

KIC 005871088

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})
005871088-01	OBS	No	227.366191	307.609321	1487.4	17.939	10.6	11.1	0.74	4949	3.40	0.69
005871088-02	OBS	No	320.866127	345.477488	1175.8	53.621	9.3	10.7	0.74	4949	3.25	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005871088-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005871088-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

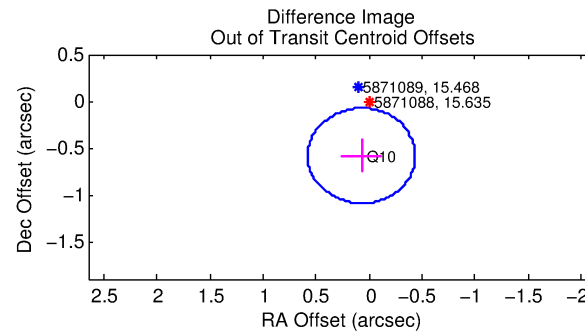
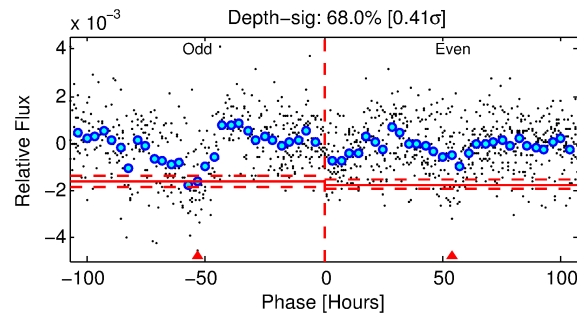
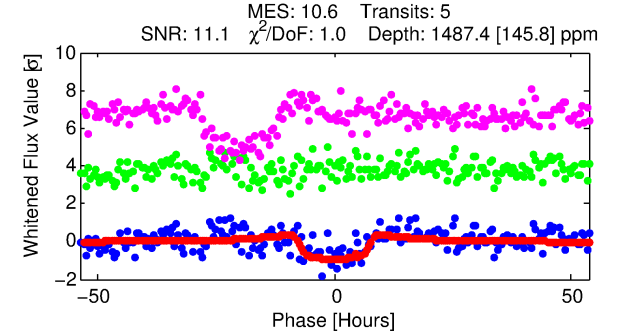
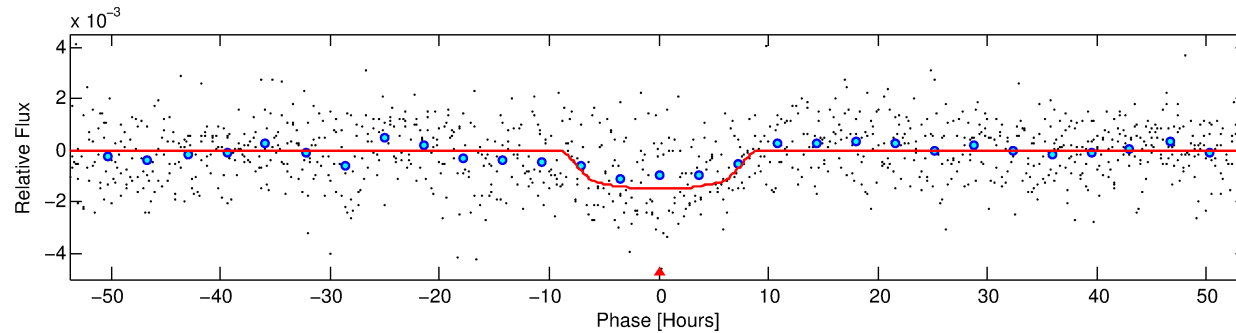
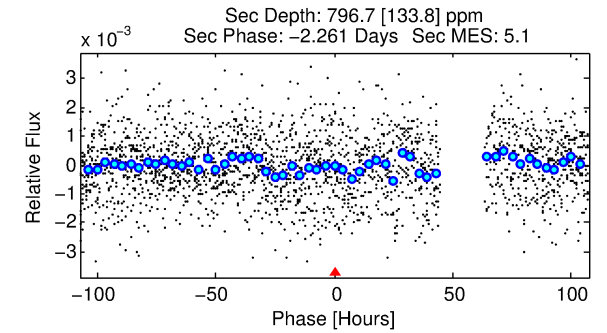
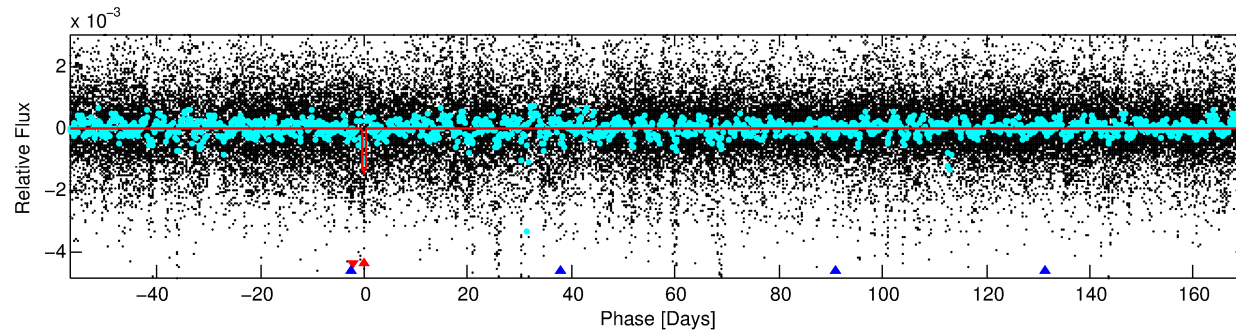
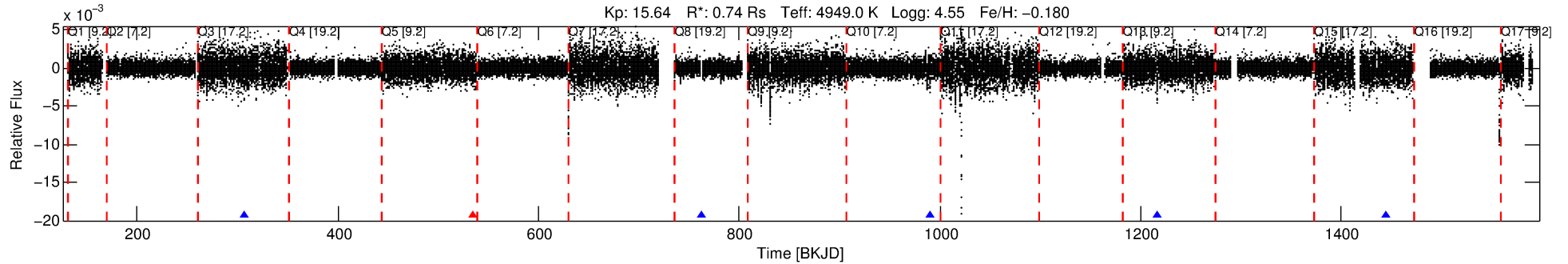
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005871088-01

No Significant Match Found

DV One-Page Summary

KIC: 5871088 Candidate: 1 of 2 Period: 227.366 d



DV Fit Results:

Period = 227.36619 [0.00928] d
Epoch = 307.6093 [0.0289] BKJD
Rp/R* = 0.0420 [0.0043]
a/R* = 54.40 [16.51]
b = 0.88 [0.08]
Seff = 0.69 [0.12]
Teq = 233 [10] K
Rp = 3.40 [0.50] Re
a = 0.6517 [0.0584] AU
Ag = 16112.77 [4728.63] [3.41σ]
Teffp = 4055 [294] K [12.99σ]

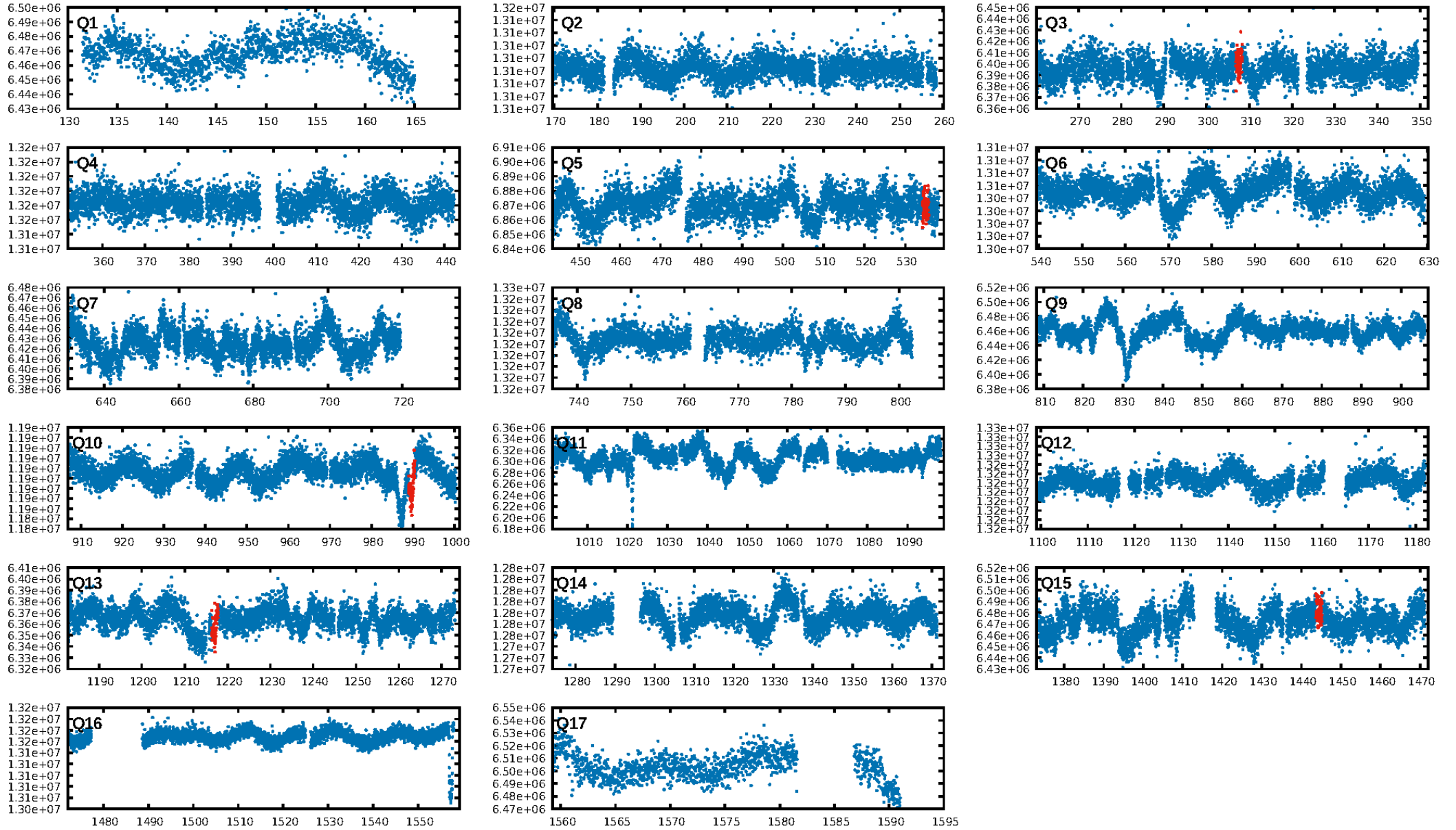
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [39.69σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.55e-18
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: 38.81
Centroid-sig: 3.2%
Centroid-so: 1.527 arcsec [1.78σ]
OotOffset-rm: 0.588 arcsec [3.47σ]
KicOffset-rm: 0.992 arcsec [5.80σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [4/4]

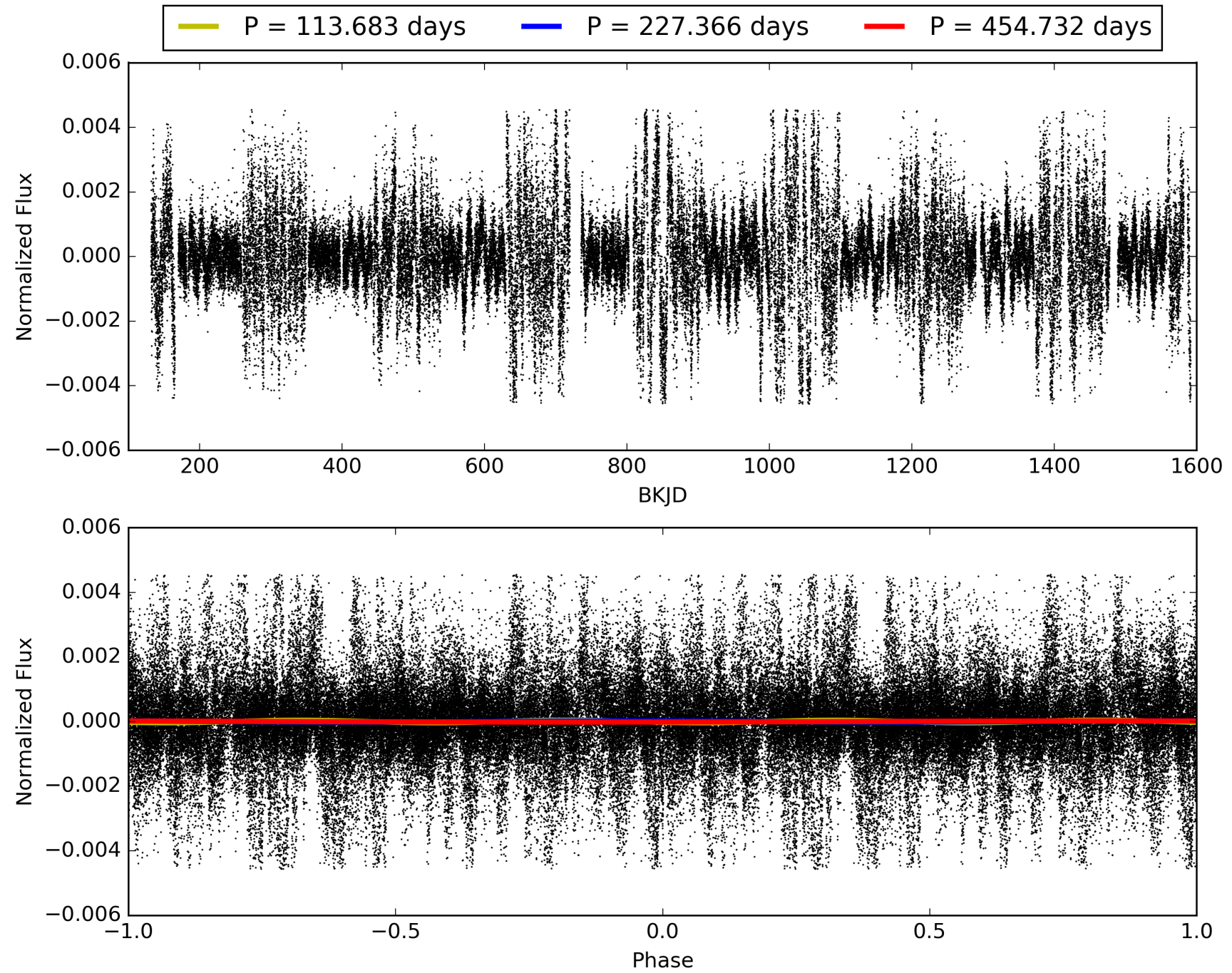
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:25:49 Z

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

TCE 005871088-01, PDC Light Curves

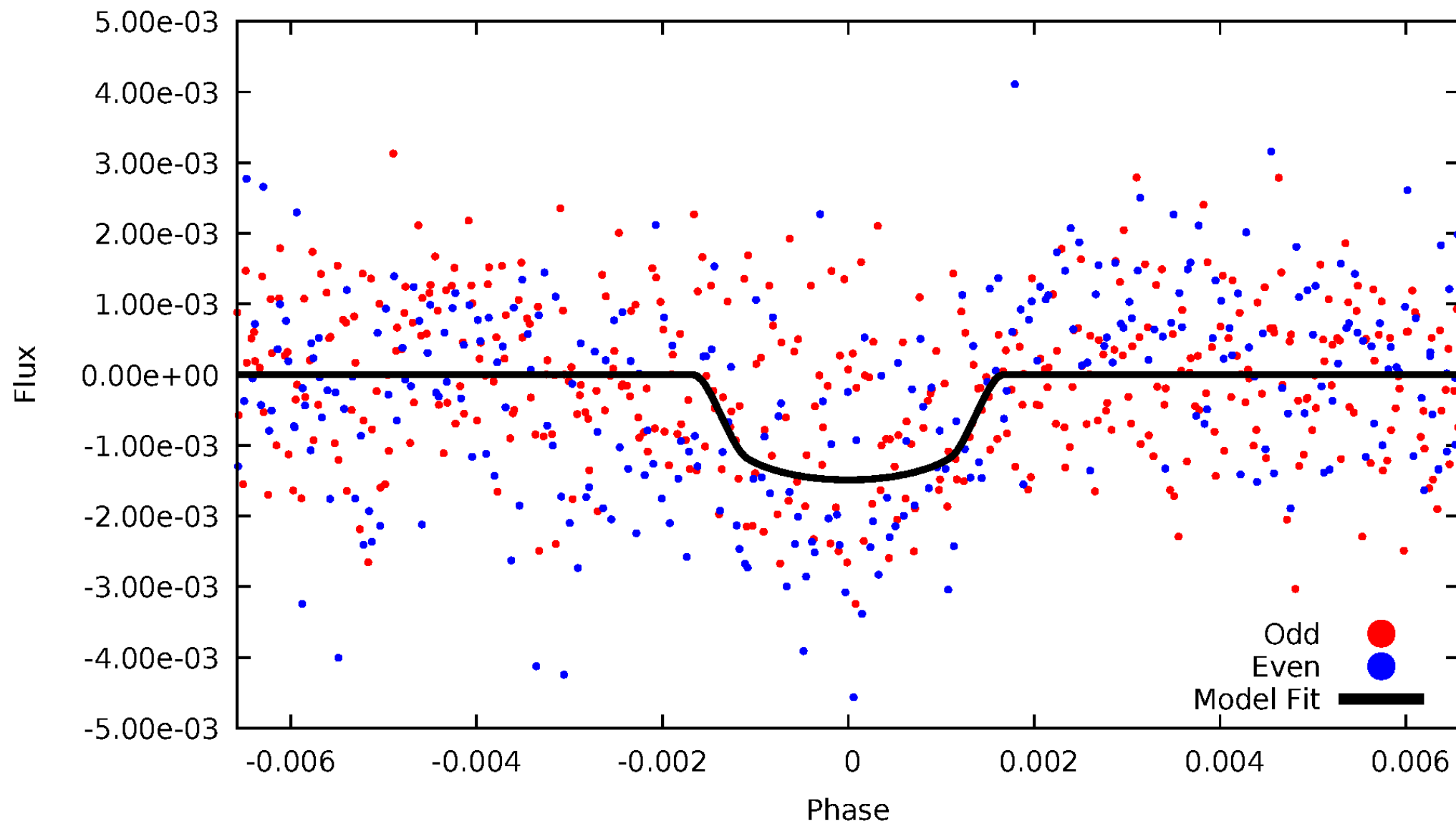


TCE 005871088-01



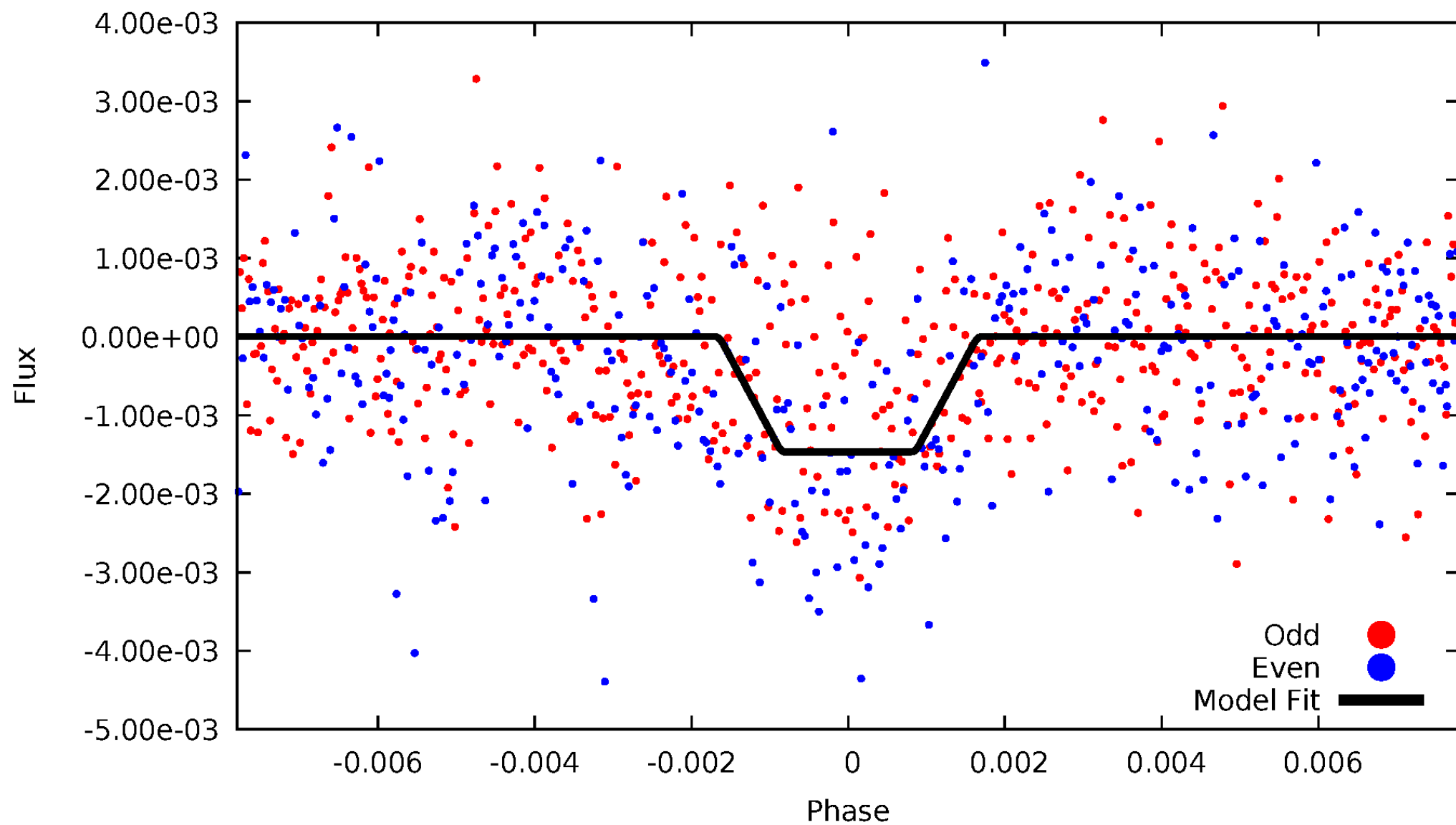
DV Odd/Even

TCE 005871088-01



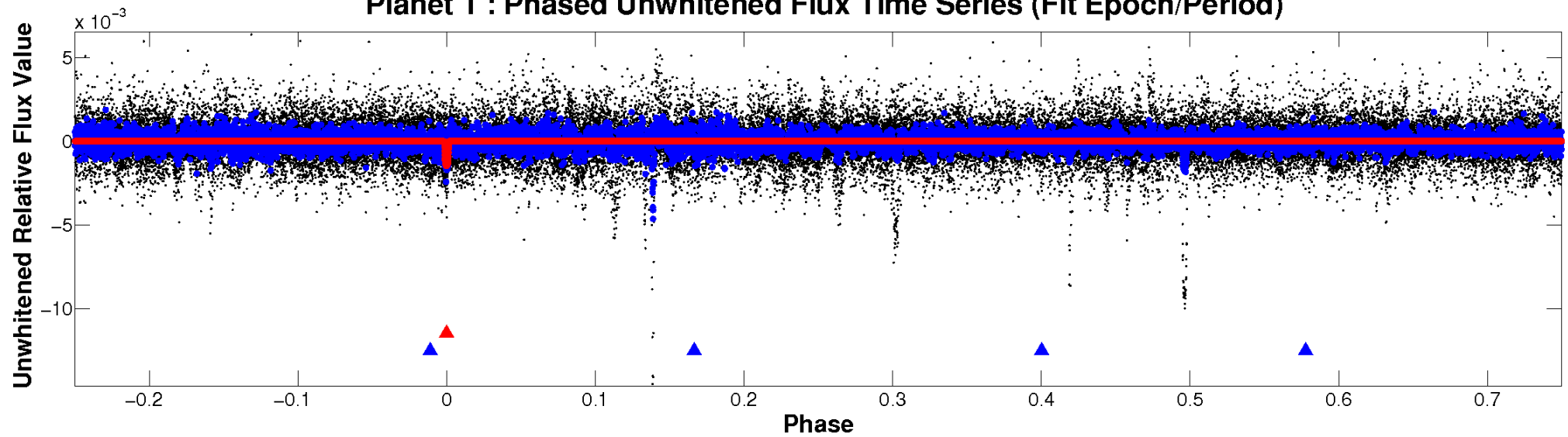
ALT Odd/Even

TCE 005871088-01

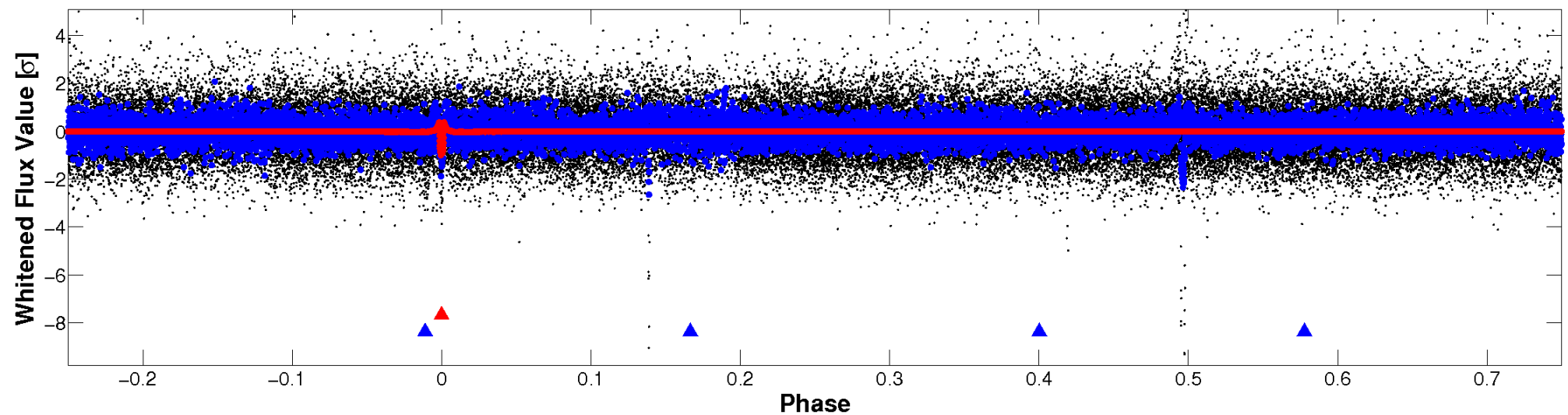


Non-Whitened Vs. Whitened Light Curve

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

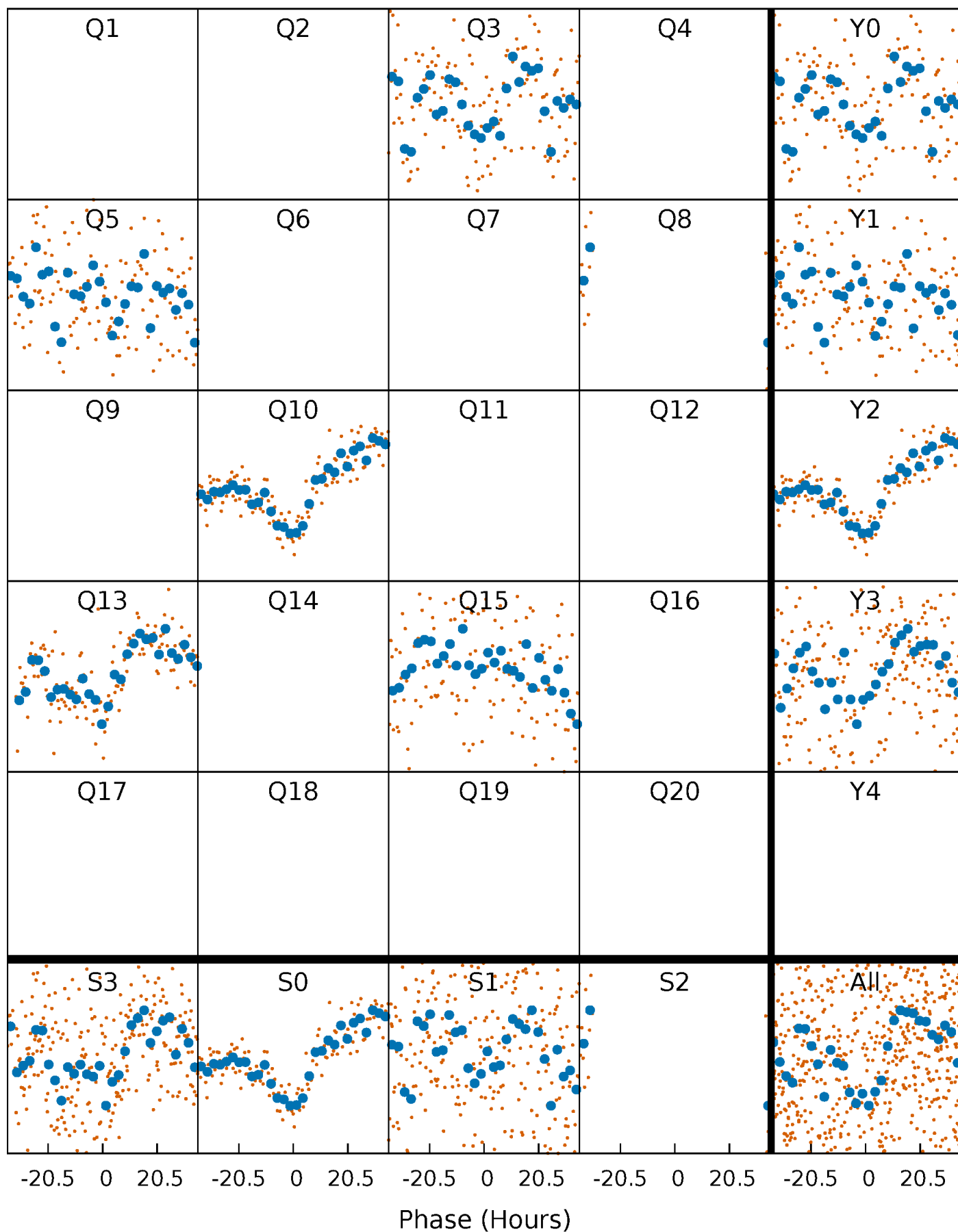


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



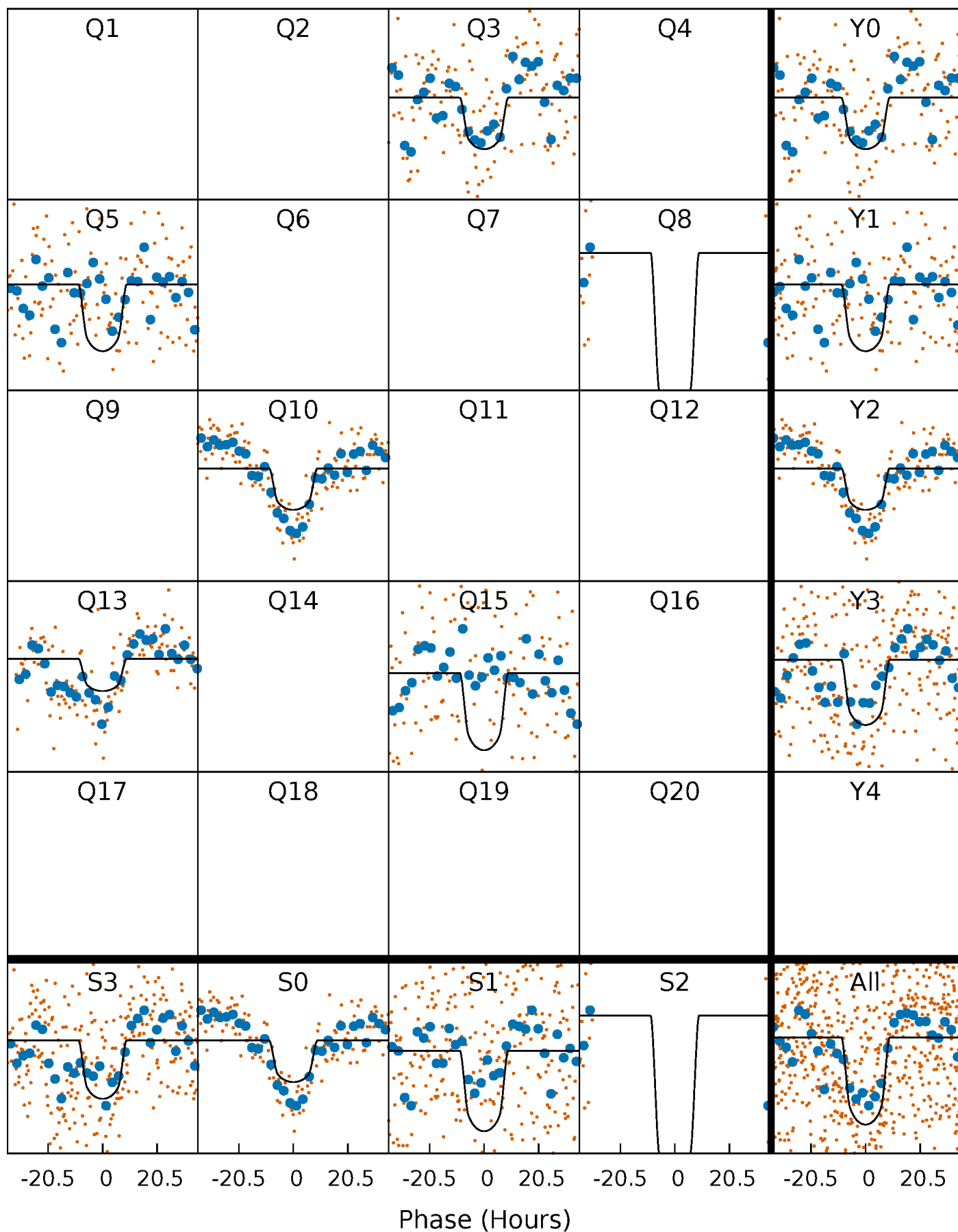
PDC Quarter-Phased Transit Curves

TCE 005871088-01 P=227.366191 Days $T_0=307.609321$ (BKJD)



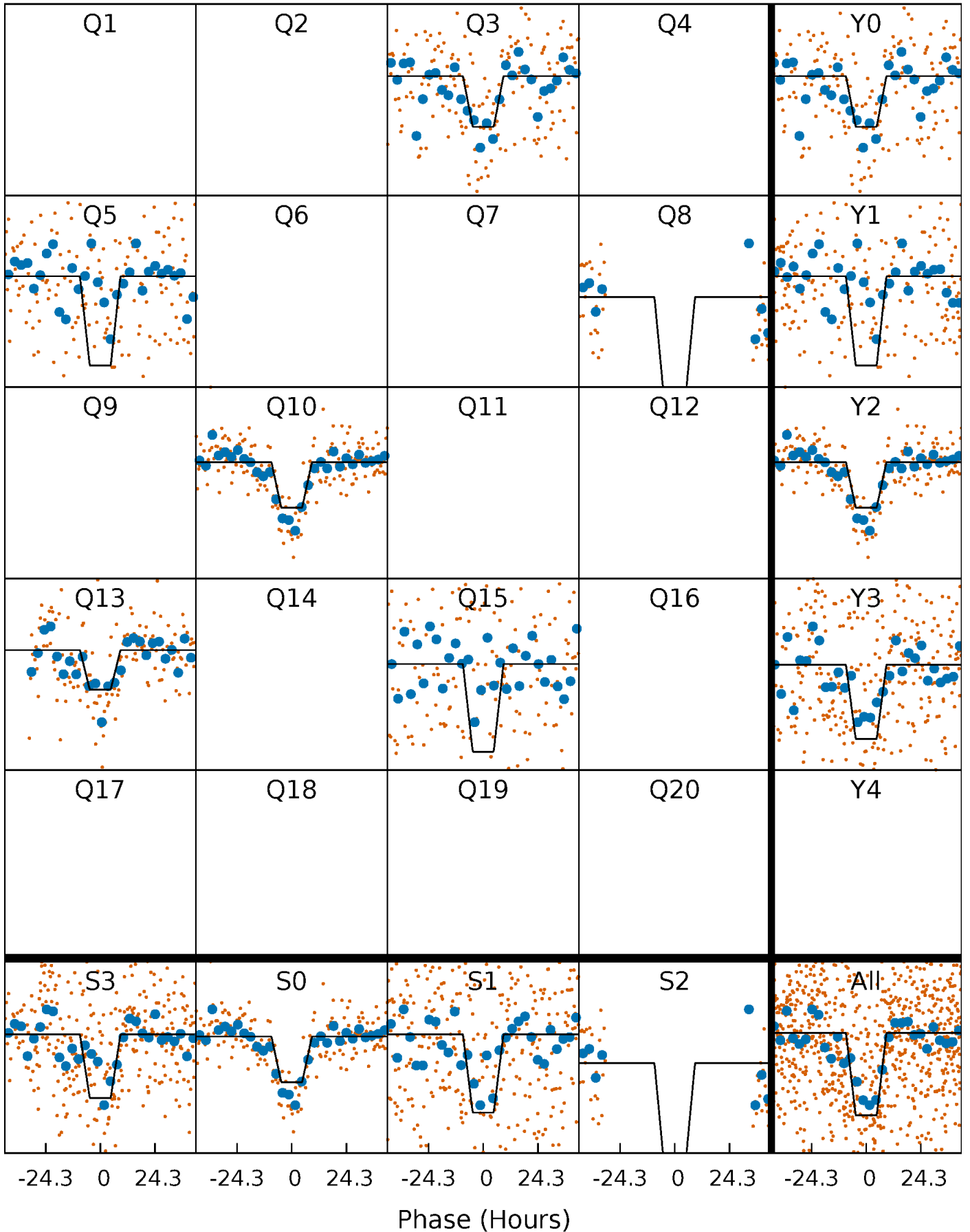
DV Quarter-Phased Transit Curves

TCE 005871088-01 P=227.366191 Days $T_0=307.609321$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

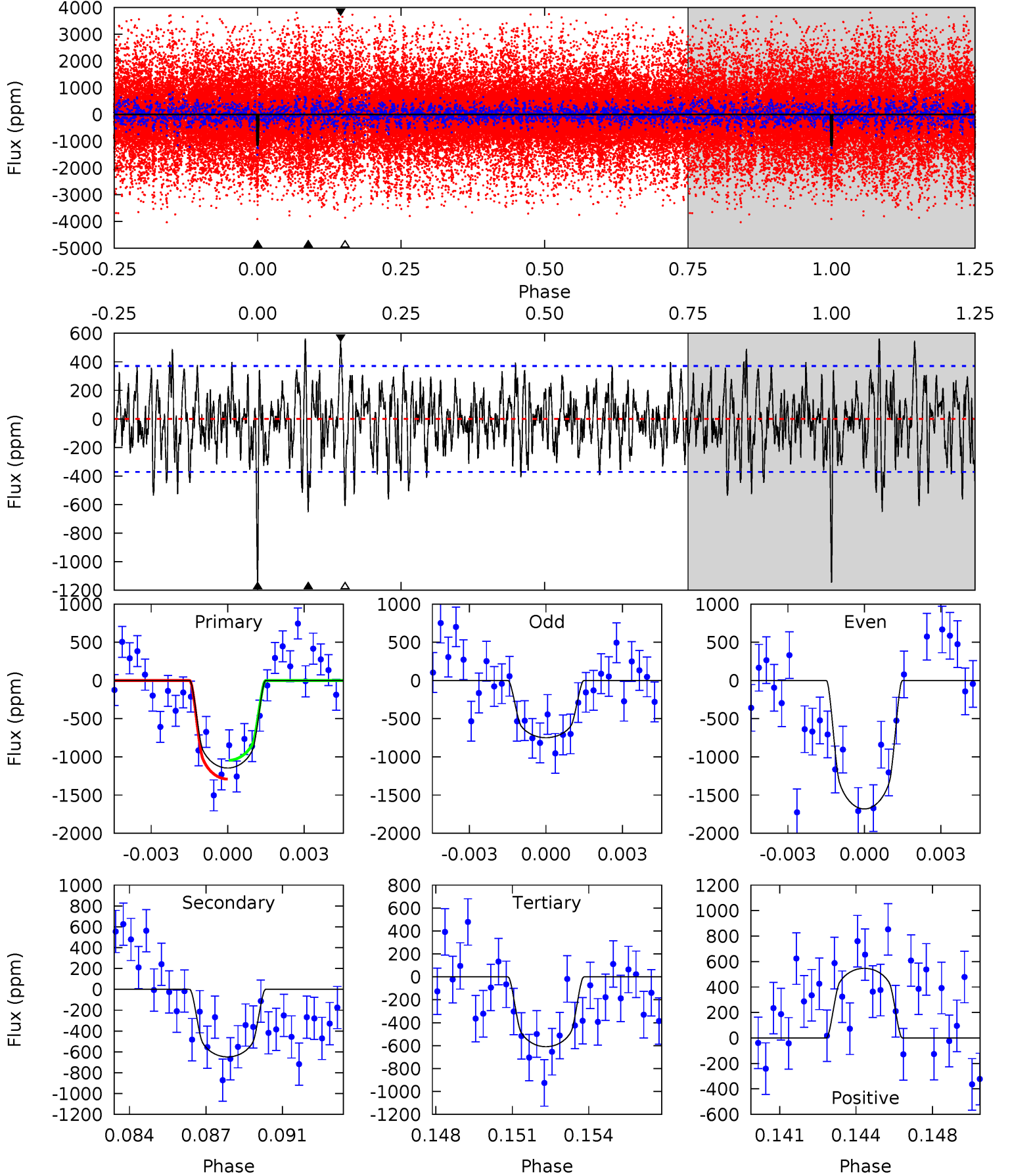
TCE 005871088-01 P=227.357411 Days $T_0=307.620061$ (BKJD)



DV Model-Shift Uniqueness Test

005871088-01, $P = 227.366191$ Days, $E = 80.243130$ Days

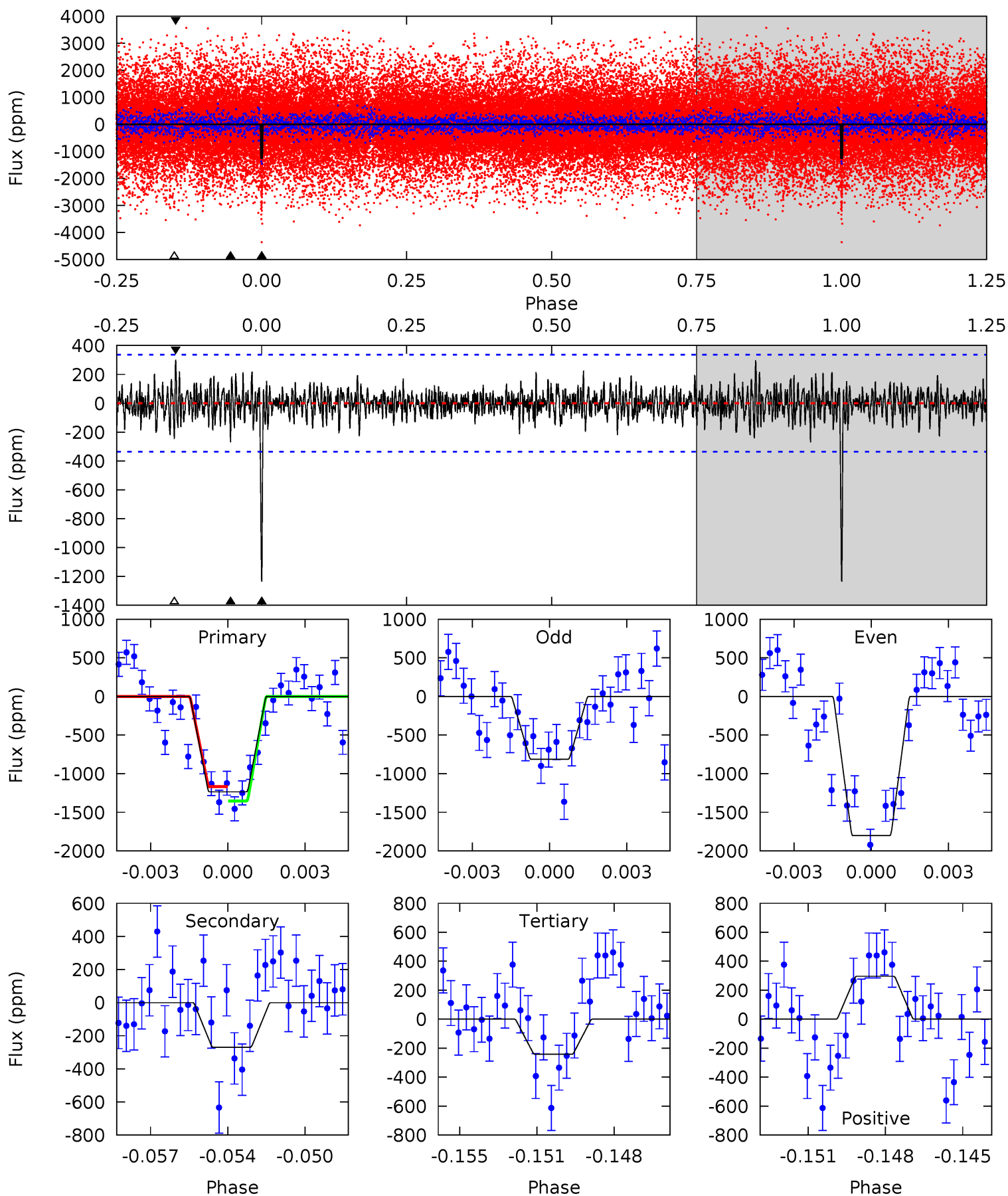
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	9.15	8.60	7.71	5.23	2.93	2.45	7.57	8.45	0.55	1.44	6.52	0.94	0.33	1.73



Alt Model-Shift Uniqueness Test

005871088-01, $P = 227.357411$ Days, $E = 80.262650$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	4.20	3.77	4.61	5.23	2.93	1.09	15.5	14.6	0.44	-0.41	7.61	0.69	0.19	1.46



Stellar Parameters For KIC 005871088

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4949^{+151}_{-151}	$4.552^{+0.071}_{-0.044}$	$-0.180^{+0.300}_{-0.300}$	$0.741^{+0.065}_{-0.079}$	$0.715^{+0.095}_{-0.055}$	$2.472^{+0.740}_{-0.396}$
	+3%/-3%	+2%/-1%	+167%/-167%	+9%/-11%	+13%/-8%	+30%/-16%
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 005871088-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-649 ± 71	$3.39^{+0.42}_{-0.38}$	324^{+13}_{-14}	4075^{+216}_{-218}	13380^{+3771}_{-2975}
Alt.	-270 ± 64	$3.07^{+0.42}_{-0.38}$	324^{+13}_{-12}	3622^{+230}_{-215}	6593^{+2971}_{-1889}

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

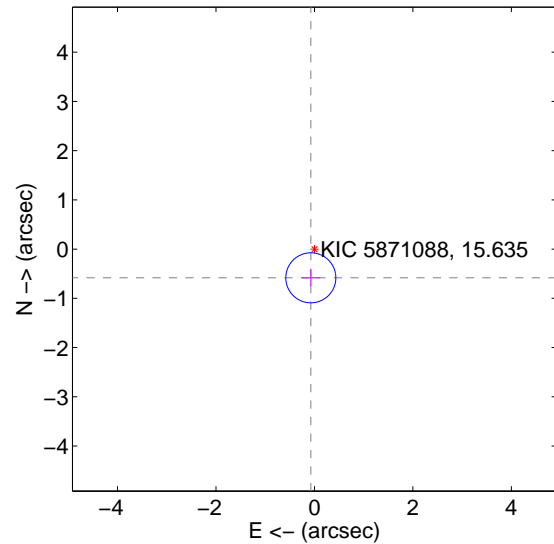
Supplemental centroid analysis for 005871088-01. Kepler magnitude: 15.63. Transit SNR 11.06

There are 1 quarters with good PRF difference image offsets

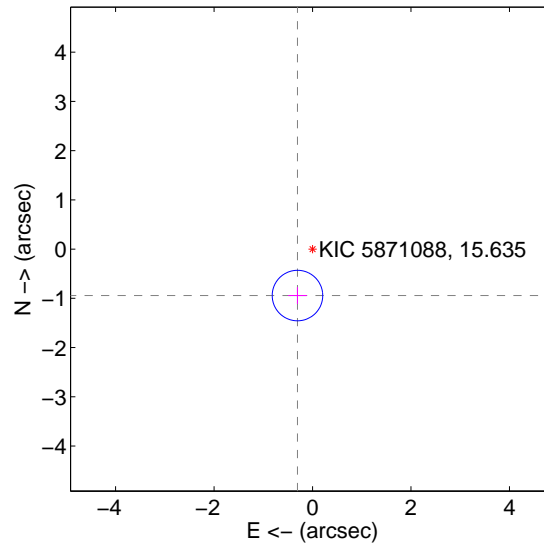
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.588 ± 0.169	3.47	0.073 ± 0.188	-0.583 ± 0.169
PRF-fit source offset from KIC position	0.992 ± 0.171	5.80	0.306 ± 0.188	-0.943 ± 0.169
photometric centroid source offset	1.53 ± 0.86	1.78	1.20 ± 0.89	-0.95 ± 0.80

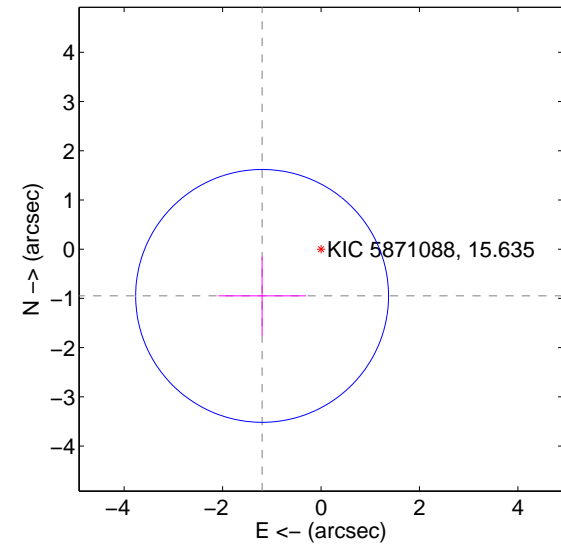
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

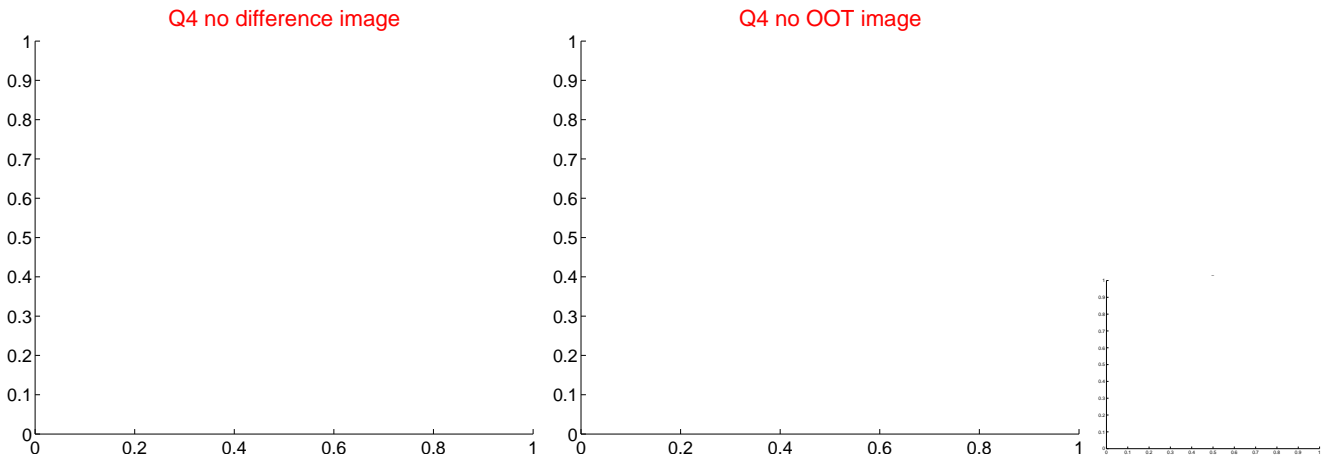
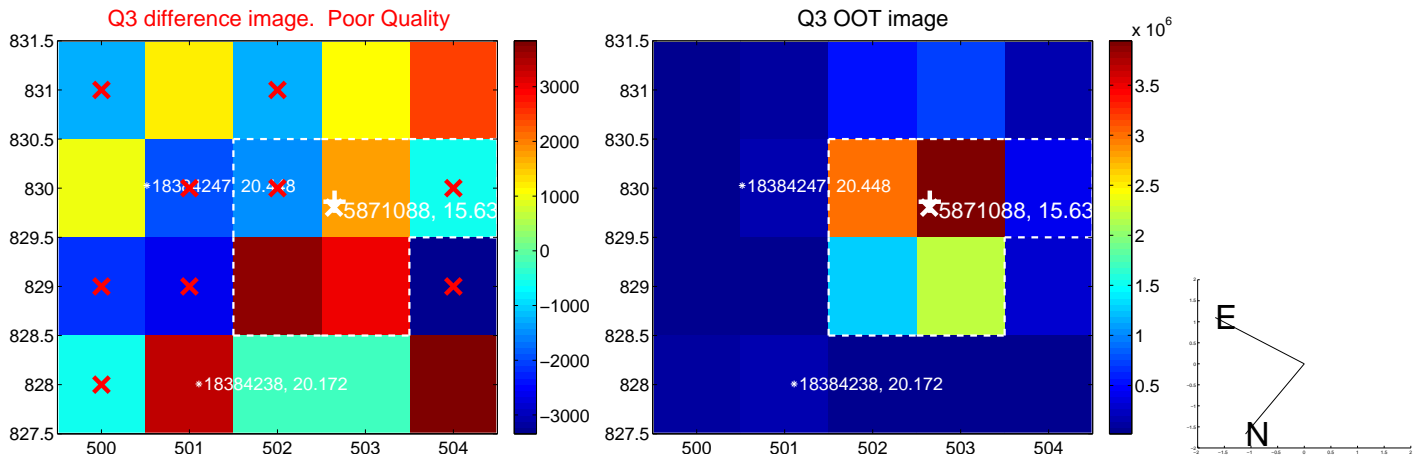
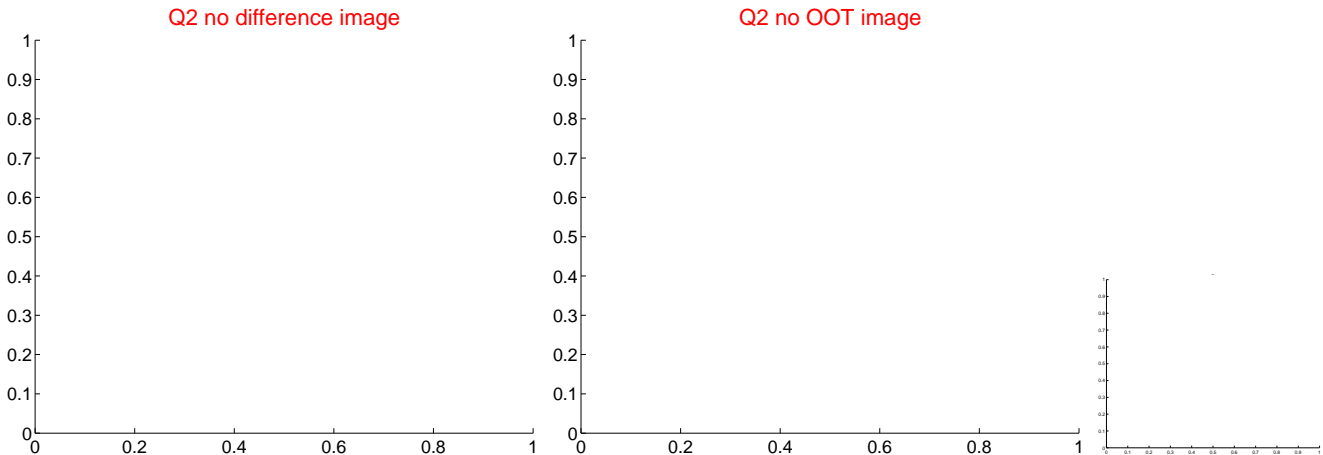


offset from photometric centroids

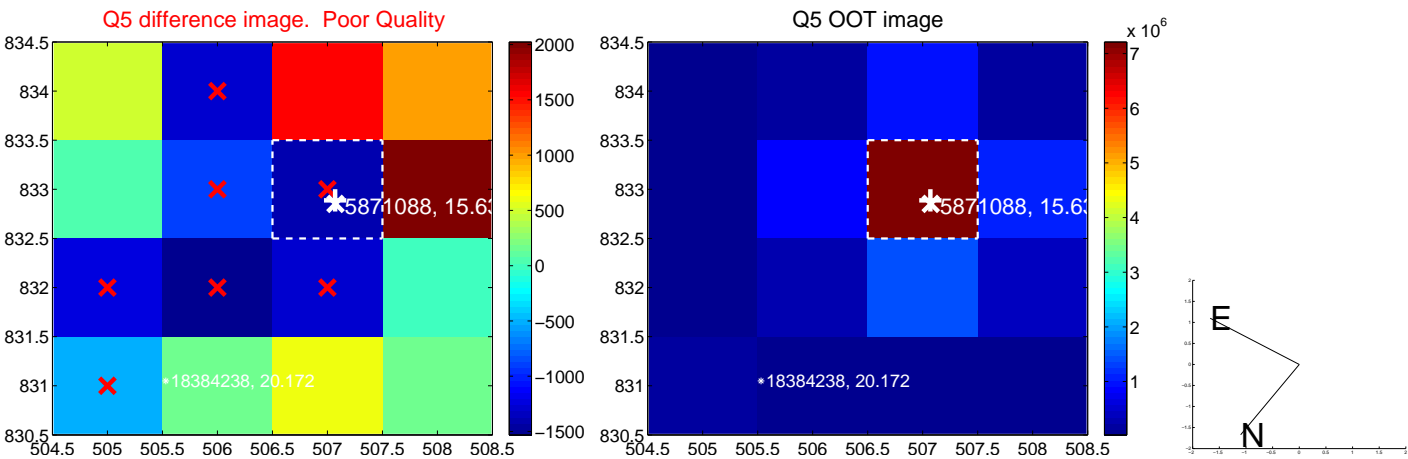


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

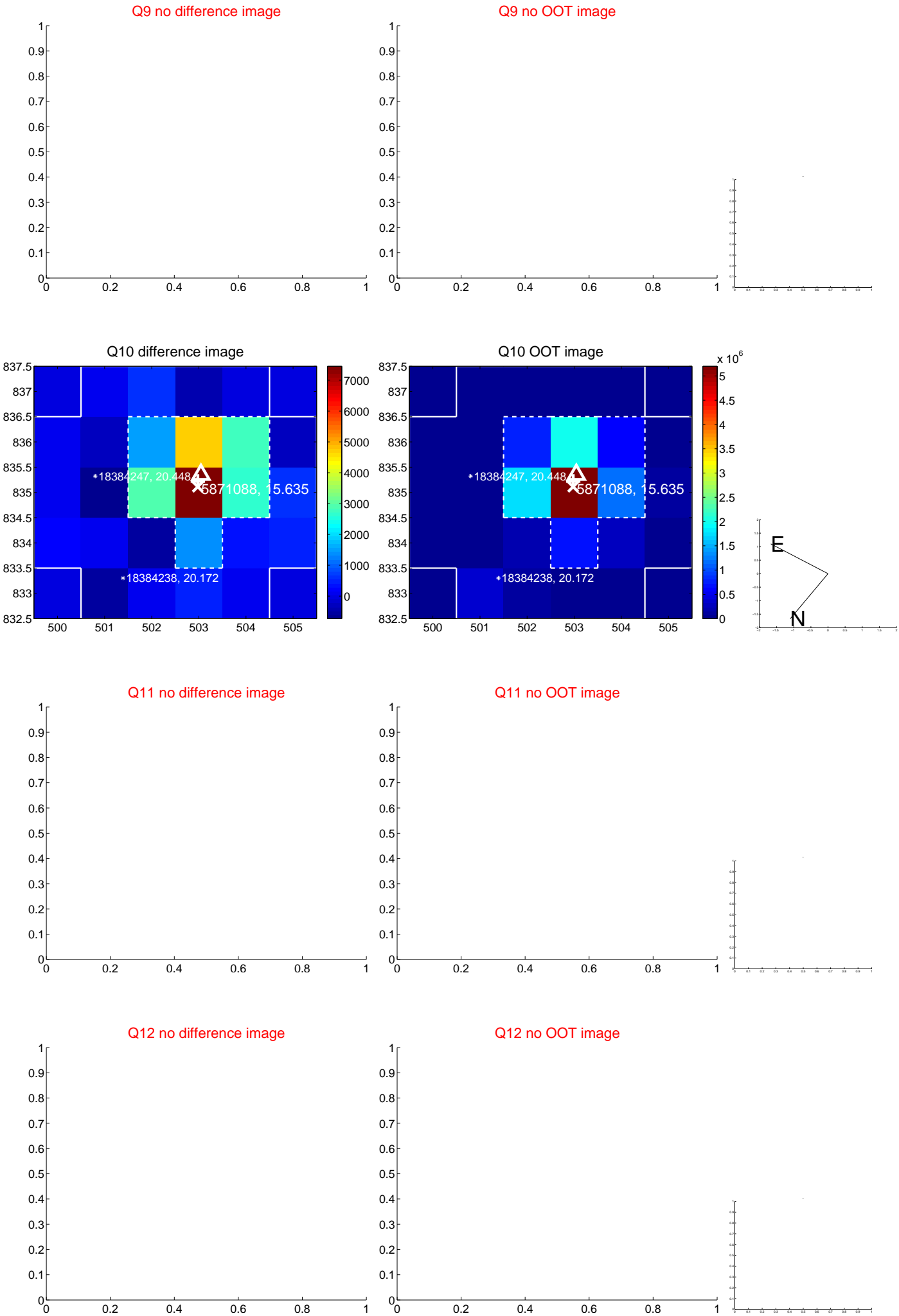
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



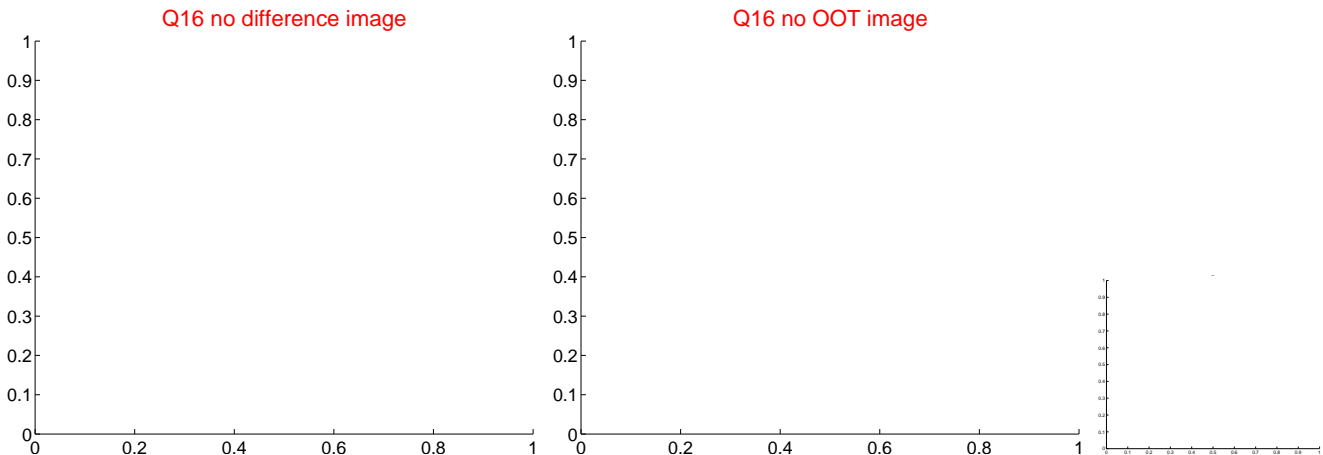
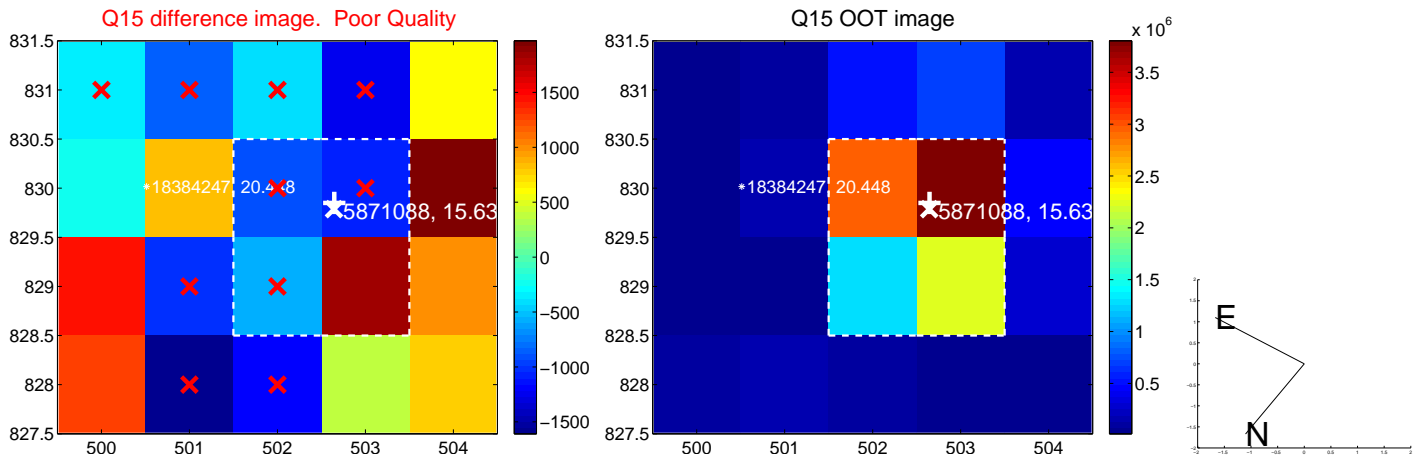
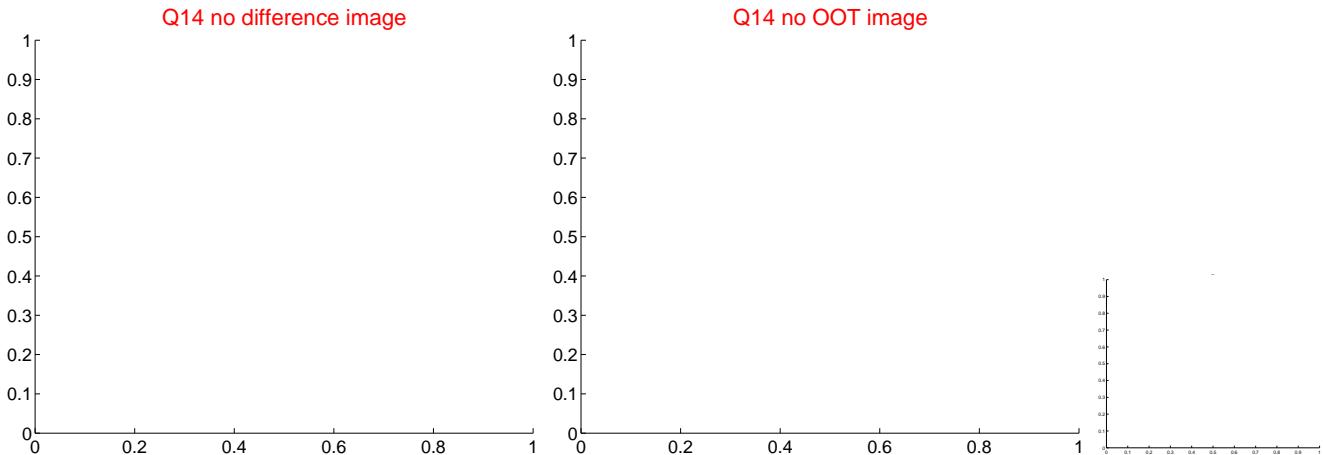
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



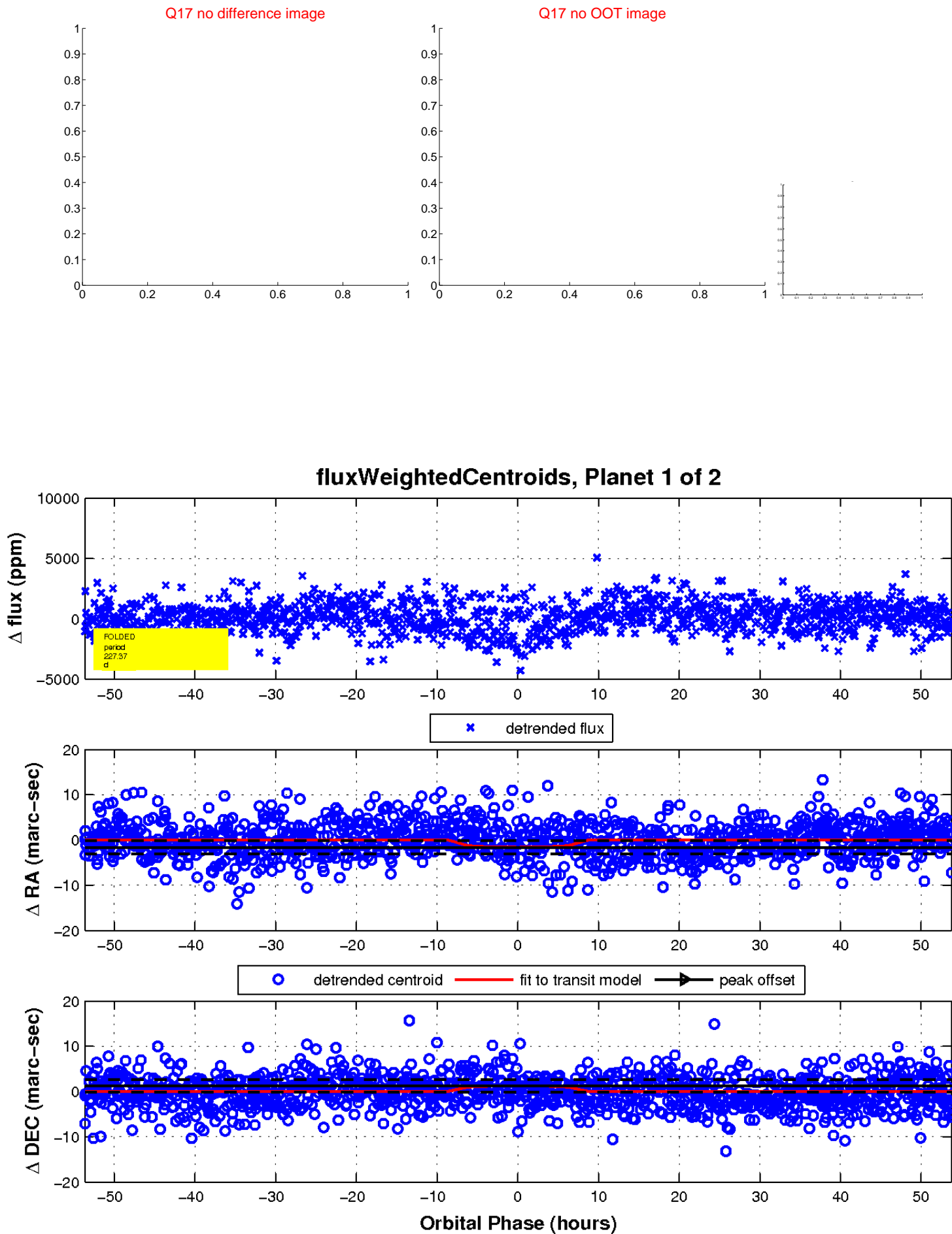
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

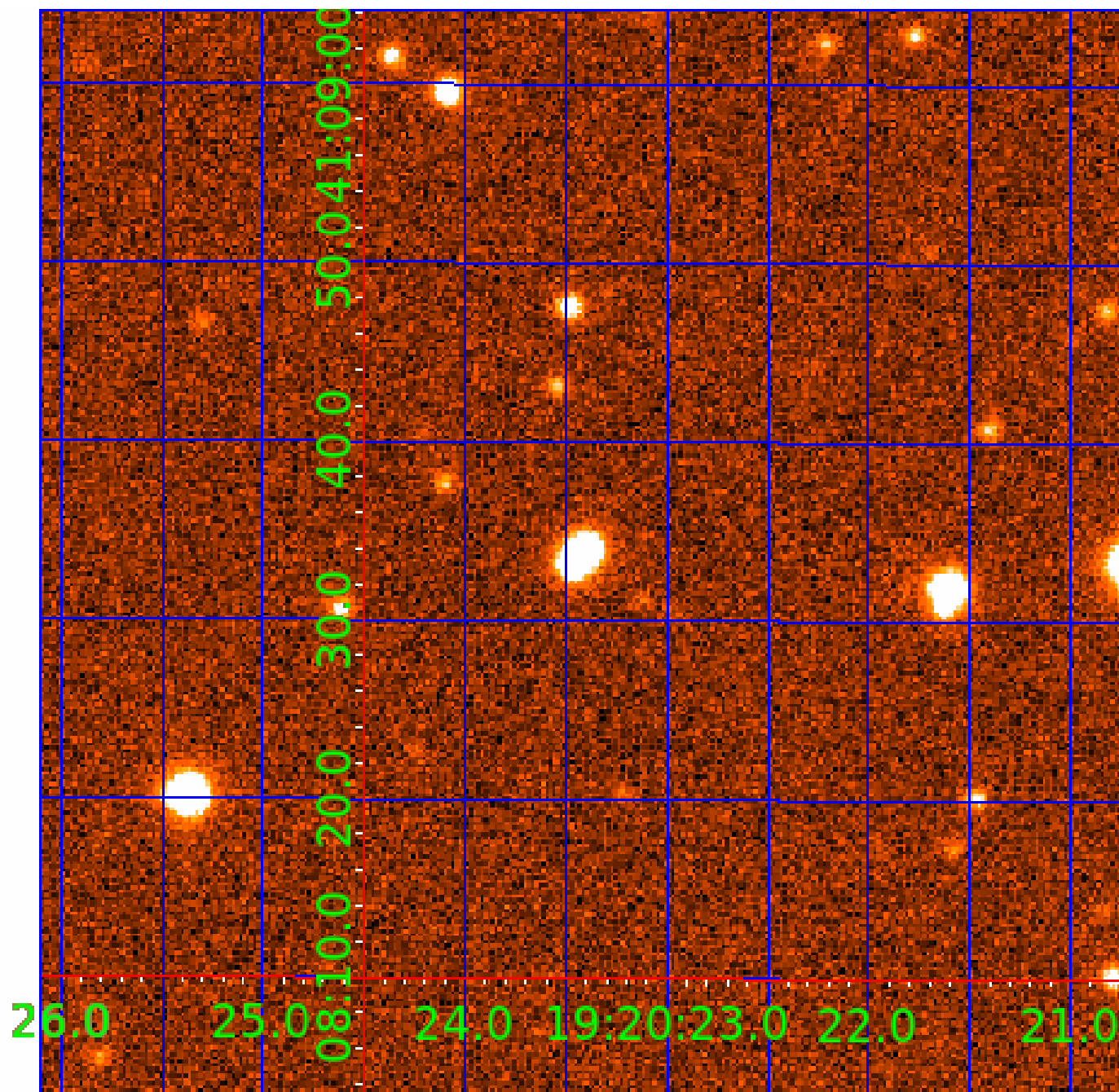


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005871088

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})
005871088-01	OBS	No	227.366191	307.609321	1487.4	17.939	10.6	11.1	0.74	4949	3.40	0.69
005871088-02	OBS	No	320.866127	345.477488	1175.8	53.621	9.3	10.7	0.74	4949	3.25	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005871088-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005871088-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

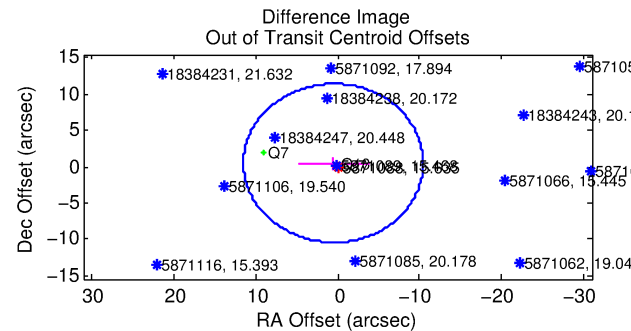
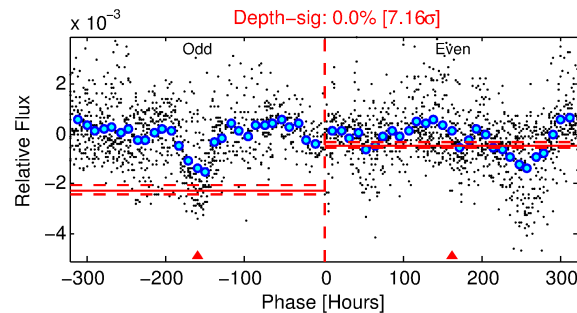
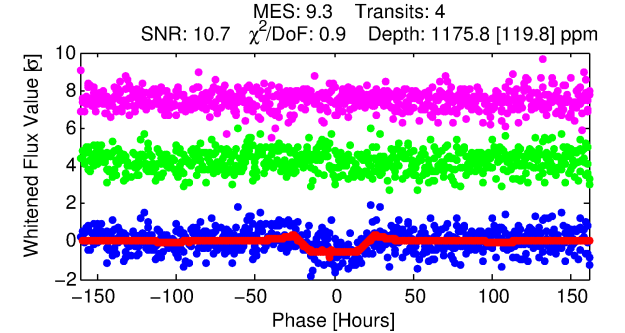
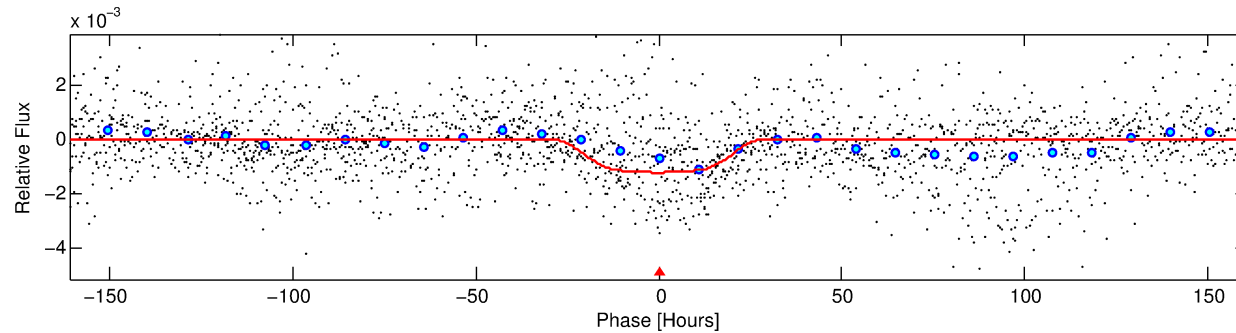
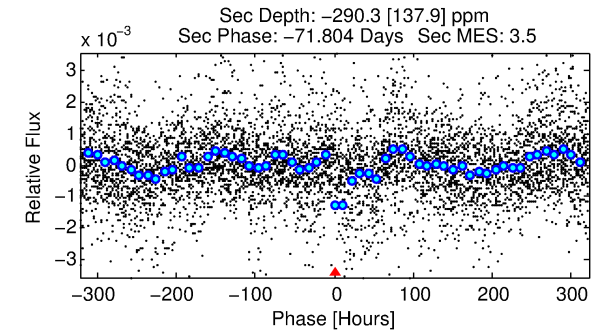
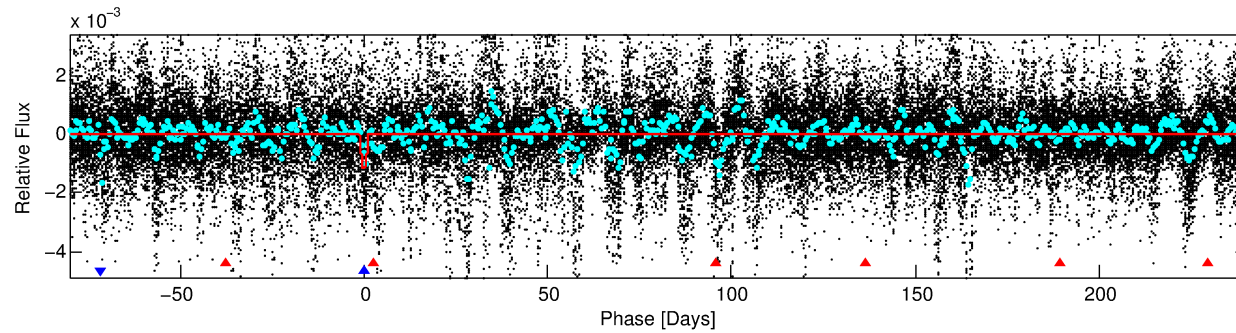
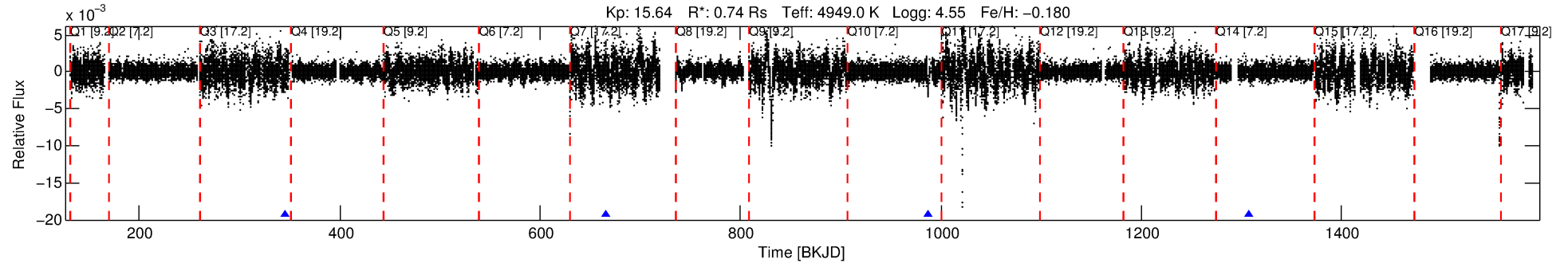
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005871088-02

No Significant Match Found

DV One-Page Summary

KIC: 5871088 Candidate: 2 of 2 Period: 320.866 d



DV Fit Results:

Period = 320.86613 [0.04310] d
Epoch = 345.4775 [0.1041] BKJD
Rp/R* = 0.0402 [0.0028]
a/R* = 20.96 [2.98]
b = 0.93 [0.02]
Seff = 0.44 [0.08]
Teq = 208 [9] K
Rp = 3.25 [0.41] Re
a = 0.8200 [0.0734] AU
Ag = N/A
Teffp = N/A

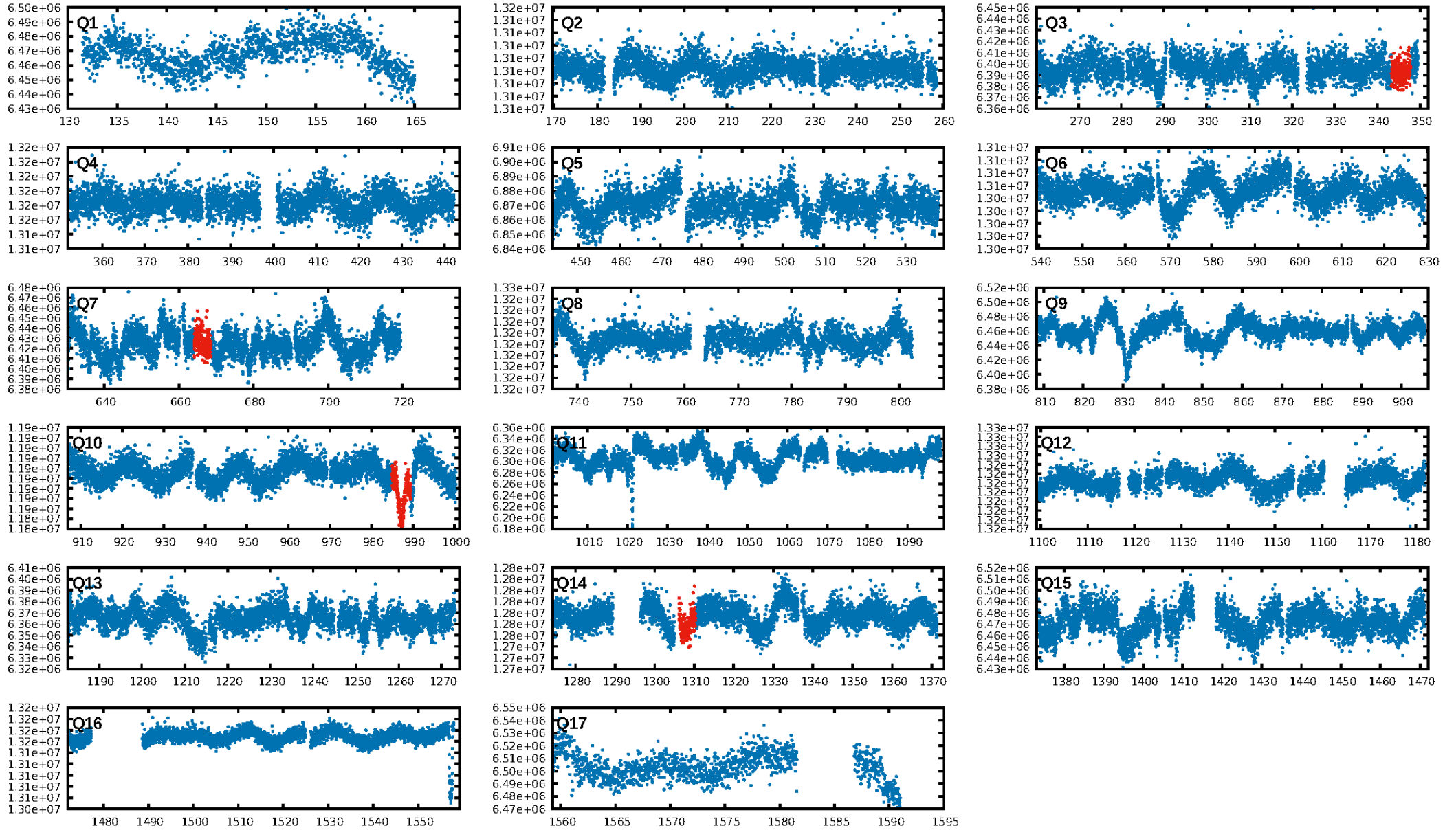
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.69σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.75e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -3.764
Centroid-sig: 15.1%
Centroid-so: 0.659 arcsec [0.95σ]
OotOffset-rm: 0.716 arcsec [0.20σ]
KicOffset-rm: 0.774 arcsec [0.35σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.67 [2/3]

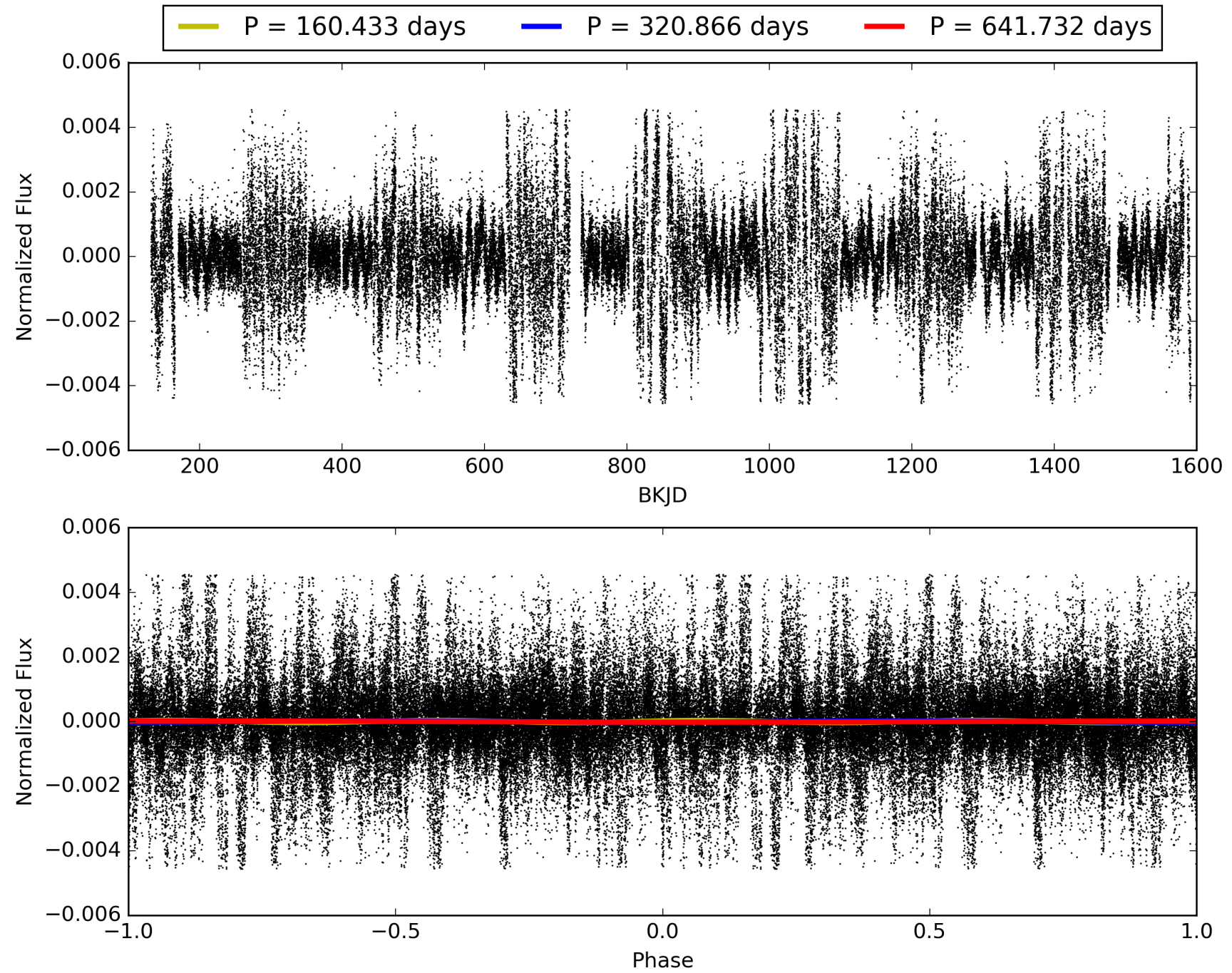
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:25:58 Z

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

TCE 005871088-02, PDC Light Curves

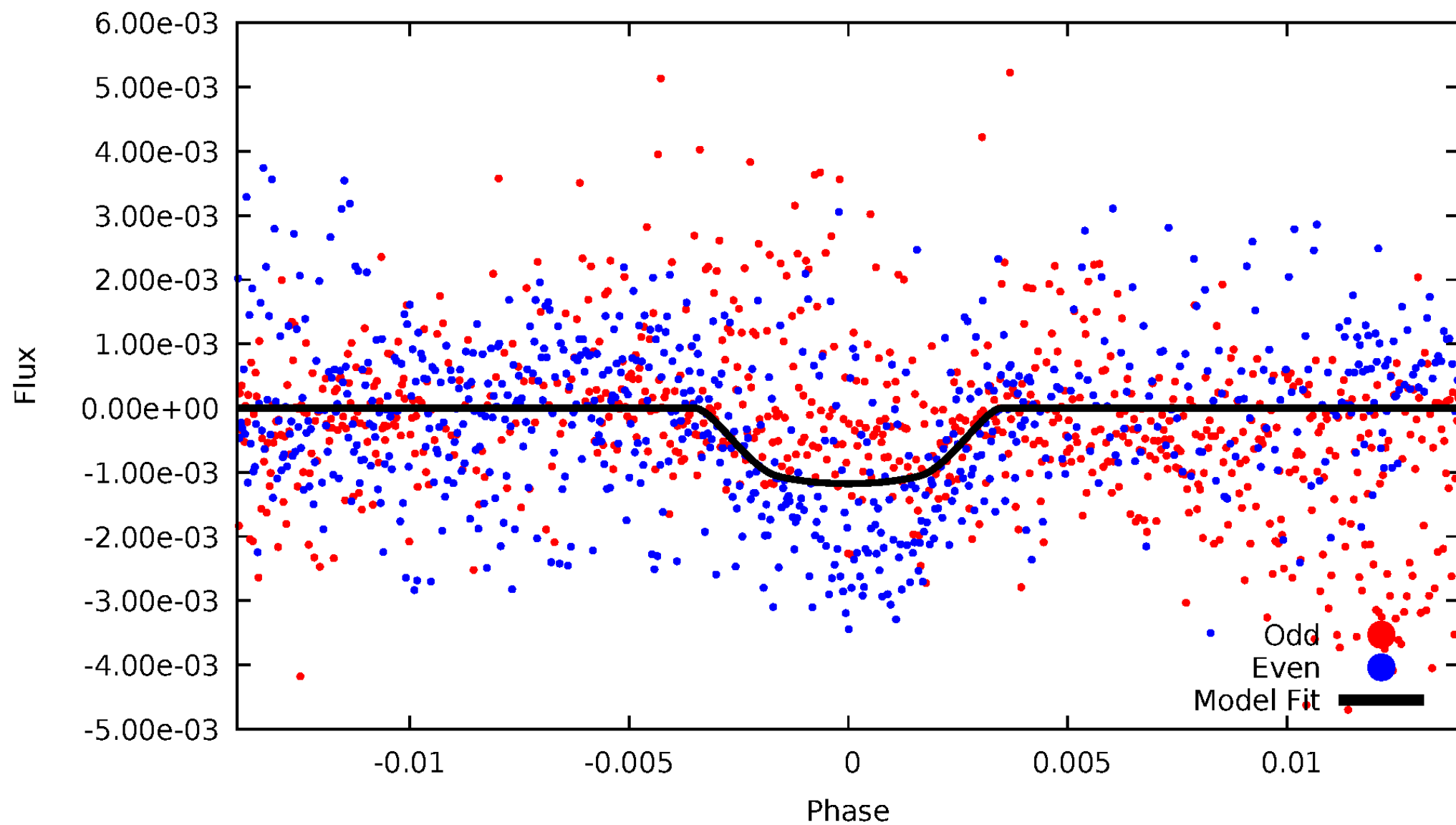


TCE 005871088-02



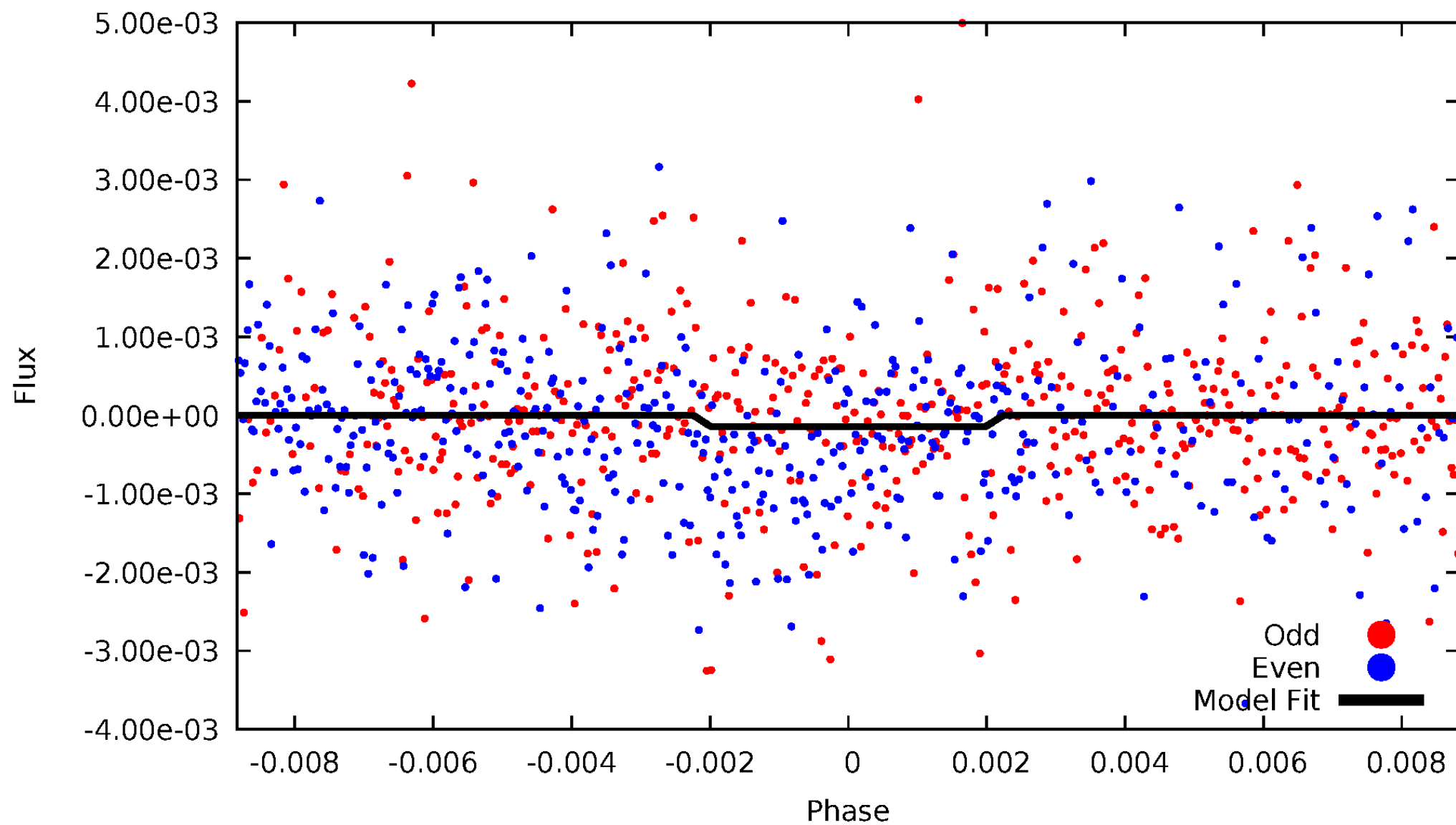
DV Odd/Even

TCE 005871088-02



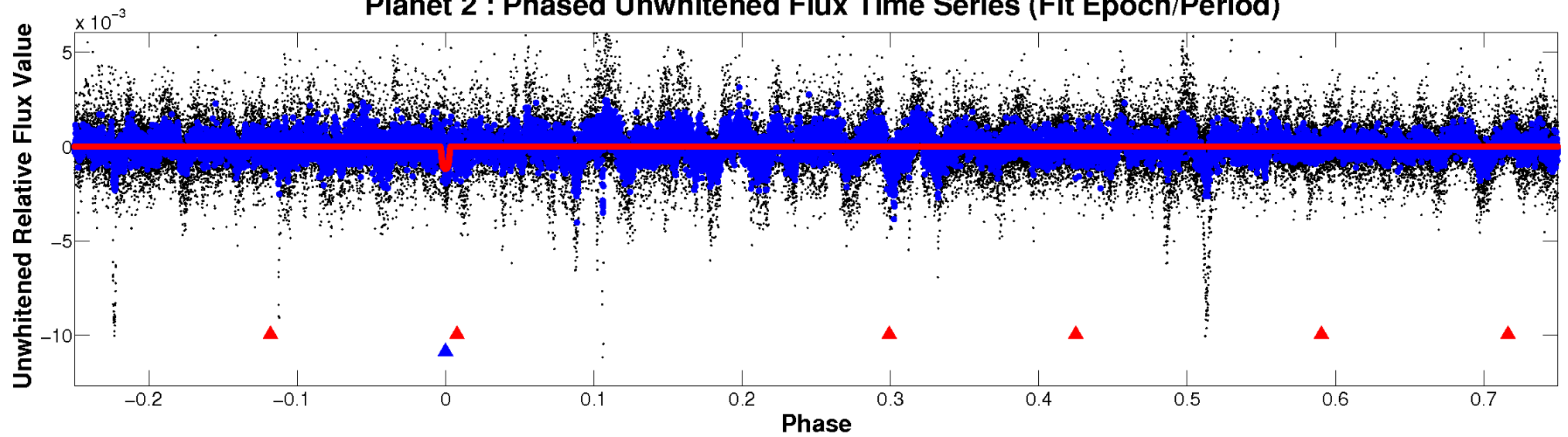
ALT Odd/Even

TCE 005871088-02

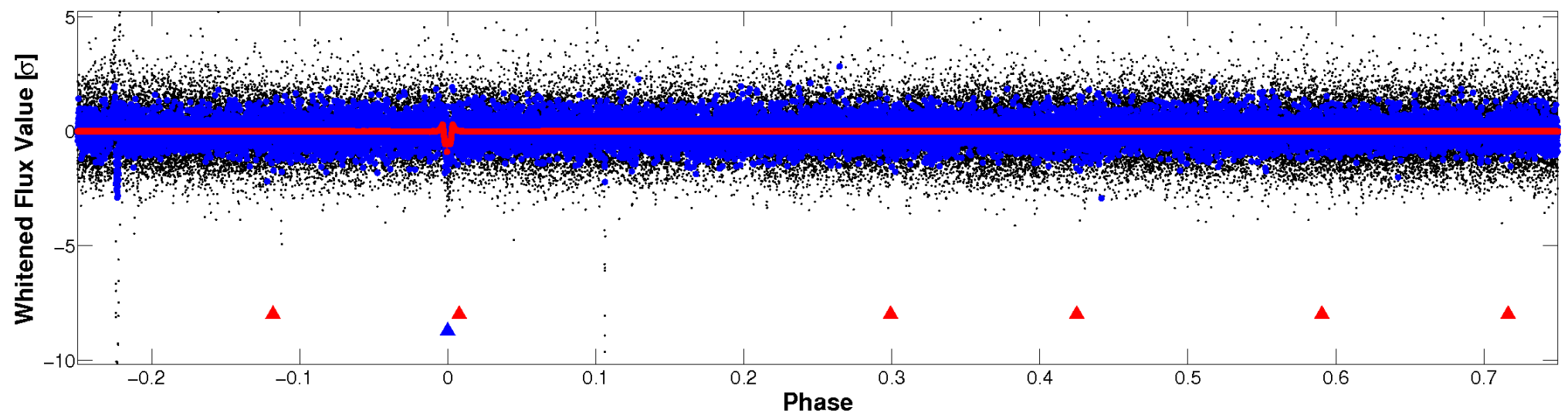


Non-Whitened Vs. Whitened Light Curve

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



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



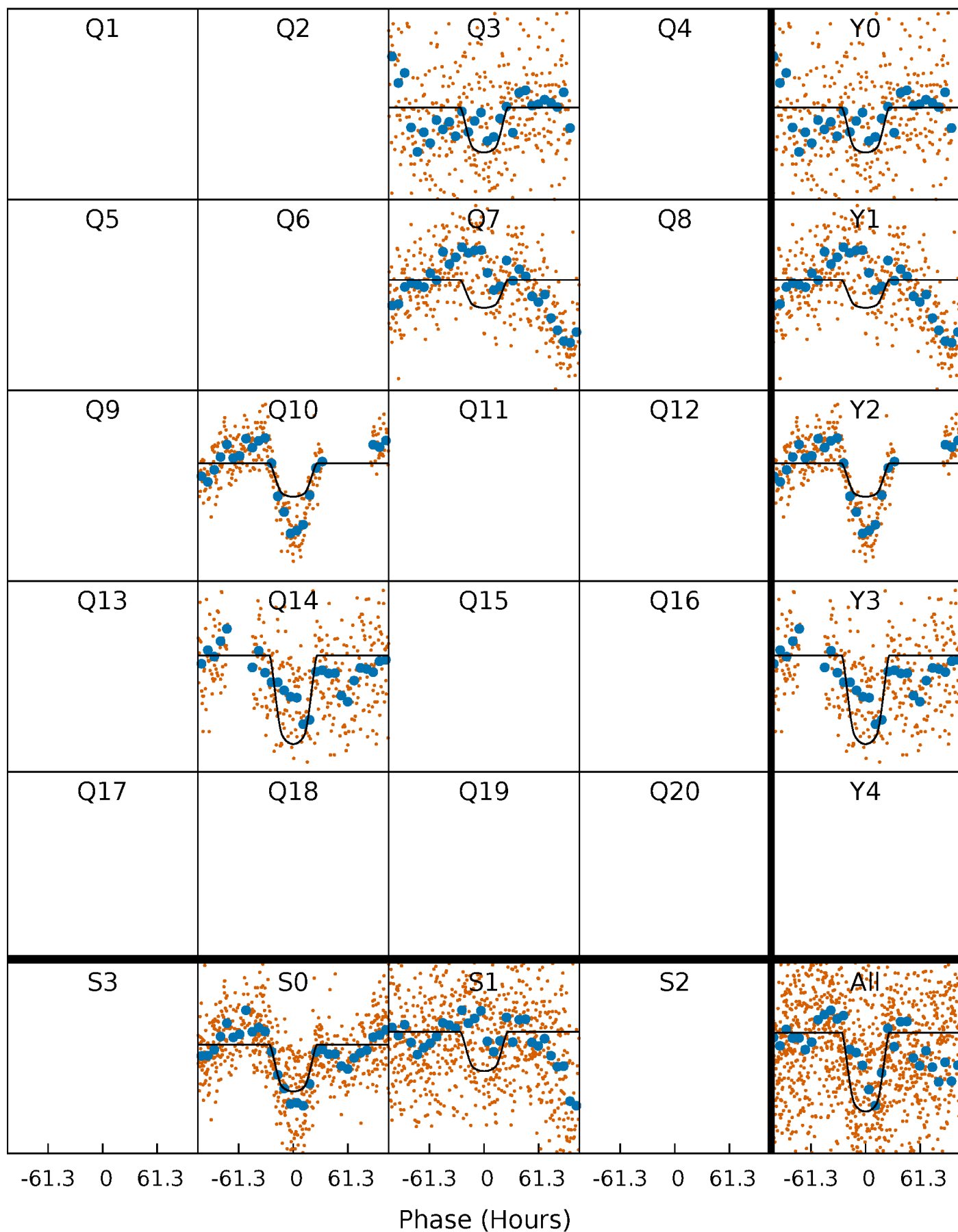
PDC Quarter-Phased Transit Curves

TCE 005871088-02 P=320.866127 Days $T_0=345.477488$ (BKJD)



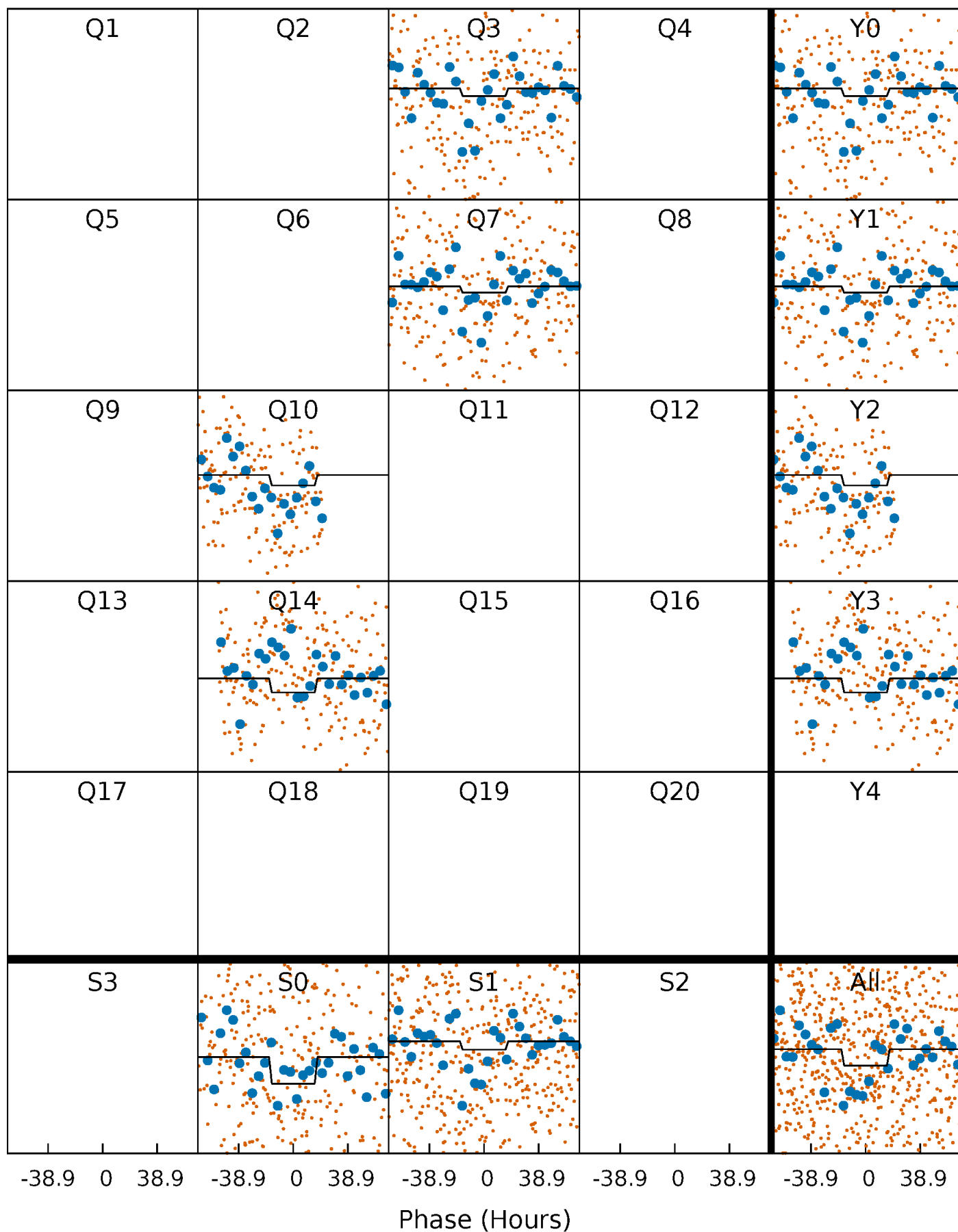
DV Quarter-Phased Transit Curves

TCE 005871088-02 P=320.866127 Days $T_0=345.477488$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

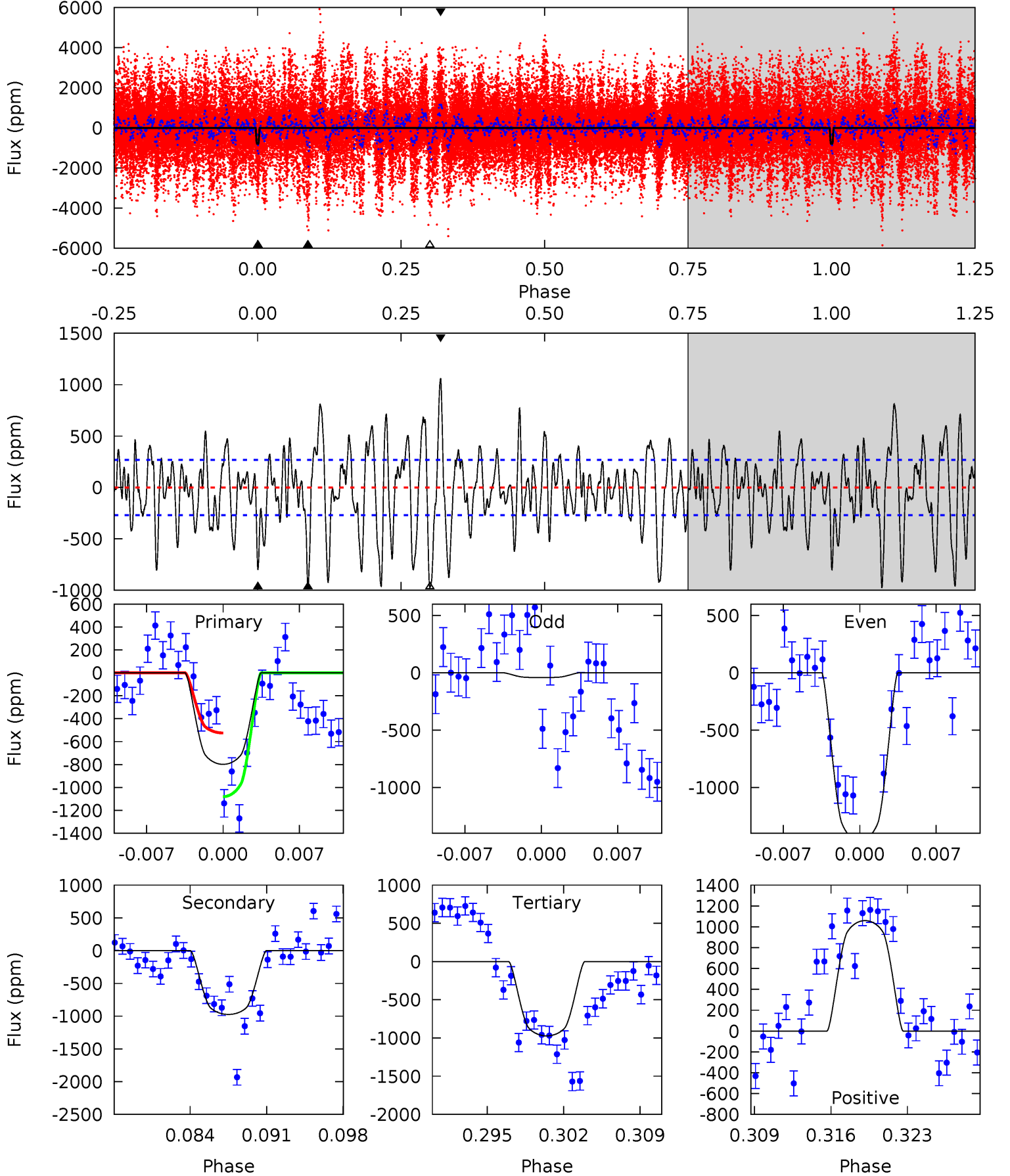
TCE 005871088-02 P=320.711535 Days $T_0=346.285970$ (BKJD)



DV Model-Shift Uniqueness Test

005871088-02, P = 320.866127 Days, E = 24.611361 Days

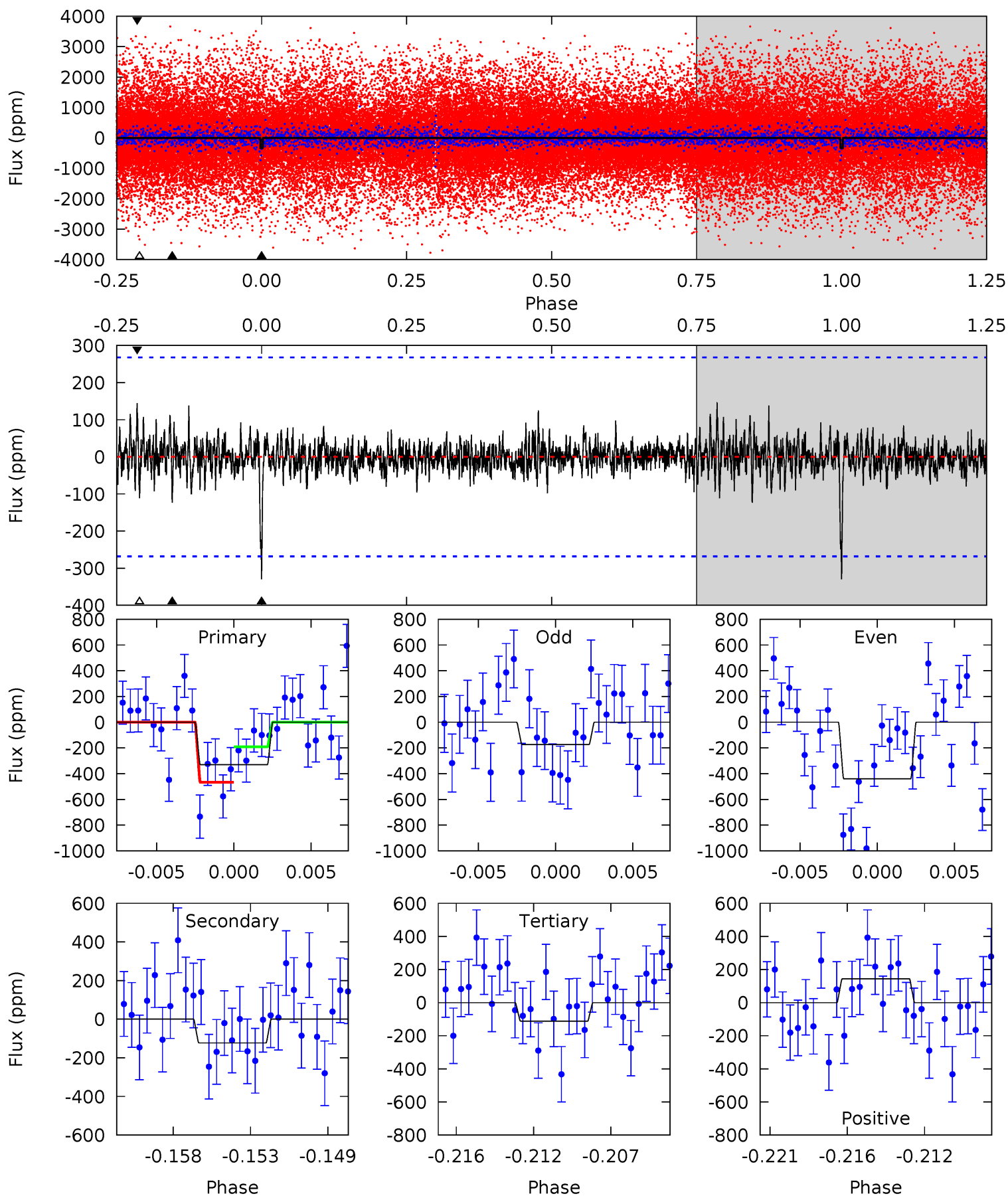
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	18.5	18.4	20.1	5.09	2.70	6.16	-3.30	-4.95	0.03	-1.62	13.1	1.08	0.52	5.28



Alt Model-Shift Uniqueness Test

005871088-02, $P = 320.711535$ Days, $E = 25.574435$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.37	2.38	2.15	2.79	5.18	2.84	0.59	4.22	3.58	0.23	-0.41	2.56	0.73	0.30	2.67



Stellar Parameters For KIC 005871088

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4949^{+151}_{-151}	$4.552^{+0.071}_{-0.044}$	$-0.180^{+0.300}_{-0.300}$	$0.741^{+0.065}_{-0.079}$	$0.715^{+0.095}_{-0.055}$	$2.472^{+0.740}_{-0.396}$
	+3%/-3%	+2%/-1%	+167%/-167%	+9%/-11%	+13%/-8%	+30%/-16%
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 005871088-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-974 ± 53	$3.23^{+0.33}_{-0.29}$	289^{+11}_{-11}	4478^{+187}_{-193}	34904^{+6779}_{-5832}
Alt.	-123 ± 52	$0.99^{+0.21}_{-0.23}$	288^{+11}_{-11}	4743^{+694}_{-581}	47296^{+41948}_{-23582}

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

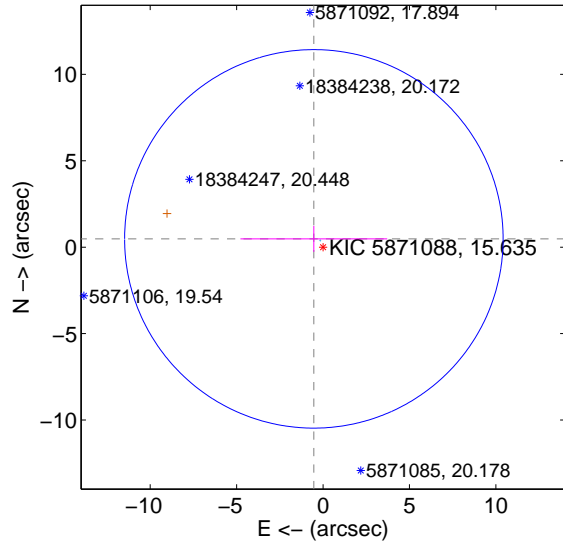
Supplemental centroid analysis for 005871088-02. Kepler magnitude: 15.63. Transit SNR 10.70

There are 1 quarters with good PRF difference image offsets

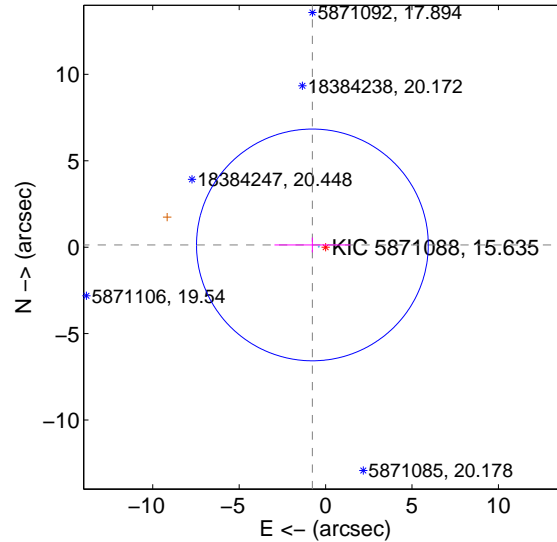
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.716 ± 3.649	0.20	0.531 ± 4.245	0.480 ± 0.750
PRF-fit source offset from KIC position	0.774 ± 2.234	0.35	0.763 ± 2.193	0.130 ± 0.433
photometric centroid source offset	0.66 ± 0.69	0.95	0.30 ± 0.77	0.59 ± 0.67

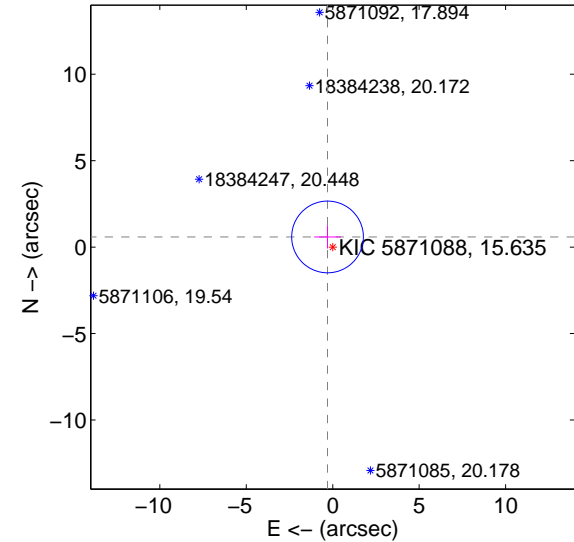
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

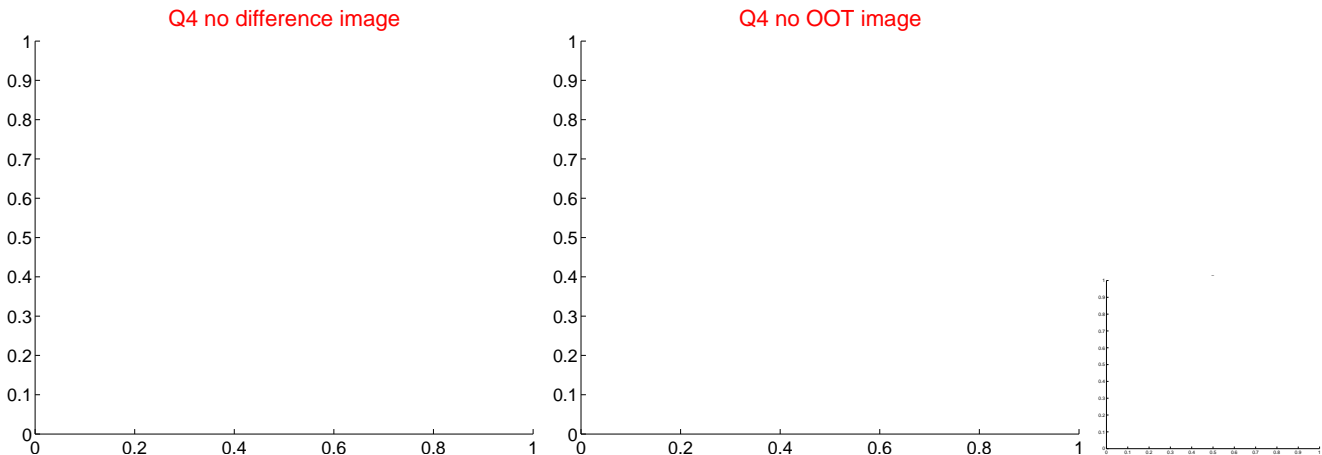
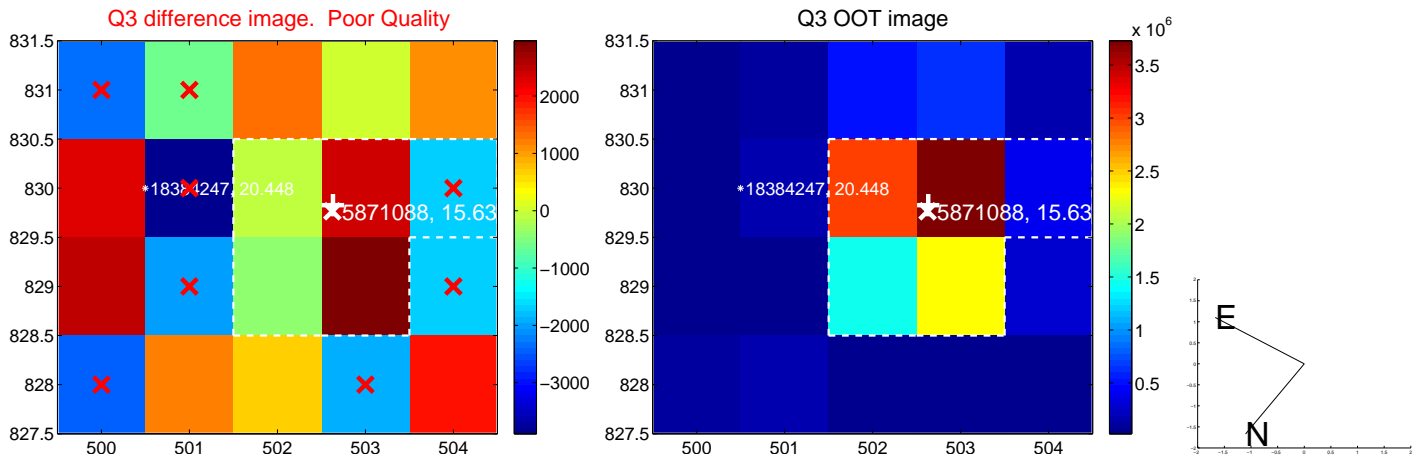
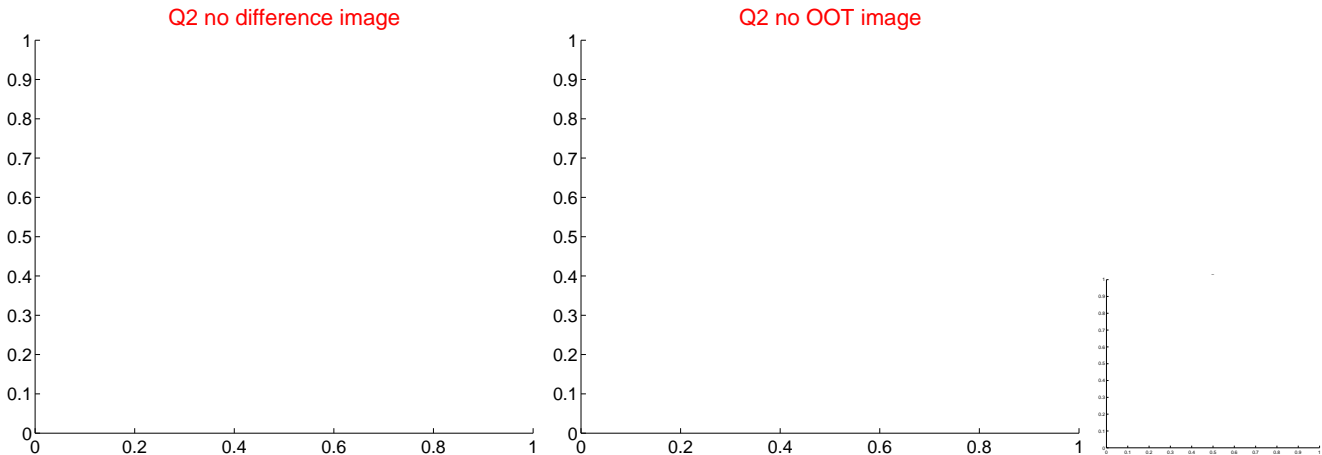
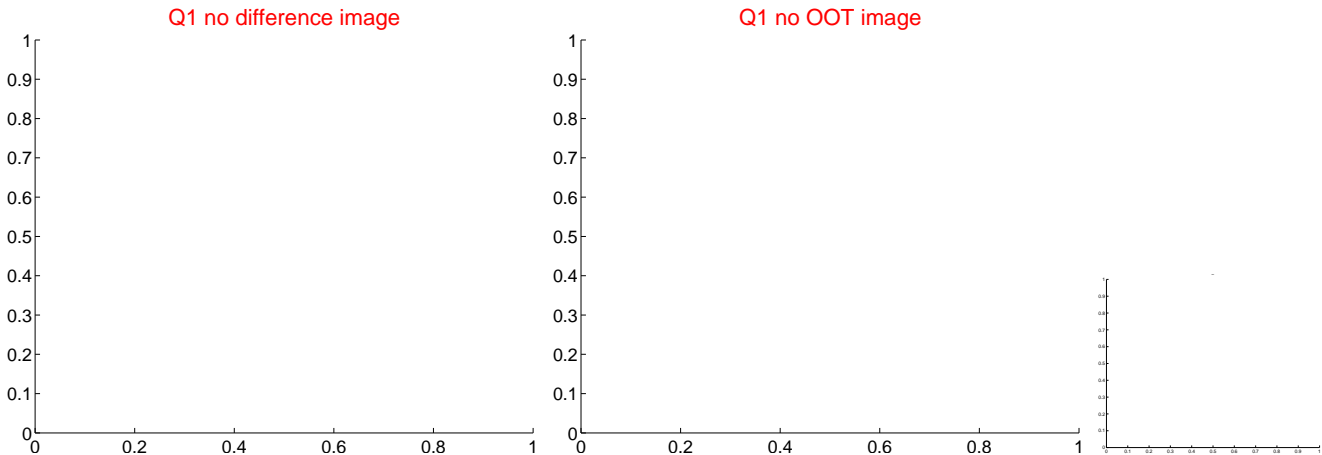


offset from photometric centroids

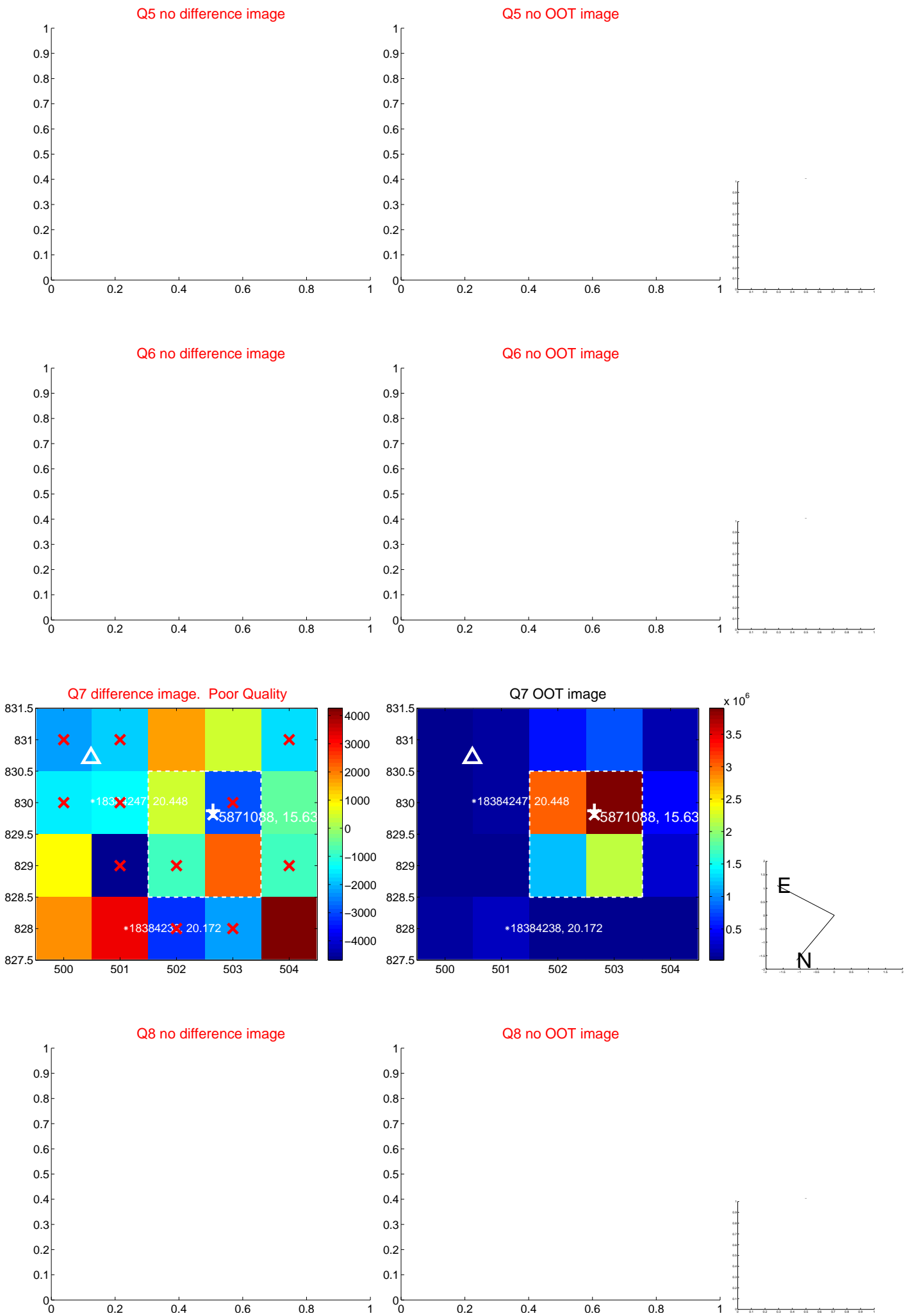


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

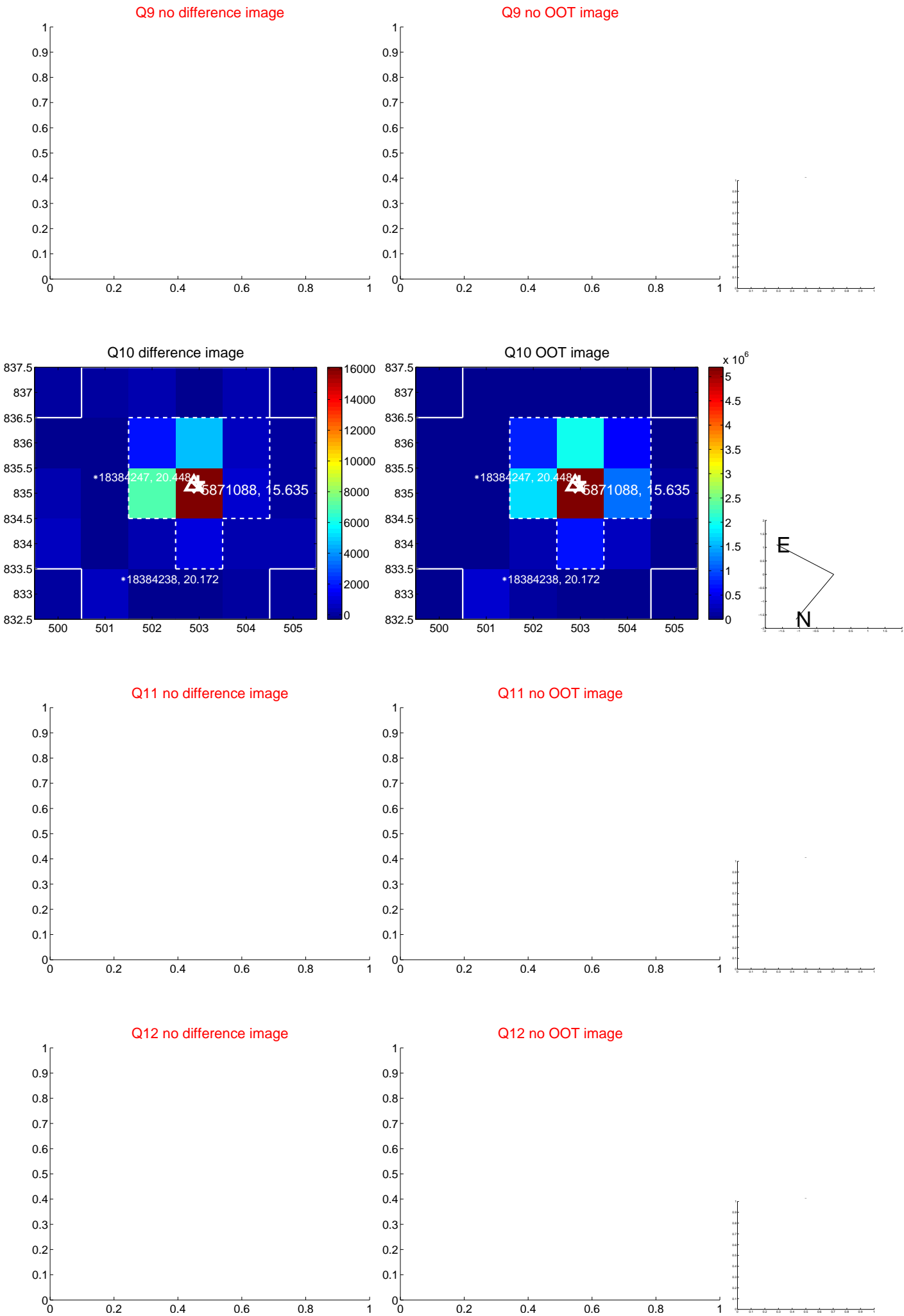
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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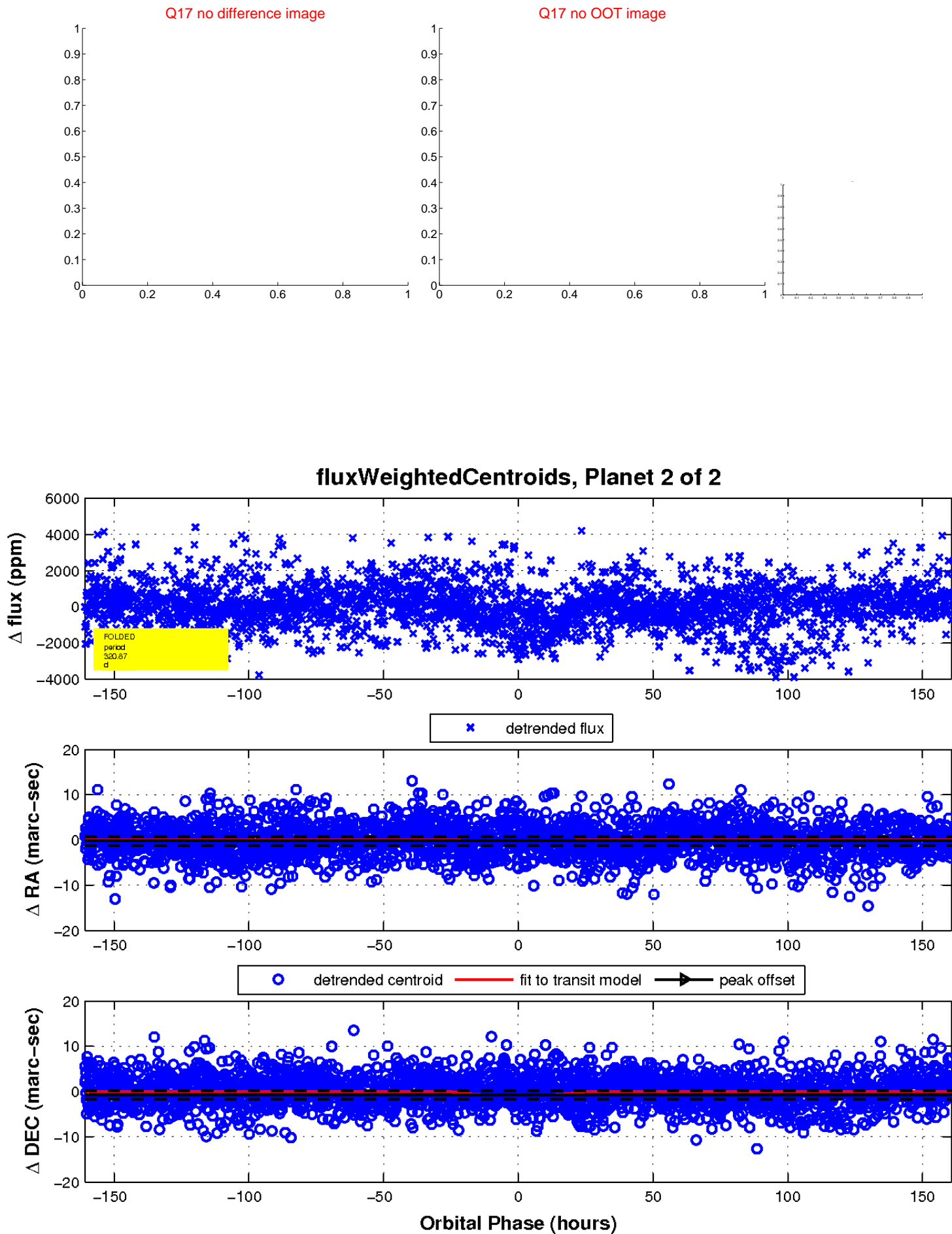
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

