

KIC 011657371

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})
011657371-01	OBS	No	0.841569	132.092564	51.4	3.211	8.9	9.5	1.77	7347	1.48	19567.00
011657371-02	OBS	No	0.841557	131.677903	64.2	3.326	12.3	11.8	1.77	7347	1.65	19567.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011657371-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011657371-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

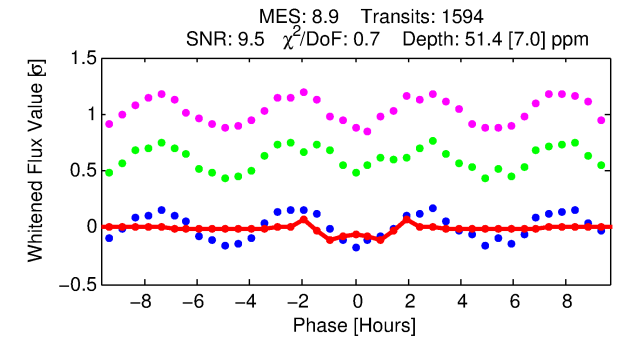
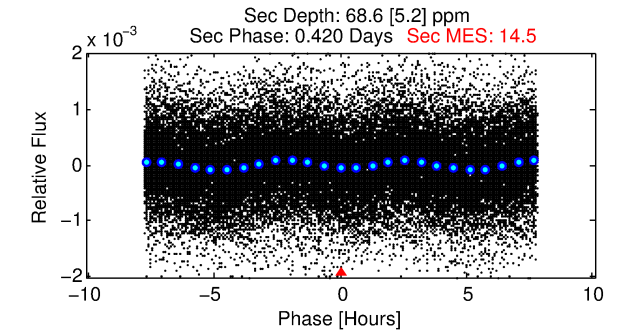
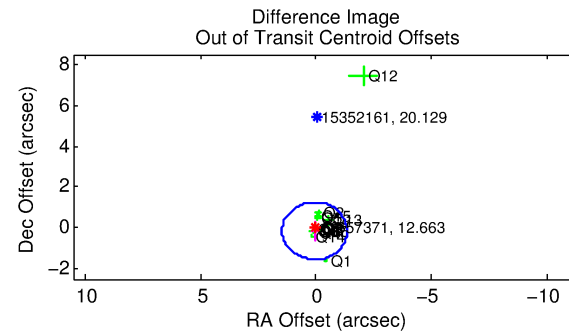
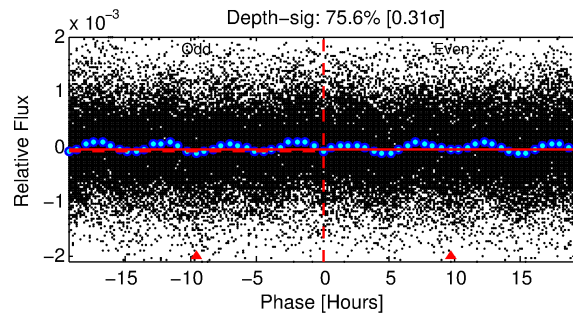
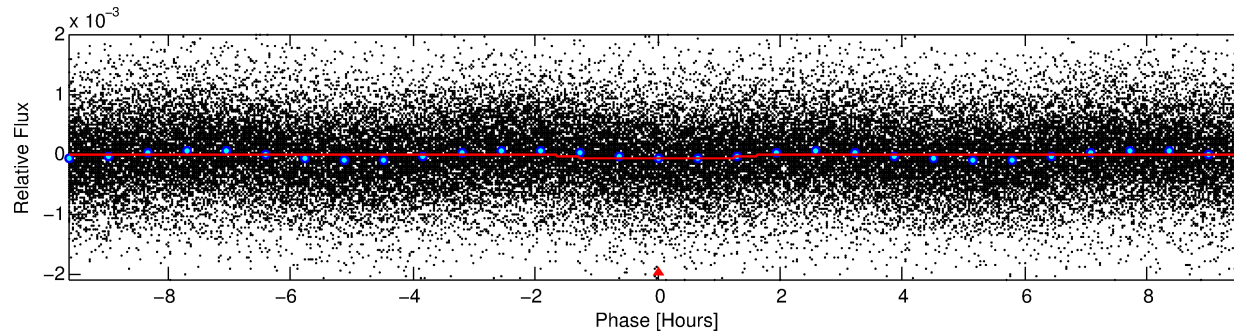
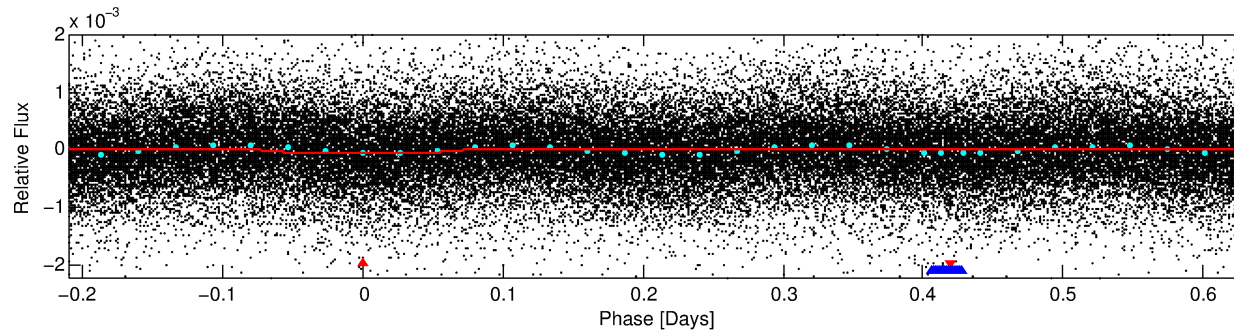
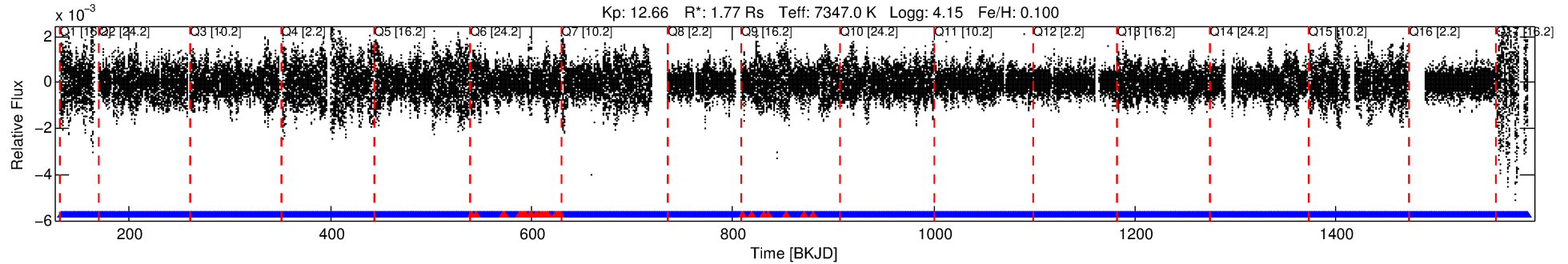
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011657371-01

No Significant Match Found

DV One-Page Summary

KIC: 11657371 Candidate: 1 of 2 Period: 0.842 d



DV Fit Results:

Period = 0.84157 [0.00001] d
Epoch = 132.0926 [0.0015] BKJD
Rp/R* = 0.0076 [0.0014]
a/R* = 1.29 [0.54]
b = 0.91 [0.21]
Seff = 19567.00 [7903.49]
Teq = 3016 [305] K
Rp = 1.48 [0.53] Re
a = 0.0205 [0.0051] AU
Ag = 7.25 [3.72] [1.68 σ]
Teffp = 7650 [799] K [5.42 σ]

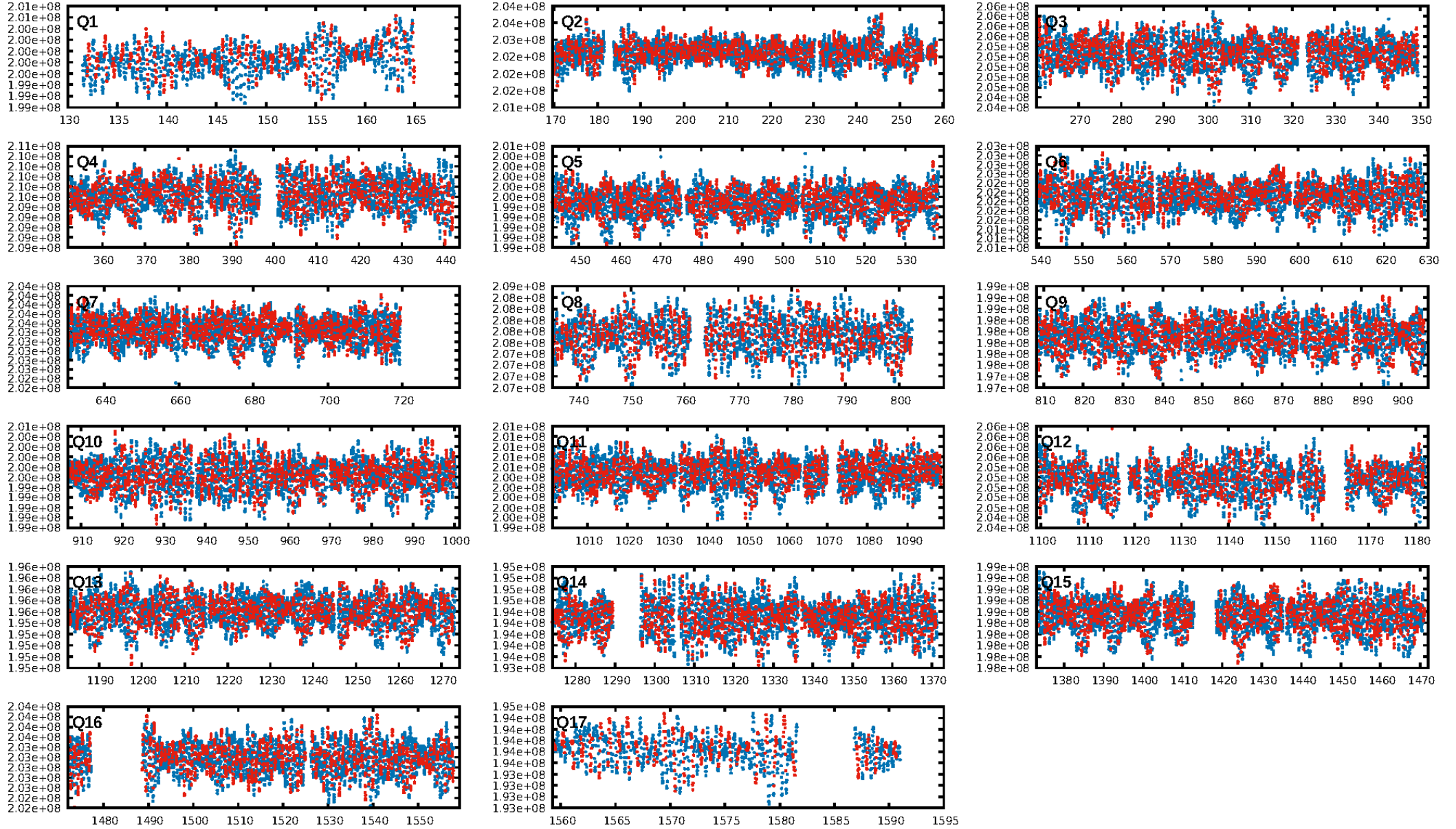
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgm: 0.98 [1487/1522]
GhostDiagnostic-chr: 0.4523
Centroid-sig: 85.8%
Centroid-so: 0.146 arcsec [0.40 σ]
OotOffset-rm: 0.160 arcsec [0.34 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.284 arcsec [0.60 σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 1.00 [17/17]

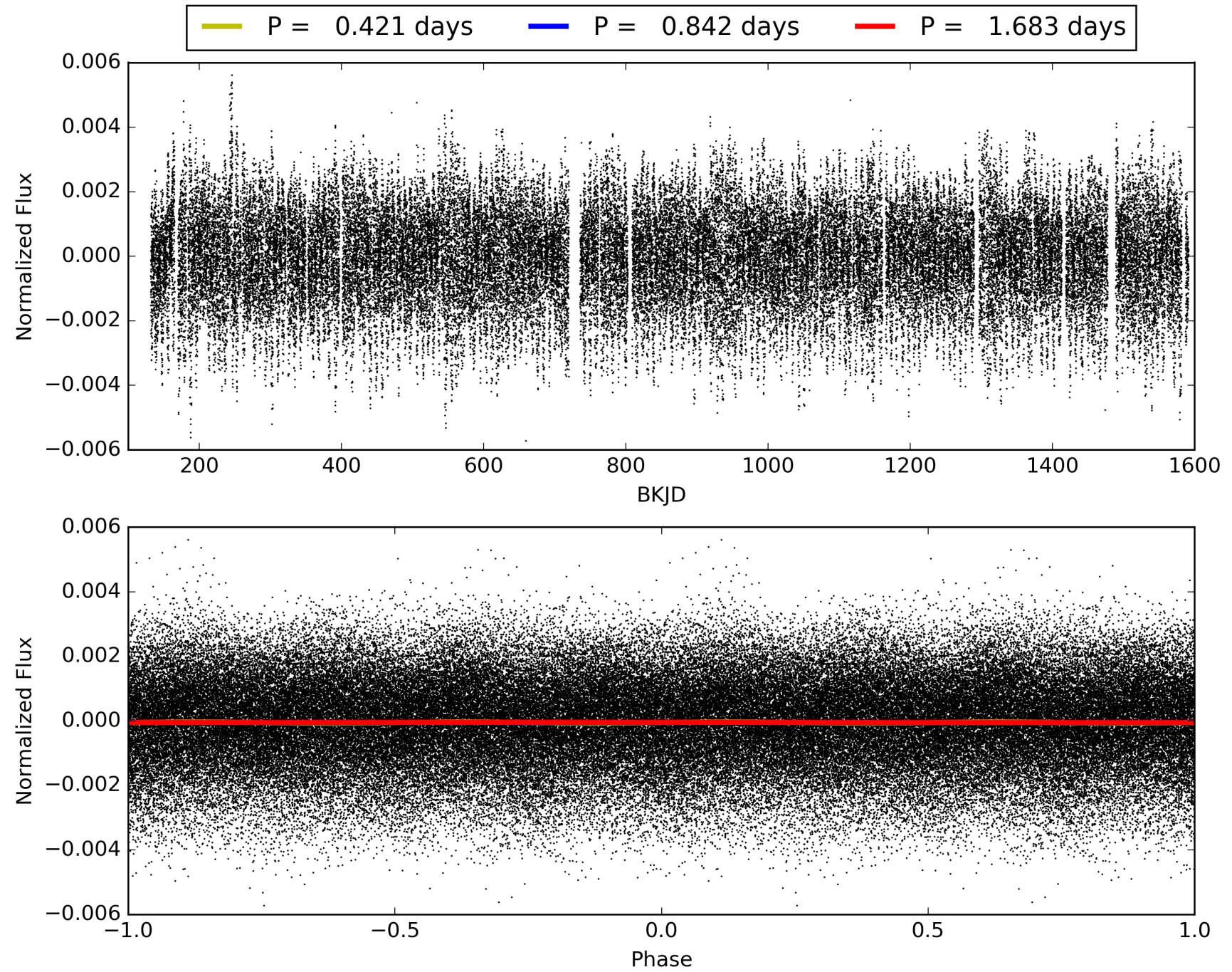
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:22:48 Z

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

TCE 011657371-01, PDC Light Curves

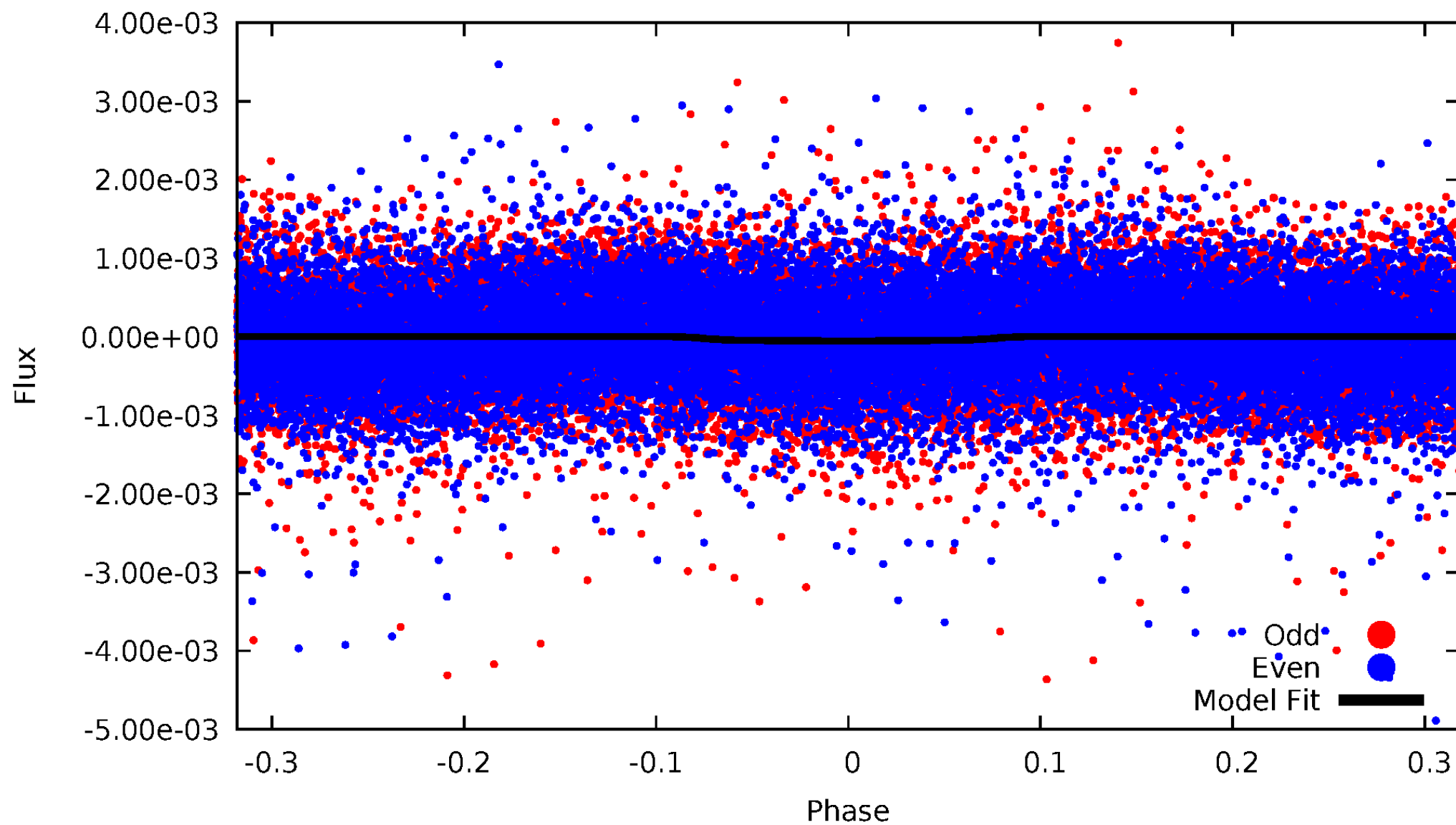


TCE 011657371-01



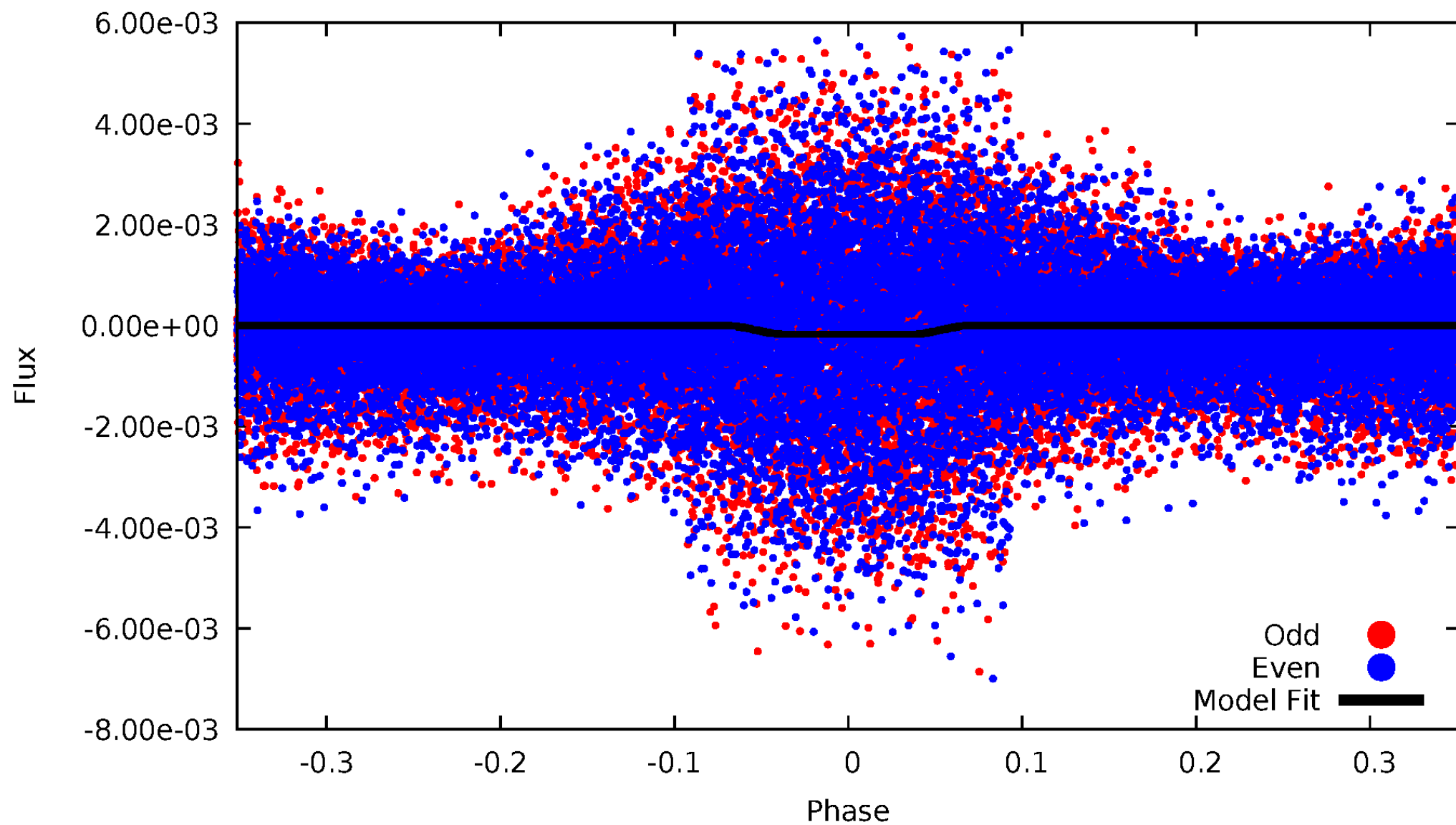
DV Odd/Even

TCE 011657371-01

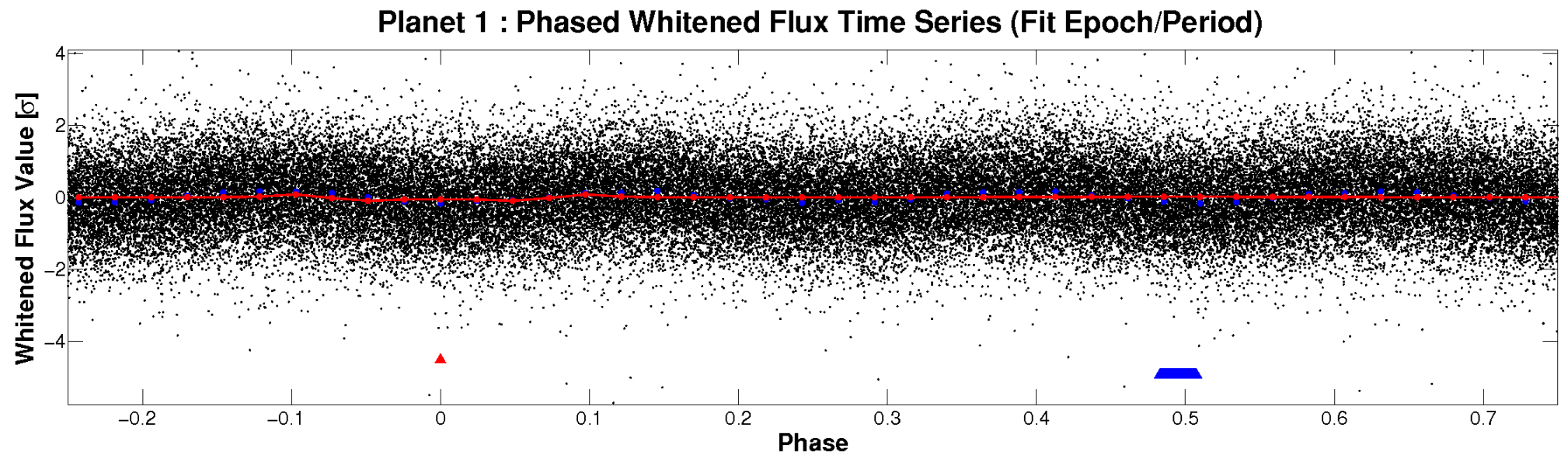
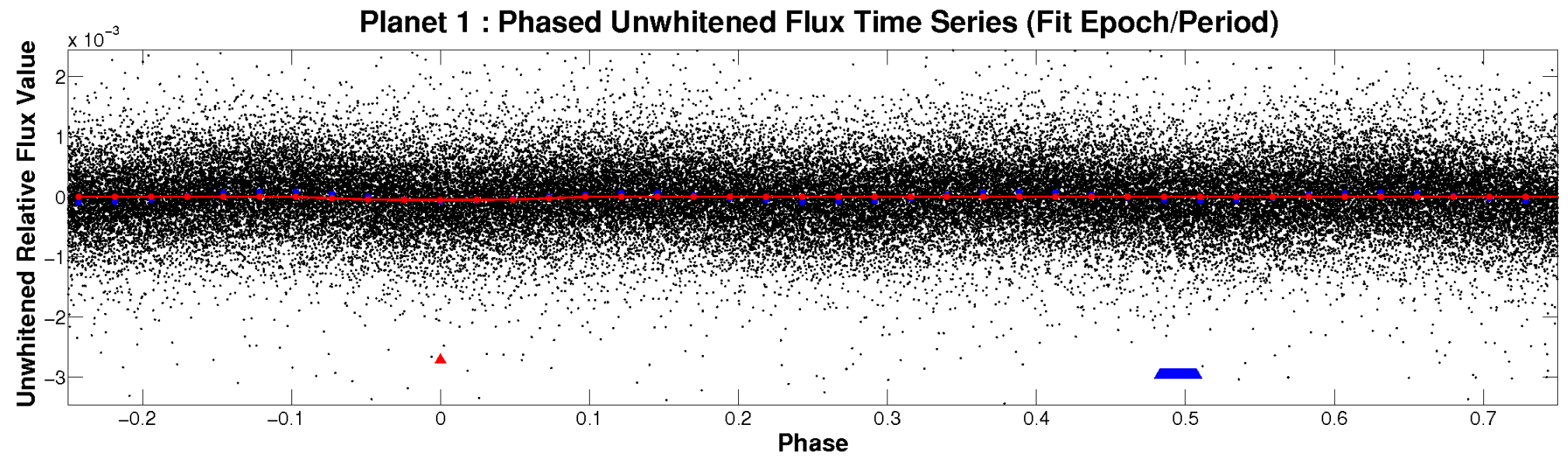


ALT Odd/Even

TCE 011657371-01

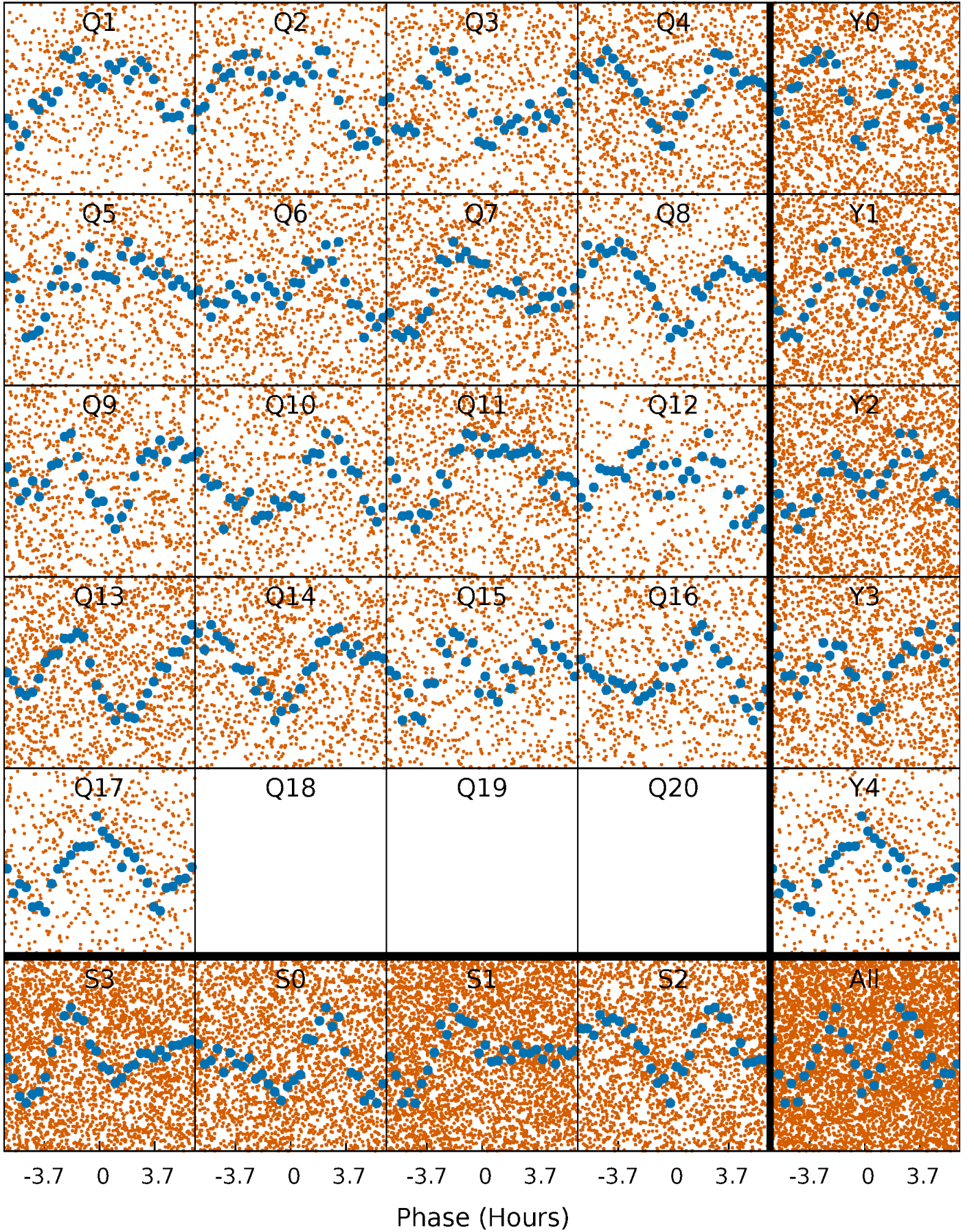


Non-Whitened Vs. Whitened Light Curve



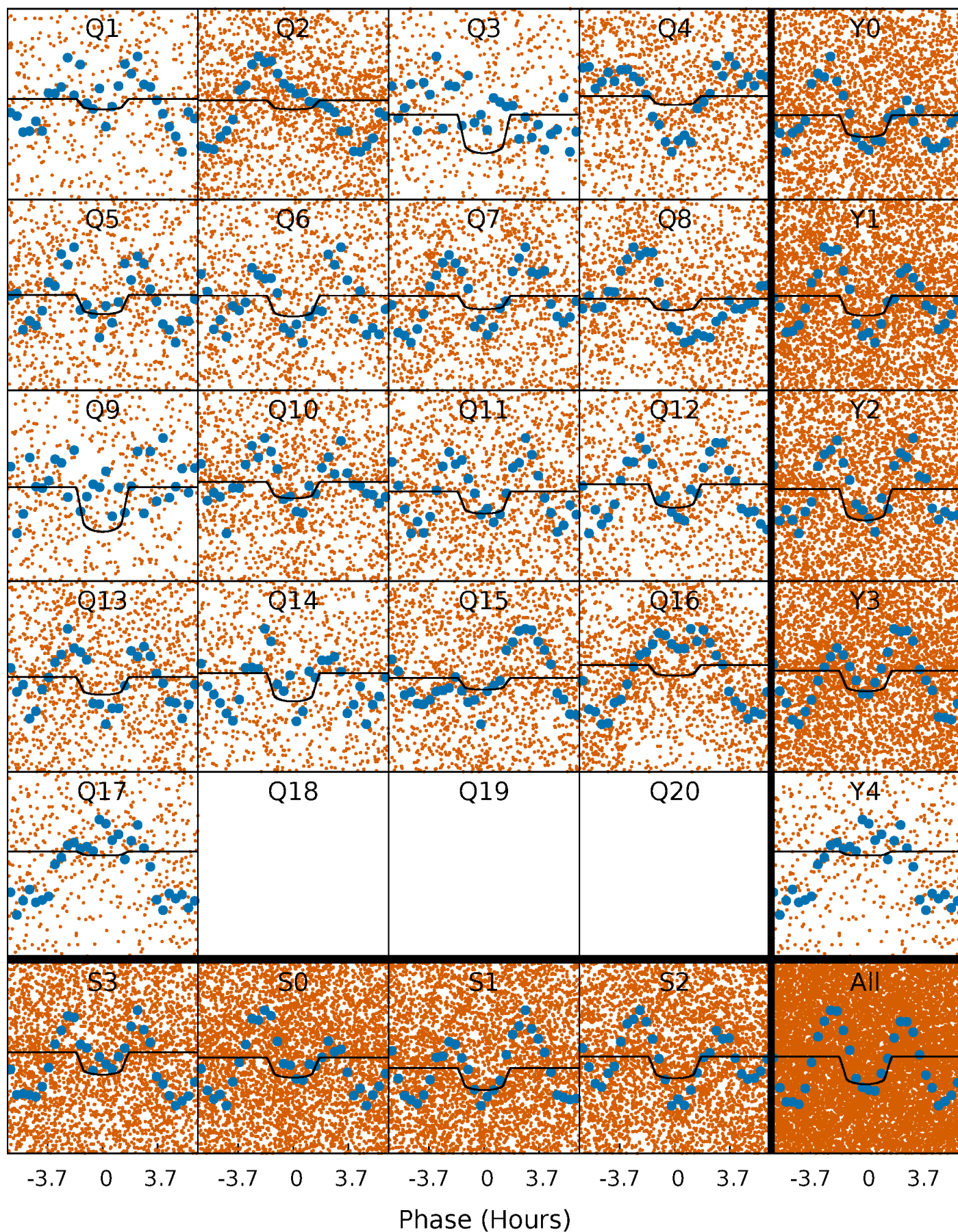
PDC Quarter-Phased Transit Curves

TCE 011657371-01 P= 0.841569 Days $T_0=132.092564$ (BKJD)



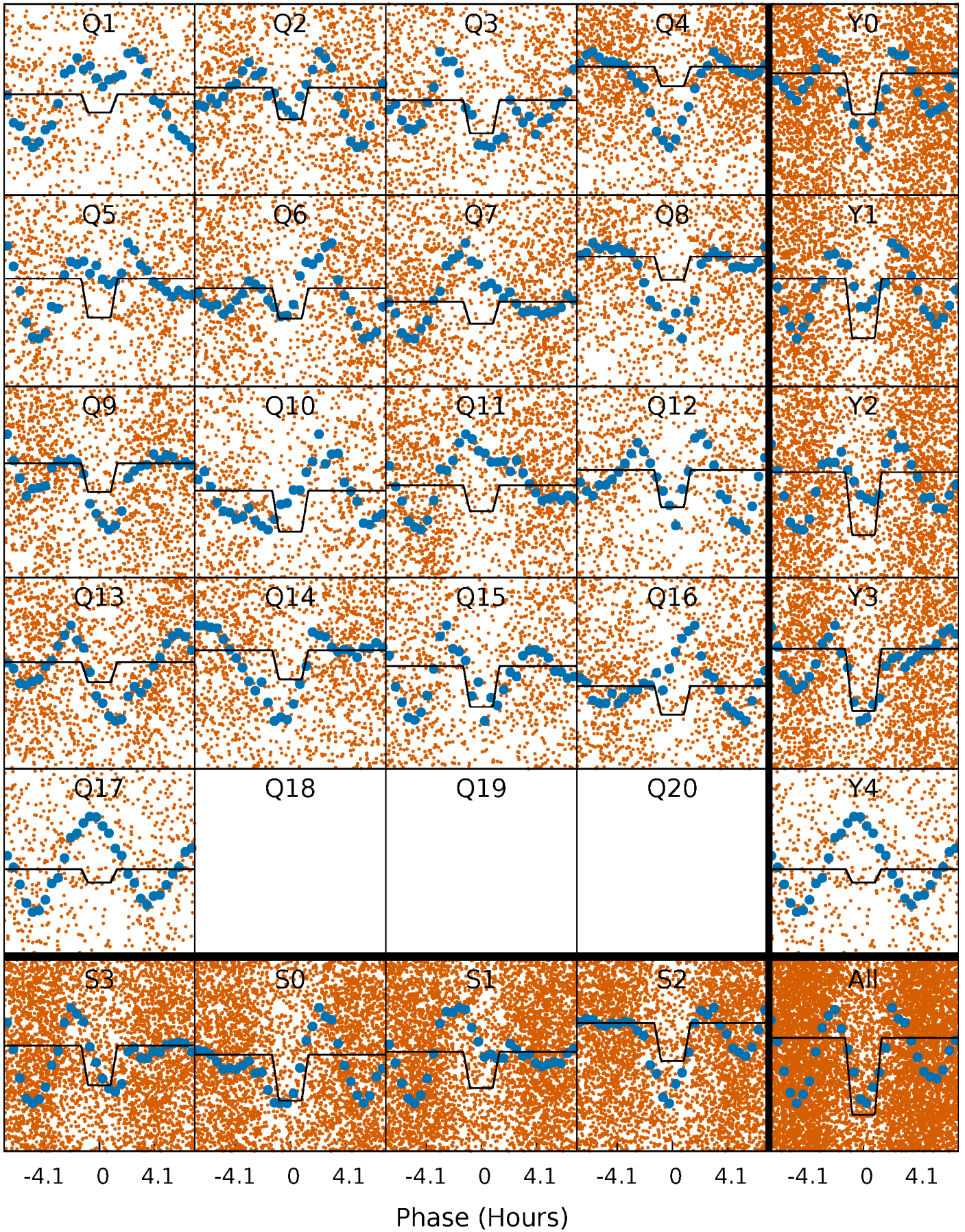
DV Quarter-Phased Transit Curves

TCE 011657371-01 P= 0.841569 Days $T_0=132.092564$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

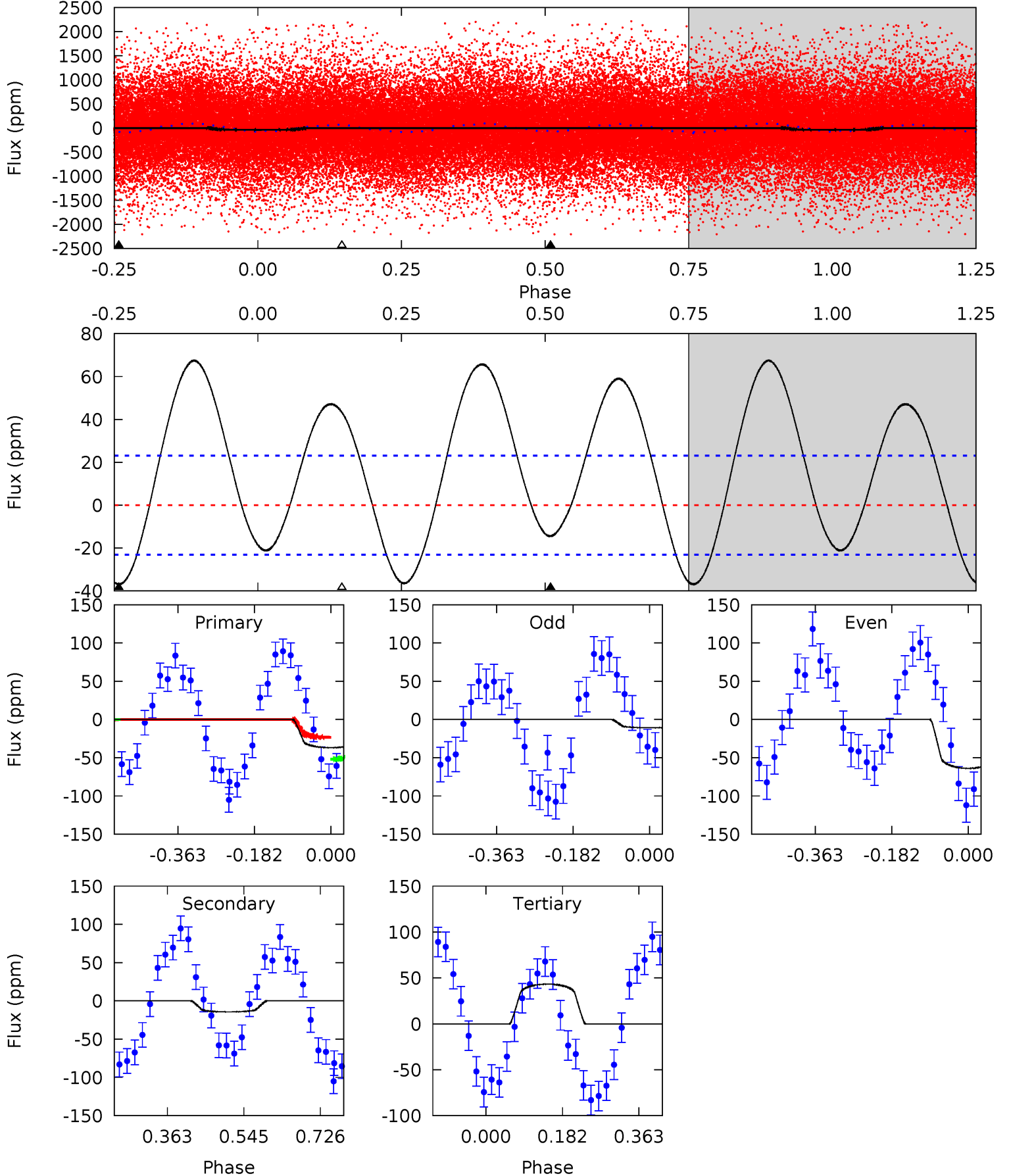
TCE 011657371-01 P= 0.841584 Days $T_0=132.084207$ (BKJD)



DV Model-Shift Uniqueness Test

011657371-01, P = 0.841569 Days, E = 131.250995 Days

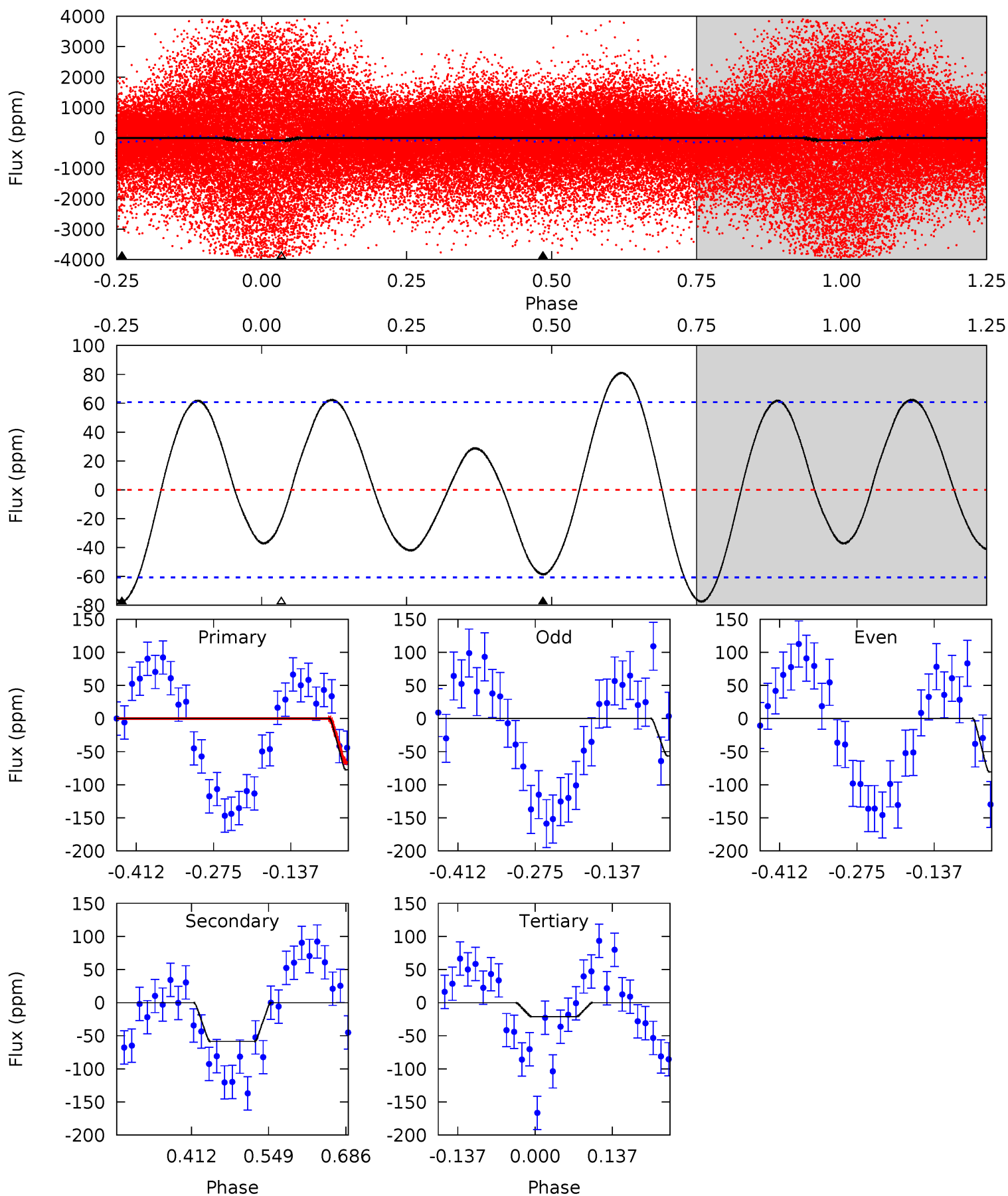
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.09	2.78	-8.32	0	4.44	1.34	4.98	15.4	7.09	11.1	2.78	5.14	1.11	0.65	2.75



Alt Model-Shift Uniqueness Test

011657371-01, P = 0.841584 Days, E = 131.242623 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.74	4.35	1.57	0	4.50	1.49	2.54	4.17	5.74	2.78	4.35	0.94	1.85	0.51	0.06



Stellar Parameters For KIC 011657371

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7347^{+206}_{-353}	$4.149^{+0.102}_{-0.189}$	$0.100^{+0.200}_{-0.350}$	$1.772^{+0.545}_{-0.294}$	$1.616^{+0.193}_{-0.235}$	$0.409^{+0.200}_{-0.215}$
	+3%/-5%	+2%/-5%	+200%/-350%	+31%/-17%	+12%/-15%	+49%/-53%
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 011657371-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14 ± 5	$1.49^{+0.38}_{-0.31}$	4250^{+306}_{-281}	4861^{+740}_{-719}	$1.397^{+1.143}_{-0.637}$
Alt.	-59 ± 13	$2.61^{+0.49}_{-0.39}$	4253^{+341}_{-255}	5318^{+496}_{-493}	$1.935^{+0.871}_{-0.666}$

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

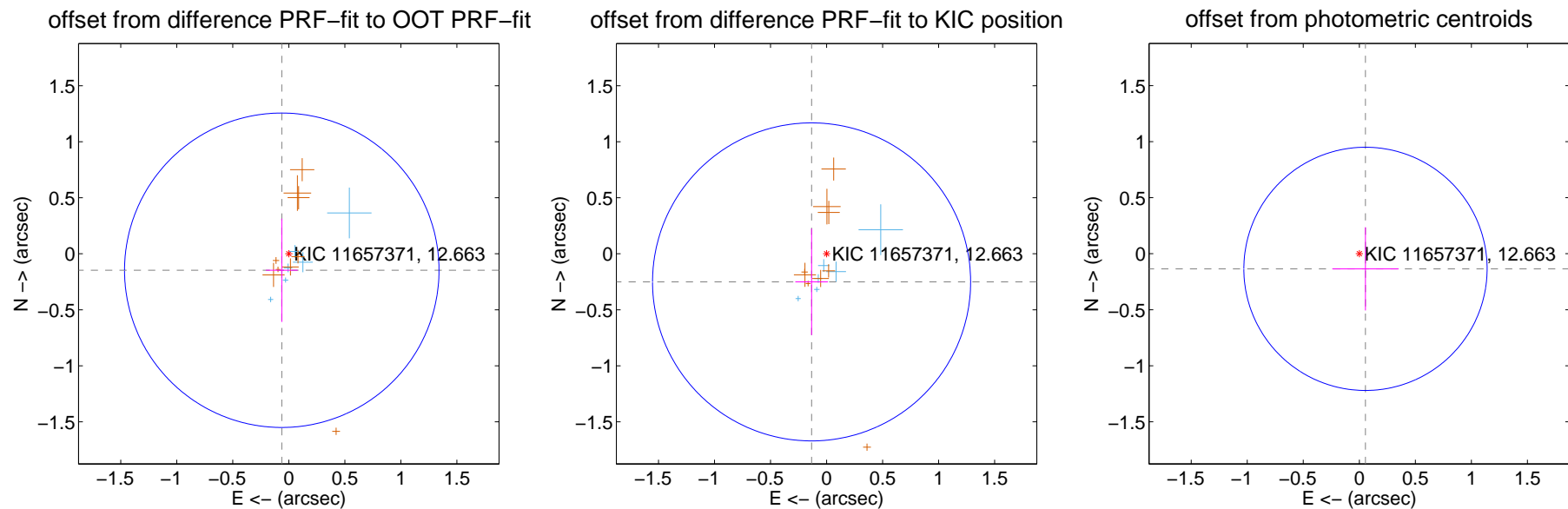
DV Centroid Data

Supplemental centroid analysis for 011657371-01. Kepler magnitude: 12.66. Transit SNR 9.49

There are 6 quarters with good PRF difference image offsets

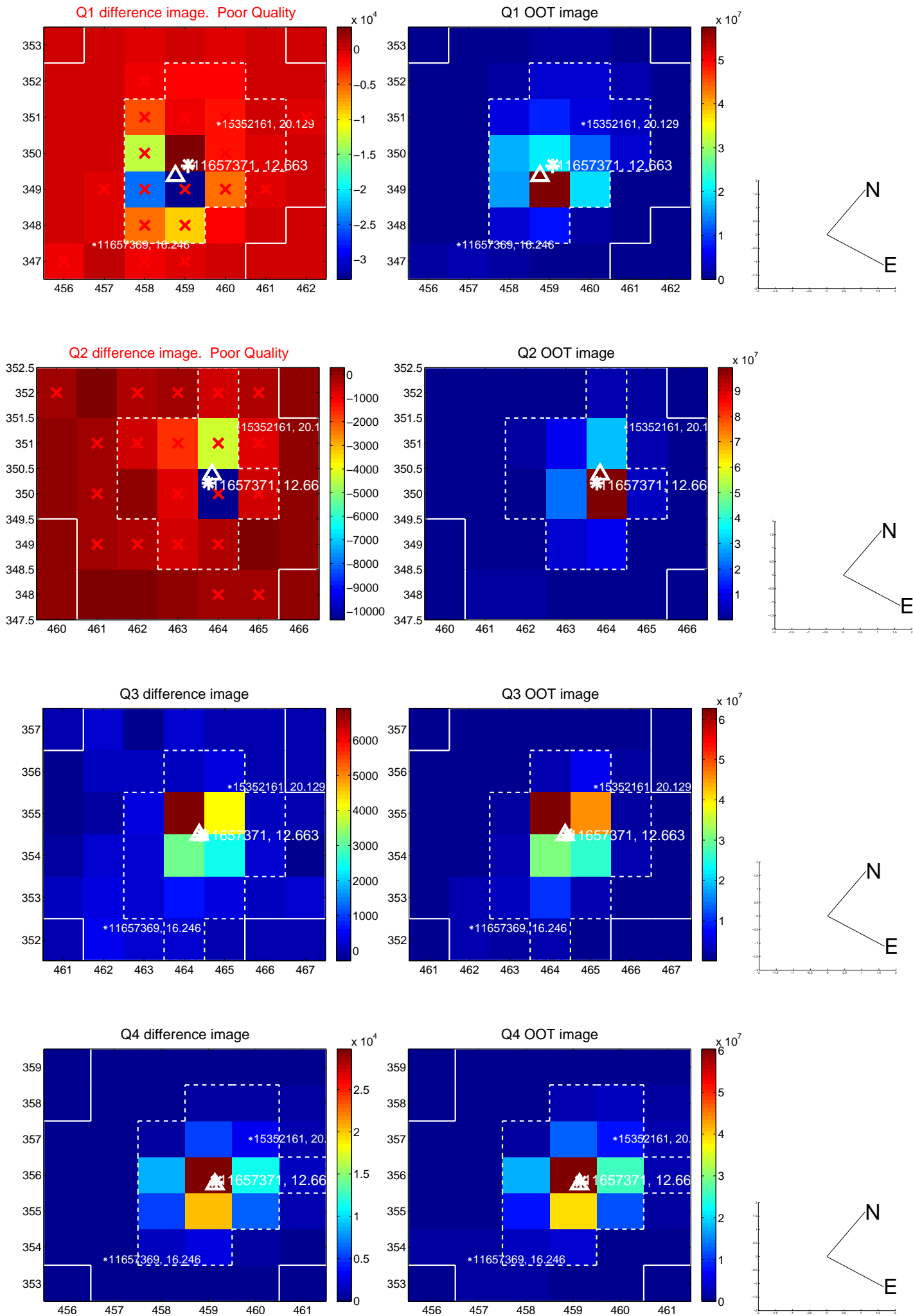
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.160 ± 0.468	0.34	0.063 ± 0.142	-0.147 ± 0.461
PRF-fit source offset from KIC position	0.284 ± 0.473	0.60	0.134 ± 0.146	-0.251 ± 0.475
photometric centroid source offset	0.15 ± 0.36	0.40	-0.05 ± 0.30	-0.14 ± 0.37

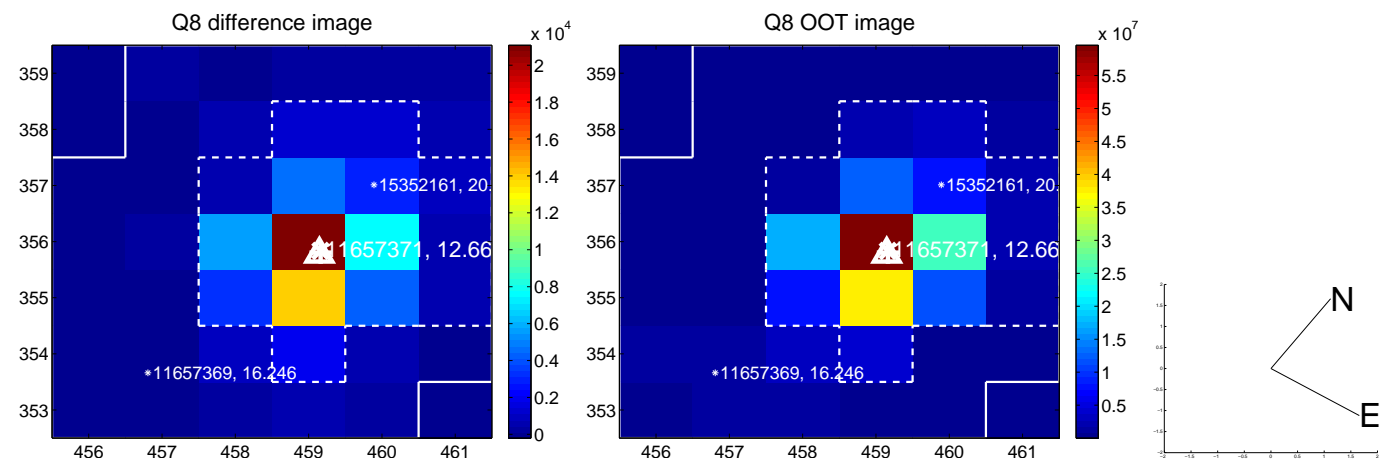
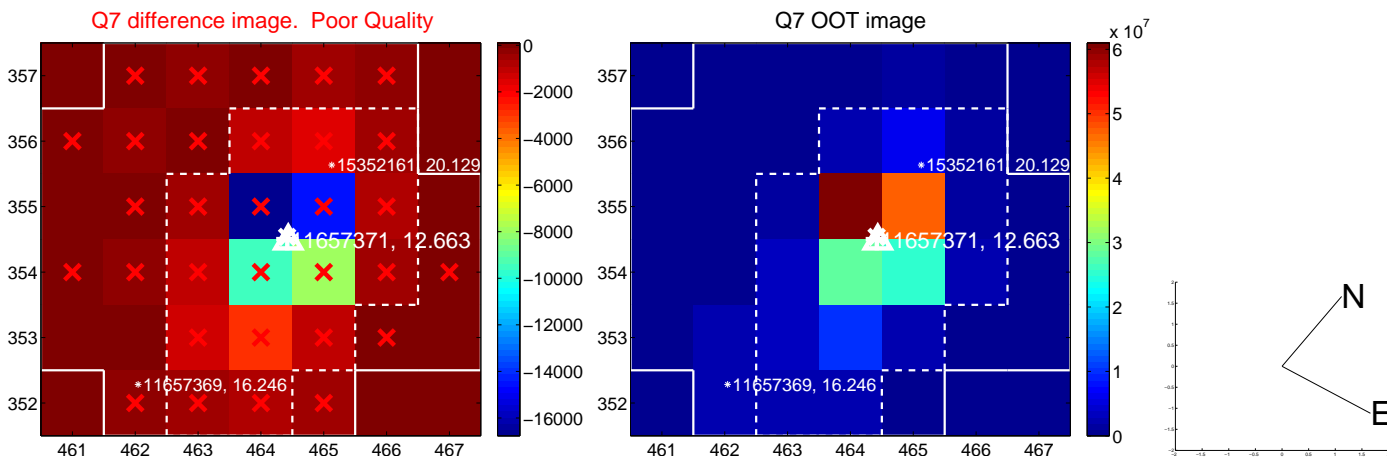
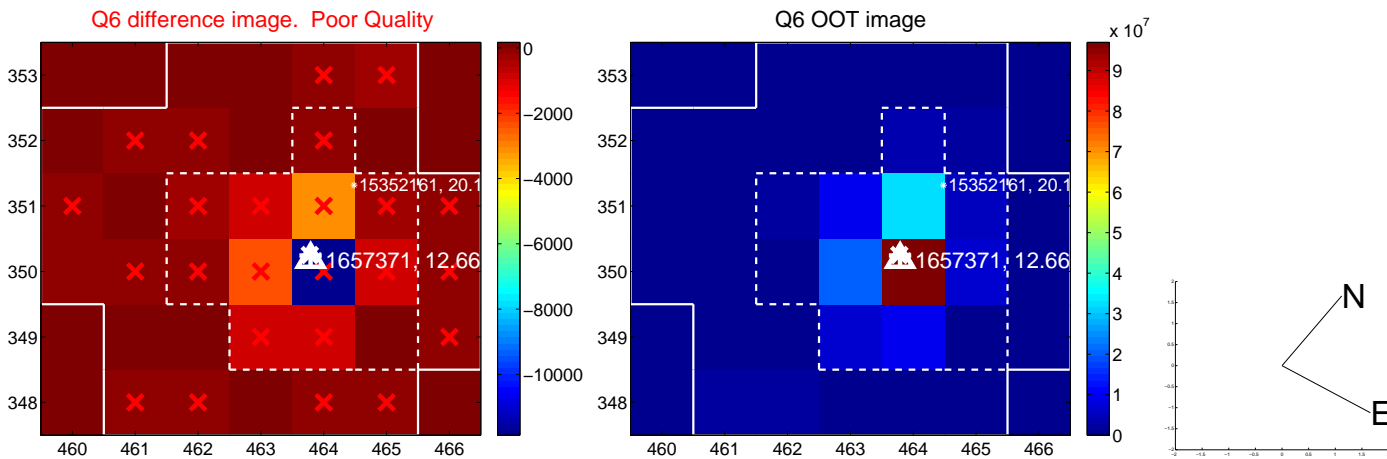
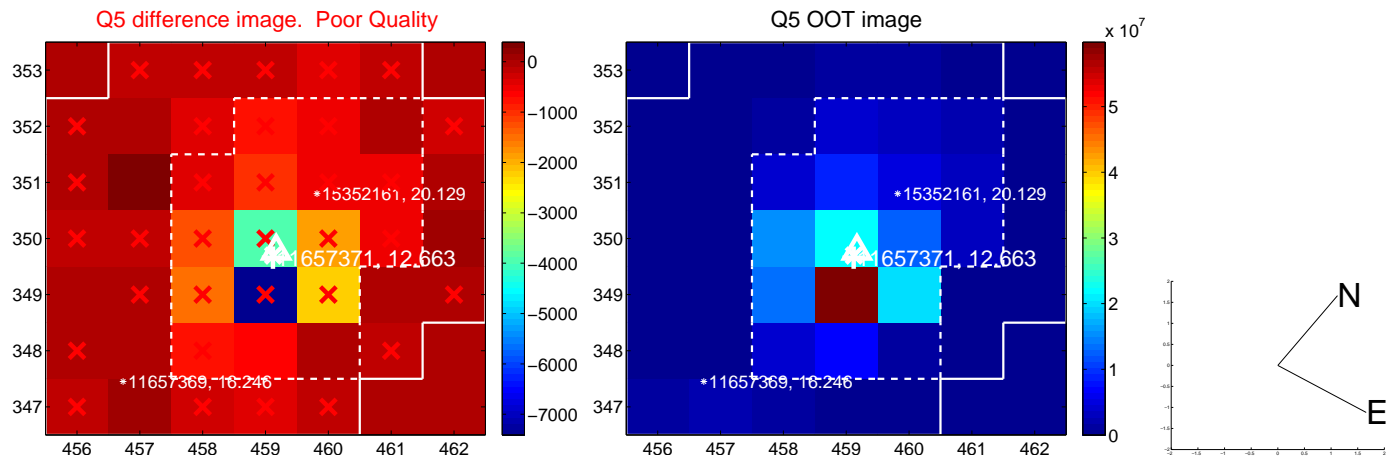


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

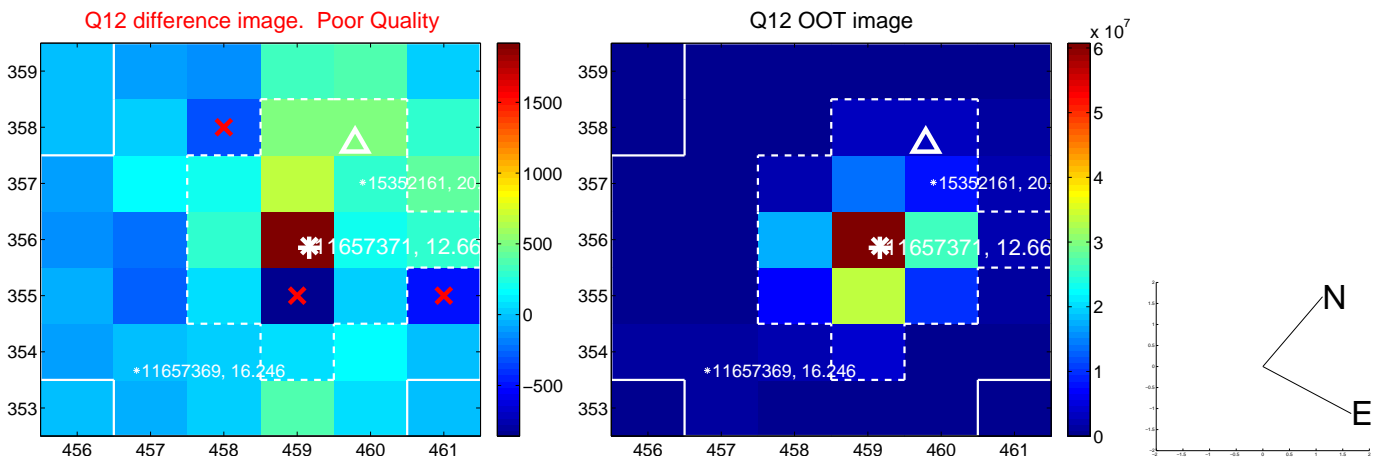
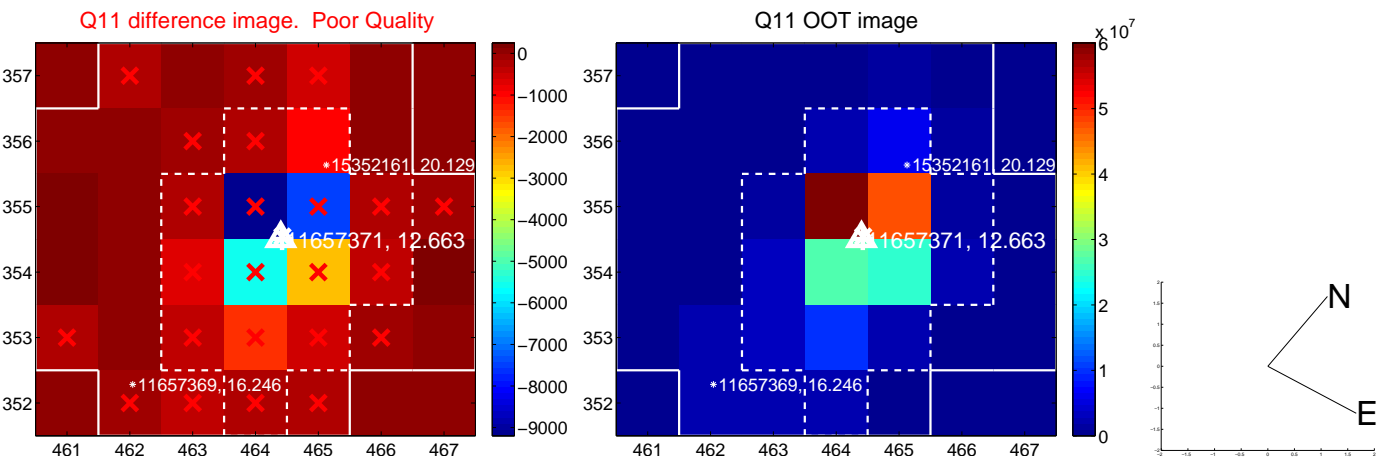
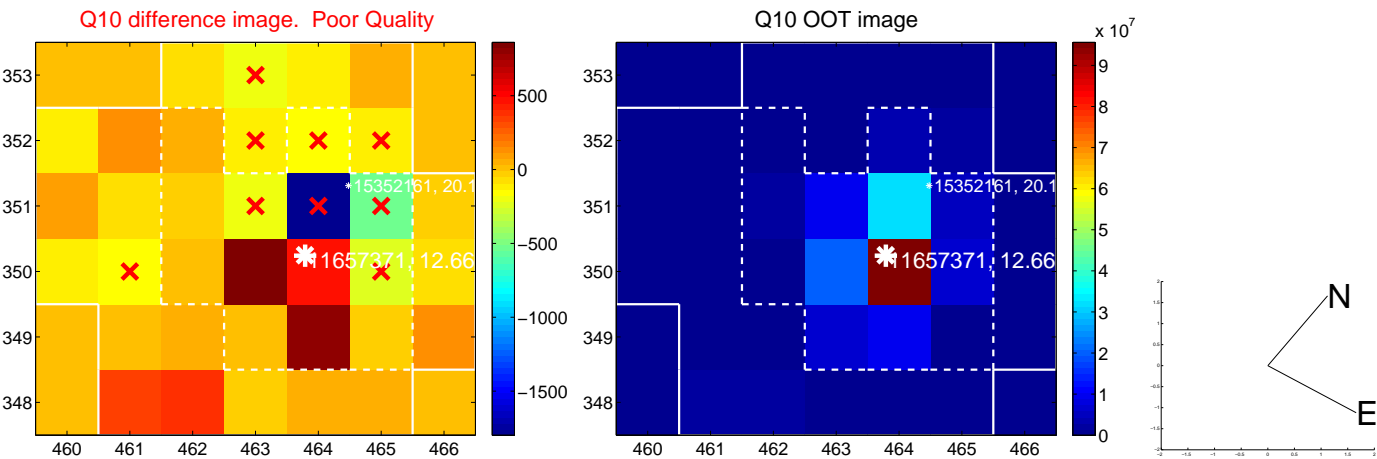
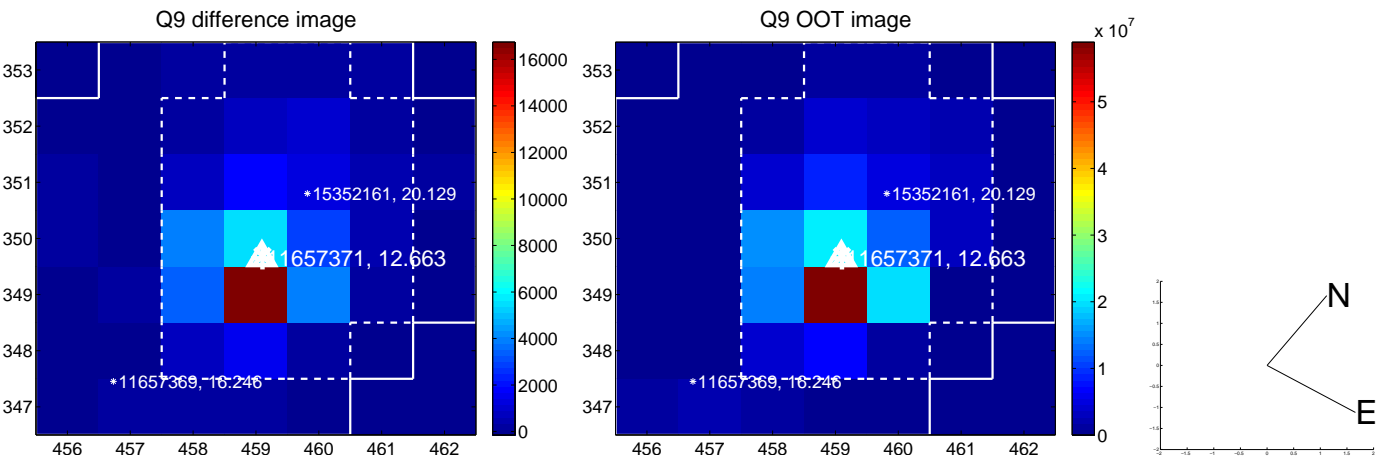
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



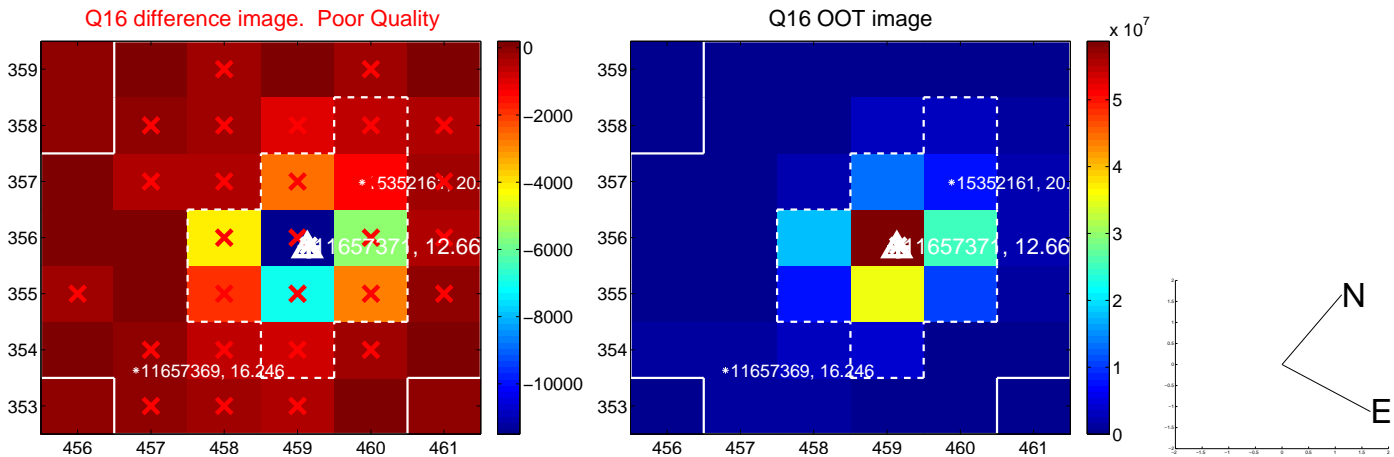
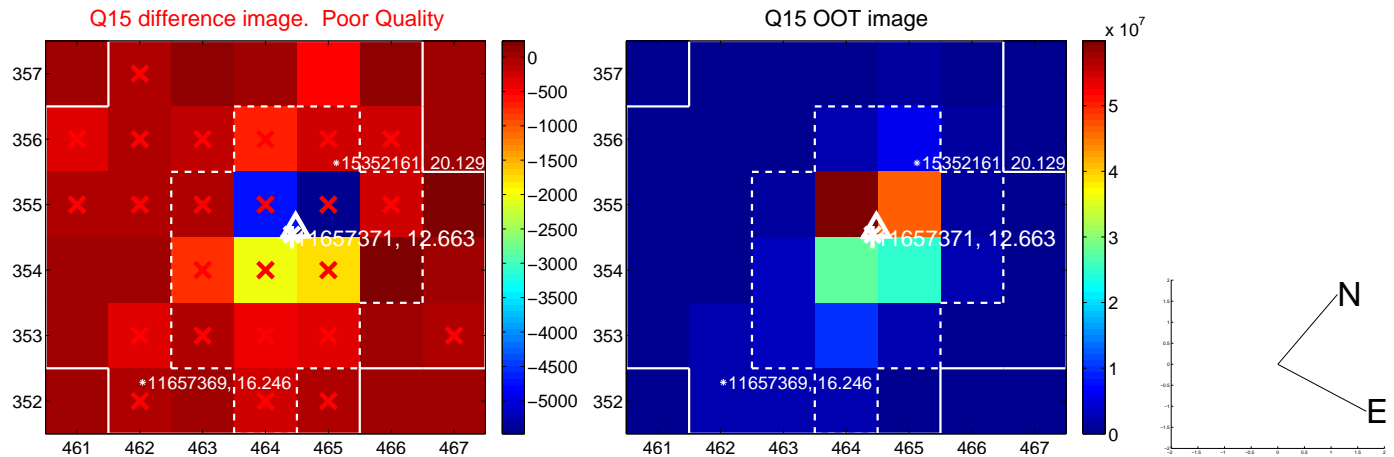
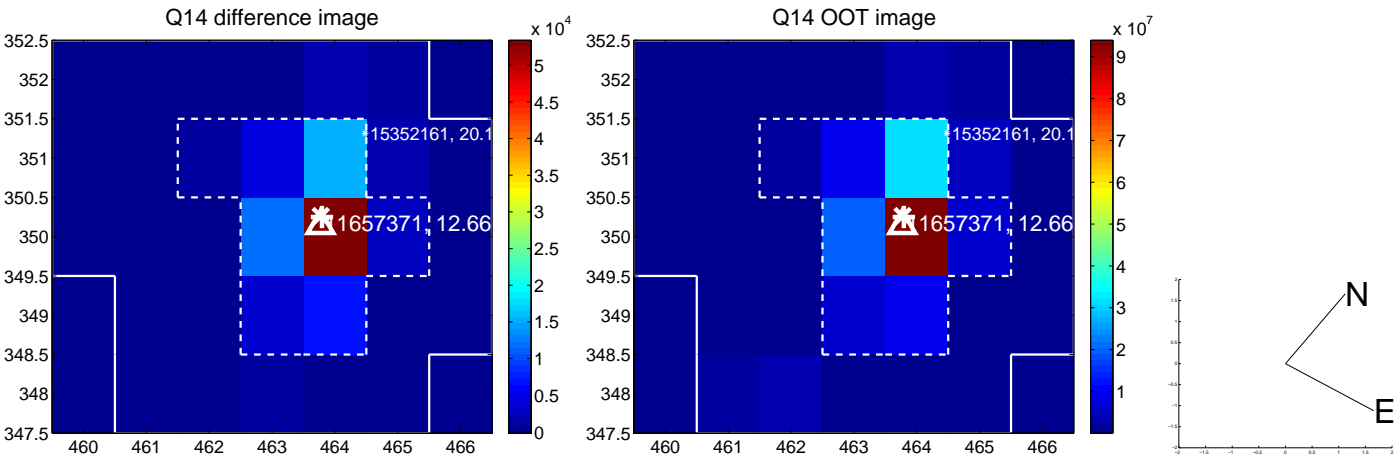
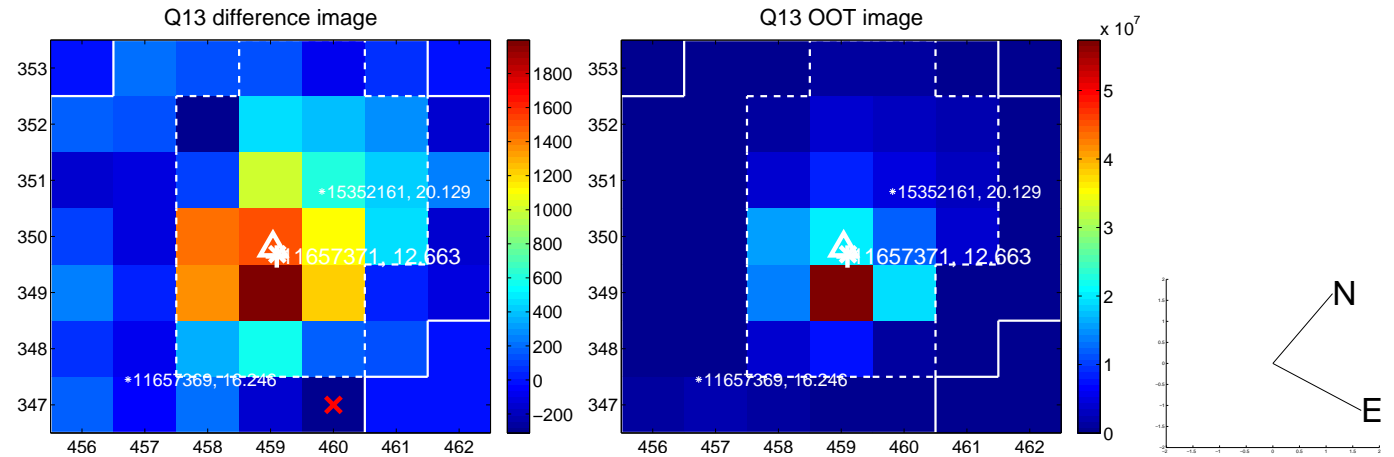
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



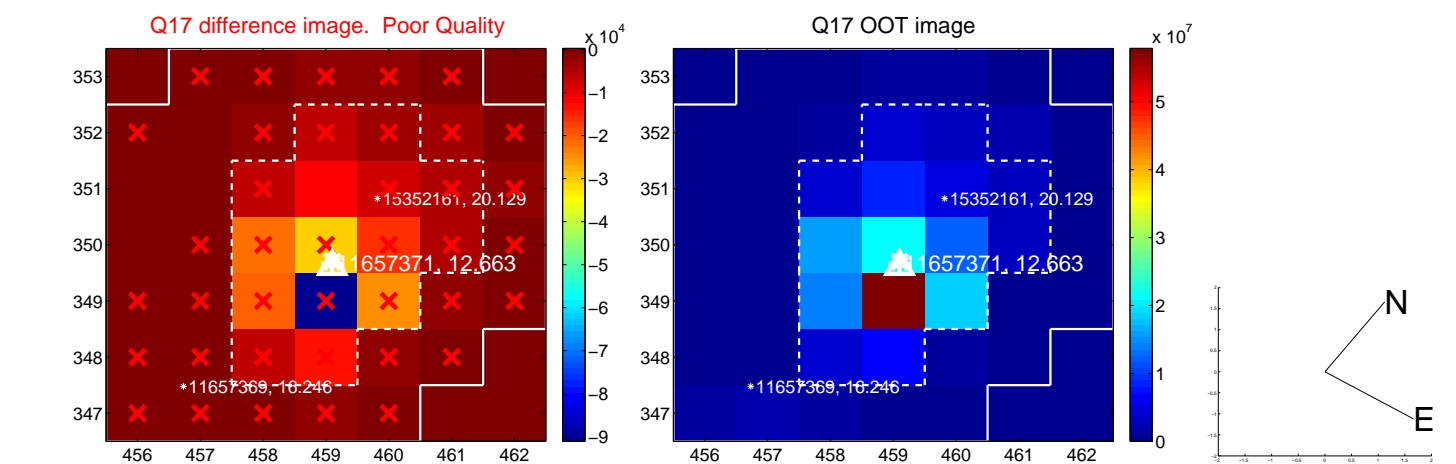
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



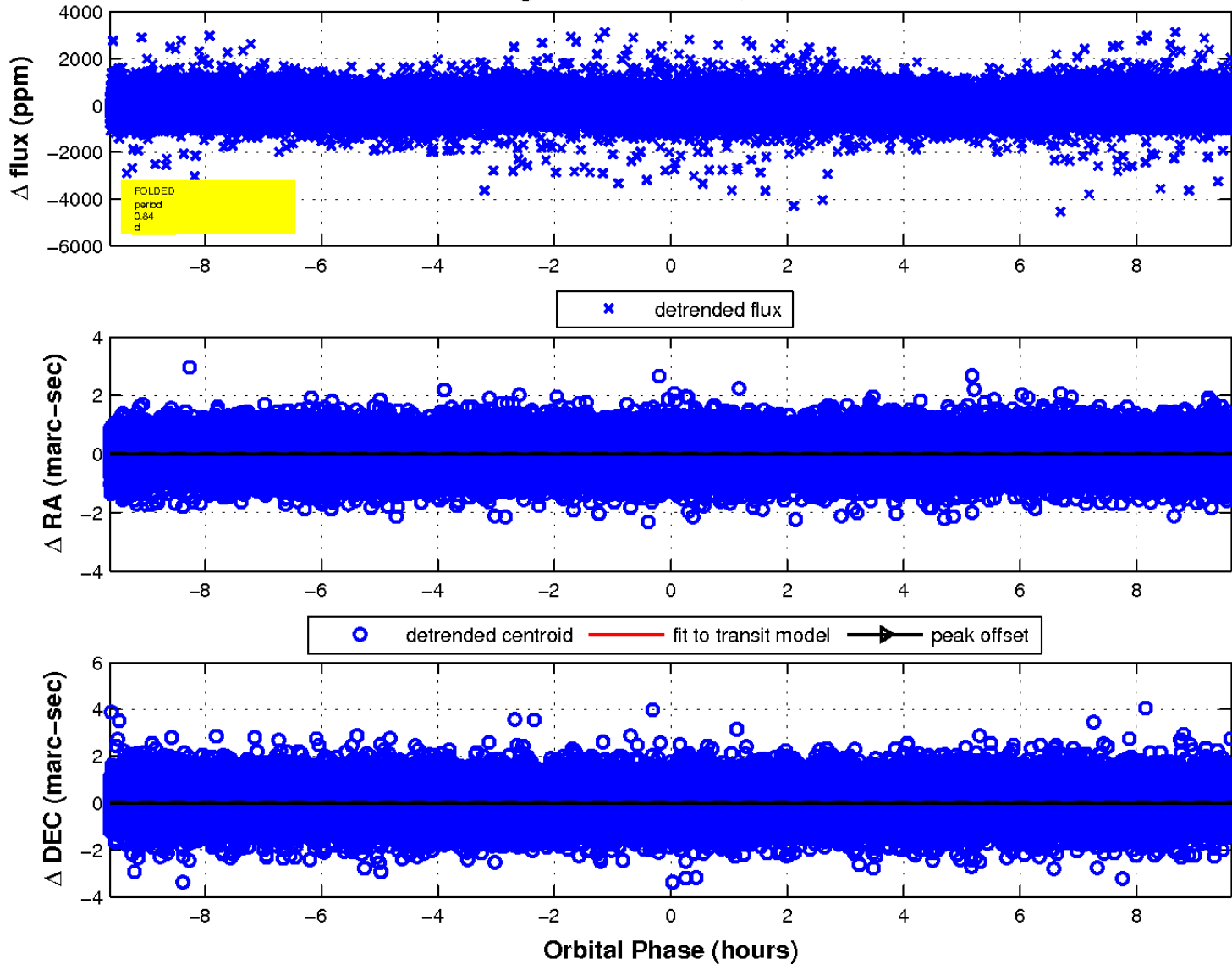
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

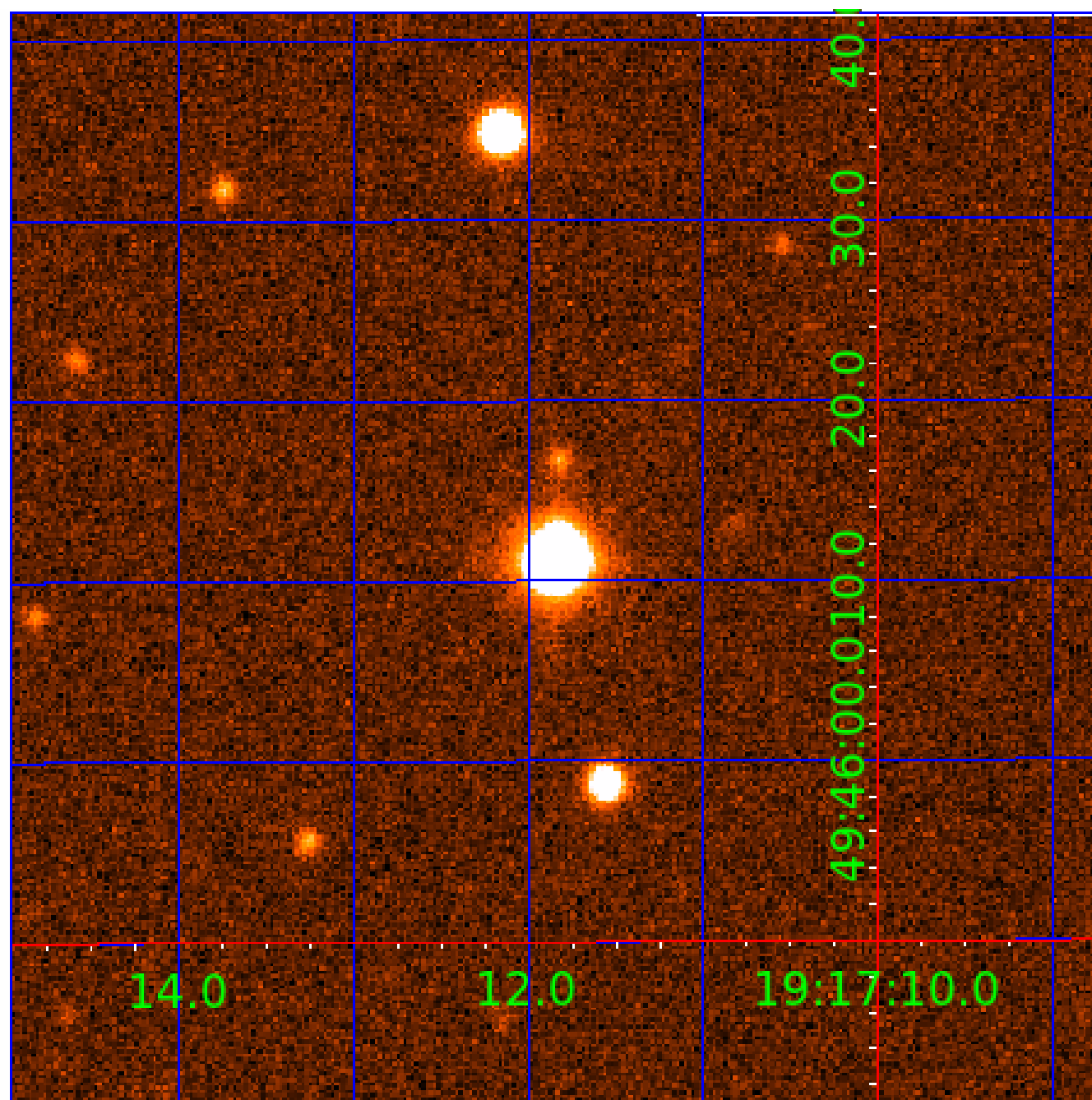


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011657371

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})
011657371-01	OBS	No	0.841569	132.092564	51.4	3.211	8.9	9.5	1.77	7347	1.48	19567.00
011657371-02	OBS	No	0.841557	131.677903	64.2	3.326	12.3	11.8	1.77	7347	1.65	19567.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011657371-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011657371-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

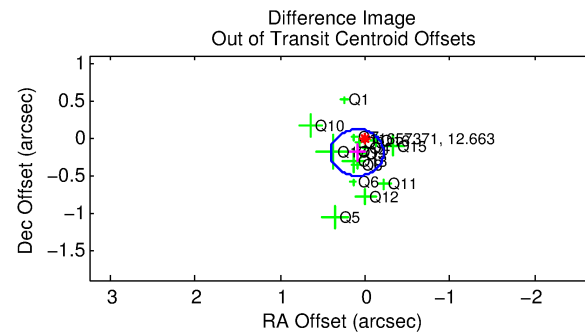
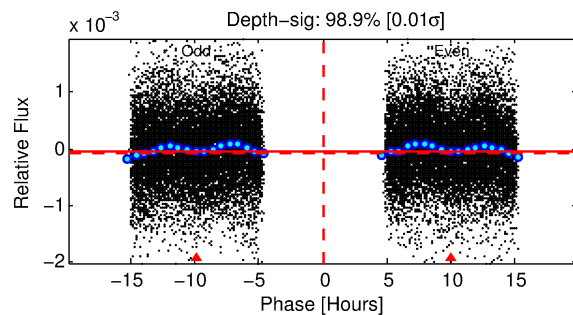
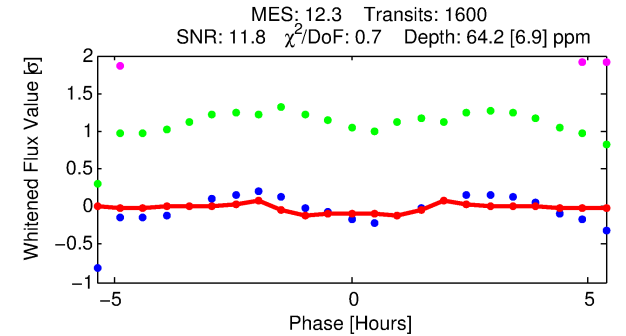
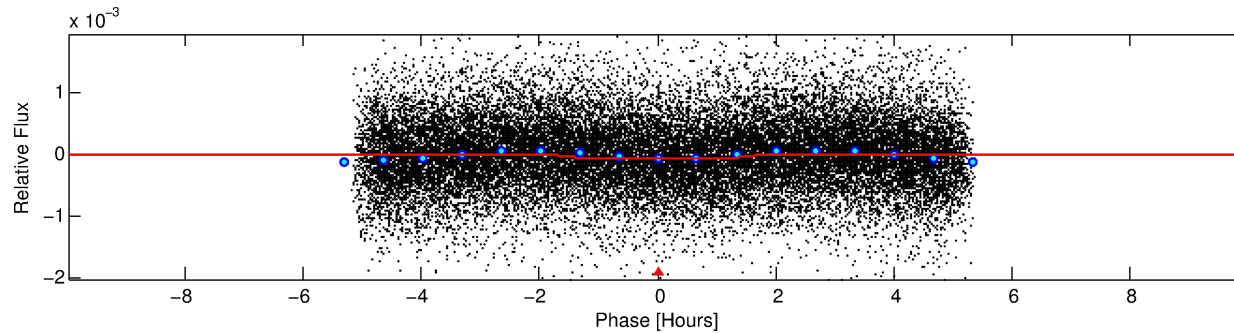
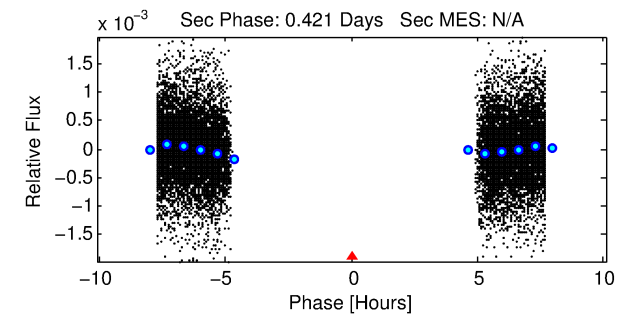
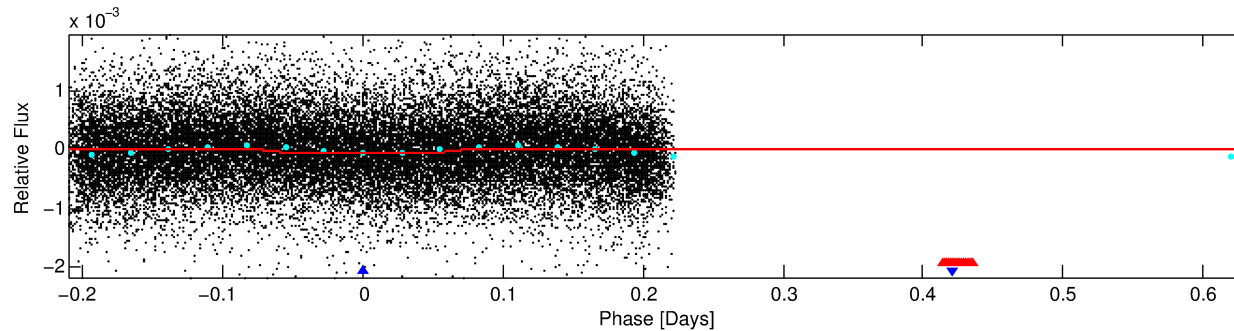
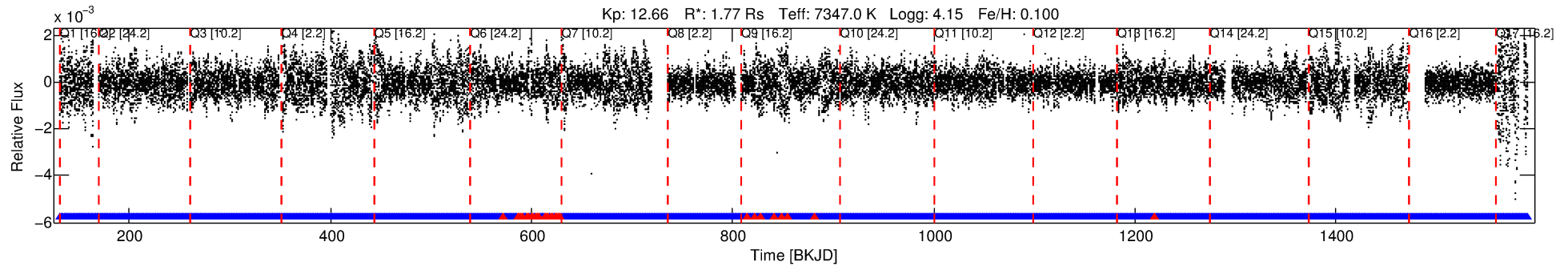
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011657371-02

No Significant Match Found

DV One-Page Summary

KIC: 11657371 Candidate: 2 of 2 Period: 0.842 d



DV Fit Results:

Period = 0.84156 [0.00001] d
Epoch = 131.6779 [0.0014] BKJD
Rp/R* = 0.0085 [0.0014]
a/R* = 1.28 [0.48]
b = 0.90 [0.20]
Seff = 19567.36 [7903.64]
Teq = 3016 [305] K
Rp = 1.65 [0.57] Re
a = 0.0205 [0.0051] AU

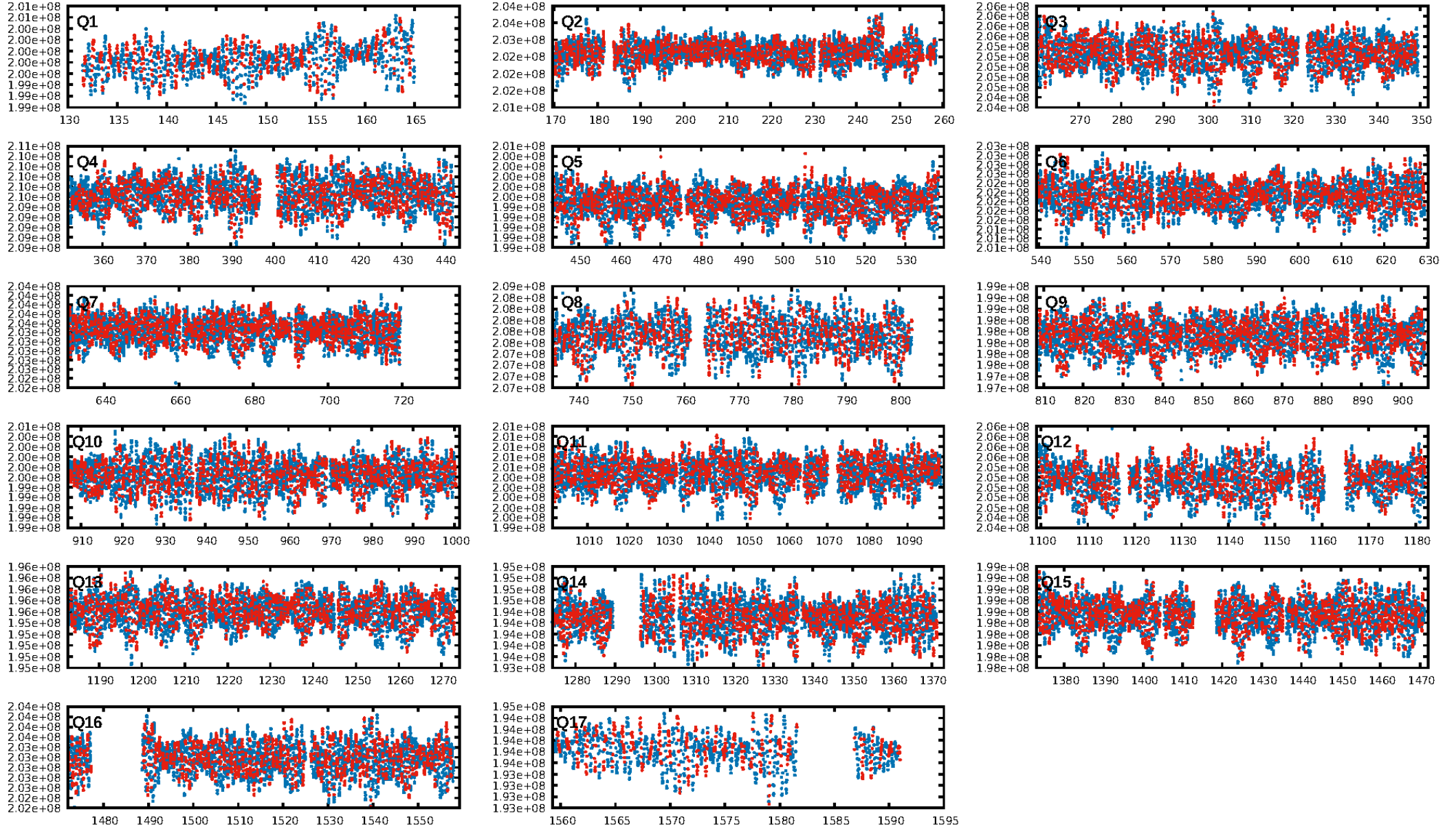
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1497/1529]
GhostDiagnostic-chr: 0.527
Centroid-sig: 0.0%
Centroid-so: 0.713 arcsec [2.50σ]
OotOffset-rm: 0.219 arcsec [2.10σ]
KicOffset-rm: 0.302 arcsec [2.95σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [17/17]

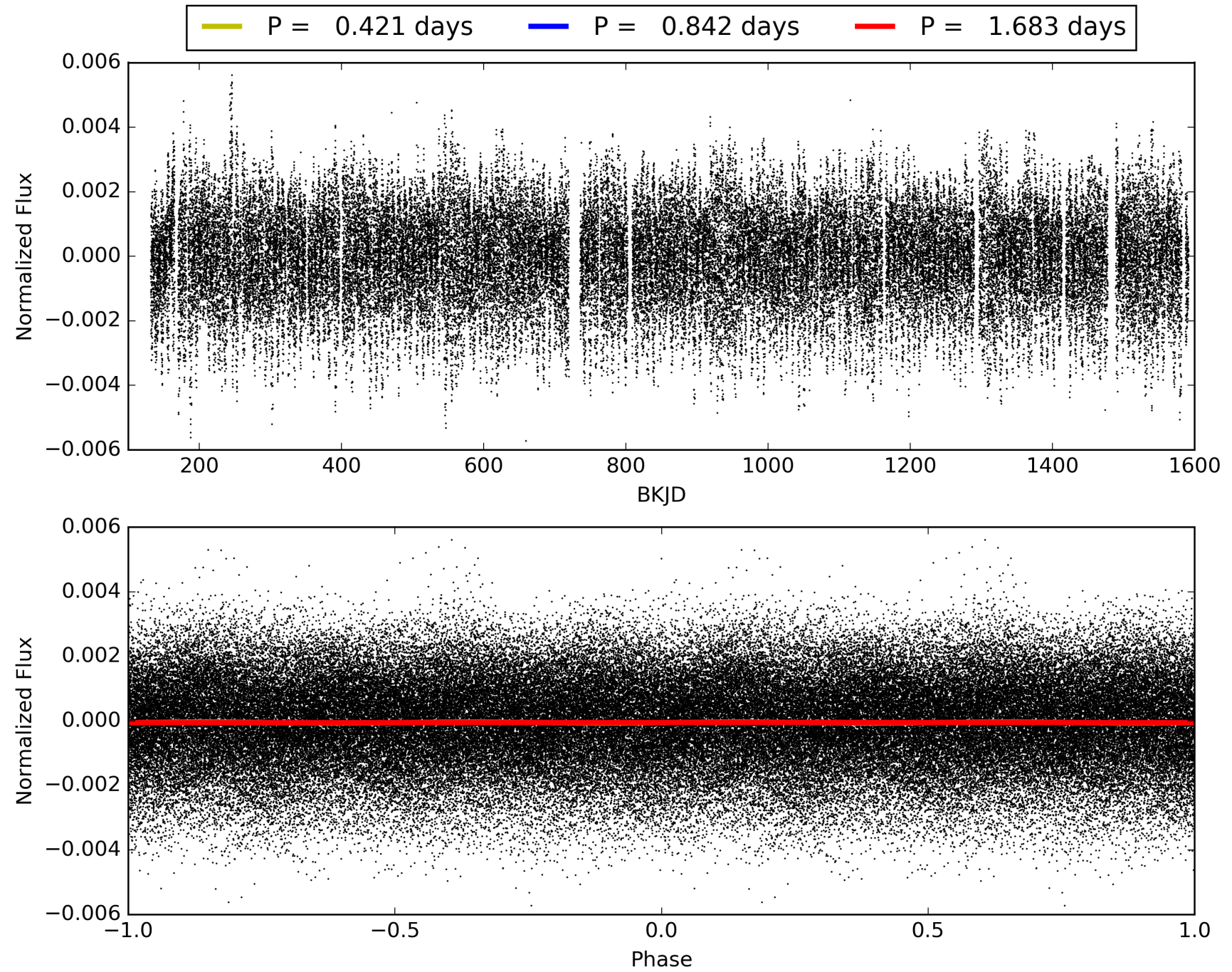
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:23:00 Z

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

TCE 011657371-02, PDC Light Curves

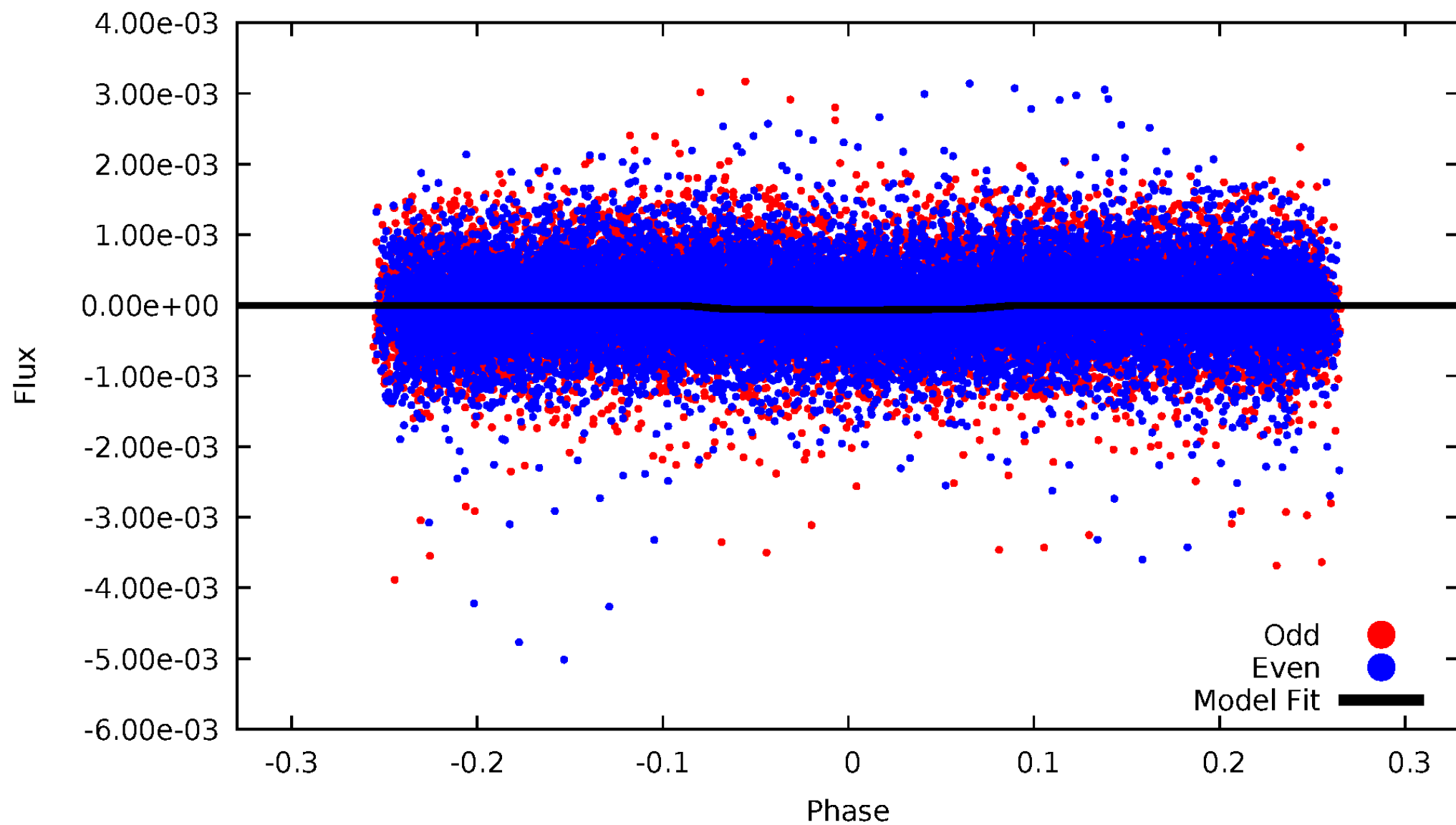


TCE 011657371-02



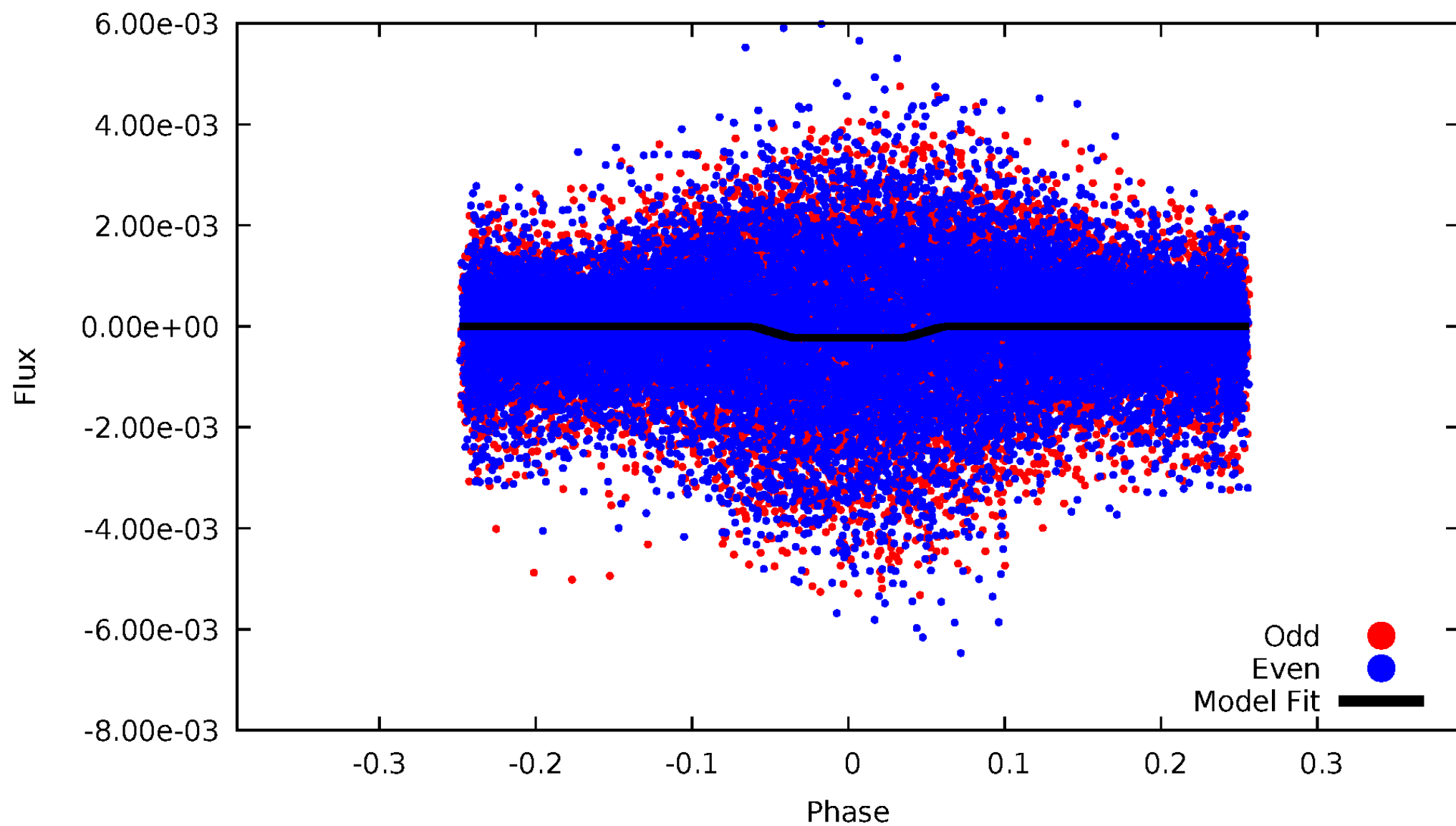
DV Odd/Even

TCE 011657371-02



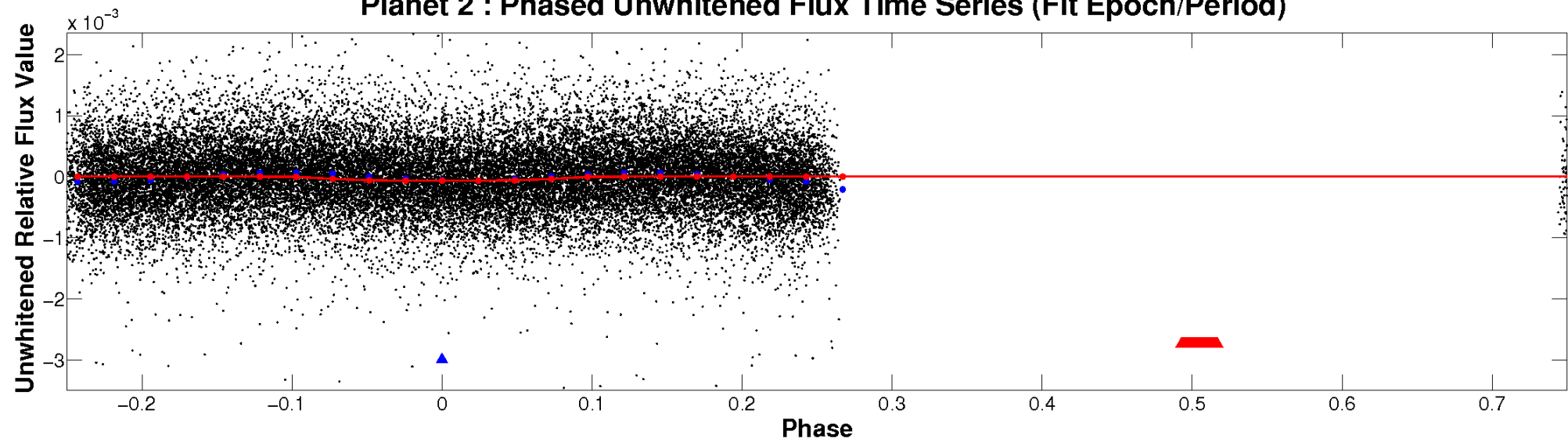
ALT Odd/Even

TCE 011657371-02

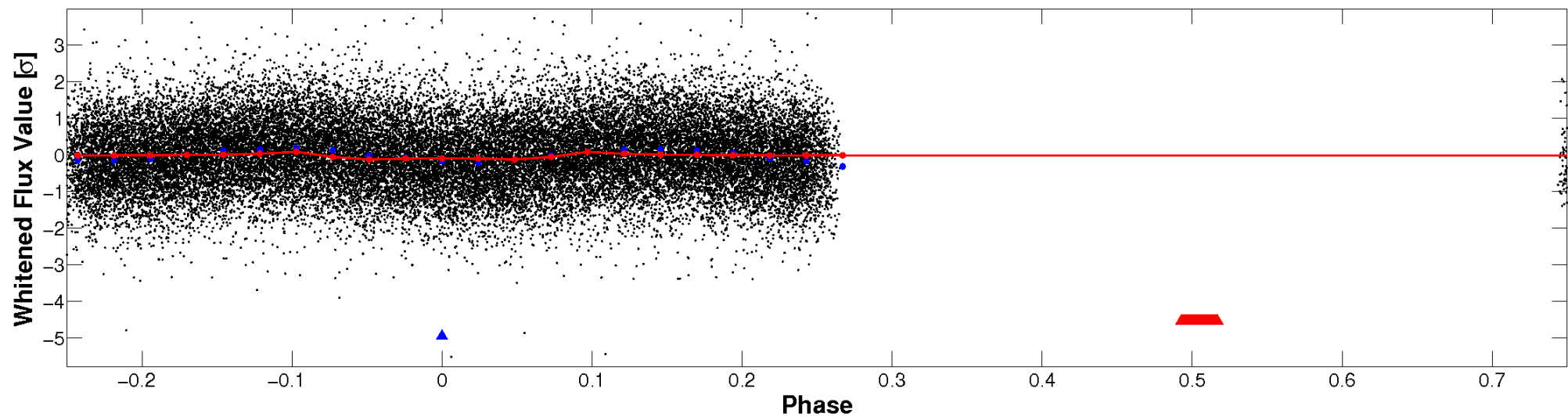


Non-Whitened Vs. Whitened Light Curve

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

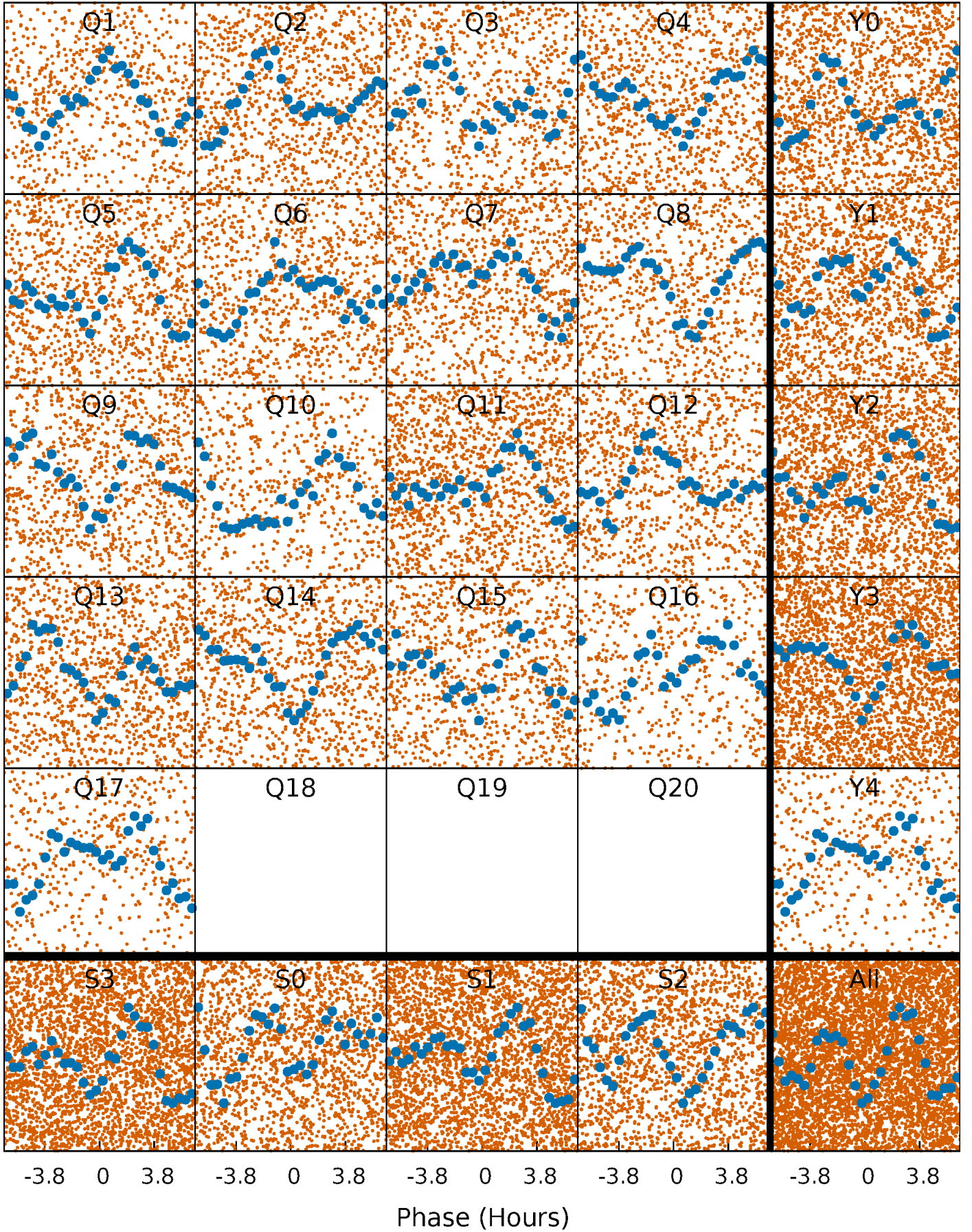


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



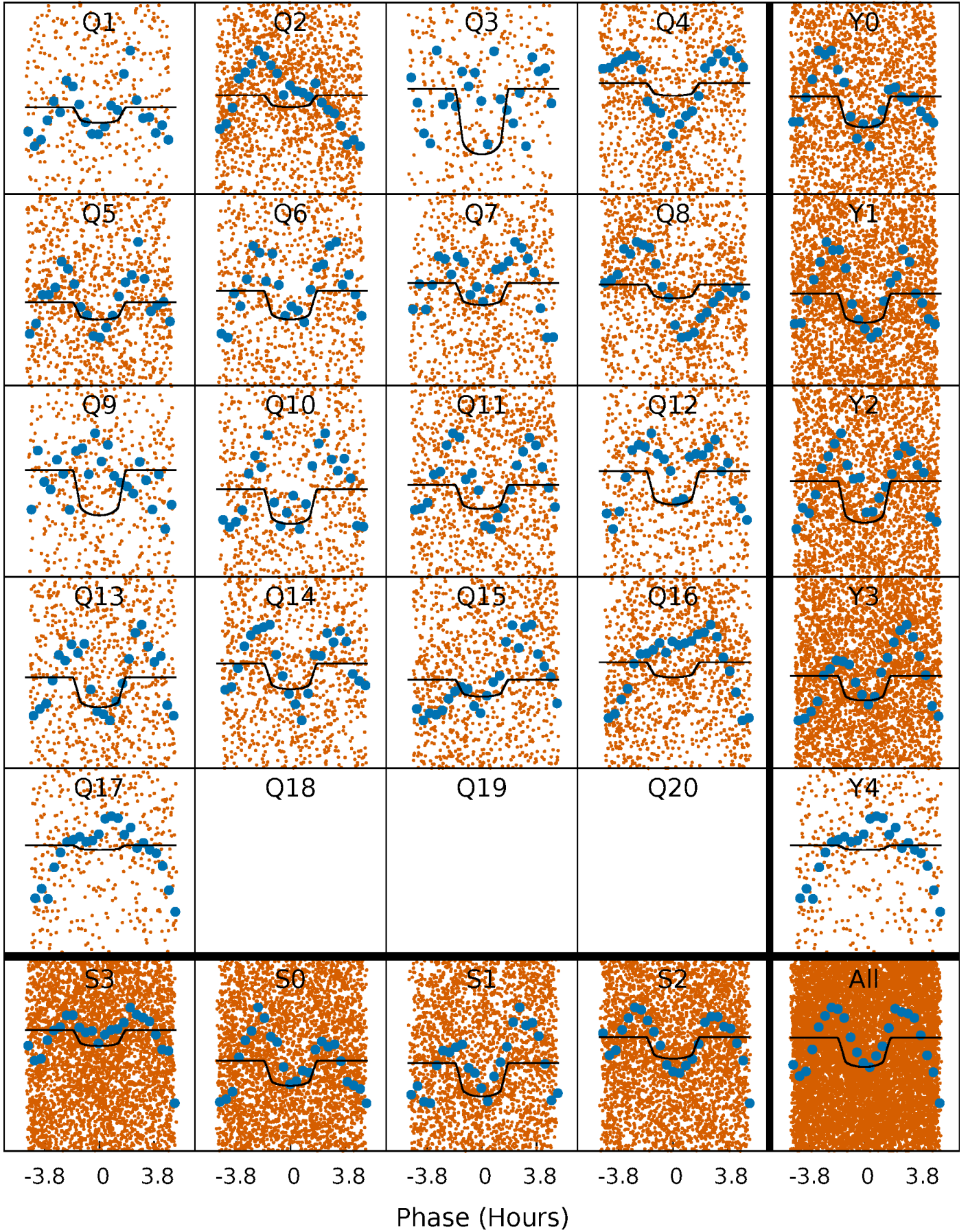
PDC Quarter-Phased Transit Curves

TCE 011657371-02 P= 0.841557 Days $T_0=131.677903$ (BKJD)



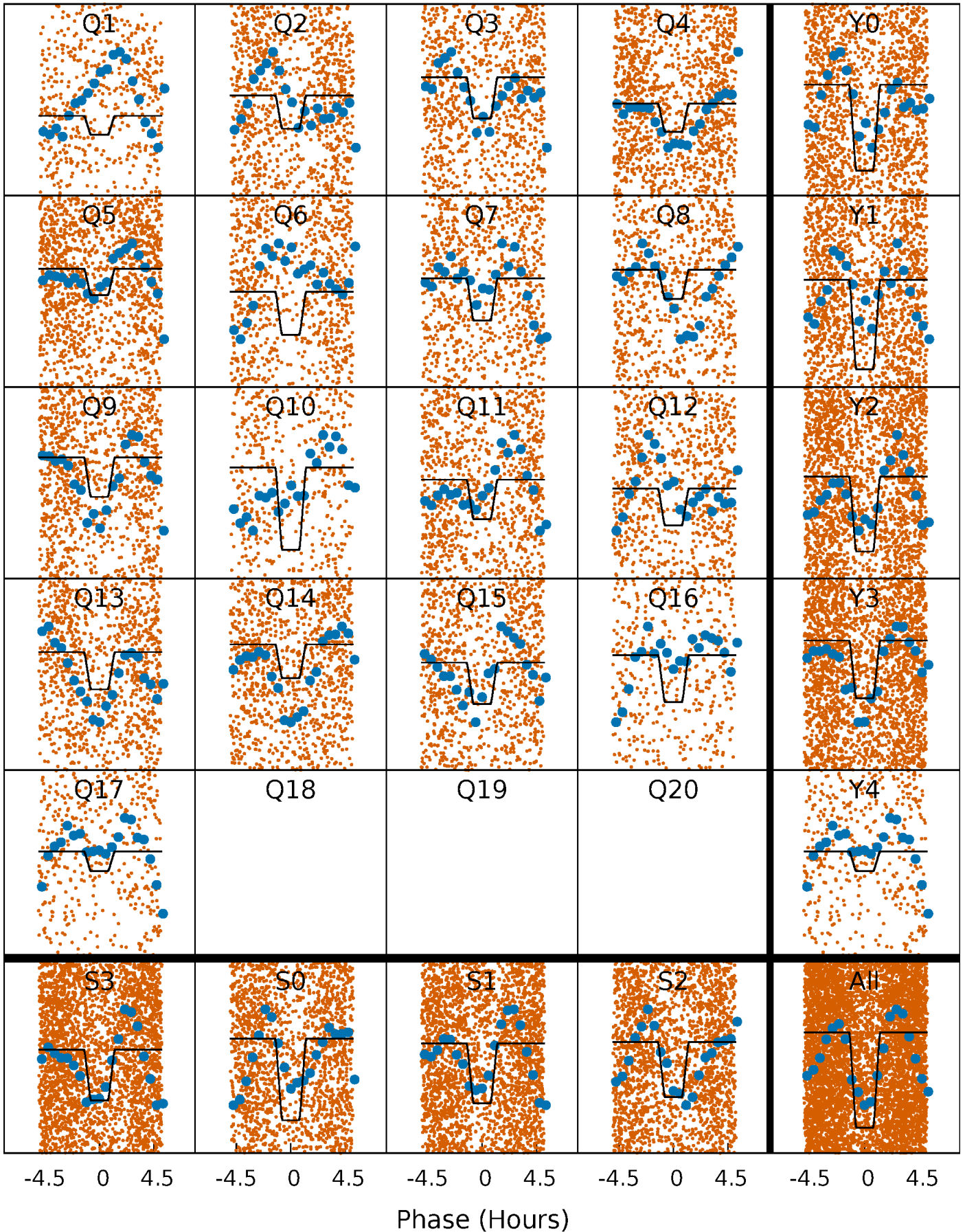
DV Quarter-Phased Transit Curves

TCE 011657371-02 P= 0.841557 Days $T_0=131.677903$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

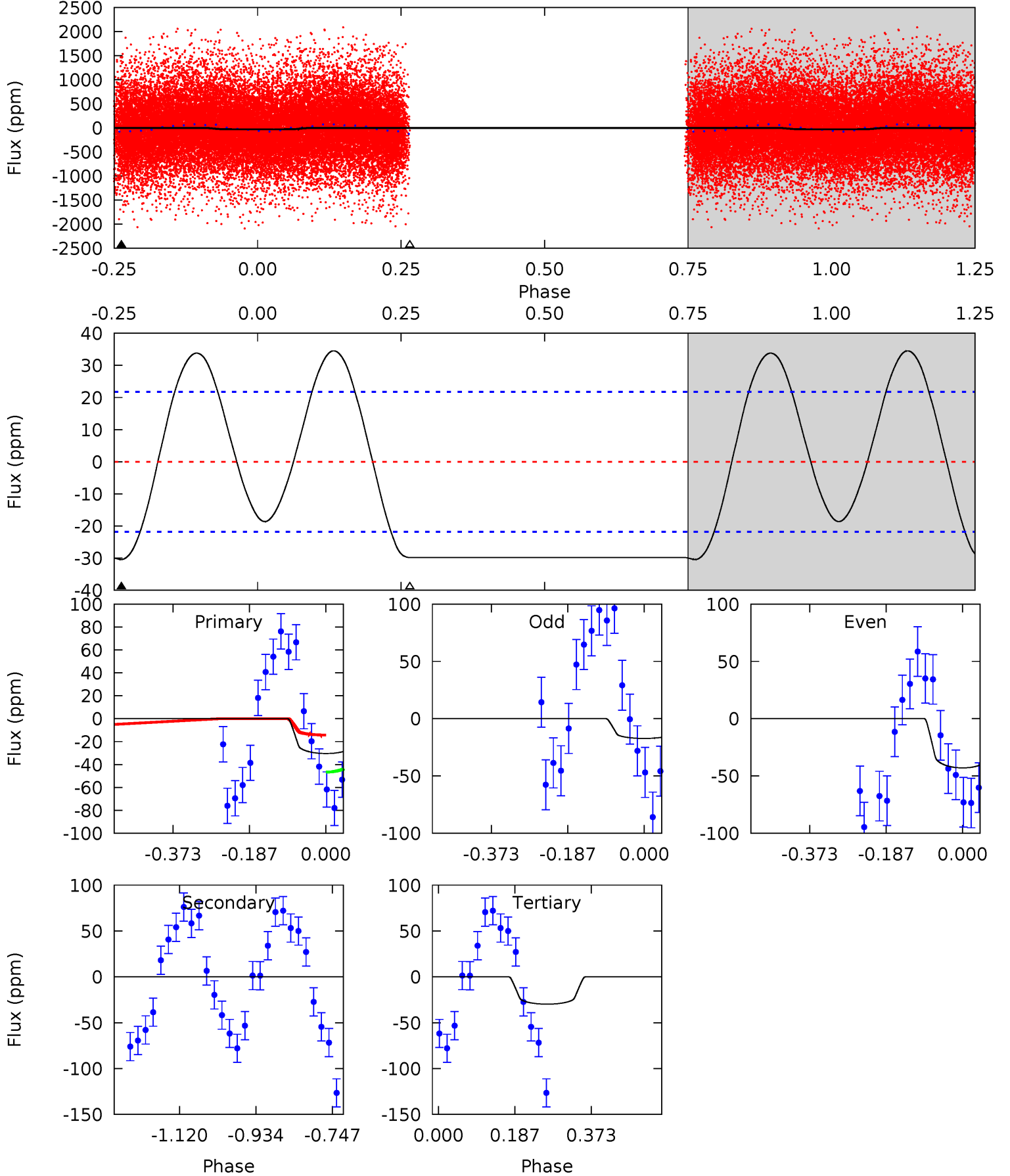
TCE 011657371-02 $P = 0.841572$ Days $T_0 = 131.665791$ (BKJD)



DV Model-Shift Uniqueness Test

011657371-02, P = 0.841557 Days, E = 130.836346 Days

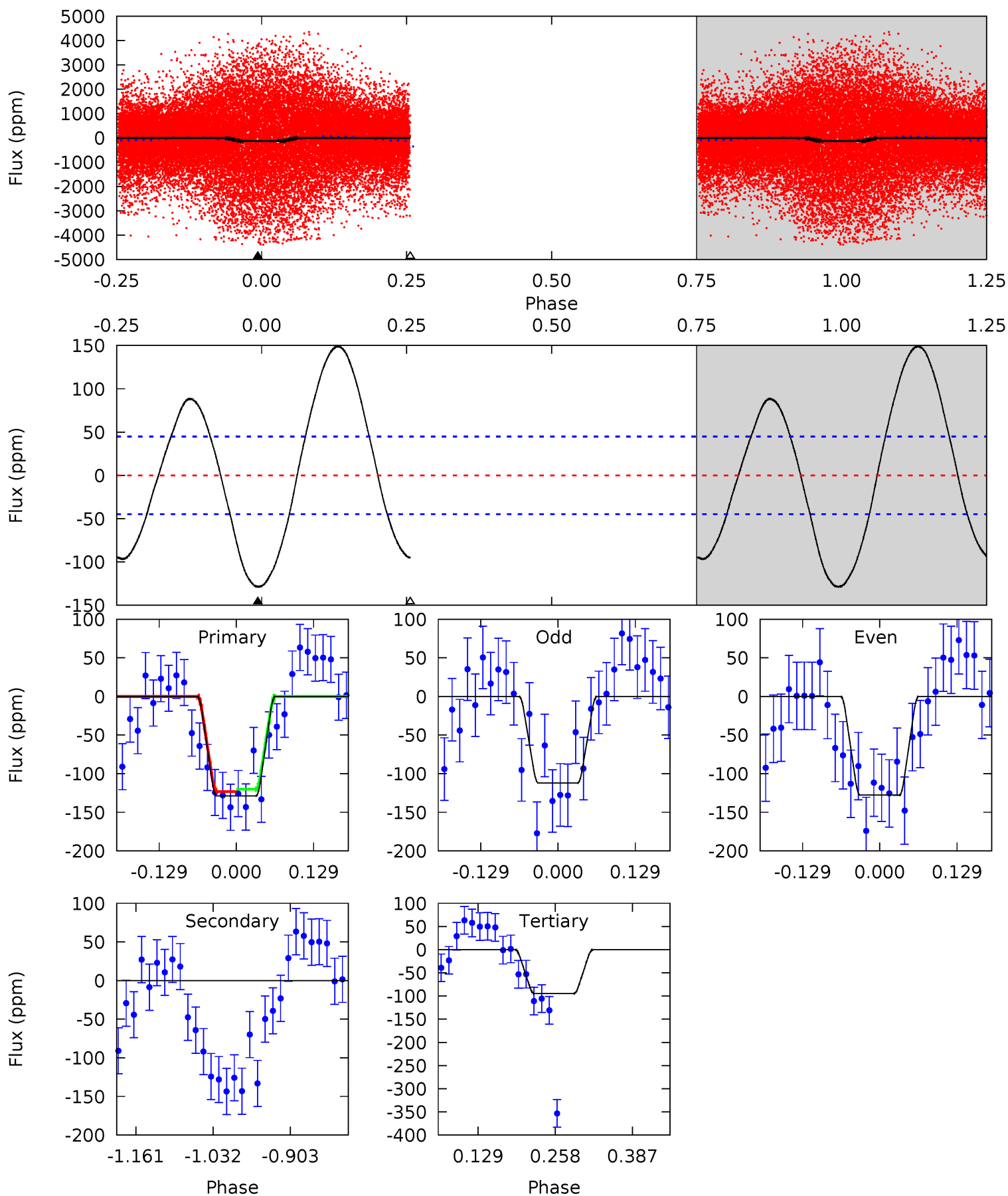
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.19	0	6.07	0	4.43	1.32	3.95	0.12	6.19	-6.07	0	2.63	0.86	0.53	3.35



Alt Model-Shift Uniqueness Test

011657371-02, P = 0.841572 Days, E = 130.824219 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	0	9.56	0	4.51	1.52	8.12	3.39	13.0	-9.56	0	0.64	1.33	0.54	0.11



Stellar Parameters For KIC 011657371

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7347^{+206}_{-353}	$4.149^{+0.102}_{-0.189}$	$0.100^{+0.200}_{-0.350}$	$1.772^{+0.545}_{-0.294}$	$1.616^{+0.193}_{-0.235}$	$0.409^{+0.200}_{-0.215}$
	+3%/-5%	+2%/-5%	+200%/-350%	+31%/-17%	+12%/-15%	+49%/-53%
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 011657371-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 5	$1.72^{+0.36}_{-0.35}$	4244^{+314}_{-262}	-3845^{+6960}_{-611}	$0.001^{+0.396}_{-0.383}$
Alt.	0 ± 10	$2.99^{+0.49}_{-0.40}$	4254^{+317}_{-263}	-3825^{+942}_{-478}	$-0.000^{+0.250}_{-0.256}$

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 $A_{obs} \gg 1.0$

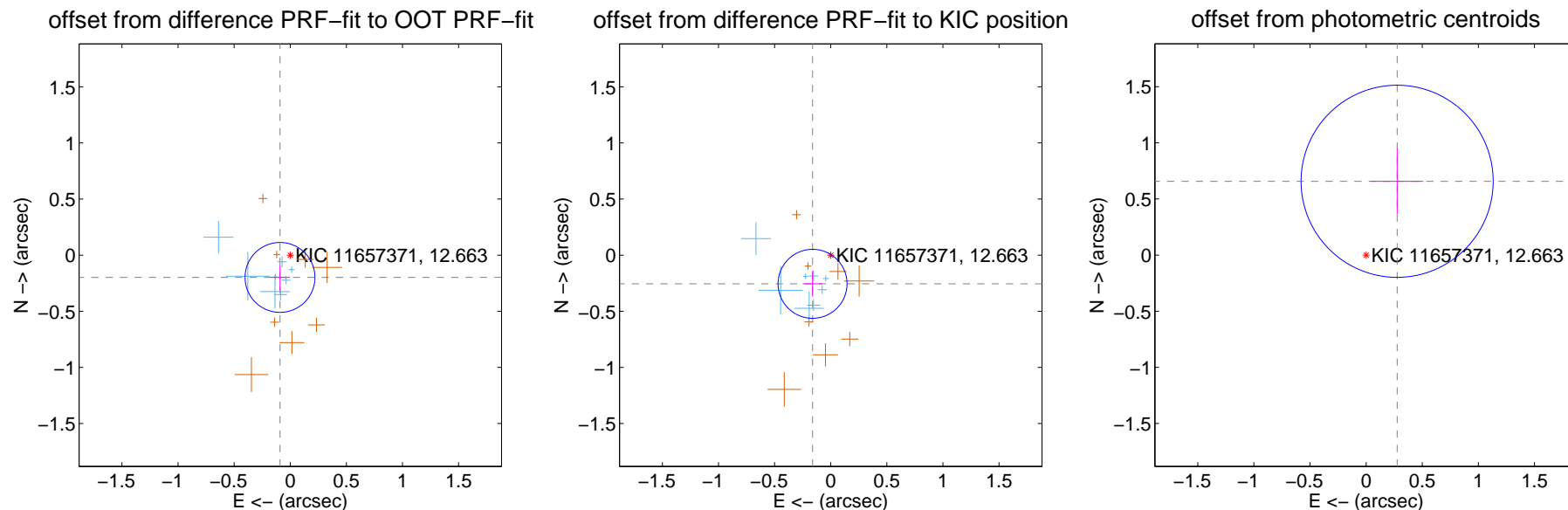
DV Centroid Data

Supplemental centroid analysis for 011657371-02. Kepler magnitude: 12.66. Transit SNR 11.84

There are 8 quarters with good PRF difference image offsets

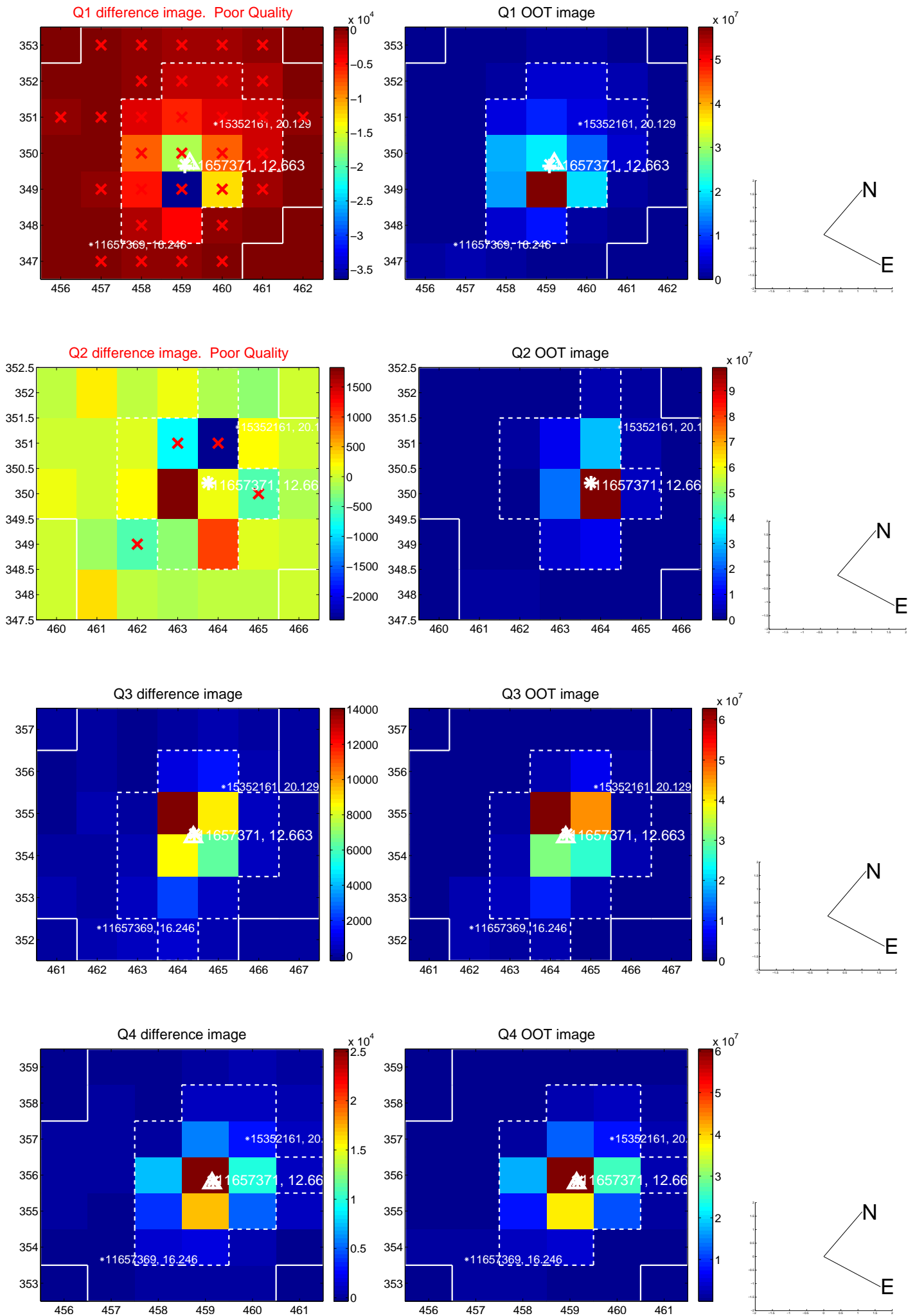
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.219 ± 0.104	2.10	0.091 ± 0.088	-0.198 ± 0.112
PRF-fit source offset from KIC position	0.302 ± 0.102	2.95	0.162 ± 0.087	-0.255 ± 0.113
photometric centroid source offset	0.71 ± 0.29	2.50	-0.28 ± 0.23	0.66 ± 0.29

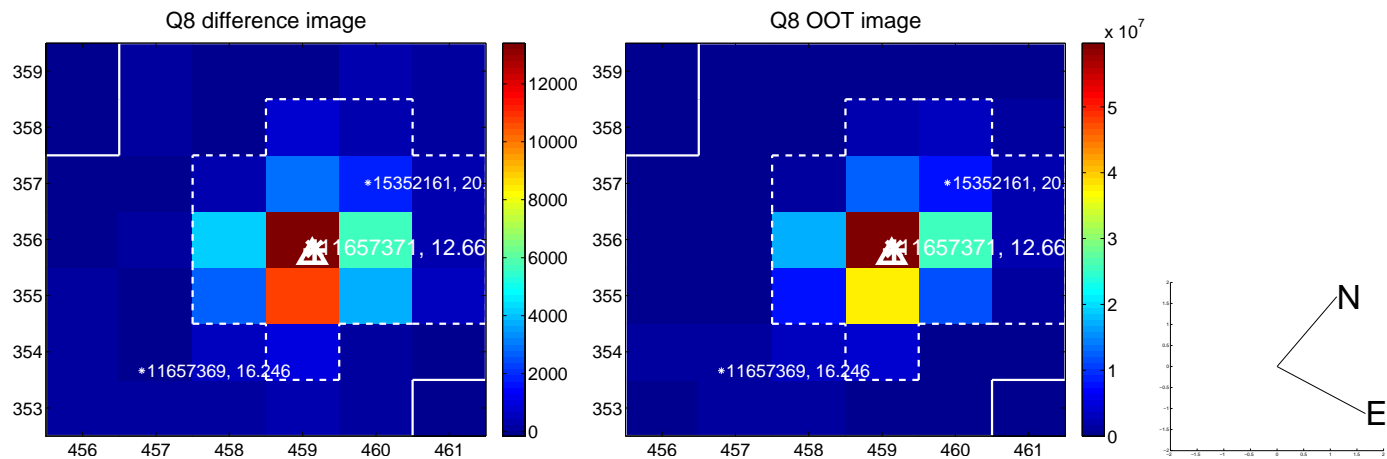
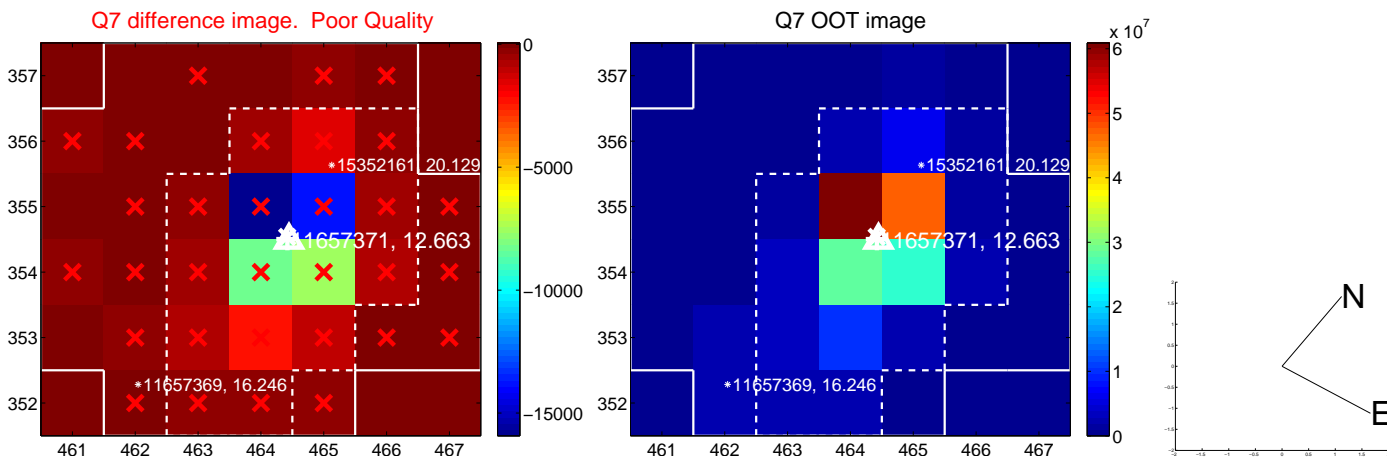
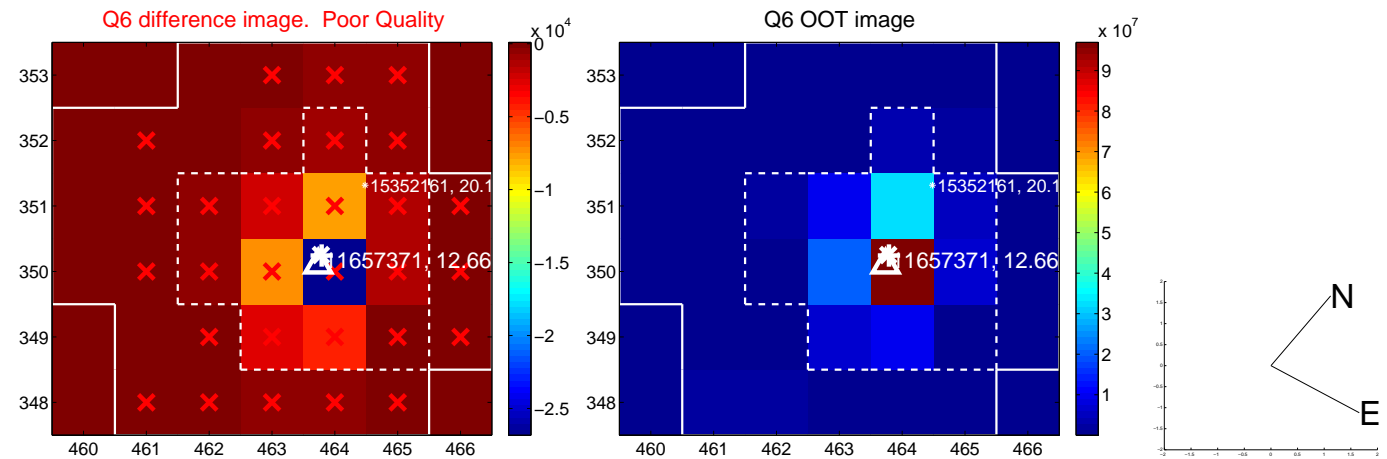
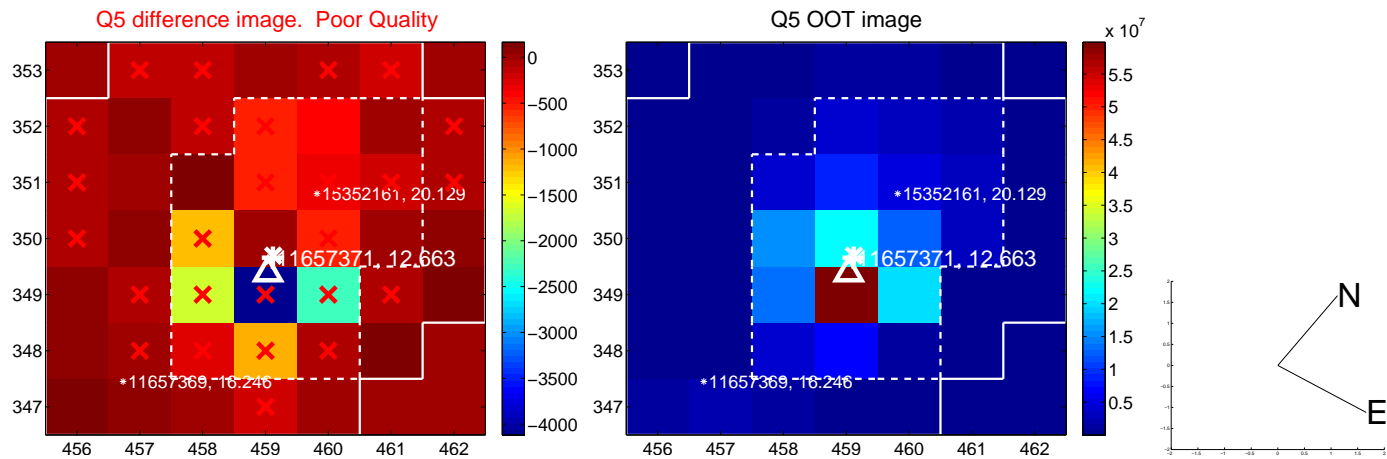


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

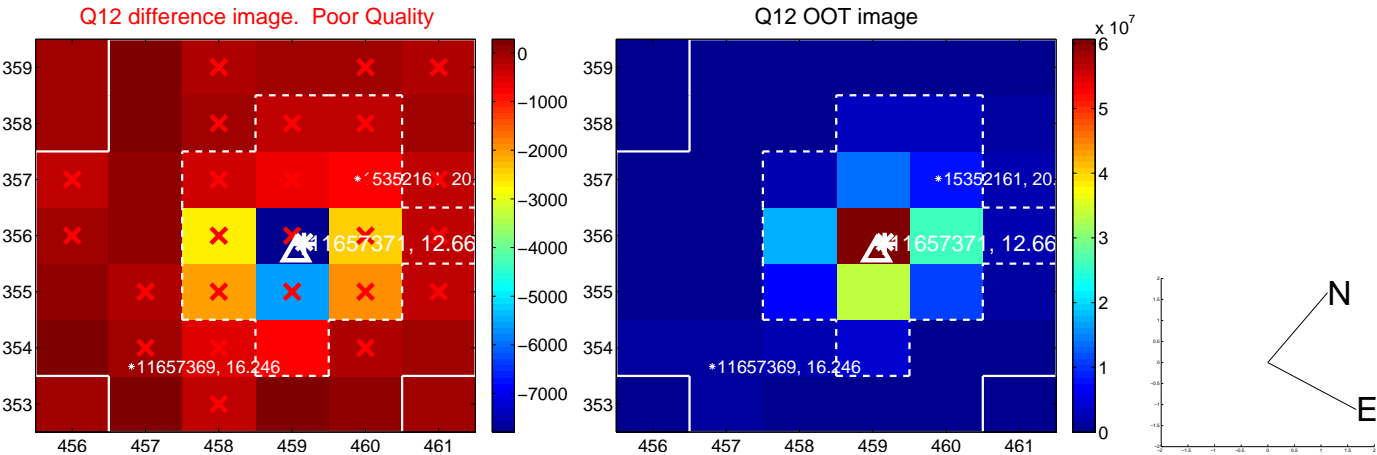
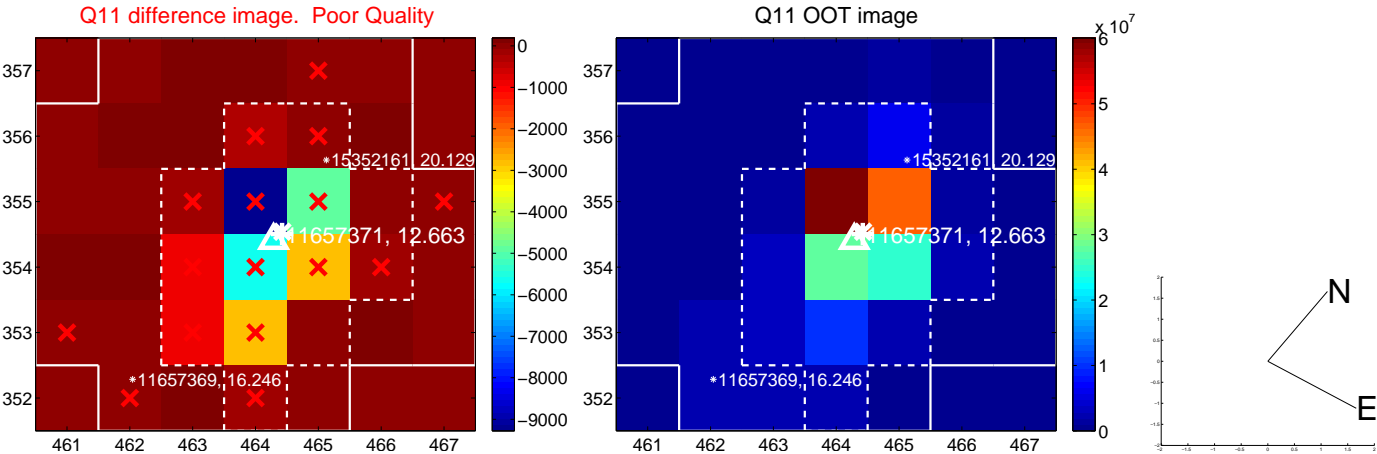
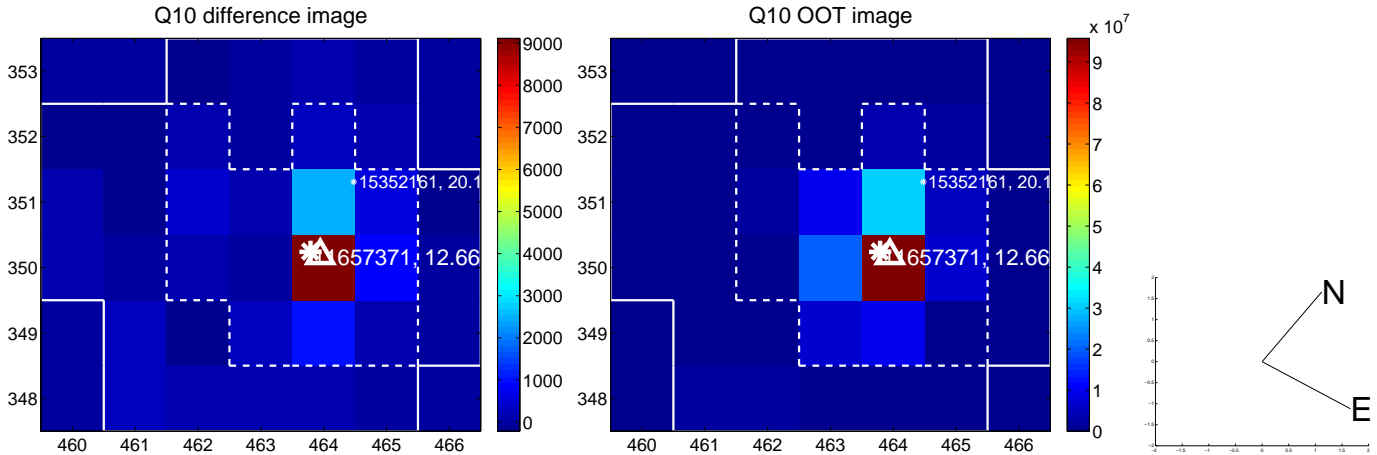
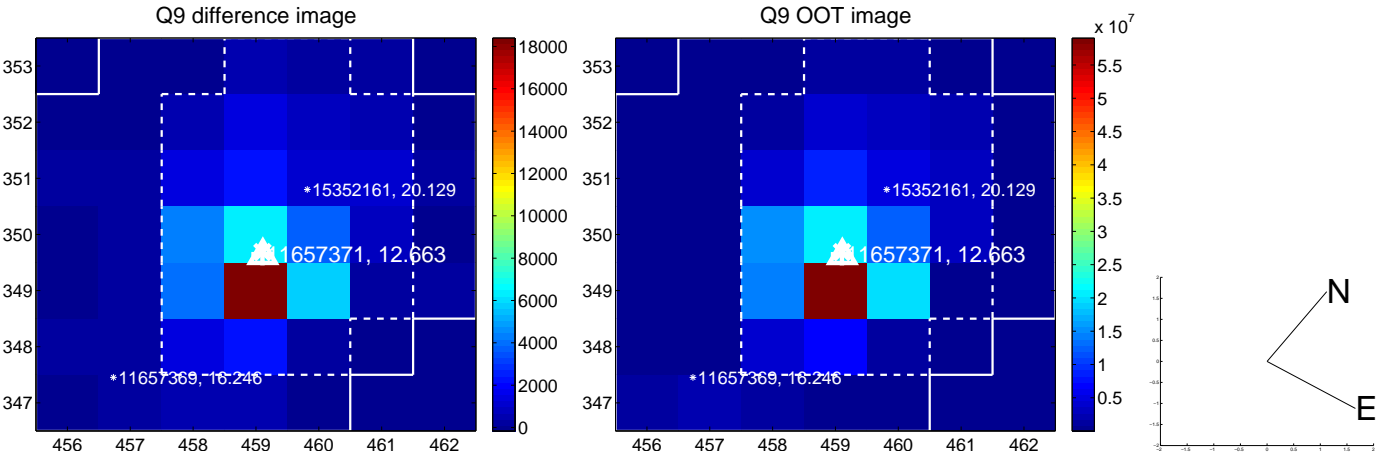
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



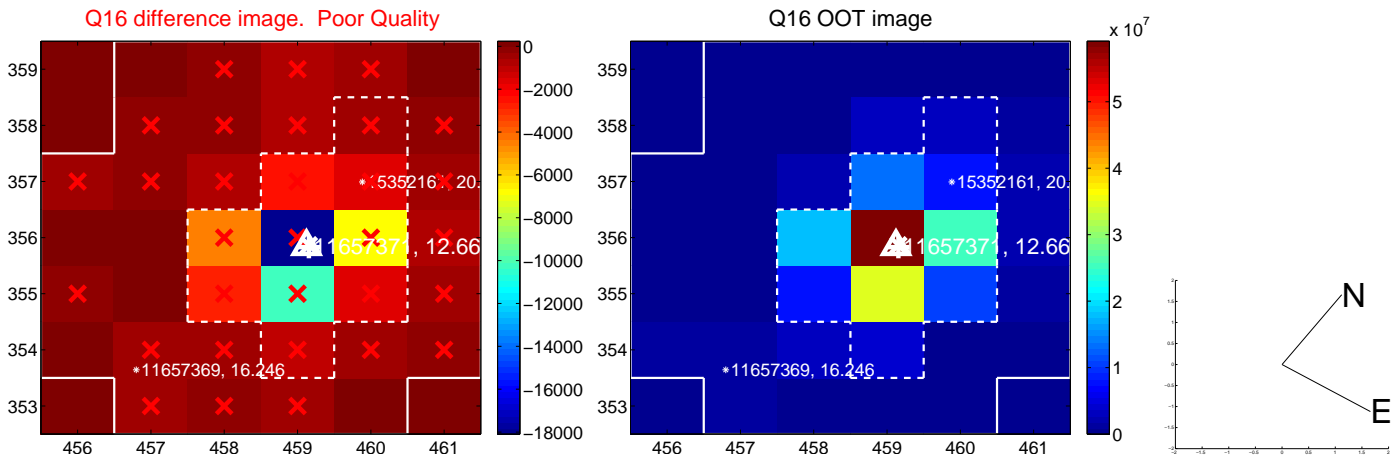
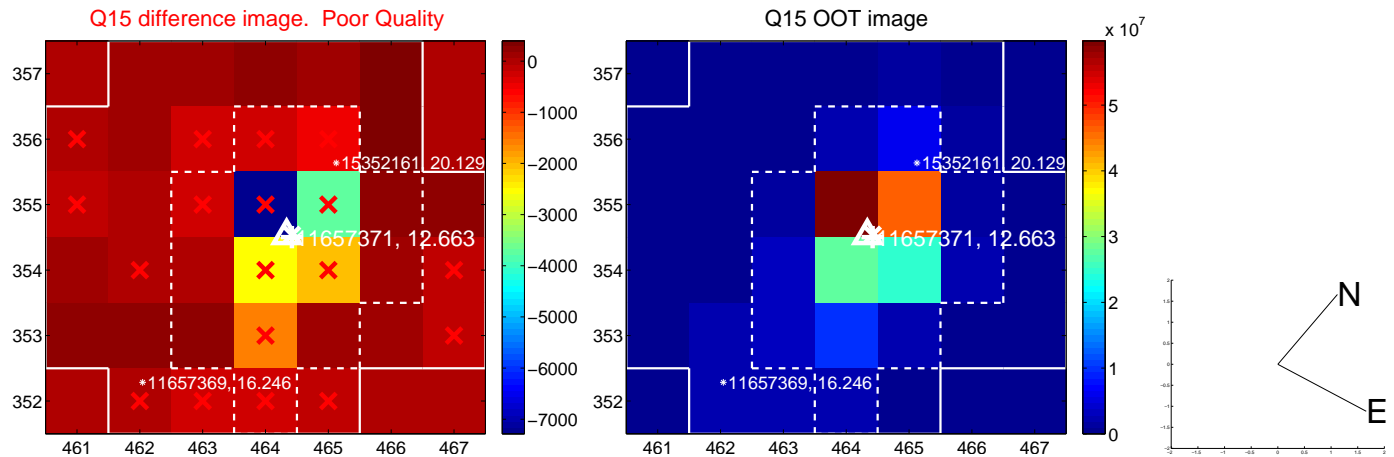
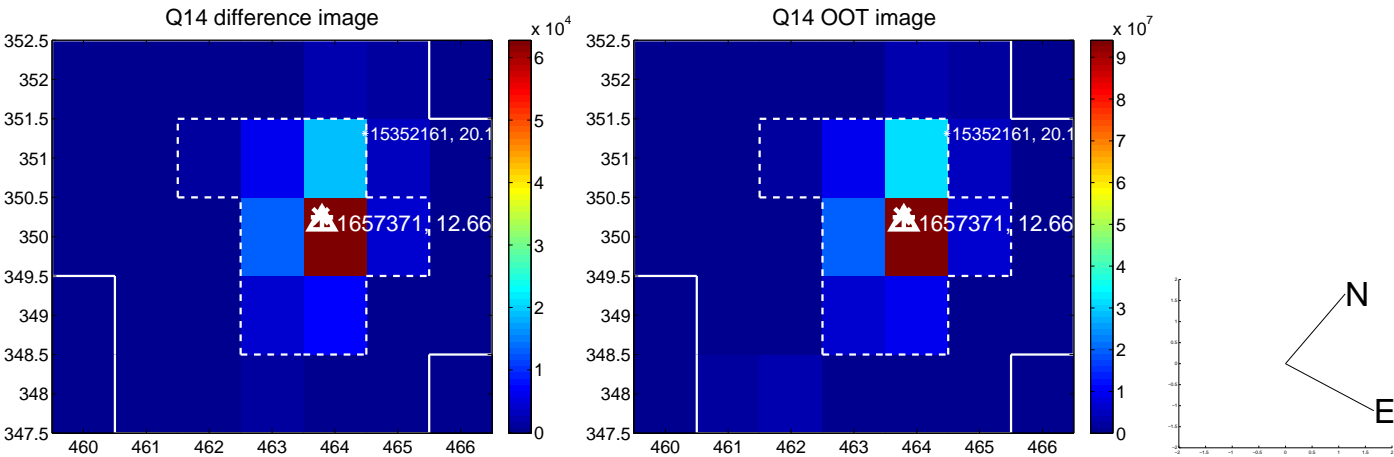
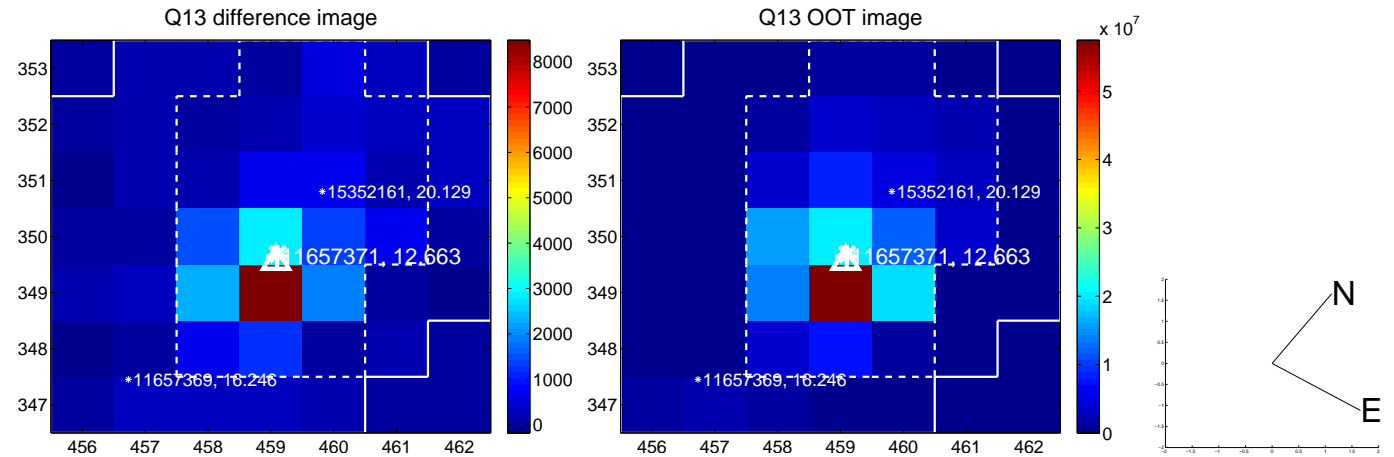
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



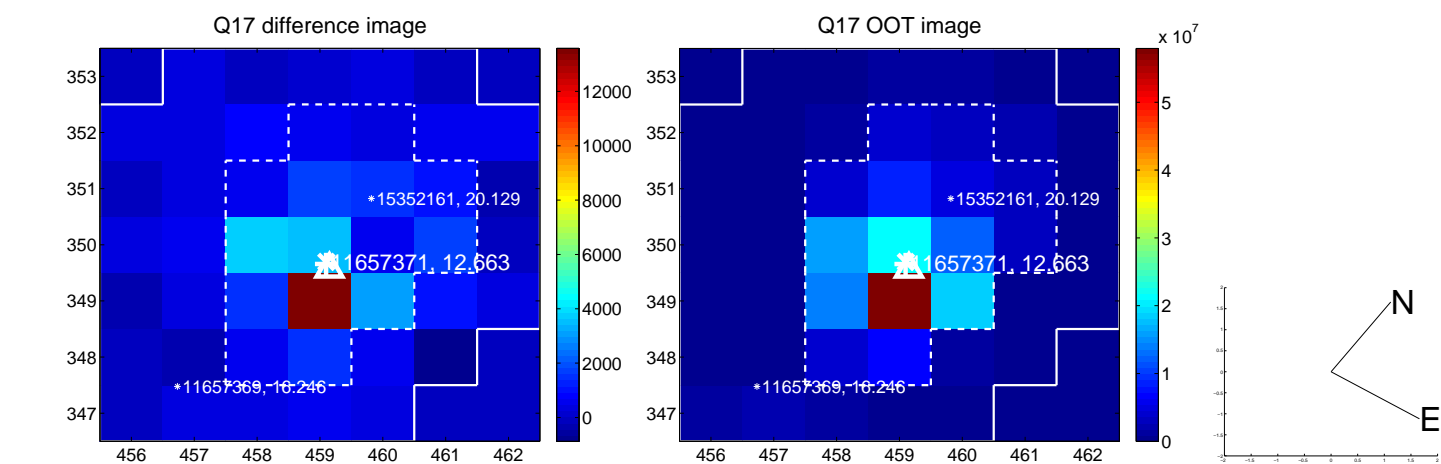
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



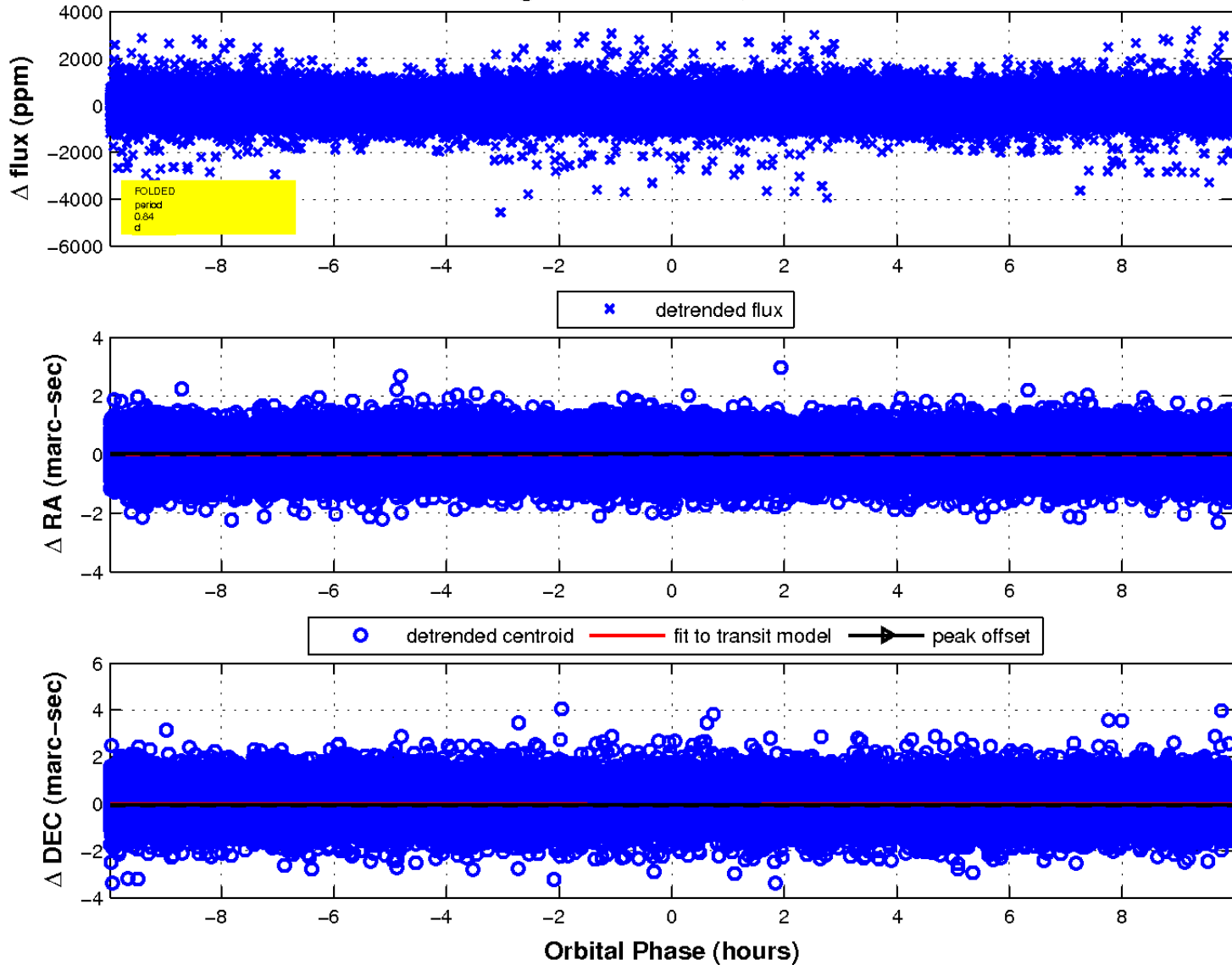
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

