

KIC 008451143

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})
008451143-01	OBS	No	1.855660	132.647100	3.5	9.211	7.9	7.8	4.74	7906	1.01	49489.69
008451143-02	OBS	No	175.868465	228.755986	21.4	23.058	8.4	4.6	4.74	7906	2.56	114.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008451143-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008451143-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

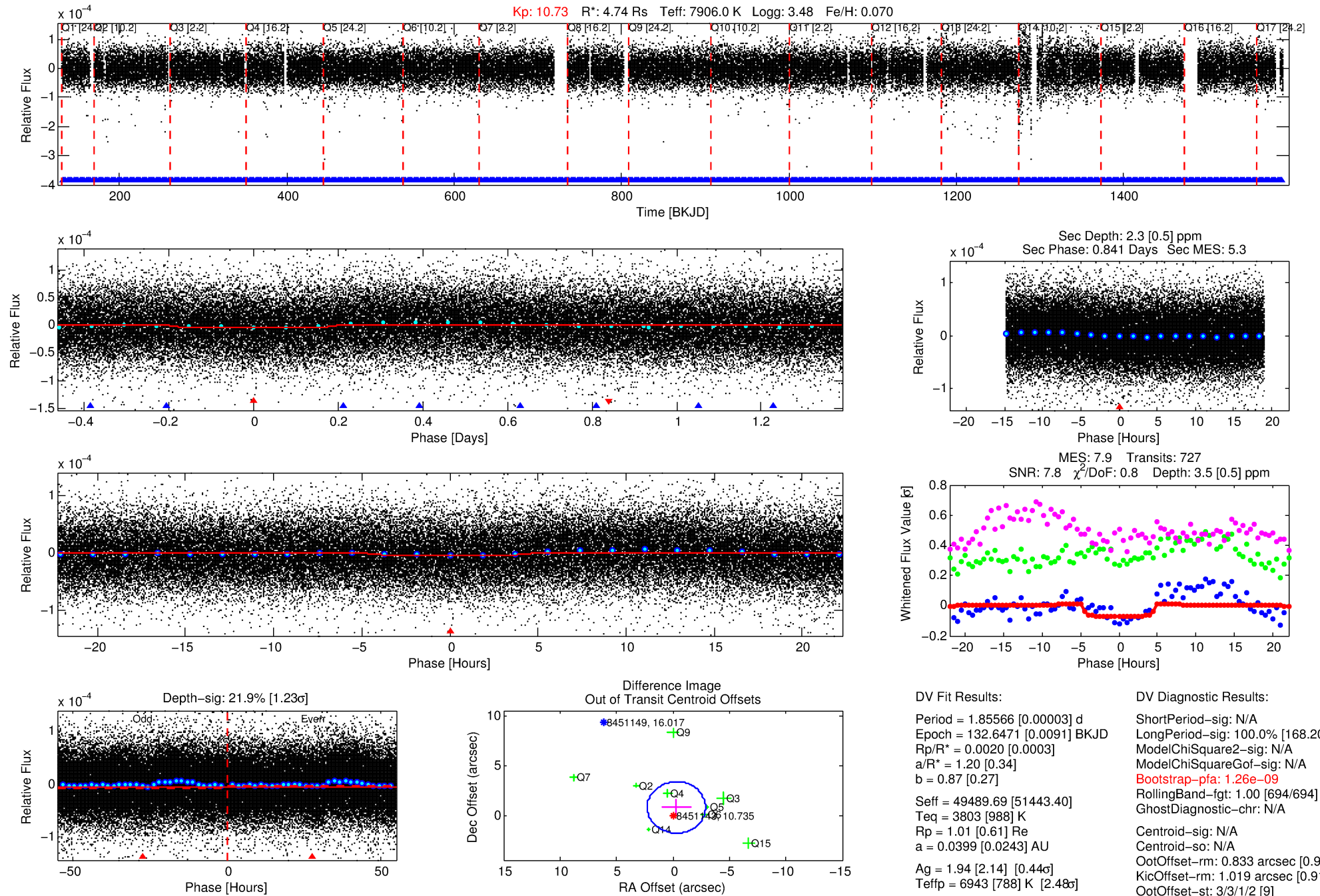
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008451143-01

No Significant Match Found

DV One-Page Summary

KIC: 8451143 Candidate: 1 of 2 Period: 1.856 d



DV Fit Results:

Period = 1.85566 [0.00003] d
Epoch = 132.6471 [0.0091] BKJD
Rp/R* = 0.0020 [0.0003]
a/R* = 1.20 [0.34]
b = 0.87 [0.27]
Seff = 49489.69 [51443.40]
Teq = 3803 [988] K
Rp = 1.01 [0.61] Re
a = 0.0399 [0.0243] AU
Ag = 1.94 [2.14] [0.44 σ]
Teffp = 6943 [788] K [2.48 σ]

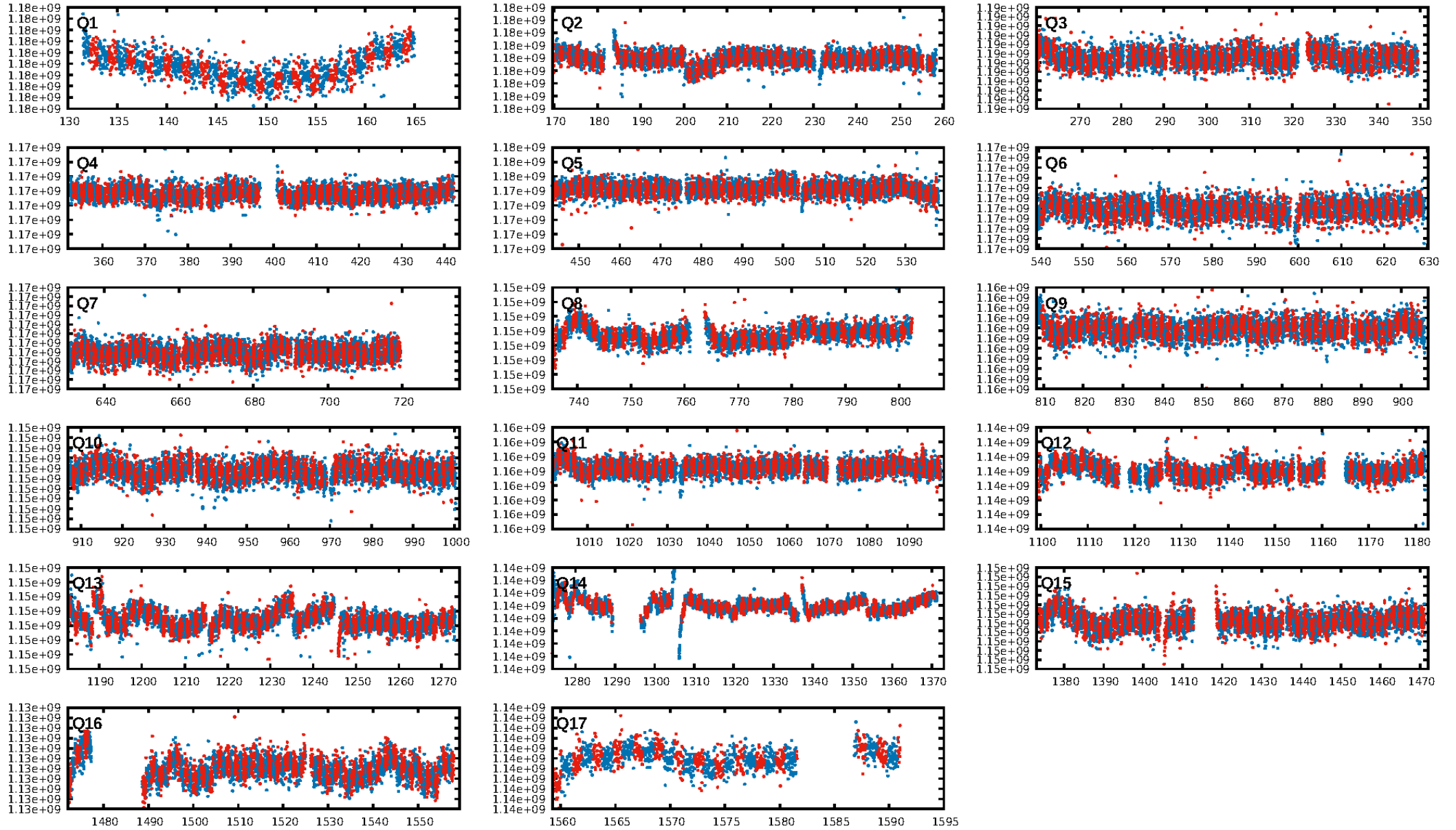
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [168.20 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.26e-09
RollingBand-fgt: 1.00 [694/694]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.833 arcsec [0.97 σ]
KicOffset-rm: 1.019 arcsec [0.91 σ]
OotOffset-st: 3/3/1/2 [9]
KicOffset-st: 3/3/1/2 [9]
DiffImageQuality-fgm: 0.33 [3/9]
DiffImageOverlap-fno: 1.00 [17/17]

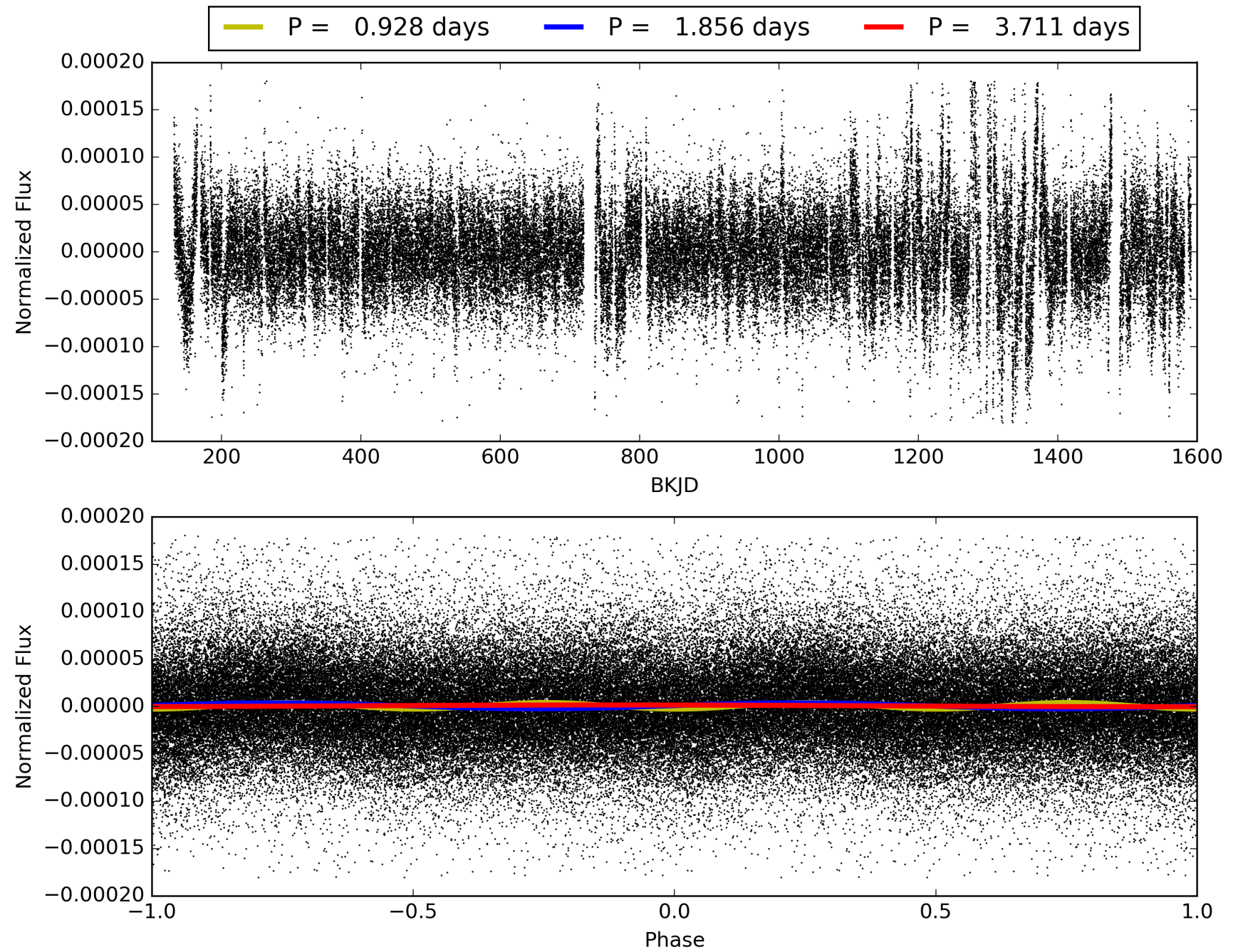
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:45:44 Z

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

TCE 008451143-01, PDC Light Curves

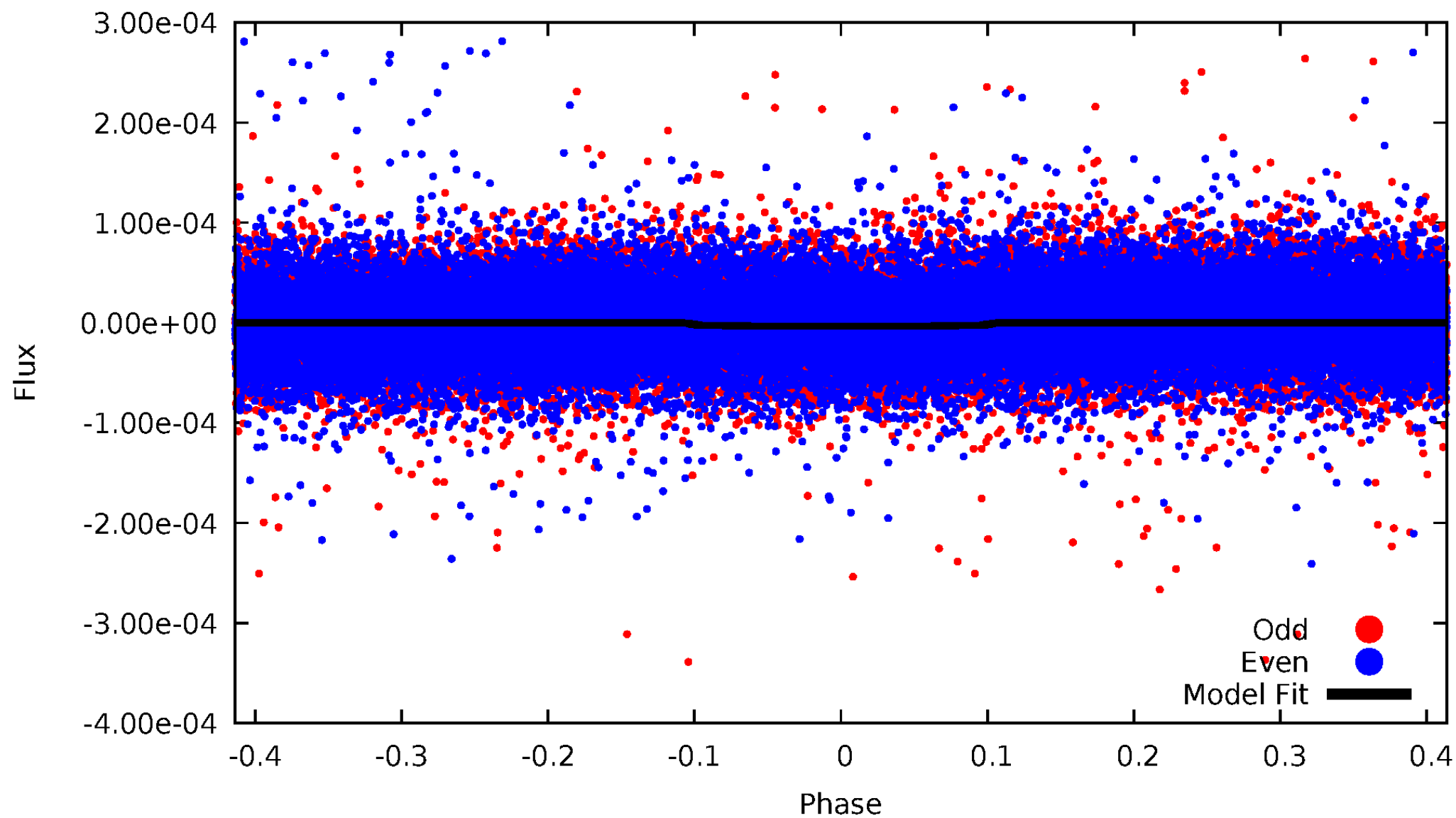


TCE 008451143-01



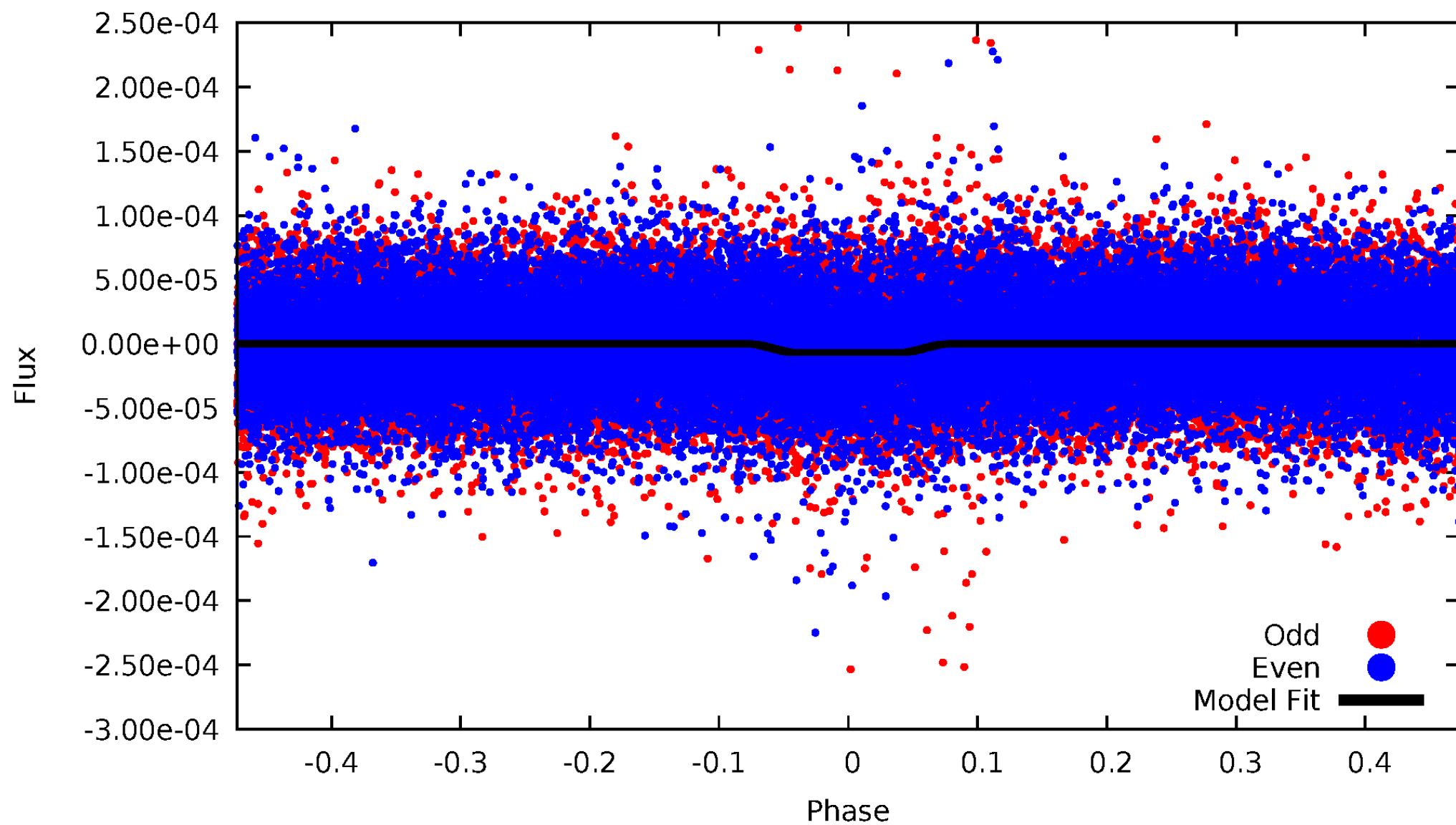
DV Odd/Even

TCE 008451143-01



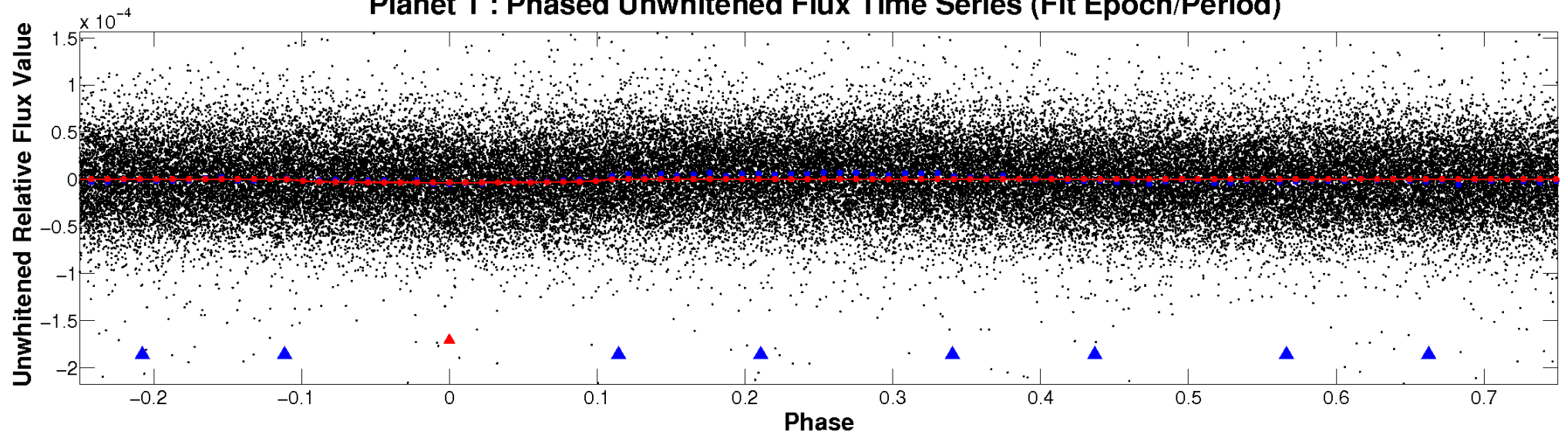
ALT Odd/Even

TCE 008451143-01

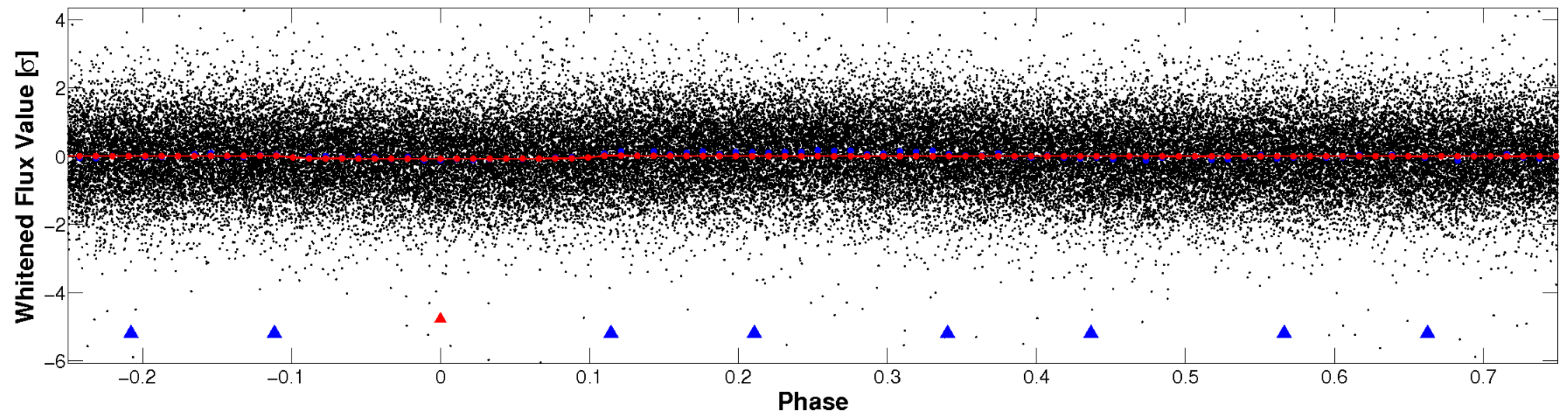


Non-Whitened Vs. Whitened Light Curve

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

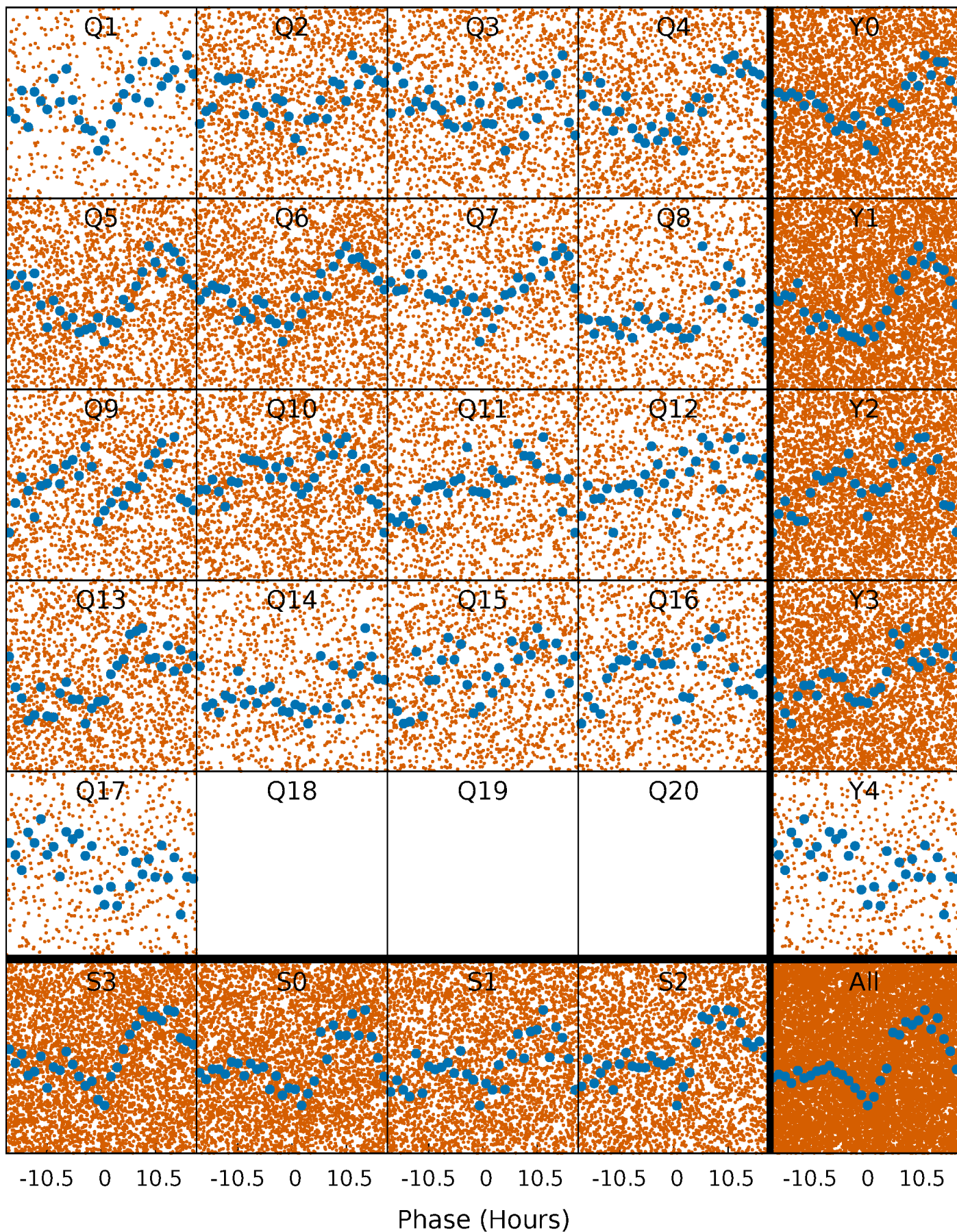


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



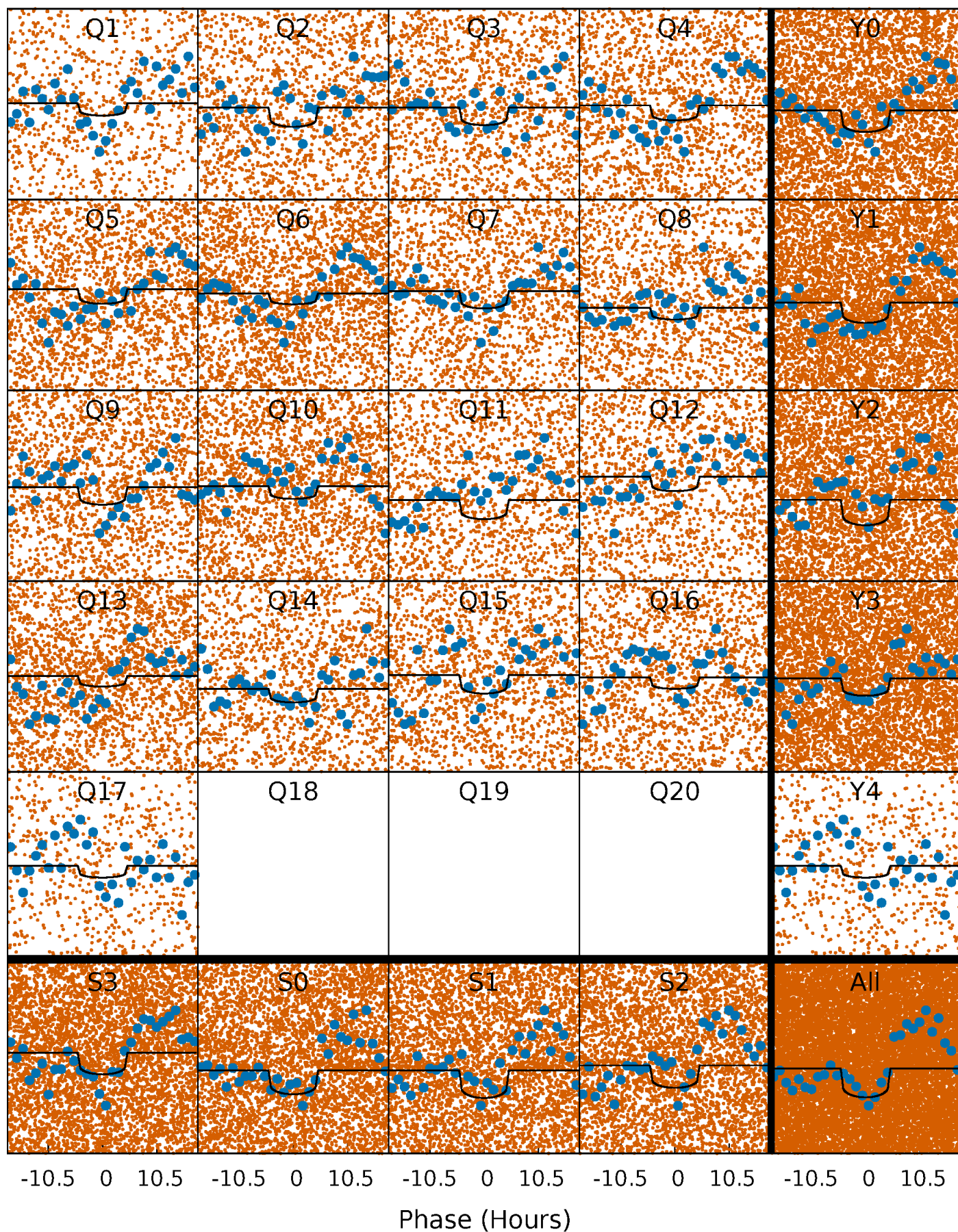
PDC Quarter-Phased Transit Curves

TCE 008451143-01 P= 1.855660 Days $T_0=132.647100$ (BKJD)



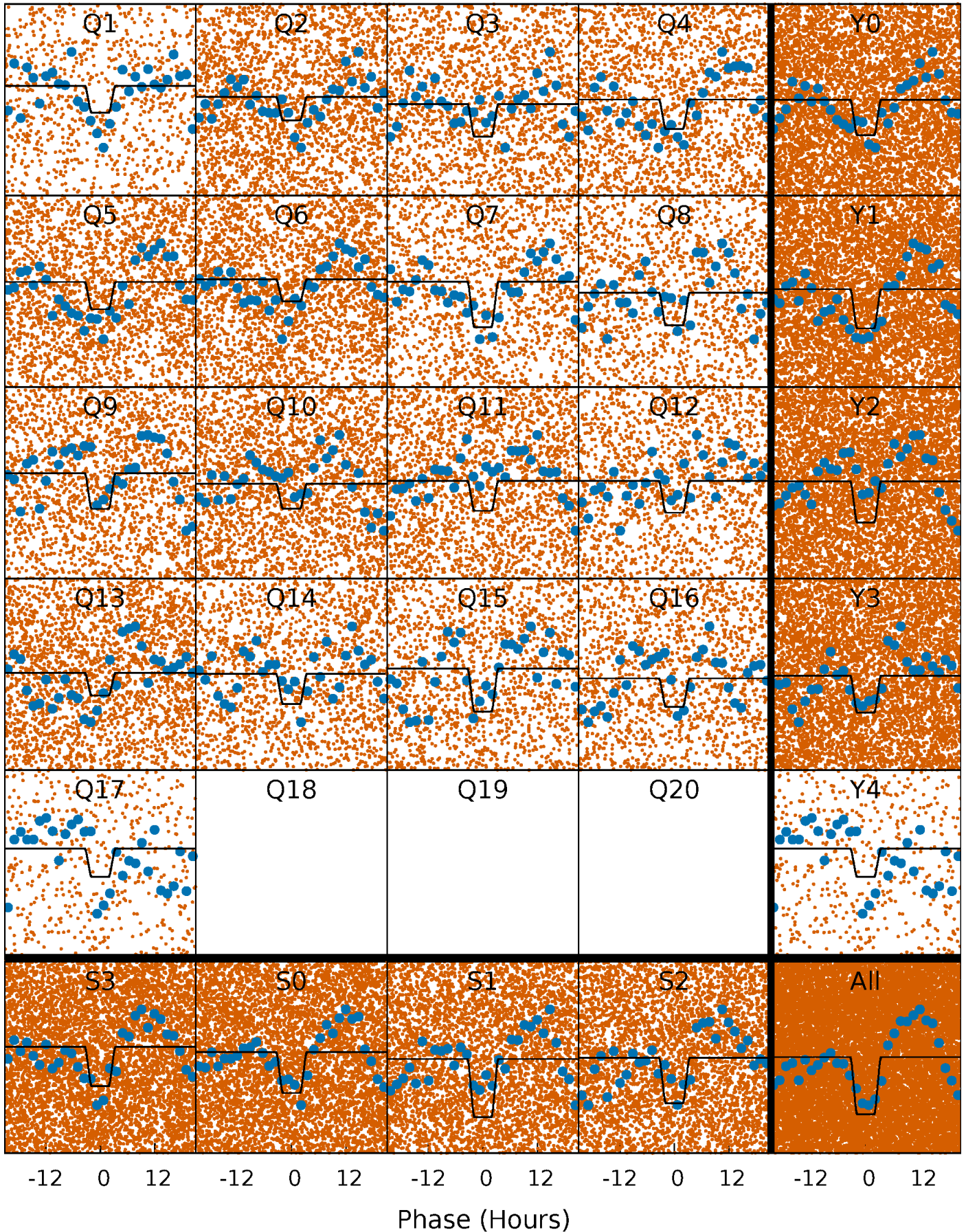
DV Quarter-Phased Transit Curves

TCE 008451143-01 P= 1.855660 Days $T_0=132.647100$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

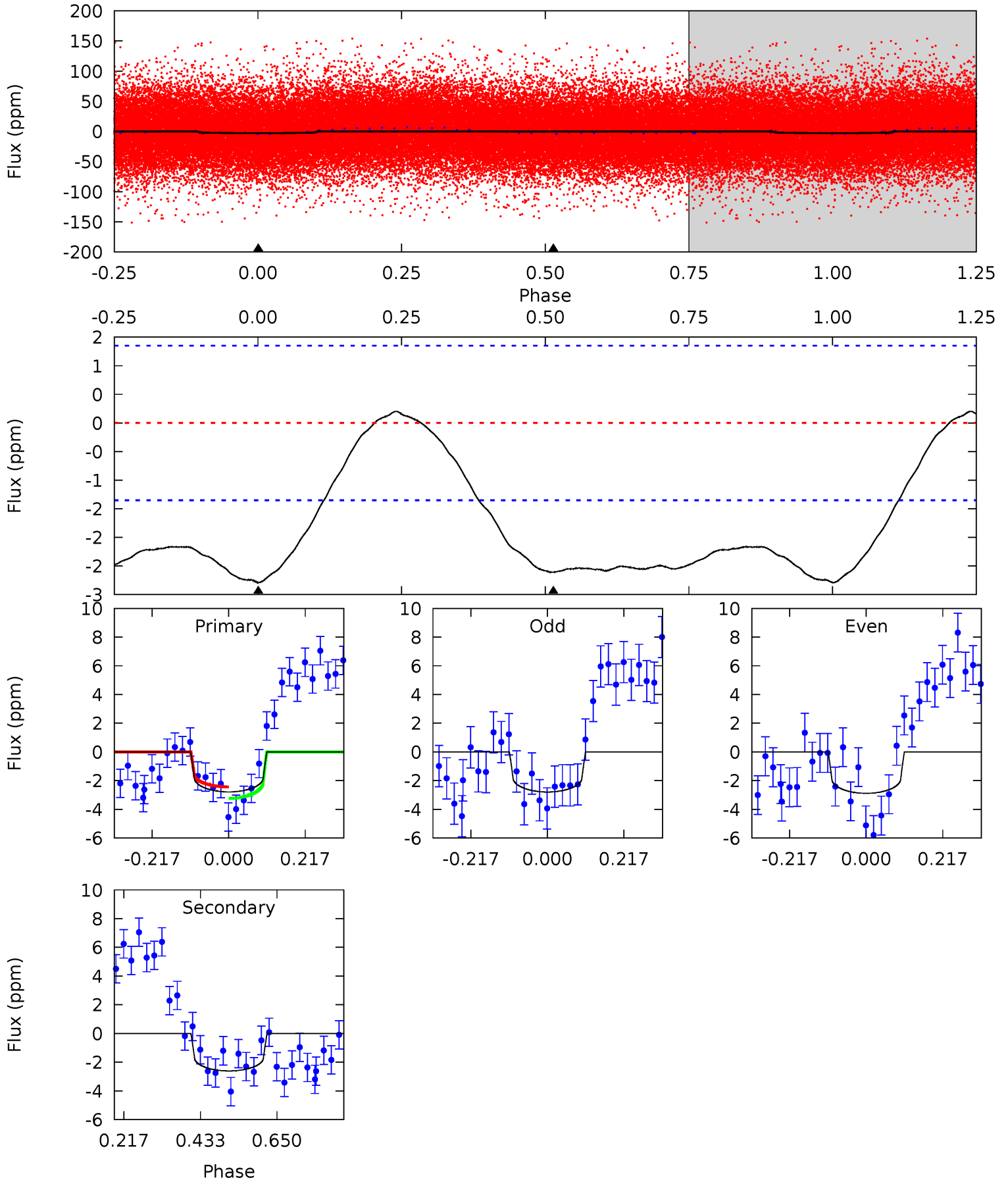
TCE 008451143-01 P= 1.855701 Days $T_0=132.635044$ (BKJD)



DV Model-Shift Uniqueness Test

008451143-01, P = 1.855660 Days, E = 130.791440 Days

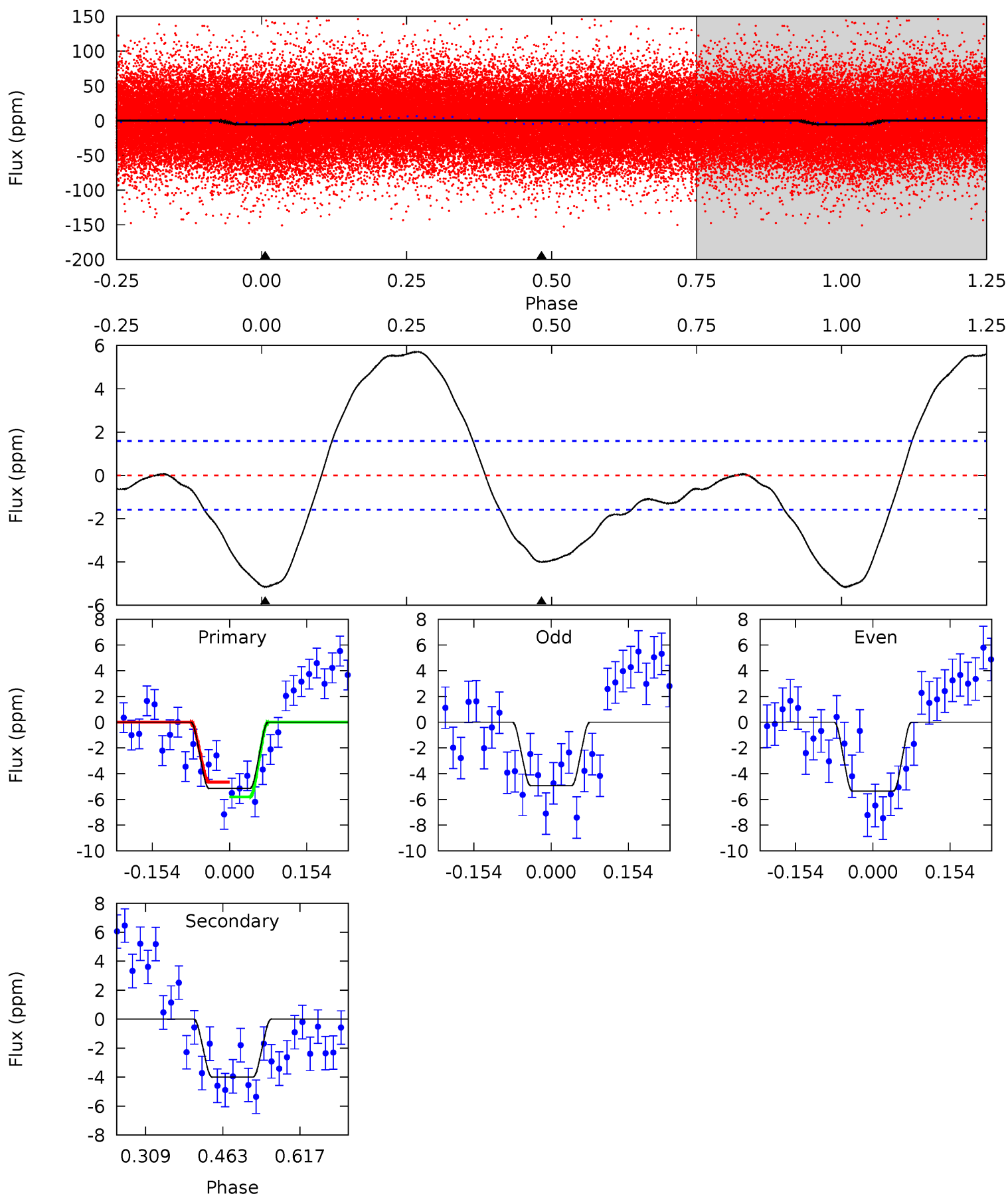
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.08	8.50	0	0	4.40	1.24	4.04	9.08	9.08	8.50	8.50	0.15	0.99	0.07	1.31



Alt Model-Shift Uniqueness Test

008451143-01, P = 1.855701 Days, E = 130.779343 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	11.3	0	0	4.47	1.42	8.27	14.5	14.5	11.3	11.3	0.61	1.17	0.53	1.63



Stellar Parameters For KIC 008451143

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7906^{+191}_{-382}	$3.476^{+0.616}_{-0.231}$	$0.070^{+0.150}_{-0.350}$	$4.739^{+0.305}_{-2.744}$	$2.451^{+0.214}_{-0.801}$	$0.032^{+0.304}_{-0.014}$
	+2%/-5%	+18%/-7%	+214%/-500%	+6%/-58%	+9%/-33%	+939%/-42%
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 008451143-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3 ± 0	$0.96^{+0.22}_{-0.29}$	5232^{+321}_{-679}	6744^{+949}_{-718}	$2.410^{+2.217}_{-0.863}$
Alt.	-4 ± 0	$1.30^{+0.23}_{-0.36}$	5237^{+321}_{-689}	6477^{+638}_{-567}	$2.016^{+1.649}_{-0.573}$

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

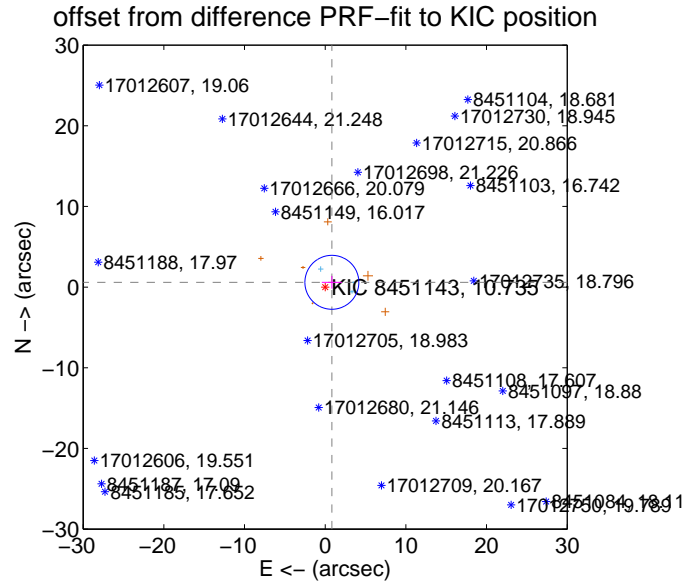
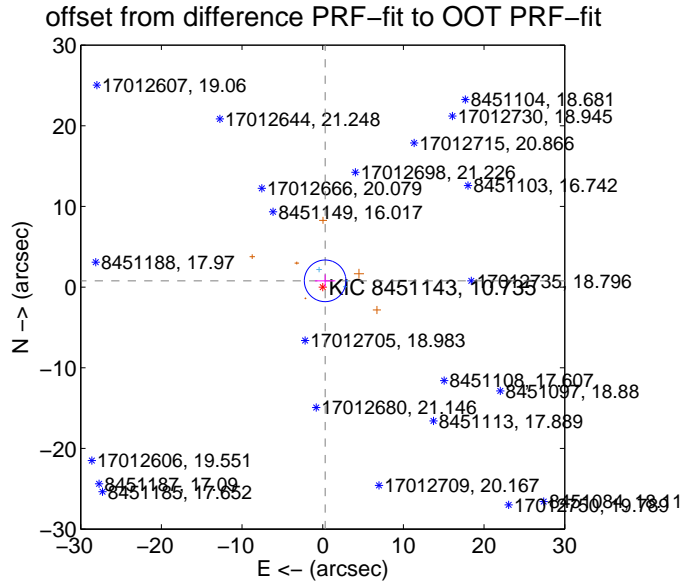
DV Centroid Data

Supplemental centroid analysis for 008451143-01. **Kepler magnitude: 10.73.** Transit SNR 7.75

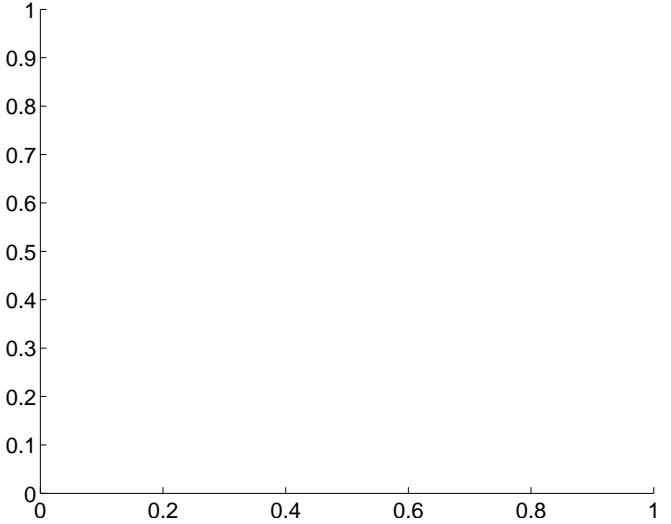
There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.76 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.833 ± 0.860	0.97	-0.302 ± 1.271	0.776 ± 0.779
PRF-fit source offset from KIC position	1.019 ± 1.114	0.91	-0.828 ± 1.250	0.594 ± 0.785
photometric centroid source offset	—	—	—	—

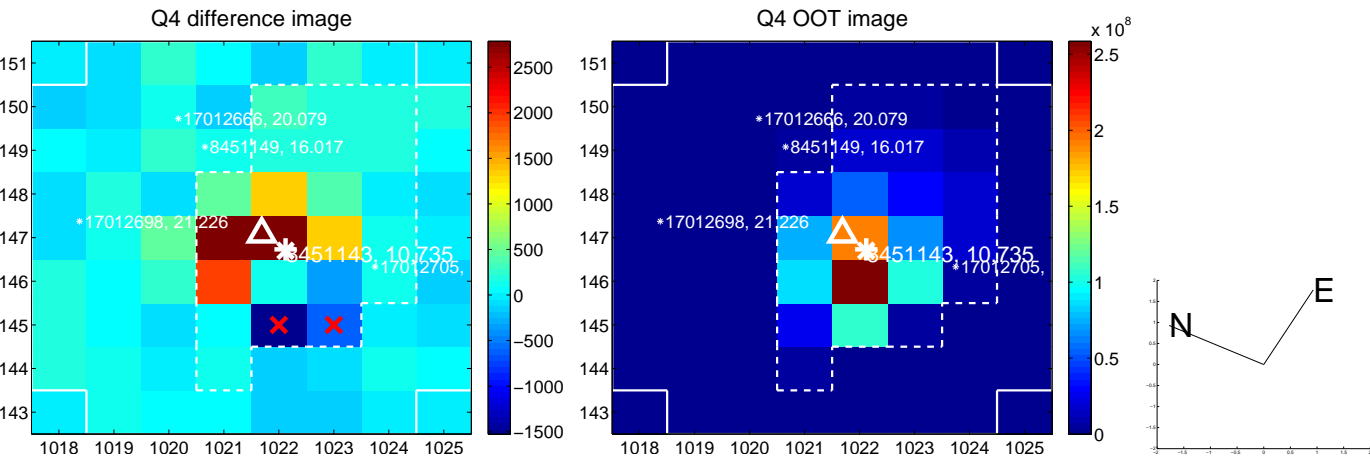
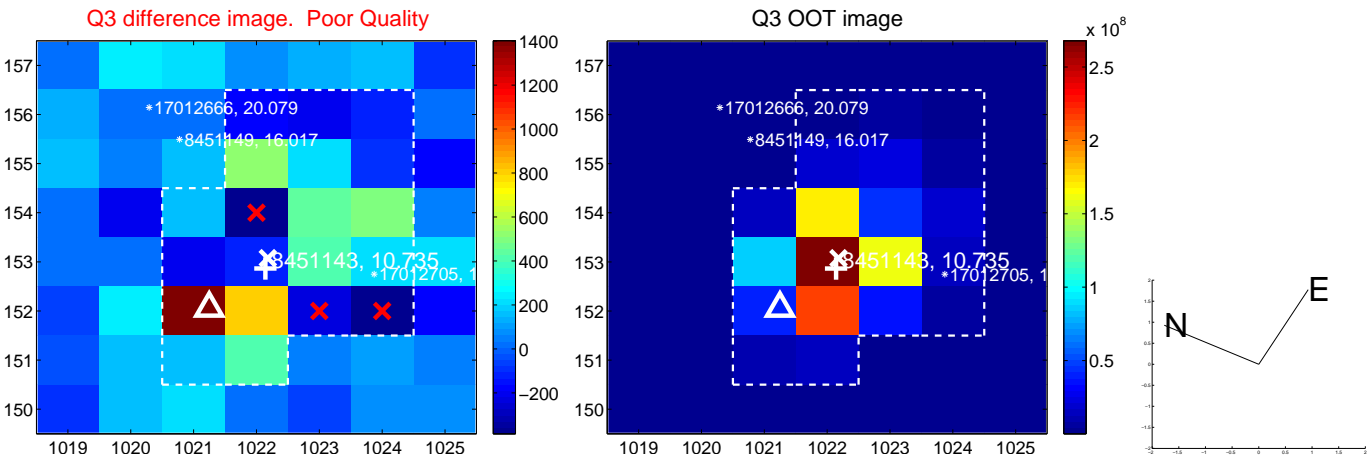
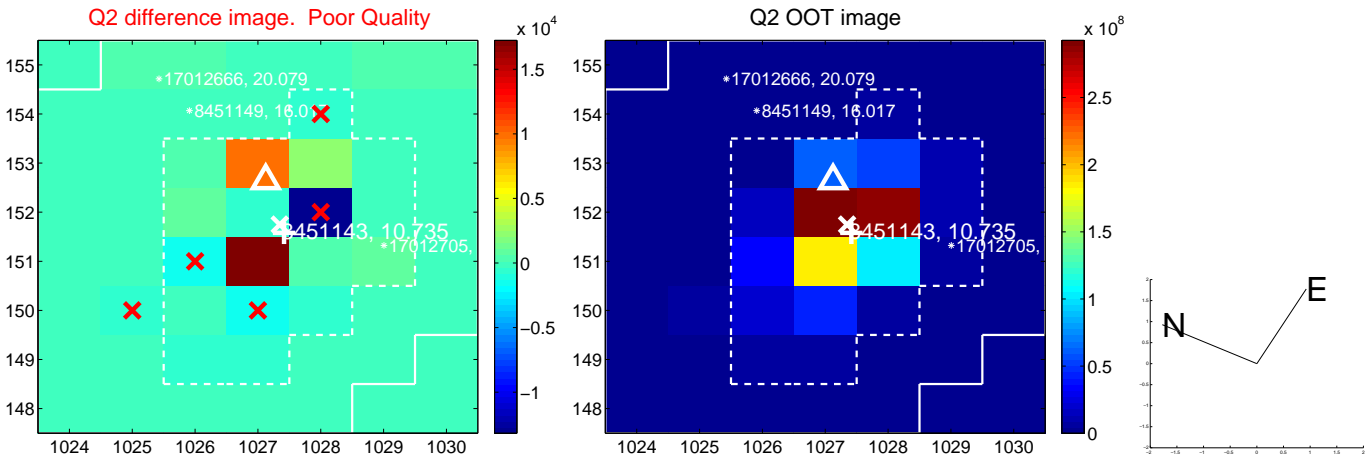
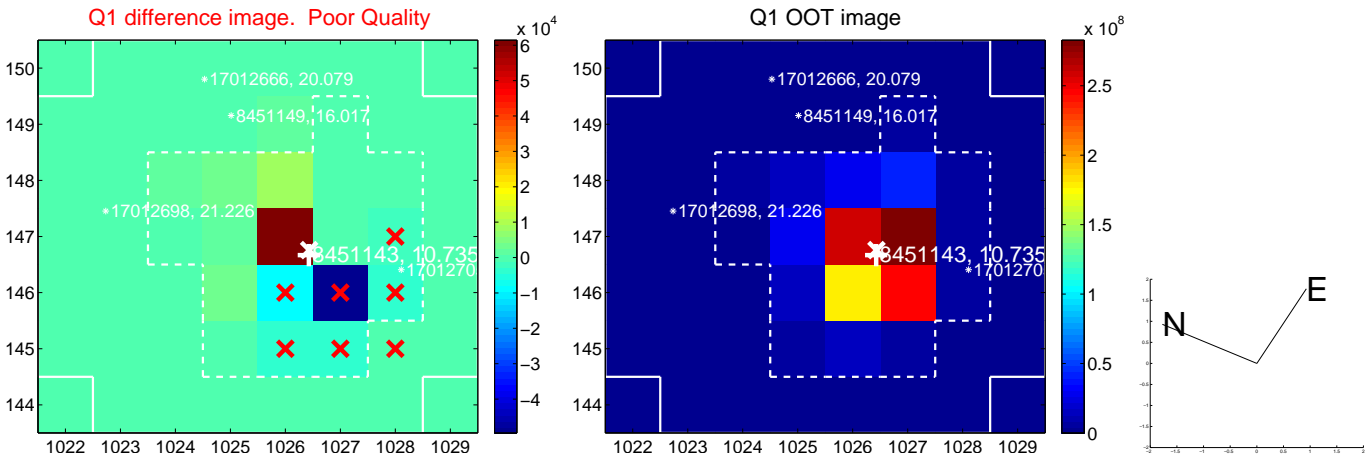


There are no photometric centroids

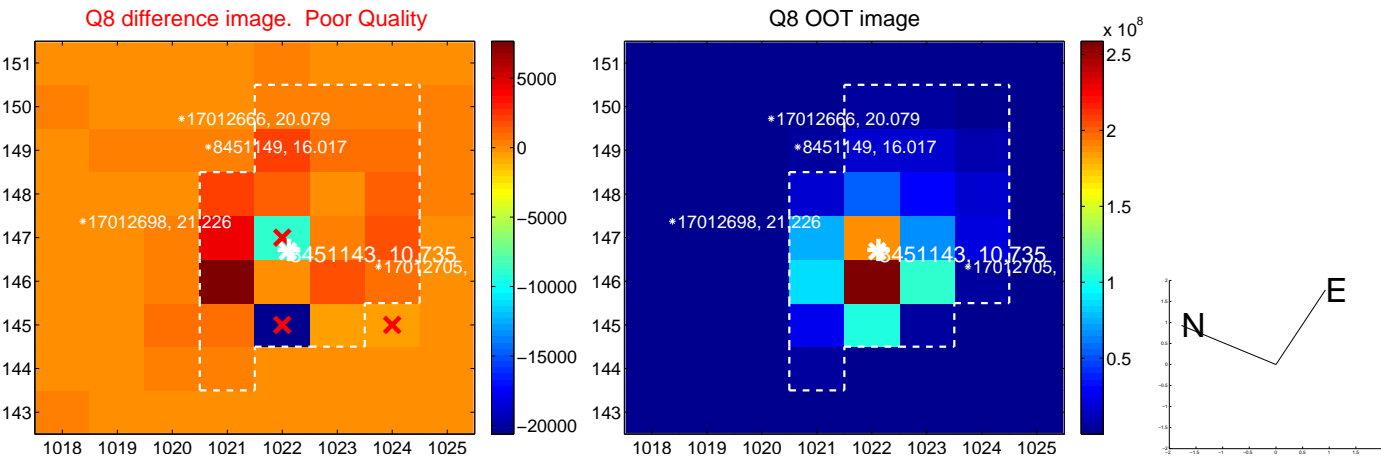
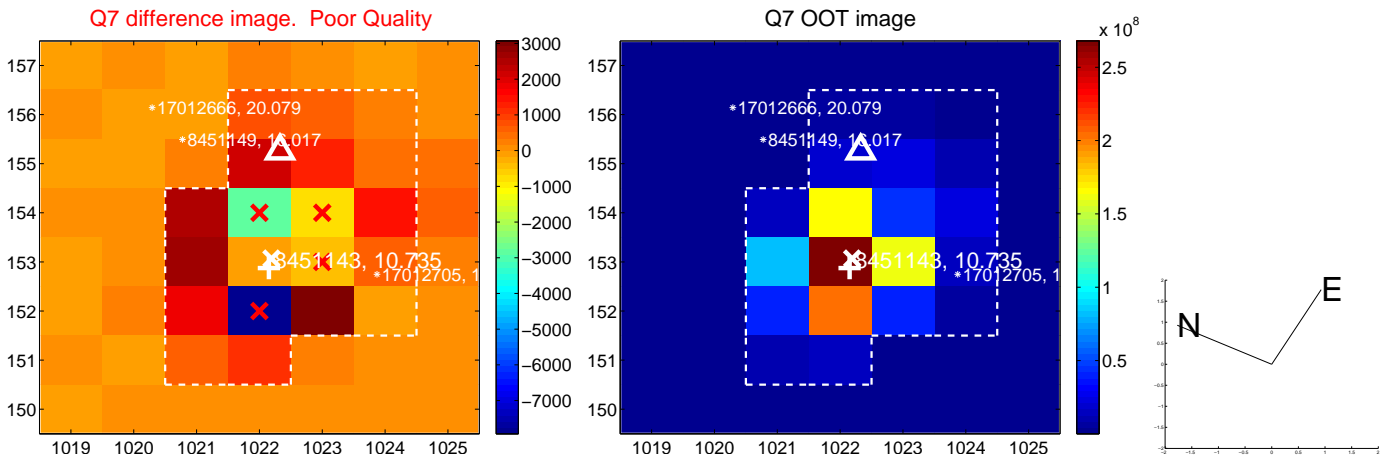
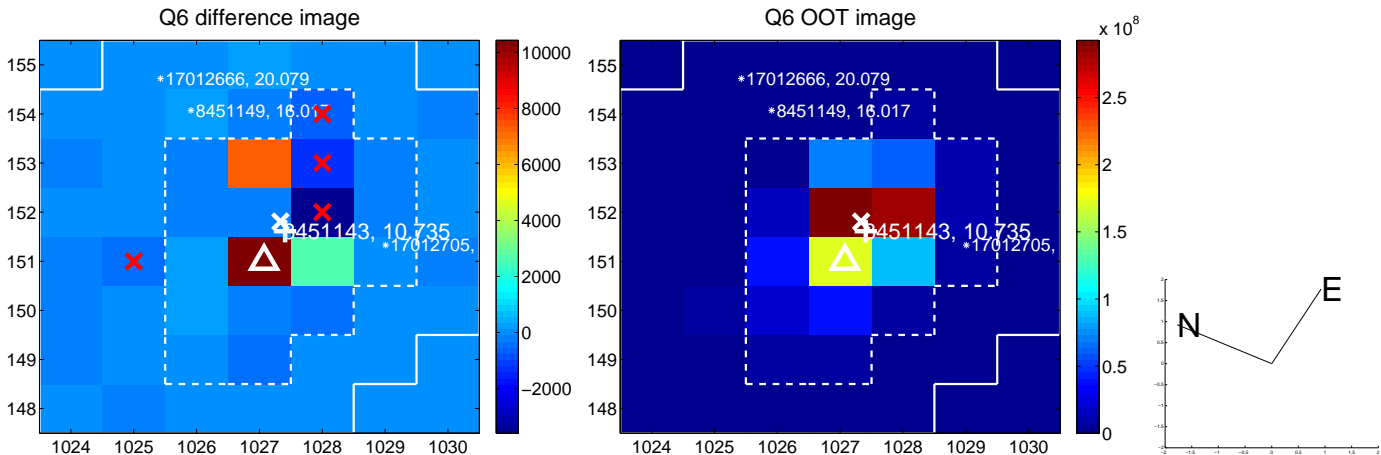
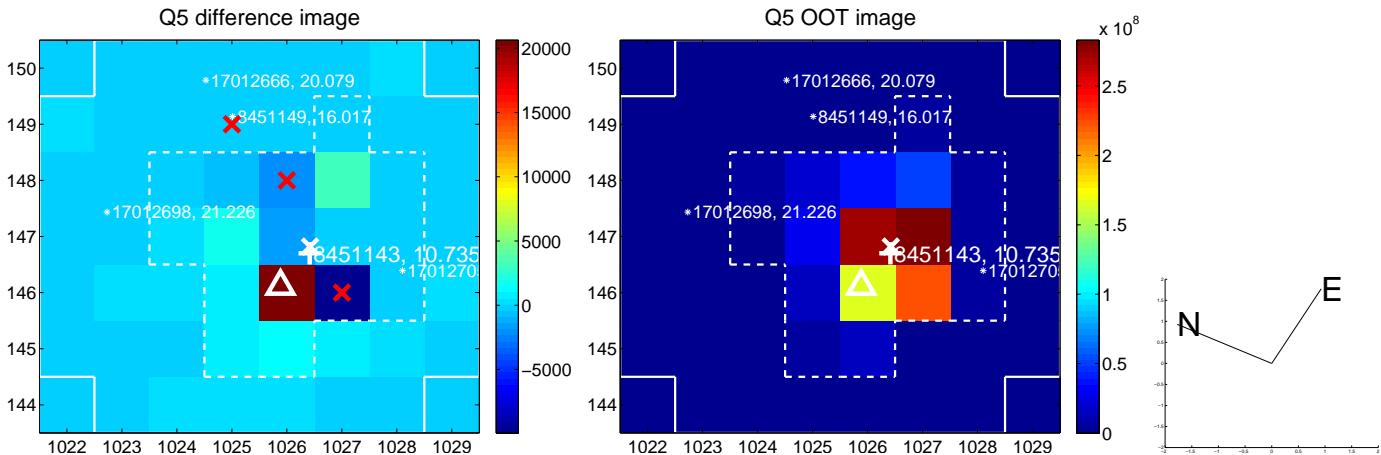


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

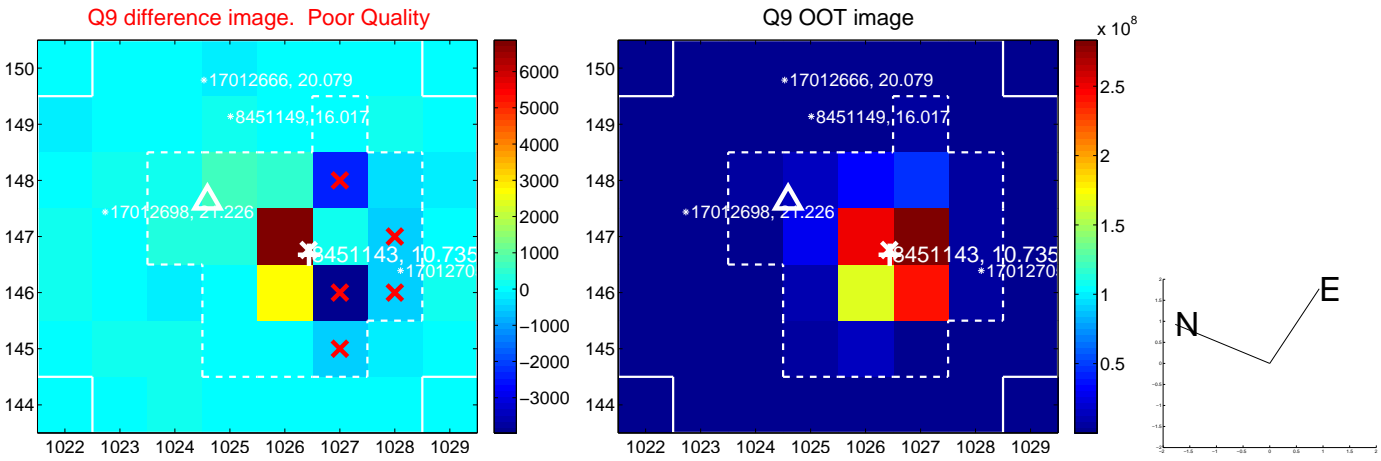
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



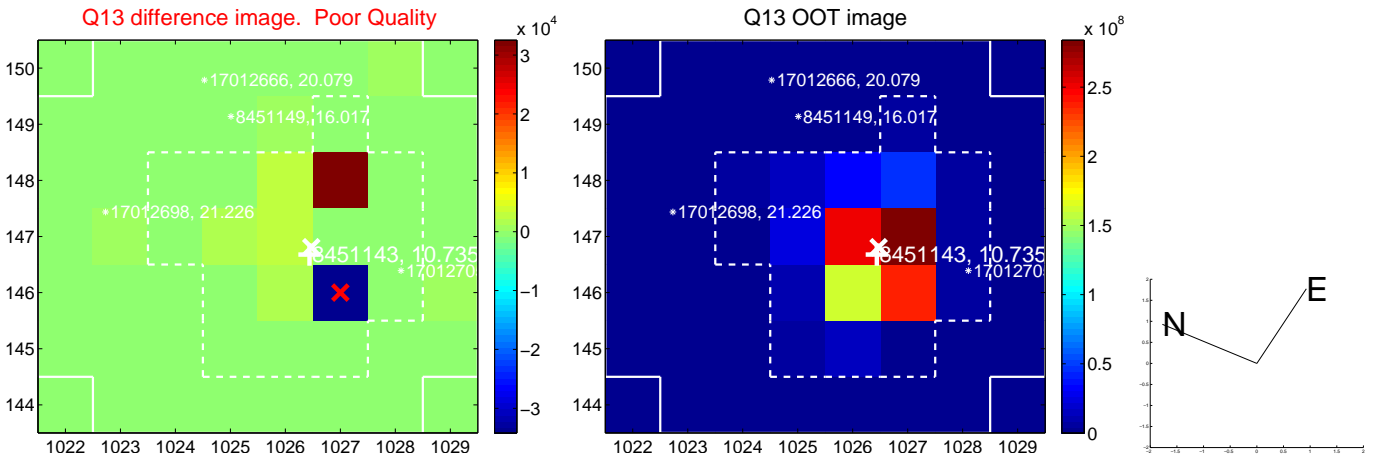
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



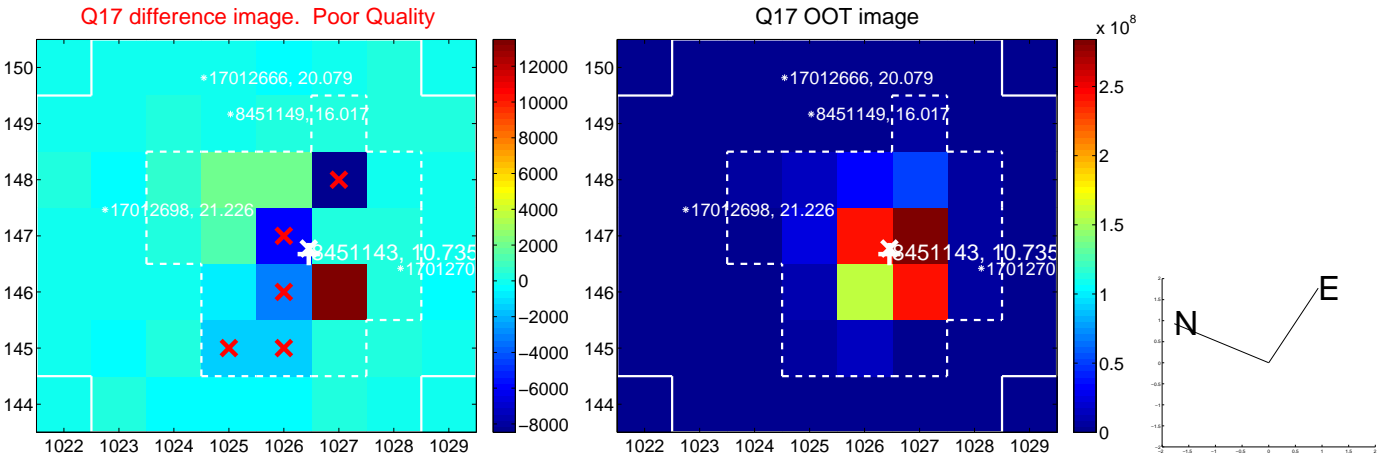
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



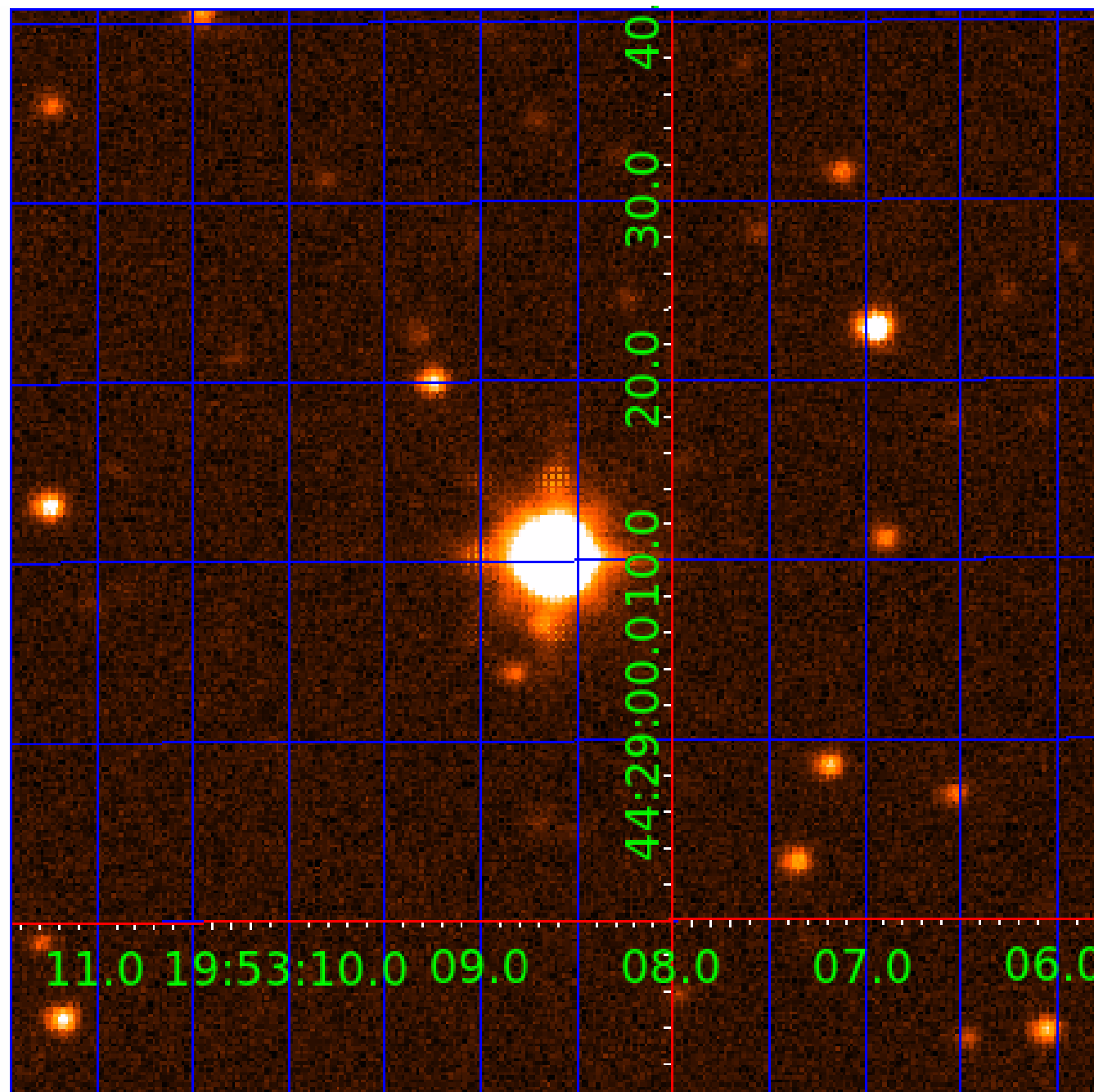
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008451143

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})
008451143-01	OBS	No	1.855660	132.647100	3.5	9.211	7.9	7.8	4.74	7906	1.01	49489.69
008451143-02	OBS	No	175.868465	228.755986	21.4	23.058	8.4	4.6	4.74	7906	2.56	114.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008451143-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008451143-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

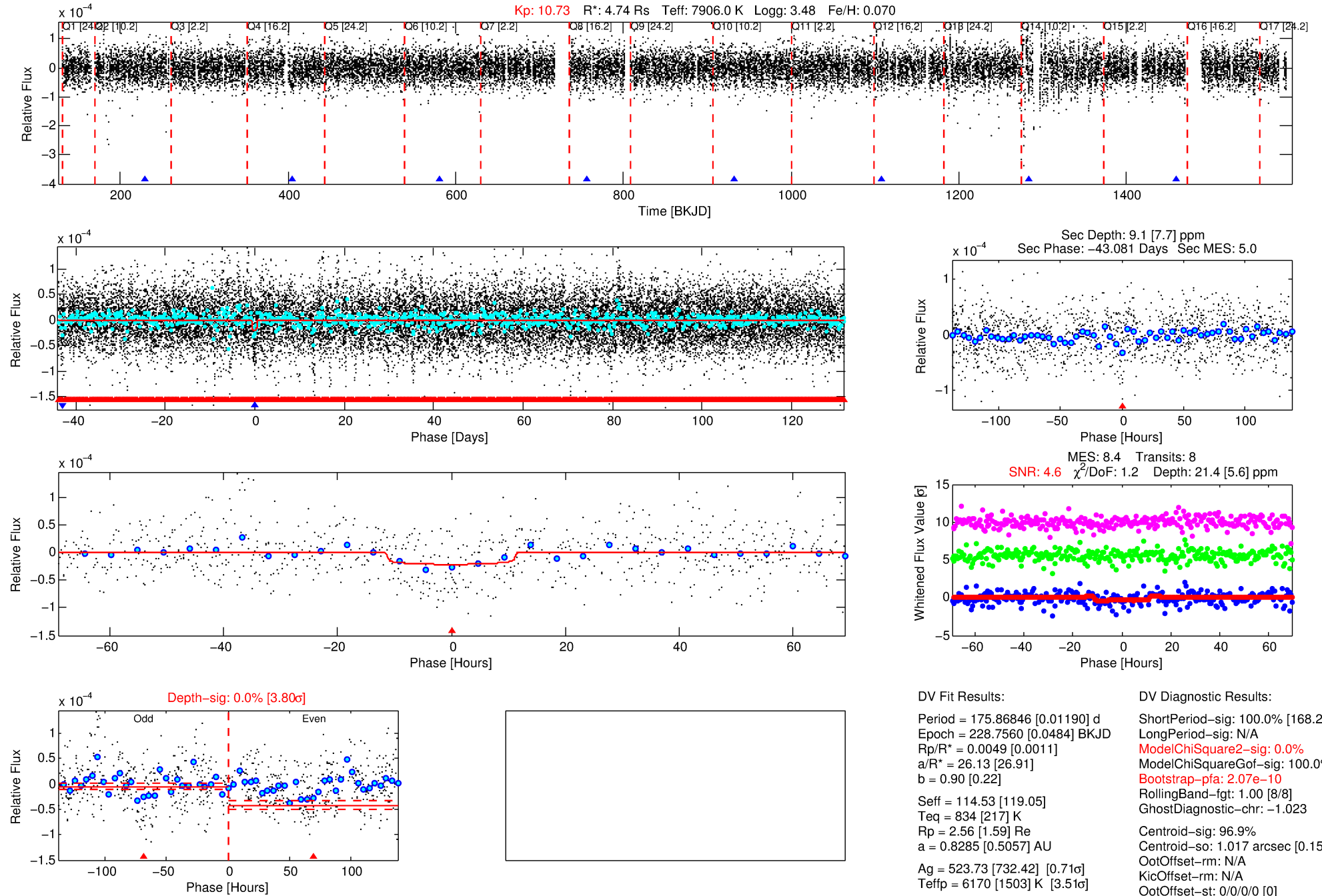
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008451143-02

No Significant Match Found

DV One-Page Summary

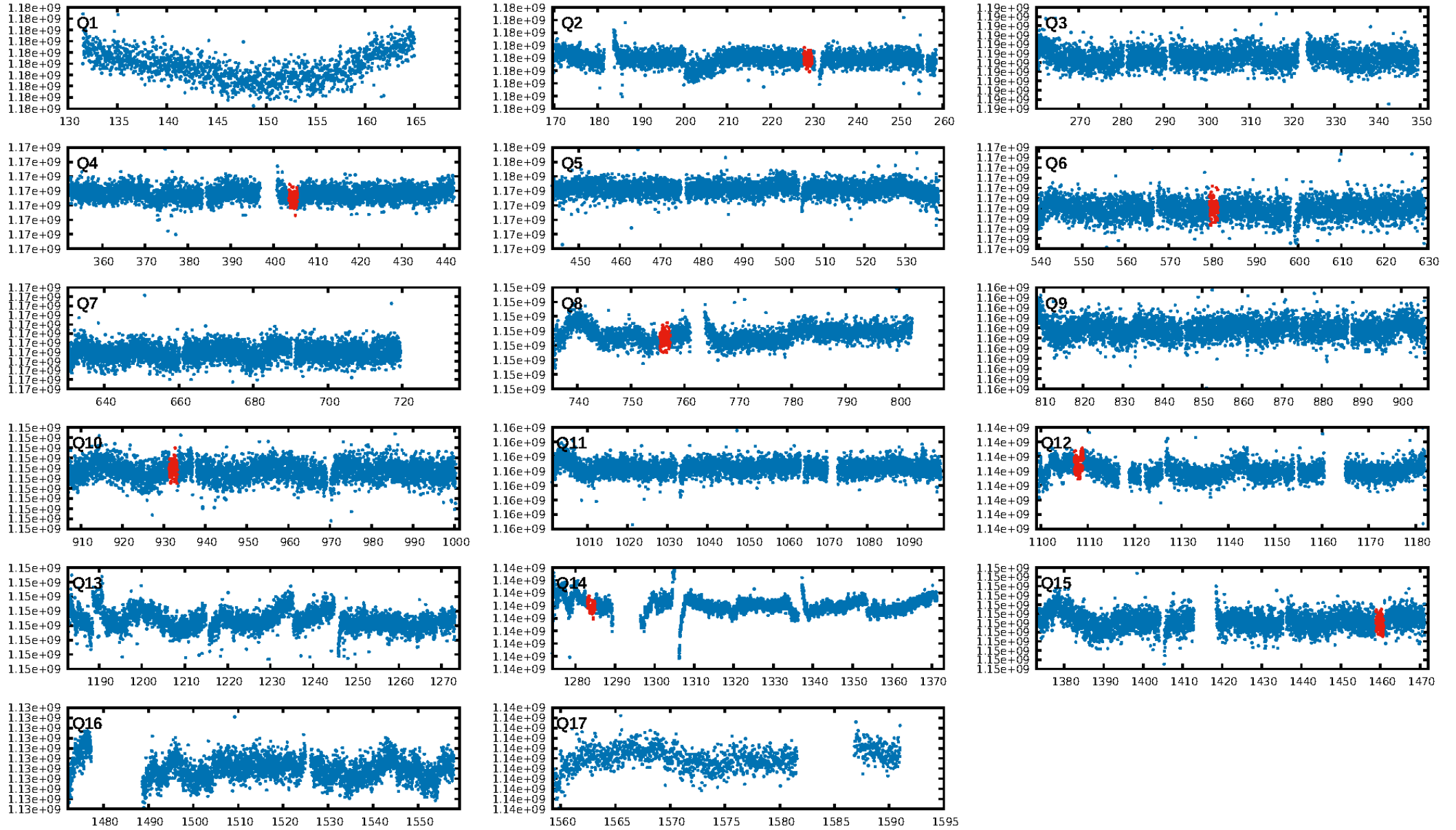
KIC: 8451143 Candidate: 2 of 2 Period: 175.868 d



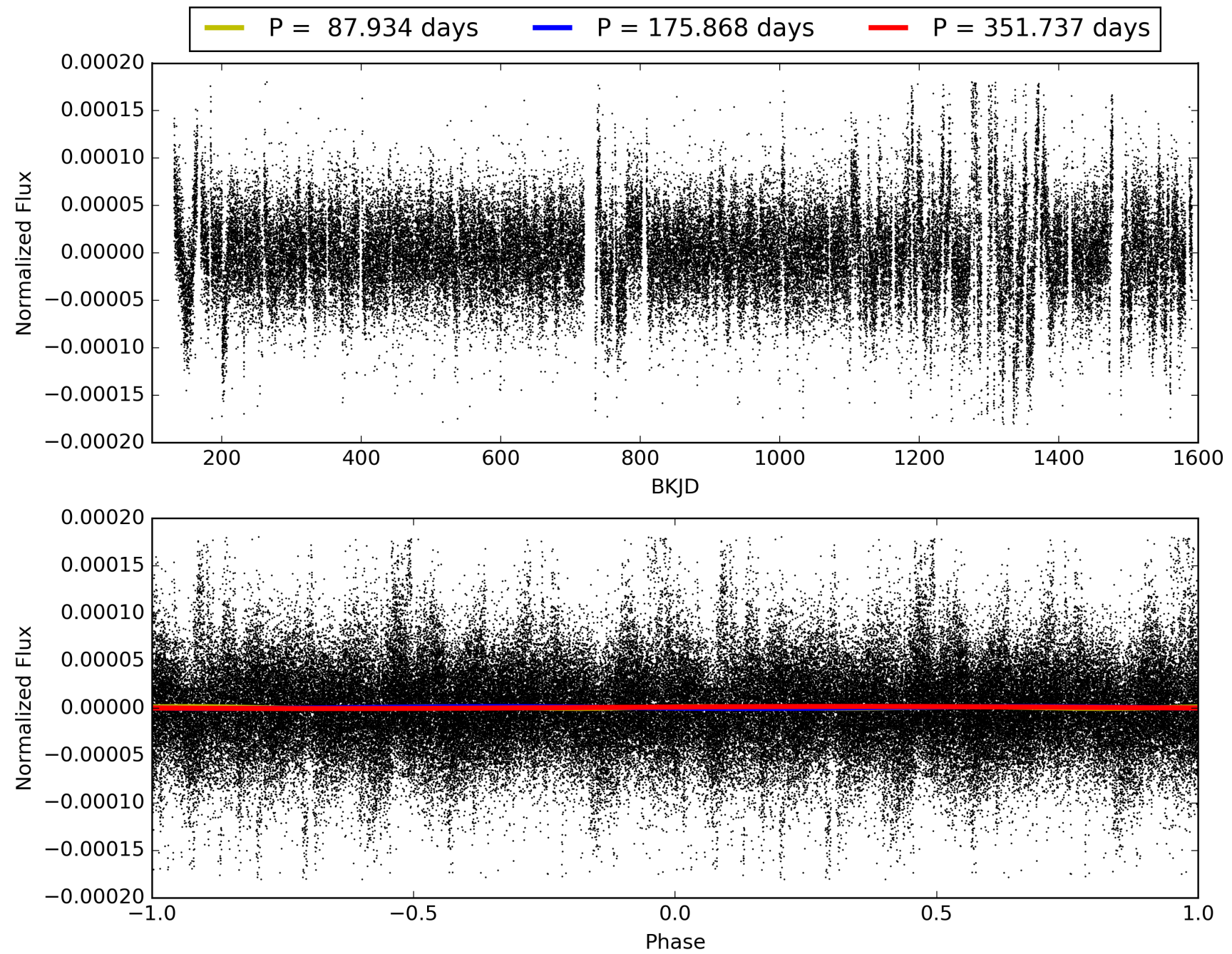
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:45:55 Z

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

TCE 008451143-02, PDC Light Curves

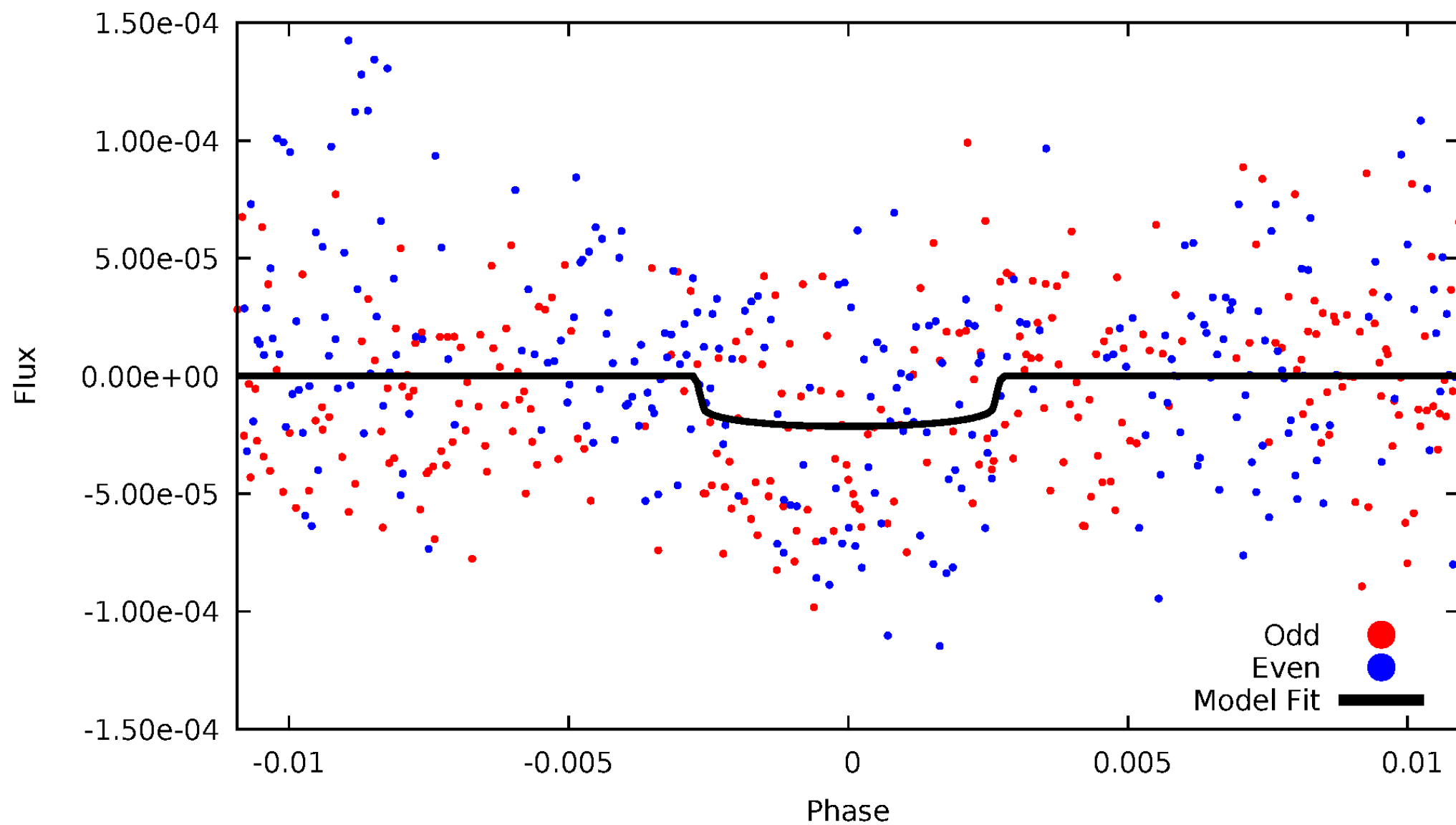


TCE 008451143-02



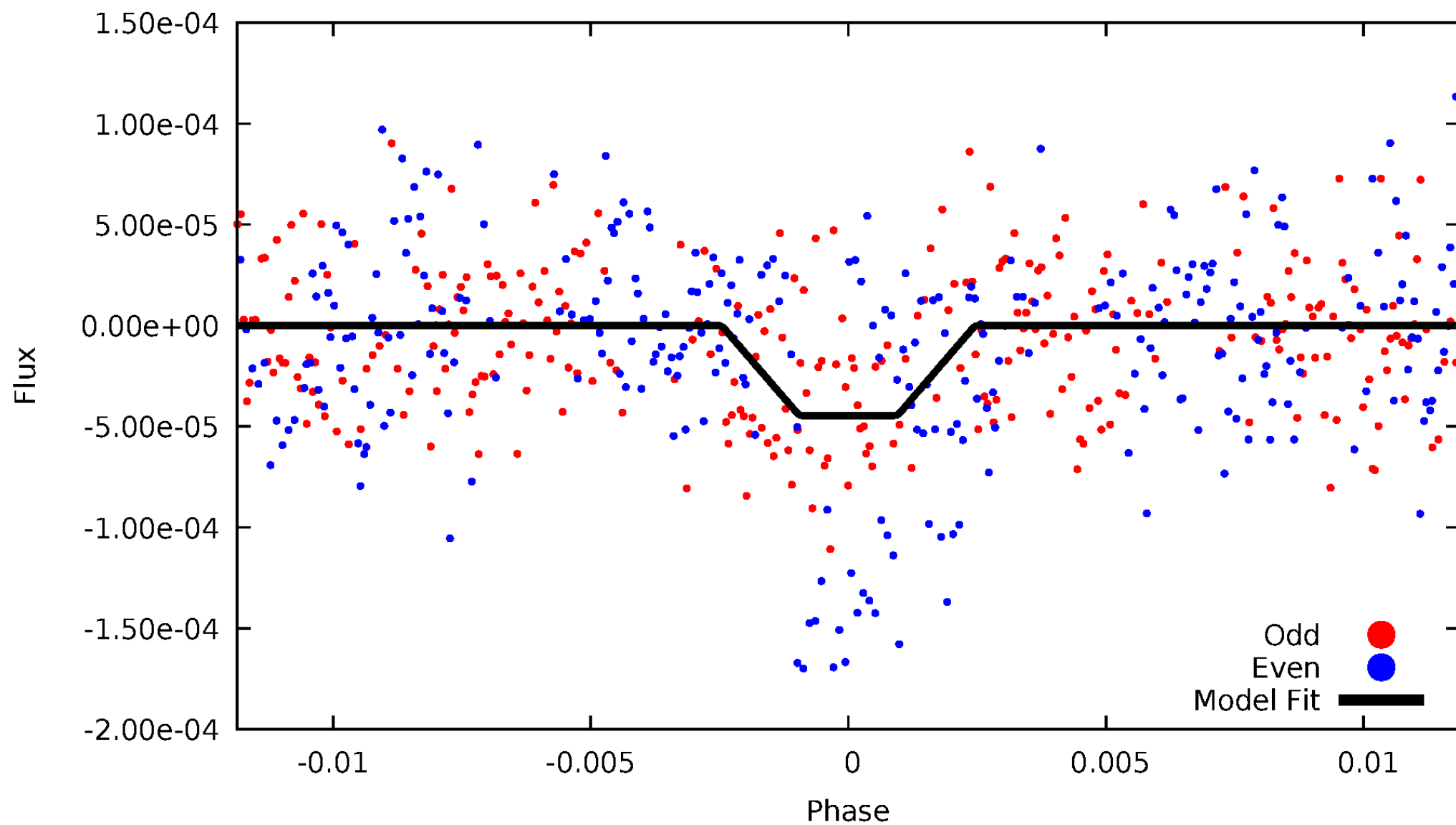
DV Odd/Even

TCE 008451143-02



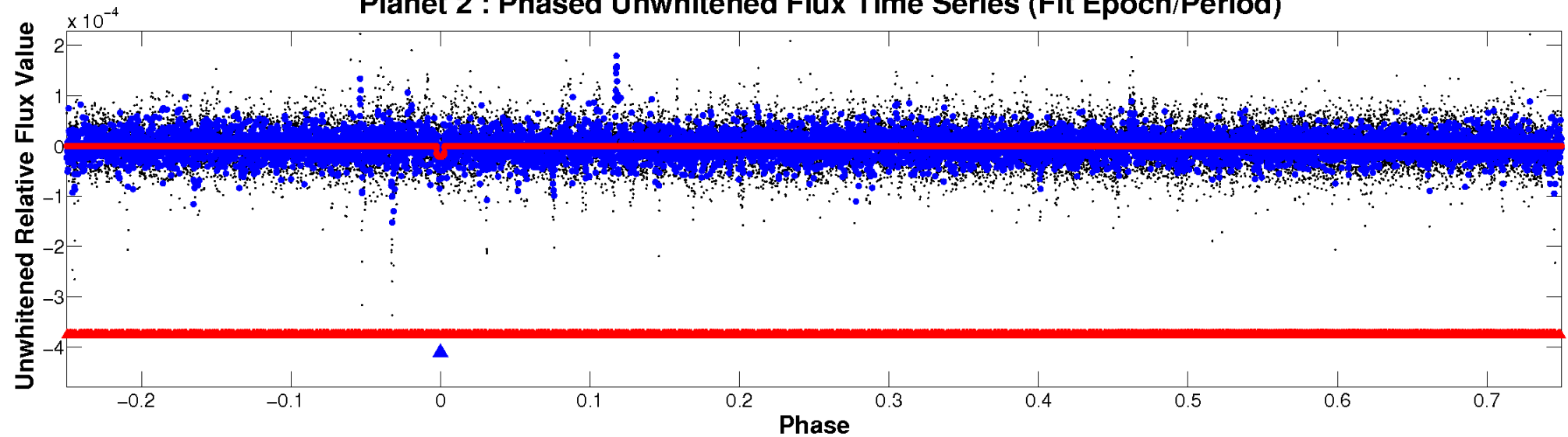
ALT Odd/Even

TCE 008451143-02

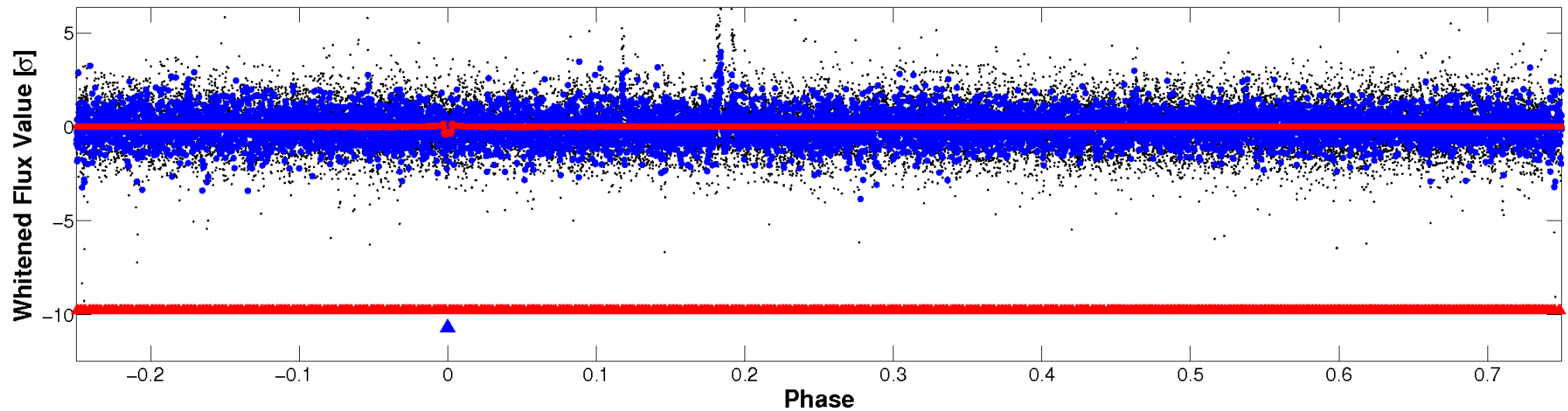


Non-Whitened Vs. Whitened Light Curve

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

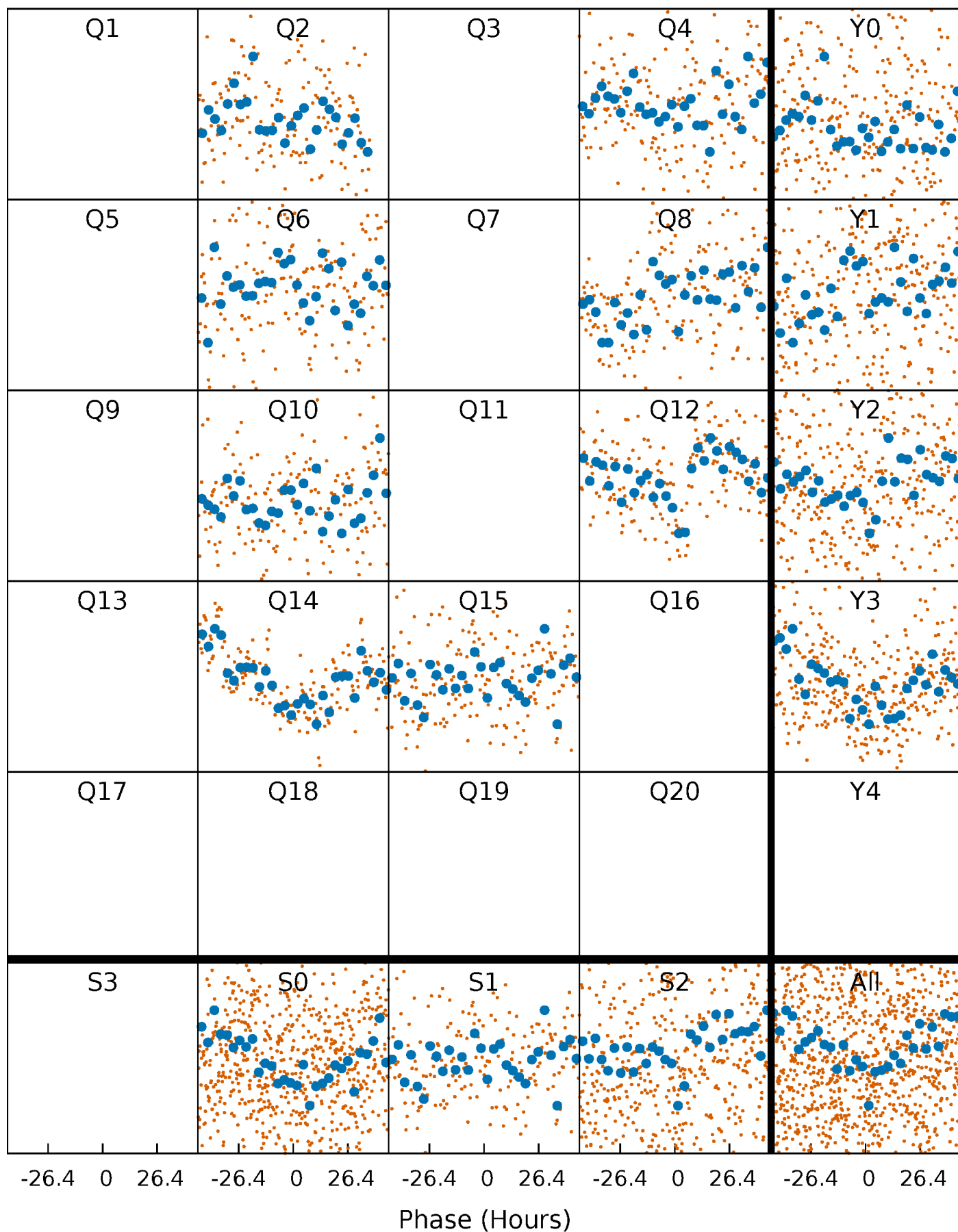


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



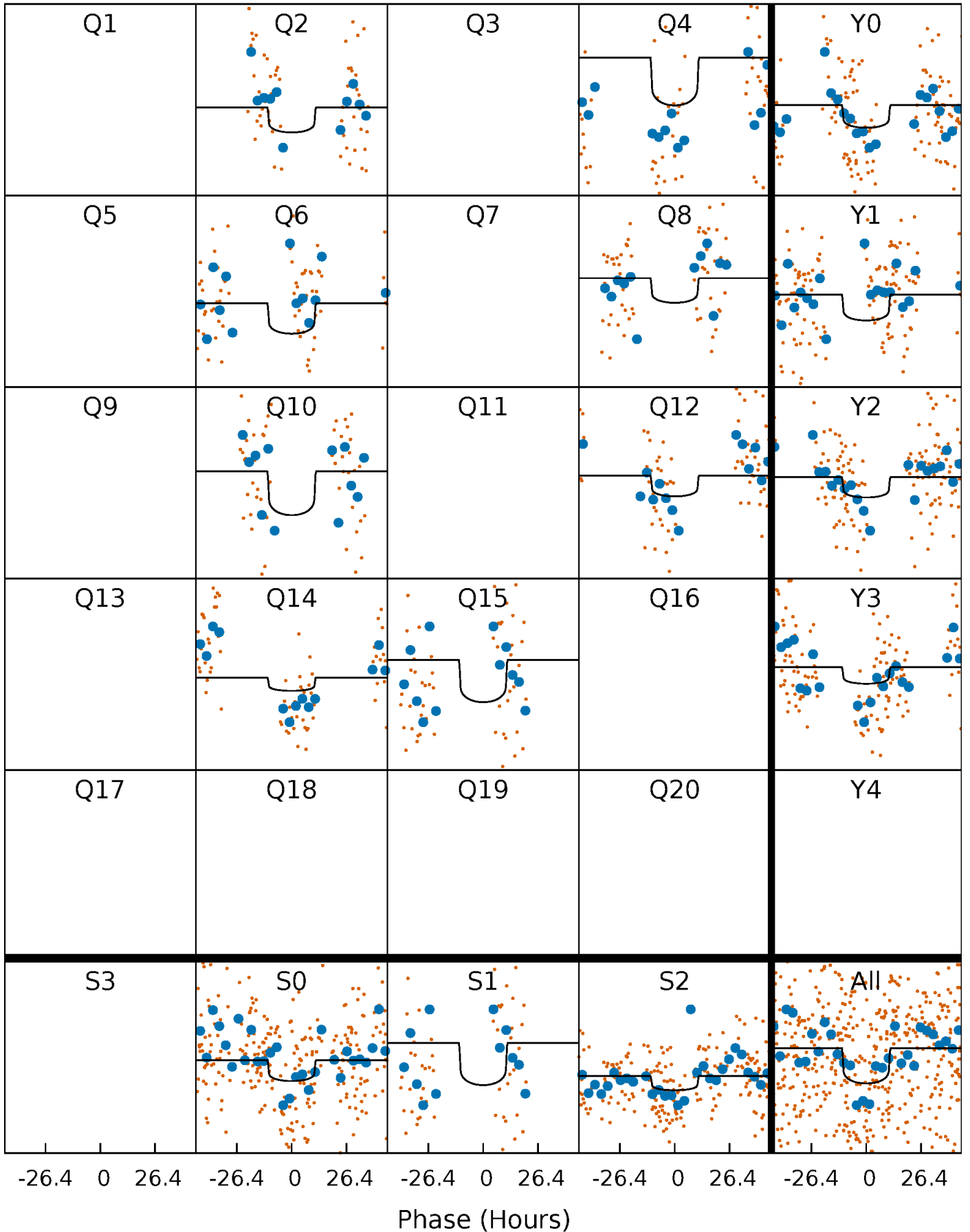
PDC Quarter-Phased Transit Curves

TCE 008451143-02 P=175.868465 Days $T_0=228.755986$ (BKJD)



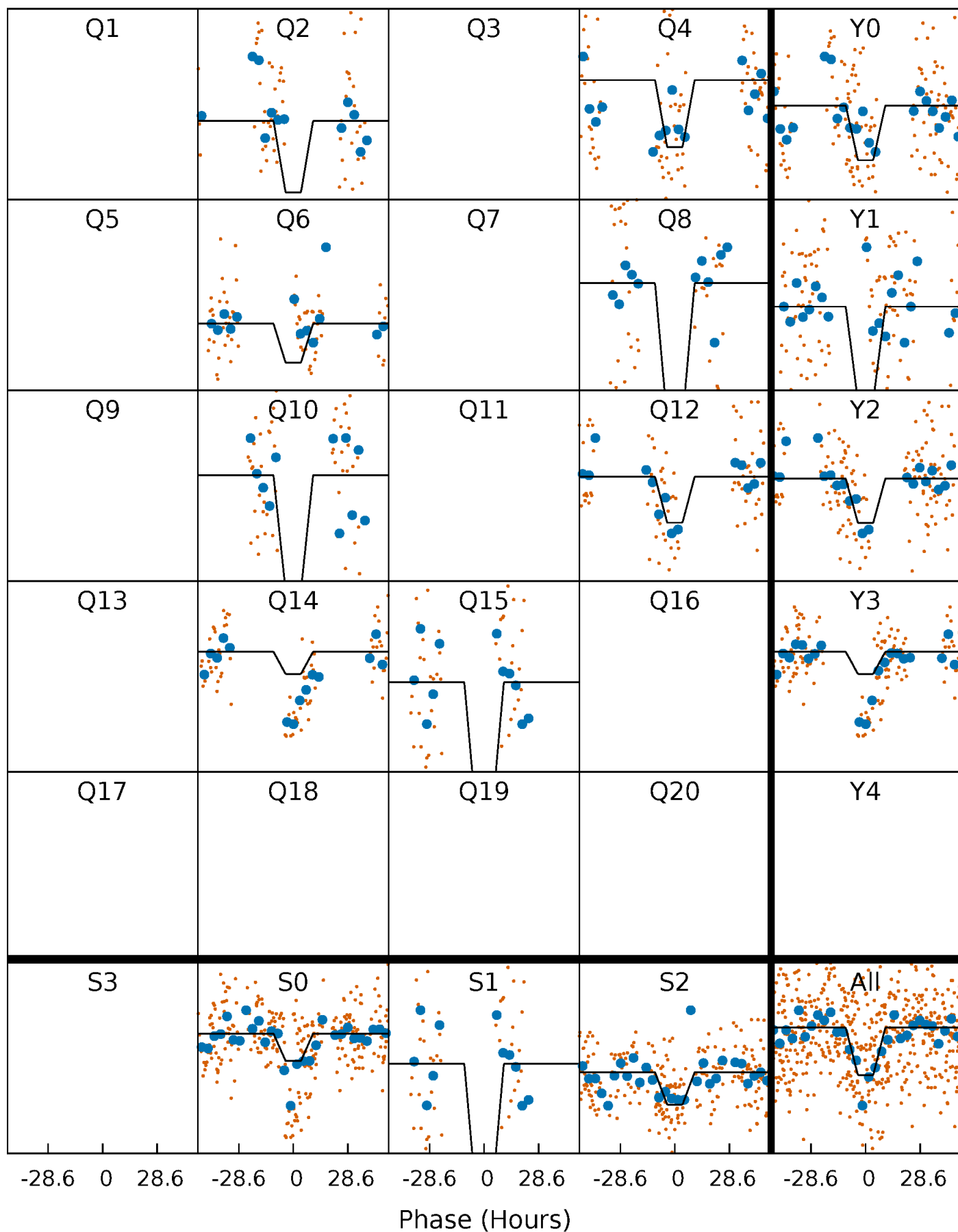
DV Quarter-Phased Transit Curves

TCE 008451143-02 P=175.868465 Days $T_0=228.755986$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

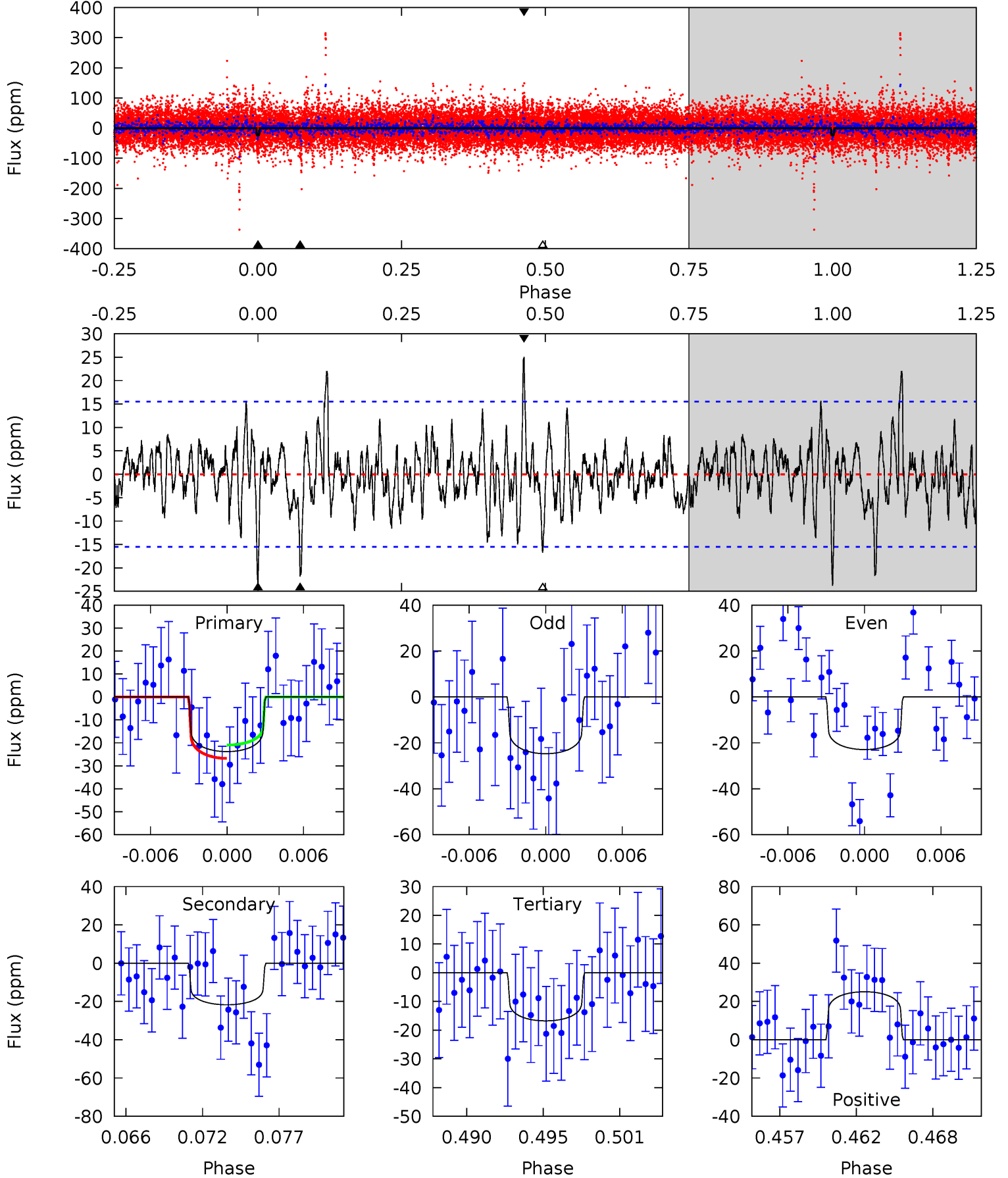
TCE 008451143-02 P=175.864840 Days $T_0=228.728181$ (BKJD)



DV Model-Shift Uniqueness Test

008451143-02, $P = 175.868465$ Days, $E = 52.887521$ Days

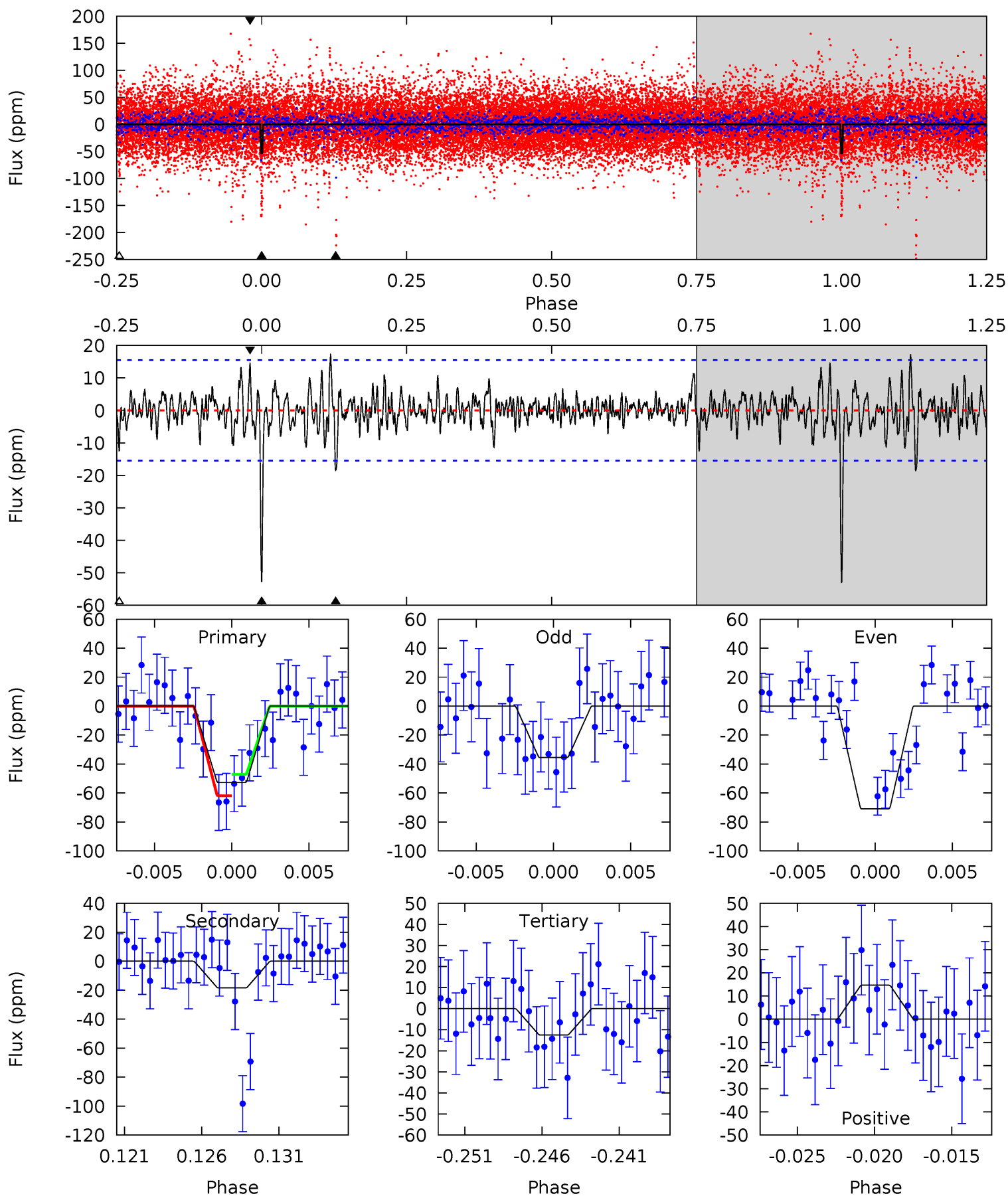
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.88	7.20	5.55	8.30	5.14	2.78	1.78	2.33	-0.42	1.65	-1.10	0.30	-3.86	0.51	0.97



Alt Model-Shift Uniqueness Test

008451143-02, P = 175.864840 Days, E = 52.863341 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	6.14	4.17	4.88	5.16	2.81	1.26	13.4	12.7	1.97	1.25	5.94	-28.3	0.25	2.44



Stellar Parameters For KIC 008451143

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7906^{+191}_{-382}	$3.476^{+0.616}_{-0.231}$	$0.070^{+0.150}_{-0.350}$	$4.739^{+0.305}_{-2.744}$	$2.451^{+0.214}_{-0.801}$	$0.032^{+0.304}_{-0.014}$
	+2%/-5%	+18%/-7%	+214%/-500%	+6%/-58%	+9%/-33%	+939%/-42%
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 008451143-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-22 ± 3	$2.43^{+0.70}_{-0.77}$	1158^{+62}_{-151}	7498^{+1346}_{-855}	1348^{+1428}_{-578}
Alt.	-18 ± 3	$3.35^{+0.69}_{-0.96}$	1152^{+74}_{-142}	6120^{+704}_{-550}	623^{+518}_{-235}

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 $A_{obs} \gg 1.0$

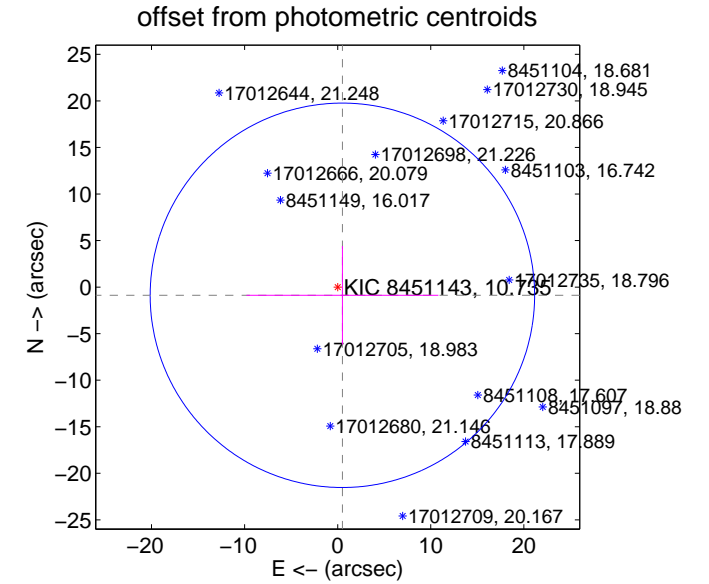
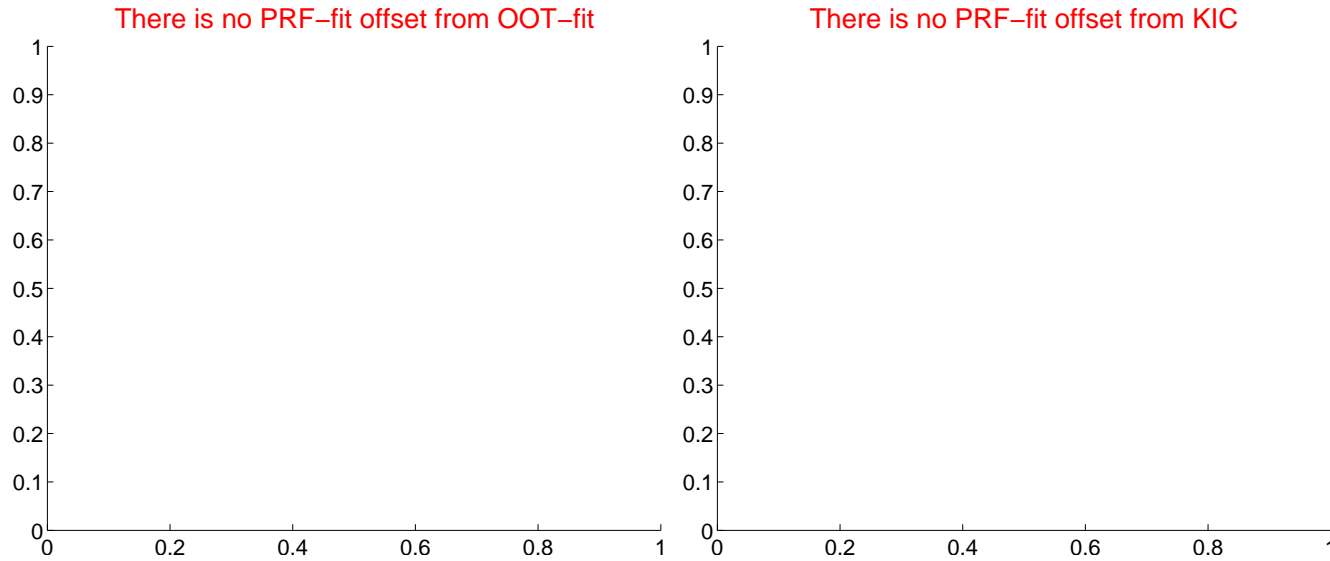
DV Centroid Data

Supplemental centroid analysis for 008451143-02. **Kepler magnitude: 10.73.** Transit SNR 4.55

There are 0 quarters with good PRF difference image offsets

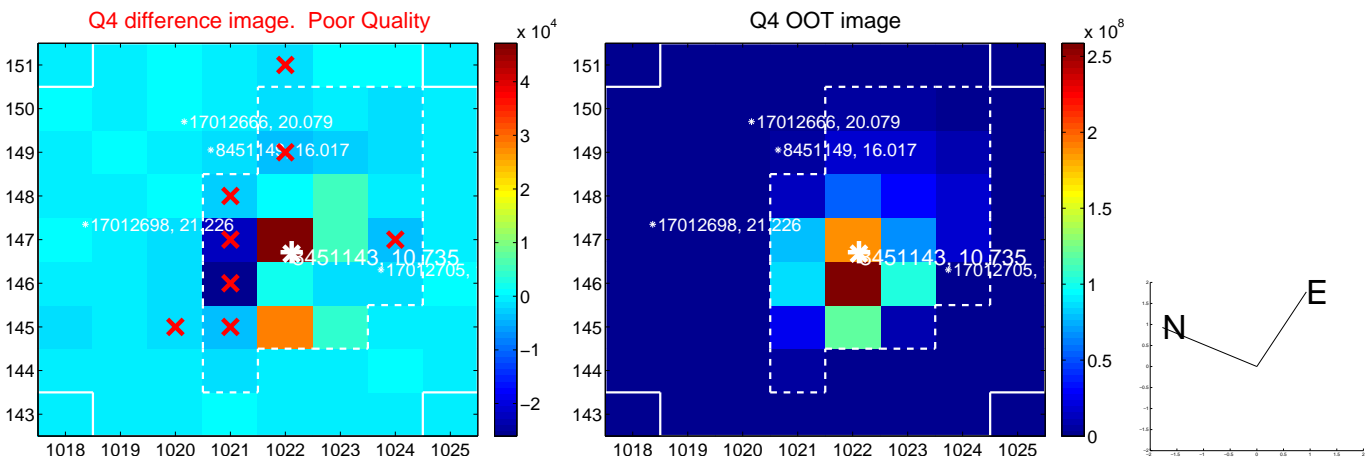
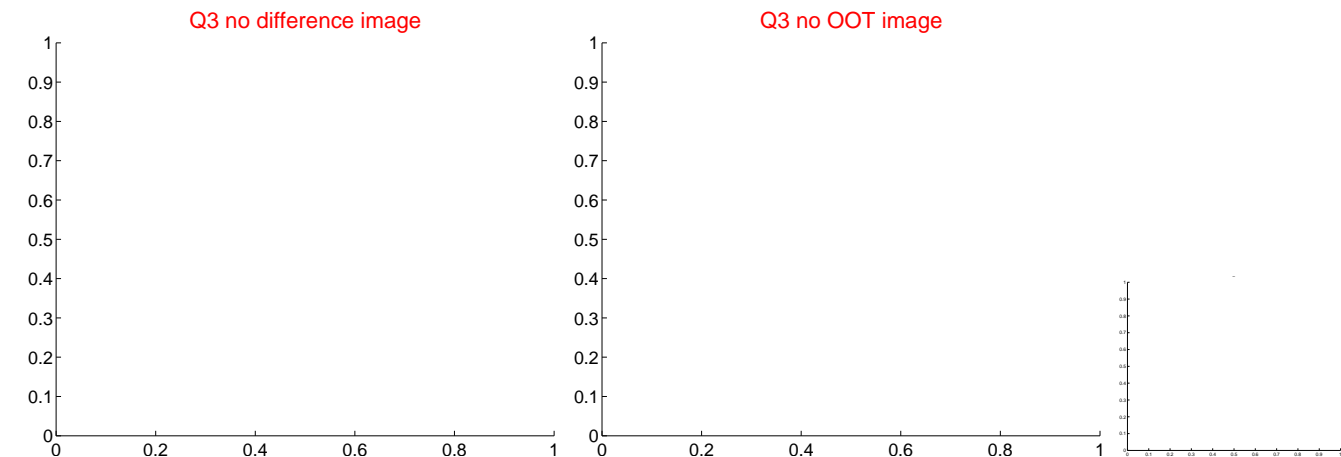
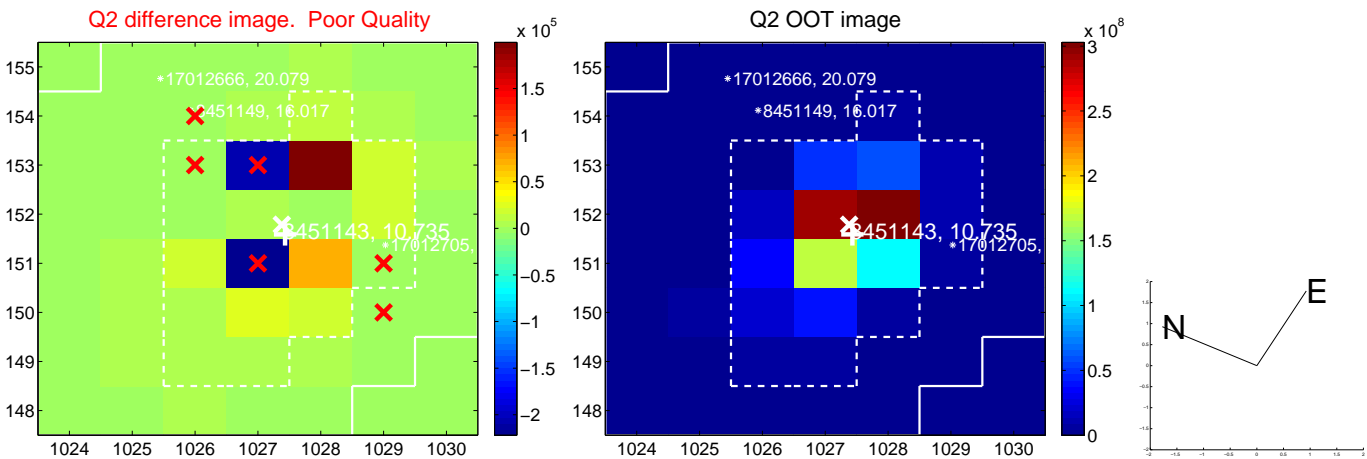
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	1.02 ± 6.88	0.15	-0.51 ± 10.31	-0.88 ± 5.29

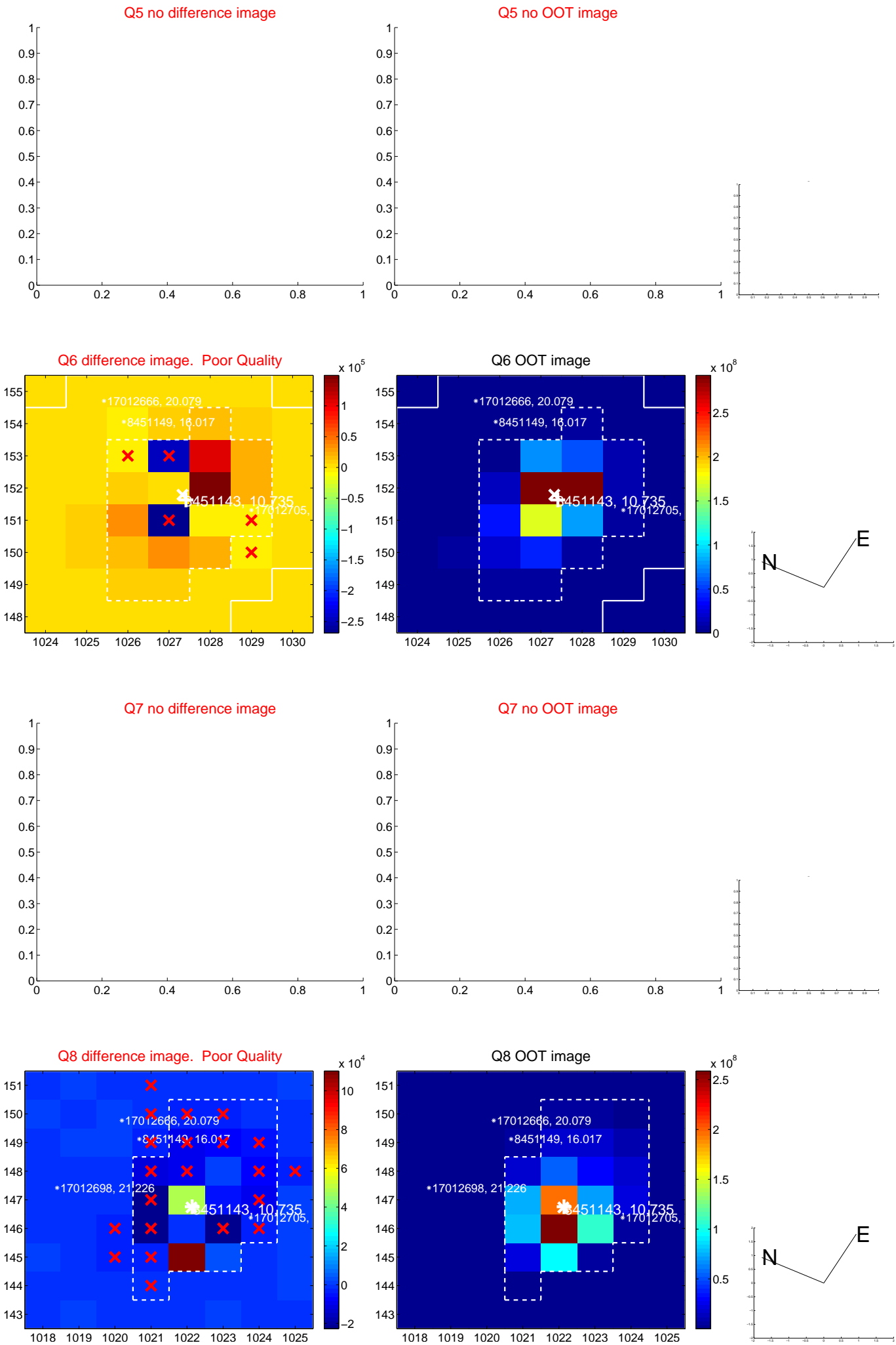


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

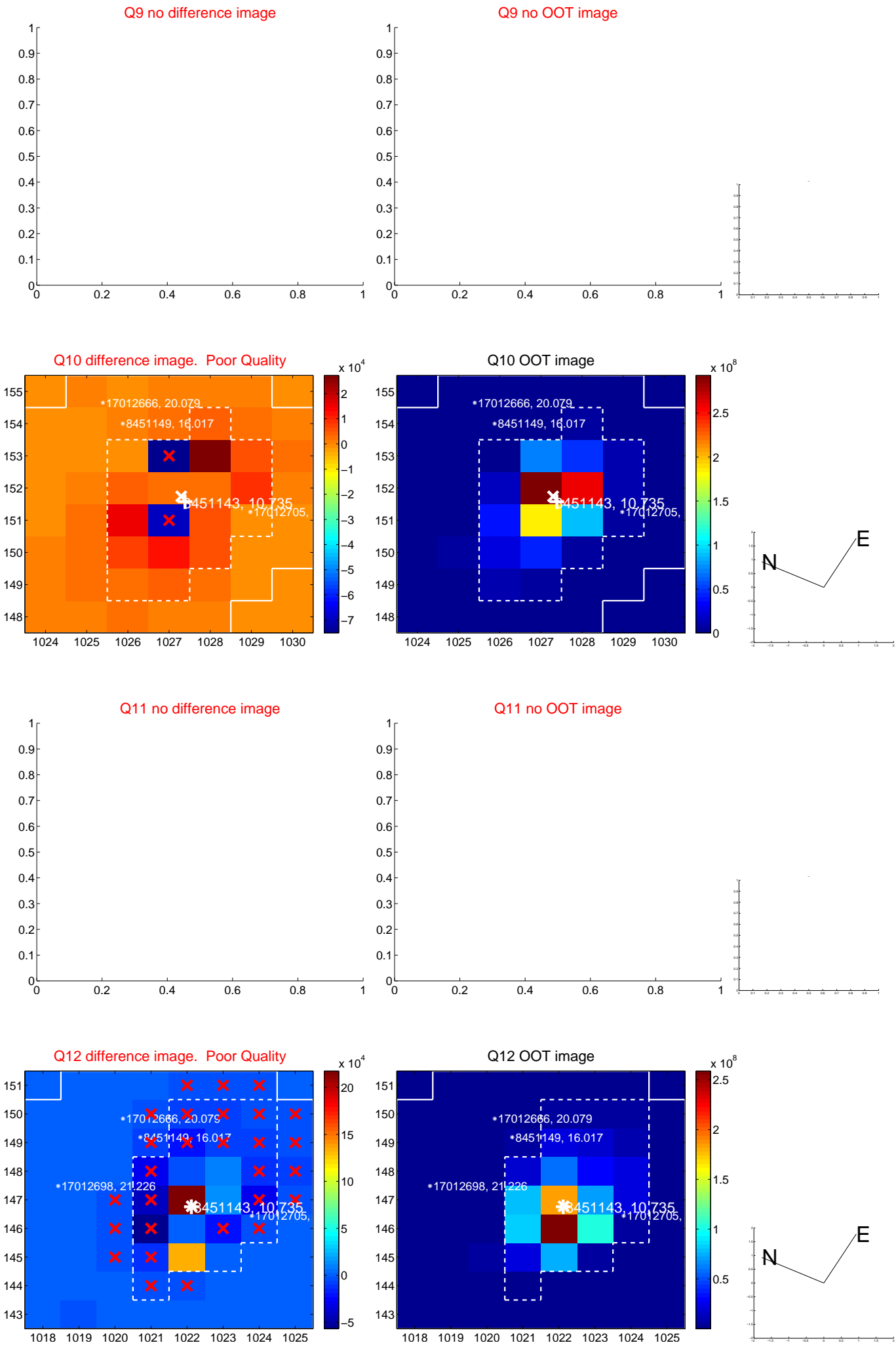
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



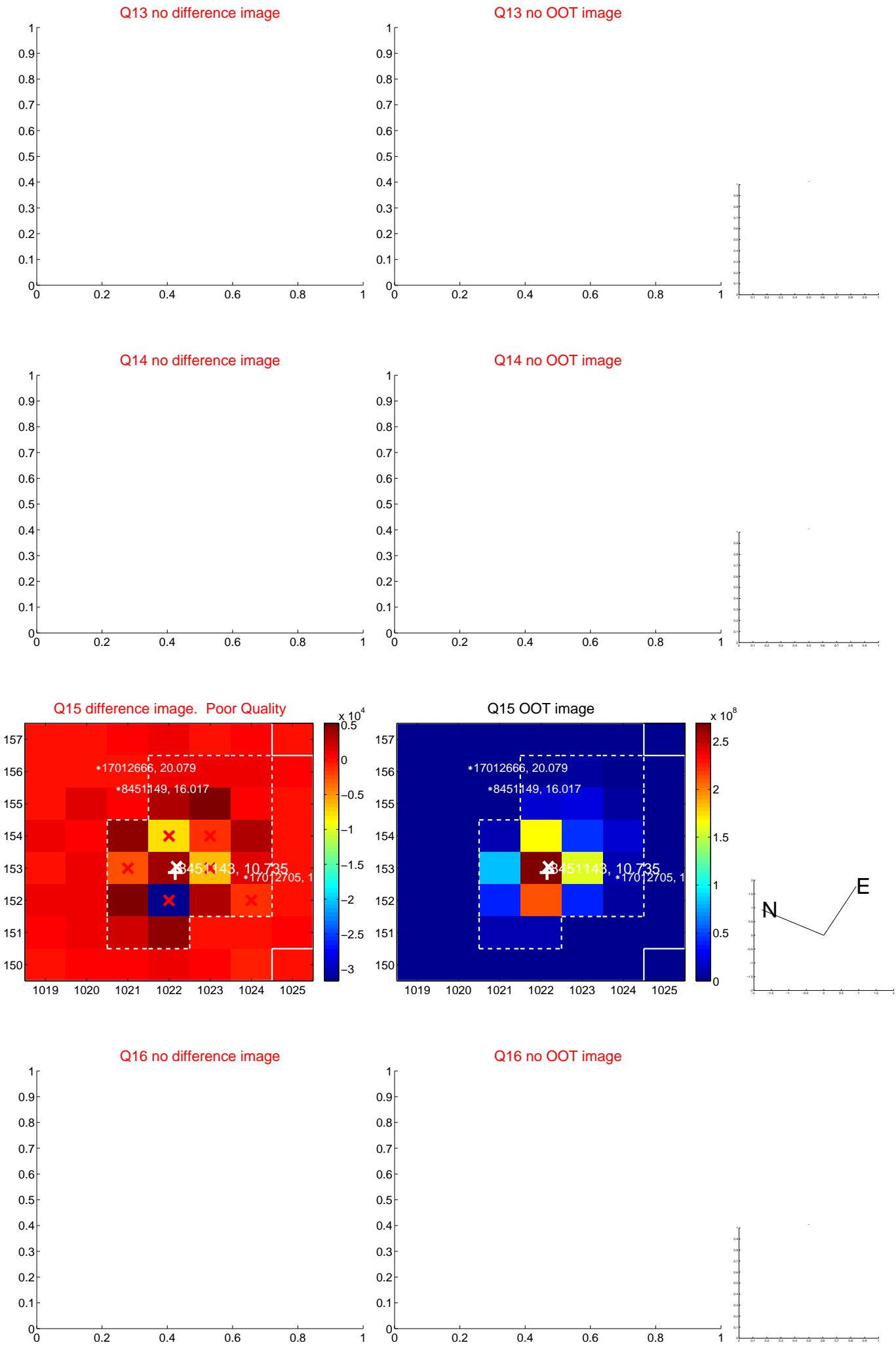
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



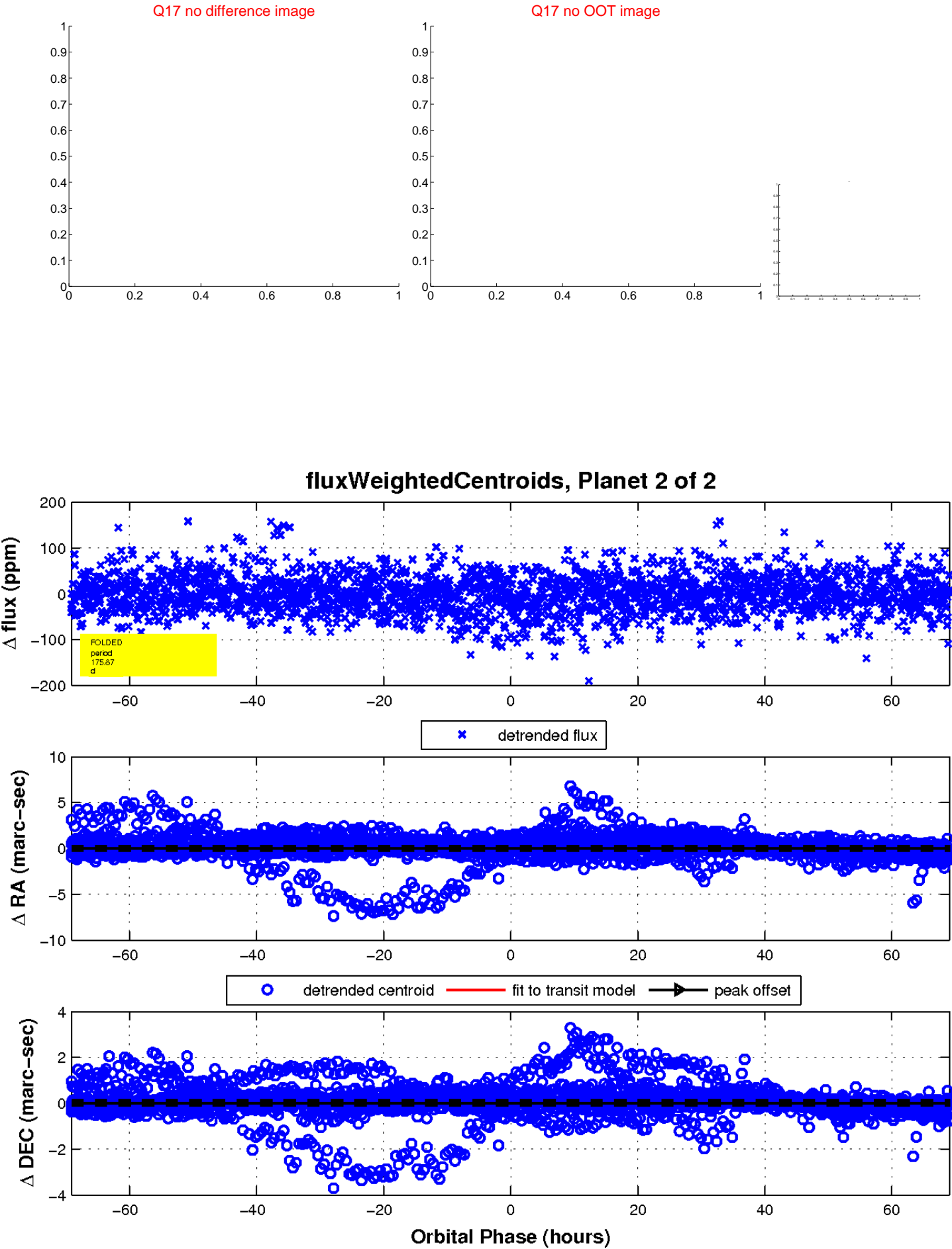
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

