

KIC 009340503

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})
009340503-01	OBS	No	0.851236	131.615979	24.3	0.781	9.2	1.9	0.54	4590	0.26	563.12
009340503-02	OBS	No	0.851226	131.856807	13.1	2.741	7.7	1.0	0.54	4590	0.24	563.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009340503-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT
009340503-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

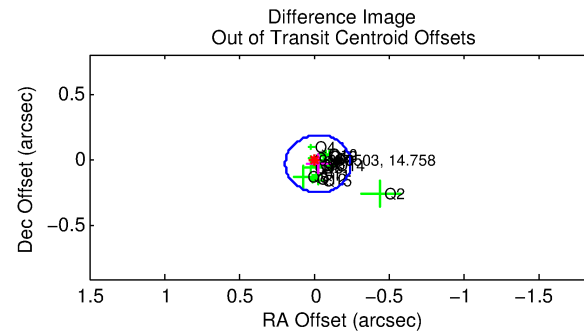
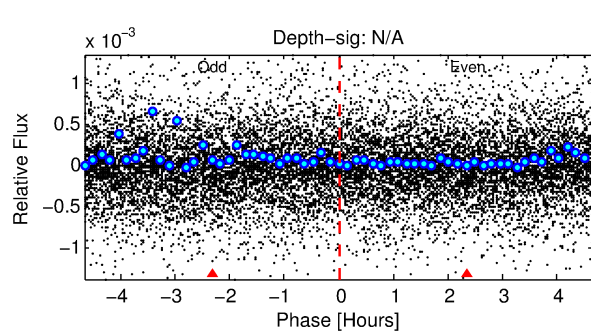
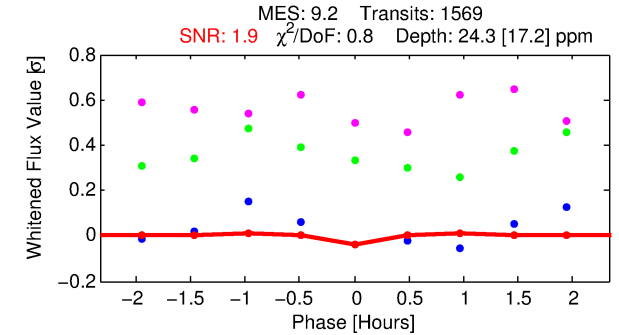
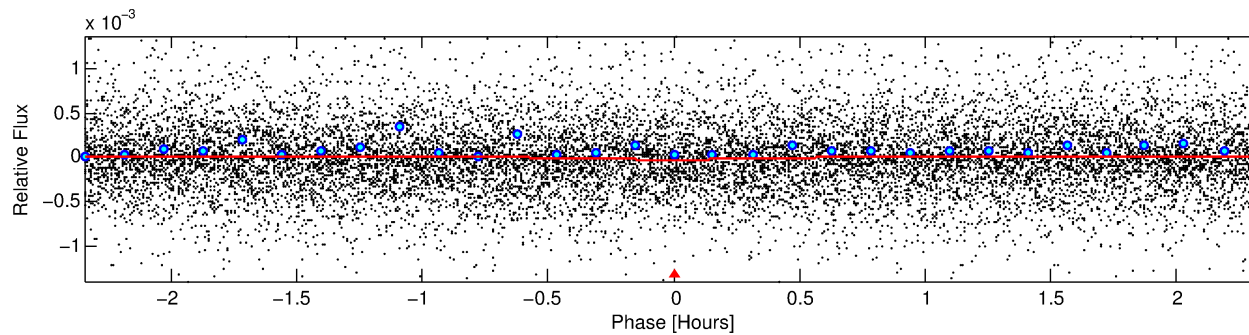
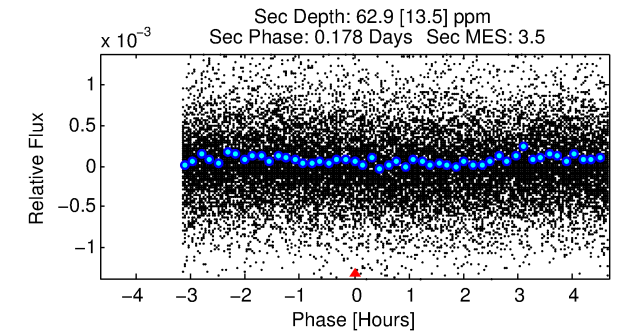
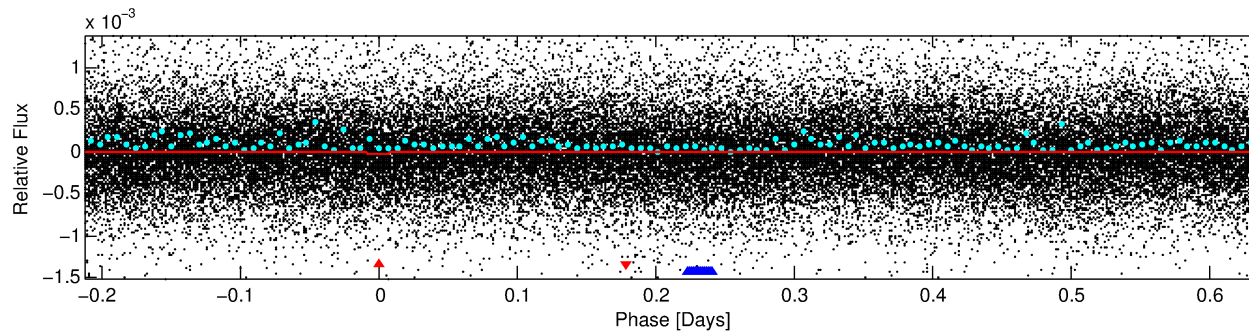
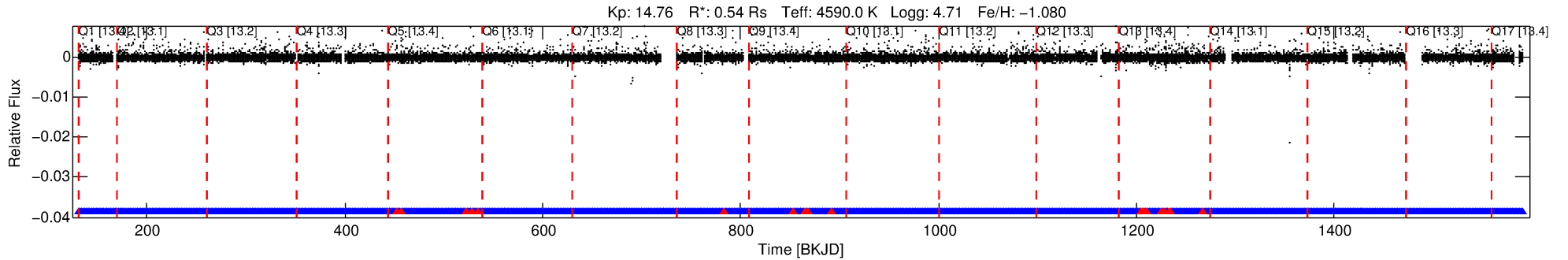
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009340503-01

No Significant Match Found

DV One-Page Summary

KIC: 9340503 Candidate: 1 of 2 Period: 0.851 d



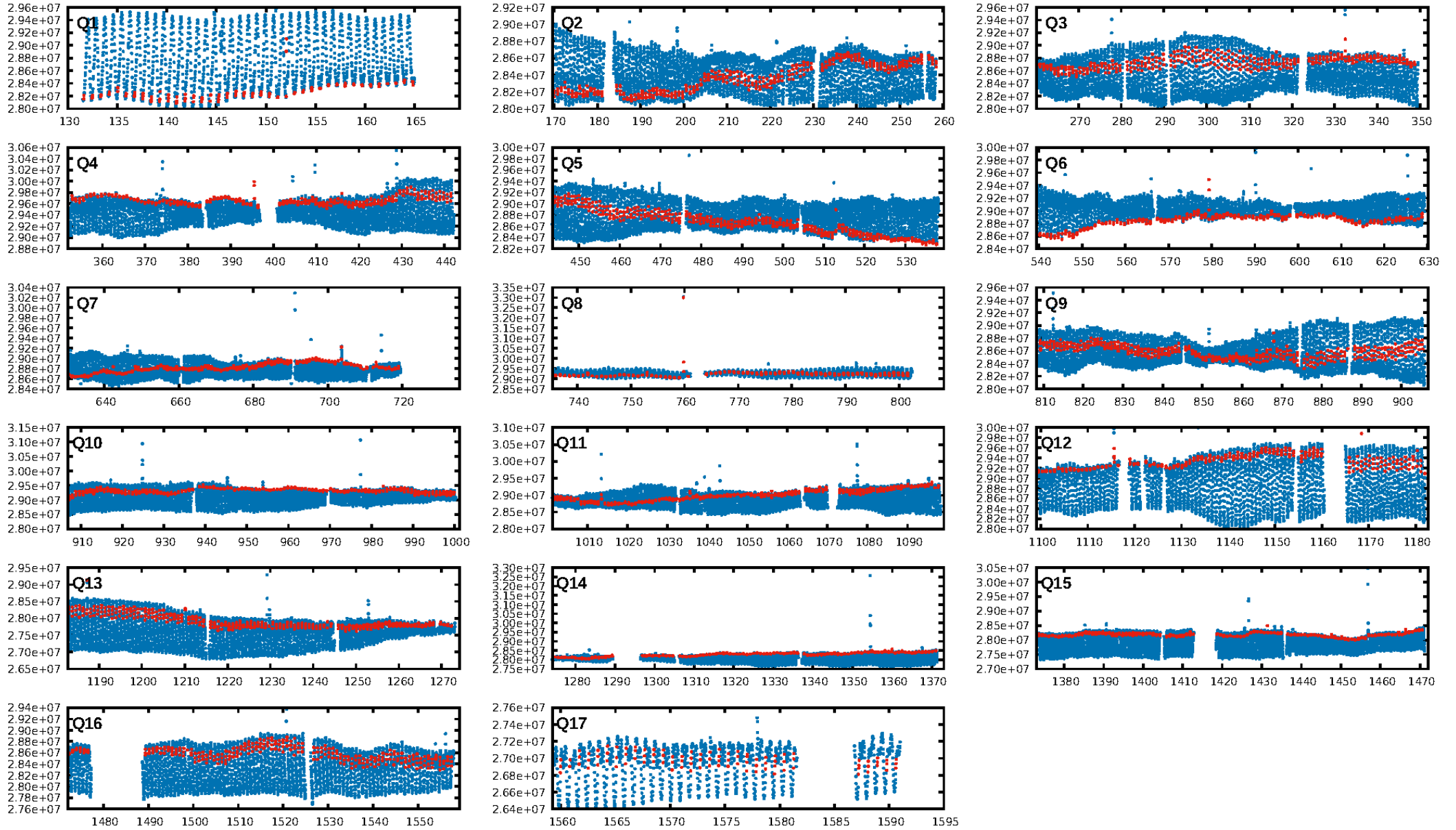
DV Fit Results:

Period = 0.85124 [0.00005] d
Epoch = 131.6160 [0.0059] BKJD
Rp/R* = 0.0045 [0.0403]
a/R* = 8.30 [271.31]
b = 0.14 [231.12]
Seff = 563.12 [83.91]
Teq = 1242 [46] K
Rp = 0.26 [2.36] Re
a = 0.0143 [0.0008] AU
Ag = 101.69 [1823.80] [0.06σ]
Teffp = 6099 [27345] K [0.18σ]

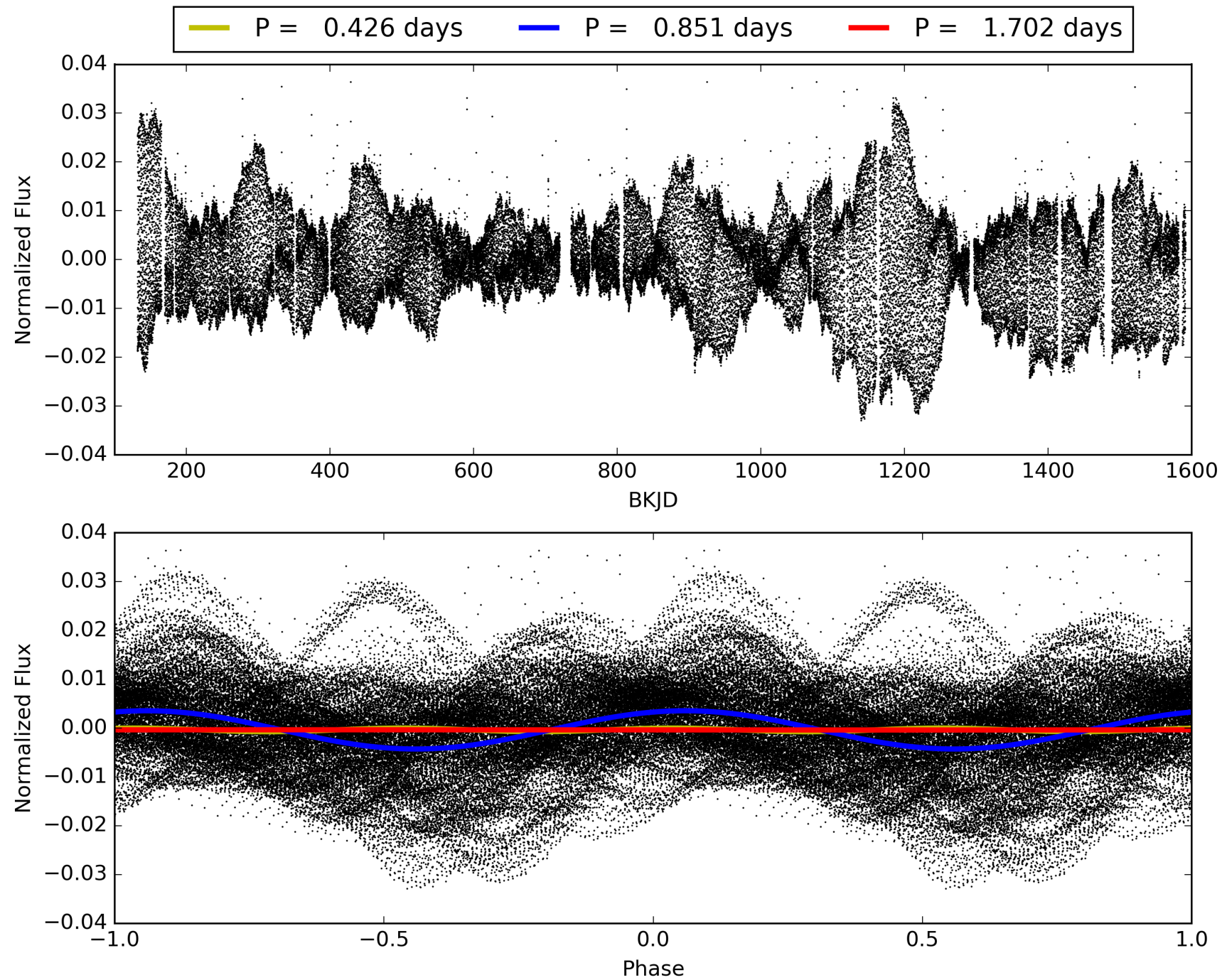
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.53e-22
RollingBand-fgt: 0.99 [1479/1498]
GhostDiagnostic-chr: -1.569
Centroid-sig: 98.8%
Centroid-so: 0.536 arcsec [0.11σ]
OotOffset-rm: 0.041 arcsec [0.56σ]
KicOffset-rm: 0.101 arcsec [1.45σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009340503-01, PDC Light Curves

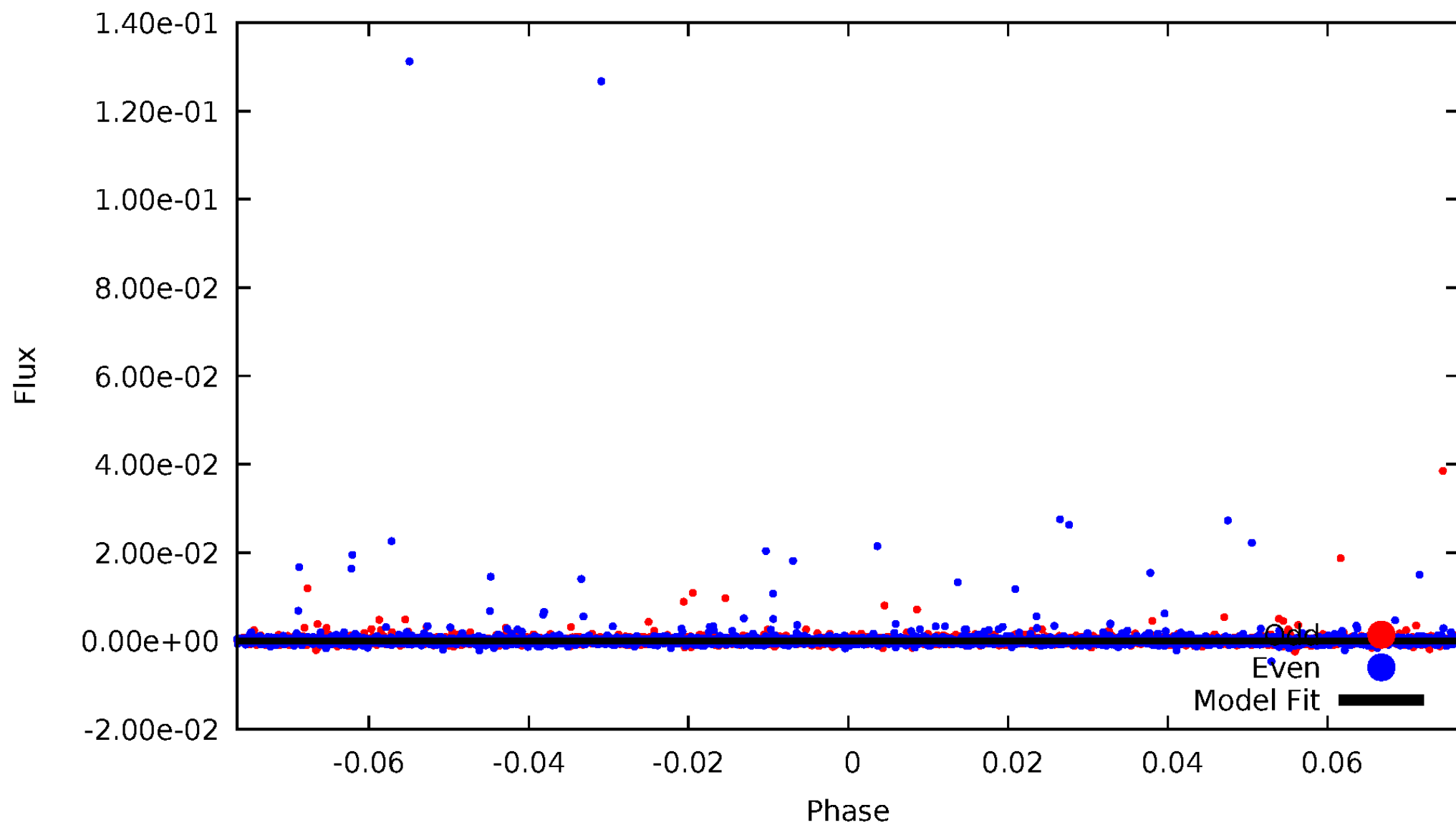


TCE 009340503-01



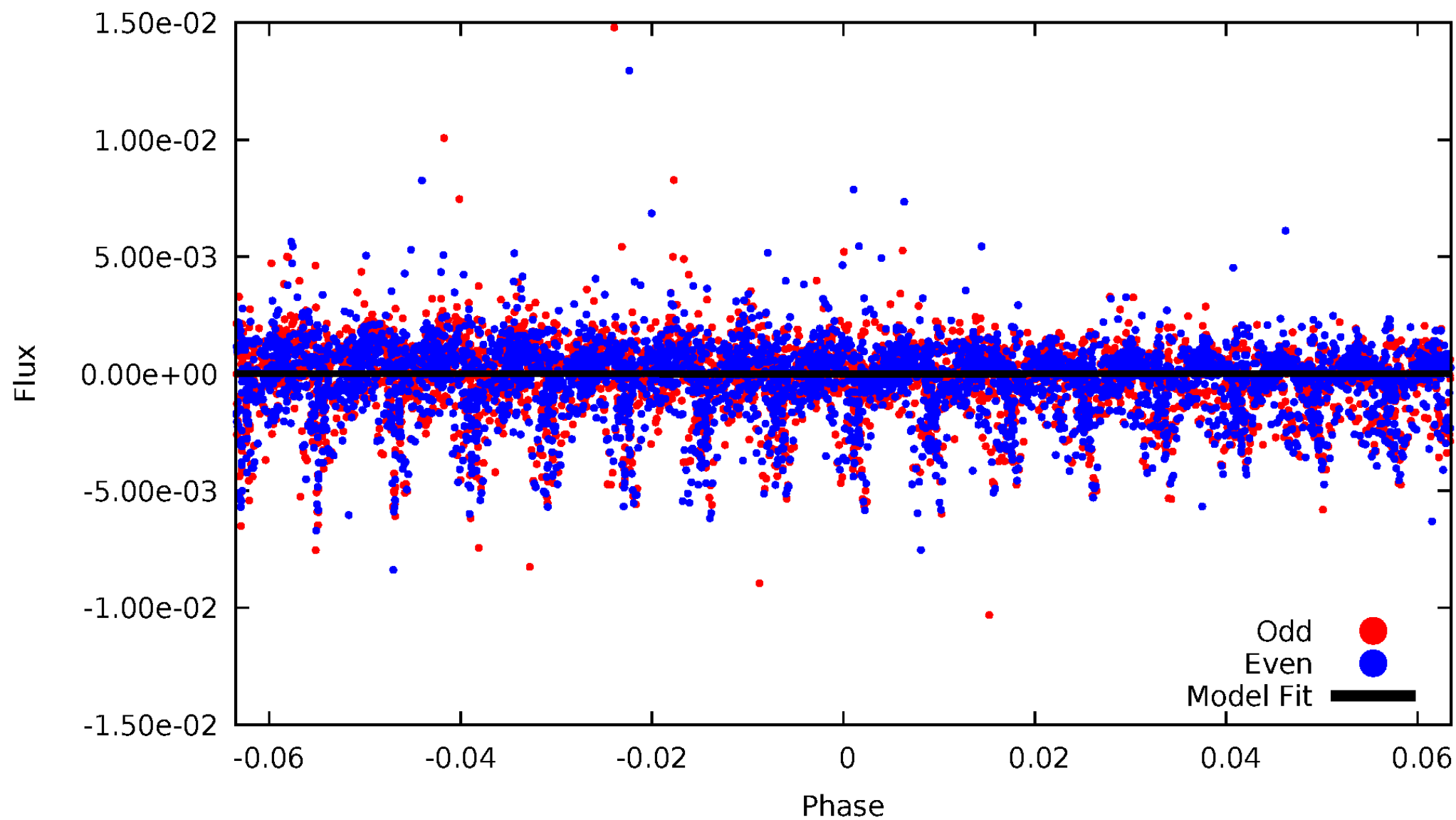
DV Odd/Even

TCE 009340503-01



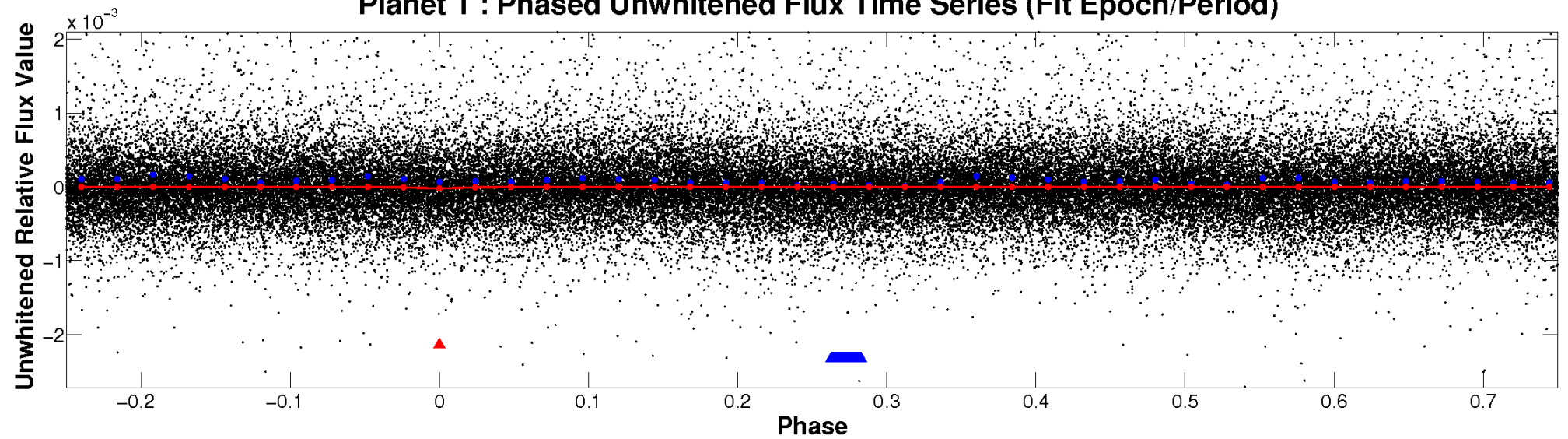
ALT Odd/Even

TCE 009340503-01

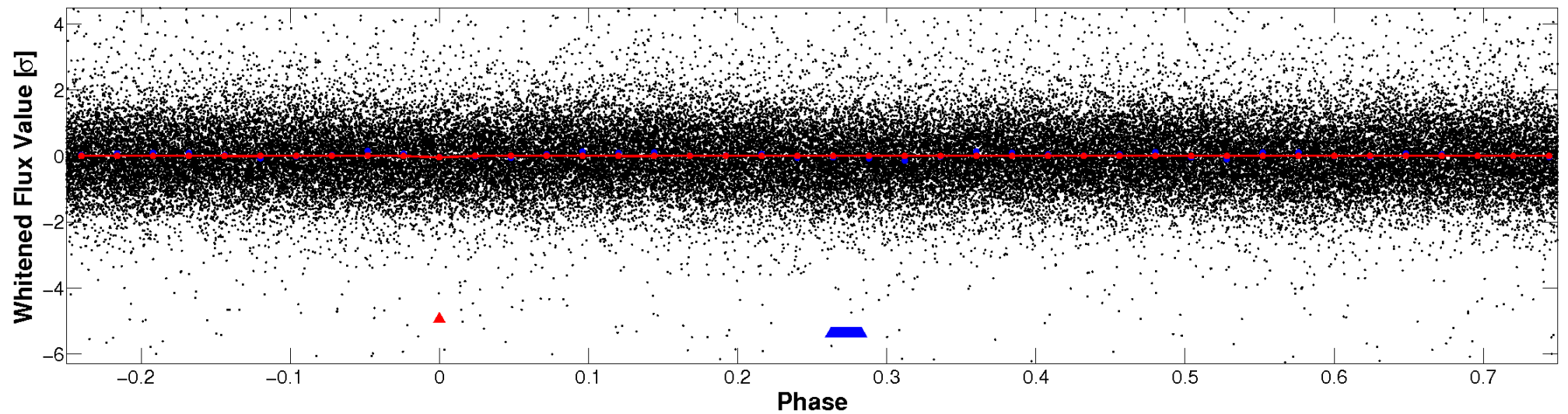


Non-Whitened Vs. Whitened Light Curve

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

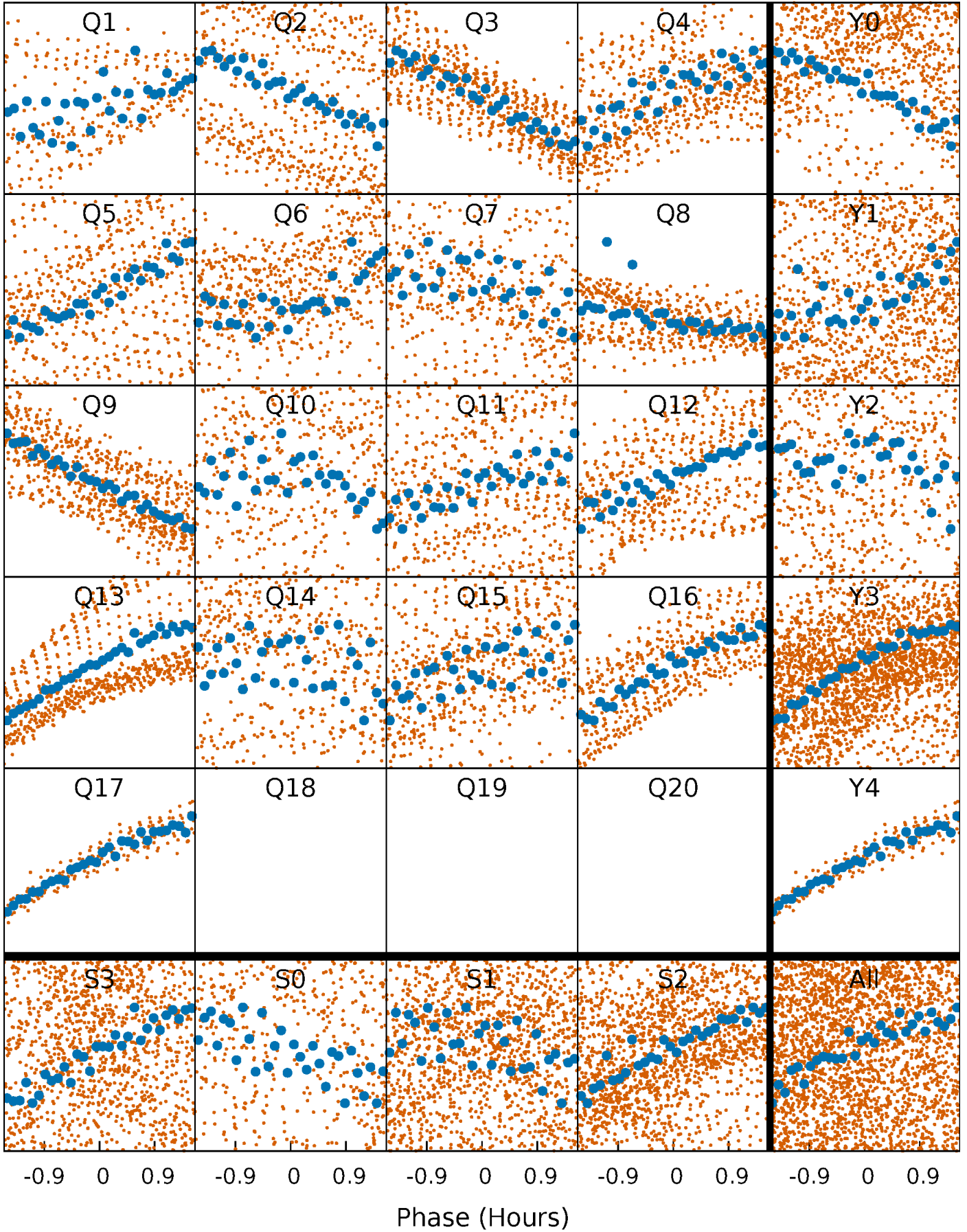


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



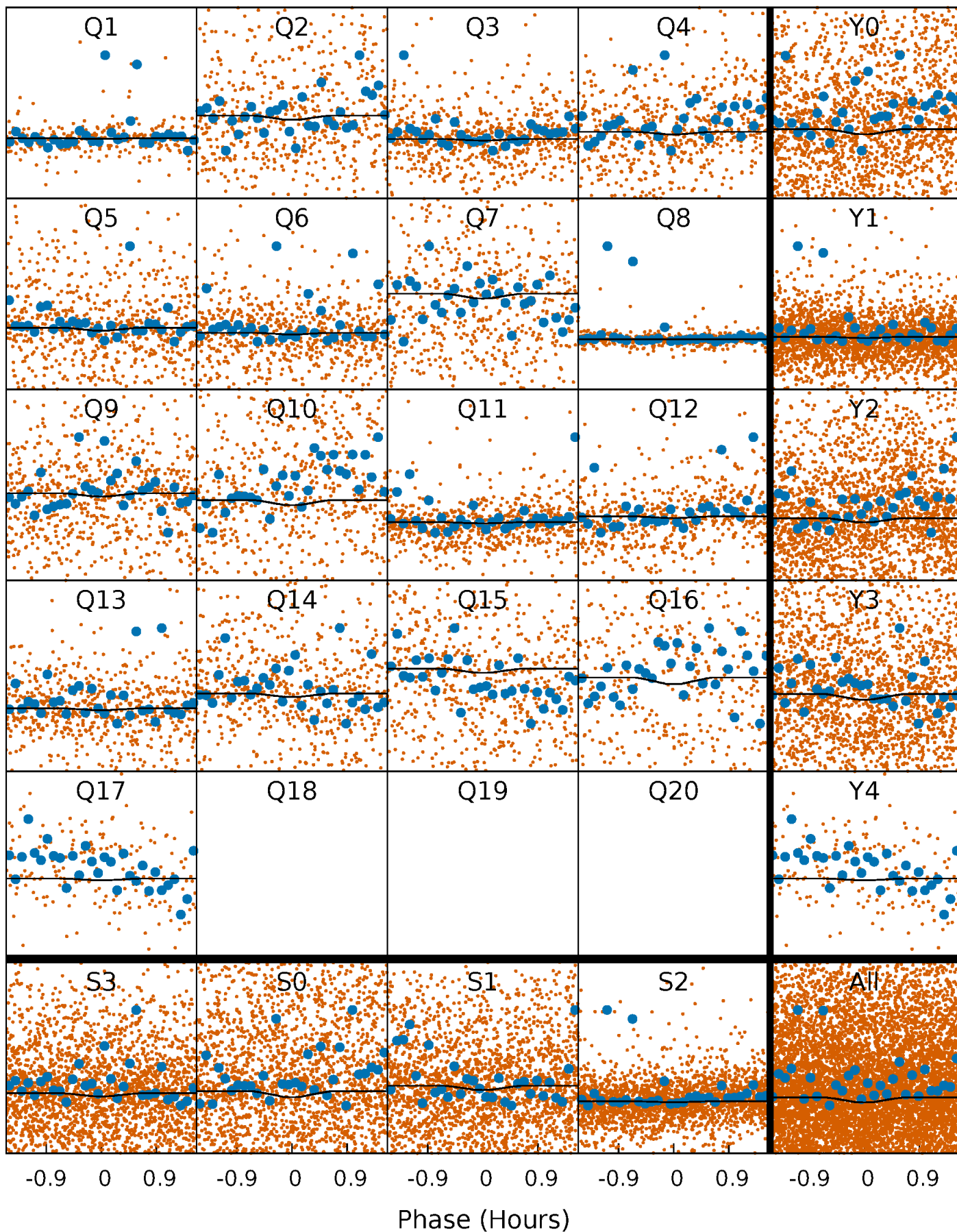
PDC Quarter-Phased Transit Curves

TCE 009340503-01 P= 0.851236 Days $T_0=131.615979$ (BKJD)



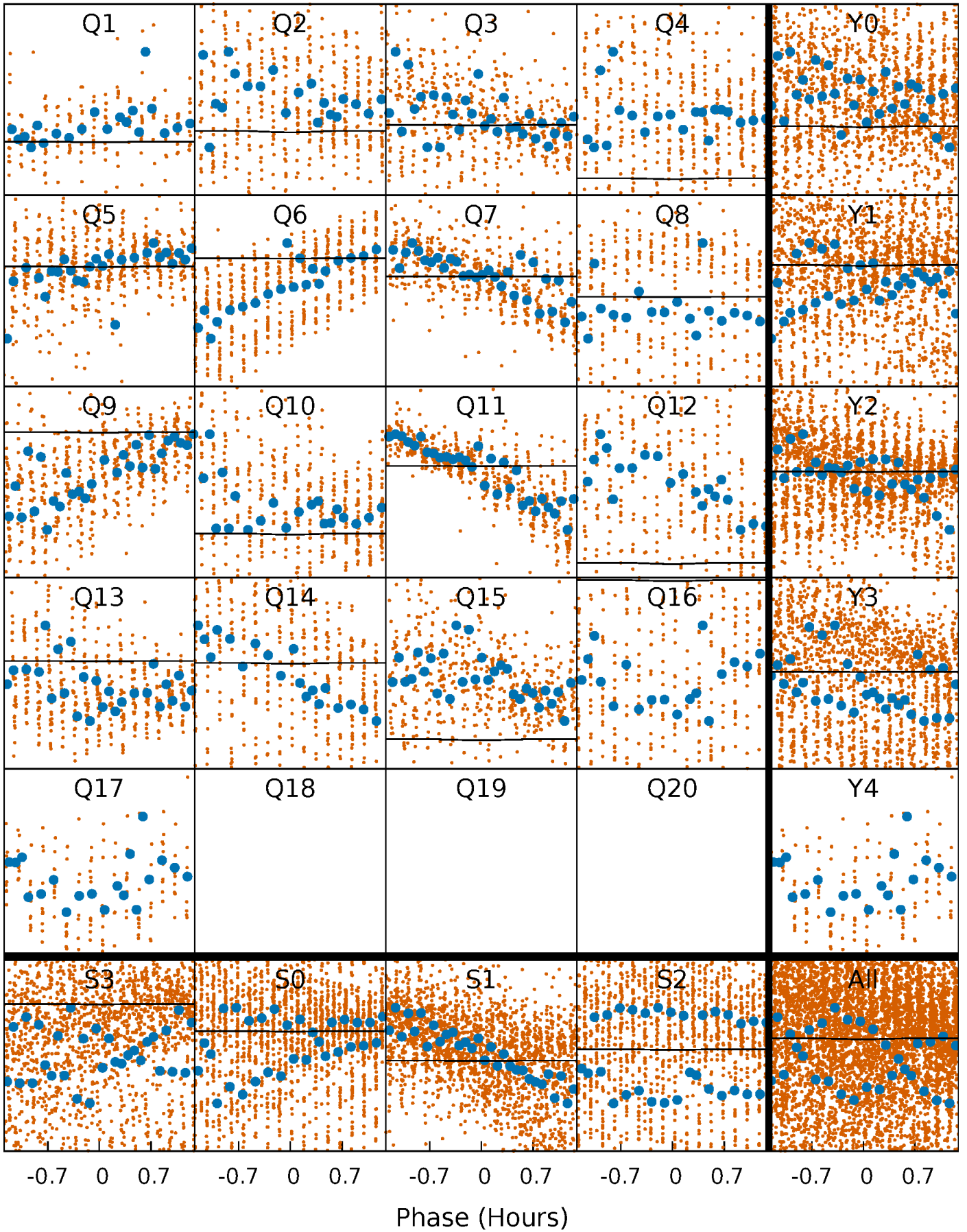
DV Quarter-Phased Transit Curves

TCE 009340503-01 P= 0.851236 Days $T_0=131.615979$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

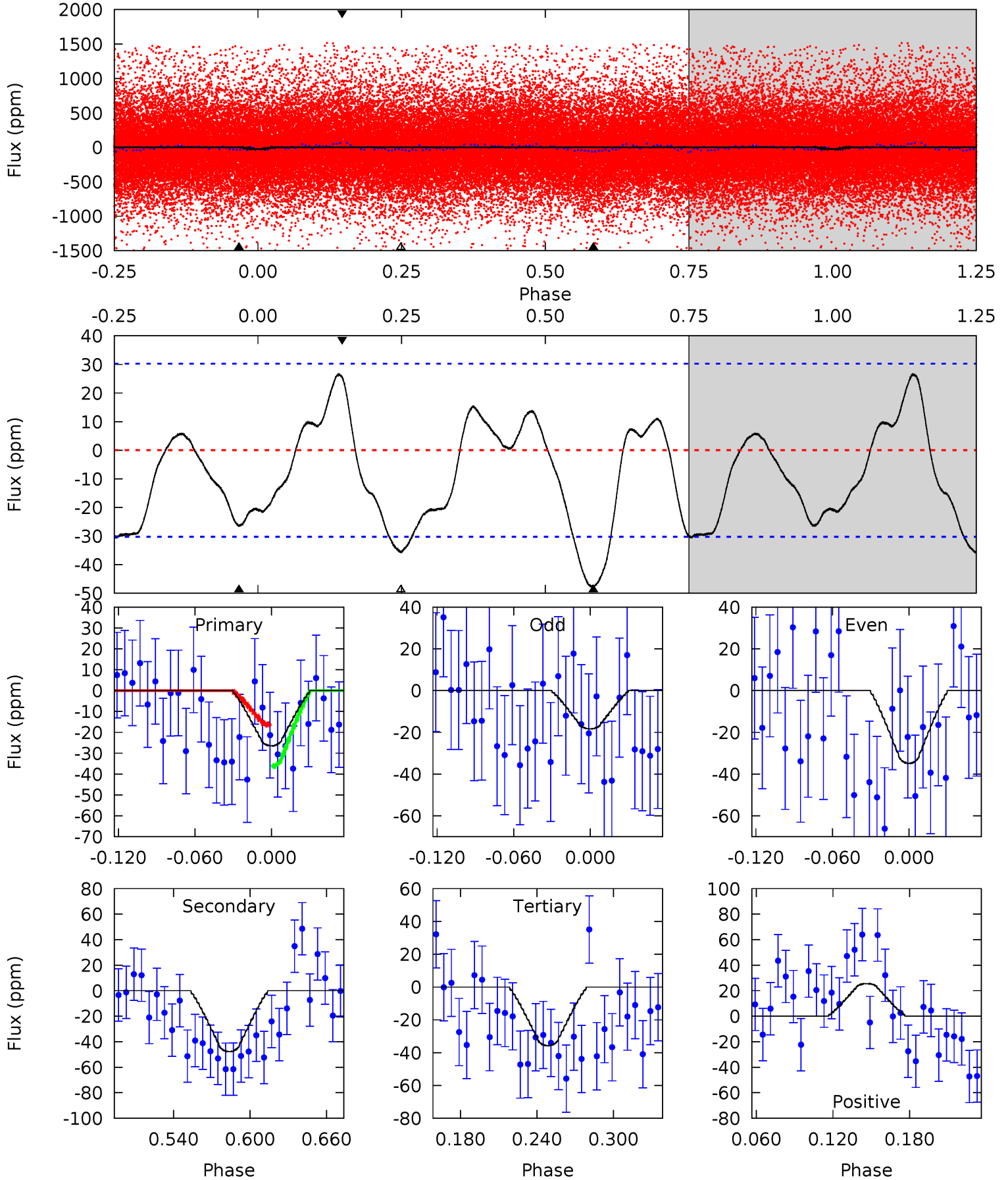
TCE 009340503-01 P= 0.851408 Days $T_0=131.604401$ (BKJD)



DV Model-Shift Uniqueness Test

009340503-01, P = 0.851236 Days, E = 130.764743 Days

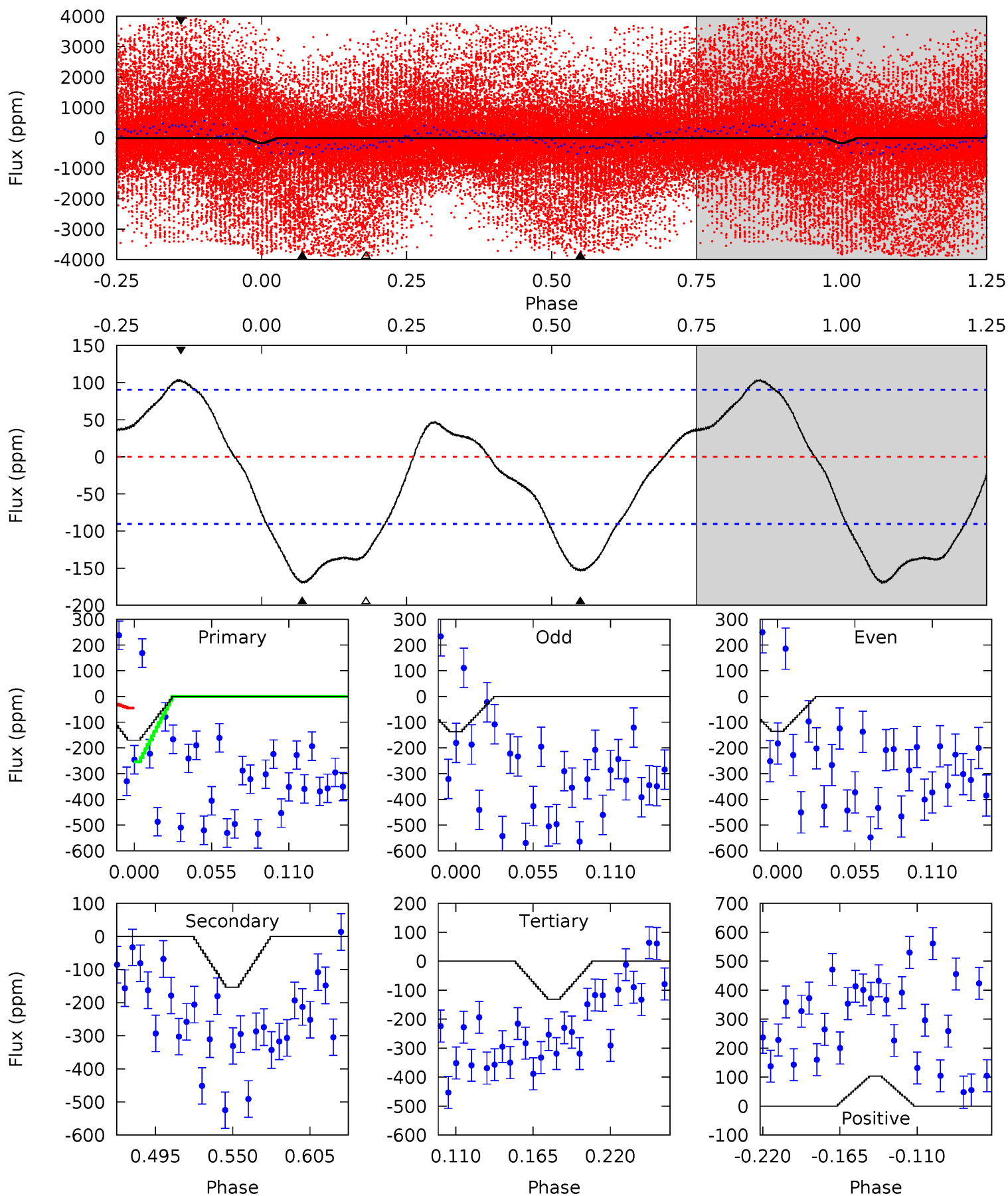
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.08	7.37	5.52	3.95	4.67	1.88	2.45	-1.43	0.14	1.85	3.42	1.29	-2.27	0.36	1.55



Alt Model-Shift Uniqueness Test

009340503-01, P = 0.851408 Days, E = 130.752993 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.82	7.99	6.80	5.38	4.69	1.92	3.39	2.02	3.44	1.19	2.61	0.04	9.40	0.38	5.65



Stellar Parameters For KIC 009340503

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4590^{+139}_{-125}	$4.707^{+0.048}_{-0.032}$	$-1.080^{+0.300}_{-0.300}$	$0.538^{+0.037}_{-0.037}$	$0.538^{+0.044}_{-0.024}$	$4.859^{+0.948}_{-0.660}$
	+3%/-3%	+1%/-1%	+28%/-28%	+7%/-7%	+8%/-4%	+20%/-14%
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 009340503-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-48 ± 6	$1.70^{+1.67}_{-1.18}$	1732^{+56}_{-58}	2834^{+1276}_{-706}	$1.910^{+17.407}_{-1.463}$
Alt.	-154 ± 19	$1.62^{+1.83}_{-1.07}$	1733^{+53}_{-53}	3447^{+1706}_{-740}	$6.591^{+51.391}_{-5.129}$

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

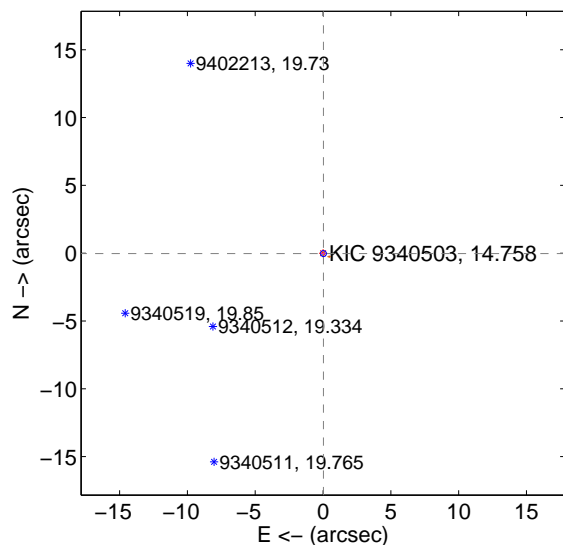
Supplemental centroid analysis for 009340503-01. Kepler magnitude: 14.76. Transit SNR 1.94

There are 5 quarters with good PRF difference image offsets

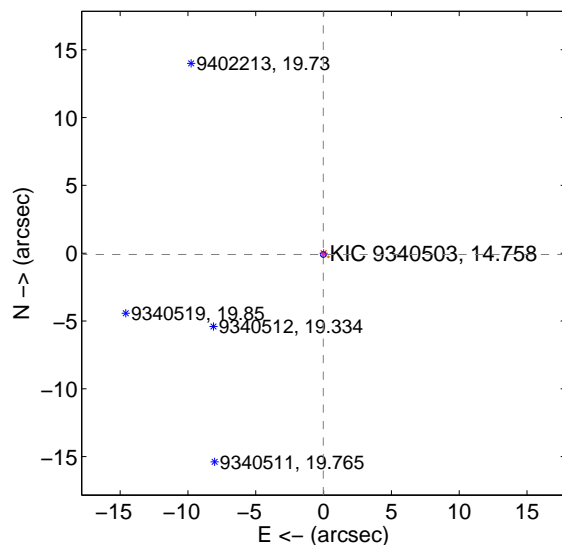
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.041 ± 0.073	0.56	-0.029 ± 0.072	-0.028 ± 0.070
PRF-fit source offset from KIC position	0.101 ± 0.069	1.45	0.020 ± 0.072	-0.099 ± 0.070
photometric centroid source offset	0.54 ± 4.78	0.11	0.52 ± 4.78	0.12 ± 4.63

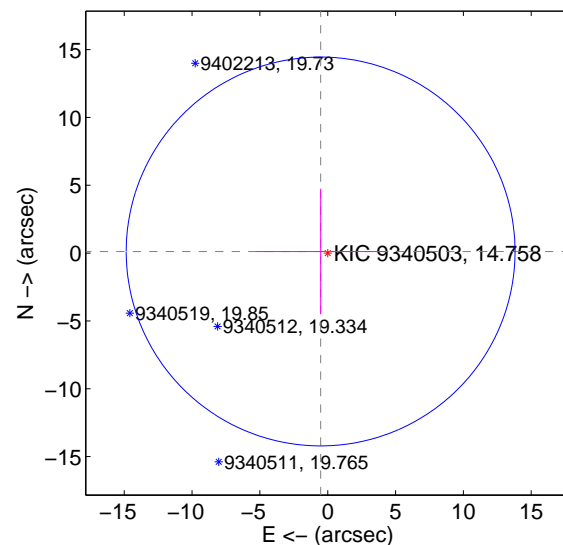
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

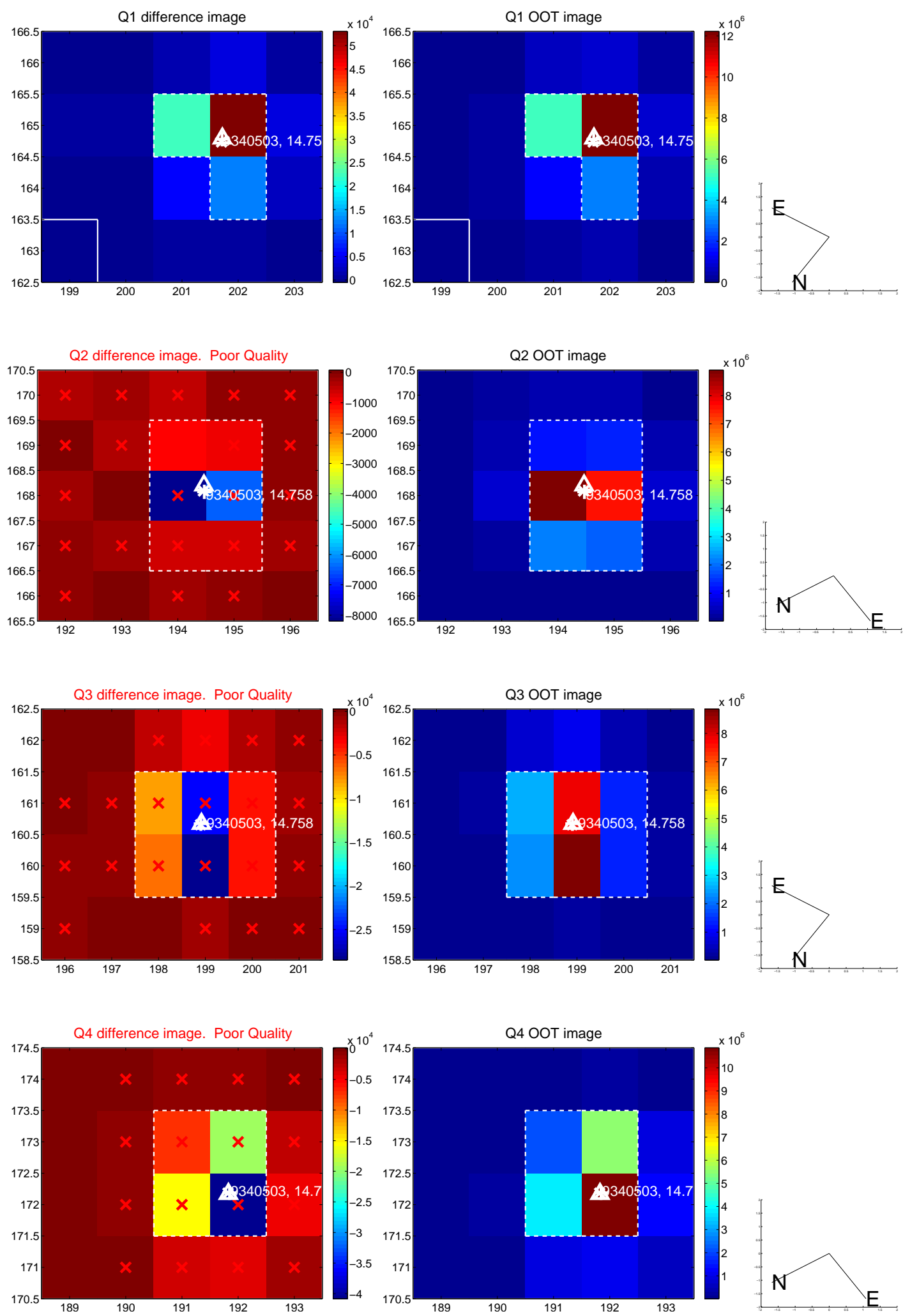


offset from photometric centroids

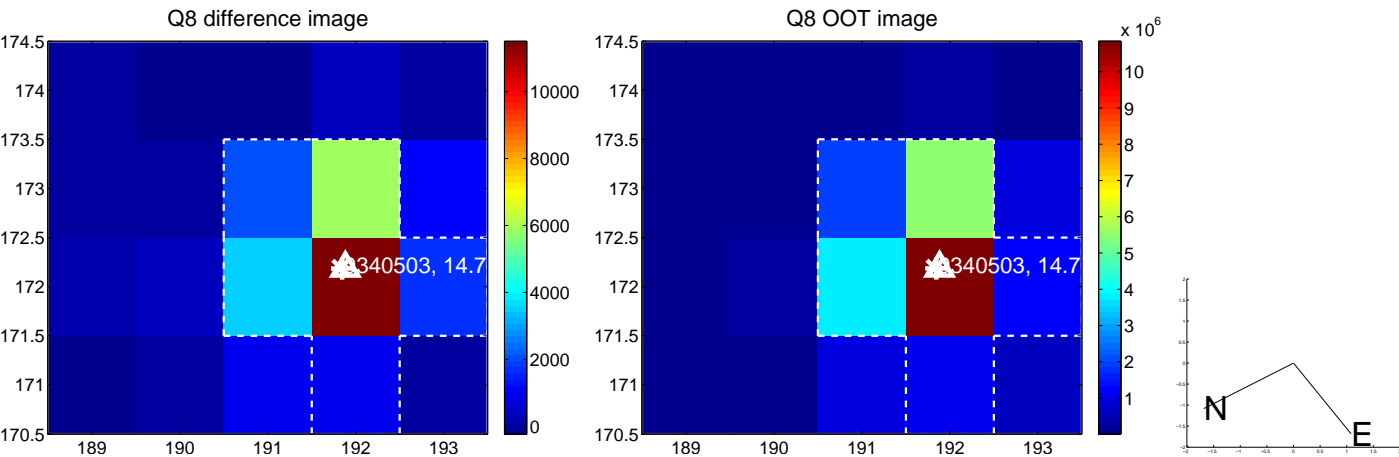
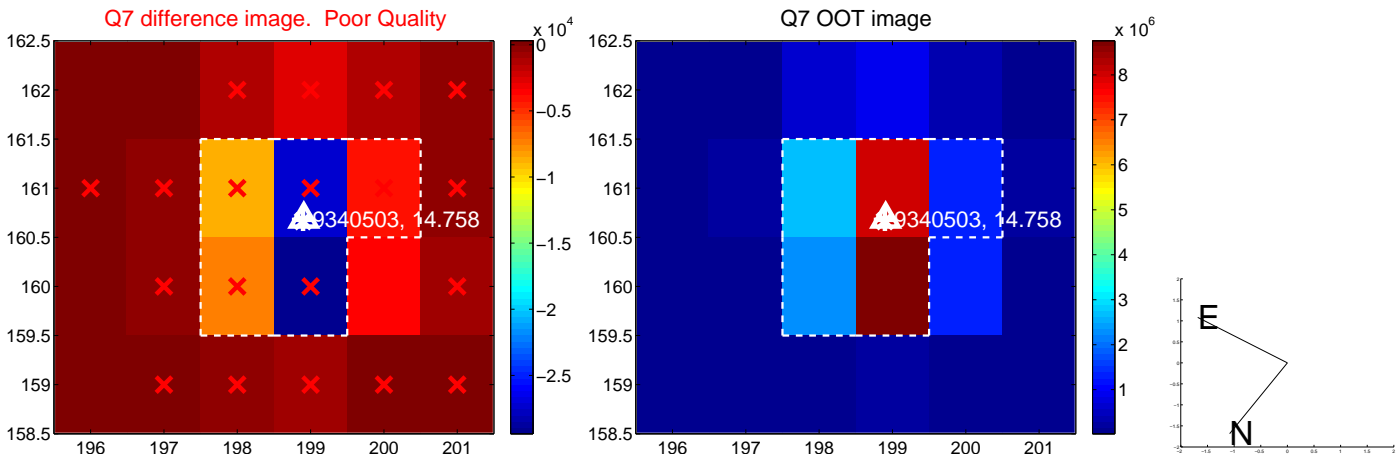
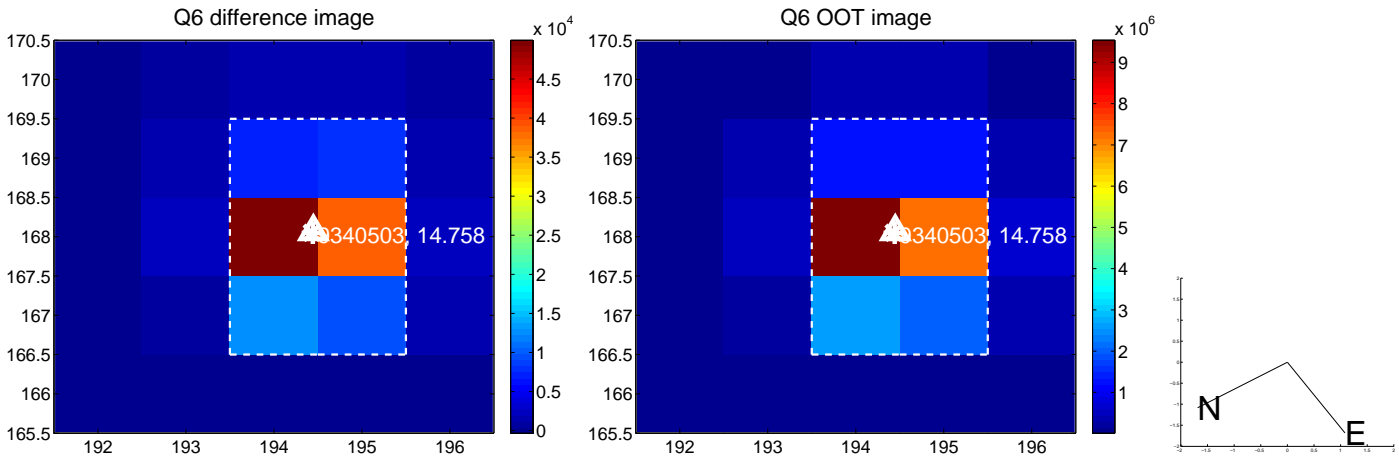
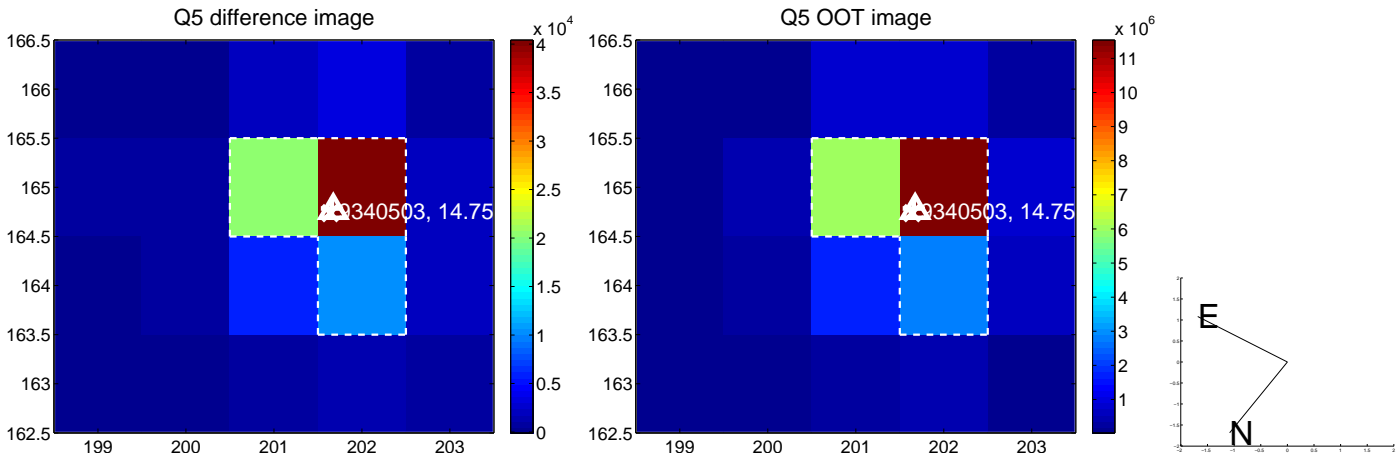


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

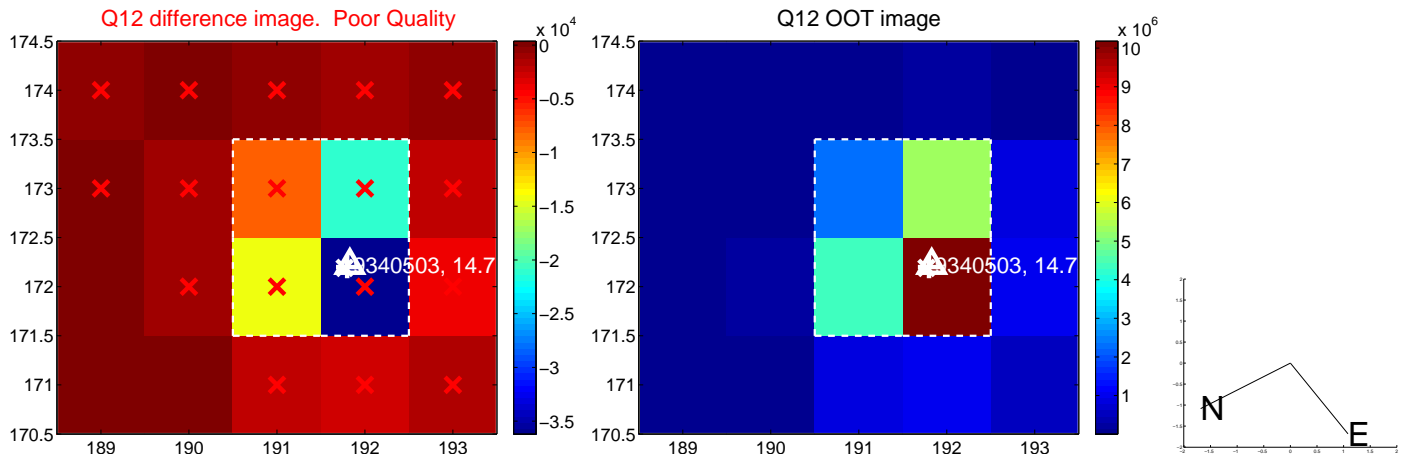
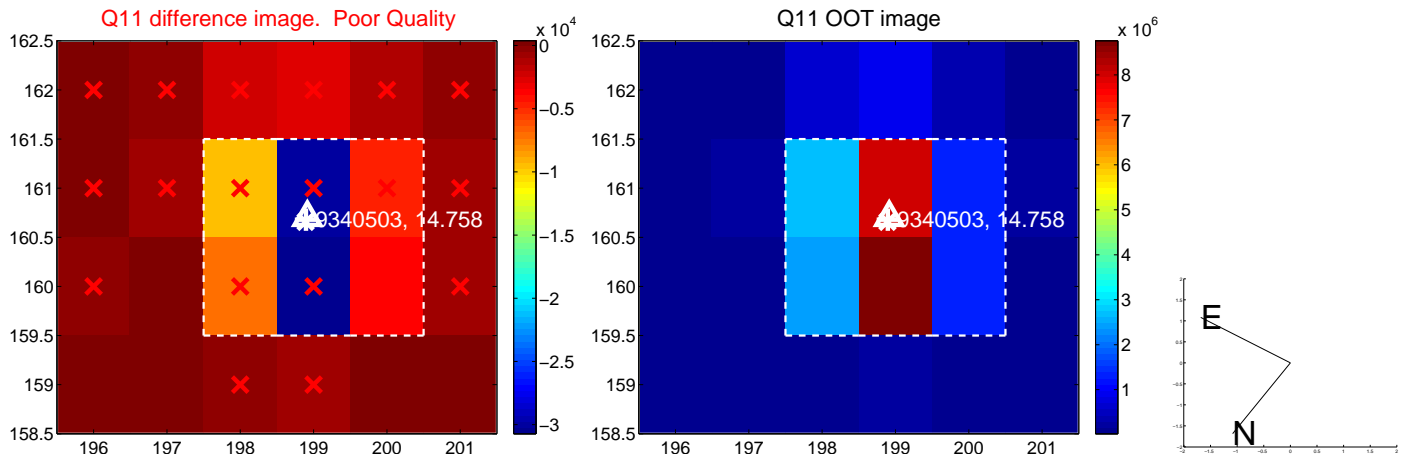
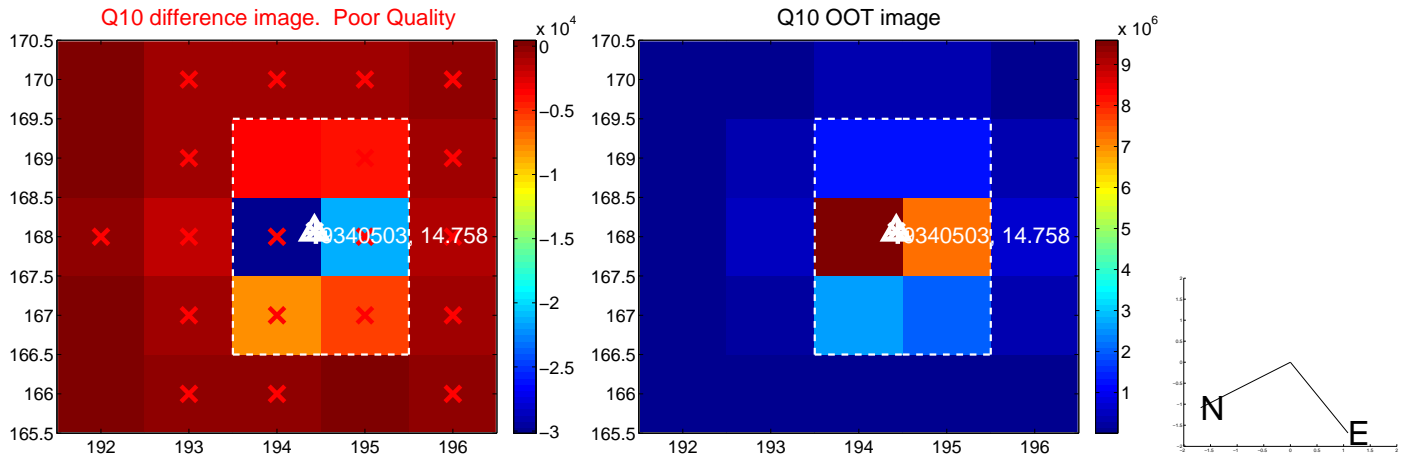
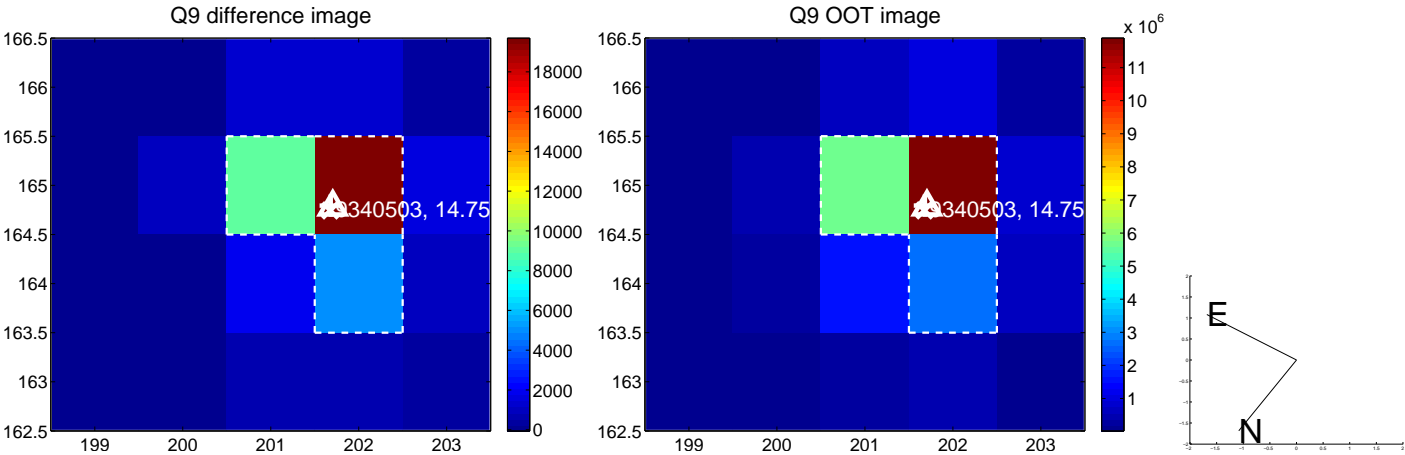
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



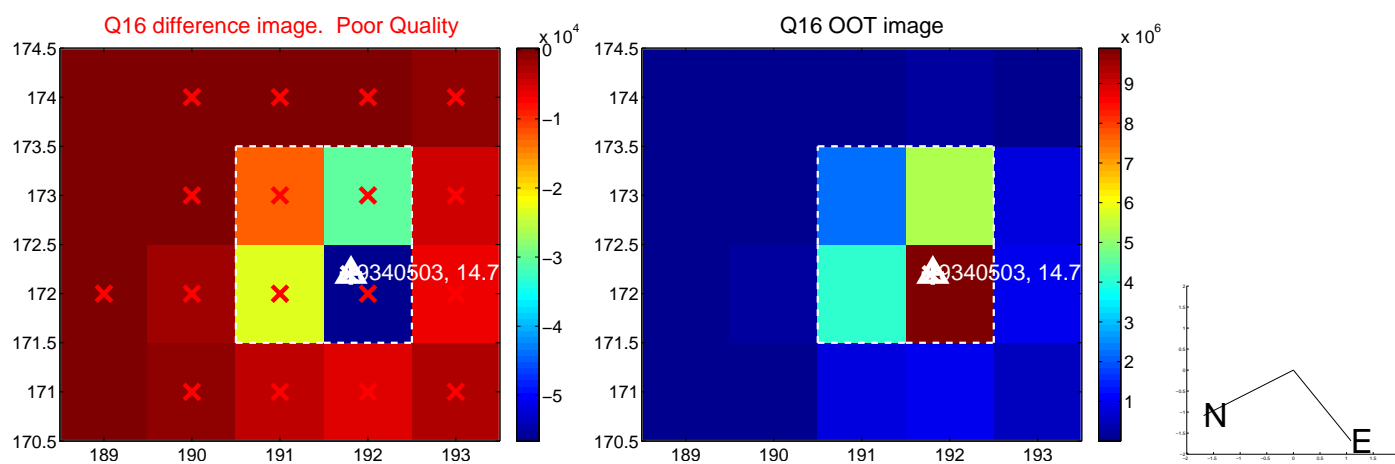
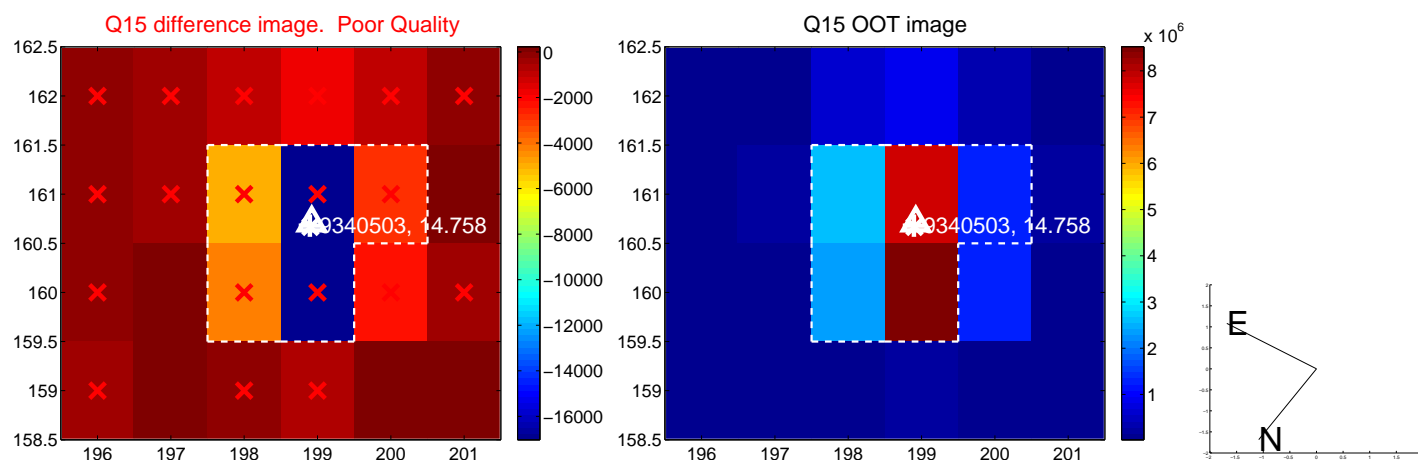
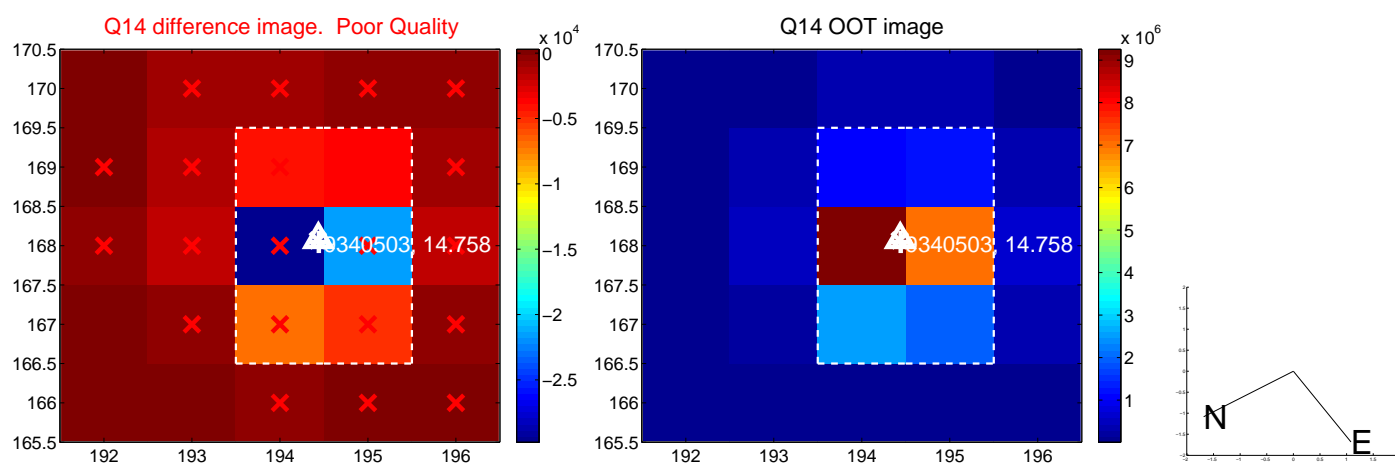
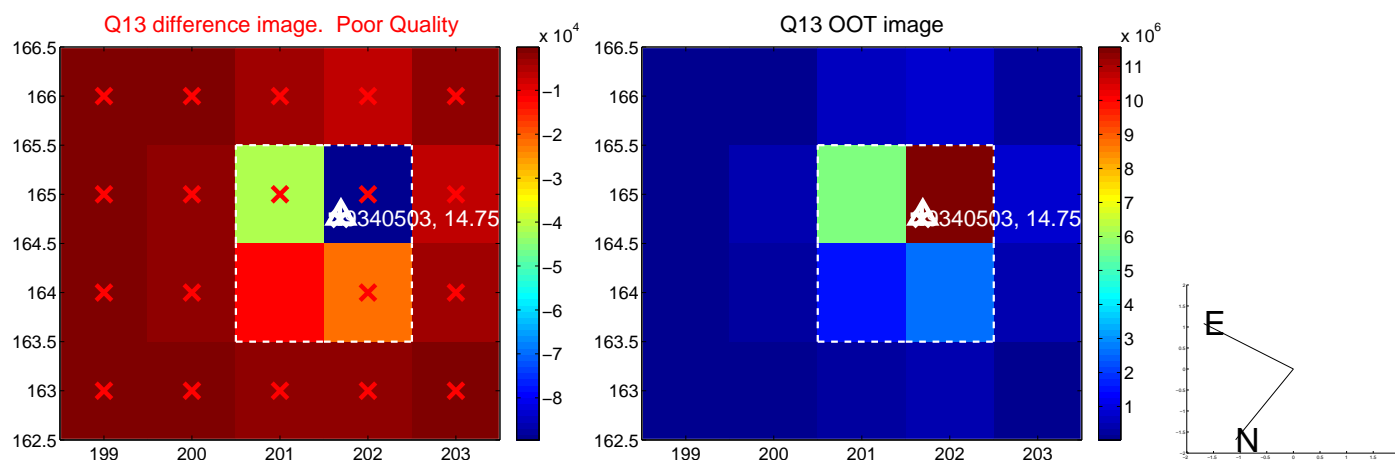
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

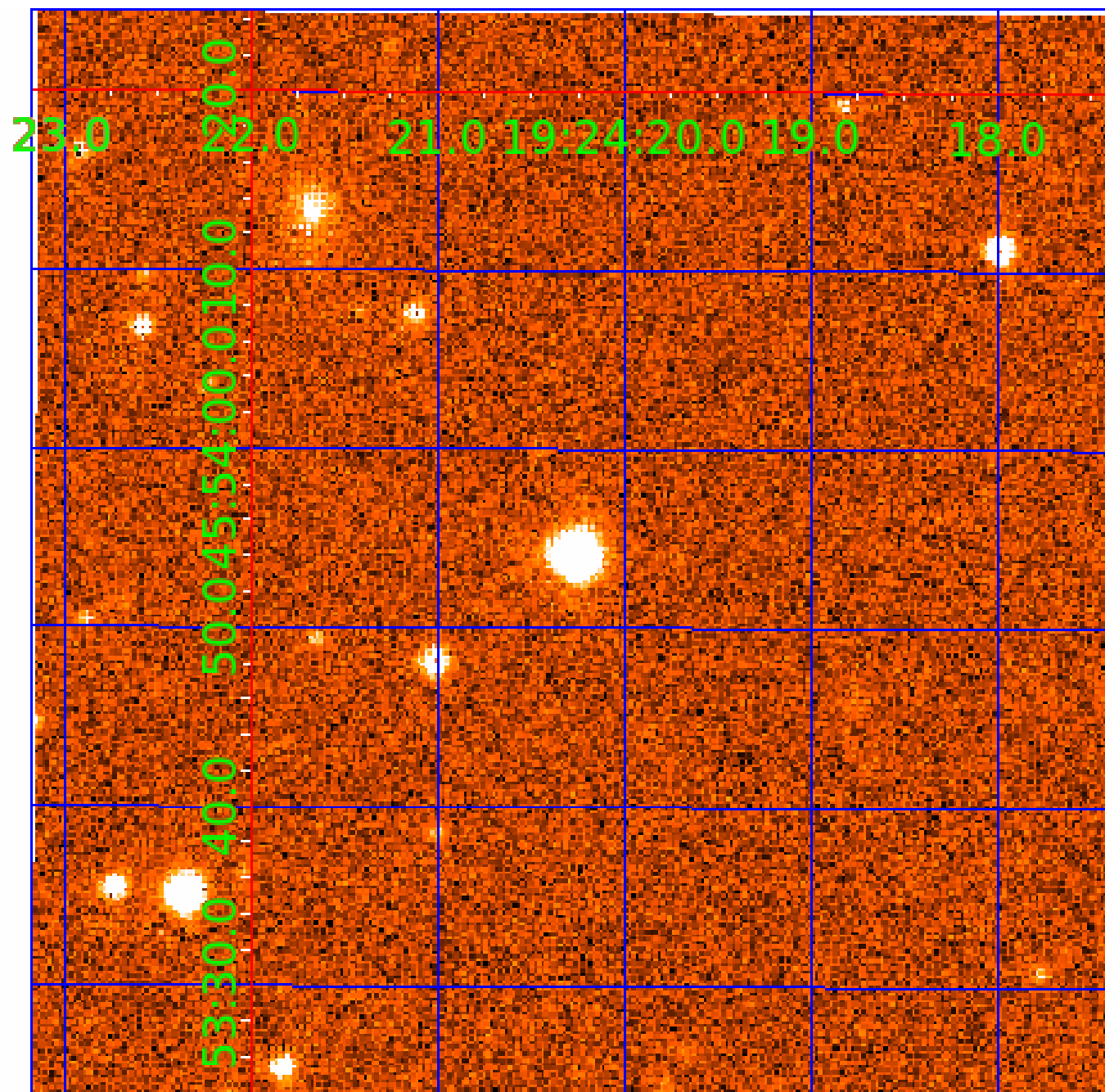


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009340503

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})
009340503-01	OBS	No	0.851236	131.615979	24.3	0.781	9.2	1.9	0.54	4590	0.26	563.12
009340503-02	OBS	No	0.851226	131.856807	13.1	2.741	7.7	1.0	0.54	4590	0.24	563.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009340503-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT
009340503-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

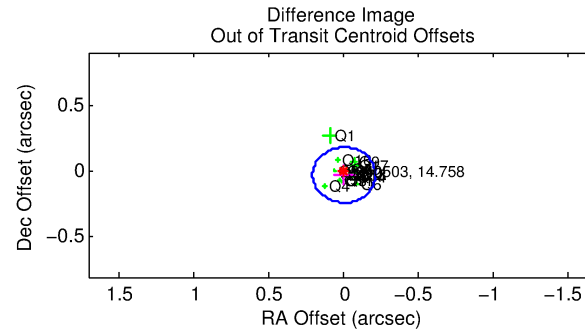
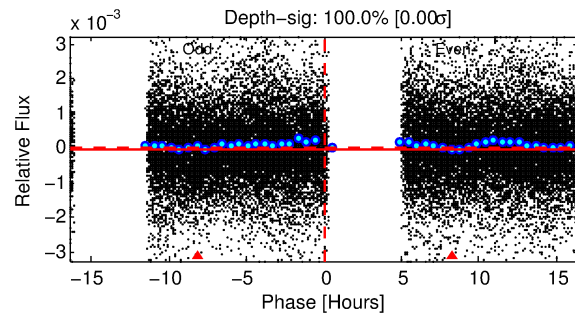
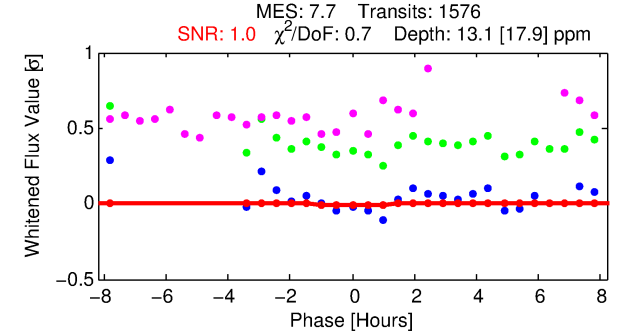
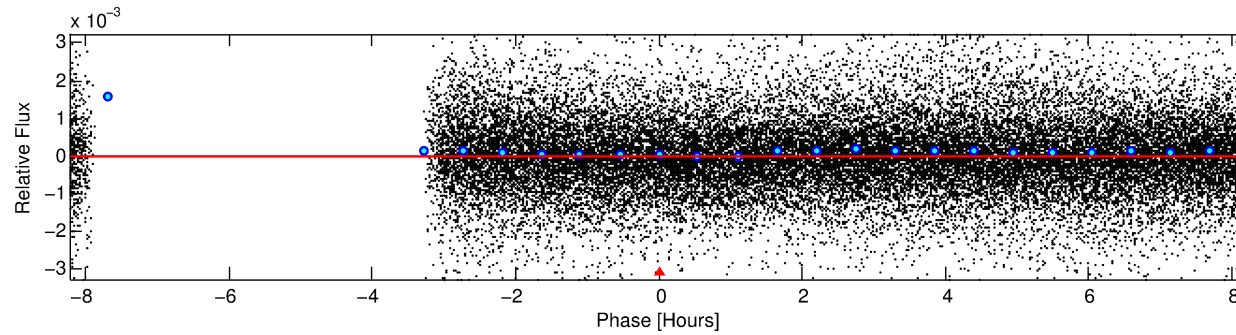
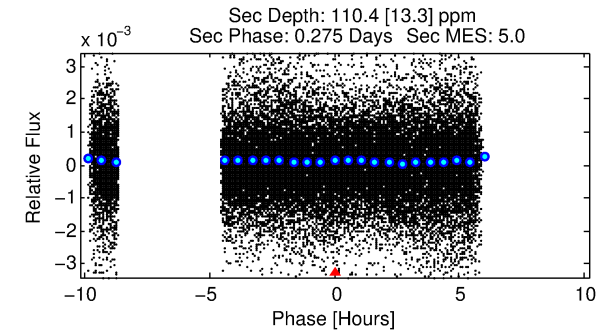
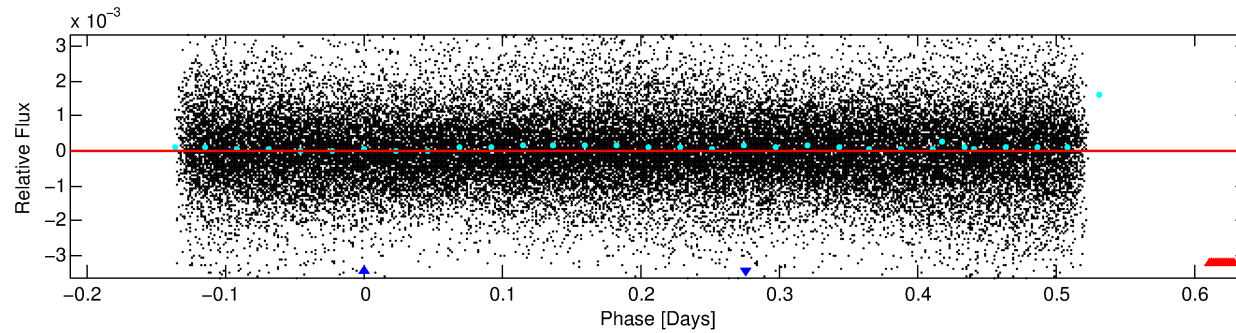
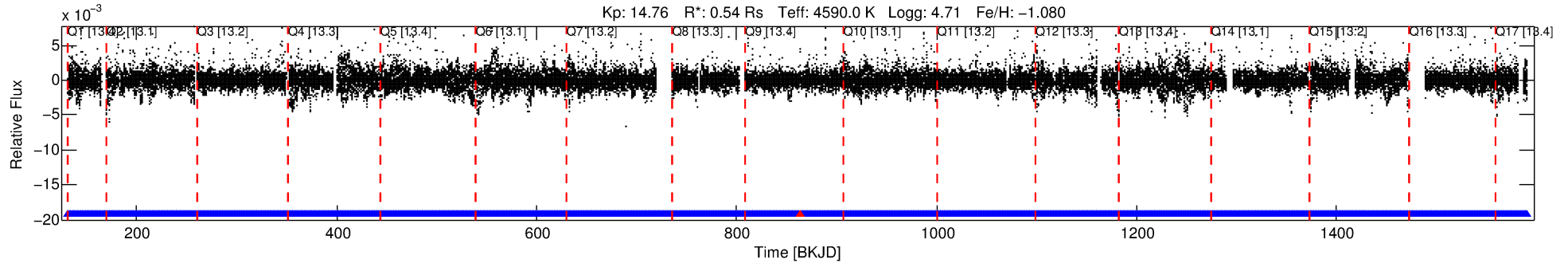
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009340503-02

No Significant Match Found

DV One-Page Summary

KIC: 9340503 Candidate: 2 of 2 Period: 0.851 d



DV Fit Results:

Period = 0.85123 [0.00009] d
Epoch = 131.8568 [0.0175] BKJD
Rp/R* = 0.0040 [0.0092]
a/R* = 1.41 [6.39]
b = 0.90 [1.97]
Seff = 563.13 [83.91]
Teq = 1242 [46] K
Rp = 0.24 [0.54] Re
a = 0.0143 [0.0008] AU
Ag = 222.16 [1010.68] [0.22σ]
Teffp = 7415 [8434] K [0.73σ]

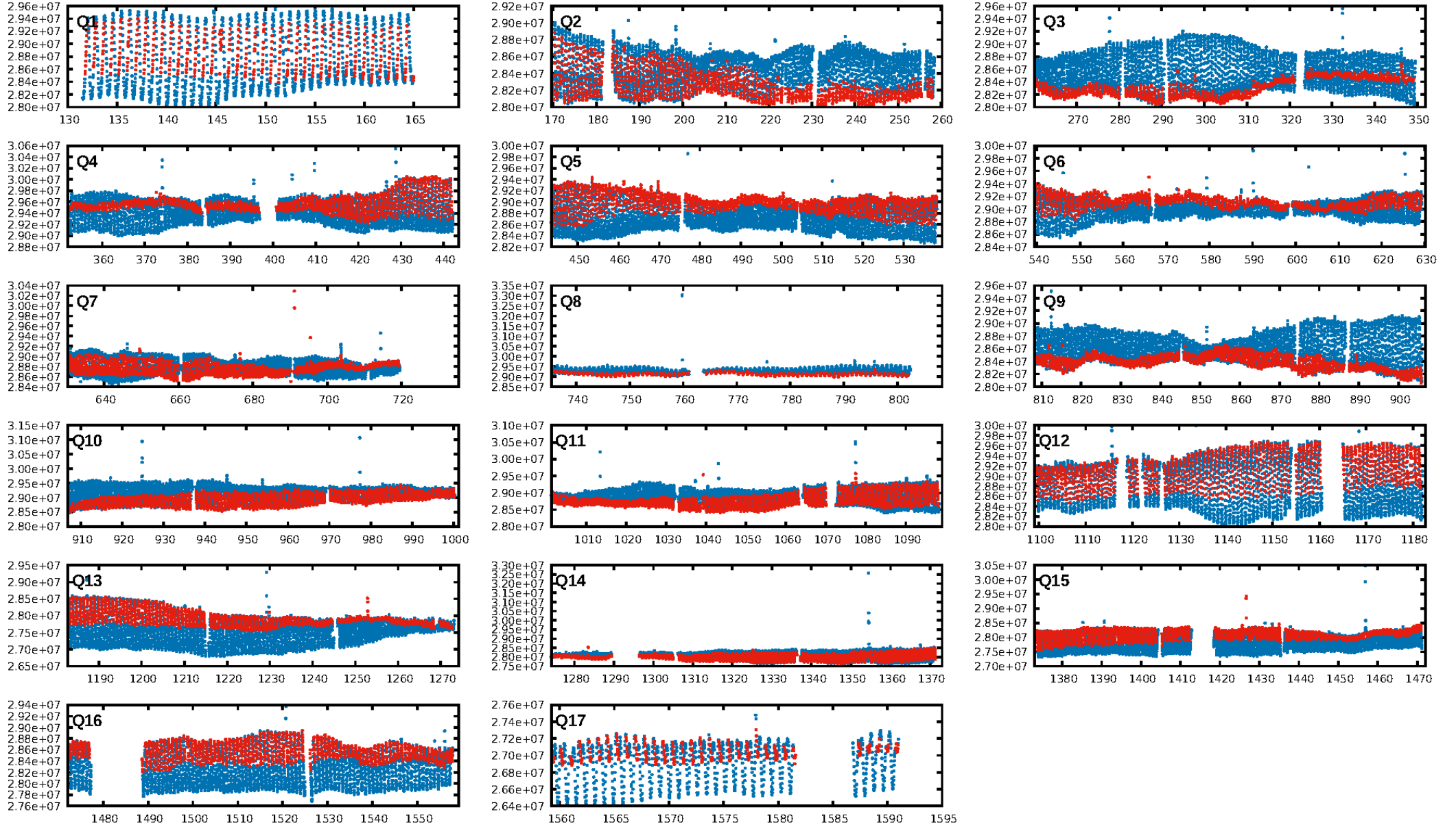
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.35e-16
RollingBand-fgt: 1.00 [1504/1505]
GhostDiagnostic-chr: 0.3873
Centroid-sig: 8.2%
Centroid-so: 6.023 arcsec [1.32σ]
OotOffset-rm: 0.030 arcsec [0.43σ]
KicOffset-rm: 0.097 arcsec [1.41σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 0.00 [0/17]

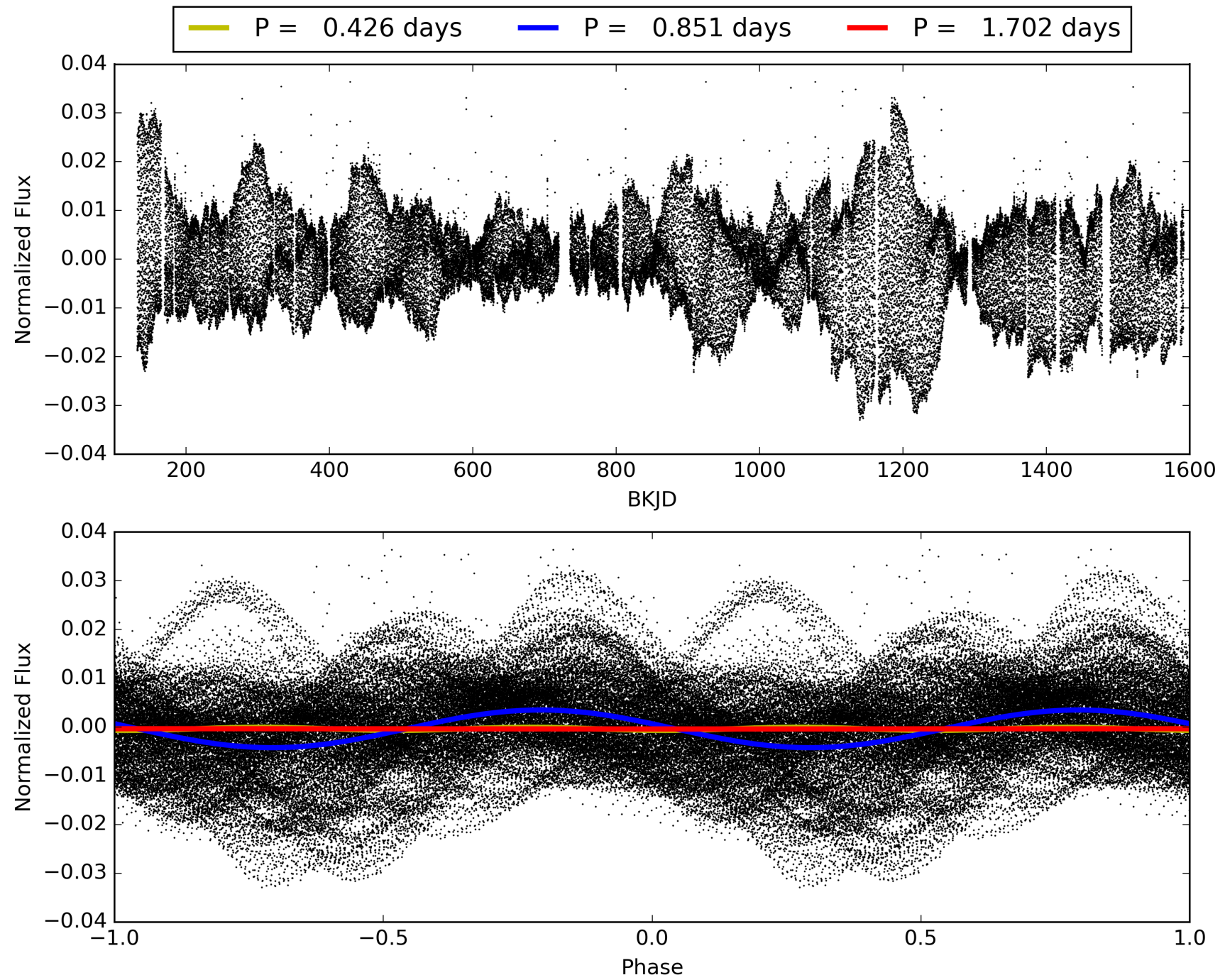
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:35:11 Z

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

TCE 009340503-02, PDC Light Curves

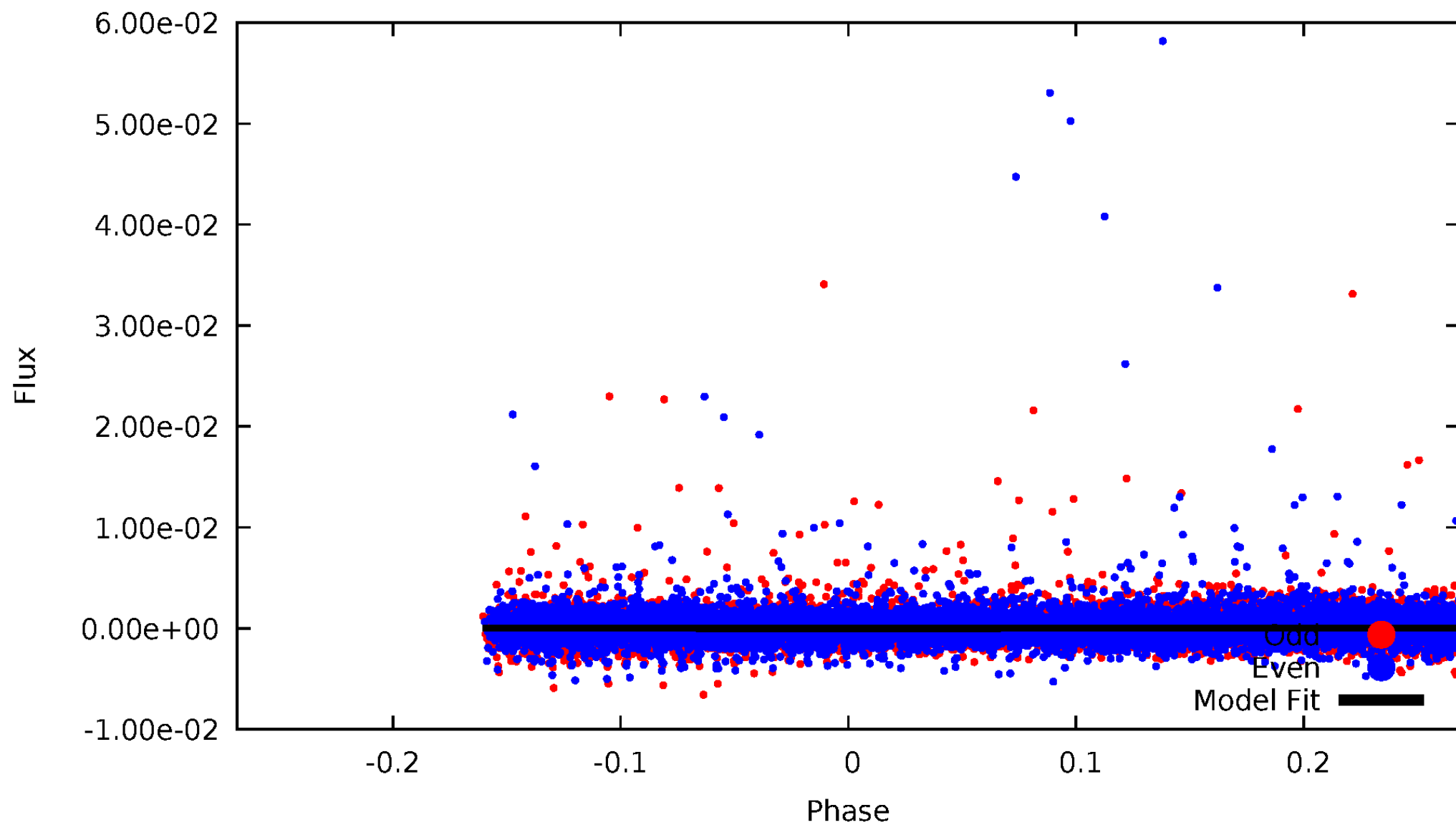


TCE 009340503-02



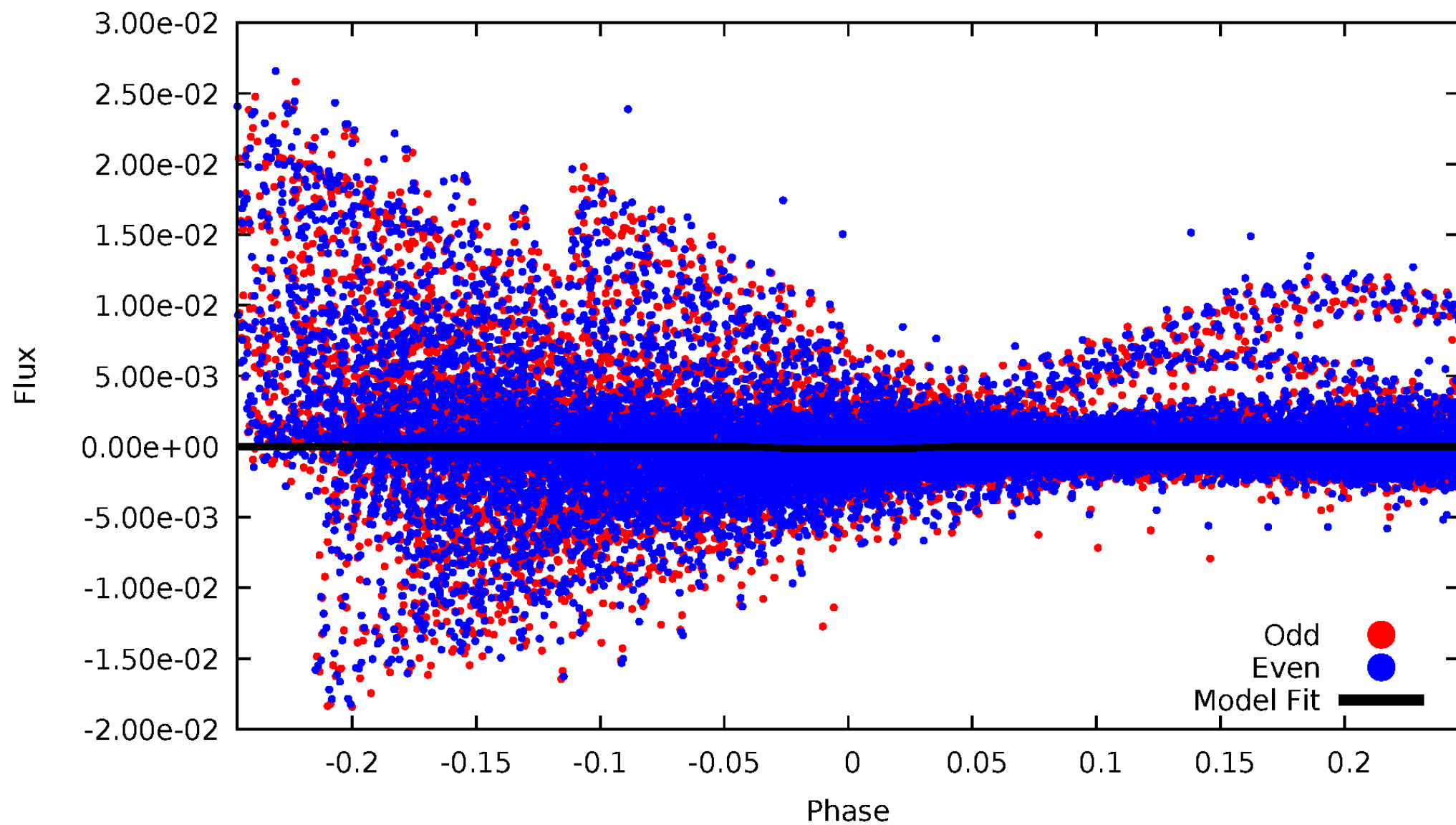
DV Odd/Even

TCE 009340503-02



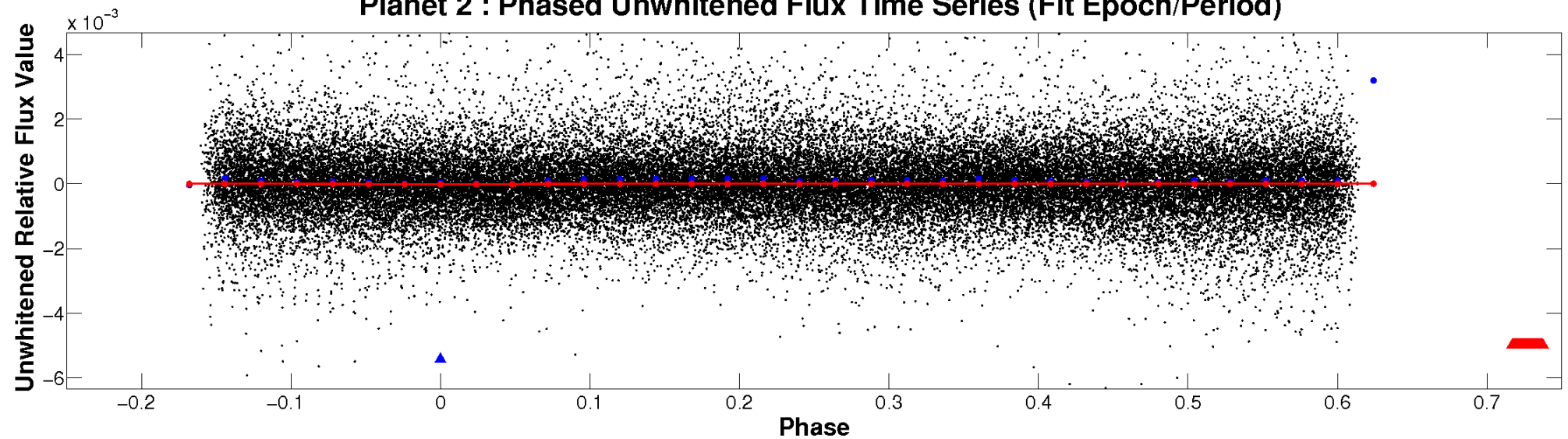
ALT Odd/Even

TCE 009340503-02

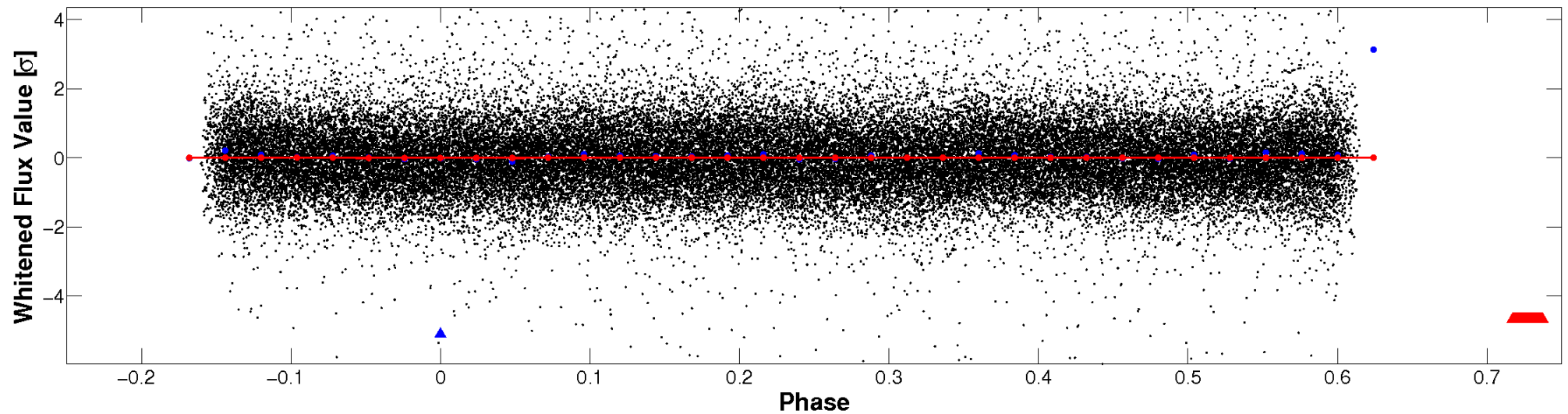


Non-Whitened Vs. Whitened Light Curve

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

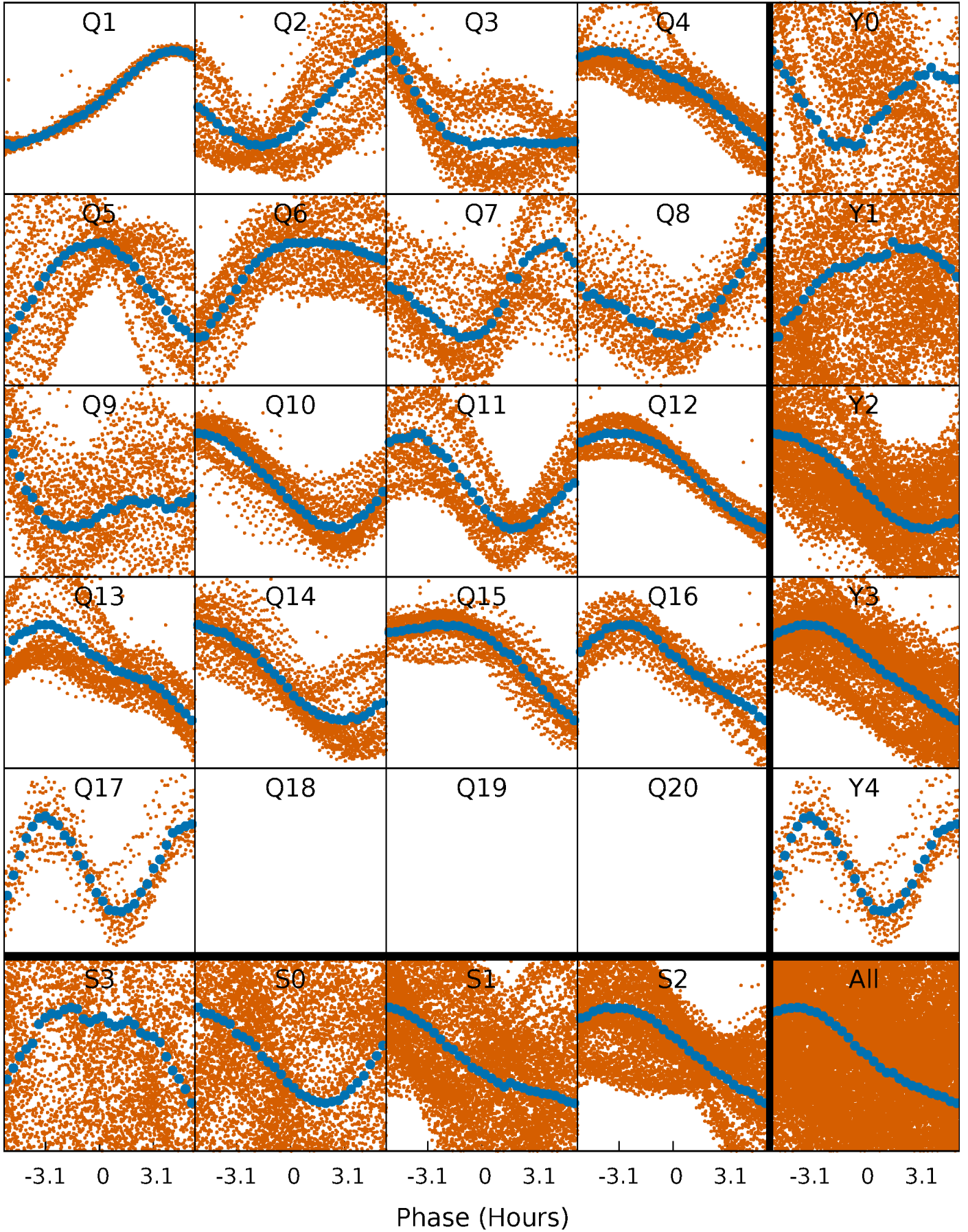


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



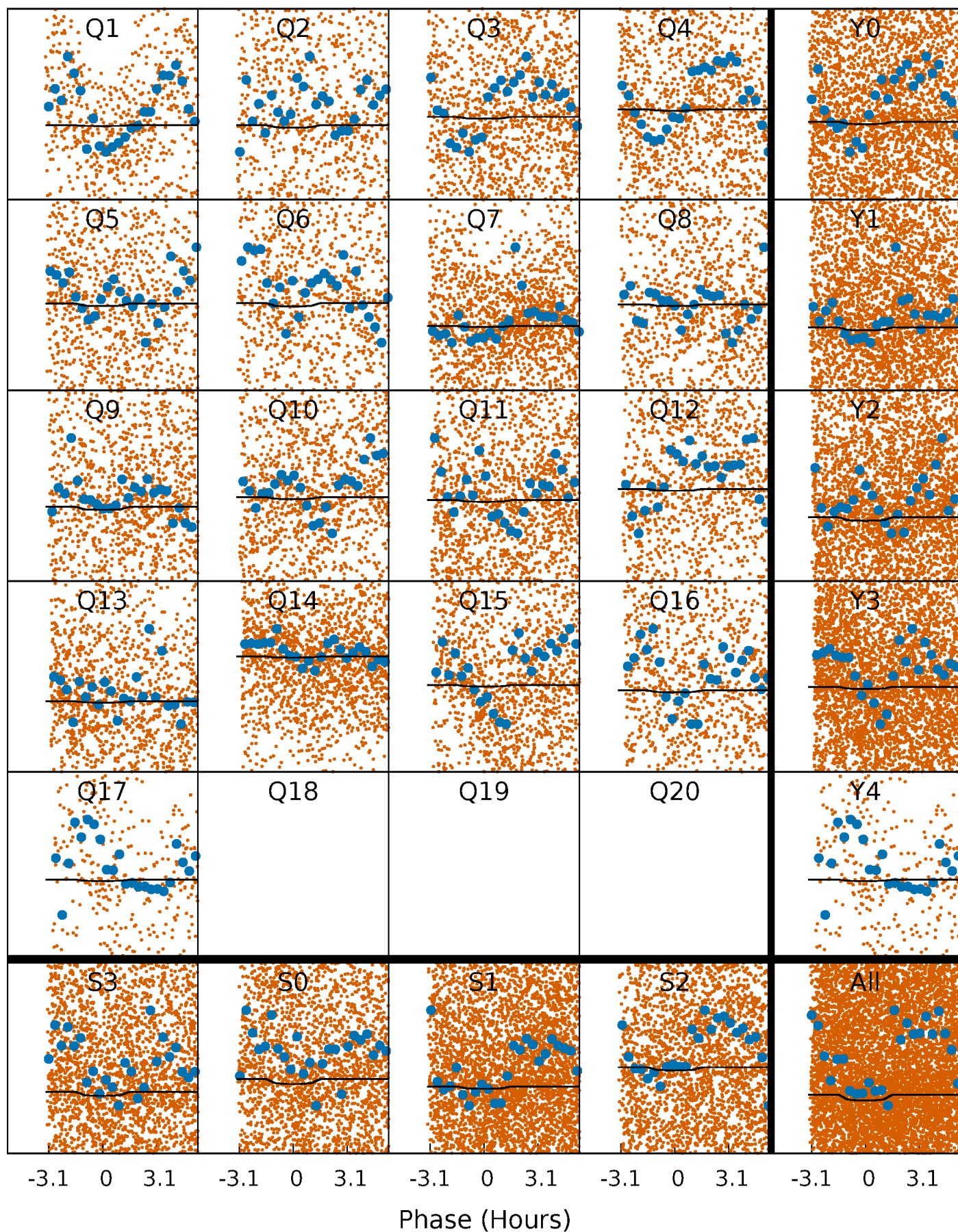
PDC Quarter-Phased Transit Curves

TCE 009340503-02 P= 0.851226 Days $T_0=131.856807$ (BKJD)



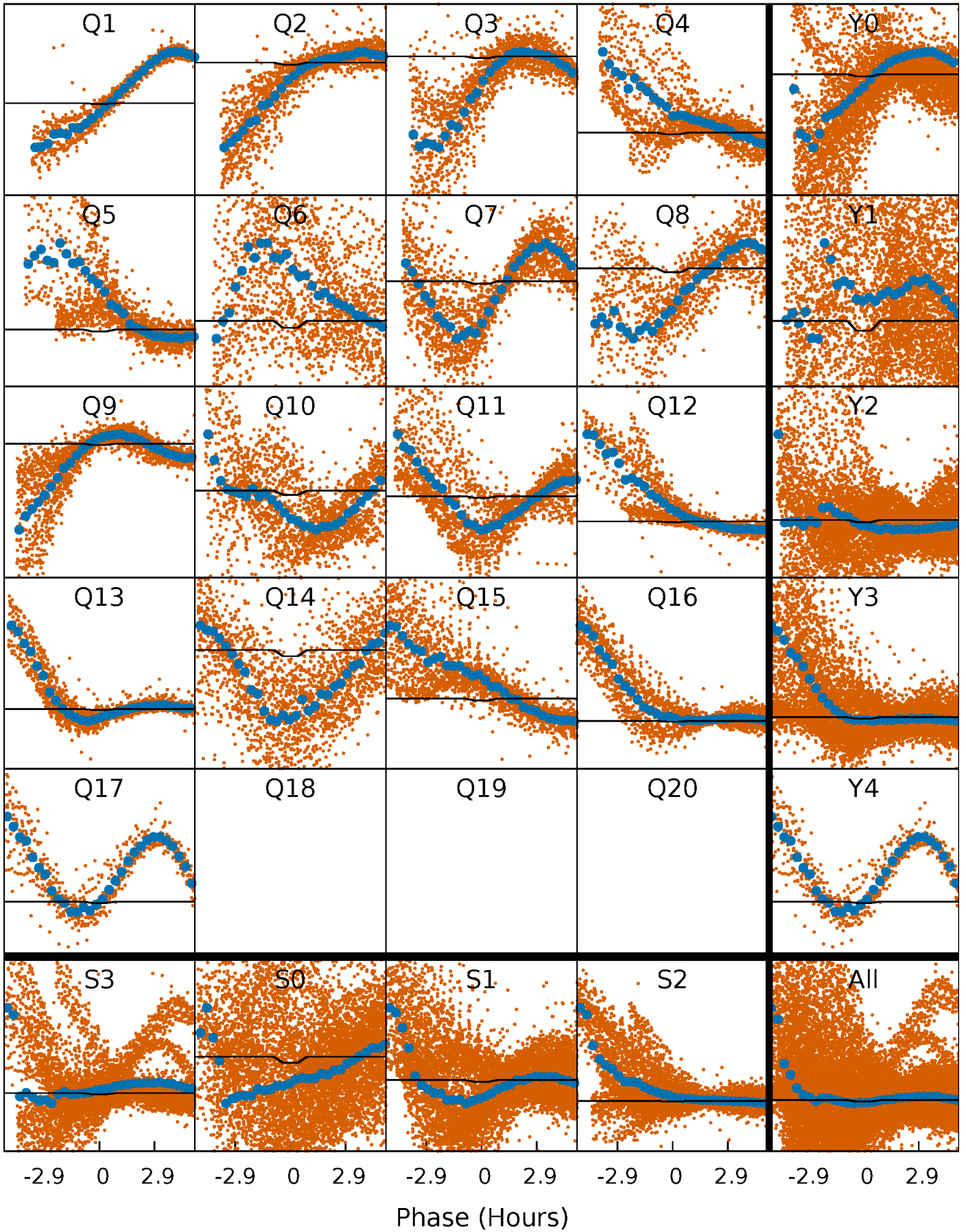
DV Quarter-Phased Transit Curves

TCE 009340503-02 P= 0.851226 Days $T_0=131.856807$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

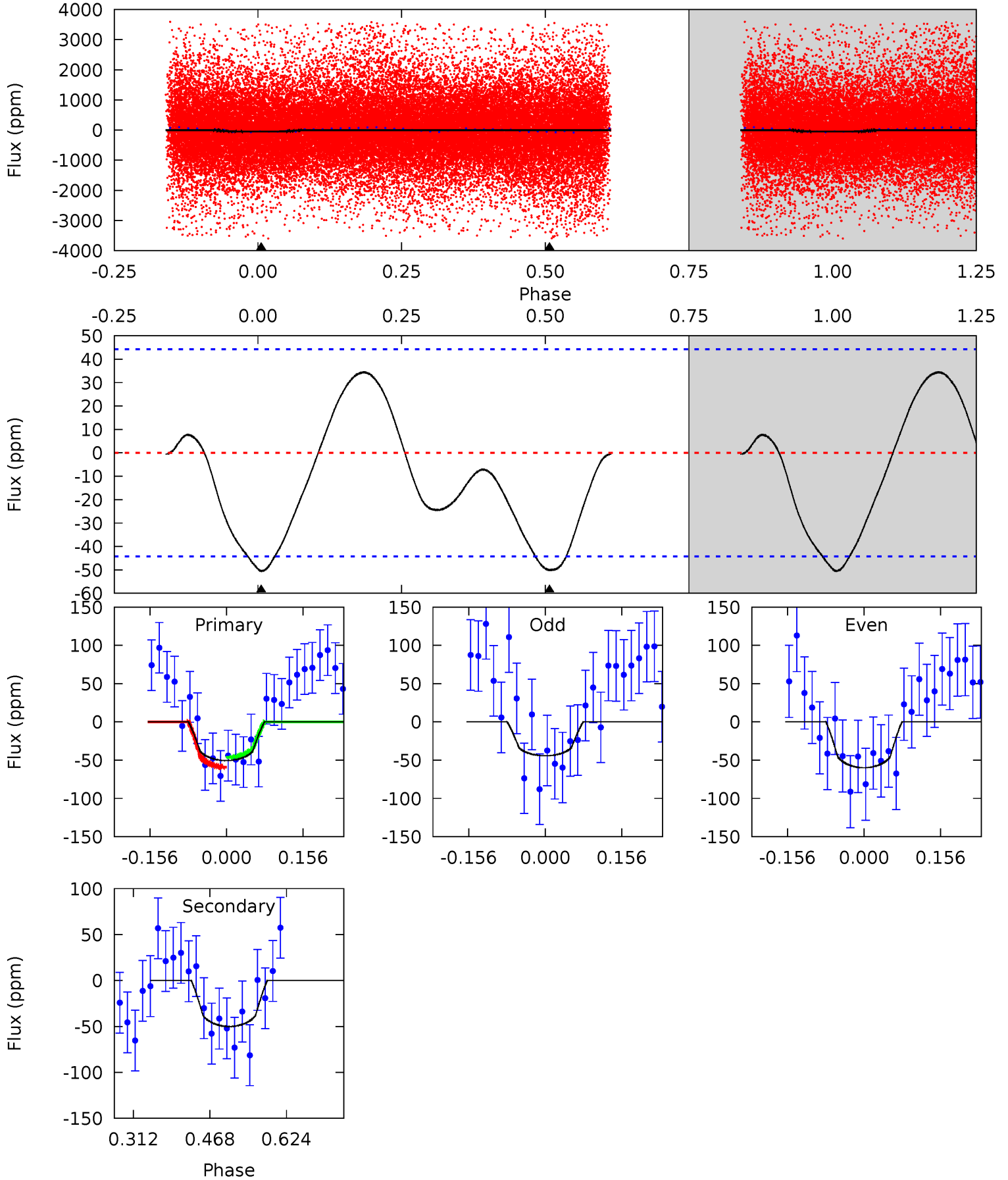
TCE 009340503-02 $P = 0.851277$ Days $T_0 = 131.866933$ (BKJD)



DV Model-Shift Uniqueness Test

009340503-02, P = 0.851226 Days, E = 131.005581 Days

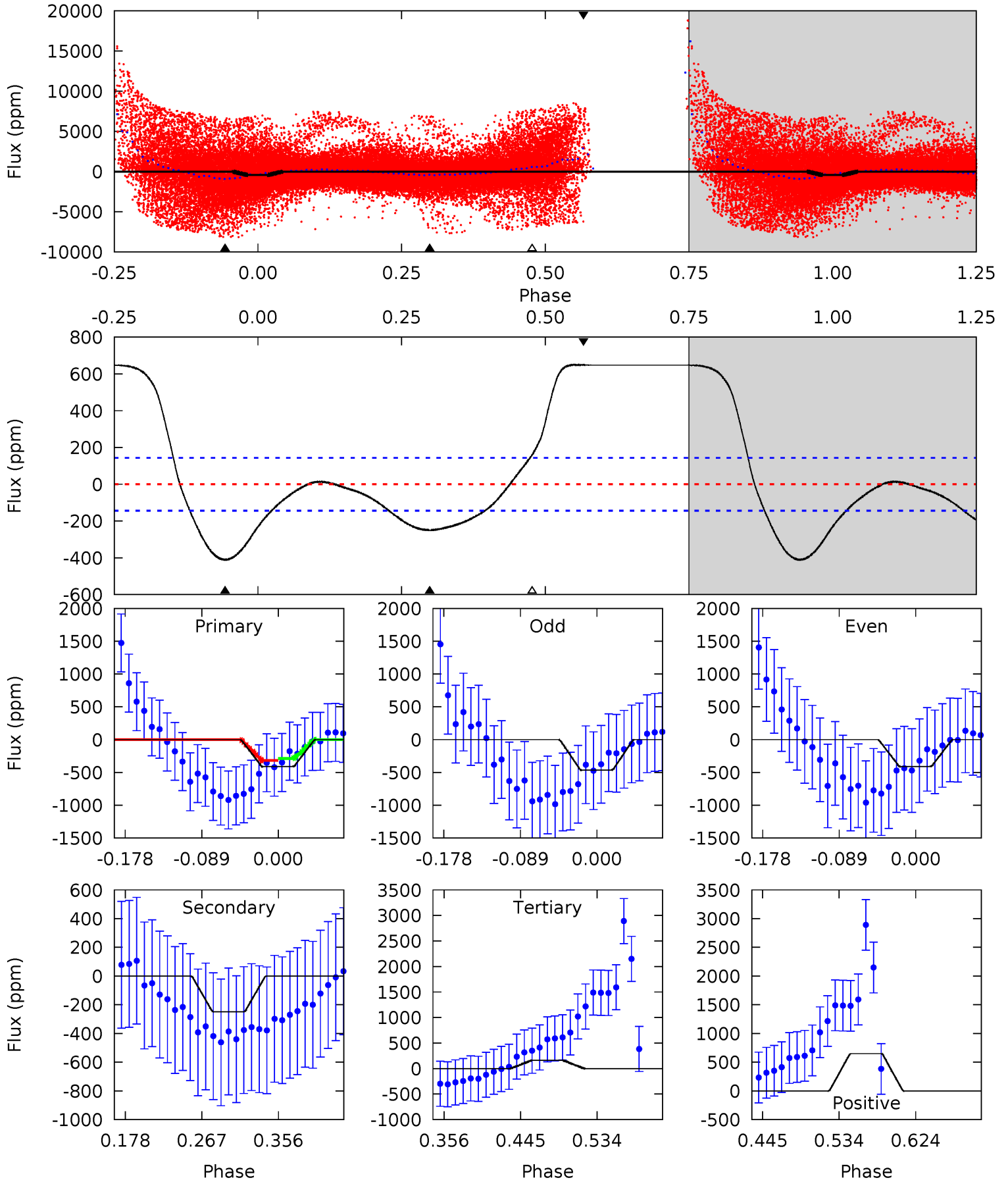
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.10	5.05	0	0	4.47	1.42	2.37	5.10	5.10	5.05	5.05	0.79	-0.29	0.41	0.62



Alt Model-Shift Uniqueness Test

009340503-02, P = 0.851277 Days, E = 131.015656 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	7.96	-5.09	20.7	4.59	1.70	7.46	18.2	-7.60	13.1	-12.8	0.90	0.45	0.61	0.27



Stellar Parameters For KIC 009340503

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4590^{+139}_{-125}	$4.707^{+0.048}_{-0.032}$	$-1.080^{+0.300}_{-0.300}$	$0.538^{+0.037}_{-0.037}$	$0.538^{+0.044}_{-0.024}$	$4.859^{+0.948}_{-0.660}$
	+3%/-3%	+1%/-1%	+28%/-28%	+7%/-7%	+8%/-4%	+20%/-14%
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 009340503-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-50 ± 10	$0.46^{+0.44}_{-0.31}$	1732^{+59}_{-58}	4404^{+2978}_{-950}	27^{+221}_{-20}
Alt.	-249 ± 31	$0.78^{+0.49}_{-0.46}$	1732^{+60}_{-59}	4964^{+2609}_{-903}	49^{+230}_{-31}

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

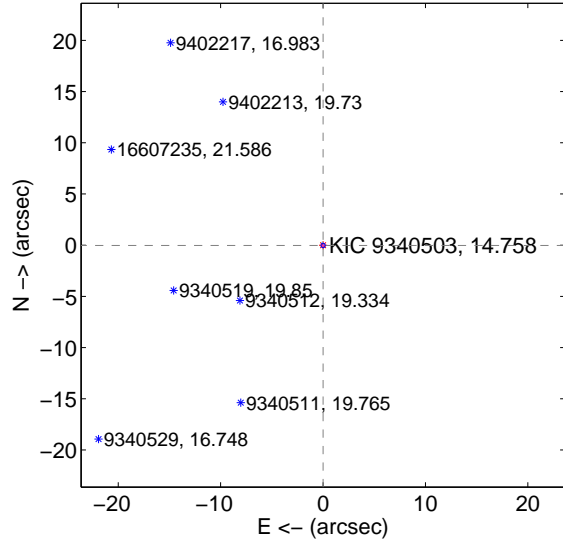
Supplemental centroid analysis for 009340503-02. Kepler magnitude: 14.76. Transit SNR 0.95

There are 10 quarters with good PRF difference image offsets

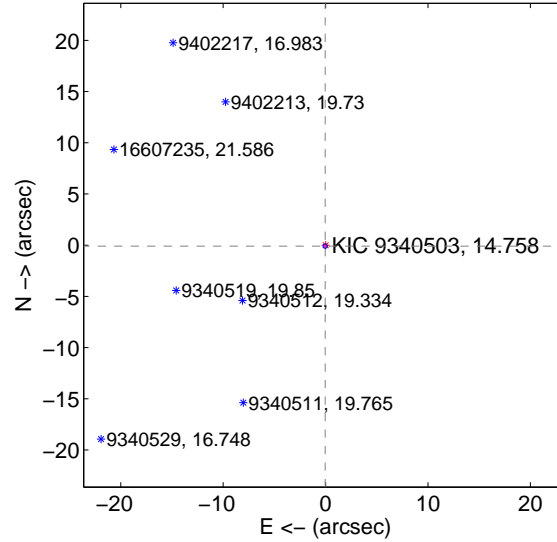
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.030 ± 0.070	0.43	-0.008 ± 0.068	-0.029 ± 0.070
PRF-fit source offset from KIC position	0.097 ± 0.069	1.41	0.037 ± 0.068	-0.090 ± 0.070
photometric centroid source offset	6.02 ± 4.56	1.32	-4.10 ± 4.71	4.41 ± 4.42

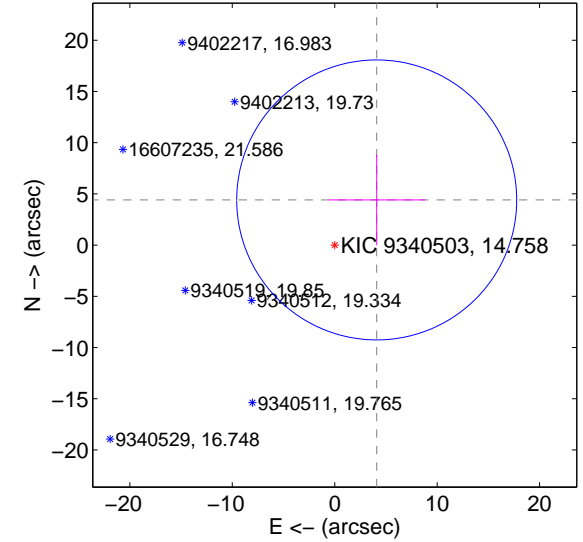
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

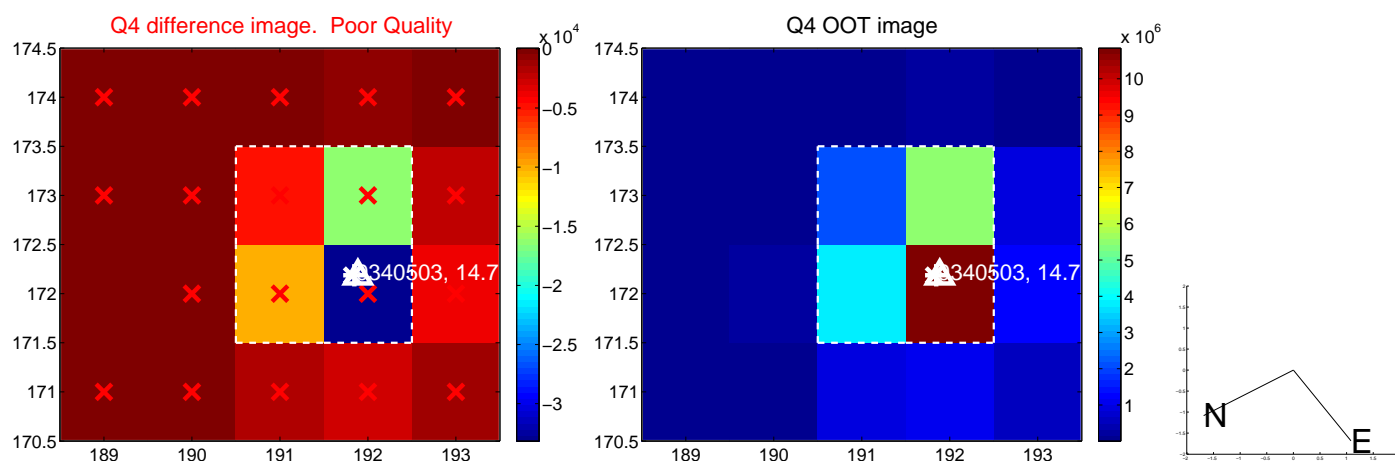
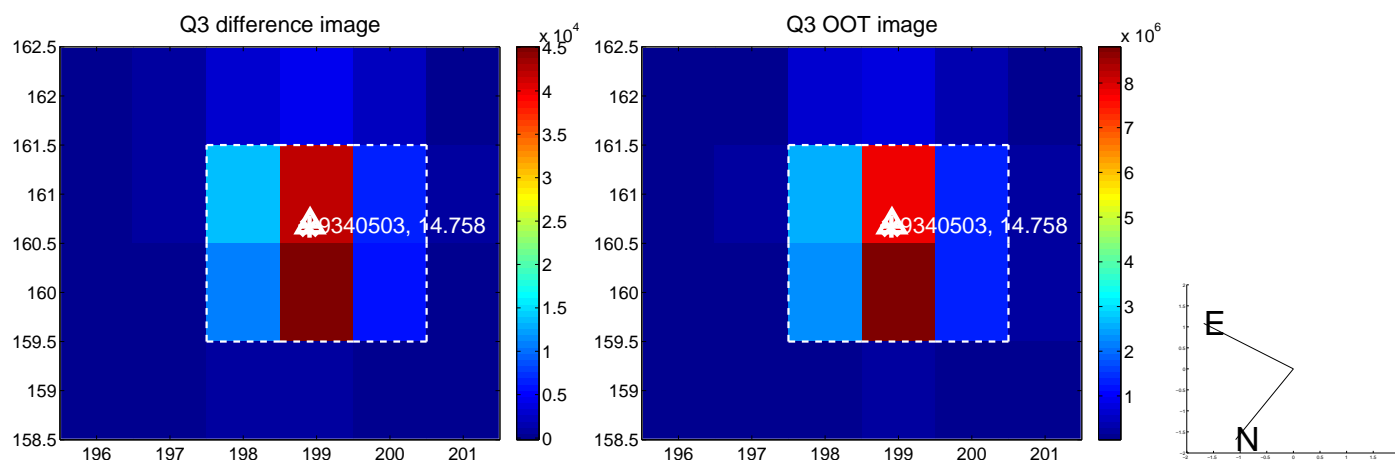
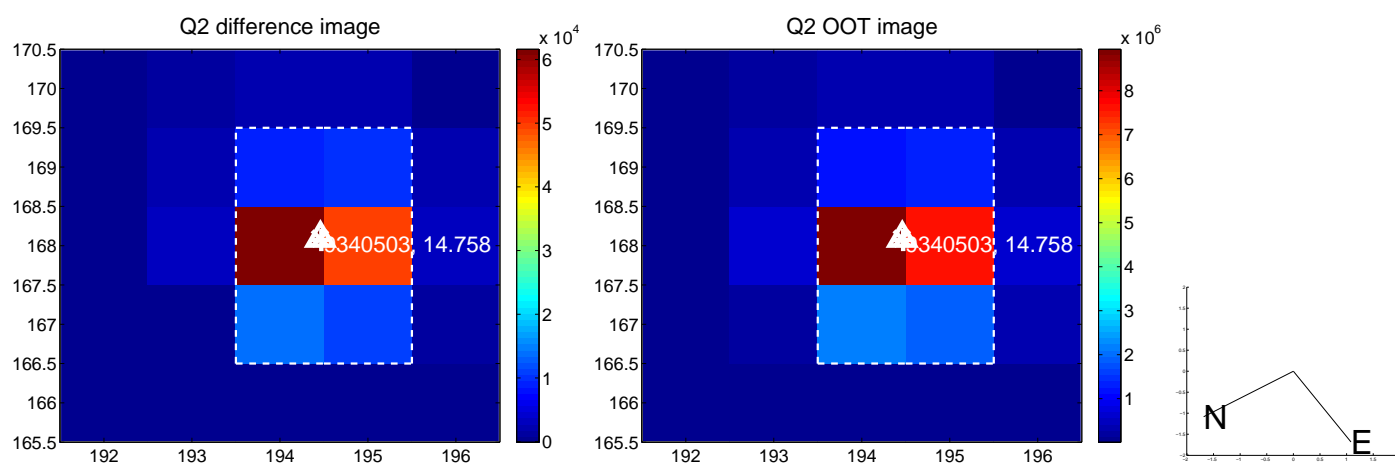
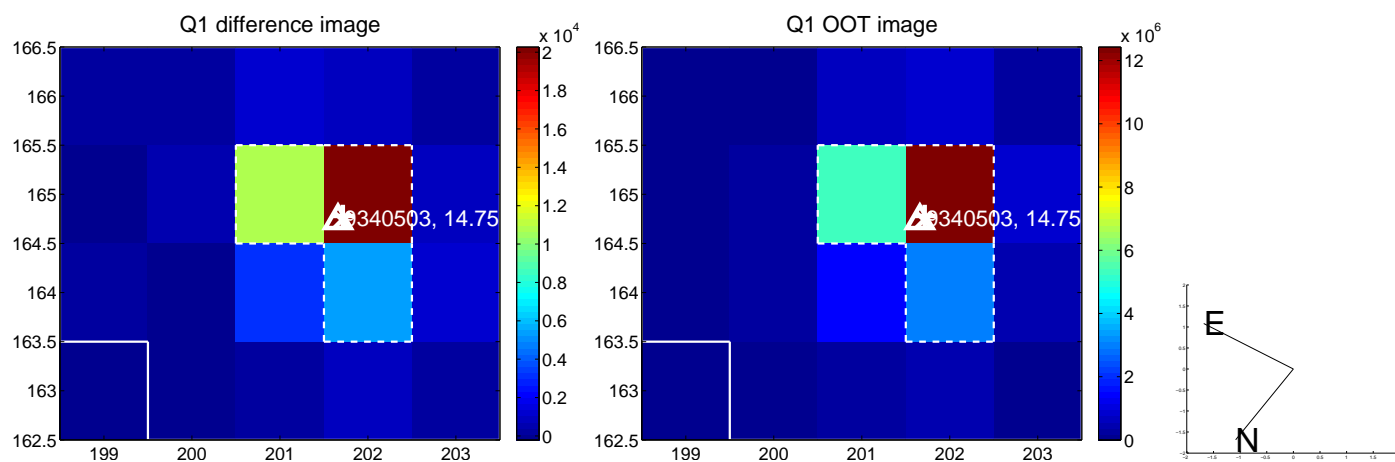


offset from photometric centroids

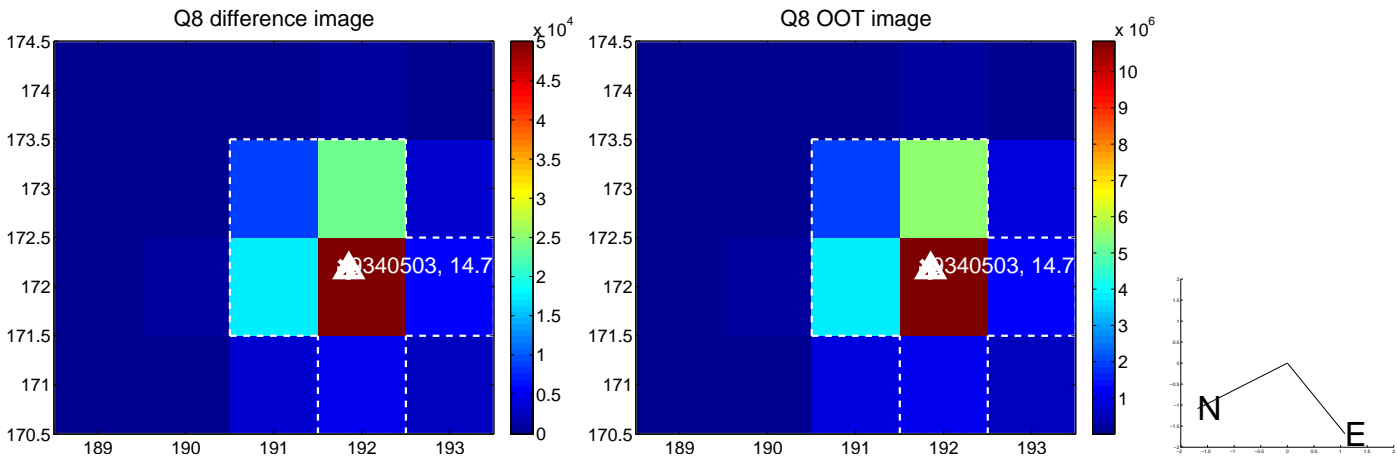
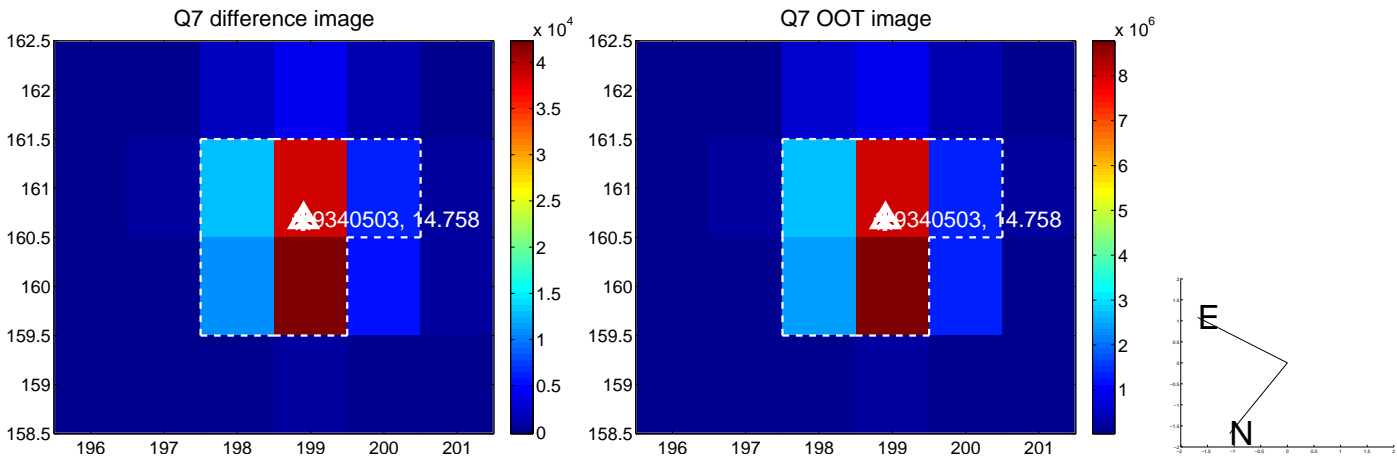
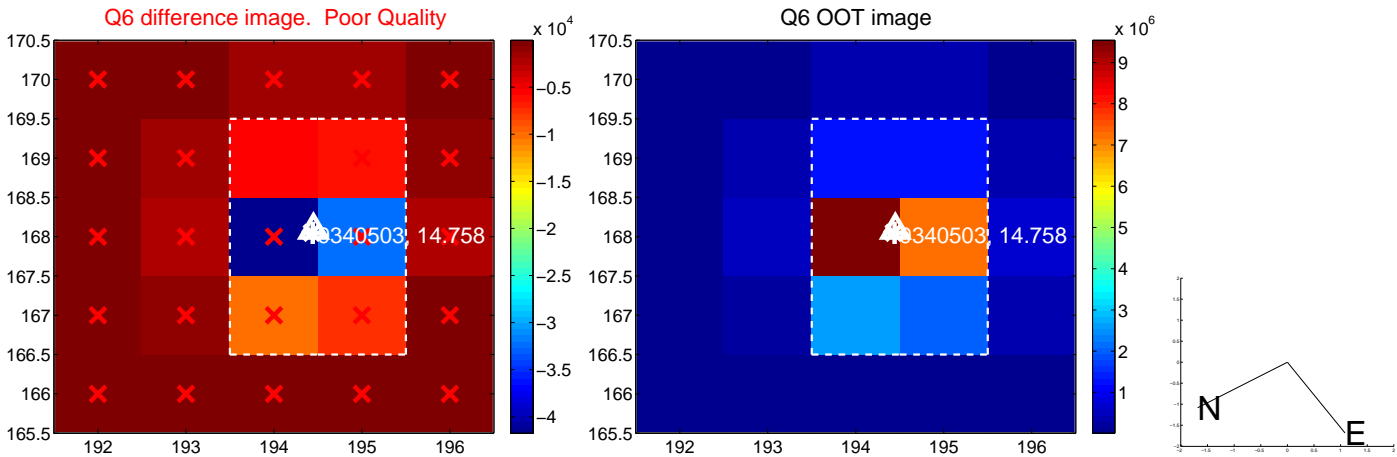
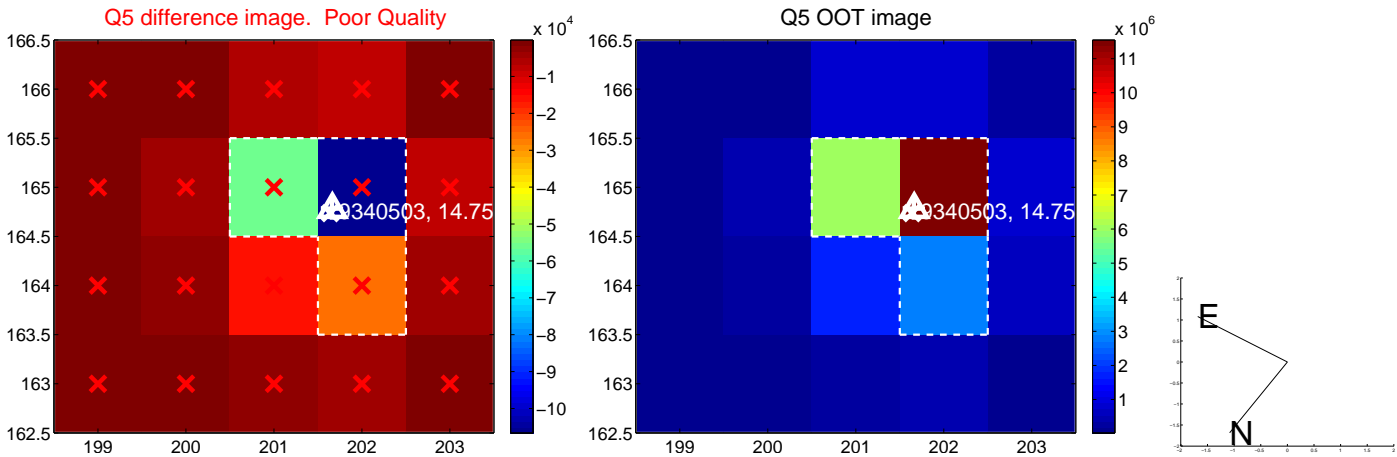


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

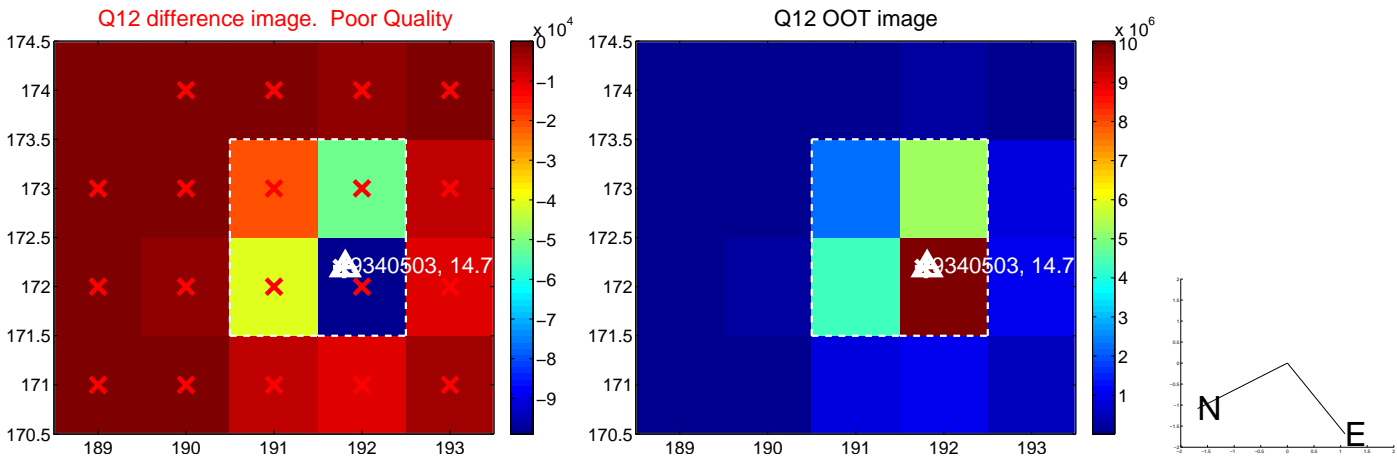
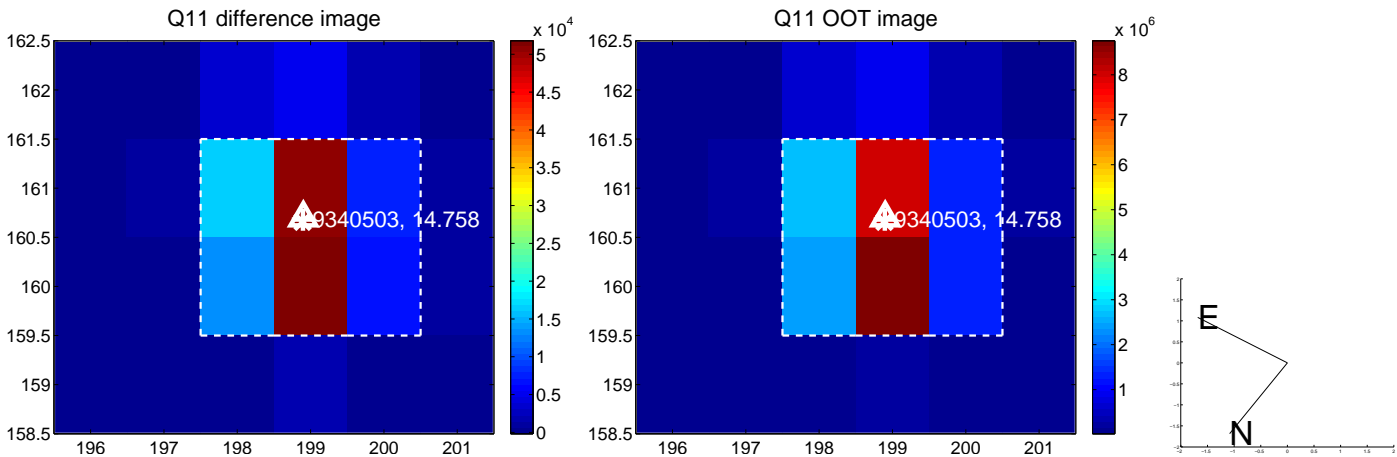
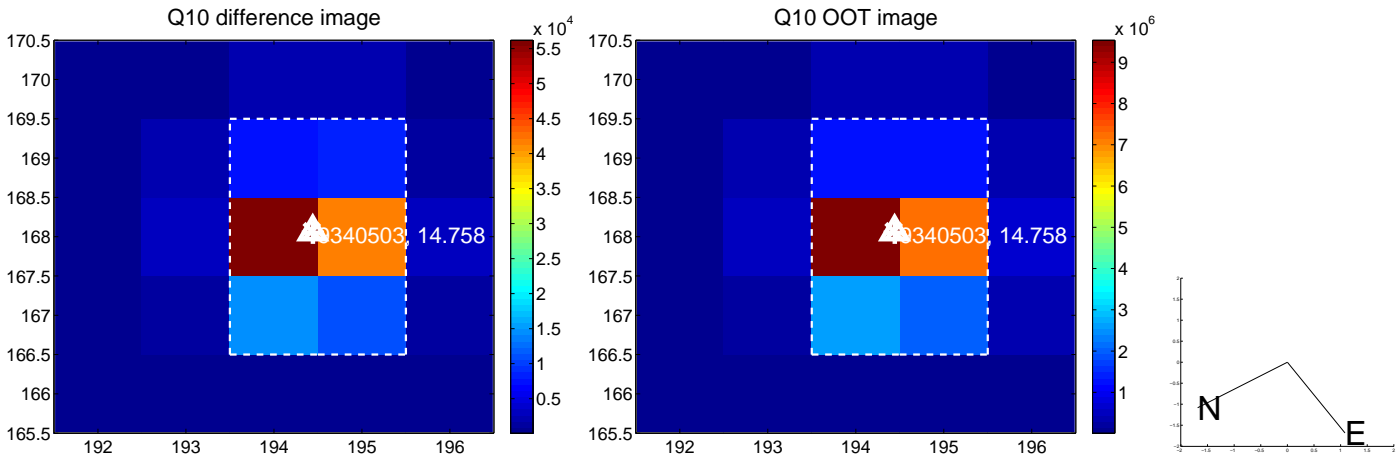
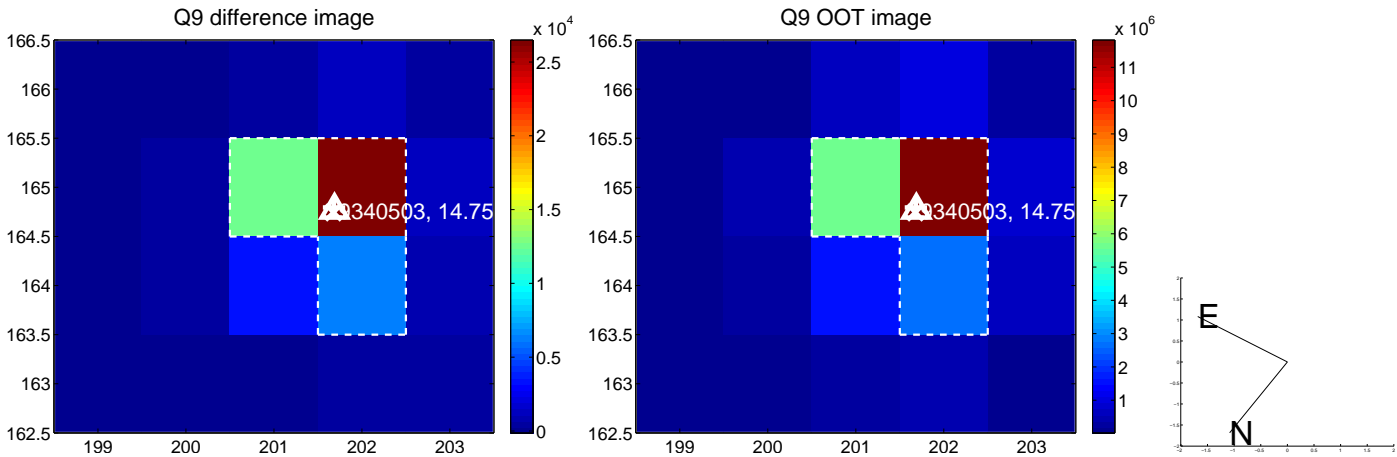
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



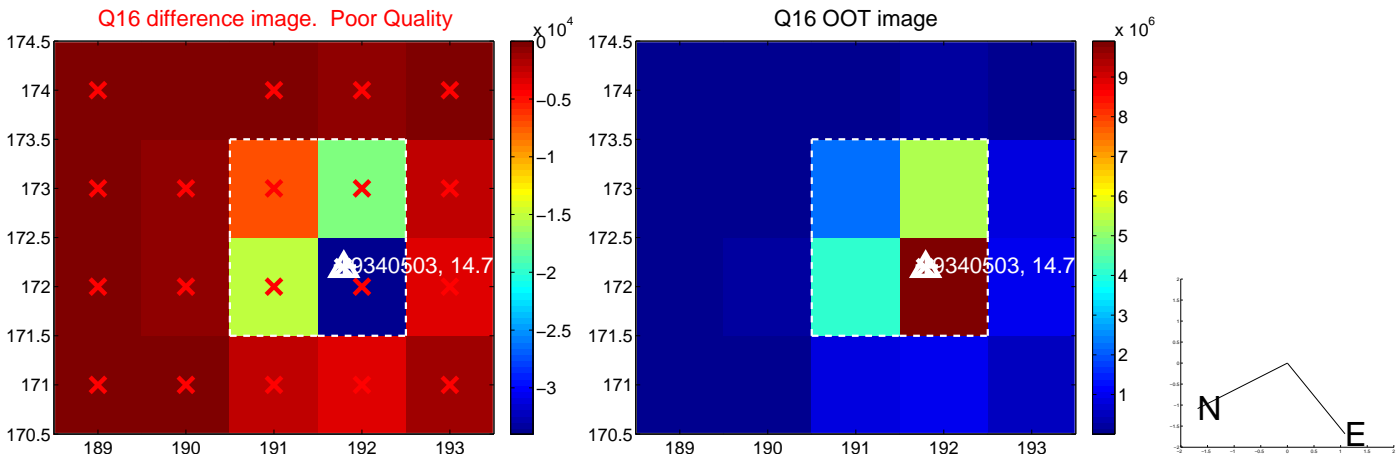
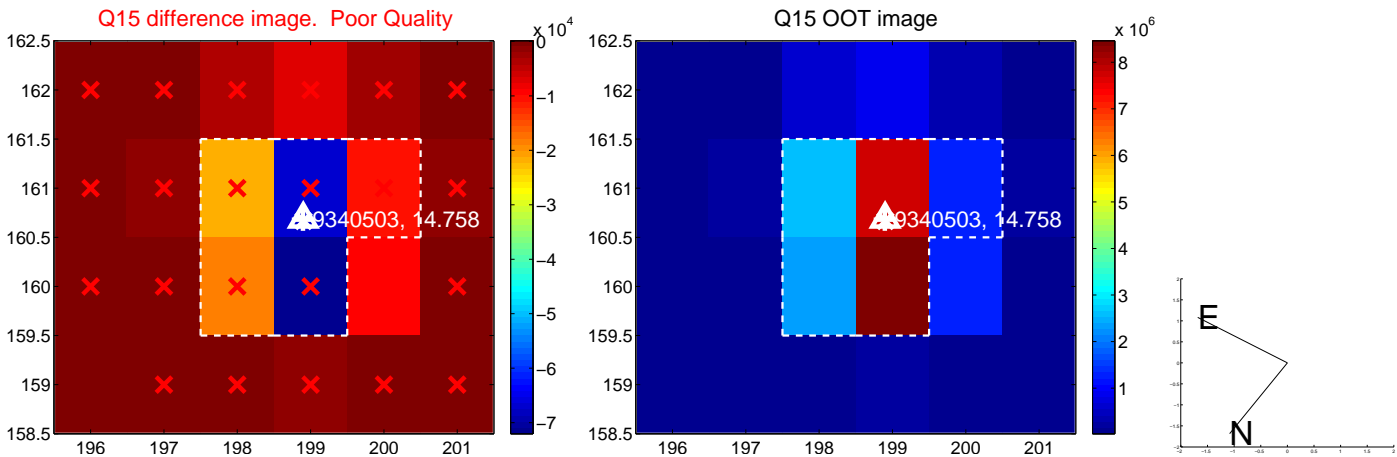
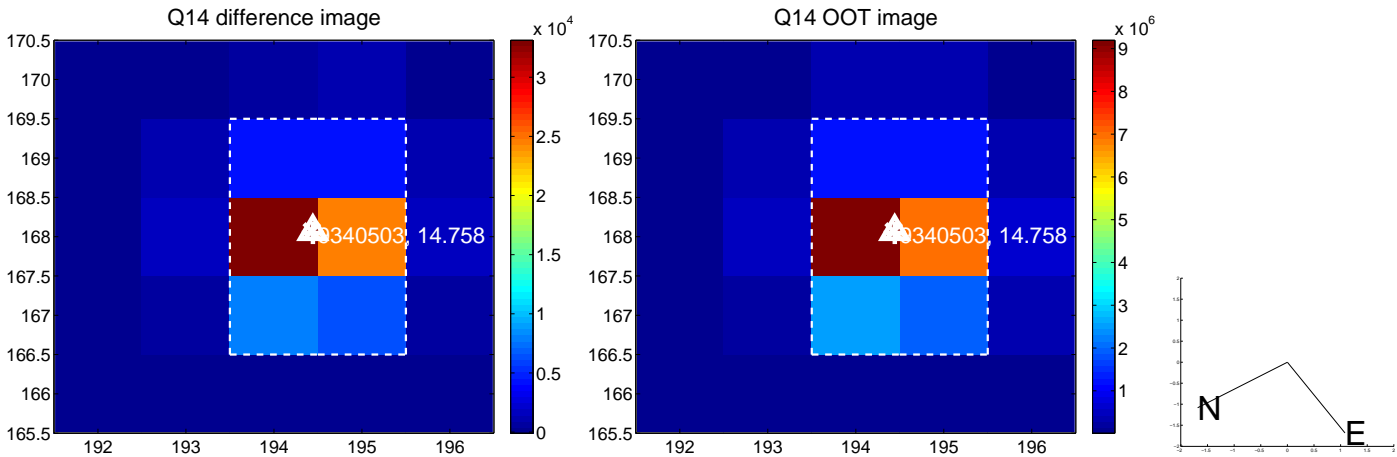
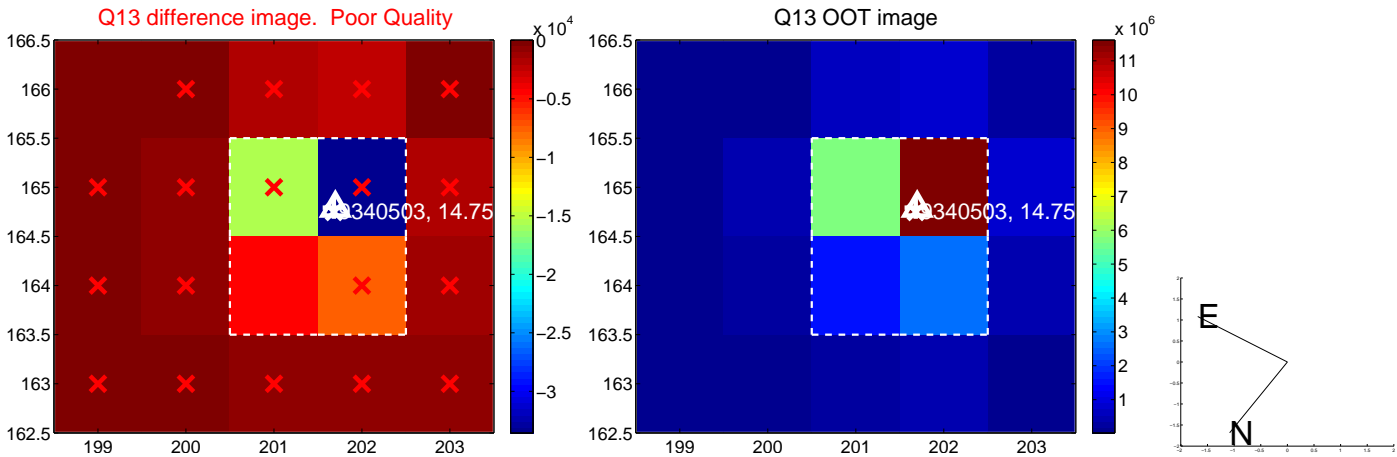
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



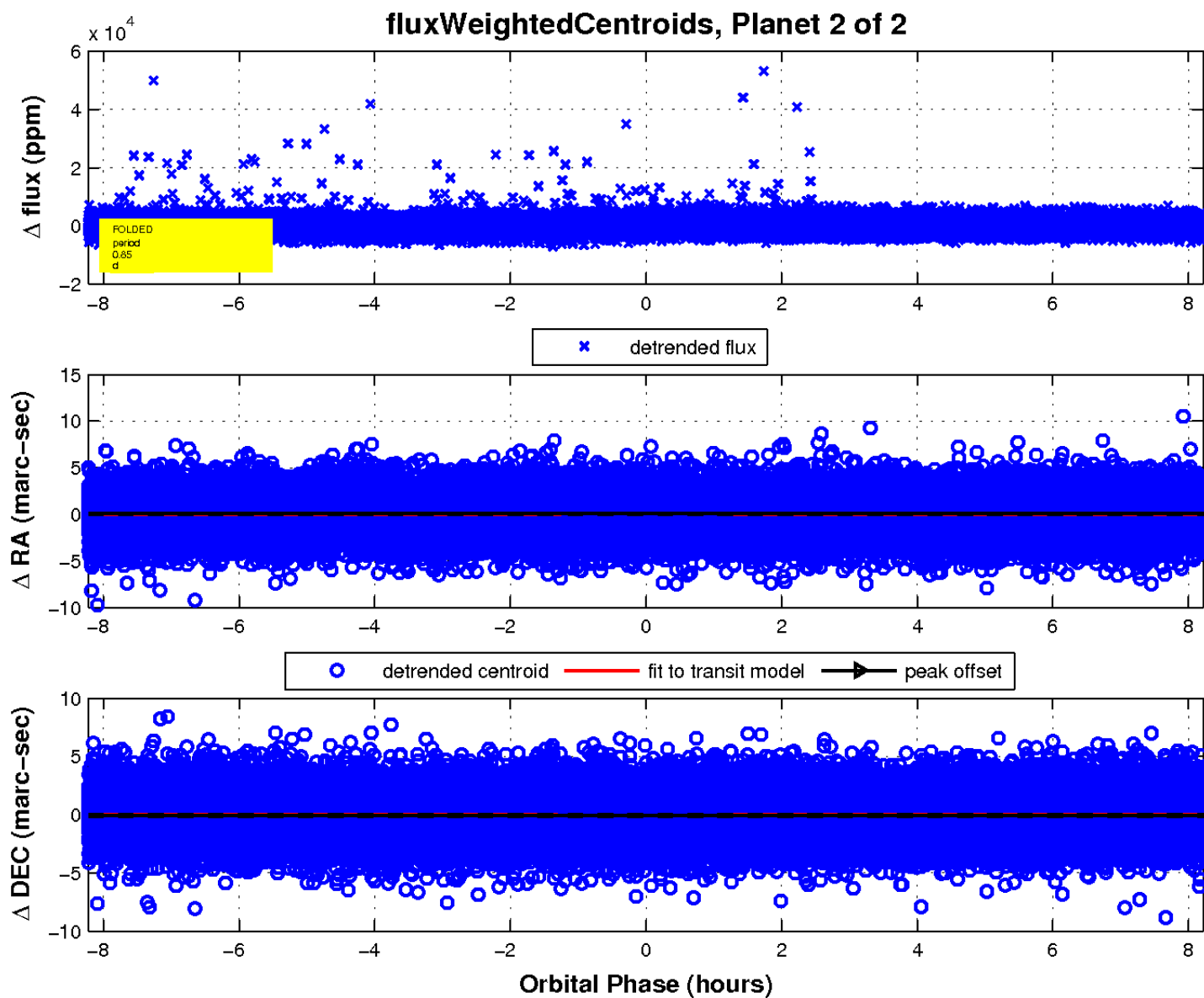
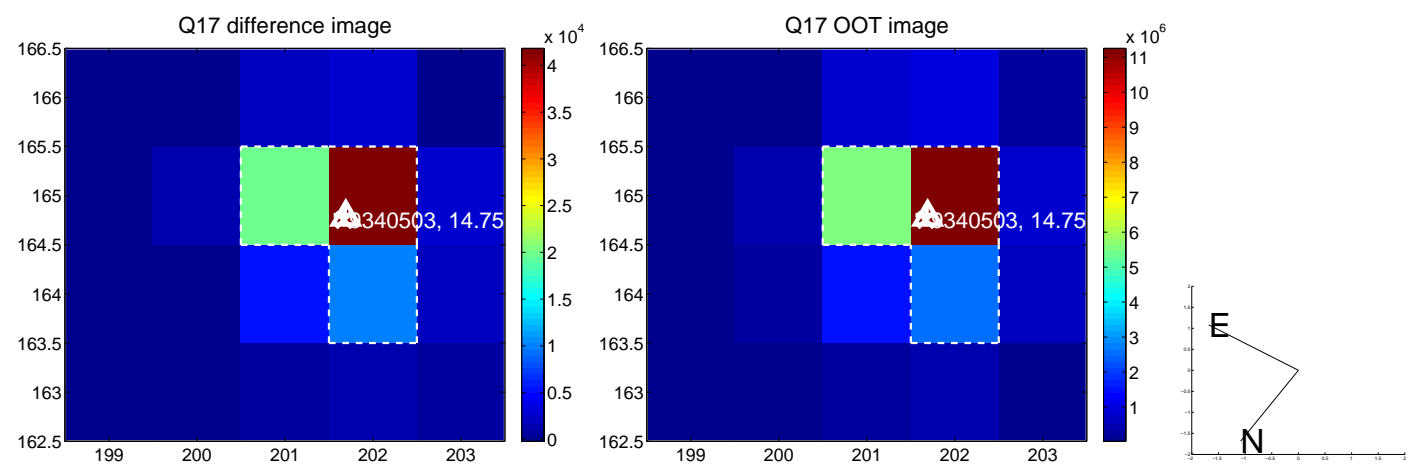
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

