

KIC 011872139

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})
011872139-01	OBS	4350.01	1.756442	132.043664	24.3	4.632	10.5	11.3	3.05	6619	1.70	13450.92
011872139-02	OBS	No	274.733990	368.941412	209.3	10.132	18.1	7.5	3.05	6619	4.66	15.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011872139-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
011872139-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

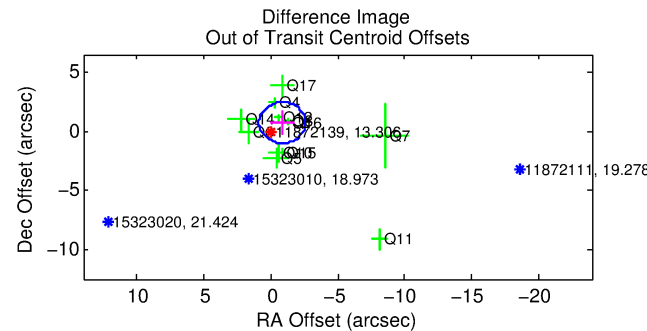
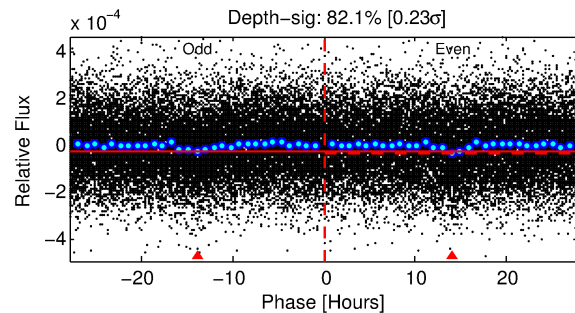
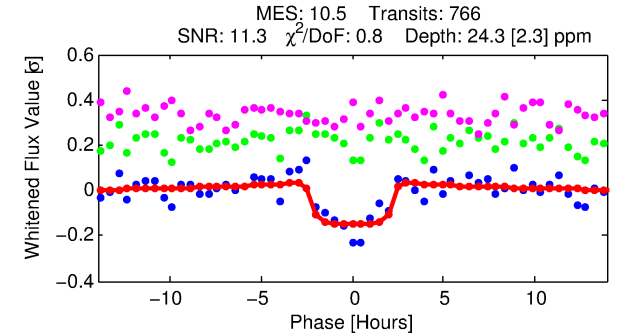
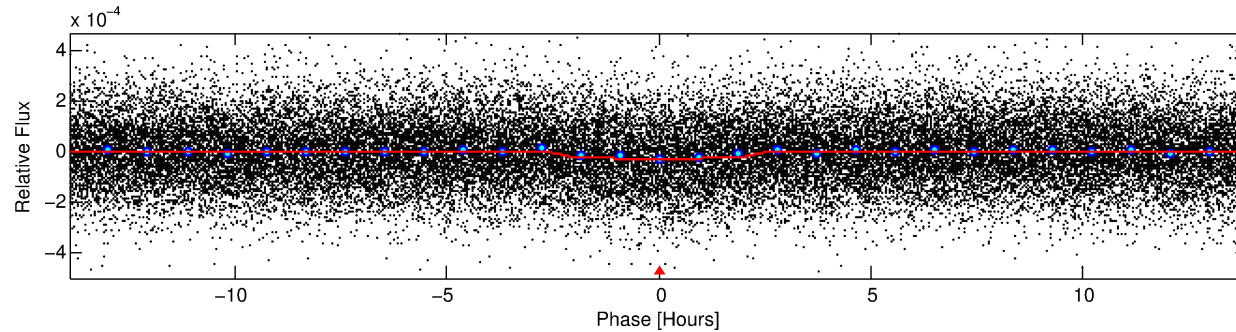
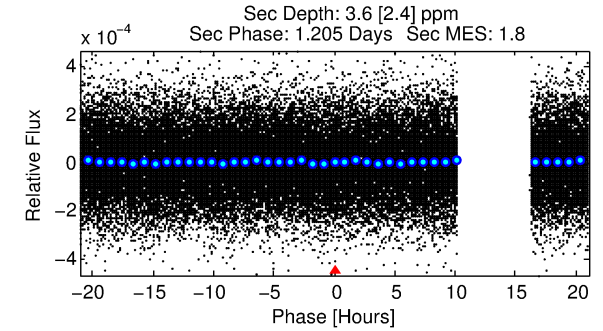
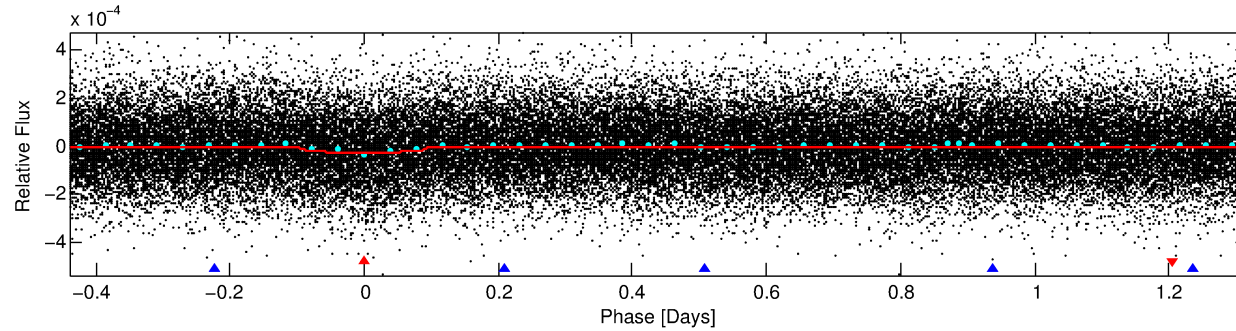
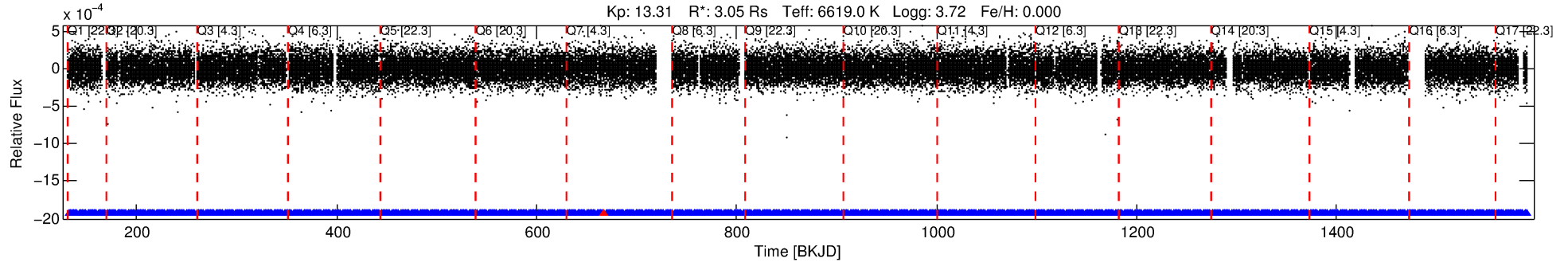
Ephemeris Match Information For 011872139-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011872139-01	11872139	011922782-pri	11922782	1:2	609.0	153	2	10.46	13.31	9612.50	Col-Anomaly	0	2.14	0.85

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 11872139 Candidate: 1 of 2 Period: 1.756 d
KOI: K04350.01 Corr: 0.849



DV Fit Results:

Period = 1.75644 [0.00001] d
Epoch = 132.0437 [0.0041] BKJD
Rp/R* = 0.0051 [0.0011]
a/R* = 1.78 [1.53]
b = 0.85 [0.40]
Seff = 13450.92 [11523.97]
Teq = 2746 [588] K
Rp = 1.70 [0.96] Re
a = 0.0345 [0.0178] AU
Ag = 0.81 [0.95] [-0.20σ]
Teffp = 4031 [833] K [1.26σ]

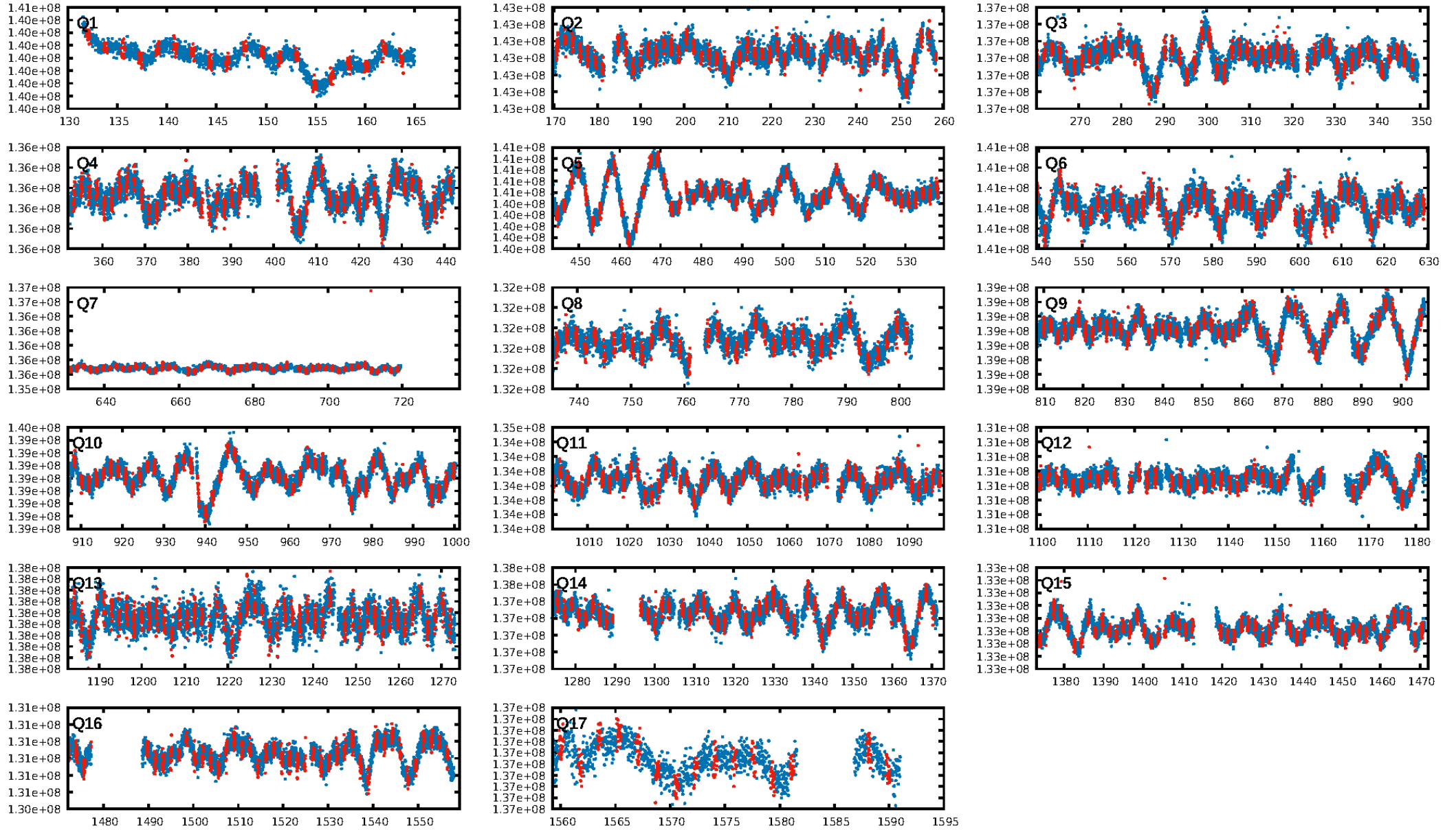
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [588.09σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.14e-23
RollingBand-fgt: 1.00 [731/732]
GhostDiagnostic-chr: 1.123
Centroid-sig: 0.0%
Centroid-so: 3.809 arcsec [3.40σ]
OotOffset-rm: 1.110 arcsec [1.92σ]
KicOffset-rm: 1.219 arcsec [2.20σ]
OotOffset-st: 3/3/4/2 [12]
KicOffset-st: 3/3/4/2 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 1.00 [17/17]

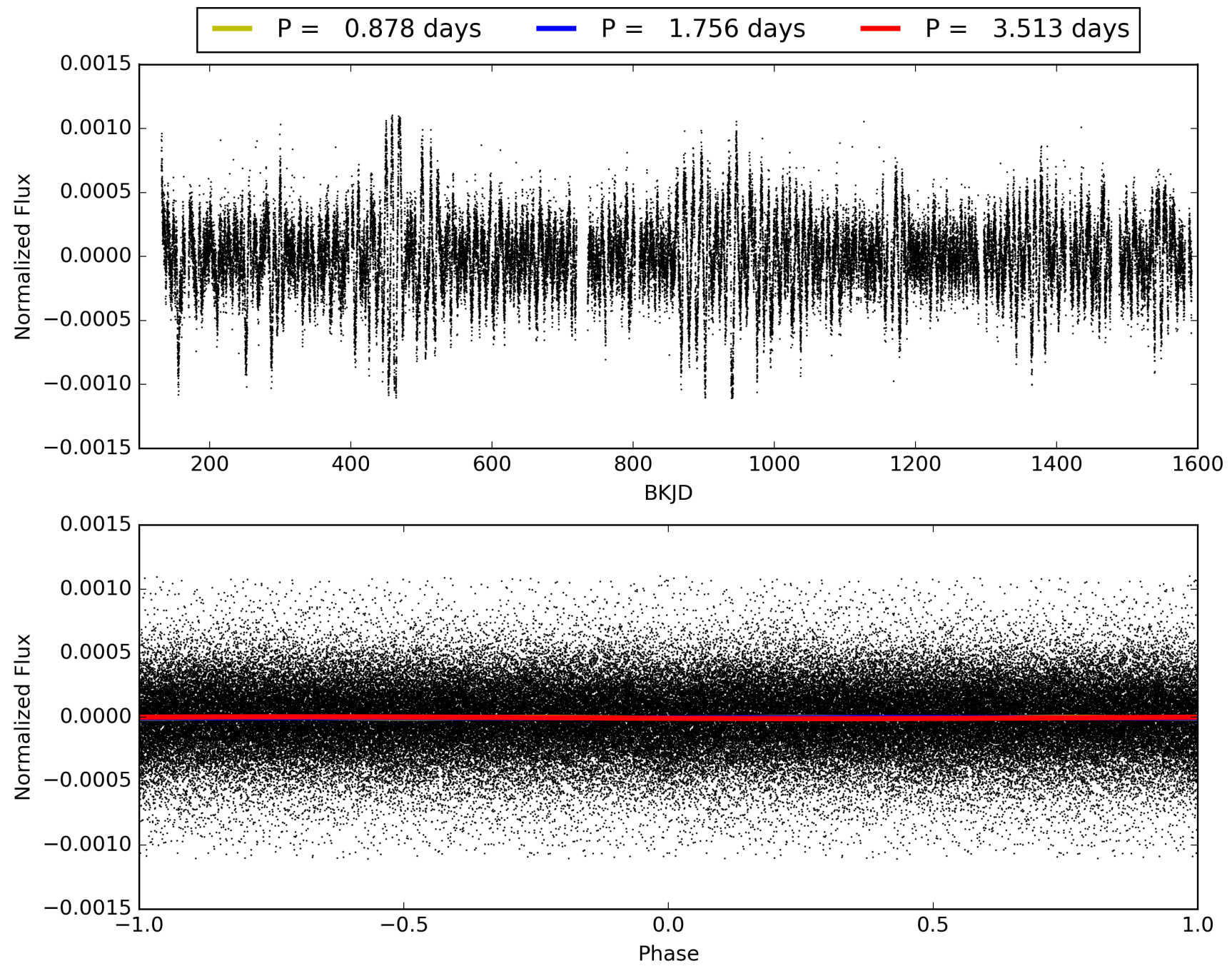
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:13:45 Z

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

TCE 011872139-01, PDC Light Curves

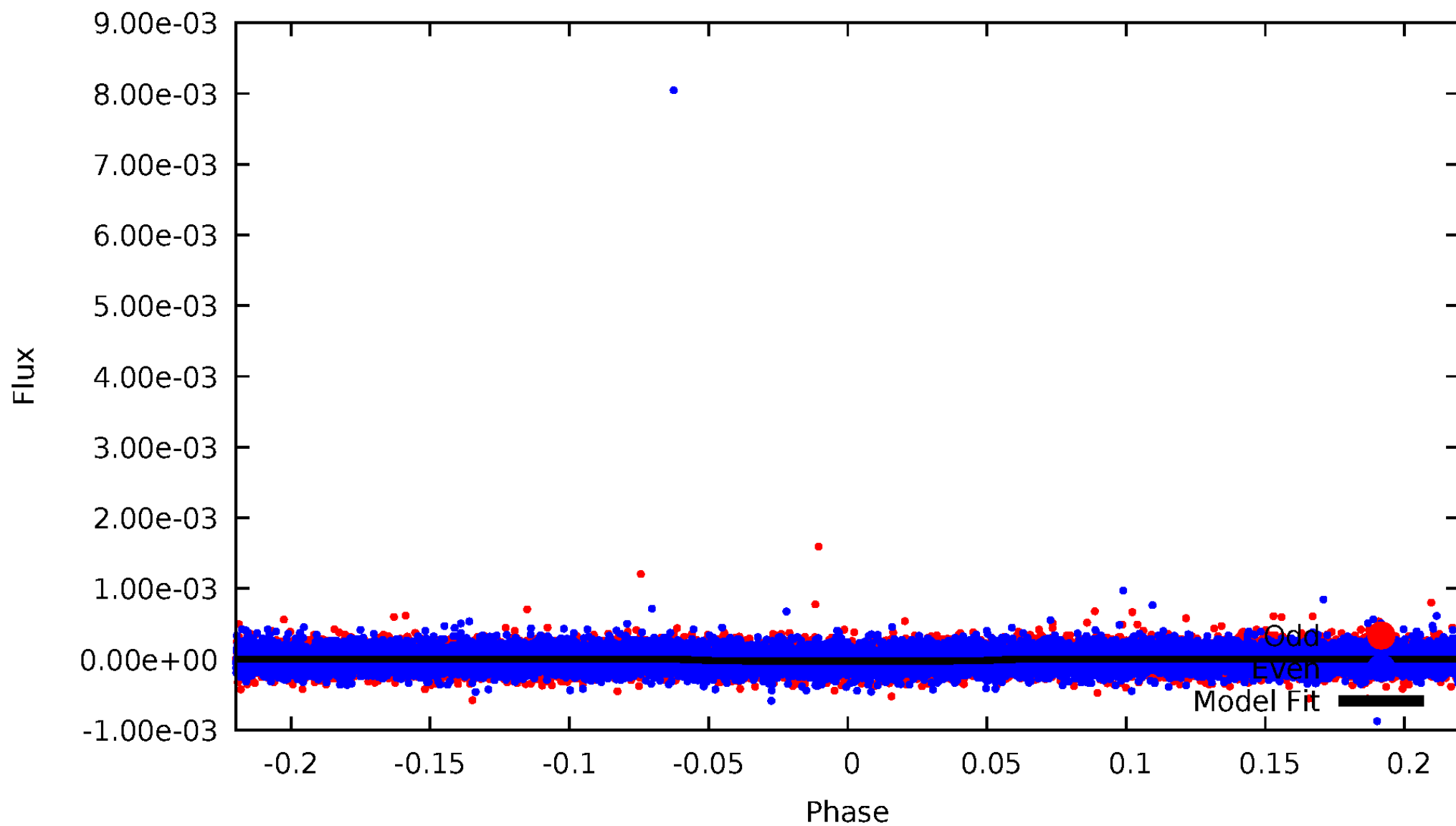


TCE 011872139-01



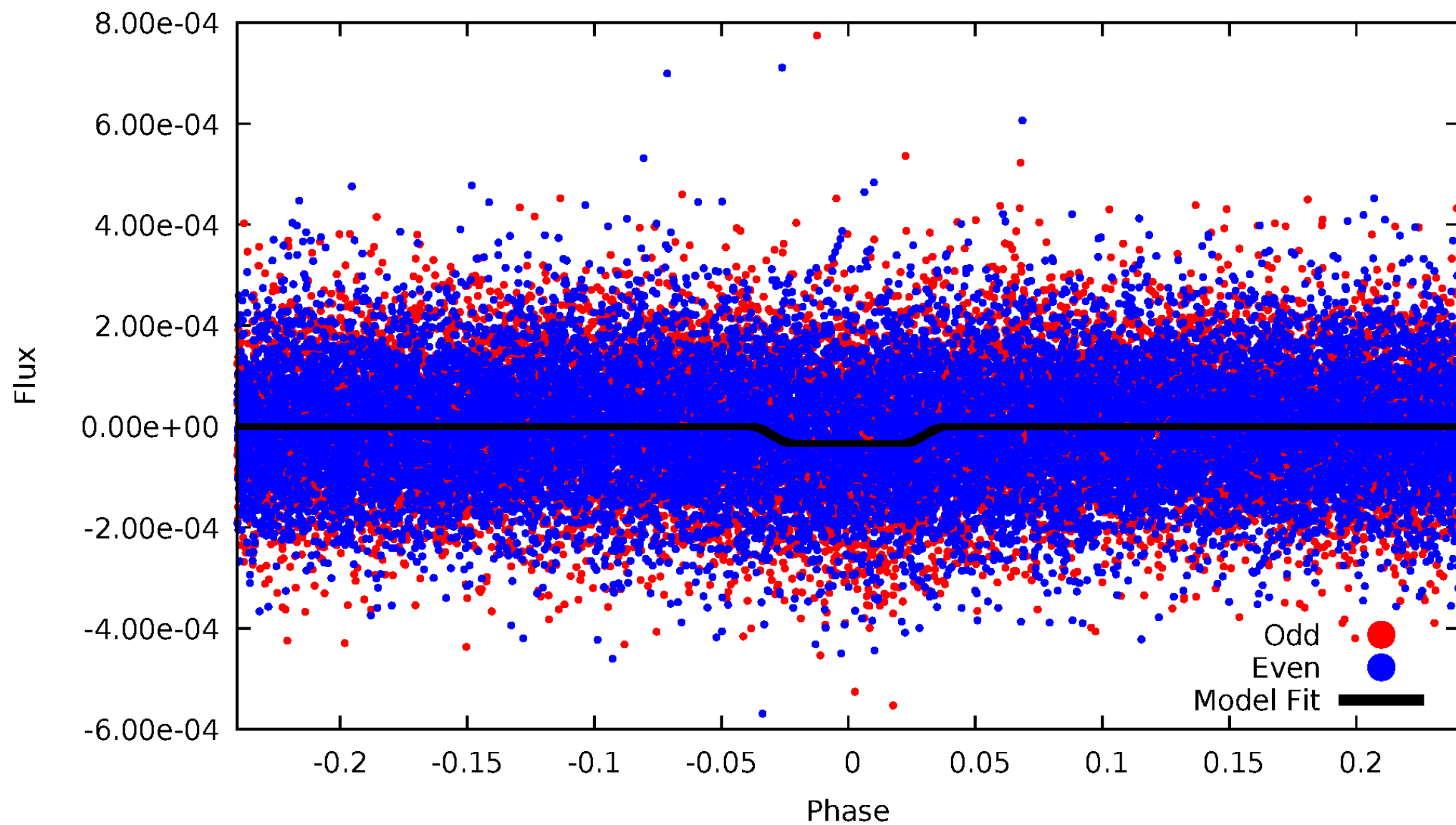
DV Odd/Even

TCE 011872139-01



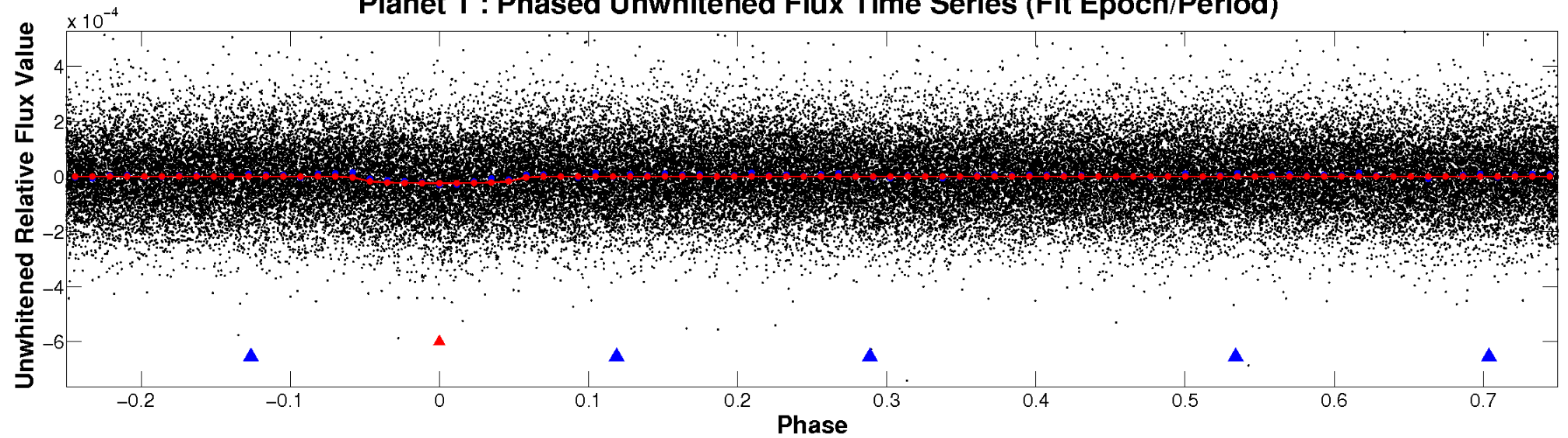
ALT Odd/Even

TCE 011872139-01

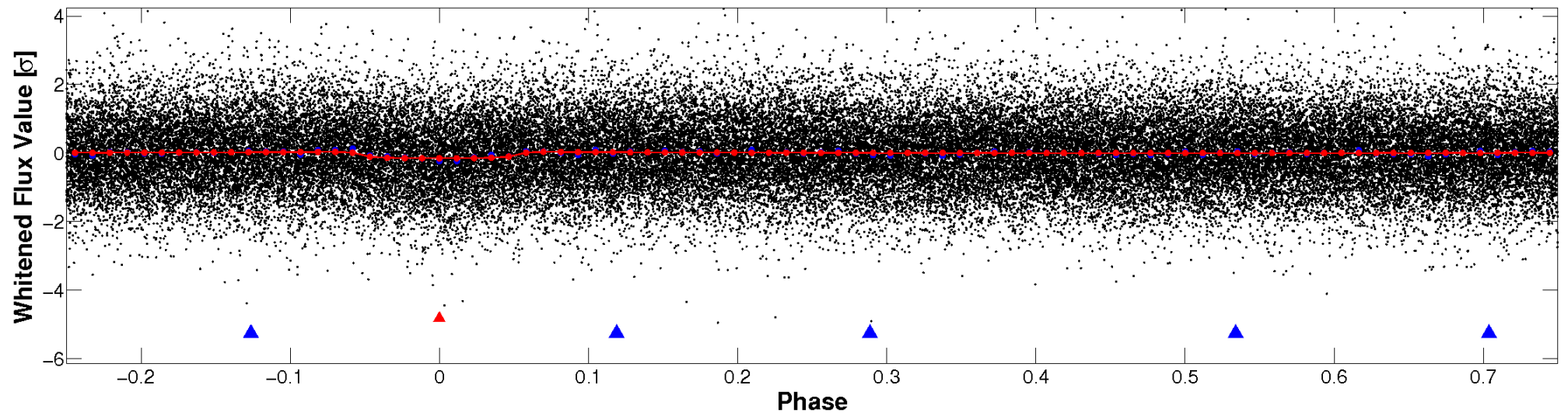


Non-Whitened Vs. Whitened Light Curve

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

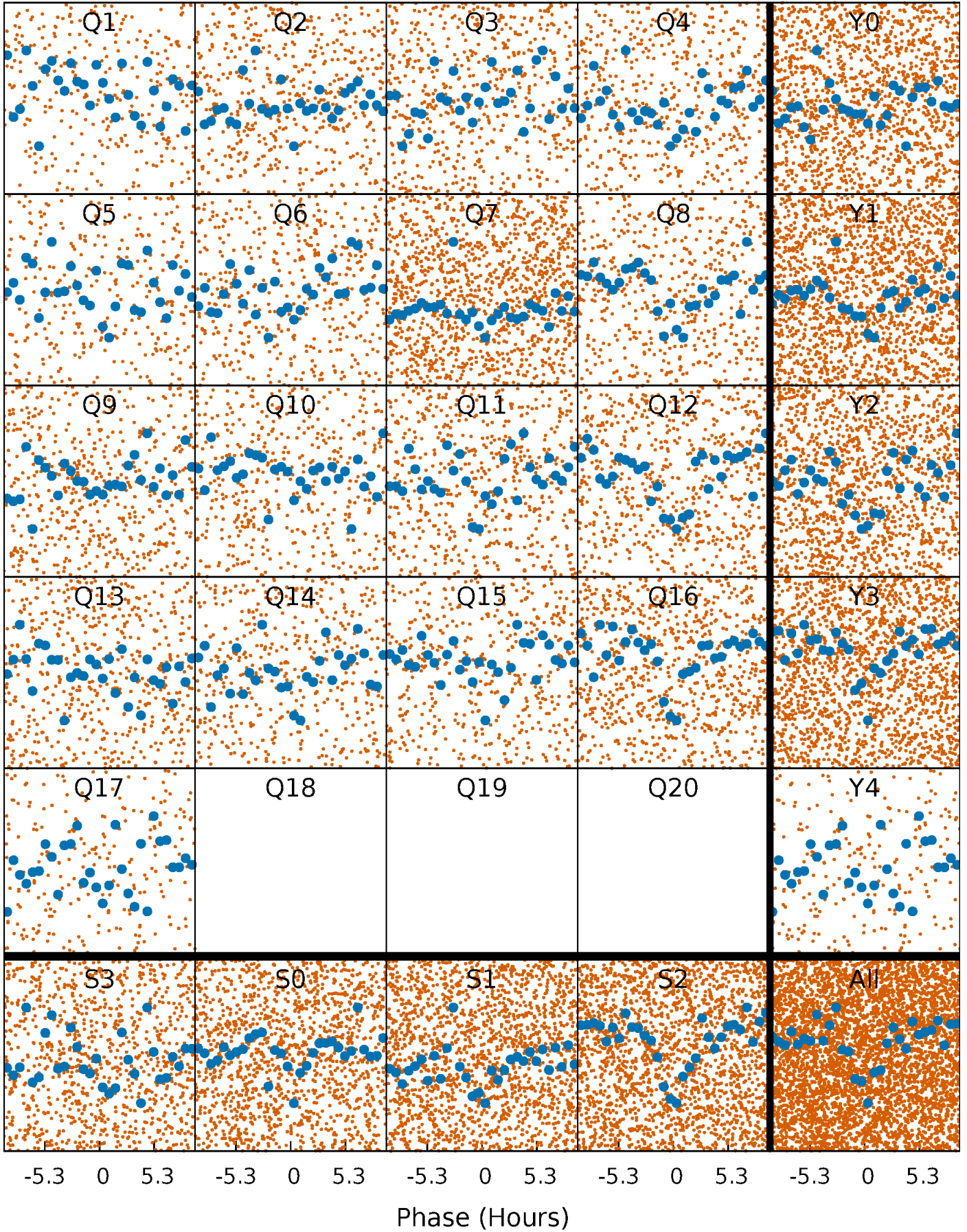


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



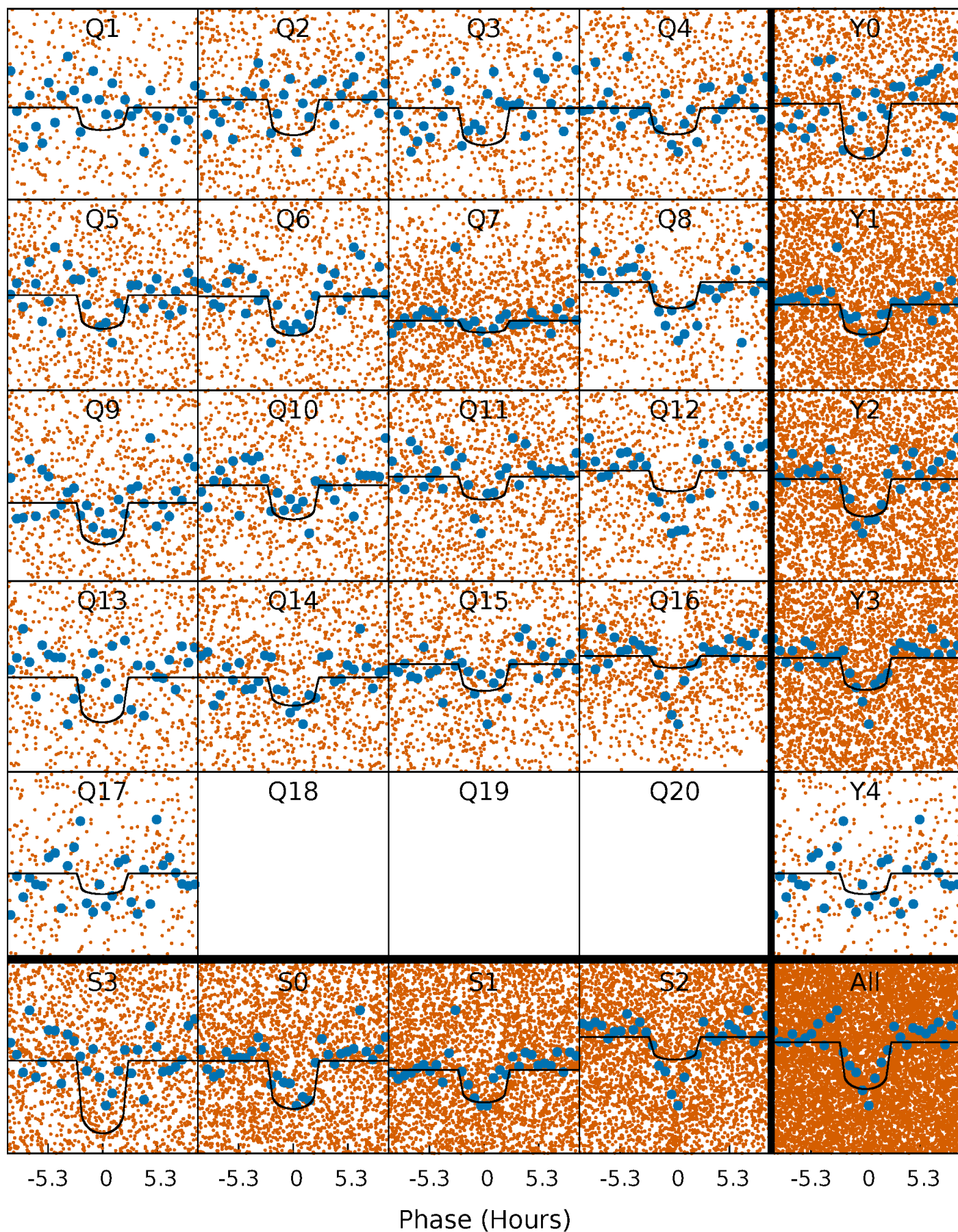
PDC Quarter-Phased Transit Curves

TCE 011872139-01 P= 1.756442 Days $T_0=132.043664$ (BKJD)



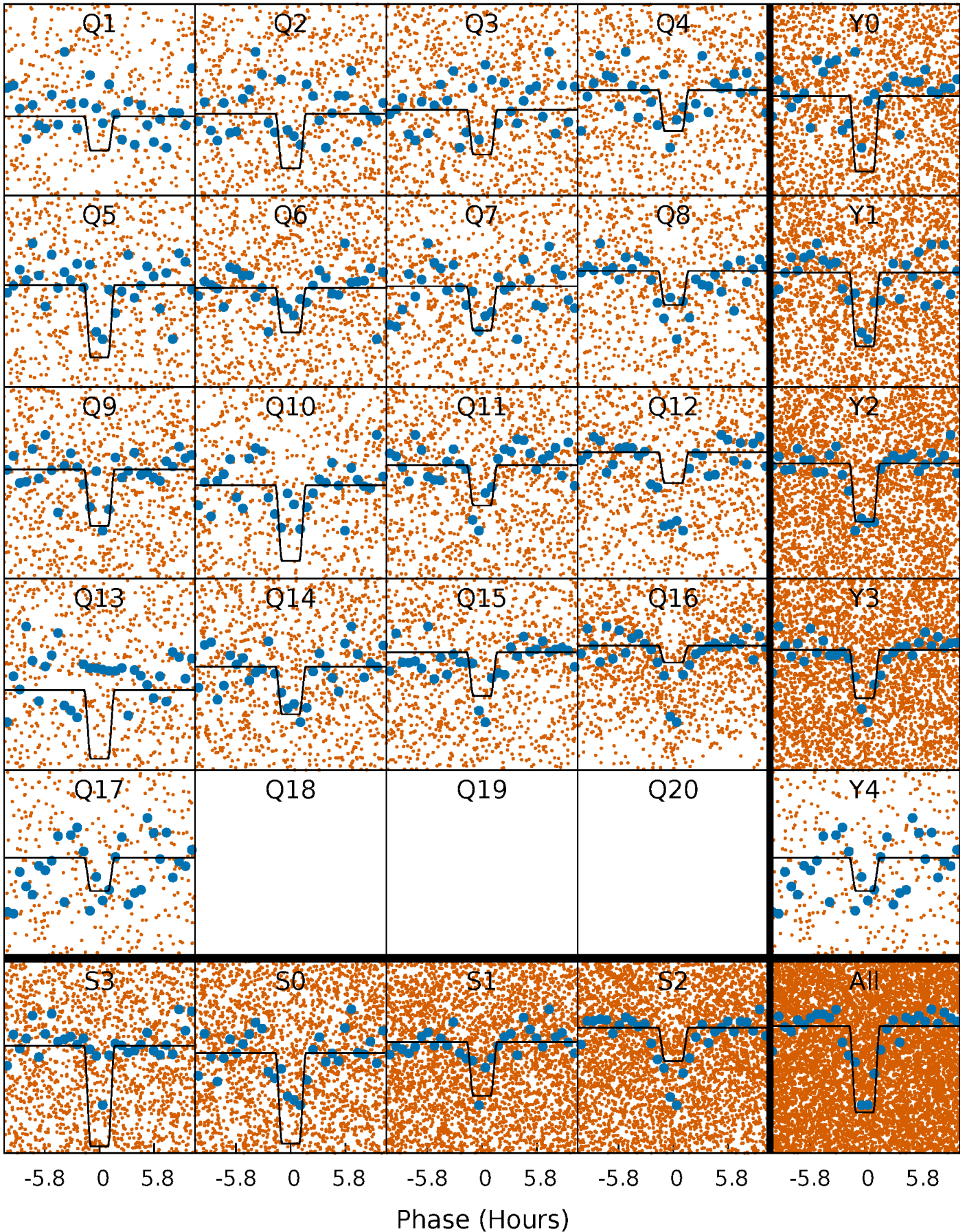
DV Quarter-Phased Transit Curves

TCE 011872139-01 P= 1.756442 Days $T_0=132.043664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

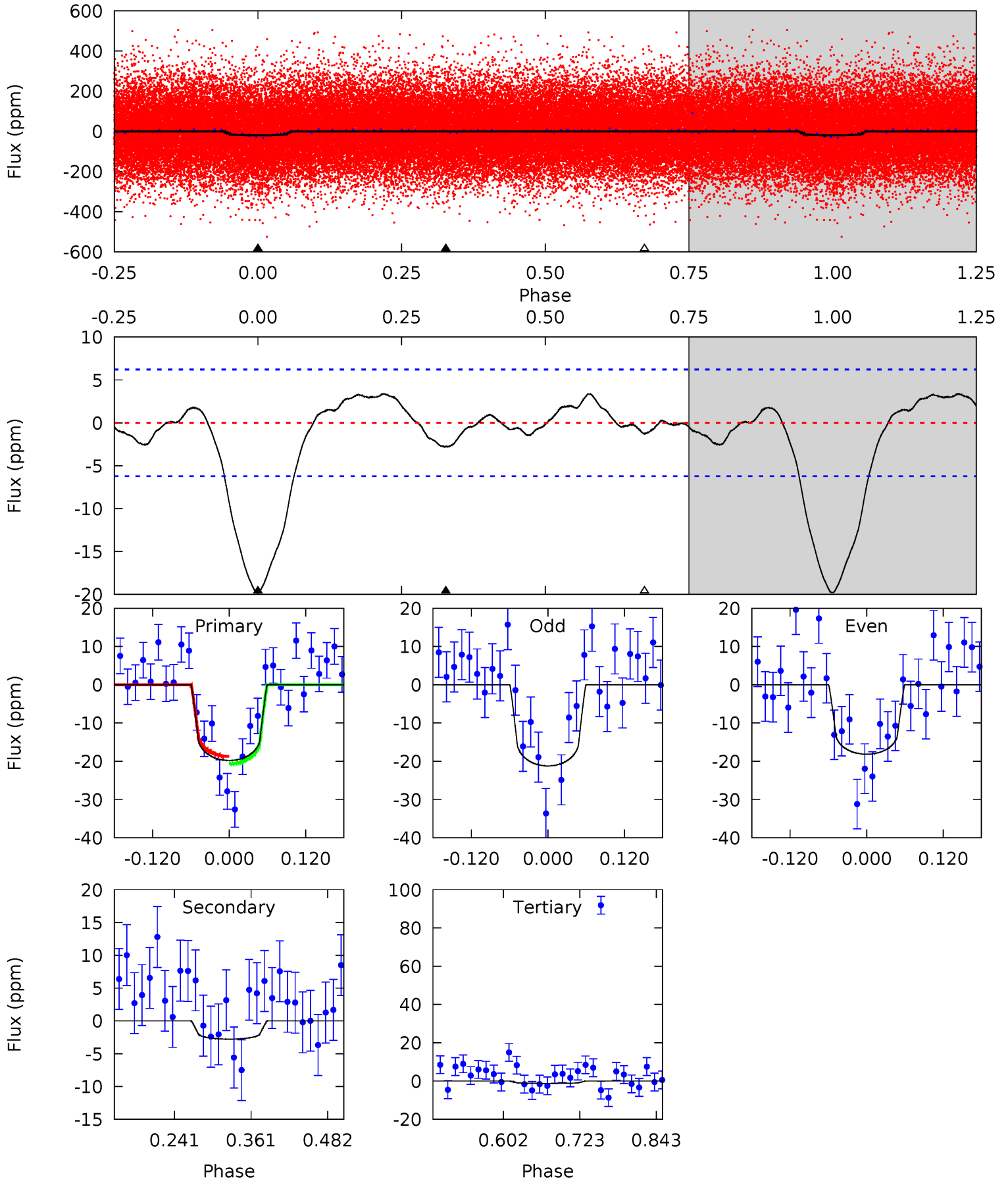
TCE 011872139-01 P= 1.756422 Days $T_0=132.056075$ (BKJD)



DV Model-Shift Uniqueness Test

011872139-01, P = 1.756442 Days, E = 130.287222 Days

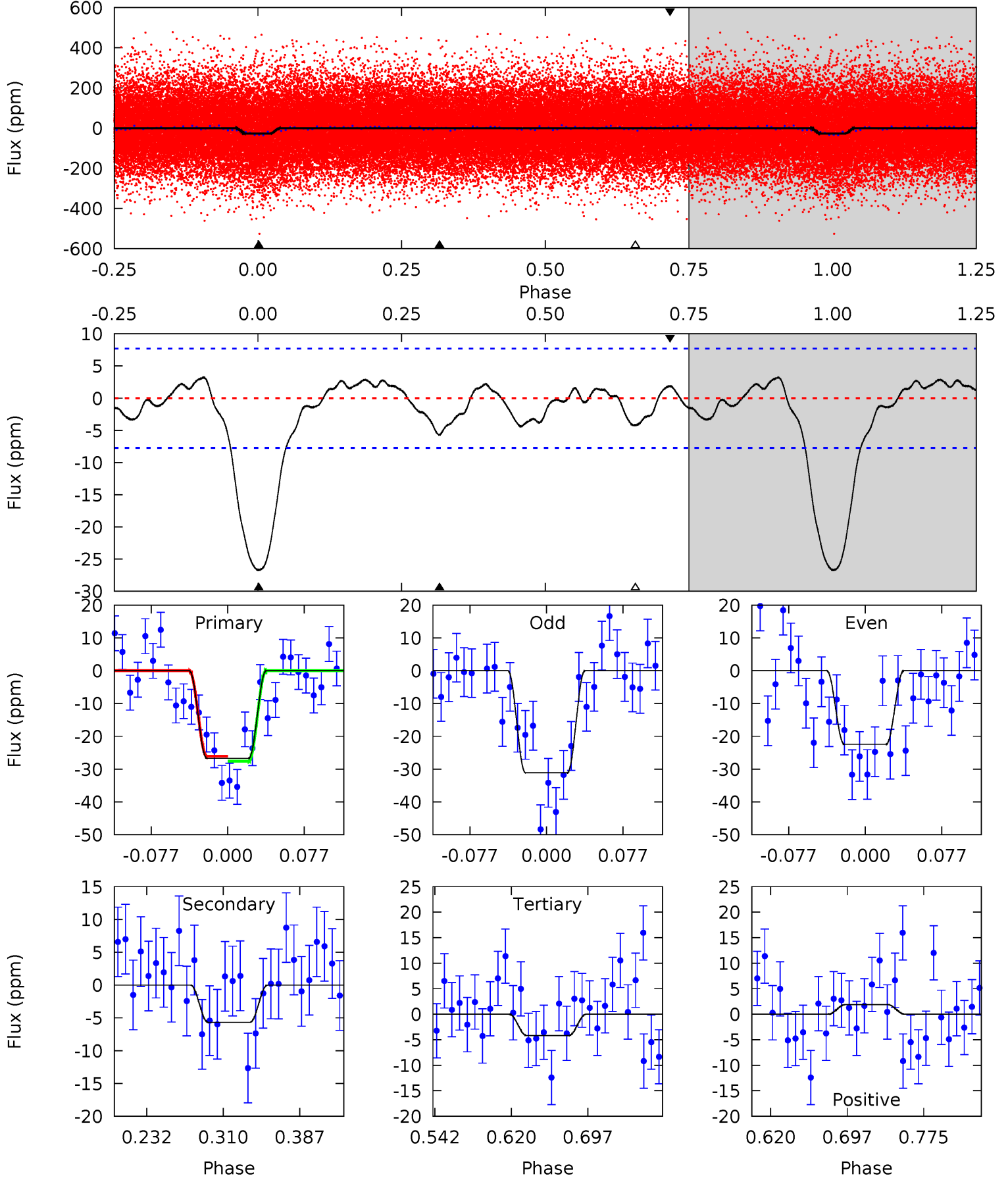
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	2.02	0.91	0	4.53	1.55	1.16	13.5	14.4	1.11	2.02	1.11	1.08	0.15	0.71



Alt Model-Shift Uniqueness Test

011872139-01, P = 1.756422 Days, E = 130.299653 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	3.40	2.51	1.12	4.62	1.77	1.24	13.5	14.9	0.89	2.28	2.61	1.07	0.11	0.43



Stellar Parameters For KIC 011872139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6619^{+182}_{-250}	$3.718^{+0.501}_{-0.088}$	$0.000^{+0.250}_{-0.300}$	$3.050^{+0.528}_{-1.583}$	$1.771^{+0.143}_{-0.535}$	$0.088^{+0.497}_{-0.025}$
	+3%/-4%	+13%/-2%	+inf%/-inf%	+17%/-52%	+8%/-30%	+565%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011872139-01 / KOI 4350.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3 ± 1	$1.51^{+0.51}_{-0.47}$	3709^{+257}_{-482}	3652^{+660}_{-1652}	$0.736^{+0.910}_{-0.432}$
Alt.	-6 ± 2	$1.71^{+0.52}_{-0.51}$	3696^{+267}_{-508}	4193^{+523}_{-531}	$1.227^{+1.187}_{-0.555}$

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

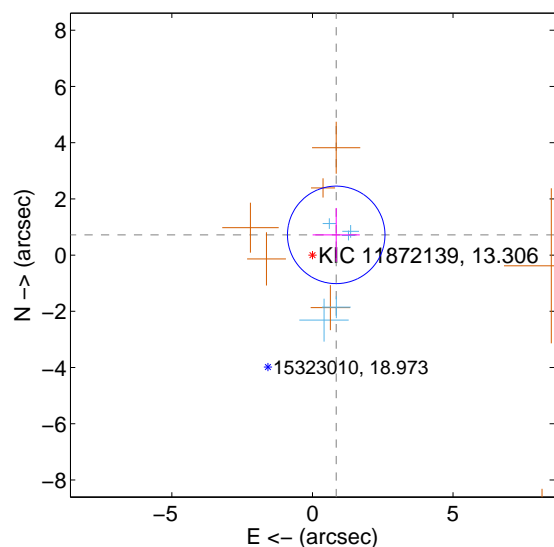
Supplemental centroid analysis for 011872139-01. Kepler magnitude: 13.31. Transit SNR 11.35

There are 5 quarters with good PRF difference image offsets

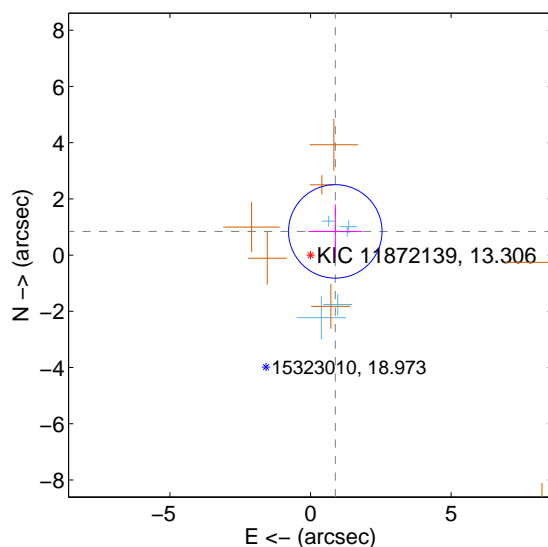
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.110 ± 0.578	1.92	-0.846 ± 0.840	0.719 ± 0.958
PRF-fit source offset from KIC position	1.219 ± 0.554	2.20	-0.881 ± 0.957	0.843 ± 0.966
photometric centroid source offset	3.81 ± 1.12	3.40	-0.81 ± 0.96	3.72 ± 1.13

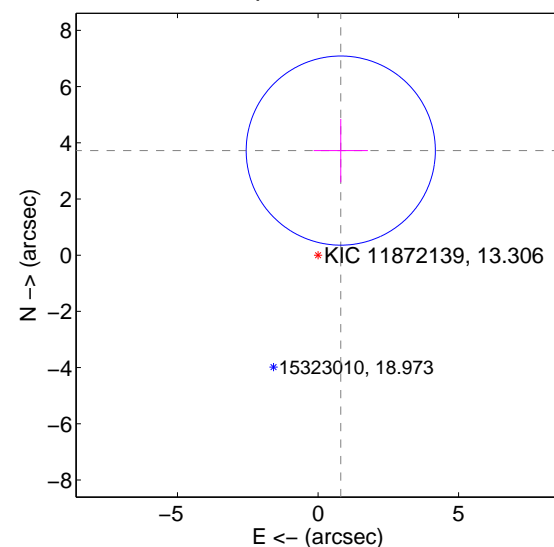
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

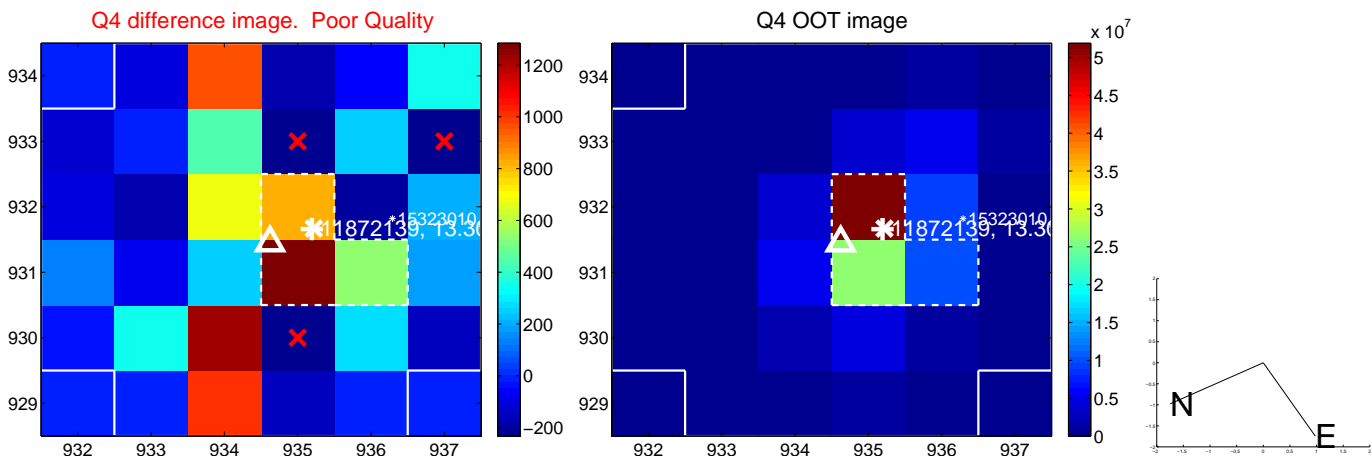
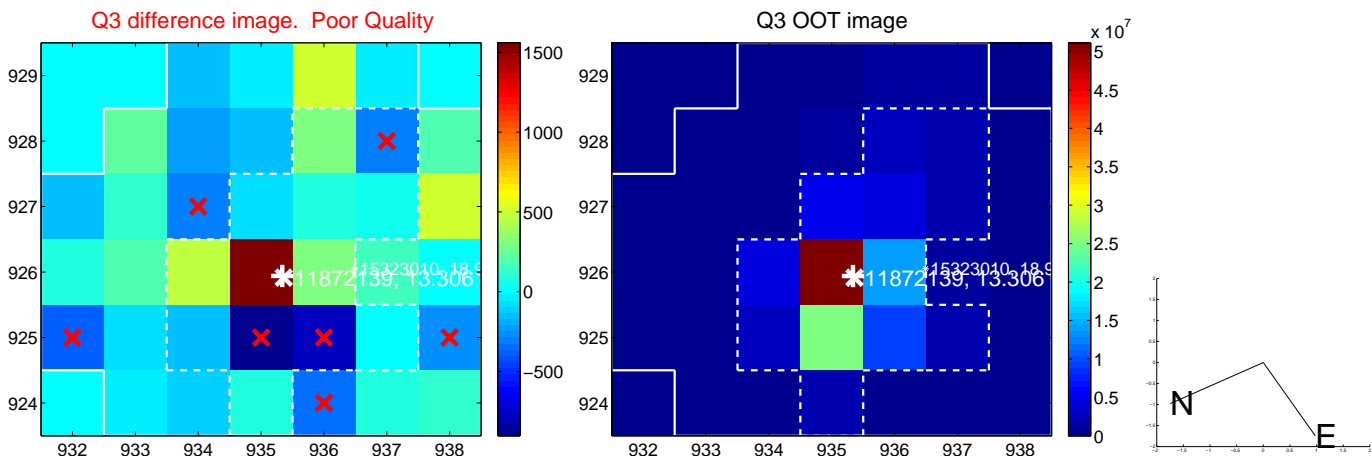
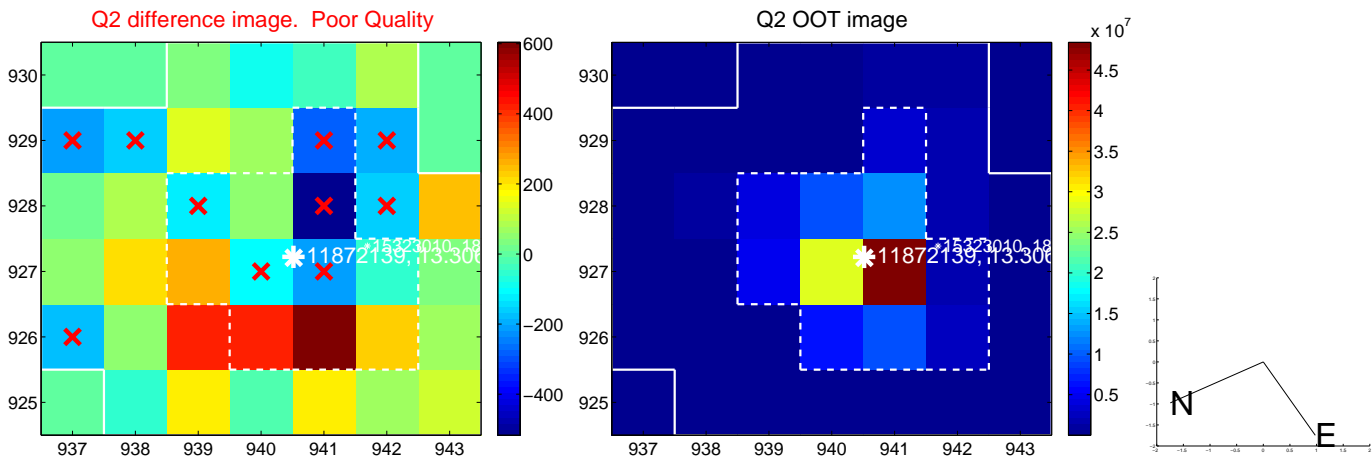
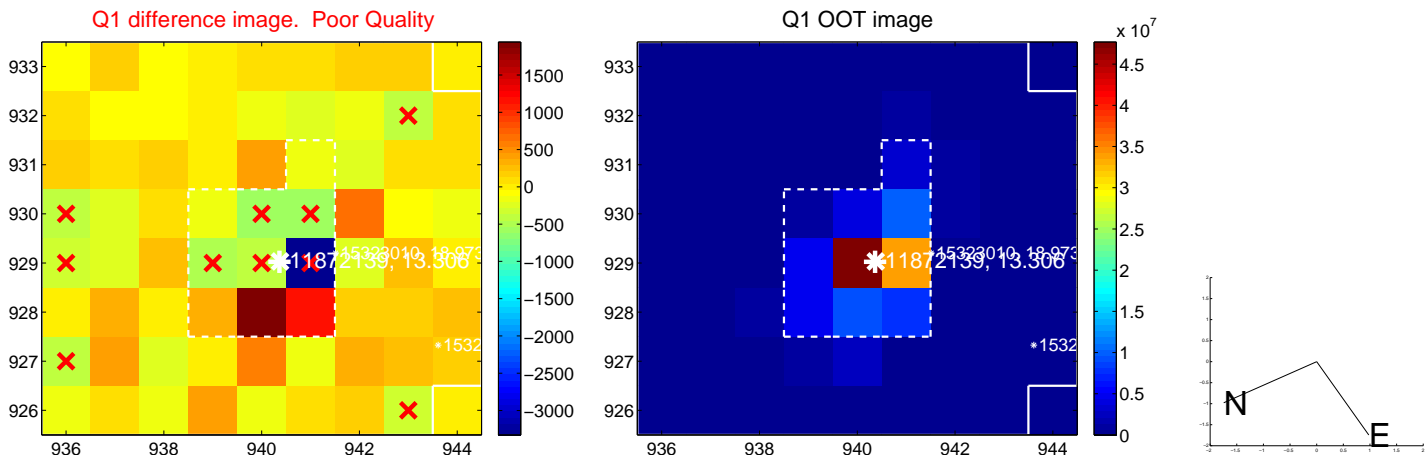


offset from photometric centroids

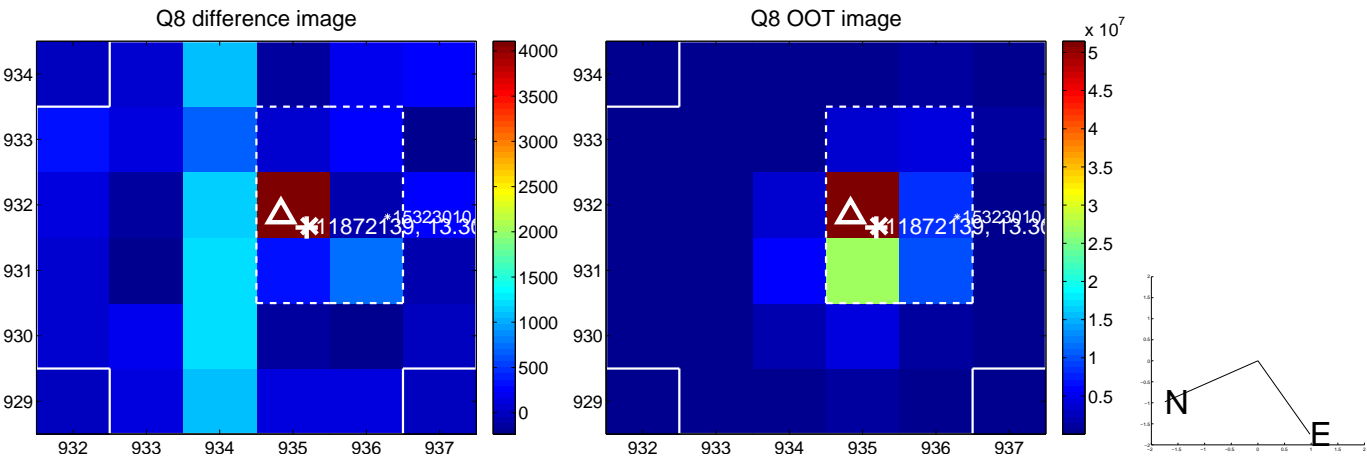
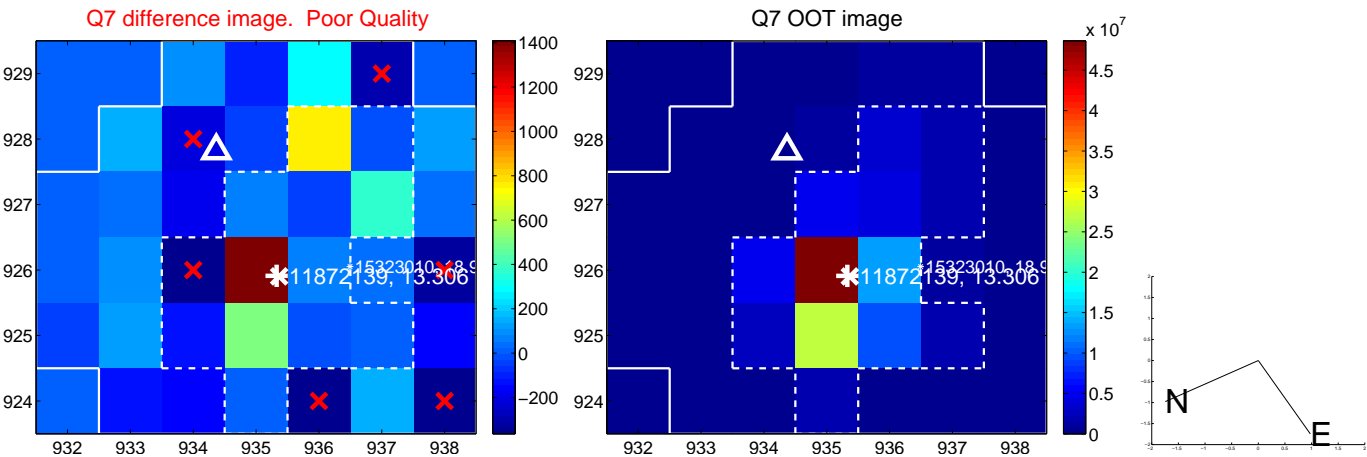
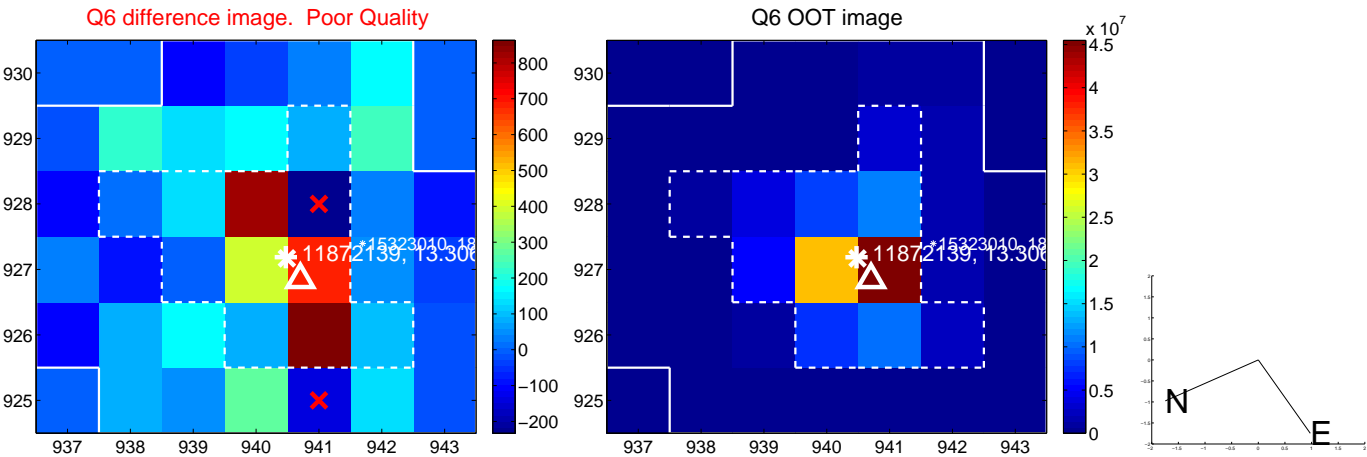
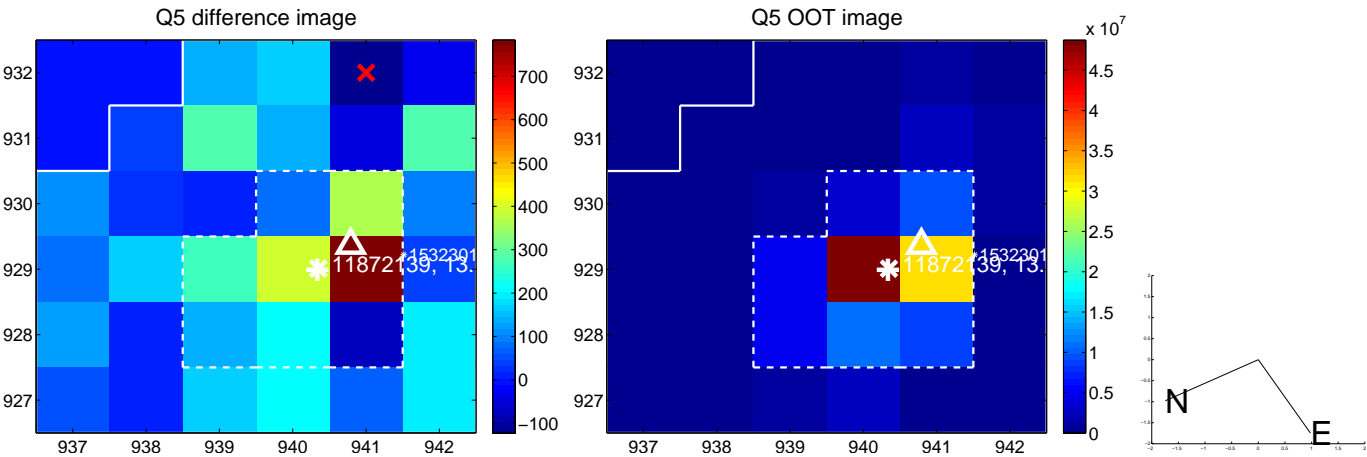


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

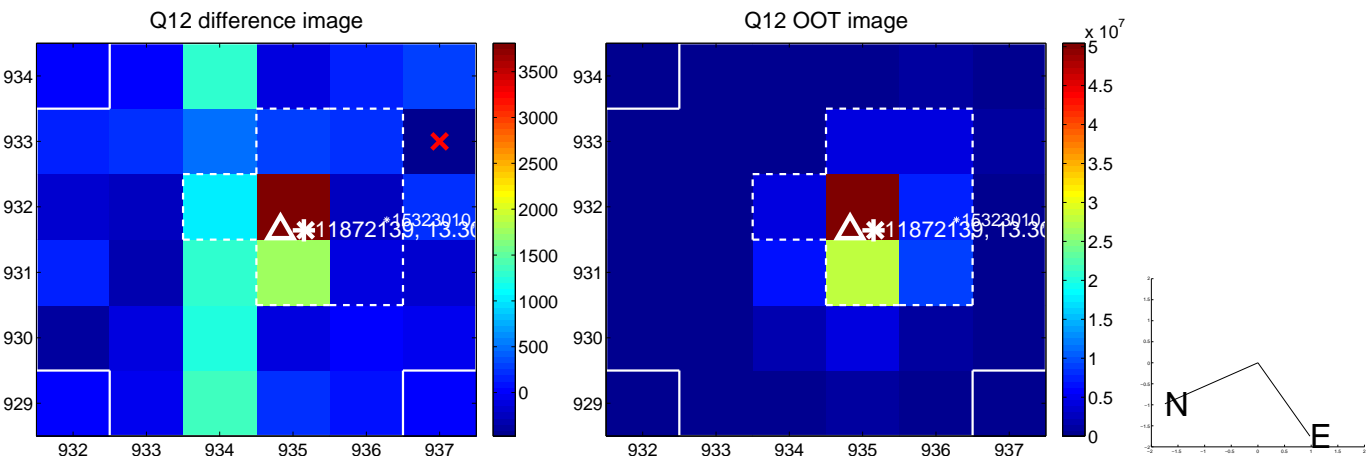
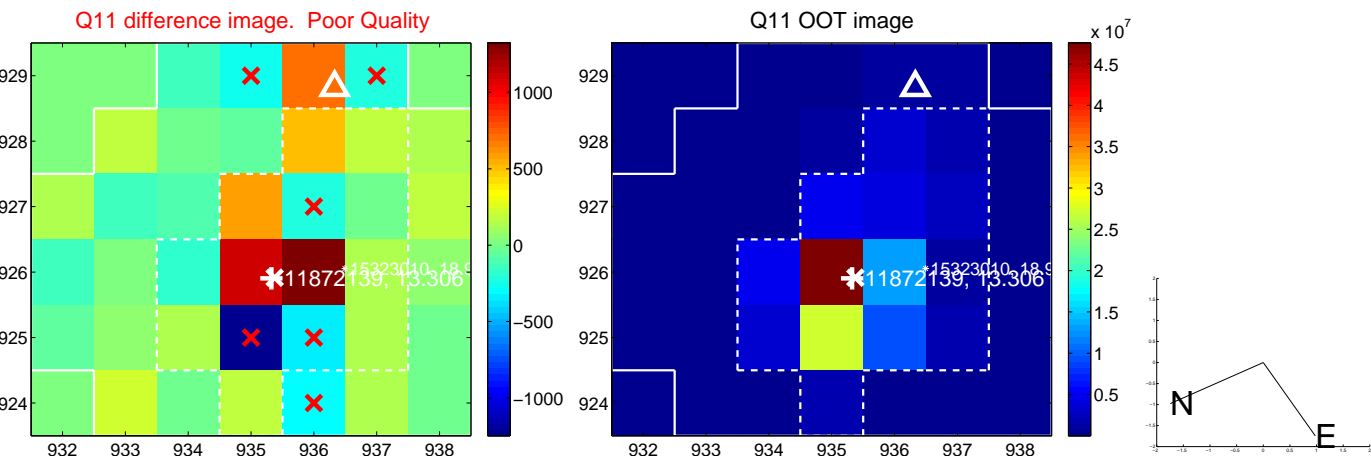
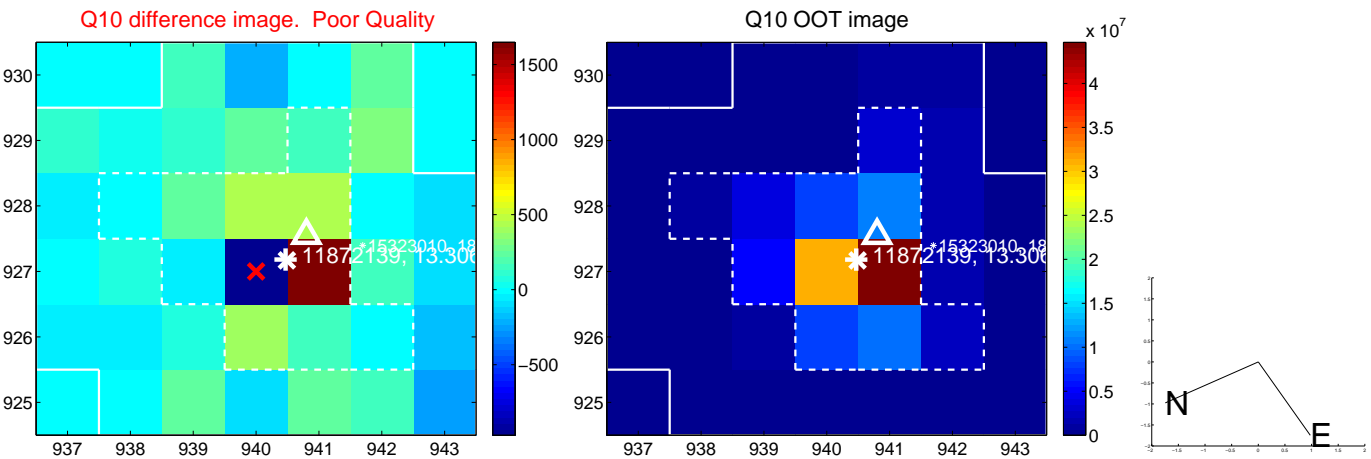
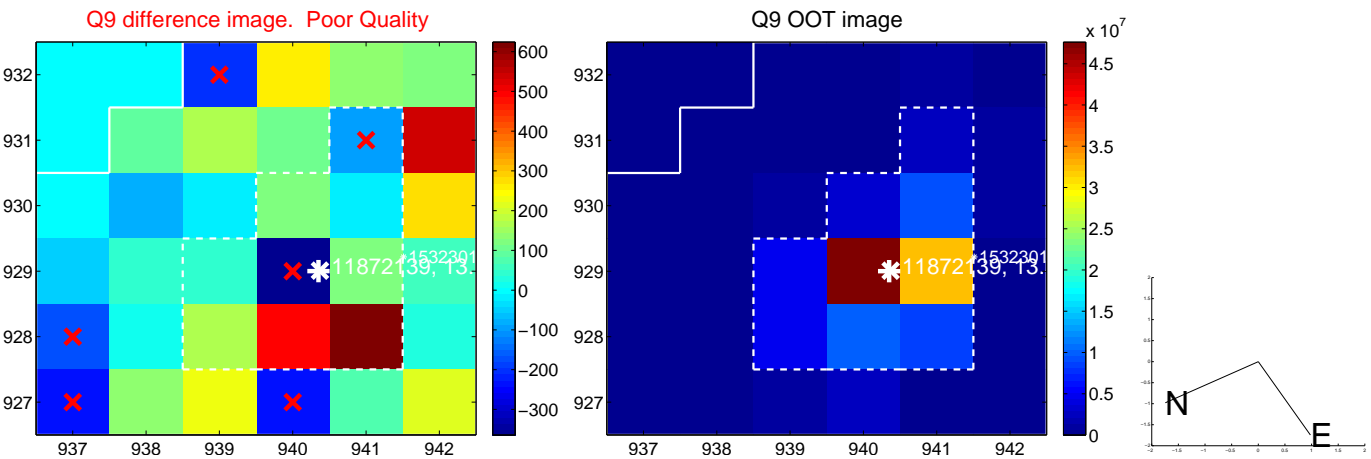
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



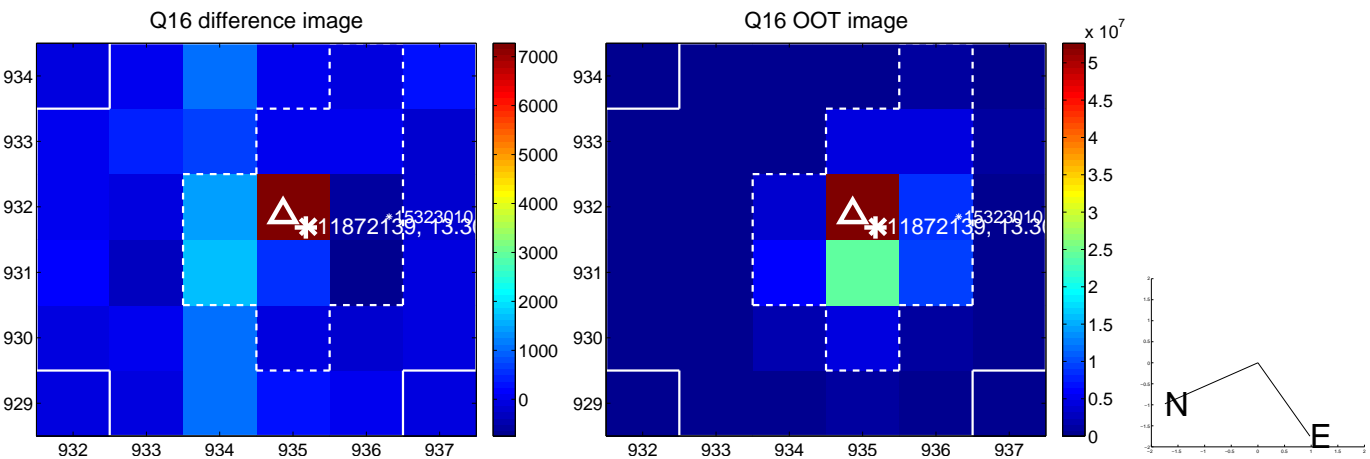
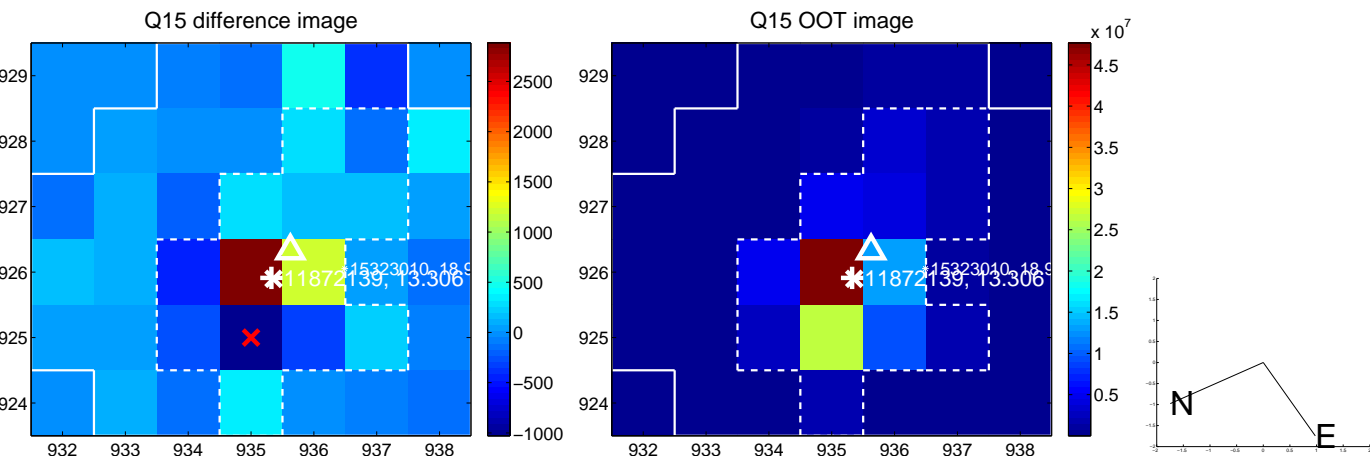
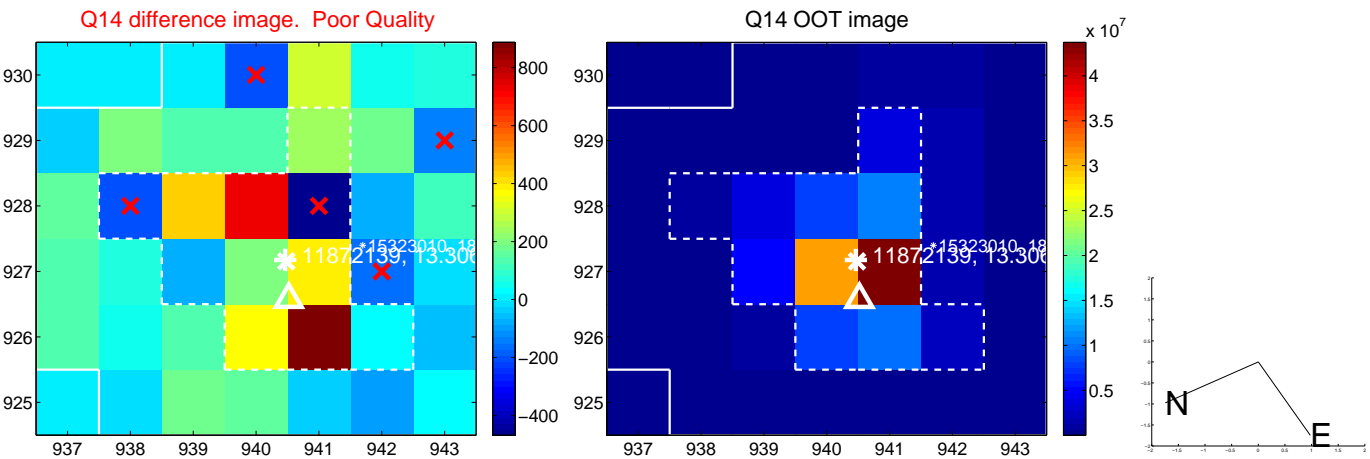
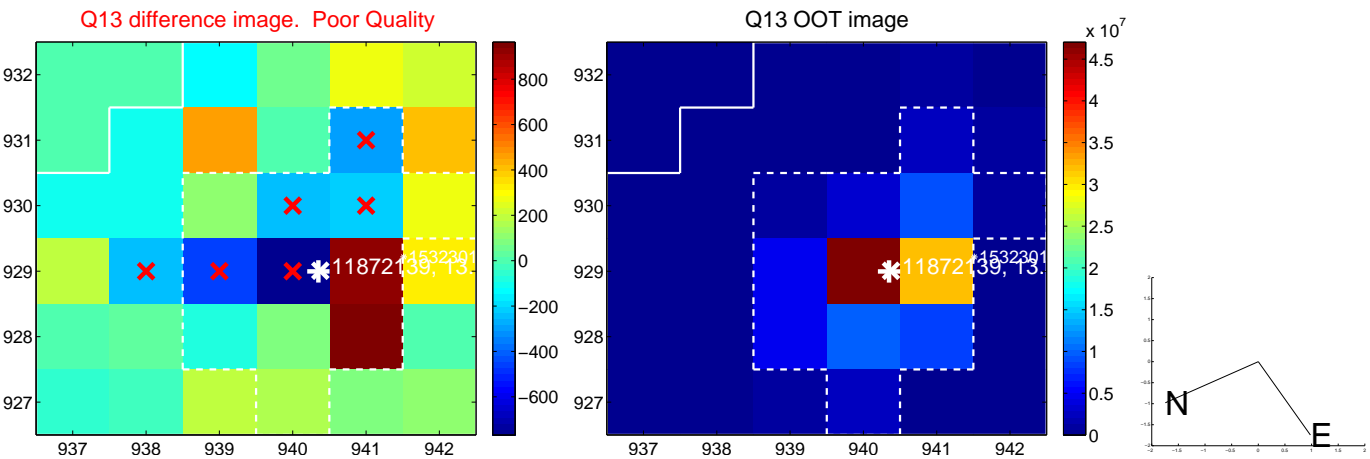
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



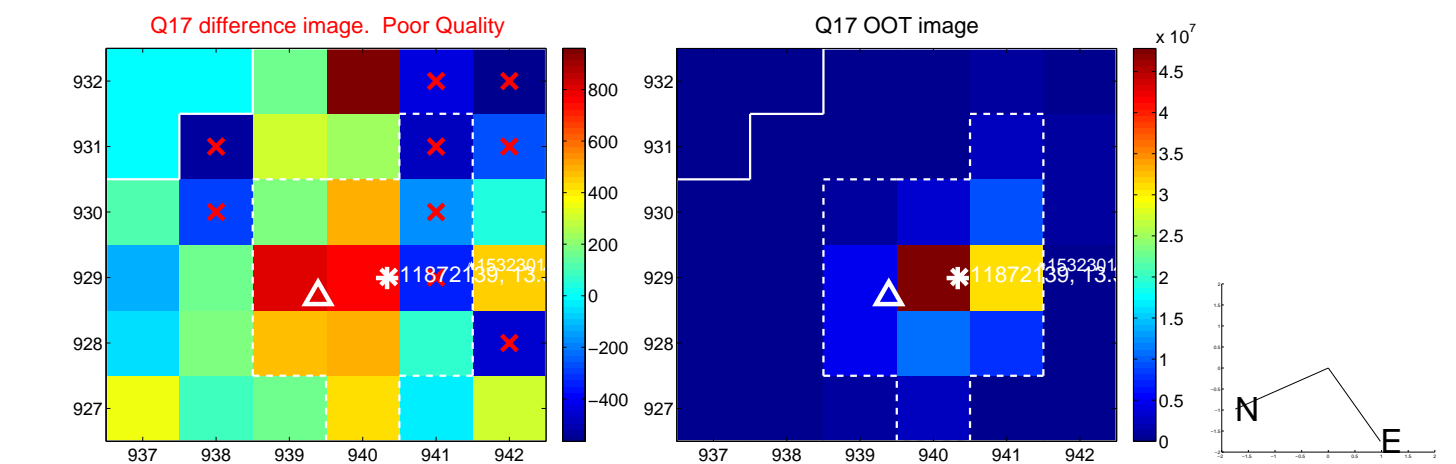
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



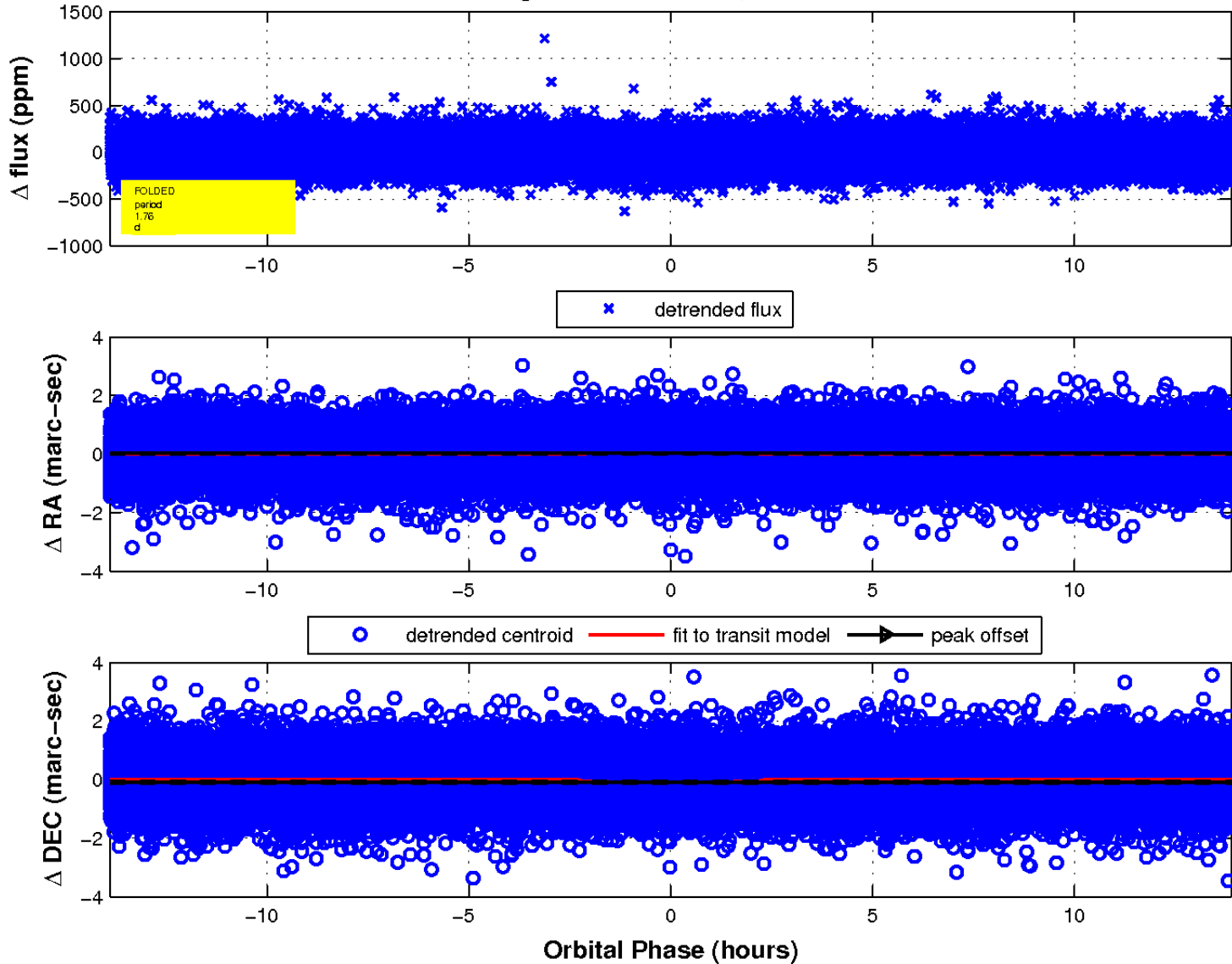
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

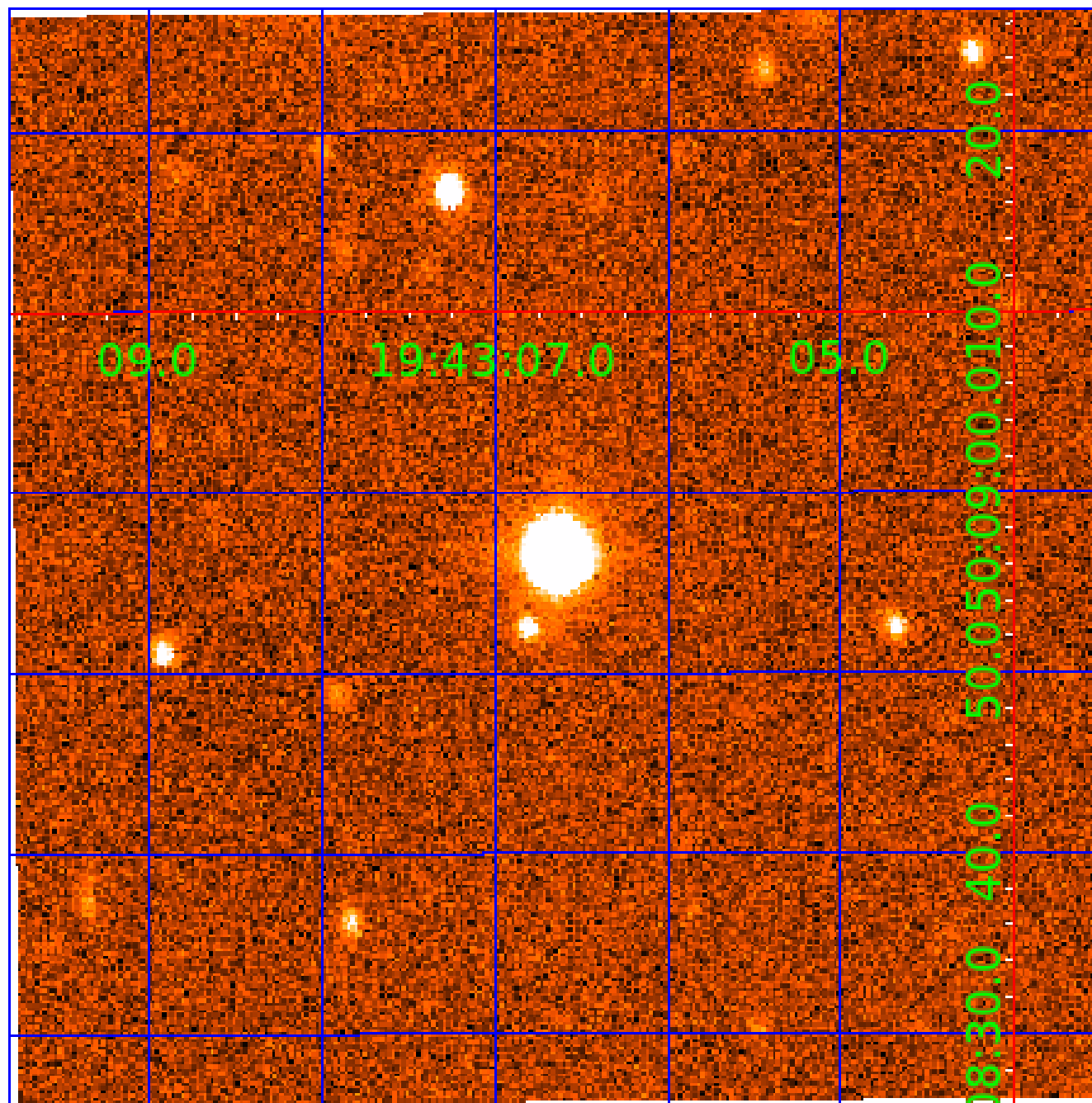


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011872139

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})
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Robovetter Results

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011872139-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

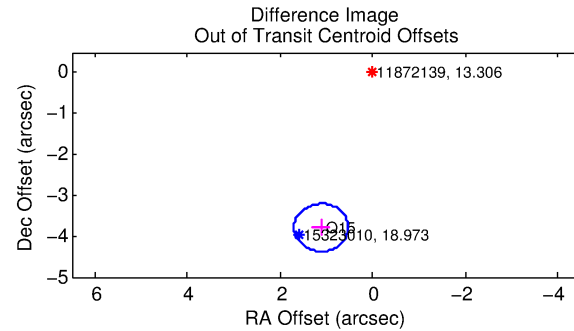
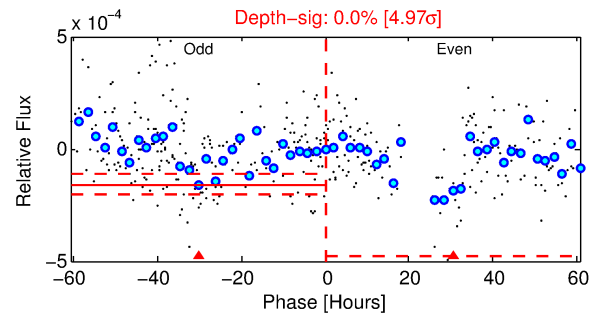
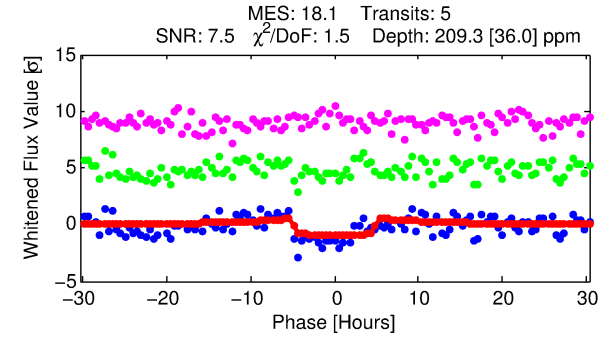
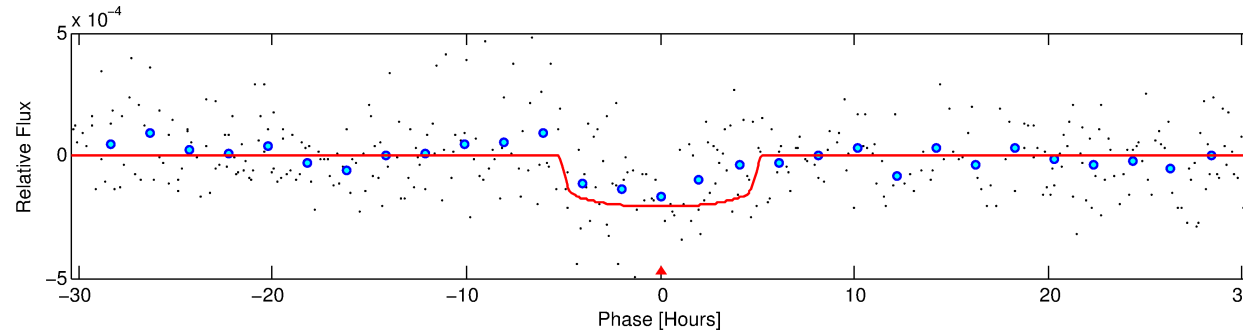
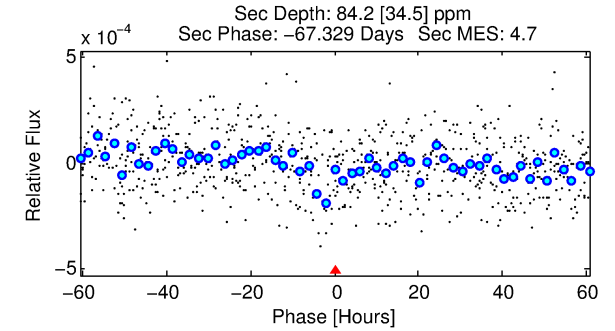
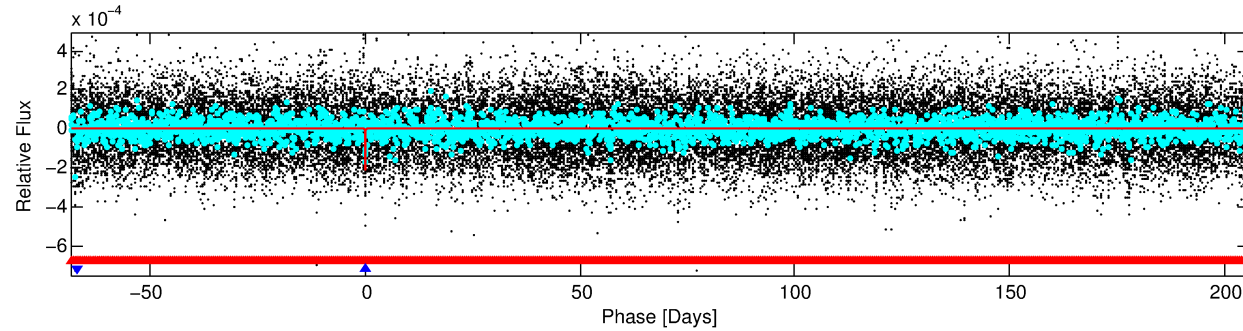
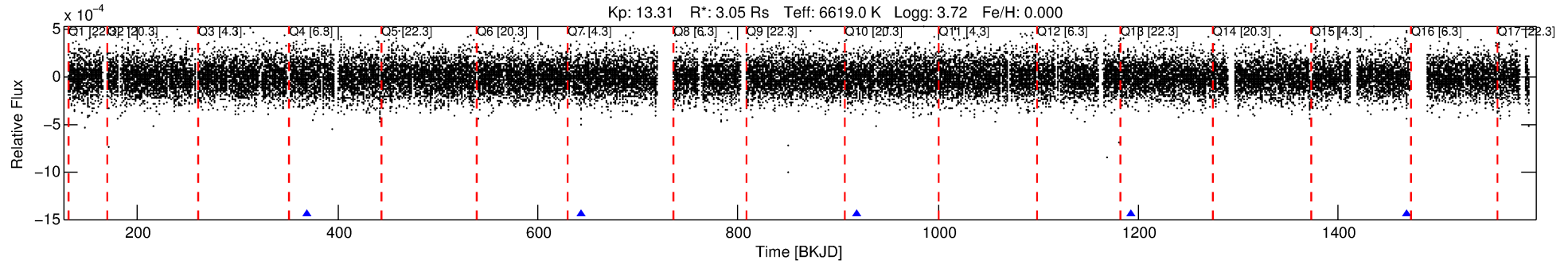
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011872139-02

No Significant Match Found

DV One-Page Summary

KIC: 11872139 Candidate: 2 of 2 Period: 274.734 d
KOI: K04350 Corr: No Ephemeris Match



DV Fit Results:

Period = 274.73399 [0.00842] d
Epoch = 368.9414 [0.0188] BKJD
Rp/R* = 0.0140 [0.0130]
a/R* = 163.68 [839.93]
b = 0.64 [4.84]
Seff = 15.96 [13.67]
Teq = 510 [109] K
Rp = 4.66 [4.95] Re
a = 1.0012 [0.5179] AU
Ag = 2141.75 [4450.76] [0.48σ]
Teffp = 5361 [2553] K [1.90σ]

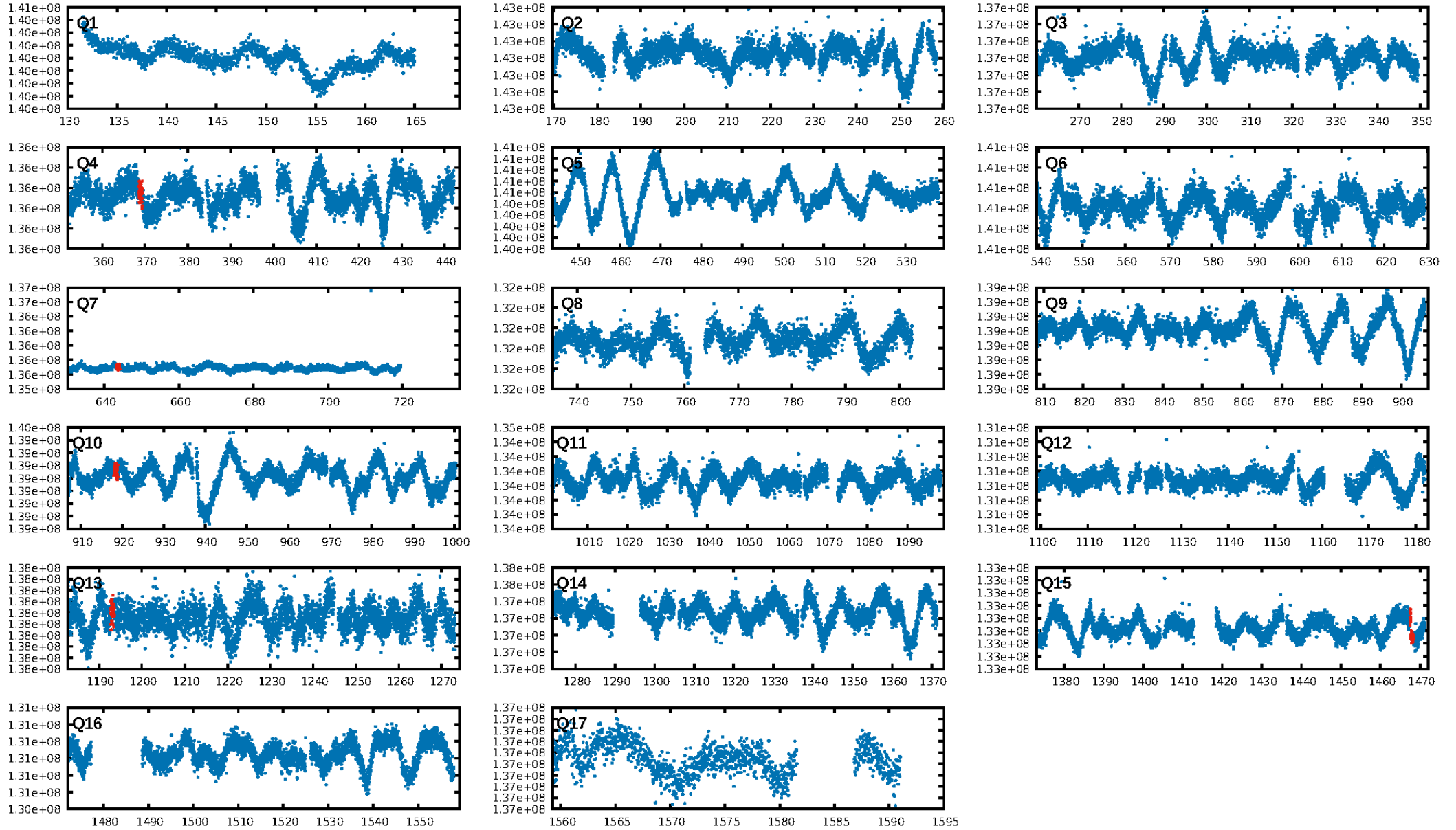
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [588.09σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 88.3%
Bootstrap-pfa: 1.13e-35
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.8598
Centroid-sig: 20.5%
Centroid-so: 1.265 arcsec [1.06σ]
OotOffset-rm: 3.951 arcsec [20.34σ]
KicOffset-rm: 3.832 arcsec [19.73σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/3]

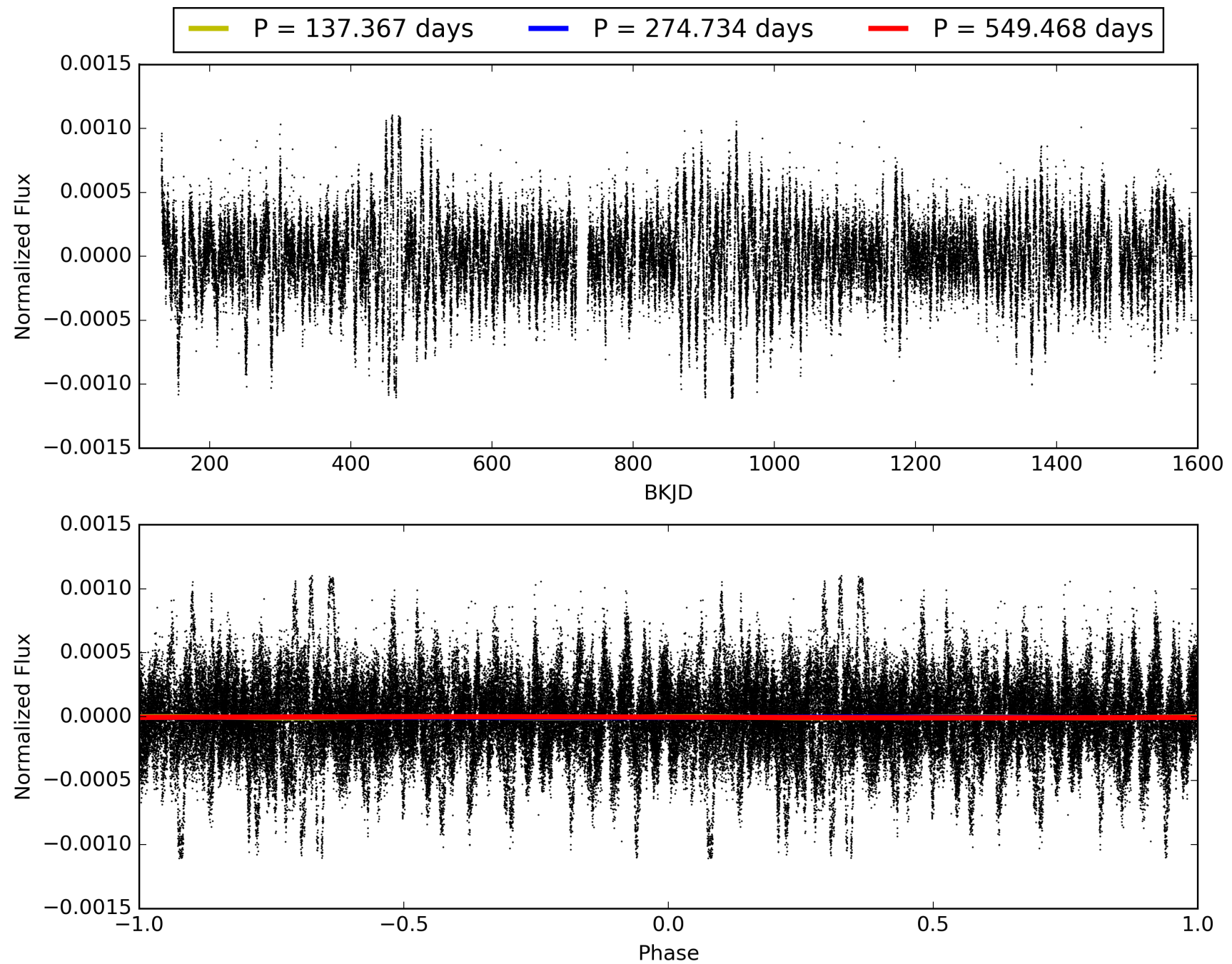
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:13:56 Z

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

TCE 011872139-02, PDC Light Curves

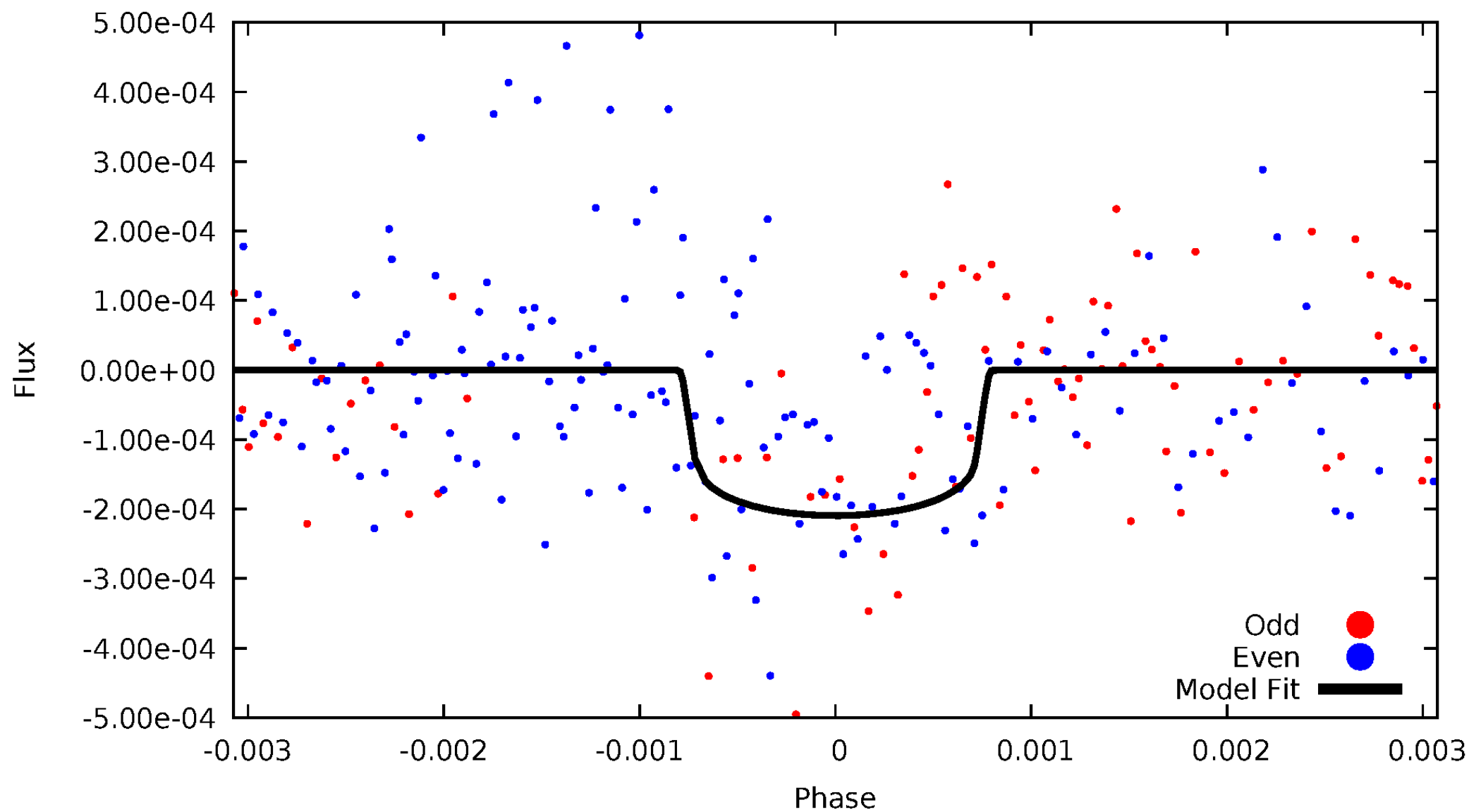


TCE 011872139-02



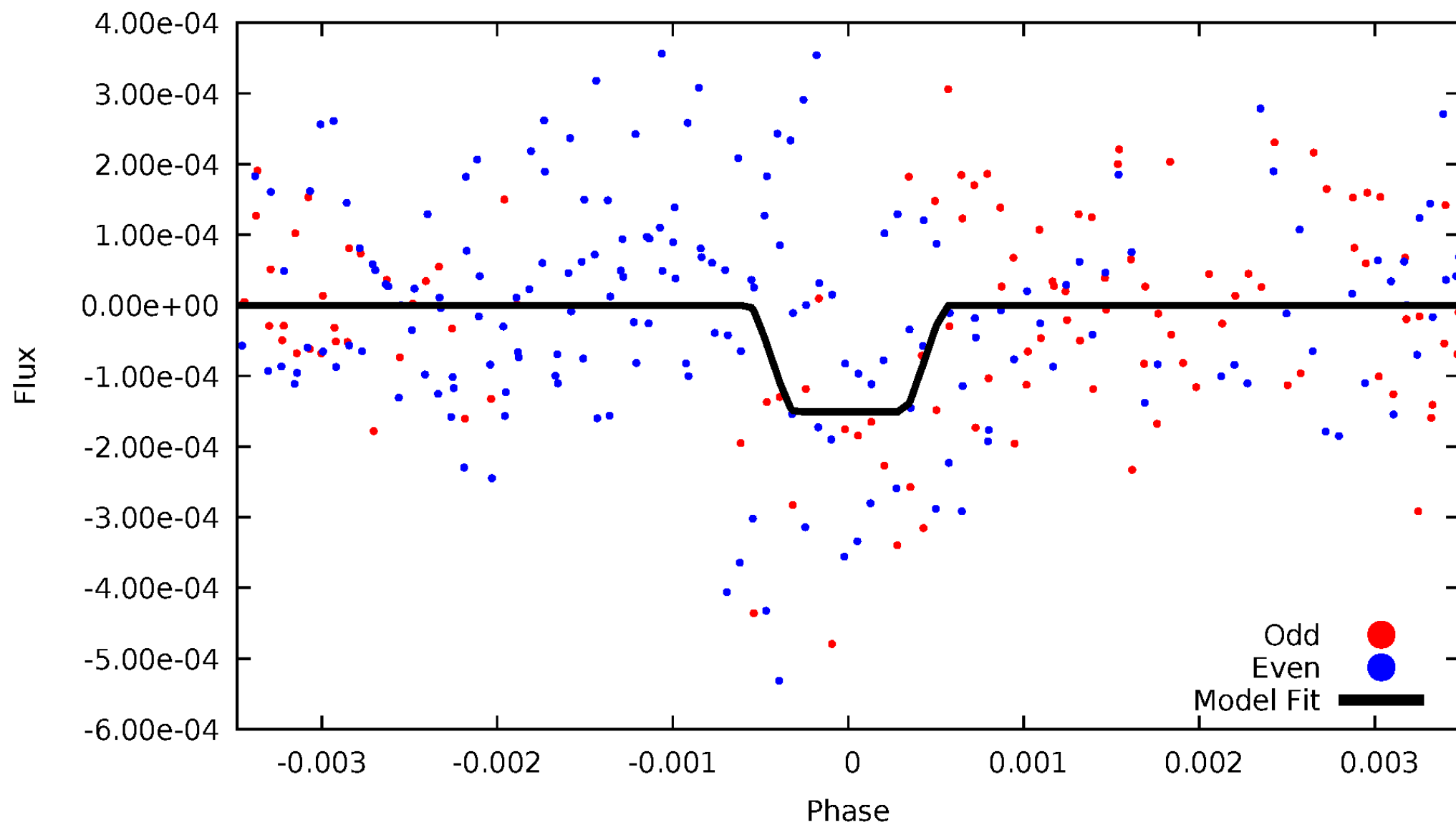
DV Odd/Even

TCE 011872139-02



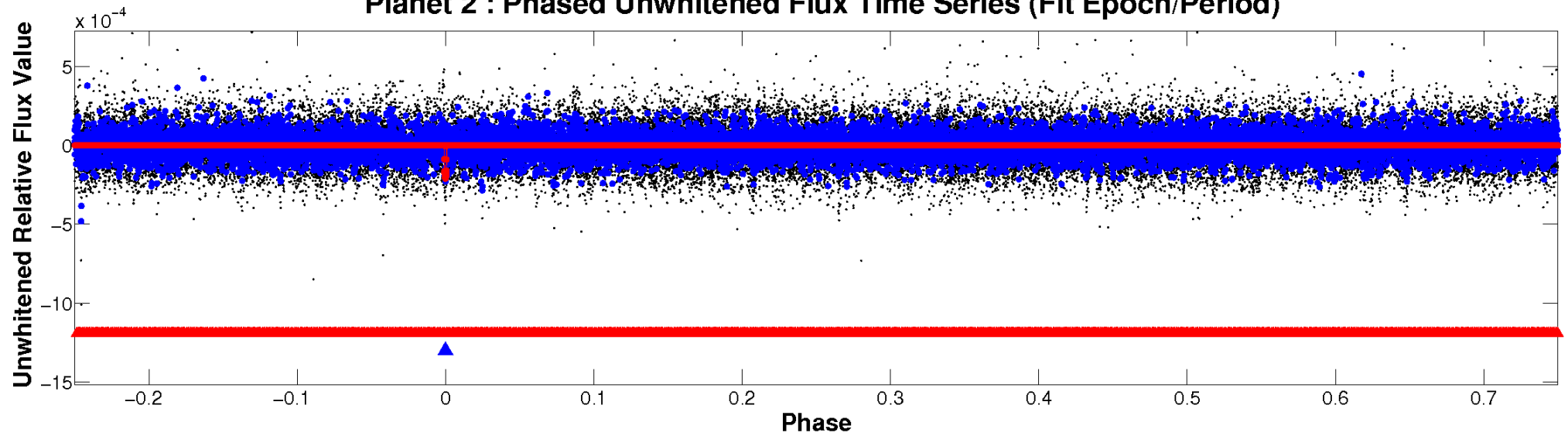
ALT Odd/Even

TCE 011872139-02

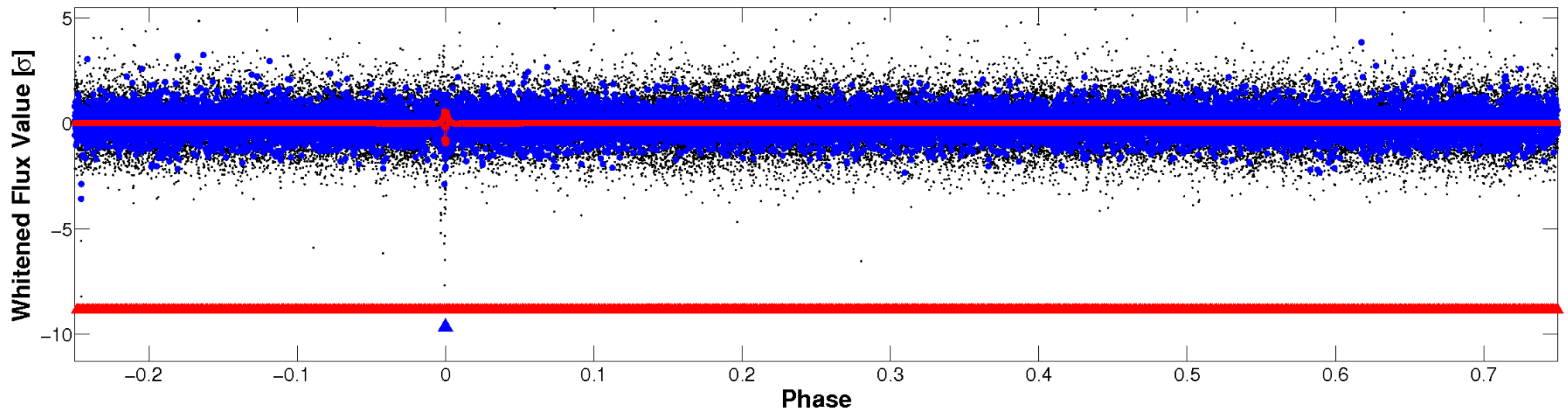


Non-Whitened Vs. Whitened Light Curve

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

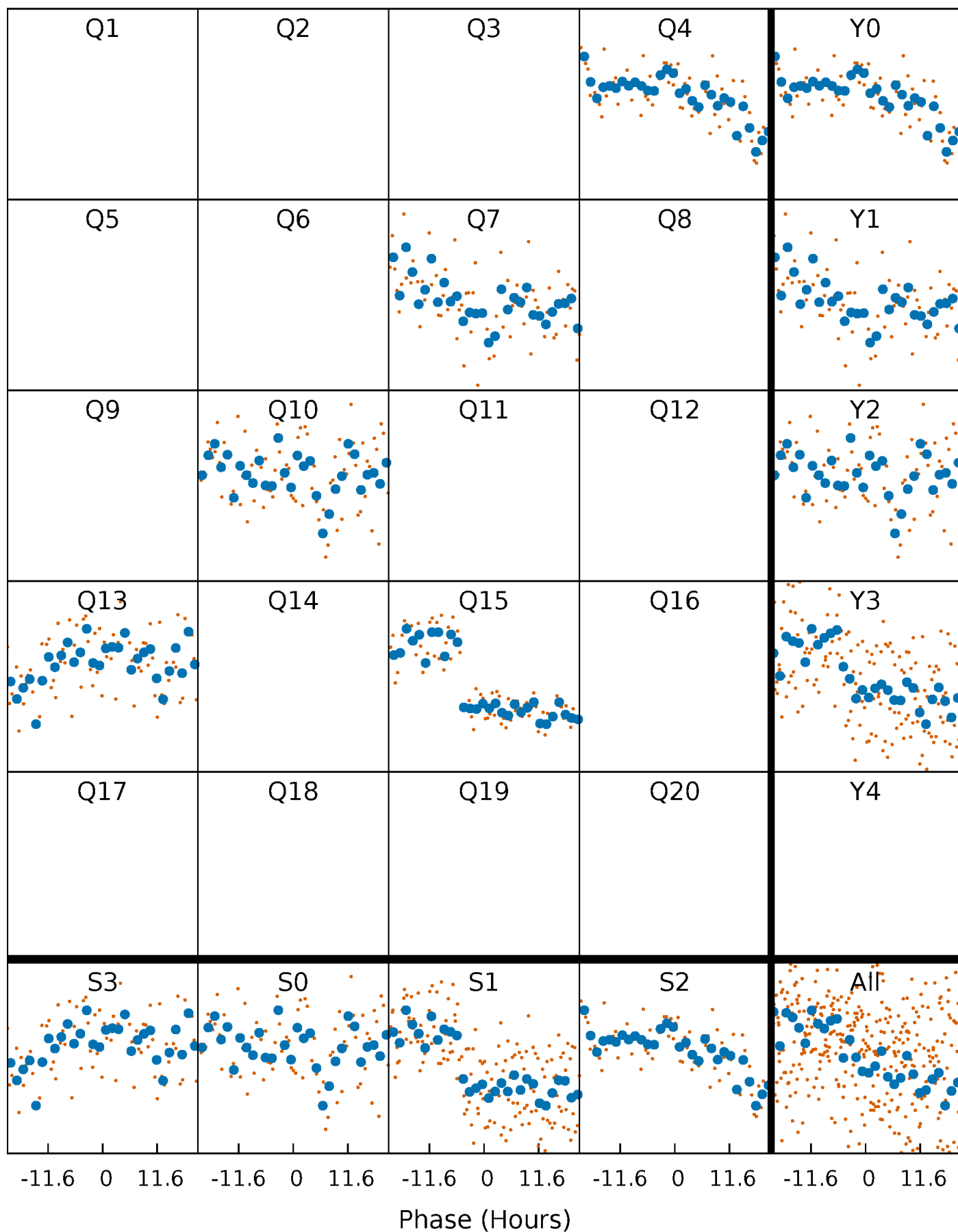


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



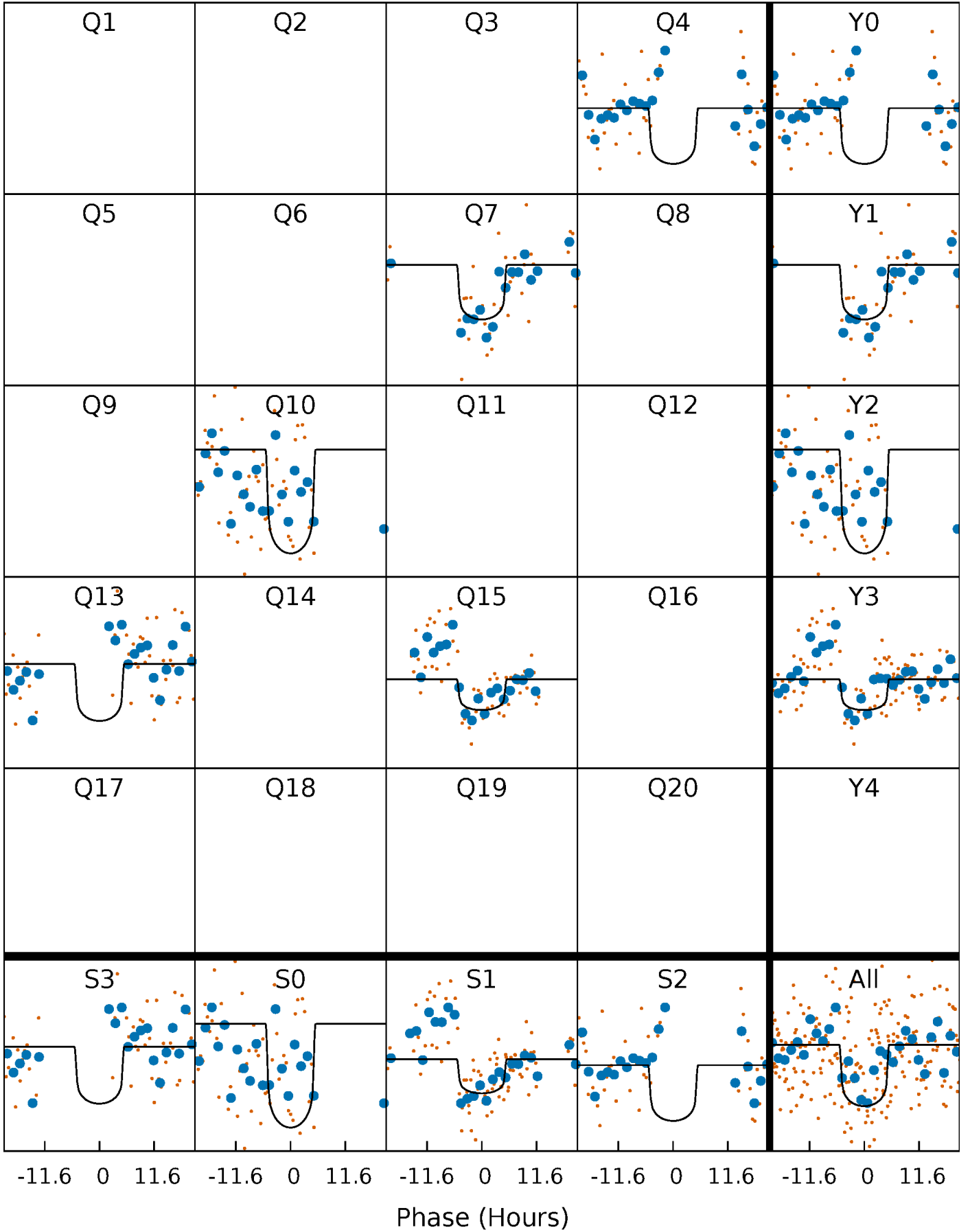
PDC Quarter-Phased Transit Curves

TCE 011872139-02 $P=274.733990$ Days $T_0=368.941412$ (BKJD)



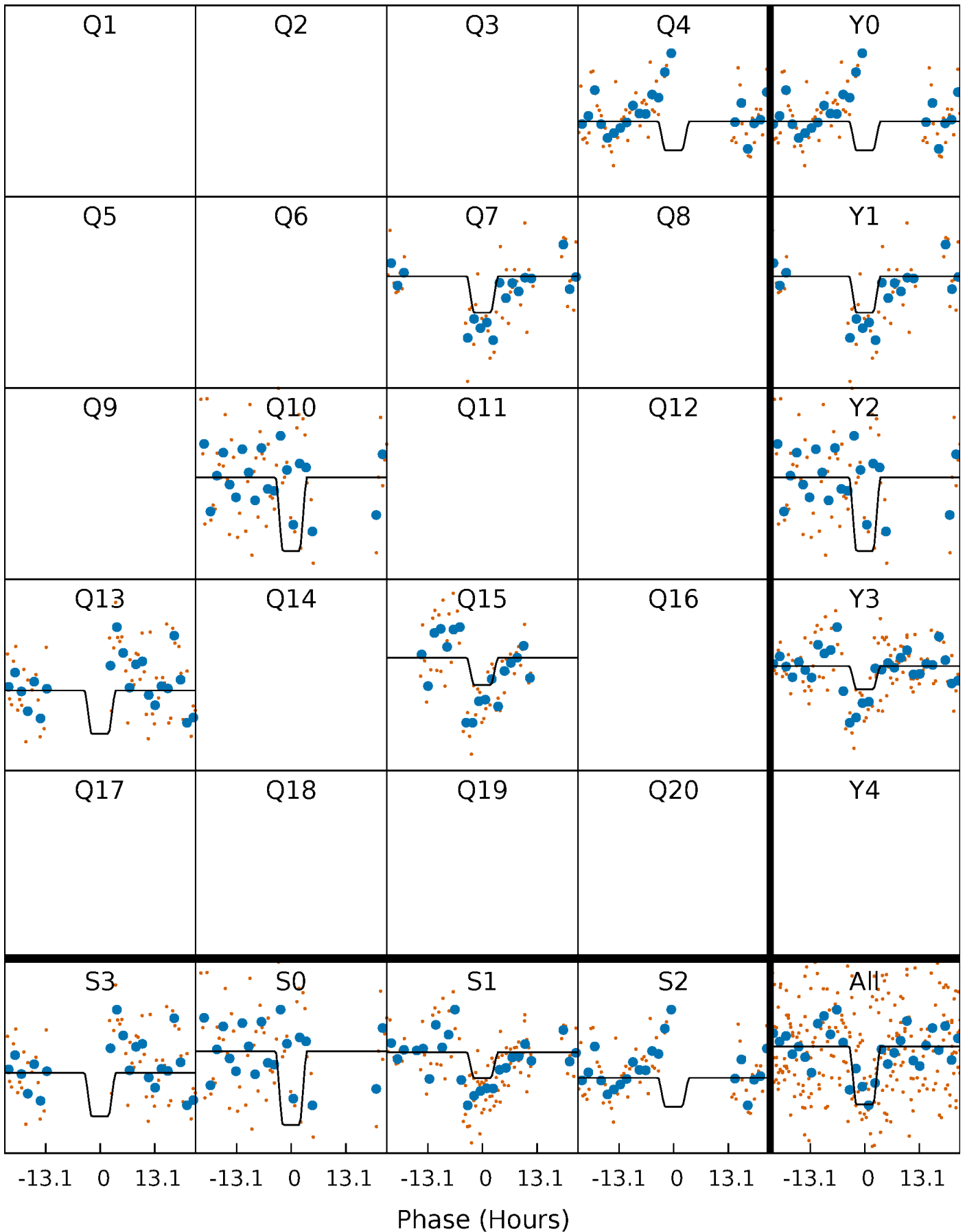
DV Quarter-Phased Transit Curves

TCE 011872139-02 $P=274.733990$ Days $T_0=368.941412$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

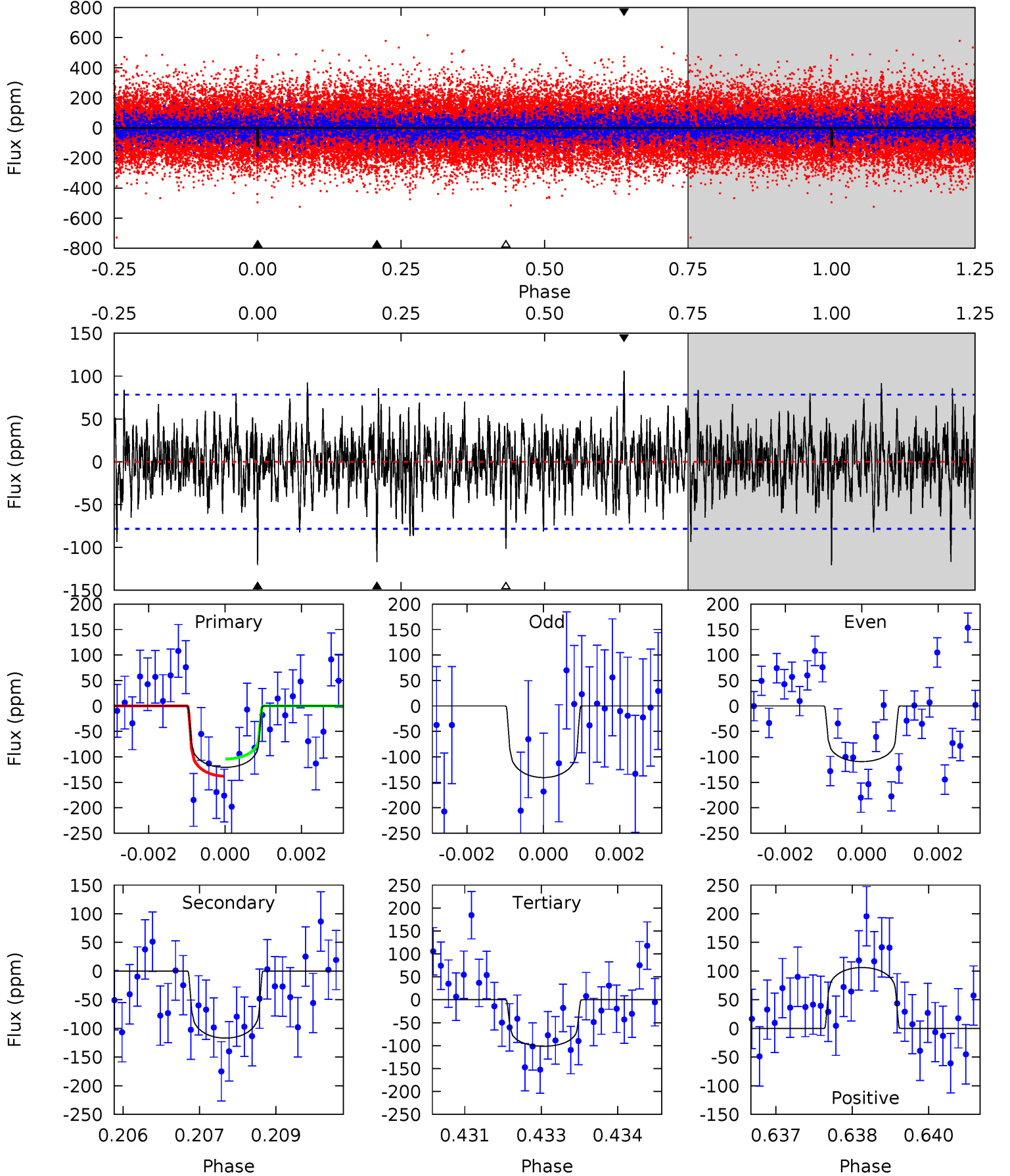
TCE 011872139-02 $P=274.749648$ Days $T_0=368.896082$ (BKJD)



DV Model-Shift Uniqueness Test

011872139-02, P = 274.733990 Days, E = 94.207422 Days

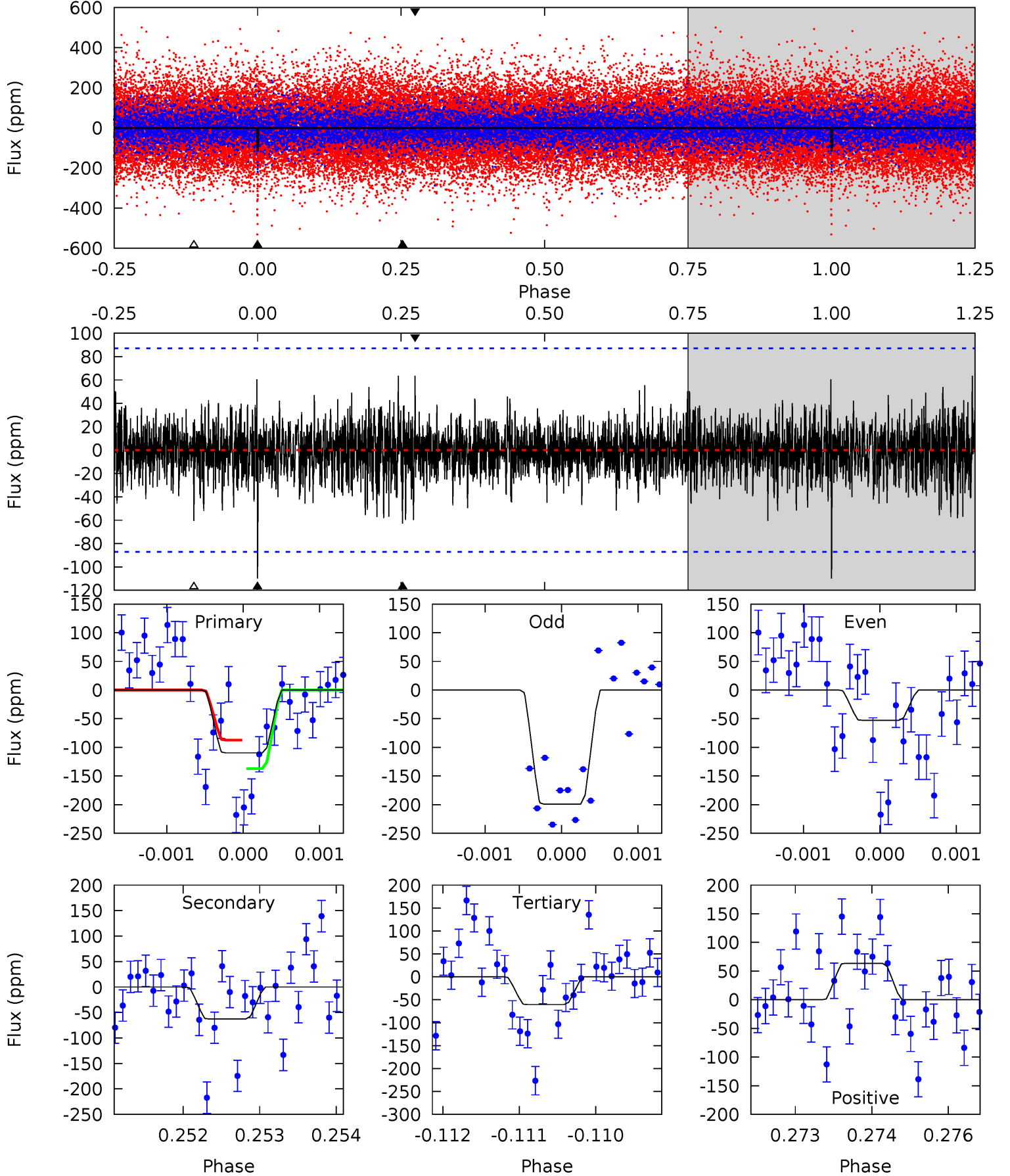
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.26	8.00	6.94	7.28	5.36	3.15	1.84	1.31	0.98	1.06	0.73	1.04	0.54	0.47	1.15



Alt Model-Shift Uniqueness Test

011872139-02, P = 274.749648 Days, E = 94.146434 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.84	3.91	3.77	3.96	5.43	3.26	1.00	3.07	2.88	0.14	-0.05	4.33	-1.92	0.37	1.55



Stellar Parameters For KIC 011872139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6619^{+182}_{-250}	$3.718^{+0.501}_{-0.088}$	$0.000^{+0.250}_{-0.300}$	$3.050^{+0.528}_{-1.583}$	$1.771^{+0.143}_{-0.535}$	$0.088^{+0.497}_{-0.025}$
	+3%/-4%	+13%/-2%	+inf%/-inf%	+17%/-52%	+8%/-30%	+565%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 011872139-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-117 ± 15	$4.71^{+3.73}_{-2.86}$	680^{+55}_{-90}	5335^{+3389}_{-1043}	2823^{+14349}_{-1958}
Alt.	-63 ± 16	$4.39^{+3.68}_{-2.80}$	687^{+51}_{-88}	4908^{+2699}_{-984}	1768^{+9704}_{-1261}

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

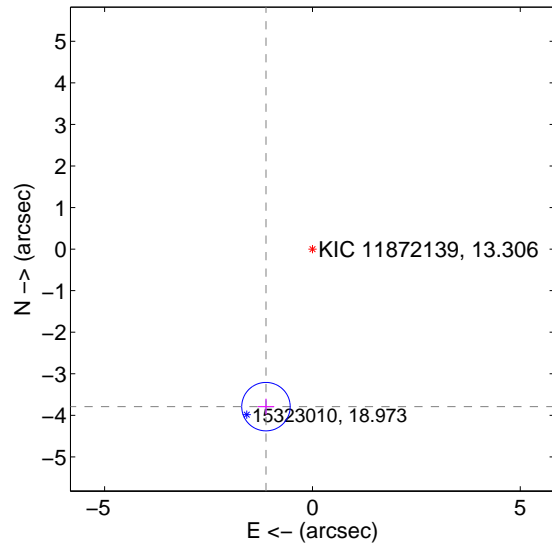
Supplemental centroid analysis for 011872139-02. Kepler magnitude: 13.31. Transit SNR 7.49

There are 1 quarters with good PRF difference image offsets

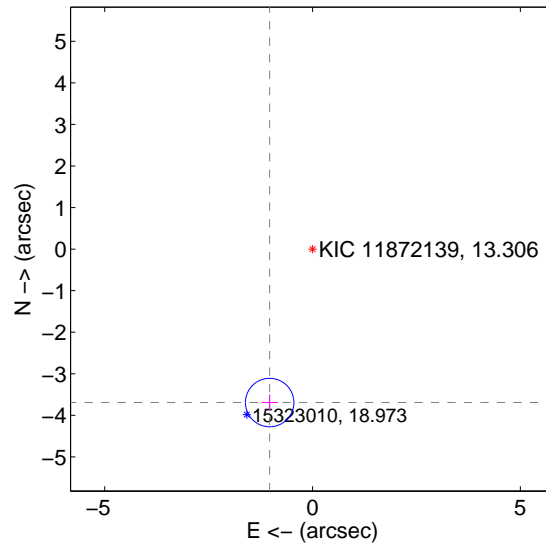
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.951 ± 0.194	20.34	1.118 ± 0.197	-3.790 ± 0.194
PRF-fit source offset from KIC position	3.832 ± 0.194	19.73	1.031 ± 0.197	-3.691 ± 0.194
photometric centroid source offset	1.27 ± 1.20	1.06	0.58 ± 1.06	1.13 ± 1.23

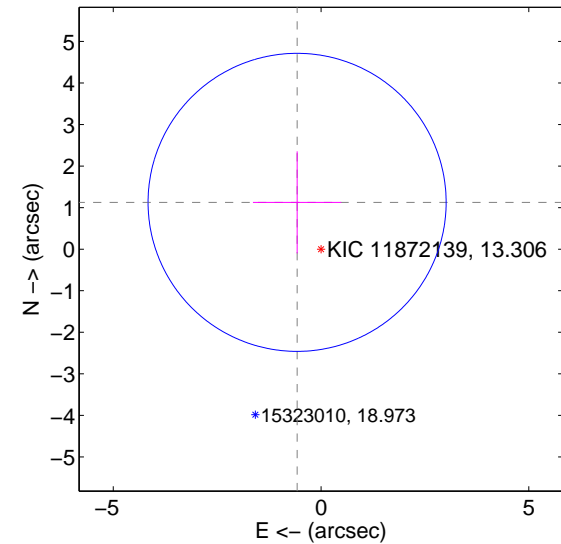
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

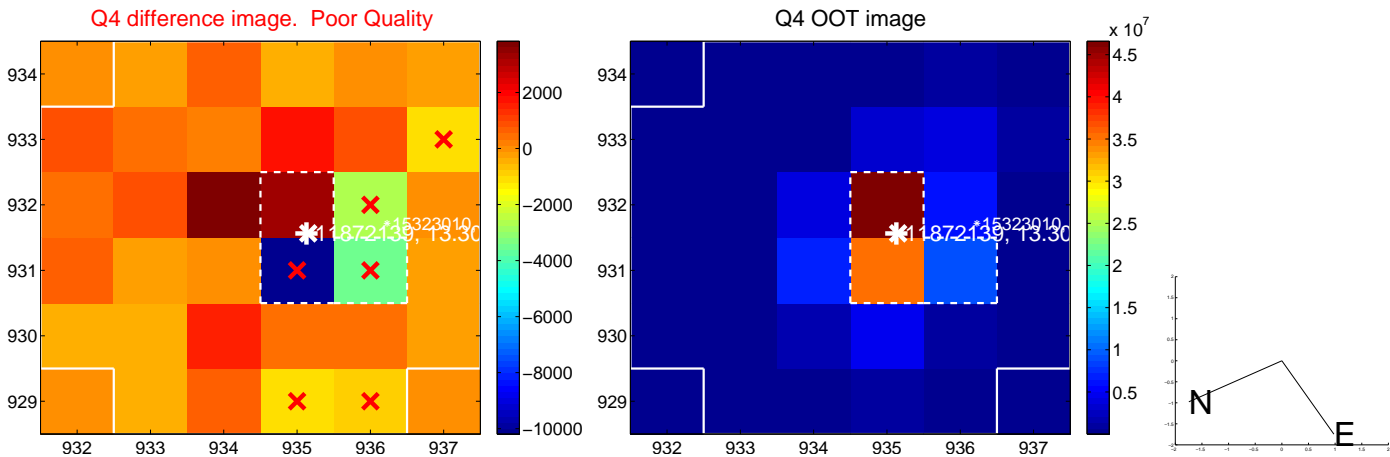


offset from photometric centroids



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.

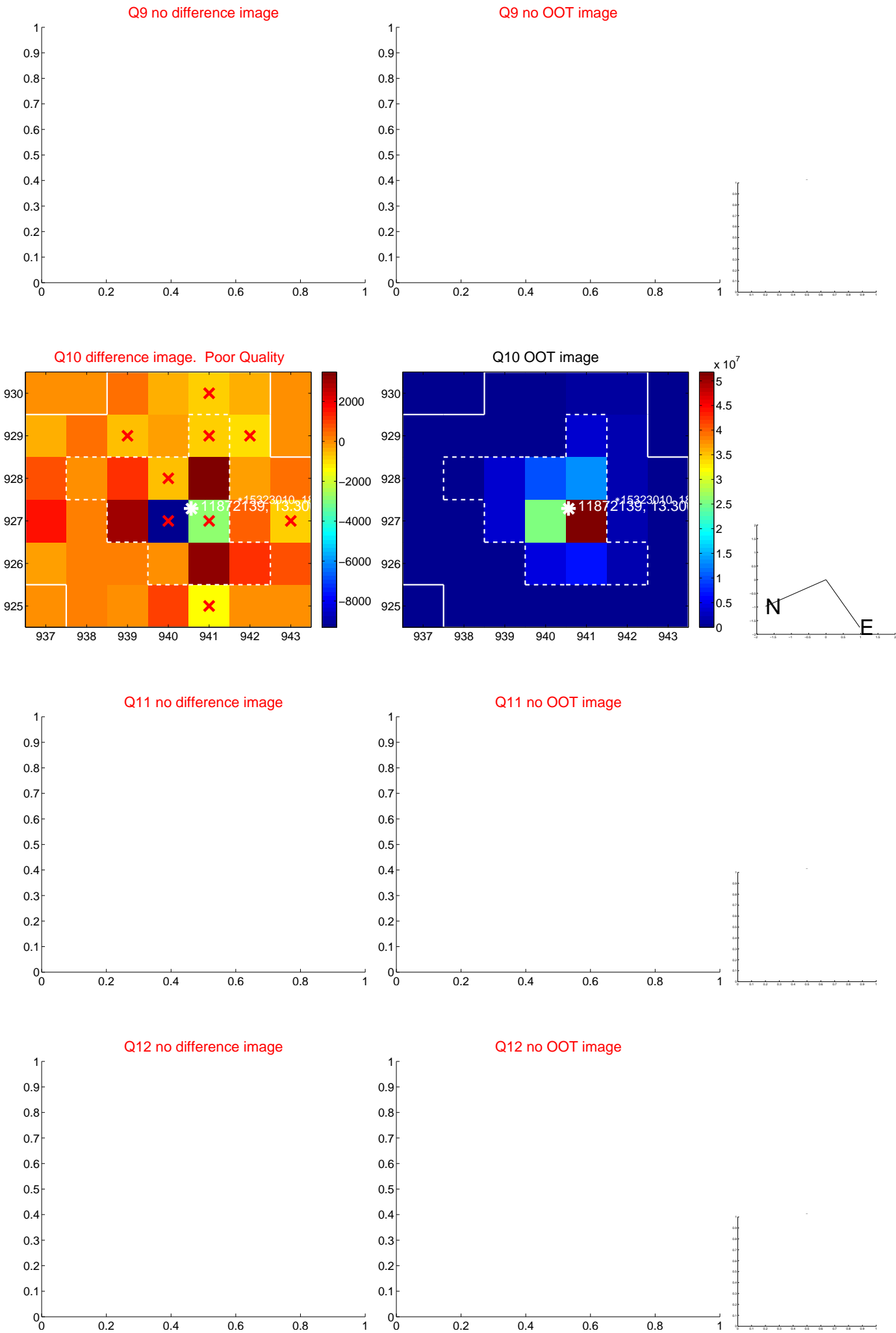
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



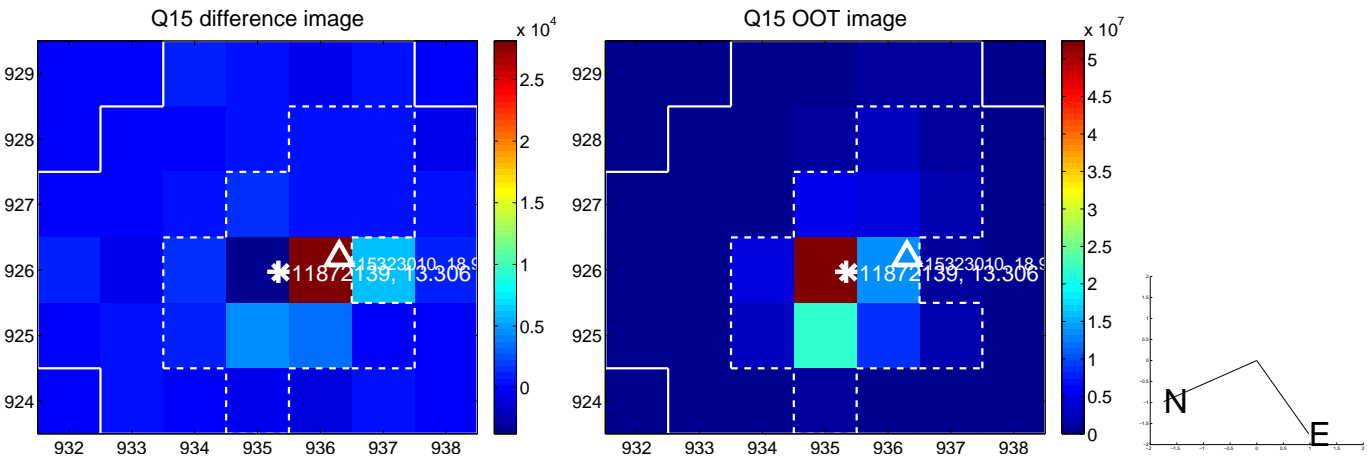
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



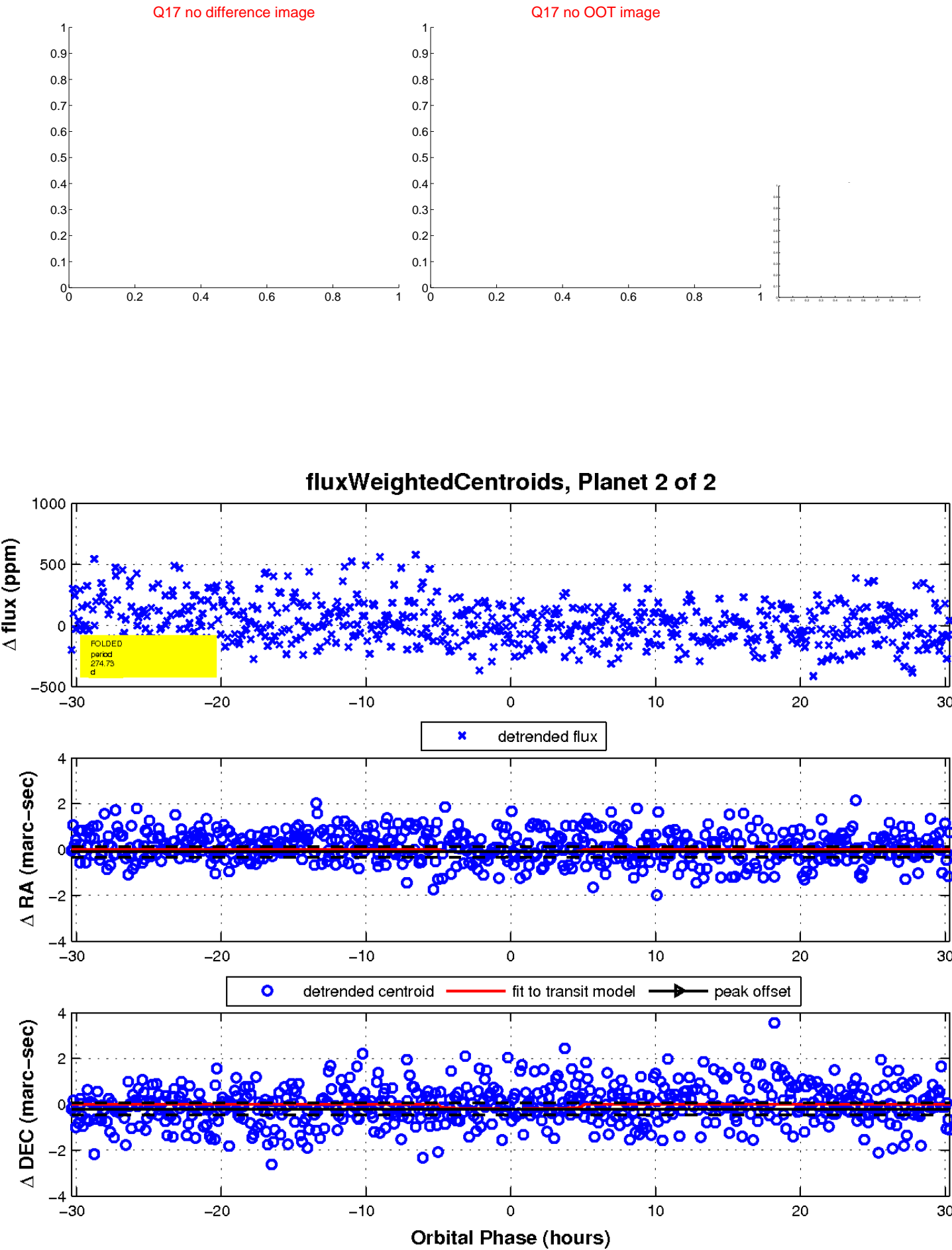
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

