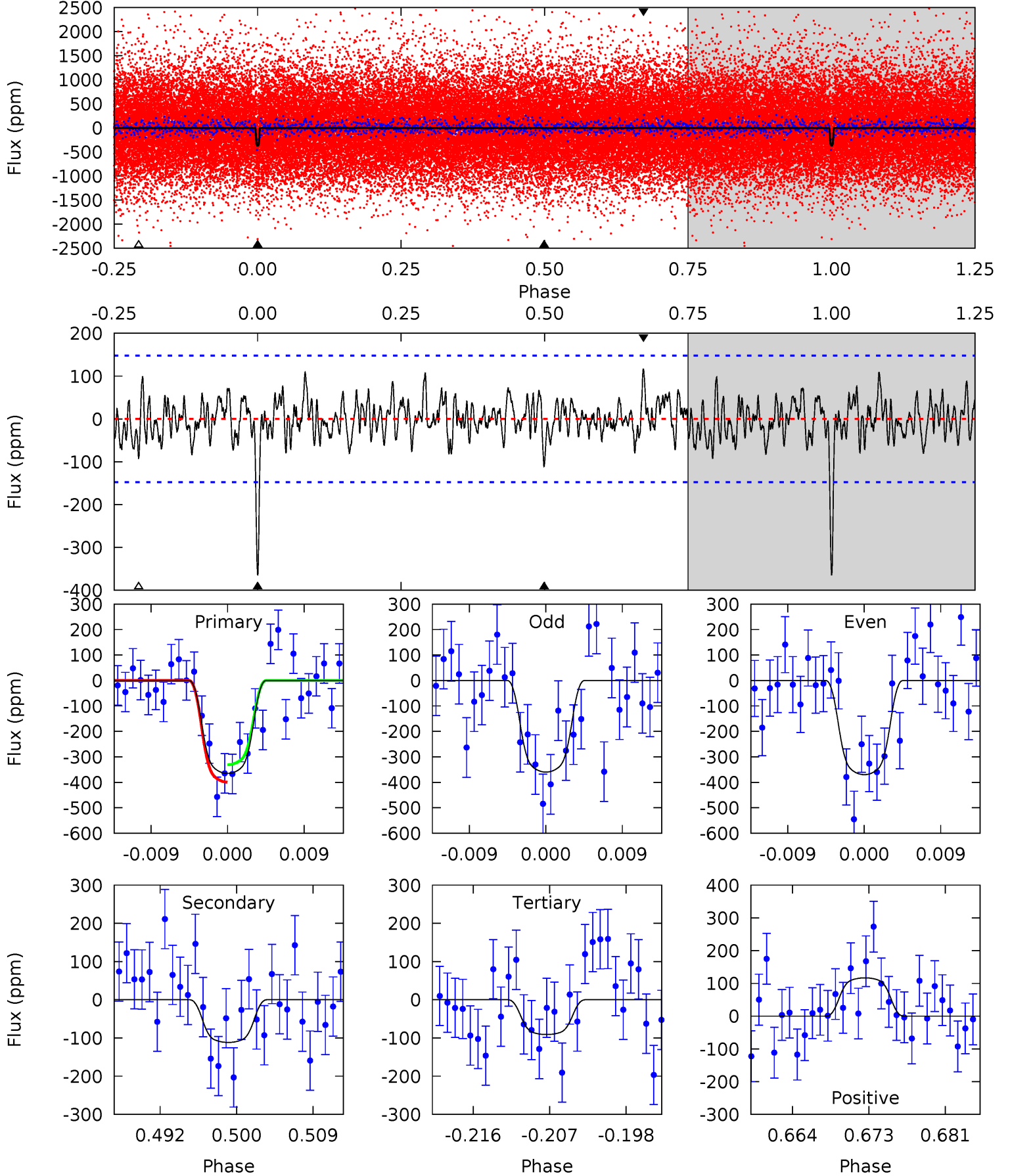
TCE 009100953-03 P= 14.751036 Days $T_0=141.159646$ (BKJD)



DV Model-Shift Uniqueness Test

009100953-03, $P = 14.751162$ Days, $E = 141.152253$ Days

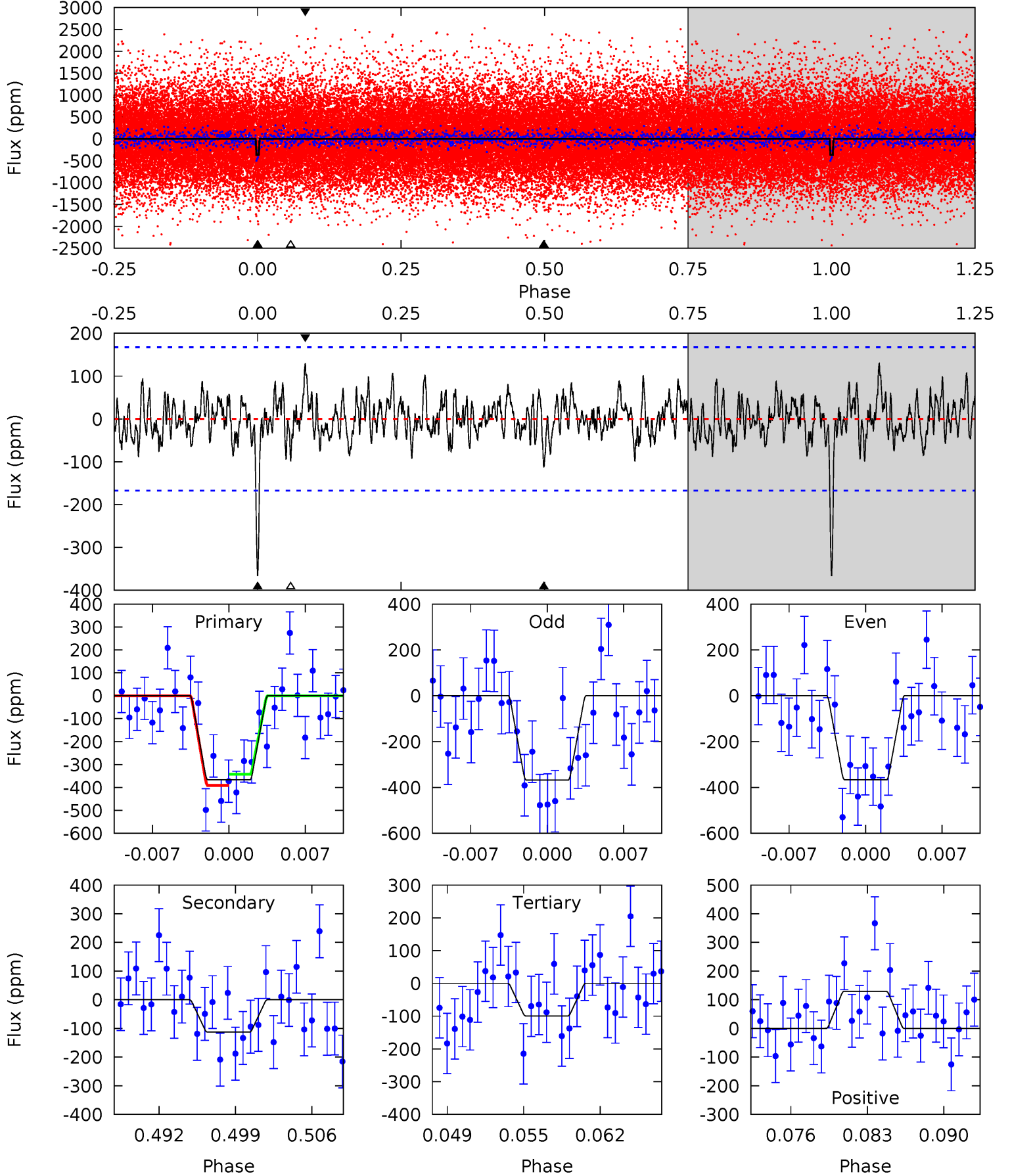
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	3.82	3.11	4.00	5.05	2.63	1.22	9.36	8.48	0.71	-0.18	0.17	1.13	0.24	1.17



Alt Model-Shift Uniqueness Test

009100953-03, $P = 14.751036$ Days, $E = 141.159646$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	3.44	3.03	3.94	5.10	2.70	1.16	8.15	7.23	0.41	-0.51	0.02	1.05	0.26	0.73



Stellar Parameters For KIC 009100953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5295^{+185}_{-185}	$4.548^{+0.052}_{-0.097}$	$-0.100^{+0.300}_{-0.300}$	$0.800^{+0.133}_{-0.082}$	$0.825^{+0.096}_{-0.078}$	$2.266^{+0.534}_{-0.738}$
	+3%/-3%	+1%/-2%	+300%/-300%	+17%/-10%	+12%/-9%	+24%/-33%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009100953-03 / KOI 4500.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-112 ± 29	$2.06^{+0.43}_{-0.45}$	882^{+47}_{-36}	3922^{+373}_{-339}	179^{+123}_{-67}
Alt.	-113 ± 33	$1.80^{+0.46}_{-0.41}$	887^{+45}_{-39}	4104^{+452}_{-381}	236^{+178}_{-104}

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 $A_{obs} \gg 1.0$

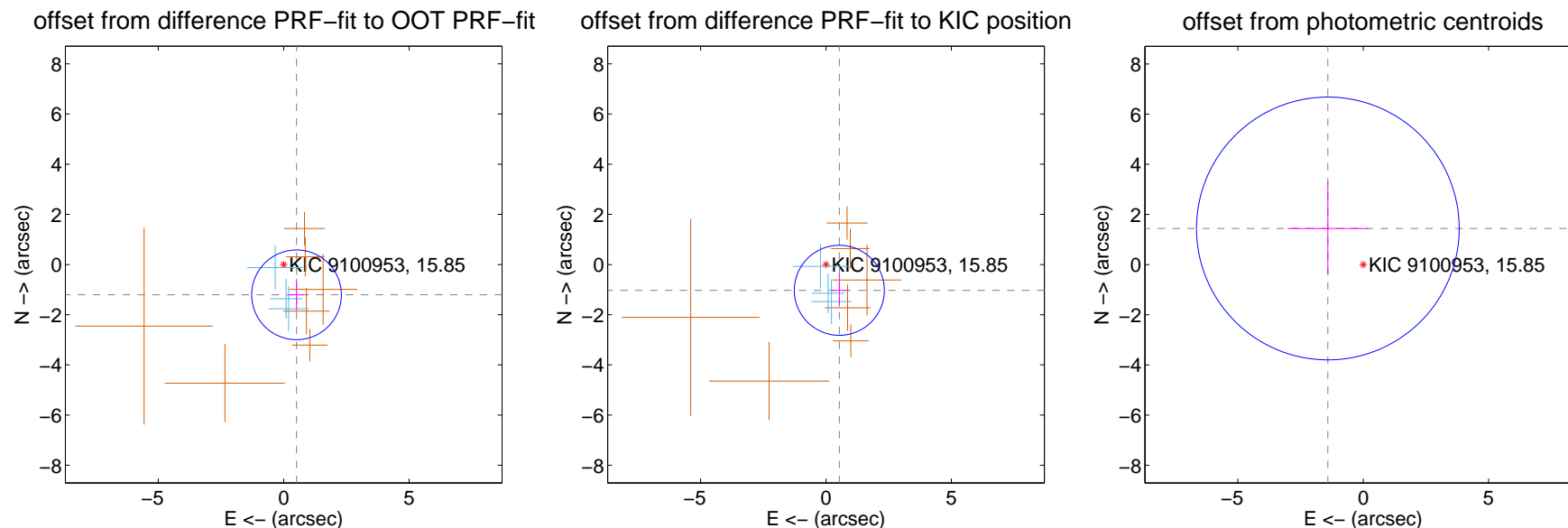
DV Centroid Data

Supplemental centroid analysis for 009100953-03. Kepler magnitude: 15.85. Transit SNR 9.20

There are 3 quarters with good PRF difference image offsets

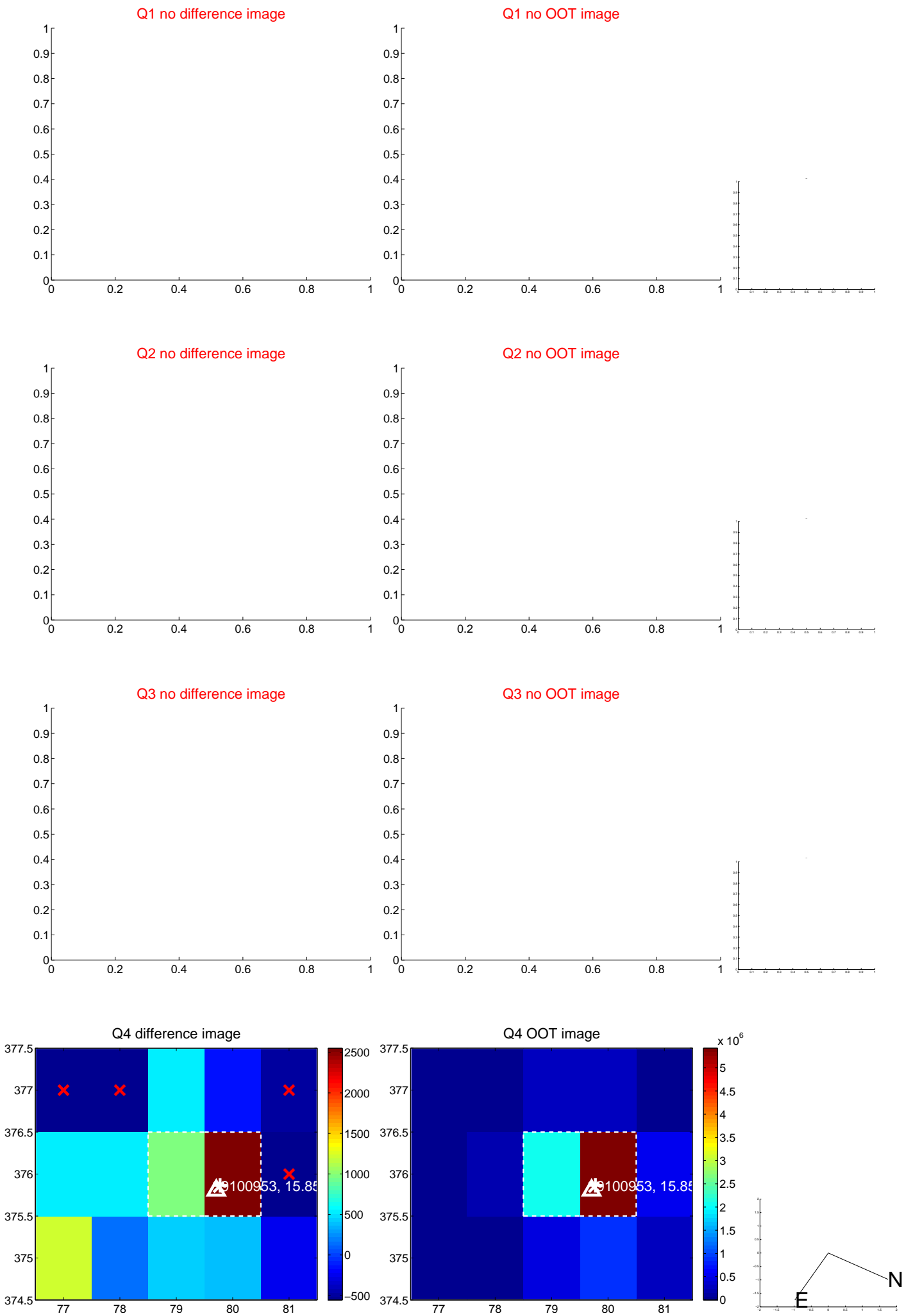
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.311 ± 0.596	2.20	-0.512 ± 0.307	-1.207 ± 0.634
PRF-fit source offset from KIC position	1.157 ± 0.598	1.93	-0.533 ± 0.302	-1.027 ± 0.655
photometric centroid source offset	2.02 ± 1.75	1.15	1.41 ± 1.62	1.44 ± 1.86

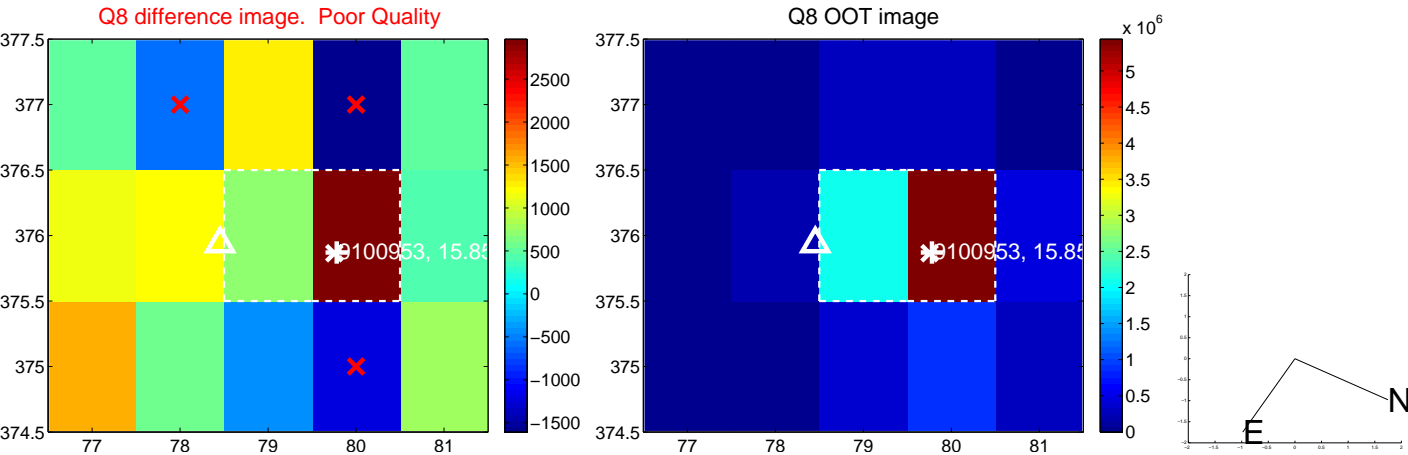
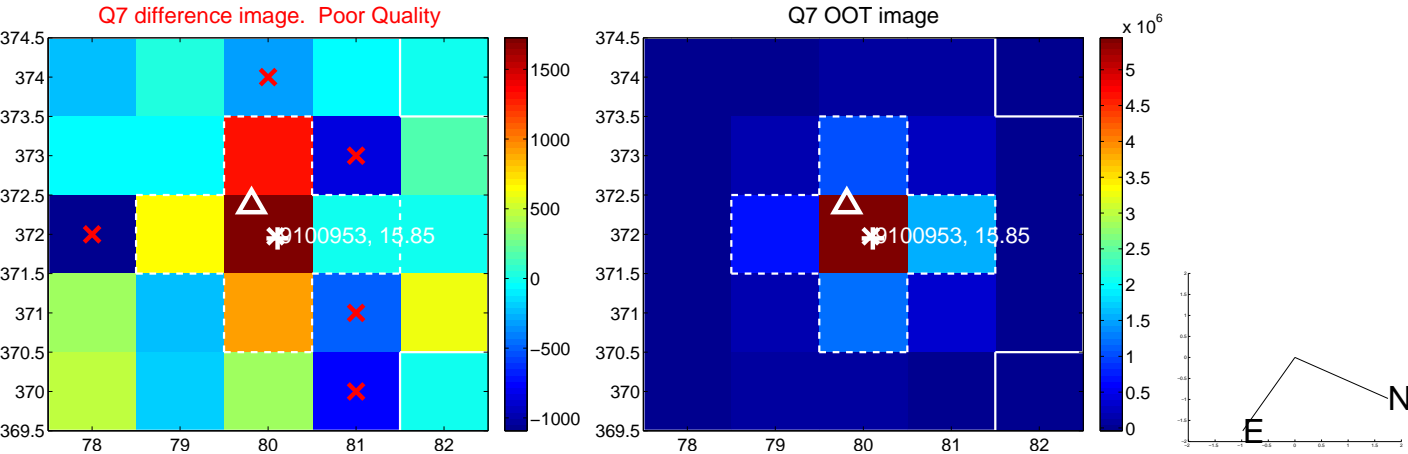
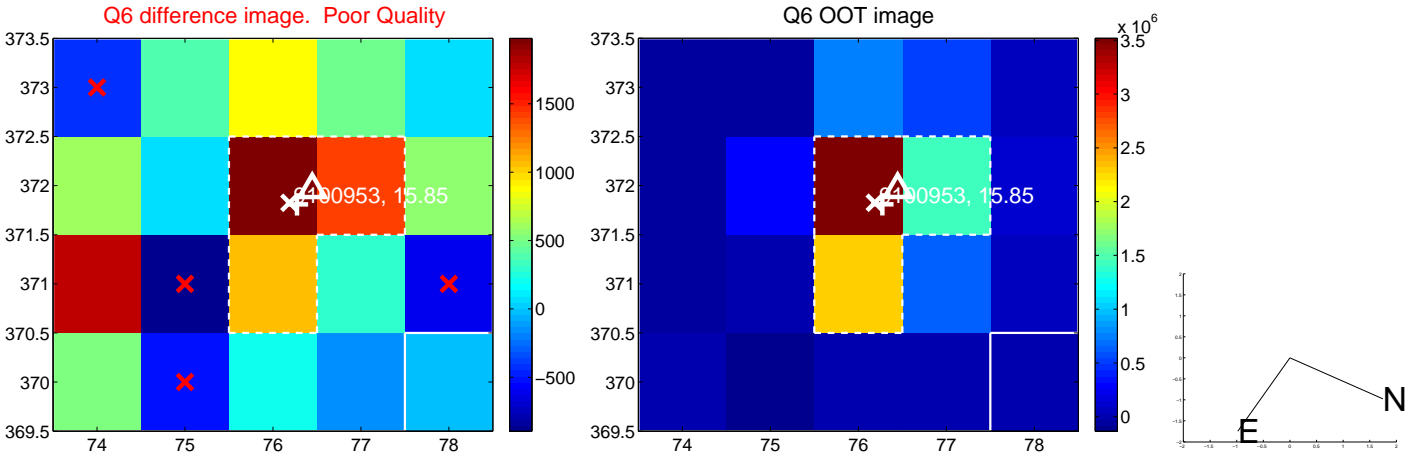
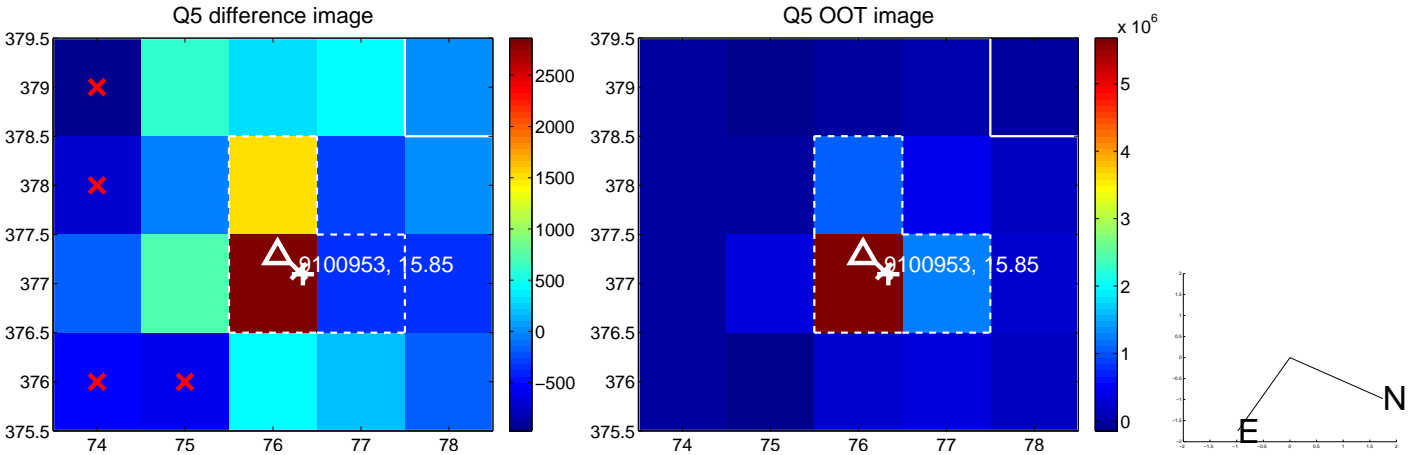


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

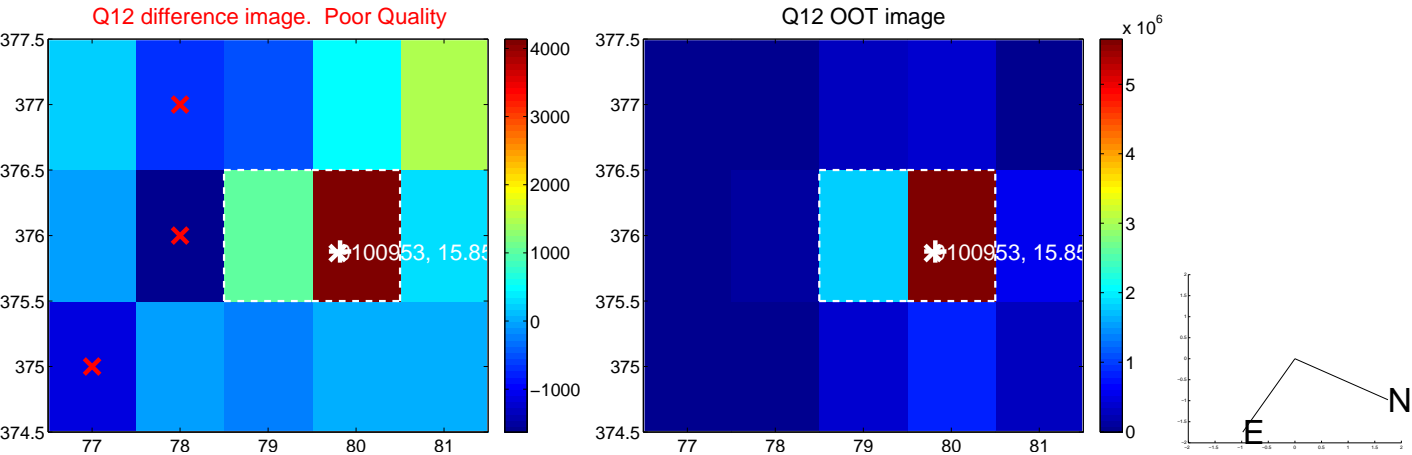
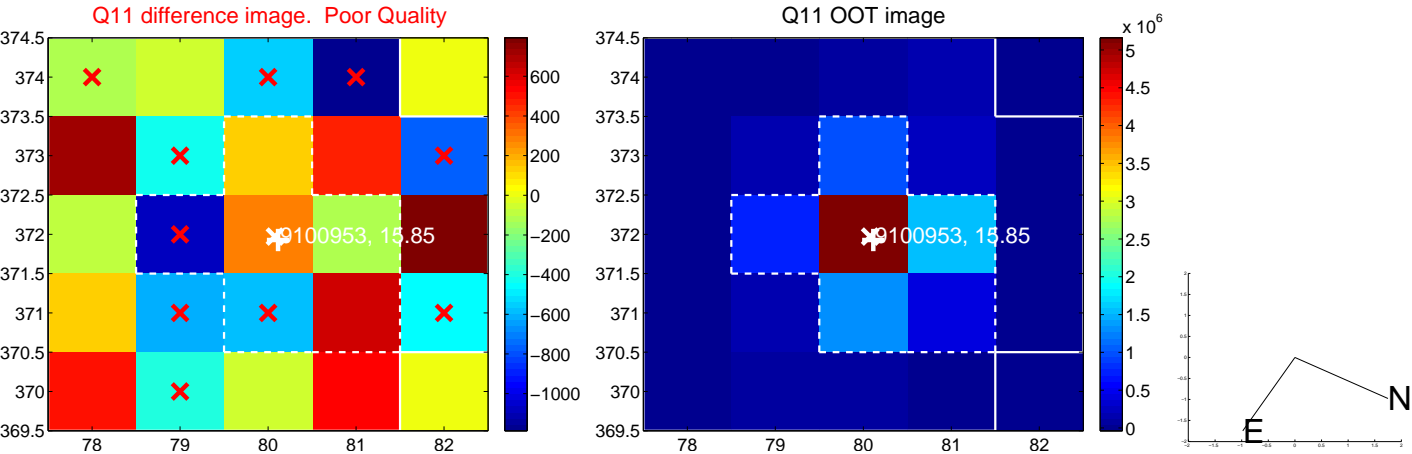
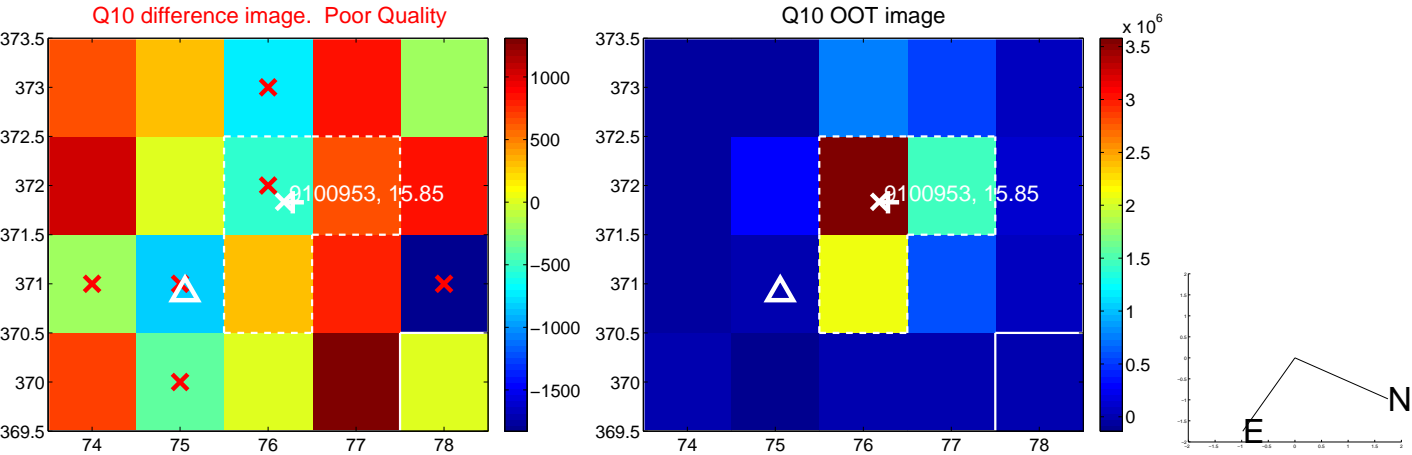
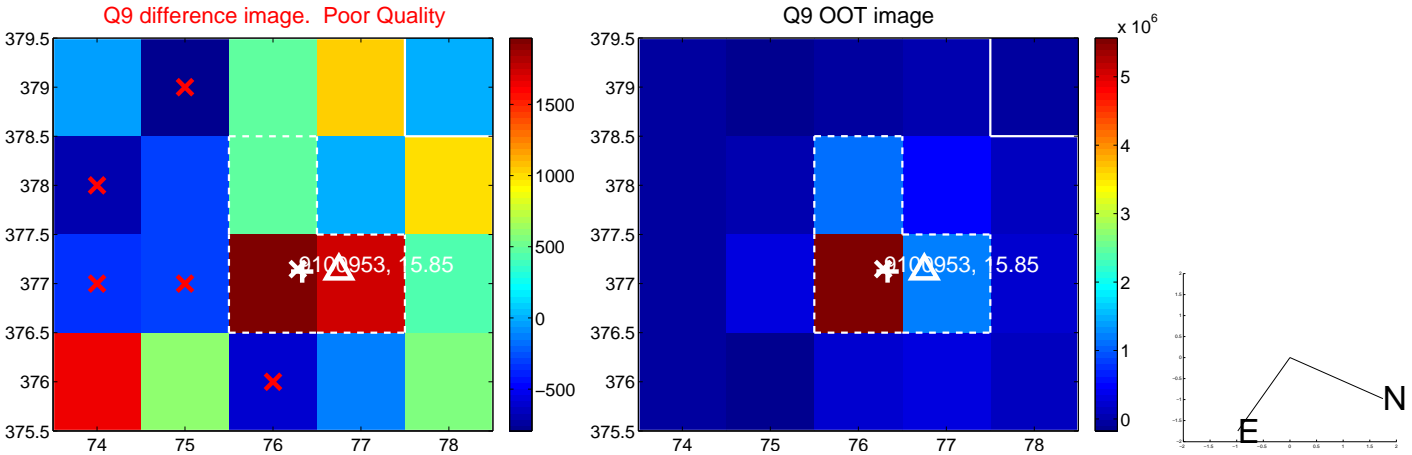
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



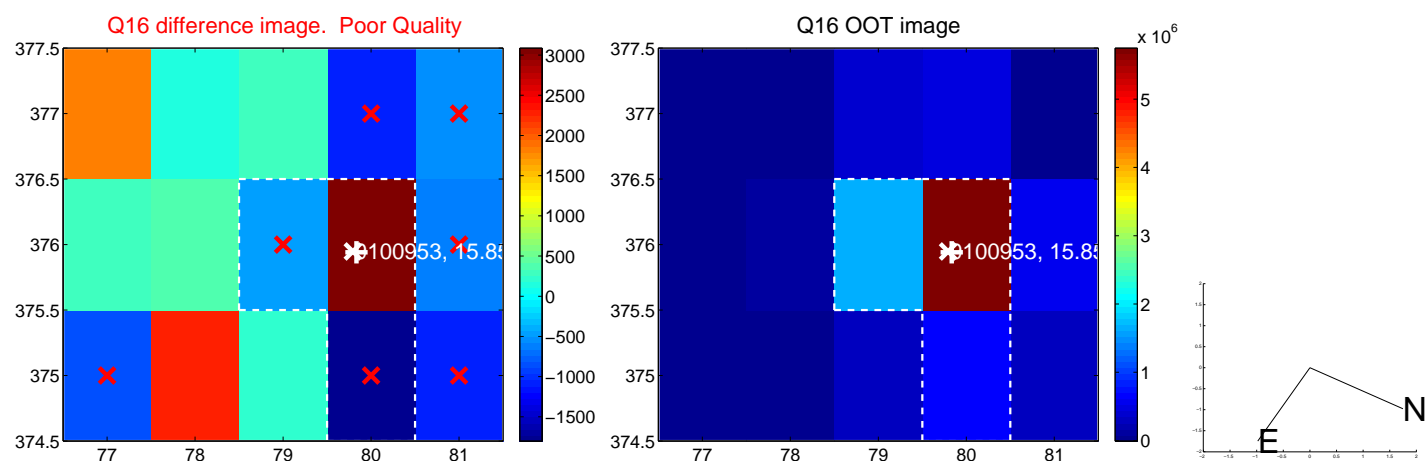
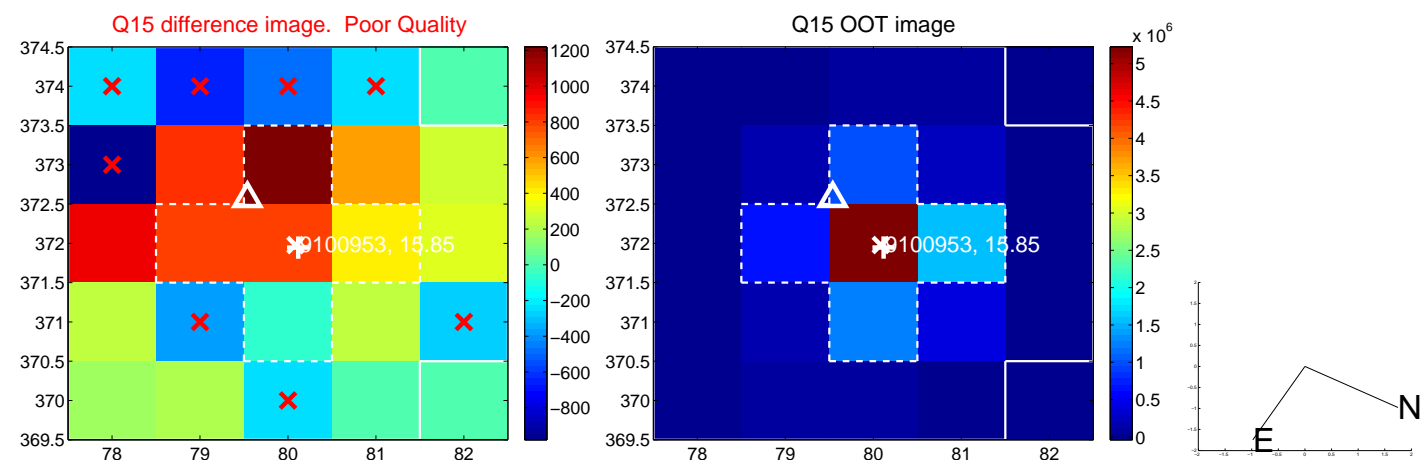
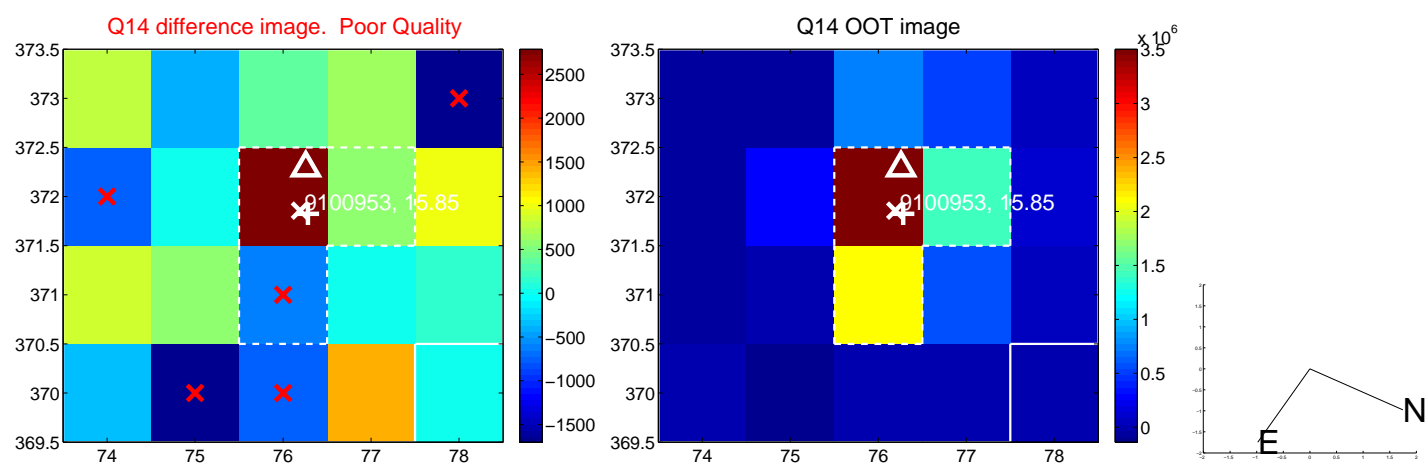
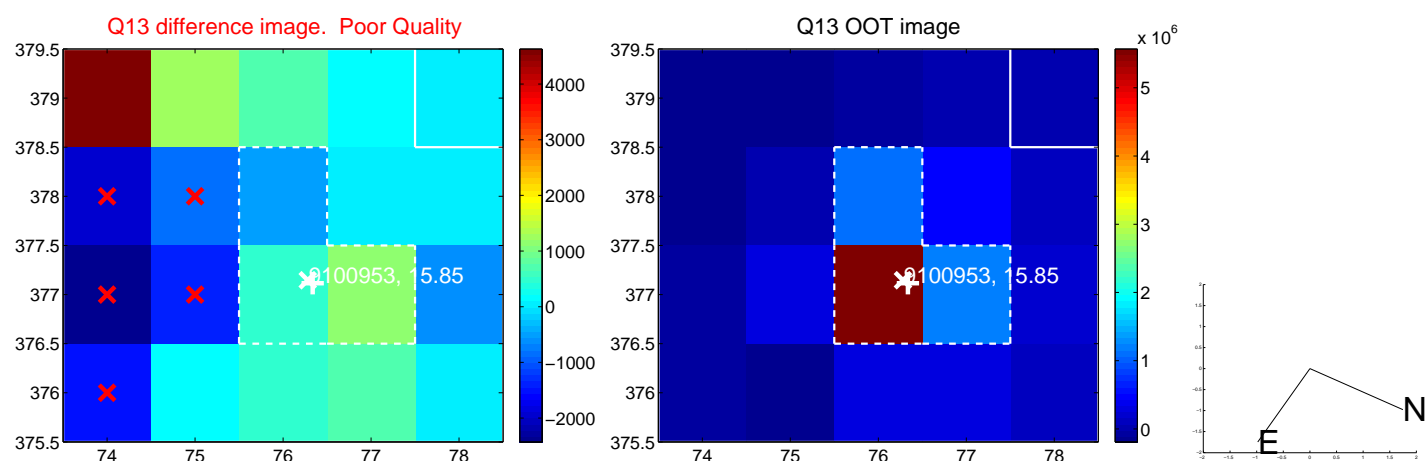
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



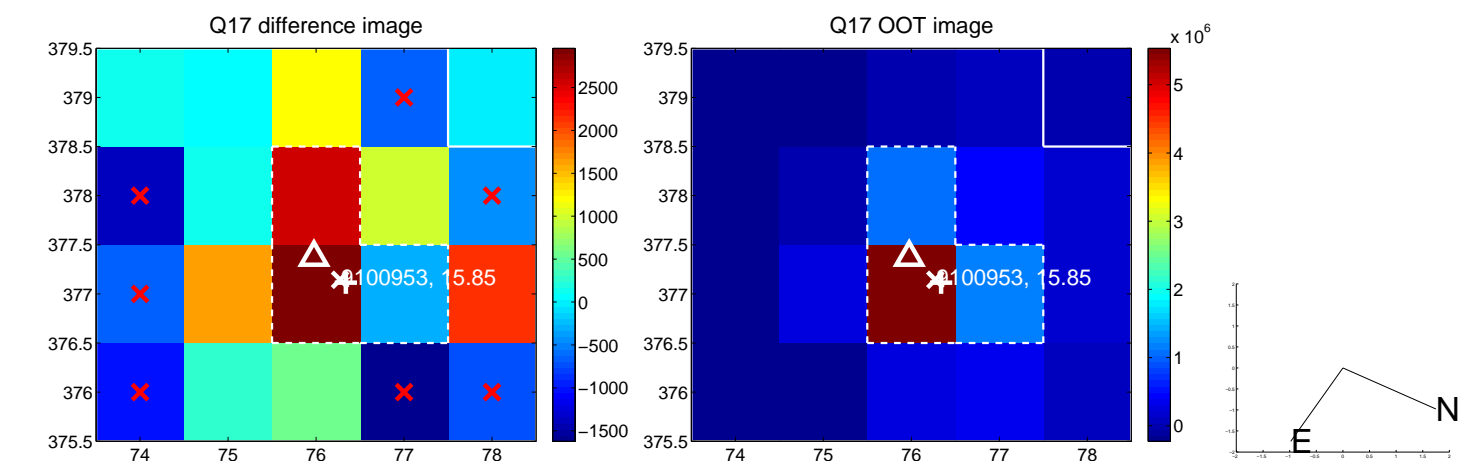
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



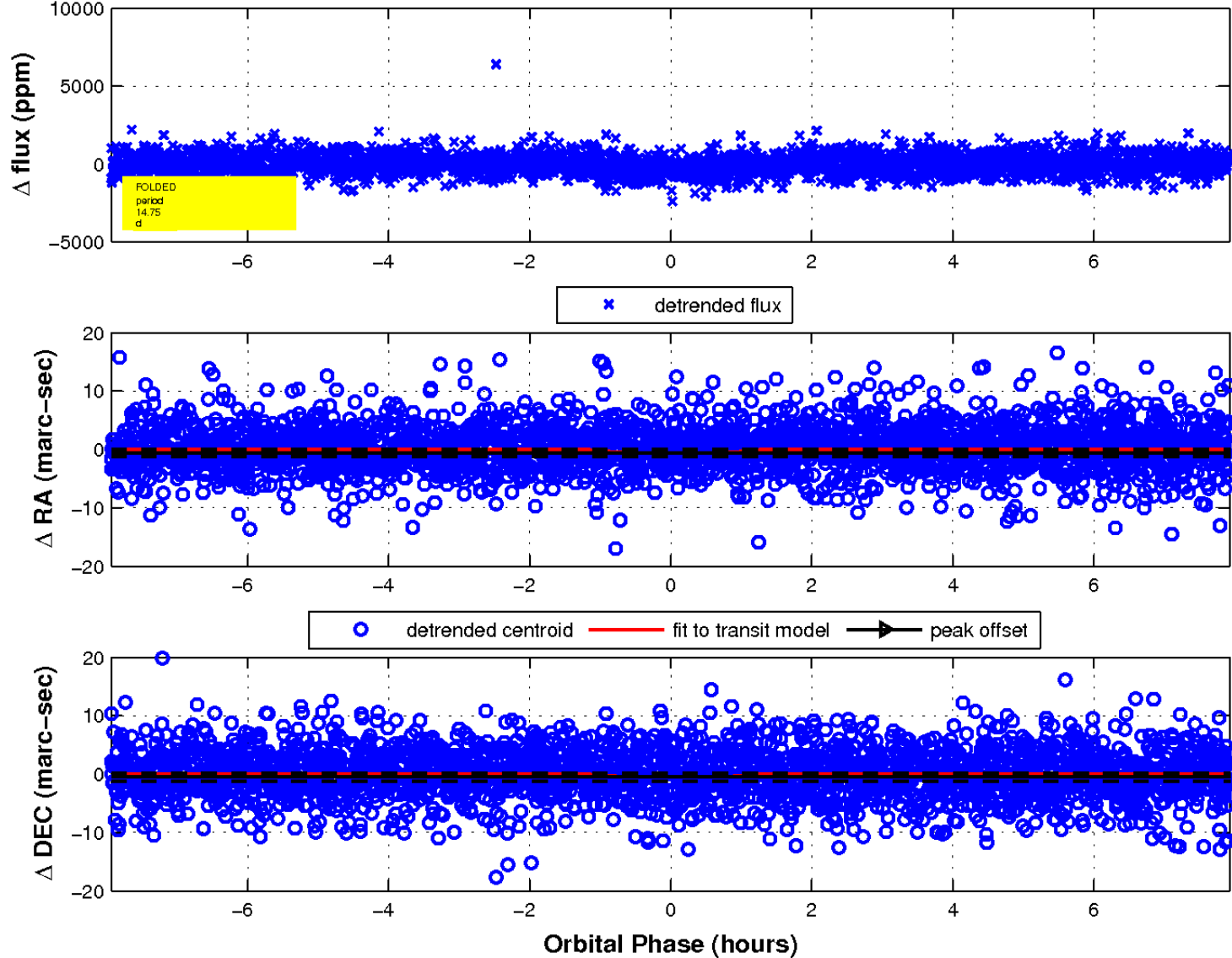
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

