

KIC 005941160

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})
005941160-01	OBS	0654.01	8.594798	137.250153	344.8	3.987	29.6	32.3	0.92	5675	2.24	125.72
005941160-02	OBS	0654.02	10.222175	135.890362	224.5	1.302	10.5	13.1	0.92	5675	1.64	99.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005941160-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005941160-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

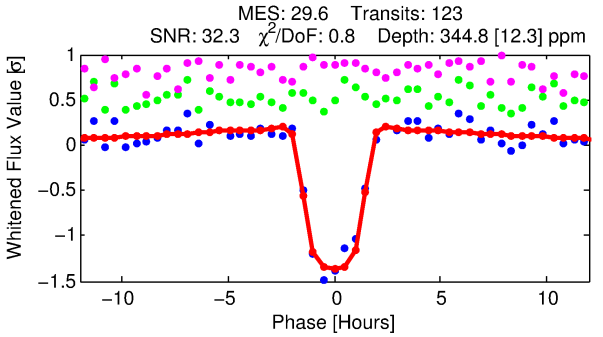
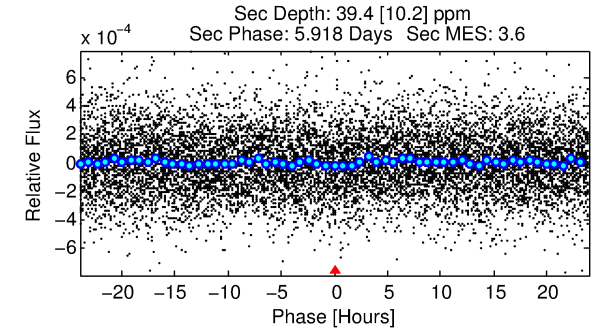
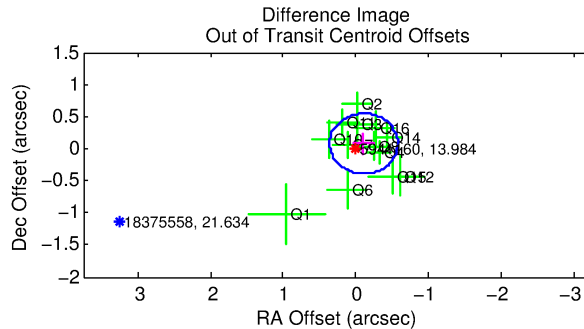
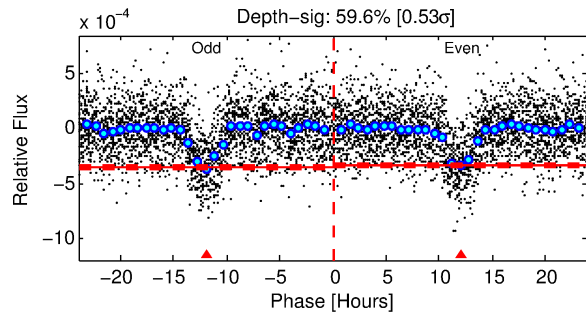
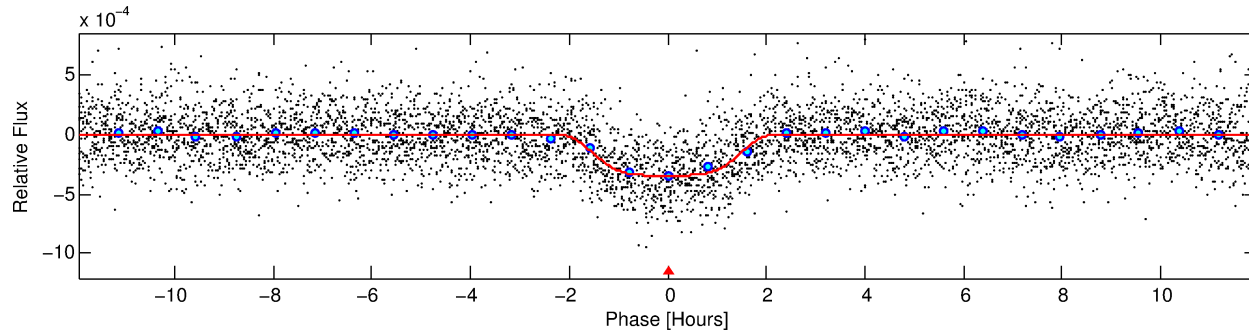
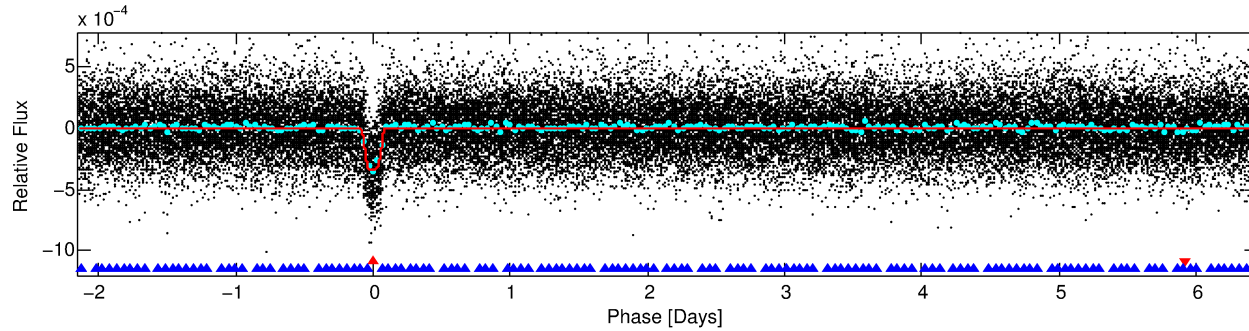
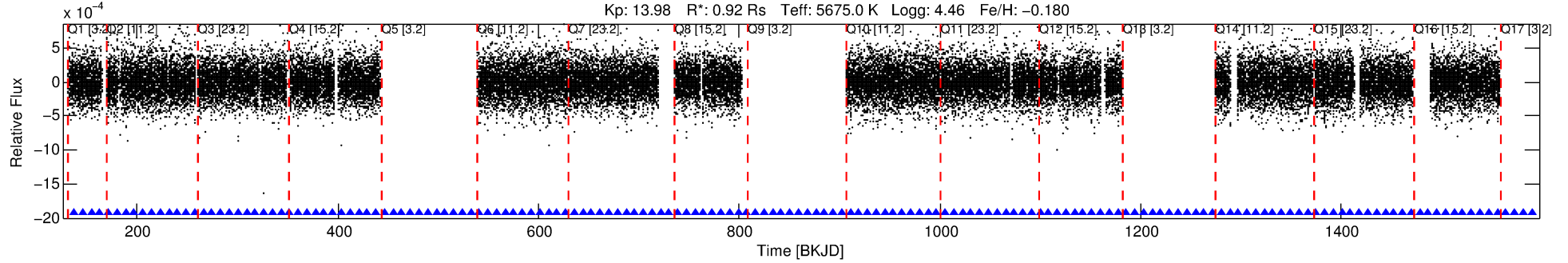
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005941160-01

No Significant Match Found

DV One-Page Summary

KIC: 5941160 Candidate: 1 of 2 Period: 8.595 d
KOI: K00654.01 Name: Kepler-200b Corr: 0.943



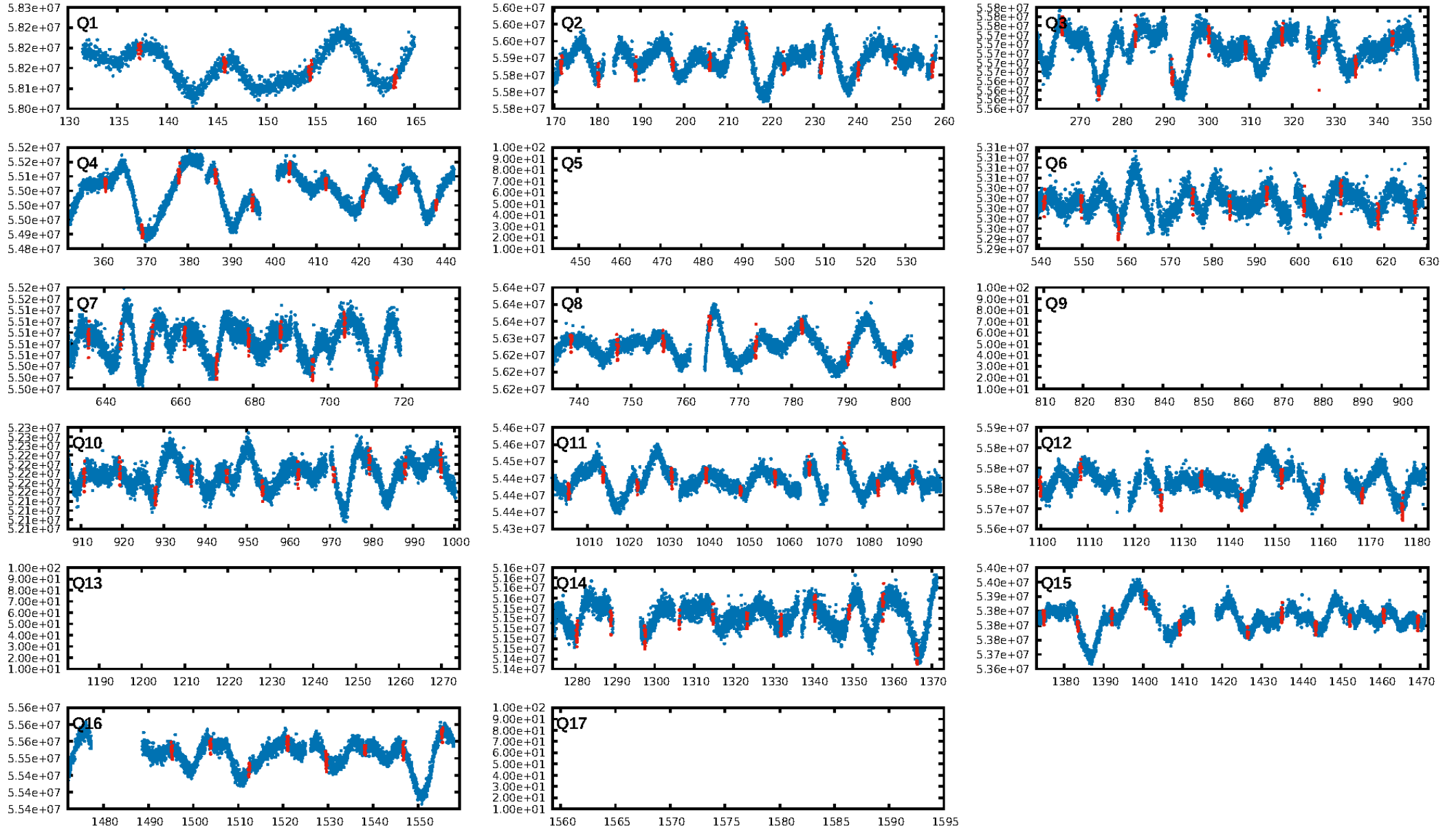
DV Fit Results:

Period = 8.59480 [0.00003] d
Epoch = 137.2502 [0.0024] BKJD
Rp/R* = 0.0224 [0.0006]
a/R* = 5.61 [0.46]
b = 0.97 [0.01]
Seff = 125.72 [24.29]
Teq = 854 [41] K
Rp = 2.24 [0.31] Re
a = 0.0787 [0.0092] AU
Ag = 26.73 [8.51] [3.02 σ]
Teffp = 3002 [208] K [10.14 σ]

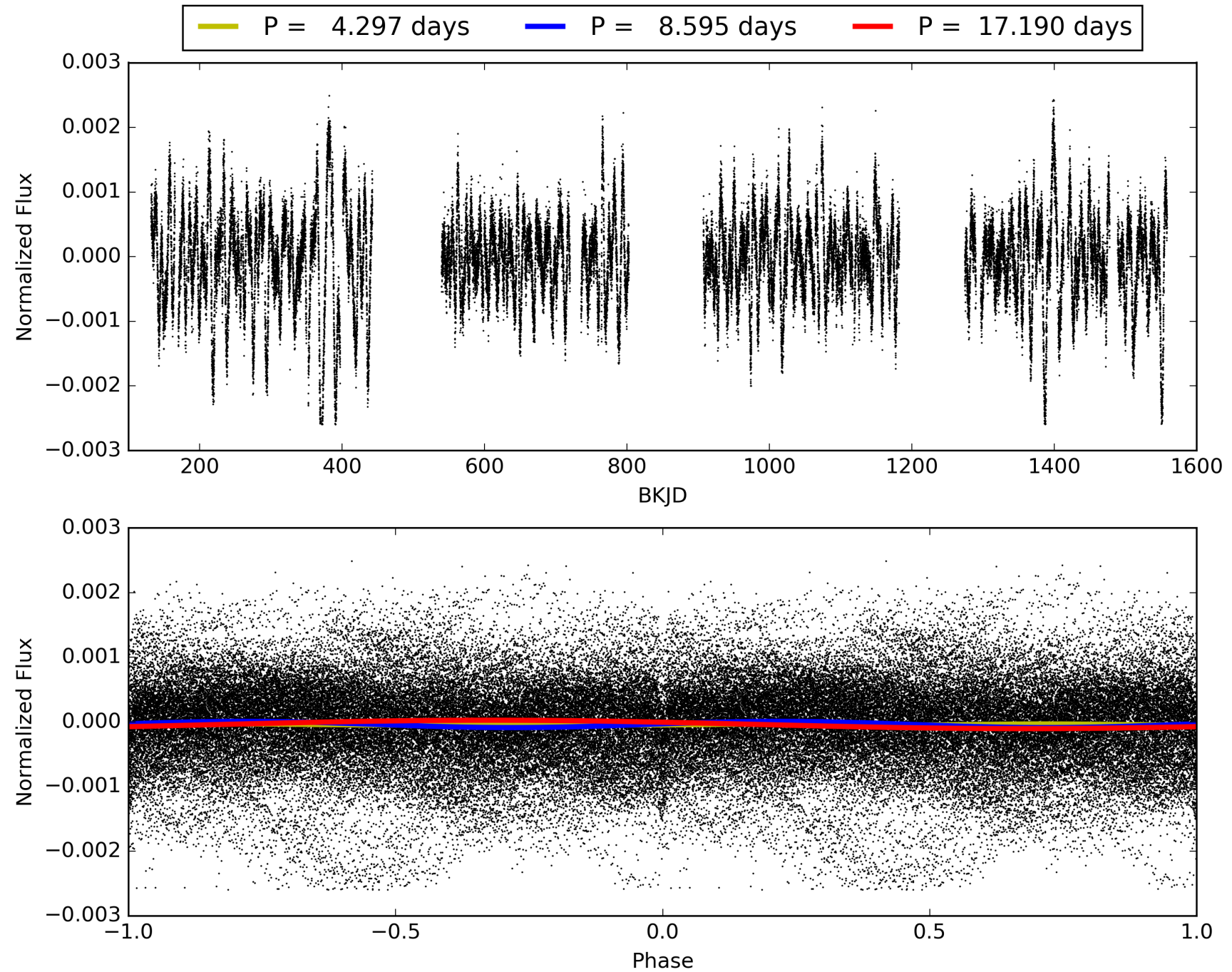
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [9.31 σ]
ModelChiSquare2-sig: 99.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.09e-180
RollingBand-fgt: 1.00 [119/119]
GhostDiagnostic-chr: 25.93
Centroid-sig: 0.7%
Centroid-so: 0.565 arcsec [1.73 σ]
OotOffset-rm: 0.133 arcsec [0.85 σ]
KicOffset-rm: 0.264 arcsec [1.79 σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005941160-01, PDC Light Curves

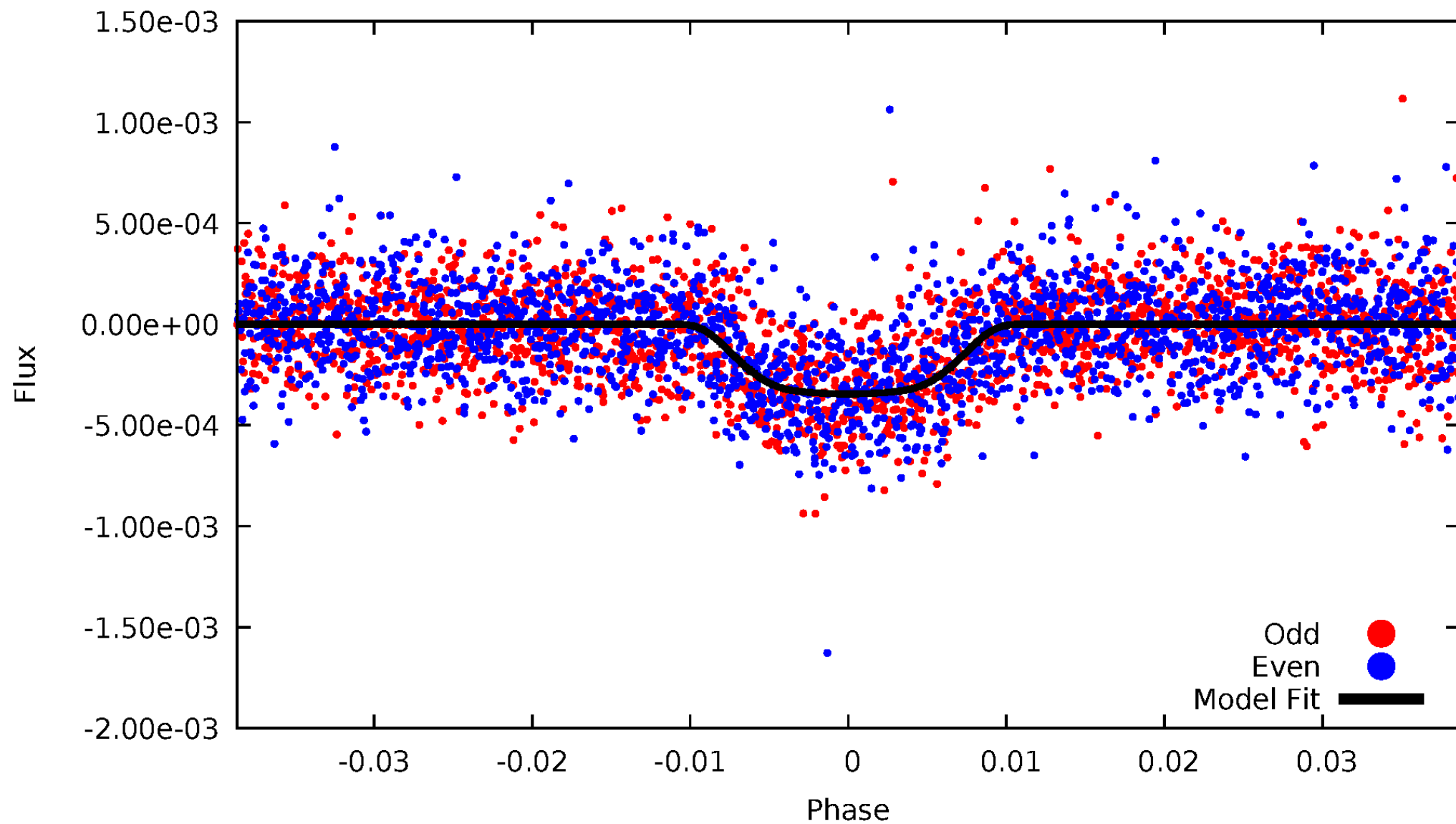


TCE 005941160-01



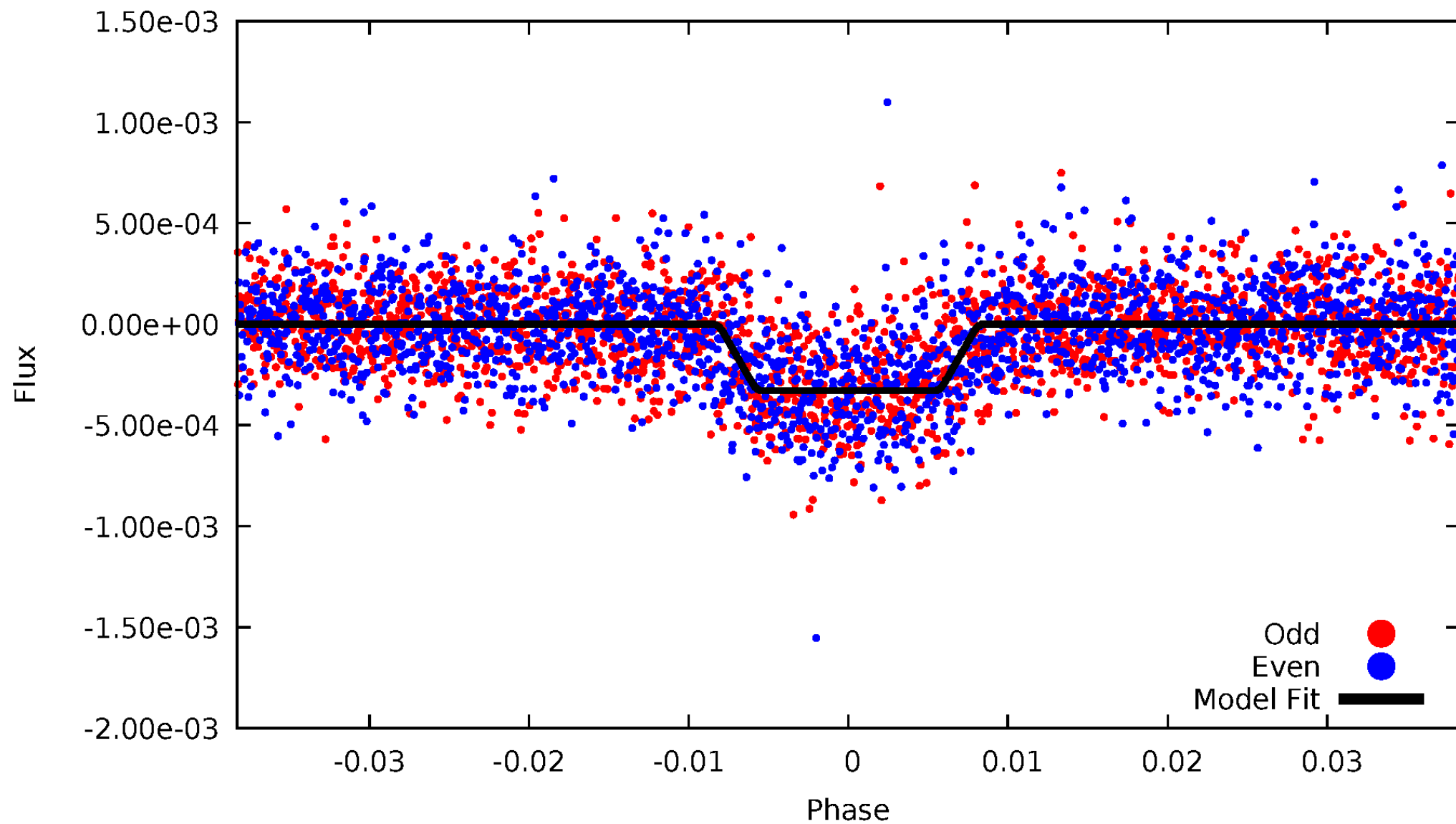
DV Odd/Even

TCE 005941160-01



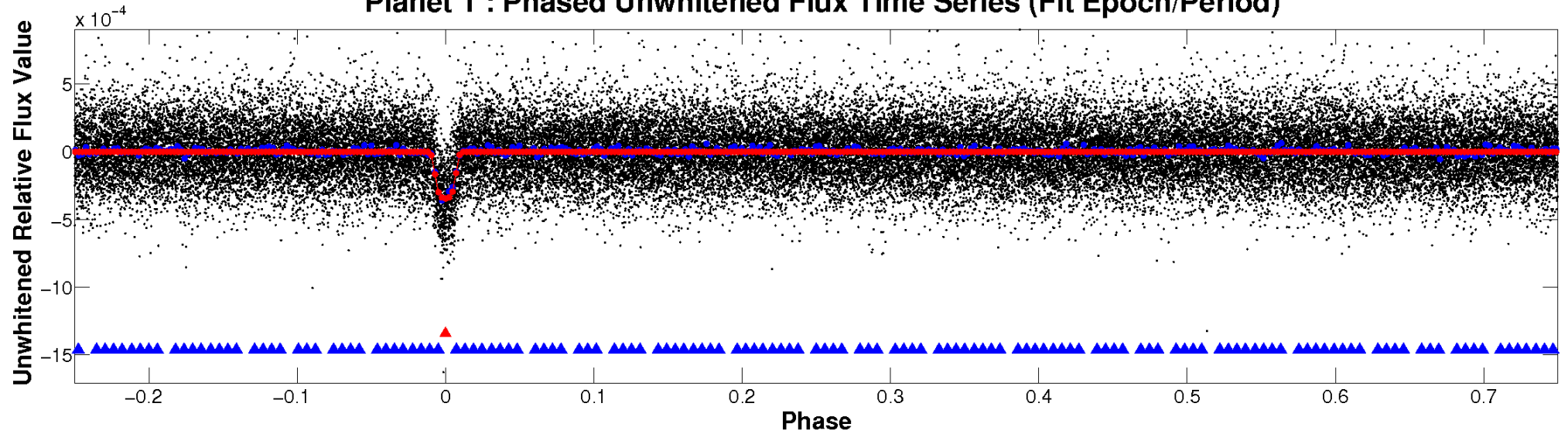
ALT Odd/Even

TCE 005941160-01

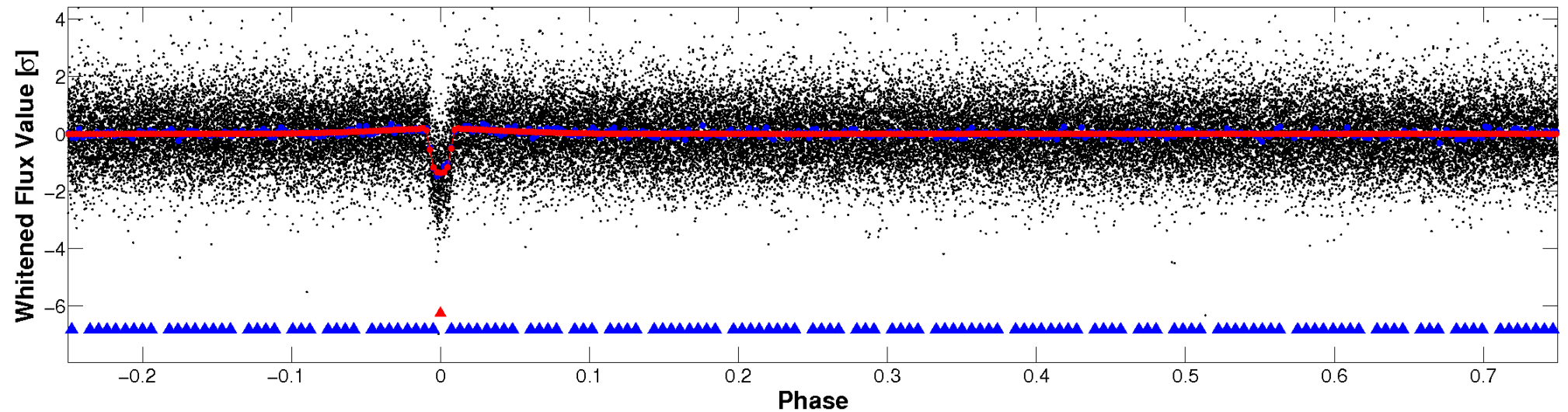


Non-Whitened Vs. Whitened Light Curve

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

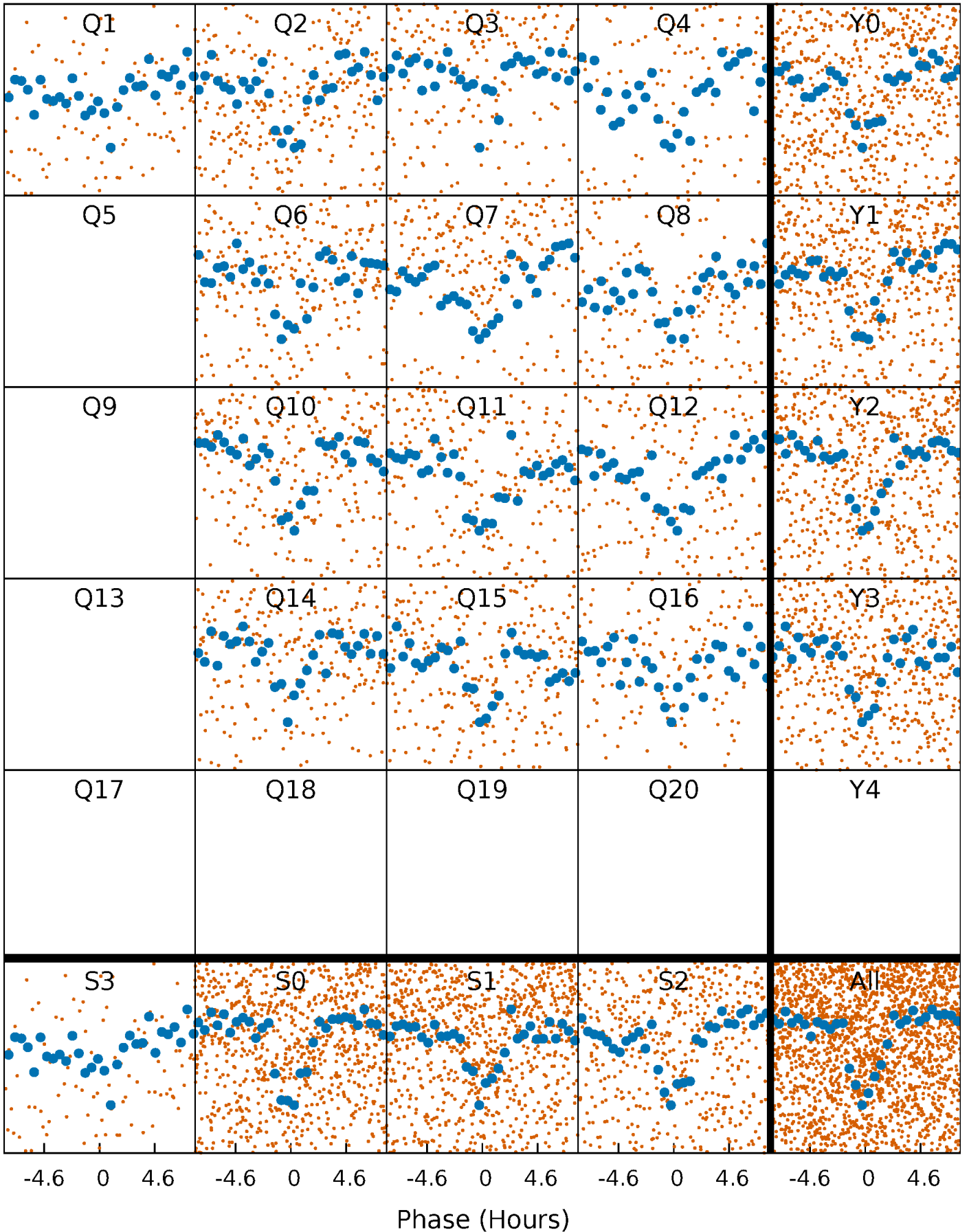


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



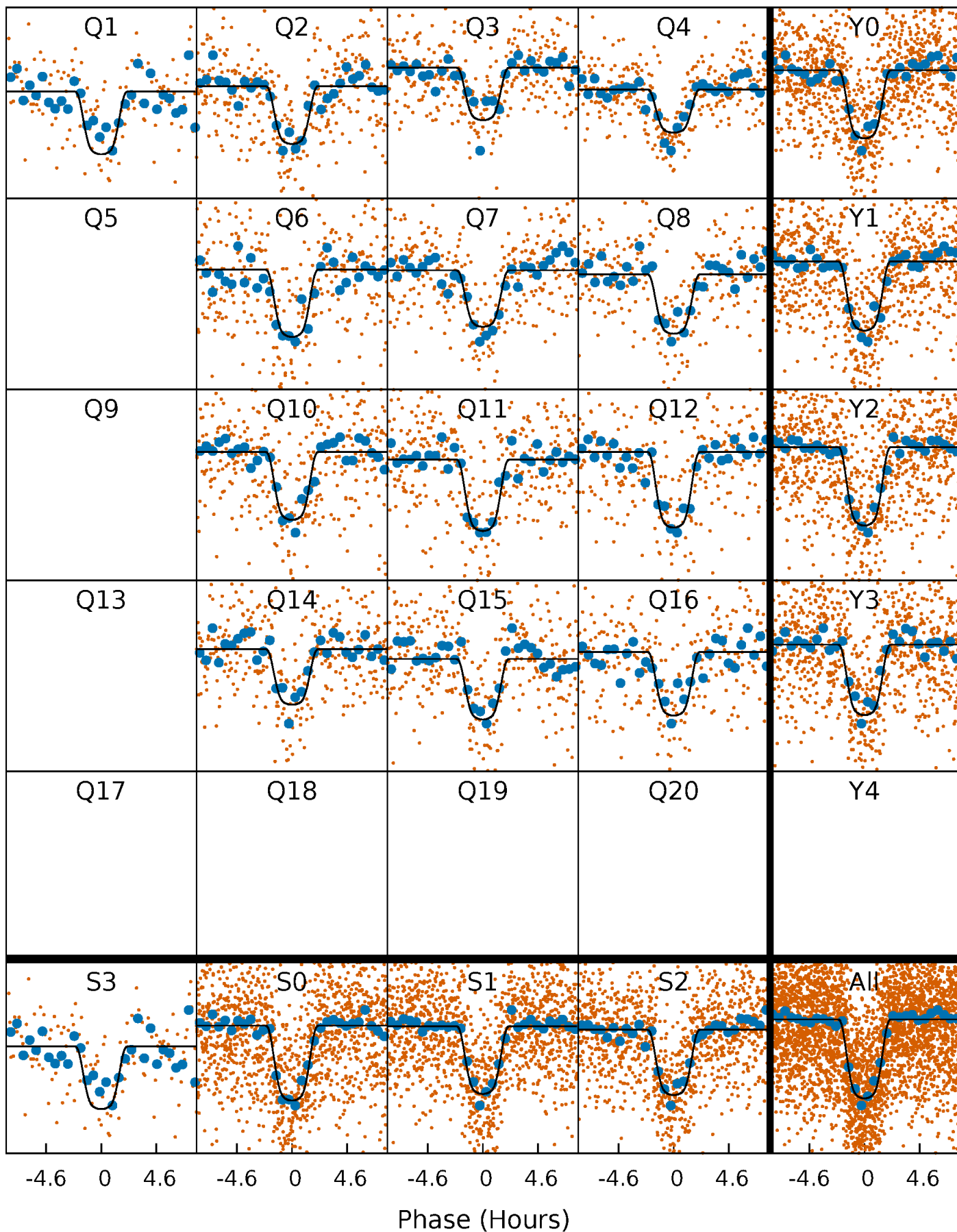
PDC Quarter-Phased Transit Curves

TCE 005941160-01 P= 8.594798 Days $T_0=137.250153$ (BKJD)



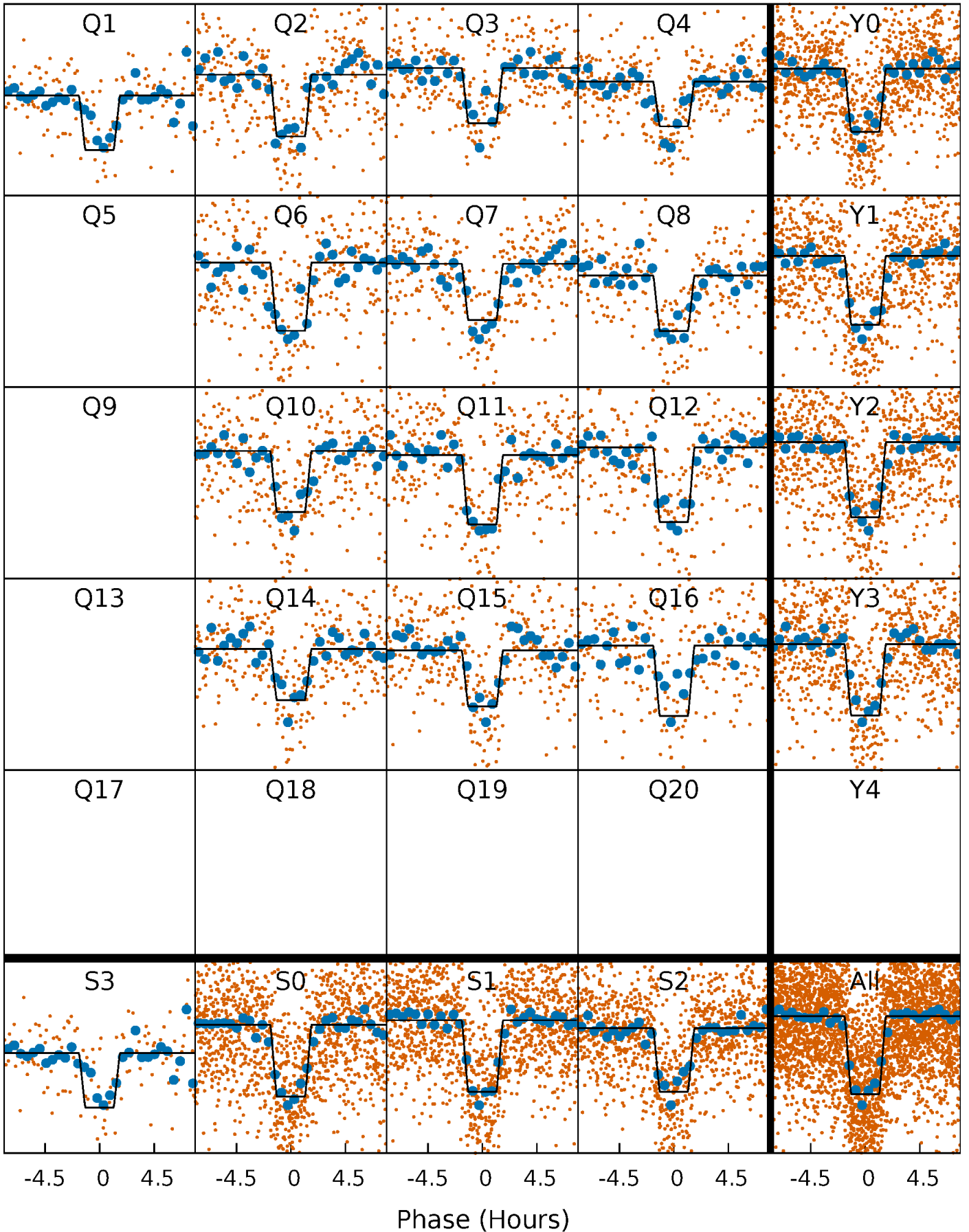
DV Quarter-Phased Transit Curves

TCE 005941160-01 P= 8.594798 Days $T_0=137.250153$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

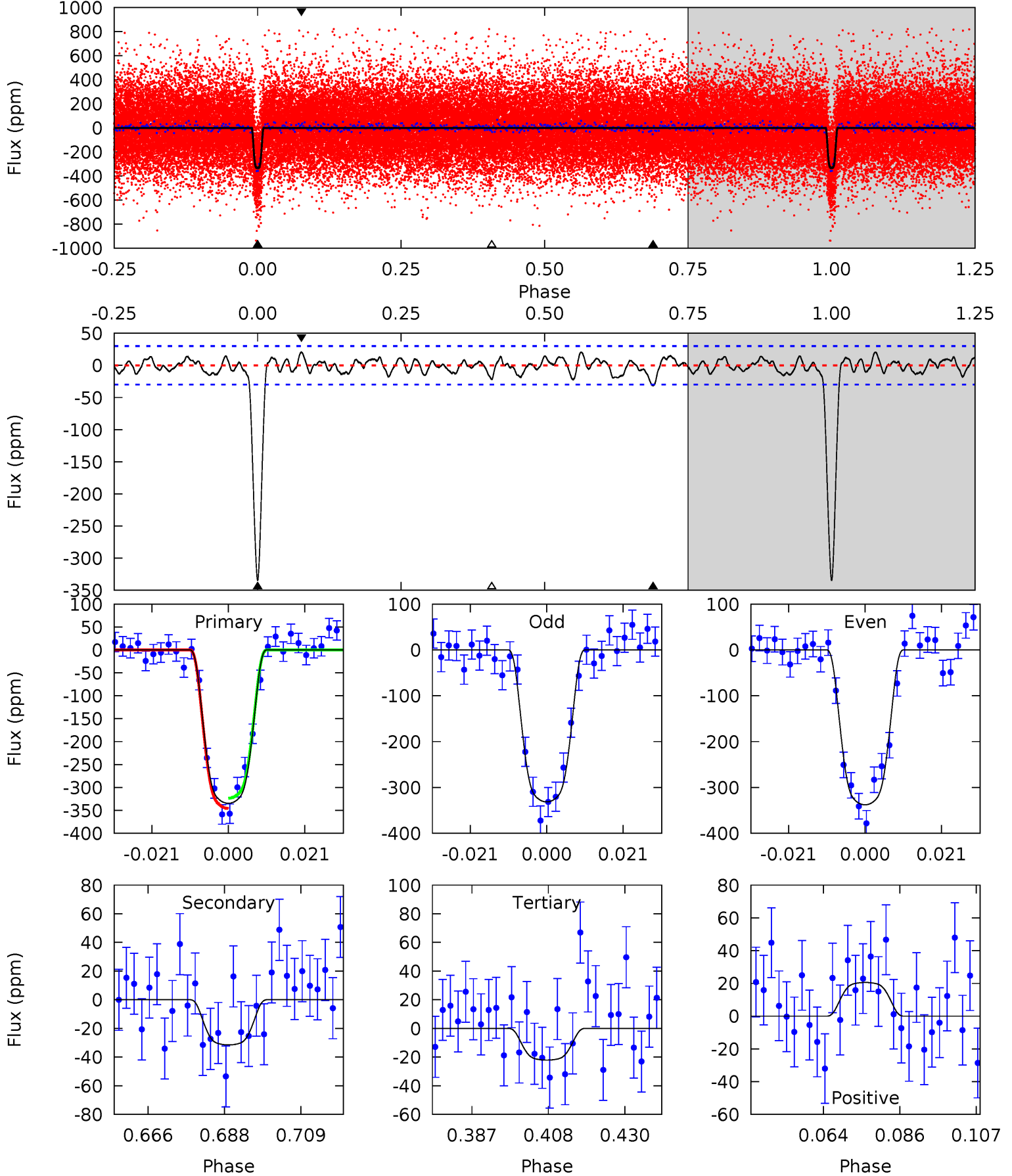
TCE 005941160-01 P= 8.594714 Days $T_0=137.257803$ (BKJD)



DV Model-Shift Uniqueness Test

005941160-01, P = 8.594798 Days, E = 128.655355 Days

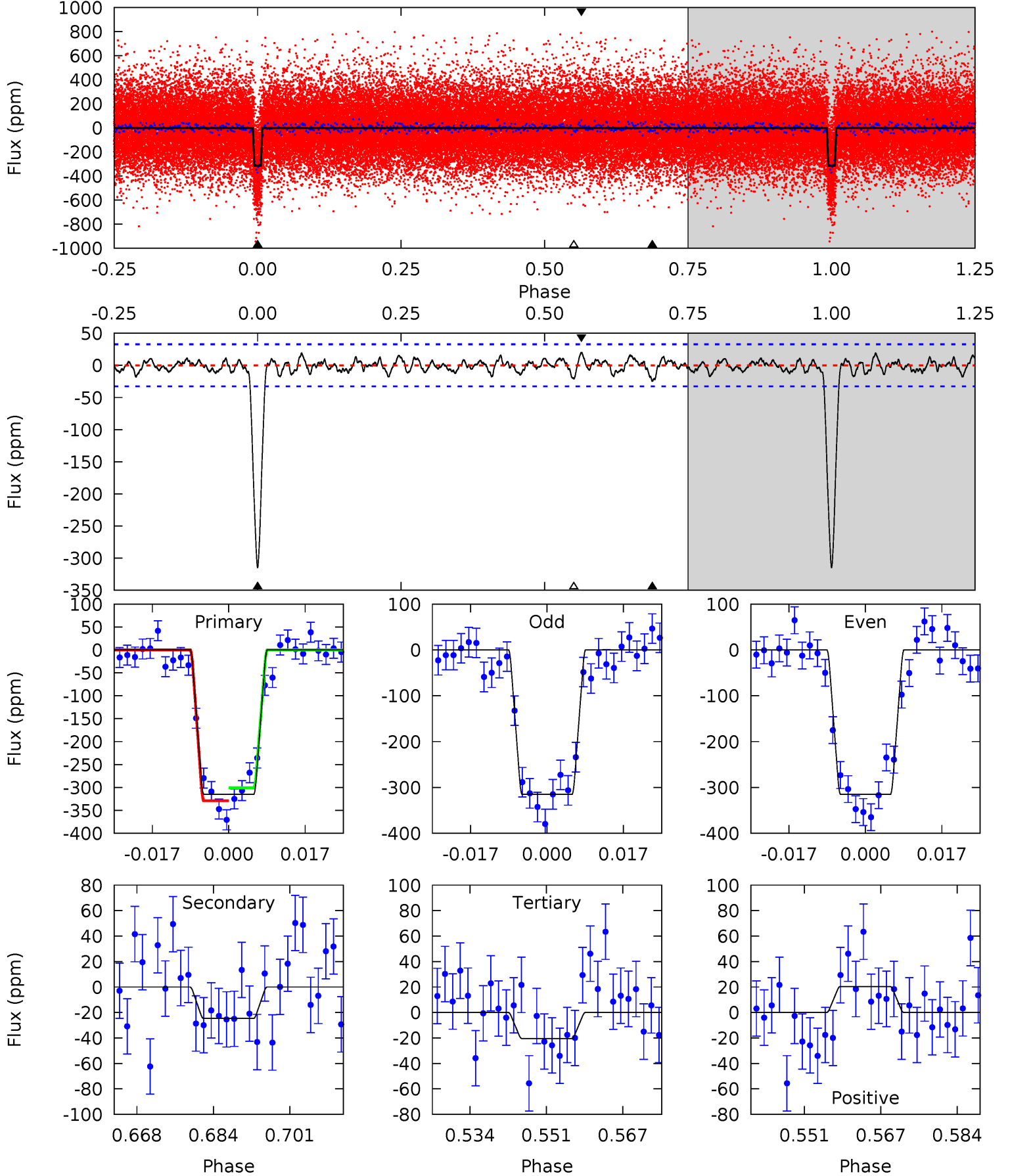
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.6	5.14	3.60	3.35	4.88	2.30	1.43	51.0	51.2	1.54	1.79	0.52	1.03	0.06	1.81



Alt Model-Shift Uniqueness Test

005941160-01, P = 8.594714 Days, E = 128.663089 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.3	3.71	3.08	3.07	4.93	2.39	1.12	44.3	44.3	0.63	0.64	0.01	0.99	0.06	2.12



Stellar Parameters For KIC 005941160

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5675^{+113}_{-113}	$4.459^{+0.081}_{-0.099}$	$-0.180^{+0.150}_{-0.150}$	$0.915^{+0.122}_{-0.071}$	$0.878^{+0.065}_{-0.052}$	$1.616^{+0.463}_{-0.510}$
	+2%/-2%	+2%/-2%	+83%/-83%	+13%/-8%	+7%/-6%	+29%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005941160-01 / KOI 0654.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-32 ± 6	$2.24^{+0.18}_{-0.14}$	1195^{+47}_{-38}	3367^{+108}_{-125}	21^{+5}_{-5}
Alt.	-25 ± 7	$1.82^{+0.15}_{-0.12}$	1193^{+48}_{-40}	3453^{+149}_{-181}	25^{+9}_{-7}

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

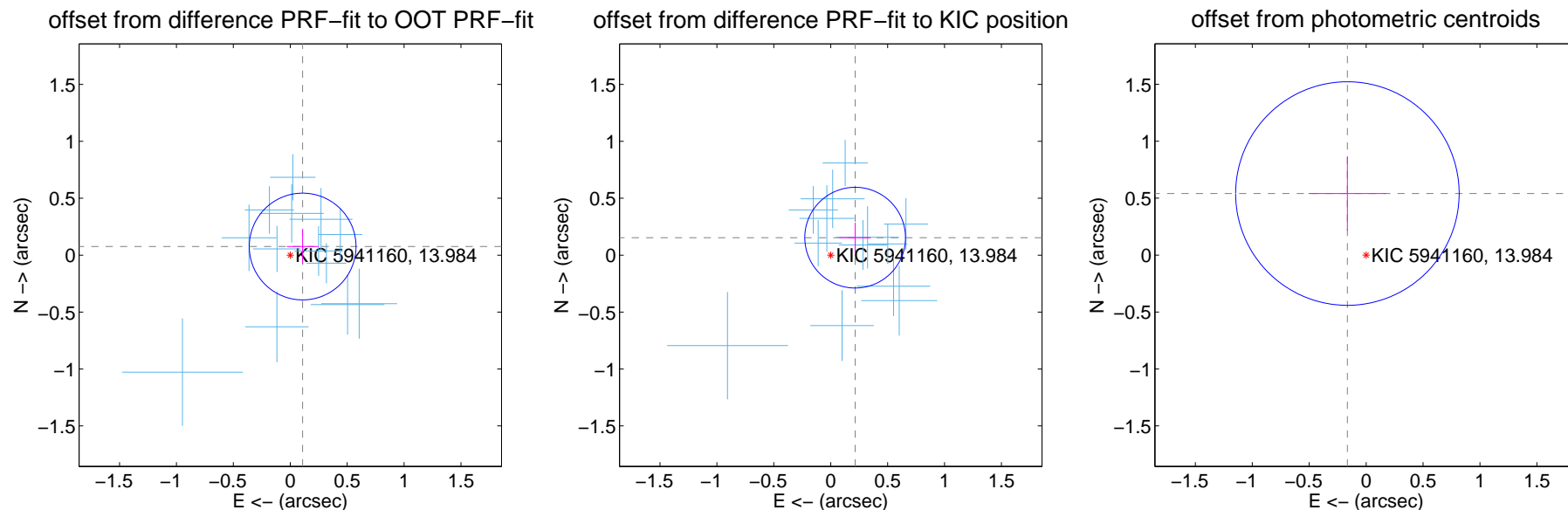
DV Centroid Data

Supplemental centroid analysis for 005941160-01. Kepler magnitude: 13.98. Transit SNR 32.35

There are 13 quarters with good PRF difference image offsets

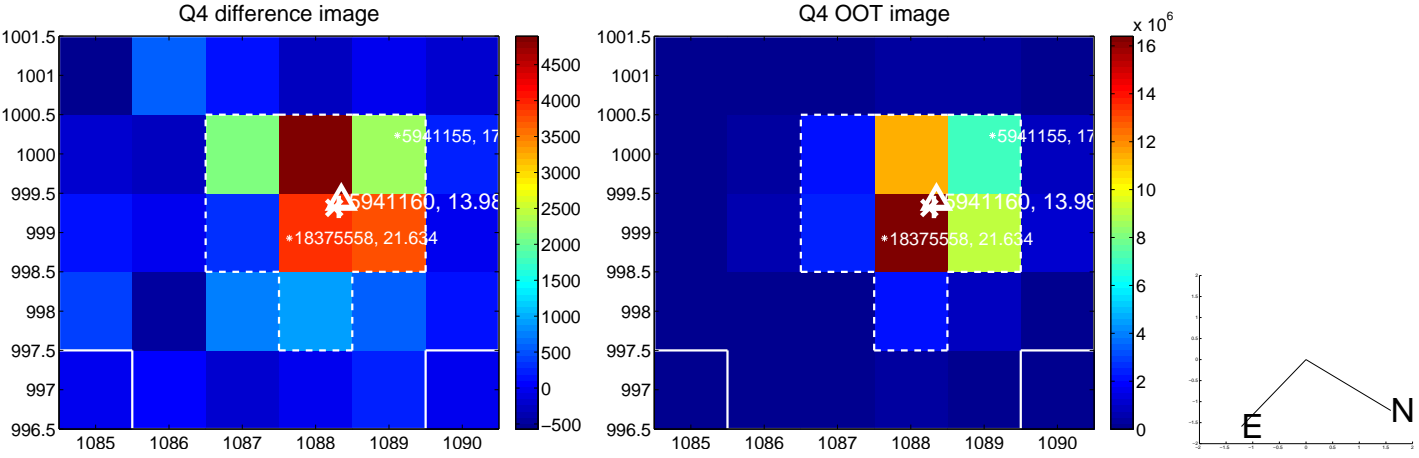
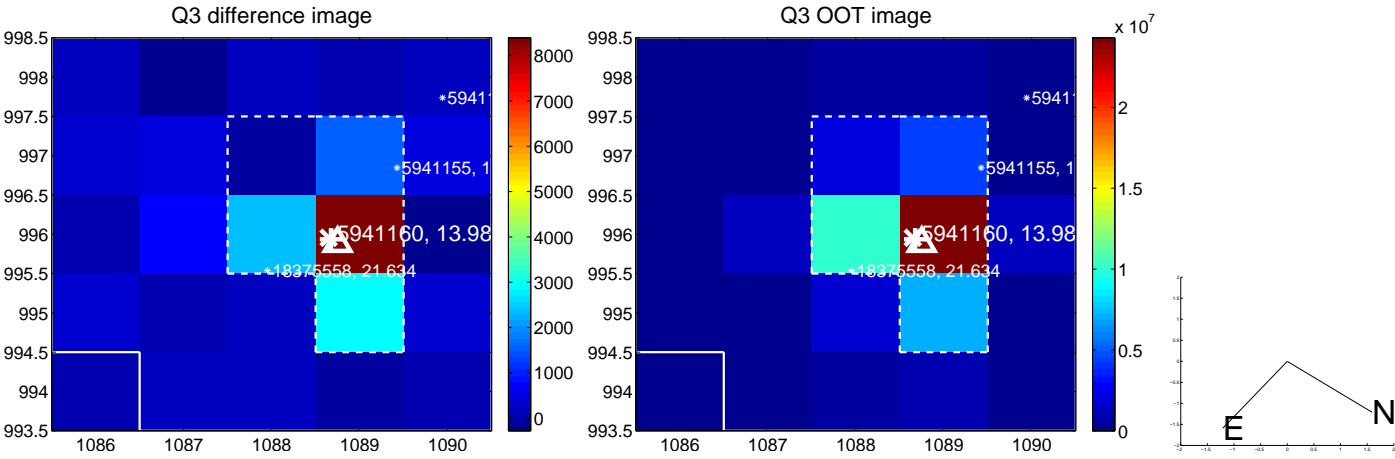
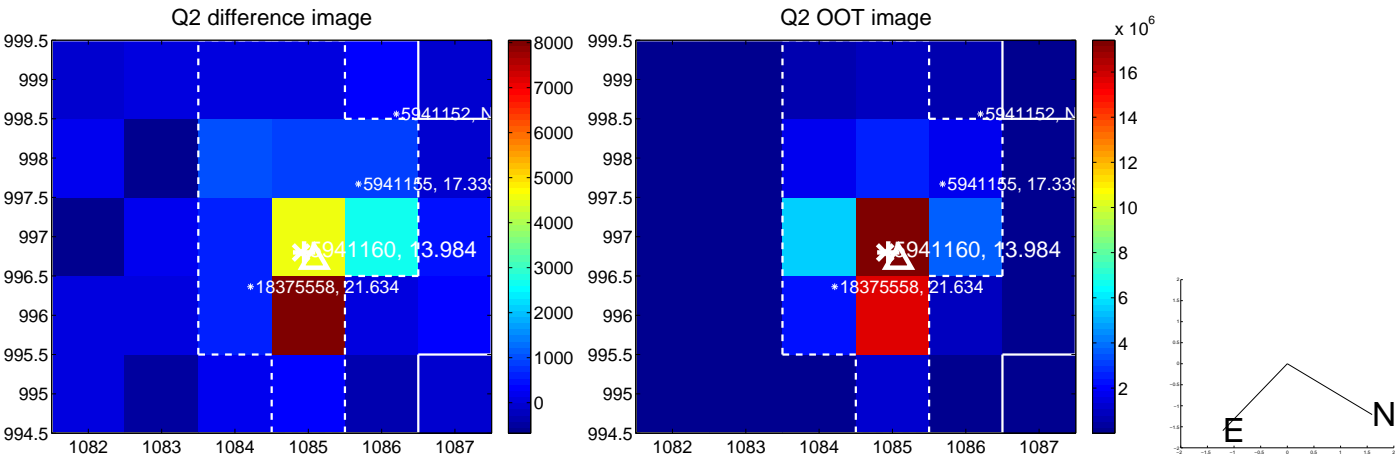
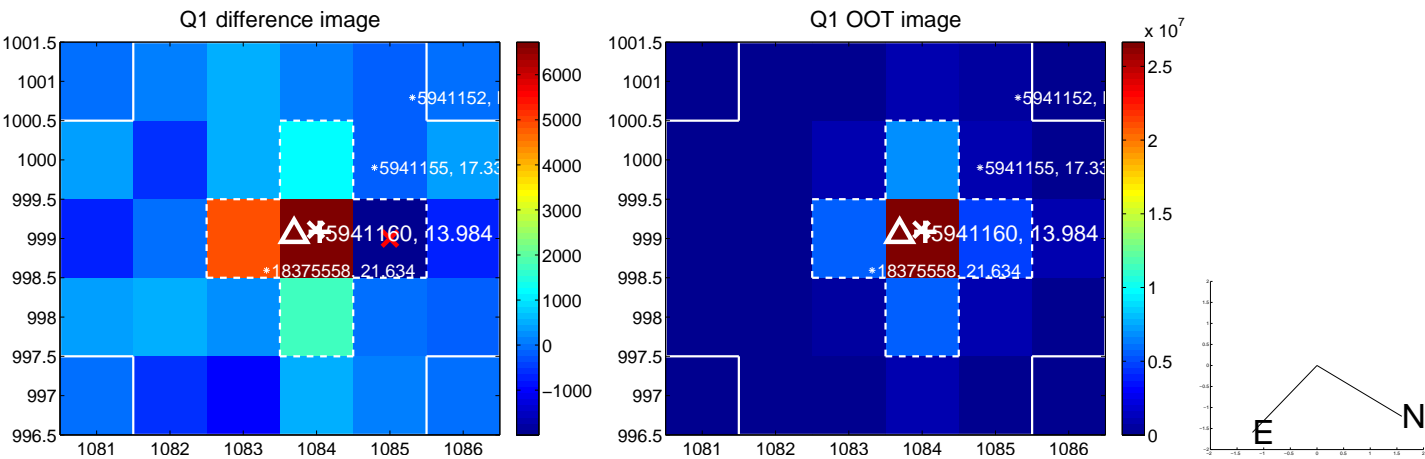
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.133 ± 0.156	0.85	-0.109 ± 0.139	0.076 ± 0.151
PRF-fit source offset from KIC position	0.264 ± 0.148	1.79	-0.215 ± 0.137	0.154 ± 0.131
photometric centroid source offset	0.57 ± 0.33	1.73	0.16 ± 0.34	0.54 ± 0.33

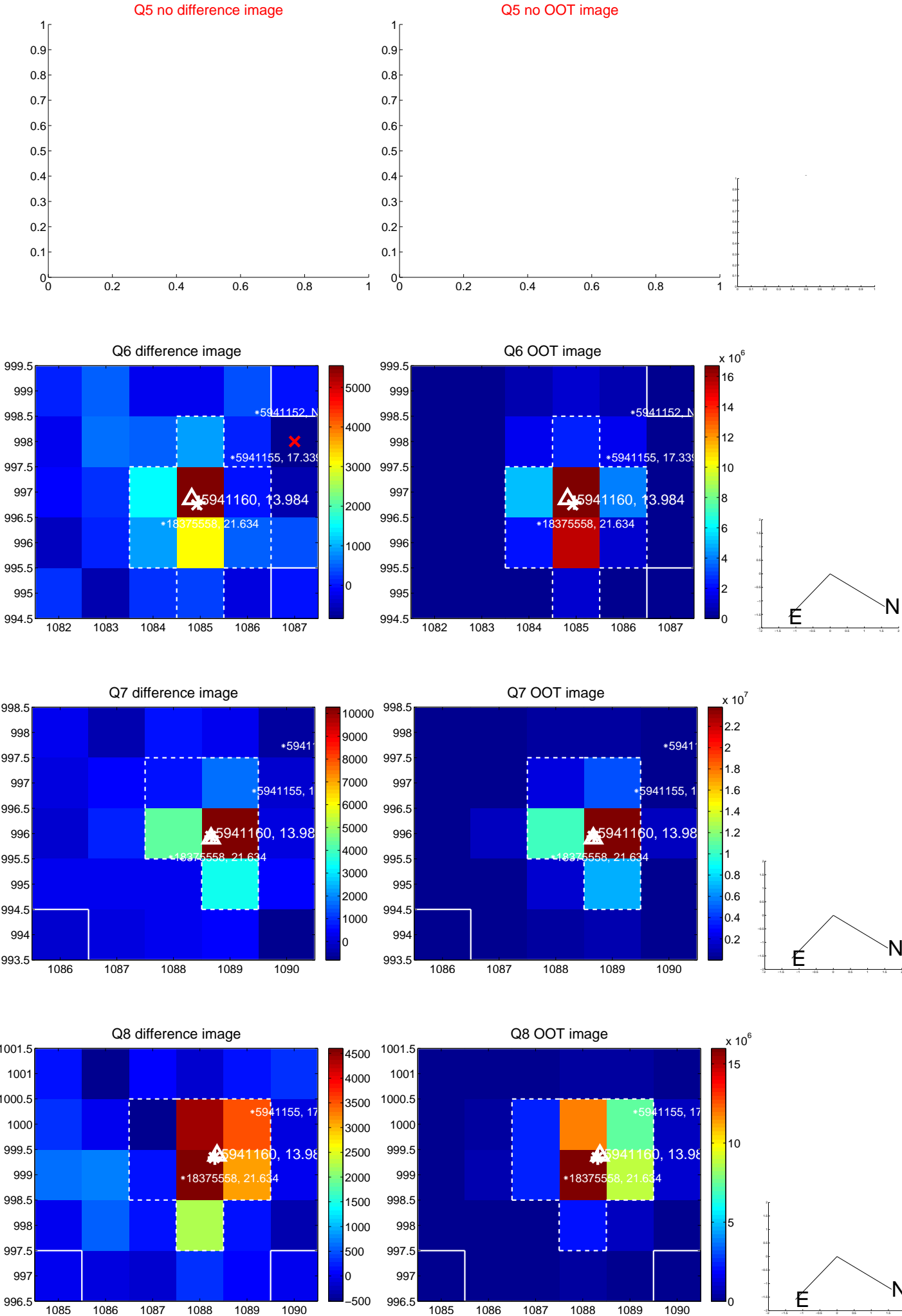


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

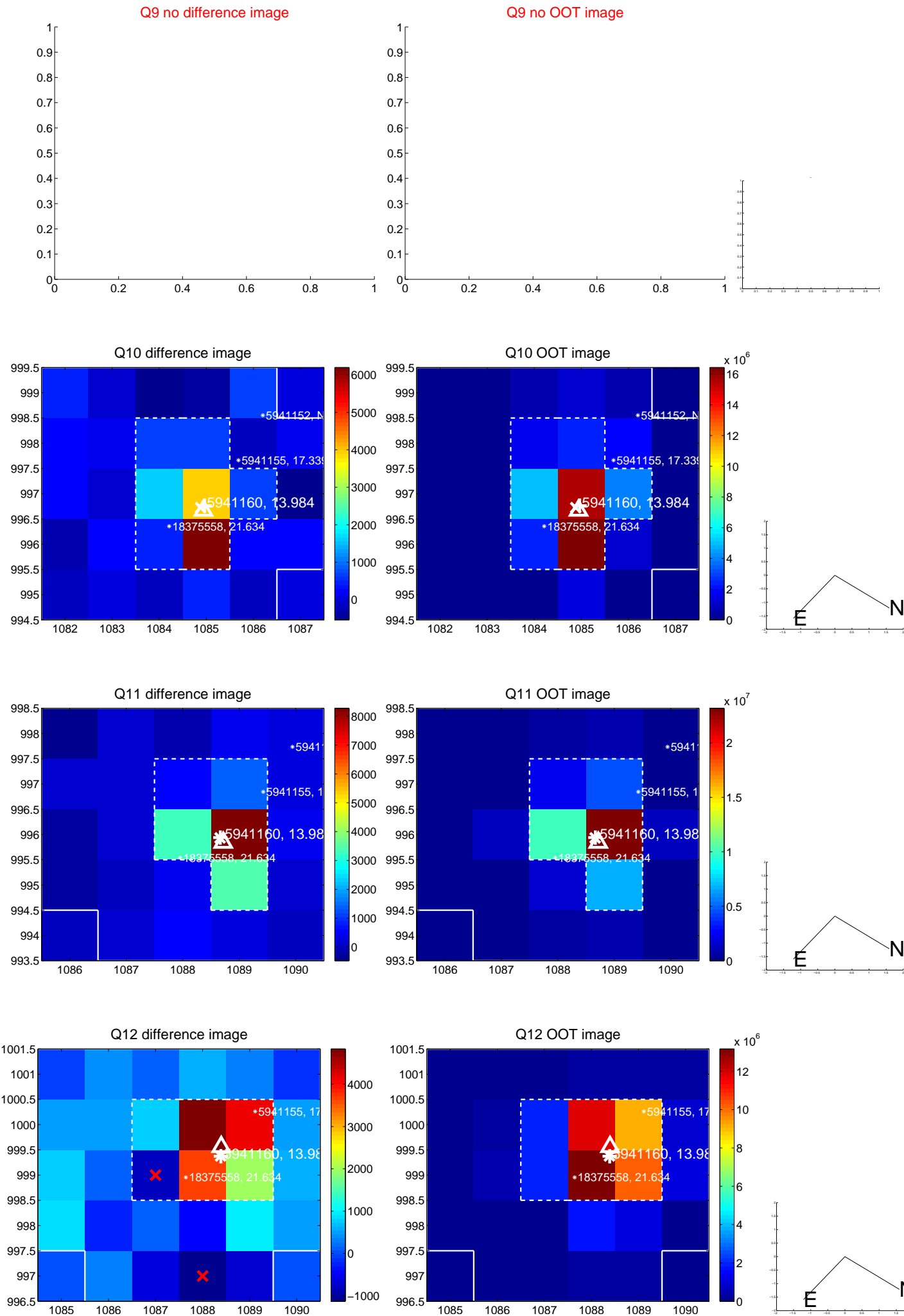
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



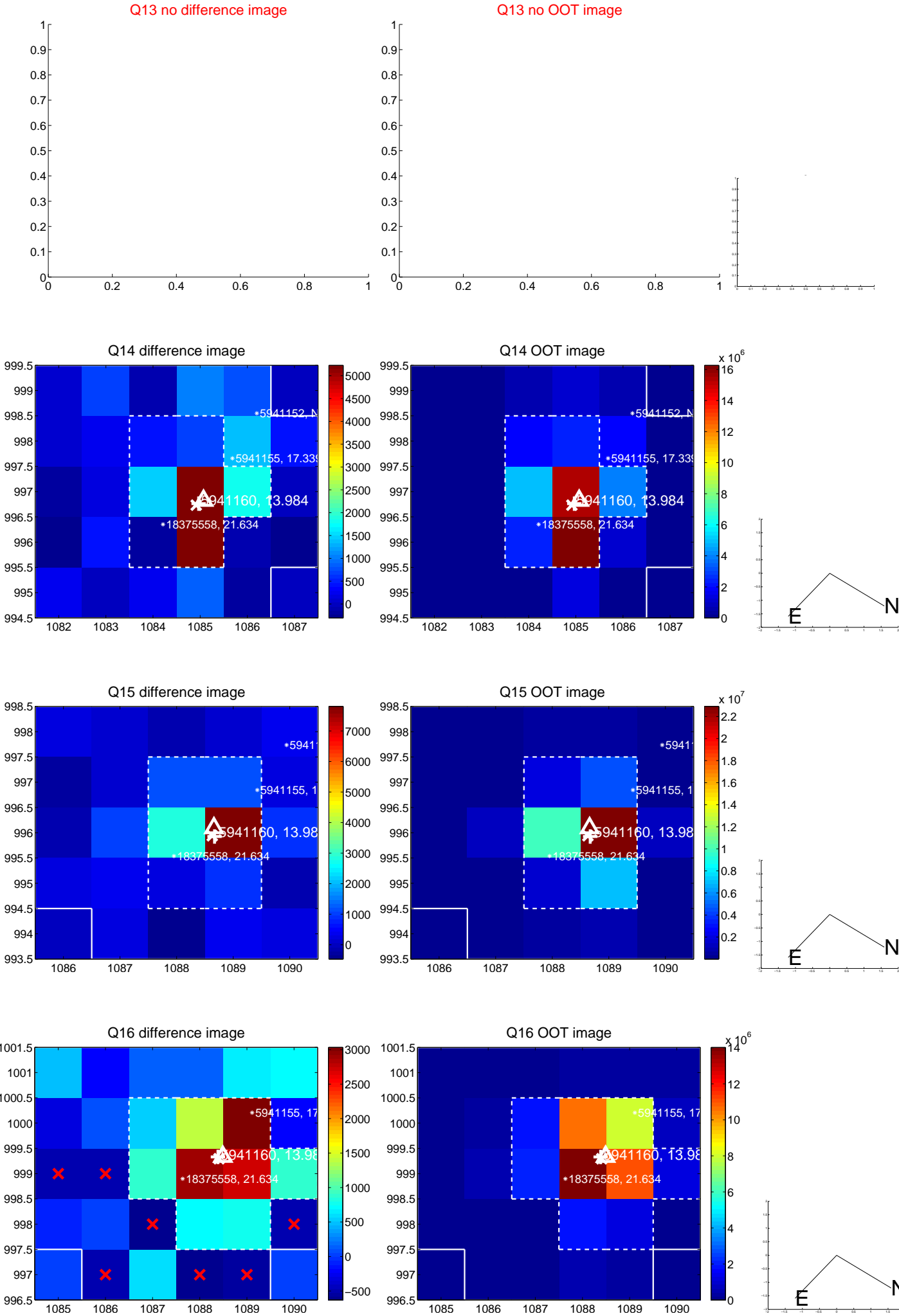
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



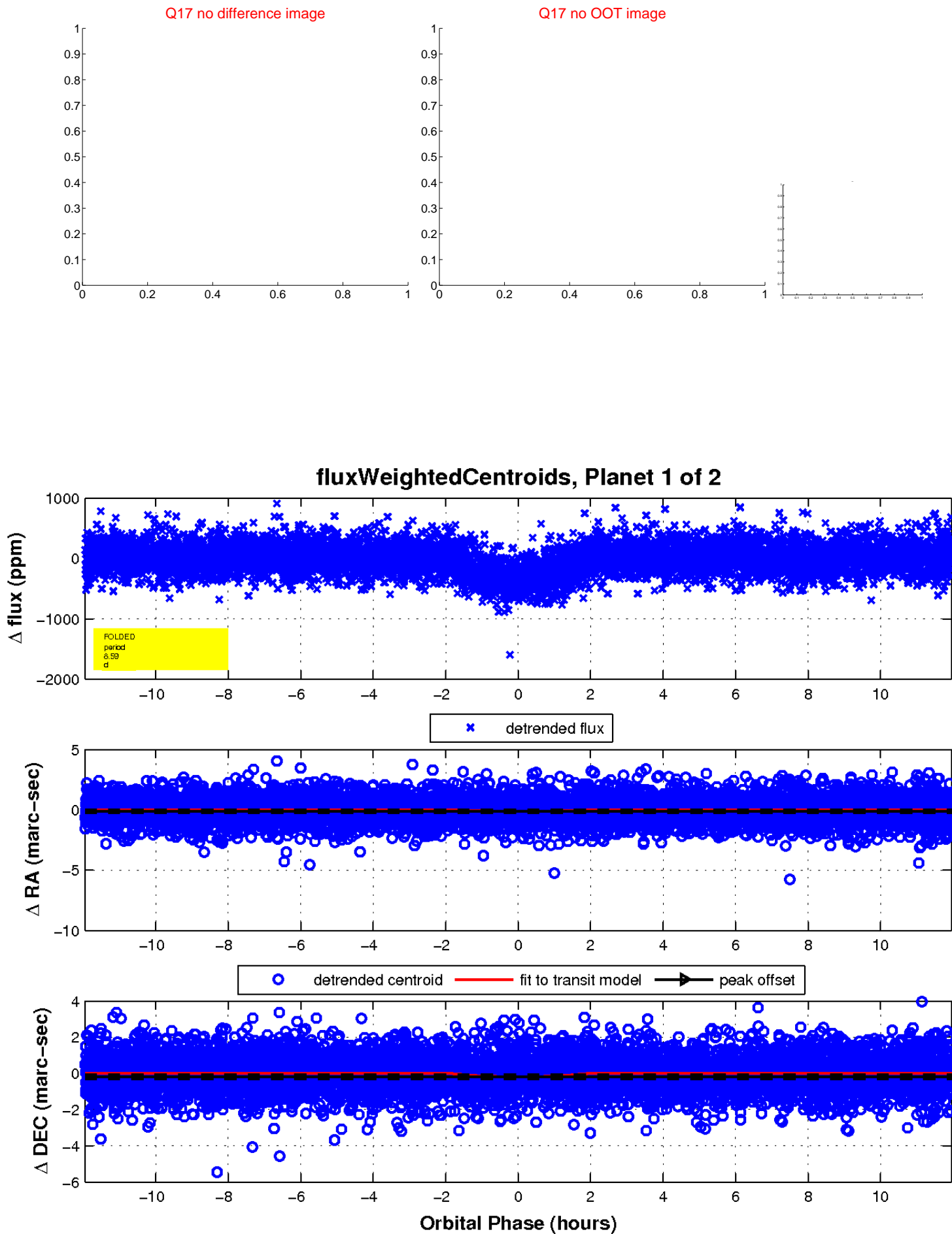
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



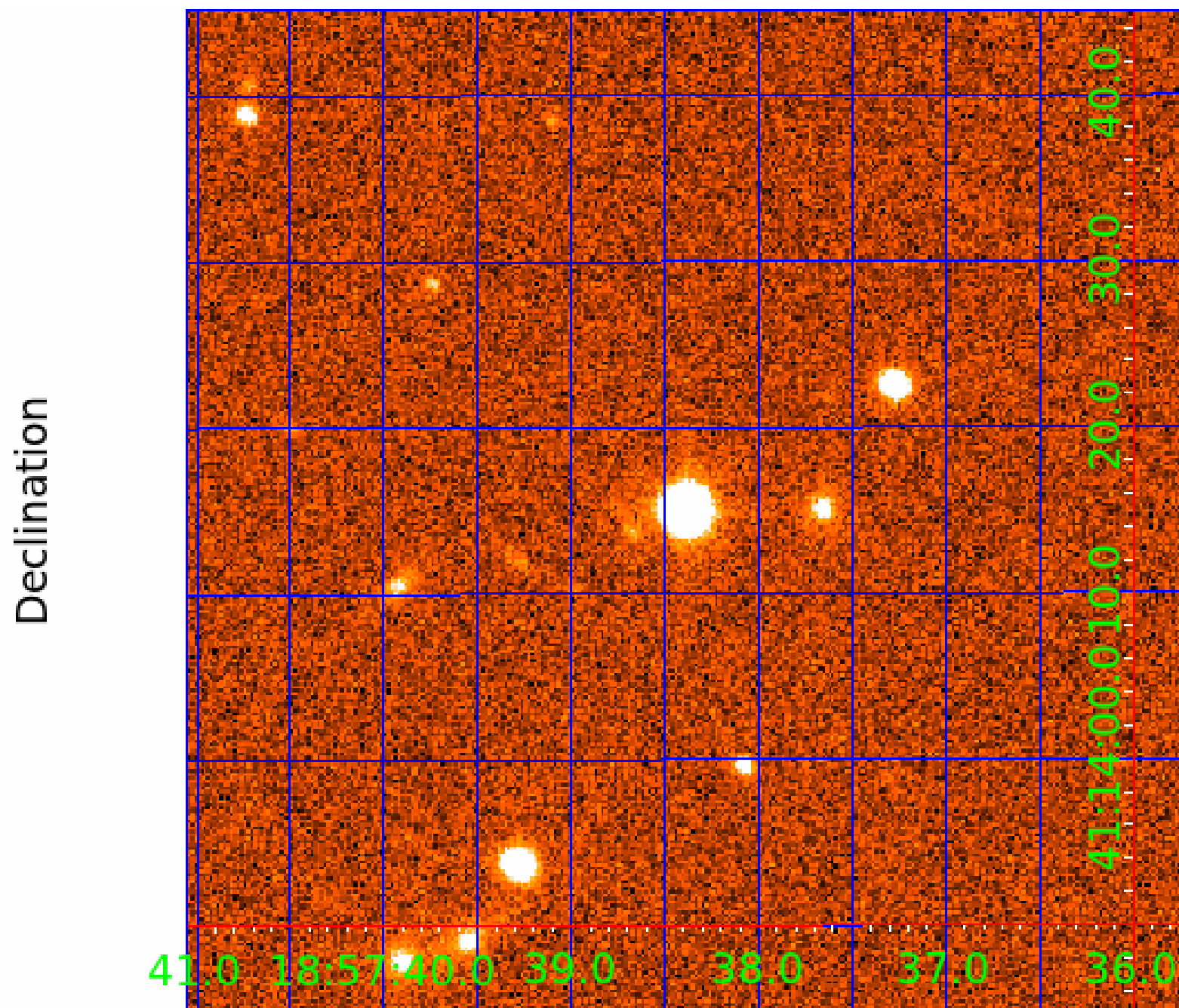
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005941160

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})
005941160-01	OBS	0654.01	8.594798	137.250153	344.8	3.987	29.6	32.3	0.92	5675	2.24	125.72
005941160-02	OBS	0654.02	10.222175	135.890362	224.5	1.302	10.5	13.1	0.92	5675	1.64	99.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005941160-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005941160-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

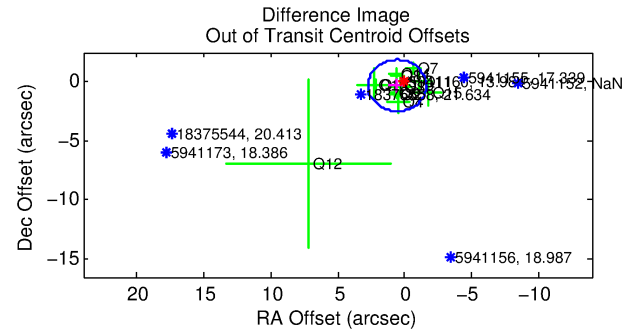
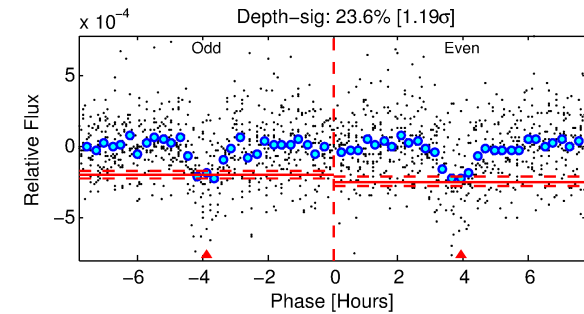
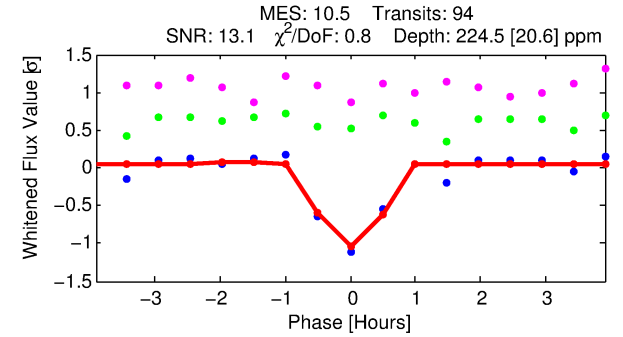
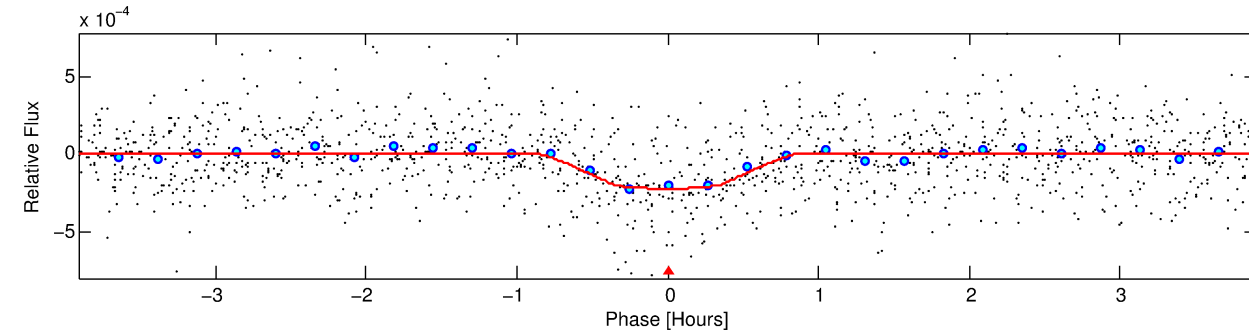
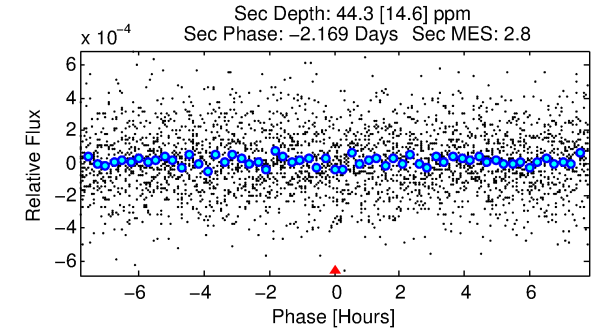
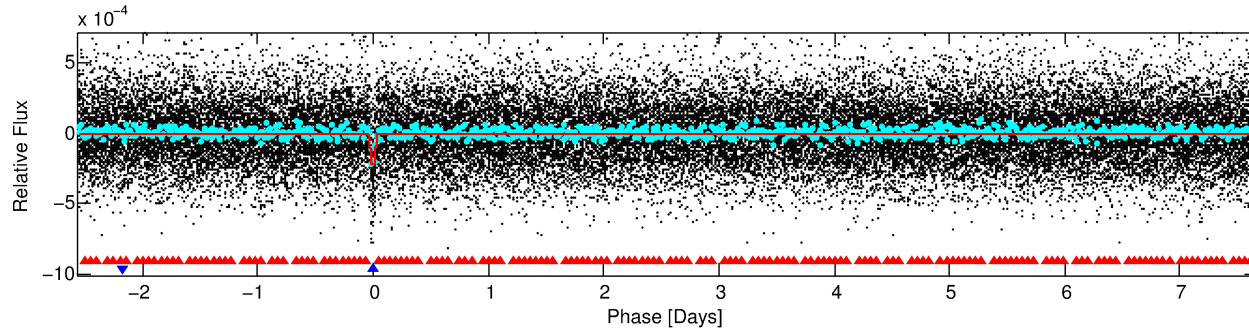
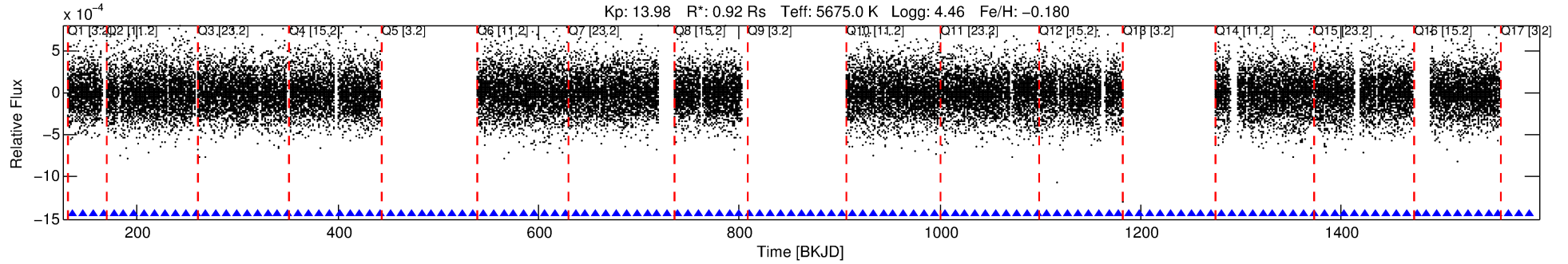
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005941160-02

No Significant Match Found

DV One-Page Summary

KIC: 5941160 Candidate: 2 of 2 Period: 10.222 d
KOI: K00654.02 Name: Kepler-200c Corr: 0.931



DV Fit Results:

Period = 10.22218 [0.00003] d
Epoch = 135.8904 [0.0025] BKJD
Rp/R* = 0.0164 [0.0097]
a/R* = 28.37 [78.29]
b = 0.90 [0.60]
Seff = 99.77 [19.28]
Teff = 806 [39] K
Rp = 1.64 [0.99] Re
a = 0.0883 [0.0103] AU
Ag = 70.78 [87.60] [0.80σ]
Teffp = 3614 [1109] K [2.53σ]

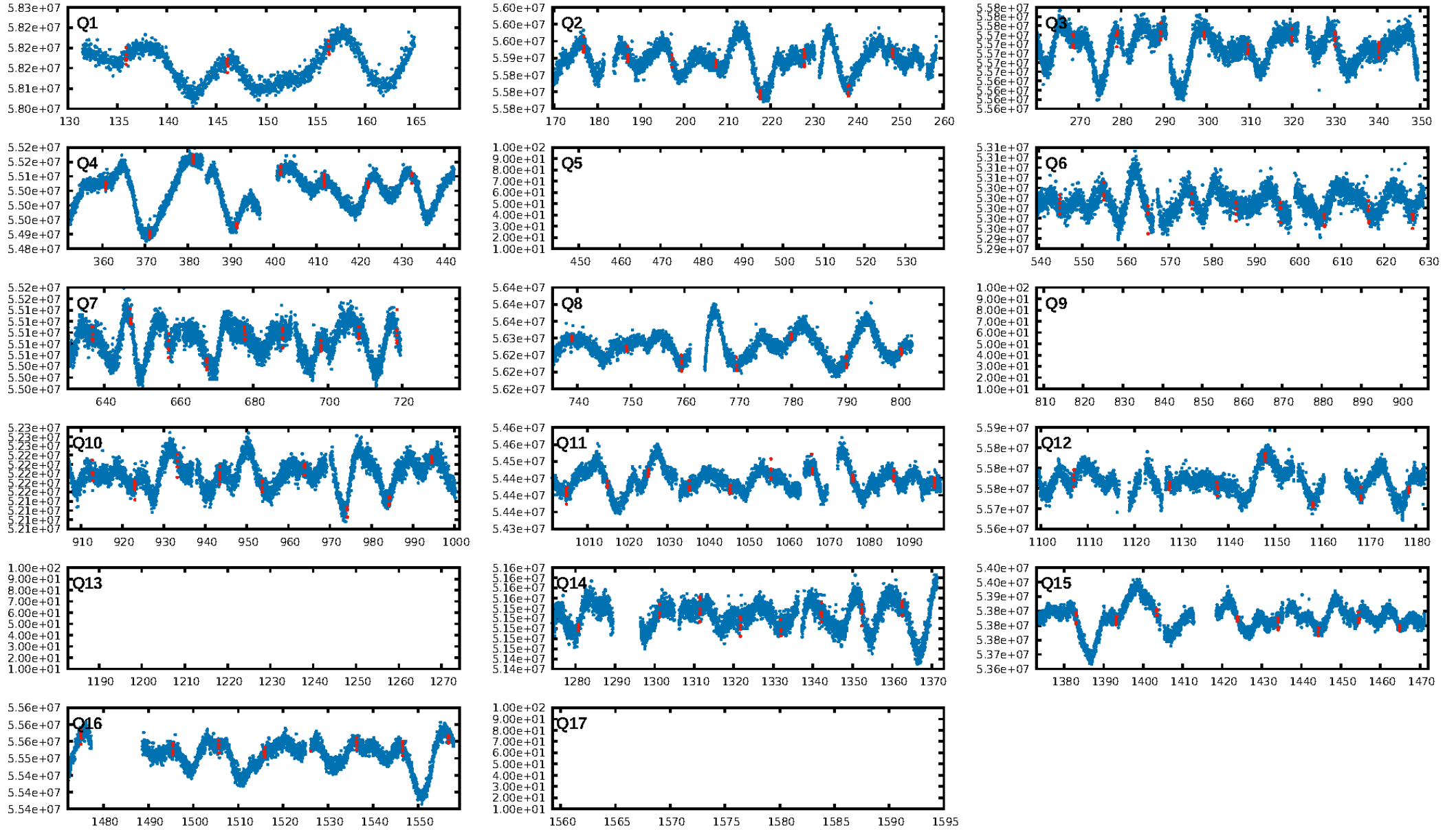
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.31σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.41e-24
RollingBand-fgt: 1.00 [91/91]
GhostDiagnostic-chr: 4.28
Centroid-sig: 50.2%
Centroid-so: 0.872 arcsec [0.95σ]
OotOffset-rm: 0.645 arcsec [0.89σ]
KicOffset-rm: 0.389 arcsec [0.57σ]
OotOffset-st: 4/4/4/1 [13]
KicOffset-st: 4/4/4/1 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [13/13]

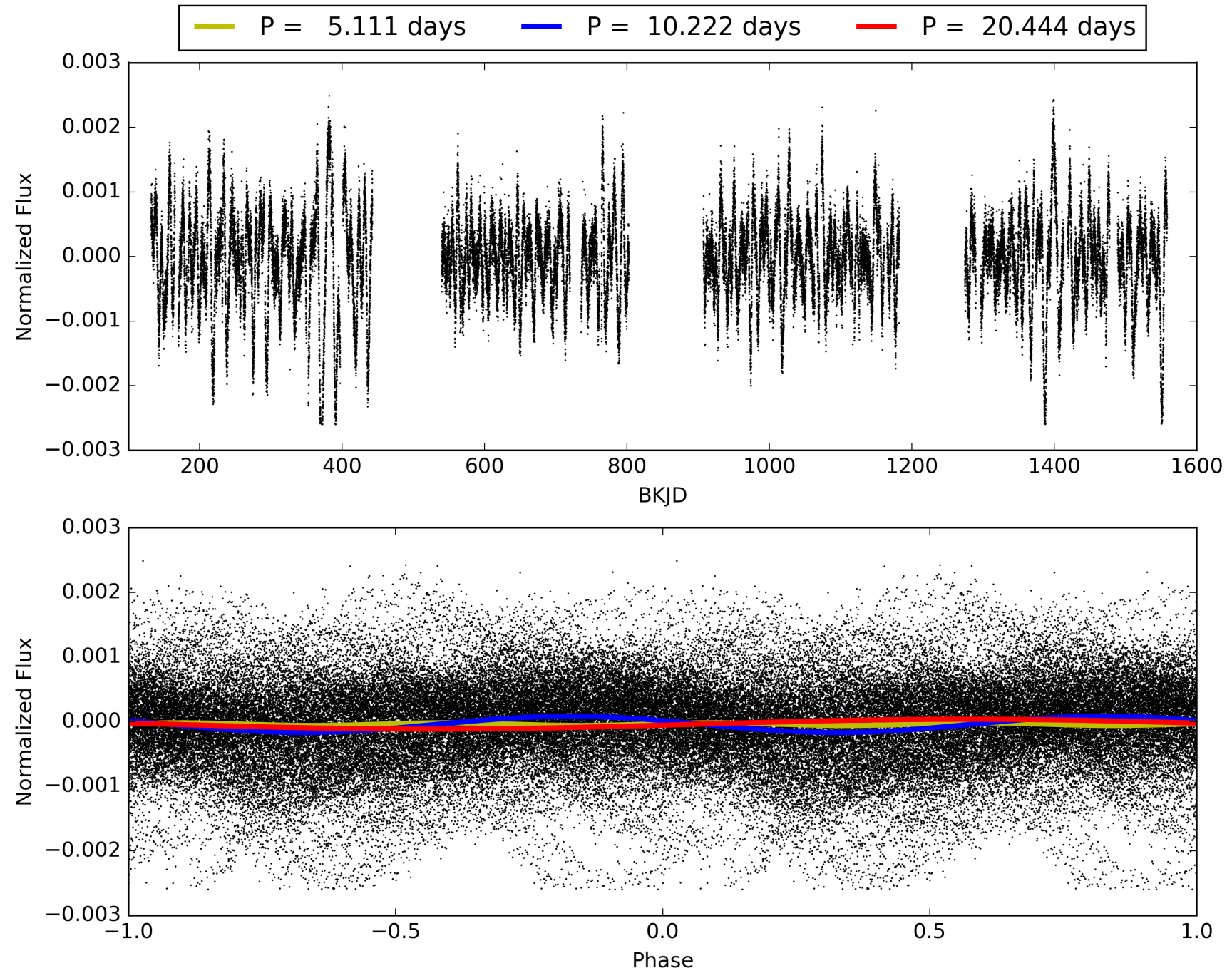
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:18:27 Z

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

TCE 005941160-02, PDC Light Curves

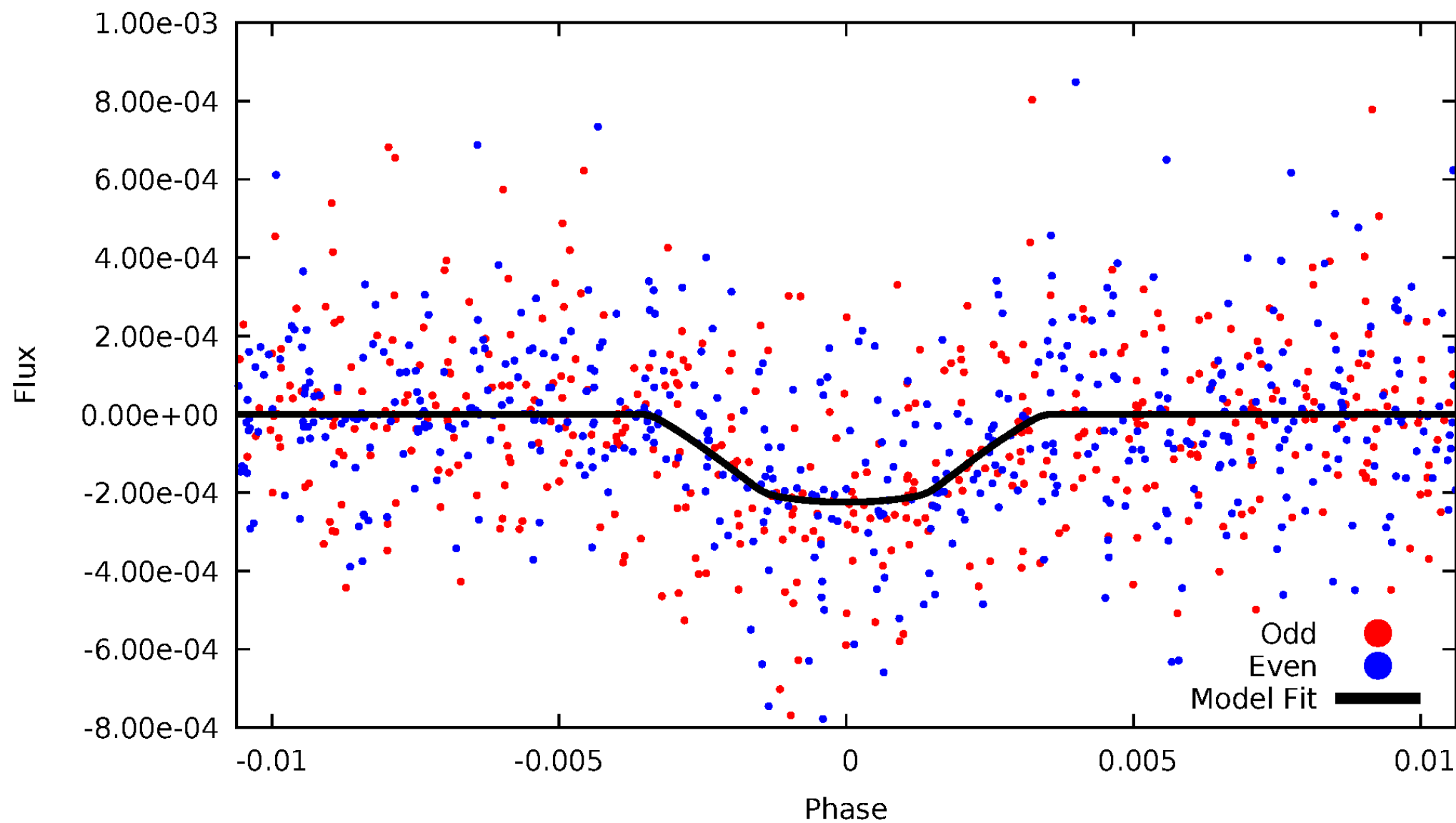


TCE 005941160-02



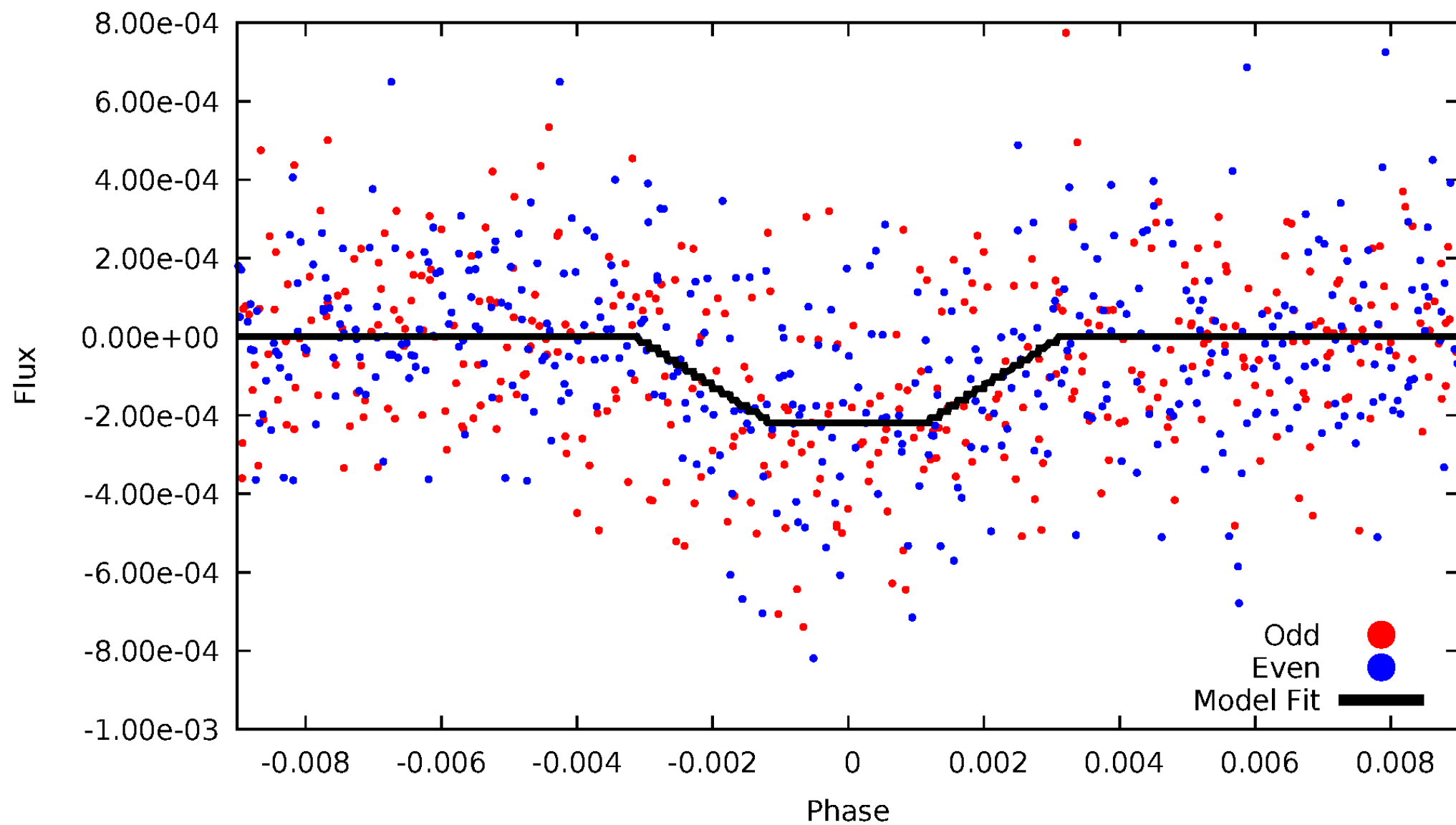
DV Odd/Even

TCE 005941160-02



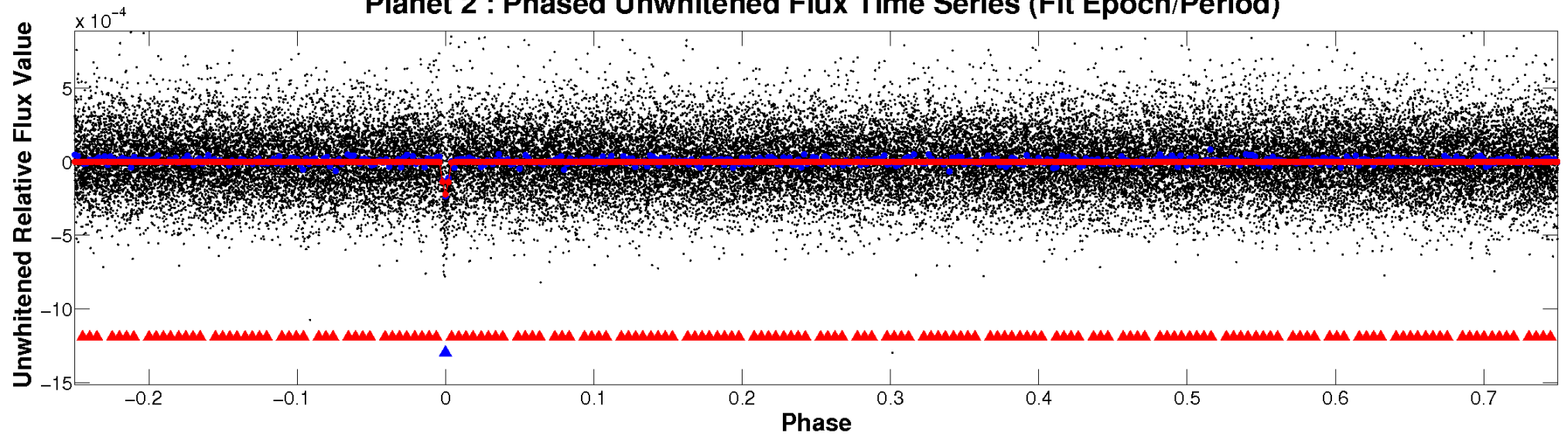
ALT Odd/Even

TCE 005941160-02

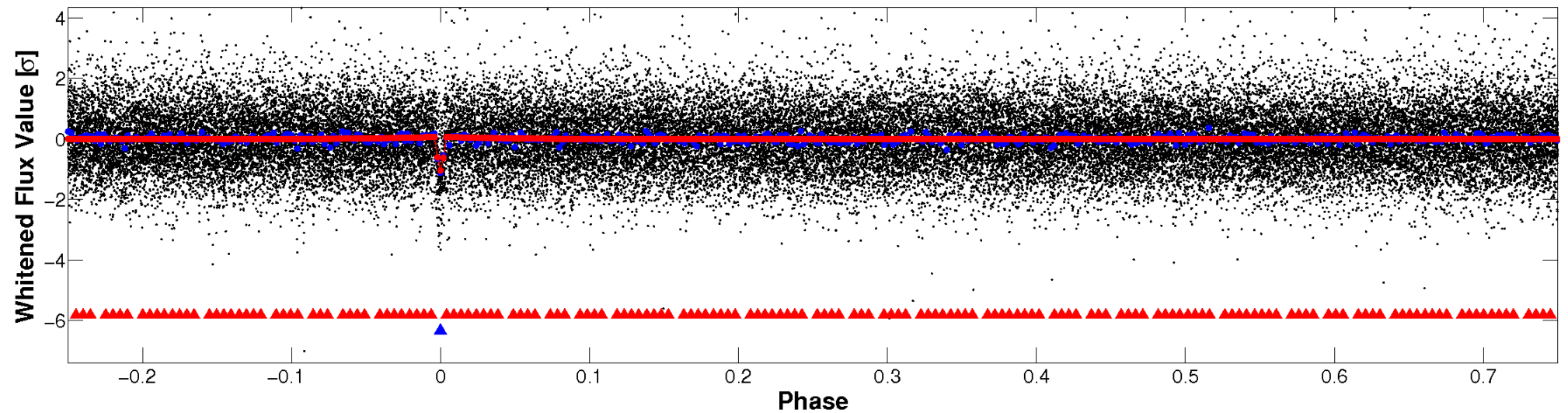


Non-Whitened Vs. Whitened Light Curve

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

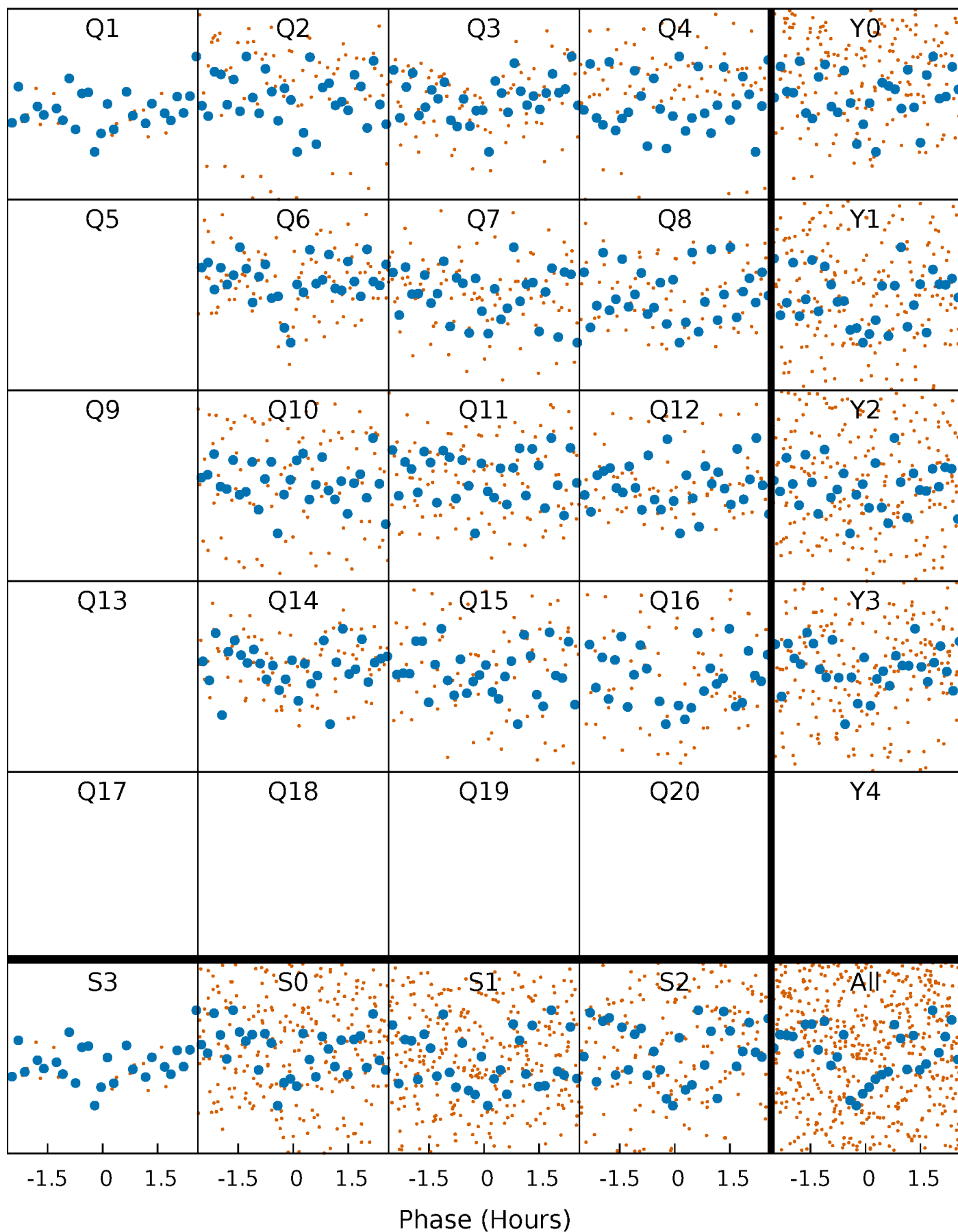


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



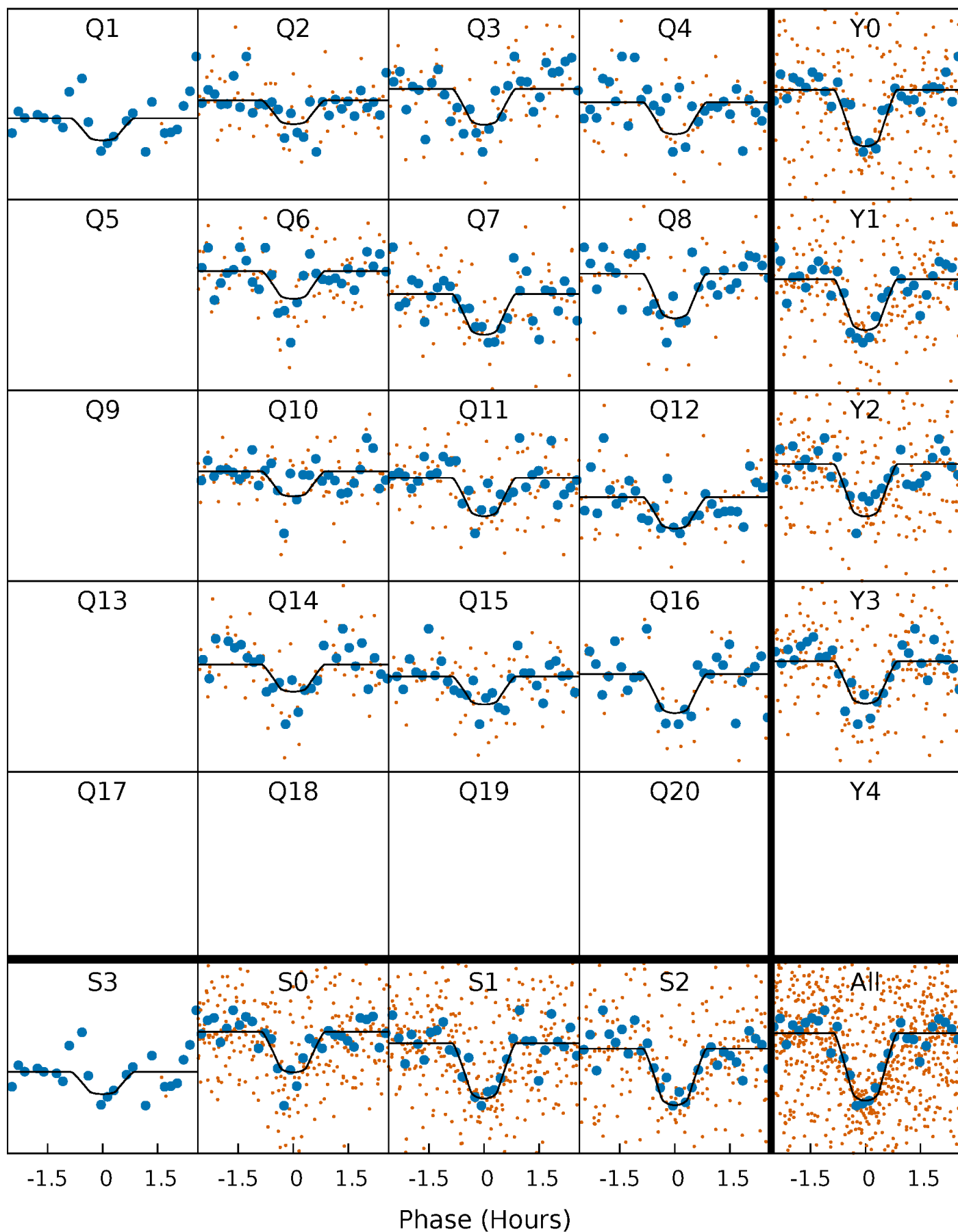
PDC Quarter-Phased Transit Curves

TCE 005941160-02 P= 10.222175 Days $T_0=135.890362$ (BKJD)



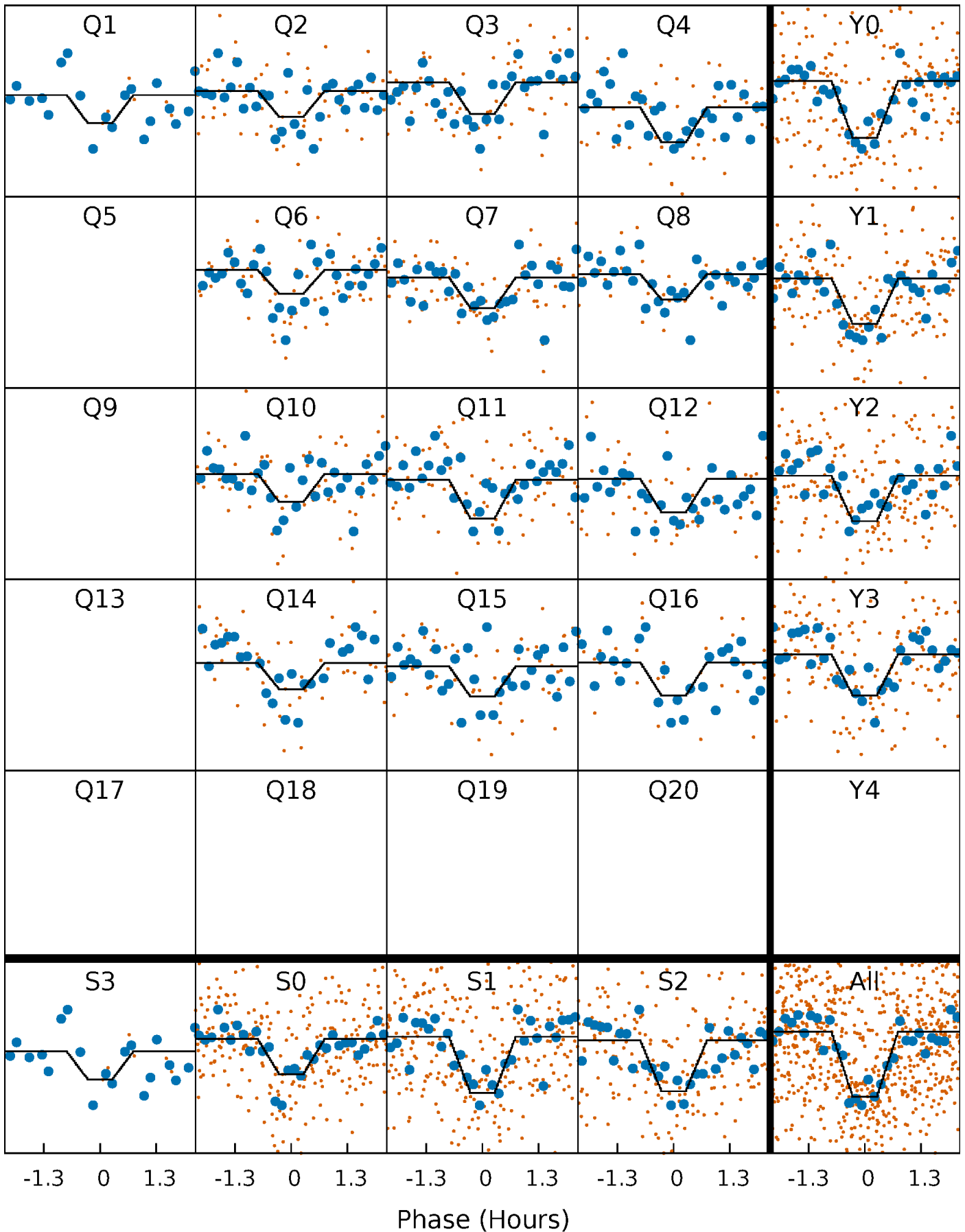
DV Quarter-Phased Transit Curves

TCE 005941160-02 P= 10.222175 Days $T_0=135.890362$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

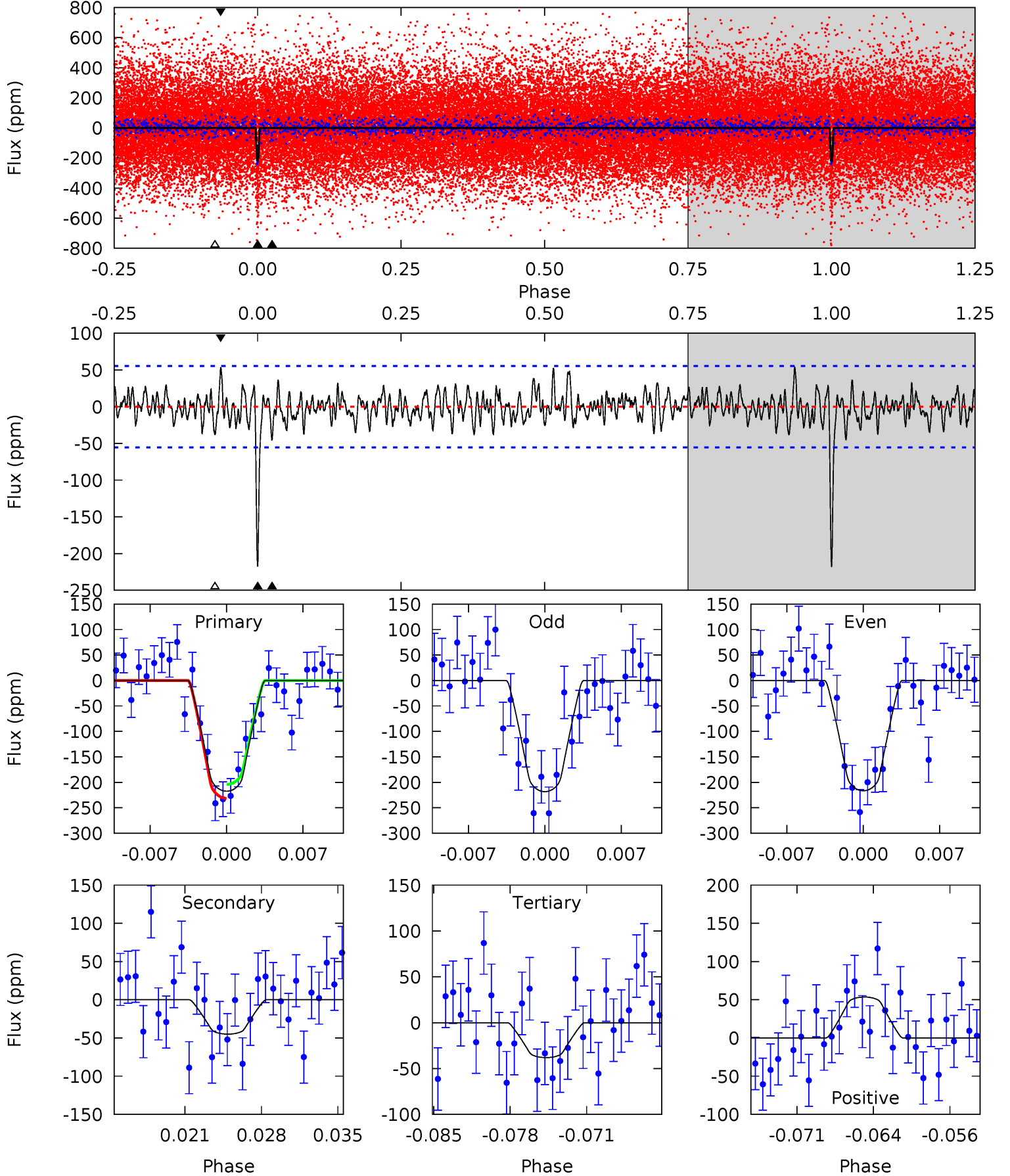
TCE 005941160-02 P= 10.222121 Days $T_0=135.893736$ (BKJD)



DV Model-Shift Uniqueness Test

005941160-02, P = 10.222175 Days, E = 125.668187 Days

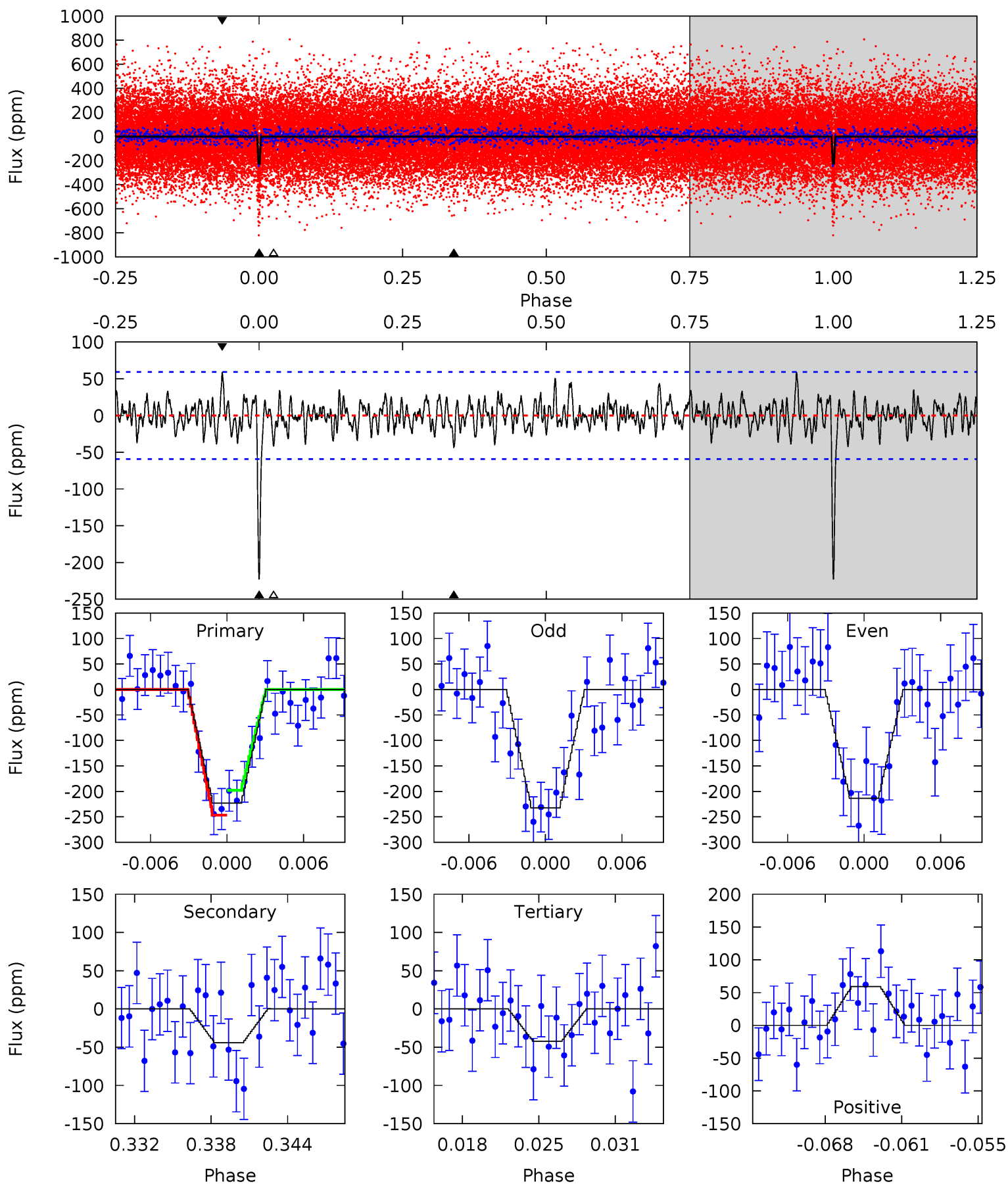
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	4.13	3.50	4.92	5.09	2.69	1.41	16.5	15.0	0.64	-0.79	0.08	1.00	0.20	1.26



Alt Model-Shift Uniqueness Test

005941160-02, $P = 10.222121$ Days, $E = 125.671615$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	3.81	3.66	5.12	5.12	2.74	1.32	15.6	14.2	0.15	-1.31	0.81	0.99	0.21	2.11



Stellar Parameters For KIC 005941160

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5675^{+113}_{-113}	$4.459^{+0.081}_{-0.099}$	$-0.180^{+0.150}_{-0.150}$	$0.915^{+0.122}_{-0.071}$	$0.878^{+0.065}_{-0.052}$	$1.616^{+0.463}_{-0.510}$
	+2%/-2%	+2%/-2%	+83%/-83%	+13%/-8%	+7%/-6%	+29%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005941160-02 / KOI 0654.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-45 ± 11	$1.71^{+0.92}_{-0.89}$	1127^{+45}_{-36}	3912^{+1343}_{-544}	66^{+221}_{-38}
Alt.	-44 ± 12	$1.53^{+0.90}_{-0.84}$	1126^{+45}_{-36}	4042^{+1504}_{-628}	83^{+289}_{-52}

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

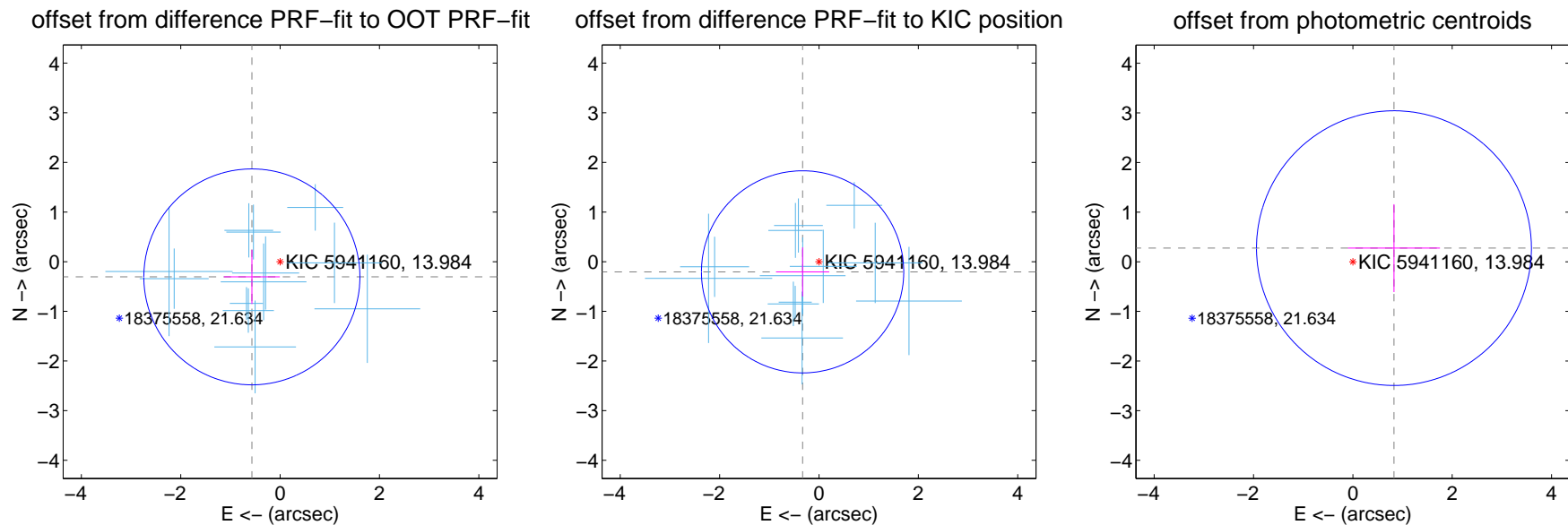
DV Centroid Data

Supplemental centroid analysis for 005941160-02. Kepler magnitude: 13.98. Transit SNR 13.07

There are 12 quarters with good PRF difference image offsets

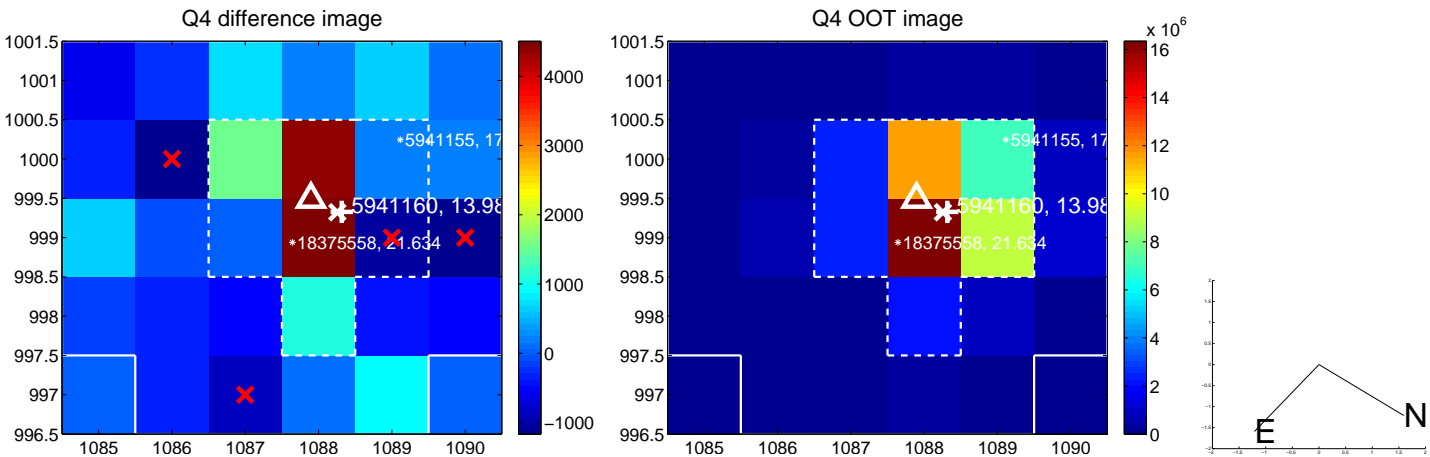
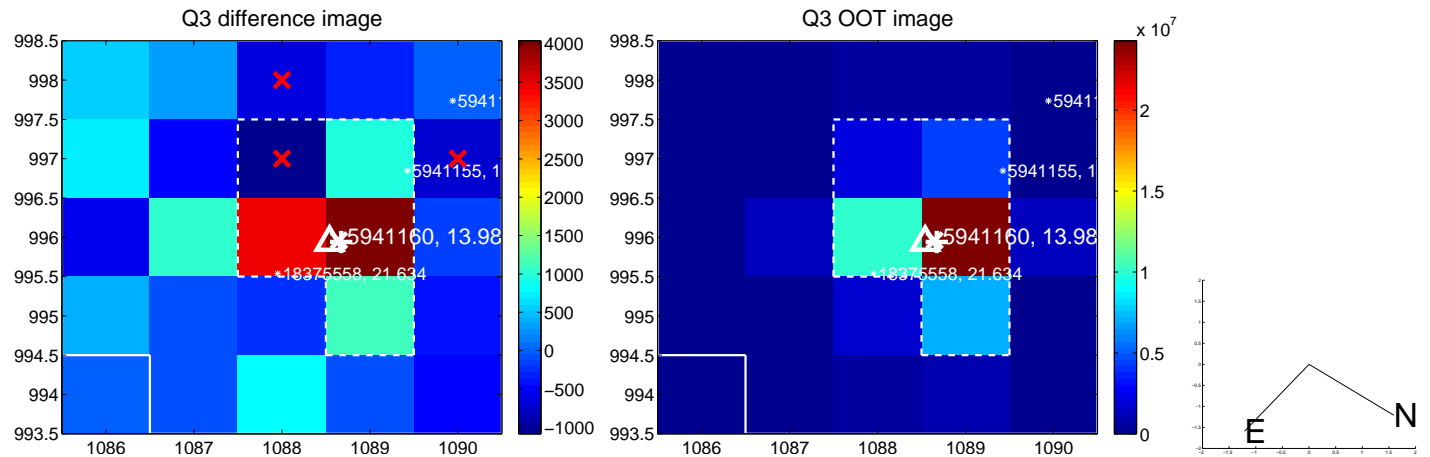
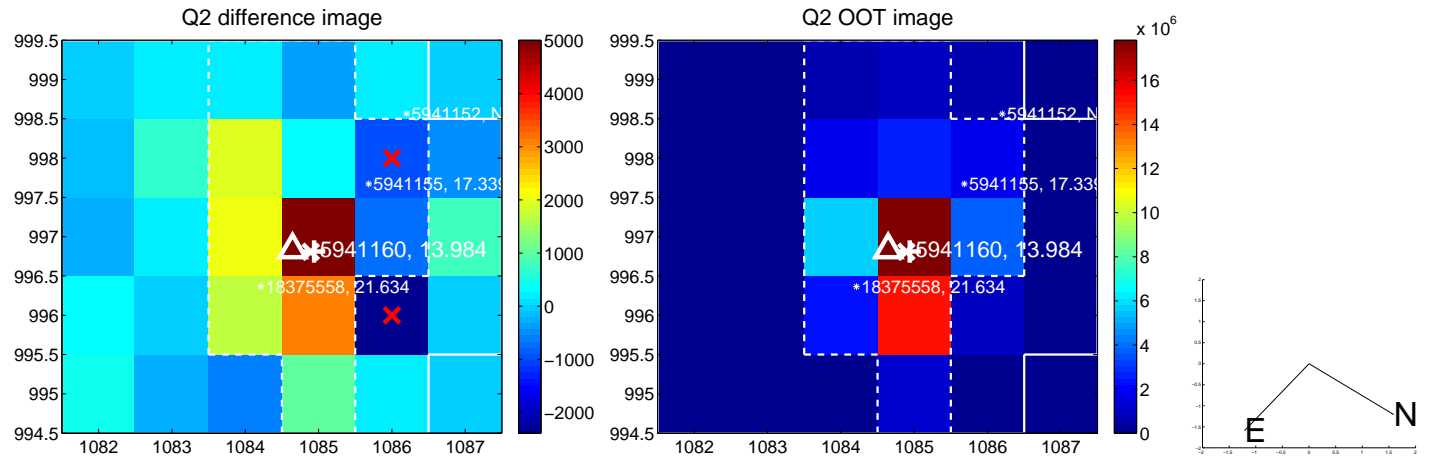
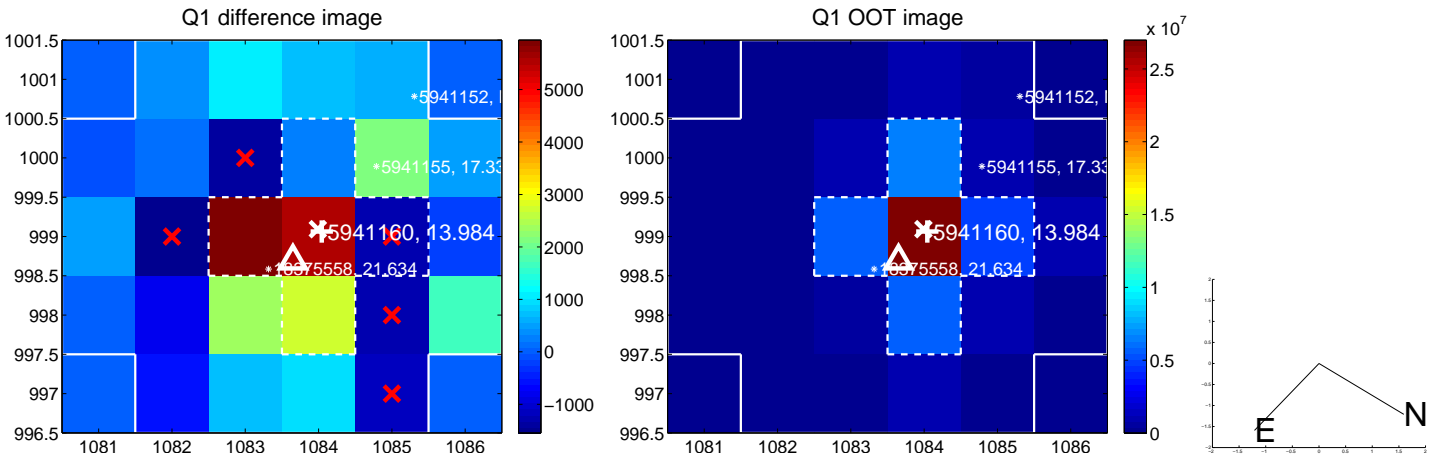
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.645 ± 0.725	0.89	0.568 ± 0.564	-0.306 ± 0.547
PRF-fit source offset from KIC position	0.389 ± 0.679	0.57	0.330 ± 0.536	-0.205 ± 0.494
photometric centroid source offset	0.87 ± 0.92	0.95	-0.83 ± 0.93	0.28 ± 0.89

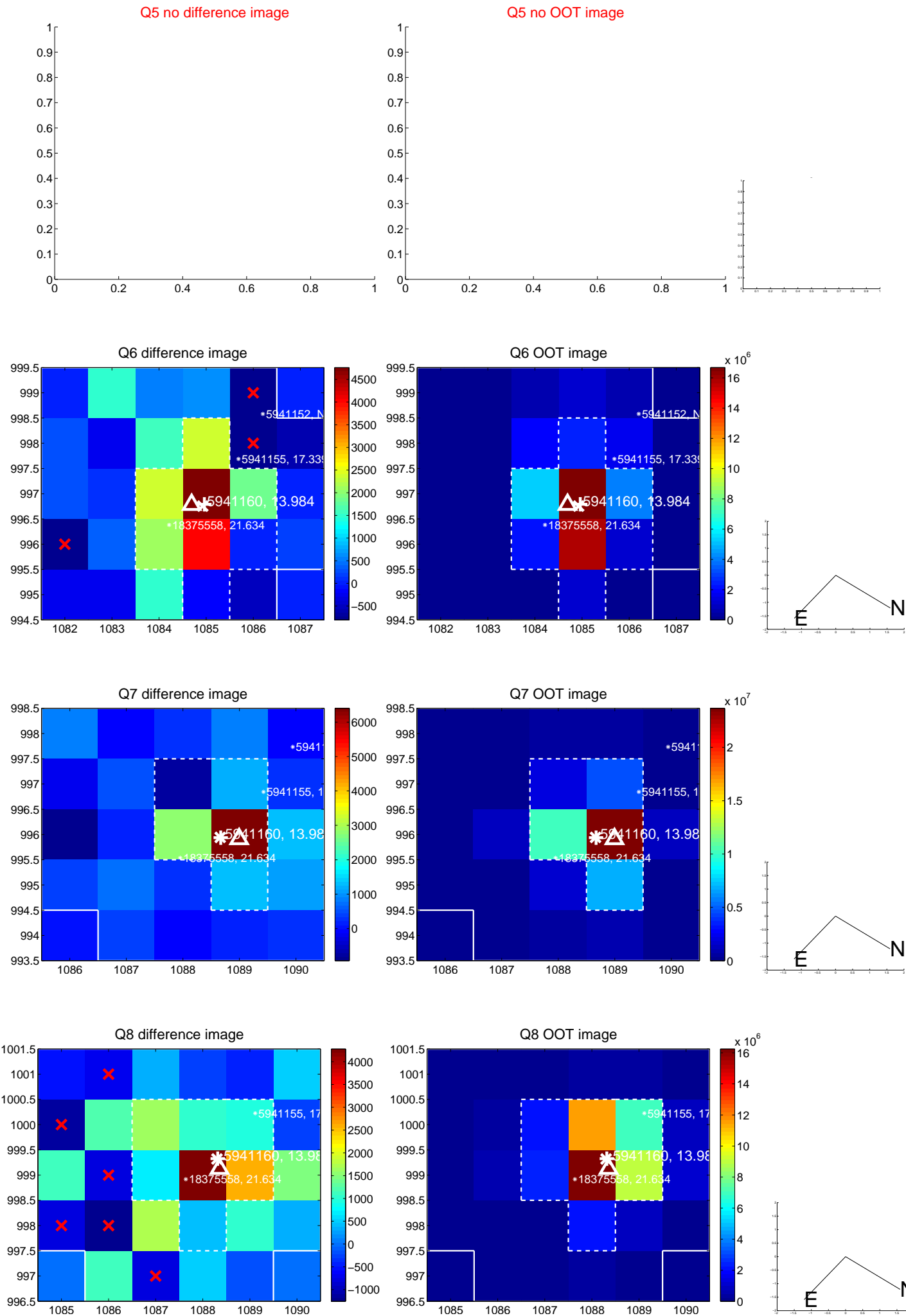


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

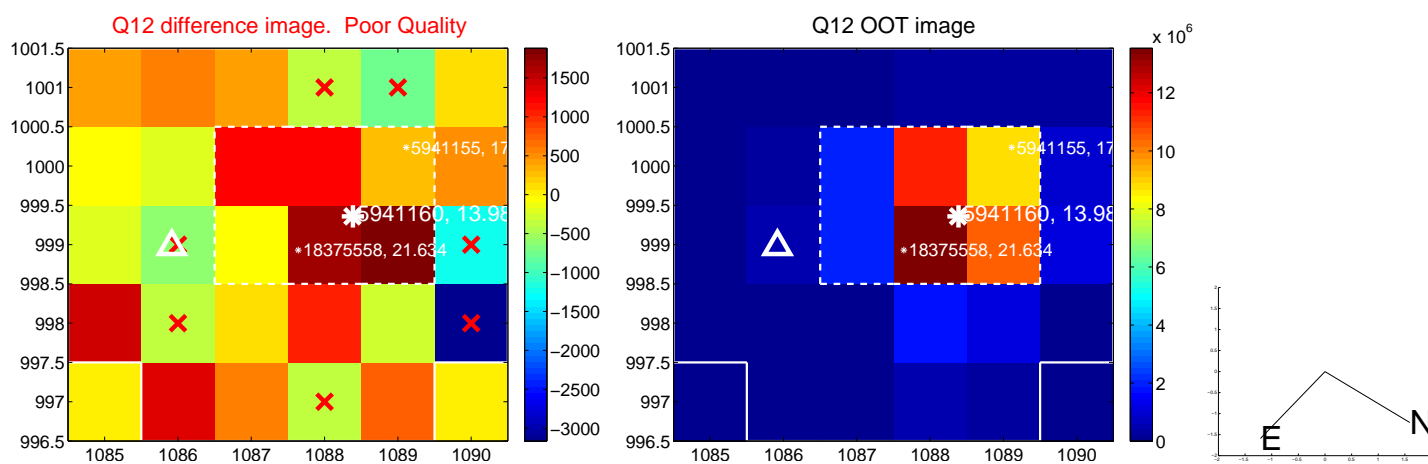
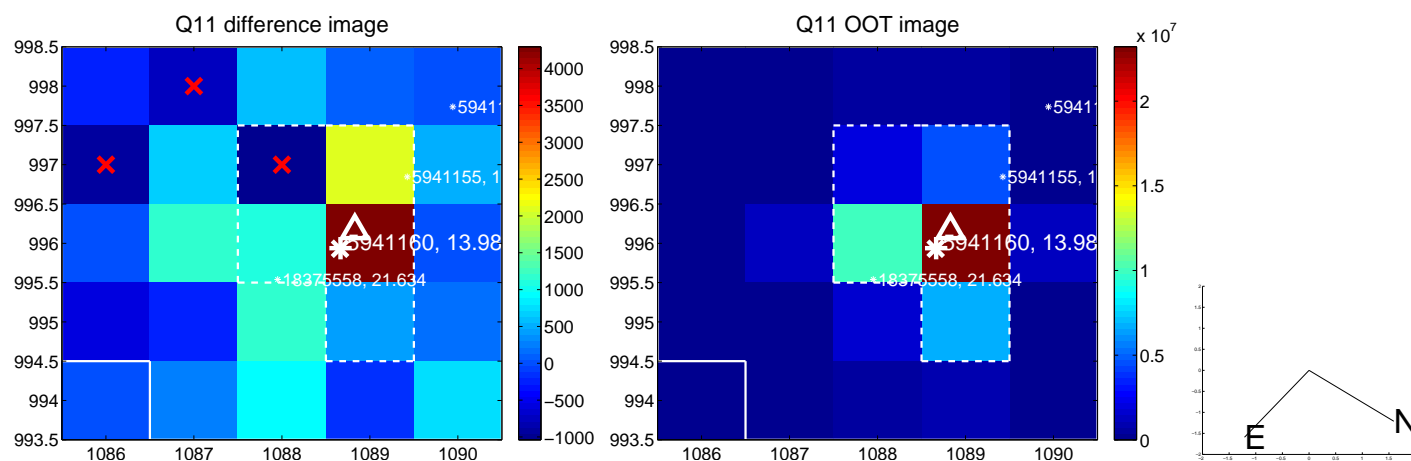
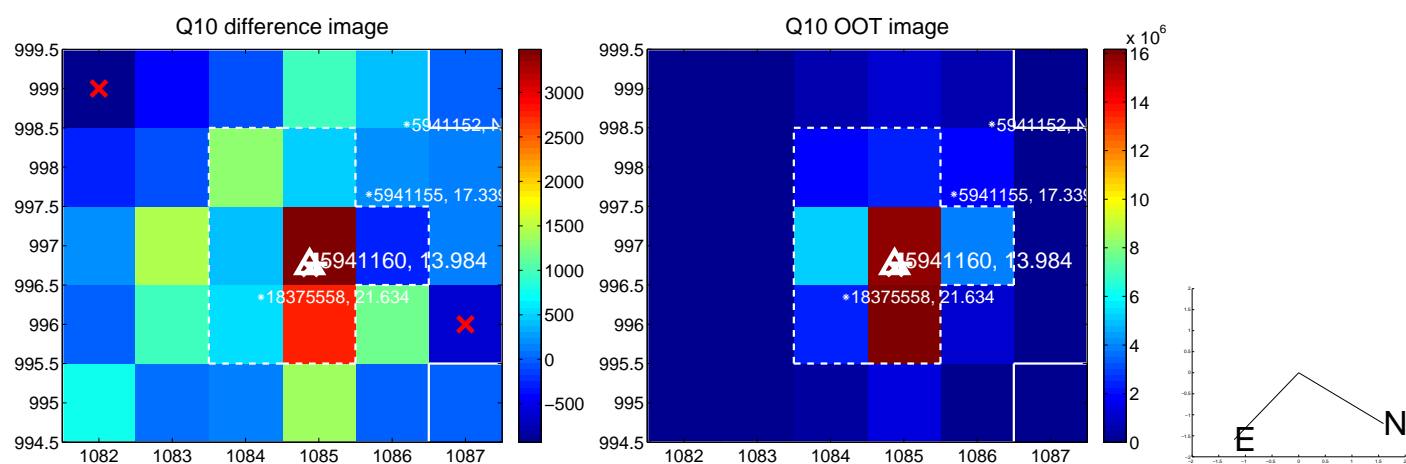
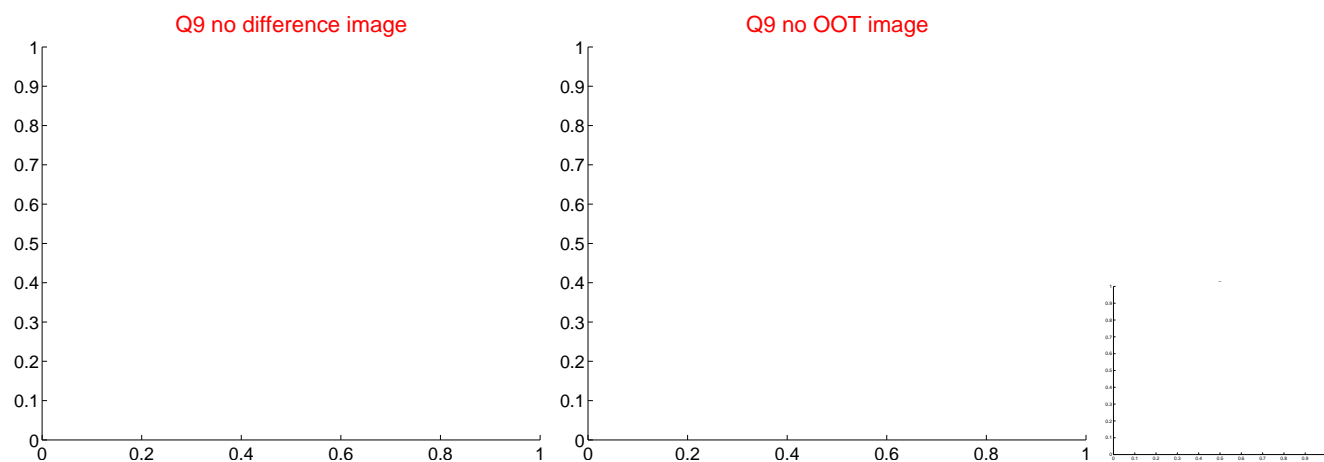
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



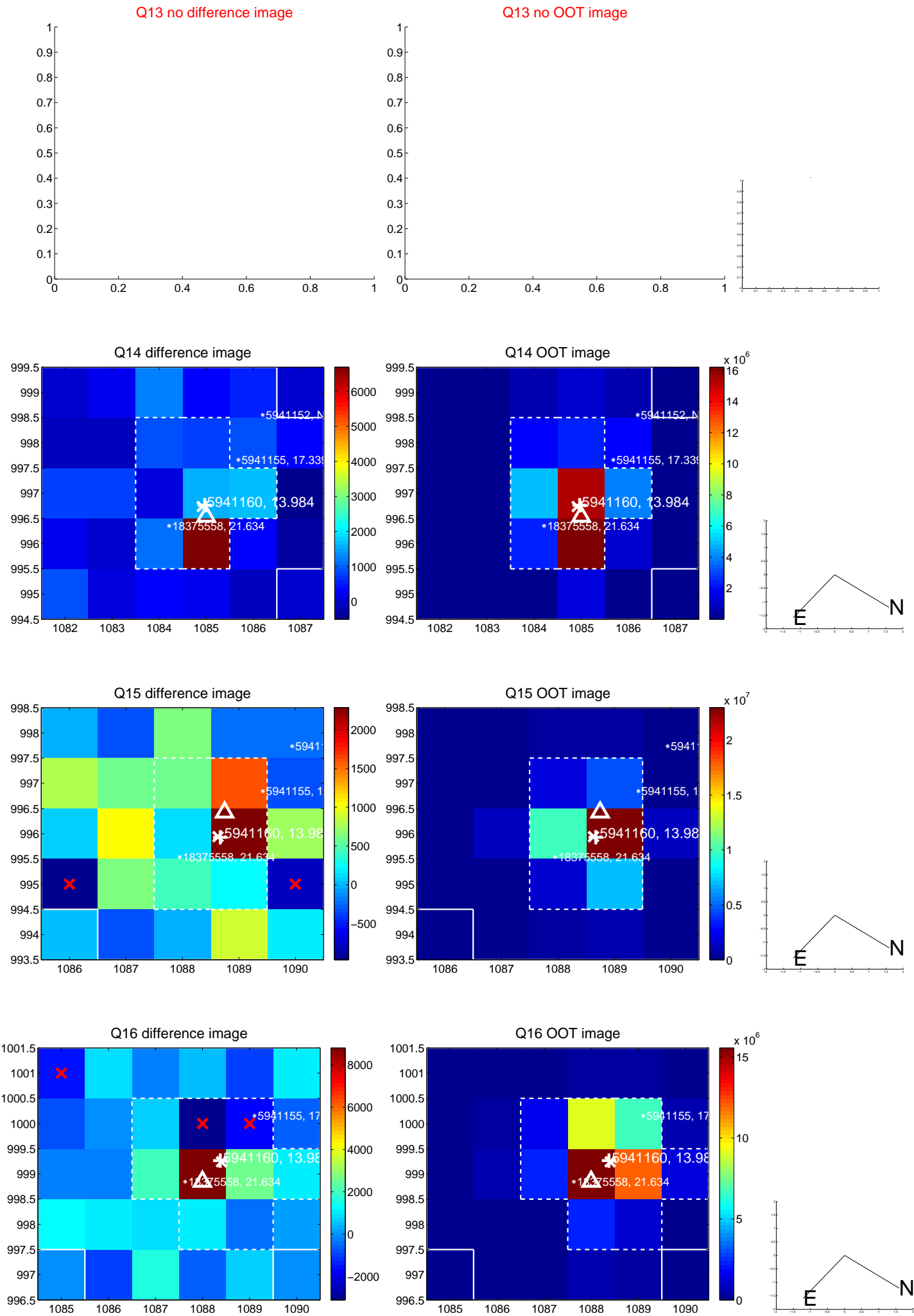
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



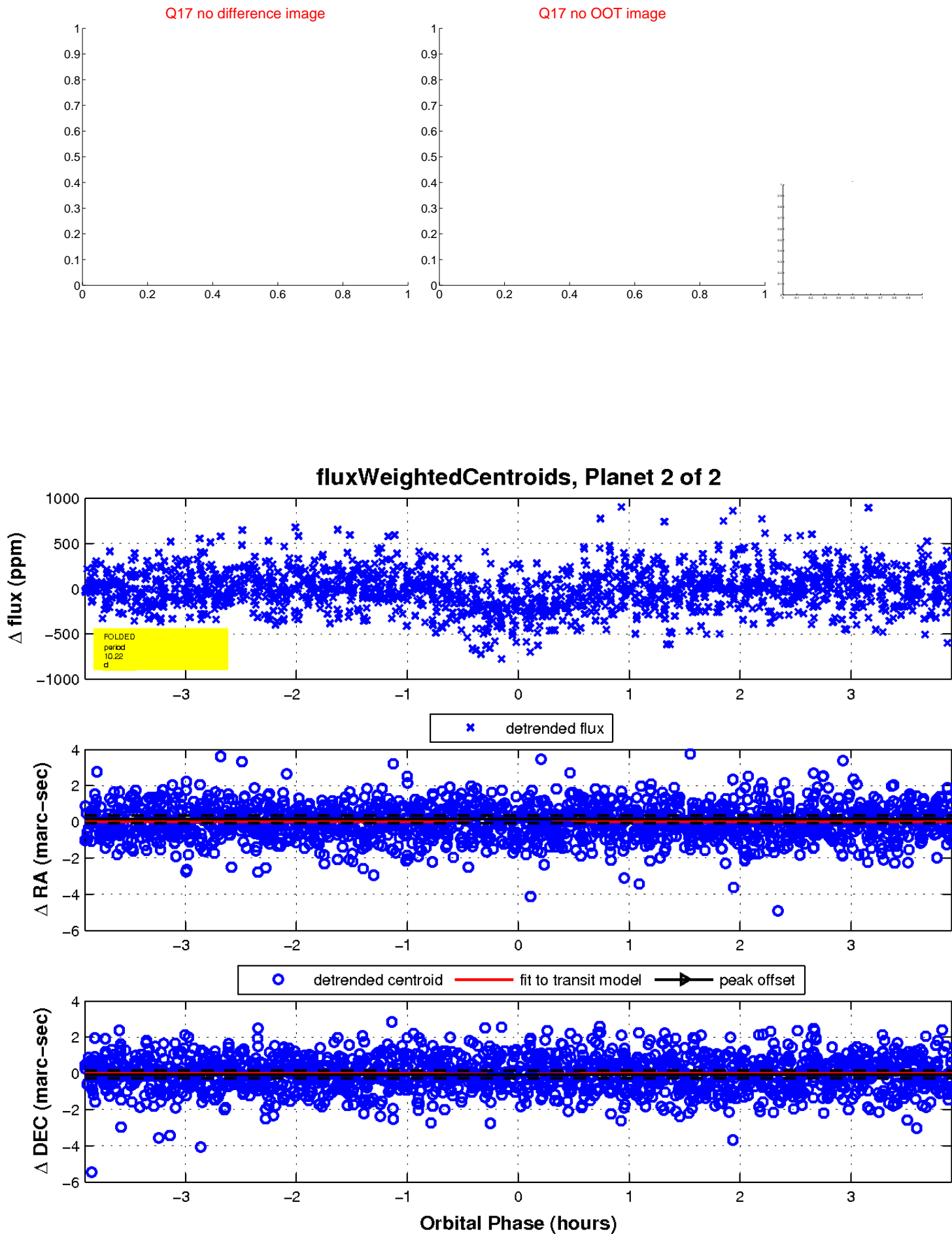
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

