

KIC 011973921

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})
011973921-01	OBS	No	0.760827	131.815917	2.3	4.802	7.7	5.2	2.87	8914	0.47	98572.38
011973921-02	OBS	No	147.655159	208.987656	53.7	12.939	7.5	8.5	2.87	8914	2.42	87.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011973921-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
011973921-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

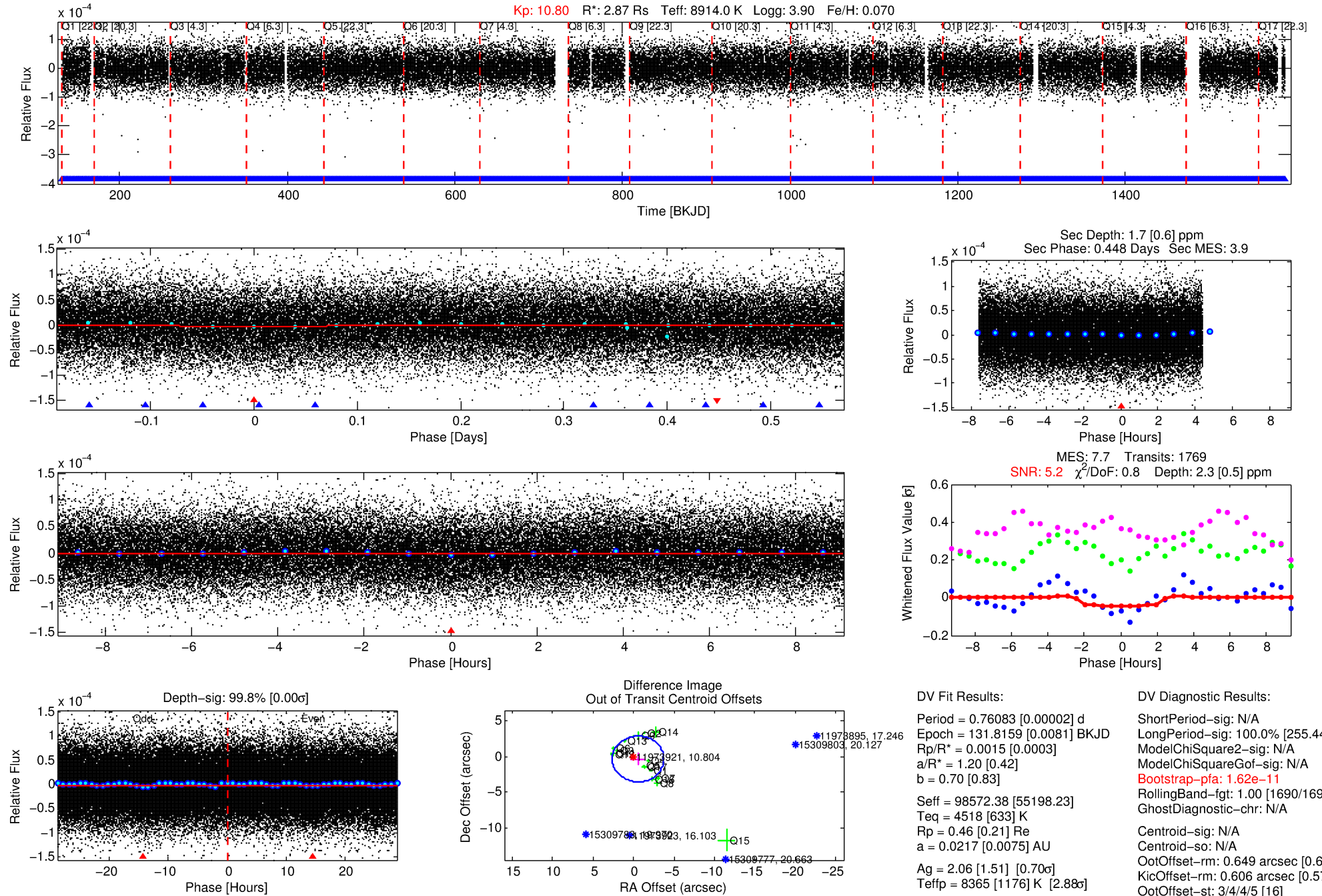
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011973921-01

No Significant Match Found

DV One-Page Summary

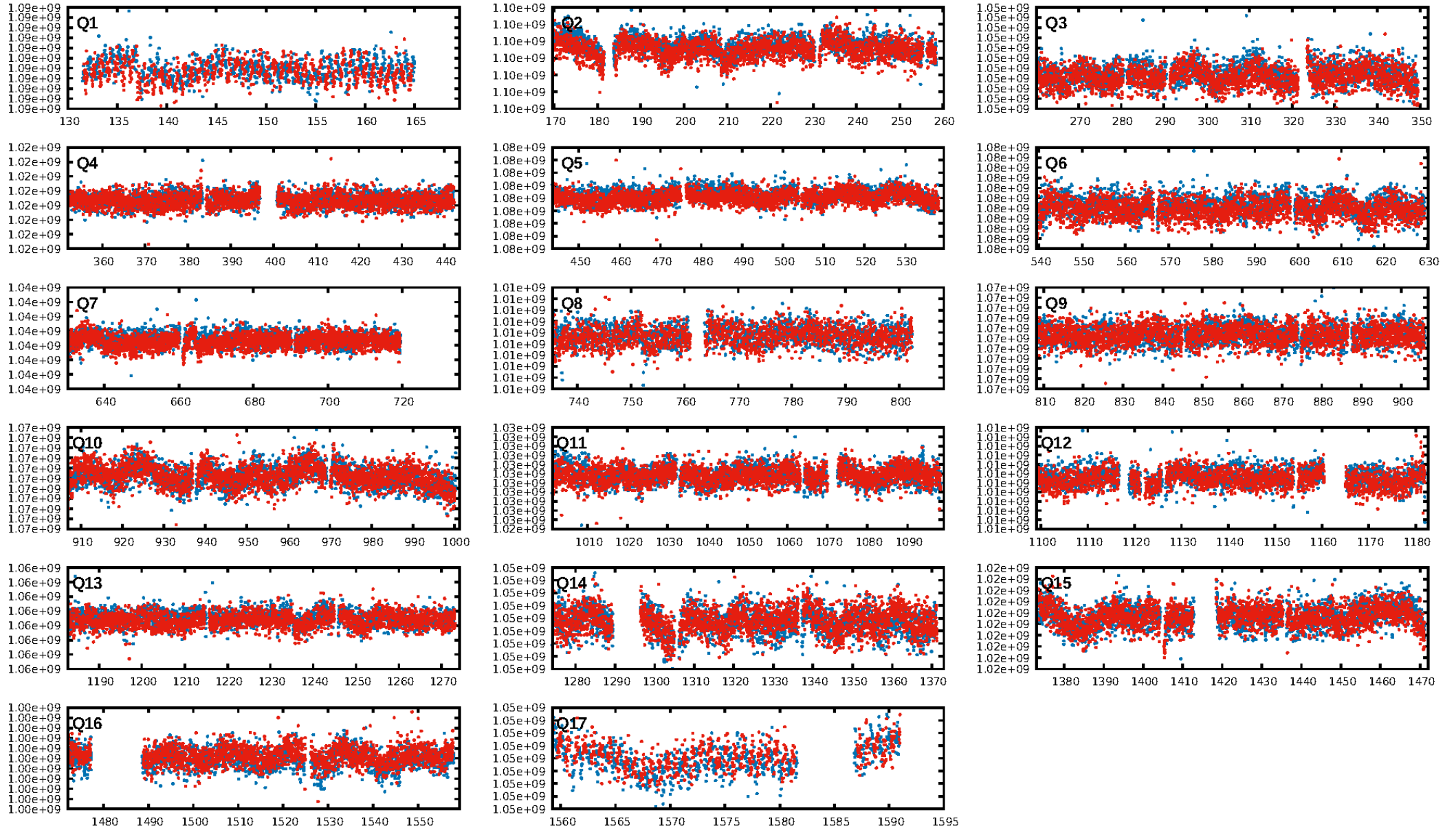
KIC: 11973921 Candidate: 1 of 2 Period: 0.761 d



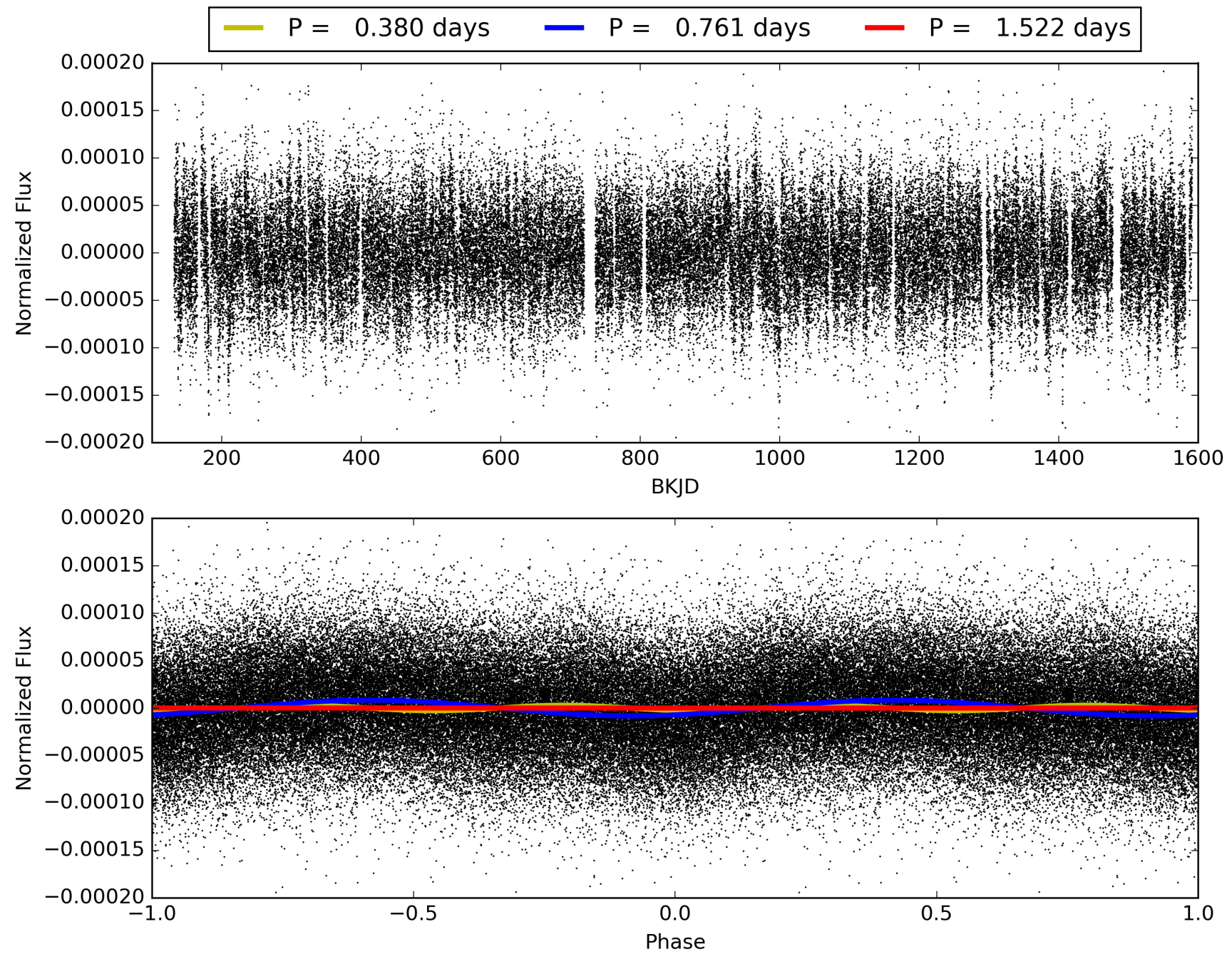
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:42:05 Z

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

TCE 011973921-01, PDC Light Curves

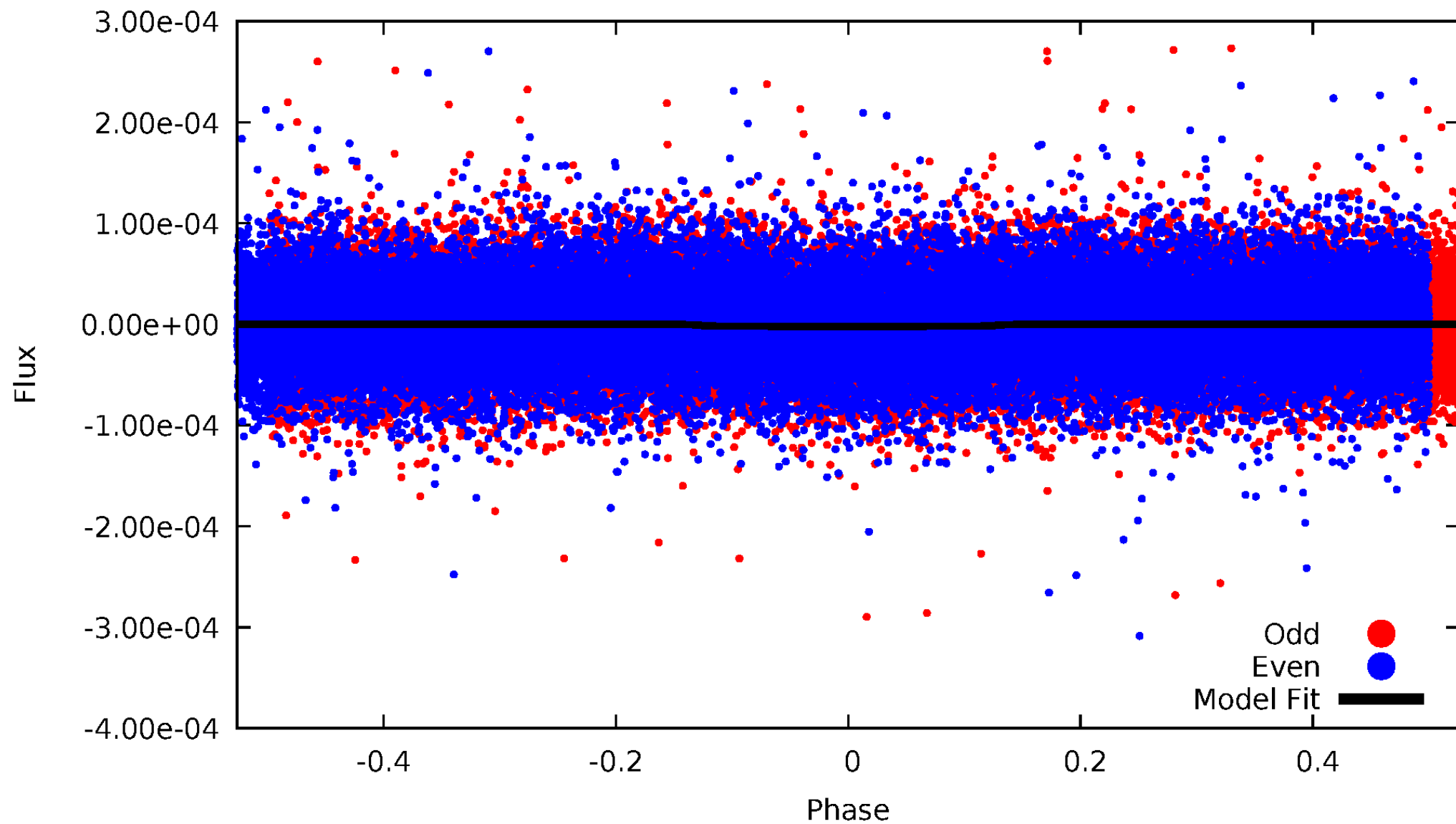


TCE 011973921-01



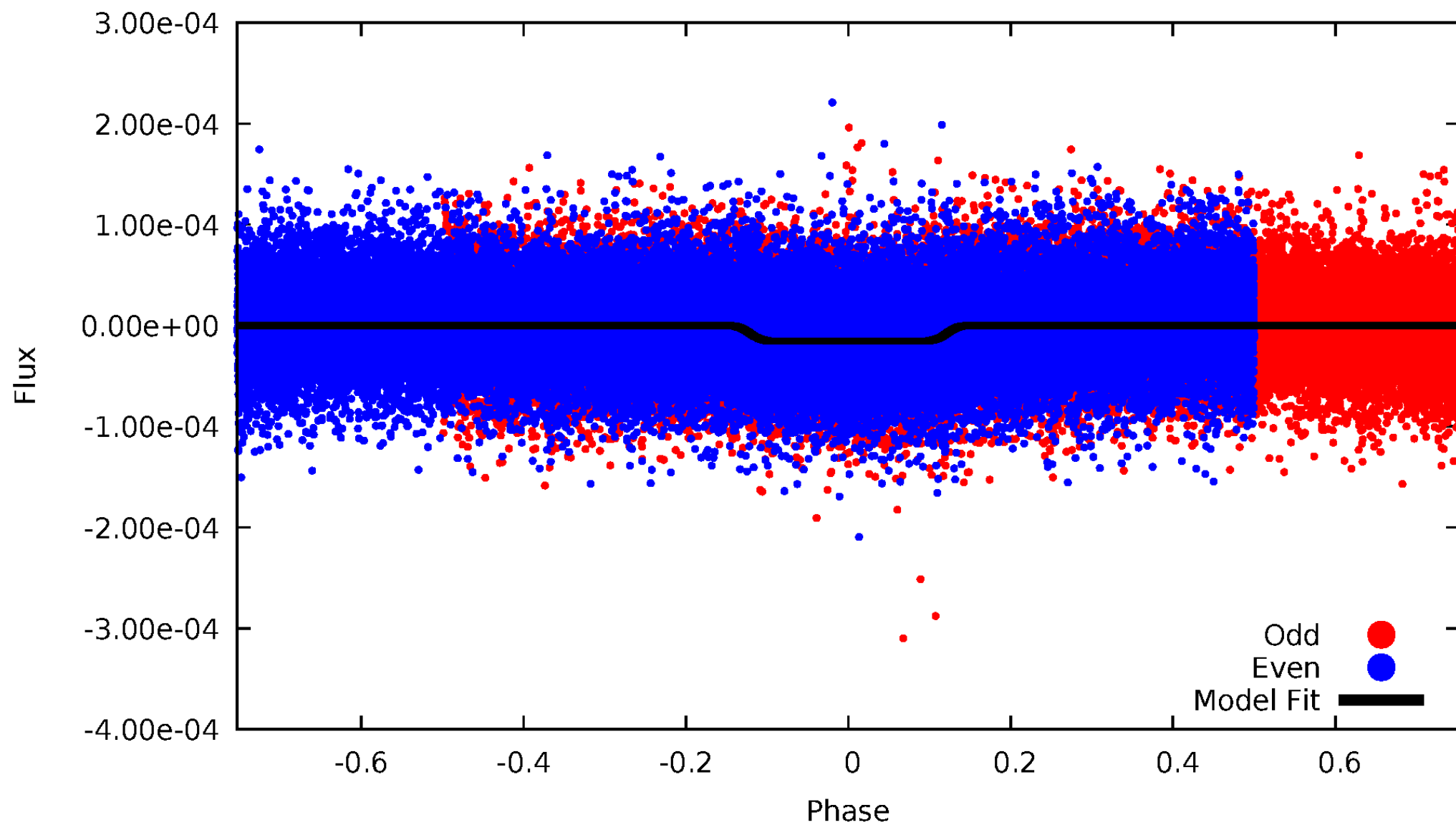
DV Odd/Even

TCE 011973921-01



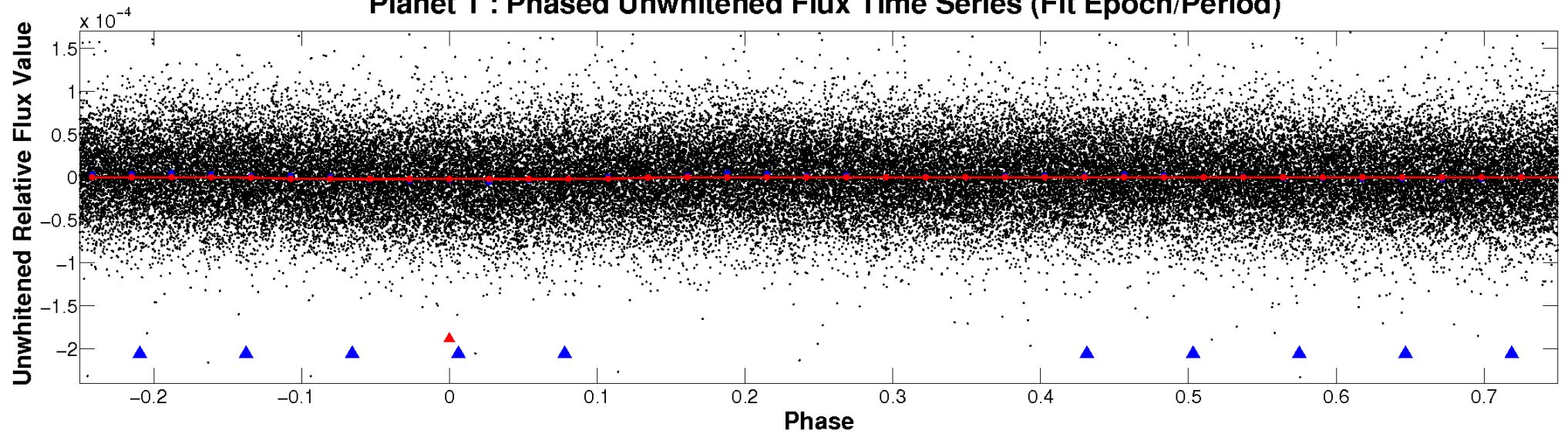
ALT Odd/Even

TCE 011973921-01

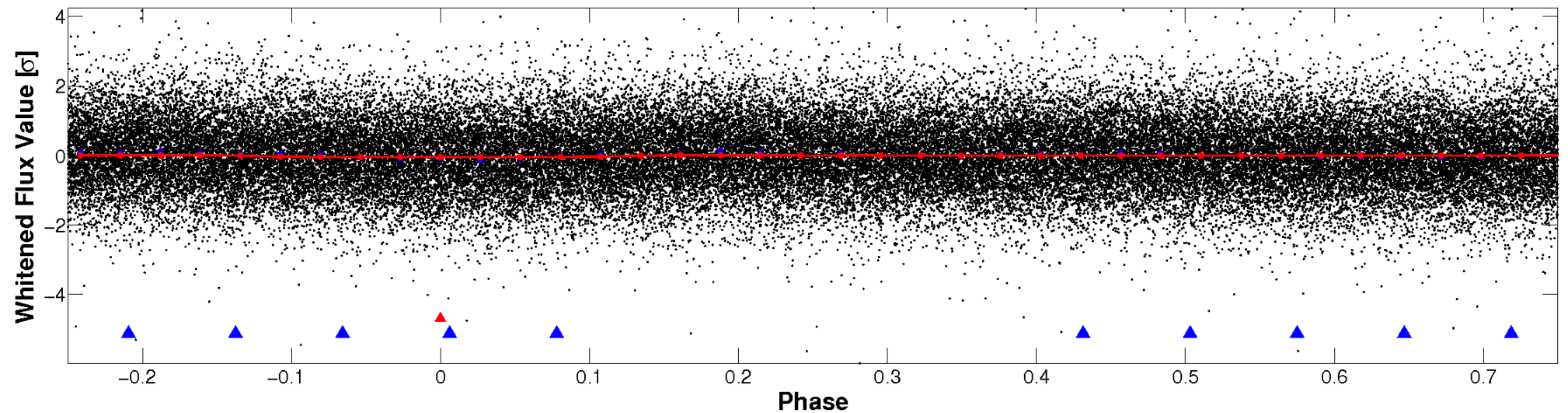


Non-Whitened Vs. Whitened Light Curve

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

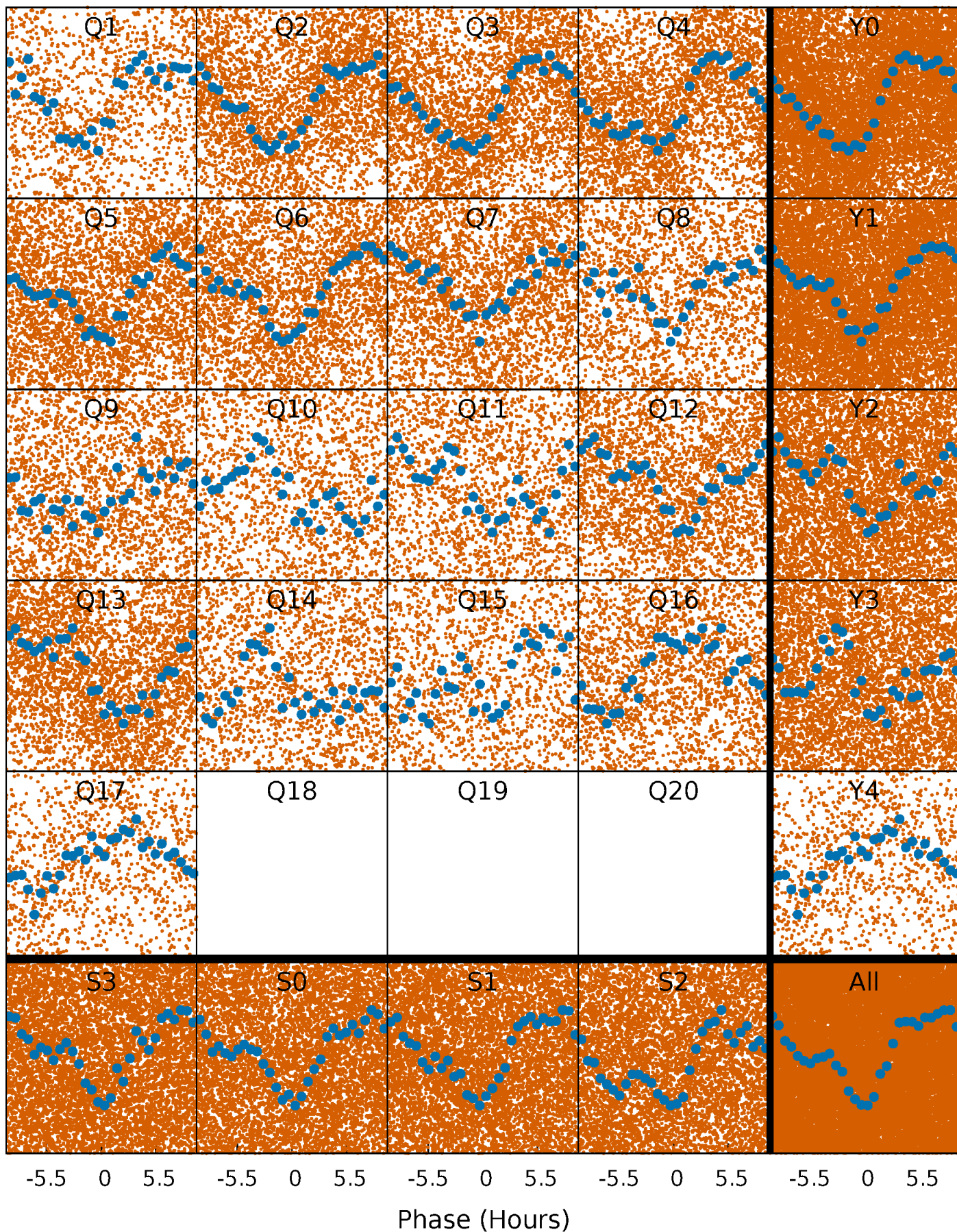


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



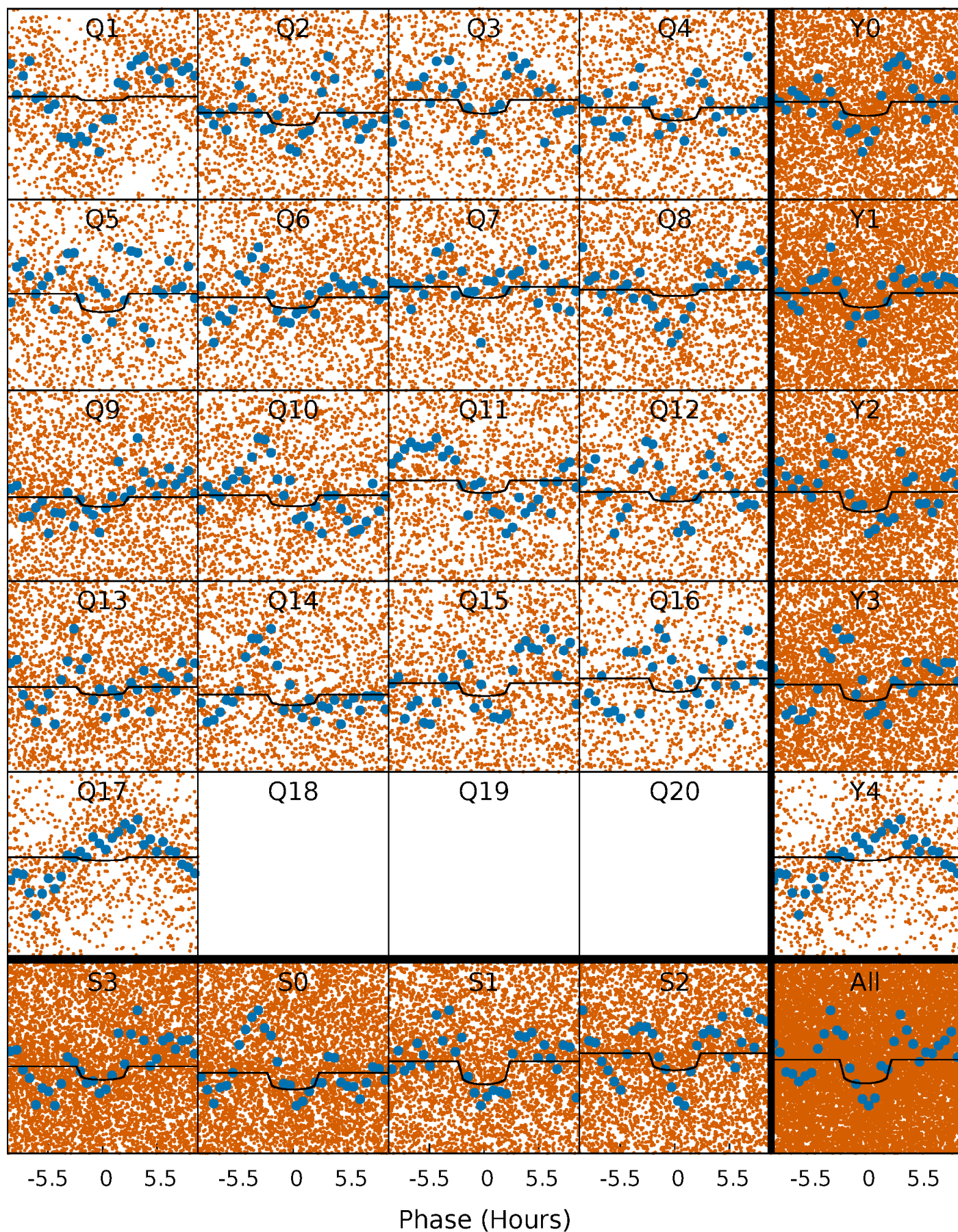
PDC Quarter-Phased Transit Curves

TCE 011973921-01 P= 0.760827 Days $T_0=131.815917$ (BKJD)



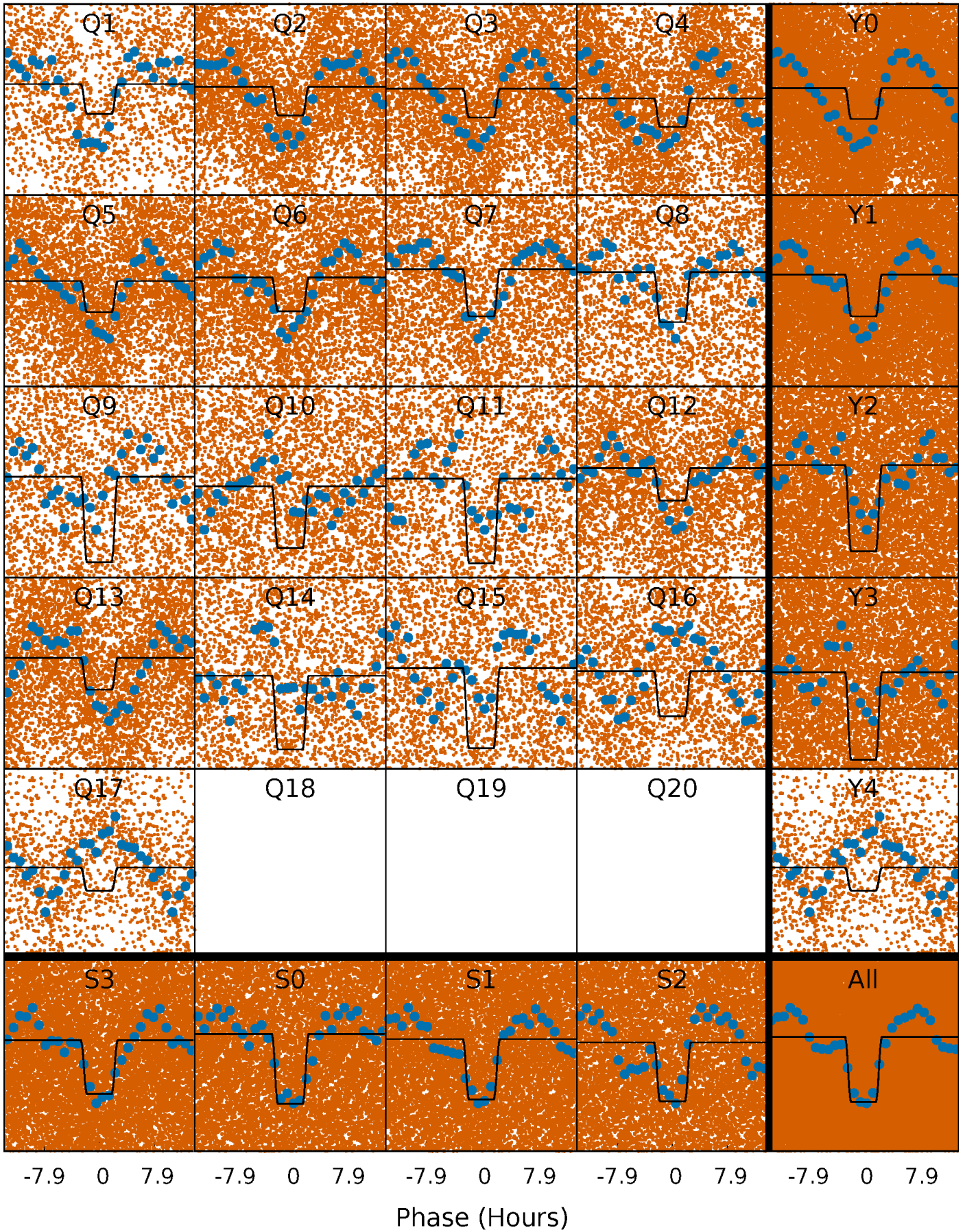
DV Quarter-Phased Transit Curves

TCE 011973921-01 P= 0.760827 Days $T_0=131.815917$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

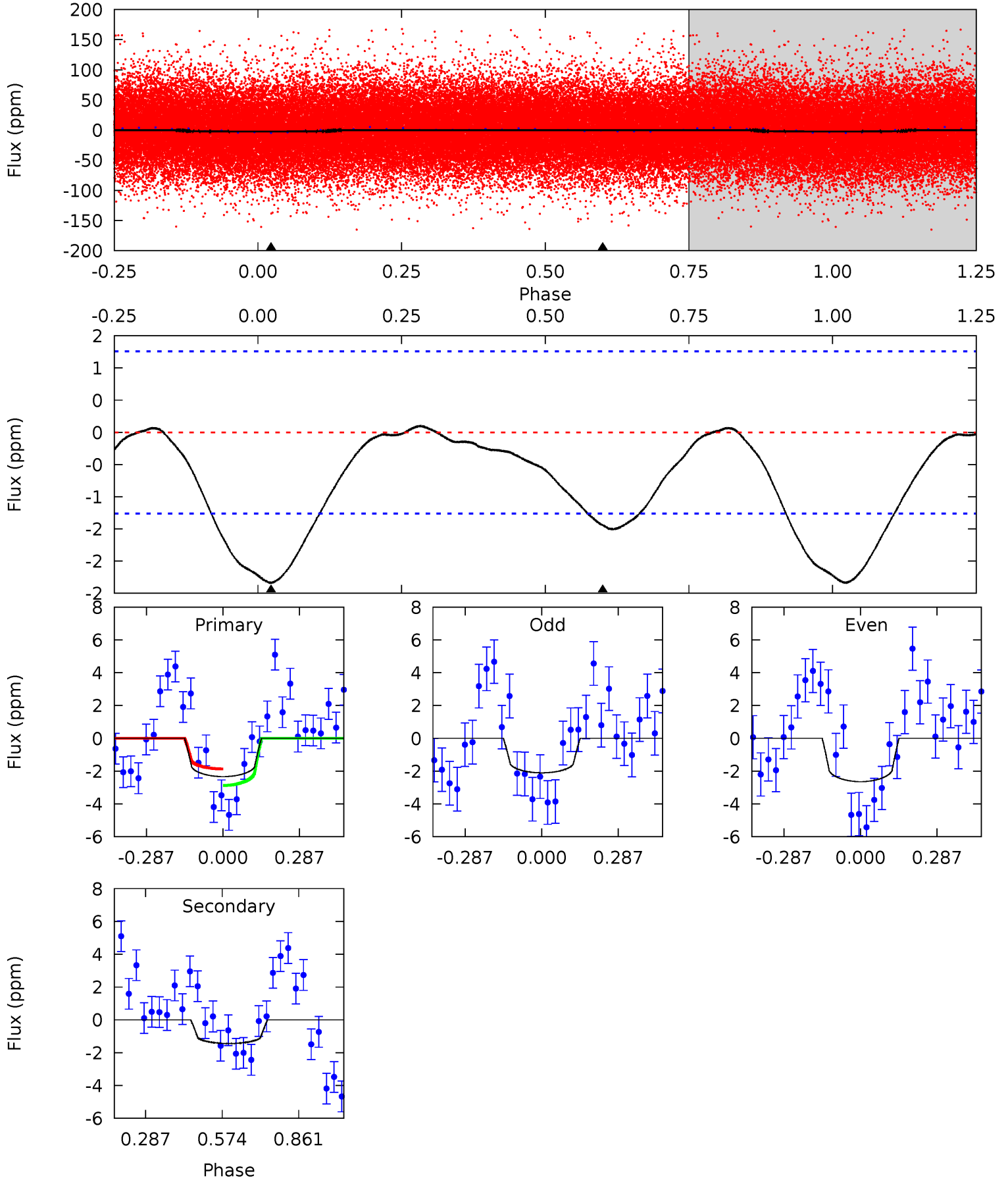
TCE 011973921-01 P= 0.760873 Days $T_0=131.771136$ (BKJD)



DV Model-Shift Uniqueness Test

011973921-01, P = 0.760827 Days, E = 131.055090 Days

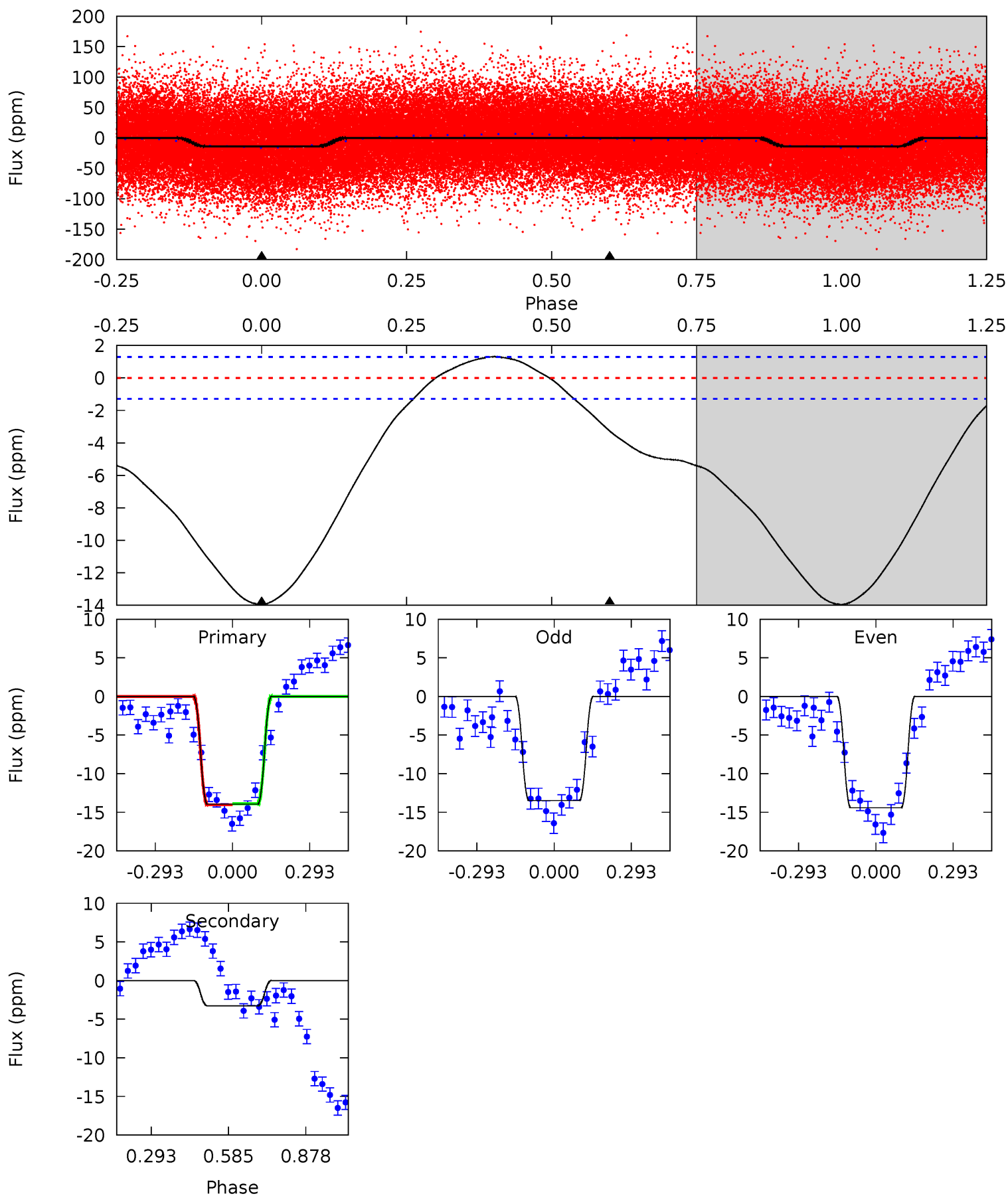
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.05	4.97	0	0	4.34	1.06	0.32	8.05	8.05	4.97	4.97	0.93	1.09	0.04	1.73



Alt Model-Shift Uniqueness Test

011973921-01, P = 0.760873 Days, E = 131.010263 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.9	11.0	0	0	4.33	1.05	2.63	46.9	46.9	11.0	11.0	1.57	0.98	0.09	0.20



Stellar Parameters For KIC 011973921

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8914^{+234}_{-468}	$3.896^{+0.292}_{-0.157}$	$0.070^{+0.250}_{-0.600}$	$2.867^{+0.819}_{-1.126}$	$2.357^{+0.314}_{-0.732}$	$0.141^{+0.319}_{-0.066}$
	+3%/-5%	+7%/-4%	+357%/-857%	+29%/-39%	+13%/-31%	+226%/-47%
Source	KIC0	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 011973921-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1 ± 0	$0.44^{+0.13}_{-0.11}$	6187^{+517}_{-609}	7312^{+1520}_{-1059}	$1.929^{+1.540}_{-0.829}$
Alt.	-3 ± 0	$1.19^{+0.21}_{-0.22}$	6197^{+536}_{-580}	4891^{+486}_{-581}	$0.594^{+0.279}_{-0.172}$

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

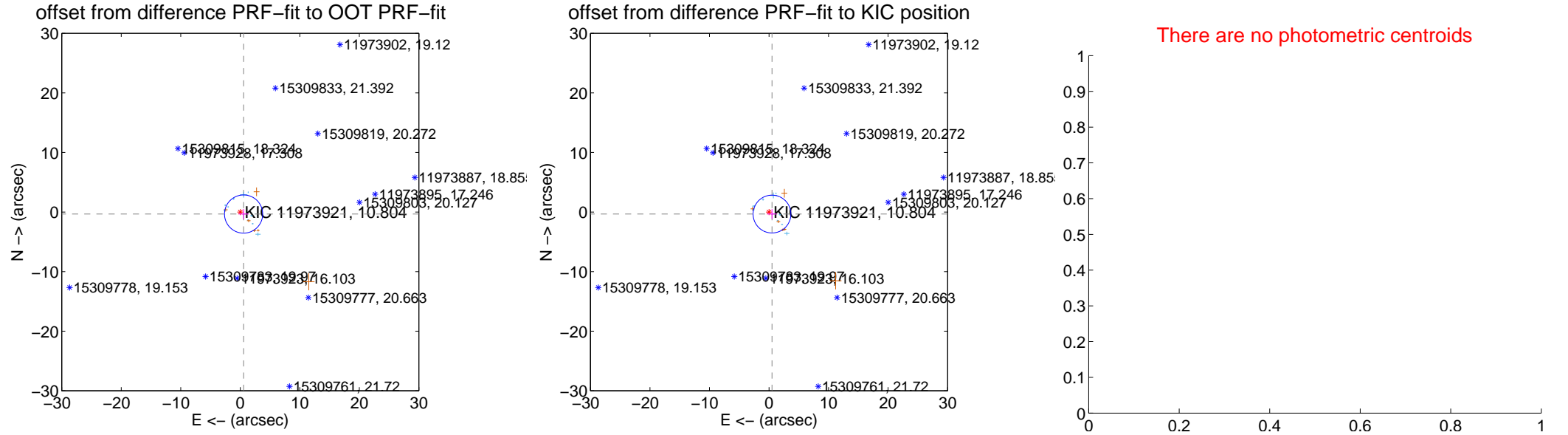
DV Centroid Data

Supplemental centroid analysis for 011973921-01. **Kepler magnitude: 10.80.** Transit SNR 5.21

There are 10 quarters with good PRF difference image offsets

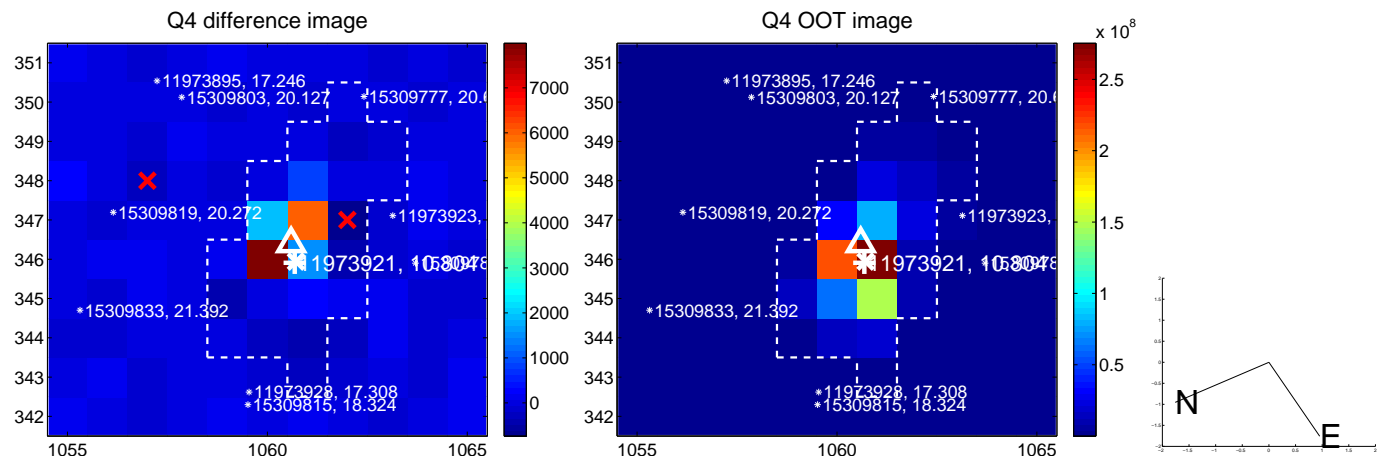
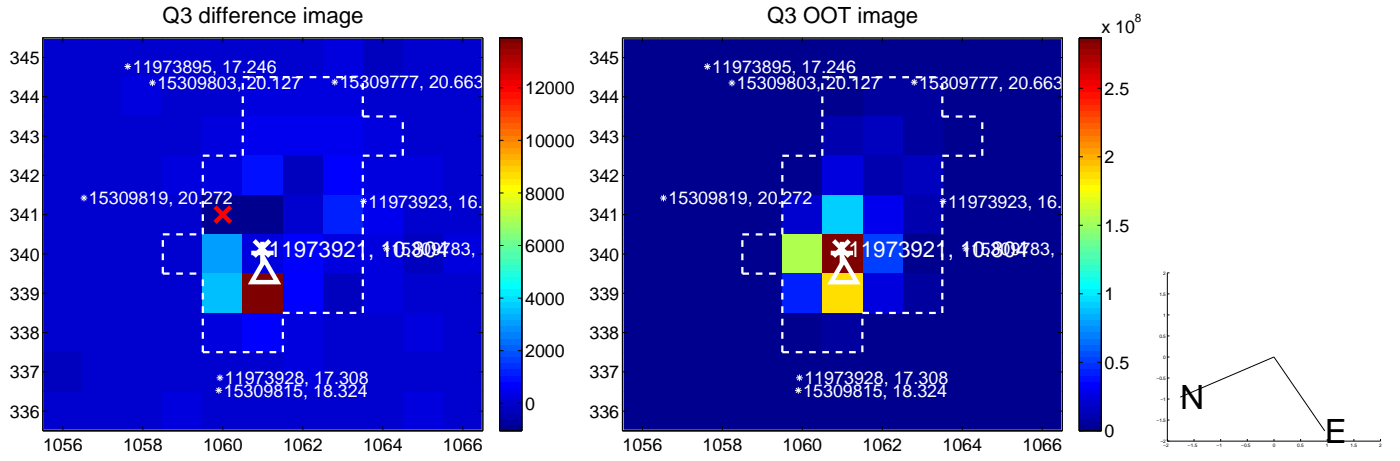
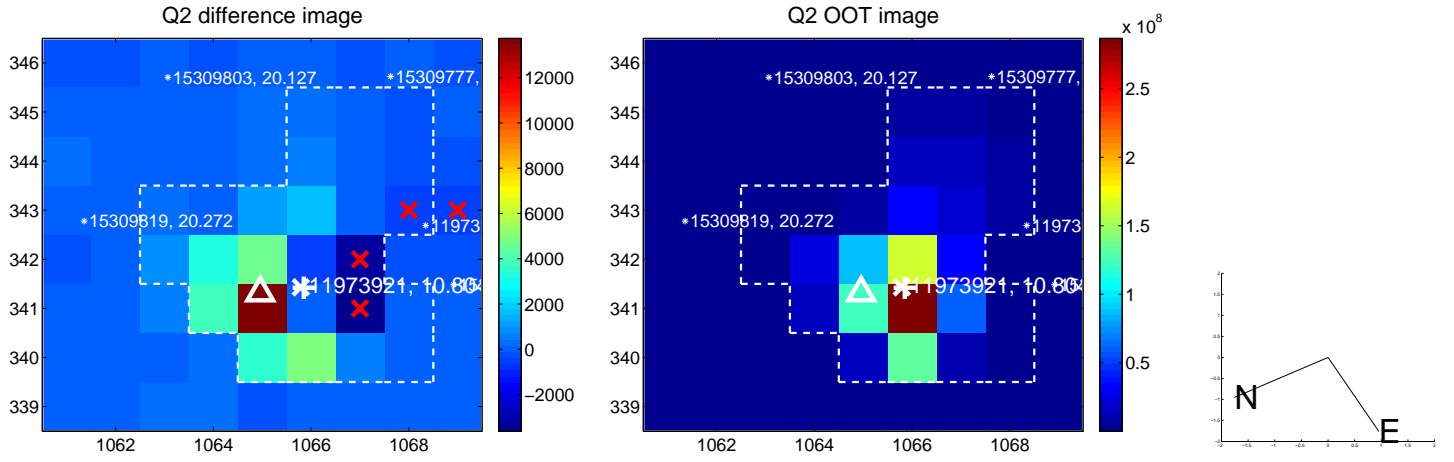
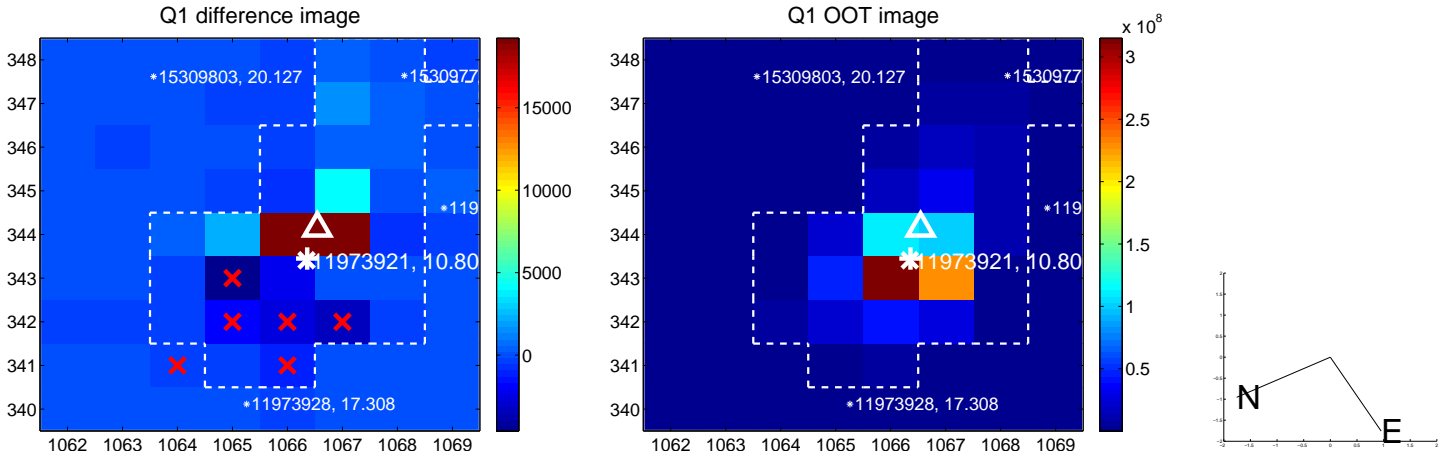
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.649 ± 1.069	0.61	-0.554 ± 0.805	-0.338 ± 0.859
PRF-fit source offset from KIC position	0.606 ± 1.058	0.57	-0.502 ± 0.794	-0.339 ± 0.829
photometric centroid source offset	—	—	—	—

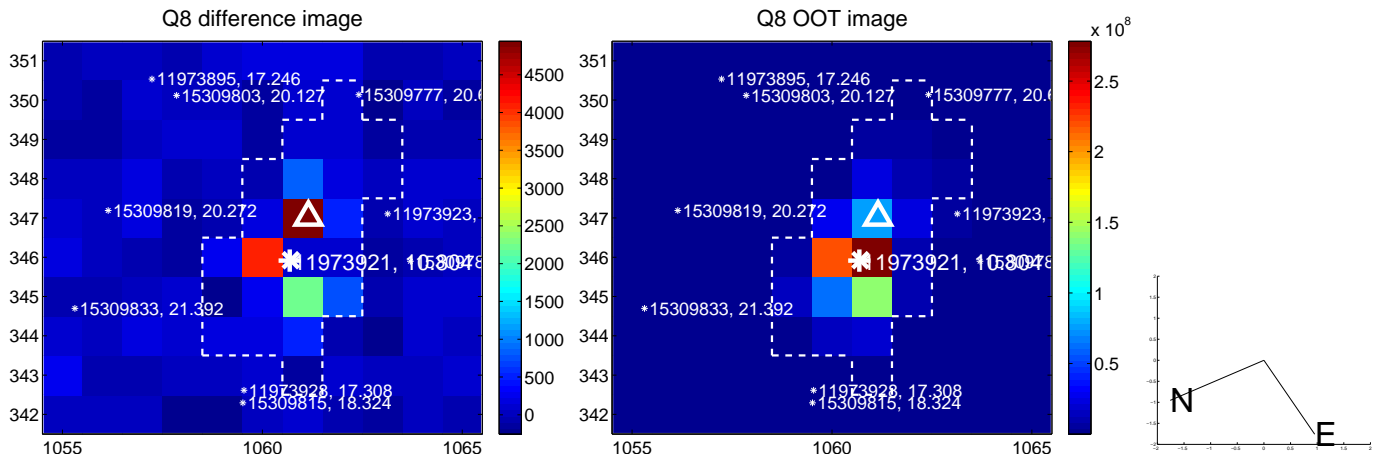
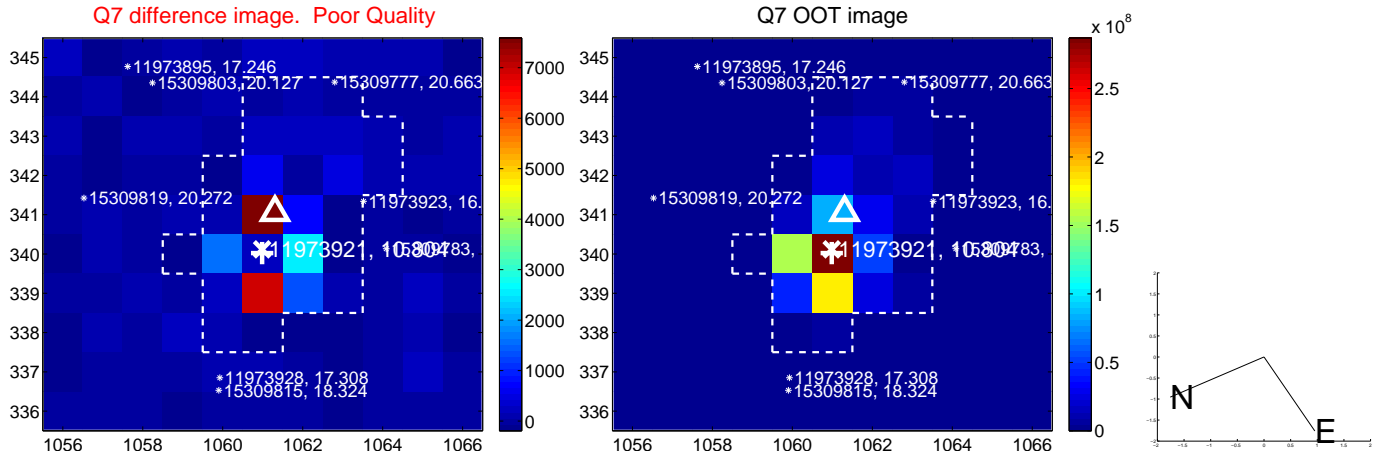
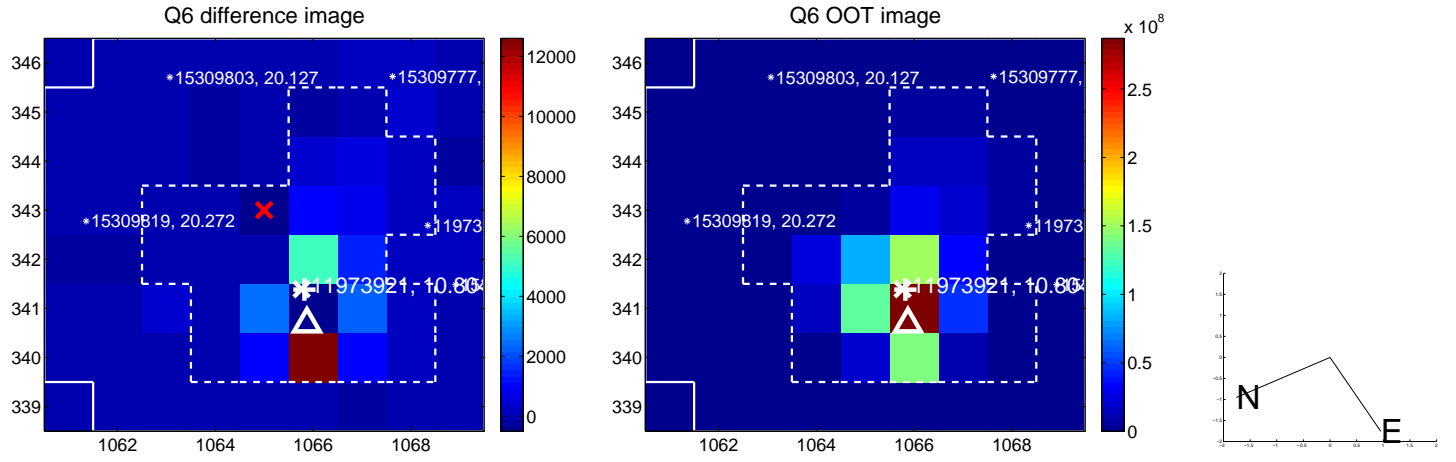
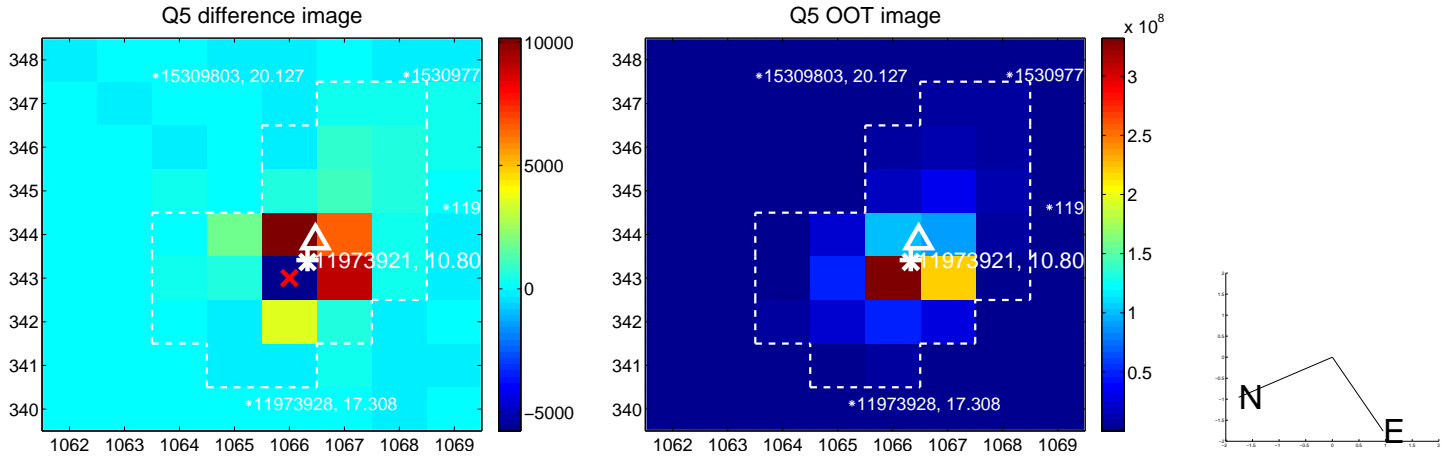


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

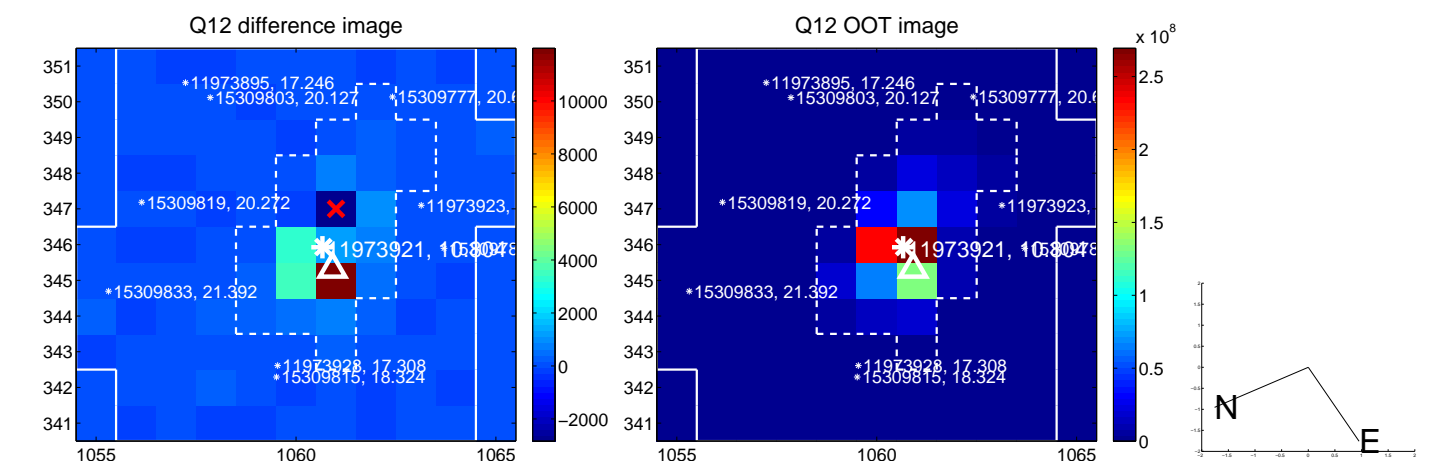
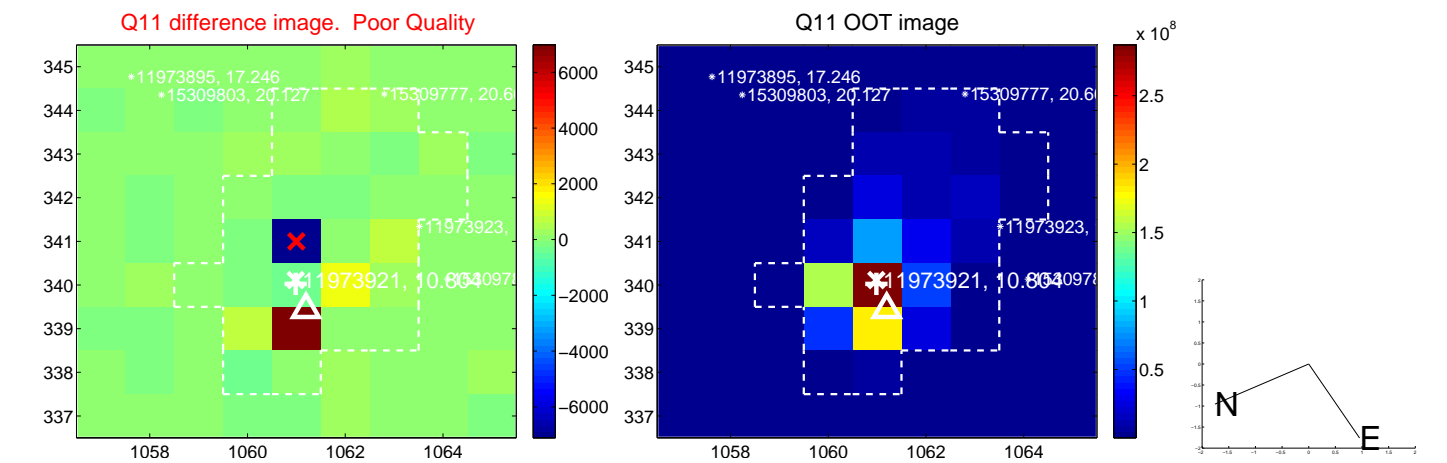
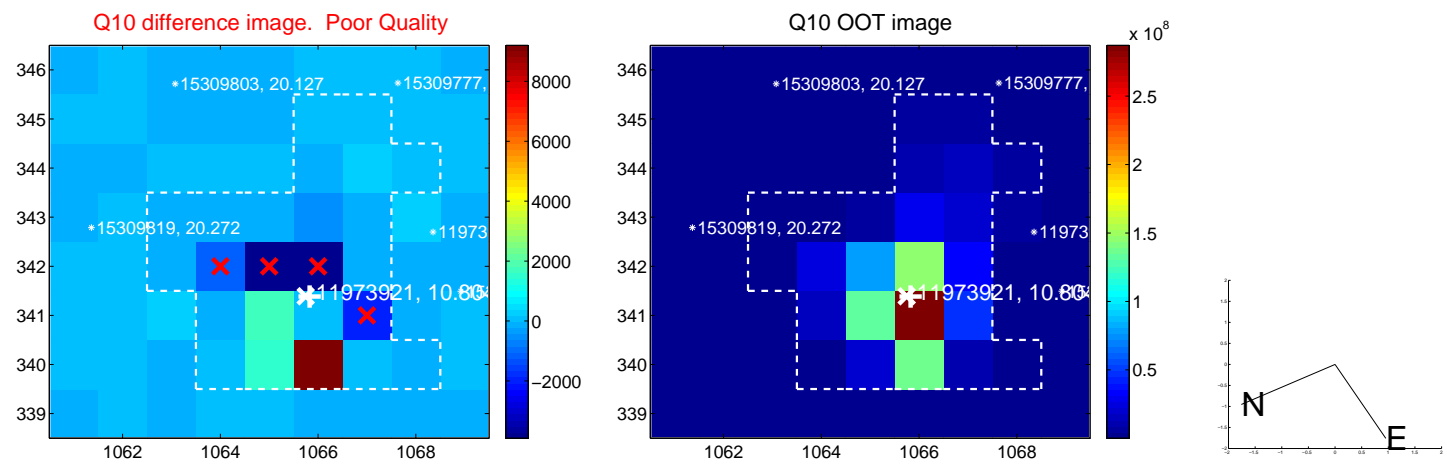
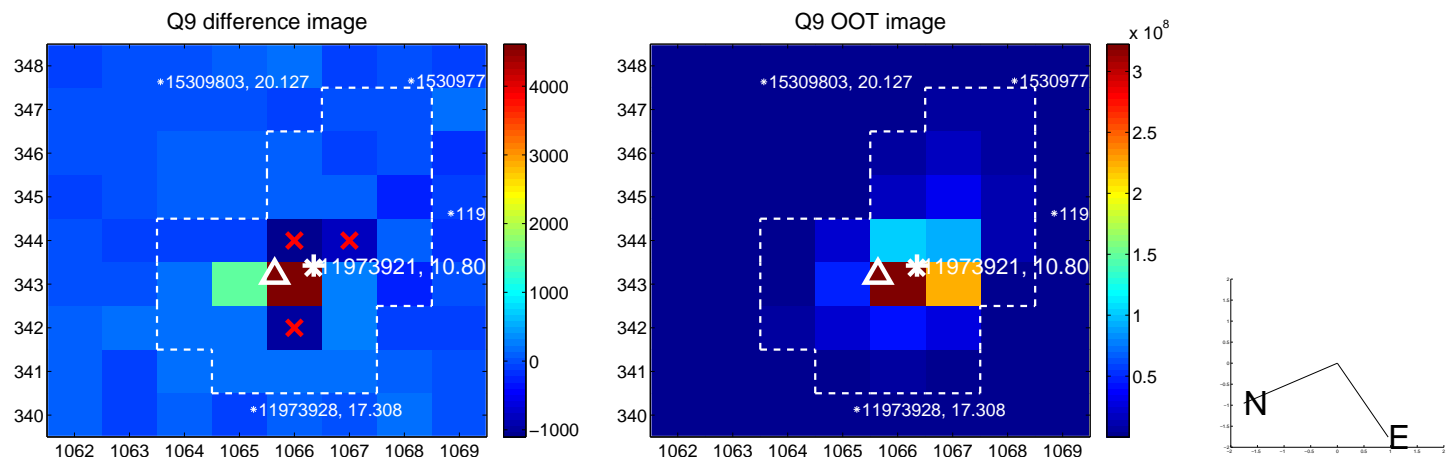
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



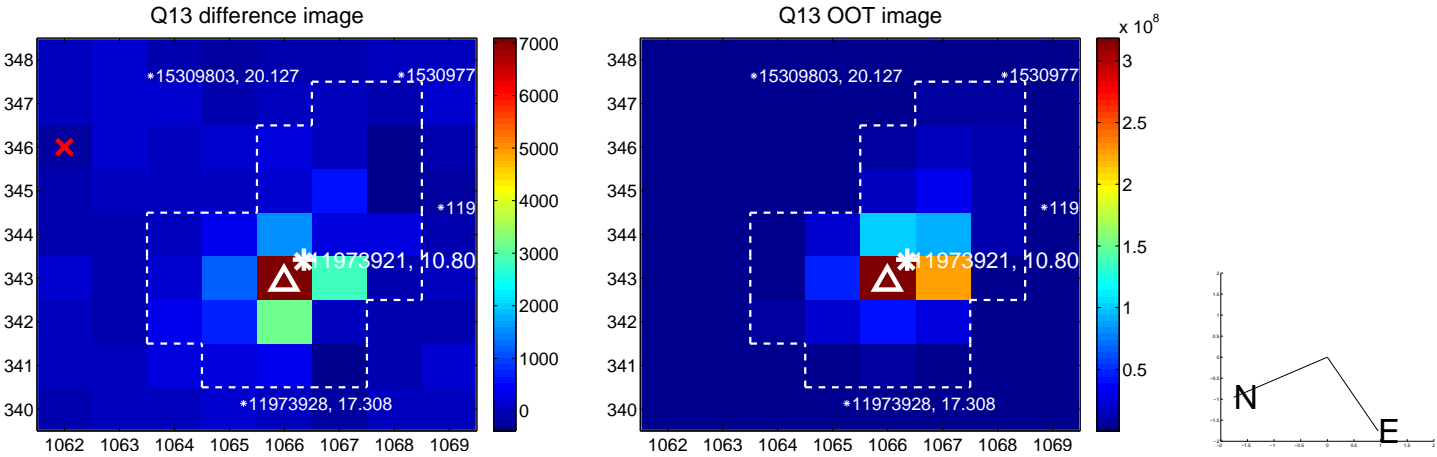
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



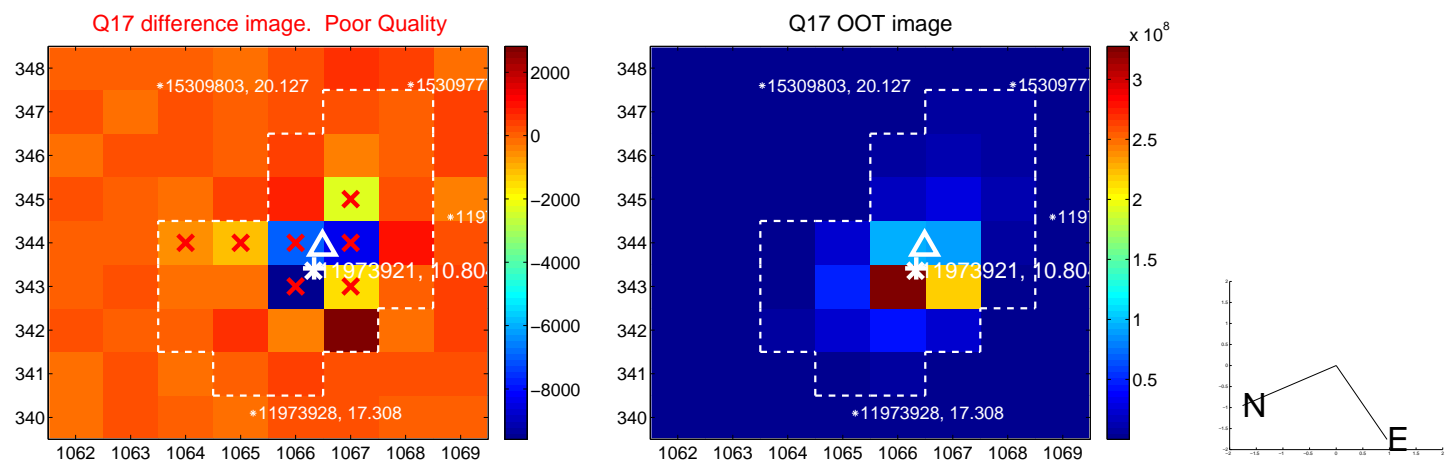
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



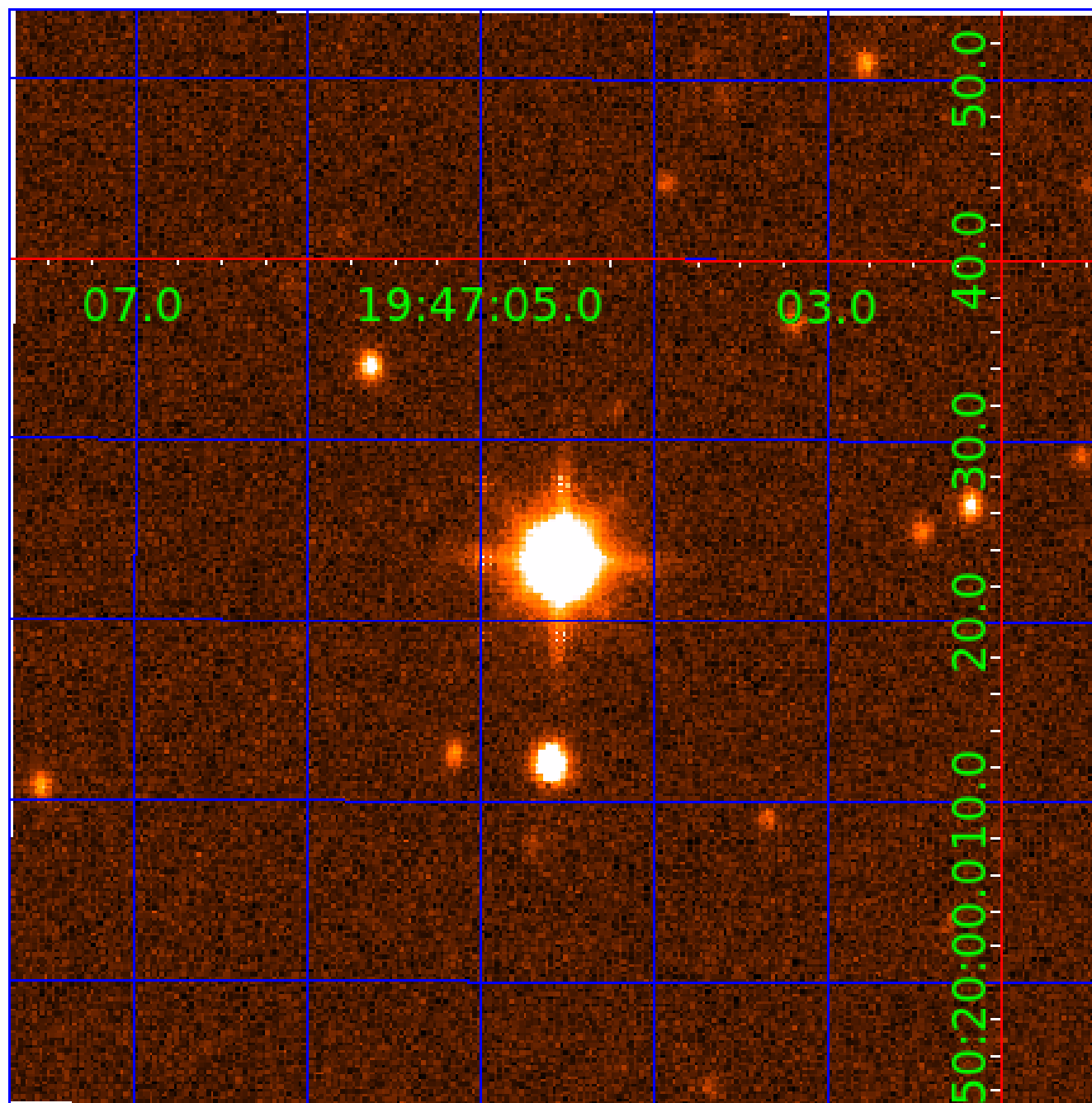
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 011973921

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})
011973921-01	OBS	No	0.760827	131.815917	2.3	4.802	7.7	5.2	2.87	8914	0.47	98572.38
011973921-02	OBS	No	147.655159	208.987656	53.7	12.939	7.5	8.5	2.87	8914	2.42	87.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011973921-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
011973921-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

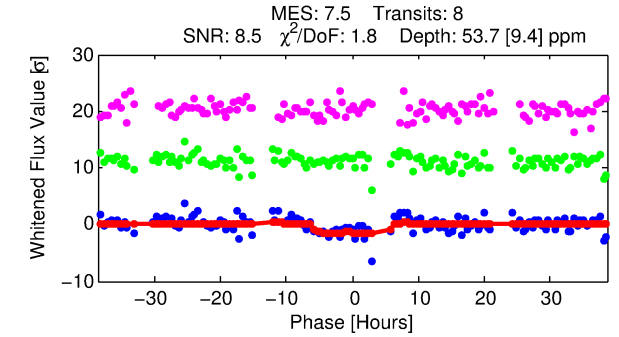
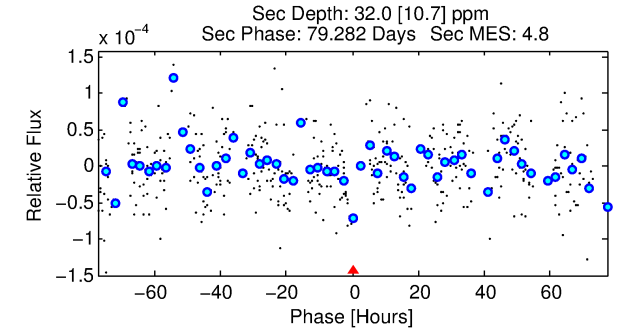
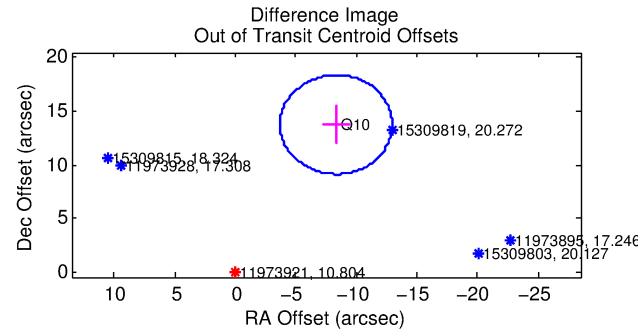
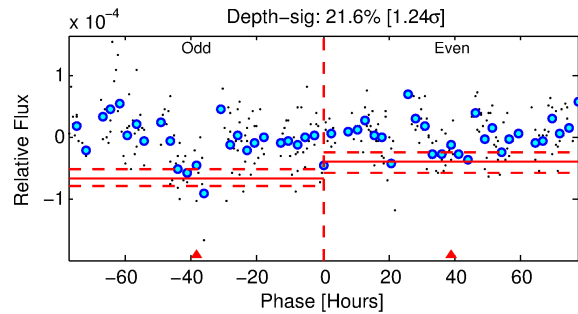
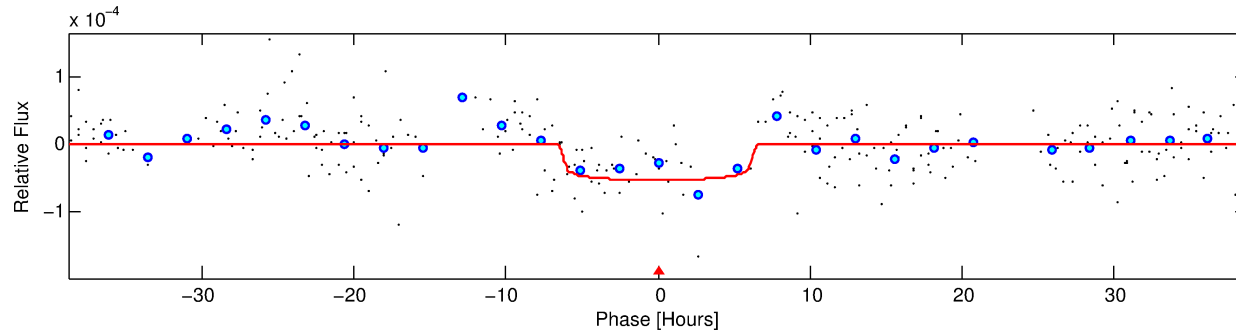
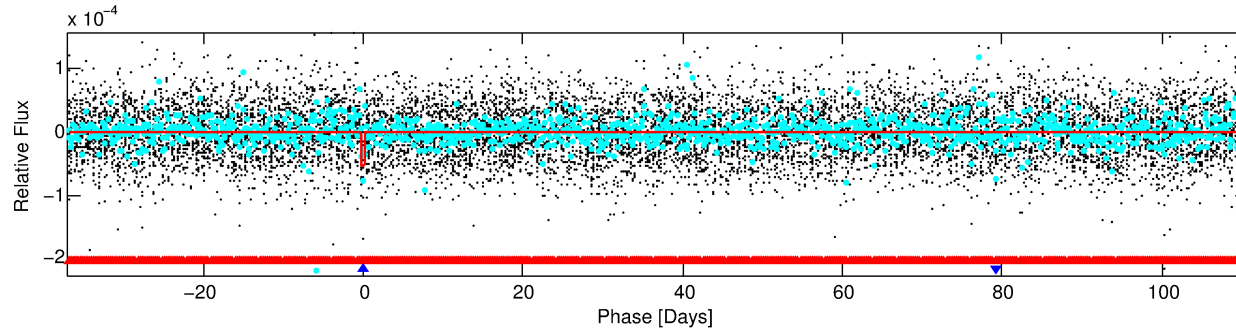
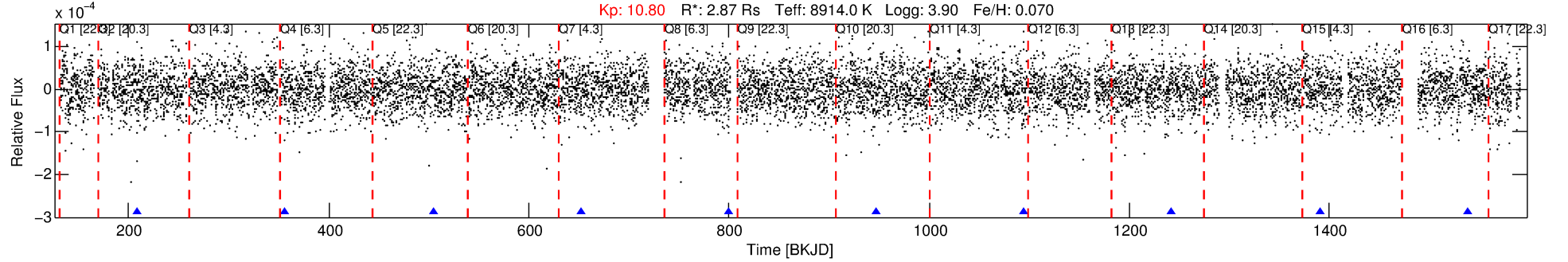
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011973921-02

No Significant Match Found

DV One-Page Summary

KIC: 11973921 Candidate: 2 of 2 Period: 147.655 d



DV Fit Results:

Period = 147.65516 [0.02286] d
Epoch = 208.9877 [0.1680] BKJD
Rp/R* = 0.0077 [0.0026]
a/R* = 40.40 [94.69]
b = 0.89 [0.56]
Seff = 87.73 [49.13]
Teq = 780 [109] K
Rp = 2.42 [1.25] Re
a = 0.7280 [0.2509] AU
Ag = 1598.53 [1456.02] [1.10 σ]
Teff = 7629 [1483] K [4.61 σ]

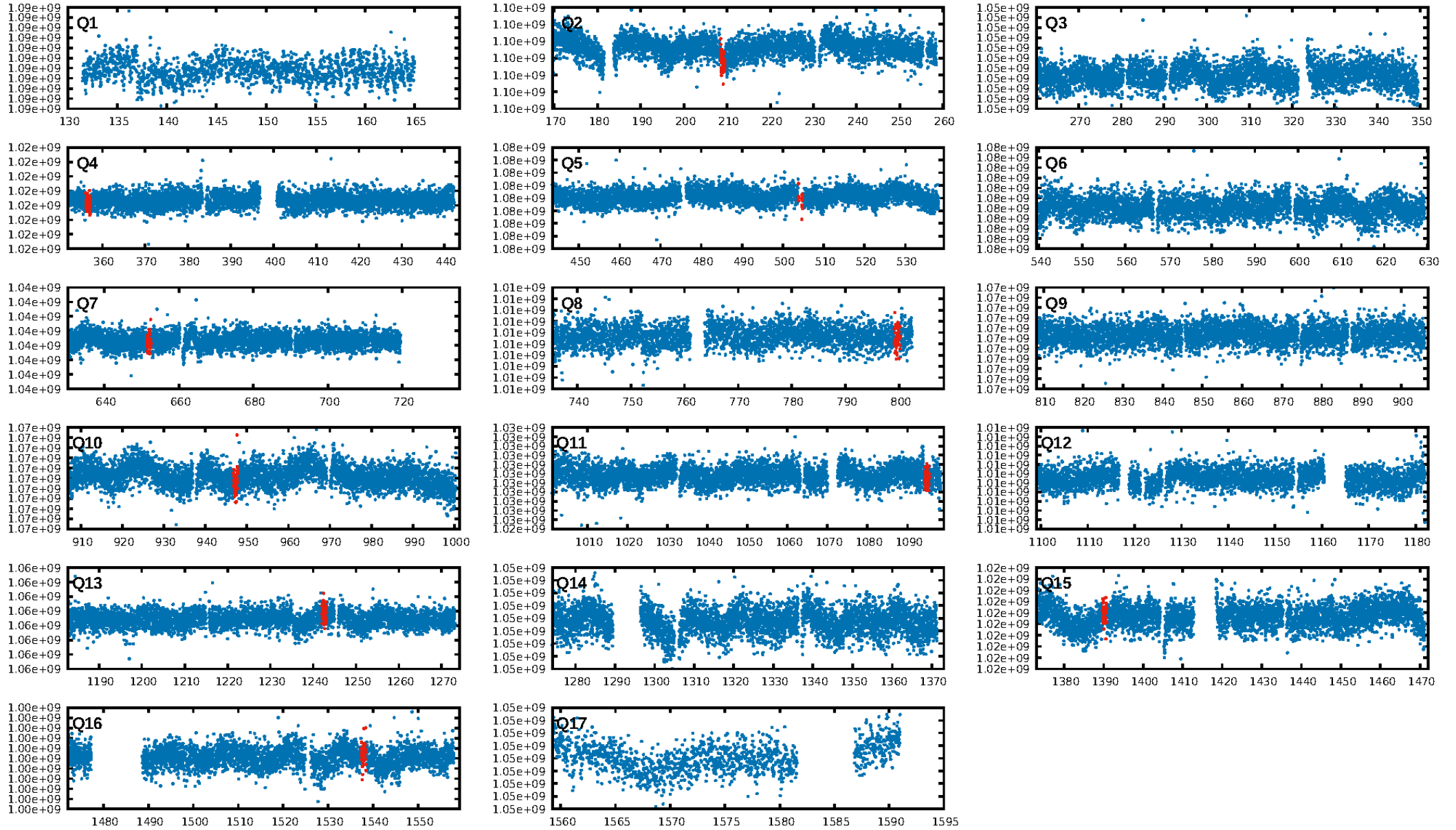
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [255.44 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 37.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.92e-09
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -4.512
Centroid-sig: 87.4%
Centroid-so: 1.404 arcsec [0.44 σ]
OotOffset-rm: 16.064 arcsec [10.41 σ]
KicOffset-rm: 15.758 arcsec [10.21 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/9]

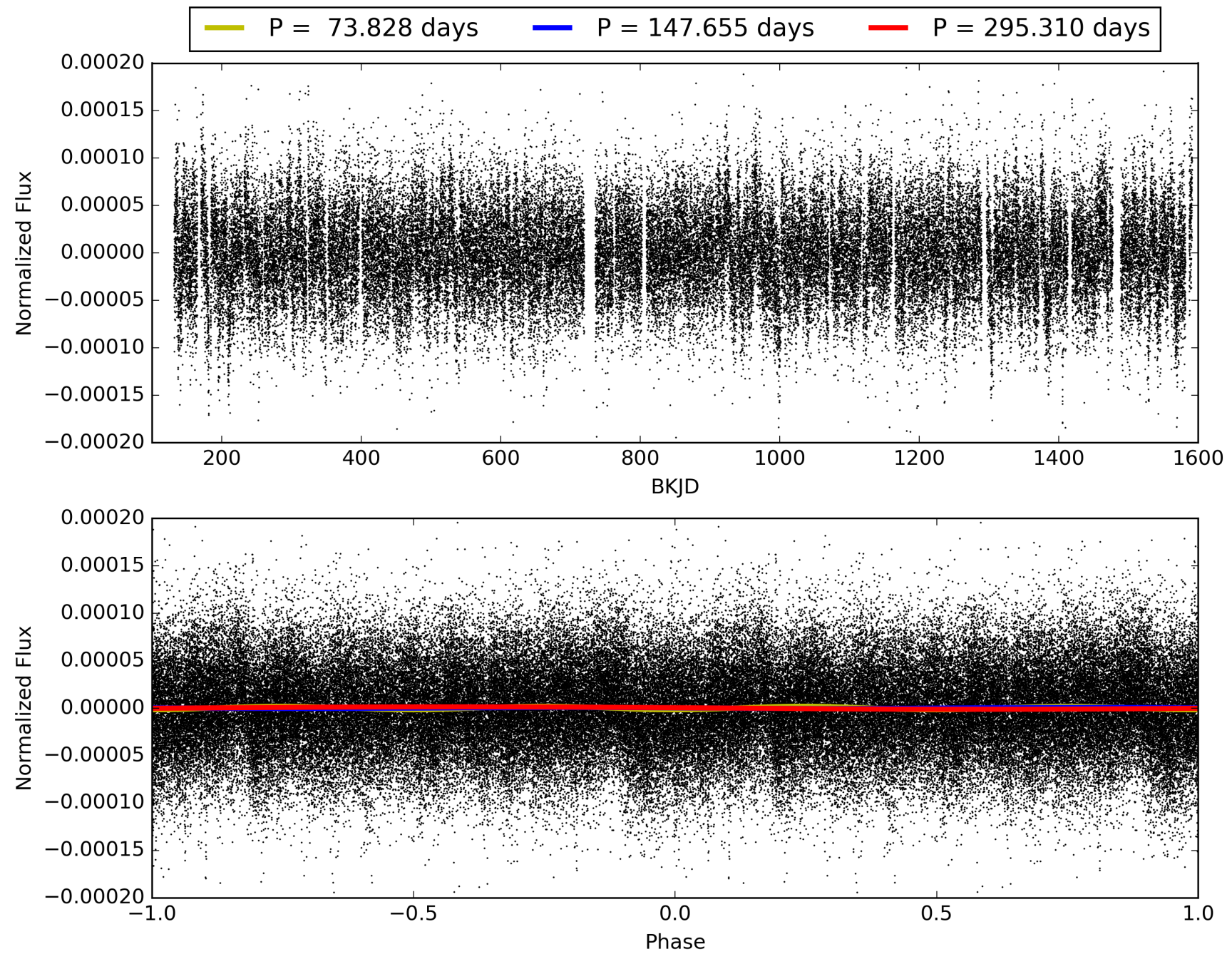
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:42:16 Z

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

TCE 011973921-02, PDC Light Curves

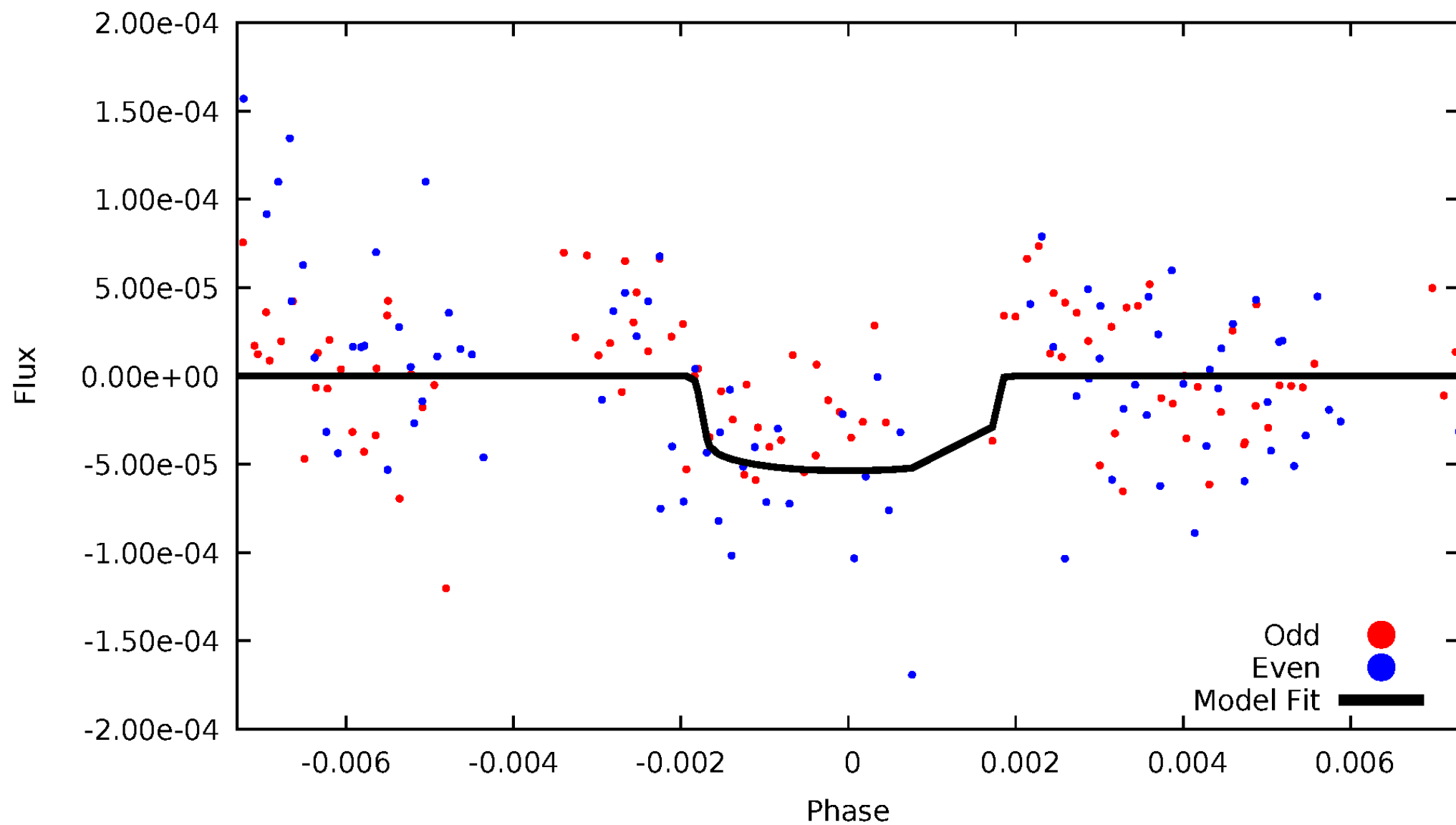


TCE 011973921-02



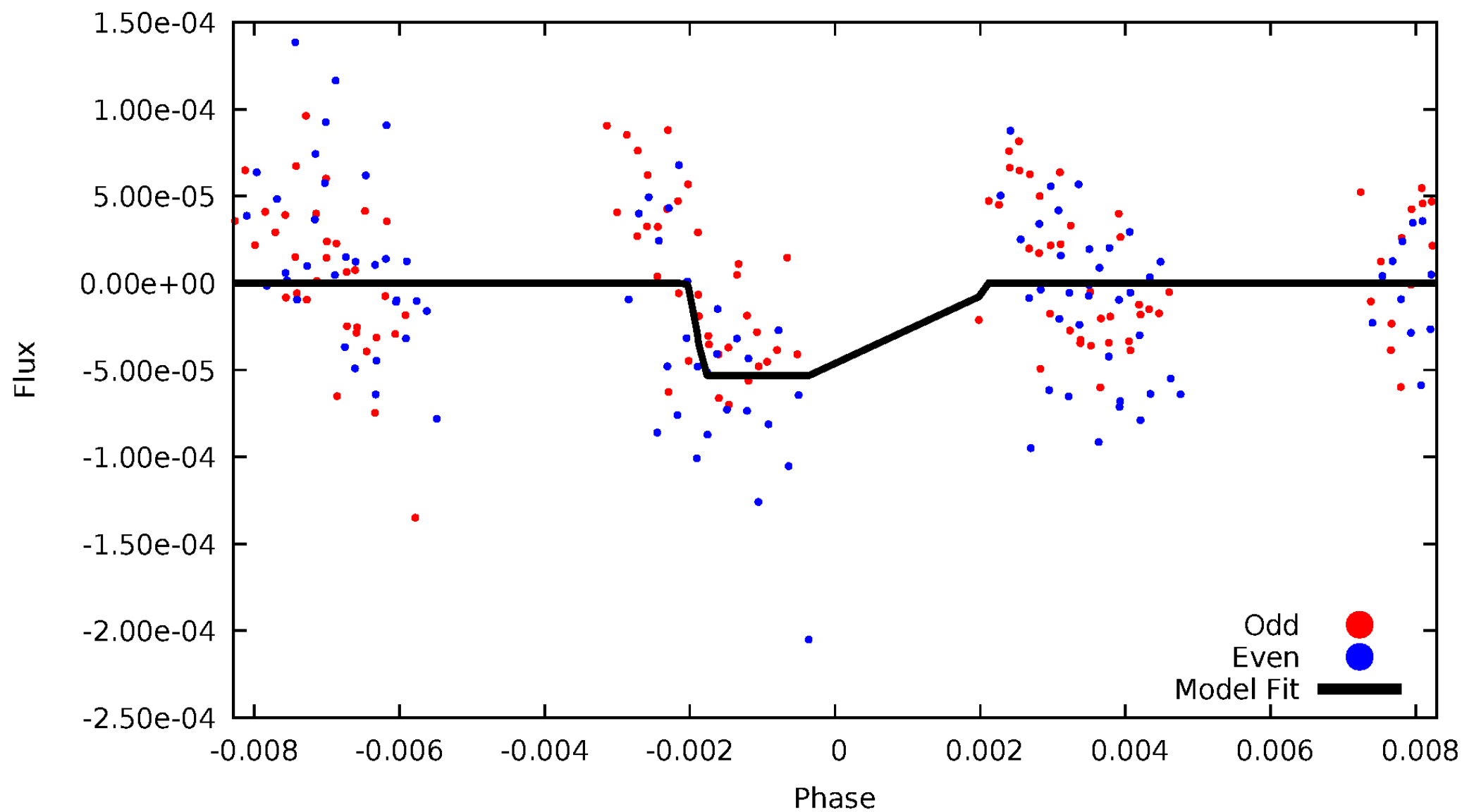
DV Odd/Even

TCE 011973921-02



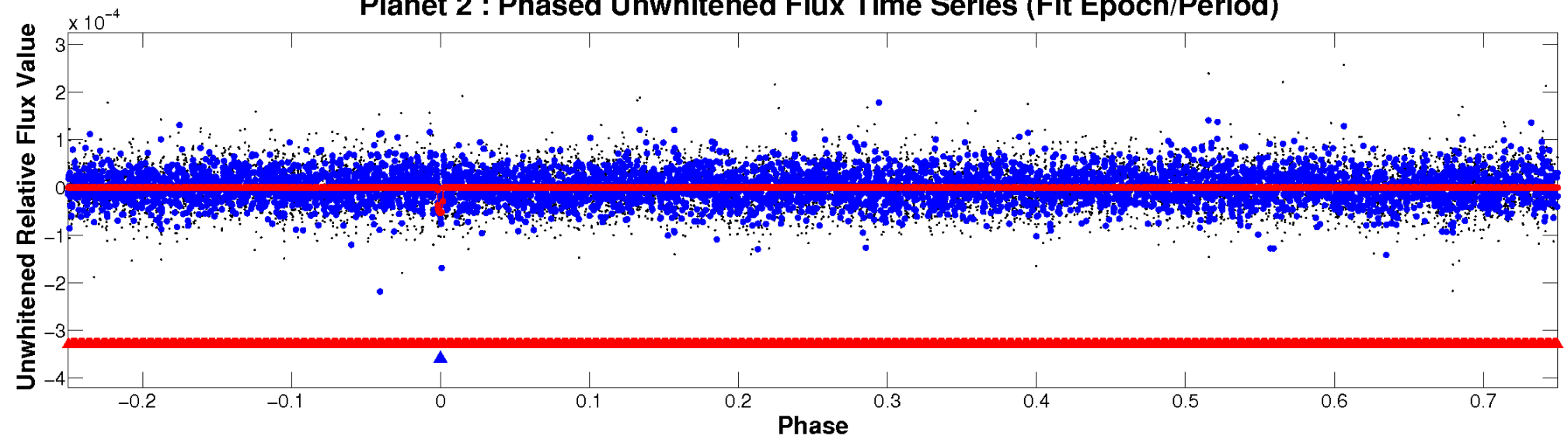
ALT Odd/Even

TCE 011973921-02

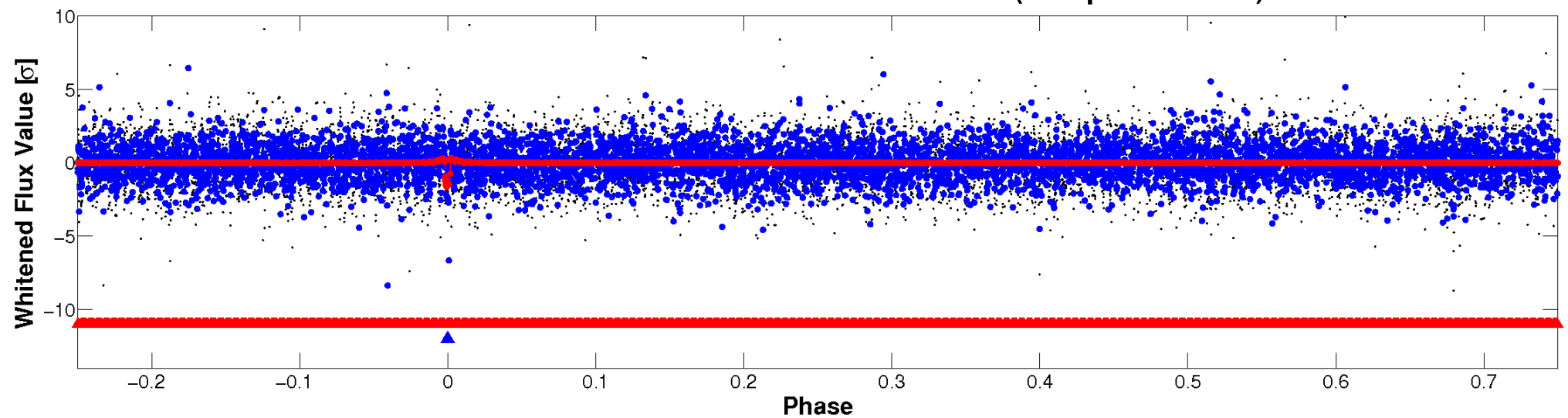


Non-Whitened Vs. Whitened Light Curve

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



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



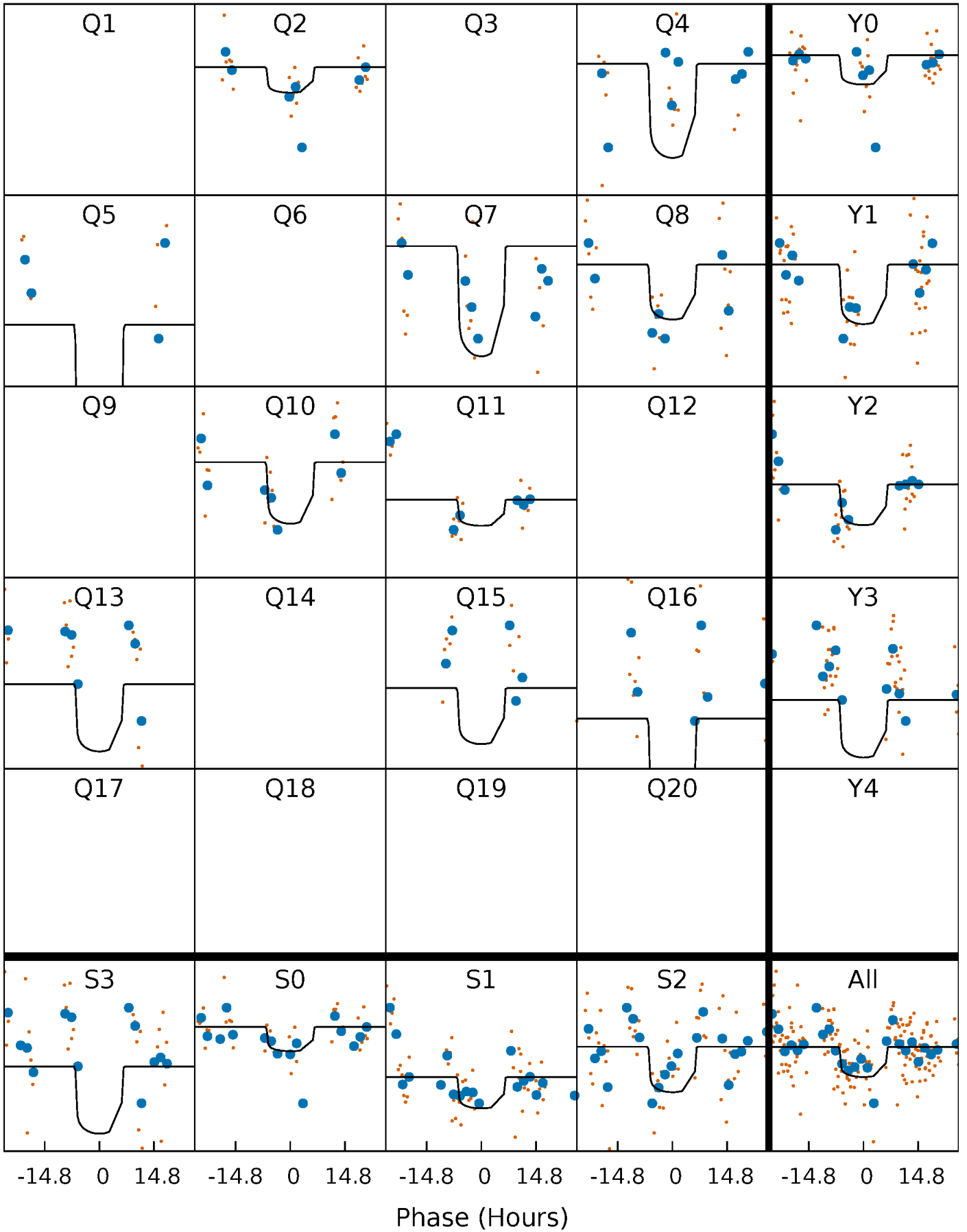
PDC Quarter-Phased Transit Curves

TCE 011973921-02 P=147.655159 Days $T_0=208.987656$ (BKJD)



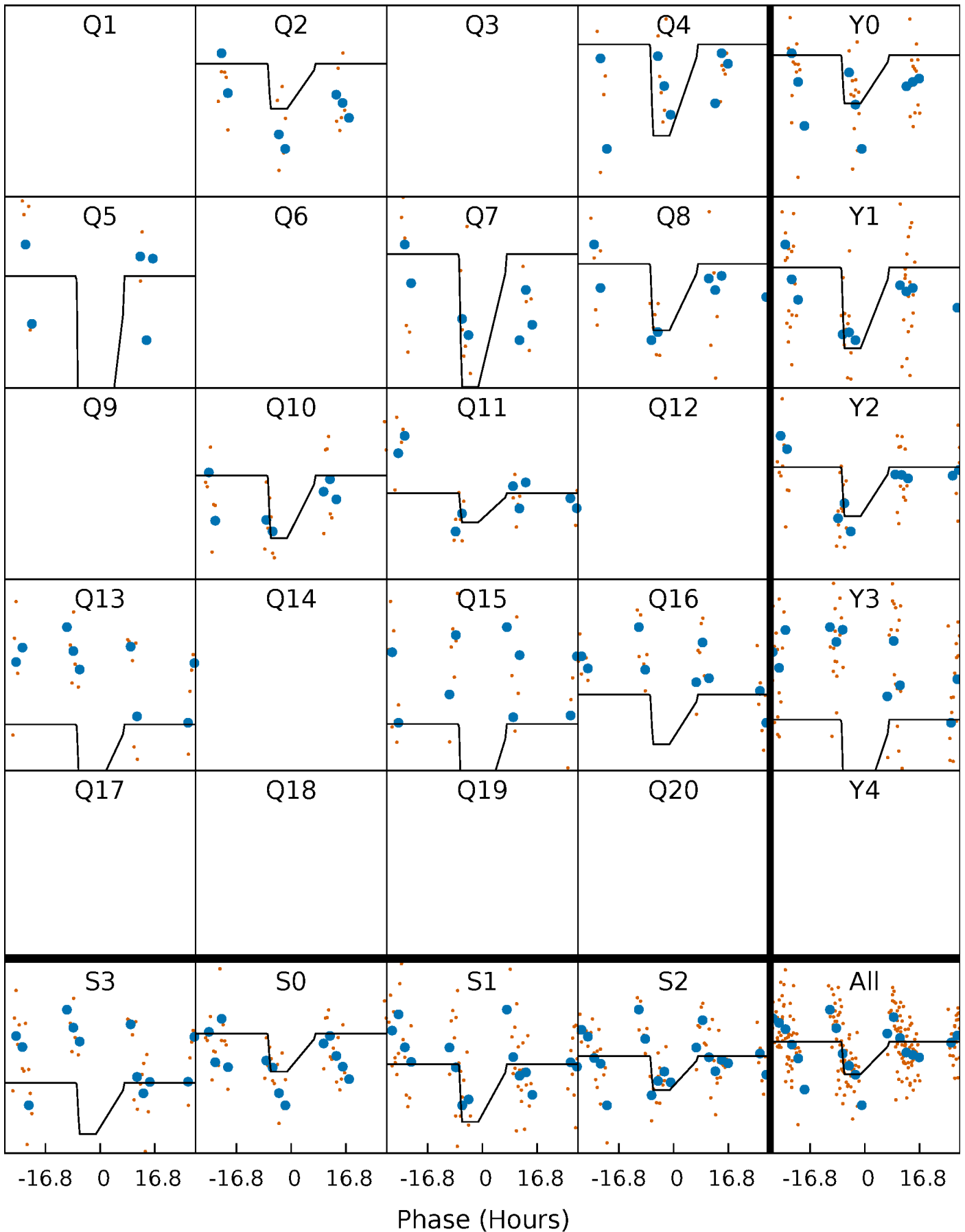
DV Quarter-Phased Transit Curves

TCE 011973921-02 $P=147.655159$ Days $T_0=208.987656$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

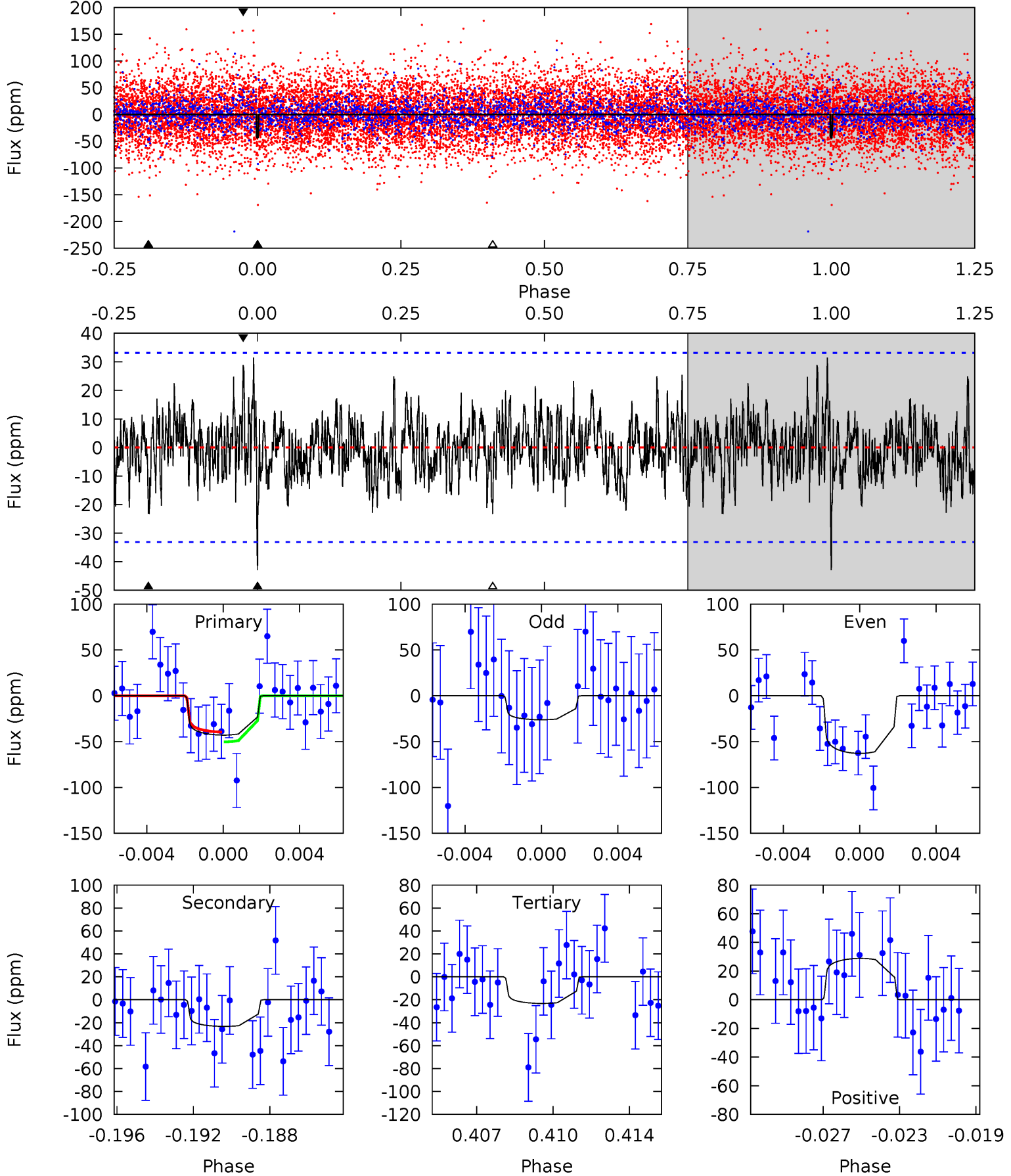
TCE 011973921-02 P=147.632471 Days $T_0=209.153546$ (BKJD)



DV Model-Shift Uniqueness Test

011973921-02, P = 147.655159 Days, E = 61.332497 Days

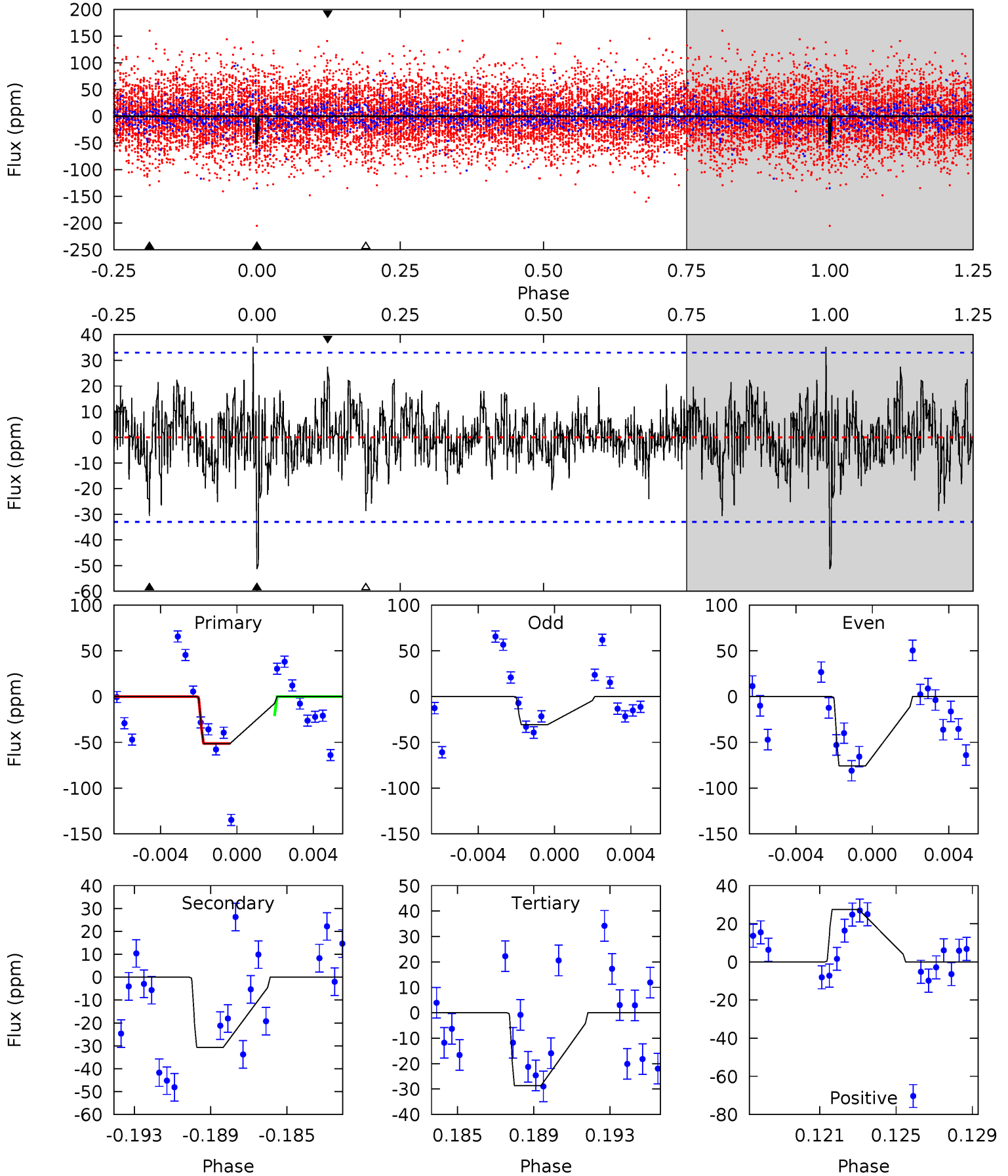
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.75	3.65	3.65	4.54	5.21	2.89	1.30	3.10	2.22	0.00	-0.88	2.86	0.87	0.42	0.78



Alt Model-Shift Uniqueness Test

011973921-02, $P = 147.632471$ Days, $E = 61.521075$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.08	4.83	4.52	4.34	5.20	2.88	1.23	3.56	3.74	0.31	0.49	3.54	0	0.41	3.30



Stellar Parameters For KIC 011973921

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8914^{+234}_{-468}	$3.896^{+0.292}_{-0.157}$	$0.070^{+0.250}_{-0.600}$	$2.867^{+0.819}_{-1.126}$	$2.357^{+0.314}_{-0.732}$	$0.141^{+0.319}_{-0.066}$
	+3%/-5%	+7%/-4%	+357%/-857%	+29%/-39%	+13%/-31%	+226%/-47%
Source	KIC0	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 011973921-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-23 ± 6	$2.29^{+0.92}_{-0.87}$	1065^{+92}_{-110}	6579^{+2067}_{-972}	1259^{+1996}_{-679}
Alt.	-31 ± 6	$2.10^{+0.95}_{-0.78}$	1064^{+91}_{-102}	7384^{+2694}_{-1245}	1881^{+3081}_{-999}

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

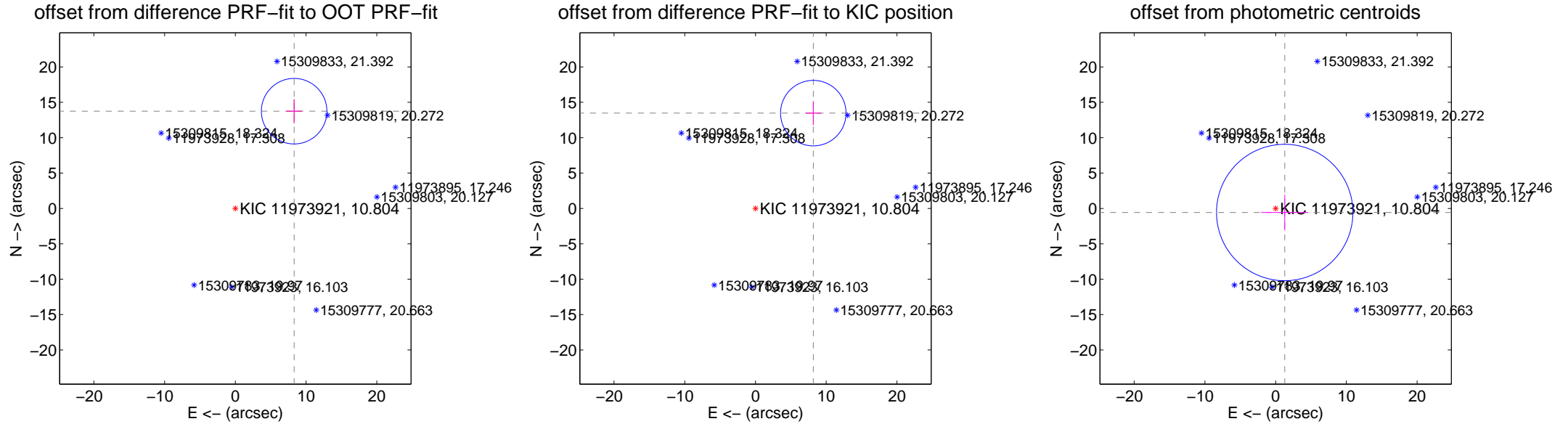
DV Centroid Data

Supplemental centroid analysis for 011973921-02. **Kepler magnitude: 10.80.** Transit SNR 8.54

There are 0 quarters with good PRF difference image offsets

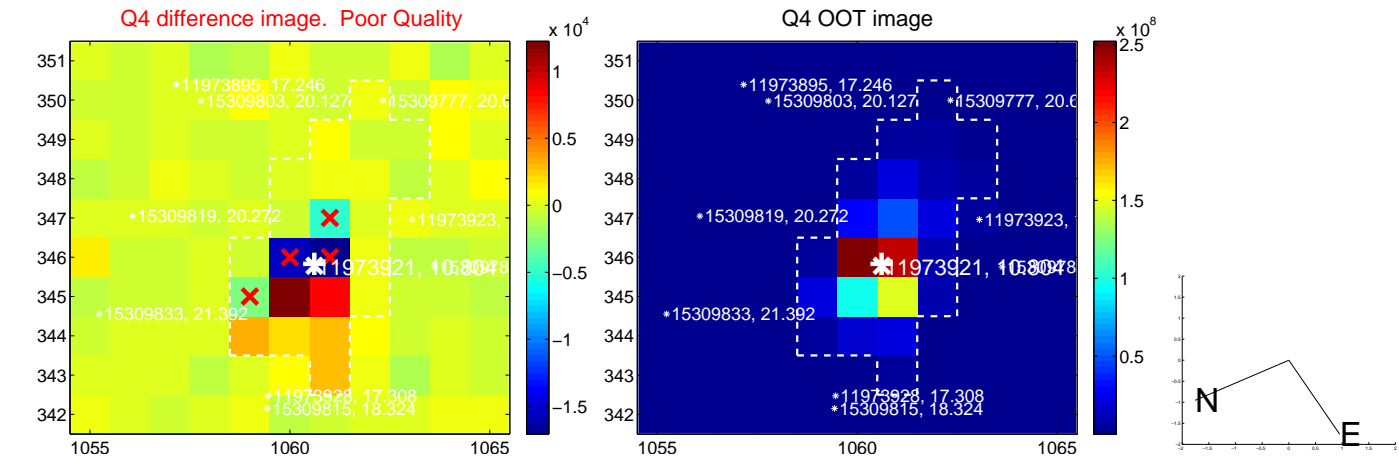
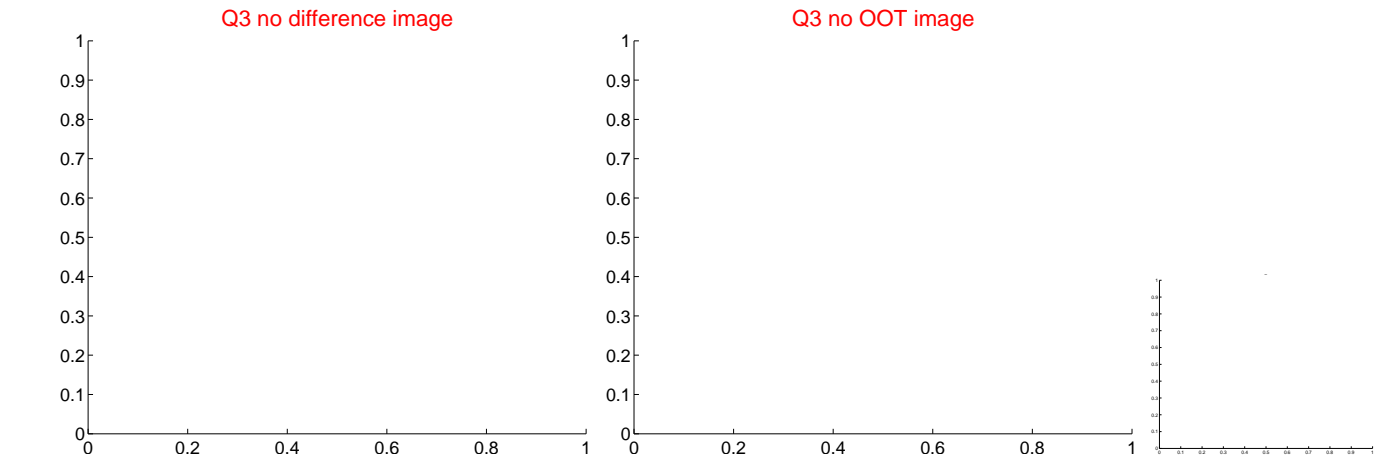
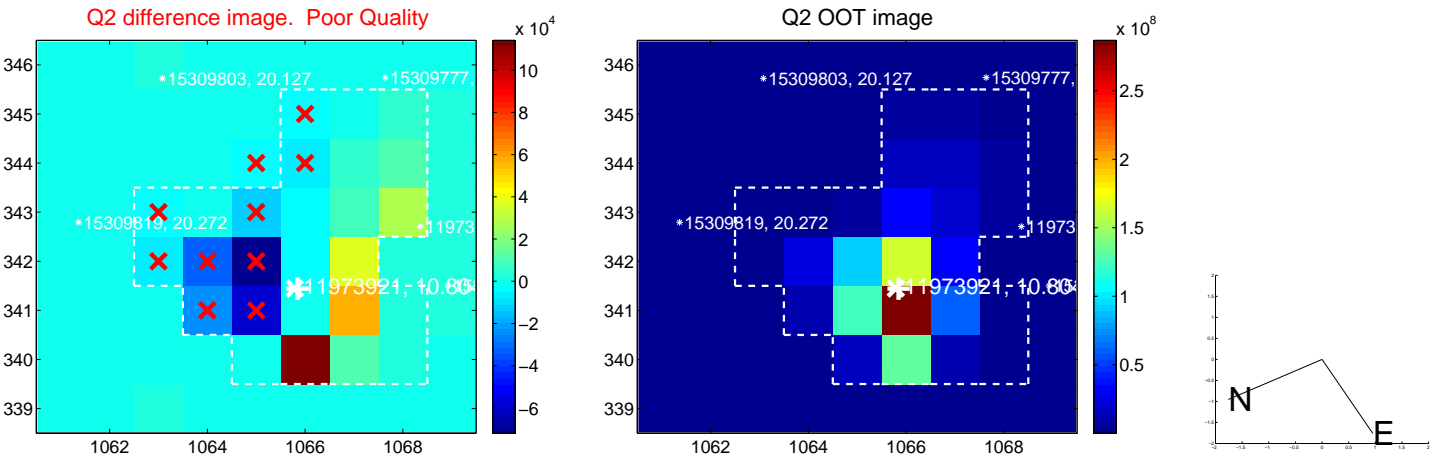
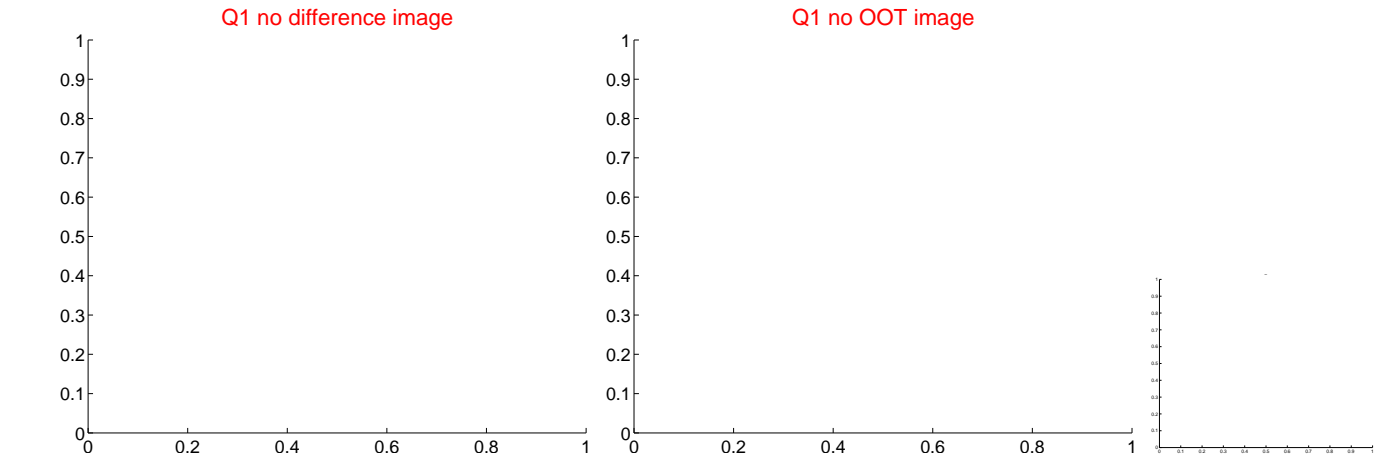
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	16.064 ± 1.544	10.41	-8.311 ± 1.091	13.747 ± 1.679
PRF-fit source offset from KIC position	15.758 ± 1.543	10.21	-8.172 ± 1.091	13.474 ± 1.679
photometric centroid source offset	1.40 ± 3.21	0.44	-1.28 ± 3.33	-0.57 ± 2.54

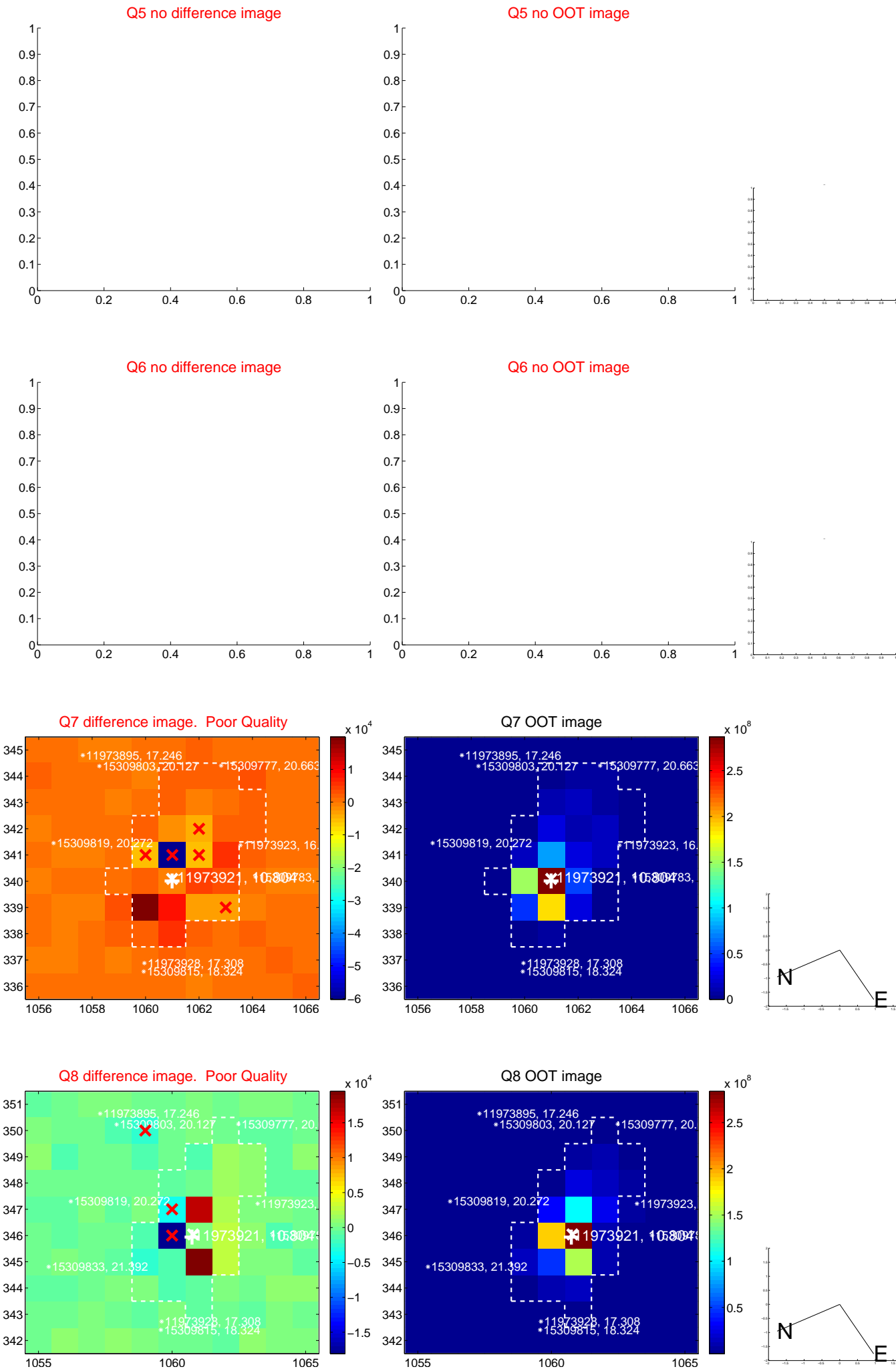


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

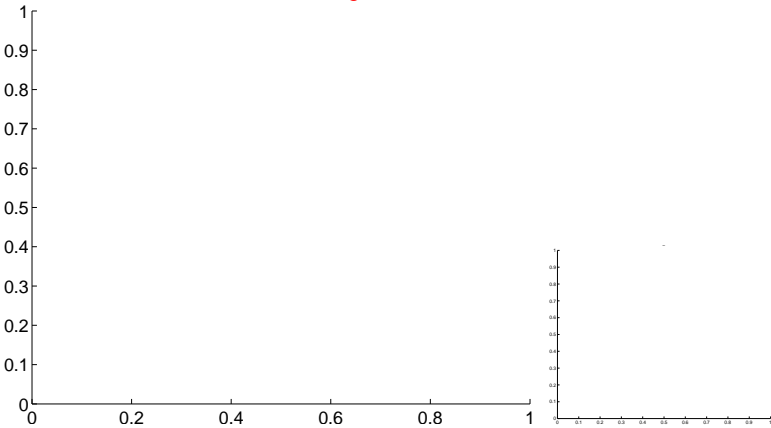


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

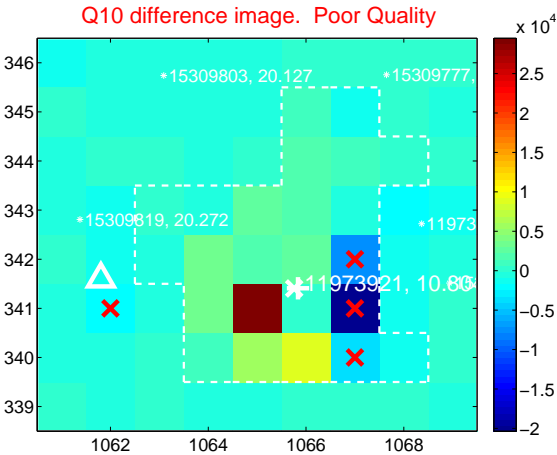
Q9 no difference image



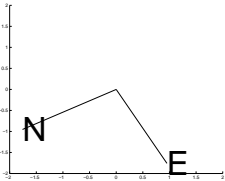
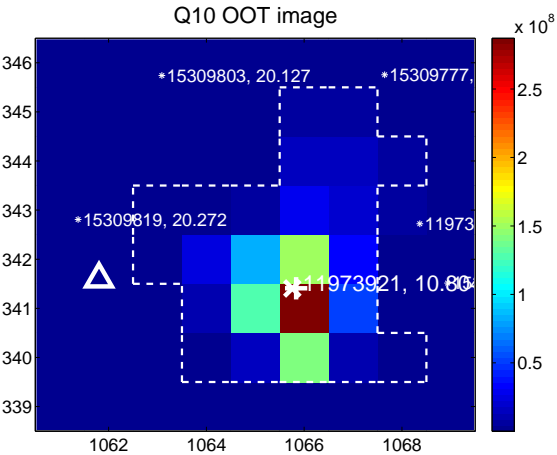
Q9 no OOT image



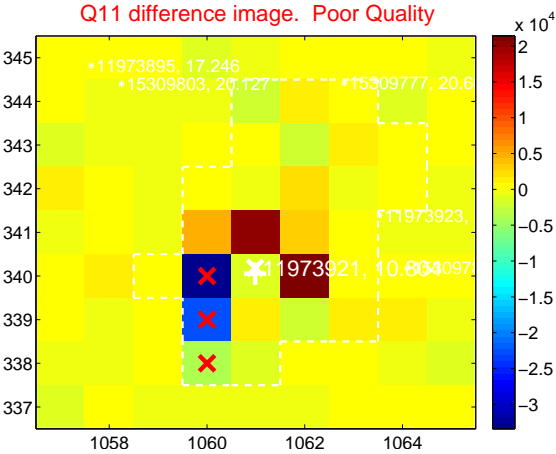
Q10 difference image. Poor Quality



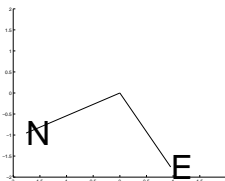
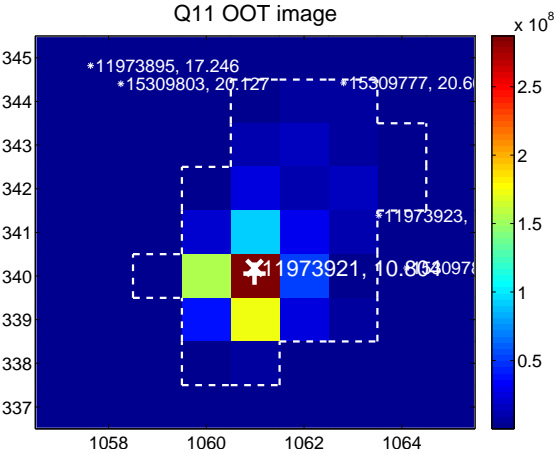
Q10 OOT image



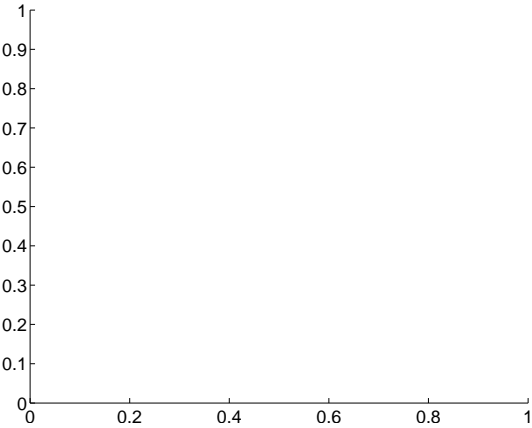
Q11 difference image. Poor Quality



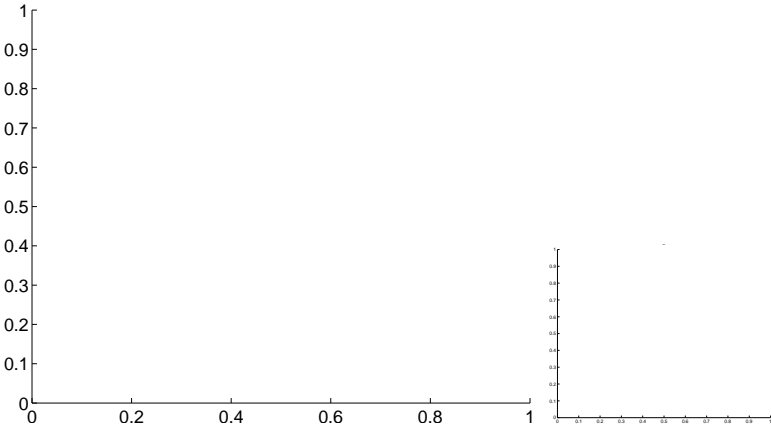
Q11 OOT image



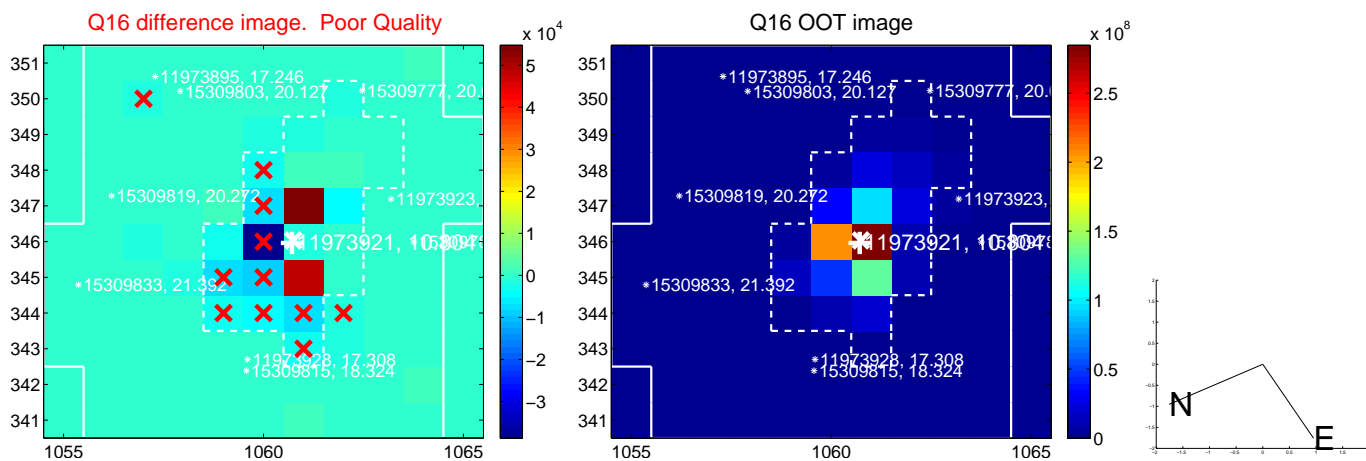
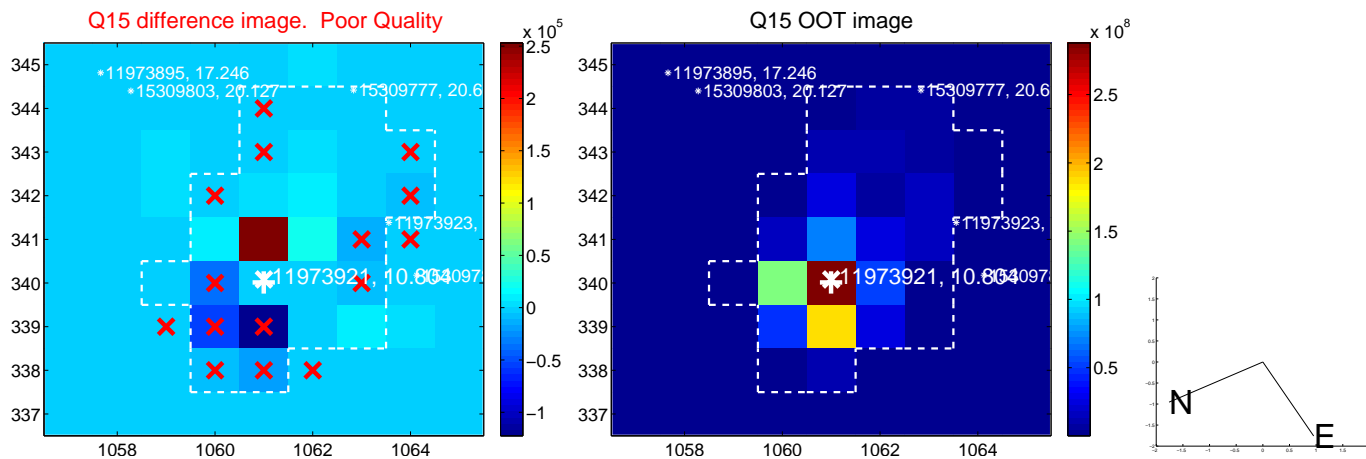
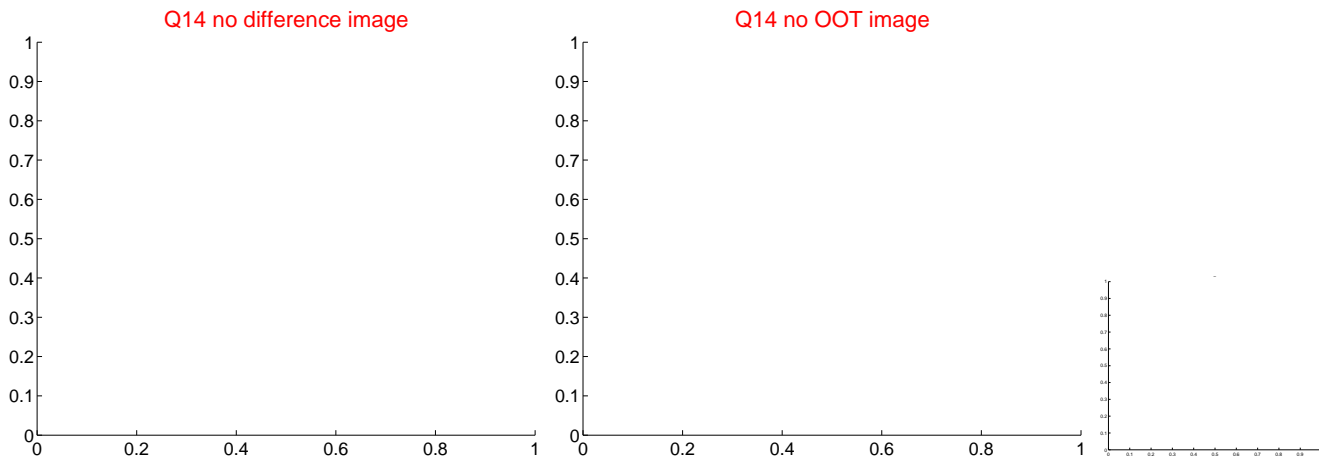
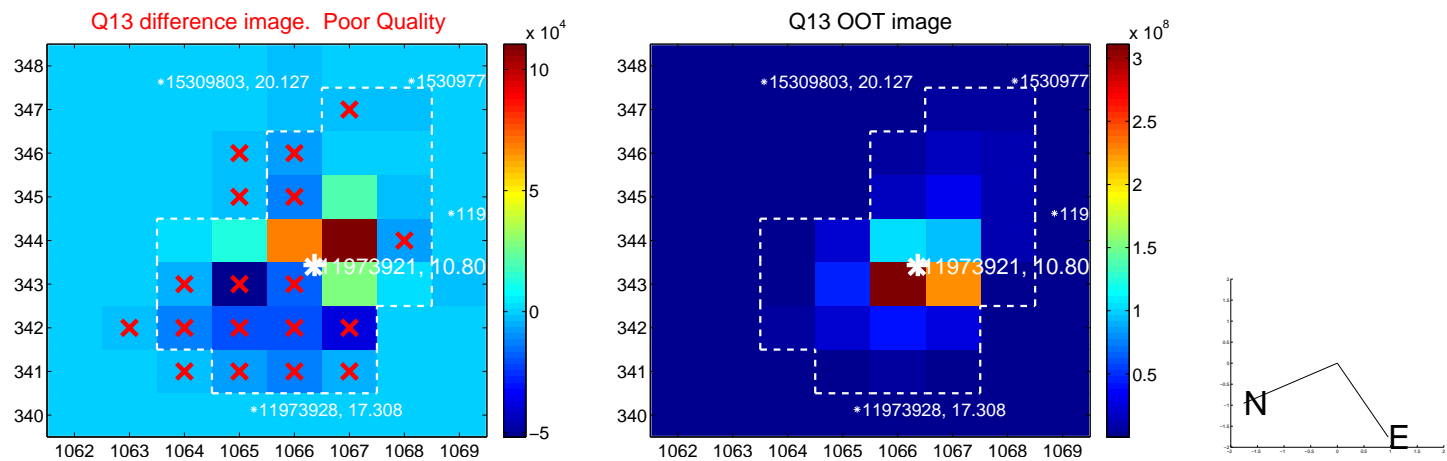
Q12 no difference image



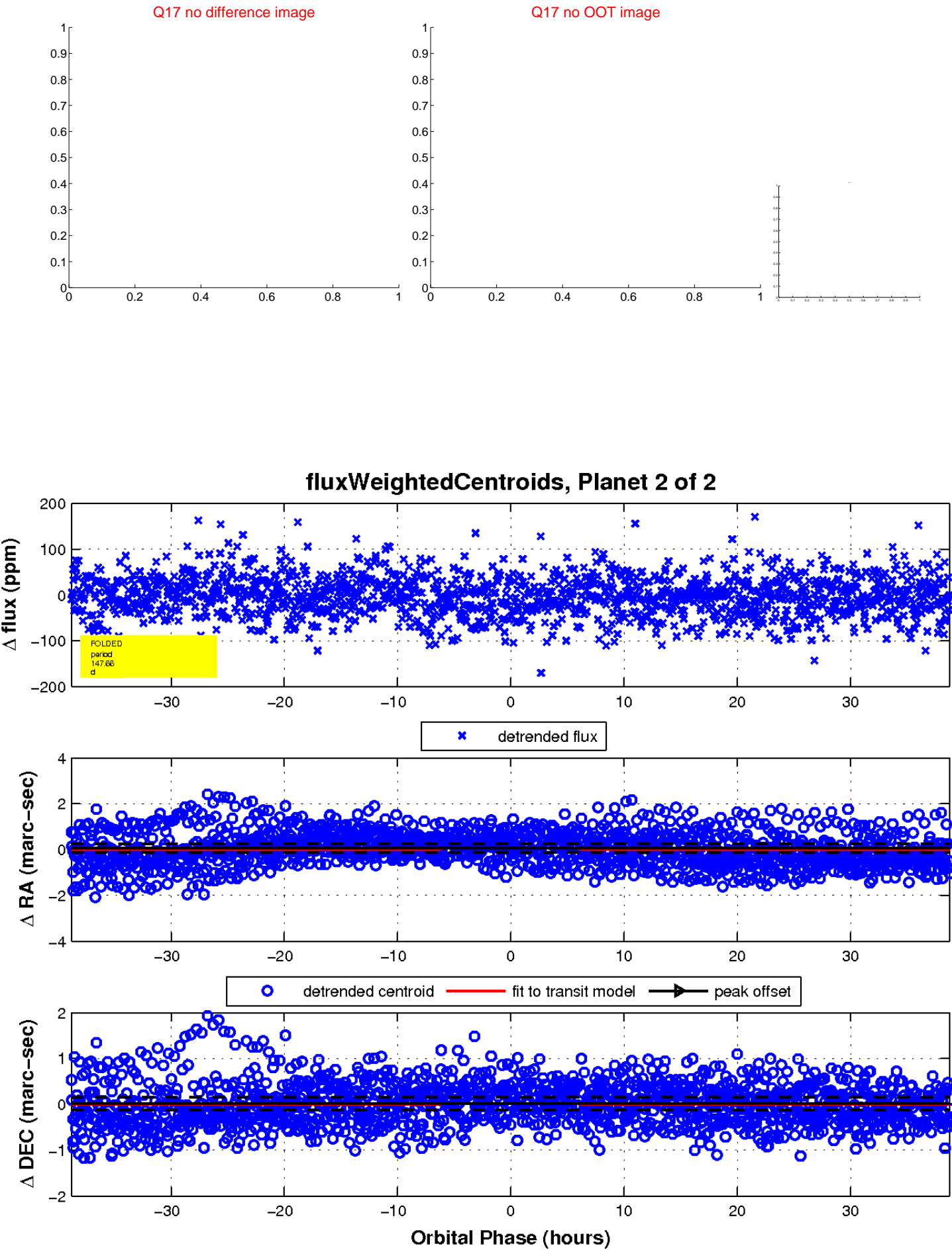
Q12 no OOT image



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

