

KIC 009839081

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})
009839081-01	OBS	6213.01	2.559251	132.260244	10924.4	1.516	622.5	510.9	0.88	5955	11.50	667.18
009839081-02	OBS	No	2.559257	133.538769	415.2	1.150	23.4	28.6	0.88	5955	2.14	667.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009839081-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL
009839081-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—SAME_NTL_PERIOD

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

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

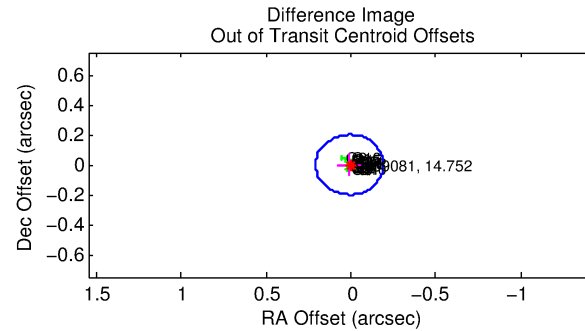
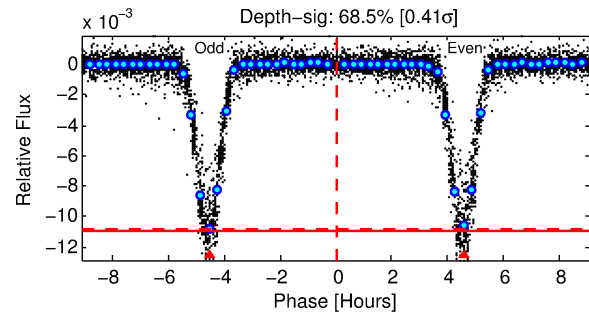
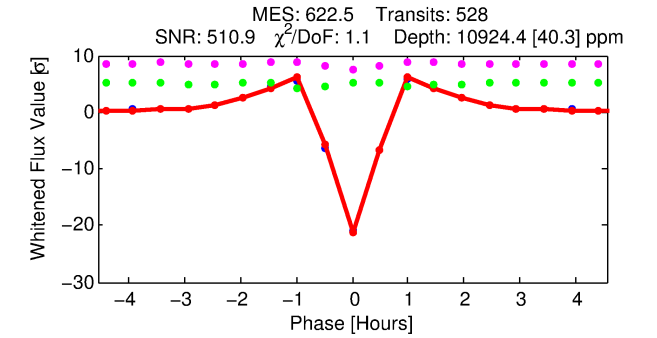
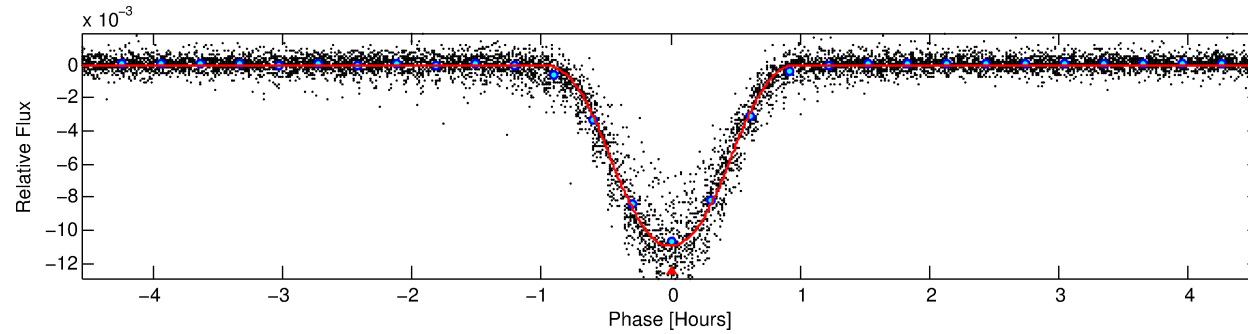
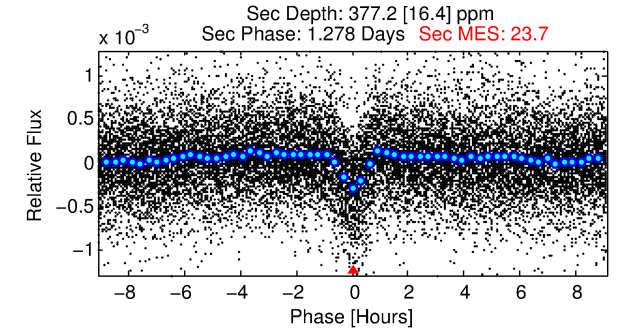
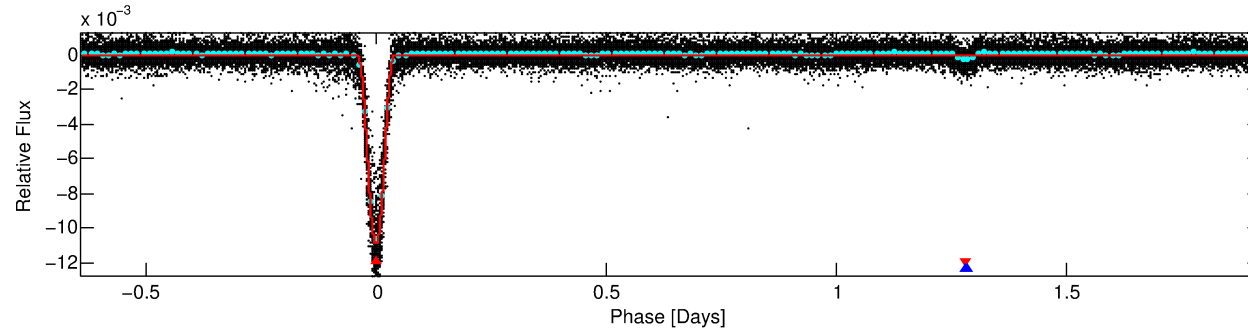
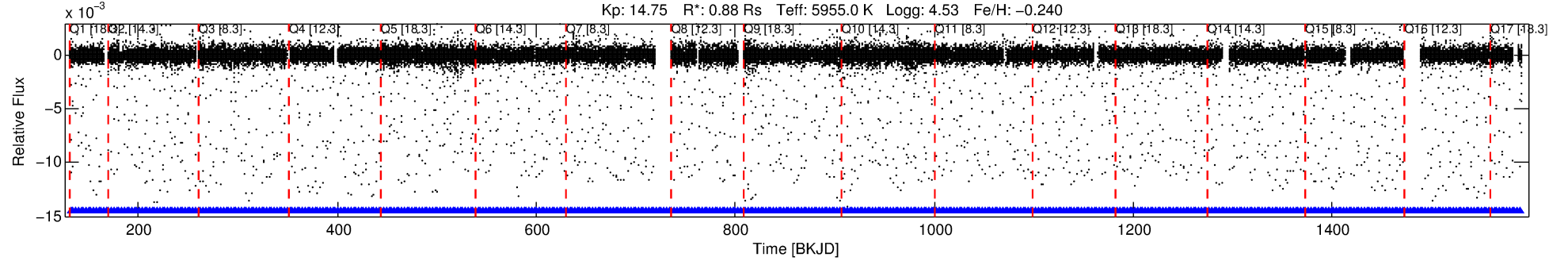
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009839081-01

No Significant Match Found

DV One-Page Summary

KIC: 9839081 Candidate: 1 of 2 Period: 2.559 d
KOI: K06213.01 Corr: 0.950



DV Fit Results:

Period = 2.55925 [0.00000] d
Epoch = 132.2602 [0.0000] BKJD
Rp/R* = 0.1193 [0.0021]
a/R* = 8.63 [0.10]
b = 0.90 [0.01]
Seff = 667.18 [268.85]
Teq = 1296 [131] K
Rp = 11.50 [3.55] Re
a = 0.0363 [0.0095] AU
Ag = 2.07 [0.80] [1.33 σ]
Teffp = 2402 [79] K [7.24 σ]

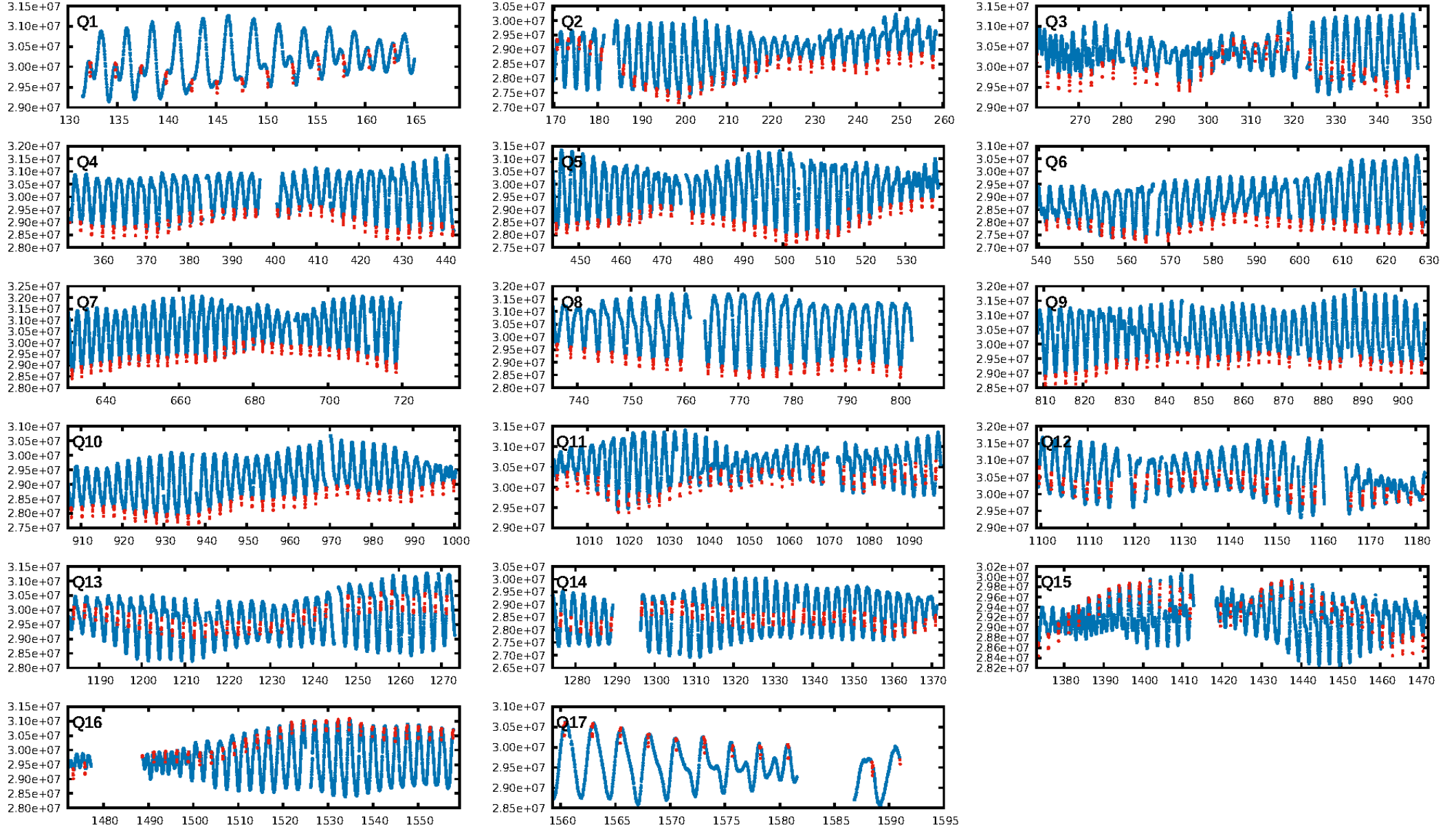
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [504/504]
GhostDiagnostic-chr: 1.504
Centroid-sig: 0.0%
Centroid-so: 0.286 arcsec [22.79 σ]
OotOffset-rm: 0.010 arcsec [0.14 σ]
KicOffset-rm: 0.148 arcsec [2.19 σ]
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]

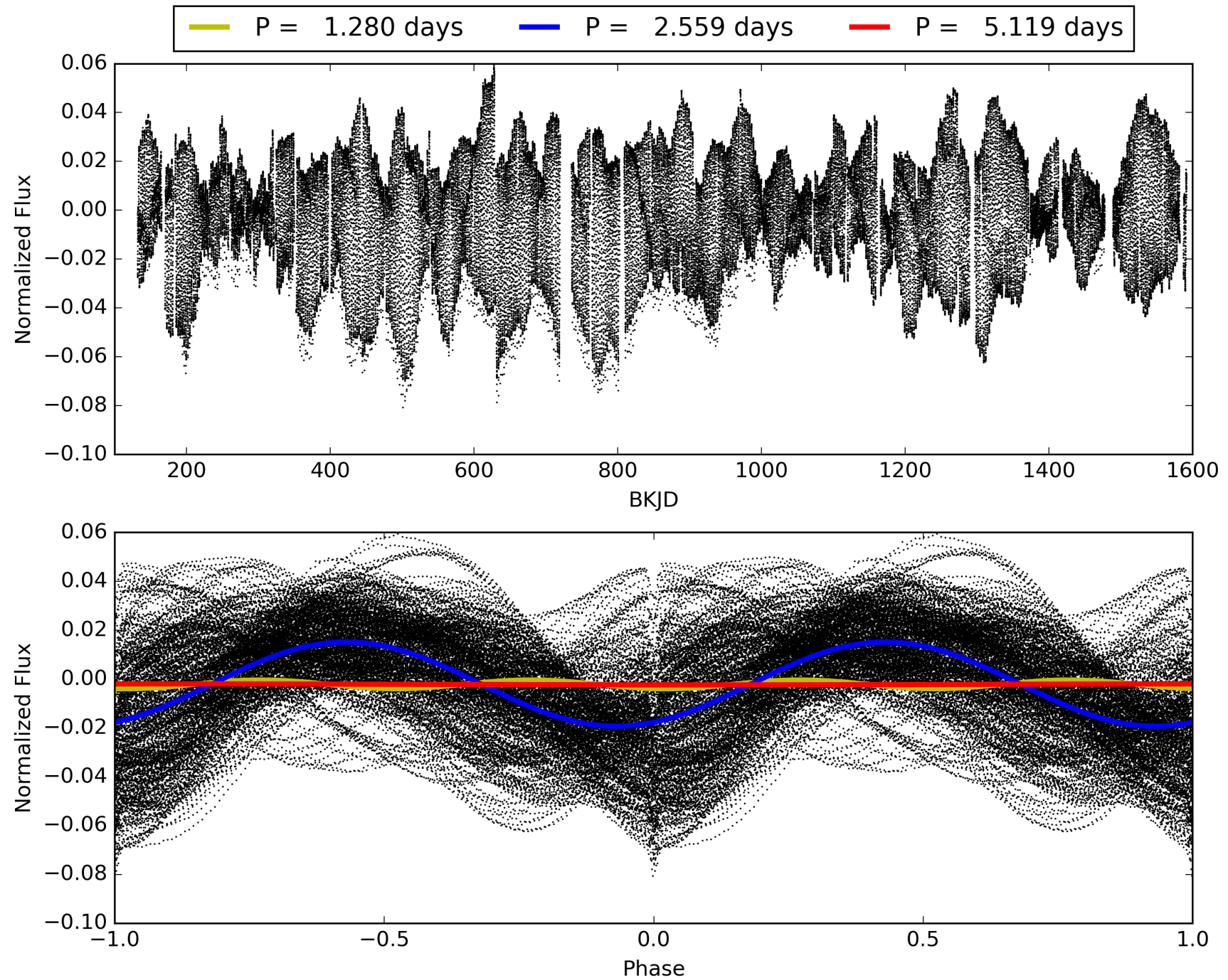
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:07:12 Z

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

TCE 009839081-01, PDC Light Curves

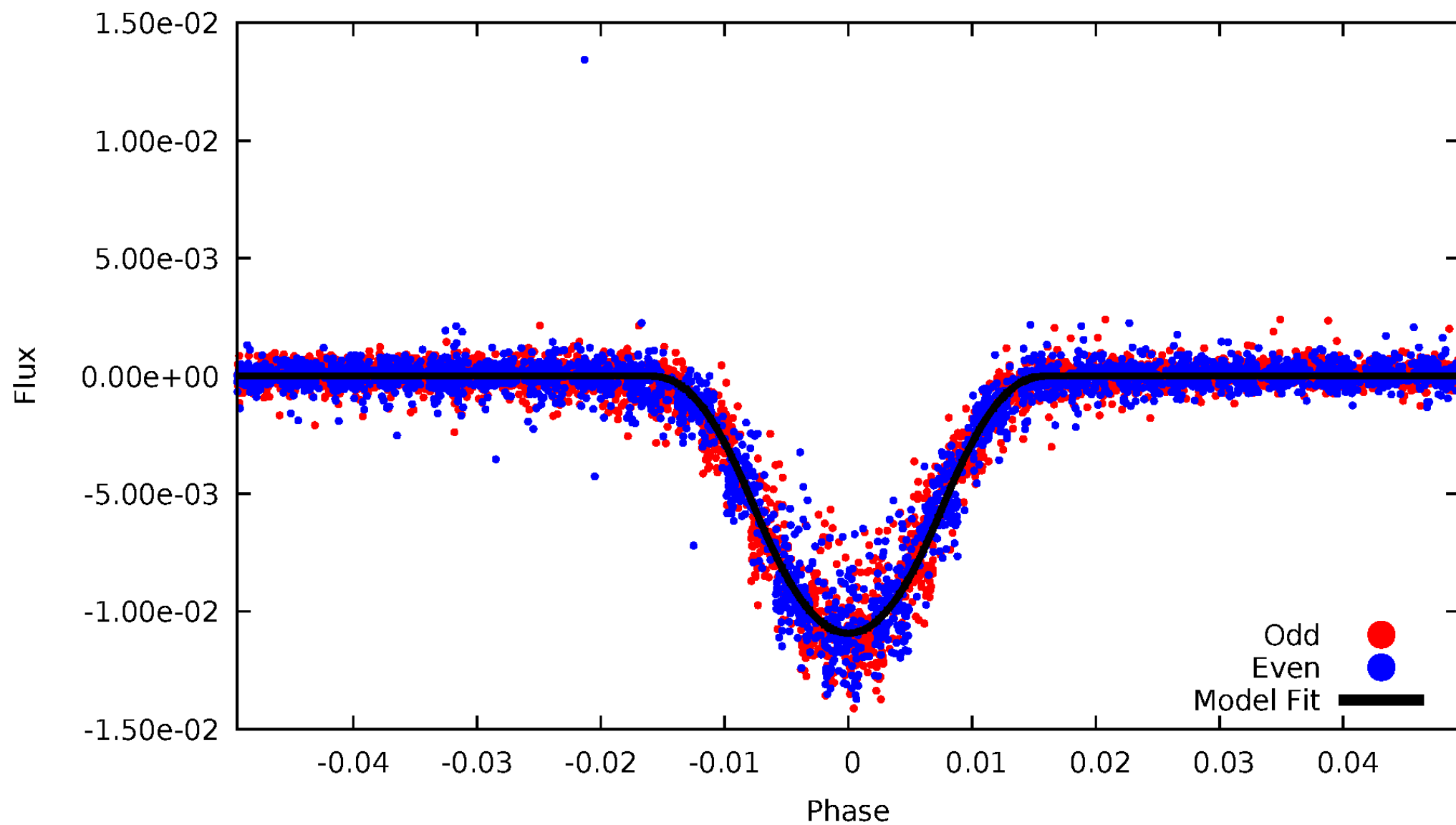


TCE 009839081-01



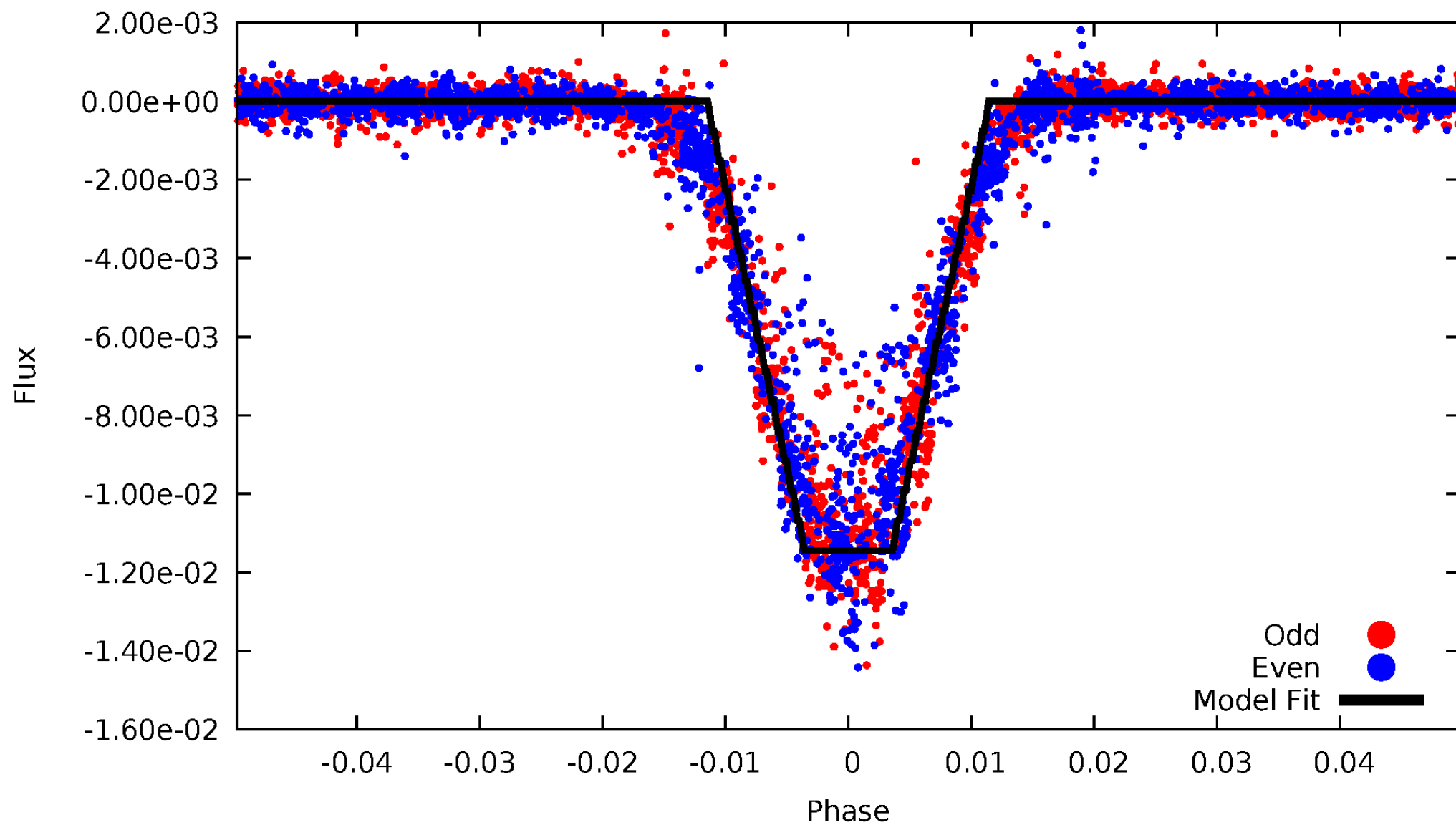
DV Odd/Even

TCE 009839081-01



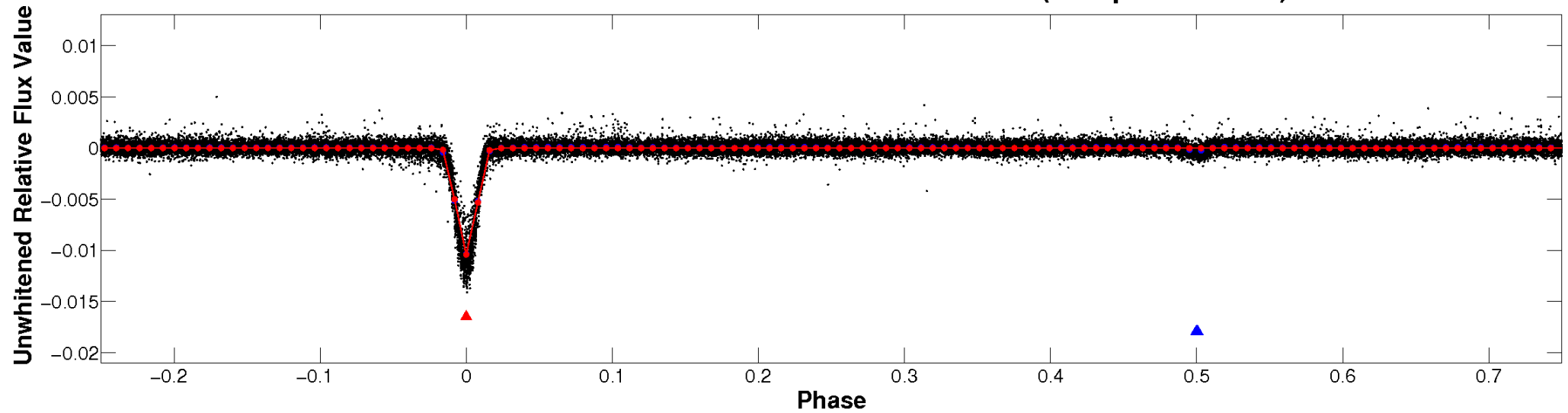
ALT Odd/Even

TCE 009839081-01

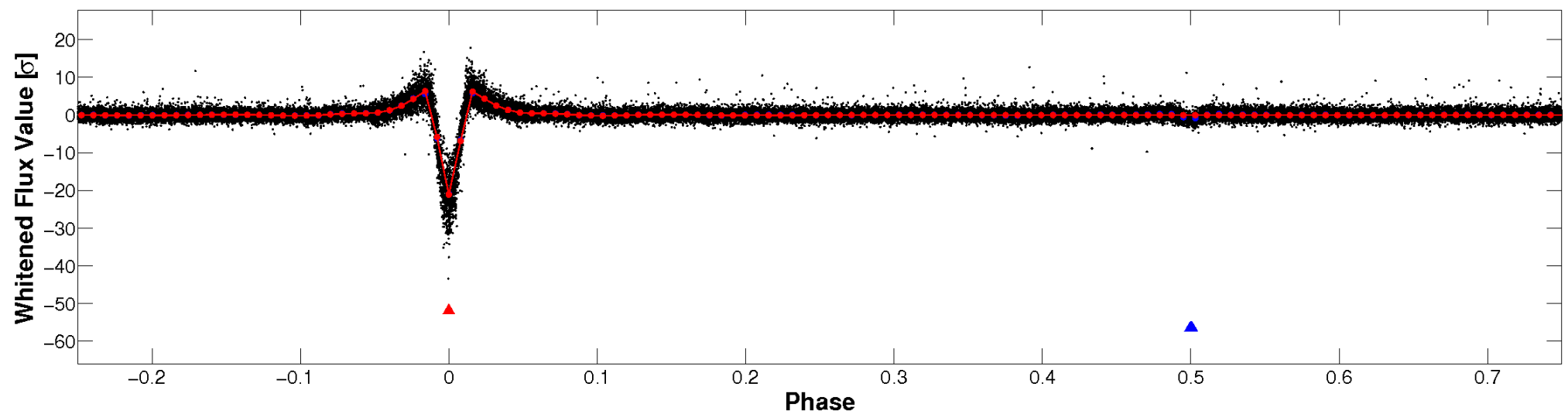


Non-Whitened Vs. Whitened Light Curve

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

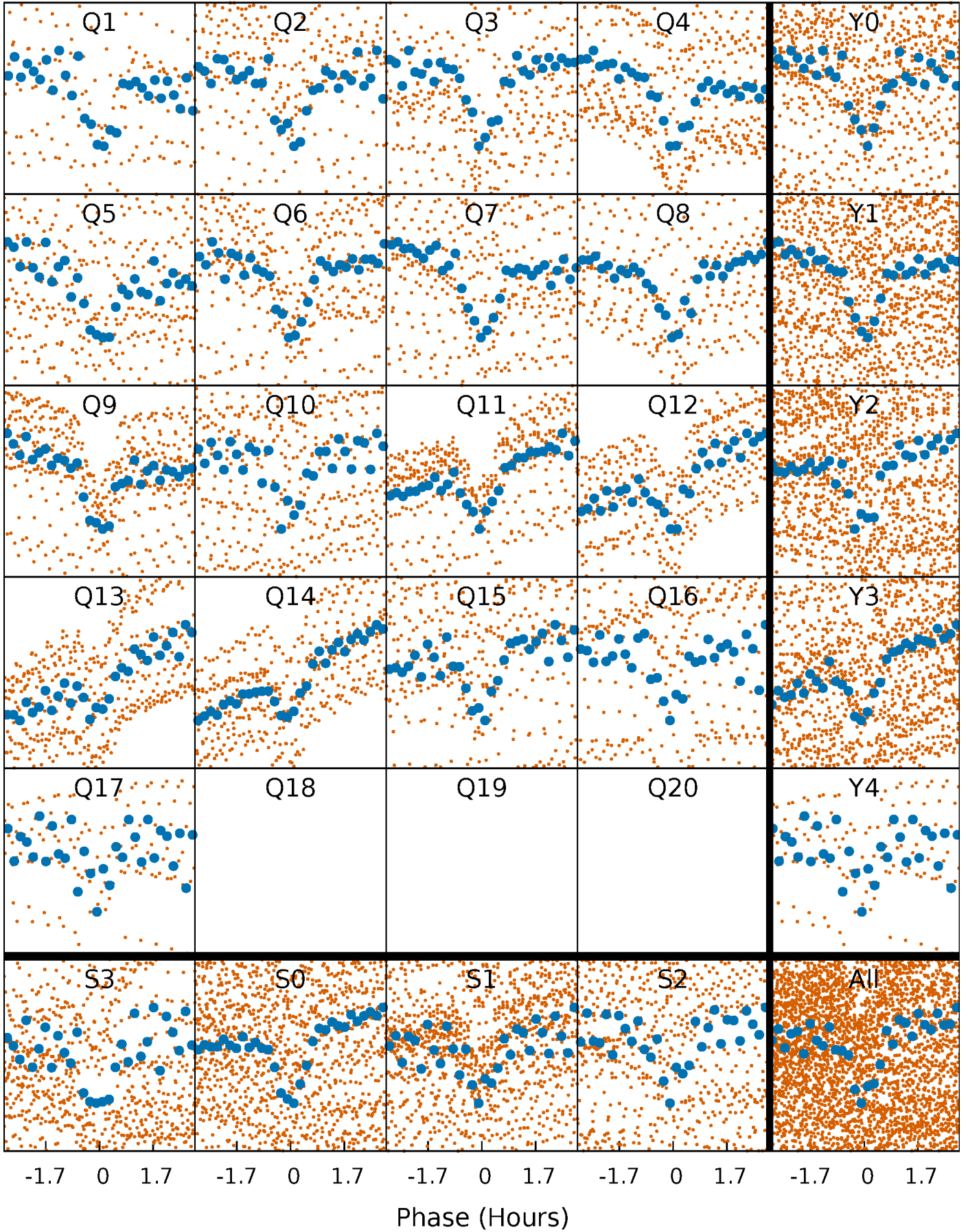


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



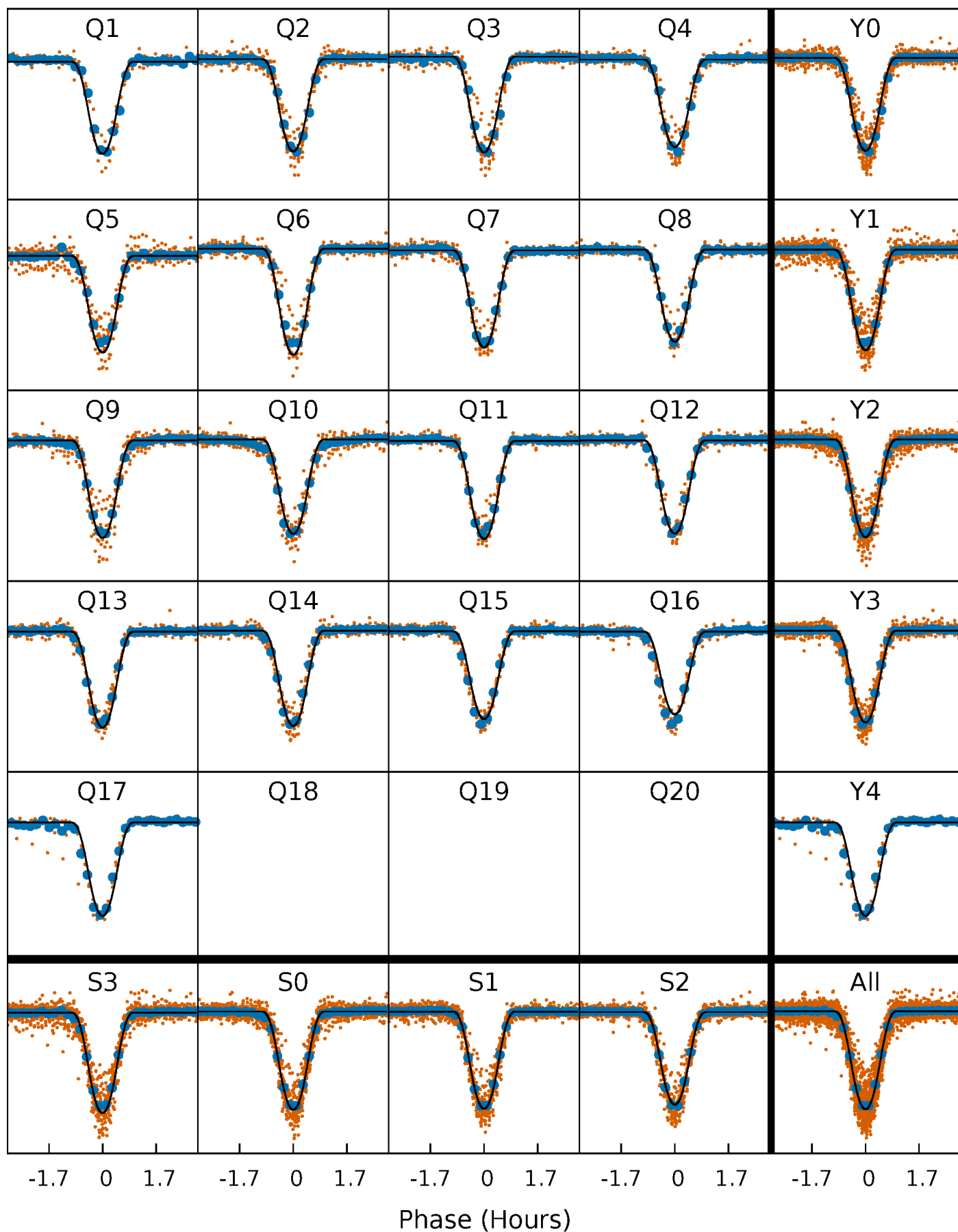
PDC Quarter-Phased Transit Curves

TCE 009839081-01 P= 2.559251 Days $T_0=132.260244$ (BKJD)



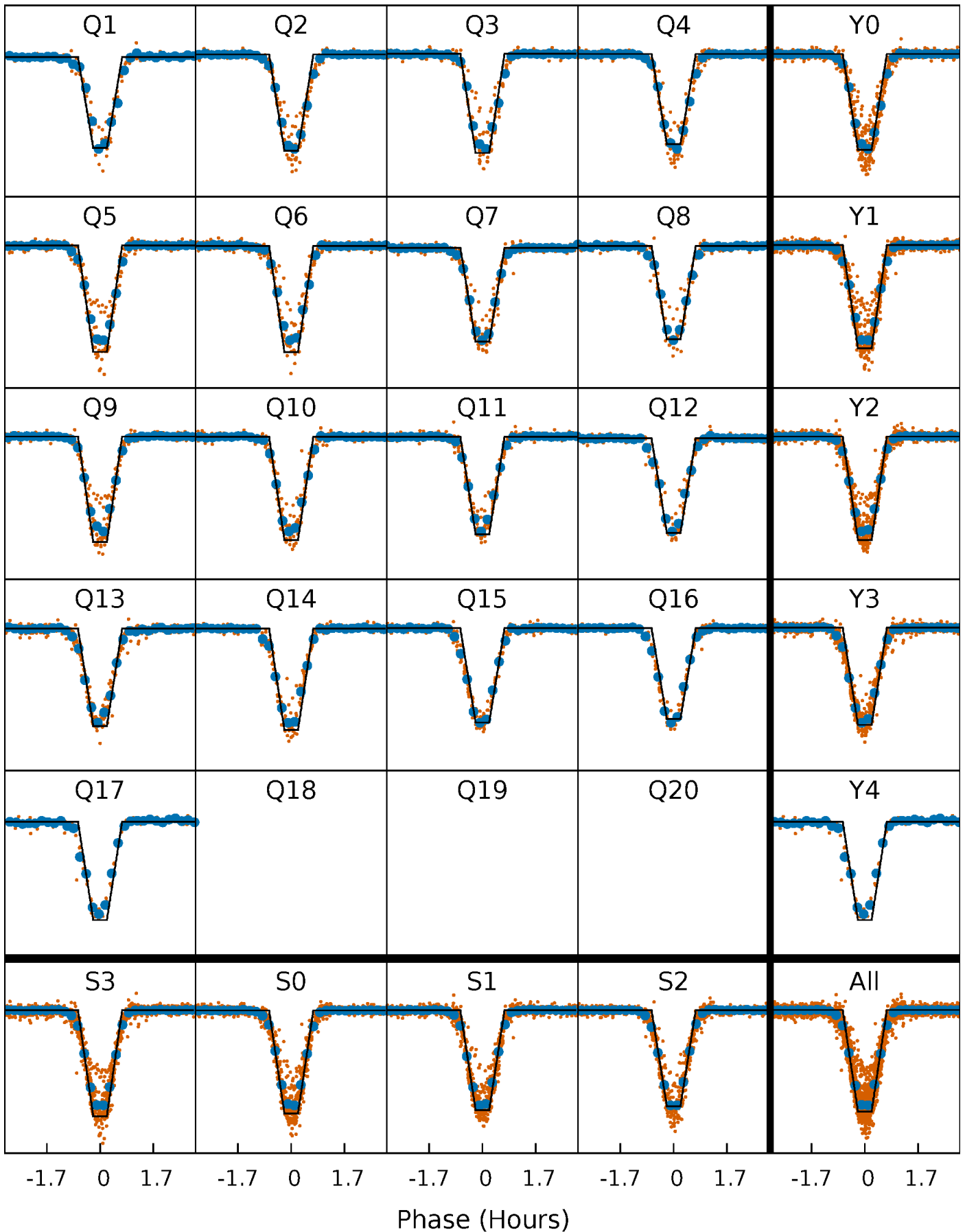
DV Quarter-Phased Transit Curves

TCE 009839081-01 P= 2.559251 Days $T_0=132.260244$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

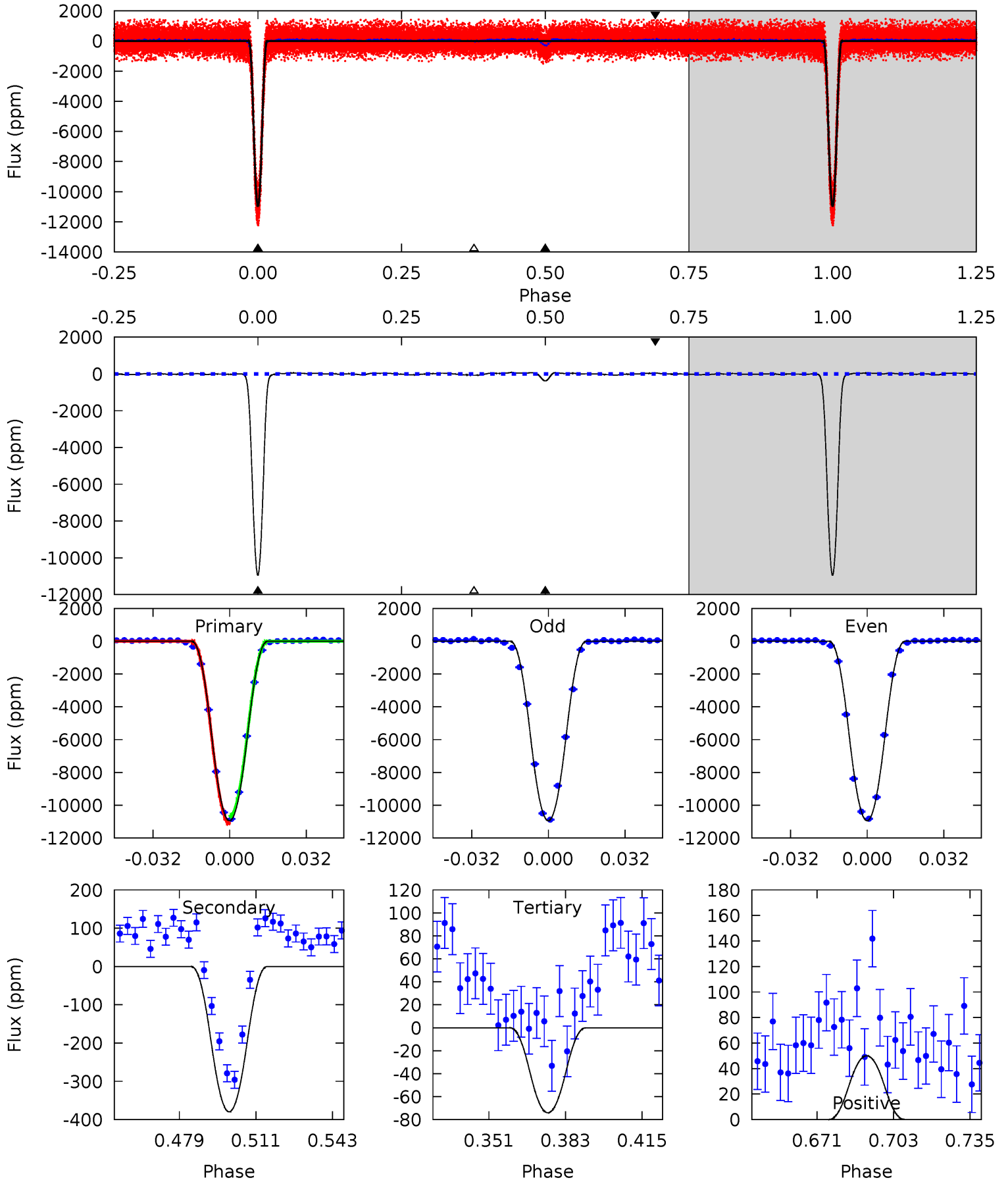
TCE 009839081-01 P= 2.559249 Days $T_0=132.260521$ (BKJD)



DV Model-Shift Uniqueness Test

009839081-01, P = 2.559251 Days, E = 129.700993 Days

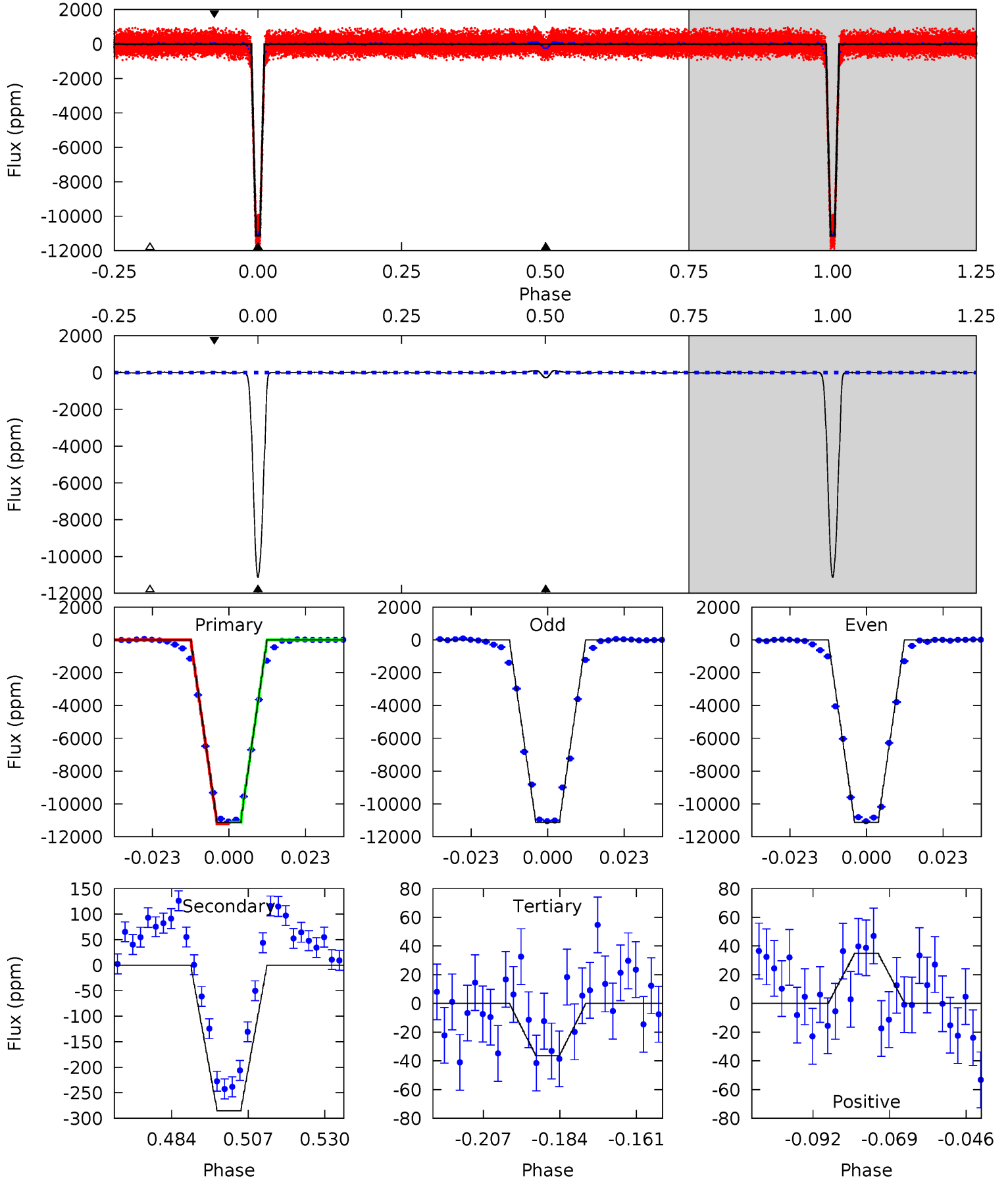
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1195	41.5	8.08	5.46	4.80	2.15	3.24	1187	1190	33.4	36.0	0.18	0.98	0.01	23.5



Alt Model-Shift Uniqueness Test

009839081-01, P = 2.559249 Days, E = 129.701272 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1307	33.5	4.28	4.09	4.86	2.27	1.90	1302	1303	29.2	29.4	0.34	0.98	0.01	0



Stellar Parameters For KIC 009839081

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5955^{+160}_{-178}	$4.534^{+0.038}_{-0.212}$	$-0.240^{+0.300}_{-0.300}$	$0.883^{+0.272}_{-0.091}$	$0.972^{+0.119}_{-0.131}$	$1.987^{+0.420}_{-1.071}$
	+3%/-3%	+1%/-5%	+125%/-125%	+31%/-10%	+12%/-13%	+21%/-54%
Source	PHO1	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 009839081-01 / KOI 6213.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-380 ± 9	$12.01^{+1.71}_{-1.02}$	1860^{+140}_{-87}	2975^{+60}_{-64}	$1.876^{+0.304}_{-0.433}$
Alt.	-285 ± 9	$10.72^{+1.83}_{-0.89}$	1862^{+140}_{-90}	2938^{+56}_{-56}	$1.747^{+0.285}_{-0.437}$

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 $A_{obs} \gg 1.0$

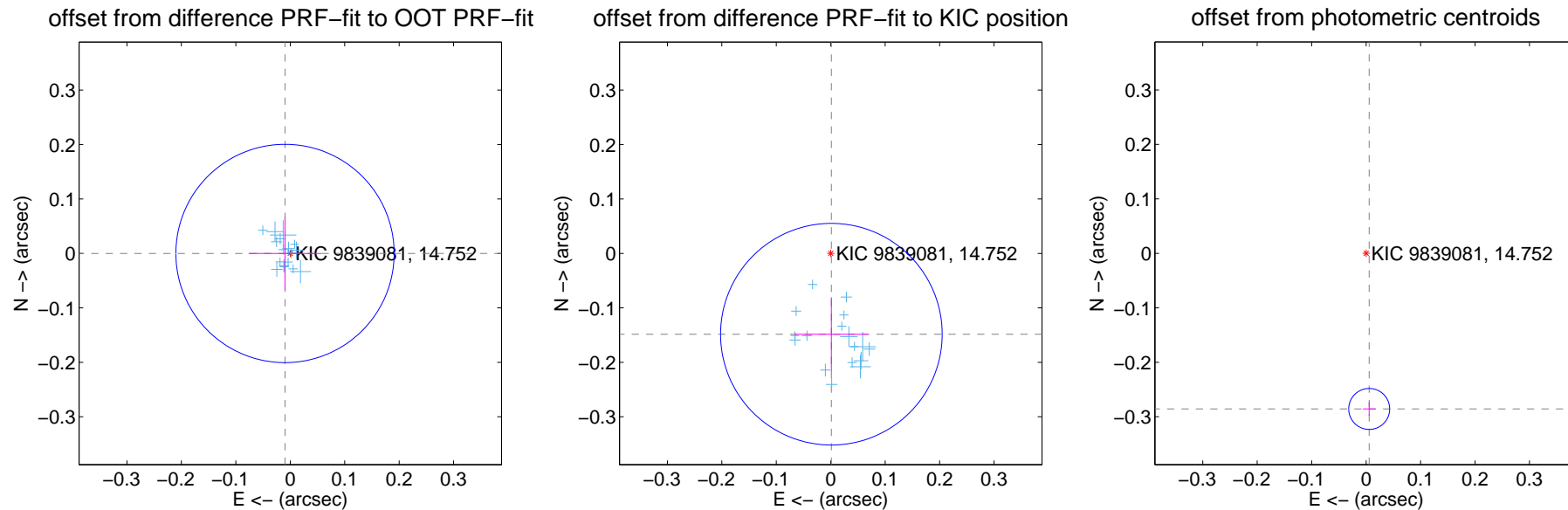
DV Centroid Data

Supplemental centroid analysis for 009839081-01. Kepler magnitude: 14.75. Transit SNR 510.89

There are 17 quarters with good PRF difference image offsets

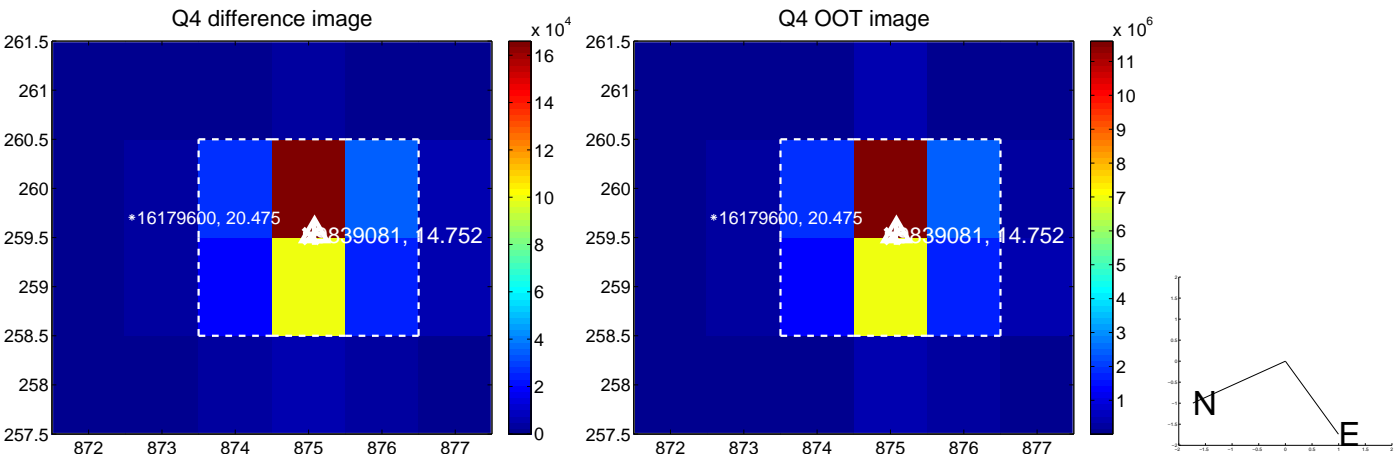
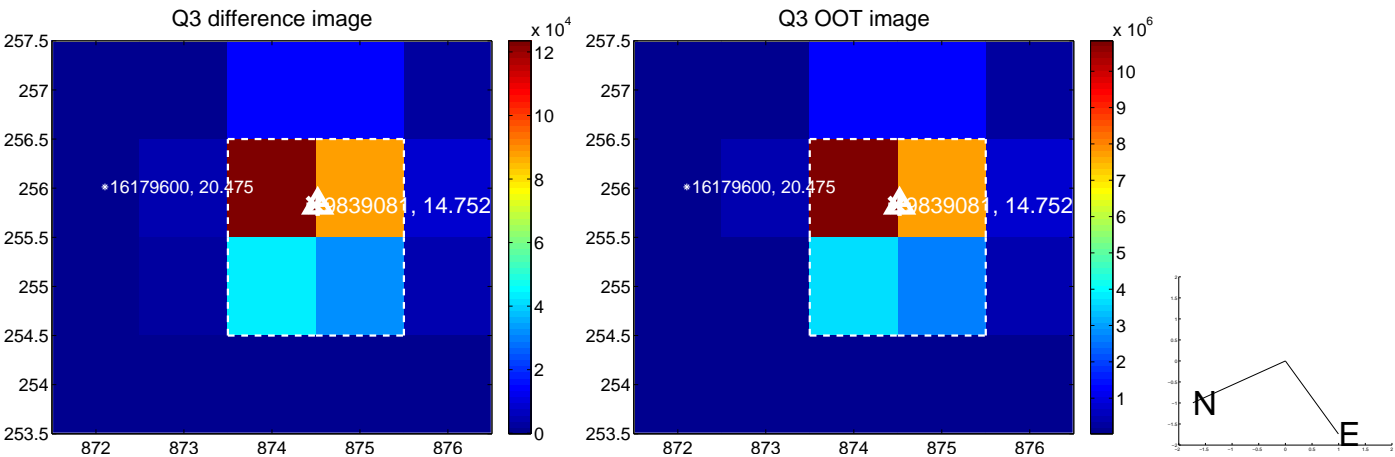
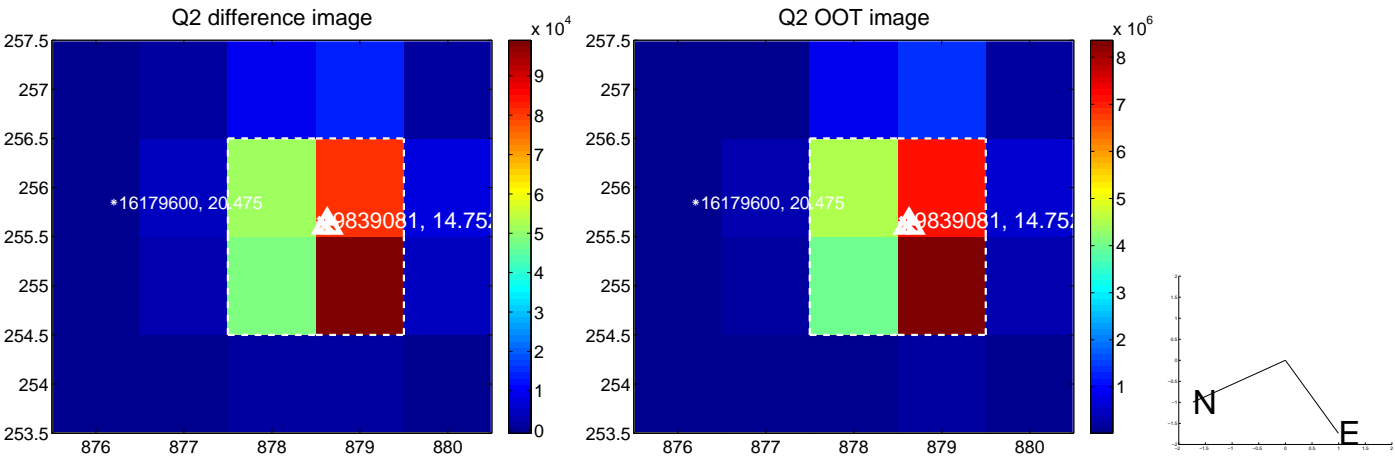
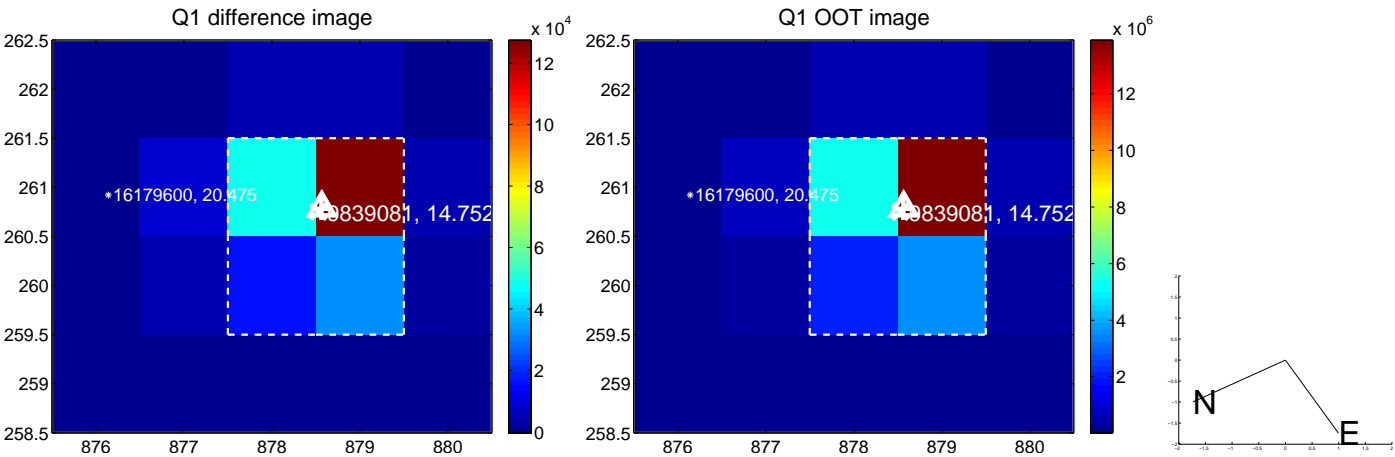
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.010 ± 0.067	0.14	0.010 ± 0.067	-0.000 ± 0.067
PRF-fit source offset from KIC position	0.148 ± 0.068	2.19	-0.001 ± 0.068	-0.148 ± 0.068
photometric centroid source offset	0.29 ± 0.01	22.79	-0.01 ± 0.01	-0.29 ± 0.01

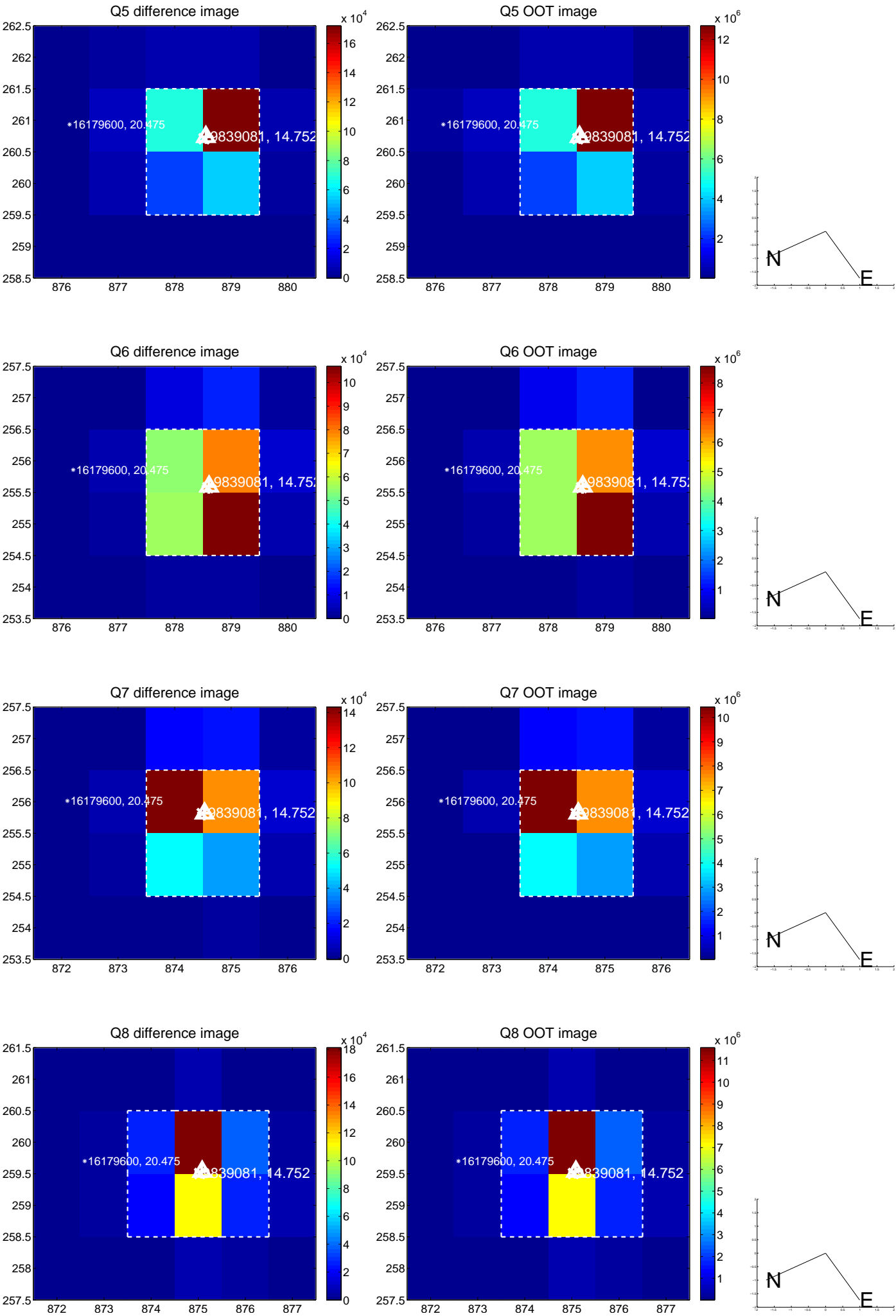


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

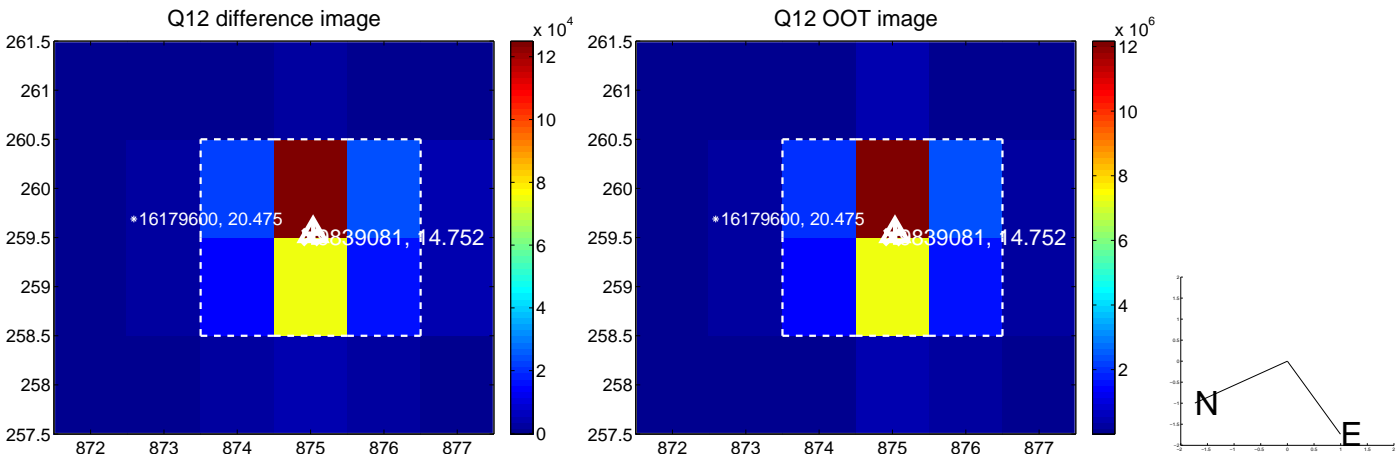
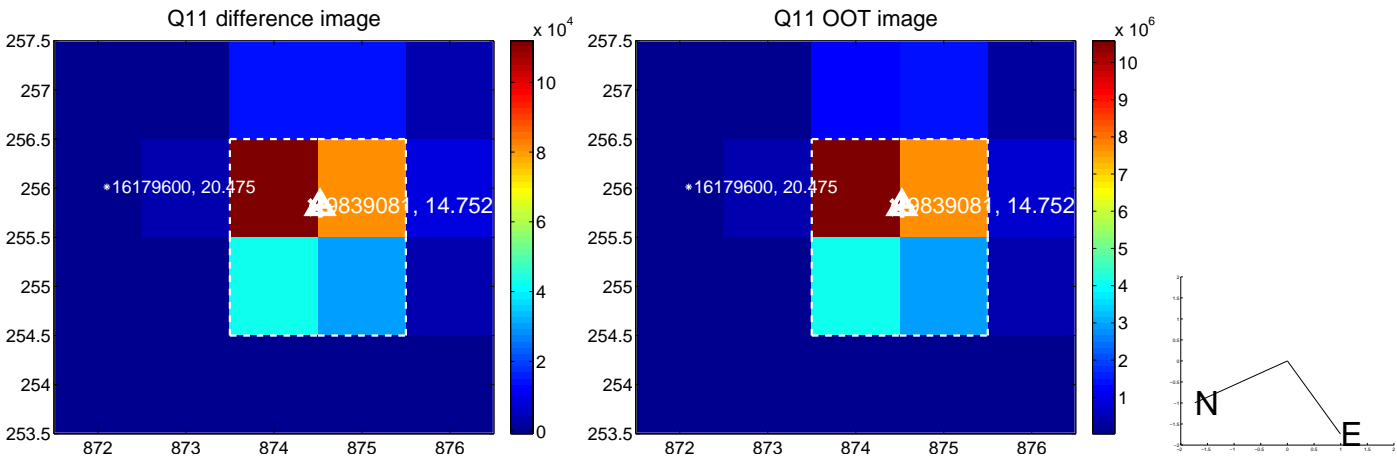
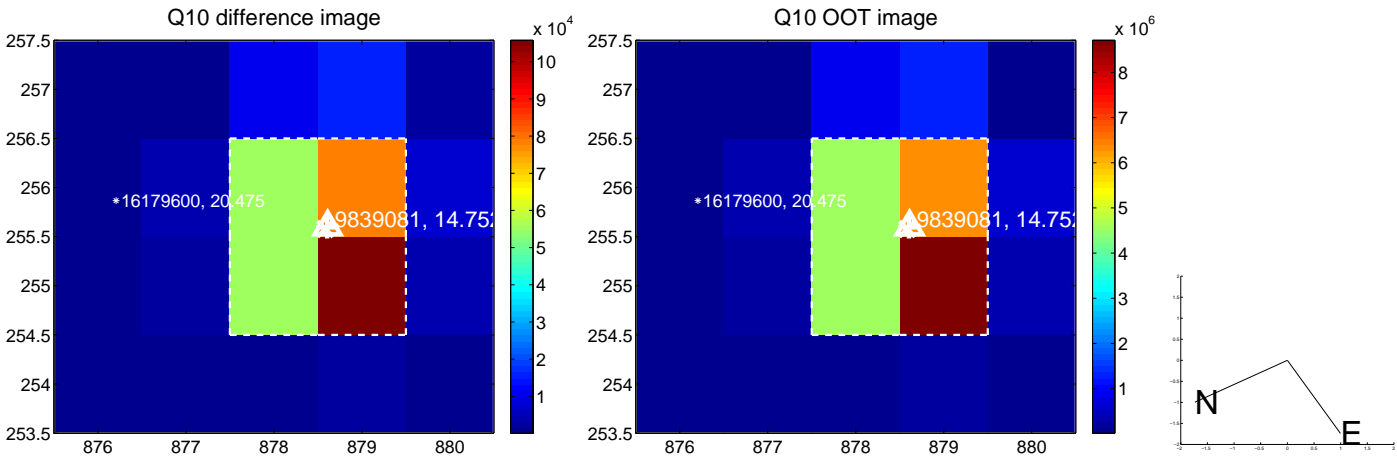
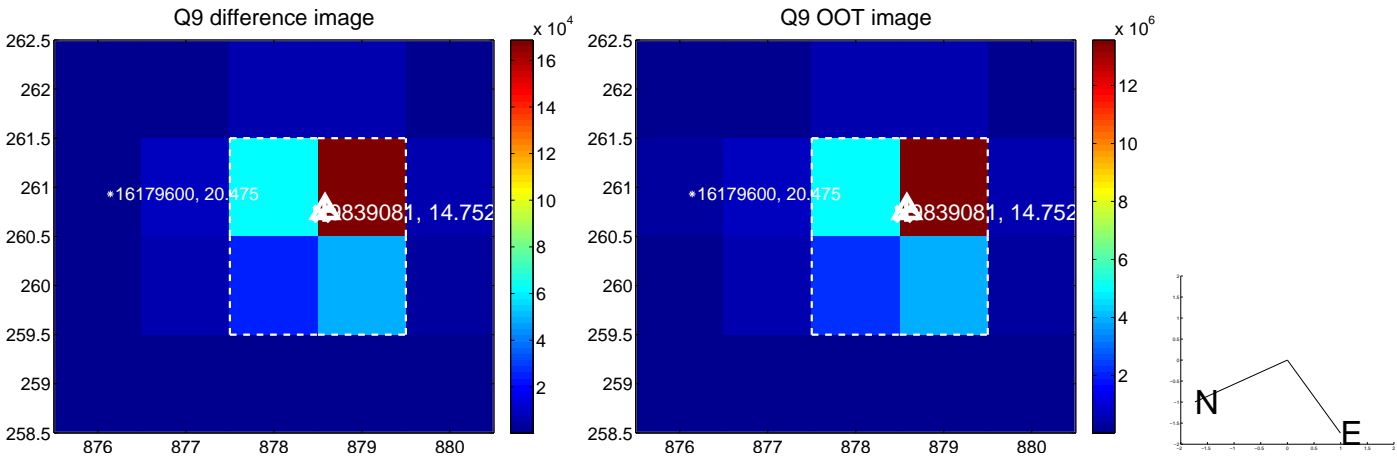
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



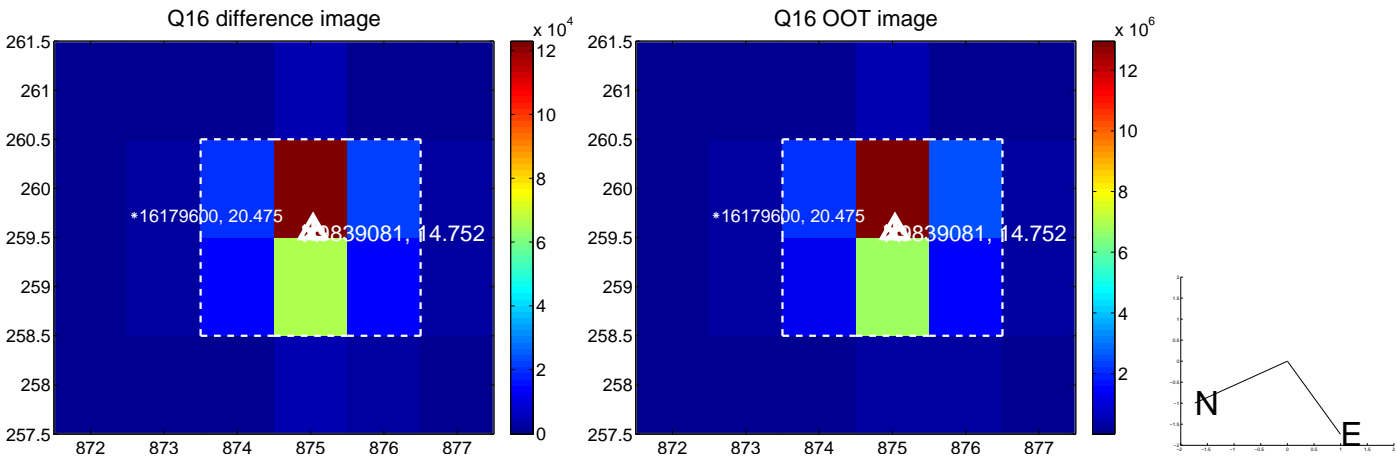
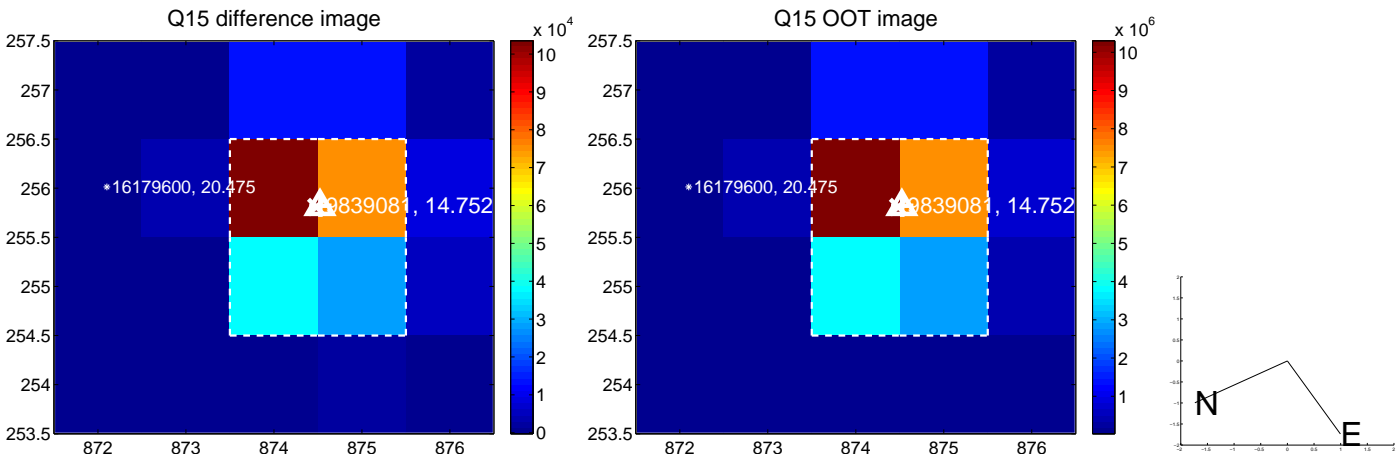
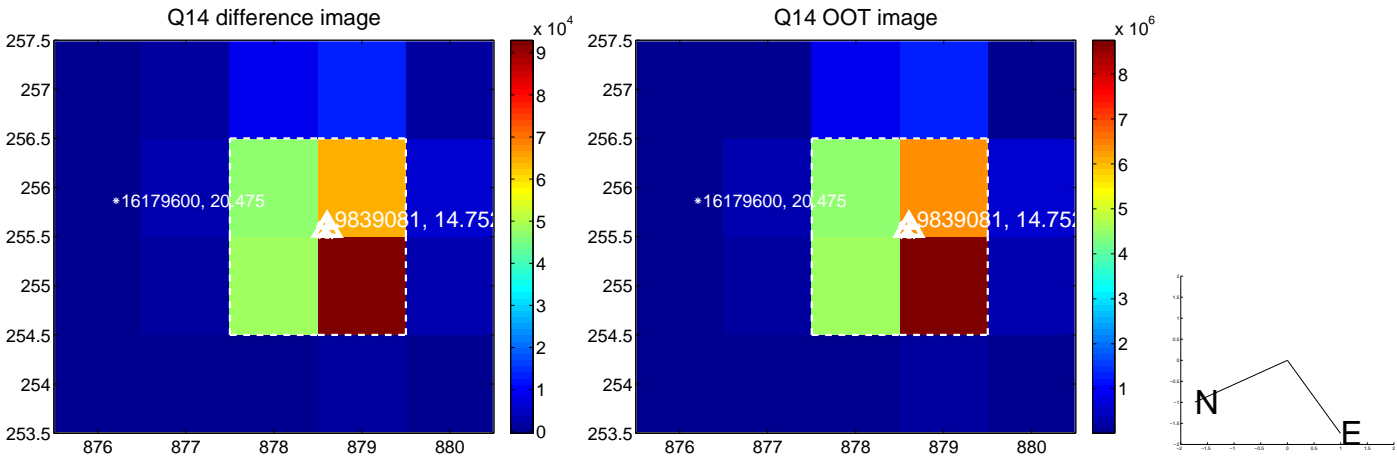
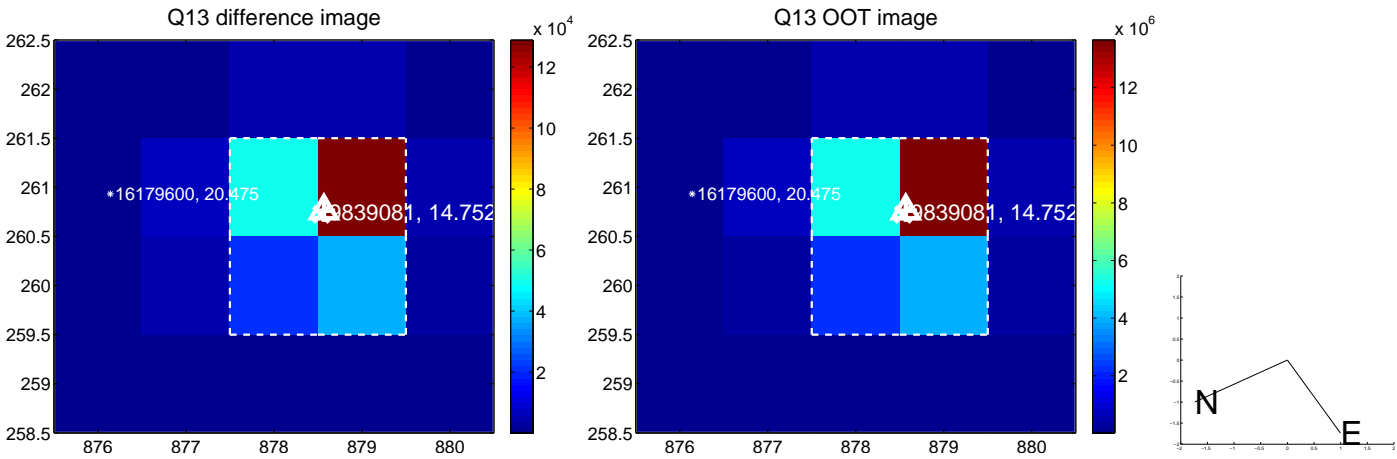
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



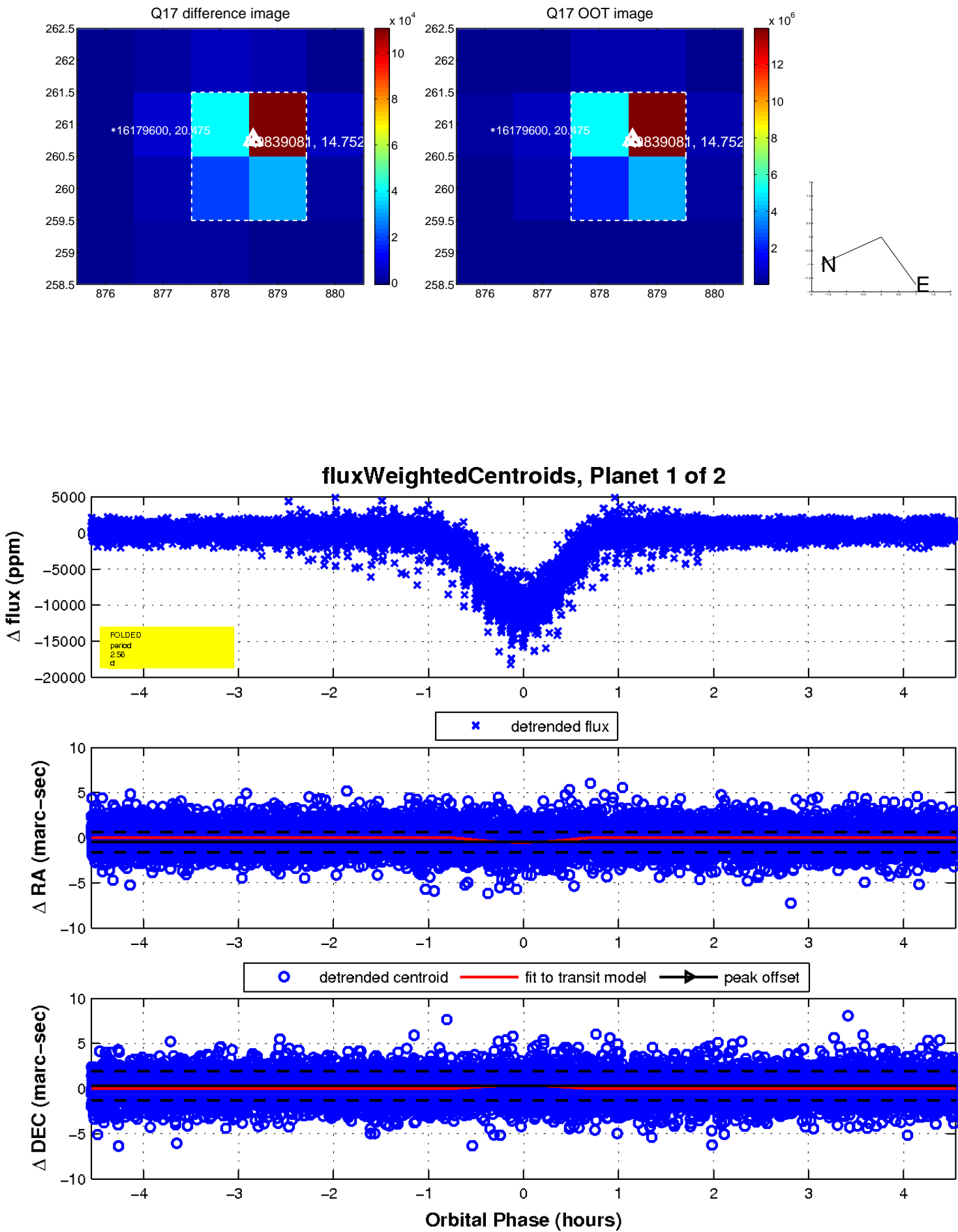
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

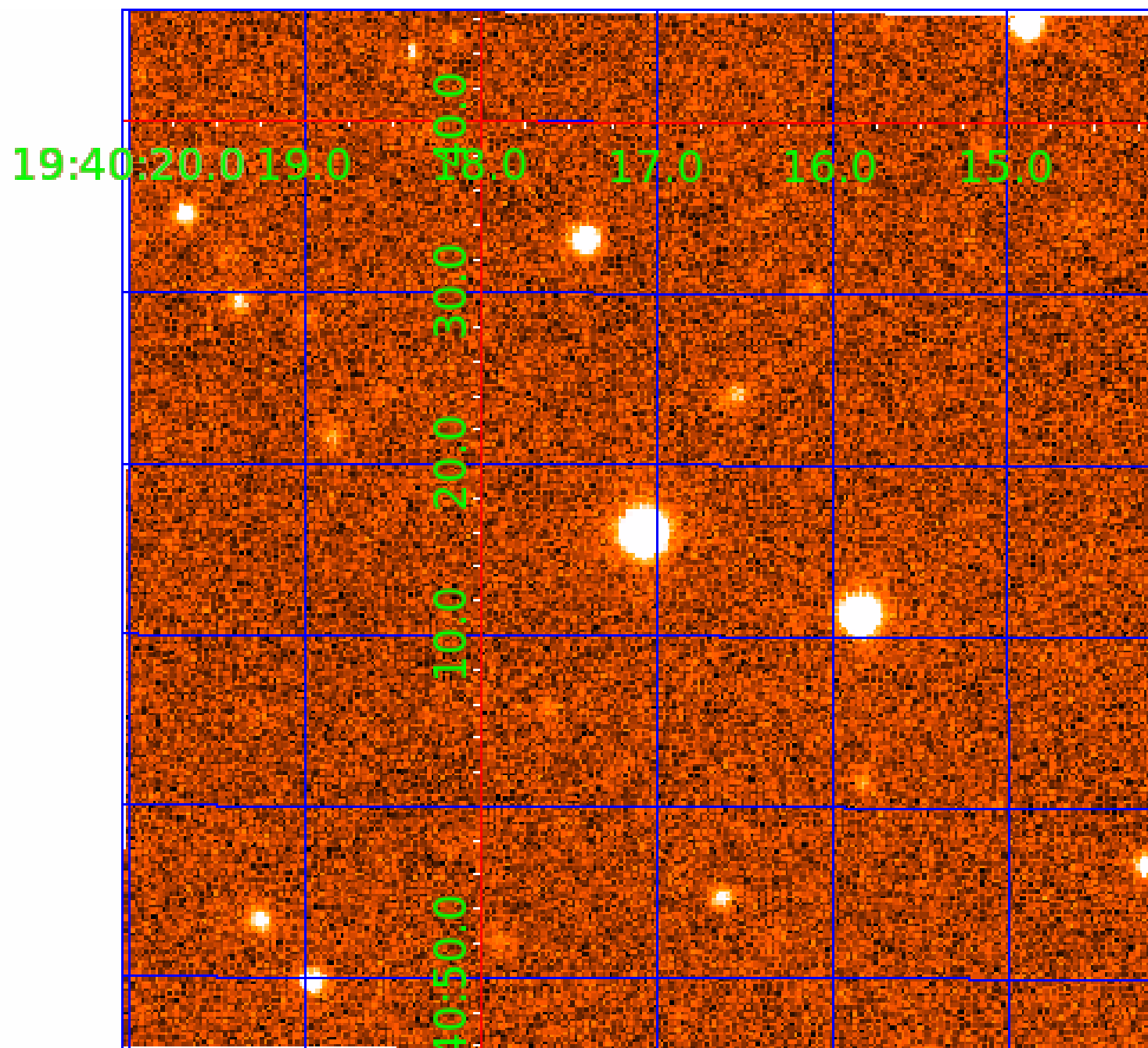


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009839081

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})
009839081-01	OBS	6213.01	2.559251	132.260244	10924.4	1.516	622.5	510.9	0.88	5955	11.50	667.18
009839081-02	OBS	No	2.559257	133.538769	415.2	1.150	23.4	28.6	0.88	5955	2.14	667.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009839081-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL
009839081-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—SAME_NTL_PERIOD

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 009839081-02

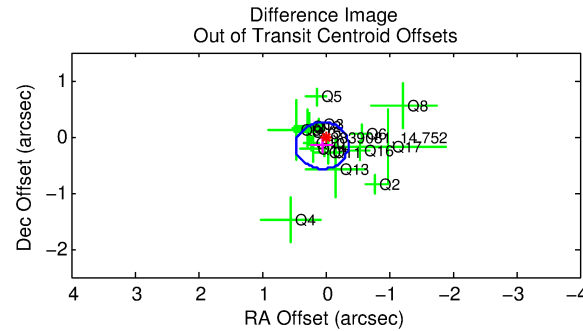
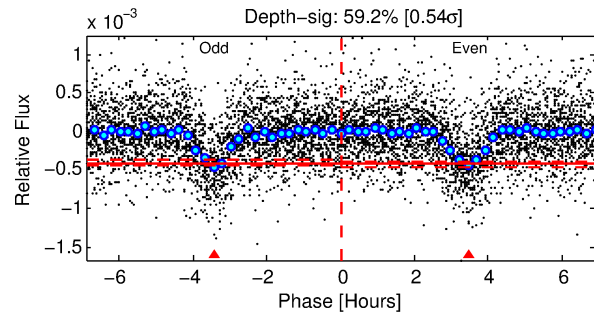
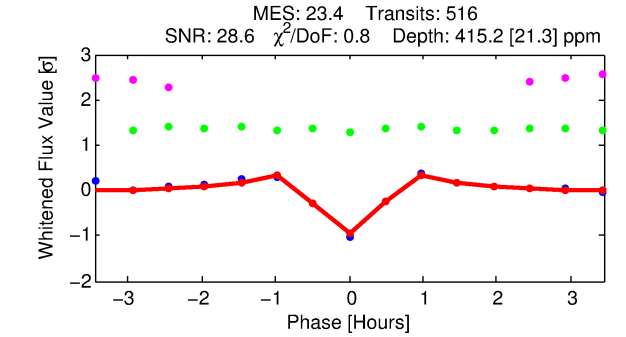
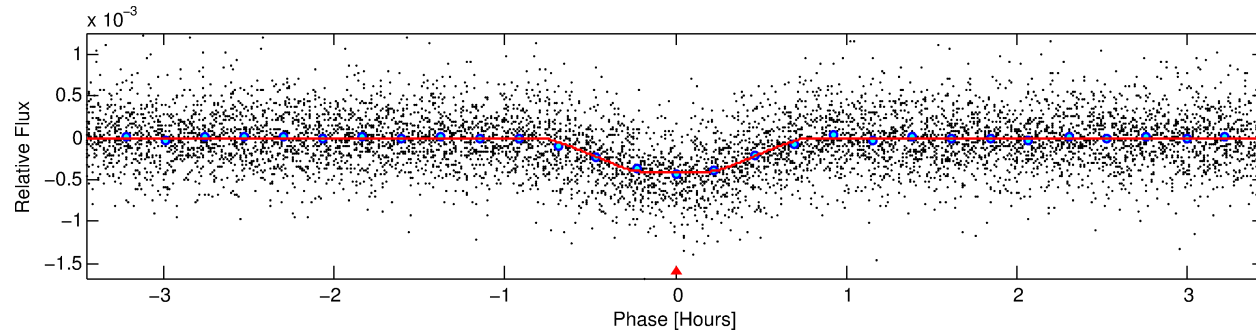
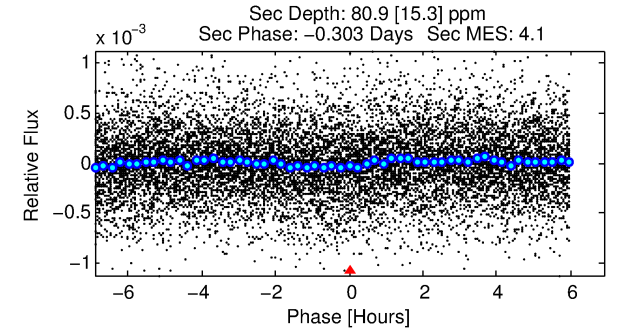
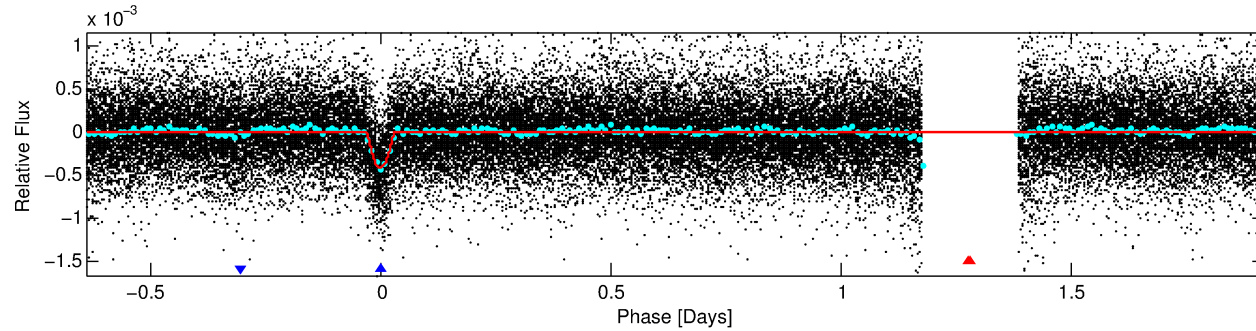
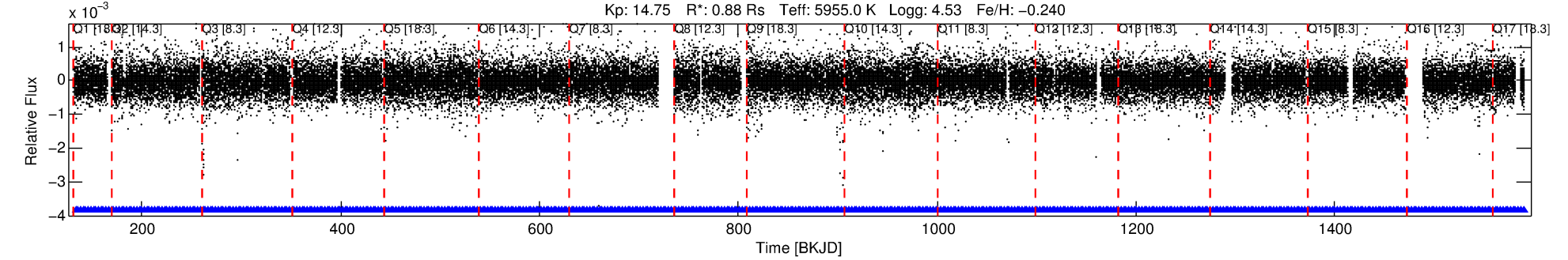
No Significant Match Found

DV One-Page Summary

KIC: 9839081 Candidate: 2 of 2 Period: 2.559 d

KOI: K06213 Corr: No Ephemeris Match

Kp: 14.75 R*: 0.88 Rs Teff: 5955.0 K Logg: 4.53 Fe/H: -0.240



DV Fit Results:

Period = 2.55926 [0.00000] d
Epoch = 133.5388 [0.0005] BKJD
Rp/R* = 0.0222 [0.0043]
a/R* = 8.29 [7.76]
b = 0.90 [0.20]
Seff = 667.18 [268.85]
Teff = 1296 [131] K
Rp = 2.14 [0.78] Re
a = 0.0363 [0.0095] AU
Ag = 12.81 [7.38] [1.60σ]
Teffp = 3791 [422] K [5.65σ]

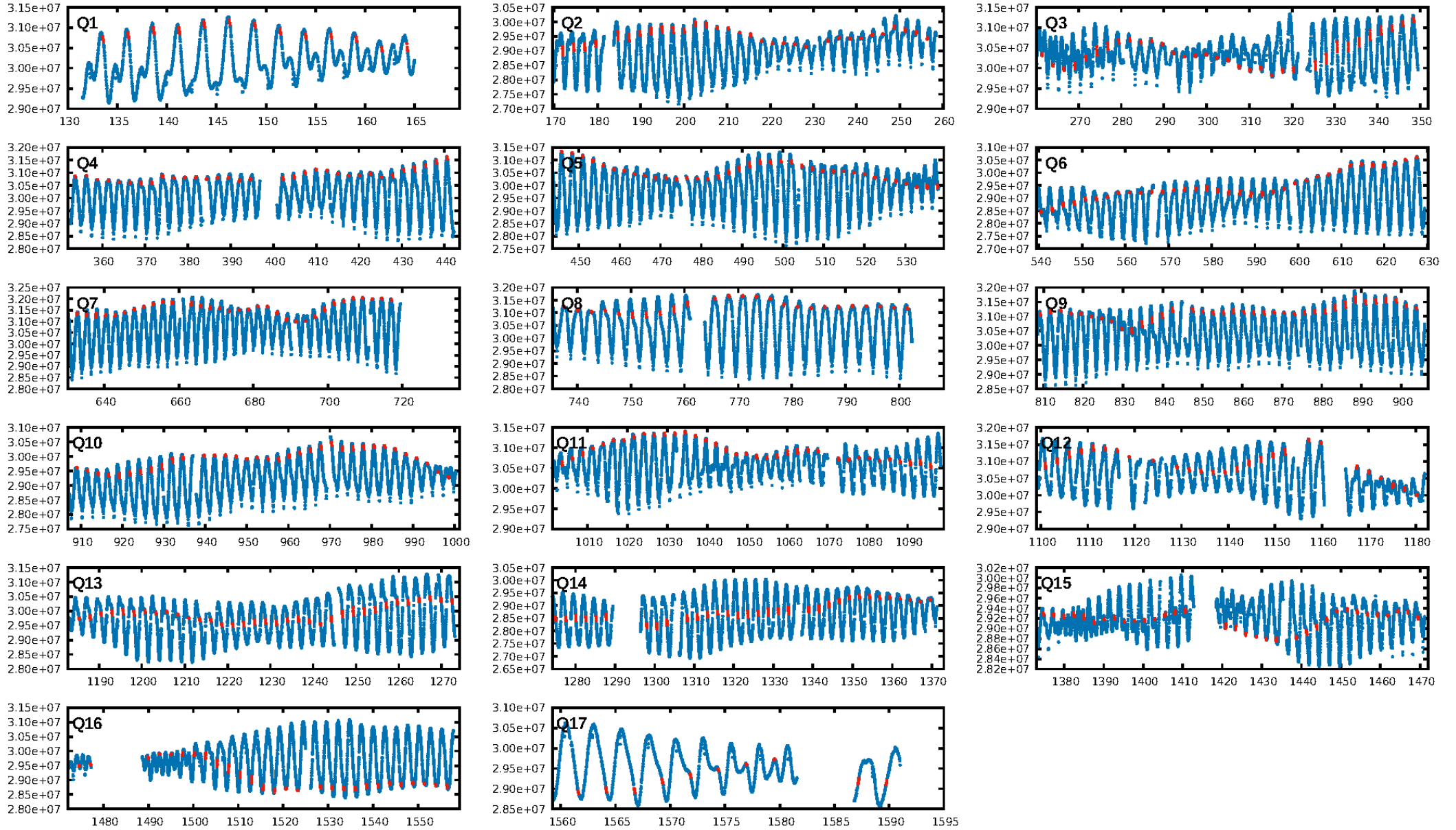
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.79e-106
RollingBand-fgt: 1.00 [493/493]
GhostDiagnostic-chr: 2.6
Centroid-sig: 7.5%
Centroid-so: 0.143 arcsec [0.46σ]
OotOffset-rm: 0.168 arcsec [1.21σ]
KicOffset-rm: 0.318 arcsec [2.28σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 1.00 [17/17]

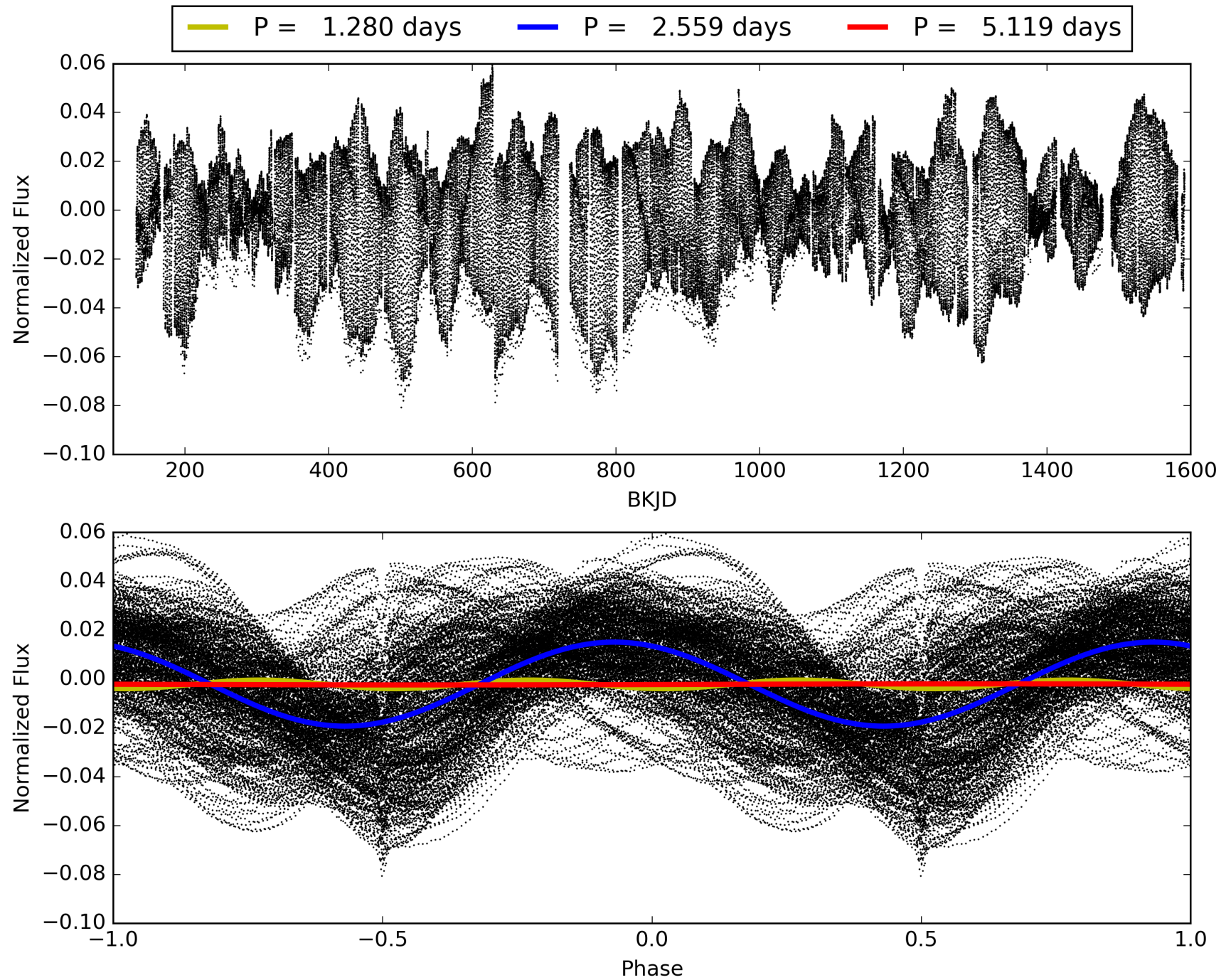
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:07:18 Z

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

TCE 009839081-02, PDC Light Curves

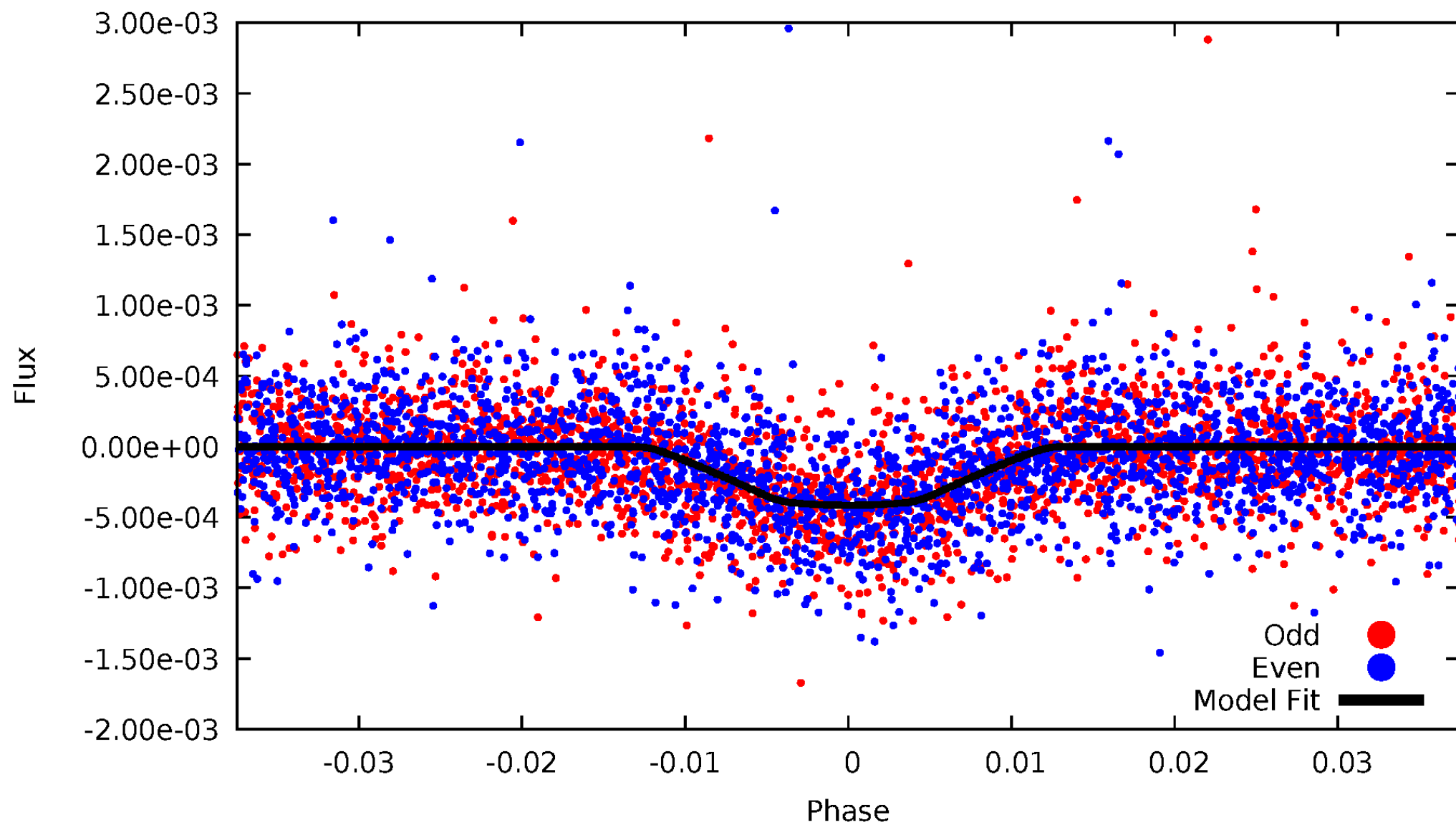


TCE 009839081-02



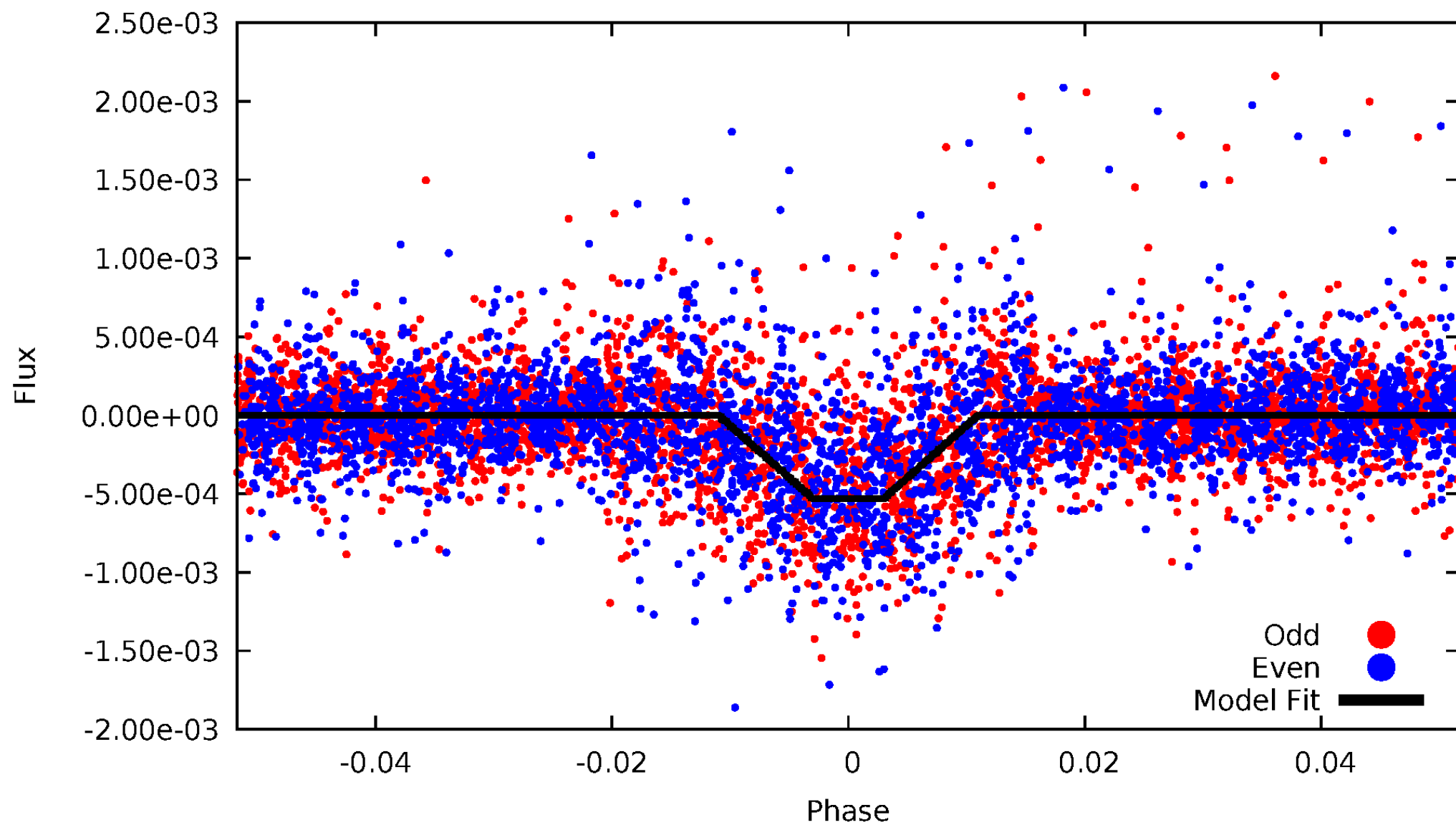
DV Odd/Even

TCE 009839081-02



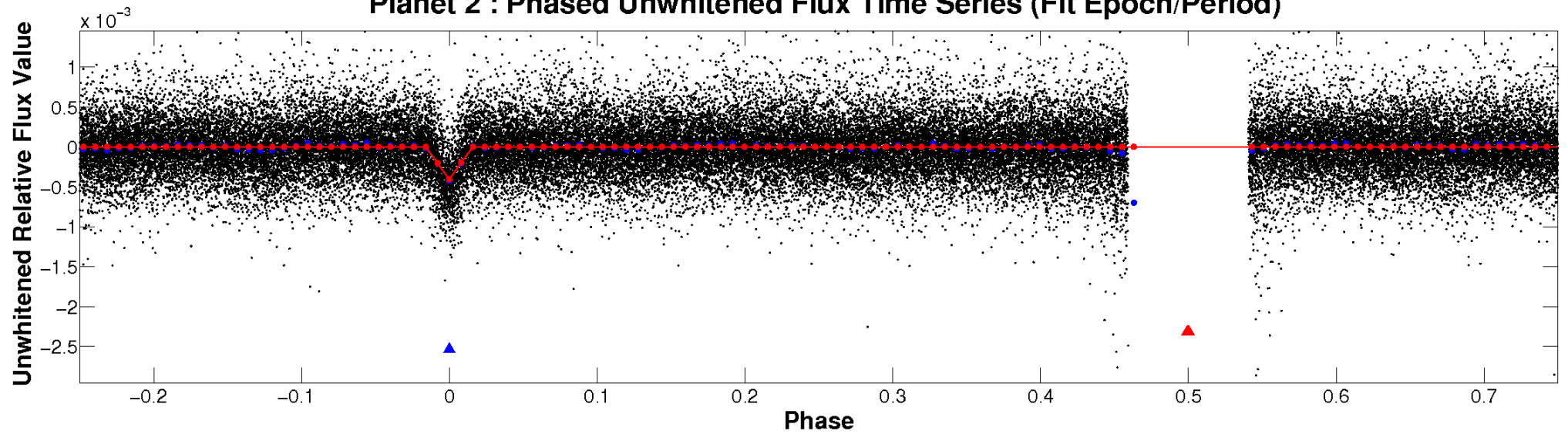
ALT Odd/Even

TCE 009839081-02

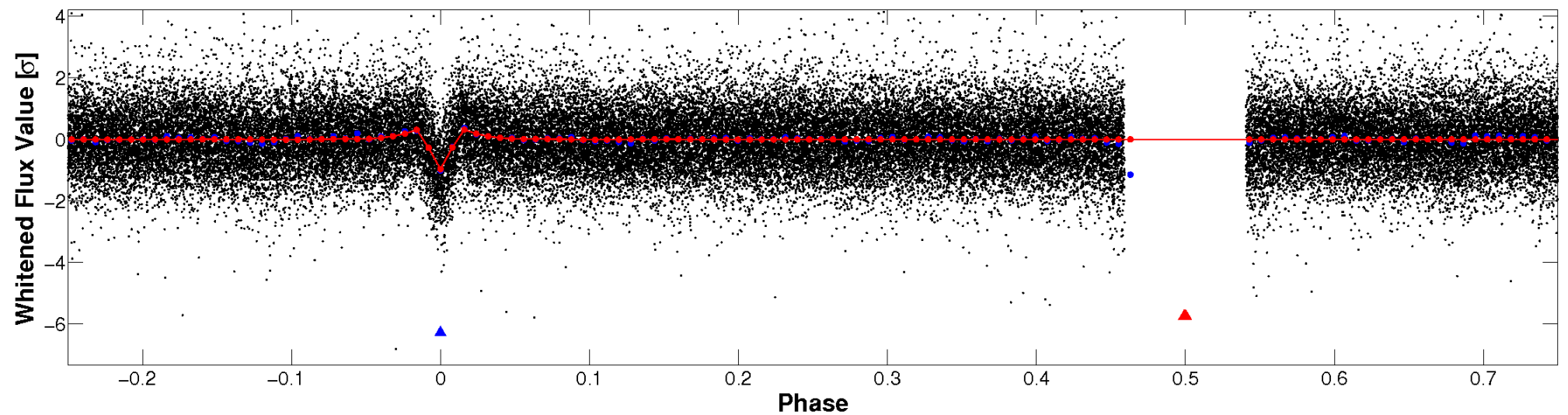


Non-Whitened Vs. Whitened Light Curve

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

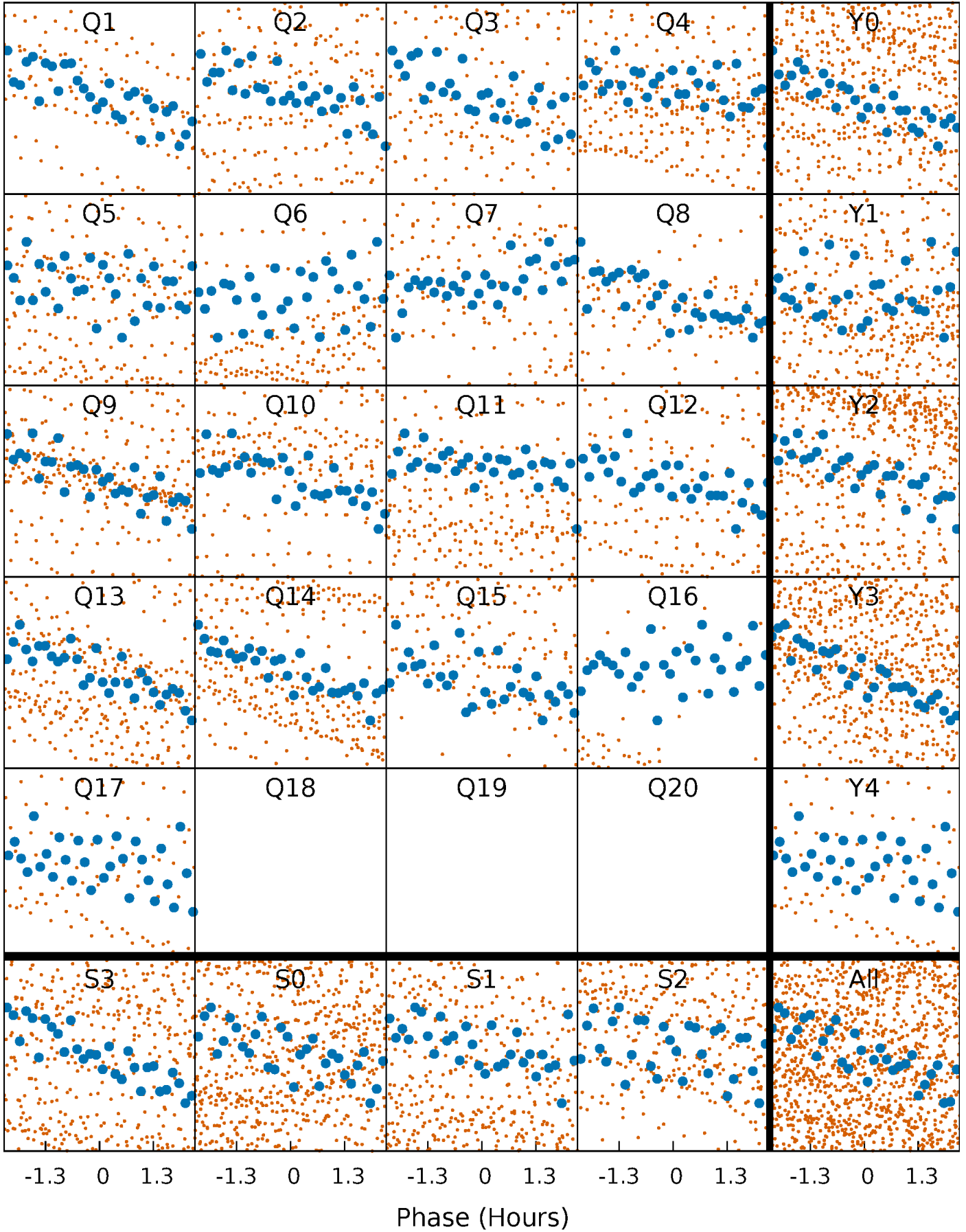


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



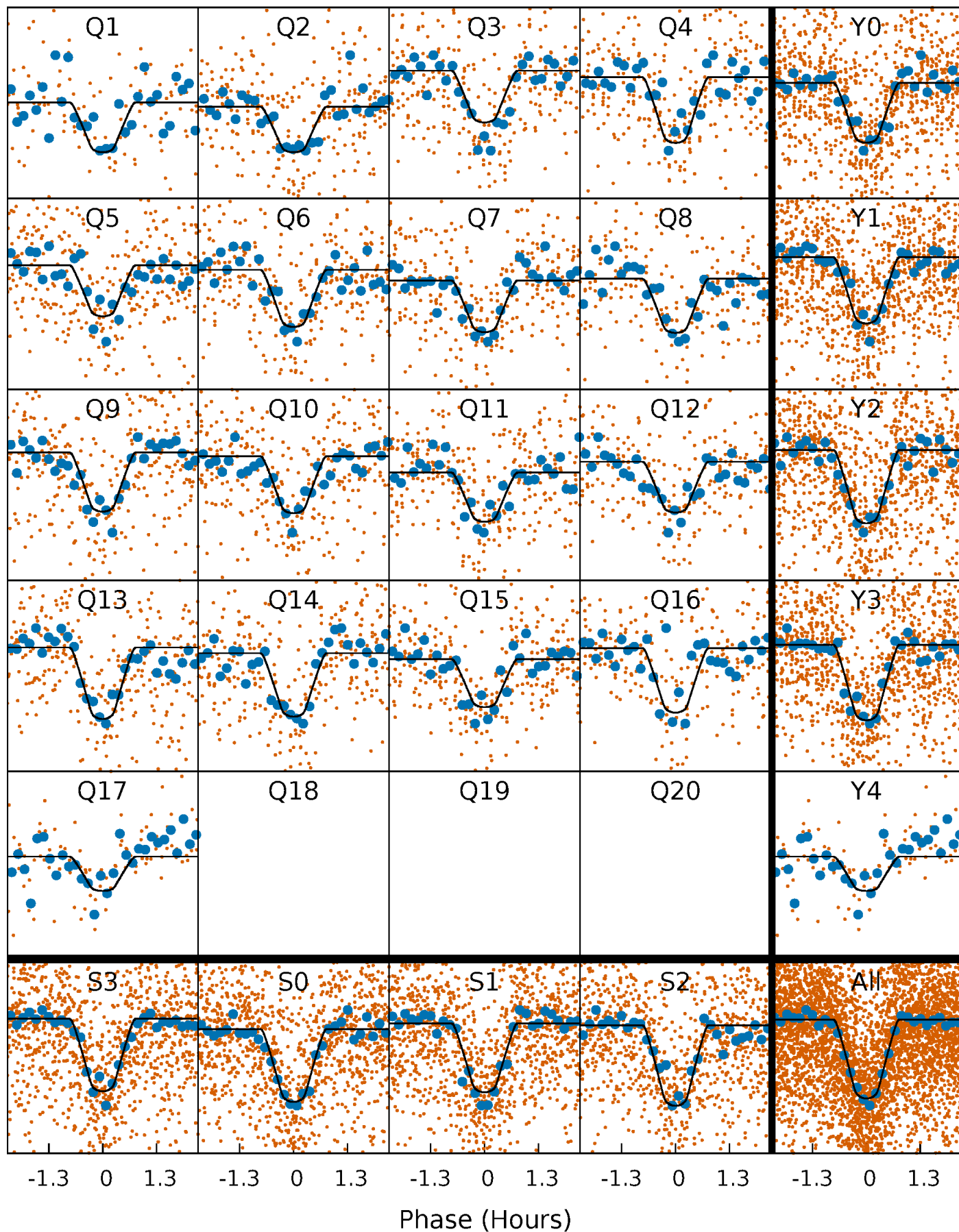
PDC Quarter-Phased Transit Curves

TCE 009839081-02 P= 2.559257 Days $T_0=133.538770$ (BKJD)



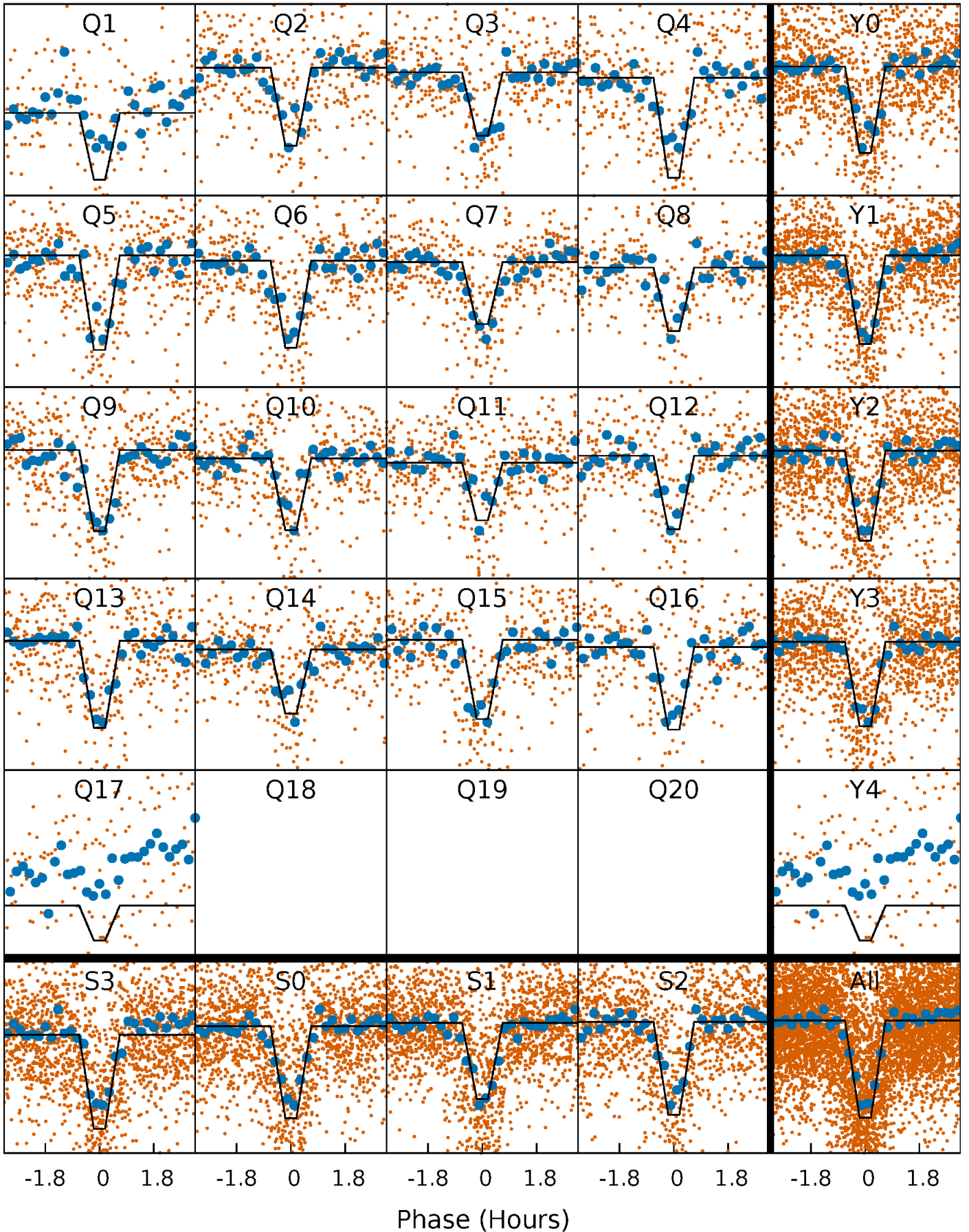
DV Quarter-Phased Transit Curves

TCE 009839081-02 $P = 2.559257$ Days $T_0 = 133.538770$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

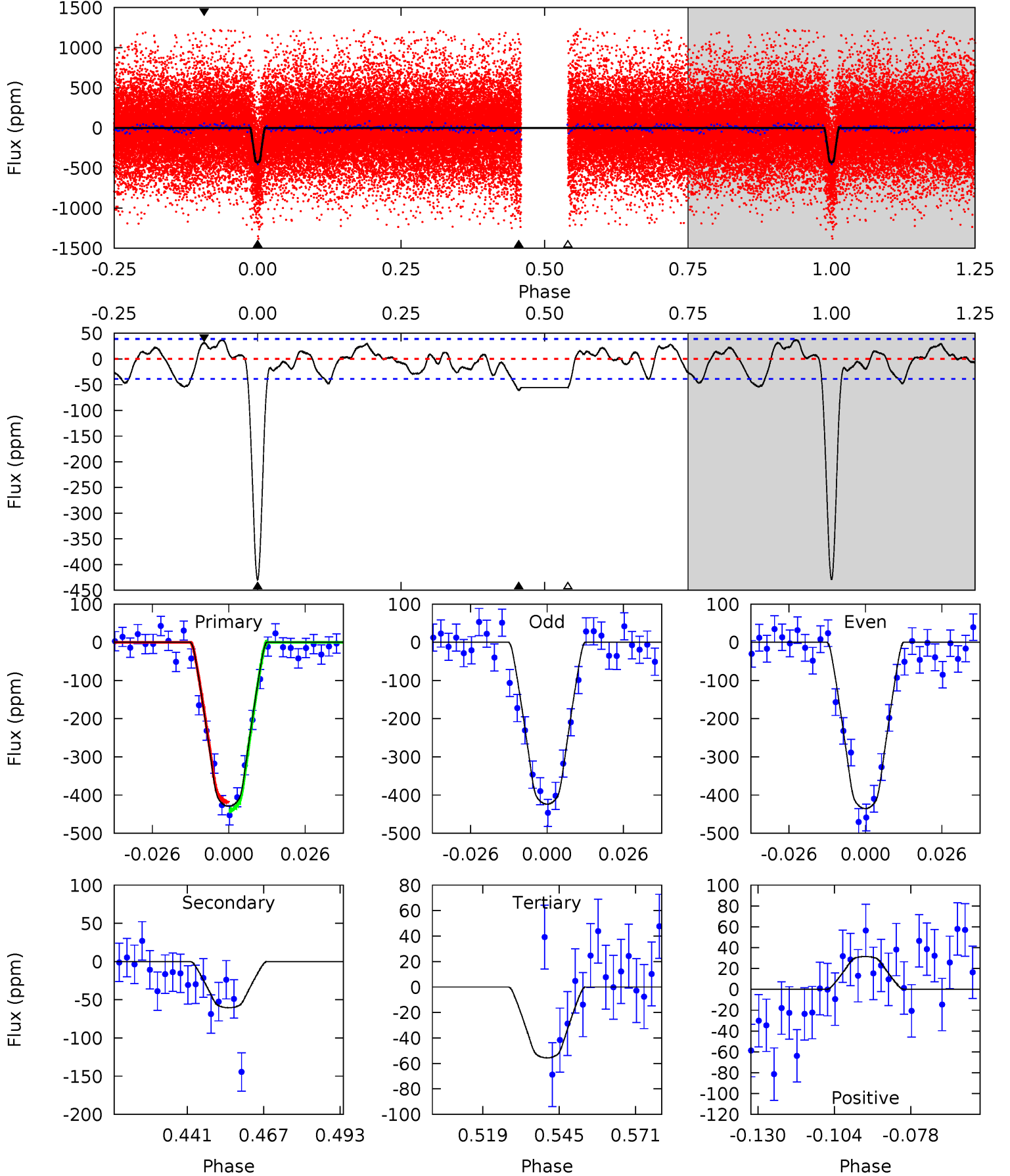
TCE 009839081-02 P= 2.559249 Days $T_0=133.540845$ (BKJD)



DV Model-Shift Uniqueness Test

009839081-02, P = 2.559257 Days, E = 130.979513 Days

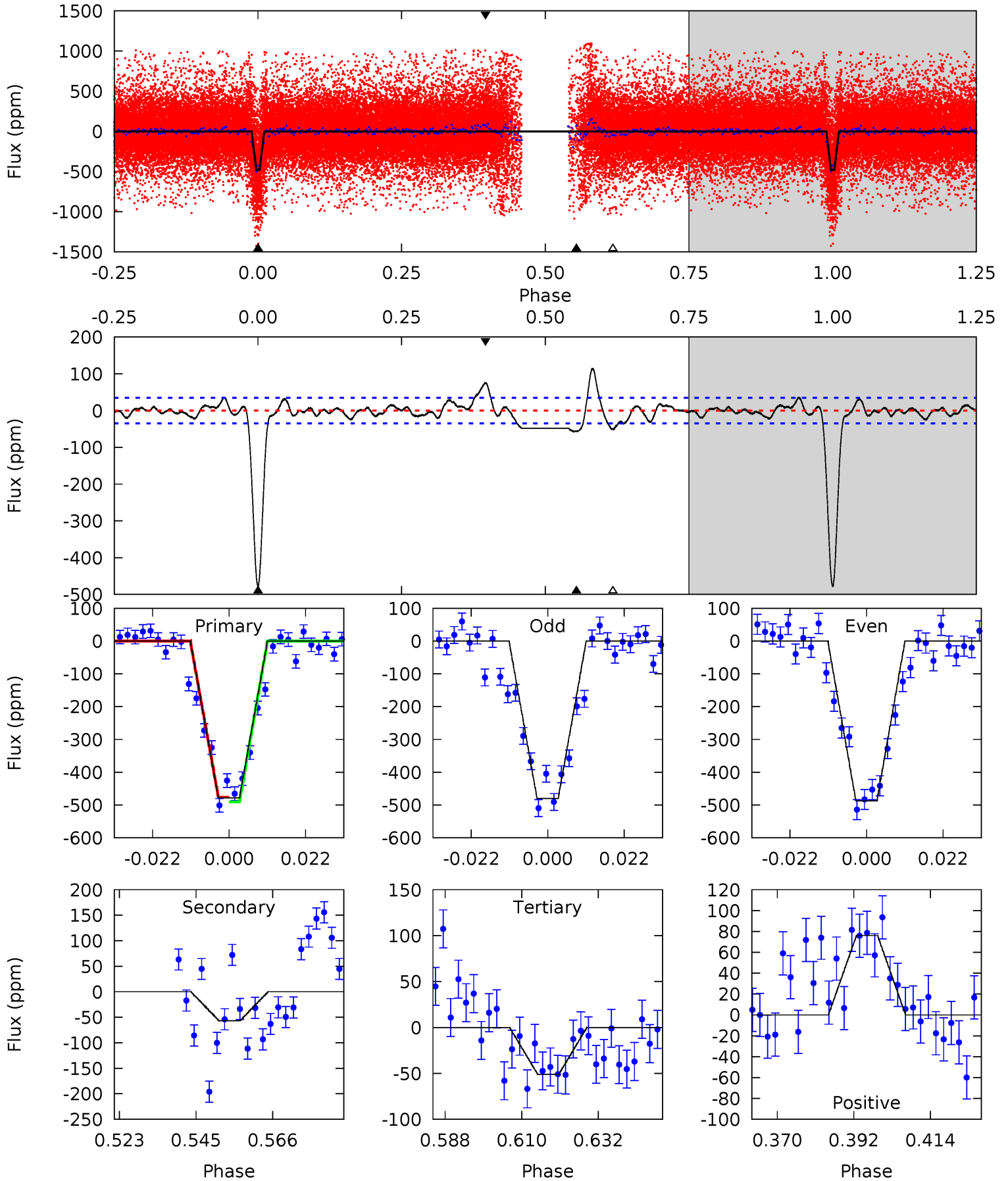
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.7	7.55	6.95	3.93	4.84	2.23	2.57	46.7	49.7	0.60	3.62	0.71	0.97	0.08	1.36



Alt Model-Shift Uniqueness Test

009839081-02, P = 2.559249 Days, E = 130.981596 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.0	7.97	7.15	10.7	4.87	2.29	3.08	59.8	56.3	0.82	-2.69	0.48	0.96	0.19	1.02



Stellar Parameters For KIC 009839081

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5955^{+160}_{-178}	$4.534^{+0.038}_{-0.212}$	$-0.240^{+0.300}_{-0.300}$	$0.883^{+0.272}_{-0.091}$	$0.972^{+0.119}_{-0.131}$	$1.987^{+0.420}_{-1.071}$
	+3%/-3%	+1%/-5%	+125%/-125%	+31%/-10%	+12%/-13%	+21%/-54%
Source	PHO1	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 009839081-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-60 ± 8	$2.24^{+0.59}_{-0.47}$	1859^{+126}_{-88}	3853^{+368}_{-271}	$8.257^{+5.400}_{-2.873}$
Alt.	-57 ± 7	$2.37^{+0.55}_{-0.50}$	1865^{+126}_{-86}	3754^{+318}_{-242}	$7.161^{+4.559}_{-2.469}$

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

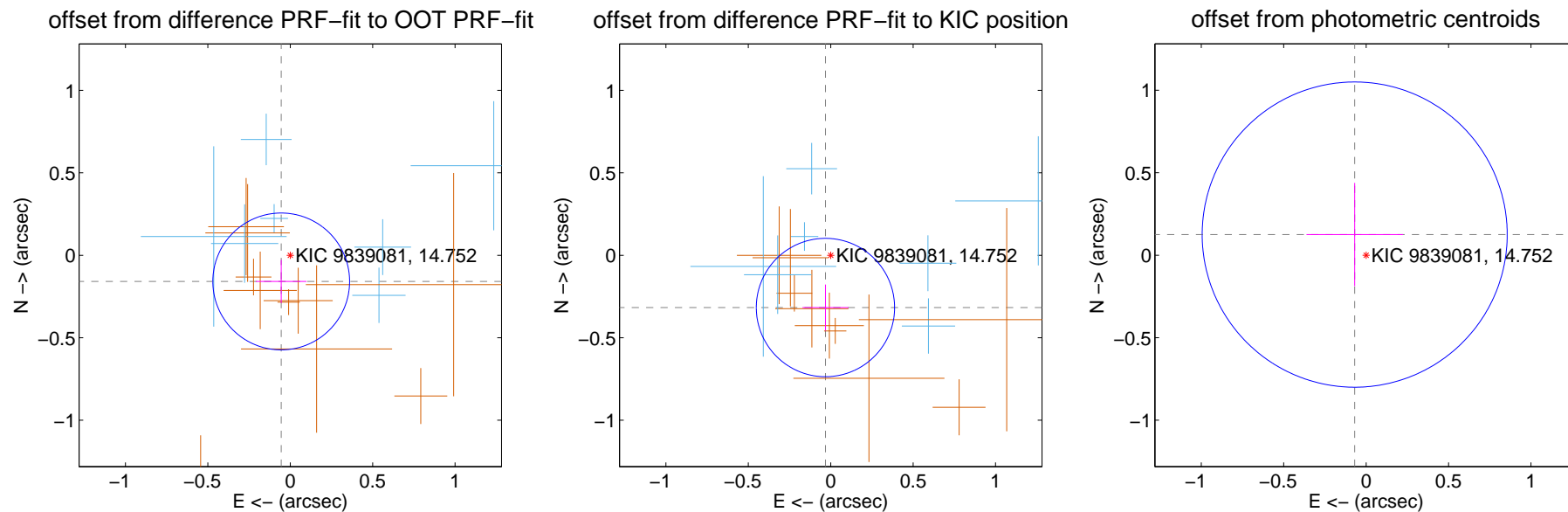
DV Centroid Data

Supplemental centroid analysis for 009839081-02. Kepler magnitude: 14.75. Transit SNR 28.62

There are 7 quarters with good PRF difference image offsets

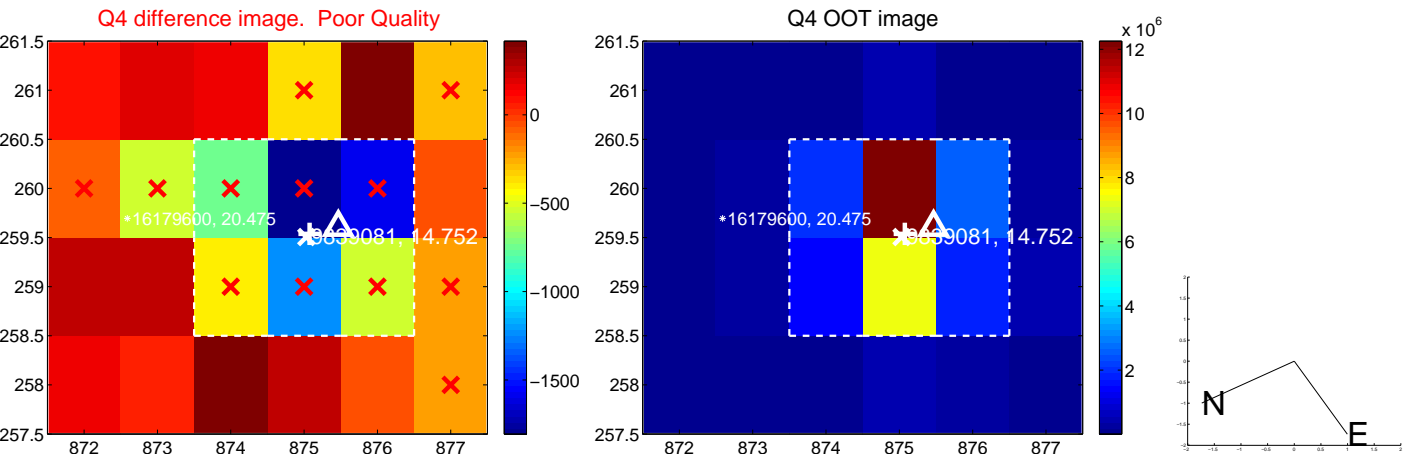
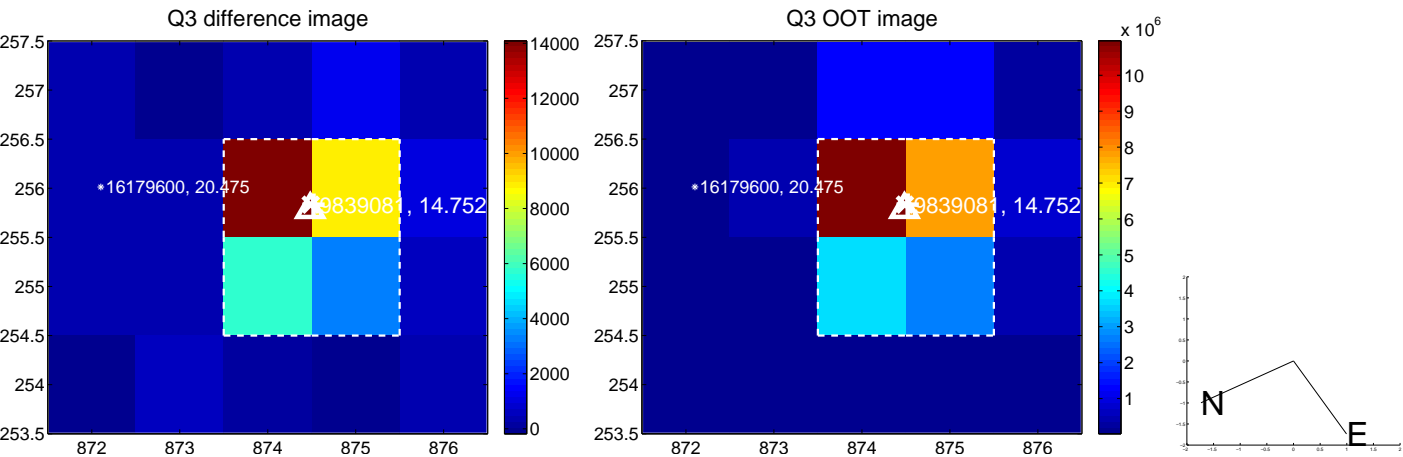
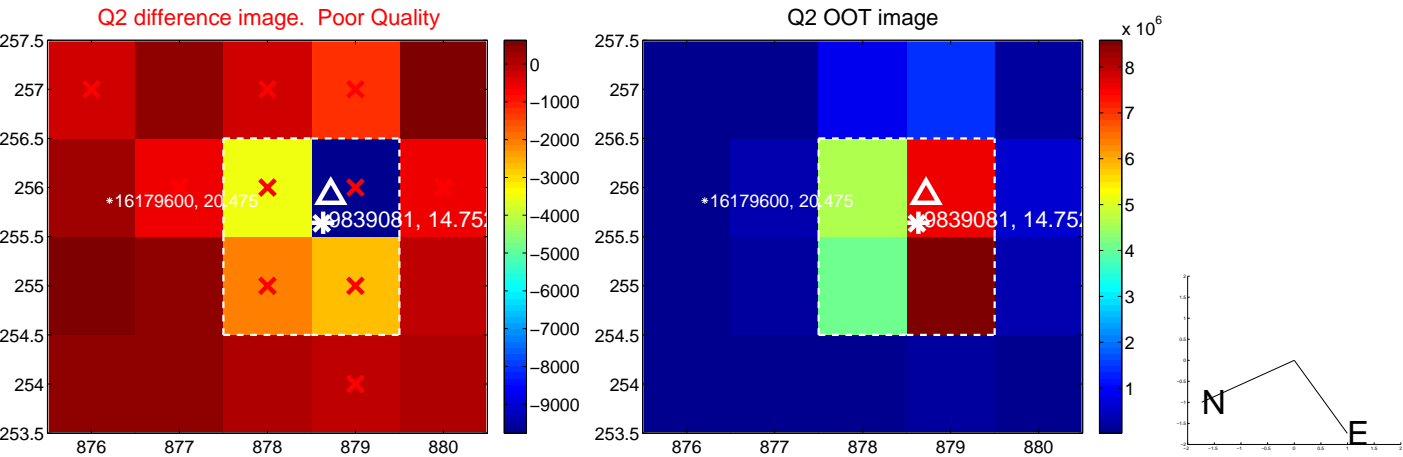
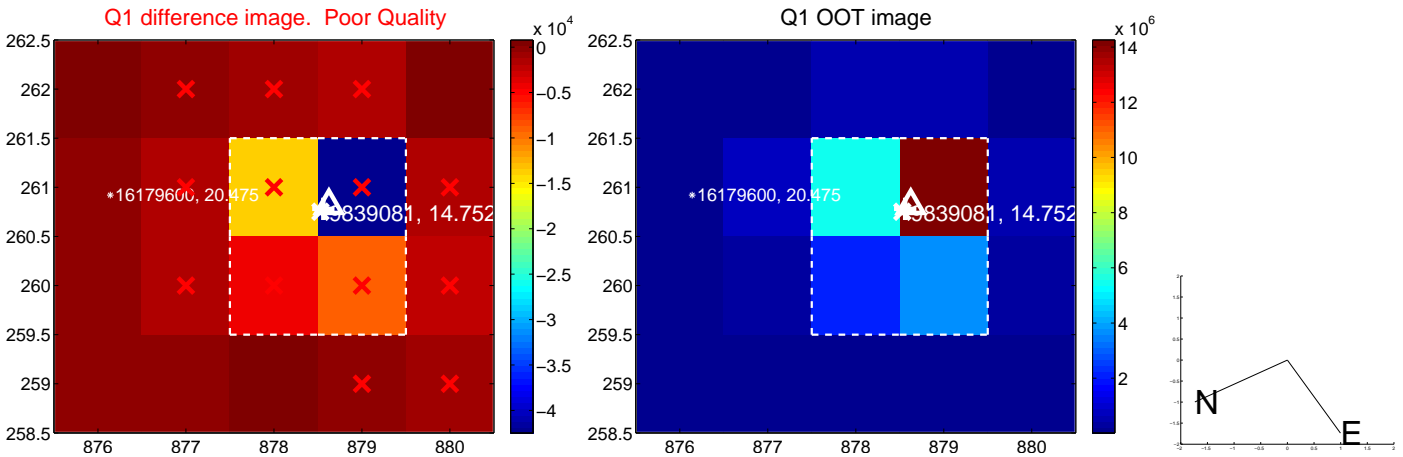
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.168 ± 0.138	1.21	0.055 ± 0.153	-0.159 ± 0.130
PRF-fit source offset from KIC position	0.318 ± 0.140	2.28	0.032 ± 0.140	-0.317 ± 0.140
photometric centroid source offset	0.14 ± 0.31	0.46	0.07 ± 0.29	0.13 ± 0.31

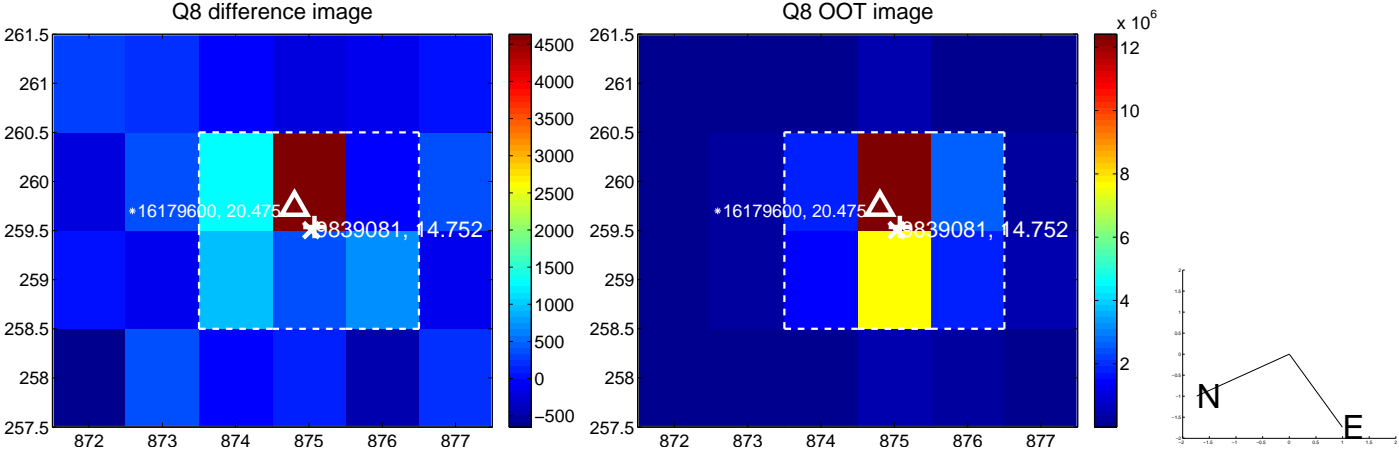
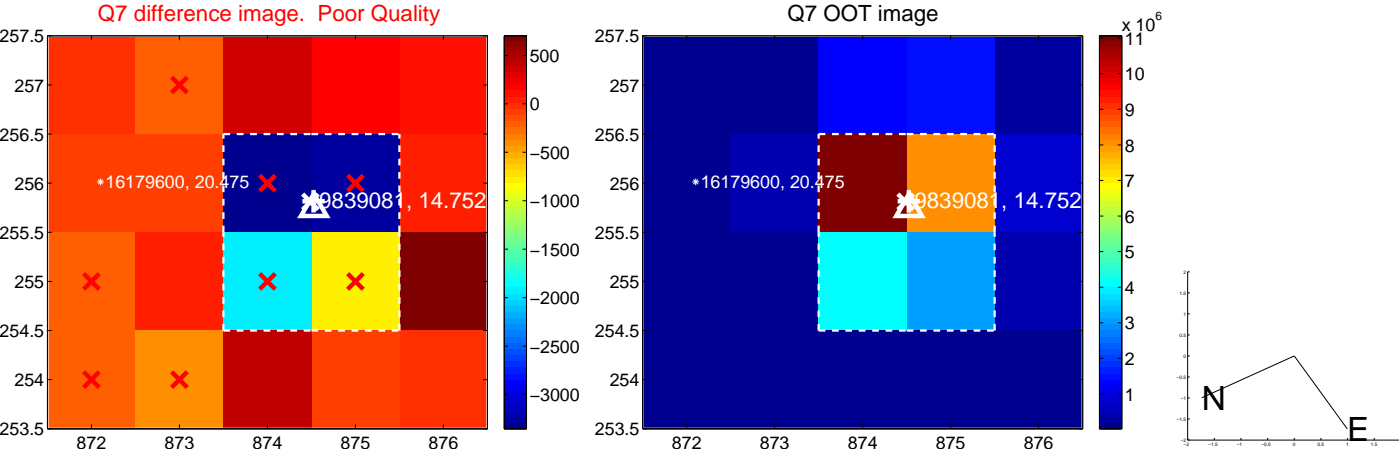
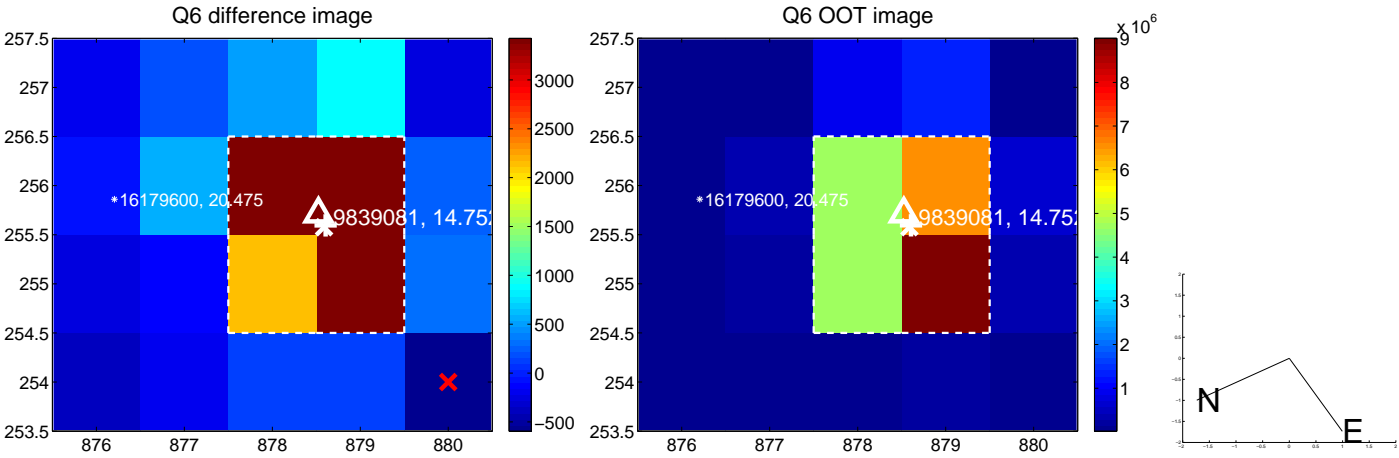
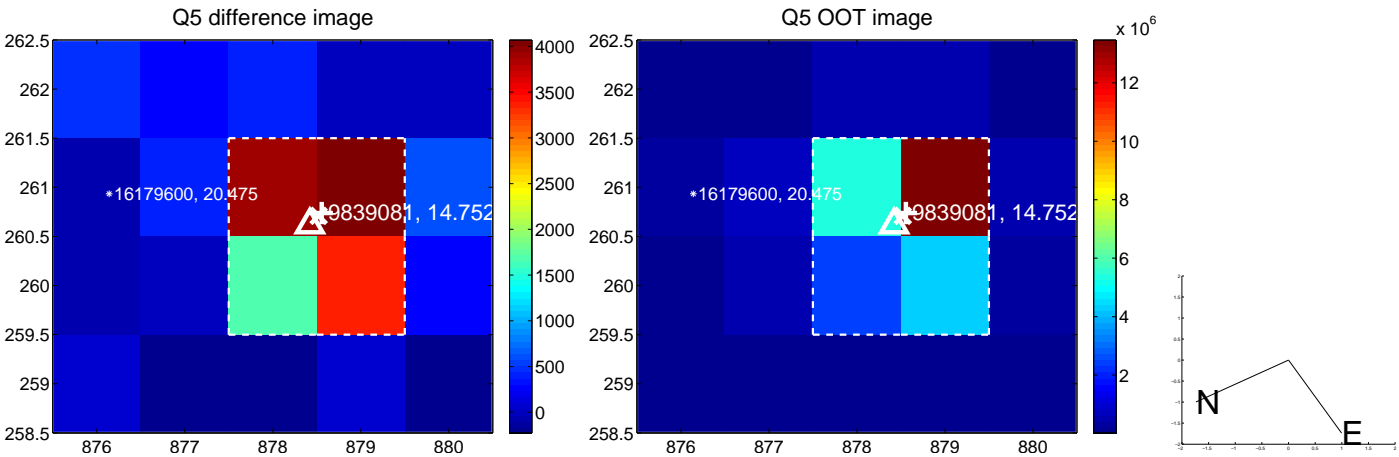


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

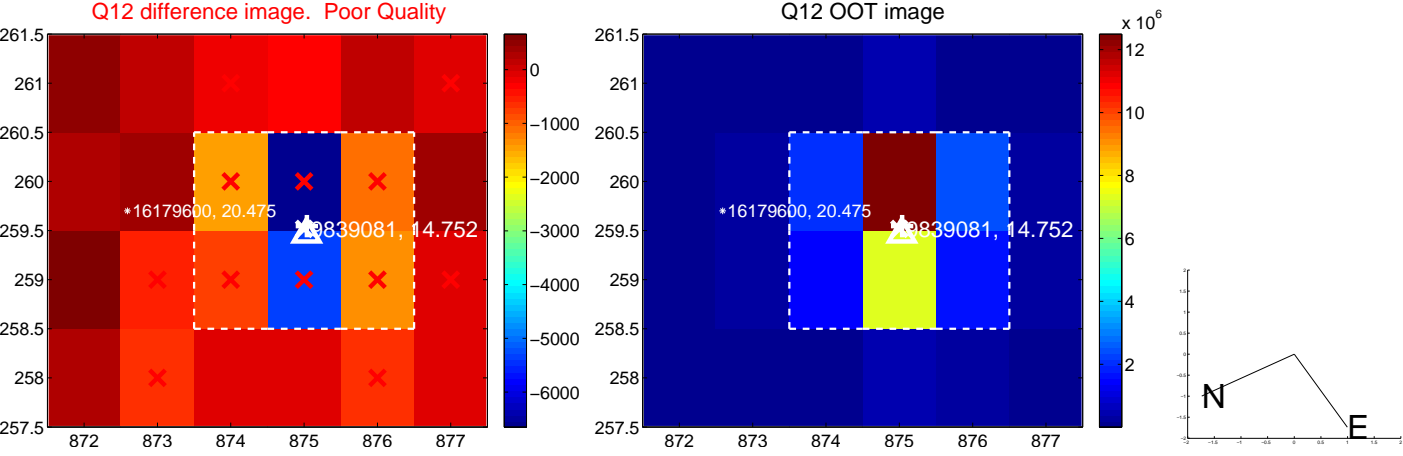
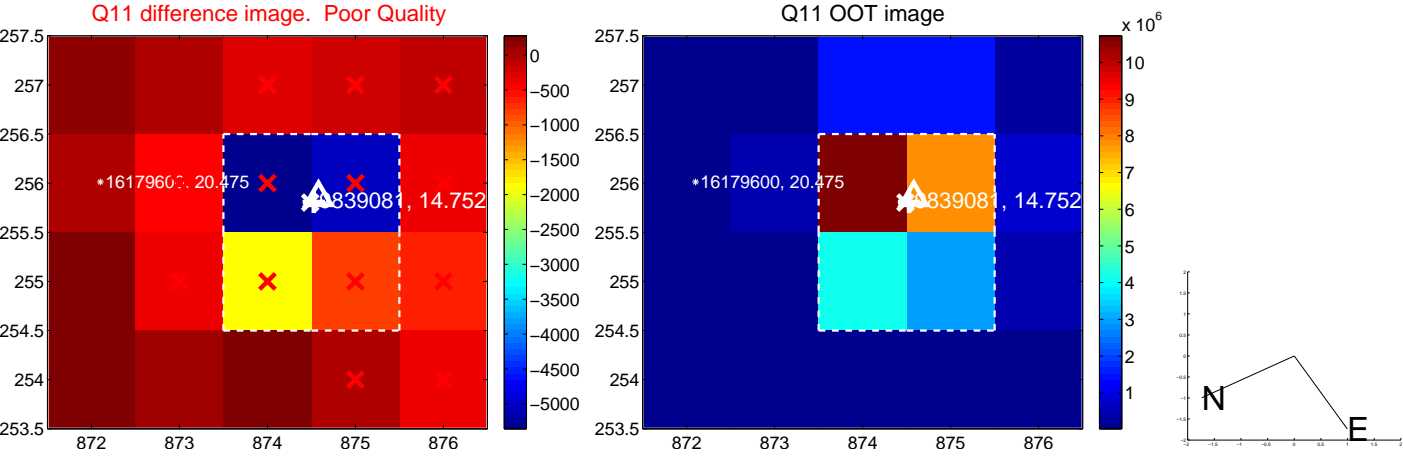
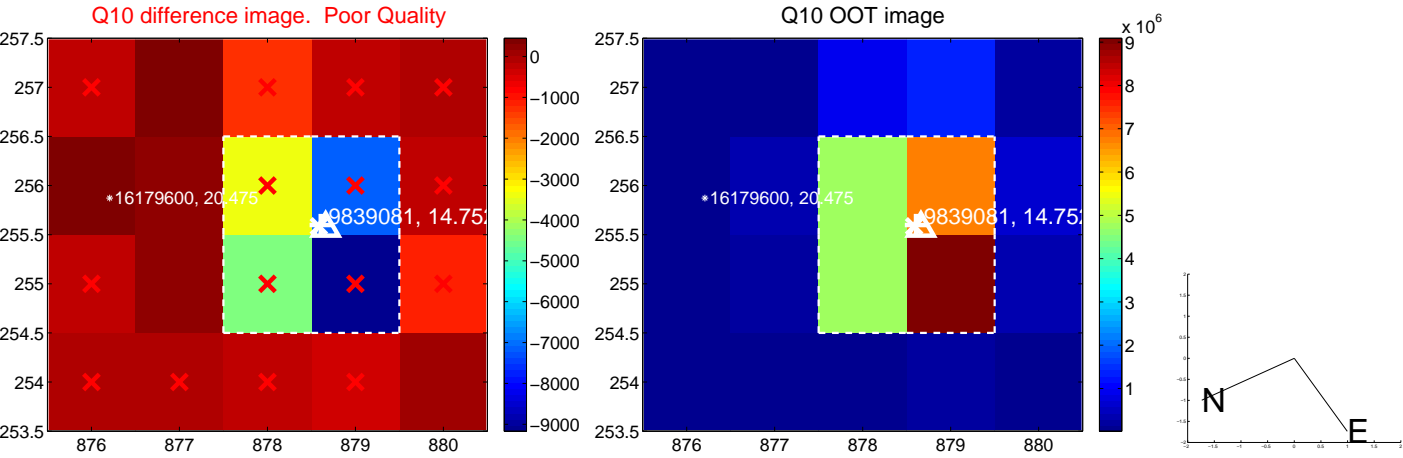
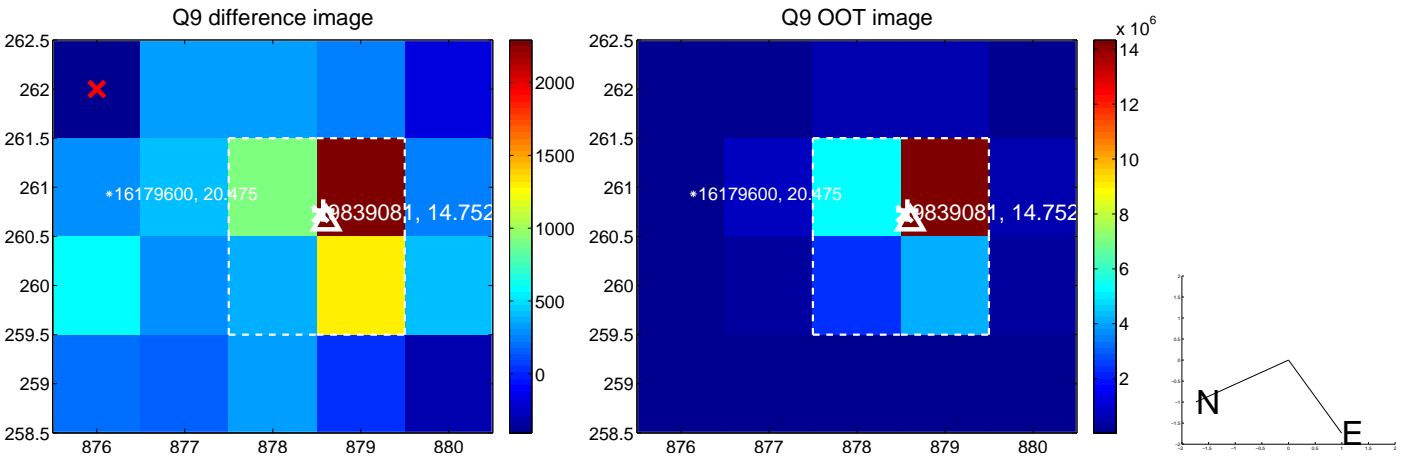
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



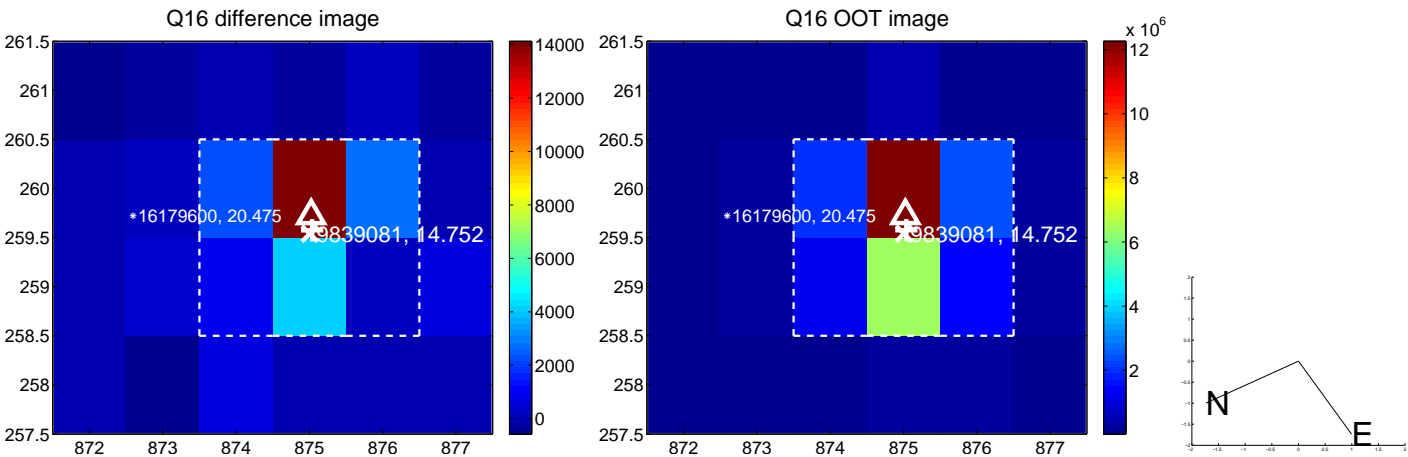
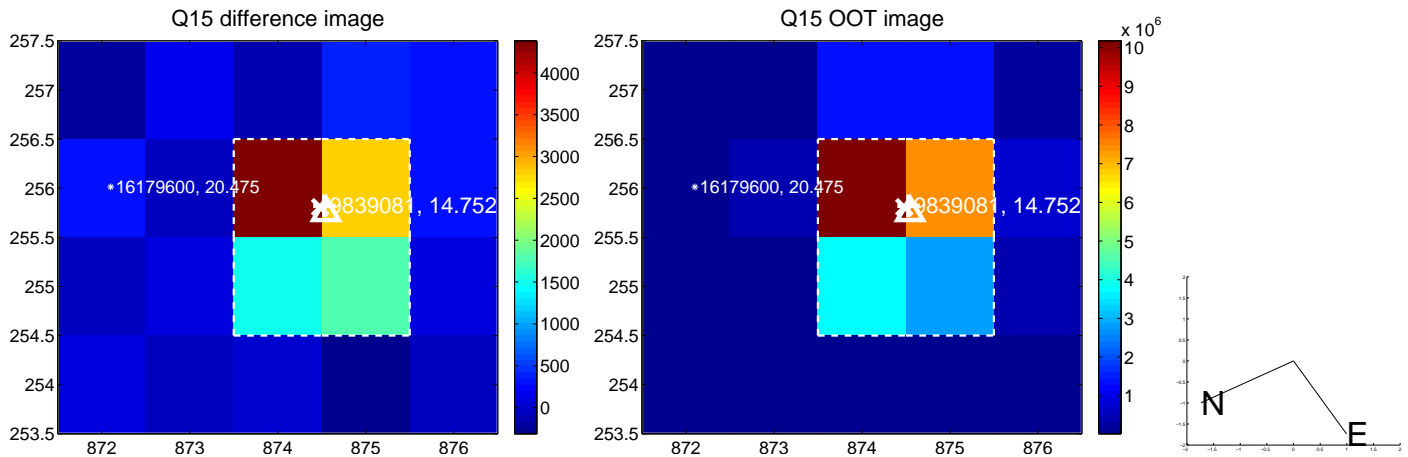
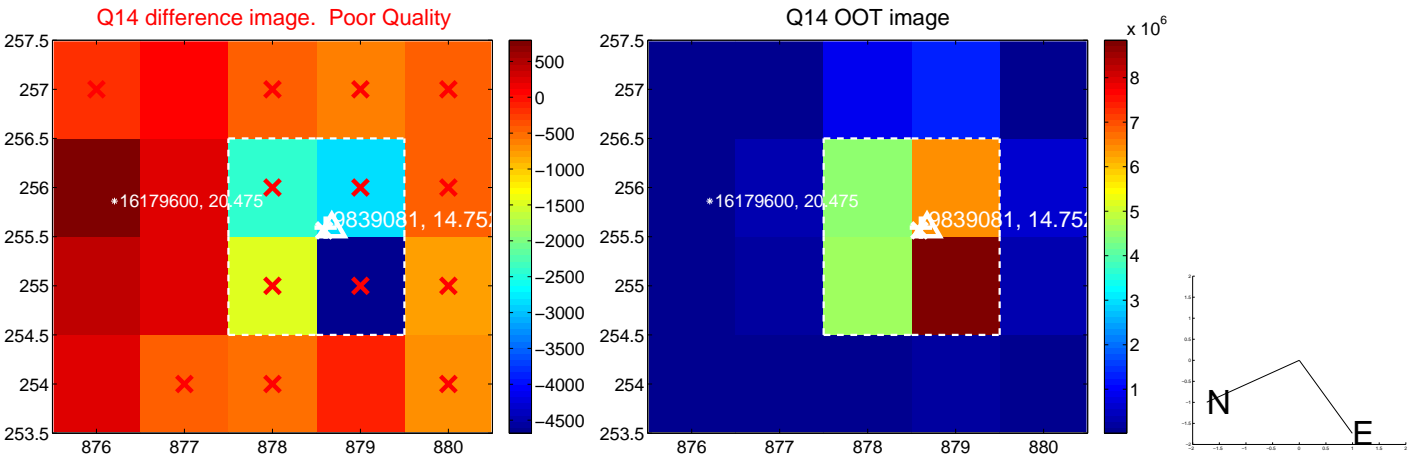
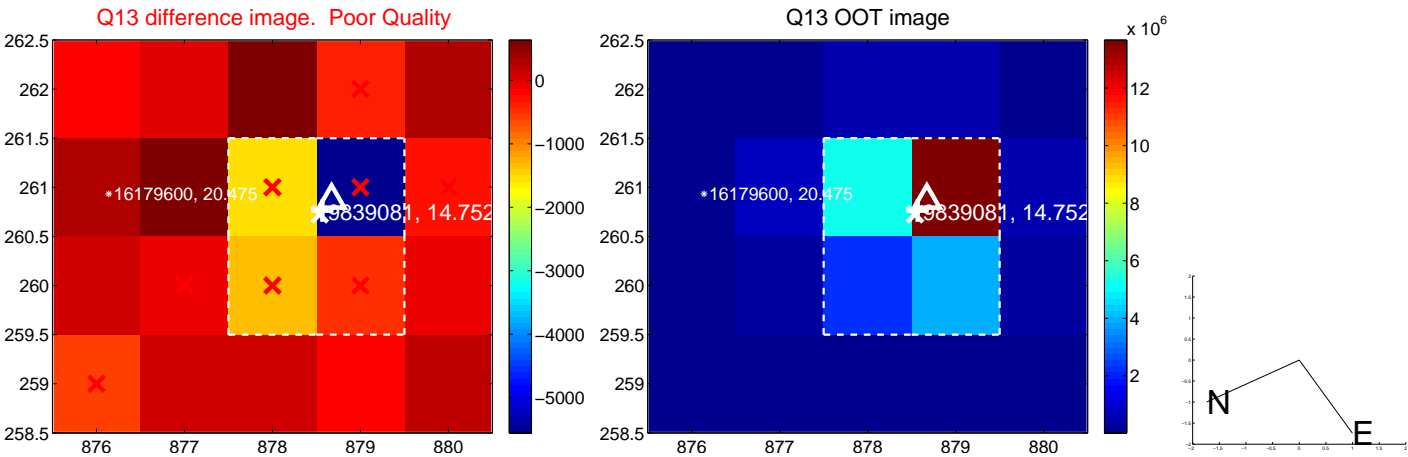
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



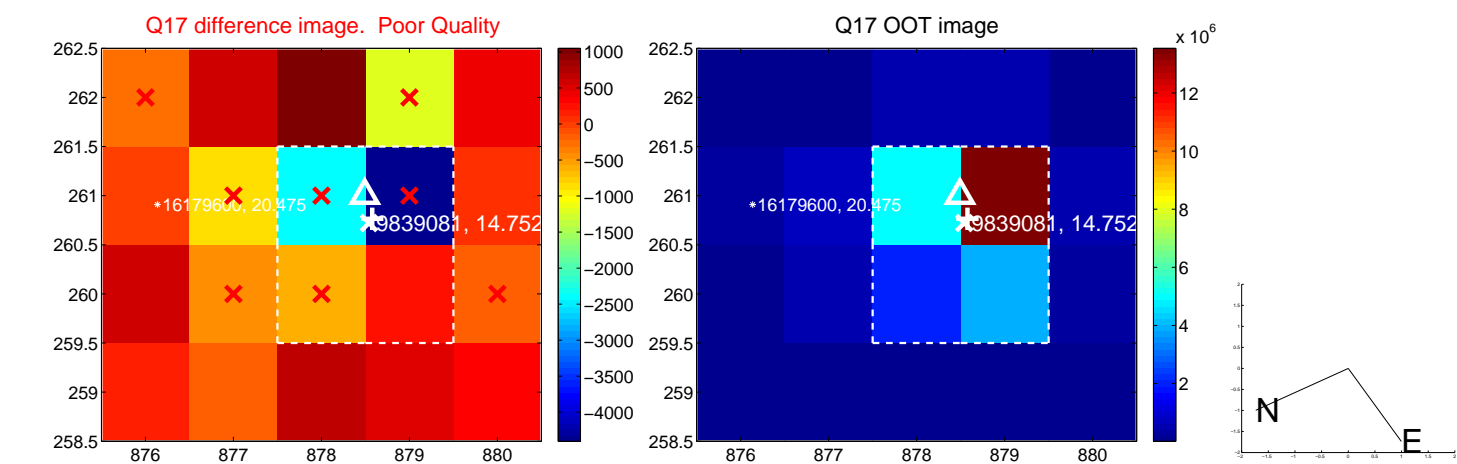
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



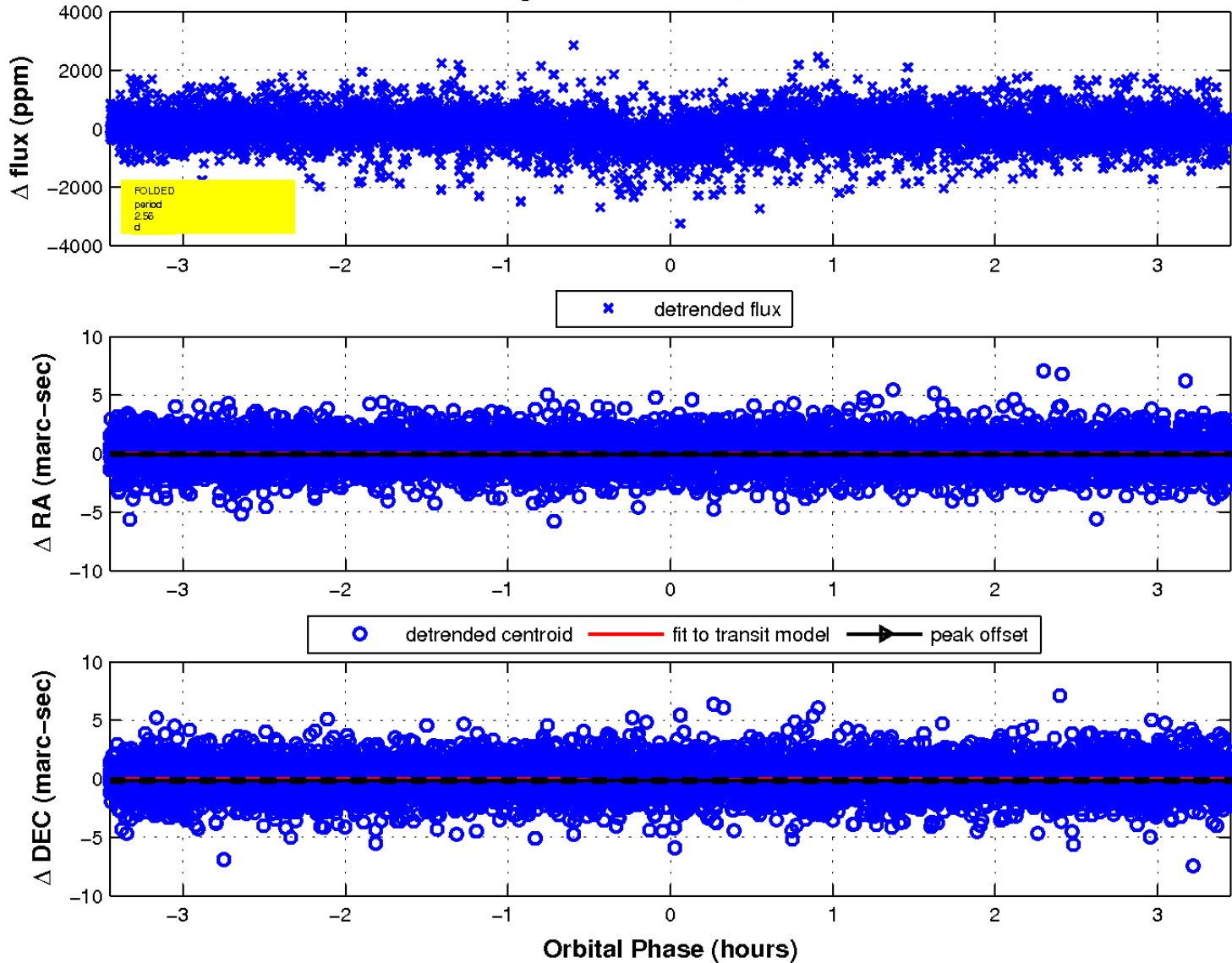
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

