

KIC 007770901

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})
007770901-01	OBS	5426.01	124.886754	133.796281	179.2	8.719	10.2	10.1	1.23	6103	1.83	8.50
007770901-02	OBS	No	362.283176	314.845525	223.5	8.959	8.2	8.2	1.23	6103	1.99	2.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007770901-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
007770901-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

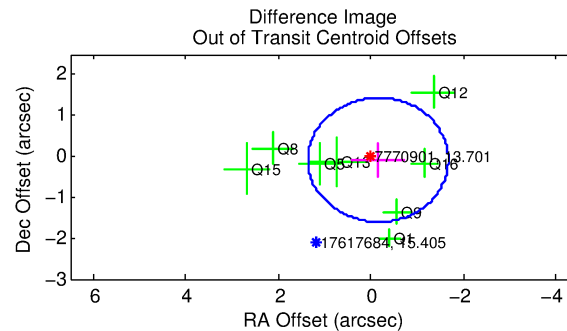
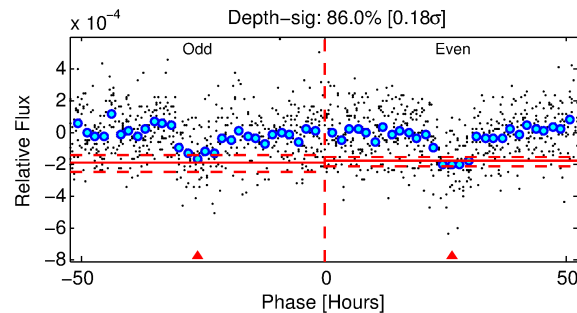
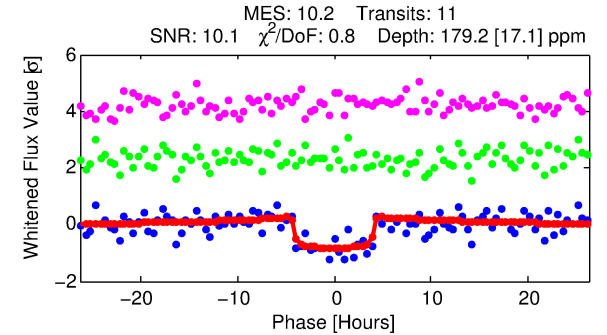
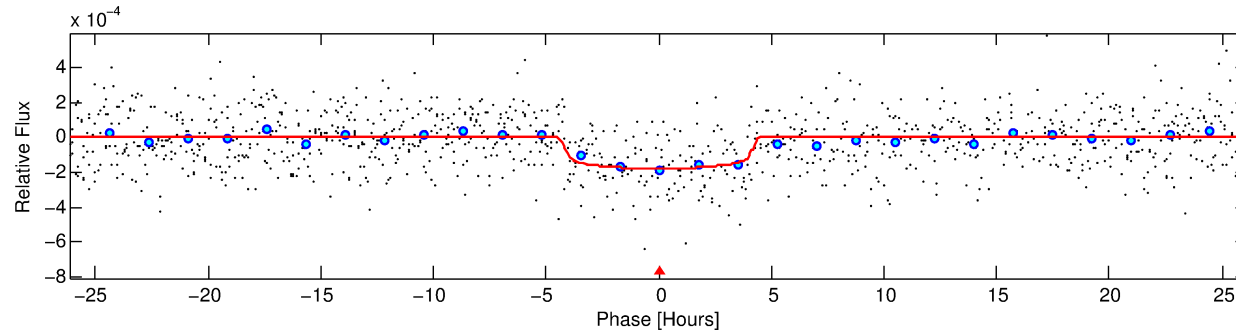
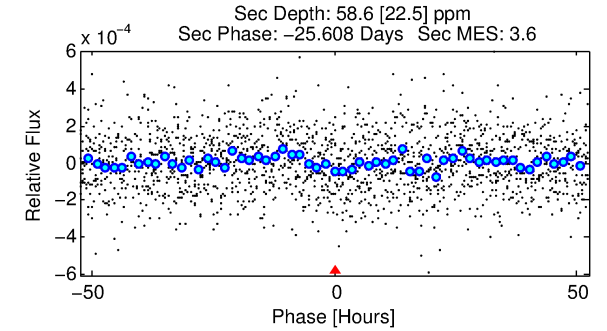
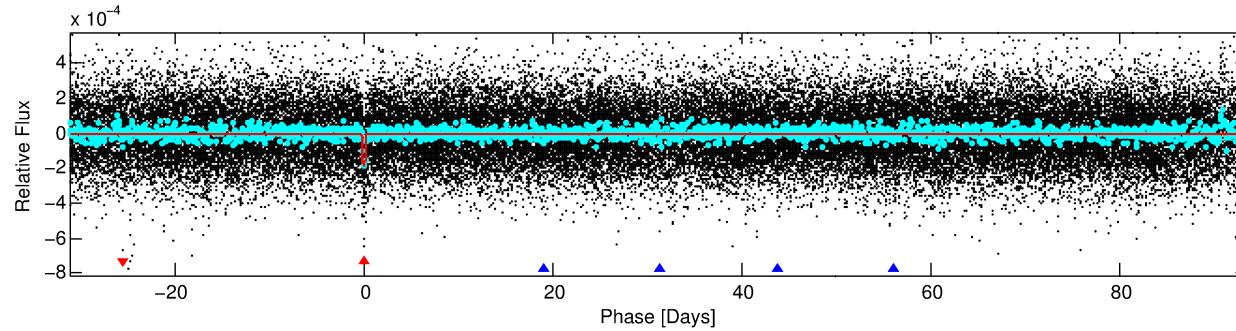
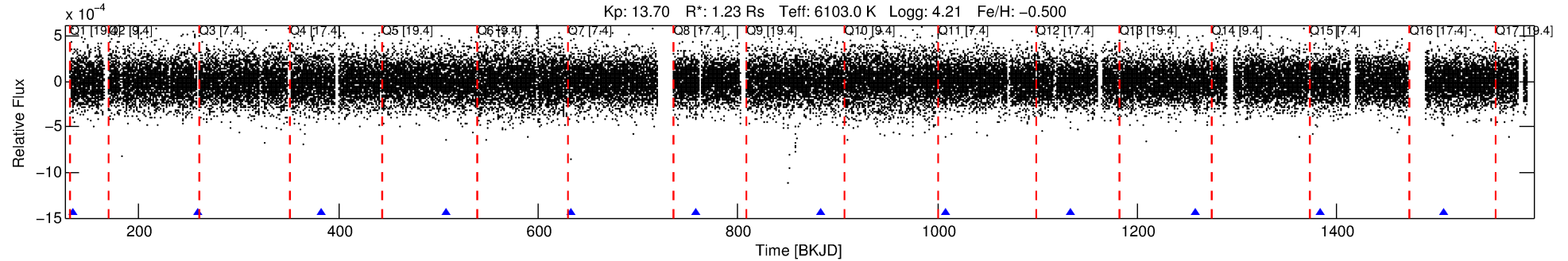
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007770901-01

No Significant Match Found

DV One-Page Summary

KIC: 7770901 Candidate: 1 of 2 Period: 124.887 d
KOI: K05426.01 Corr: 0.990



DV Fit Results:

Period = 124.88675 [0.00173] d
Epoch = 133.7963 [0.0117] BKJD
Rp/R* = 0.0136 [0.0042]
a/R* = 67.58 [107.89]
b = 0.80 [0.71]
Seff = 8.50 [3.92]
Teq = 435 [50] K
Rp = 1.83 [0.76] Re
a = 0.4720 [0.1294] AU
Ag = 2147.17 [1825.18] [1.18σ]
Teffp = 4582 [841] K [4.92σ]

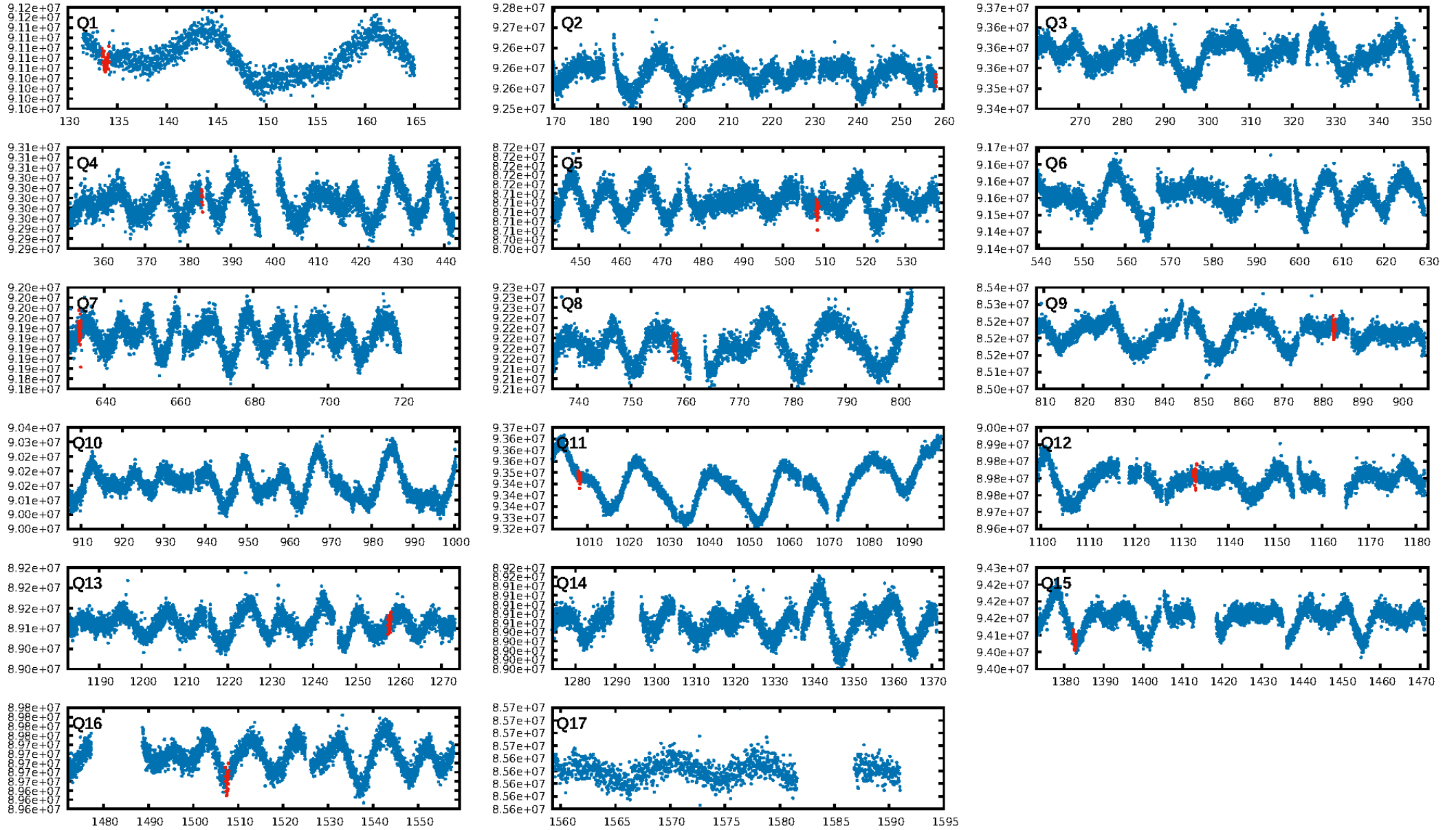
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [455.77σ]
ModelChiSquare2-sig: 69.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.76e-22
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 2.582
Centroid-sig: 92.0%
Centroid-so: 0.352 arcsec [0.37σ]
OotOffset-rm: 0.179 arcsec [0.35σ]
OotOffset-st: 0.1/3/4 [8]
KicOffset-rm: 0.230 arcsec [0.71σ]
KicOffset-st: 0.1/3/4 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

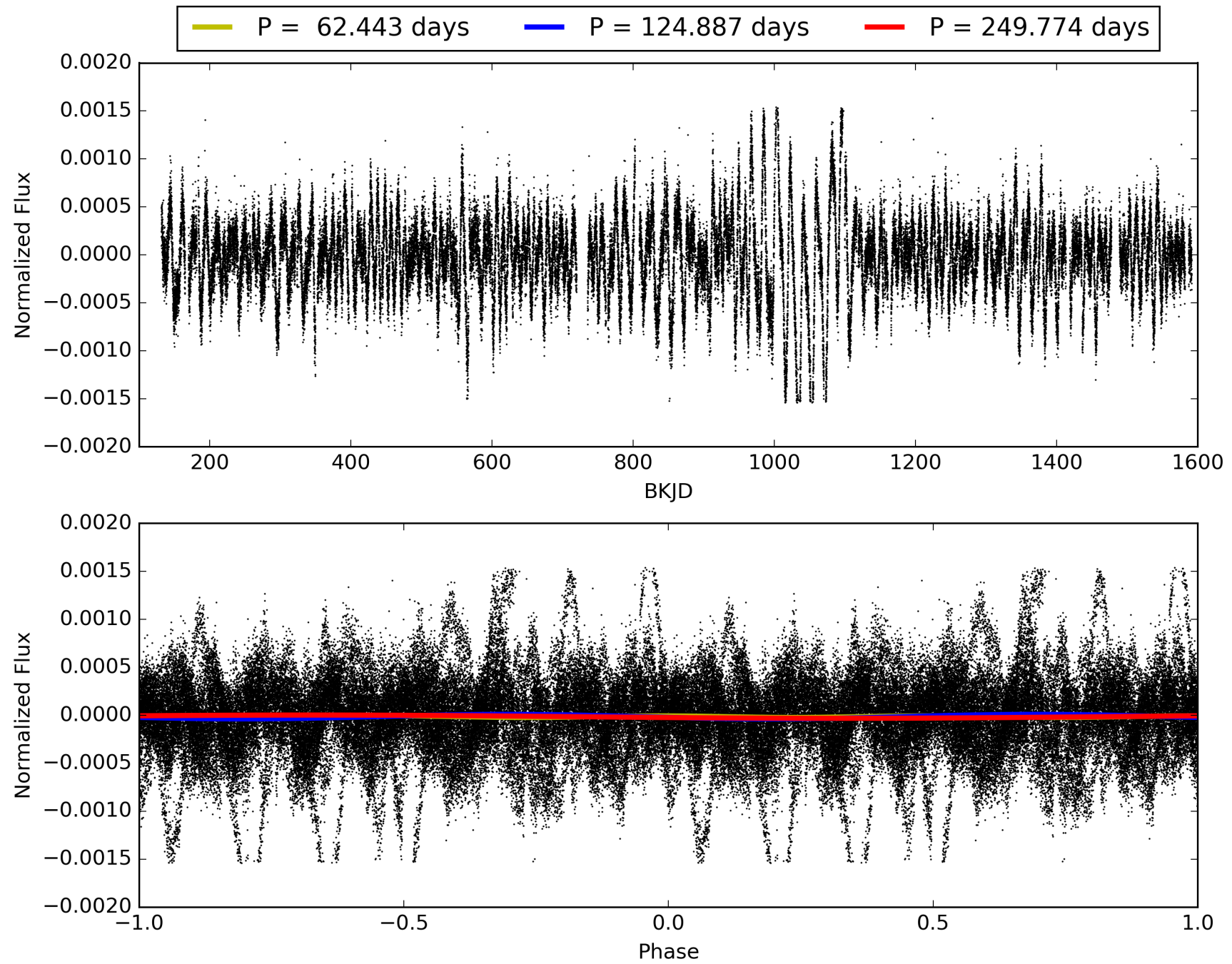
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007770901-01, PDC Light Curves

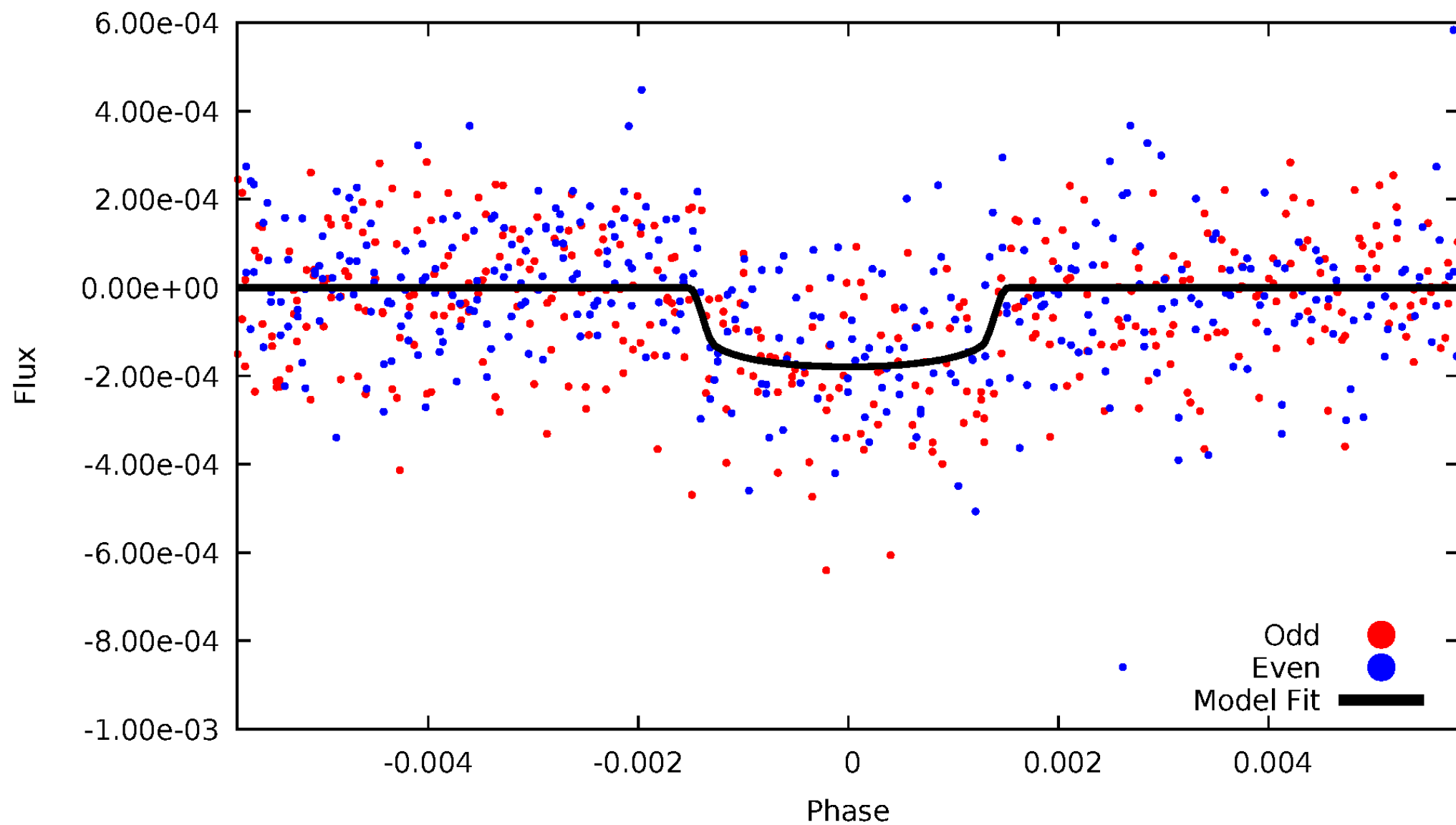


TCE 007770901-01



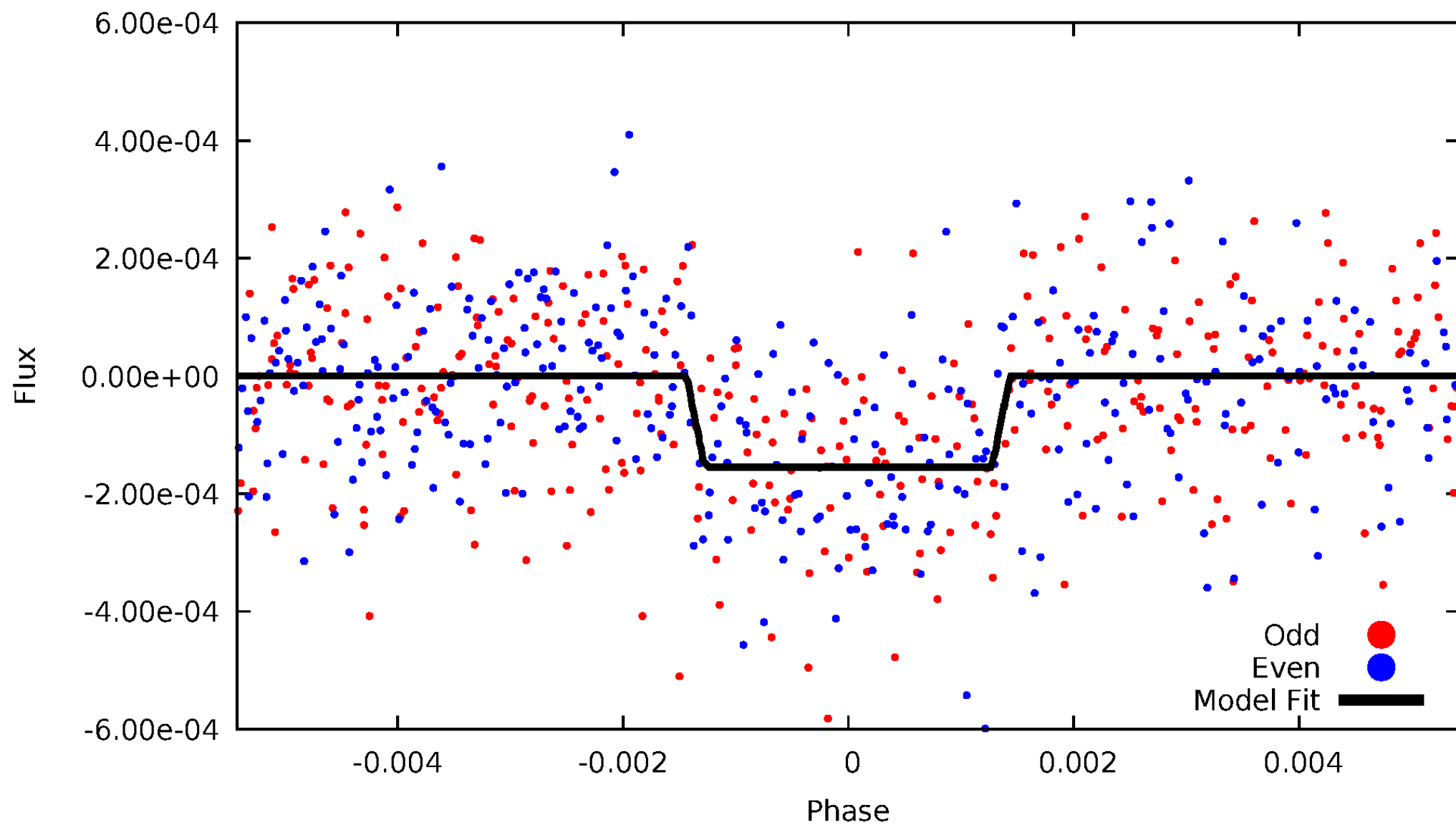
DV Odd/Even

TCE 007770901-01

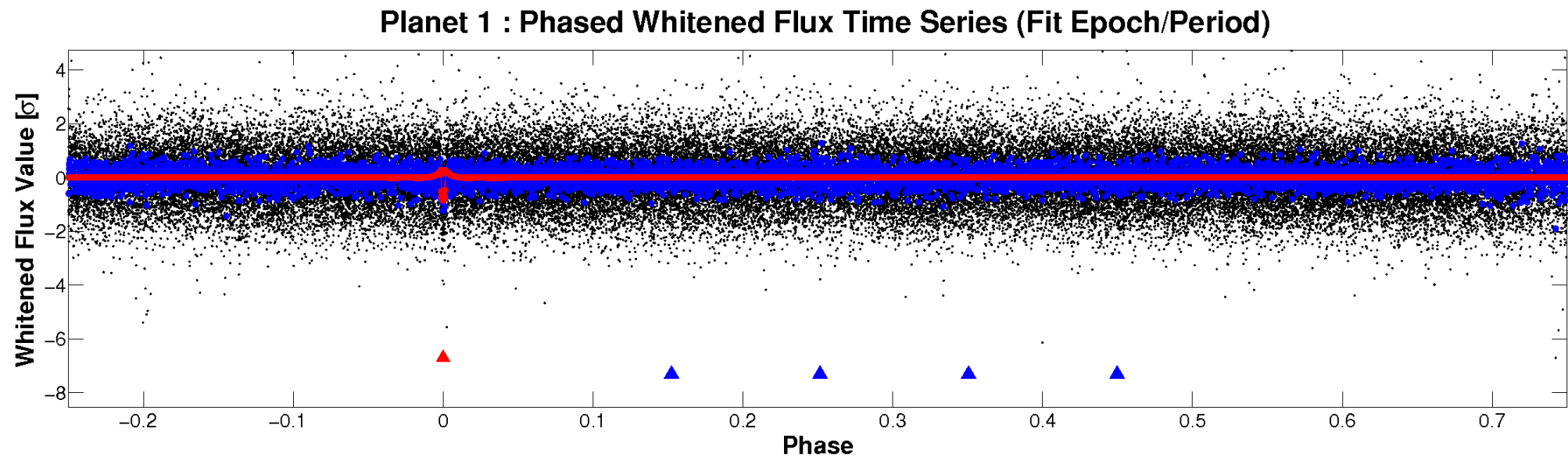
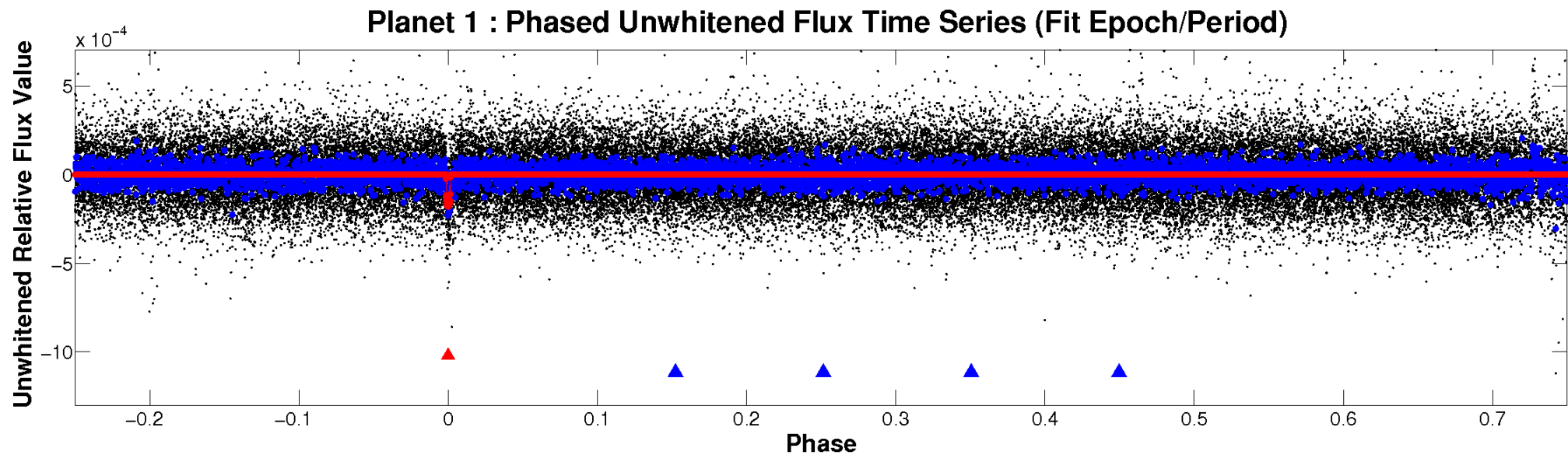


ALT Odd/Even

TCE 007770901-01

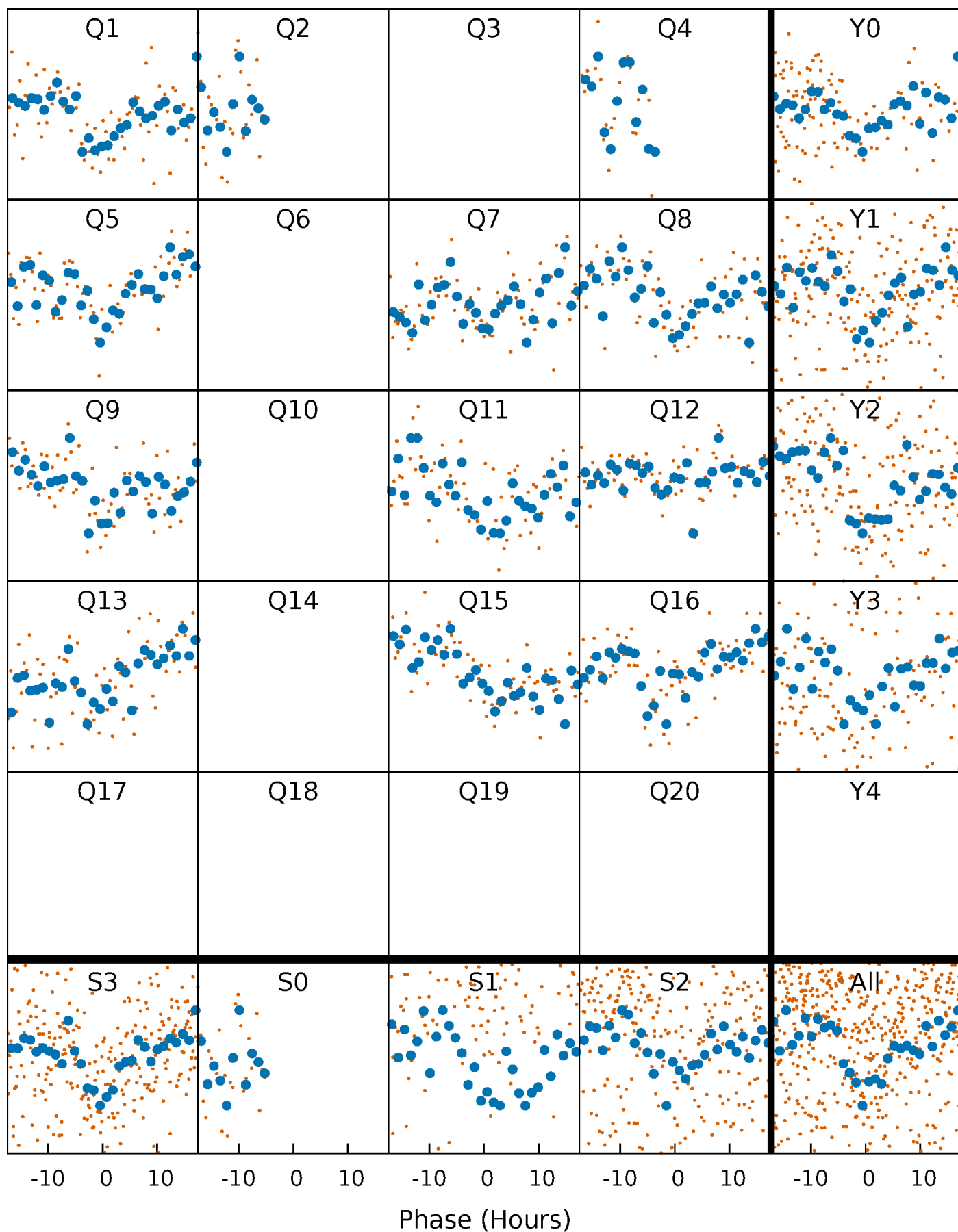


Non-Whitened Vs. Whitened Light Curve



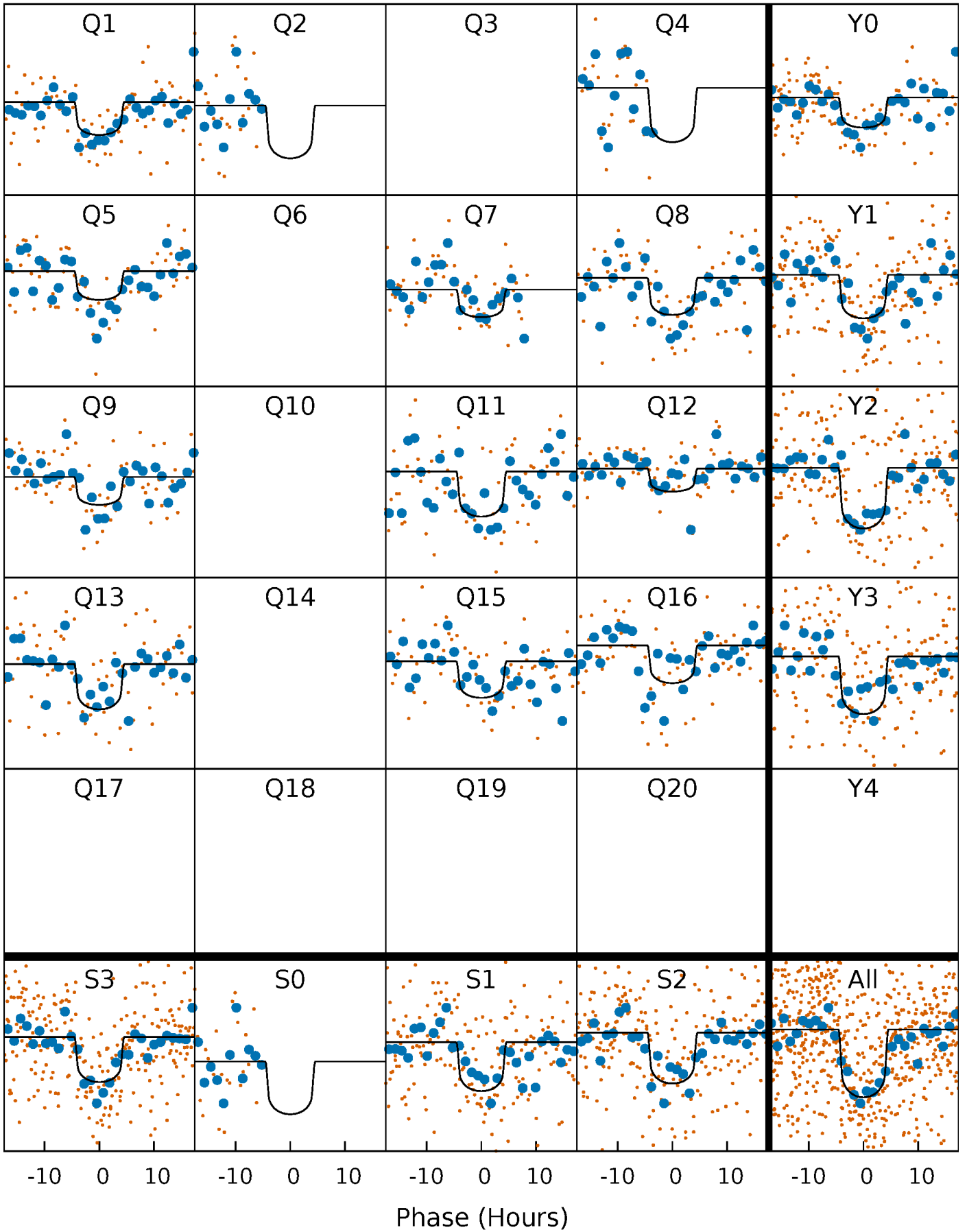
PDC Quarter-Phased Transit Curves

TCE 007770901-01 P=124.886753 Days $T_0=133.796281$ (BKJD)



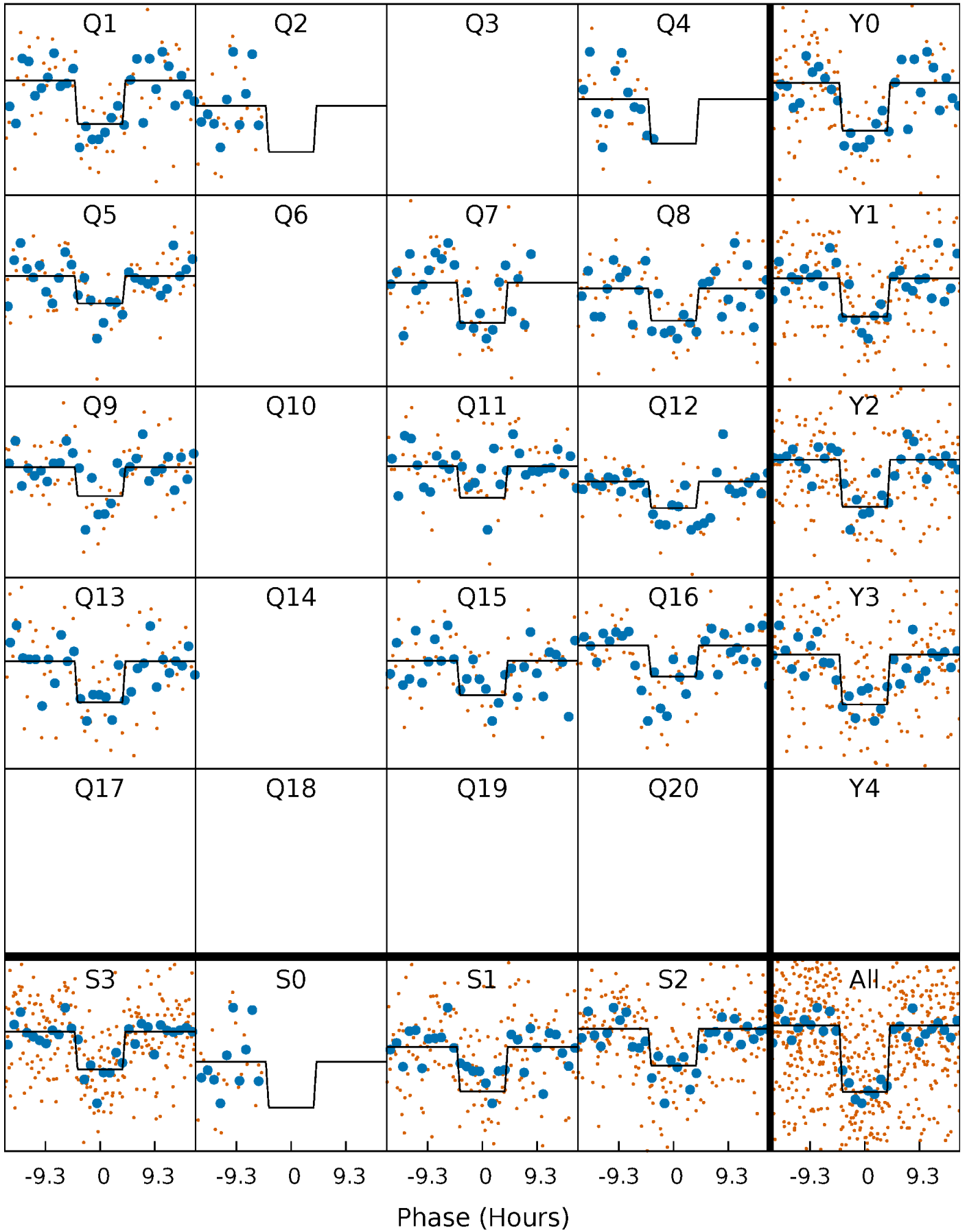
DV Quarter-Phased Transit Curves

TCE 007770901-01 P=124.886753 Days $T_0=133.796281$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

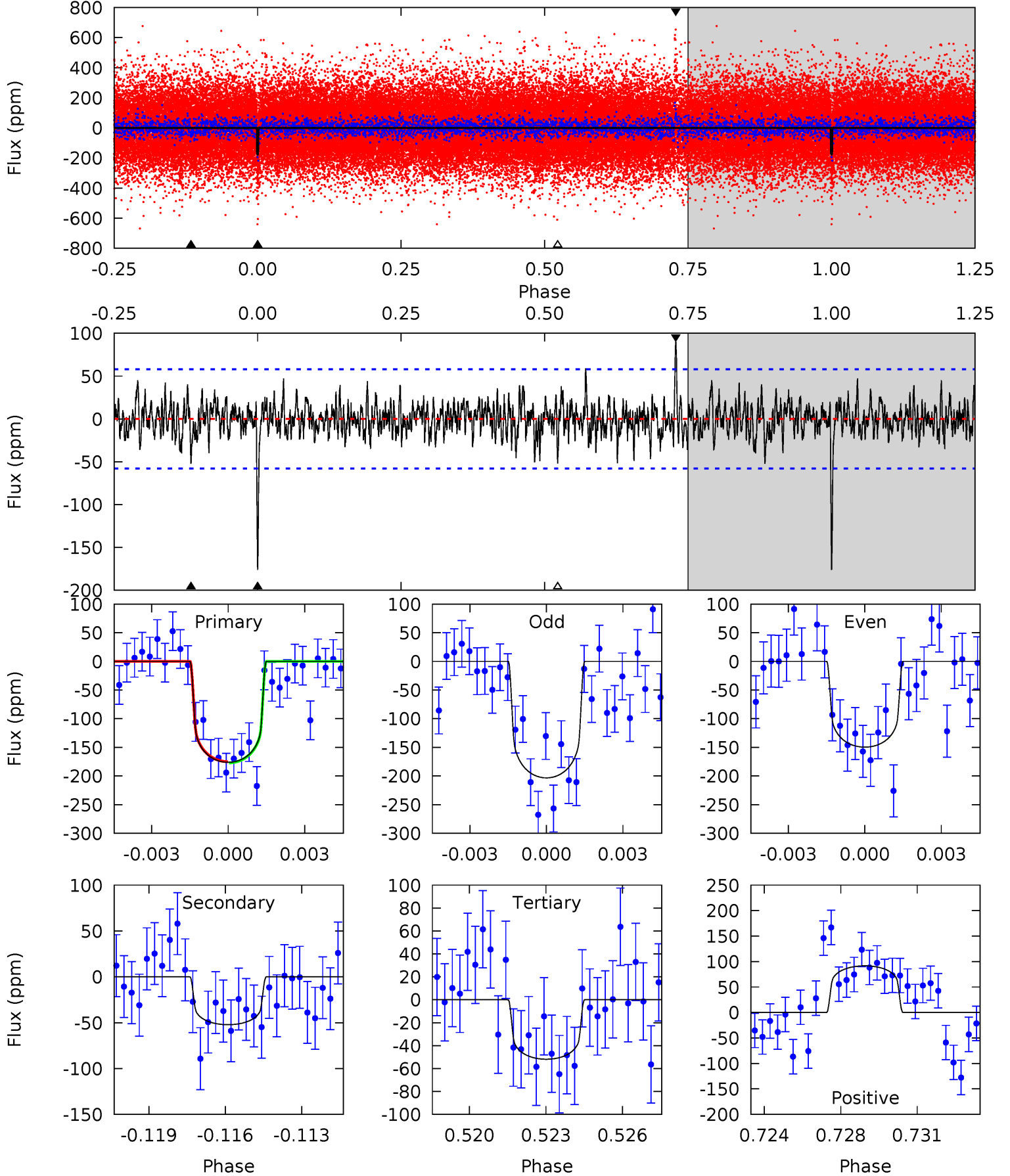
TCE 007770901-01 P=124.887367 Days $T_0=133.790877$ (BKJD)



DV Model-Shift Uniqueness Test

007770901-01, P = 124.886753 Days, E = 8.909528 Days

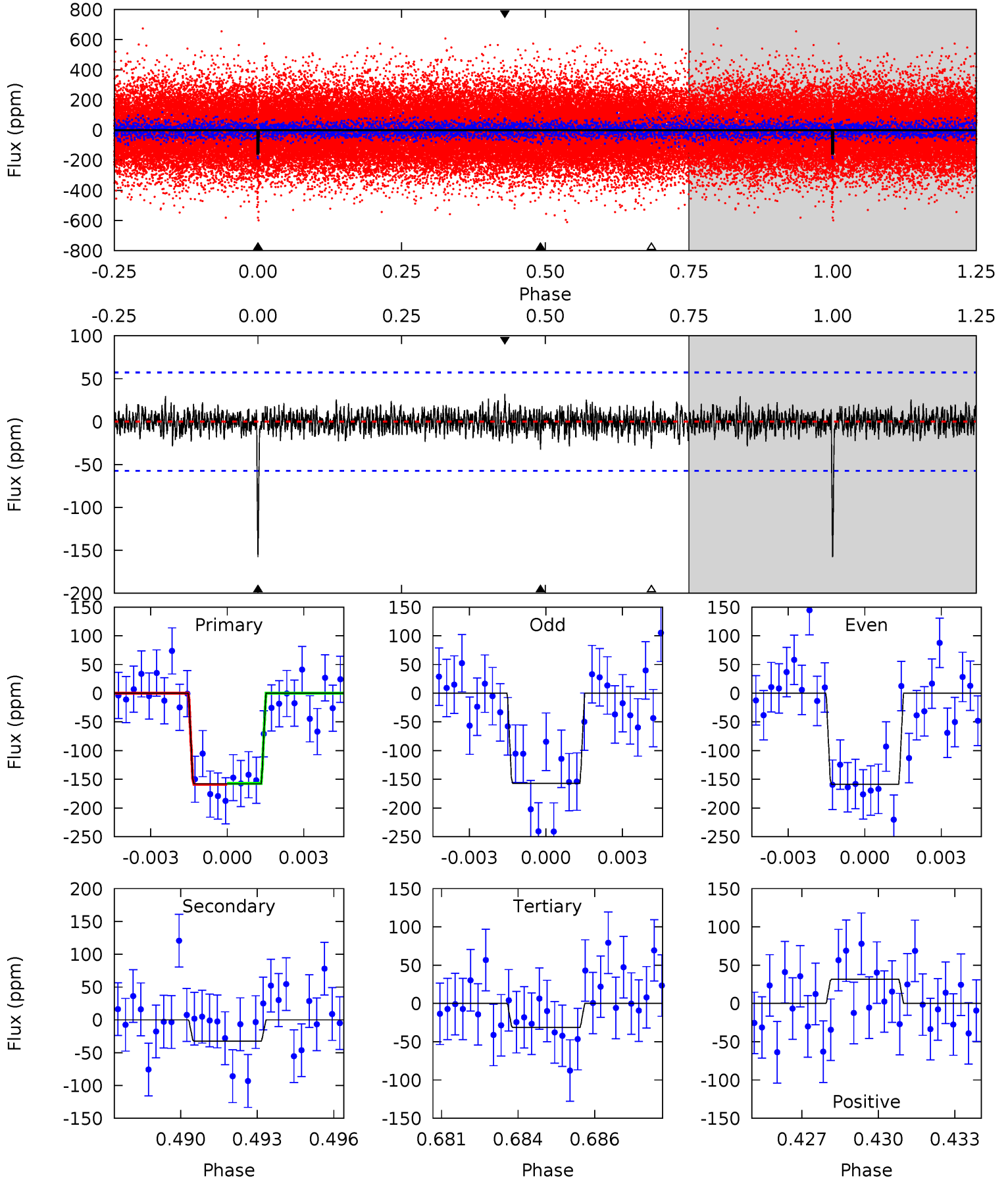
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	4.73	4.70	8.30	5.25	2.96	1.42	11.3	7.66	0.03	-3.57	2.43	0.97	0.34	0.10



Alt Model-Shift Uniqueness Test

007770901-01, P = 124.887367 Days, E = 8.903510 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	2.99	2.88	2.91	5.26	2.98	0.80	11.6	11.6	0.11	0.08	0.08	0.94	0.17	0.08



Stellar Parameters For KIC 007770901

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6103^{+165}_{-184}	$4.209^{+0.264}_{-0.176}$	$-0.500^{+0.300}_{-0.300}$	$1.234^{+0.342}_{-0.342}$	$0.898^{+0.128}_{-0.086}$	$0.674^{+1.089}_{-0.321}$
	+3%/-3%	+6%/-4%	+60%/-60%	+28%/-28%	+14%/-10%	+162%/-48%
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 007770901-01 / KOI 5426.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-52 ± 11	$1.81^{+0.64}_{-0.58}$	603^{+48}_{-49}	4597^{+753}_{-489}	1974^{+2248}_{-968}
Alt.	-33 ± 11	$1.64^{+0.65}_{-0.57}$	602^{+51}_{-48}	4335^{+793}_{-514}	1469^{+2034}_{-805}

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 $A_{obs} \gg 1.0$

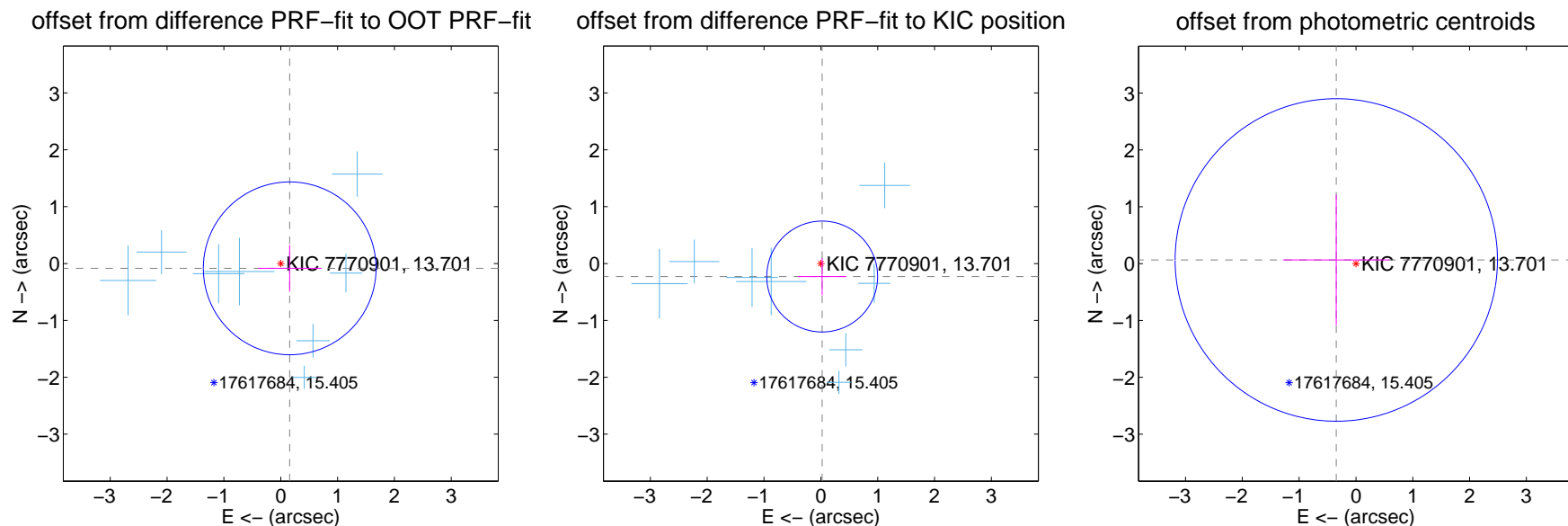
DV Centroid Data

Supplemental centroid analysis for 007770901-01. Kepler magnitude: 13.70. Transit SNR 10.10

There are 8 quarters with good PRF difference image offsets

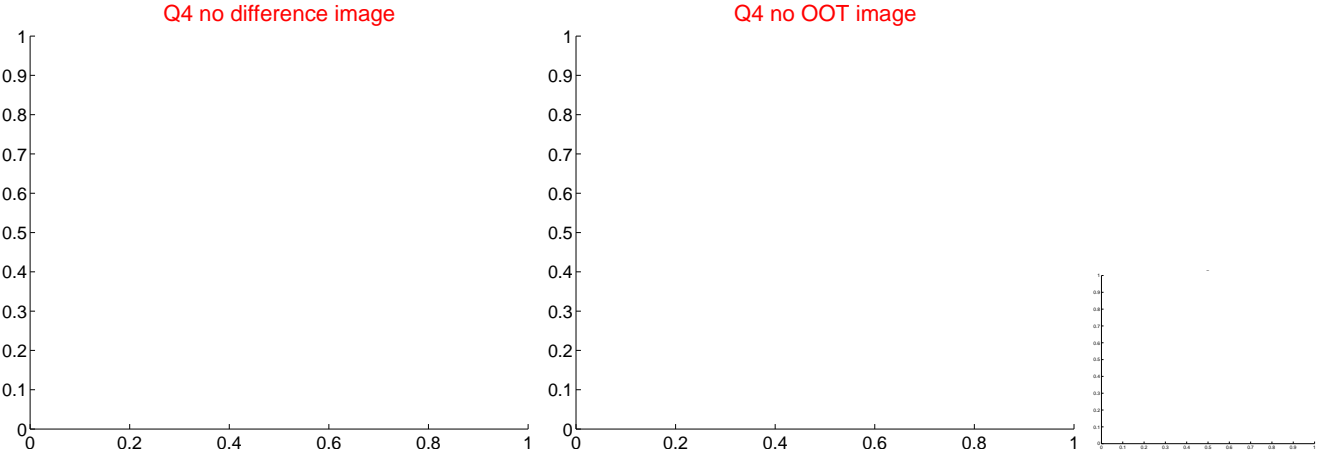
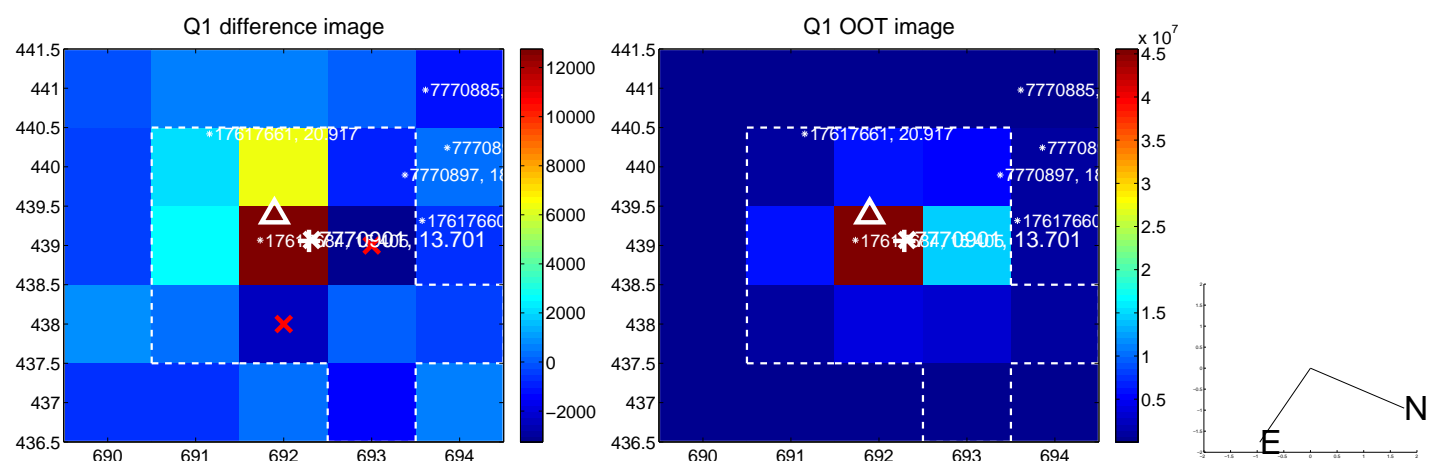
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.179 ± 0.507	0.35	-0.158 ± 0.559	-0.084 ± 0.410
PRF-fit source offset from KIC position	0.230 ± 0.325	0.71	-0.023 ± 0.428	-0.229 ± 0.328
photometric centroid source offset	0.35 ± 0.95	0.37	0.35 ± 0.94	0.06 ± 1.15

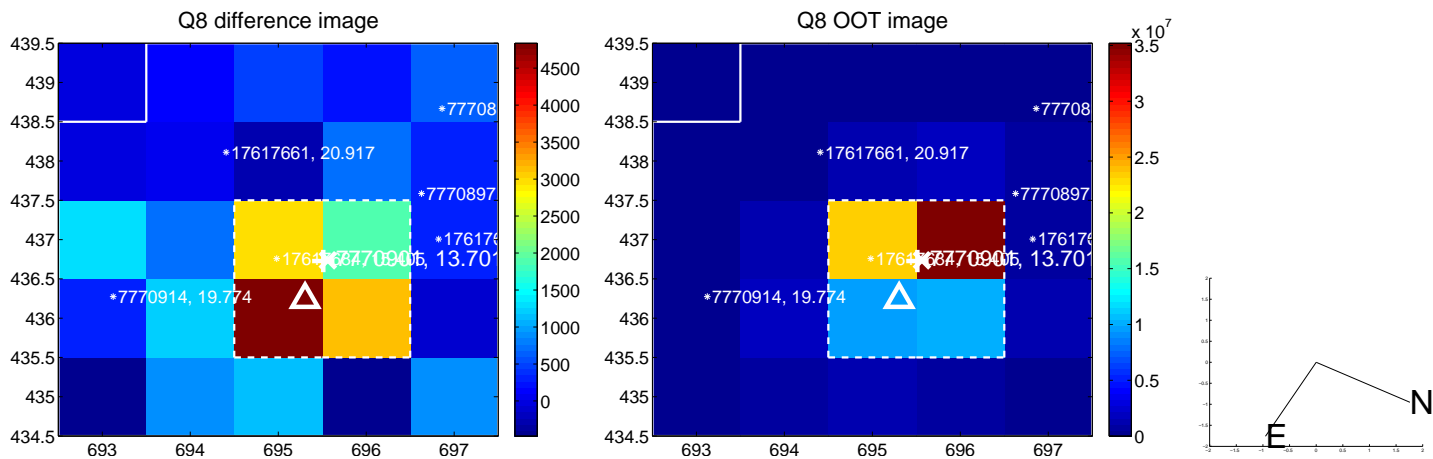
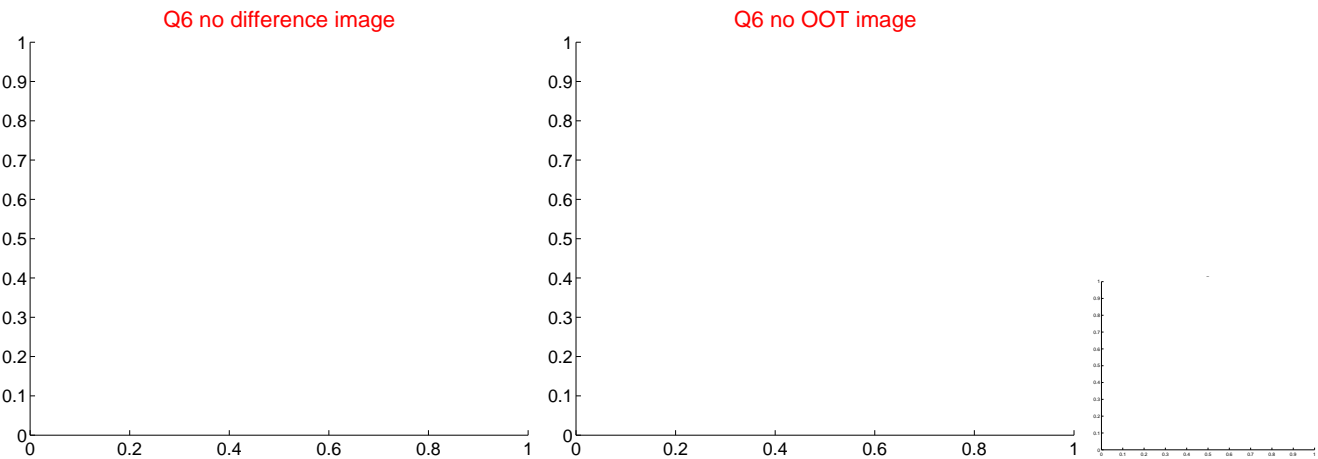
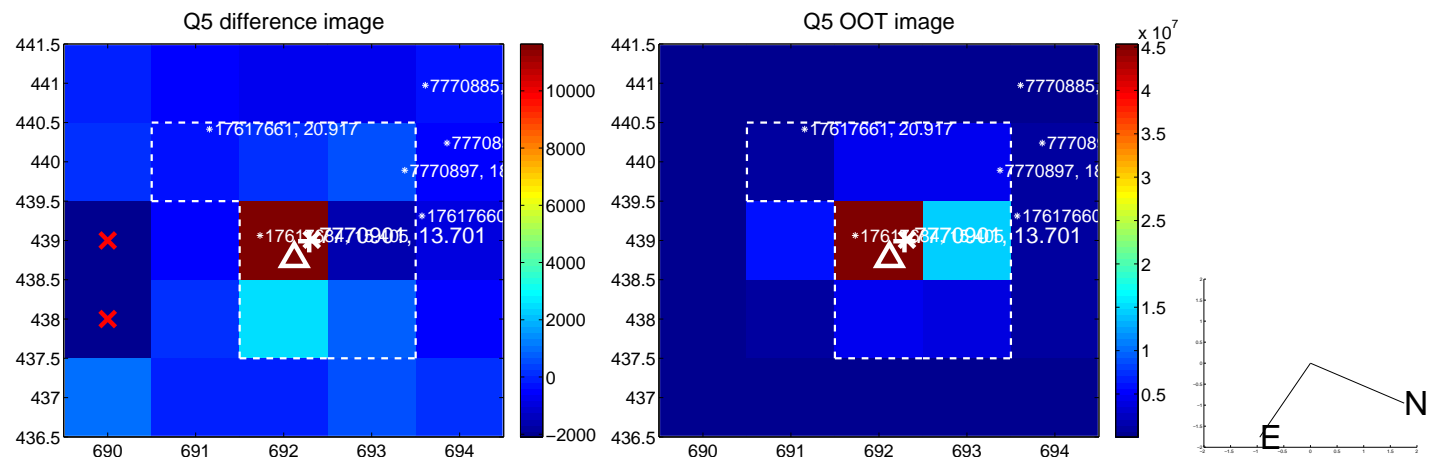


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

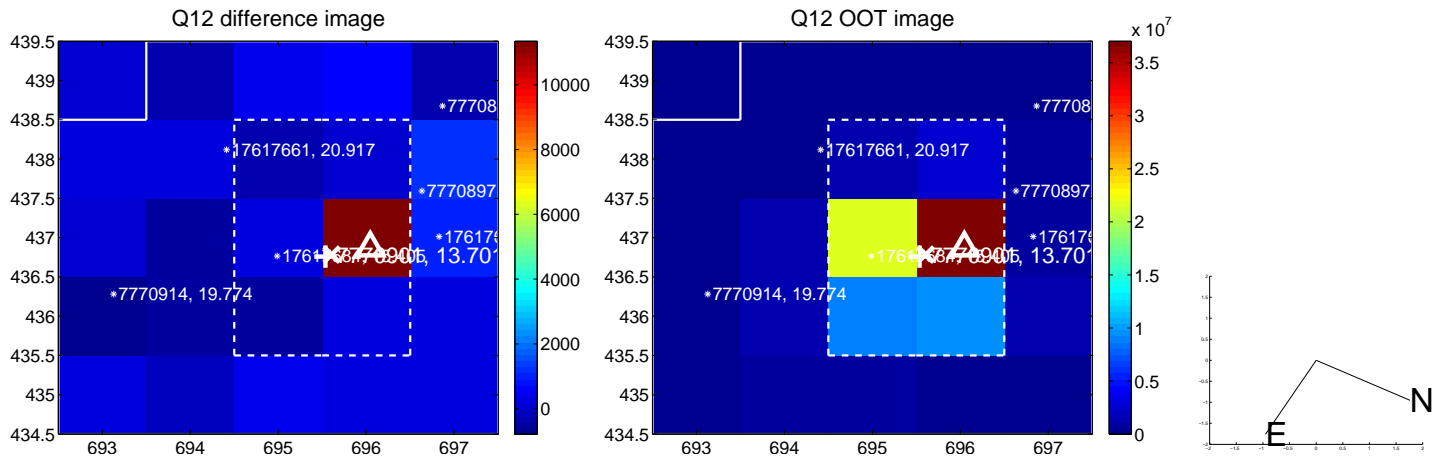
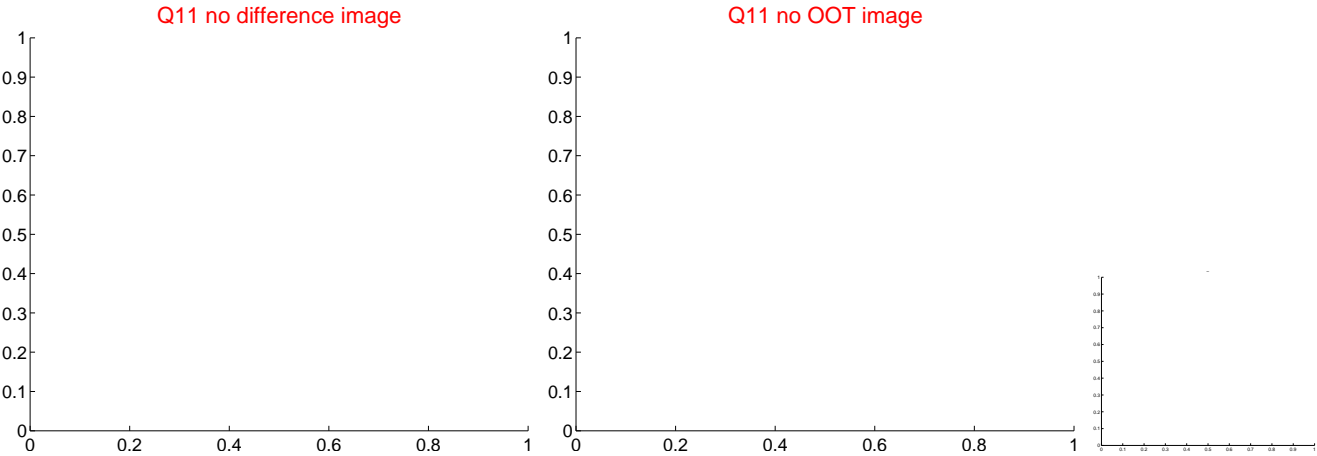
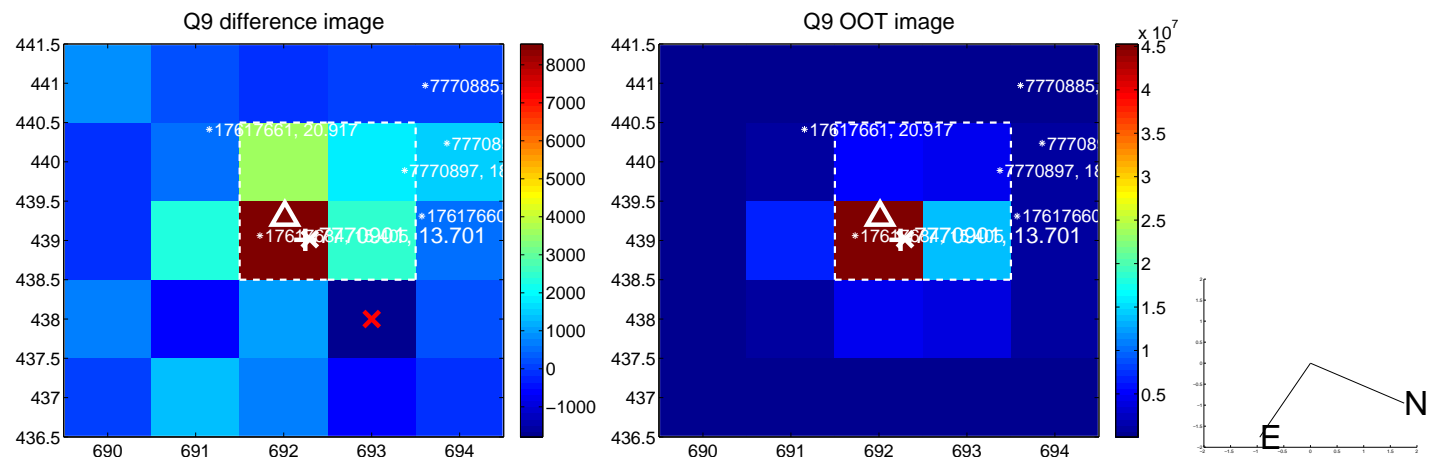
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



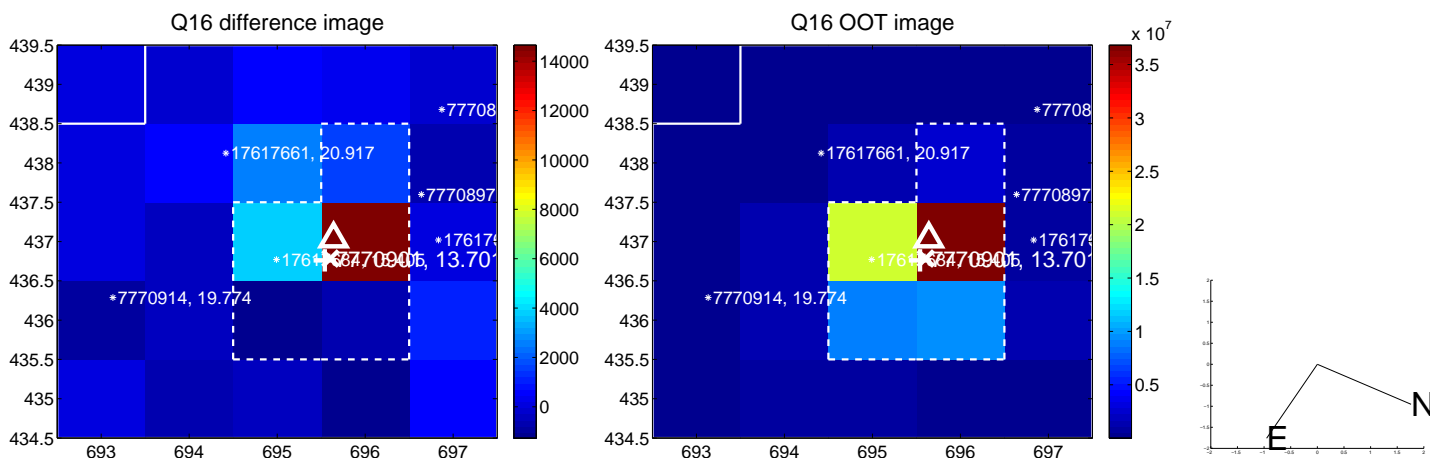
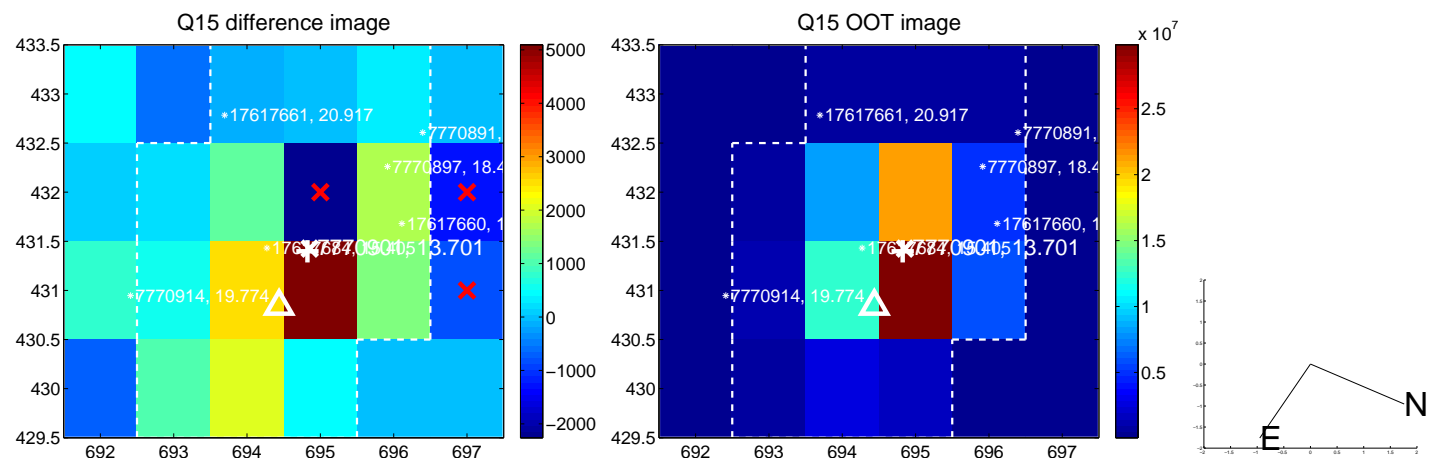
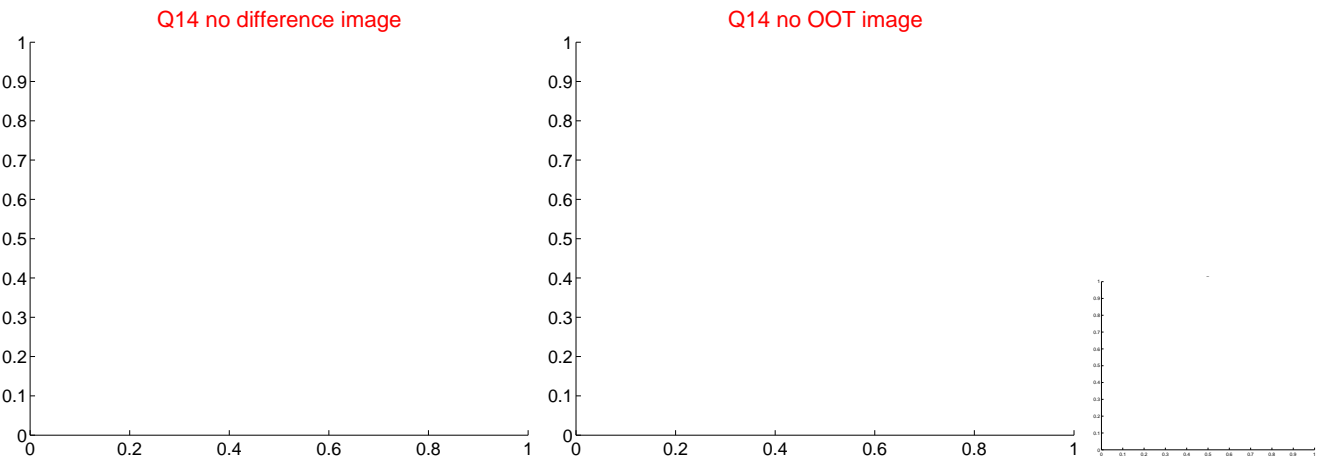
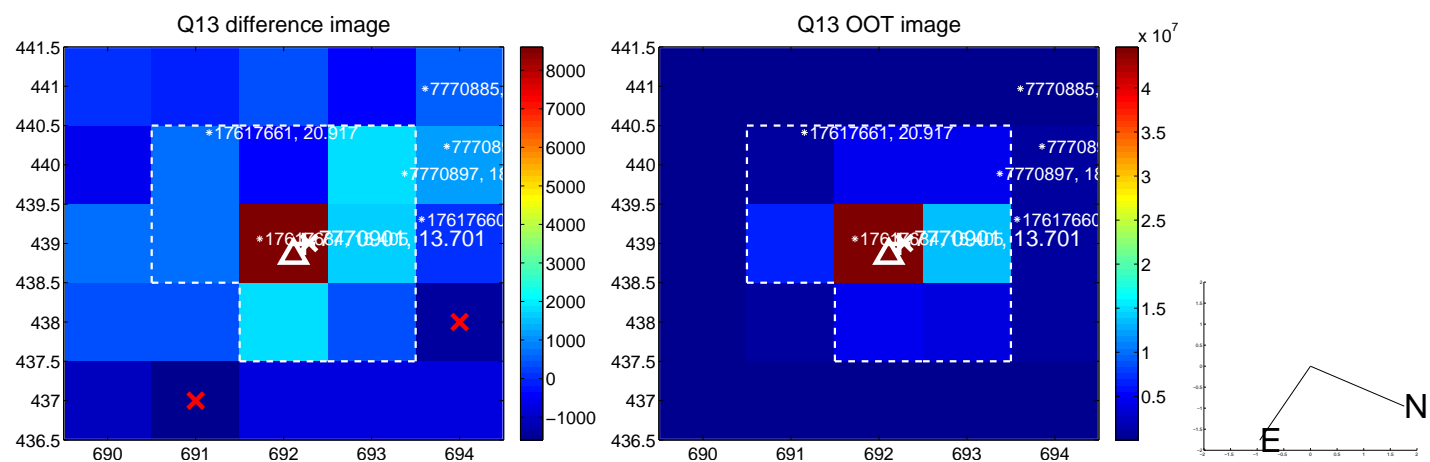
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



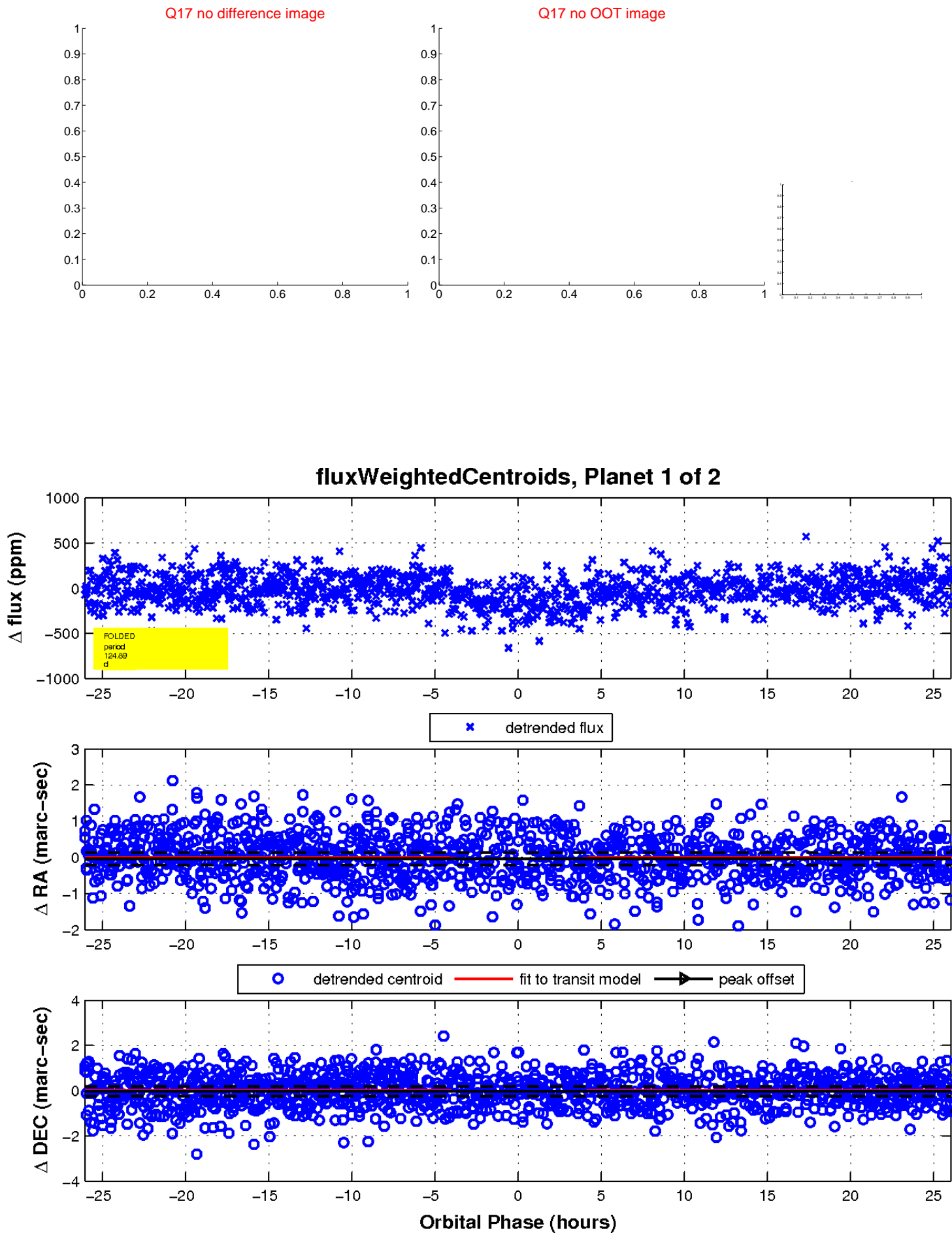
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

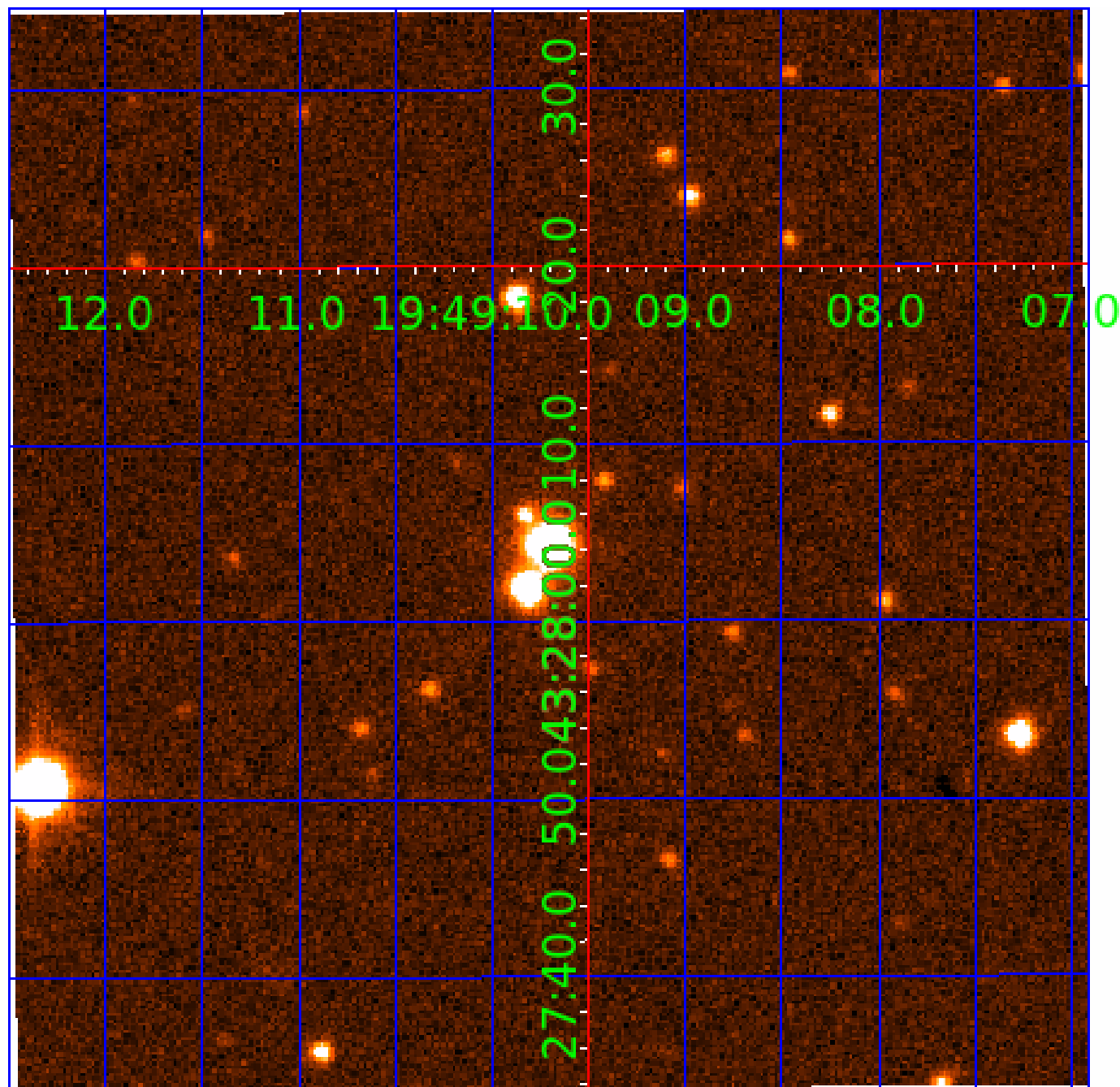


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007770901

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})
007770901-01	OBS	5426.01	124.886754	133.796281	179.2	8.719	10.2	10.1	1.23	6103	1.83	8.50
007770901-02	OBS	No	362.283176	314.845525	223.5	8.959	8.2	8.2	1.23	6103	1.99	2.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007770901-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
007770901-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

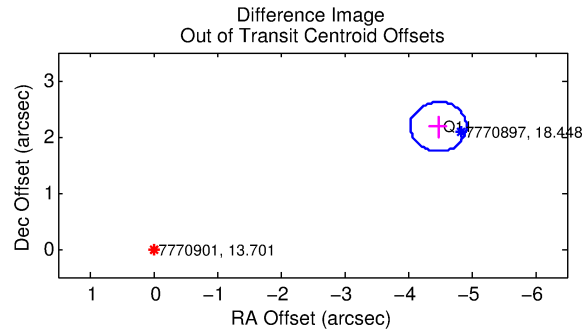
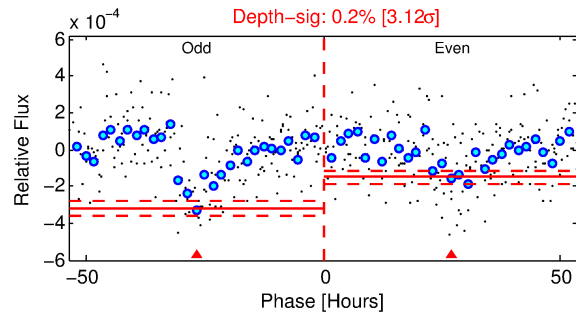
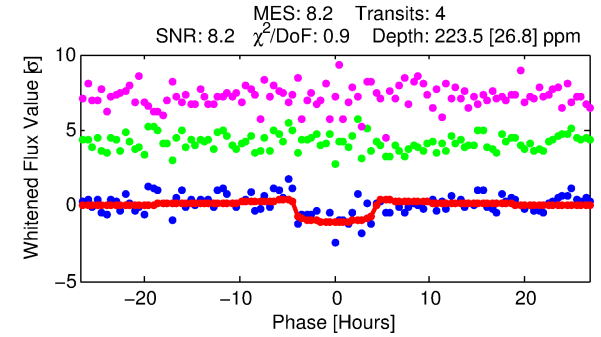
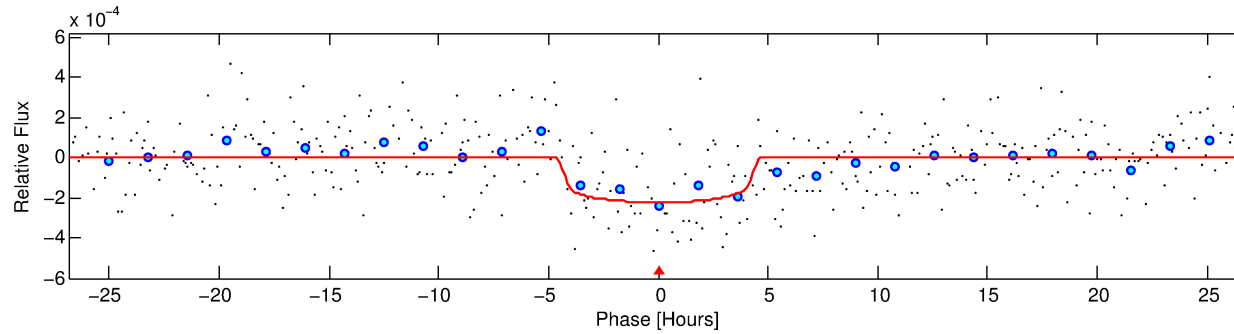
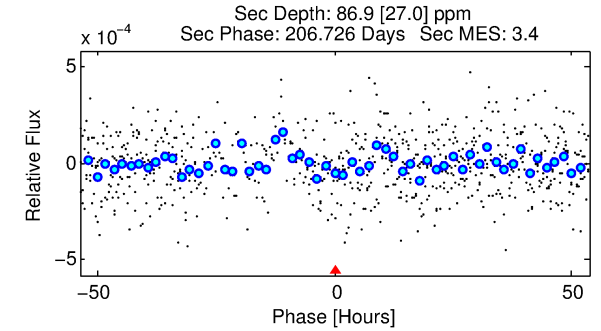
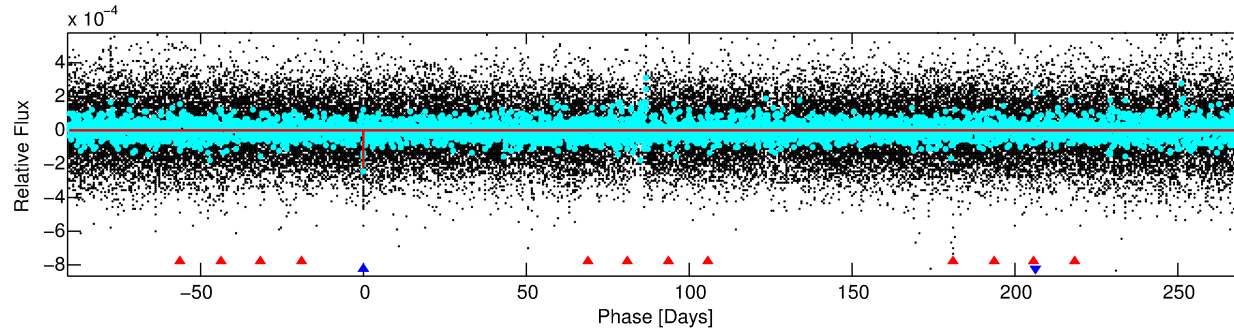
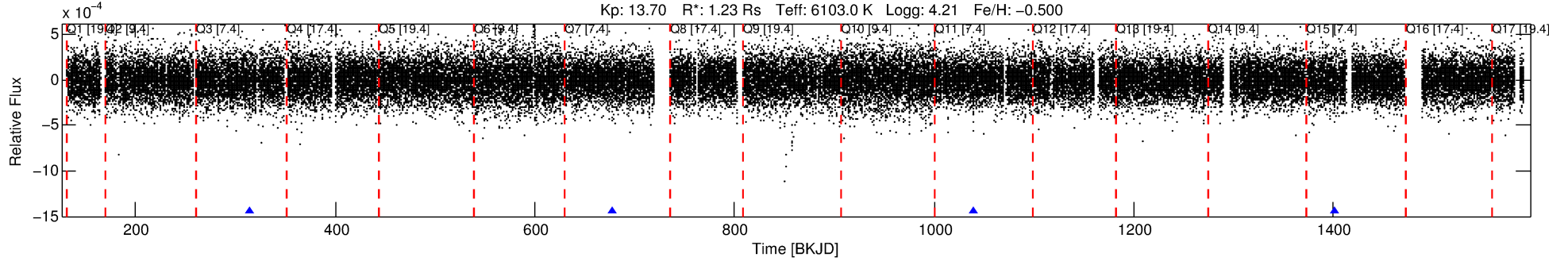
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007770901-02

No Significant Match Found

DV One-Page Summary

KIC: 7770901 Candidate: 2 of 2 Period: 362.283 d
KOI: K05426 Corr: No Ephemeris Match



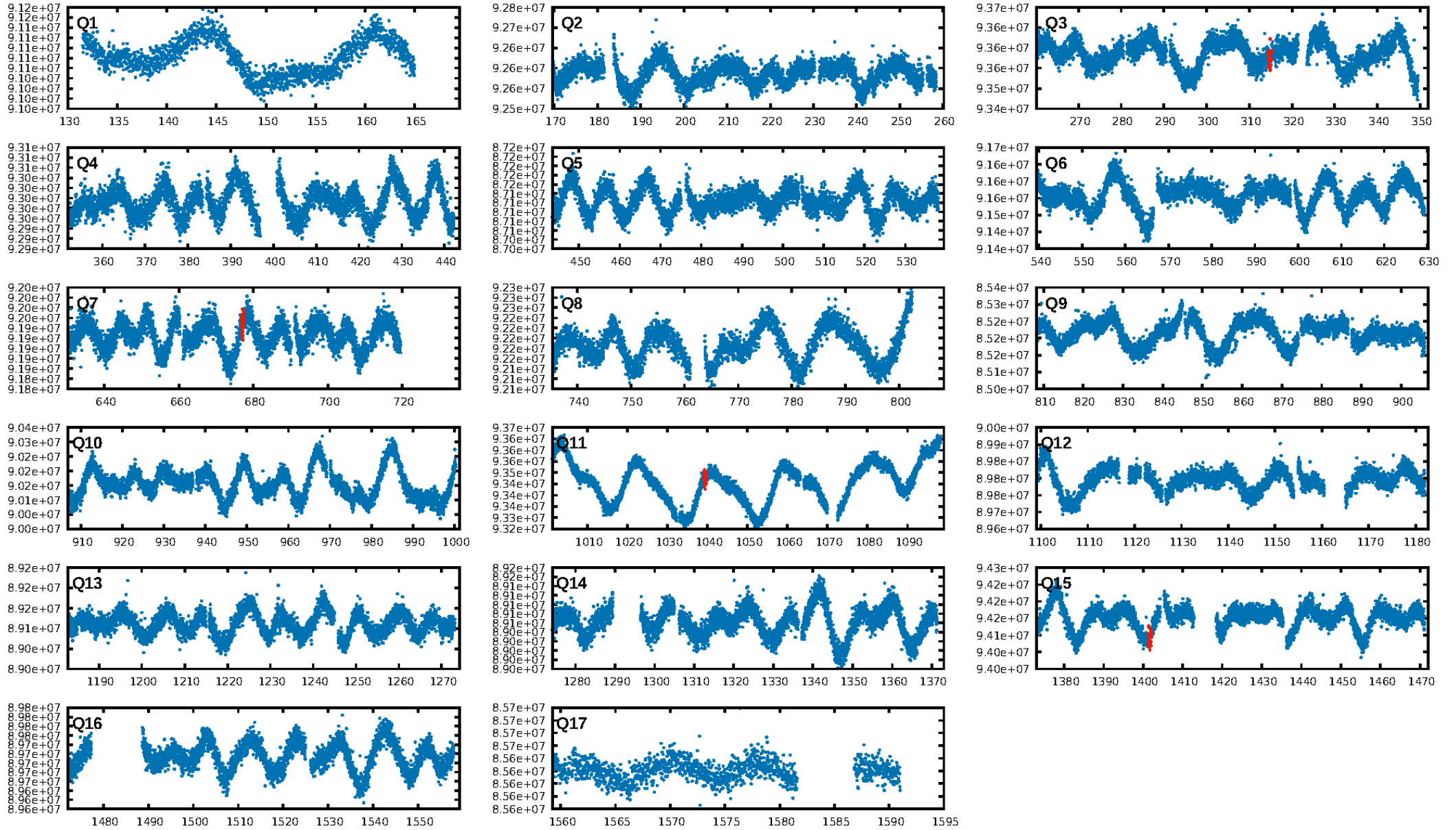
DV Fit Results:

Period = 362.28318 [0.00673] d
Epoch = 314.8455 [0.0134] BKJD
Rp/R* = 0.0148 [0.0091]
a/R* = 217.35 [695.70]
b = 0.73 [2.05]
Seff = 2.05 [0.95]
Teq = 305 [35] K
Rp = 1.99 [1.34] Re
a = 0.9600 [0.2633] AU
Ag = 11122.00 [14955.95] [0.74σ]
Teffp = 4847 [1544] K [2.94σ]

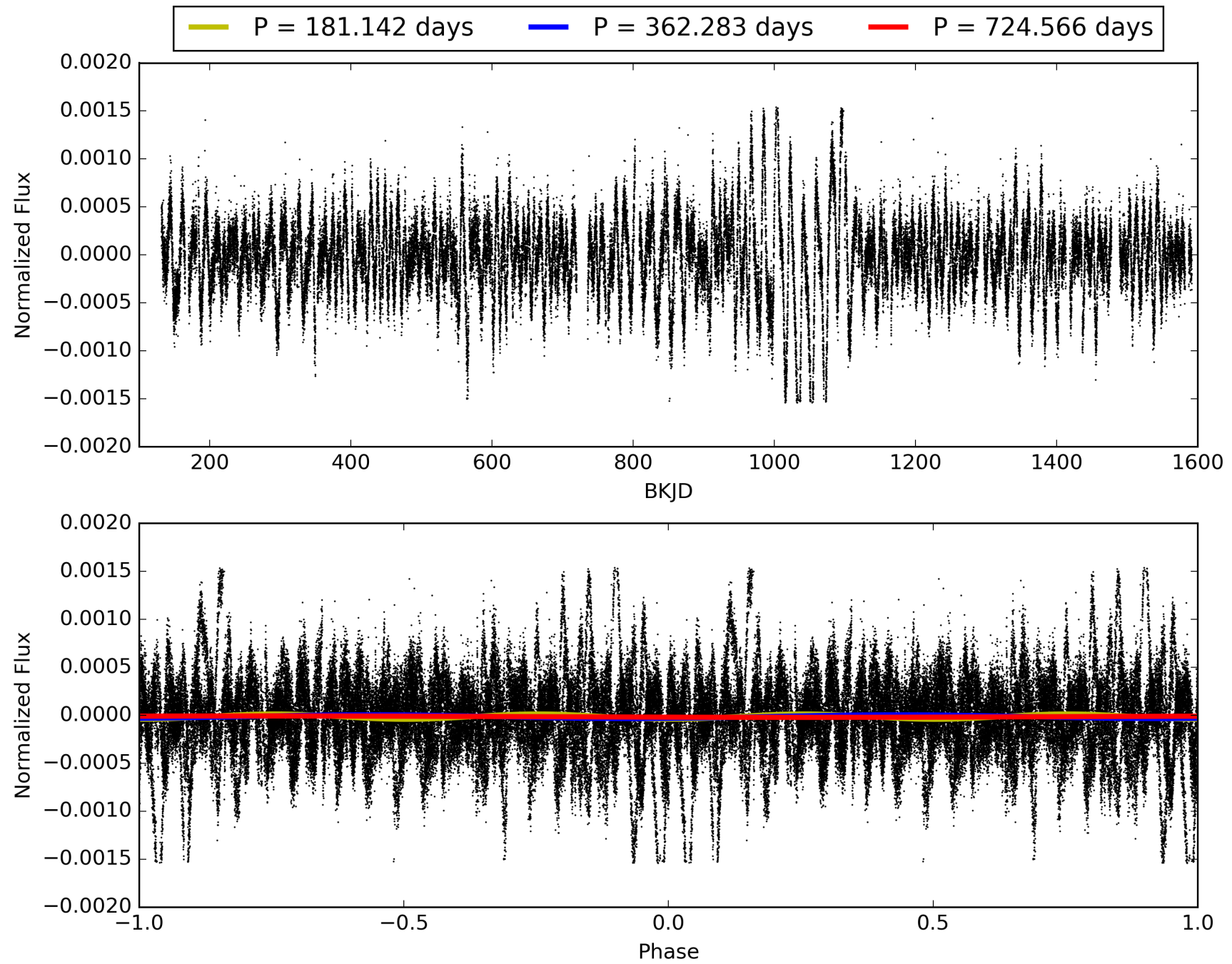
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [455.77σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 16.8%
ModelChiSquareGof-sig: 97.6%
Bootstrap-pfa: 5.19e-15
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.842
Centroid-sig: 2.1%
Centroid-so: 2.124 arcsec [1.58σ]
OotOffset-rm: 4.978 arcsec [33.89σ]
KicOffset-rm: 4.787 arcsec [32.61σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
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DiffImageOverlap-fno: 1.00 [4/4]

TCE 007770901-02, PDC Light Curves

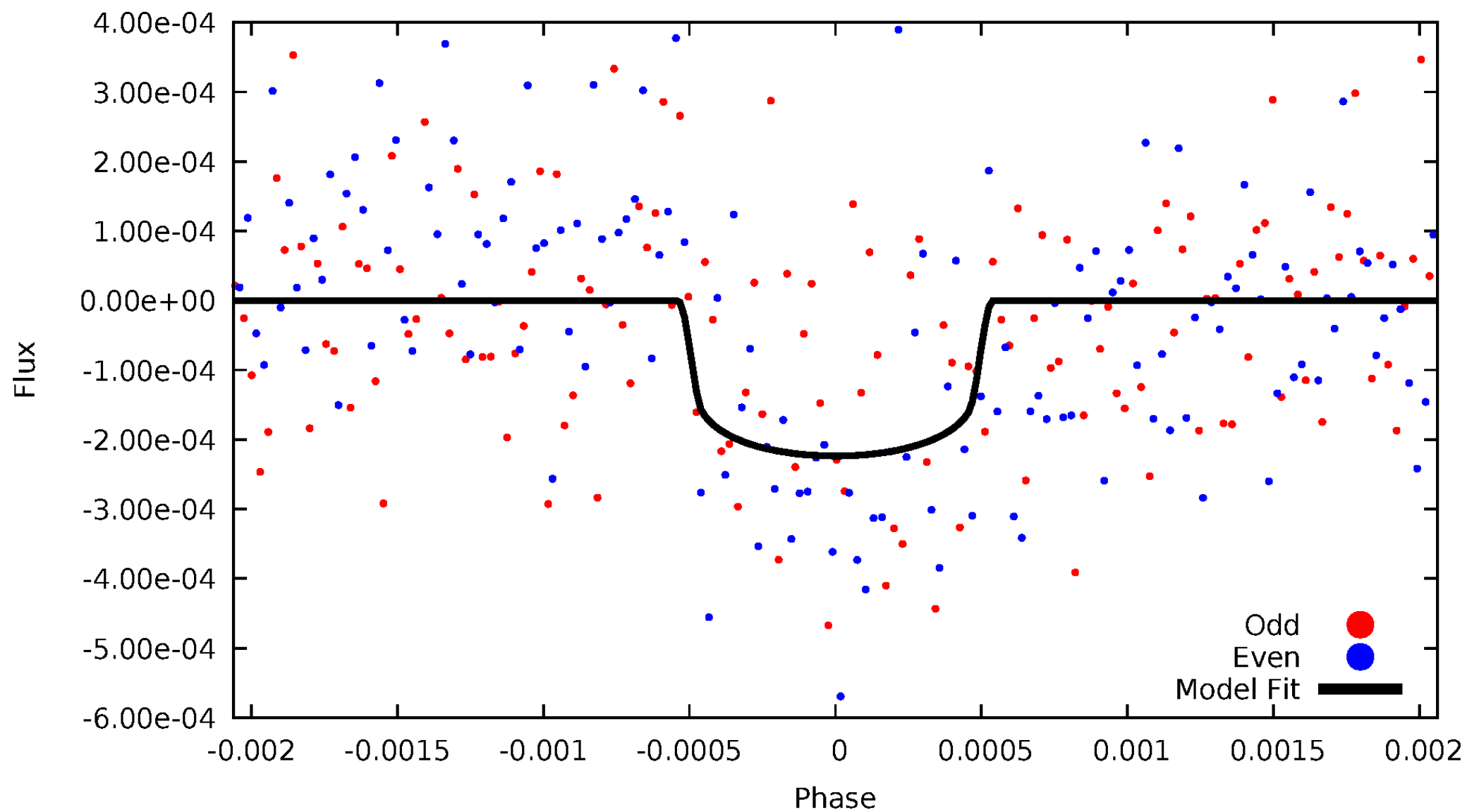


TCE 007770901-02



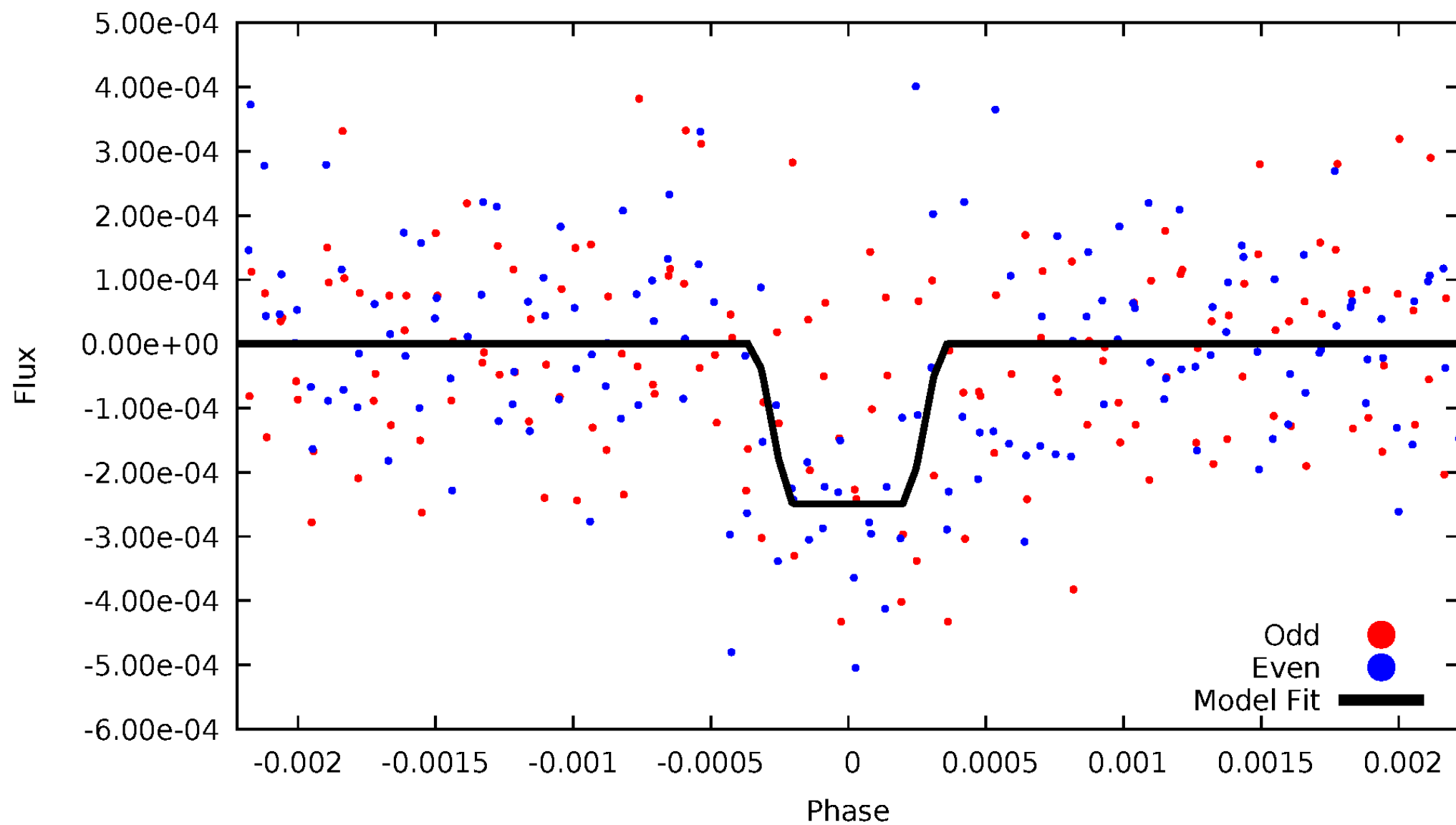
DV Odd/Even

TCE 007770901-02



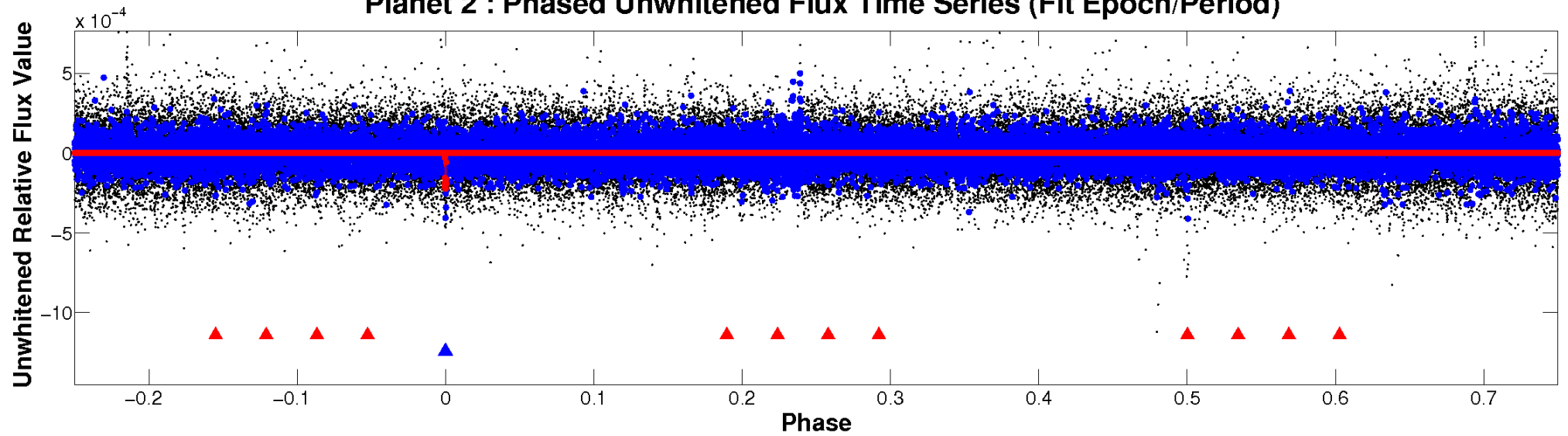
ALT Odd/Even

TCE 007770901-02

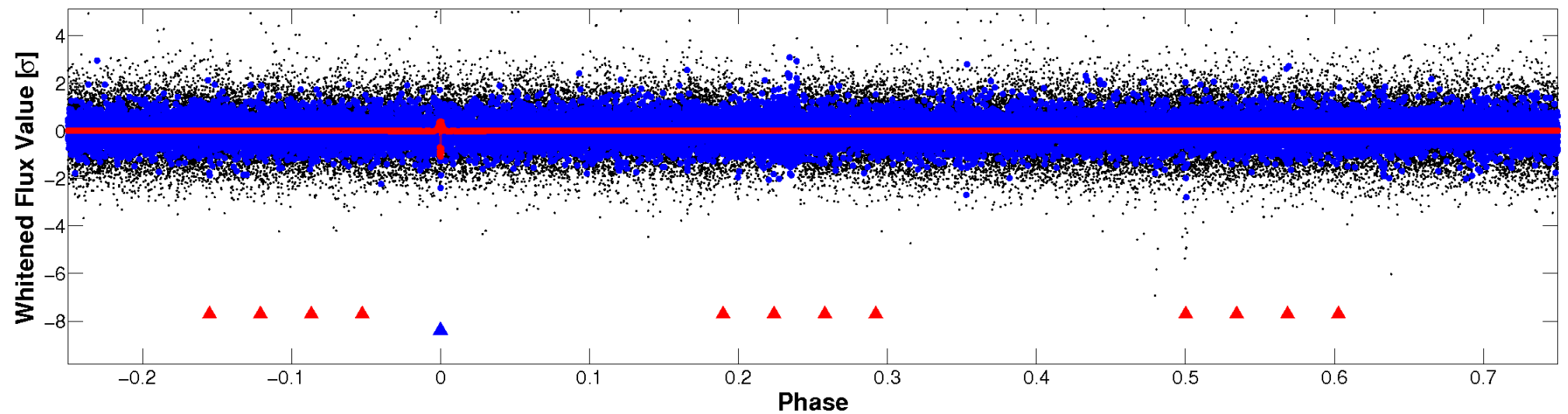


Non-Whitened Vs. Whitened Light Curve

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

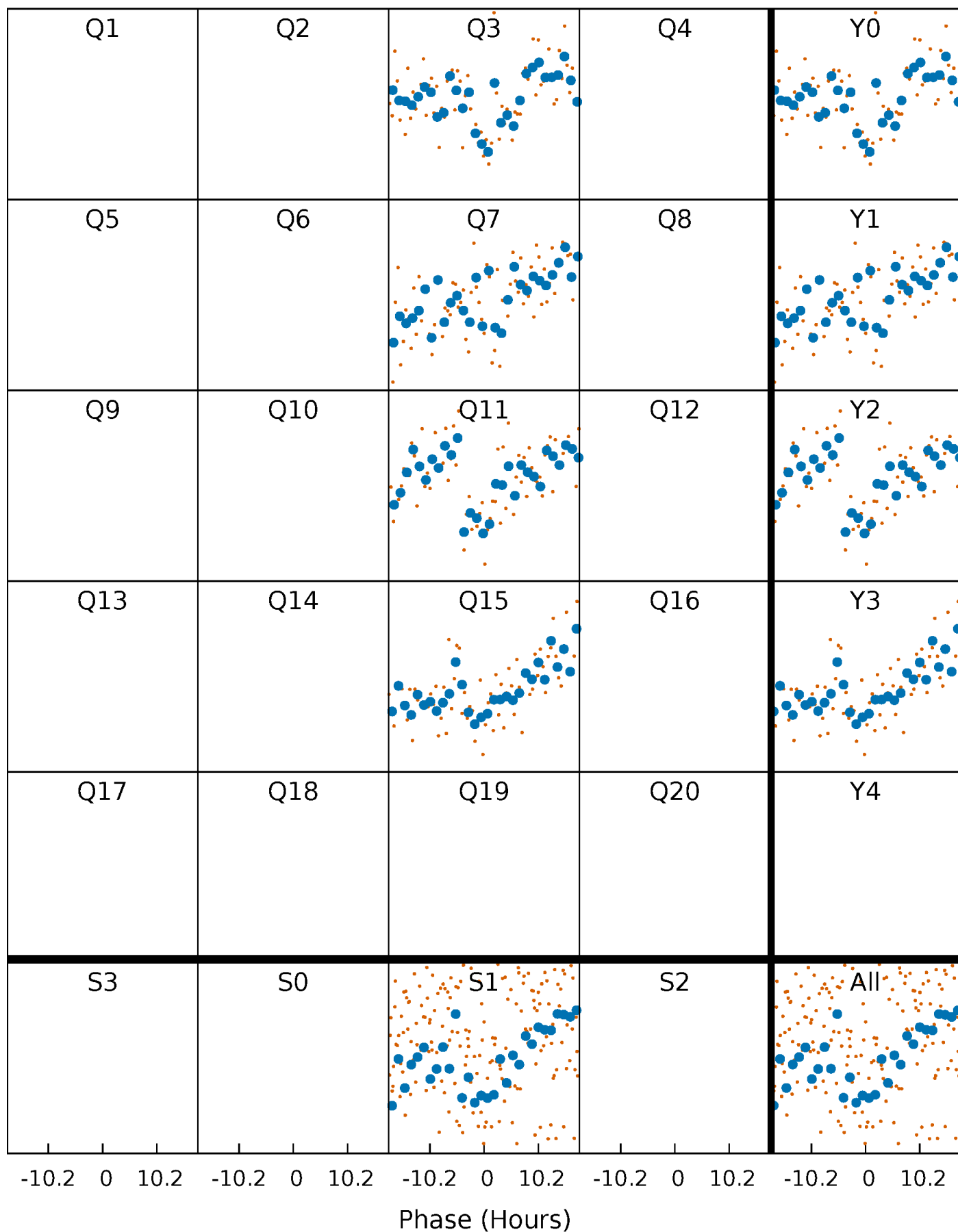


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



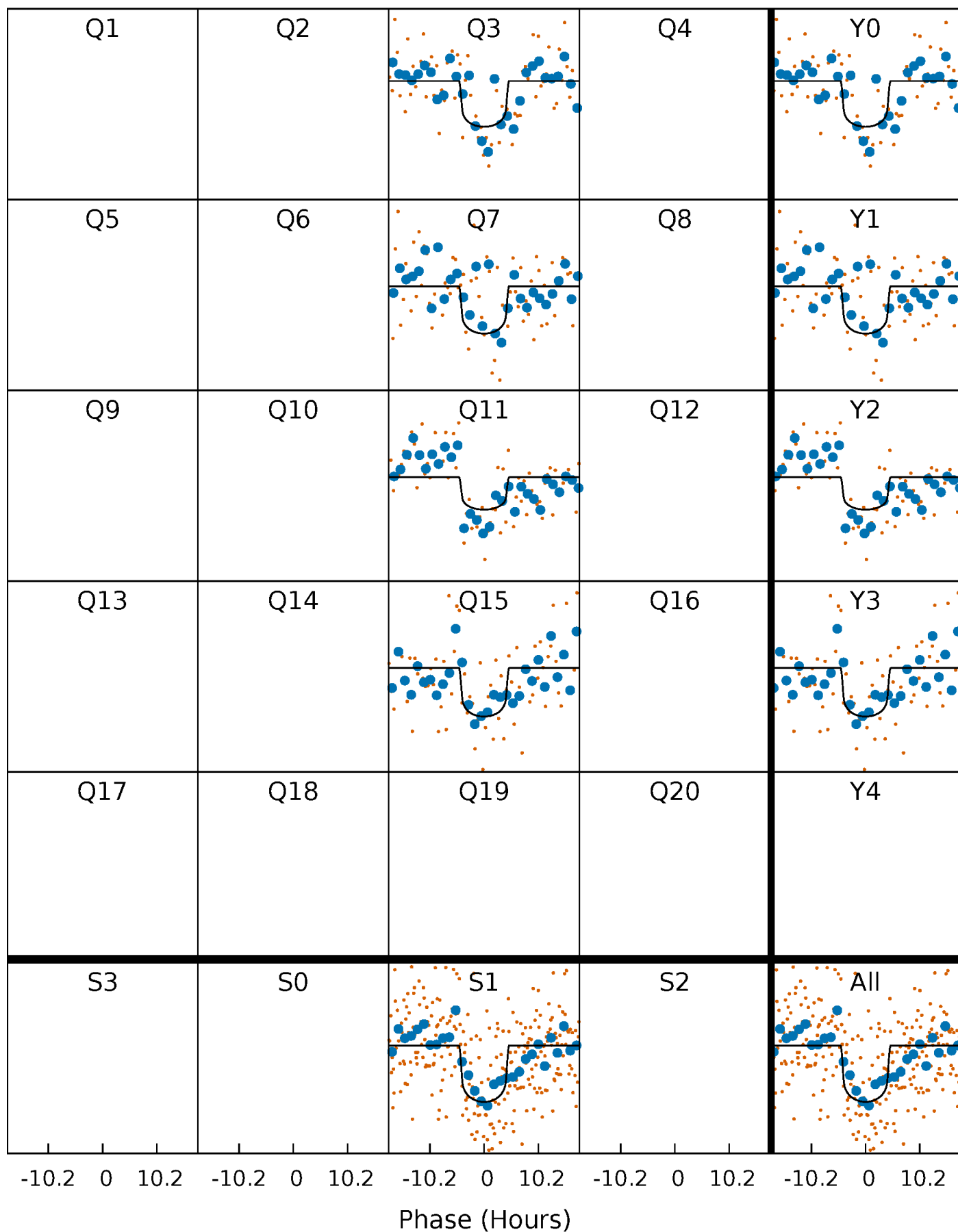
PDC Quarter-Phased Transit Curves

TCE 007770901-02 $P=362.283177$ Days $T_0=314.845525$ (BKJD)



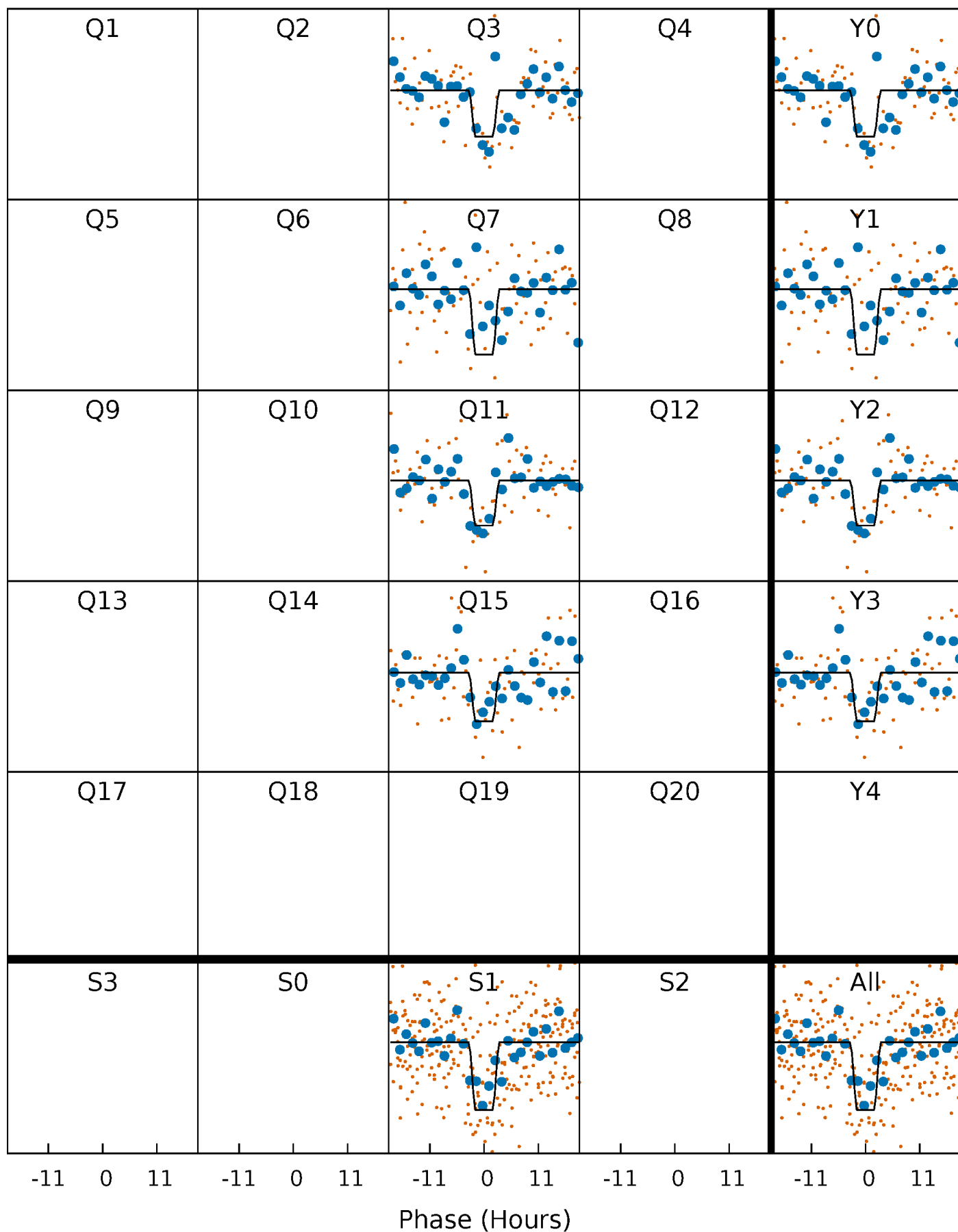
DV Quarter-Phased Transit Curves

TCE 007770901-02 $P=362.283177$ Days $T_0=314.845525$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

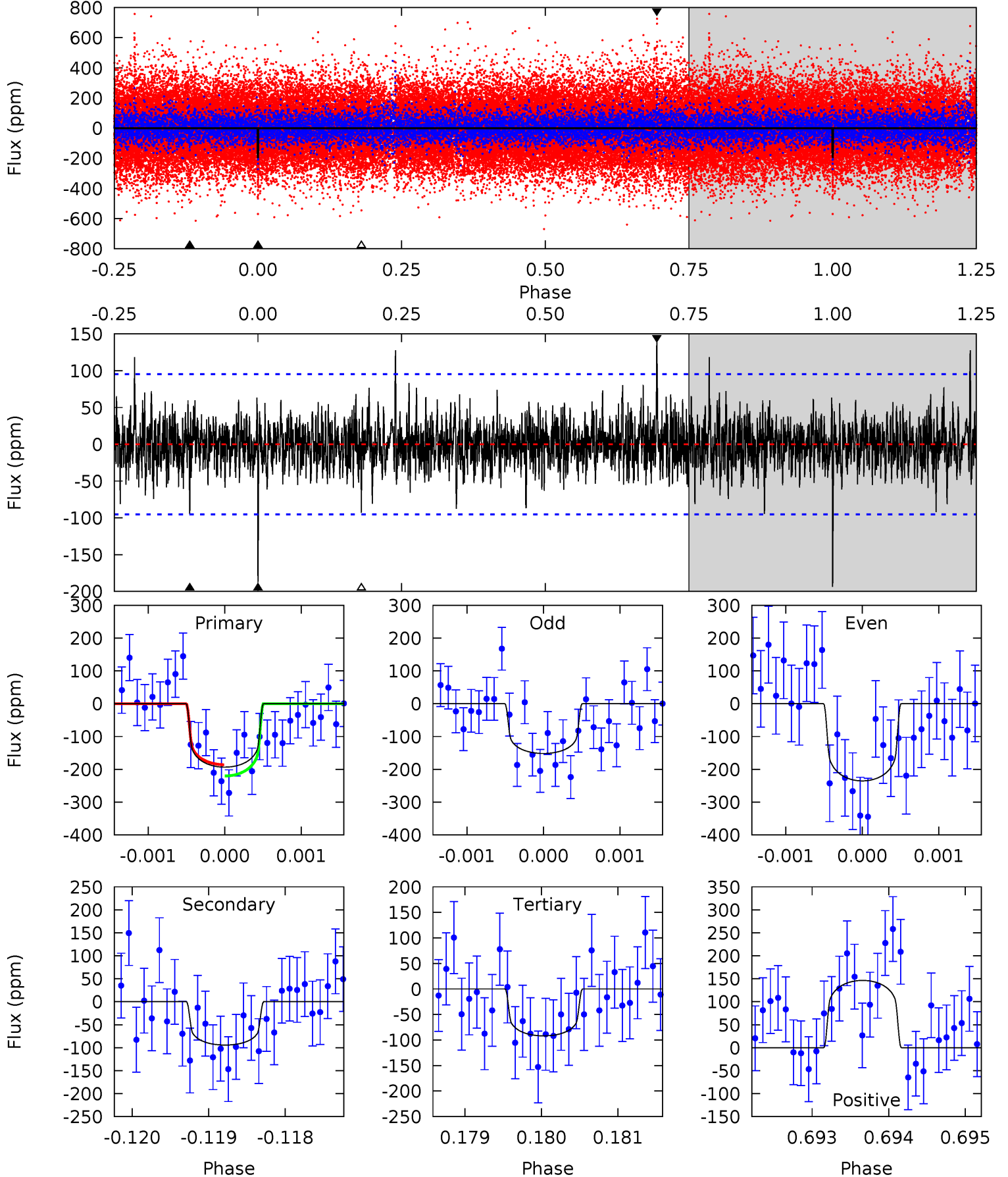
TCE 007770901-02 P=362.287019 Days $T_0=314.834781$ (BKJD)



DV Model-Shift Uniqueness Test

007770901-02, P = 362.283177 Days, E = 314.845525 Days

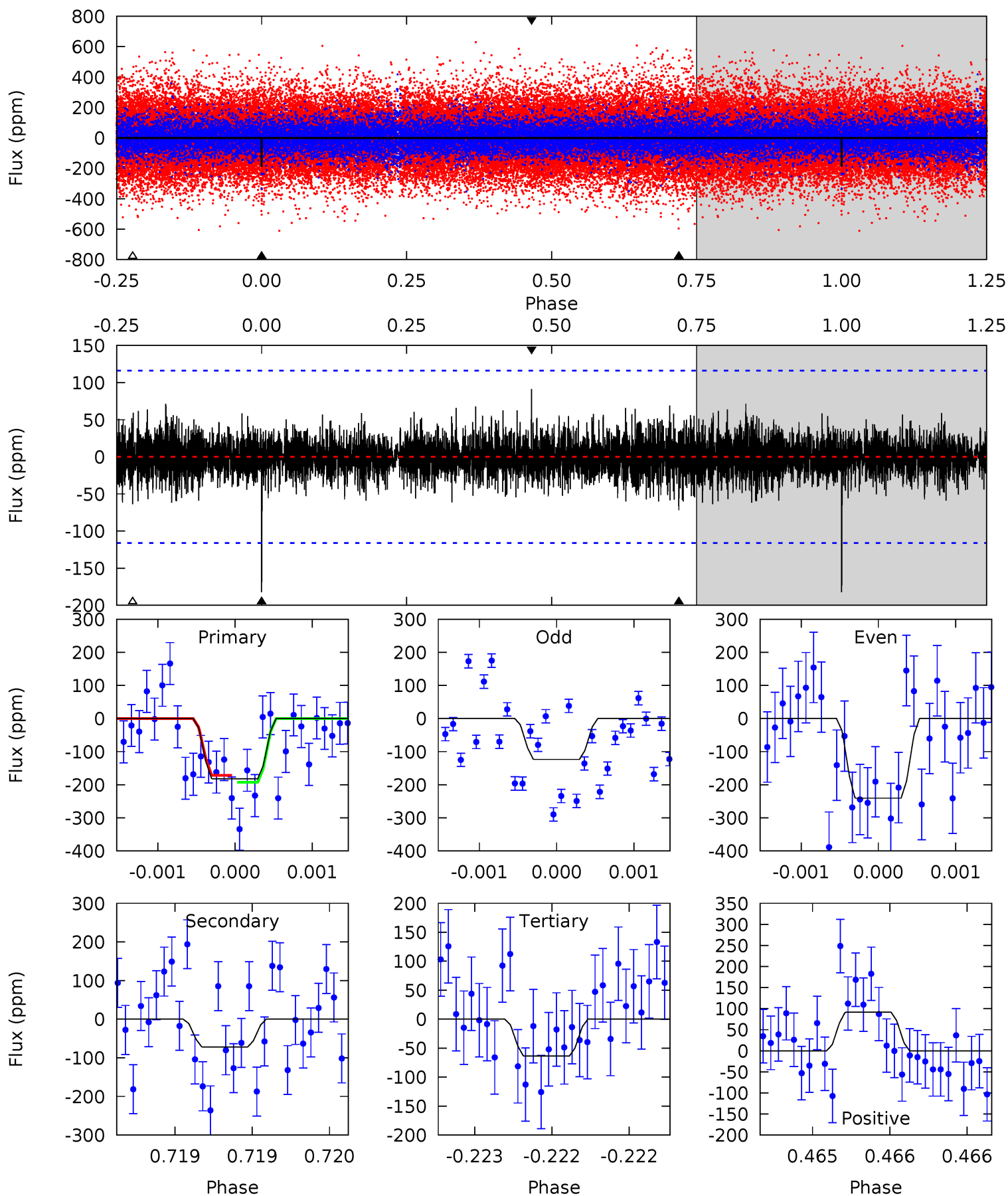
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	5.39	5.25	8.36	5.44	3.27	1.41	5.80	2.69	0.14	-2.97	2.38	1.02	0.43	0.97



Alt Model-Shift Uniqueness Test

007770901-02, P = 362.287019 Days, E = 314.834781 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.66	3.42	3.02	4.34	5.52	3.40	0.91	5.64	4.32	0.40	-0.92	2.79	0.89	0.33	0.50



Stellar Parameters For KIC 007770901

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6103^{+165}_{-184}	$4.209^{+0.264}_{-0.176}$	$-0.500^{+0.300}_{-0.300}$	$1.234^{+0.342}_{-0.342}$	$0.898^{+0.128}_{-0.086}$	$0.674^{+1.089}_{-0.321}$
	+3%/-3%	+6%/-4%	+60%/-60%	+28%/-28%	+14%/-10%	+162%/-48%
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 007770901-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-94 ± 18	$2.00^{+1.30}_{-1.13}$	425^{+32}_{-39}	4959^{+2416}_{-809}	12236^{+49883}_{-8005}
Alt.	-72 ± 21	$2.15^{+1.29}_{-1.15}$	423^{+32}_{-39}	4574^{+1895}_{-757}	8030^{+26964}_{-5140}

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

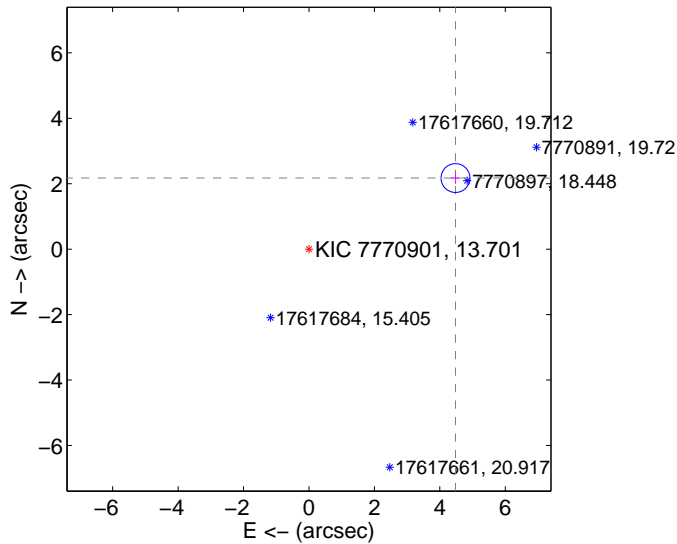
Supplemental centroid analysis for 007770901-02. Kepler magnitude: 13.70. Transit SNR 8.24

There are 1 quarters with good PRF difference image offsets

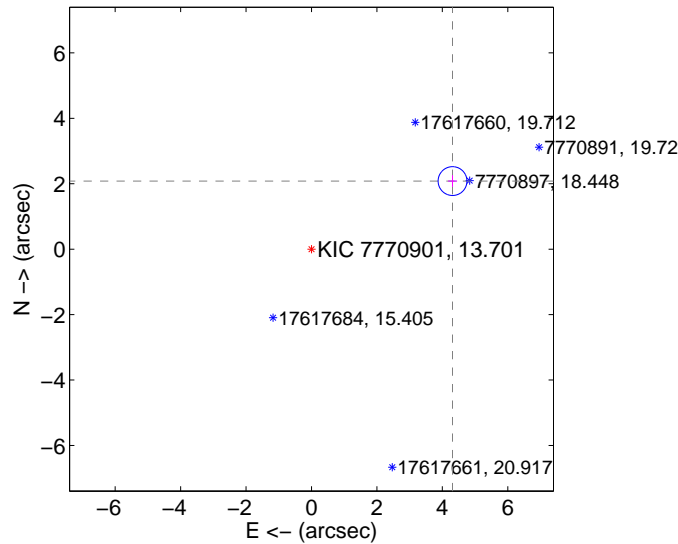
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.978 ± 0.147	33.89	-4.478 ± 0.138	2.174 ± 0.178
PRF-fit source offset from KIC position	4.787 ± 0.147	32.61	-4.311 ± 0.138	2.081 ± 0.178
photometric centroid source offset	2.12 ± 1.35	1.58	0.19 ± 1.05	-2.12 ± 1.35

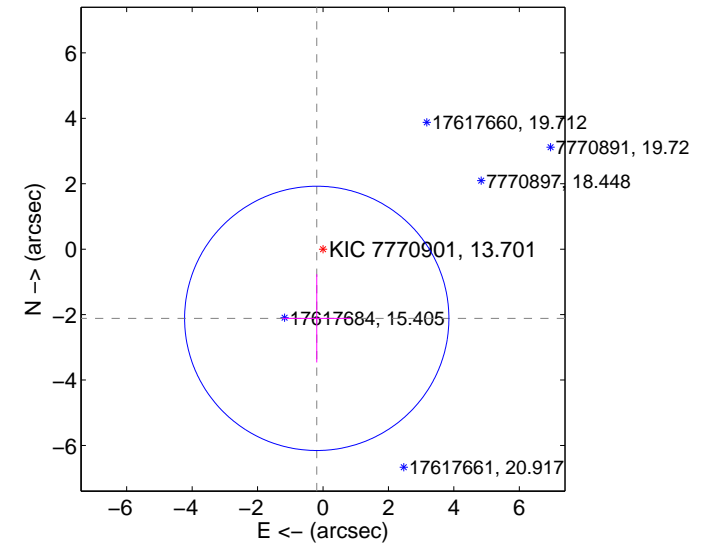
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

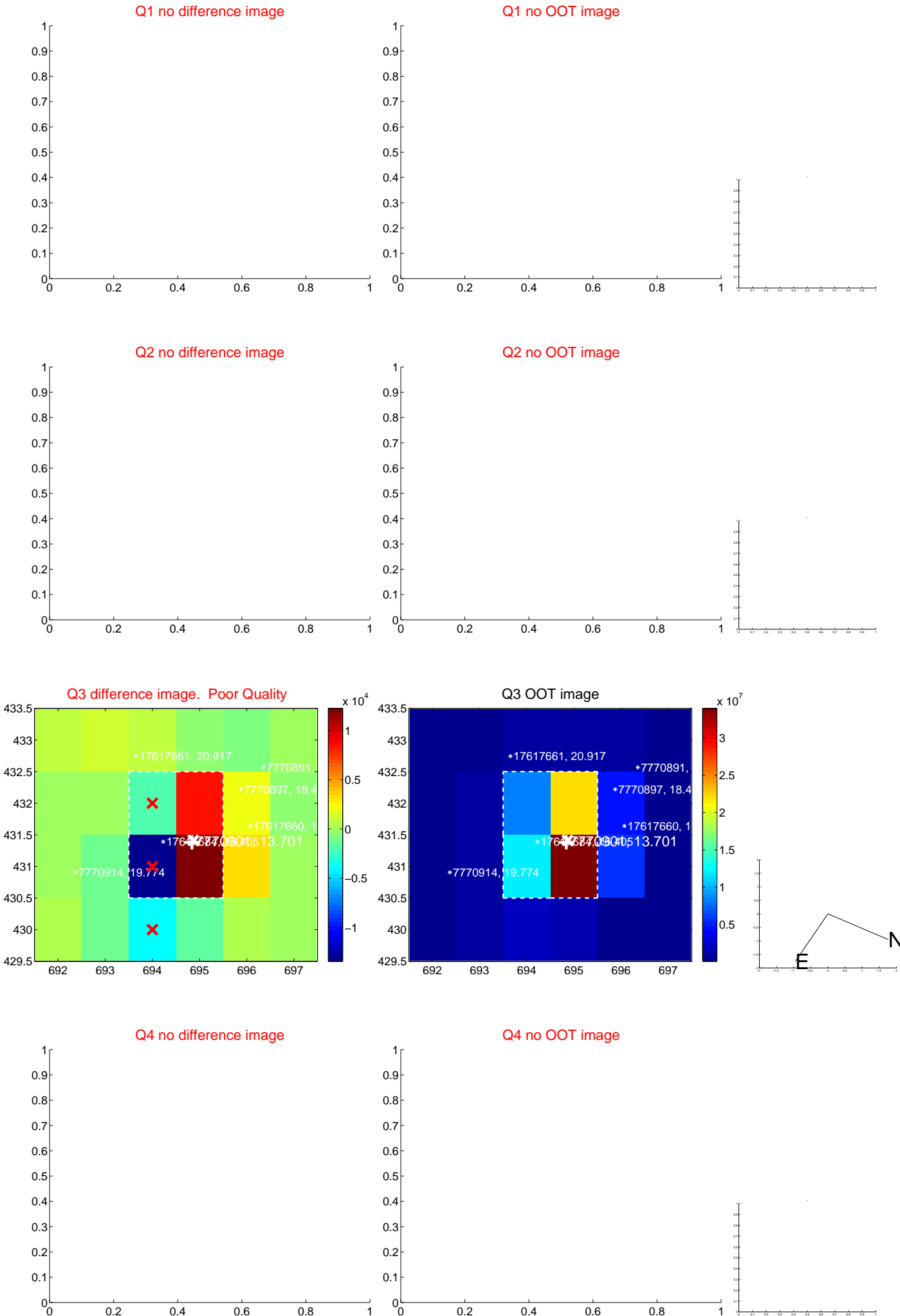


offset from photometric centroids

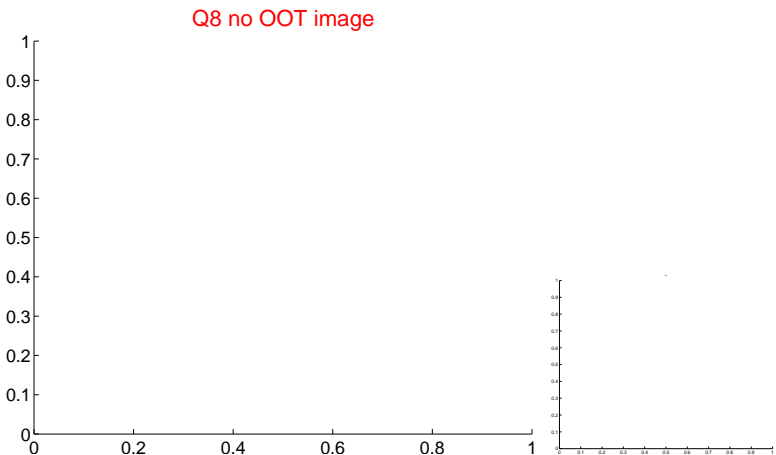
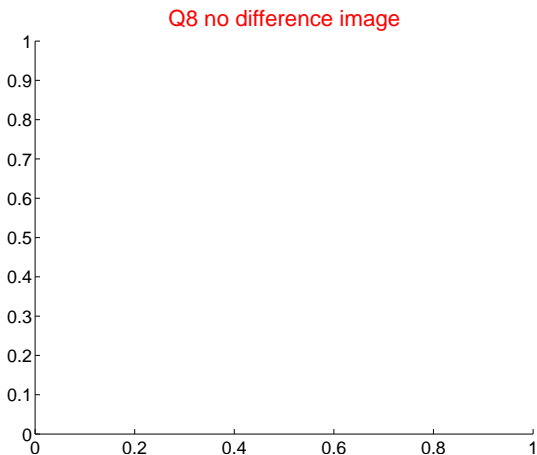
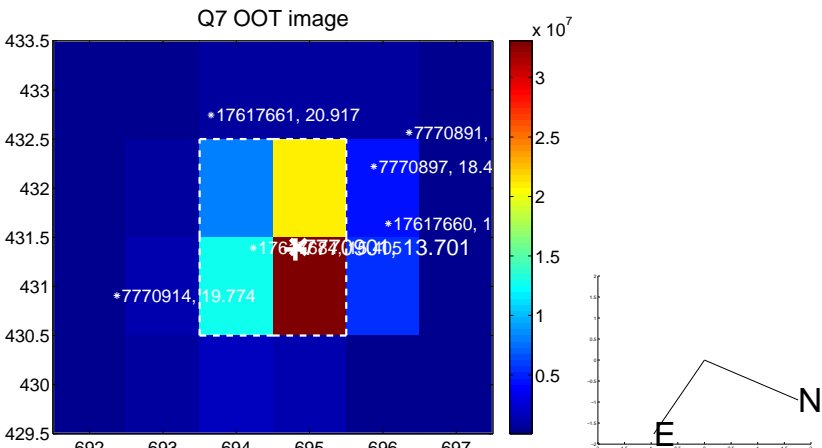
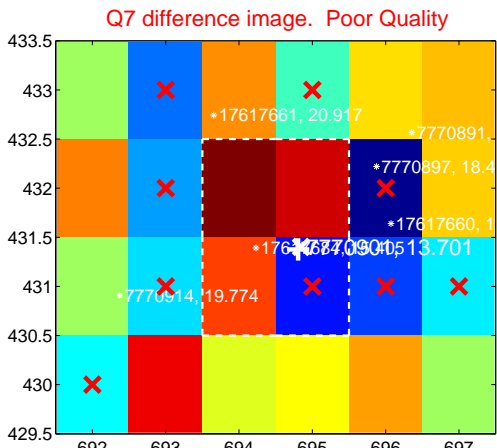
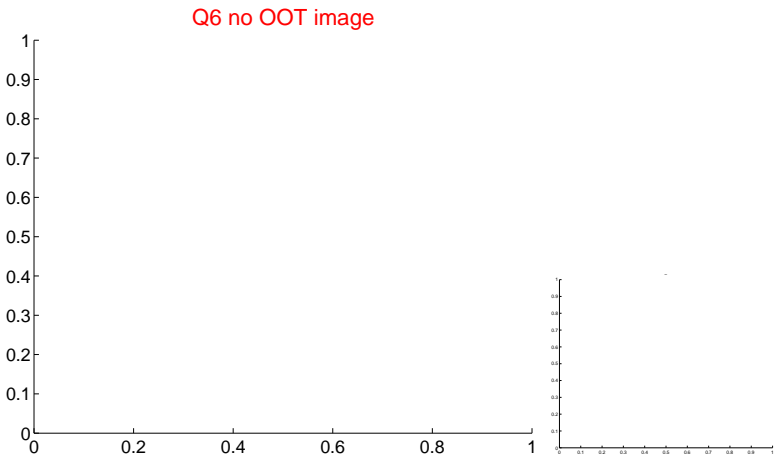
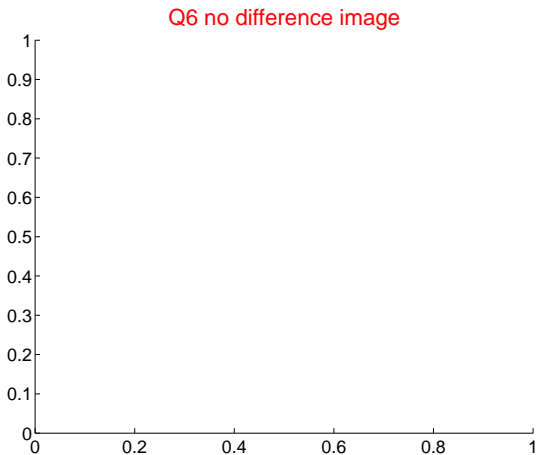
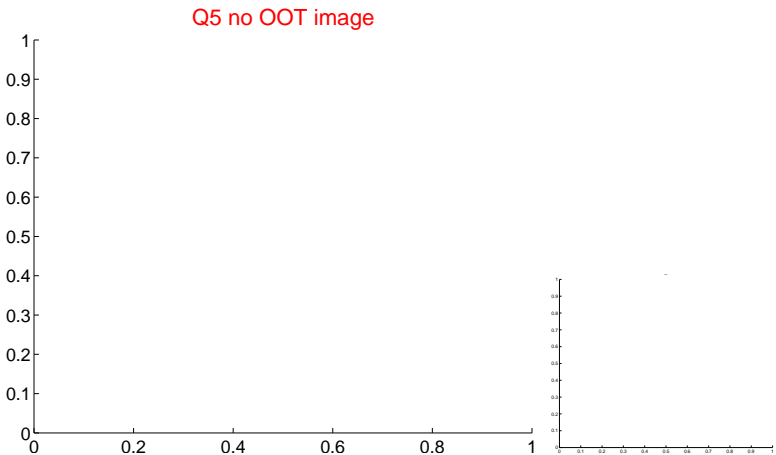
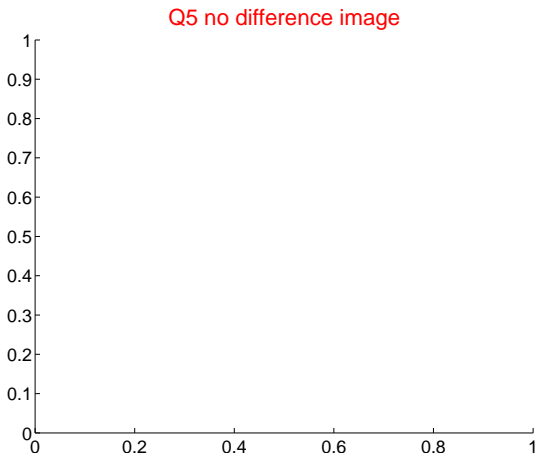


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

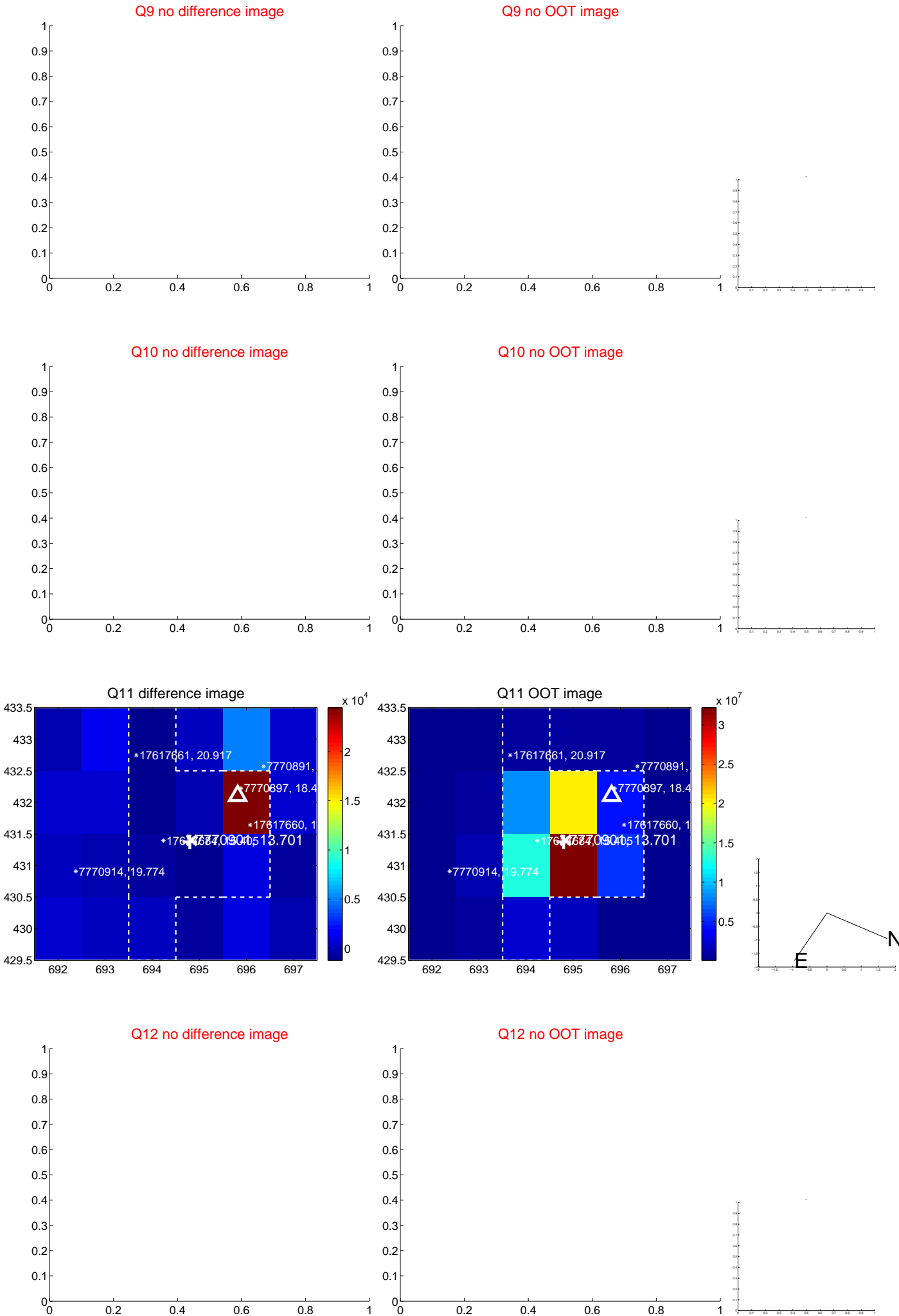
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



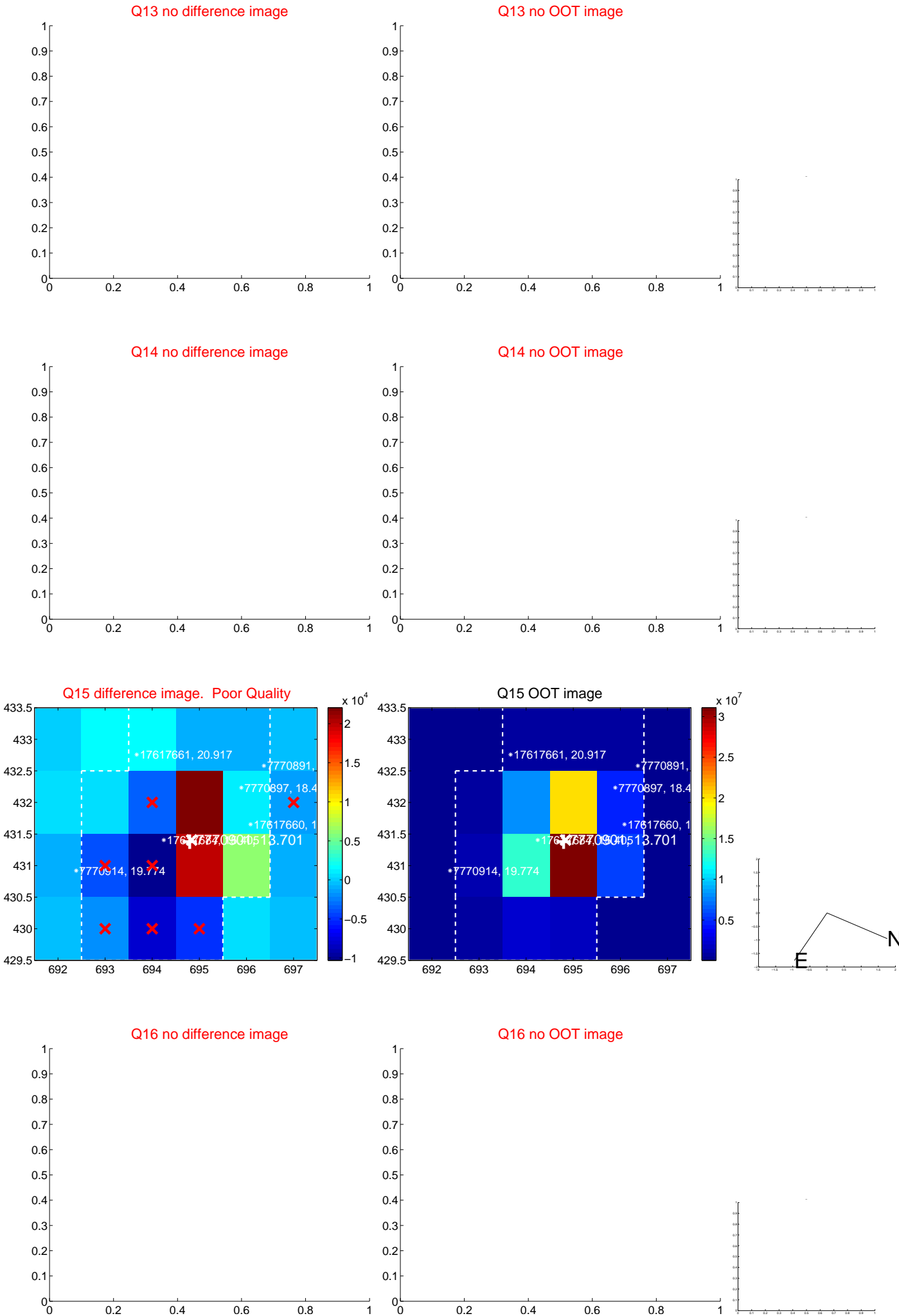
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



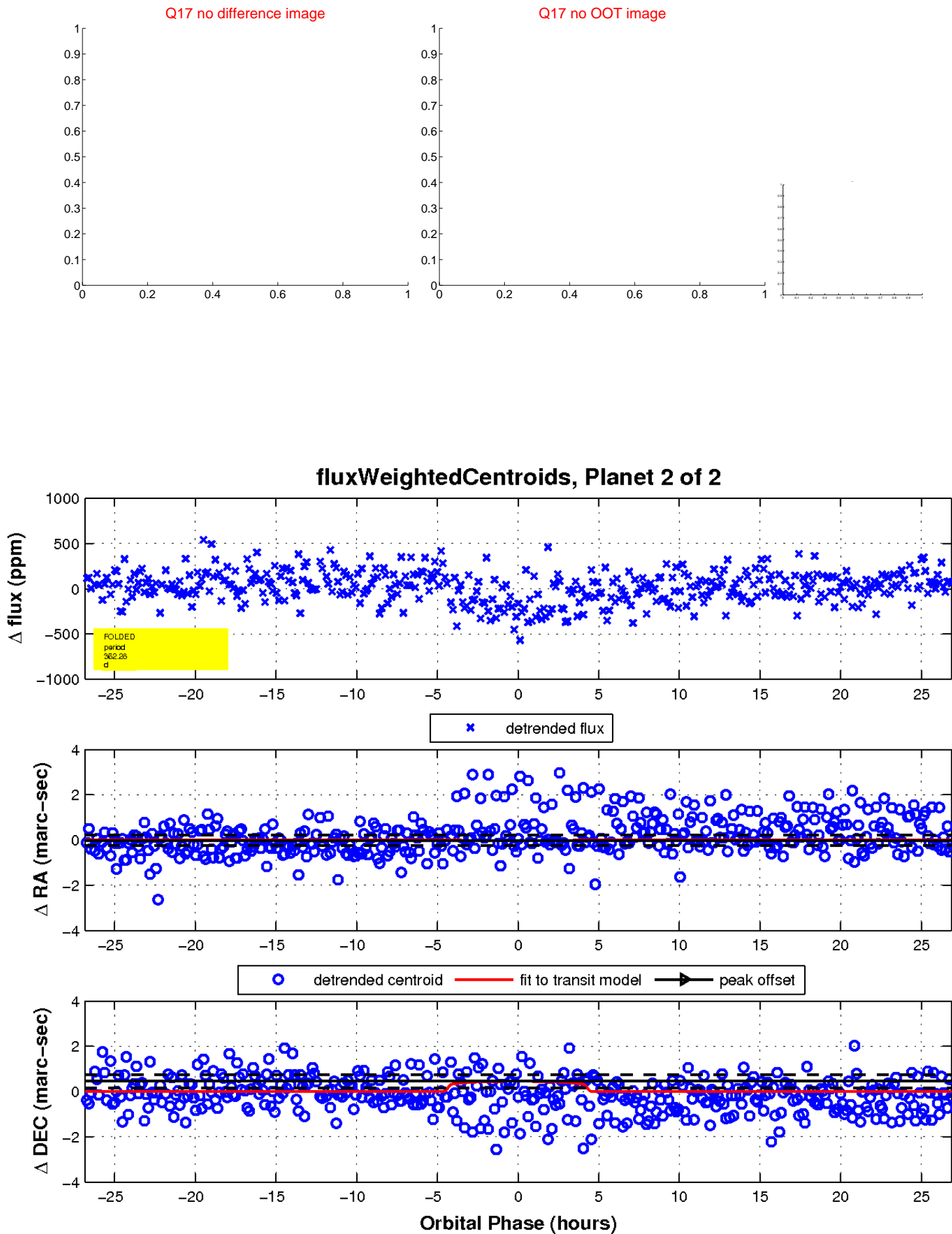
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

