

KIC 010920447

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})
010920447-01	OBS	No	0.552623	131.680959	22.4	3.988	10.5	12.9	2.20	8098	1.12	71997.51
010920447-02	OBS	No	40.294892	151.499560	299.7	1.656	9.4	9.0	2.20	8098	3.88	236.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010920447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_SATURATED
010920447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

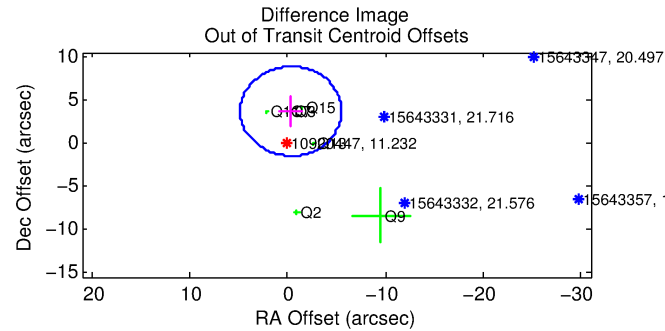
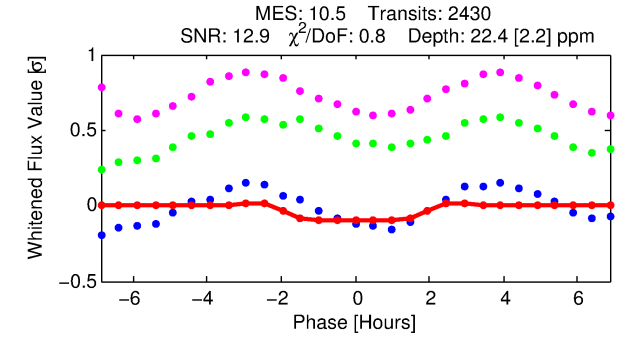
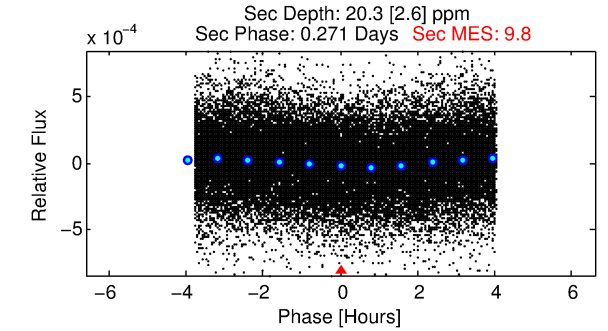
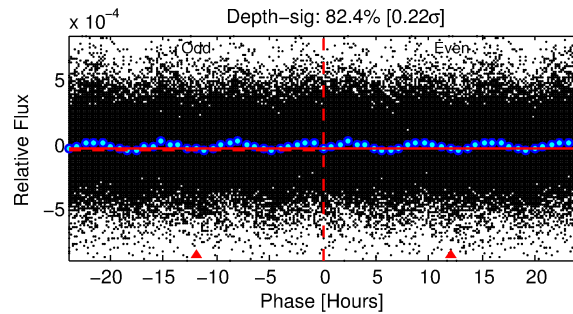
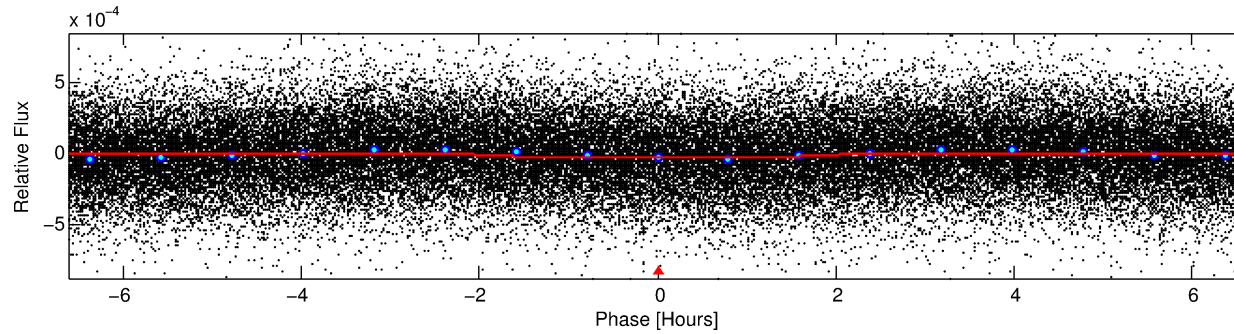
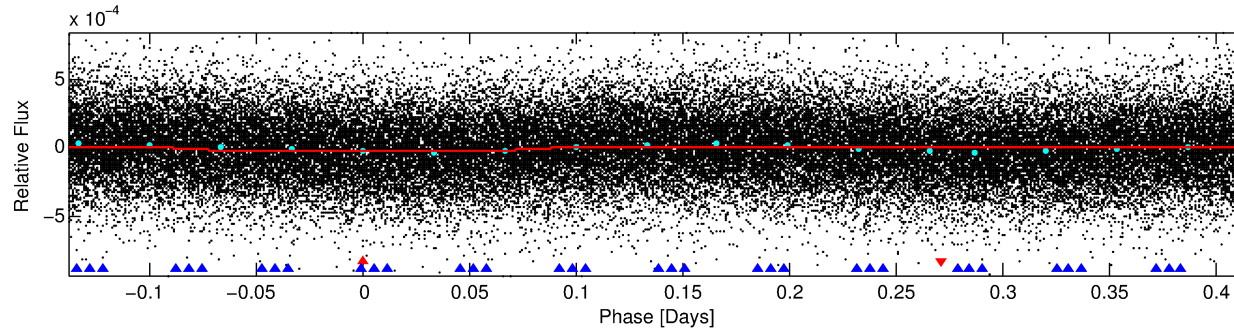
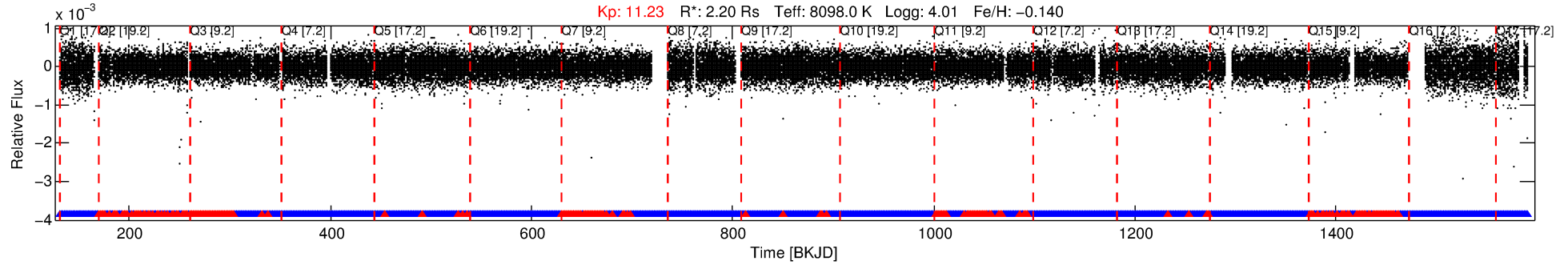
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010920447-01

No Significant Match Found

DV One-Page Summary

KIC: 10920447 Candidate: 1 of 2 Period: 0.553 d



DV Fit Results:

Period = 0.55262 [0.00001] d
Epoch = 131.6810 [0.0035] BKJD
Rp/R* = 0.0047 [0.0029]
a/R* = 1.12 [0.84]
b = 0.73 [2.42]
Seff = 71997.51 [27858.58]
Teff = 4177 [404] K
Rp = 1.12 [0.77] Re
a = 0.0161 [0.0038] AU
Ag = 2.29 [3.01] [0.43 σ]
Teffp = 7943 [2536] K [1.47 σ]

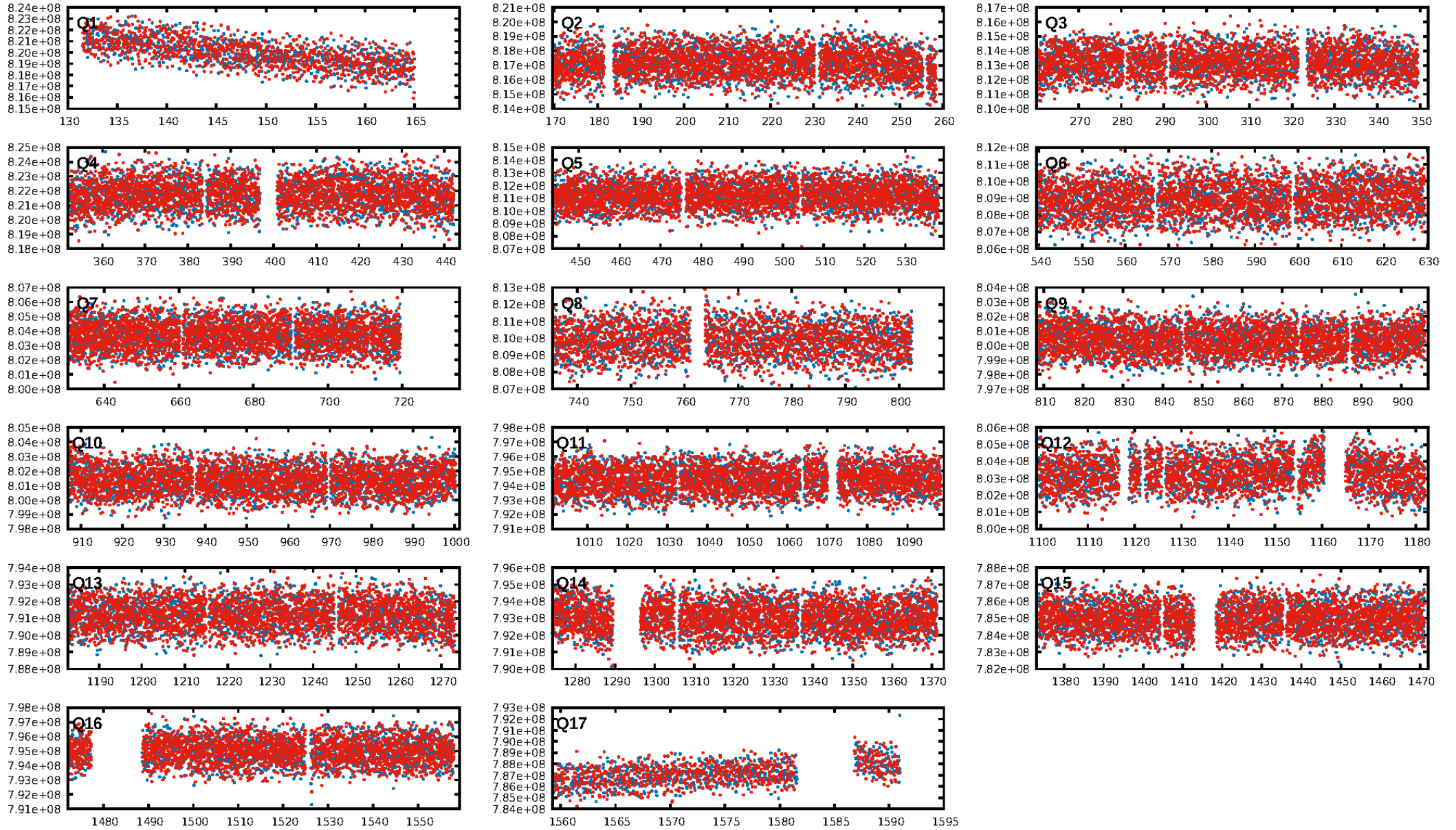
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [220.89 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.99e-14
RollingBand-fgt: 0.85 [1967/2322]
GhostDiagnostic-chr: 4.962
Centroid-sig: 5.3%
Centroid-so: 0.402 arcsec [1.18 σ]
OotOffset-rm: 3.705 arcsec [2.15 σ]
KicOffset-rm: 3.042 arcsec [1.95 σ]
OotOffset-st: 1/4/0/2 [7]
KicOffset-st: 1/4/0/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 1.00 [17/17]

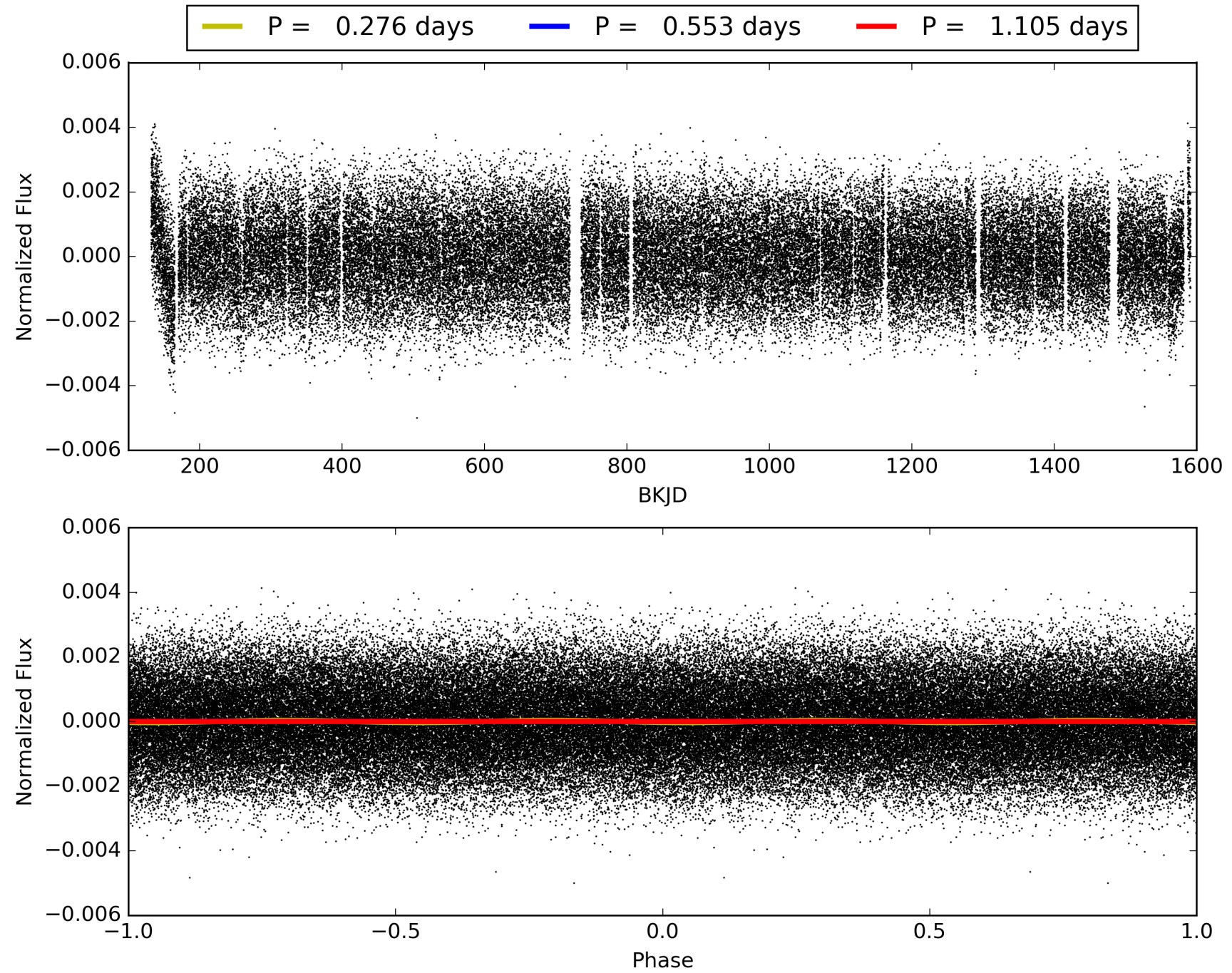
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:10:17 Z

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

TCE 010920447-01, PDC Light Curves

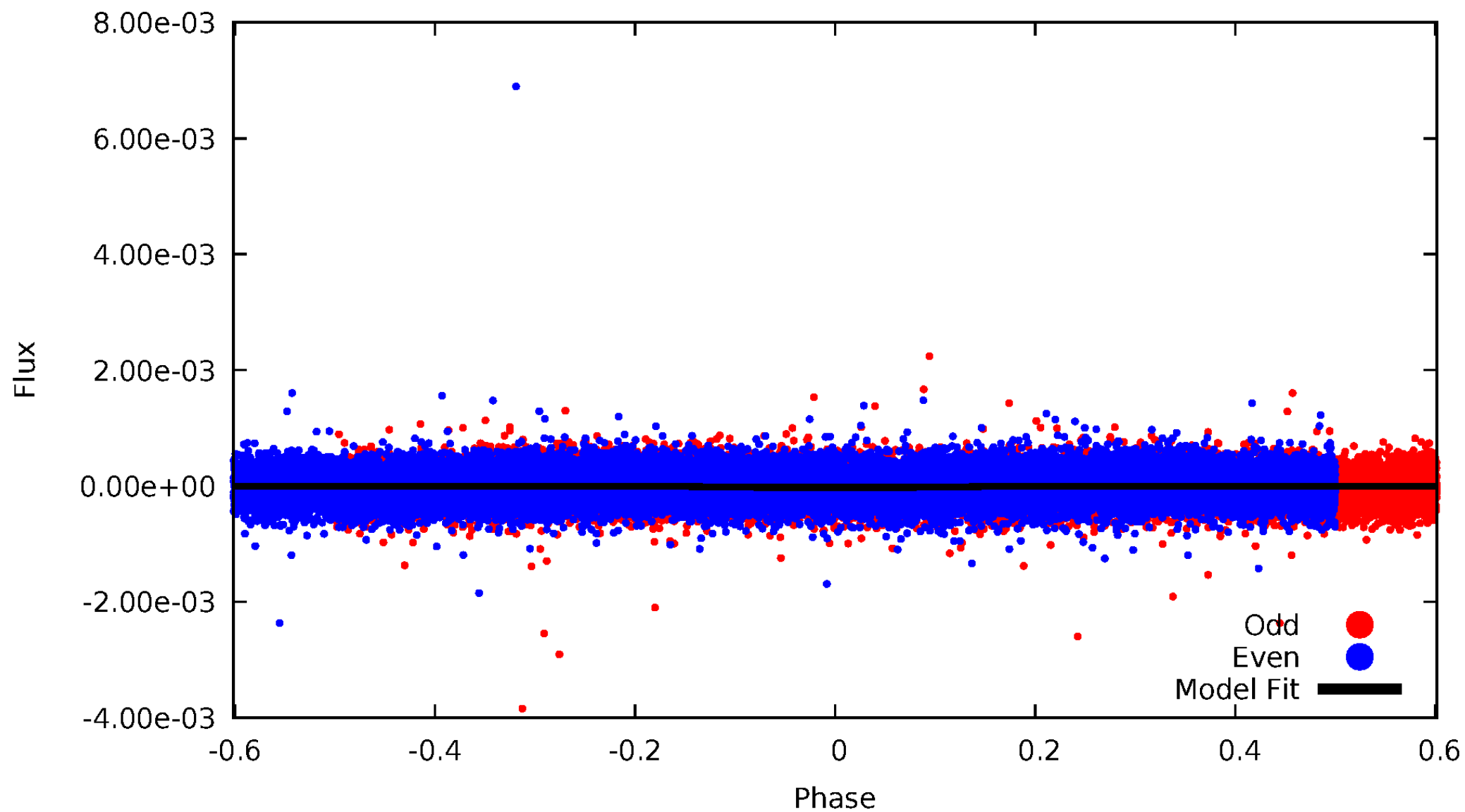


TCE 010920447-01



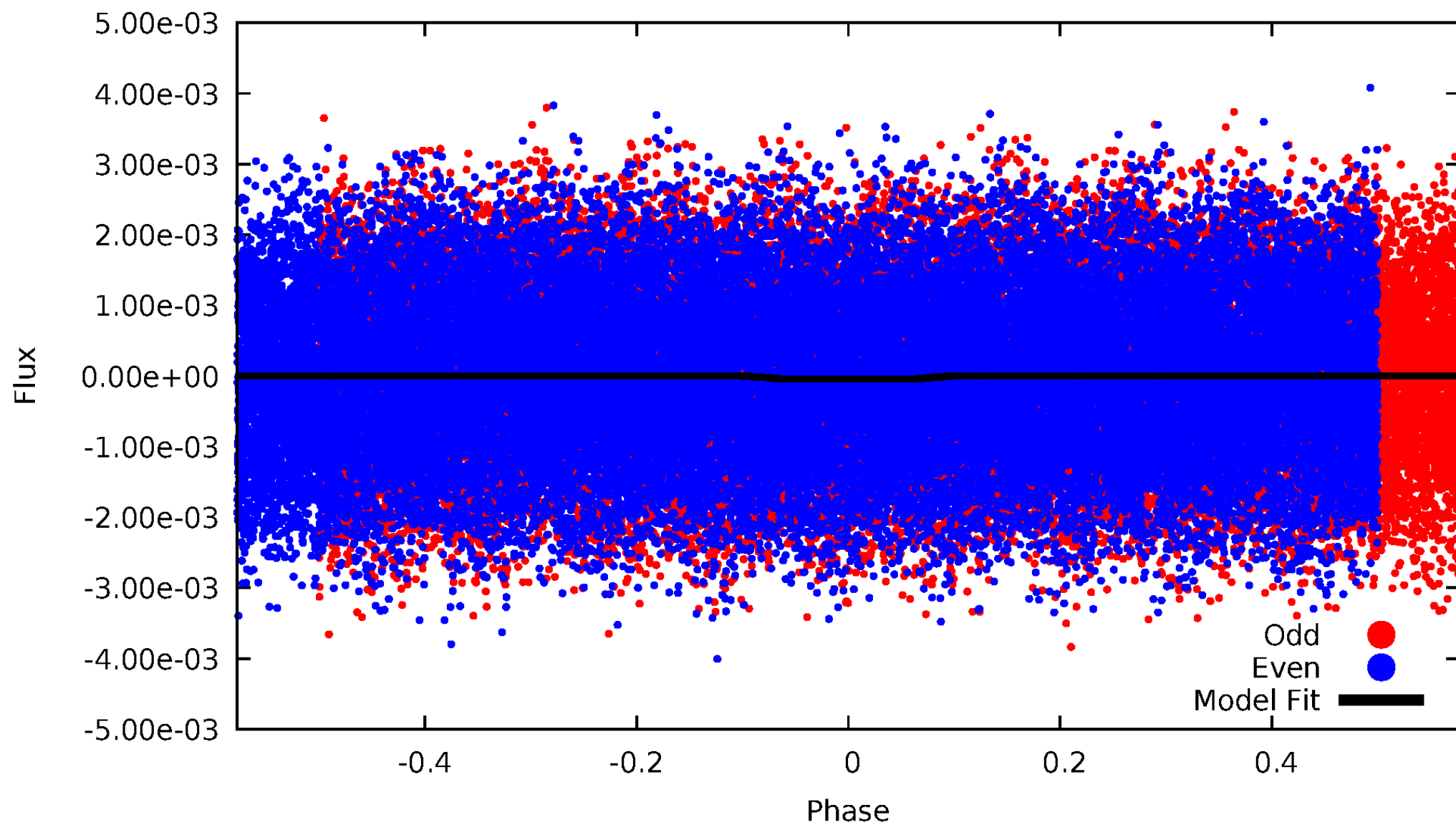
DV Odd/Even

TCE 010920447-01

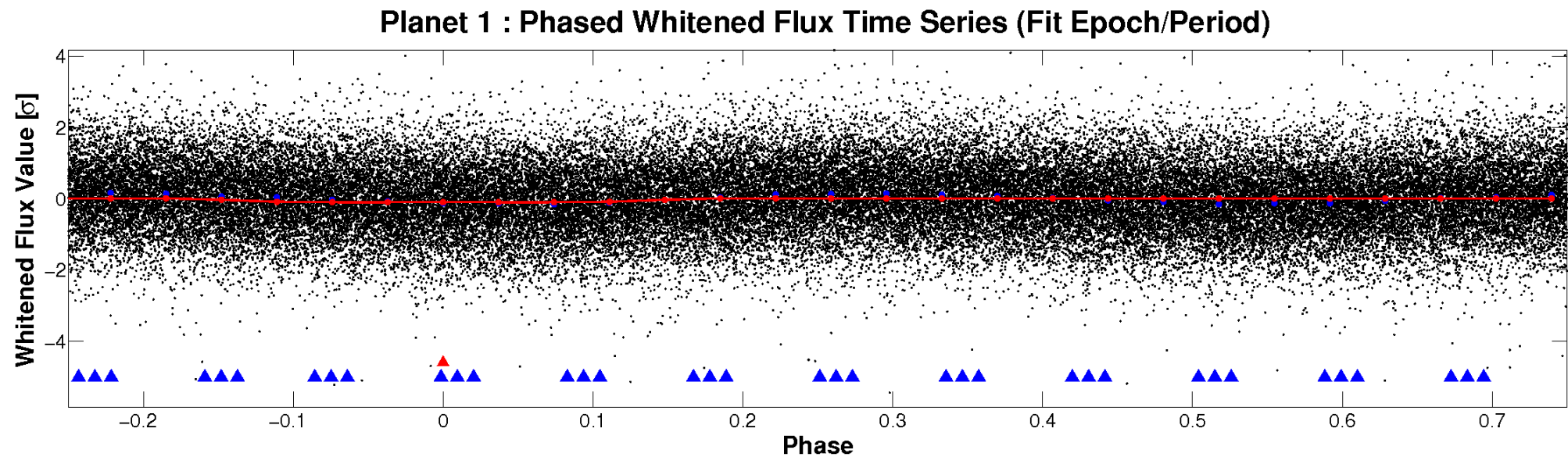
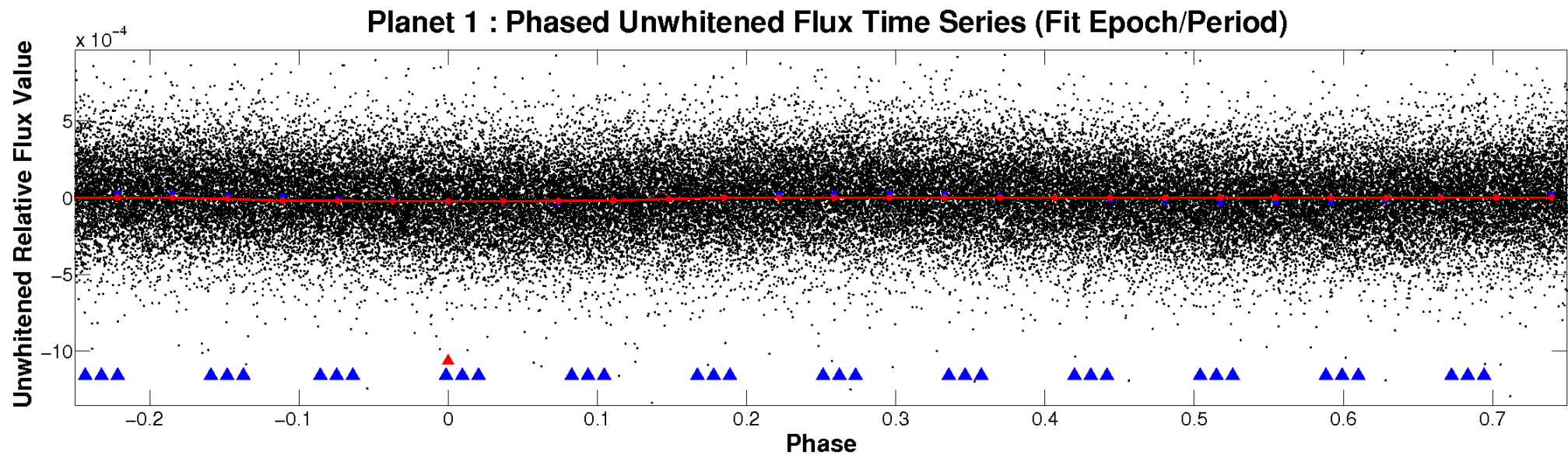


ALT Odd/Even

TCE 010920447-01

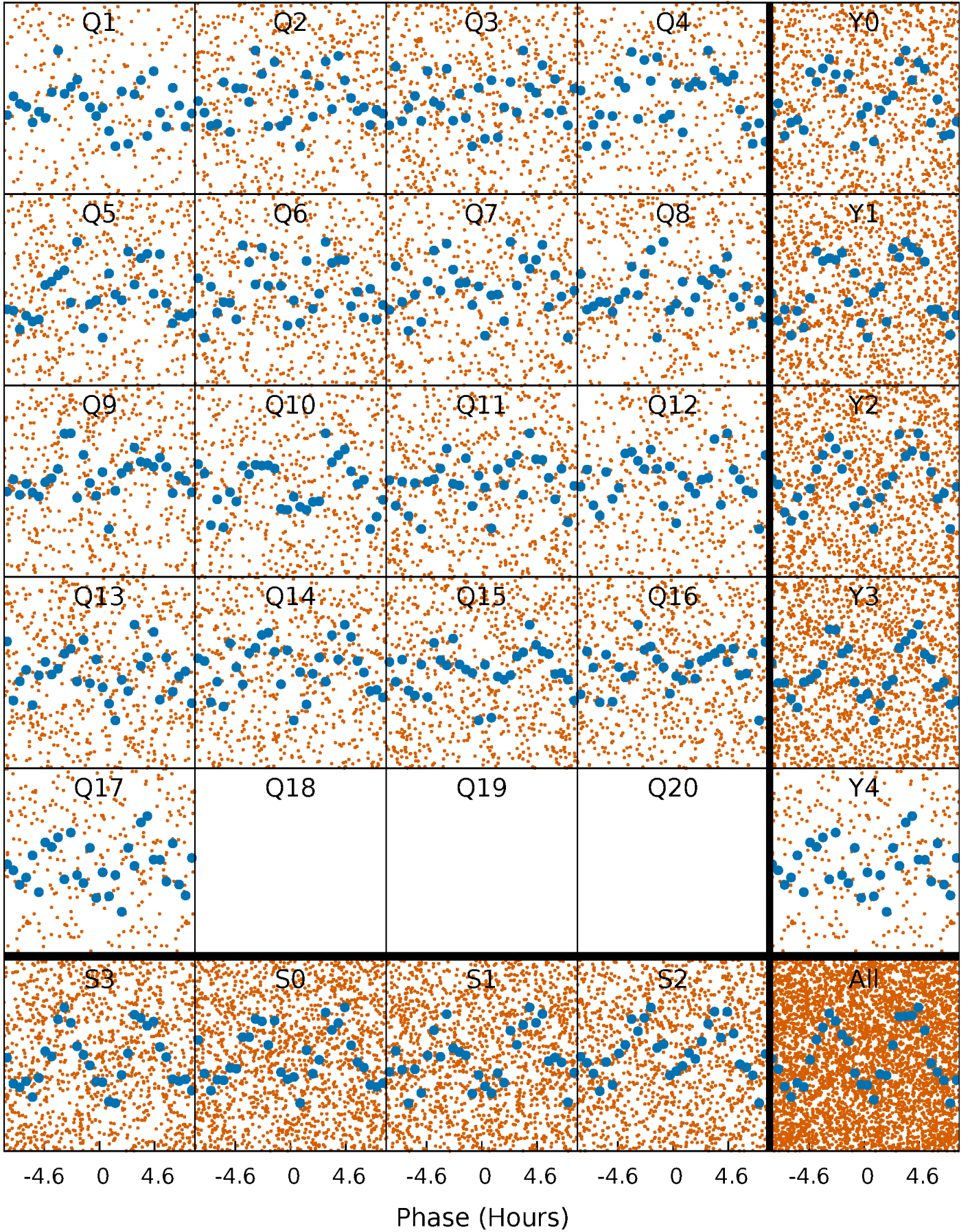


Non-Whitened Vs. Whitened Light Curve



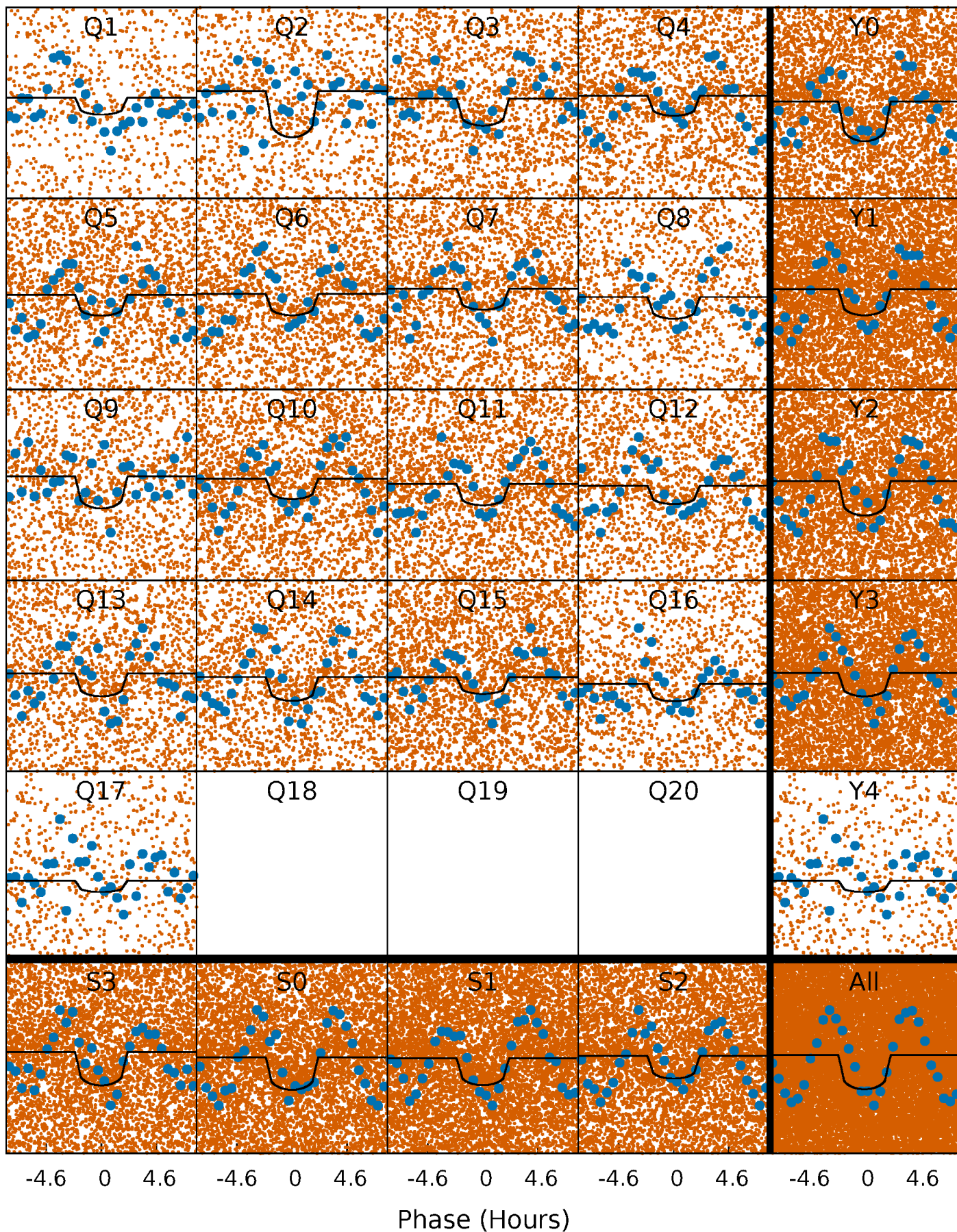
PDC Quarter-Phased Transit Curves

TCE 010920447-01 P= 0.552623 Days $T_0=131.680959$ (BKJD)



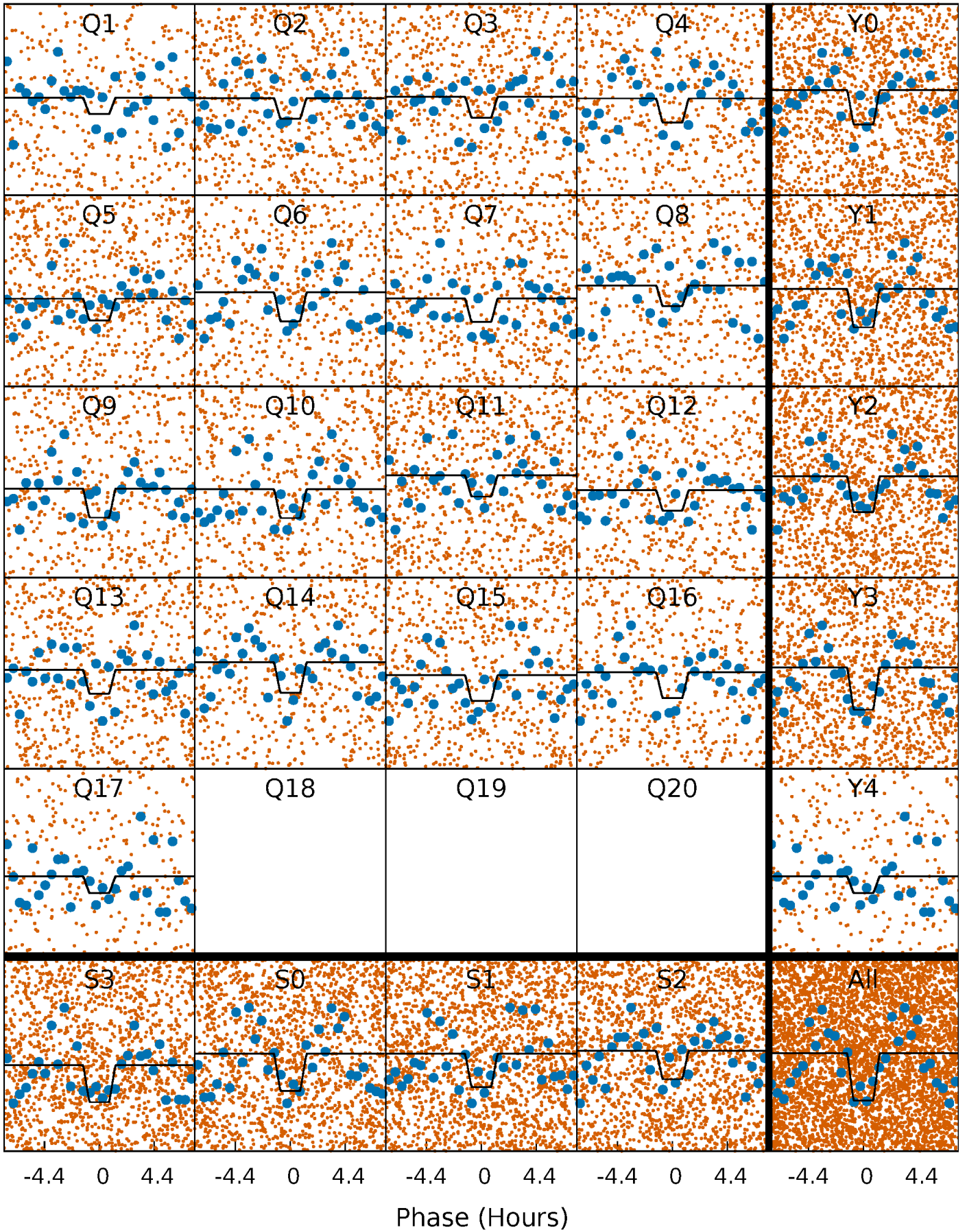
DV Quarter-Phased Transit Curves

TCE 010920447-01 P= 0.552623 Days $T_0=131.680959$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

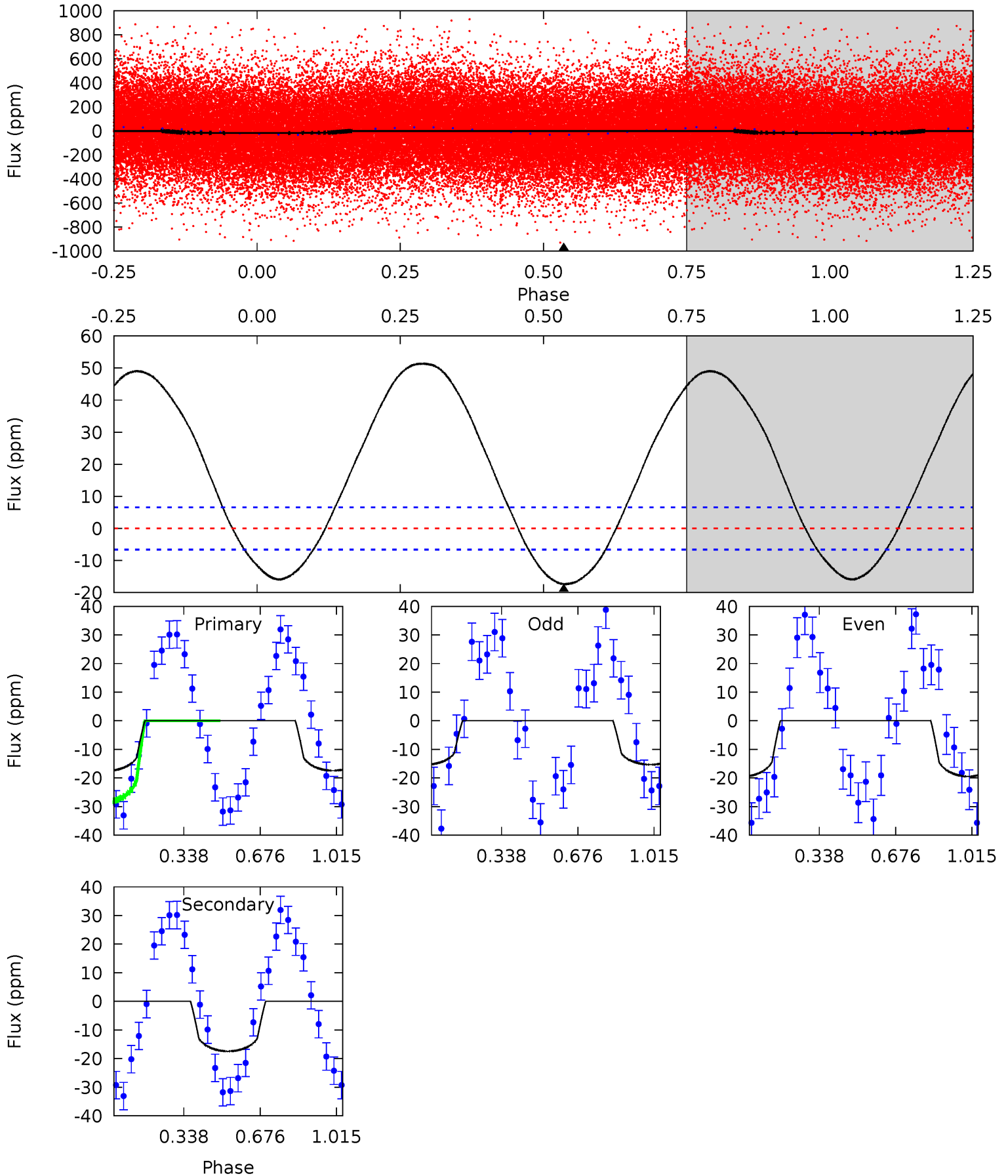
TCE 010920447-01 P= 0.552641 Days $T_0=131.678313$ (BKJD)



DV Model-Shift Uniqueness Test

010920447-01, P = 0.552623 Days, E = 131.128336 Days

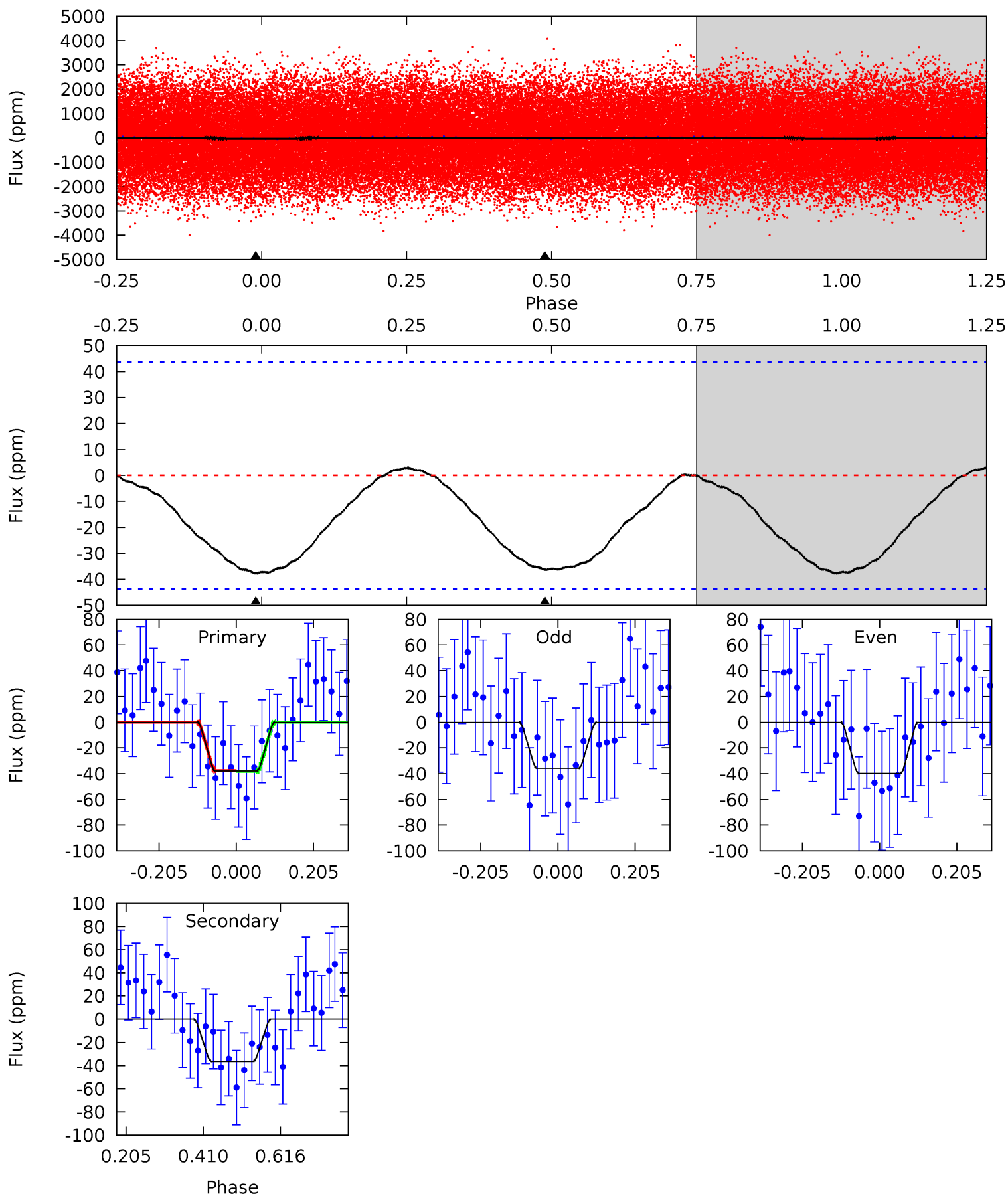
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	11.4	0	0	4.30	0.96	10.0	11.4	11.4	11.4	11.4	1.35	0.86	0.75	7.03



Alt Model-Shift Uniqueness Test

010920447-01, P = 0.552641 Days, E = 131.125672 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.82	3.67	0	0	4.41	1.27	0.21	3.82	3.82	3.67	3.67	0.20	0.82	0.07	0.03



Stellar Parameters For KIC 010920447

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8098^{+226}_{-340}	$4.013^{+0.192}_{-0.128}$	$-0.140^{+0.200}_{-0.300}$	$2.199^{+0.461}_{-0.614}$	$1.819^{+0.134}_{-0.336}$	$0.241^{+0.294}_{-0.093}$
	+3%/-4%	+5%/-3%	+143%/-214%	+21%/-28%	+7%/-18%	+122%/-38%
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 010920447-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-17 ± 2	$1.11^{+0.67}_{-0.56}$	5790^{+360}_{-373}	7041^{+5135}_{-1899}	$1.900^{+6.309}_{-1.142}$
Alt.	-36 ± 10	$1.59^{+0.73}_{-0.69}$	5776^{+377}_{-447}	6940^{+3589}_{-1470}	$1.929^{+3.889}_{-1.077}$

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 $A_{obs} \gg 1.0$

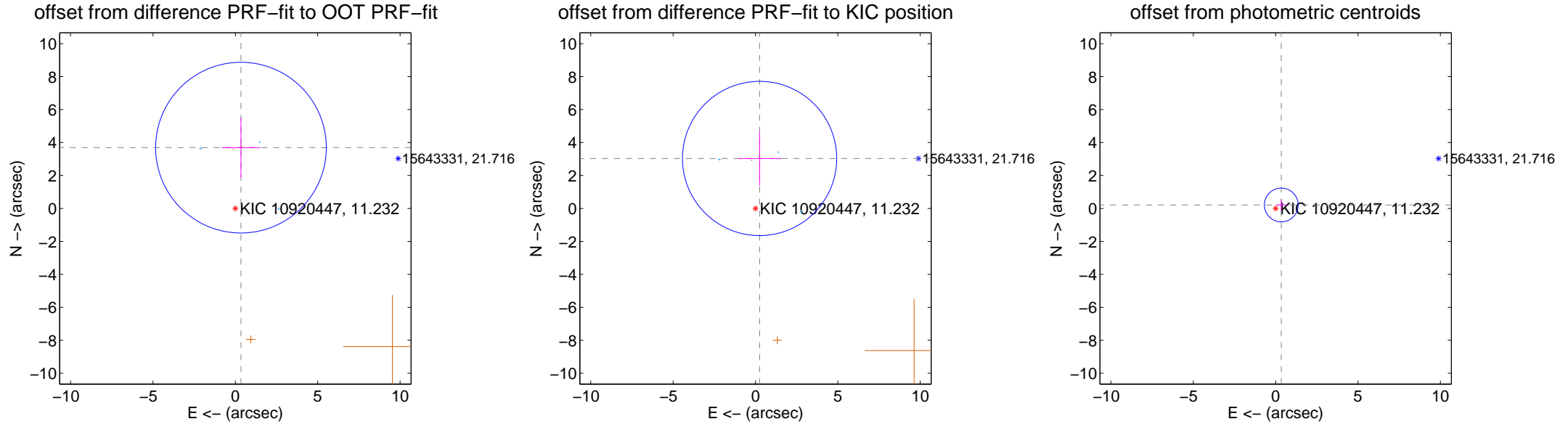
DV Centroid Data

Supplemental centroid analysis for 010920447-01. **Kepler magnitude: 11.23.** Transit SNR 12.91

There are 3 quarters with good PRF difference image offsets

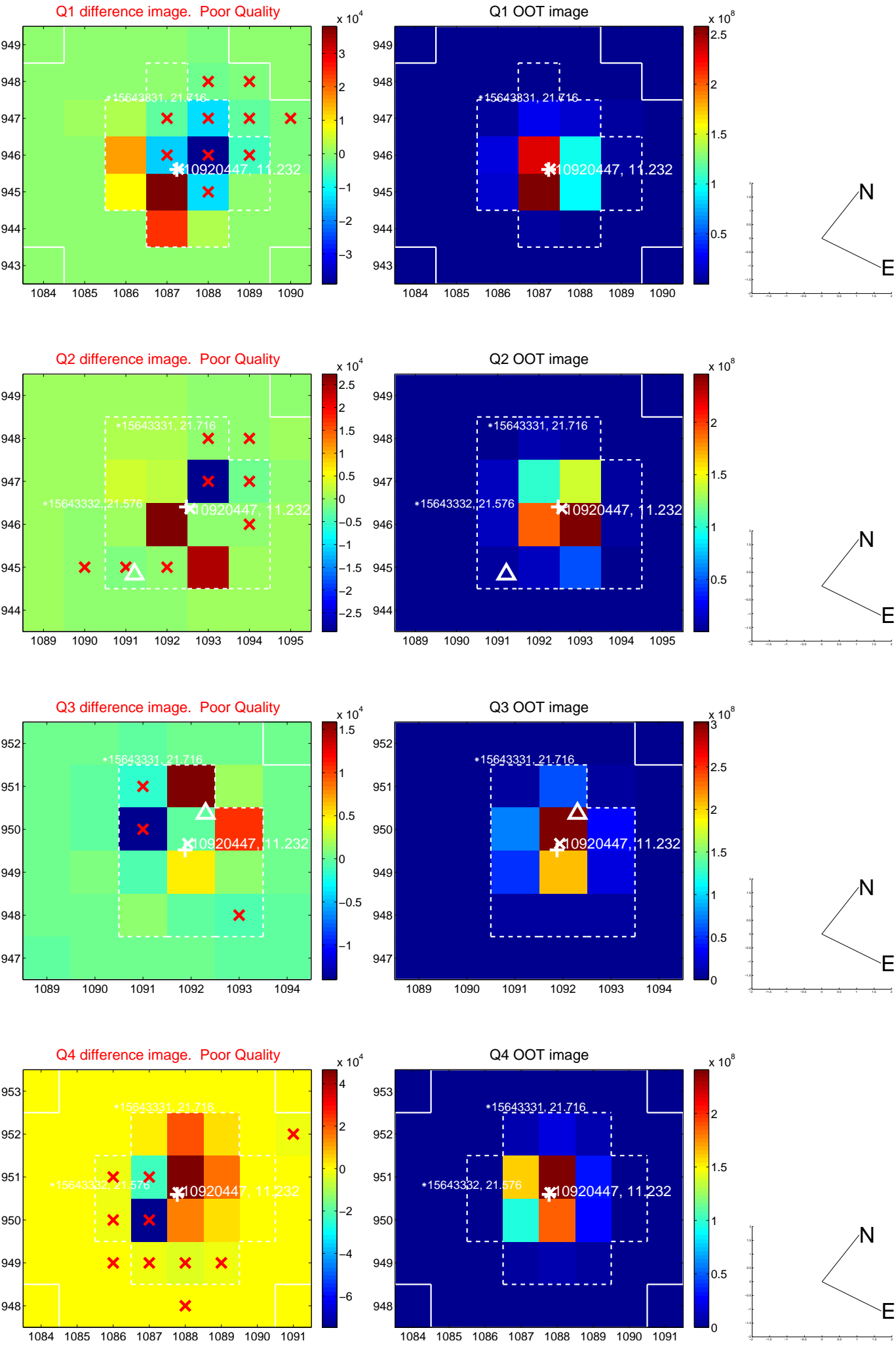
The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.705 ± 1.726	2.15	-0.342 ± 1.183	3.689 ± 1.811
PRF-fit source offset from KIC position	3.042 ± 1.560	1.95	-0.248 ± 1.317	3.032 ± 1.639
photometric centroid source offset	0.40 ± 0.34	1.18	-0.34 ± 0.34	0.21 ± 0.34

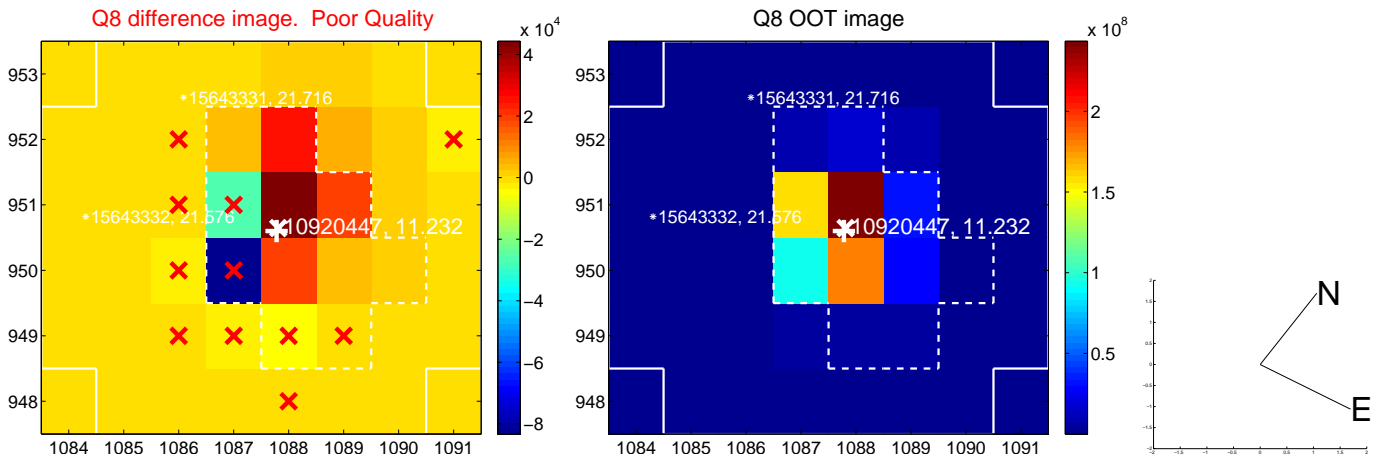
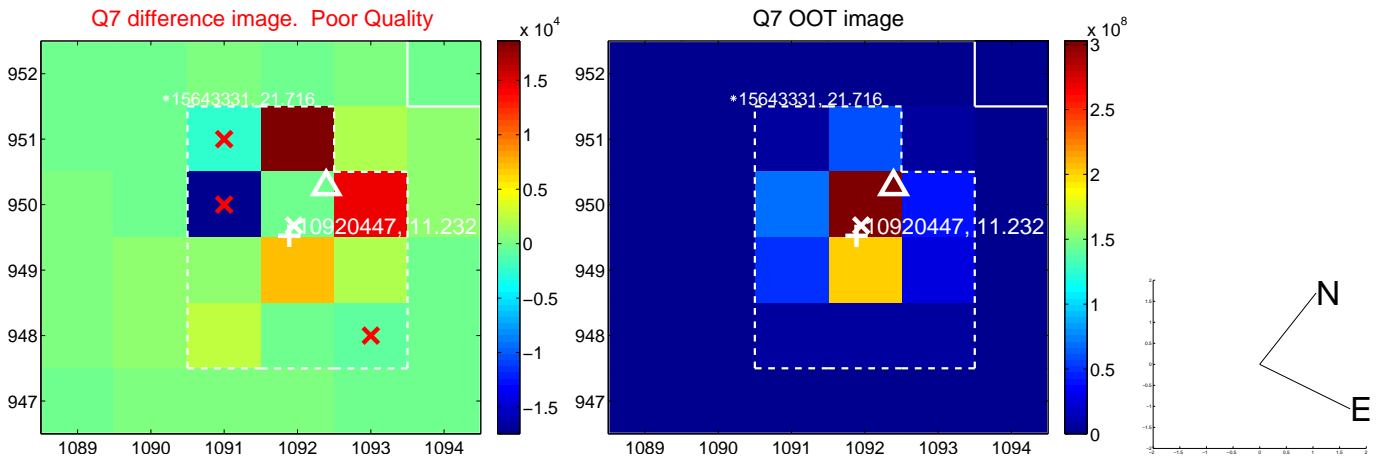
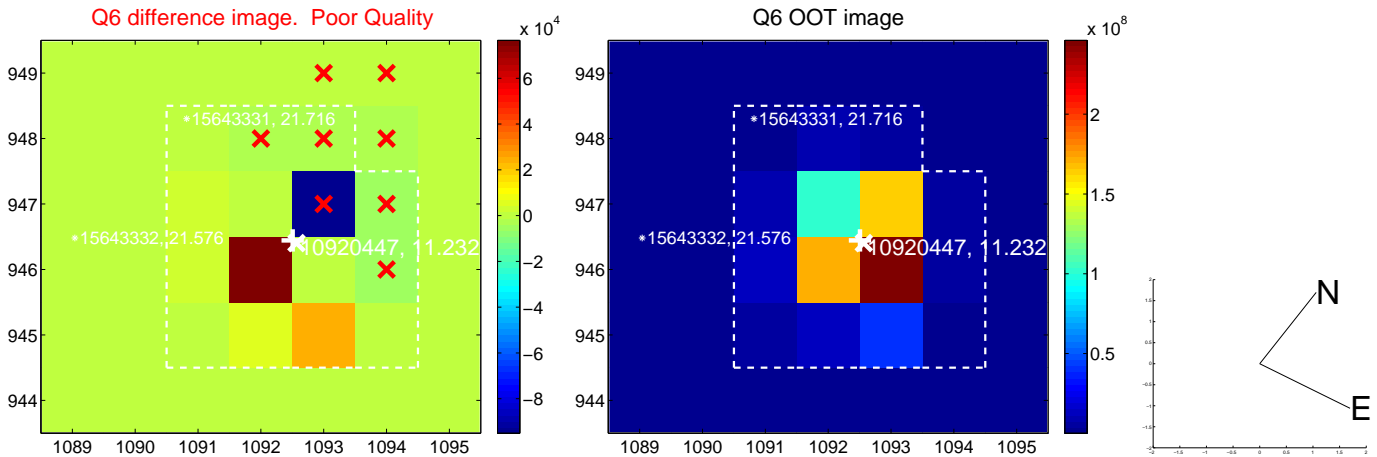
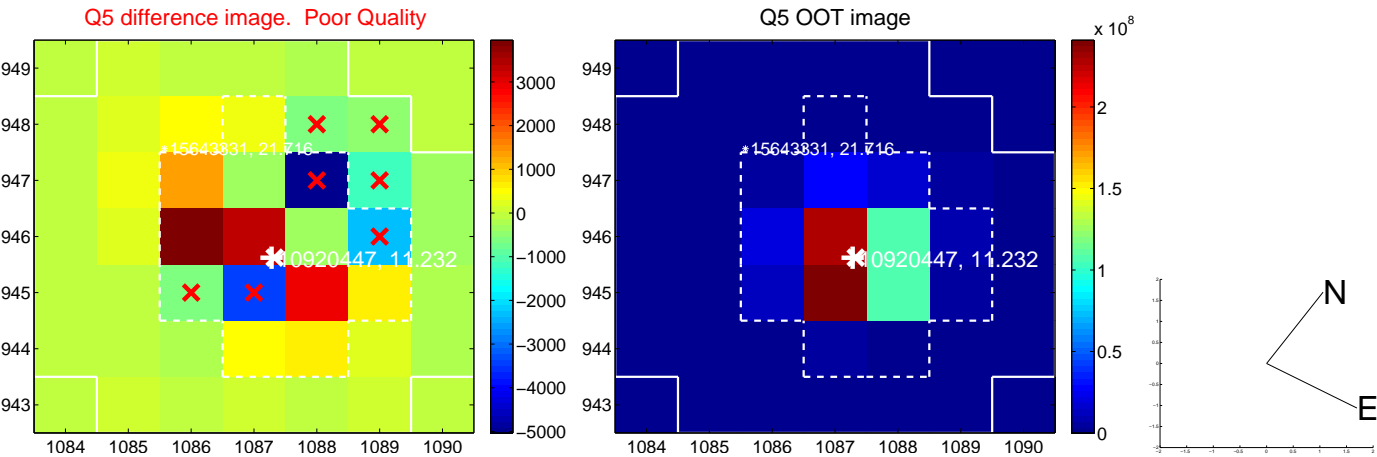


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

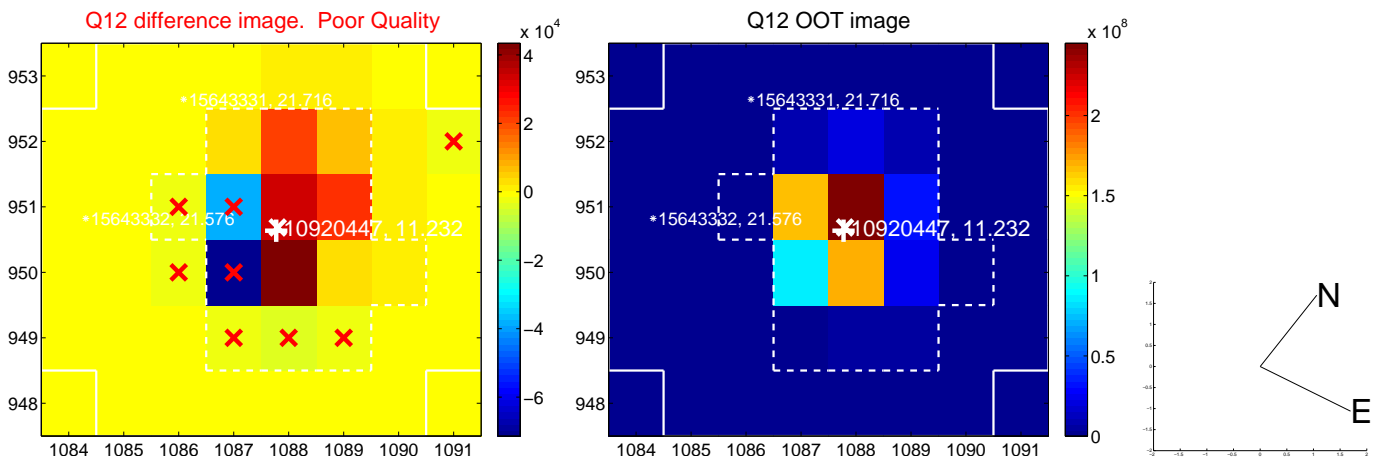
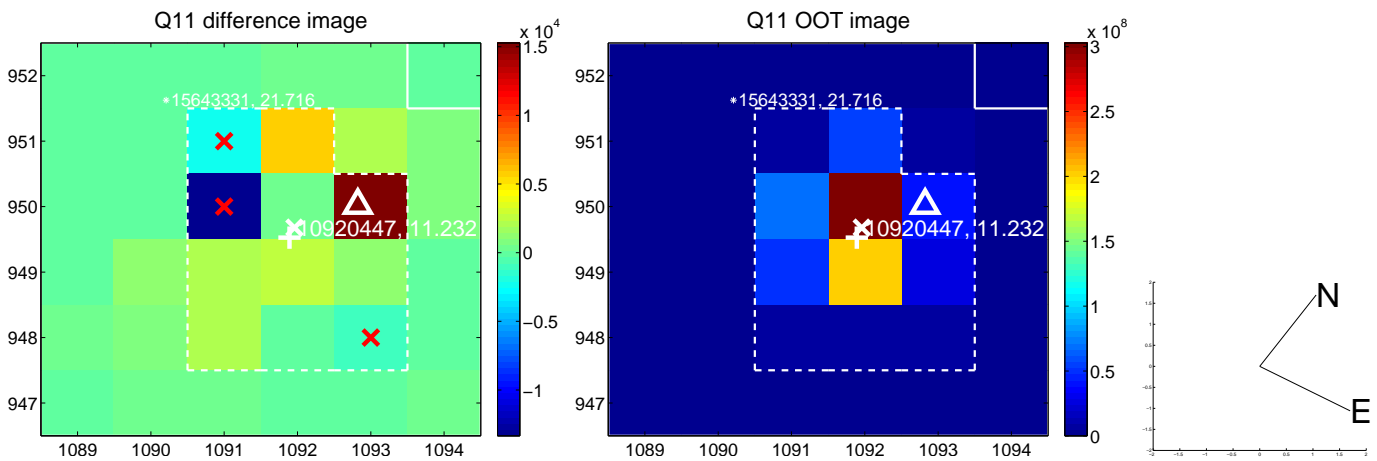
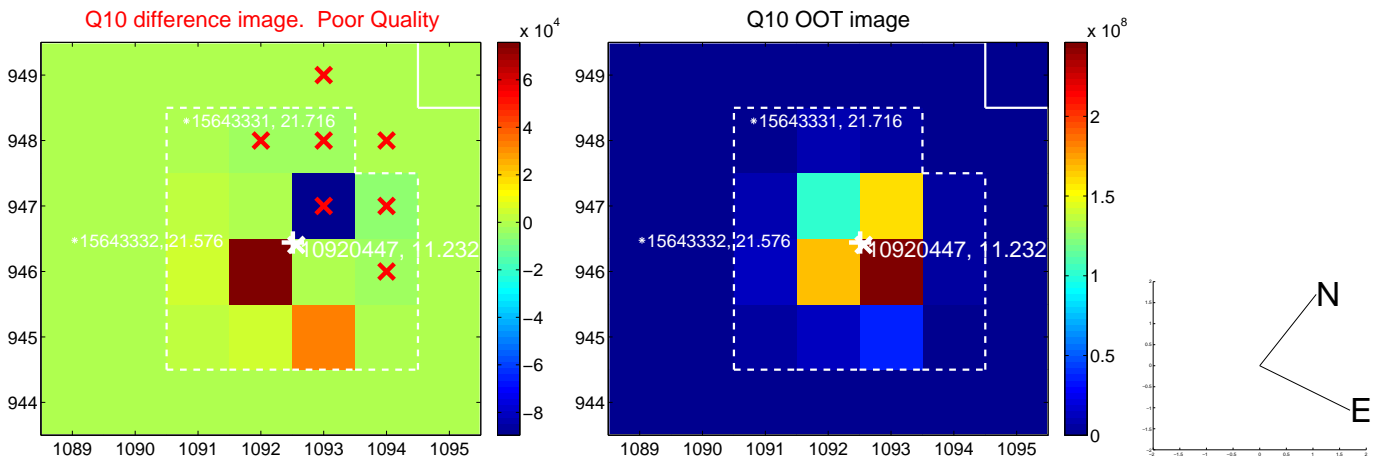
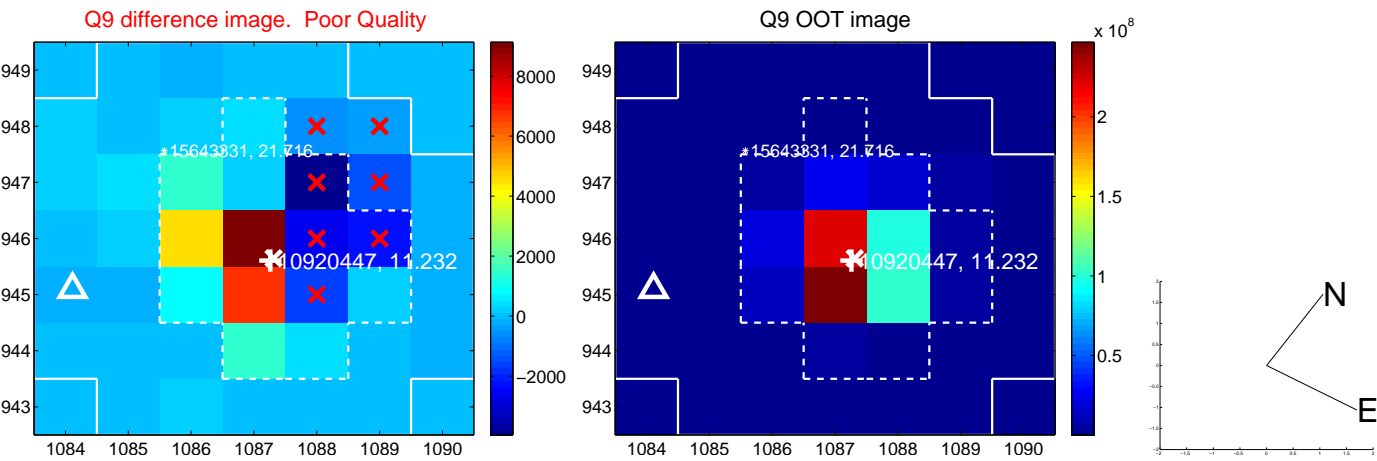
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



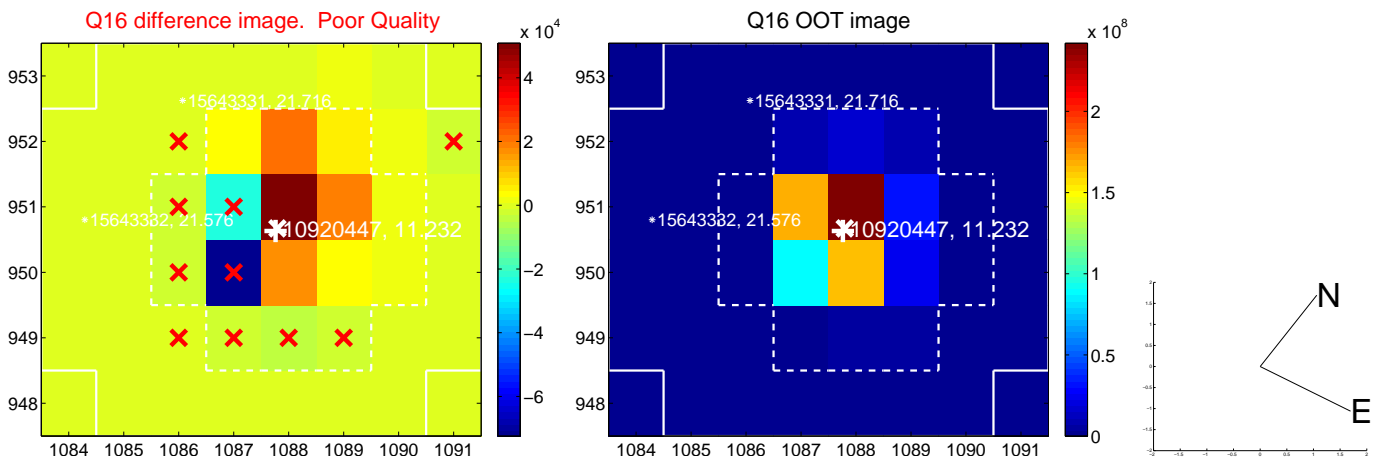
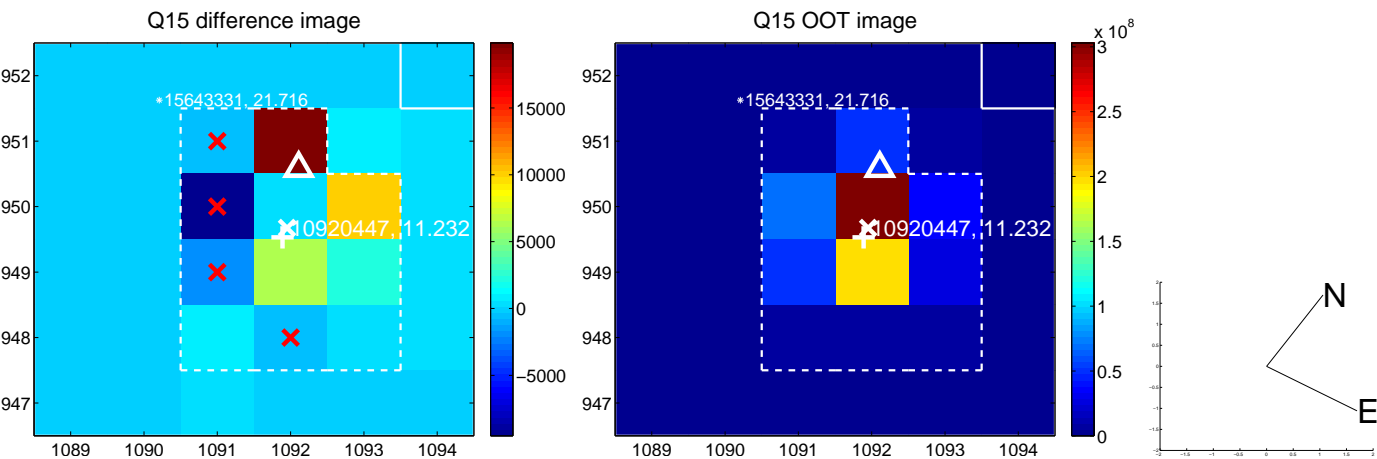
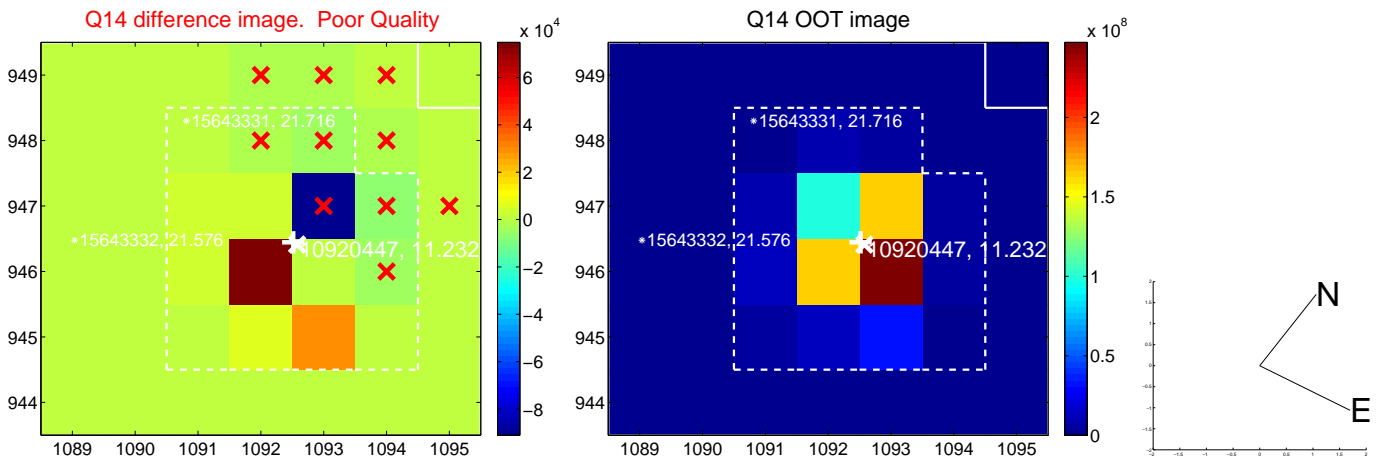
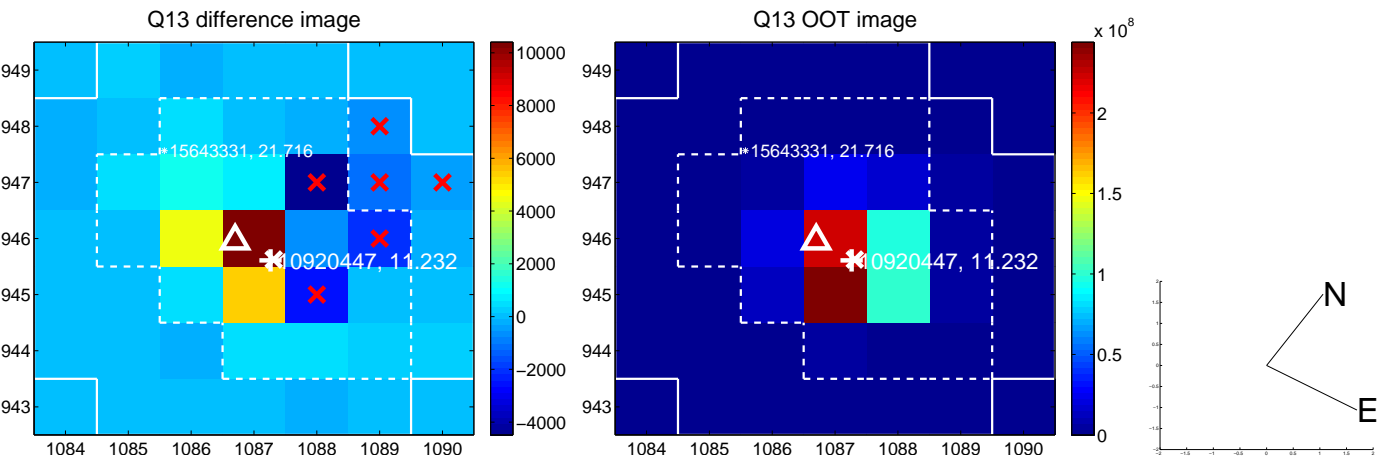
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



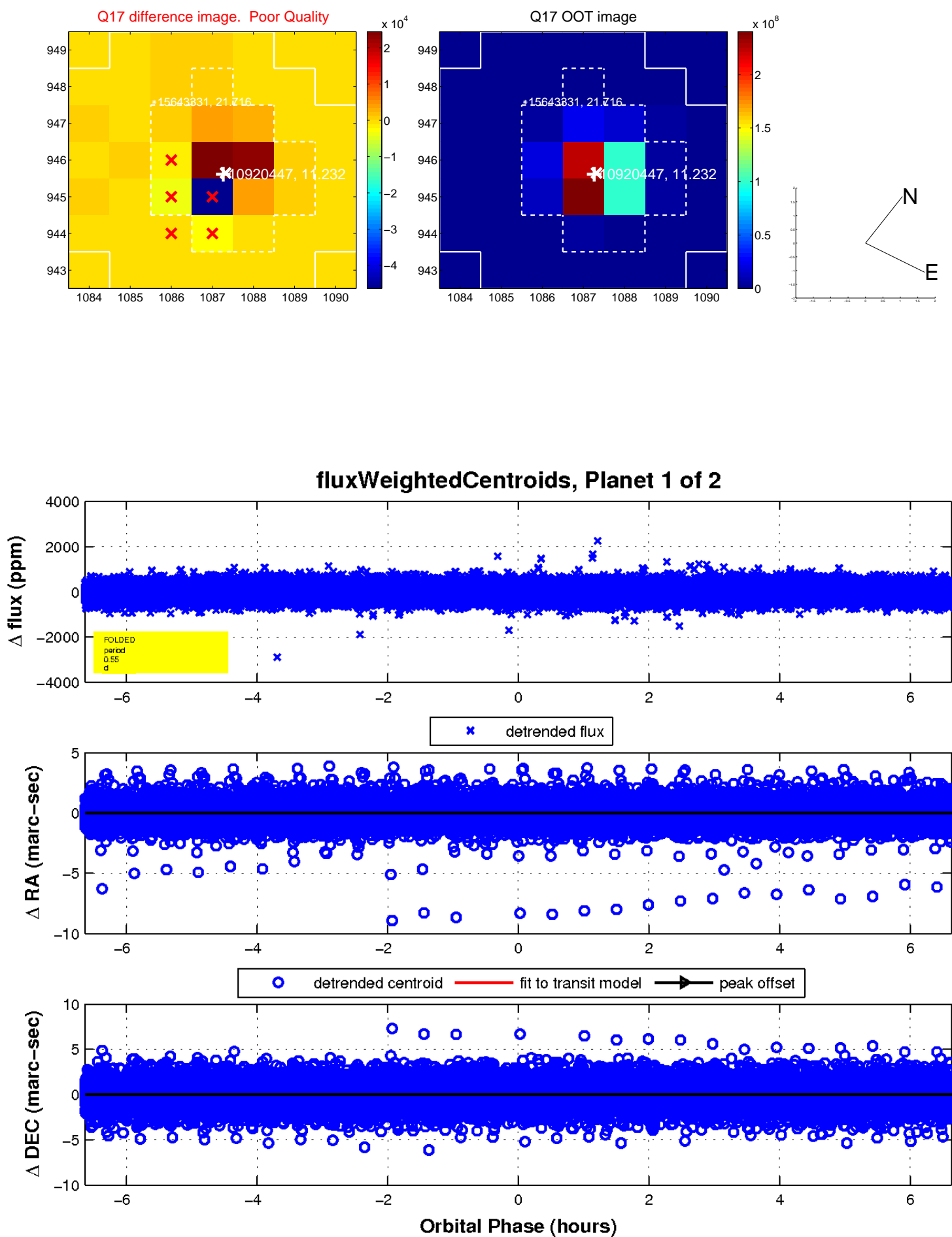
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

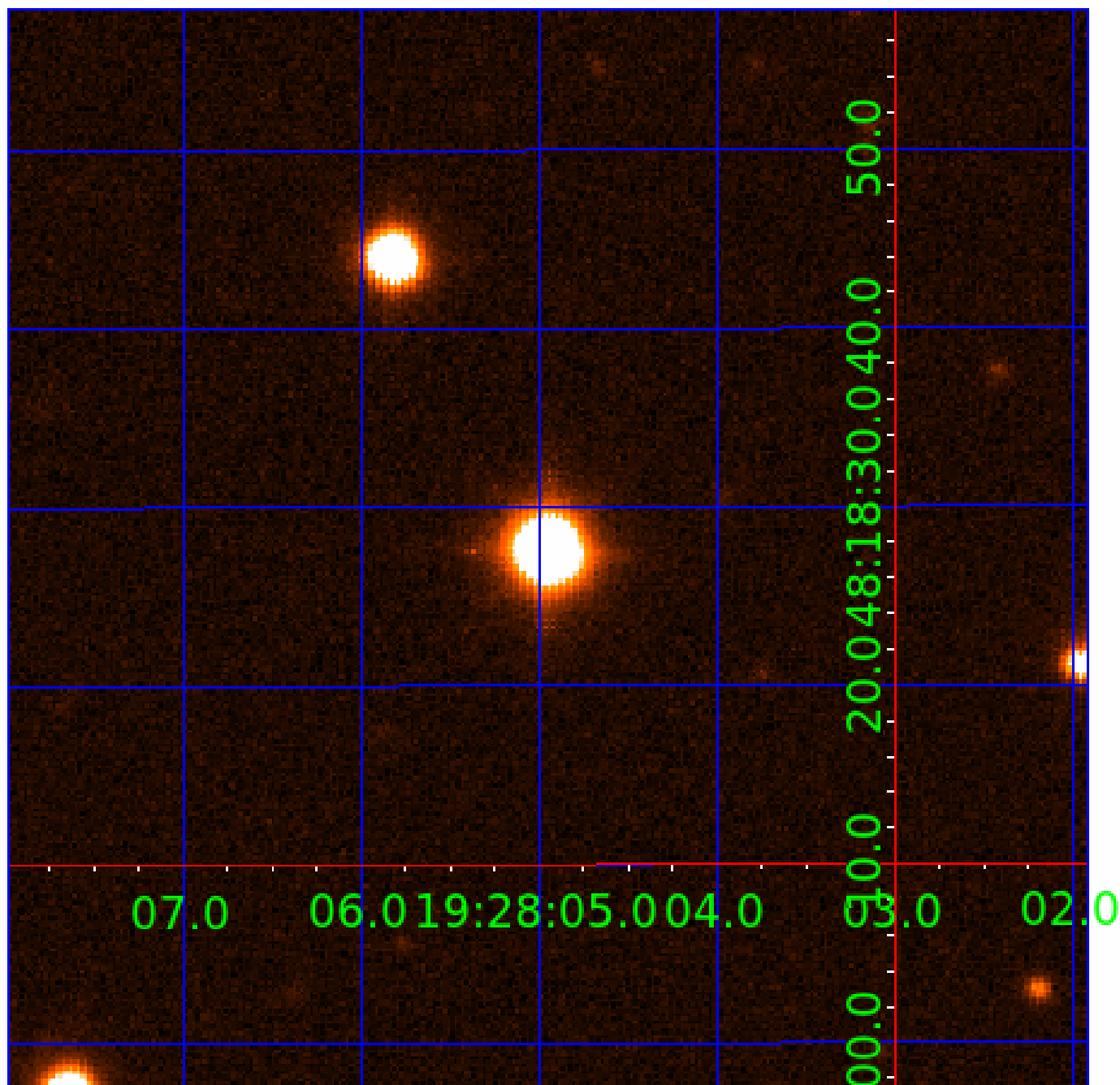


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010920447

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})
010920447-01	OBS	No	0.552623	131.680959	22.4	3.988	10.5	12.9	2.20	8098	1.12	71997.51
010920447-02	OBS	No	40.294892	151.499560	299.7	1.656	9.4	9.0	2.20	8098	3.88	236.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010920447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_SATURATED
010920447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

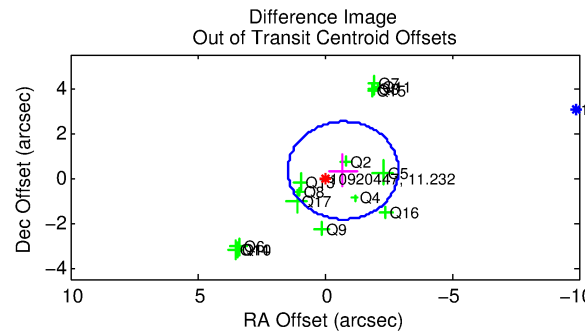
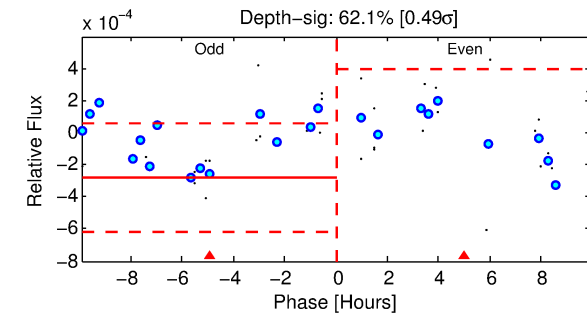
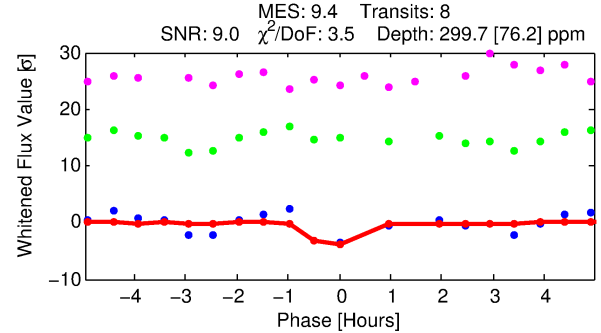
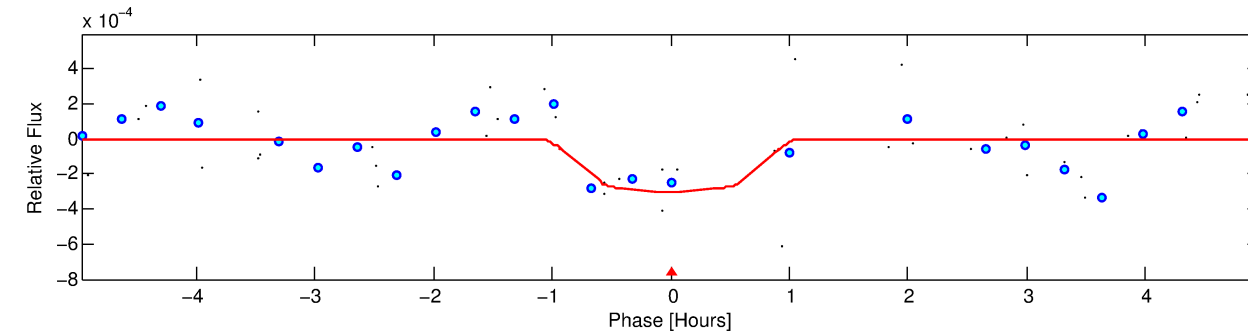
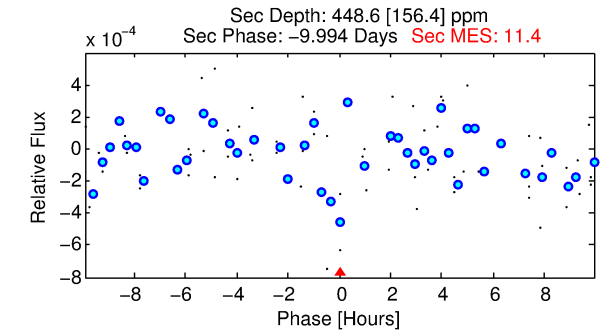
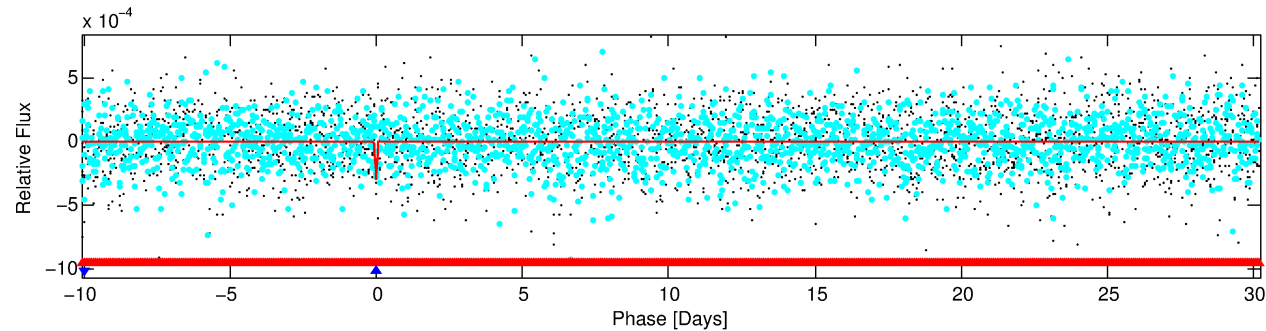
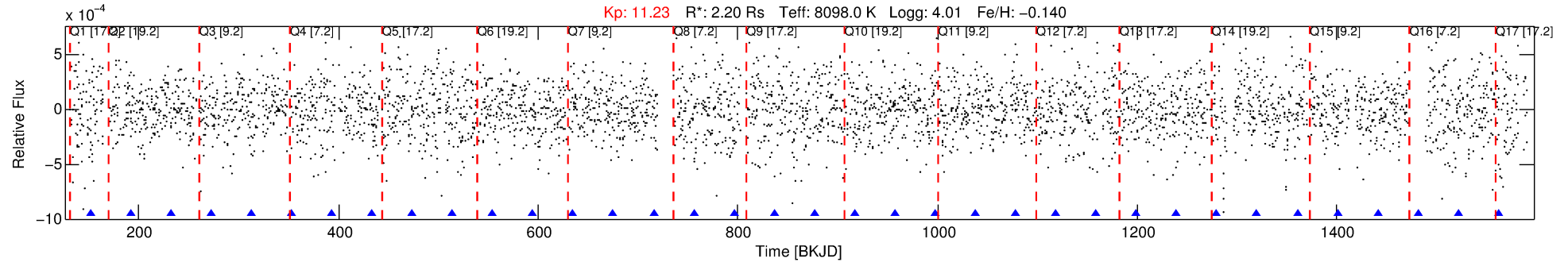
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010920447-02

No Significant Match Found

DV One-Page Summary

KIC: 10920447 Candidate: 2 of 2 Period: 40.295 d



DV Fit Results:

Period = 40.29489 [0.00053] d
Epoch = 151.4996 [0.0090] BKJD
Rp/R* = 0.0162 [0.0799]
a/R* = 181.34 [5165.40]
b = 0.28 [91.48]
Seff = 236.35 [91.45]
Teq = 1000 [97] K
Rp = 3.88 [19.20] Re
a = 0.2808 [0.0667] AU
Ag = 1291.05 [12766.63] [0.10 σ]
Teffp = 9266 [22896] K [0.36 σ]

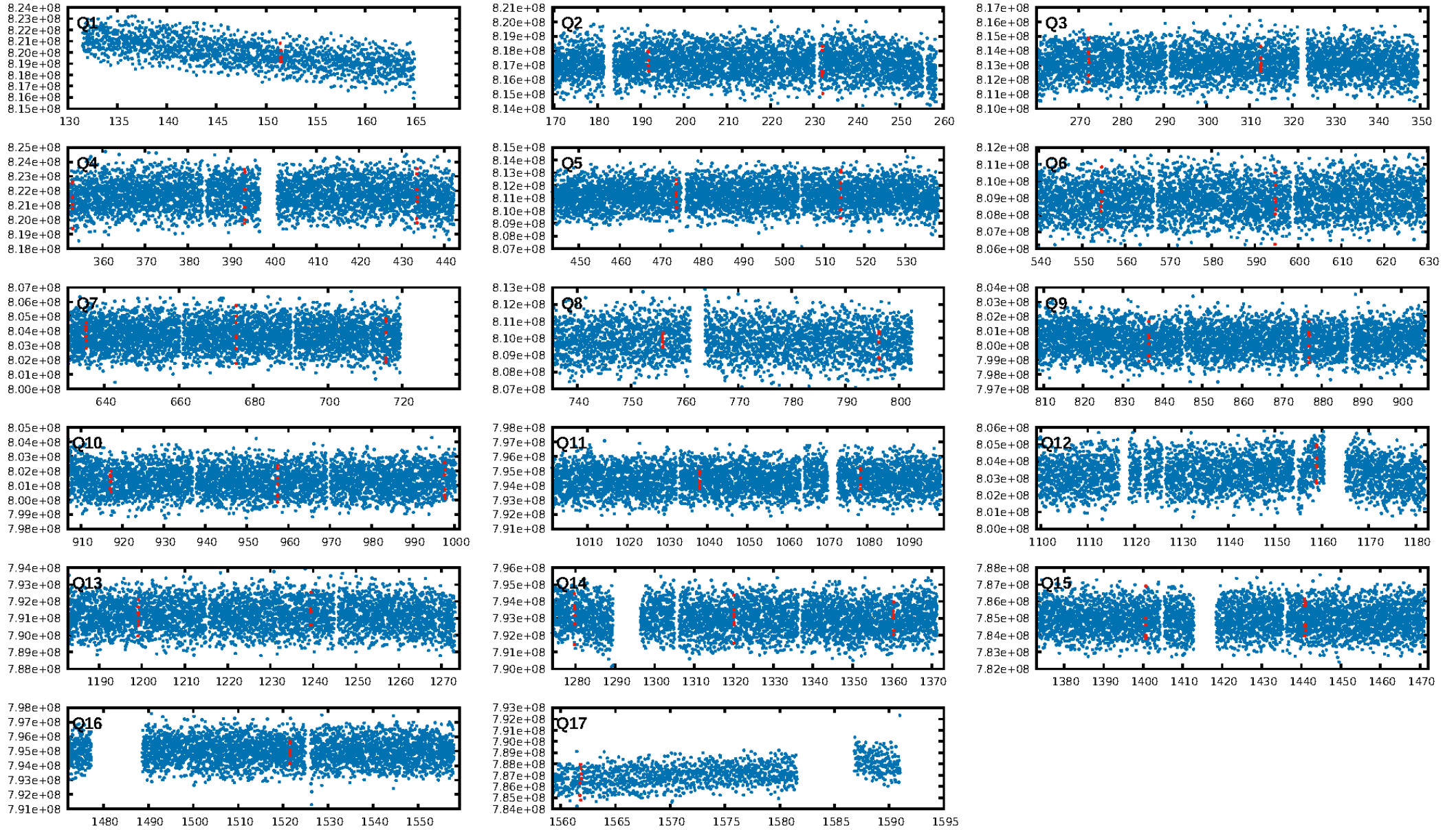
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [220.89 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.7%
ModelChiSquareGof-sig: 97.4%
Bootstrap-pfa: 6.14e-07
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 3.22
Centroid-sig: 65.5%
Centroid-so: 0.280 arcsec [0.92 σ]
OotOffset-rm: 0.797 arcsec [1.10 σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.794 arcsec [1.46 σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.33 [5/15]
DiffImageOverlap-fno: 0.00 [0/17]

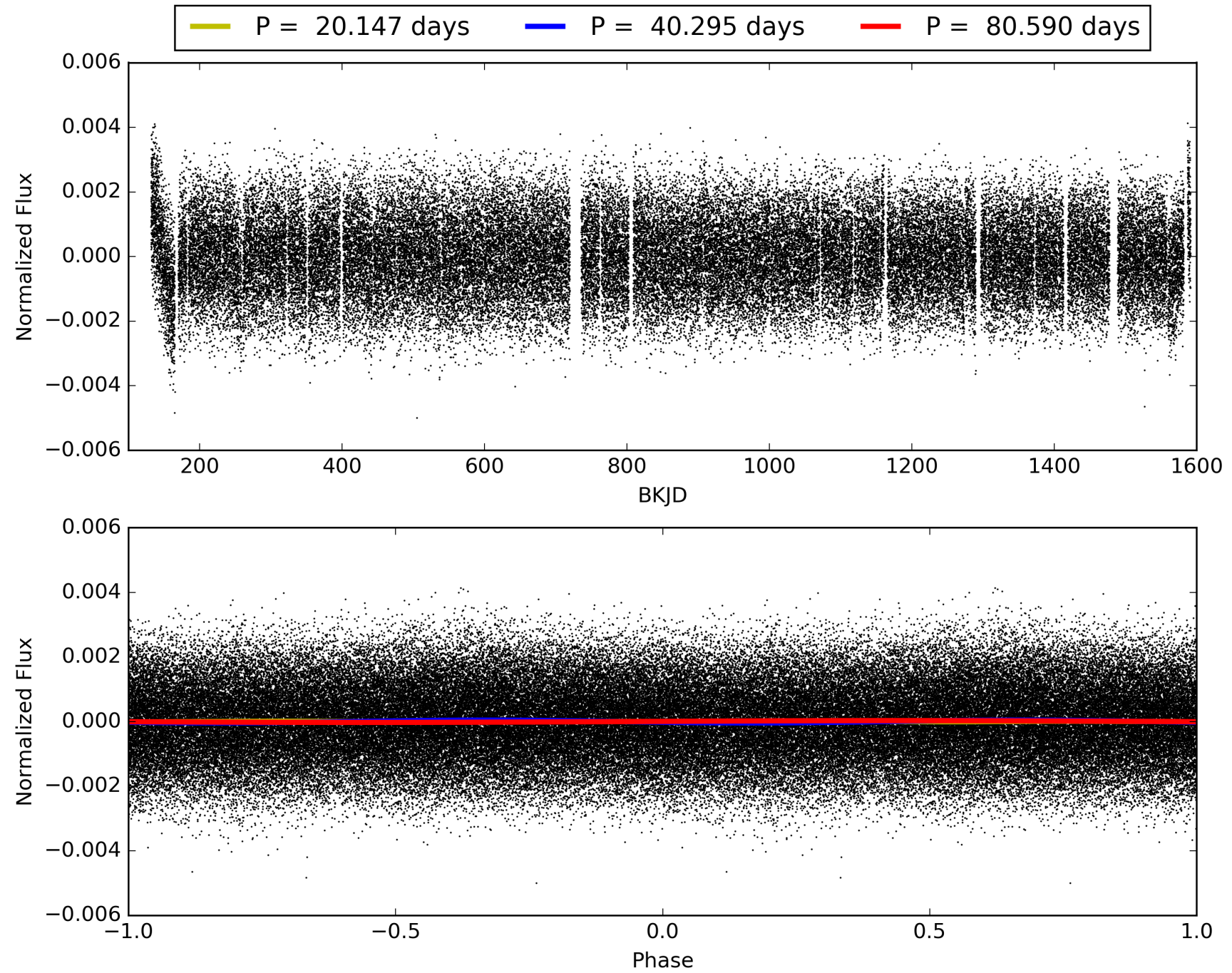
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:10:28 Z

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

TCE 010920447-02, PDC Light Curves

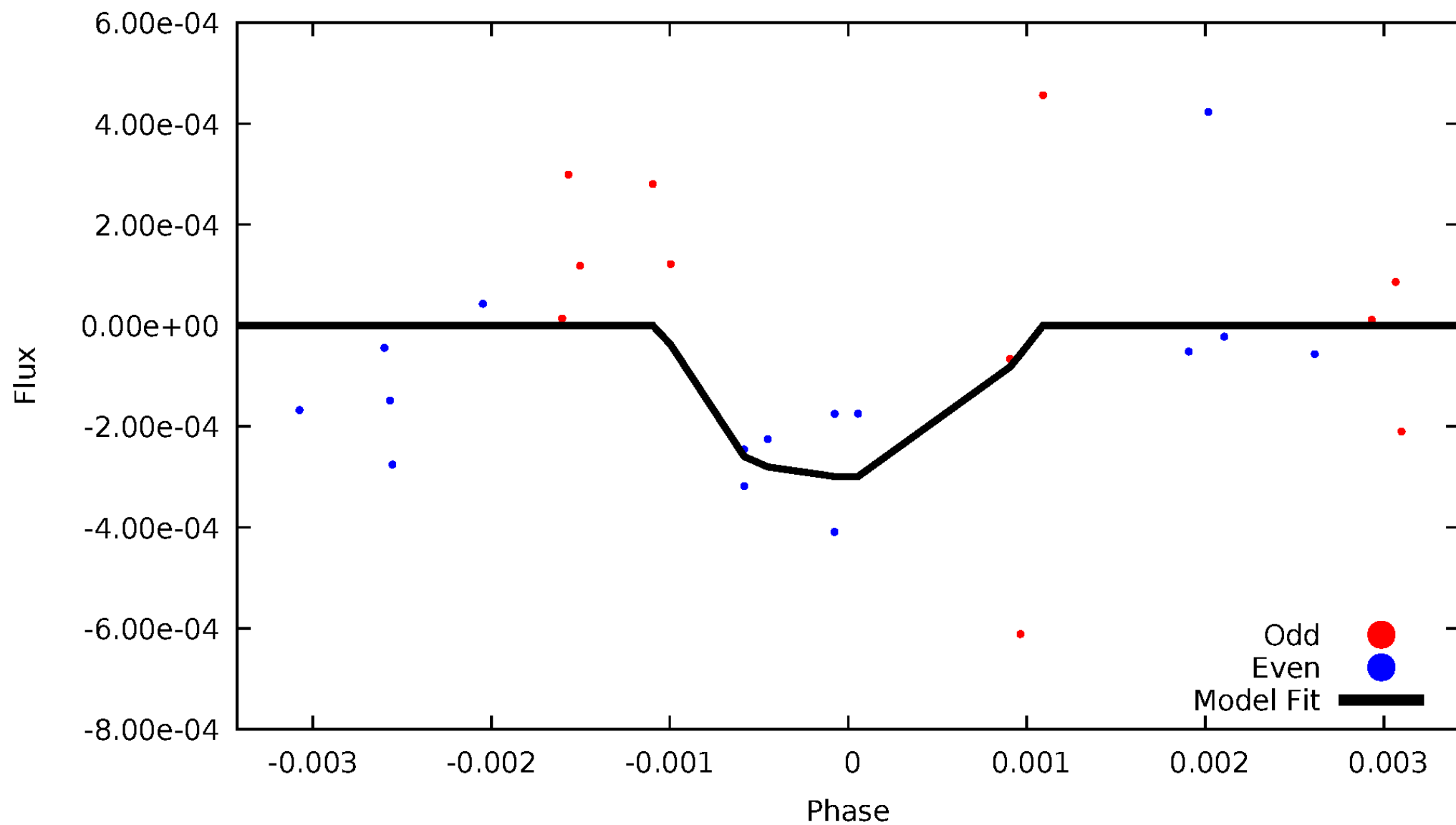


TCE 010920447-02



DV Odd/Even

TCE 010920447-02

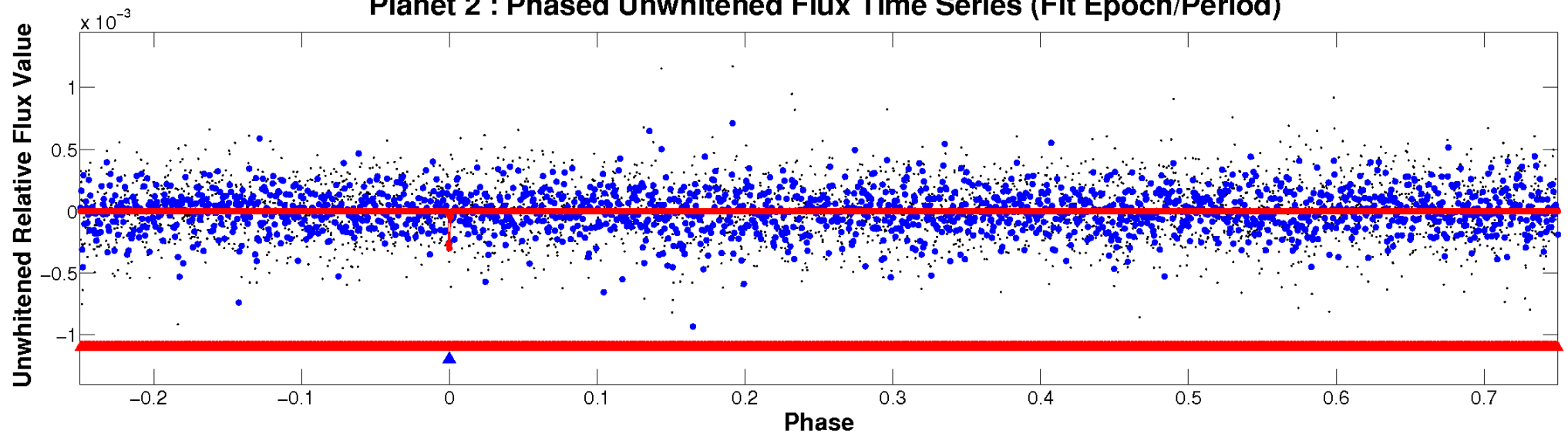


ALT Odd/Even

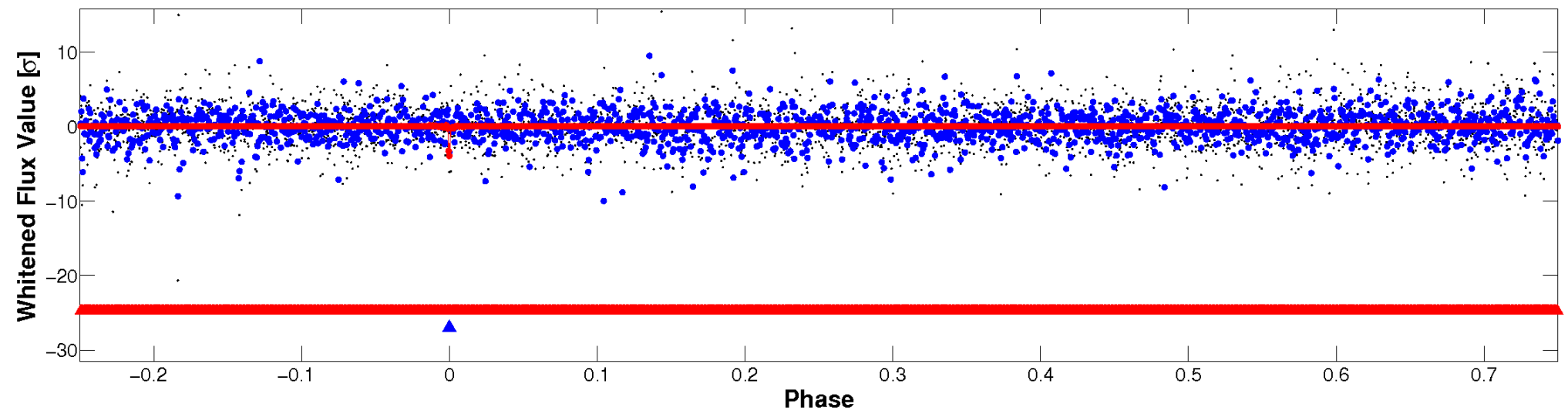
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

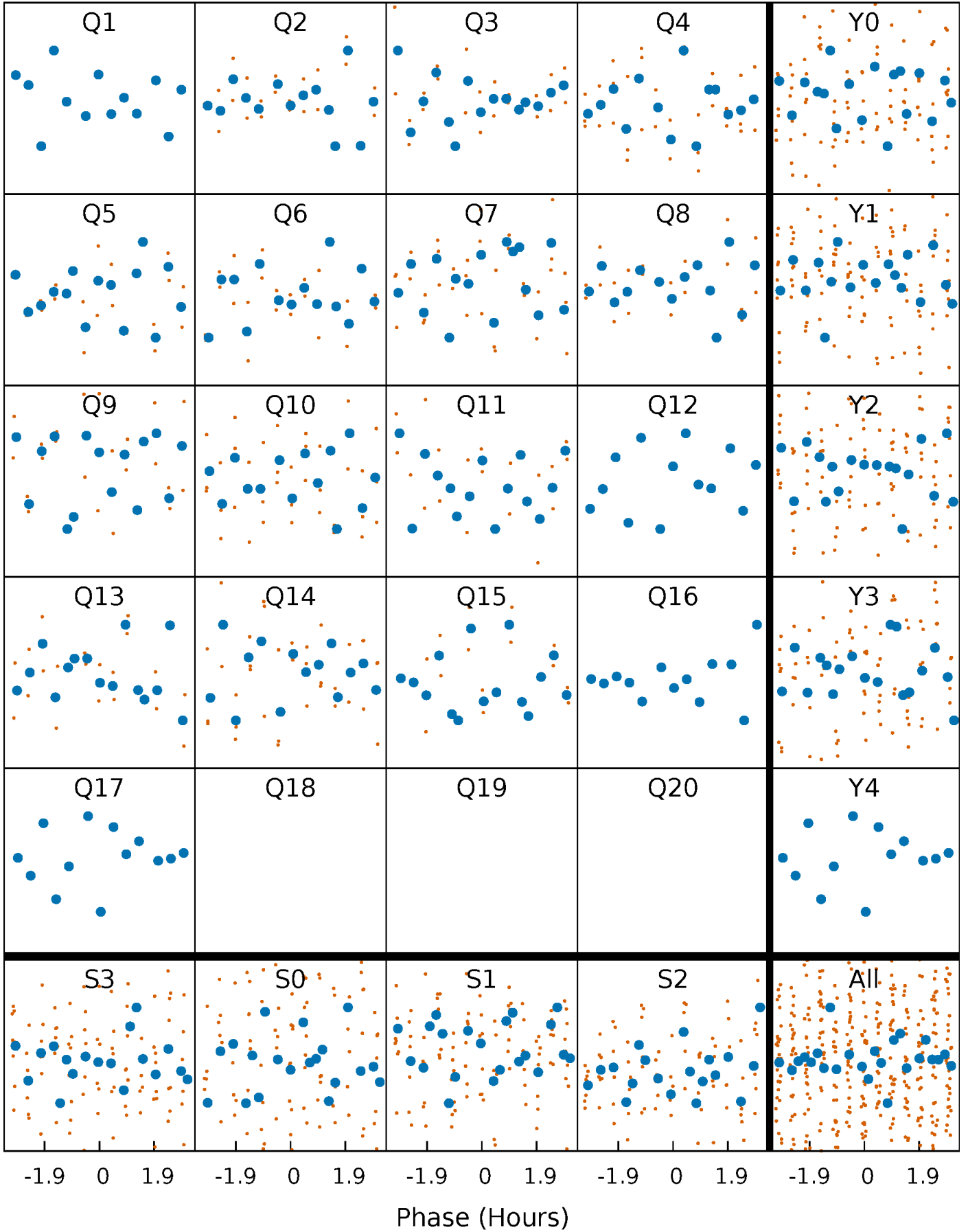


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



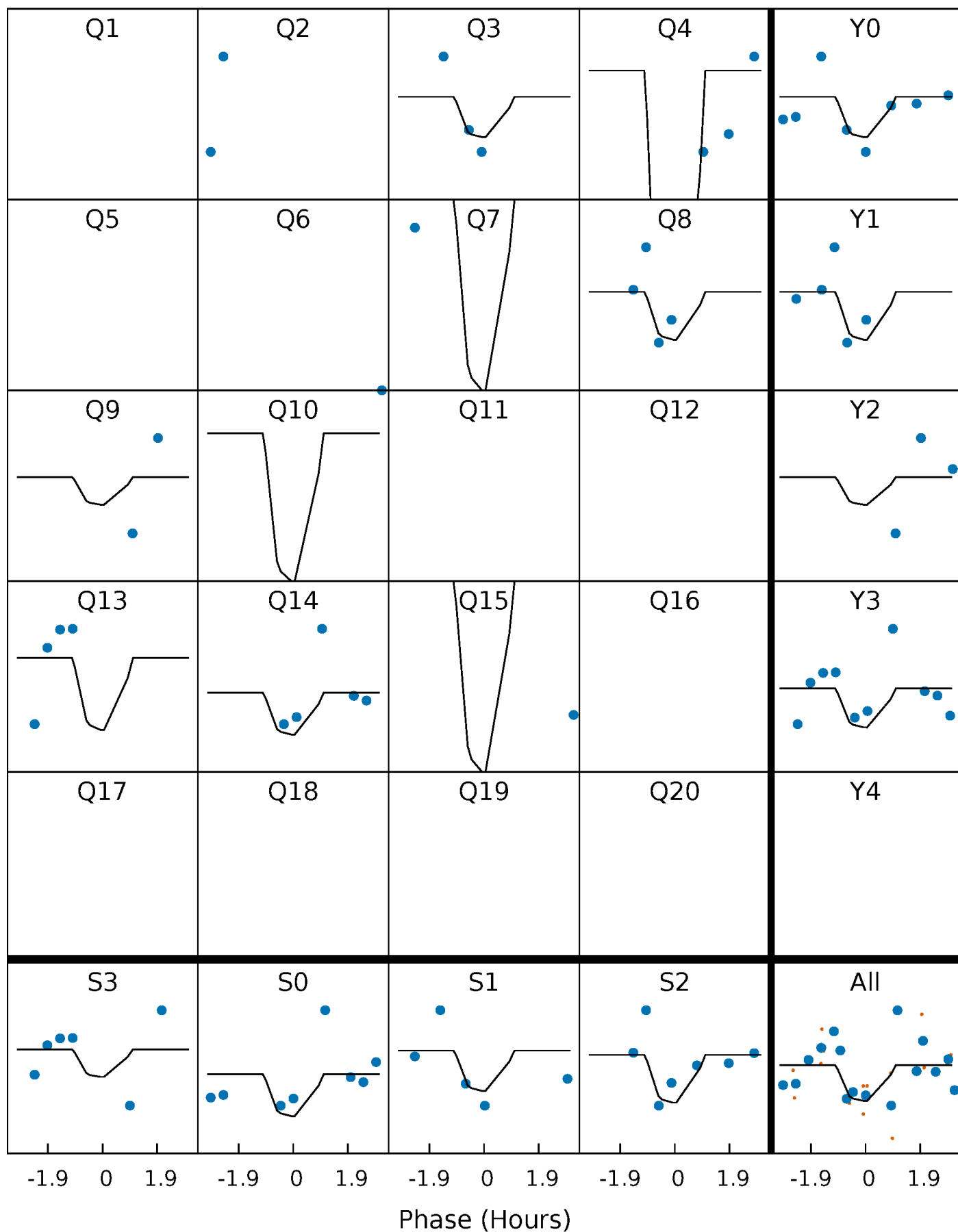
PDC Quarter-Phased Transit Curves

TCE 010920447-02 P= 40.294892 Days $T_0=151.499560$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 010920447-02 P= 40.294892 Days $T_0=151.499560$ (BKJD)

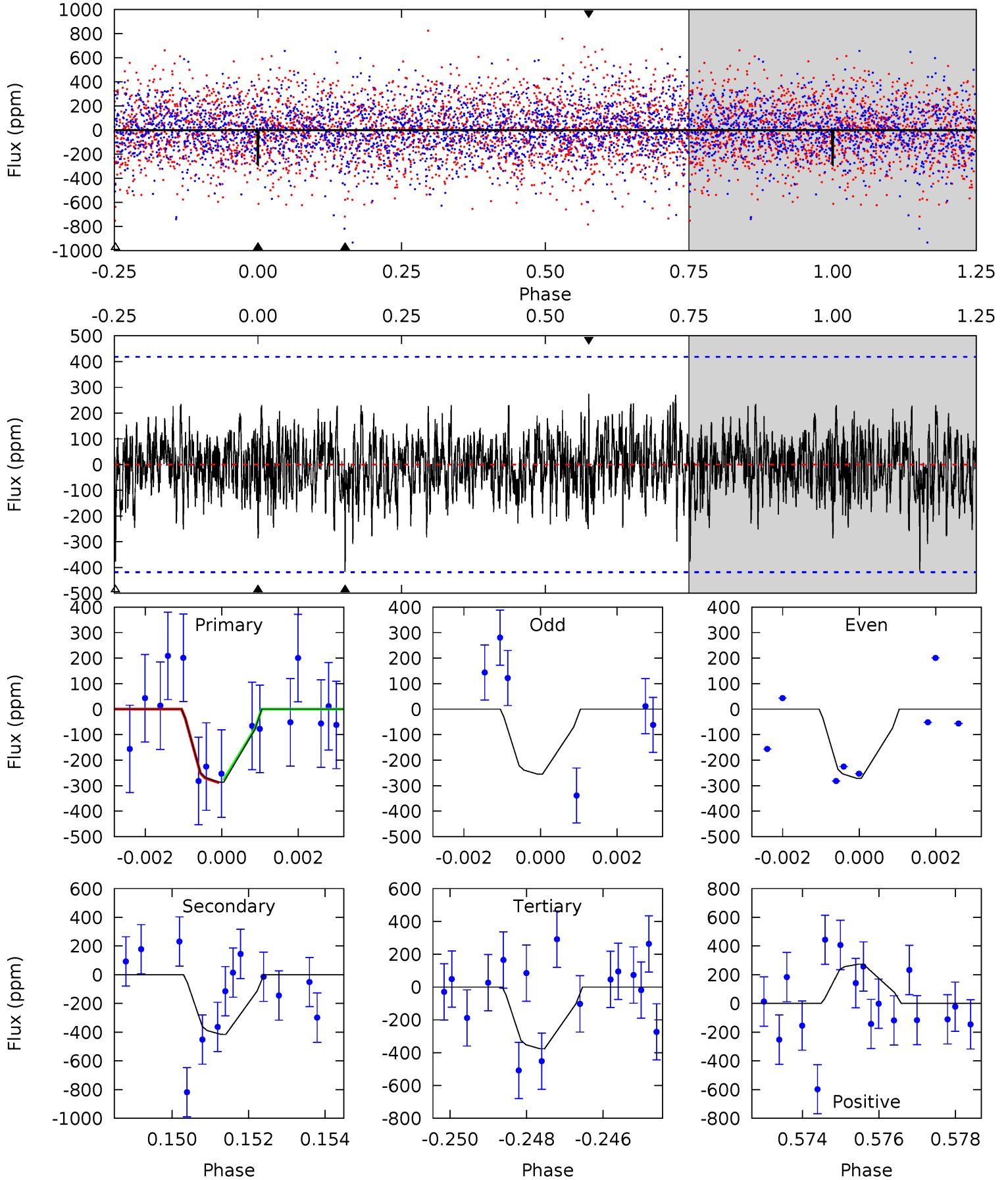


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

010920447-02, P = 40.294892 Days, E = 111.204668 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.65	5.29	4.79	3.48	5.32	3.08	1.18	-1.14	0.16	0.51	1.81	0.09	1.06	0.40	0.07



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 010920447

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8098^{+226}_{-340}	$4.013^{+0.192}_{-0.128}$	$-0.140^{+0.200}_{-0.300}$	$2.199^{+0.461}_{-0.614}$	$1.819^{+0.134}_{-0.336}$	$0.241^{+0.294}_{-0.093}$
	+3%/-4%	+5%/-3%	+143%/-214%	+21%/-28%	+7%/-18%	+122%/-38%
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 010920447-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-416 ± 79	$13.08^{+13.29}_{-9.29}$	1384^{+89}_{-91}	4818^{+4118}_{-1125}	103^{+1152}_{-78}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

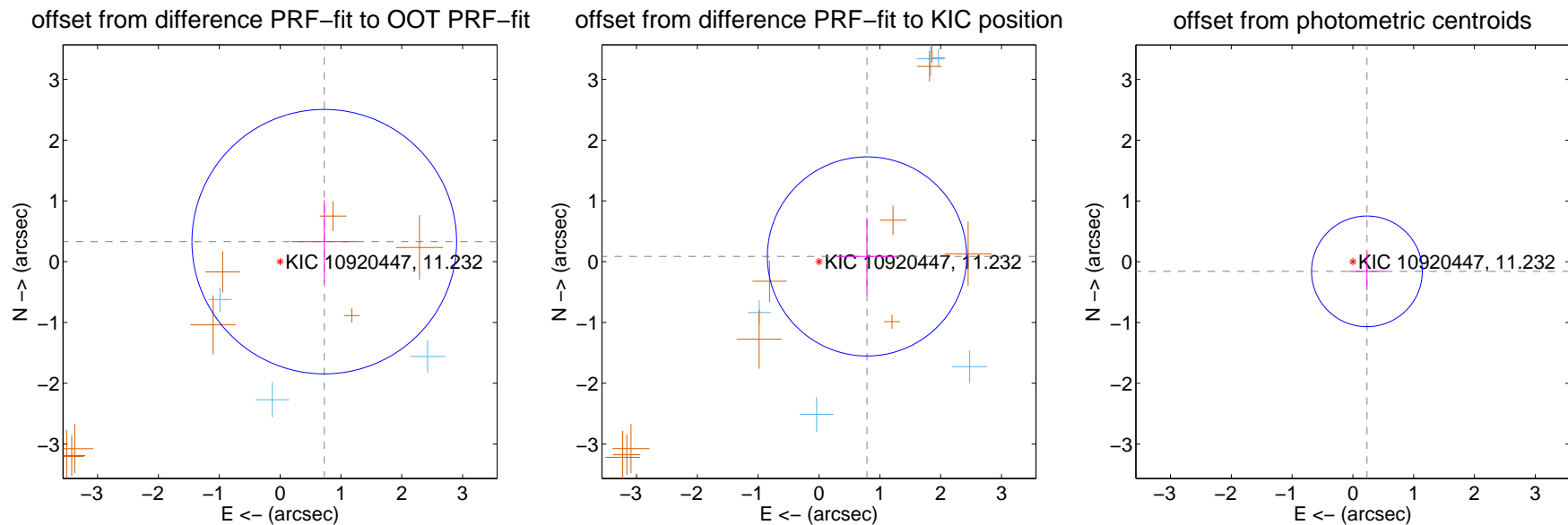
DV Centroid Data

Supplemental centroid analysis for 010920447-02. **Kepler magnitude: 11.23.** Transit SNR 9.05

There are 5 quarters with good PRF difference image offsets

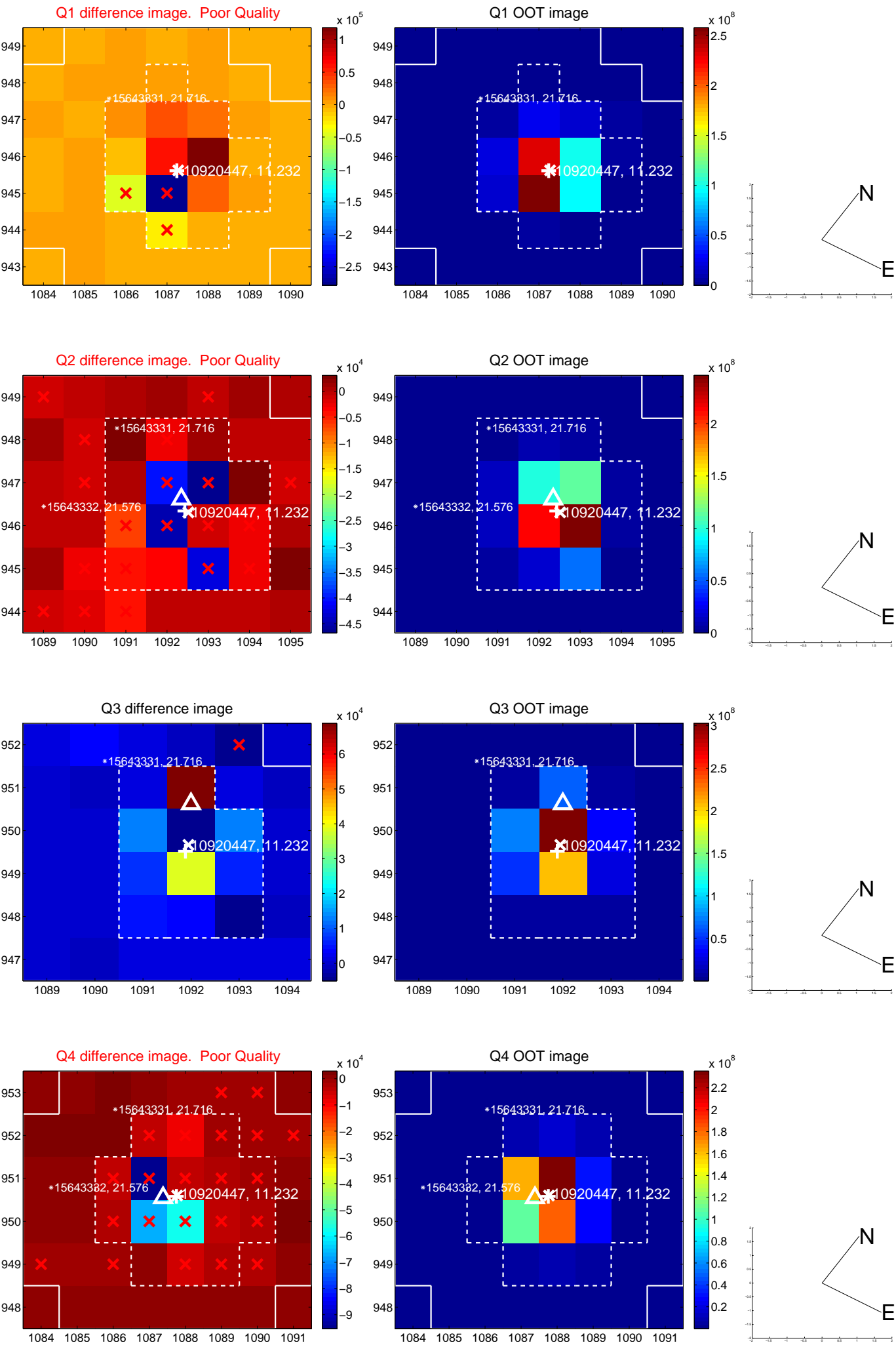
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.797 ± 0.725	1.10	-0.726 ± 0.544	0.329 ± 0.683
PRF-fit source offset from KIC position	0.794 ± 0.546	1.46	-0.790 ± 0.501	0.087 ± 0.634
photometric centroid source offset	0.28 ± 0.30	0.92	-0.23 ± 0.30	-0.16 ± 0.31

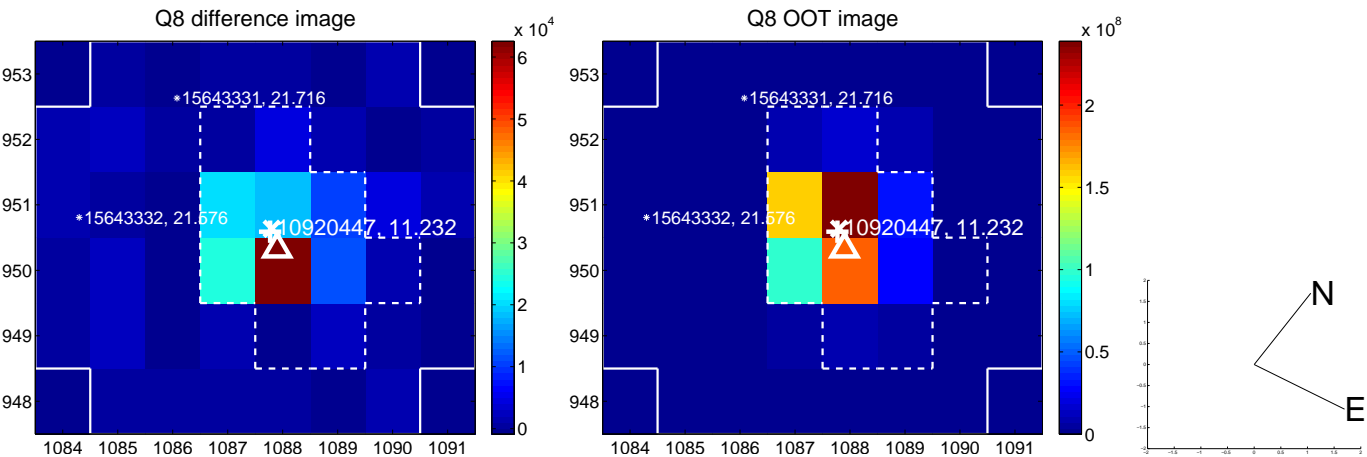
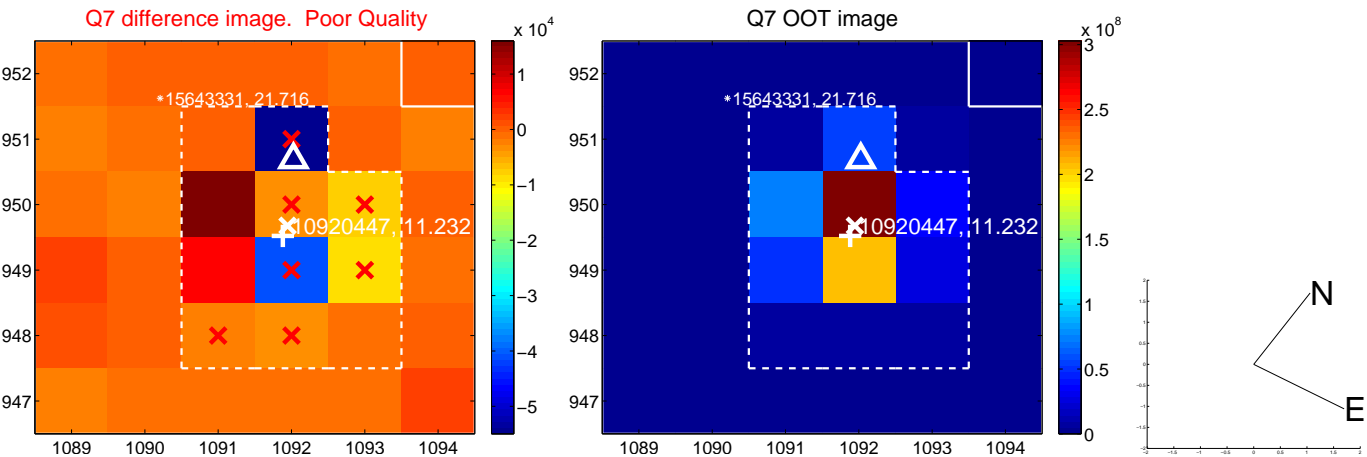
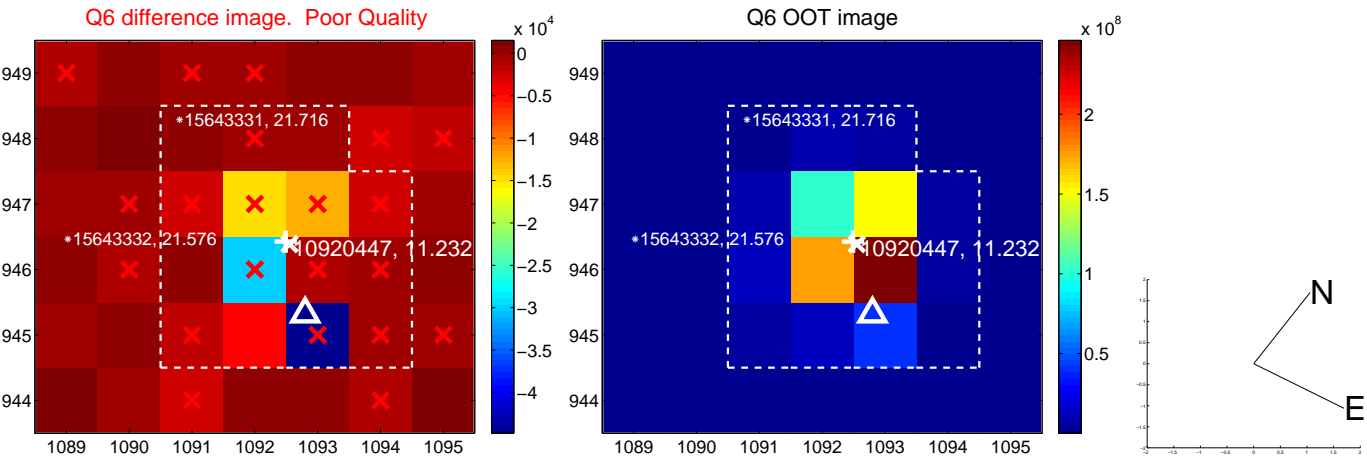
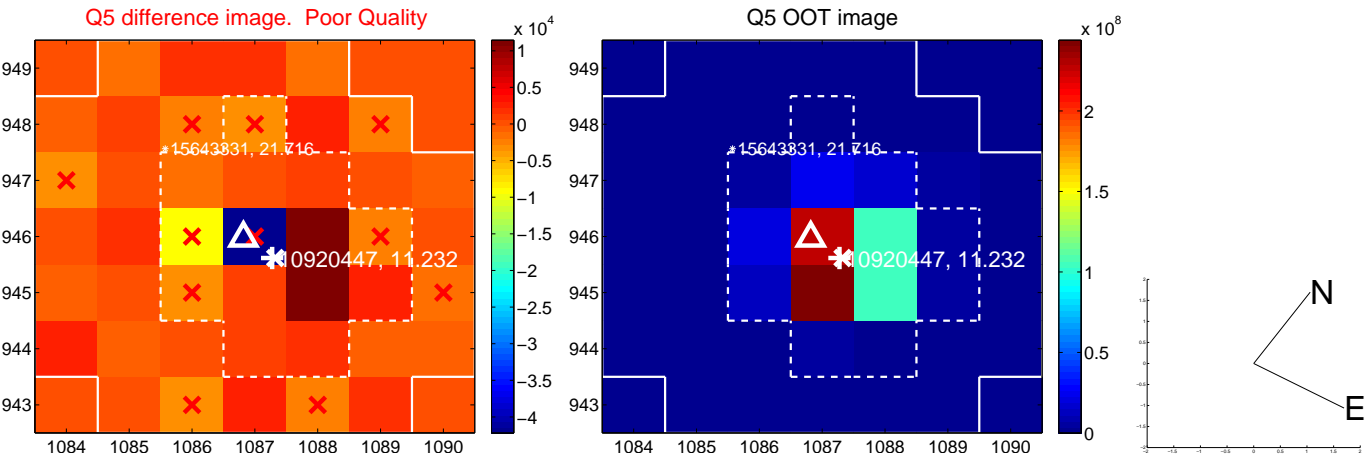


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

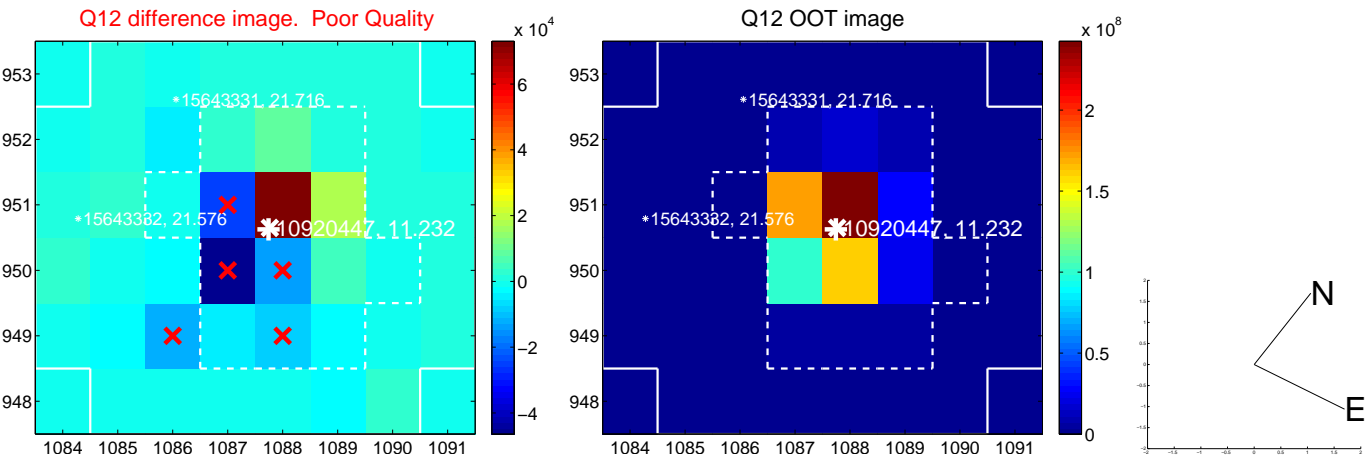
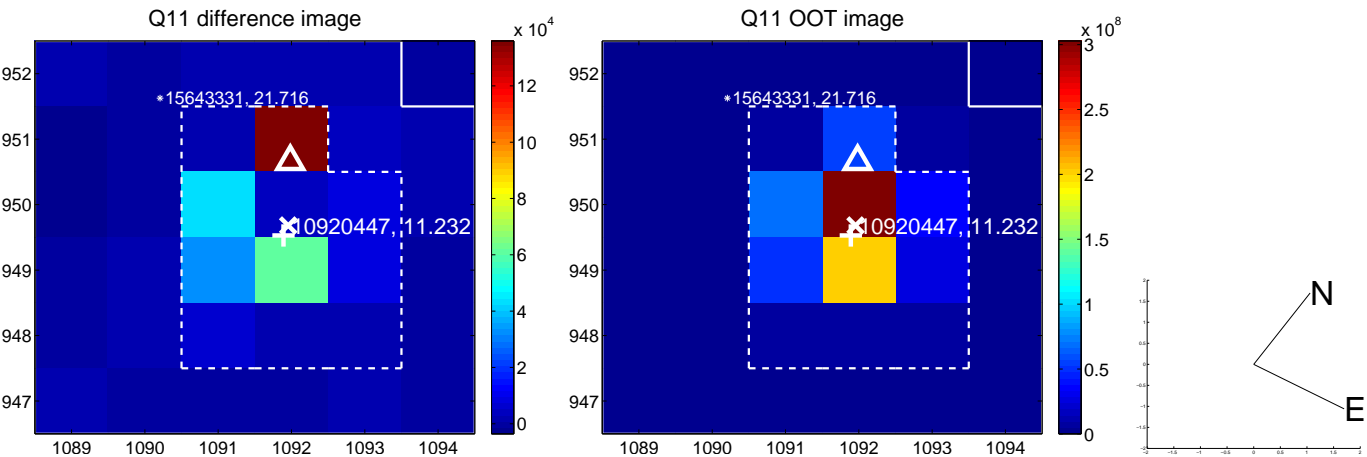
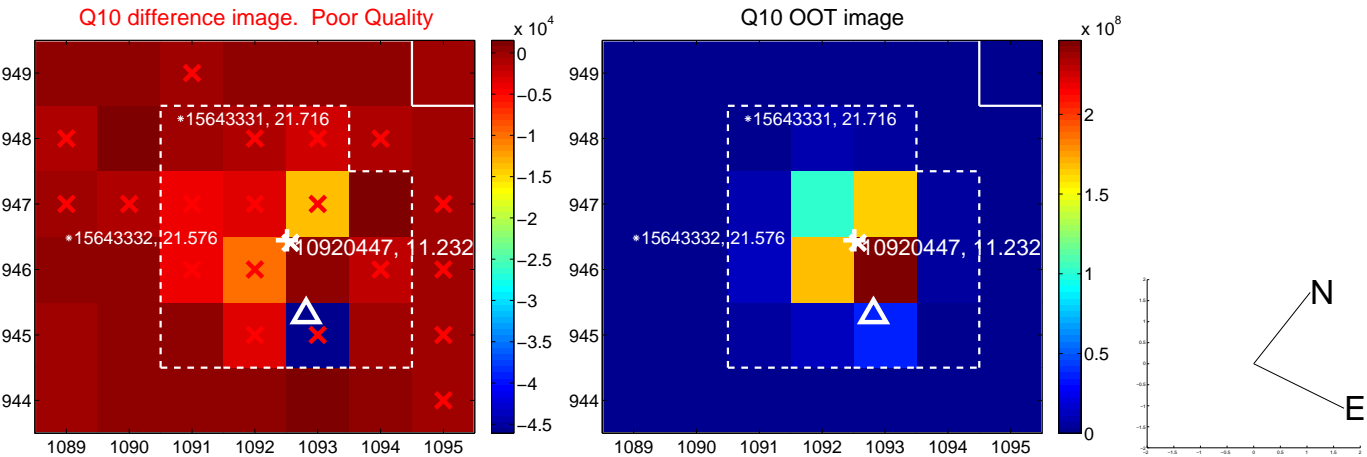
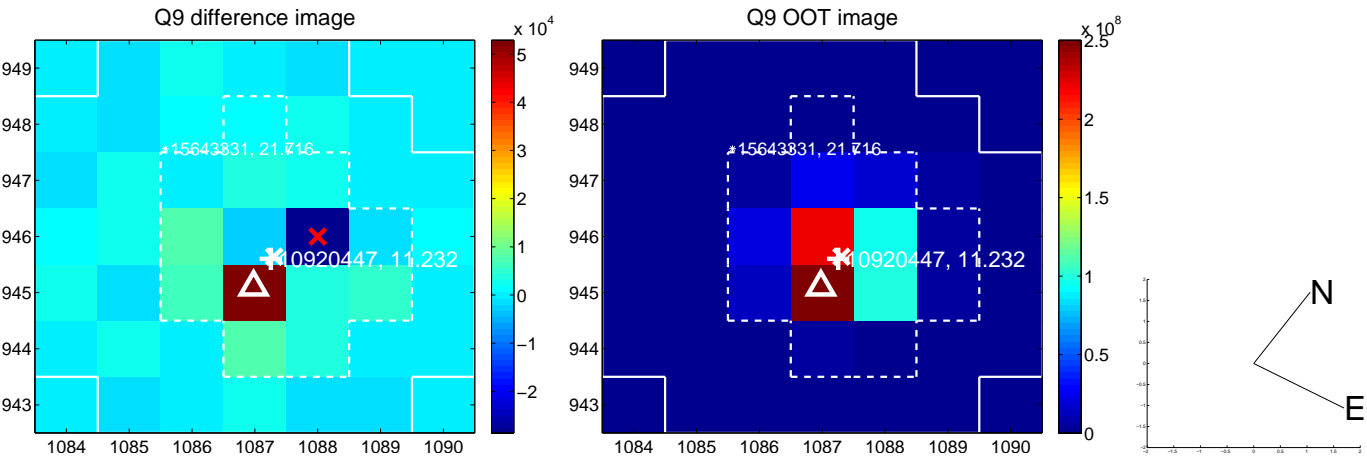
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



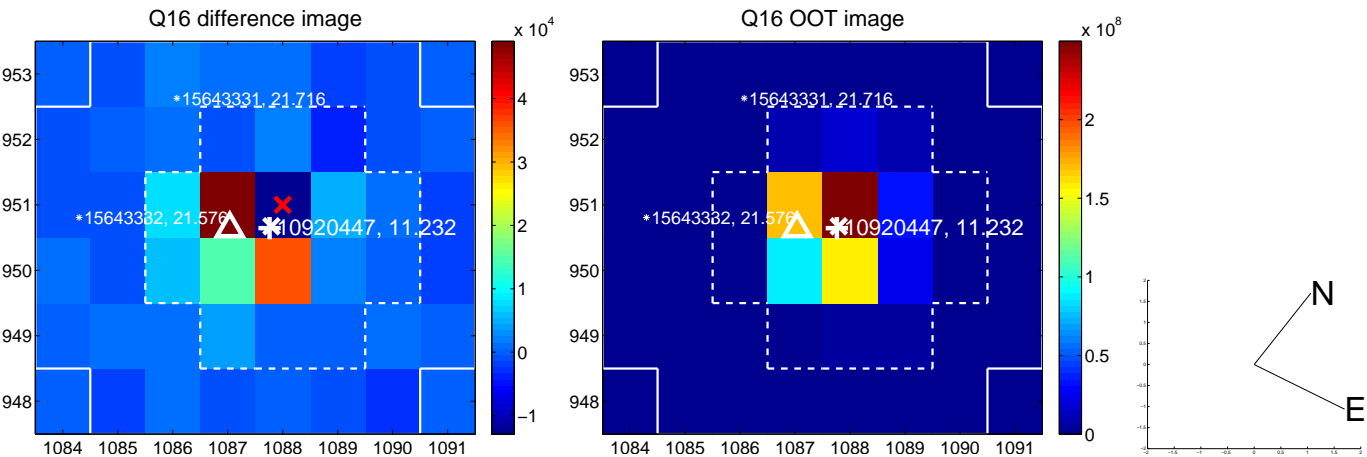
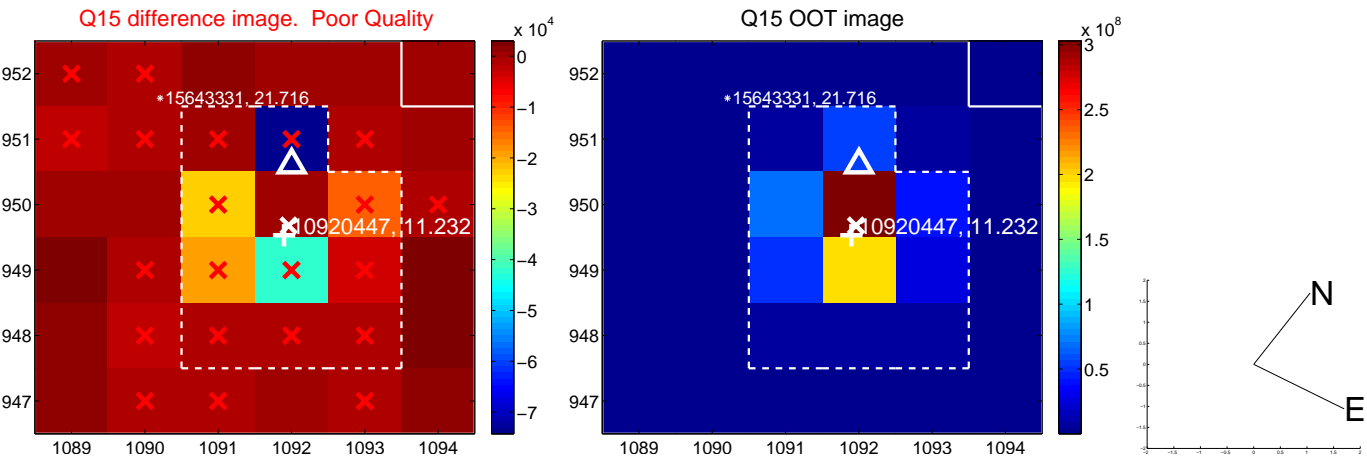
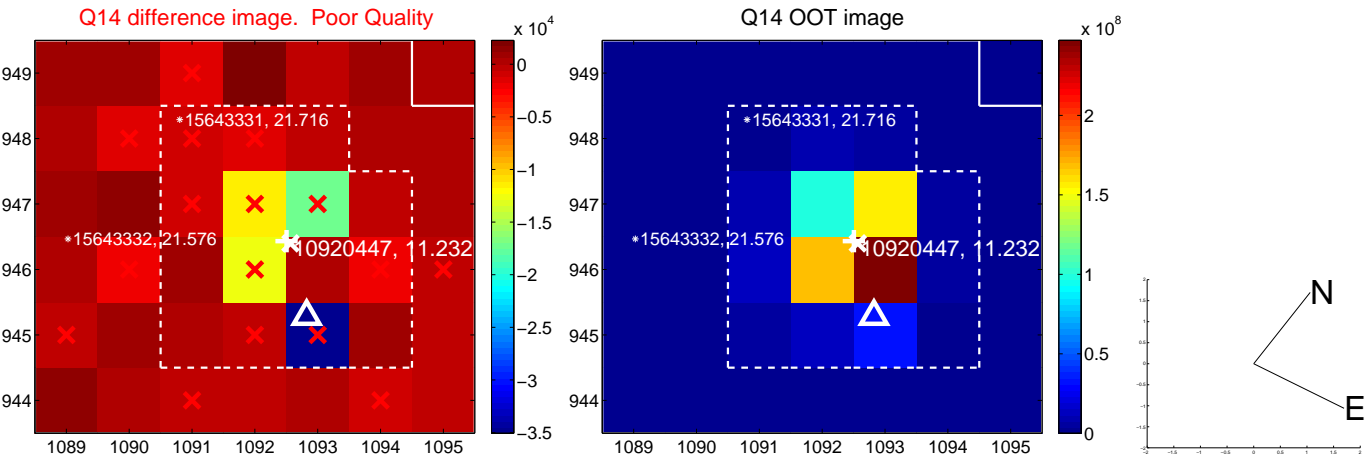
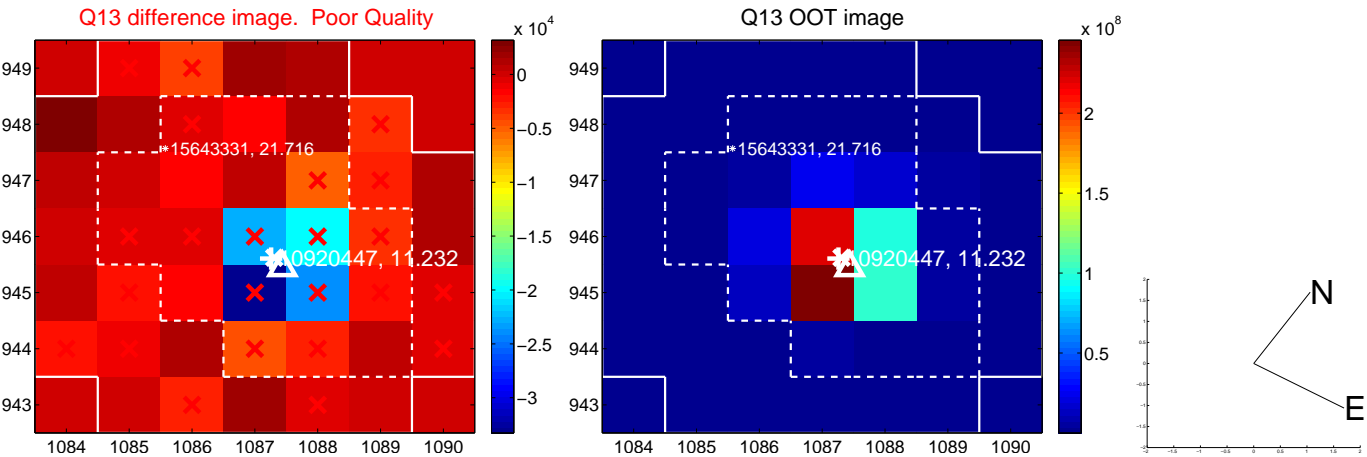
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



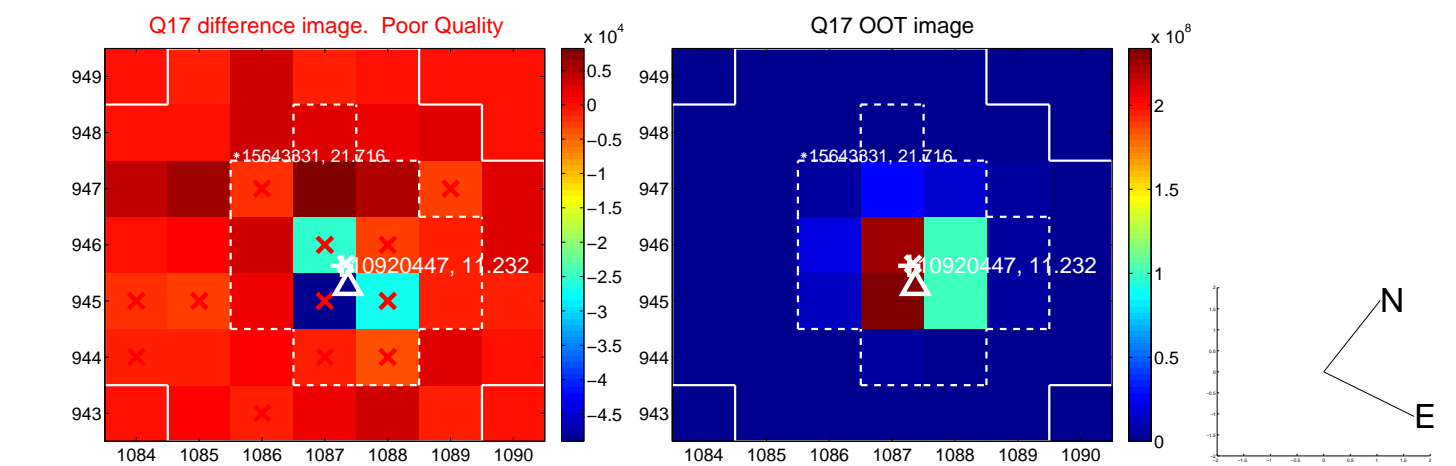
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



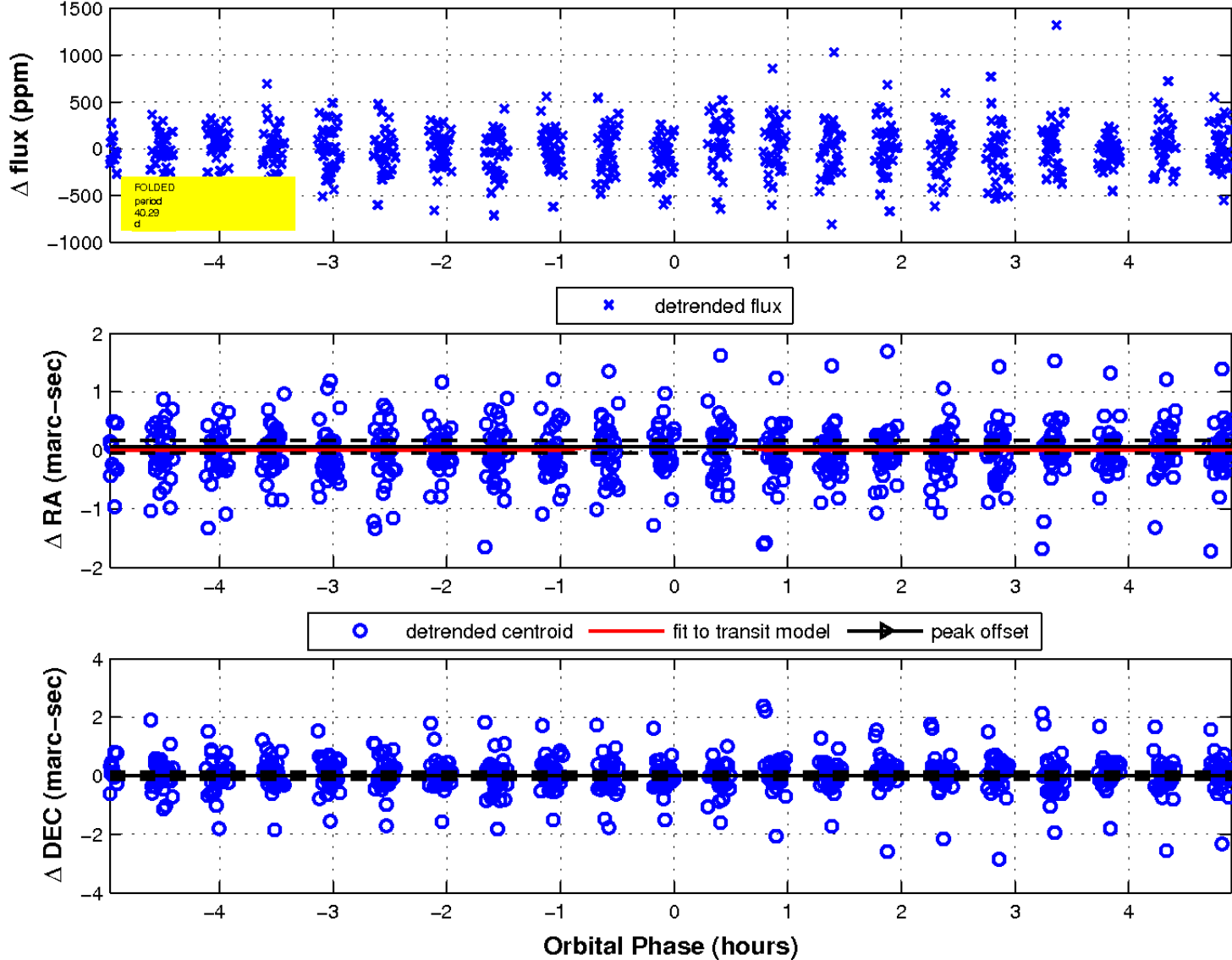
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

