

KIC 011031728

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})
011031728-01	OBS	No	3.461510	132.172456	11.5	11.508	10.3	10.3	2.07	7751	0.82	4666.65
011031728-02	OBS	No	3.460916	133.367663	7.6	23.113	10.8	8.9	2.07	7751	0.58	4667.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011031728-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011031728-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

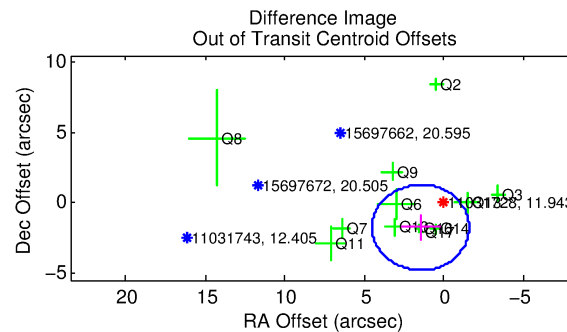
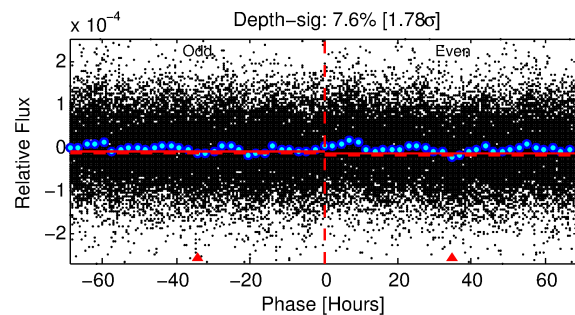
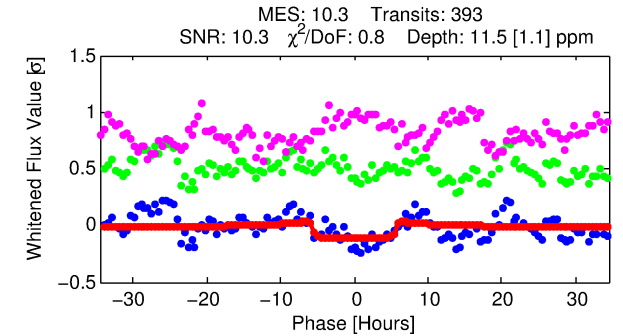
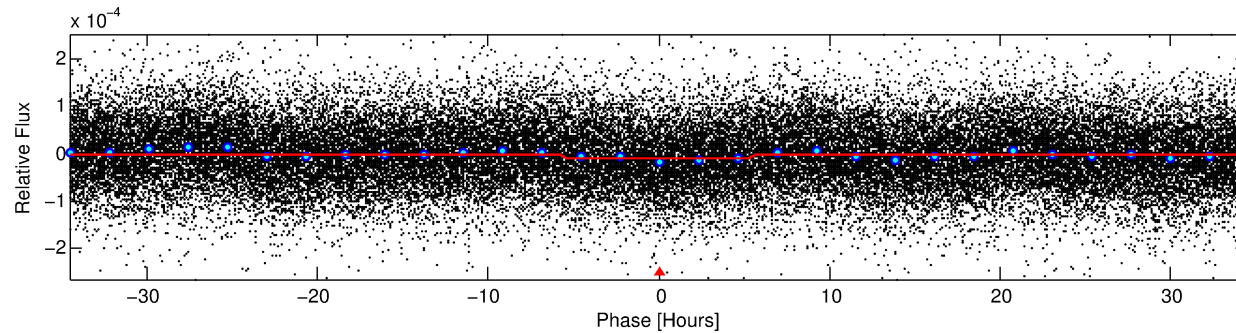
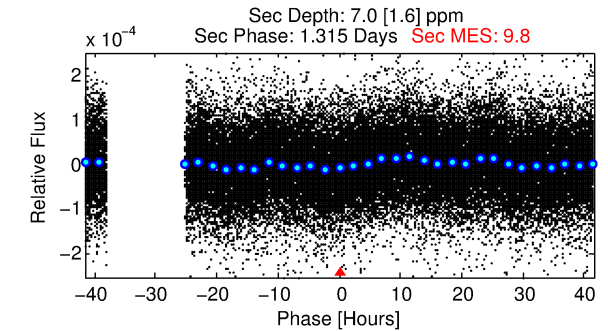
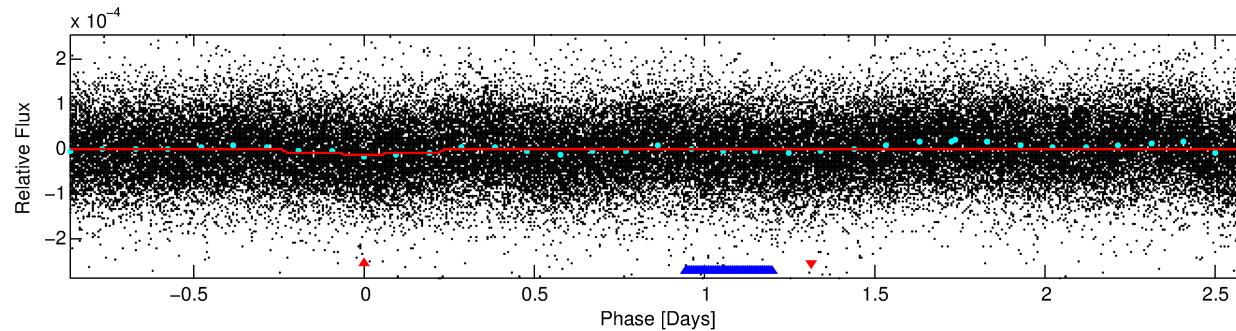
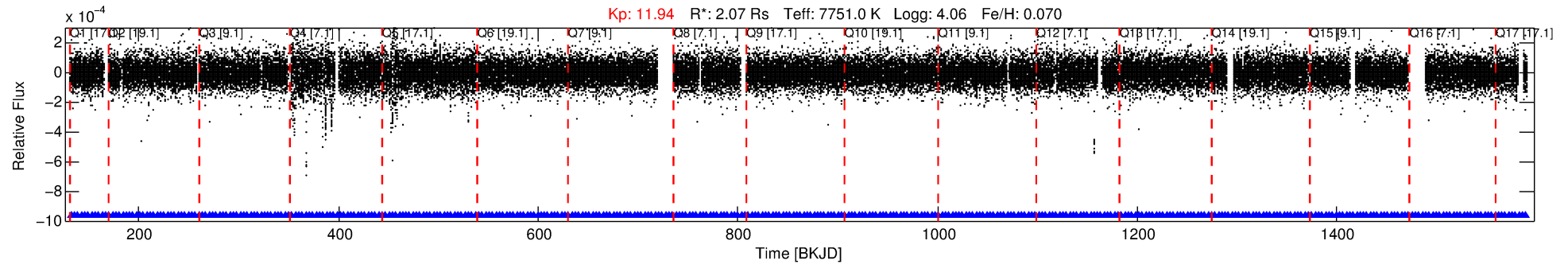
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011031728-01

No Significant Match Found

DV One-Page Summary

KIC: 11031728 Candidate: 1 of 2 Period: 3.462 d



DV Fit Results:

Period = 3.46151 [0.00004] d
Epoch = 132.1725 [0.0080] BKJD
Rp/R* = 0.0036 [0.0005]
a/R* = 1.35 [0.54]
b = 0.91 [0.17]
Seff = 4666.65 [1625.24]
Teq = 2108 [183] K
Rp = 0.82 [0.24] Re
a = 0.0544 [0.0116] AU
Ag = 17.01 [8.00] [2.00σ]
Teffp = 6618 [652] K [6.66σ]

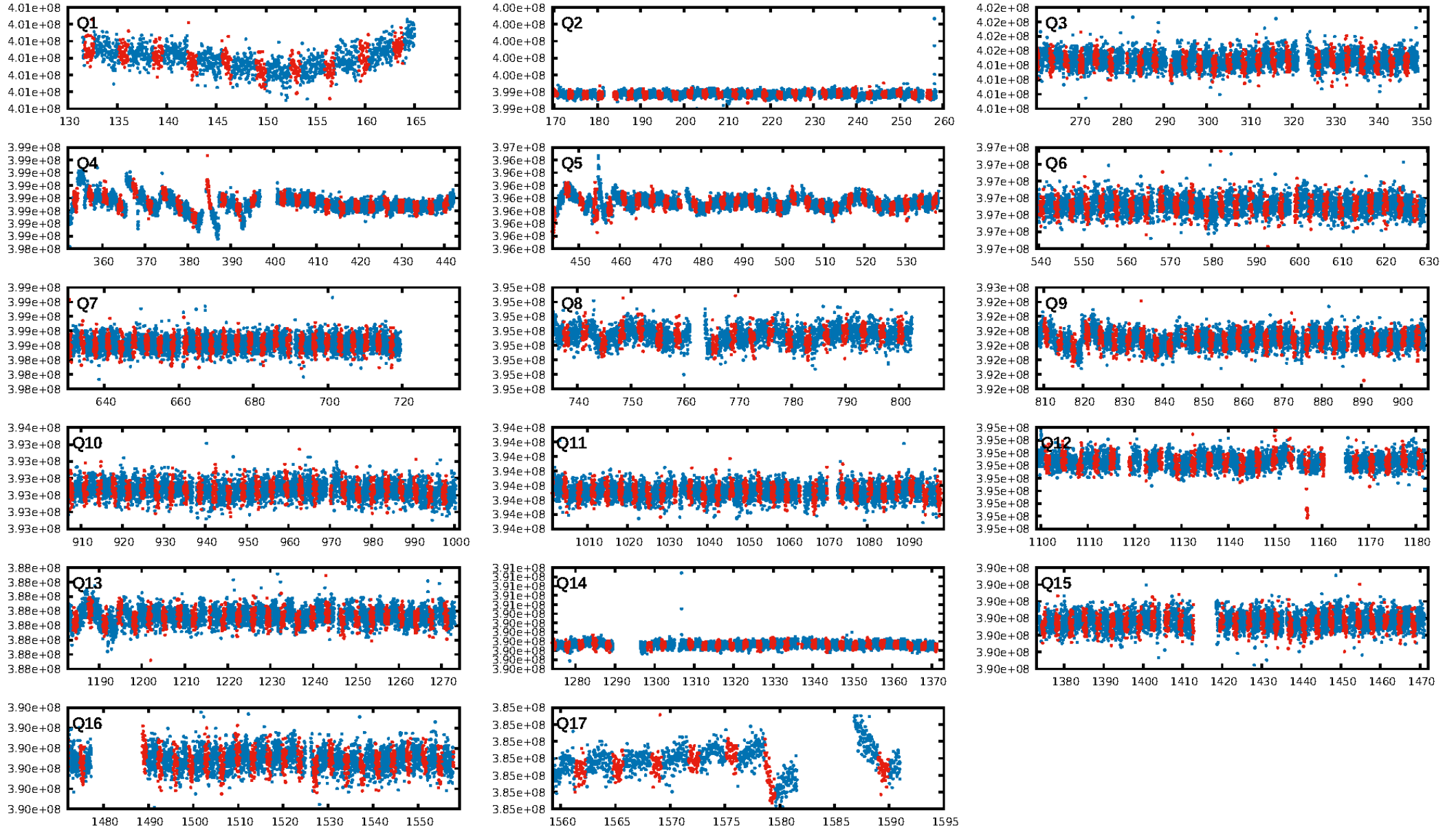
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [376/376]
GhostDiagnostic-chr: 23.82
Centroid-sig: 0.0%
Centroid-so: 2.038 arcsec [2.08σ]
OotOffset-rm: 2.293 arcsec [2.26σ]
KicOffset-rm: 2.319 arcsec [2.28σ]
OotOffset-st: 4/3/2/3 [12]
KicOffset-st: 4/3/2/3 [12]
DiffImageQuality-fgm: 0.33 [4/12]
DiffImageOverlap-fno: 0.00 [0/17]

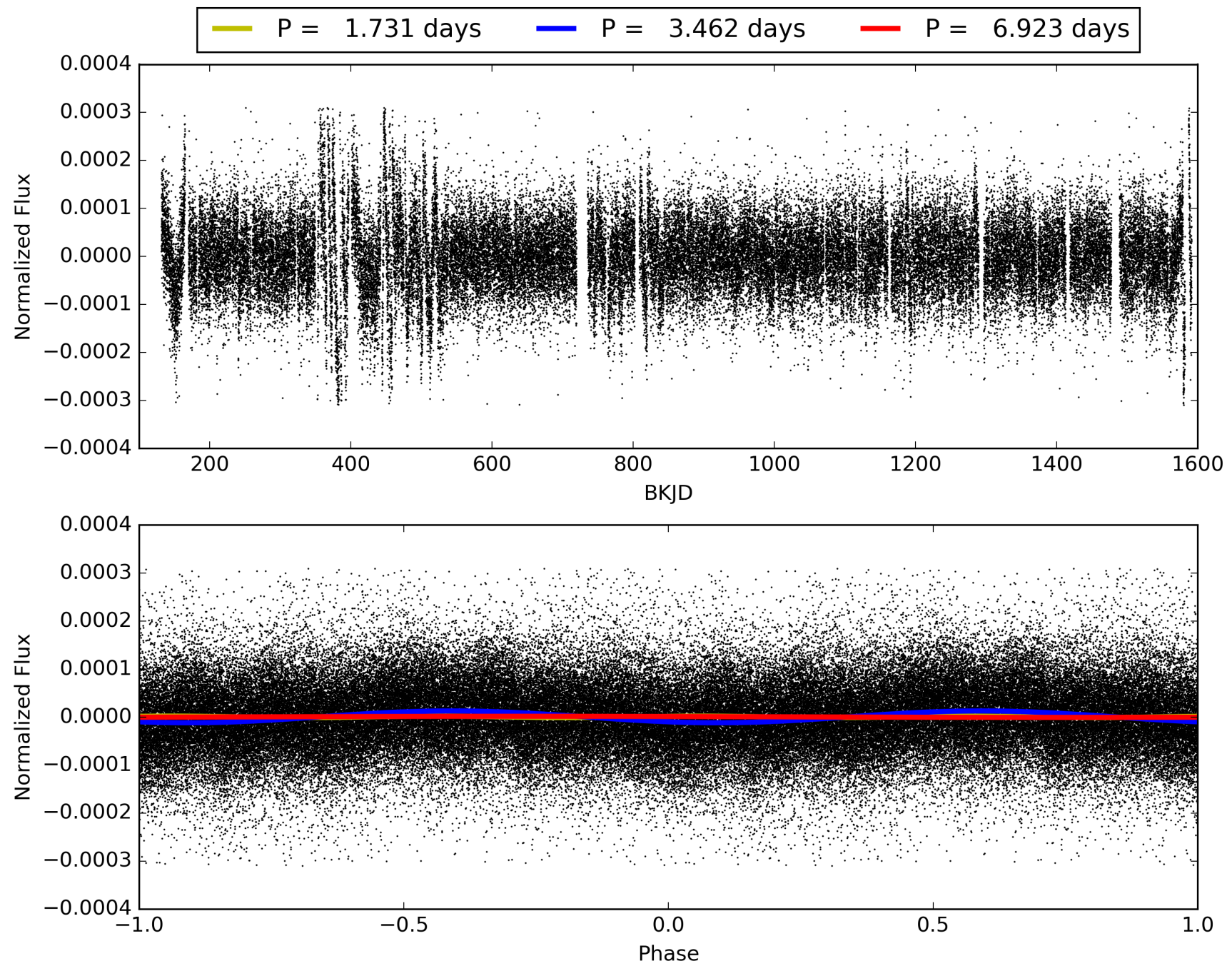
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:01:54 Z

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

TCE 011031728-01, PDC Light Curves

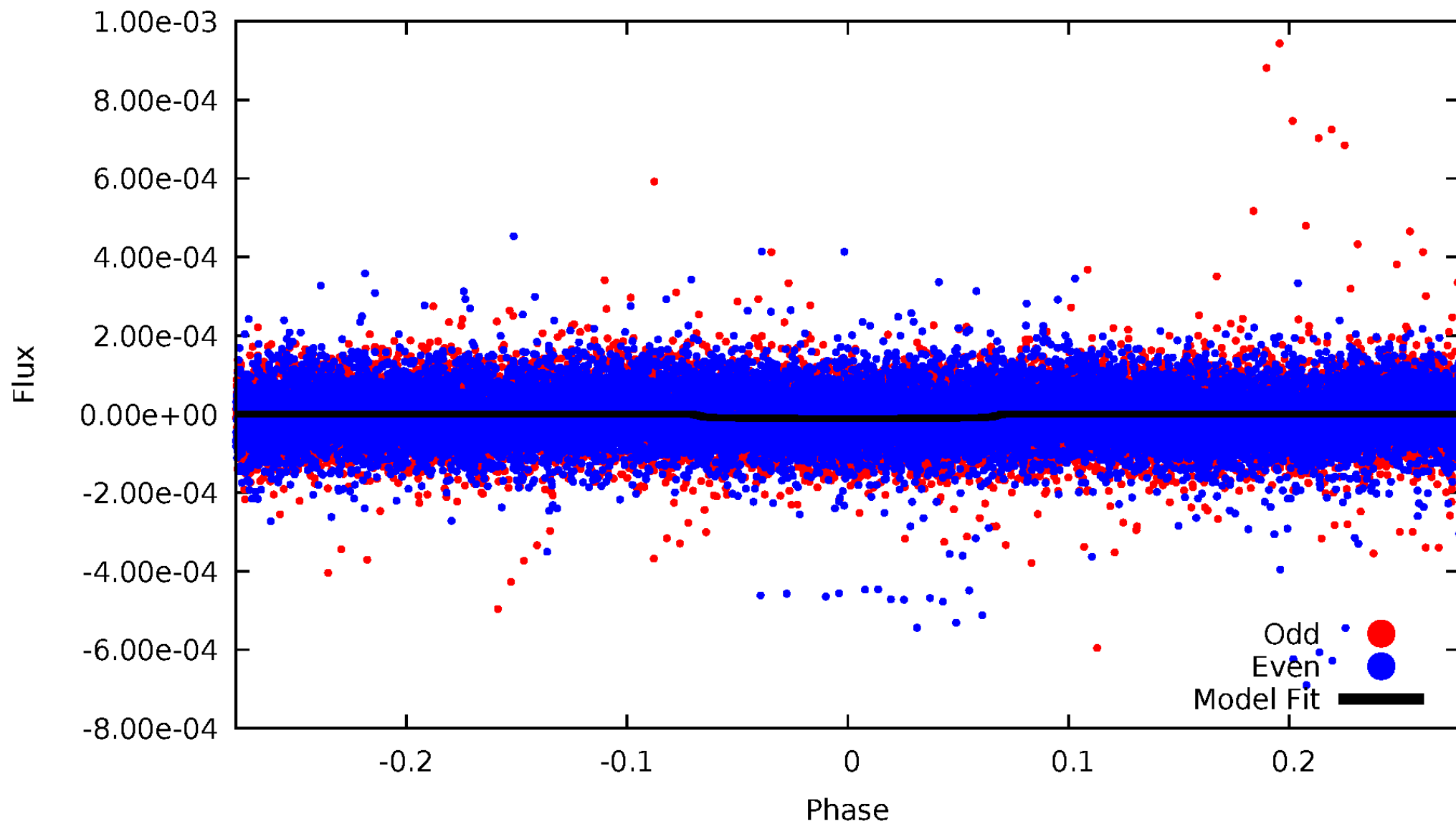


TCE 011031728-01



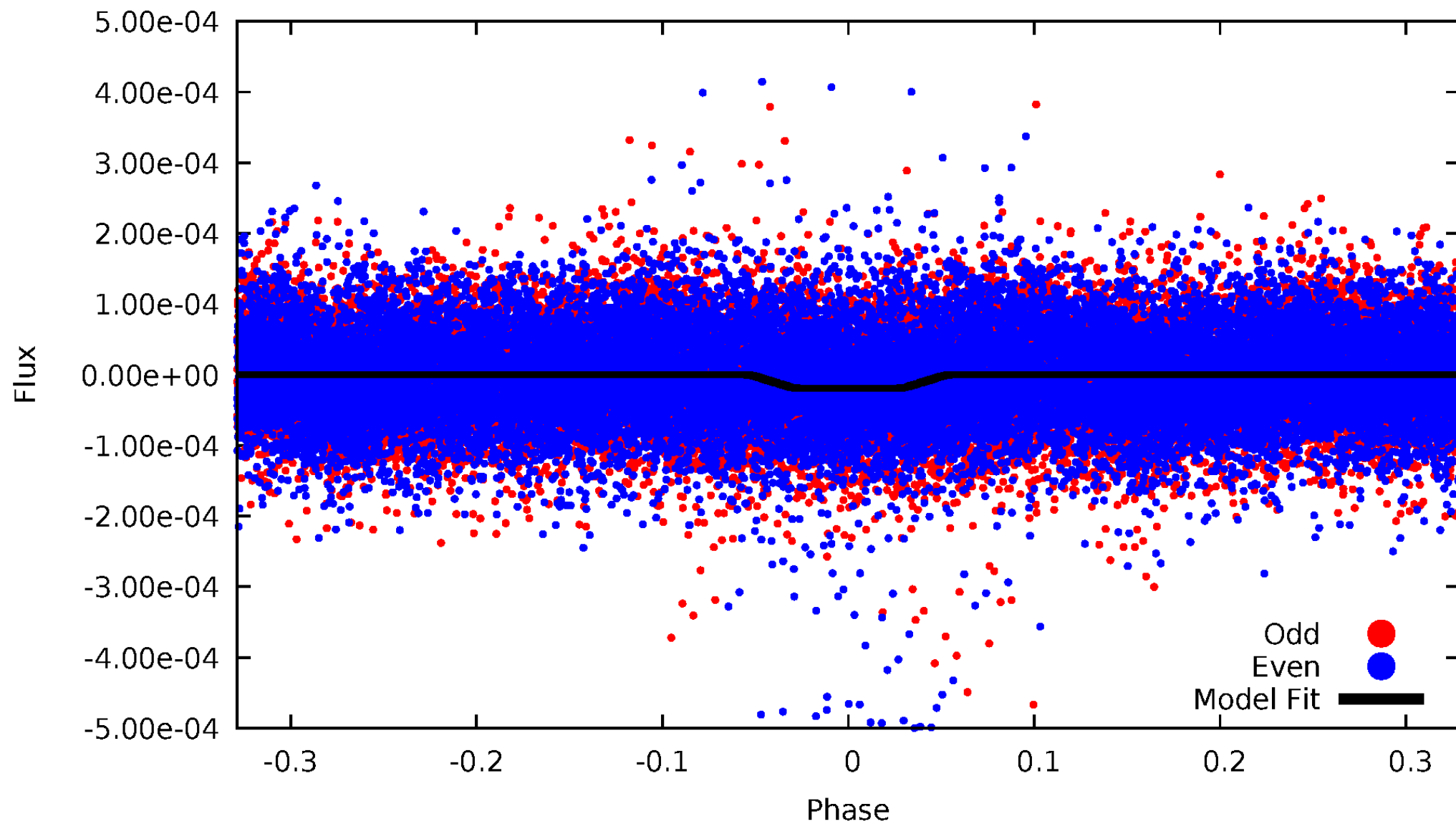
DV Odd/Even

TCE 011031728-01



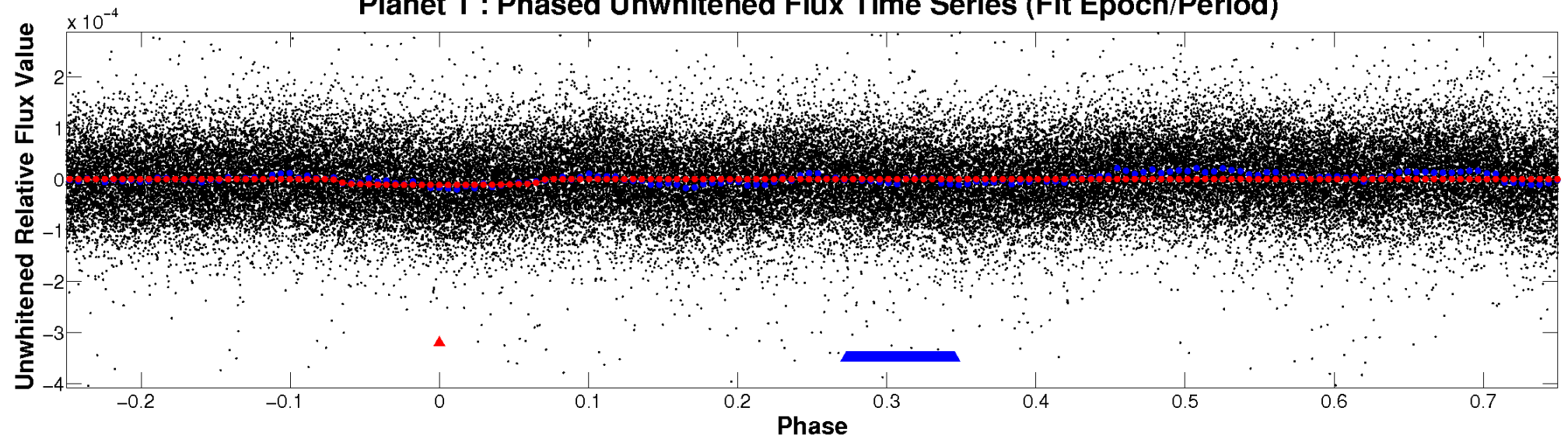
ALT Odd/Even

TCE 011031728-01

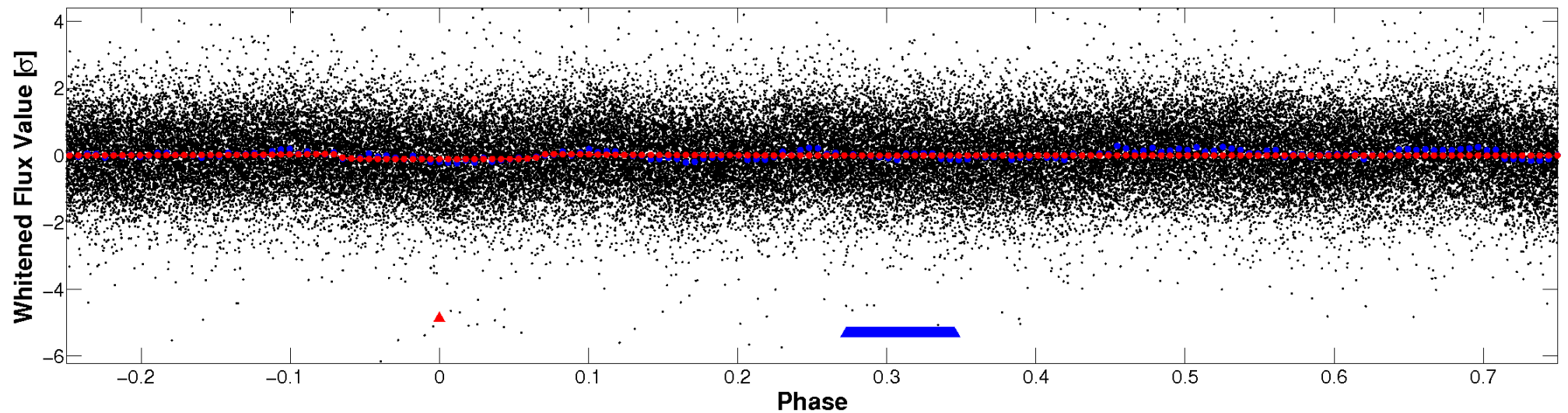


Non-Whitened Vs. Whitened Light Curve

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

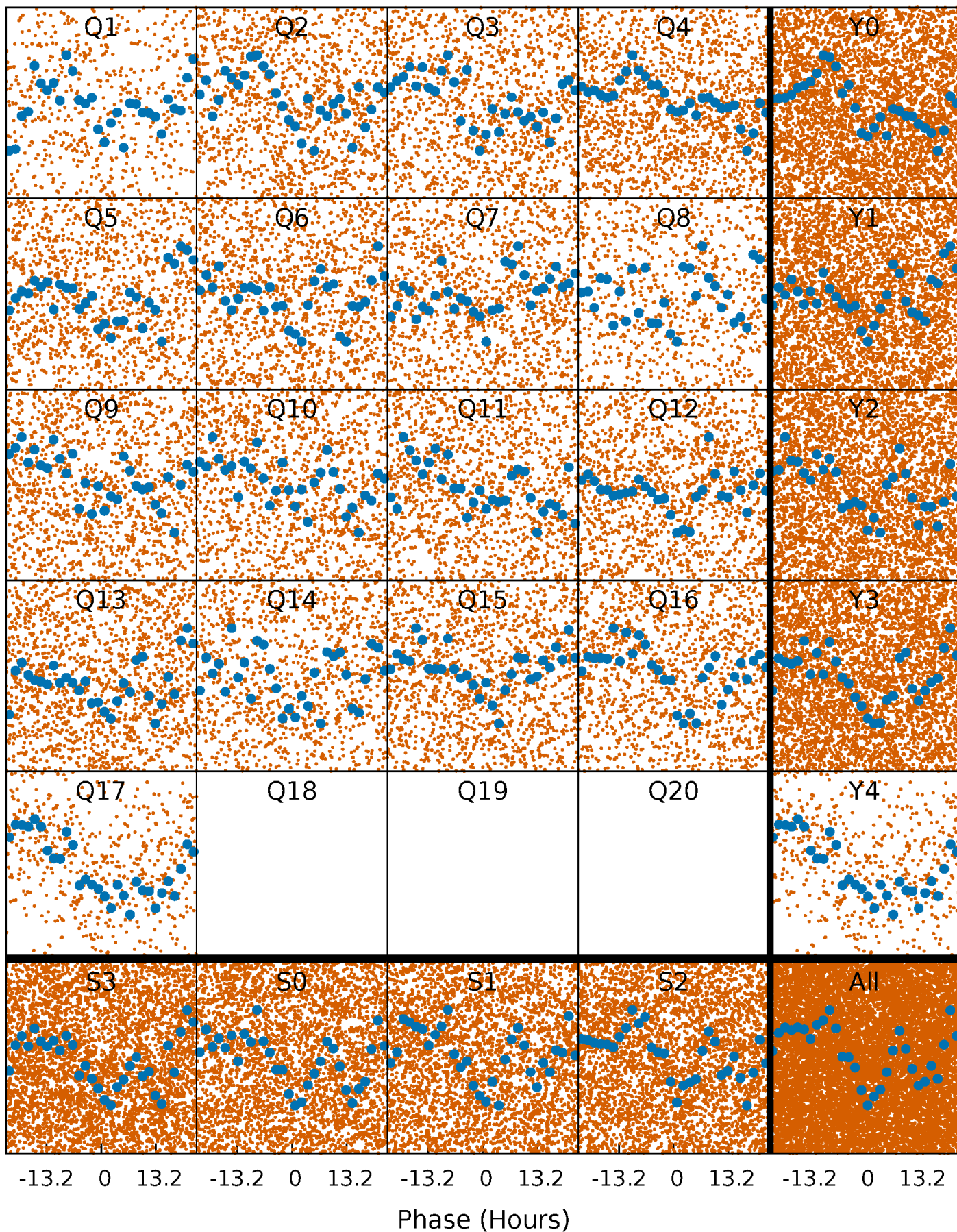


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



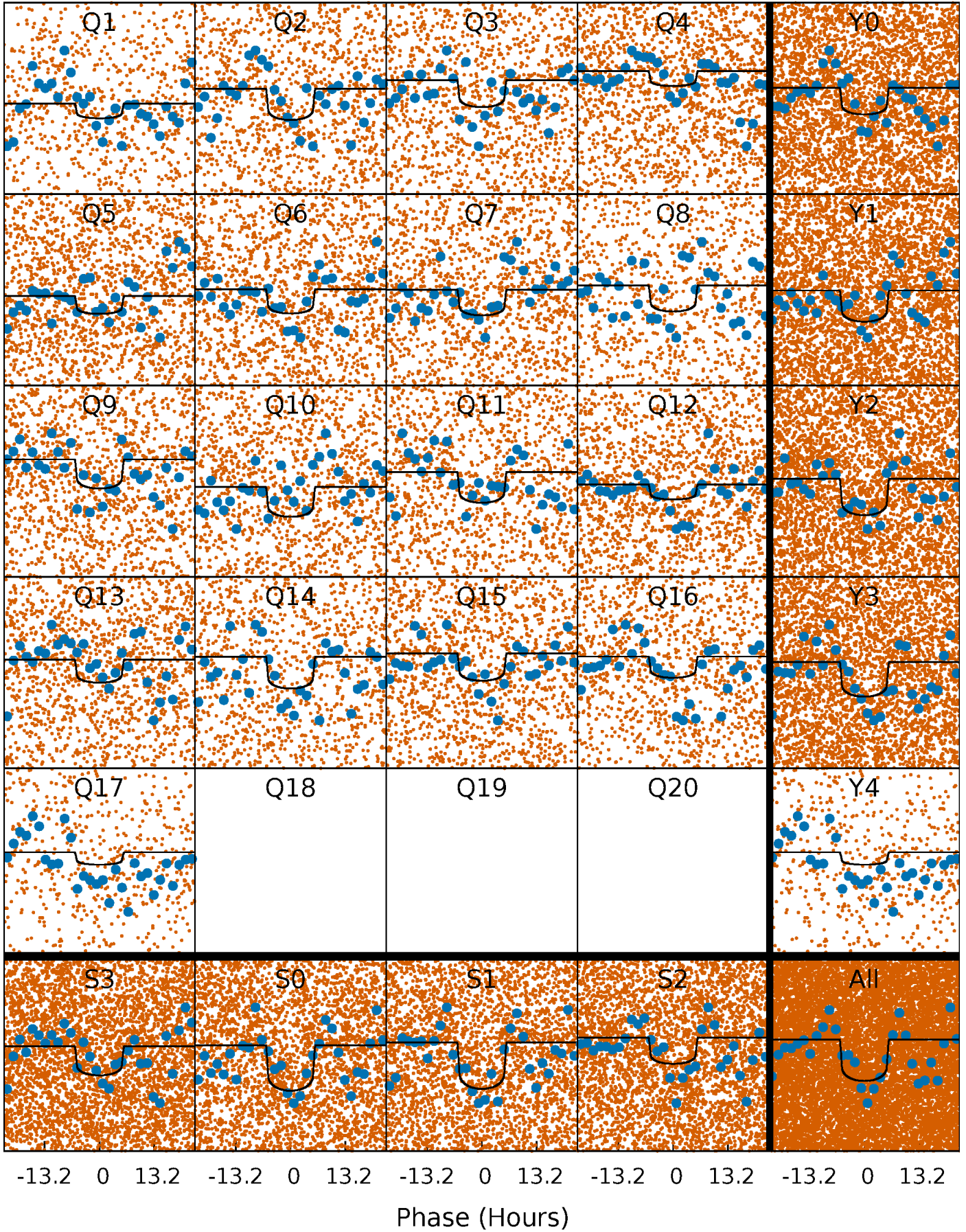
PDC Quarter-Phased Transit Curves

TCE 011031728-01 P= 3.461510 Days $T_0=132.172456$ (BKJD)



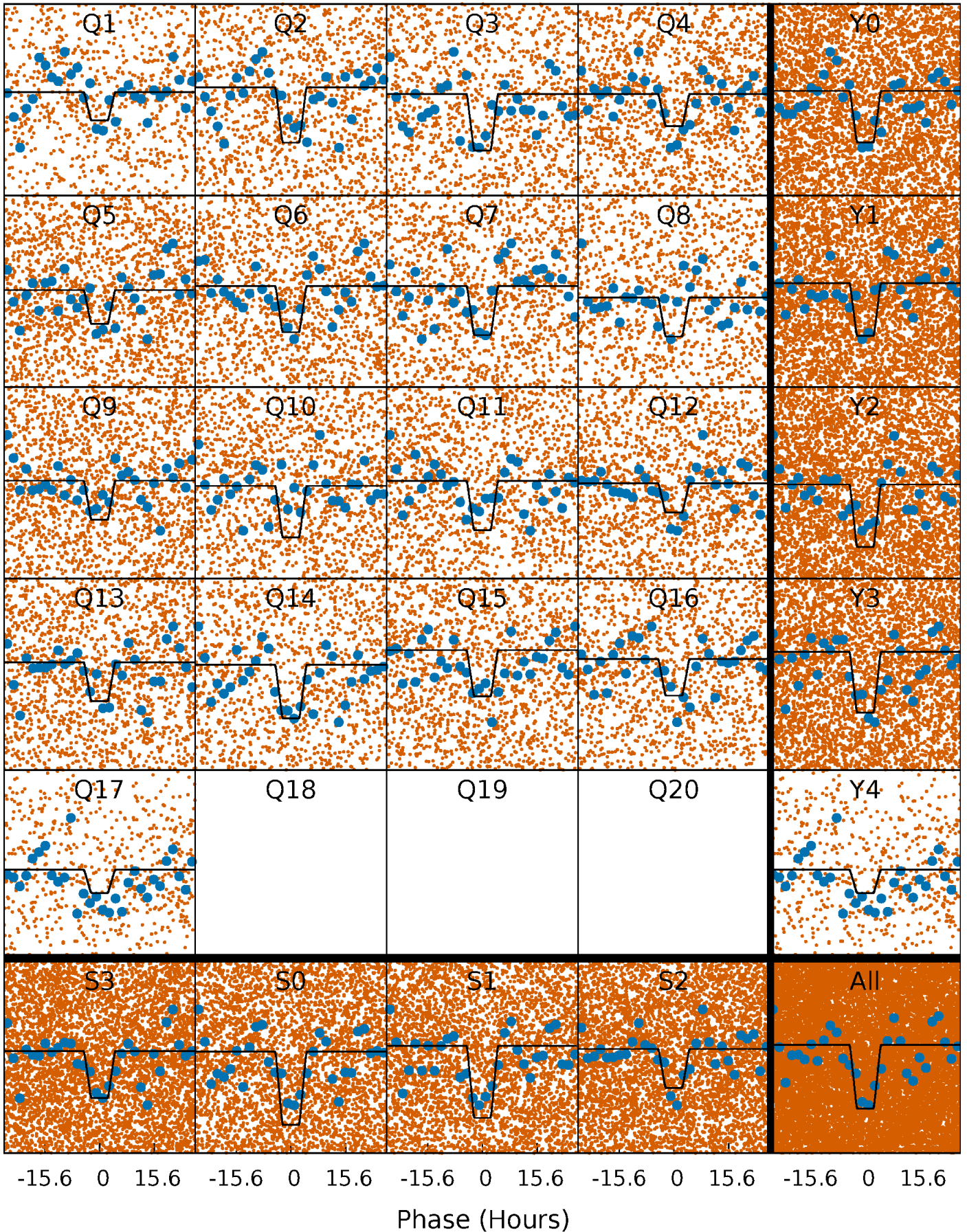
DV Quarter-Phased Transit Curves

TCE 011031728-01 P= 3.461510 Days $T_0=132.172456$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

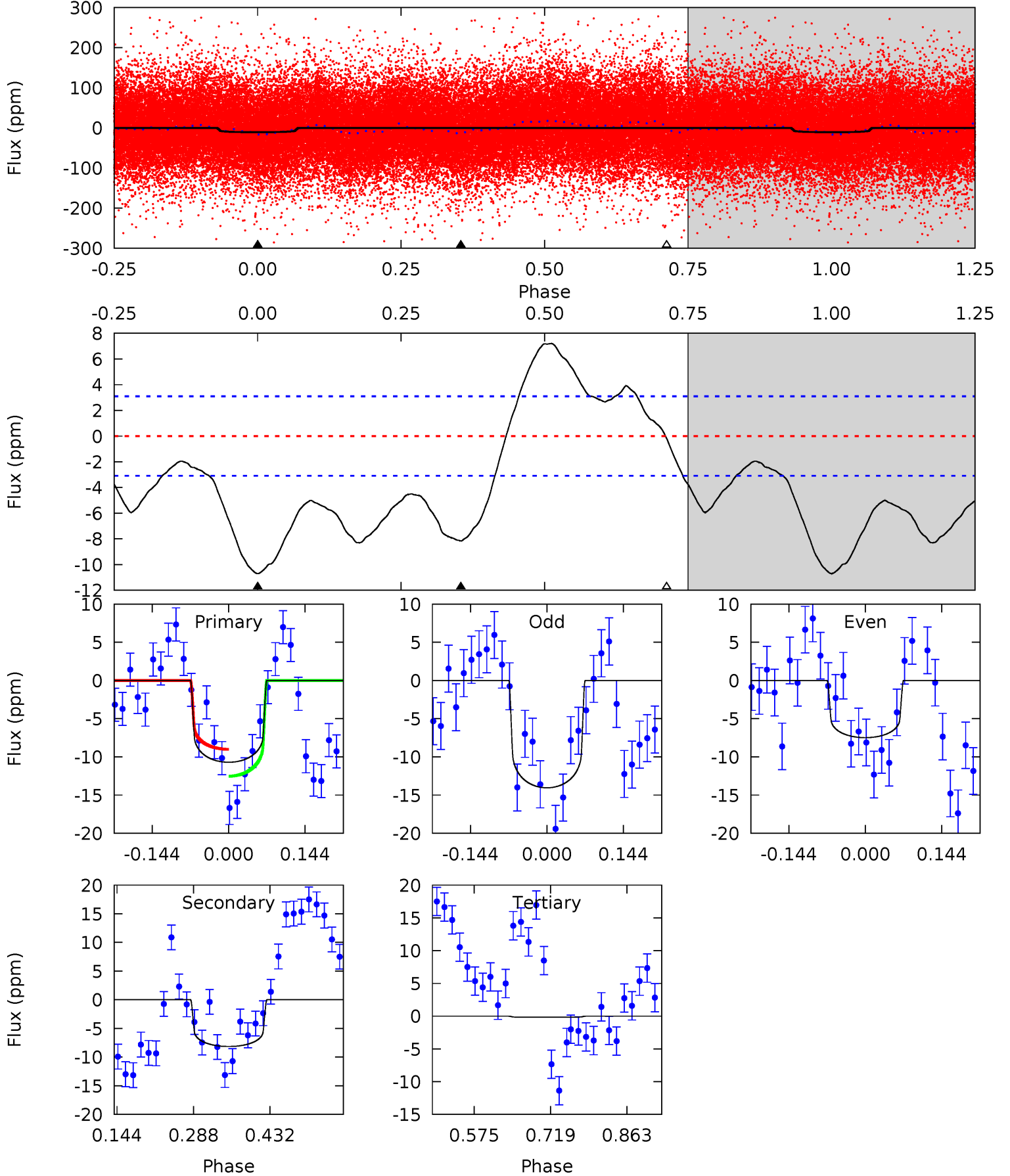
TCE 011031728-01 P= 3.461512 Days $T_0=132.198037$ (BKJD)



DV Model-Shift Uniqueness Test

011031728-01, P = 3.461510 Days, E = 128.710946 Days

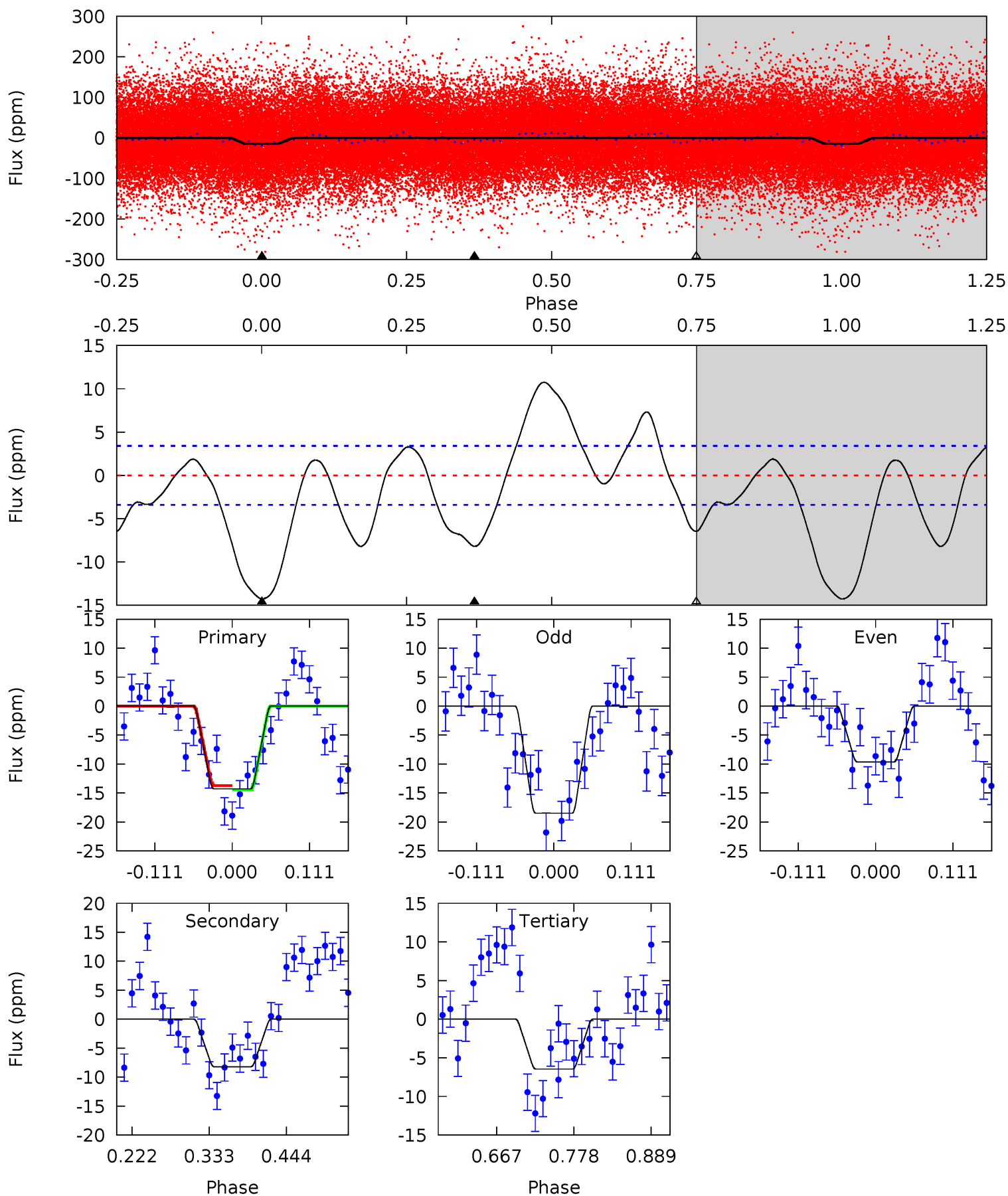
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	11.8	0.26	0	4.49	1.46	6.96	15.3	15.5	11.6	11.8	4.78	1.02	0.40	2.57



Alt Model-Shift Uniqueness Test

011031728-01, P = 3.461512 Days, E = 128.736525 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	11.0	8.64	0	4.54	1.59	6.46	10.4	19.1	2.33	11.0	5.92	1.05	0.43	0.50



Stellar Parameters For KIC 011031728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7751^{+214}_{-322}	$4.061^{+0.135}_{-0.165}$	$0.070^{+0.200}_{-0.350}$	$2.068^{+0.533}_{-0.436}$	$1.794^{+0.158}_{-0.294}$	$0.286^{+0.221}_{-0.124}$
	+3%/-4%	+3%/-4%	+286%/-500%	+26%/-21%	+9%/-16%	+78%/-44%
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 011031728-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 1	$0.81^{+0.18}_{-0.14}$	2943^{+198}_{-181}	6726^{+641}_{-519}	20^{+9}_{-6}
Alt.	-8 ± 1	$1.00^{+0.15}_{-0.15}$	2956^{+191}_{-179}	6088^{+490}_{-395}	13^{+5}_{-4}

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

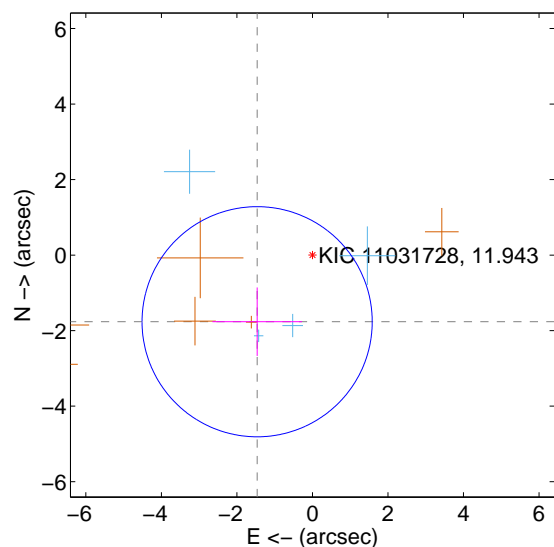
Supplemental centroid analysis for 011031728-01. **Kepler magnitude: 11.94.** Transit SNR 10.30

There are 4 quarters with good PRF difference image offsets

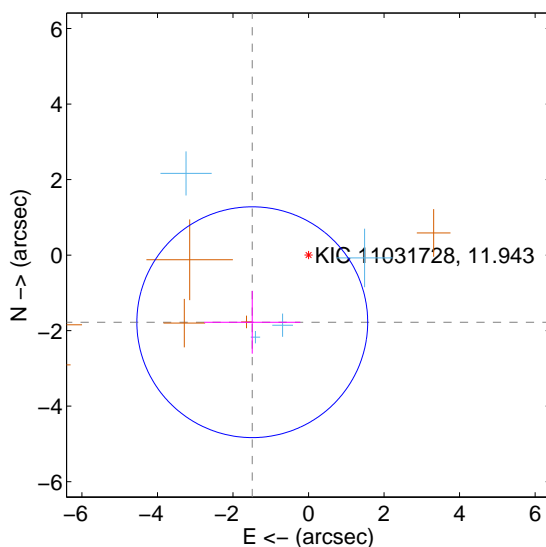
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.293 ± 1.016	2.26	1.464 ± 1.186	-1.764 ± 0.907
PRF-fit source offset from KIC position	2.319 ± 1.019	2.28	1.489 ± 1.274	-1.777 ± 0.831
photometric centroid source offset	2.04 ± 0.98	2.08	-1.33 ± 1.03	1.55 ± 0.94

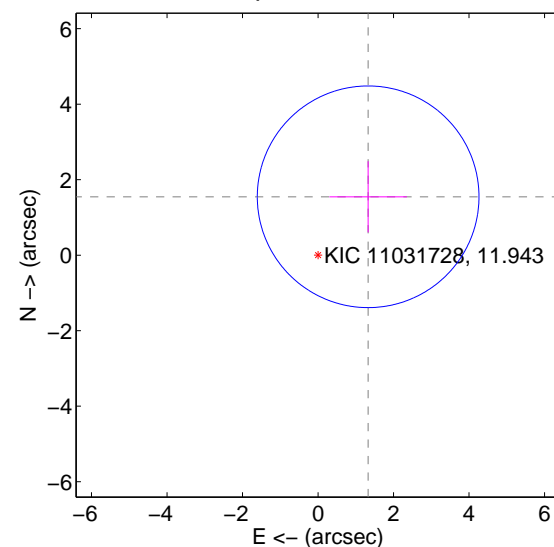
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

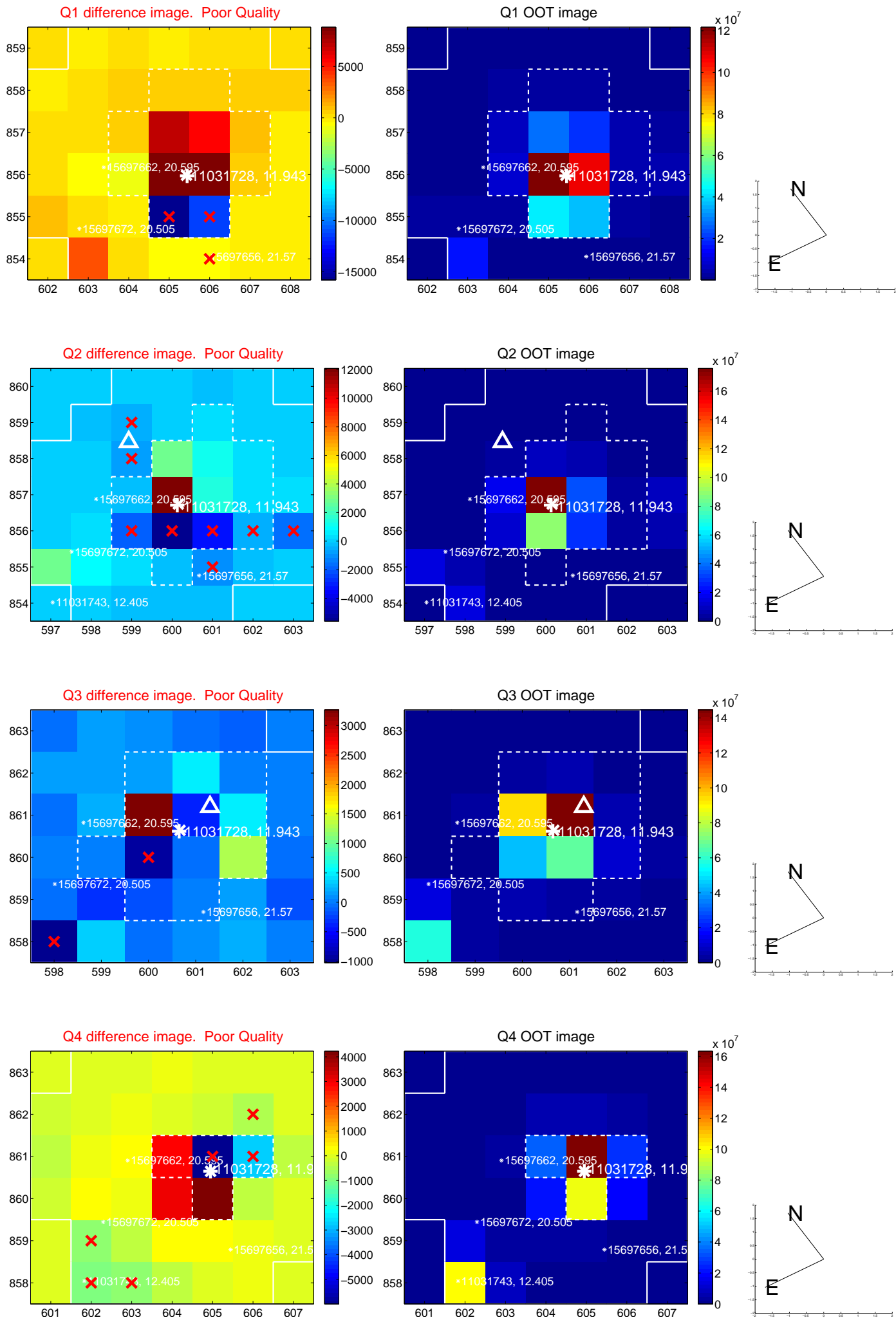


offset from photometric centroids

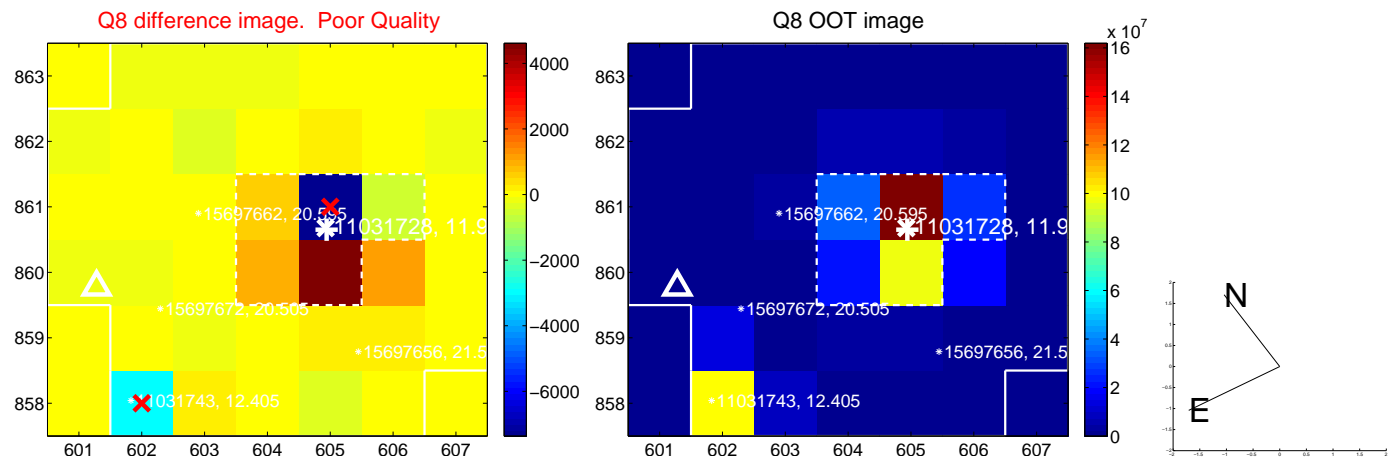
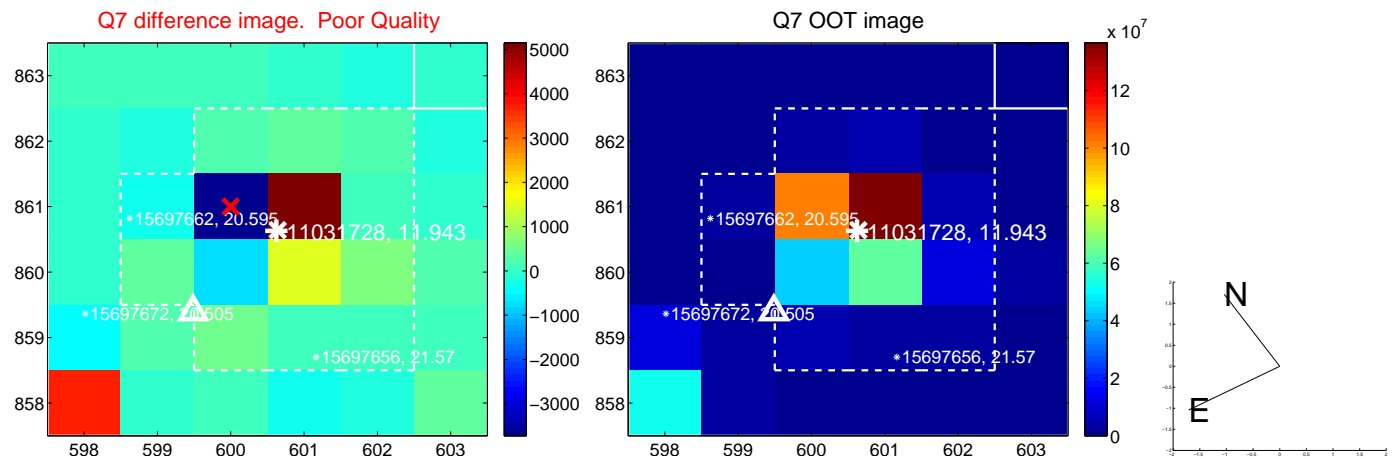
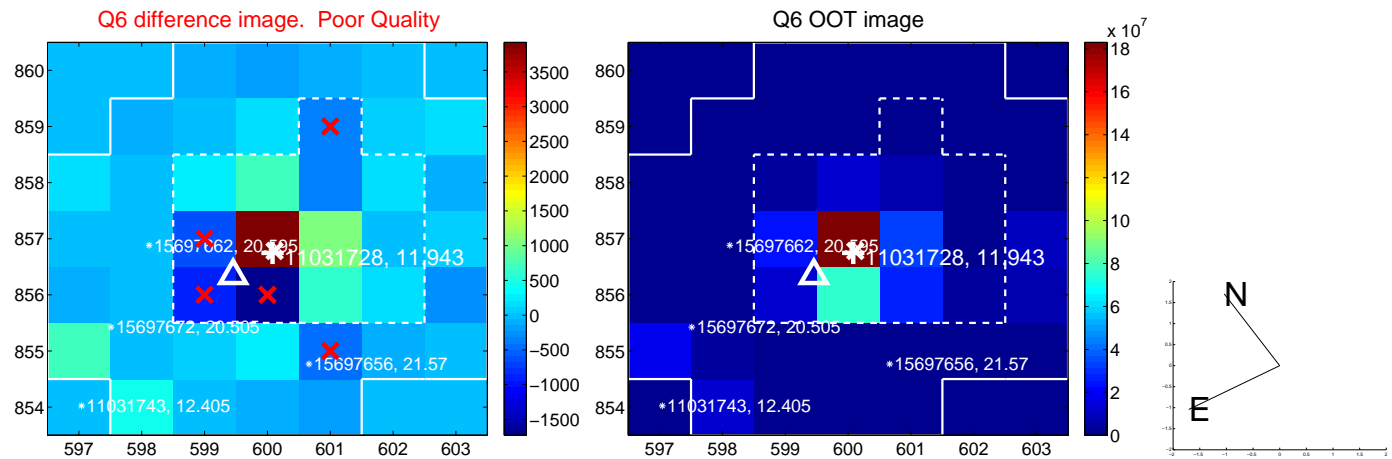
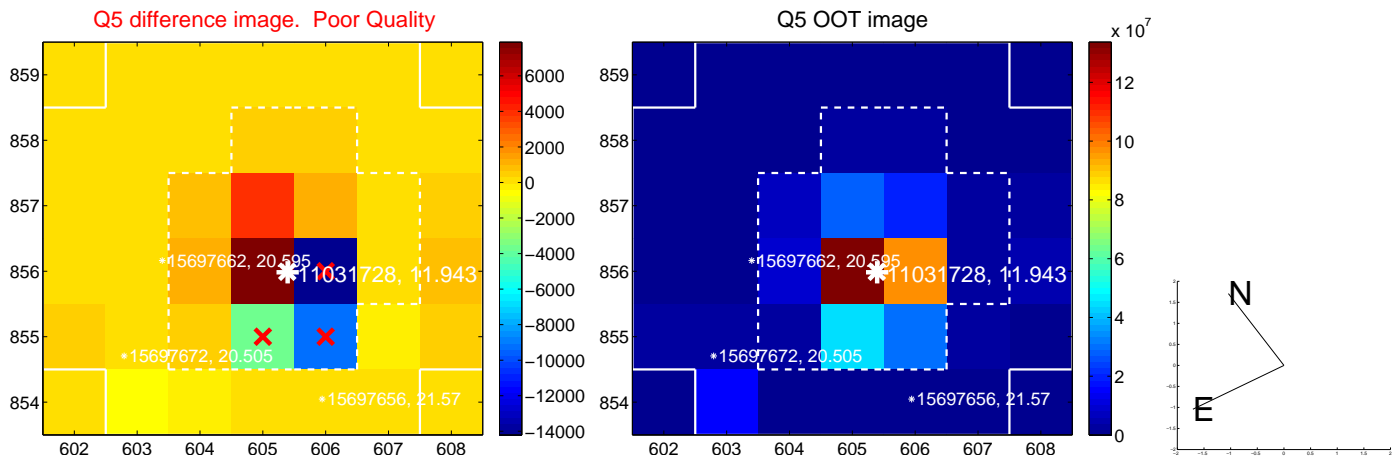


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

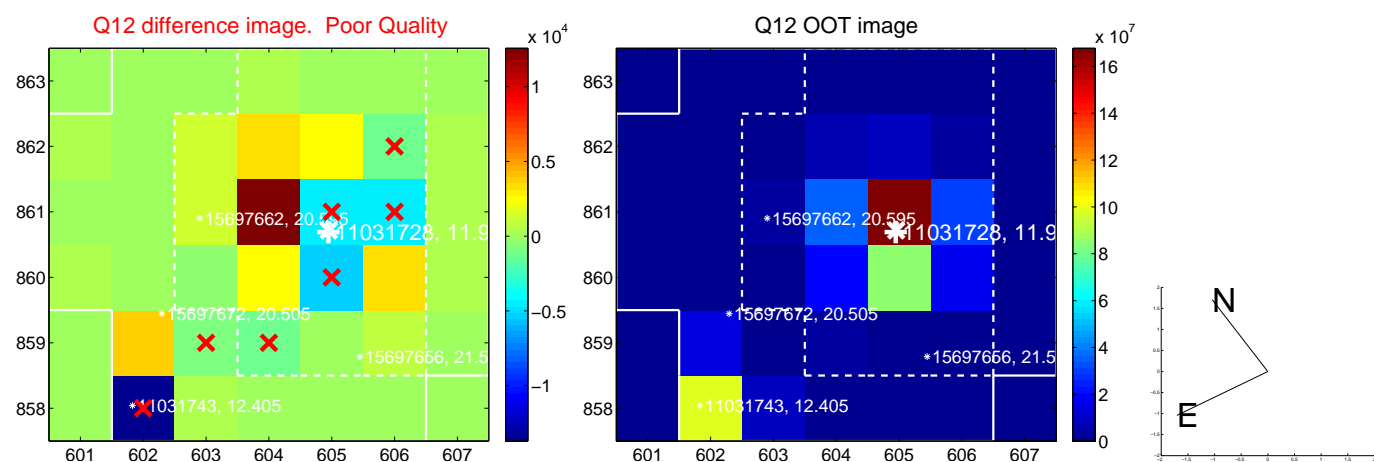
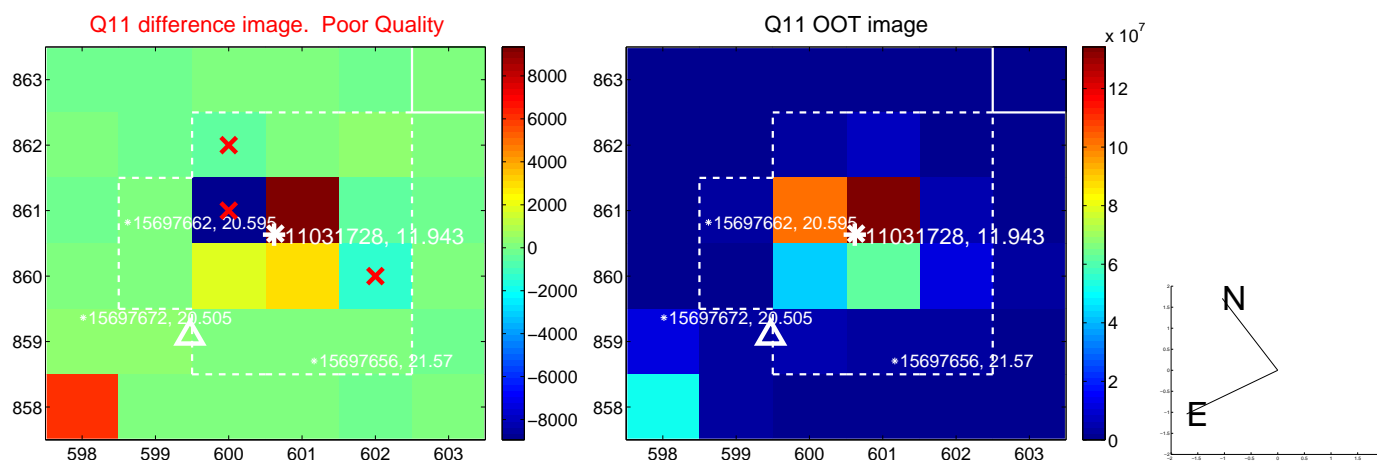
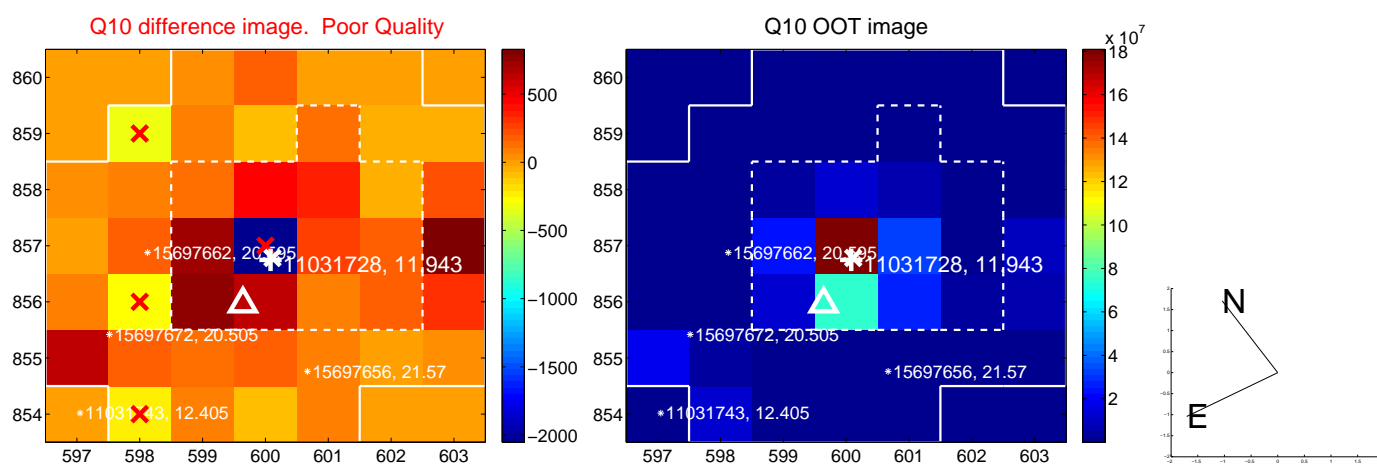
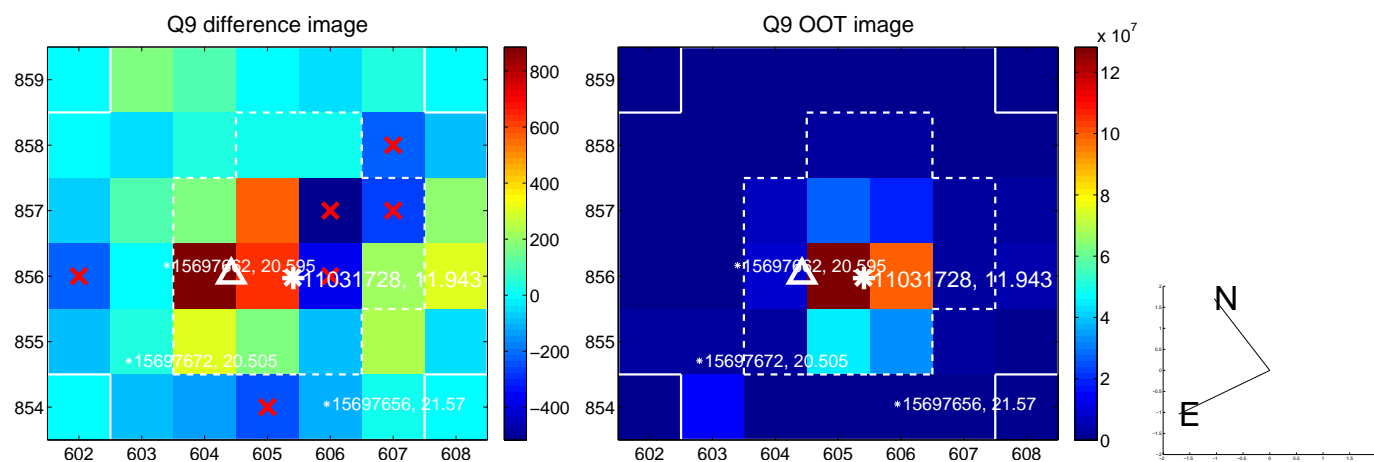
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



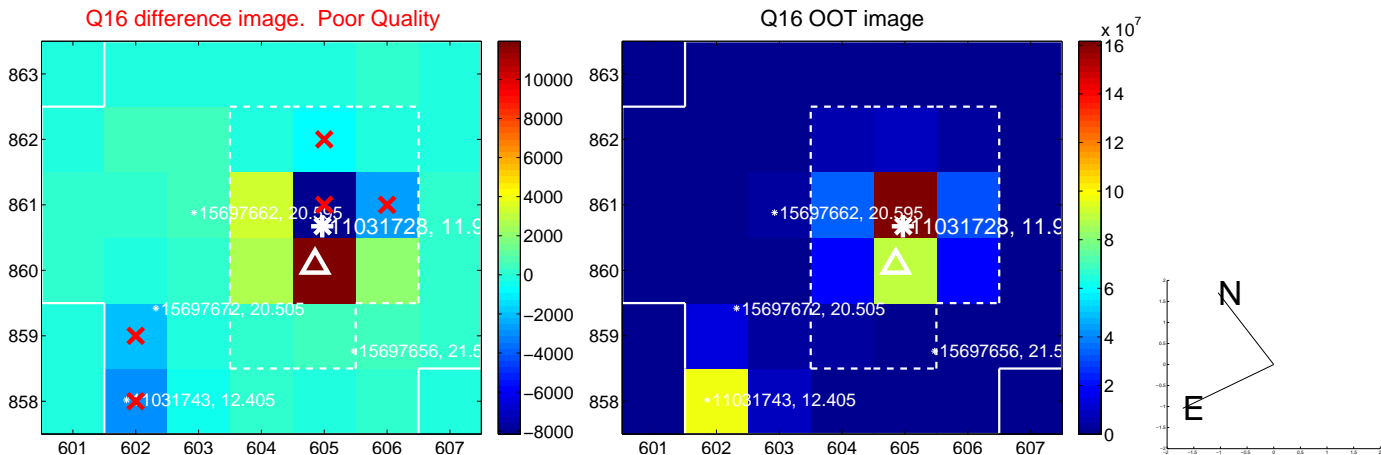
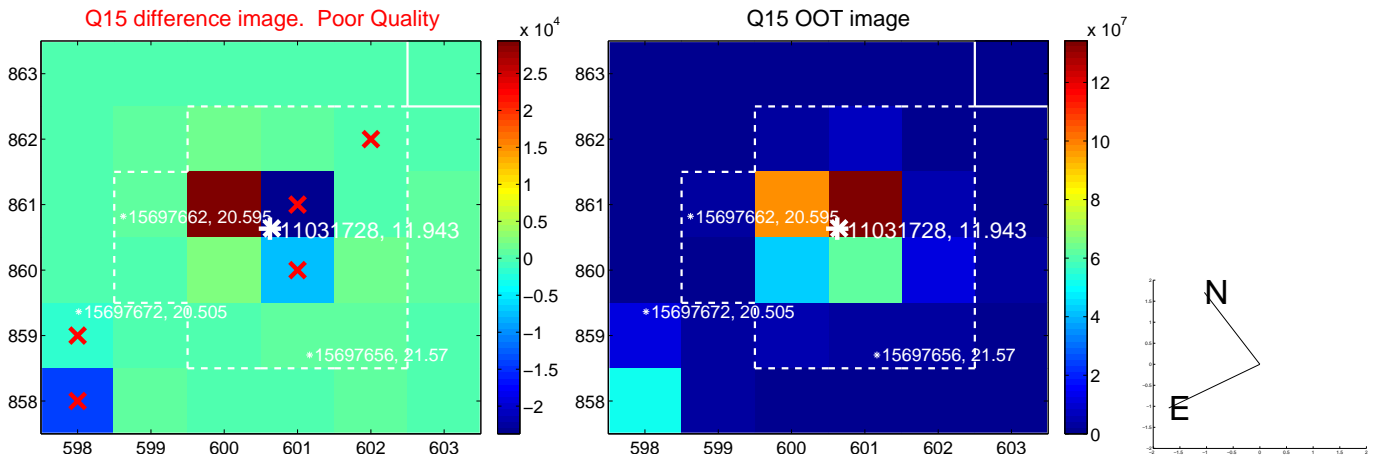
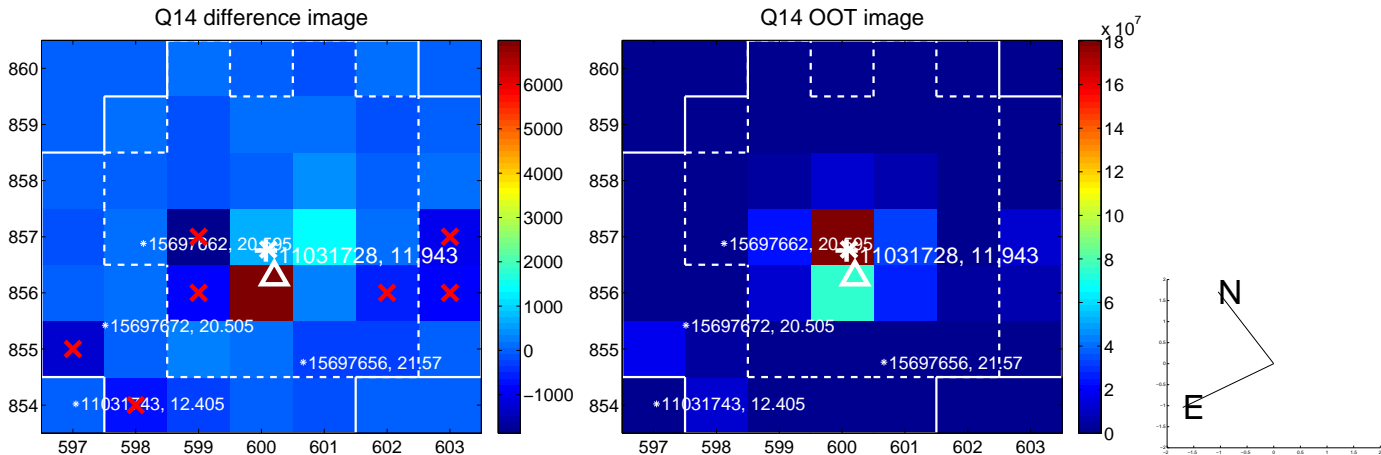
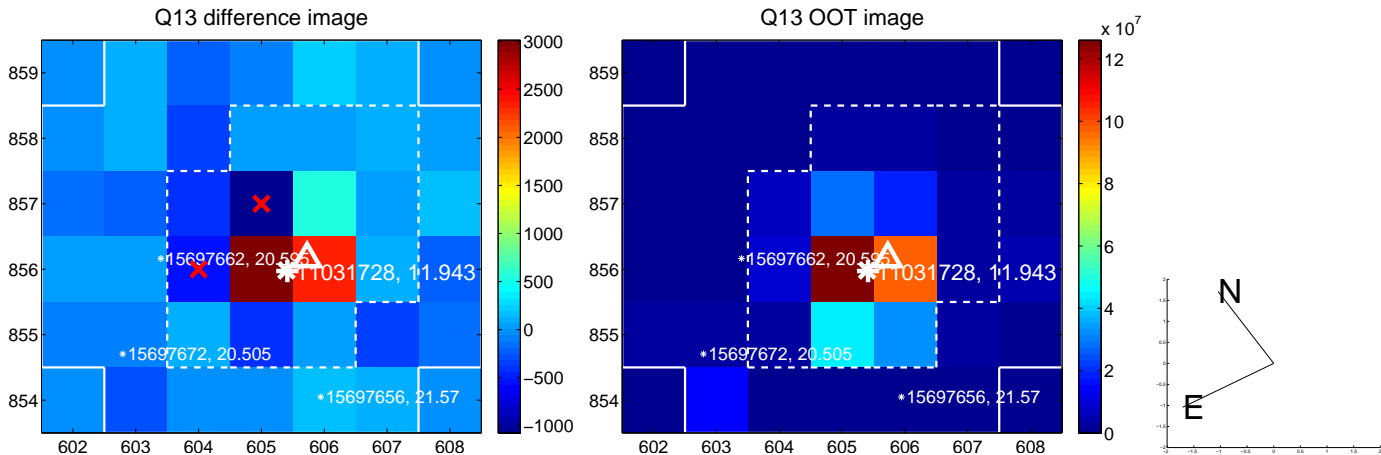
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



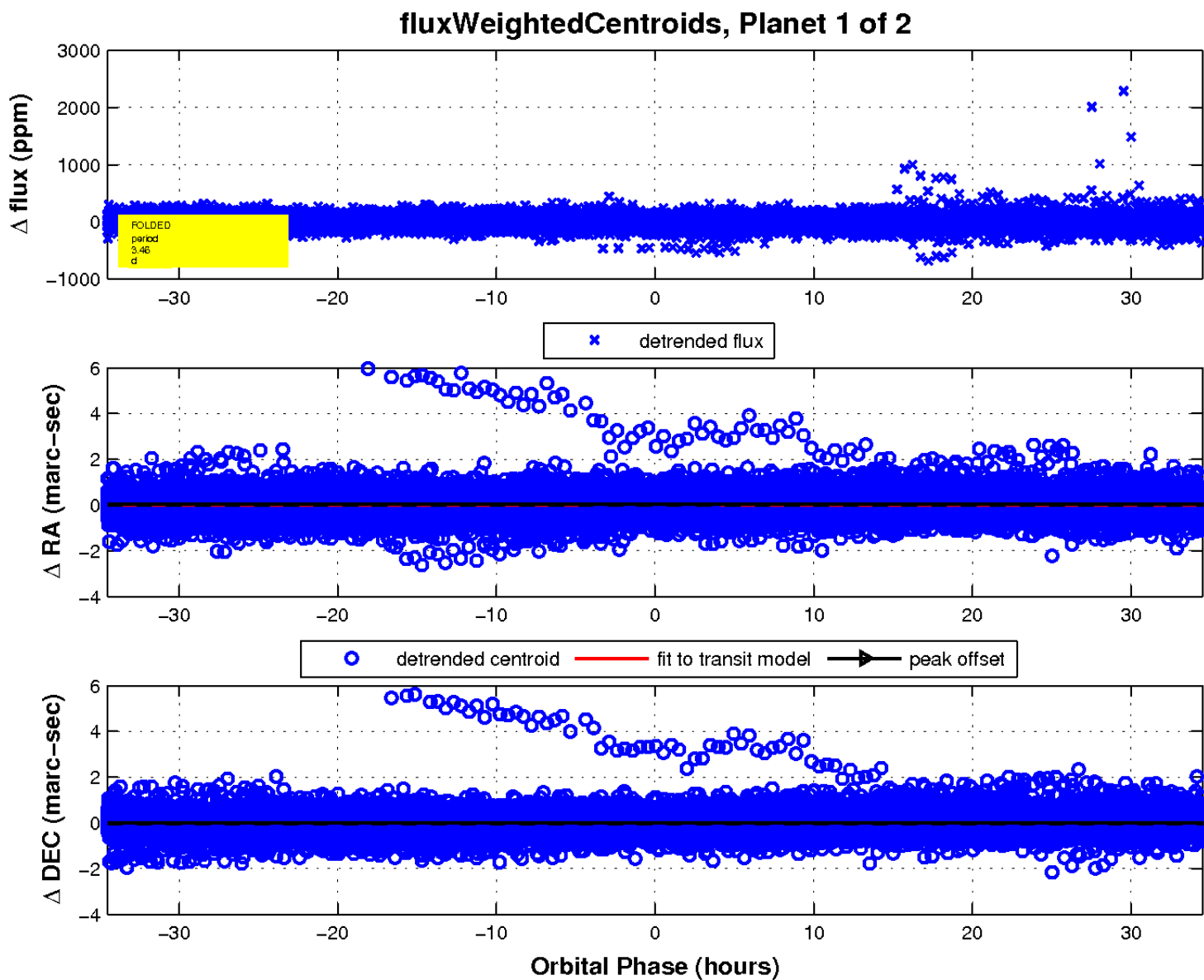
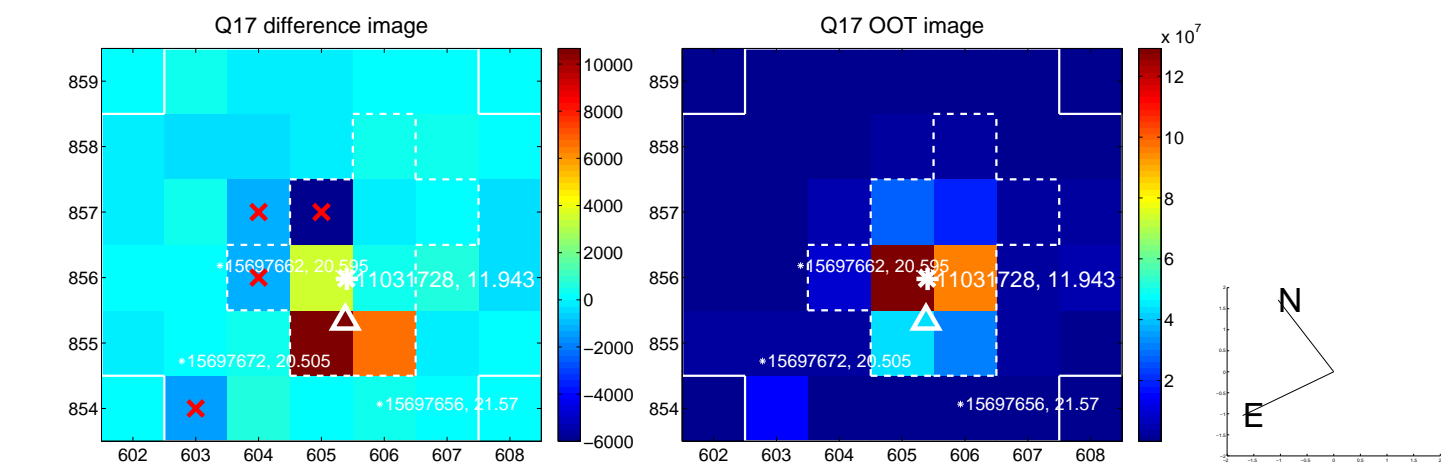
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

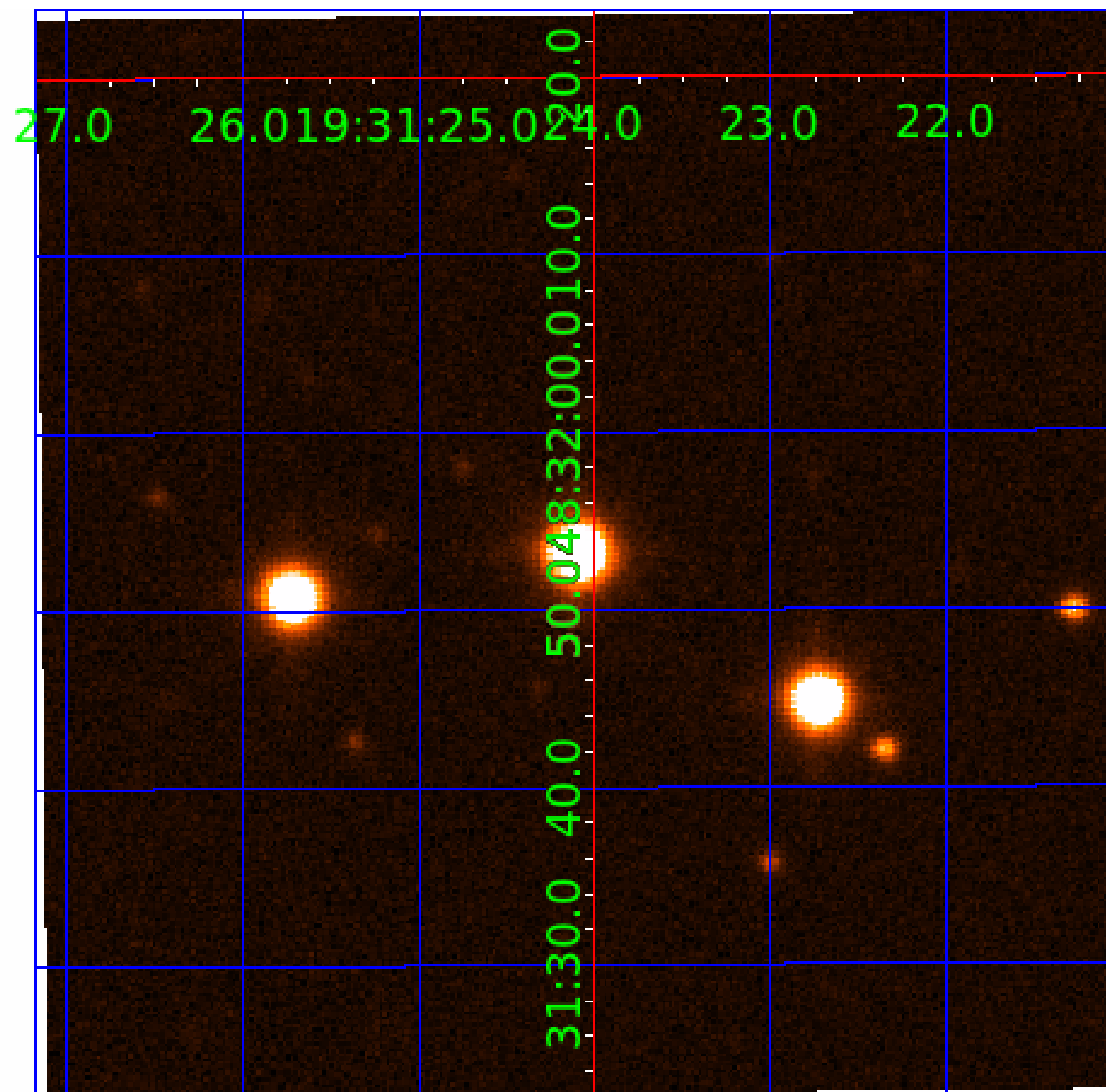


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011031728

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})
011031728-01	OBS	No	3.461510	132.172456	11.5	11.508	10.3	10.3	2.07	7751	0.82	4666.65
011031728-02	OBS	No	3.460916	133.367663	7.6	23.113	10.8	8.9	2.07	7751	0.58	4667.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011031728-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011031728-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

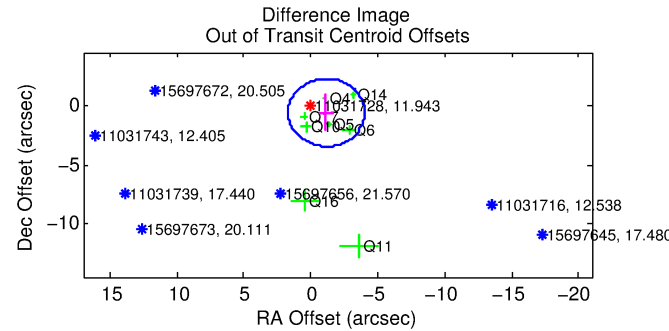
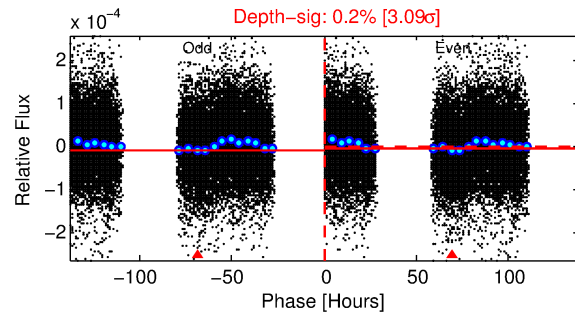
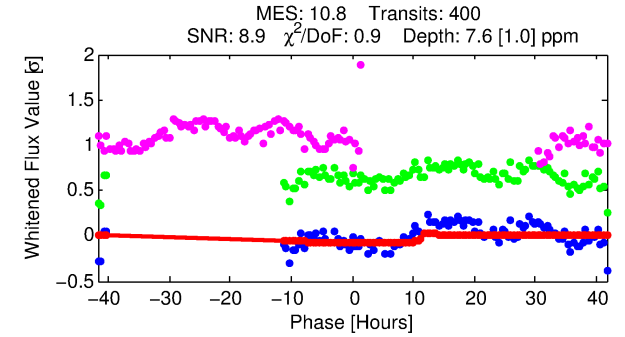
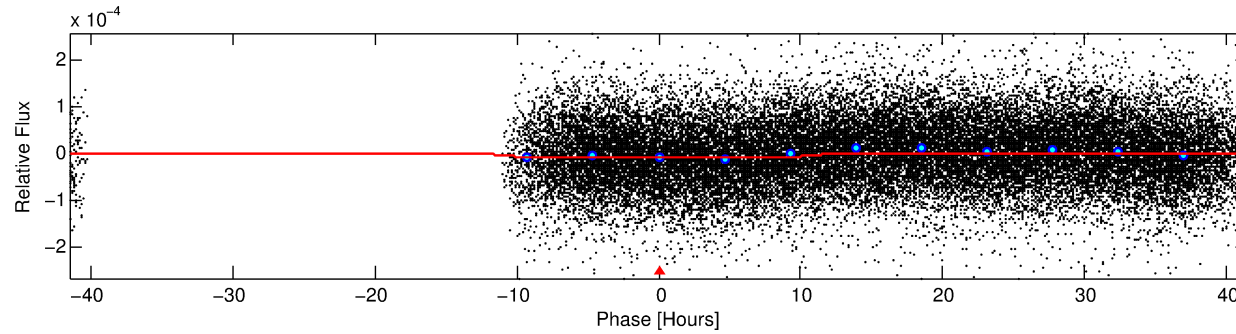
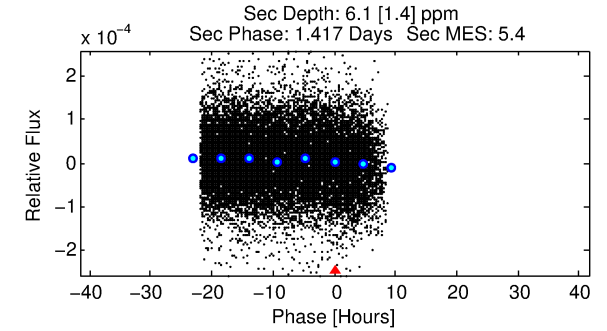
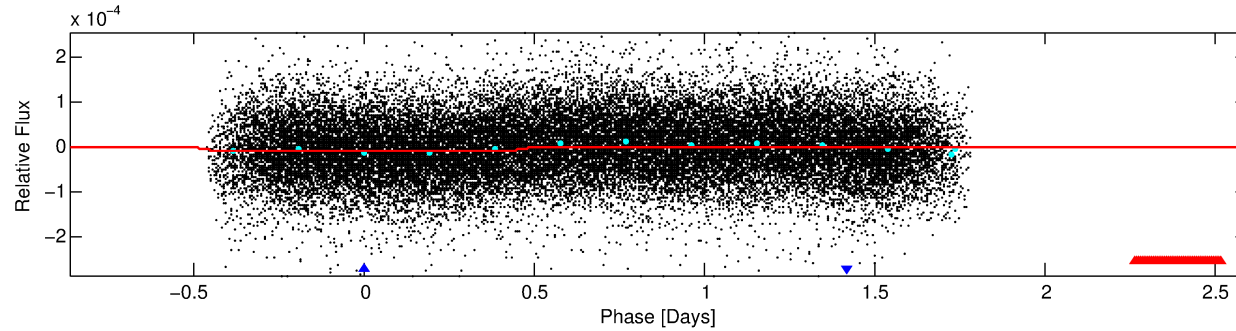
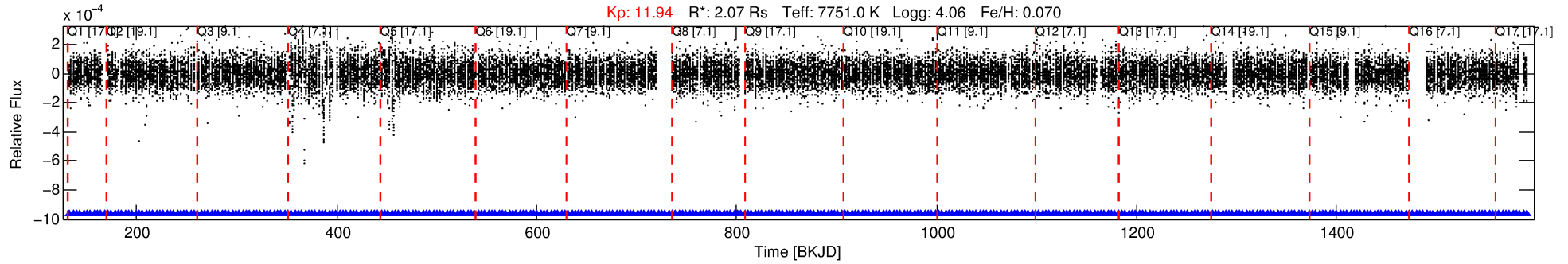
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011031728-02

No Significant Match Found

DV One-Page Summary

KIC: 11031728 Candidate: 2 of 2 Period: 3.461 d



DV Fit Results:

Period = 3.46092 [0.00010] d
Epoch = 133.3677 [0.0567] BKJD
Rp/R* = 0.0026 [0.0027]
a/R* = 1.29 [3.23]
b = 0.25 [23.81]
Seff = 4667.71 [1625.61]
Teq = 2108 [184] K
Rp = 0.58 [0.62] Re
a = 0.0544 [0.0116] AU
Ag = 29.45 [61.91] [0.46σ]
Teffp = 7592 [3959] K [1.38σ]

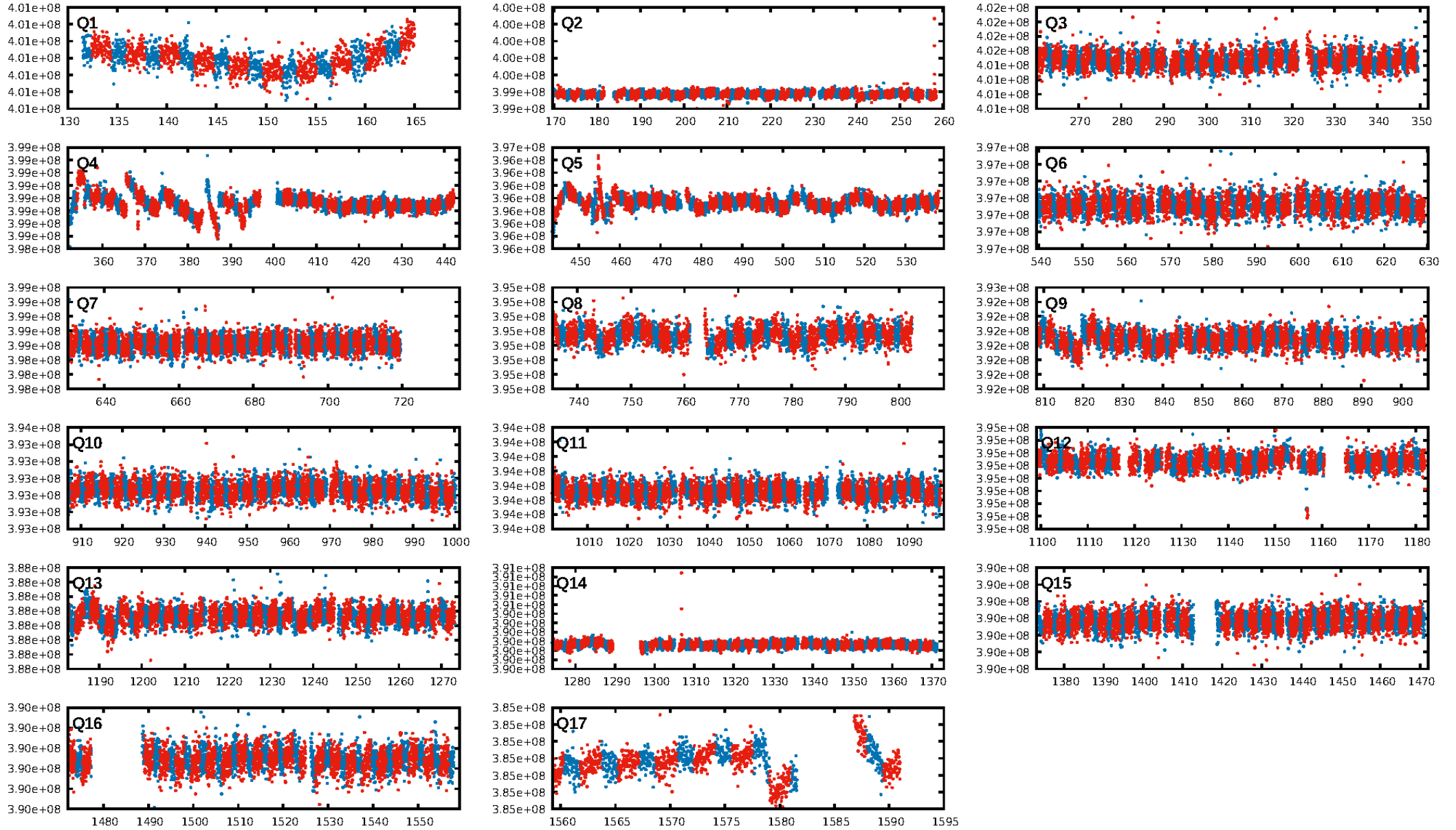
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [381/381]
GhostDiagnostic-chr: 3.217
Centroid-sig: 0.5%
Centroid-so: 2.623 arcsec [2.19σ]
OotOffset-rm: 1.301 arcsec [1.36σ]
KicOffset-rm: 1.307 arcsec [1.08σ]
OotOffset-st: 3/1/2/2 [8]
KicOffset-st: 3/1/2/2 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 0.00 [0/17]

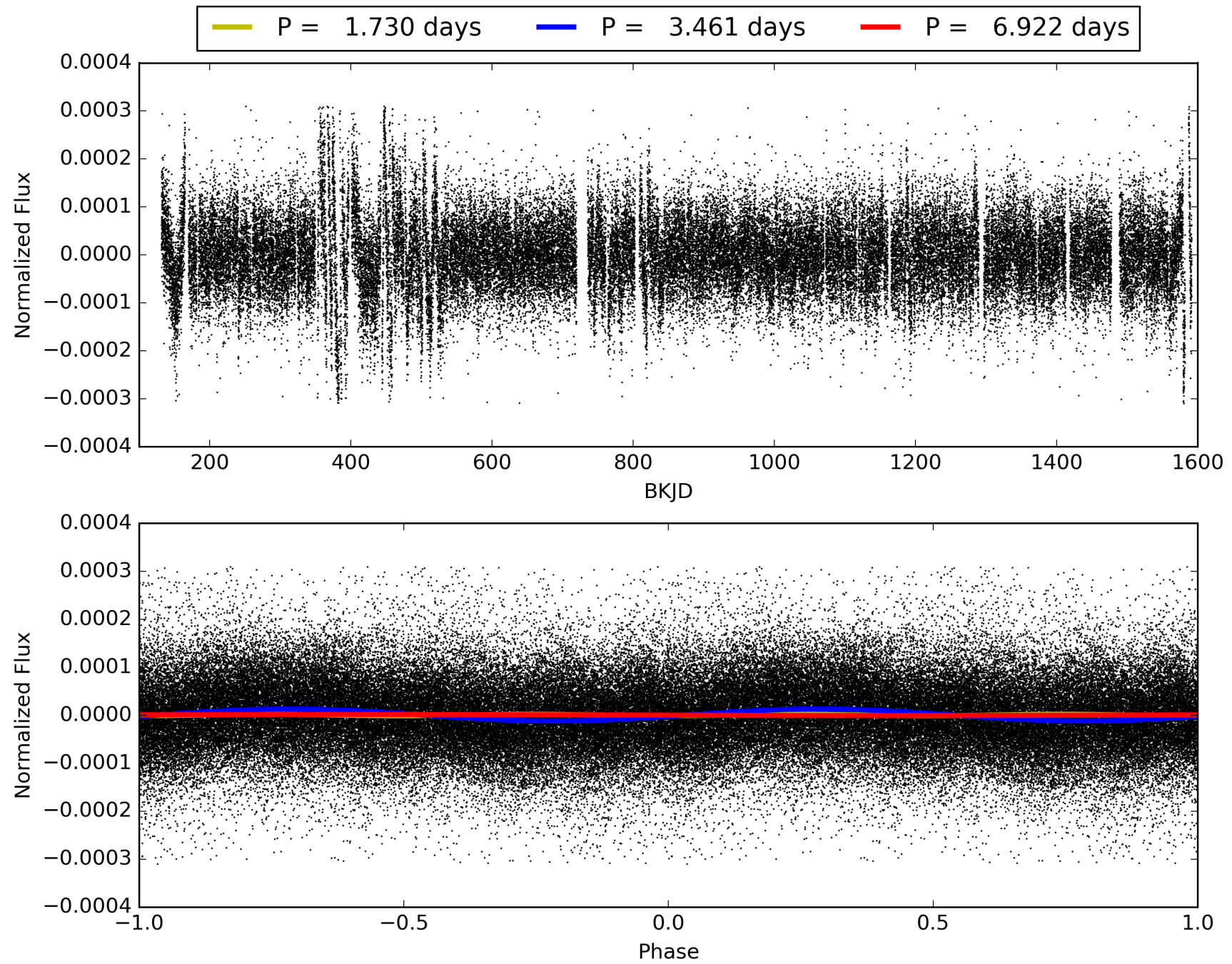
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:02:08 Z

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

TCE 011031728-02, PDC Light Curves

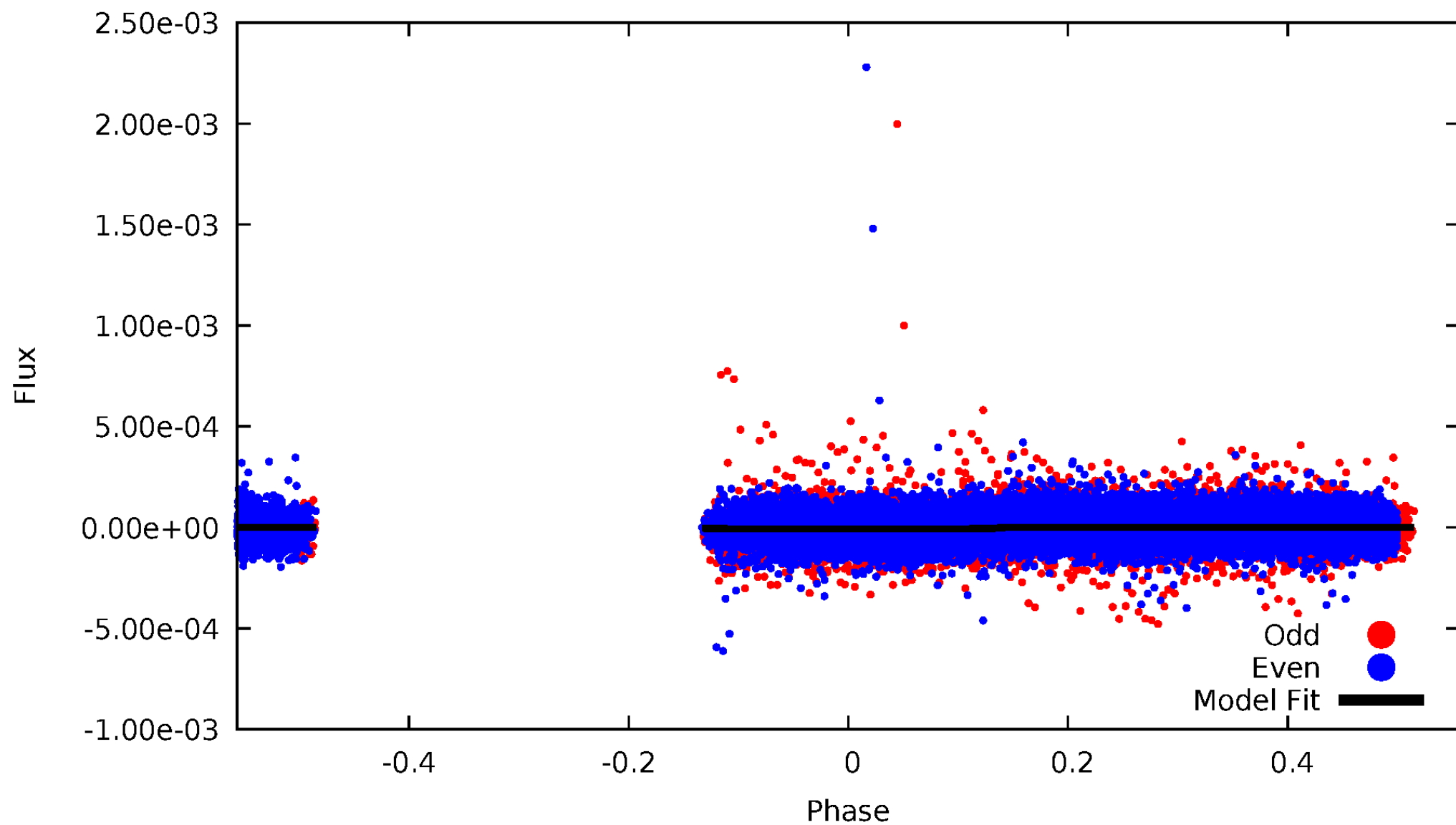


TCE 011031728-02



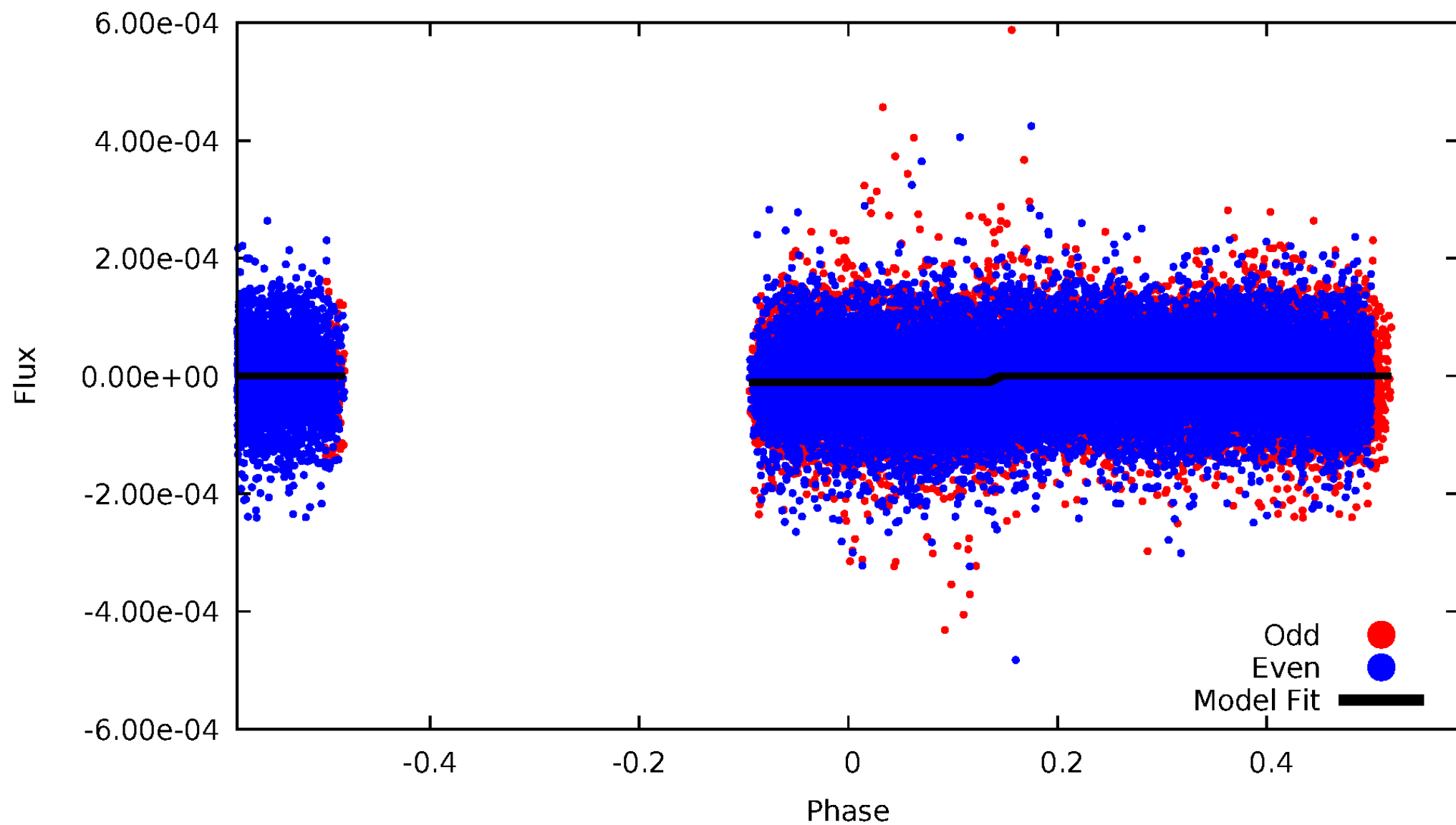
DV Odd/Even

TCE 011031728-02



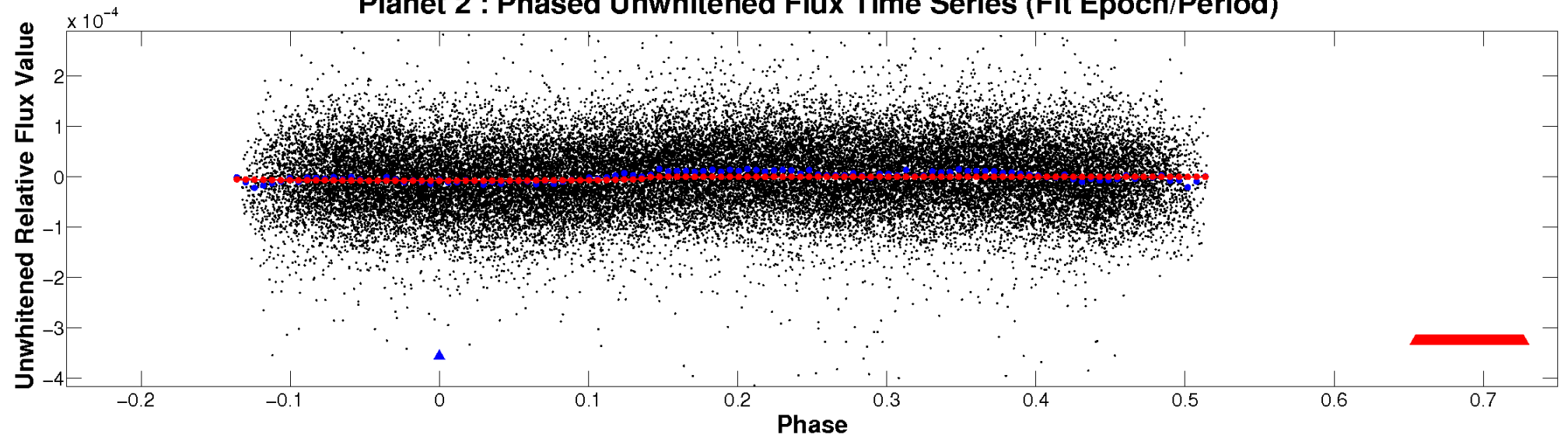
ALT Odd/Even

TCE 011031728-02

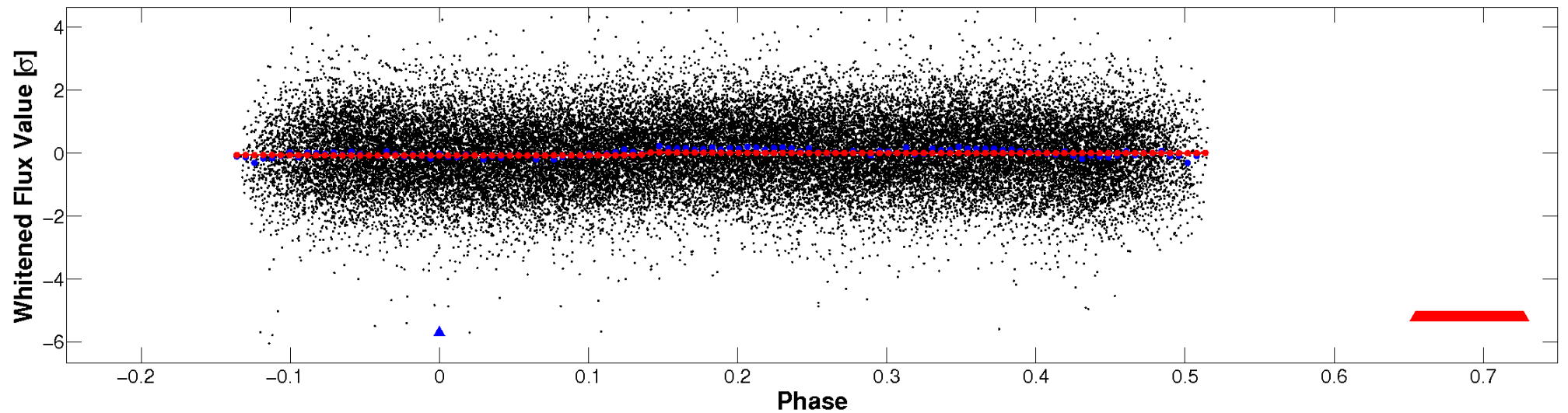


Non-Whitened Vs. Whitened Light Curve

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

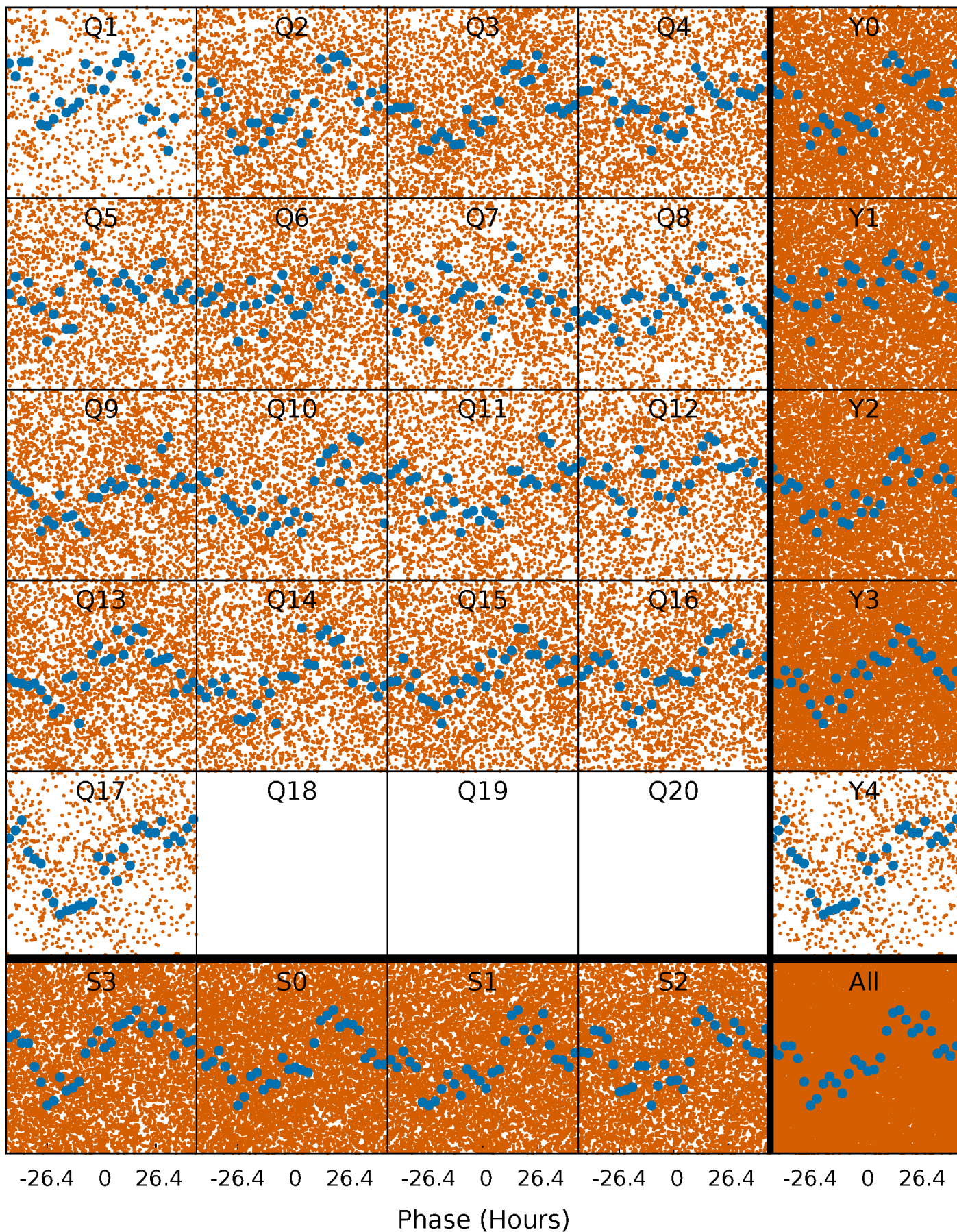


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



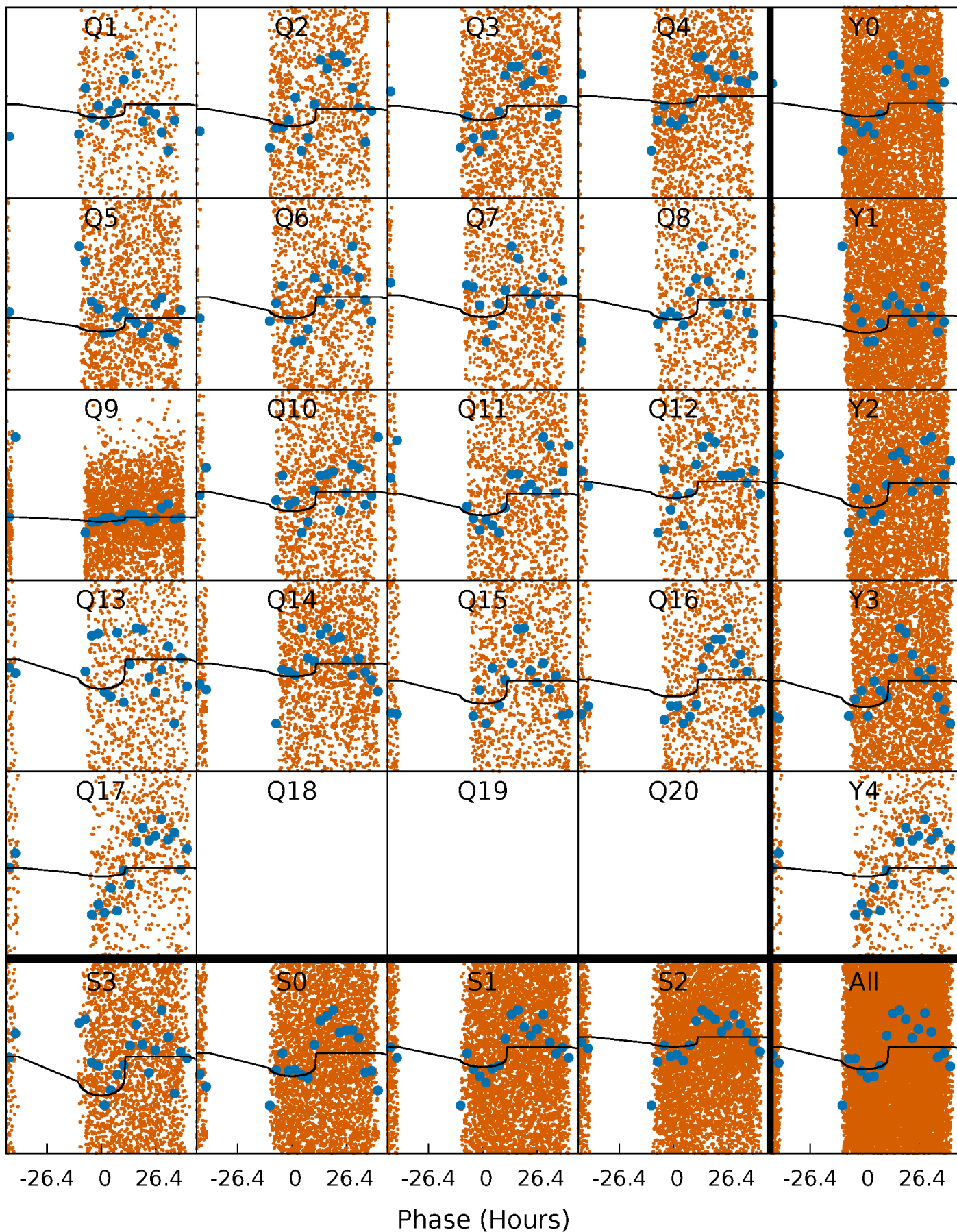
PDC Quarter-Phased Transit Curves

TCE 011031728-02 P= 3.460916 Days $T_0=133.367663$ (BKJD)



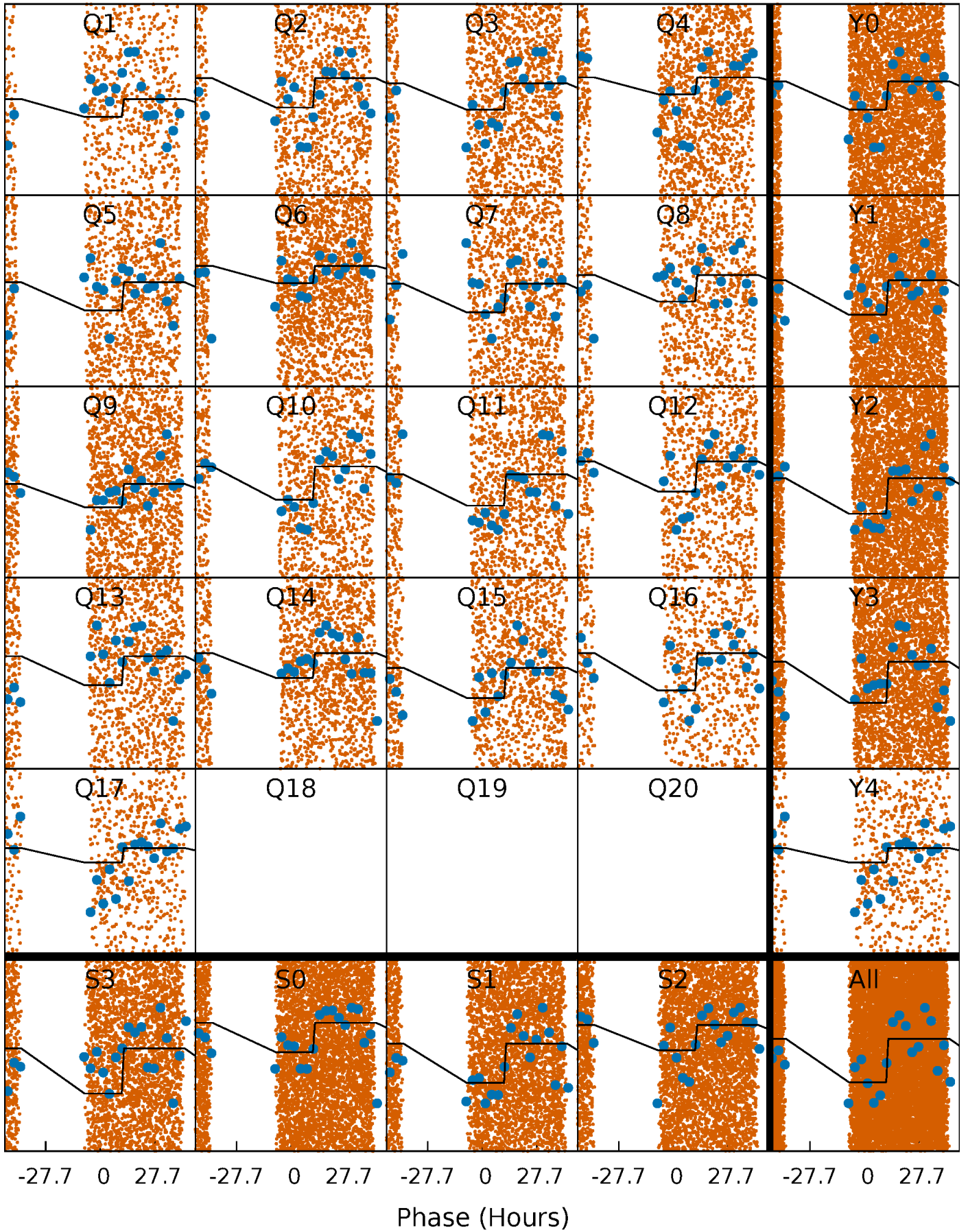
DV Quarter-Phased Transit Curves

TCE 011031728-02 P= 3.460916 Days $T_0=133.367663$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

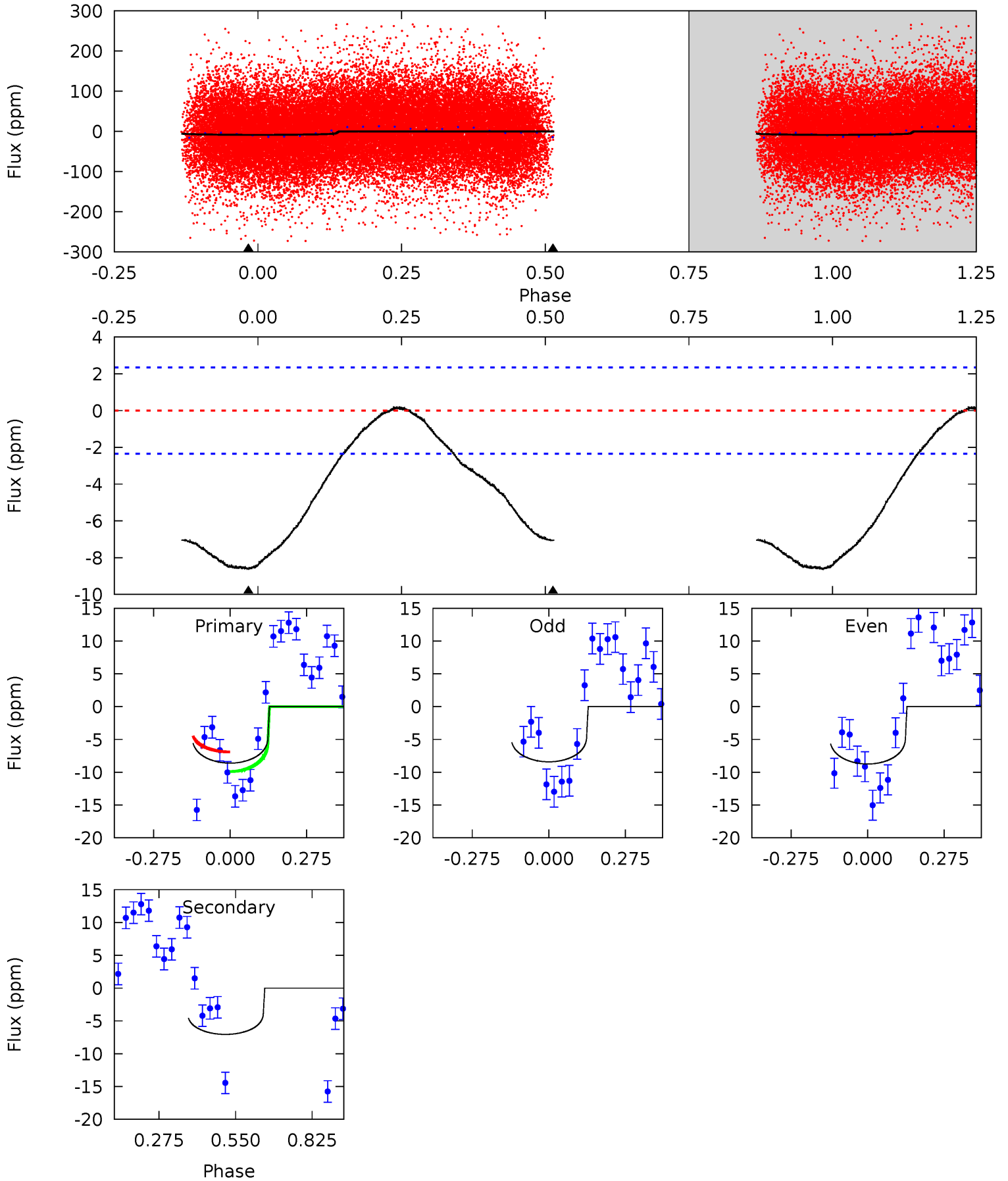
TCE 011031728-02 P= 3.461206 Days $T_0=133.233353$ (BKJD)



DV Model-Shift Uniqueness Test

011031728-02, P = 3.460916 Days, E = 129.906747 Days

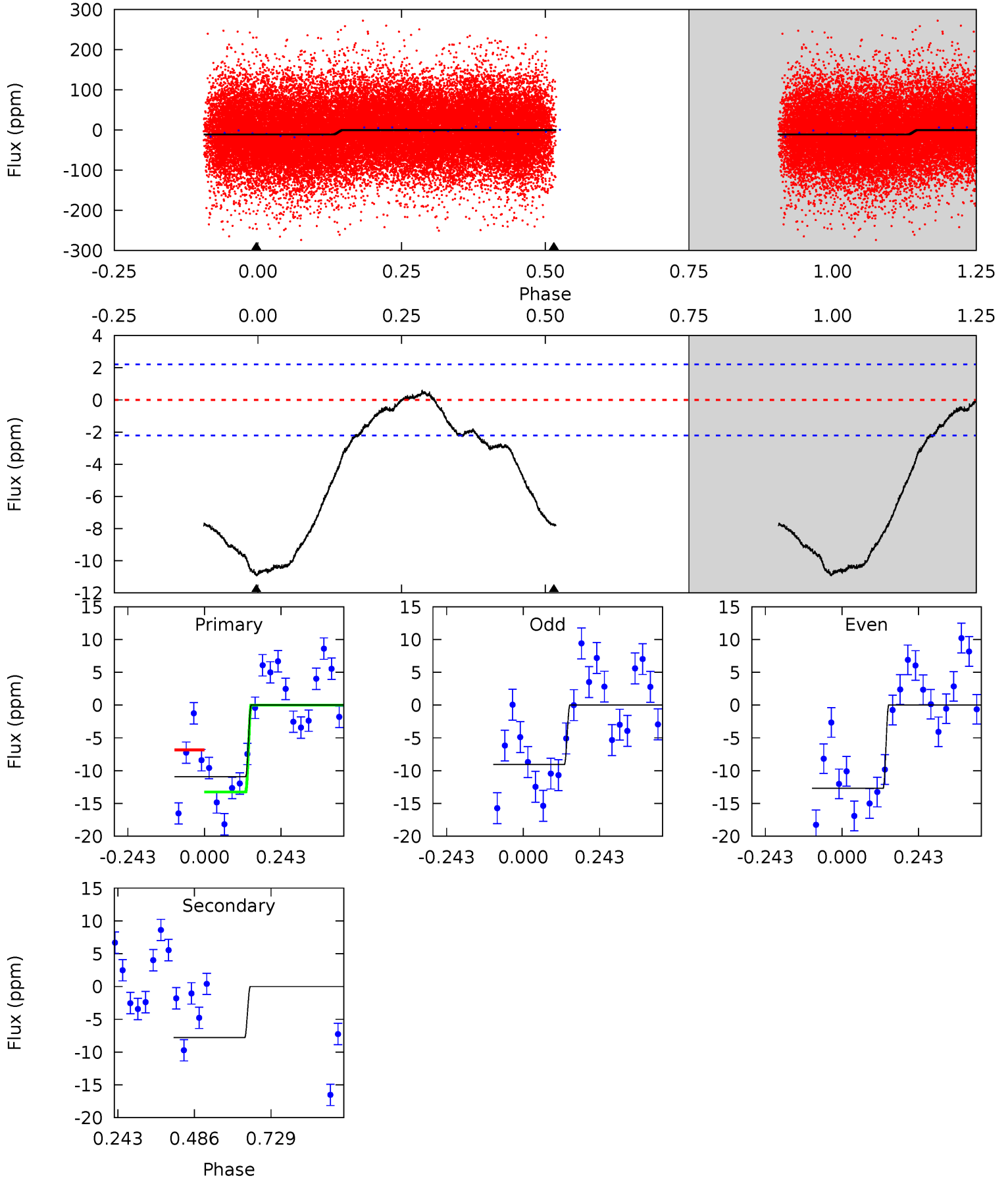
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	13.1	0	0	4.35	1.09	0.34	16.0	16.0	13.1	13.1	0.31	1.07	0.03	2.87



Alt Model-Shift Uniqueness Test

011031728-02, P = 3.461206 Days, E = 129.772147 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	15.4	0	0	4.37	1.17	1.35	21.6	21.6	15.4	15.4	3.59	0.98	0.05	5.71



Stellar Parameters For KIC 011031728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7751^{+214}_{-322}	$4.061^{+0.135}_{-0.165}$	$0.070^{+0.200}_{-0.350}$	$2.068^{+0.533}_{-0.436}$	$1.794^{+0.158}_{-0.294}$	$0.286^{+0.221}_{-0.124}$
	+3%/-4%	+3%/-4%	+286%/-500%	+26%/-21%	+9%/-16%	+78%/-44%
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 011031728-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$0.72^{+0.54}_{-0.48}$	2957^{+204}_{-191}	6871^{+8508}_{-1628}	21^{+166}_{-14}
Alt.	-8 ± 1	$0.82^{+0.55}_{-0.49}$	2947^{+205}_{-187}	6712^{+5342}_{-1616}	18^{+97}_{-12}

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 $A_{obs} \gg 1.0$

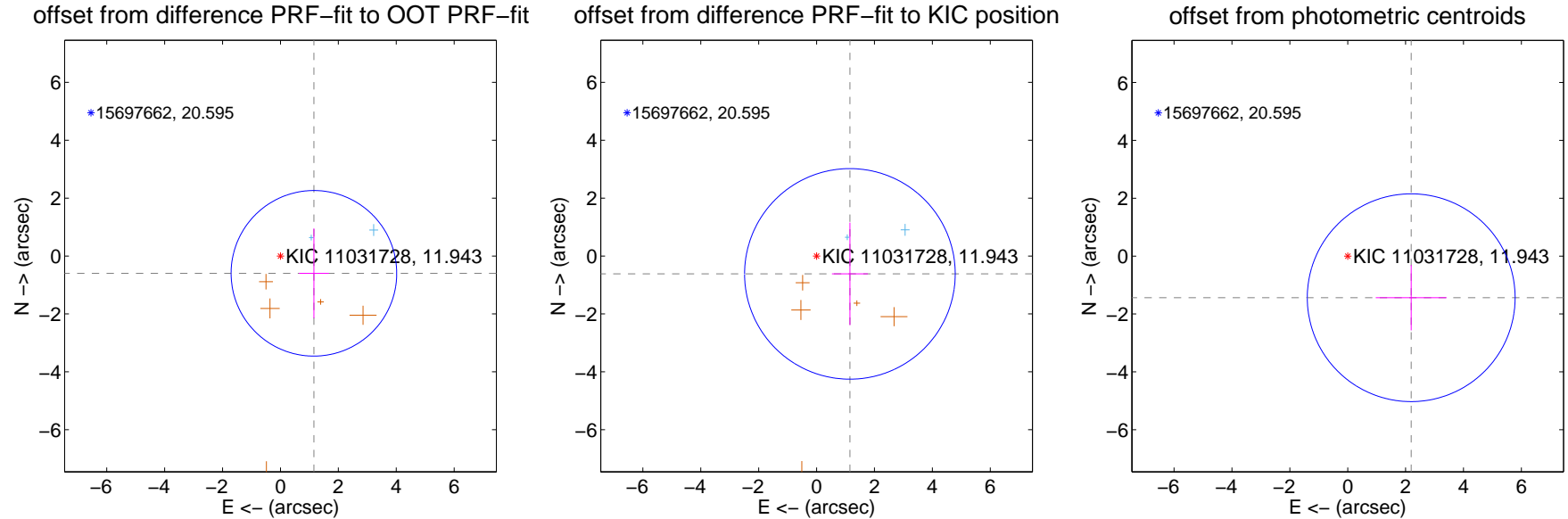
DV Centroid Data

Supplemental centroid analysis for 011031728-02. **Kepler magnitude: 11.94.** Transit SNR 8.86

There are 2 quarters with good PRF difference image offsets

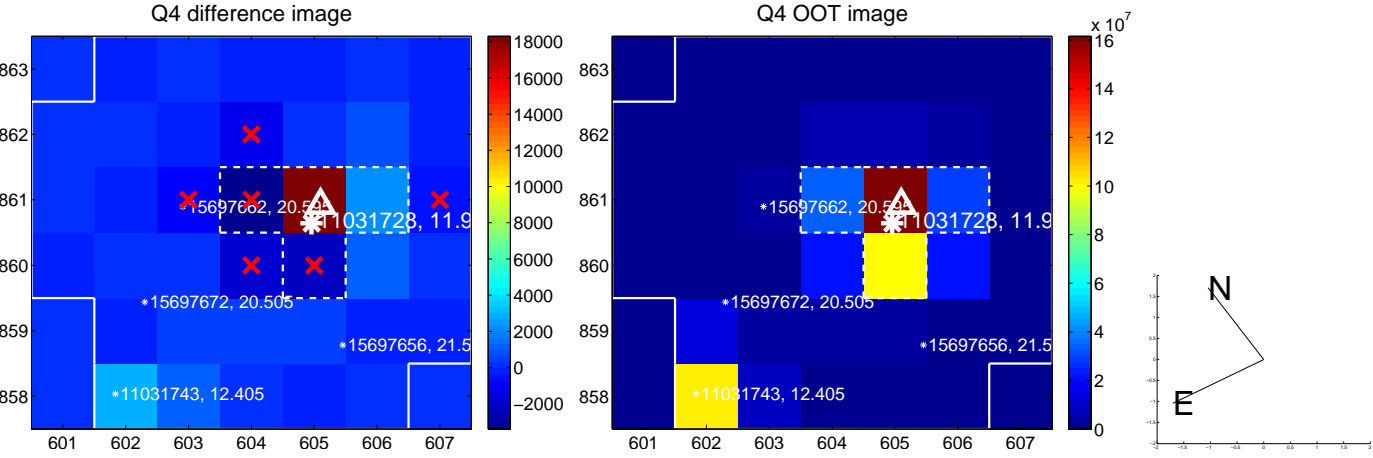
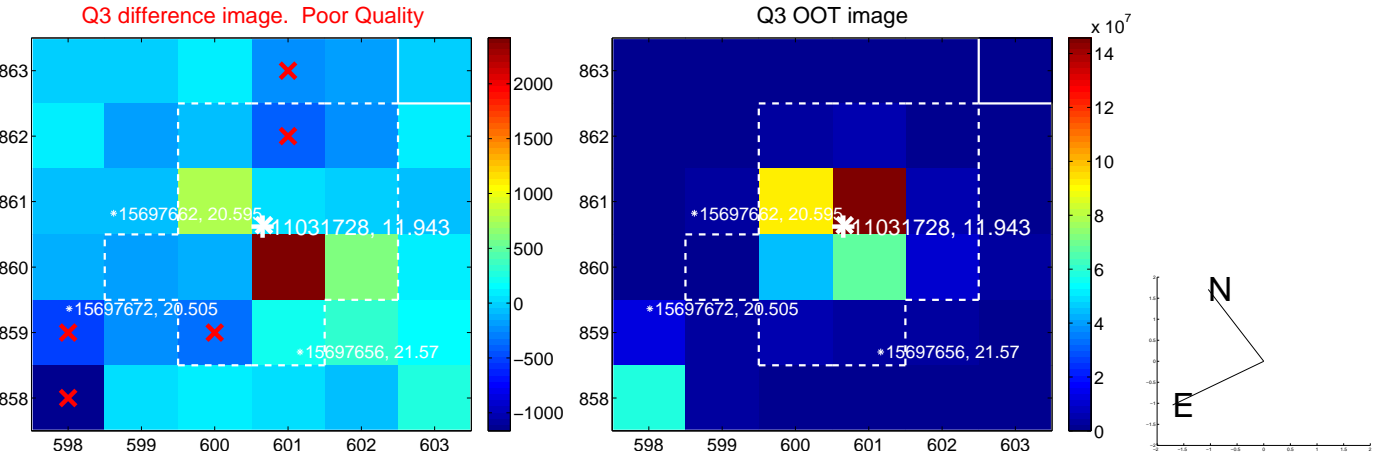
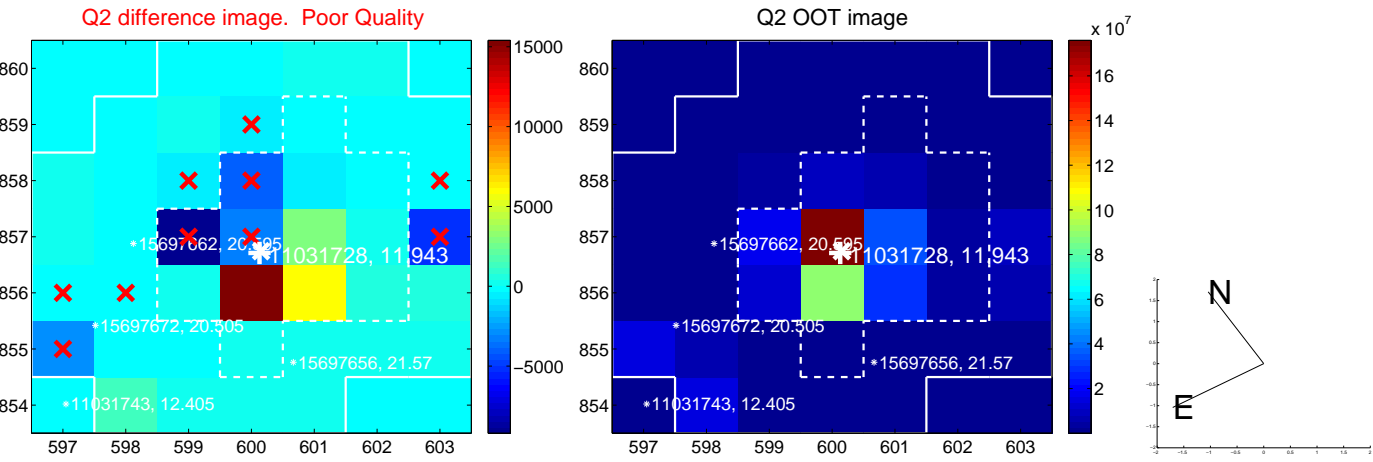
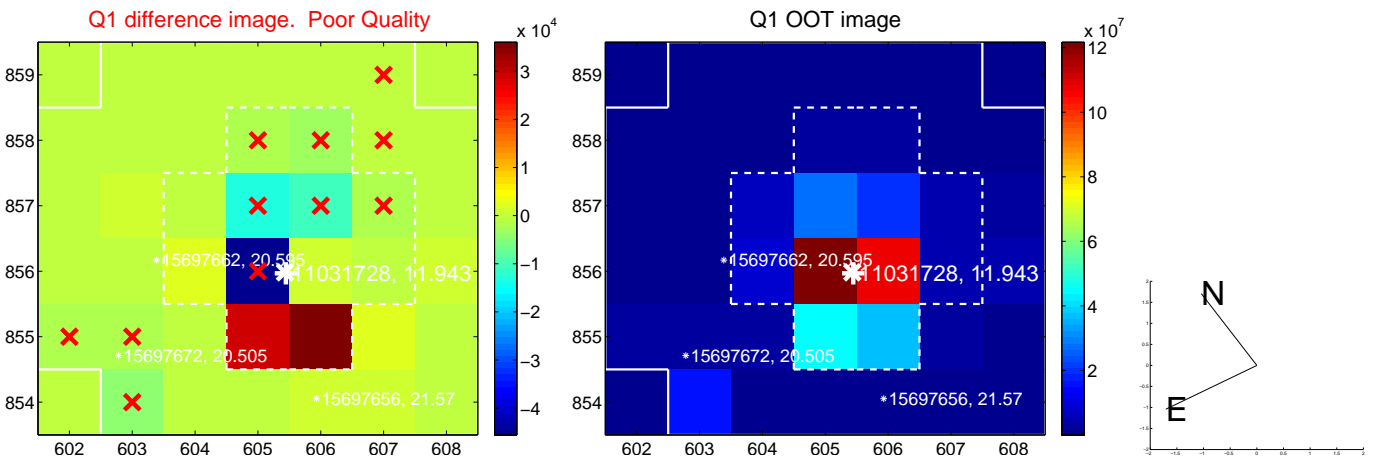
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.301 ± 0.954	1.36	-1.156 ± 0.515	-0.598 ± 1.551
PRF-fit source offset from KIC position	1.307 ± 1.213	1.08	-1.152 ± 0.621	-0.618 ± 1.772
photometric centroid source offset	2.62 ± 1.20	2.19	-2.19 ± 1.23	-1.44 ± 1.13

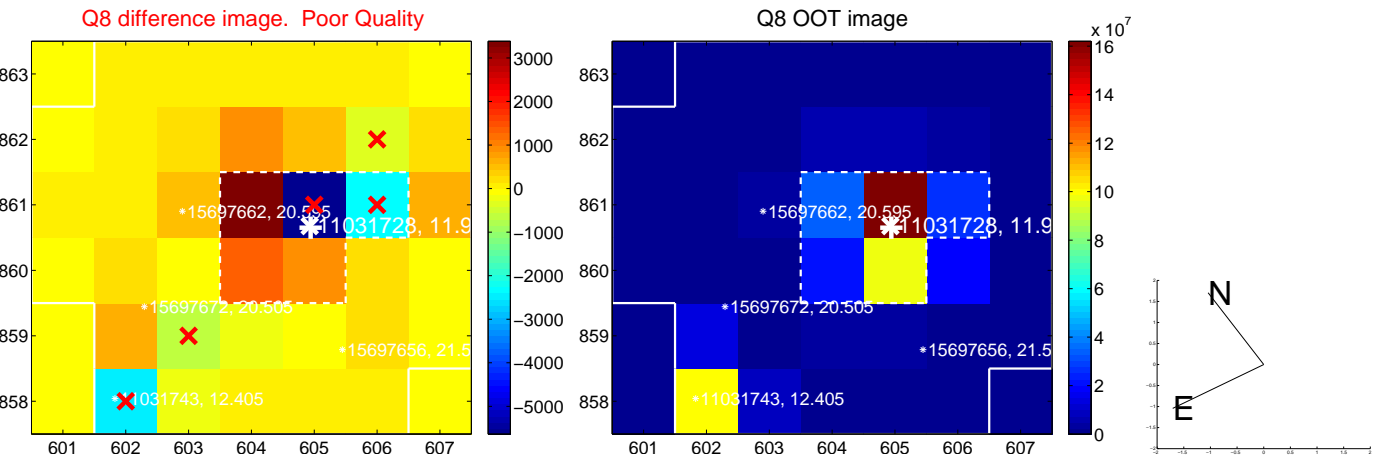
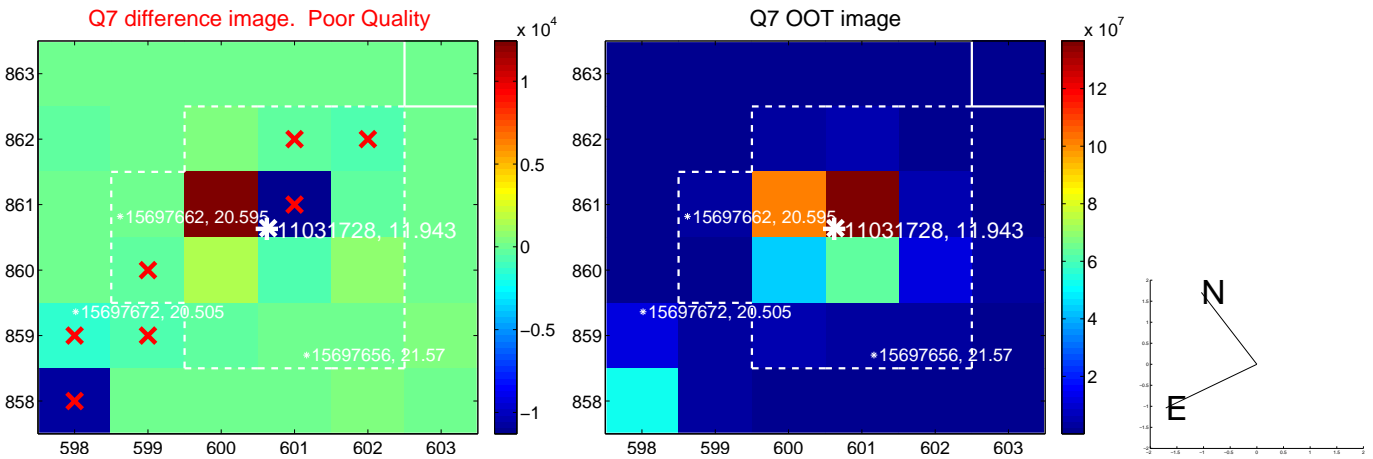
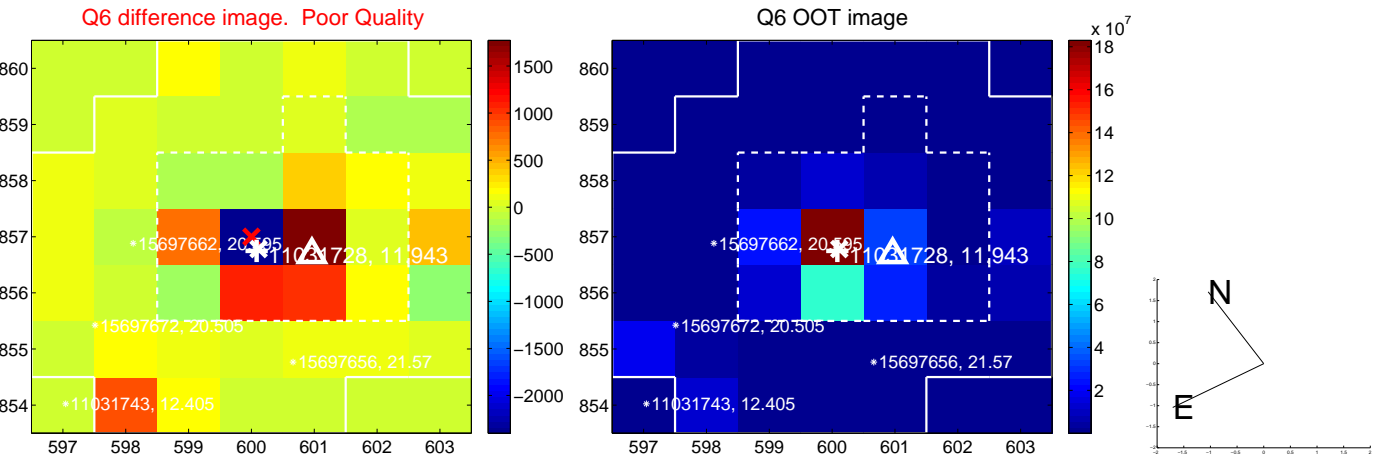
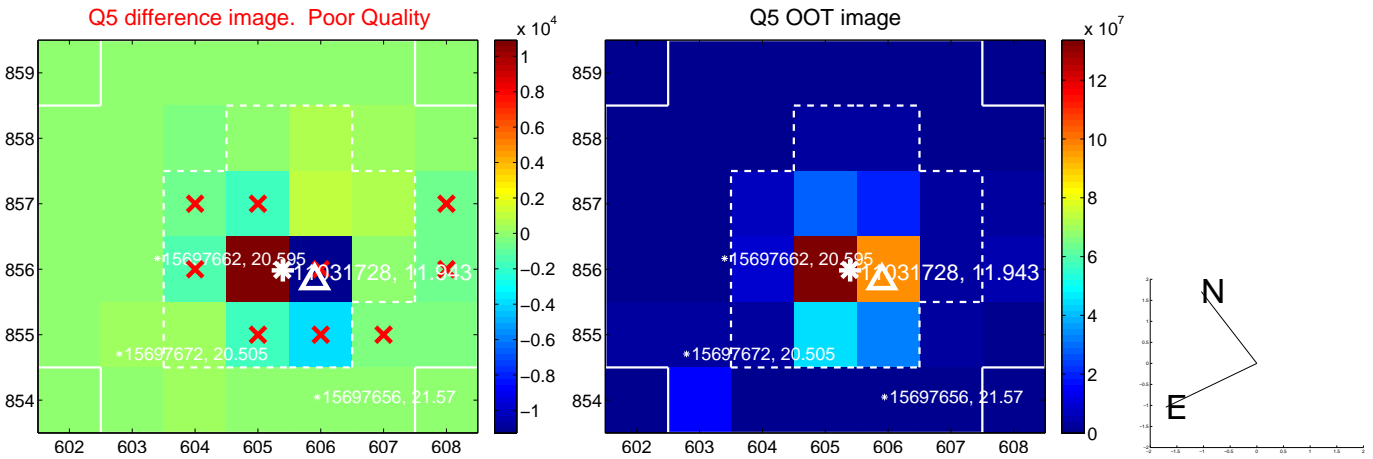


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

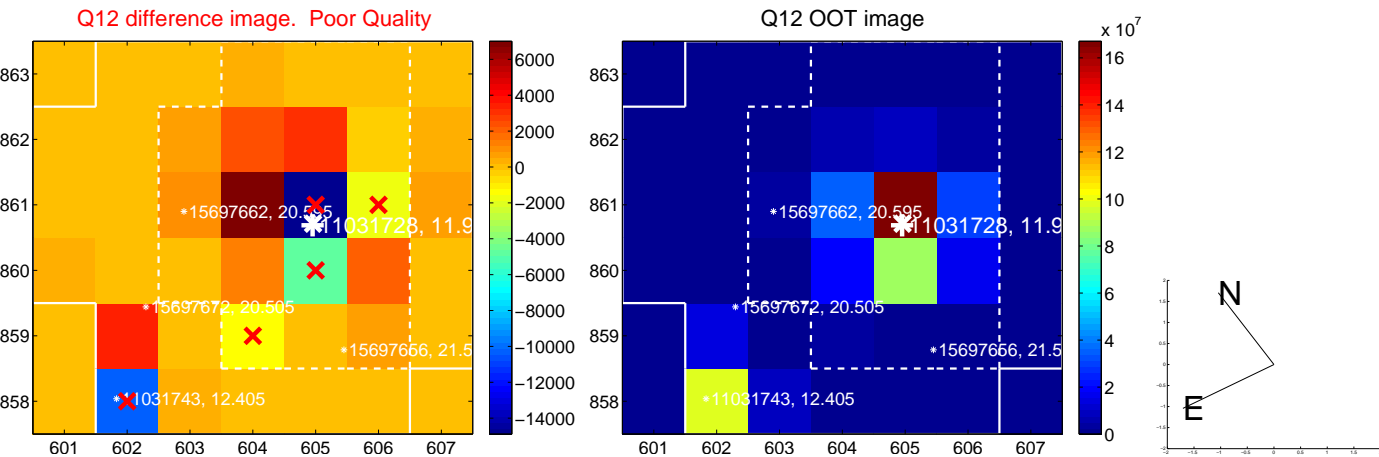
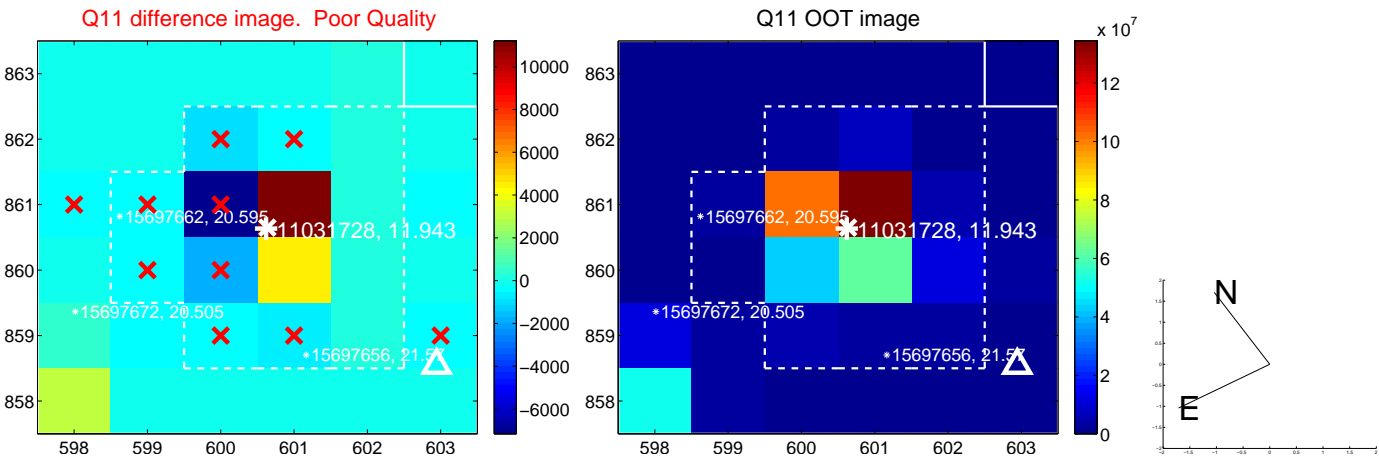
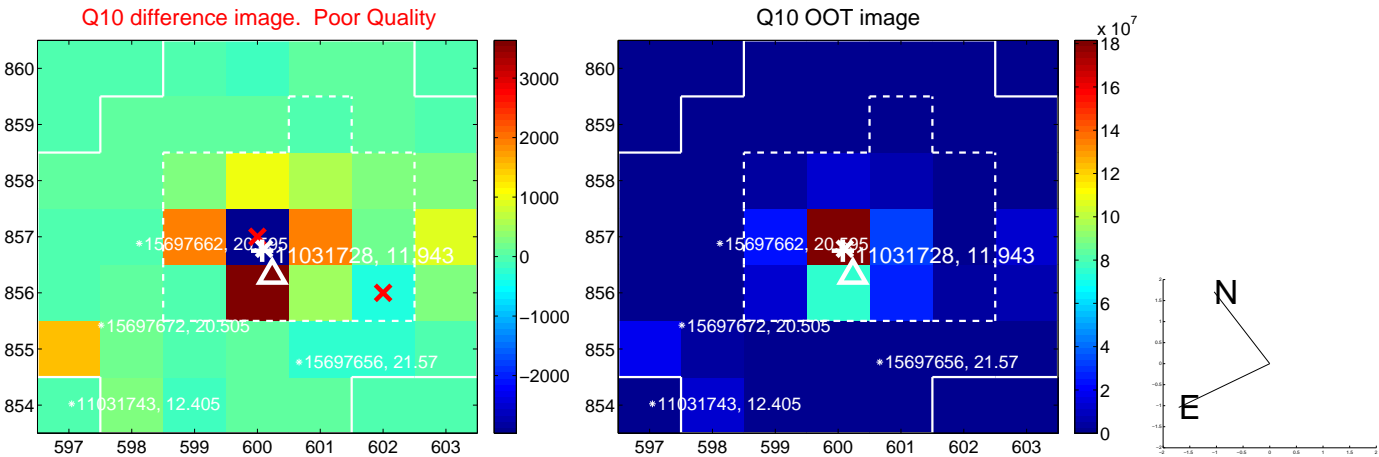
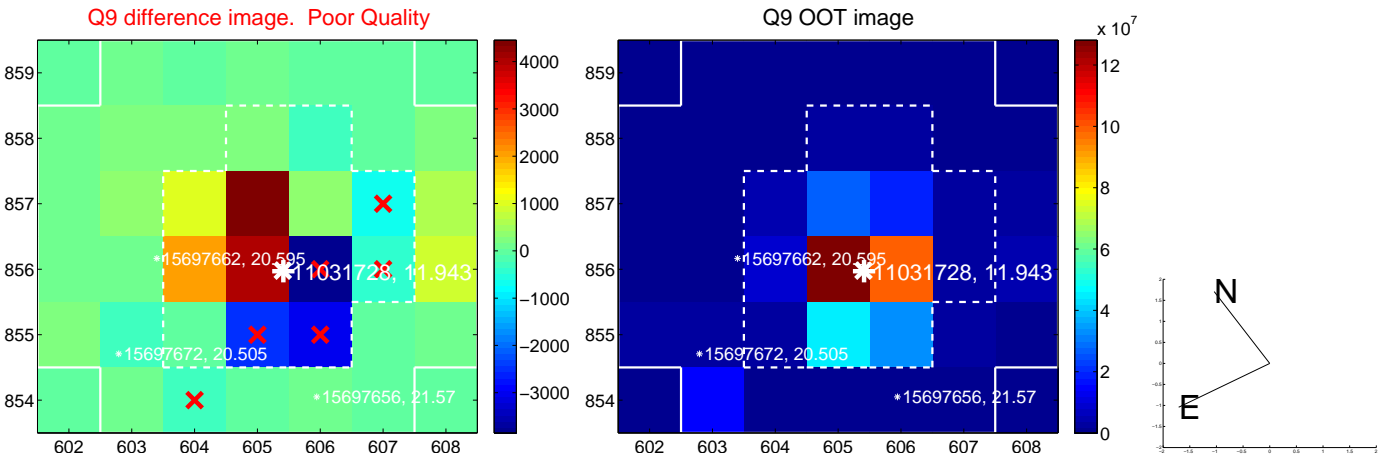
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



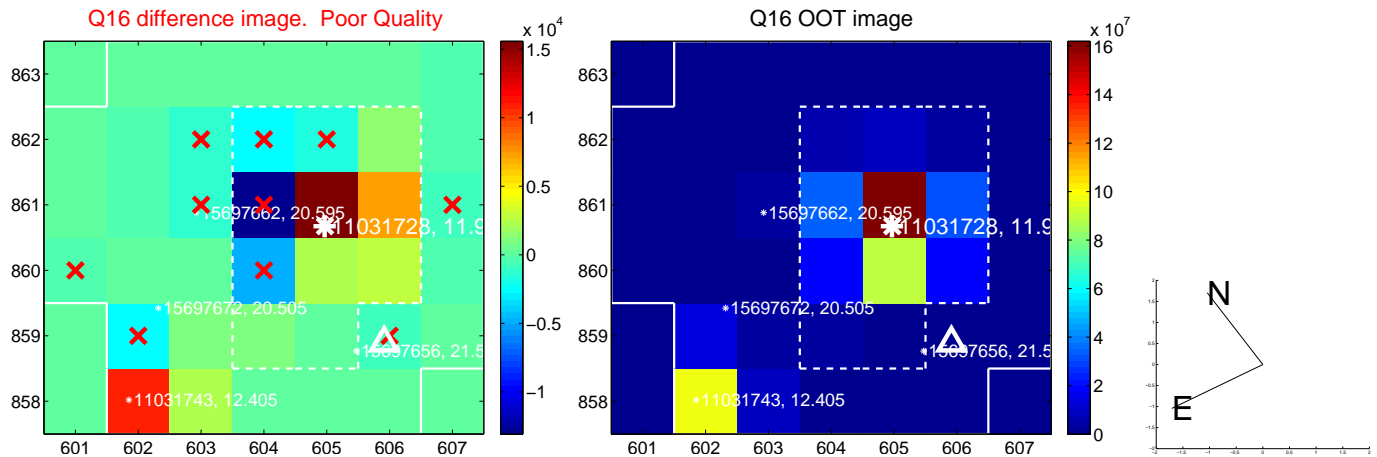
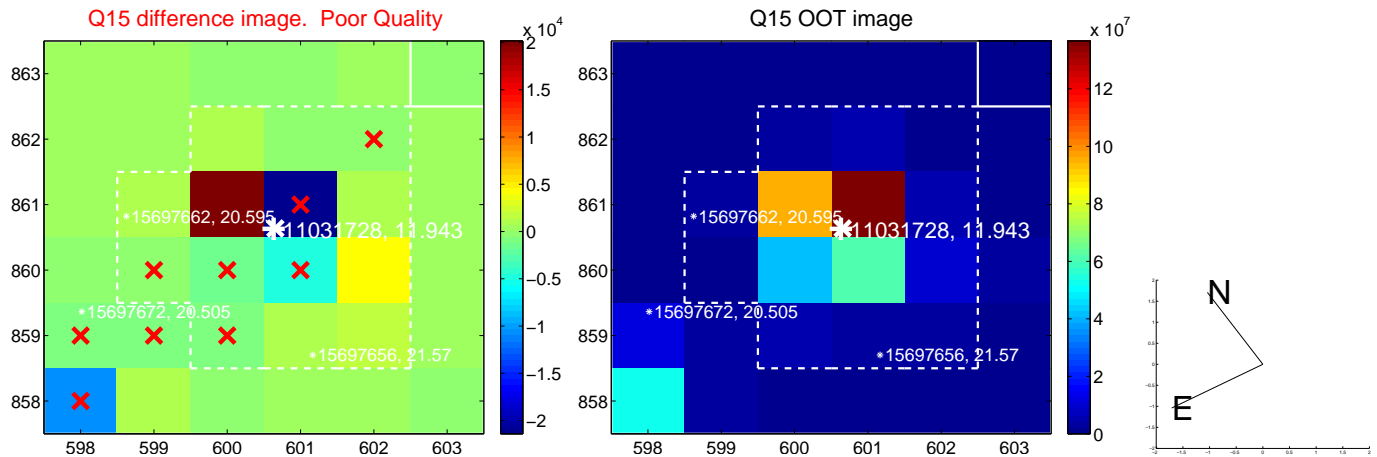
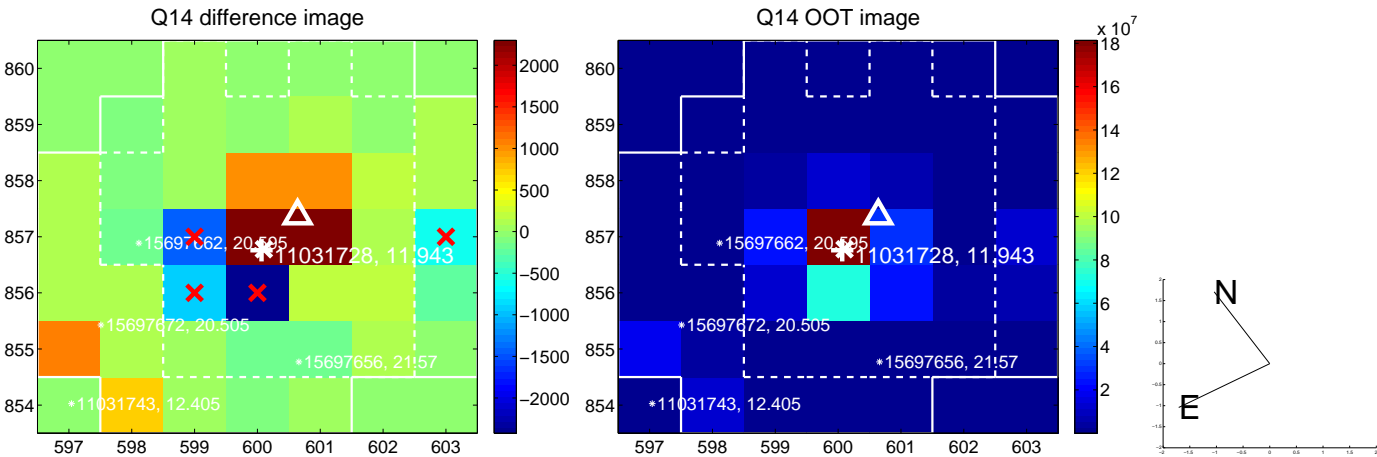
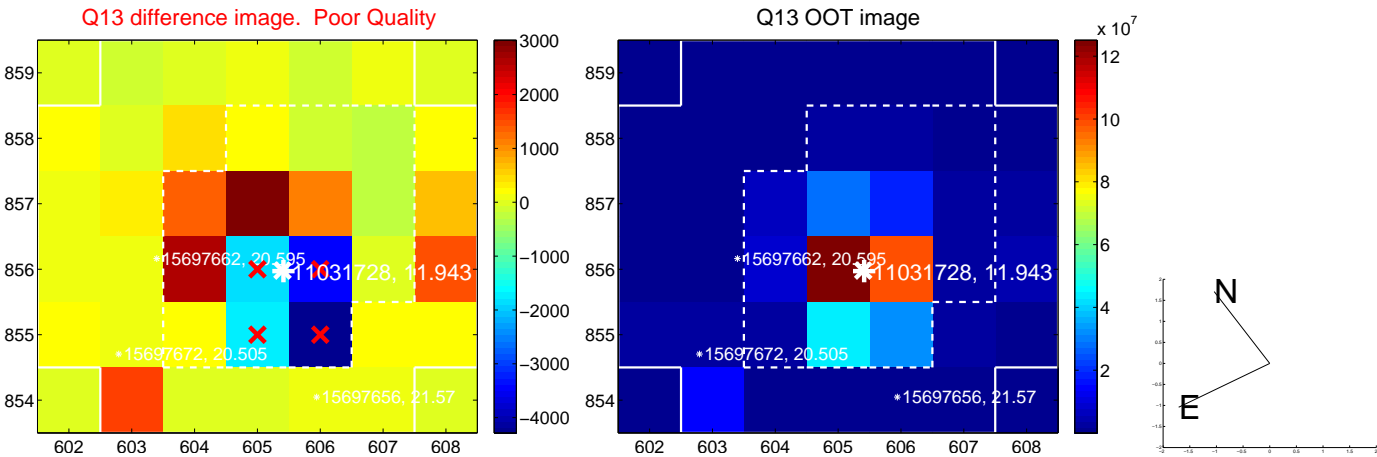
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

