

KIC 010198662

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})
010198662-01	OBS	No	5.163950	132.055923	63.5	15.474	16.1	14.1	1.59	6799	1.49	1136.18
010198662-02	OBS	No	5.163344	134.996857	93.4	22.184	18.2	19.9	1.59	6799	3.07	1136.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010198662-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
010198662-02	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

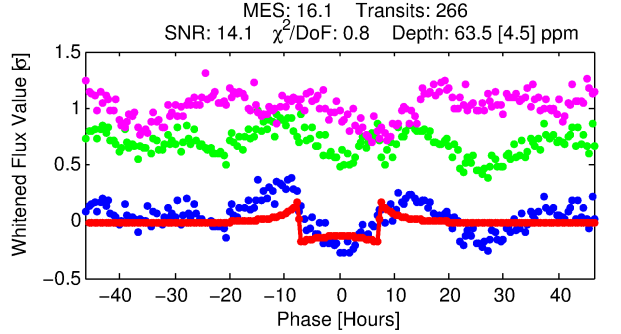
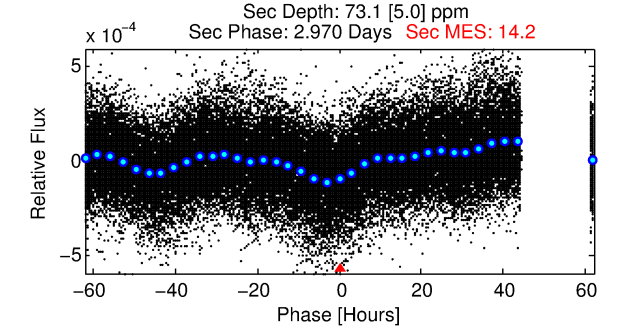
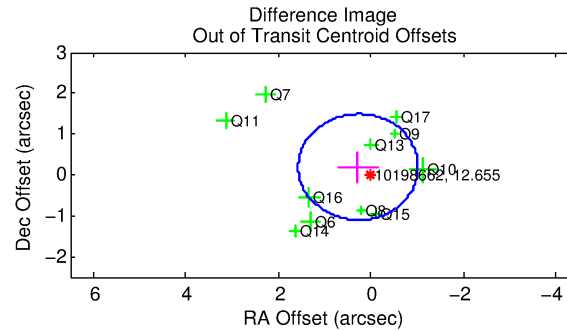
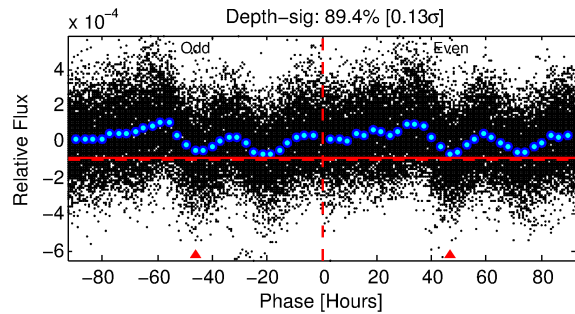
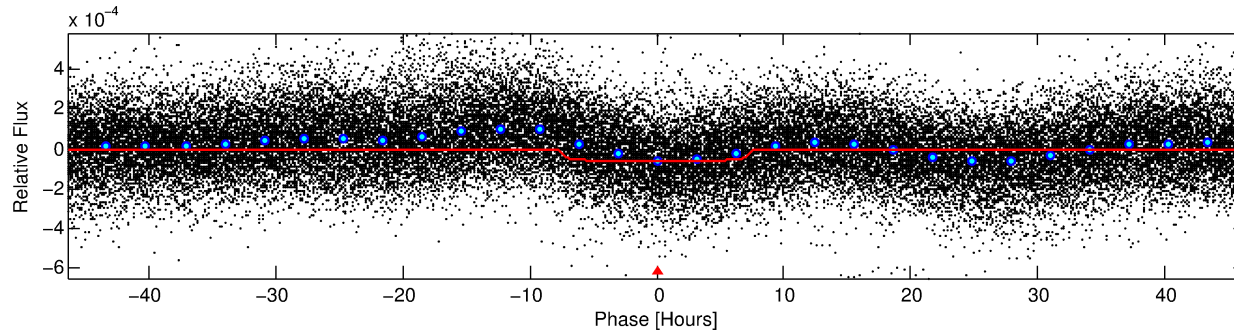
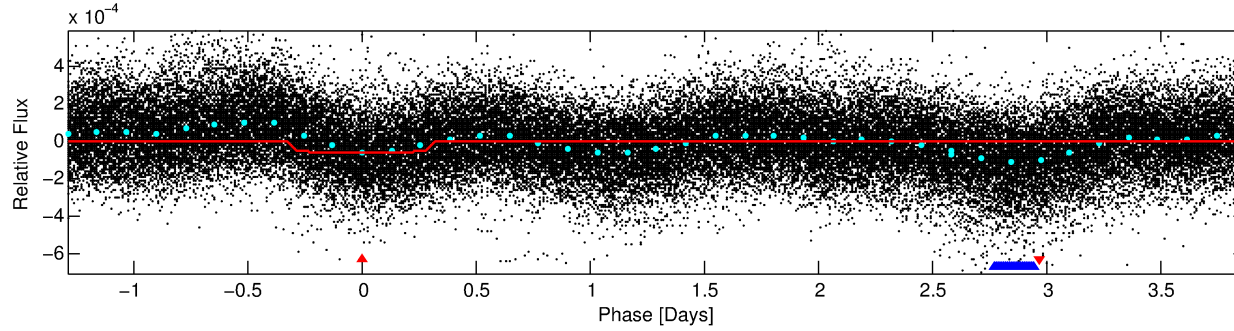
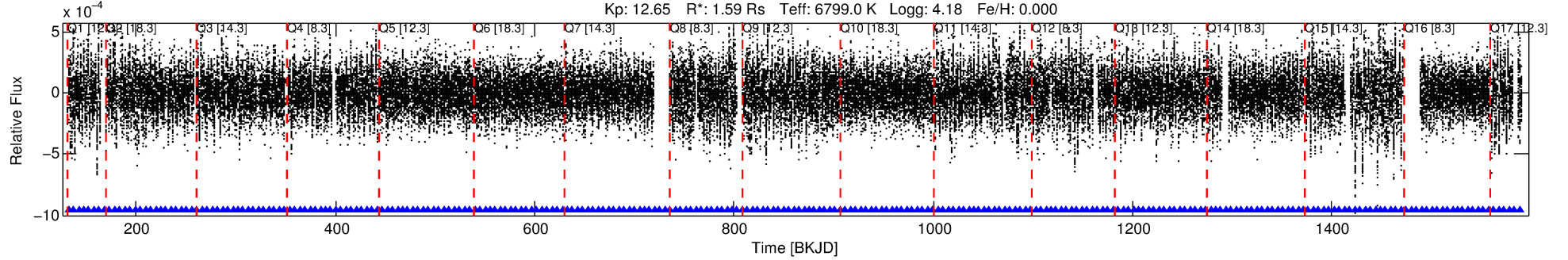
Ephemeris Match Information For 010198662-01

No Significant Match Found

DV One-Page Summary

KIC: 10198662 Candidate: 1 of 2 Period: 5.164 d
KOI: K06216 Corr: No Ephemeris Match

Kp: 12.65 R*: 1.59 Rs Teff: 6799.0 K Logg: 4.18 Fe/H: 0.000



DV Fit Results:

Period = 5.16395 [0.00004] d
Epoch = 132.0559 [0.0047] BKJD
Rp/R* = 0.0086 [0.0004]
a/R* = 1.45 [0.13]
b = 0.91 [0.03]
Seff = 1136.18 [448.88]
Teq = 1480 [146] K
Rp = 1.49 [0.48] Re
a = 0.0652 [0.0168] AU
Ag = 77.24 [29.10] [2.62σ]
Teffp = 6786 [345] K [14.17σ]

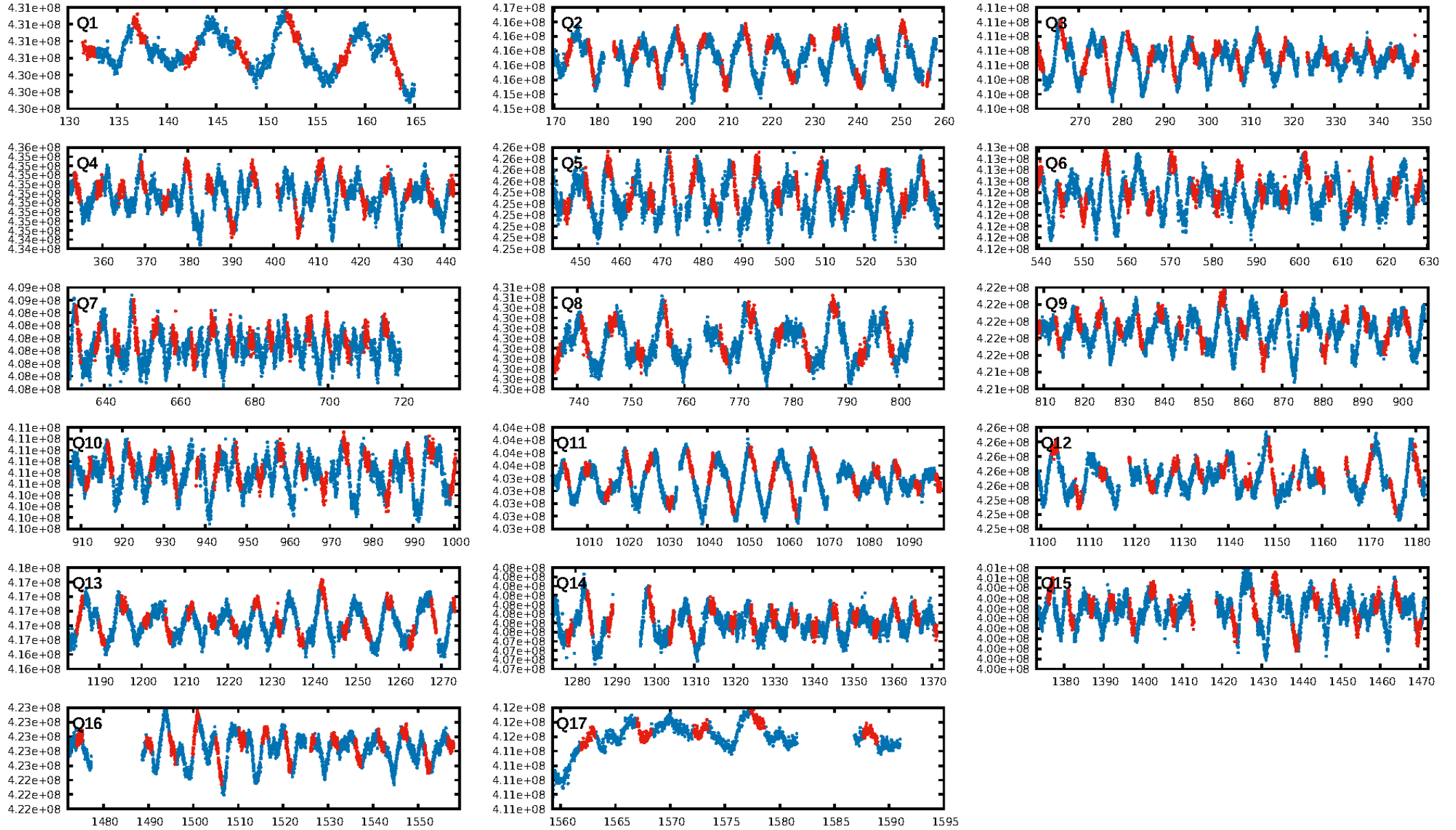
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.12e-27
RollingBand-fgt: 1.00 [254/254]
GhostDiagnostic-chr: 2.955
Centroid-sig: 1.9%
Centroid-so: 0.408 arcsec [2.32σ]
OotOffset-rm: 0.337 arcsec [0.78σ]
OotOffset-st: 3/3/2/3 [11]
KicOffset-rm: 0.296 arcsec [0.77σ]
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DiffImageQuality-fgm: 0.82 [9/11]
DiffImageOverlap-fno: 1.00 [17/17]

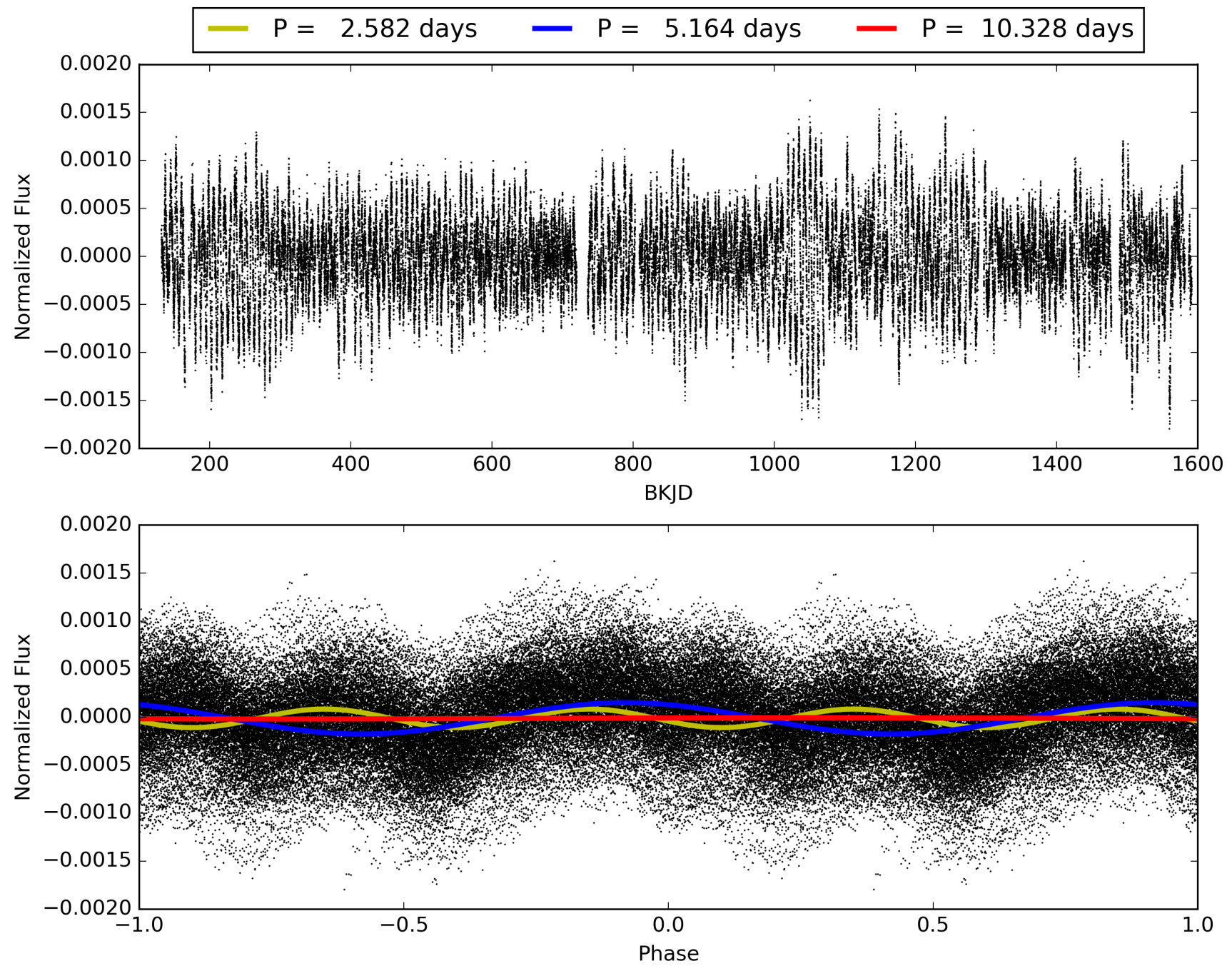
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:32:28 Z

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

TCE 010198662-01, PDC Light Curves

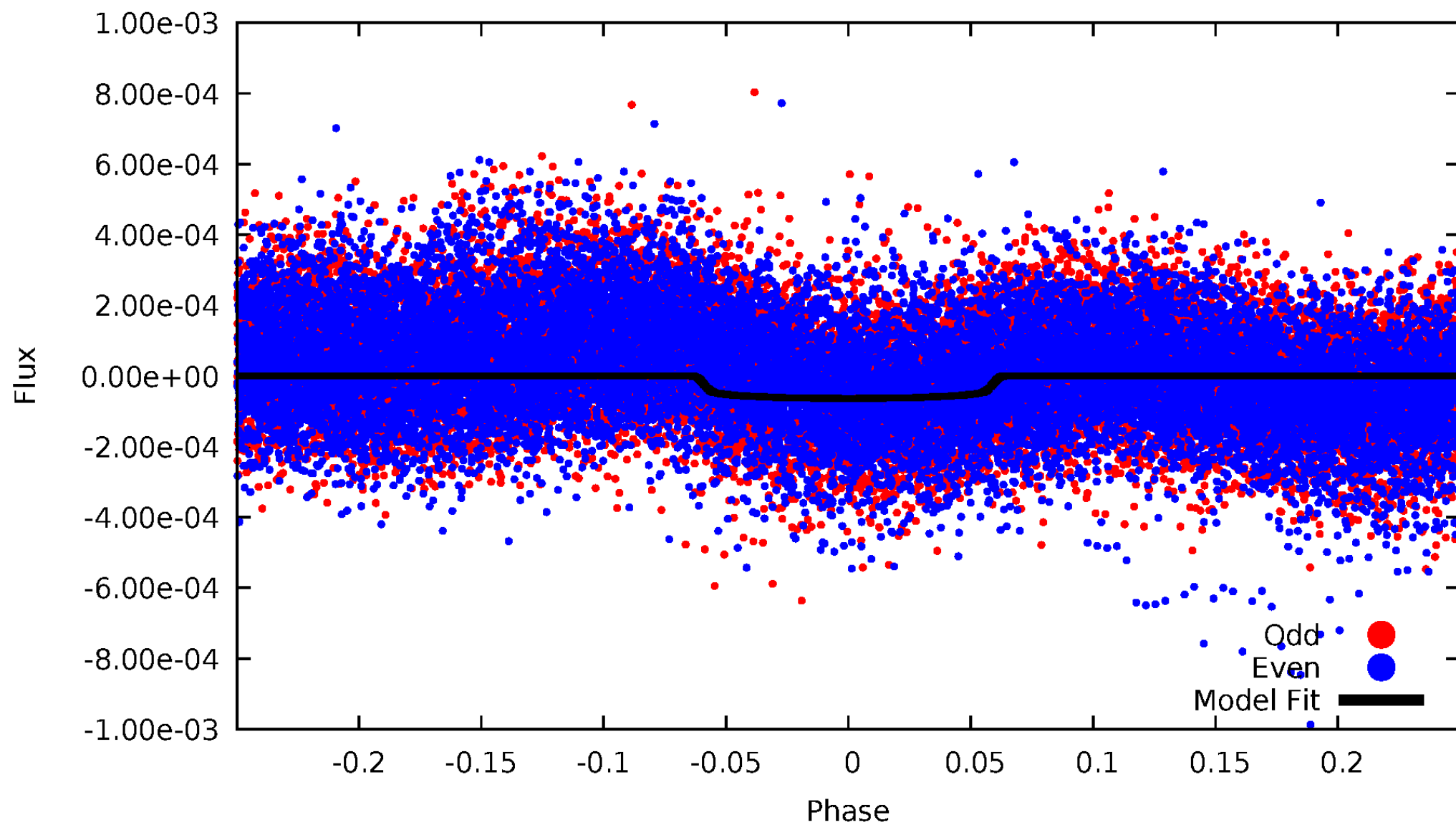


TCE 010198662-01



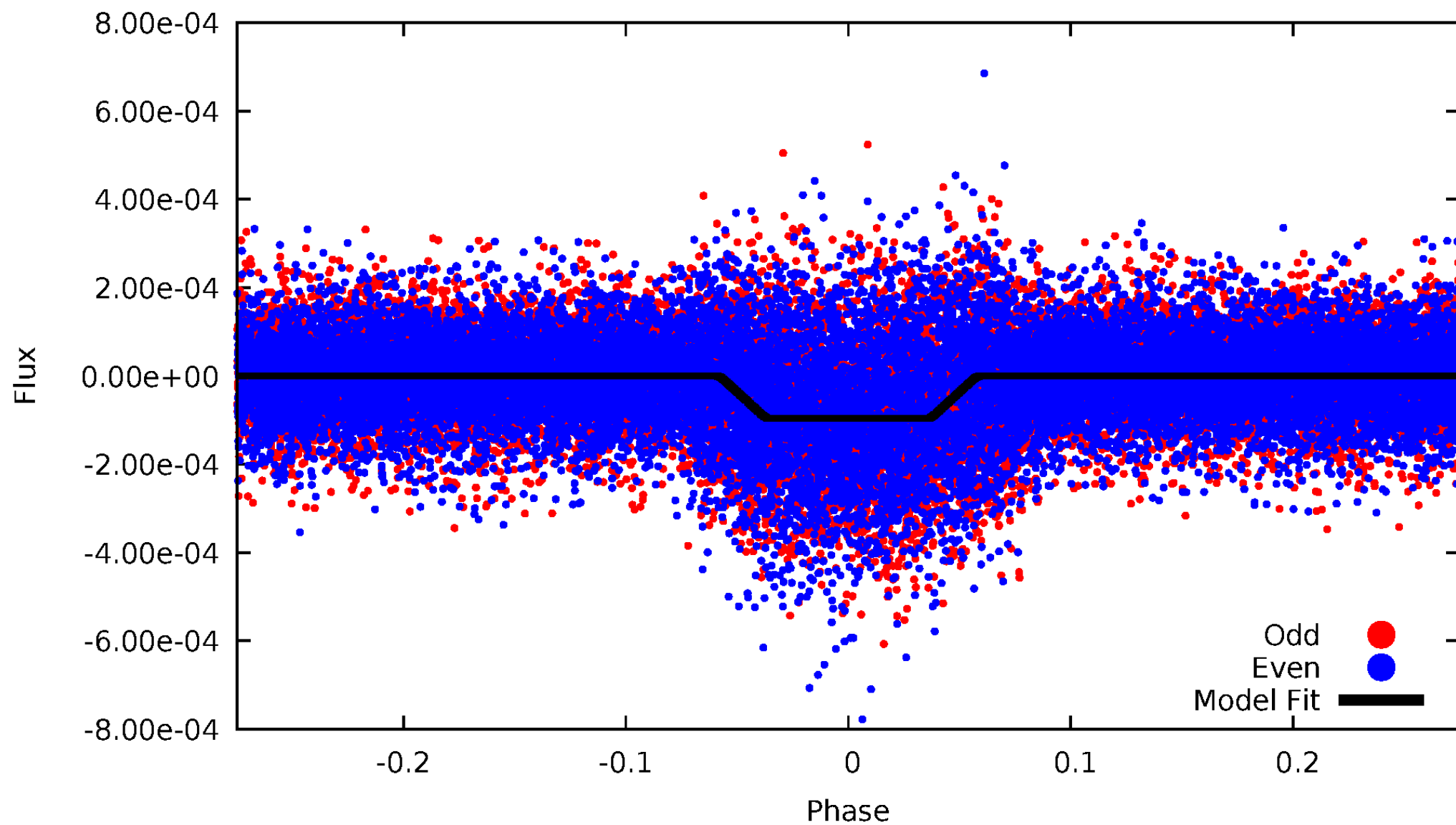
DV Odd/Even

TCE 010198662-01



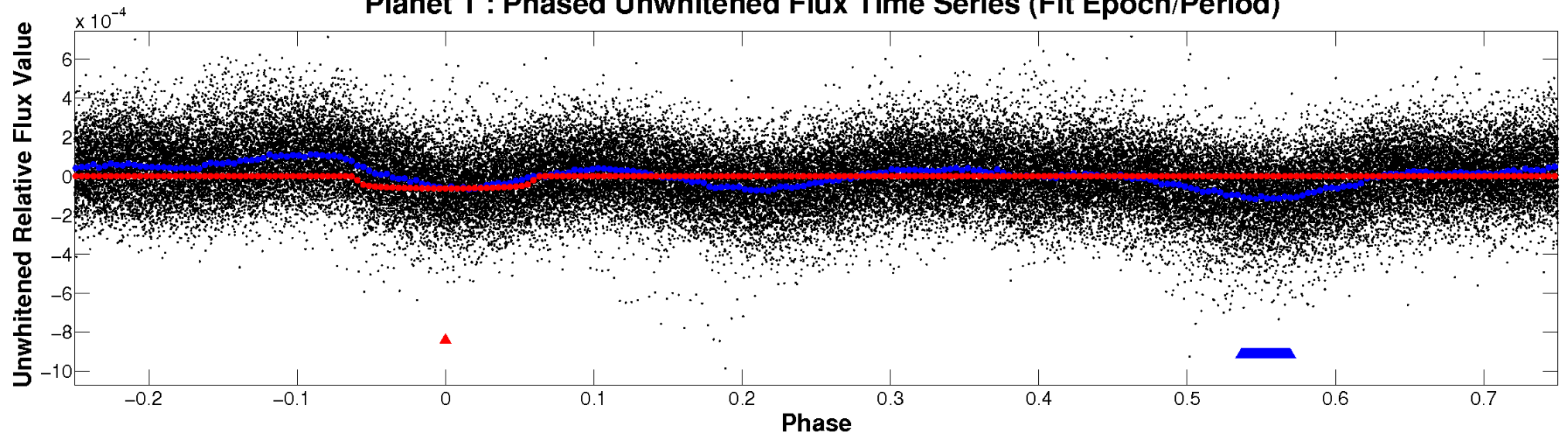
ALT Odd/Even

TCE 010198662-01

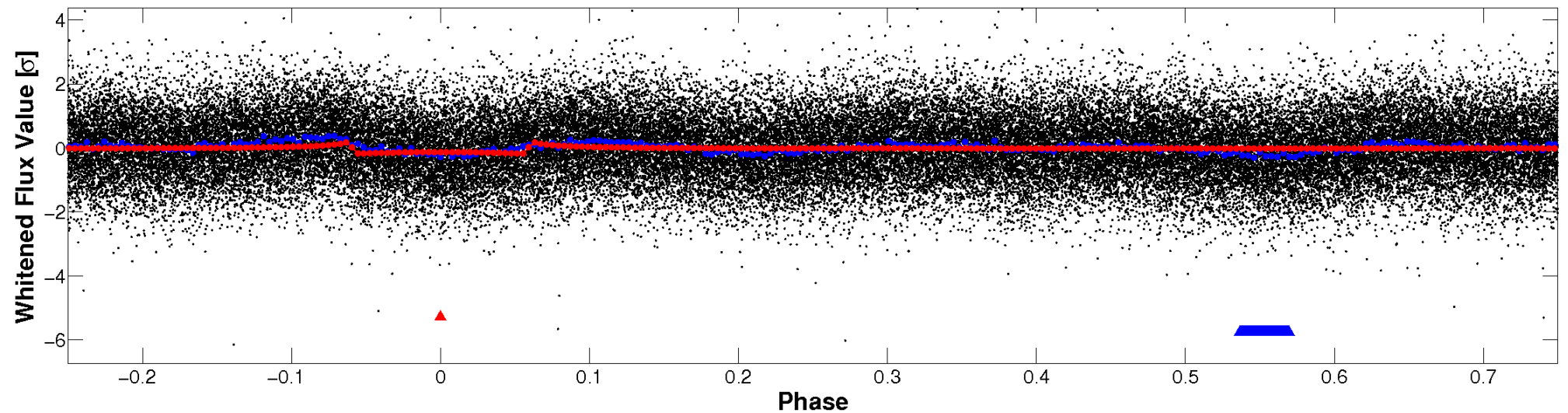


Non-Whitened Vs. Whitened Light Curve

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

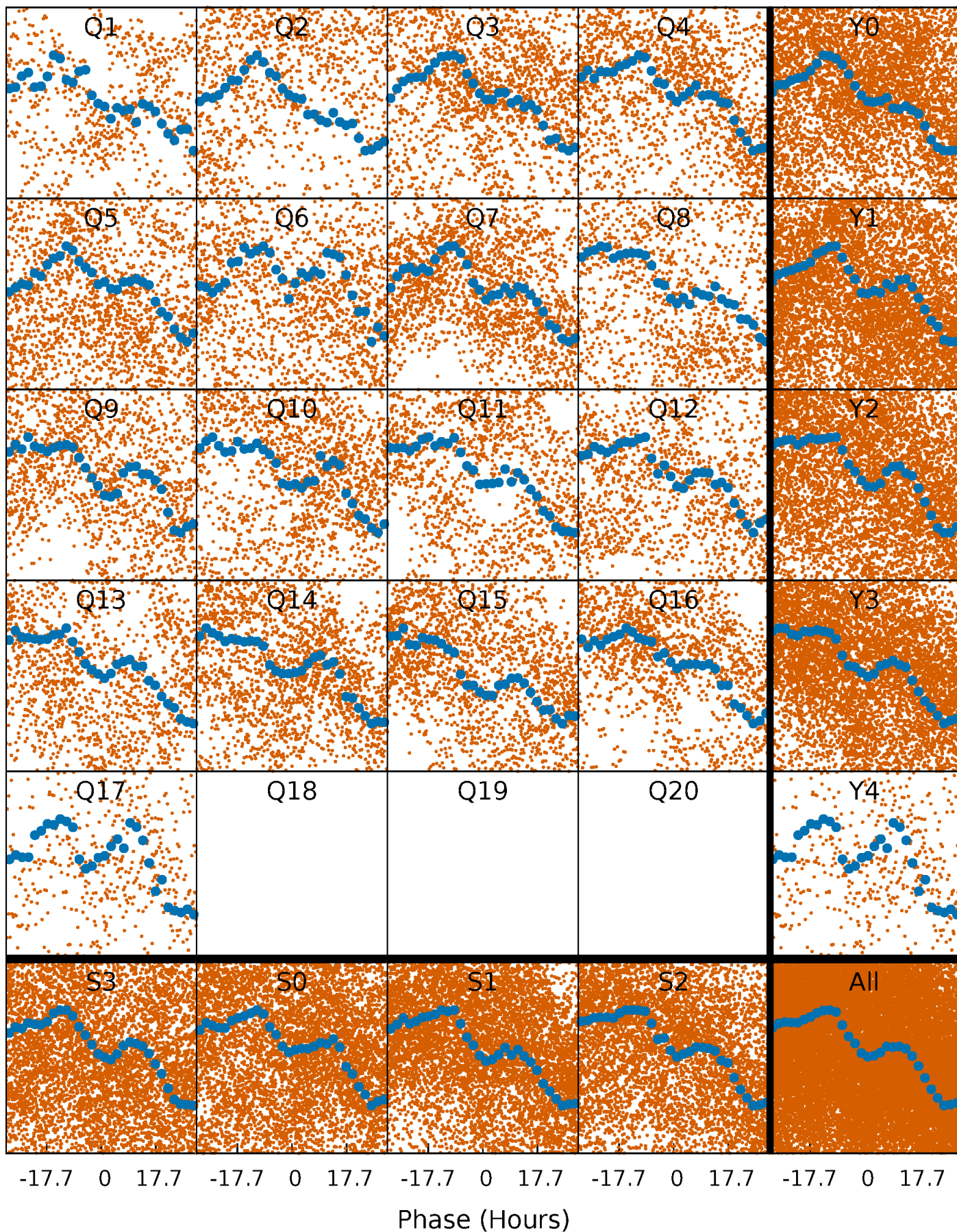


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



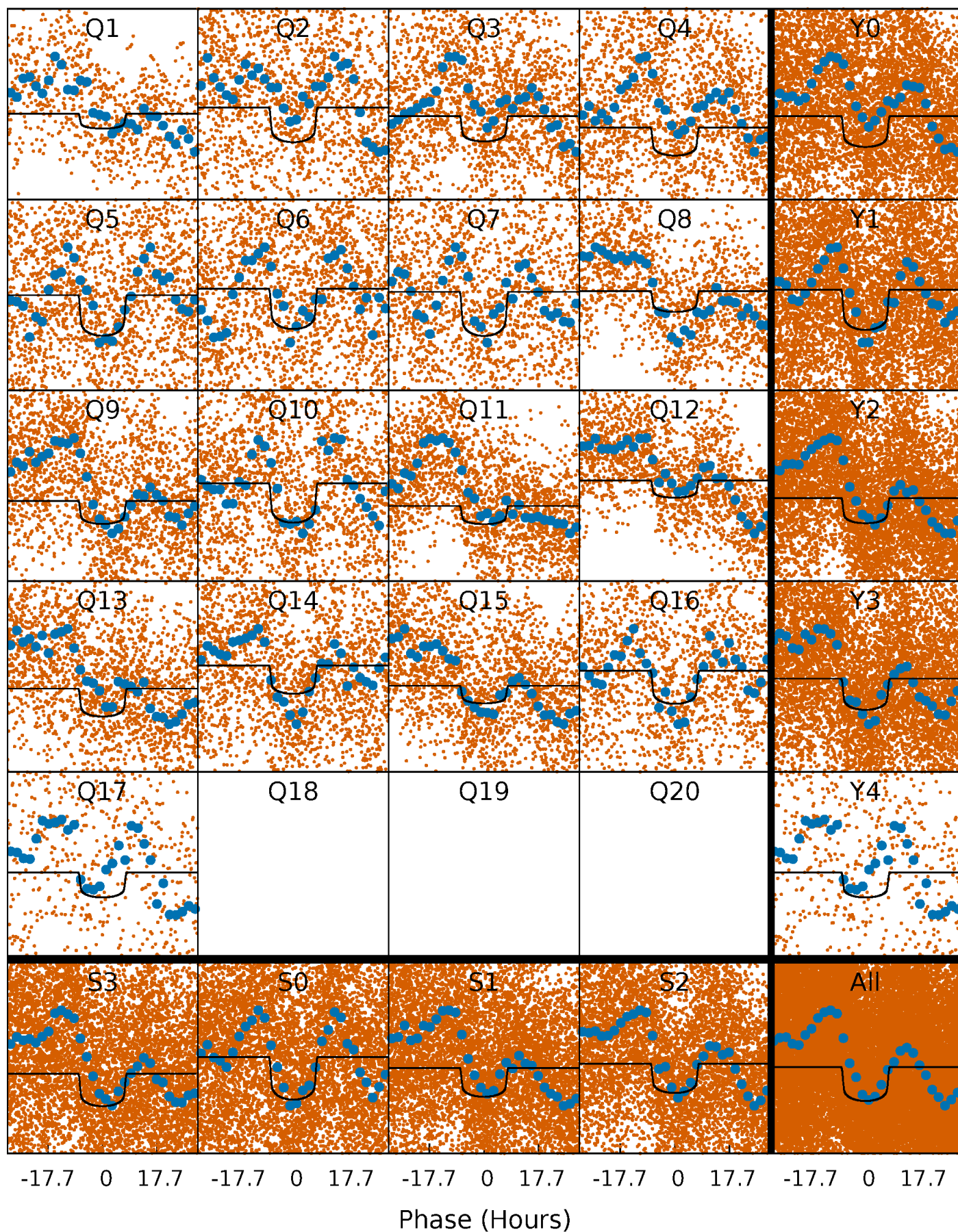
PDC Quarter-Phased Transit Curves

TCE 010198662-01 P= 5.163950 Days $T_0=132.055923$ (BKJD)



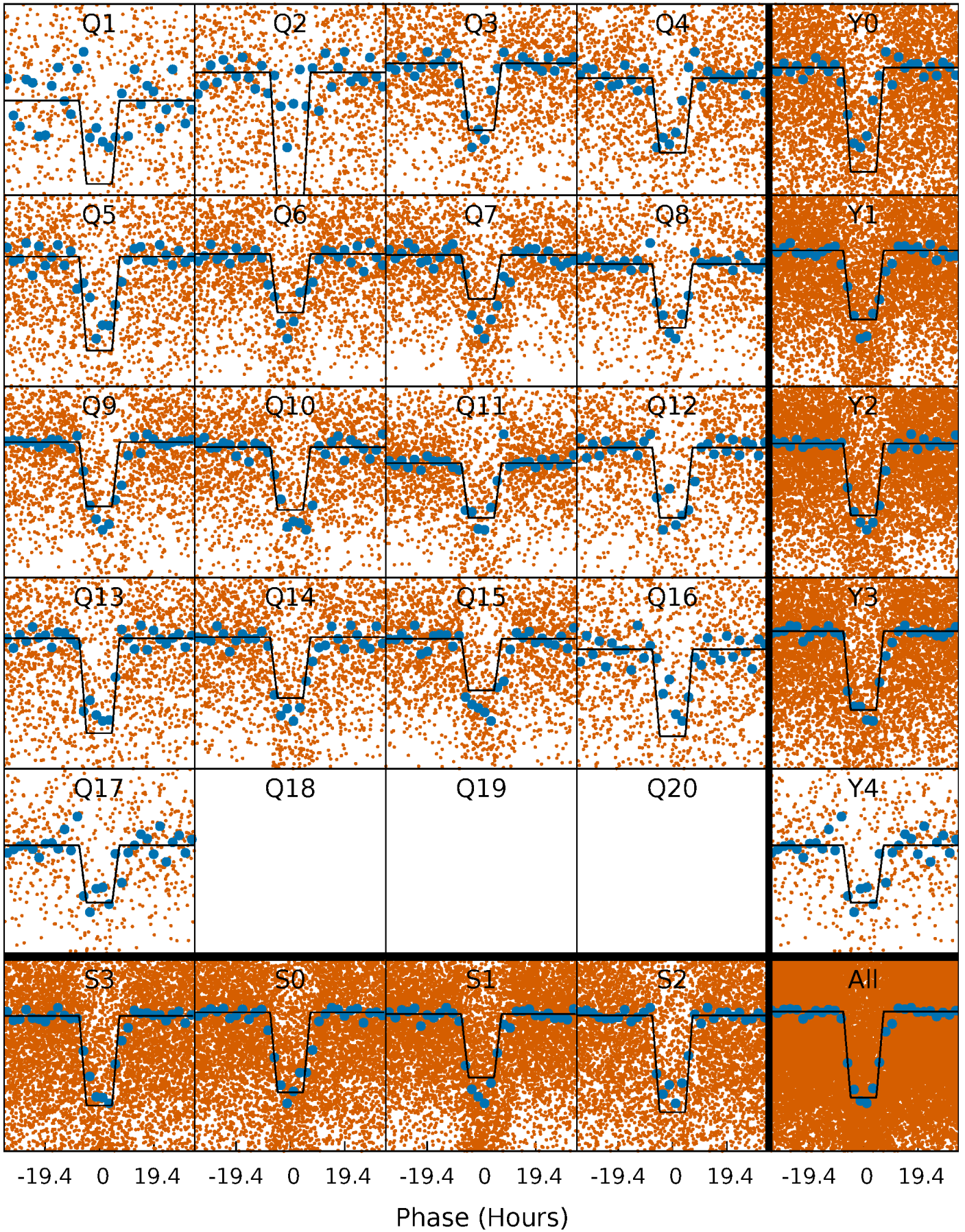
DV Quarter-Phased Transit Curves

TCE 010198662-01 P= 5.163950 Days $T_0=132.055923$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

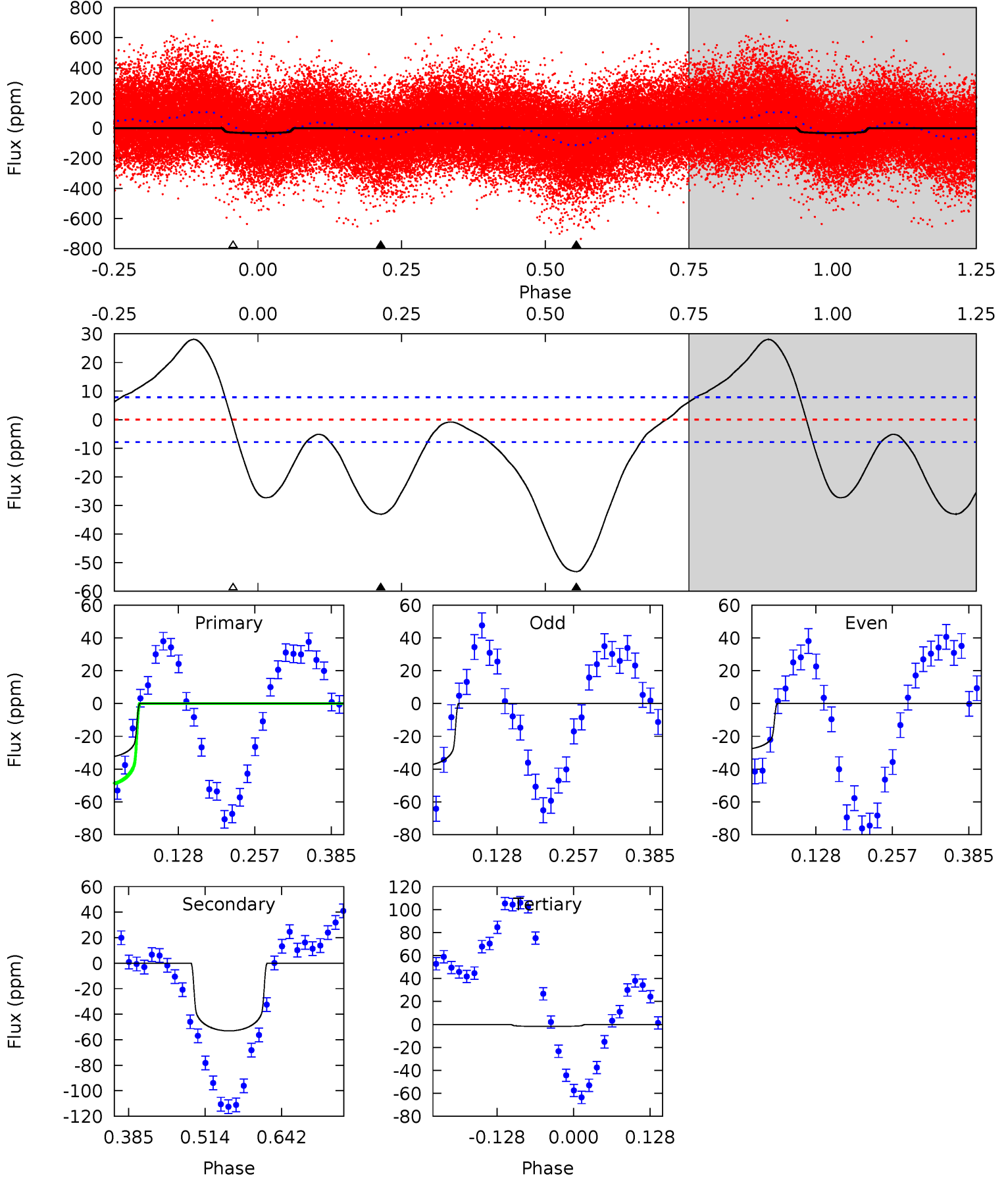
TCE 010198662-01 P= 5.163646 Days $T_0=132.074044$ (BKJD)



DV Model-Shift Uniqueness Test

010198662-01, P = 5.163950 Days, E = 126.891973 Days

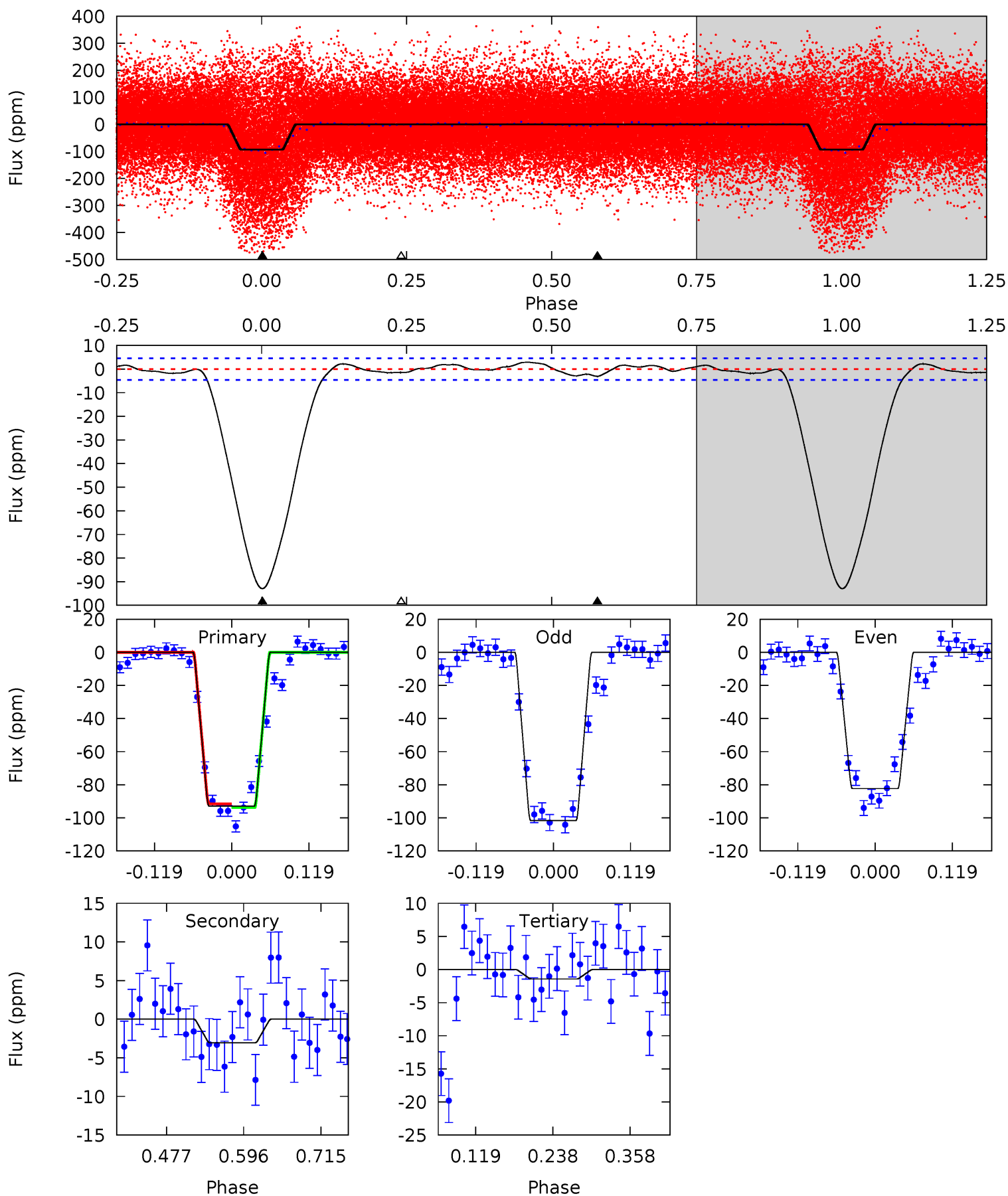
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	30.6	0.99	0	4.51	1.52	9.18	18.1	19.0	29.6	30.6	2.85	0.84	0.35	9.92



Alt Model-Shift Uniqueness Test

010198662-01, P = 5.163646 Days, E = 126.910398 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.3	3.03	1.42	0	4.53	1.56	1.23	90.9	92.3	1.61	3.03	9.53	0.98	0.03	1.05



Stellar Parameters For KIC 010198662

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6799^{+189}_{-283}	$4.178^{+0.136}_{-0.187}$	$0.000^{+0.250}_{-0.350}$	$1.589^{+0.511}_{-0.341}$	$1.391^{+0.208}_{-0.231}$	$0.489^{+0.329}_{-0.248}$
	+3%/-4%	+3%/-4%	+inf%/-inf%	+32%/-21%	+15%/-17%	+67%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010198662-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-53 ± 2	$1.49^{+0.25}_{-0.18}$	2069^{+166}_{-132}	6206^{+257}_{-259}	55^{+14}_{-14}
Alt.	-3 ± 1	$1.72^{+0.31}_{-0.21}$	2077^{+169}_{-144}	3287^{+209}_{-214}	$2.260^{+1.193}_{-0.837}$

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

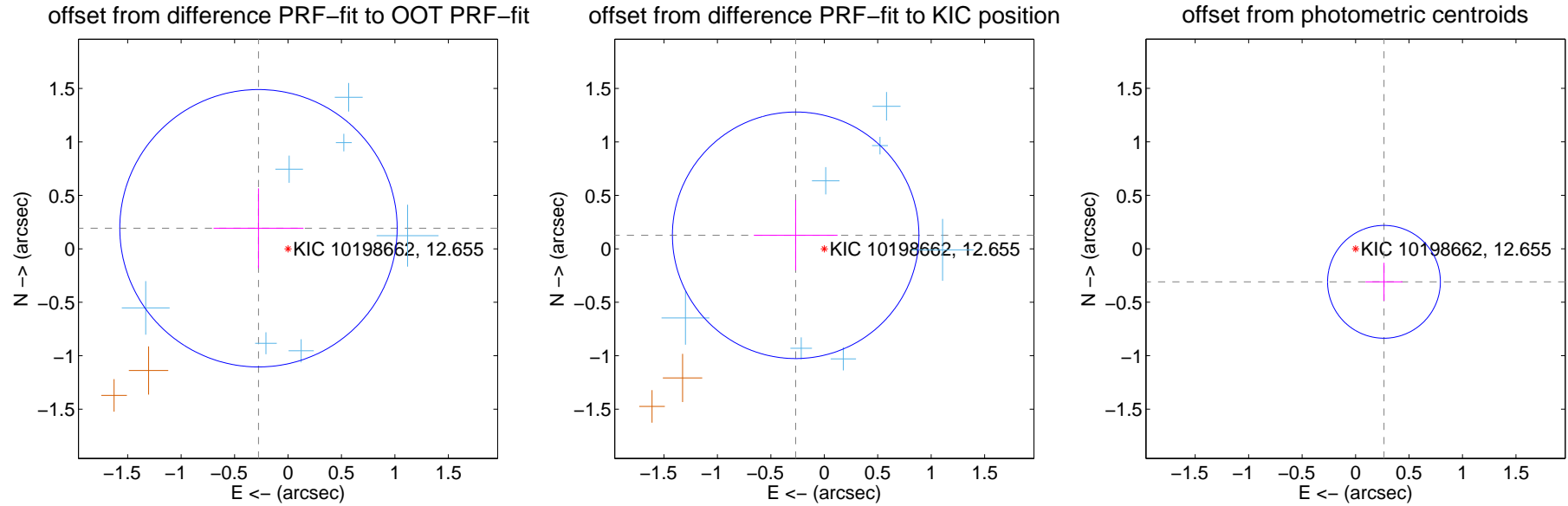
DV Centroid Data

Supplemental centroid analysis for 010198662-01. Kepler magnitude: 12.65. Transit SNR 14.12

There are 9 quarters with good PRF difference image offsets

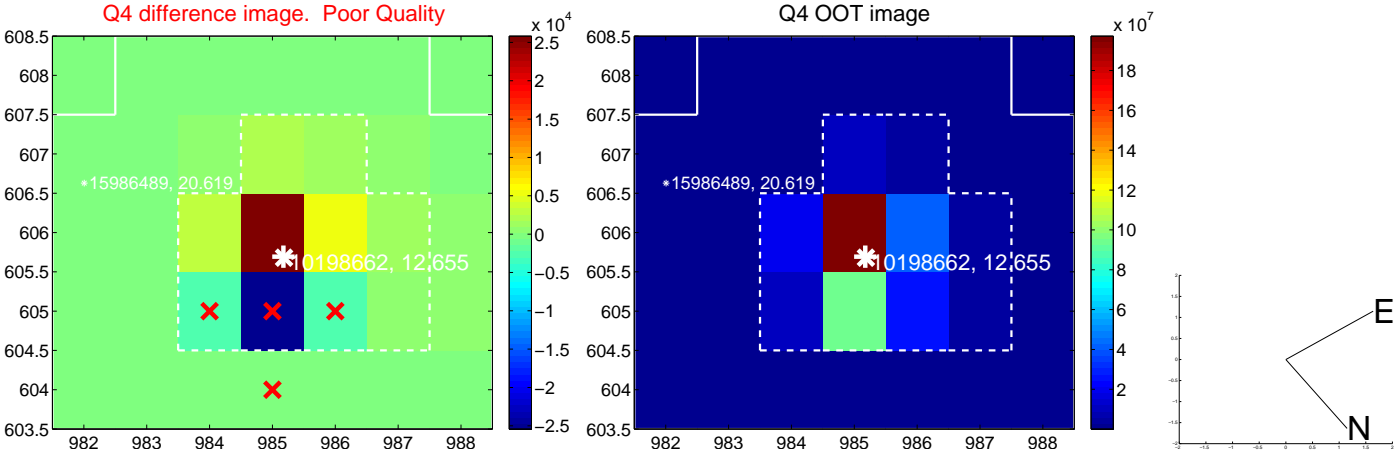
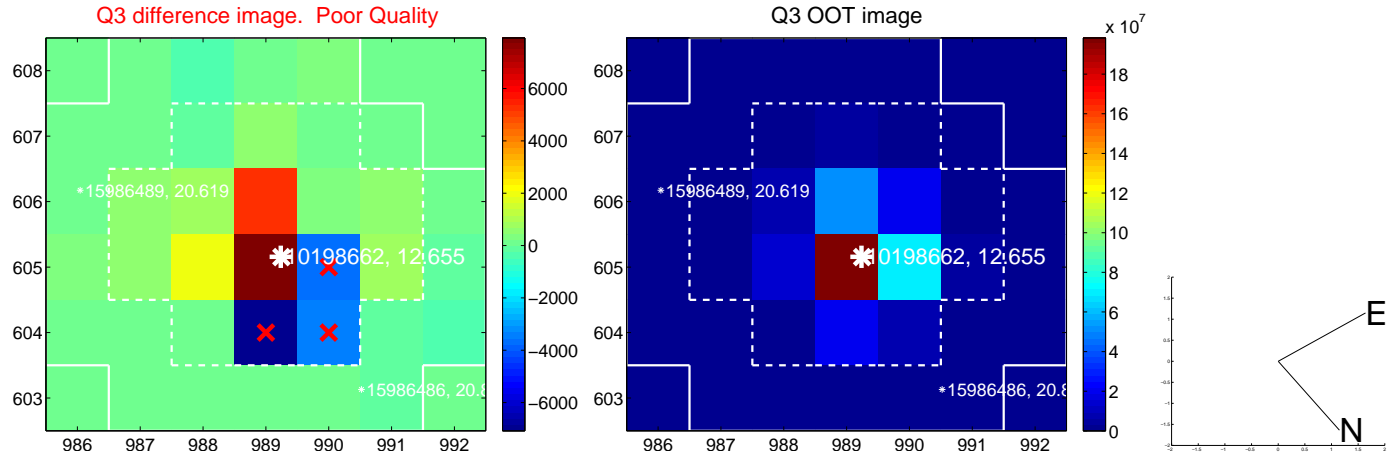
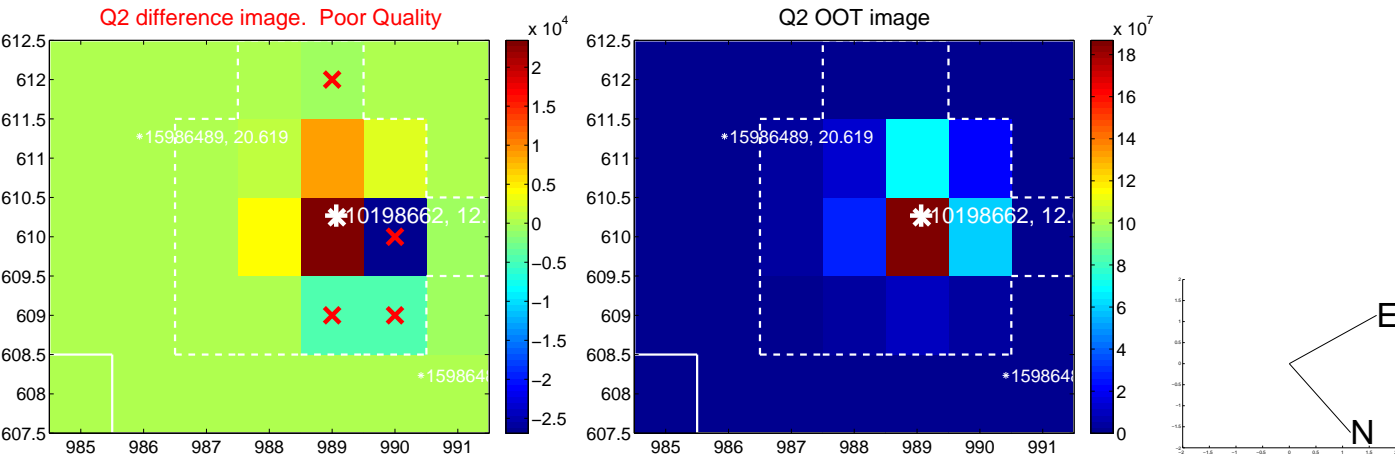
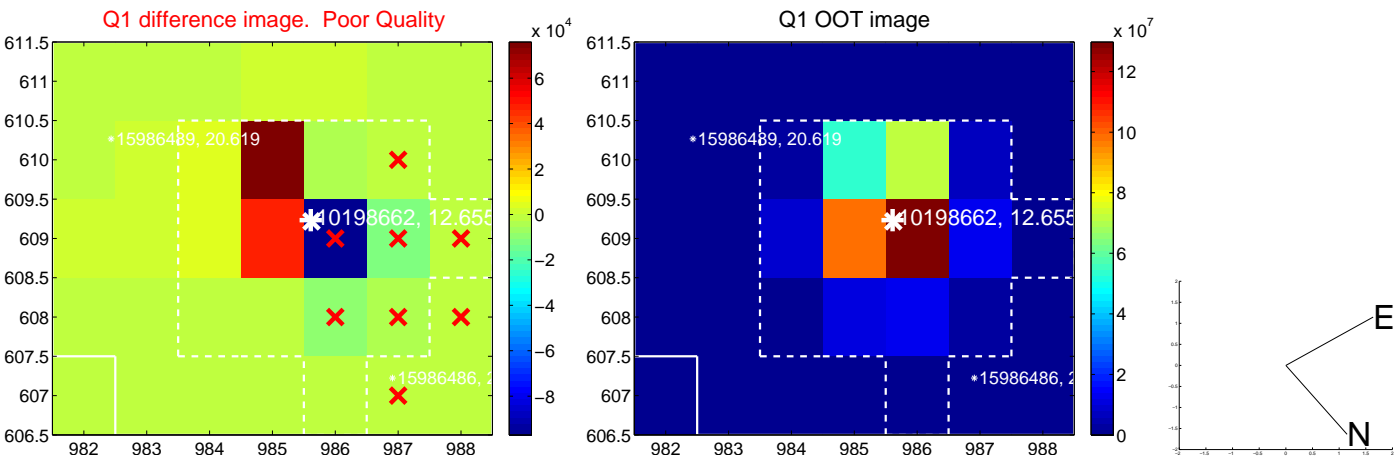
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.337 ± 0.432	0.78	0.276 ± 0.420	0.192 ± 0.373
PRF-fit source offset from KIC position	0.296 ± 0.384	0.77	0.268 ± 0.391	0.127 ± 0.329
photometric centroid source offset	0.41 ± 0.18	2.32	-0.27 ± 0.17	-0.31 ± 0.18

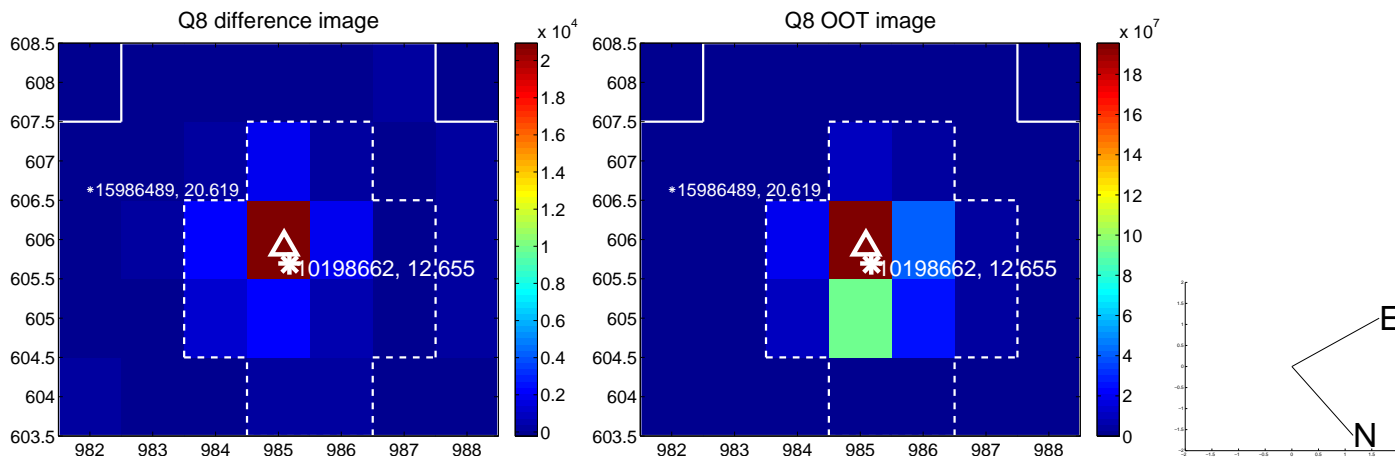
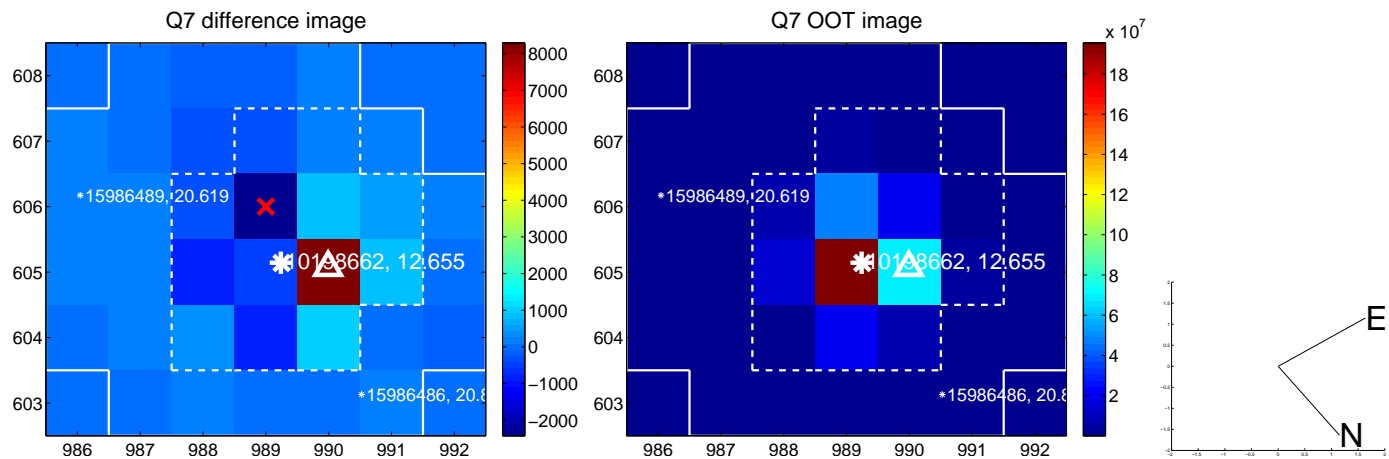
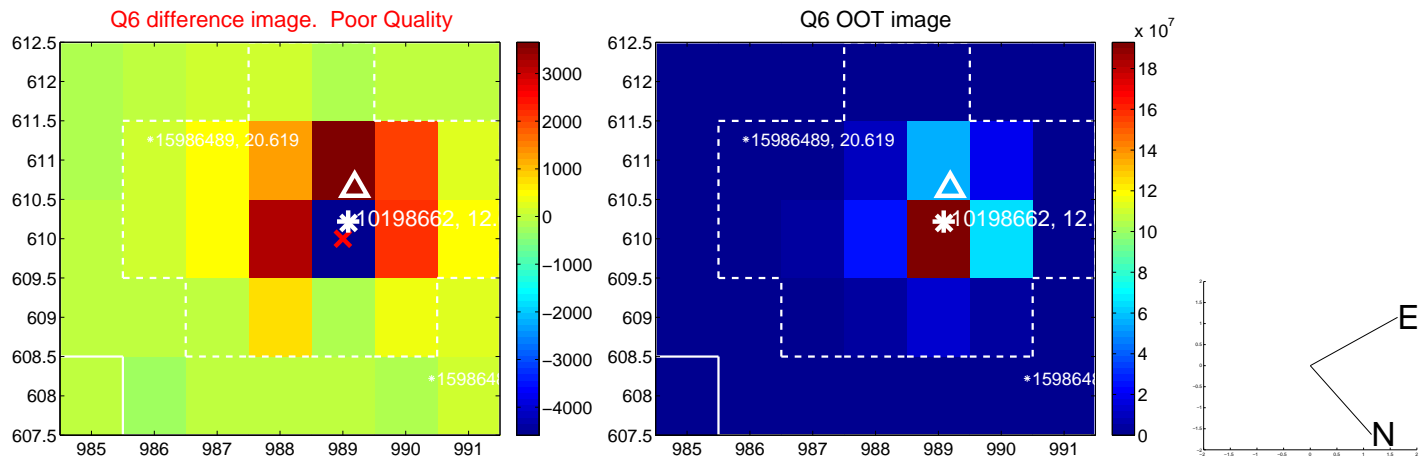
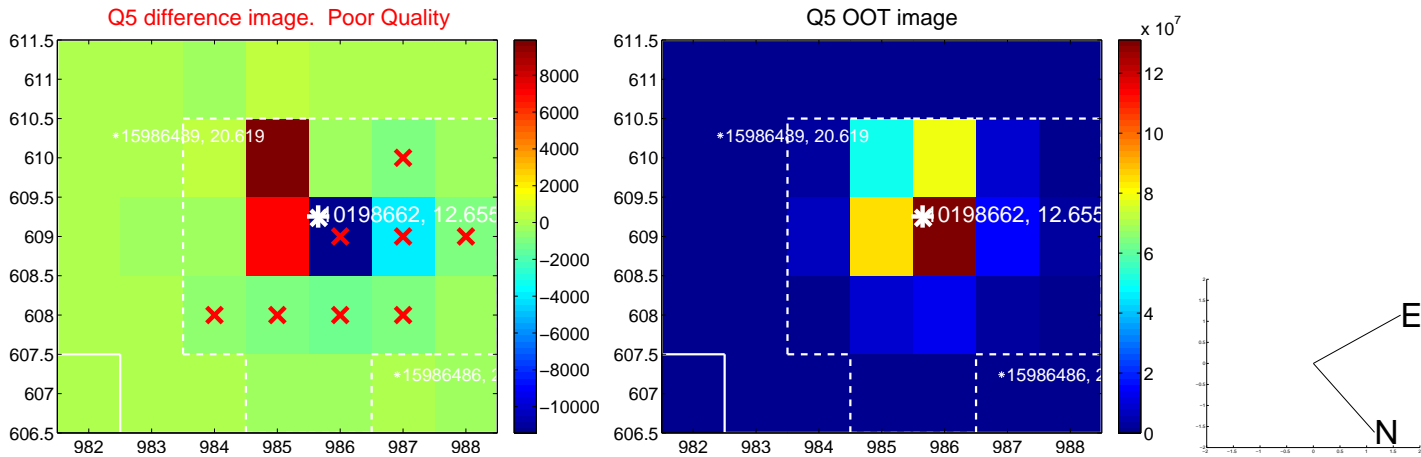


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

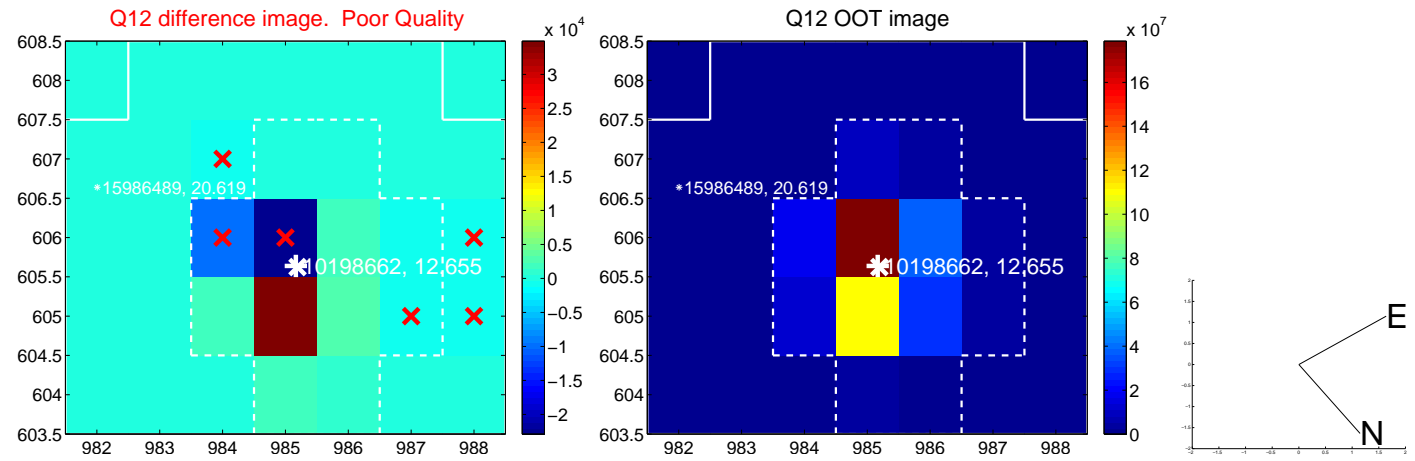
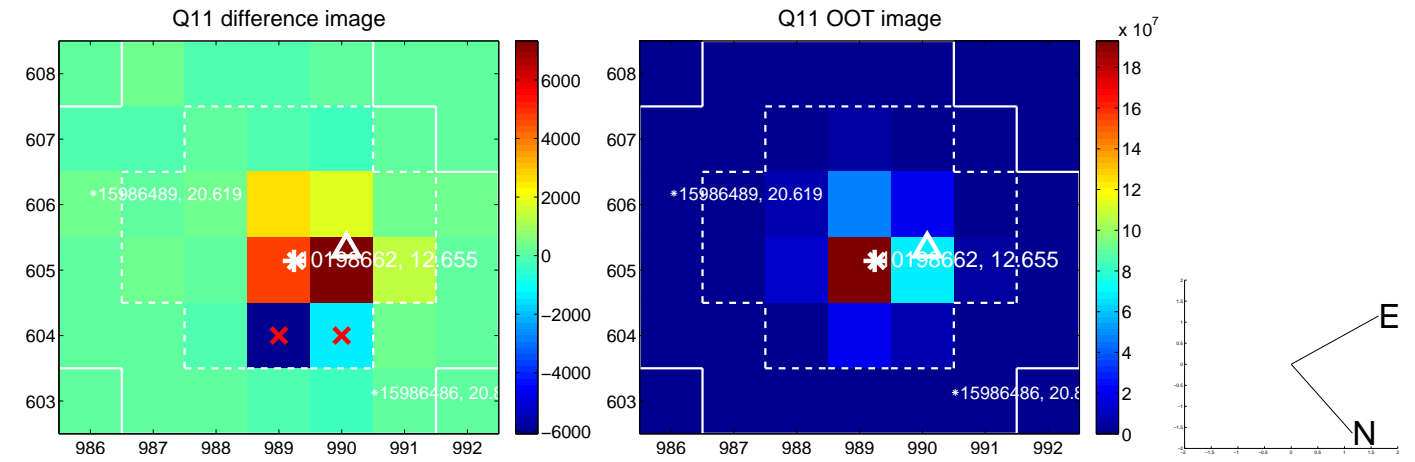
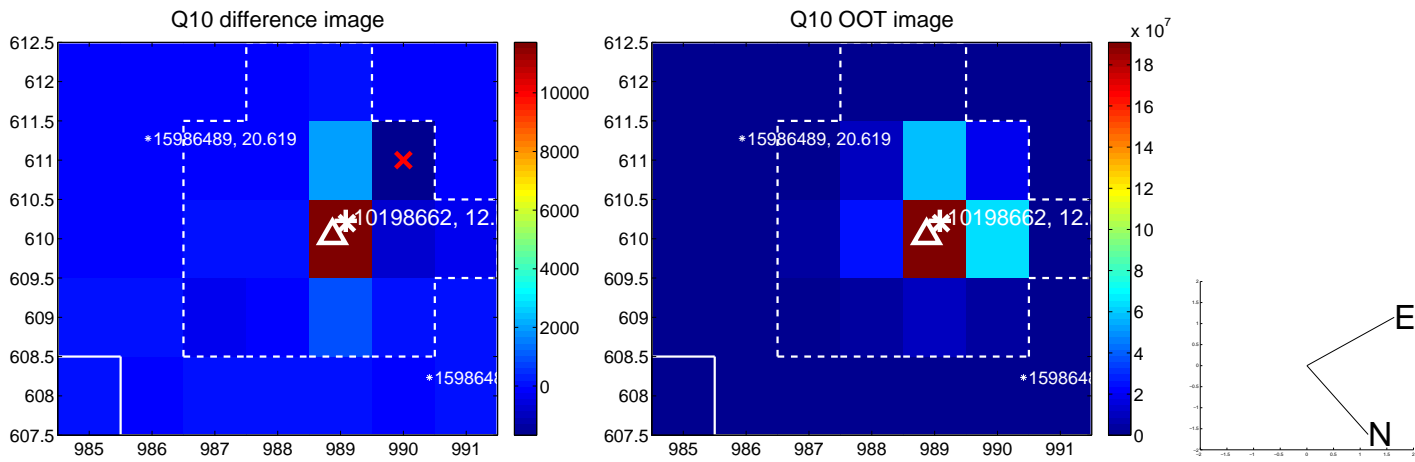
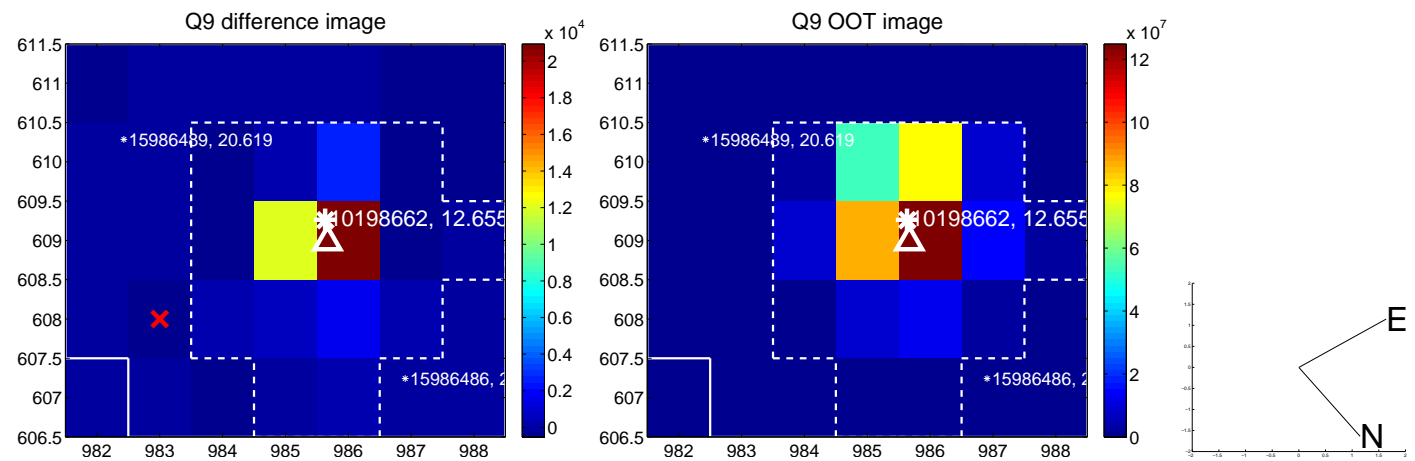
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



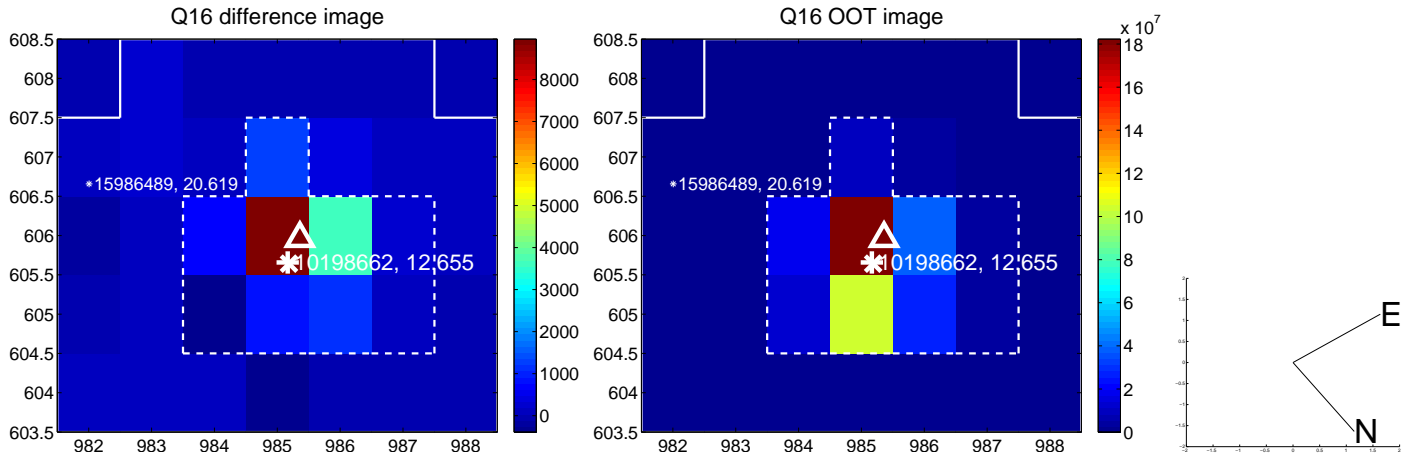
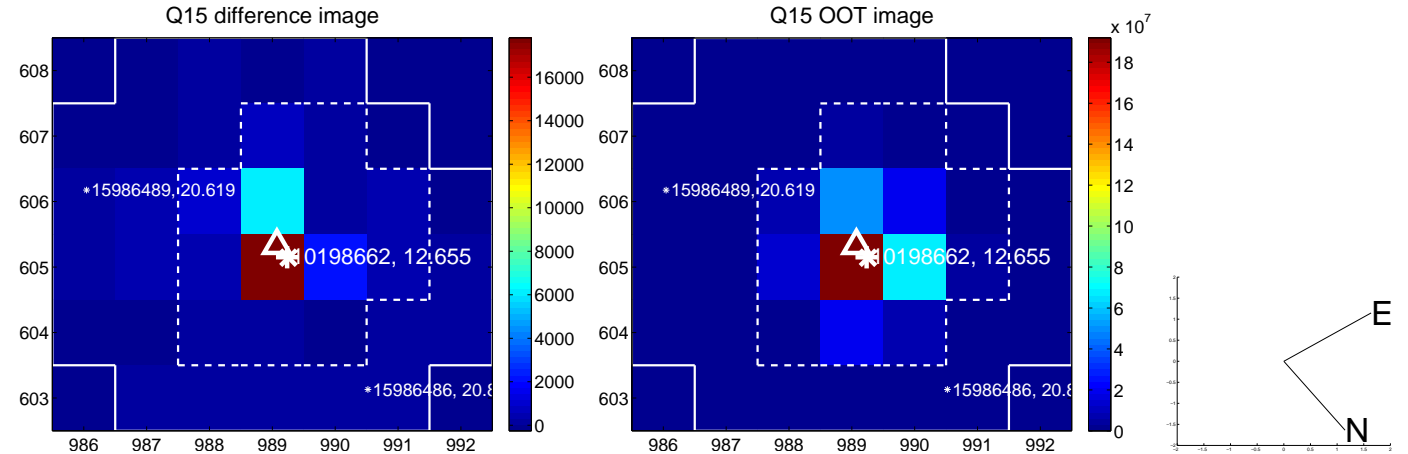
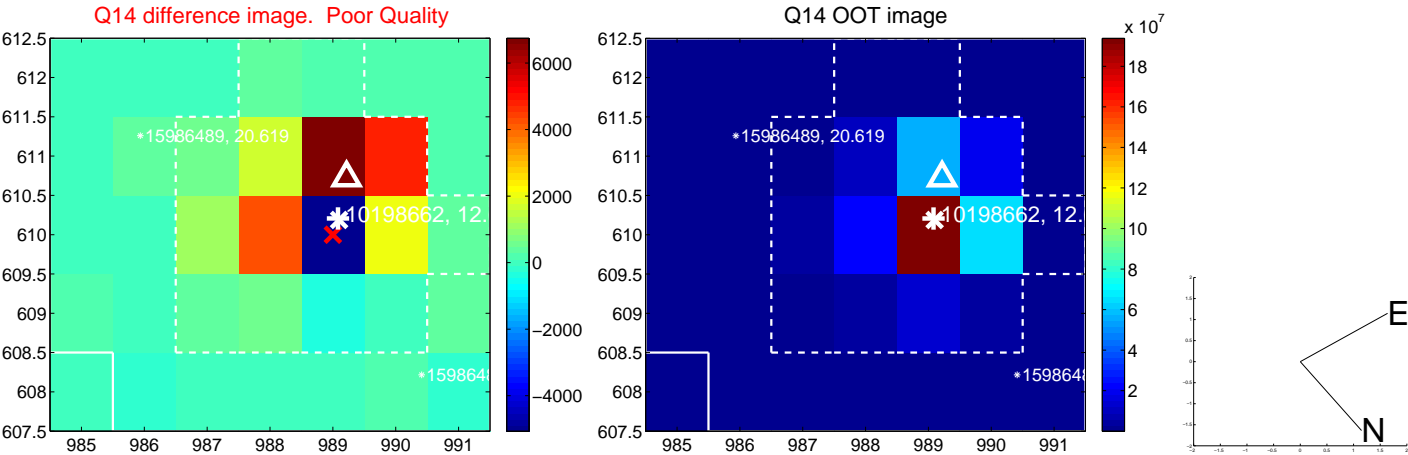
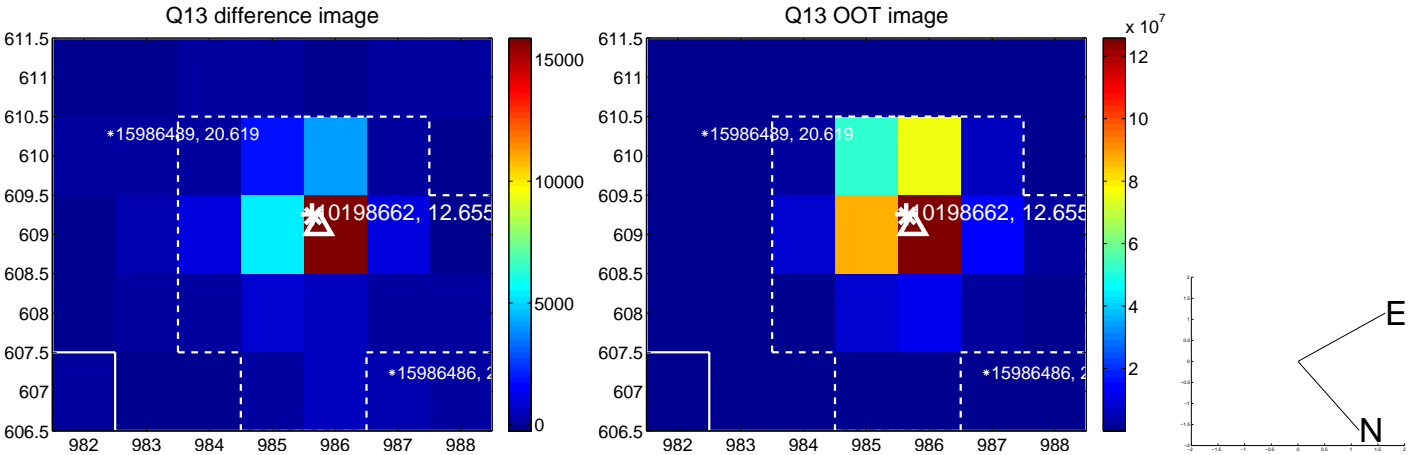
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



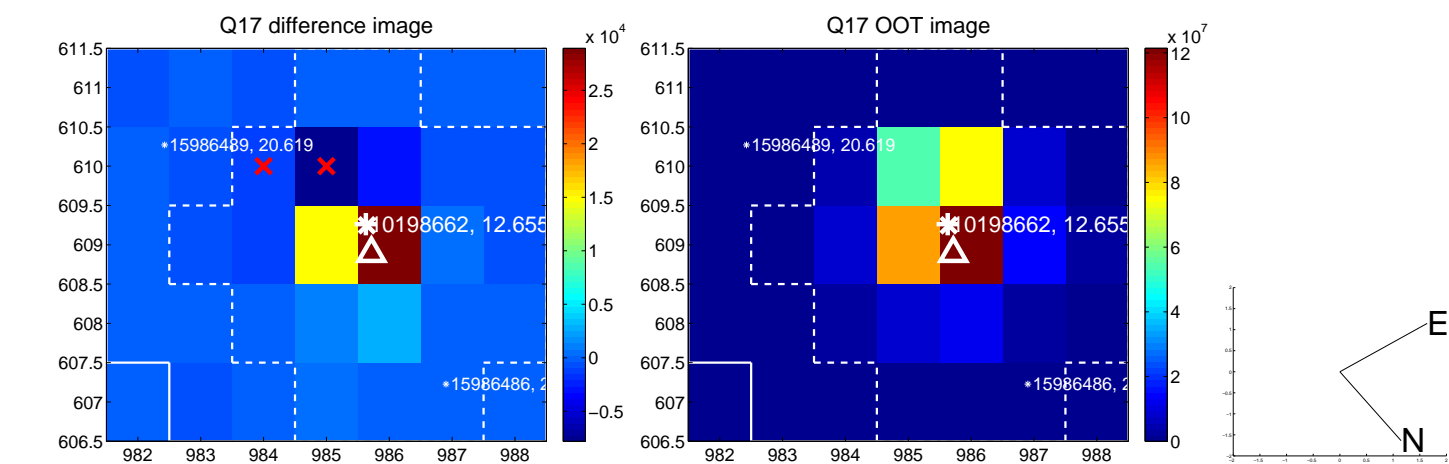
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



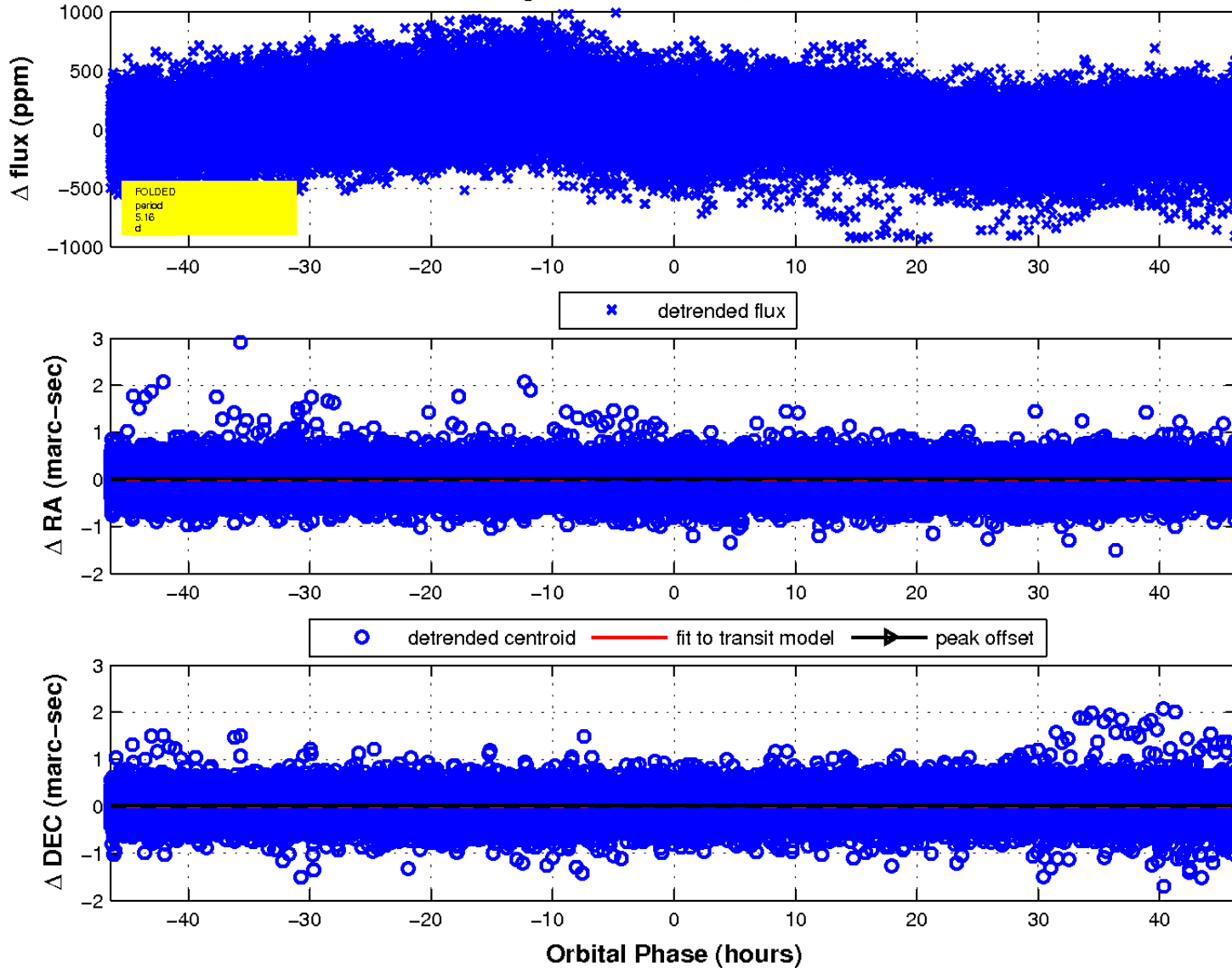
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

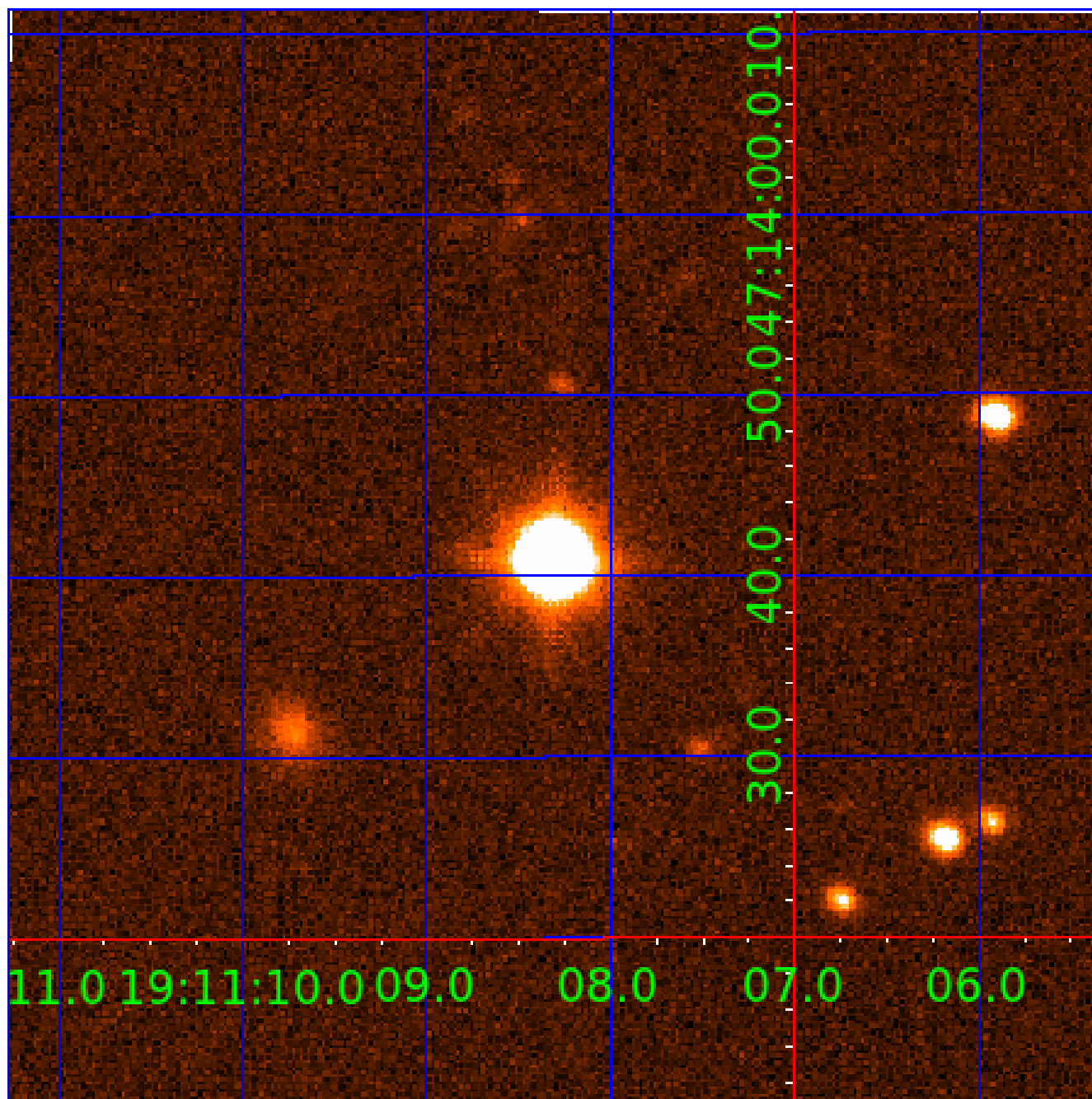


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010198662

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})
010198662-01	OBS	No	5.163950	132.055923	63.5	15.474	16.1	14.1	1.59	6799	1.49	1136.18
010198662-02	OBS	No	5.163344	134.996857	93.4	22.184	18.2	19.9	1.59	6799	3.07	1136.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010198662-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
010198662-02	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

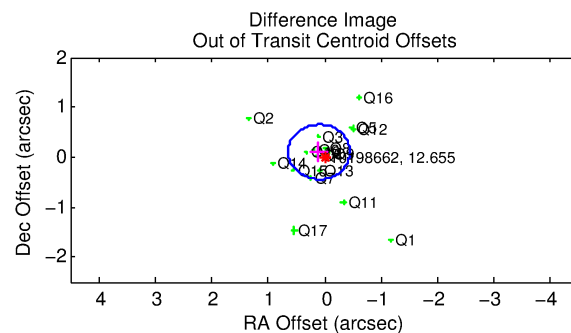
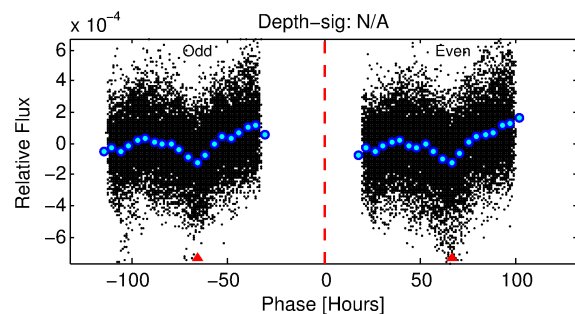
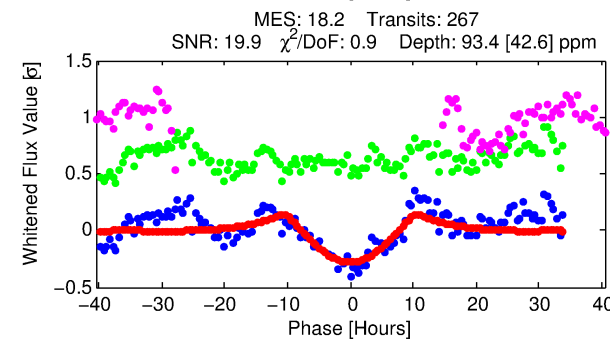
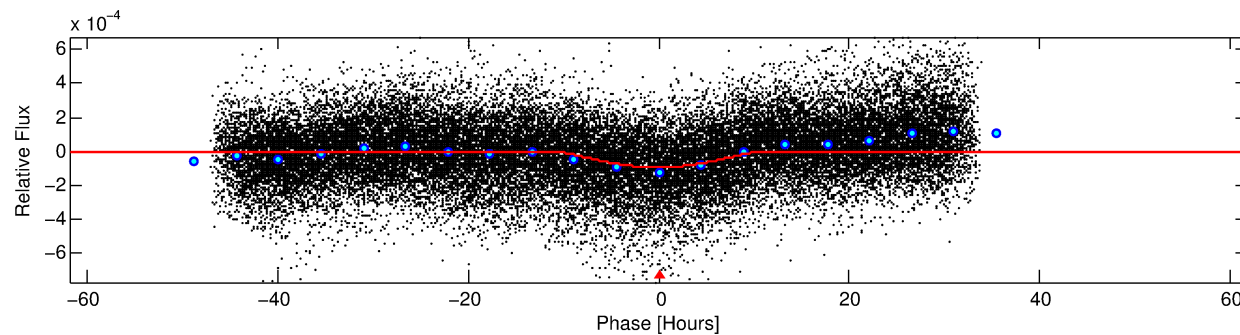
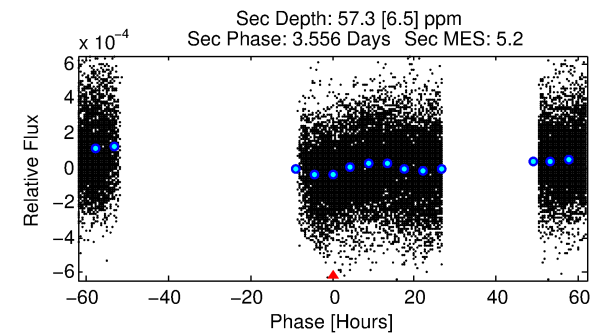
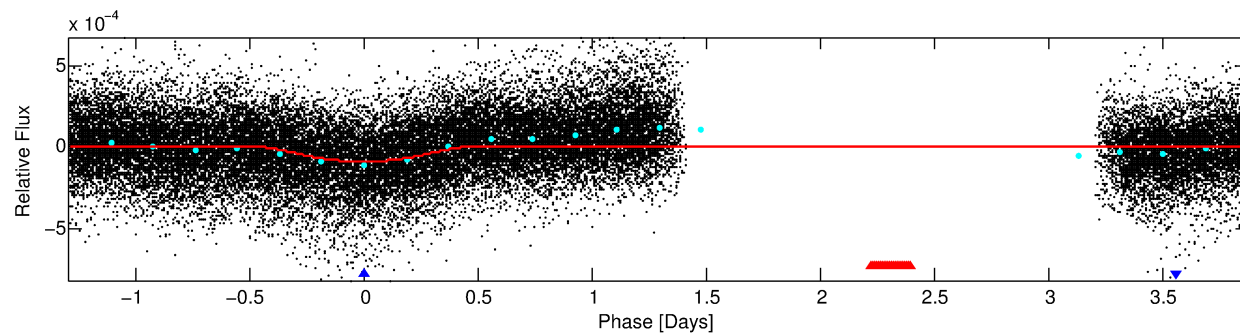
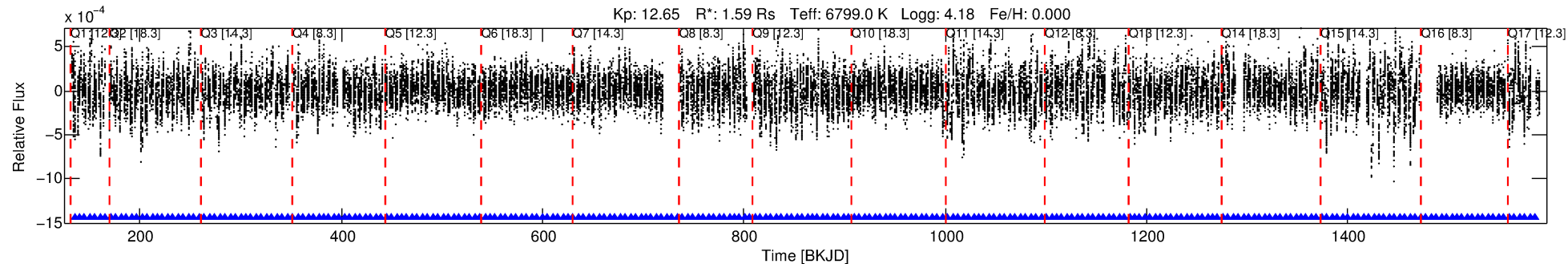
Ephemeris Match Information For 010198662-02

No Significant Match Found

DV One-Page Summary

KIC: 10198662 Candidate: 2 of 2 Period: 5.163 d
KOI: K06216 Corr: No Ephemeris Match

Kp: 12.65 R*: 1.59 Rs Teff: 6799.0 K Logg: 4.18 Fe/H: 0.000



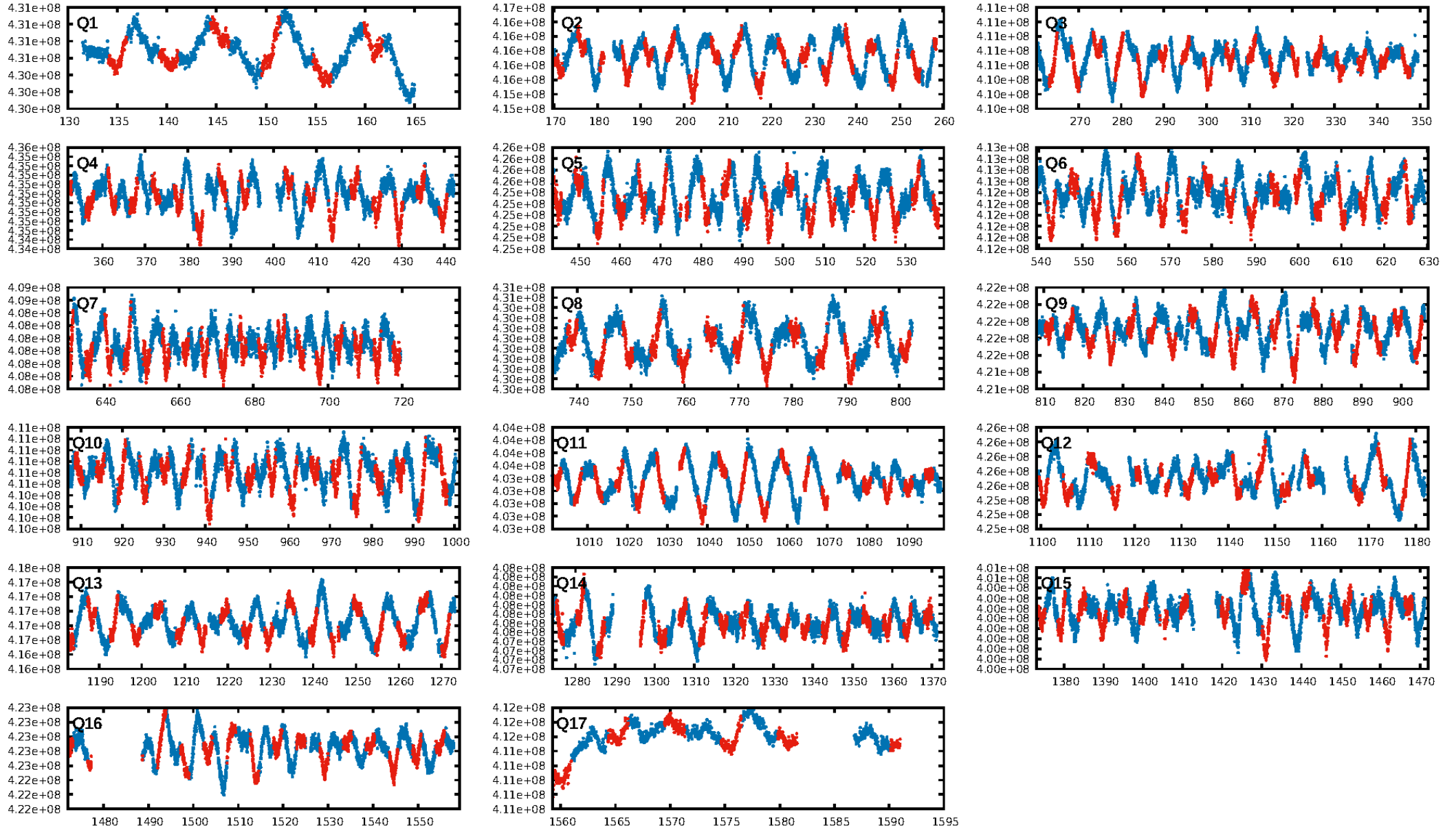
DV Fit Results:

Period = 5.16334 [0.00011] d
Epoch = 134.9969 [0.0173] BKJD
Rp/R* = 0.0177 [0.0139]
a/R* = 1.06 [0.01]
b = 1.00 [0.03]
Seff = 1136.36 [448.95]
Teq = 1480 [146] K
Rp = 3.07 [2.60] Re
a = 0.0652 [0.0168] AU
Ag = 14.20 [22.85] [0.58σ]
Teffp = 4443 [1752] K [1.69σ]

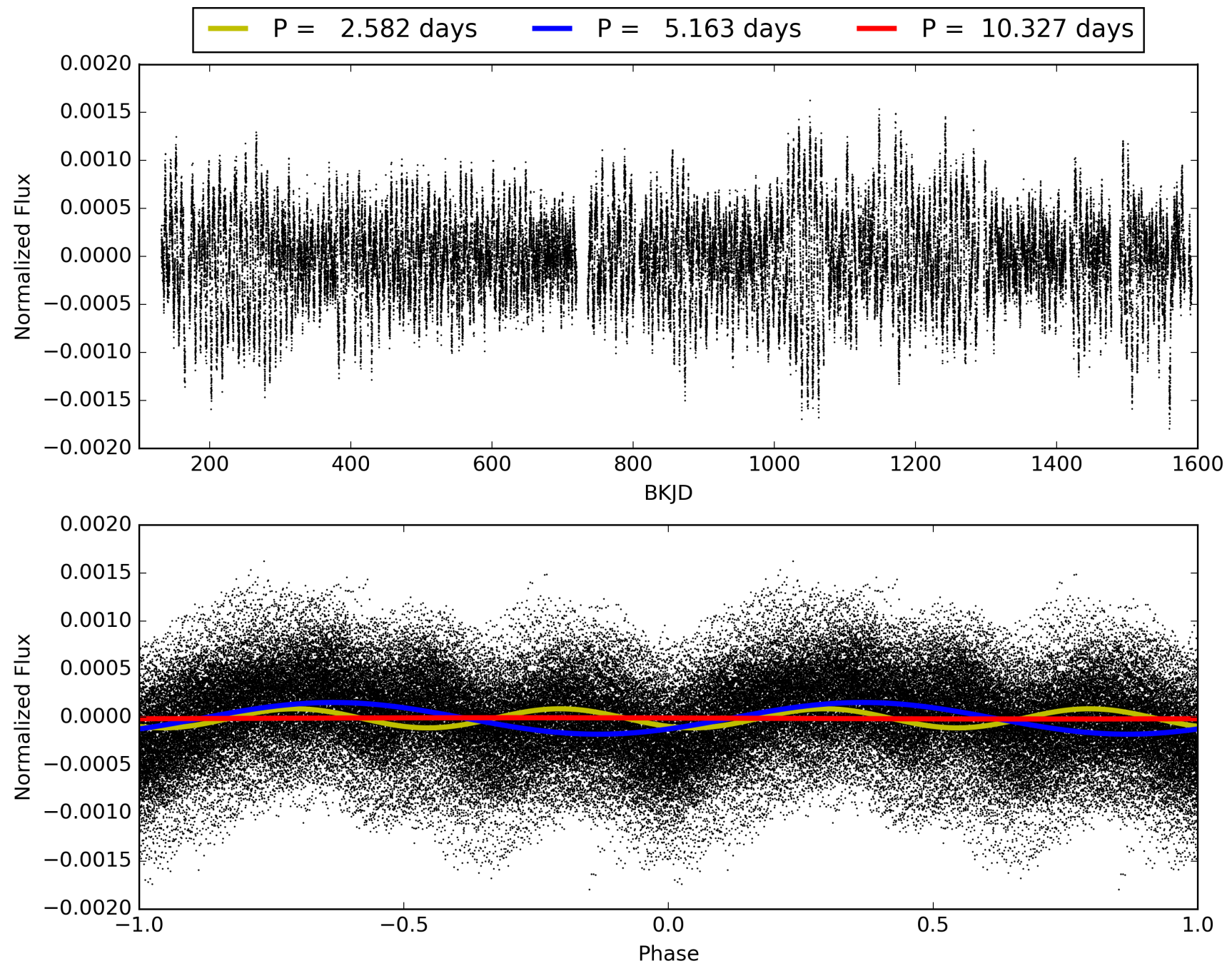
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.75e-37
RollingBand-fgt: 1.00 [255/255]
GhostDiagnostic-chr: 2.016
Centroid-sig: 0.0%
Centroid-so: 0.439 arcsec [3.20σ]
OotOffset-rm: 0.146 arcsec [0.80σ]
KicOffset-rm: 0.096 arcsec [0.64σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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TCE 010198662-02, PDC Light Curves

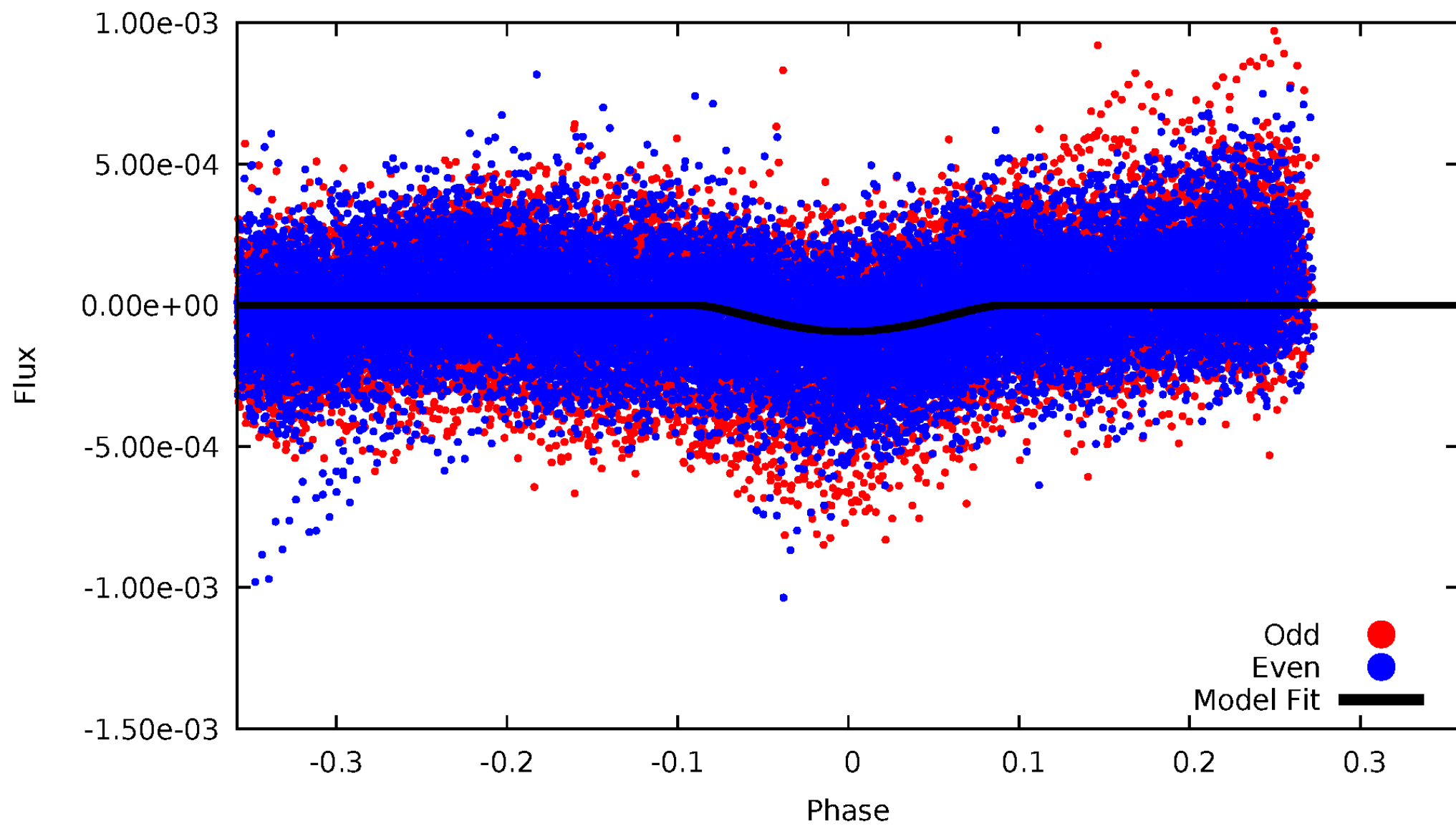


TCE 010198662-02



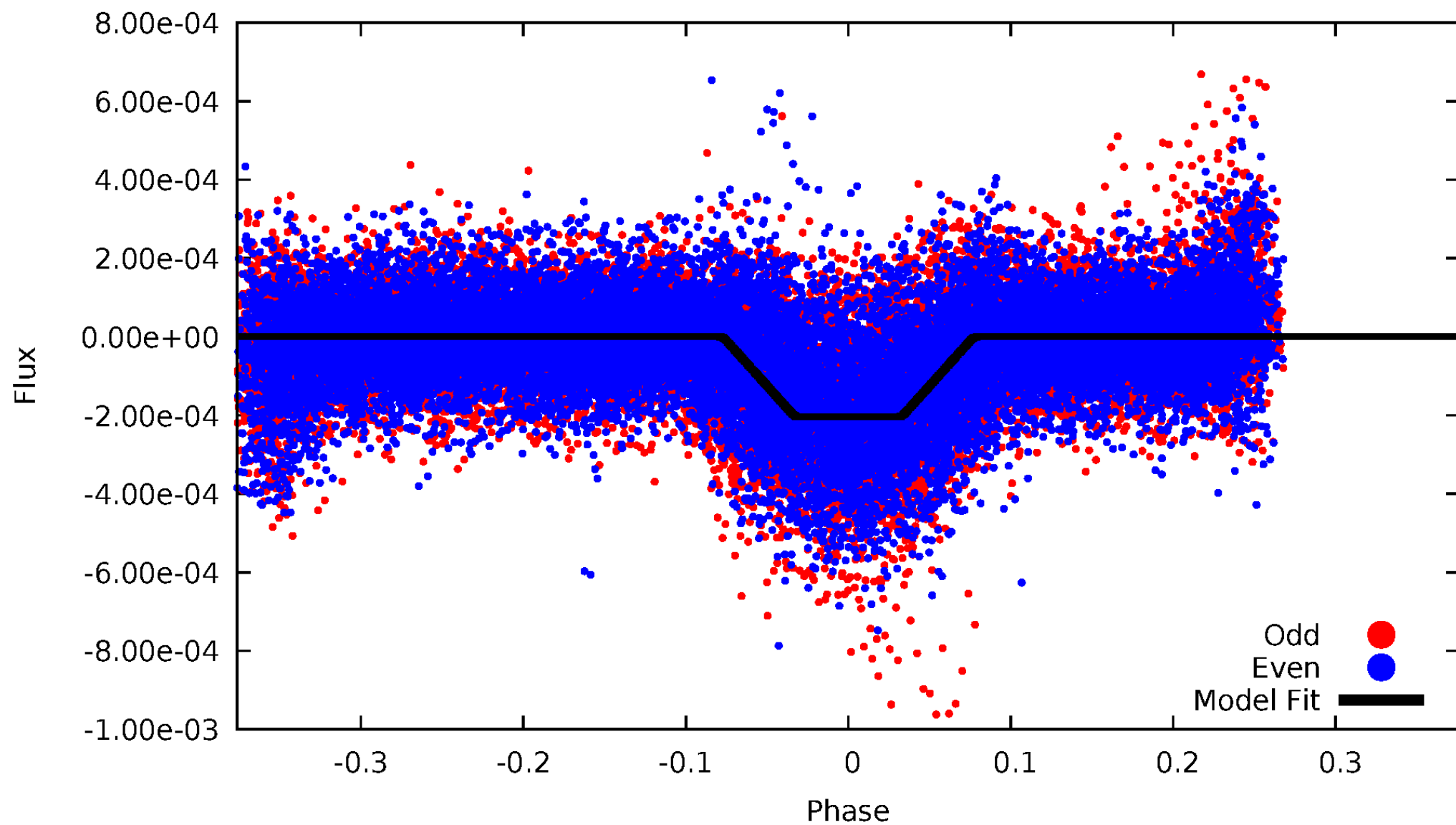
DV Odd/Even

TCE 010198662-02



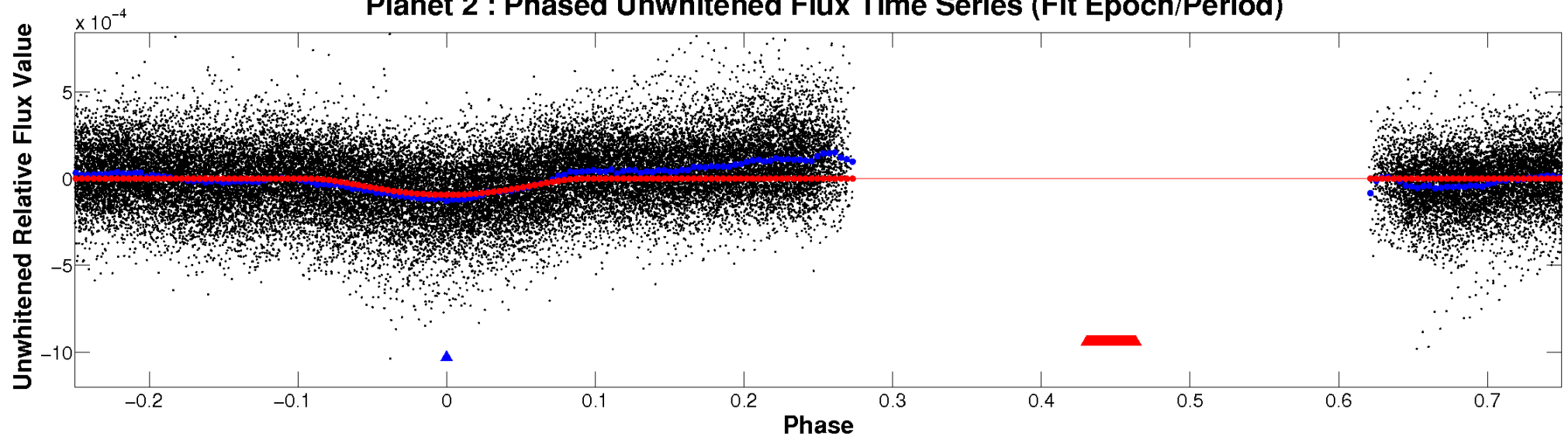
ALT Odd/Even

TCE 010198662-02

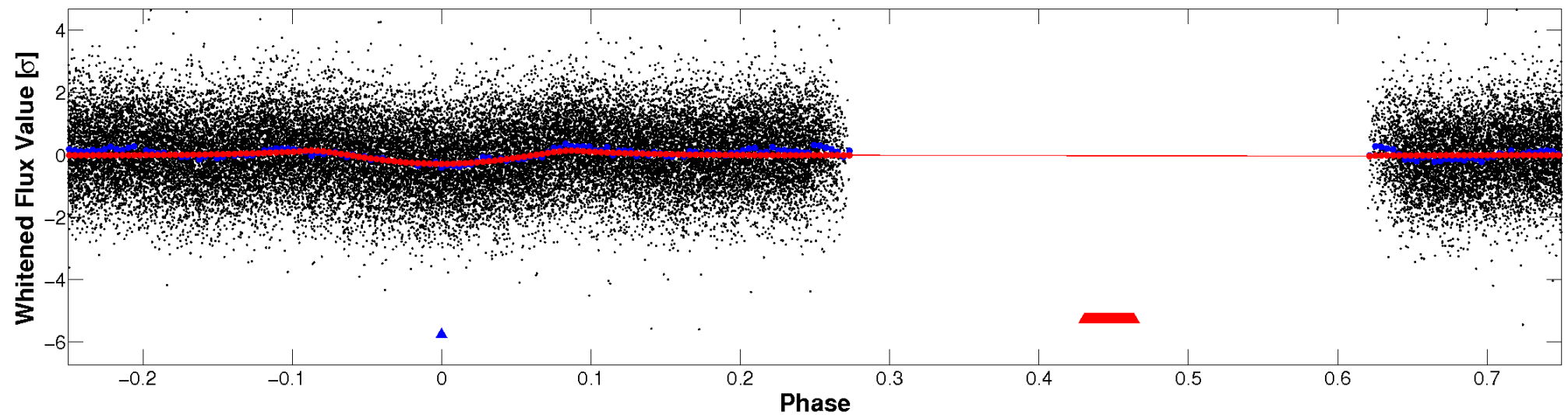


Non-Whitened Vs. Whitened Light Curve

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

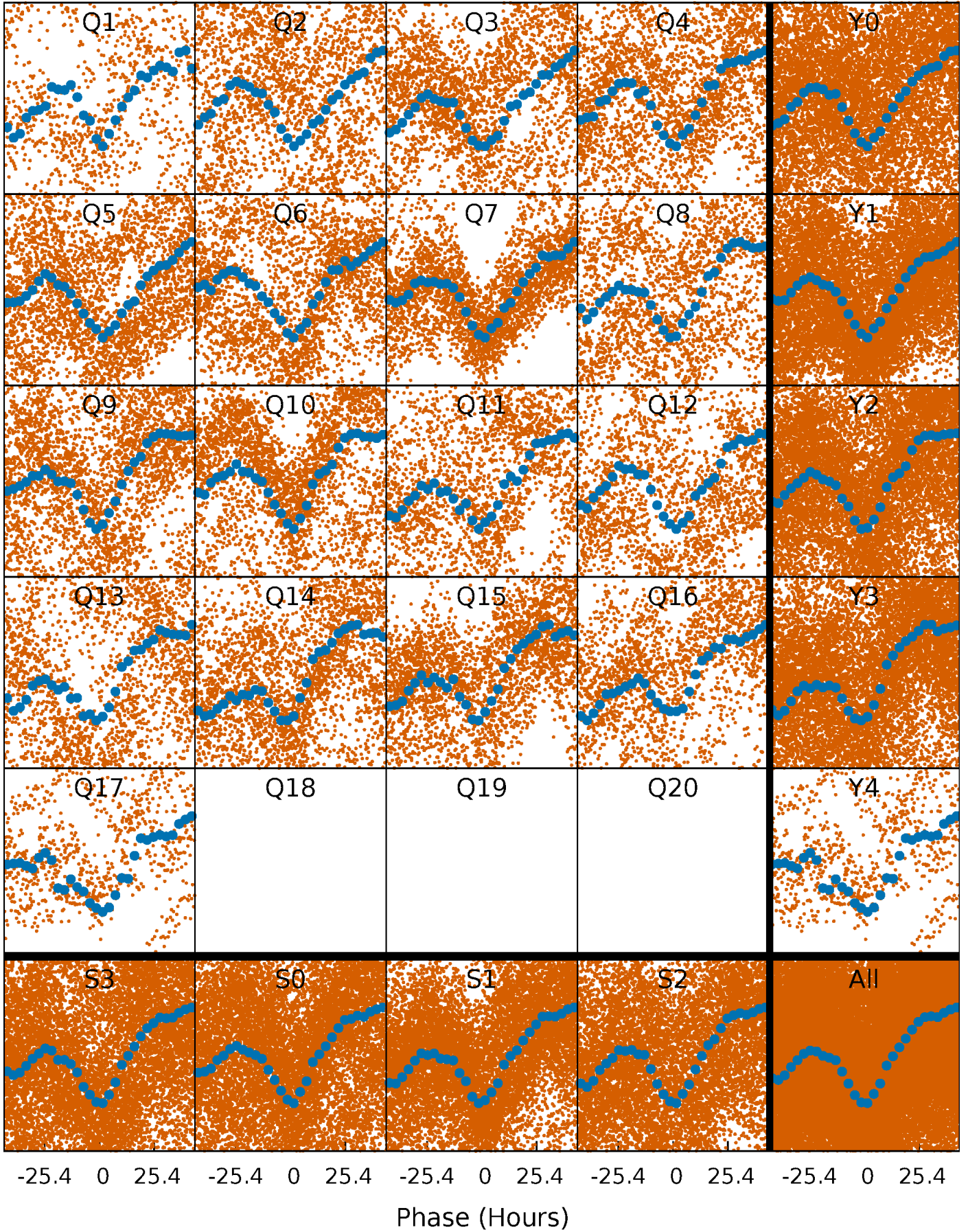


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



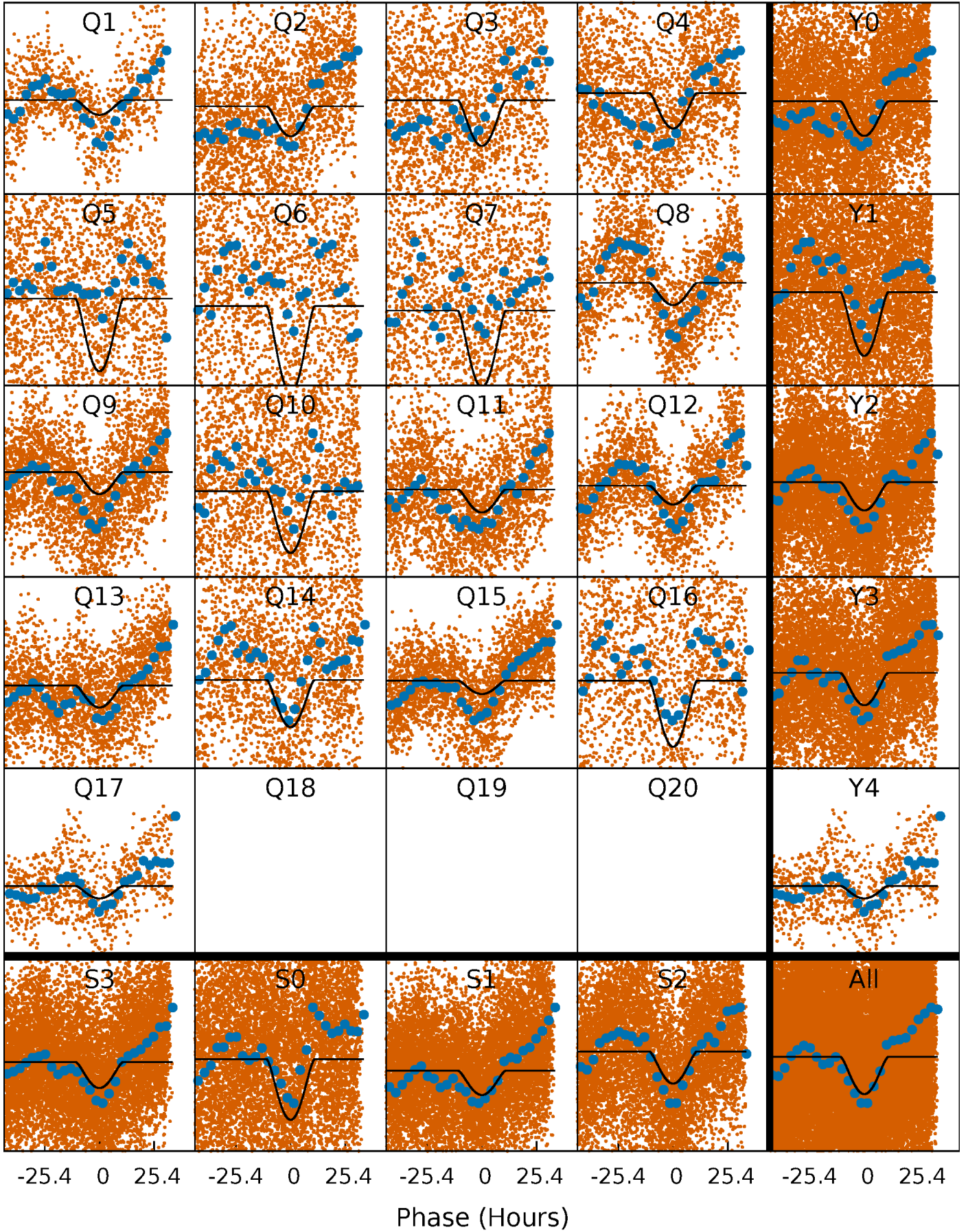
PDC Quarter-Phased Transit Curves

TCE 010198662-02 P= 5.163344 Days $T_0=134.996857$ (BKJD)



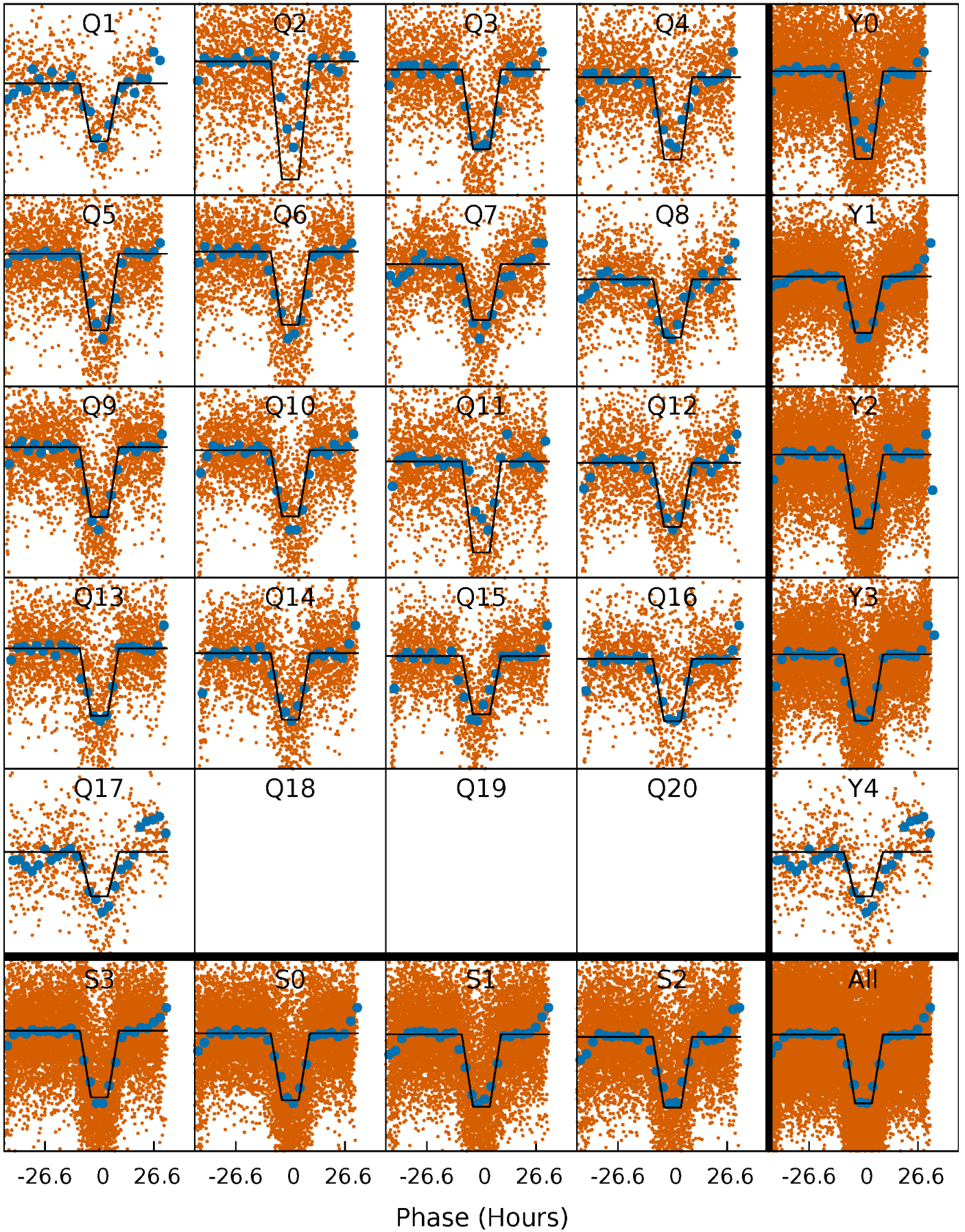
DV Quarter-Phased Transit Curves

TCE 010198662-02 P= 5.163344 Days $T_0=134.996857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

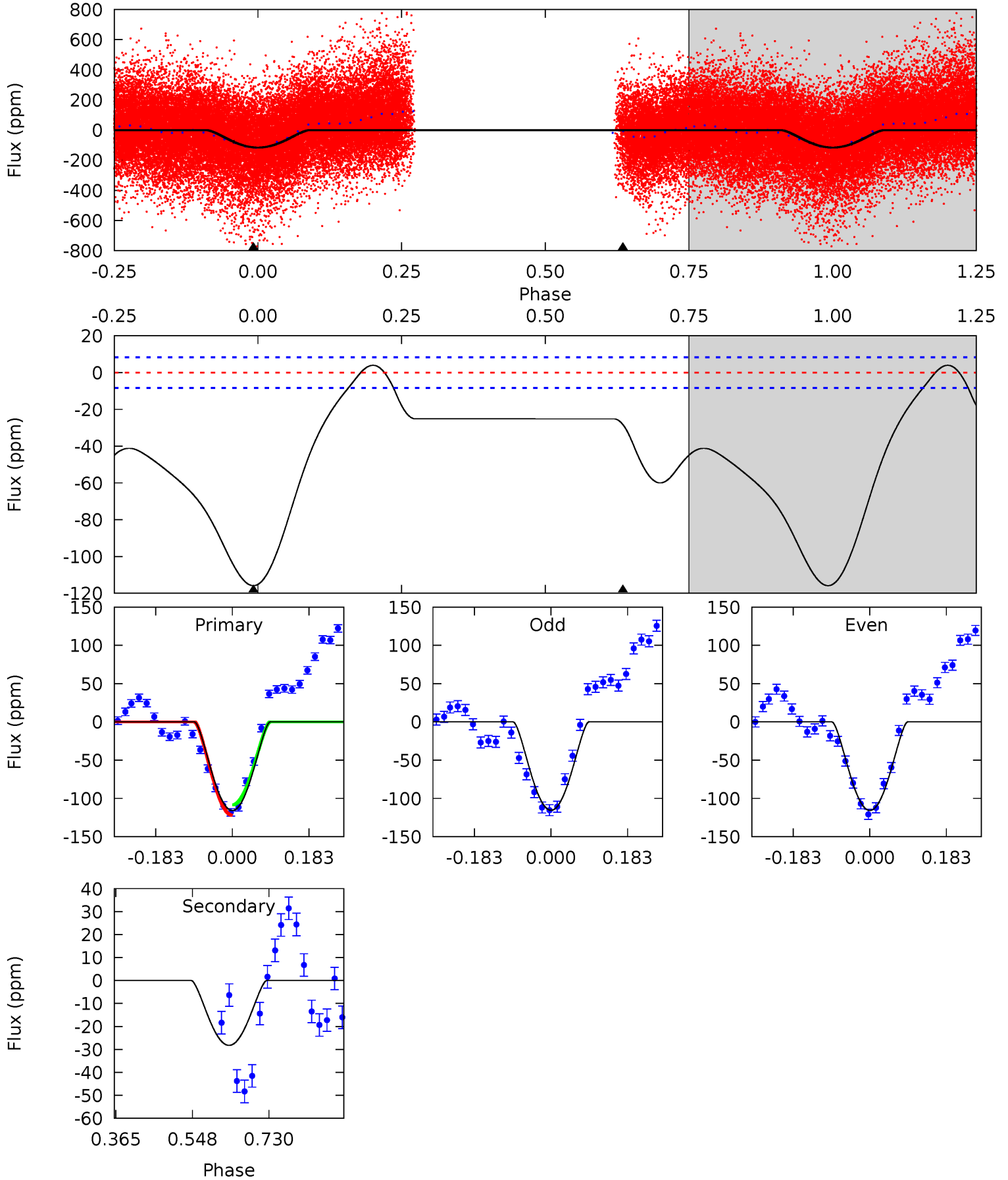
TCE 010198662-02 P= 5.163400 Days $T_0=135.007689$ (BKJD)



DV Model-Shift Uniqueness Test

010198662-02, P = 5.163344 Days, E = 129.833513 Days

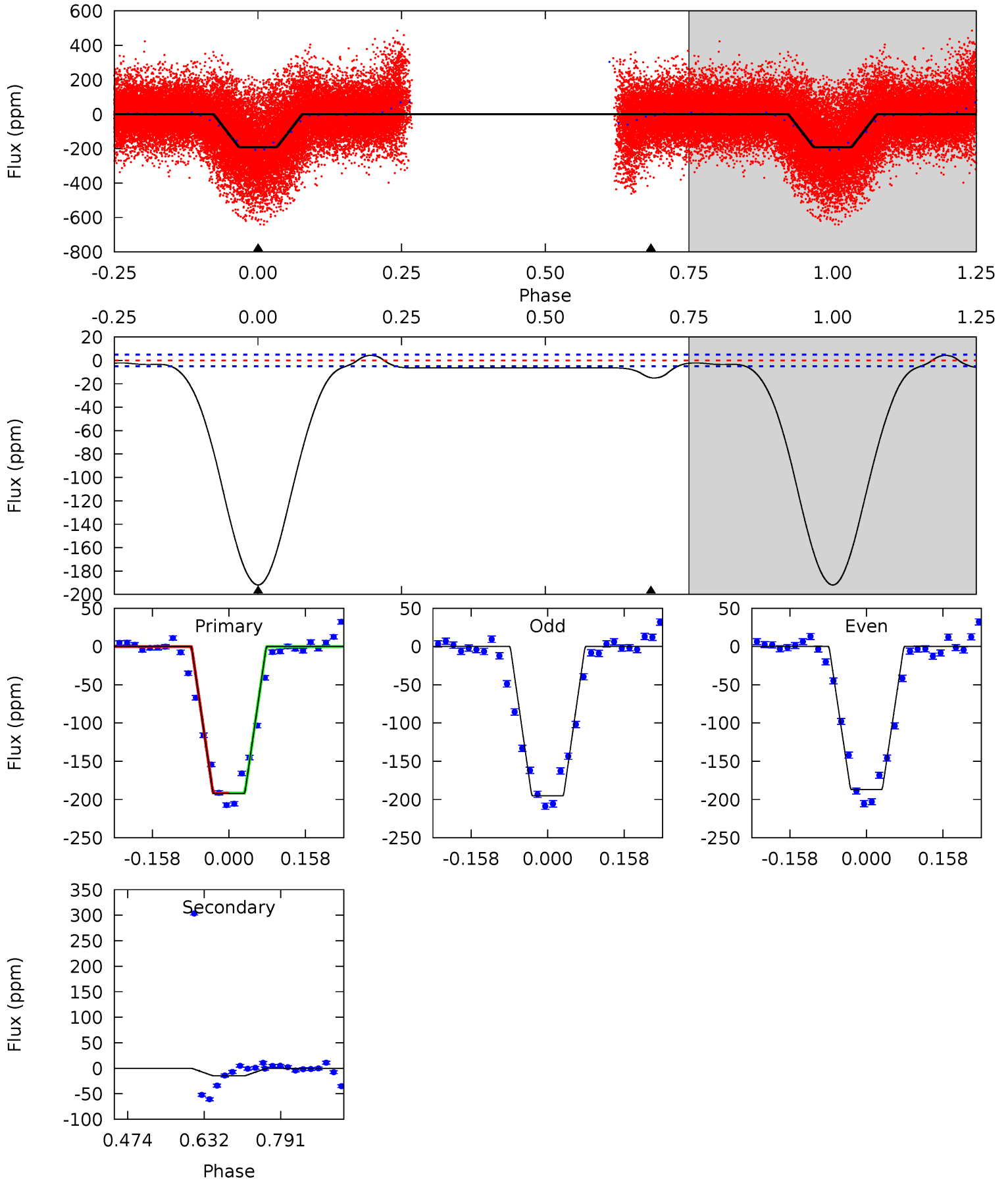
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.4	15.0	0	0	4.44	1.33	4.47	61.4	61.4	15.0	15.0	0.05	0.84	0.03	3.84



Alt Model-Shift Uniqueness Test

010198662-02, P = 5.163400 Days, E = 129.844289 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
174.3	13.4	0	0	4.47	1.41	3.18	174.3	174.3	13.4	13.4	3.81	1.01	0.02	0.12



Stellar Parameters For KIC 010198662

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6799^{+189}_{-283}	$4.178^{+0.136}_{-0.187}$	$0.000^{+0.250}_{-0.350}$	$1.589^{+0.511}_{-0.341}$	$1.391^{+0.208}_{-0.231}$	$0.489^{+0.329}_{-0.248}$
	+3%/-4%	+3%/-4%	+inf%/-inf%	+32%/-21%	+15%/-17%	+67%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010198662-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-28 ± 2	$3.40^{+2.50}_{-2.05}$	2090^{+161}_{-158}	3858^{+1706}_{-658}	$5.684^{+28.934}_{-3.817}$
Alt.	-15 ± 1	$2.91^{+2.32}_{-1.85}$	2089^{+145}_{-141}	3621^{+1754}_{-654}	$4.008^{+26.168}_{-2.753}$

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

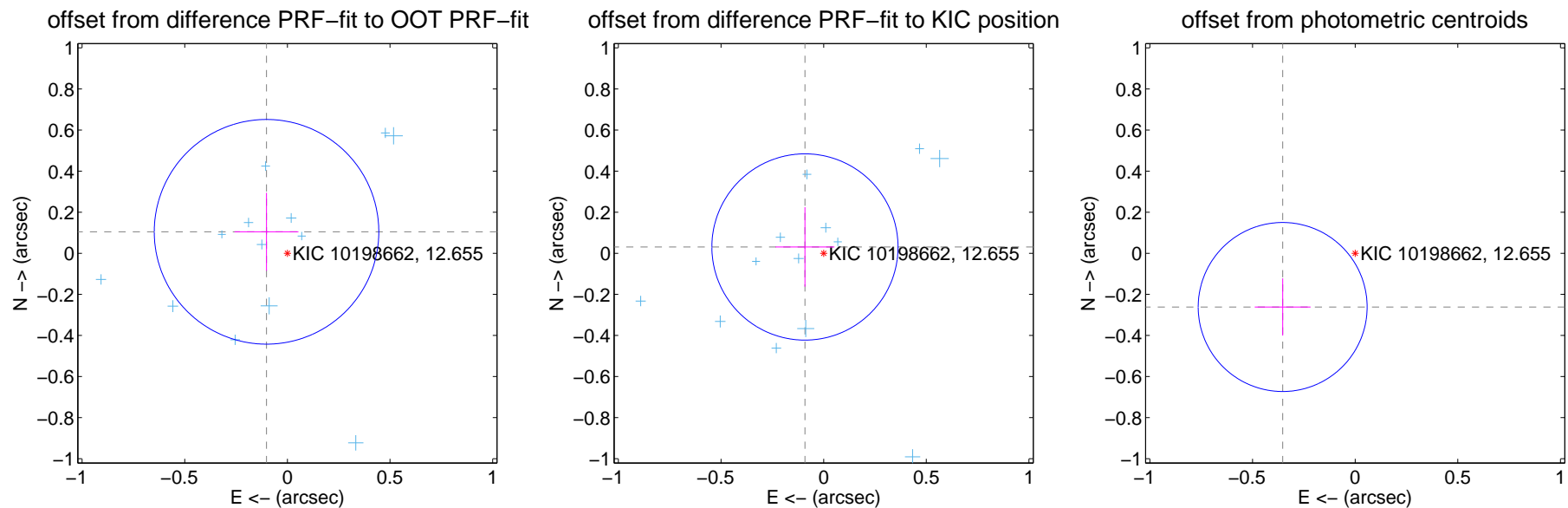
DV Centroid Data

Supplemental centroid analysis for 010198662-02. Kepler magnitude: 12.65. Transit SNR 19.88

There are 17 quarters with good PRF difference image offsets

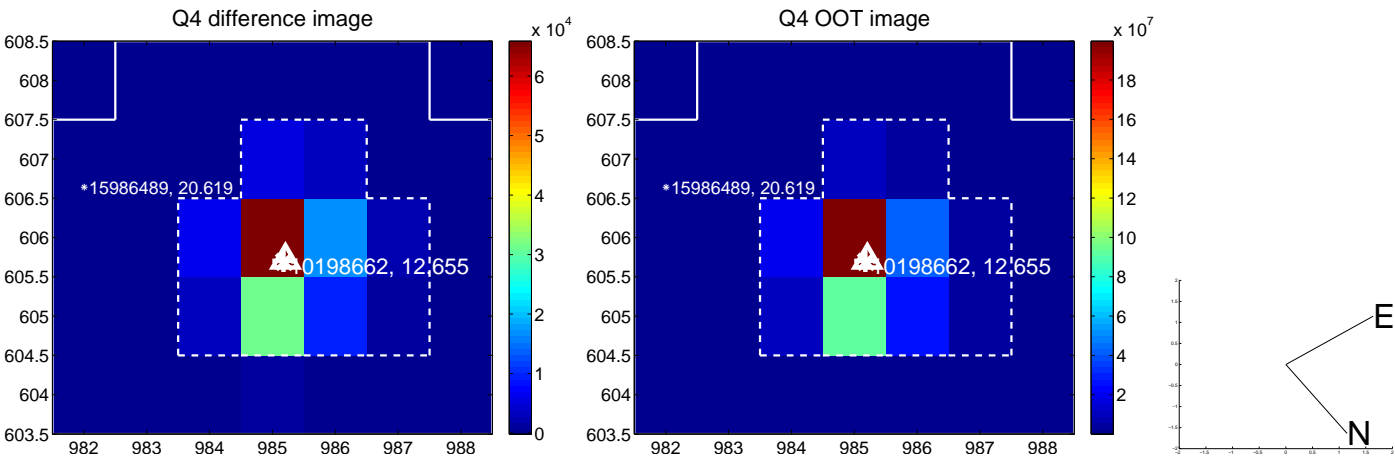
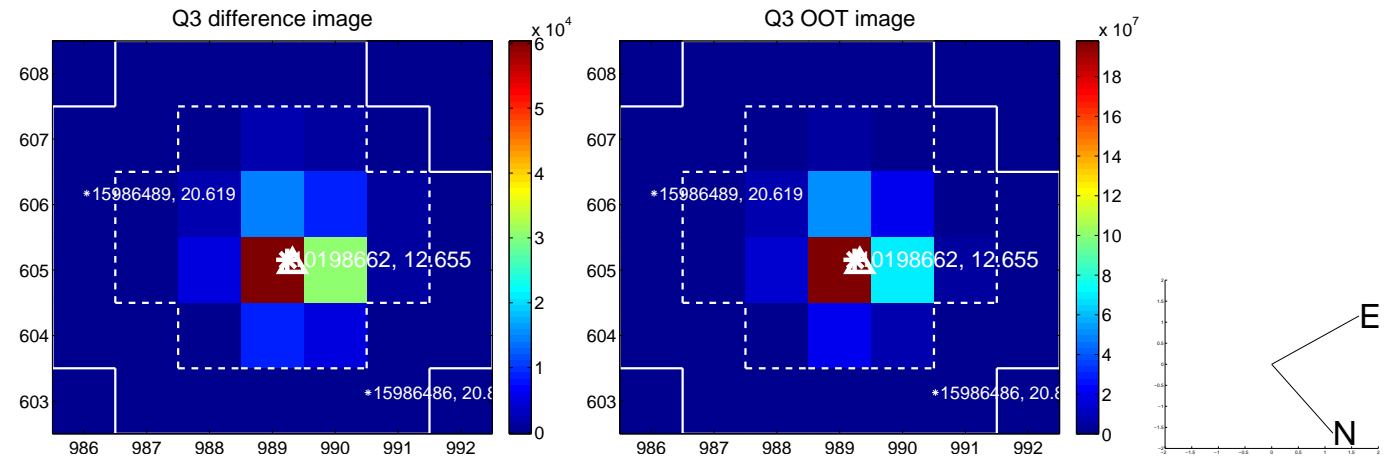
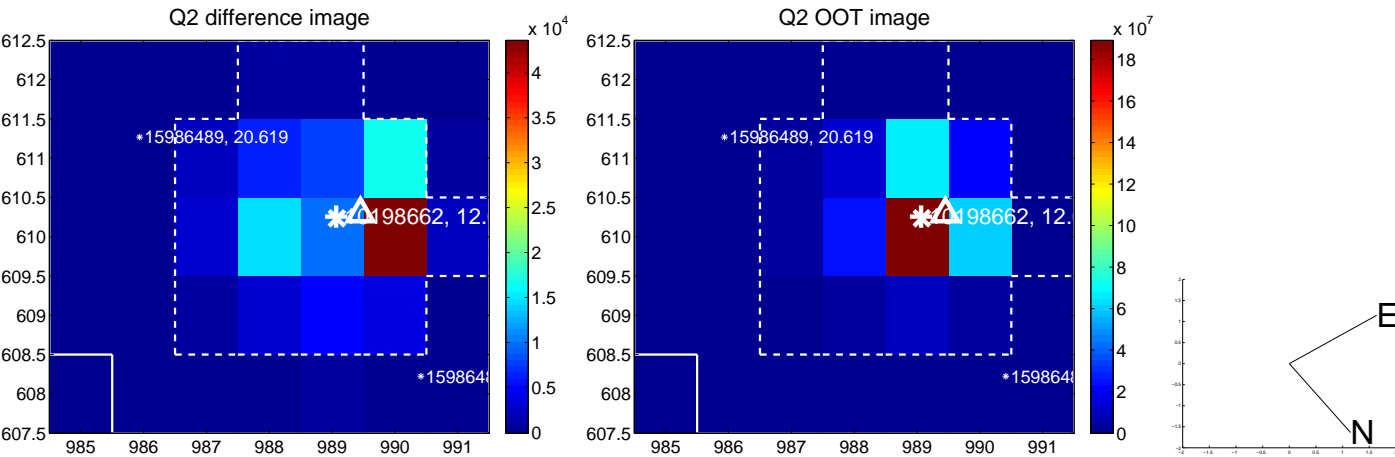
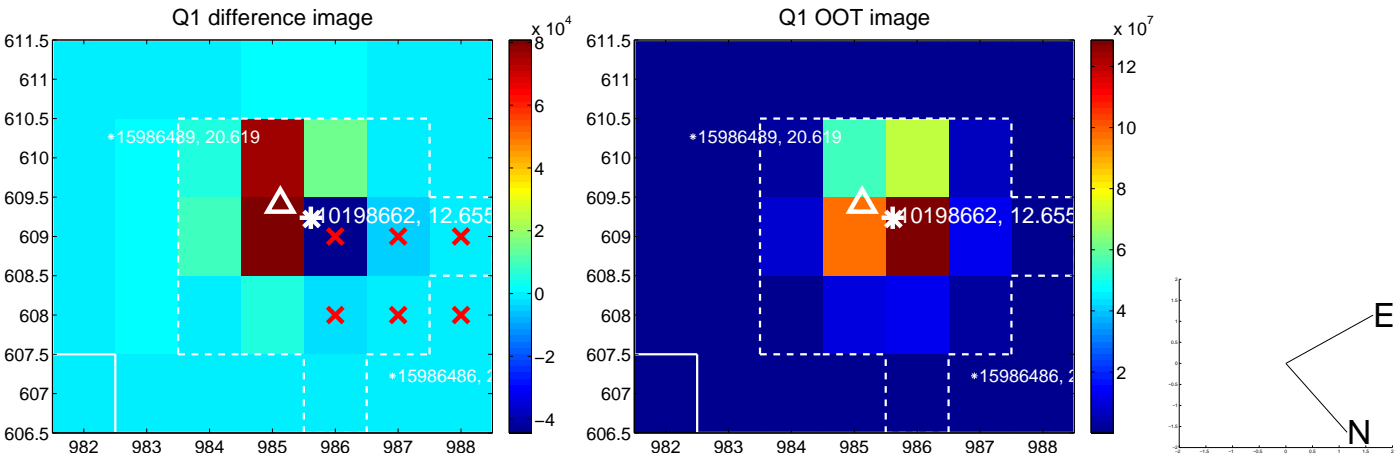
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.146 ± 0.182	0.80	0.102 ± 0.156	0.105 ± 0.190
PRF-fit source offset from KIC position	0.096 ± 0.151	0.64	0.091 ± 0.143	0.031 ± 0.194
photometric centroid source offset	0.44 ± 0.14	3.20	0.35 ± 0.14	-0.26 ± 0.14

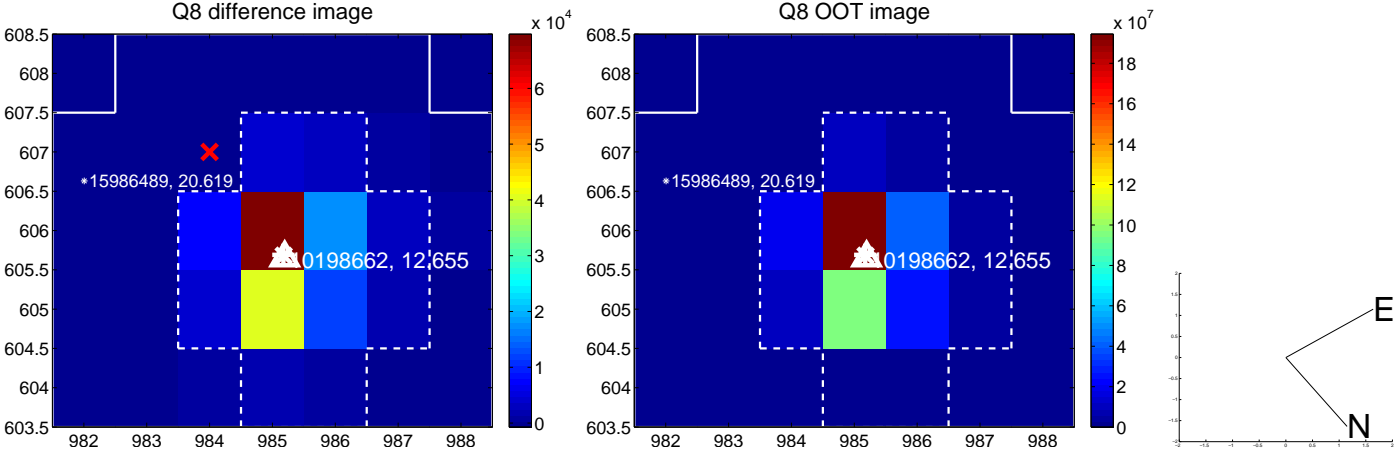
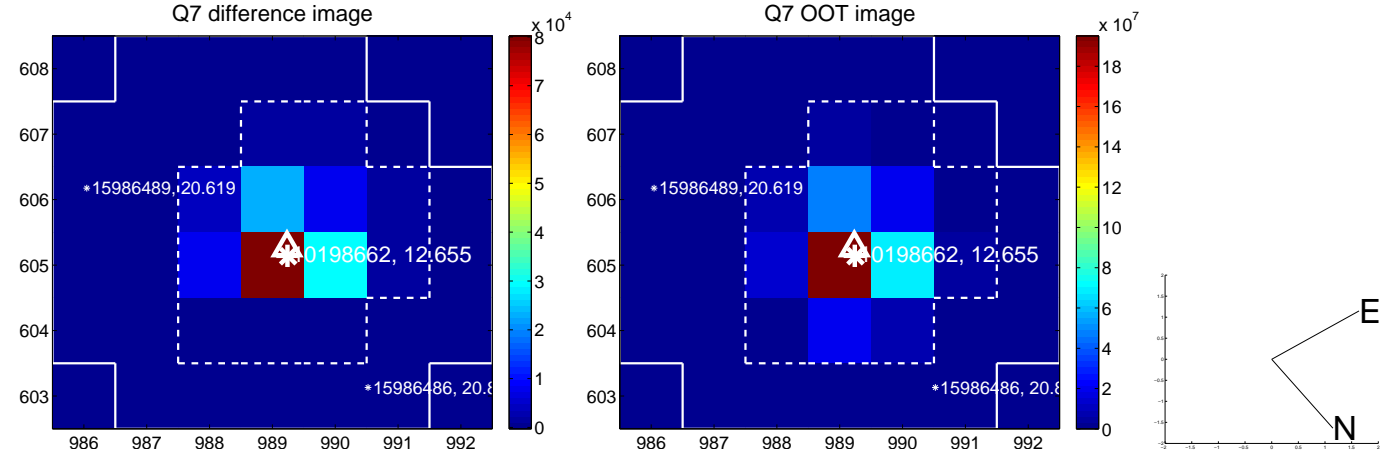
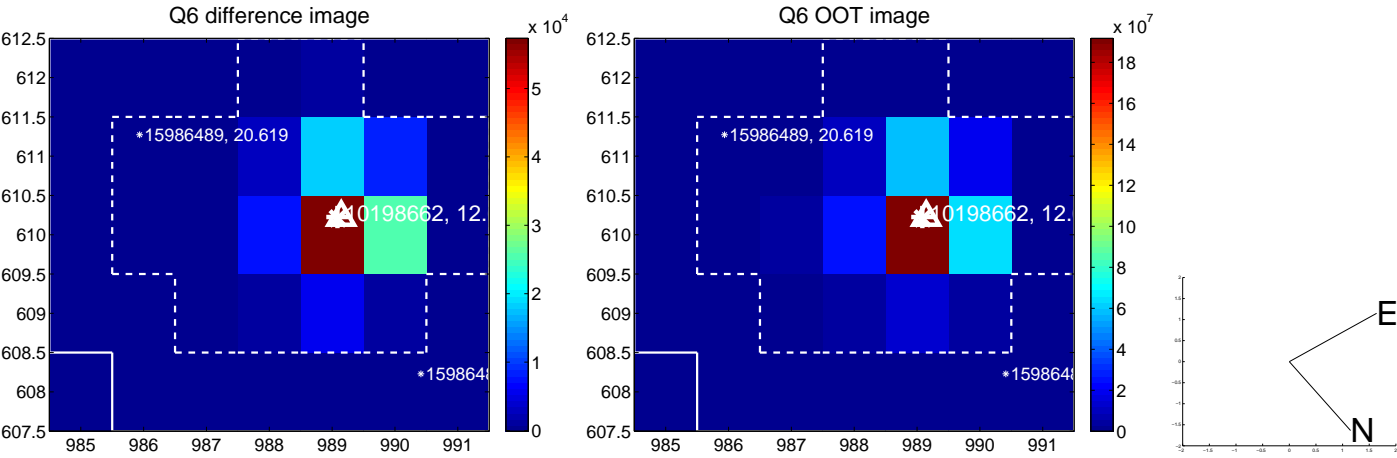
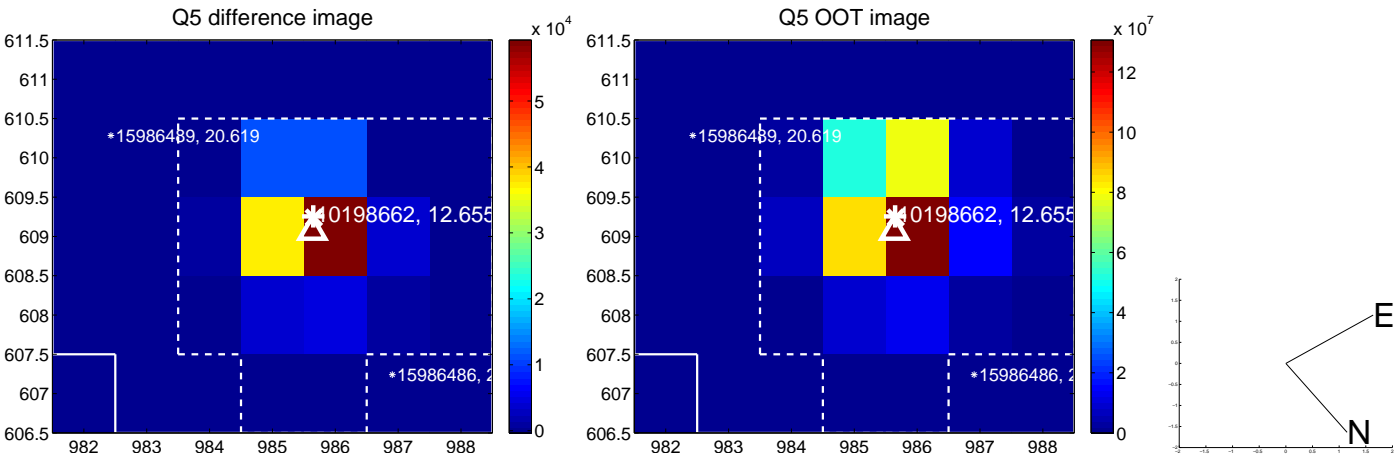


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

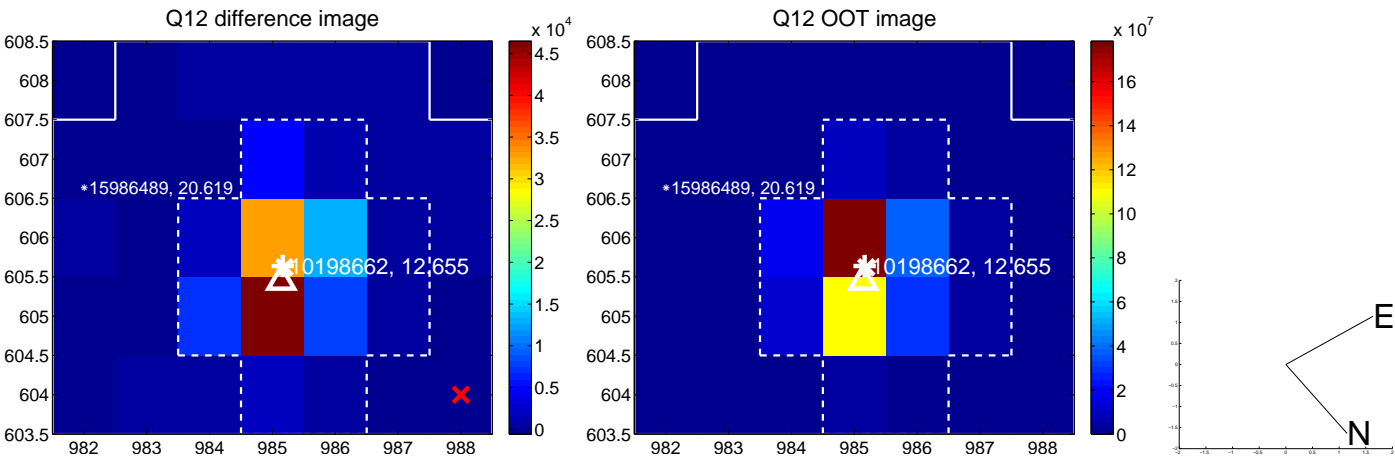
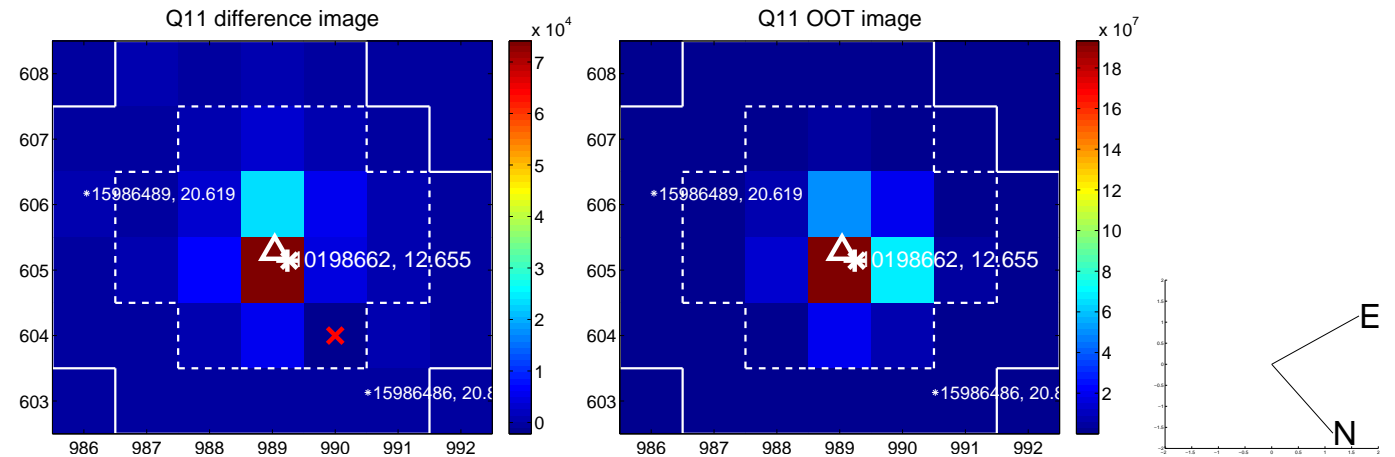
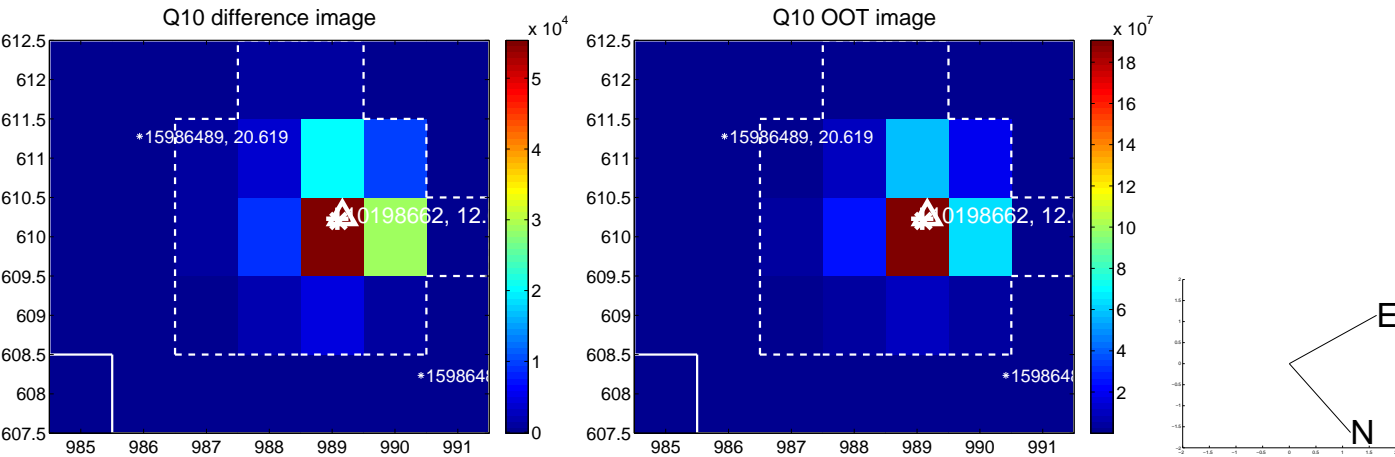
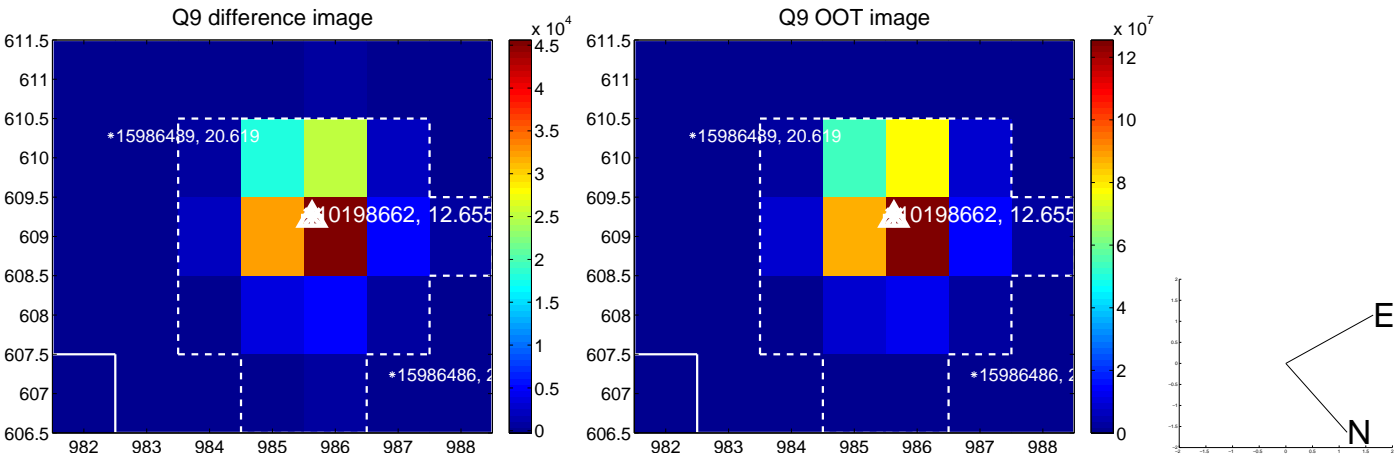
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



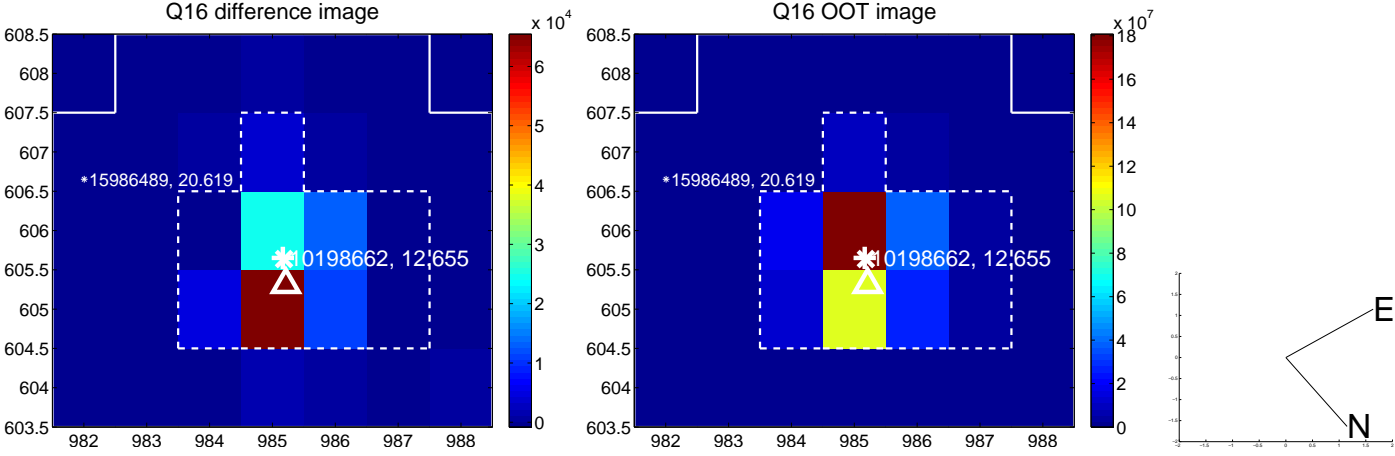
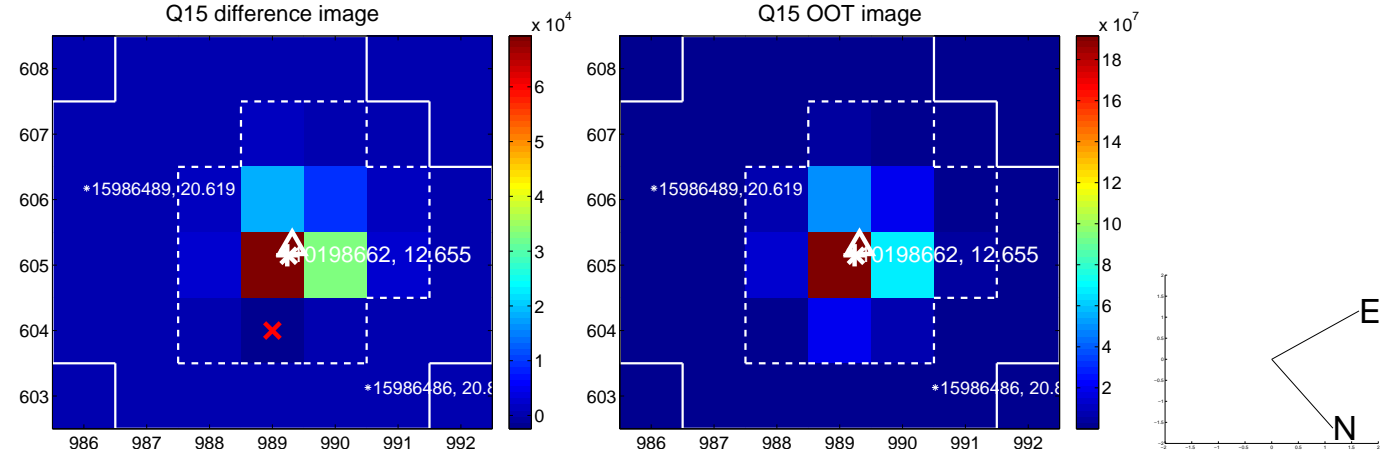
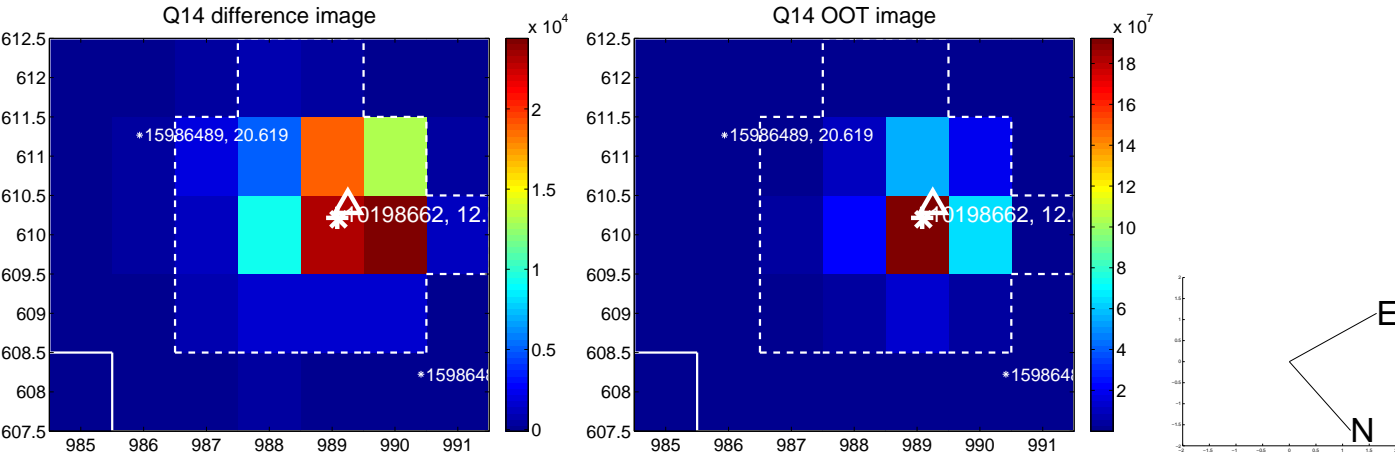
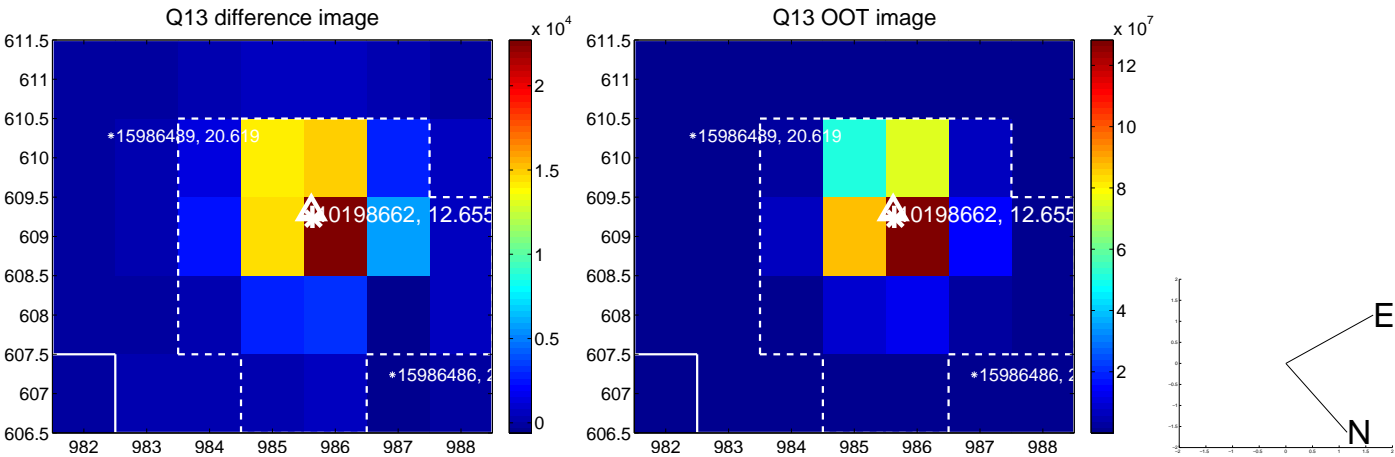
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



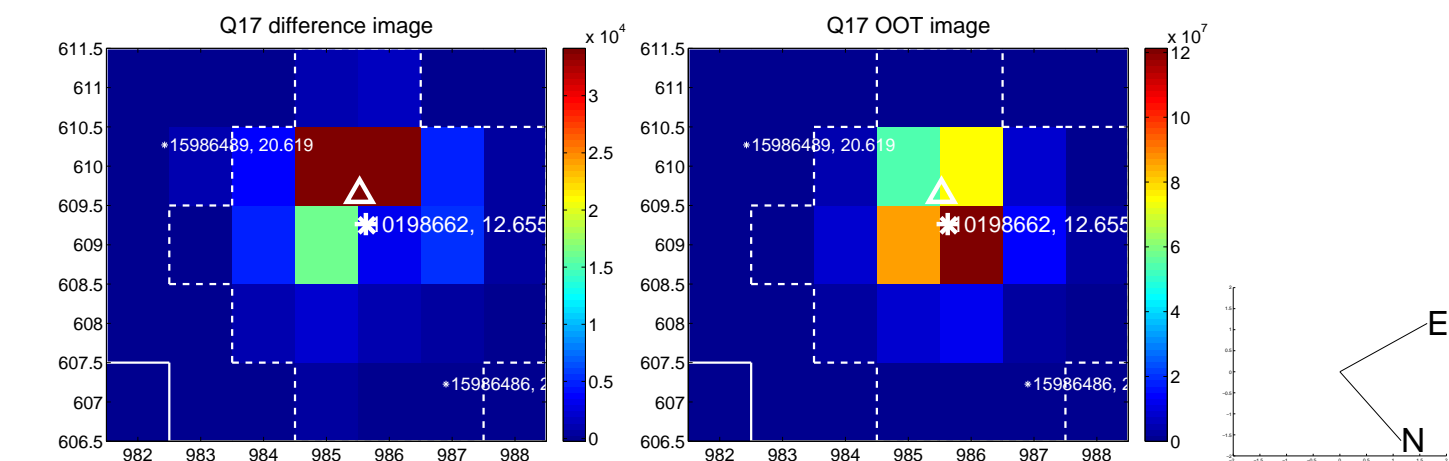
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



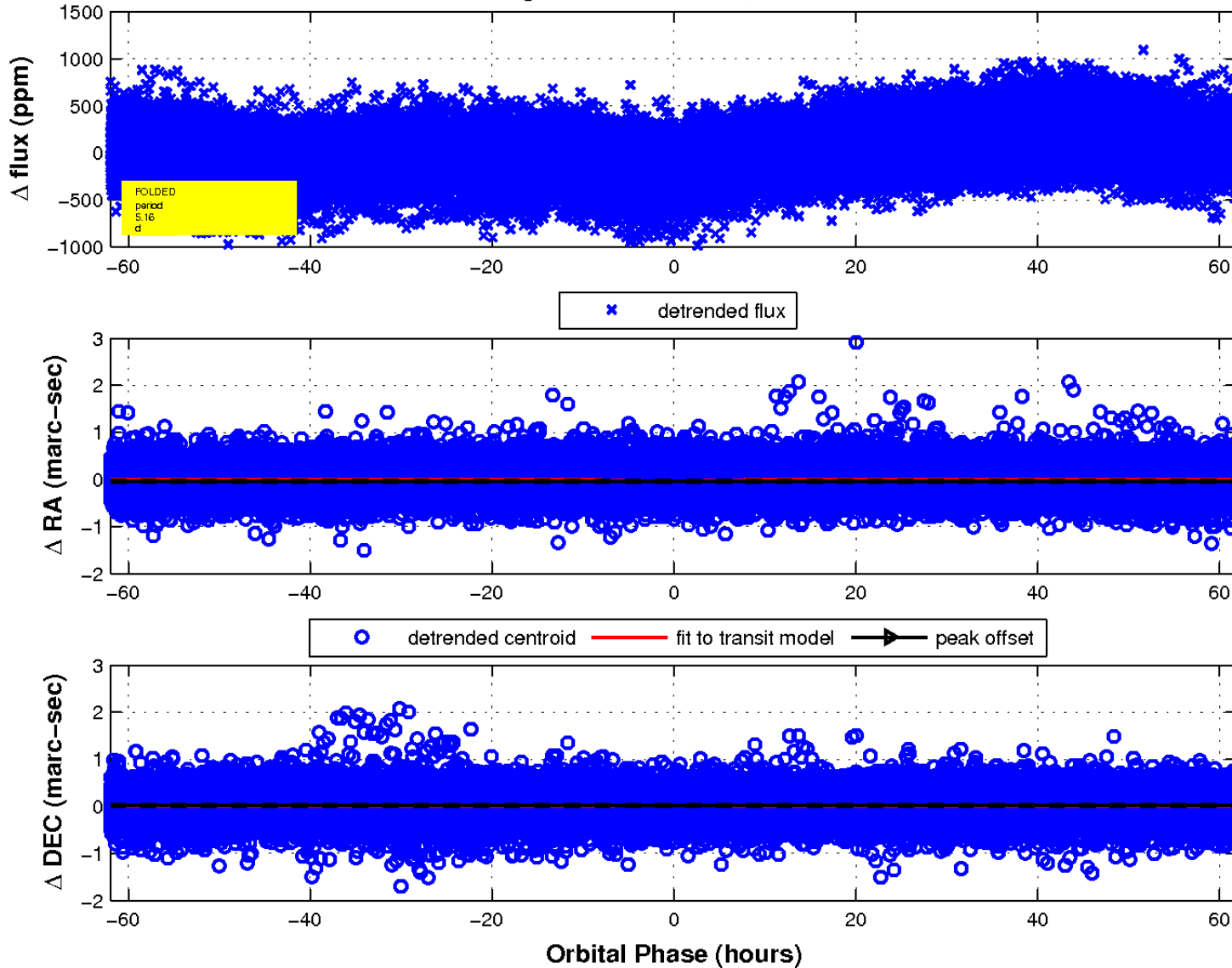
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

