

KIC 005128673

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})
005128673-01	OBS	2698.01	87.972469	168.298944	863.7	15.319	43.5	44.2	1.16	5837	3.77	9.39
005128673-02	OBS	No	359.709545	161.774024	334.2	33.992	10.4	8.0	1.16	5837	4.27	1.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005128673-01	OBS	PC	0.95	0	0	0	0	NO_COMMENT
005128673-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

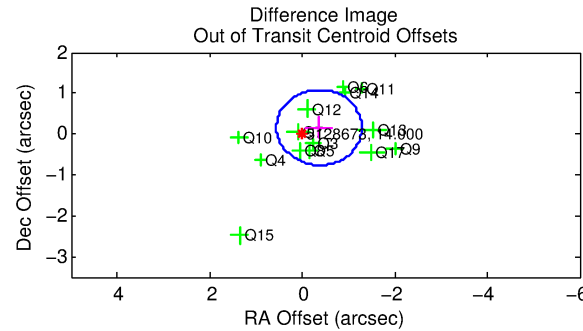
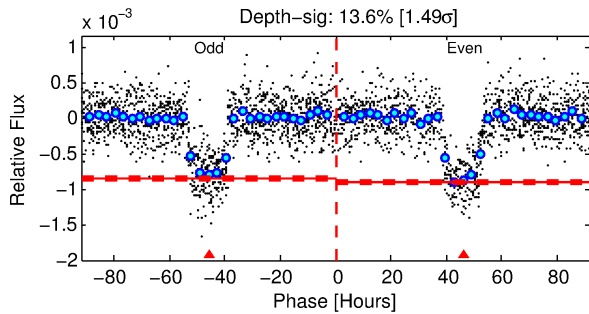
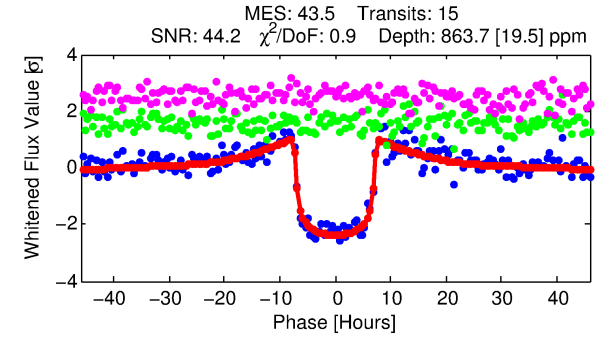
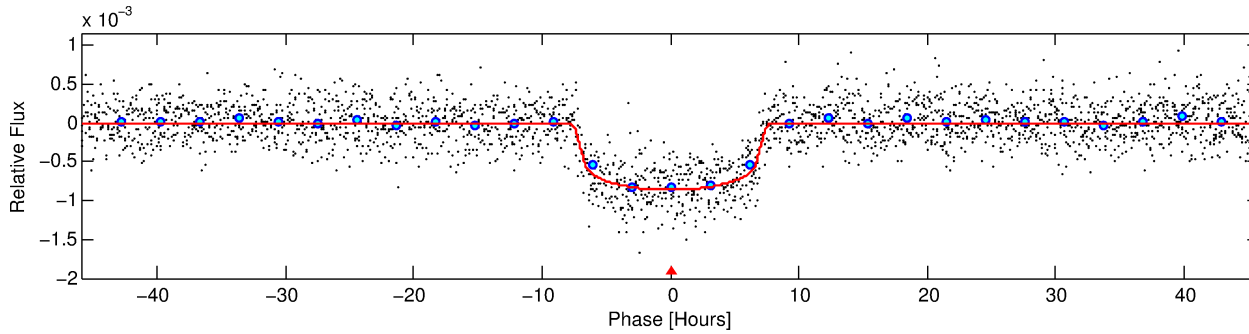
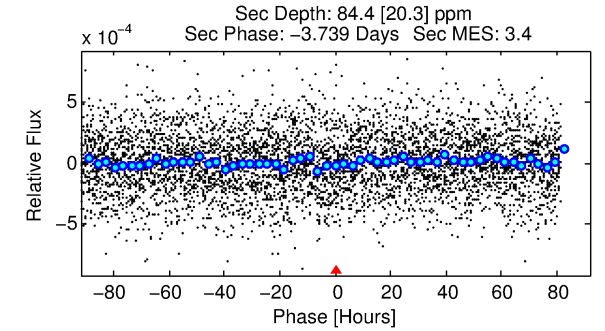
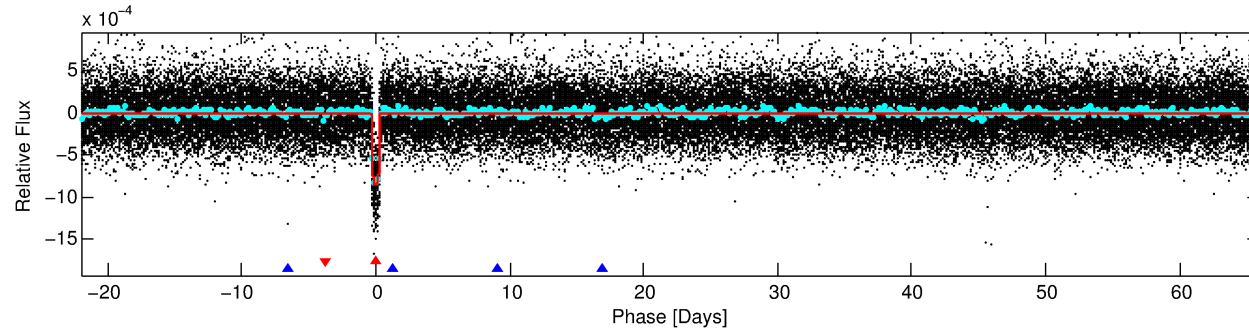
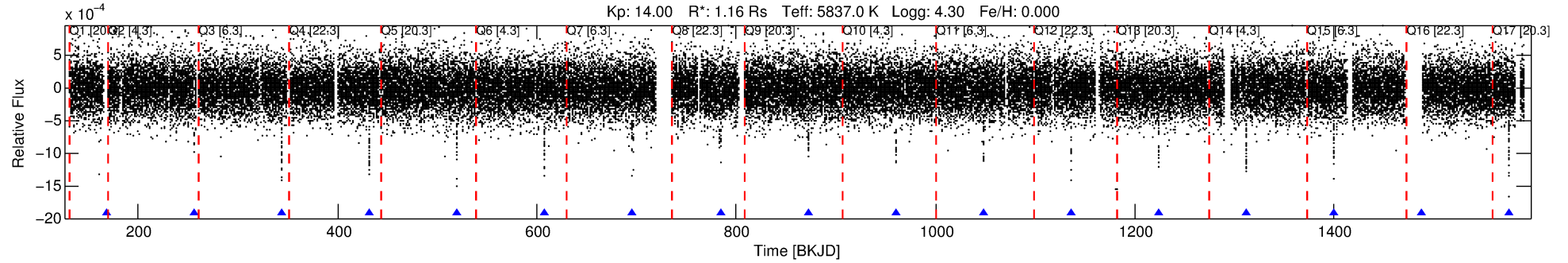
Ephemeris Match Information For 005128673-01

No Significant Match Found

DV One-Page Summary

KIC: 5128673 Candidate: 1 of 2 Period: 87.972 d

KOI: K02698.01 Corr: 0.979



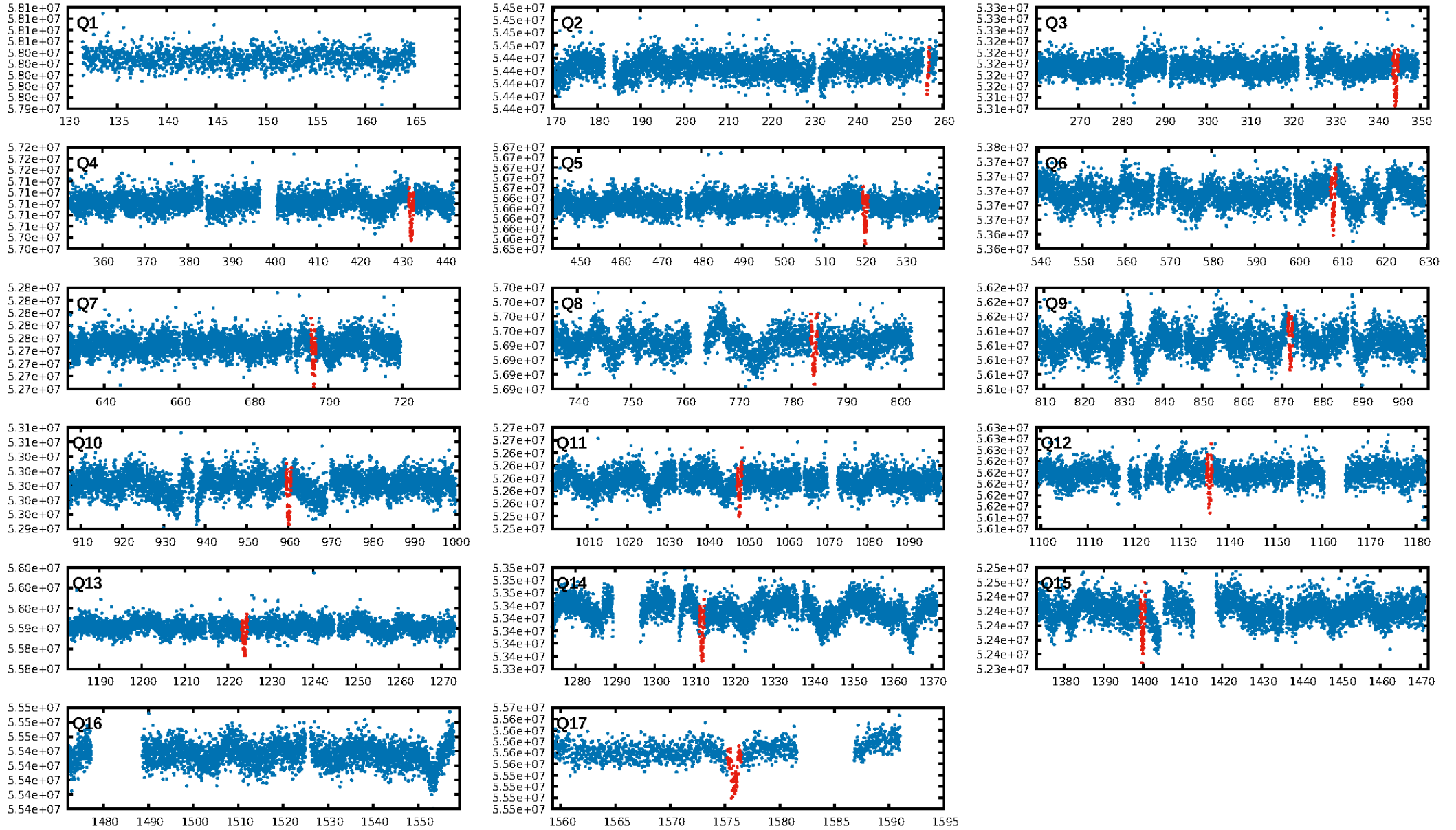
DV Fit Results:

Period = 87.97247 [0.00056] d
Epoch = 168.2989 [0.0052] BKJD
Rp/R* = 0.0298 [0.0010]
a/R* = 28.87 [3.94]
b = 0.79 [0.06]
Seff = 9.39 [2.18]
Teq = 446 [26] K
Rp = 3.76 [0.59] Re
a = 0.3858 [0.0541] AU
Ag = 487.26 [161.11] [3.02σ]
Teffp = 3242 [212] K [13.09σ]

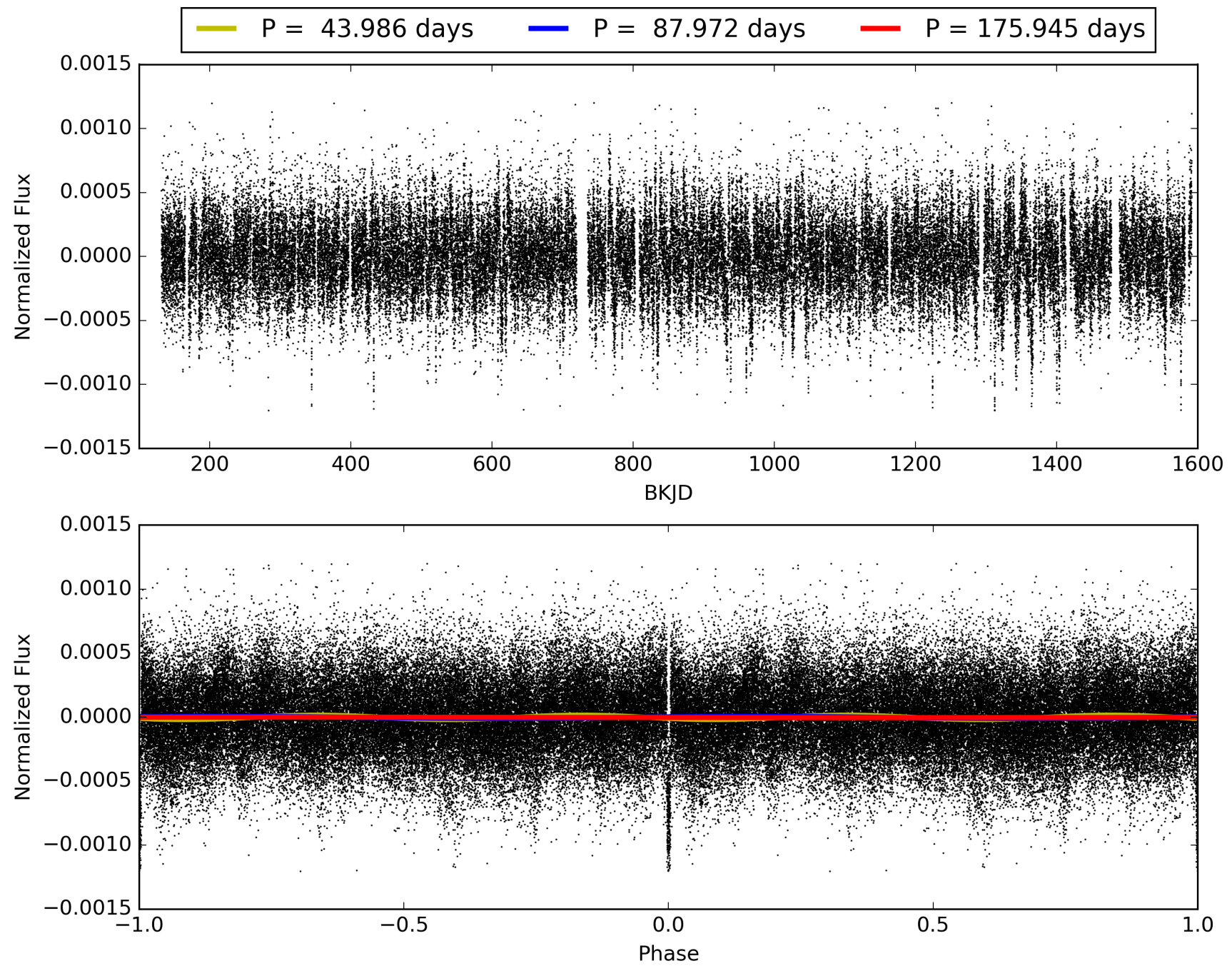
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [174.92σ]
ModelChiSquare2-sig: 56.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 6.068
Centroid-sig: 83.5%
Centroid-so: 0.890 arcsec [3.41σ]
OotOffset-rm: 0.397 arcsec [1.29σ]
KicOffset-rm: 0.434 arcsec [1.42σ]
OotOffset-st: 3/4/3/4 [14]
KicOffset-st: 3/4/3/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.93 [13/14]

TCE 005128673-01, PDC Light Curves

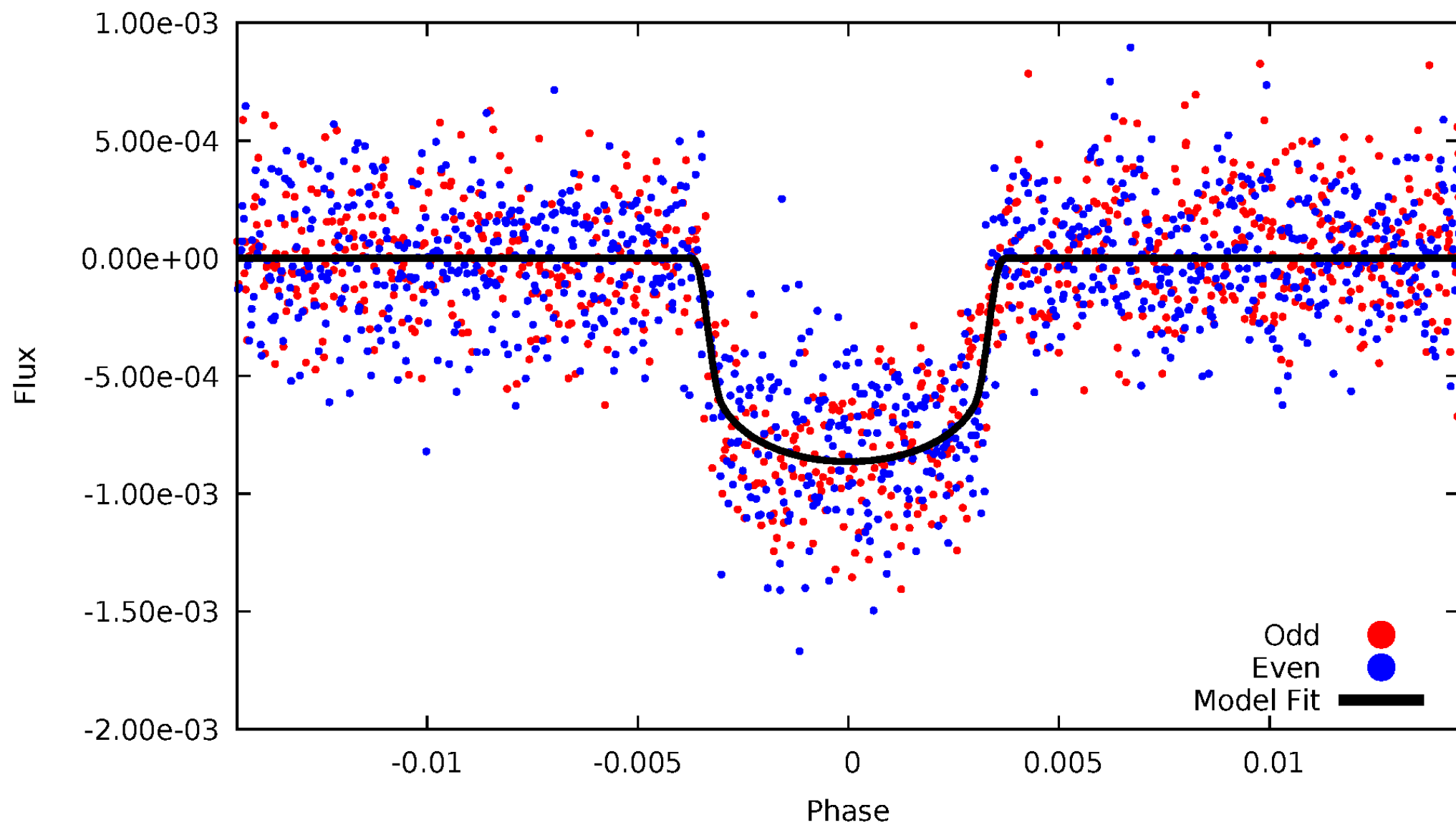


TCE 005128673-01



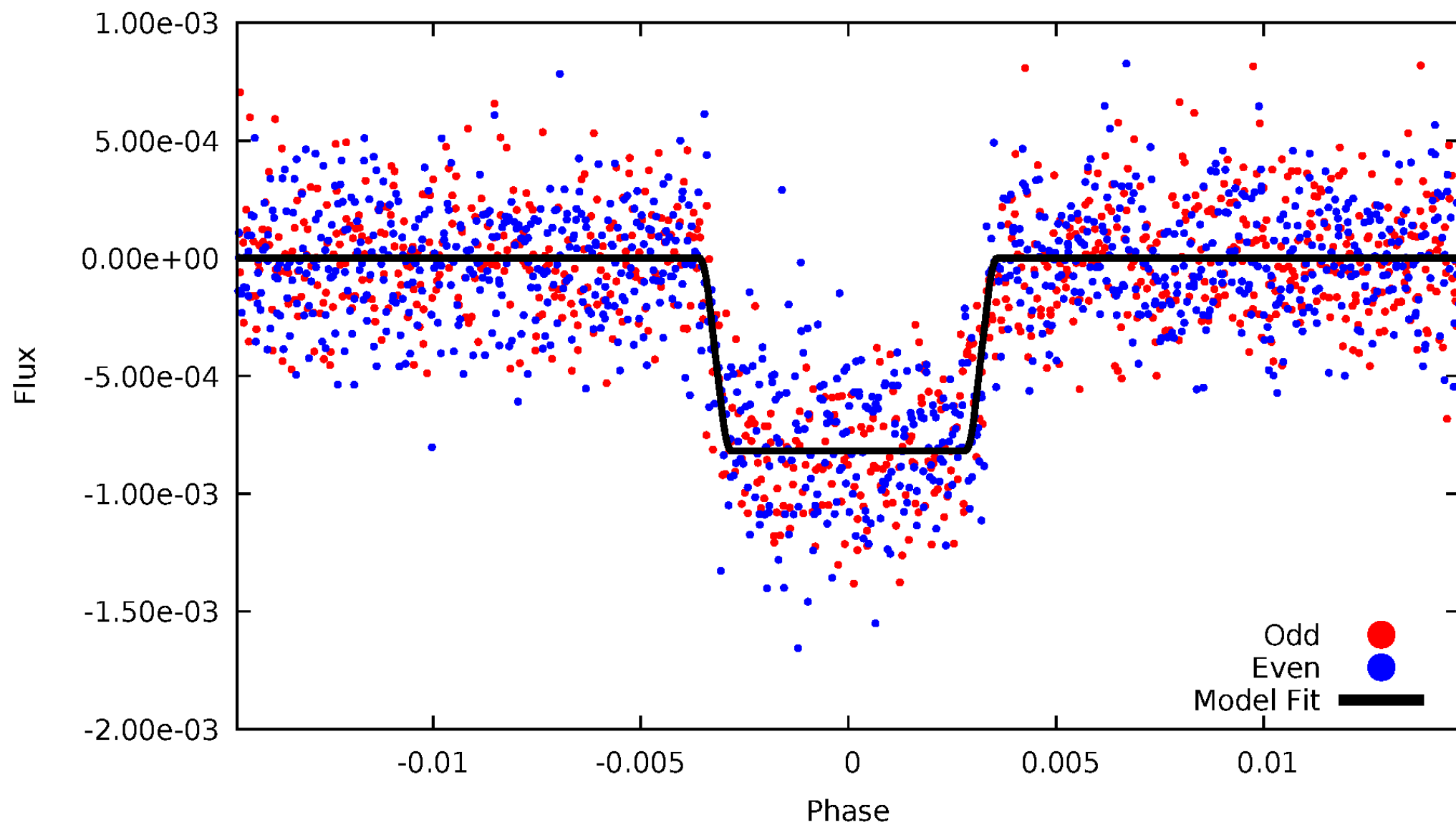
DV Odd/Even

TCE 005128673-01

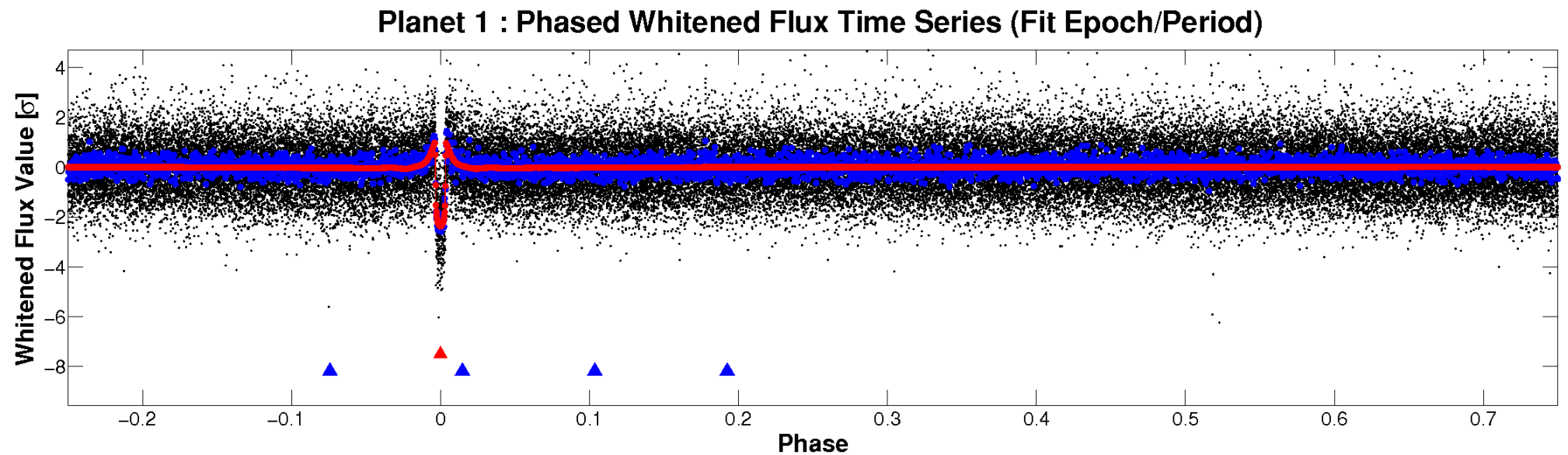
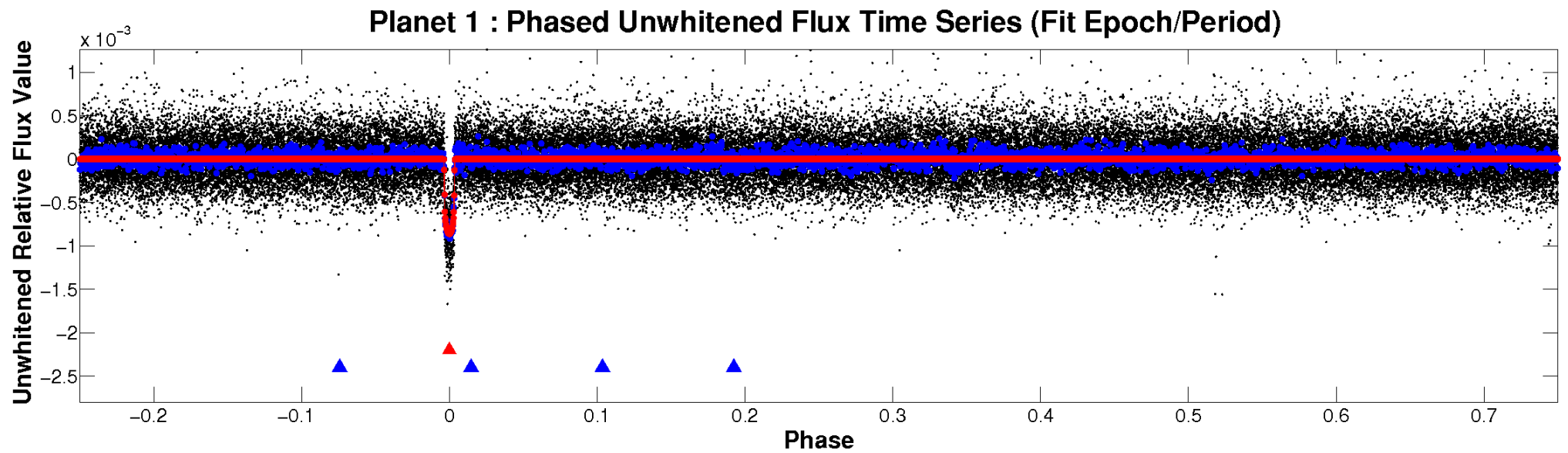


ALT Odd/Even

TCE 005128673-01

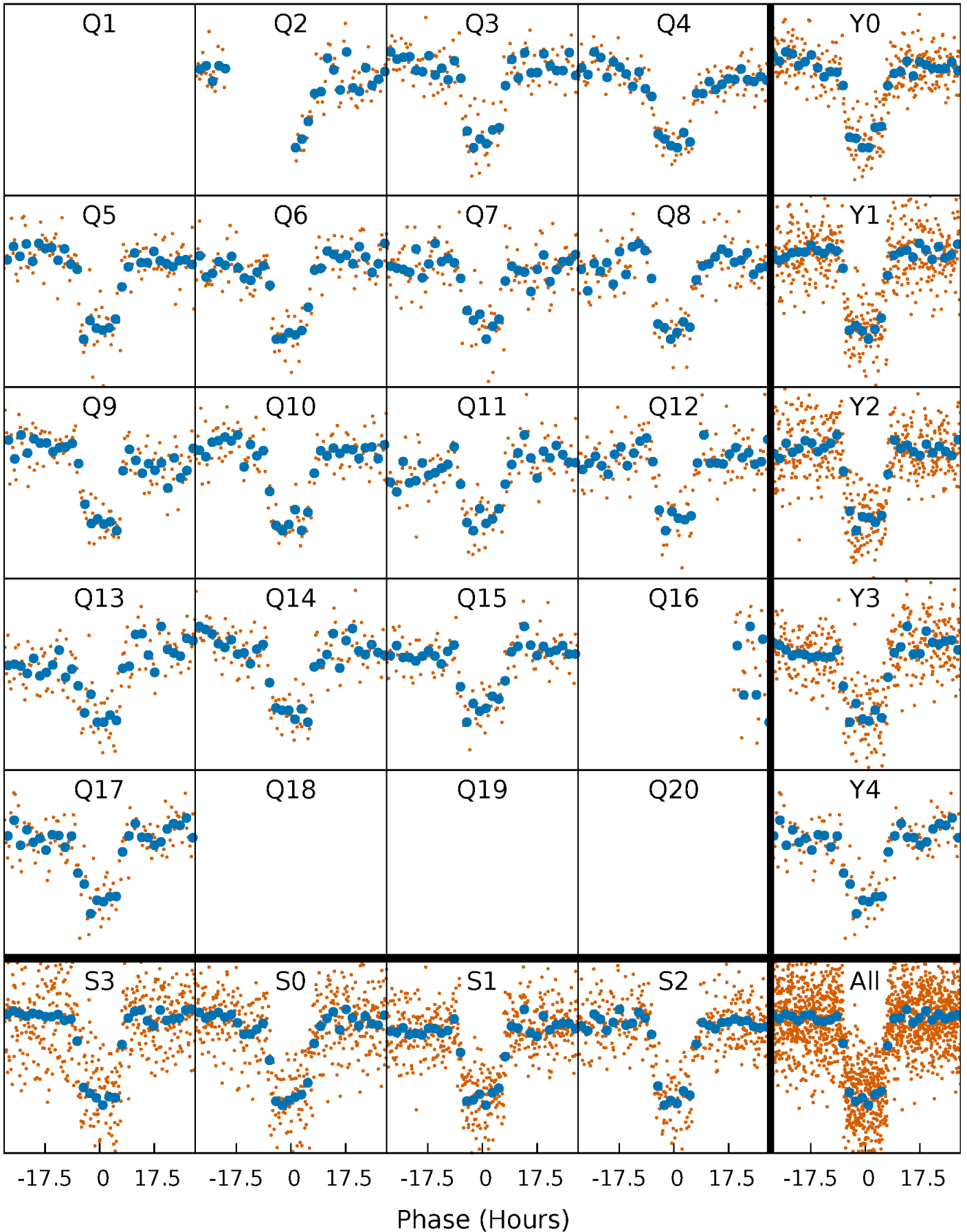


Non-Whitened Vs. Whitened Light Curve



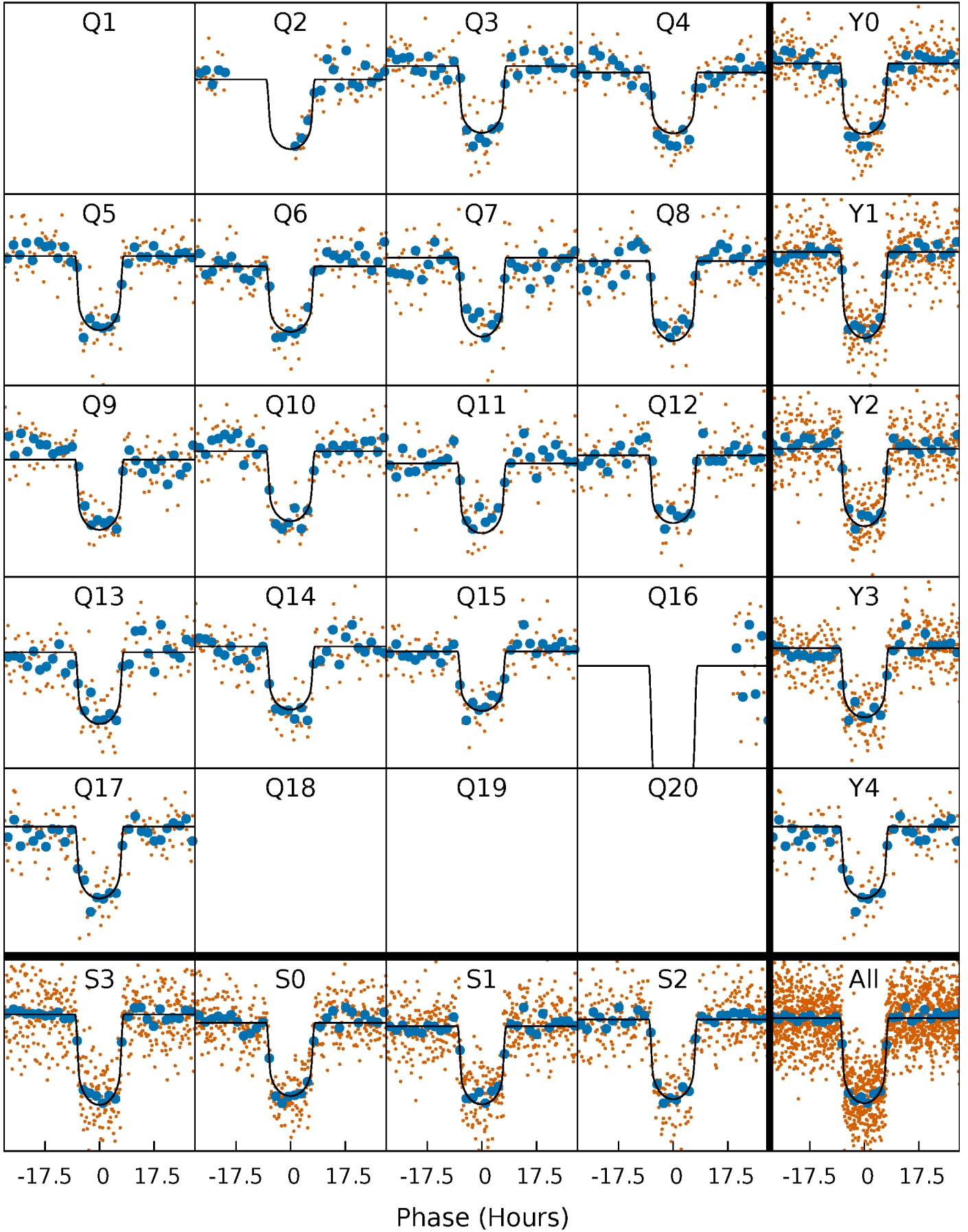
PDC Quarter-Phased Transit Curves

TCE 005128673-01 P= 87.972469 Days $T_0=168.298944$ (BKJD)



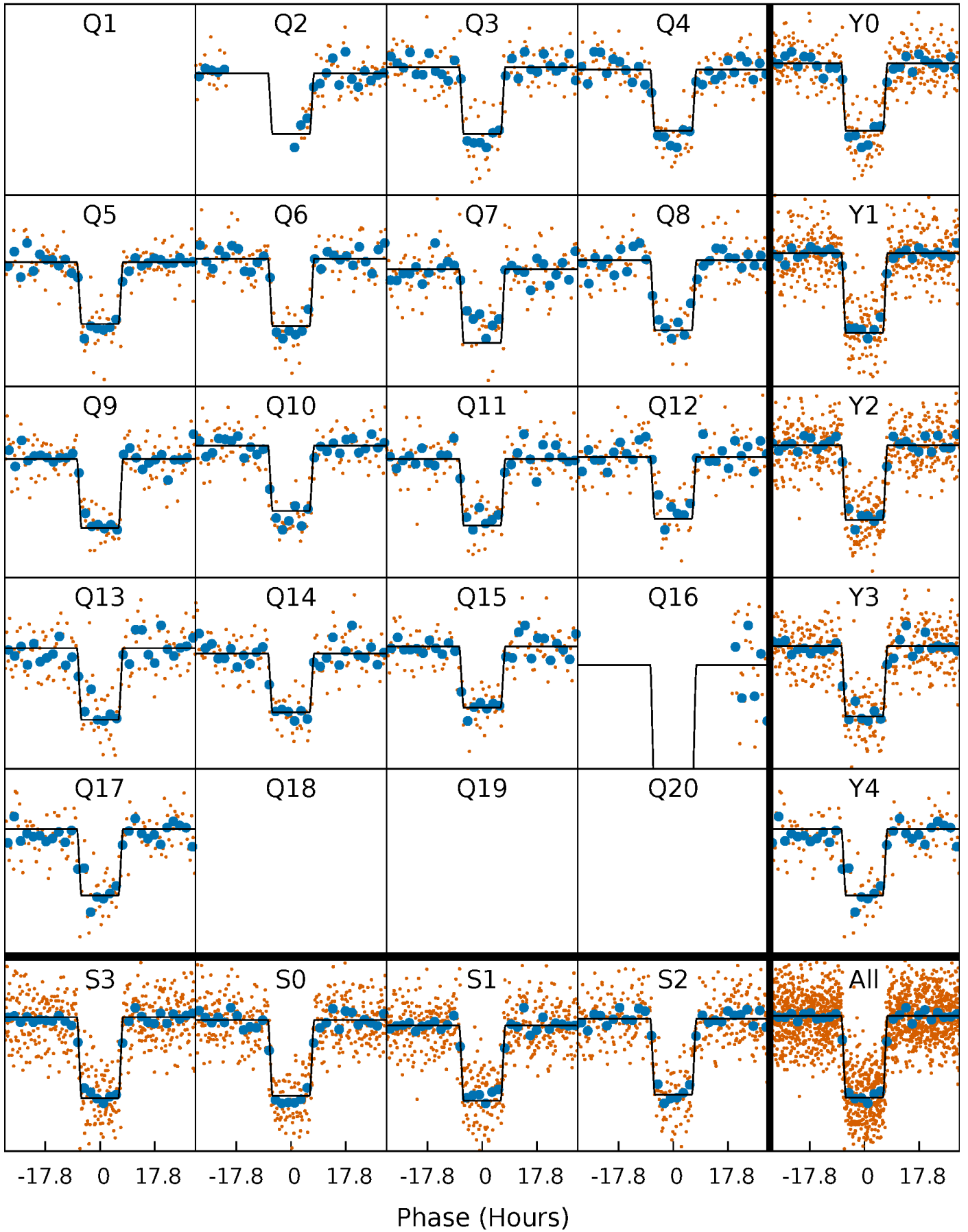
DV Quarter-Phased Transit Curves

TCE 005128673-01 P= 87.972469 Days $T_0=168.298944$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

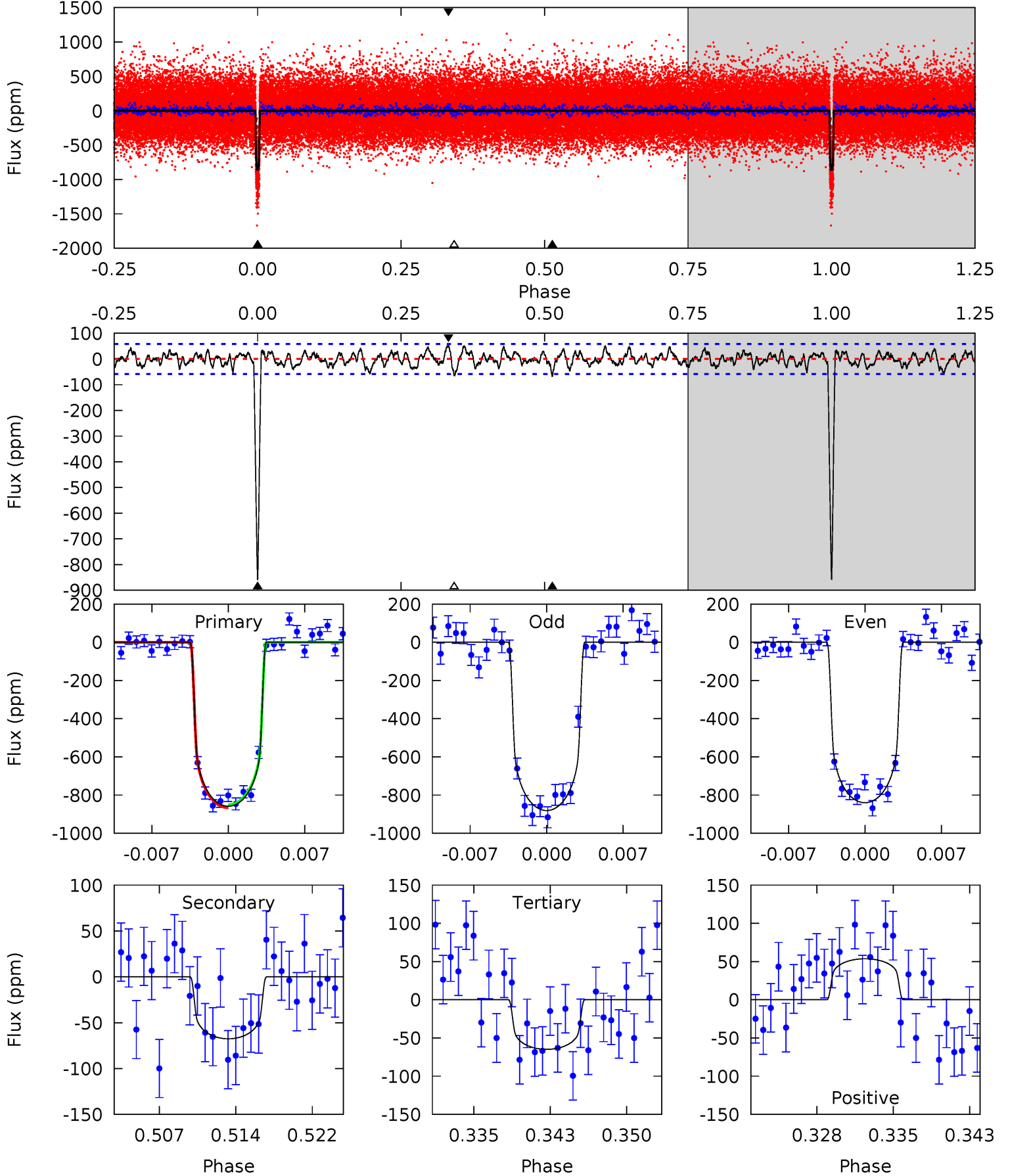
TCE 005128673-01 P= 87.973287 Days $T_0=168.291145$ (BKJD)



DV Model-Shift Uniqueness Test

005128673-01, P = 87.972469 Days, E = 80.326475 Days

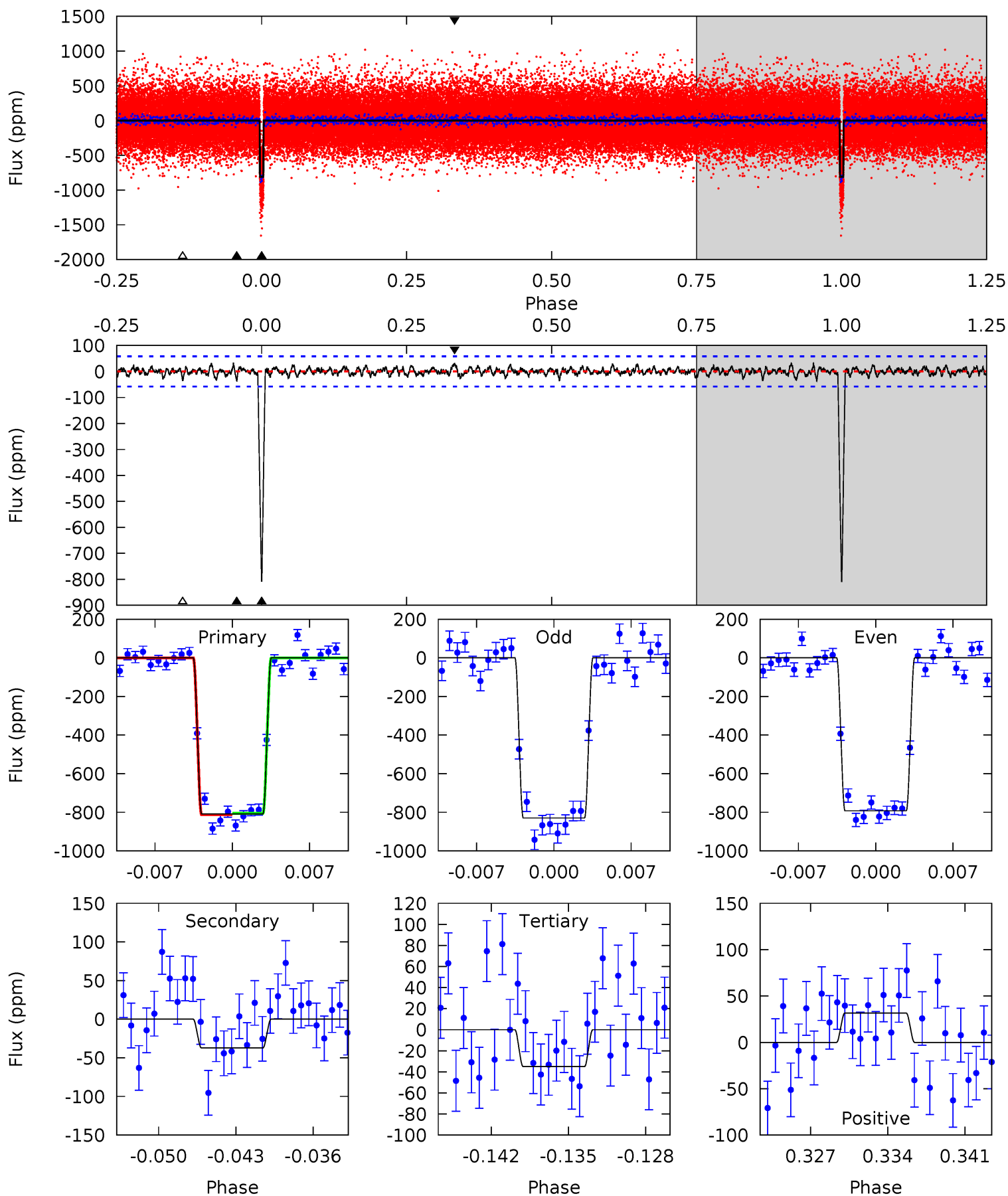
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
74.8	5.88	5.65	4.67	5.08	2.68	1.78	69.1	70.1	0.23	1.21	1.78	0.98	0.06	0.67



Alt Model-Shift Uniqueness Test

005128673-01, P = 87.973287 Days, E = 80.317858 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
70.9	3.27	3.07	2.77	5.09	2.69	0.90	67.8	68.1	0.20	0.50	1.62	0.96	0.04	0.32



Stellar Parameters For KIC 005128673

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5837^{+105}_{-117}	$4.305^{+0.125}_{-0.112}$	$0.000^{+0.150}_{-0.150}$	$1.159^{+0.178}_{-0.178}$	$0.988^{+0.082}_{-0.067}$	$0.895^{+0.524}_{-0.279}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+15%/-15%	+8%/-7%	+59%/-31%
Source	SPE57	SPE57	SPE57	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005128673-01 / KOI 2698.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-68 ± 11	$3.76^{+0.37}_{-0.33}$	623^{+27}_{-28}	3529^{+110}_{-114}	389^{+104}_{-88}
Alt.	-37 ± 11	$3.66^{+0.32}_{-0.34}$	625^{+28}_{-29}	3257^{+140}_{-178}	226^{+83}_{-74}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

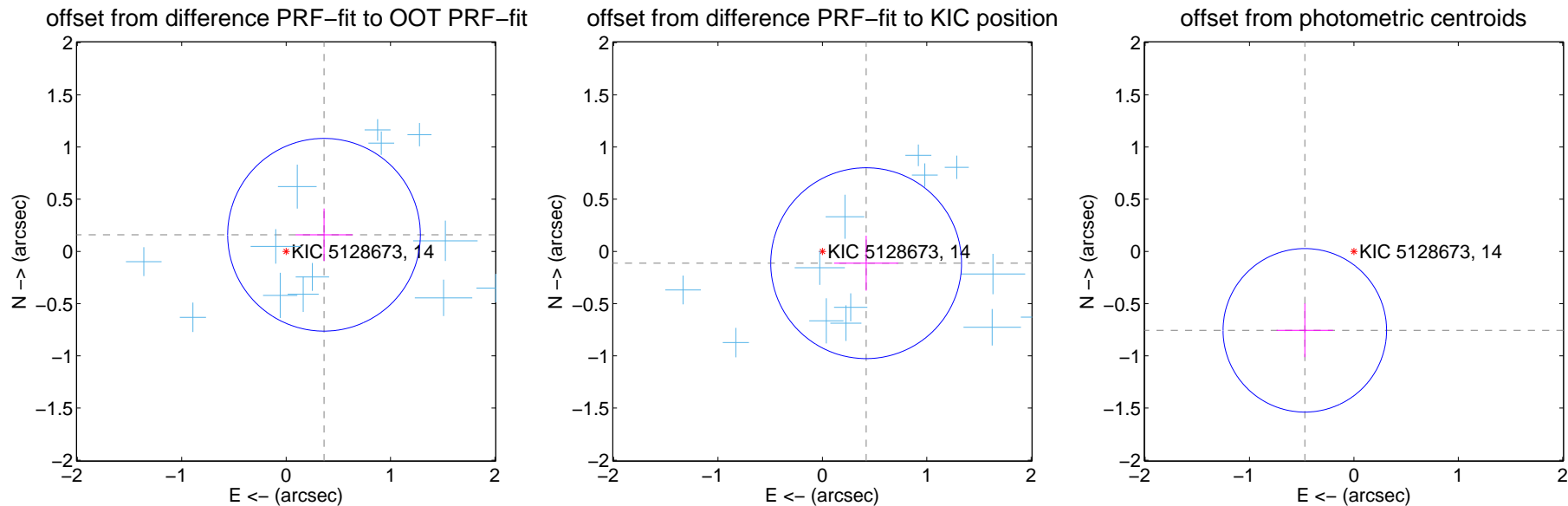
DV Centroid Data

Supplemental centroid analysis for 005128673-01. Kepler magnitude: 14.00. Transit SNR 44.24

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.397 ± 0.308	1.29	-0.363 ± 0.273	0.160 ± 0.251
PRF-fit source offset from KIC position	0.434 ± 0.305	1.42	-0.419 ± 0.307	-0.113 ± 0.263
photometric centroid source offset	0.89 ± 0.26	3.41	0.47 ± 0.27	-0.76 ± 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.

Q1 no difference image



Q1 no OOT image



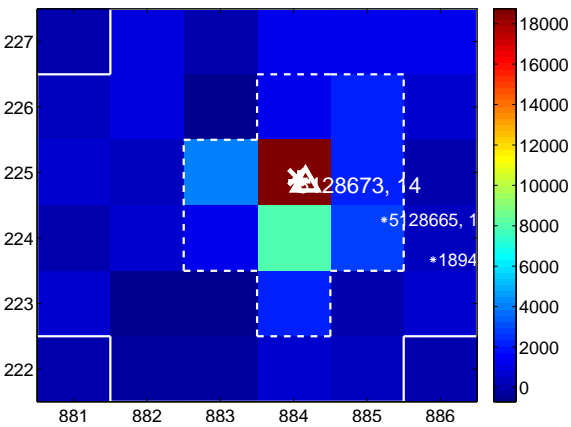
Q2 no difference image



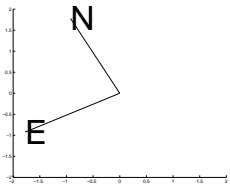
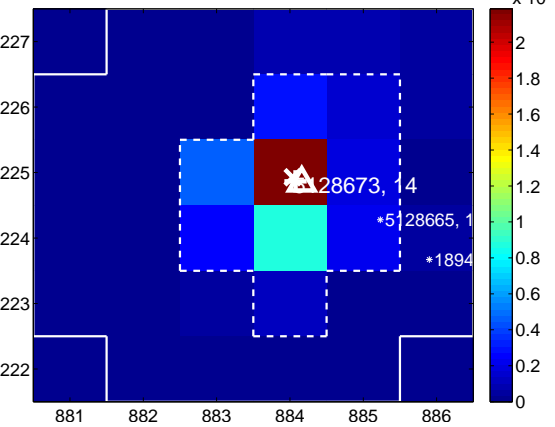
Q2 no OOT image



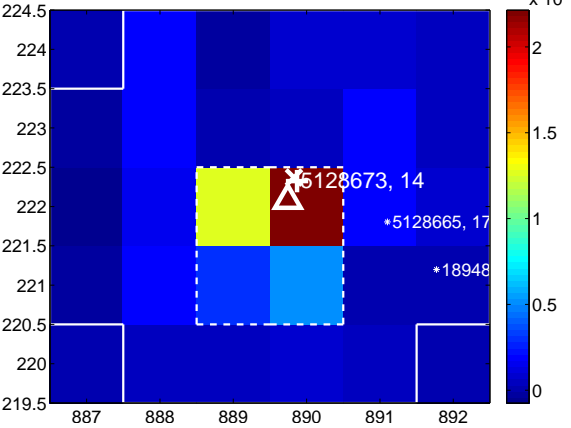
Q3 difference image



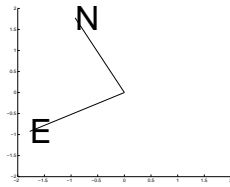
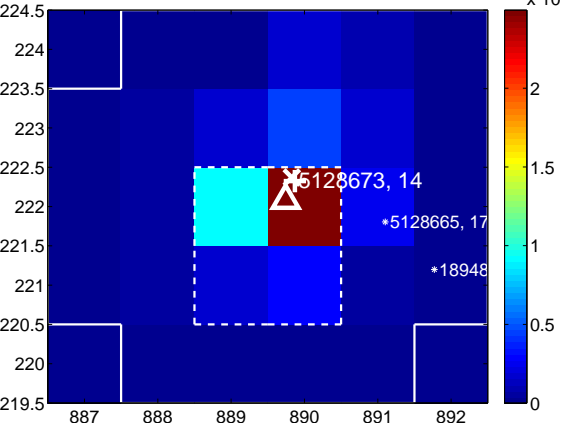
Q3 OOT image



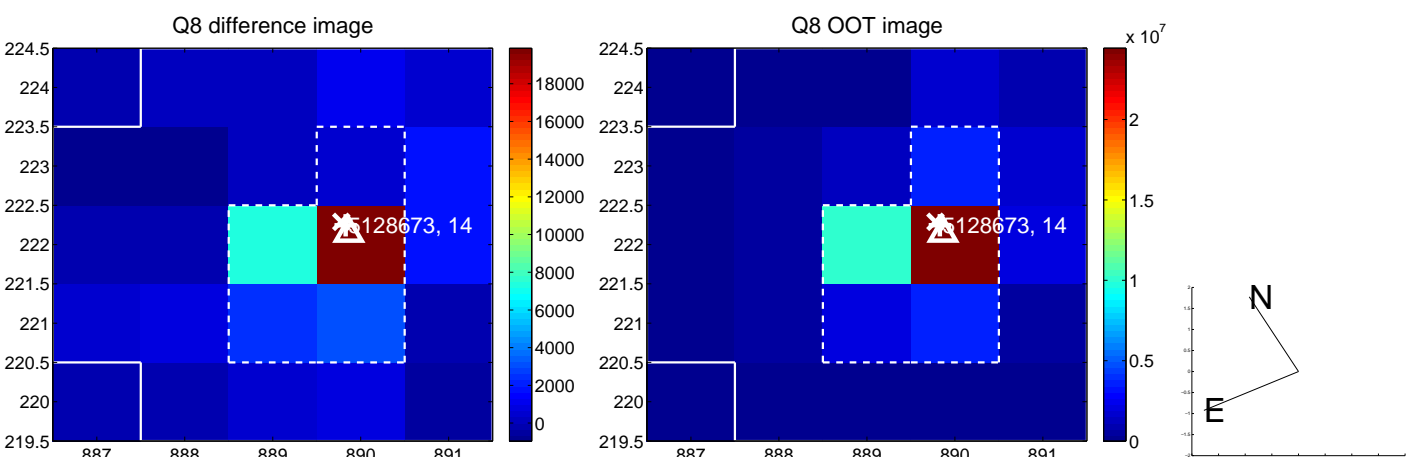
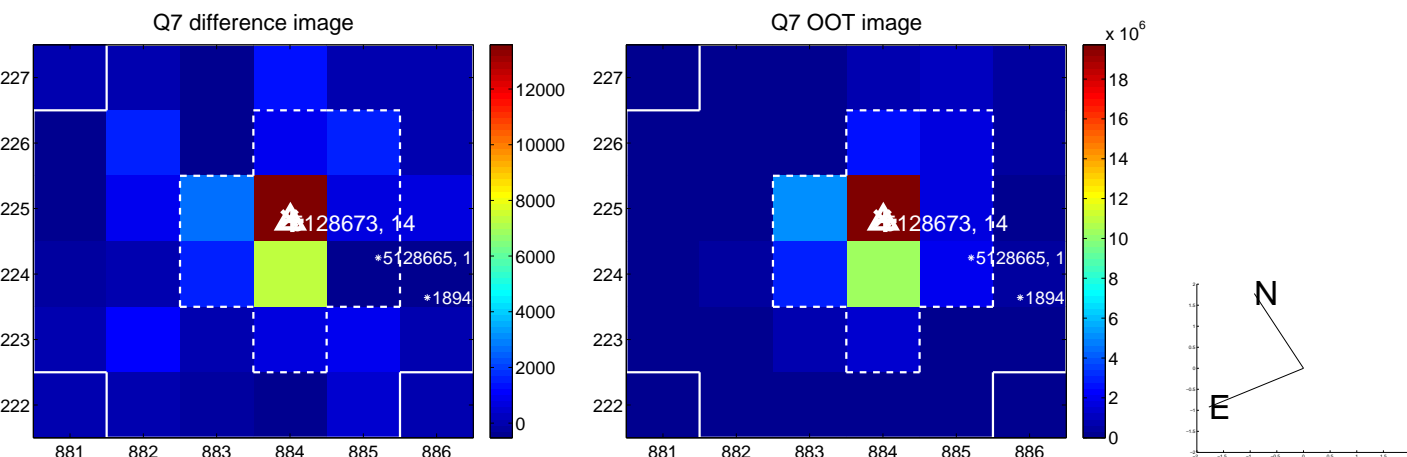
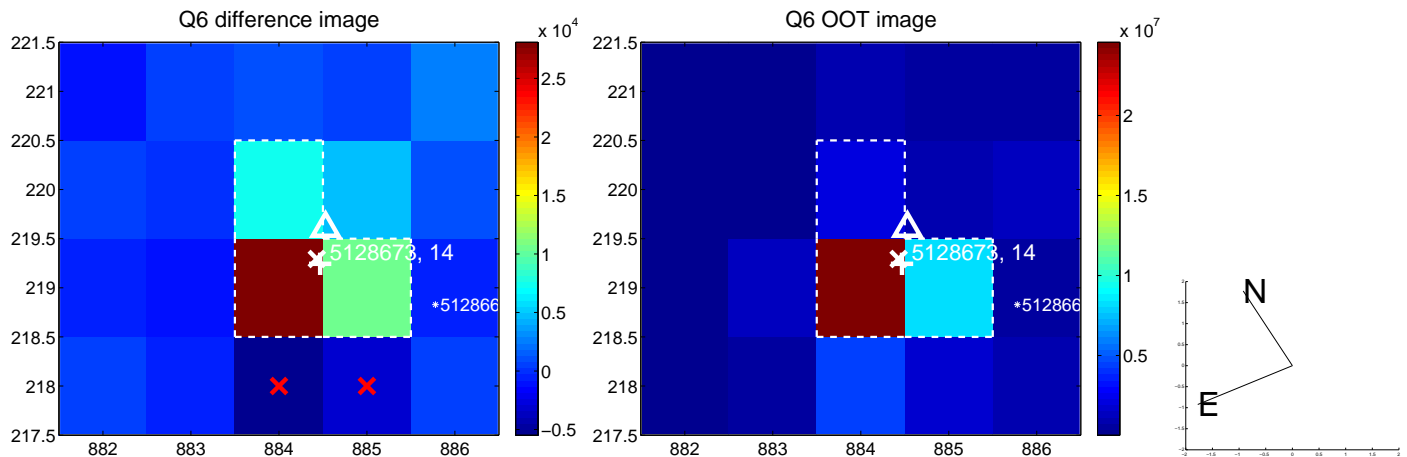
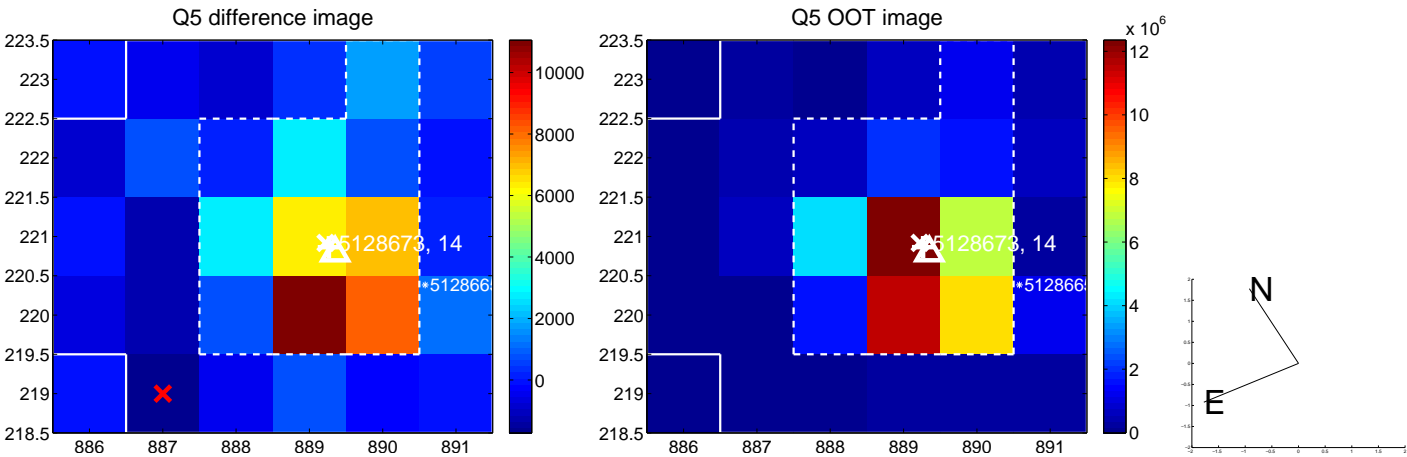
Q4 difference image



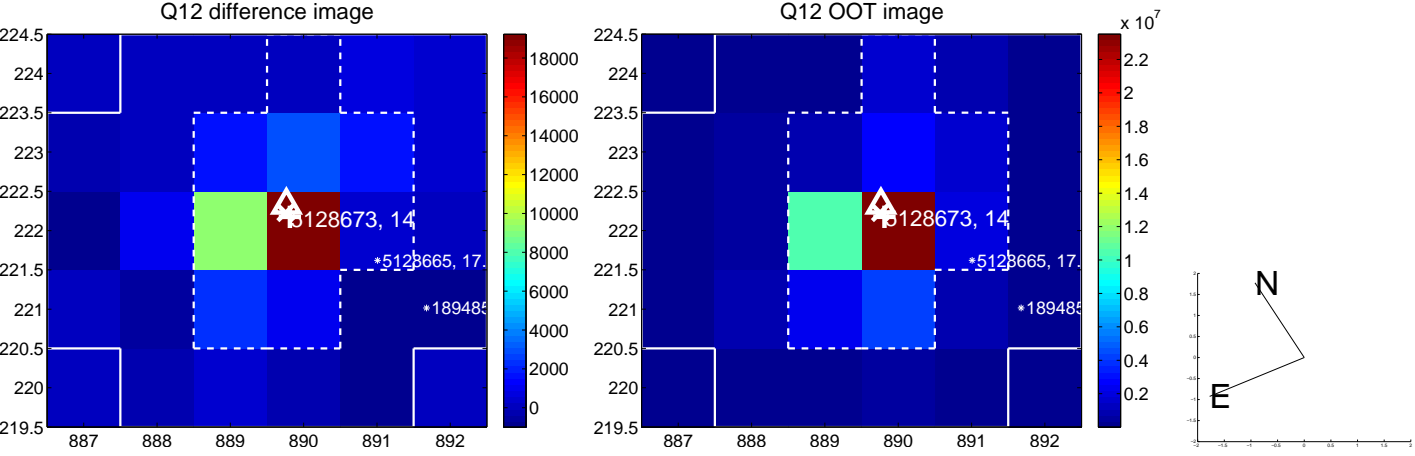
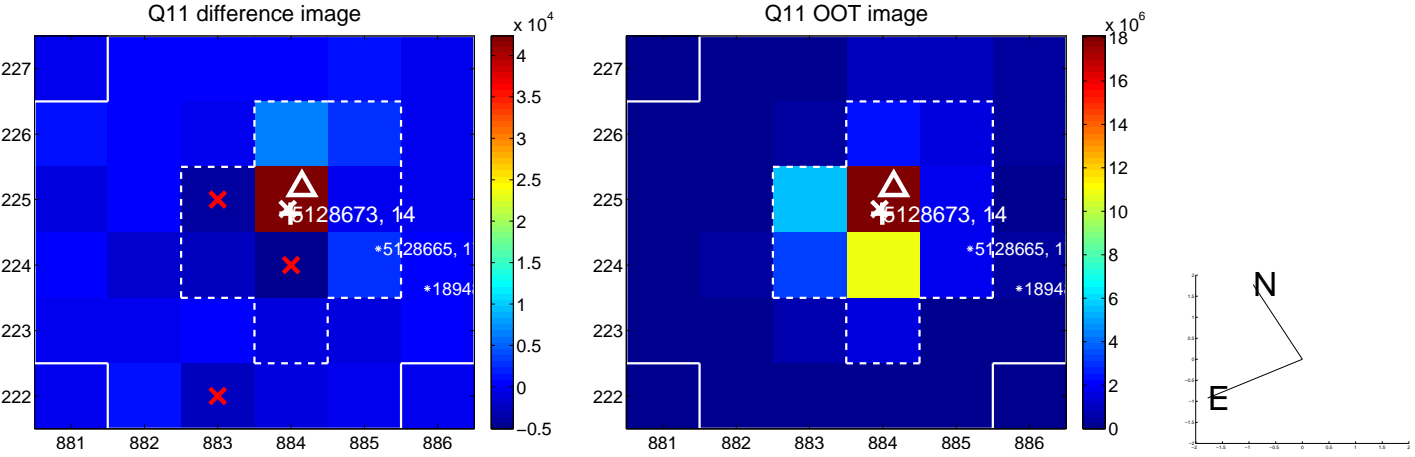
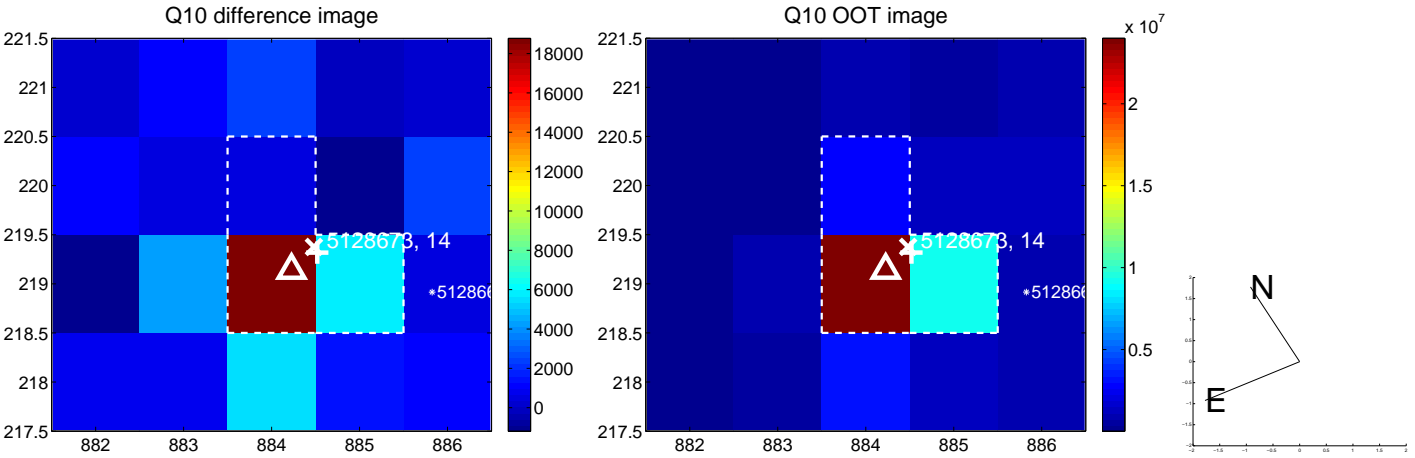
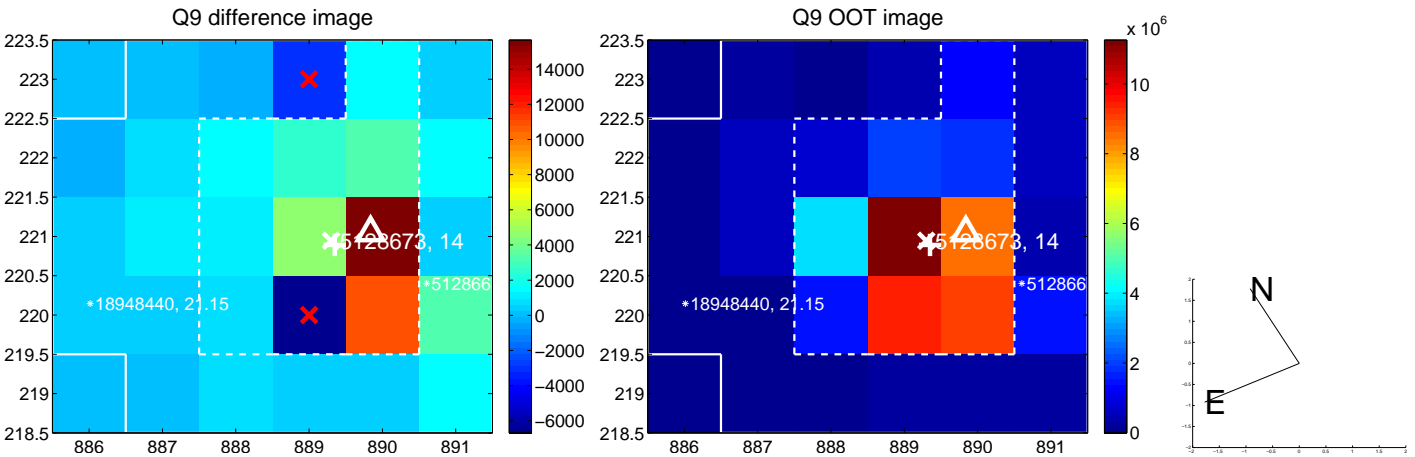
Q4 OOT image



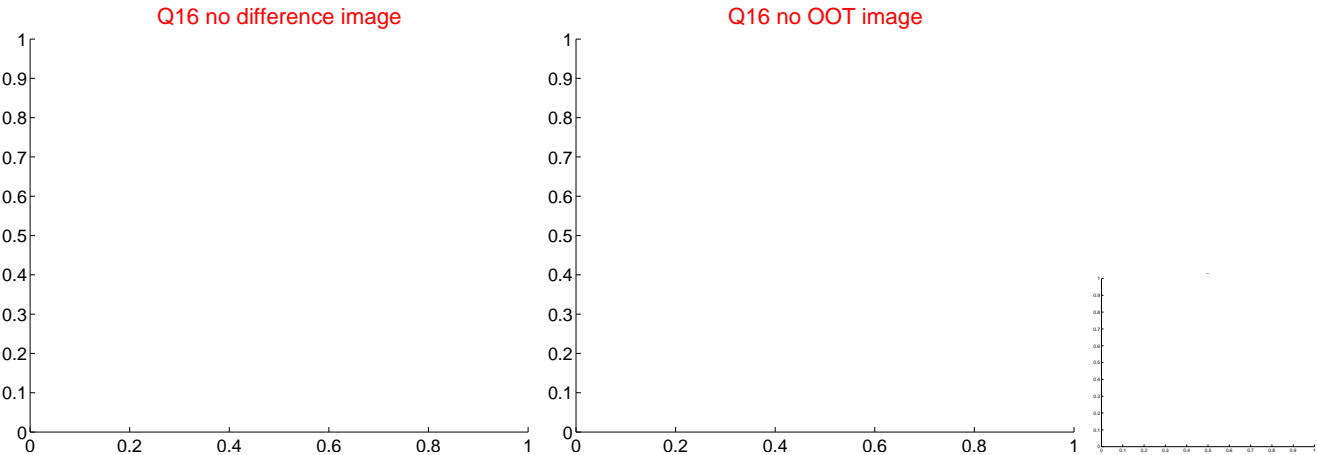
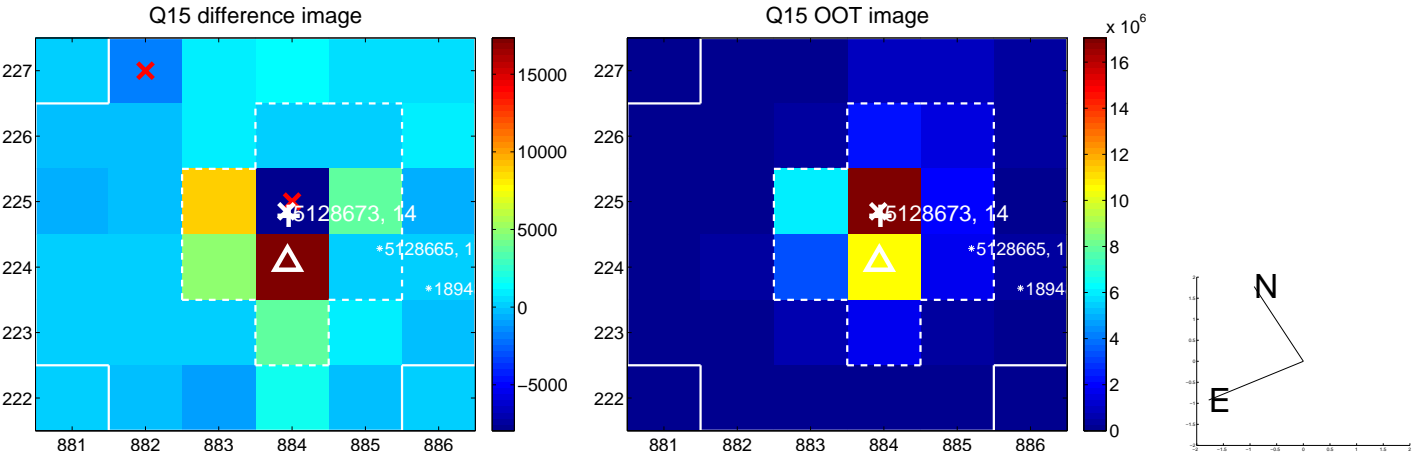
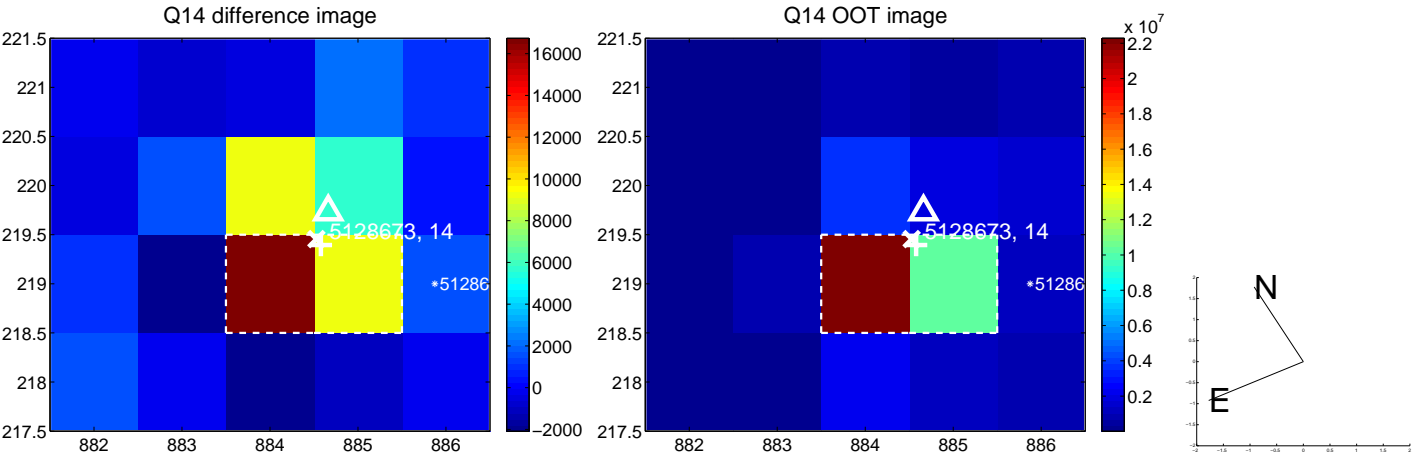
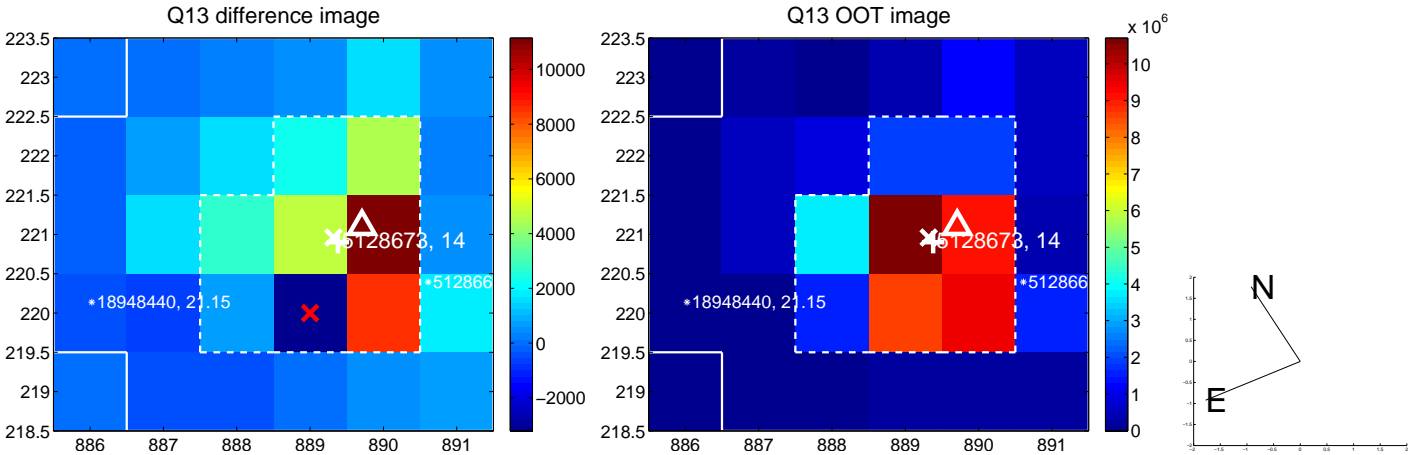
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



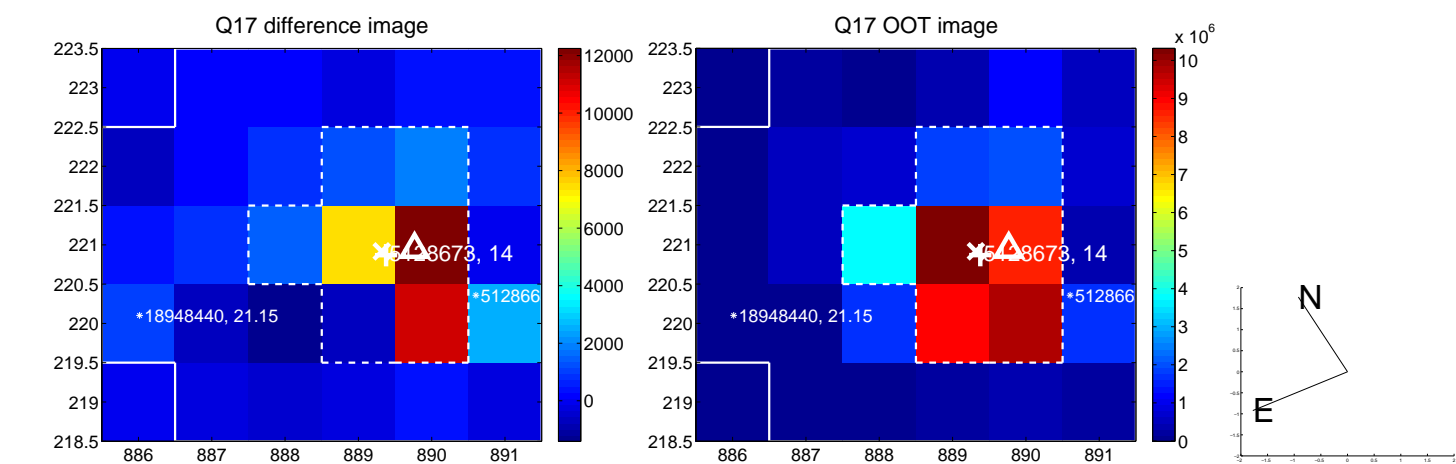
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



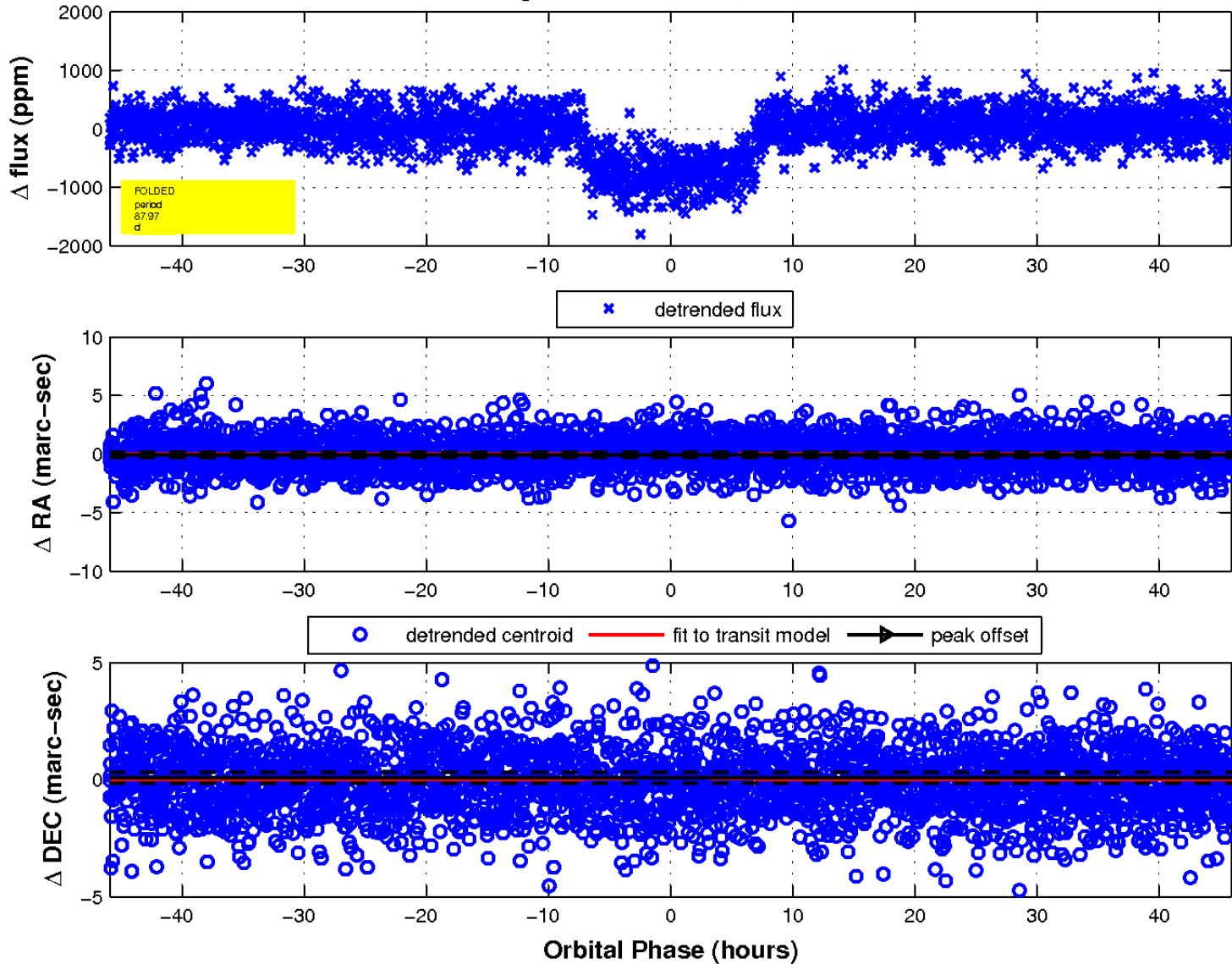
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

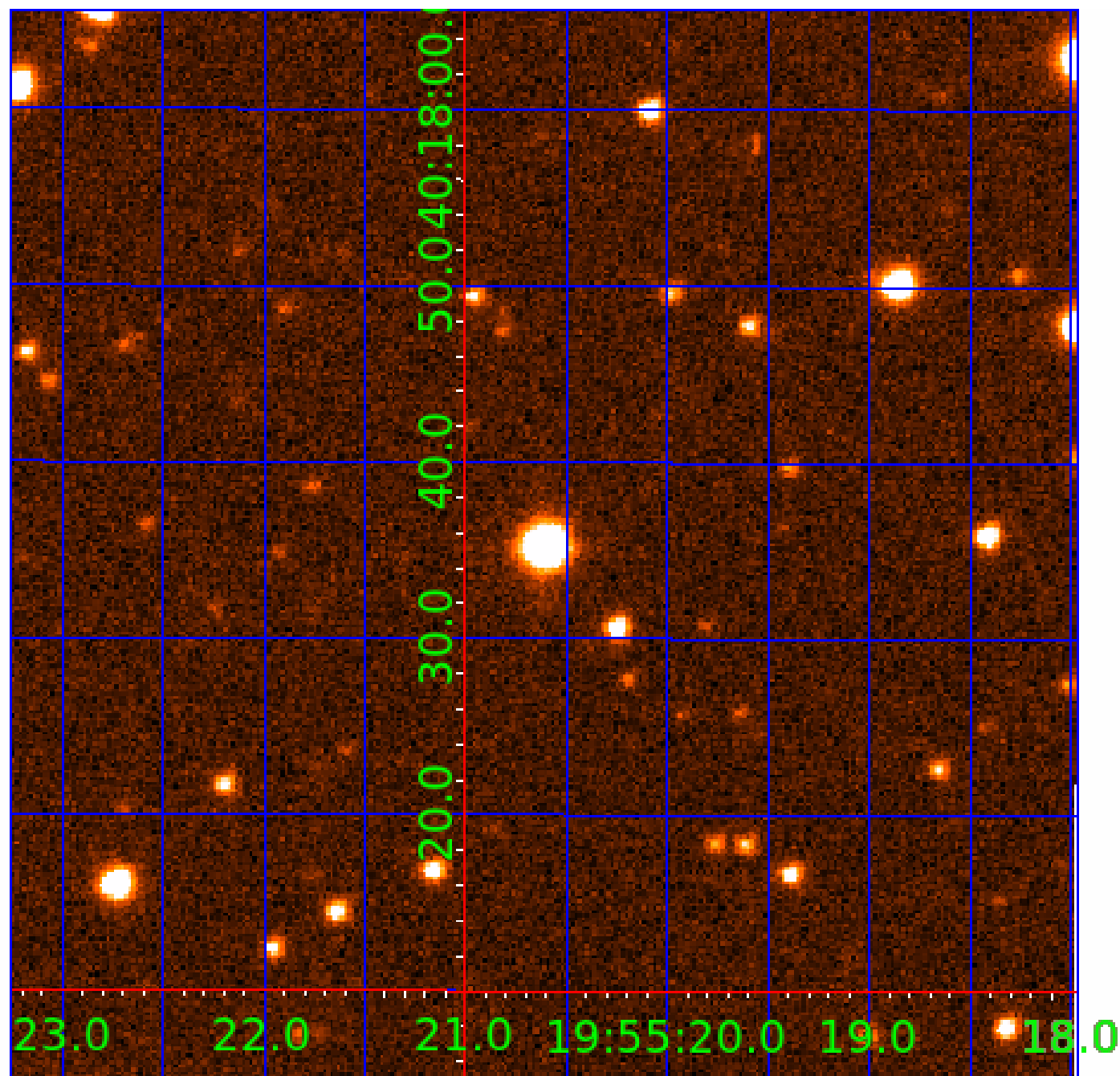


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005128673

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})
005128673-01	OBS	2698.01	87.972469	168.298944	863.7	15.319	43.5	44.2	1.16	5837	3.77	9.39
005128673-02	OBS	No	359.709545	161.774024	334.2	33.992	10.4	8.0	1.16	5837	4.27	1.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005128673-01	OBS	PC	0.95	0	0	0	0	NO_COMMENT
005128673-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

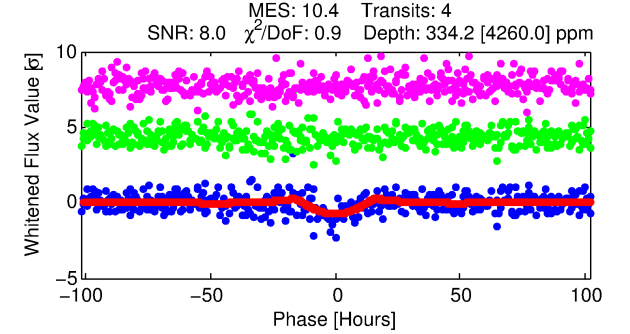
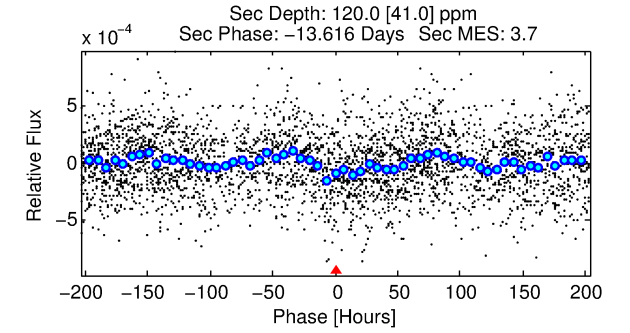
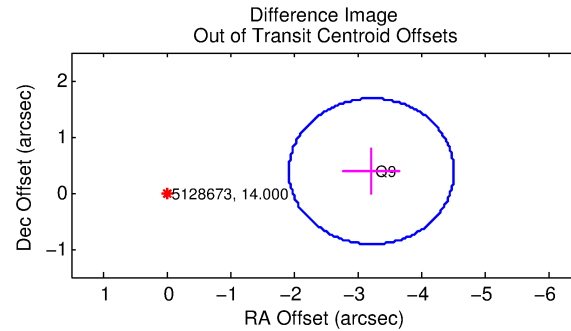
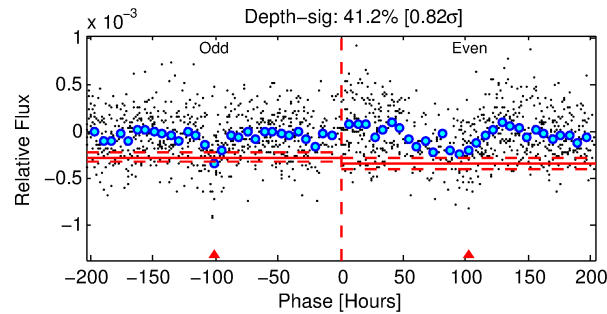
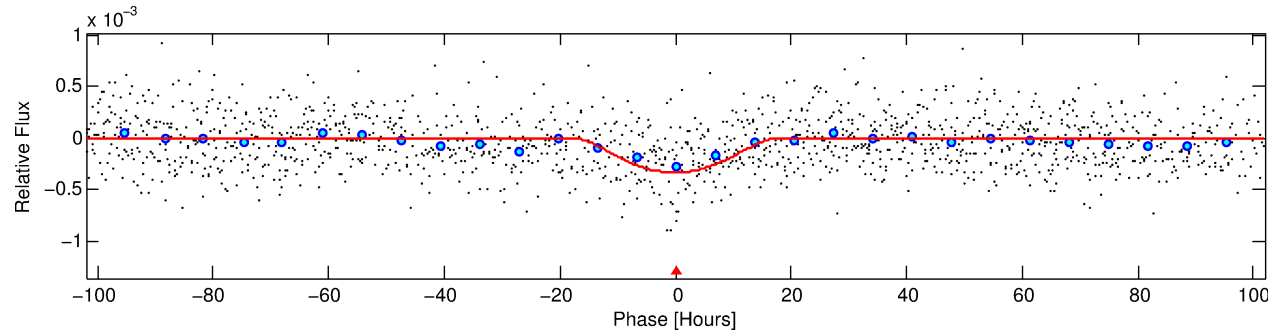
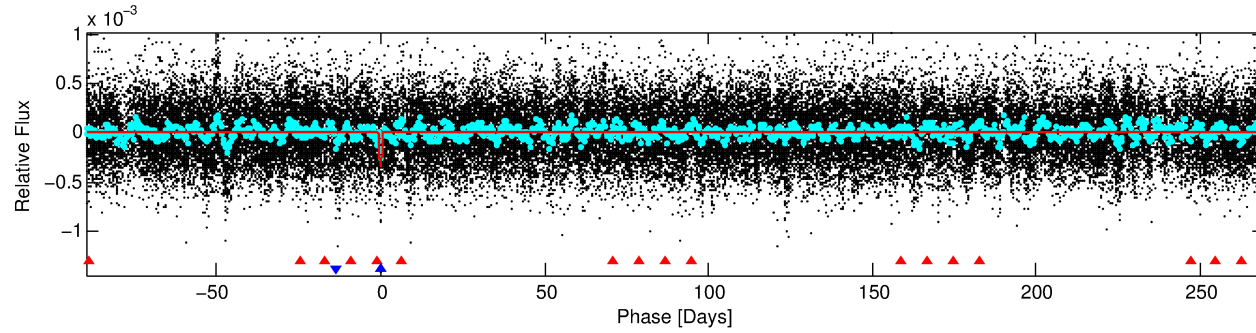
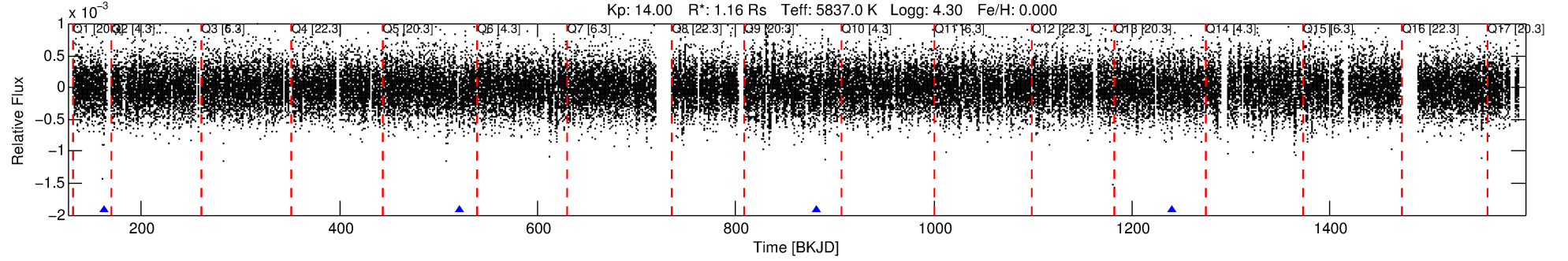
Ephemeris Match Information For 005128673-02

No Significant Match Found

DV One-Page Summary

KIC: 5128673 Candidate: 2 of 2 Period: 359.710 d
KOI: K02698 Corr: No Ephemeris Match

Kp: 14.00 R*: 1.16 Rs T_{eff}: 5837.0 K Logg: 4.30 Fe/H: 0.000



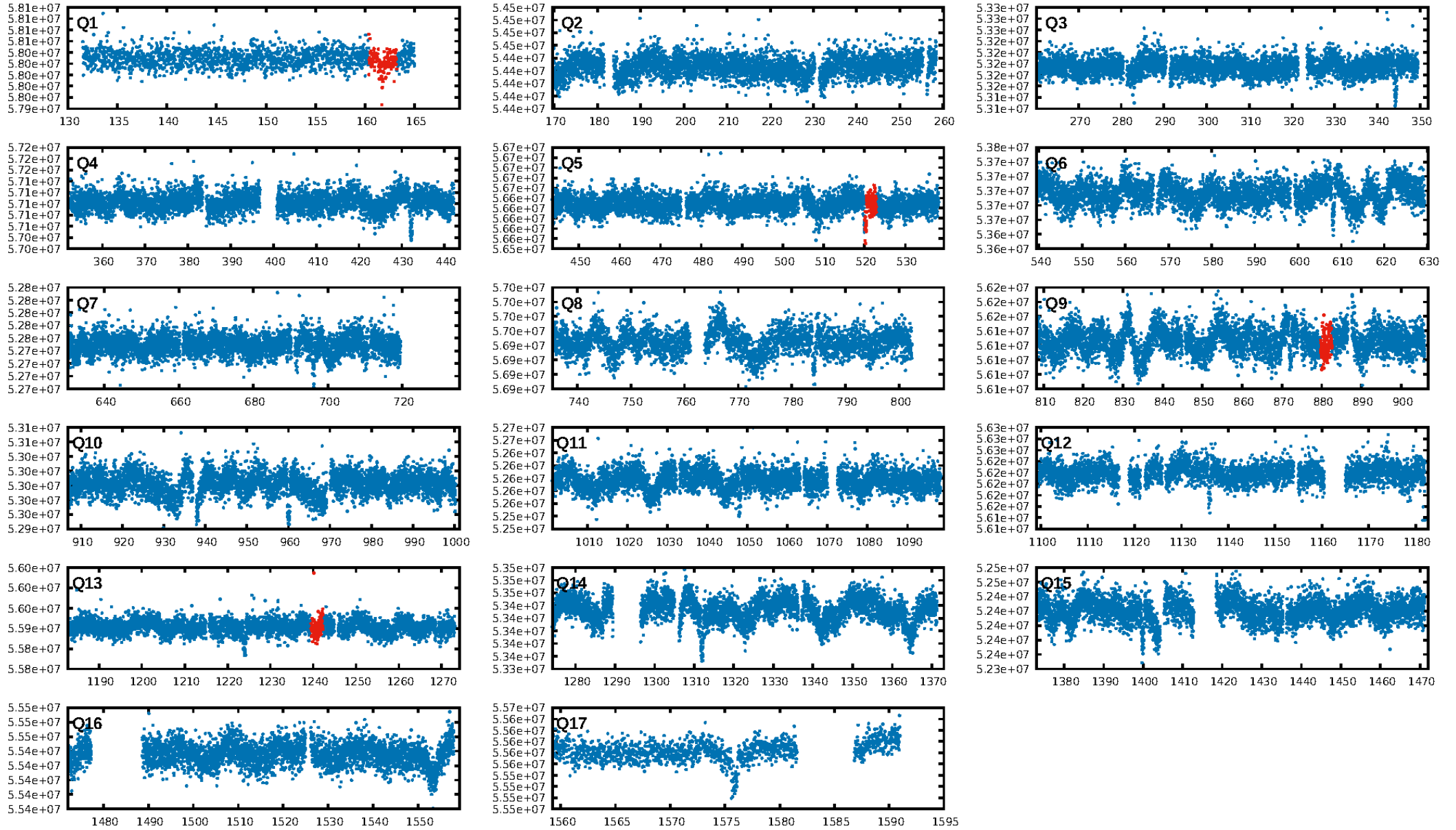
DV Fit Results:

Period = 359.70954 [0.03459] d
Epoch = 161.7740 [0.0689] BKJD
Rp/R* = 0.0338 [0.0987]
a/R* = 21.21 [16.02]
b = 1.00 [0.15]
Seff = 1.44 [0.33]
Teq = 279 [16] K
Rp = 4.27 [12.50] Re
a = 0.9864 [0.1384] AU
Ag = 3524.04 [20666.51] [0.17σ]
Teffp = 3325 [4872] K [0.63σ]

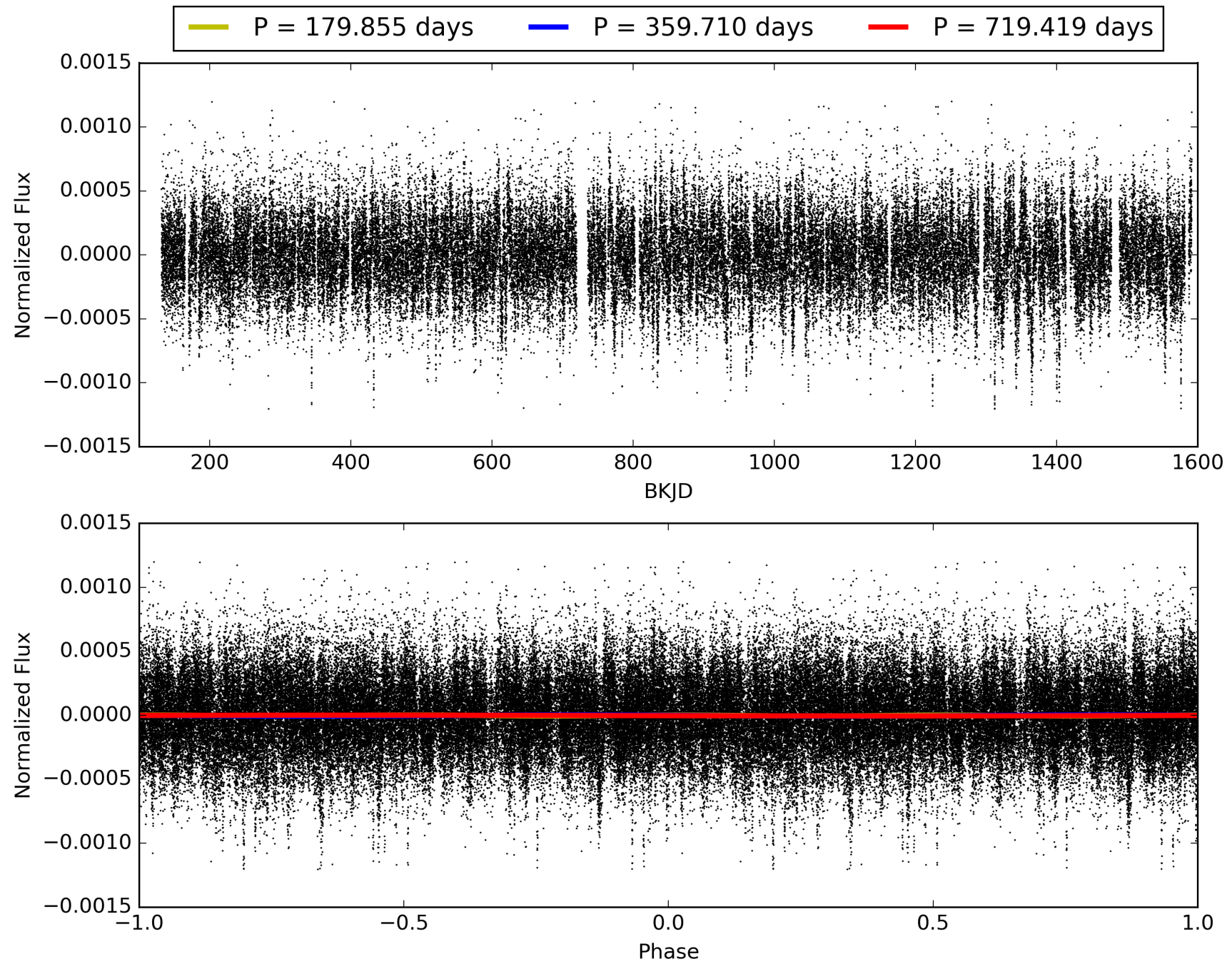
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [174.92σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.58e-21
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.7378
Centroid-sig: 52.3%
Centroid-so: 1.219 arcsec [1.11σ]
OotOffset-rm: 3.246 arcsec [7.51σ]
KicOffset-rm: 3.299 arcsec [7.62σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 005128673-02, PDC Light Curves

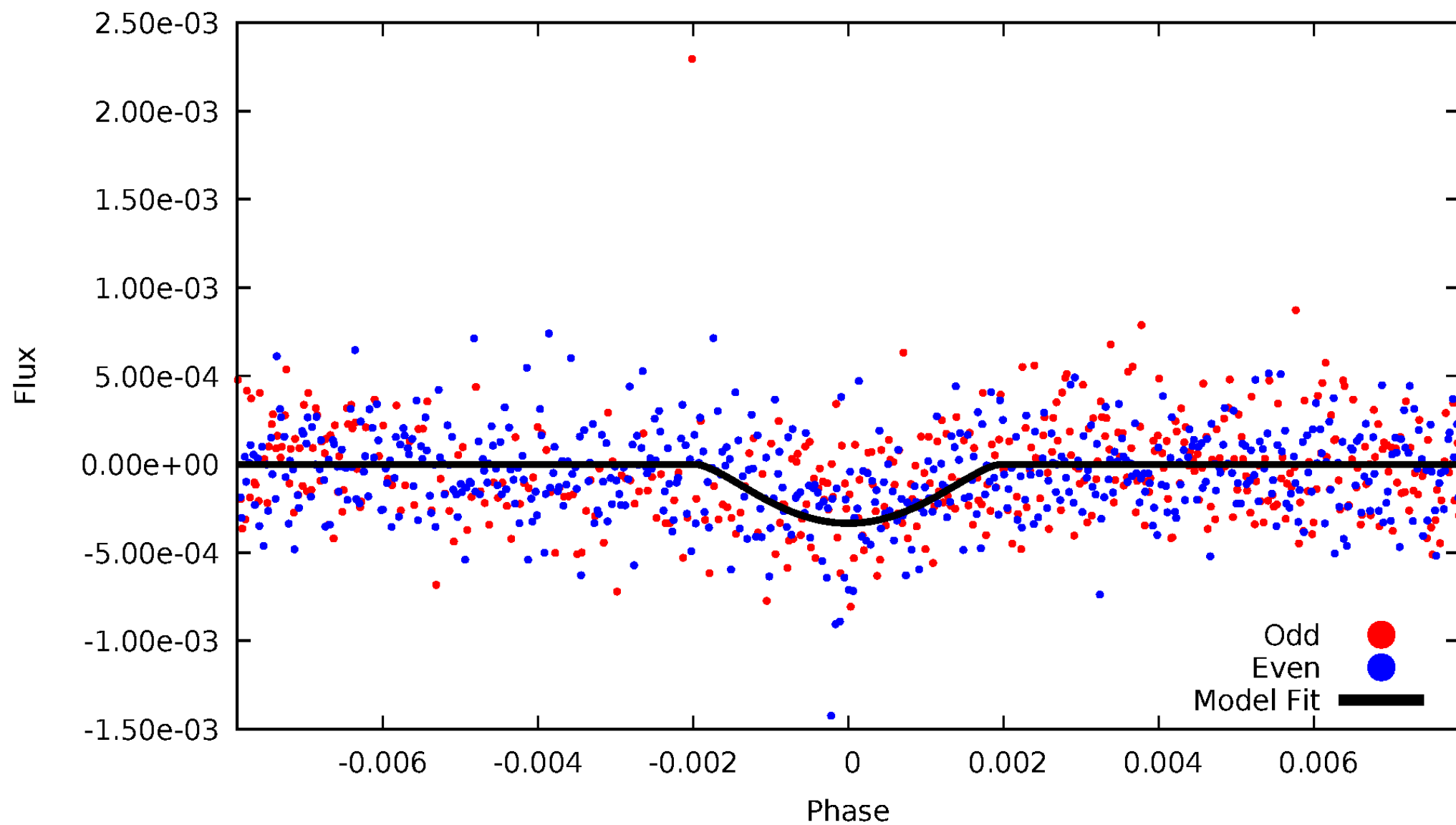


TCE 005128673-02



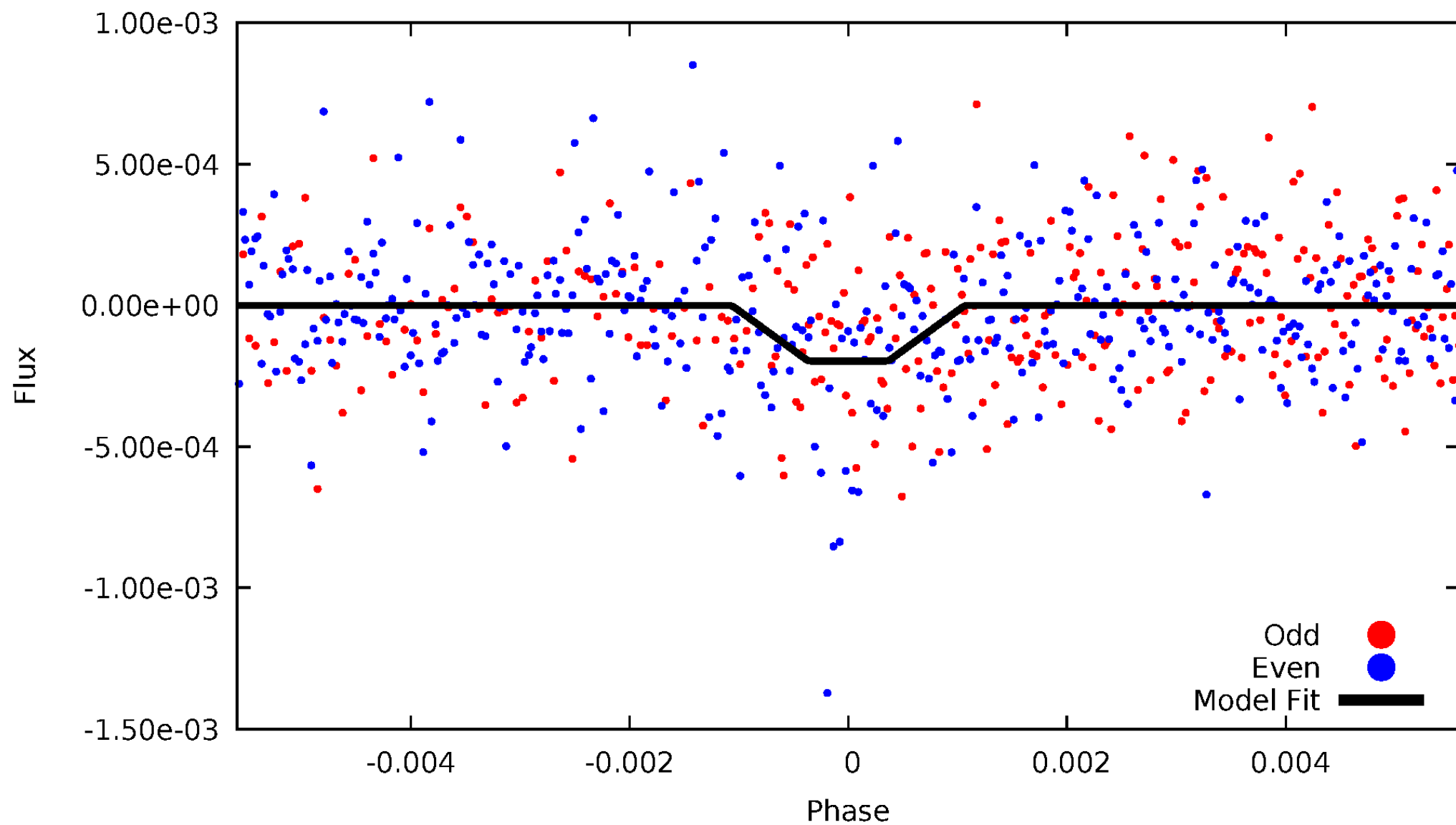
DV Odd/Even

TCE 005128673-02



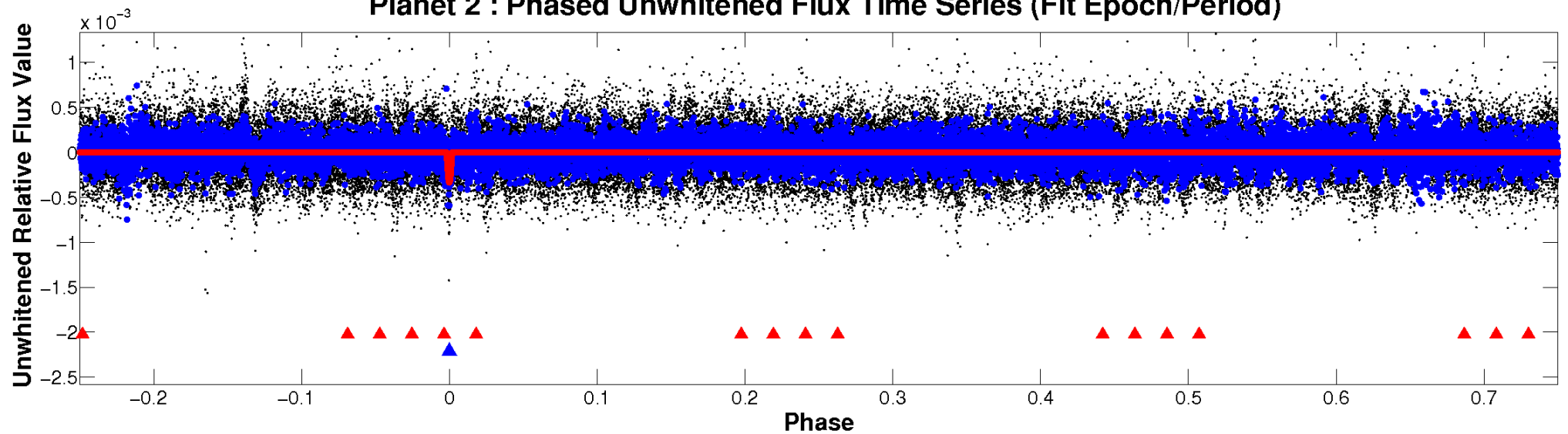
ALT Odd/Even

TCE 005128673-02

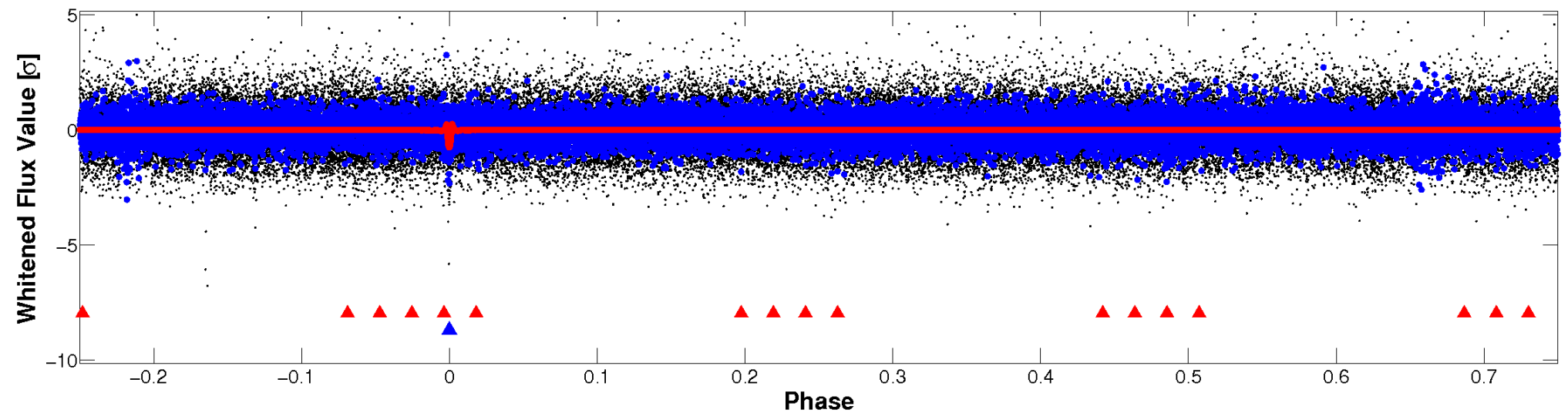


Non-Whitened Vs. Whitened Light Curve

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

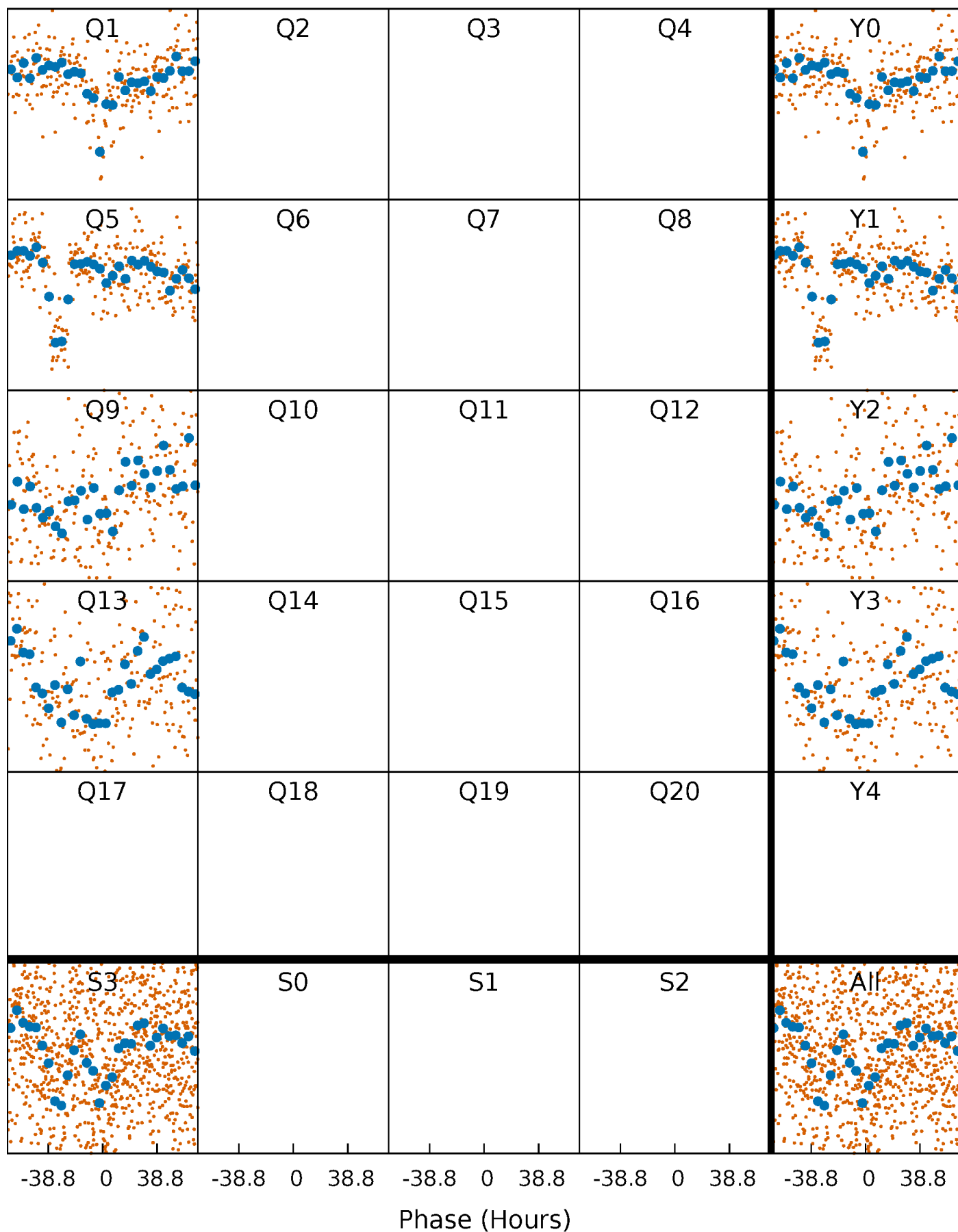


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



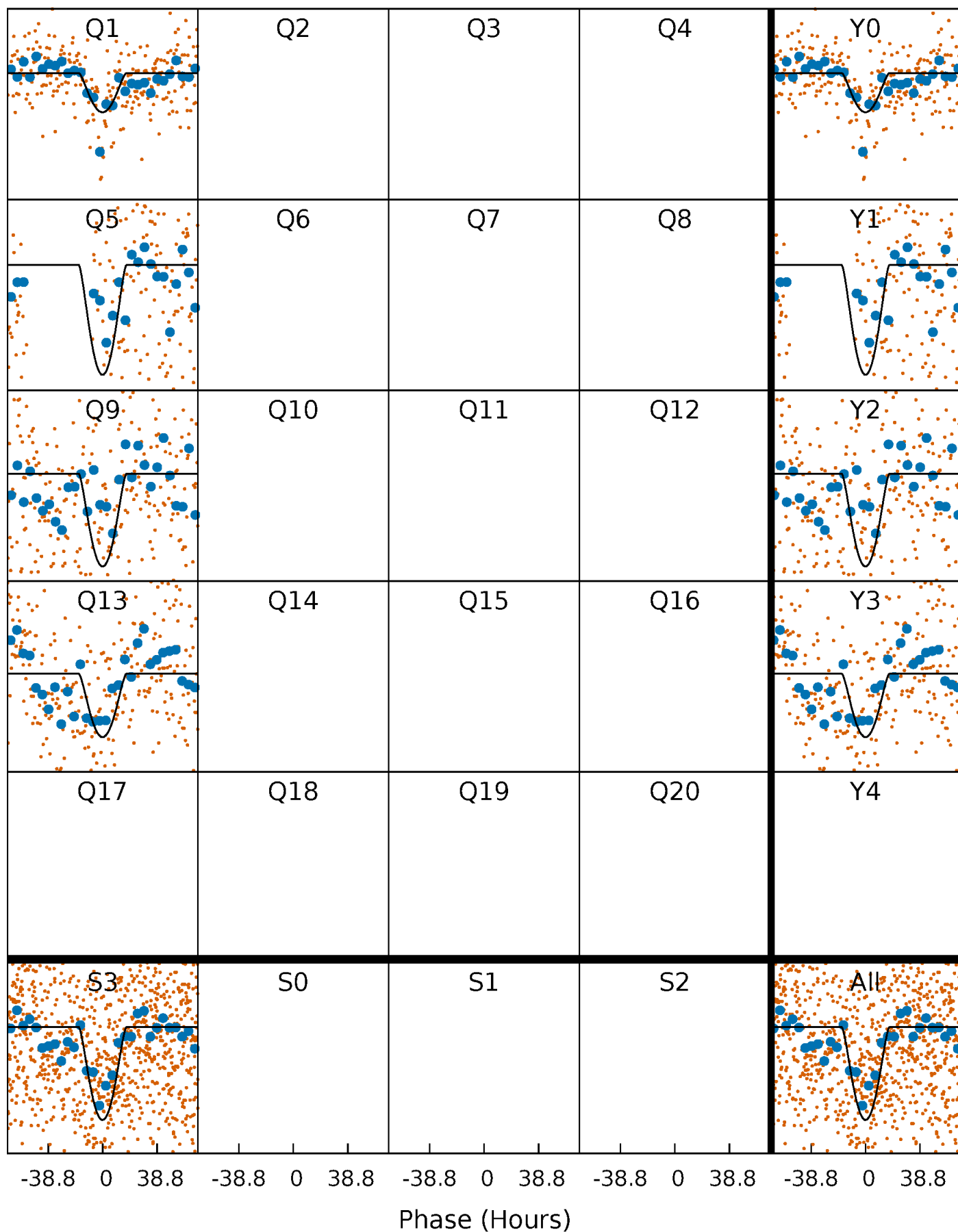
PDC Quarter-Phased Transit Curves

TCE 005128673-02 $P=359.709545$ Days $T_0=161.774024$ (BKJD)



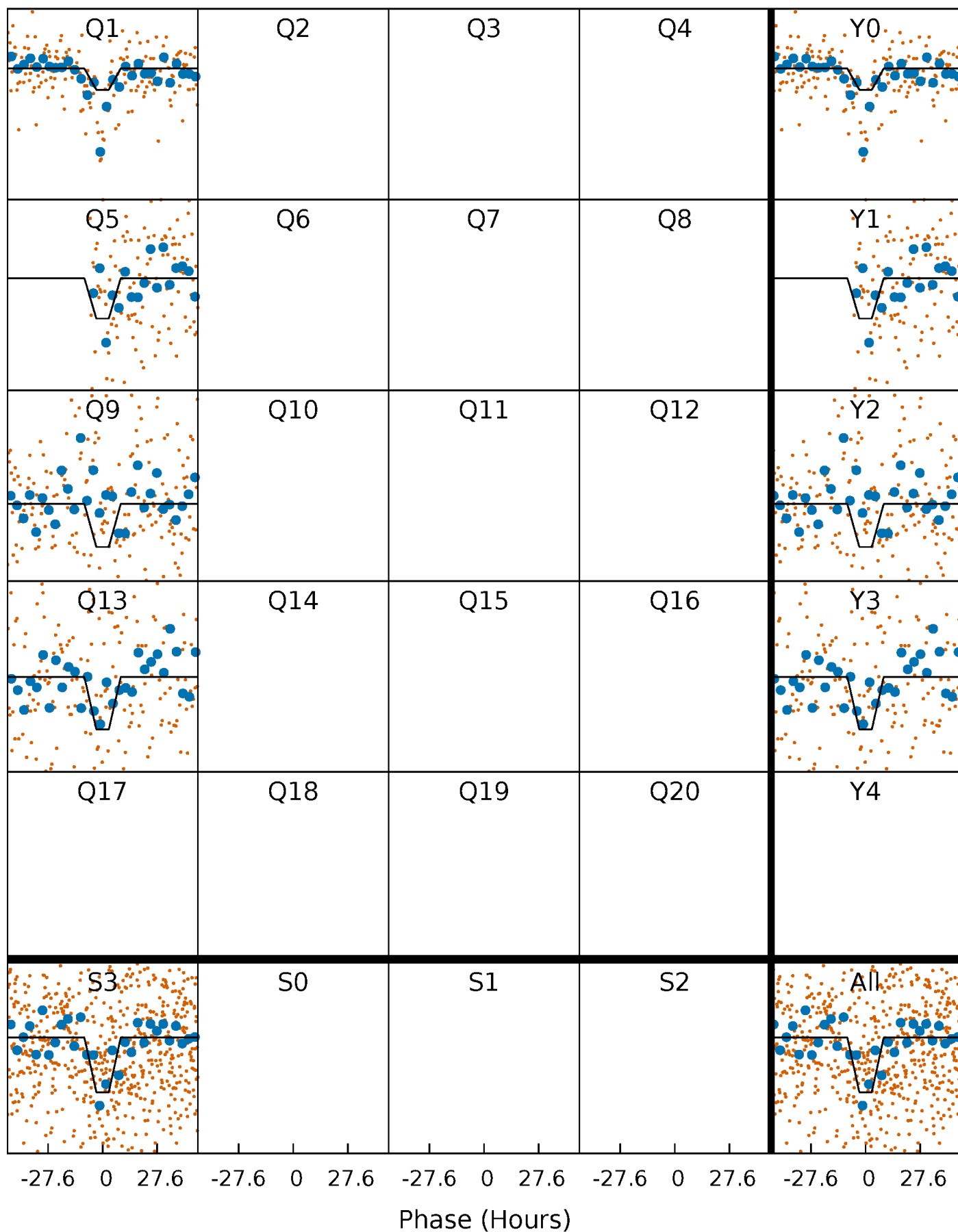
DV Quarter-Phased Transit Curves

TCE 005128673-02 $P=359.709545$ Days $T_0=161.774024$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

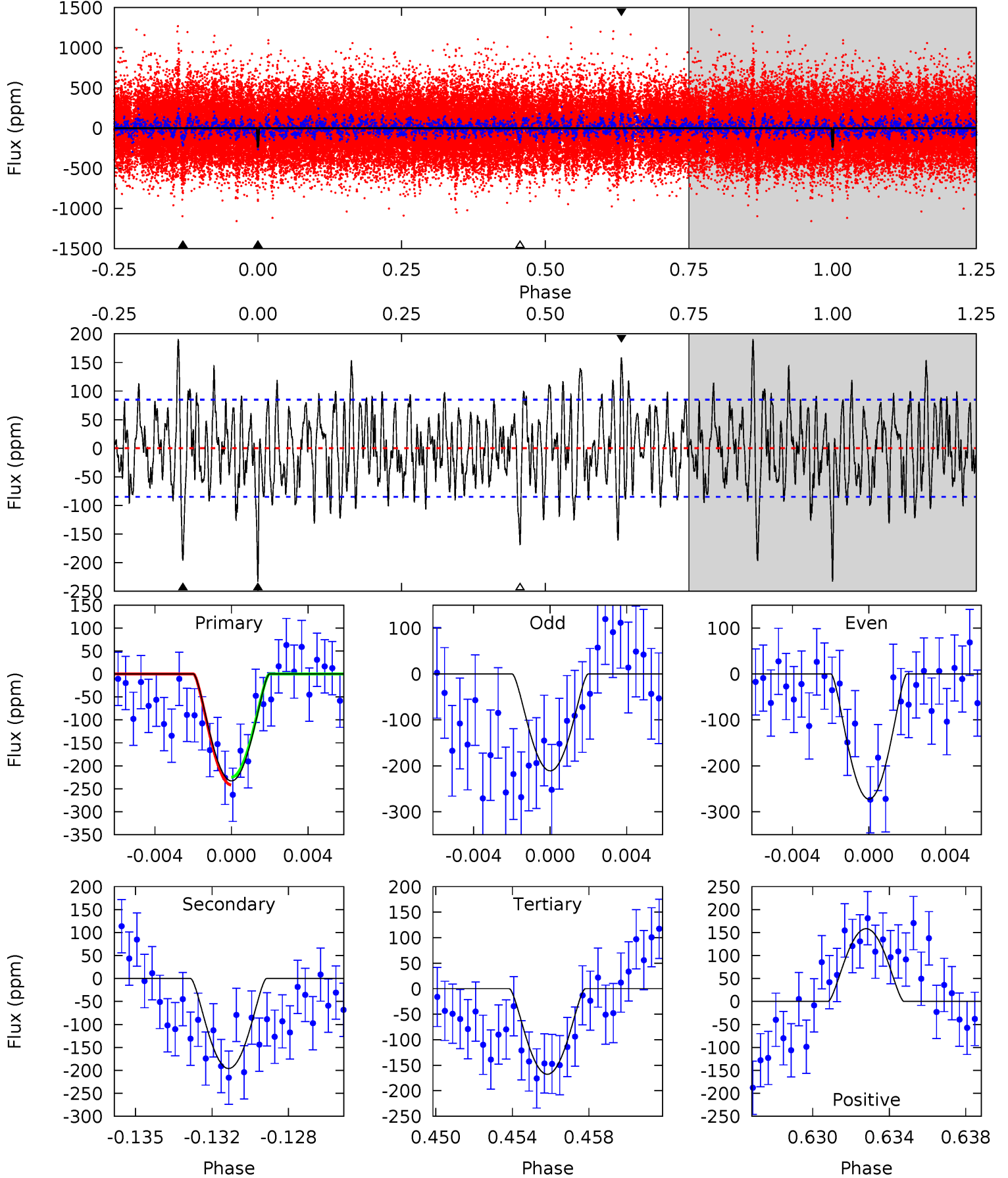
TCE 005128673-02 P=359.657901 Days $T_0=161.763180$ (BKJD)



DV Model-Shift Uniqueness Test

005128673-02, P = 359.709545 Days, E = 161.774024 Days

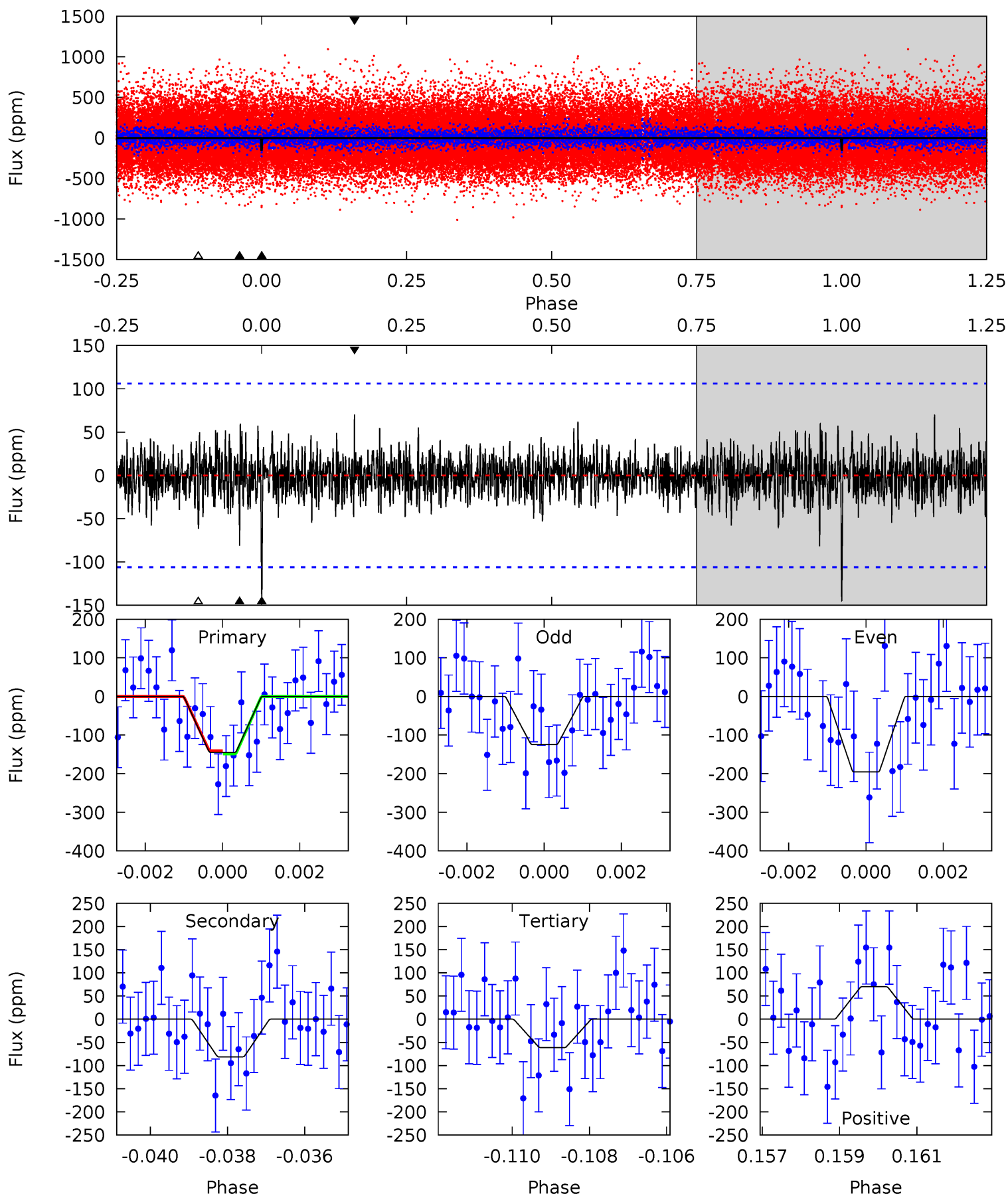
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	12.0	10.3	9.71	5.20	2.88	3.47	4.00	4.57	1.74	2.30	1.89	1.15	0.45	0.51



Alt Model-Shift Uniqueness Test

005128673-02, P = 359.657901 Days, E = 161.763180 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.26	4.07	3.06	3.51	5.32	3.07	0.92	4.20	3.75	1.00	0.55	1.79	1.26	0.33	0.19



Stellar Parameters For KIC 005128673

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5837^{+105}_{-117}	$4.305^{+0.125}_{-0.112}$	$0.000^{+0.150}_{-0.150}$	$1.159^{+0.178}_{-0.178}$	$0.988^{+0.082}_{-0.067}$	$0.895^{+0.524}_{-0.279}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+15%/-15%	+8%/-7%	+59%/-31%
Source	SPE57	SPE57	SPE57	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005128673-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-196 ± 16	$10.57^{+10.66}_{-7.01}$	390^{+18}_{-19}	3035^{+1295}_{-497}	935^{+7390}_{-703}
Alt.	-81 ± 20	$9.71^{+9.16}_{-6.80}$	389^{+18}_{-18}	2745^{+1161}_{-433}	462^{+4217}_{-351}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

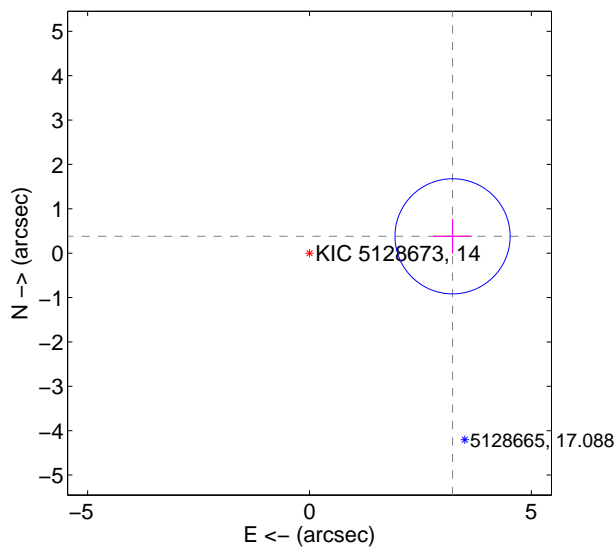
Supplemental centroid analysis for 005128673-02. Kepler magnitude: 14.00. Transit SNR 8.04

There are 0 quarters with good PRF difference image offsets

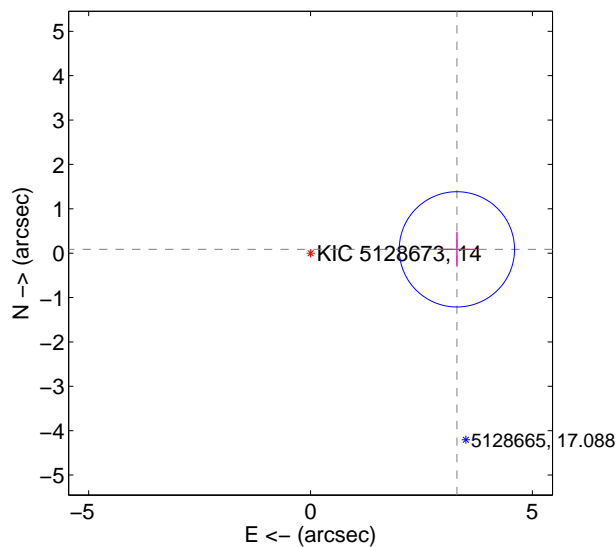
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.246 ± 0.432	7.51	-3.224 ± 0.433	0.380 ± 0.389
PRF-fit source offset from KIC position	3.299 ± 0.433	7.62	-3.298 ± 0.433	0.086 ± 0.389
photometric centroid source offset	1.22 ± 1.10	1.11	-0.20 ± 1.15	-1.20 ± 1.10

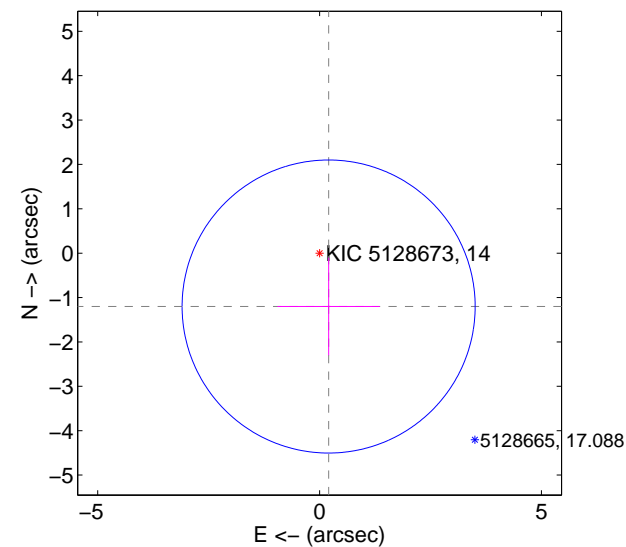
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

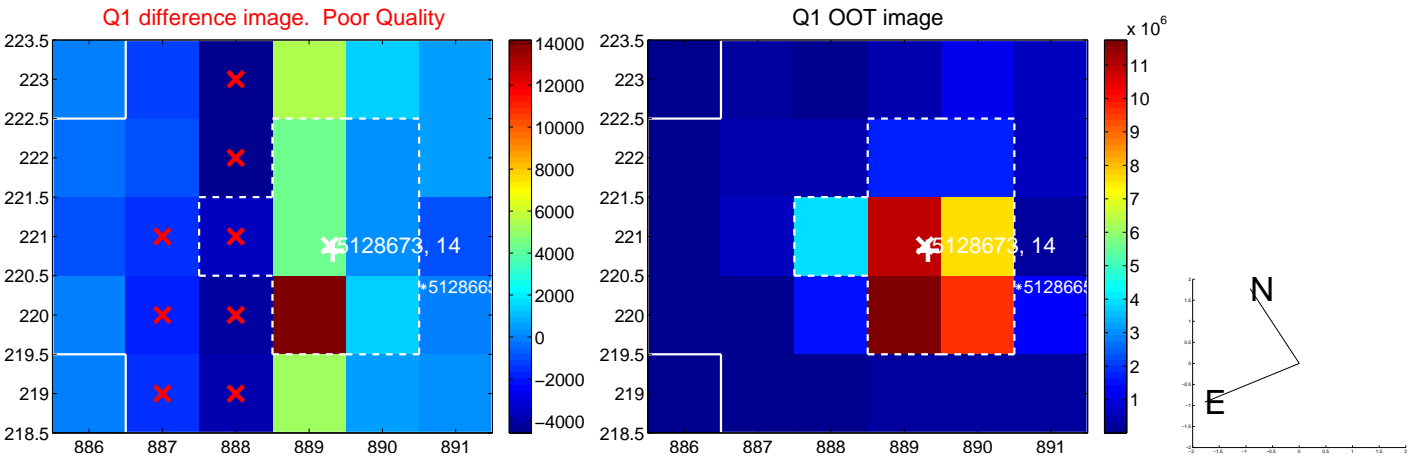


offset from photometric centroids

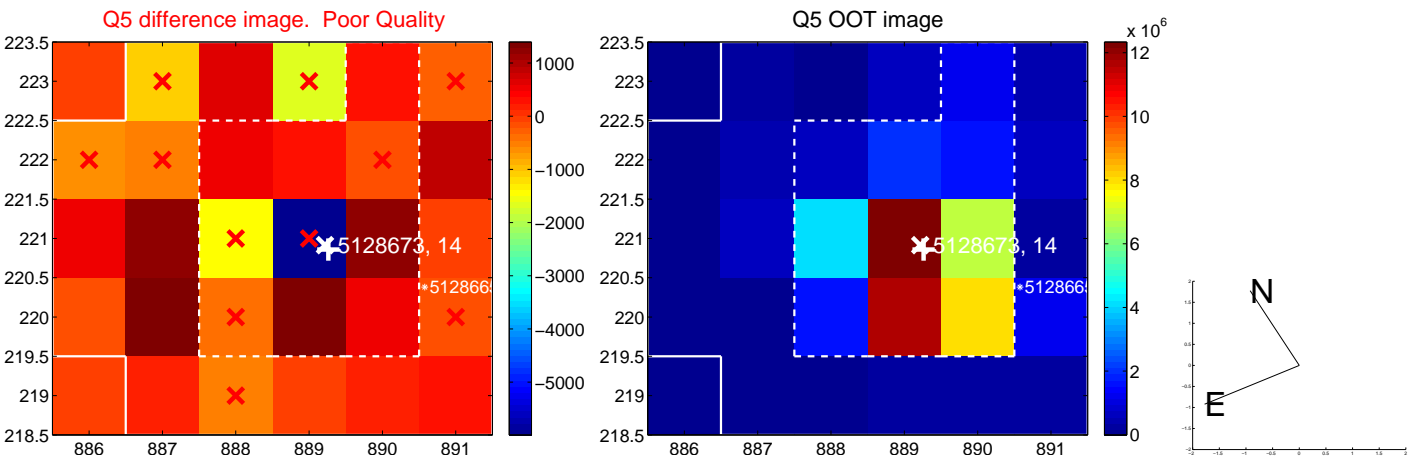


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

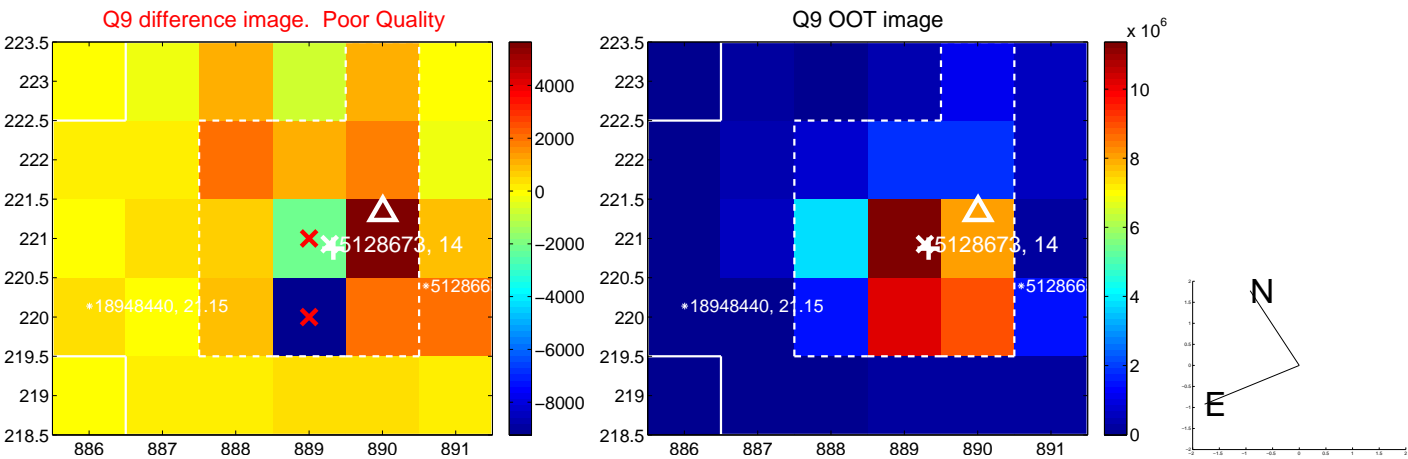
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



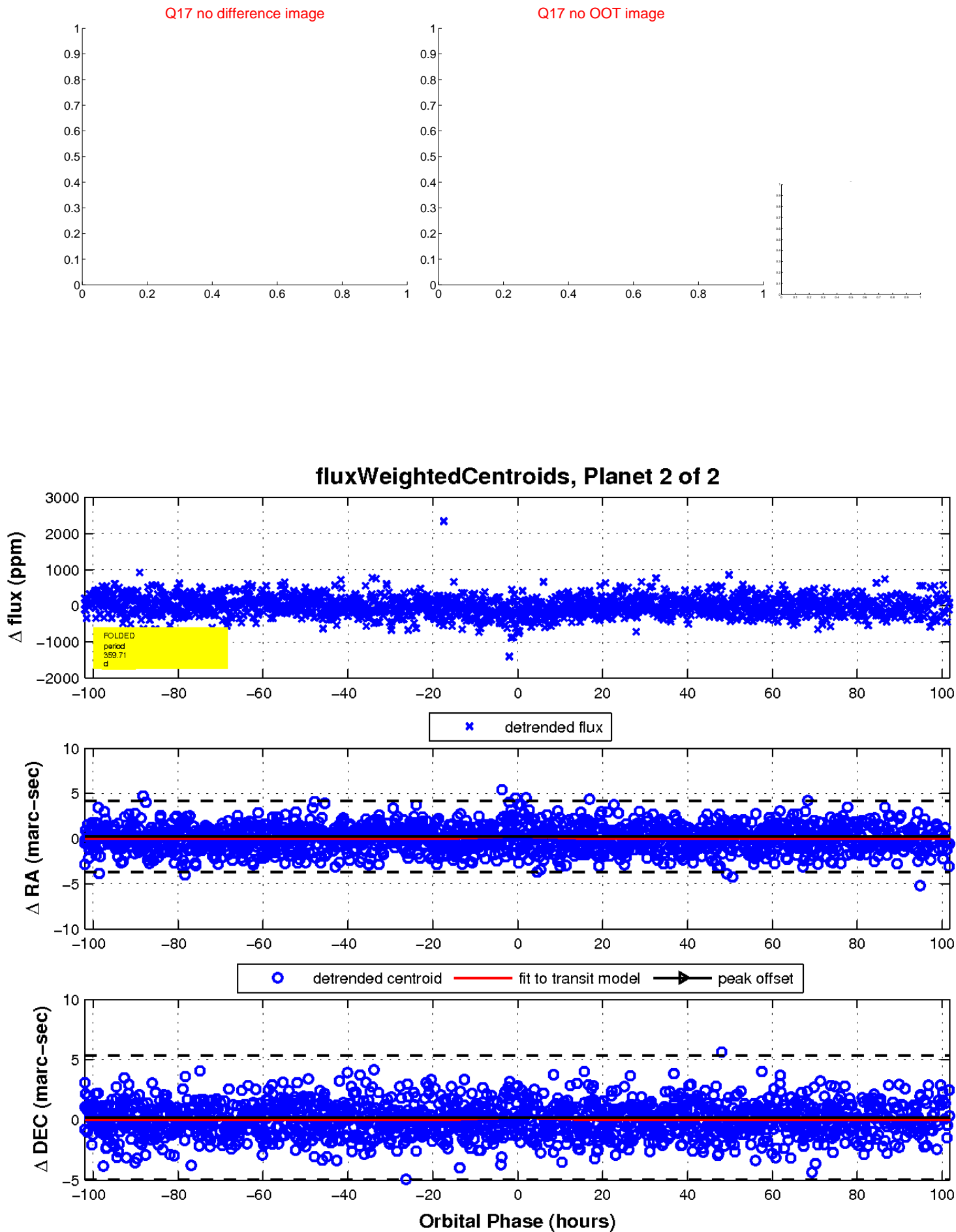
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

