

KIC 006139982

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})
006139982-01	OBS	No	2.837693	132.553750	21.8	11.208	8.5	7.0	1.13	6722	0.58	1388.92
006139982-02	OBS	No	0.508393	132.018686	36.1	5.340	9.1	15.5	1.13	6722	0.79	13751.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006139982-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006139982-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS

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

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

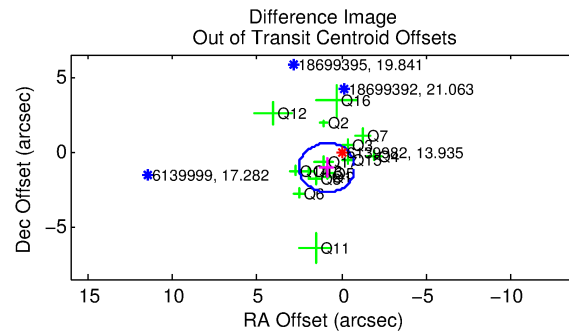
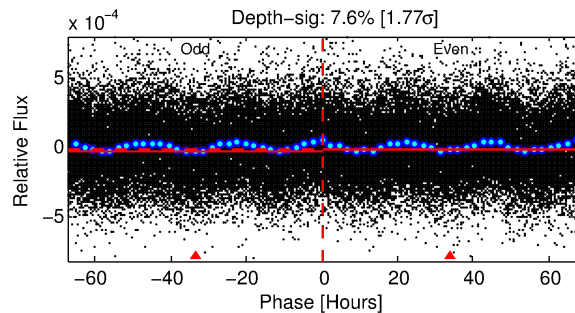
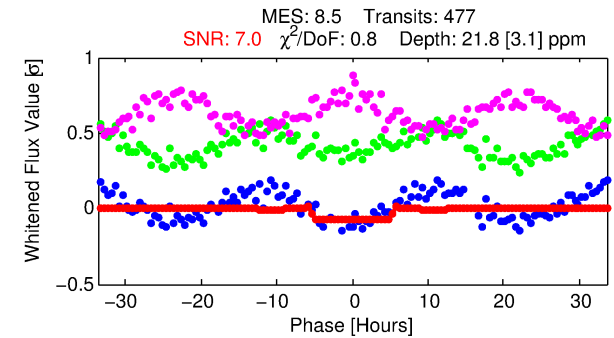
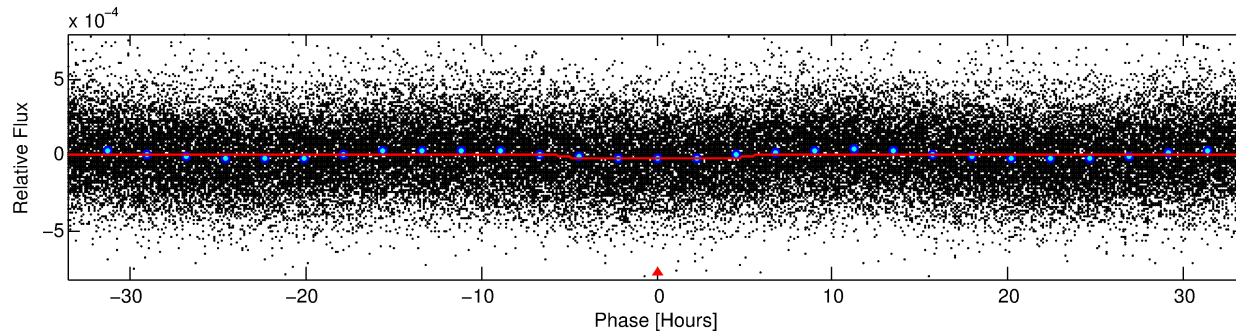
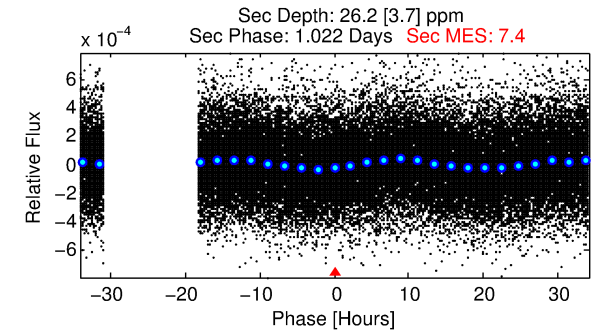
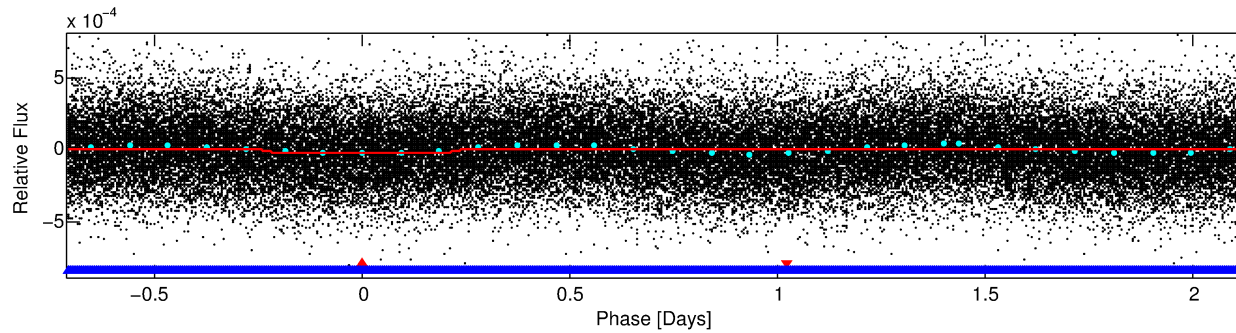
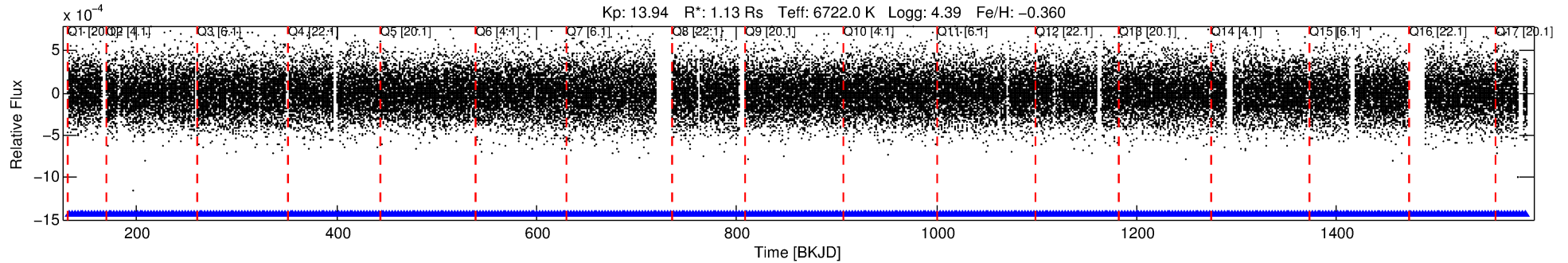
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006139982-01

No Significant Match Found

DV One-Page Summary

KIC: 6139982 Candidate: 1 of 2 Period: 2.838 d



DV Fit Results:

Period = 2.83769 [0.00006] d
Epoch = 132.5538 [0.0116] BKJD
Rp/R* = 0.0047 [0.0019]
a/R* = 1.51 [1.97]
b = 0.78 [1.20]
Seff = 1388.92 [562.11]
Teq = 1557 [157] K
Rp = 0.58 [0.30] Re
a = 0.0412 [0.0111] AU
Ag = 72.73 [65.45] [1.10σ]
Teffp = 7028 [1454] K [3.74σ]

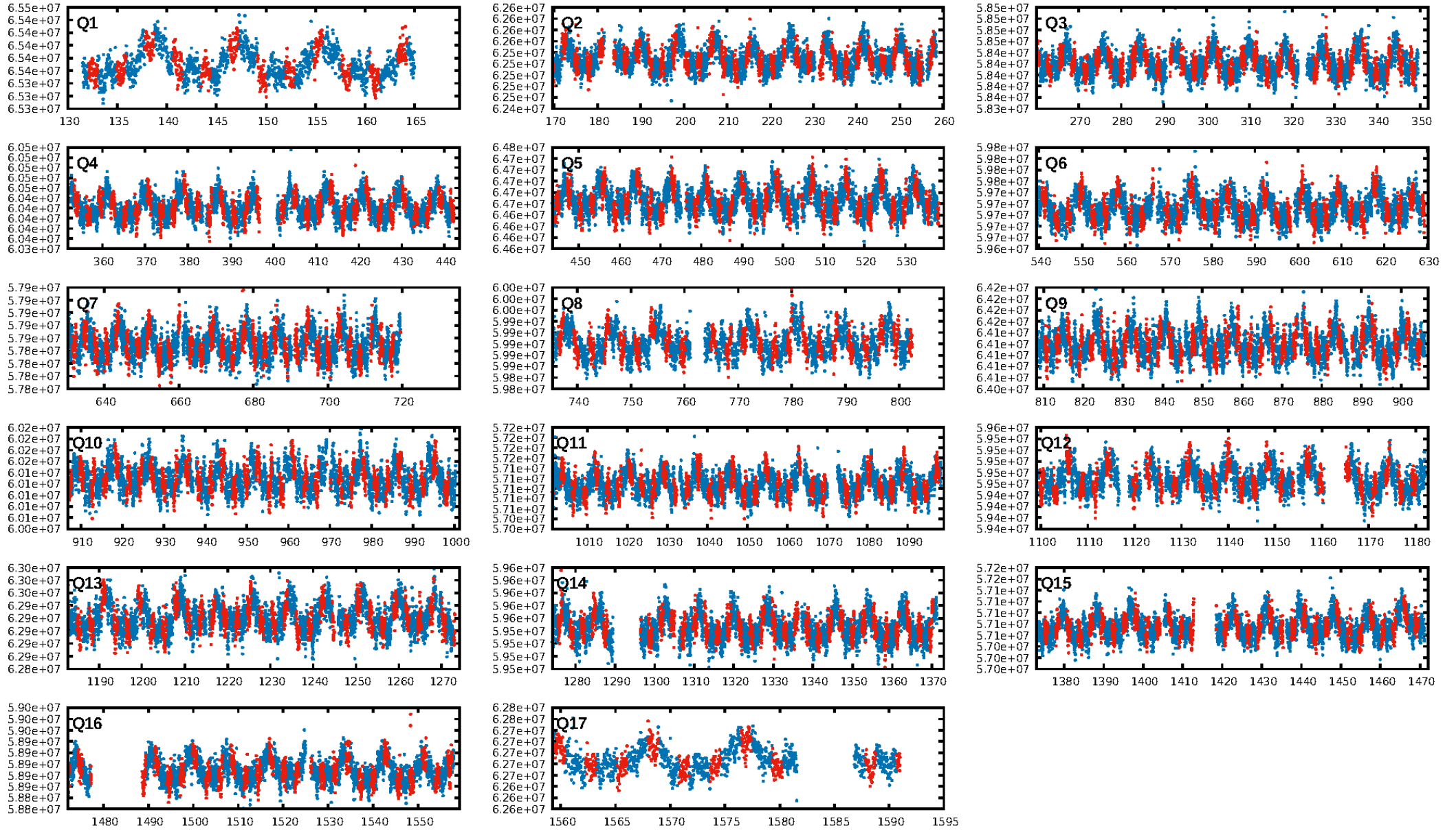
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.50σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [455/455]
GhostDiagnostic-chr: 5.475
Centroid-sig: 5.5%
Centroid-so: 1.874 arcsec [1.38σ]
OotOffset-rm: 1.376 arcsec [2.52σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-rm: 1.366 arcsec [2.47σ]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.73 [11/15]
DiffImageOverlap-fno: 0.00 [0/17]

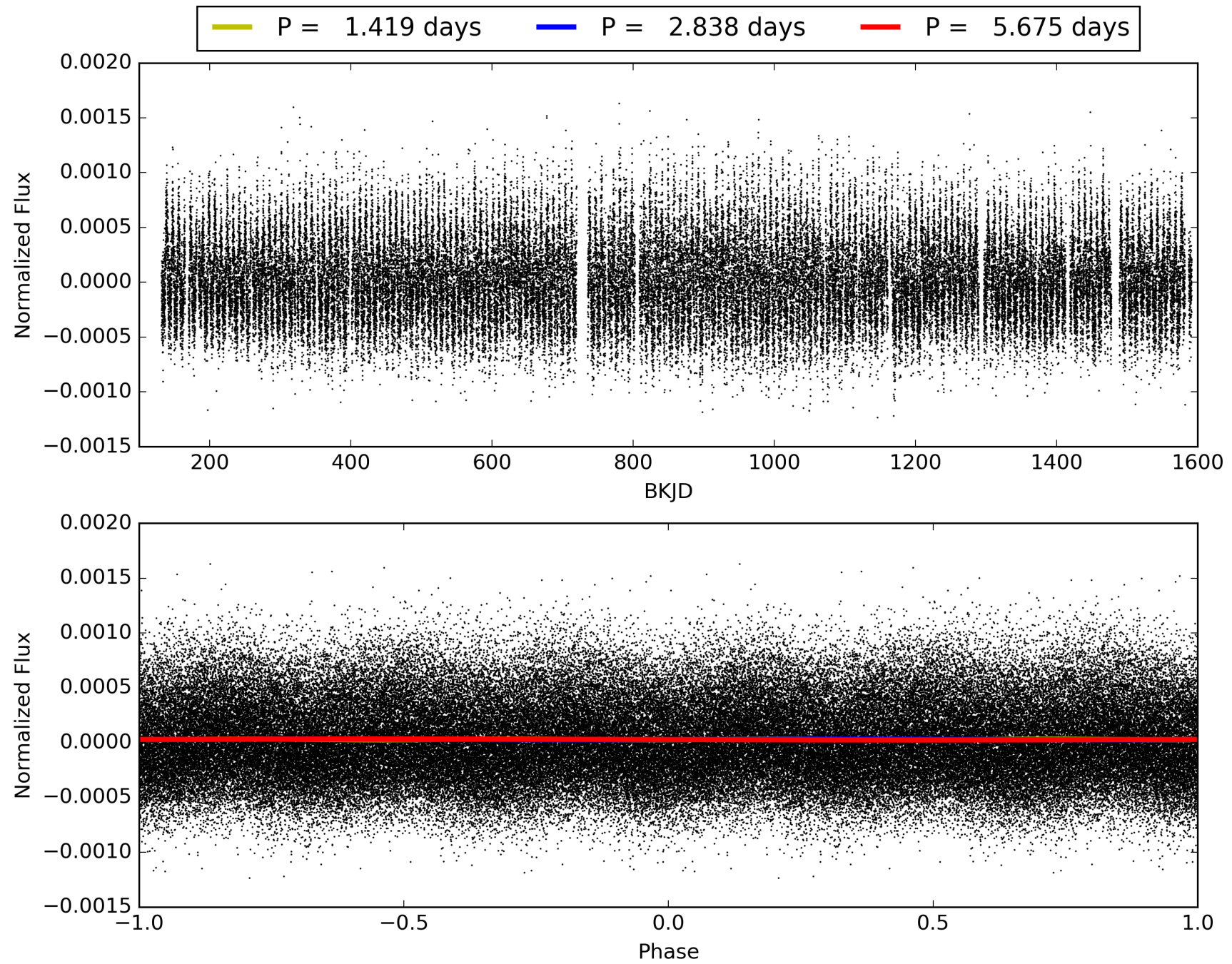
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:49:55 Z

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

TCE 006139982-01, PDC Light Curves

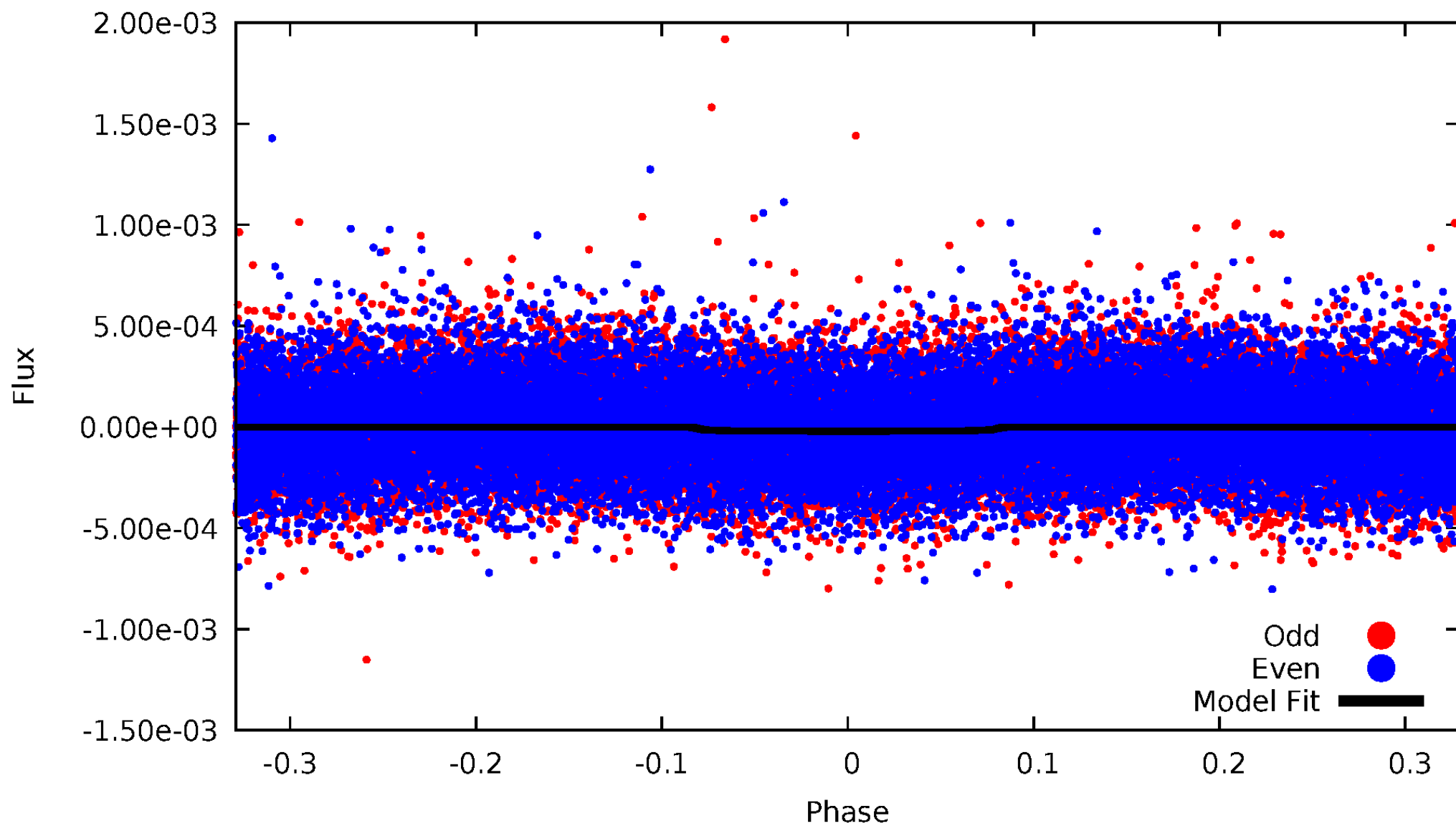


TCE 006139982-01



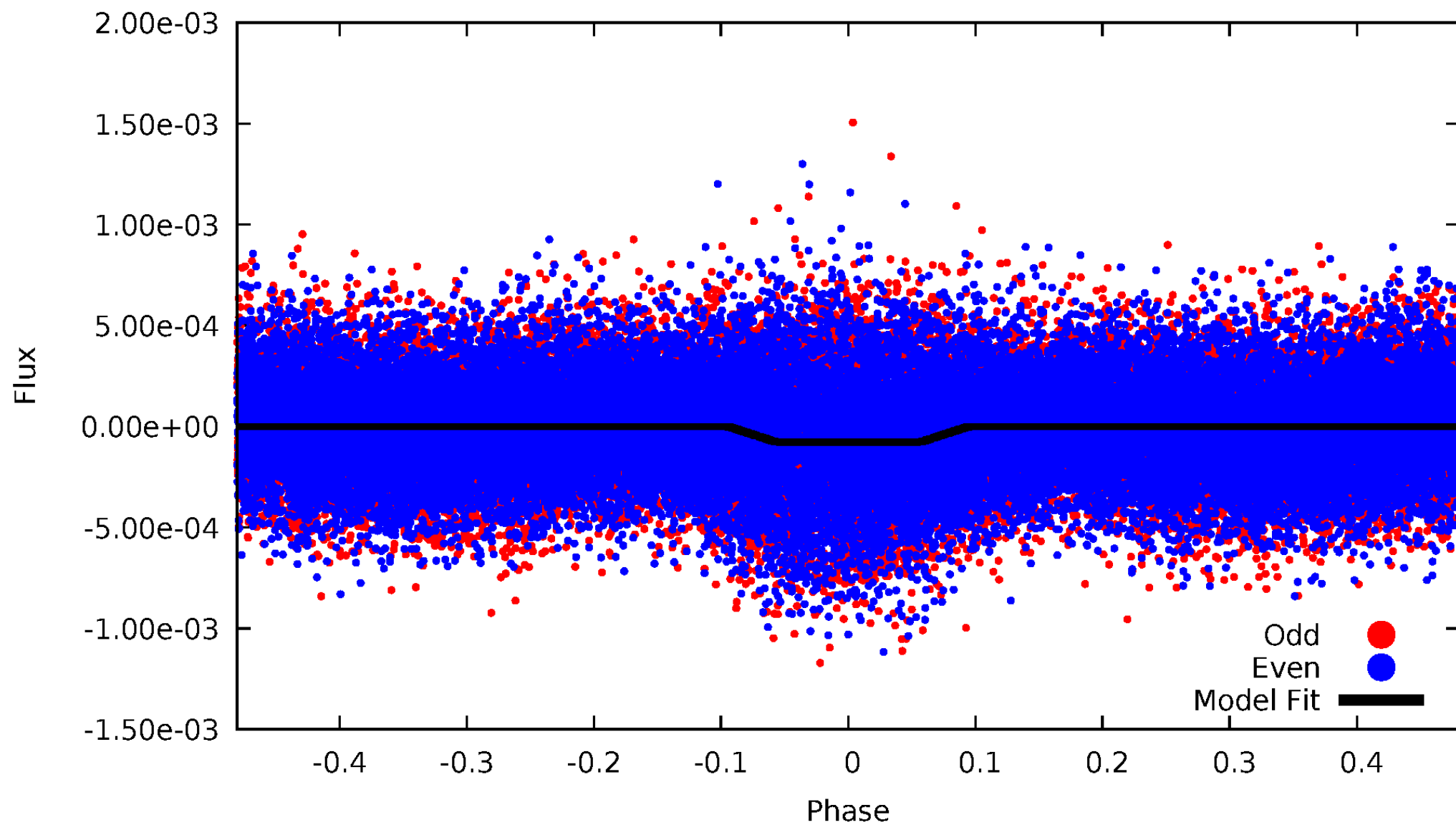
DV Odd/Even

TCE 006139982-01



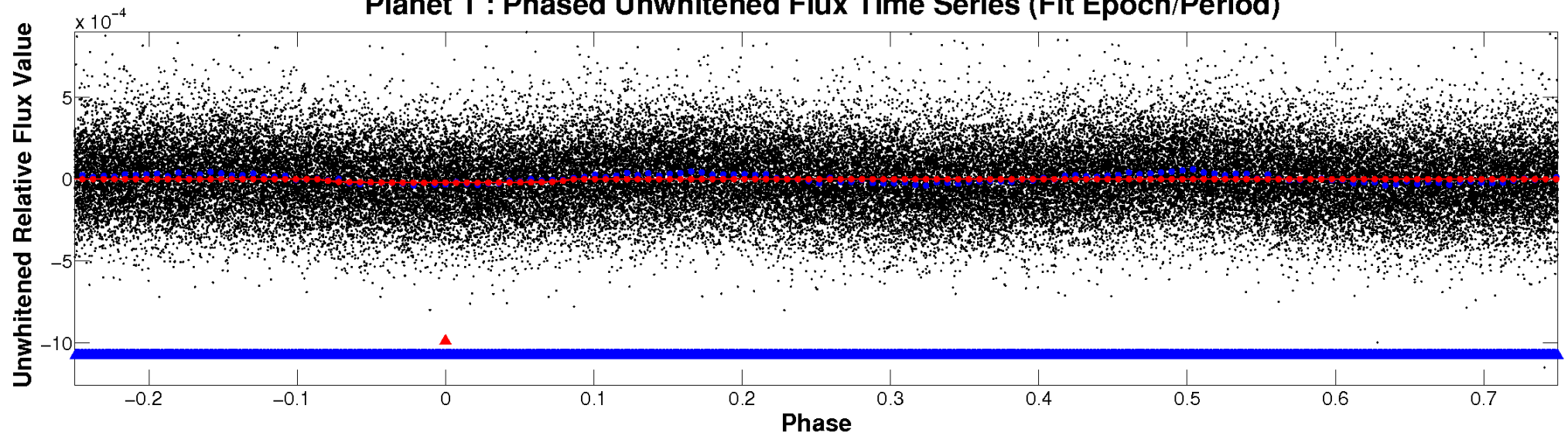
ALT Odd/Even

TCE 006139982-01

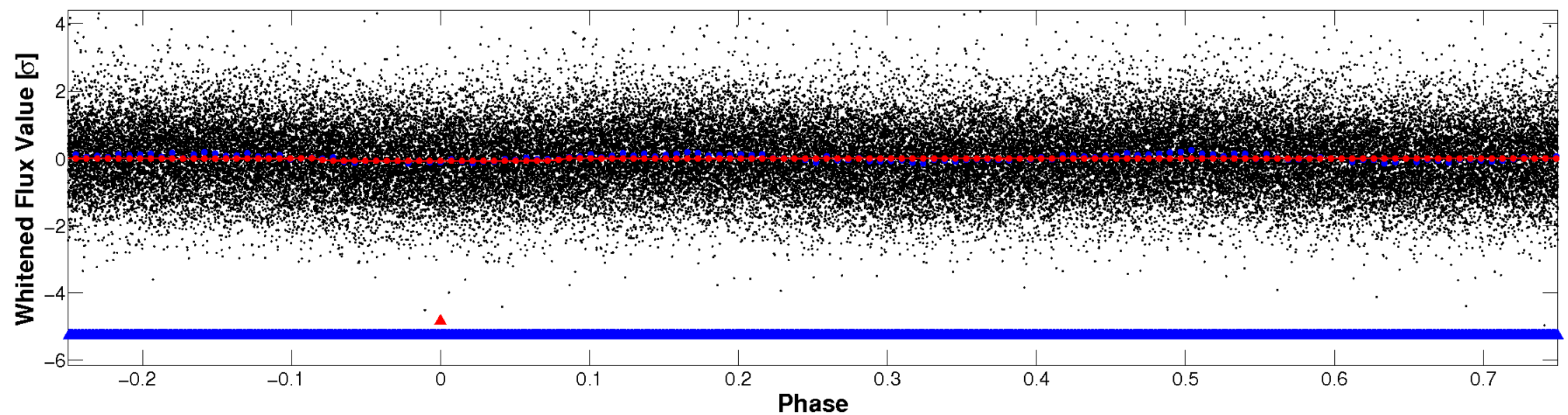


Non-Whitened Vs. Whitened Light Curve

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

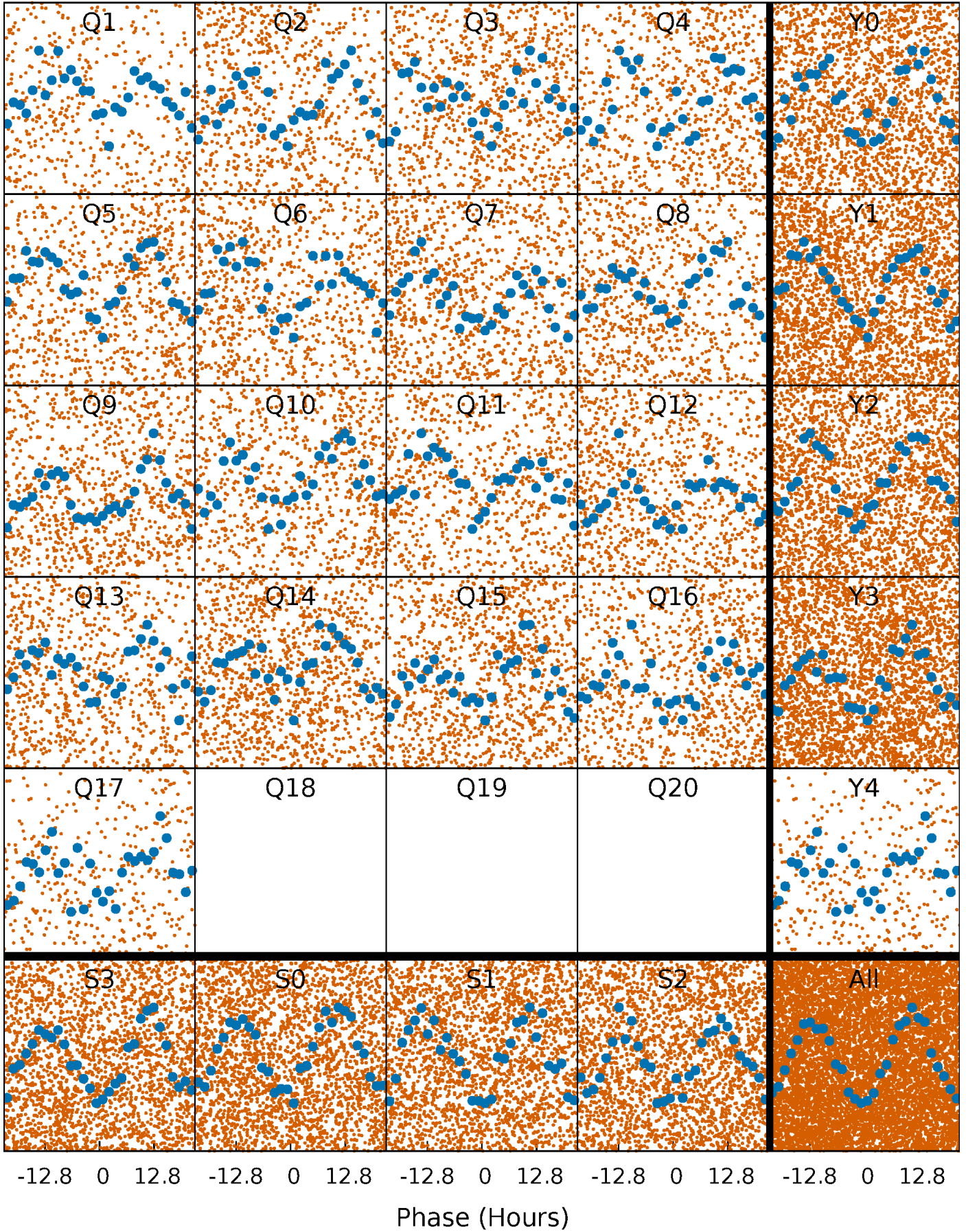


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



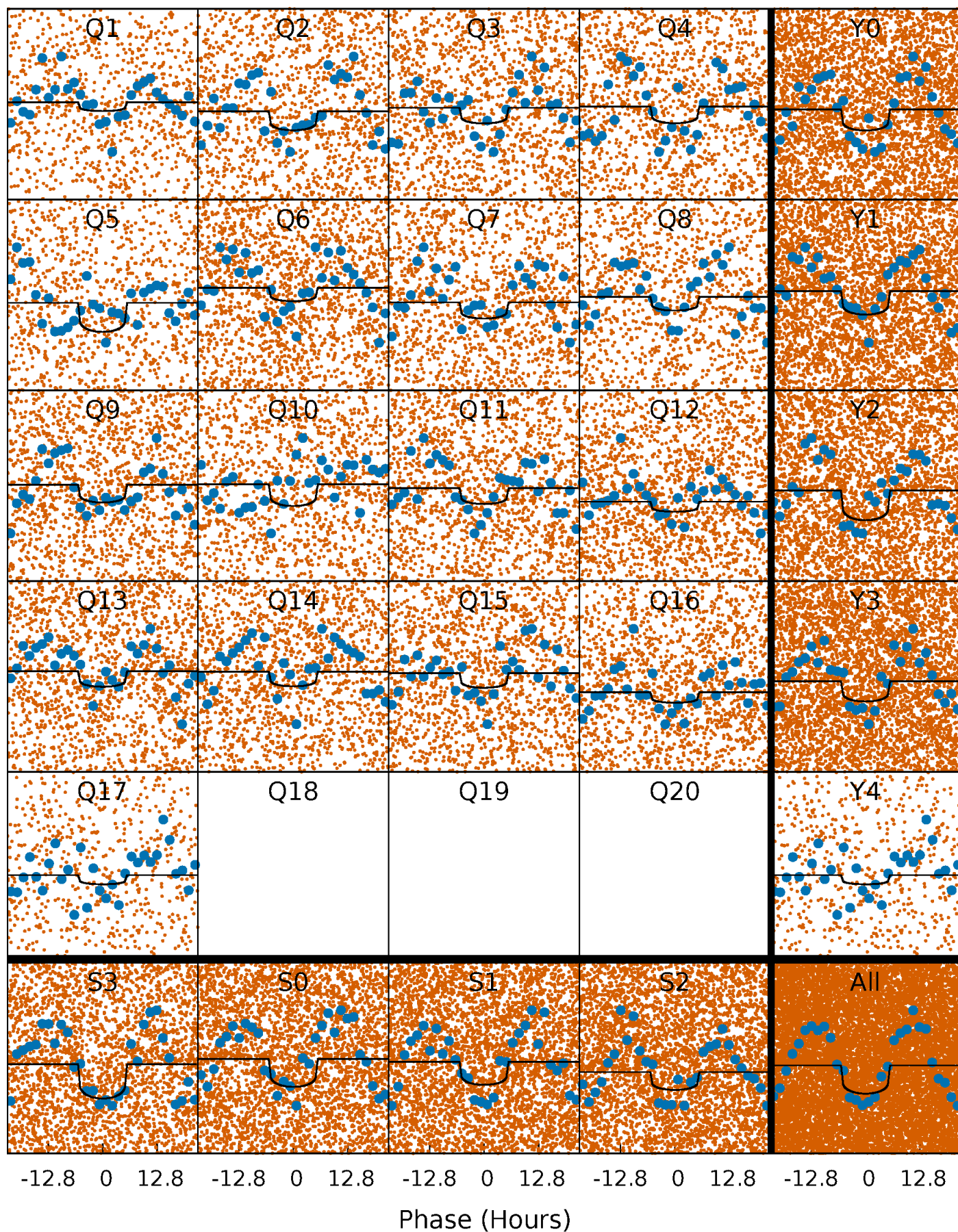
PDC Quarter-Phased Transit Curves

TCE 006139982-01 P= 2.837693 Days $T_0=132.553750$ (BKJD)



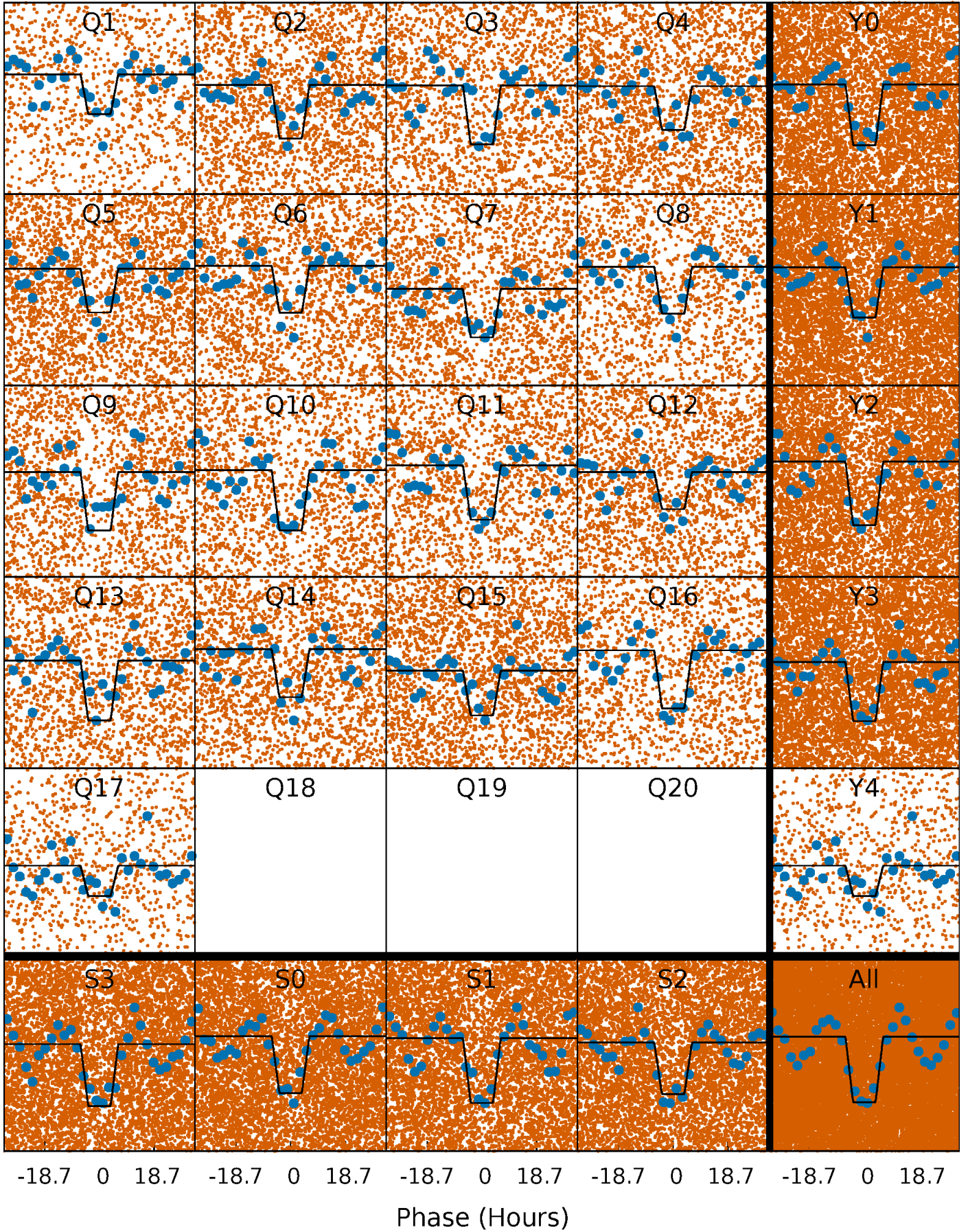
DV Quarter-Phased Transit Curves

TCE 006139982-01 P= 2.837693 Days $T_0=132.553750$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

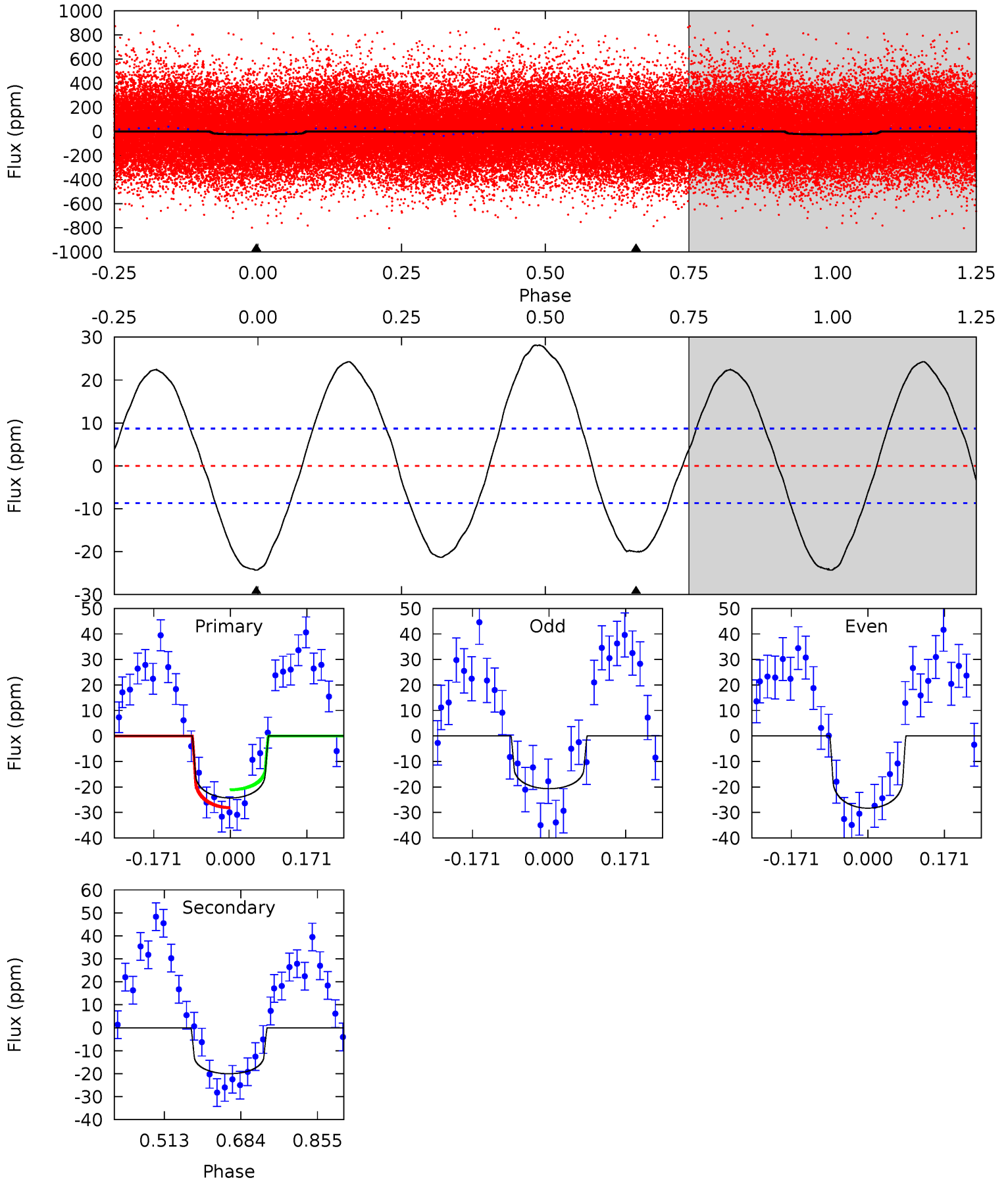
TCE 006139982-01 P= 2.837559 Days $T_0=132.569422$ (BKJD)



DV Model-Shift Uniqueness Test

006139982-01, P = 2.837693 Days, E = 129.716057 Days

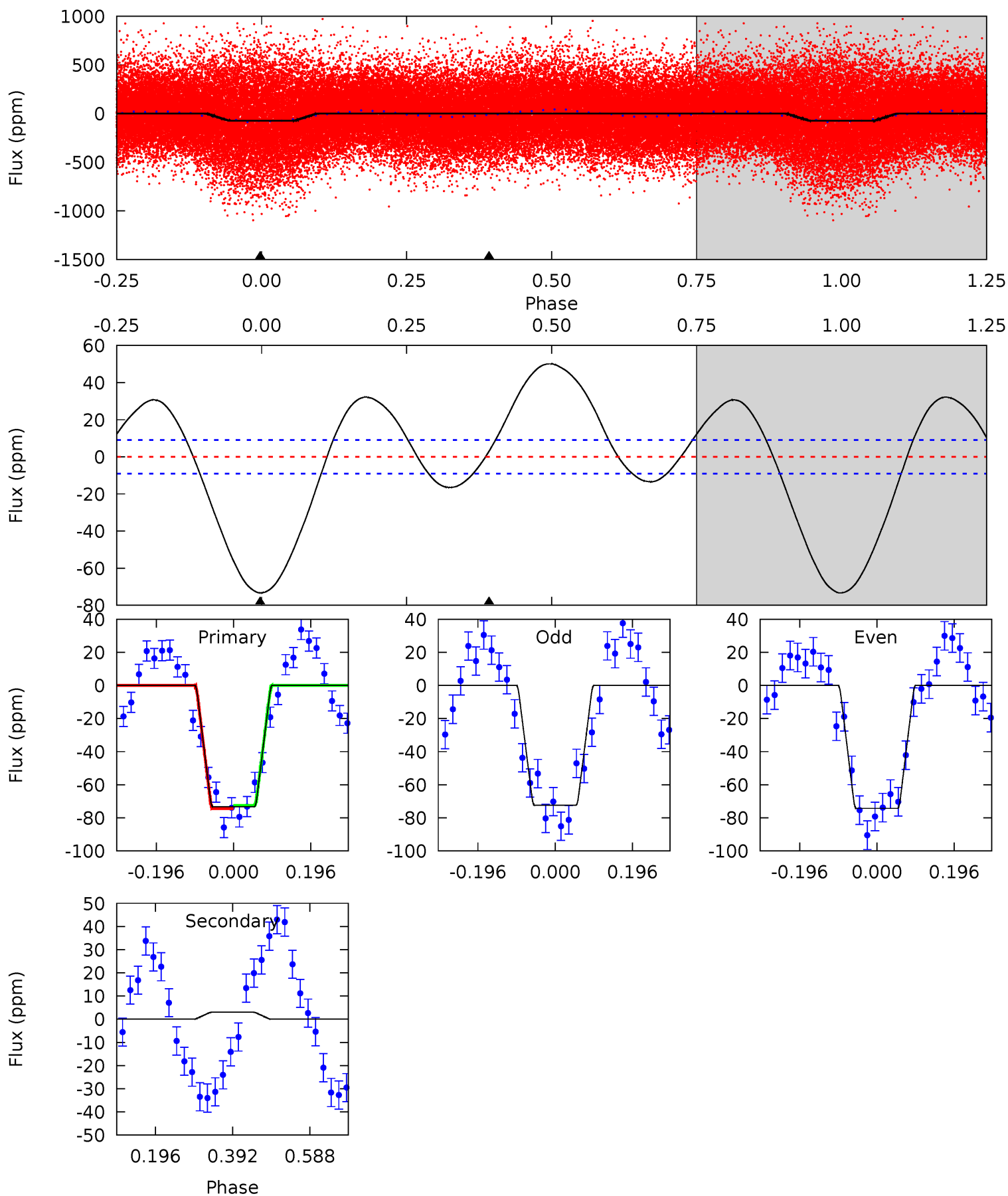
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	10.2	0	0	4.45	1.37	8.39	12.4	12.4	10.2	10.2	1.95	1.08	0.54	1.82



Alt Model-Shift Uniqueness Test

006139982-01, P = 2.837559 Days, E = 129.731863 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.8	-1.46	0	0	4.42	1.29	6.65	35.8	35.8	-1.46	-1.46	0.47	0.95	0.41	0.50



Stellar Parameters For KIC 006139982

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6722^{+165}_{-235}	$4.391^{+0.067}_{-0.202}$	$-0.360^{+0.250}_{-0.300}$	$1.134^{+0.373}_{-0.124}$	$1.156^{+0.164}_{-0.164}$	$1.116^{+0.325}_{-0.600}$
	+2%/-3%	+2%/-5%	+69%/-83%	+33%/-11%	+14%/-14%	+29%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006139982-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 2	$0.60^{+0.26}_{-0.25}$	2205^{+169}_{-109}	6509^{+2492}_{-1017}	50^{+98}_{-26}
Alt.	3 ± 2	$1.14^{+0.28}_{-0.26}$	2212^{+156}_{-112}	-3503^{+484}_{-422}	$-1.957^{+1.432}_{-2.484}$

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 $A_{obs} \gg 1.0$

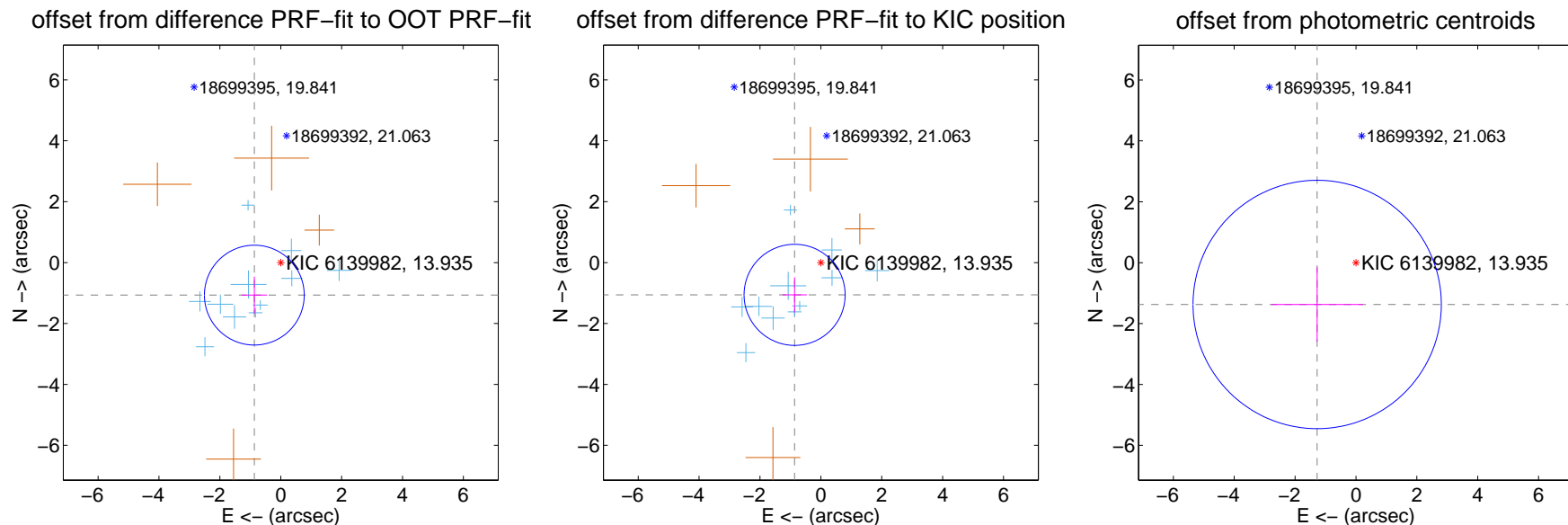
DV Centroid Data

Supplemental centroid analysis for 006139982-01. Kepler magnitude: 13.94. Transit SNR 6.97

There are 11 quarters with good PRF difference image offsets

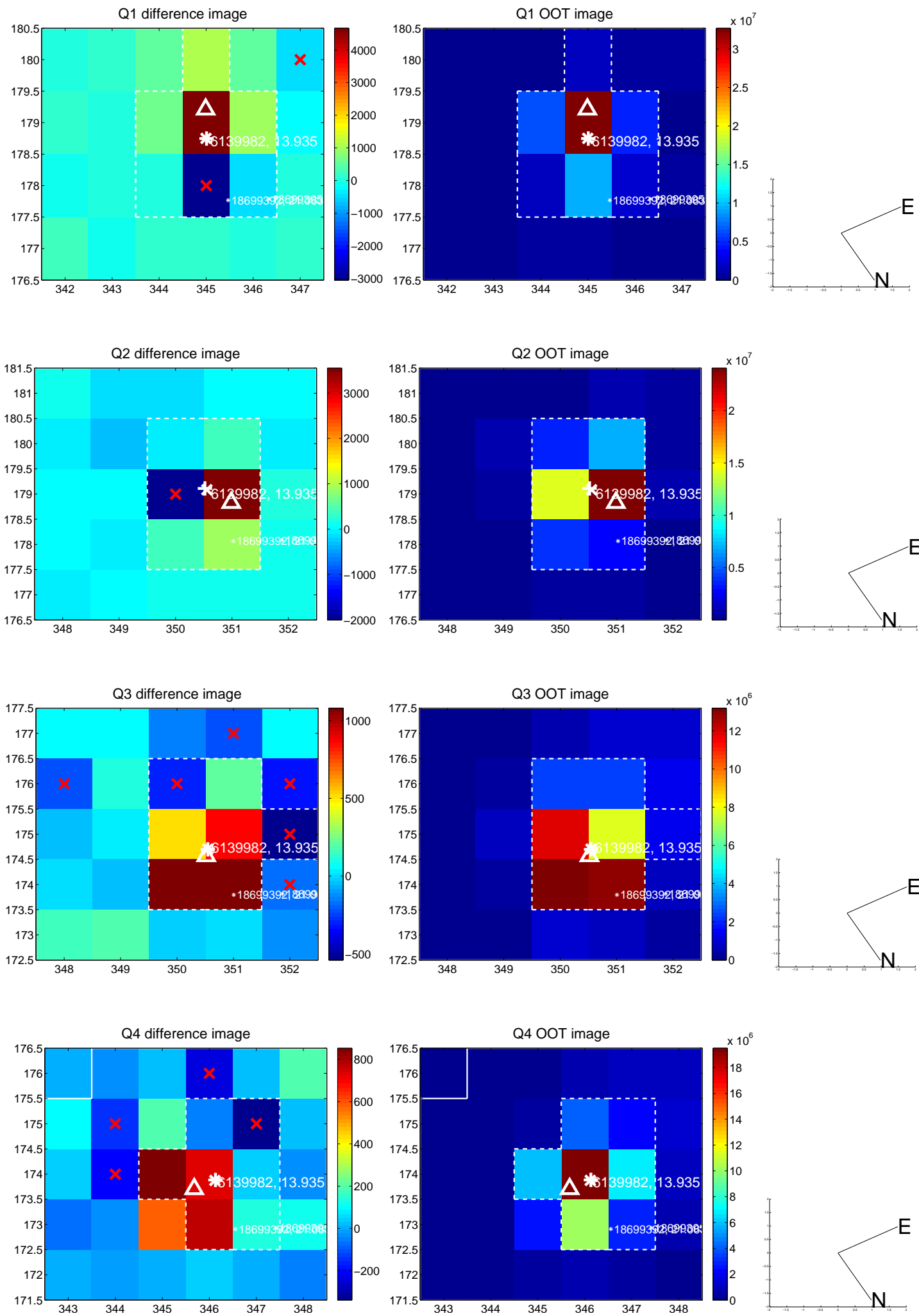
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.376 ± 0.546	2.52	0.868 ± 0.416	-1.068 ± 0.606
PRF-fit source offset from KIC position	1.366 ± 0.553	2.47	0.863 ± 0.401	-1.059 ± 0.578
photometric centroid source offset	1.87 ± 1.36	1.38	1.27 ± 1.51	-1.37 ± 1.22

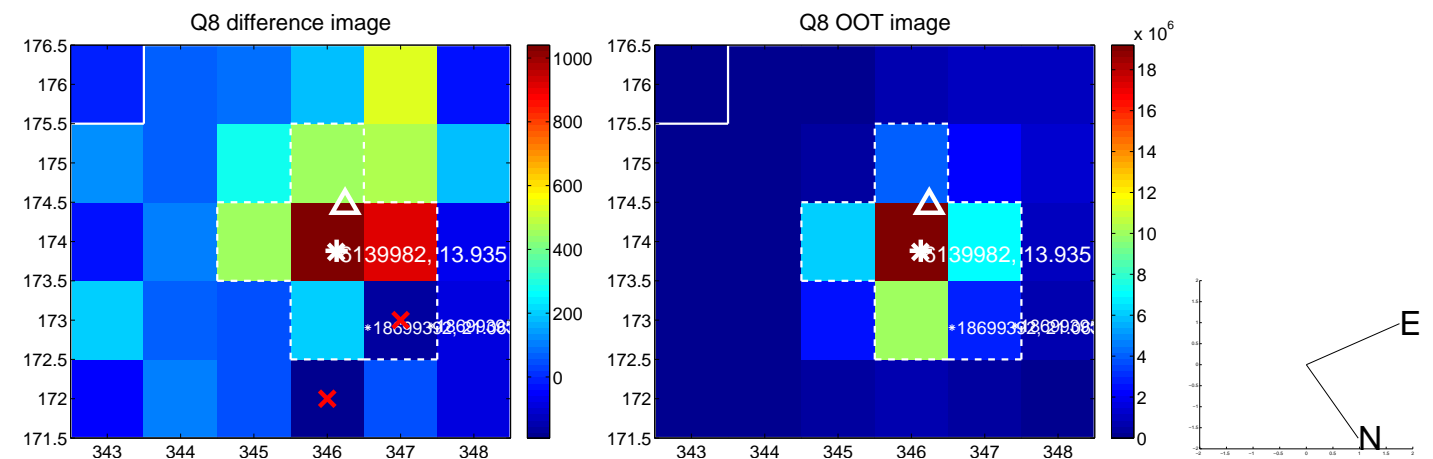
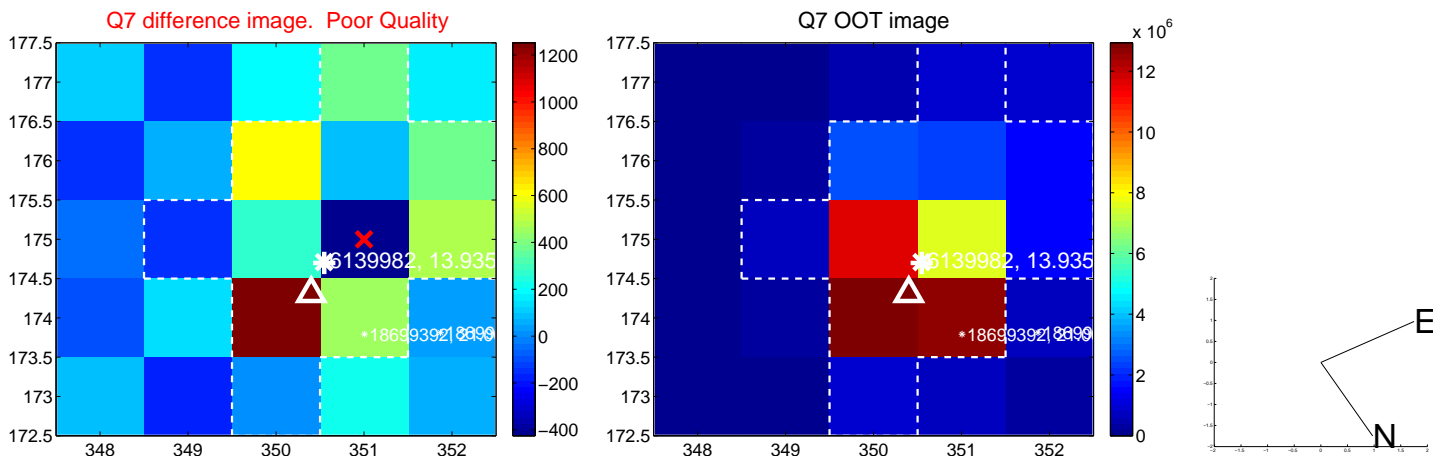
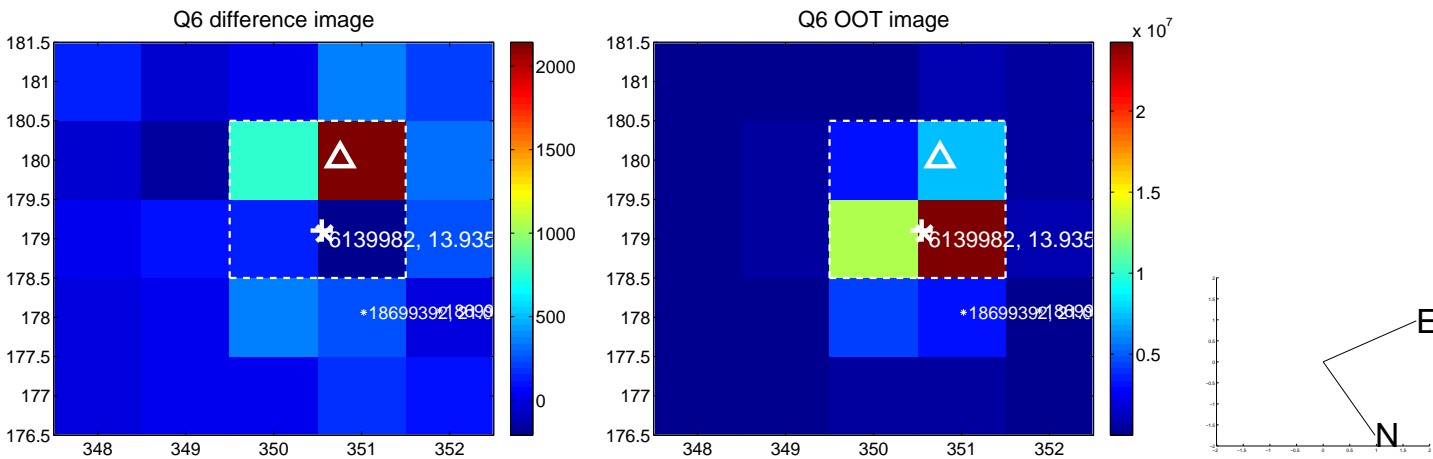
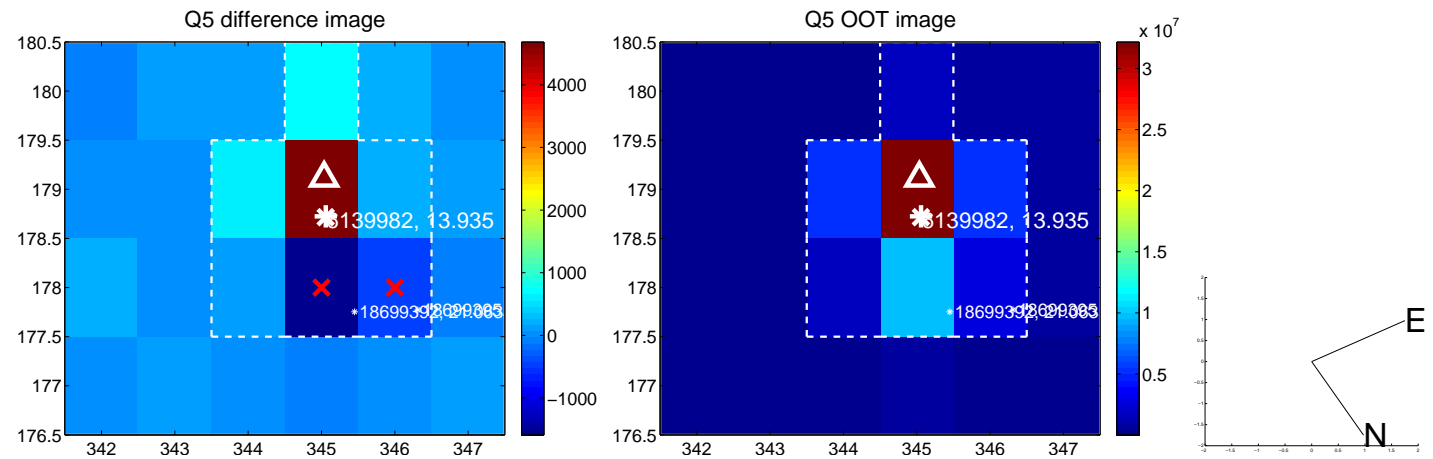


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

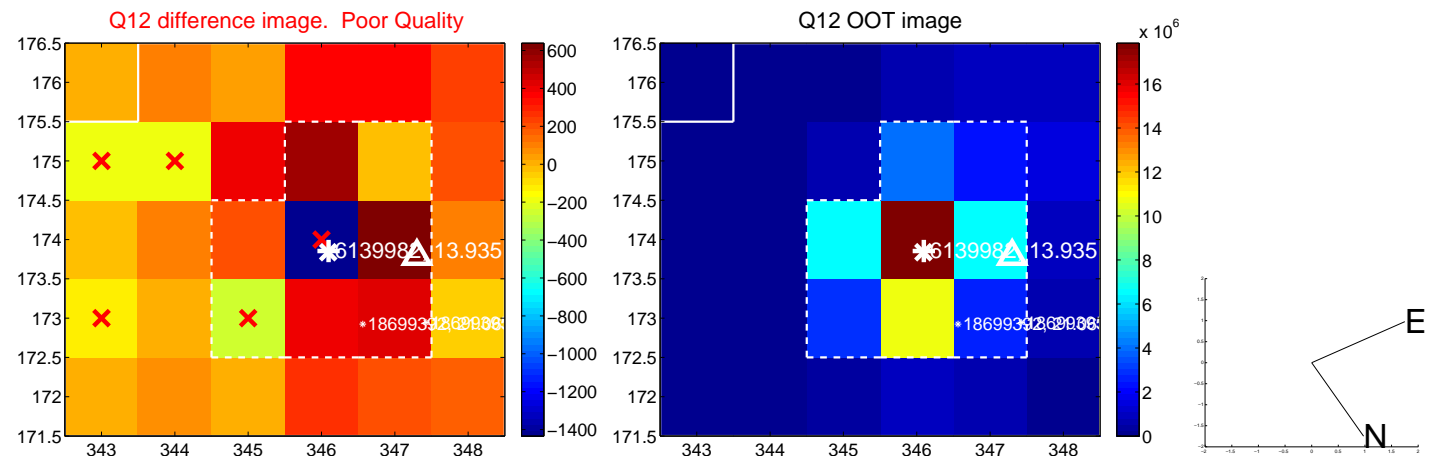
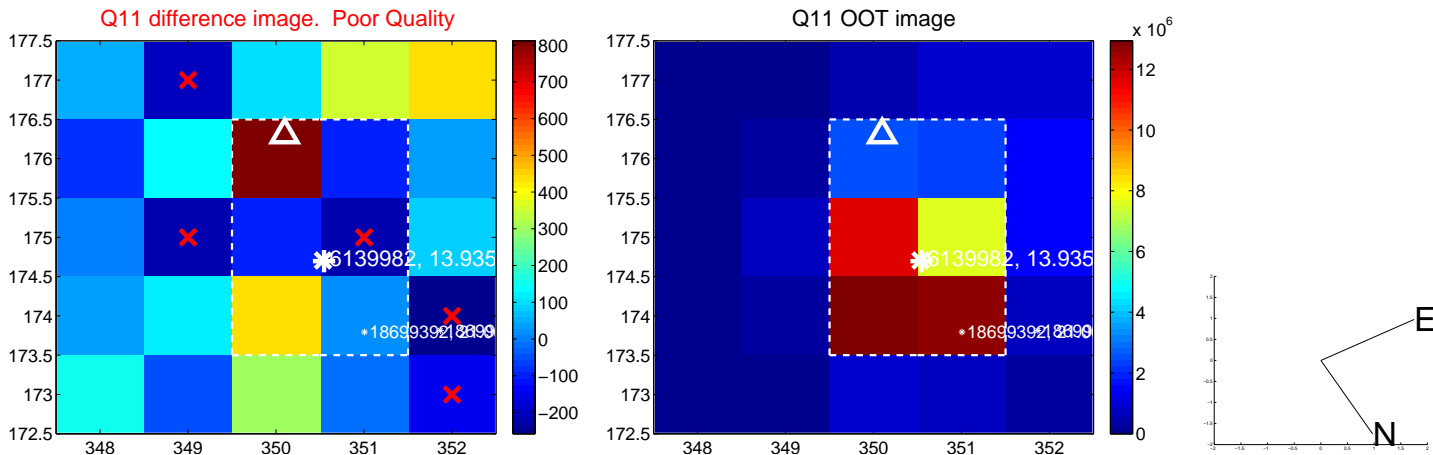
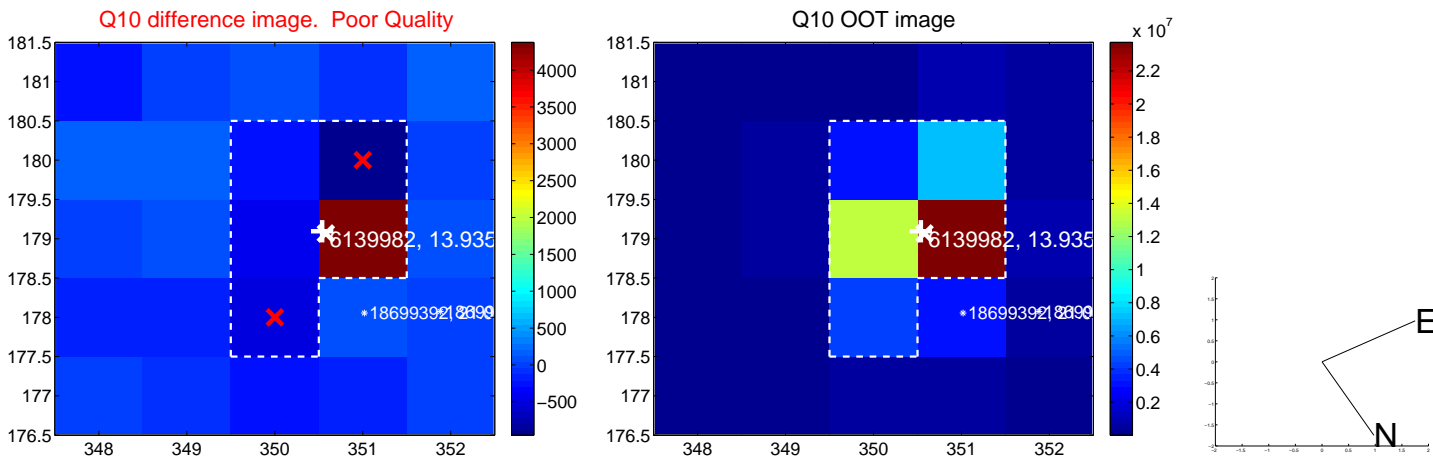
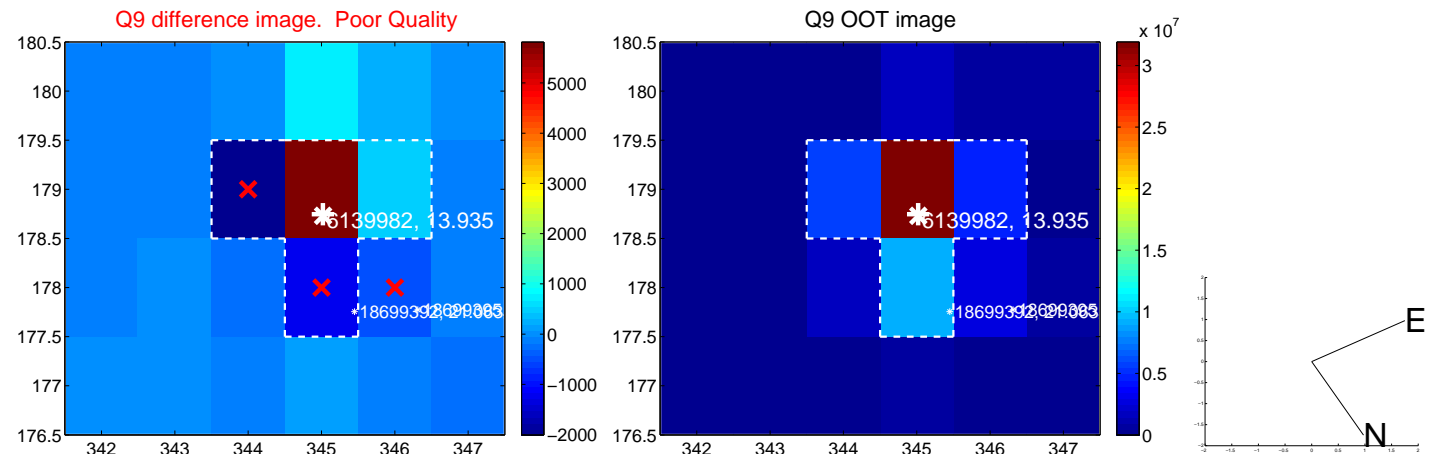
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



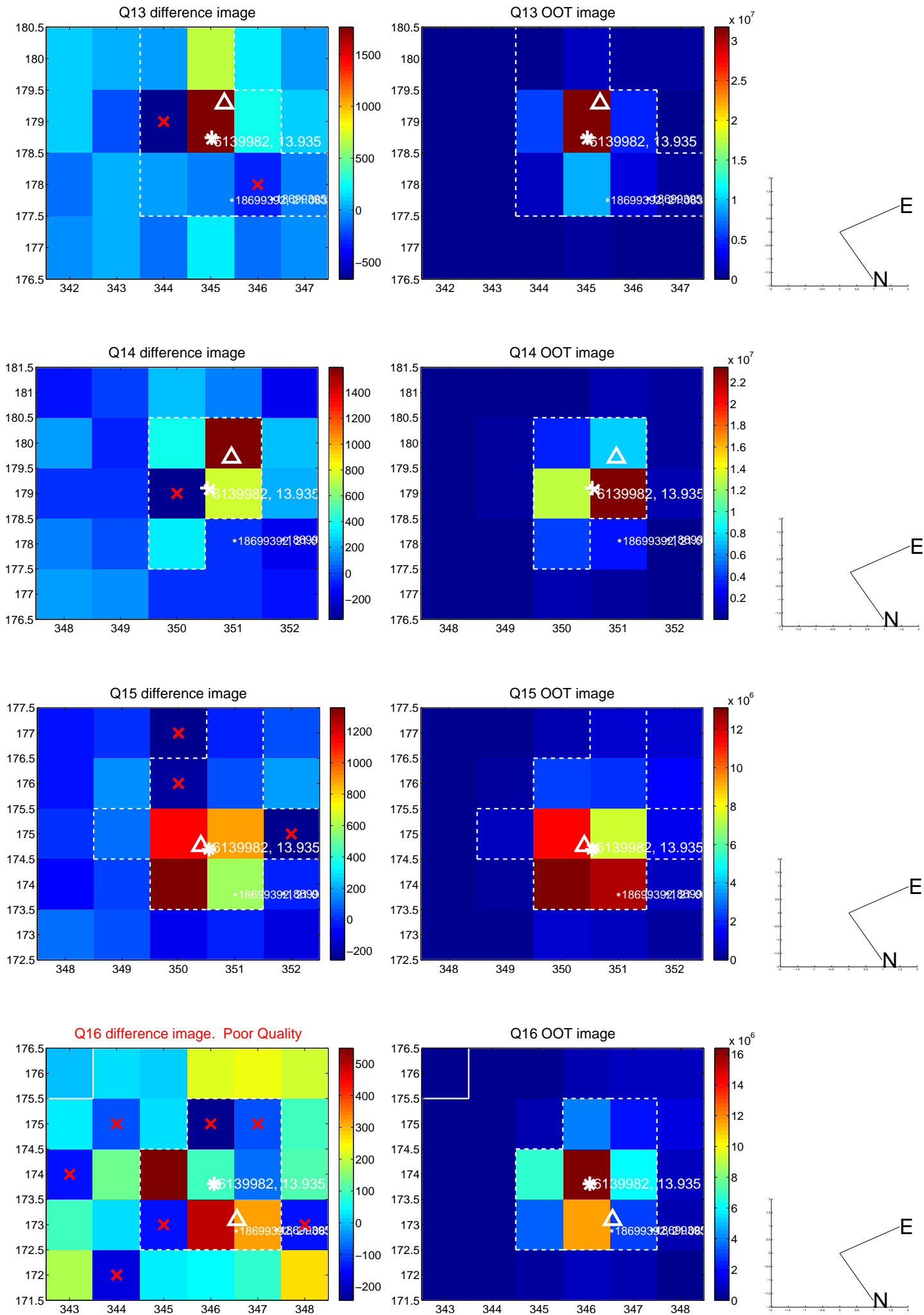
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



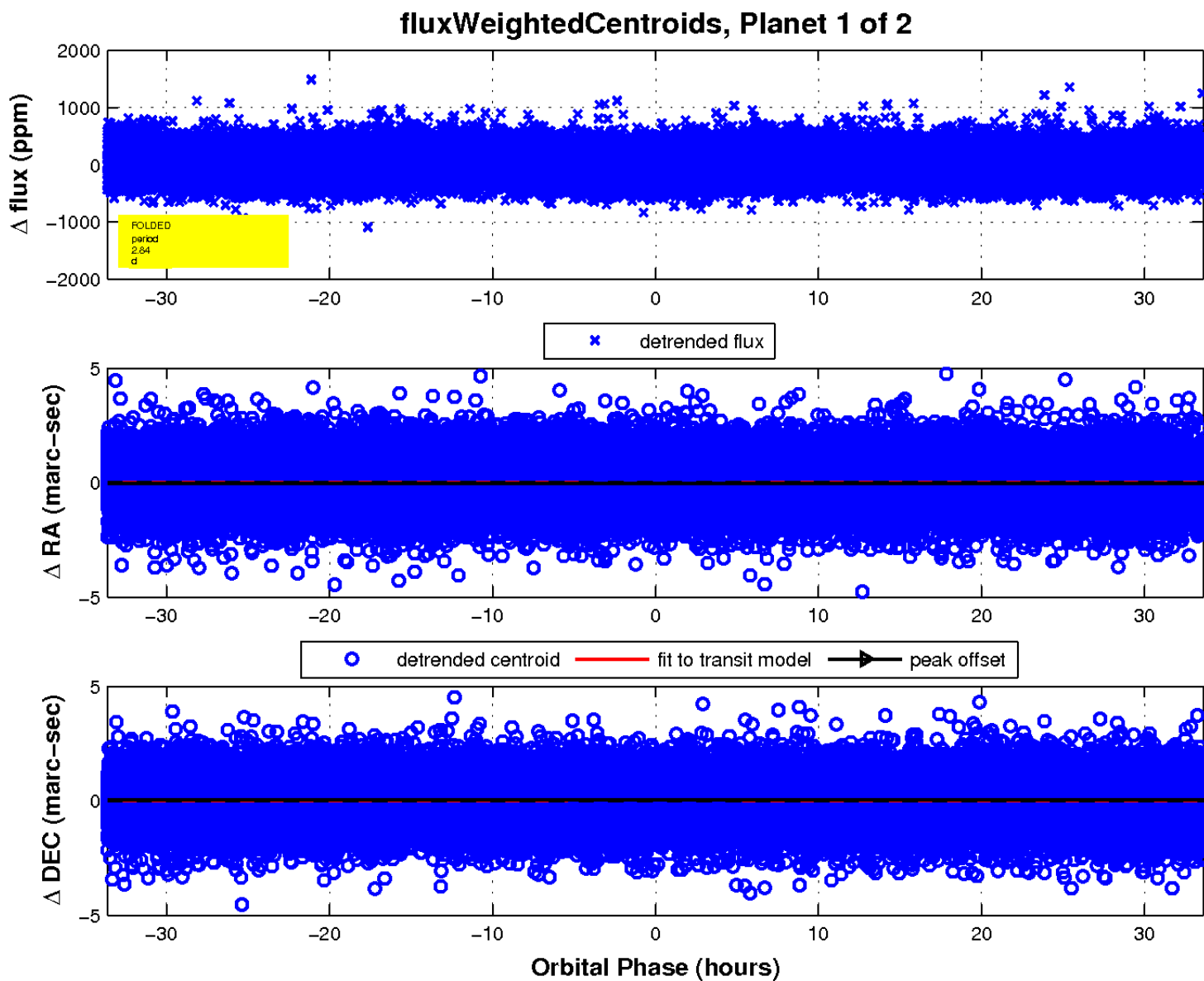
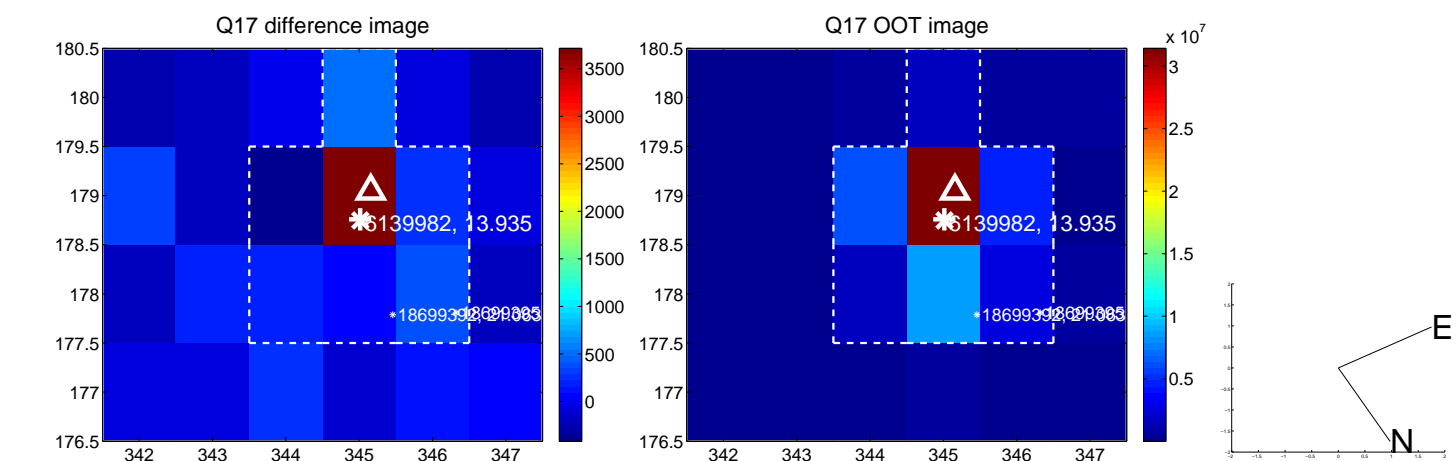
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

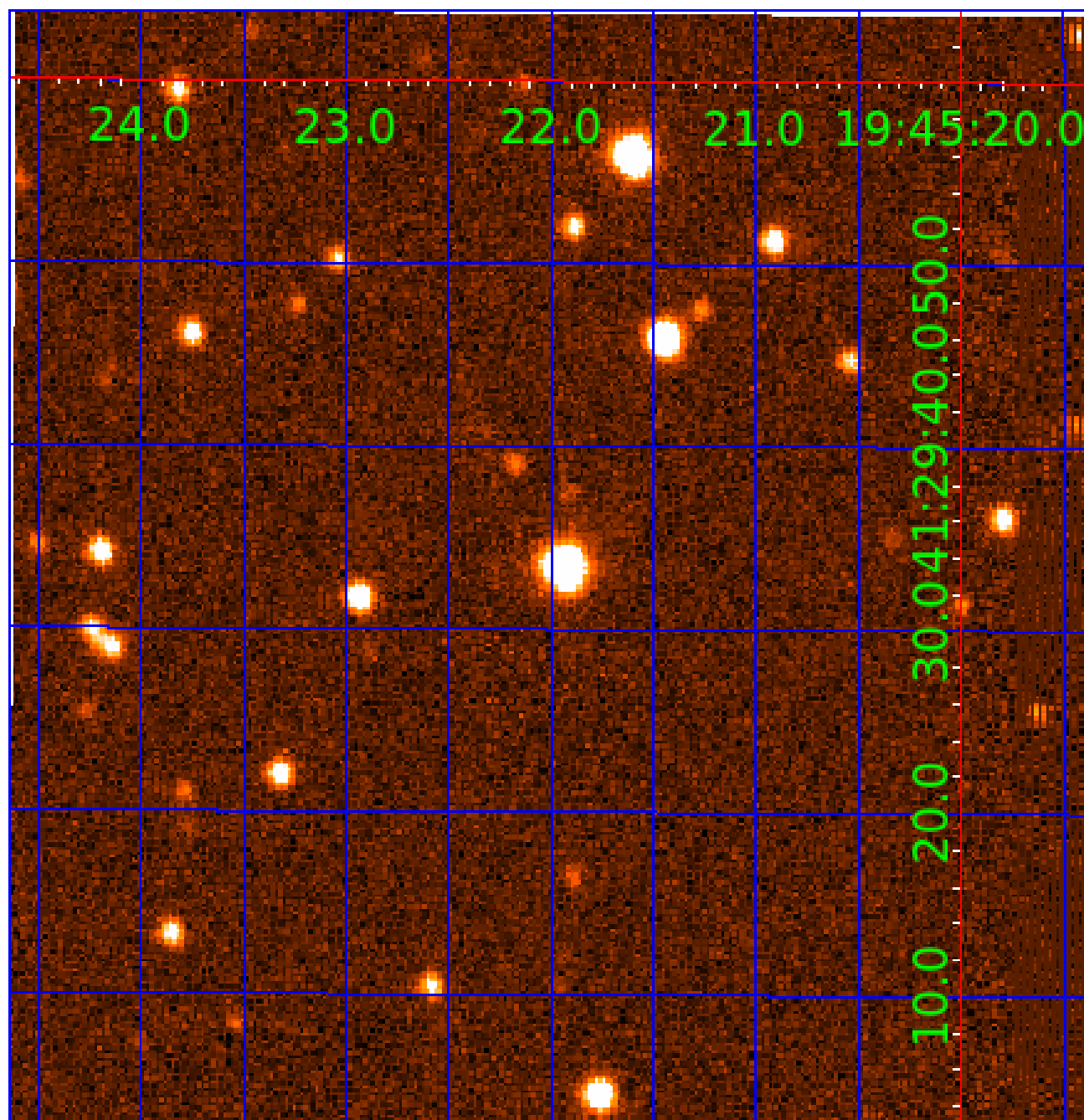


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006139982

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})
006139982-01	OBS	No	2.837693	132.553750	21.8	11.208	8.5	7.0	1.13	6722	0.58	1388.92
006139982-02	OBS	No	0.508393	132.018686	36.1	5.340	9.1	15.5	1.13	6722	0.79	13751.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006139982-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006139982-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS

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

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

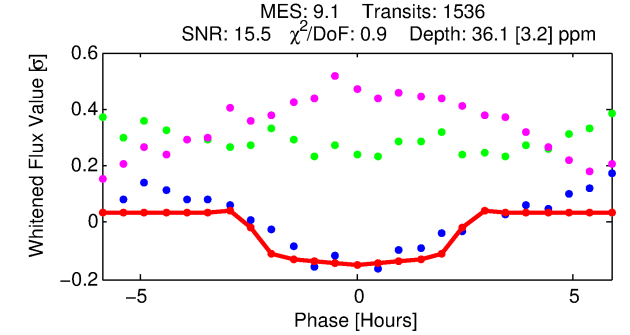
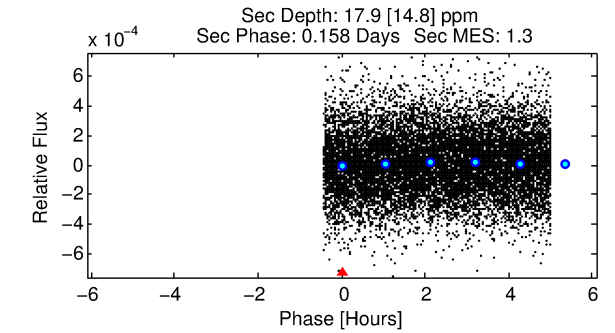
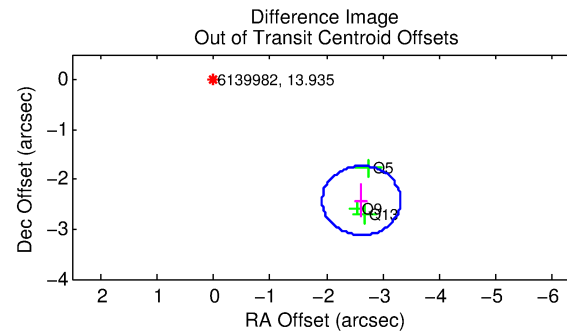
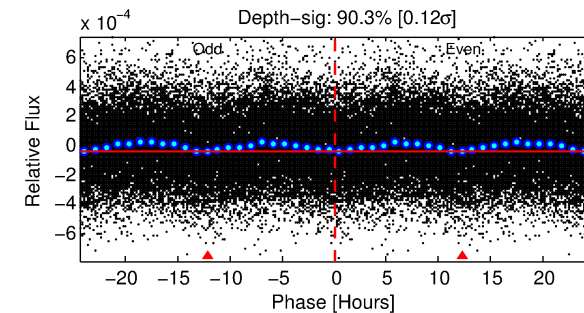
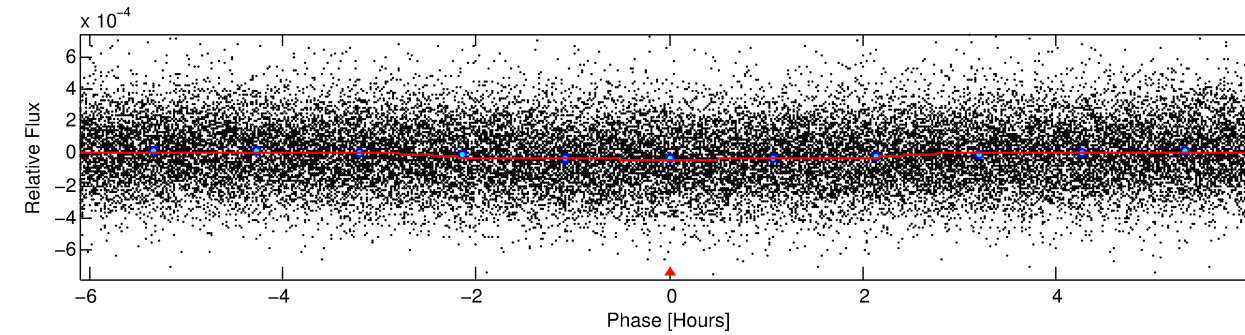
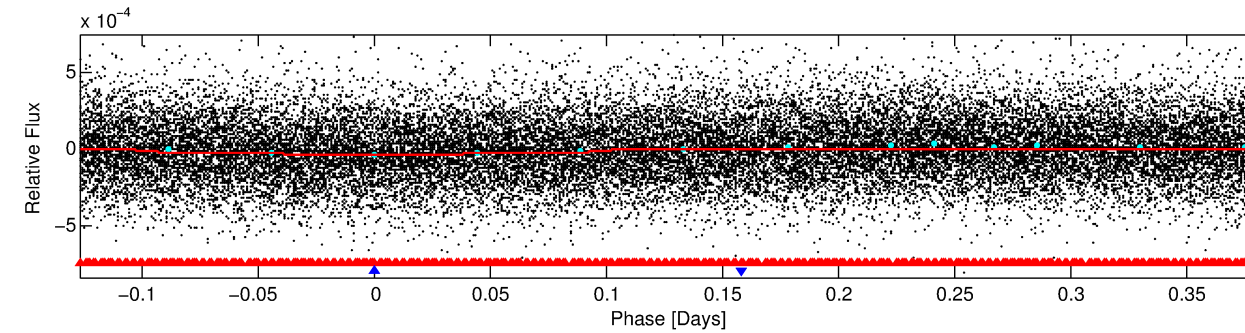
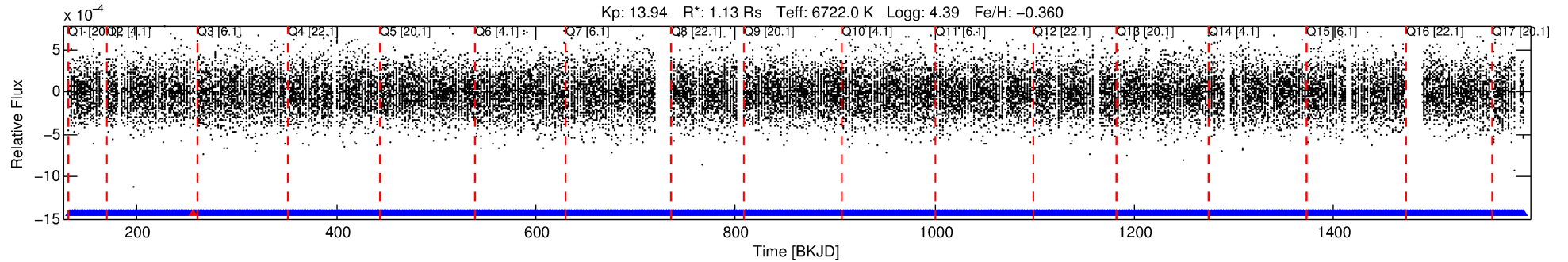
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006139982-02

No Significant Match Found

DV One-Page Summary

KIC: 6139982 Candidate: 2 of 2 Period: 0.508 d



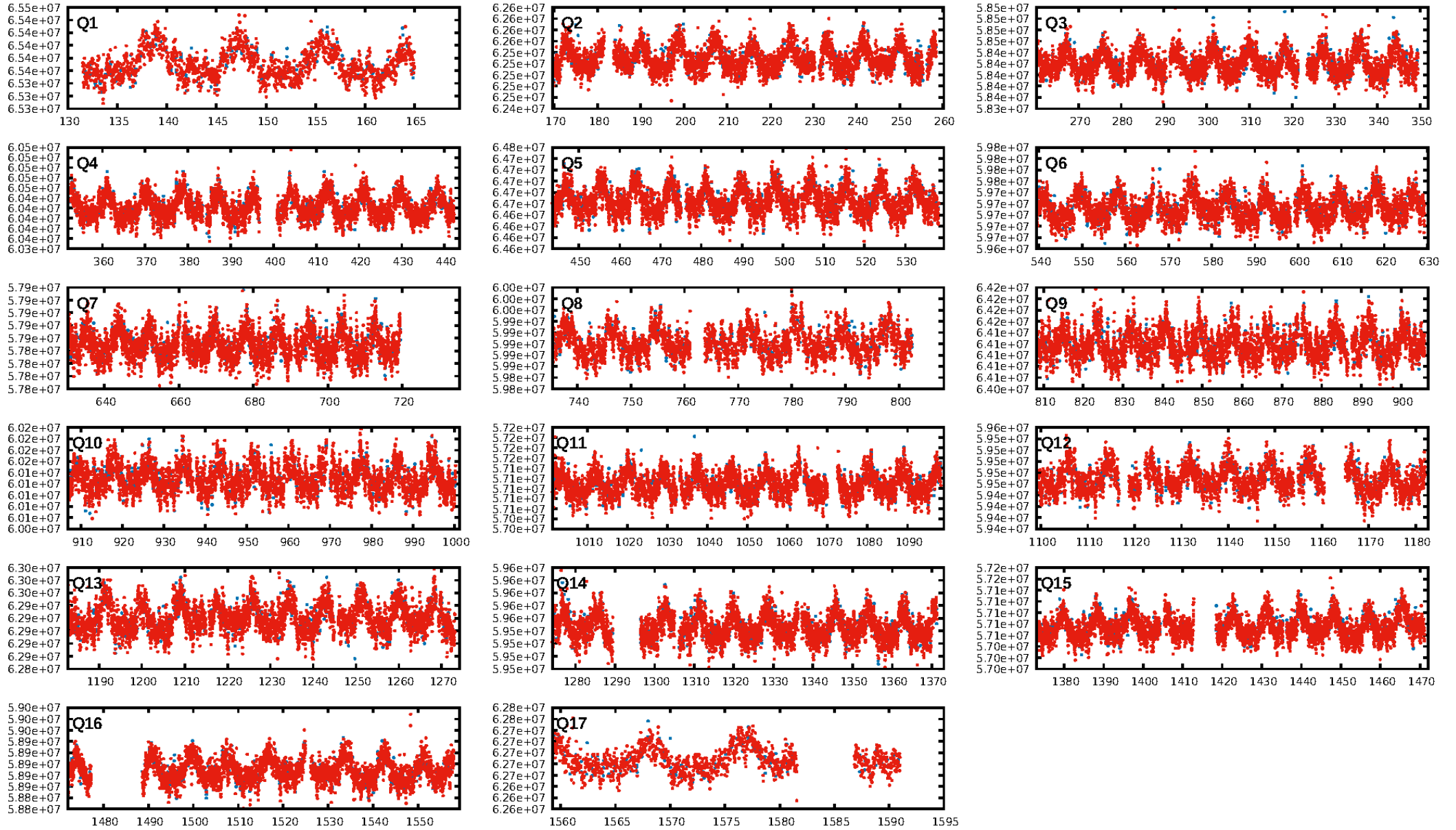
DV Fit Results:

Period = 0.50839 [0.00001] d
Epoch = 132.0187 [0.0033] BKJD
Rp/R* = 0.0064 [0.0011]
a/R* = 1.01 [0.02]
b = 0.90 [0.22]
Seff = 13751.96 [5565.56]
Teq = 2761 [279] K
Rp = 0.79 [0.30] Re
a = 0.0131 [0.0035] AU
Ag = 2.68 [2.62] [0.64σ]
Teffp = 5461 [1243] K [2.12σ]

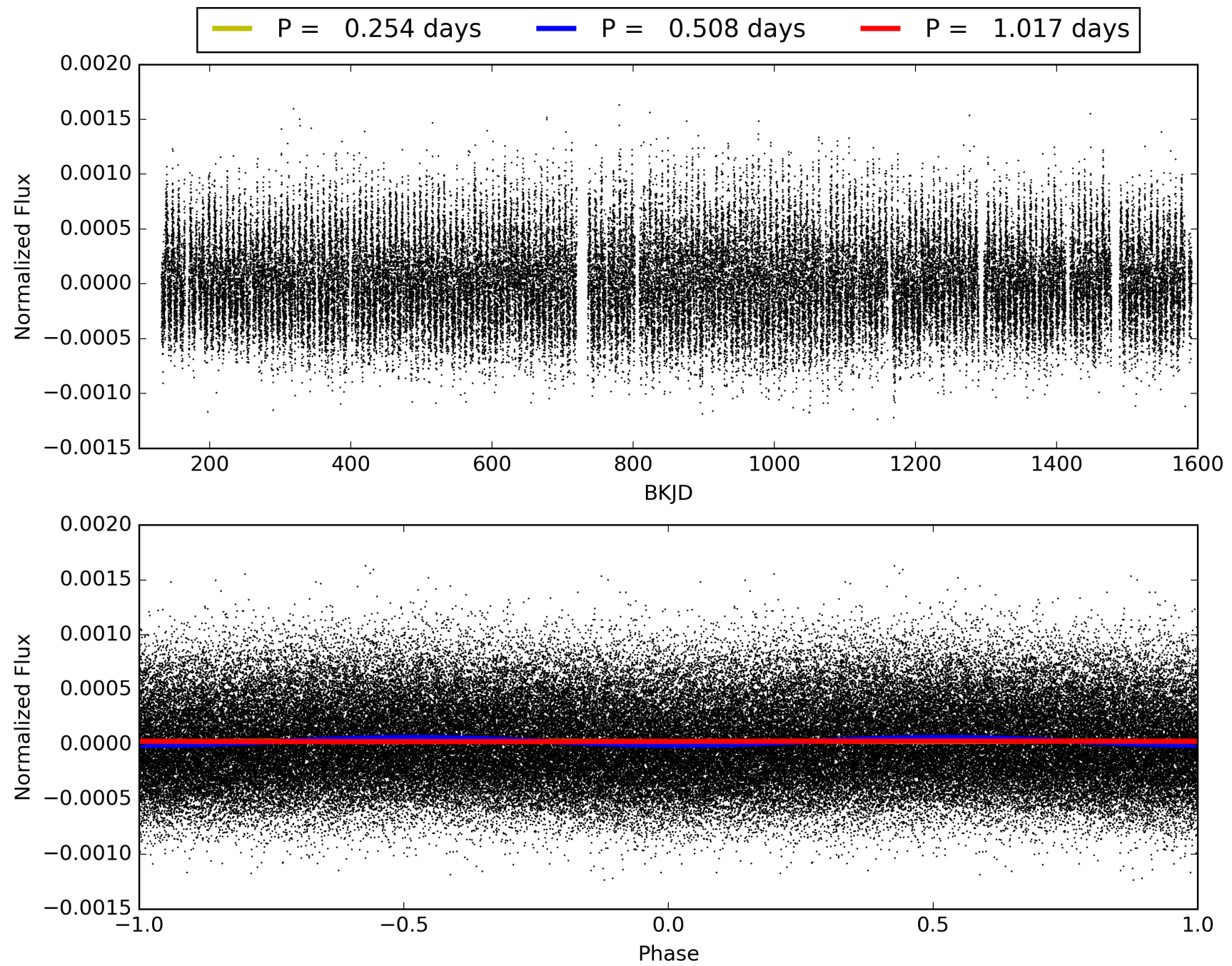
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.50σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1465/1466]
GhostDiagnostic-chr: 1.583
Centroid-sig: 21.6%
Centroid-so: 0.646 arcsec [1.21σ]
OotOffset-rm: 3.571 arcsec [15.47σ]
KicOffset-rm: 3.590 arcsec [14.70σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006139982-02, PDC Light Curves

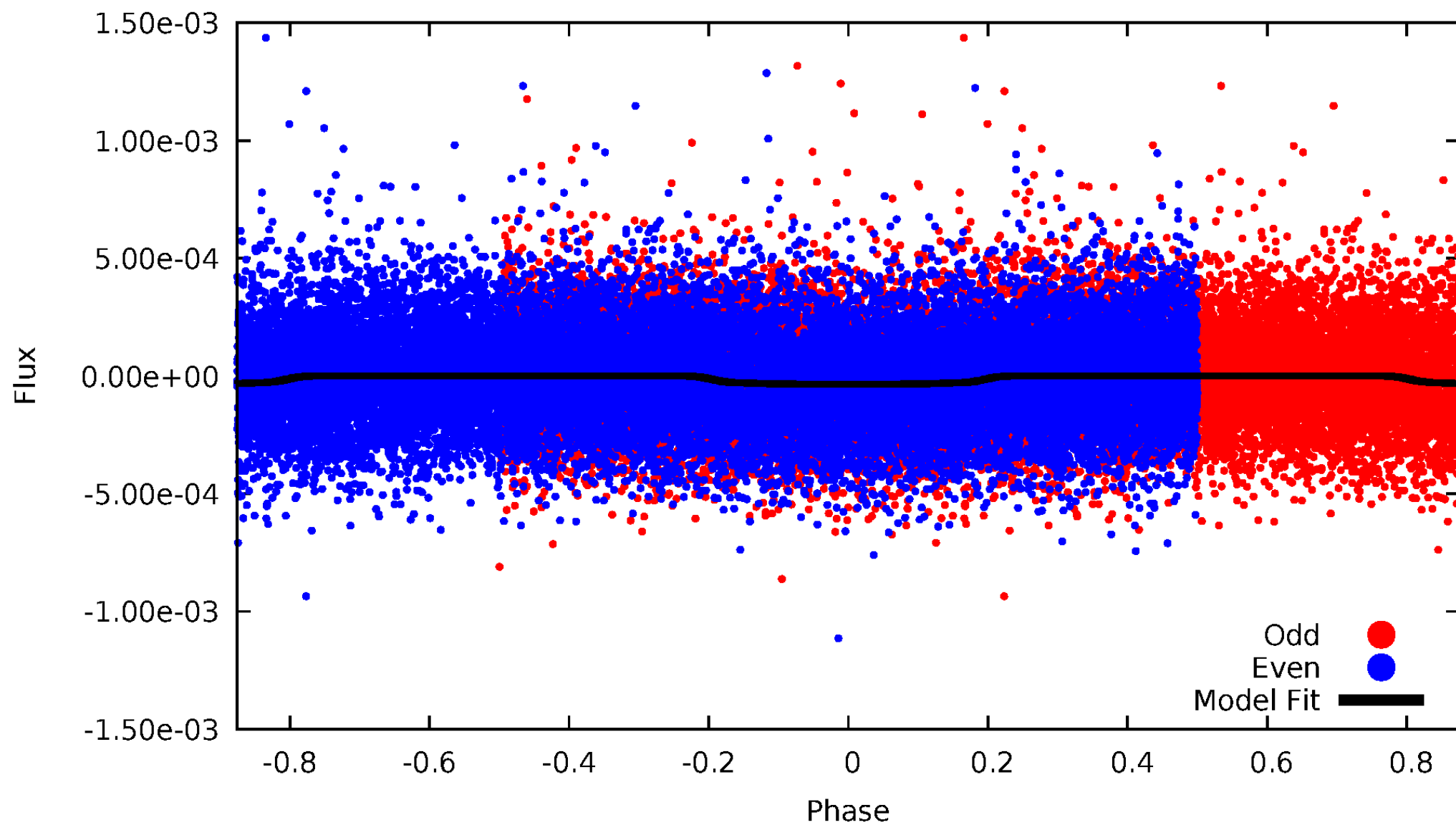


TCE 006139982-02



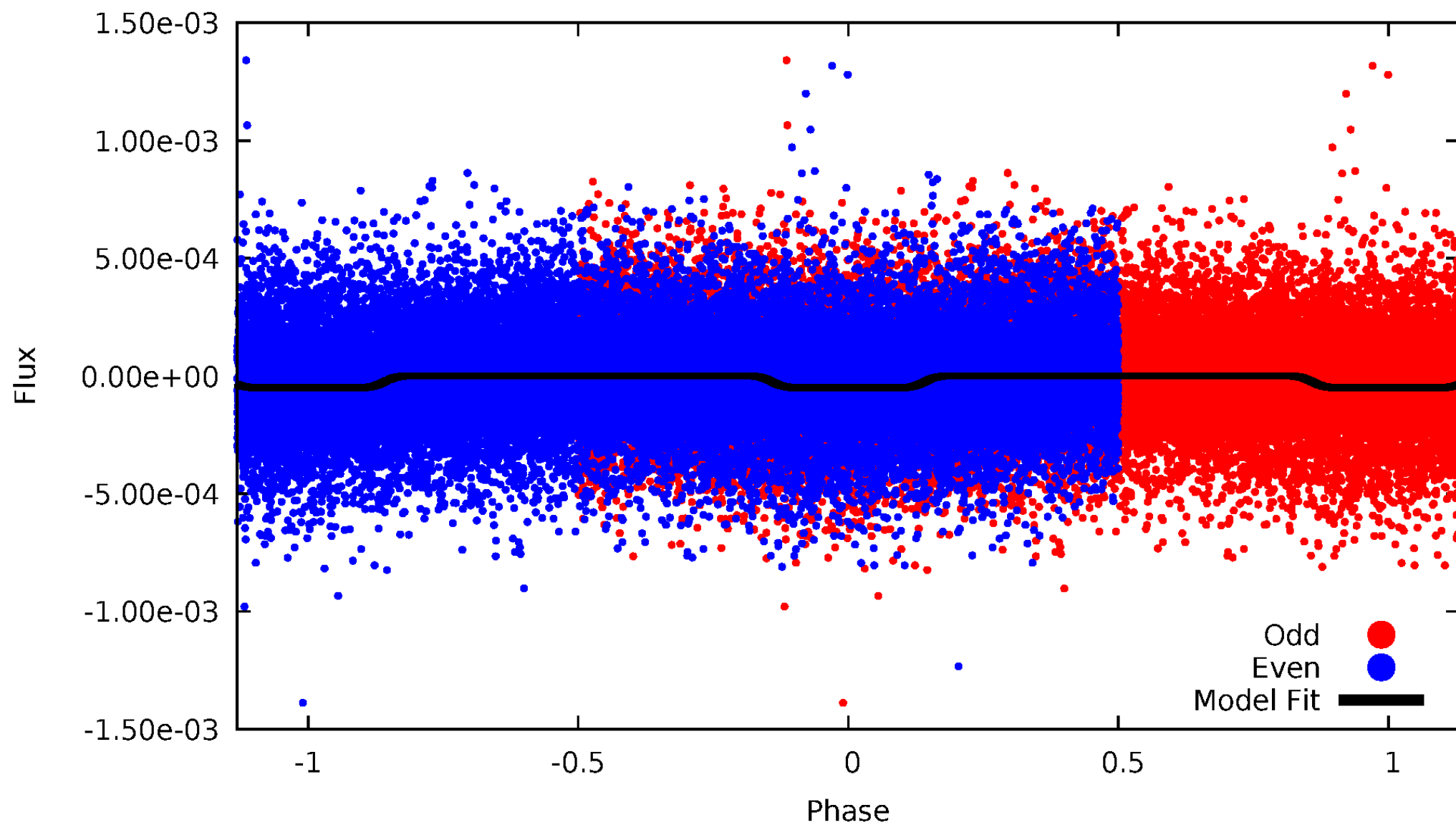
DV Odd/Even

TCE 006139982-02



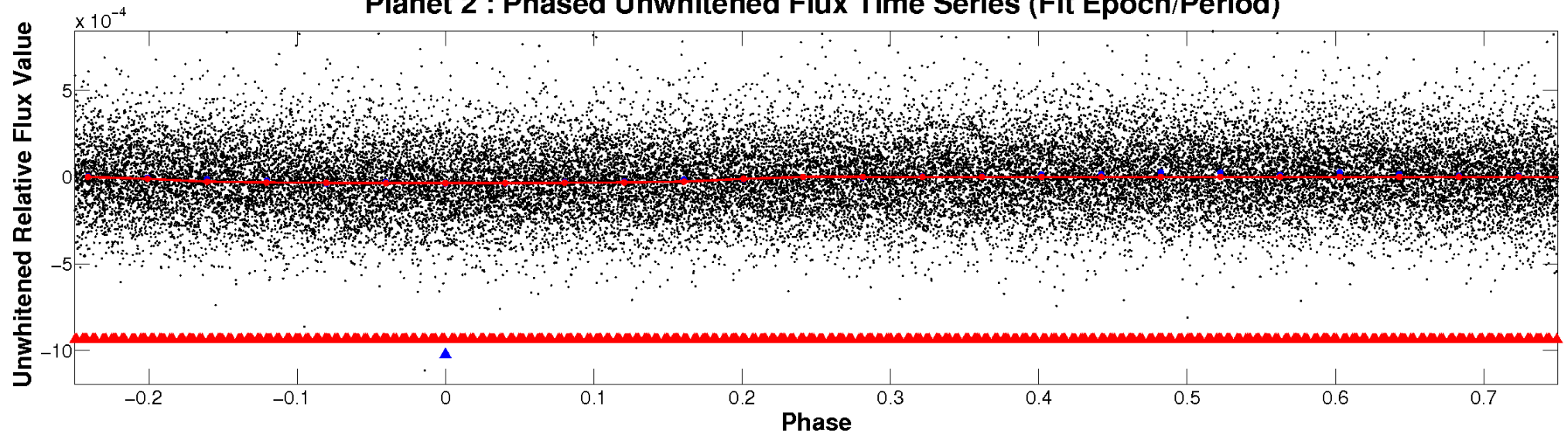
ALT Odd/Even

TCE 006139982-02

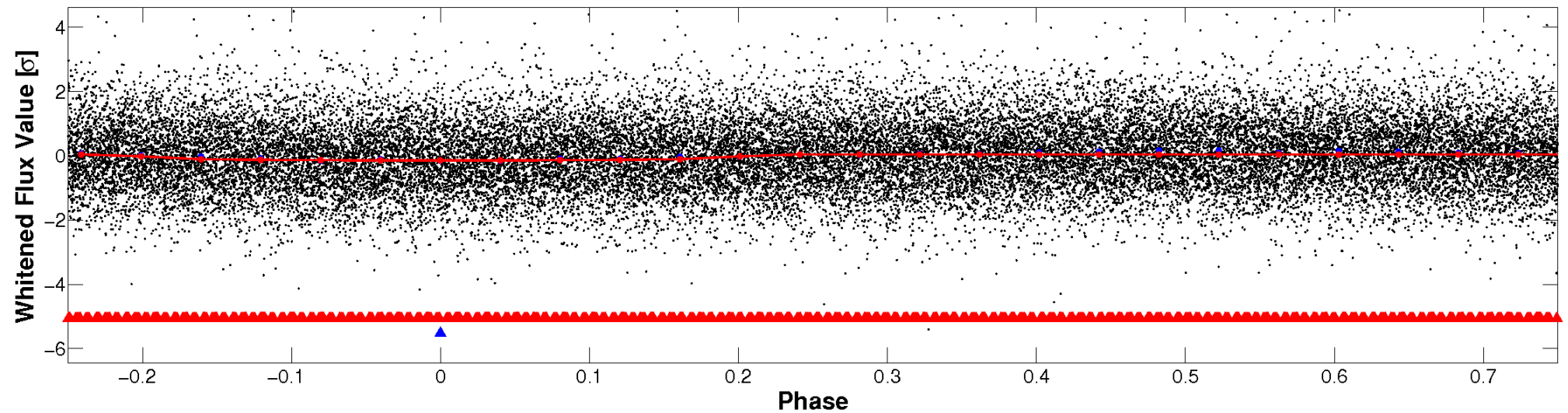


Non-Whitened Vs. Whitened Light Curve

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

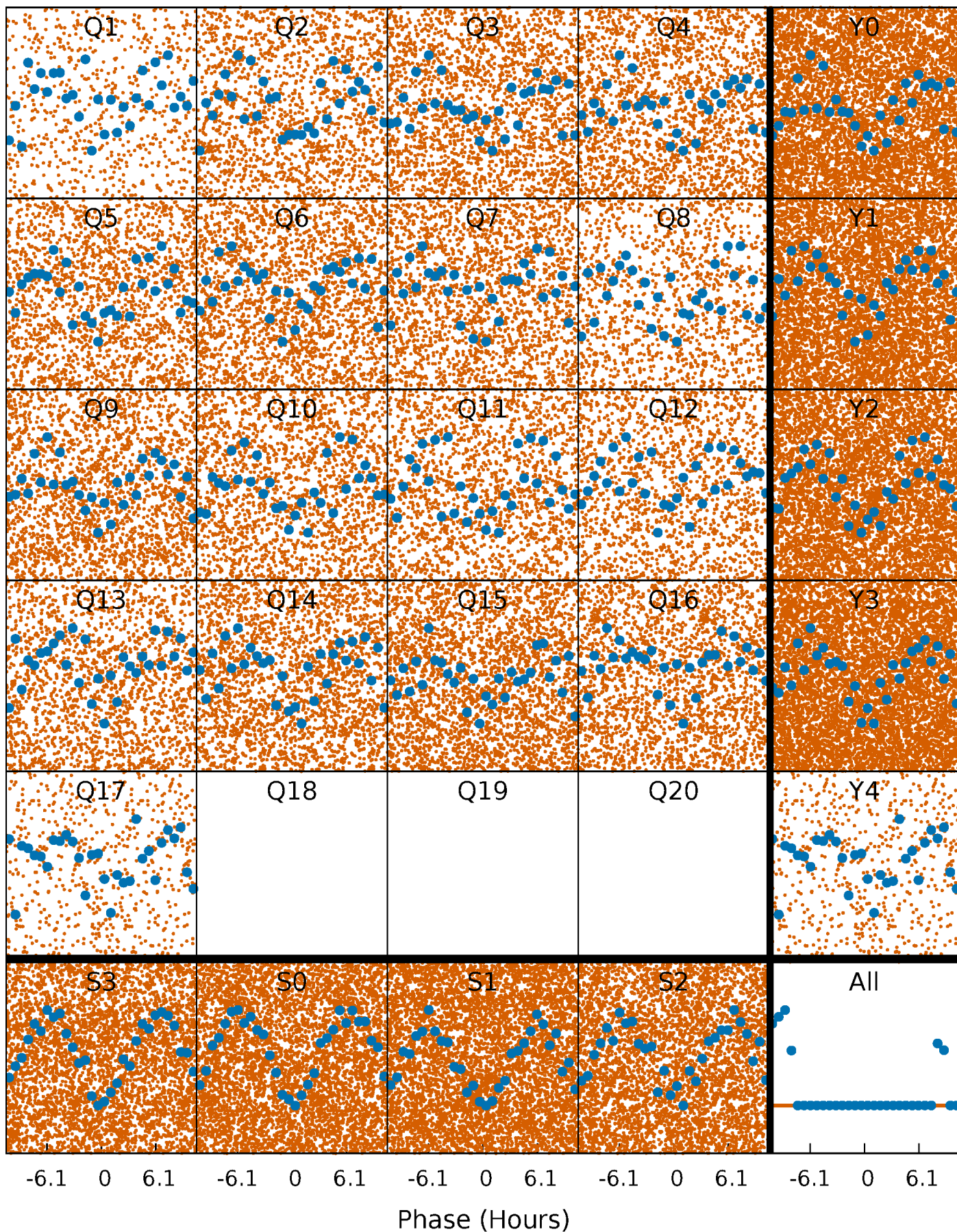


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



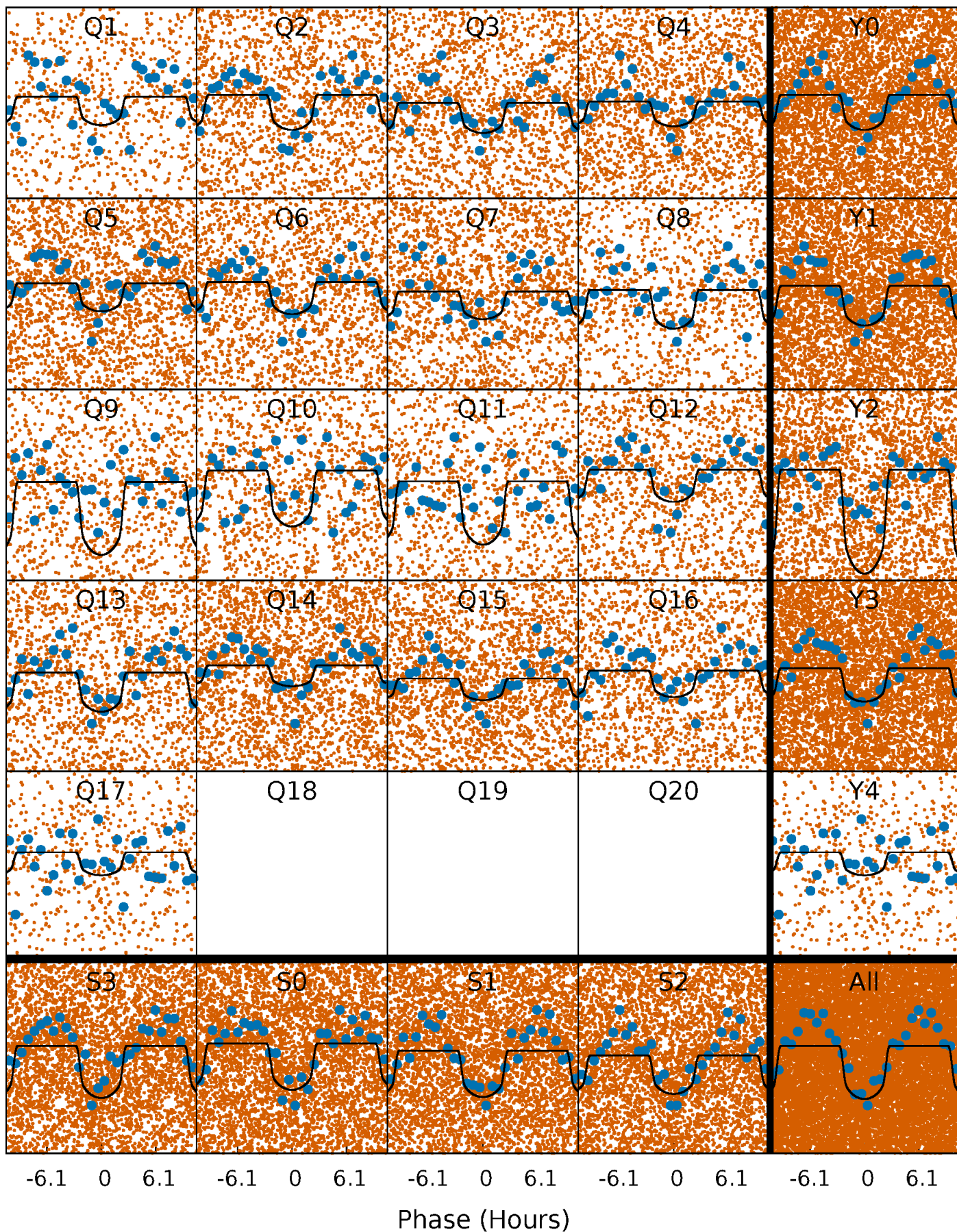
PDC Quarter-Phased Transit Curves

TCE 006139982-02 P= 0.508393 Days $T_0=132.018686$ (BKJD)



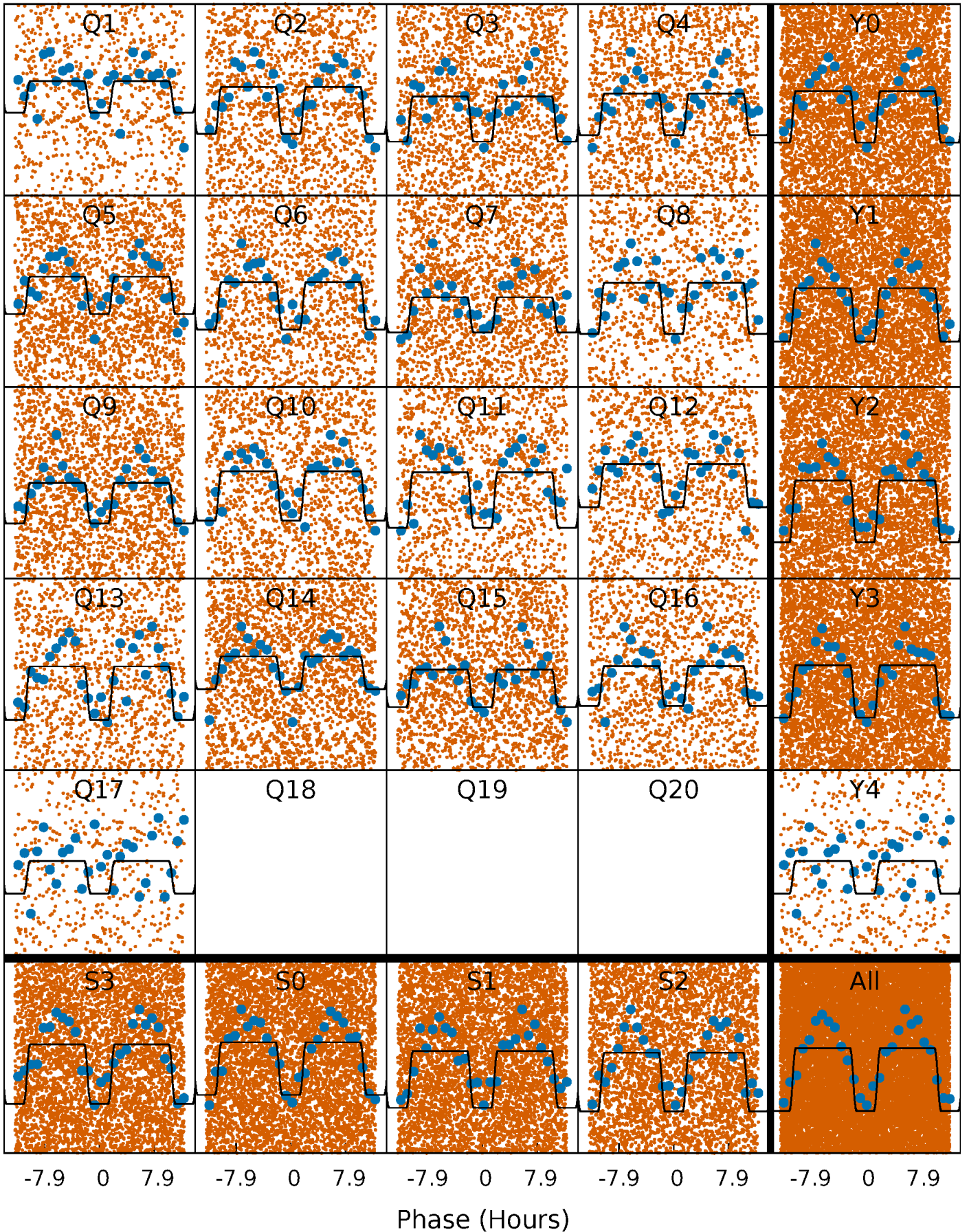
DV Quarter-Phased Transit Curves

TCE 006139982-02 P= 0.508393 Days $T_0=132.018686$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

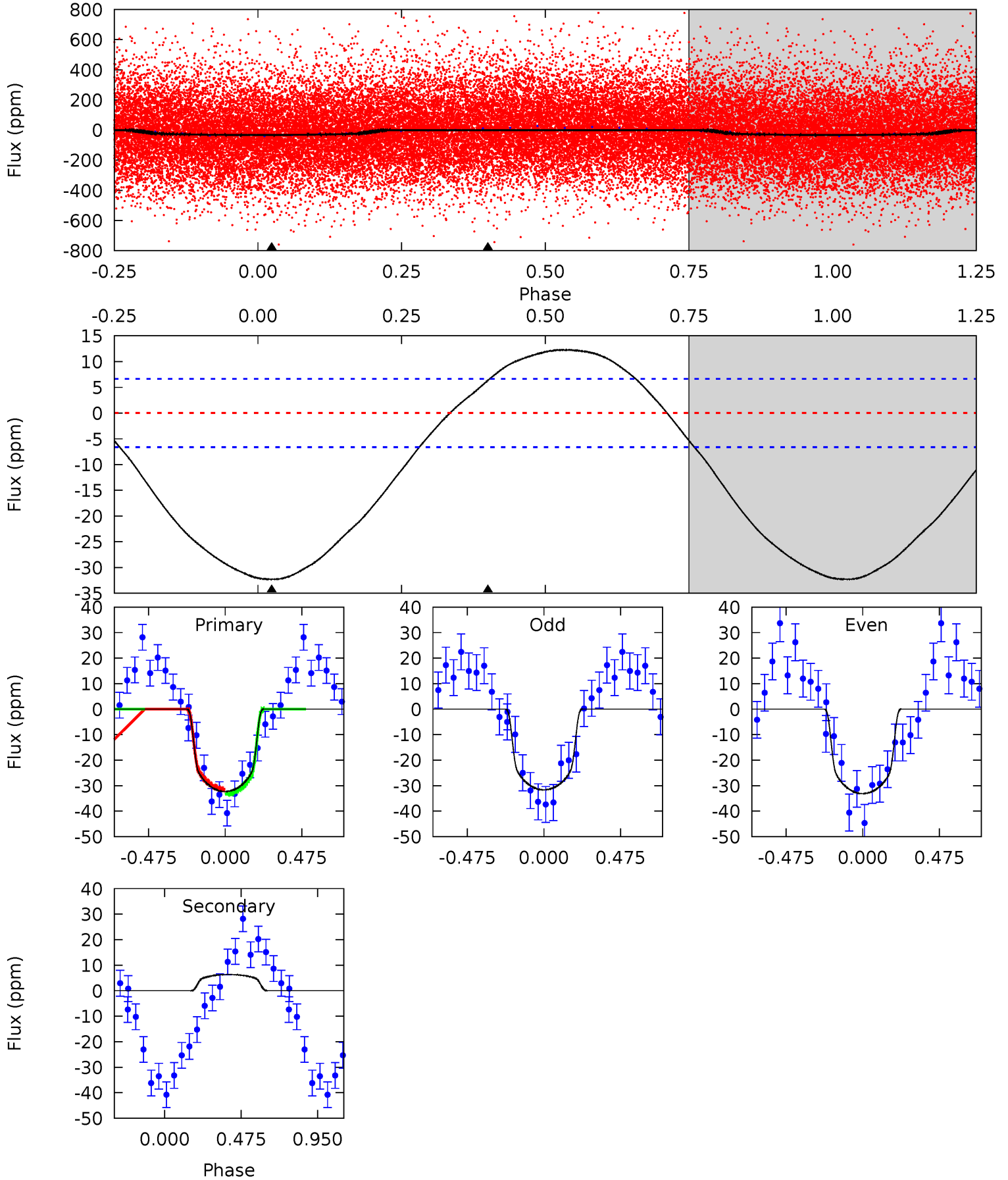
TCE 006139982-02 P= 0.508397 Days $T_0=132.015944$ (BKJD)



DV Model-Shift Uniqueness Test

006139982-02, P = 0.508393 Days, E = 131.510293 Days

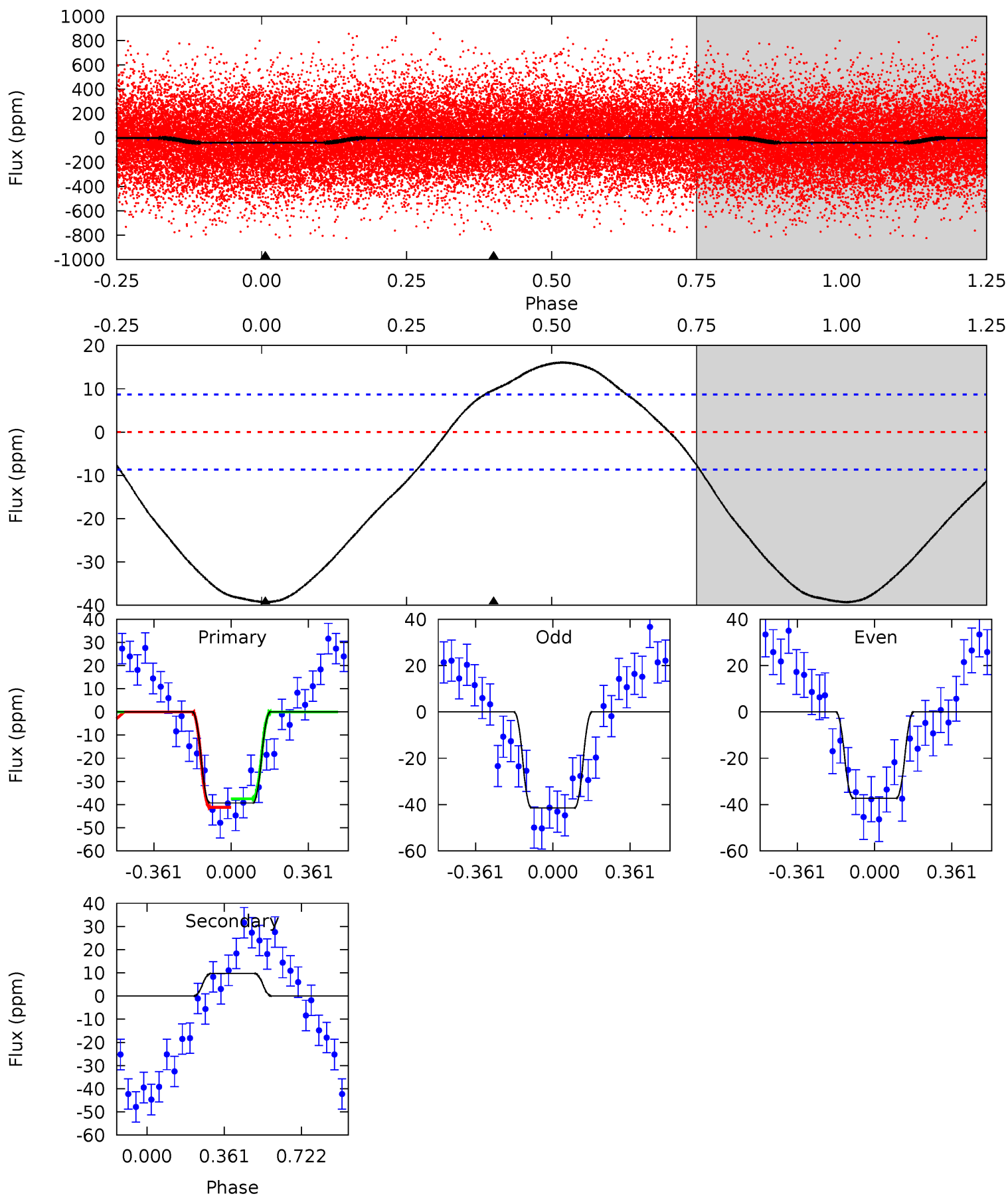
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	-4.04	0	0	4.23	0.71	2.48	20.6	20.6	-4.04	-4.04	0.47	0.84	0.28	0.60



Alt Model-Shift Uniqueness Test

006139982-02, P = 0.508397 Days, E = 131.507547 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	-4.81	0	0	4.29	0.91	2.05	19.5	19.5	-4.81	-4.81	1.01	0.97	0.29	0.85



Stellar Parameters For KIC 006139982

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6722^{+165}_{-235}	$4.391^{+0.067}_{-0.202}$	$-0.360^{+0.250}_{-0.300}$	$1.134^{+0.373}_{-0.124}$	$1.156^{+0.164}_{-0.164}$	$1.116^{+0.325}_{-0.600}$
	+2%/-3%	+2%/-5%	+69%/-83%	+33%/-11%	+14%/-14%	+29%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006139982-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	6 ± 2	$0.81^{+0.21}_{-0.15}$	3909^{+297}_{-188}	-4672^{+285}_{-380}	$-0.863^{+0.343}_{-0.547}$
Alt.	10 ± 2	$0.88^{+0.20}_{-0.15}$	3915^{+253}_{-207}	-4881^{+313}_{-346}	$-1.143^{+0.433}_{-0.630}$

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

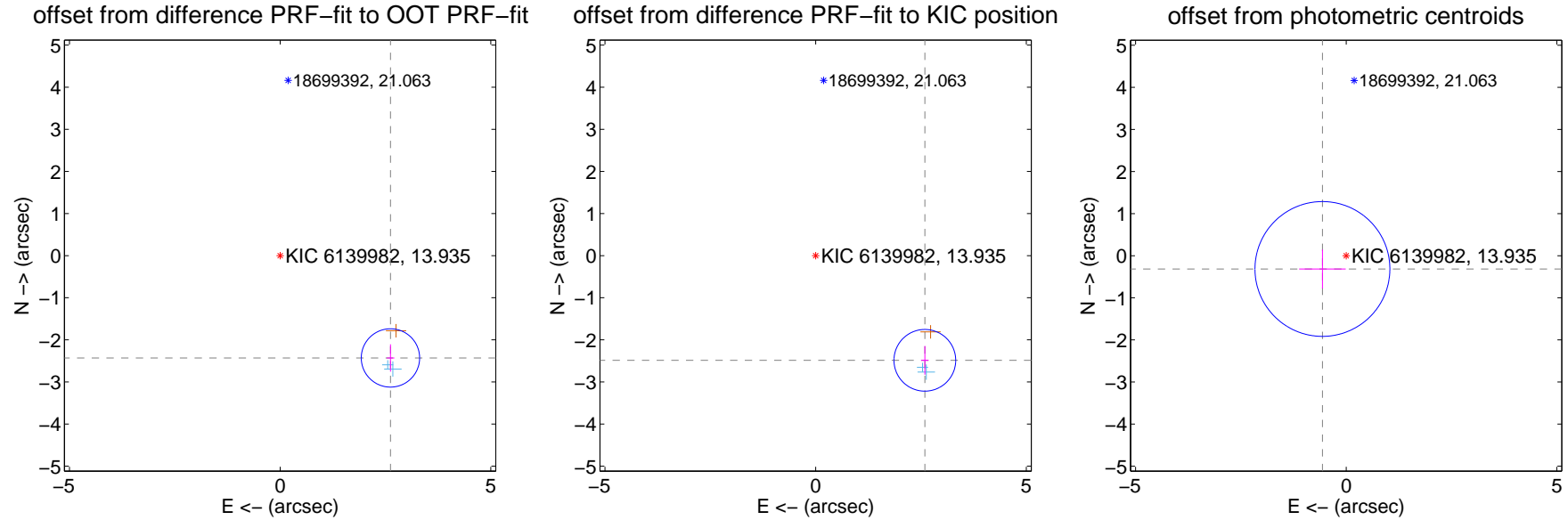
DV Centroid Data

Supplemental centroid analysis for 006139982-02. Kepler magnitude: 13.94. Transit SNR 15.51

There are 2 quarters with good PRF difference image offsets

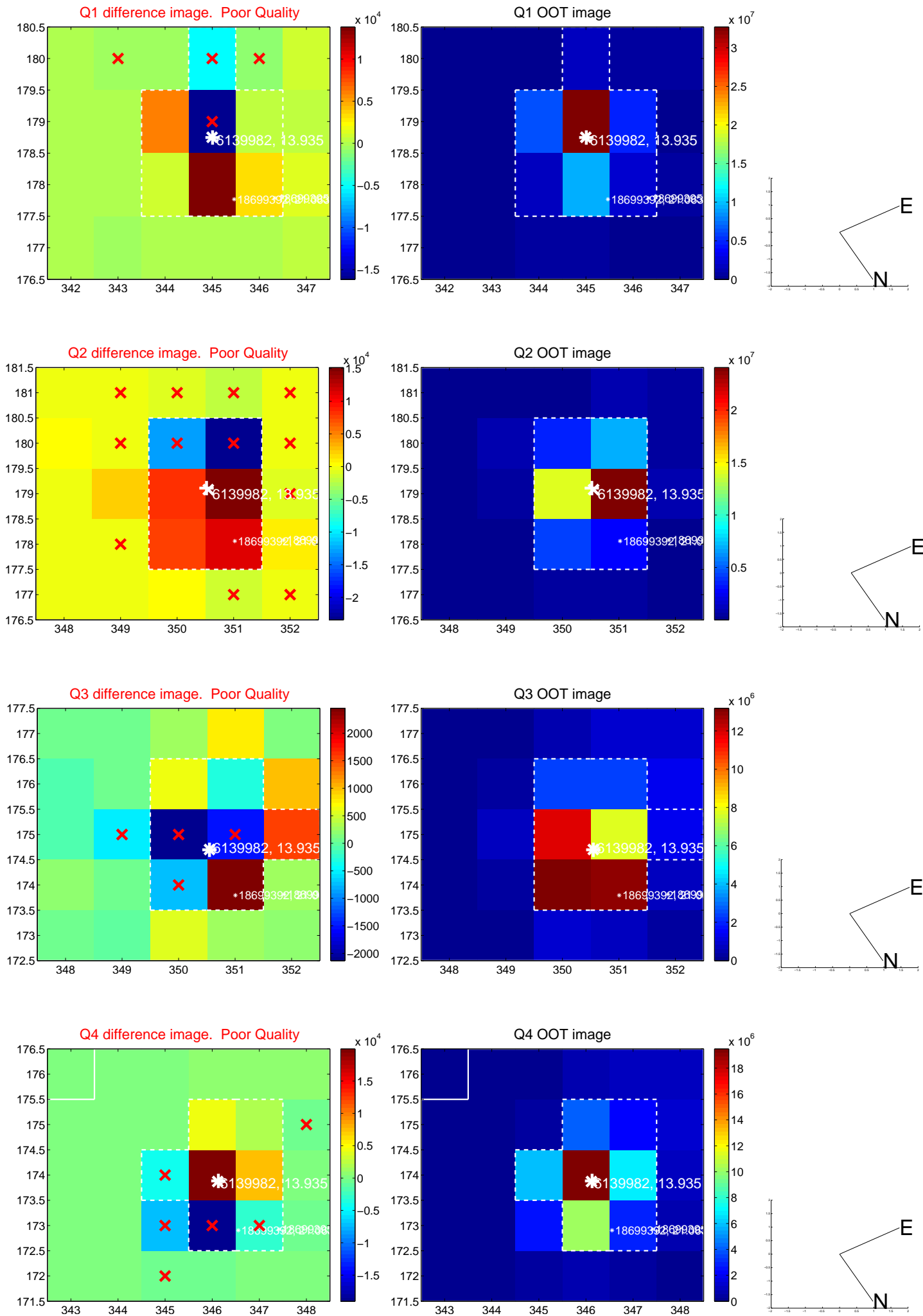
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.571 ± 0.231	15.47	-2.618 ± 0.092	-2.429 ± 0.325
PRF-fit source offset from KIC position	3.590 ± 0.244	14.70	-2.591 ± 0.087	-2.485 ± 0.341
photometric centroid source offset	0.65 ± 0.53	1.21	0.56 ± 0.55	-0.31 ± 0.46

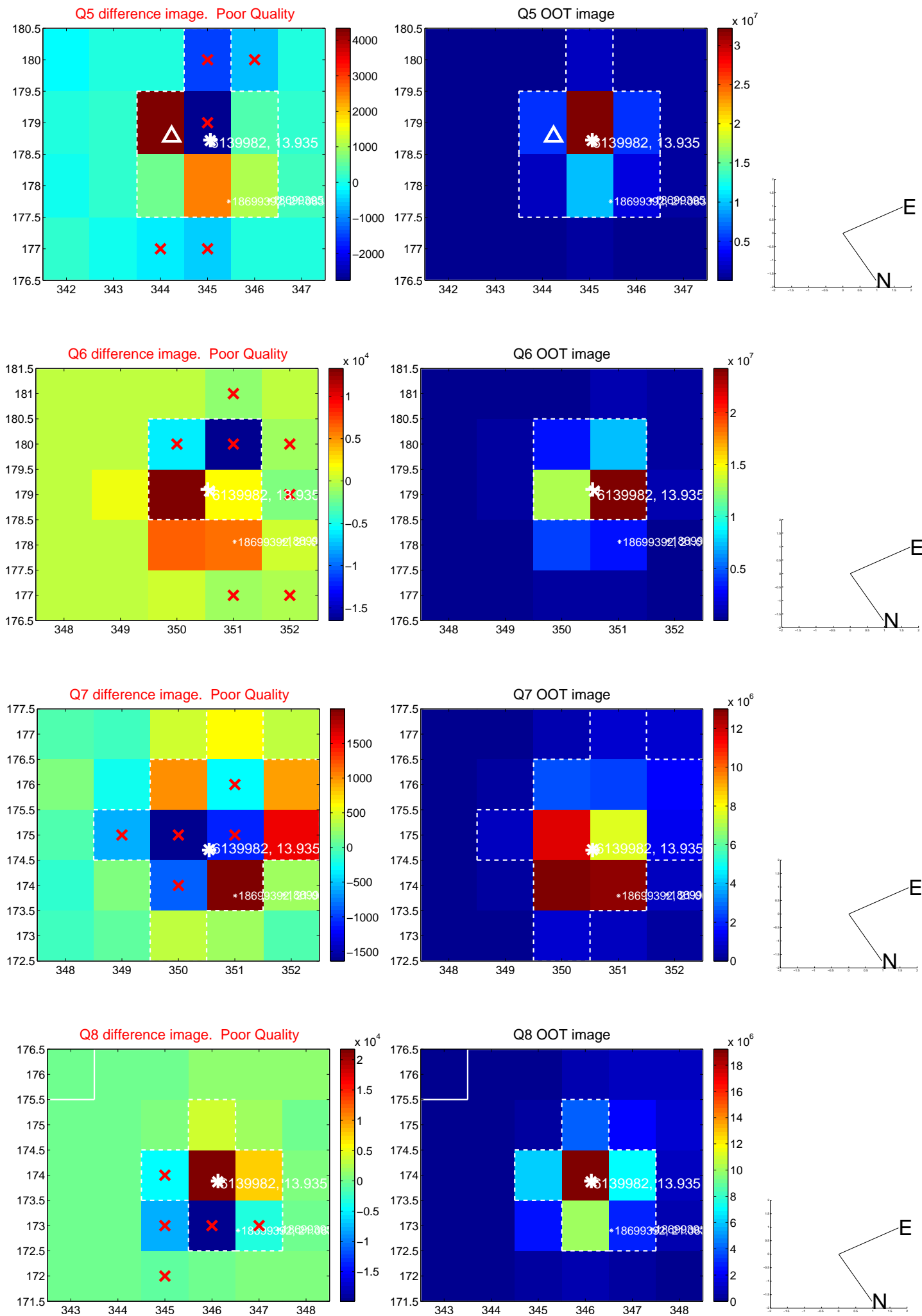


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

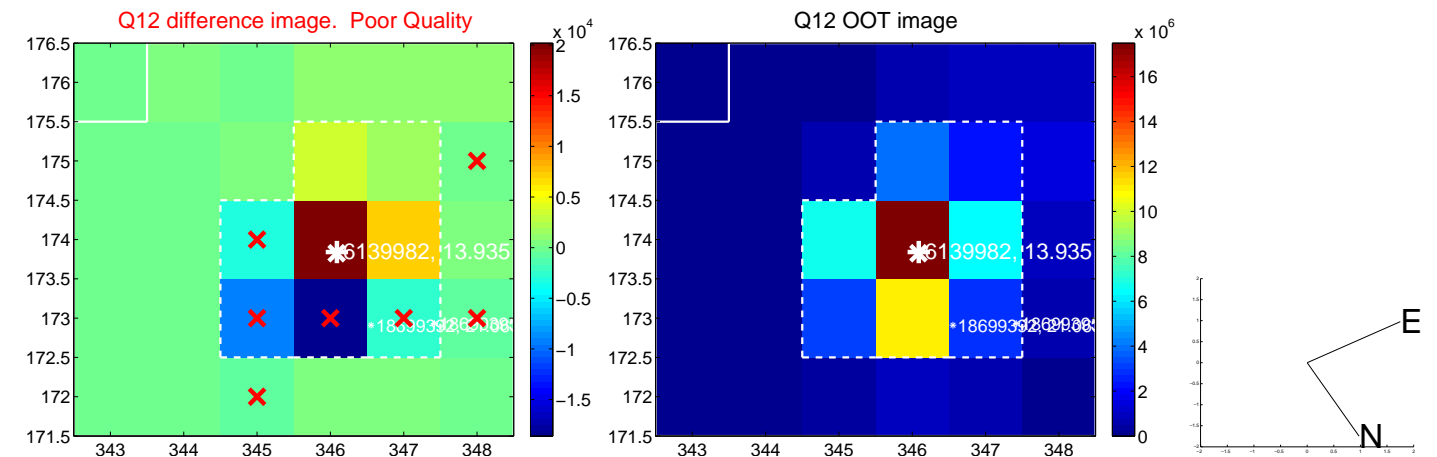
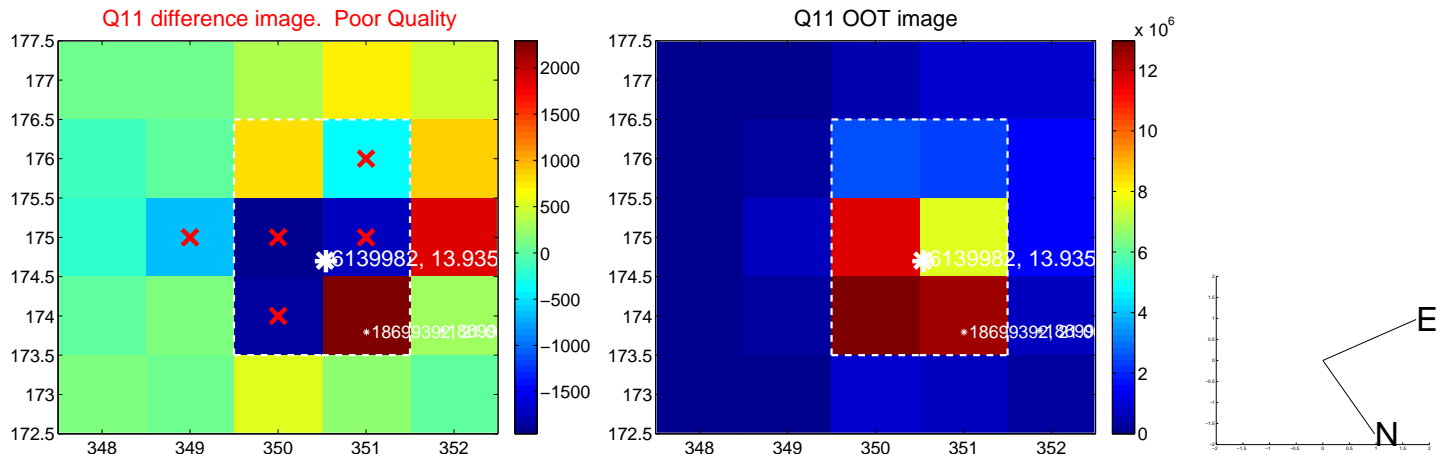
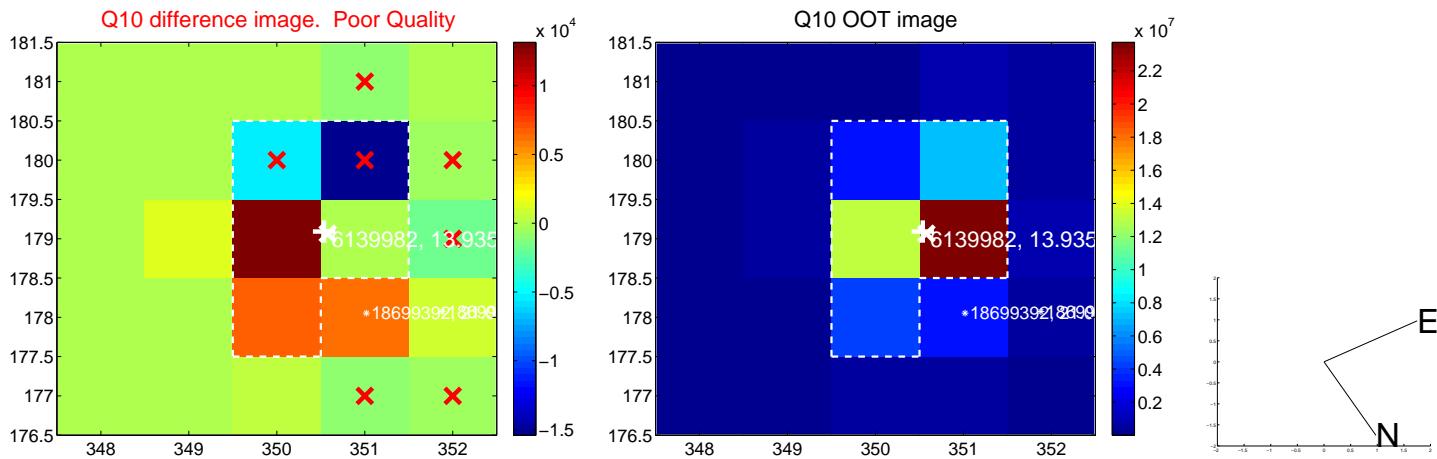
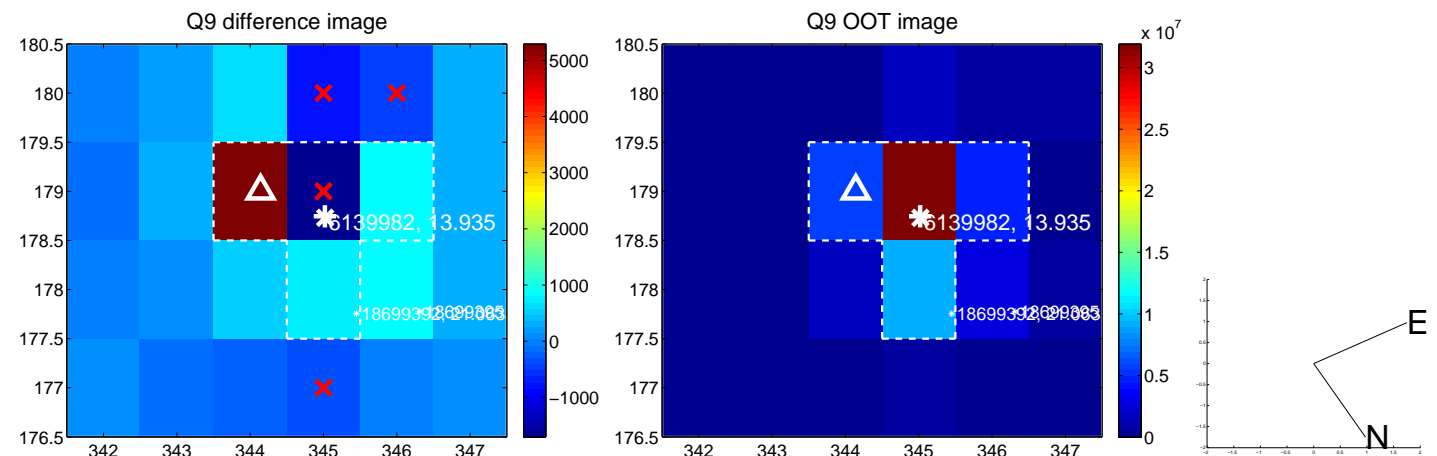
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



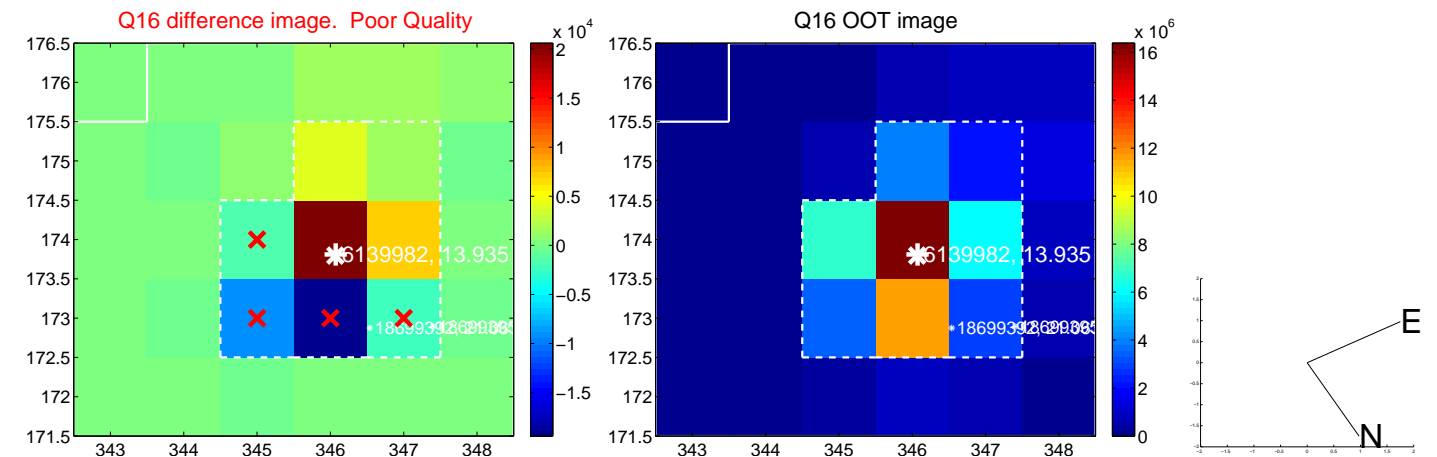
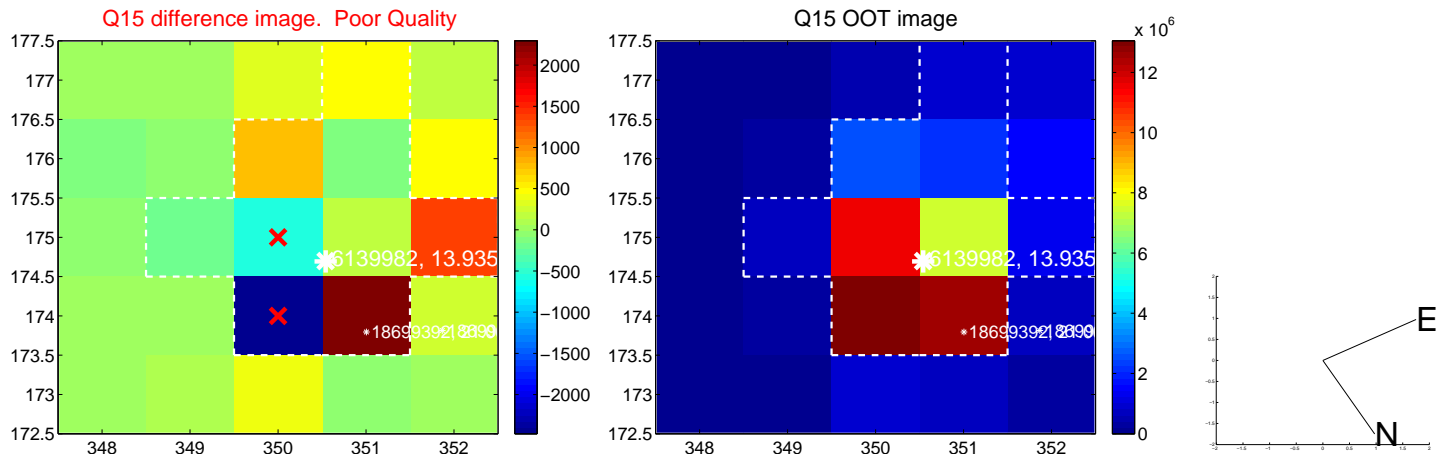
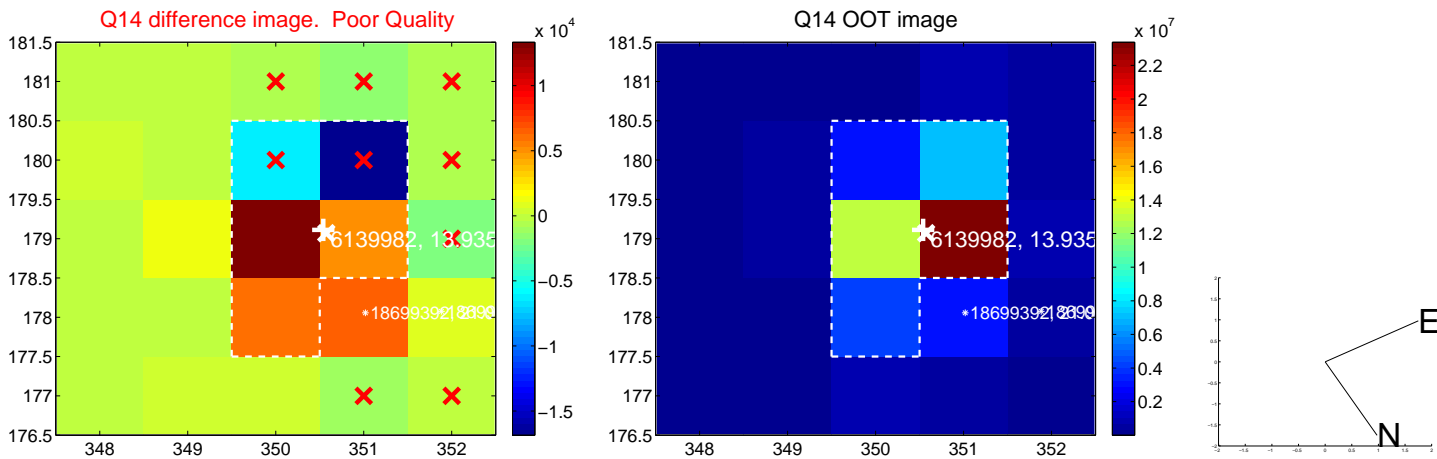
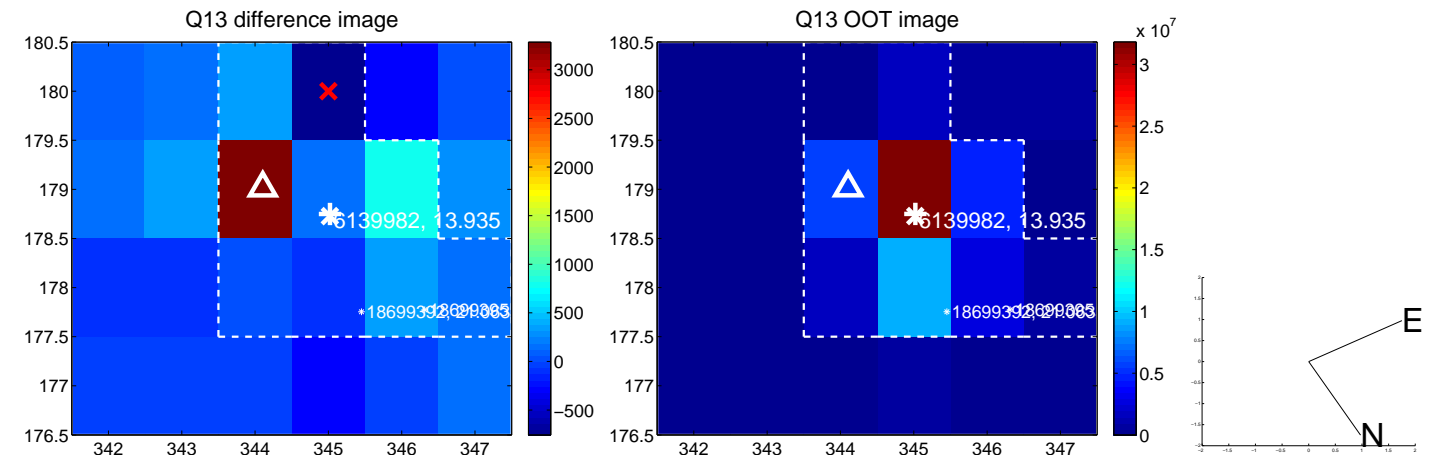
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



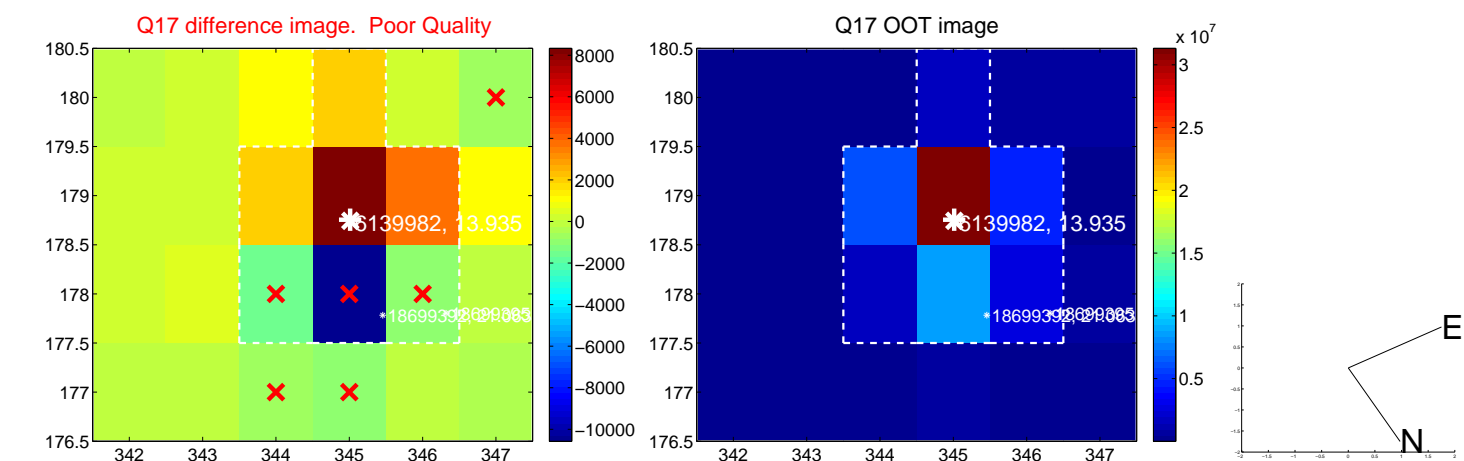
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



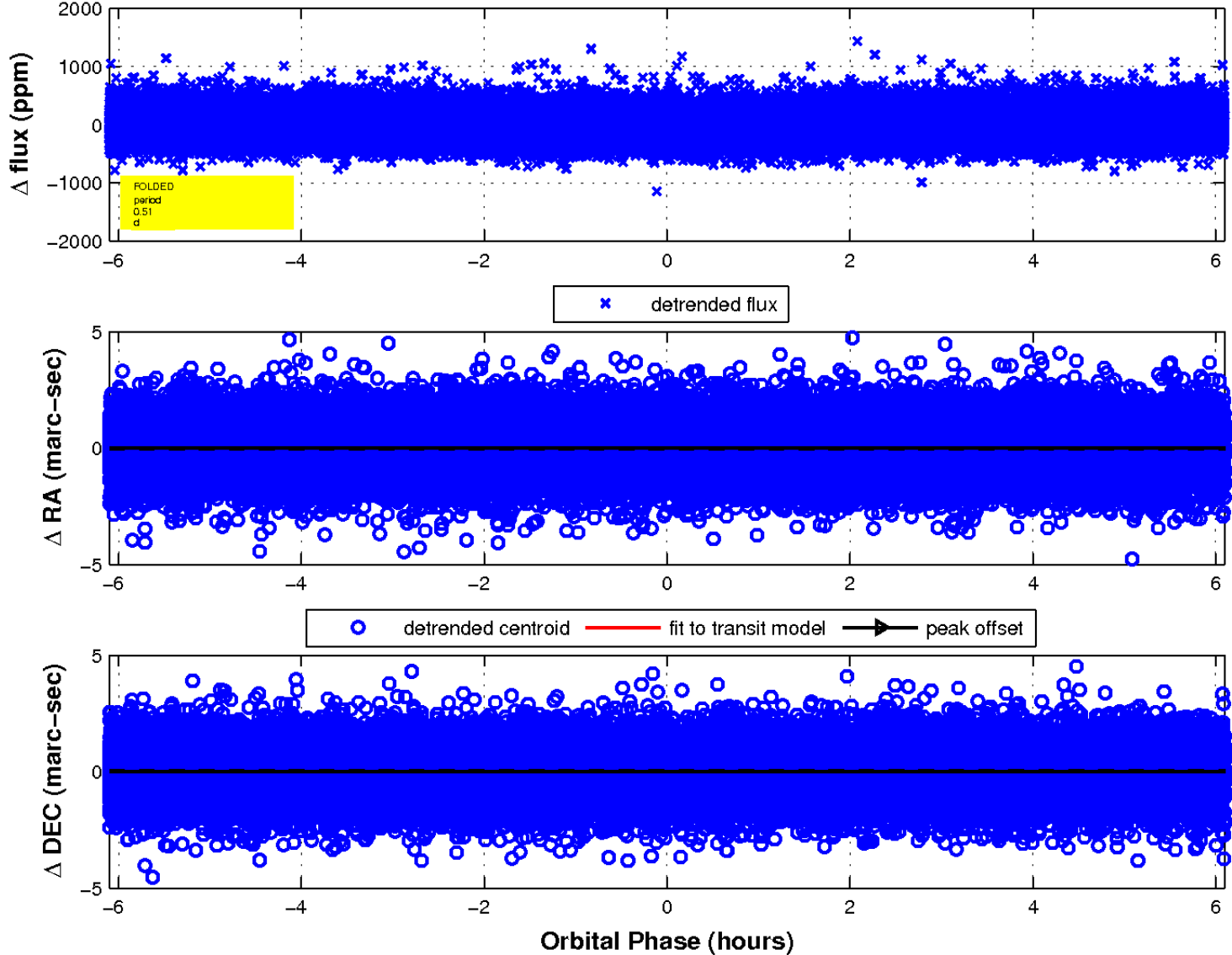
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fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

