

KIC 010130039

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})
010130039-01	OBS	1909.01	12.757990	133.958455	191.5	4.357	32.7	34.5	1.09	5782	1.80	108.25
010130039-02	OBS	1909.02	5.470339	136.963716	108.5	3.211	25.3	27.9	1.09	5782	1.35	334.81
010130039-03	OBS	1909.03	25.098481	145.569272	184.9	2.931	19.2	21.1	1.09	5782	1.76	43.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010130039-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010130039-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010130039-03	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

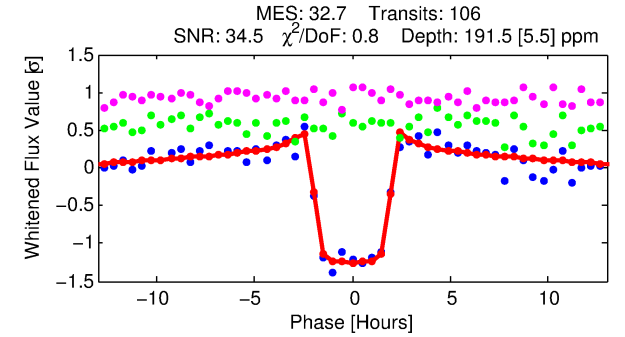
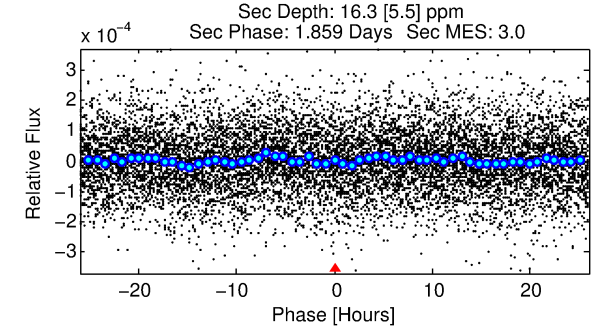
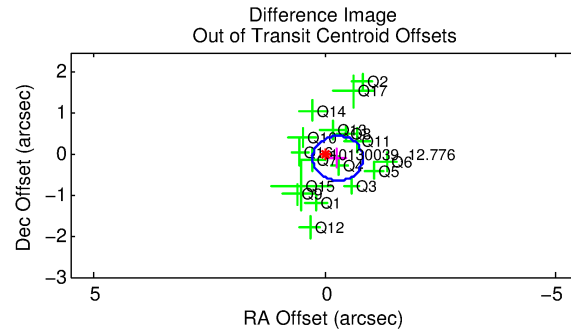
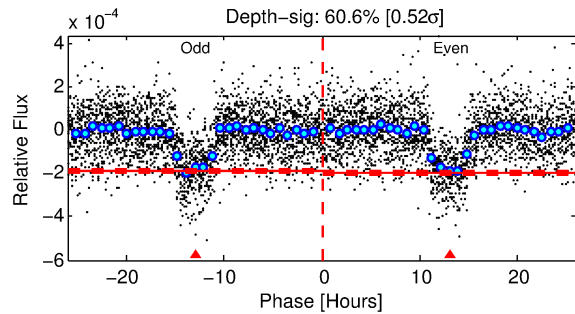
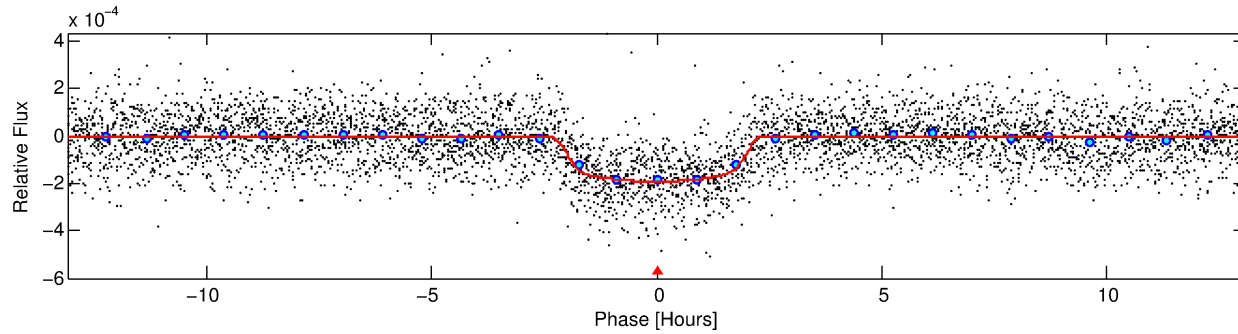
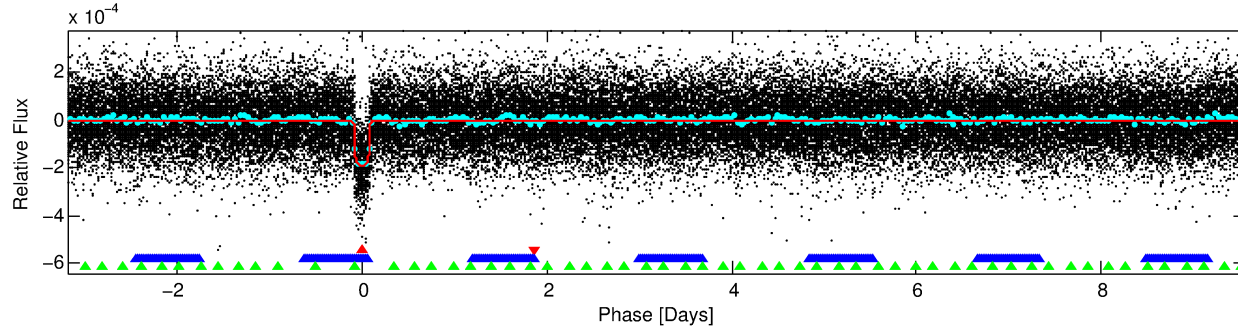
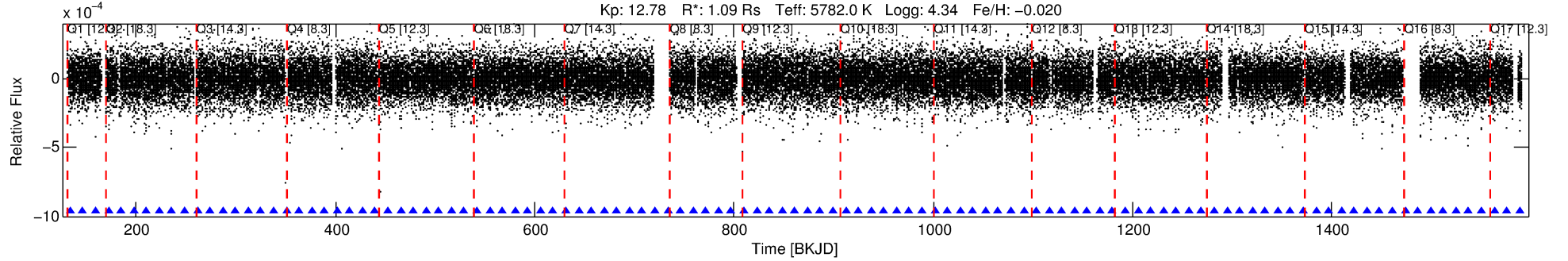
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010130039-01

No Significant Match Found

DV One-Page Summary

KIC: 10130039 Candidate: 1 of 3 Period: 12.758 d
KOI: K01909.01 Name: Kepler-334c Corr: 0.976



DV Fit Results:

Period = 12.75799 [0.00003] d
Epoch = 133.9585 [0.0019] BKJD
Rp/R* = 0.0151 [0.0012]
a/R* = 10.49 [4.02]
b = 0.90 [0.08]
Seff = 108.25 [25.26]
Teq = 823 [48] K
Rp = 1.80 [0.32] Re
a = 0.1053 [0.0149] AU
Ag = 30.61 [13.30] [2.23 σ]
Teffp = 2991 [287] K [7.46 σ]

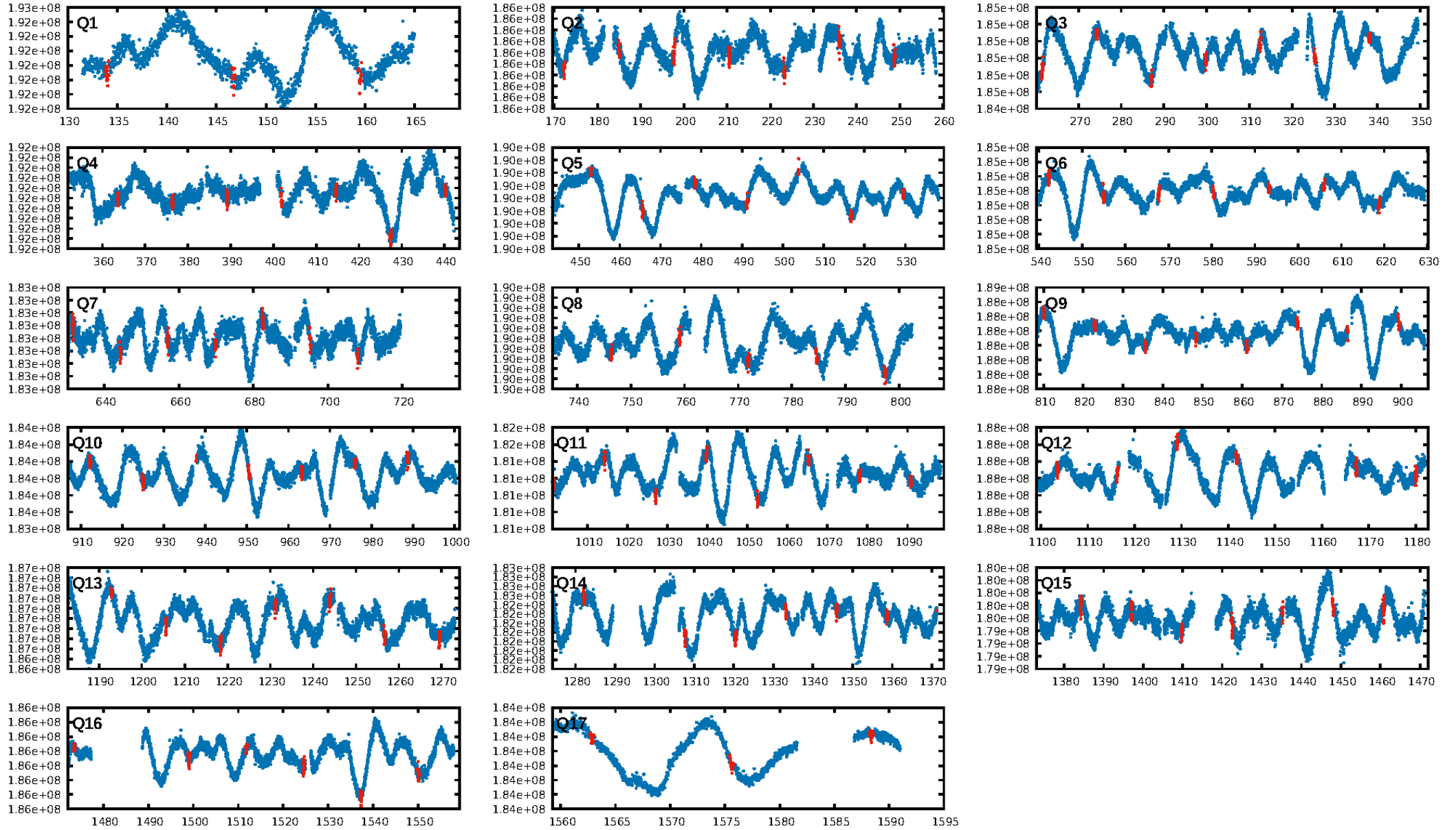
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.31 σ]
LongPeriod-sig: 100.0% [56.40 σ]
ModelChiSquare2-sig: 96.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.77e-218
RollingBand-fgt: 1.00 [100/100]
GhostDiagnostic-chr: 11.94
Centroid-sig: 30.8%
Centroid-so: 0.323 arcsec [1.23 σ]
OotOffset-rm: 0.297 arcsec [1.64 σ]
KicOffset-rm: 0.396 arcsec [1.84 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

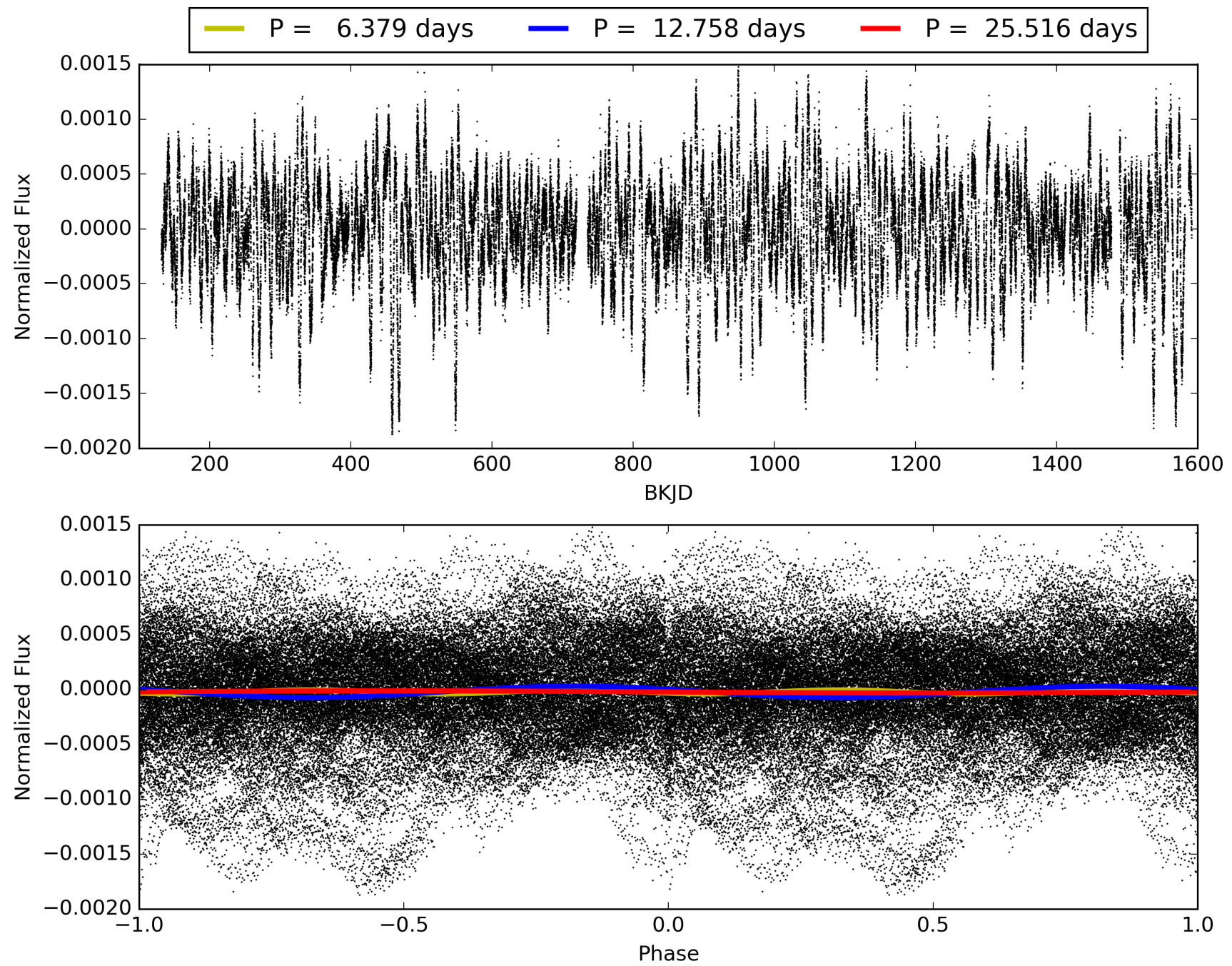
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:22:36 Z

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

TCE 010130039-01, PDC Light Curves

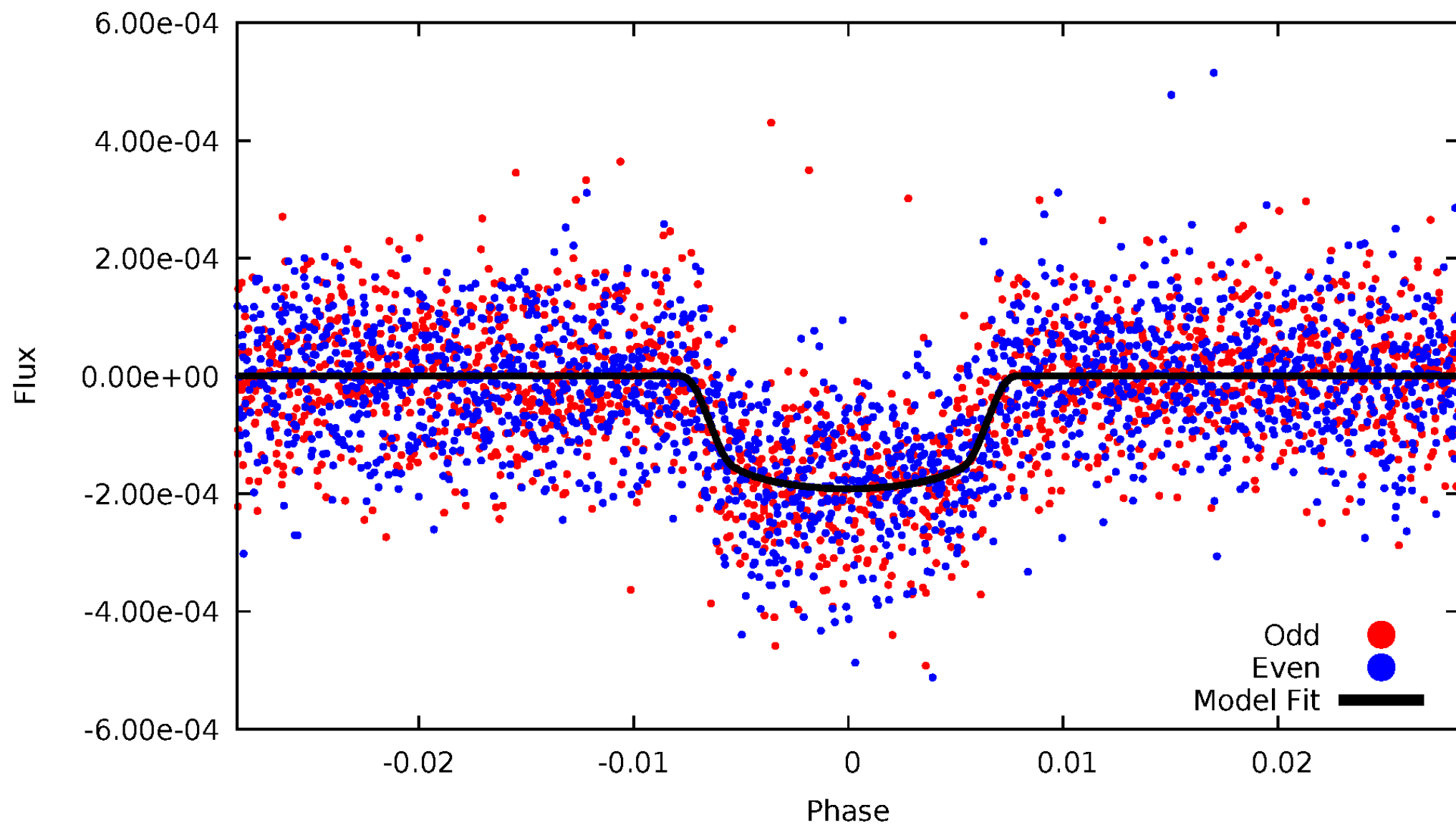


TCE 010130039-01



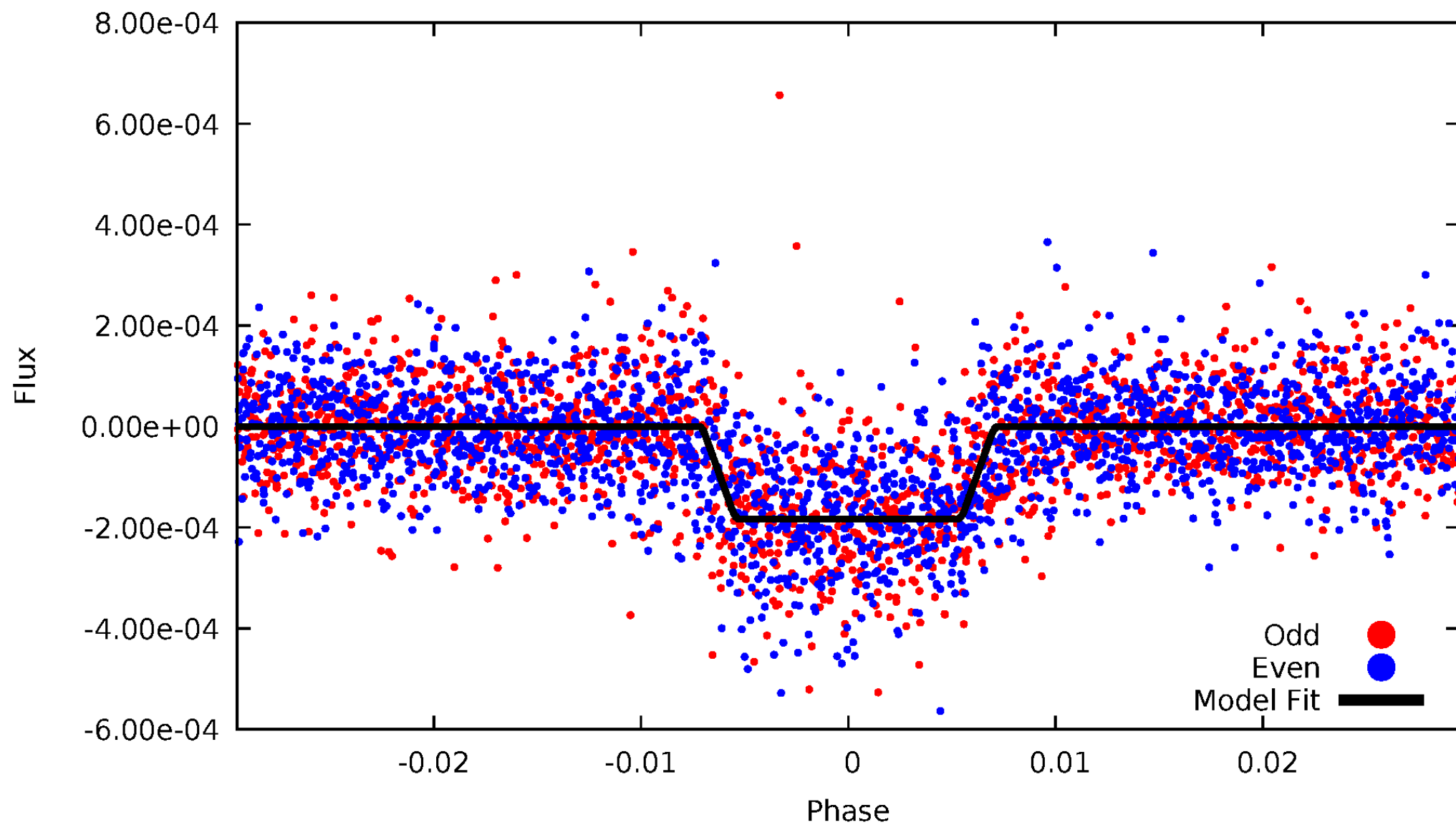
DV Odd/Even

TCE 010130039-01



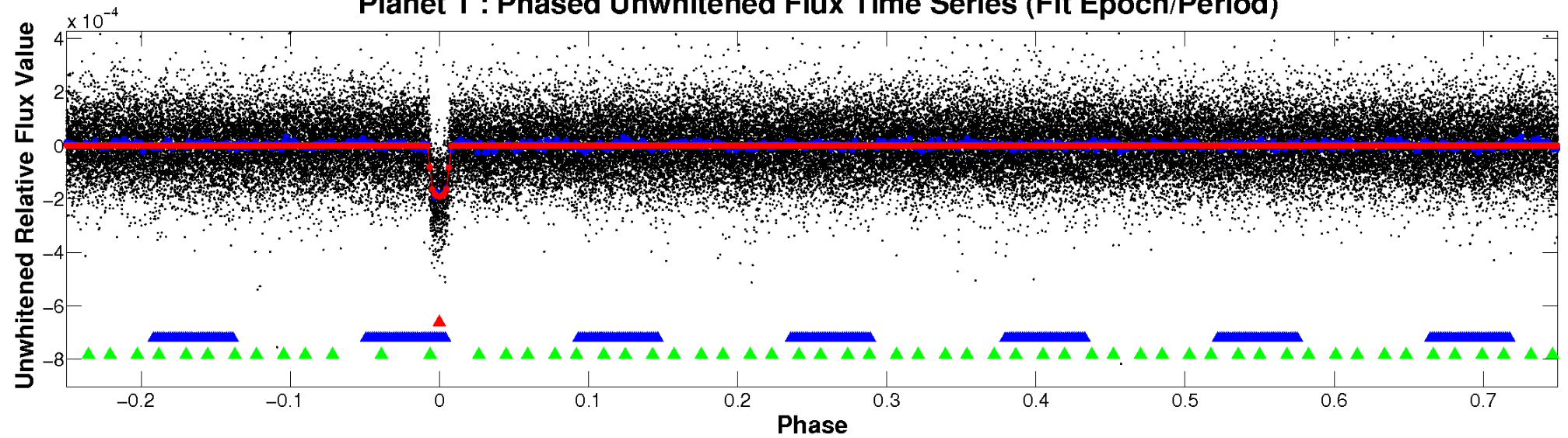
ALT Odd/Even

TCE 010130039-01

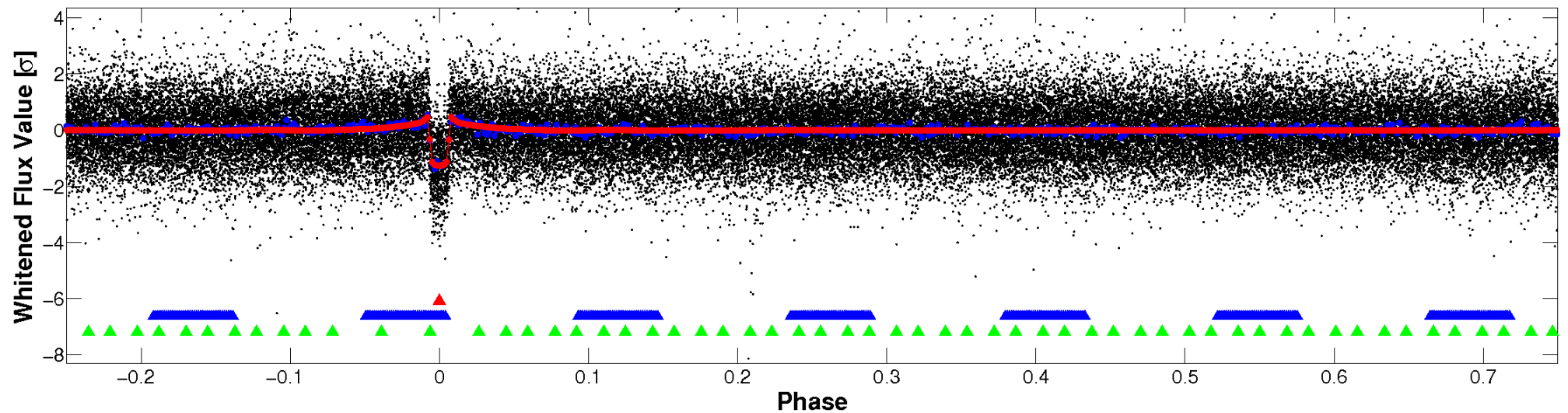


Non-Whitened Vs. Whitened Light Curve

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

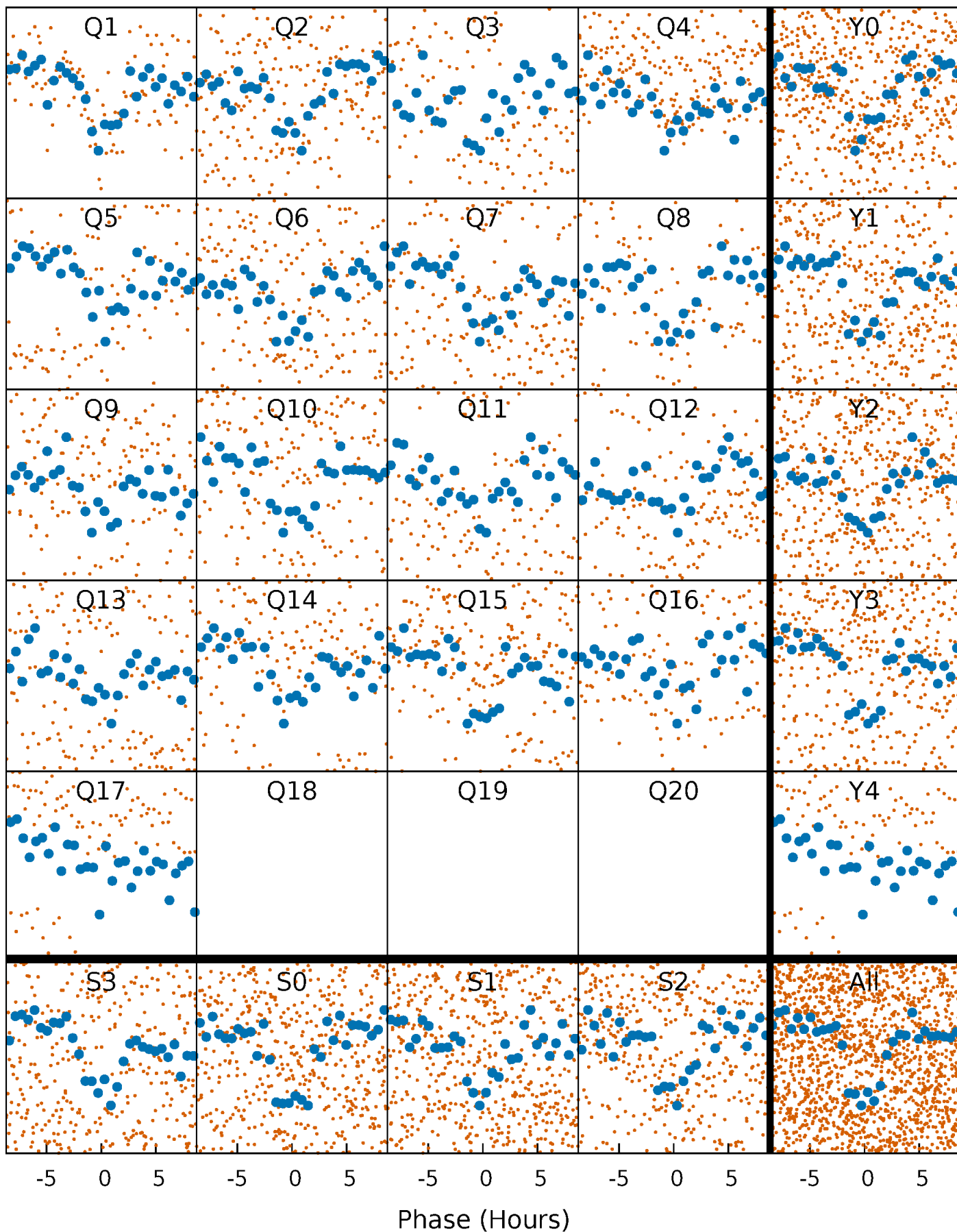


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



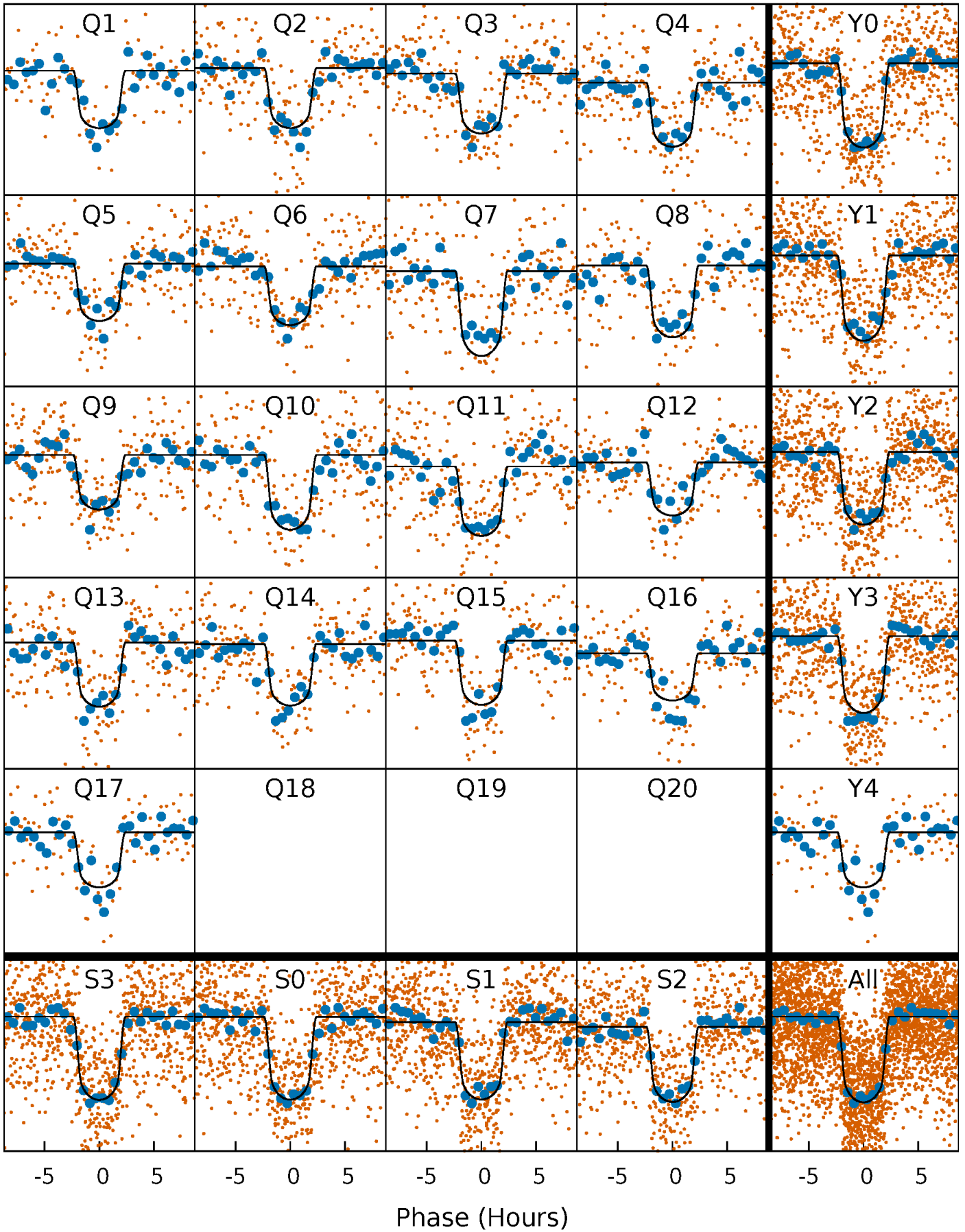
PDC Quarter-Phased Transit Curves

TCE 010130039-01 P= 12.757990 Days $T_0=133.958455$ (BKJD)



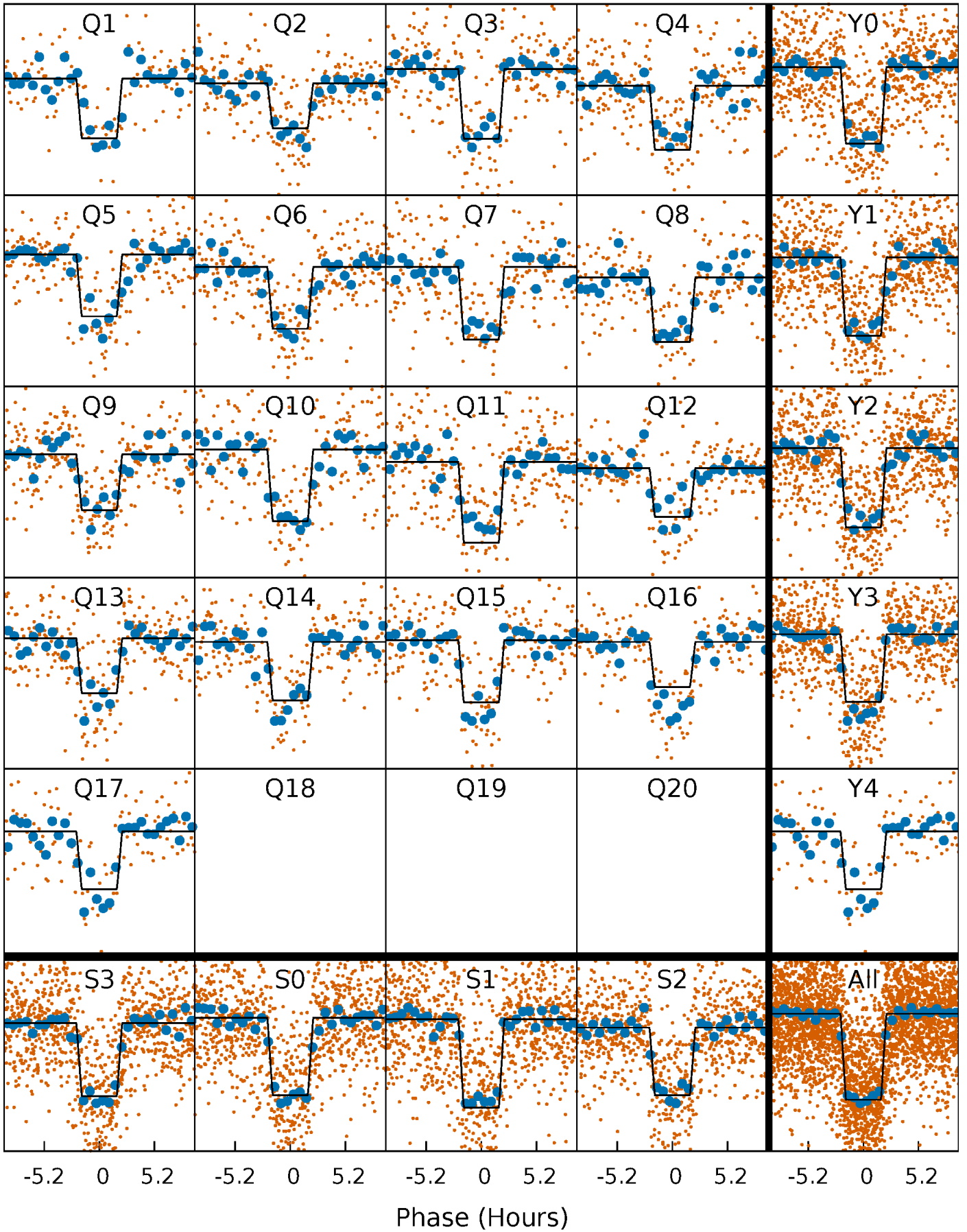
DV Quarter-Phased Transit Curves

TCE 010130039-01 P= 12.757990 Days $T_0=133.958455$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

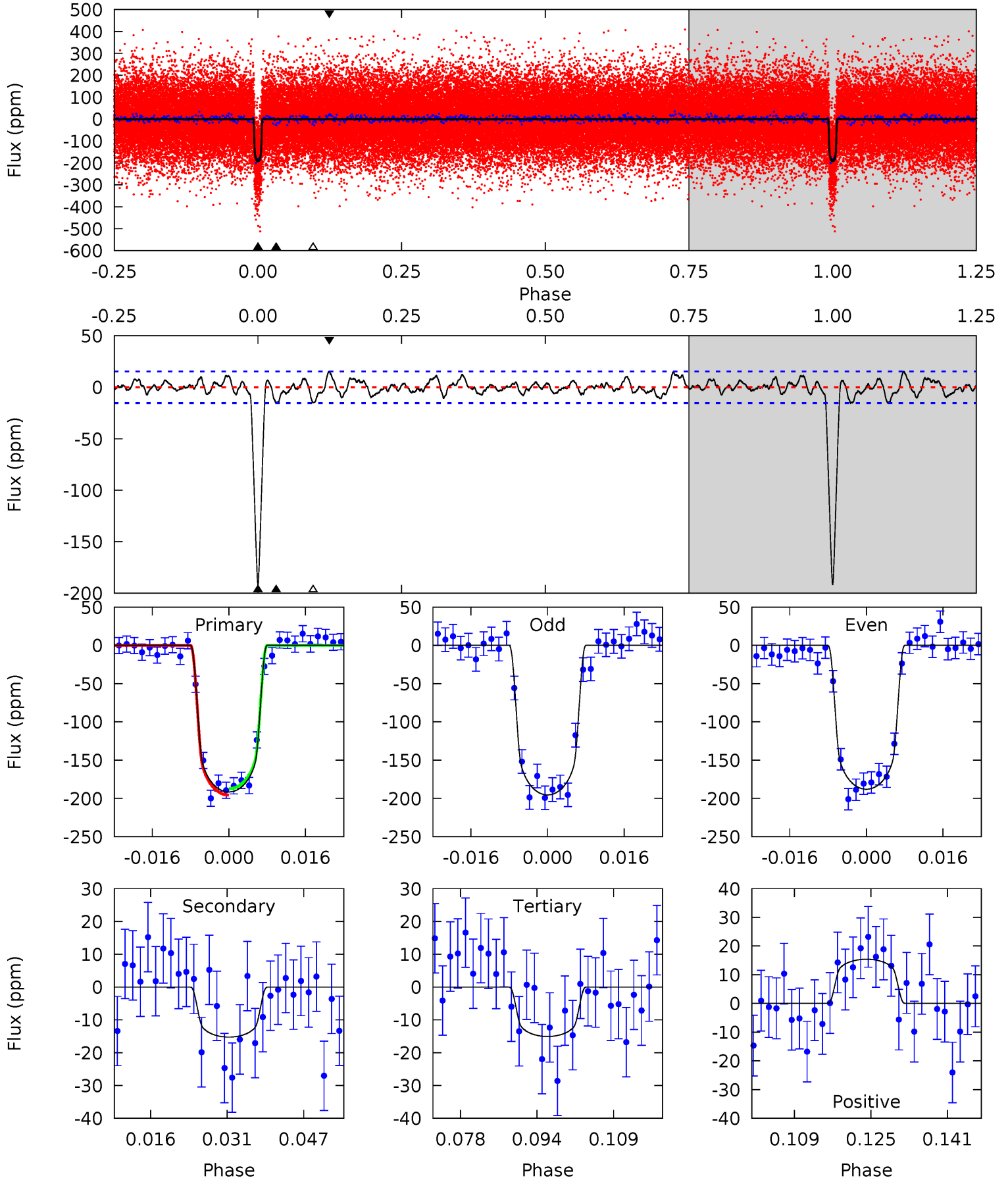
TCE 010130039-01 P= 12.758133 Days $T_0=133.950876$ (BKJD)



DV Model-Shift Uniqueness Test

010130039-01, P = 12.757990 Days, E = 121.200465 Days

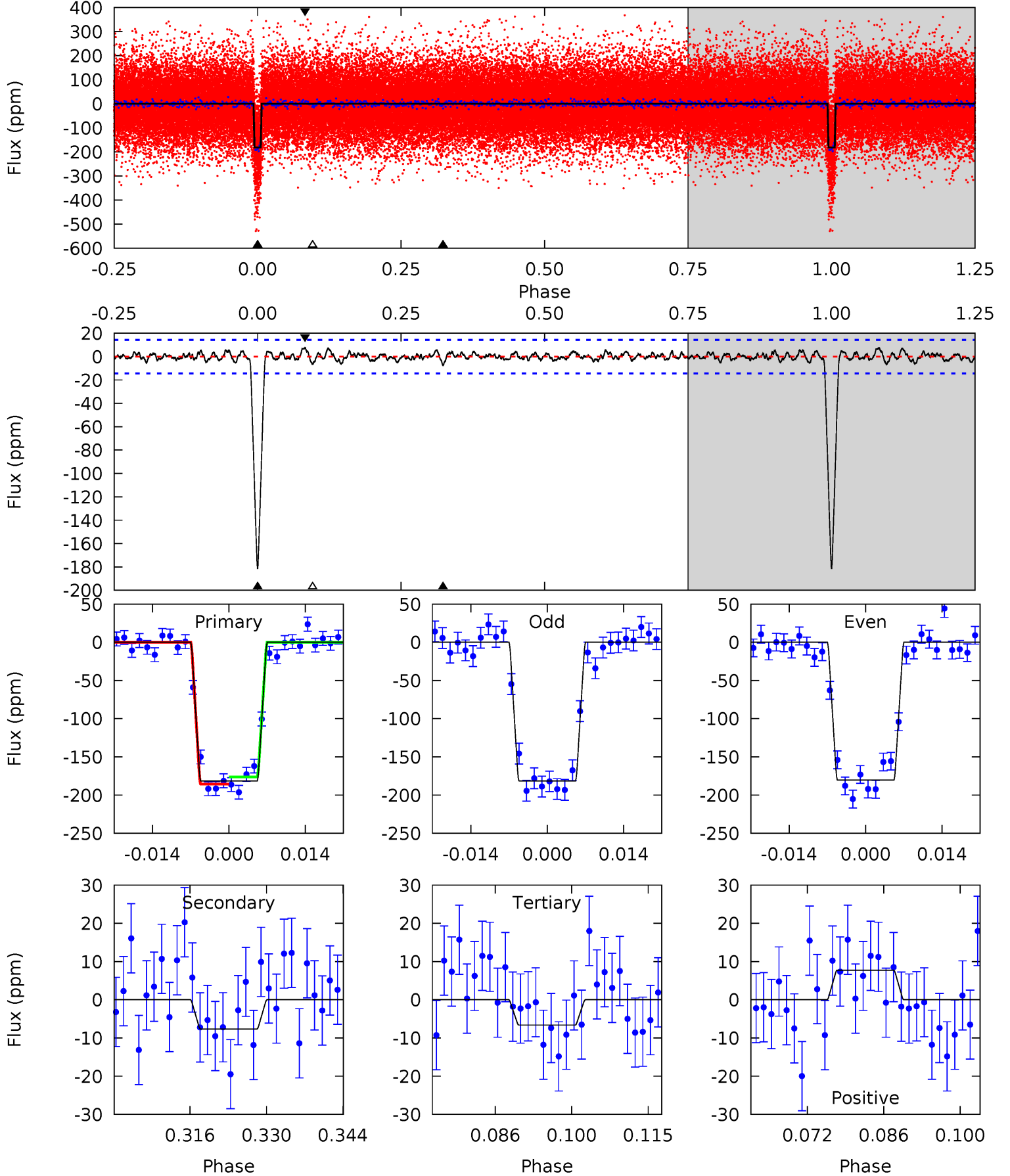
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.4	4.89	4.83	4.93	4.94	2.42	1.66	56.5	56.4	0.06	-0.04	1.19	0.98	0.07	1.33



Alt Model-Shift Uniqueness Test

010130039-01, P = 12.758133 Days, E = 121.192743 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.3	2.63	2.27	2.66	4.96	2.45	0.81	60.0	59.6	0.36	-0.03	0.18	0.98	0.04	1.62



Stellar Parameters For KIC 010130039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5782^{+104}_{-115}	$4.340^{+0.126}_{-0.103}$	$-0.020^{+0.150}_{-0.150}$	$1.095^{+0.170}_{-0.155}$	$0.957^{+0.079}_{-0.057}$	$1.028^{+0.564}_{-0.336}$
	+2%/-2%	+3%/-2%	+750%/-750%	+16%/-14%	+8%/-6%	+55%/-33%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010130039-01 / KOI 1909.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 3	$1.79^{+0.24}_{-0.20}$	1147^{+52}_{-49}	3431^{+150}_{-152}	28^{+11}_{-8}
Alt.	-8 ± 3	$1.60^{+0.21}_{-0.20}$	1140^{+58}_{-52}	3198^{+204}_{-245}	18^{+10}_{-8}

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 $A_{obs} \gg 1.0$

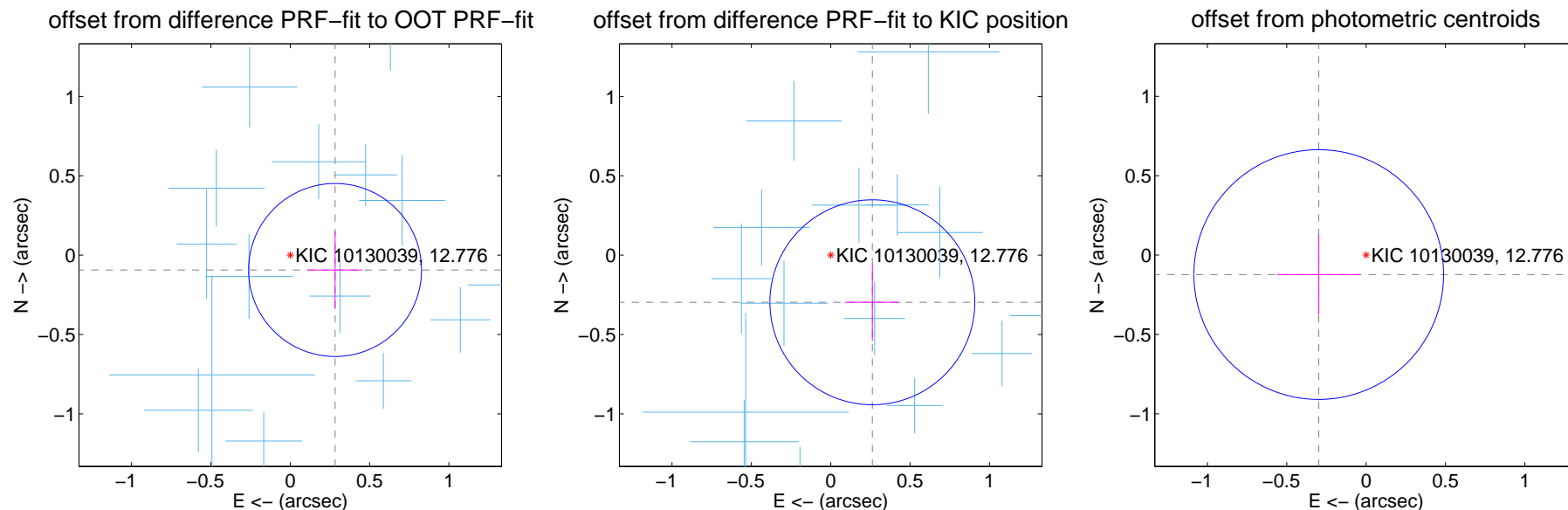
DV Centroid Data

Supplemental centroid analysis for 010130039-01. Kepler magnitude: 12.78. Transit SNR 34.54

There are 16 quarters with good PRF difference image offsets

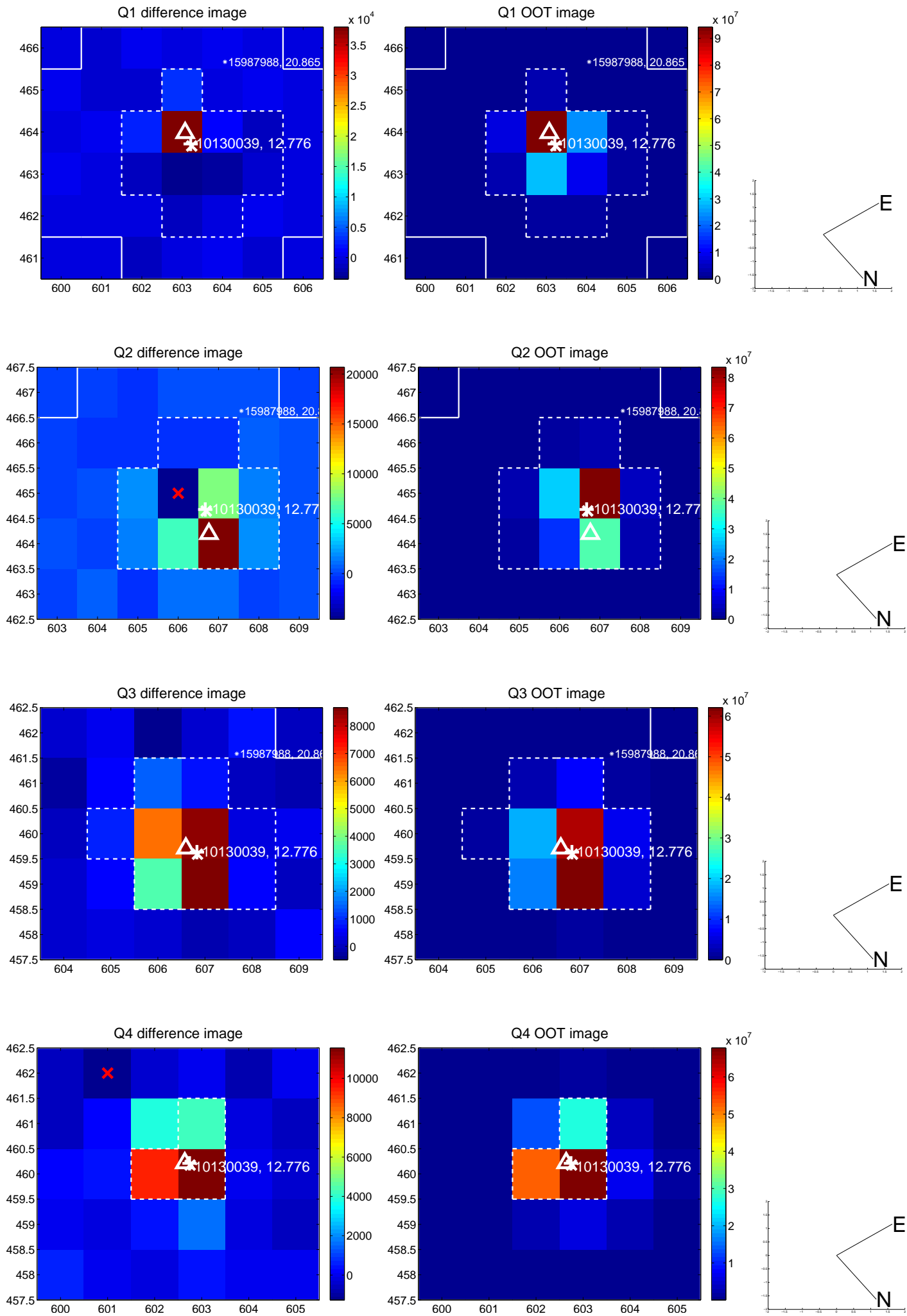
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.297 ± 0.182	1.64	-0.282 ± 0.173	-0.093 ± 0.244
PRF-fit source offset from KIC position	0.396 ± 0.215	1.84	-0.262 ± 0.172	-0.297 ± 0.243
photometric centroid source offset	0.32 ± 0.26	1.23	0.30 ± 0.26	-0.12 ± 0.25

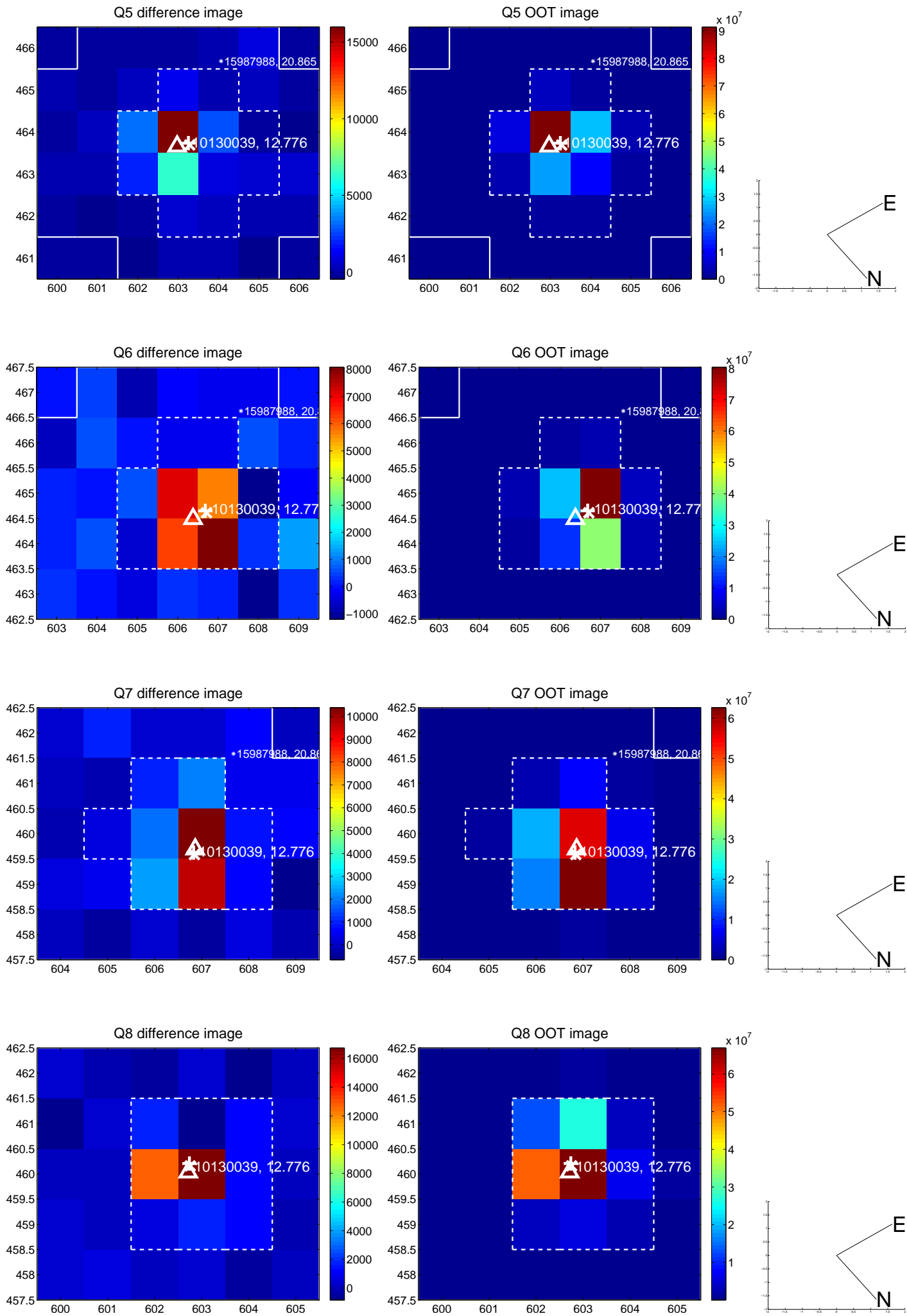


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

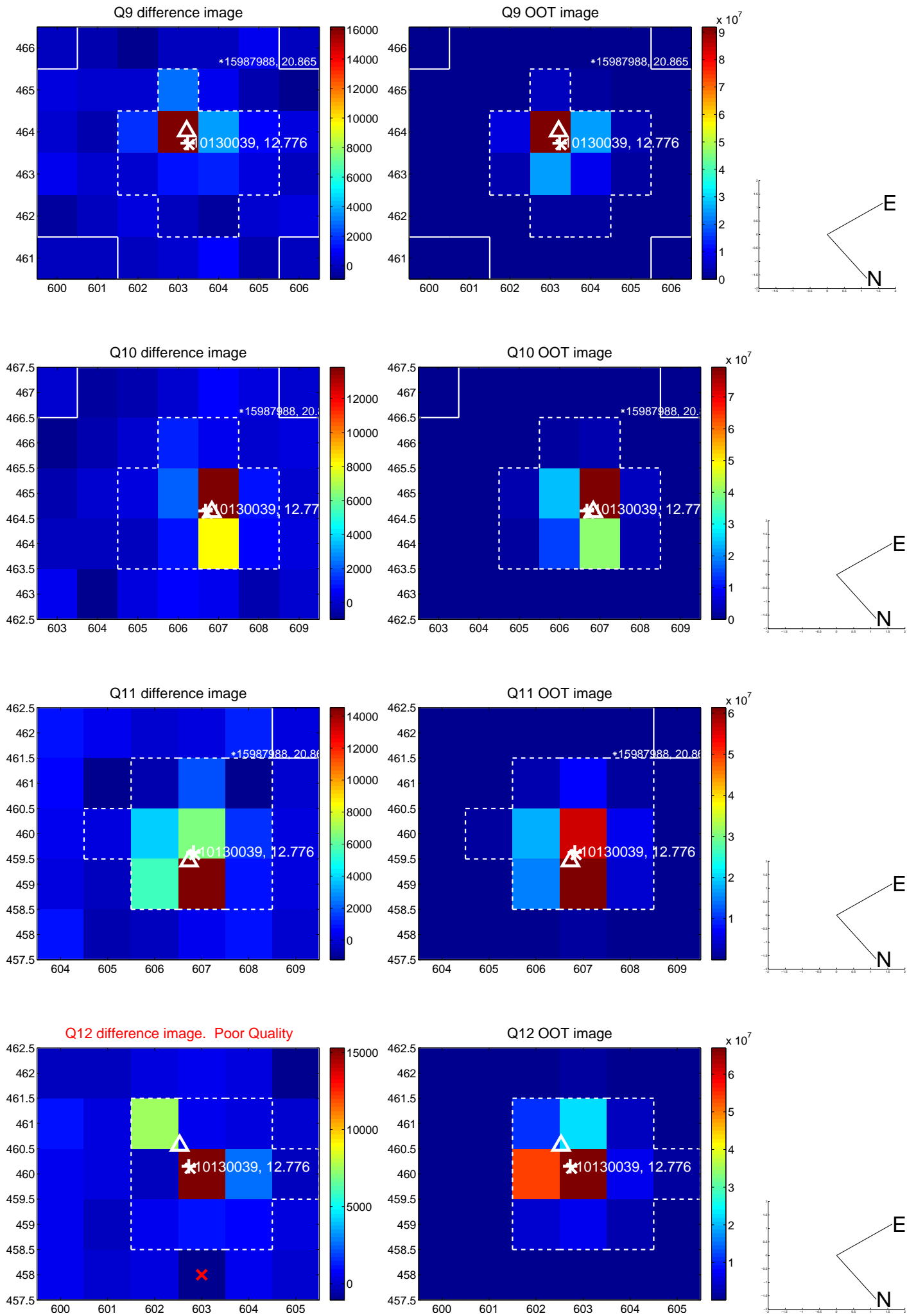
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



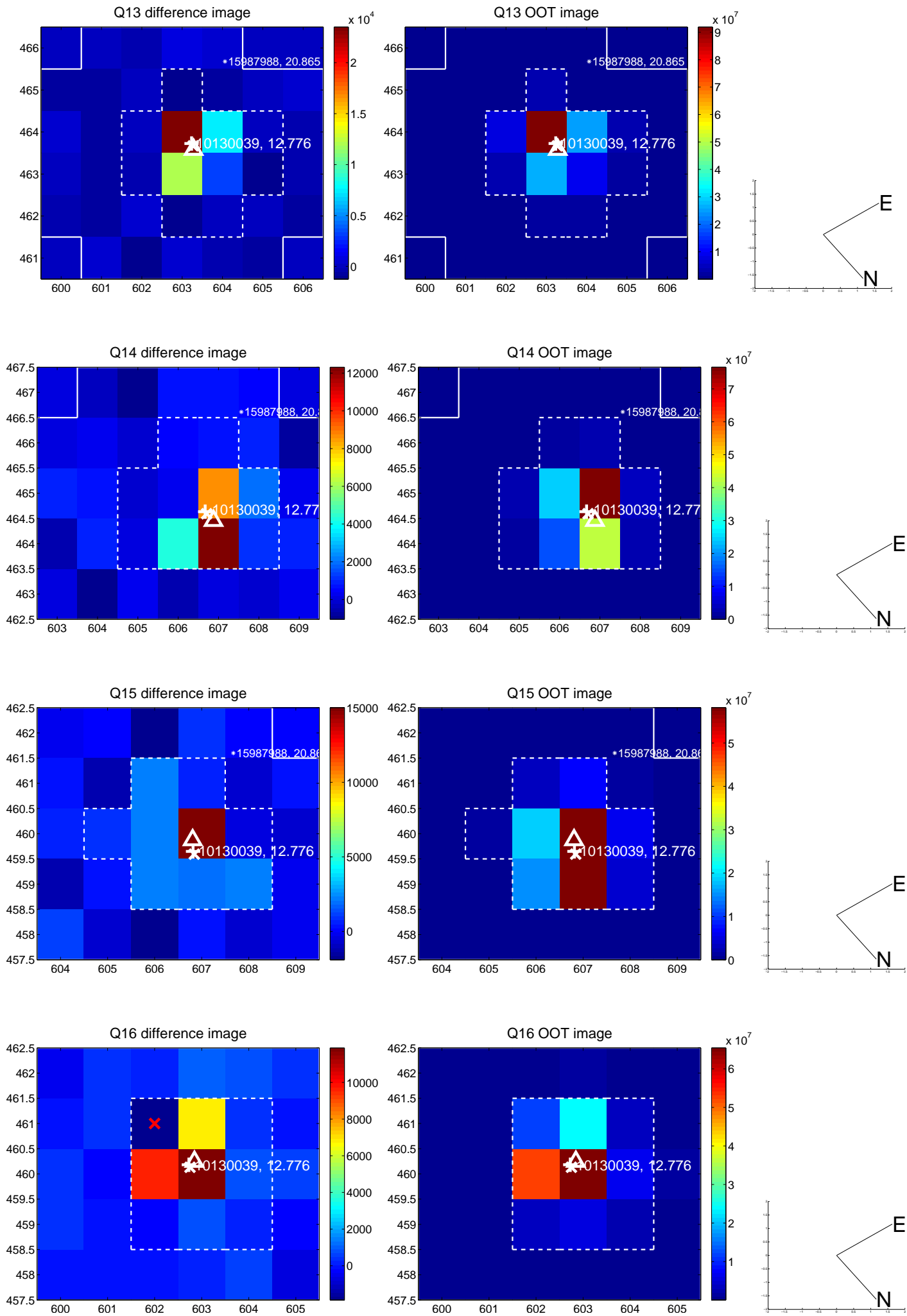
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



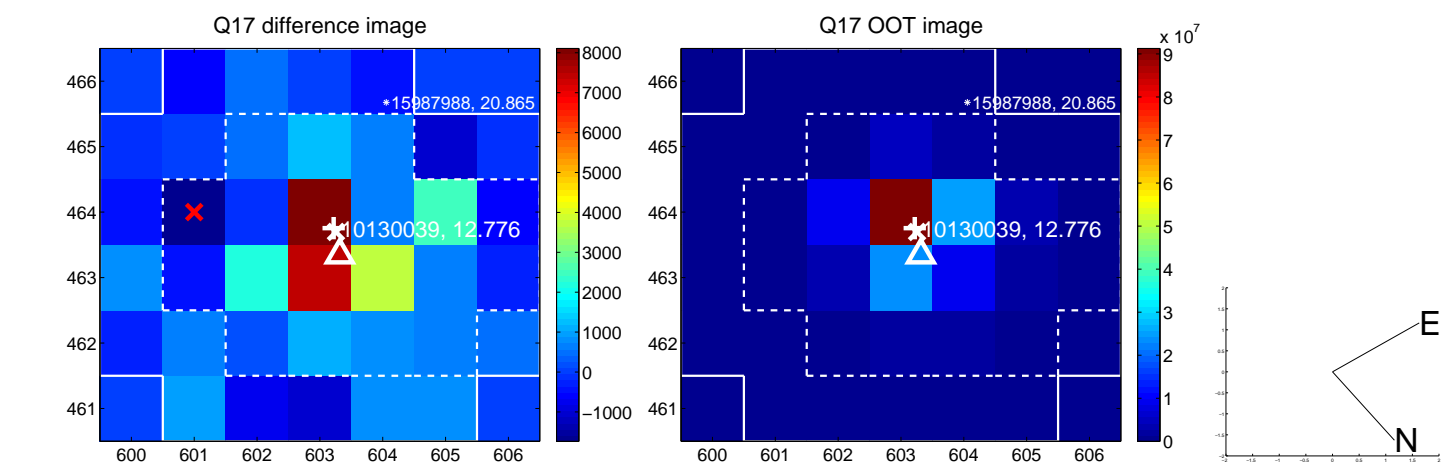
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



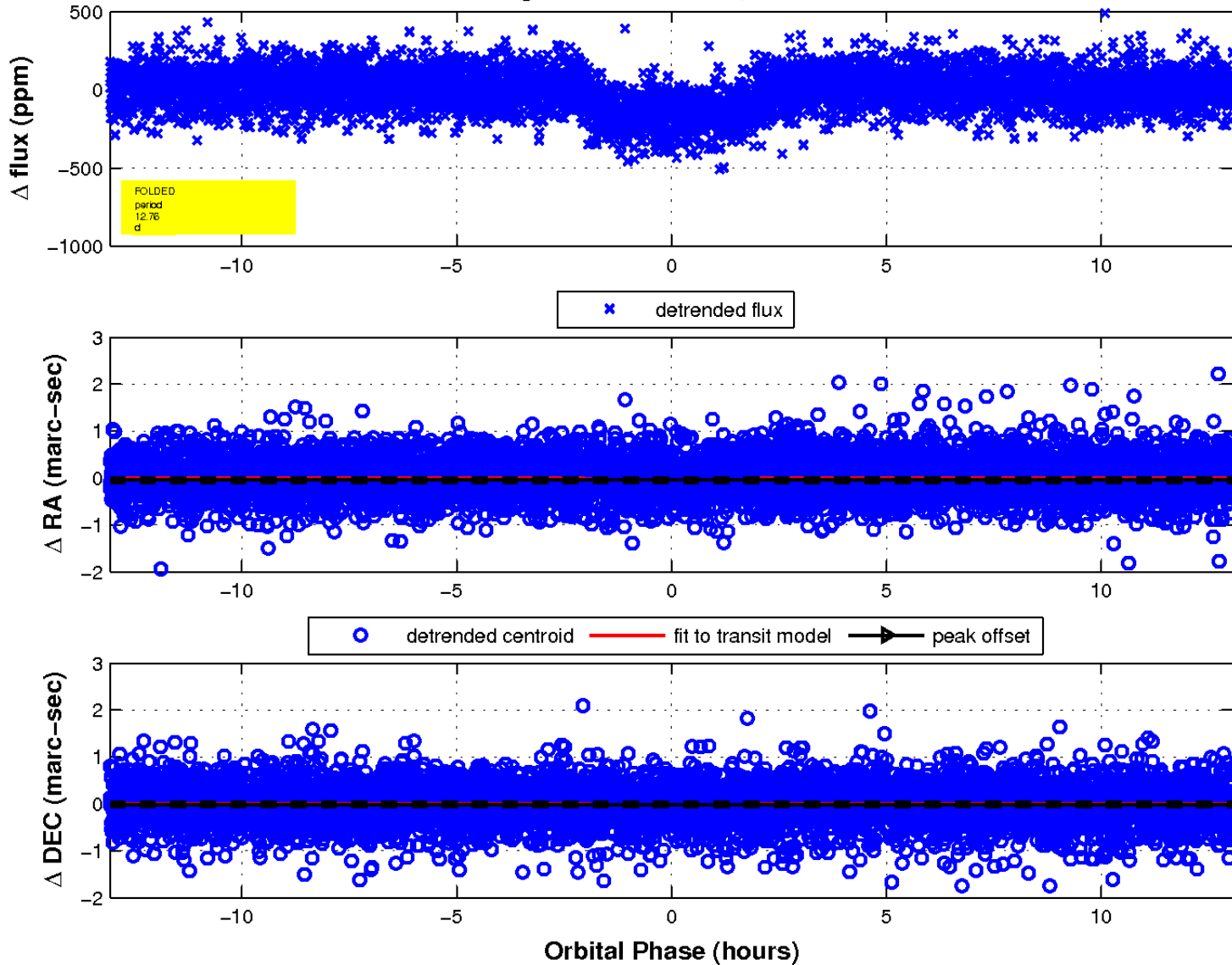
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

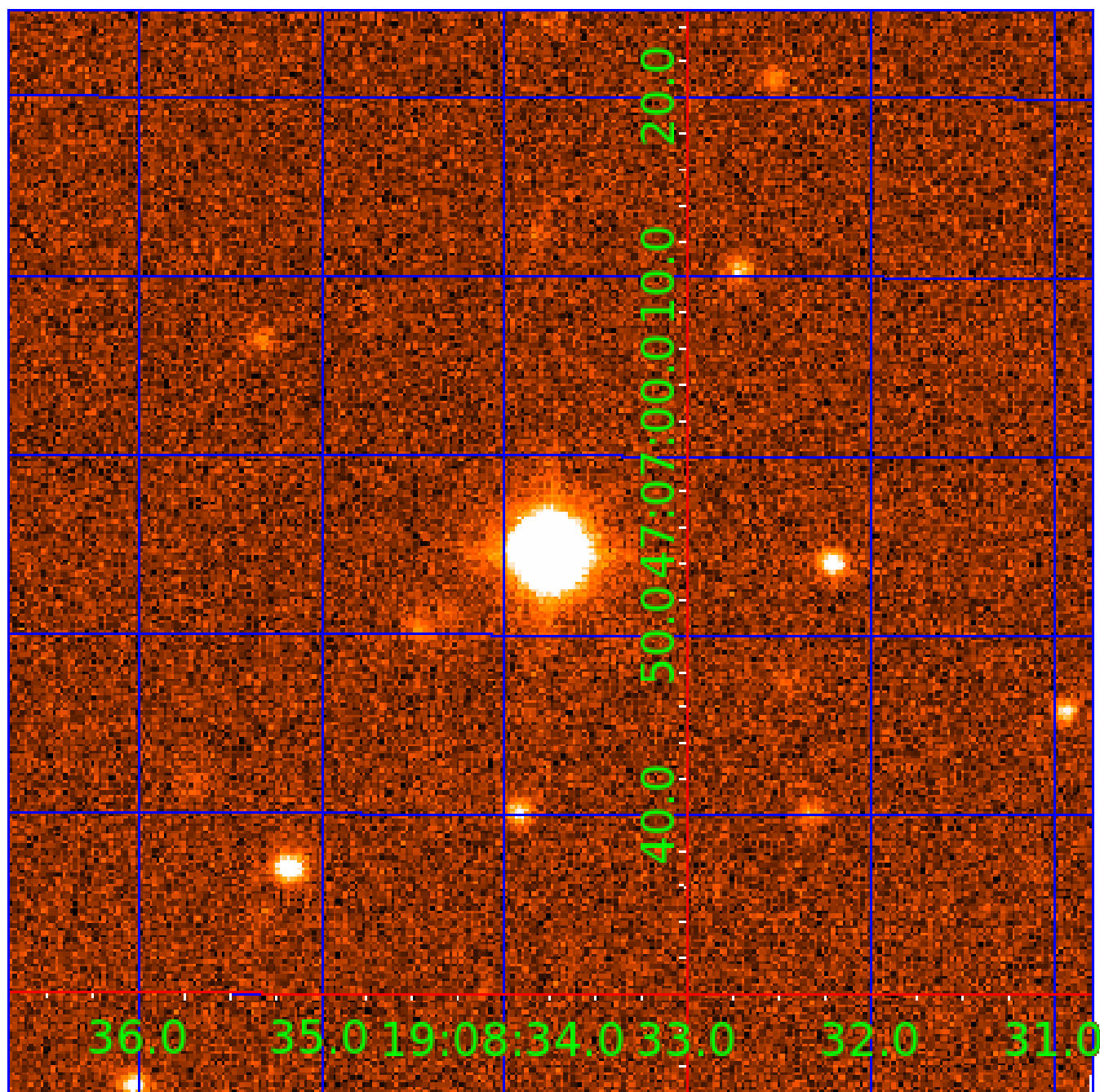


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 010130039

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})
010130039-01	OBS	1909.01	12.757990	133.958455	191.5	4.357	32.7	34.5	1.09	5782	1.80	108.25
010130039-02	OBS	1909.02	5.470339	136.963716	108.5	3.211	25.3	27.9	1.09	5782	1.35	334.81
010130039-03	OBS	1909.03	25.098481	145.569272	184.9	2.931	19.2	21.1	1.09	5782	1.76	43.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010130039-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010130039-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010130039-03	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

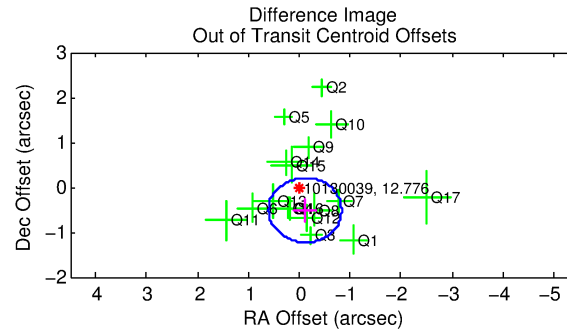
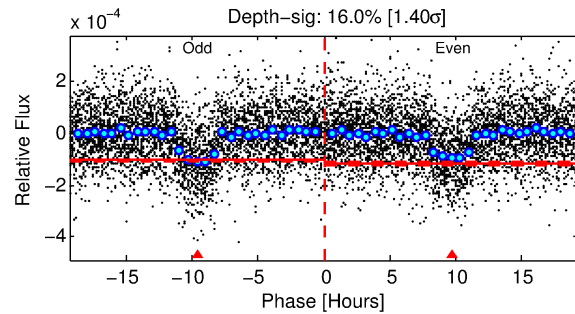
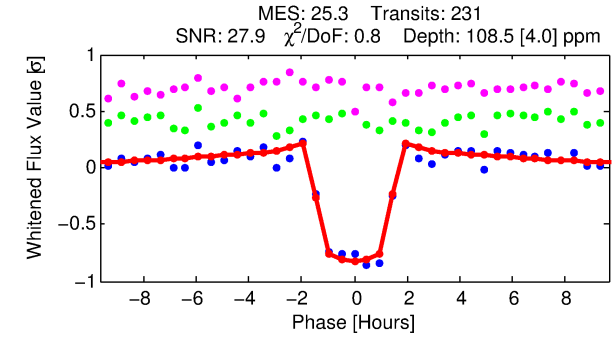
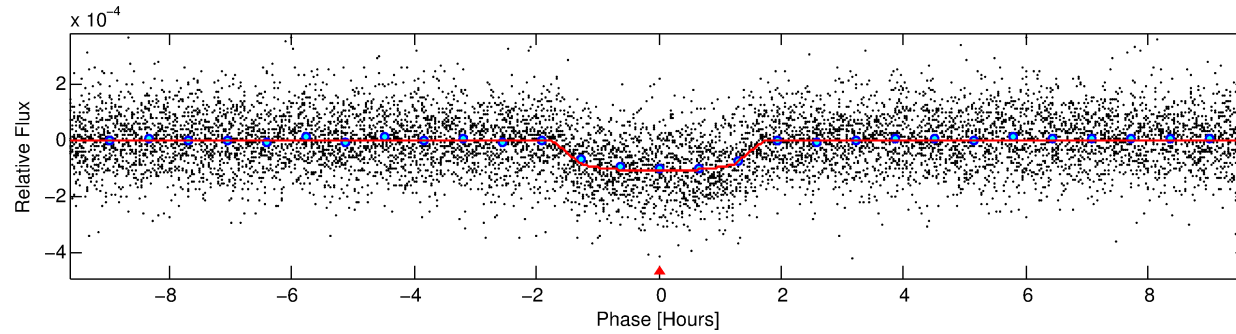
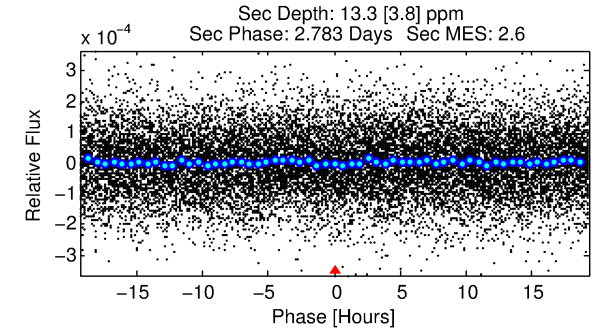
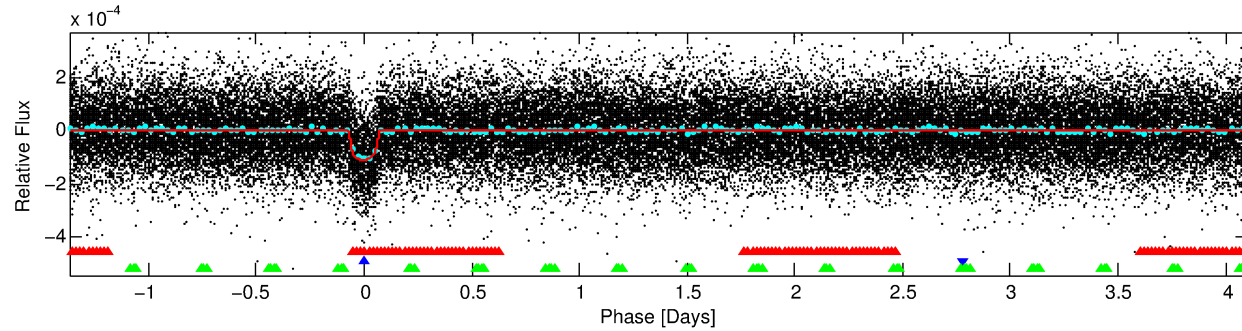
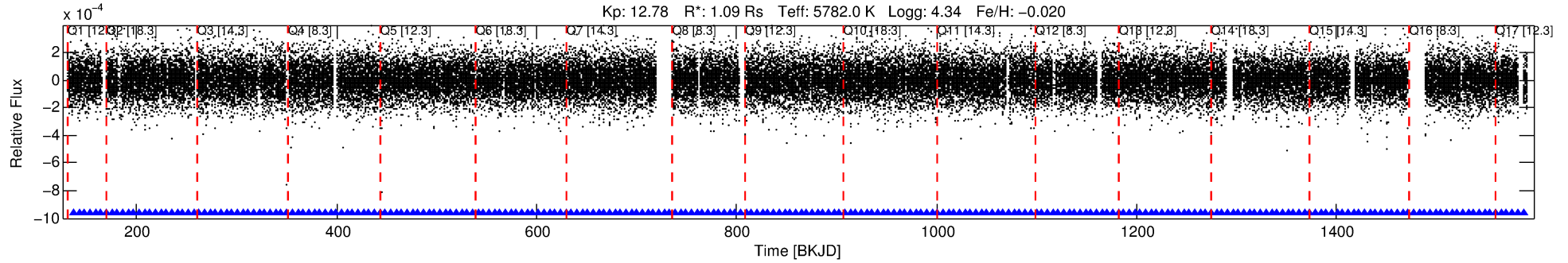
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010130039-02

No Significant Match Found

DV One-Page Summary

KIC: 10130039 Candidate: 2 of 3 Period: 5.470 d
KOI: K01909.02 Name: Kepler-334b Corr: 0.977



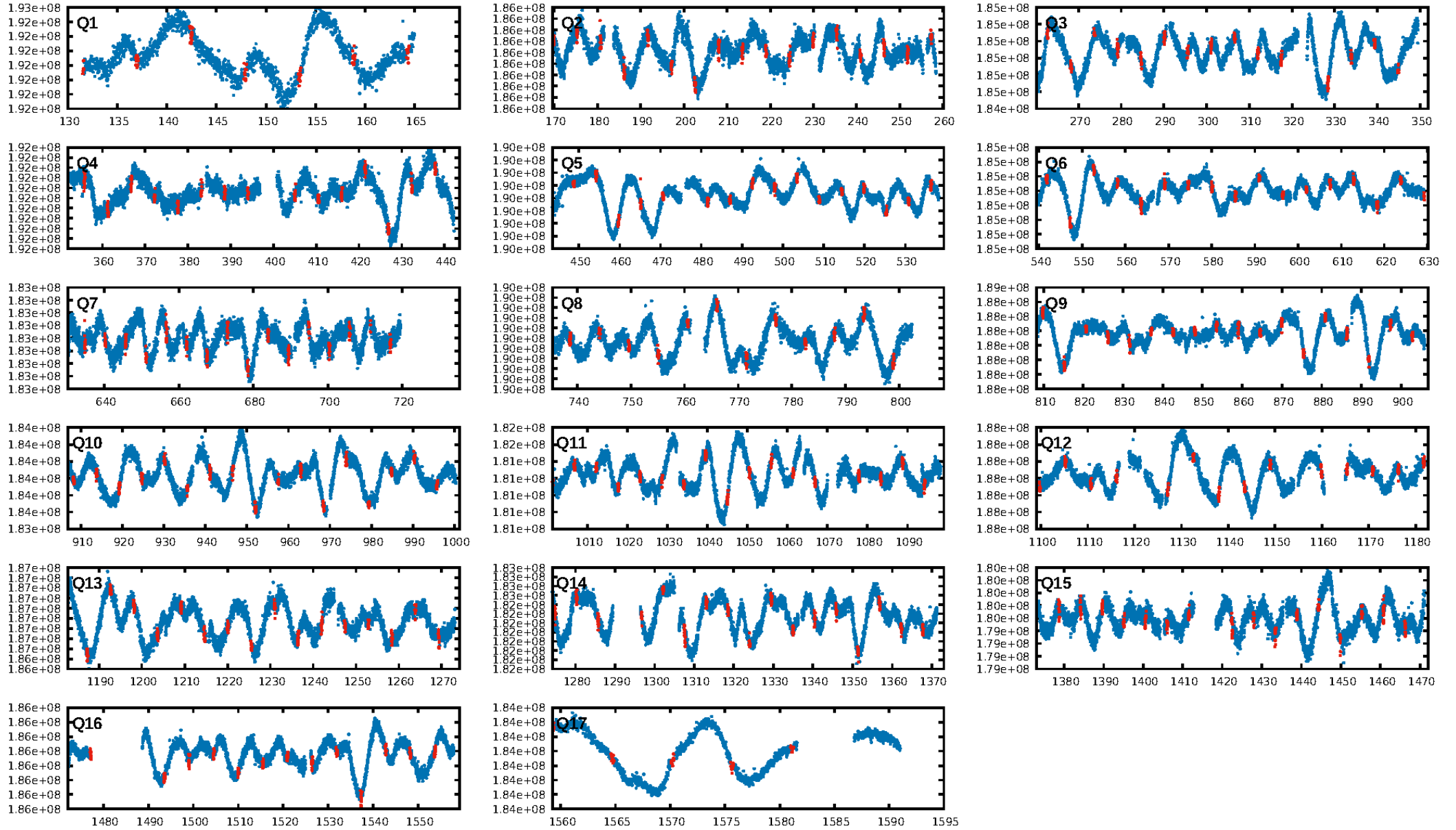
DV Fit Results:

Period = 5.47034 [0.00001] d
Epoch = 136.9637 [0.0016] BKJD
Rp/R* = 0.0113 [0.0021]
a/R* = 6.11 [5.23]
b = 0.90 [0.19]
Seff = 334.81 [78.13]
T_{eq} = 1091 [64] K
Rp = 1.35 [0.32] Re
a = 0.0599 [0.0085] AU
Ag = 14.26 [7.34] [1.81σ]
T_{eff} = 3277 [387] K [5.57σ]

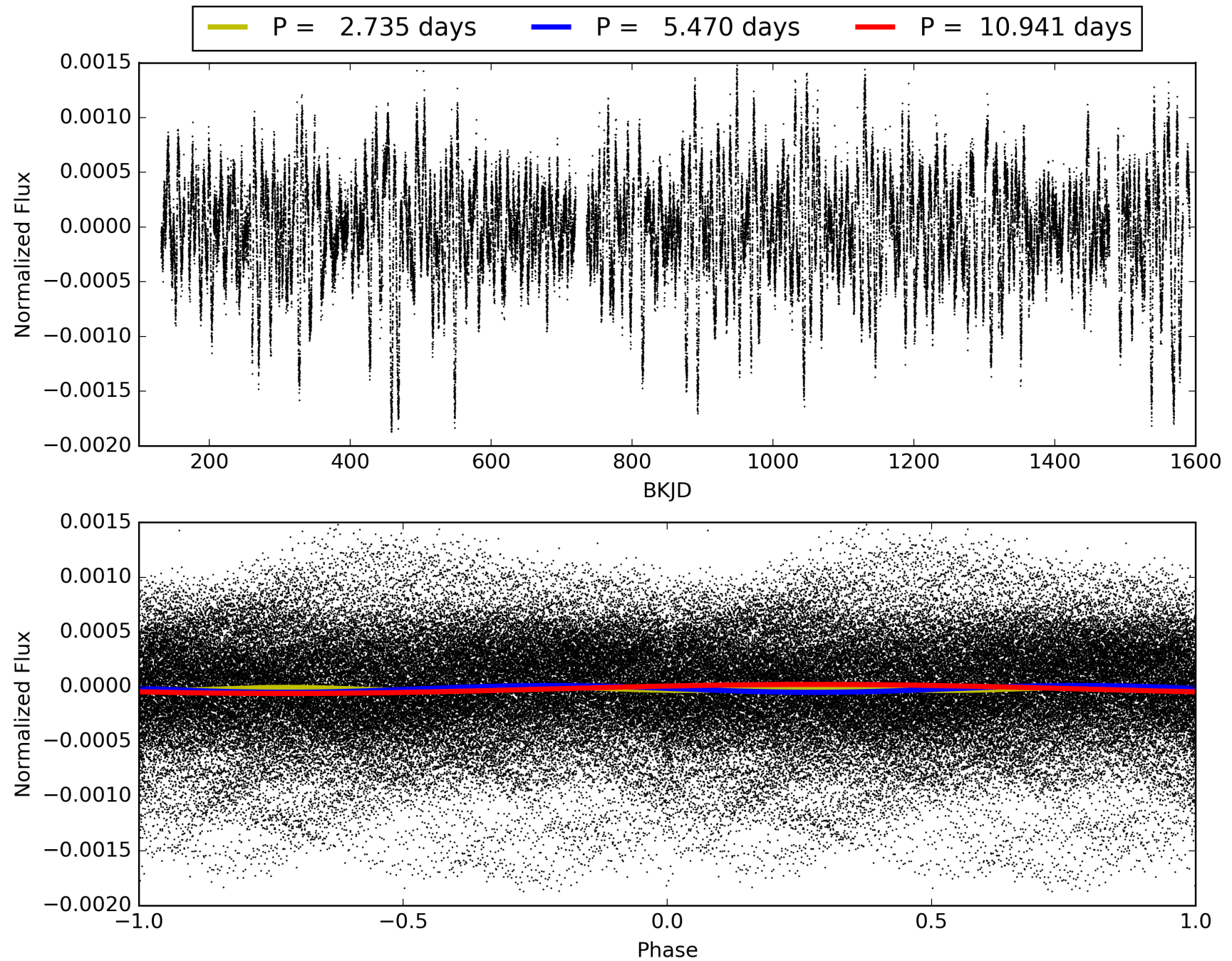
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [32.31σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.35e-132
RollingBand-fgt: 1.00 [220/220]
GhostDiagnostic-chr: 3.335
Centroid-sig: 5.7%
Centroid-so: 0.612 arcsec [1.85σ]
OotOffset-rm: 0.529 arcsec [2.21σ]
KicOffset-rm: 0.710 arcsec [2.99σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010130039-02, PDC Light Curves

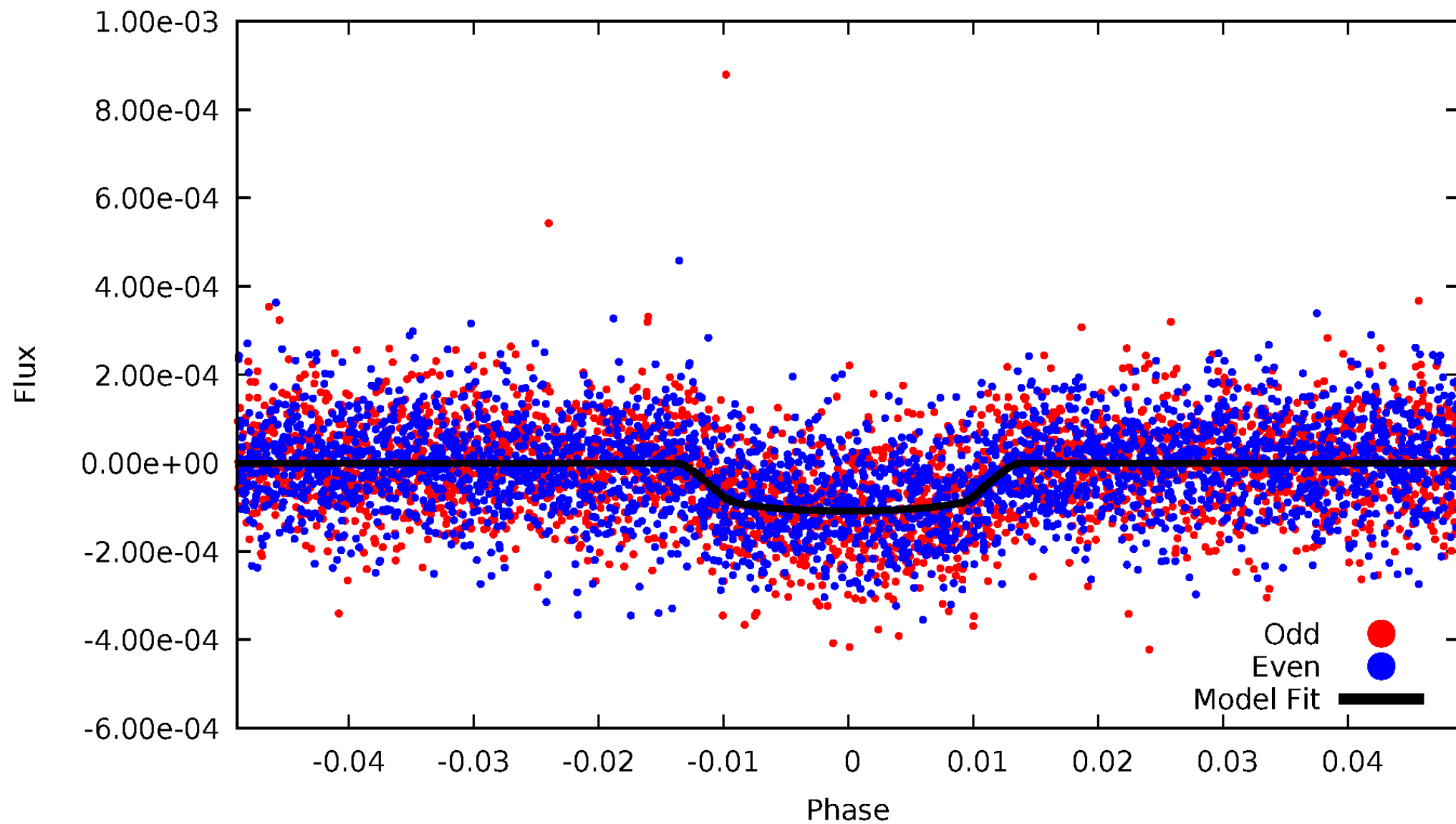


TCE 010130039-02



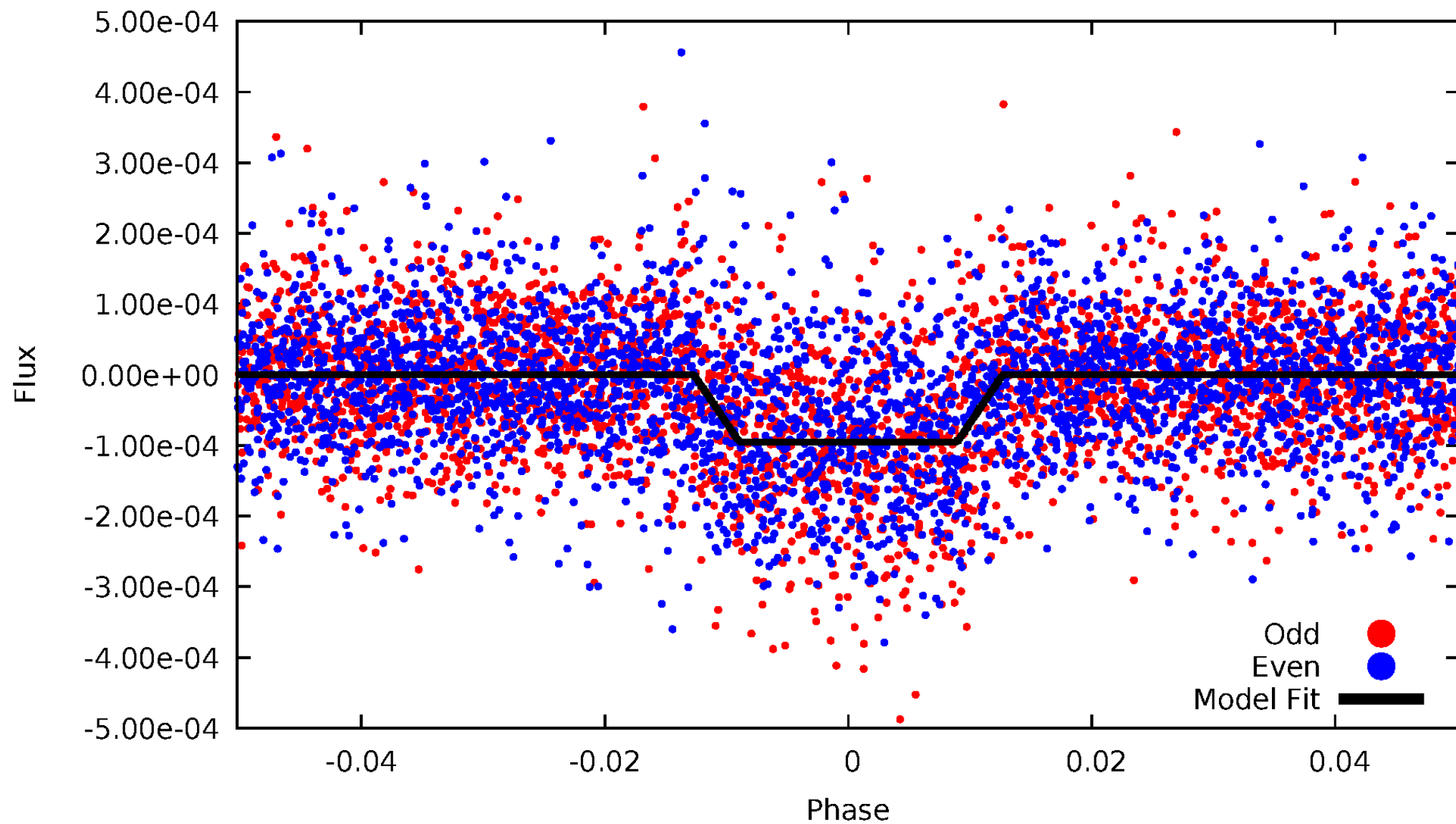
DV Odd/Even

TCE 010130039-02



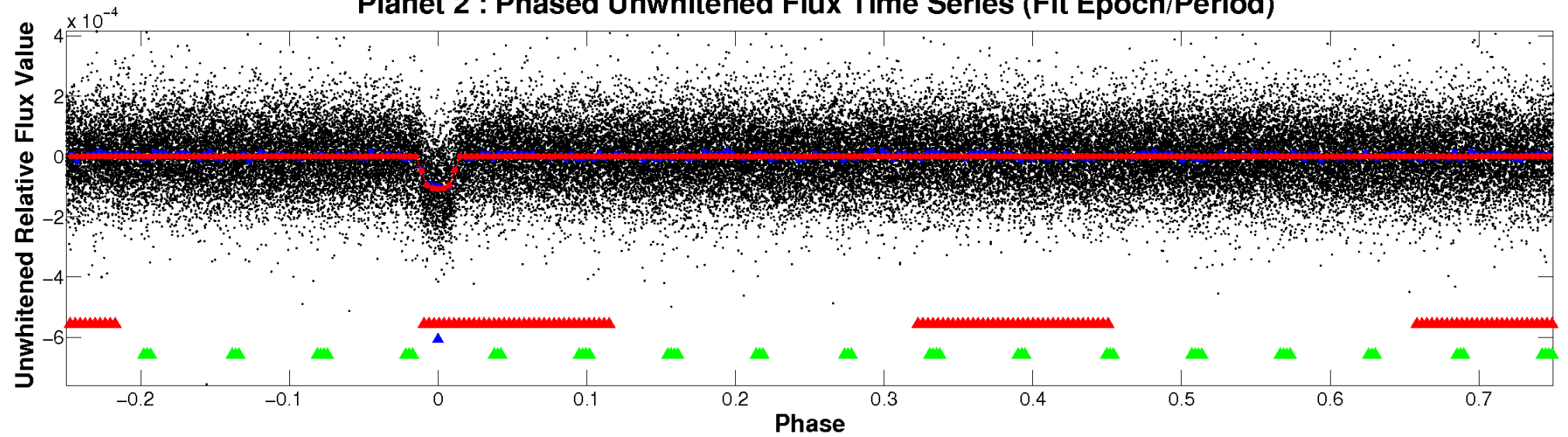
ALT Odd/Even

TCE 010130039-02

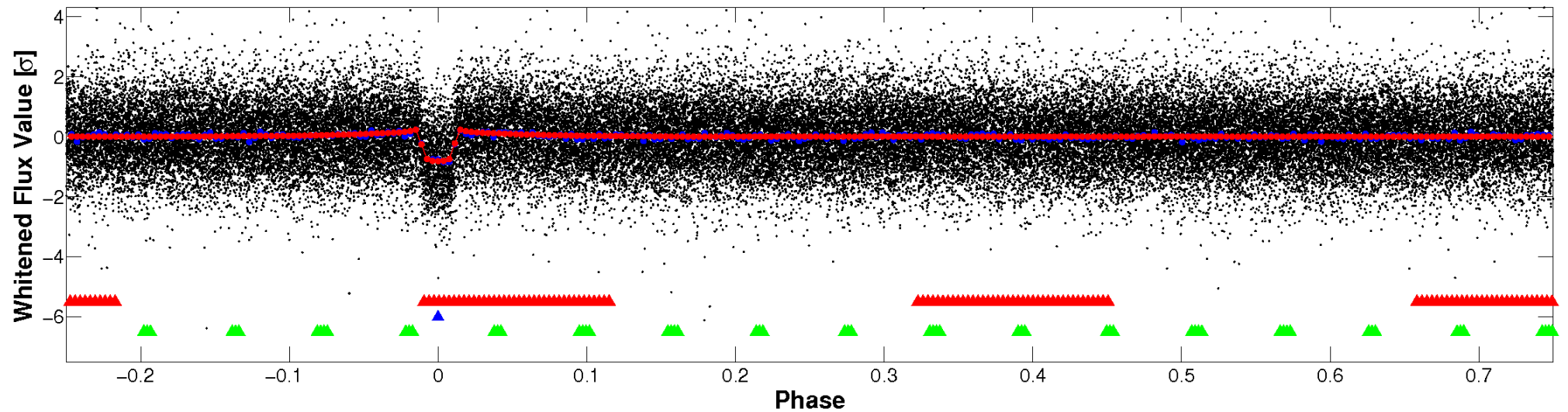


Non-Whitened Vs. Whitened Light Curve

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

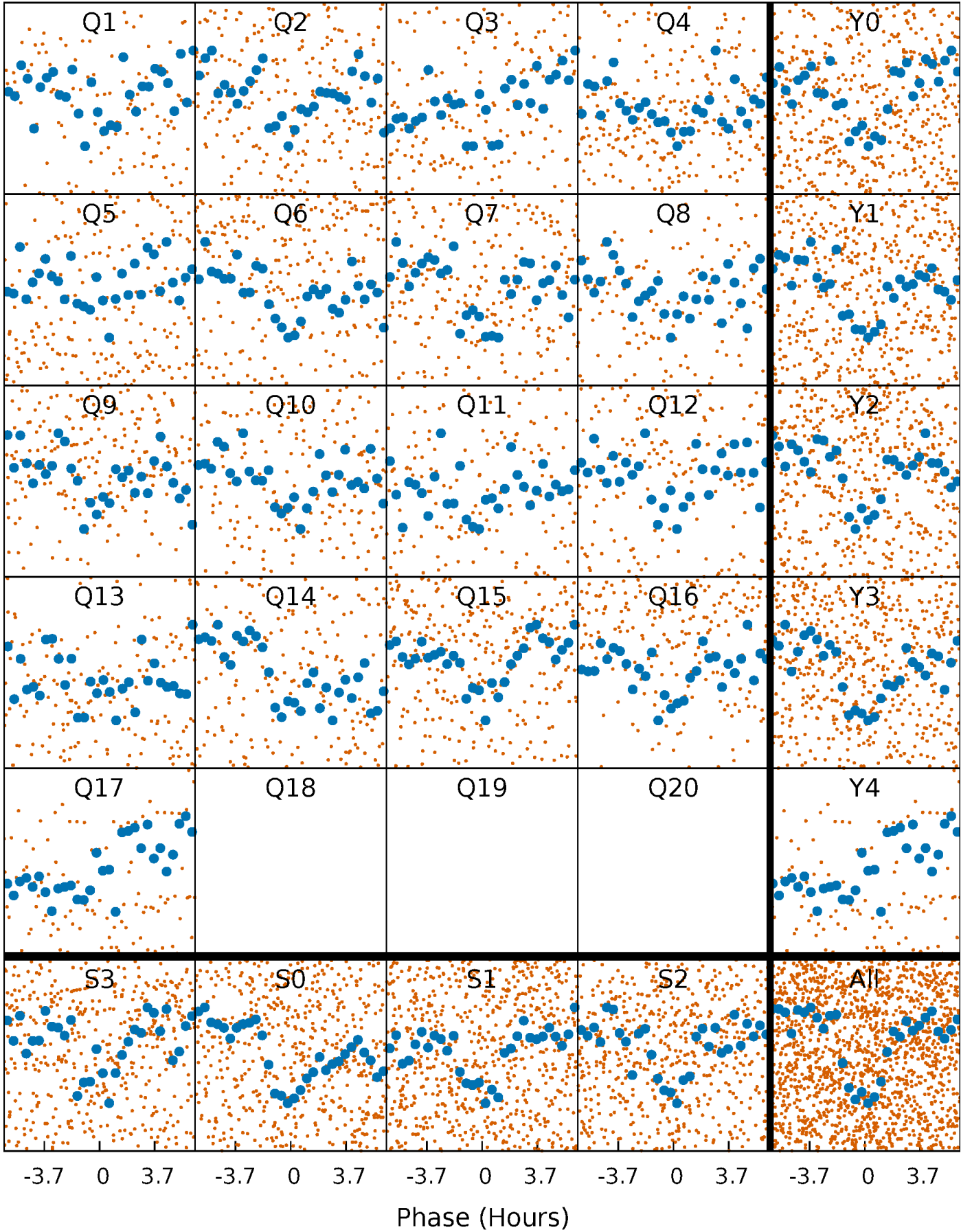


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



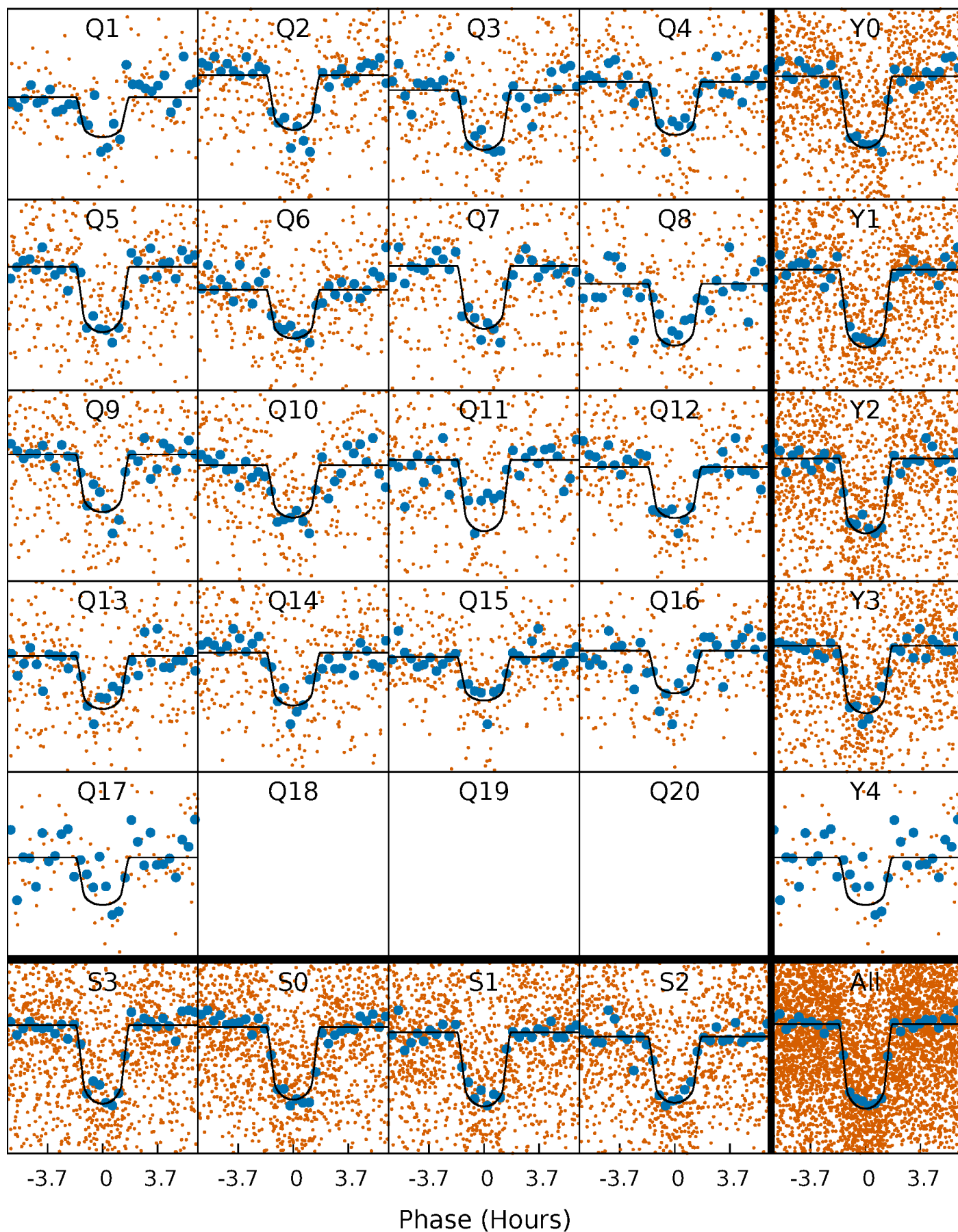
PDC Quarter-Phased Transit Curves

TCE 010130039-02 P= 5.470339 Days $T_0=136.963716$ (BKJD)



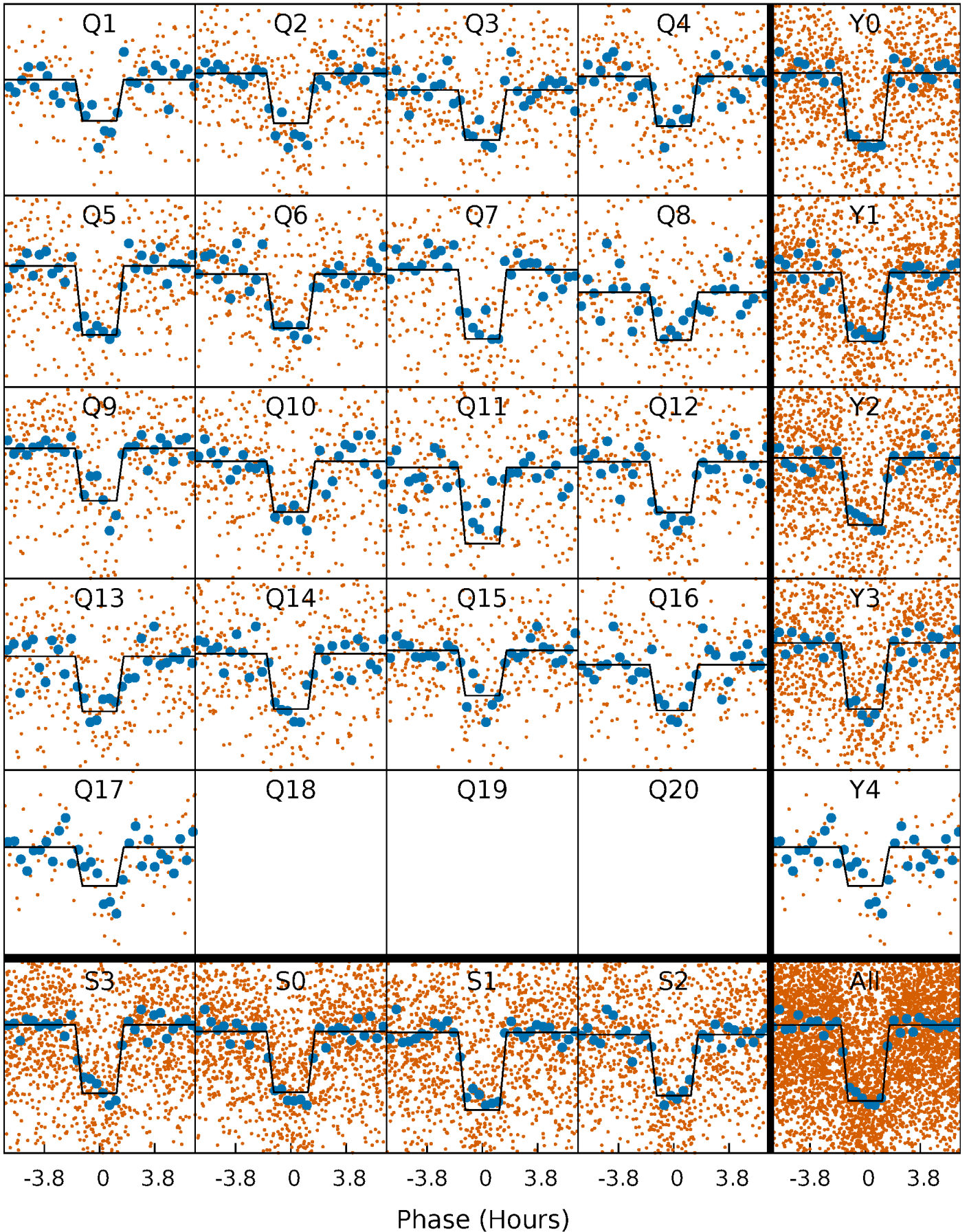
DV Quarter-Phased Transit Curves

TCE 010130039-02 P= 5.470339 Days $T_0=136.963716$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

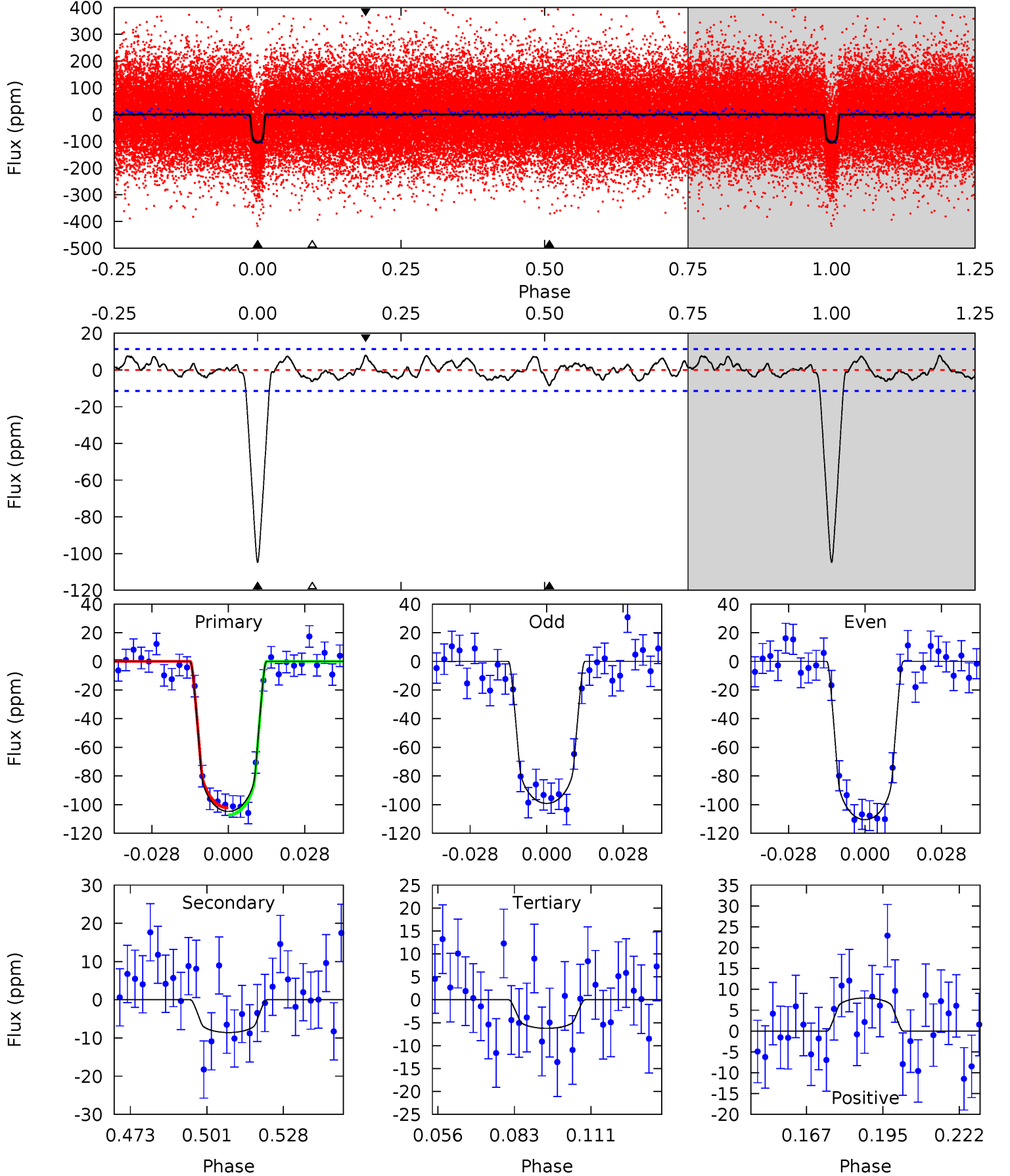
TCE 010130039-02 P= 5.470290 Days $T_0=136.969097$ (BKJD)



DV Model-Shift Uniqueness Test

010130039-02, P = 5.470339 Days, E = 131.493377 Days

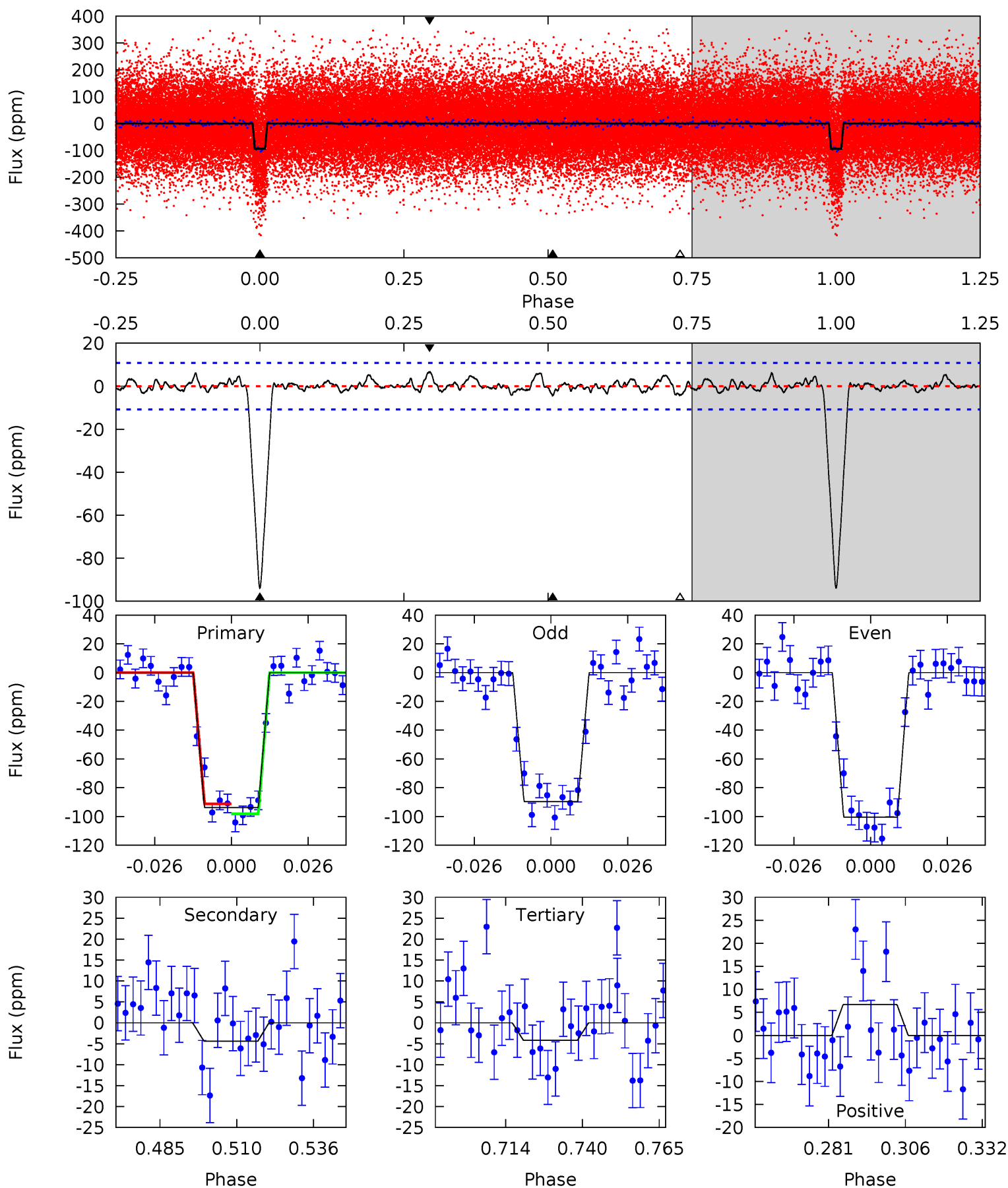
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.4	3.63	2.64	3.36	4.83	2.20	1.44	41.7	41.0	0.99	0.28	2.40	0.99	0.07	1.05



Alt Model-Shift Uniqueness Test

010130039-02, P = 5.470290 Days, E = 131.498807 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.2	1.97	1.89	3.01	4.84	2.23	0.91	40.3	39.2	0.08	-1.04	2.43	0.94	0.07	1.57



Stellar Parameters For KIC 010130039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5782^{+104}_{-115}	$4.340^{+0.126}_{-0.103}$	$-0.020^{+0.150}_{-0.150}$	$1.095^{+0.170}_{-0.155}$	$0.957^{+0.079}_{-0.057}$	$1.028^{+0.564}_{-0.336}$
	+2%/-2%	+3%/-2%	+750%/-750%	+16%/-14%	+8%/-6%	+55%/-33%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010130039-02 / KOI 1909.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 2	$1.35^{+0.28}_{-0.27}$	1525^{+64}_{-70}	3420^{+273}_{-243}	$9.048^{+5.980}_{-3.502}$
Alt.	-4 ± 2	$1.17^{+0.26}_{-0.27}$	1514^{+73}_{-66}	3203^{+336}_{-357}	$6.099^{+5.836}_{-3.303}$

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

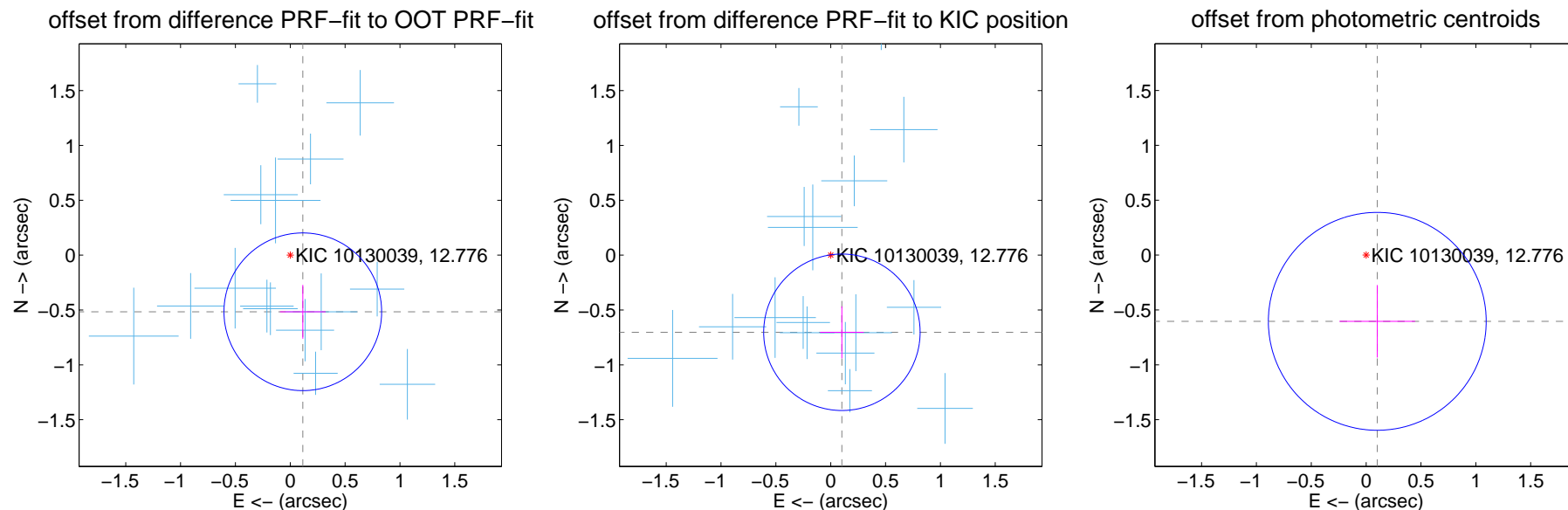
DV Centroid Data

Supplemental centroid analysis for 010130039-02. Kepler magnitude: 12.78. Transit SNR 27.90

There are 17 quarters with good PRF difference image offsets

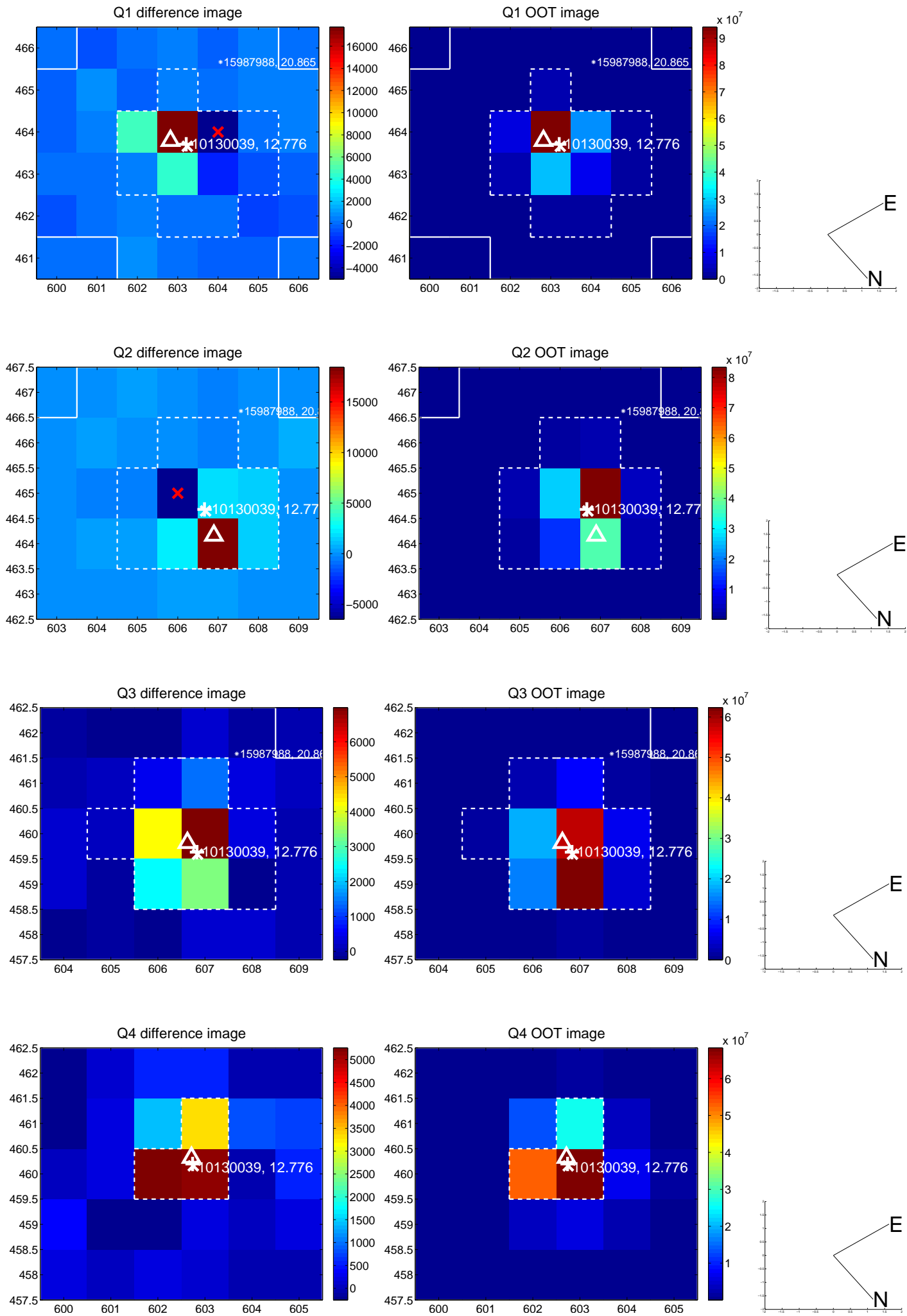
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.529 ± 0.240	2.21	-0.114 ± 0.208	-0.516 ± 0.245
PRF-fit source offset from KIC position	0.710 ± 0.238	2.99	-0.102 ± 0.199	-0.703 ± 0.237
photometric centroid source offset	0.61 ± 0.33	1.85	-0.10 ± 0.34	-0.60 ± 0.33

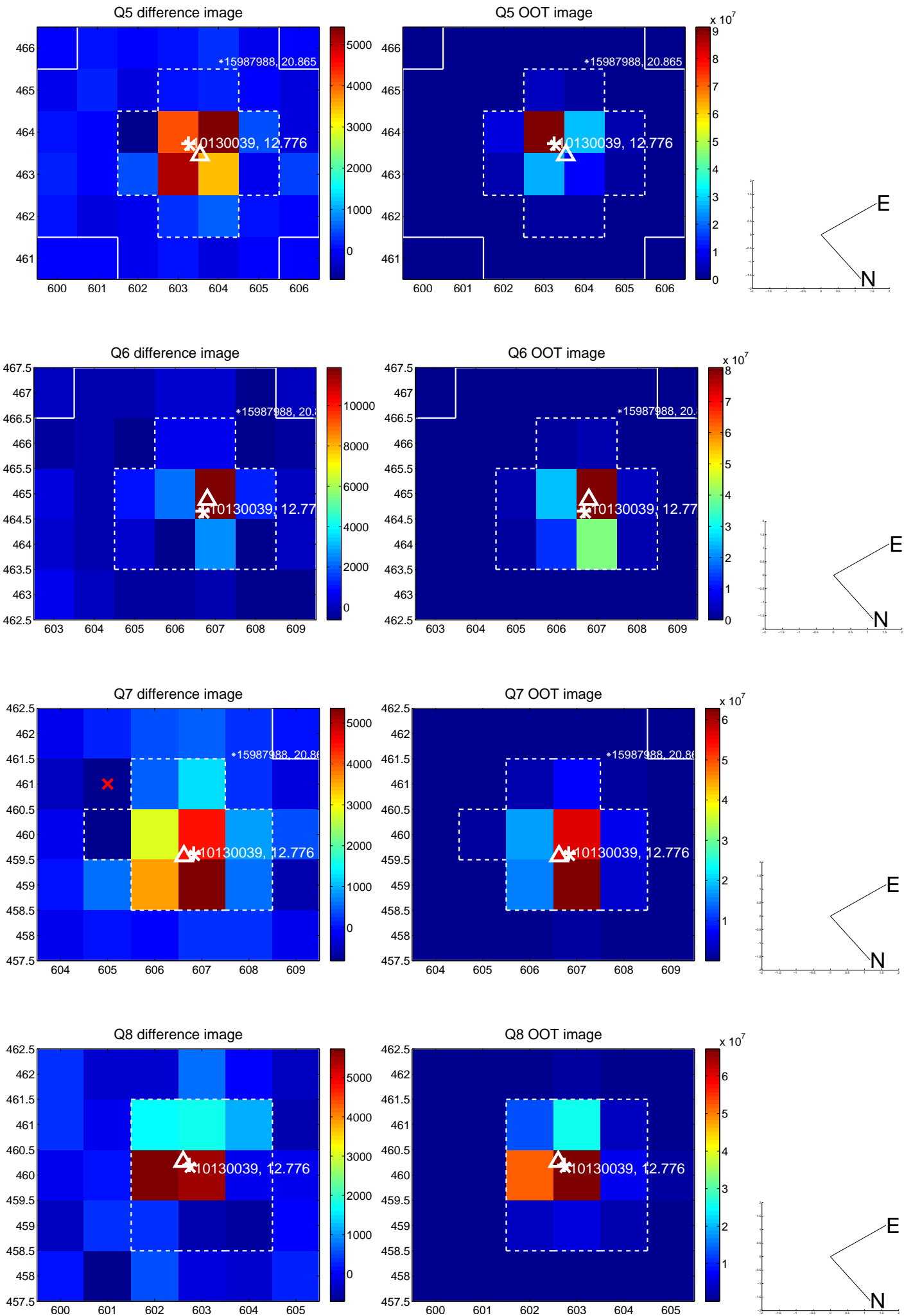


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

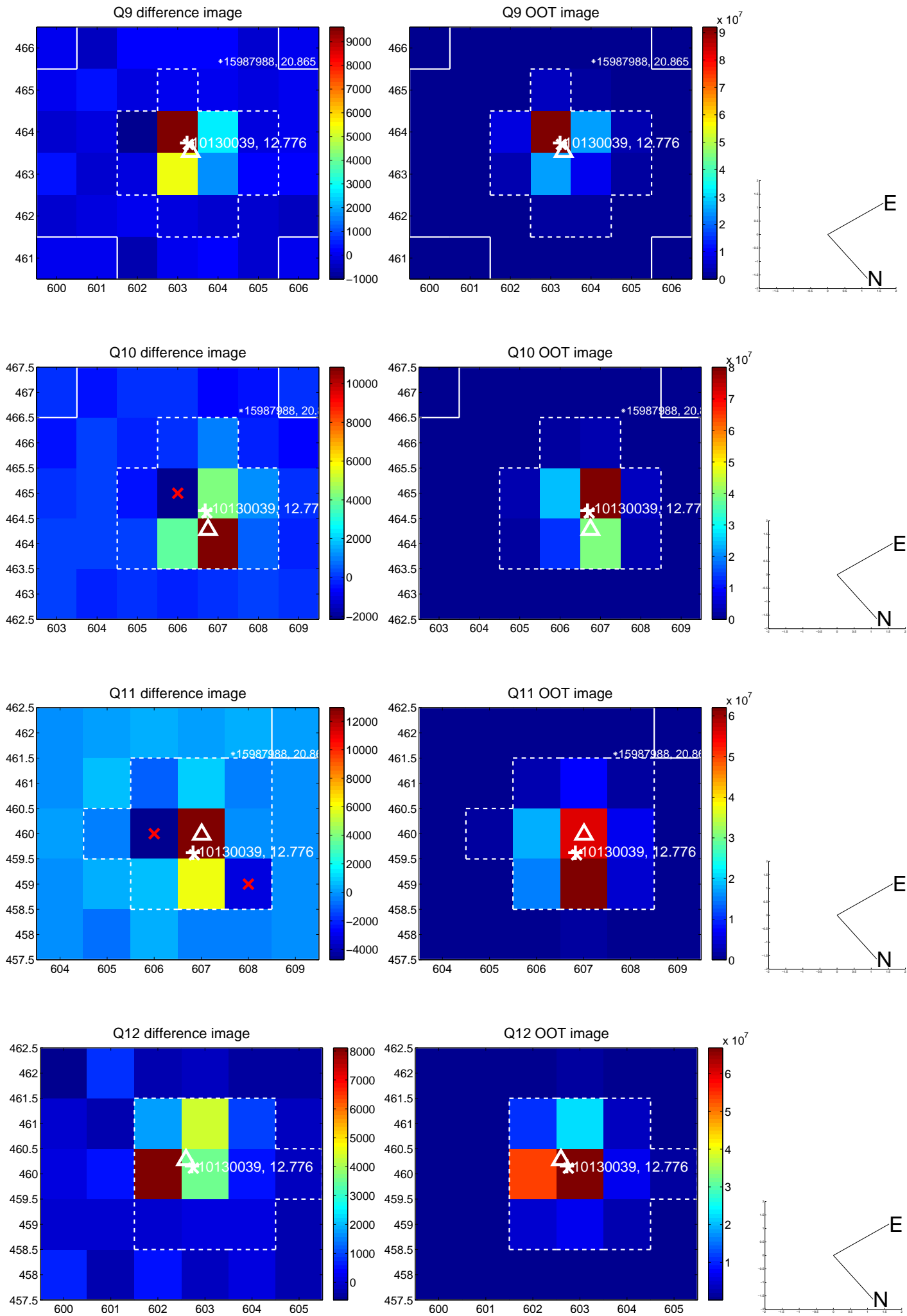
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



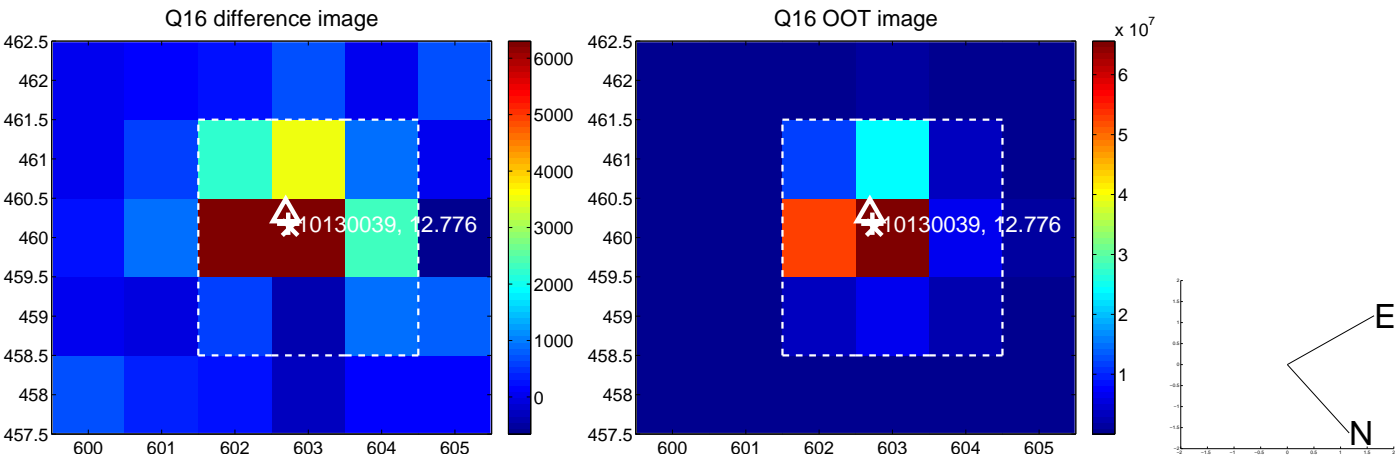
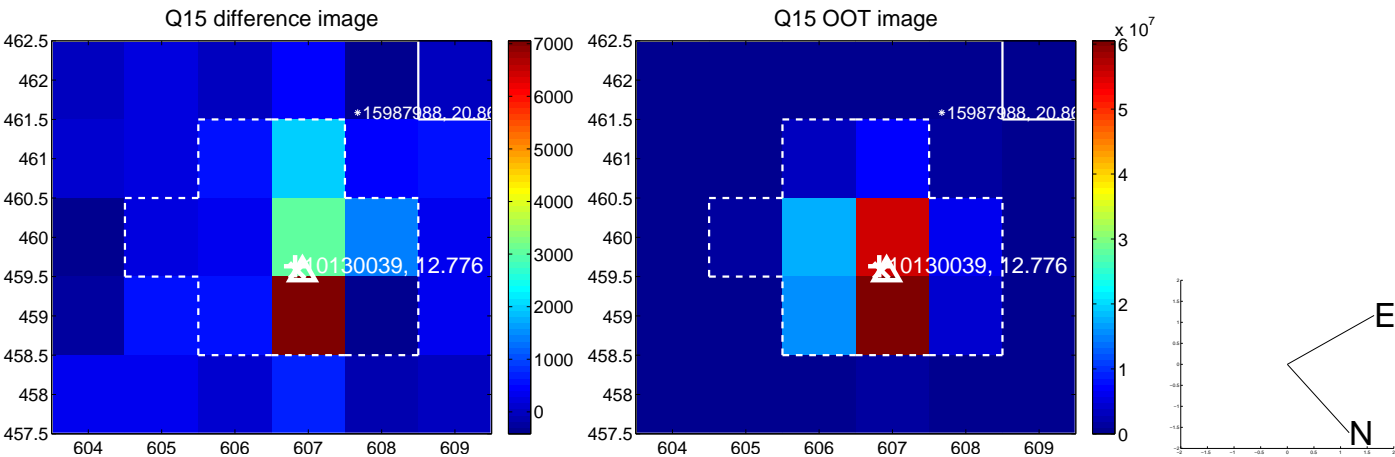
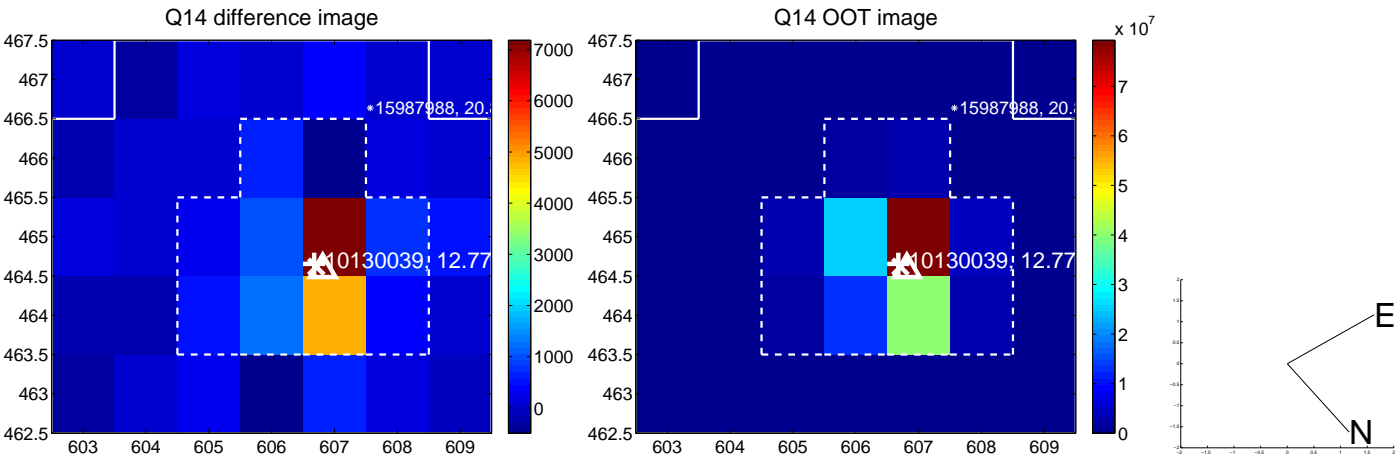
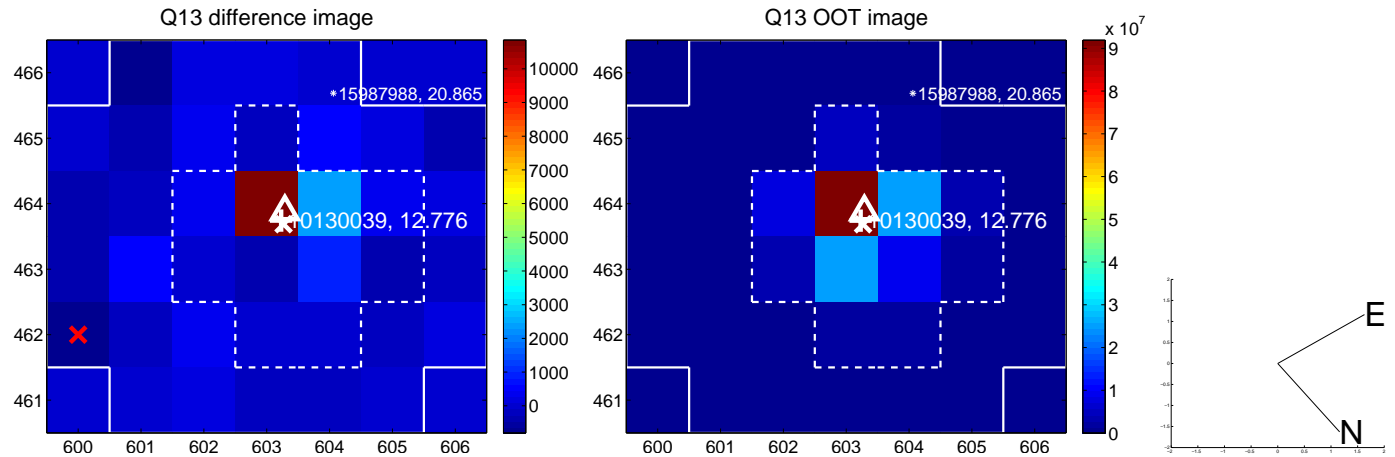
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



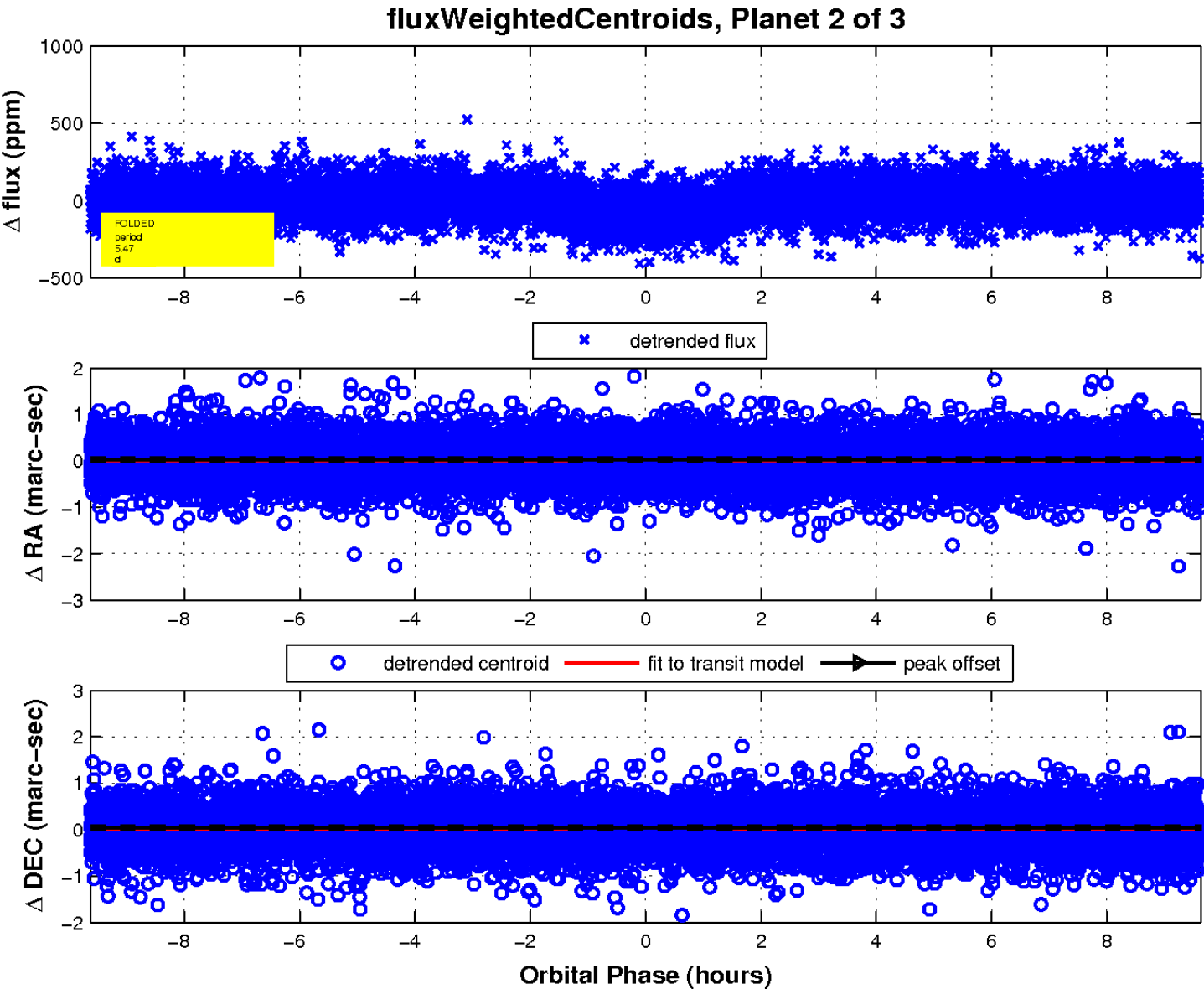
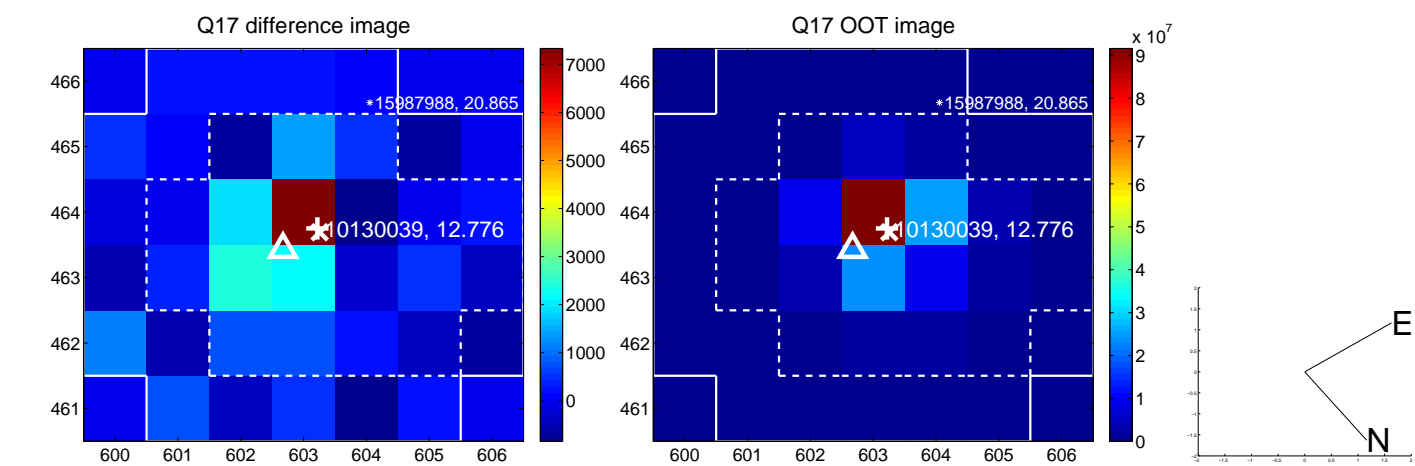
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

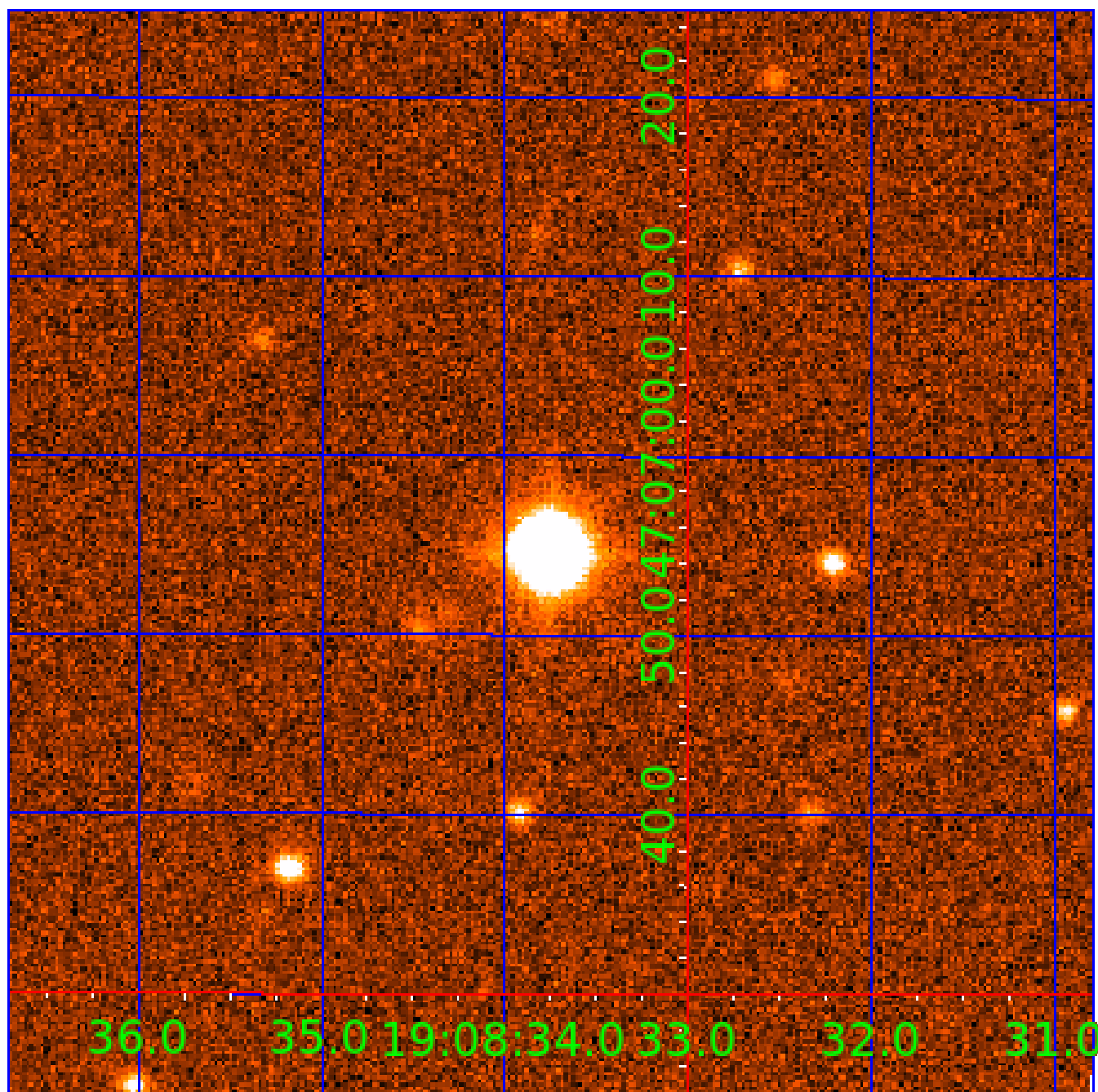


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010130039

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})
010130039-01	OBS	1909.01	12.757990	133.958455	191.5	4.357	32.7	34.5	1.09	5782	1.80	108.25
010130039-02	OBS	1909.02	5.470339	136.963716	108.5	3.211	25.3	27.9	1.09	5782	1.35	334.81
010130039-03	OBS	1909.03	25.098481	145.569272	184.9	2.931	19.2	21.1	1.09	5782	1.76	43.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010130039-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010130039-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010130039-03	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

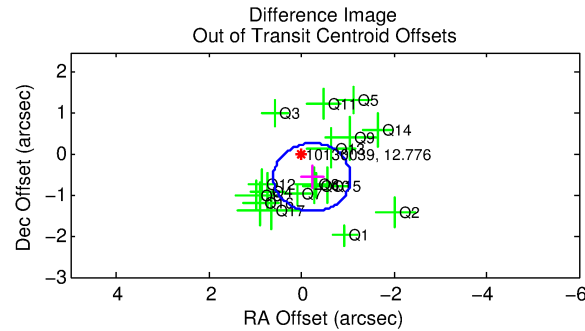
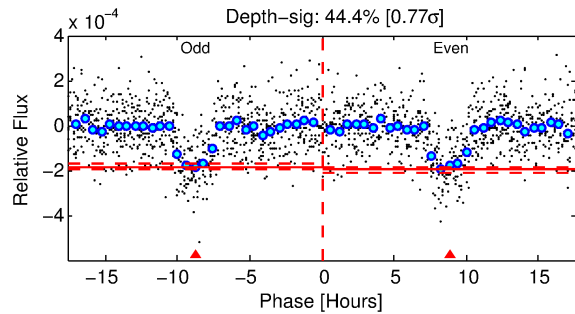
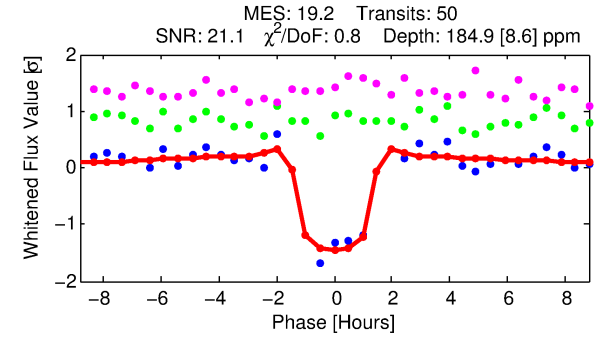
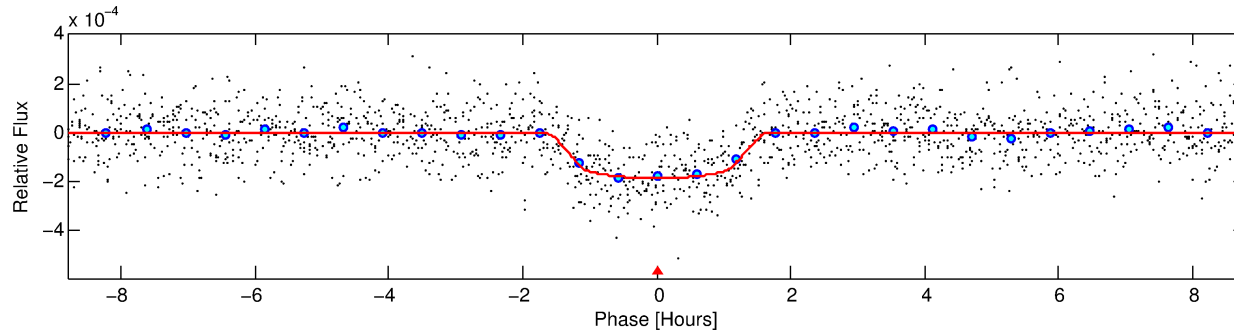
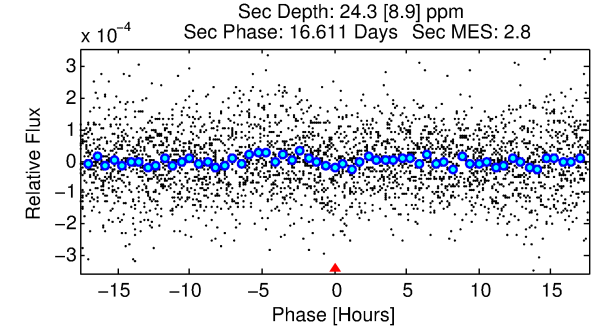
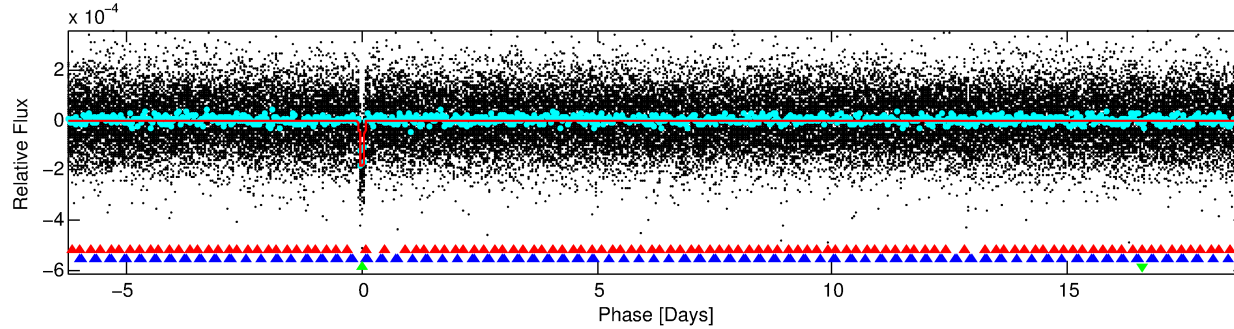
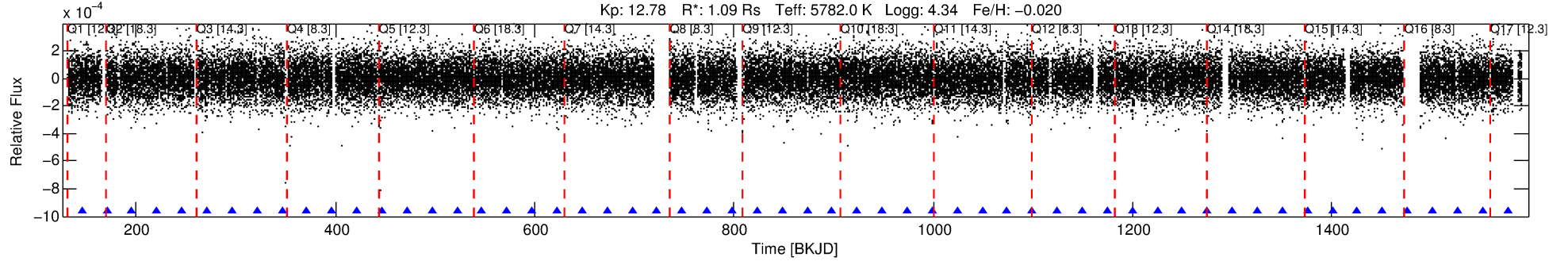
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010130039-03

No Significant Match Found

DV One-Page Summary

KIC: 10130039 Candidate: 3 of 3 Period: 25.098 d
KOI: K01909.03 Name: Kepler-334d Corr: 0.975



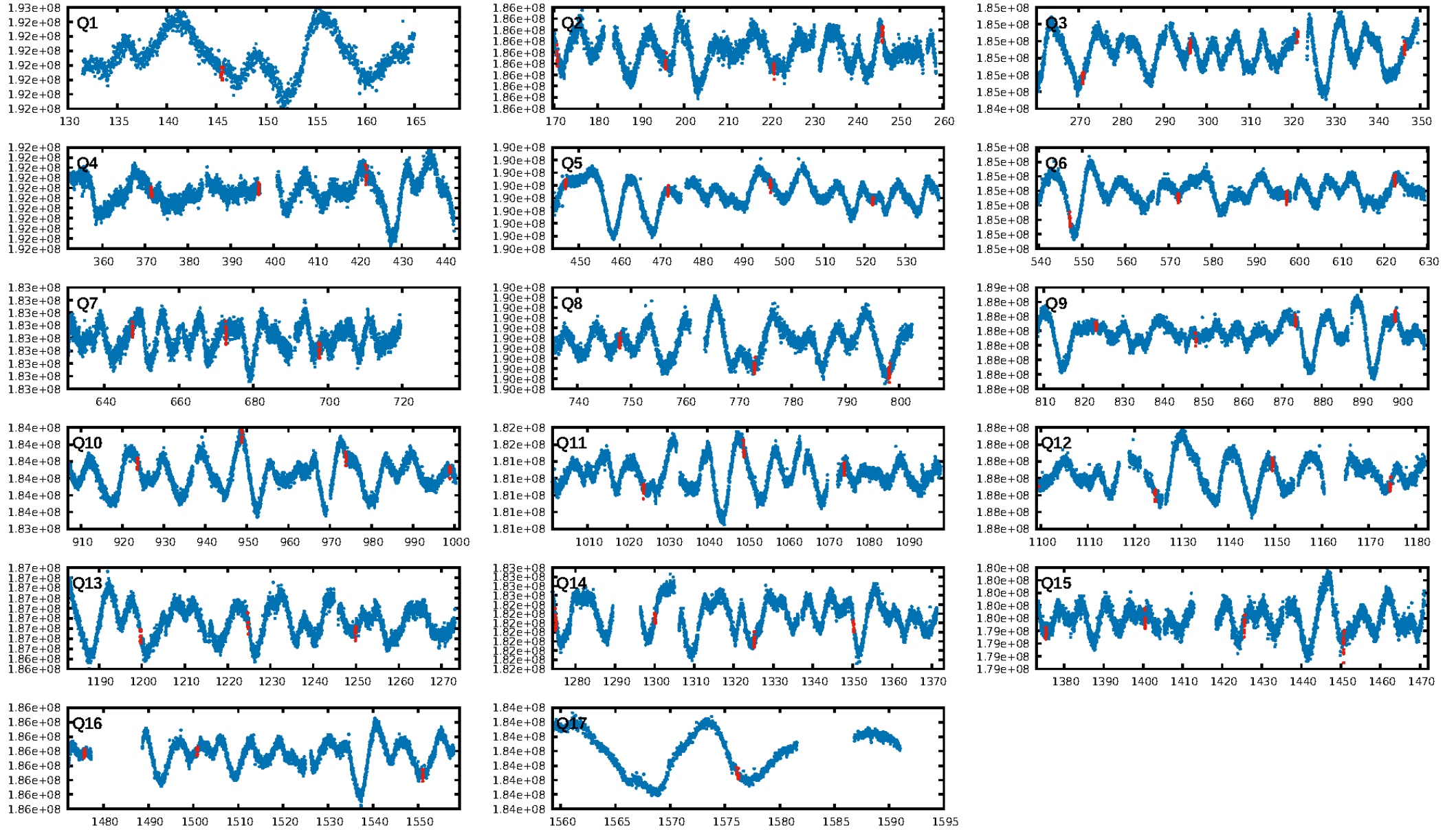
DV Fit Results:

Period = 25.09848 [0.00008] d
Epoch = 145.5693 [0.0027] BKJD
Rp/R* = 0.0148 [0.0037]
a/R* = 31.02 [37.29]
b = 0.90 [0.27]
Seff = 43.92 [10.25]
Teq = 656 [38] K
Rp = 1.77 [0.52] Re
a = 0.1654 [0.0234] AU
Ag = 117.33 [77.53] [1.50σ]
Teffp = 3340 [525] K [5.10σ]

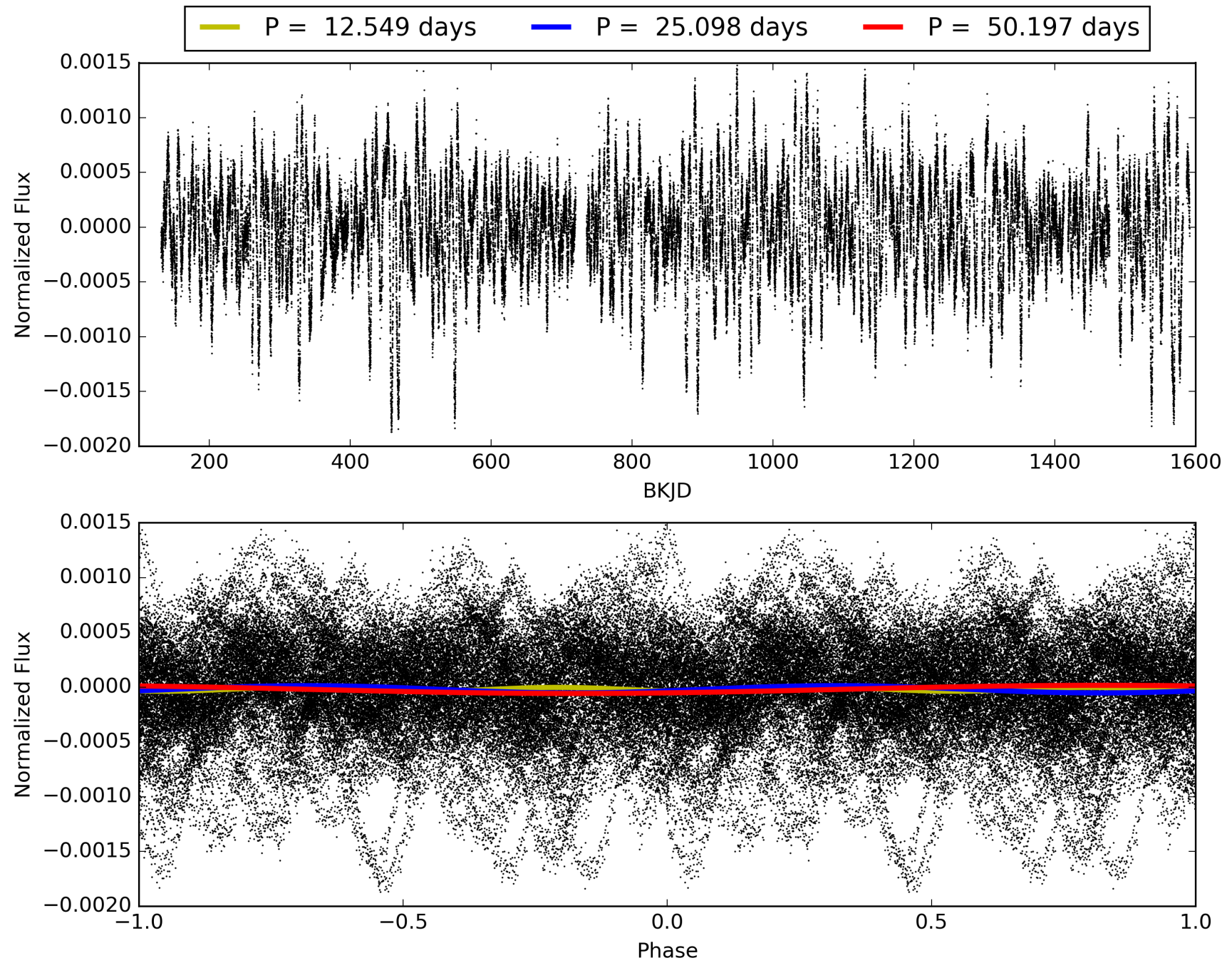
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.38e-74
RollingBand-fgt: 1.00 [48/48]
GhostDiagnostic-chr: 9.65
Centroid-sig: 40.2%
Centroid-so: 0.469 arcsec [1.02σ]
OotOffset-rm: 0.604 arcsec [2.17σ]
KicOffset-rm: 0.838 arcsec [2.98σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010130039-03, PDC Light Curves

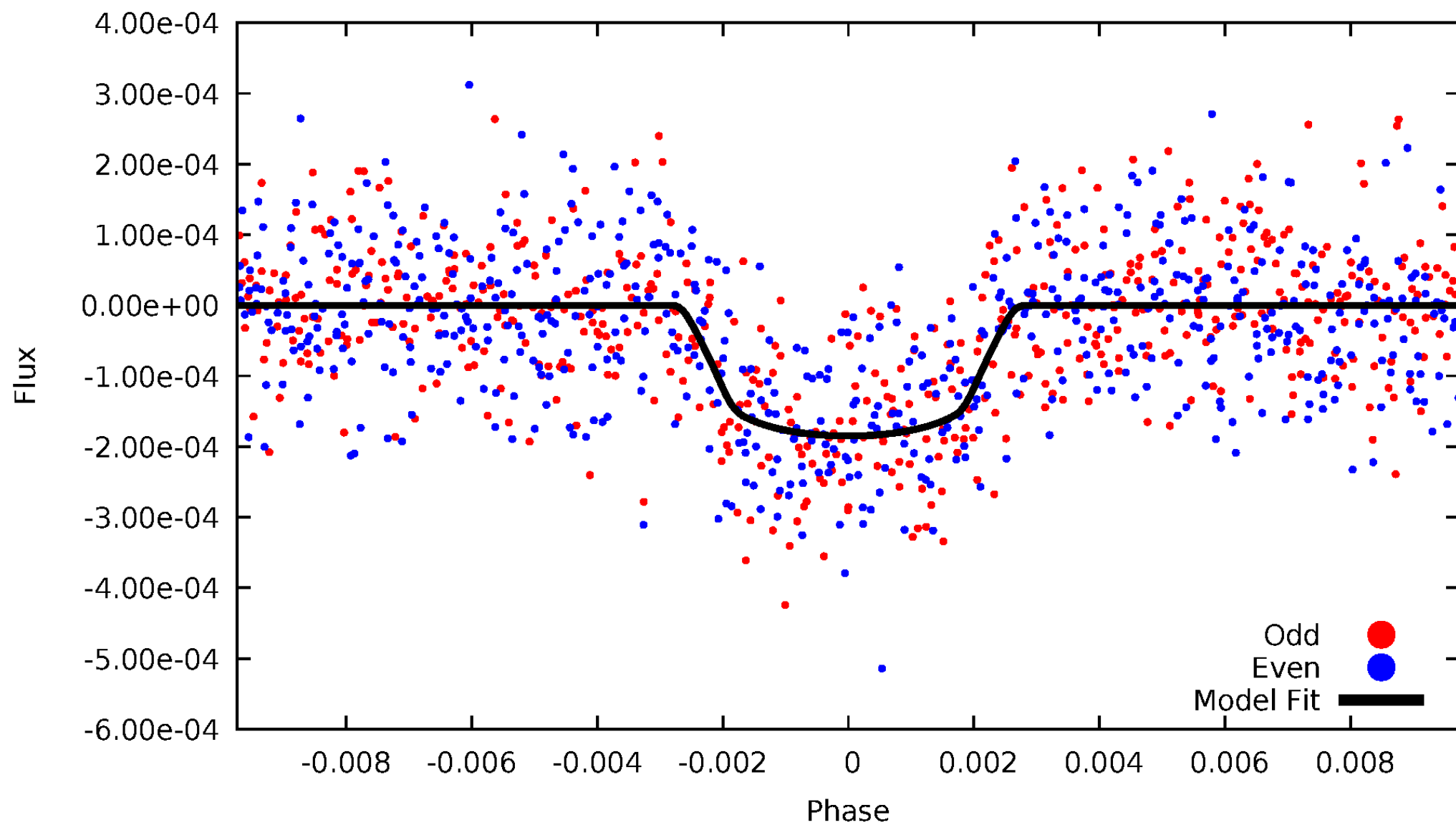


TCE 010130039-03



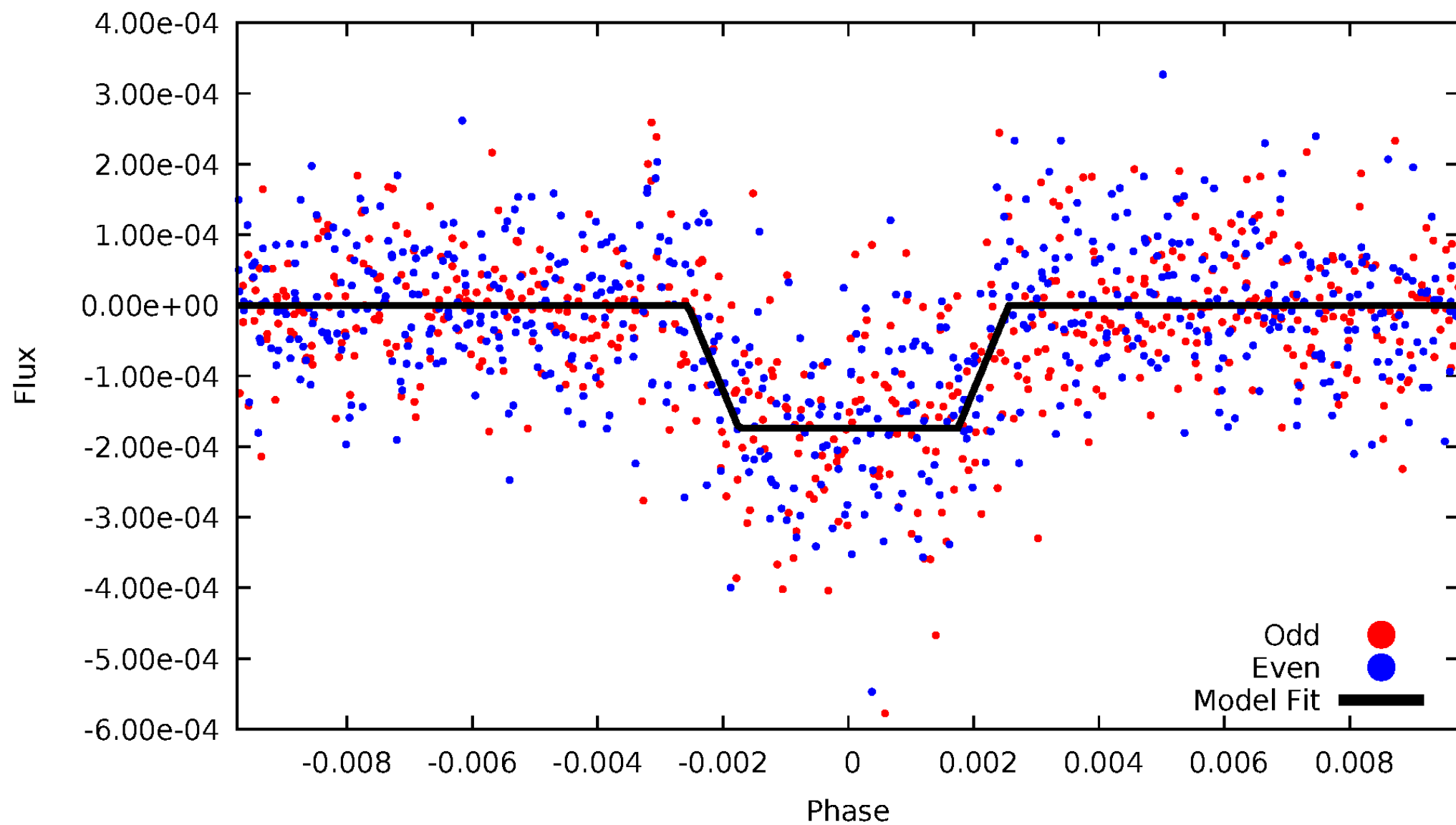
DV Odd/Even

TCE 010130039-03

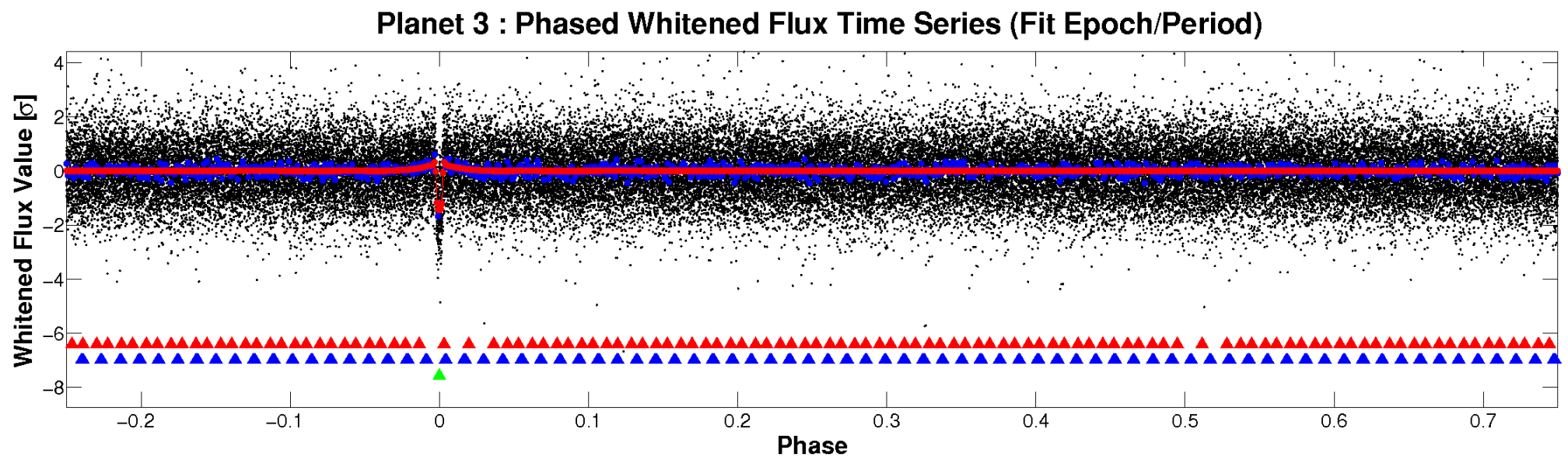
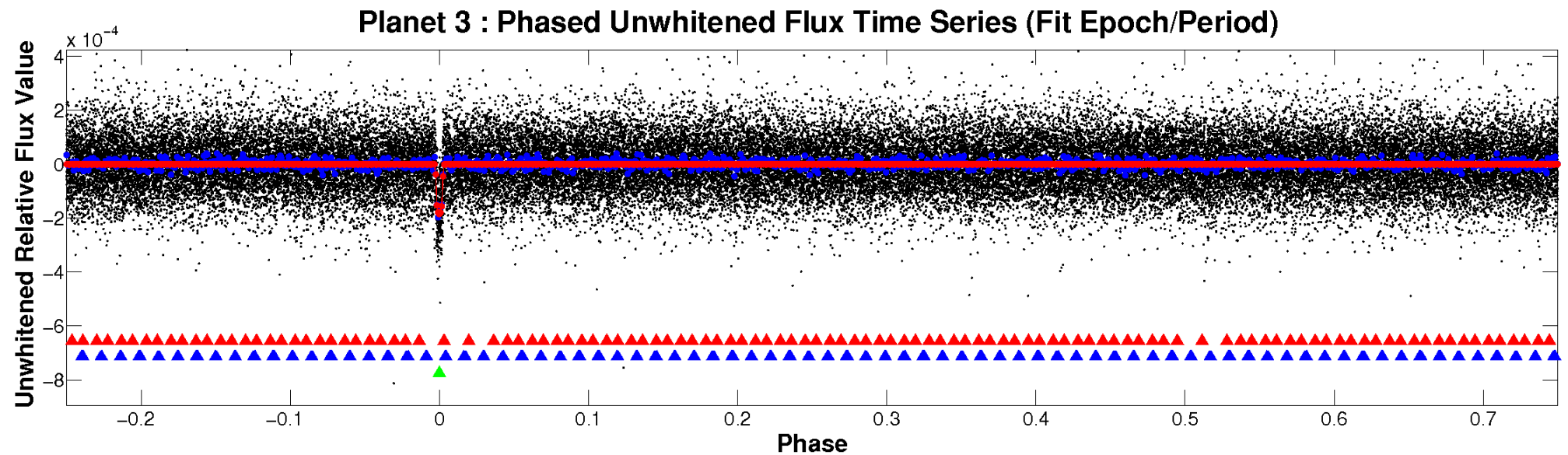


ALT Odd/Even

TCE 010130039-03

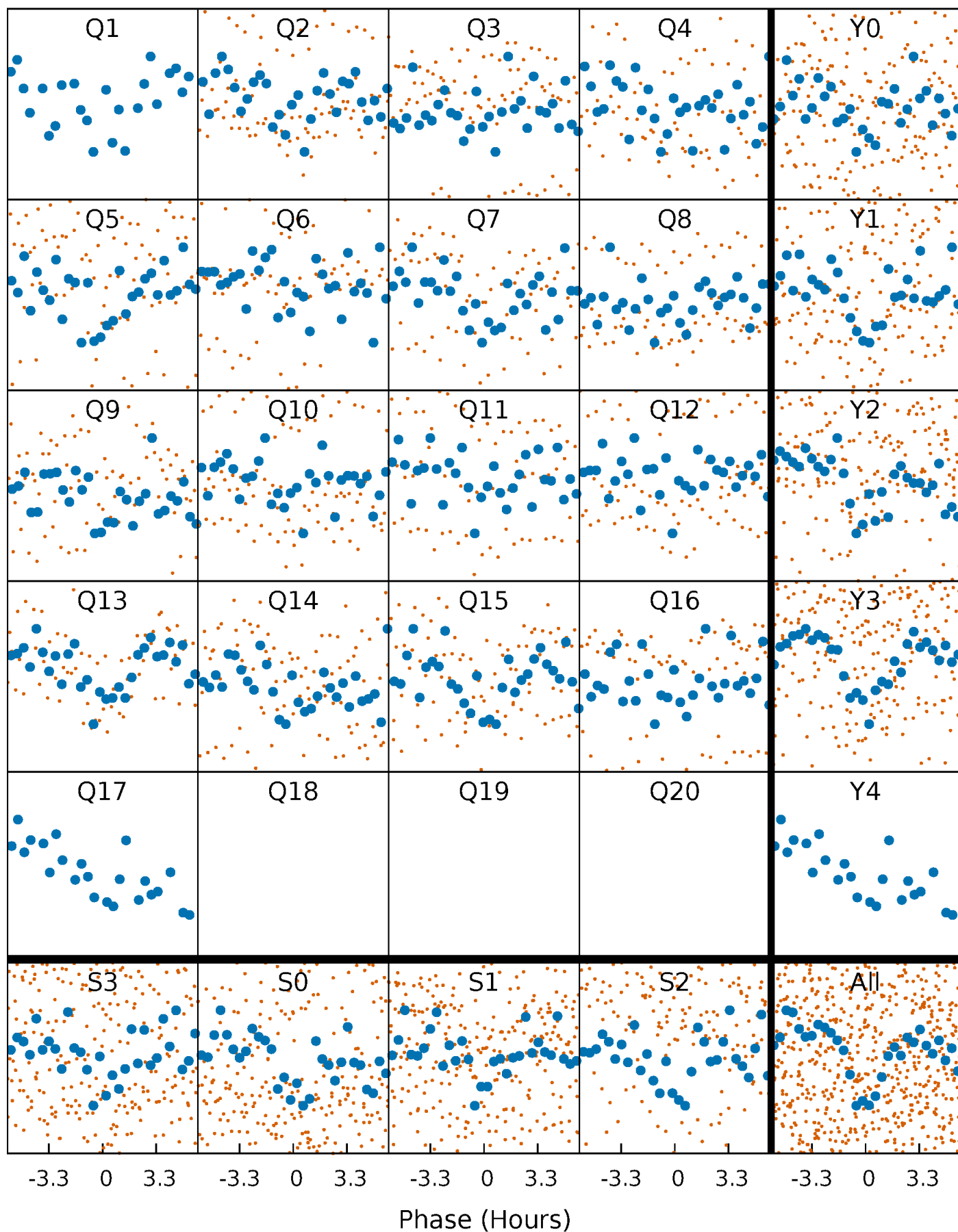


Non-Whitened Vs. Whitened Light Curve



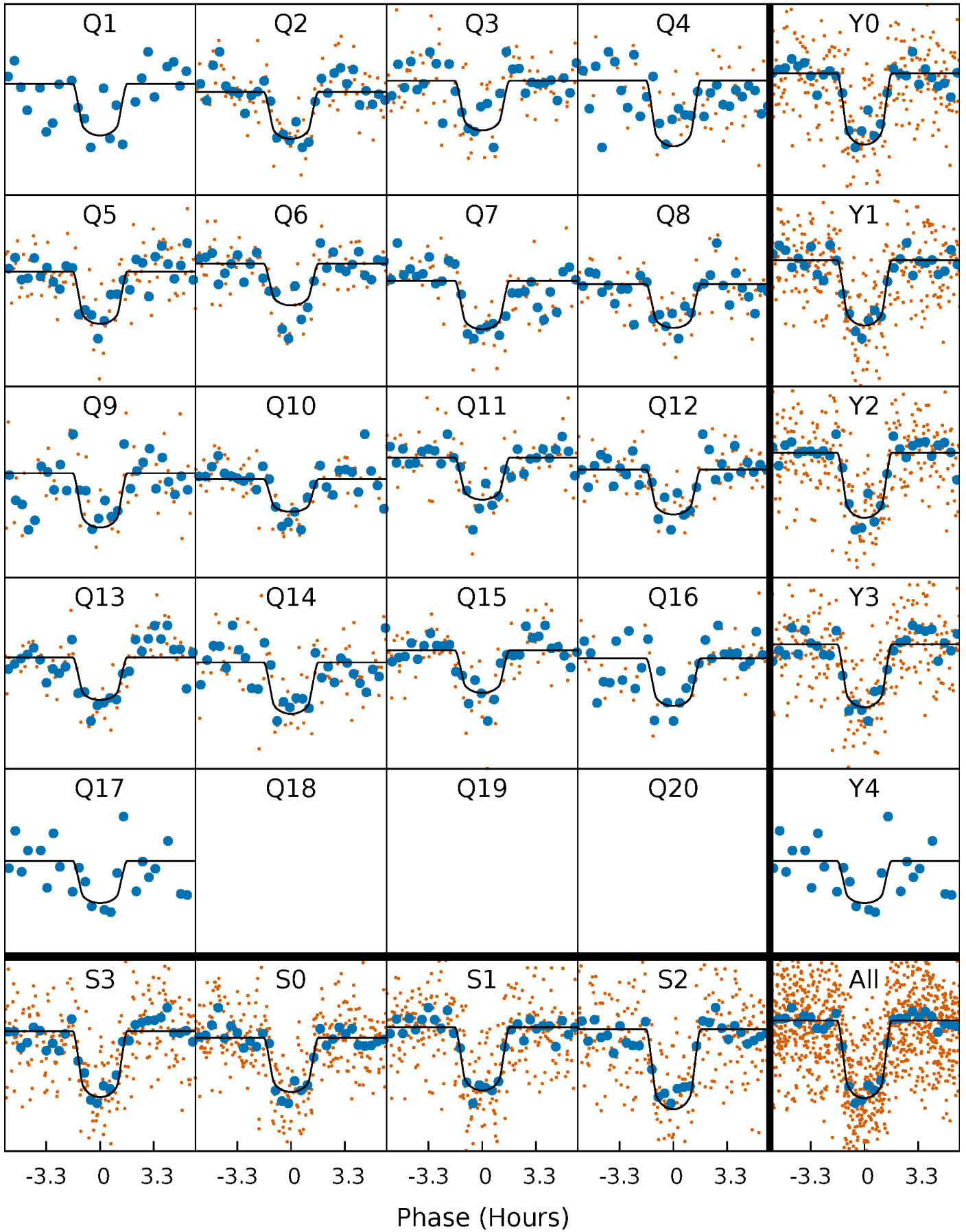
PDC Quarter-Phased Transit Curves

TCE 010130039-03 P= 25.098481 Days $T_0=145.569272$ (BKJD)



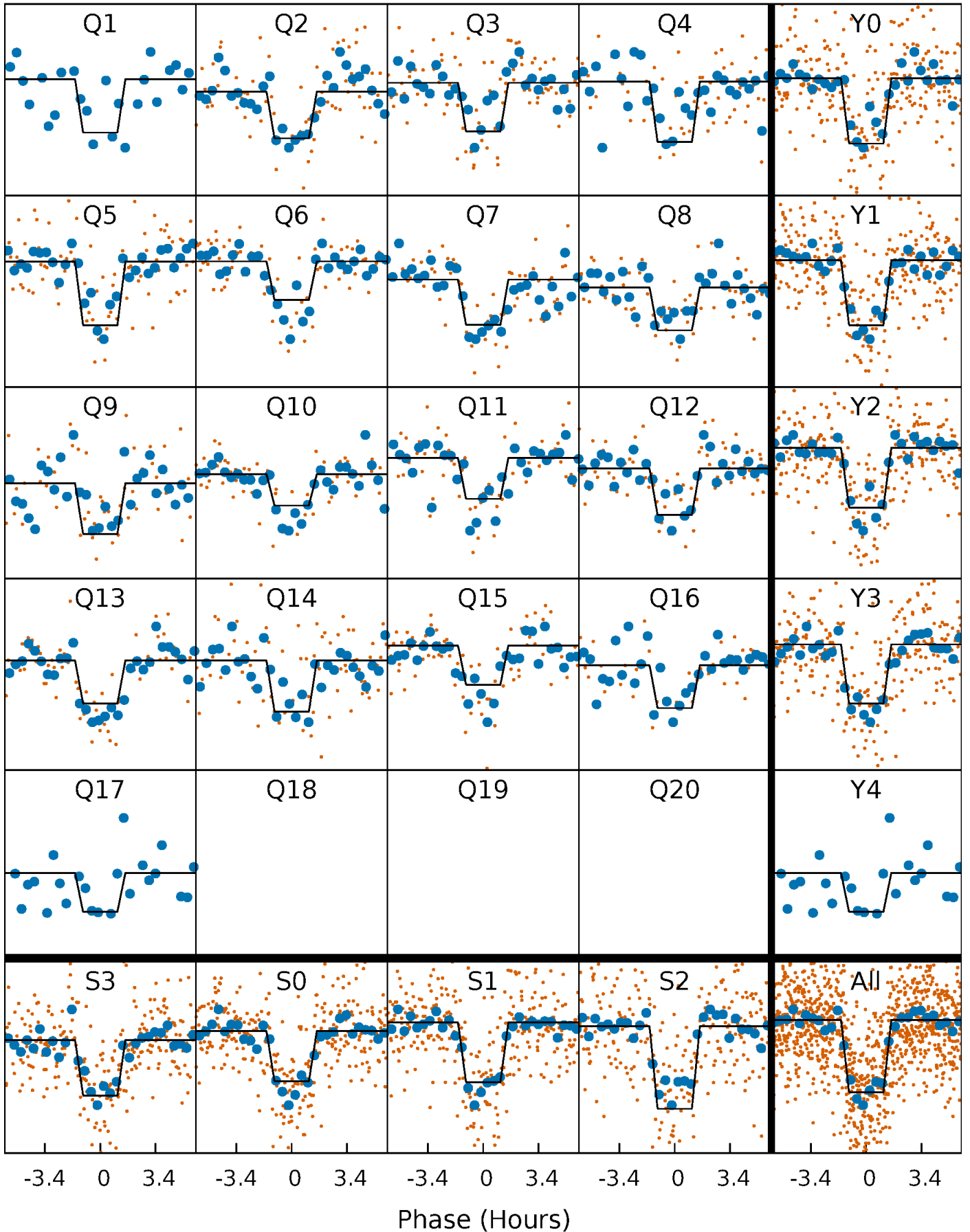
DV Quarter-Phased Transit Curves

TCE 010130039-03 $P = 25.098481$ Days $T_0 = 145.569272$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

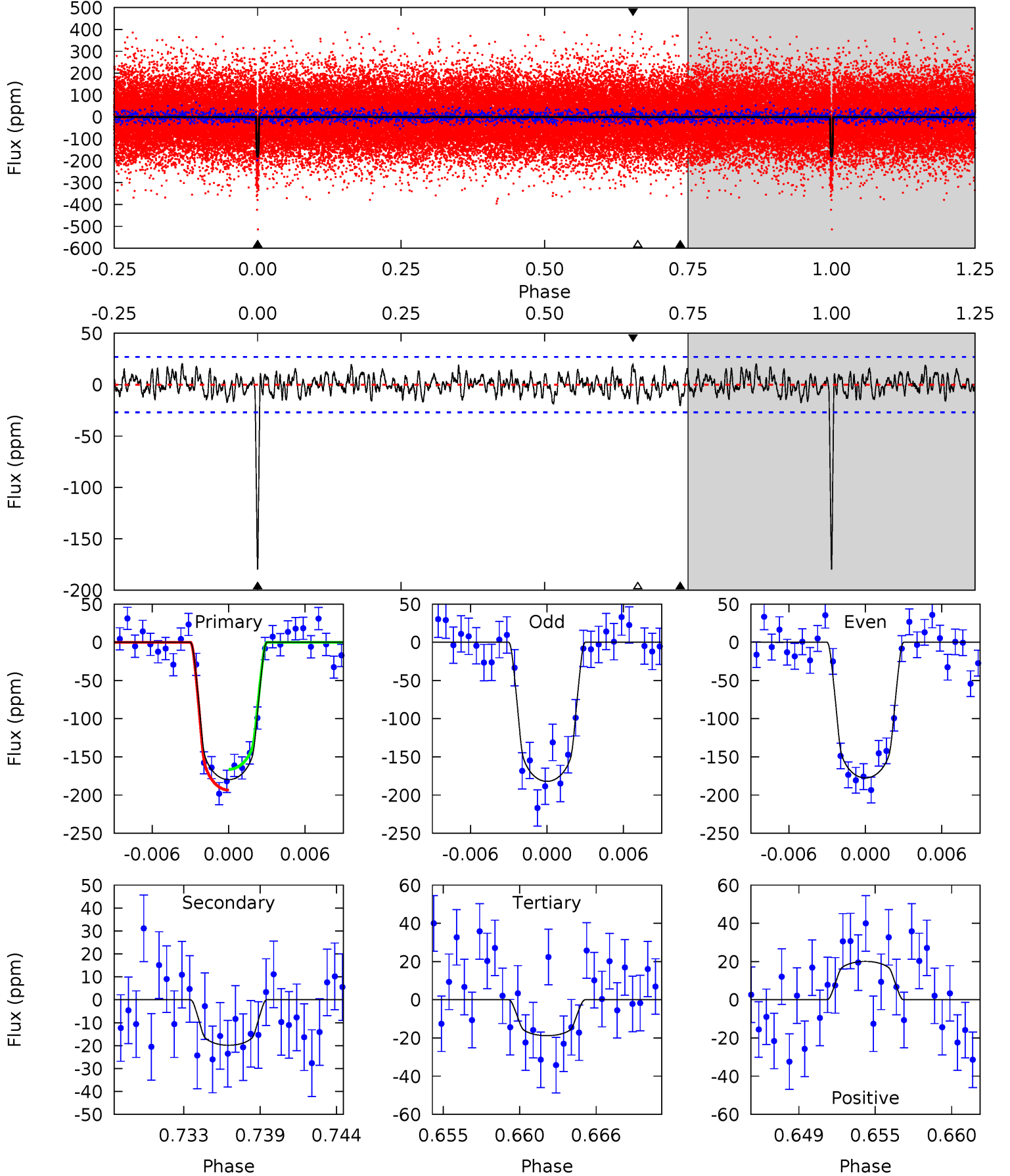
TCE 010130039-03 P= 25.098657 Days $T_0=145.564139$ (BKJD)



DV Model-Shift Uniqueness Test

010130039-03, $P = 25.098481$ Days, $E = 120.470791$ Days

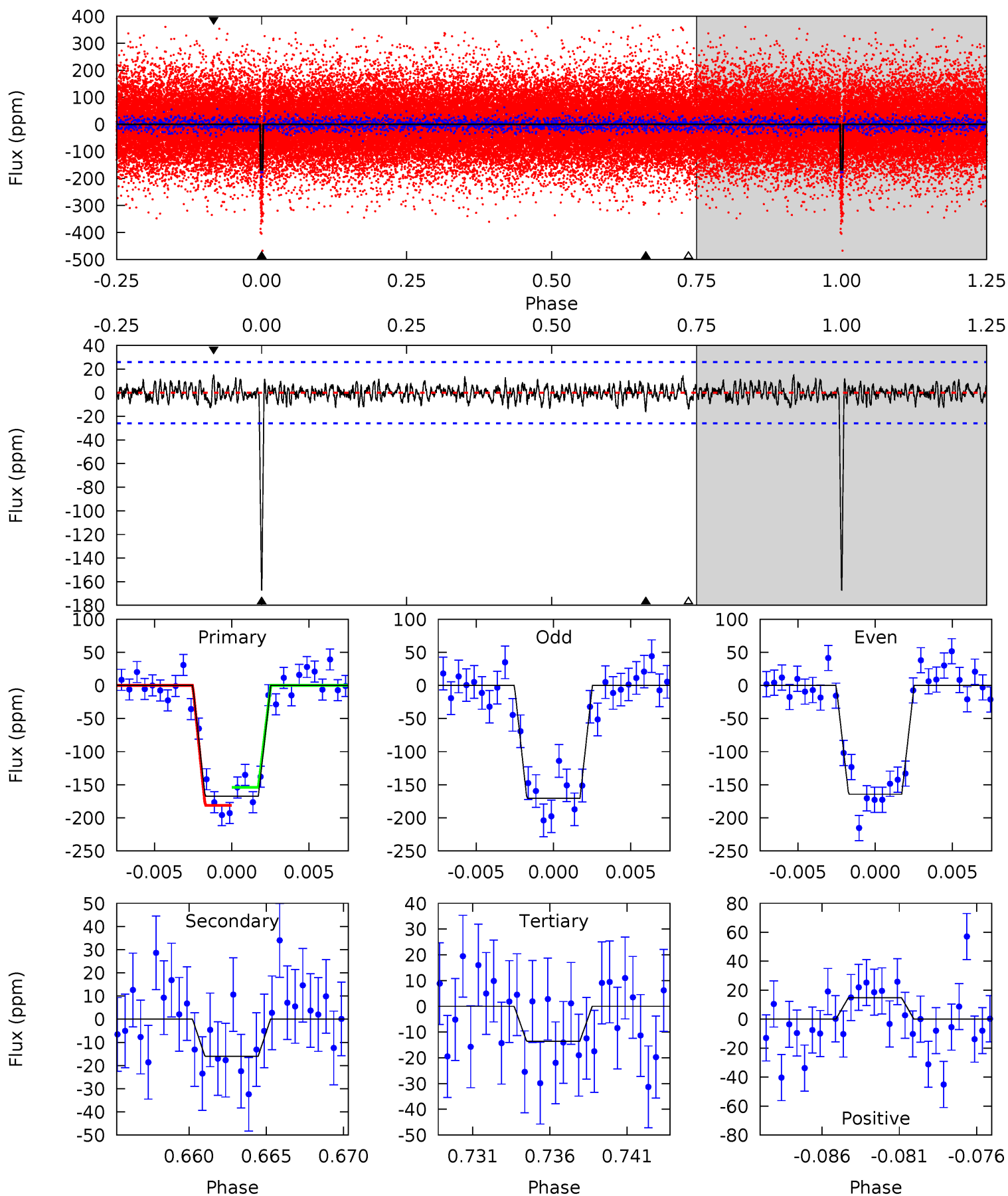
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.2	3.78	3.58	3.82	5.14	2.77	1.39	30.7	30.4	0.20	-0.04	0.42	1.04	0.10	2.59



Alt Model-Shift Uniqueness Test

010130039-03, $P = 25.098657$ Days, $E = 120.465482$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	3.18	2.70	2.94	5.15	2.80	0.95	30.6	30.3	0.48	0.24	0.60	1.03	0.08	2.71



Stellar Parameters For KIC 010130039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5782^{+104}_{-115}	$4.340^{+0.126}_{-0.103}$	$-0.020^{+0.150}_{-0.150}$	$1.095^{+0.170}_{-0.155}$	$0.957^{+0.079}_{-0.057}$	$1.028^{+0.564}_{-0.336}$
	+2%/-2%	+3%/-2%	+750%/-750%	+16%/-14%	+8%/-6%	+55%/-33%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010130039-03 / KOI 1909.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20 ± 5	$1.74^{+0.48}_{-0.46}$	913^{+40}_{-40}	3614^{+397}_{-302}	96^{+92}_{-42}
Alt.	-16 ± 5	$1.57^{+0.46}_{-0.46}$	914^{+39}_{-40}	3627^{+462}_{-347}	100^{+98}_{-47}

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

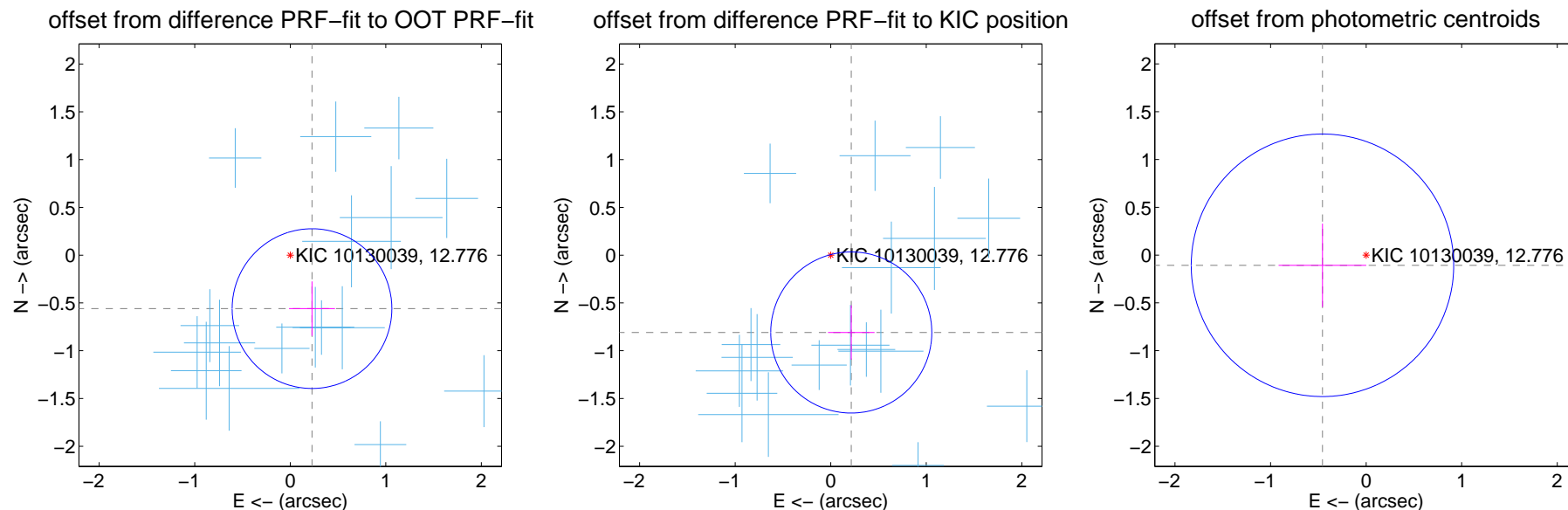
DV Centroid Data

Supplemental centroid analysis for 010130039-03. Kepler magnitude: 12.78. Transit SNR 21.10

There are 17 quarters with good PRF difference image offsets

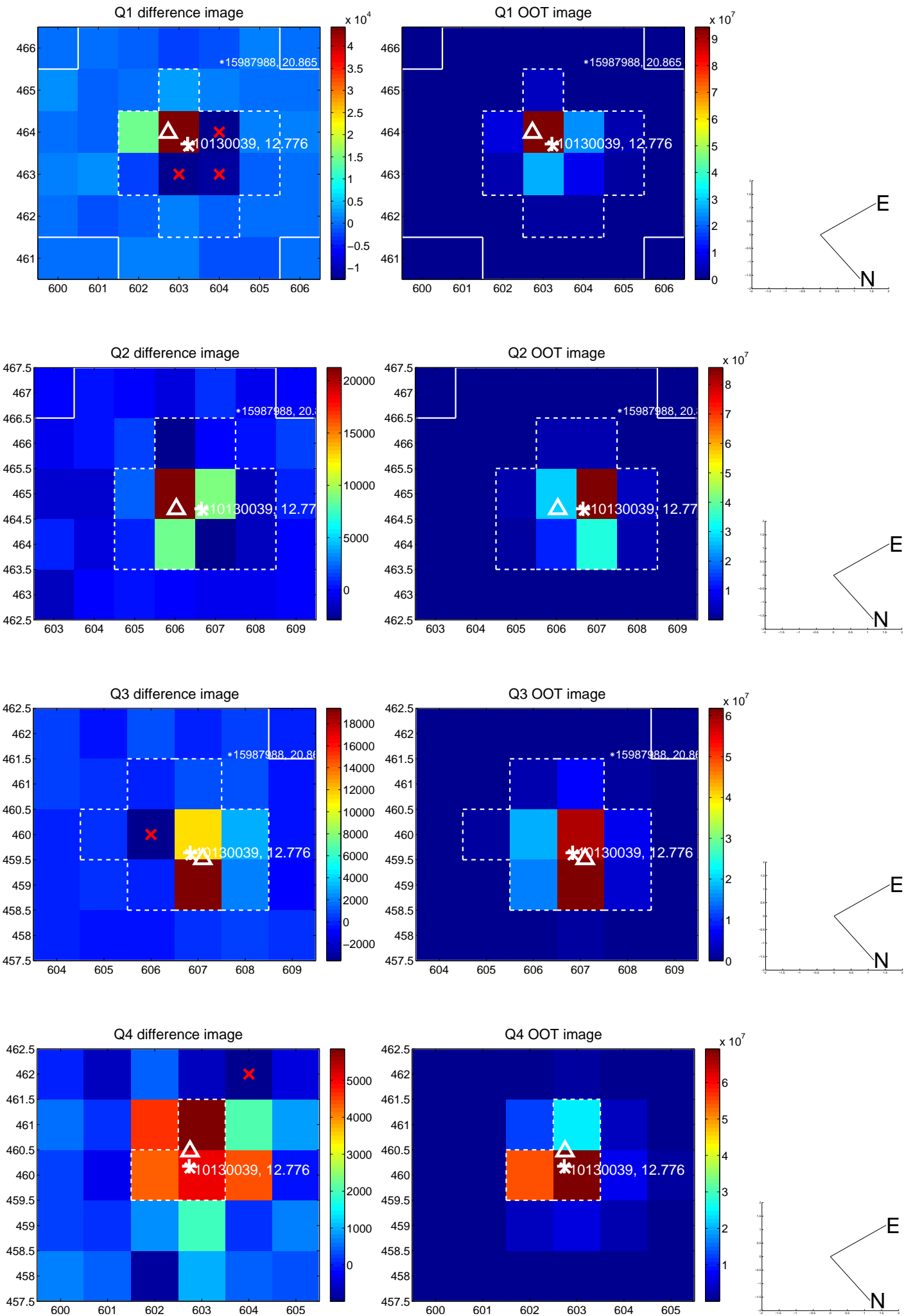
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.604 ± 0.279	2.17	-0.228 ± 0.241	-0.560 ± 0.284
PRF-fit source offset from KIC position	0.838 ± 0.281	2.98	-0.215 ± 0.244	-0.809 ± 0.283
photometric centroid source offset	0.47 ± 0.46	1.02	0.46 ± 0.46	-0.11 ± 0.44

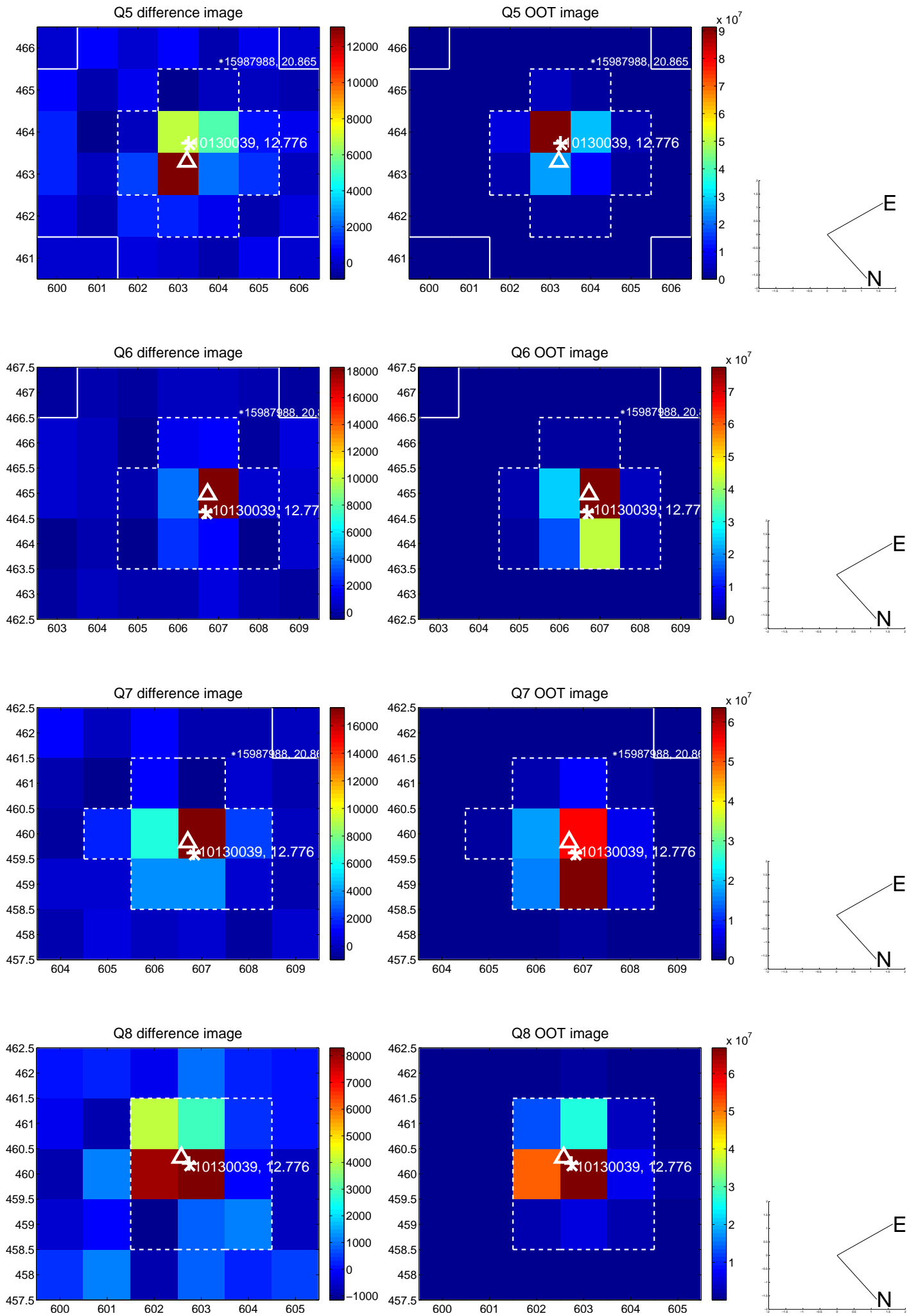


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

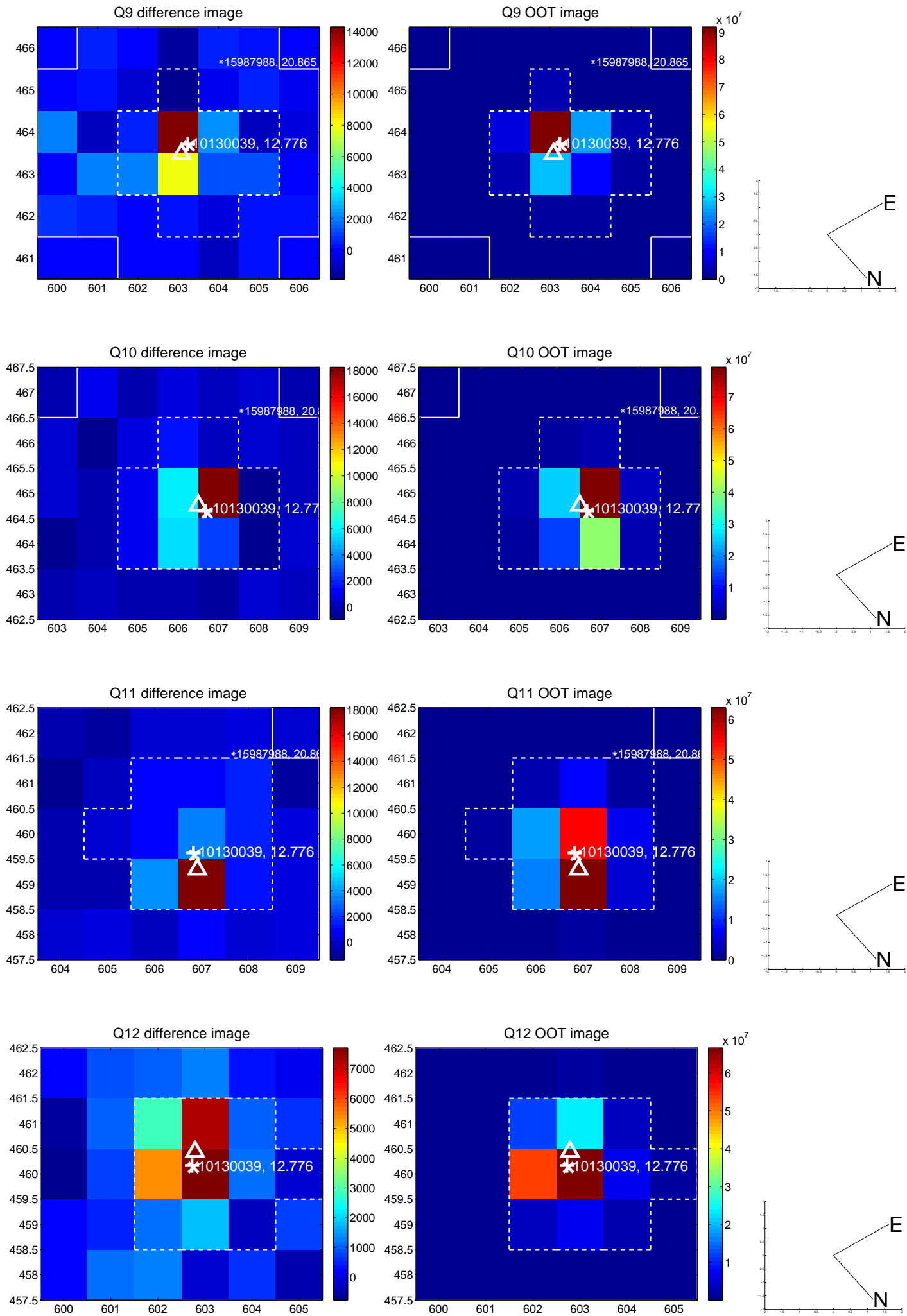
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



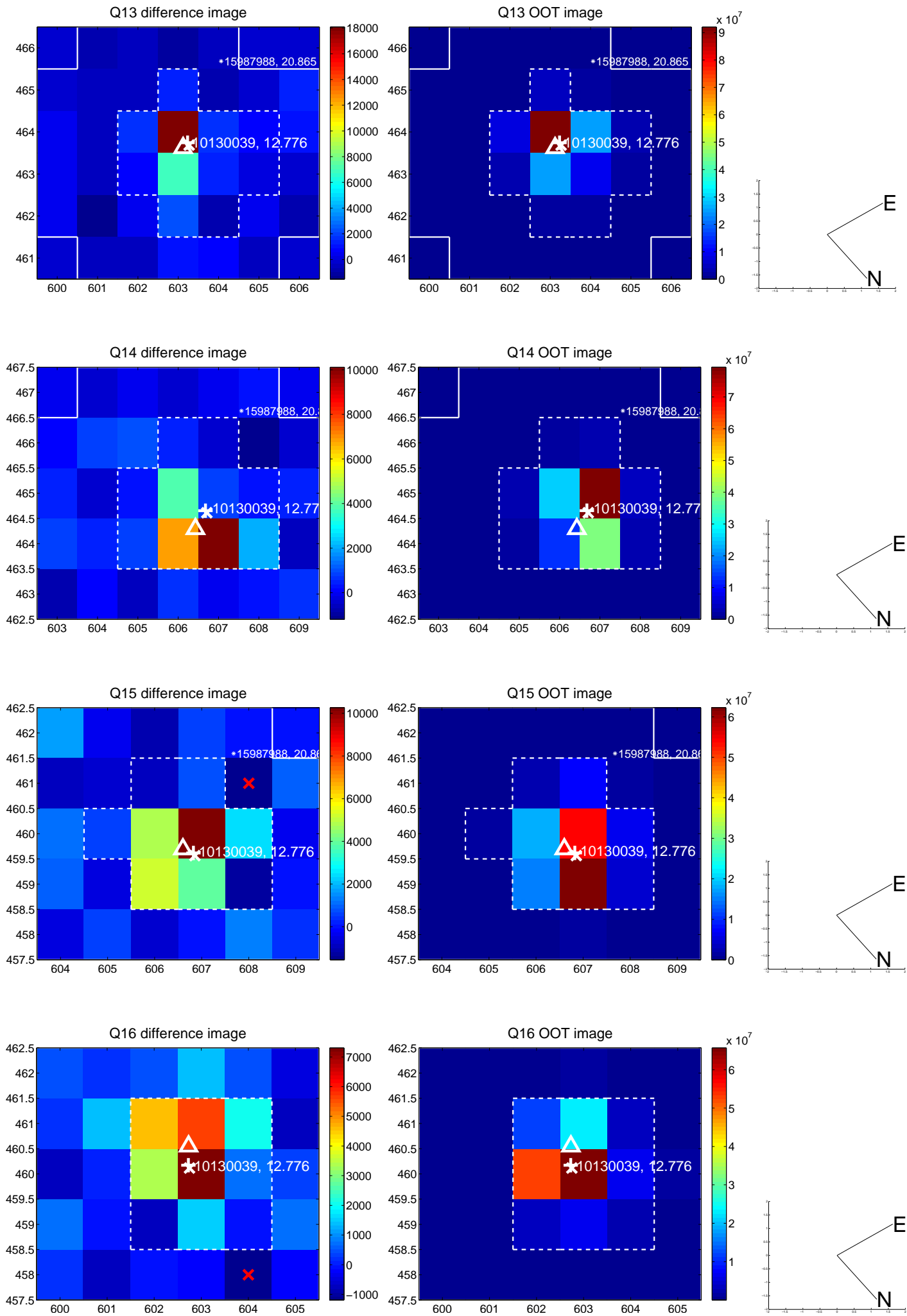
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



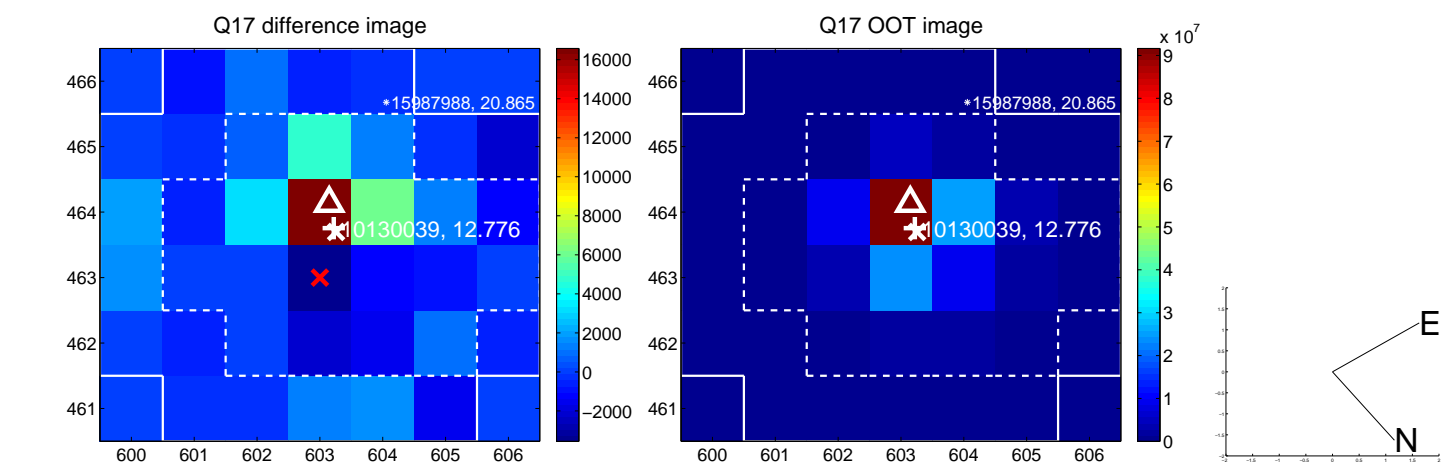
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



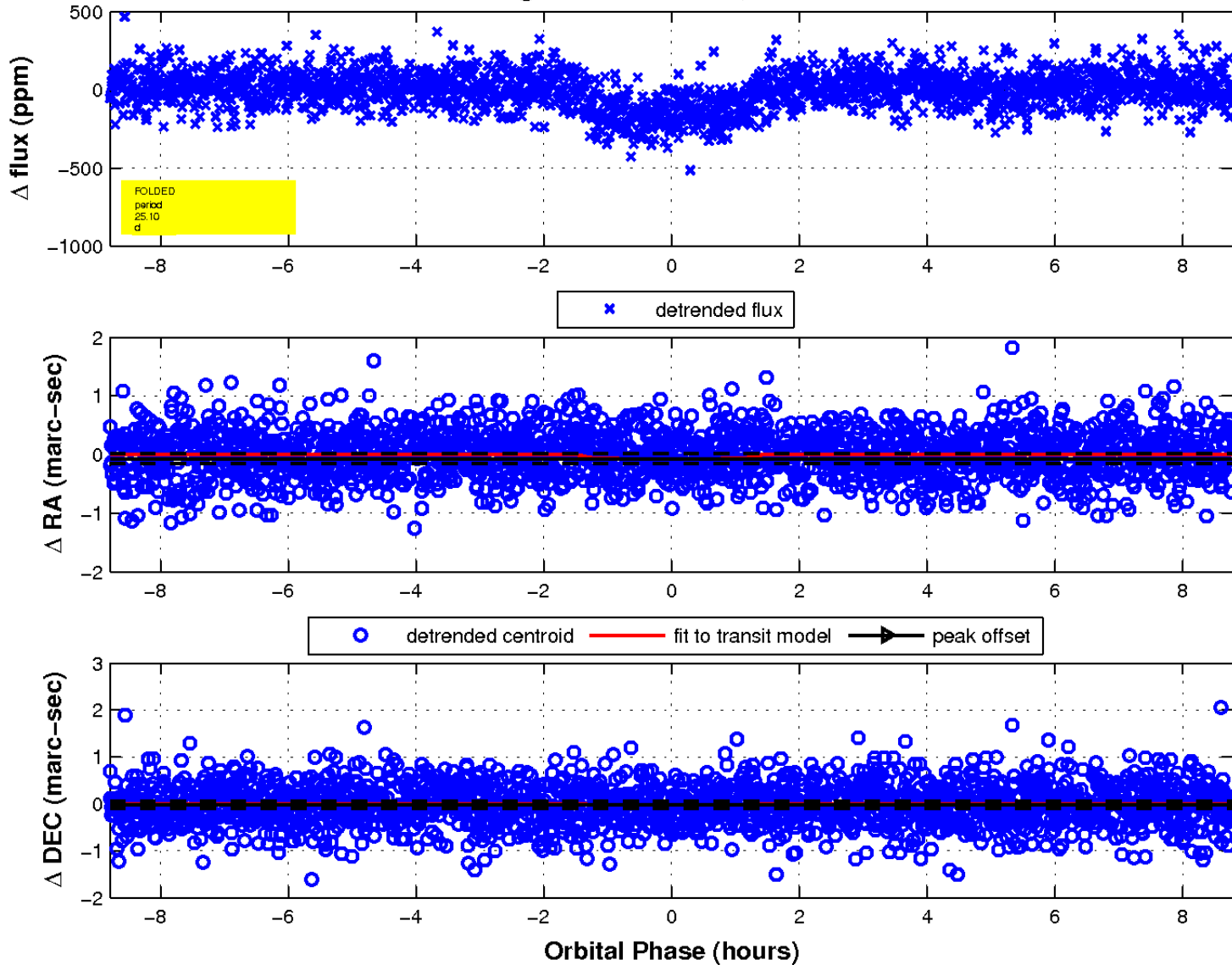
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

