

KIC 011972872

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})
011972872-01	OBS	No	0.531132	131.604817	186.3	2.038	18.3	19.3	0.76	4978	1.12	2384.96
011972872-02	OBS	4089.01	0.531105	131.904744	2351.2	1.500	27.1	-1.0	0.76	4978	3.60	2385.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011972872-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011972872-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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.

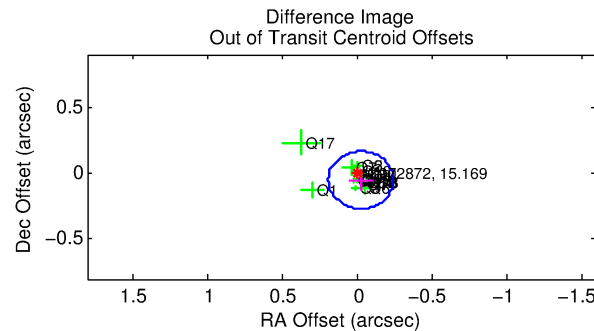
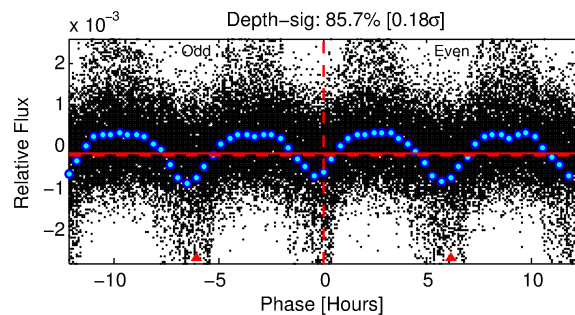
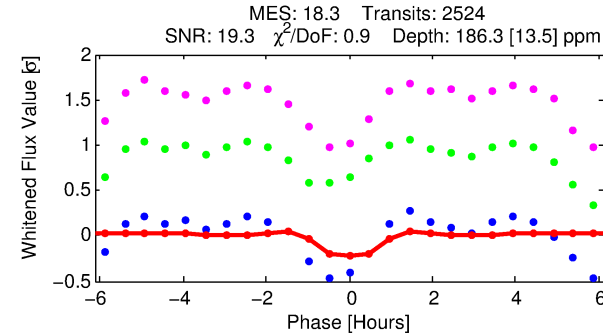
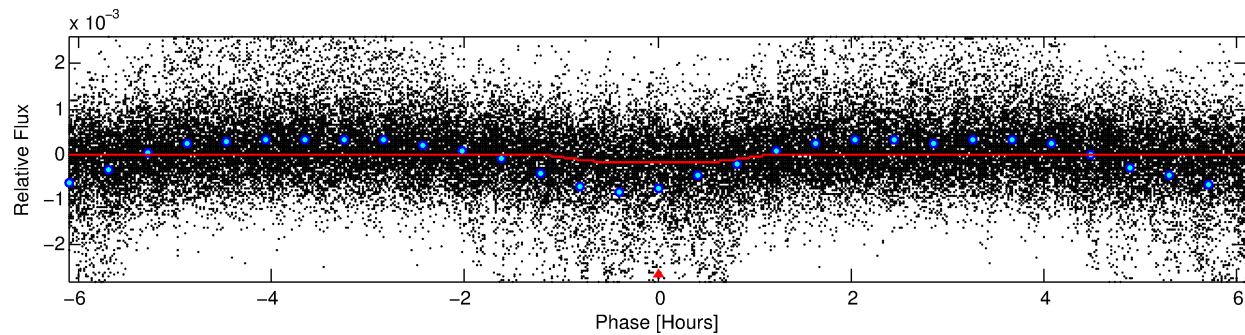
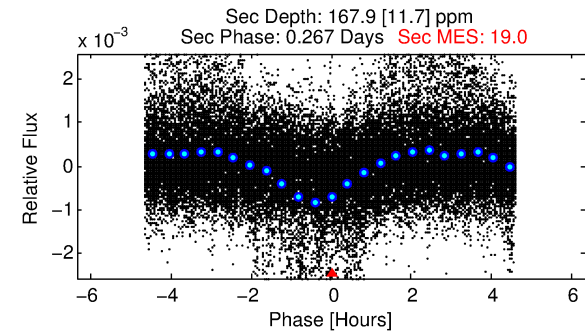
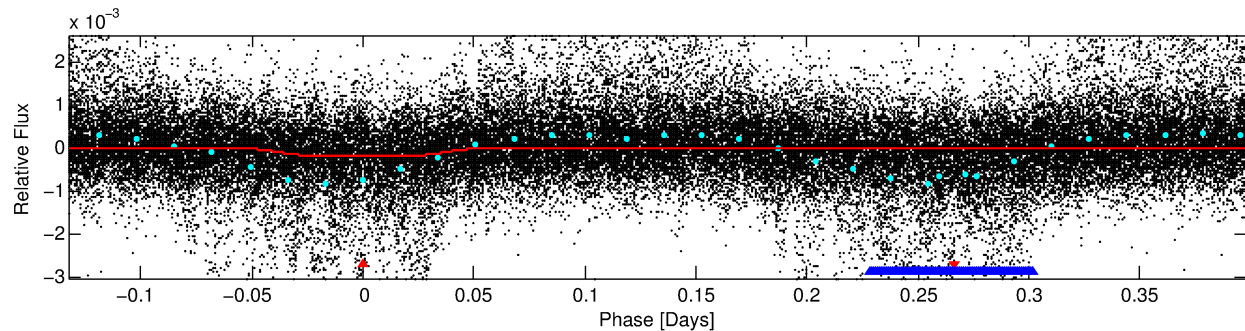
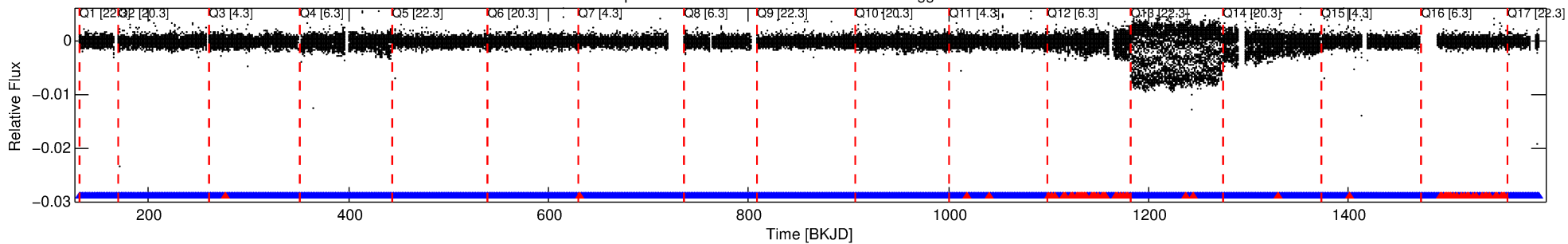
Ephemeris Match Information For 011972872-01

No Significant Match Found

DV One-Page Summary

KIC: 11972872 Candidate: 1 of 2 Period: 0.531 d
KOI: K04089 Corr: No Ephemeris Match

Kp: 15.17 R*: 0.76 Rs Teff: 4978.0 K Logg: 4.54 Fe/H: -0.120



DV Fit Results:

Period = 0.53113 [0.00001] d
Epoch = 131.6048 [0.0011] BKJD
Rp/R* = 0.0134 [0.0062]
a/R* = 1.66 [1.71]
b = 0.71 [1.17]
Seff = 2384.96 [422.46]
Teff = 1782 [79] K
Rp = 1.12 [0.53] Re
a = 0.0116 [0.0010] AU
Ag = 9.92 [9.32] [0.96σ]
Teffp = 4890 [1147] K [2.70σ]

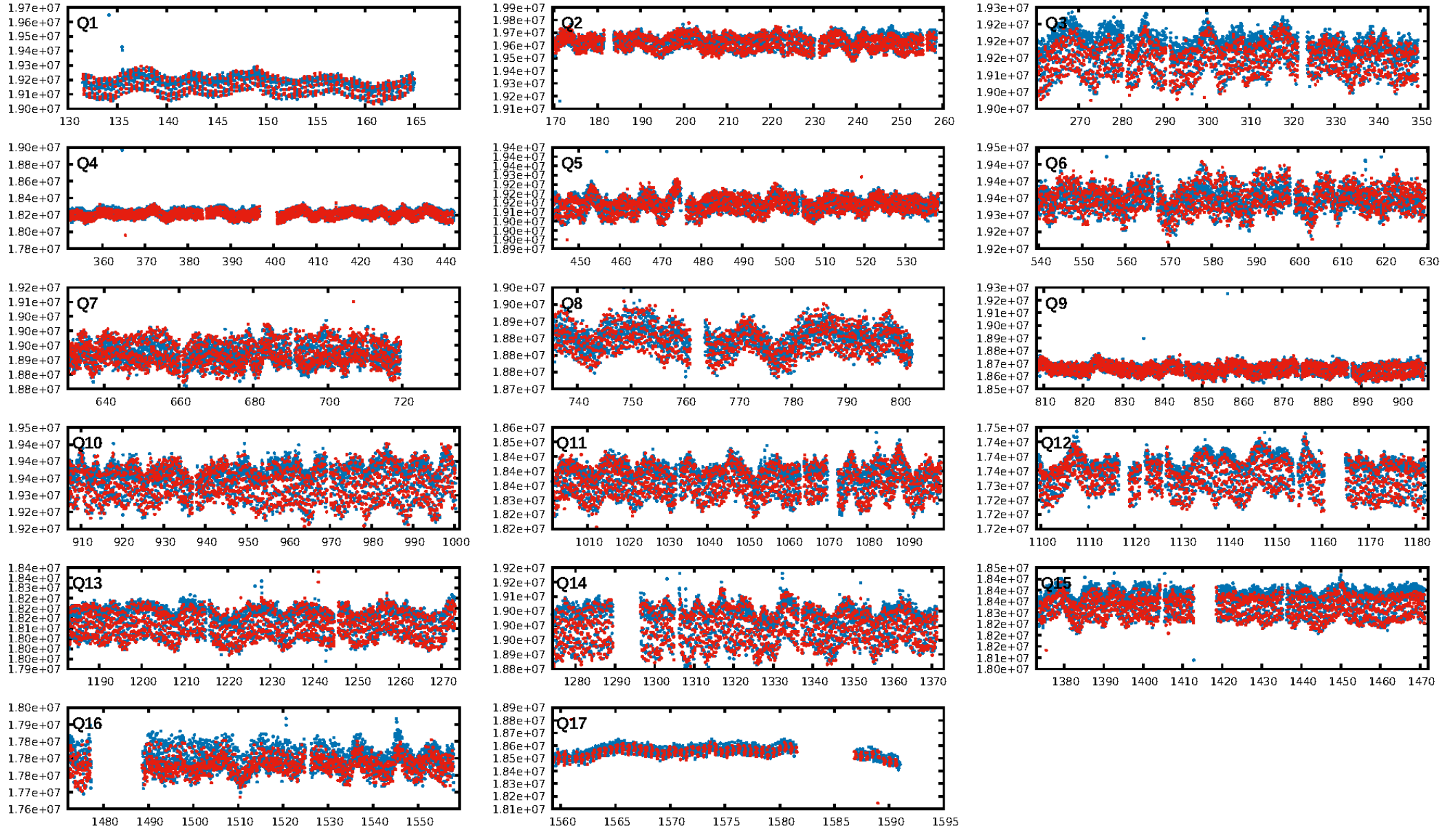
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [2338/2410]
GhostDiagnostic-chr: 7.982
Centroid-sig: 4.2%
Centroid-so: 0.240 arcsec [0.66σ]
OotOffset-rm: 0.059 arcsec [0.81σ]
KicOffset-rm: 0.042 arcsec [0.61σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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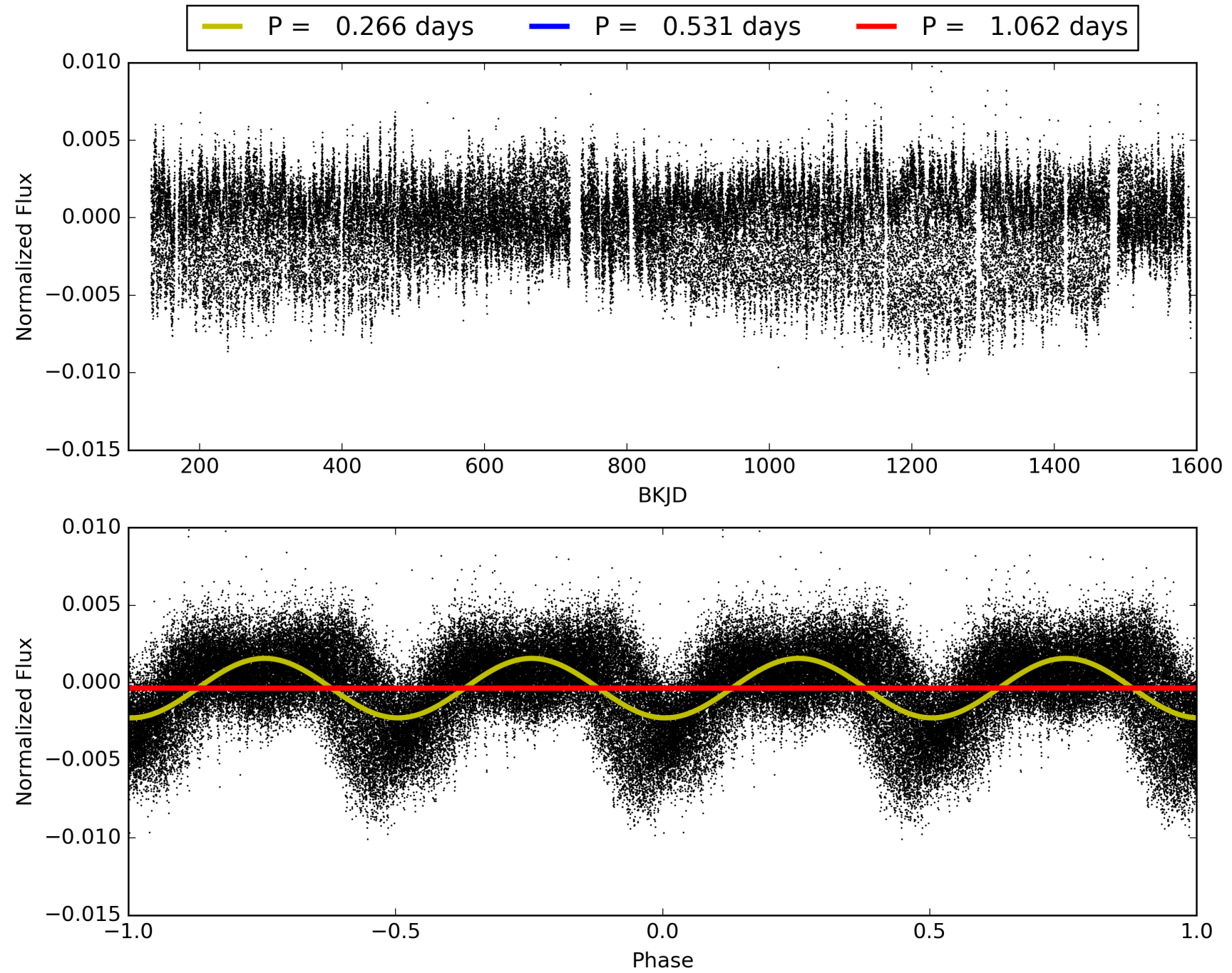
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:13:28 Z

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

TCE 011972872-01, PDC Light Curves

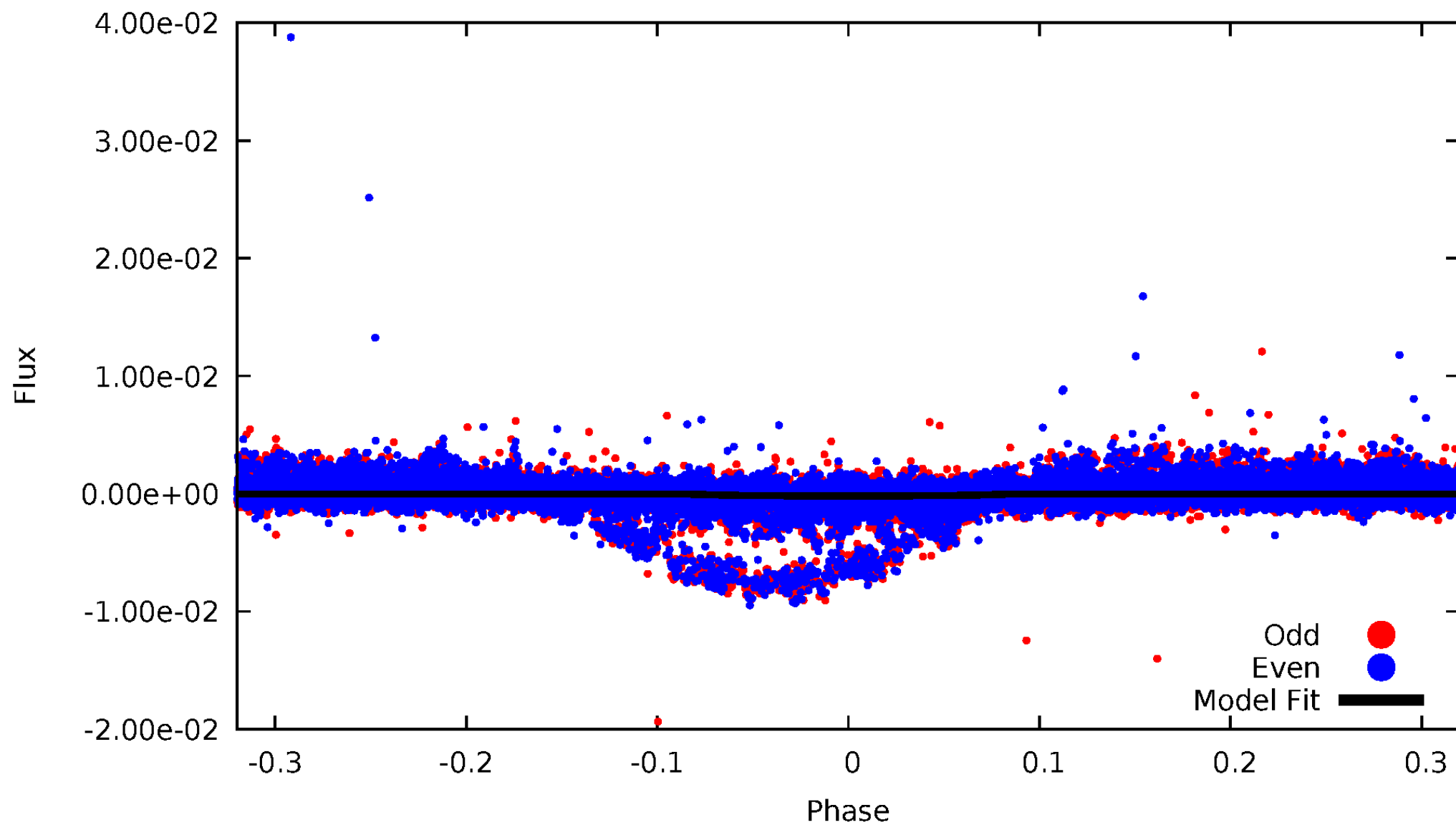


TCE 011972872-01



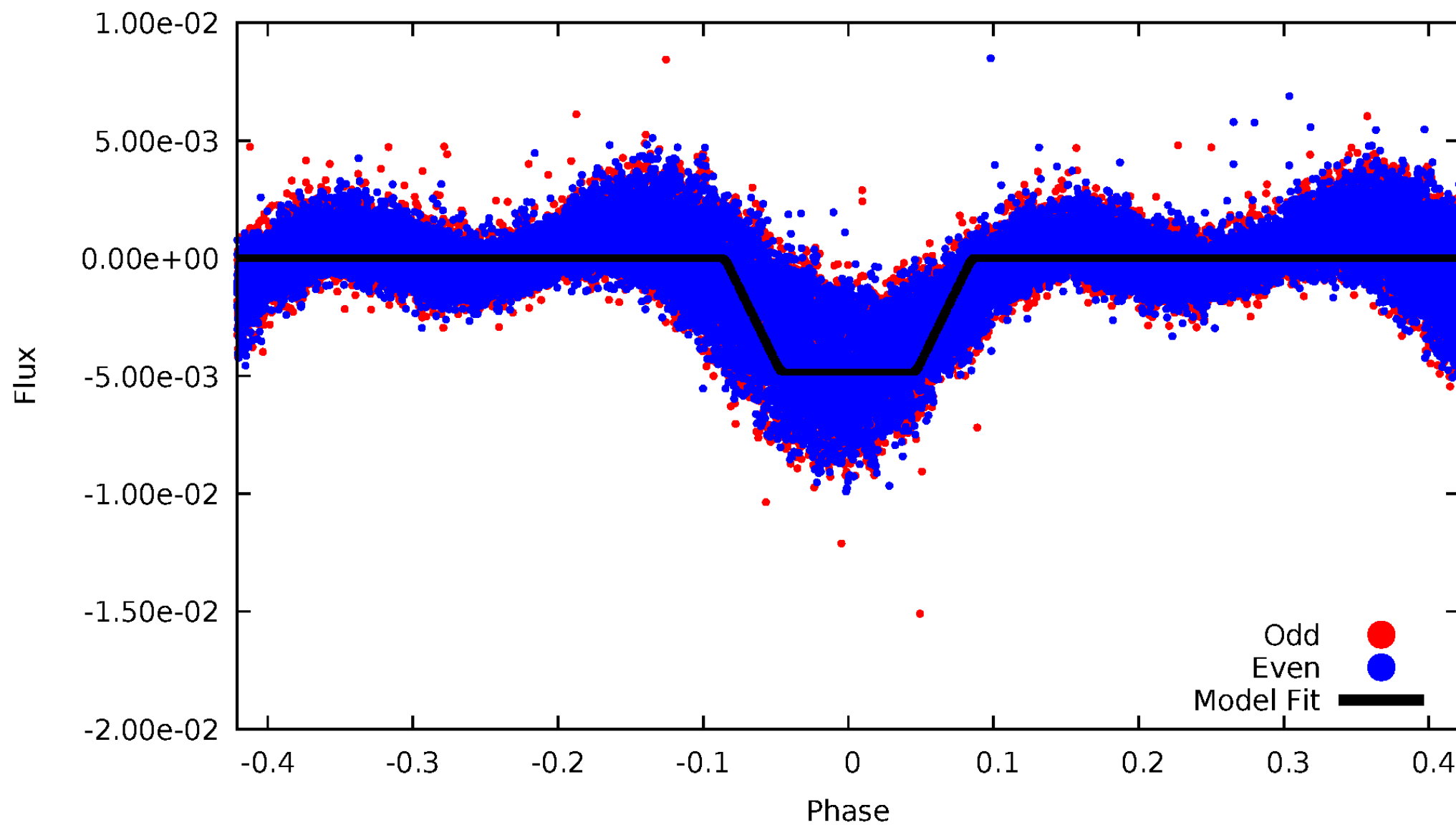
DV Odd/Even

TCE 011972872-01



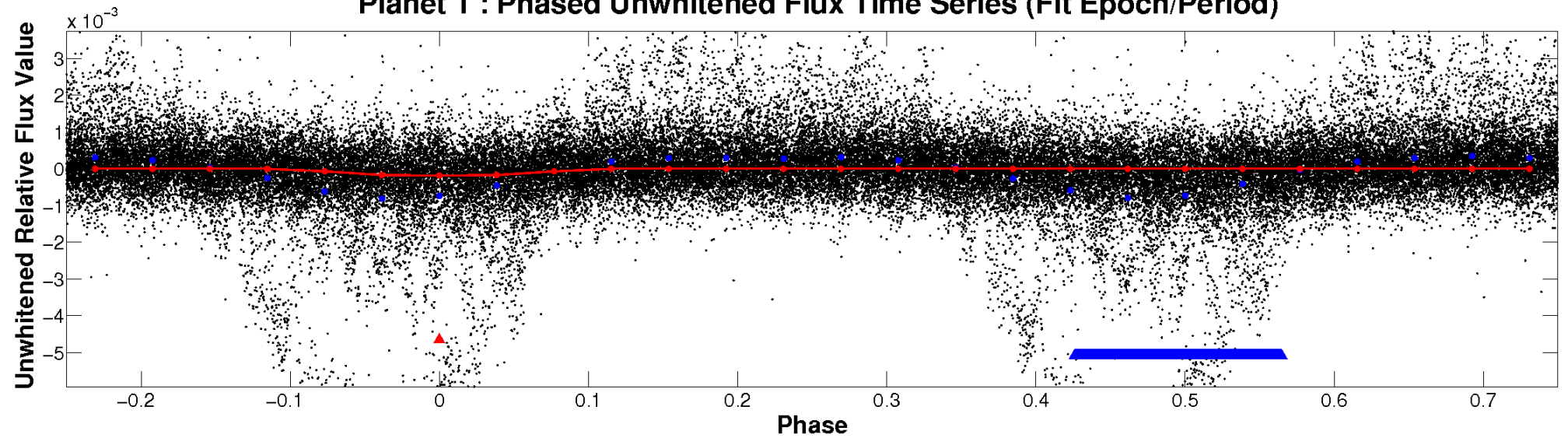
ALT Odd/Even

TCE 011972872-01

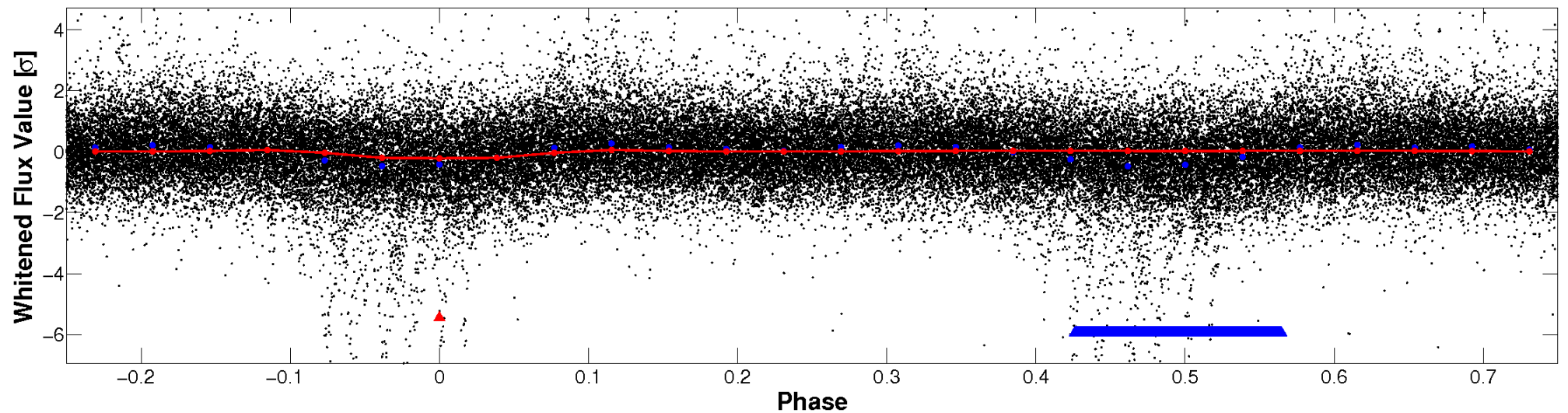


Non-Whitened Vs. Whitened Light Curve

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

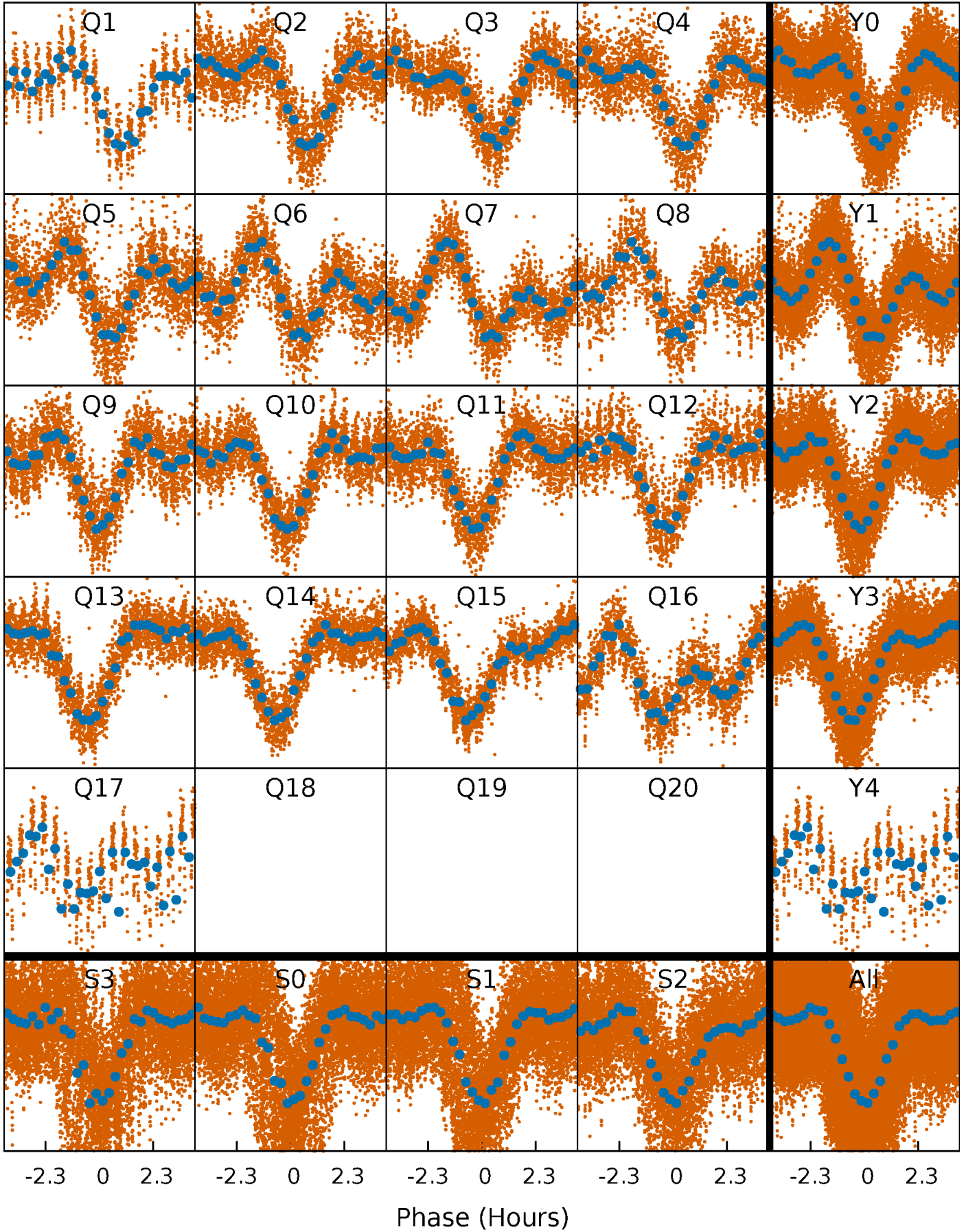


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



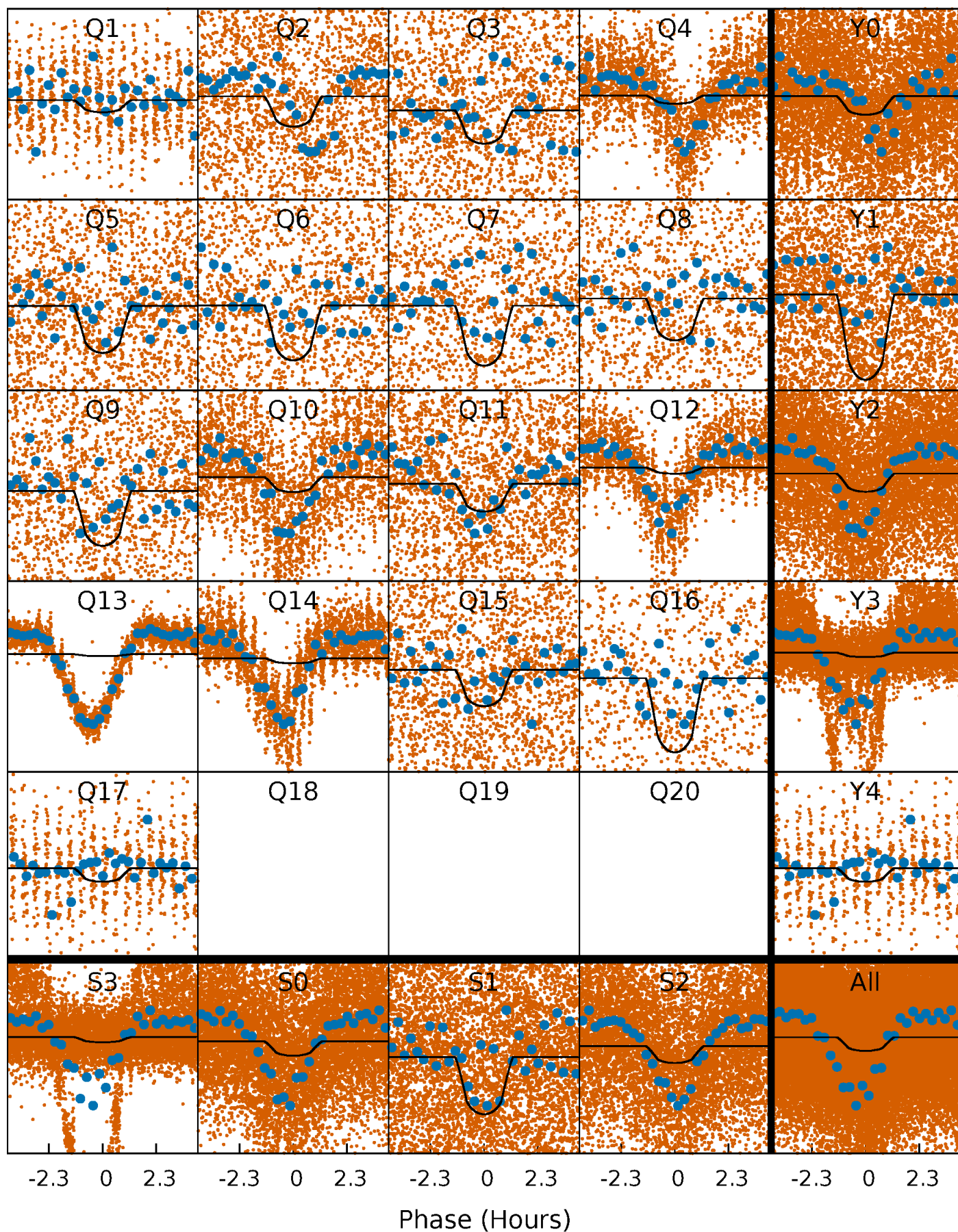
PDC Quarter-Phased Transit Curves

TCE 011972872-01 P= 0.531132 Days $T_0=131.604817$ (BKJD)



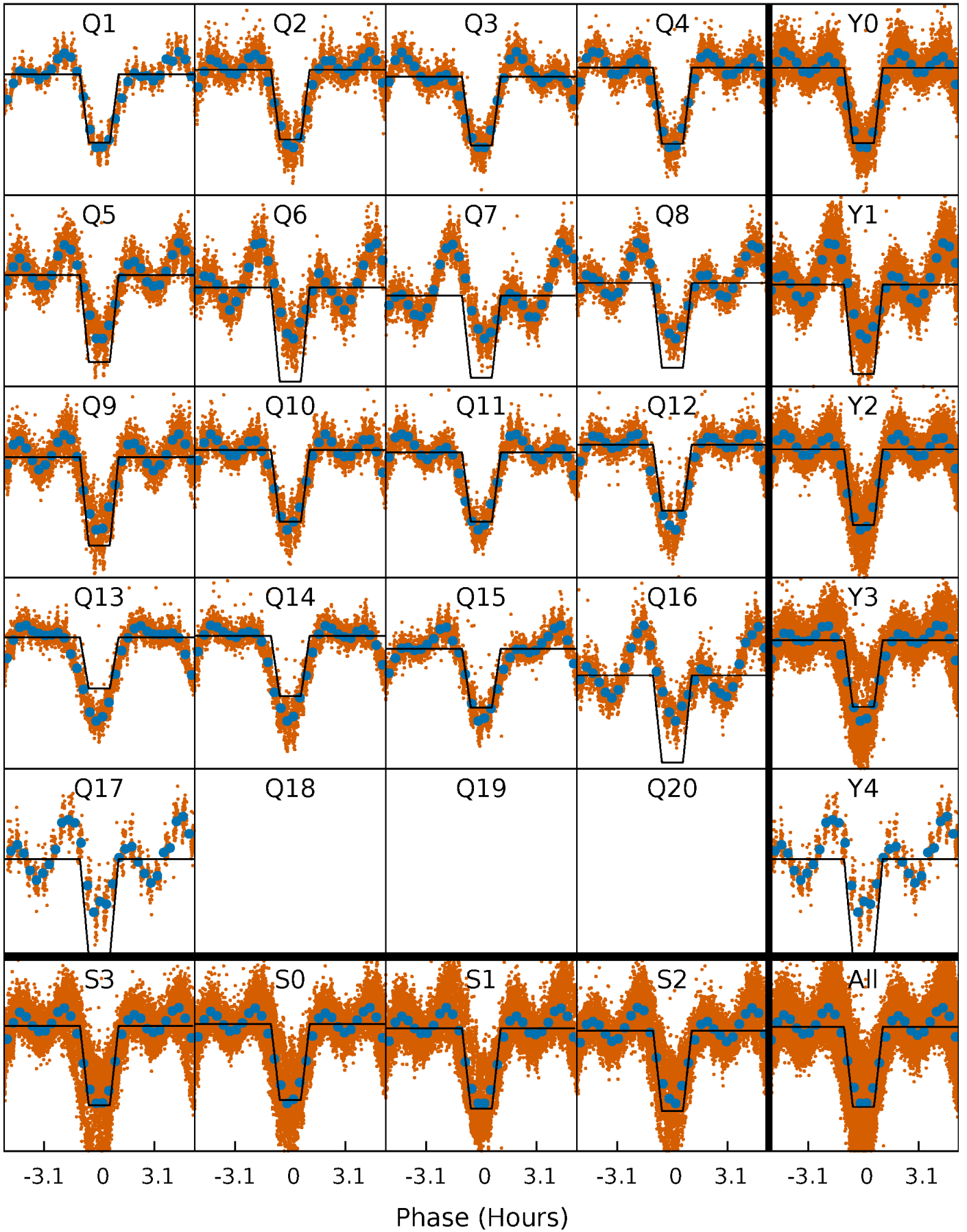
DV Quarter-Phased Transit Curves

TCE 011972872-01 P= 0.531132 Days $T_0=131.604817$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

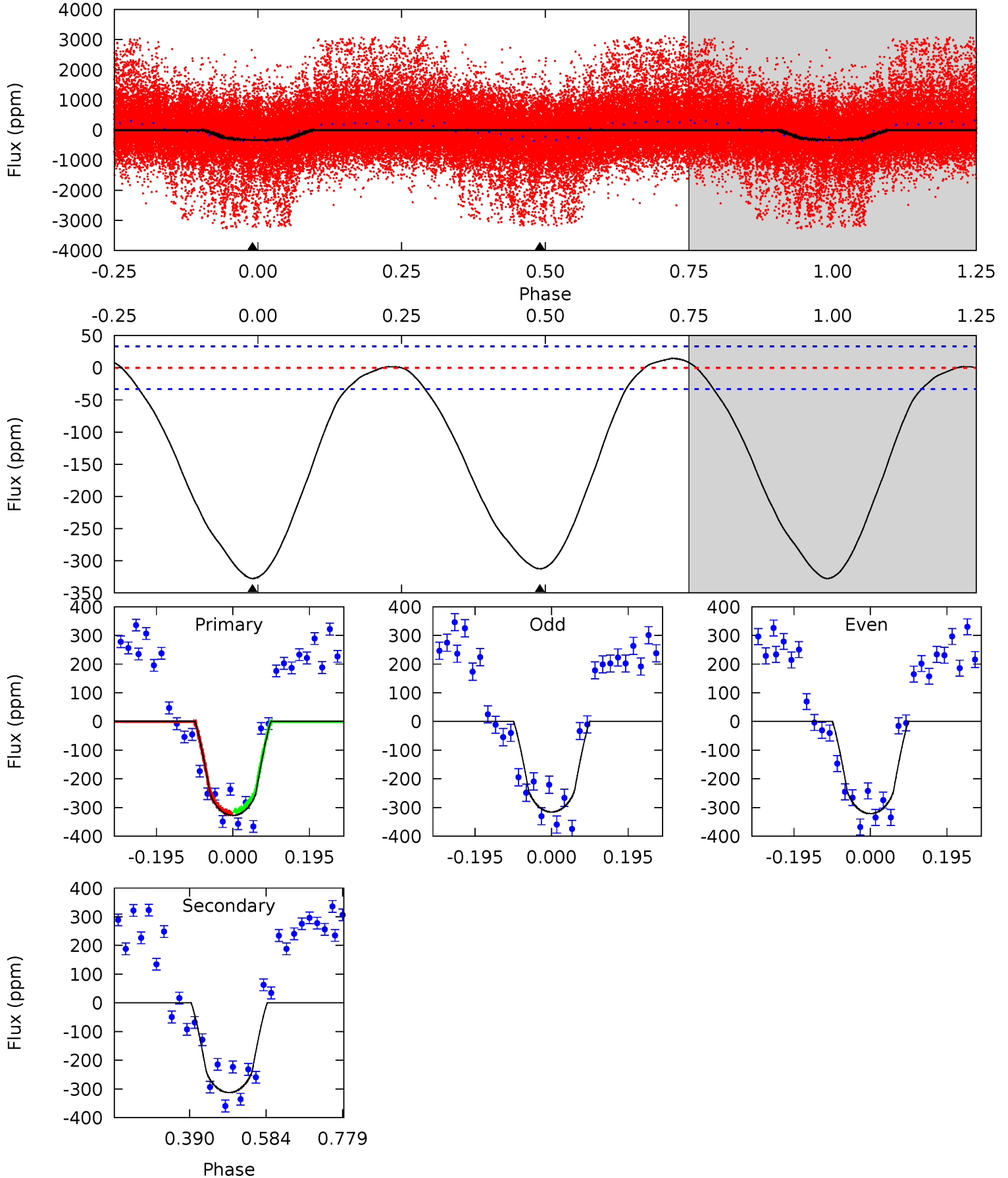
TCE 011972872-01 P= 0.531108 Days $T_0=131.638692$ (BKJD)



DV Model-Shift Uniqueness Test

011972872-01, P = 0.531132 Days, E = 131.073685 Days

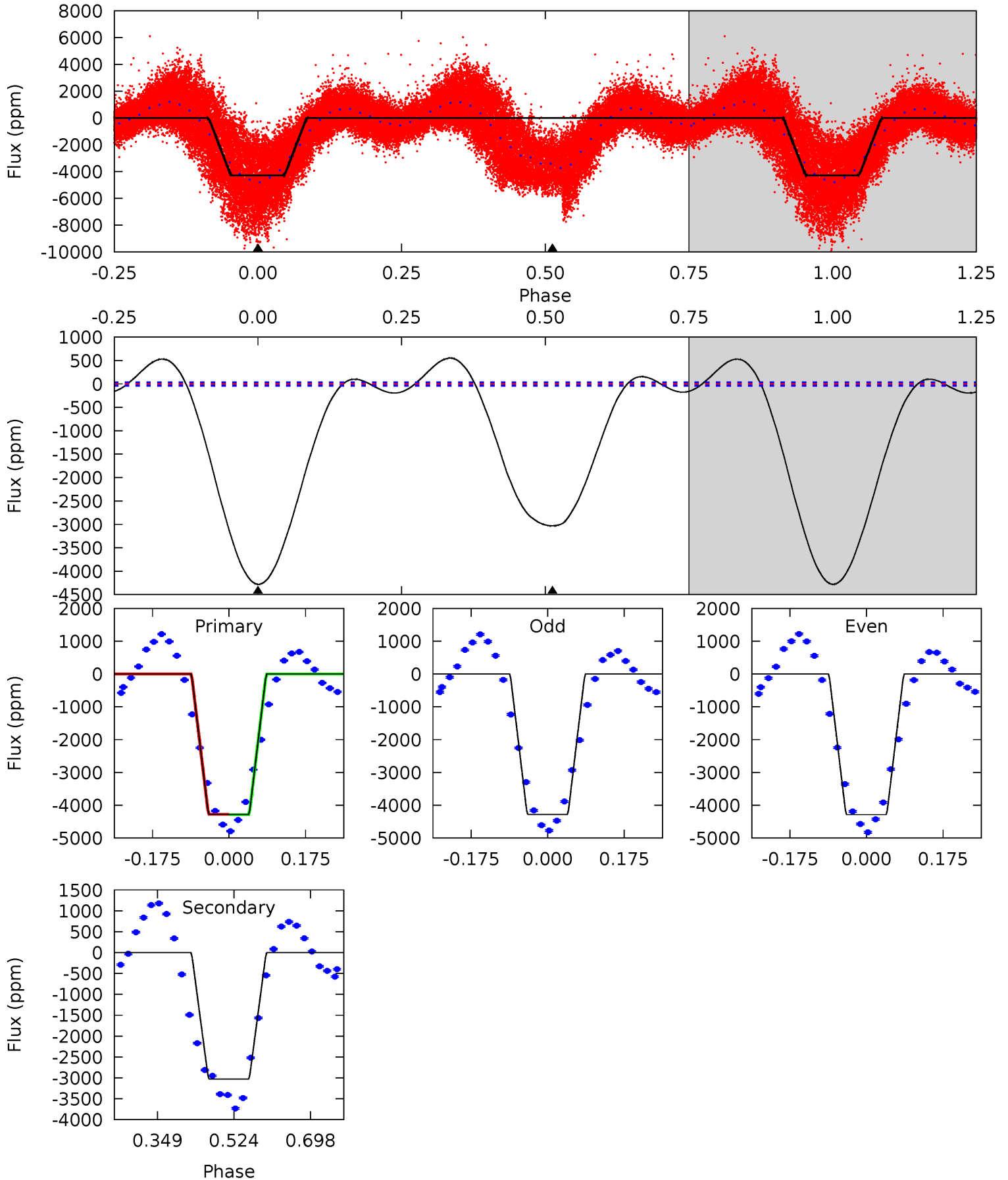
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.7	41.7	0	0	4.42	1.30	1.80	43.7	43.7	41.7	41.7	0.37	2.97	0.04	0.50



Alt Model-Shift Uniqueness Test

011972872-01, P = 0.531108 Days, E = 131.107584 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
522.0	369.5	0	0	4.45	1.36	28.2	522.0	522.0	369.5	369.5	0.47	0.97	0.11	0.55



Stellar Parameters For KIC 011972872

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4978^{+151}_{-136}	$4.539^{+0.071}_{-0.065}$	$-0.120^{+0.300}_{-0.300}$	$0.762^{+0.079}_{-0.079}$	$0.732^{+0.095}_{-0.055}$	$2.333^{+0.741}_{-0.470}$
	+3%/-3%	+2%/-1%	+250%/-250%	+10%/-10%	+13%/-8%	+32%/-20%
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 011972872-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-313 ± 7	$1.13^{+0.47}_{-0.50}$	2494^{+102}_{-86}	5613^{+2064}_{-880}	18^{+38}_{-9}
Alt.	-3031 ± 8	$5.76^{+0.62}_{-0.61}$	2486^{+109}_{-89}	4515^{+213}_{-198}	$6.819^{+1.687}_{-1.212}$

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 $A_{obs} \gg 1.0$

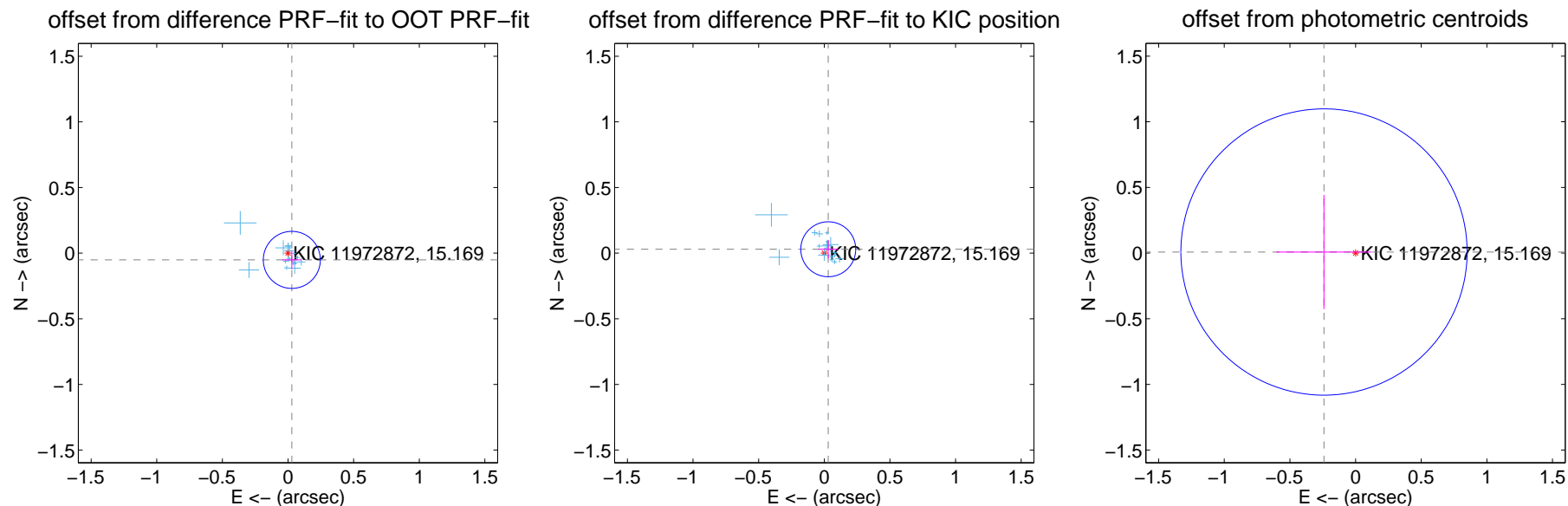
DV Centroid Data

Supplemental centroid analysis for 011972872-01. Kepler magnitude: 15.17. Transit SNR 19.26

There are 17 quarters with good PRF difference image offsets

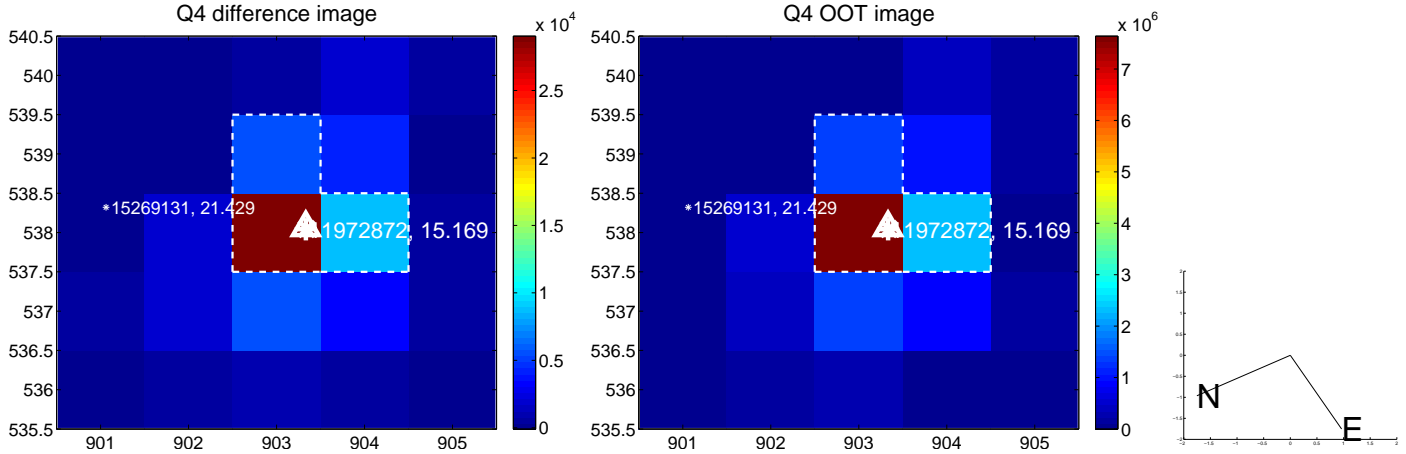
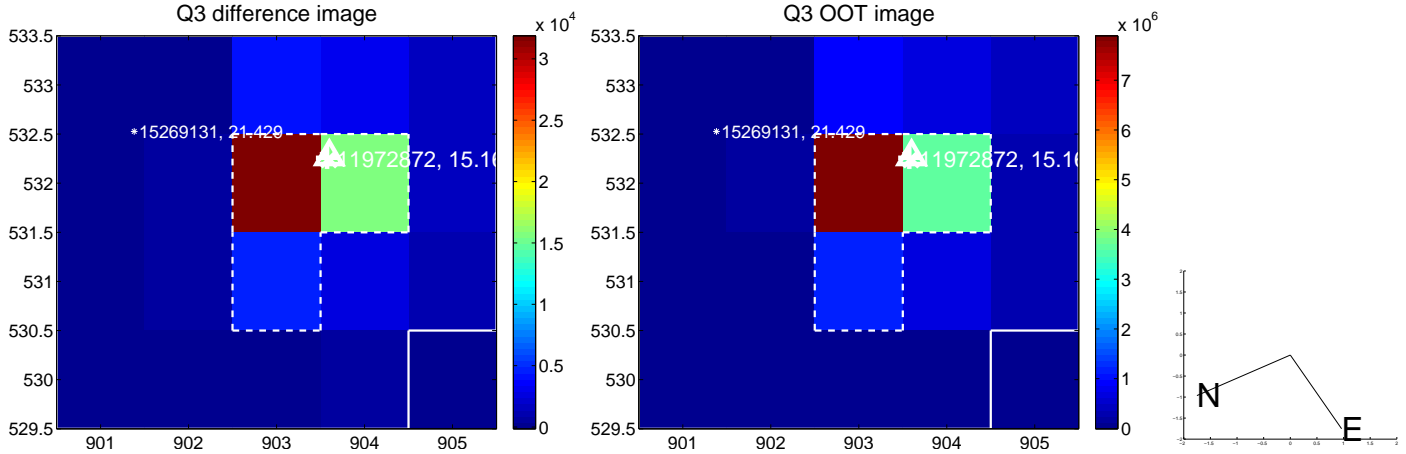
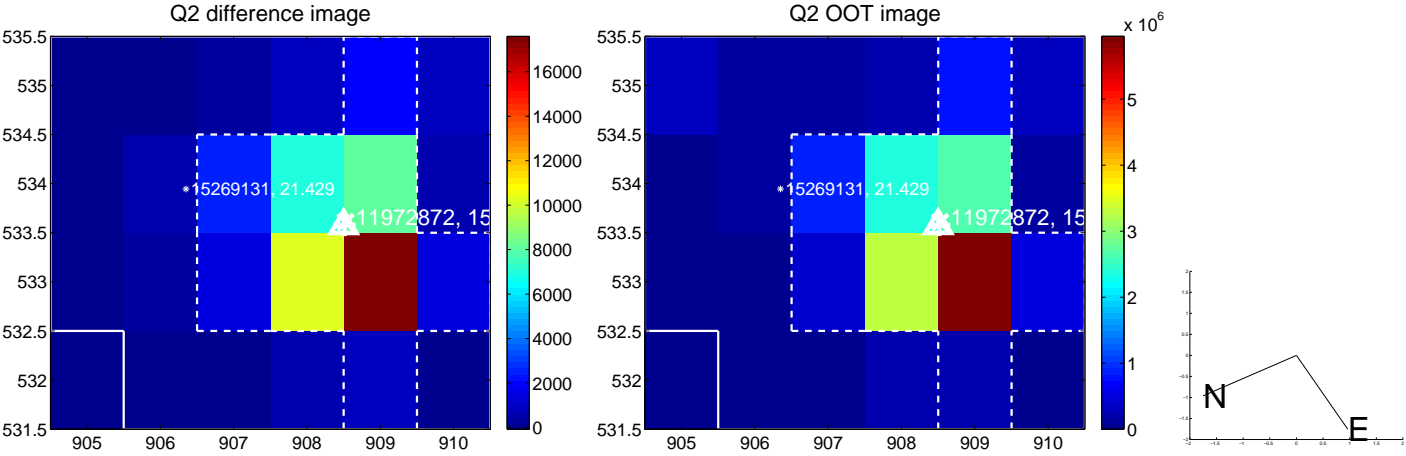
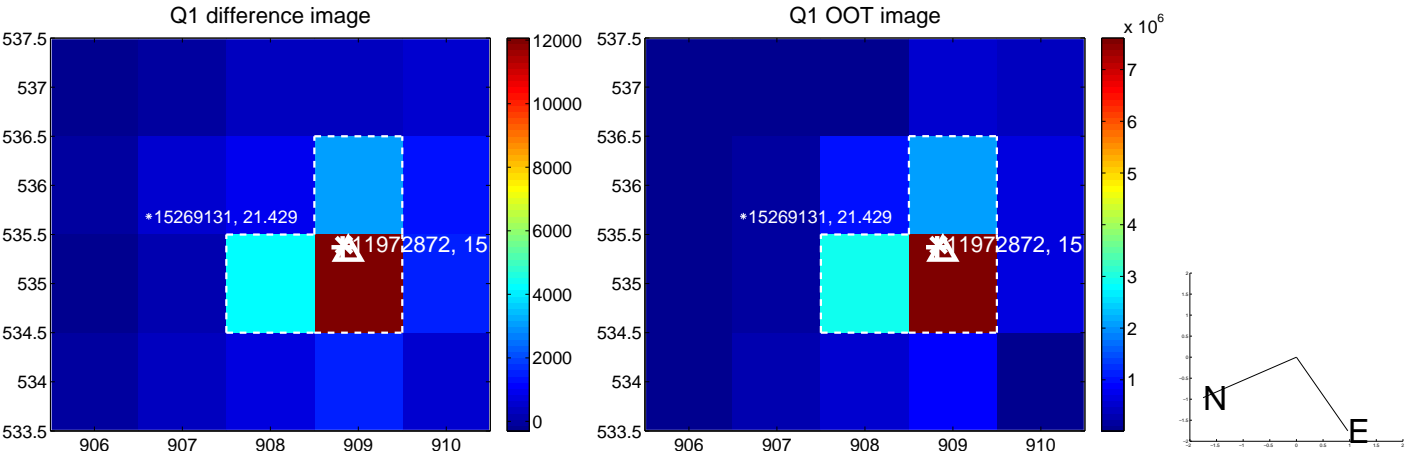
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.059 ± 0.072	0.81	-0.029 ± 0.072	-0.051 ± 0.070
PRF-fit source offset from KIC position	0.042 ± 0.070	0.61	-0.030 ± 0.076	0.030 ± 0.070
photometric centroid source offset	0.24 ± 0.36	0.66	0.24 ± 0.36	0.01 ± 0.43

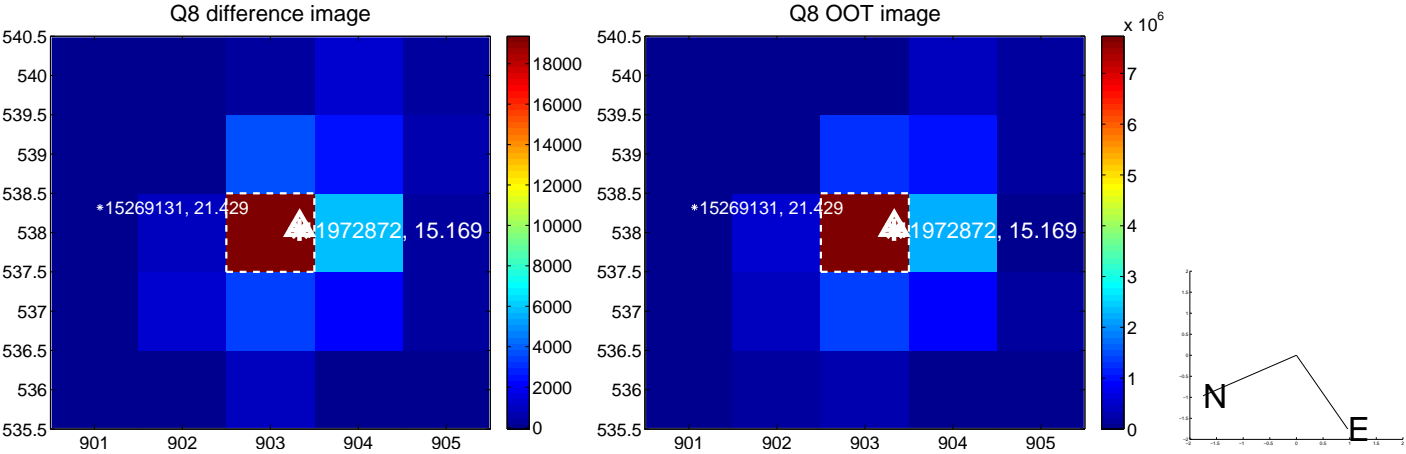
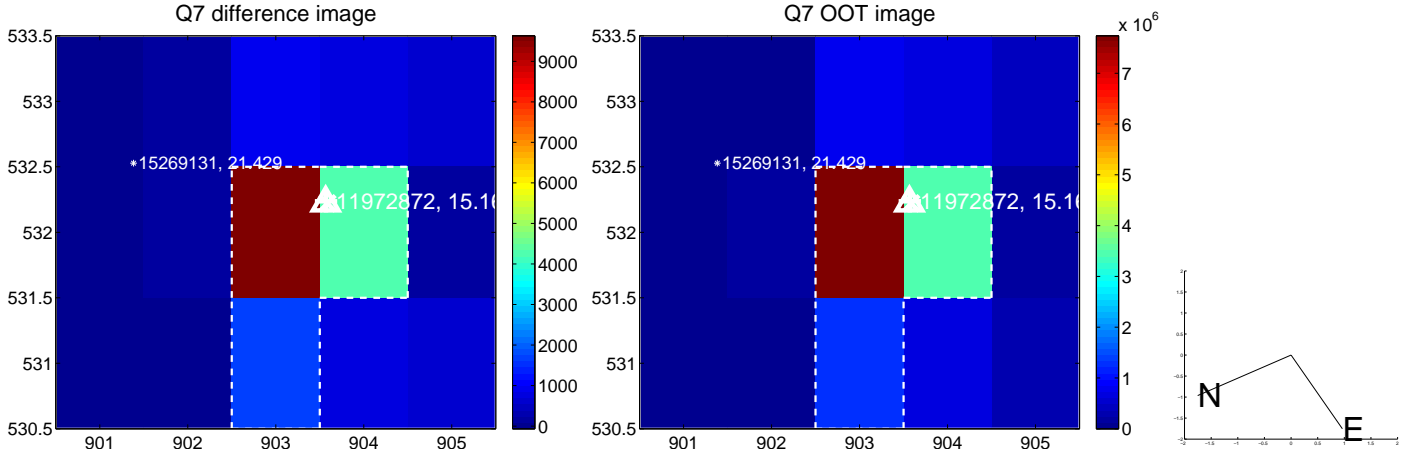
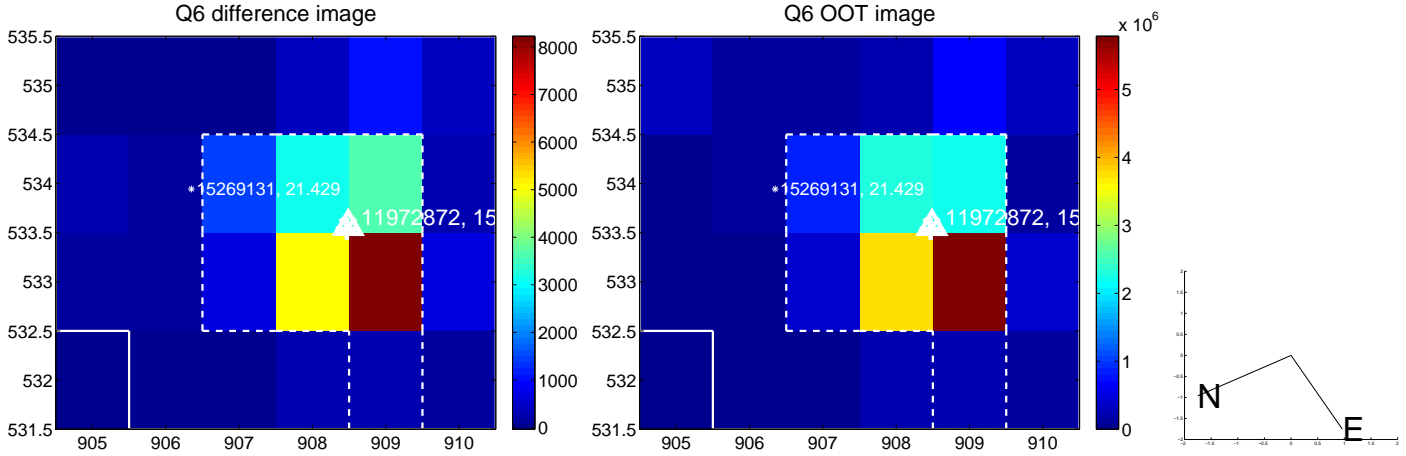
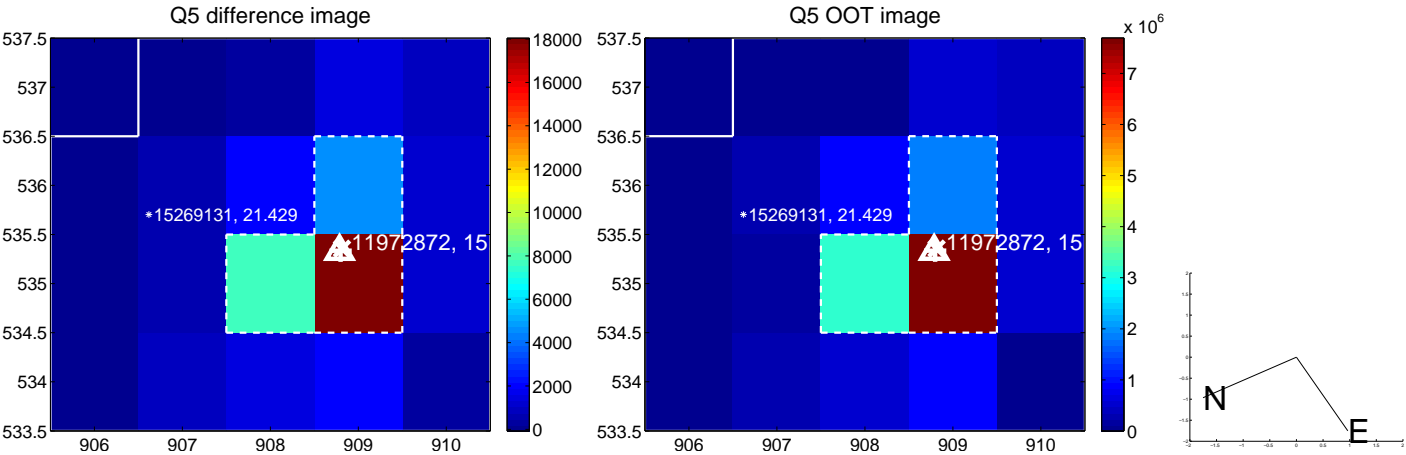


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

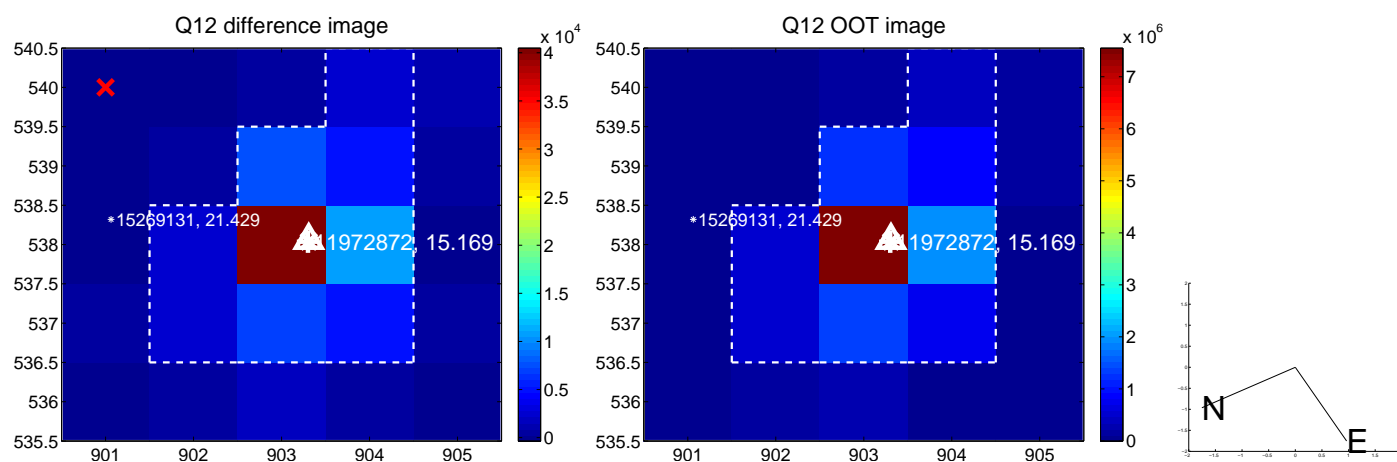
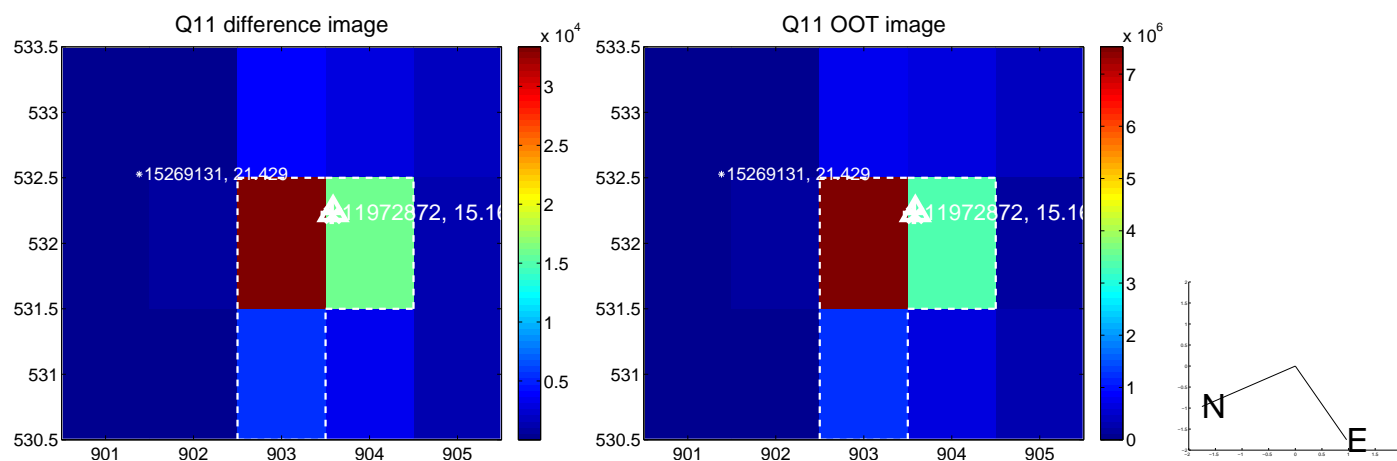
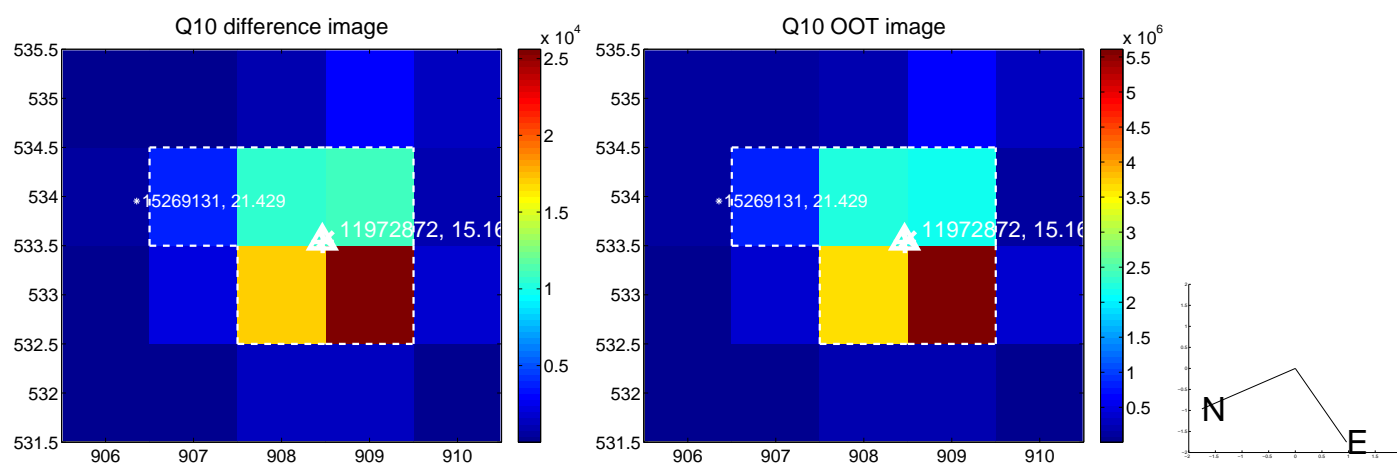
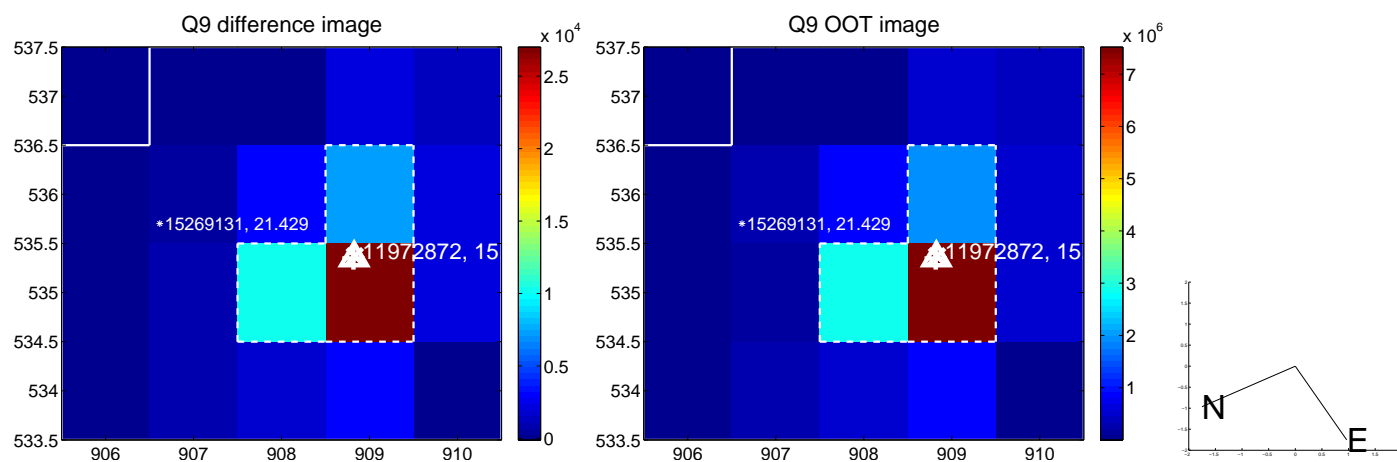
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



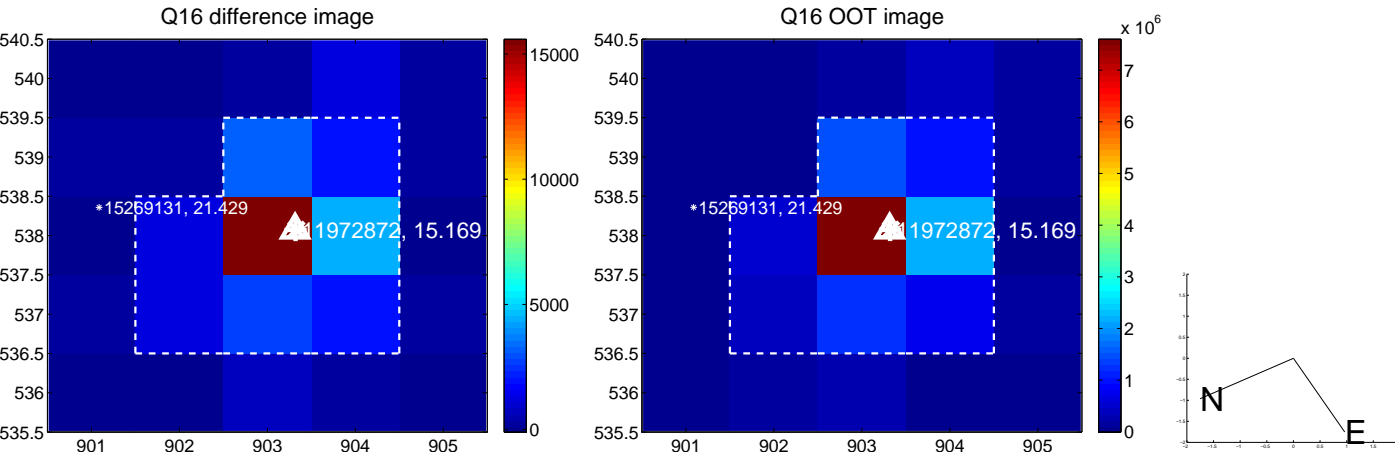
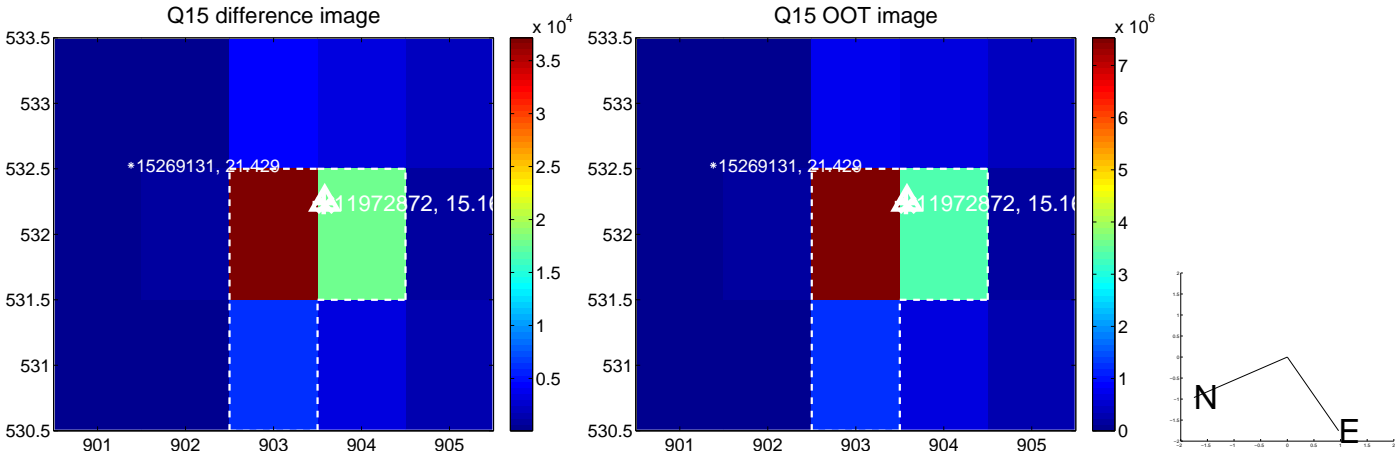
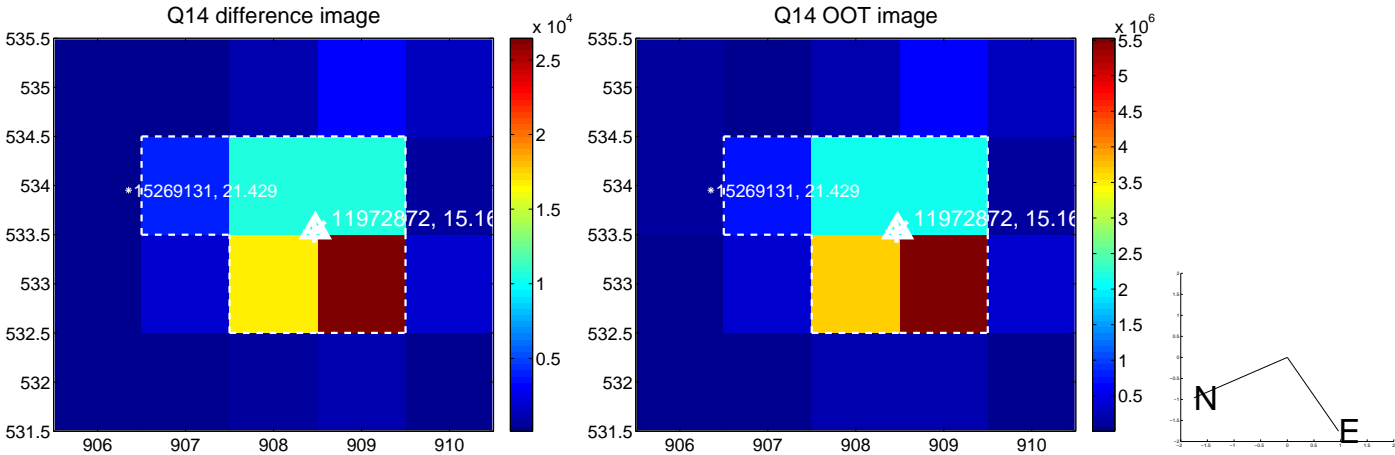
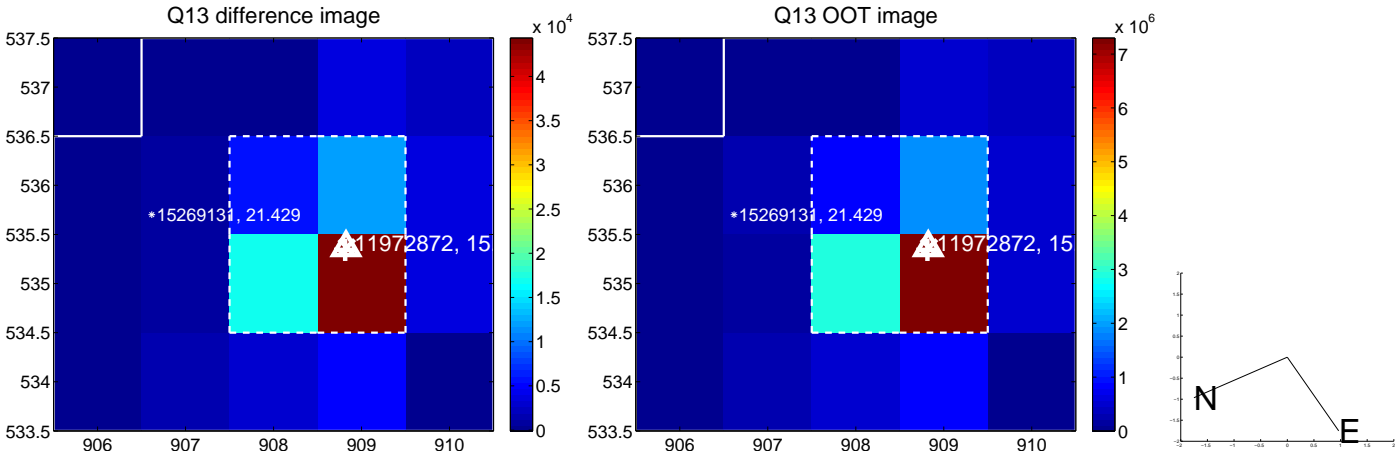
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



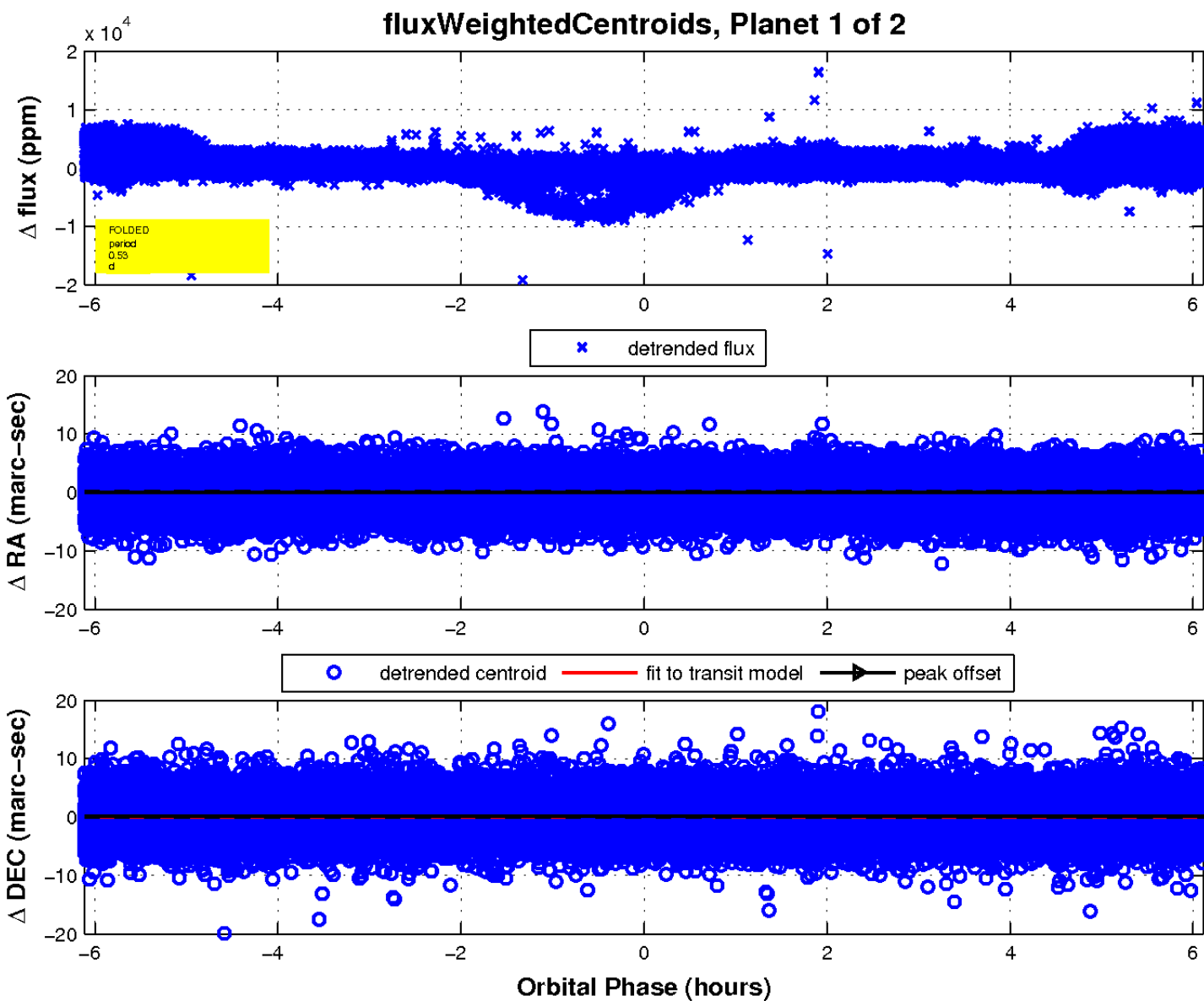
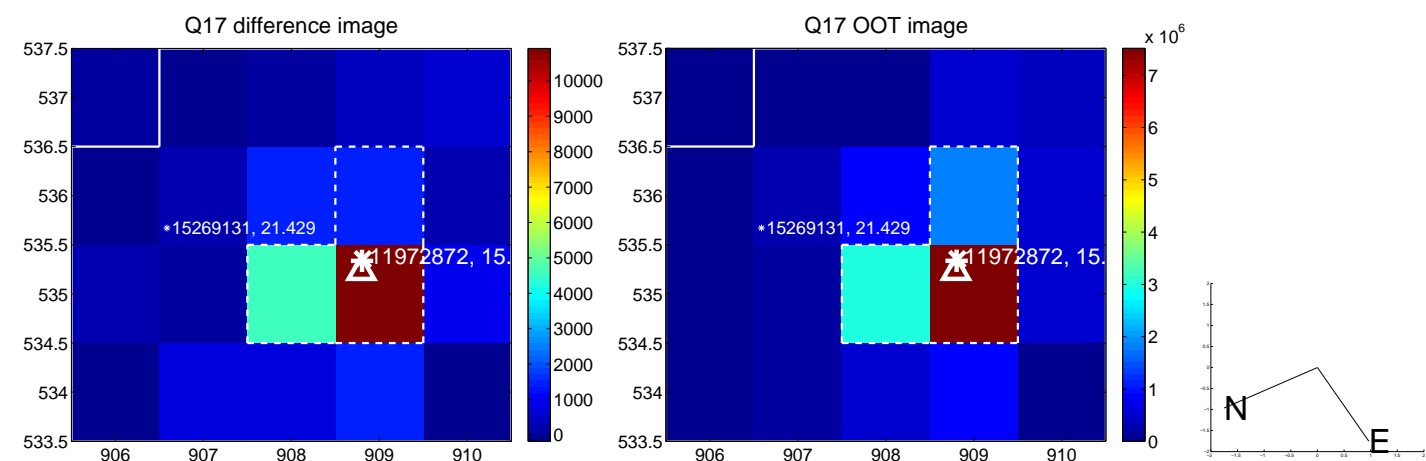
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

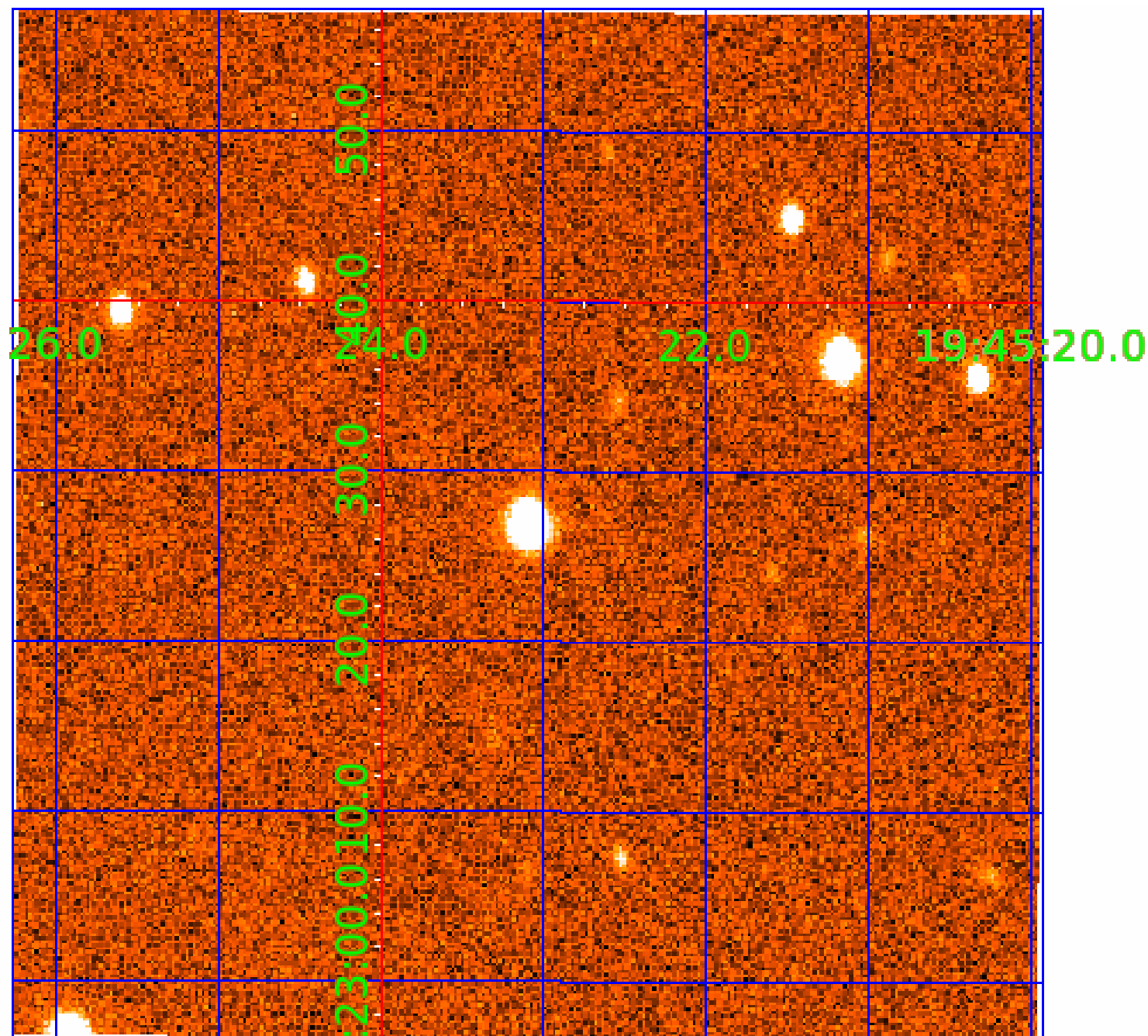


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011972872

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})
011972872-01	OBS	No	0.531132	131.604817	186.3	2.038	18.3	19.3	0.76	4978	1.12	2384.96
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011972872-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011972872-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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.

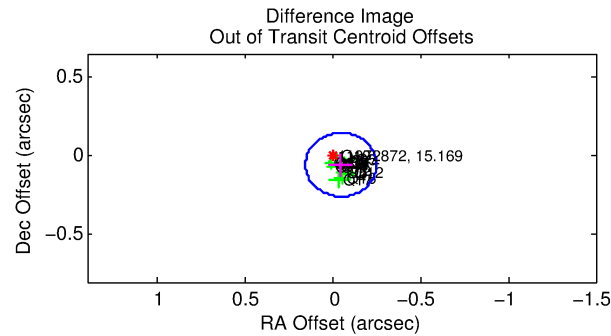
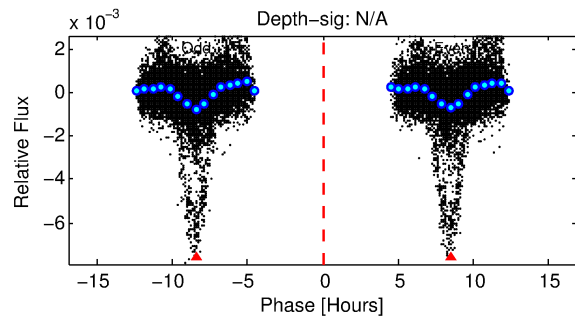
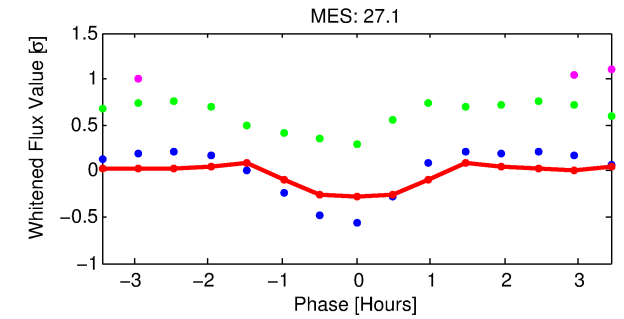
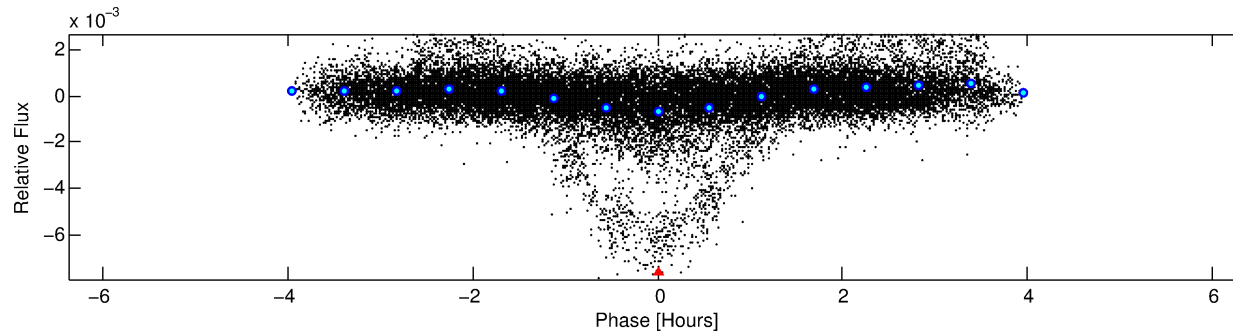
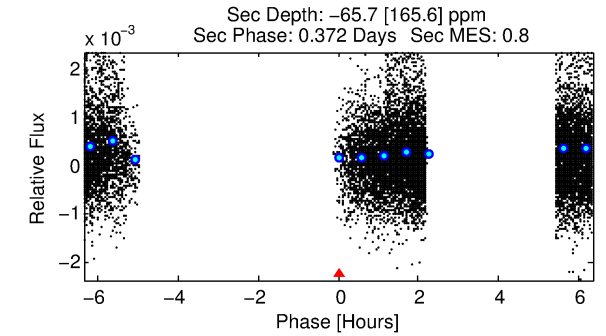
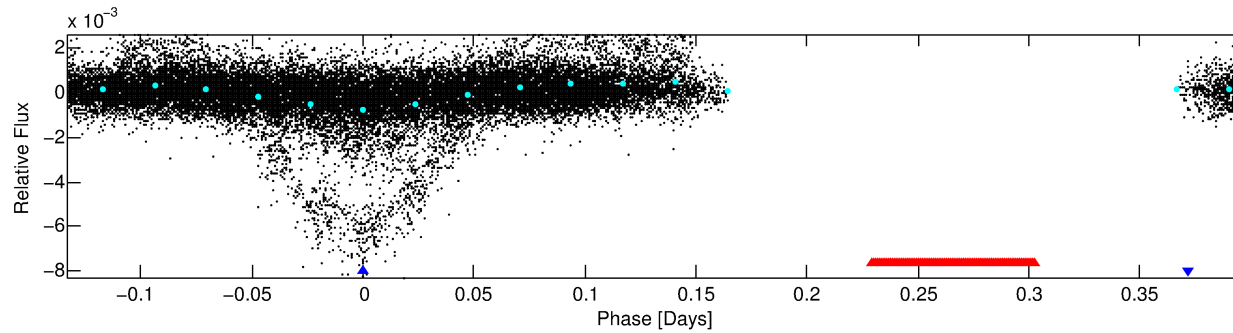
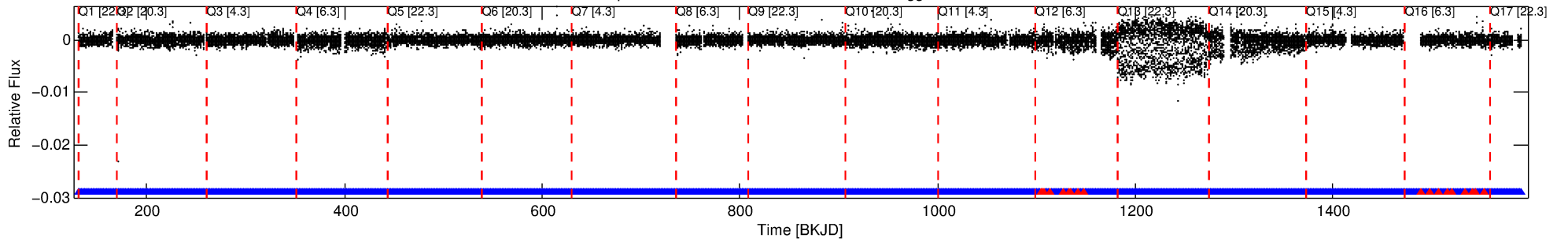
Ephemeris Match Information For 011972872-02

No Significant Match Found

DV One-Page Summary

KIC: 11972872 Candidate: 2 of 2 Period: 0.531 d
KOI: K04089 Corr: No Ephemeris Match

Kp: 15.17 R*: 0.76 Rs Teff: 4978.0 K Logg: 4.54 Fe/H: -0.120



TPS TCE Results:

Period = 0.53111 d
Epoch = 131.9047 BKJD

DV fit results are unavailable

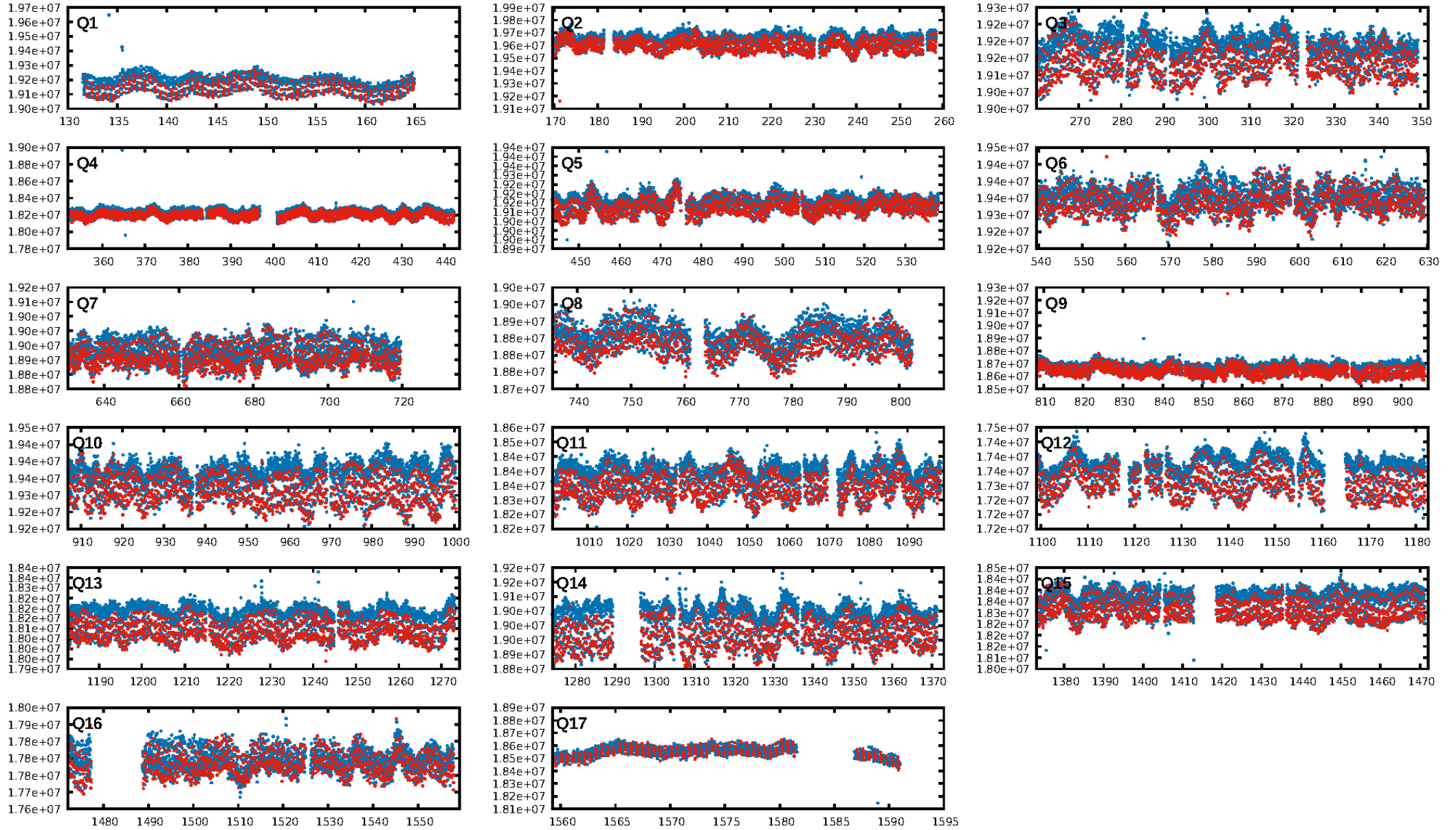
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [2382/2401]
GhostDiagnostic-chr: 7.829
Centroid-sig: 1.2%
Centroid-so: 0.625 arcsec [42.98σ]
OotOffset-rm: 0.072 arcsec [1.06σ]
KicOffset-rm: 0.063 arcsec [0.94σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

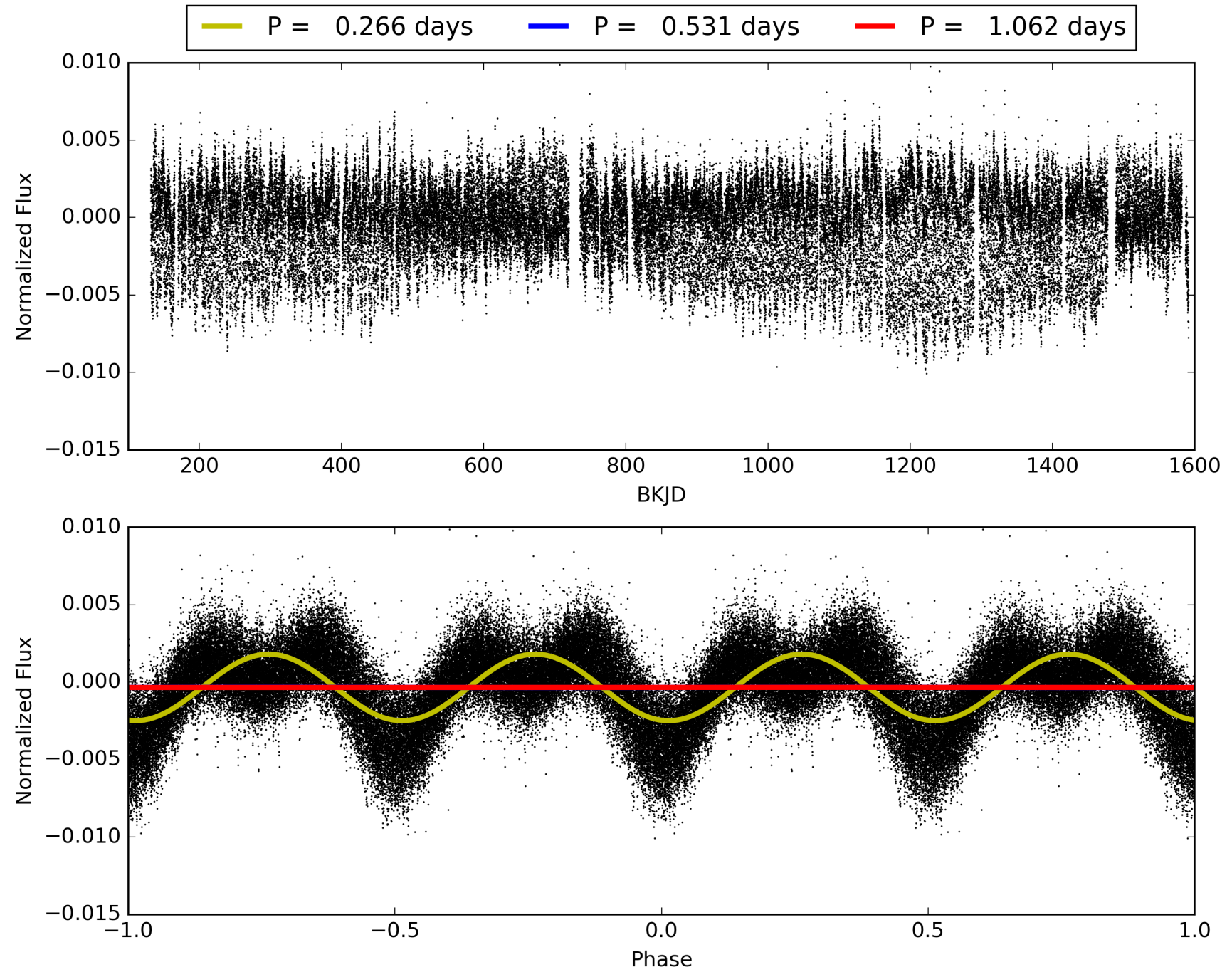
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:13:40 Z

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

TCE 011972872-02, PDC Light Curves

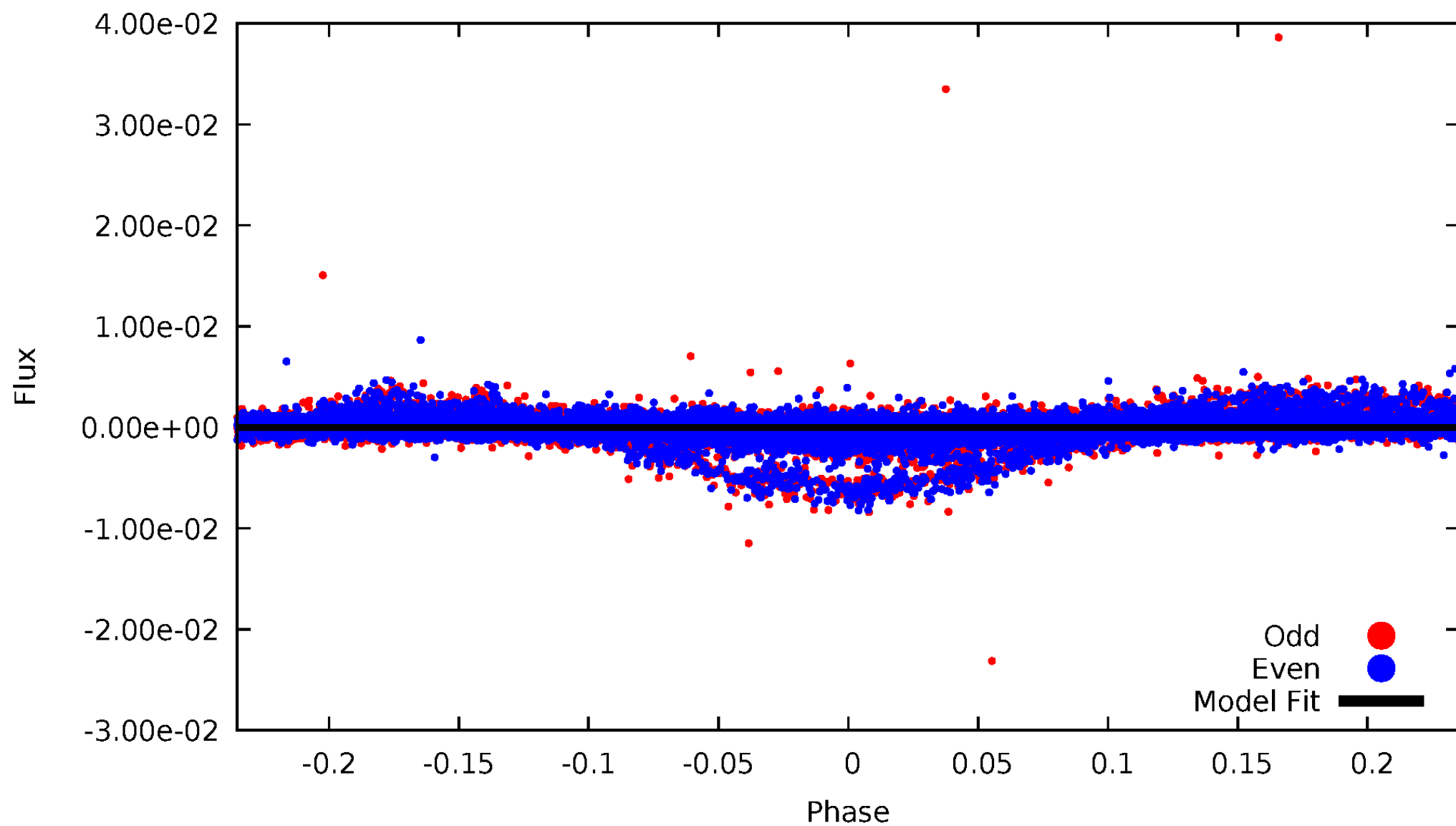


TCE 011972872-02



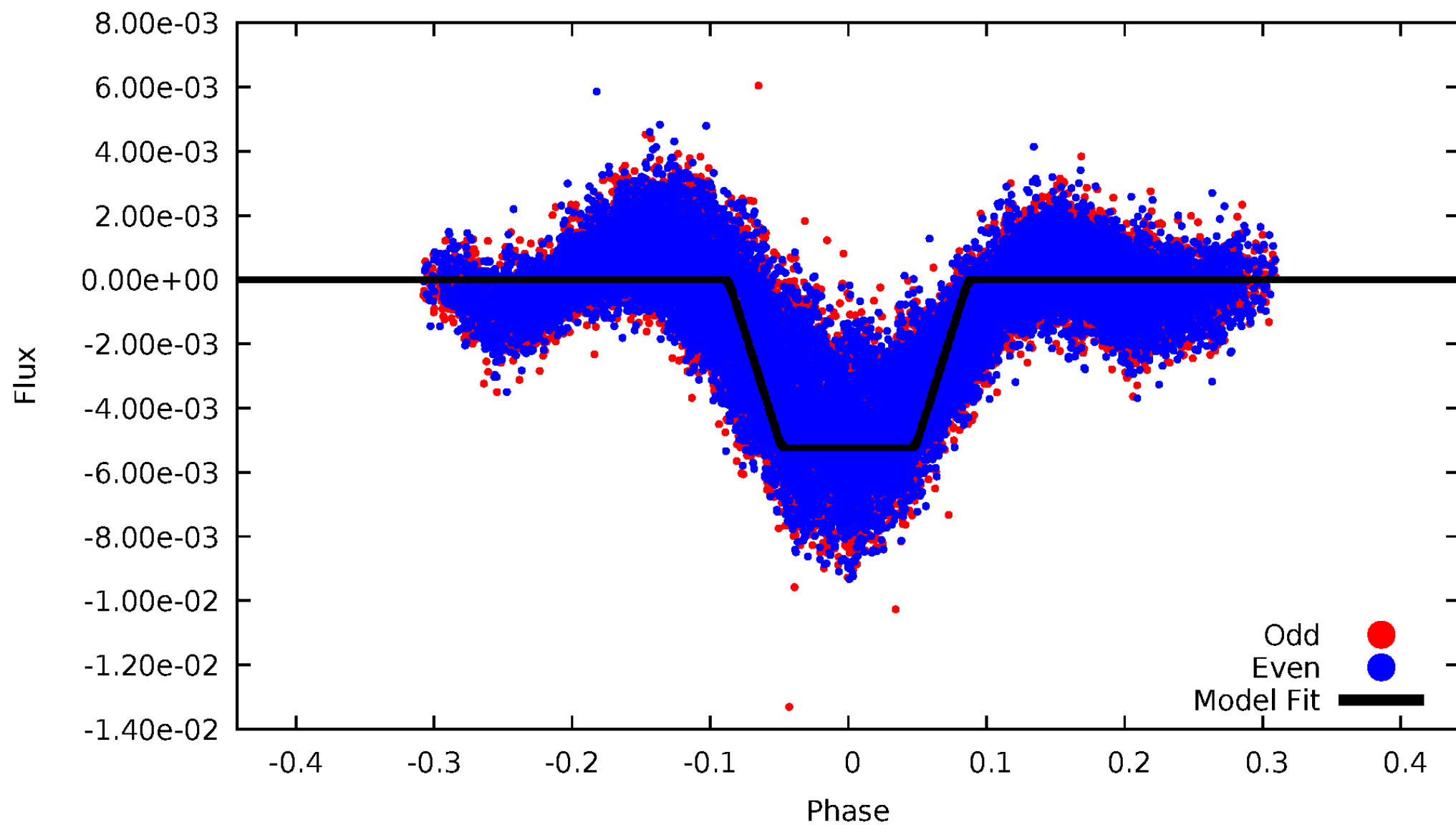
DV Odd/Even

TCE 011972872-02



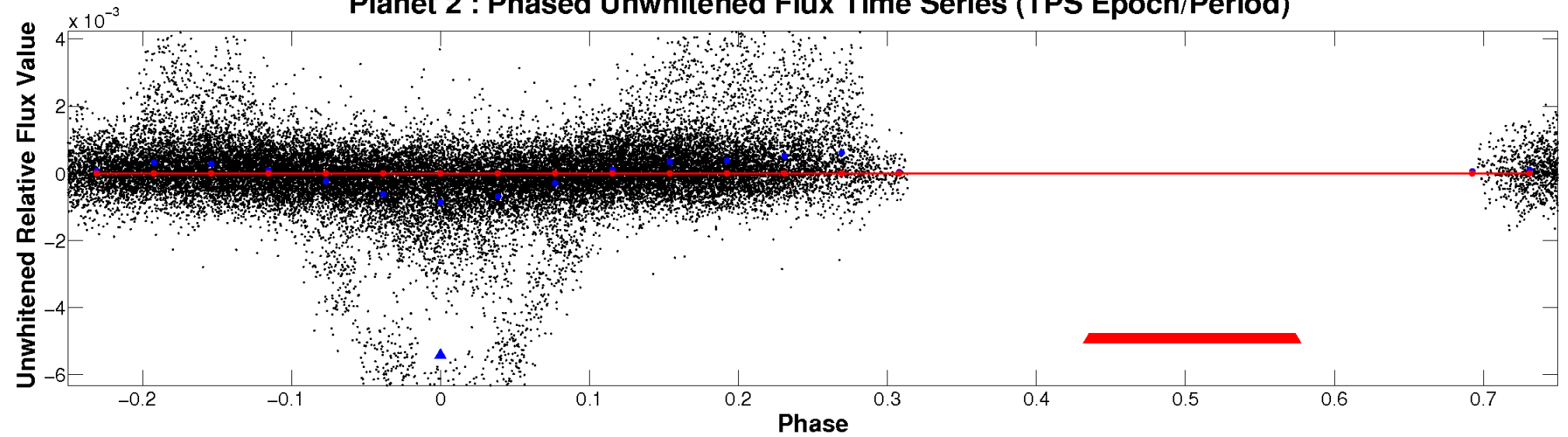
ALT Odd/Even

TCE 011972872-02

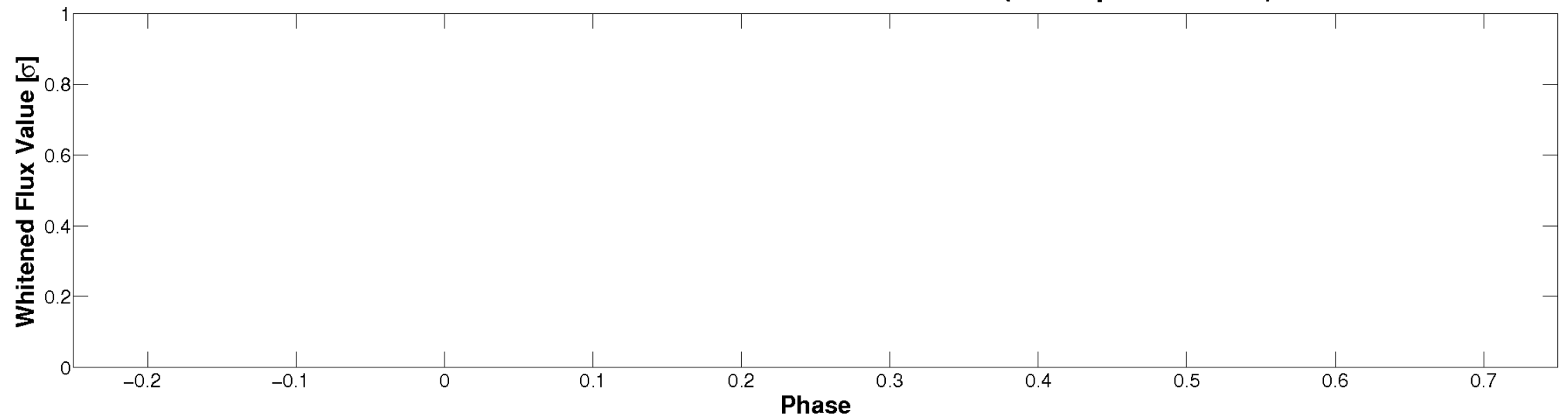


Non-Whitened Vs. Whitened Light Curve

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

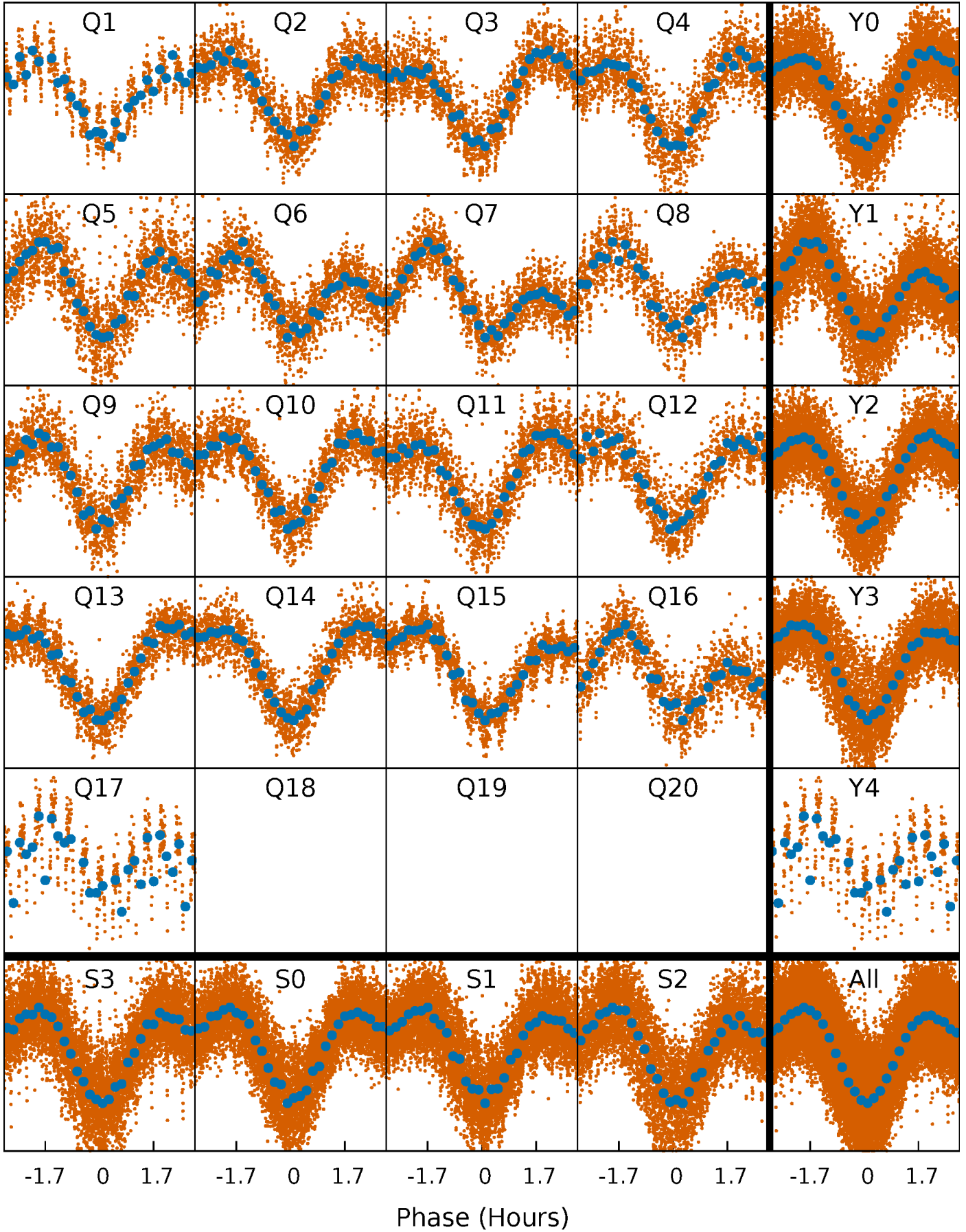


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



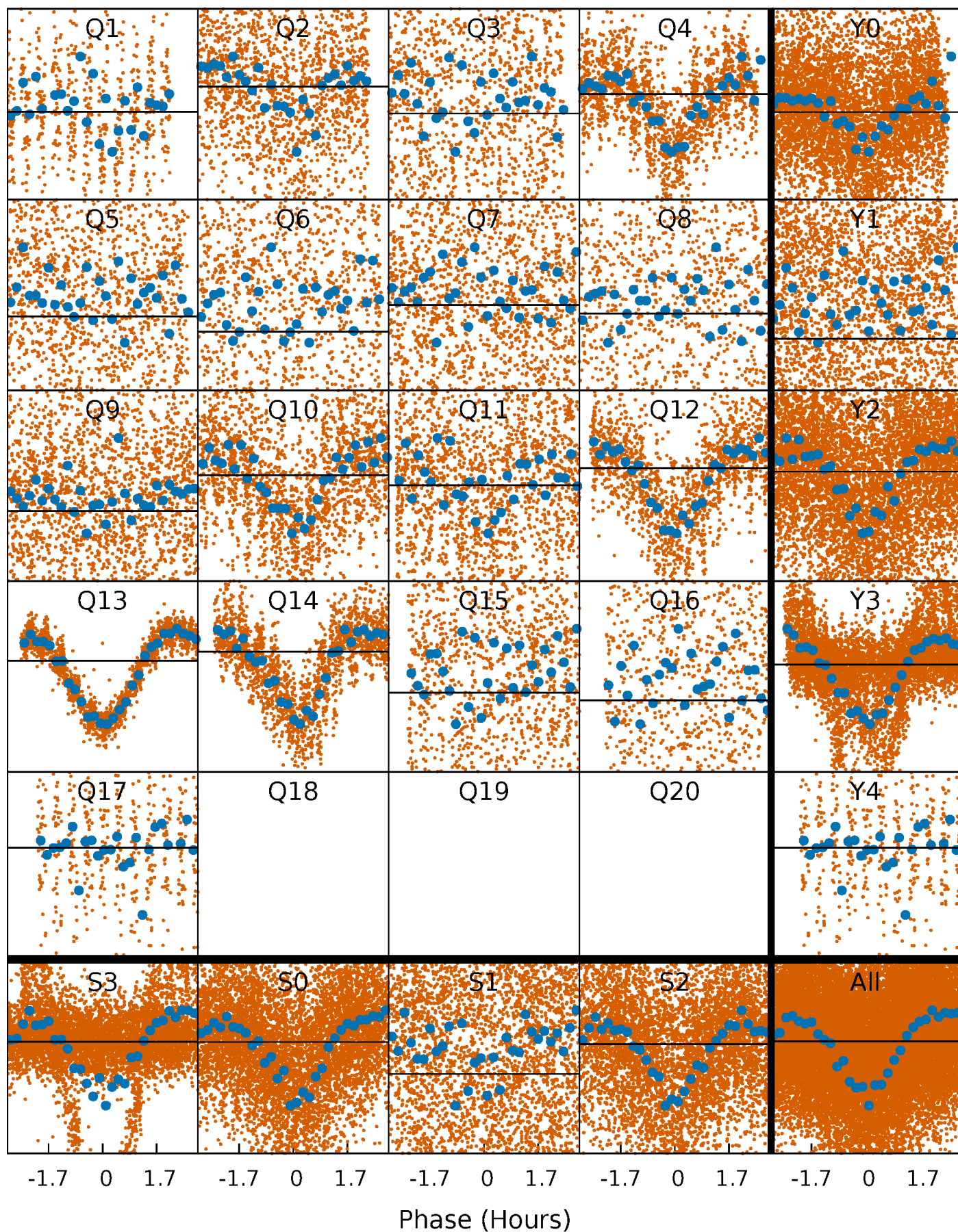
PDC Quarter-Phased Transit Curves

TCE 011972872-02 P= 0.531105 Days $T_0=131.904744$ (BKJD)



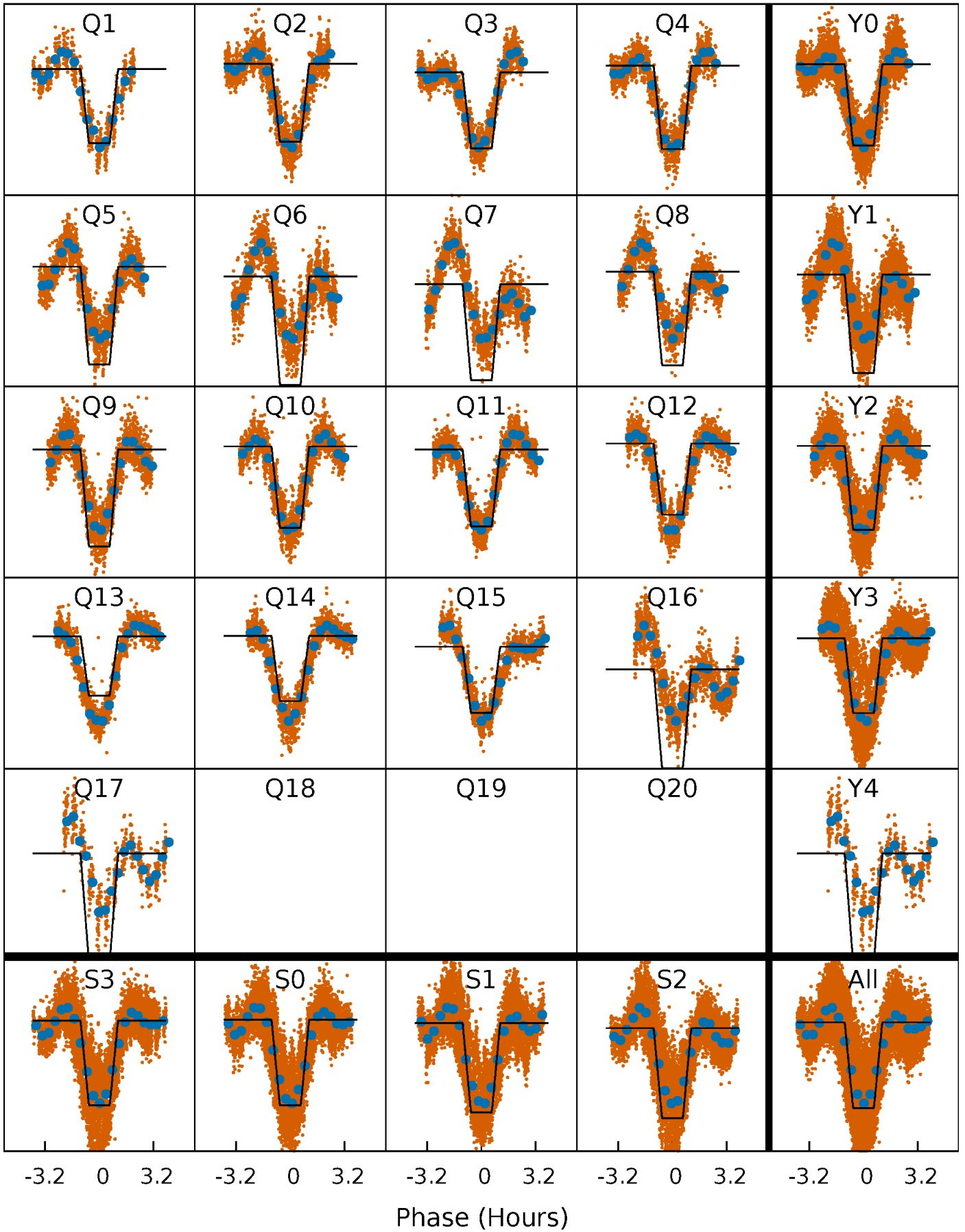
DV Quarter-Phased Transit Curves

TCE 011972872-02 P= 0.531105 Days $T_0=131.904744$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

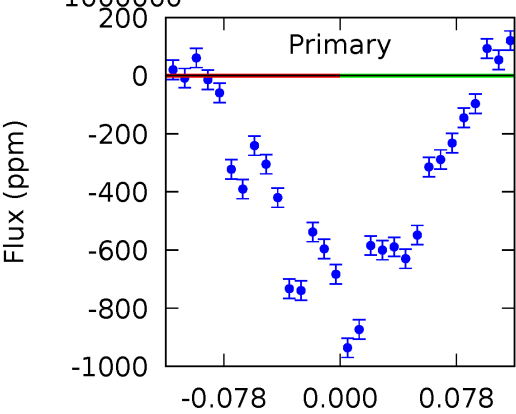
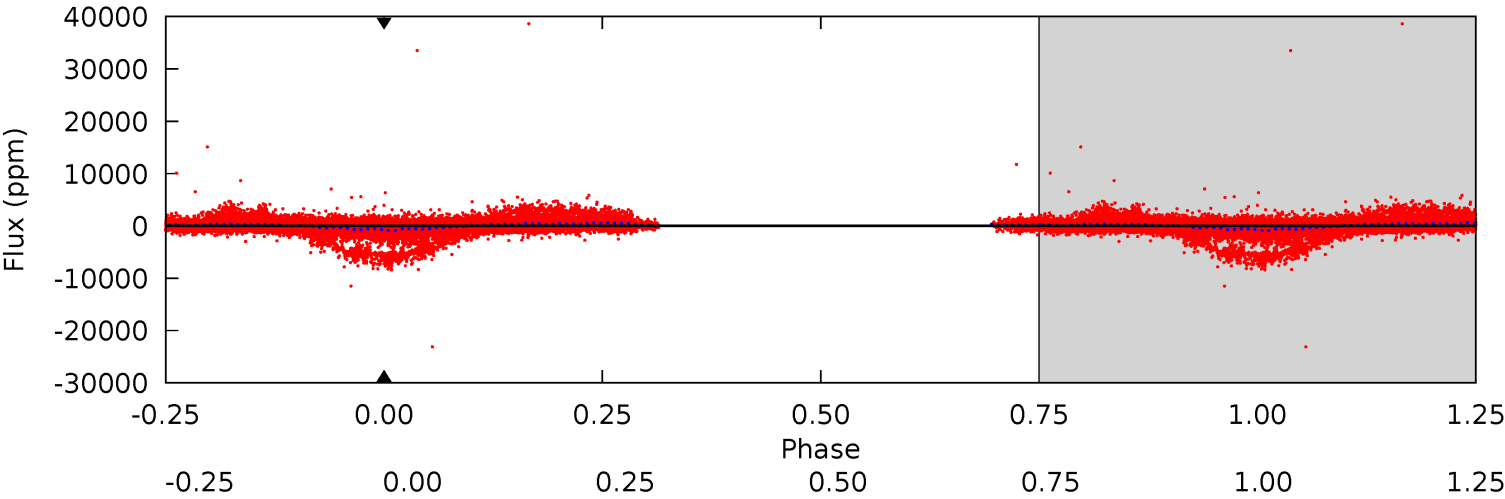
TCE 011972872-02 P= 0.531105 Days $T_0=131.907034$ (BKJD)



DV Model-Shift Uniqueness Test

011972872-02, P = 0.531105 Days, E = 131.373639 Days

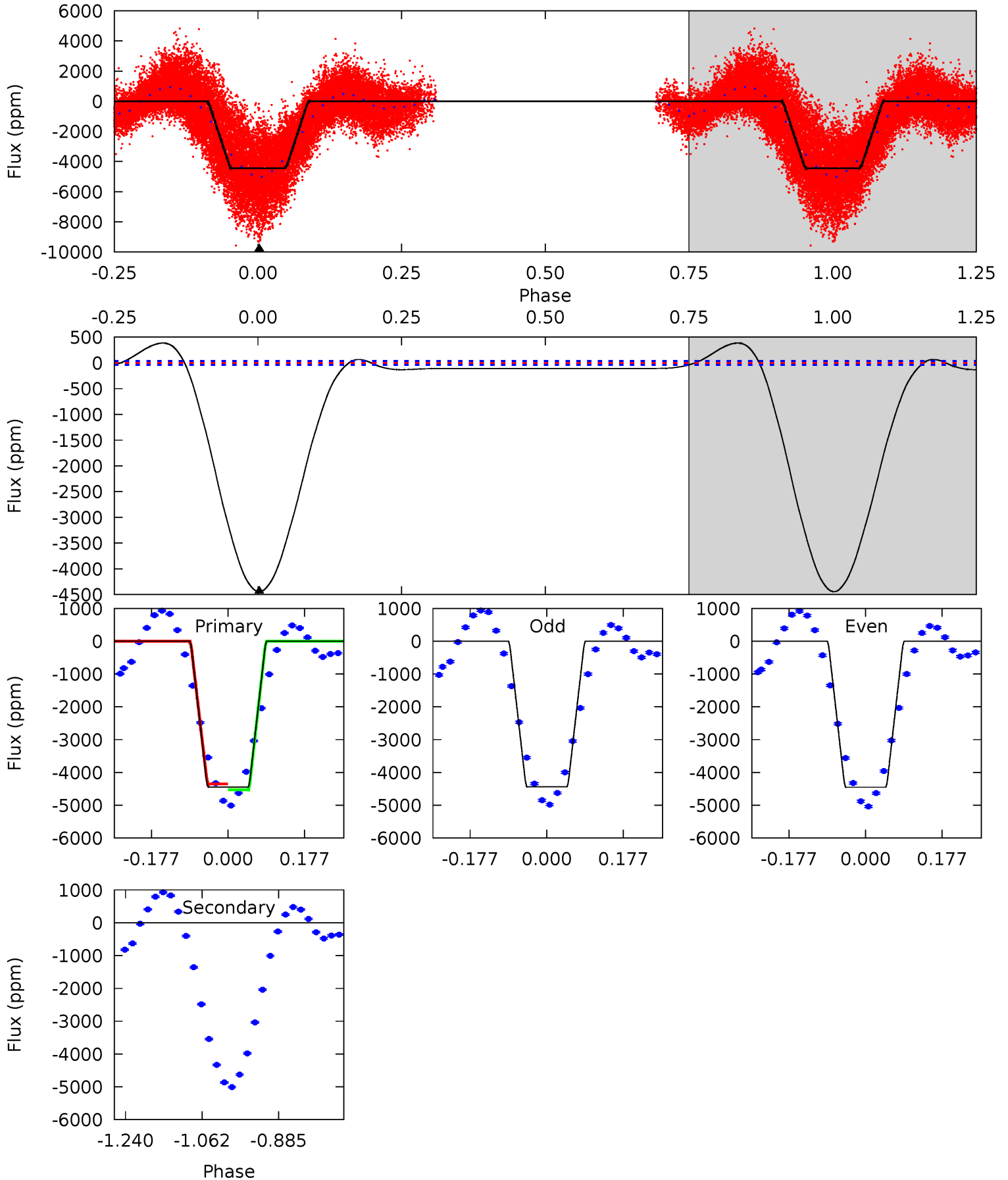
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011972872-02, P = 0.531105 Days, E = 131.375929 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
524.6	0	0	0	4.44	1.35	18.7	524.6	524.6	0	0	0.72	0.98	0.08	10.5



Stellar Parameters For KIC 011972872

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4978^{+151}_{-136}	$4.539^{+0.071}_{-0.065}$	$-0.120^{+0.300}_{-0.300}$	$0.762^{+0.079}_{-0.079}$	$0.732^{+0.095}_{-0.055}$	$2.333^{+0.741}_{-0.470}$
	+3%/-3%	+2%/-1%	+250%/-250%	+10%/-10%	+13%/-8%	+32%/-20%
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 011972872-02 / KOI 4089.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$7.21^{+7.31}_{-4.63}$	2488^{+98}_{-93}	4058^{+8225}_{-16772}	$3.906^{+229.206}_{-233.865}$
Alt.	0 ± 8	$8.53^{+6.63}_{-5.68}$	2496^{+94}_{-98}	-2766^{+83}_{-80}	$-0.000^{+0.014}_{-0.016}$

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

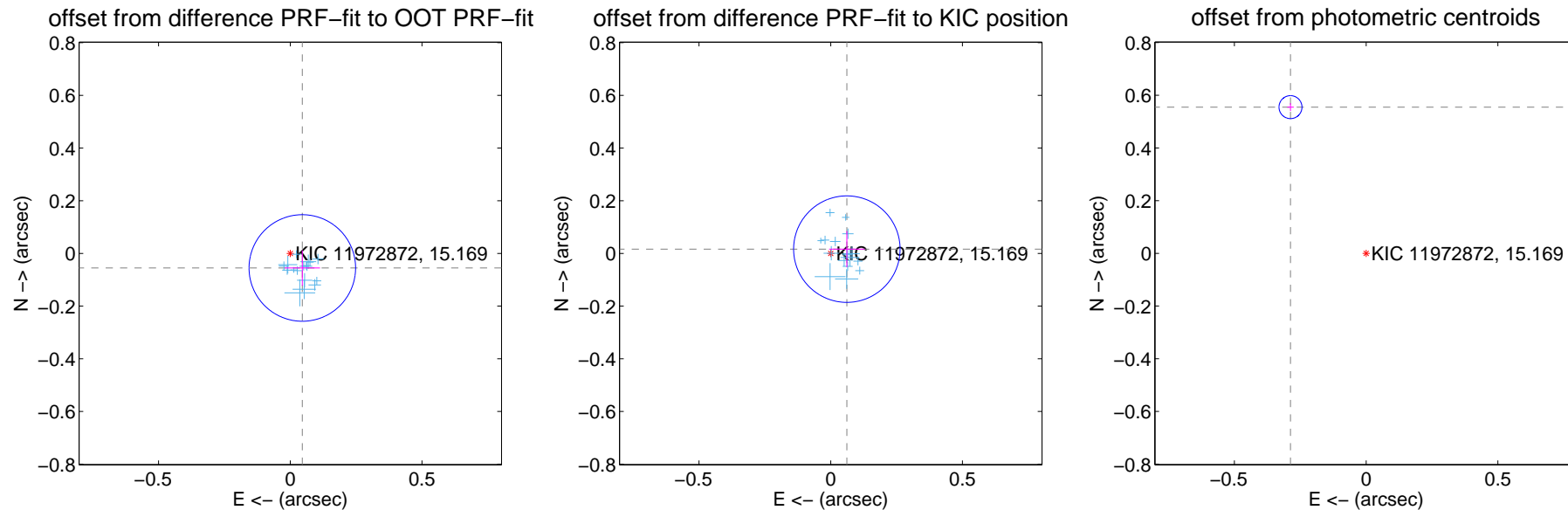
DV Centroid Data

Supplemental centroid analysis for 011972872-02. Kepler magnitude: 15.17. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

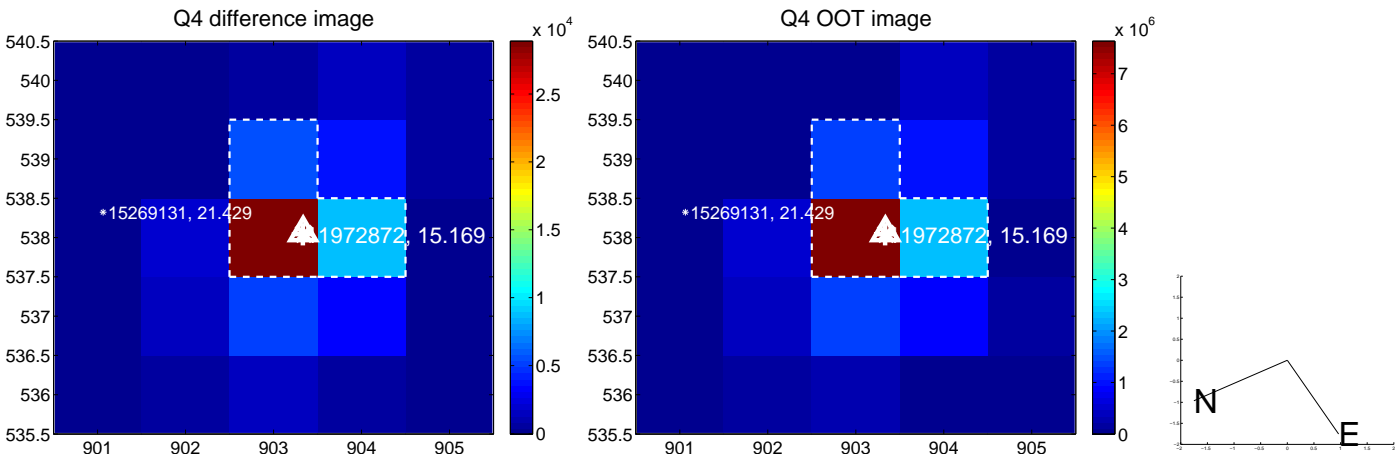
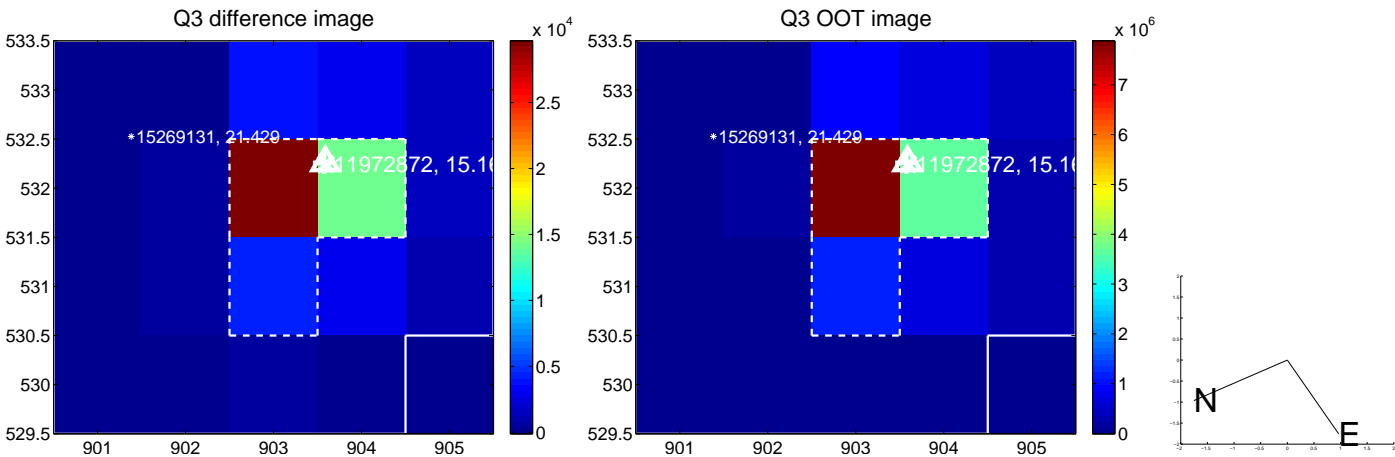
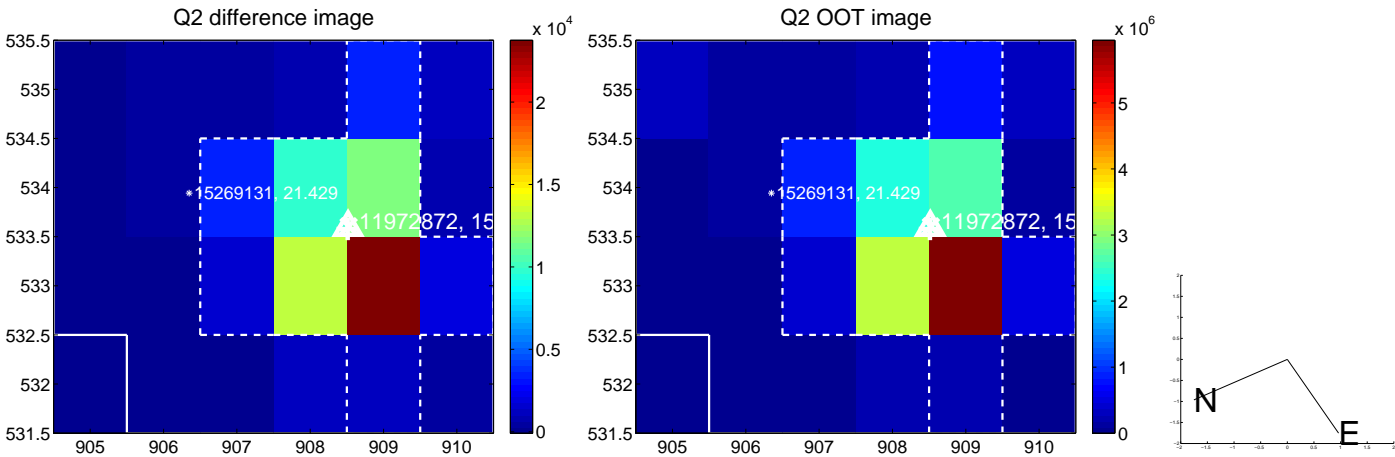
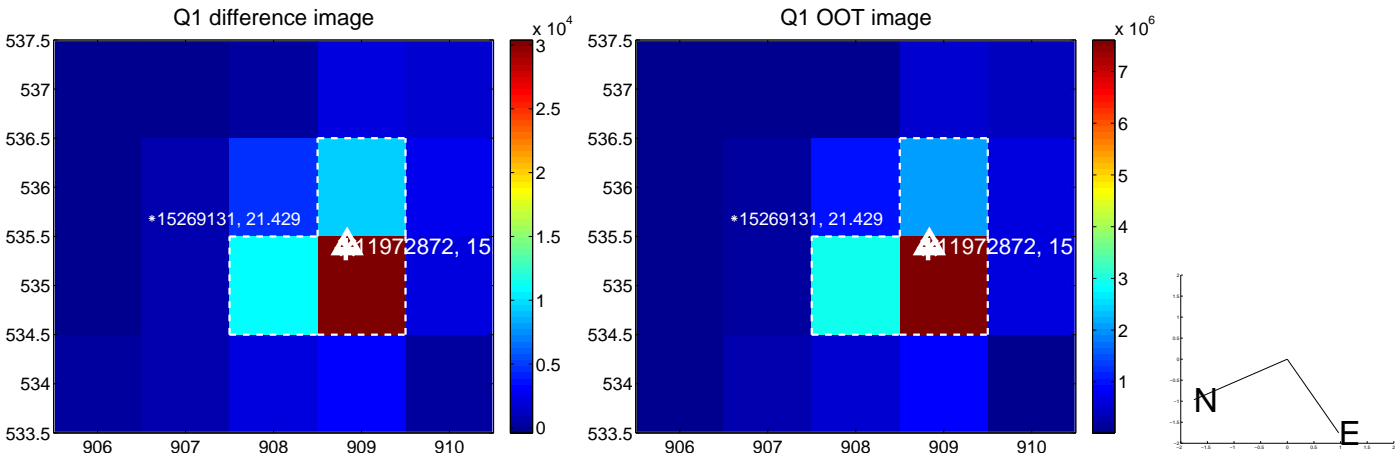
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.072 ± 0.067	1.06	-0.046 ± 0.067	-0.055 ± 0.067
PRF-fit source offset from KIC position	0.063 ± 0.067	0.94	-0.061 ± 0.067	0.016 ± 0.069
photometric centroid source offset	0.62 ± 0.01	42.98	0.29 ± 0.01	0.55 ± 0.02

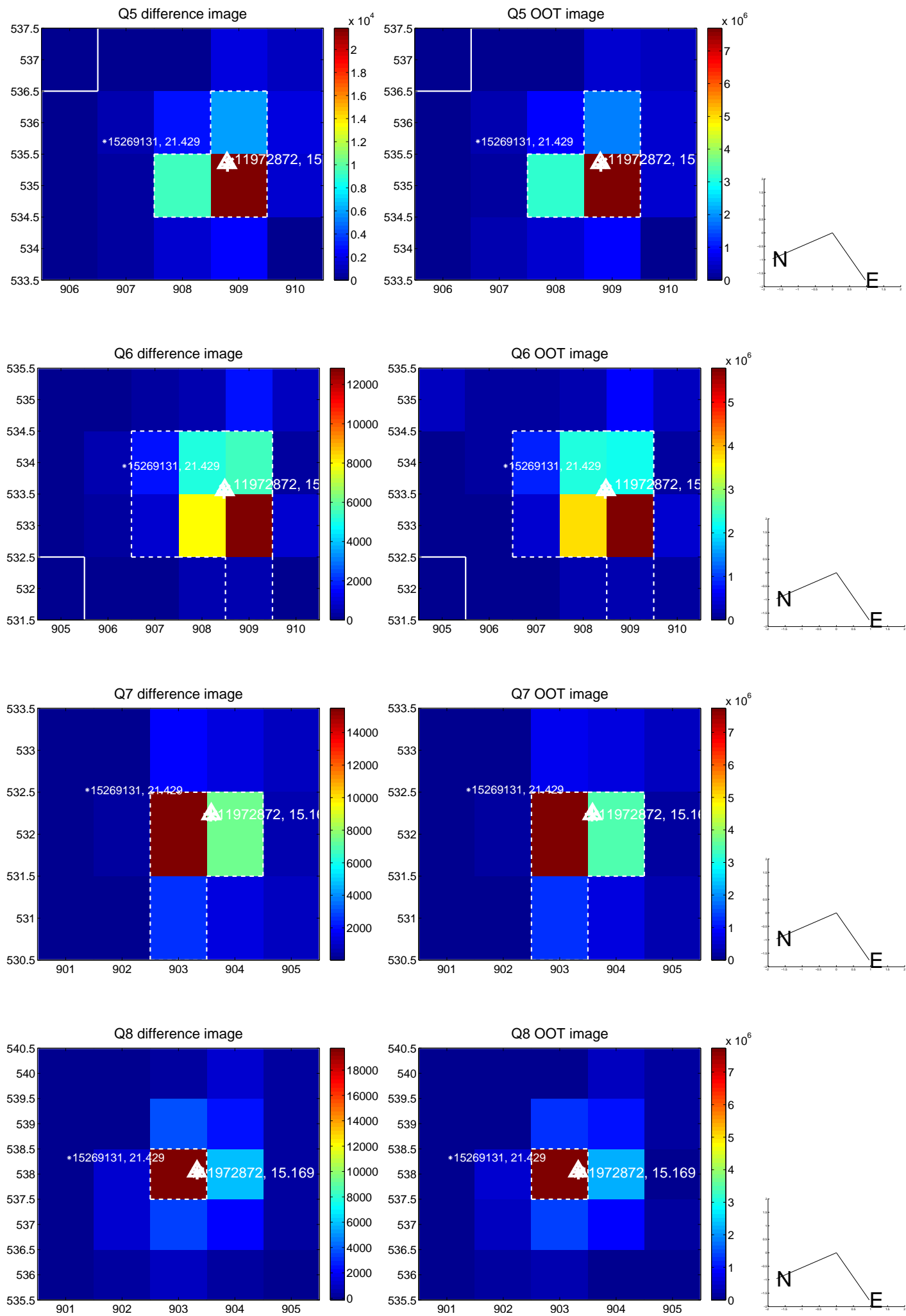


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

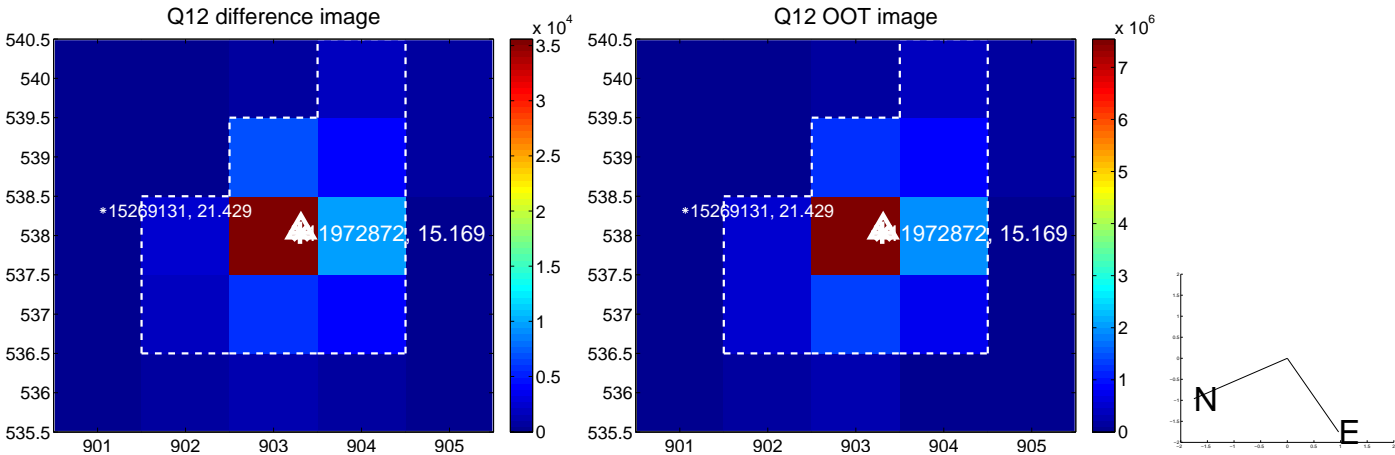
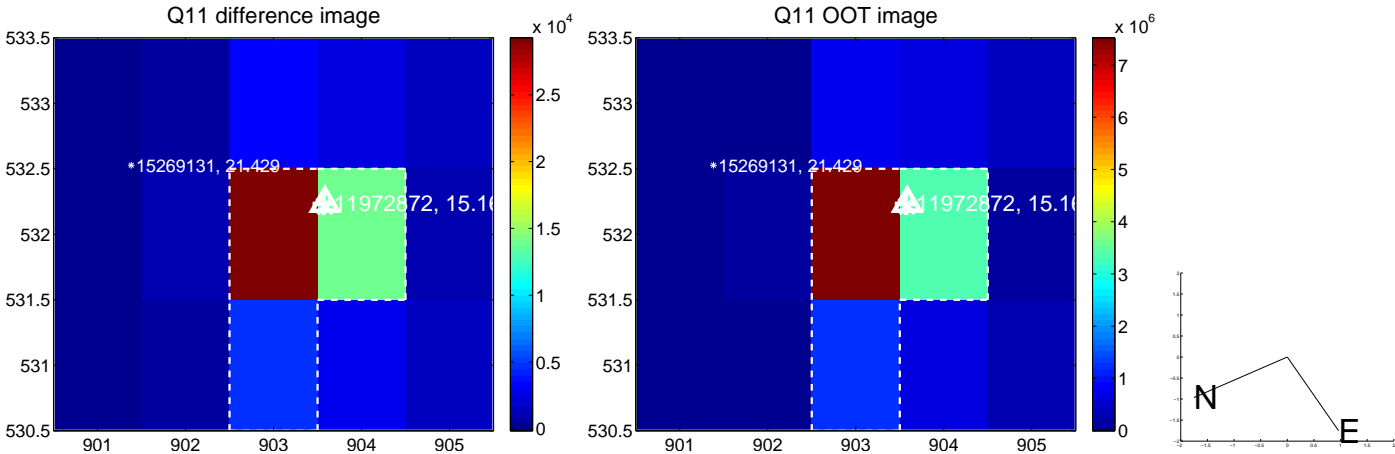
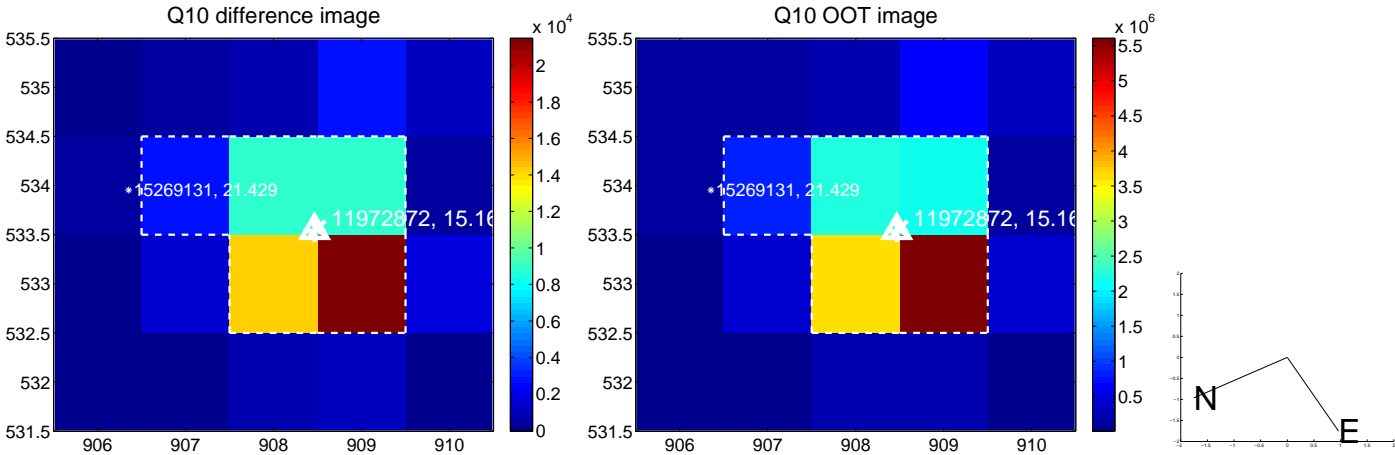
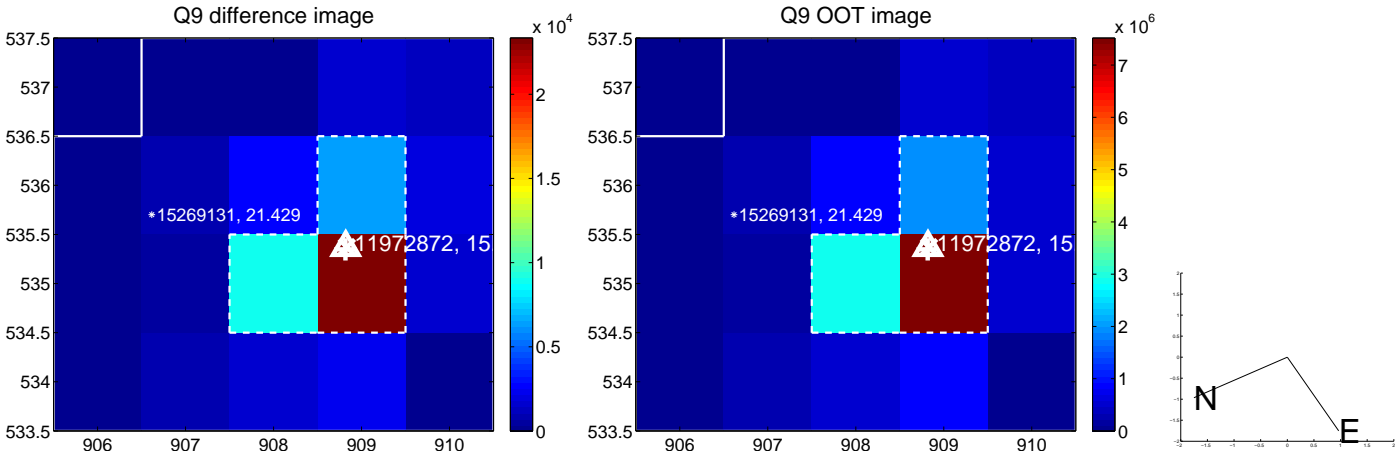
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



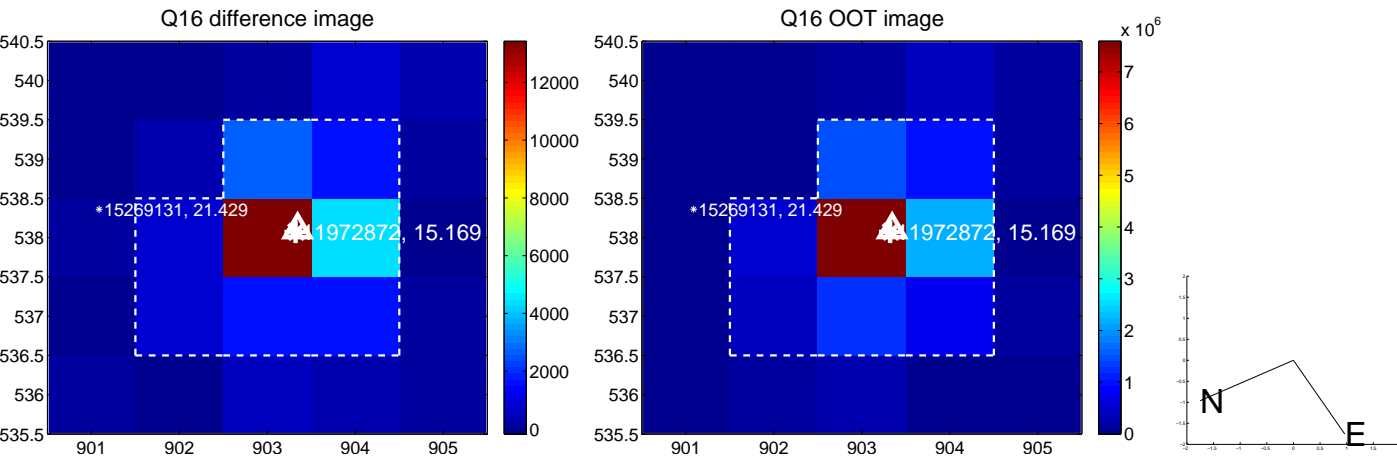
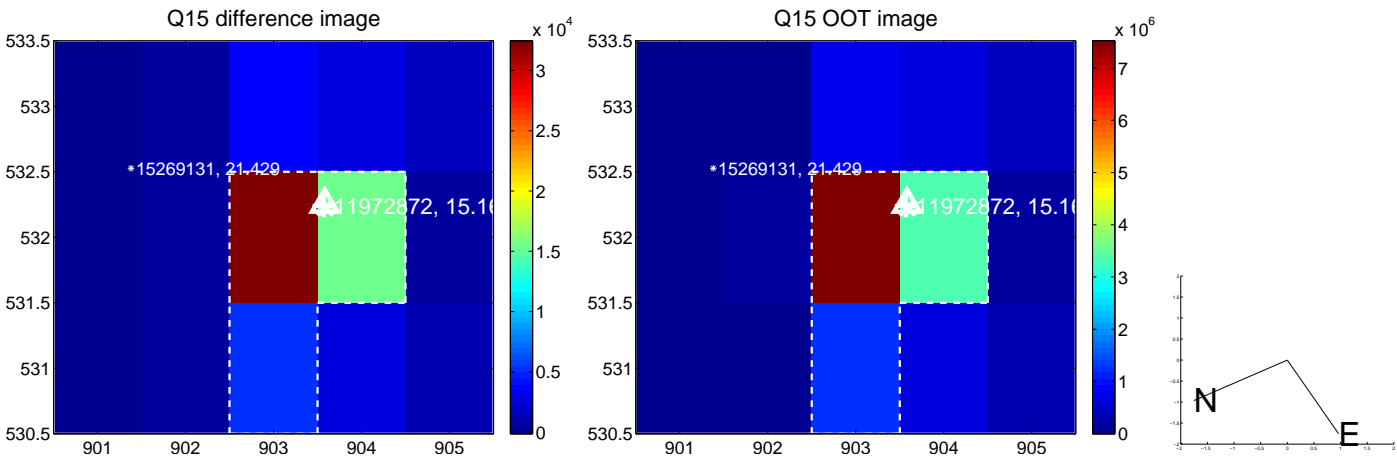
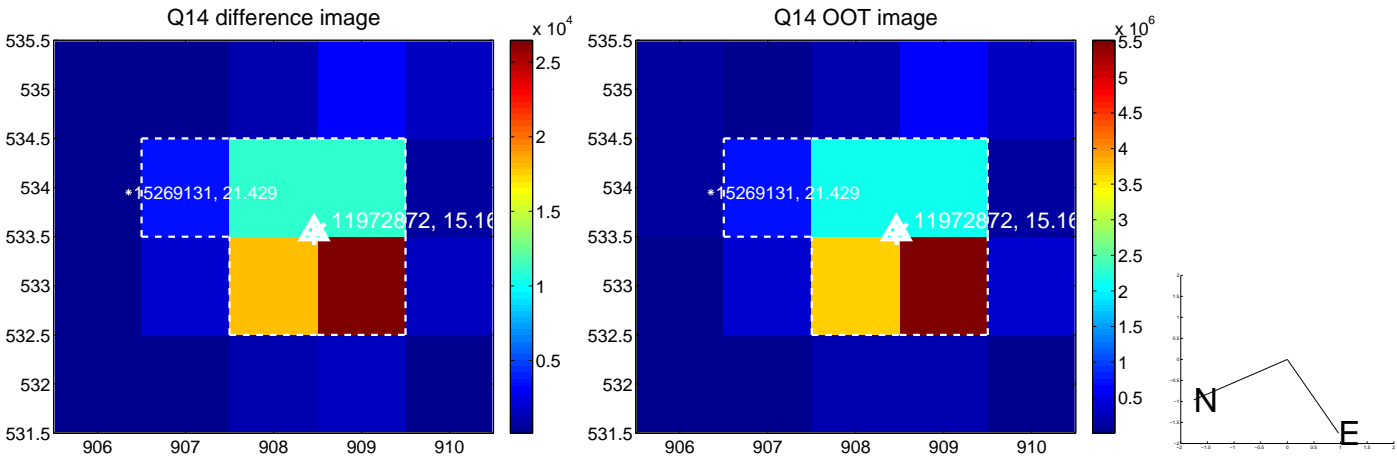
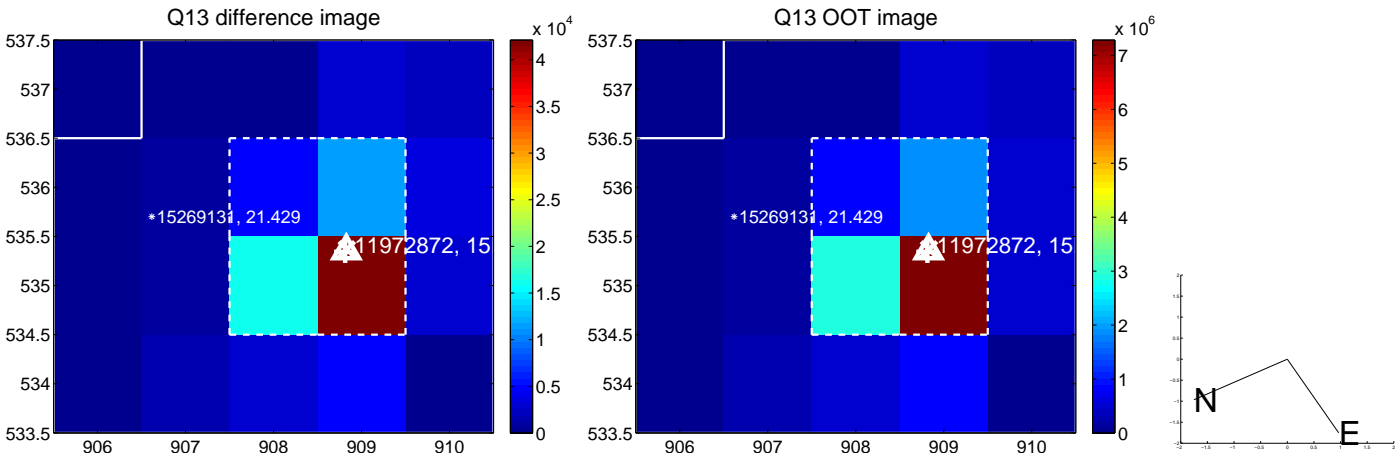
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



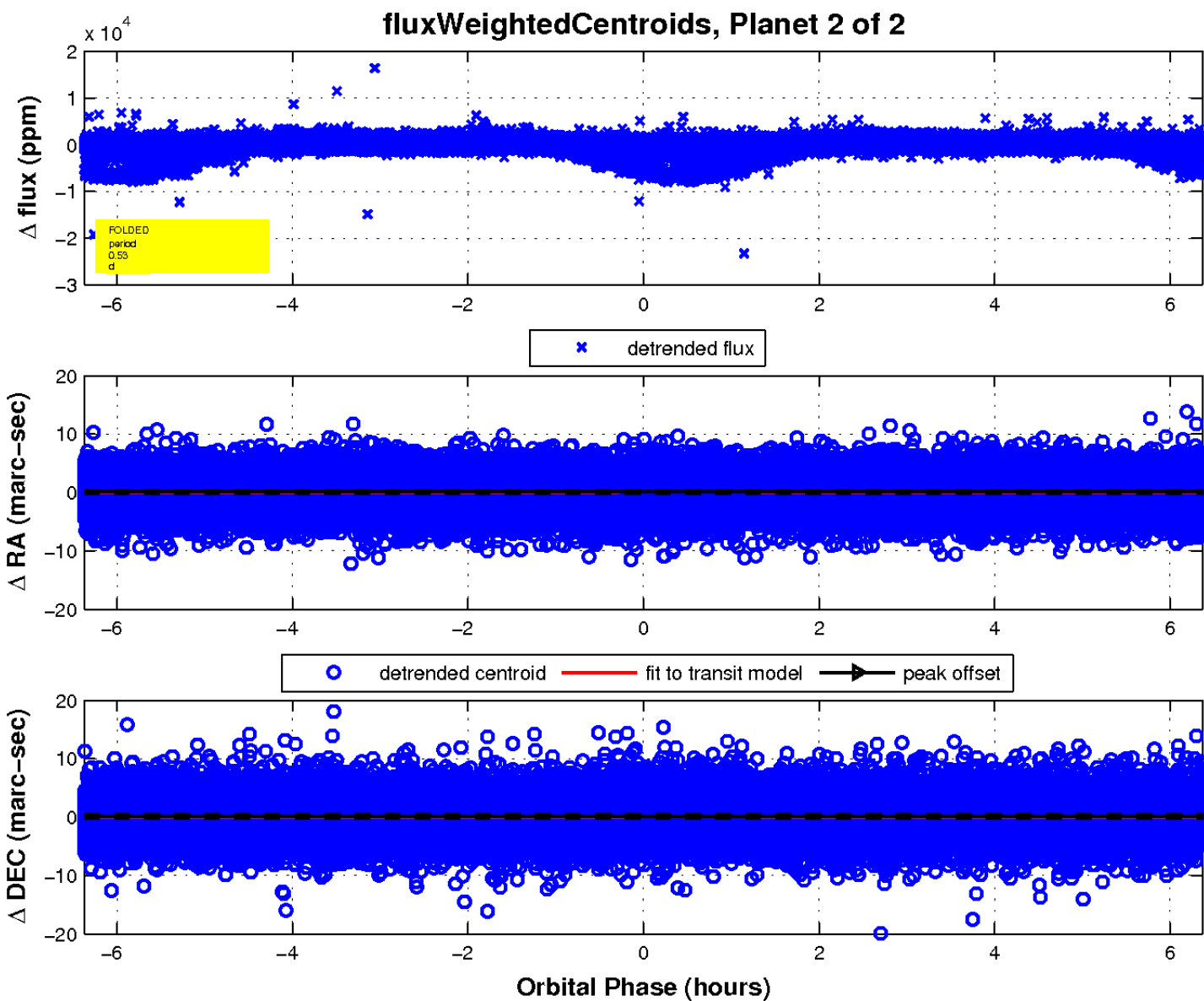
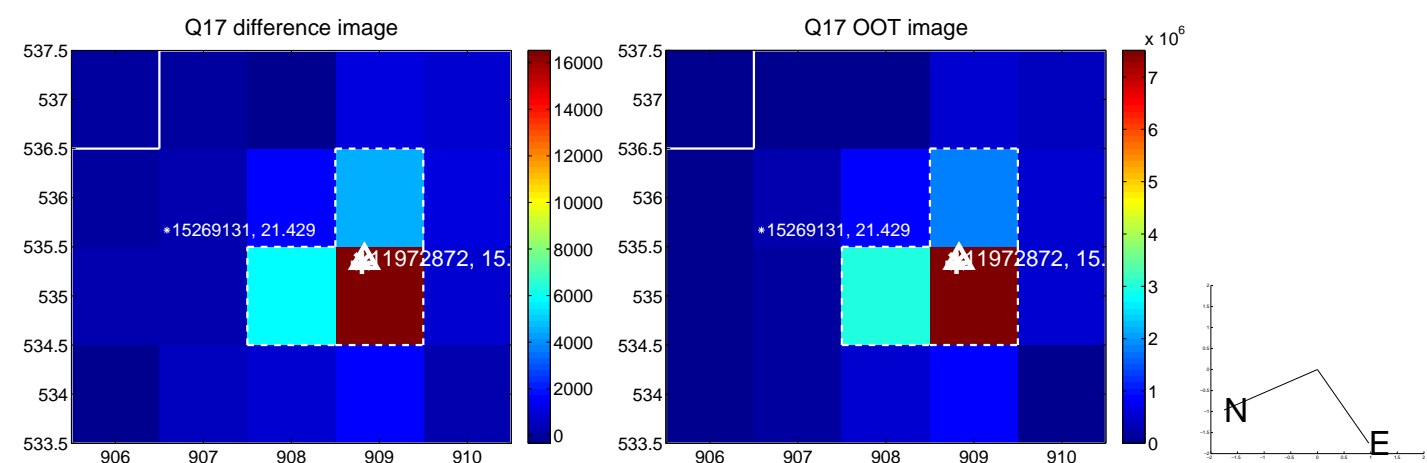
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

