

KIC 001995431

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})
001995431-01	OBS	No	446.762017	308.228589	153.2	10.031	10.1	9.9	1.58	7586	2.12	4.02
001995431-03	OBS	No	3.823714	135.104700	8.4	12.573	7.9	7.1	1.58	7586	0.46	2294.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001995431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—CENT_FEW_DIFFS
001995431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

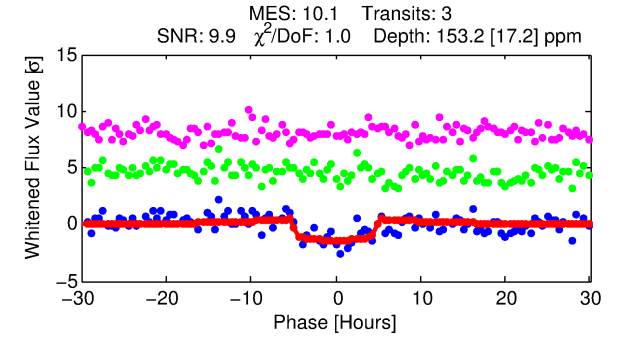
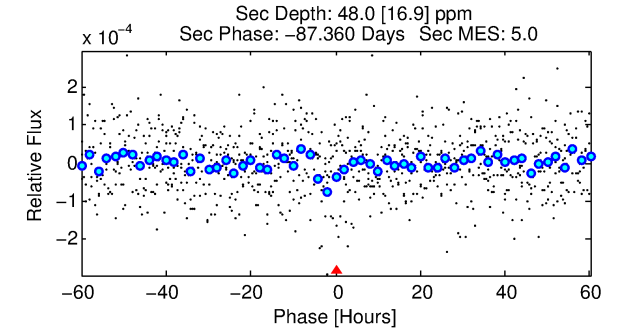
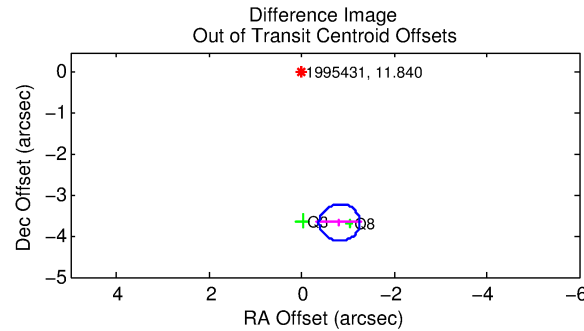
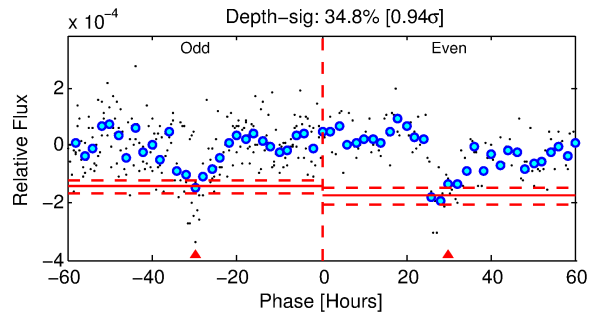
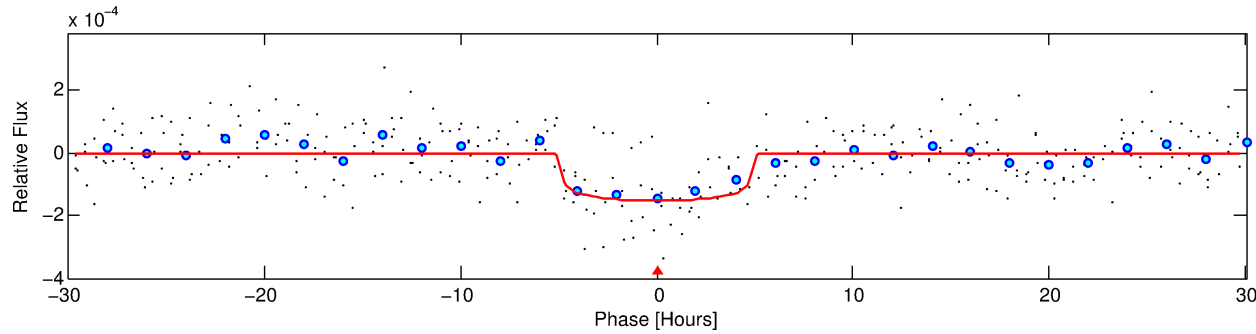
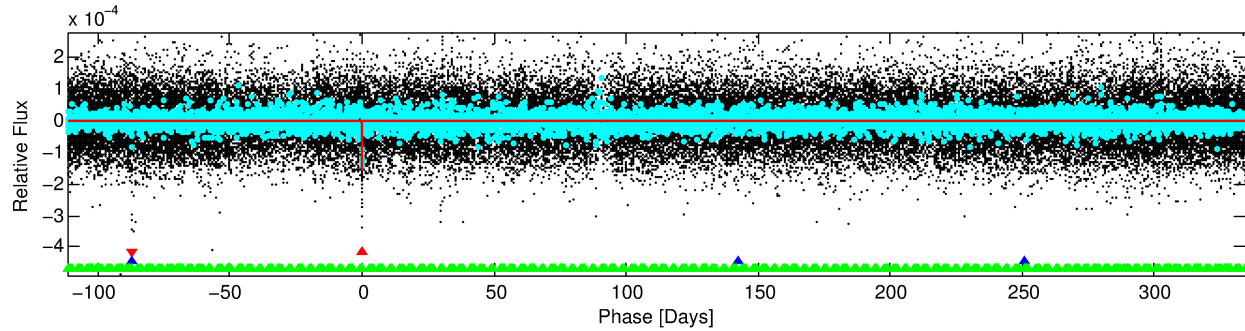
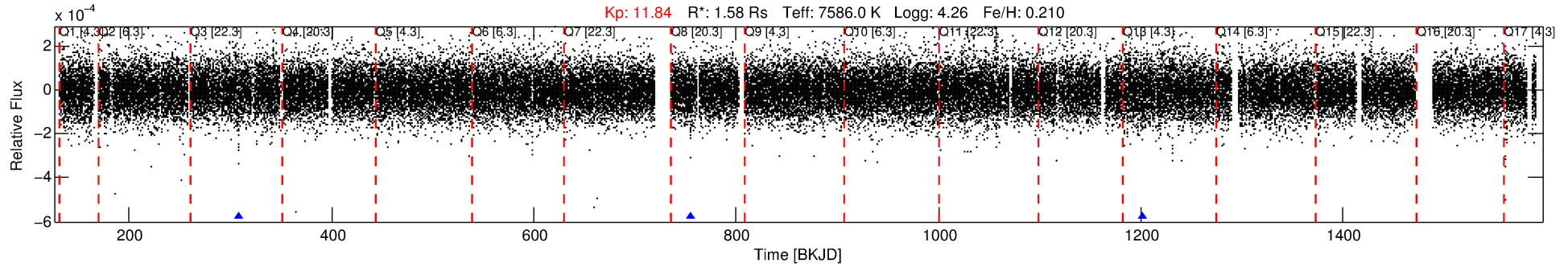
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 001995431-01

No Significant Match Found

DV One-Page Summary

KIC: 1995431 Candidate: 1 of 3 Period: 446.762 d



DV Fit Results:

Period = 446.76202 [0.00998] d
Epoch = 308.2286 [0.0119] BKJD
Rp/R* = 0.0123 [0.0031]
a/R* = 226.27 [347.85]
b = 0.76 [0.84]
Seff = 4.02 [1.96]
Teq = 361 [44] K
Rp = 2.12 [0.97] Re
a = 1.3545 [0.4271] AU
Ag = 10732.29 [8225.52] [1.30 σ]
Teff = 5681 [913] K [5.82 σ]

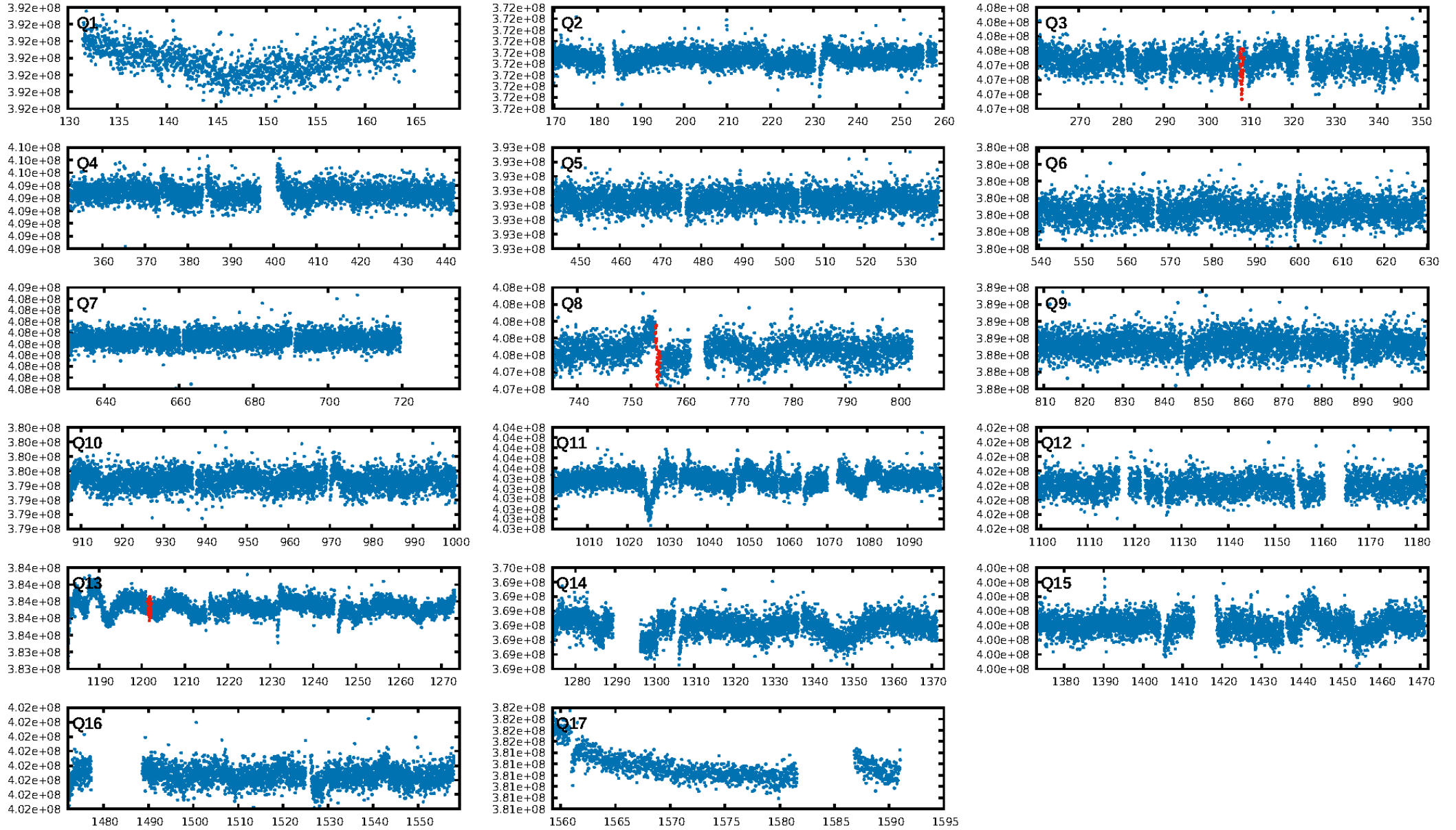
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [660.91 σ]
LongPeriod-sig: 100.0% [195.47 σ]
ModelChiSquare2-sig: 5.9%
ModelChiSquareGof-sig: 96.5%
Bootstrap-pfa: 6.46e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4255
Centroid-sig: 13.4%
Centroid-so: 1.912 arcsec [1.11 σ]
OotOffset-rm: 3.758 arcsec [25.32 σ]
KicOffset-rm: 3.790 arcsec [22.98 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.33 [1/3]

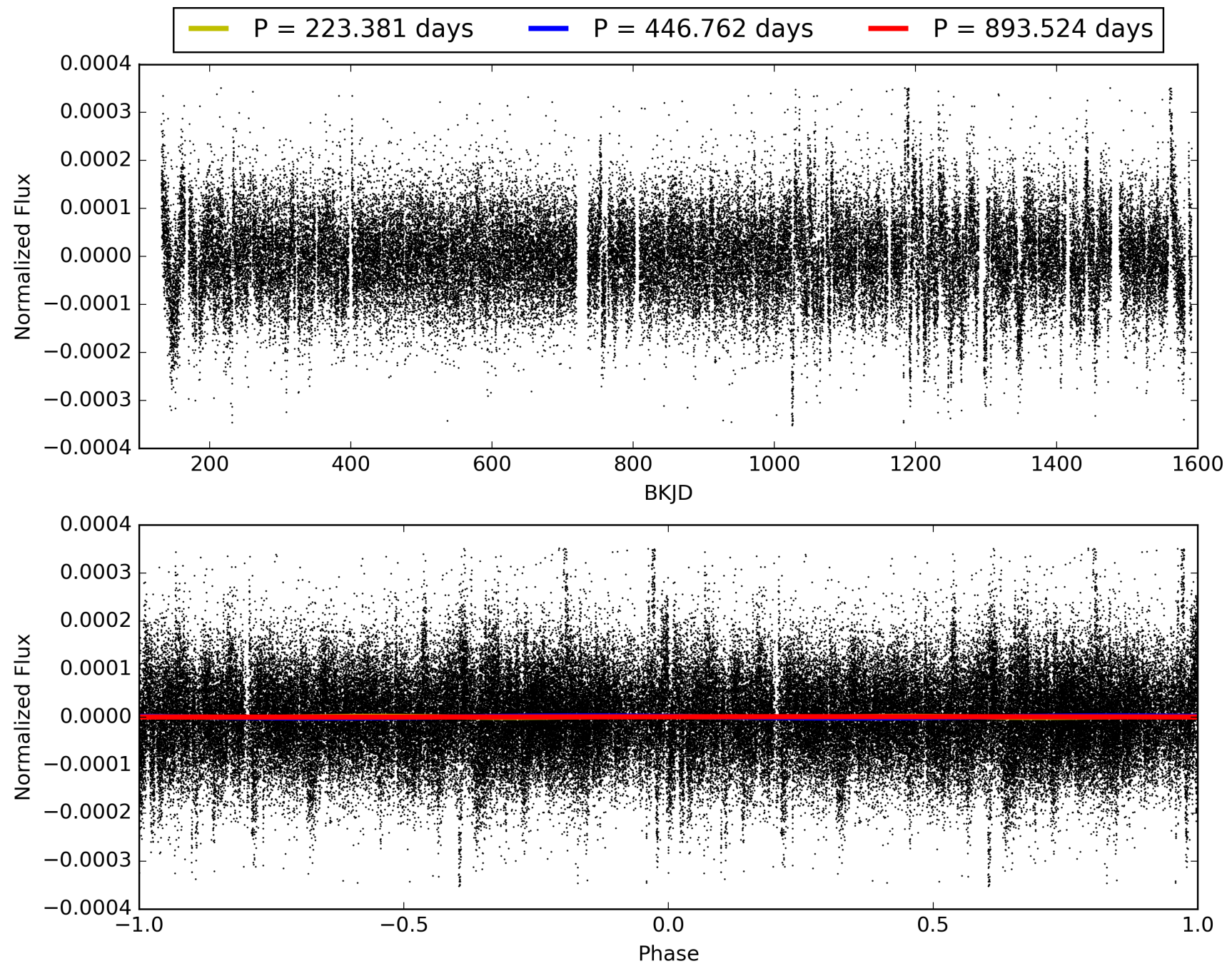
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:15:05 Z

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

TCE 001995431-01, PDC Light Curves

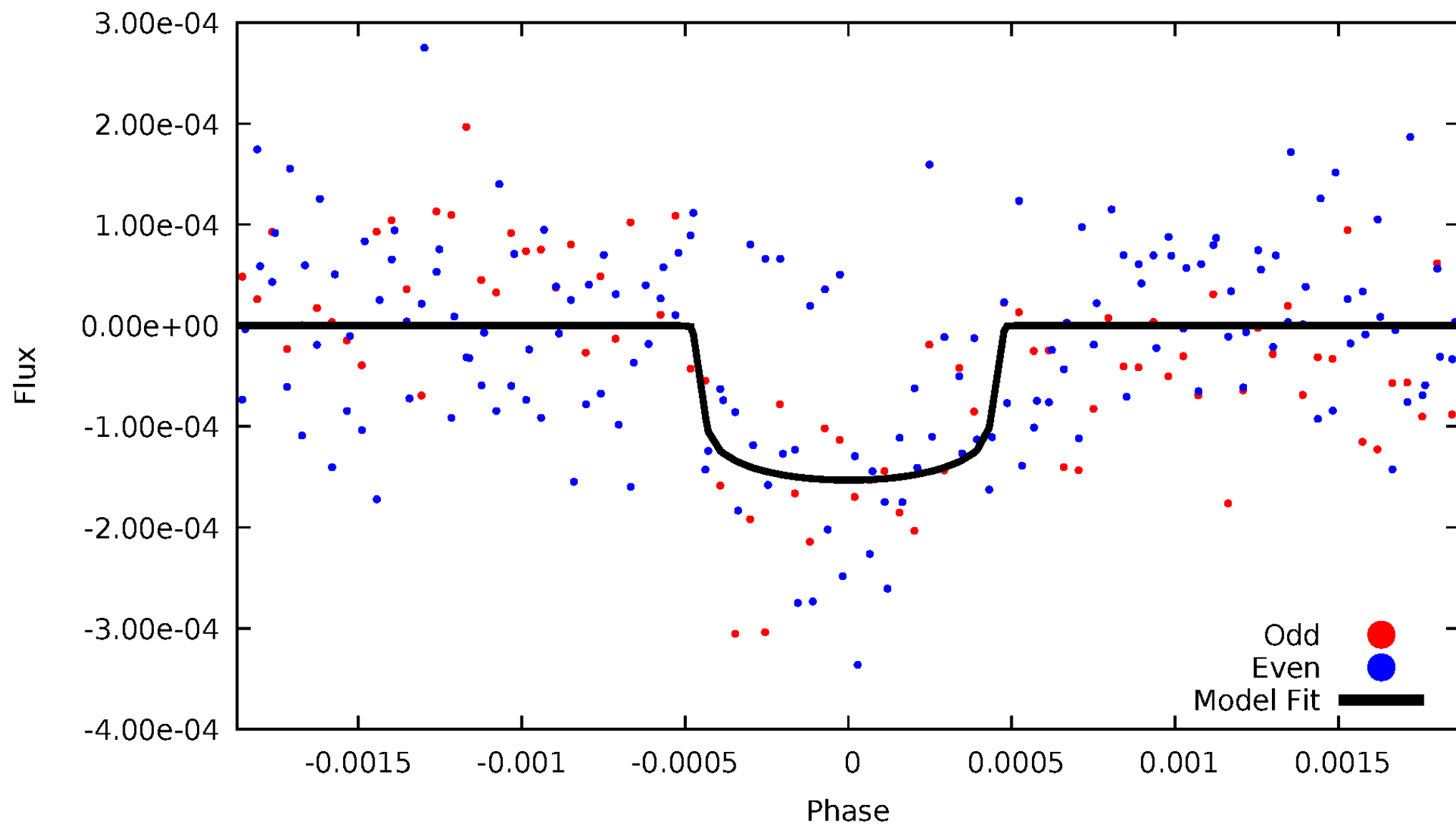


TCE 001995431-01



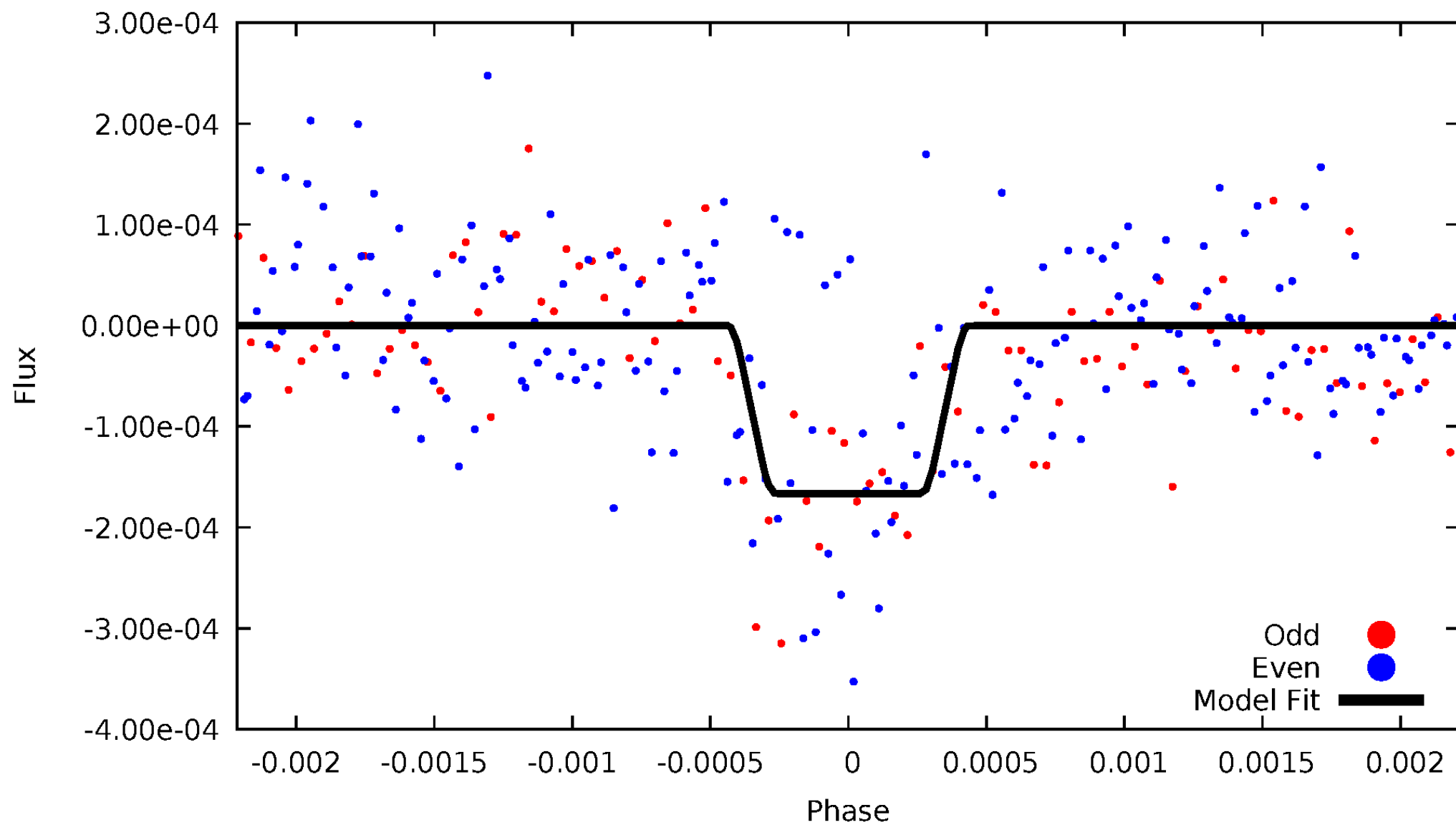
DV Odd/Even

TCE 001995431-01



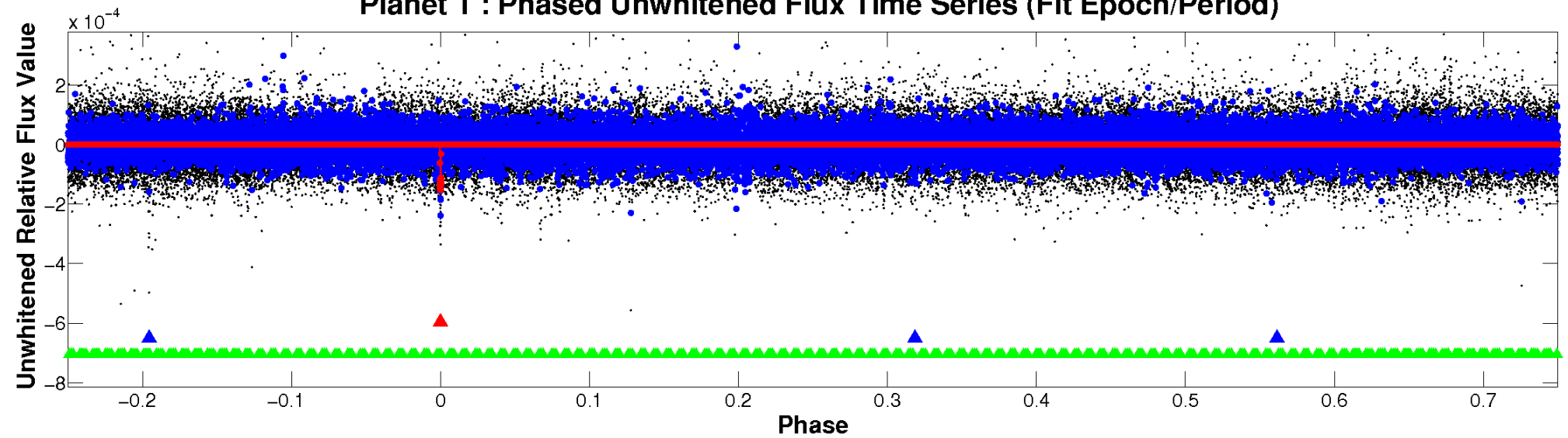
ALT Odd/Even

TCE 001995431-01

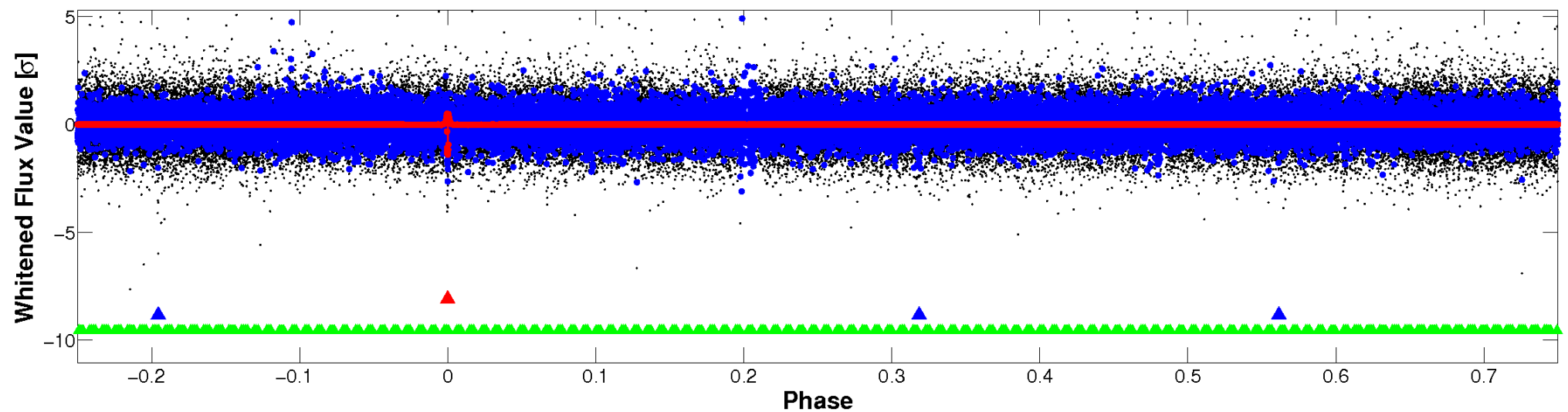


Non-Whitened Vs. Whitened Light Curve

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

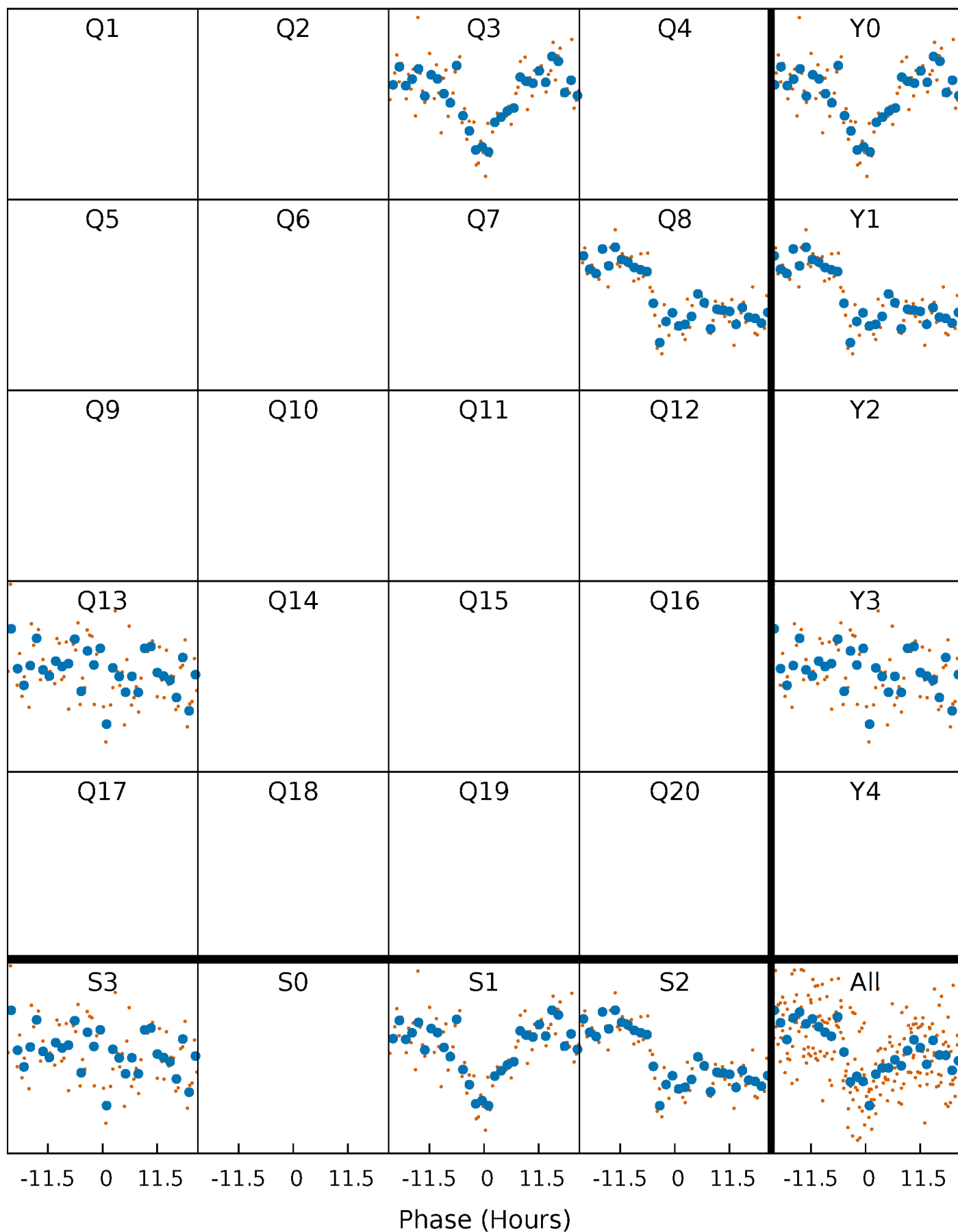


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



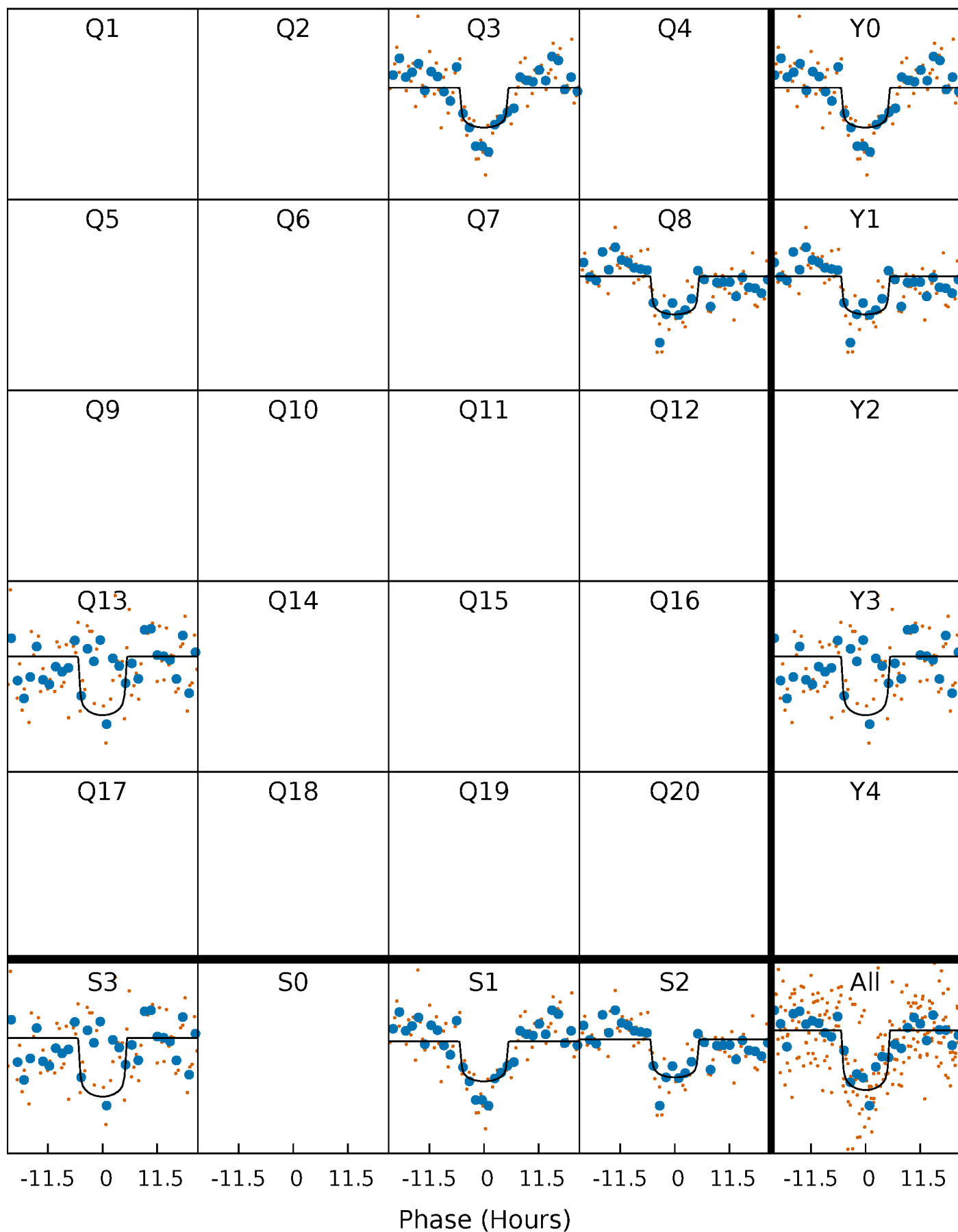
PDC Quarter-Phased Transit Curves

TCE 001995431-01 P=446.762017 Days $T_0=308.228589$ (BKJD)



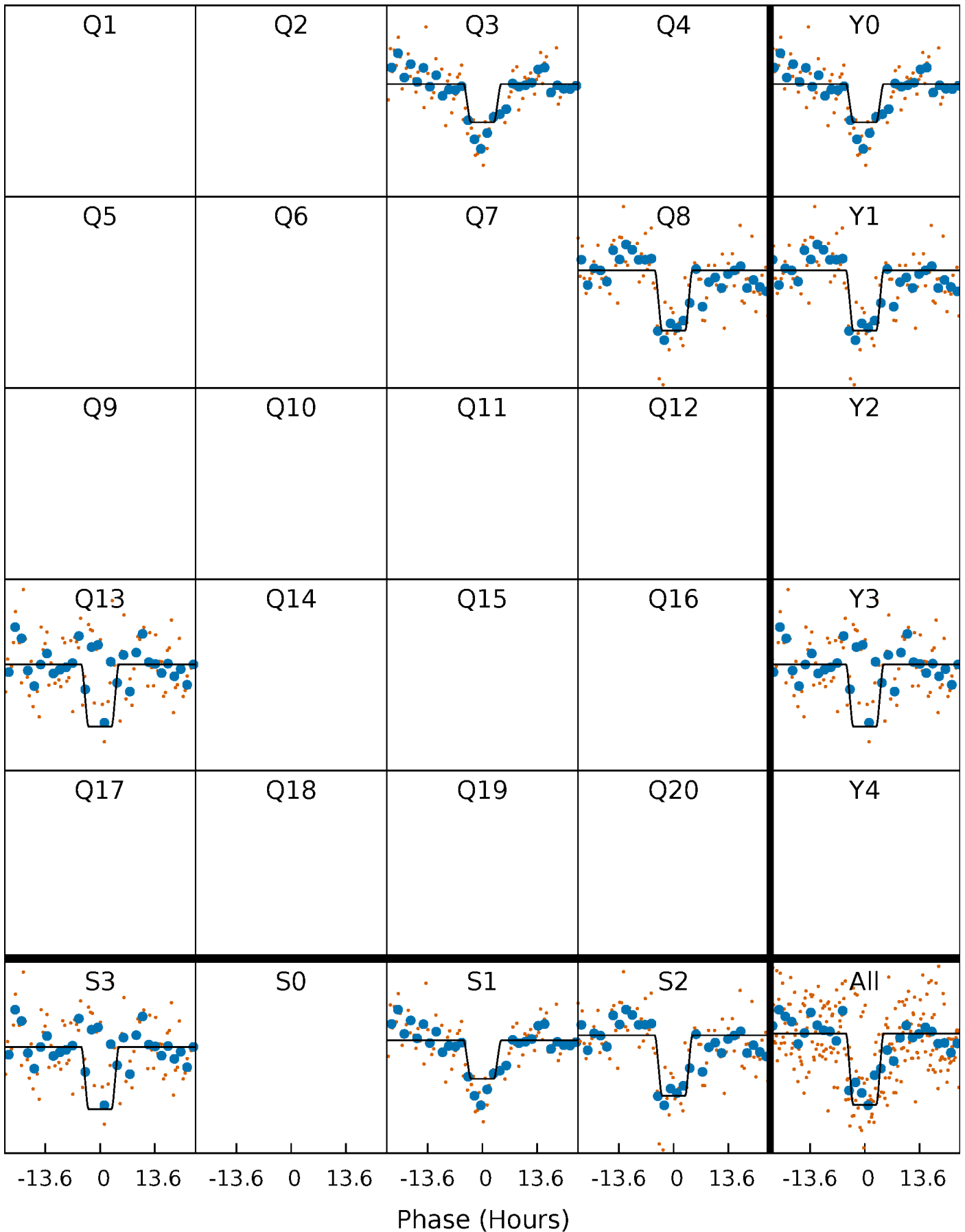
DV Quarter-Phased Transit Curves

TCE 001995431-01 P=446.762017 Days $T_0=308.228589$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

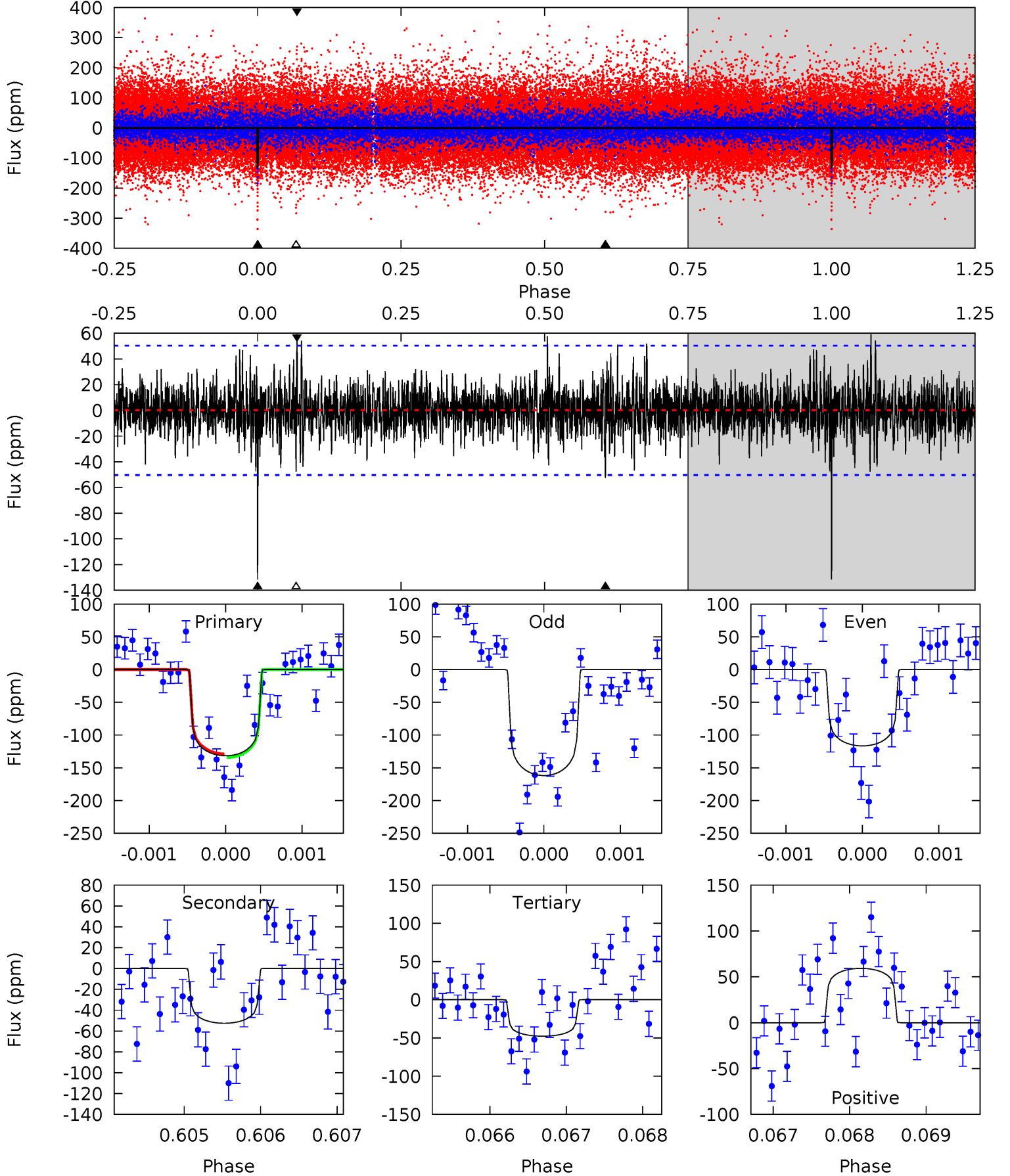
TCE 001995431-01 P=446.752545 Days $T_0=308.232740$ (BKJD)



DV Model-Shift Uniqueness Test

001995431-01, P = 446.762017 Days, E = 308.228589 Days

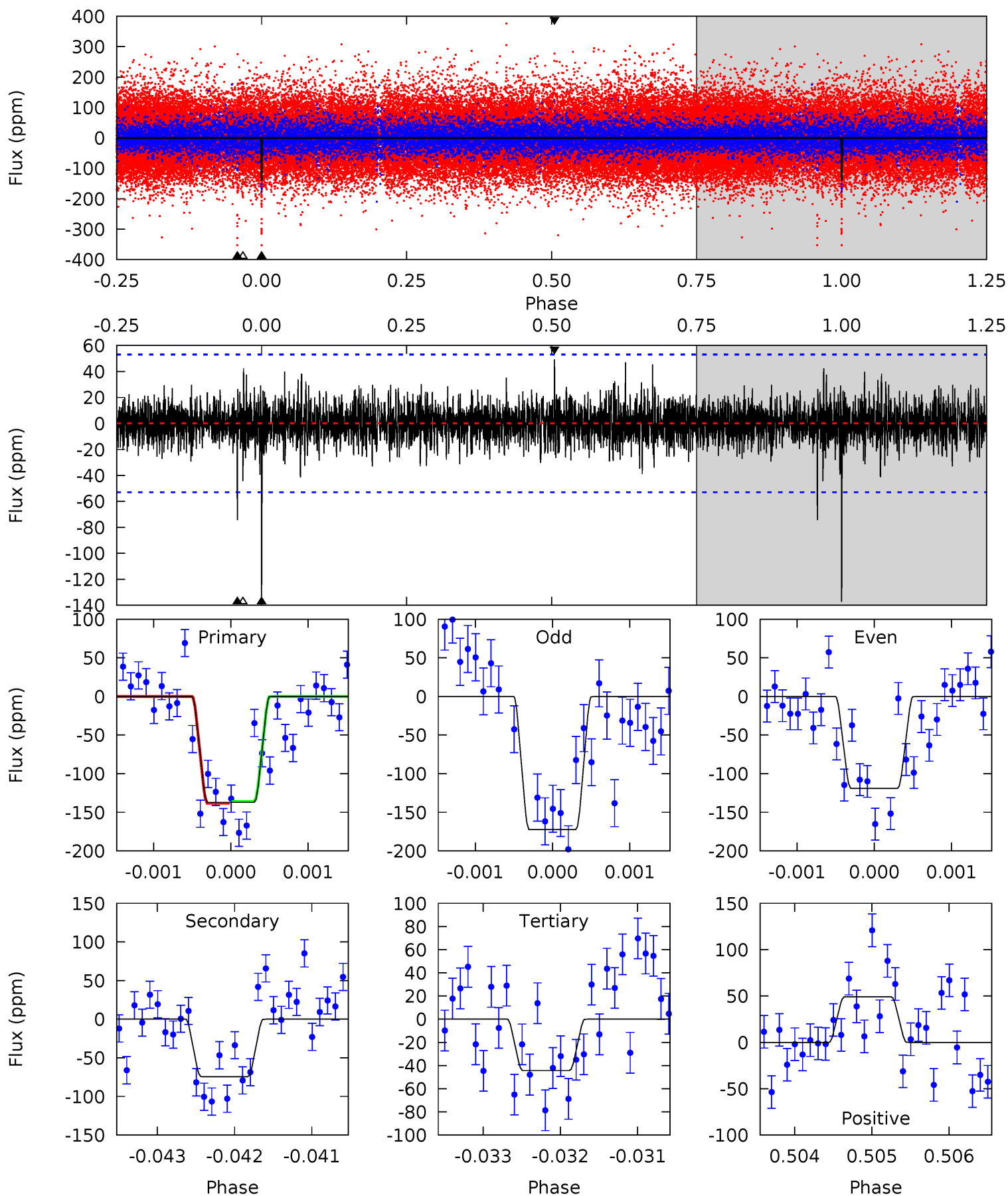
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	5.69	5.16	6.41	5.45	3.29	1.39	9.08	7.83	0.53	-0.72	2.31	0.82	0.31	0.30



Alt Model-Shift Uniqueness Test

001995431-01, P = 446.752545 Days, E = 308.232740 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	7.68	4.58	5.08	5.48	3.33	1.09	9.58	9.09	3.10	2.60	2.64	0.81	0.26	0.13



Stellar Parameters For KIC 001995431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7586^{+210}_{-341}	$4.263^{+0.058}_{-0.246}$	$0.210^{+0.150}_{-0.400}$	$1.576^{+0.597}_{-0.186}$	$1.671^{+0.212}_{-0.212}$	$0.601^{+0.148}_{-0.334}$
	+3%/-4%	+1%/-6%	+71%/-190%	+38%/-12%	+13%/-13%	+25%/-55%
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 001995431-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-53 ± 9	$2.26^{+0.74}_{-0.57}$	517^{+45}_{-29}	5654^{+975}_{-591}	9883^{+8704}_{-4300}
Alt.	-74 ± 10	$2.33^{+0.72}_{-0.59}$	515^{+46}_{-31}	6093^{+1048}_{-669}	13487^{+11432}_{-5474}

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

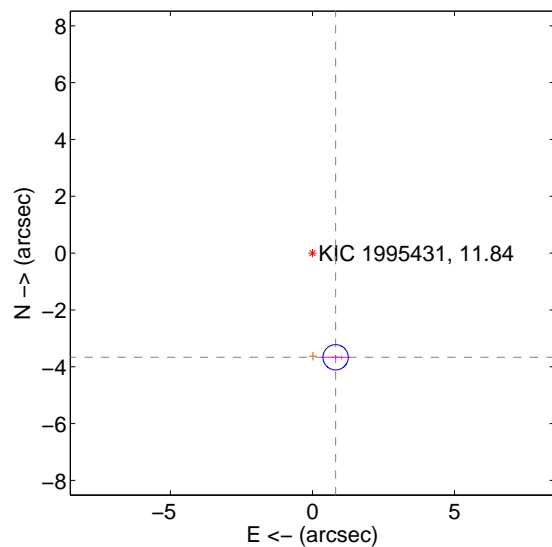
Supplemental centroid analysis for 001995431-01. **Kepler magnitude: 11.84.** Transit SNR 9.91

There are 1 quarters with good PRF difference image offsets

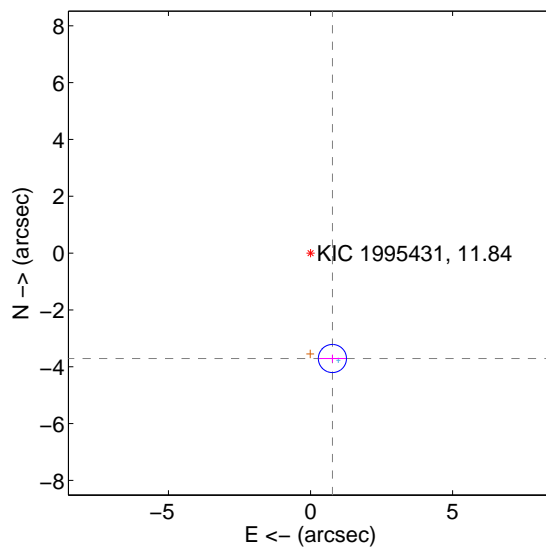
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.758 ± 0.148	25.32	-0.816 ± 0.489	-3.668 ± 0.072
PRF-fit source offset from KIC position	3.790 ± 0.165	22.98	-0.770 ± 0.477	-3.711 ± 0.136
photometric centroid source offset	1.91 ± 1.73	1.11	0.42 ± 1.49	-1.87 ± 1.74

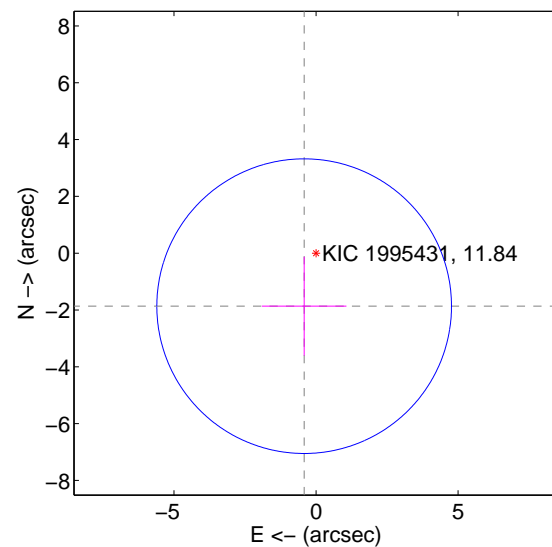
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



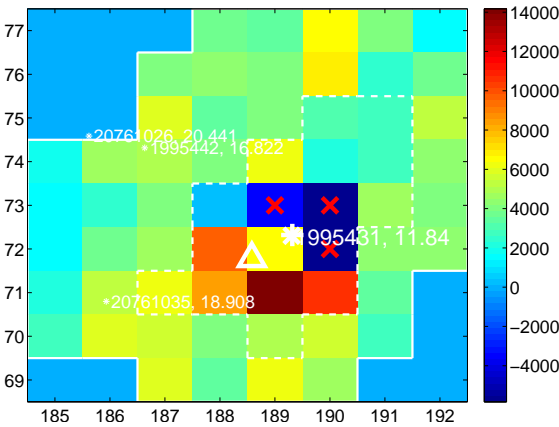
Q2 no difference image



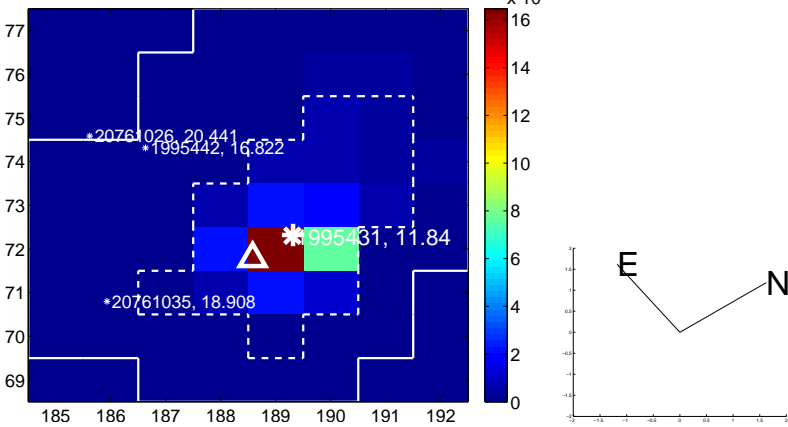
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



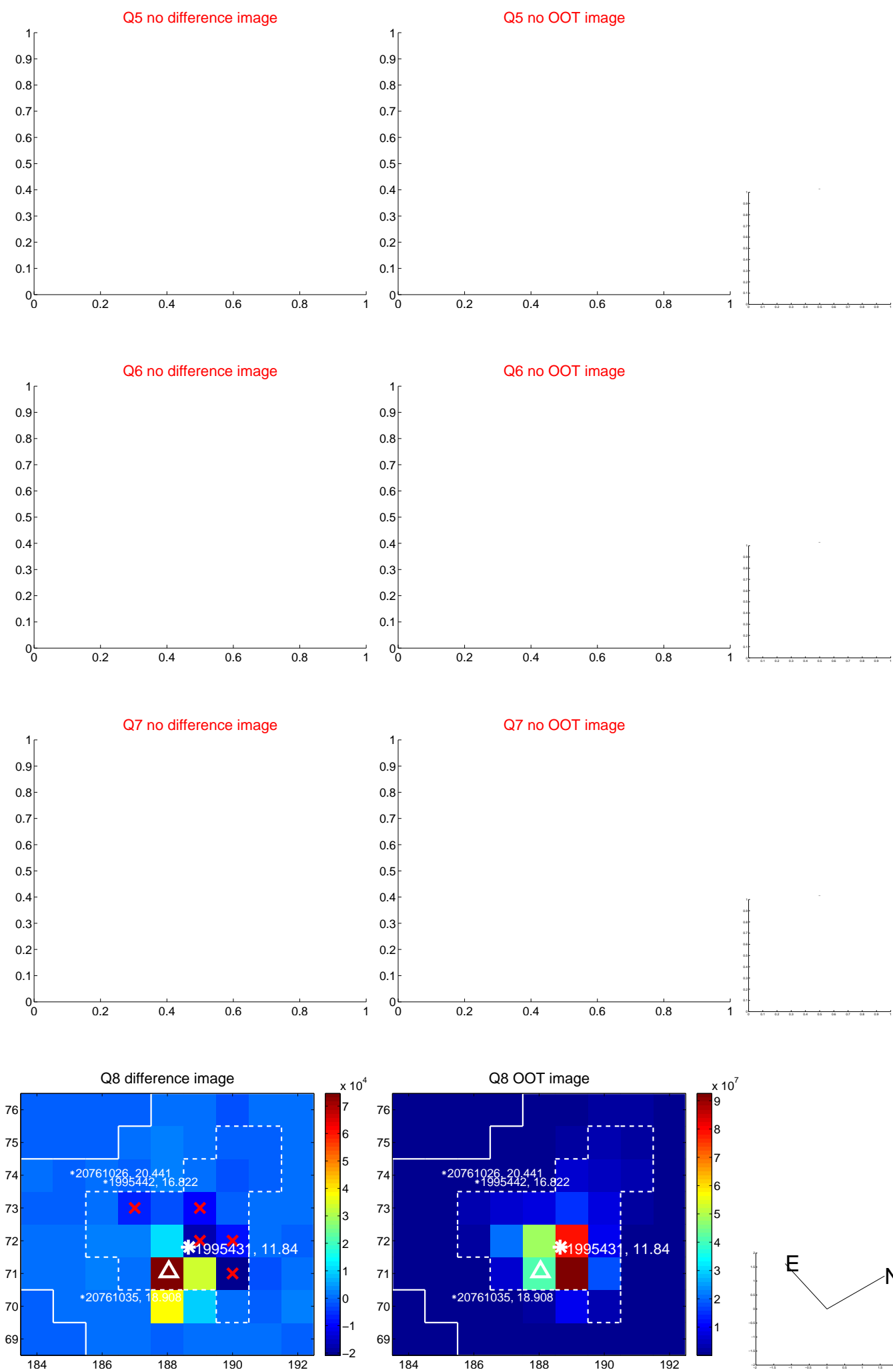
Q4 no difference image



Q4 no OOT image



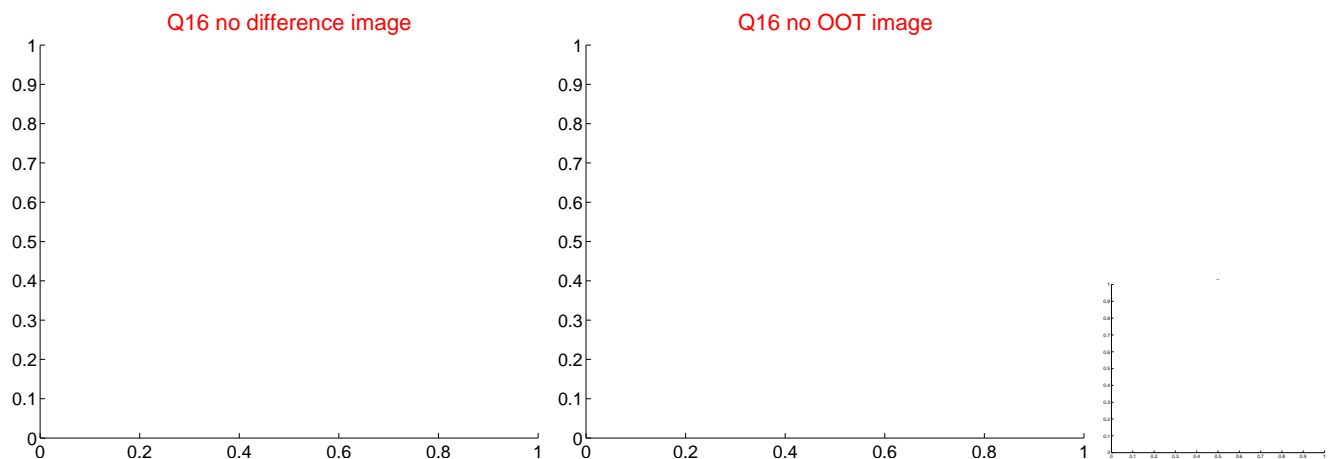
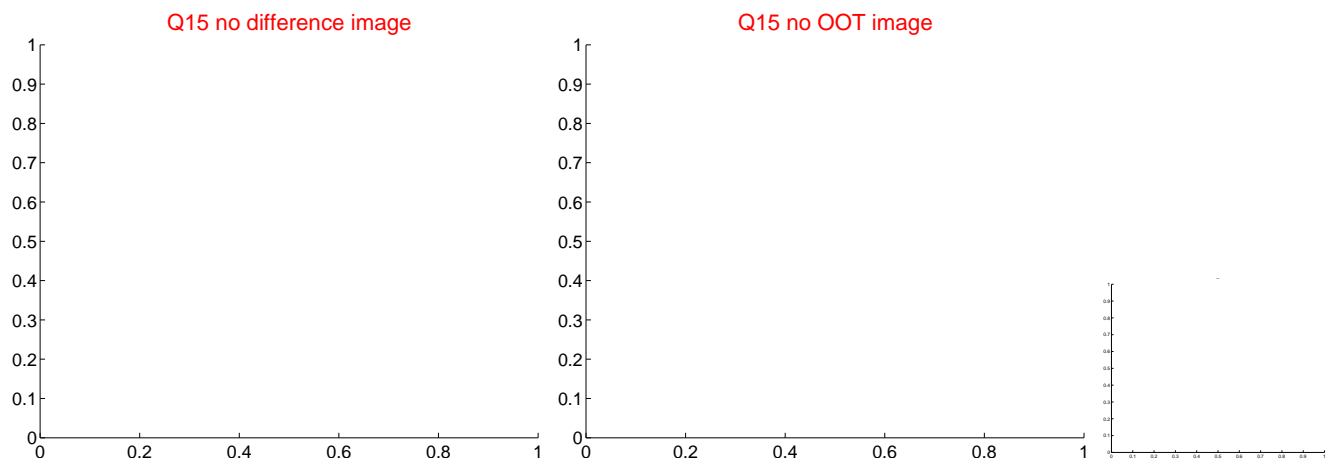
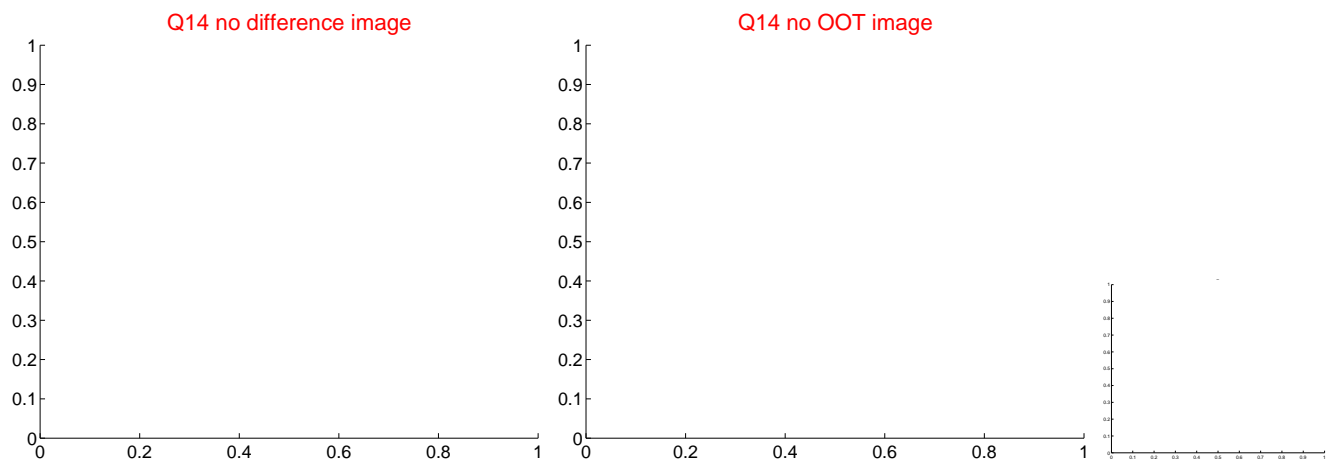
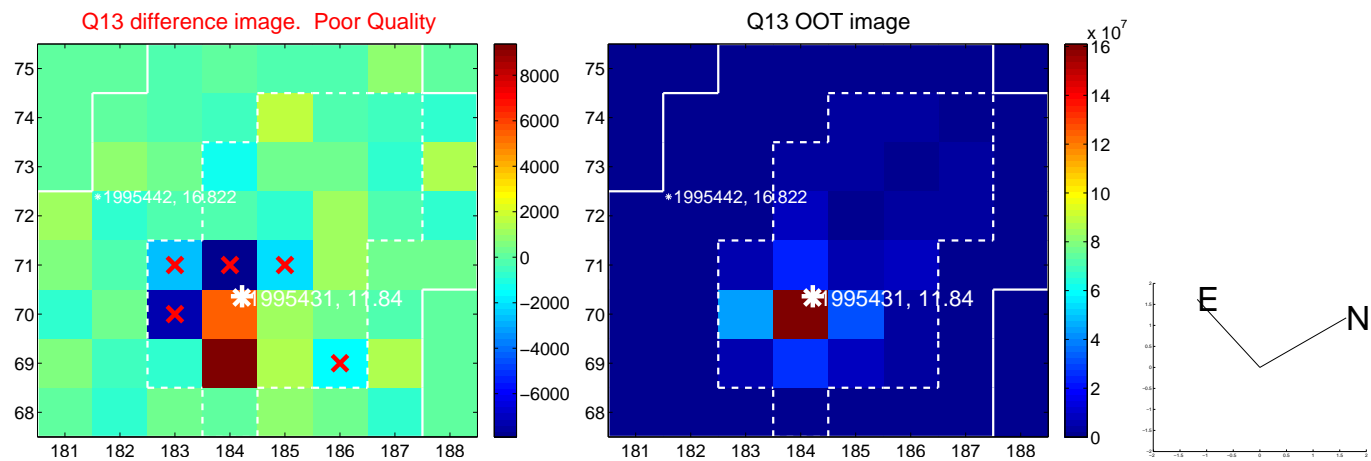
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



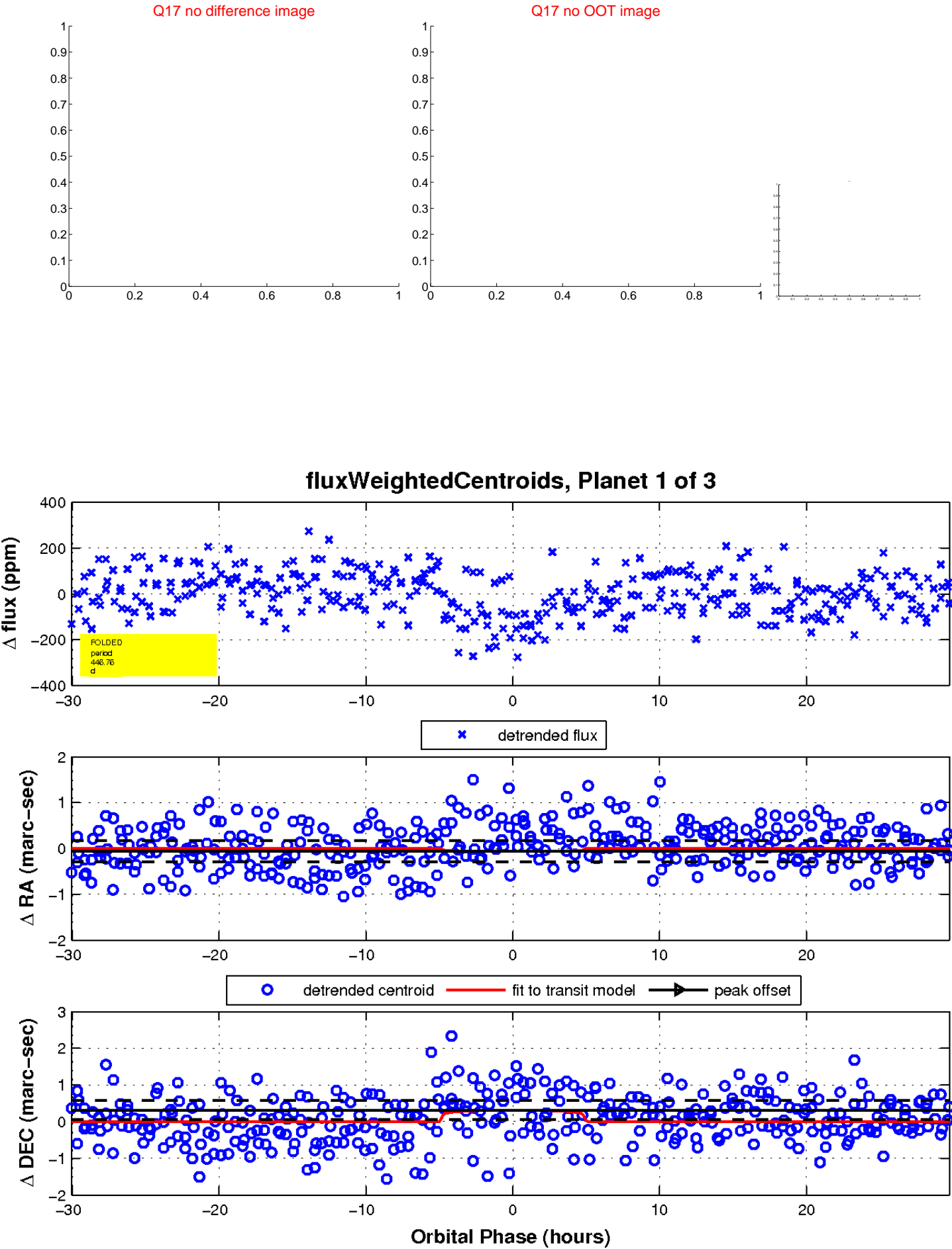
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

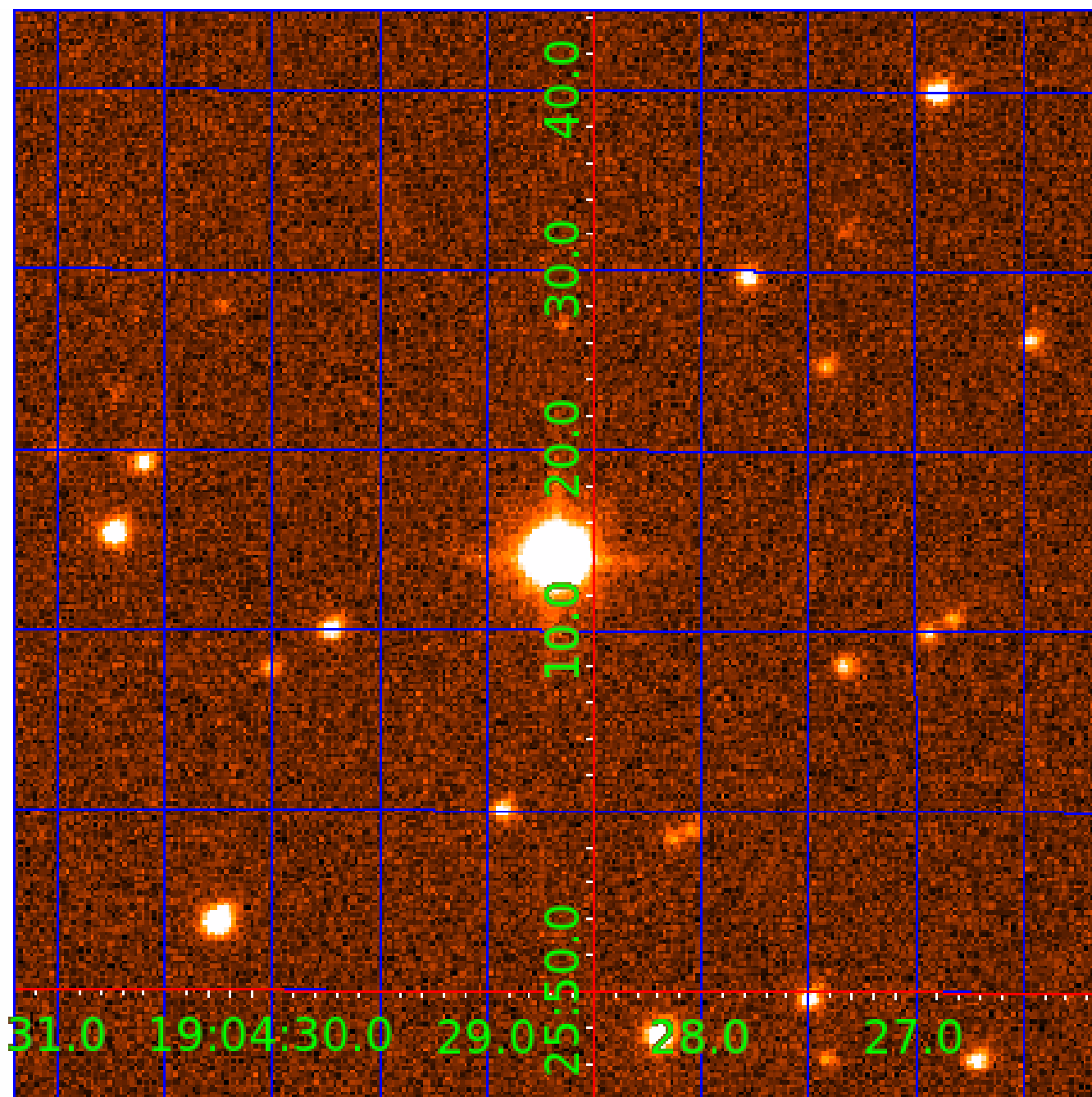


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 001995431

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})
001995431-01	OBS	No	446.762017	308.228589	153.2	10.031	10.1	9.9	1.58	7586	2.12	4.02
001995431-03	OBS	No	3.823714	135.104700	8.4	12.573	7.9	7.1	1.58	7586	0.46	2294.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001995431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—CENT_FEW_DIFFS
001995431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

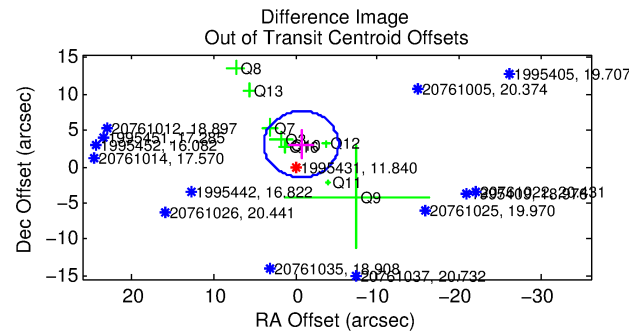
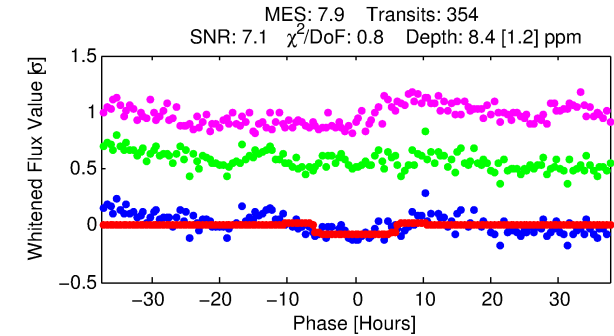
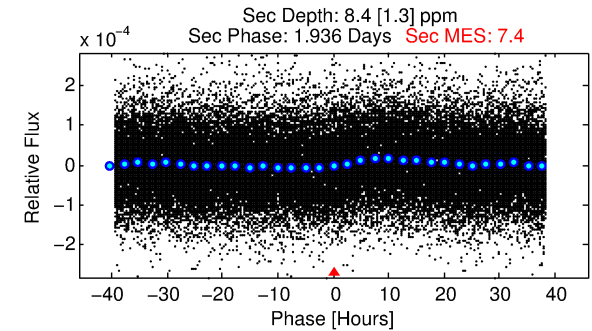
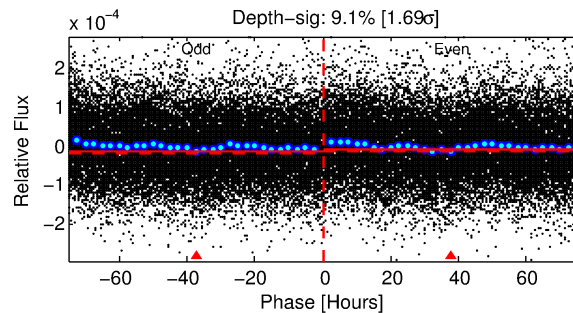
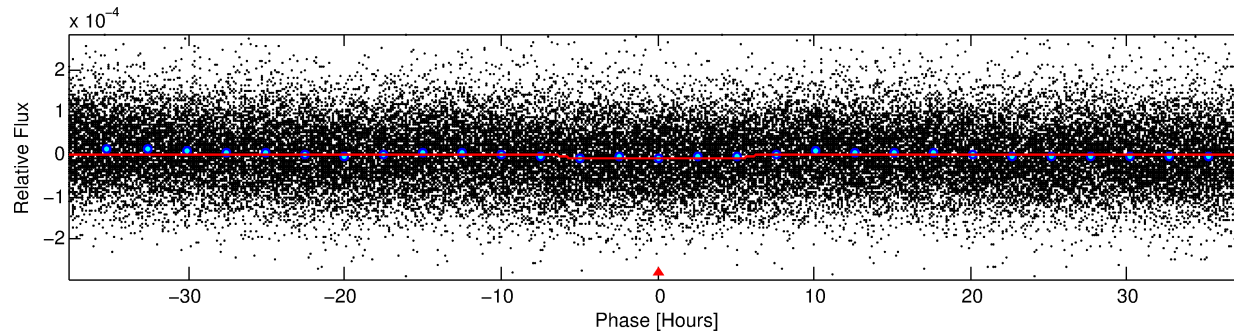
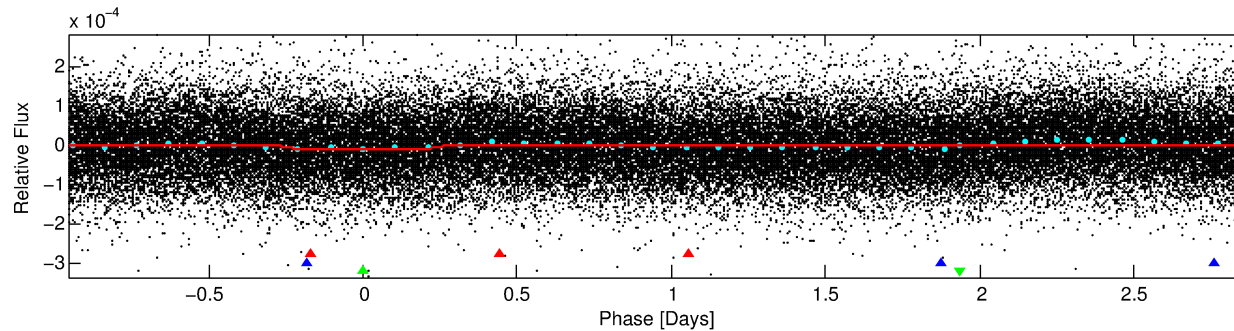
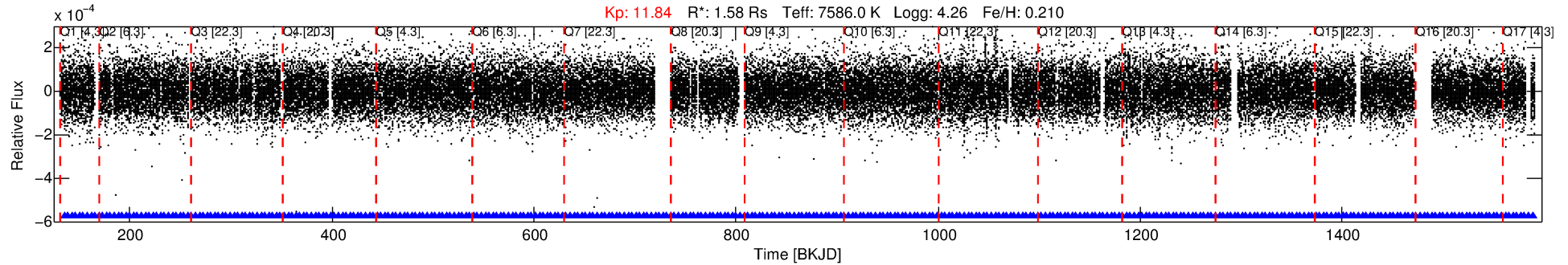
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 001995431-03

No Significant Match Found

DV One-Page Summary

KIC: 1995431 Candidate: 3 of 3 Period: 3.824 d



DV Fit Results:

Period = 3.82371 [0.00008] d
Epoch = 135.1047 [0.0136] BKJD
 $R_p/R^* = 0.0027$ [0.0023]
 $a/R^* = 2.40$ [10.42]
 $b = 0.01$ [527.49]
 $\text{Seff} = 2294.40$ [1120.99]
 $T_{\text{eq}} = 1765$ [216] K
 $R_p = 0.46$ [0.44] R_e
 $a = 0.0567$ [0.0179] AU
 $A_g = 69.20$ [123.87] [0.55 σ]
 $T_{\text{eff}} = 7870$ [3425] K [1.78 σ]

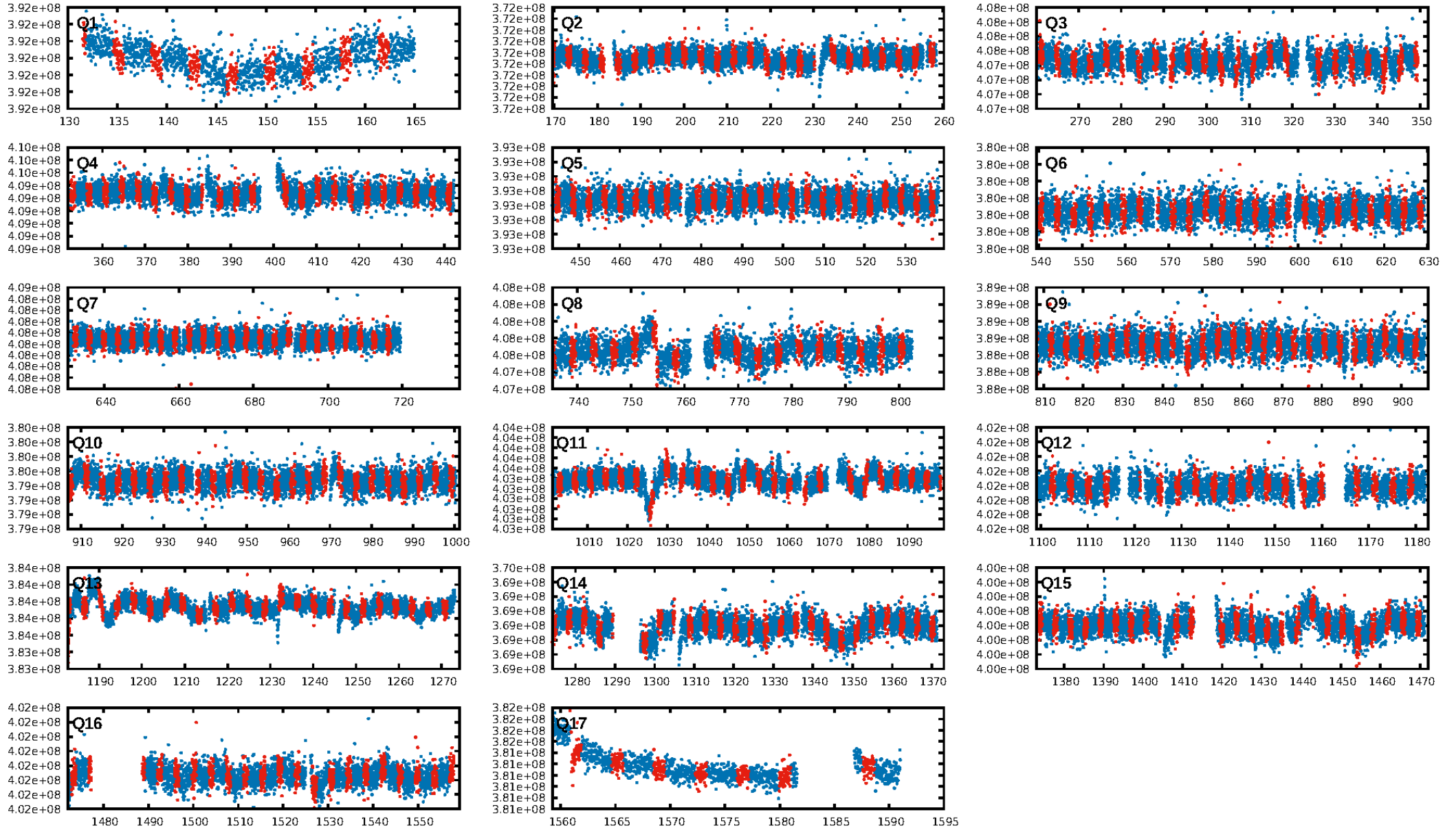
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [660.91 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.32e-14
RollingBand-fgt: 1.00 [339/339]
GhostDiagnostic-chr: 1.03
Centroid-sig: 0.3%
Centroid-so: 4.675 arcsec [1.83 σ]
OotOffset-rm: 3.163 arcsec [2.08 σ]
KicOffset-rm: 3.191 arcsec [2.33 σ]
OotOffset-st: 1/3/3/2 [9]
KicOffset-st: 1/3/3/2 [9]
DiffImageQuality-fgm: 0.11 [1/9]
DiffImageOverlap-fno: 1.00 [17/17]

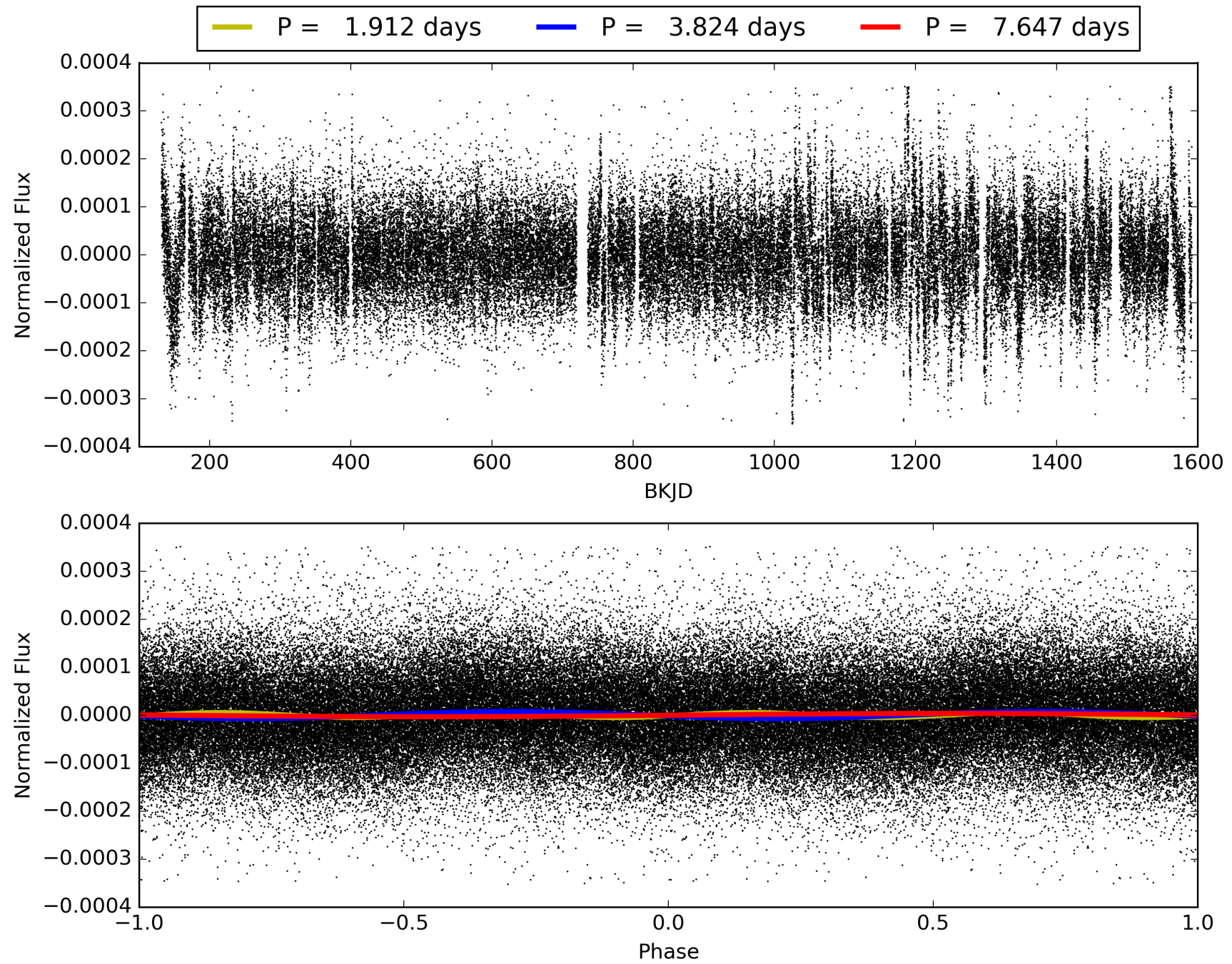
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:15:26 Z

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

TCE 001995431-03, PDC Light Curves

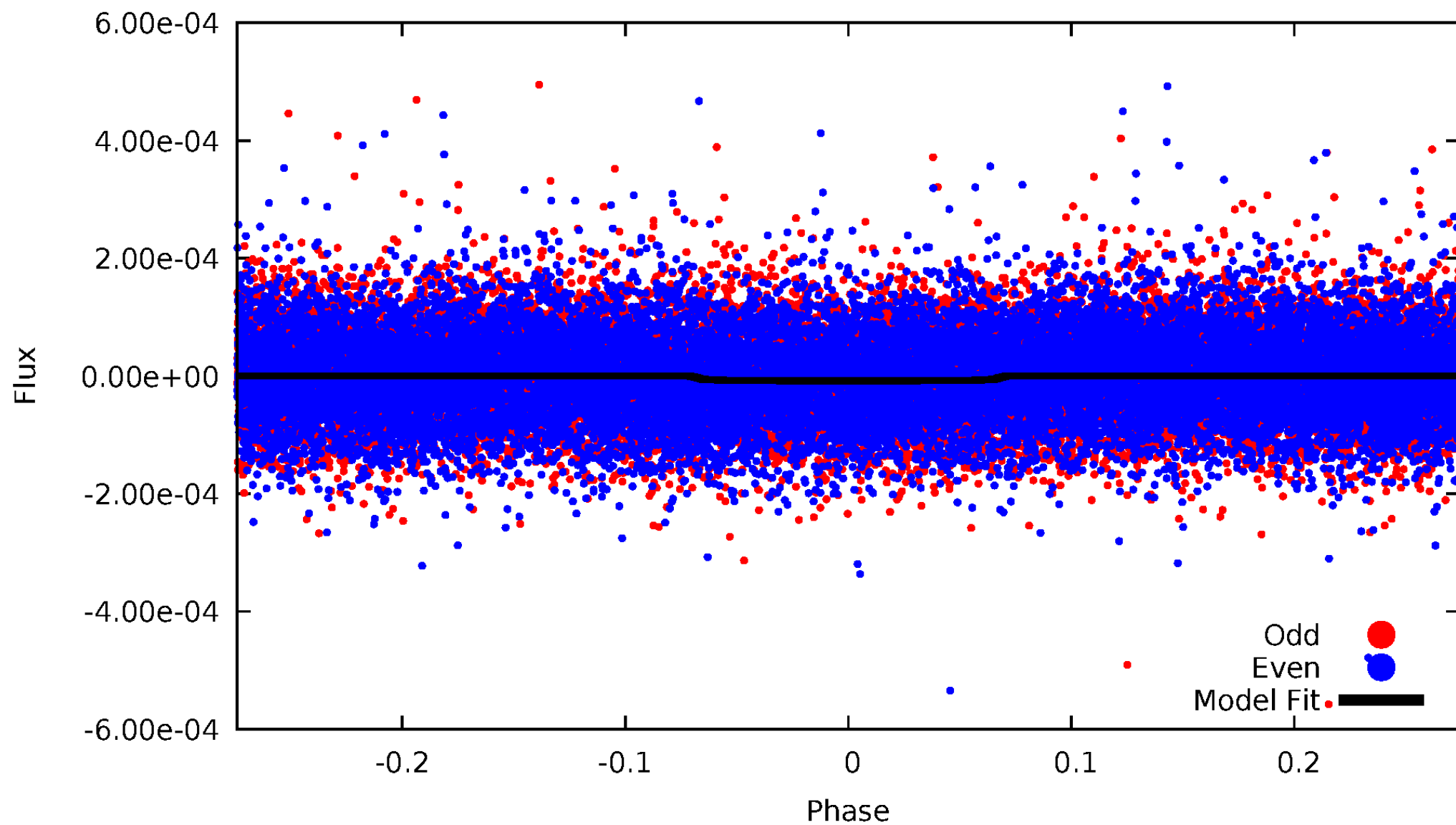


TCE 001995431-03



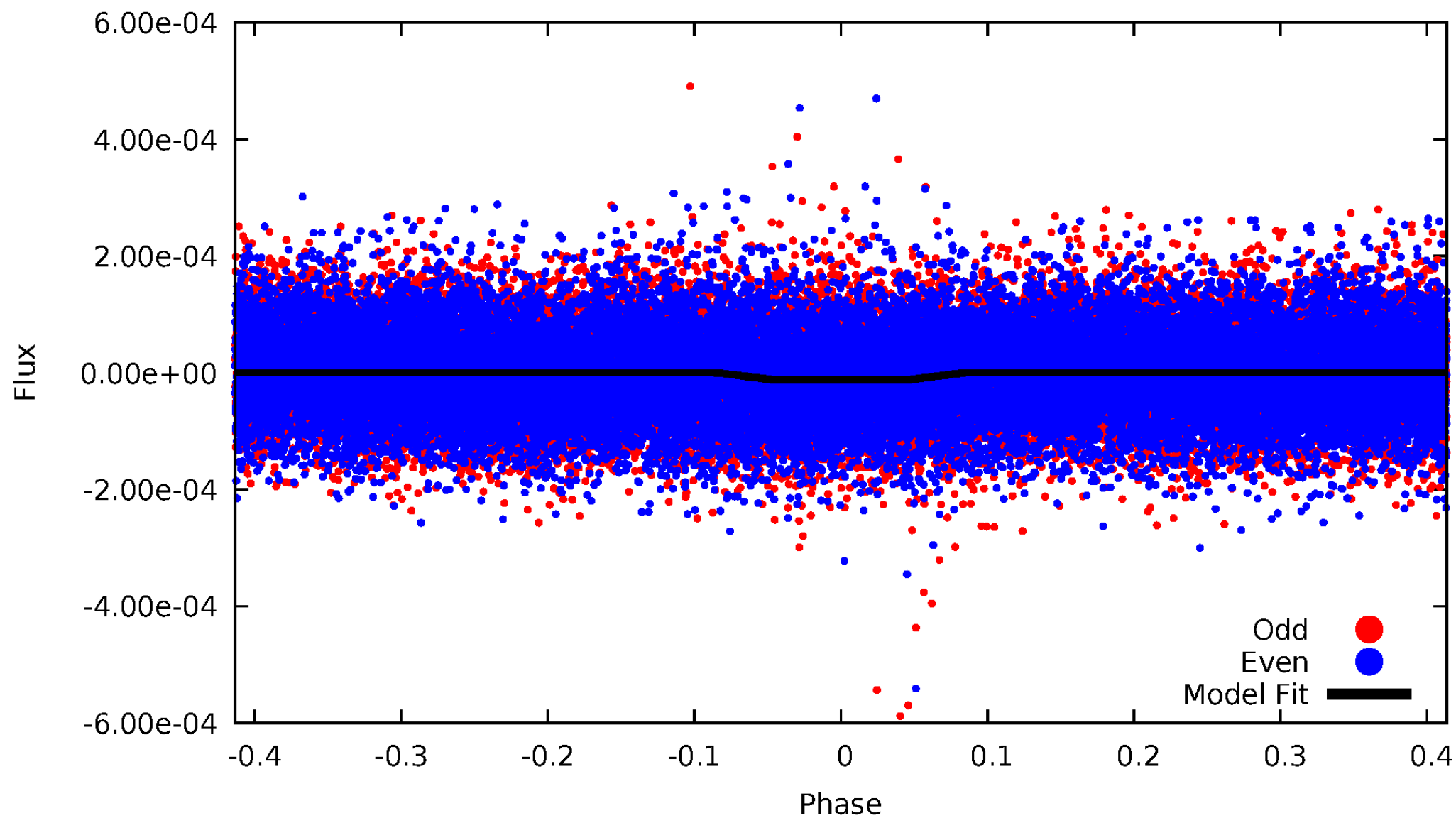
DV Odd/Even

TCE 001995431-03



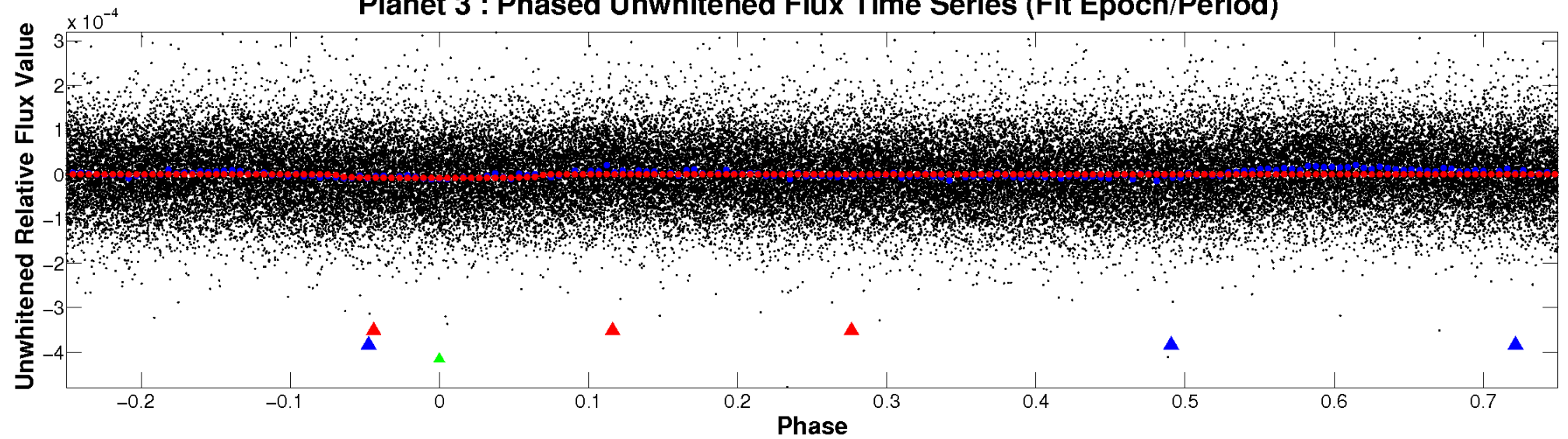
ALT Odd/Even

TCE 001995431-03

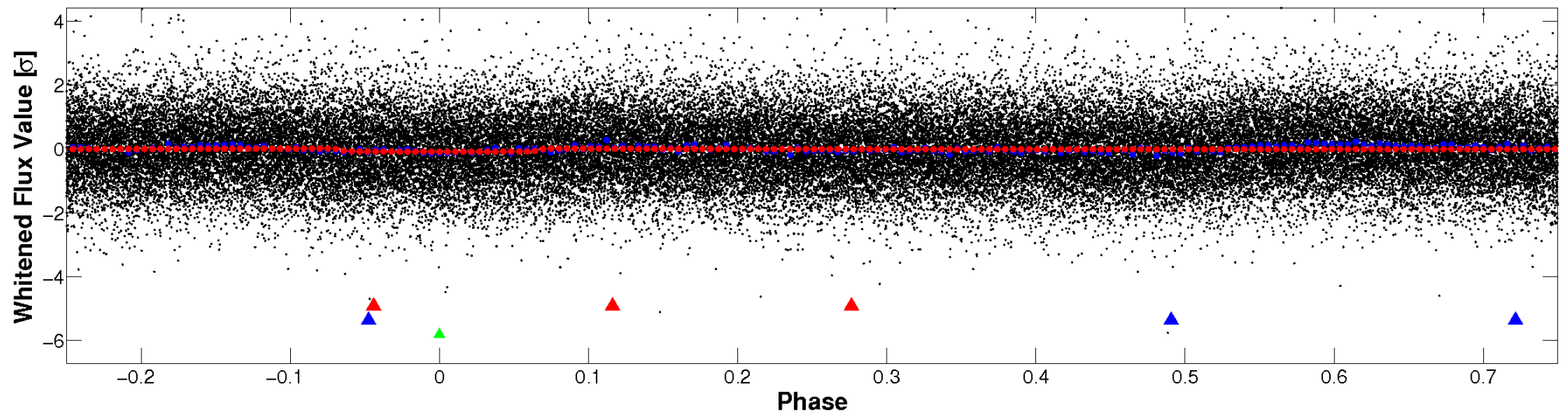


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

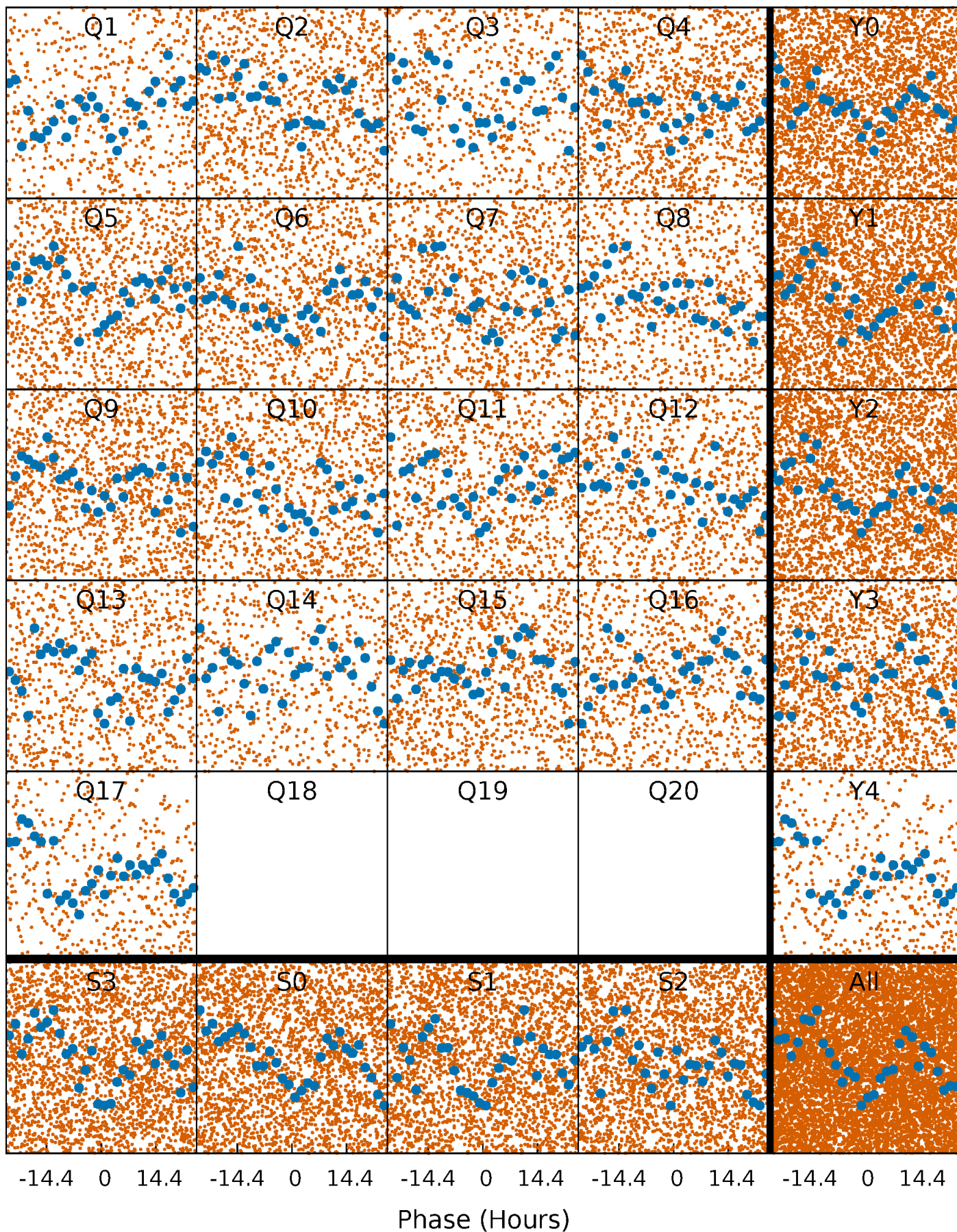


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



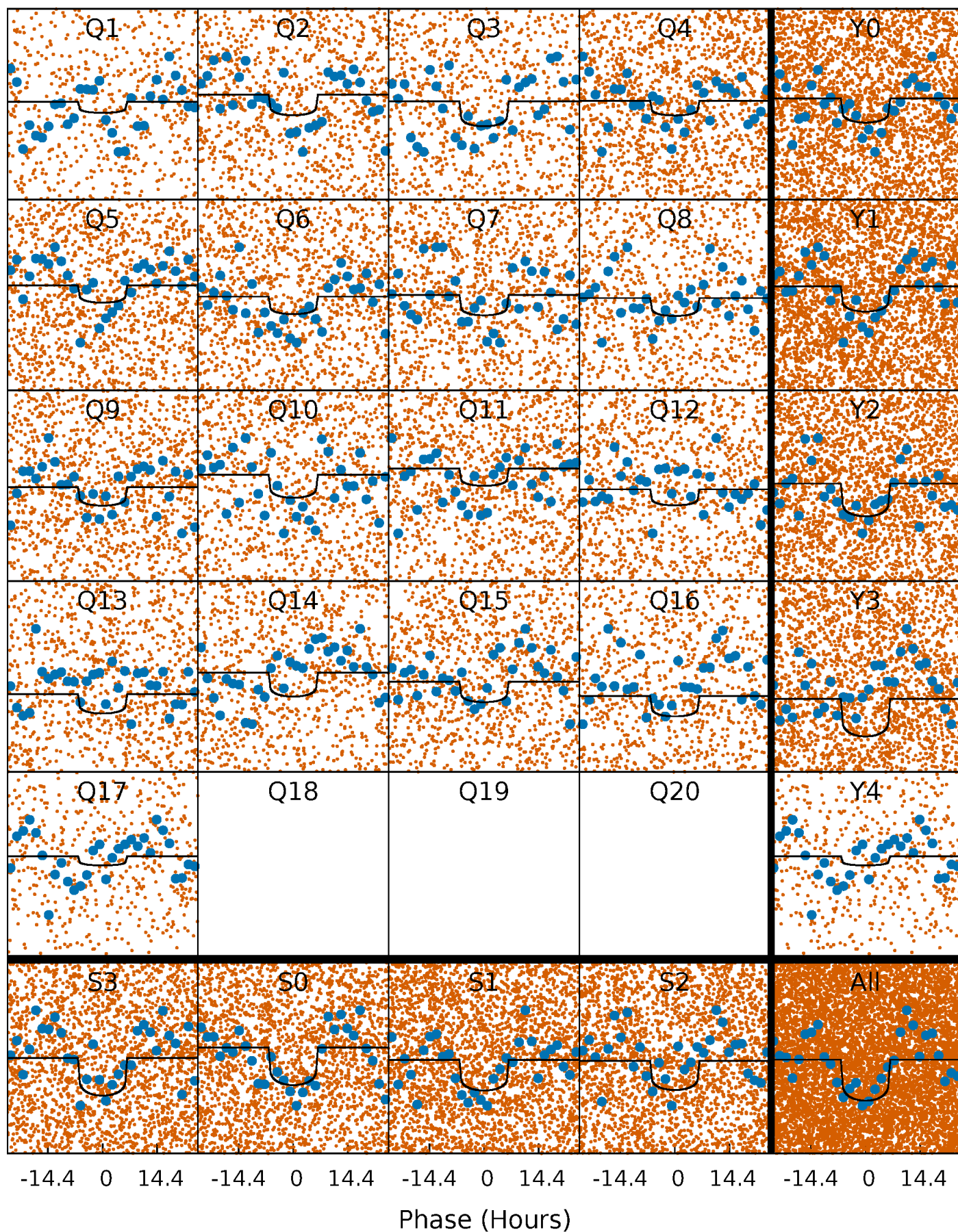
PDC Quarter-Phased Transit Curves

TCE 001995431-03 P= 3.823714 Days $T_0=135.104700$ (BKJD)



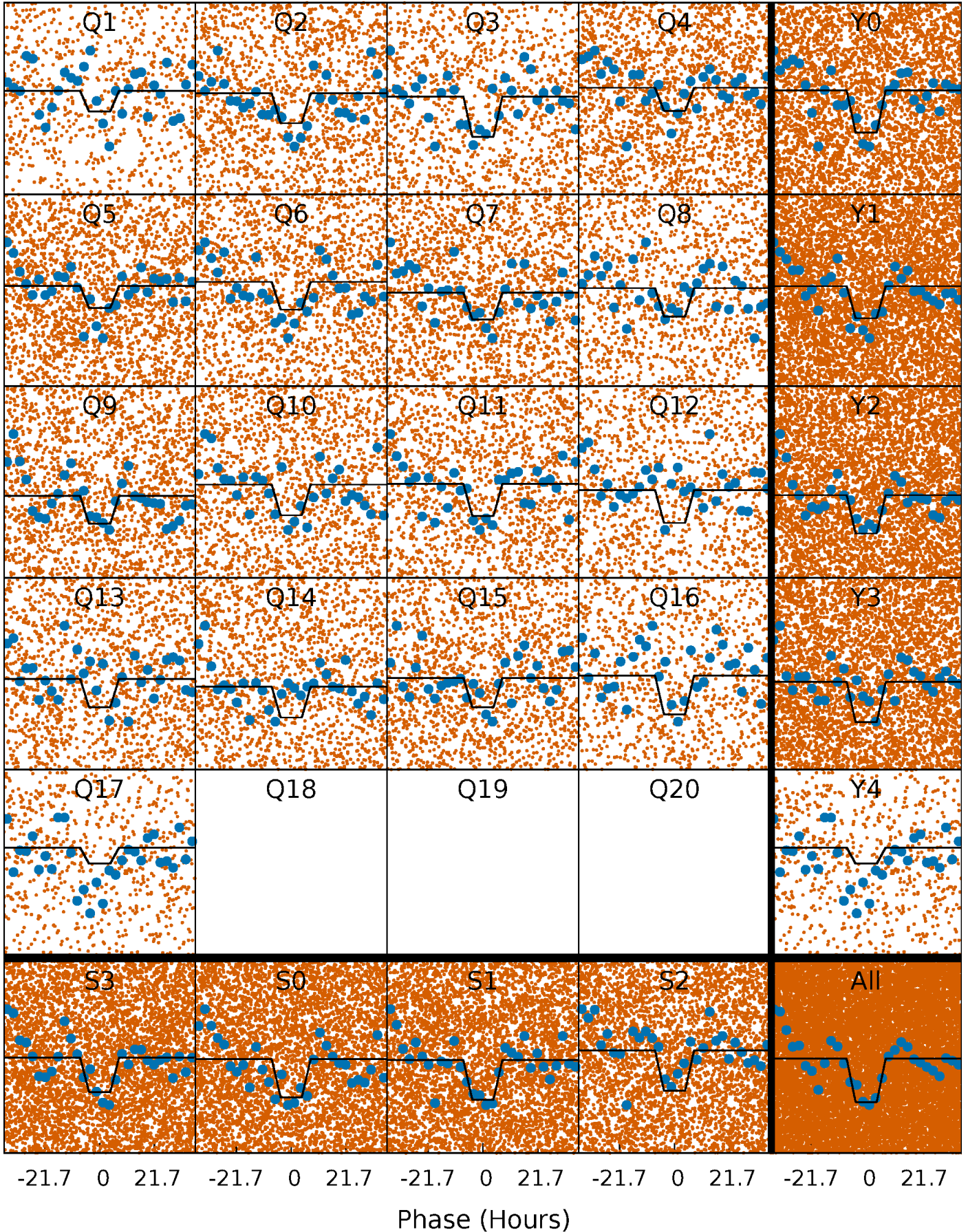
DV Quarter-Phased Transit Curves

TCE 001995431-03 $P = 3.823714$ Days $T_0 = 135.104700$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

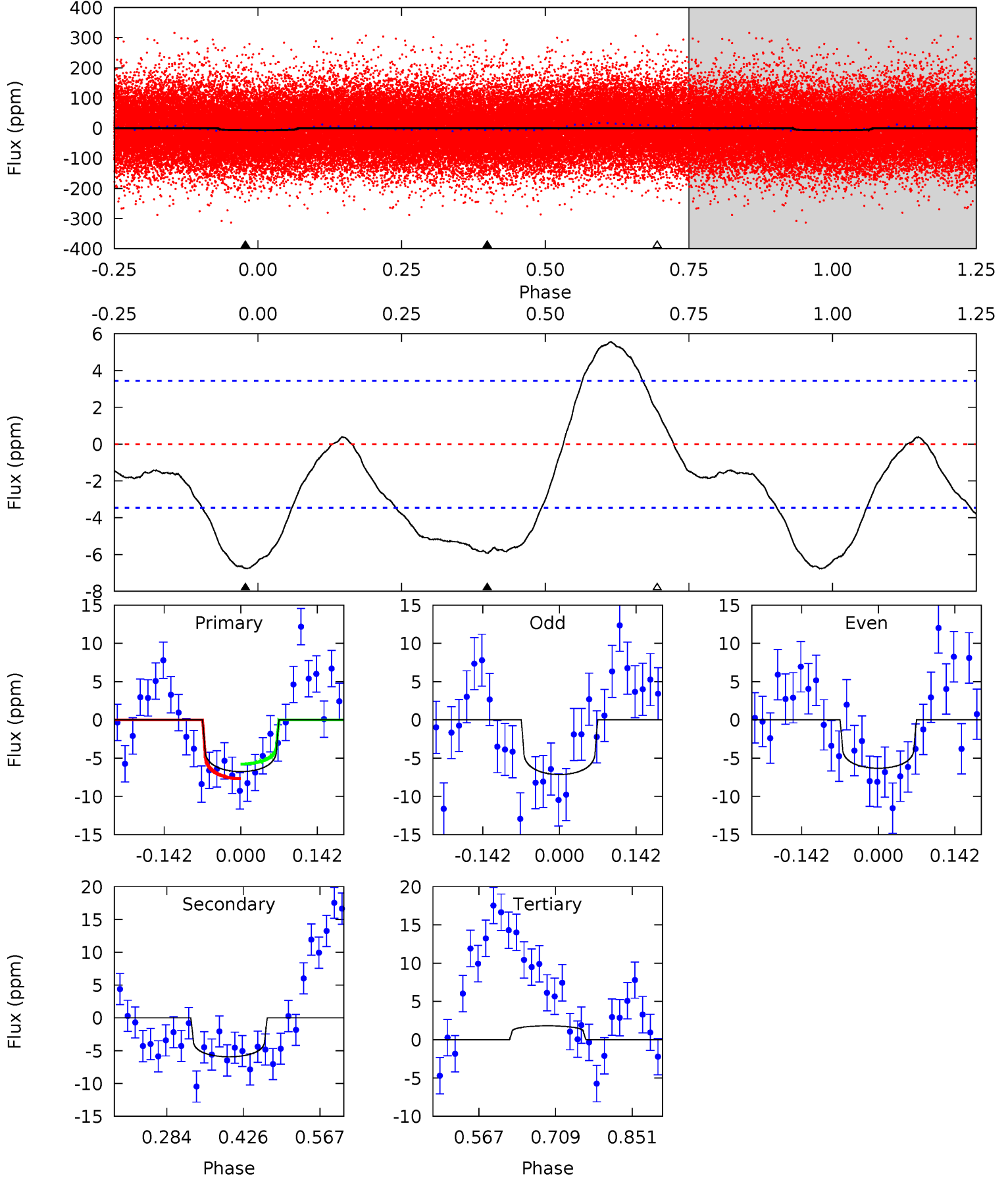
TCE 001995431-03 P= 3.822855 Days $T_0=135.201214$ (BKJD)



DV Model-Shift Uniqueness Test

001995431-03, P = 3.823714 Days, E = 131.280986 Days

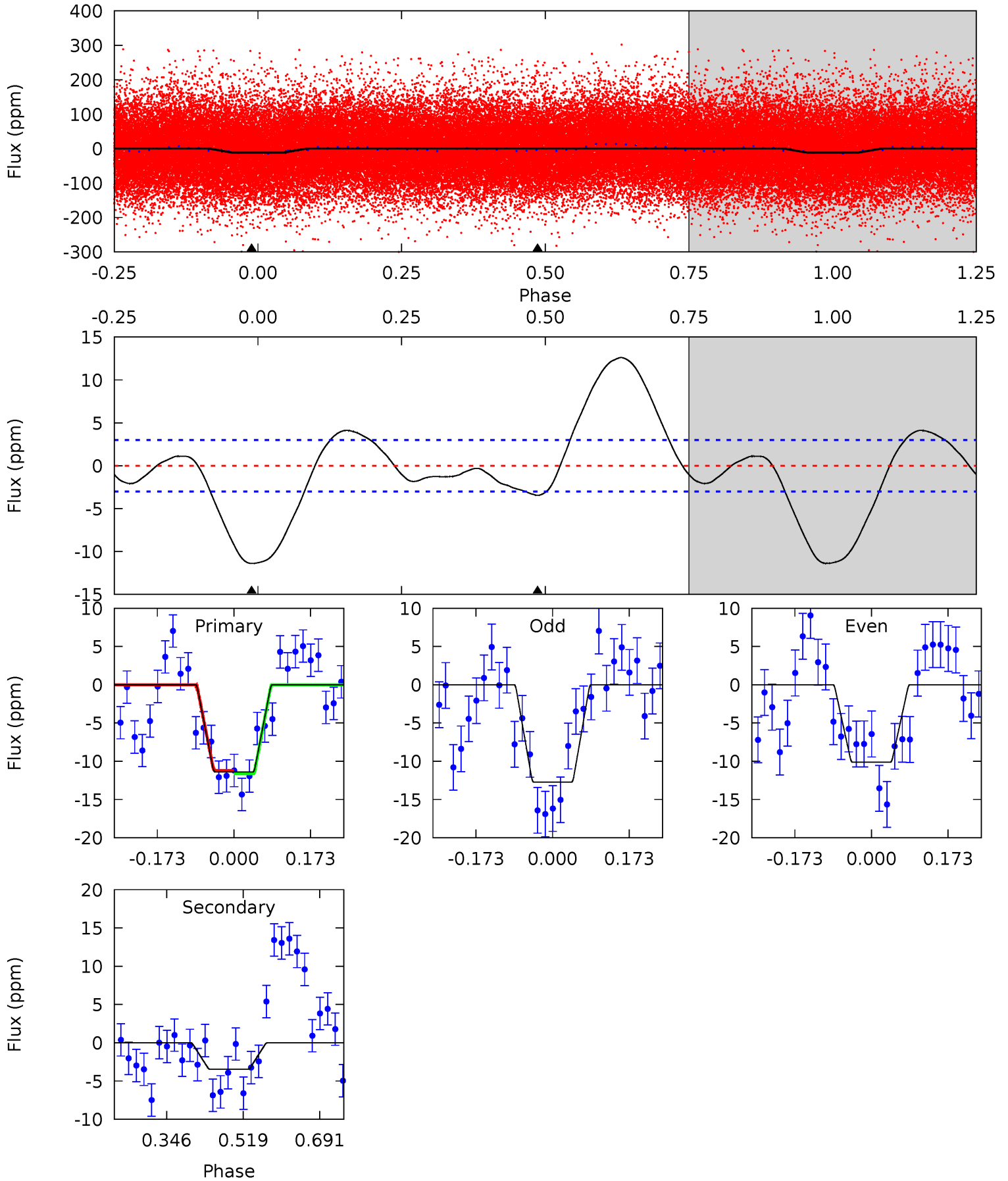
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.80	7.73	-2.36	0	4.49	1.47	3.68	11.2	8.80	10.1	7.73	0.54	1.06	0.45	1.26



Alt Model-Shift Uniqueness Test

001995431-03, P = 3.822855 Days, E = 131.378359 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	5.13	0	0	4.45	1.36	5.11	16.9	16.9	5.13	5.13	1.93	0.98	0.53	0.33



Stellar Parameters For KIC 001995431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7586^{+210}_{-341}	$4.263^{+0.058}_{-0.246}$	$0.210^{+0.150}_{-0.400}$	$1.576^{+0.597}_{-0.186}$	$1.671^{+0.212}_{-0.212}$	$0.601^{+0.148}_{-0.334}$
	+3%/-4%	+1%/-6%	+71%/-190%	+38%/-12%	+13%/-13%	+25%/-55%
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 001995431-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6 ± 1	$0.55^{+0.42}_{-0.34}$	2526^{+218}_{-147}	6609^{+6188}_{-1501}	34^{+199}_{-23}
Alt.	-3 ± 1	$0.69^{+0.45}_{-0.38}$	2514^{+212}_{-142}	5206^{+2814}_{-955}	12^{+54}_{-8}

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 $A_{obs} \gg 1.0$

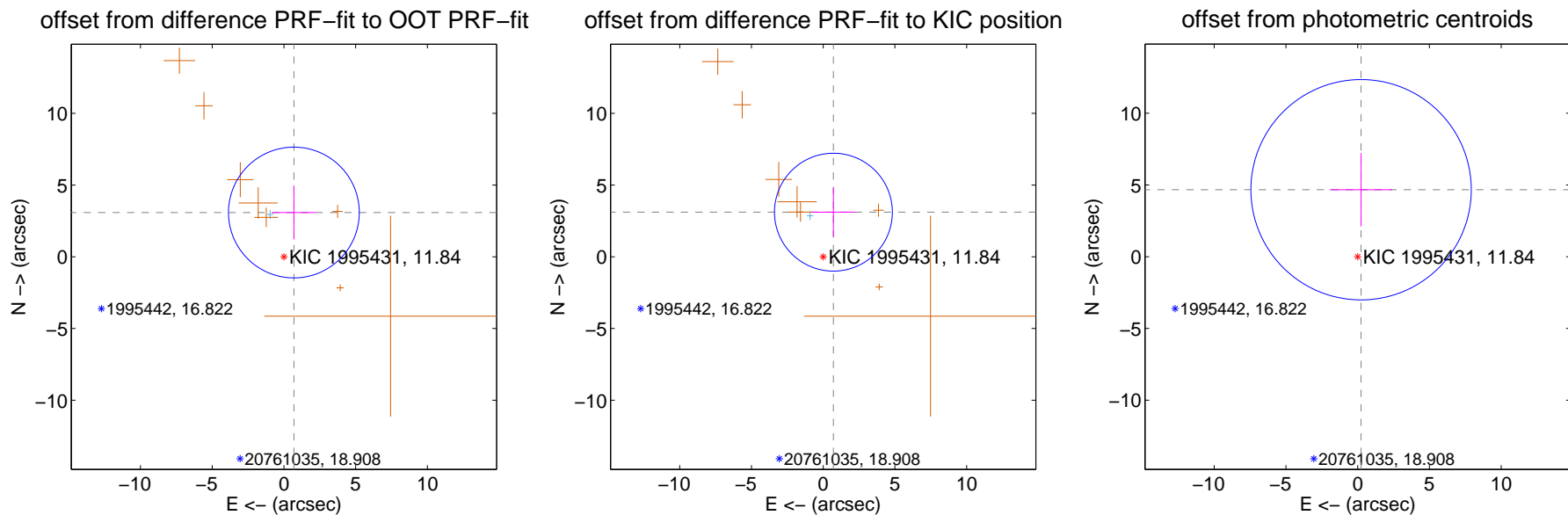
DV Centroid Data

Supplemental centroid analysis for 001995431-03. **Kepler magnitude: 11.84.** Transit SNR 7.14

There are 1 quarters with good PRF difference image offsets

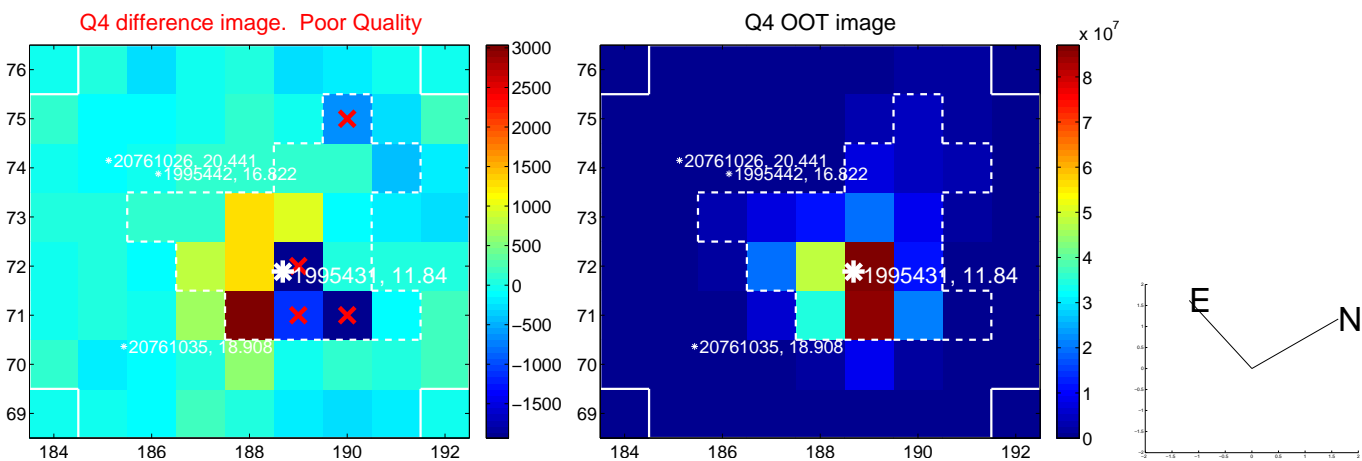
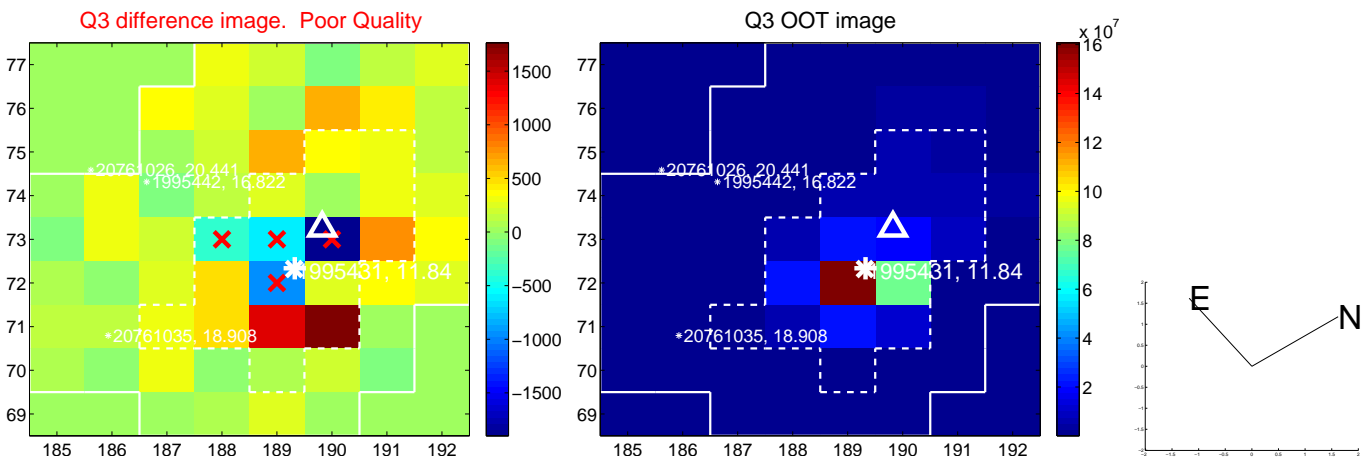
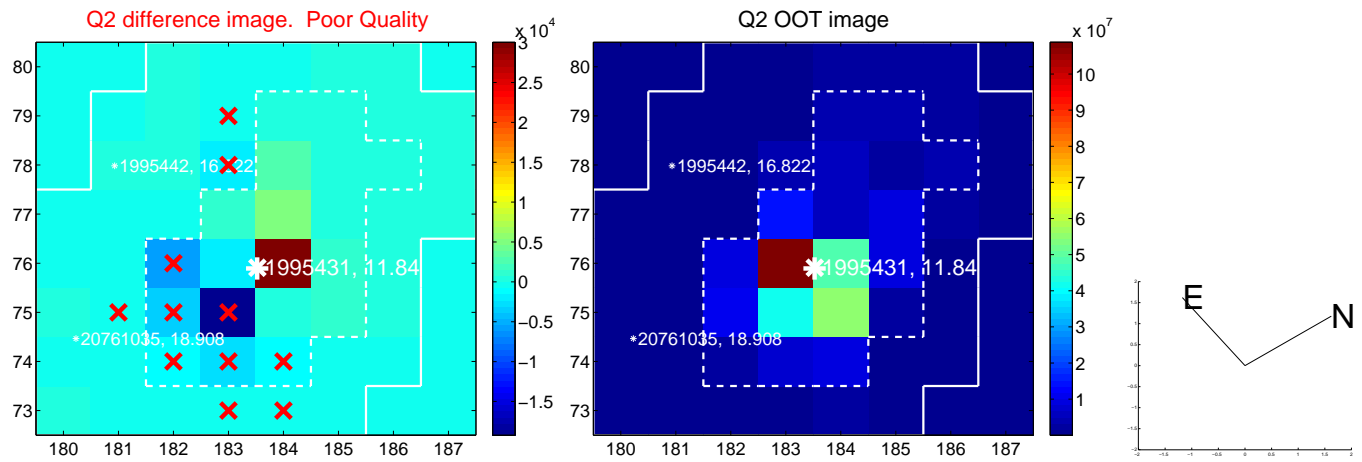
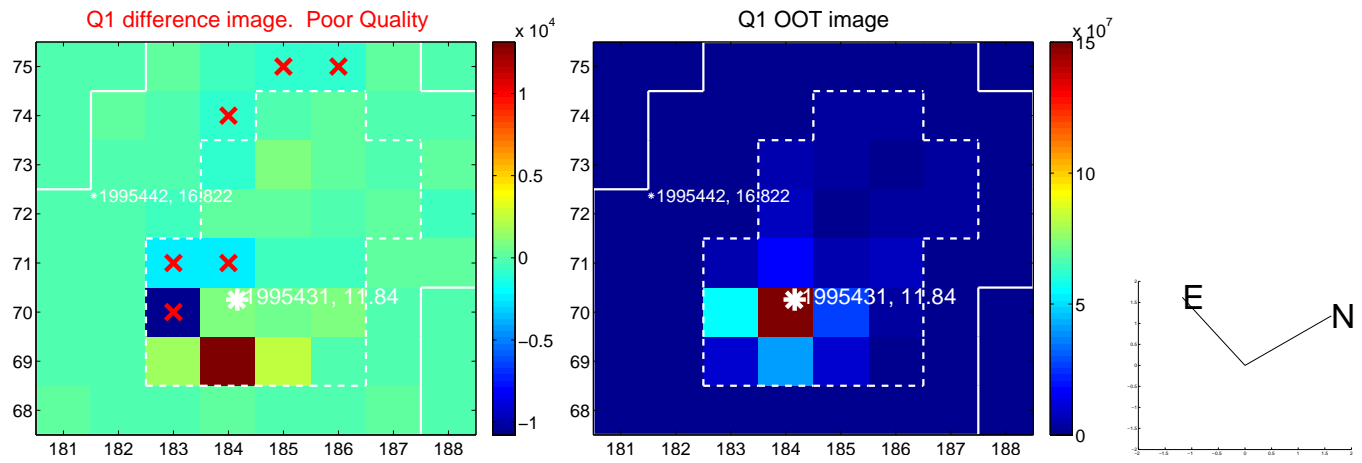
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.163 ± 1.520	2.08	-0.695 ± 1.529	3.085 ± 1.876
PRF-fit source offset from KIC position	3.191 ± 1.370	2.33	-0.714 ± 1.523	3.110 ± 1.715
photometric centroid source offset	4.67 ± 2.56	1.83	-0.24 ± 2.16	4.67 ± 2.56

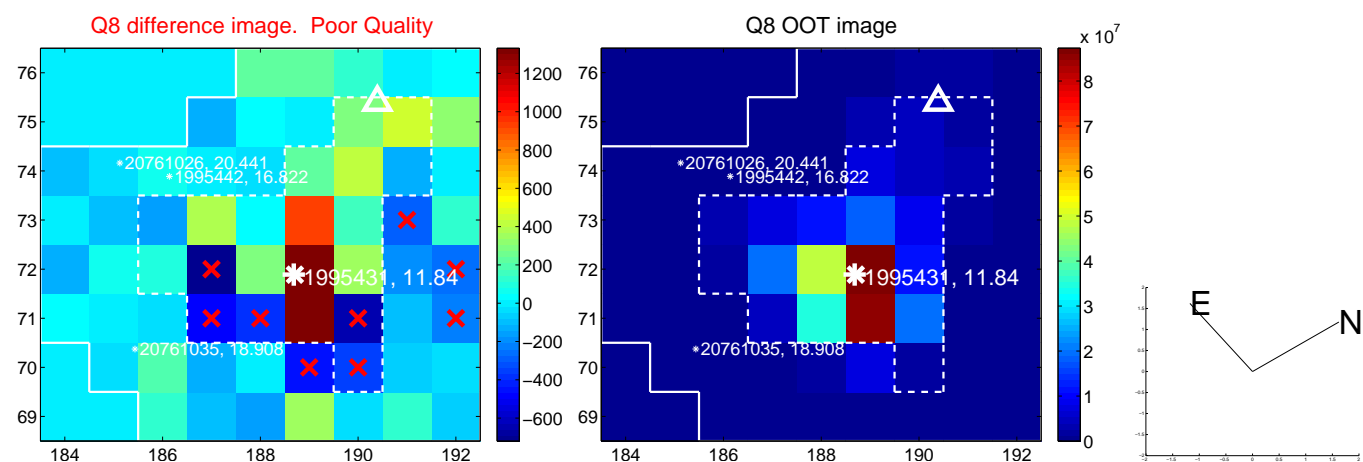
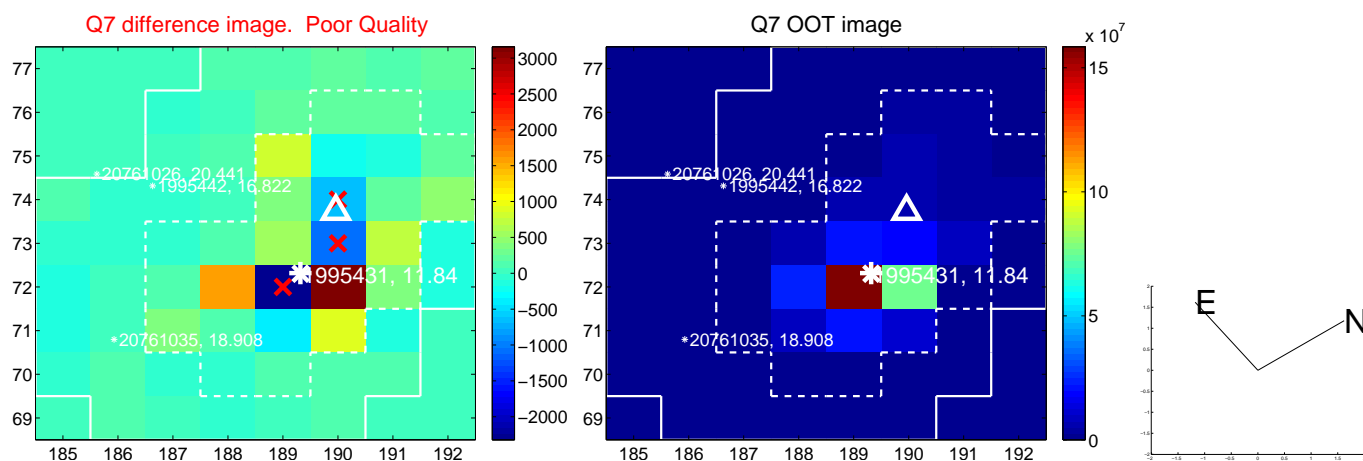
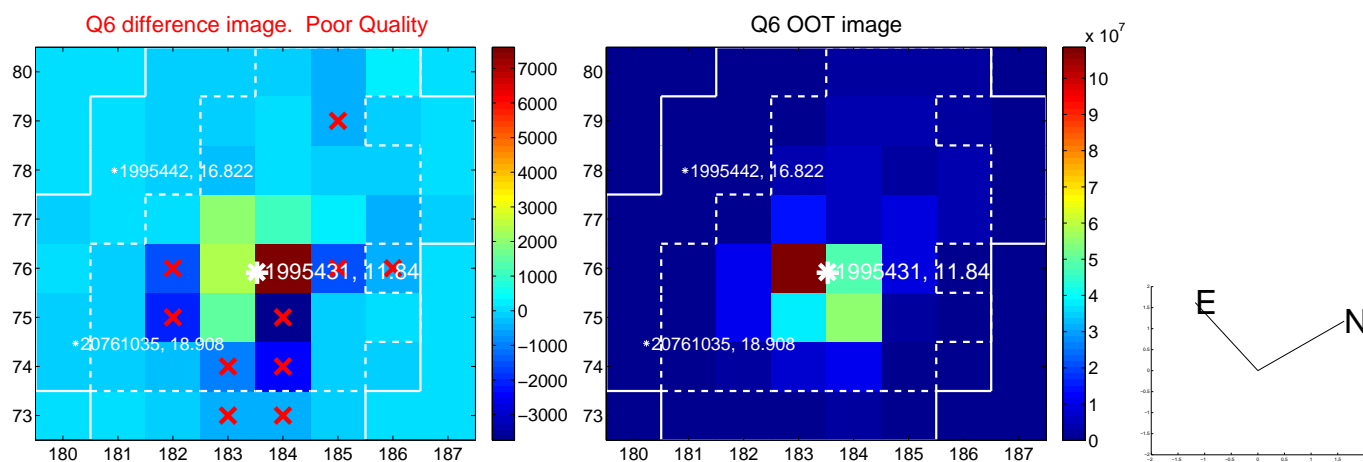
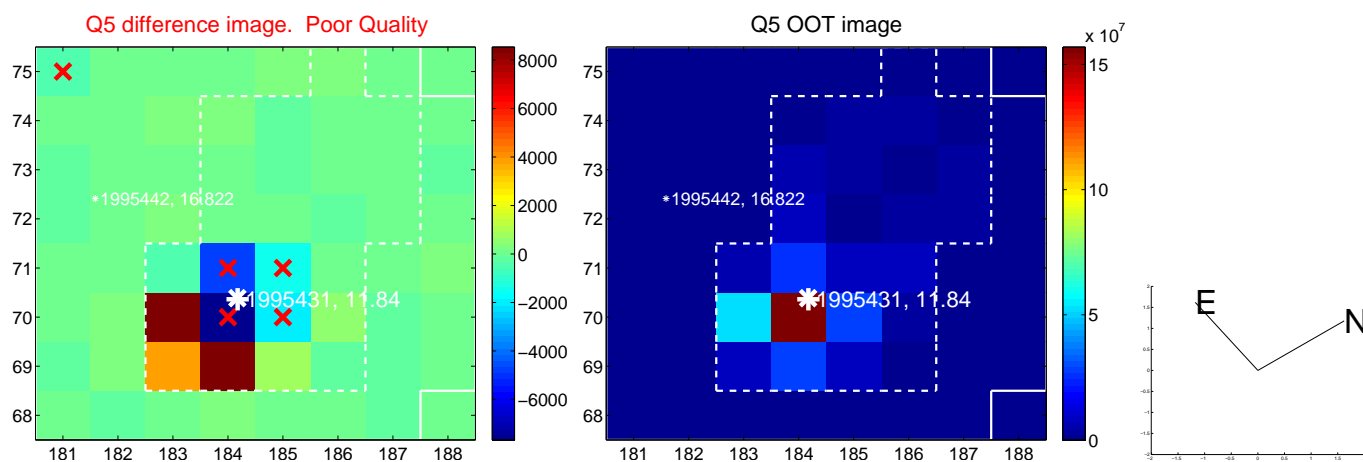


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

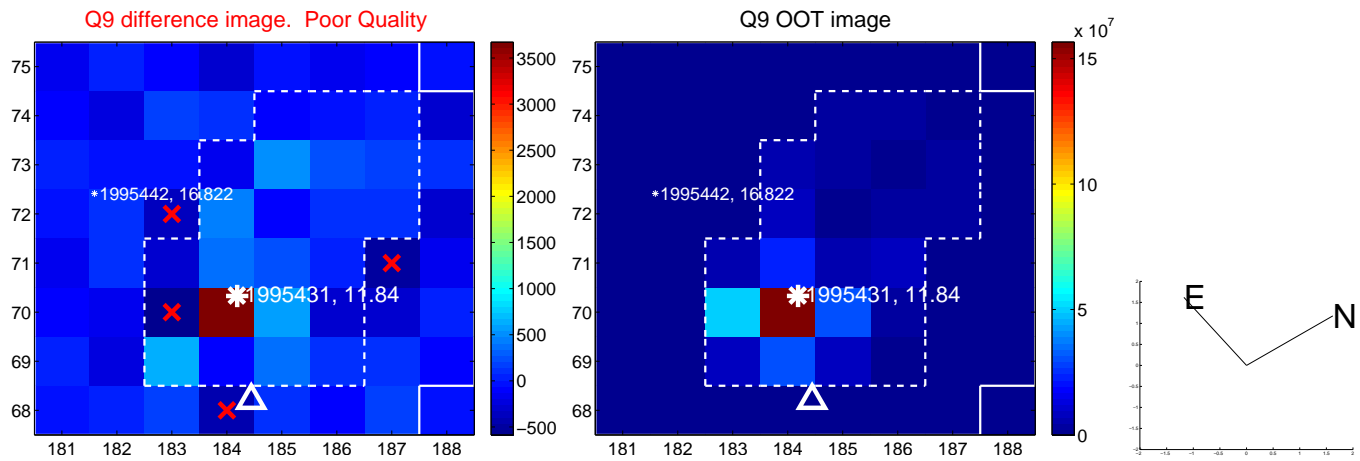
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



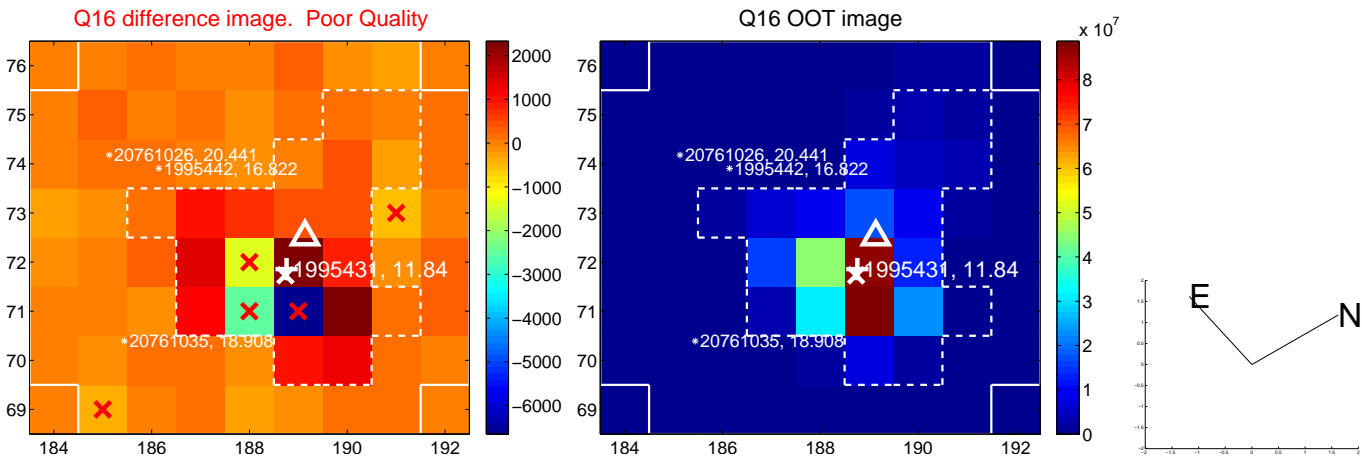
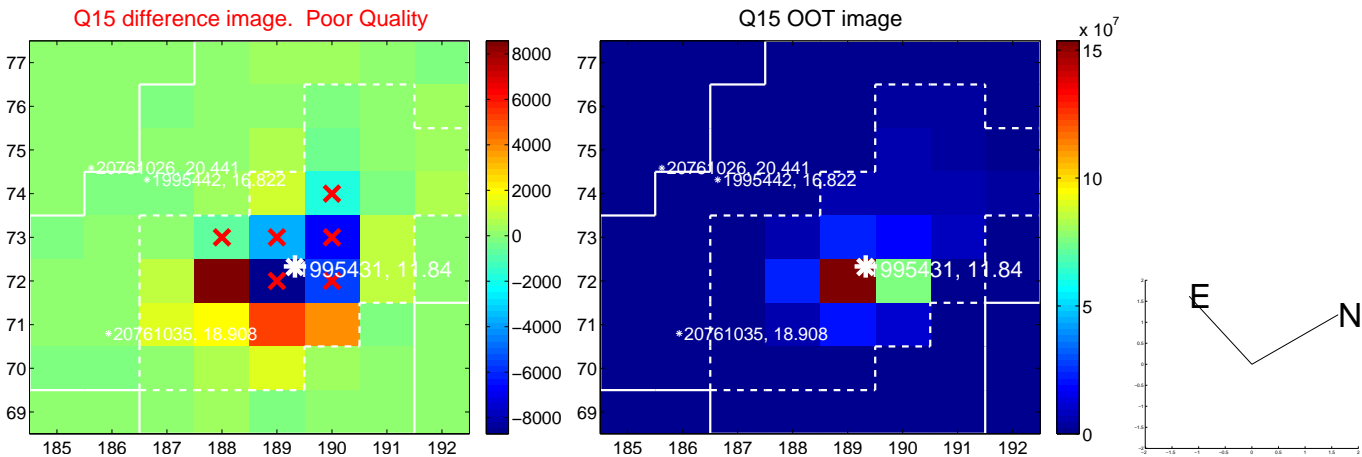
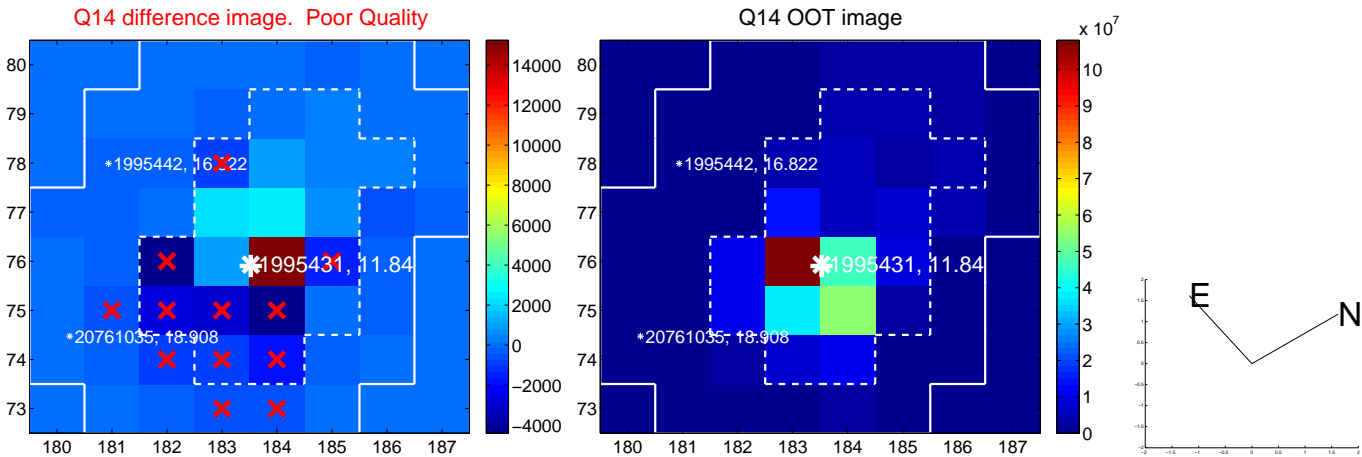
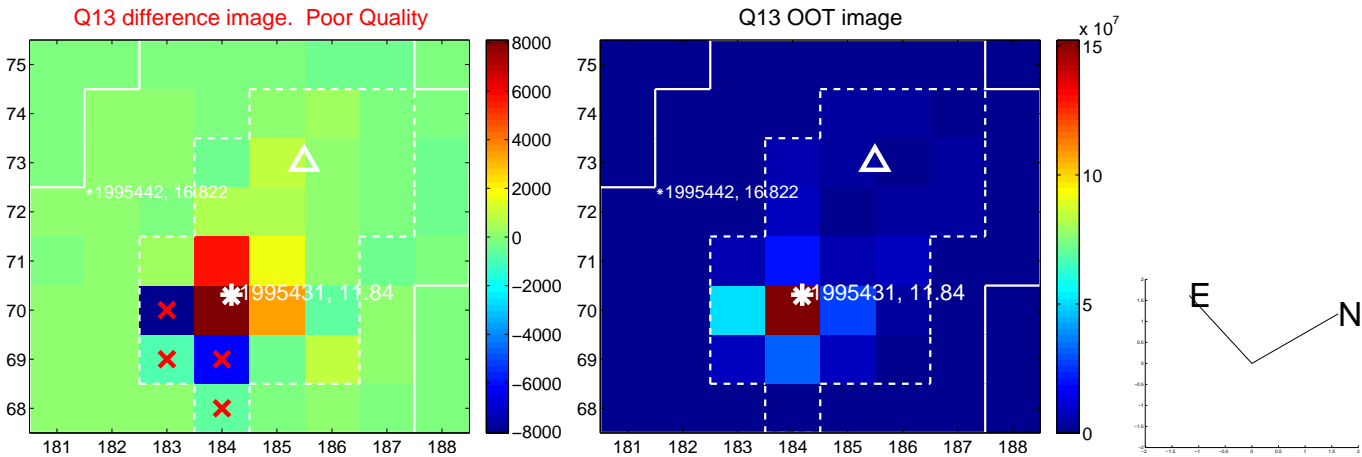
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



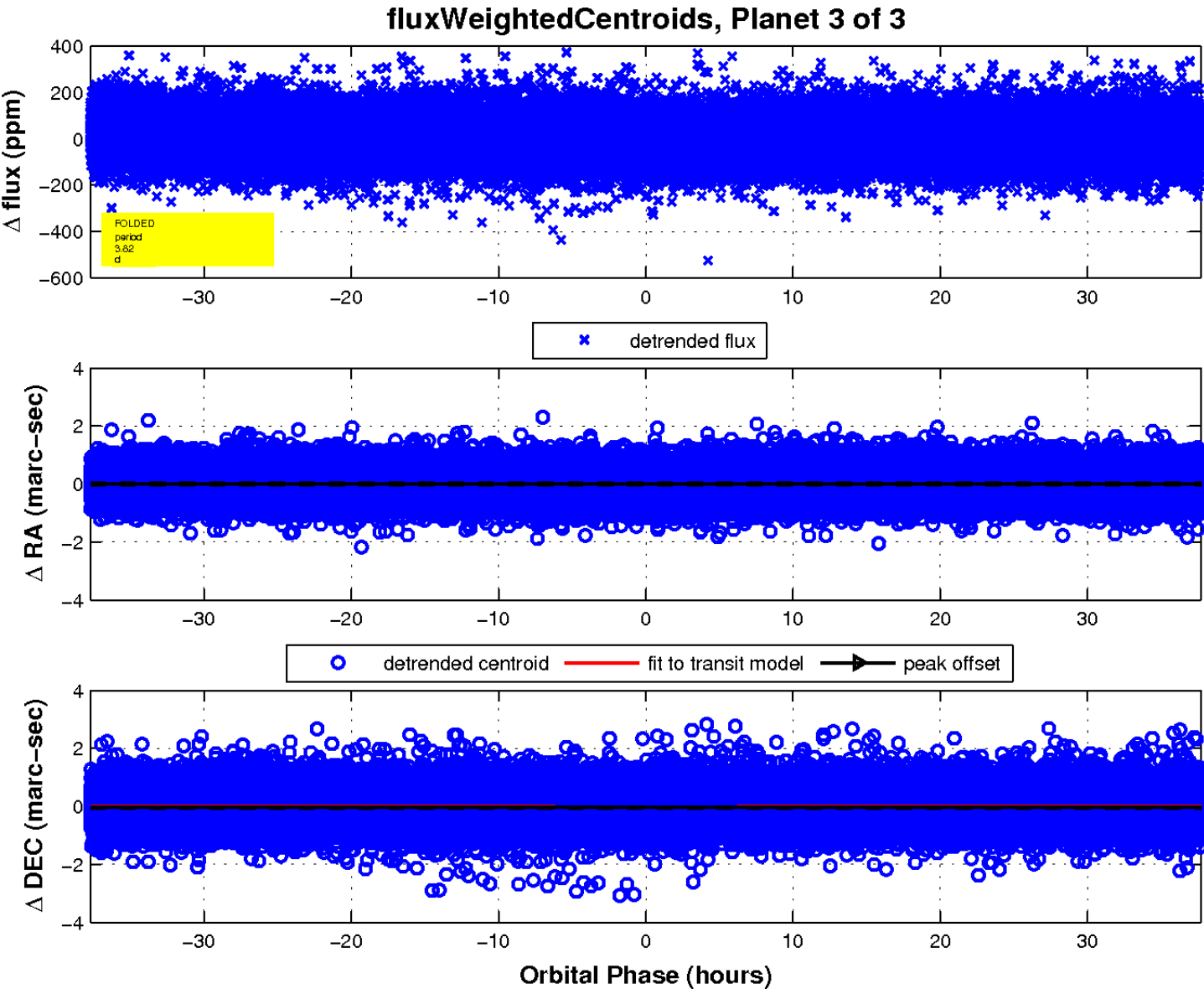
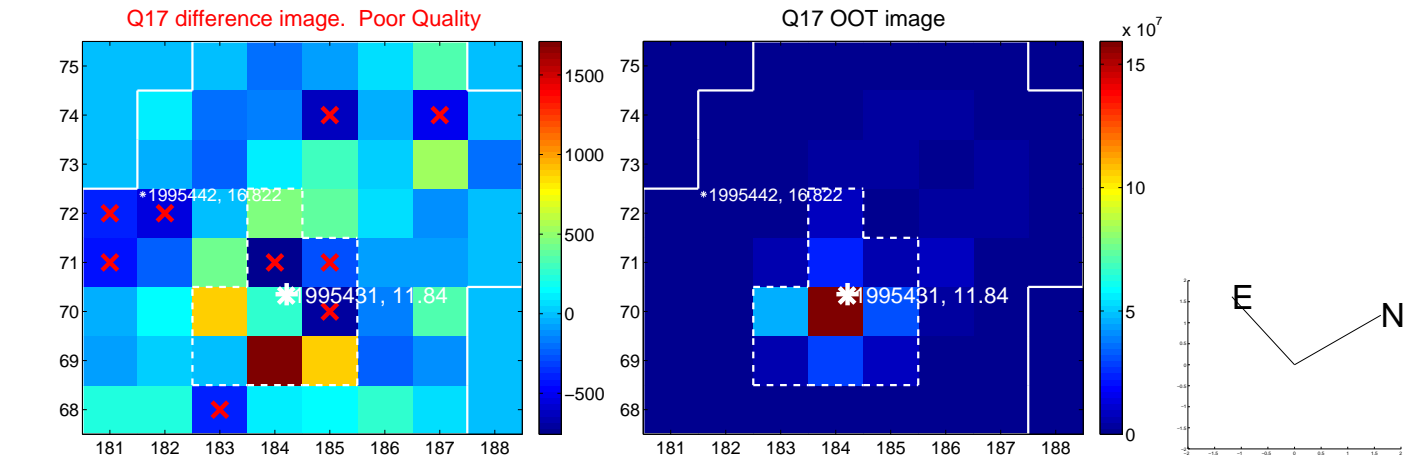
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

