

KIC 009655177

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})
009655177-01	OBS	No	0.970261	132.317315	209.9	5.538	13.0	12.8	2.44	7222	3.66	30148.51
009655177-02	OBS	No	0.581306	131.769144	503.5	1.966	9.8	11.2	2.44	7222	6.51	59691.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655177-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
009655177-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

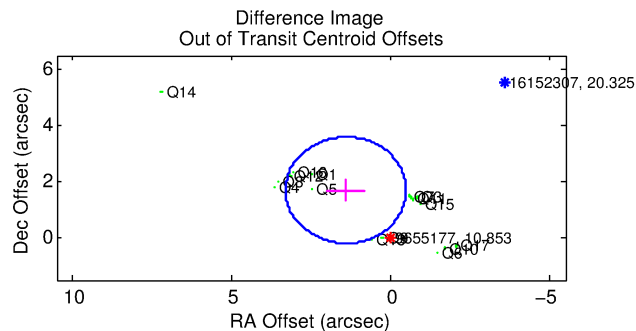
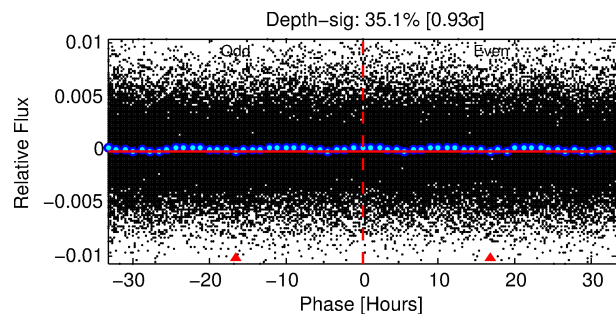
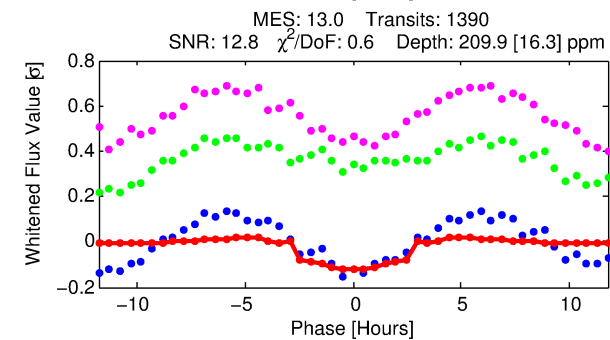
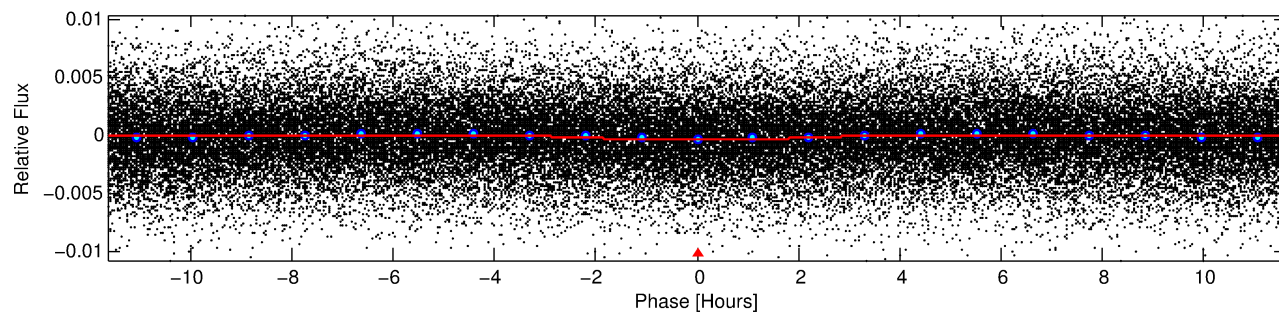
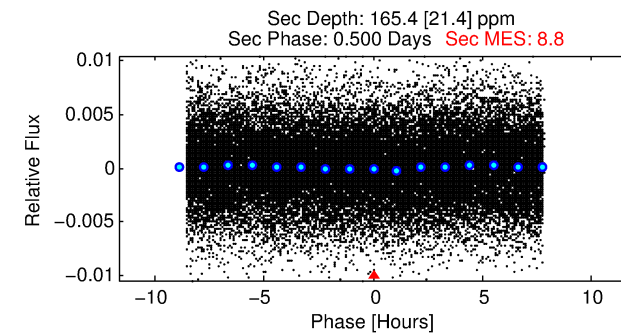
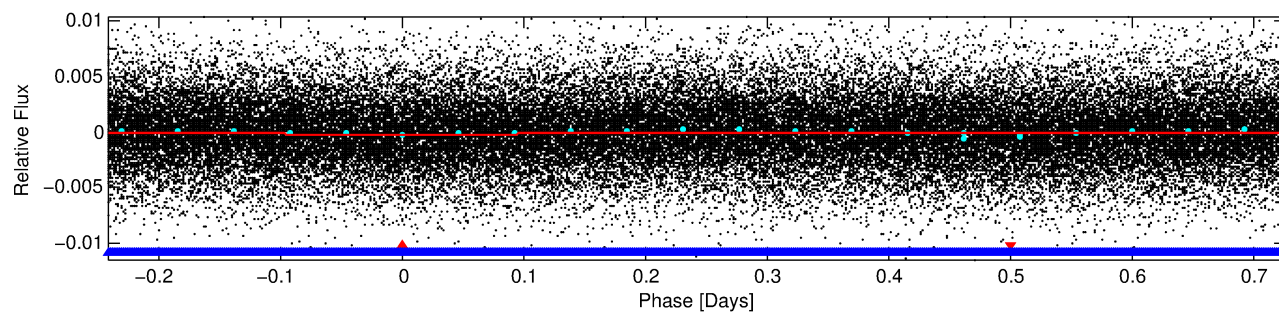
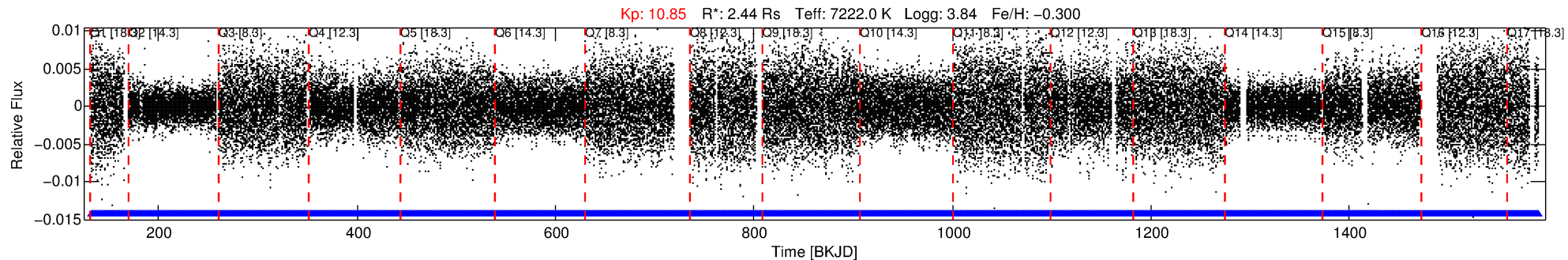
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655177-01

No Significant Match Found

DV One-Page Summary

KIC: 9655177 Candidate: 1 of 2 Period: 0.970 d



DV Fit Results:

Period = 0.97026 [0.00001] d
Epoch = 132.3173 [0.0033] BKJD
Rp/R* = 0.0138 [0.0104]
a/R* = 1.39 [2.81]
b = 0.51 [6.13]
Seff = 30148.51 [19899.54]
Teq = 3360 [554] K
Rp = 3.66 [3.20] Re
a = 0.0219 [0.0090] AU
Ag = 3.26 [5.39] [0.42σ]
Teffp = 6982 [2665] K [1.33σ]

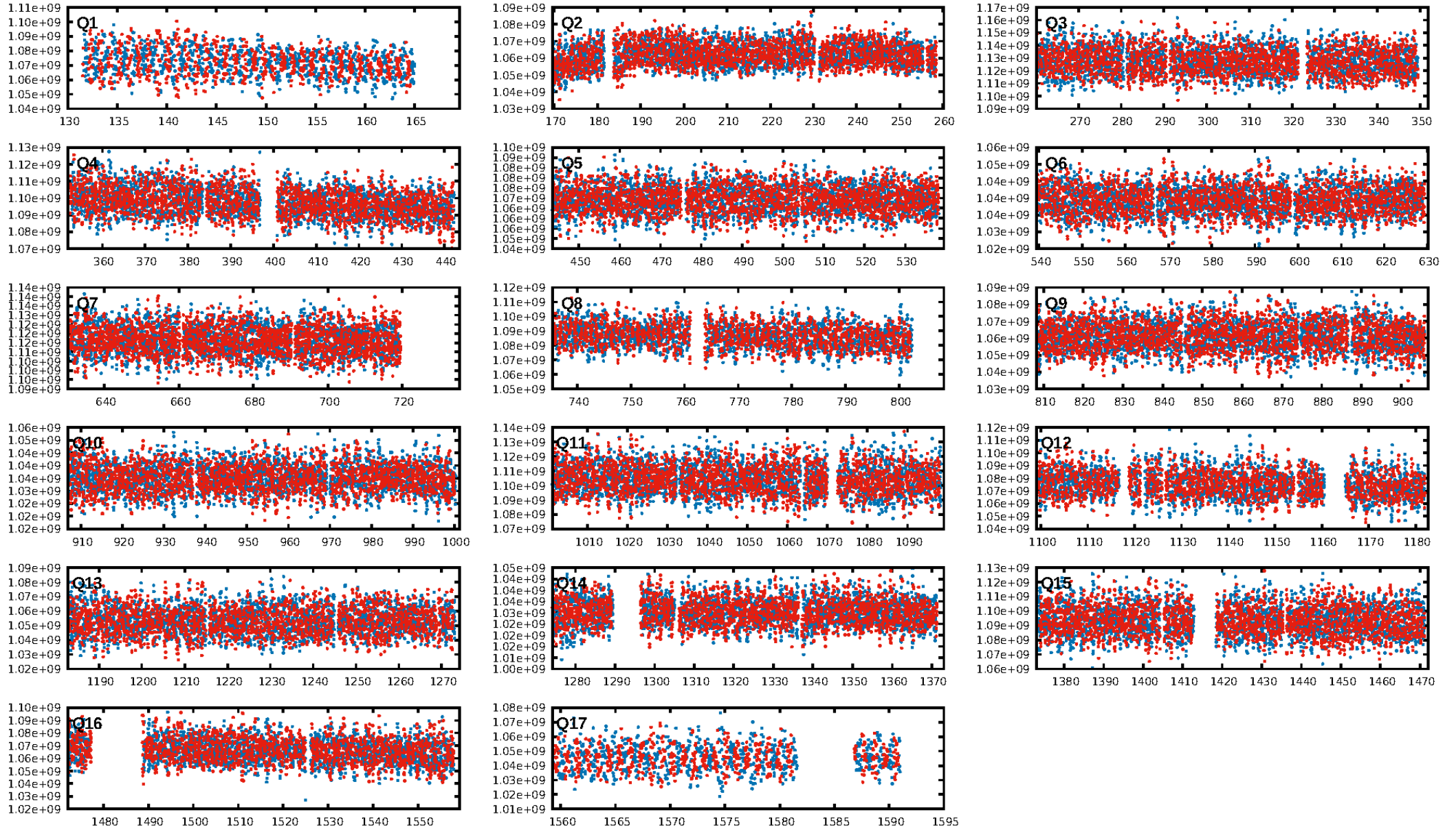
DV Diagnostic Results:

ShortPeriod-sig: 88.8% [1.59σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.21e-61
RollingBand-fgt: 1.00 [1328/1328]
GhostDiagnostic-chr: 0.5909
Centroid-sig: 0.0%
Centroid-so: 0.668 arcsec [2.94σ]
OotOffset-rm: 2.206 arcsec [3.50σ]
KicOffset-rm: 1.683 arcsec [2.58σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.00 [0/17]

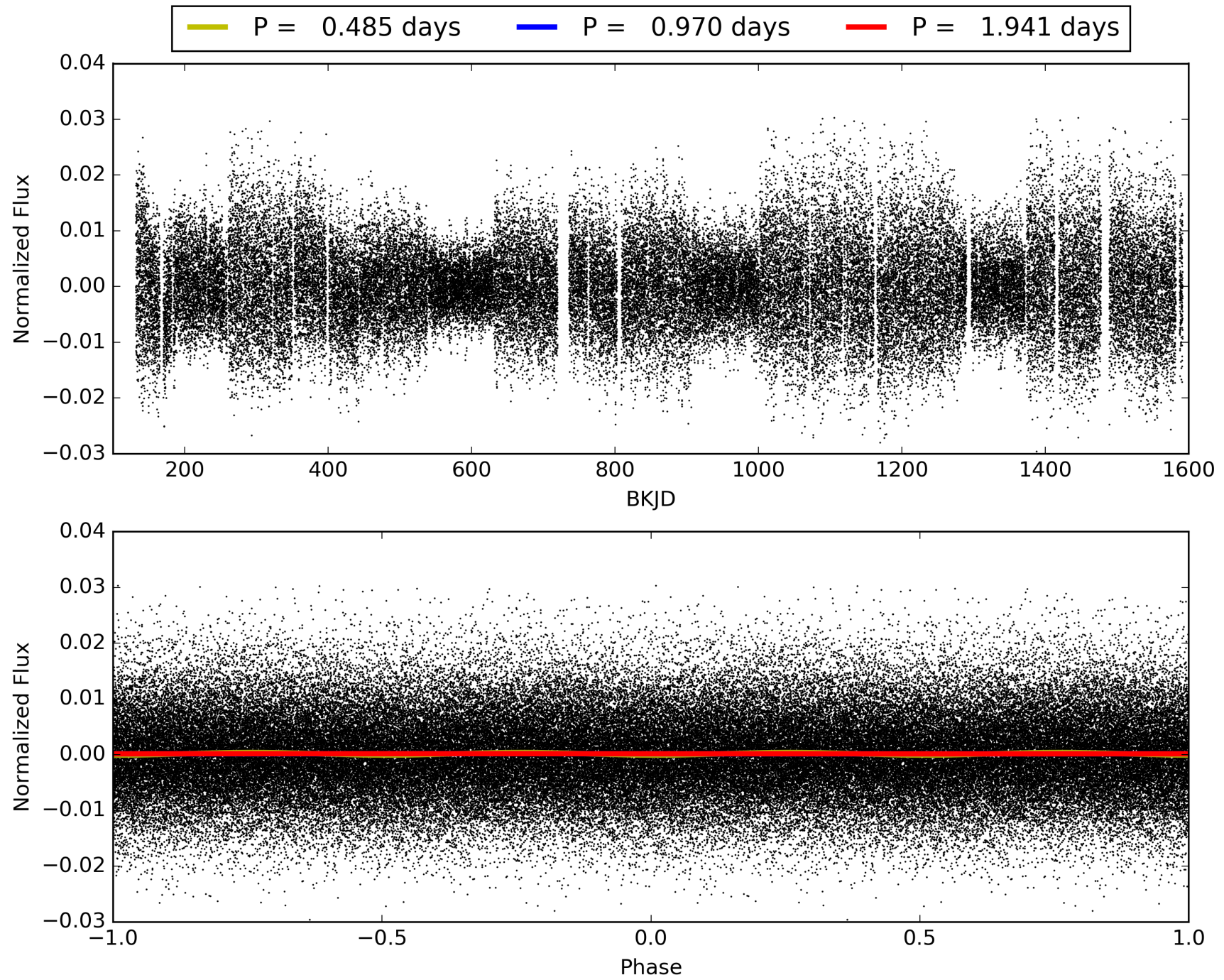
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:40:18 Z

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

TCE 009655177-01, PDC Light Curves

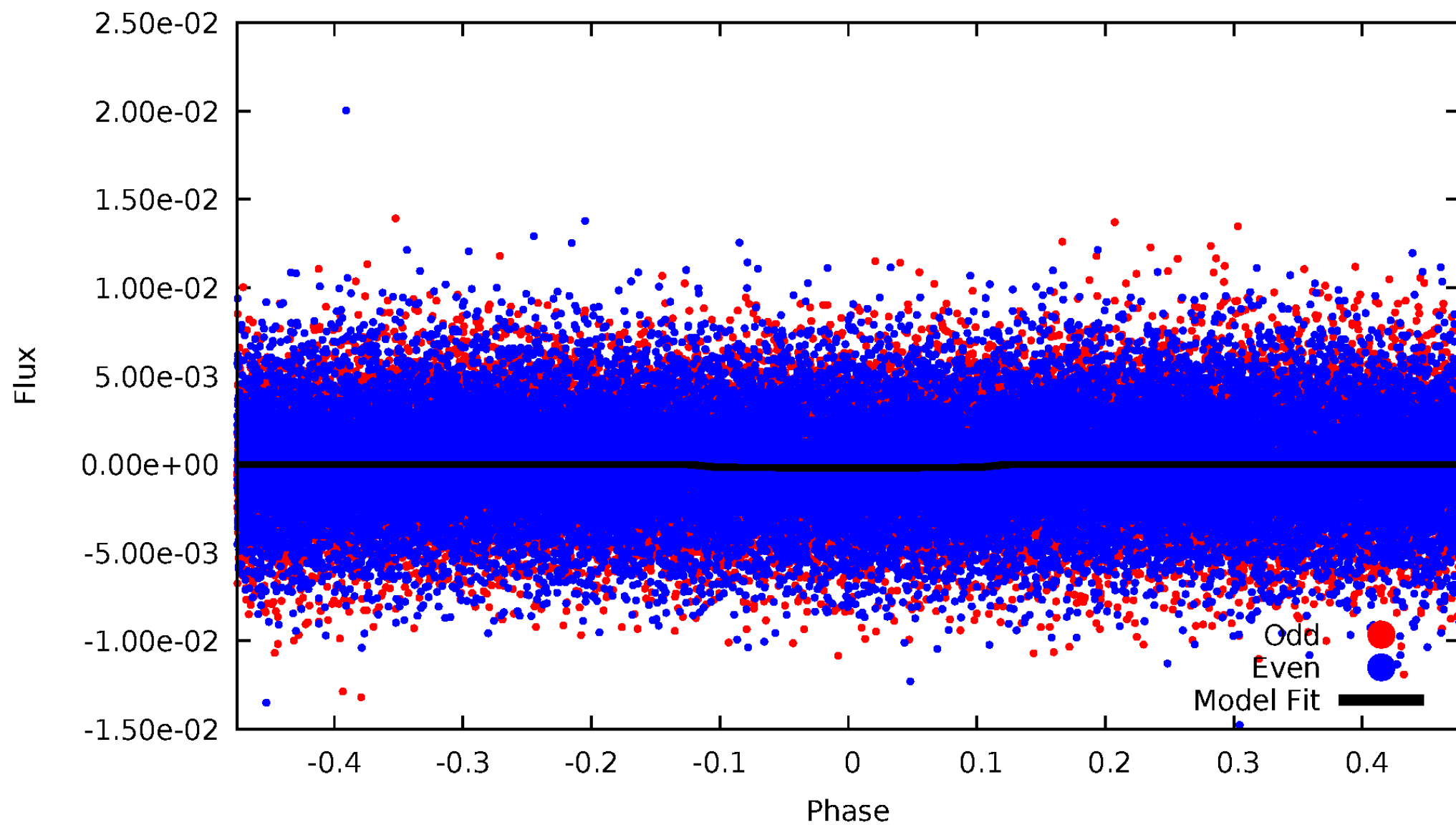


TCE 009655177-01



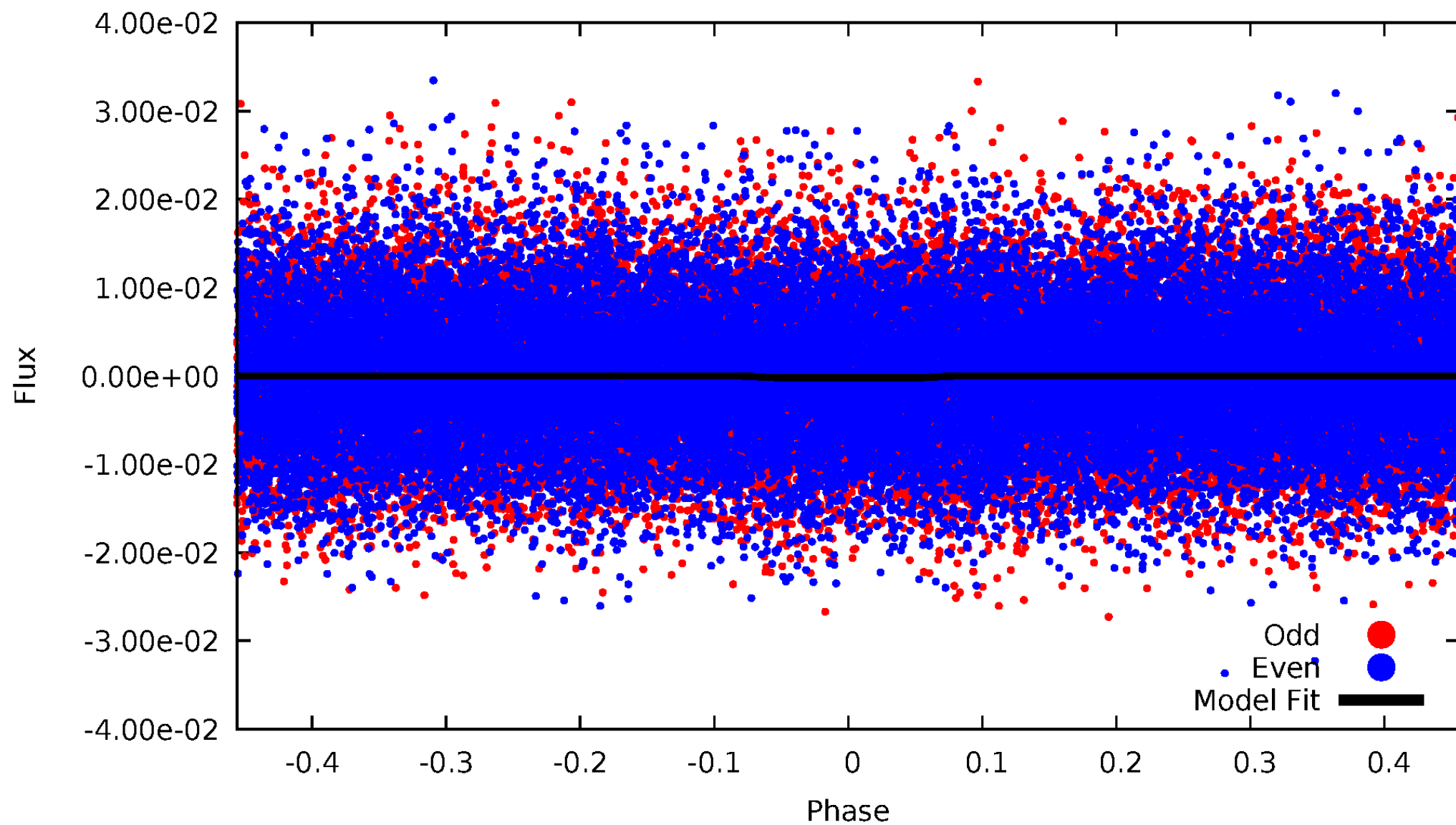
DV Odd/Even

TCE 009655177-01



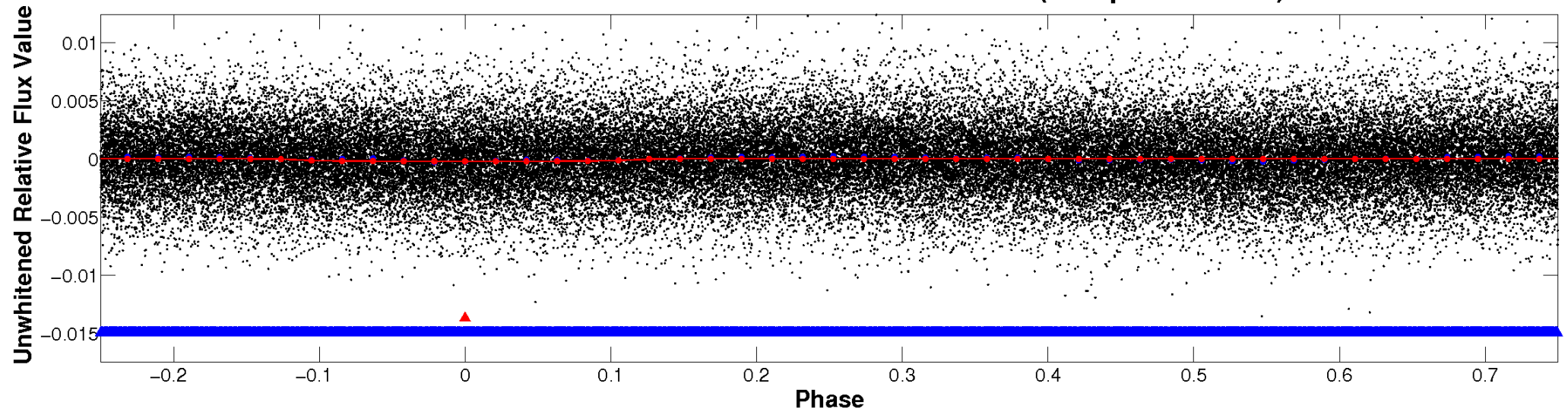
ALT Odd/Even

TCE 009655177-01

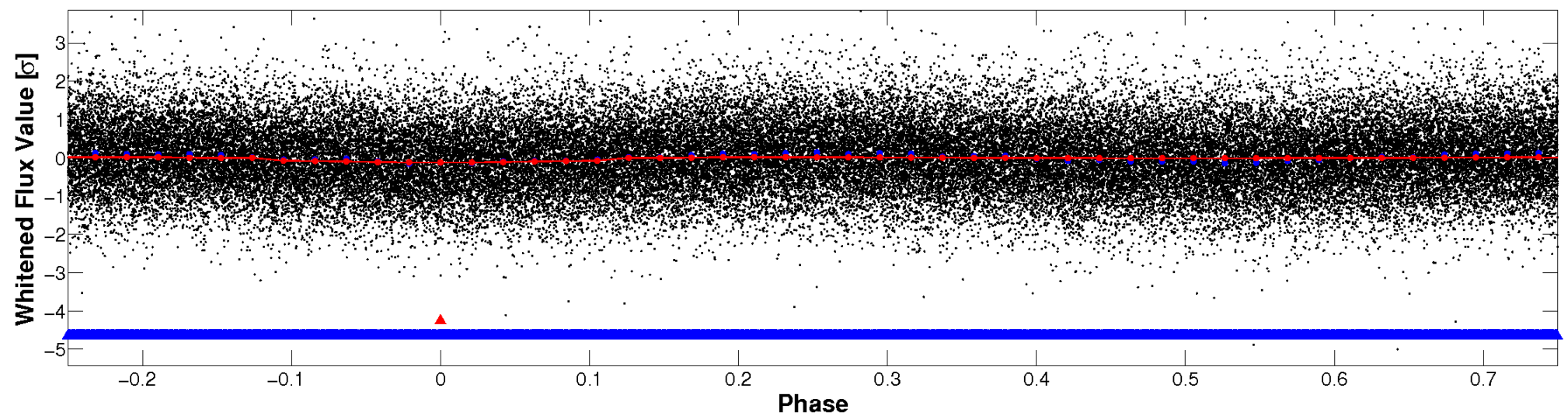


Non-Whitened Vs. Whitened Light Curve

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

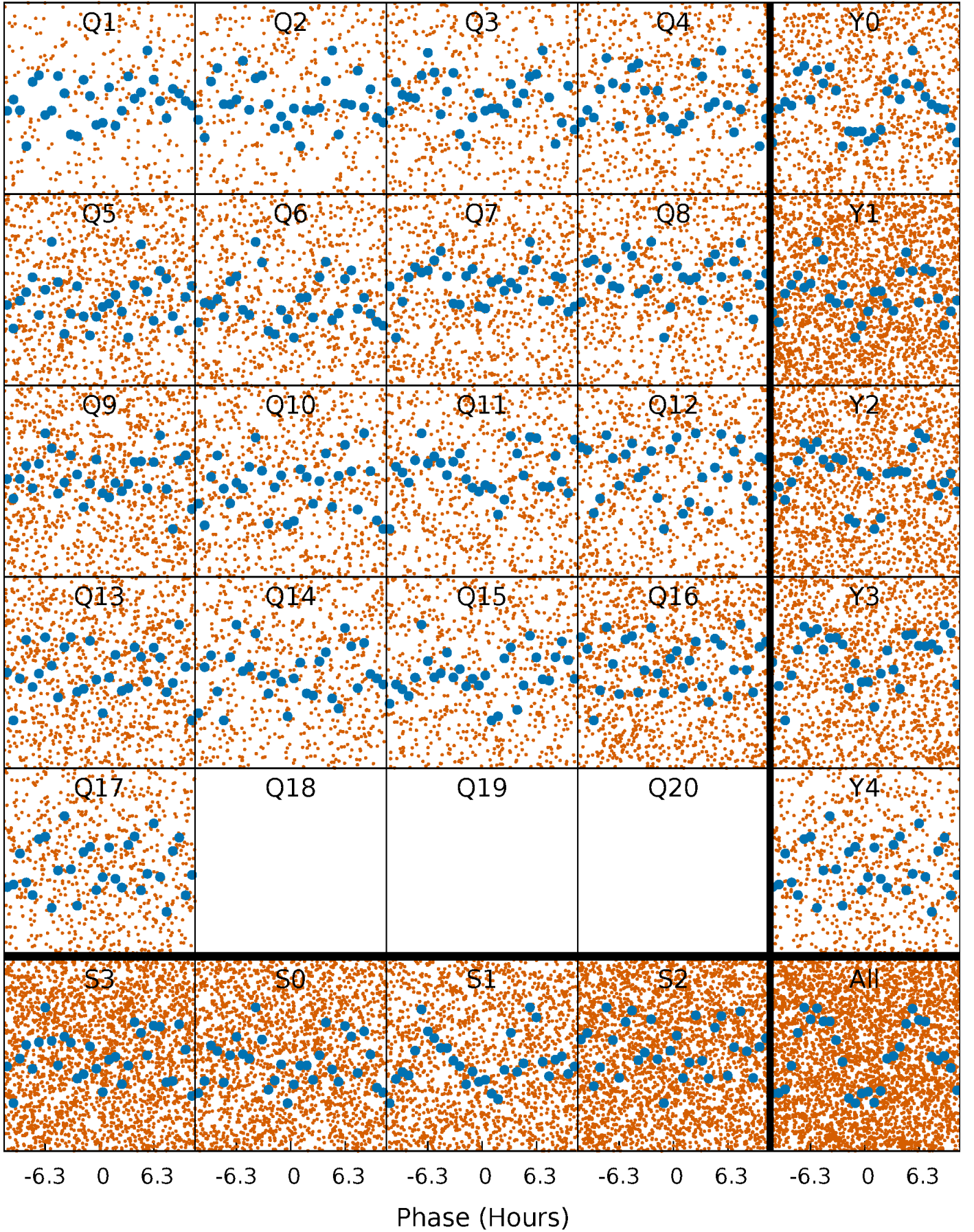


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



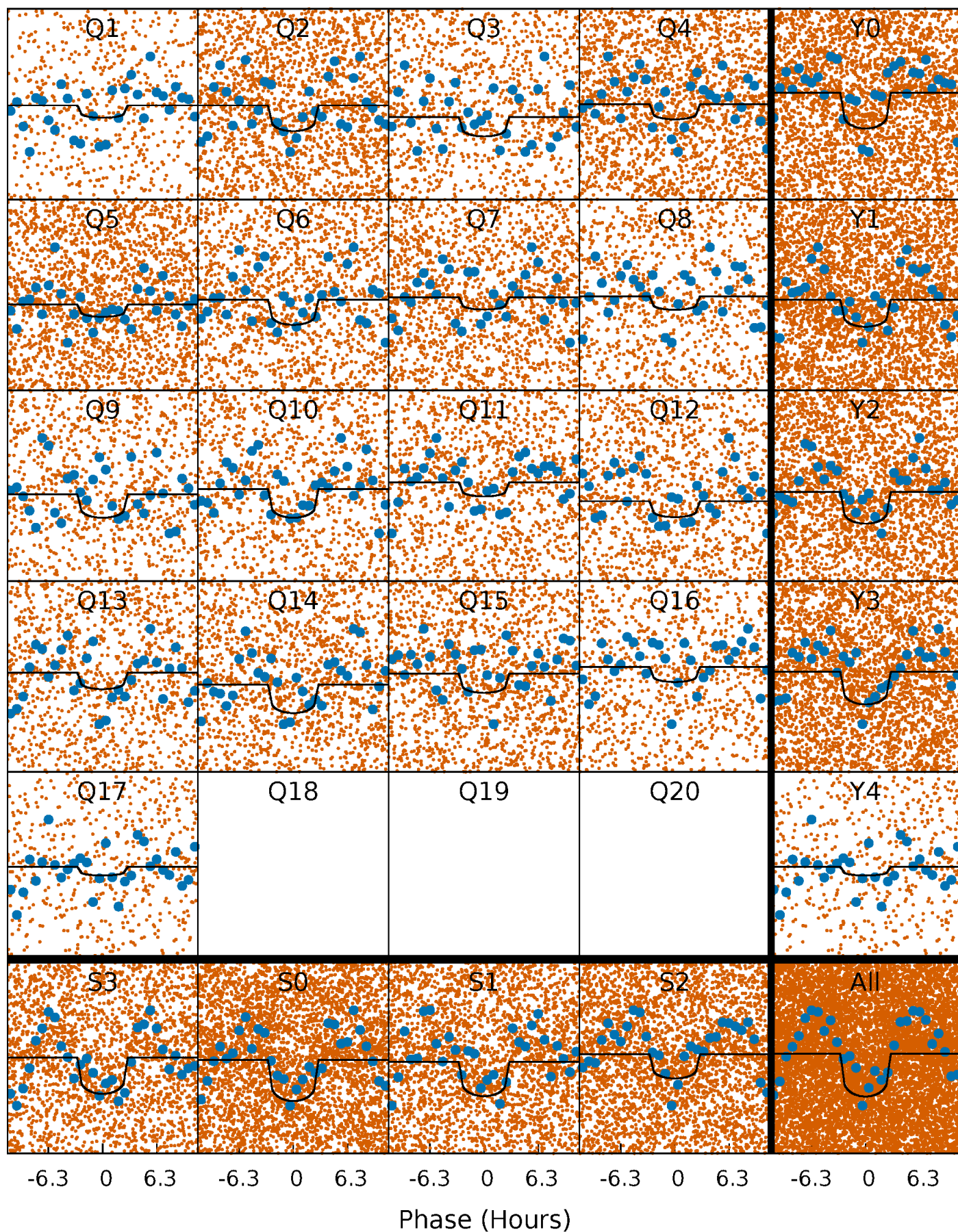
PDC Quarter-Phased Transit Curves

TCE 009655177-01 P= 0.970261 Days $T_0=132.317315$ (BKJD)



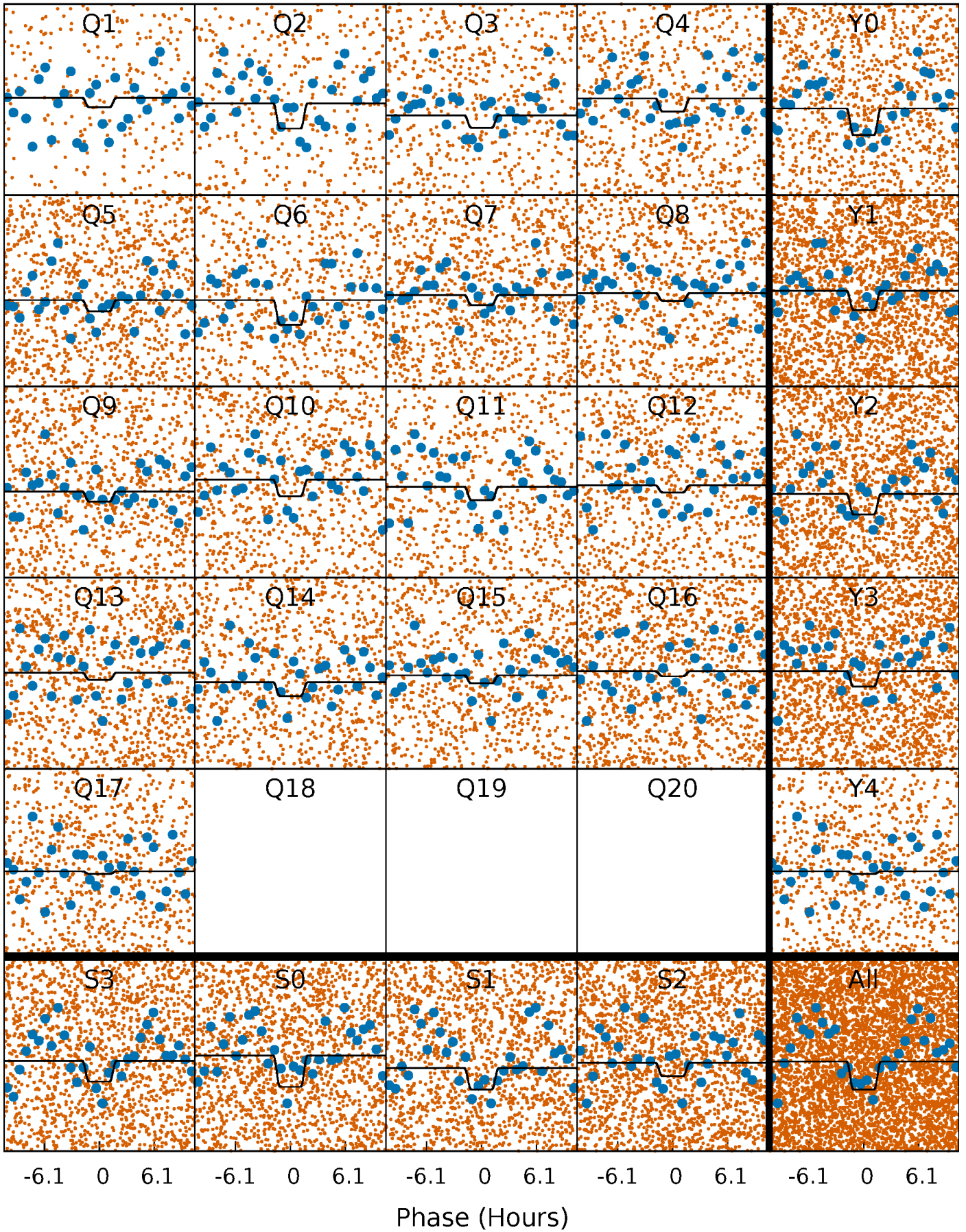
DV Quarter-Phased Transit Curves

TCE 009655177-01 P= 0.970261 Days $T_0=132.317315$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

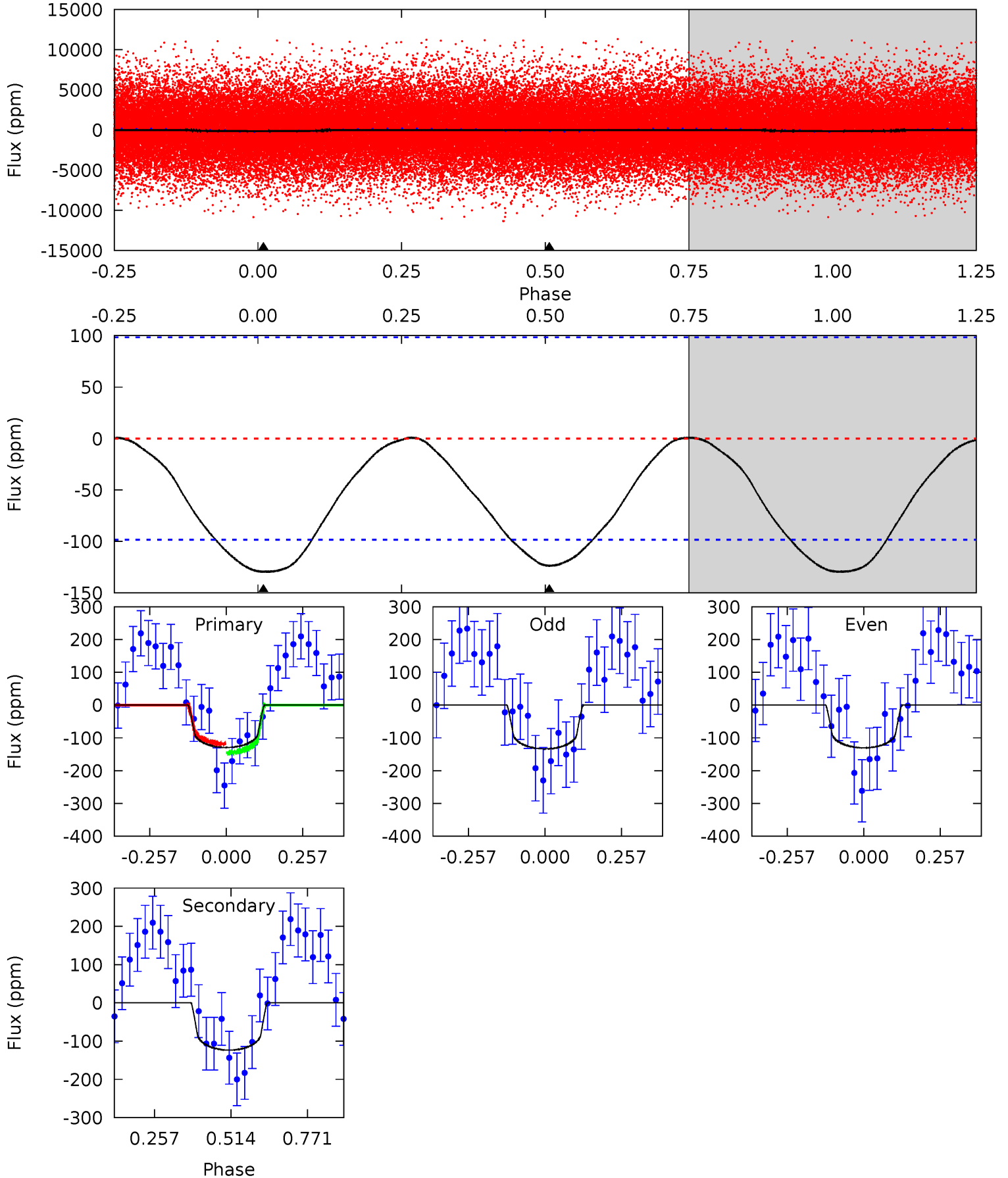
TCE 009655177-01 P= 0.970309 Days $T_0=132.271616$ (BKJD)



DV Model-Shift Uniqueness Test

009655177-01, P = 0.970261 Days, E = 131.347054 Days

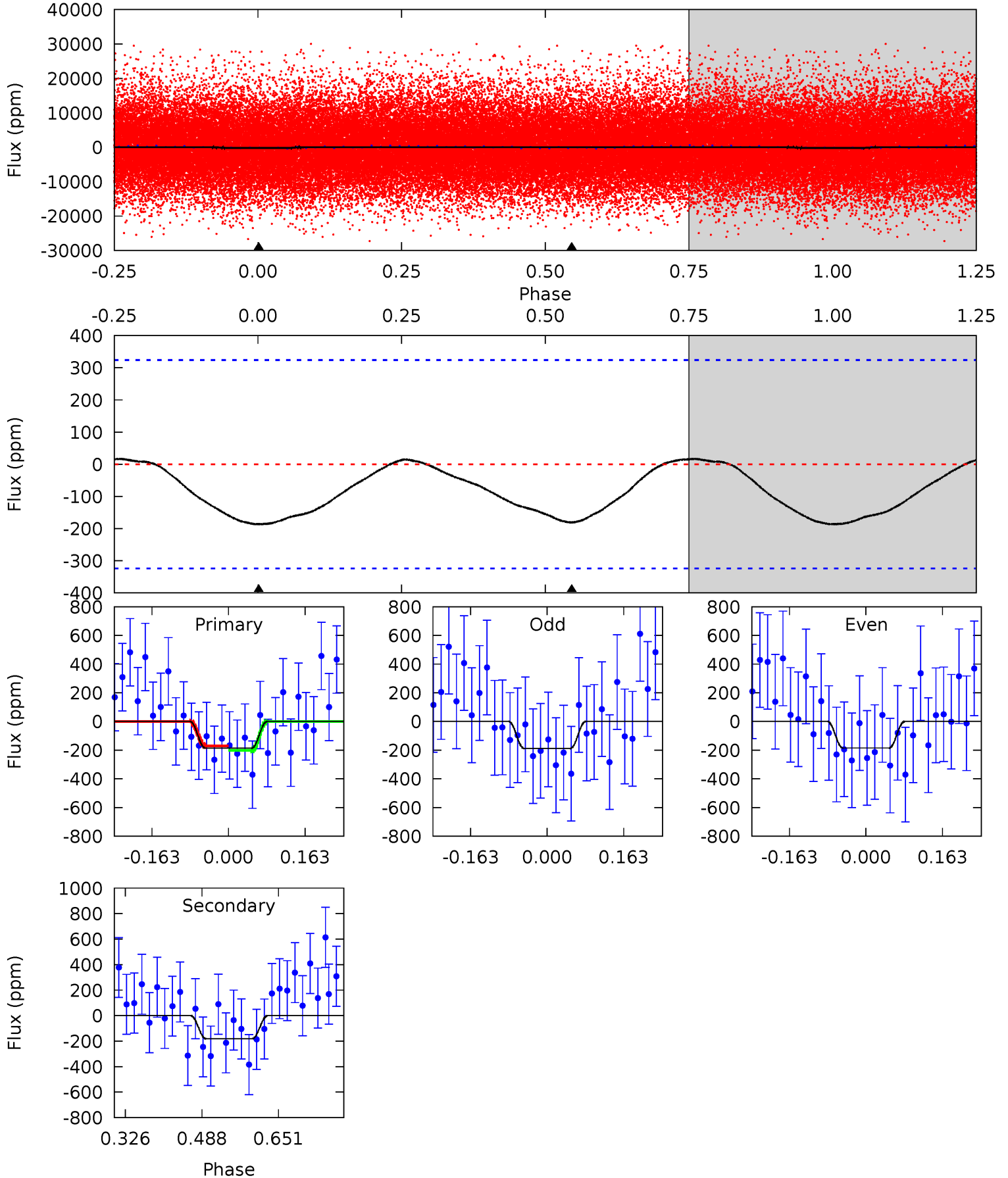
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.74	5.49	0	0	4.36	1.13	0.06	5.74	5.74	5.49	5.49	0.07	0.85	0.01	0.62



Alt Model-Shift Uniqueness Test

009655177-01, P = 0.970309 Days, E = 131.301307 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.57	2.49	0	0	4.46	1.40	0.35	2.57	2.57	2.49	2.49	0.02	1.04	0.08	0.21



Stellar Parameters For KIC 009655177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7222^{+194}_{-259}	$3.838^{+0.375}_{-0.100}$	$-0.300^{+0.250}_{-0.350}$	$2.440^{+0.529}_{-1.059}$	$1.495^{+0.231}_{-0.283}$	$0.145^{+0.432}_{-0.053}$
	+3%/-4%	+10%/-3%	+83%/-117%	+22%/-43%	+15%/-19%	+298%/-36%
Source	PHO1	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 009655177-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-124 ± 23	$3.61^{+2.57}_{-2.19}$	4572^{+314}_{-484}	5932^{+4685}_{-1412}	$2.556^{+14.890}_{-1.650}$
Alt.	-181 ± 73	$3.96^{+2.81}_{-2.31}$	4579^{+327}_{-477}	6284^{+4580}_{-1707}	$2.881^{+13.319}_{-1.979}$

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 $A_{obs} \gg 1.0$

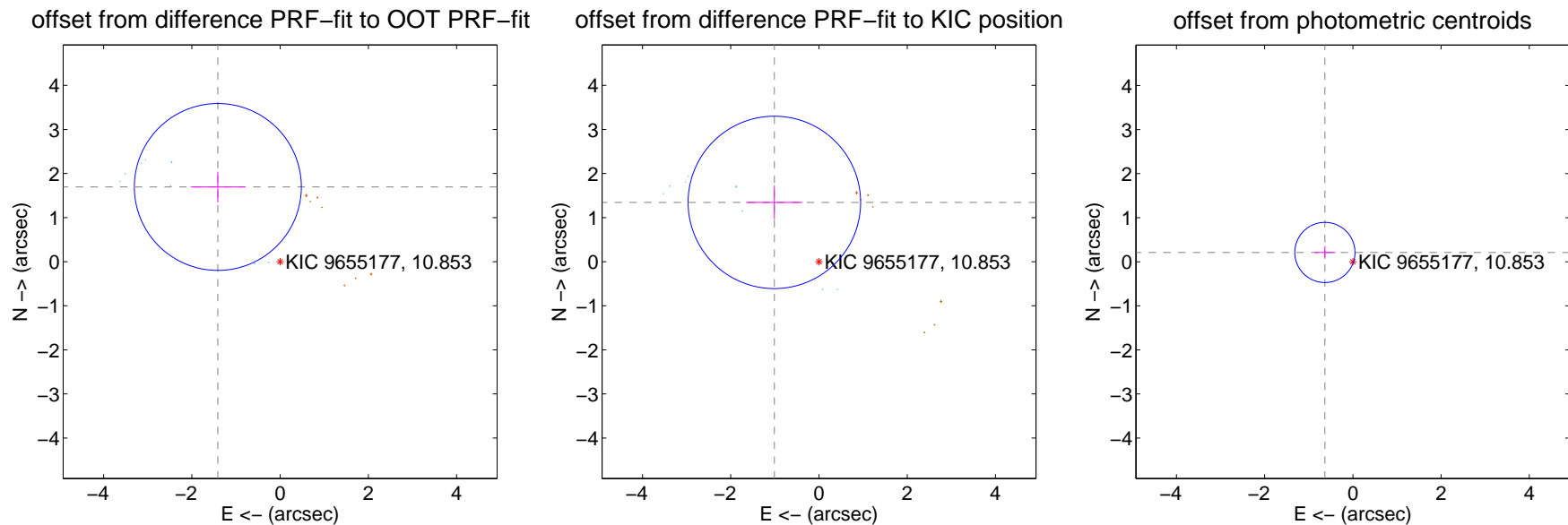
DV Centroid Data

Supplemental centroid analysis for 009655177-01. **Kepler magnitude: 10.85.** Transit SNR 12.81

There are 9 quarters with good PRF difference image offsets

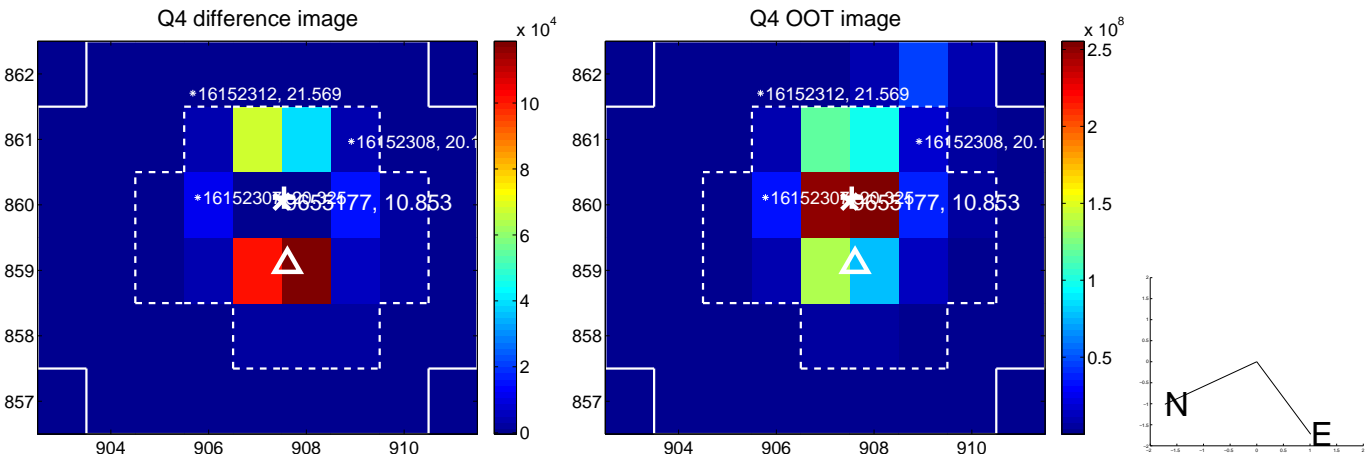
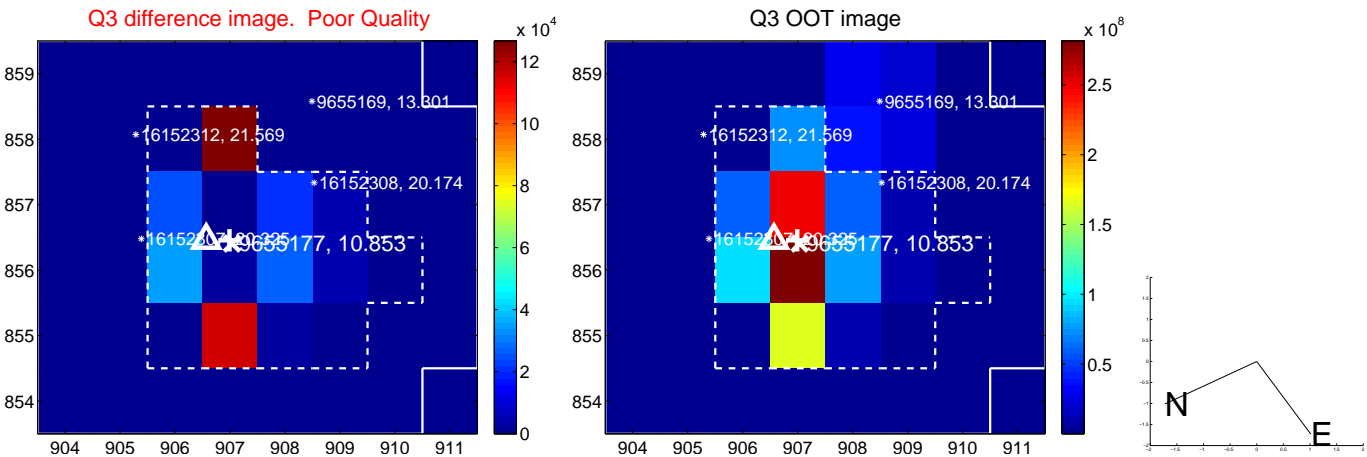
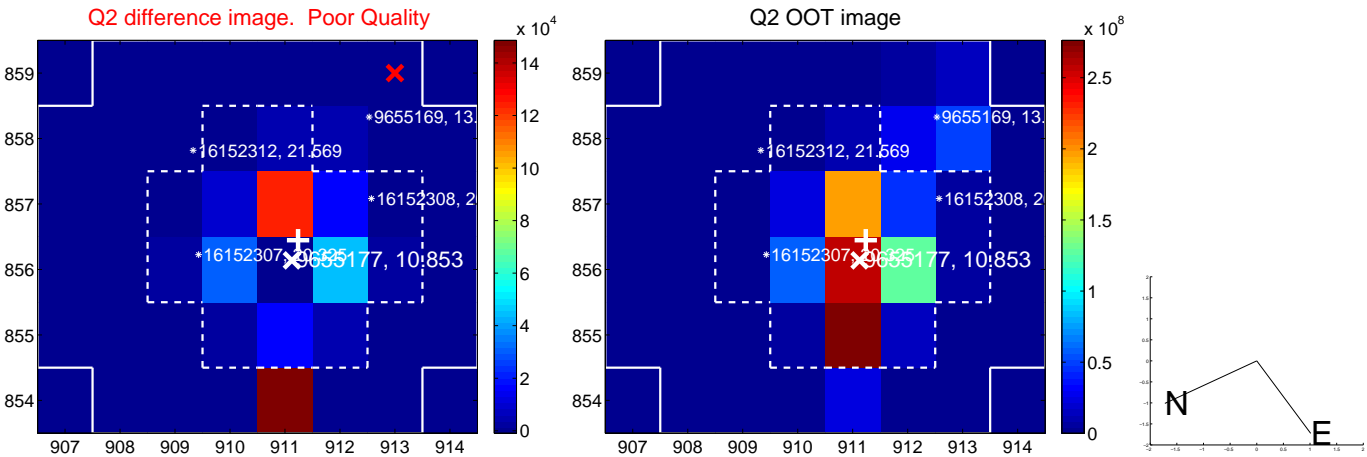
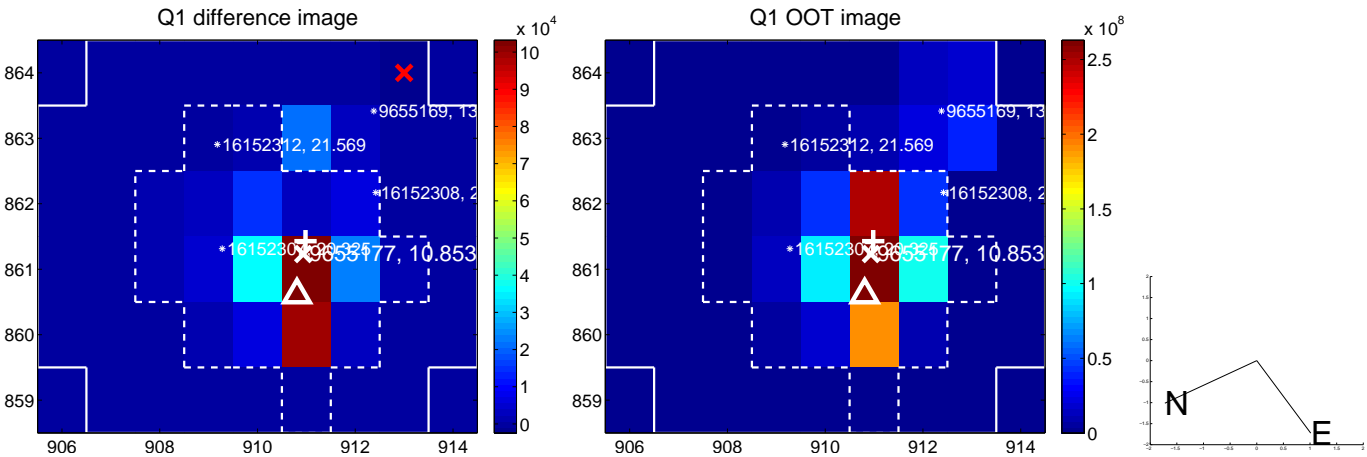
The direct PRF centroid is offset from the target star catalog position by about 0.94 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.206 ± 0.631	3.50	1.412 ± 0.613	1.695 ± 0.348
PRF-fit source offset from KIC position	1.683 ± 0.652	2.58	1.012 ± 0.637	1.345 ± 0.383
photometric centroid source offset	0.67 ± 0.23	2.94	0.63 ± 0.24	0.21 ± 0.14

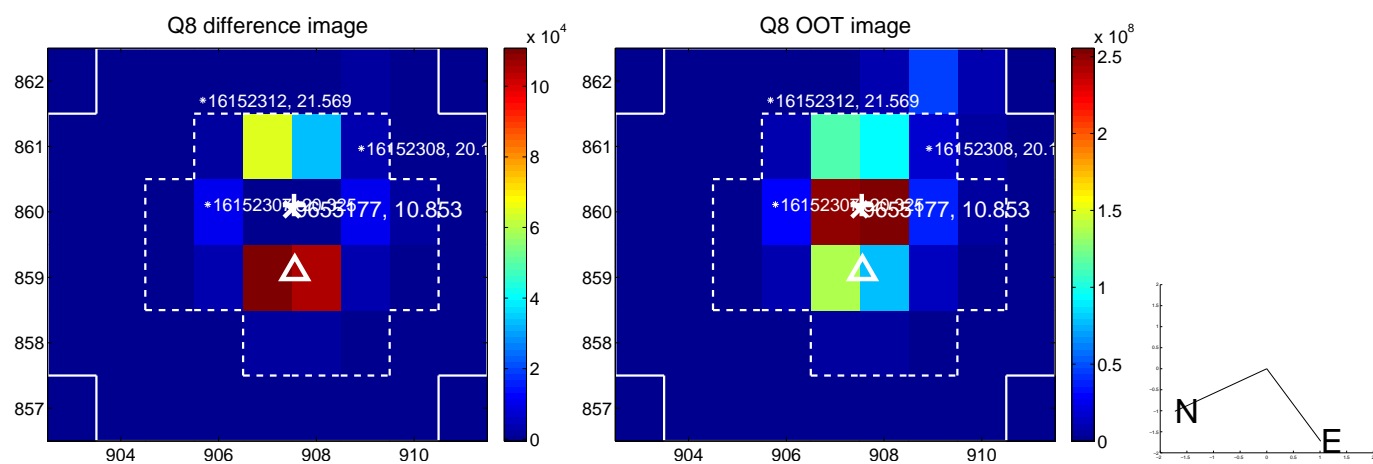
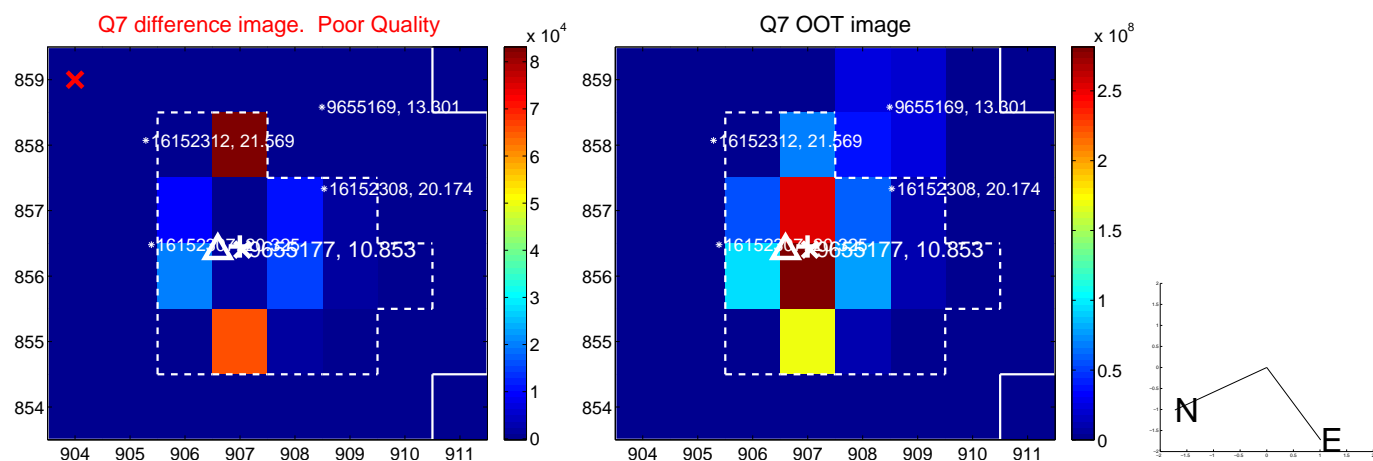
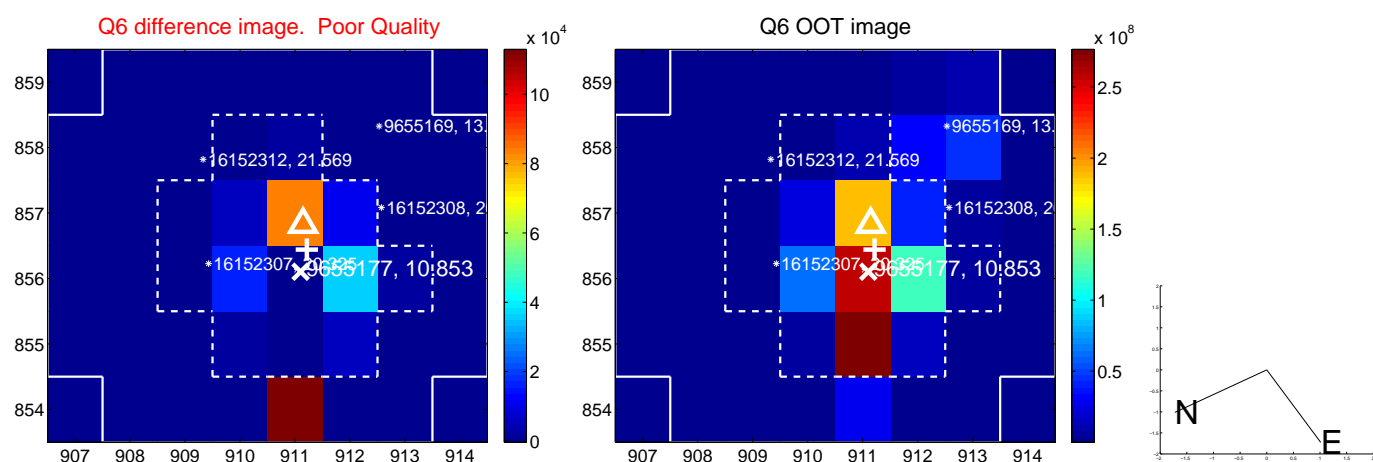
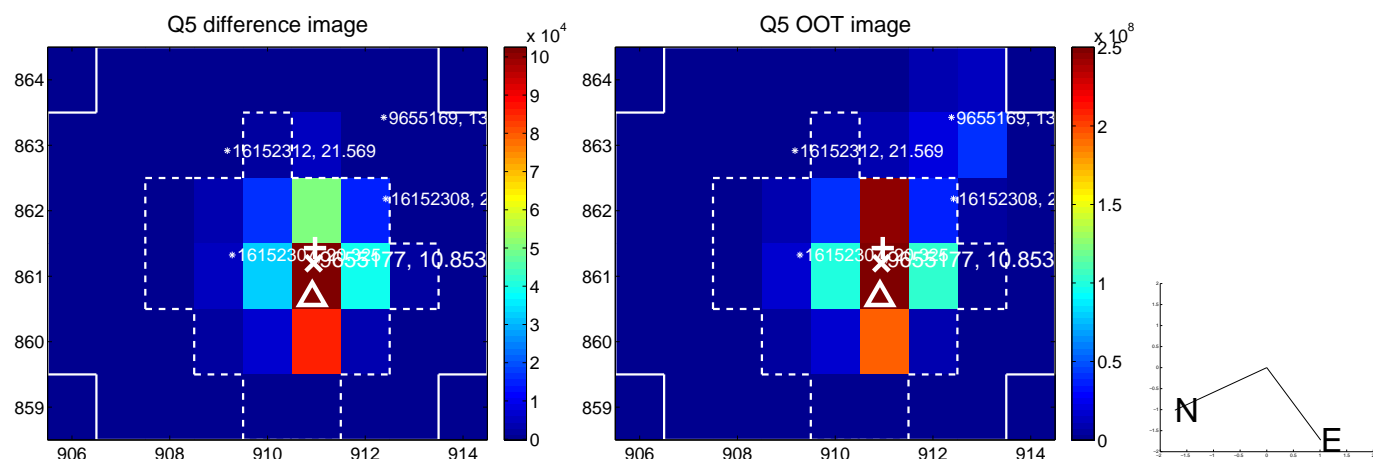


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

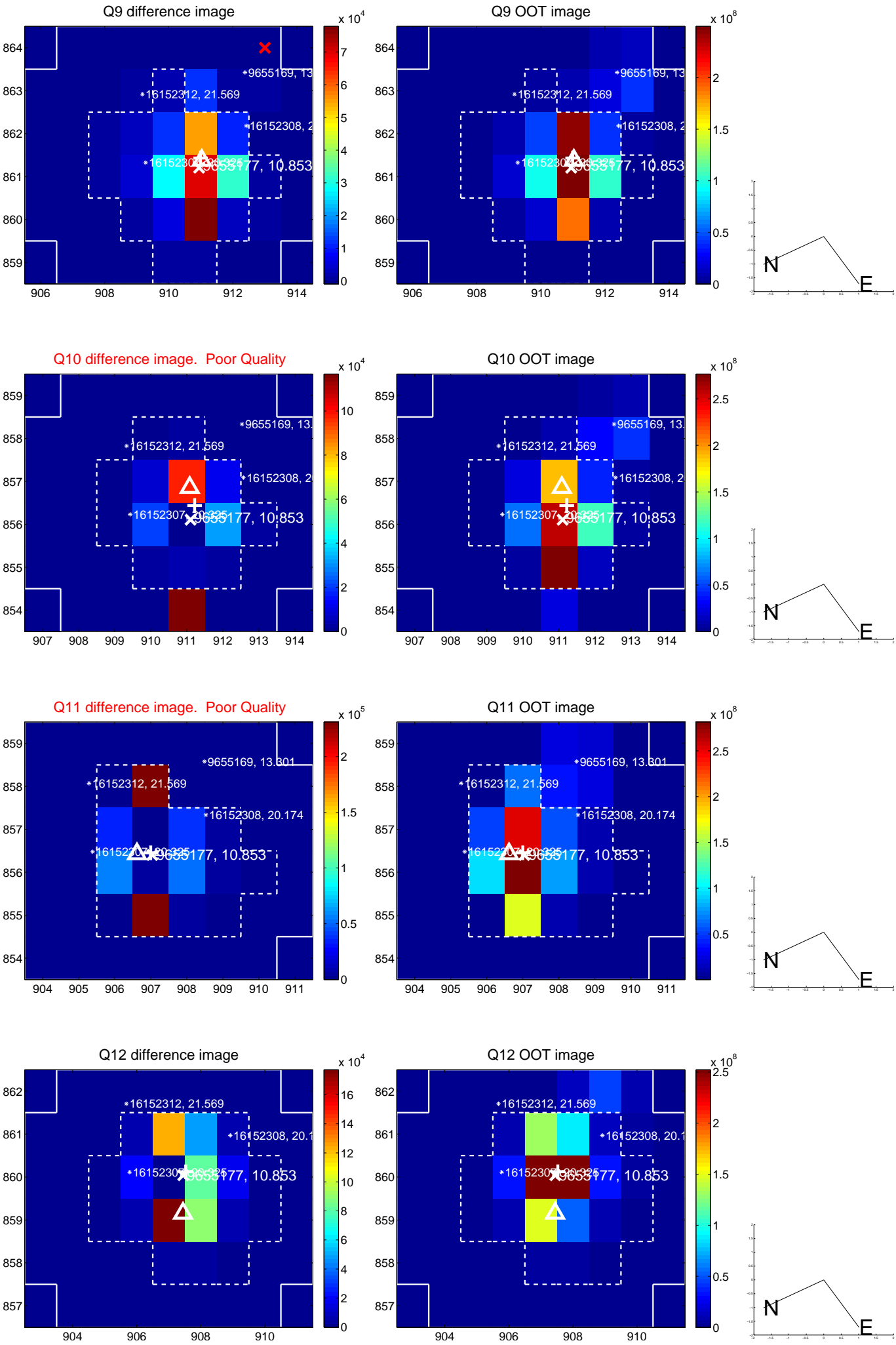
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



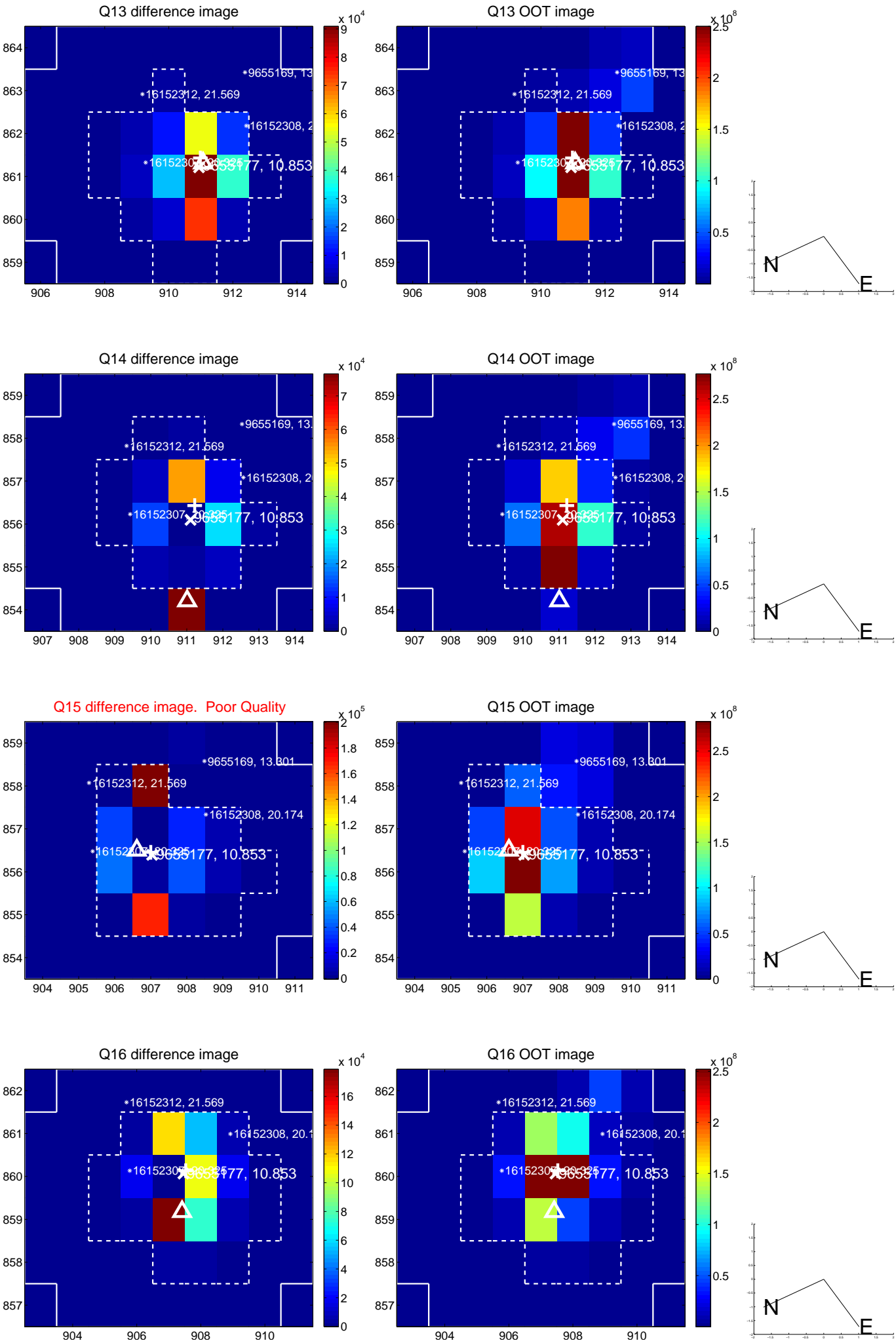
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



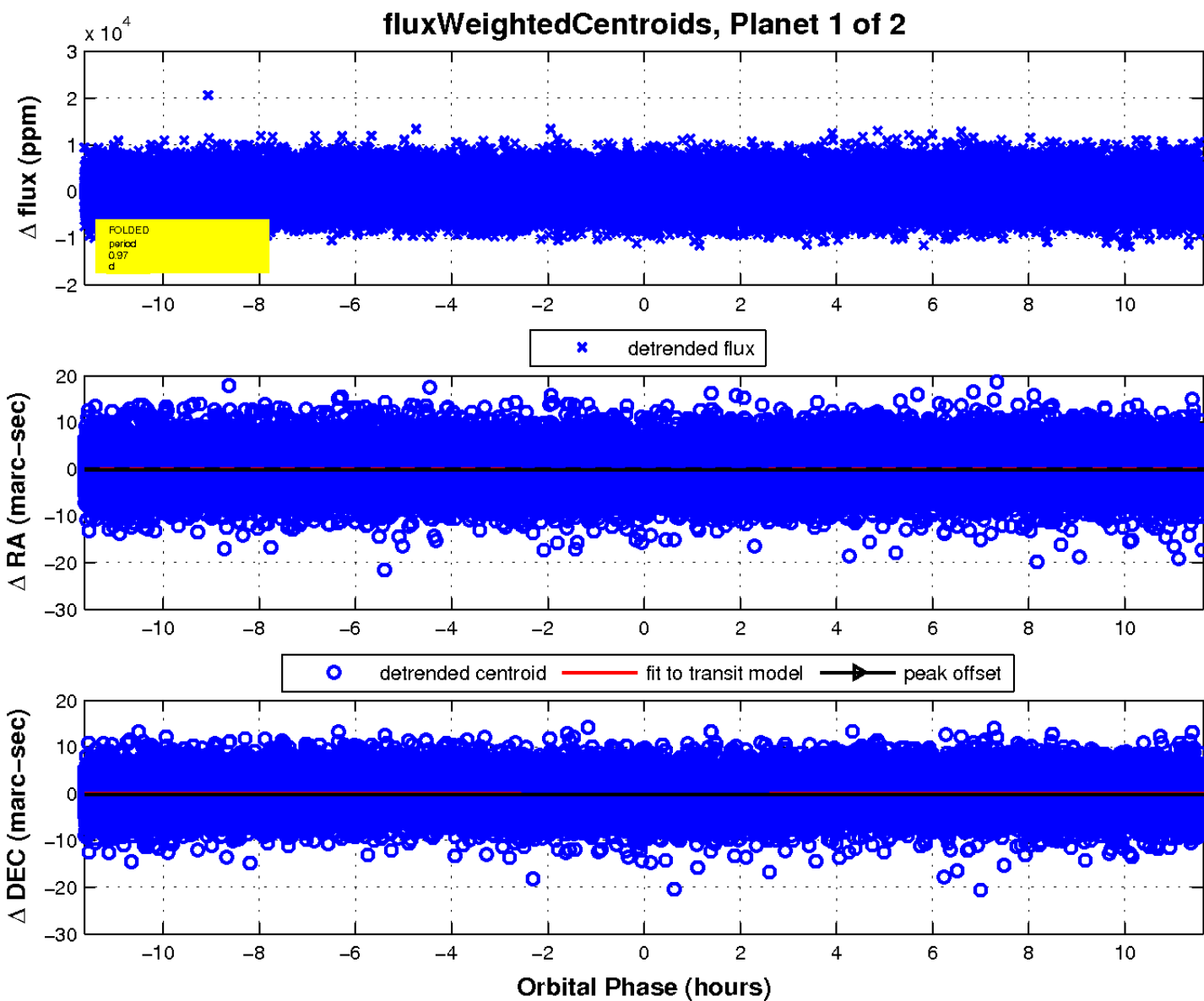
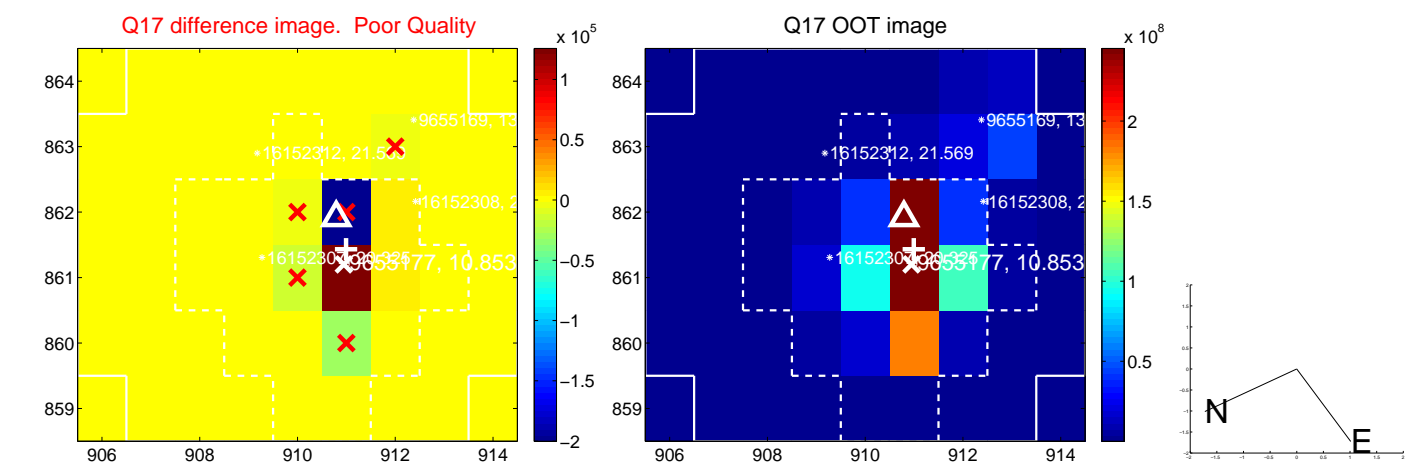
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



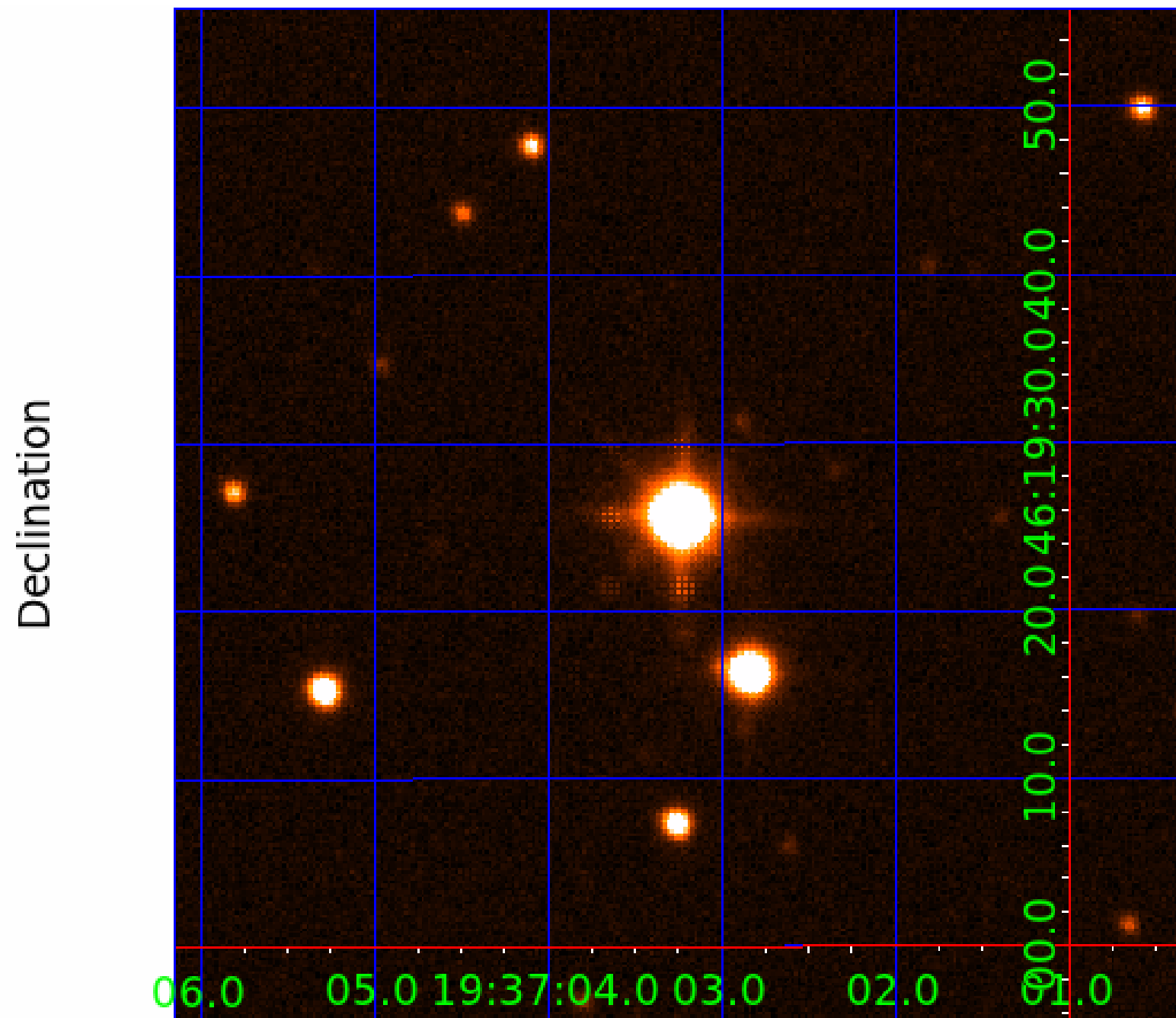
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009655177

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})
009655177-01	OBS	No	0.970261	132.317315	209.9	5.538	13.0	12.8	2.44	7222	3.66	30148.51
009655177-02	OBS	No	0.581306	131.769144	503.5	1.966	9.8	11.2	2.44	7222	6.51	59691.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655177-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
009655177-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

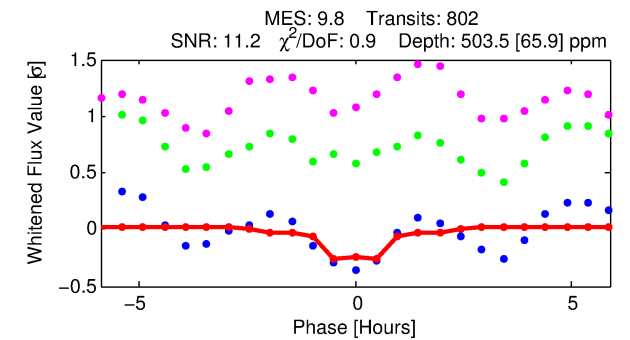
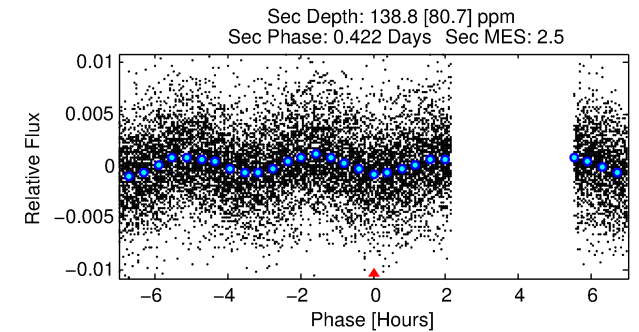
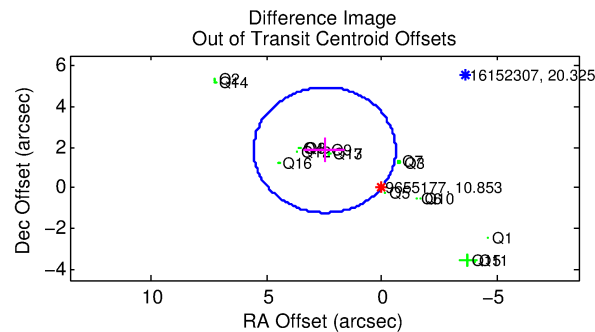
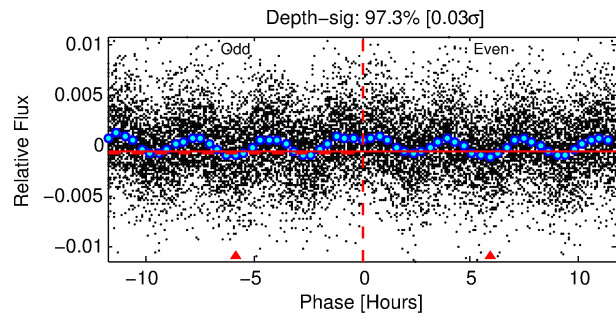
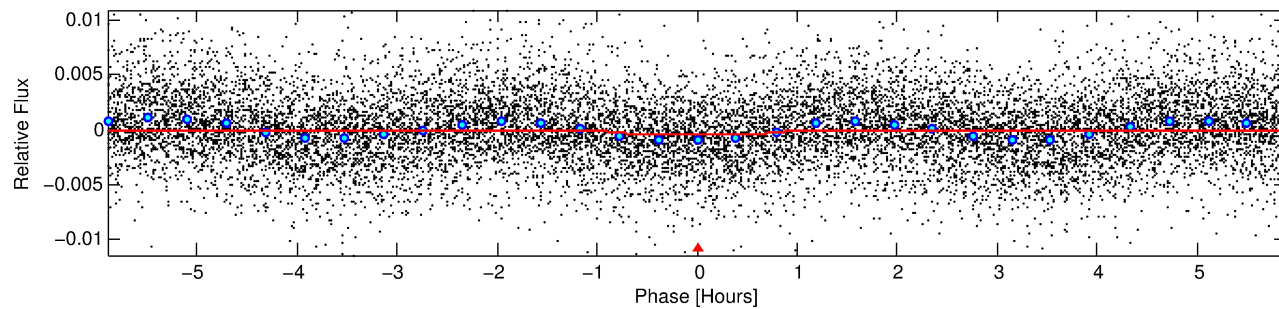
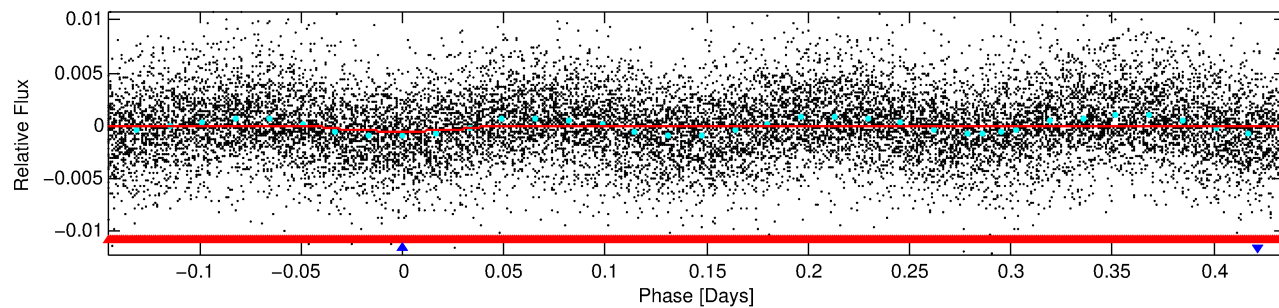
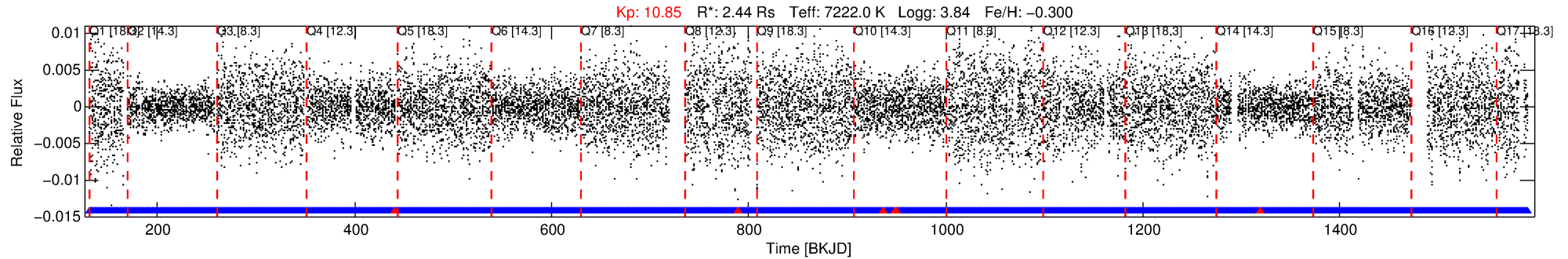
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655177-02

No Significant Match Found

DV One-Page Summary

KIC: 9655177 Candidate: 2 of 2 Period: 0.581 d



DV Fit Results:

Period = 0.58131 [0.00001] d
Epoch = 131.7691 [0.0023] BKJD
Rp/R* = 0.0245 [0.0042]
a/R* = 1.40 [0.61]
b = 0.92 [0.15]
Seff = 59691.25 [39399.25]
Teq = 3986 [658] K
Rp = 6.51 [3.04] Re
a = 0.0156 [0.0064] AU
Ag = 0.44 [0.41] [-1.38σ]
Teff = 5012 [866] K [0.94σ]

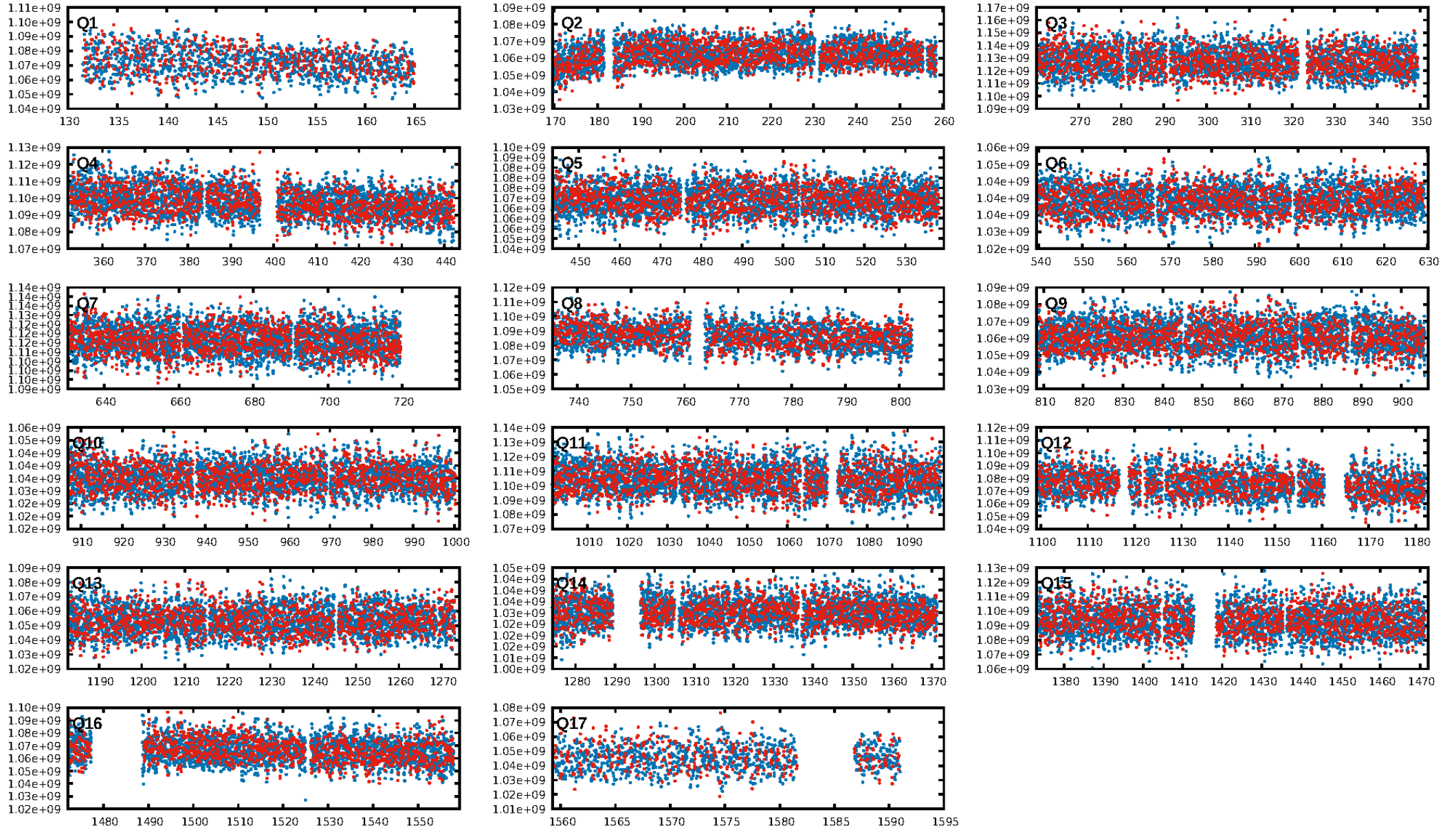
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 88.8% [1.59σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.28e-32
RollingBand-igt: 0.99 [755/761]
GhostDiagnostic-chr: 1.057
Centroid-sig: 92.7%
Centroid-so: 0.378 arcsec [4.95σ]
OotOffset-rm: 3.101 arcsec [3.03σ]
KicOffset-rm: 2.402 arcsec [2.23σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 1.00 [17/17]

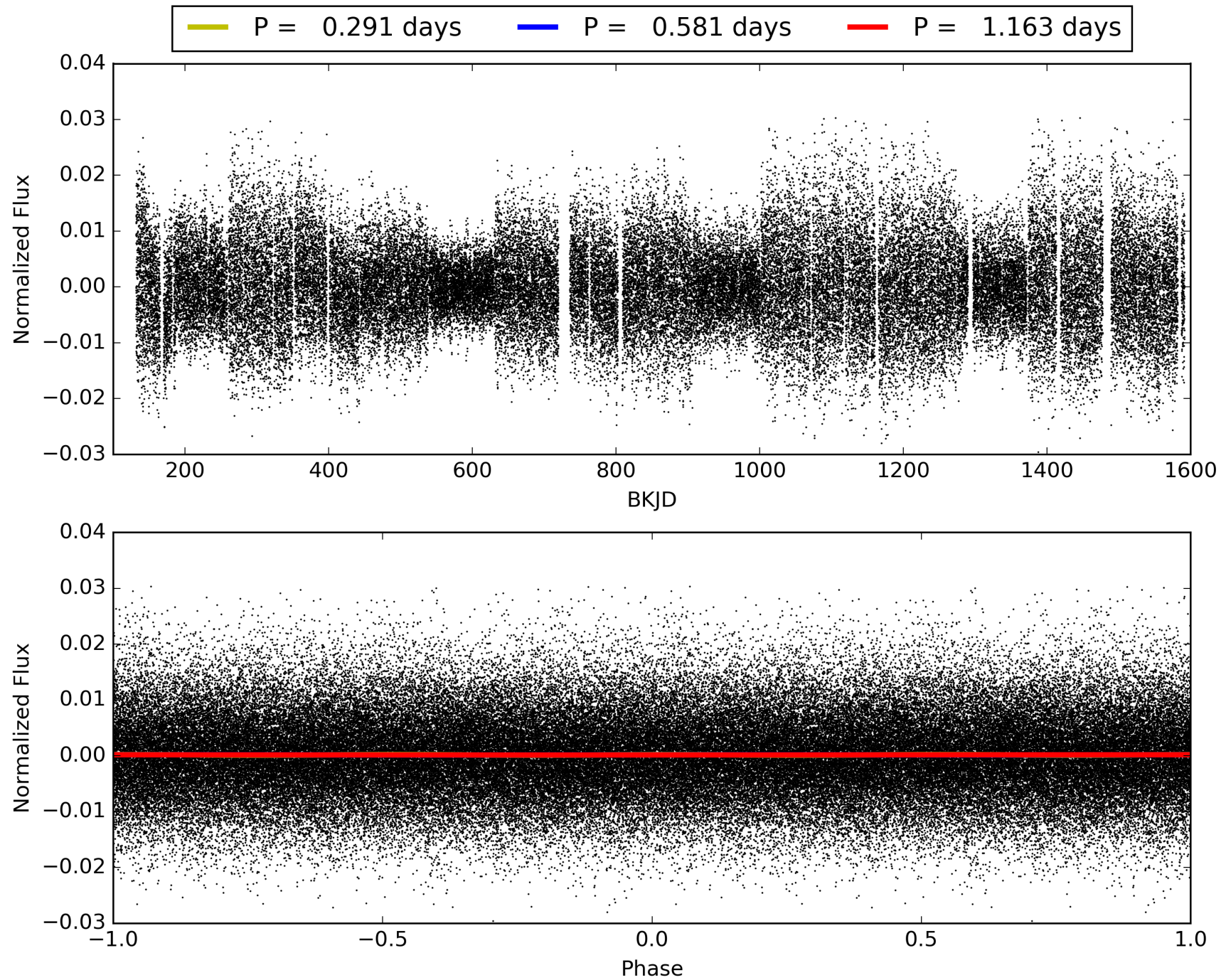
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:40:31 Z

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

TCE 009655177-02, PDC Light Curves

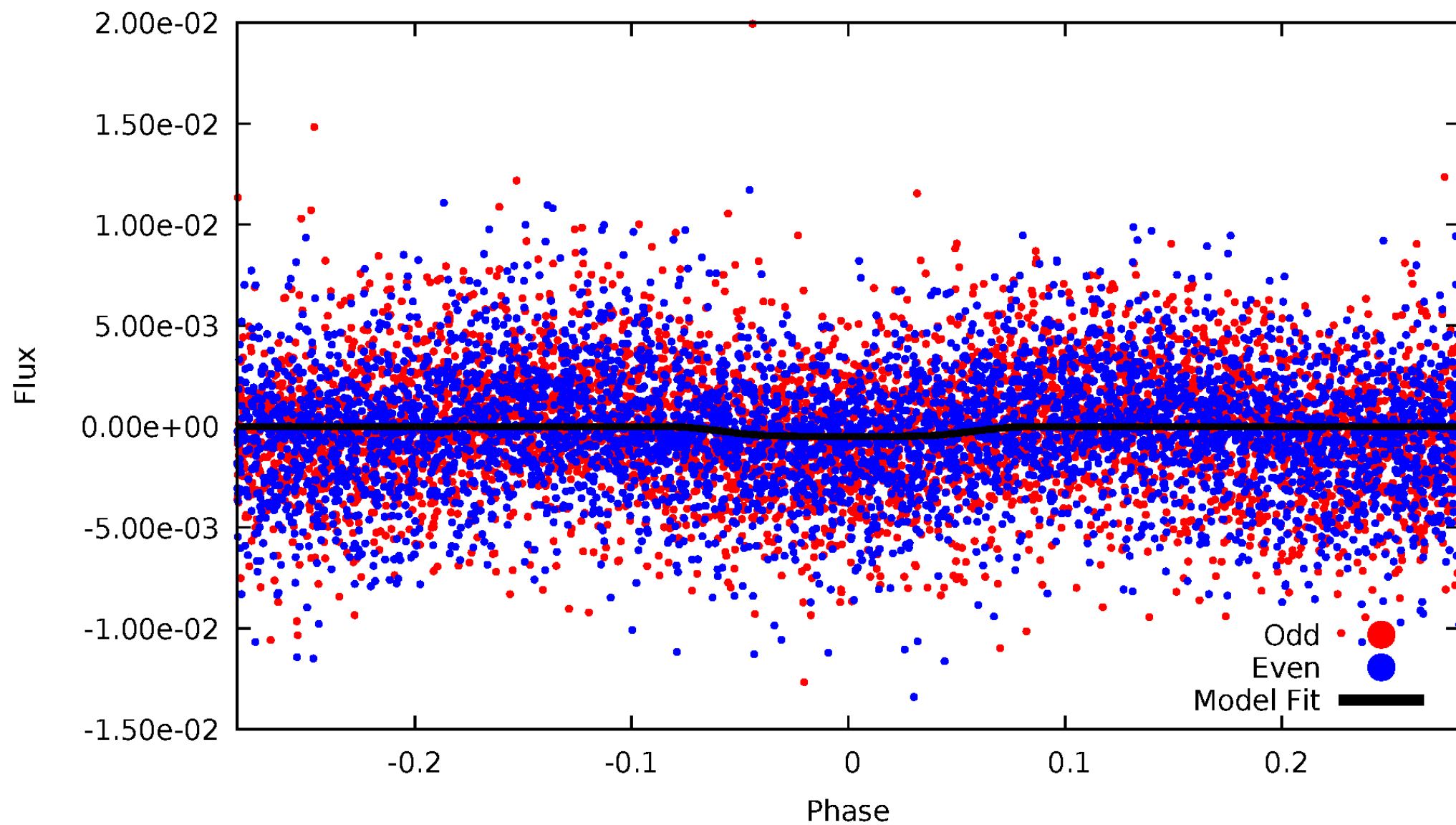


TCE 009655177-02



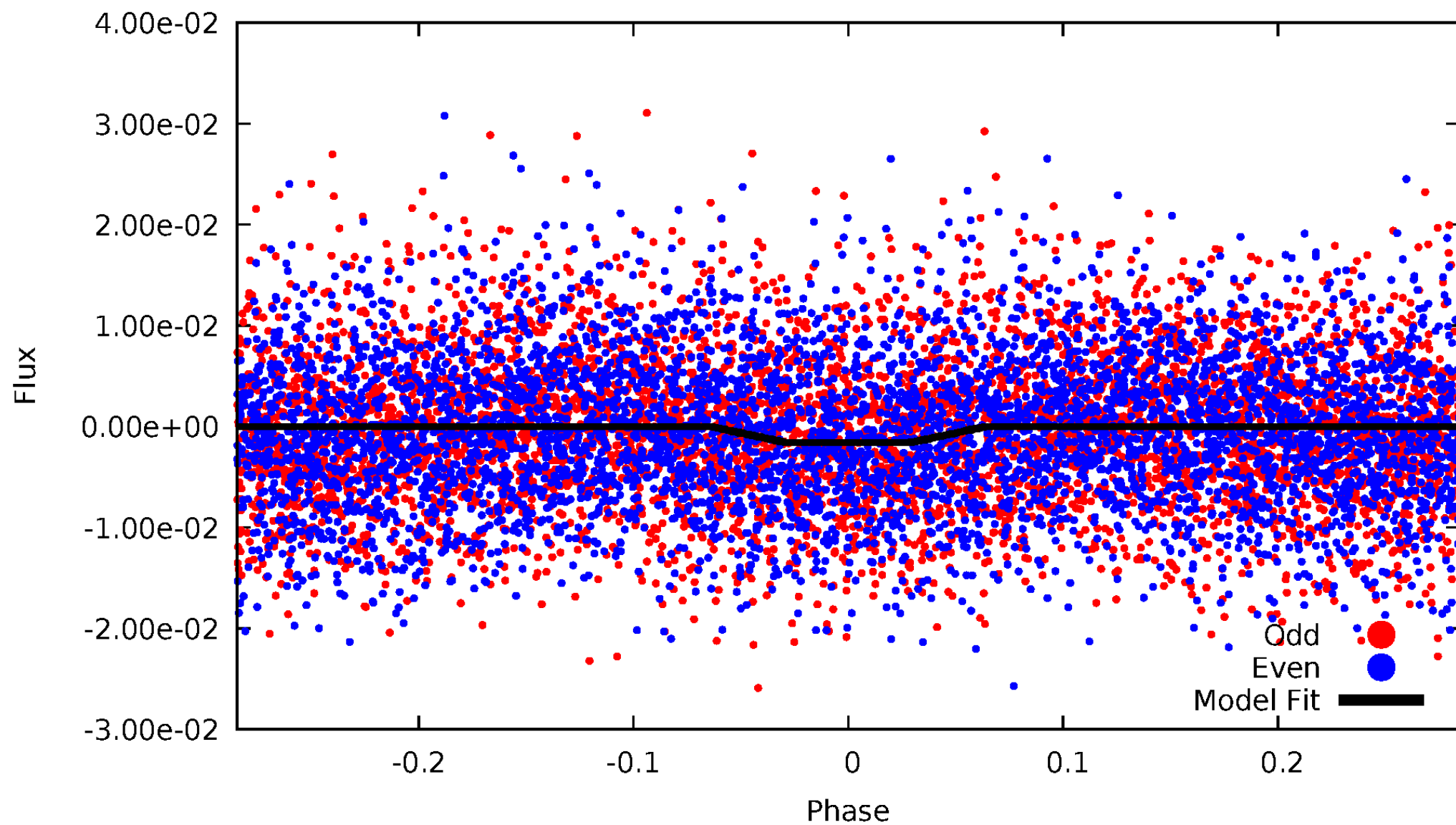
DV Odd/Even

TCE 009655177-02



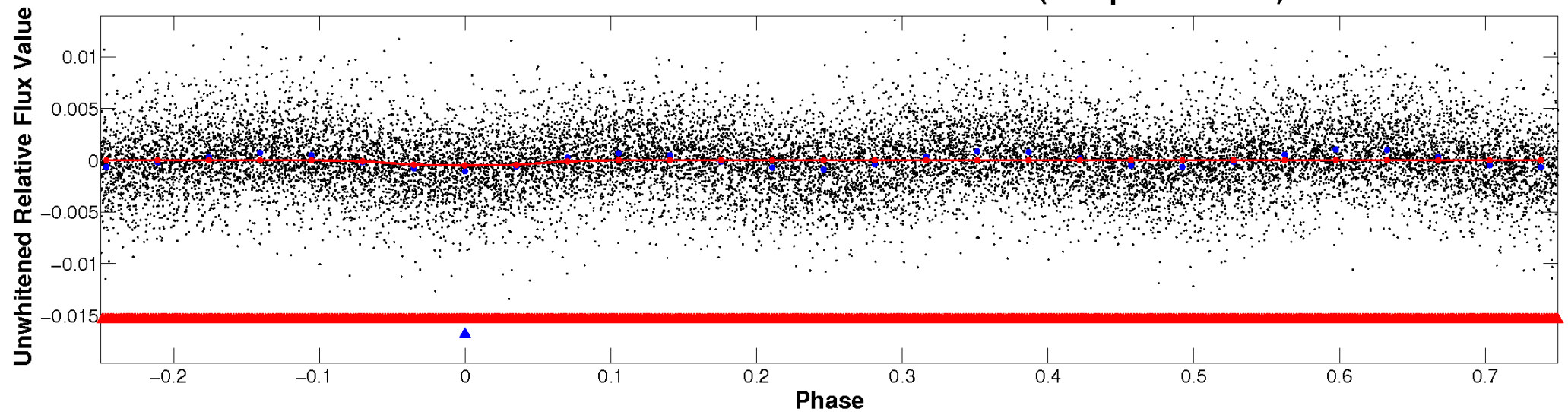
ALT Odd/Even

TCE 009655177-02

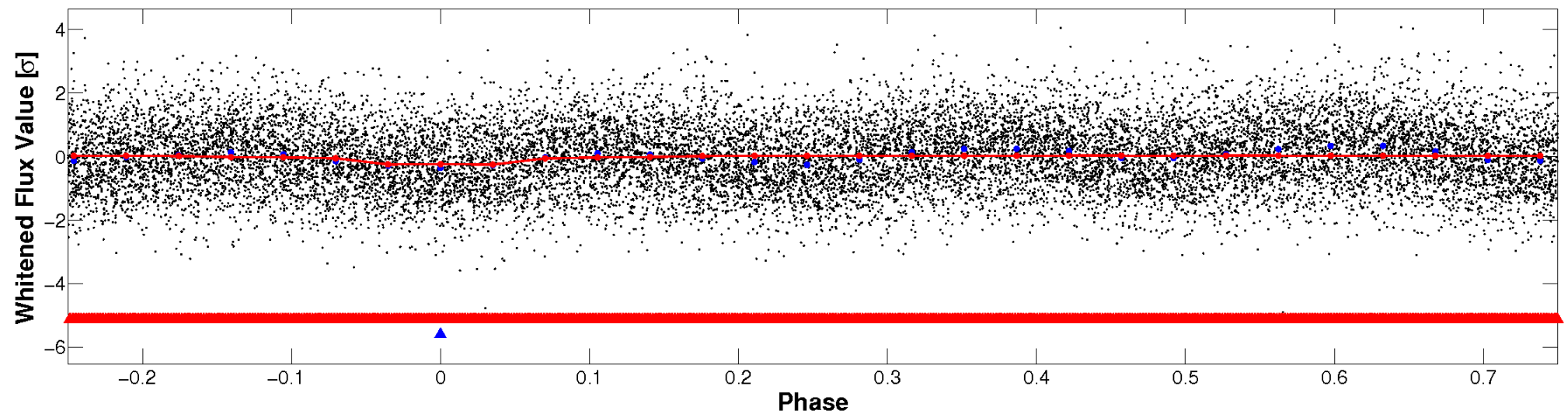


Non-Whitened Vs. Whitened Light Curve

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

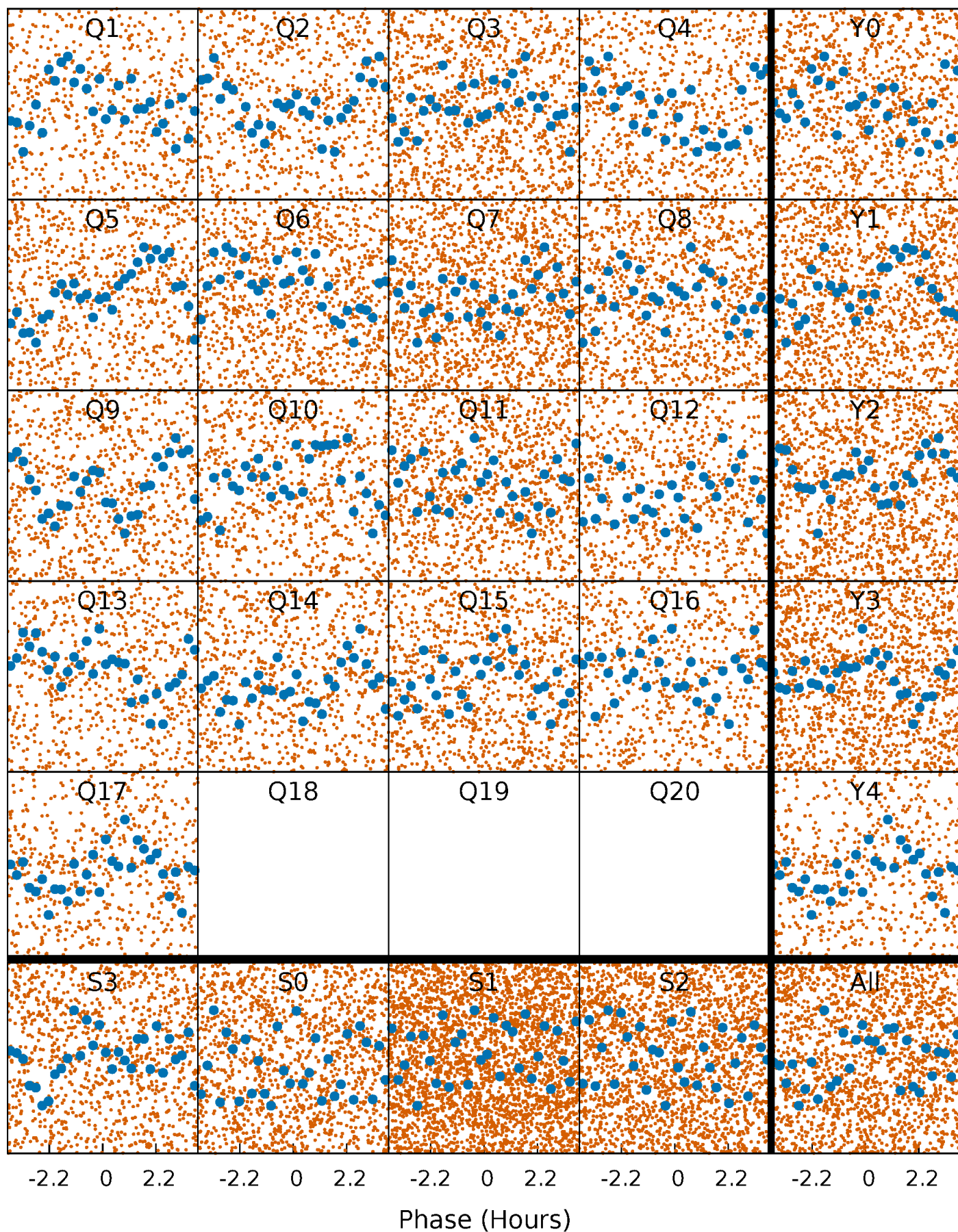


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



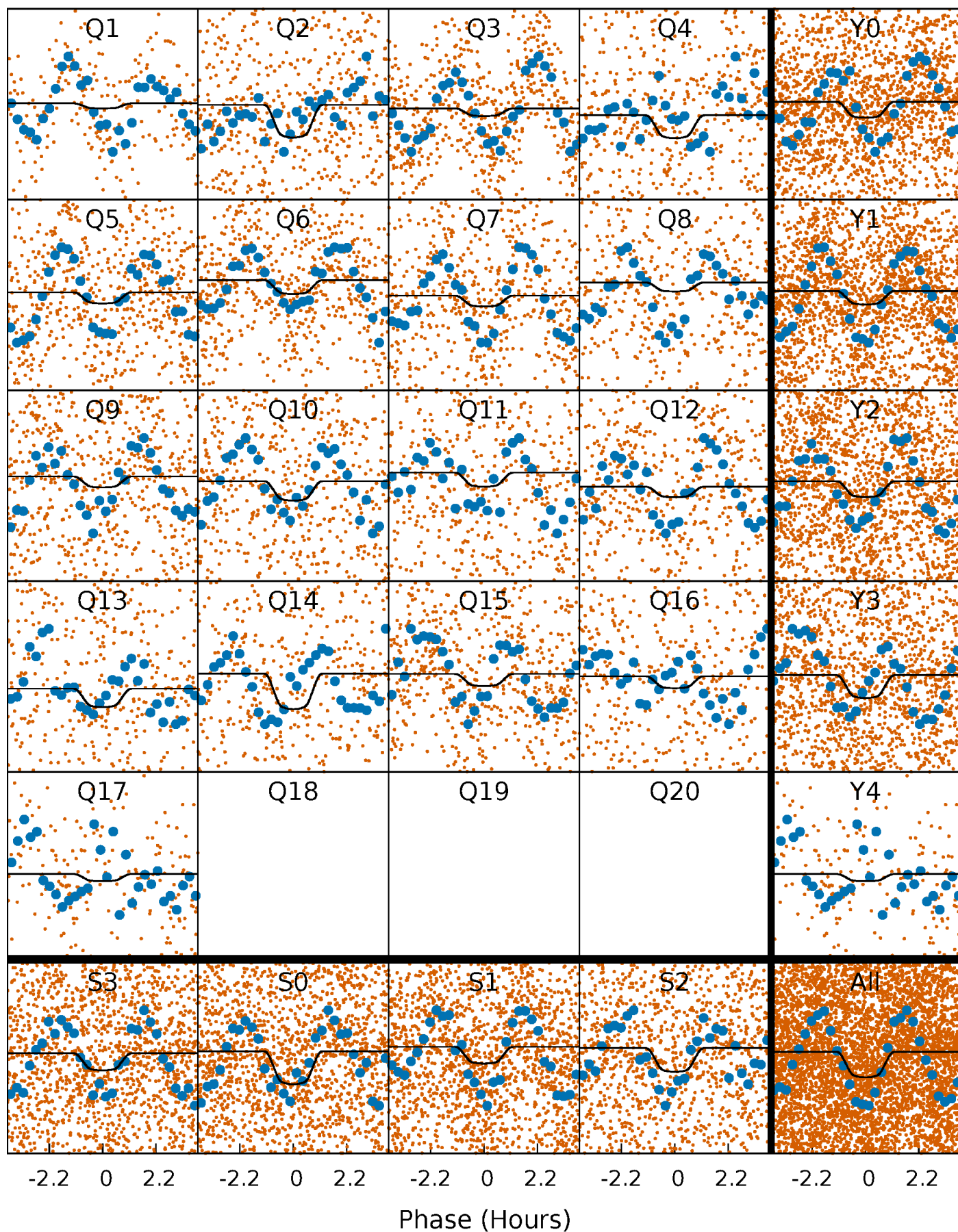
PDC Quarter-Phased Transit Curves

TCE 009655177-02 P= 0.581306 Days $T_0=131.769144$ (BKJD)



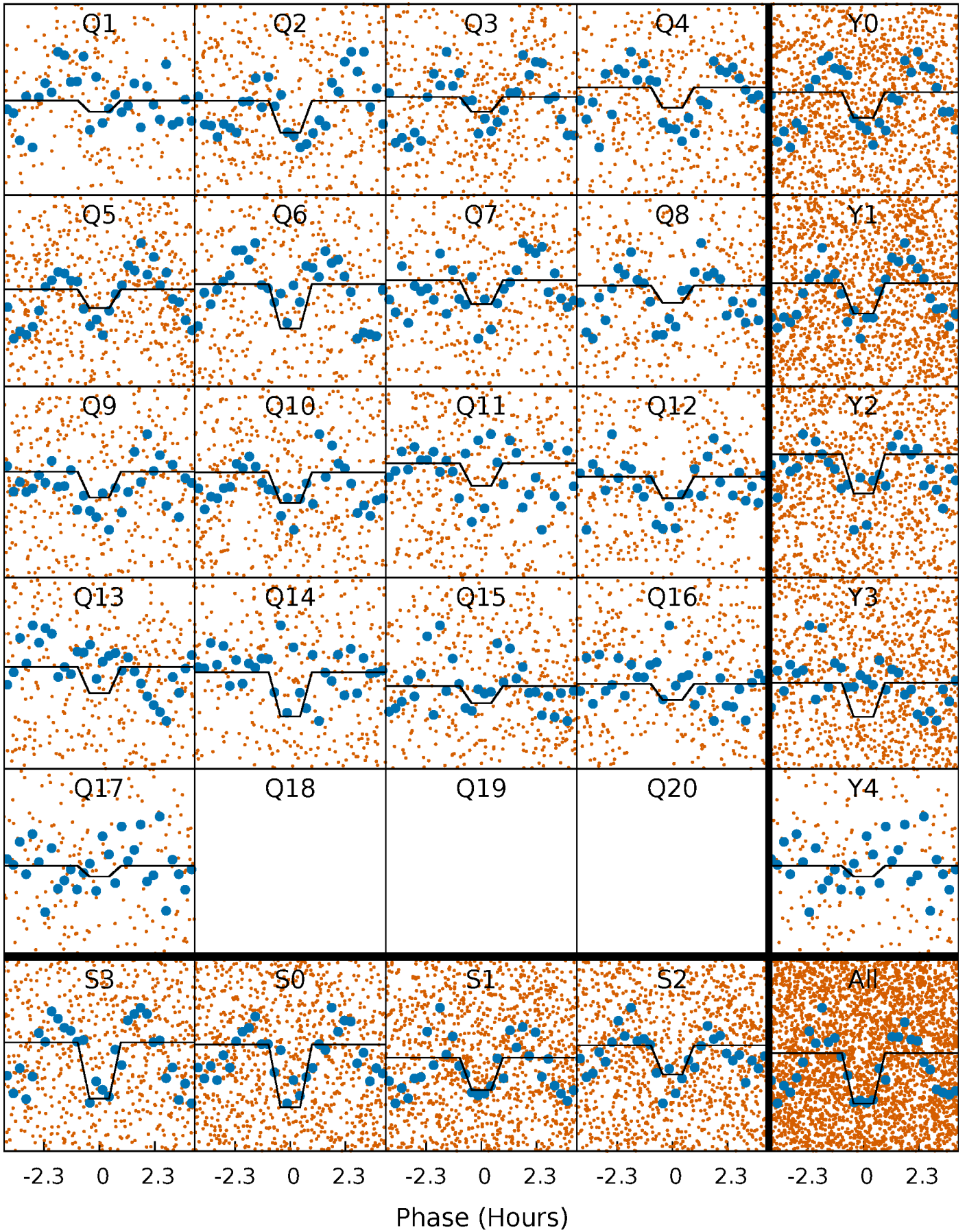
DV Quarter-Phased Transit Curves

TCE 009655177-02 P= 0.581306 Days $T_0=131.769144$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

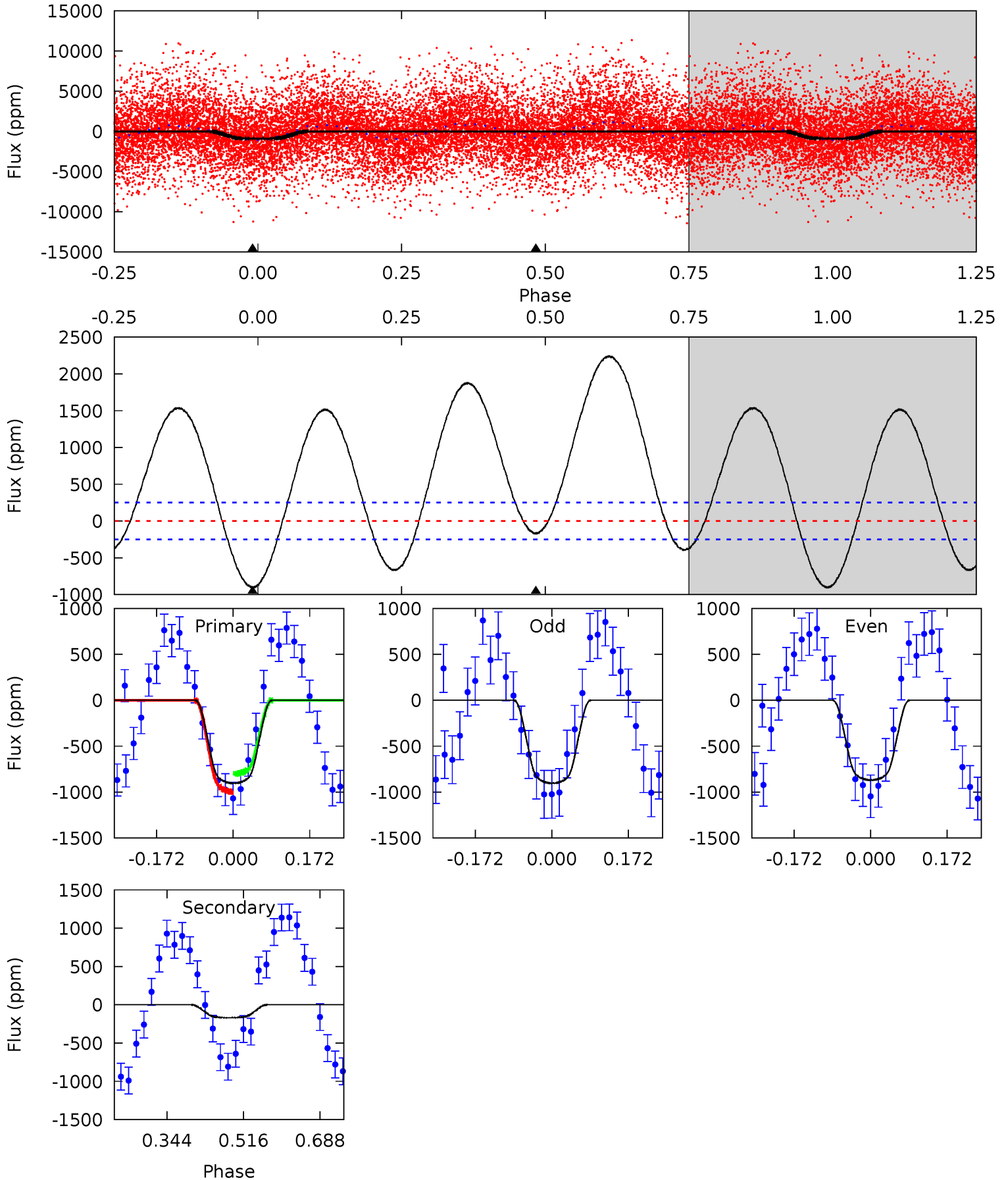
TCE 009655177-02 P= 0.581298 Days $T_0=131.773194$ (BKJD)



DV Model-Shift Uniqueness Test

009655177-02, P = 0.581306 Days, E = 131.187838 Days

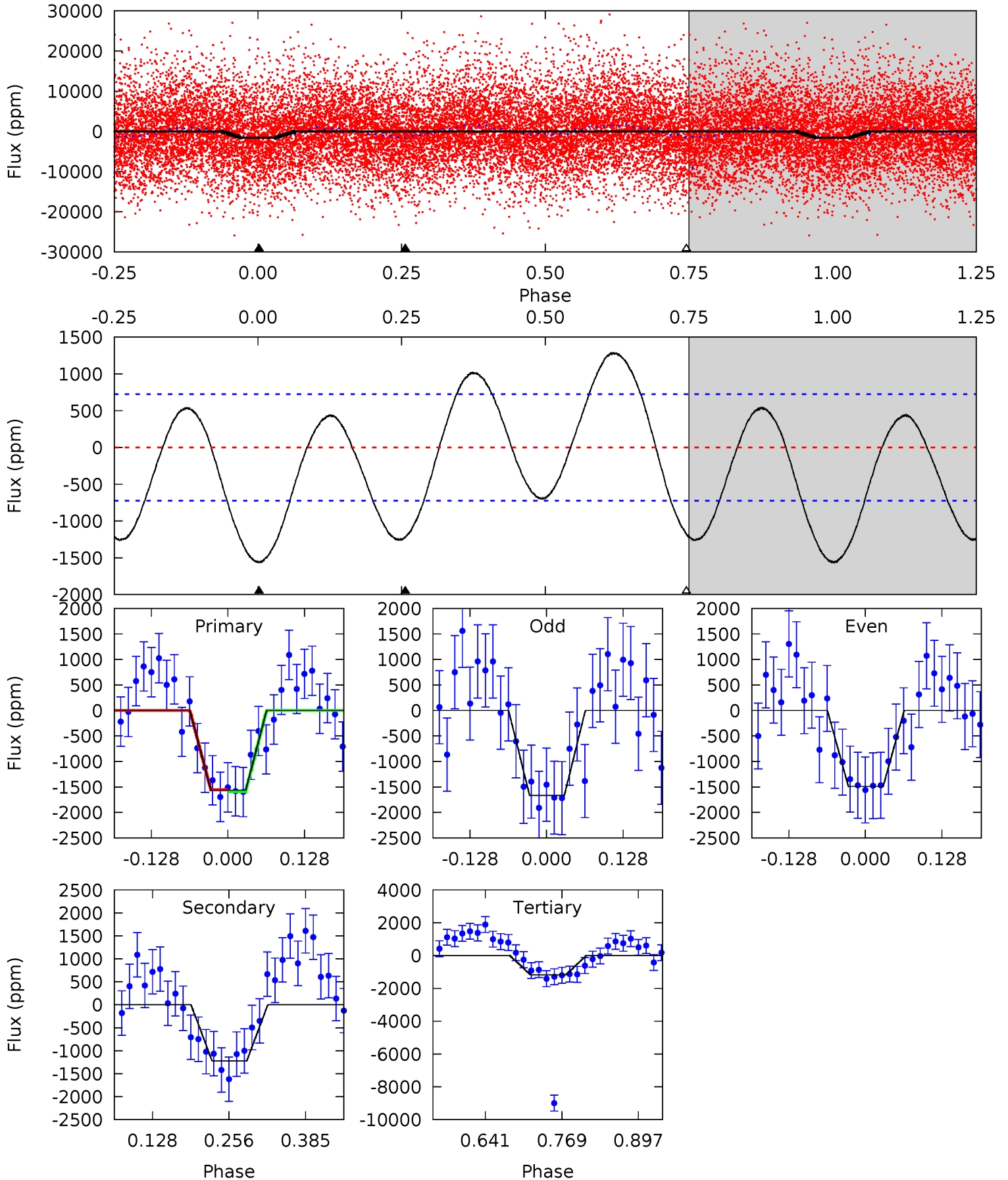
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	3.01	0	0	4.45	1.37	9.74	16.1	16.1	3.01	3.01	0.31	1.20	0.71	1.79



Alt Model-Shift Uniqueness Test

009655177-02, P = 0.581298 Days, E = 131.191896 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	7.59	7.35	0	4.51	1.52	4.74	2.38	9.73	0.24	7.59	0.56	0.91	0.45	0.12



Stellar Parameters For KIC 009655177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7222^{+194}_{-259}	$3.838^{+0.375}_{-0.100}$	$-0.300^{+0.250}_{-0.350}$	$2.440^{+0.529}_{-1.059}$	$1.495^{+0.231}_{-0.283}$	$0.145^{+0.432}_{-0.053}$
	+3%/-4%	+10%/-3%	+83%/-117%	+22%/-43%	+15%/-19%	+298%/-36%
Source	PHO1	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 009655177-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-169 ± 56	$6.11^{+1.52}_{-1.72}$	5415^{+375}_{-611}	4538^{+819}_{-1593}	$0.615^{+0.522}_{-0.298}$
Alt.	-1219 ± 161	$10.12^{+1.87}_{-2.37}$	5422^{+355}_{-577}	6300^{+631}_{-521}	$1.598^{+1.141}_{-0.470}$

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

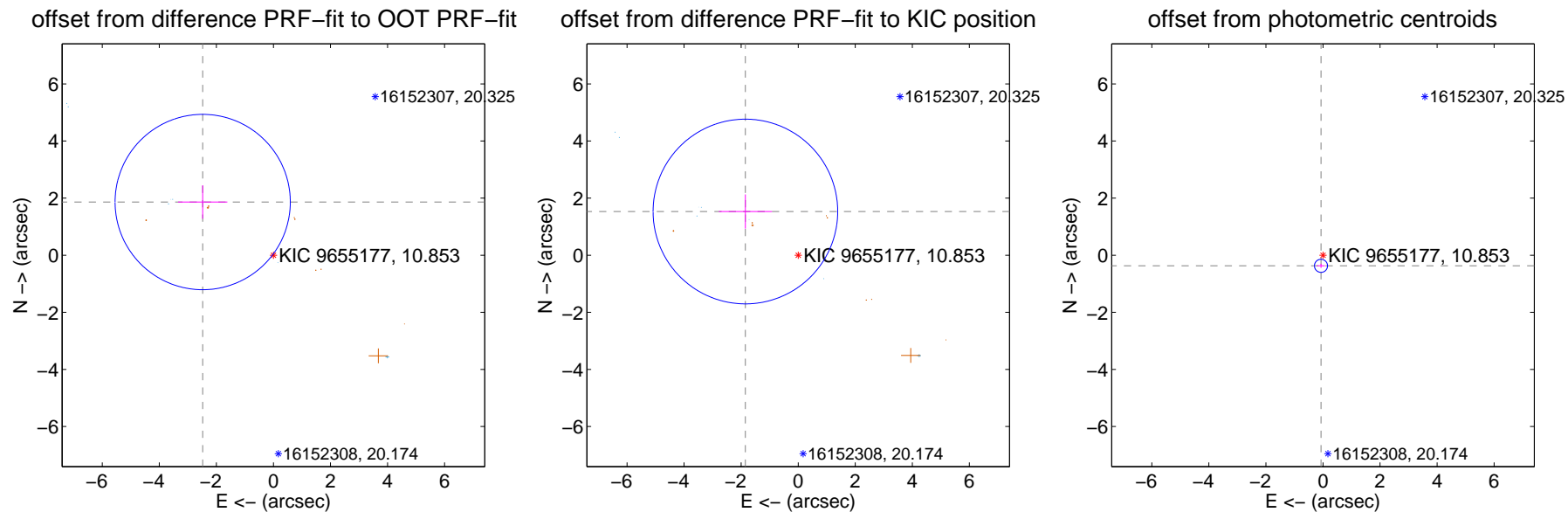
DV Centroid Data

Supplemental centroid analysis for 009655177-02. **Kepler magnitude: 10.85**. Transit SNR 11.25

There are 8 quarters with good PRF difference image offsets

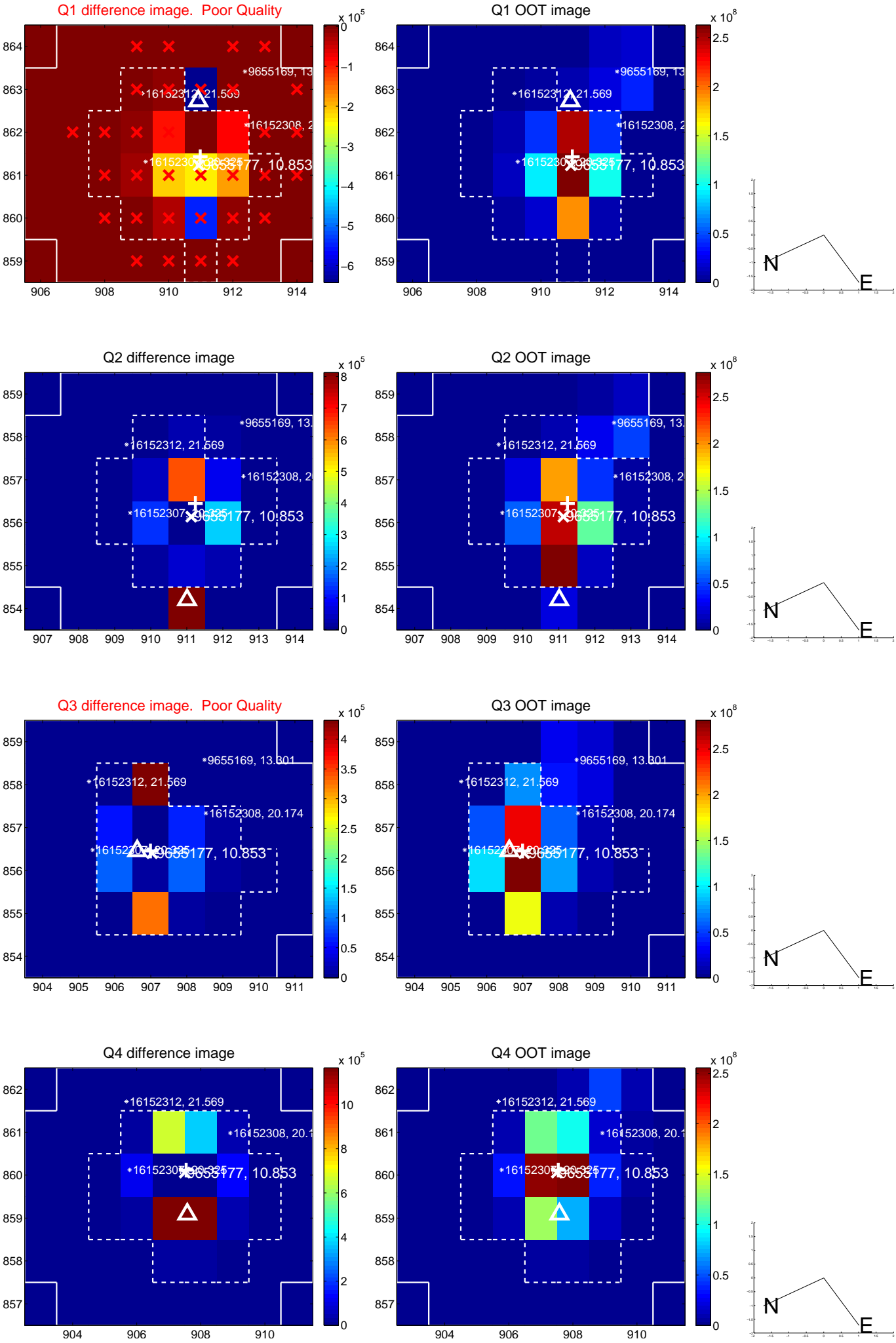
The direct PRF centroid is offset from the target star catalog position by about 0.93 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.101 ± 1.024	3.03	2.480 ± 0.864	1.863 ± 0.586
PRF-fit source offset from KIC position	2.402 ± 1.078	2.23	1.851 ± 0.931	1.531 ± 0.601
photometric centroid source offset	0.38 ± 0.08	4.95	0.07 ± 0.14	-0.37 ± 0.07

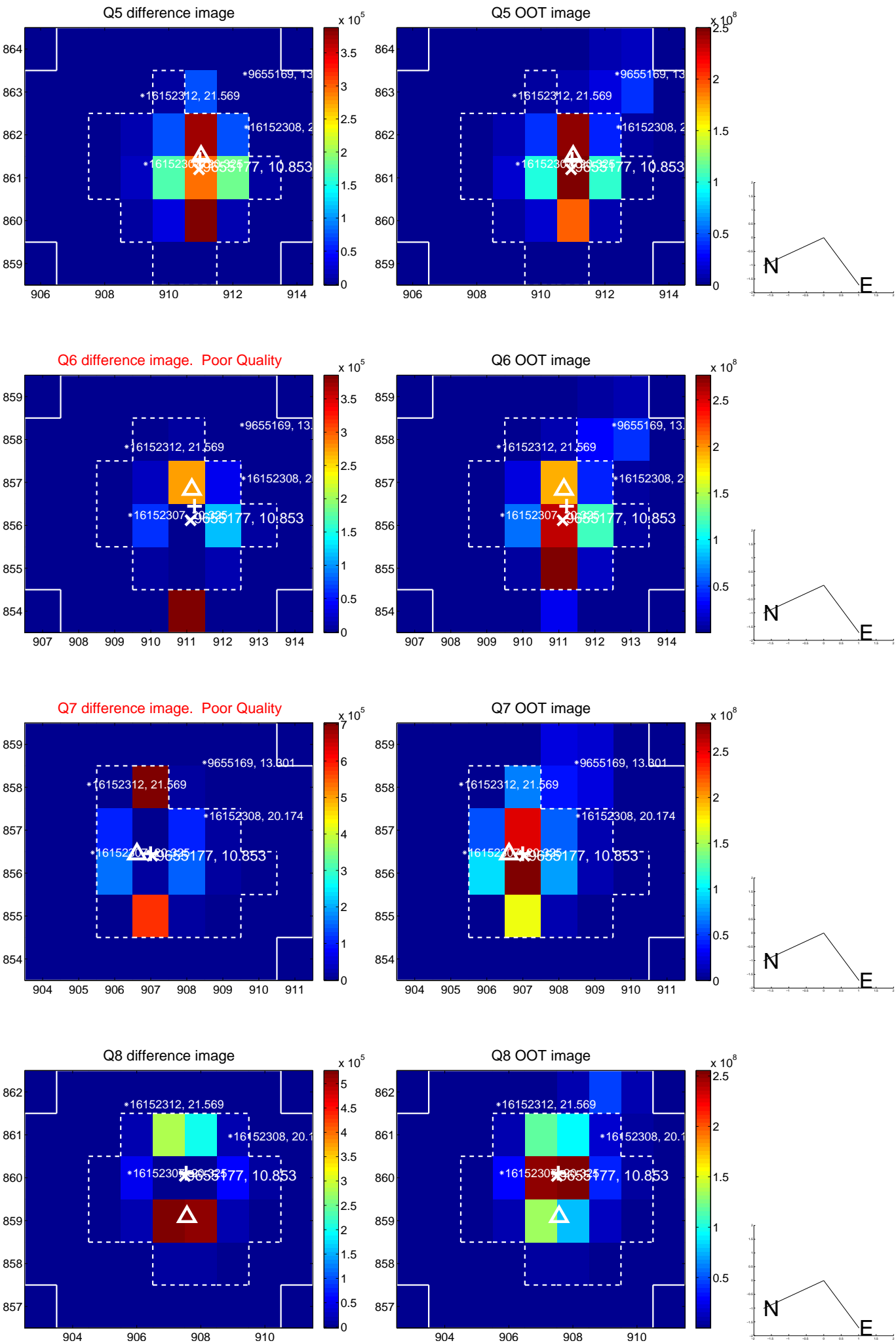


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

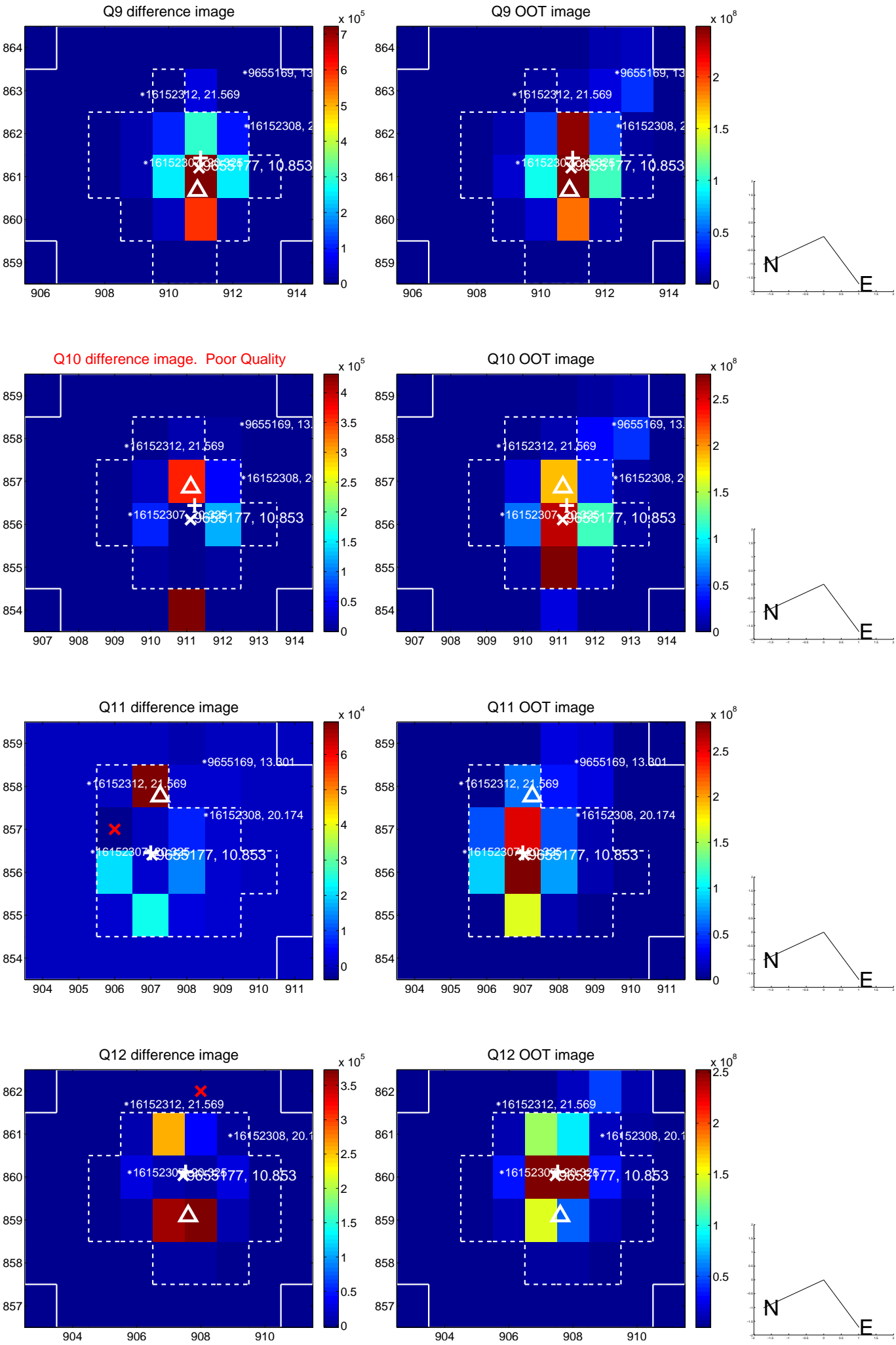
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



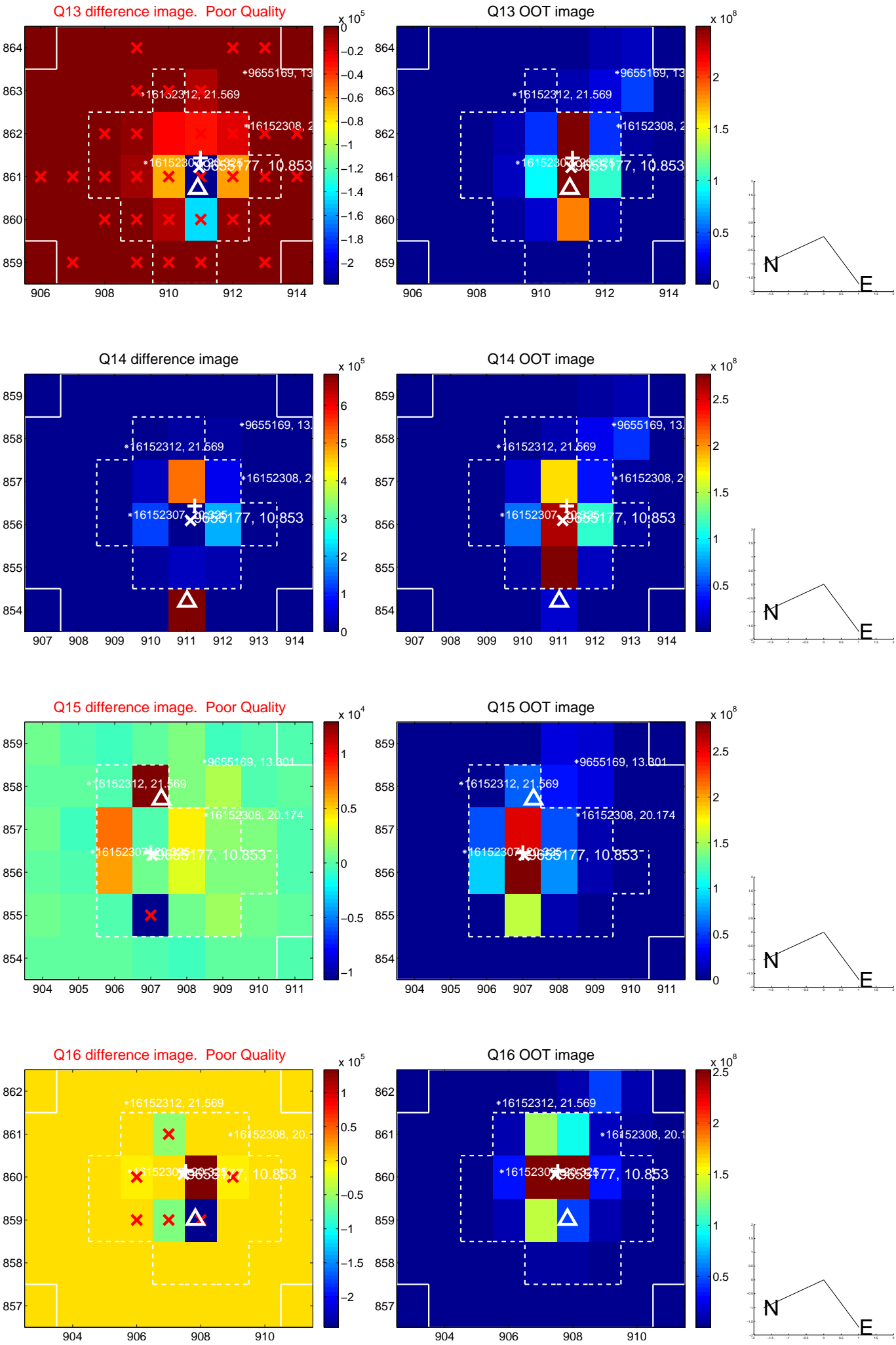
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



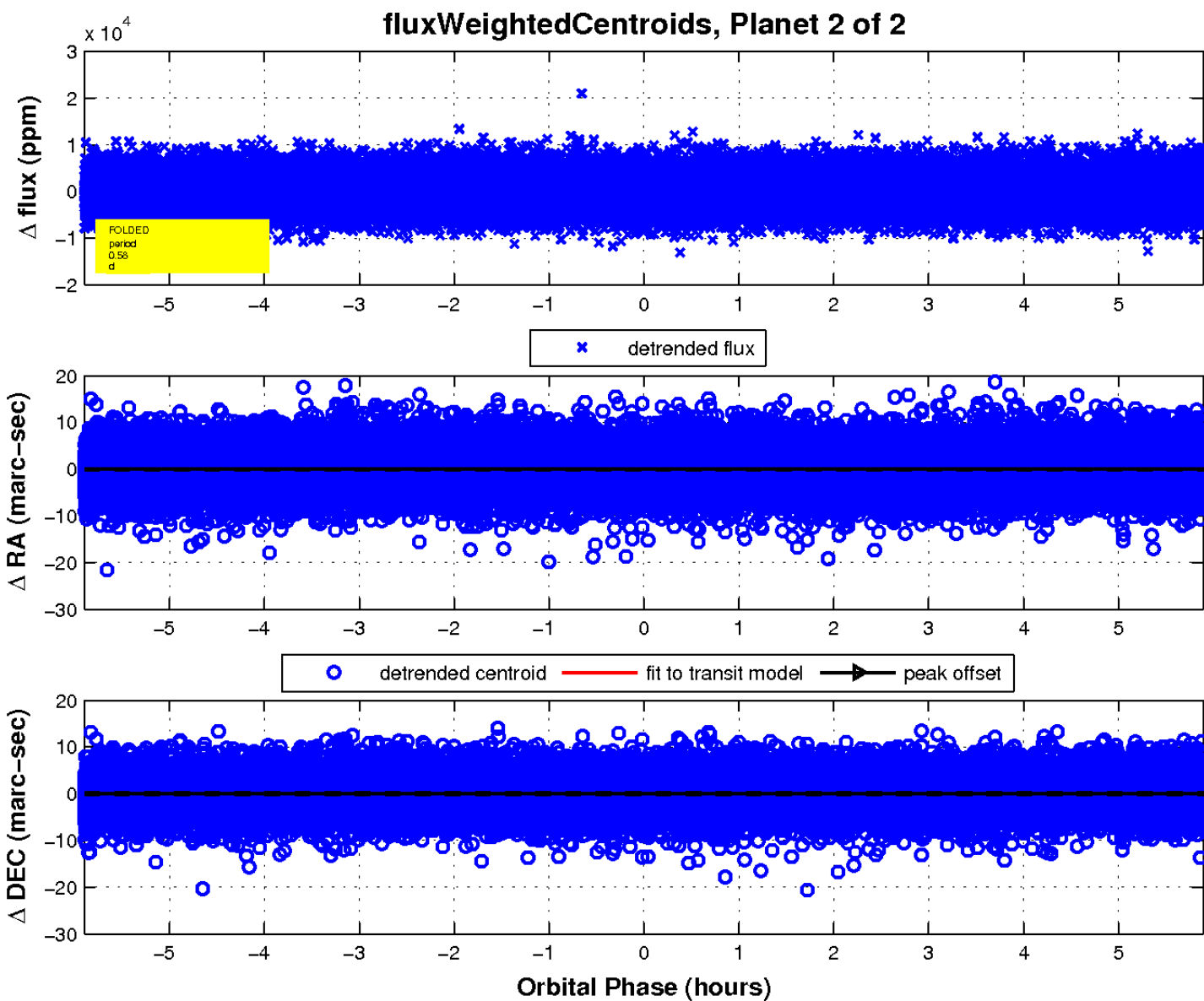
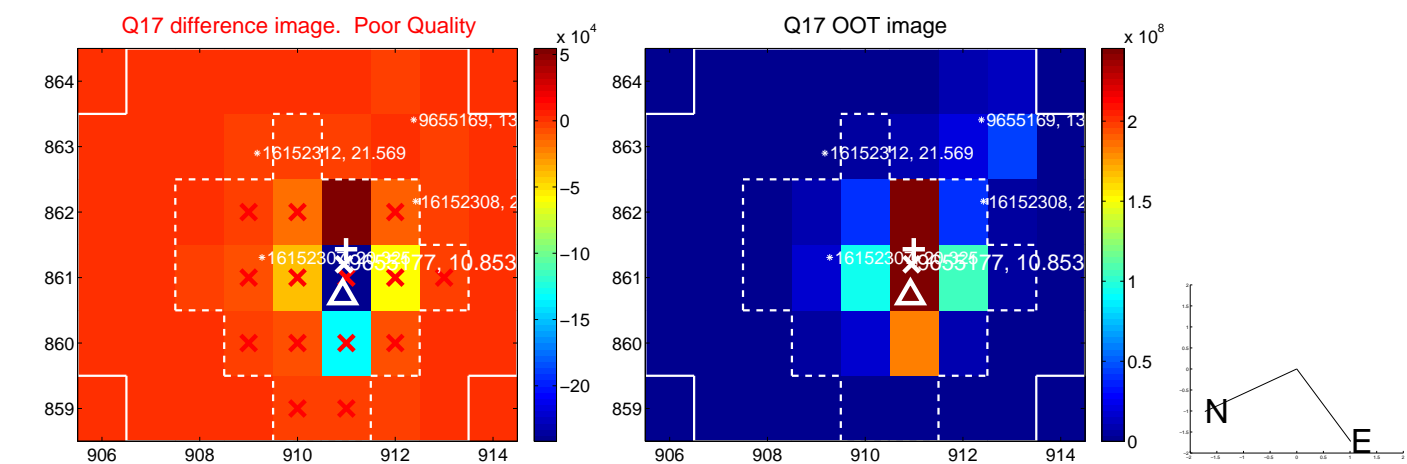
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UKIRT Image

