

KIC 007448573

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})
007448573-01	OBS	No	1.832553	132.824717	56.9	6.990	7.1	6.4	0.65	4430	0.51	229.52
007448573-02	OBS	No	319.071379	366.072376	566.1	17.532	8.3	4.5	0.65	4430	1.68	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448573-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
007448573-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

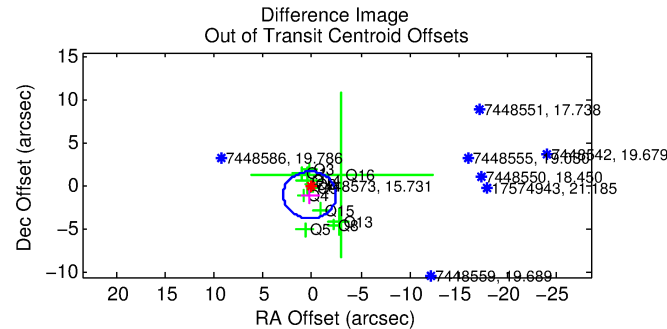
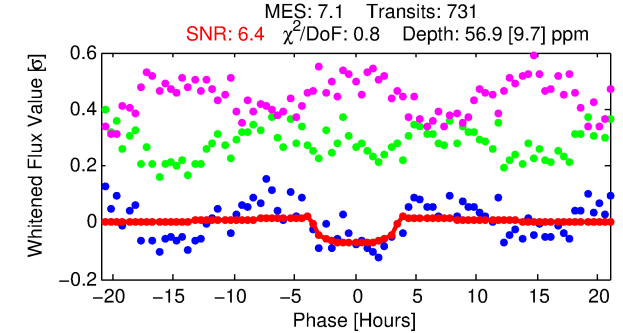
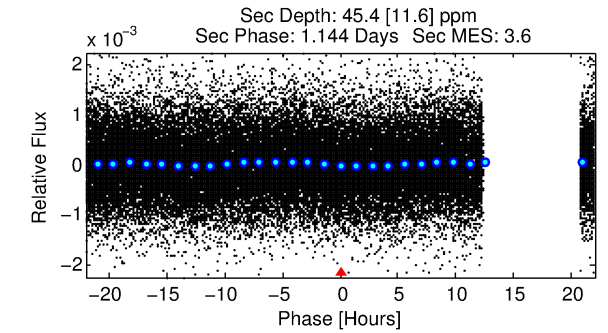
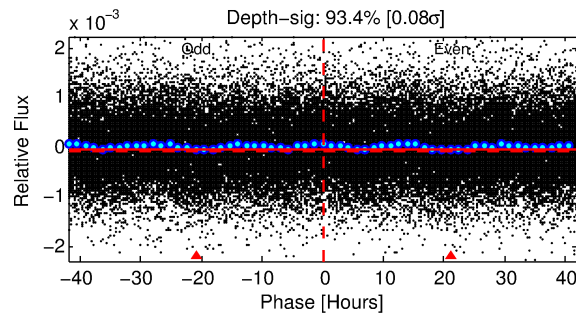
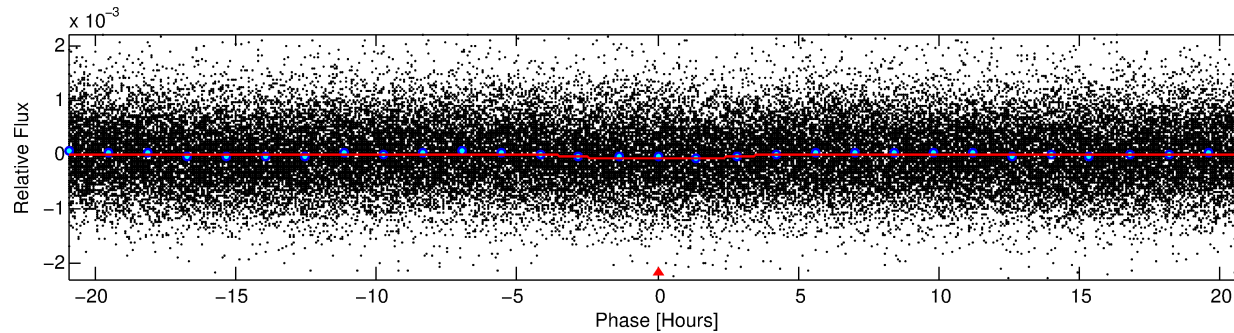
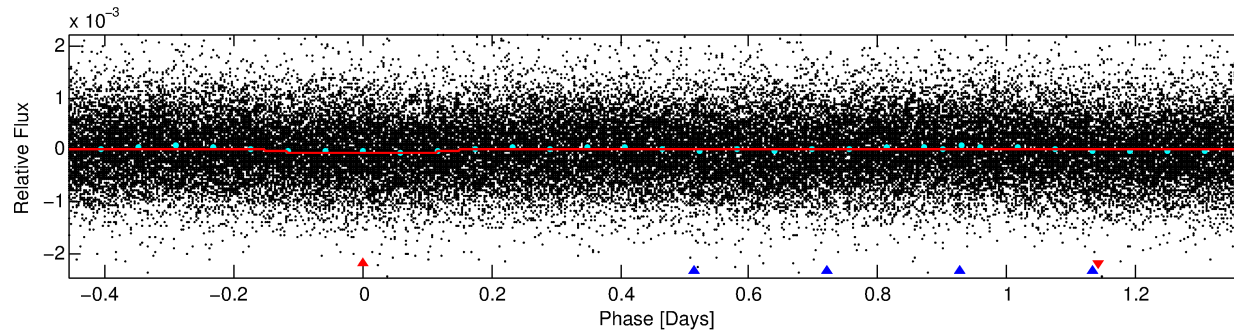
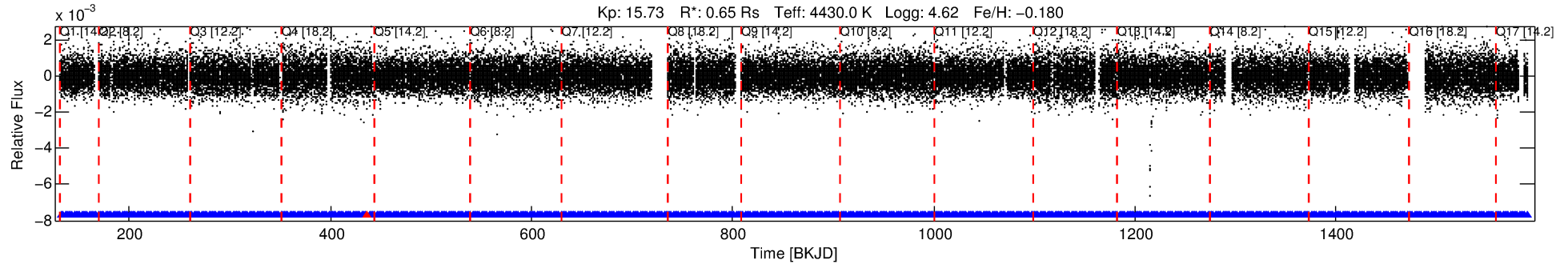
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448573-01

No Significant Match Found

DV One-Page Summary

KIC: 7448573 Candidate: 1 of 2 Period: 1.833 d



DV Fit Results:

Period = 1.83255 [0.00004] d
Epoch = 132.8247 [0.0111] BKJD
Rp/R* = 0.0072 [0.0070]
a/R* = 1.73 [3.51]
b = 0.65 [2.75]
Seff = 229.52 [36.99]
Teq = 993 [40] K
Rp = 0.51 [0.50] Re
a = 0.0252 [0.0020] AU
Ag = 60.20 [117.34] [0.50 σ]
Teffp = 4274 [2084] K [1.57 σ]

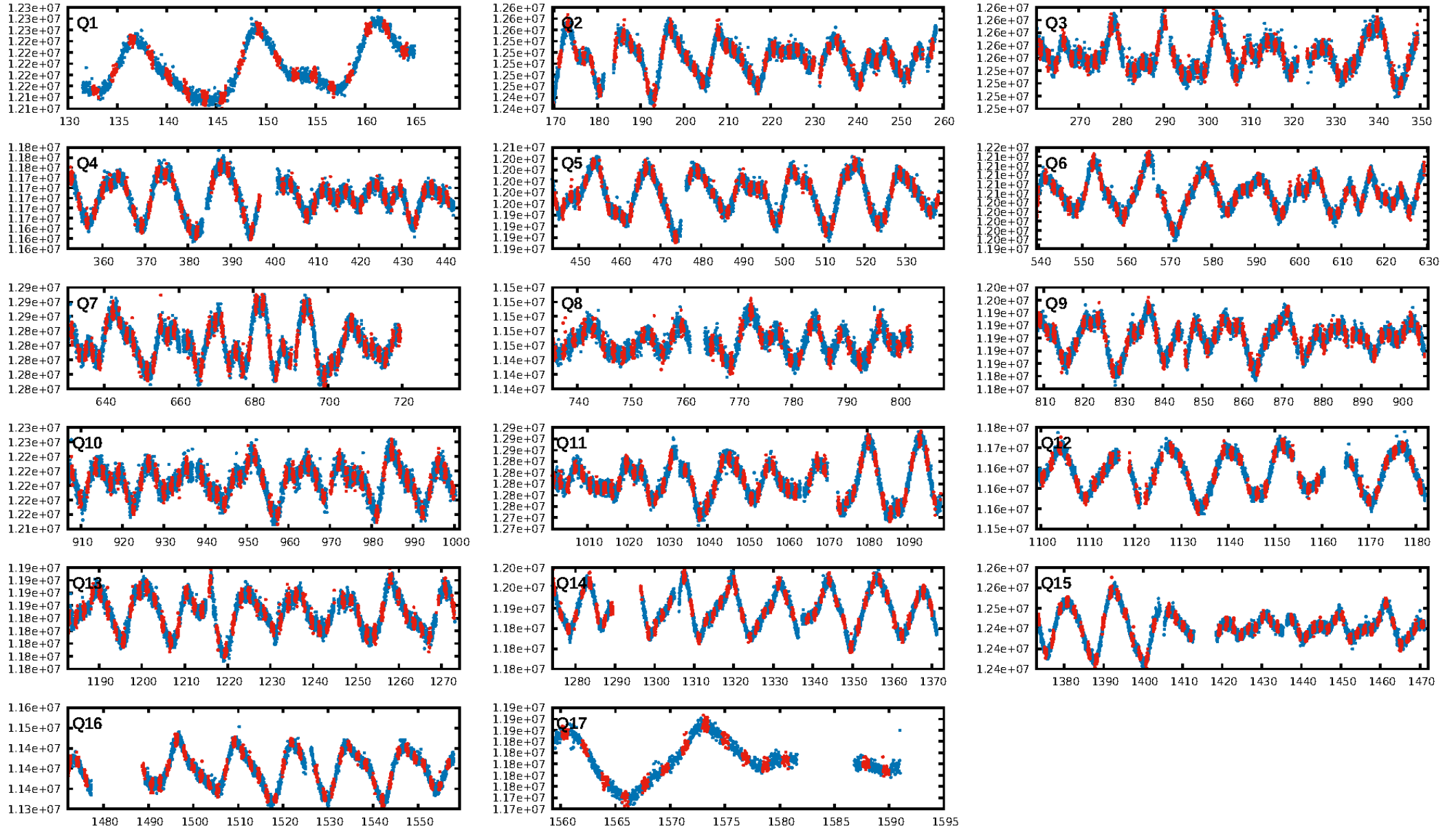
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [403.39 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.81e-11
RollingBand-fgt: 1.00 [698/699]
GhostDiagnostic-chr: 1.635
Centroid-sig: 0.7%
Centroid-so: 3.728 arcsec [2.05 σ]
OotOffset-rm: 1.037 arcsec [1.15 σ]
KicOffset-rm: 0.955 arcsec [1.06 σ]
OotOffset-st: 2/2/3/4 [11]
KicOffset-st: 2/2/3/4 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 1.00 [17/17]

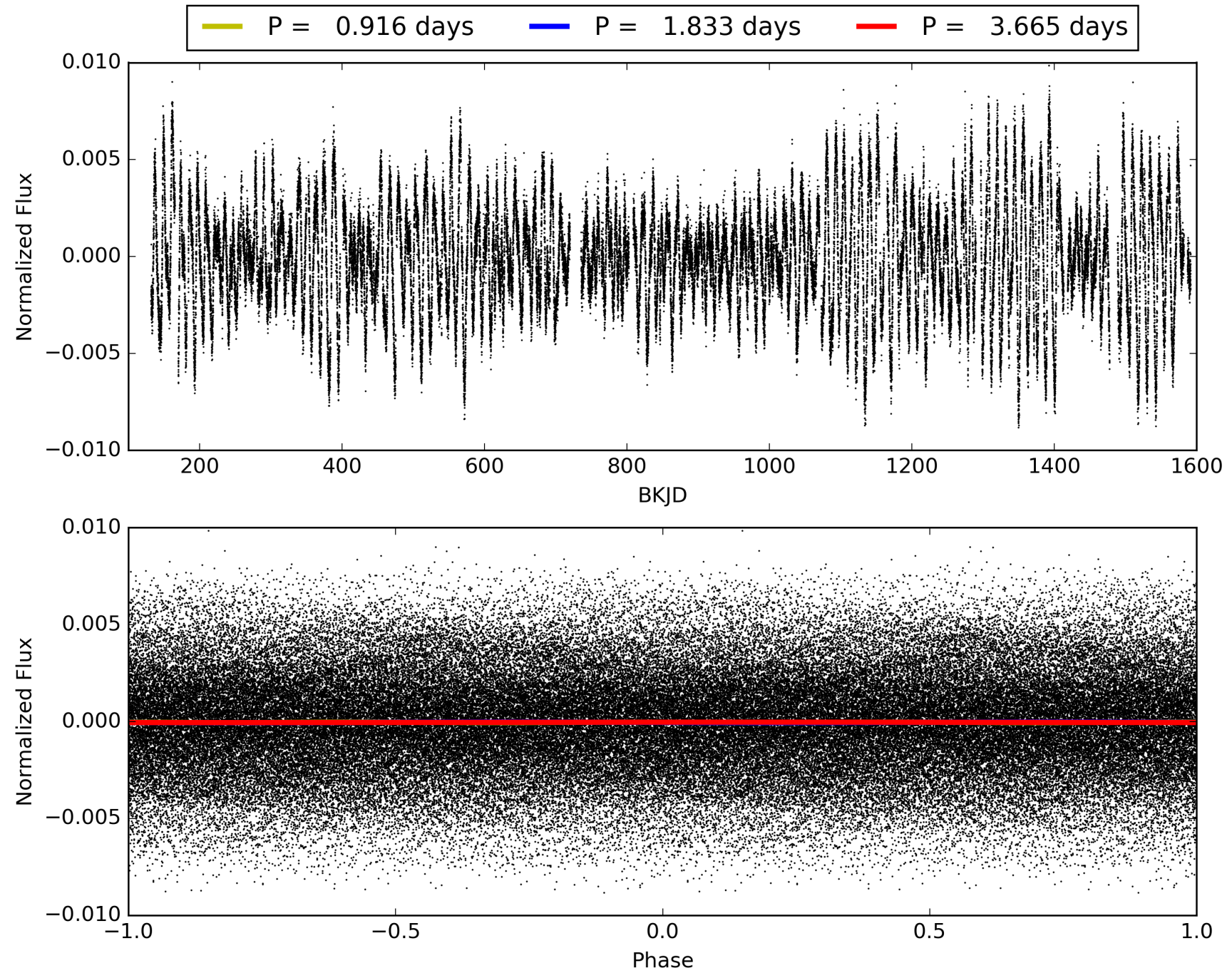
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:27:30 Z

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

TCE 007448573-01, PDC Light Curves

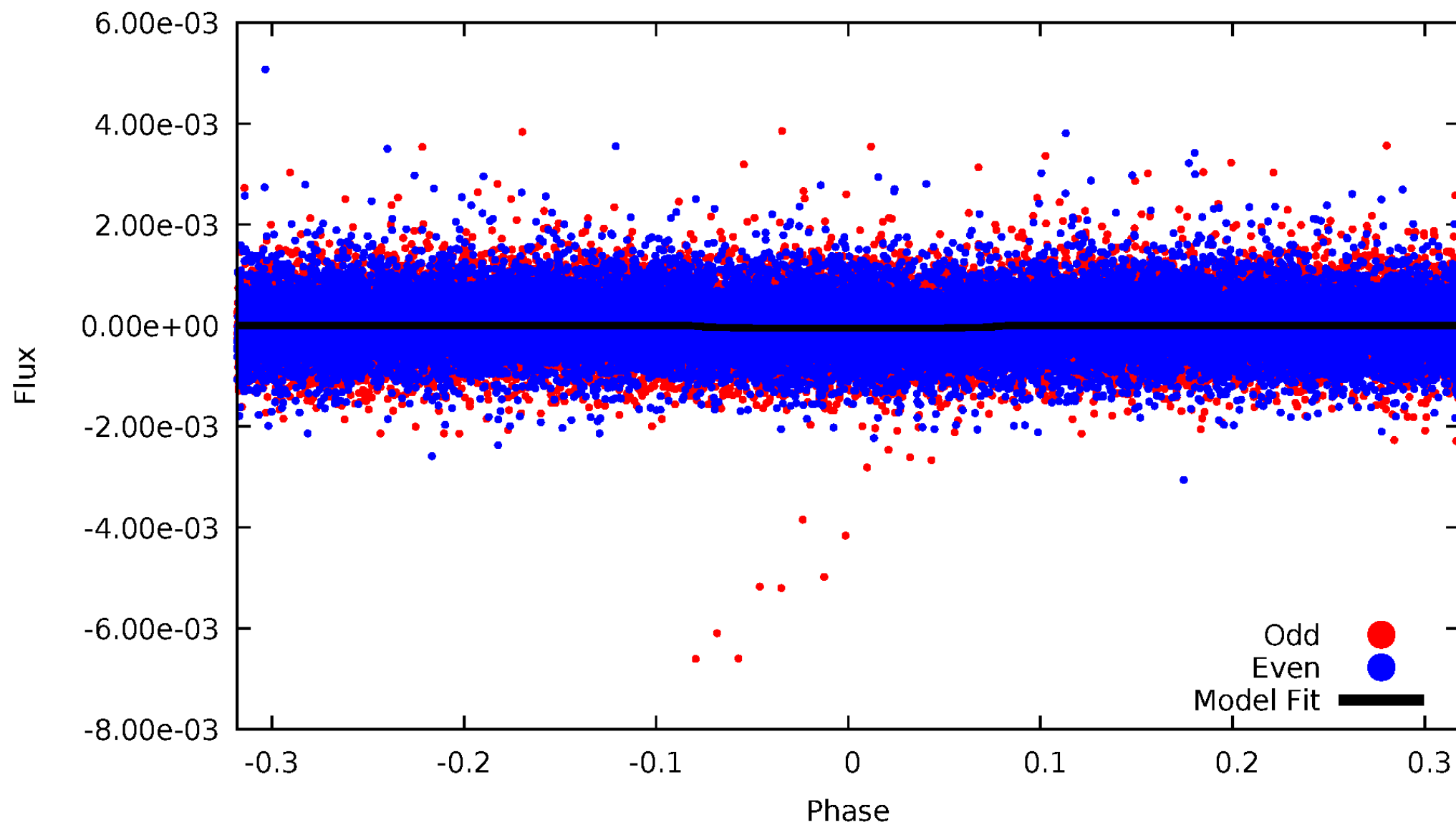


TCE 007448573-01



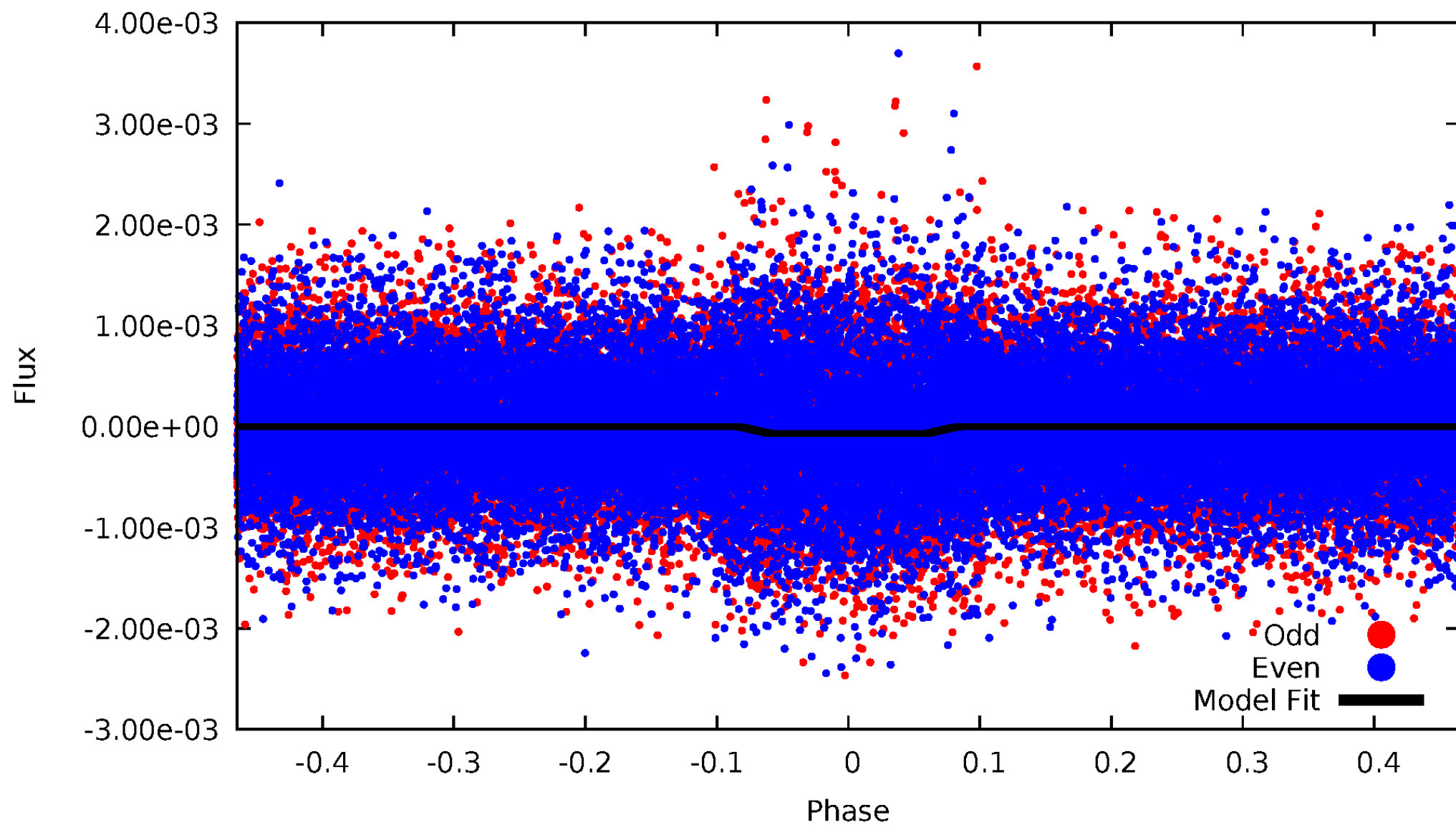
DV Odd/Even

TCE 007448573-01

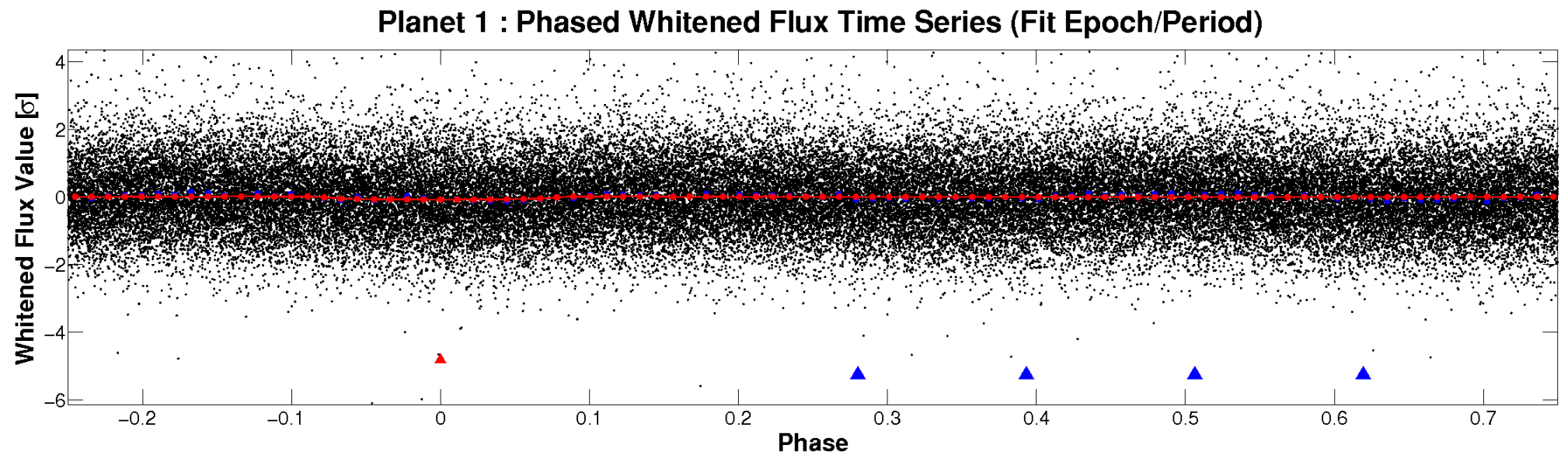
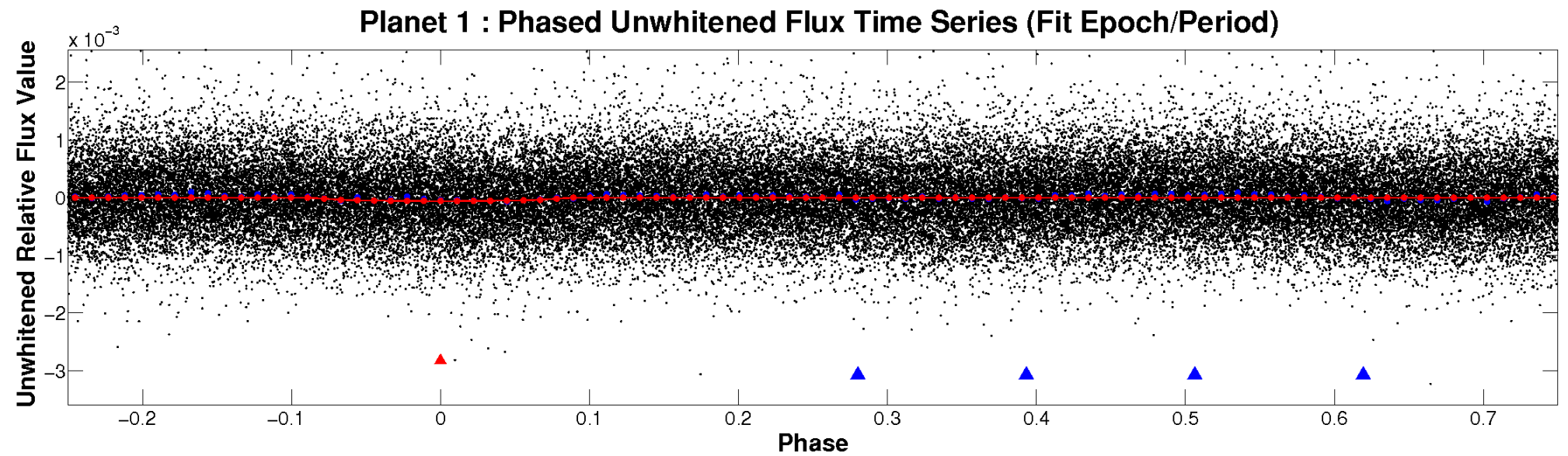


ALT Odd/Even

TCE 007448573-01

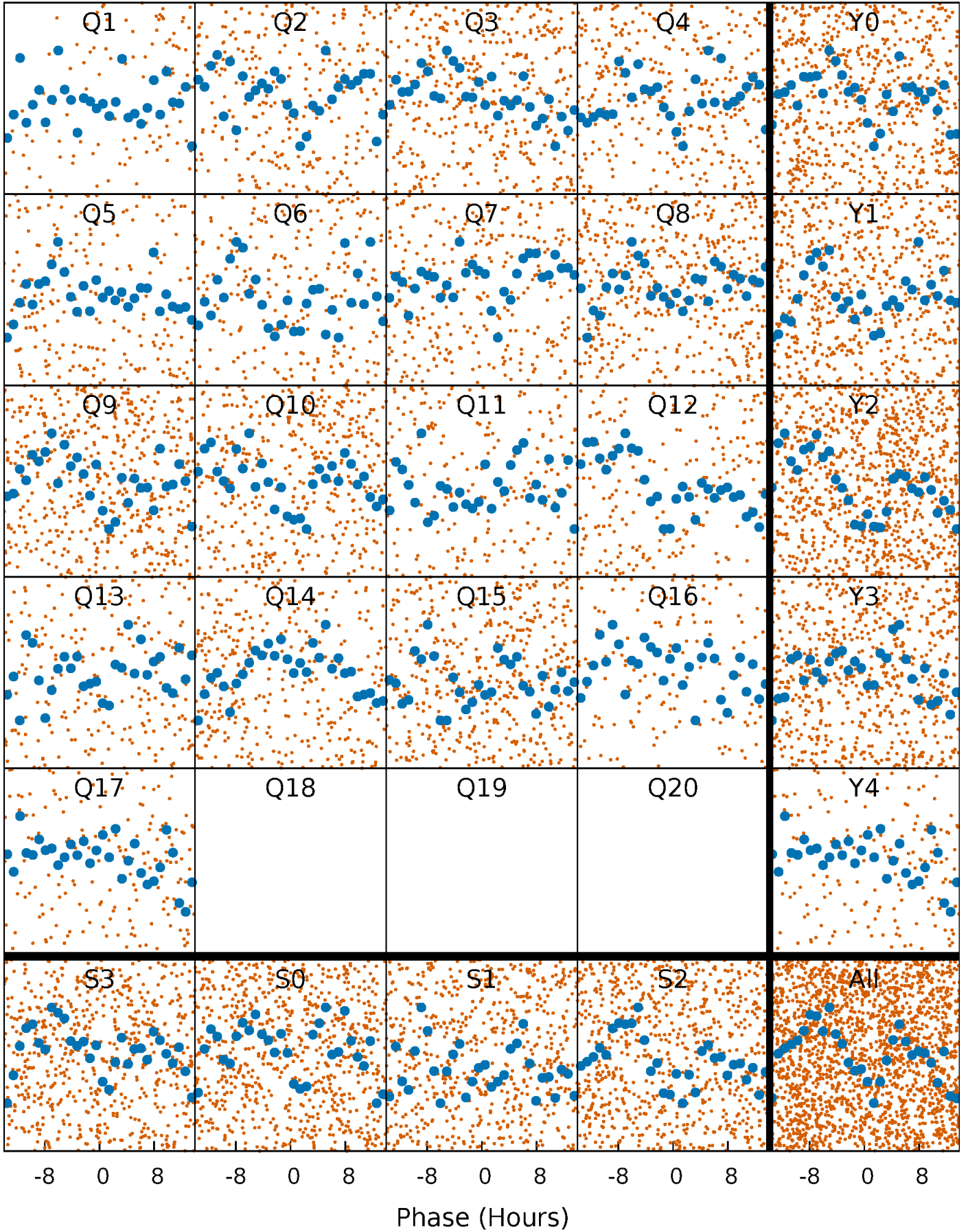


Non-Whitened Vs. Whitened Light Curve



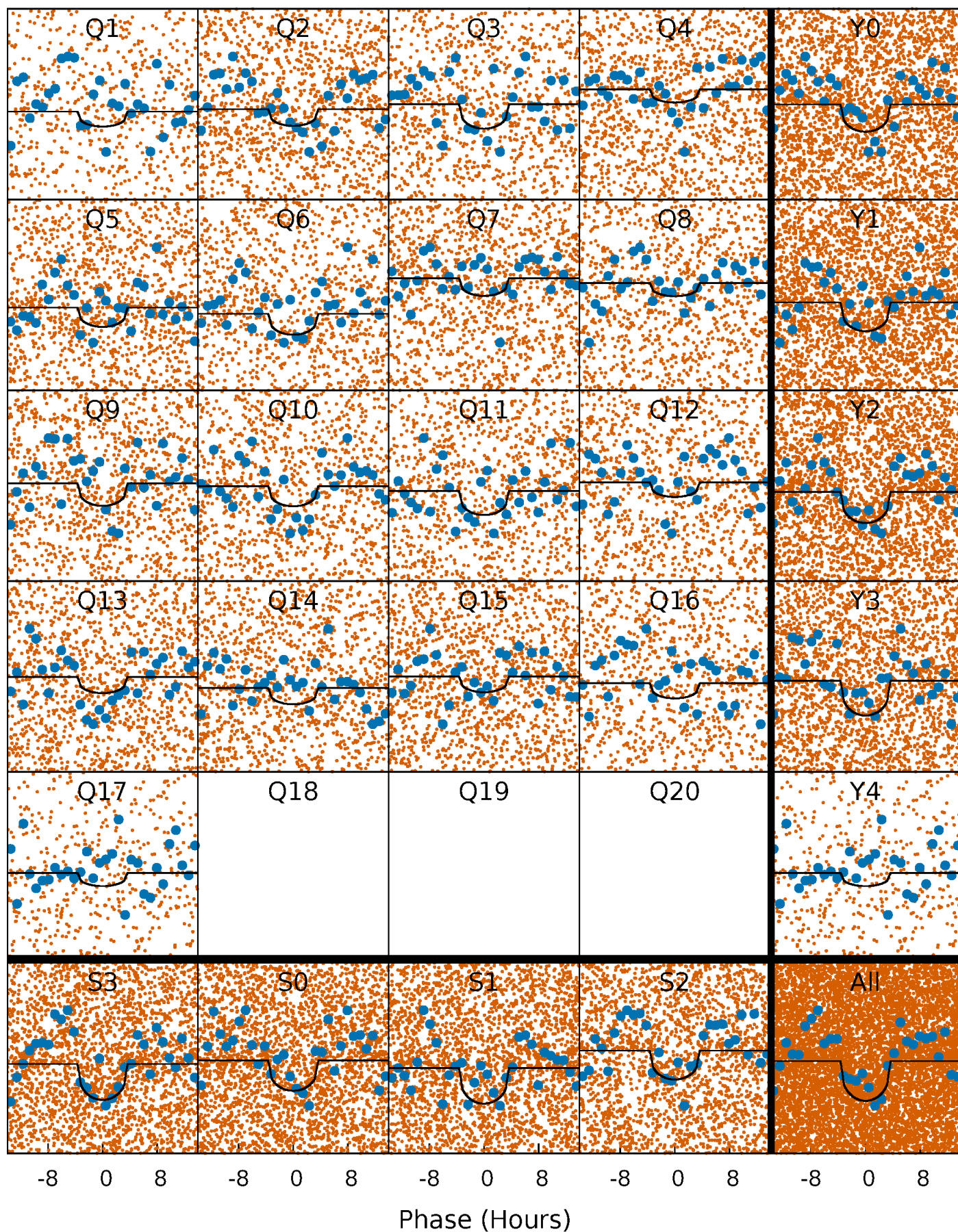
PDC Quarter-Phased Transit Curves

TCE 007448573-01 P= 1.832553 Days $T_0=132.824716$ (BKJD)



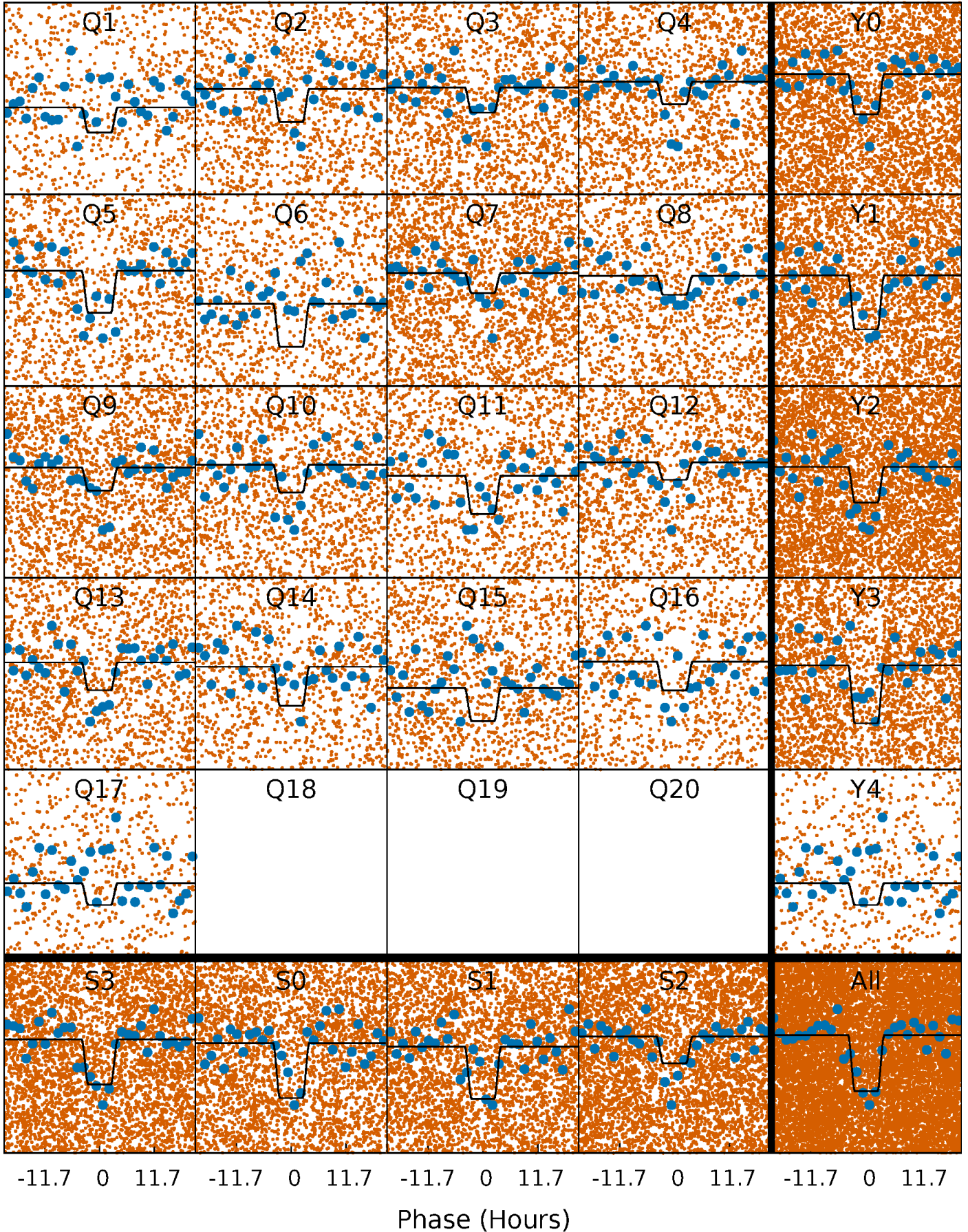
DV Quarter-Phased Transit Curves

TCE 007448573-01 P= 1.832553 Days $T_0=132.824716$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

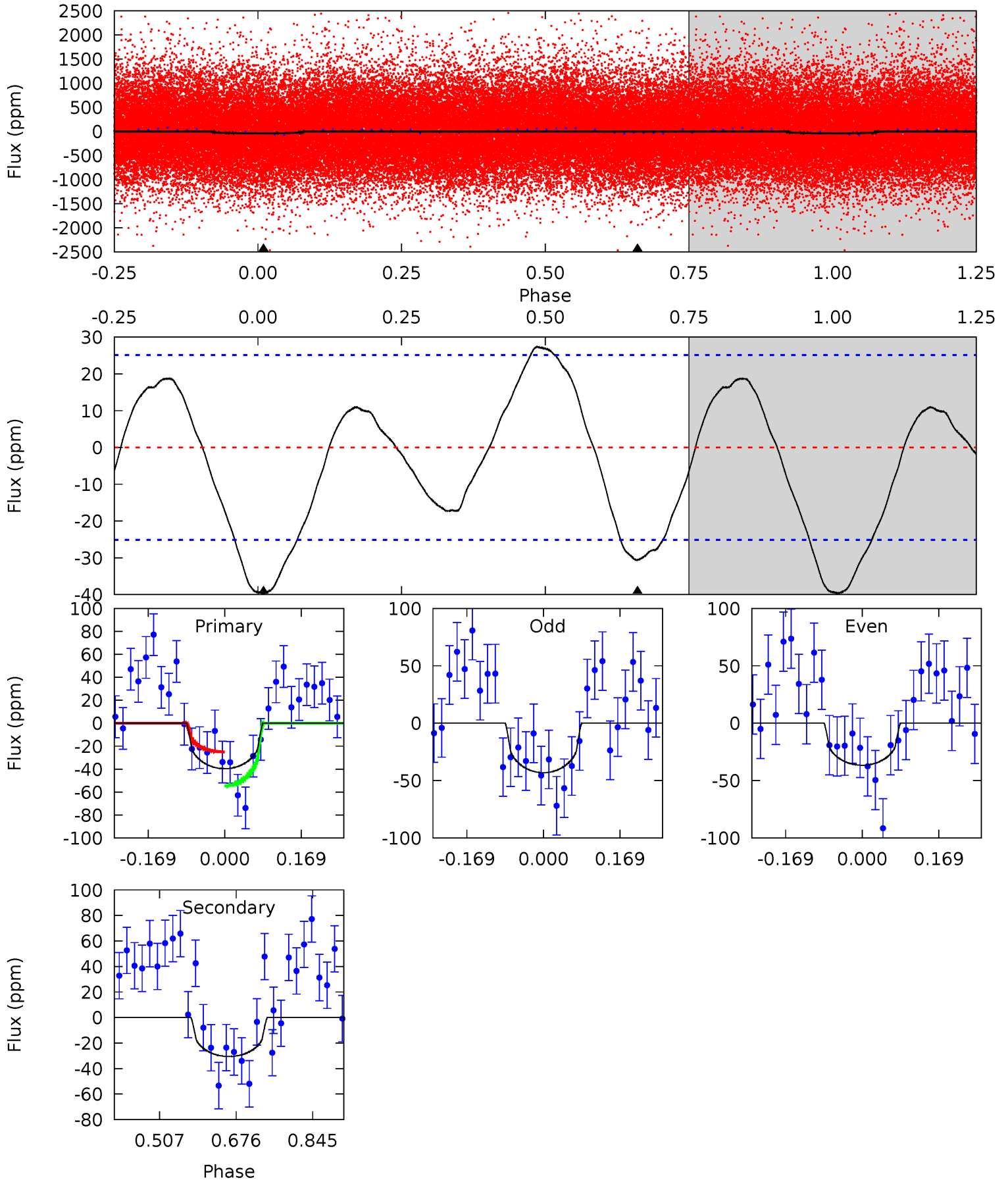
TCE 007448573-01 P= 1.832405 Days $T_0=132.901600$ (BKJD)



DV Model-Shift Uniqueness Test

007448573-01, P = 1.832553 Days, E = 130.992163 Days

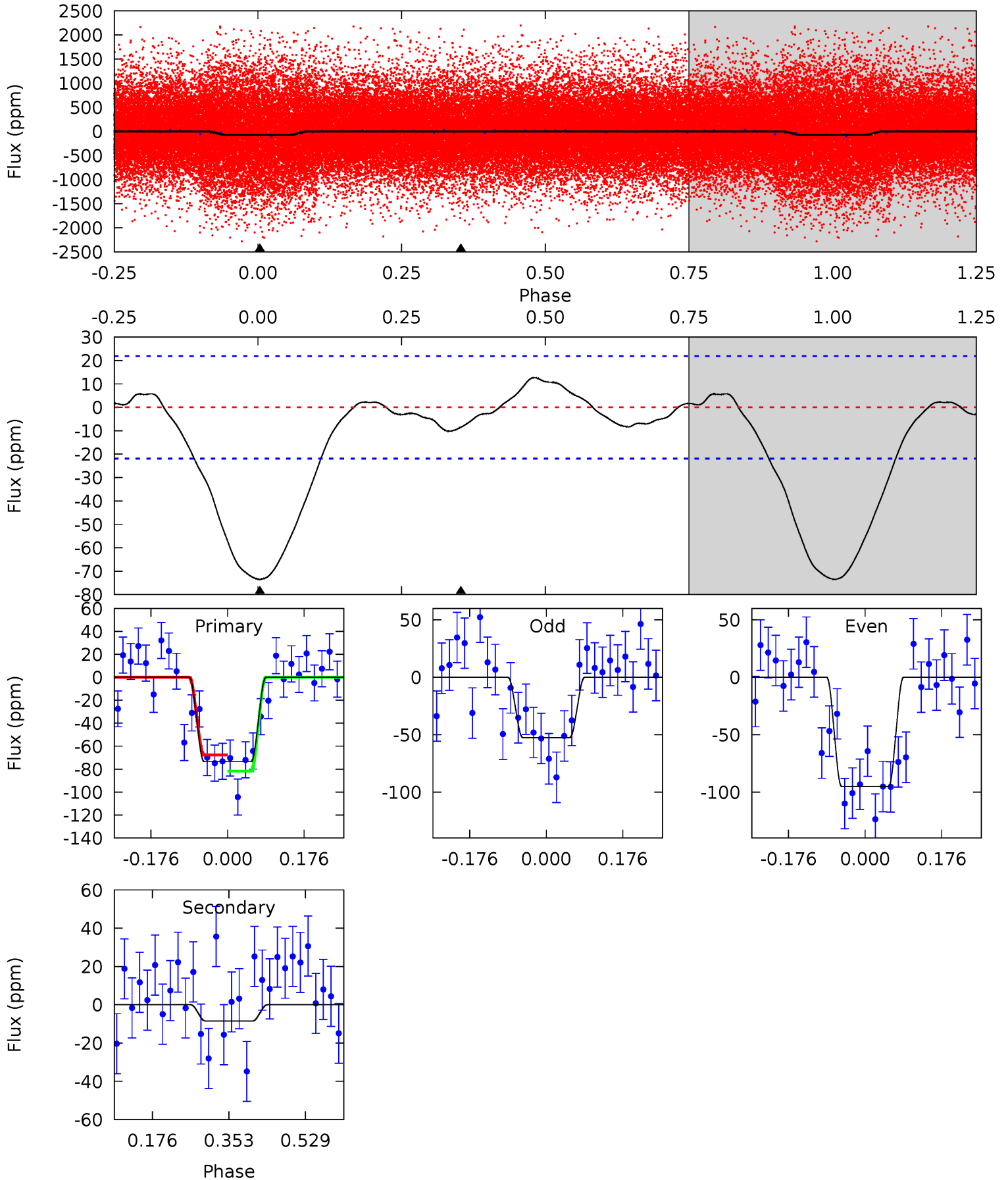
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.02	5.42	0	0	4.45	1.38	2.33	7.02	7.02	5.42	5.42	0.58	1.06	0.41	2.62



Alt Model-Shift Uniqueness Test

007448573-01, P = 1.832405 Days, E = 131.069195 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	1.73	0	0	4.44	1.35	1.03	14.9	14.9	1.73	1.73	4.33	1.08	0.15	1.44



Stellar Parameters For KIC 007448573

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4430^{+133}_{-133}	$4.616^{+0.056}_{-0.020}$	$-0.180^{+0.300}_{-0.300}$	$0.651^{+0.040}_{-0.063}$	$0.638^{+0.068}_{-0.051}$	$3.261^{+0.756}_{-0.323}$
	+3%/-3%	+1%/-0%	+167%/-167%	+6%/-10%	+11%/-8%	+23%/-10%
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 007448573-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-31 ± 6	$0.55^{+0.45}_{-0.36}$	1377^{+48}_{-49}	3892^{+2137}_{-690}	35^{+267}_{-25}
Alt.	-9 ± 5	$0.66^{+0.47}_{-0.39}$	1374^{+45}_{-47}	2968^{+1057}_{-539}	$6.442^{+36.420}_{-4.837}$

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

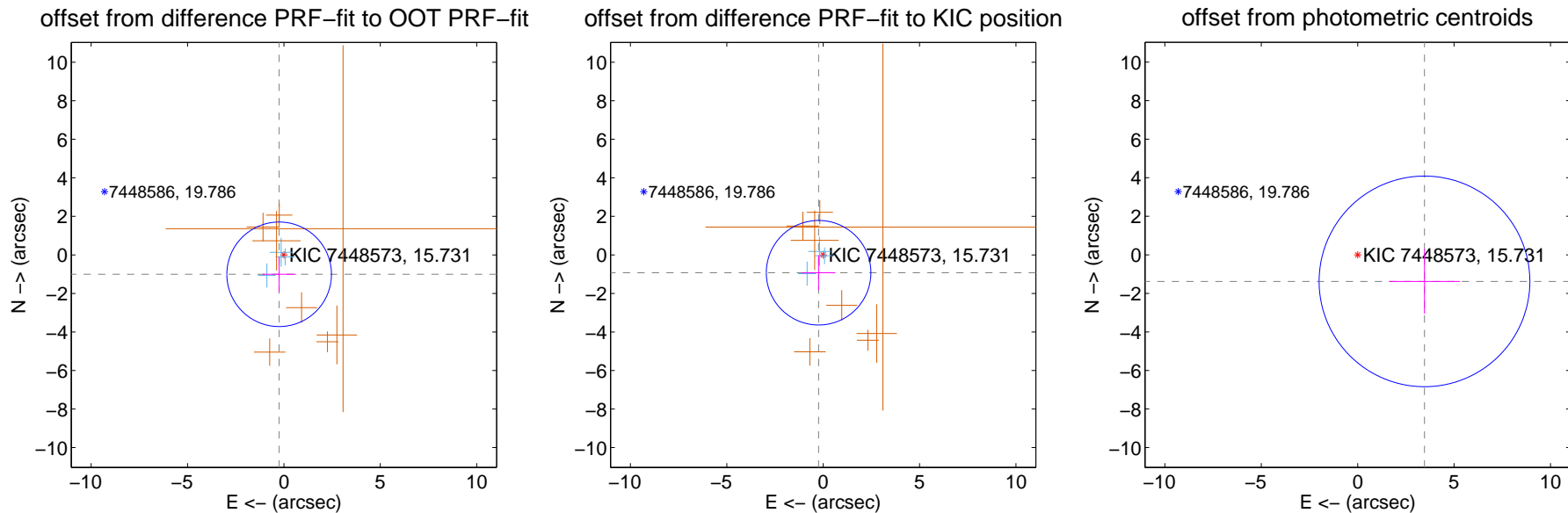
DV Centroid Data

Supplemental centroid analysis for 007448573-01. Kepler magnitude: 15.73. Transit SNR 6.37

There are 3 quarters with good PRF difference image offsets

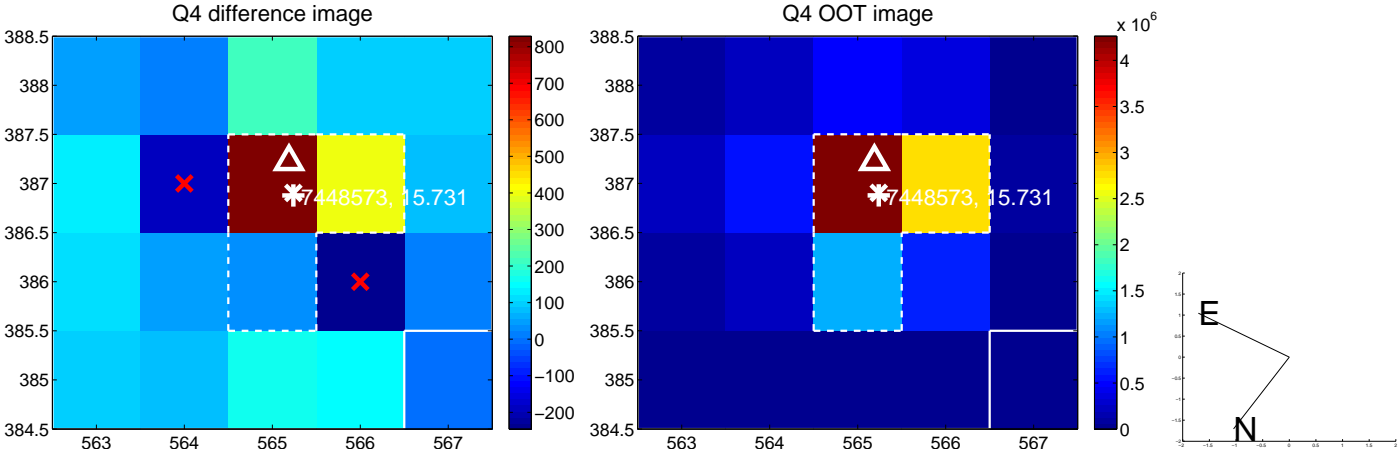
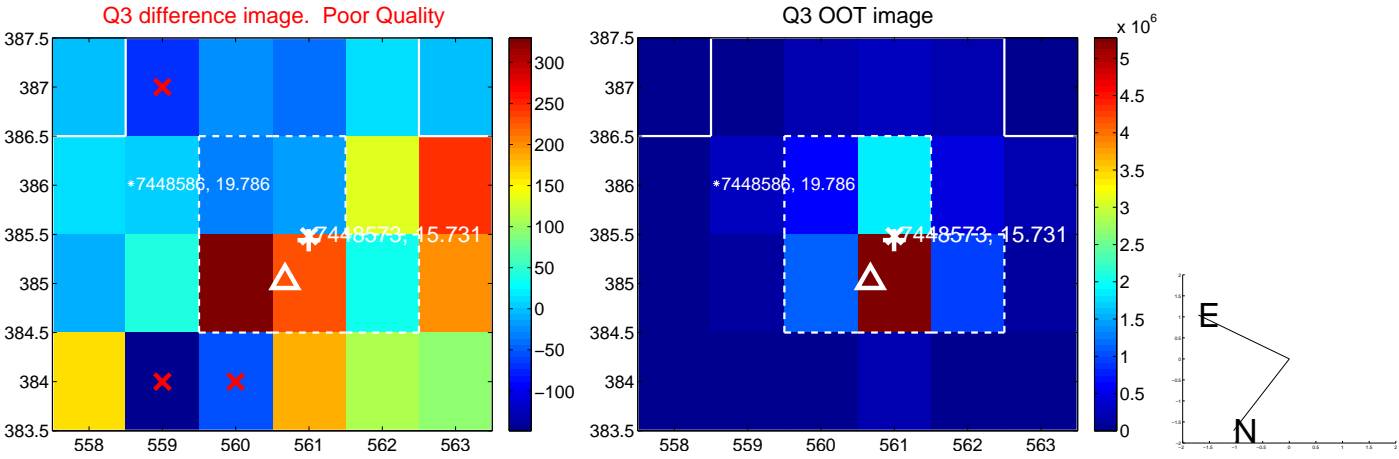
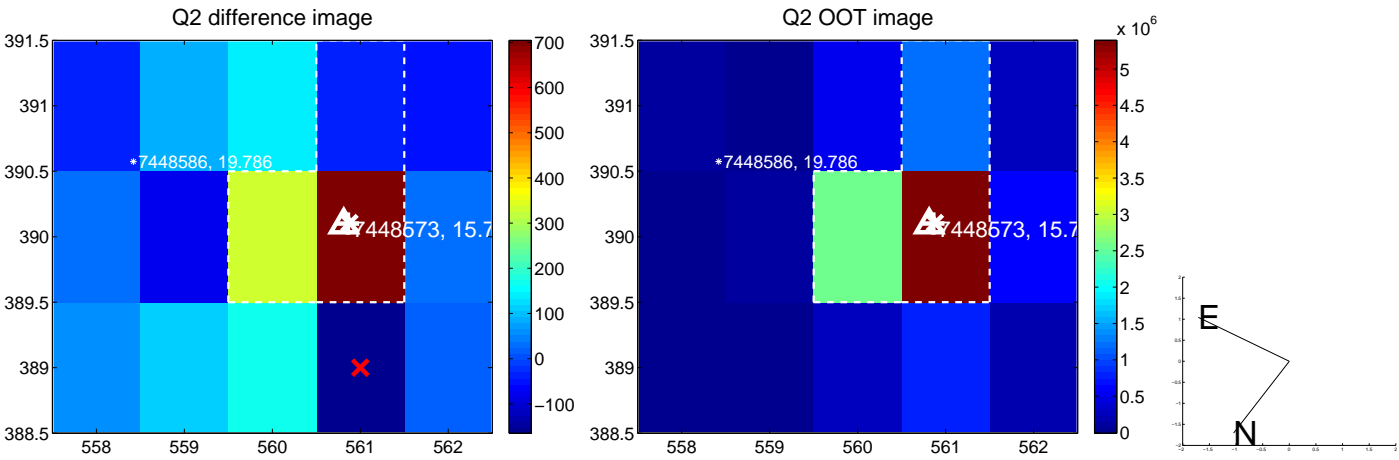
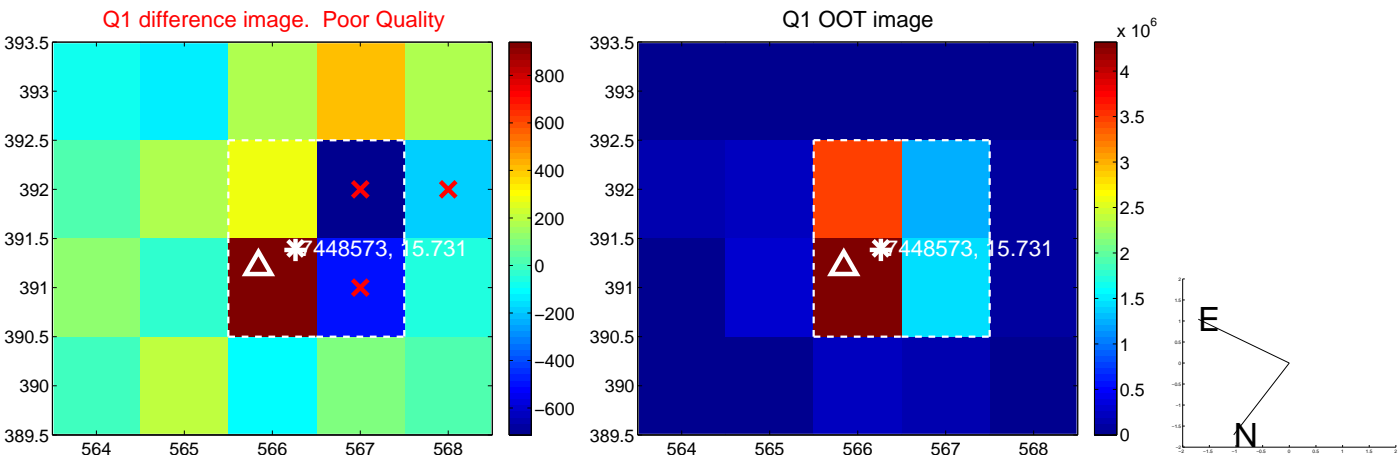
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.037 ± 0.904	1.15	0.247 ± 0.870	-1.007 ± 0.906
PRF-fit source offset from KIC position	0.955 ± 0.904	1.06	0.238 ± 0.870	-0.925 ± 0.906
photometric centroid source offset	3.73 ± 1.82	2.05	-3.46 ± 1.84	-1.38 ± 1.68

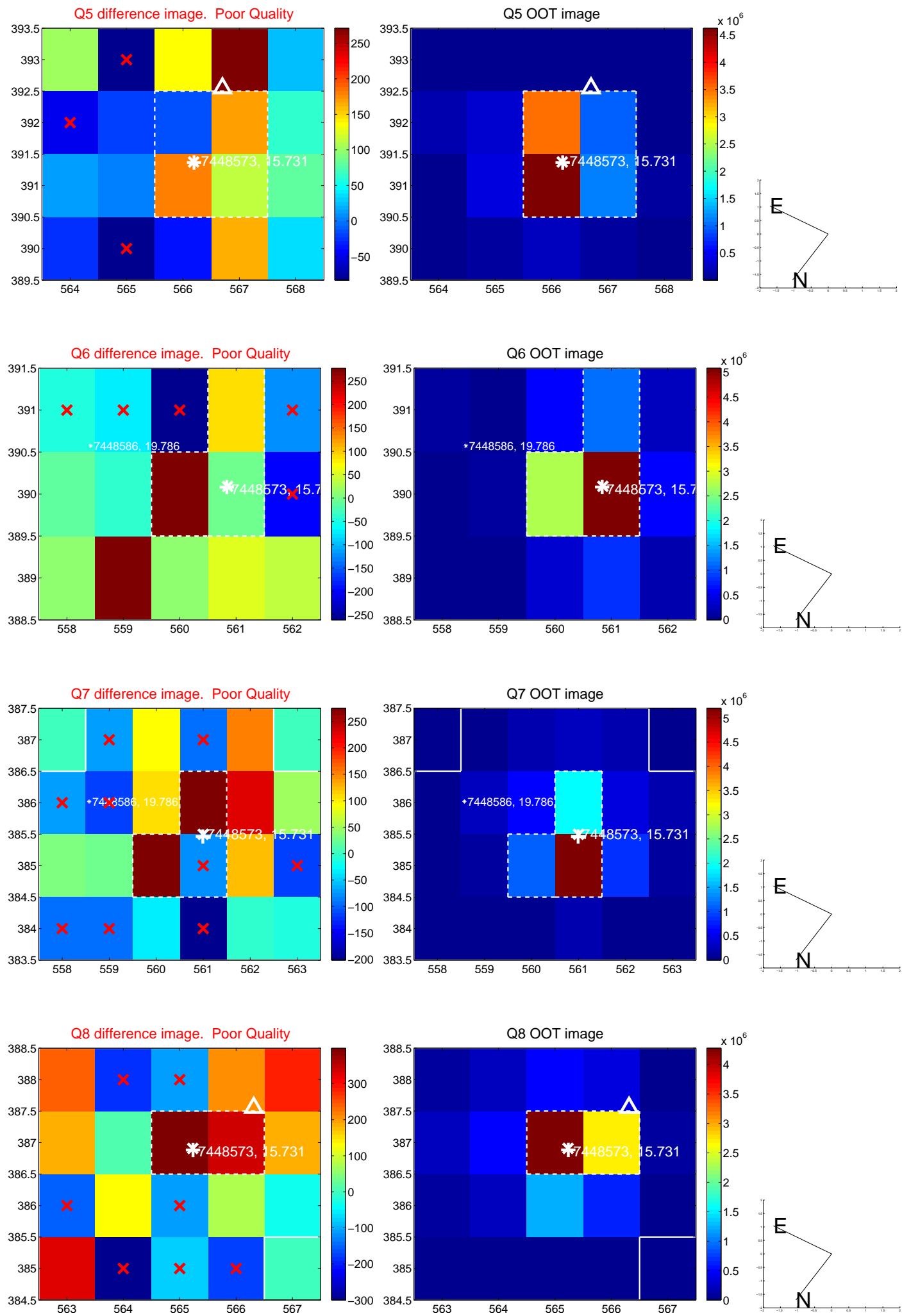


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

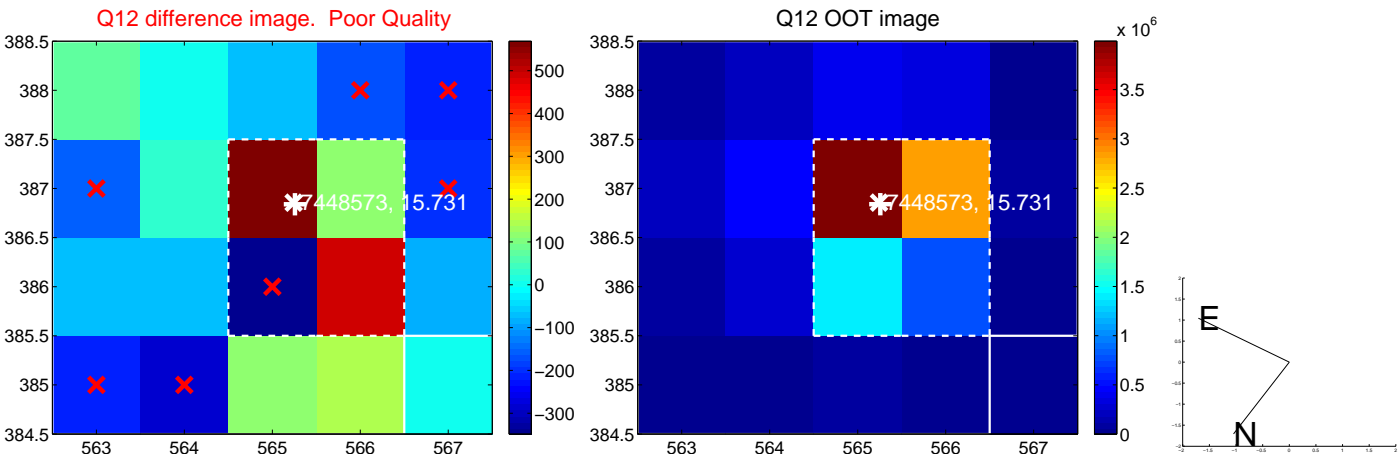
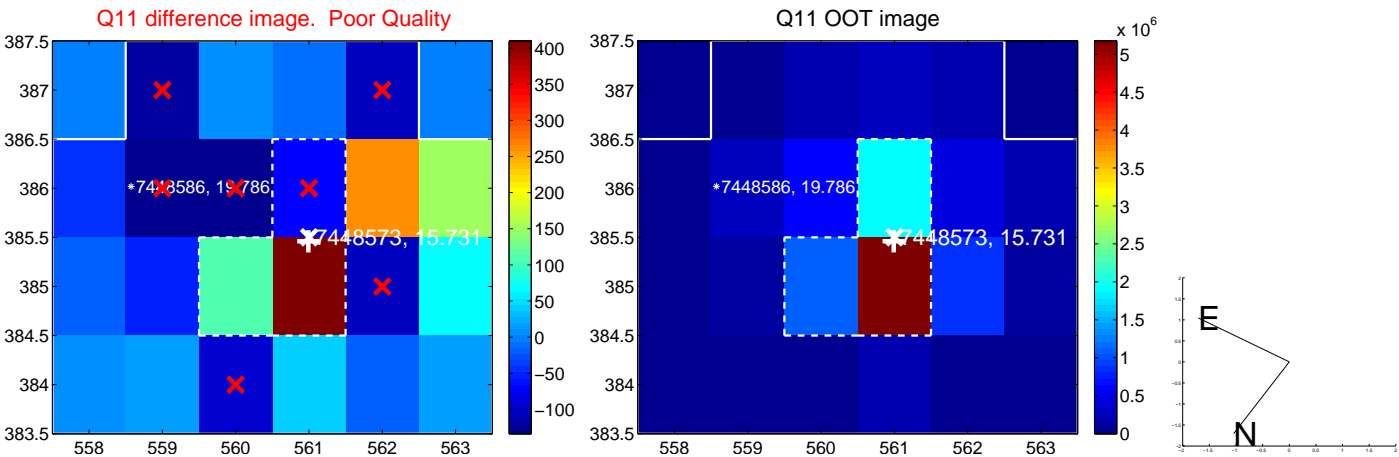
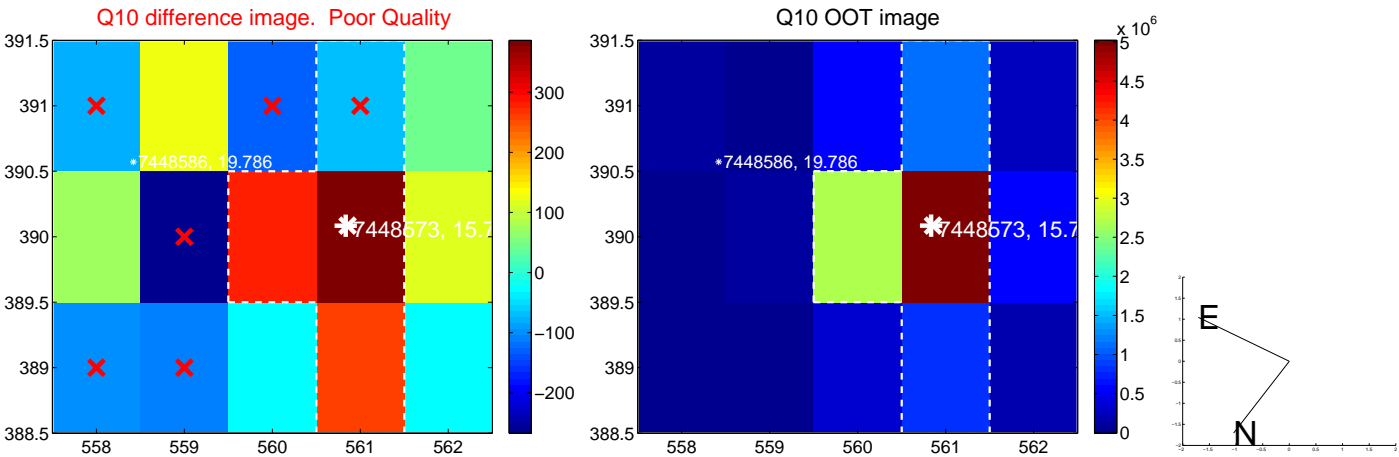
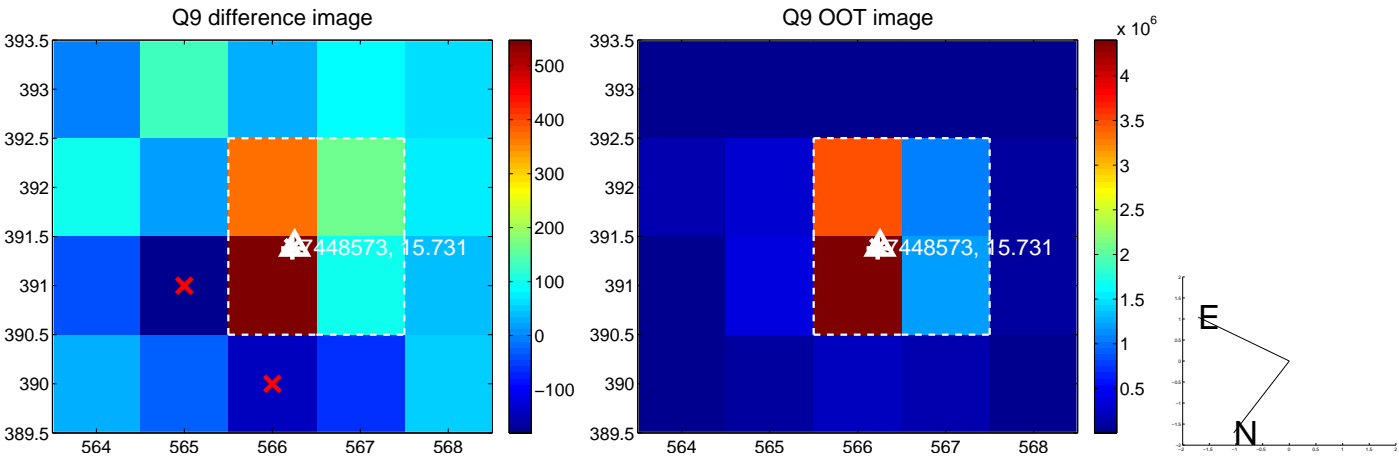
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



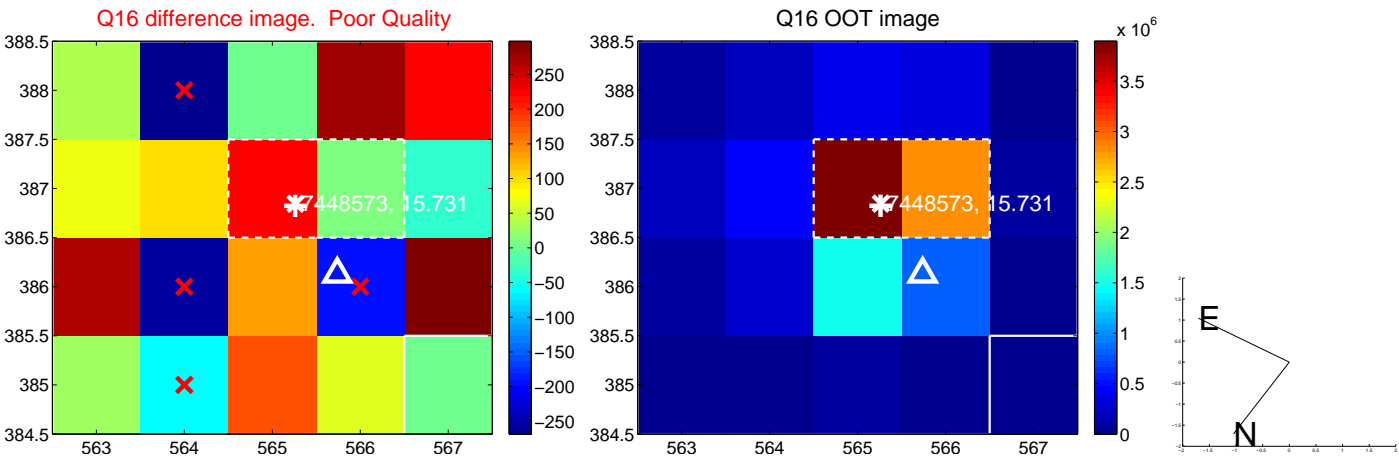
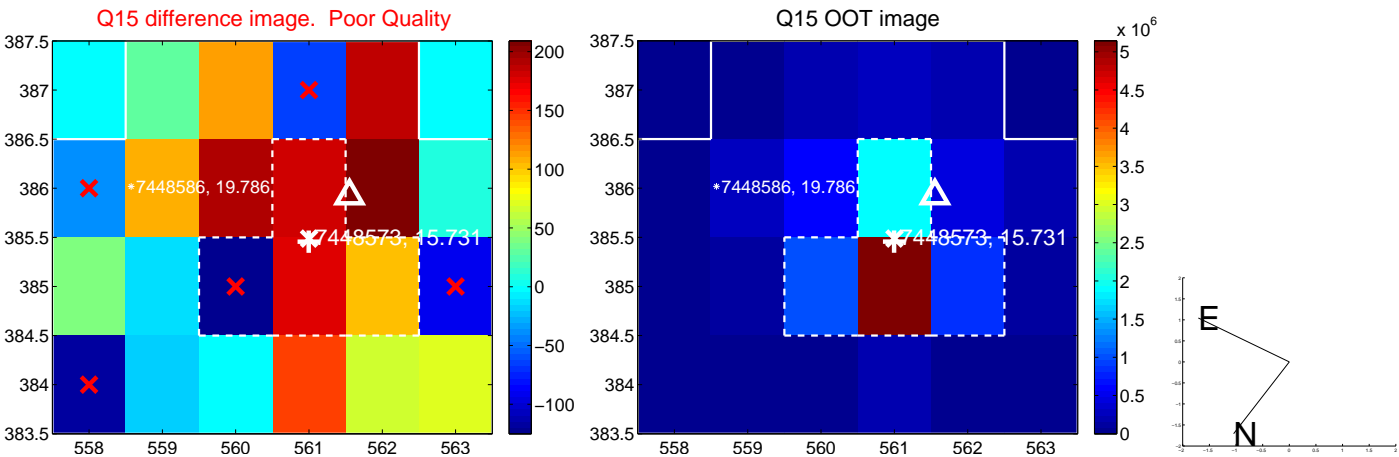
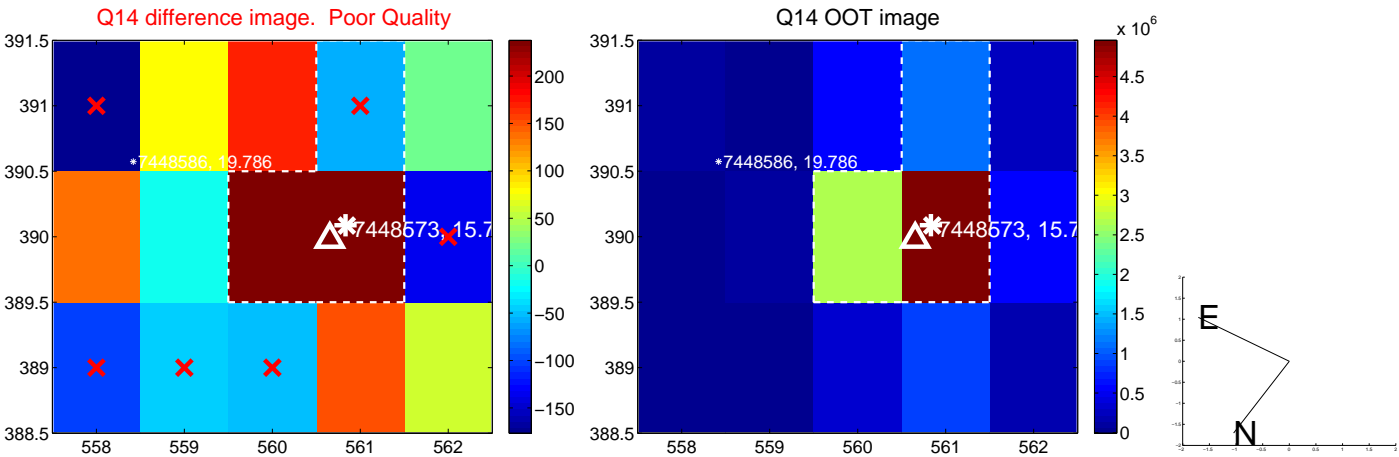
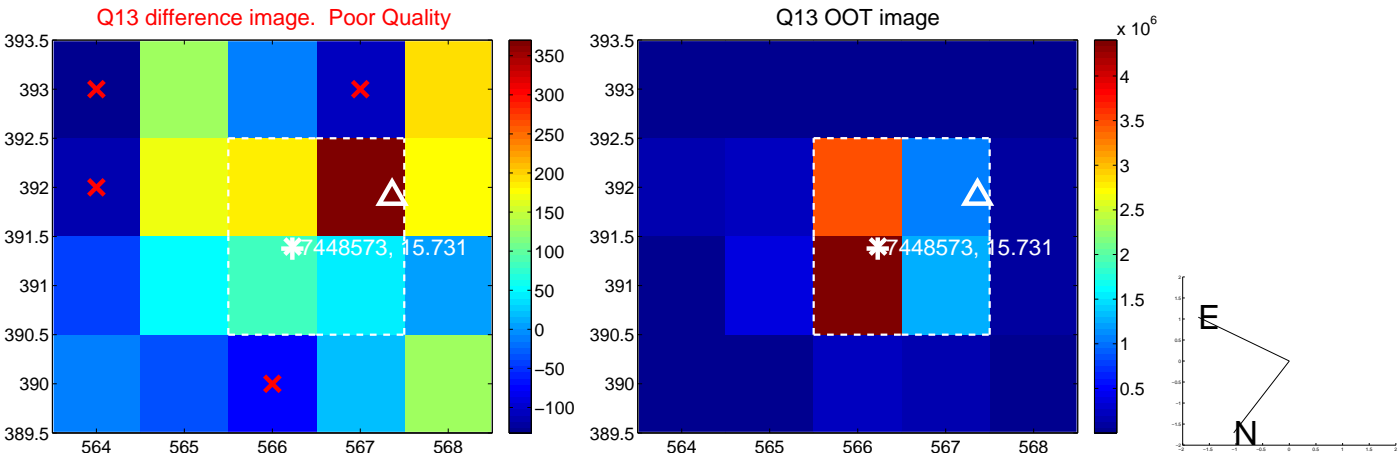
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



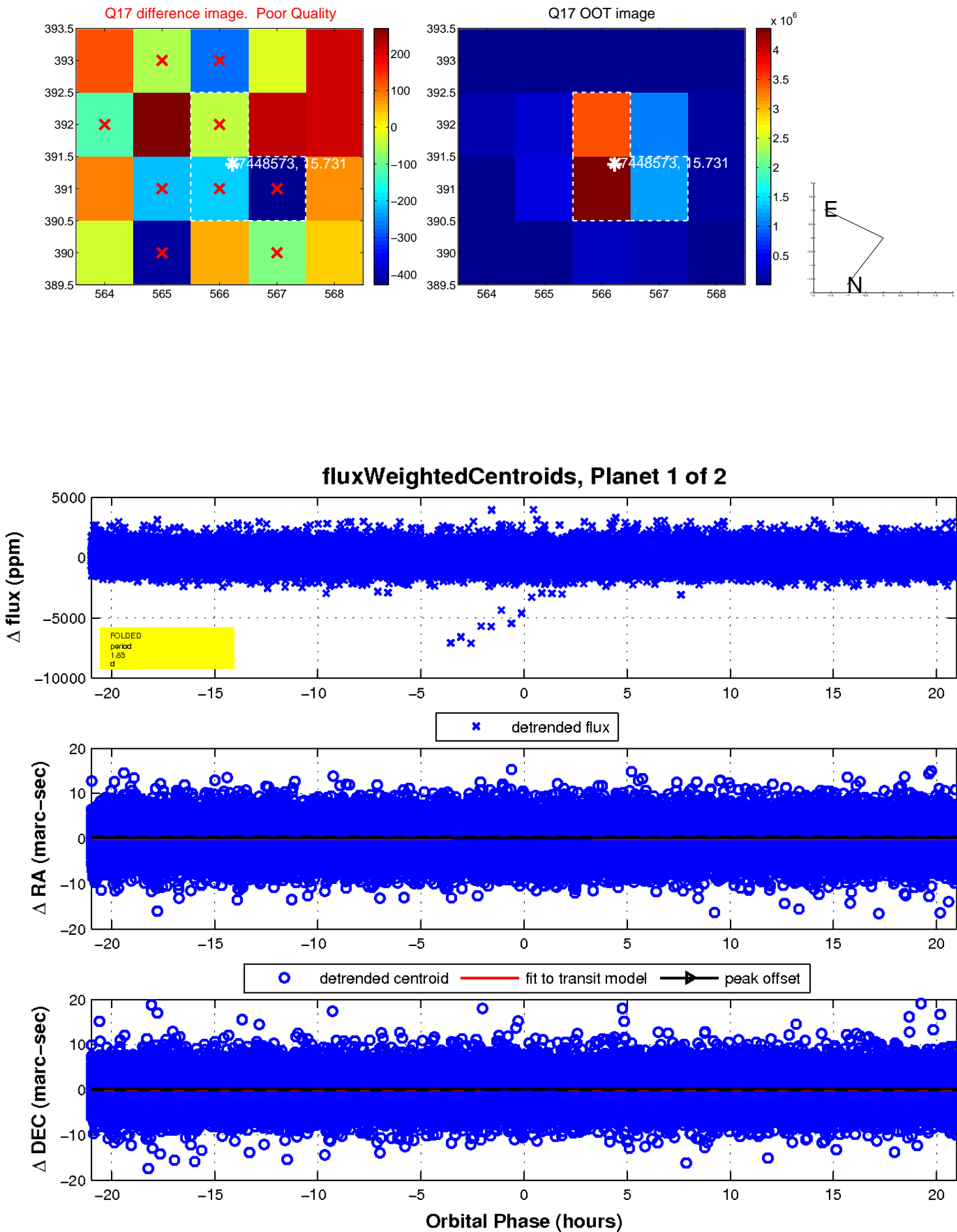
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

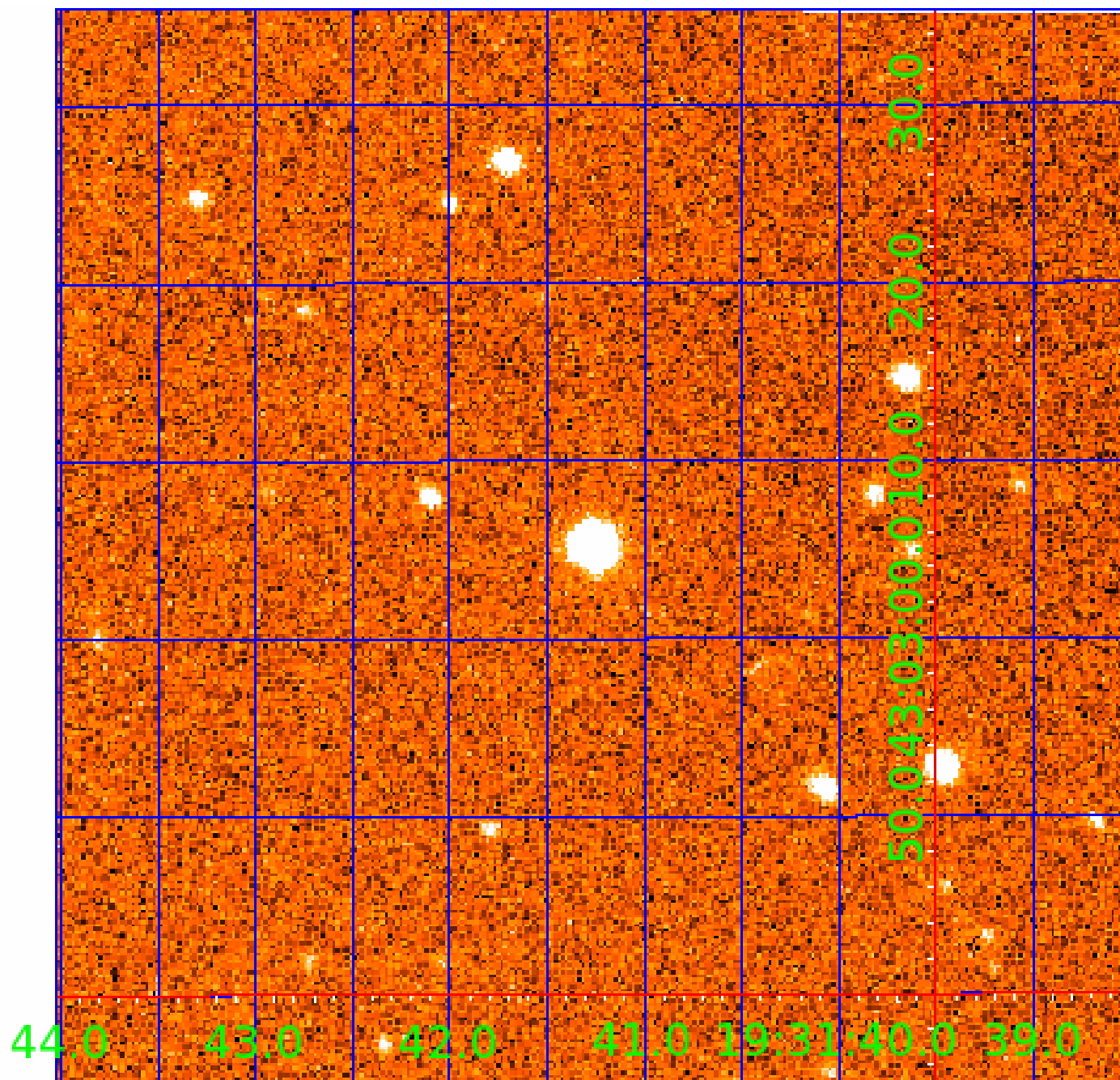


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448573

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})
007448573-01	OBS	No	1.832553	132.824717	56.9	6.990	7.1	6.4	0.65	4430	0.51	229.52
007448573-02	OBS	No	319.071379	366.072376	566.1	17.532	8.3	4.5	0.65	4430	1.68	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448573-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
007448573-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

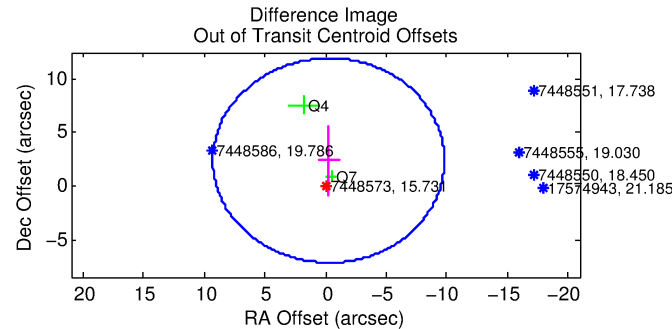
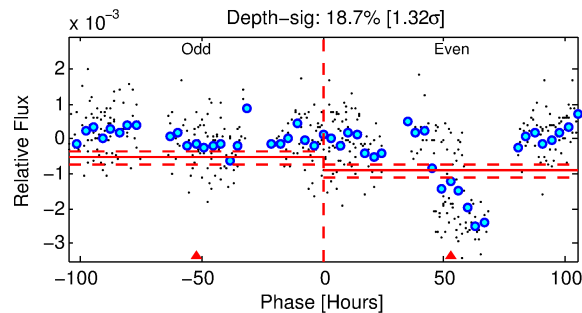
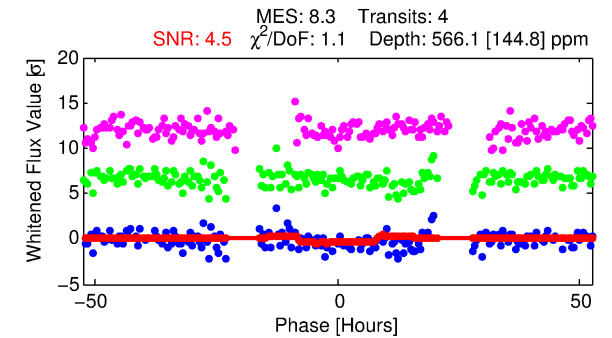
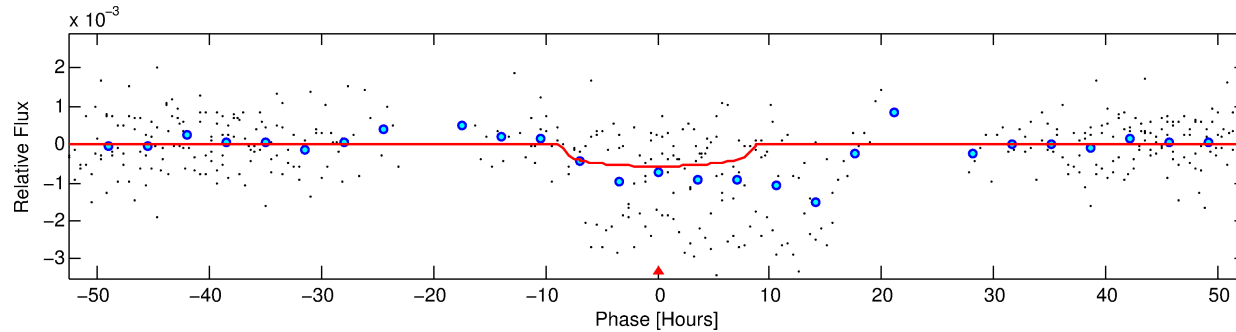
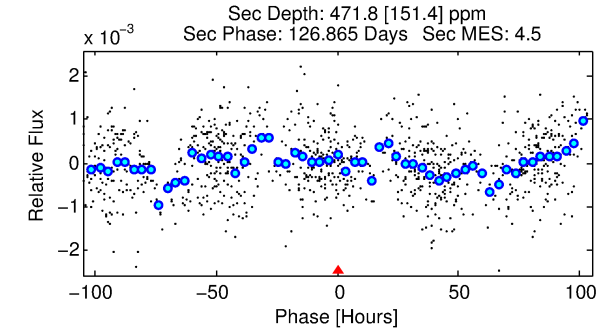
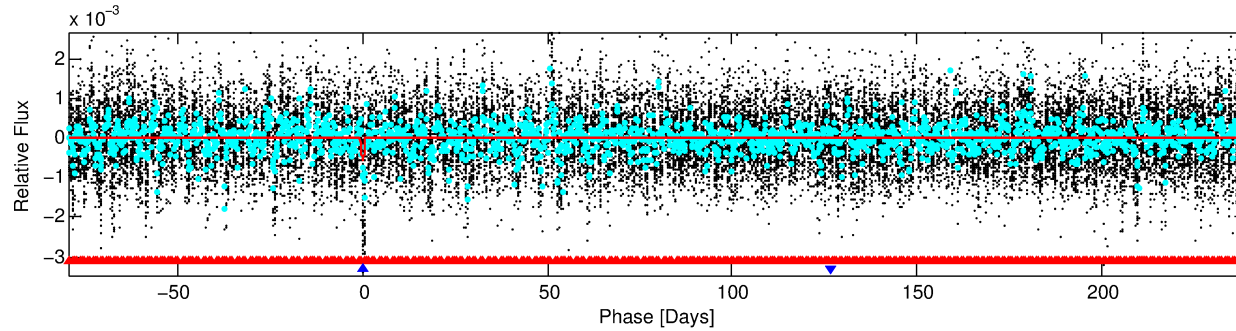
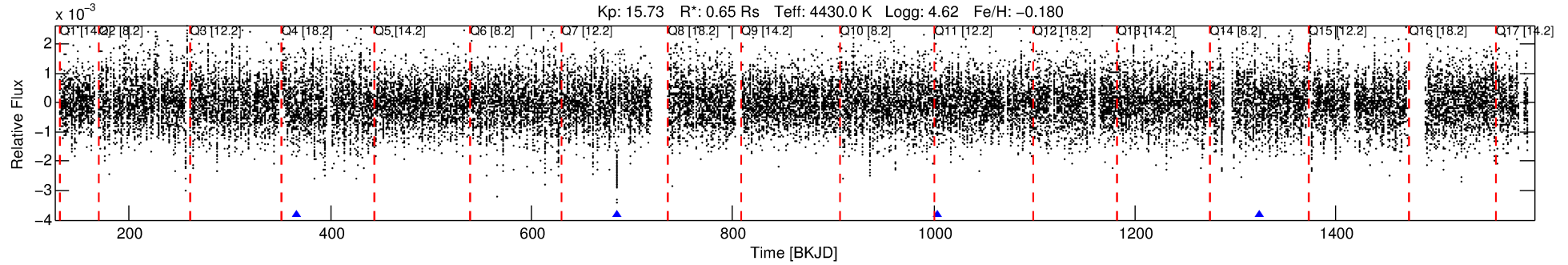
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448573-02

No Significant Match Found

DV One-Page Summary

KIC: 7448573 Candidate: 2 of 2 Period: 319.071 d



DV Fit Results:

Period = 319.07138 [0.03805] d
Epoch = 366.0724 [0.0679] BKJD
Rp/R* = 0.0236 [0.0158]
a/R* = 99.34 [211.37]
b = 0.73 [1.36]
Seff = 0.24 [0.04]
Teq = 178 [7] K
Rp = 1.68 [1.13] Re
a = 0.7871 [0.0610] AU
Ag = 57154.15 [78883.85] [0.72σ]
Teffp = 4249 [1467] K [2.77σ]

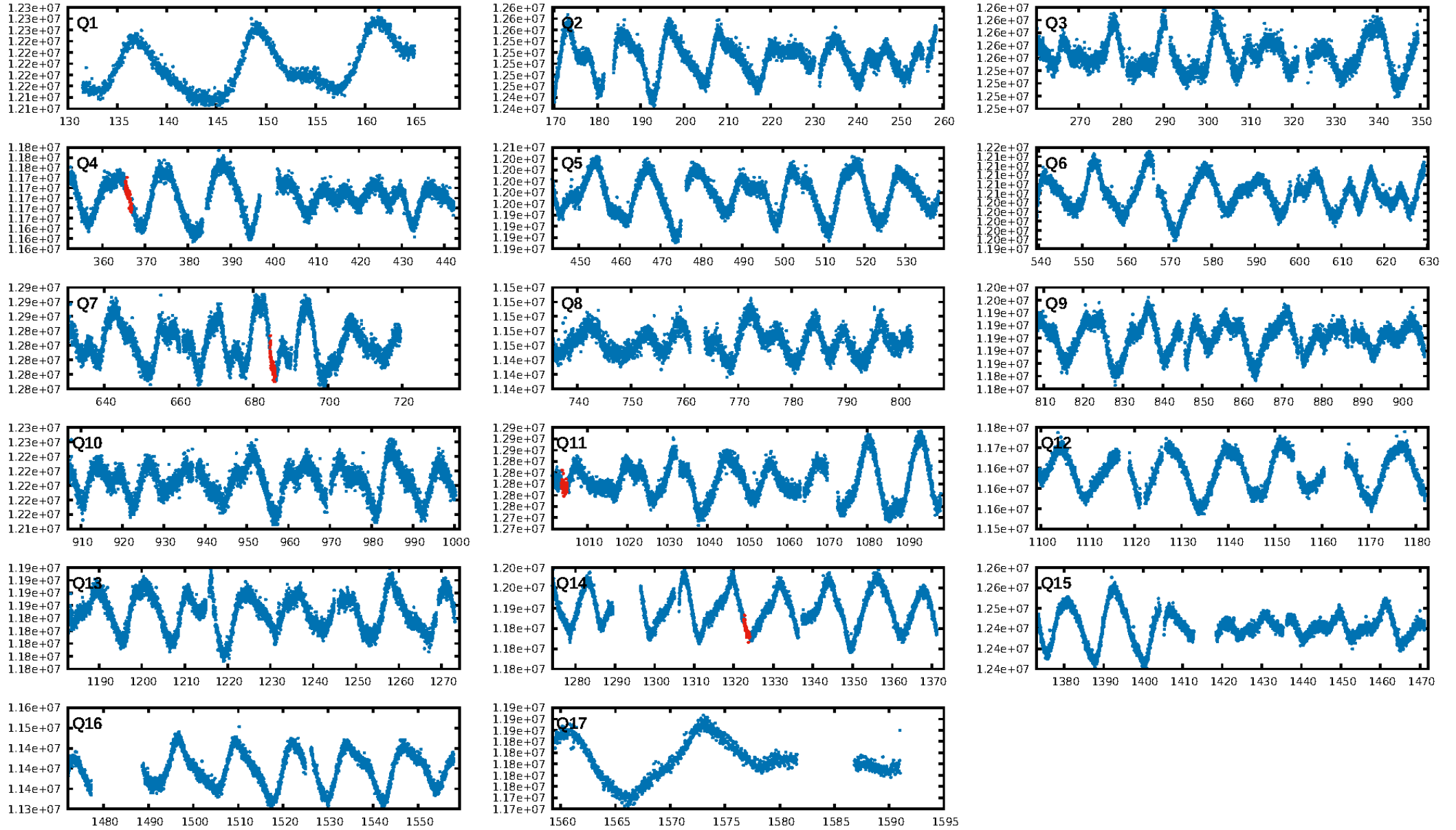
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [403.39σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.87e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6344
Centroid-sig: 0.1%
Centroid-so: 3.842 arcsec [2.31σ]
OotOffset-rm: 2.400 arcsec [0.75σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 2.558 arcsec [0.82σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/3]

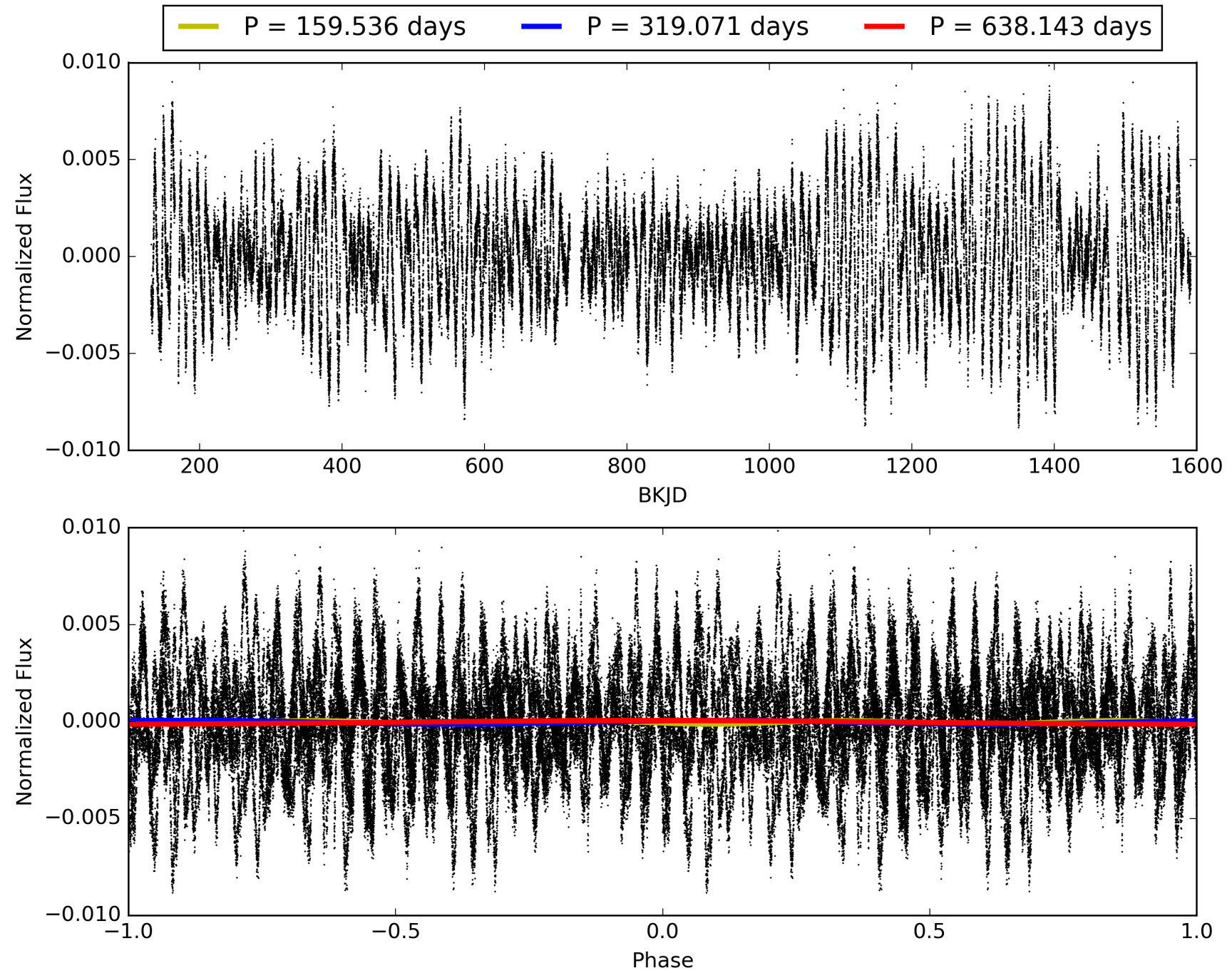
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:27:41 Z

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TCE 007448573-02, PDC Light Curves

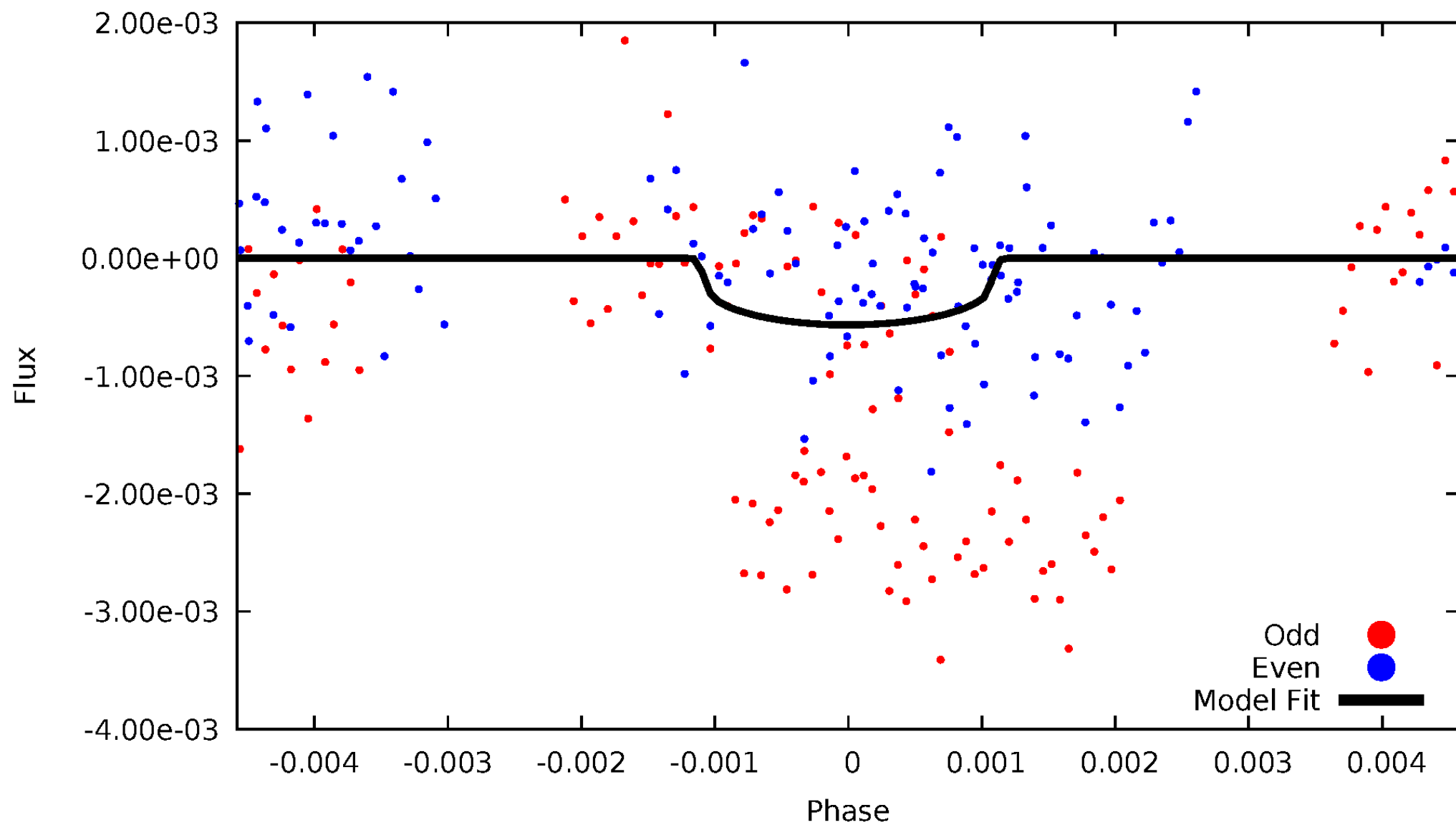


TCE 007448573-02



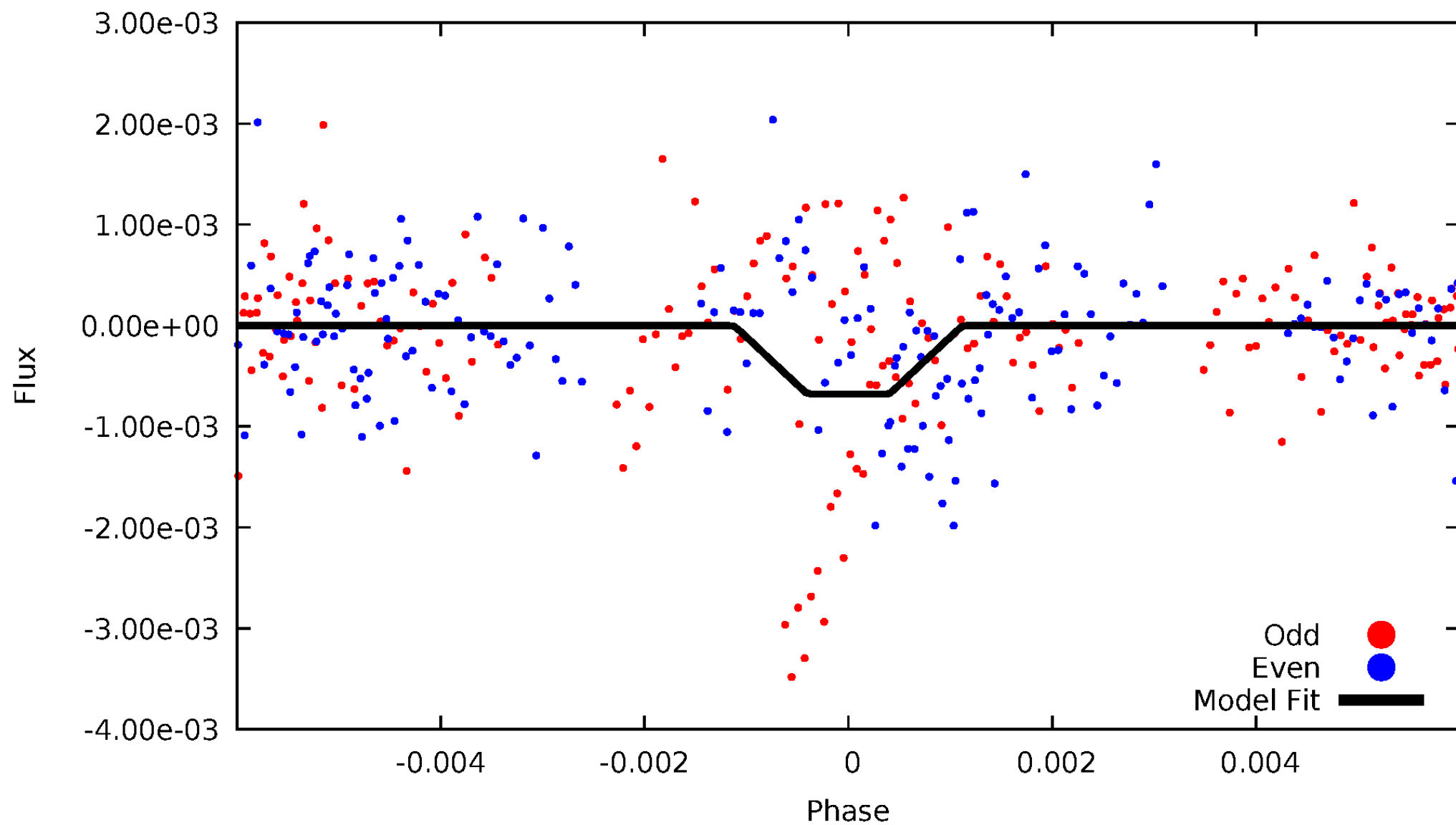
DV Odd/Even

TCE 007448573-02



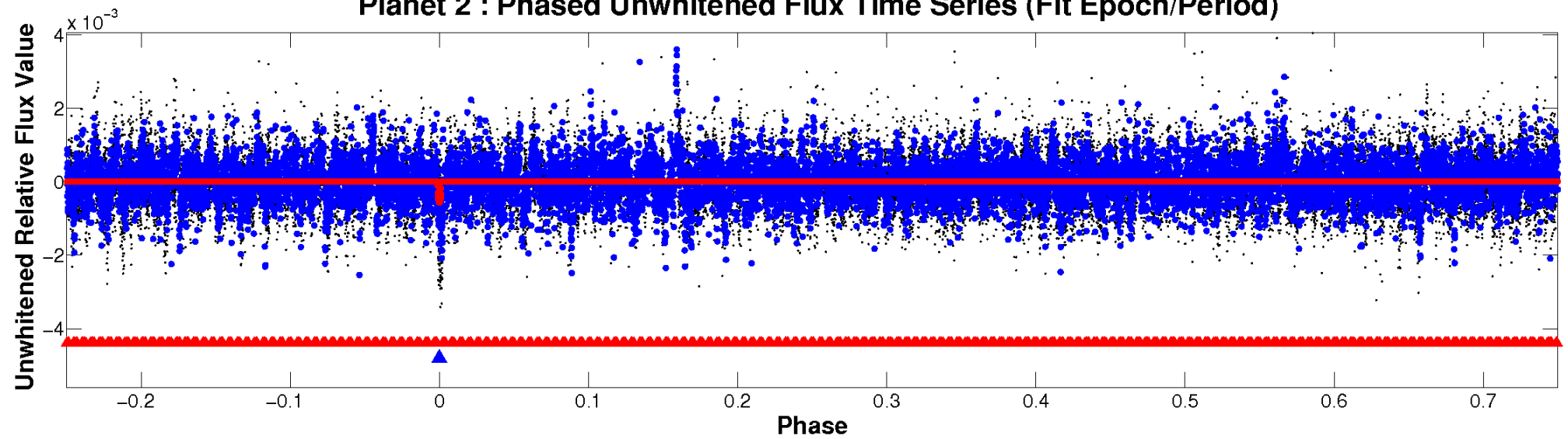
ALT Odd/Even

TCE 007448573-02

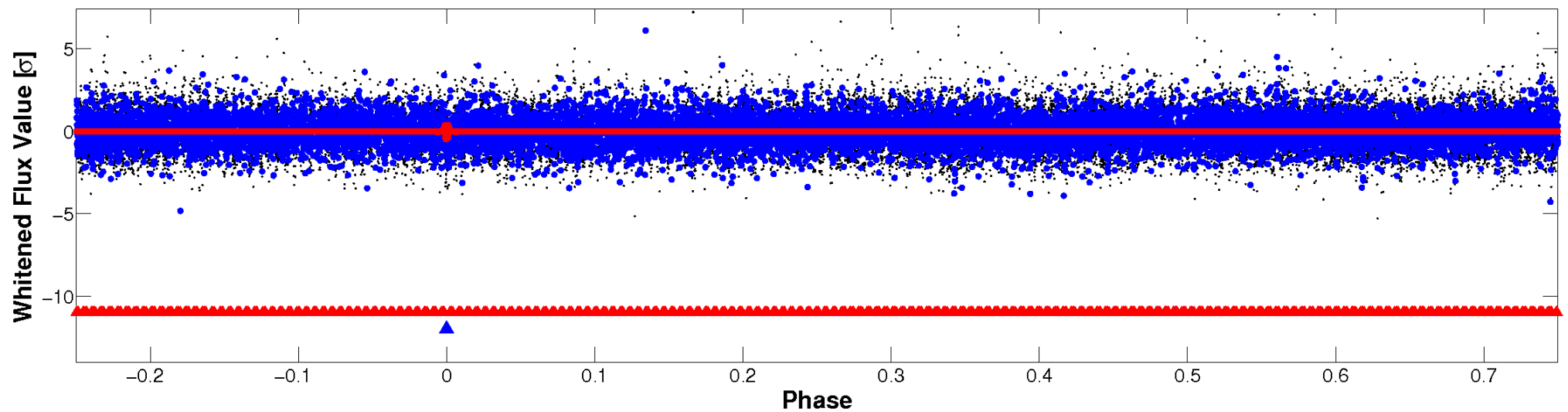


Non-Whitened Vs. Whitened Light Curve

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

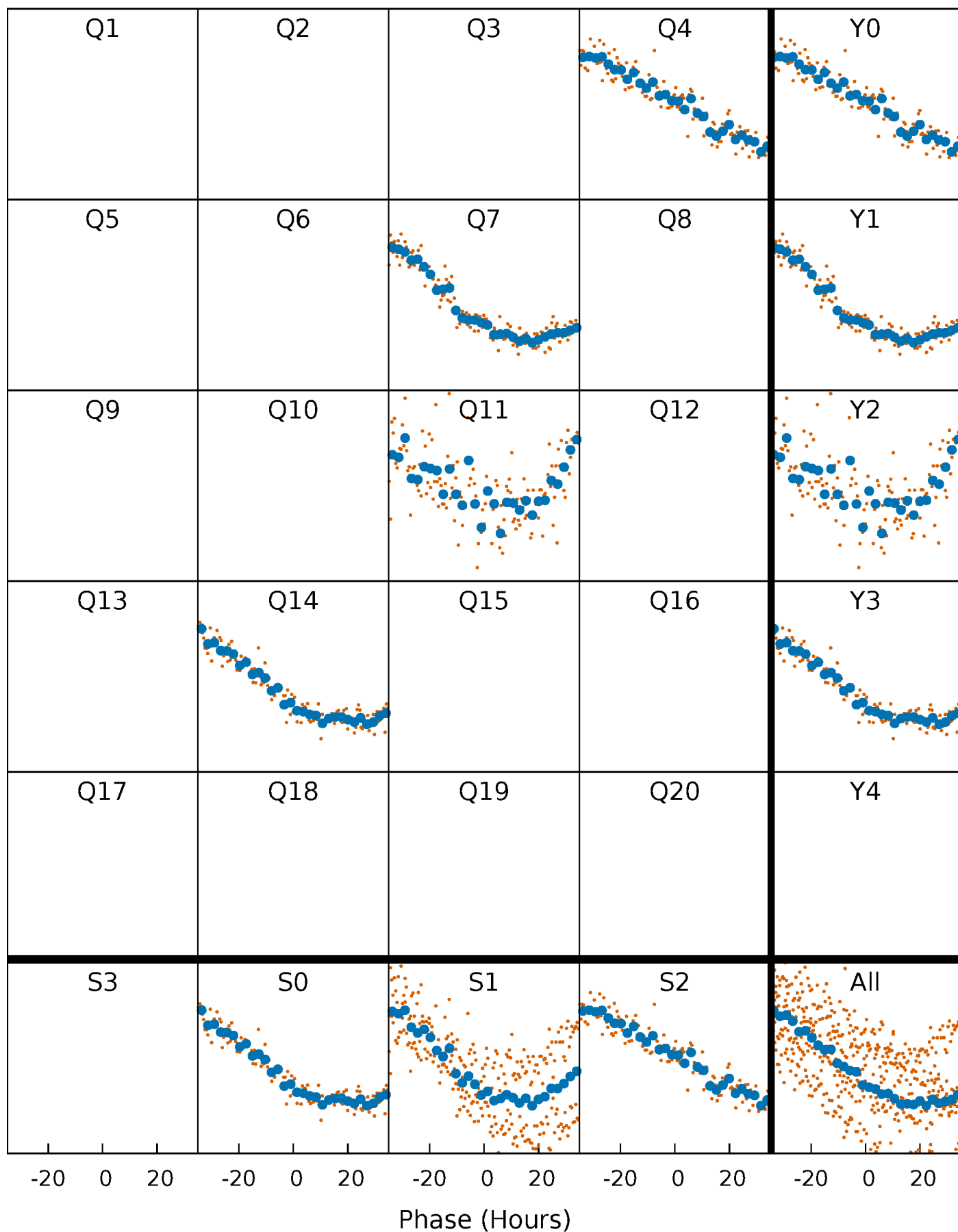


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



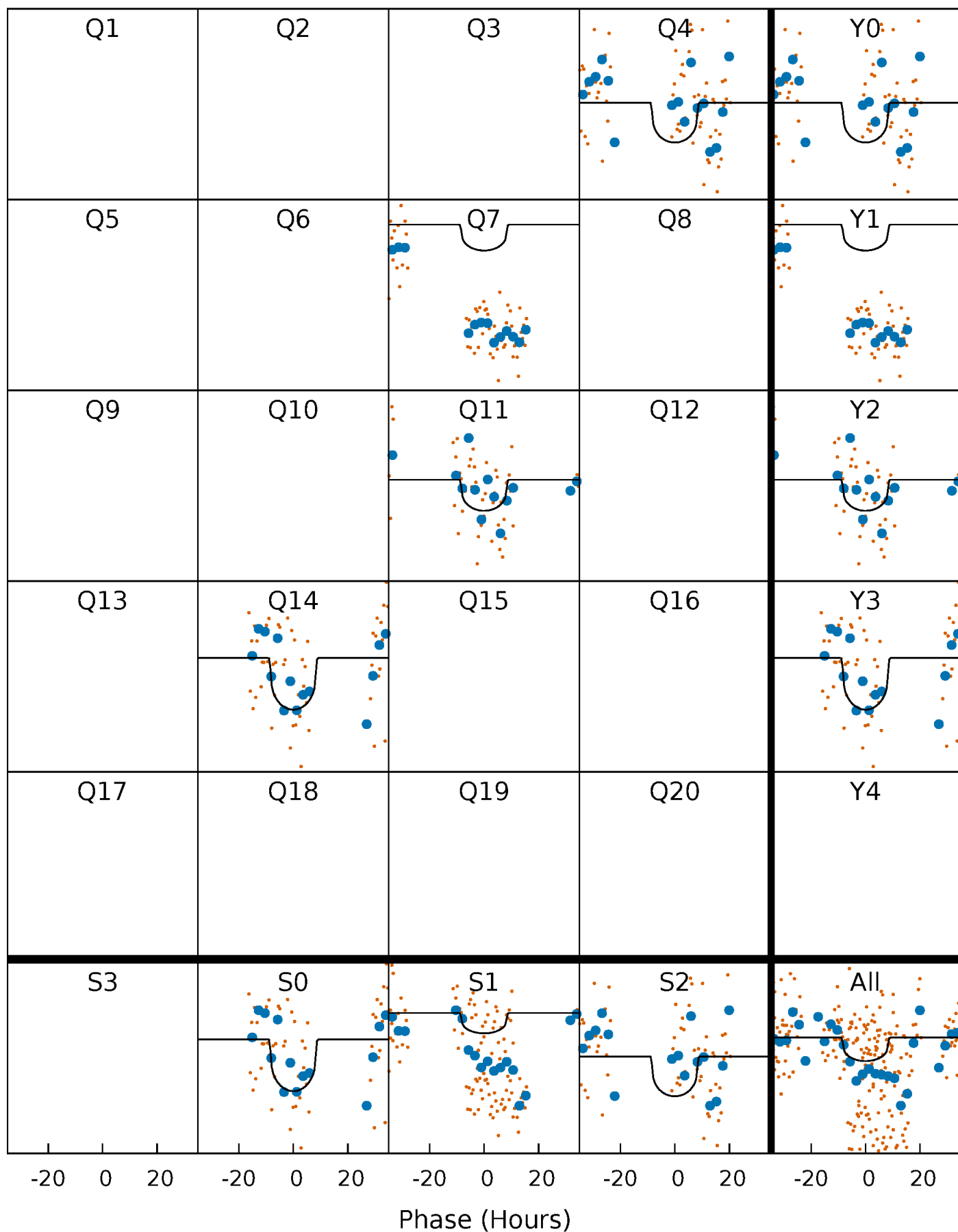
PDC Quarter-Phased Transit Curves

TCE 007448573-02 P=319.071379 Days $T_0=366.072376$ (BKJD)



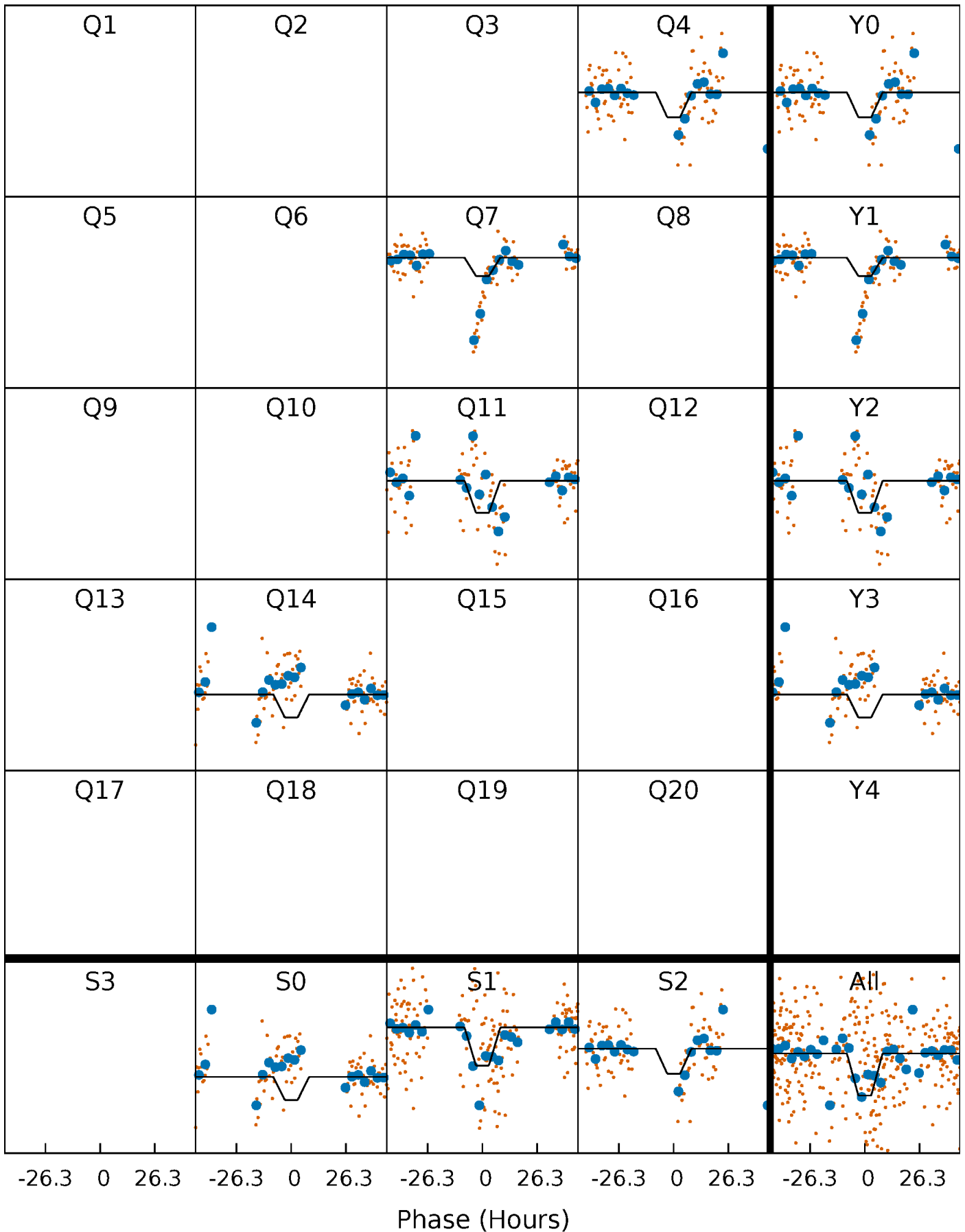
DV Quarter-Phased Transit Curves

TCE 007448573-02 P=319.071379 Days $T_0=366.072376$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

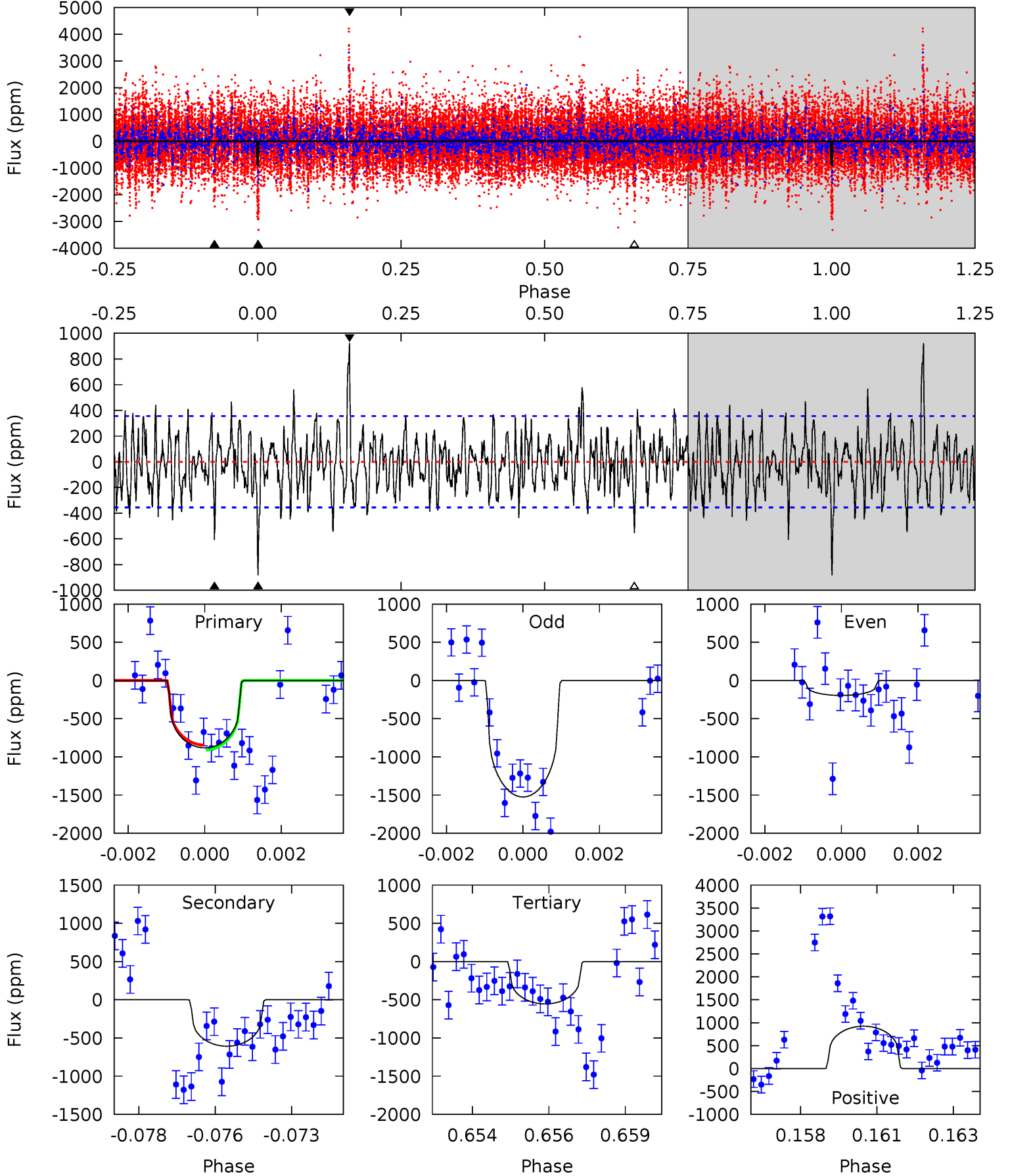
TCE 007448573-02 P=319.131340 Days $T_0=365.940908$ (BKJD)



DV Model-Shift Uniqueness Test

007448573-02, $P = 319.071379$ Days, $E = 47.000997$ Days

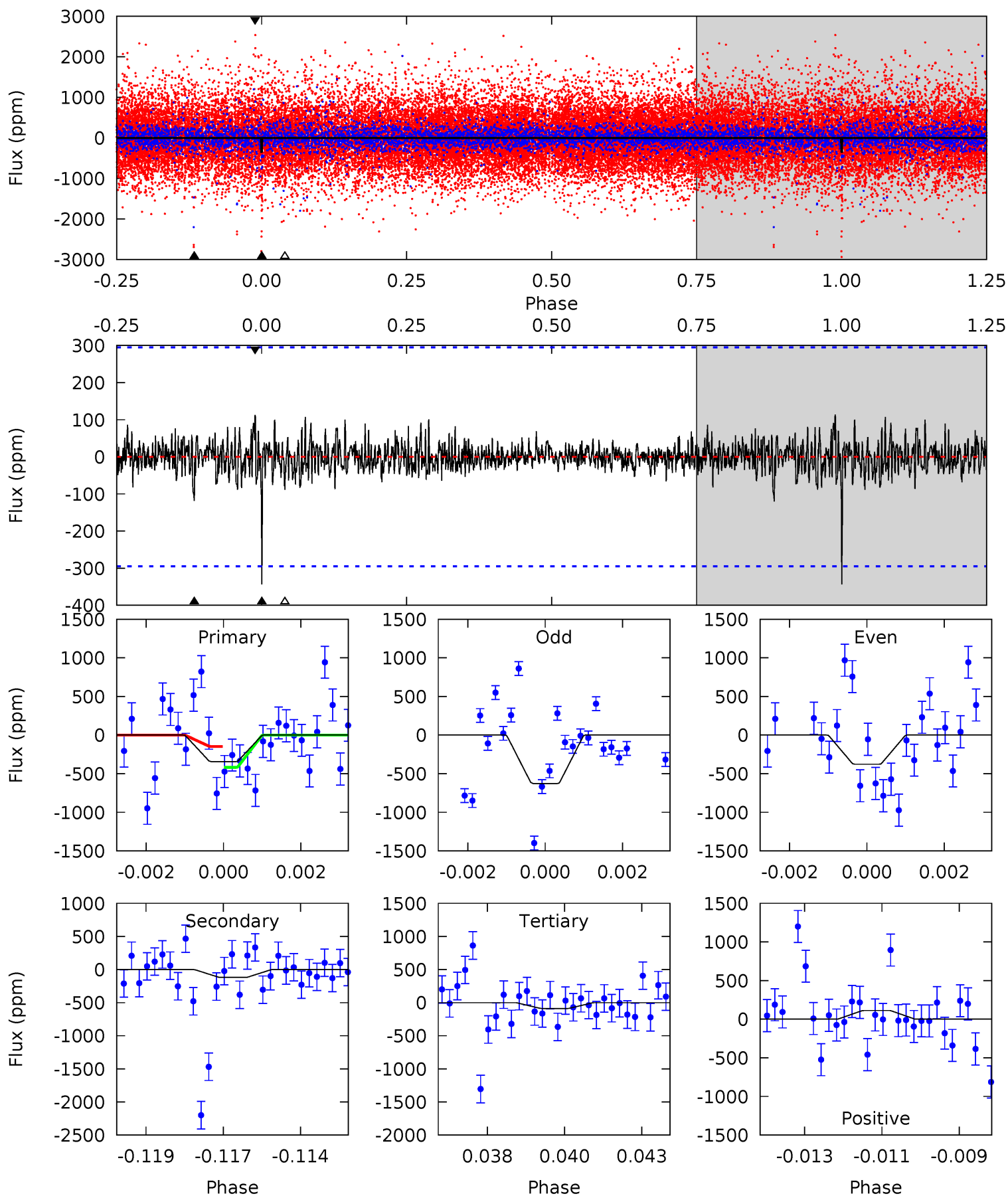
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	9.06	8.27	13.8	5.30	3.04	2.73	4.88	-0.62	0.79	-4.71	9.98	2.22	0.51	0.48



Alt Model-Shift Uniqueness Test

007448573-02, $P = 319.131340$ Days, $E = 46.809568$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.19	2.14	1.59	2.03	5.31	3.06	0.50	4.60	4.16	0.54	0.11	2.29	0.92	0.25	2.37



Stellar Parameters For KIC 007448573

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4430^{+133}_{-133}	$4.616^{+0.056}_{-0.020}$	$-0.180^{+0.300}_{-0.300}$	$0.651^{+0.040}_{-0.063}$	$0.638^{+0.068}_{-0.051}$	$3.261^{+0.756}_{-0.323}$
	+3%/-3%	+1%/-0%	+167%/-167%	+6%/-10%	+11%/-8%	+23%/-10%
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 007448573-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-608 ± 67	$1.75^{+1.00}_{-0.95}$	246^{+9}_{-8}	4392^{+1791}_{-670}	$69667^{+259226}_{-42760}$
Alt.	-119 ± 56	$1.93^{+1.13}_{-1.04}$	247^{+9}_{-8}	3230^{+1063}_{-467}	10538^{+44644}_{-7128}

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

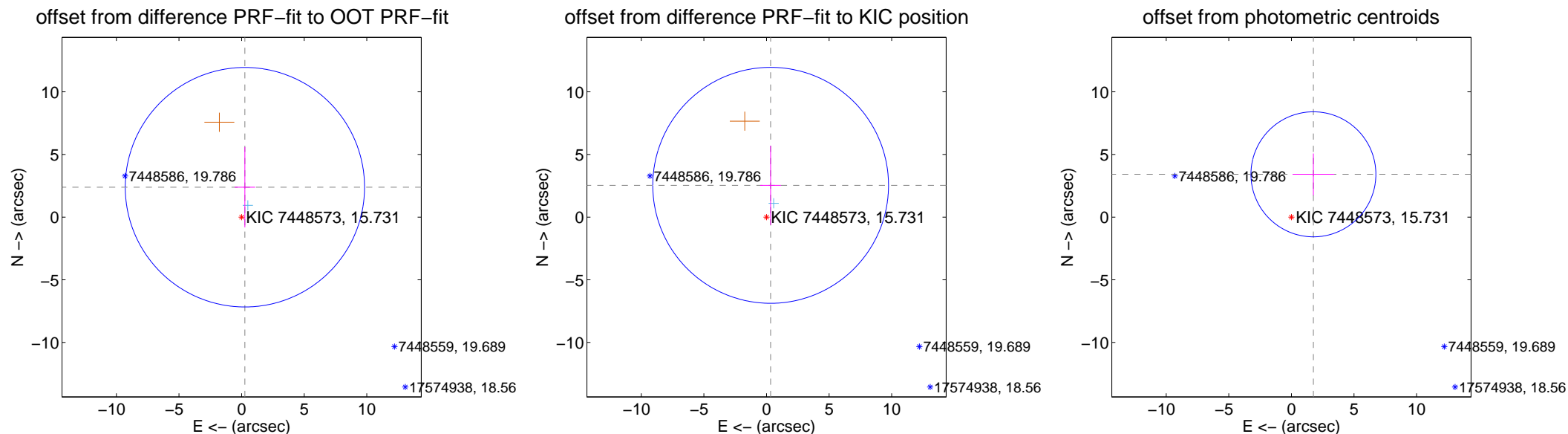
DV Centroid Data

Supplemental centroid analysis for 007448573-02. Kepler magnitude: 15.73. Transit SNR 4.47

There are 1 quarters with good PRF difference image offsets

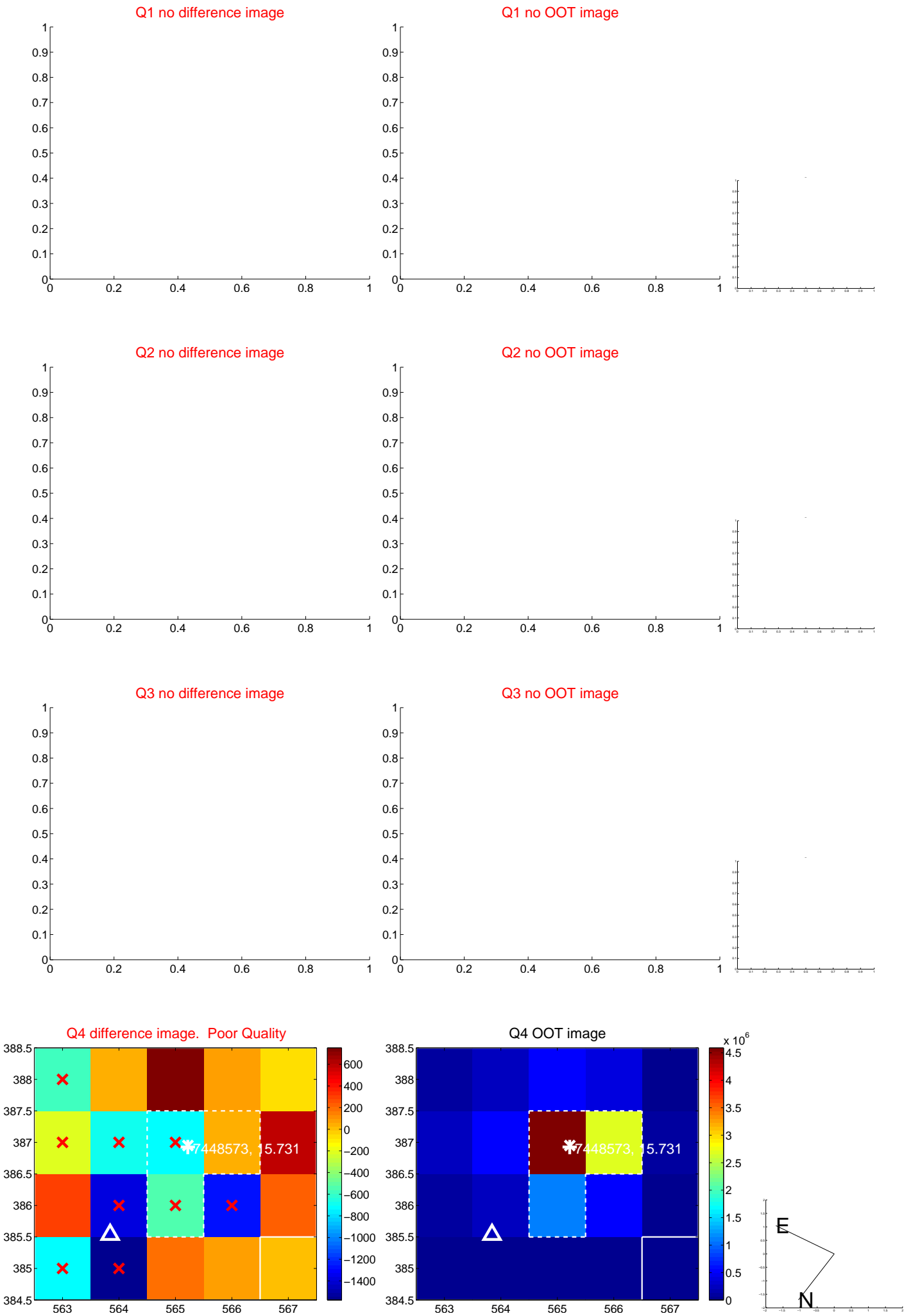
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.400 ± 3.185	0.75	-0.264 ± 0.817	2.386 ± 3.203
PRF-fit source offset from KIC position	2.558 ± 3.138	0.82	-0.332 ± 0.828	2.537 ± 3.163
photometric centroid source offset	3.84 ± 1.66	2.31	-1.76 ± 1.66	3.42 ± 1.66



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.

Q5 no difference image



Q5 no OOT image



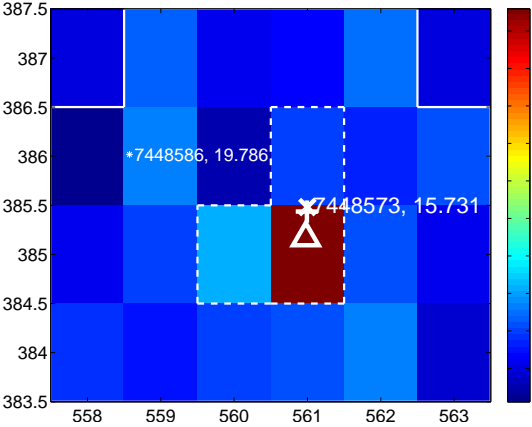
Q6 no difference image



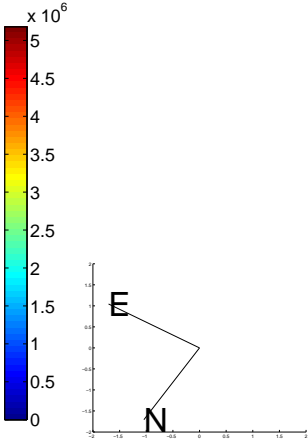
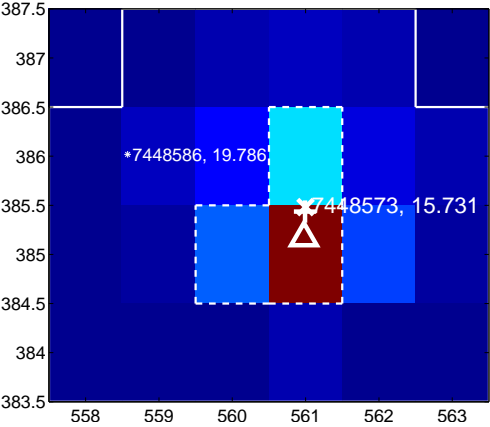
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



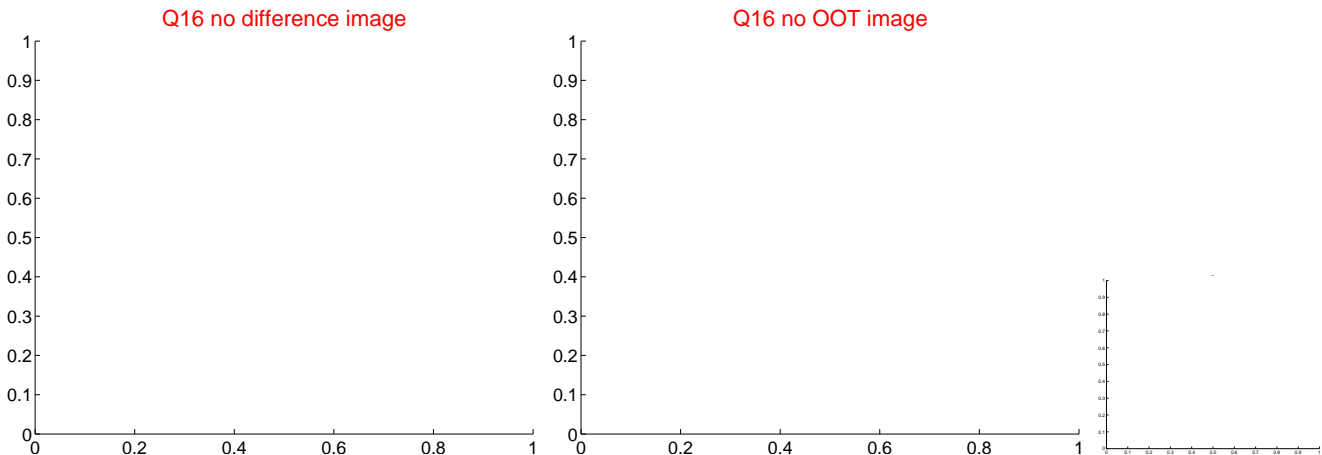
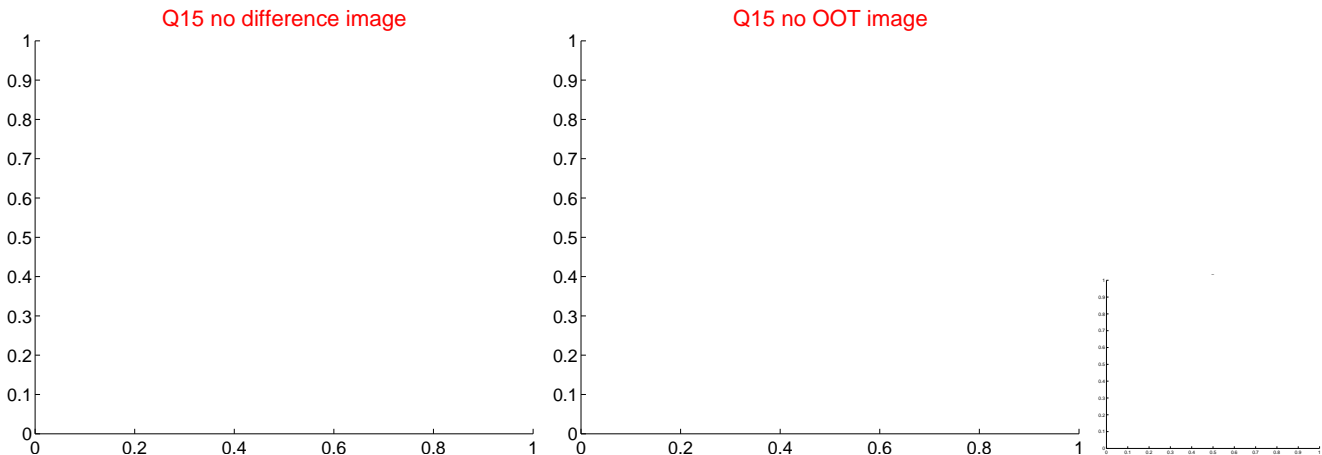
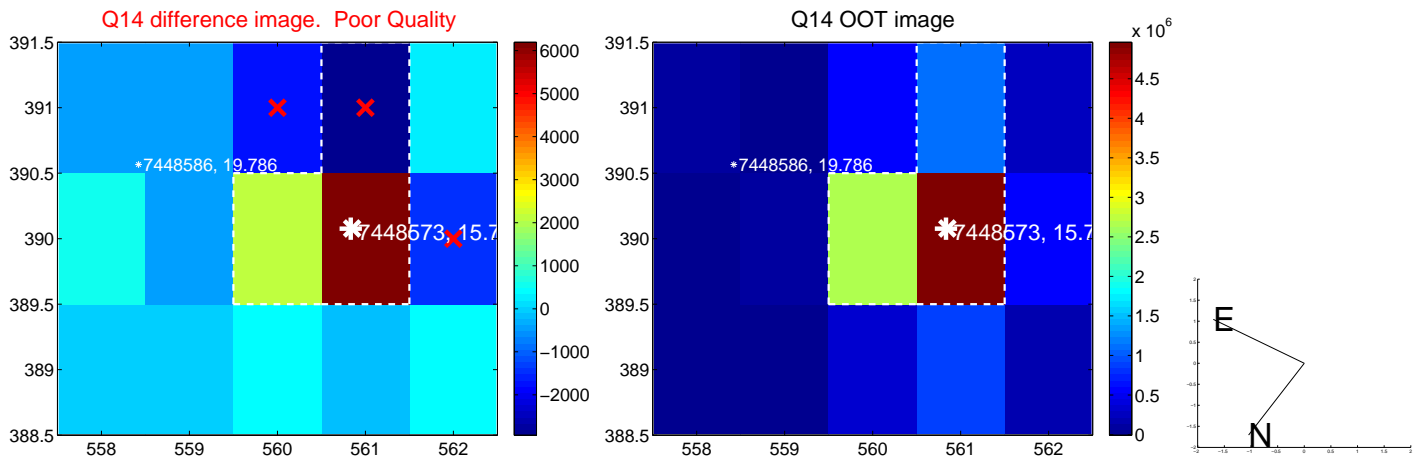
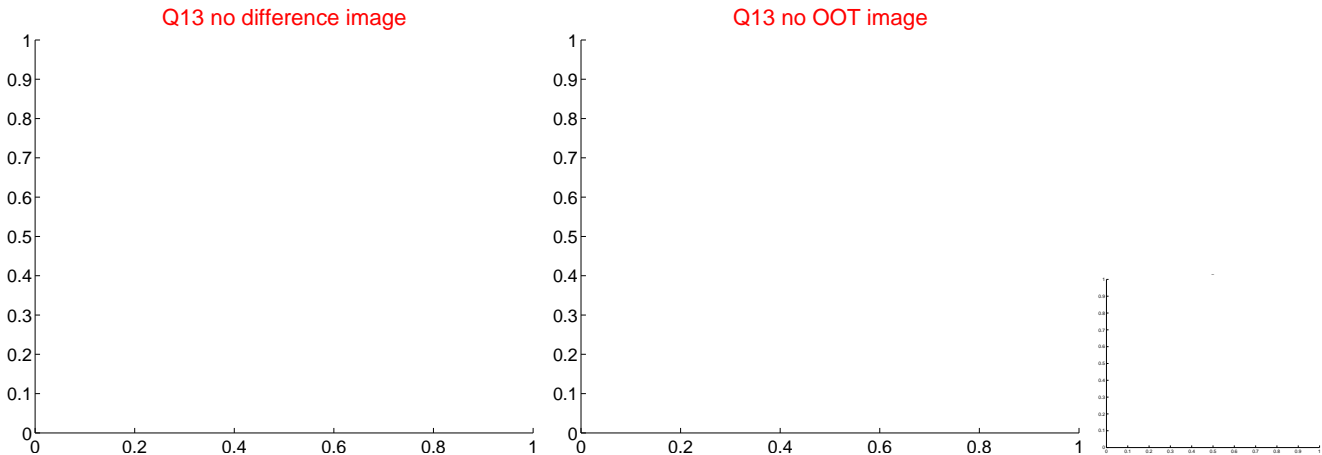
Q8 no OOT image



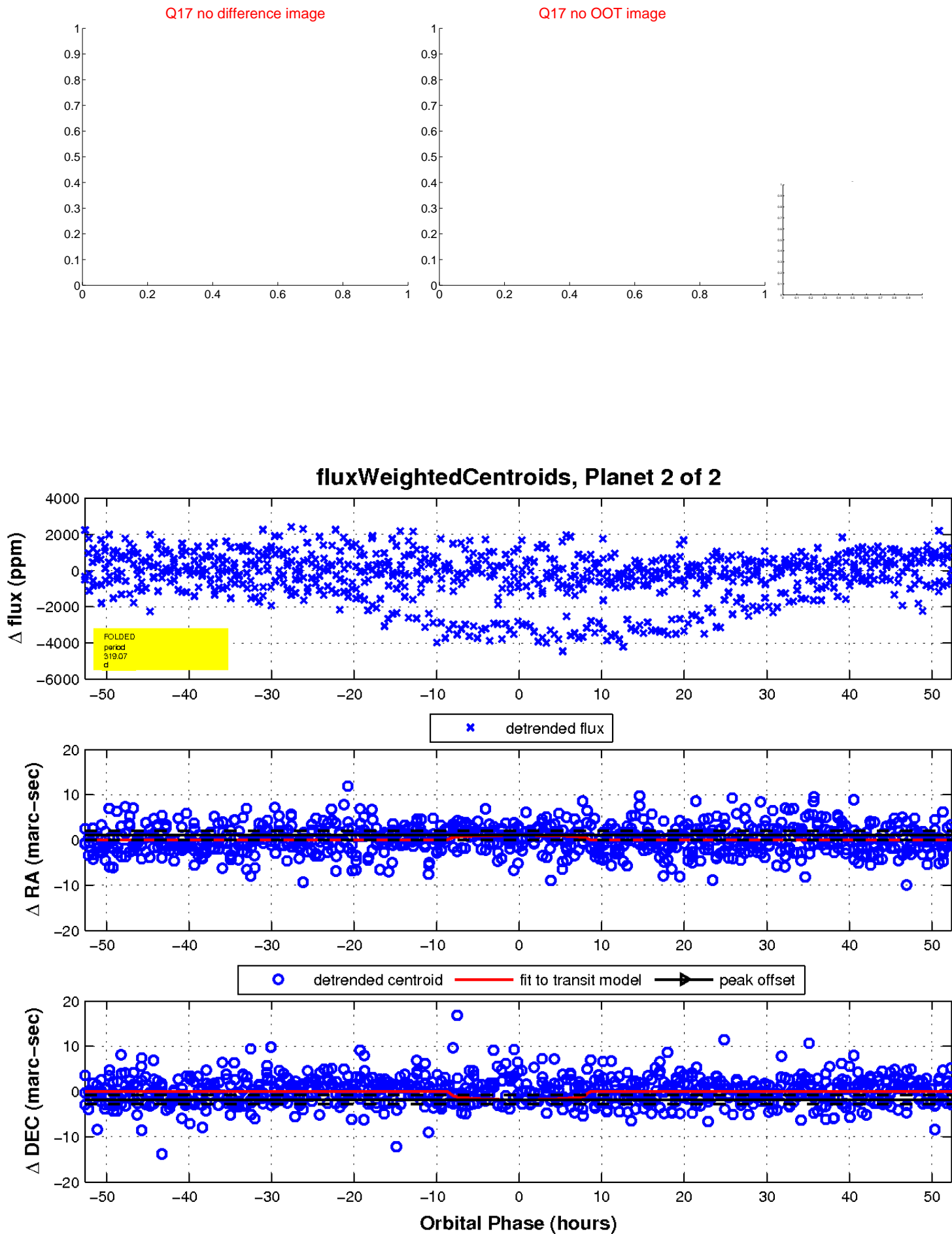
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

