

KIC 004074388

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})
004074388-01	OBS	No	0.556704	131.774206	17.5	4.125	7.8	3.0	1.64	7232	0.69	26863.82
004074388-02	OBS	No	7.472292	132.403507	372.1	2.041	12.3	6.5	1.64	7232	3.21	842.16
004074388-03	OBS	No	9.921345	134.614981	1130.2	0.831	9.0	9.3	1.64	7232	5.68	577.09
004074388-04	OBS	No	6.897370	133.704888	396.8	2.430	7.9	7.4	1.64	7232	3.60	937.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004074388-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
004074388-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

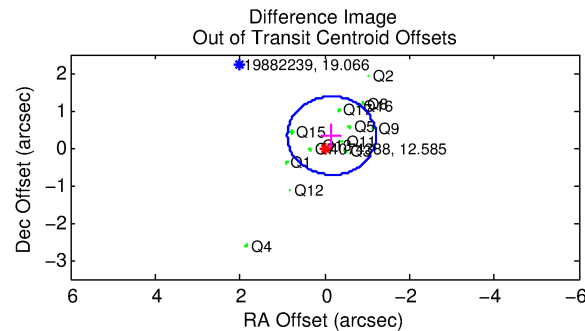
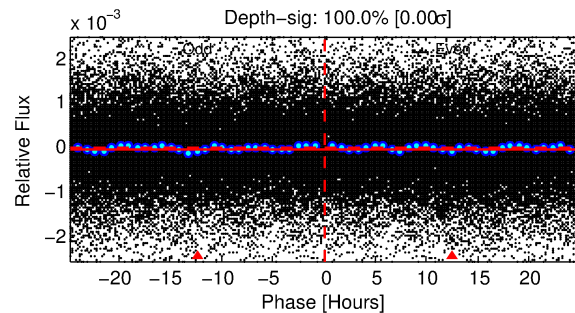
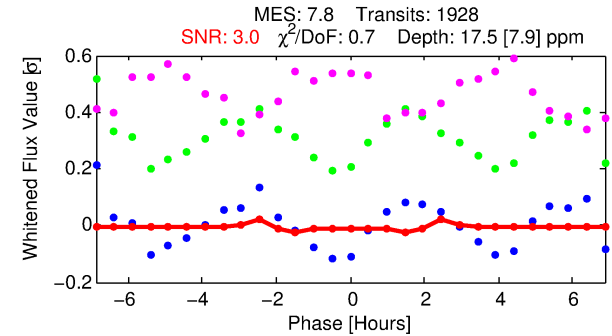
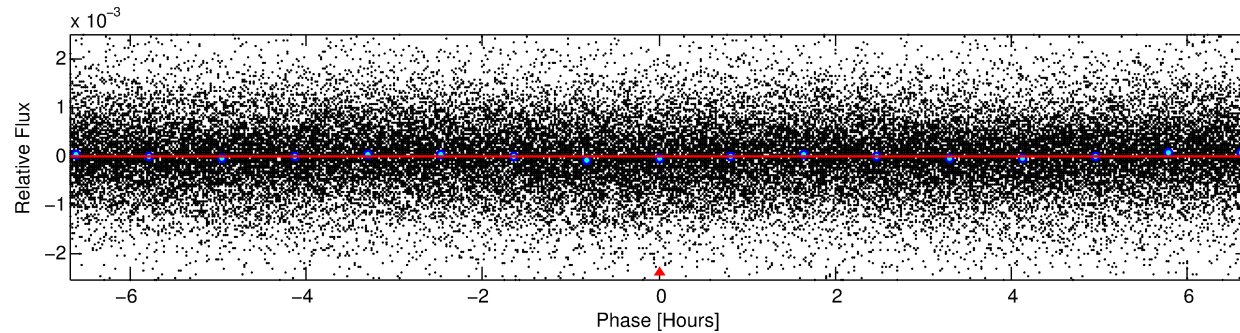
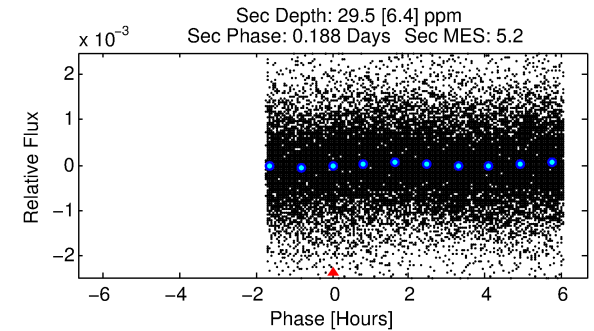
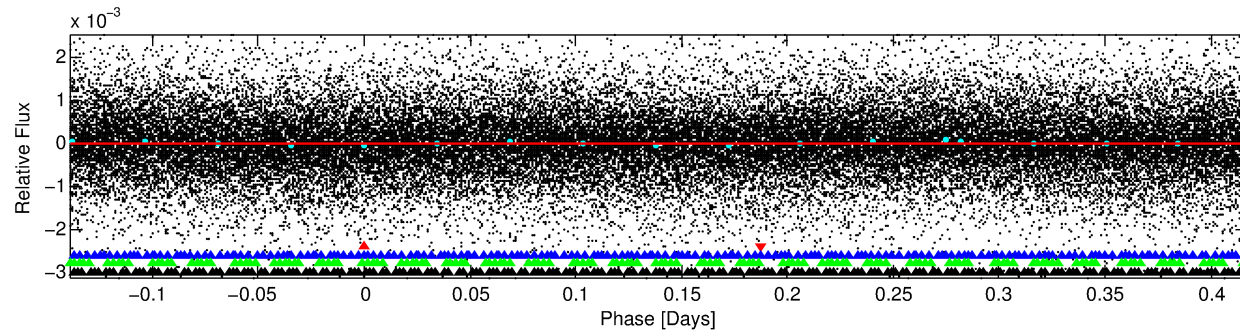
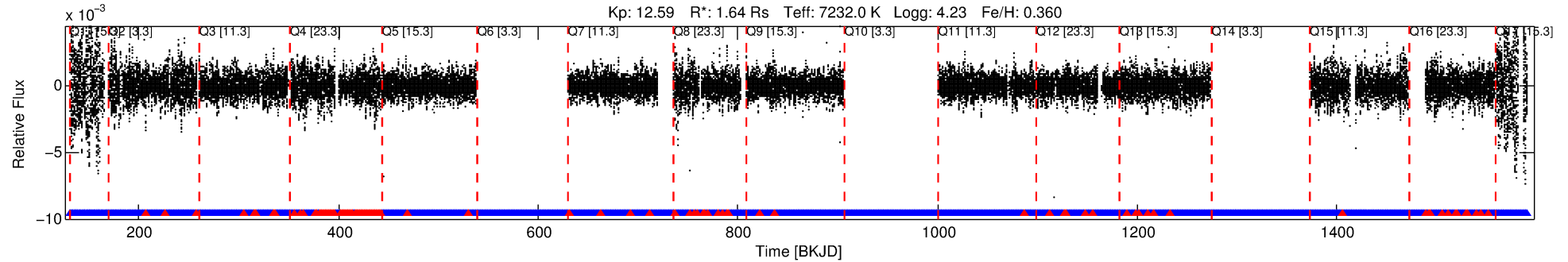
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004074388-01

No Significant Match Found

DV One-Page Summary

KIC: 4074388 Candidate: 1 of 4 Period: 0.557 d



DV Fit Results:

Period = 0.55670 [0.00003] d
Epoch = 131.7742 [0.0039] BKJD
Rp/R* = 0.0039 [0.0040]
a/R* = 1.22 [2.46]
b = 0.10 [62.48]
Seff = 26863.82 [12160.61]
Teff = 3265 [369] K
Rp = 0.69 [0.75] Re
a = 0.0157 [0.0046] AU
Ag = 8.27 [17.39] [0.42σ]
Teffp = 8560 [4423] K [1.19σ]

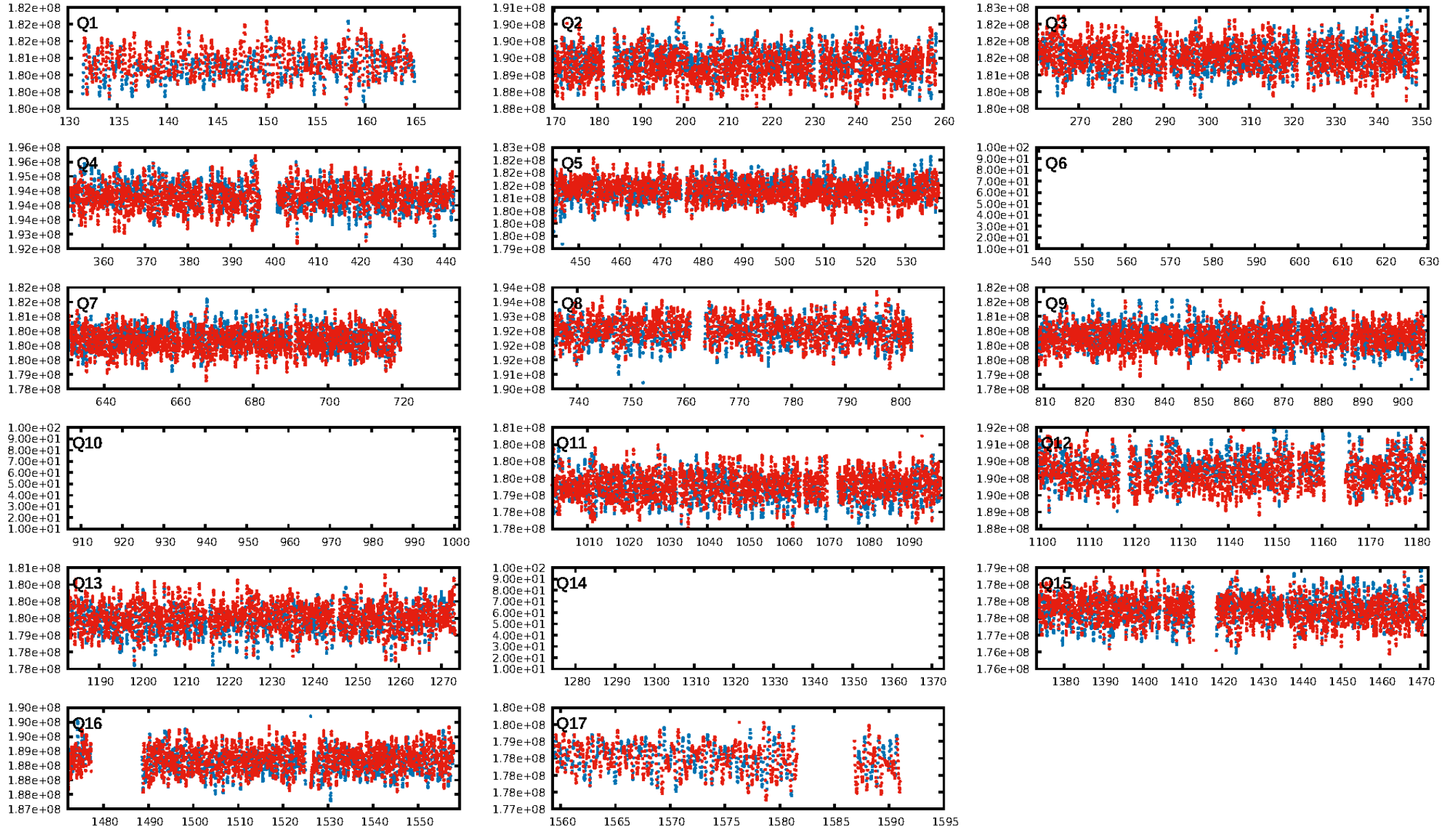
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [31.79σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.57e-06
RollingBand-fgt: 0.93 [1687/1819]
GhostDiagnostic-chr: 2.476
Centroid-sig: 12.5%
Centroid-so: 1.625 arcsec [1.49σ]
OotOffset-rm: 0.367 arcsec [1.05σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.470 arcsec [1.39σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 1.00 [14/14]

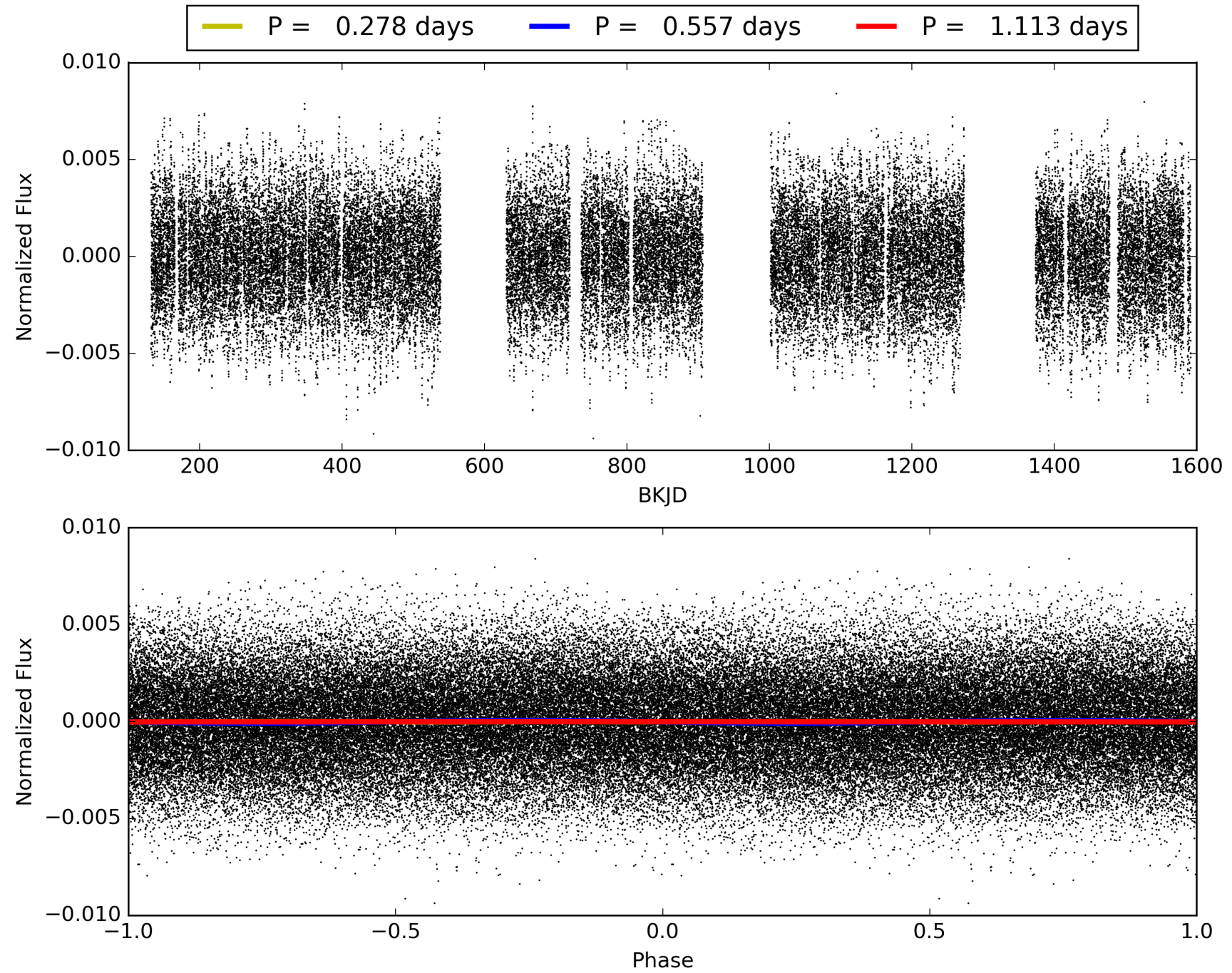
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:59:00 Z

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

TCE 004074388-01, PDC Light Curves

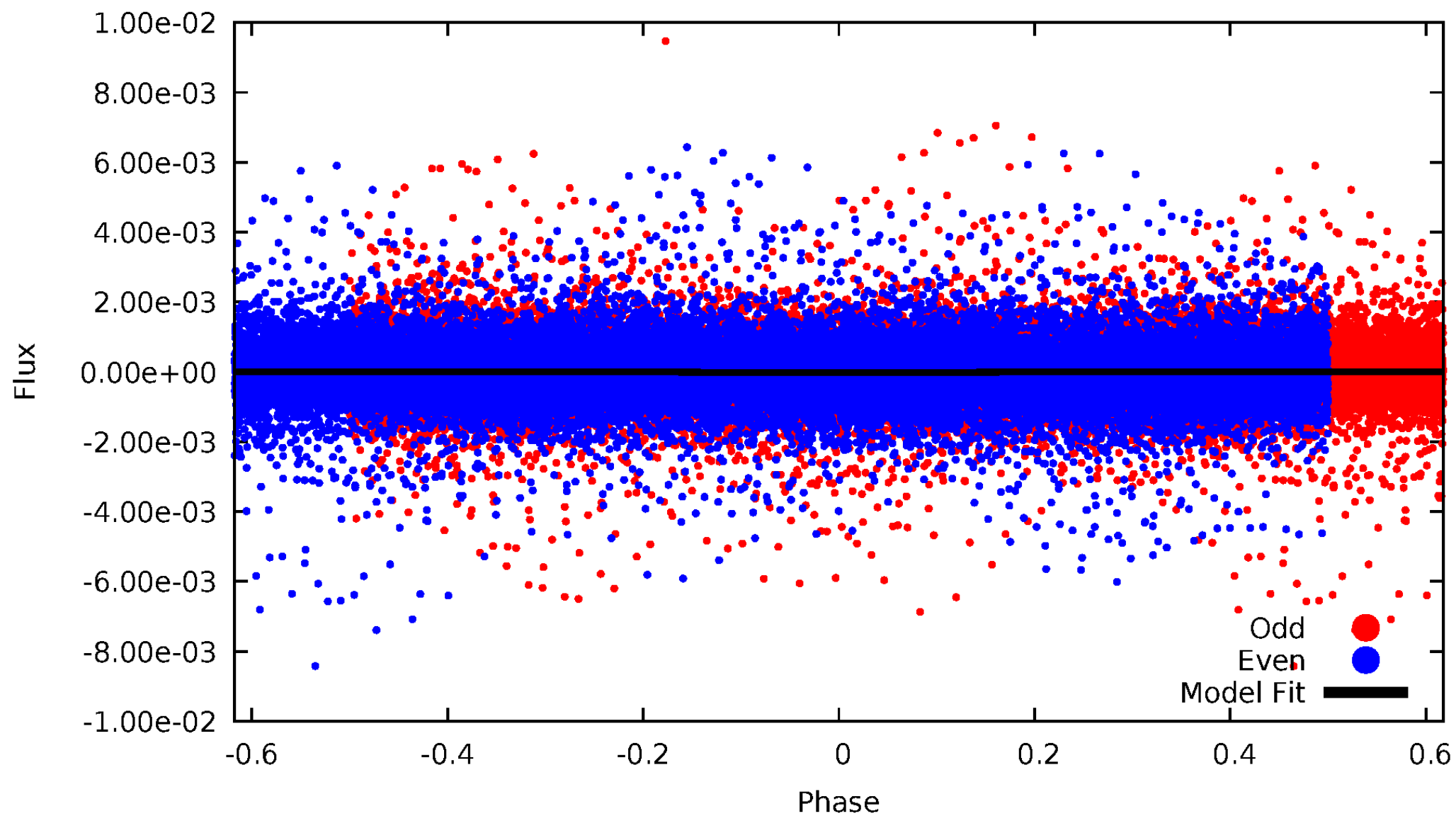


TCE 004074388-01



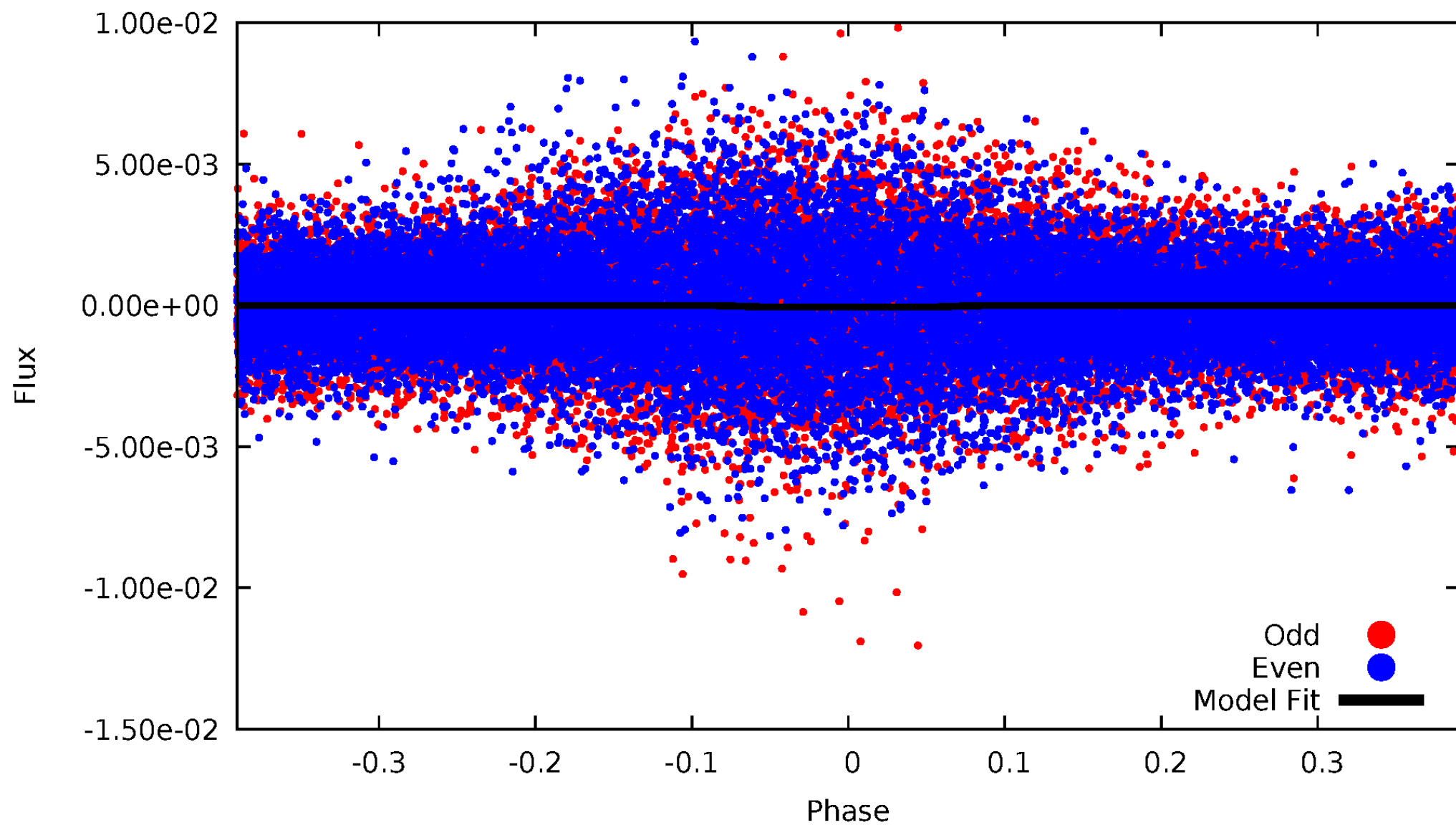
DV Odd/Even

TCE 004074388-01



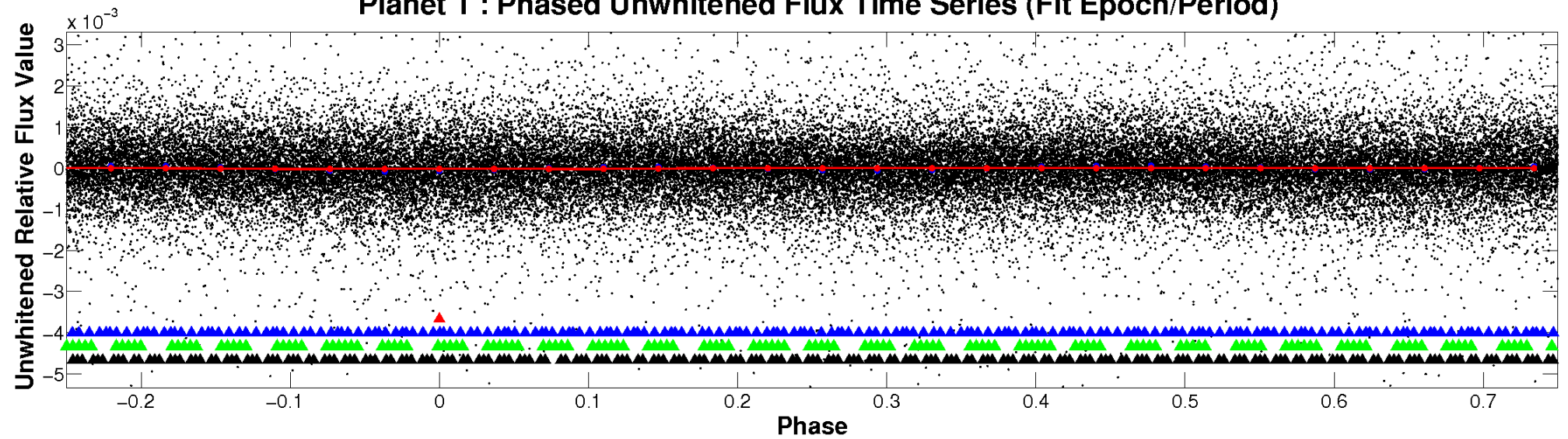
ALT Odd/Even

TCE 004074388-01

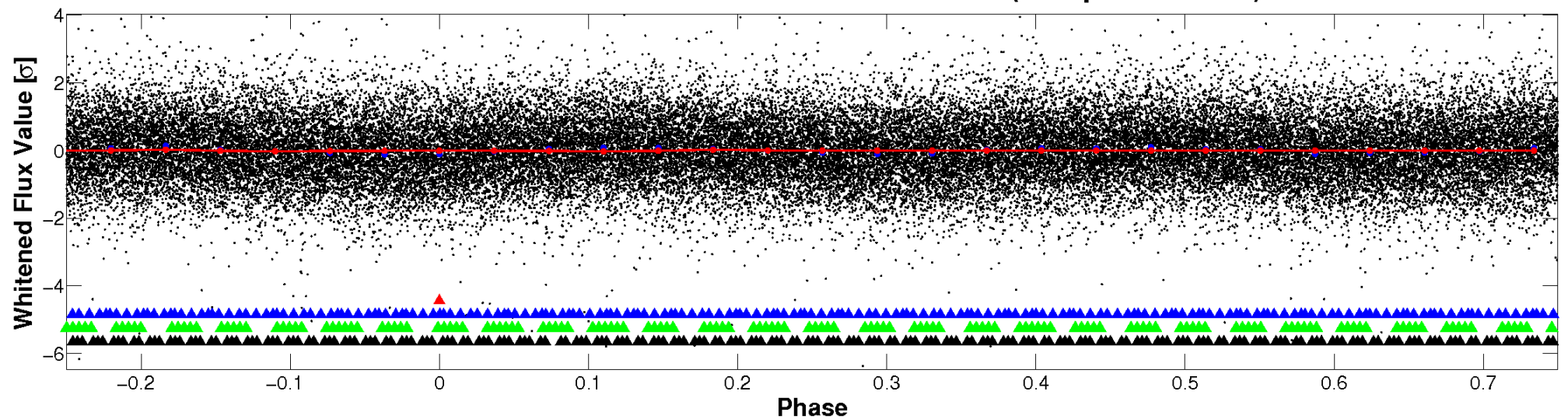


Non-Whitened Vs. Whitened Light Curve

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

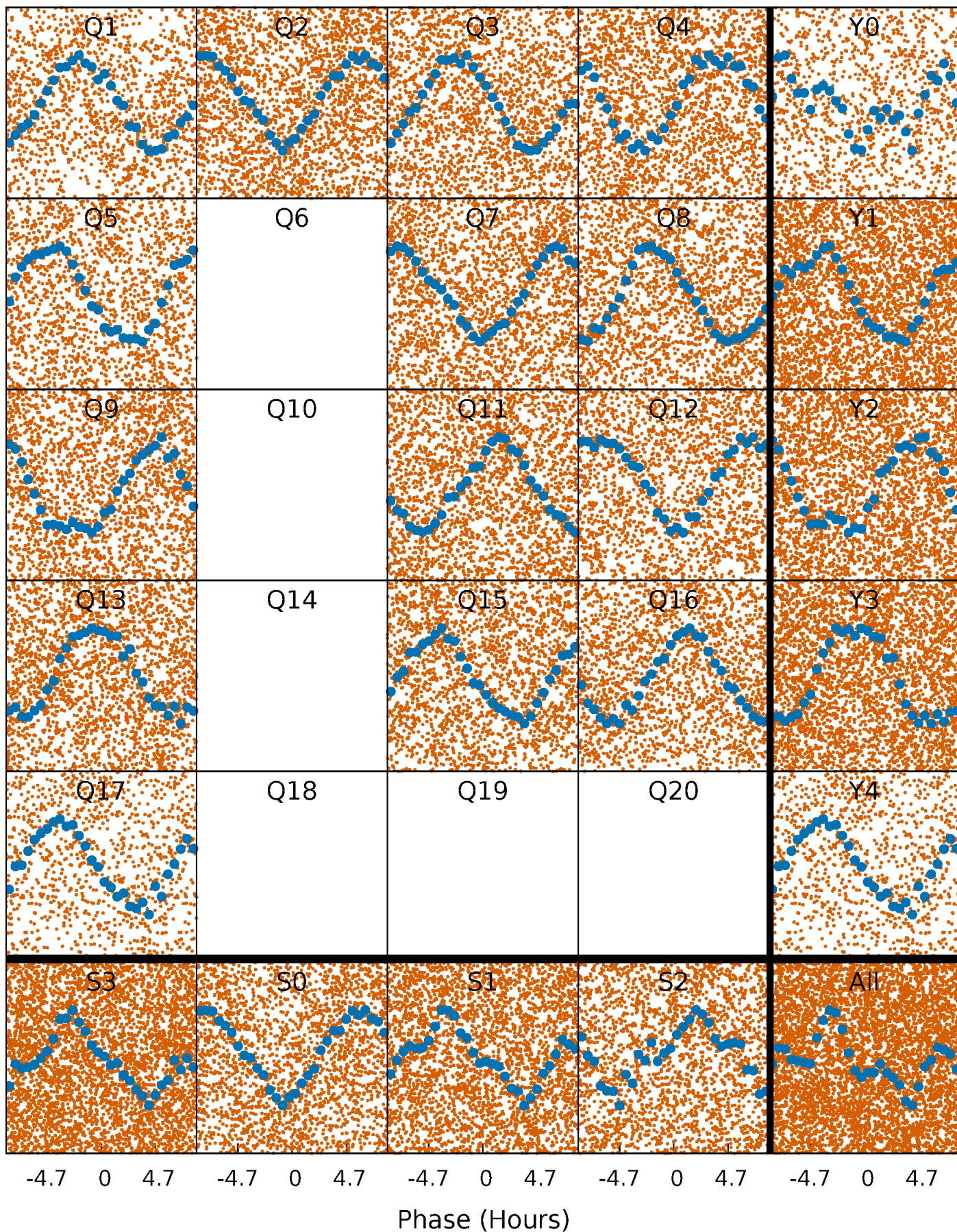


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



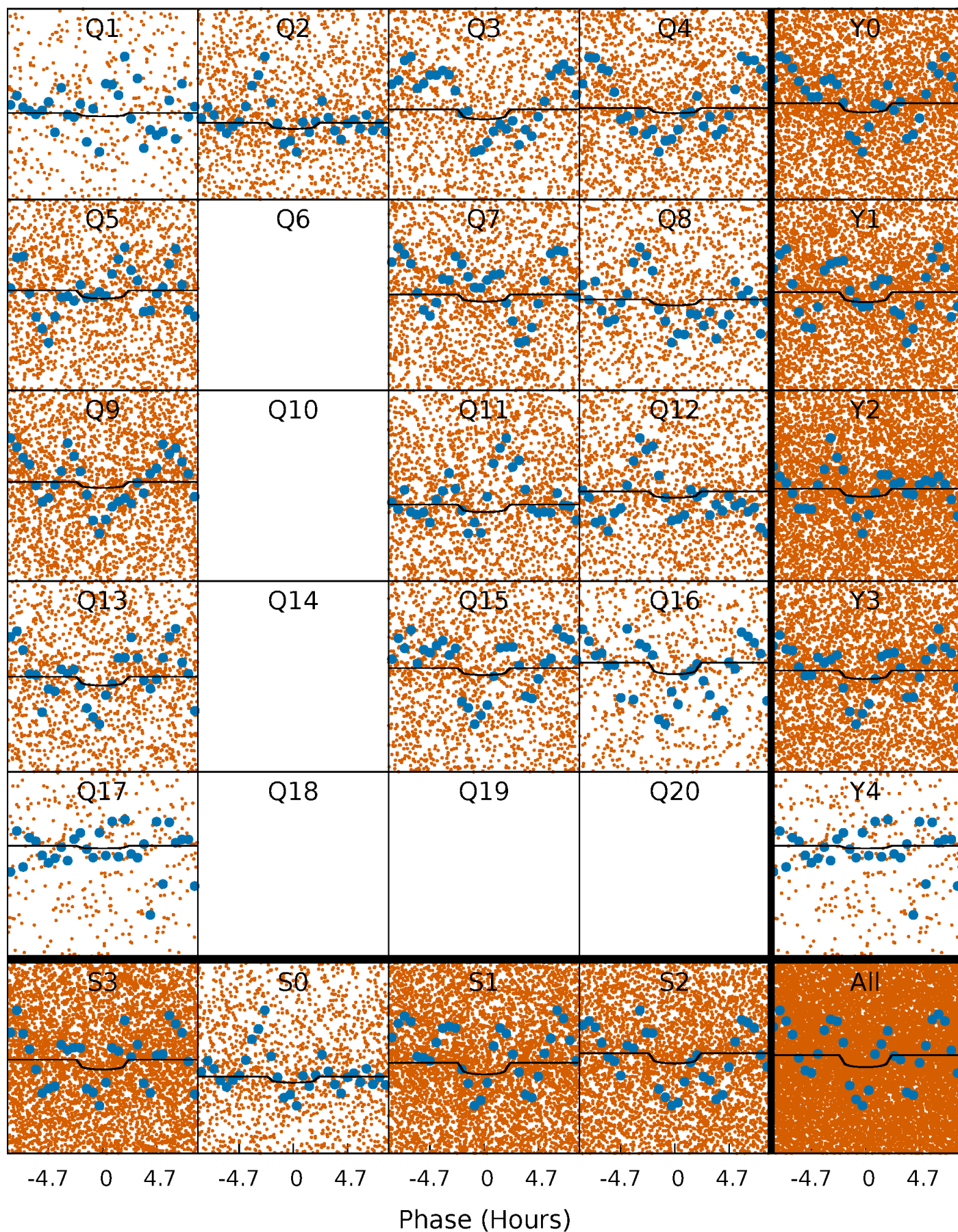
PDC Quarter-Phased Transit Curves

TCE 004074388-01 P= 0.556704 Days $T_0=131.774206$ (BKJD)



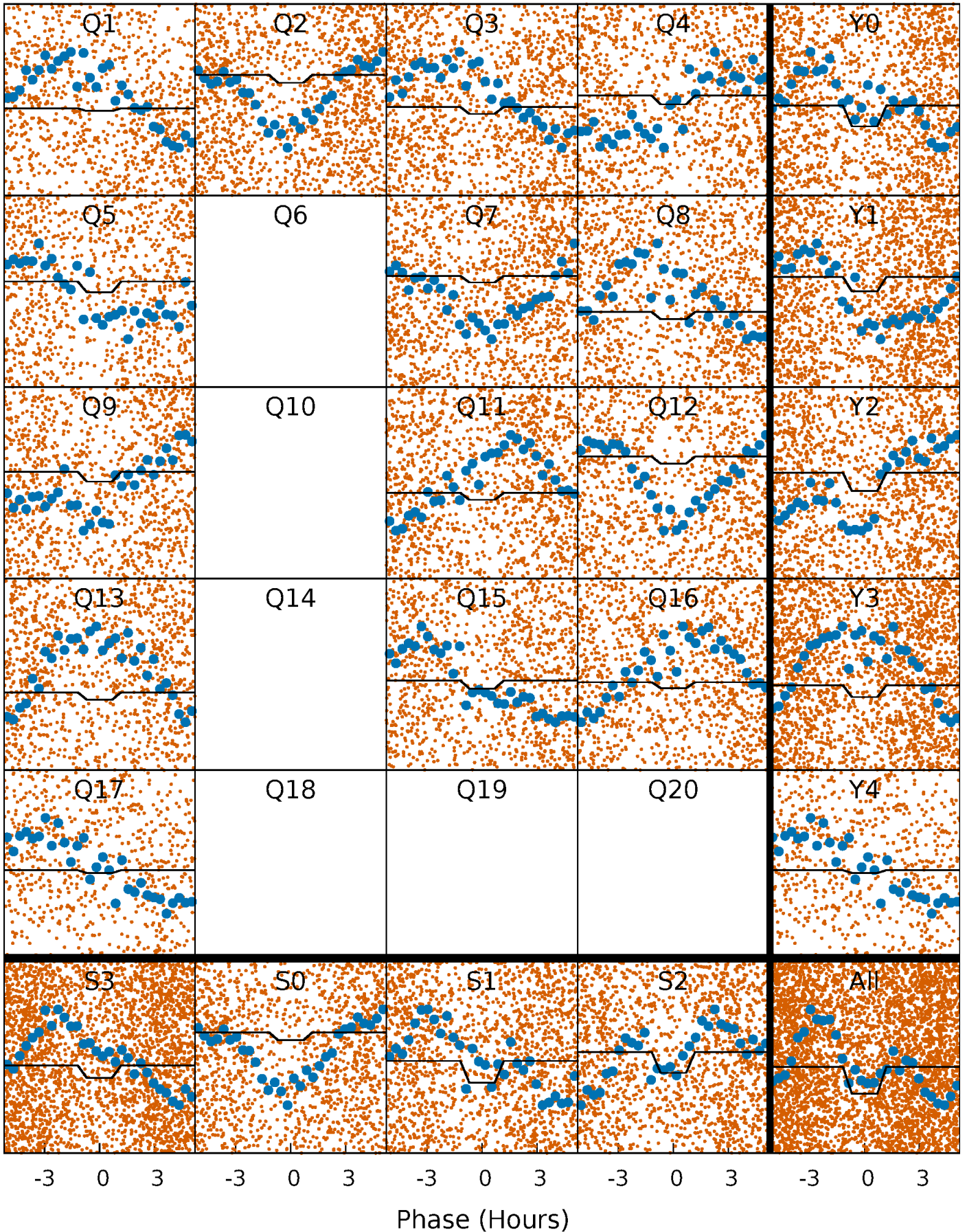
DV Quarter-Phased Transit Curves

TCE 004074388-01 P= 0.556704 Days $T_0=131.774206$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

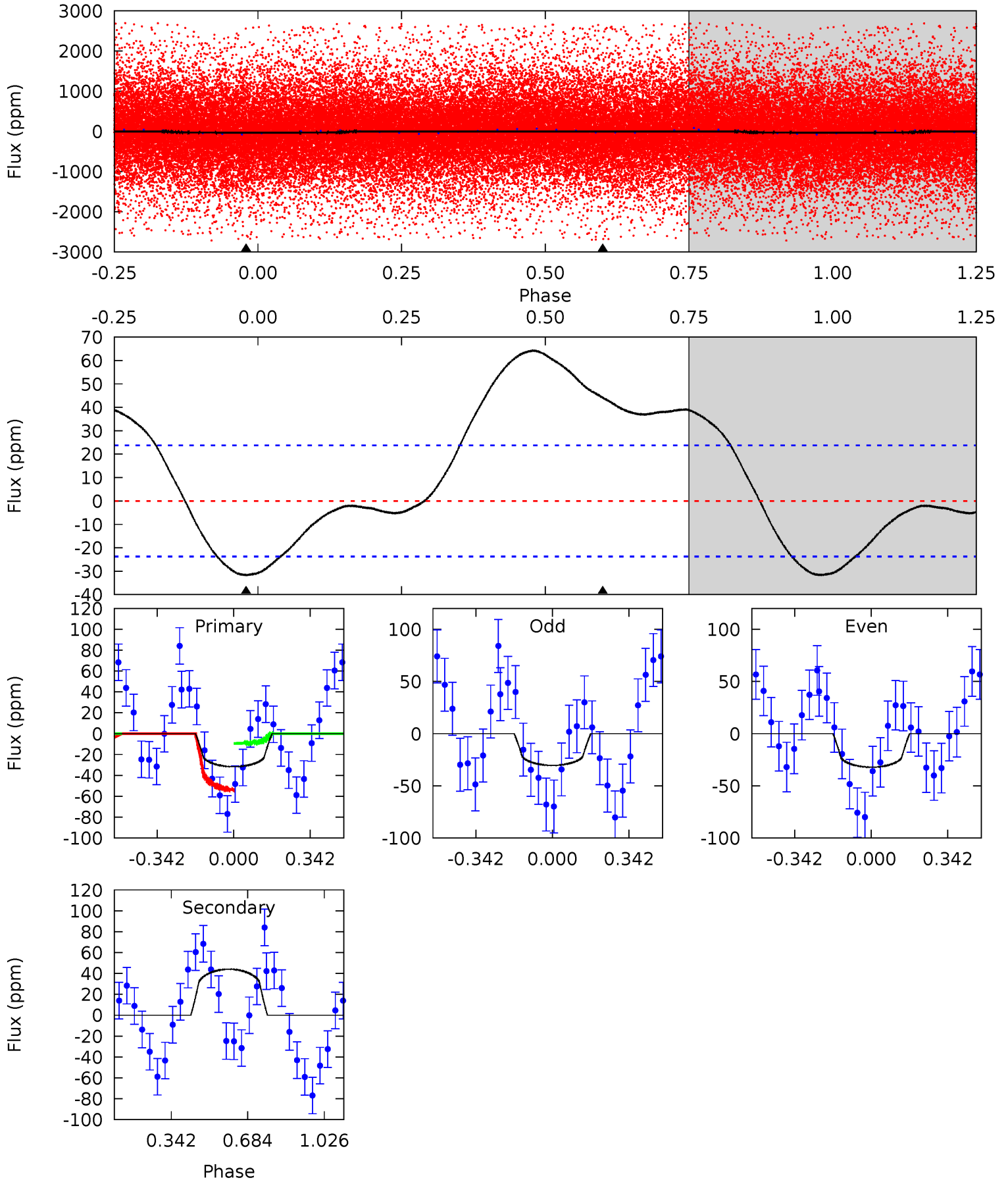
TCE 004074388-01 P= 0.556697 Days $T_0=131.775140$ (BKJD)



DV Model-Shift Uniqueness Test

004074388-01, P = 0.556704 Days, E = 131.217502 Days

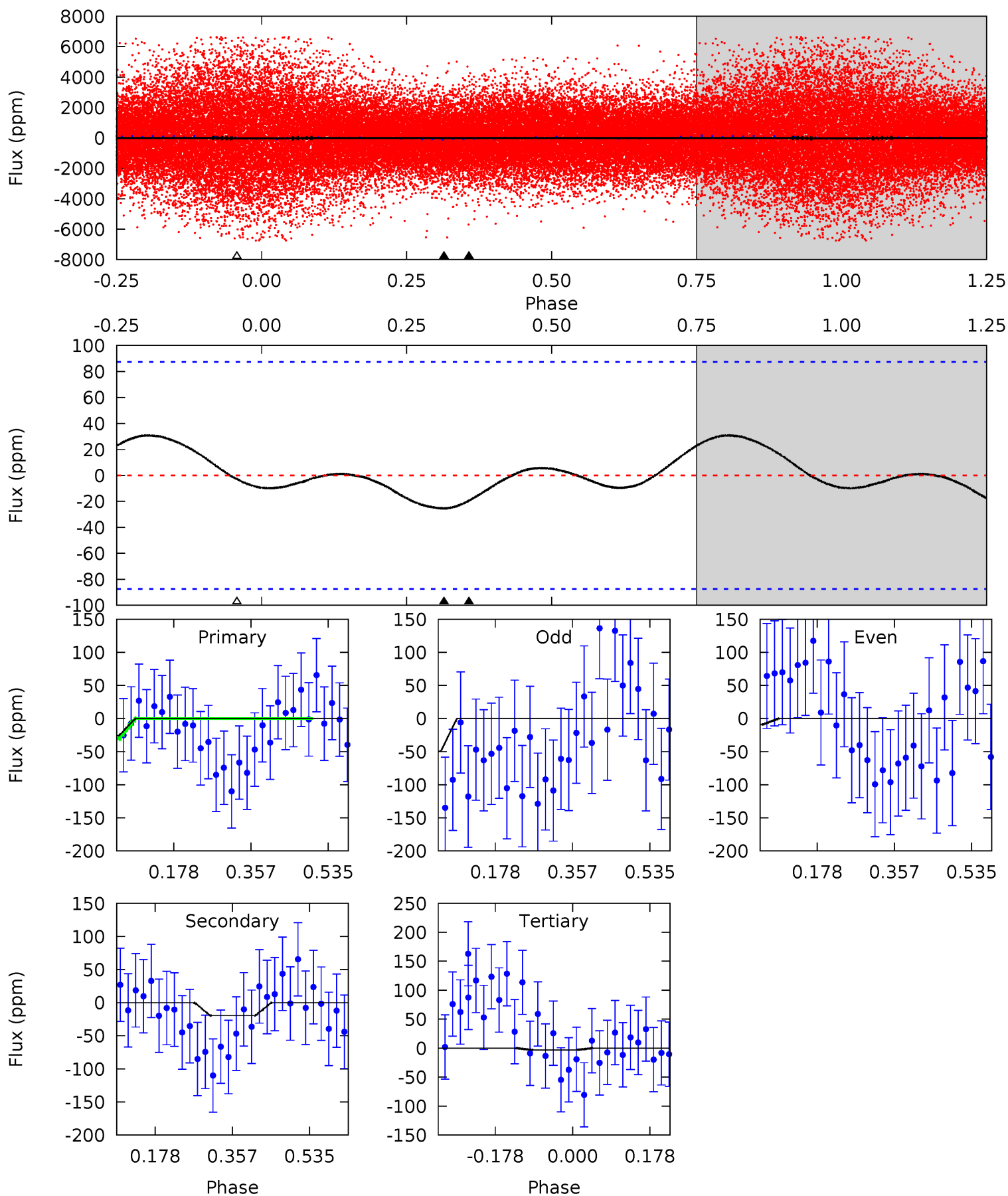
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.73	-7.97	0	0	4.30	0.95	1.22	5.73	5.73	-7.97	-7.97	0.16	1.03	0.67	3.99



Alt Model-Shift Uniqueness Test

004074388-01, P = 0.556697 Days, E = 131.218443 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.30	1.00	0.15	0	4.44	1.35	0.71	1.15	1.30	0.85	1.00	0.95	0.41	0.55	0.23



Stellar Parameters For KIC 004074388

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7232^{+200}_{-300}	$4.227^{+0.054}_{-0.229}$	$0.360^{+0.050}_{-0.350}$	$1.641^{+0.571}_{-0.190}$	$1.654^{+0.200}_{-0.200}$	$0.527^{+0.157}_{-0.299}$
	+3%/-4%	+1%/-5%	+14%/-97%	+35%/-12%	+12%/-12%	+30%/-57%
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 004074388-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	44 ± 6	$0.89^{+0.69}_{-0.53}$	4672^{+355}_{-263}	-9142^{+2535}_{-11263}	$-7.255^{+4.916}_{-38.198}$
Alt.	-20 ± 20	$1.41^{+0.81}_{-0.69}$	4656^{+357}_{-226}	5033^{+2659}_{-9185}	$1.100^{+4.061}_{-1.112}$

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

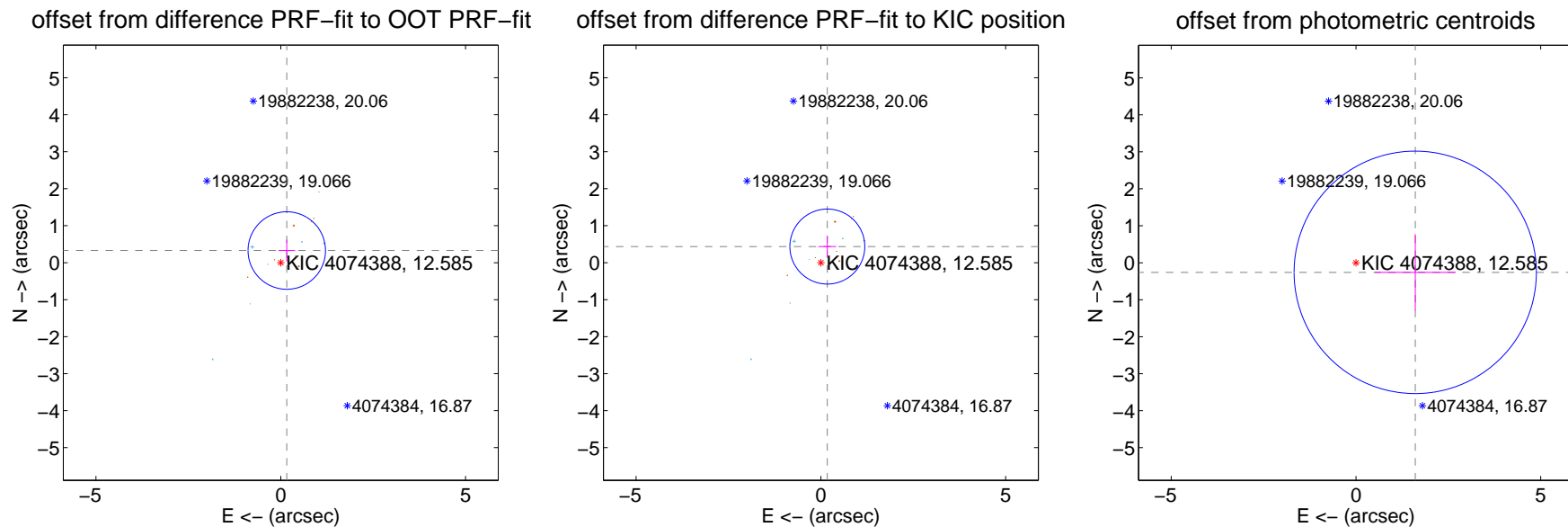
DV Centroid Data

Supplemental centroid analysis for 004074388-01. Kepler magnitude: 12.59. Transit SNR 2.95

There are 7 quarters with good PRF difference image offsets

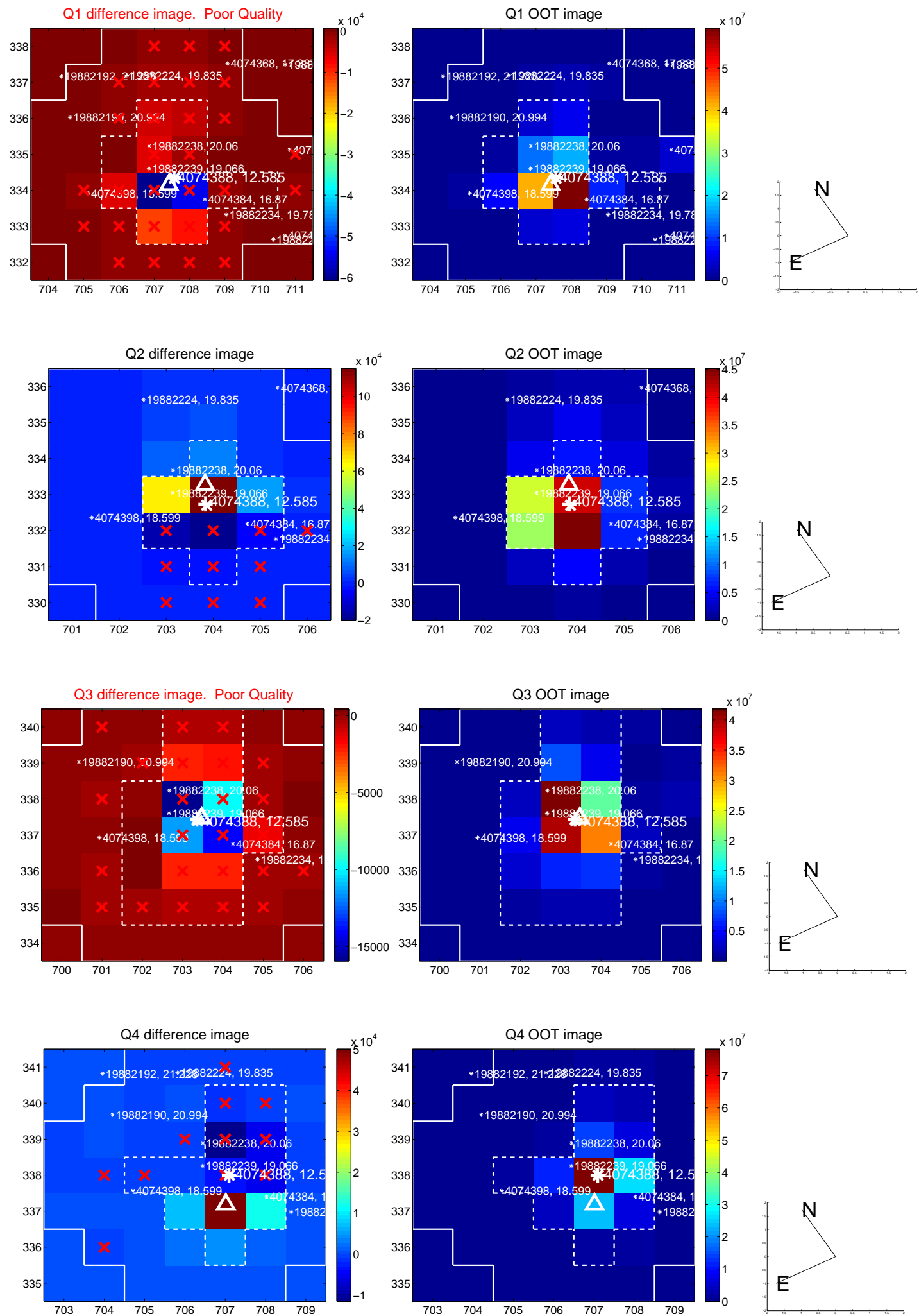
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.367 ± 0.349	1.05	-0.163 ± 0.226	0.329 ± 0.296
PRF-fit source offset from KIC position	0.470 ± 0.338	1.39	-0.175 ± 0.241	0.436 ± 0.282
photometric centroid source offset	1.63 ± 1.09	1.49	-1.60 ± 1.09	-0.26 ± 1.03

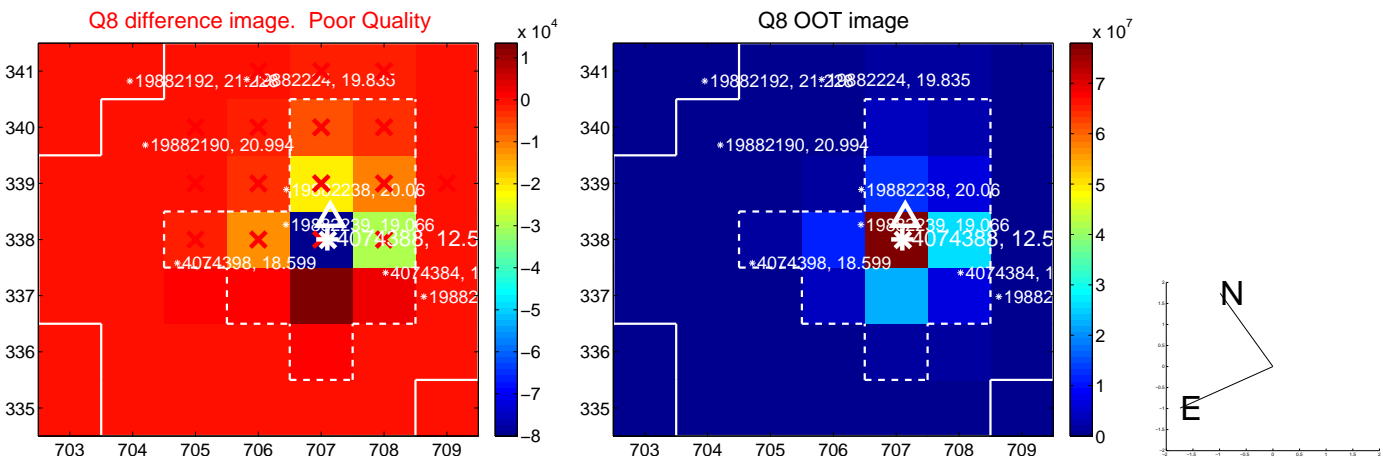
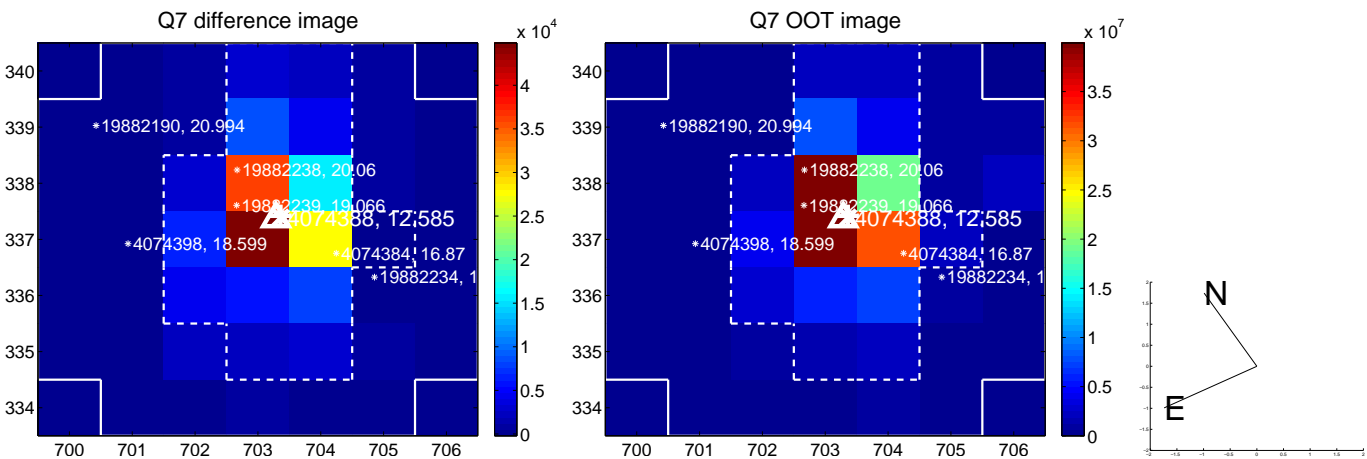
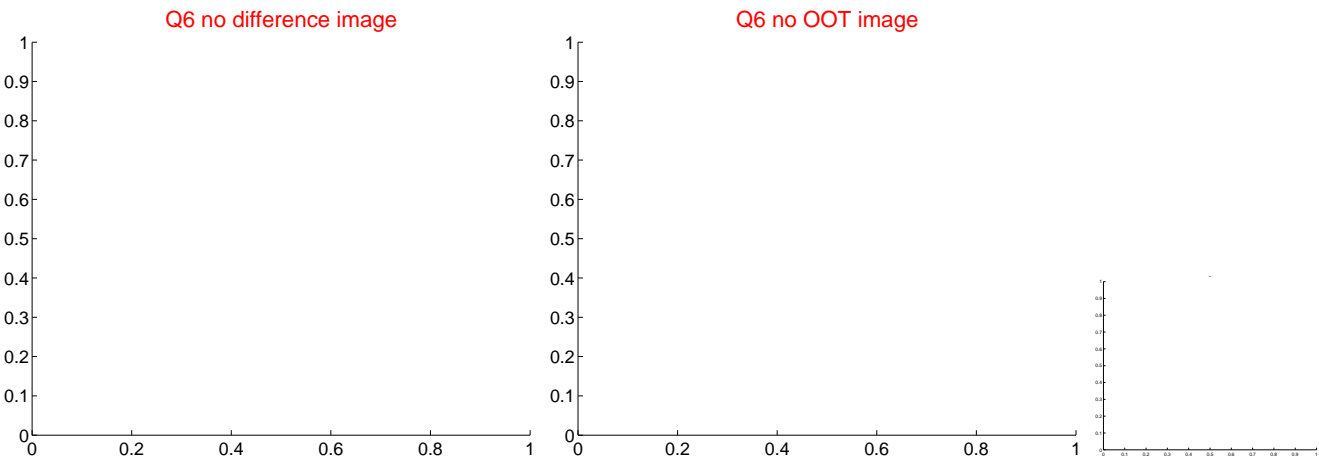
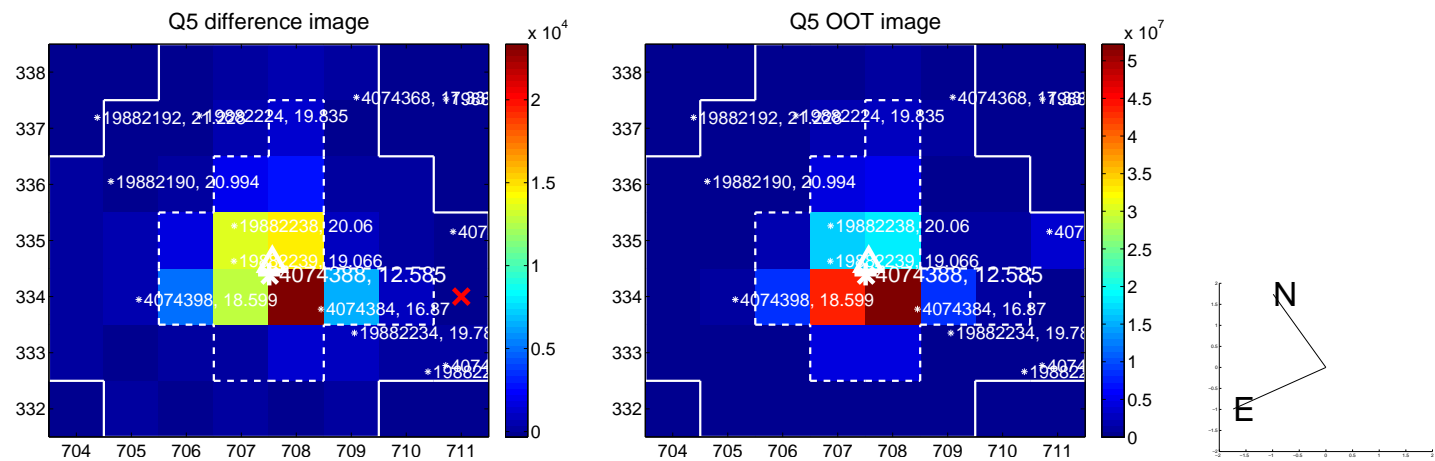


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

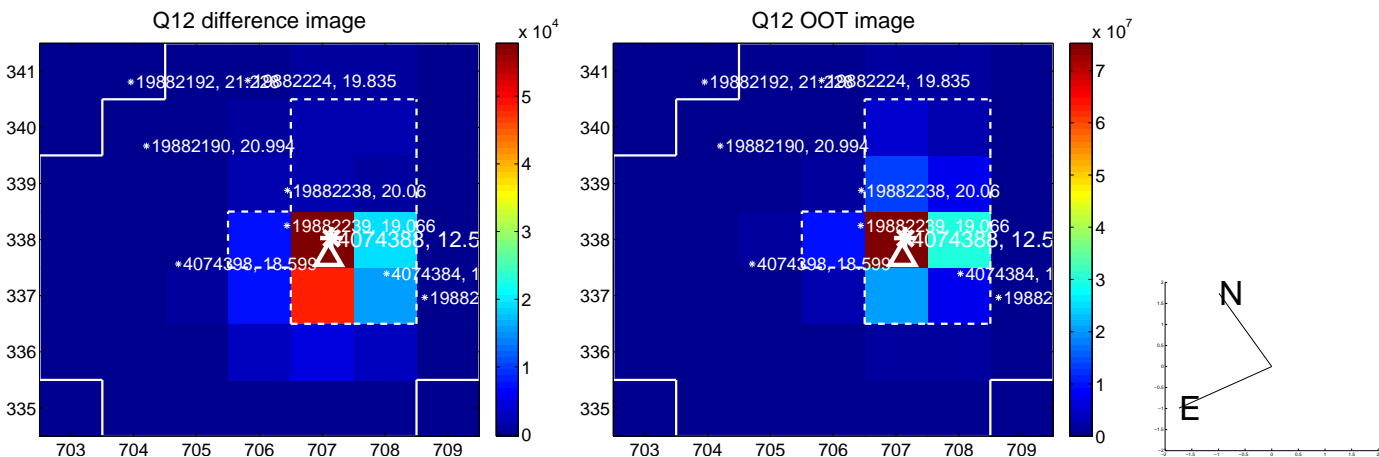
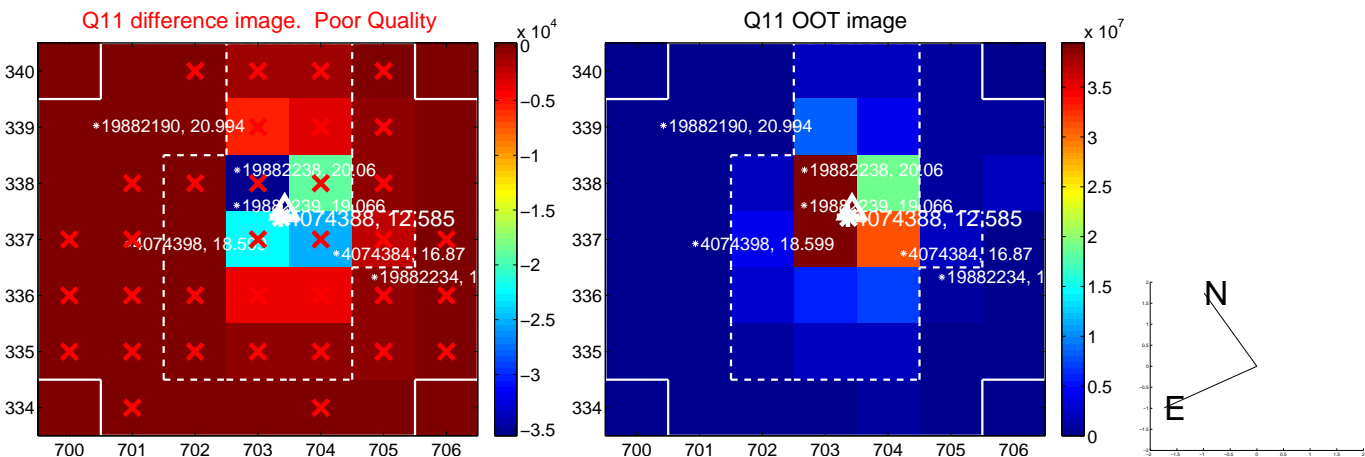
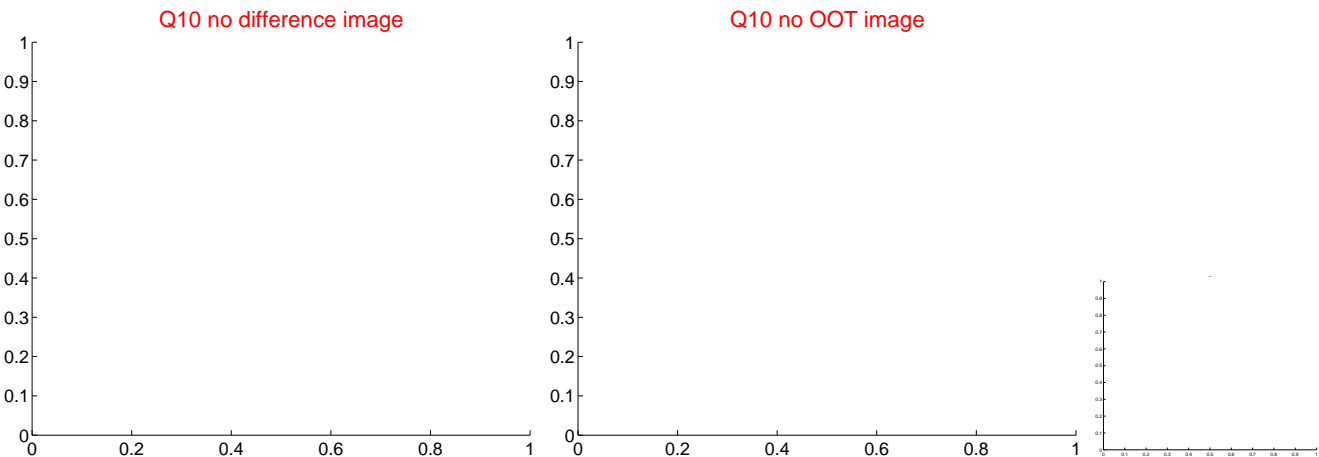
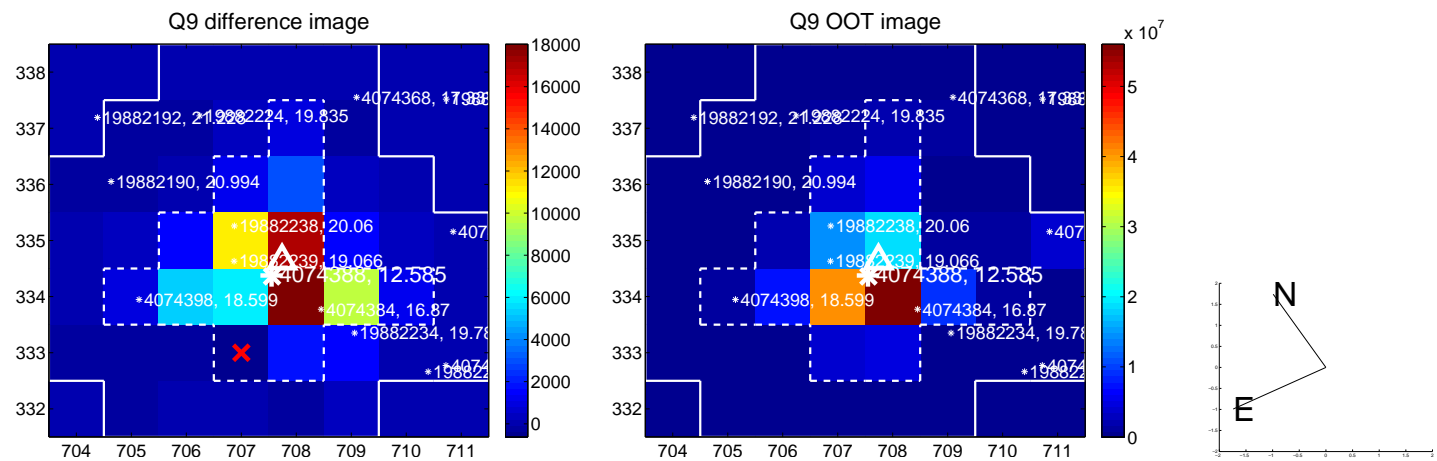
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



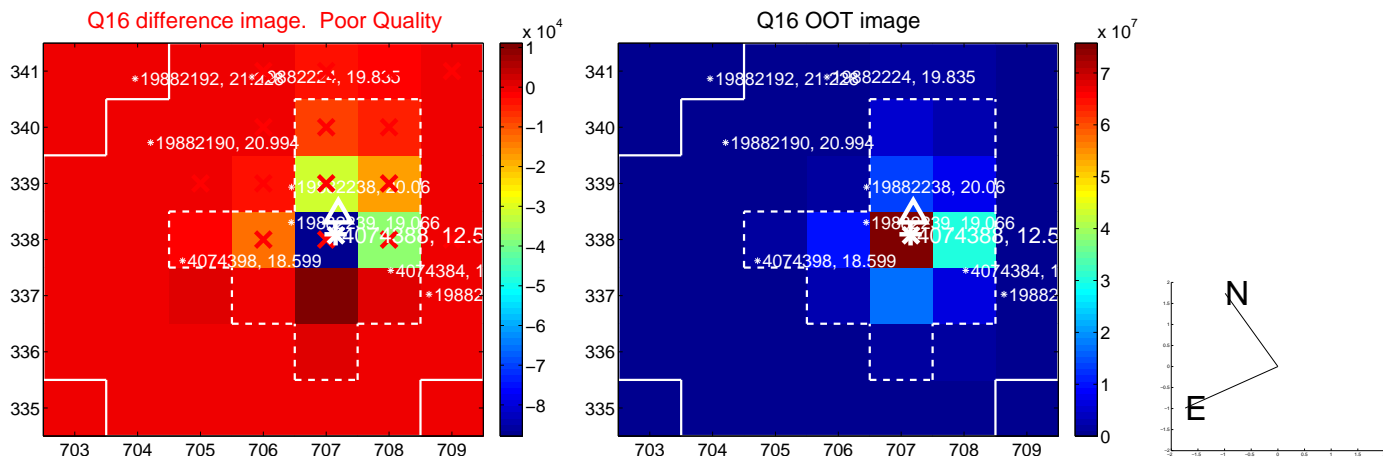
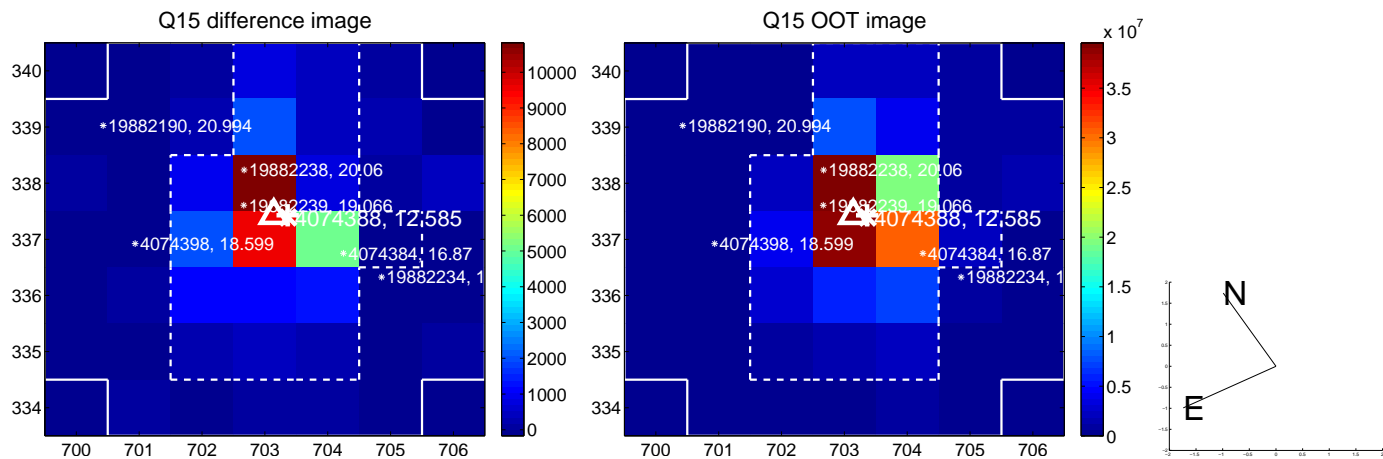
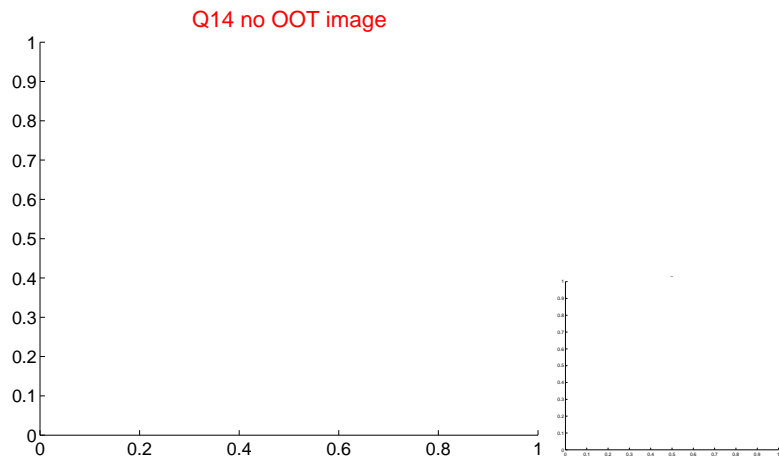
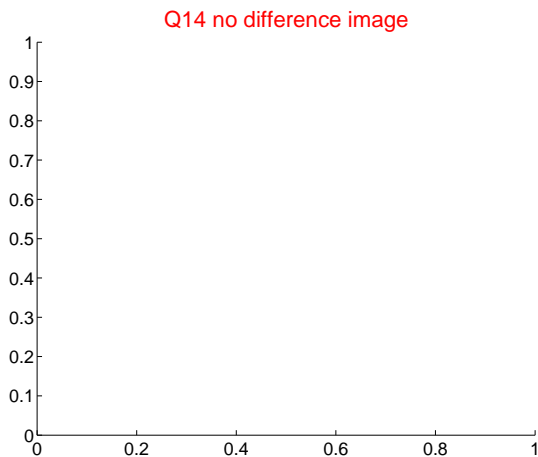
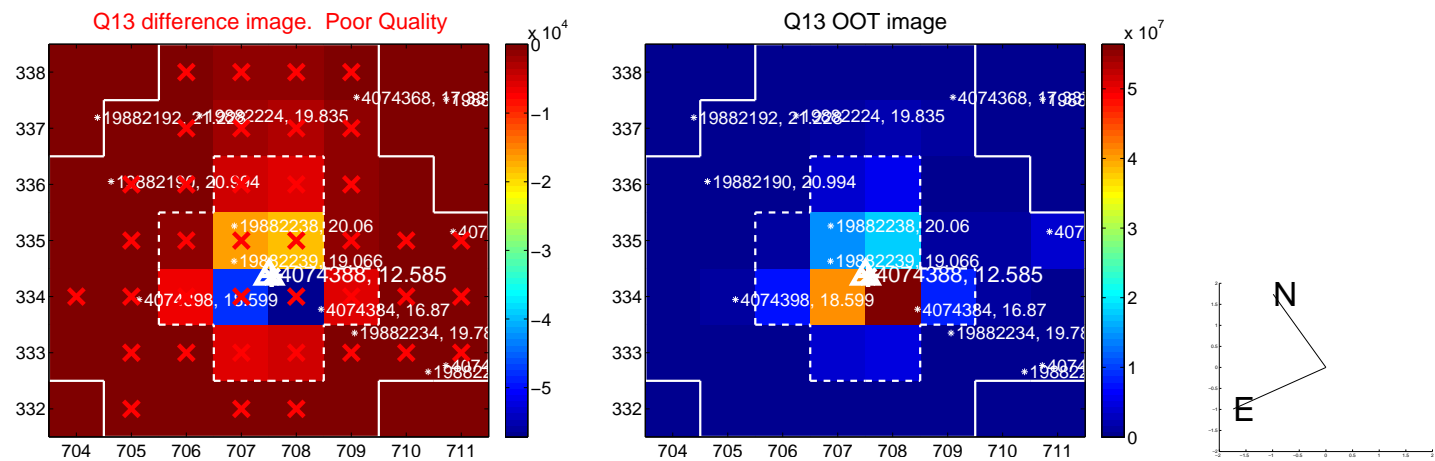
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



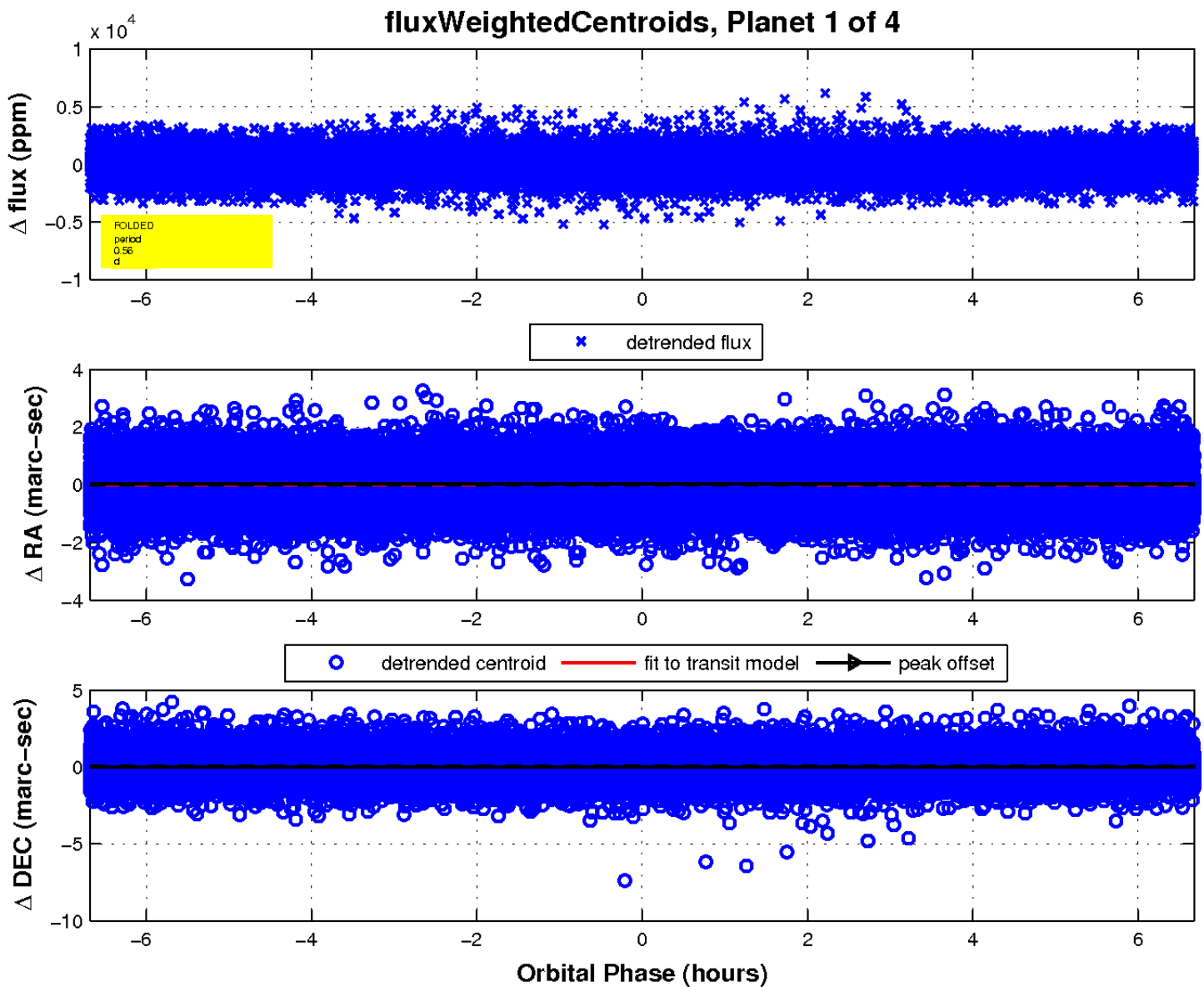
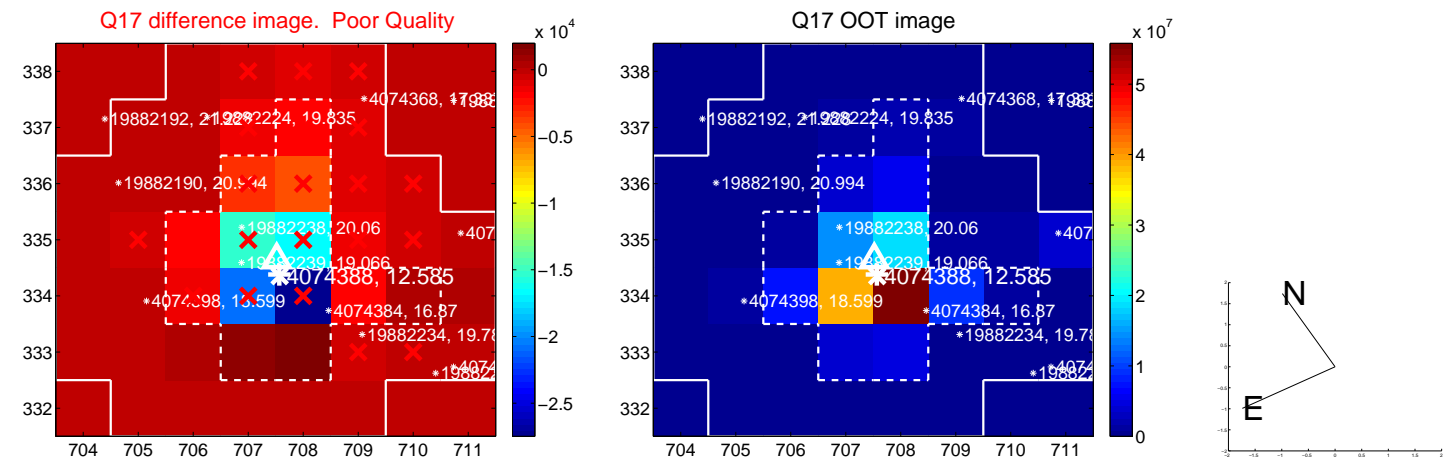
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

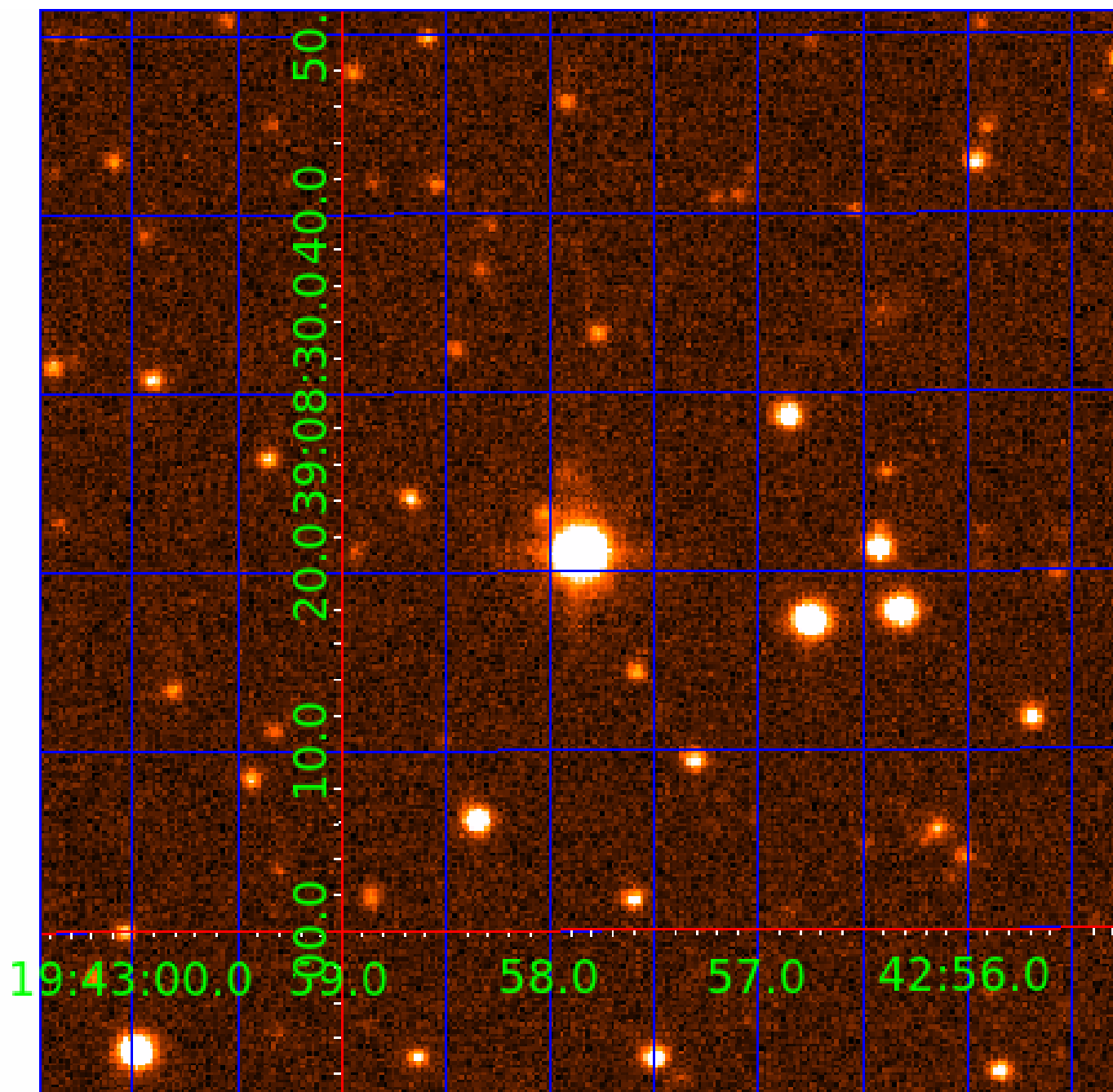


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004074388

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})
004074388-01	OBS	No	0.556704	131.774206	17.5	4.125	7.8	3.0	1.64	7232	0.69	26863.82
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004074388-04	OBS	No	6.897370	133.704888	396.8	2.430	7.9	7.4	1.64	7232	3.60	937.03

Robovetter Results

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004074388-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

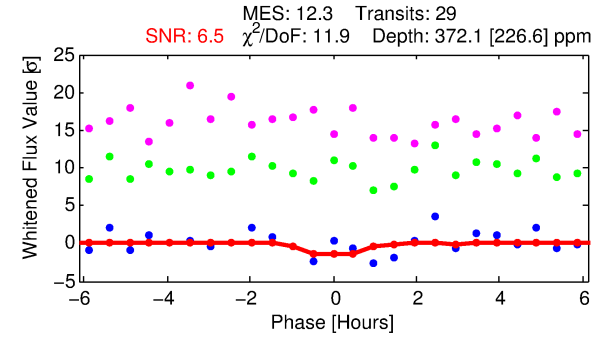
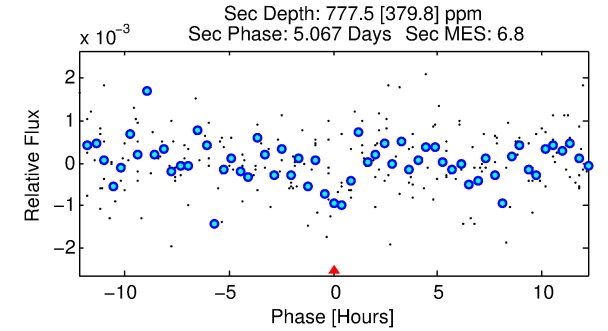
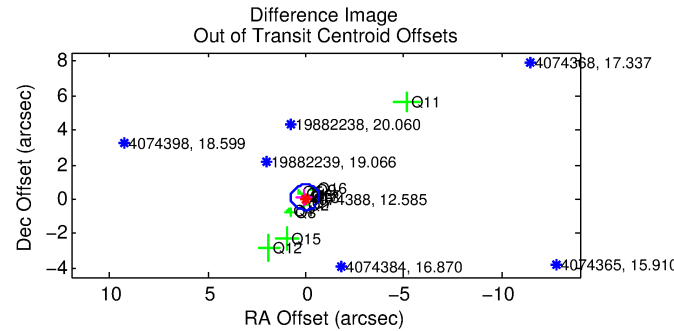
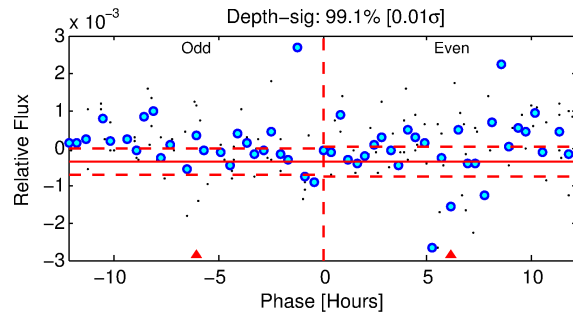
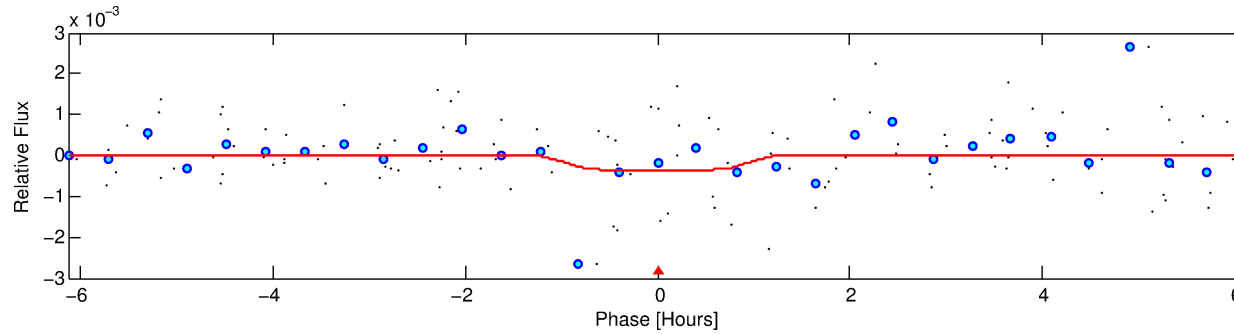
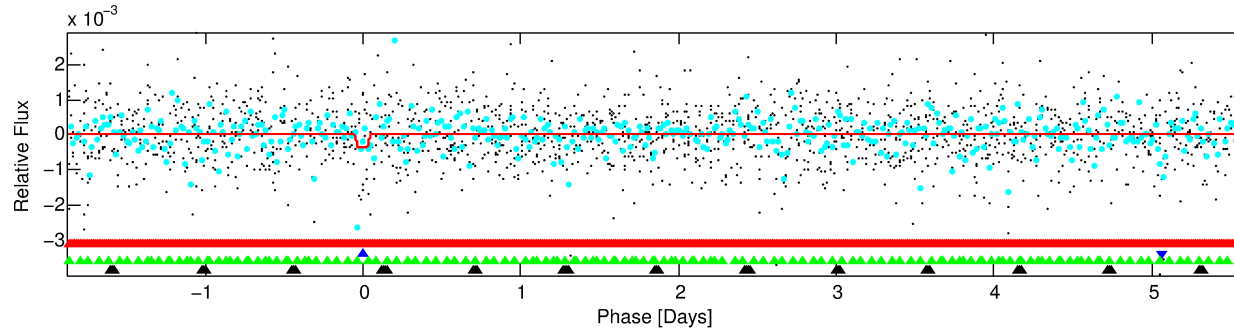
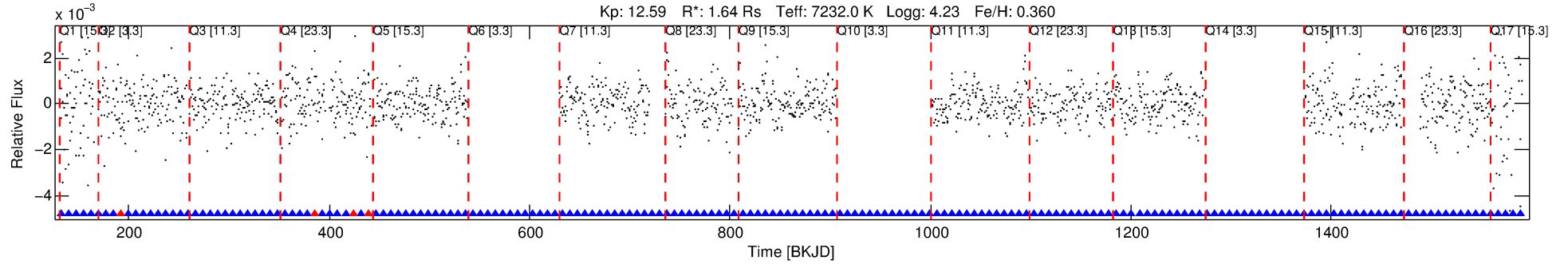
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004074388-02

No Significant Match Found

DV One-Page Summary

KIC: 4074388 Candidate: 2 of 4 Period: 7.472 d



DV Fit Results:

Period = 7.47229 [0.00038] d
Epoch = 132.4035 [0.0289] BKJD
Rp/R* = 0.0179 [0.1123]
a/R* = 28.35 [1040.58]
b = 0.10 [375.98]
Seff = 842.16 [381.23]
Teq = 1374 [155] K
Rp = 3.21 [20.15] Re
a = 0.0885 [0.0258] AU
Ag = 325.22 [4081.14] [0.08σ]
Teff = 9019 [28281] K [0.27σ]

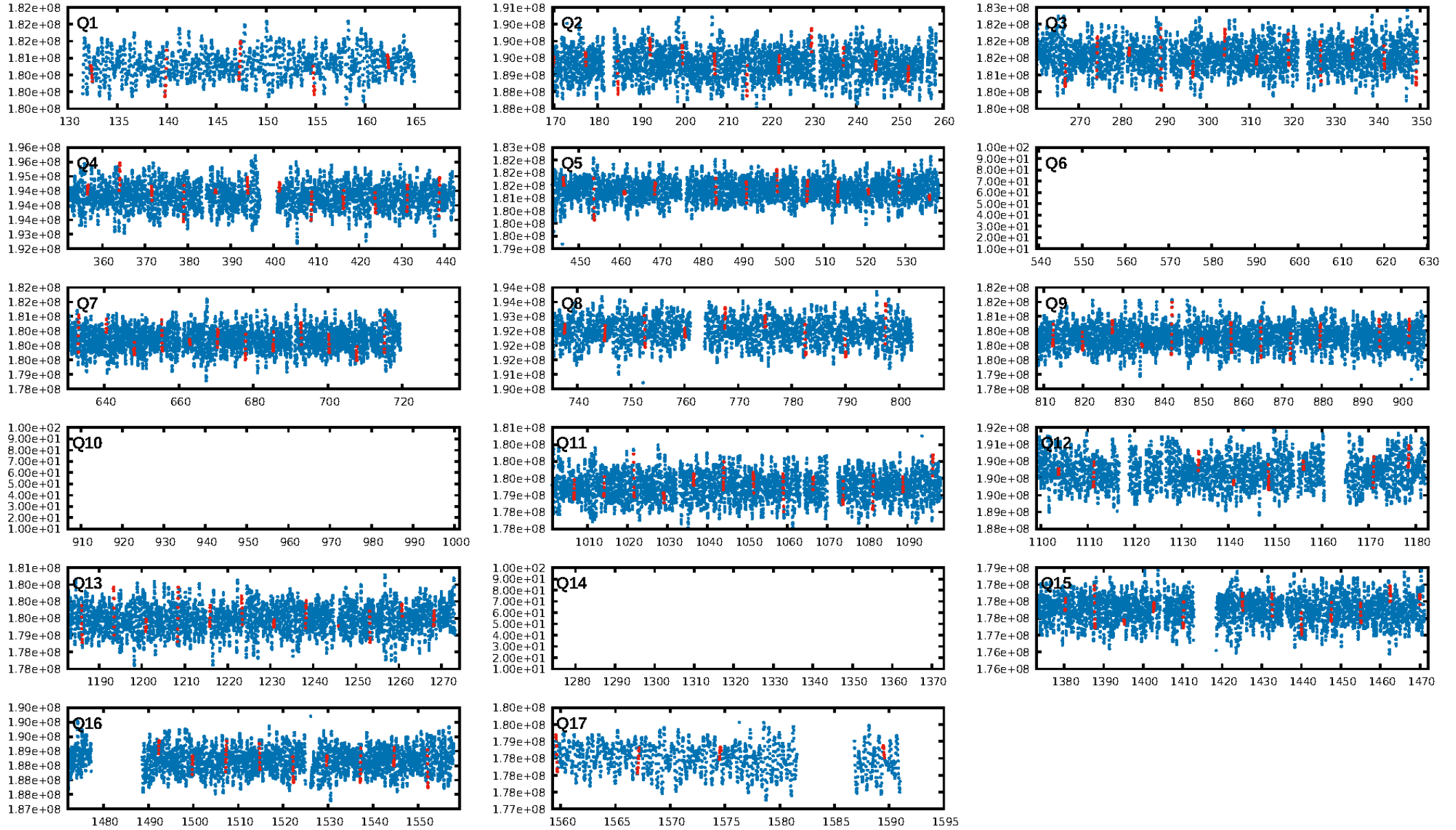
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.35σ]
LongPeriod-sig: 100.0% [26.68σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.04e-08
RollingBand-fgt: 0.85 [22/26]
GhostDiagnostic-chr: 1.884
Centroid-sig: 48.7%
Centroid-so: 0.391 arcsec [1.49σ]
OotOffset-rm: 0.135 arcsec [0.56σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.215 arcsec [0.54σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/14]

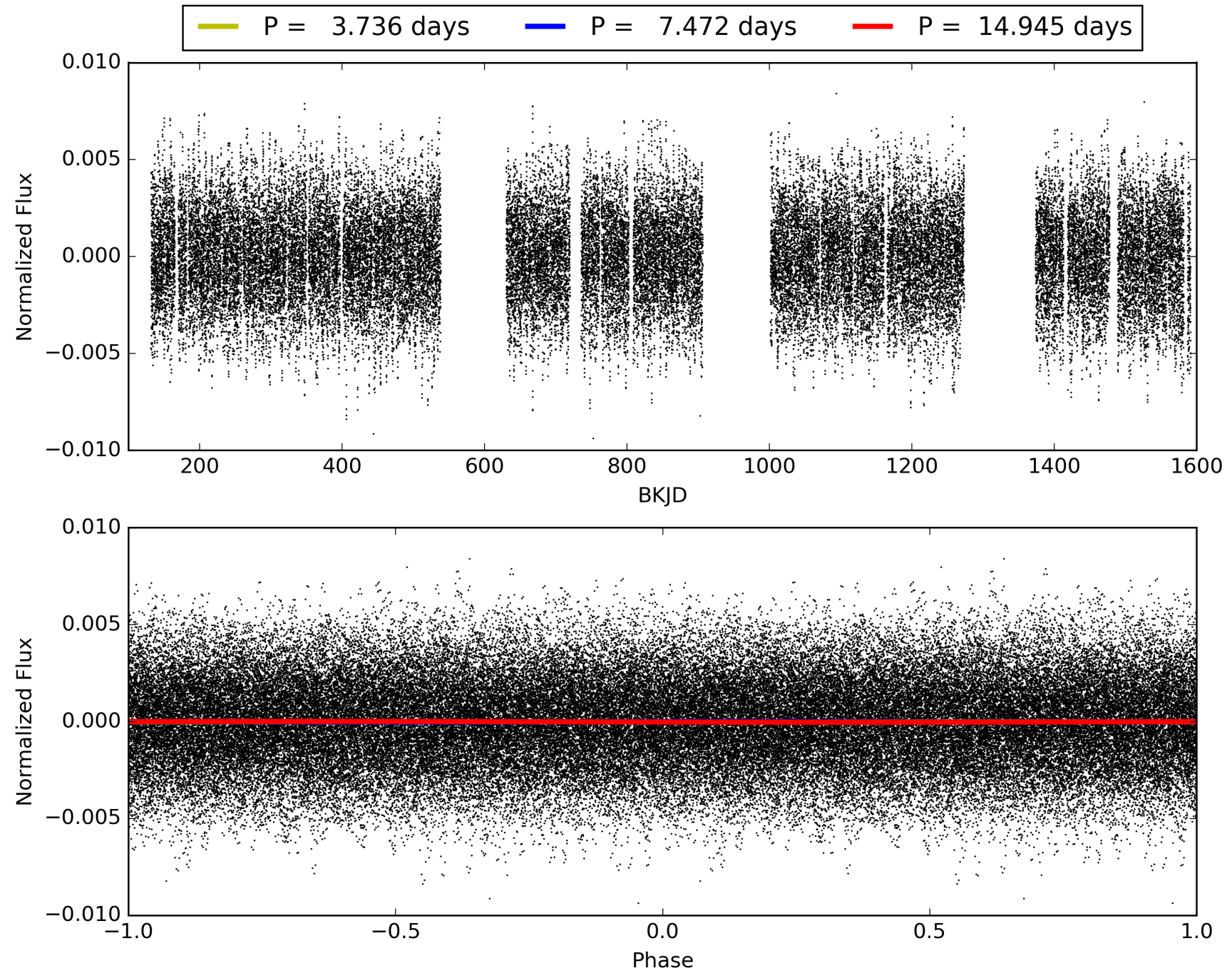
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:59:10 Z

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

TCE 004074388-02, PDC Light Curves

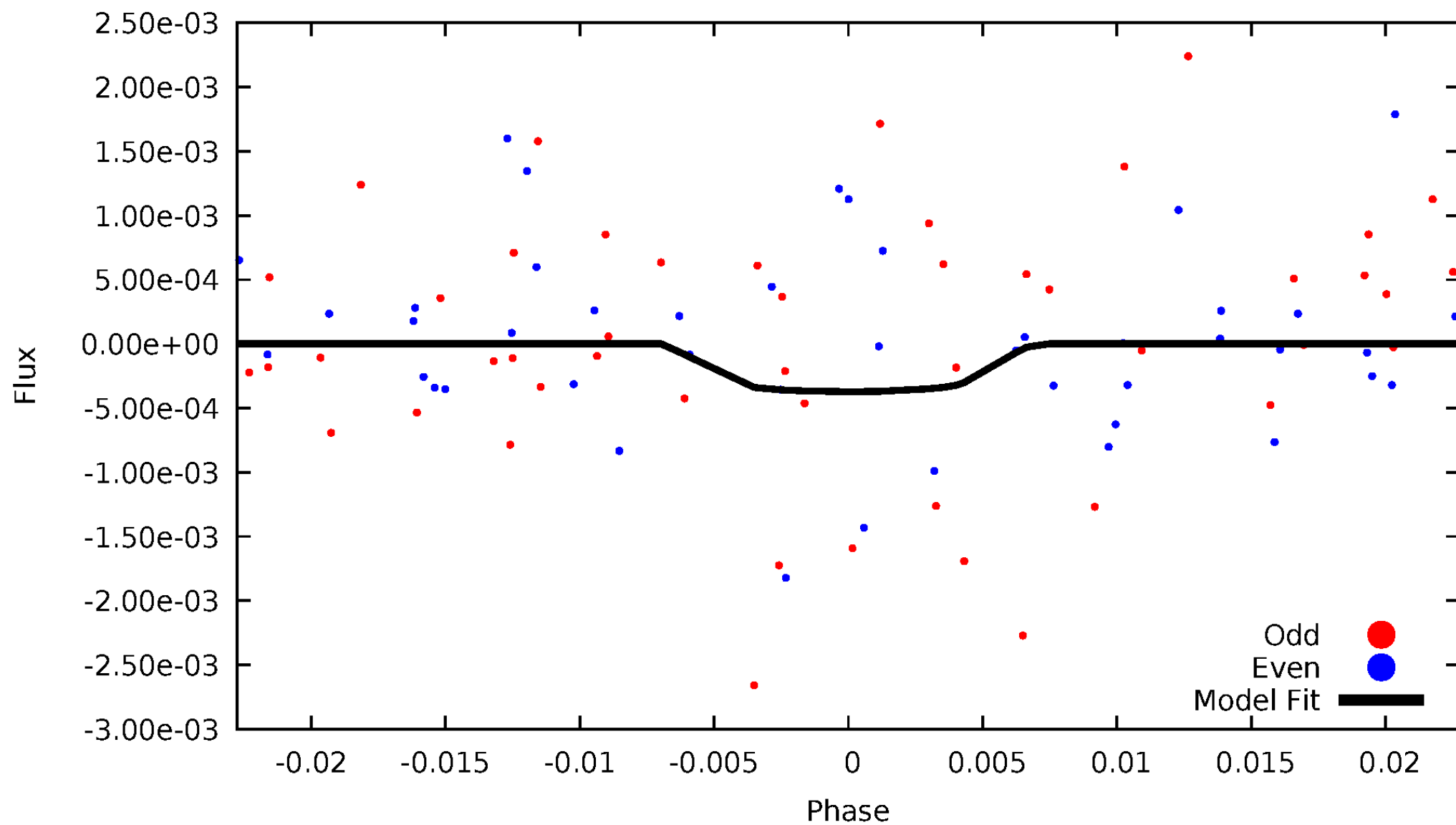


TCE 004074388-02



DV Odd/Even

TCE 004074388-02

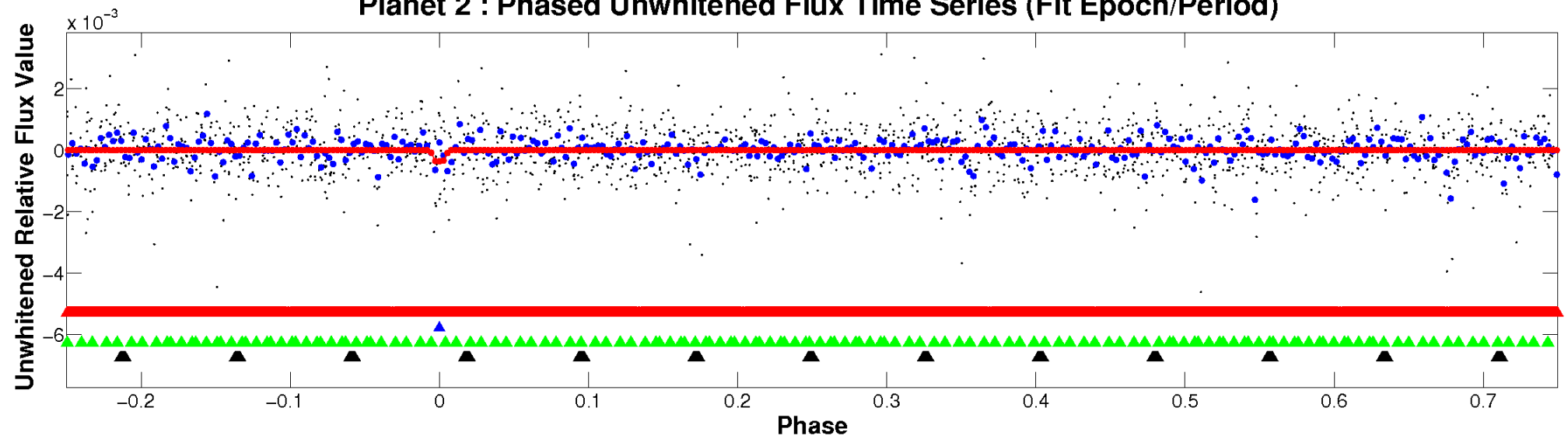


ALT Odd/Even

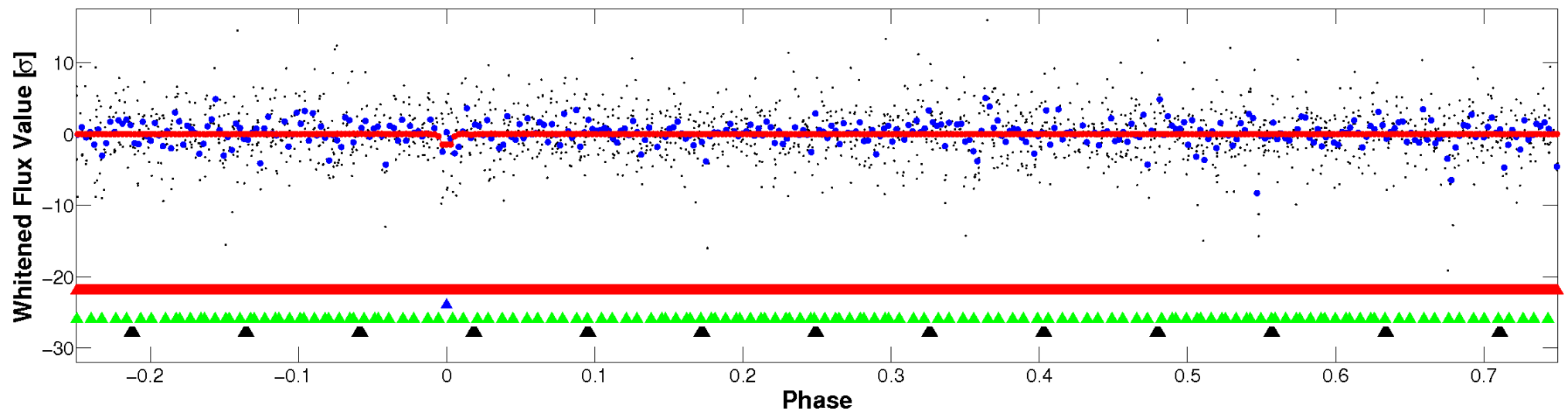
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

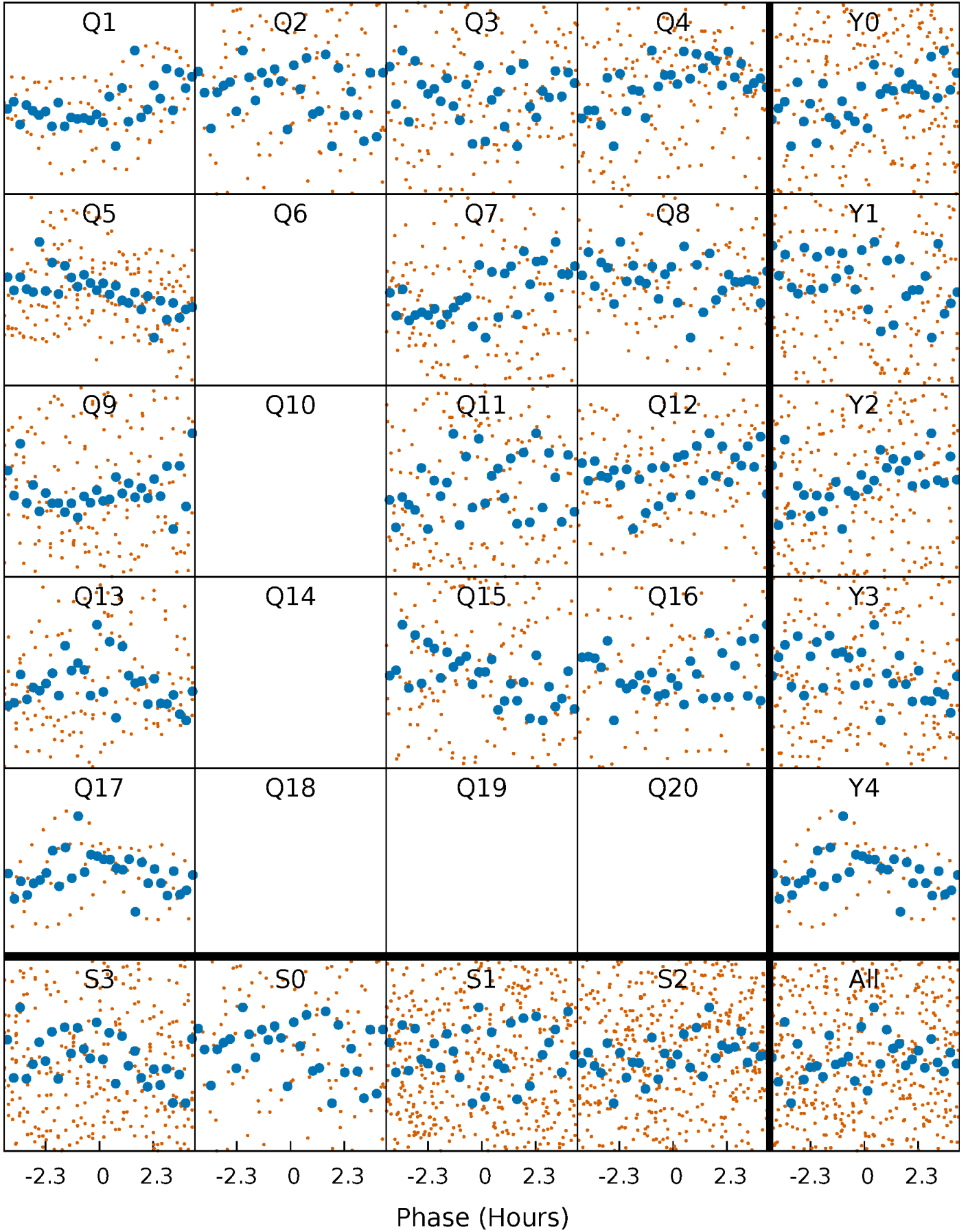


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



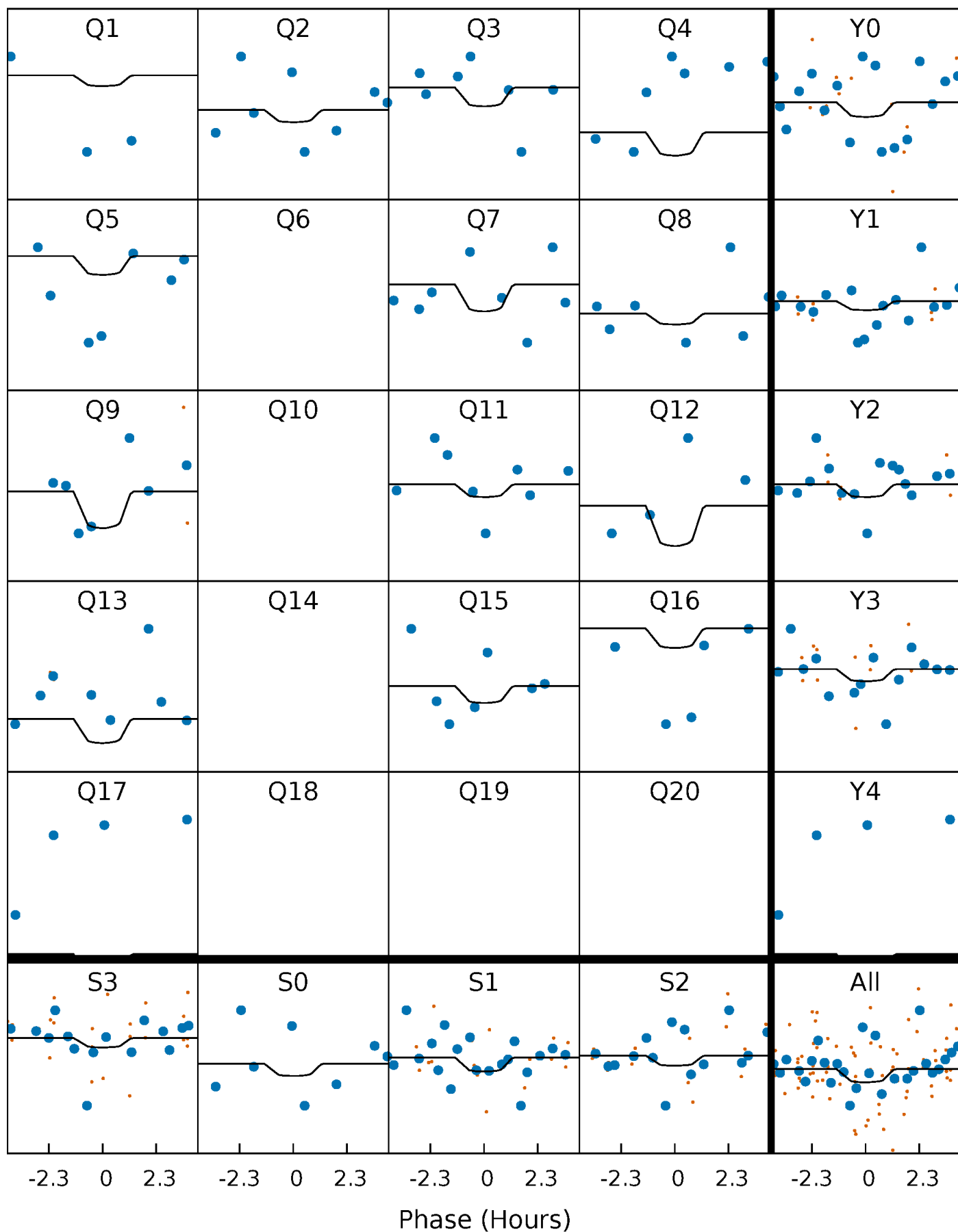
PDC Quarter-Phased Transit Curves

TCE 004074388-02 $P = 7.472292$ Days $T_0 = 132.403507$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004074388-02 P= 7.472292 Days $T_0=132.403507$ (BKJD)

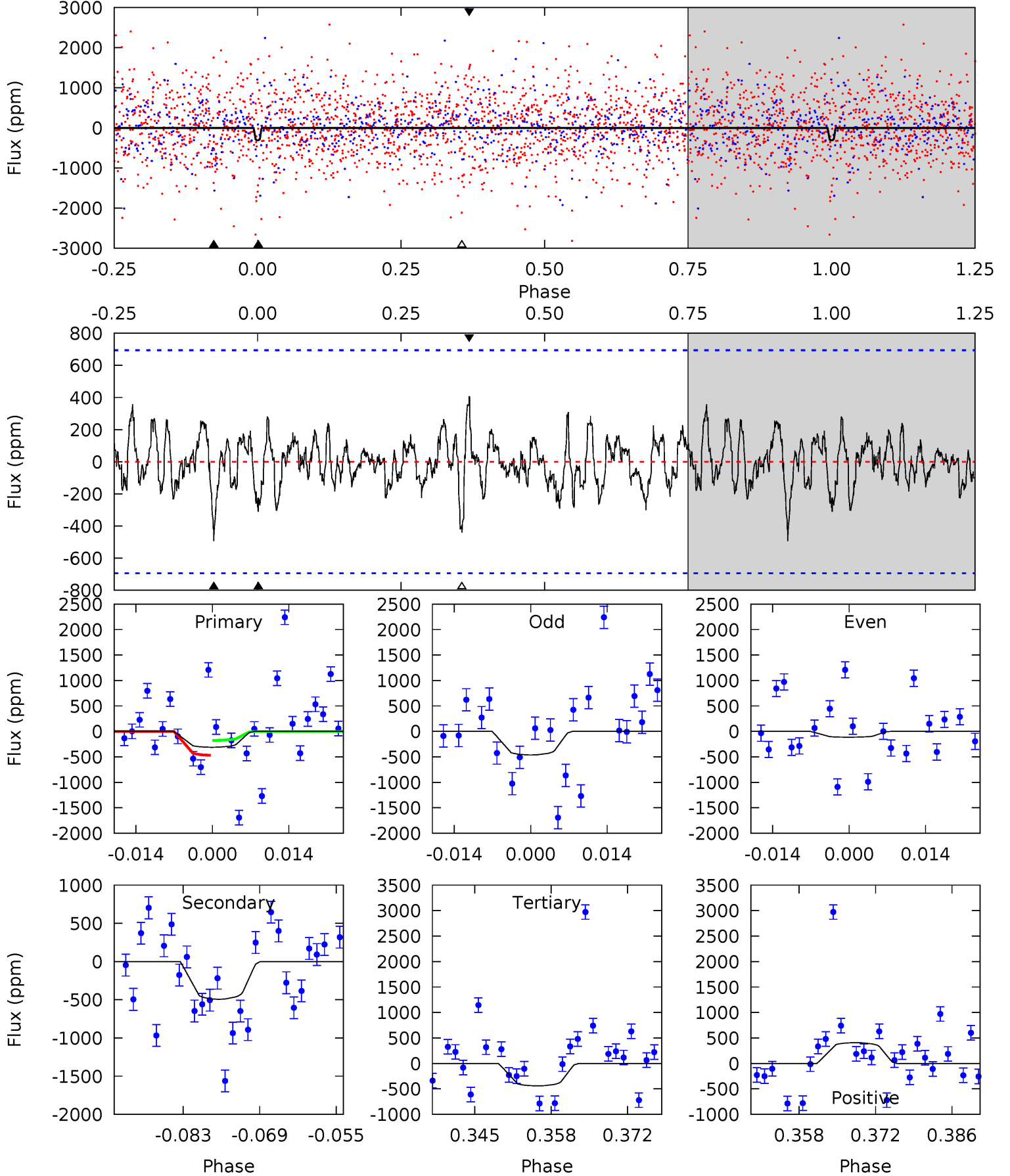


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004074388-02, P = 7.472292 Days, E = 124.931215 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.23	3.53	3.15	2.92	4.96	2.46	0.92	-0.92	-0.69	0.38	0.61	1.23	1.00	0.45	1.06



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004074388

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7232^{+200}_{-300}	$4.227^{+0.054}_{-0.229}$	$0.360^{+0.050}_{-0.350}$	$1.641^{+0.571}_{-0.190}$	$1.654^{+0.200}_{-0.200}$	$0.527^{+0.157}_{-0.299}$
	+3%/-4%	+1%/-5%	+14%/-97%	+35%/-12%	+12%/-12%	+30%/-57%
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 004074388-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-493 ± 140	$15.09^{+17.80}_{-10.28}$	1963^{+163}_{-104}	4027^{+2669}_{-934}	$8.764^{+75.637}_{-6.891}$
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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

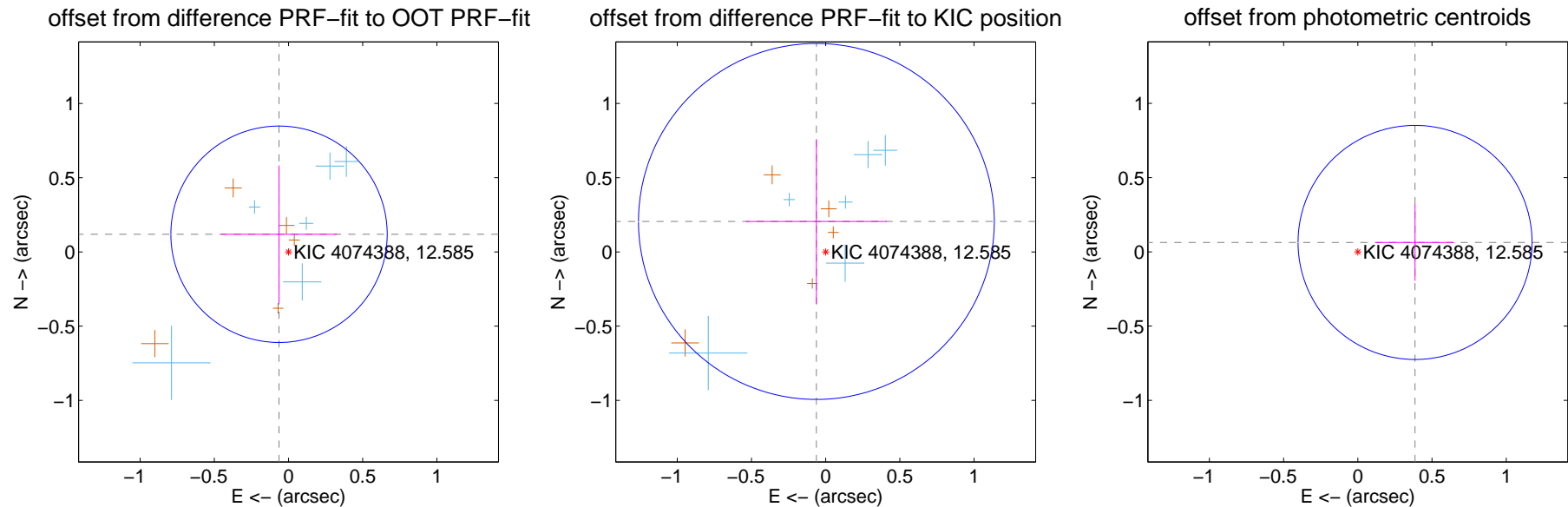
DV Centroid Data

Supplemental centroid analysis for 004074388-02. Kepler magnitude: 12.59. Transit SNR 6.46

There are 7 quarters with good PRF difference image offsets

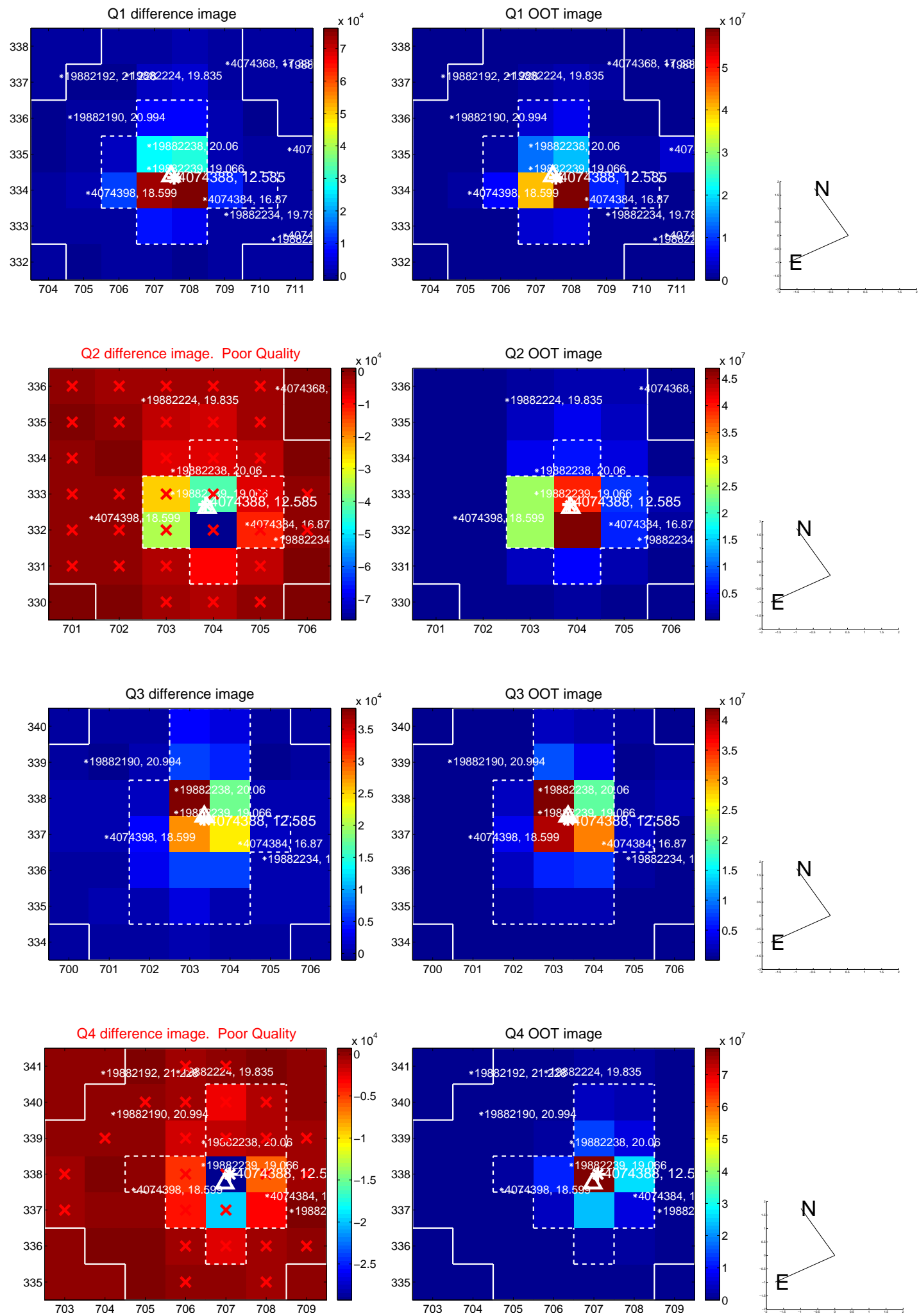
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.135 ± 0.243	0.56	0.064 ± 0.391	0.119 ± 0.462
PRF-fit source offset from KIC position	0.215 ± 0.400	0.54	0.062 ± 0.475	0.205 ± 0.554
photometric centroid source offset	0.39 ± 0.26	1.49	-0.39 ± 0.26	0.06 ± 0.26

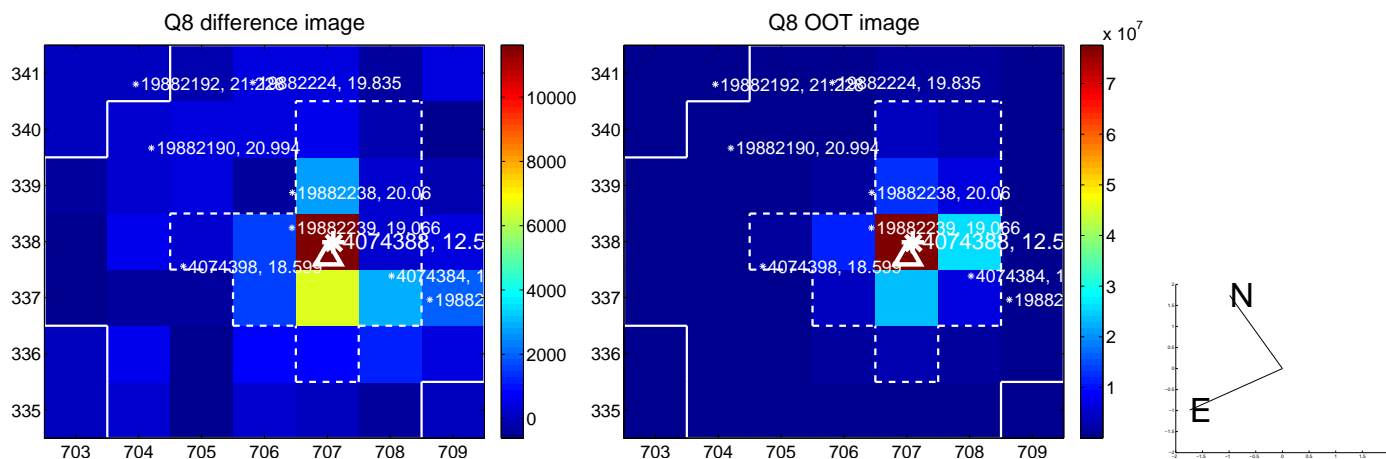
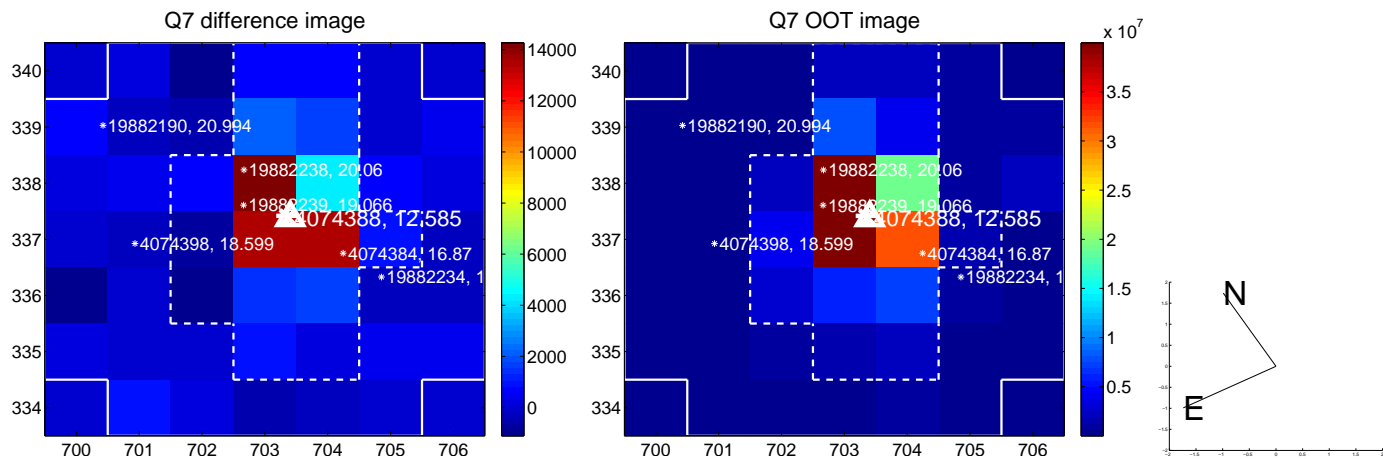
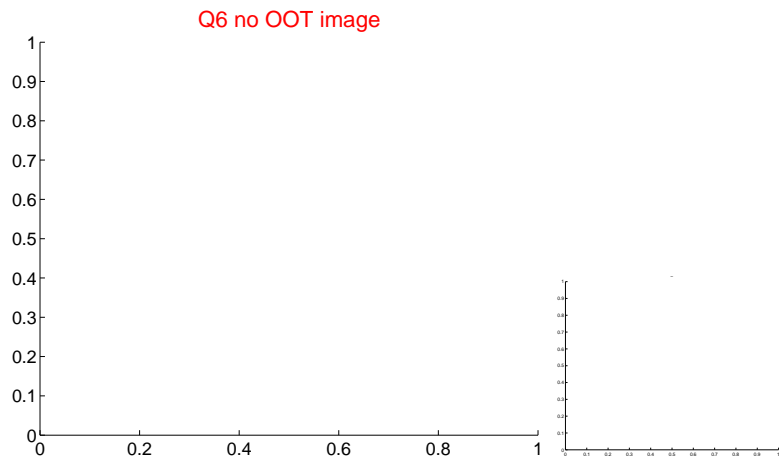
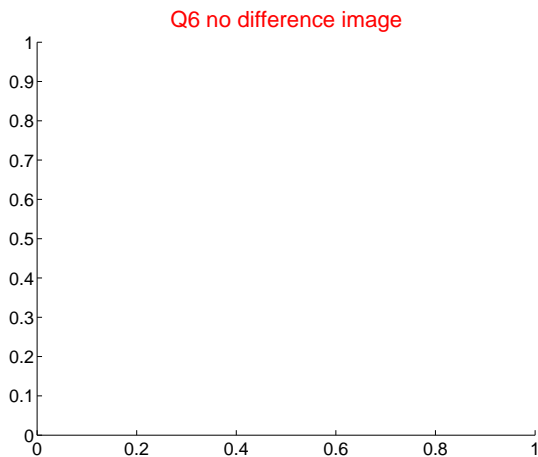
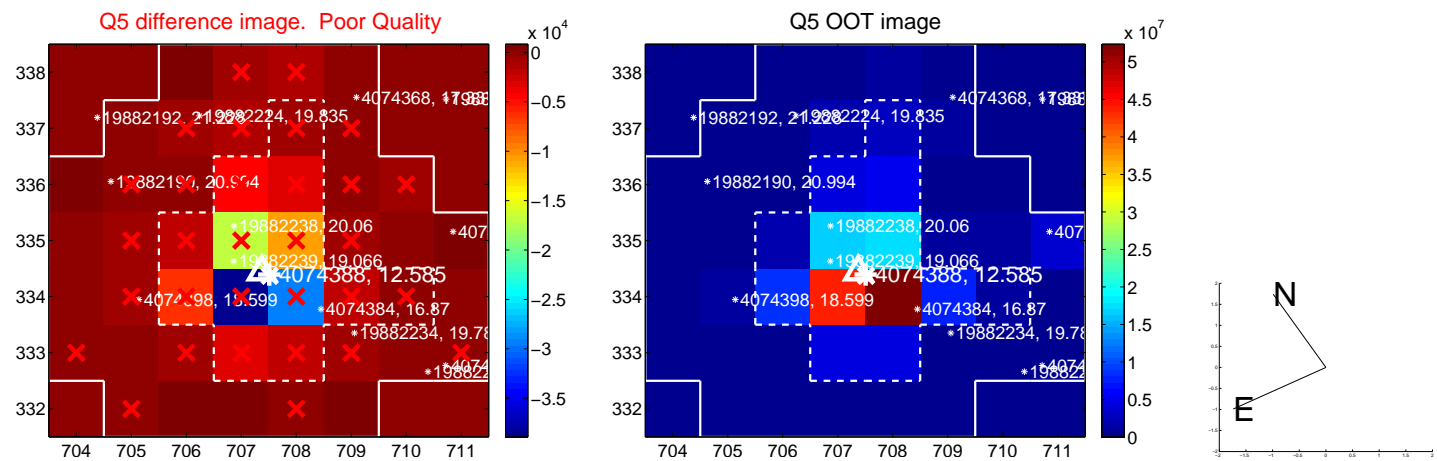


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

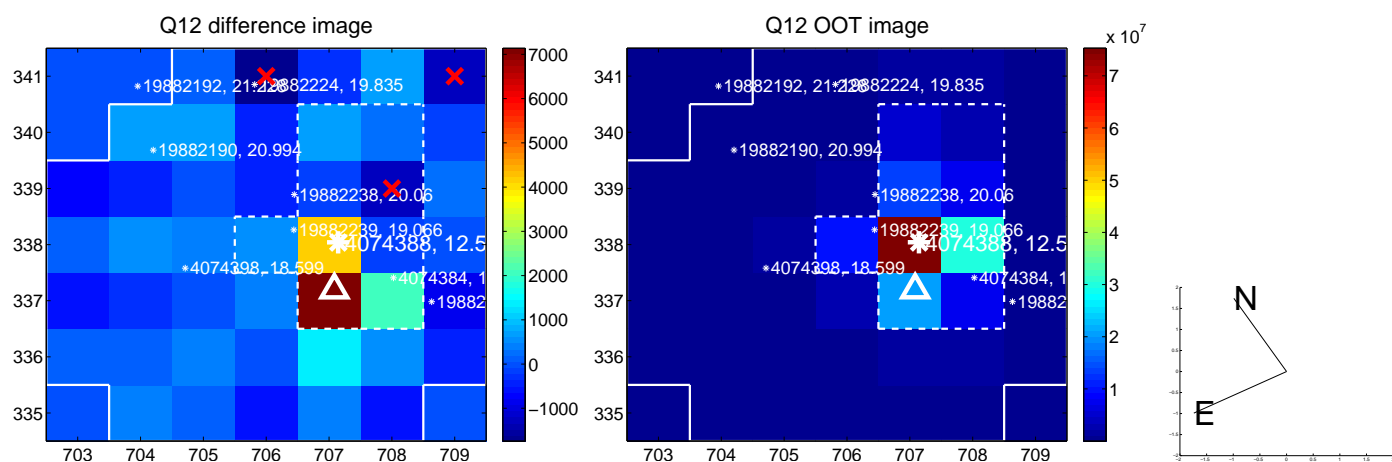
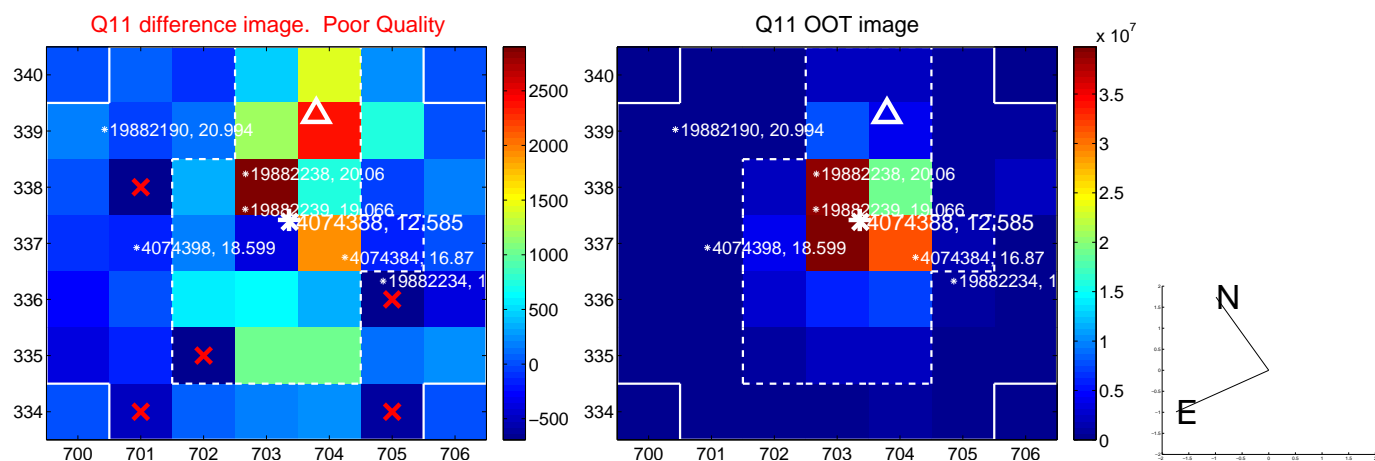
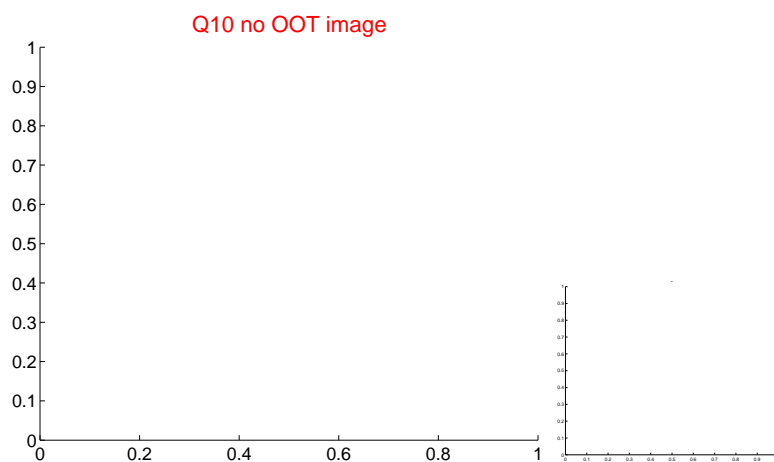
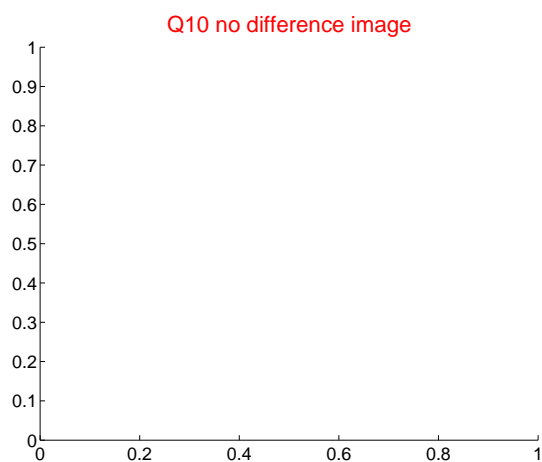
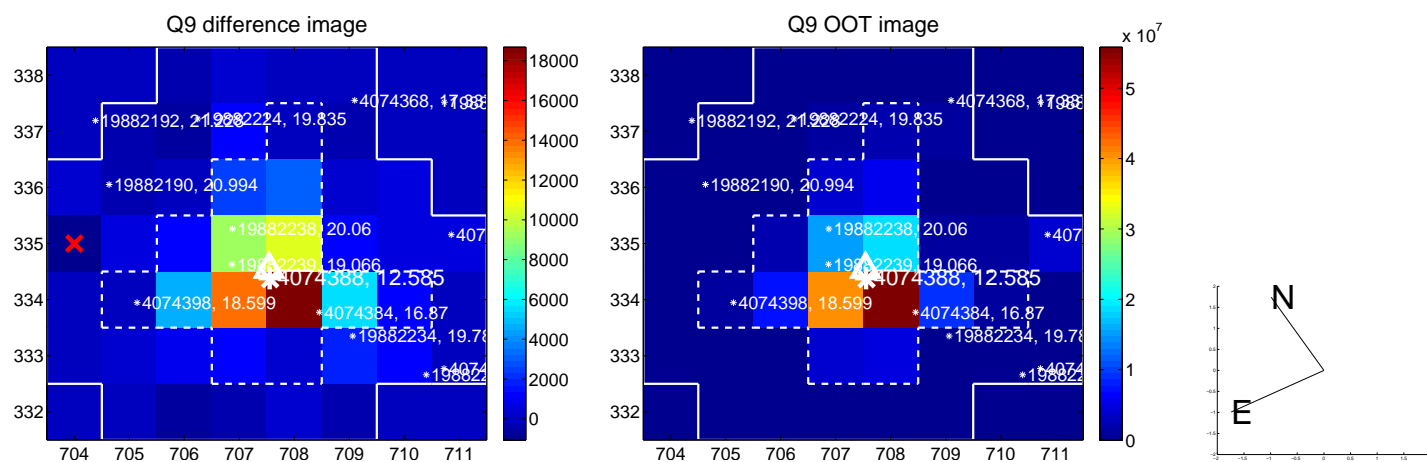
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



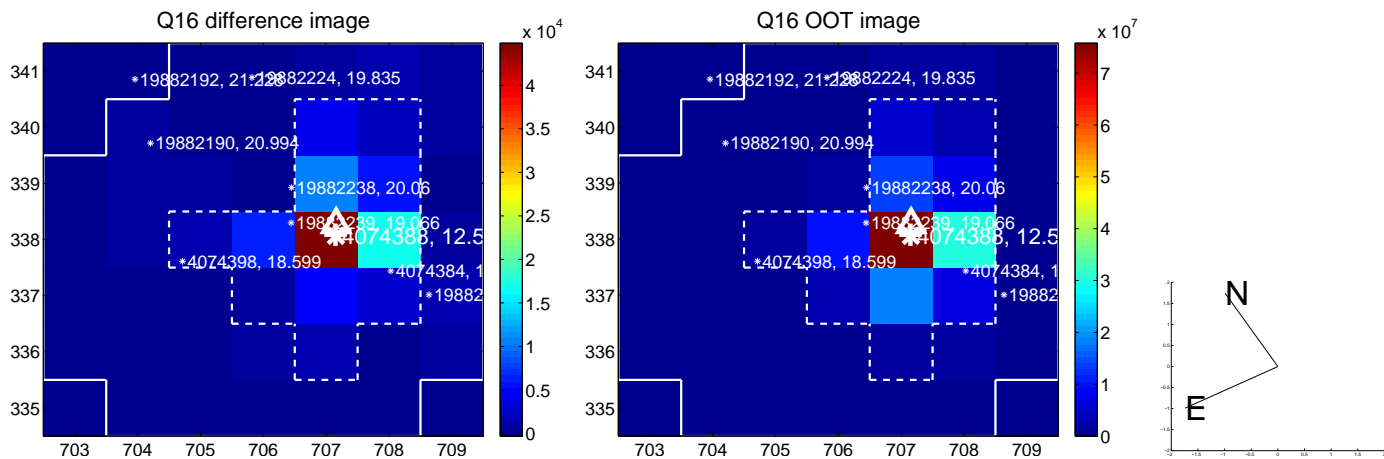
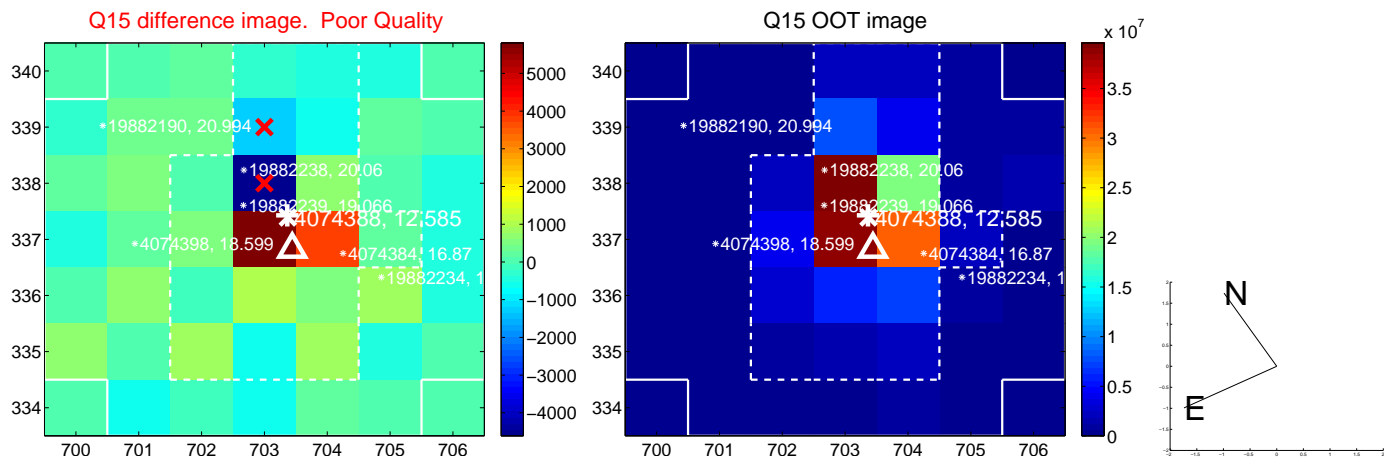
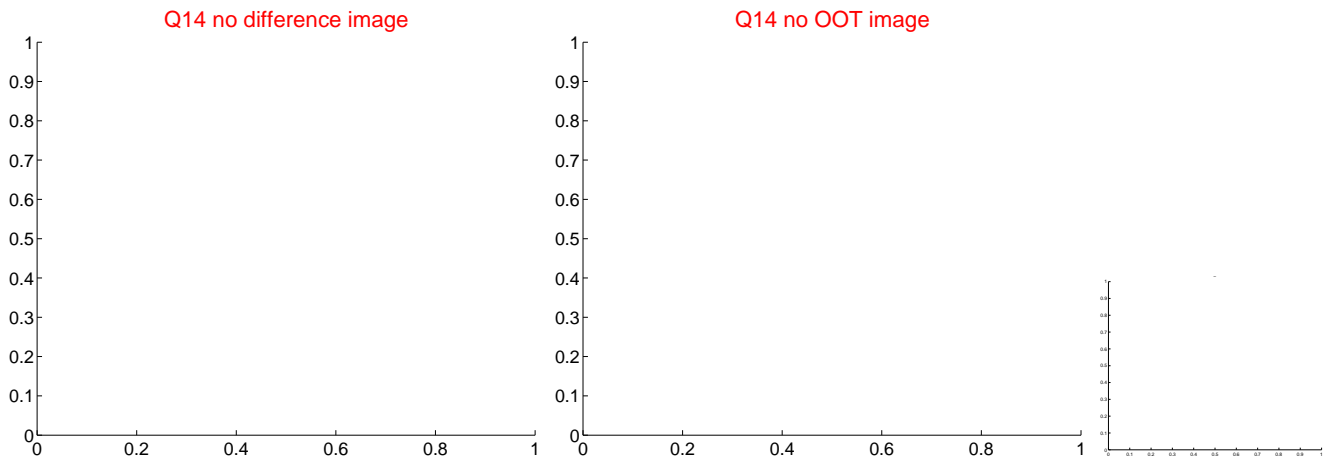
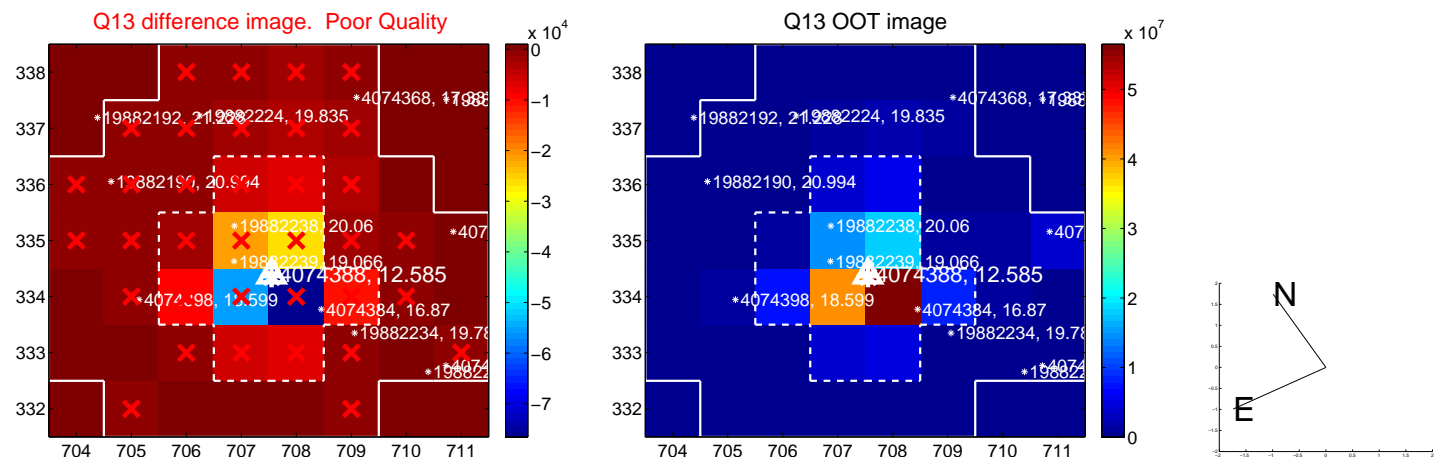
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



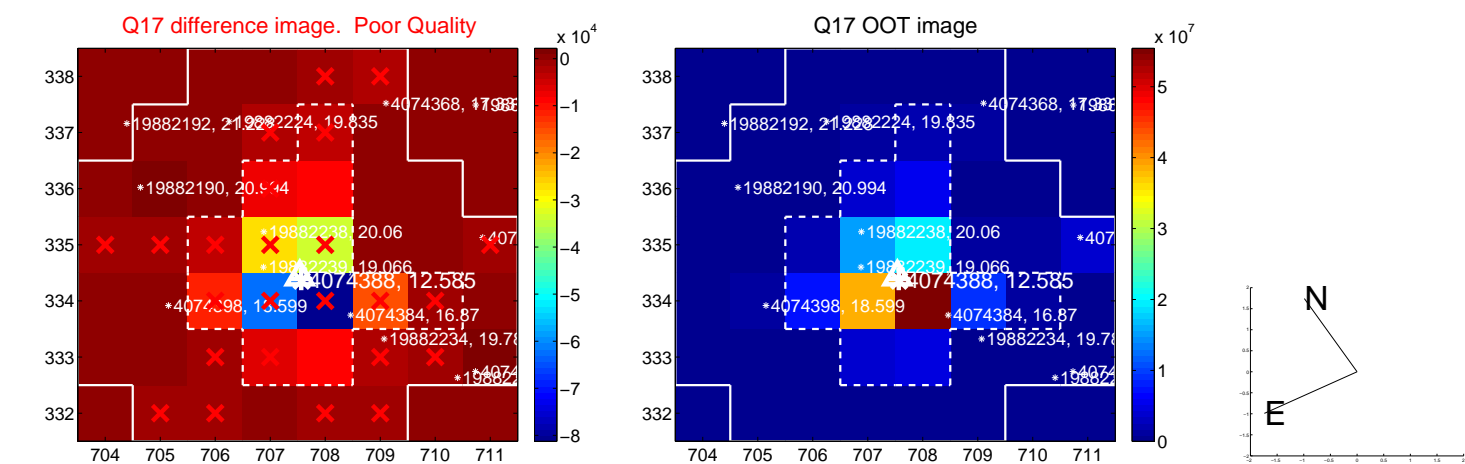
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



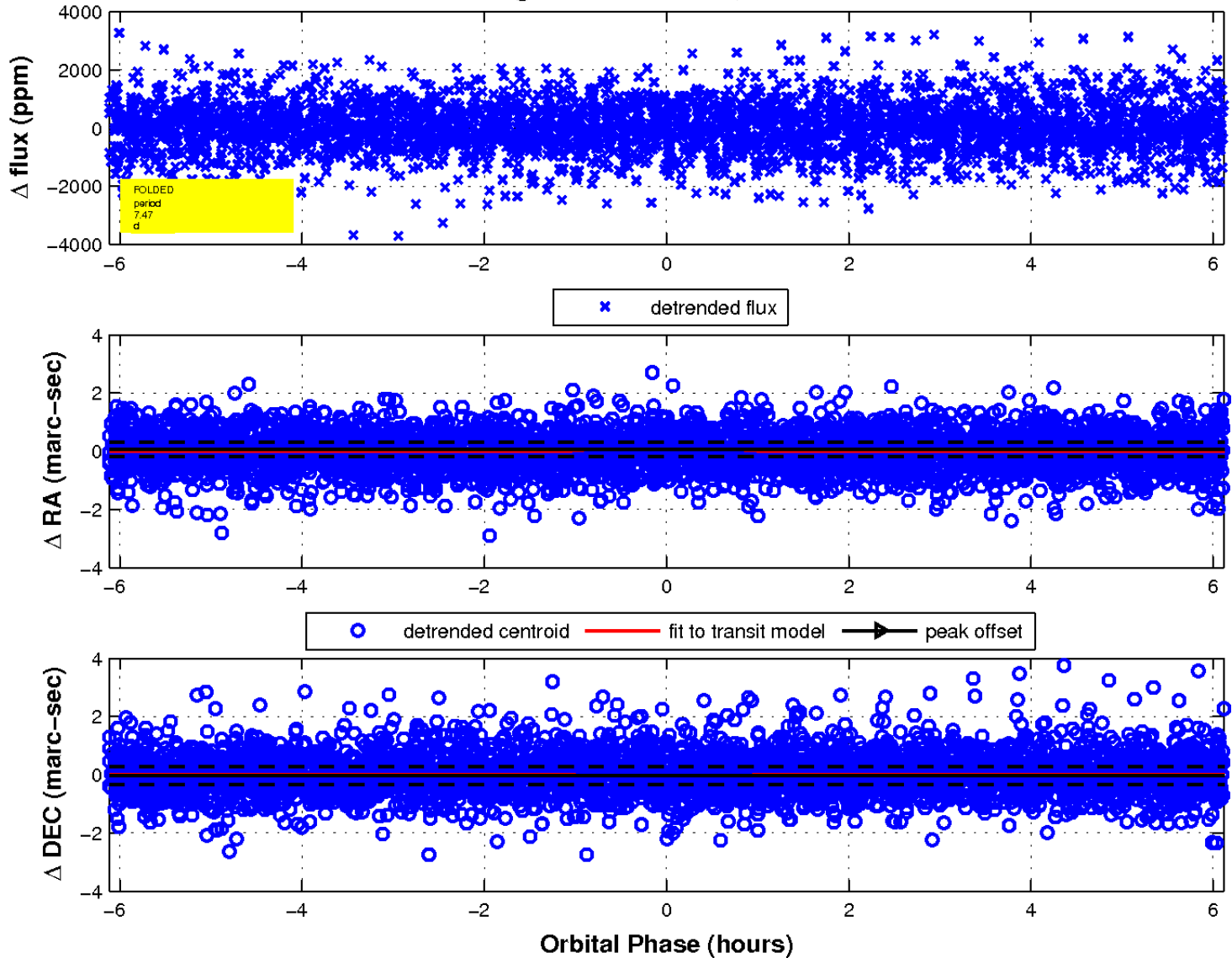
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

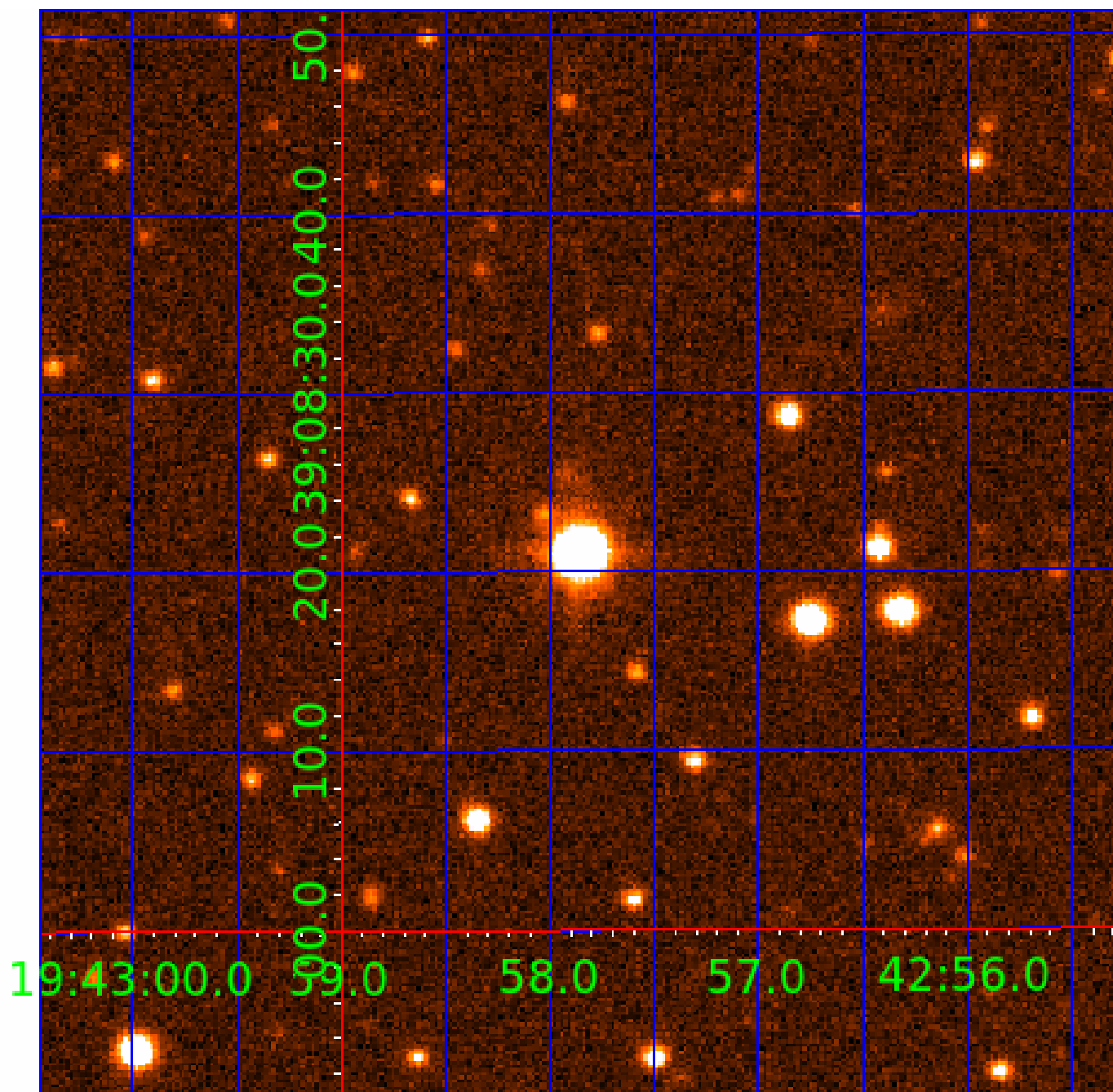


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 004074388

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})
004074388-01	OBS	No	0.556704	131.774206	17.5	4.125	7.8	3.0	1.64	7232	0.69	26863.82
004074388-02	OBS	No	7.472292	132.403507	372.1	2.041	12.3	6.5	1.64	7232	3.21	842.16
004074388-03	OBS	No	9.921345	134.614981	1130.2	0.831	9.0	9.3	1.64	7232	5.68	577.09
004074388-04	OBS	No	6.897370	133.704888	396.8	2.430	7.9	7.4	1.64	7232	3.60	937.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004074388-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
004074388-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

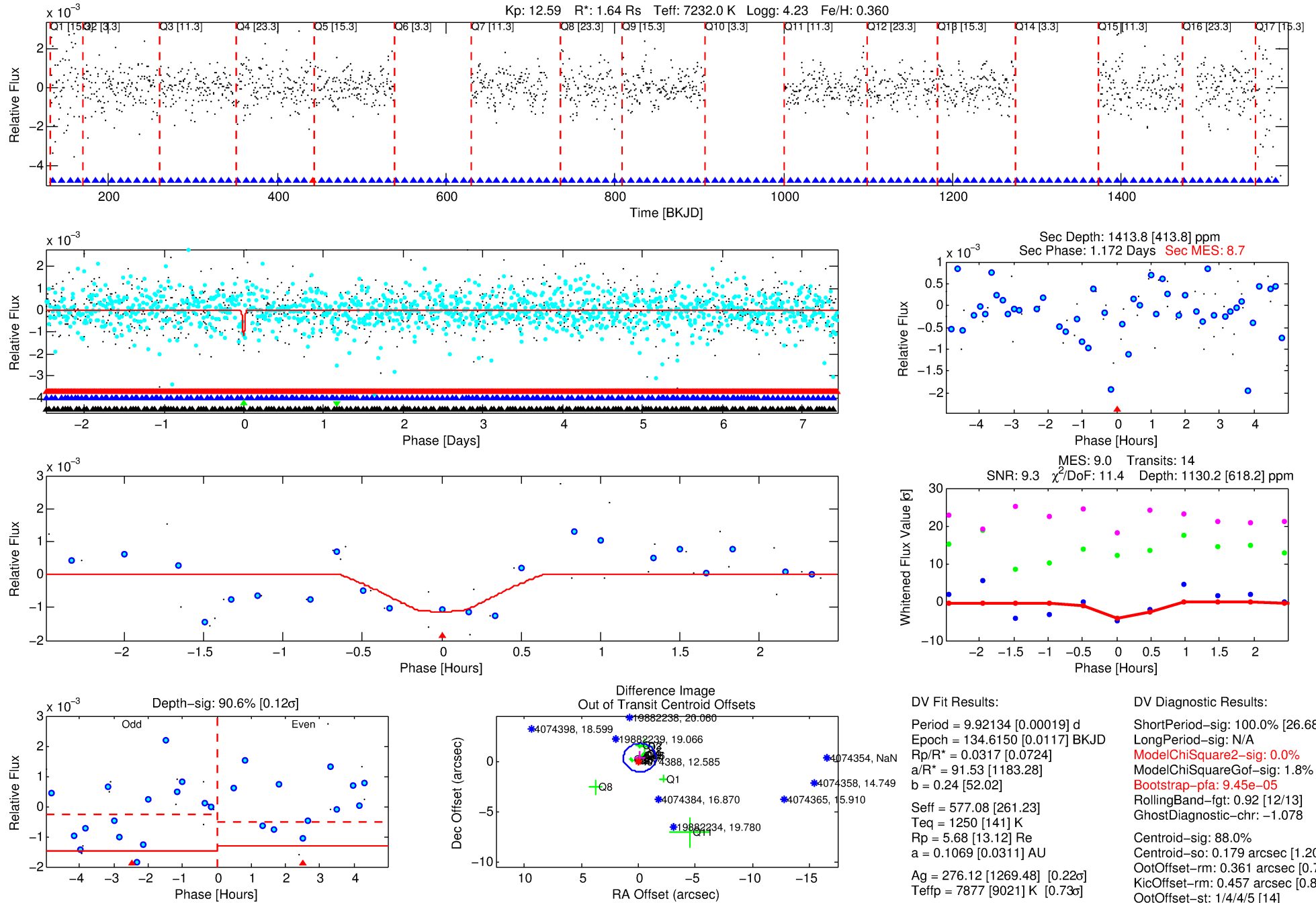
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004074388-03

No Significant Match Found

DV One-Page Summary

KIC: 4074388 Candidate: 3 of 4 Period: 9.921 d



DV Fit Results:

Period = 9.92134 [0.00019] d
Epoch = 134.6150 [0.0117] BKJD
Rp/R* = 0.0317 [0.0724]
a/R* = 91.53 [1183.28]
b = 0.24 [52.02]
Seff = 577.08 [261.23]
Teq = 1250 [141] K
Rp = 5.68 [13.12] Re
a = 0.1069 [0.0311] AU
Ag = 276.12 [1269.48] [0.22σ]
Teffp = 7877 [9021] K [0.73σ]

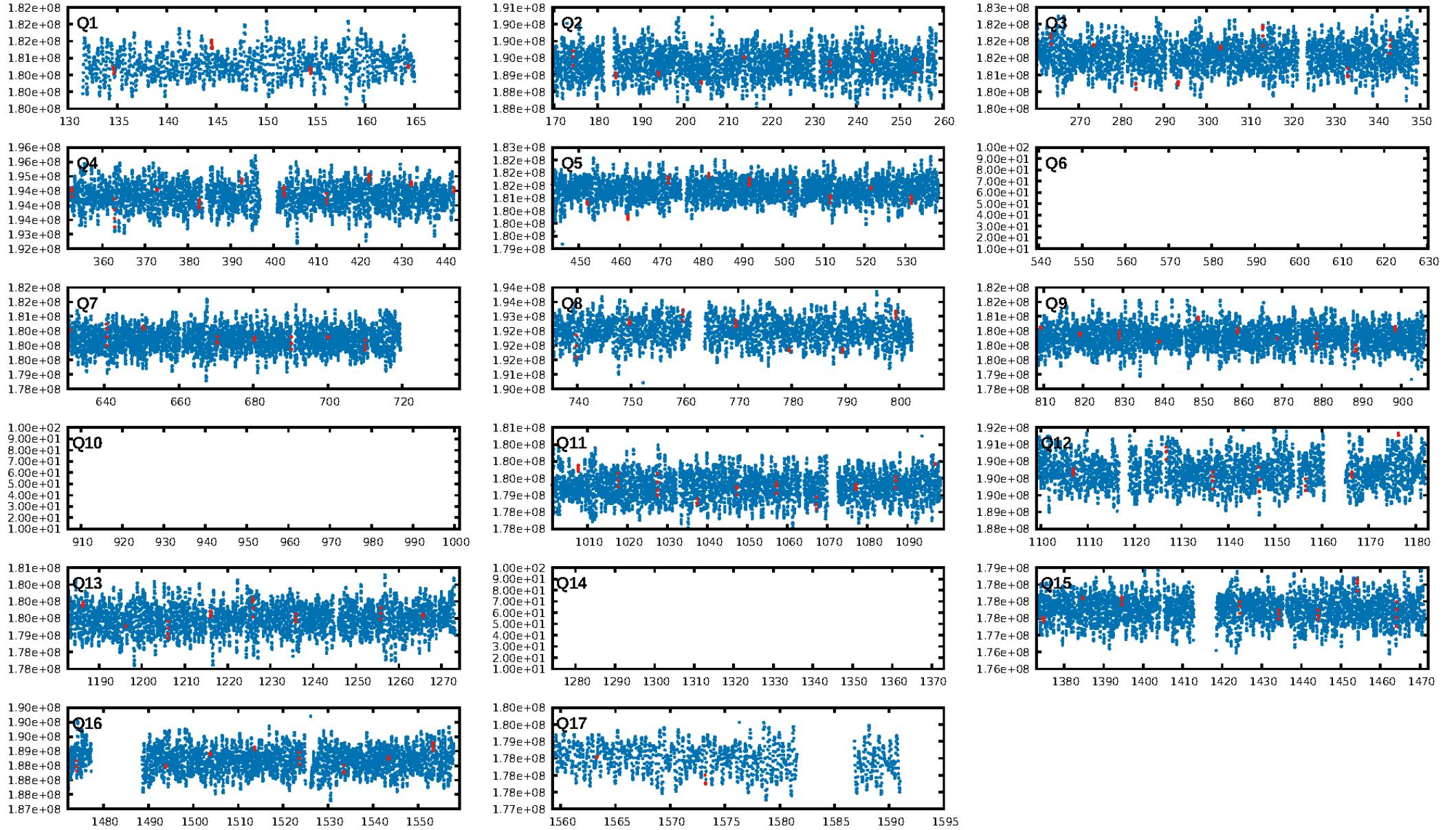
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.68σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 1.8%
Bootstrap-pfa: 9.45e-05
RollingBand-fgt: 0.92 [12/13]
GhostDiagnostic-chr: -1.078
Centroid-sig: 88.0%
Centroid-so: 0.179 arcsec [1.20σ]
OotOffset-rm: 0.361 arcsec [0.77σ]
KicOffset-rm: 0.457 arcsec [0.87σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.21 [3/14]
DiffImageOverlap-fno: 0.00 [0/14]

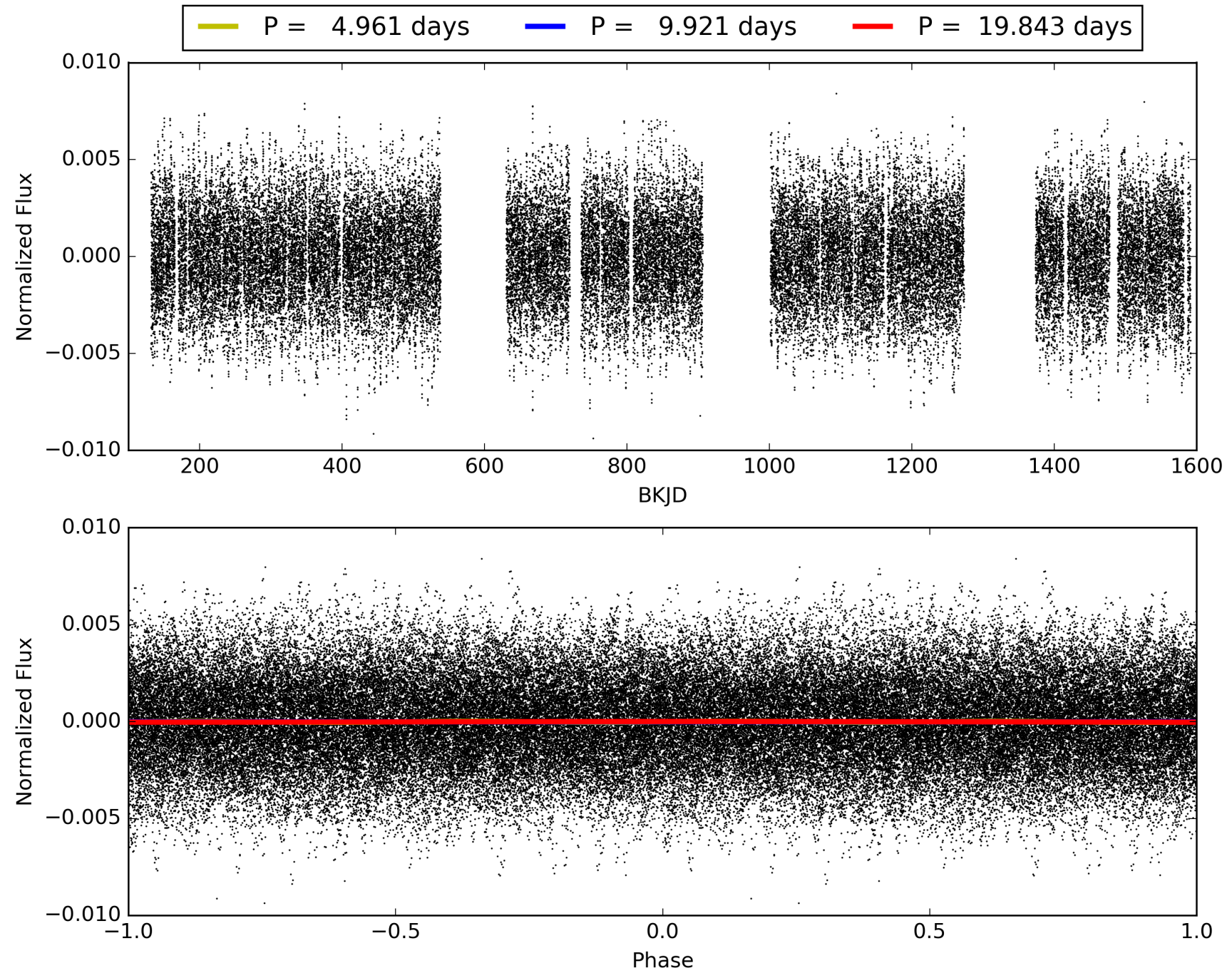
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:59:13 Z

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

TCE 004074388-03, PDC Light Curves

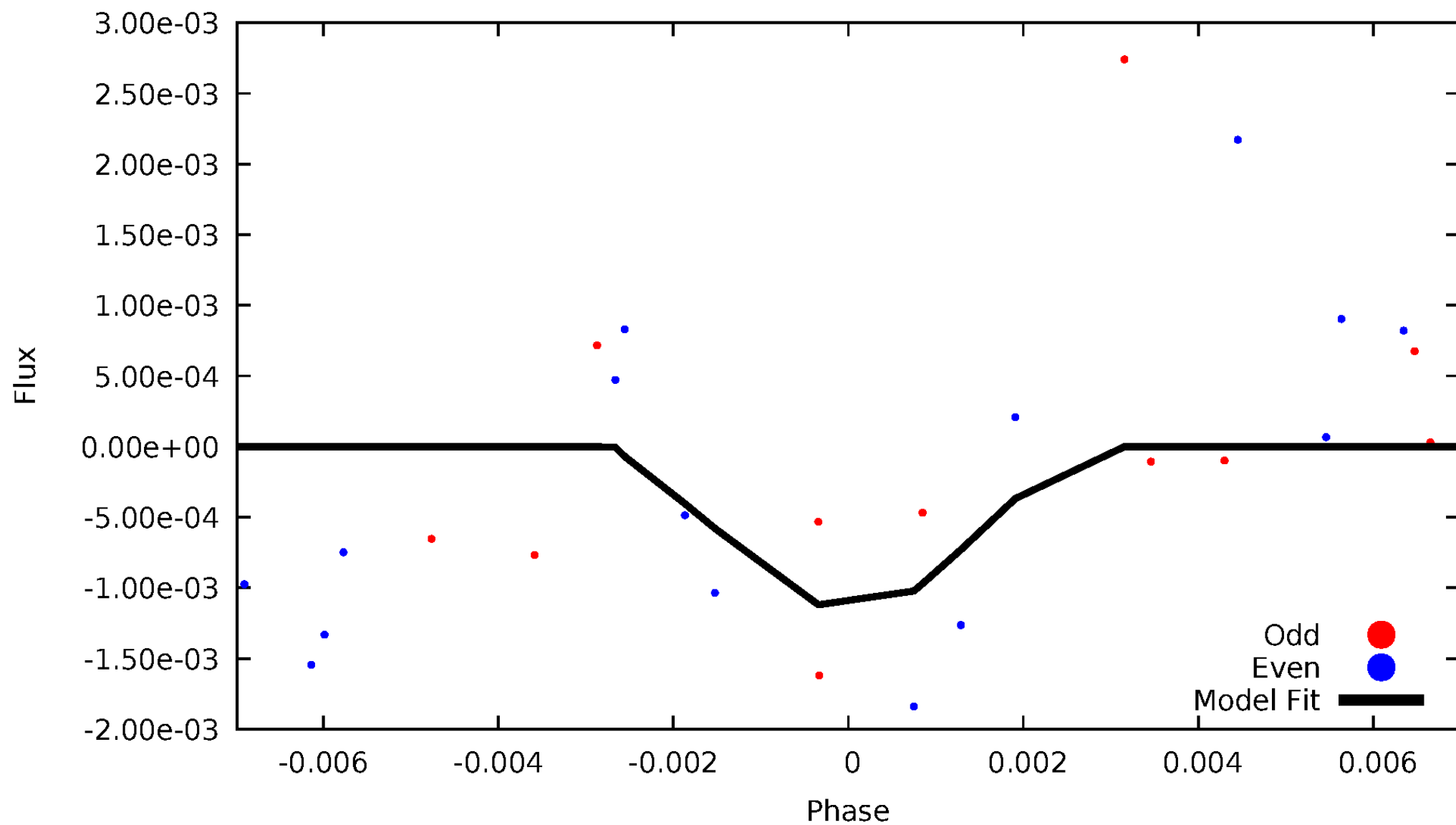


TCE 004074388-03



DV Odd/Even

TCE 004074388-03

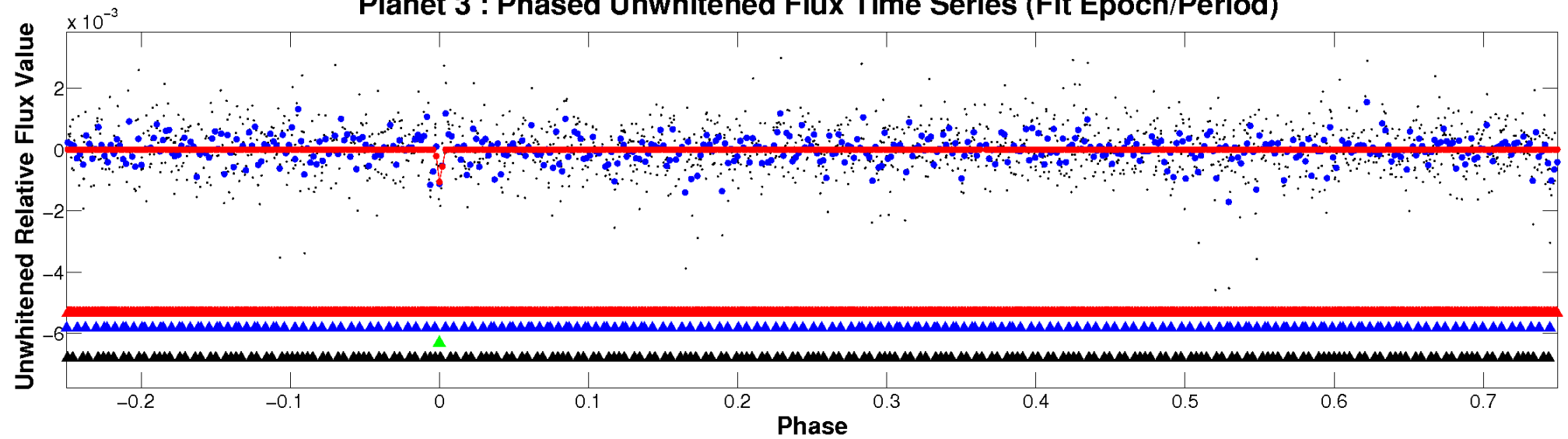


ALT Odd/Even

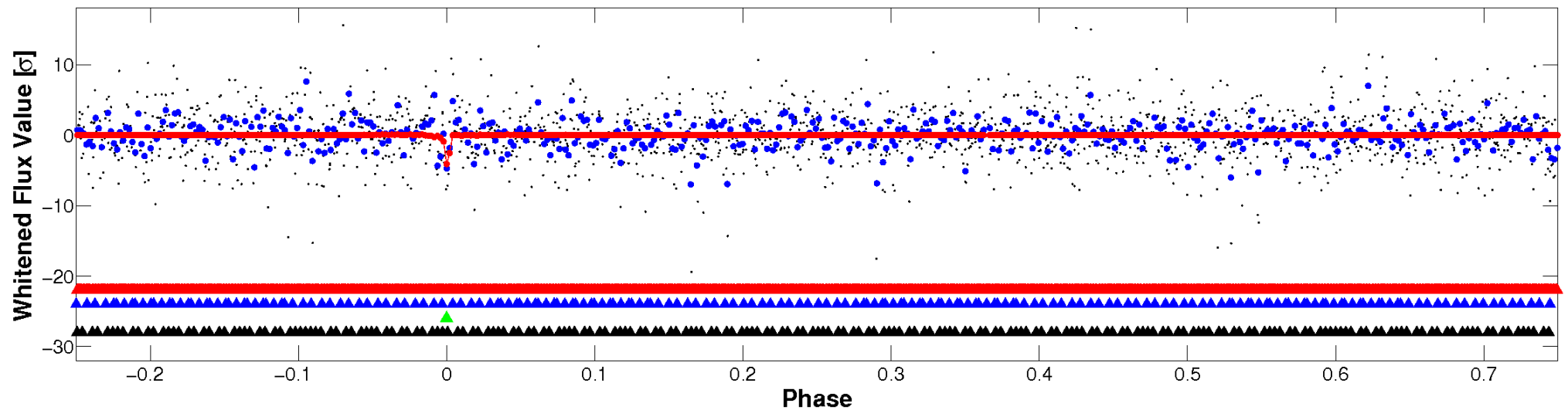
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

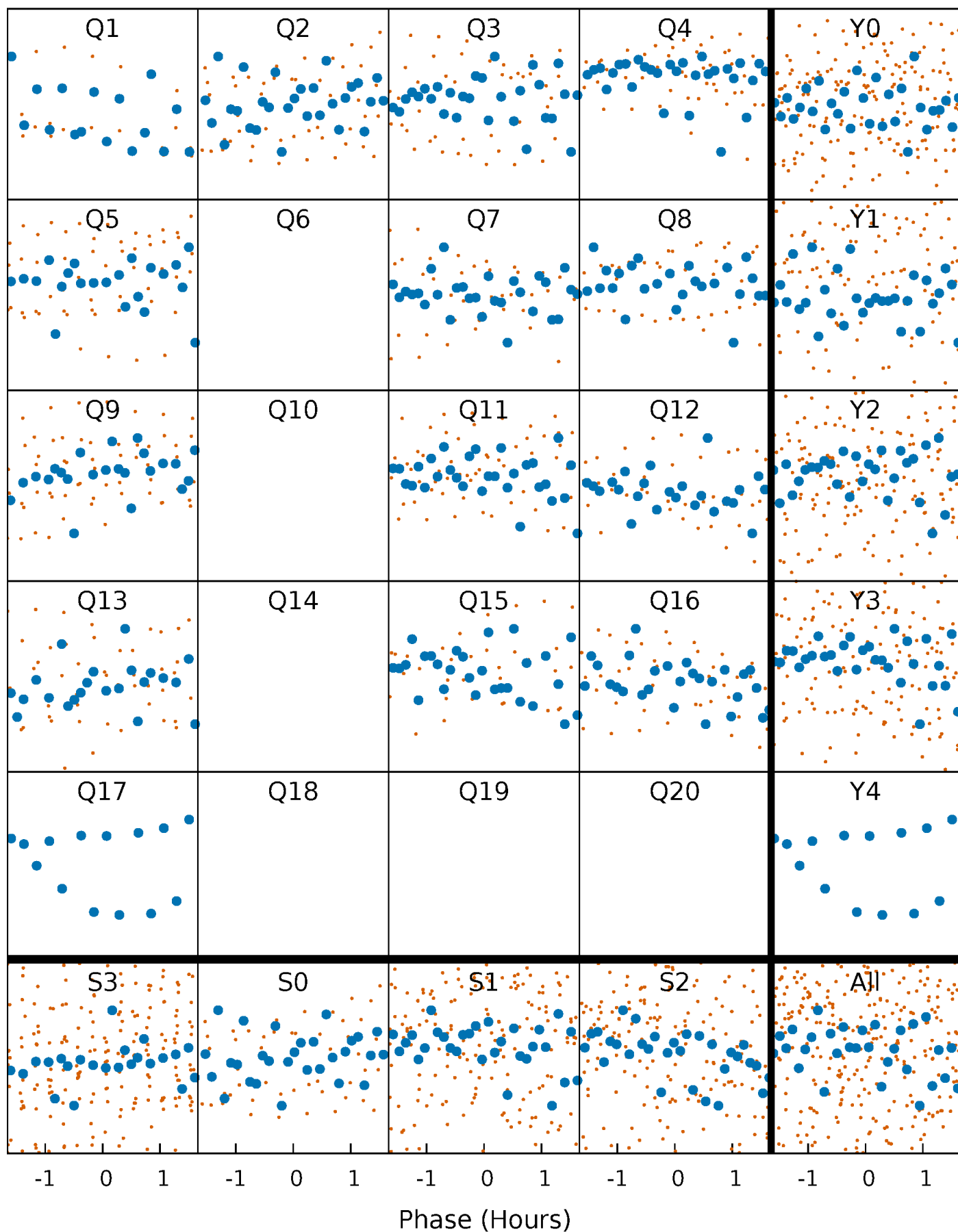


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



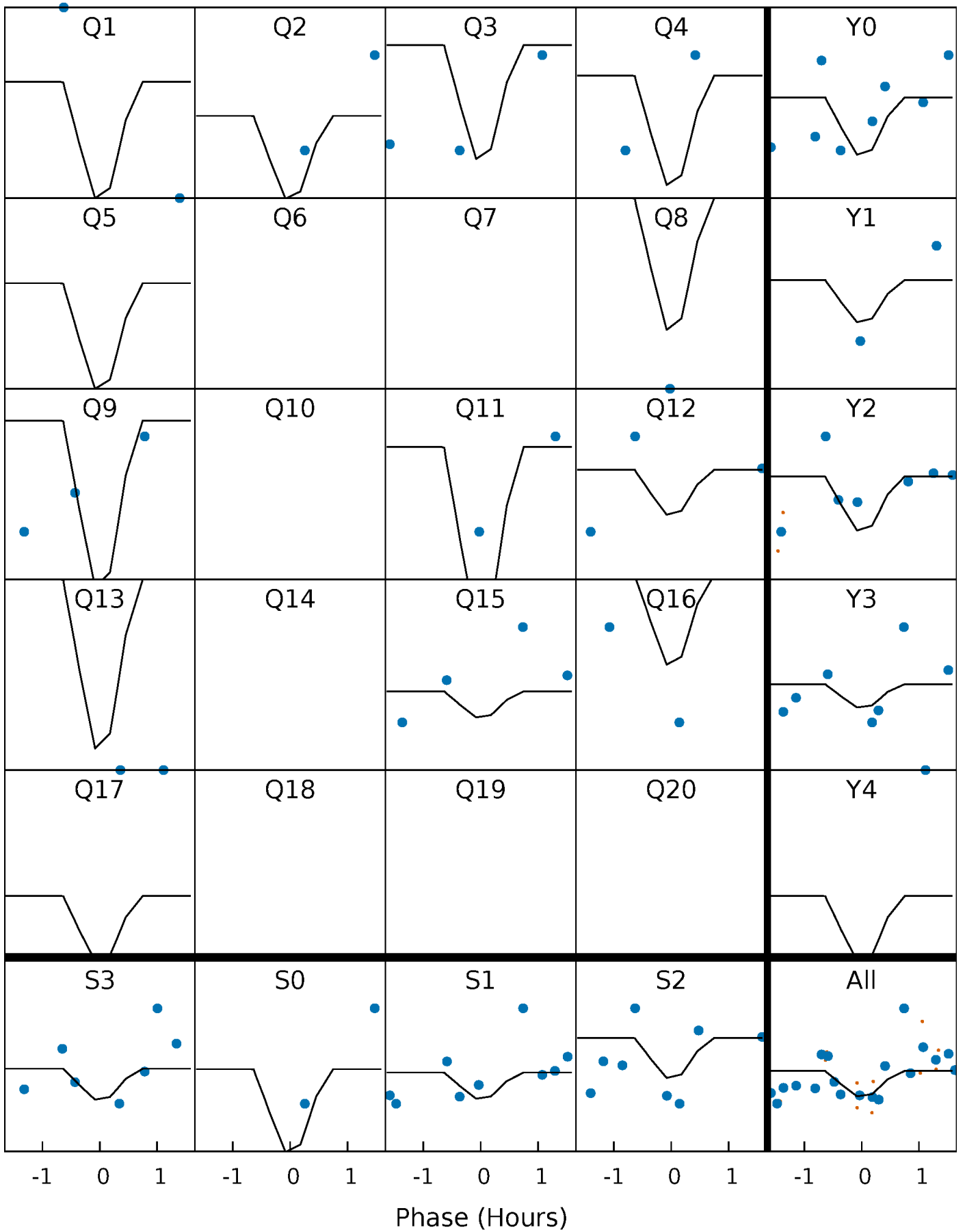
PDC Quarter-Phased Transit Curves

TCE 004074388-03 P= 9.921345 Days $T_0=134.614981$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004074388-03 P= 9.921345 Days $T_0=134.614981$ (BKJD)

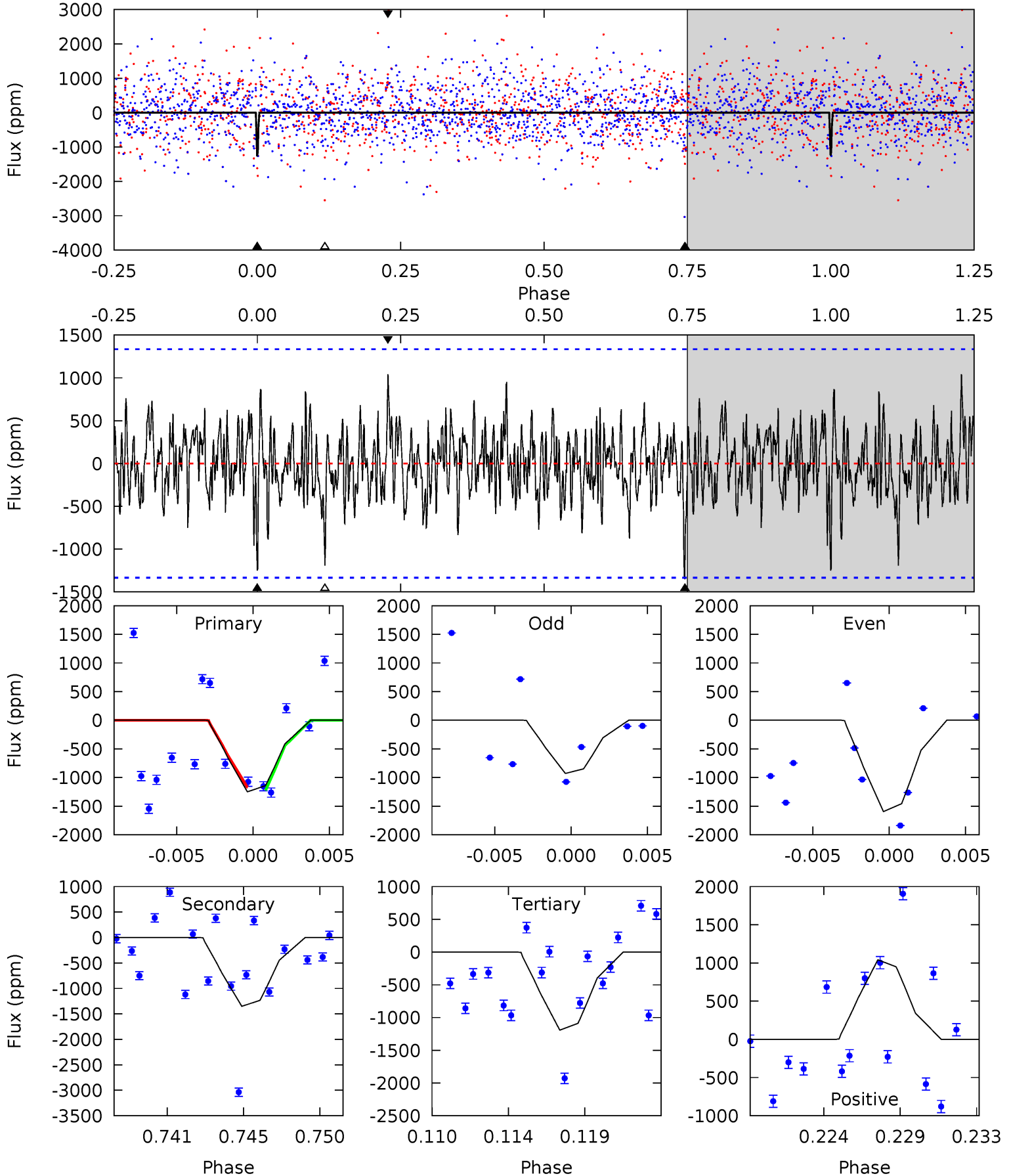


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004074388-03, P = 9.921345 Days, E = 124.693636 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.84	5.23	4.62	4.03	5.17	2.84	1.27	0.22	0.81	0.61	1.20	1.31	0	0.44	0.10



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004074388

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7232^{+200}_{-300}	$4.227^{+0.054}_{-0.229}$	$0.360^{+0.050}_{-0.350}$	$1.641^{+0.571}_{-0.190}$	$1.654^{+0.200}_{-0.200}$	$0.527^{+0.157}_{-0.299}$
	+3%/-4%	+1%/-5%	+14%/-97%	+35%/-12%	+12%/-12%	+30%/-57%
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 004074388-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1350 ± 258	$11.74^{+11.95}_{-7.75}$	1791^{+131}_{-93}	5531^{+5104}_{-1417}	61^{+480}_{-47}
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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

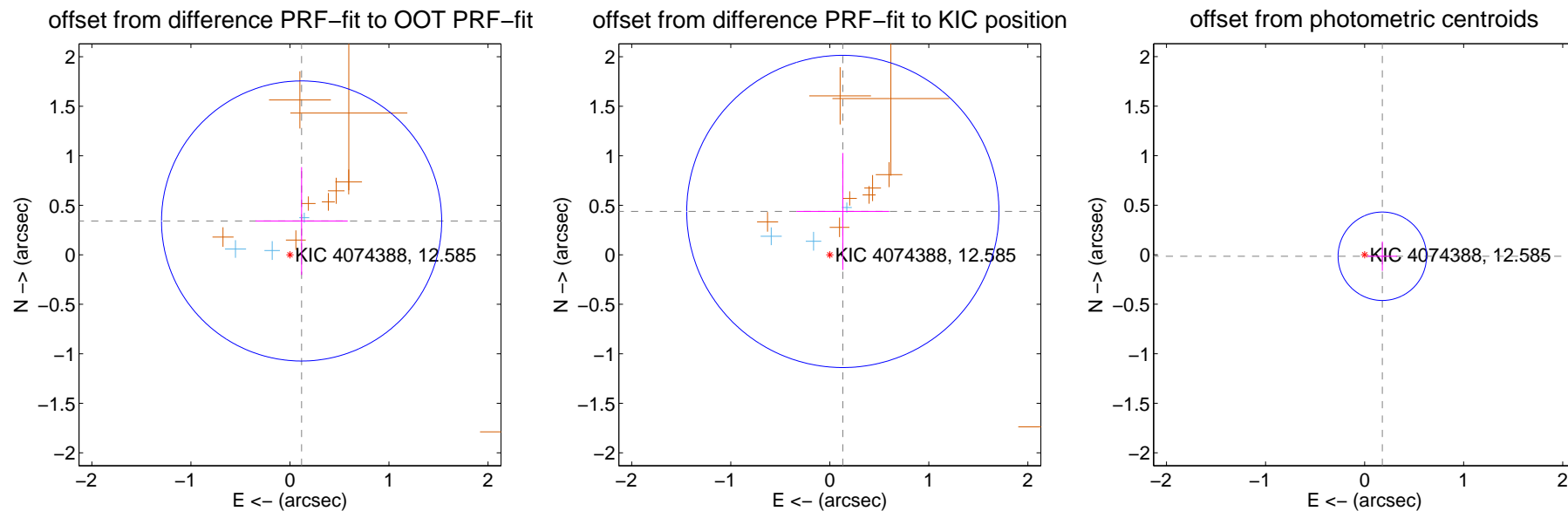
DV Centroid Data

Supplemental centroid analysis for 004074388-03. Kepler magnitude: 12.59. Transit SNR 9.31

There are 3 quarters with good PRF difference image offsets

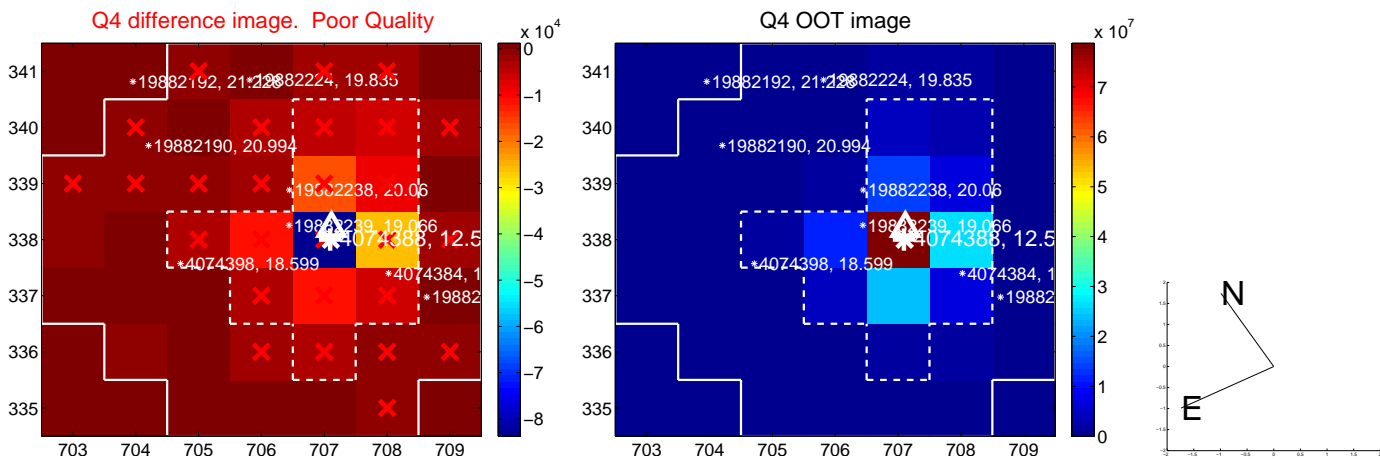
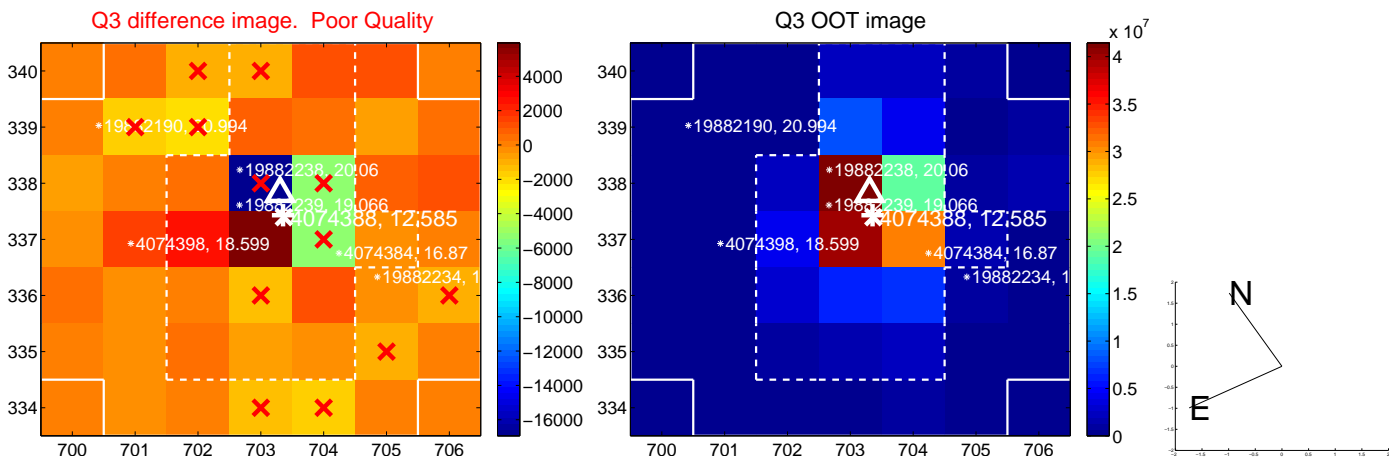
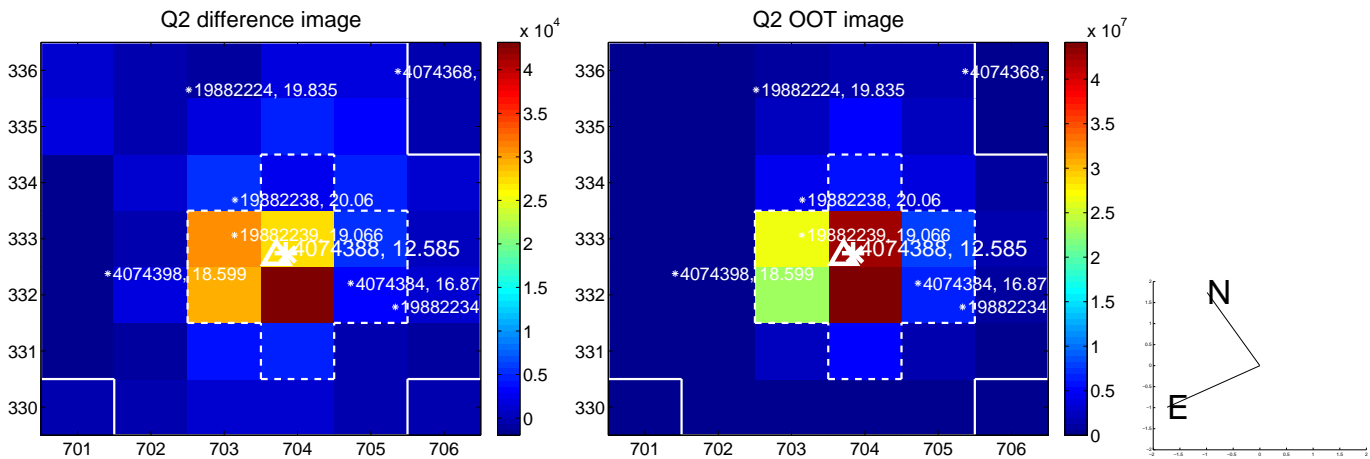
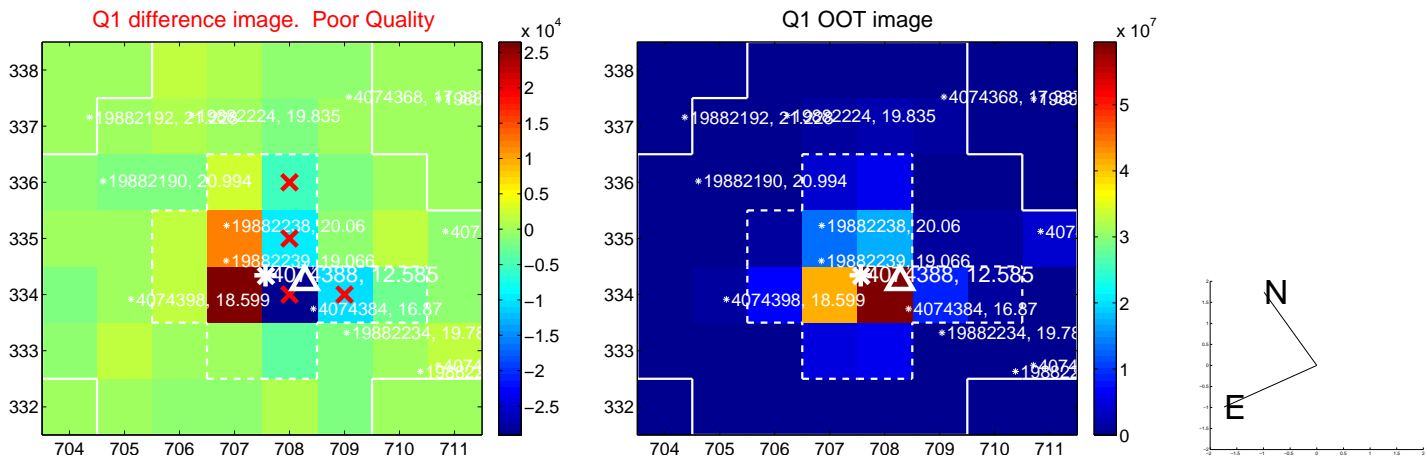
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.361 ± 0.472	0.77	-0.118 ± 0.466	0.341 ± 0.544
PRF-fit source offset from KIC position	0.457 ± 0.526	0.87	-0.132 ± 0.469	0.438 ± 0.591
photometric centroid source offset	0.18 ± 0.15	1.20	-0.18 ± 0.15	-0.02 ± 0.15

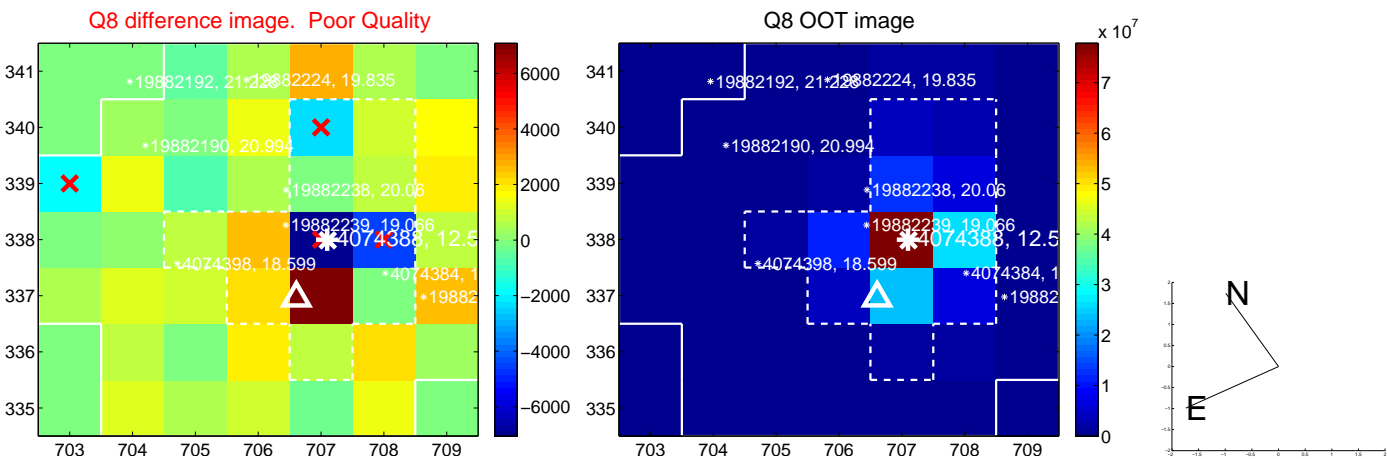
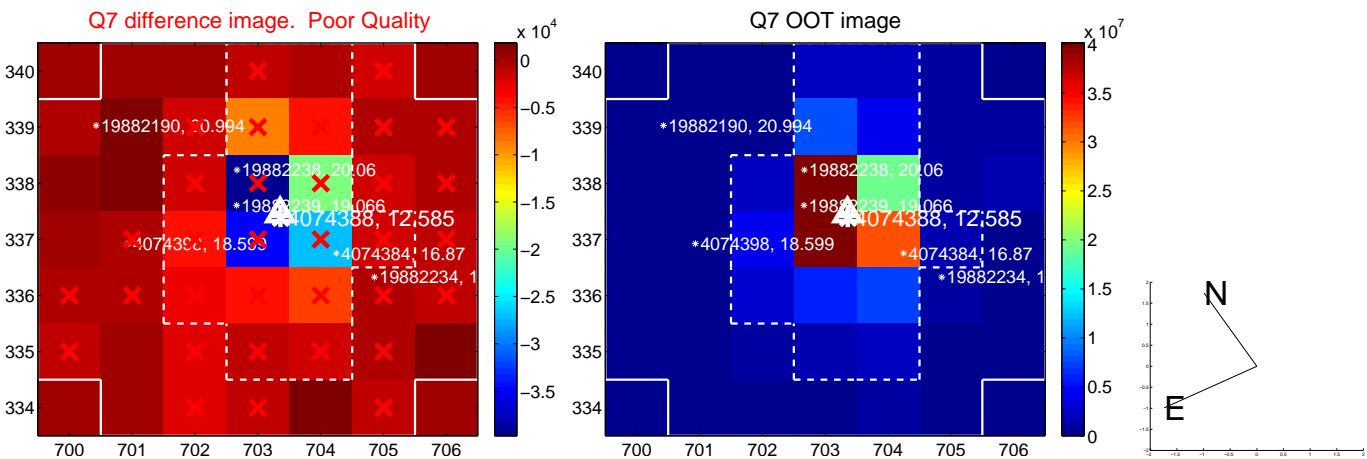
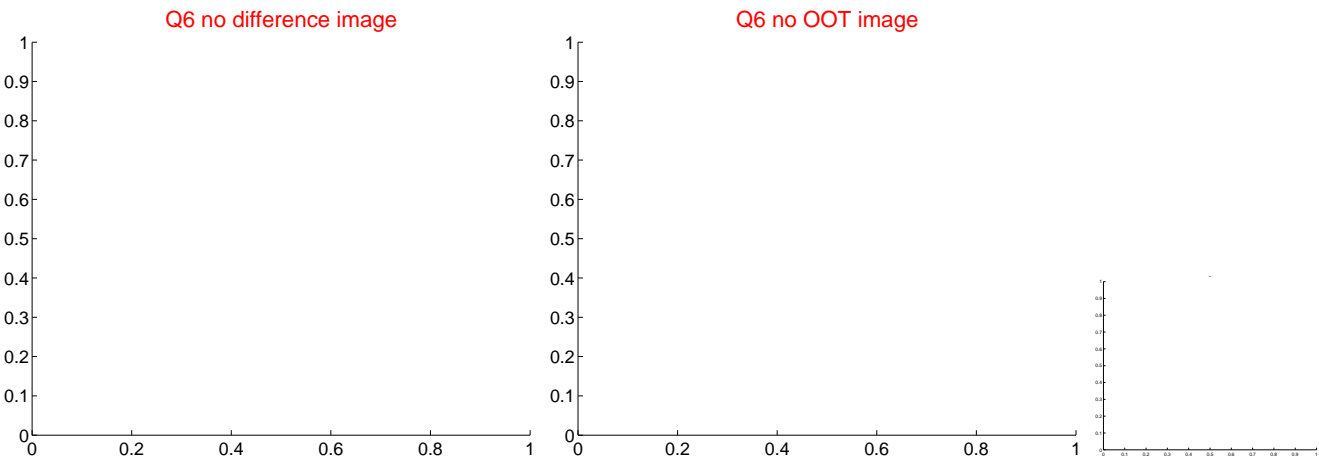
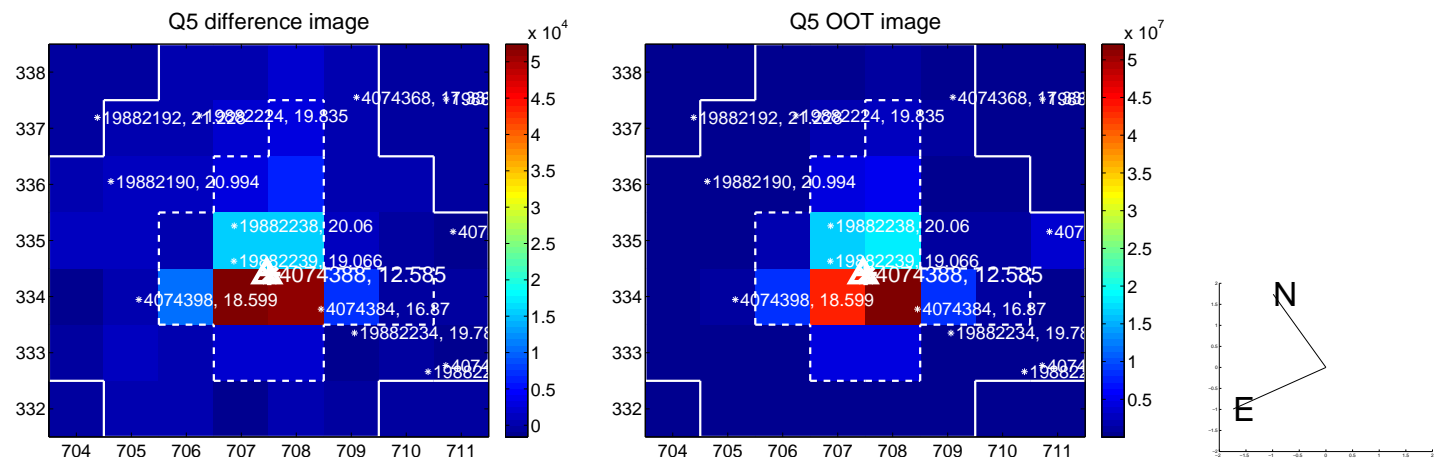


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

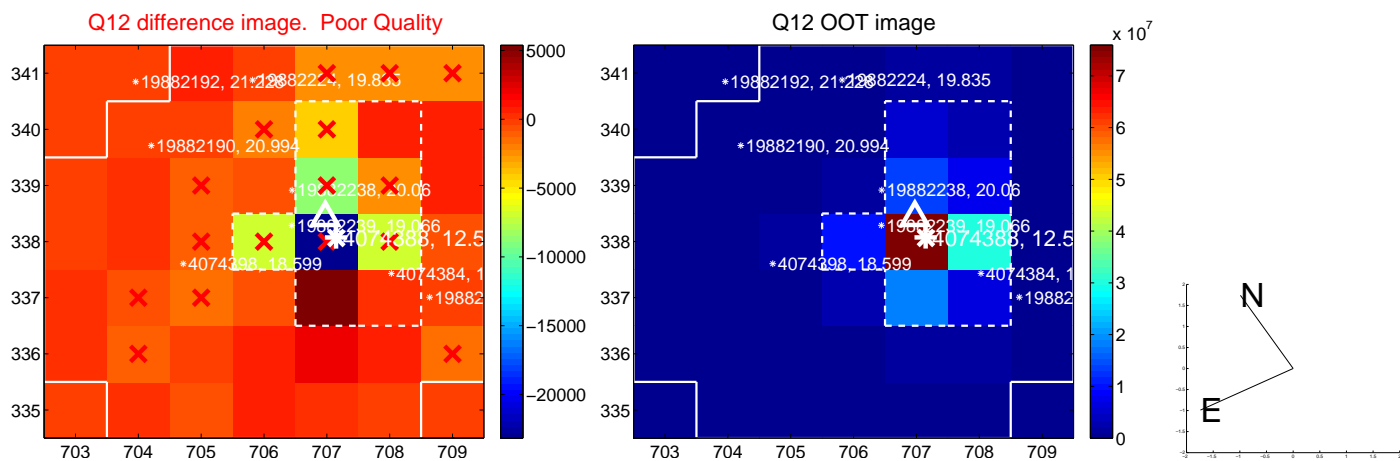
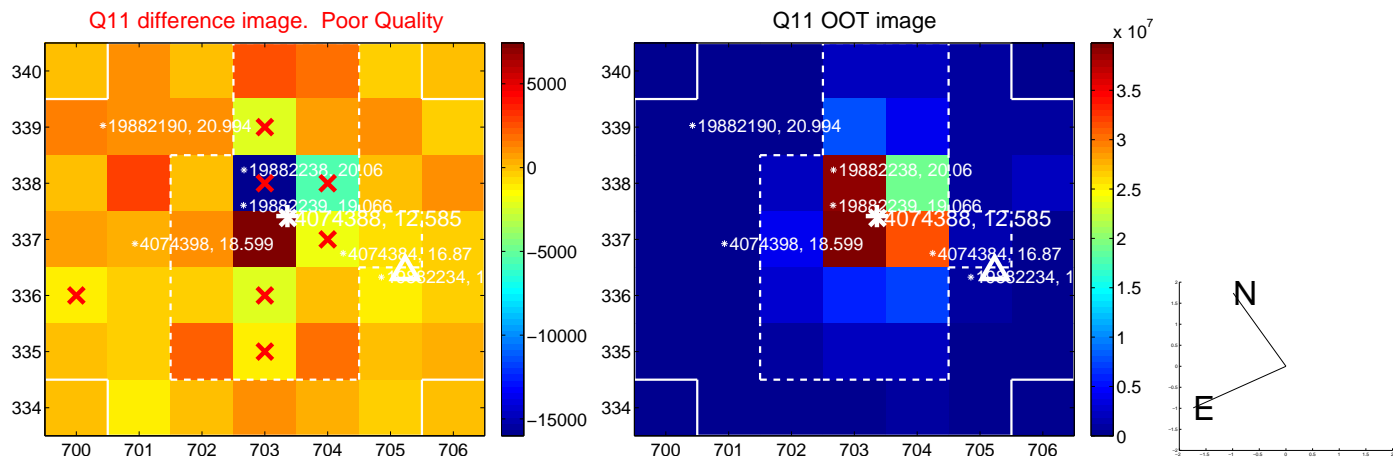
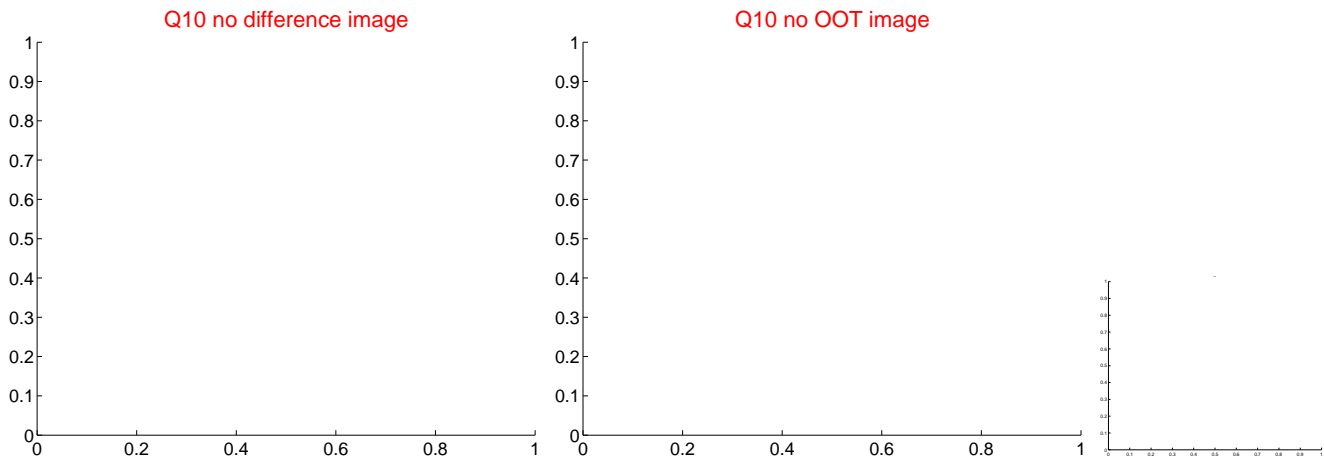
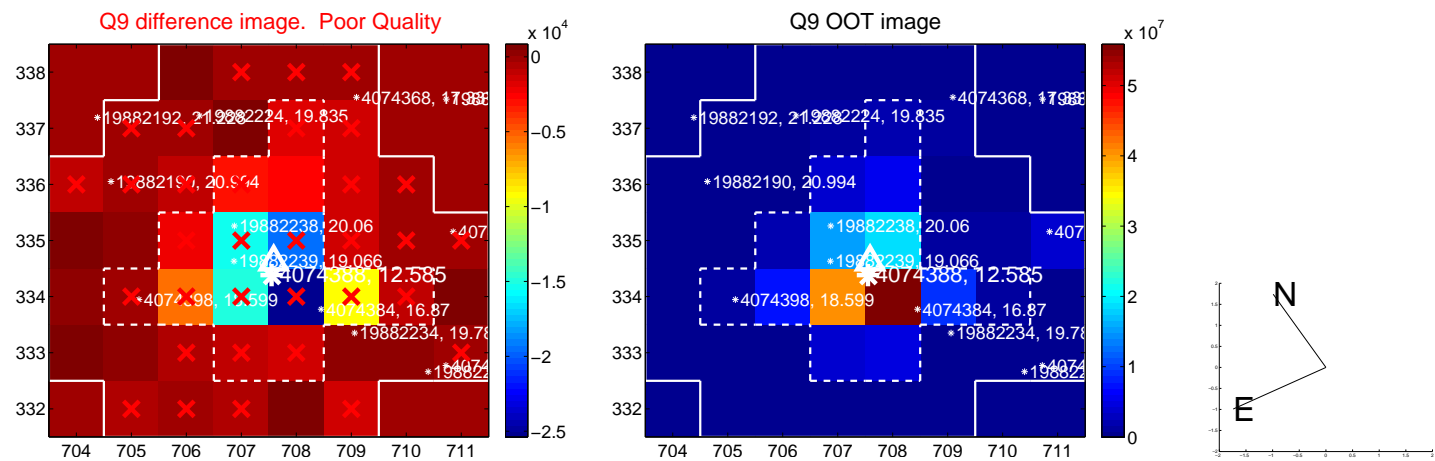
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



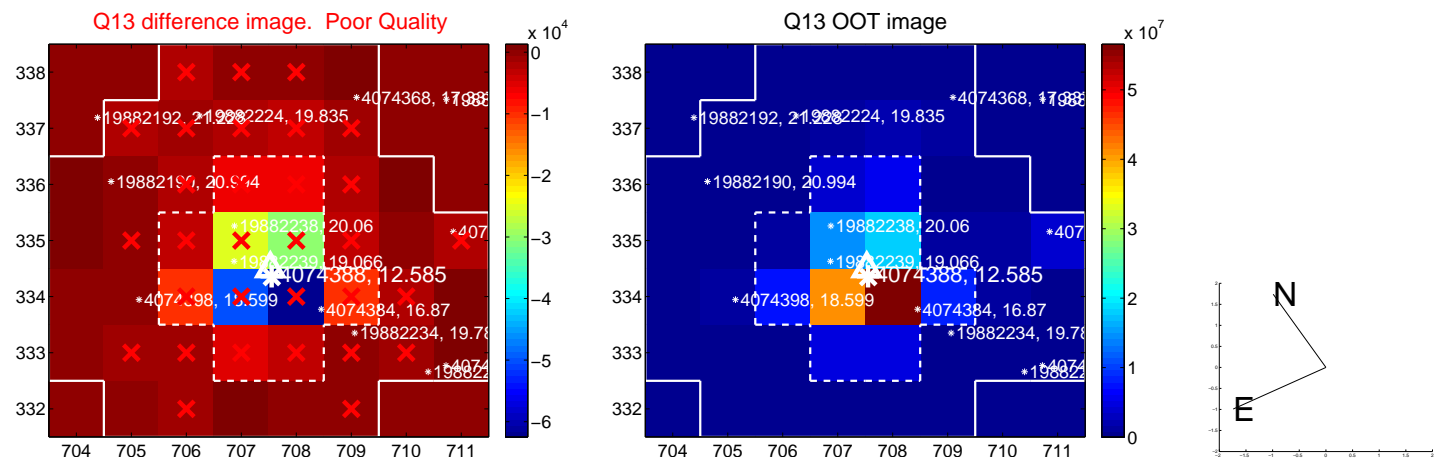
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



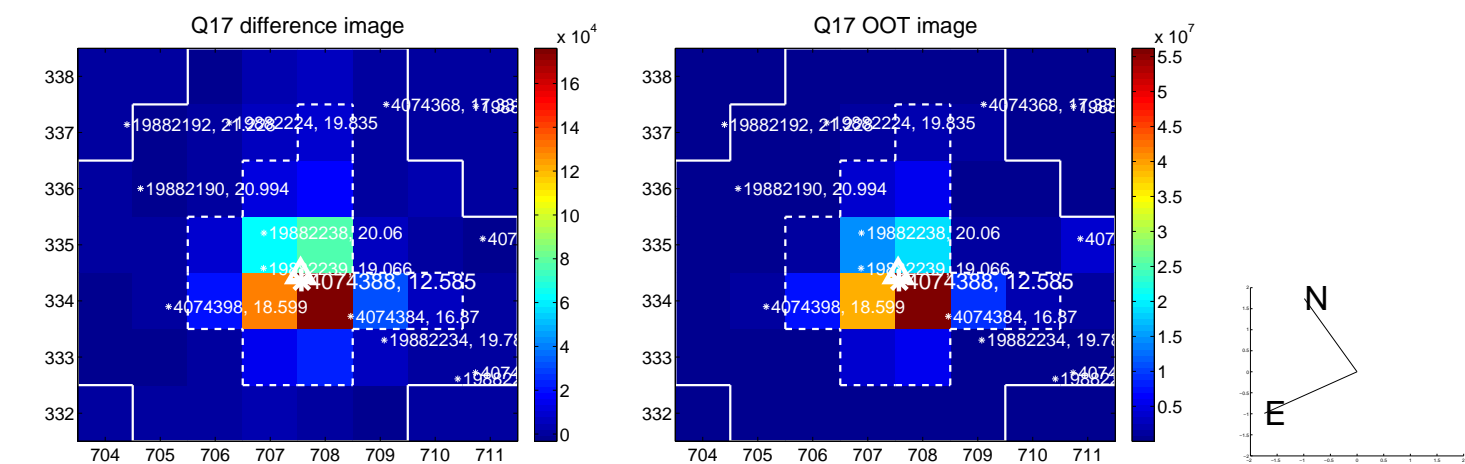
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



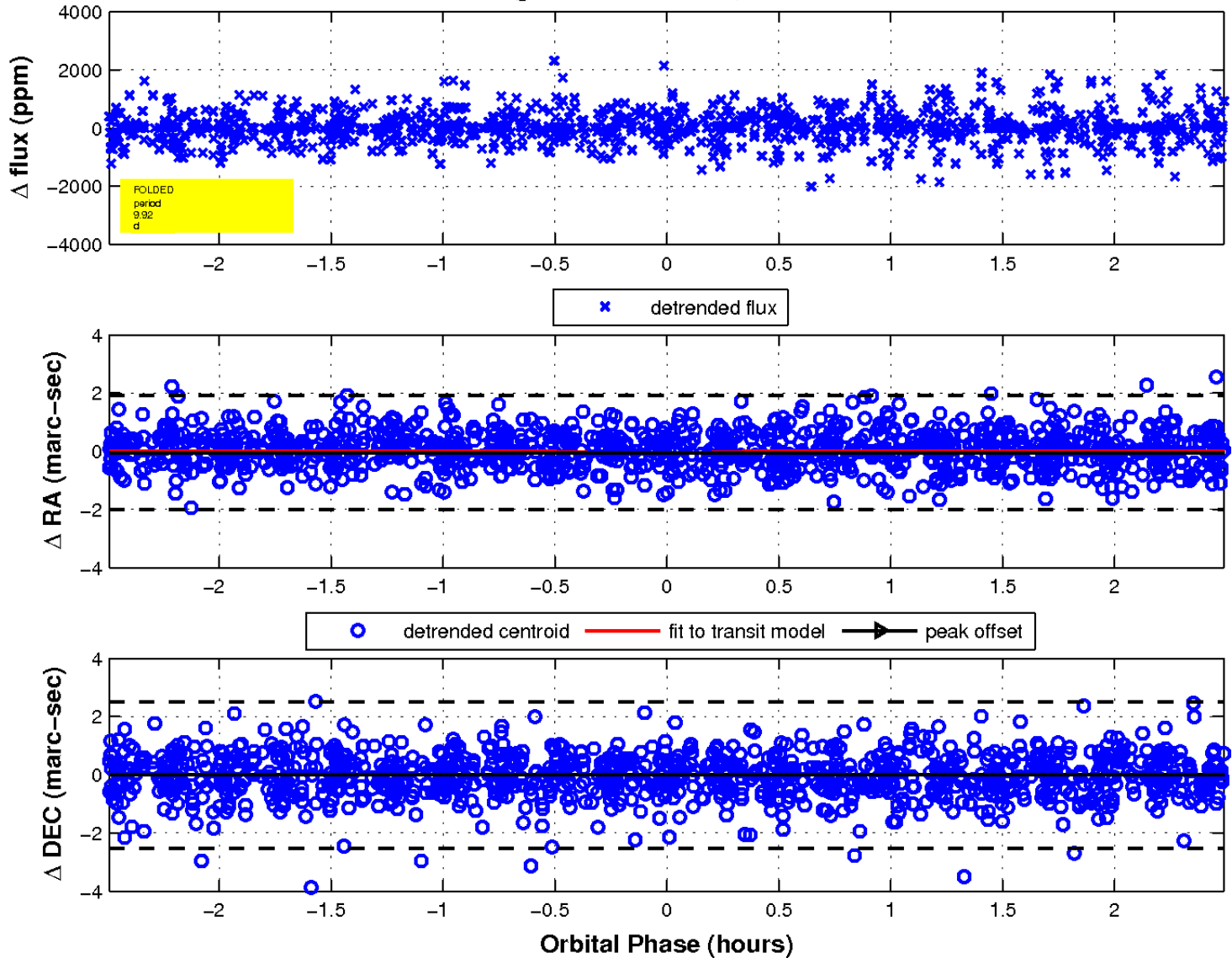
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

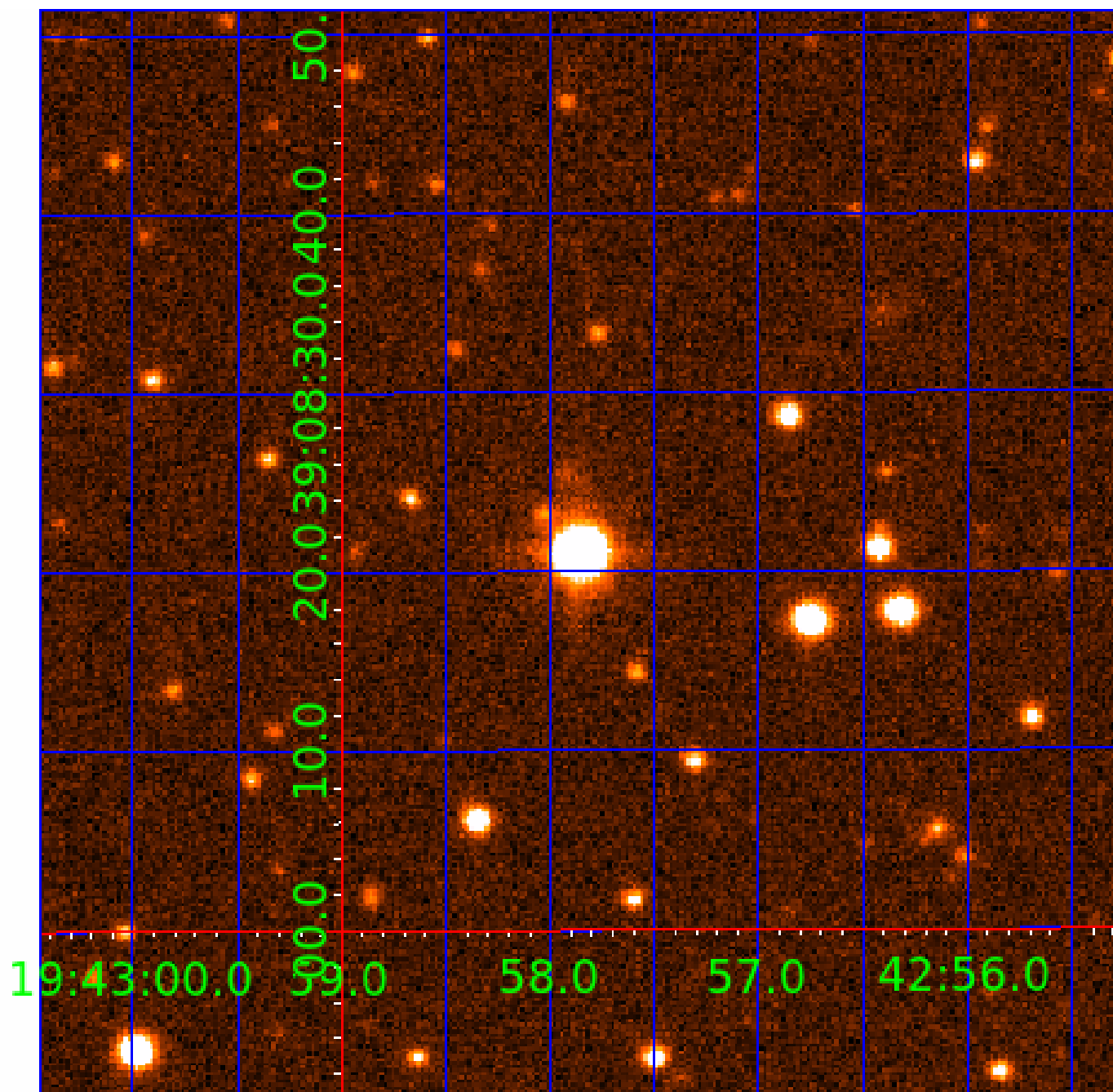


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 004074388

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})
004074388-01	OBS	No	0.556704	131.774206	17.5	4.125	7.8	3.0	1.64	7232	0.69	26863.82
004074388-02	OBS	No	7.472292	132.403507	372.1	2.041	12.3	6.5	1.64	7232	3.21	842.16
004074388-03	OBS	No	9.921345	134.614981	1130.2	0.831	9.0	9.3	1.64	7232	5.68	577.09
004074388-04	OBS	No	6.897370	133.704888	396.8	2.430	7.9	7.4	1.64	7232	3.60	937.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004074388-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
004074388-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV
004074388-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

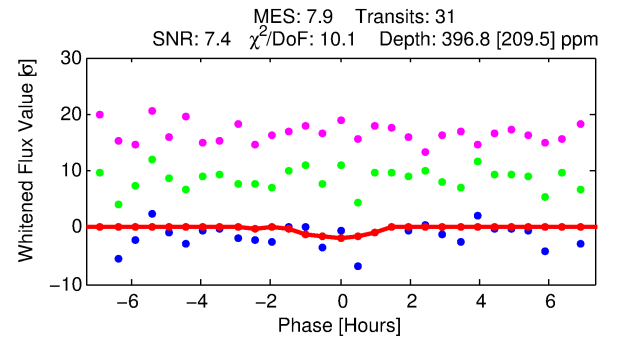
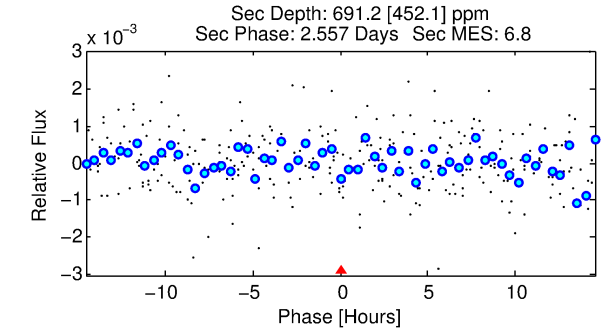
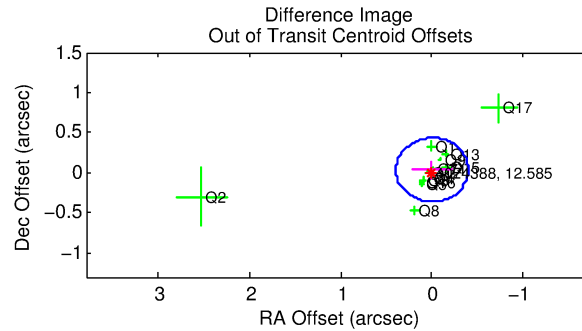
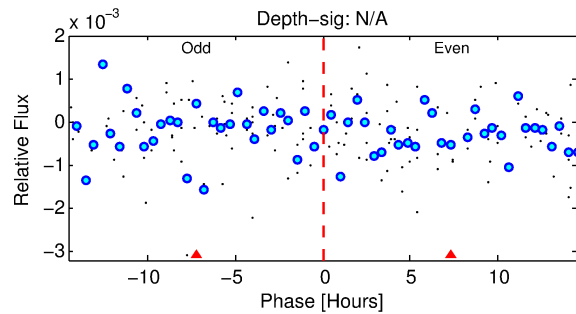
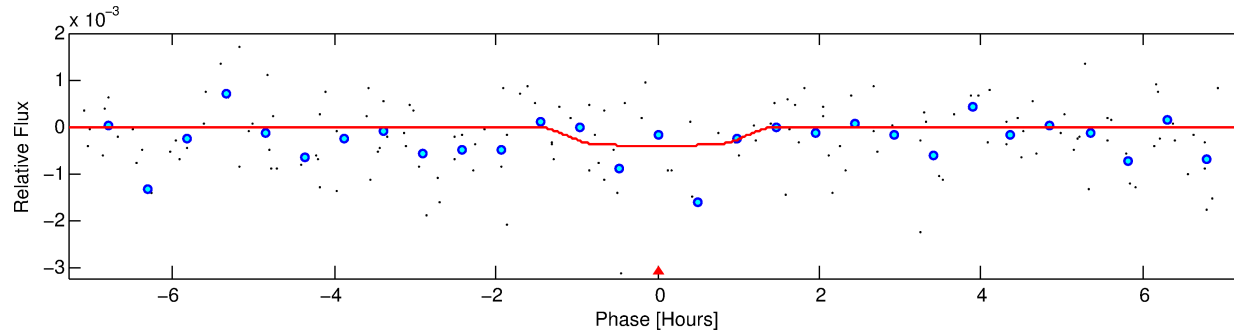
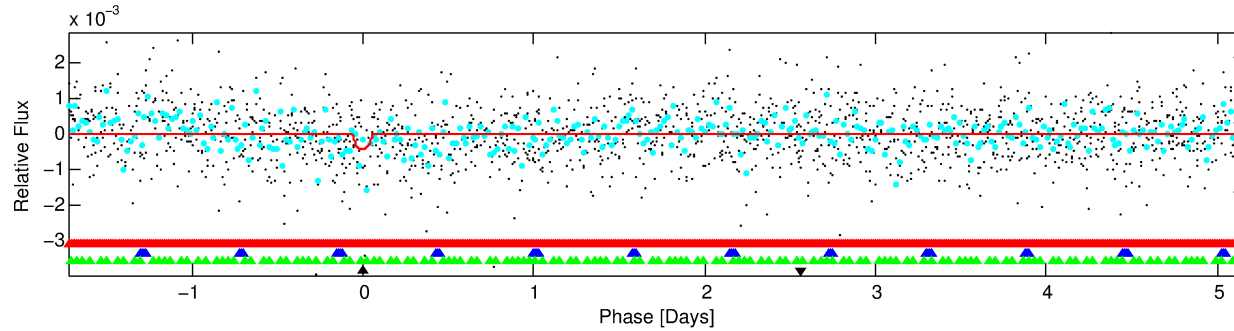
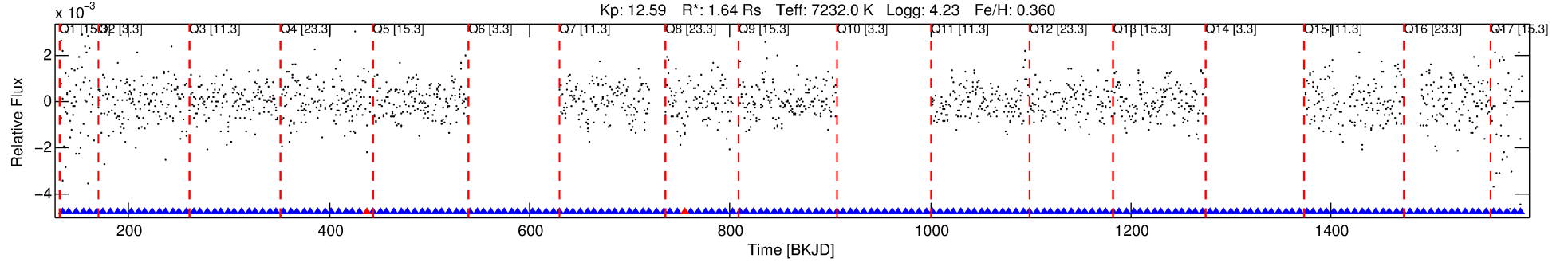
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004074388-04

No Significant Match Found

DV One-Page Summary

KIC: 4074388 Candidate: 4 of 4 Period: 6.897 d



DV Fit Results:

Period = 6.89737 [0.00024] d
Epoch = 133.7049 [0.0263] BKJD
Rp/R* = 0.0201 [0.1217]
a/R* = 13.94 [516.00]
b = 0.79 [17.50]
Seff = 937.03 [424.17]
Teq = 1411 [160] K
Rp = 3.60 [21.83] Re
a = 0.0839 [0.0244] AU
Ag = 206.92 [2511.58] [0.08σ]
Teffp = 8273 [25091] K [0.27σ]

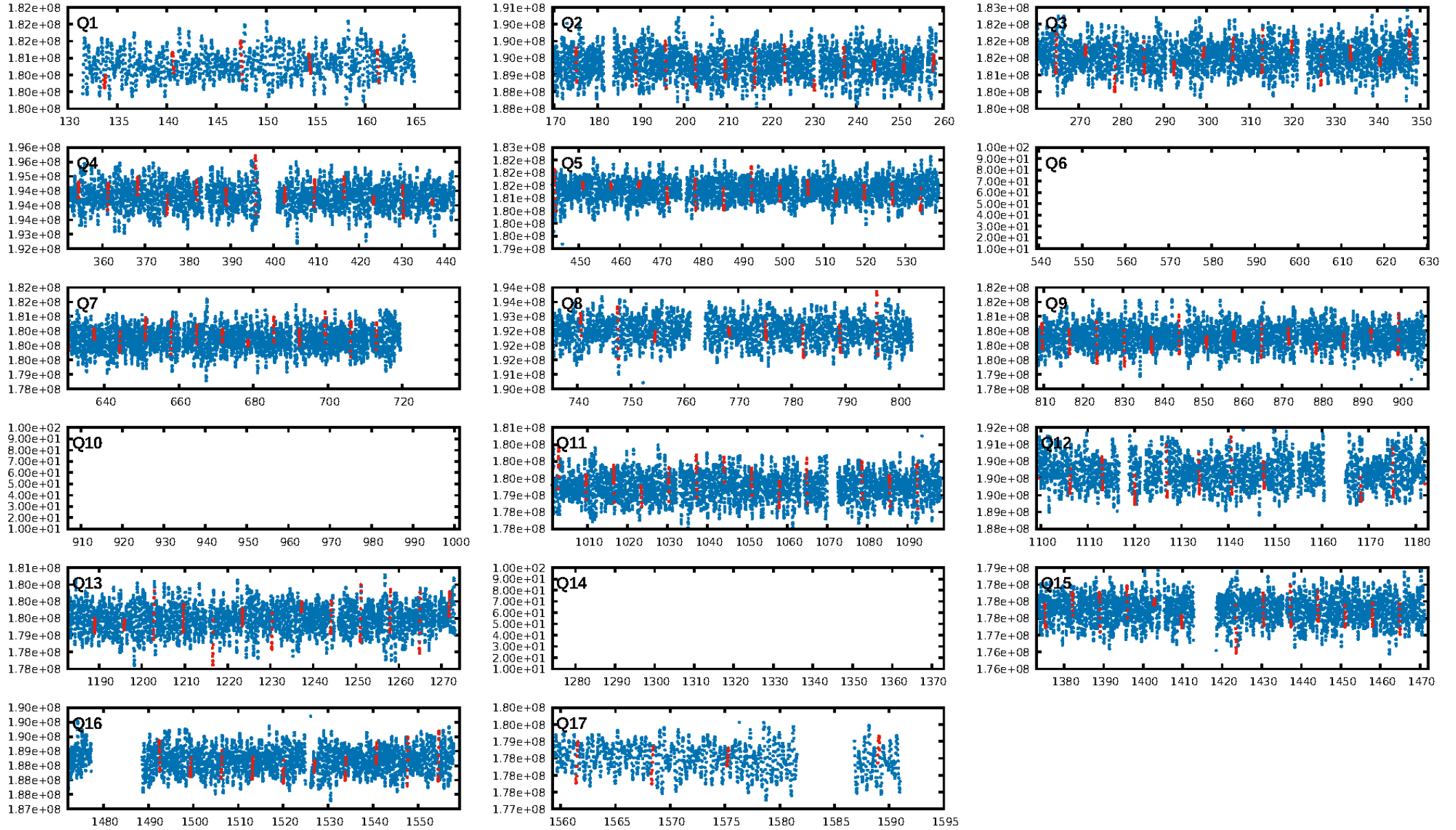
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.79σ]
LongPeriod-sig: 100.0% [4.35σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 50.2%
Bootstrap-pfa: 2.90e-05
RollingBand-fgt: 0.93 [27/29]
GhostDiagnostic-chr: 1.825
Centroid-sig: 0.0%
Centroid-so: 0.742 arcsec [3.32σ]
OotOffset-rm: 0.035 arcsec [0.27σ]
KicOffset-rm: 0.139 arcsec [1.14σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 0.00 [0/14]

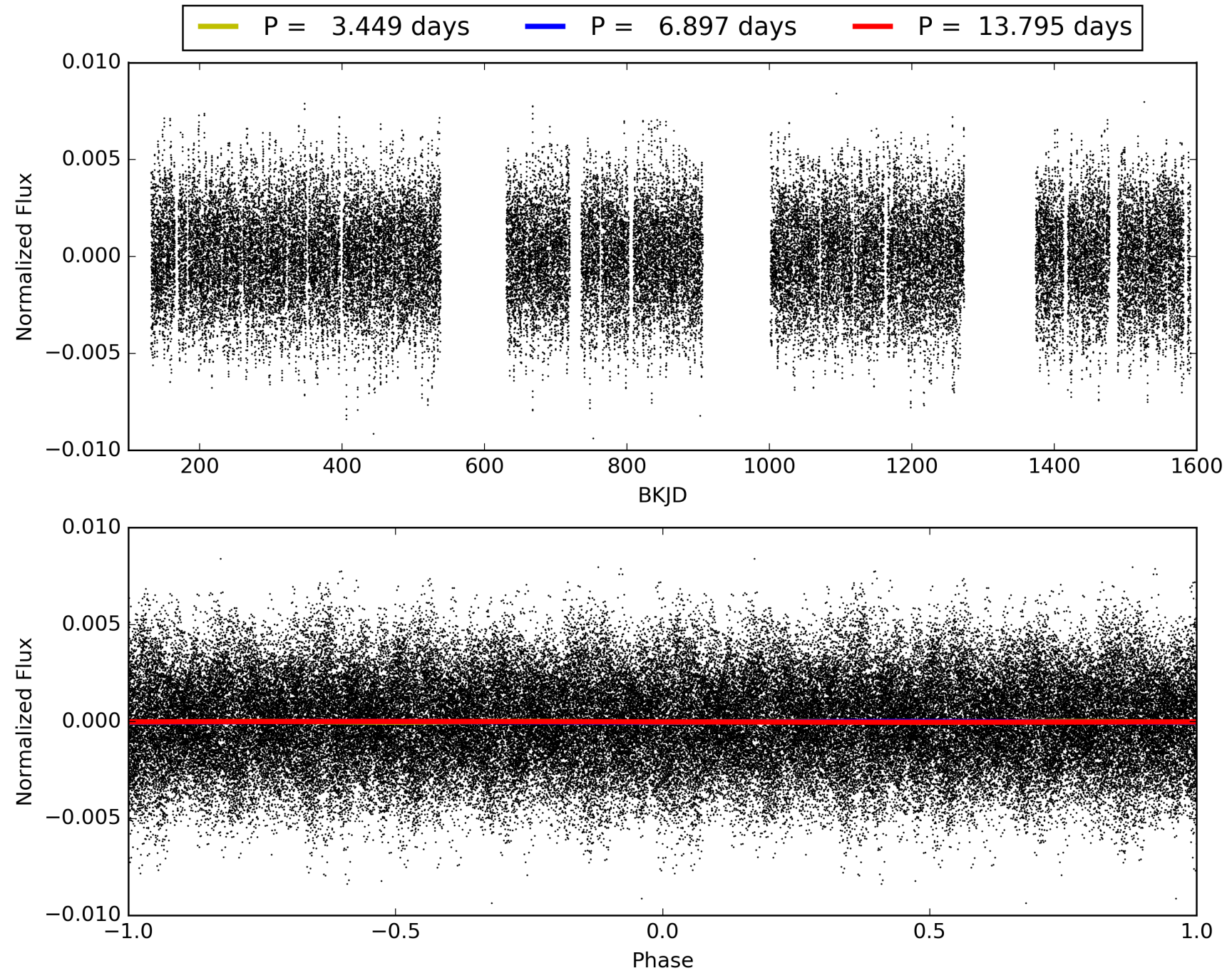
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:59:15 Z

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

TCE 004074388-04, PDC Light Curves

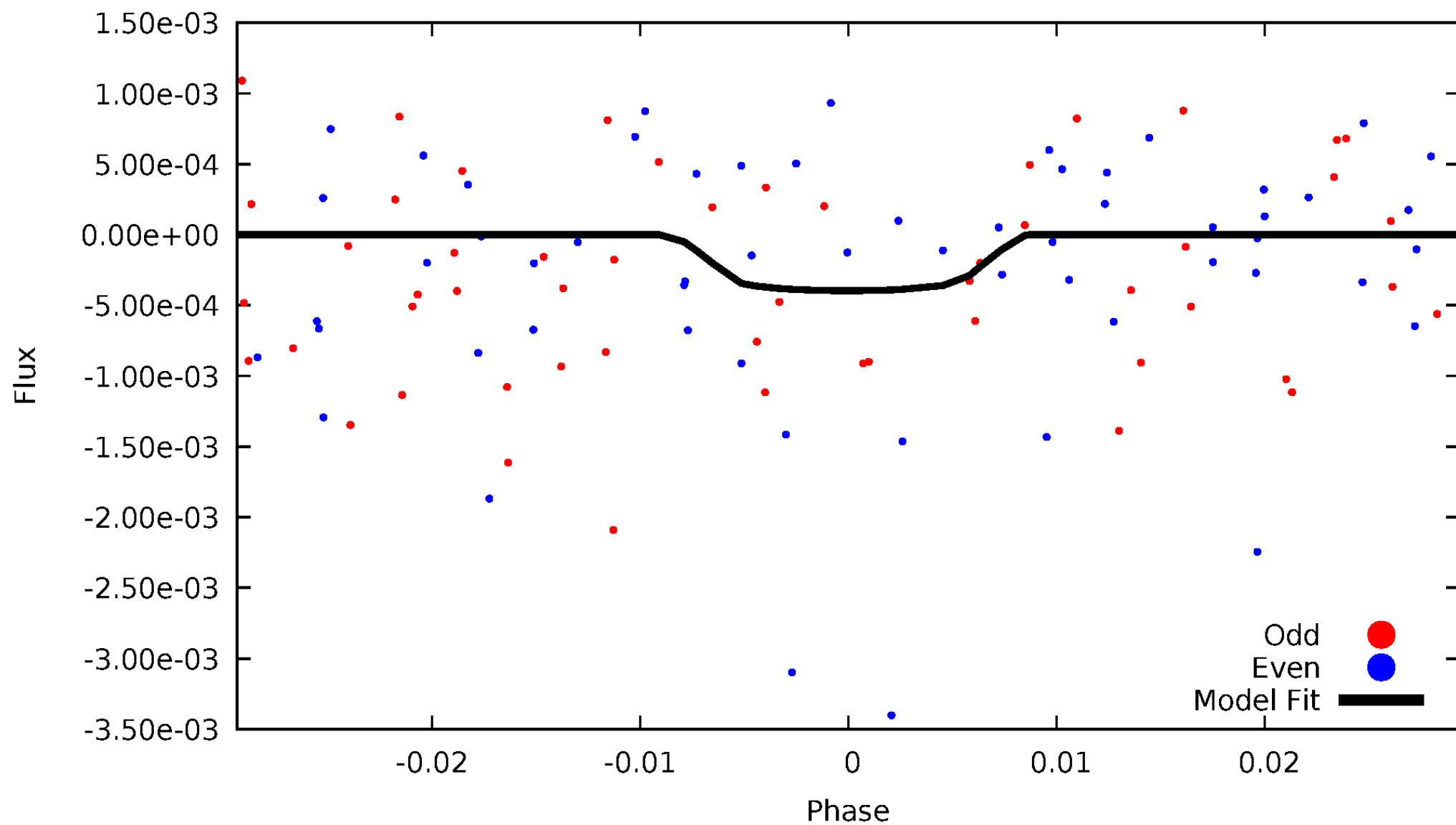


TCE 004074388-04



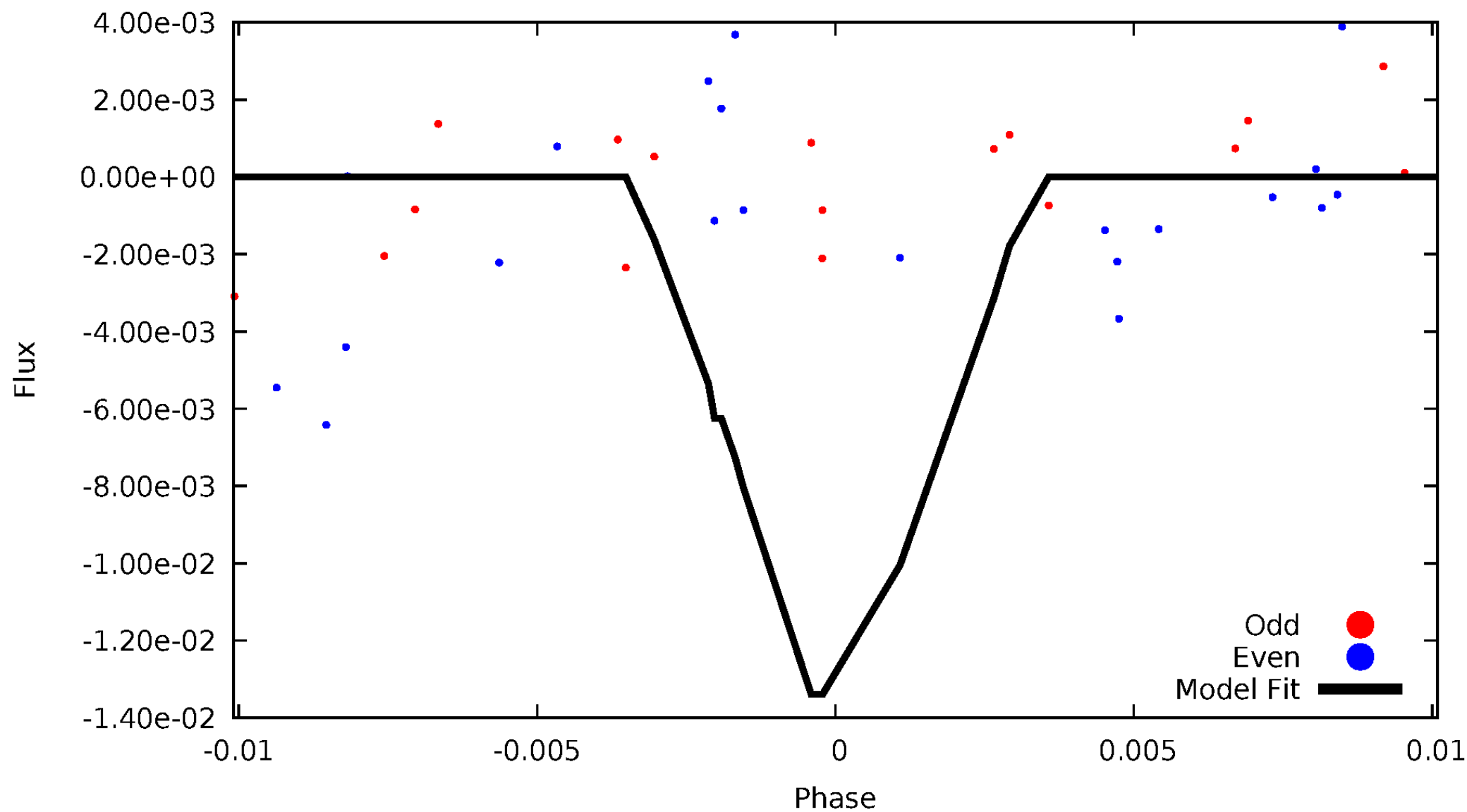
DV Odd/Even

TCE 004074388-04



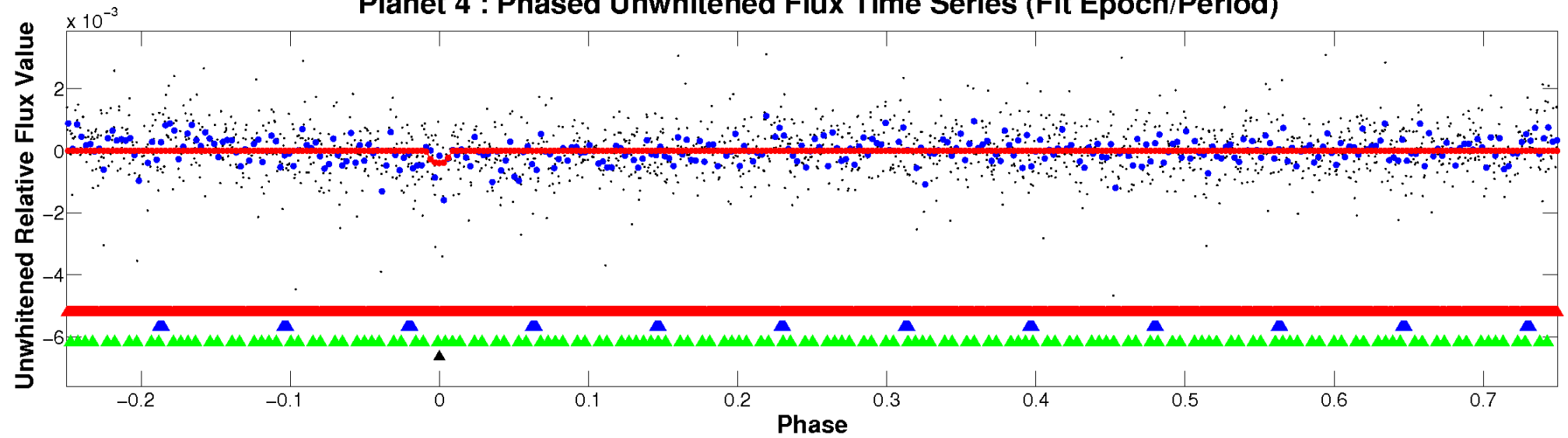
ALT Odd/Even

TCE 004074388-04

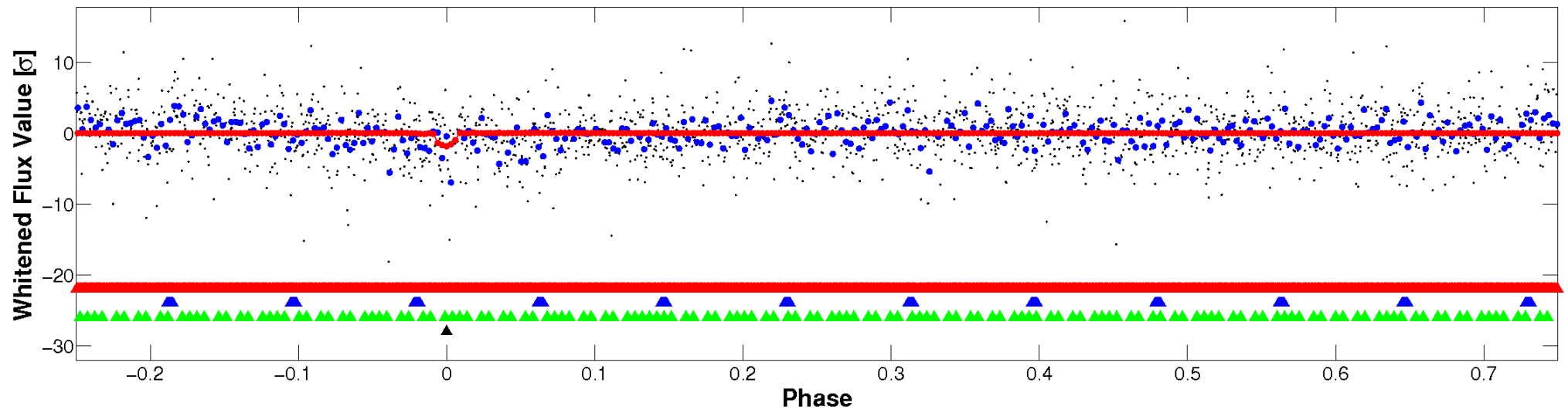


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

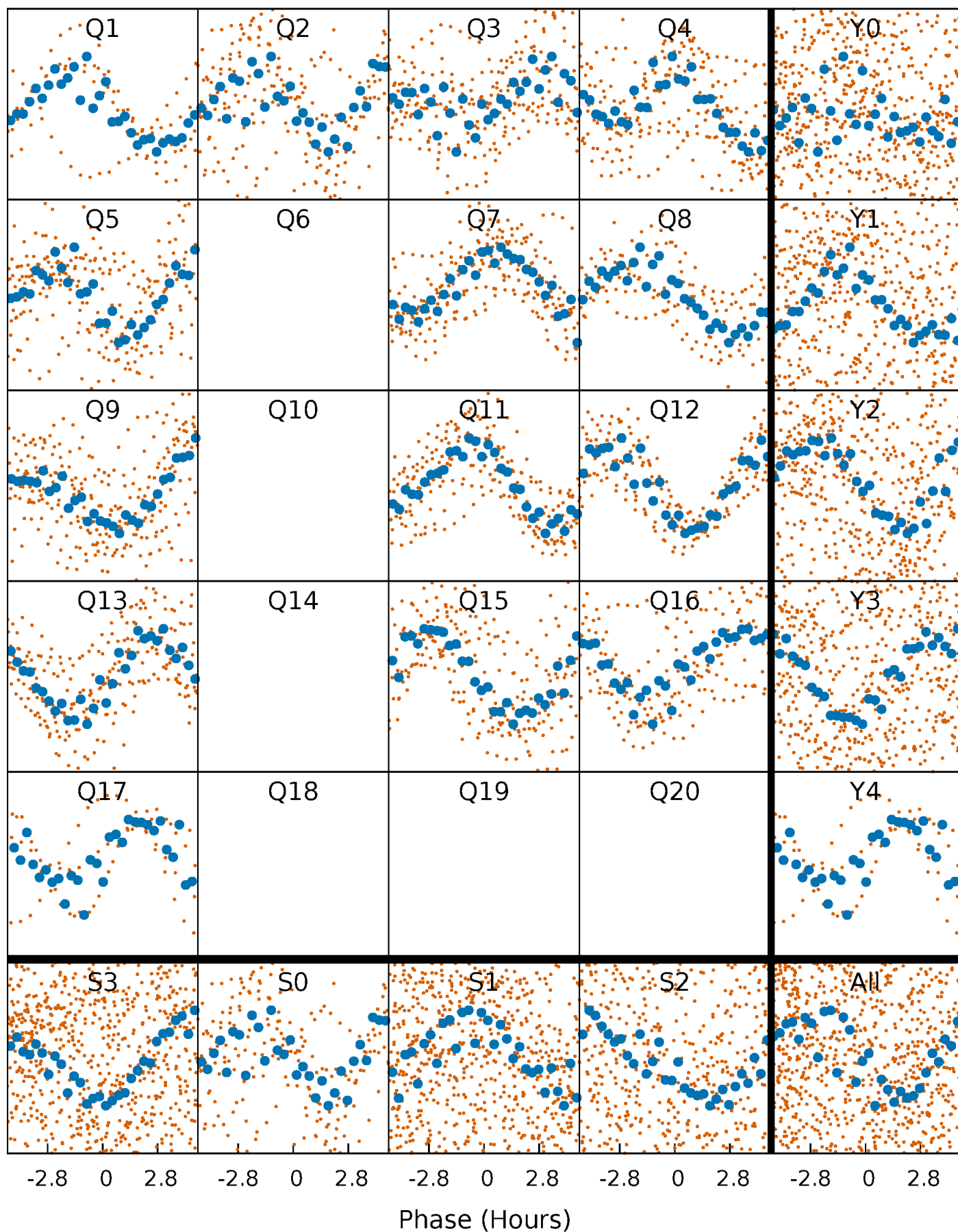


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



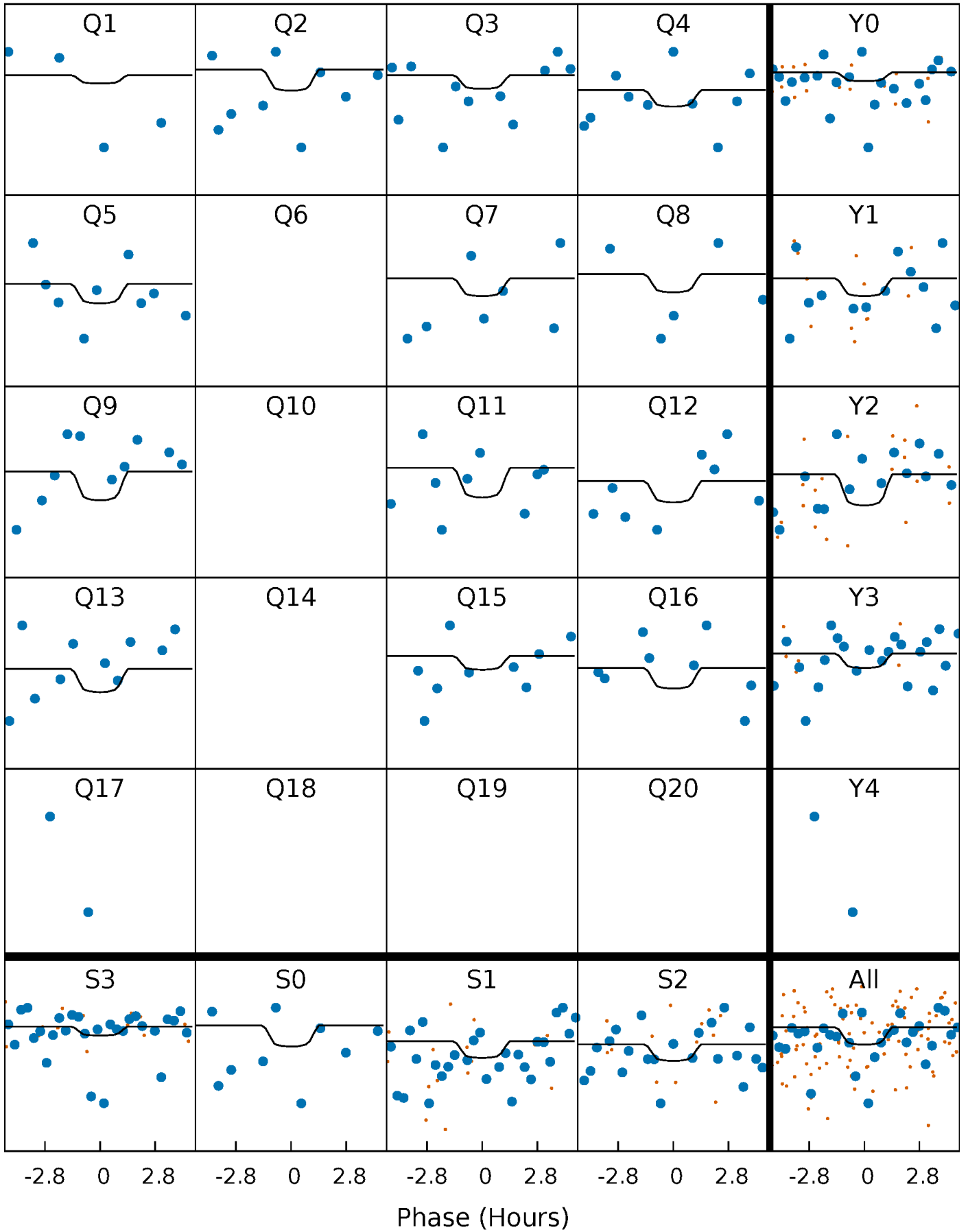
PDC Quarter-Phased Transit Curves

TCE 004074388-04 $P = 6.897370$ Days $T_0 = 133.704888$ (BKJD)



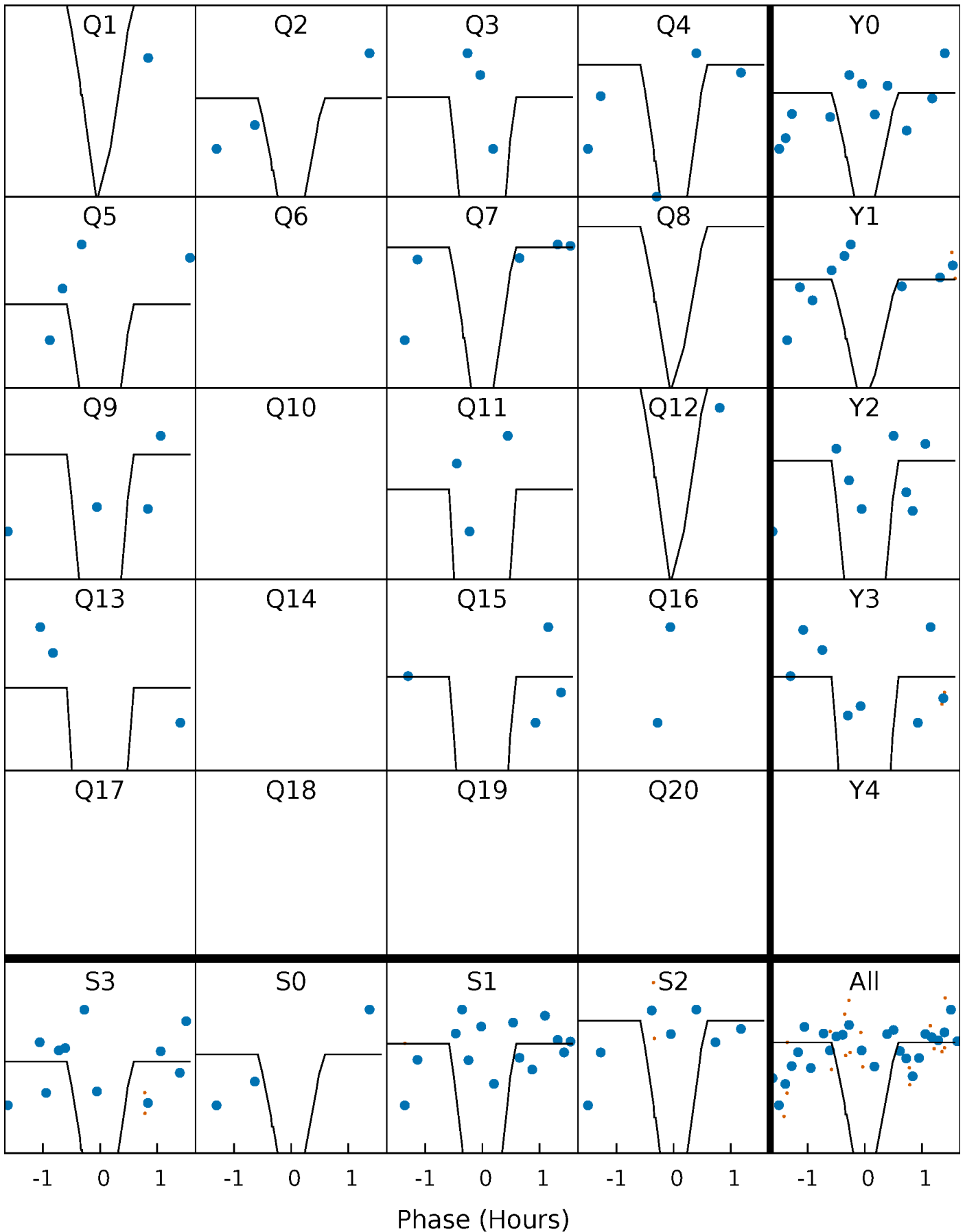
DV Quarter-Phased Transit Curves

TCE 004074388-04 P= 6.897370 Days $T_0=133.704888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

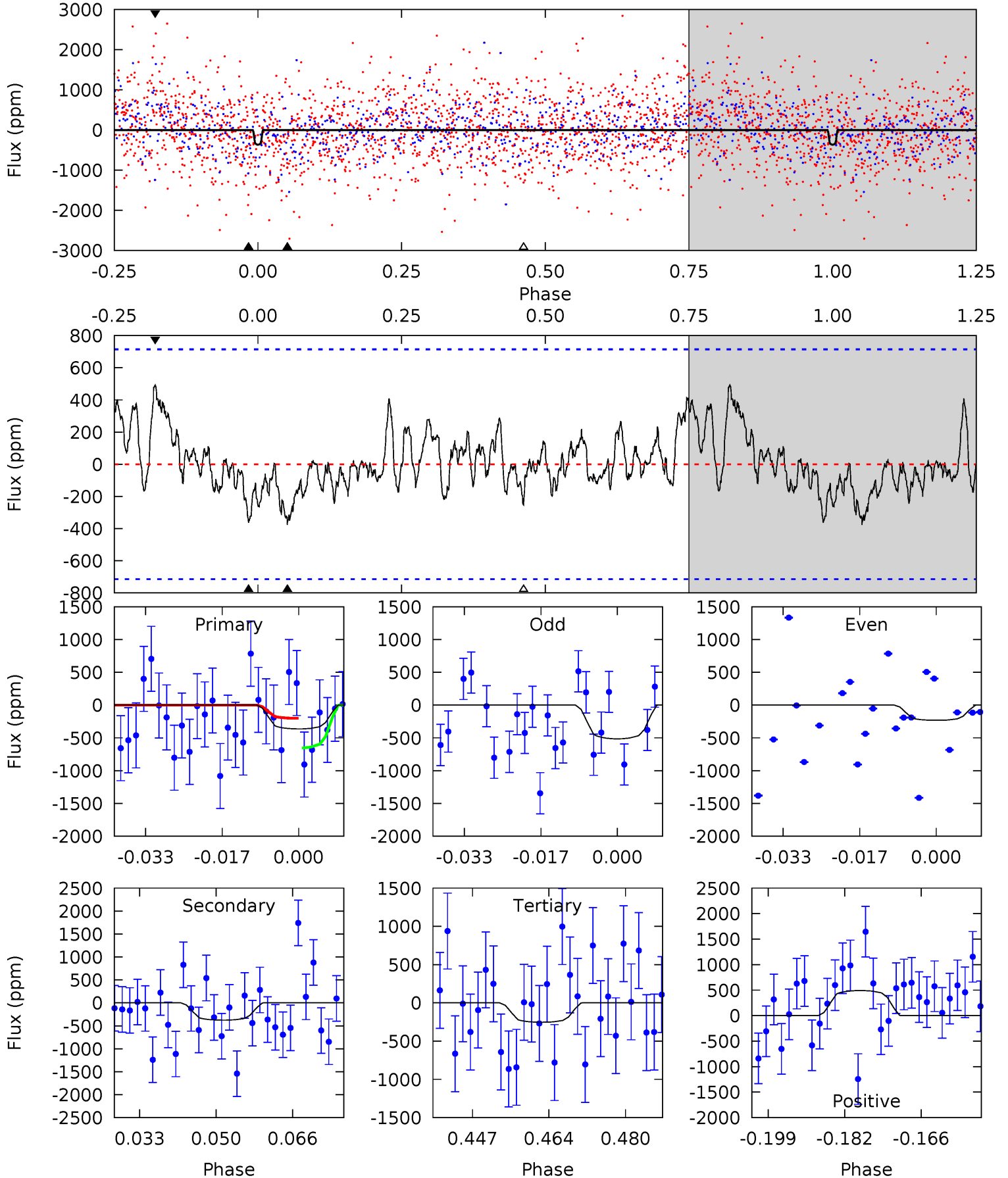
TCE 004074388-04 P= 6.900063 Days $T_0=133.802221$ (BKJD)



DV Model-Shift Uniqueness Test

004074388-04, P = 6.897370 Days, E = 126.807518 Days

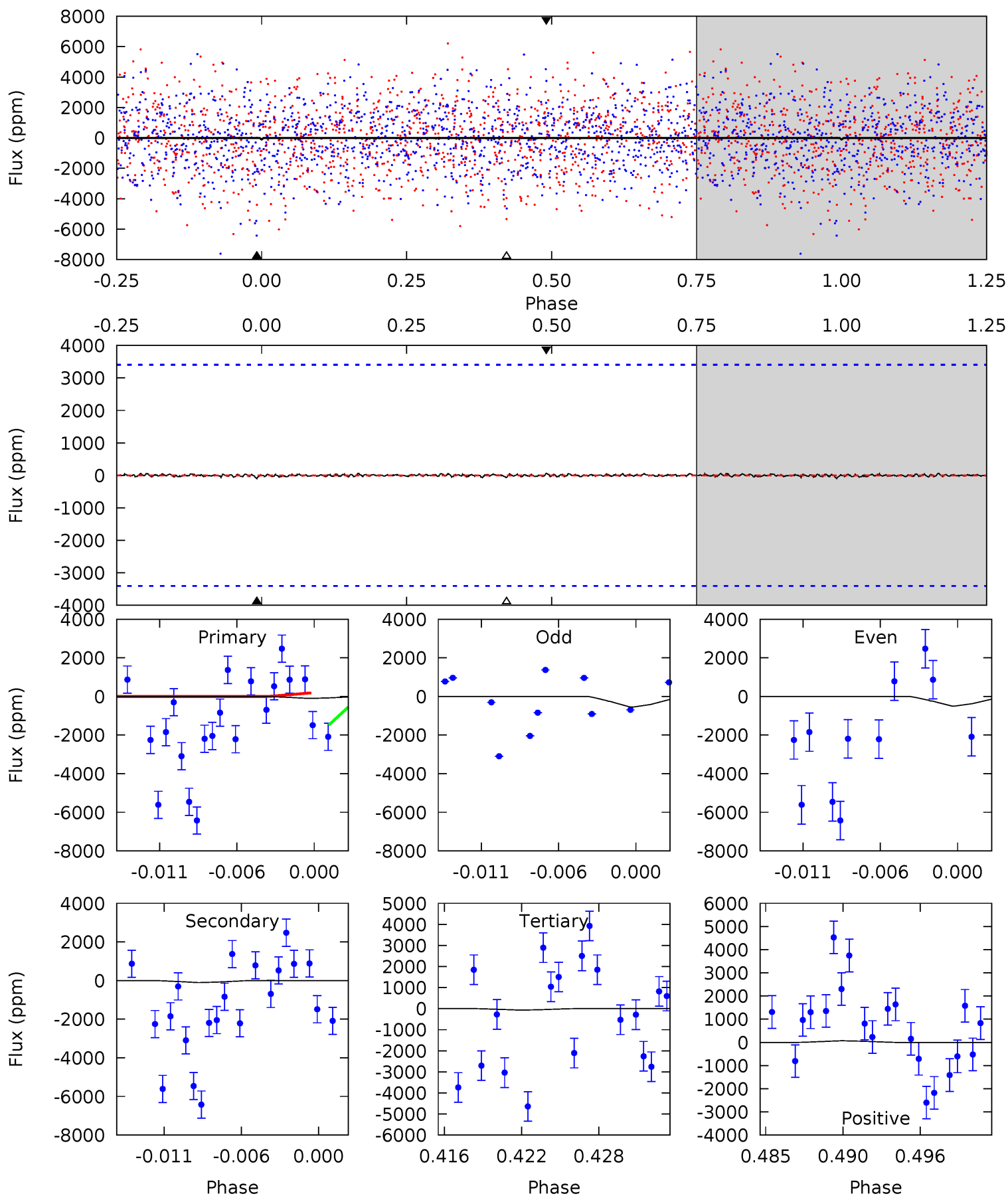
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.51	2.60	1.75	3.39	4.93	2.40	1.02	0.76	-0.88	0.85	-0.80	0.97	0	0.57	1.57



Alt Model-Shift Uniqueness Test

004074388-04, P = 6.900063 Days, E = 126.902158 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.15	0.16	0.10	0.10	5.13	2.76	0.03	0.05	0.05	0.05	0.05	0.04	0	0.40	0.90



Stellar Parameters For KIC 004074388

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7232^{+200}_{-300}	$4.227^{+0.054}_{-0.229}$	$0.360^{+0.050}_{-0.350}$	$1.641^{+0.571}_{-0.190}$	$1.654^{+0.200}_{-0.200}$	$0.527^{+0.157}_{-0.299}$
	+3%/-4%	+1%/-5%	+14%/-97%	+35%/-12%	+12%/-12%	+30%/-57%
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 004074388-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-376 ± 145	$16.96^{+18.21}_{-11.59}$	2014^{+163}_{-111}	3672^{+1970}_{-846}	$4.547^{+38.392}_{-3.505}$
Alt.	-104 ± 664	$27.08^{+22.27}_{-16.53}$	2015^{+175}_{-113}	-1967^{+5911}_{-1652}	$0.261^{+6.815}_{-4.072}$

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

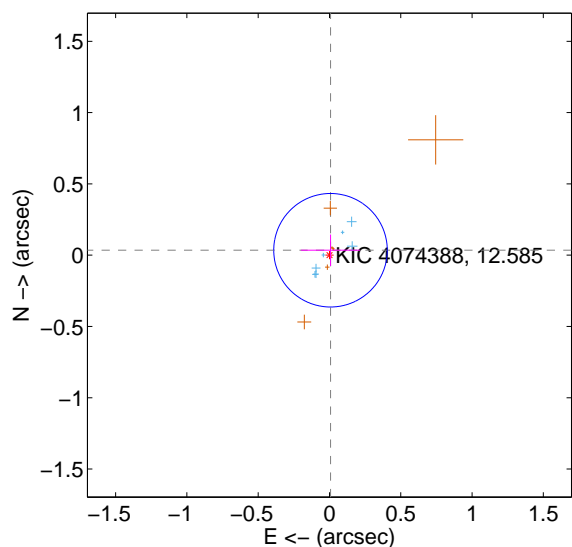
Supplemental centroid analysis for 004074388-04. Kepler magnitude: 12.59. Transit SNR 7.44

There are 8 quarters with good PRF difference image offsets

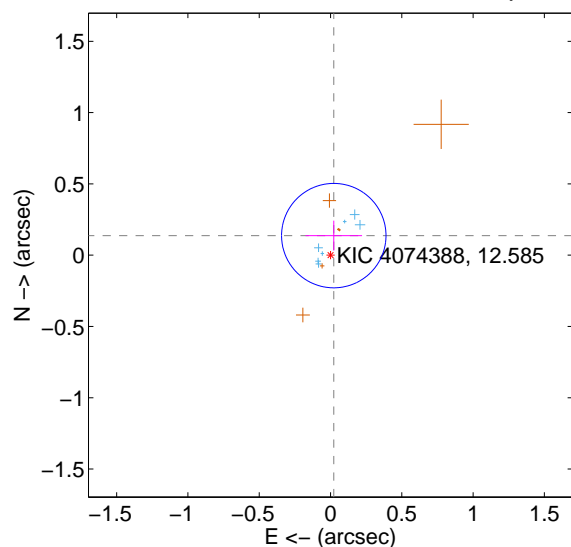
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.133	0.27	-0.007 ± 0.208	0.035 ± 0.110
PRF-fit source offset from KIC position	0.139 ± 0.122	1.14	-0.023 ± 0.198	0.137 ± 0.105
photometric centroid source offset	0.74 ± 0.22	3.32	-0.67 ± 0.22	-0.32 ± 0.22

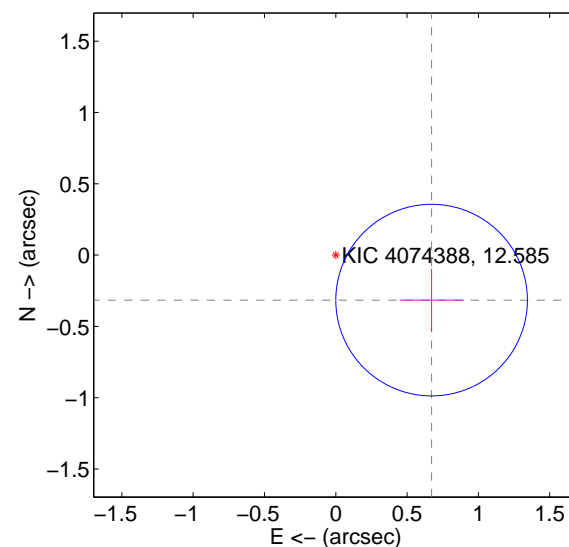
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

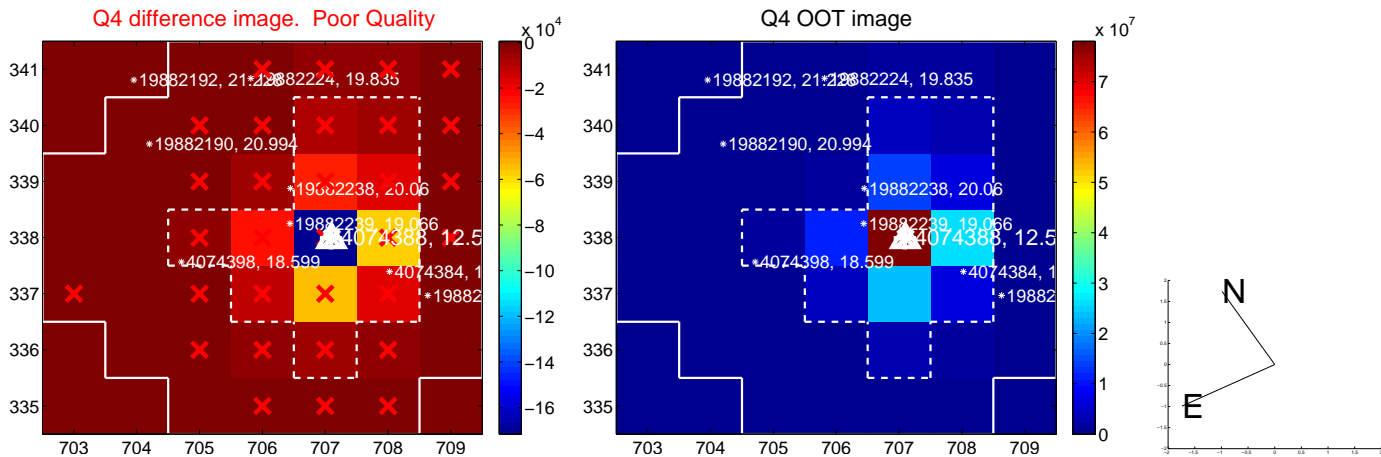
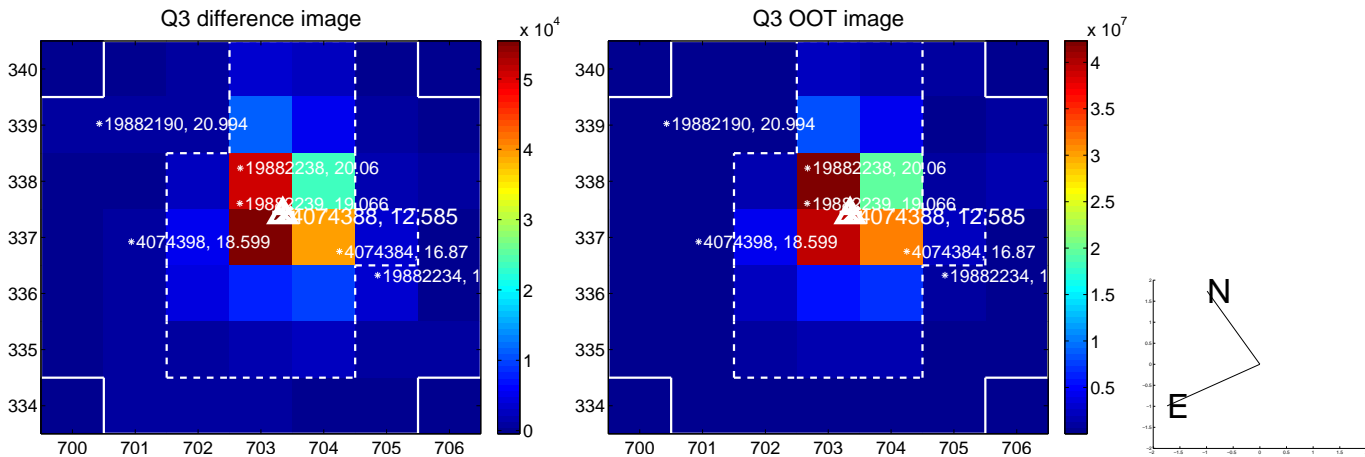
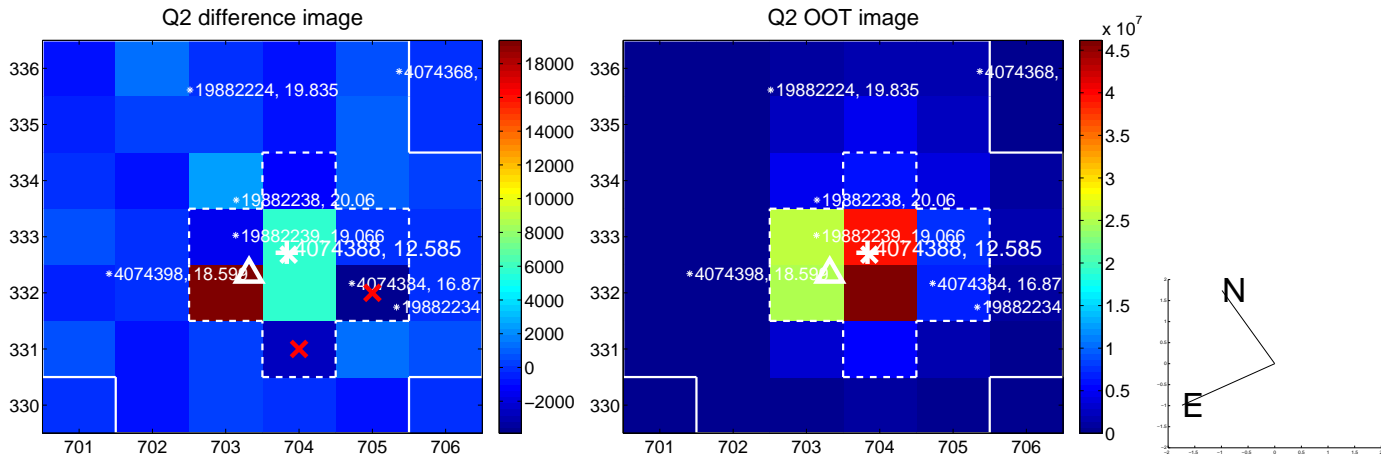
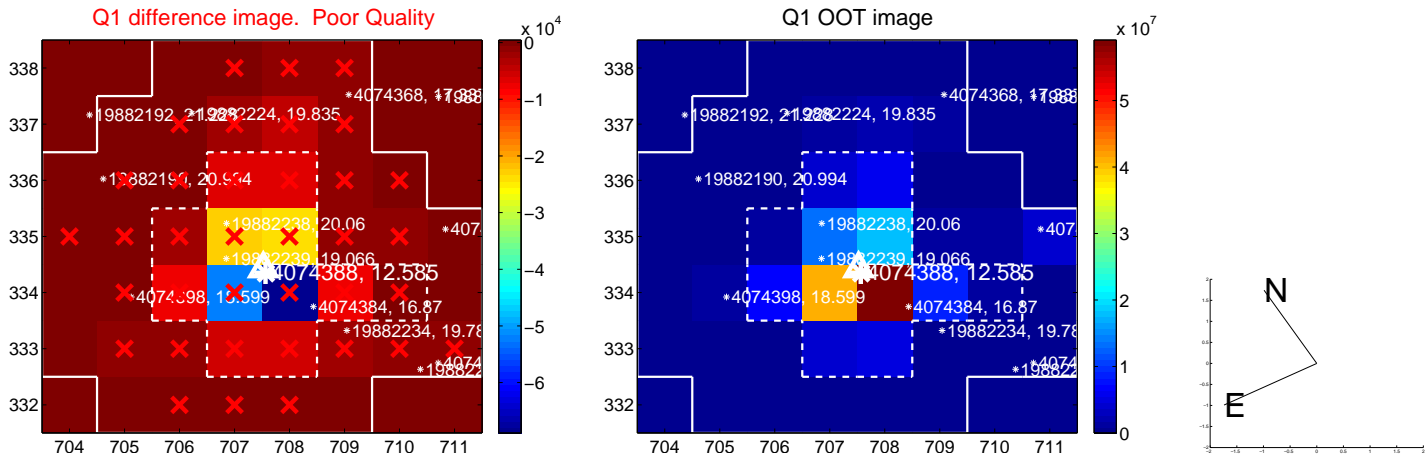


offset from photometric centroids

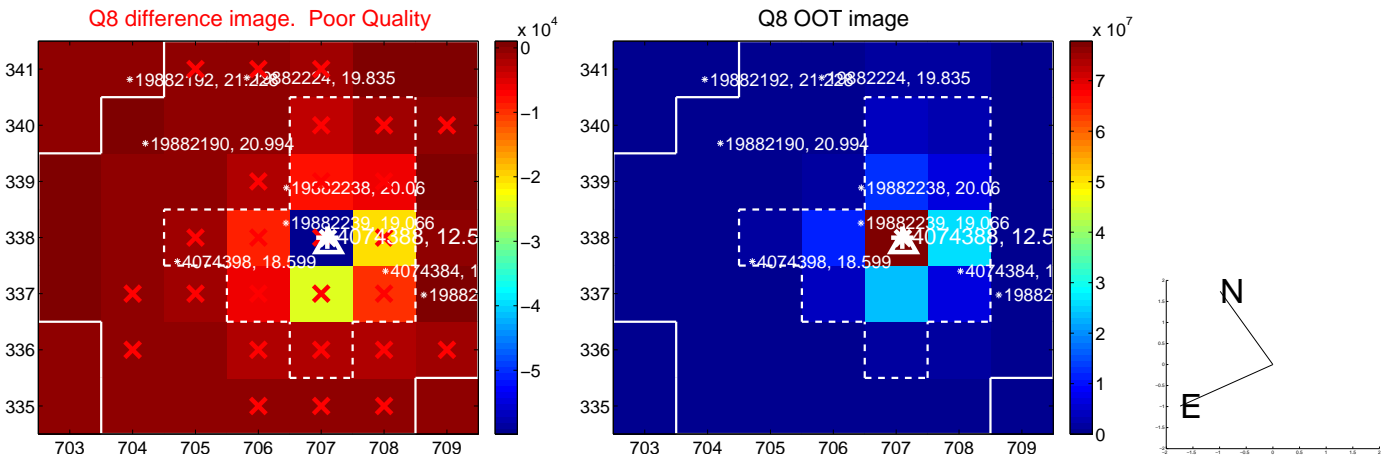
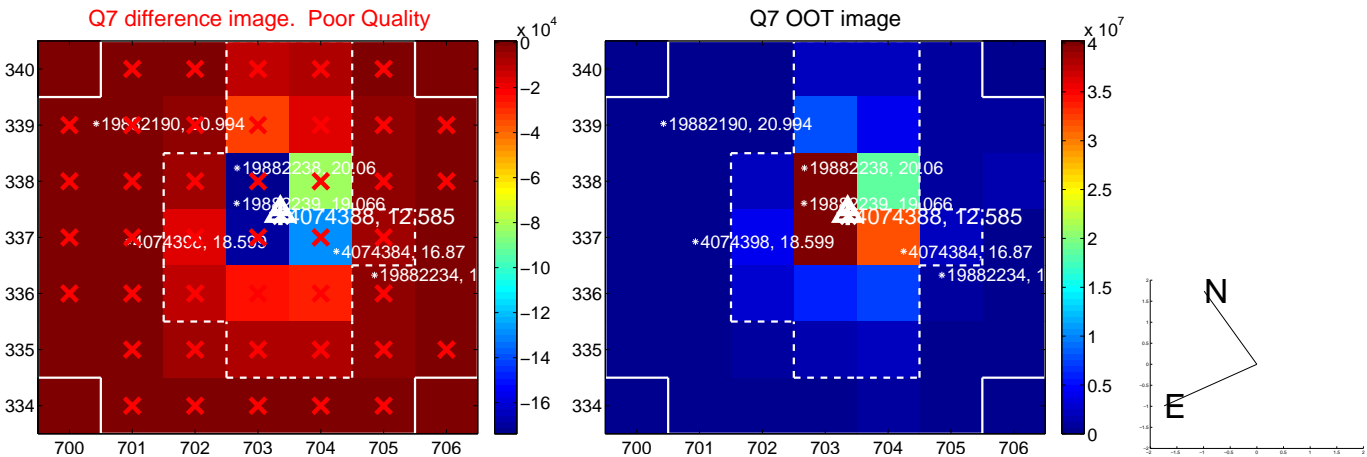
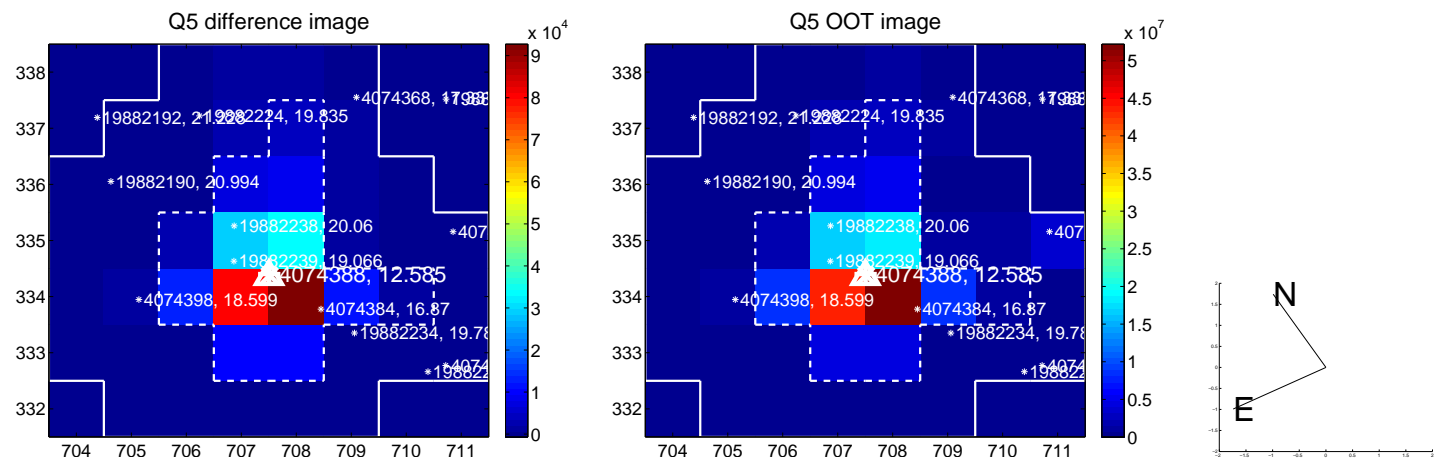


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

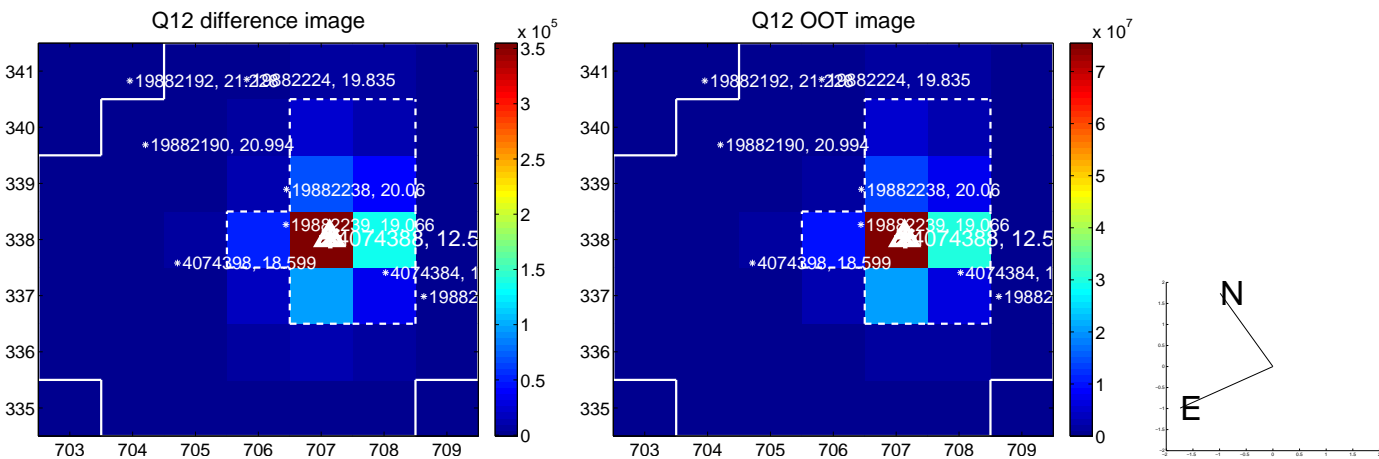
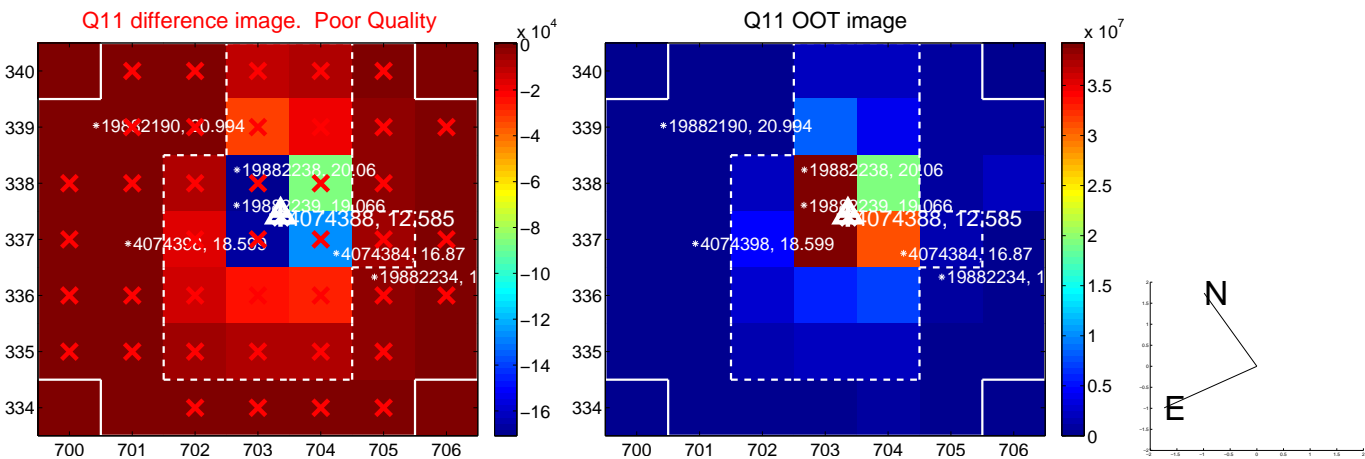
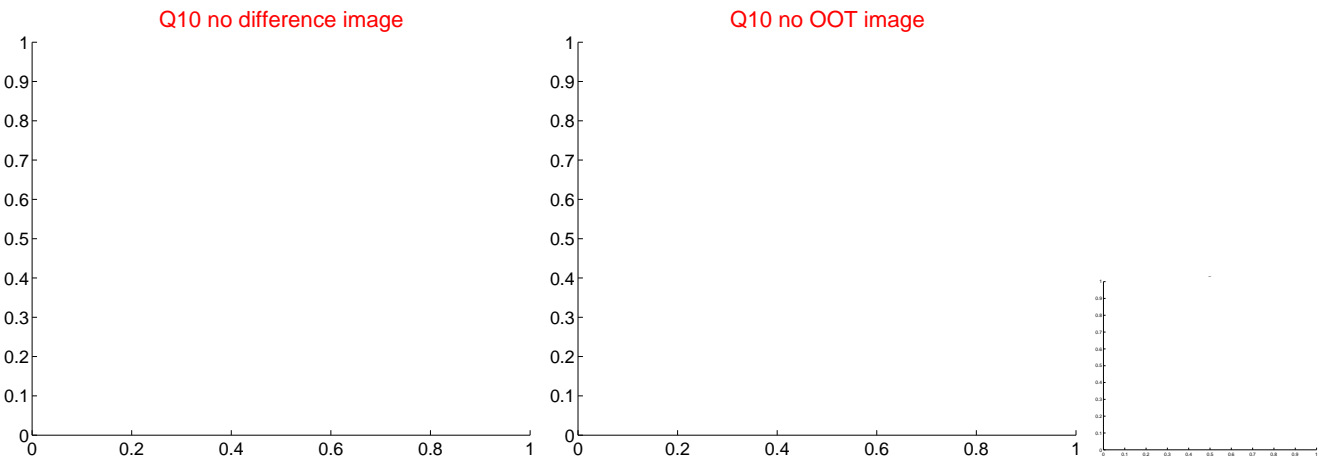
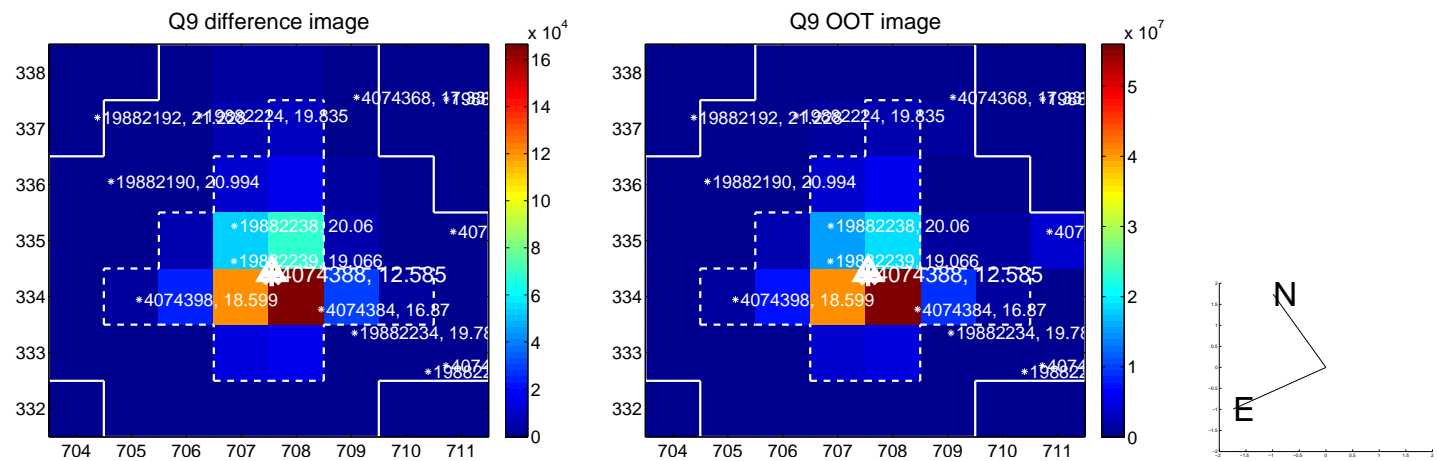
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



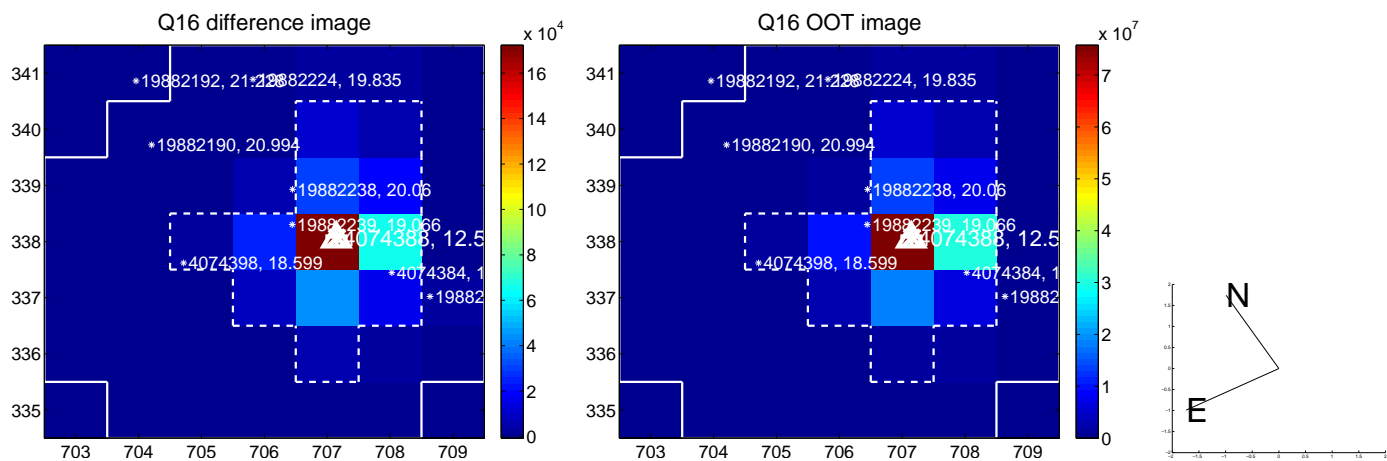
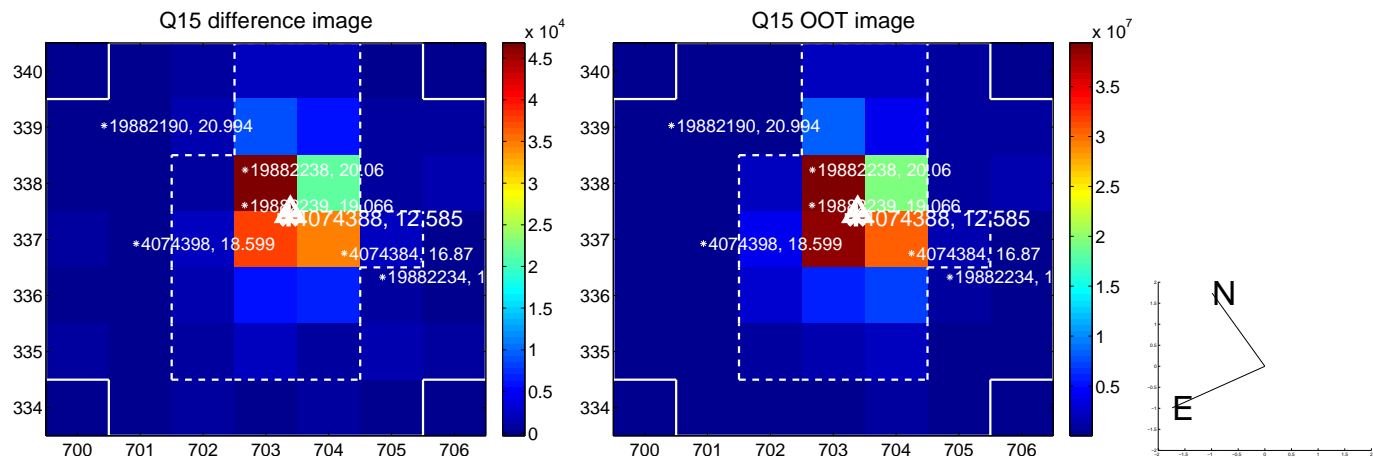
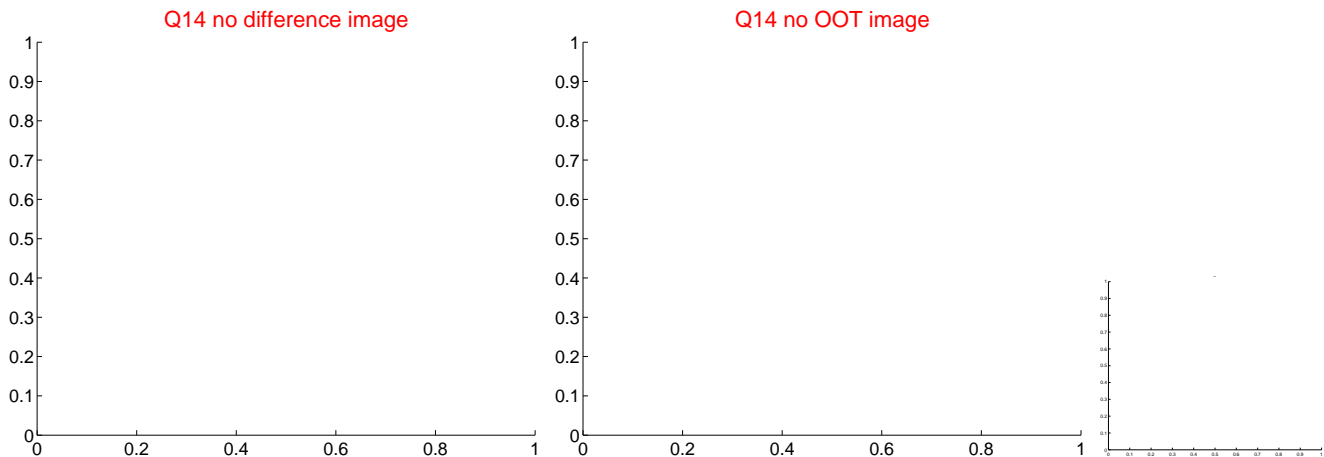
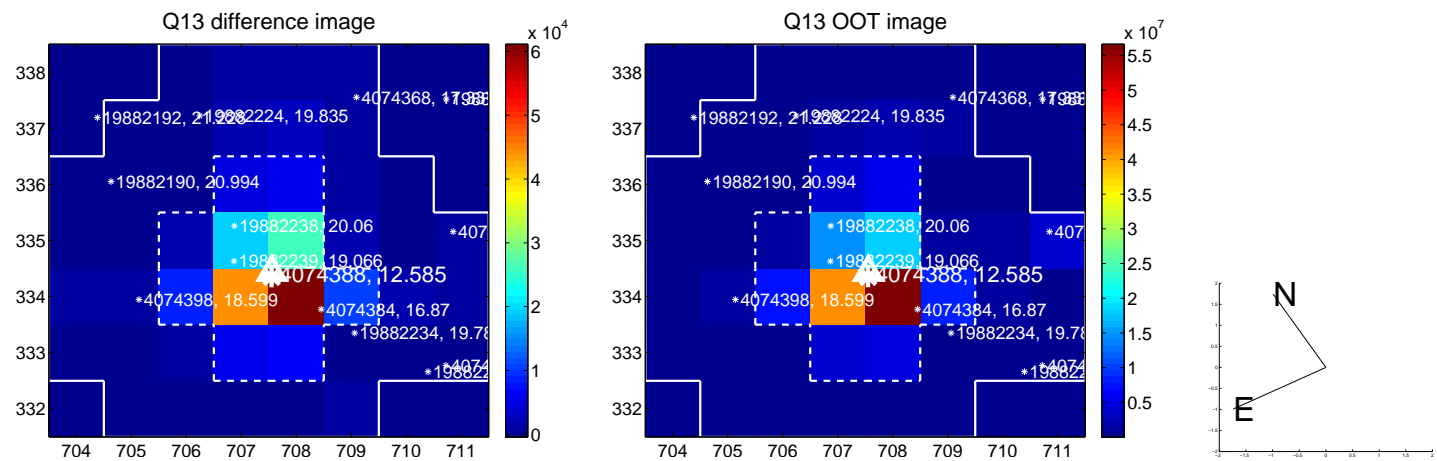
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



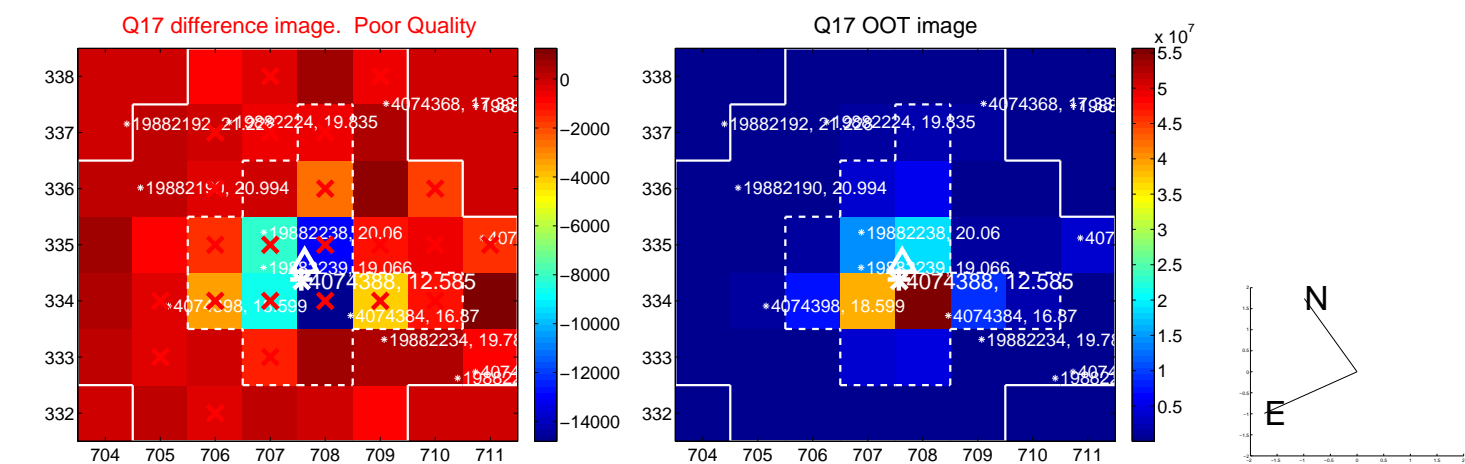
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



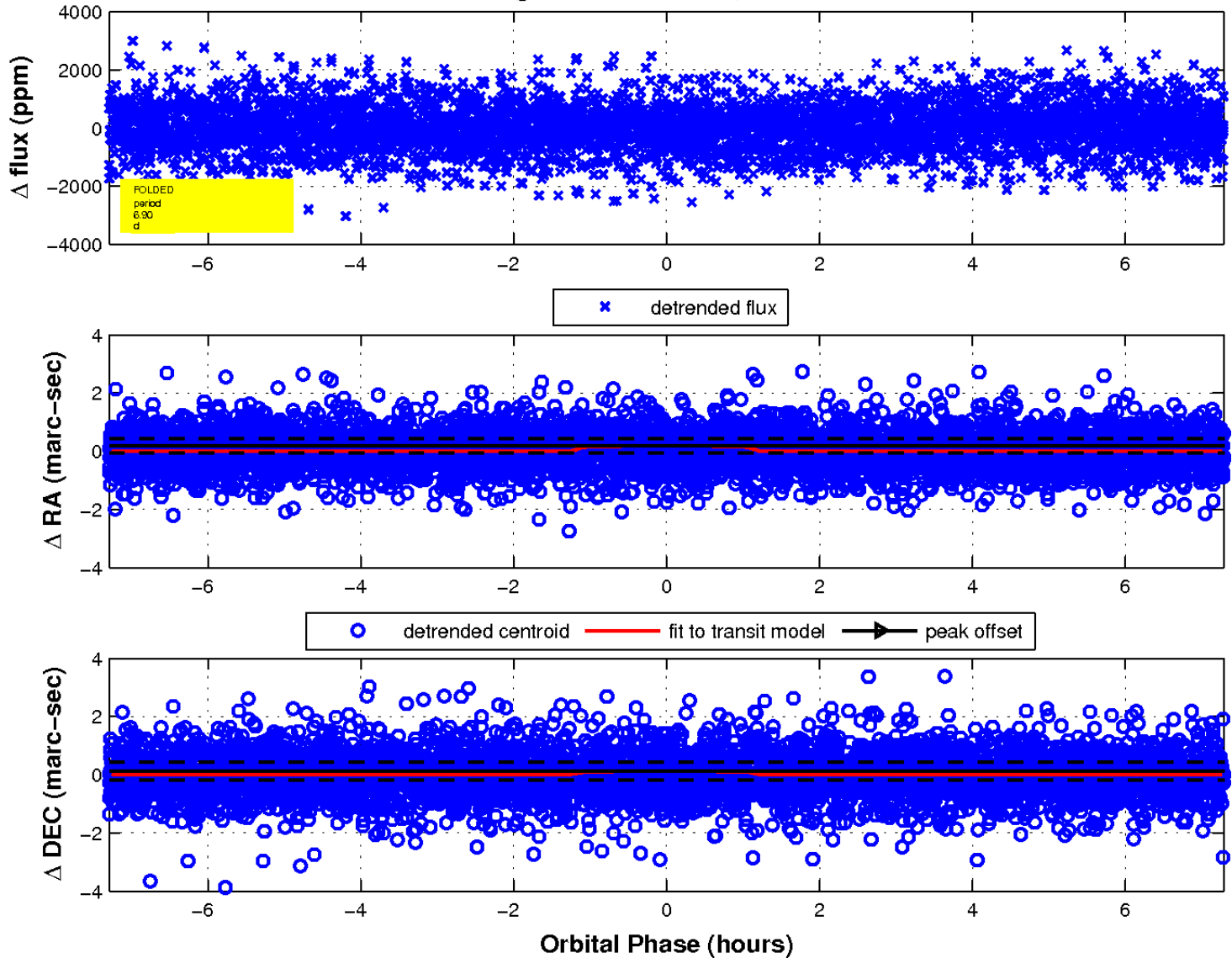
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

