

KIC 004282390

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})
004282390-01	OBS	6401.01	1.961403	132.301341	49.4	5.022	12.8	13.8	2.20	6221	1.56	5219.12
004282390-02	OBS	No	1.790932	131.763366	45.0	3.993	10.1	10.5	2.20	6221	1.72	5891.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004282390-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004282390-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

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

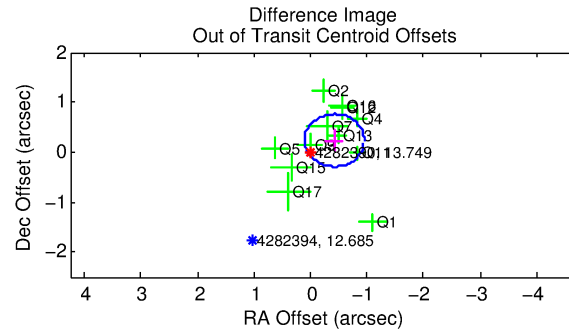
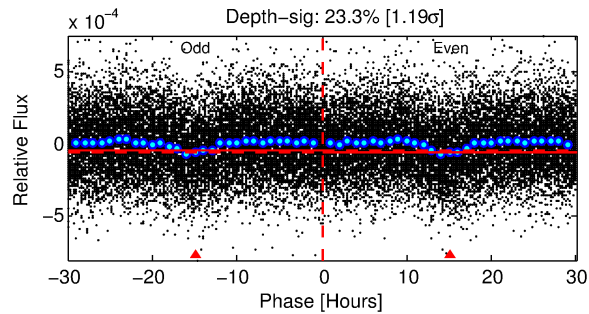
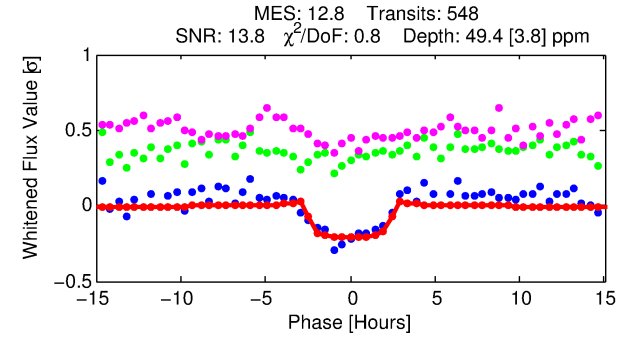
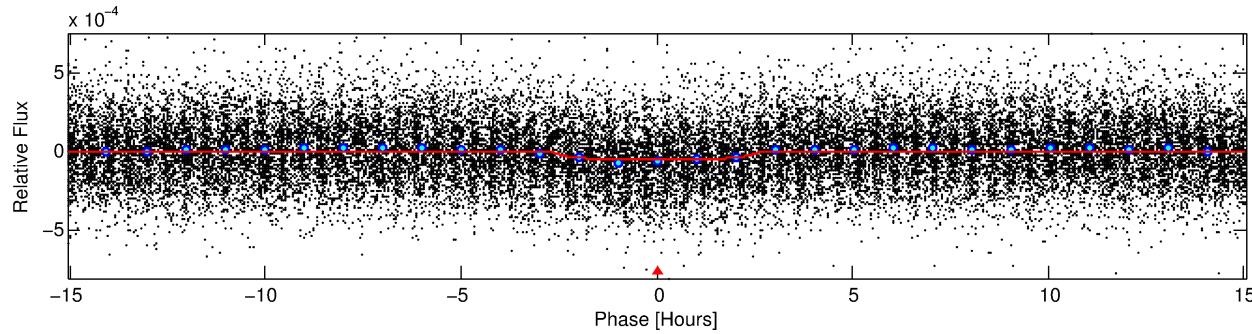
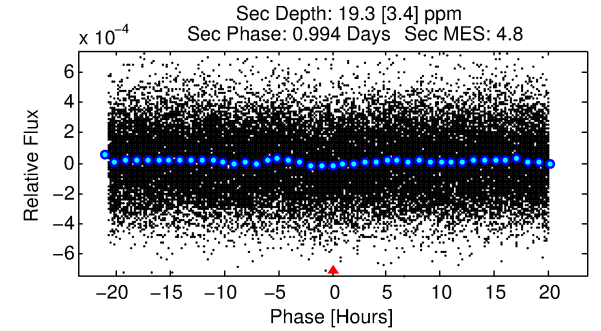
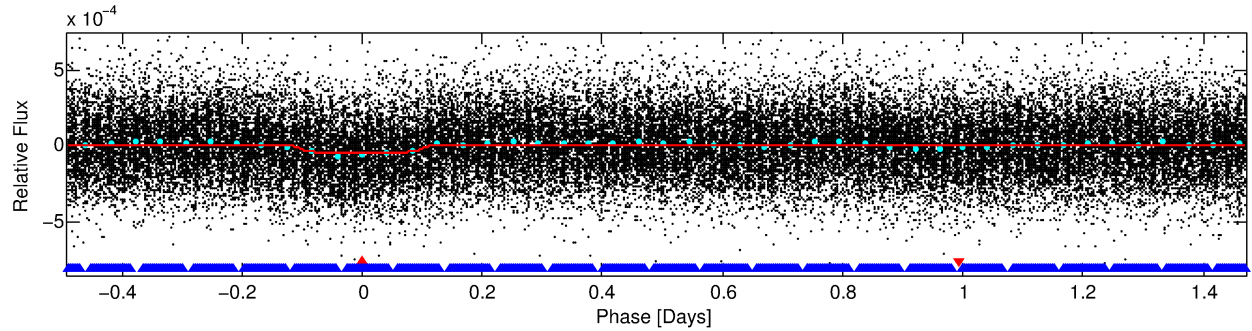
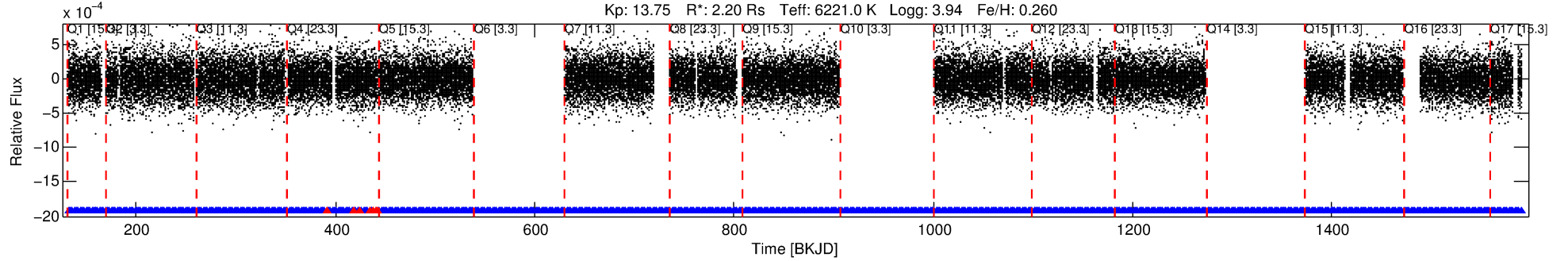
Ephemeris Match Information For 004282390-01

No Significant Match Found

DV One-Page Summary

KIC: 4282390 Candidate: 1 of 2 Period: 1.961 d

KOI: K06401 Corr: No Ephemeris Match



DV Fit Results:

Period = 1.96140 [0.00002] d
Epoch = 132.3013 [0.0041] BKJD
Rp/R* = 0.0065 [0.0032]
a/R* = 2.88 [5.97]
b = 0.36 [5.74]
Seff = 5219.12 [1679.73]
Teq = 2167 [174] K
Rp = 1.56 [0.85] Re
a = 0.0352 [0.0074] AU
Ag = 5.40 [5.62] [0.78σ]
Teffp = 5107 [1267] K [2.30σ]

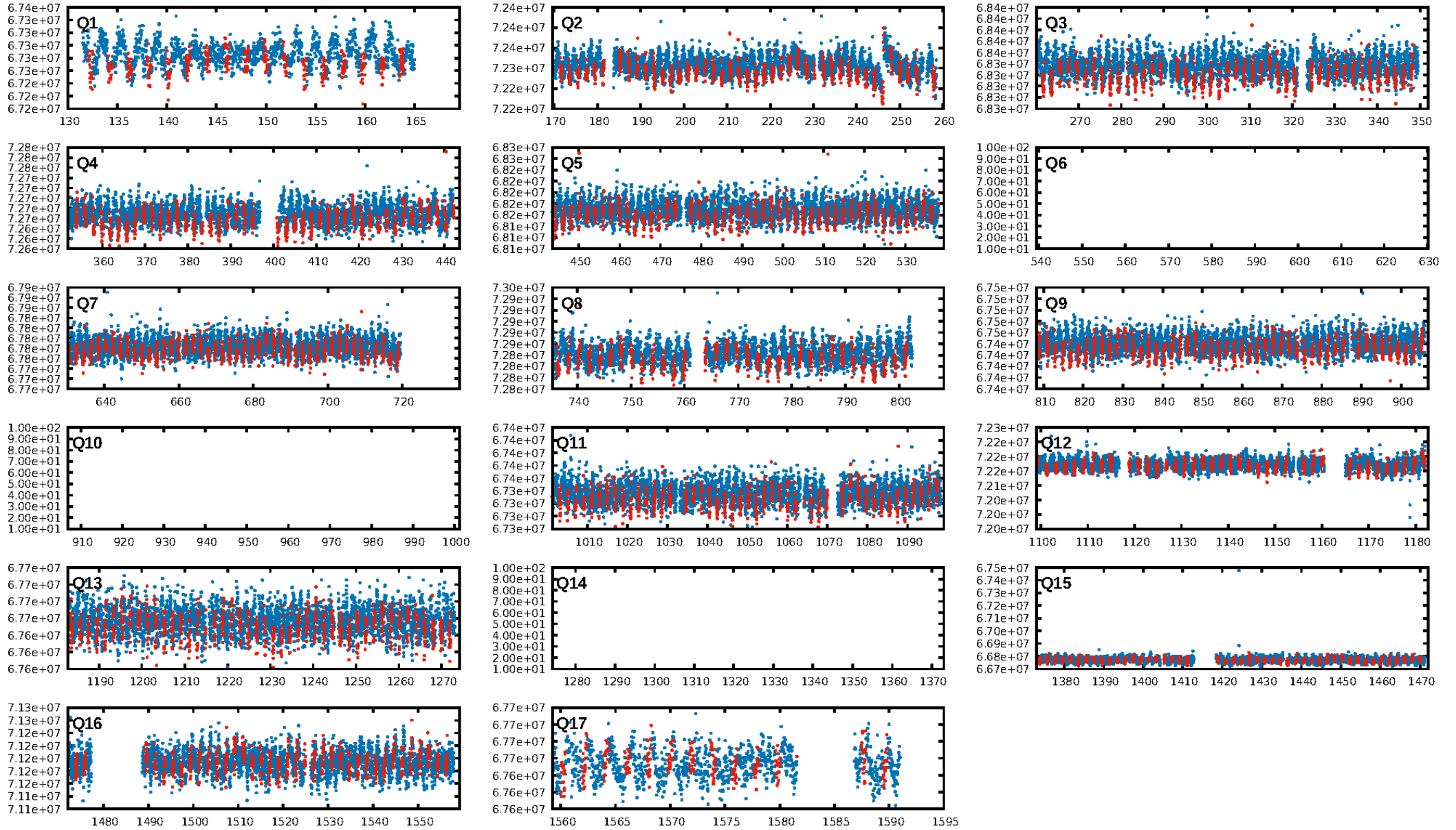
DV Diagnostic Results:

ShortPeriod-sig: 47.6% [0.64σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.27e-31
RollingBand-fgt: 0.99 [511/518]
GhostDiagnostic-chr: 1.645
Centroid-sig: 0.0%
Centroid-so: 2.274 arcsec [2.39σ]
OotOffset-rm: 0.482 arcsec [2.74σ]
KicOffset-rm: 0.433 arcsec [2.57σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

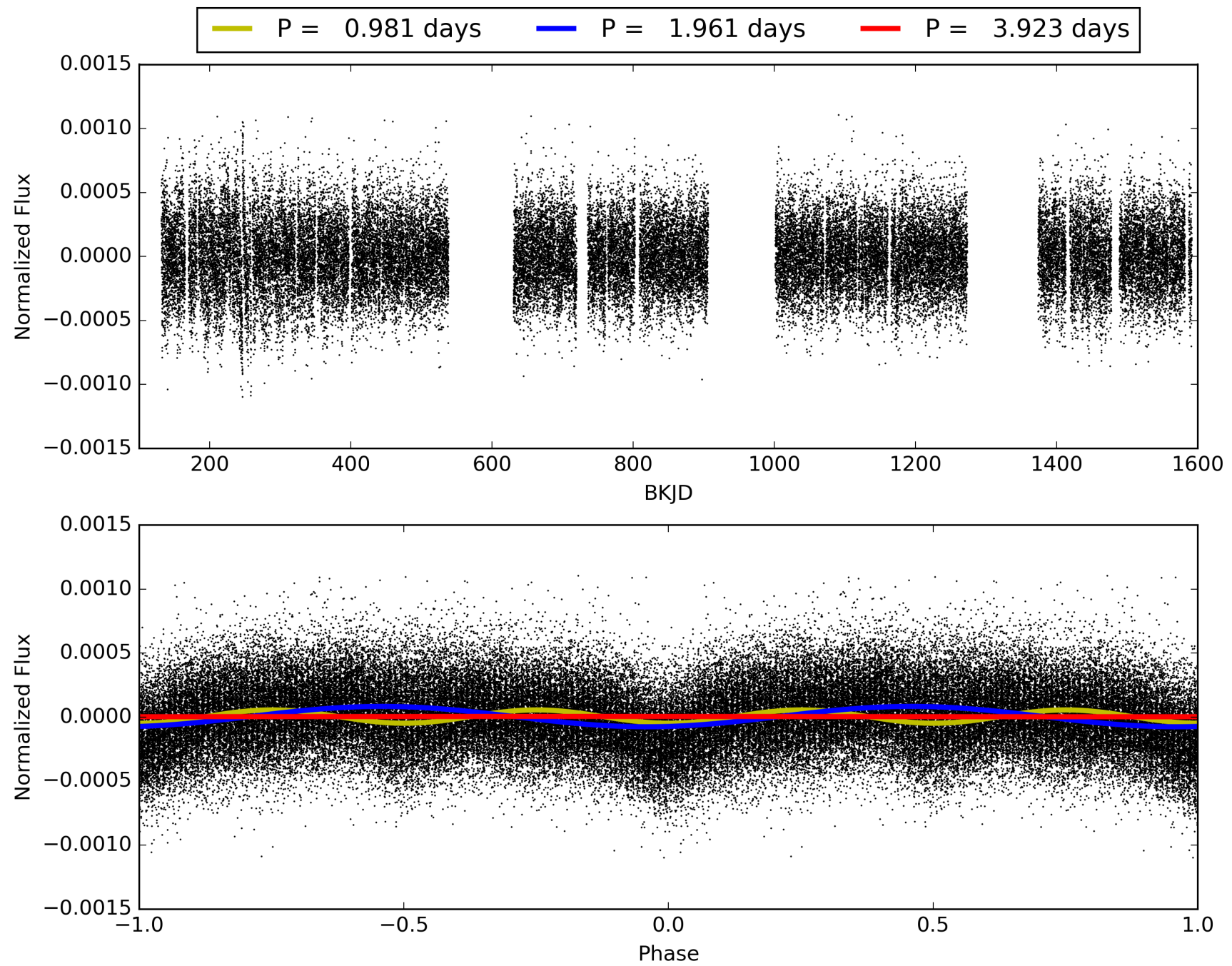
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:11:07 Z

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

TCE 004282390-01, PDC Light Curves

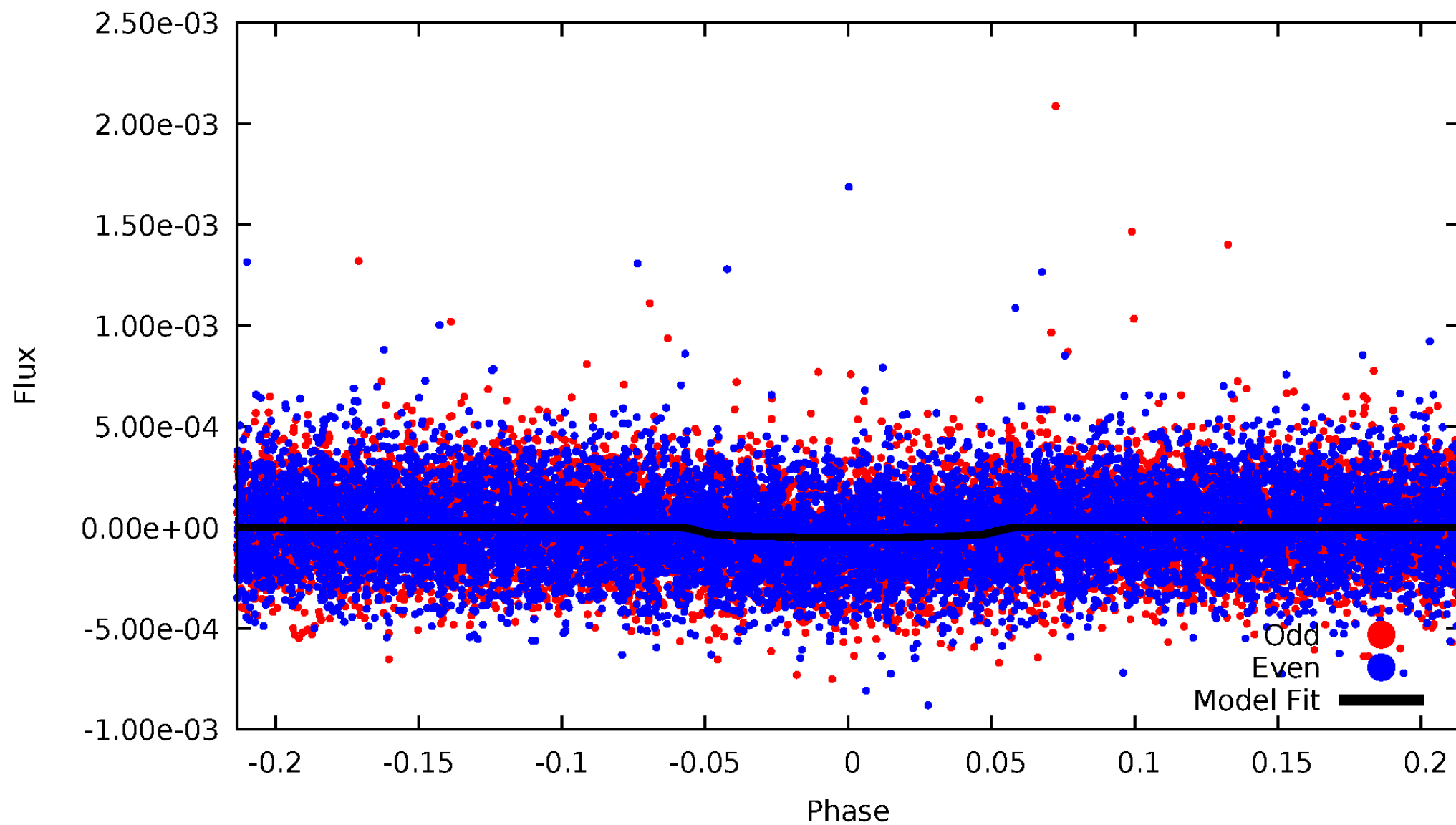


TCE 004282390-01



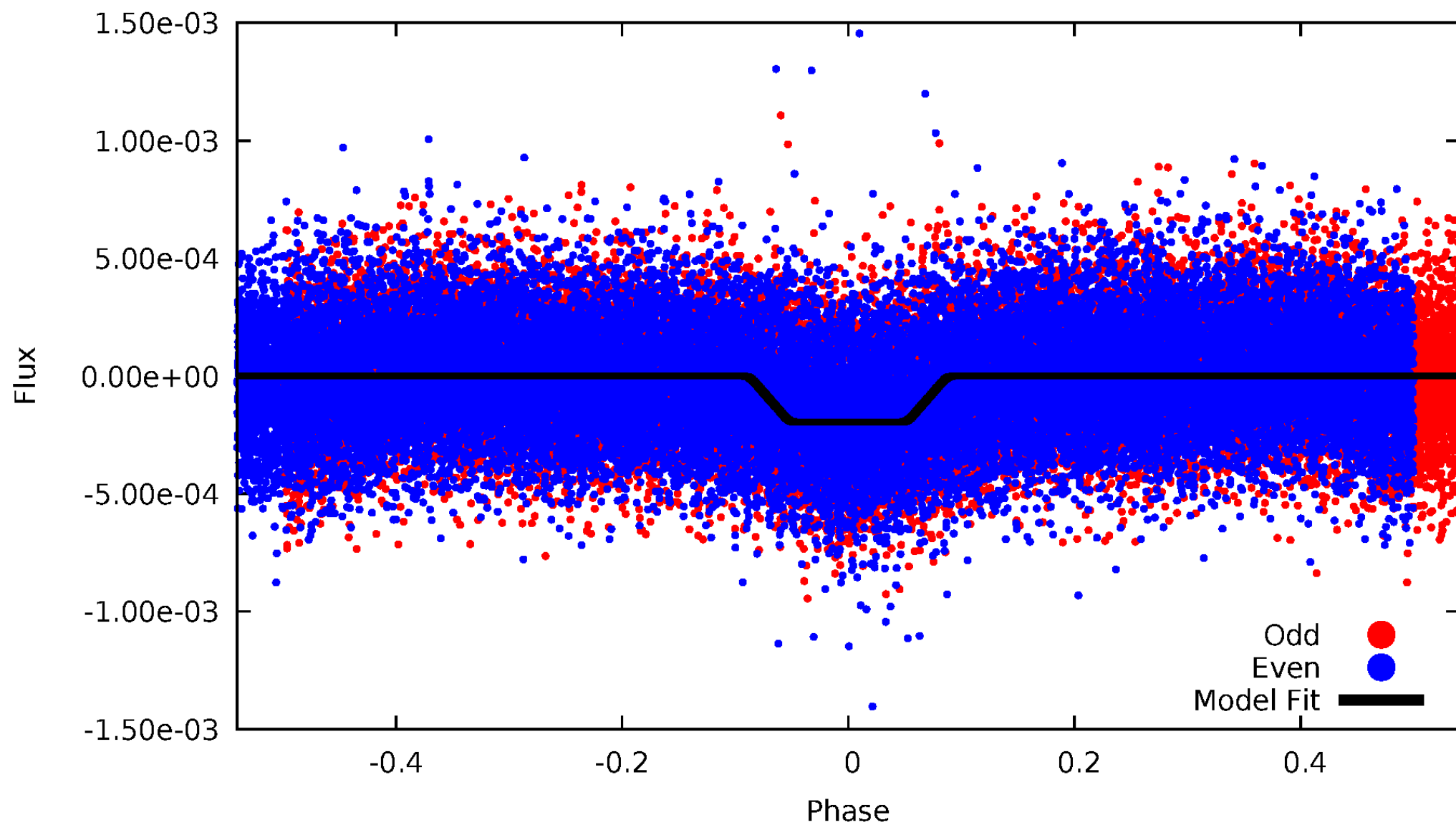
DV Odd/Even

TCE 004282390-01

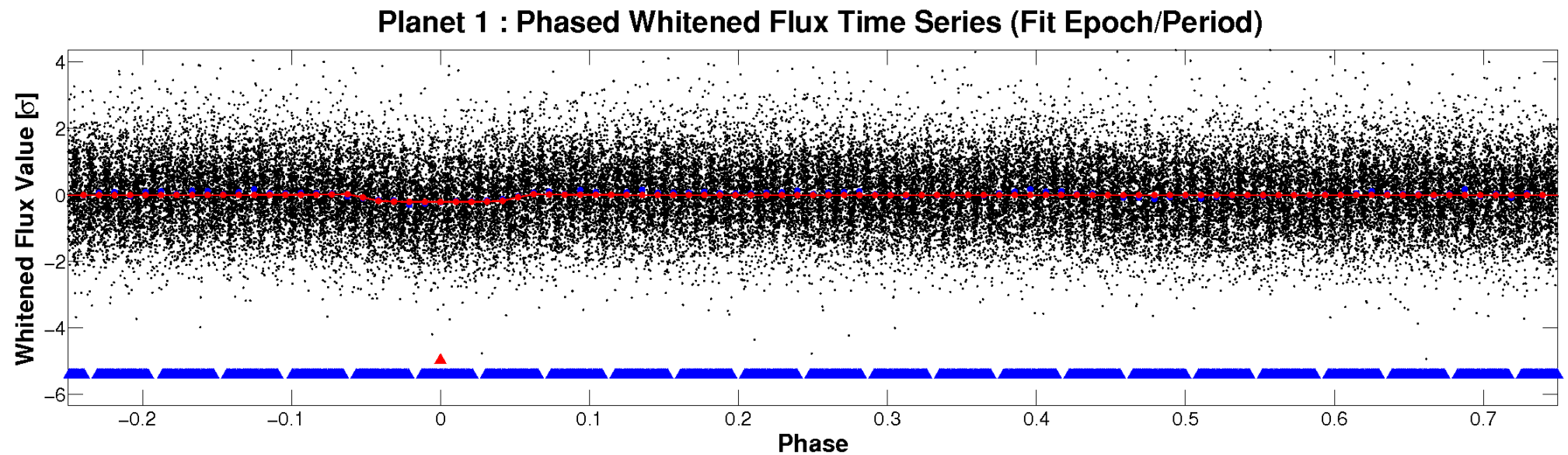
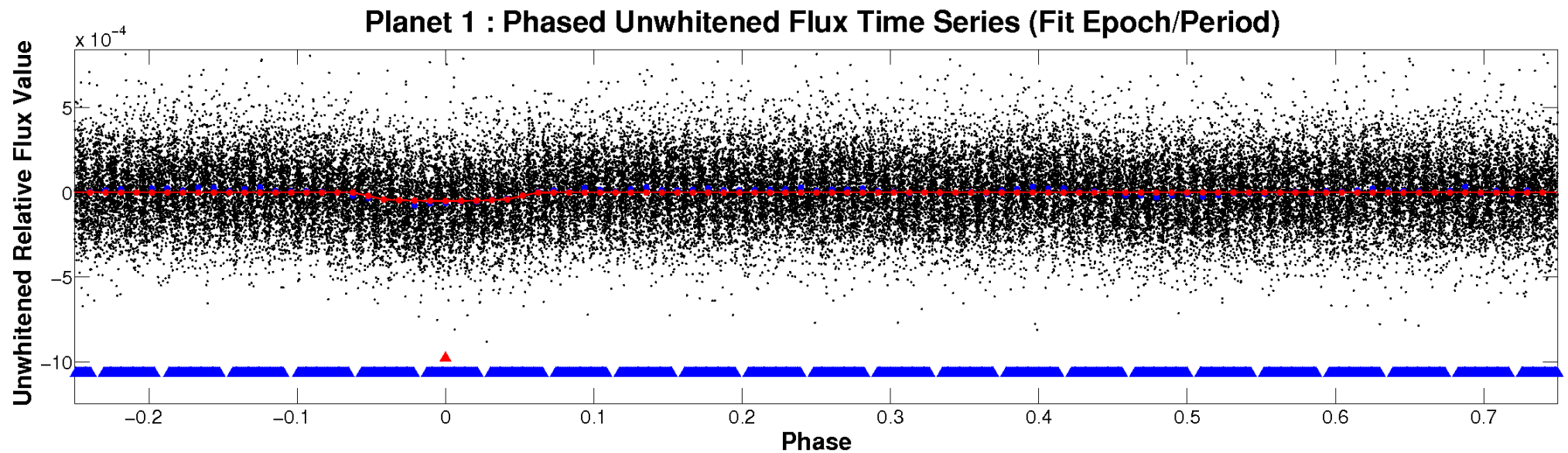


ALT Odd/Even

TCE 004282390-01

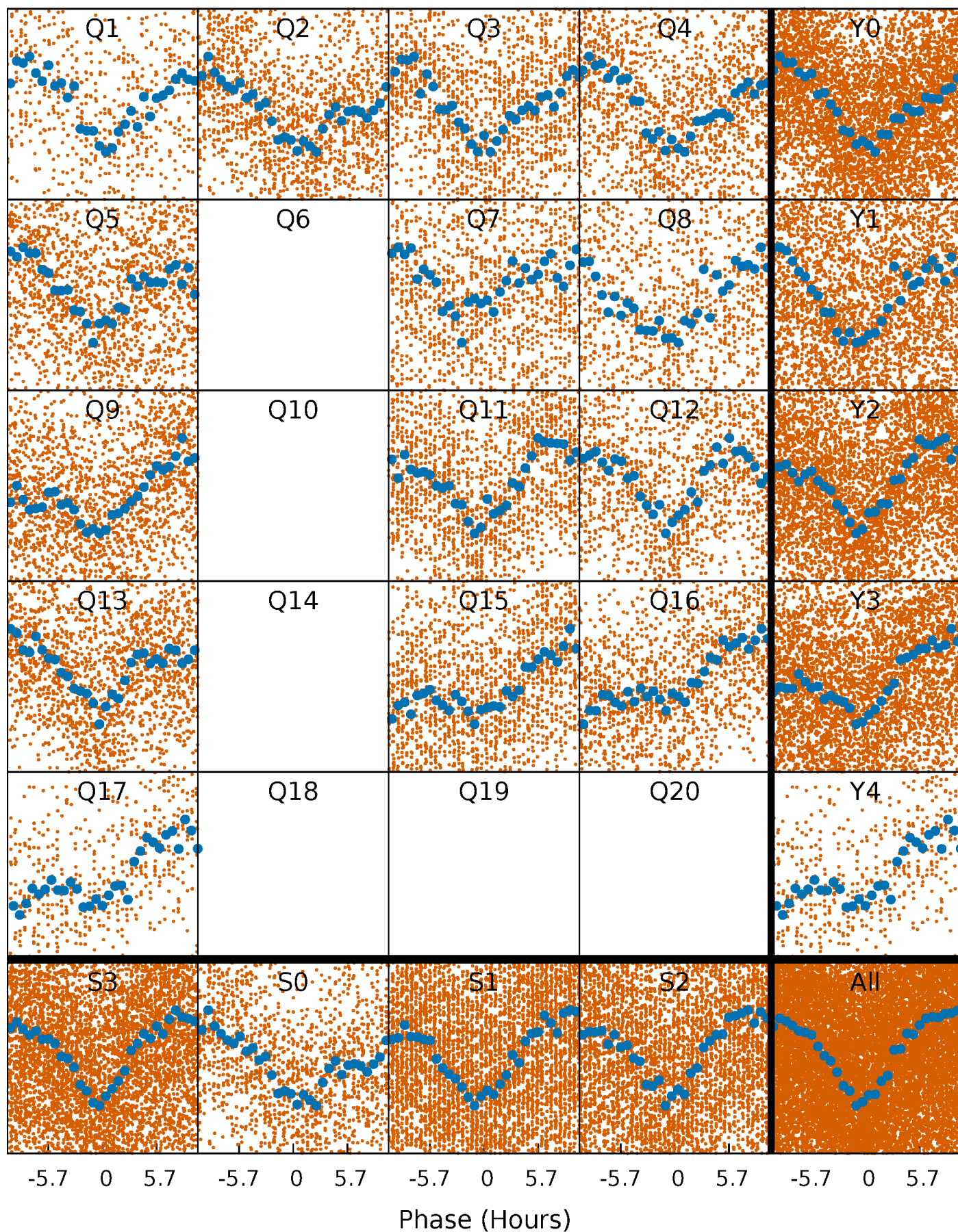


Non-Whitened Vs. Whitened Light Curve



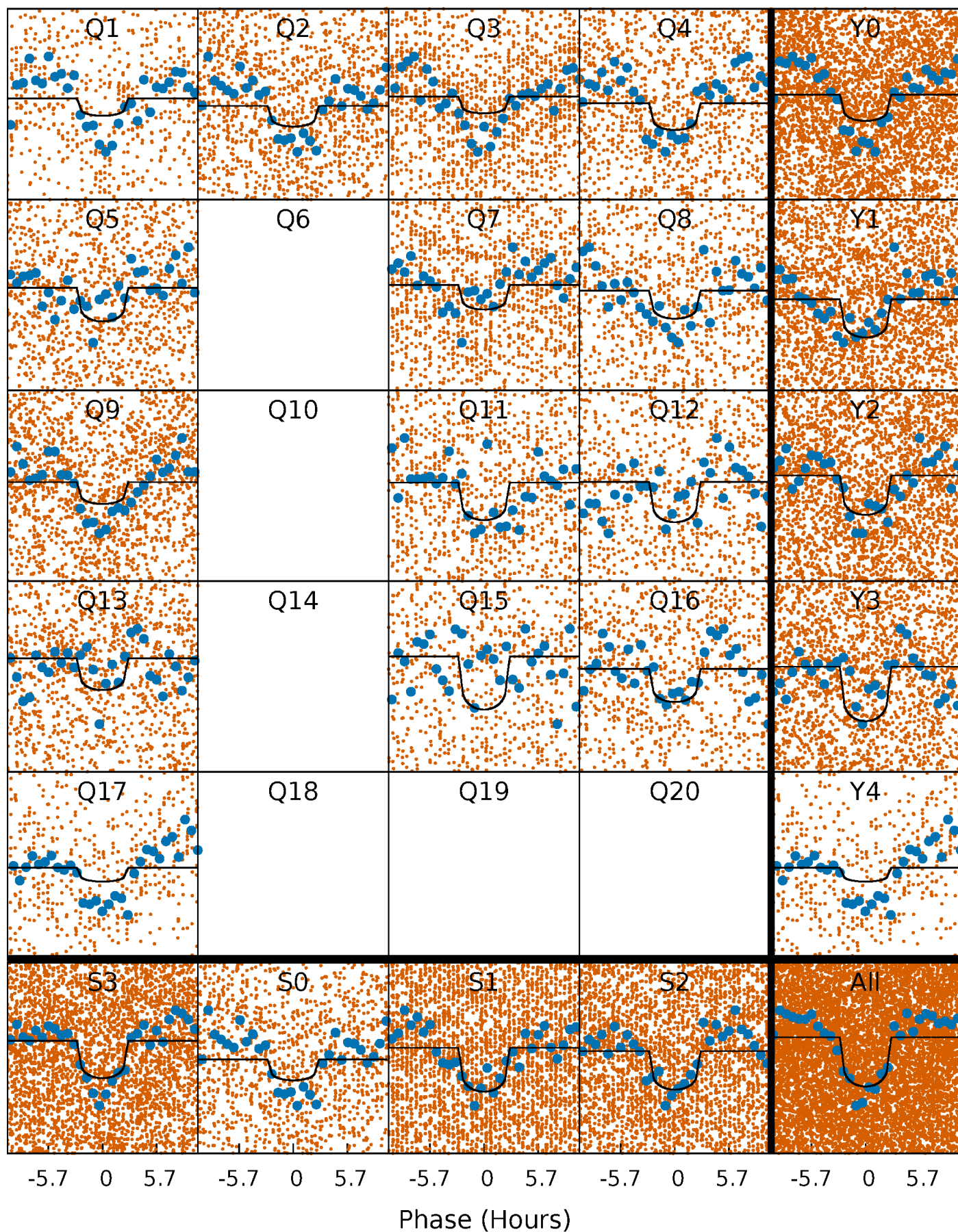
PDC Quarter-Phased Transit Curves

TCE 004282390-01 P= 1.961403 Days $T_0=132.301341$ (BKJD)



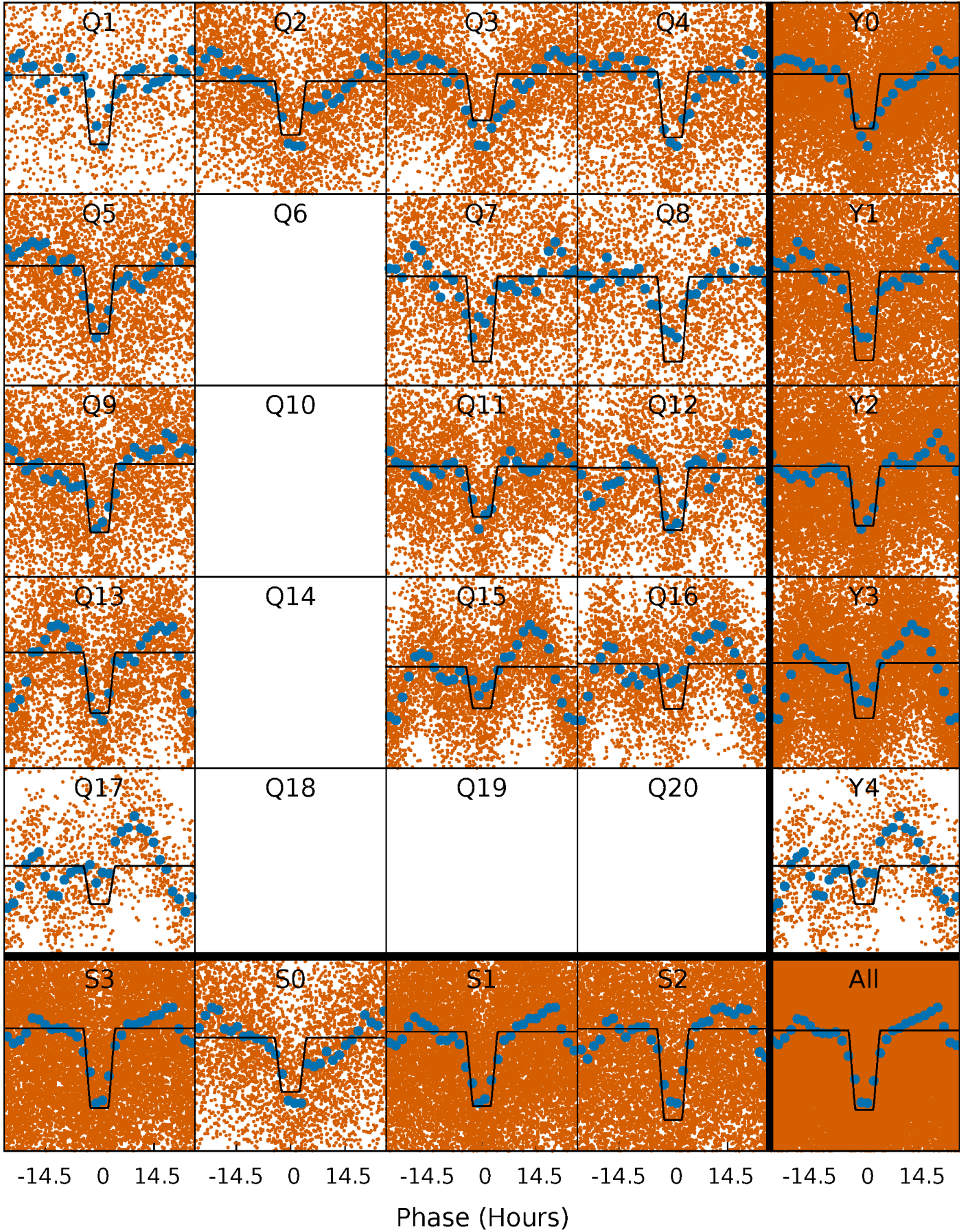
DV Quarter-Phased Transit Curves

TCE 004282390-01 P= 1.961403 Days $T_0=132.301341$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

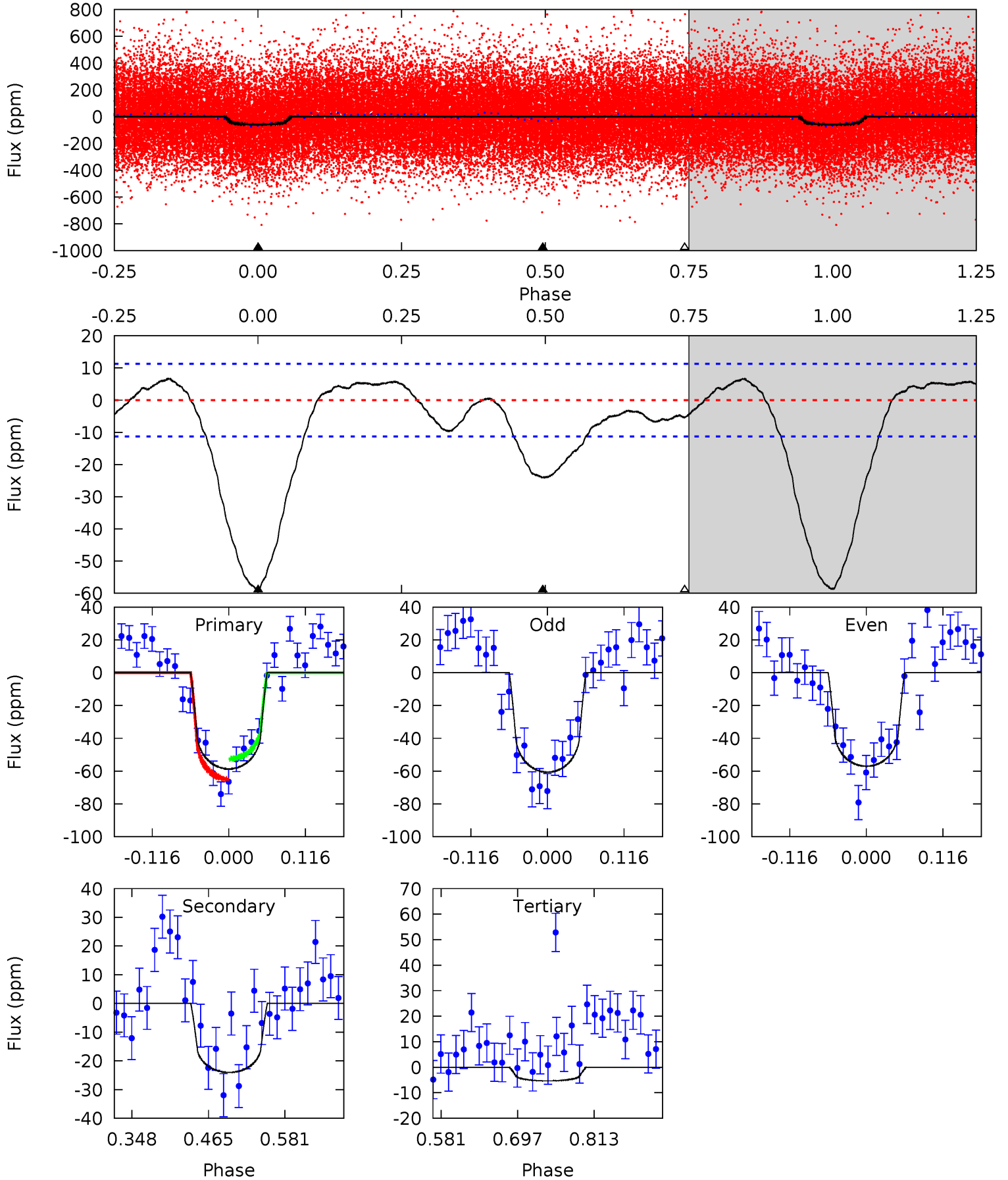
TCE 004282390-01 P= 1.961405 Days $T_0=132.282330$ (BKJD)



DV Model-Shift Uniqueness Test

004282390-01, P = 1.961403 Days, E = 130.339938 Days

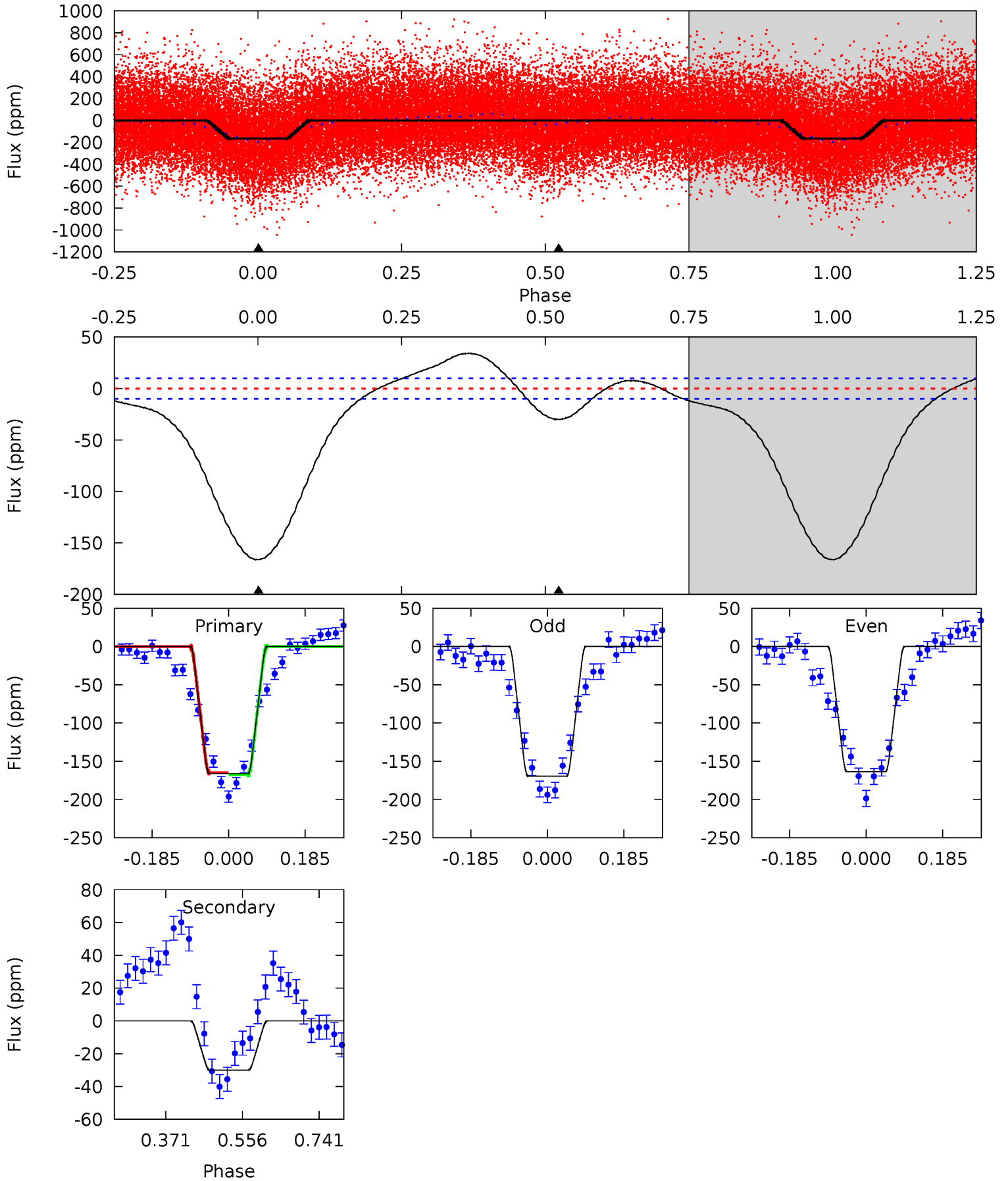
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	9.66	2.14	0	4.53	1.57	1.98	21.4	23.6	7.51	9.66	0.73	1.07	0.10	2.50



Alt Model-Shift Uniqueness Test

004282390-01, P = 1.961405 Days, E = 130.320925 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.9	13.4	0	0	4.43	1.32	6.58	73.9	73.9	13.4	13.4	1.31	0.98	0.17	0.61



Stellar Parameters For KIC 004282390

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6221^{+74}_{-80}	$3.935^{+0.180}_{-0.120}$	$0.260^{+0.150}_{-0.150}$	$2.198^{+0.423}_{-0.517}$	$1.516^{+0.146}_{-0.182}$	$0.201^{+0.201}_{-0.074}$
	+1%/-1%	+5%/-3%	+58%/-58%	+19%/-24%	+10%/-12%	+100%/-37%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004282390-01 / KOI 6401.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 2	$1.60^{+0.75}_{-0.76}$	3020^{+147}_{-169}	5268^{+2021}_{-812}	$6.405^{+17.167}_{-3.504}$
Alt.	-30 ± 2	$3.30^{+0.95}_{-0.88}$	3016^{+151}_{-158}	4062^{+468}_{-410}	$1.905^{+1.561}_{-0.756}$

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 $A_{obs} \gg 1.0$

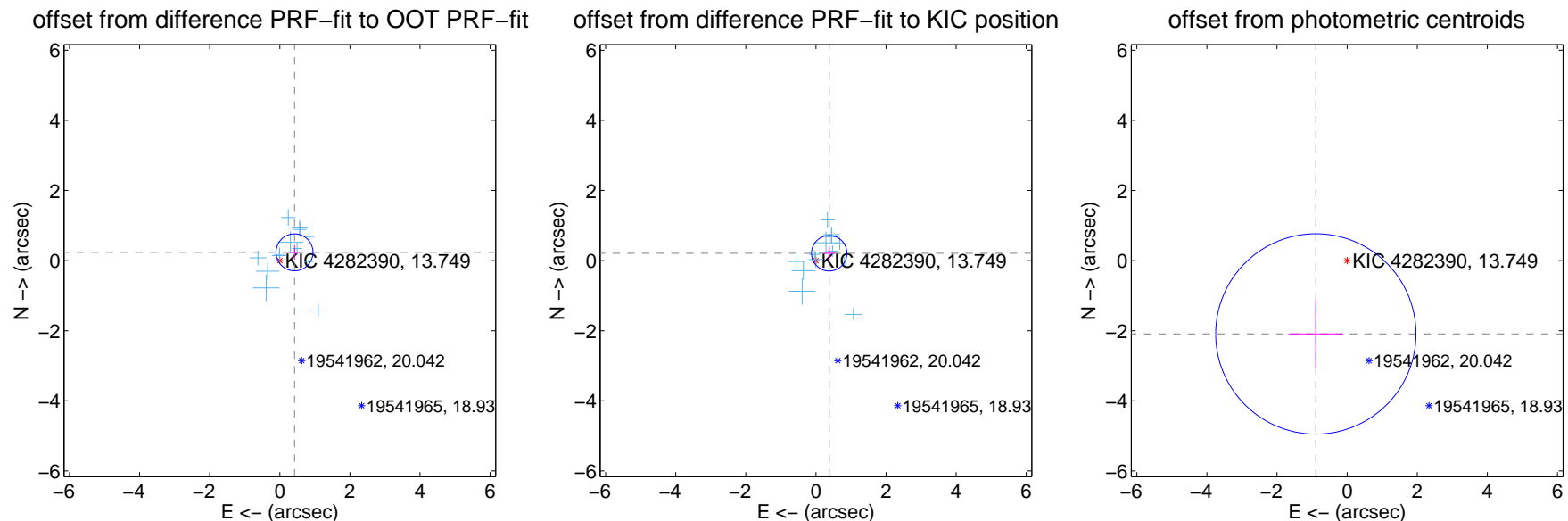
DV Centroid Data

Supplemental centroid analysis for 004282390-01. Kepler magnitude: 13.75. Transit SNR 13.78

There are 13 quarters with good PRF difference image offsets

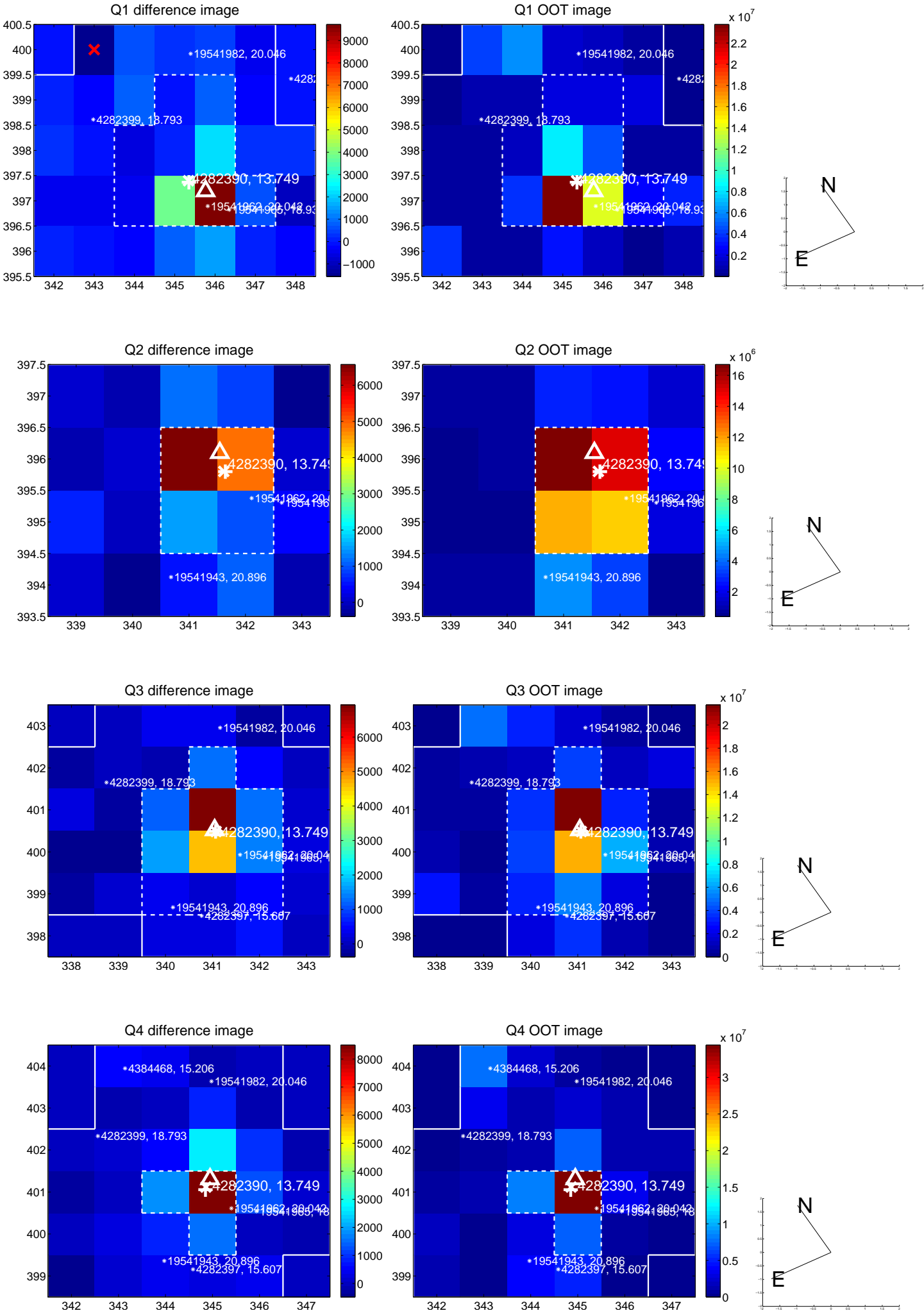
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.482 ± 0.176	2.74	-0.420 ± 0.152	0.236 ± 0.209
PRF-fit source offset from KIC position	0.433 ± 0.168	2.57	-0.379 ± 0.151	0.209 ± 0.199
photometric centroid source offset	2.27 ± 0.95	2.39	0.89 ± 0.79	-2.09 ± 0.98

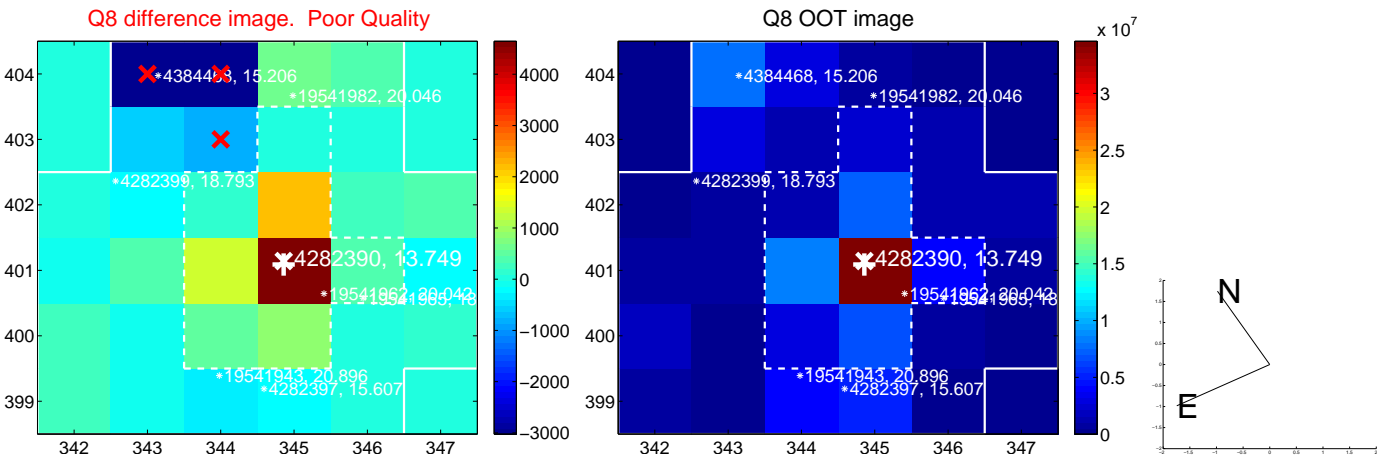
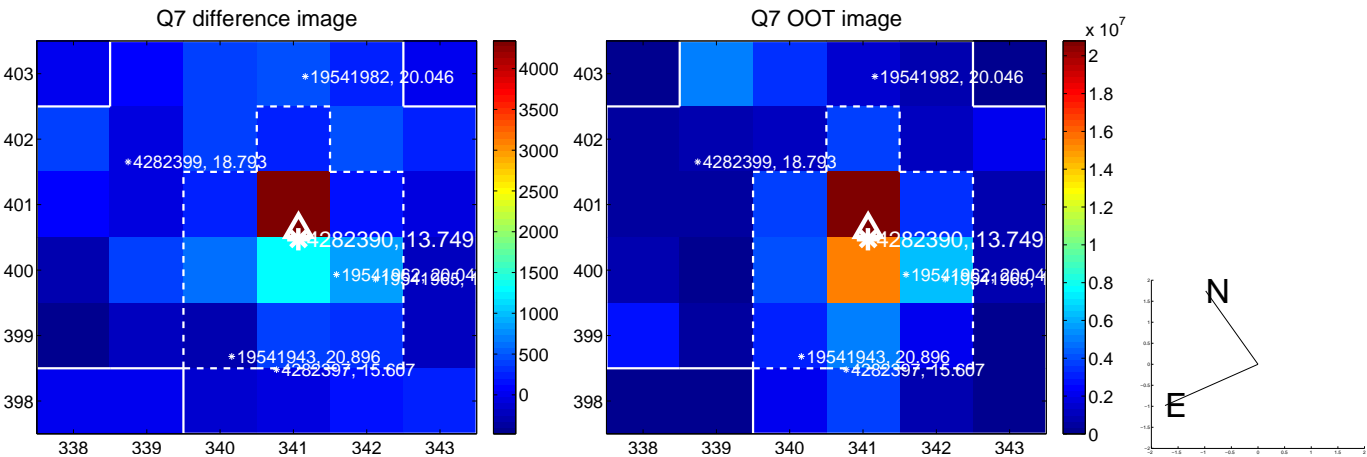
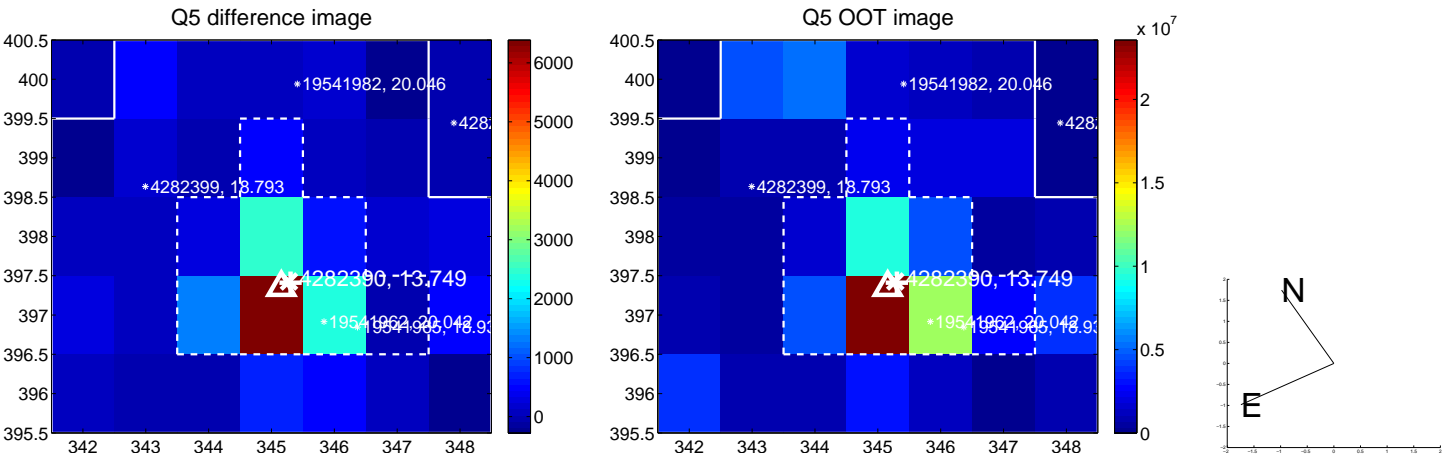


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

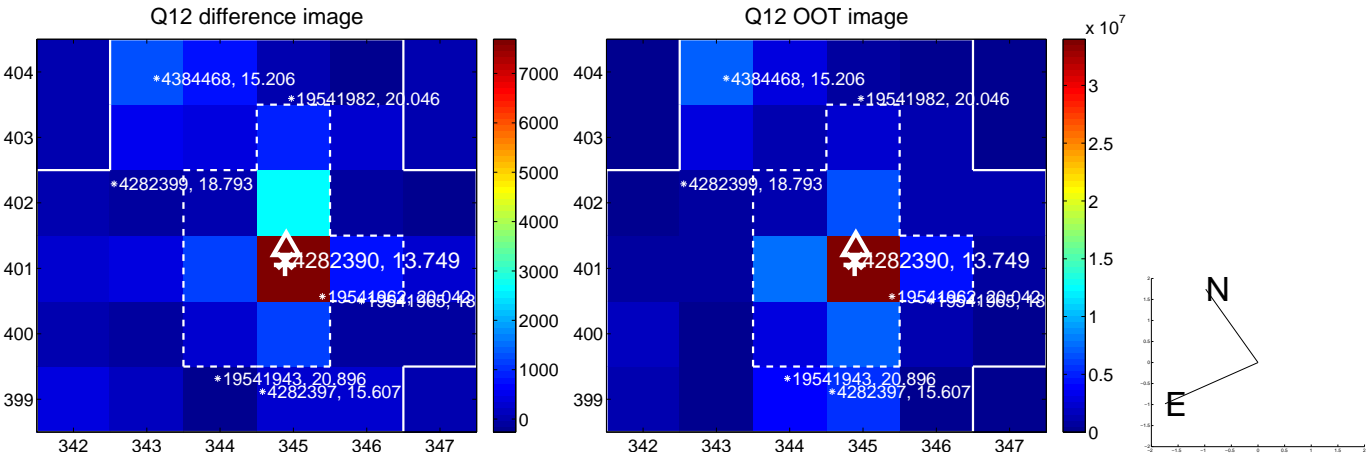
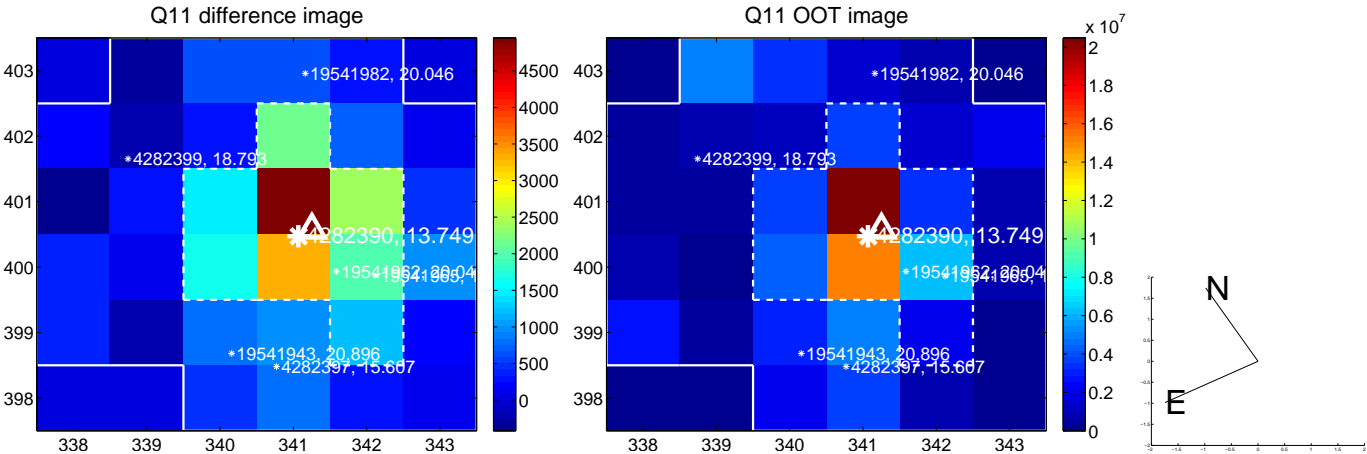
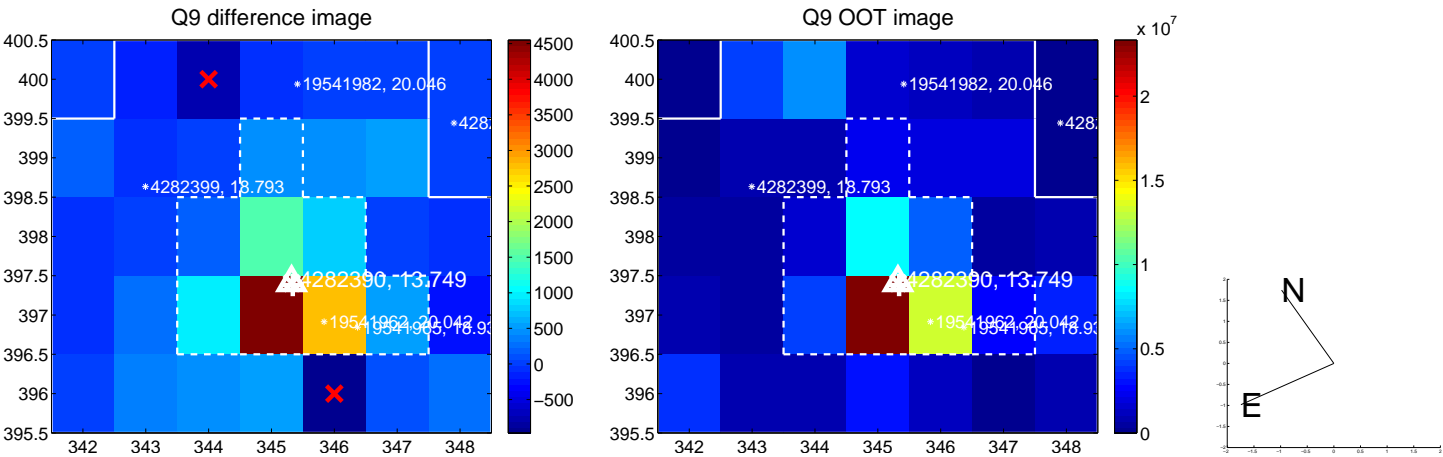
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



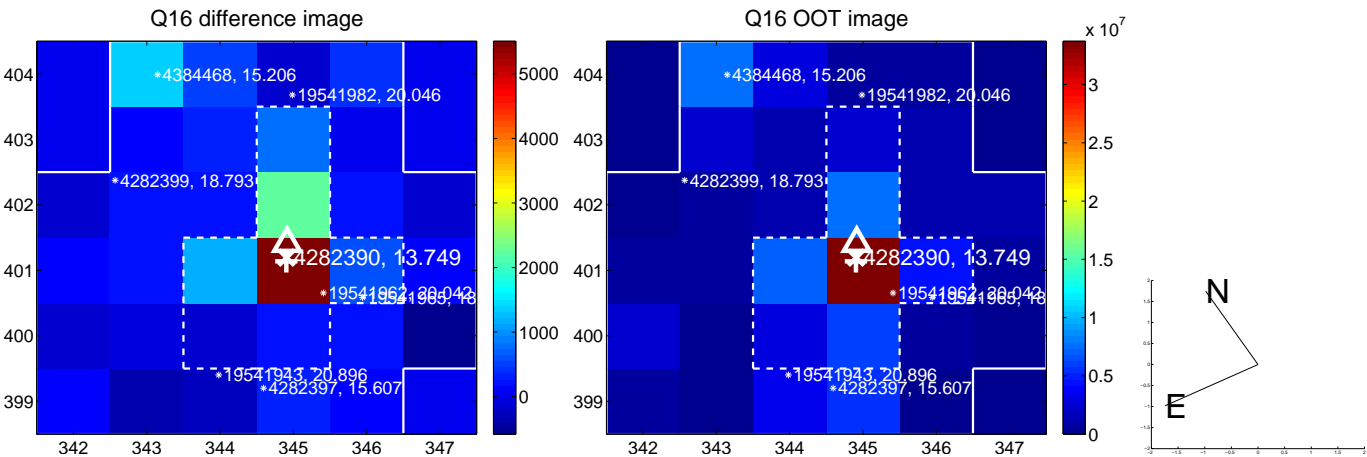
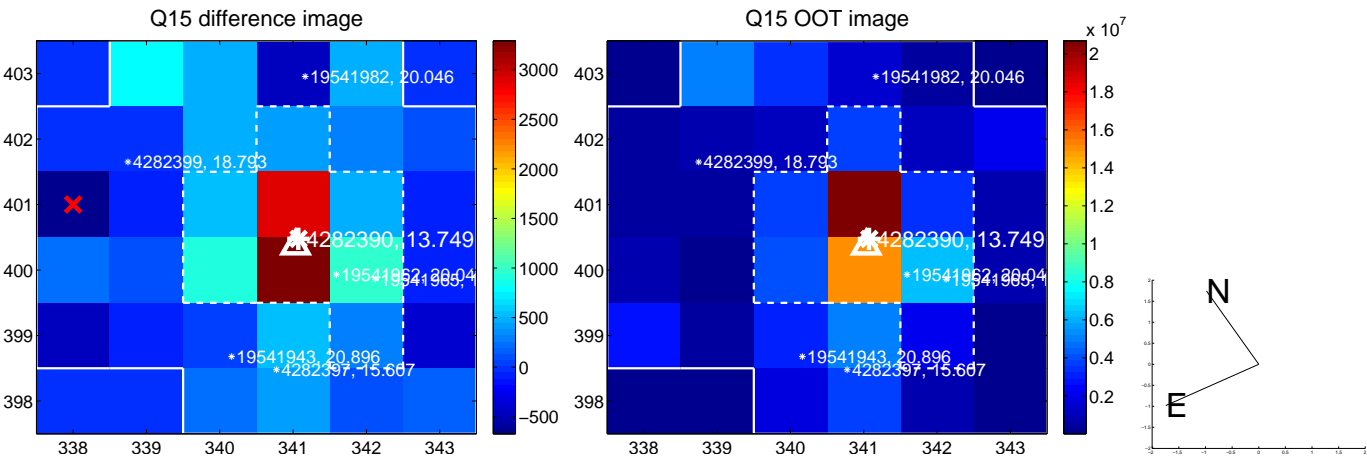
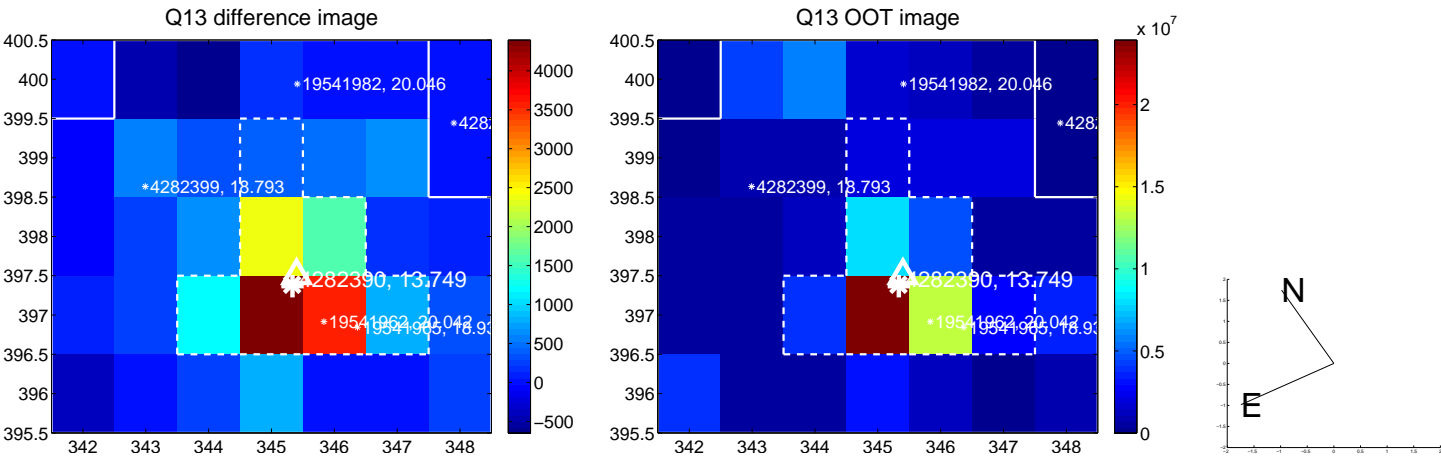
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



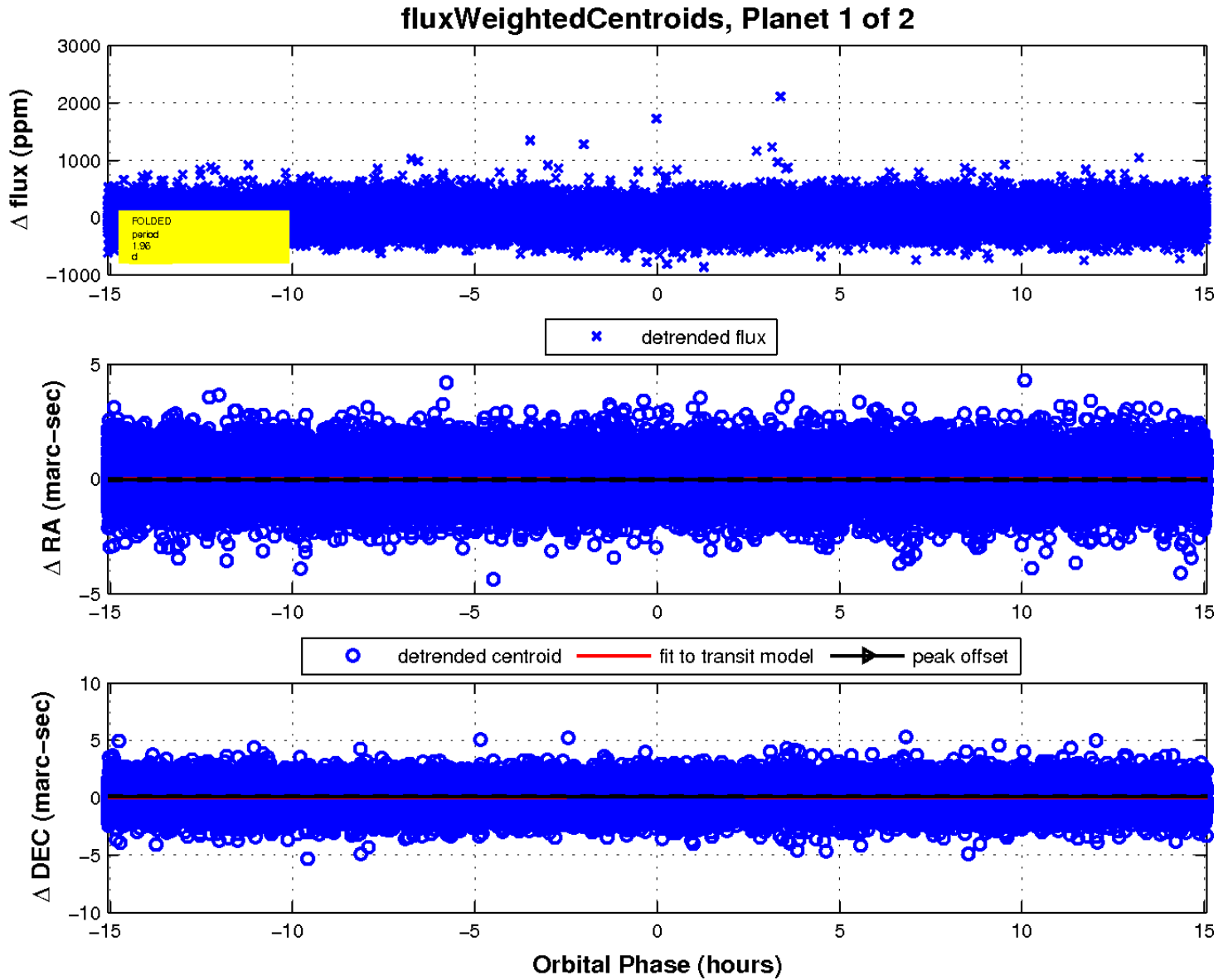
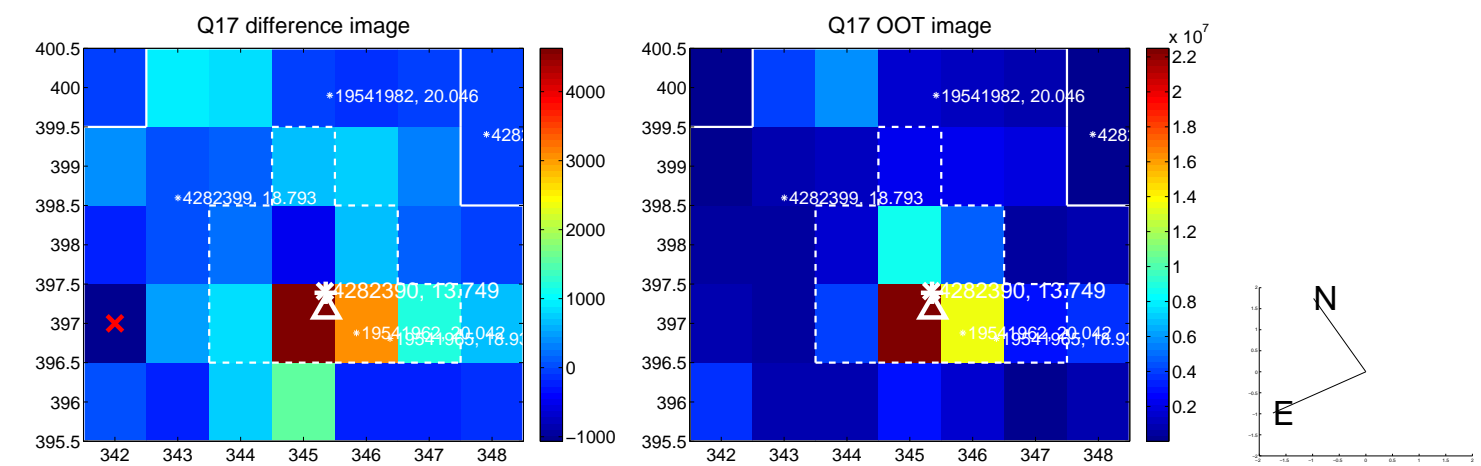
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

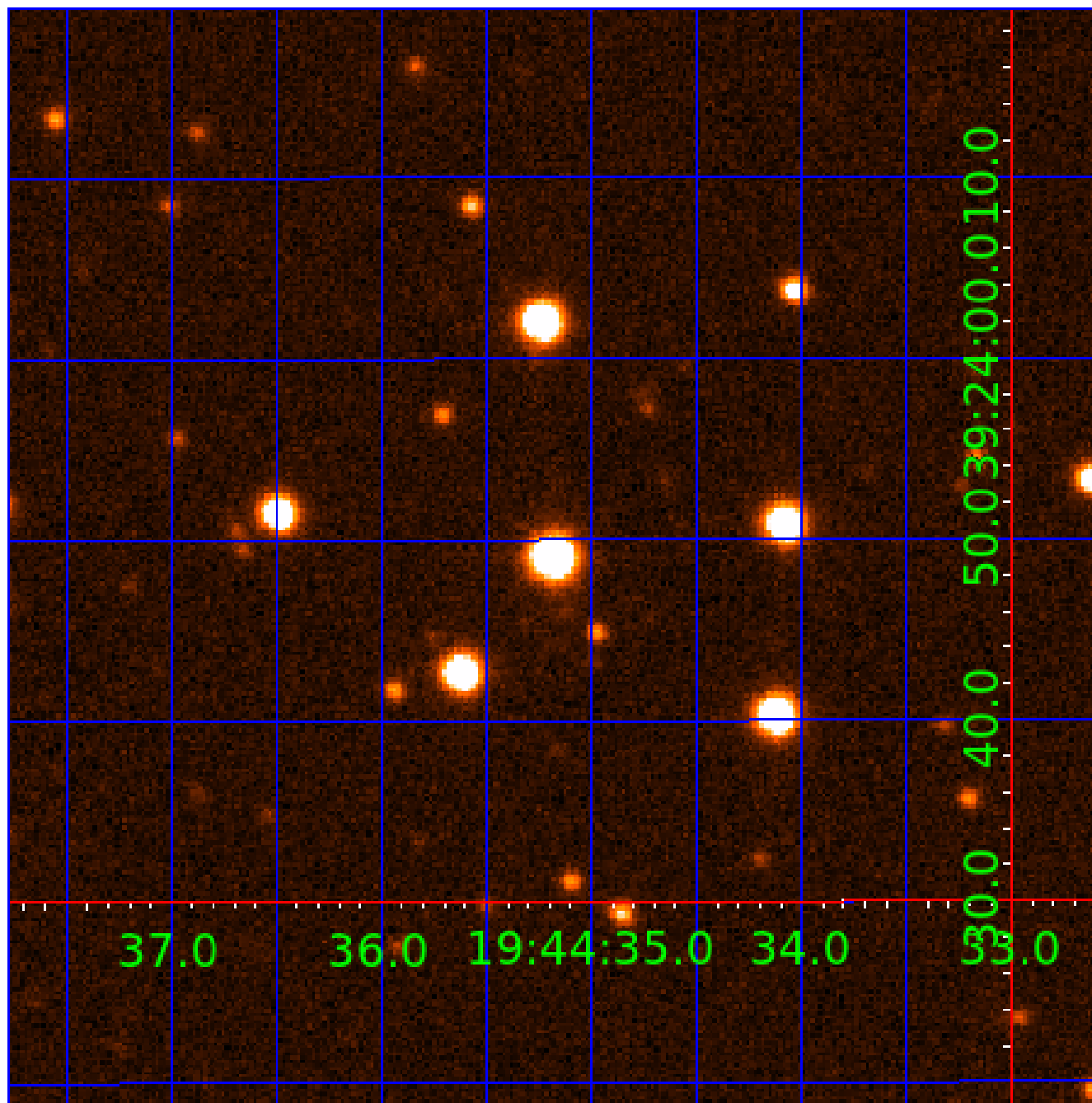


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004282390

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})
004282390-01	OBS	6401.01	1.961403	132.301341	49.4	5.022	12.8	13.8	2.20	6221	1.56	5219.12
004282390-02	OBS	No	1.790932	131.763366	45.0	3.993	10.1	10.5	2.20	6221	1.72	5891.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004282390-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004282390-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

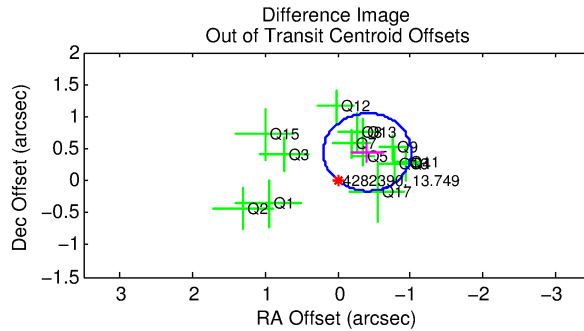
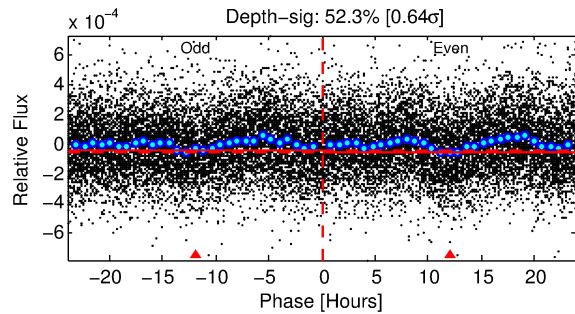
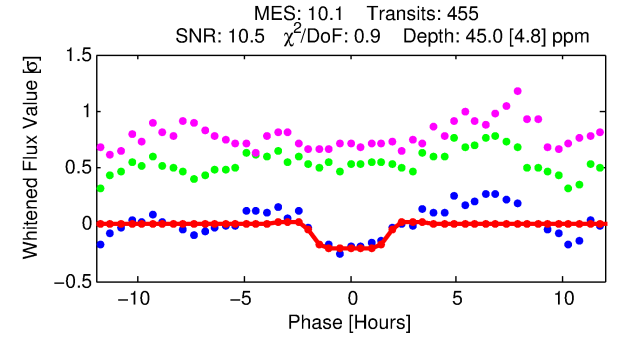
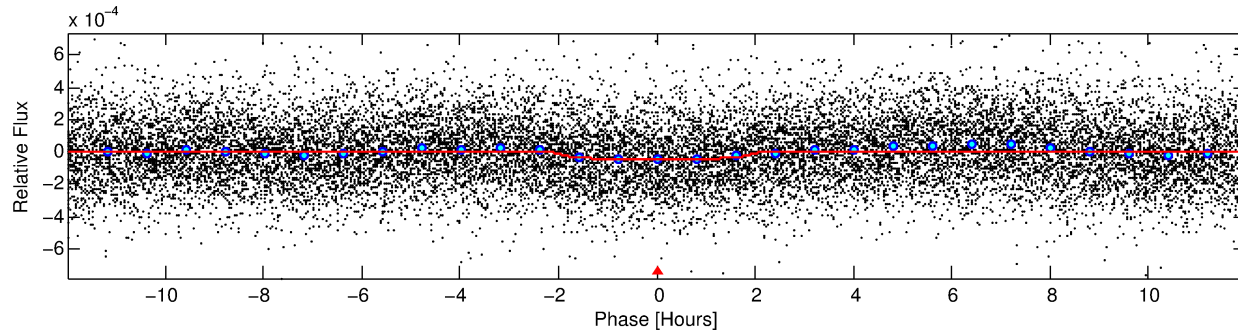
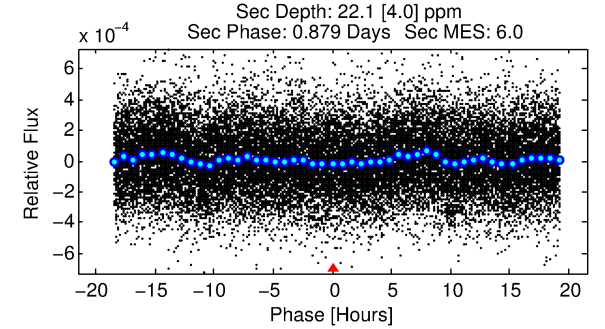
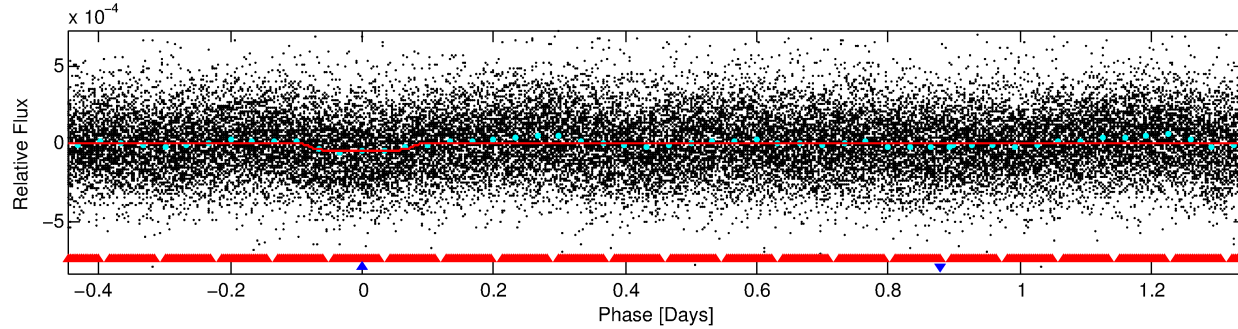
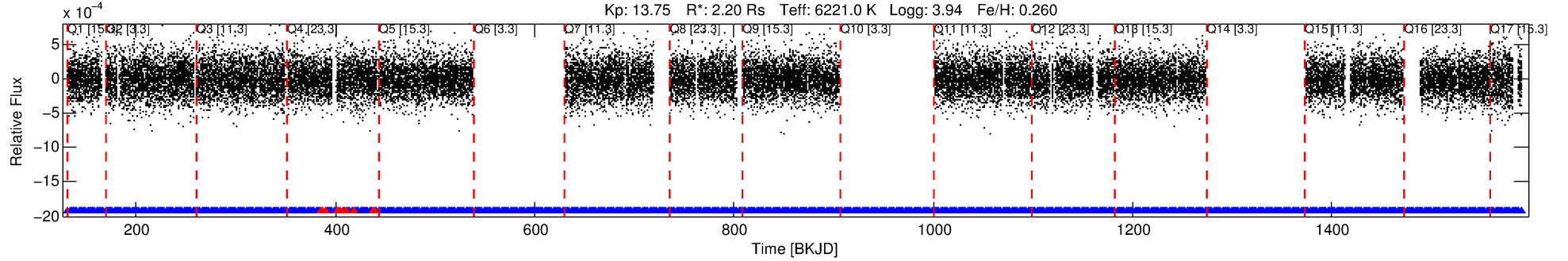
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004282390-02

No Significant Match Found

DV One-Page Summary

KIC: 4282390 Candidate: 2 of 2 Period: 1.791 d
KOI: K06401 Corr: No Ephemeris Match



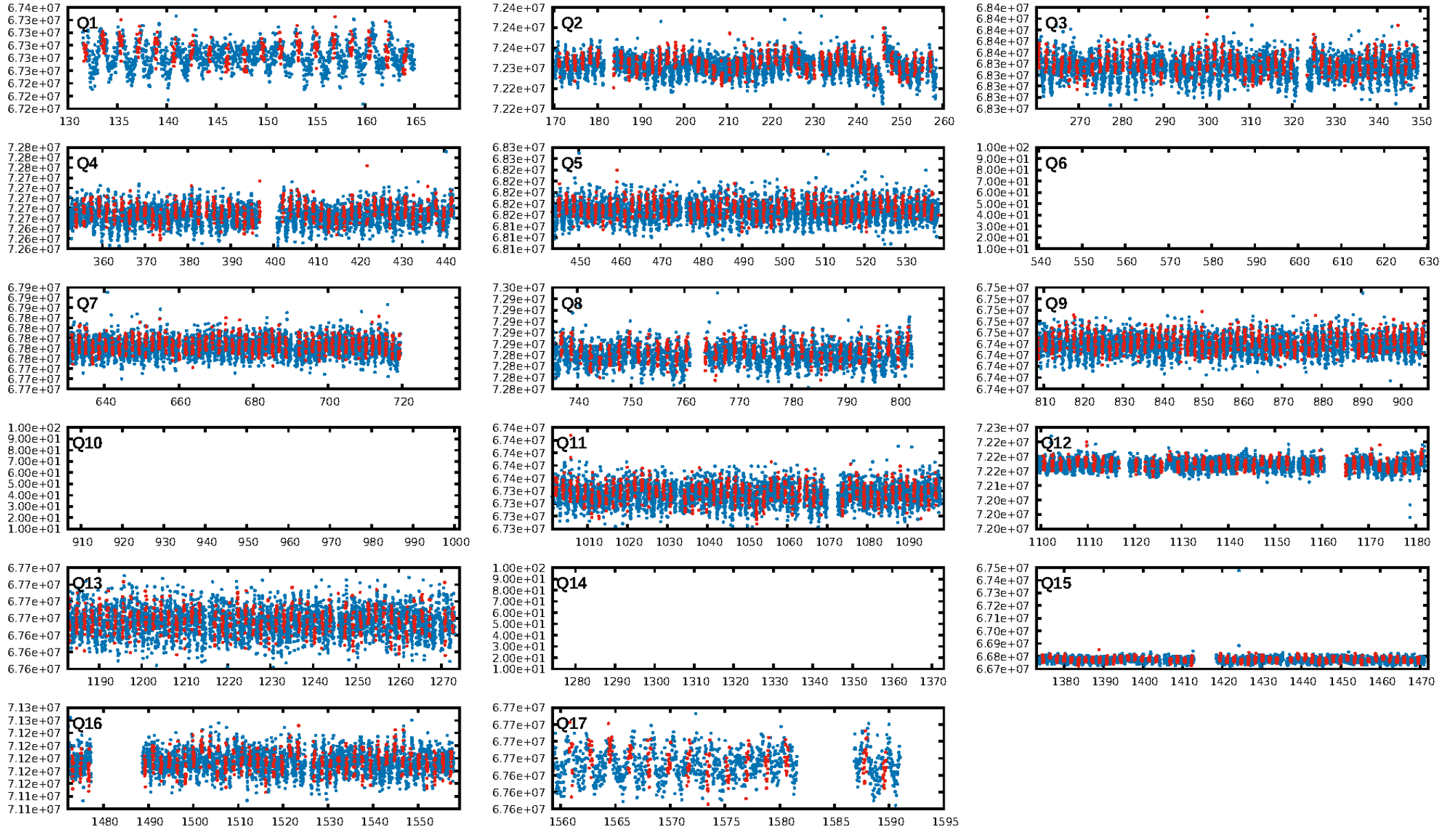
DV Fit Results:

Period = 1.79093 [0.00002] d
Epoch = 131.7634 [0.0046] BKJD
Rp/R* = 0.0072 [0.0034]
a/R* = 1.86 [3.32]
b = 0.89 [0.59]
Seff = 5891.80 [1896.23]
Teq = 2234 [180] K
Rp = 1.72 [0.92] Re
a = 0.0332 [0.0069] AU
Ag = 4.50 [4.62] [0.76σ]
Teffp = 5031 [1228] K [2.25σ]

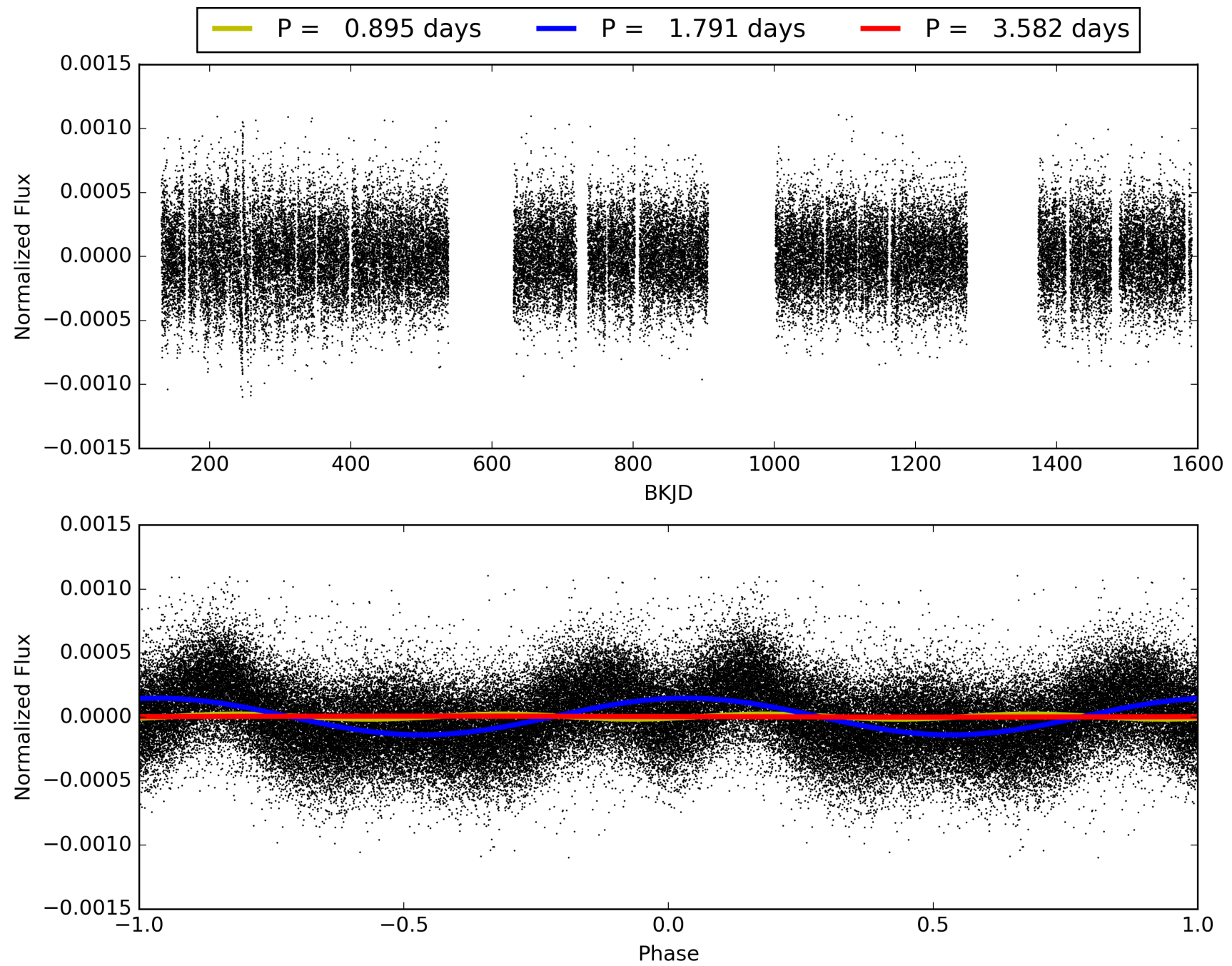
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 47.6% [0.64σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.79e-20
RollingBand-fgt: 0.97 [419/430]
GhostDiagnostic-chr: 2.467
Centroid-sig: 2.6%
Centroid-so: 1.604 arcsec [1.41σ]
OotOffset-rm: 0.602 arcsec [2.99σ]
KicOffset-rm: 0.525 arcsec [2.97σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004282390-02, PDC Light Curves

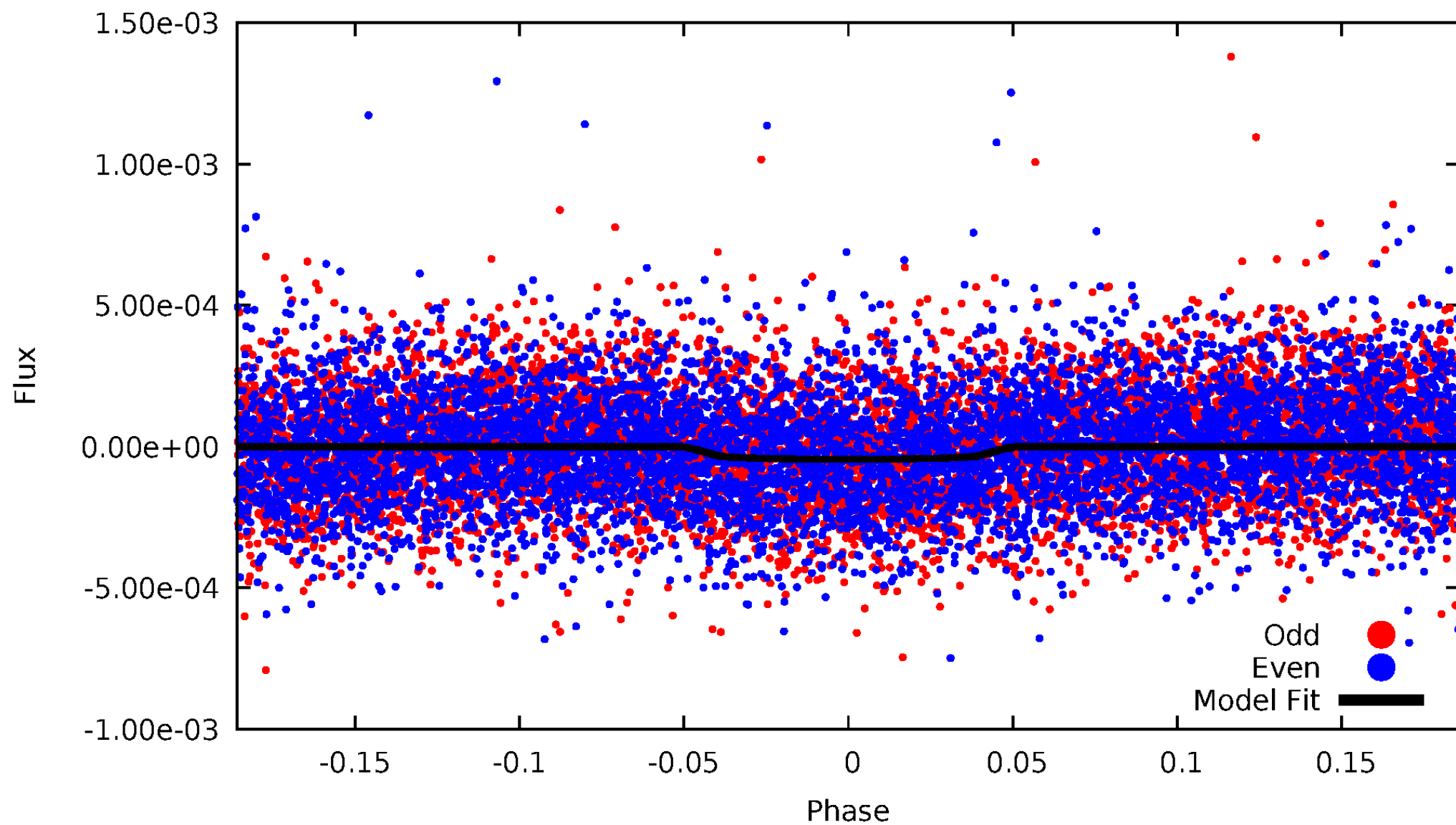


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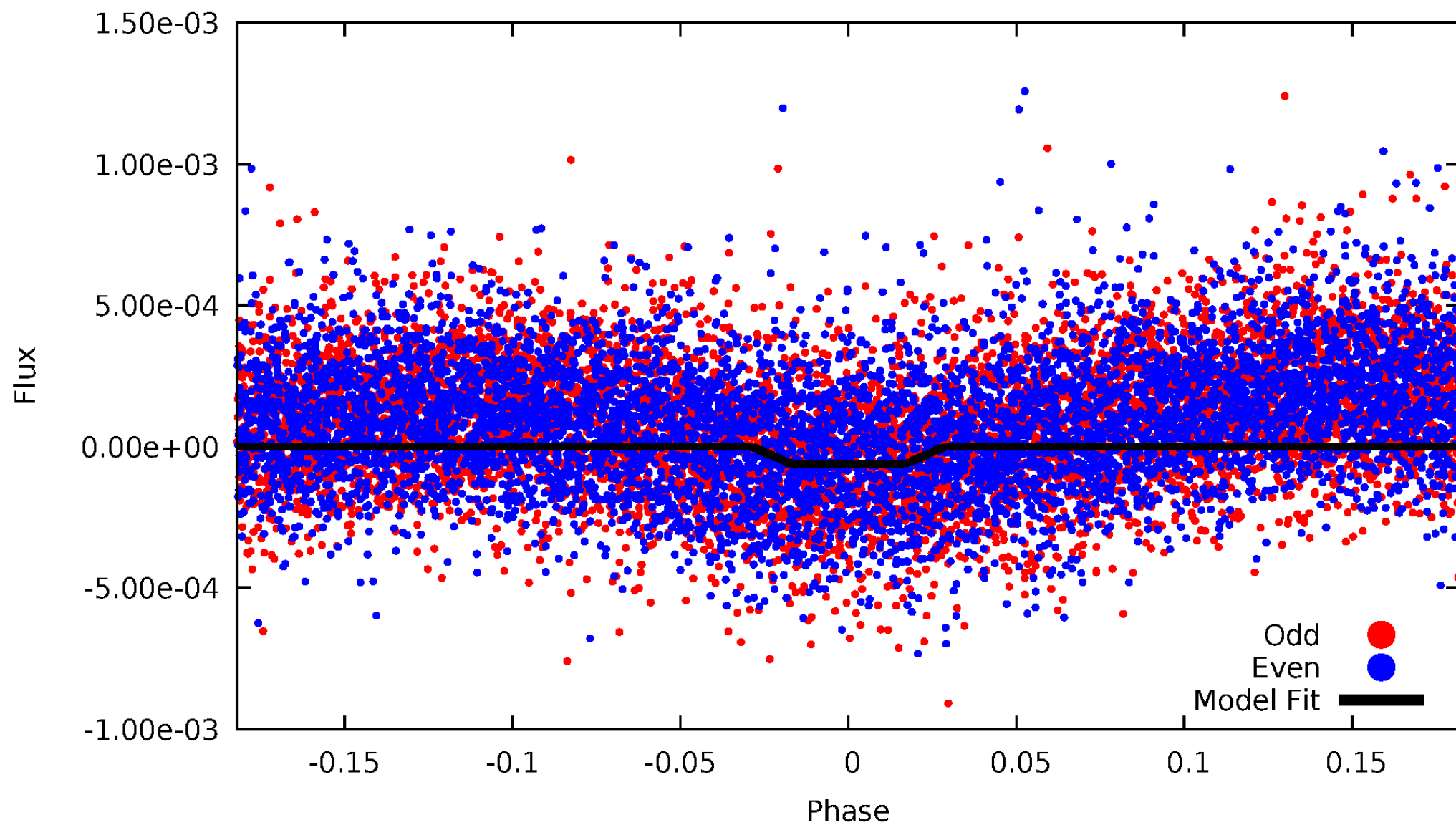
DV Odd/Even

TCE 004282390-02



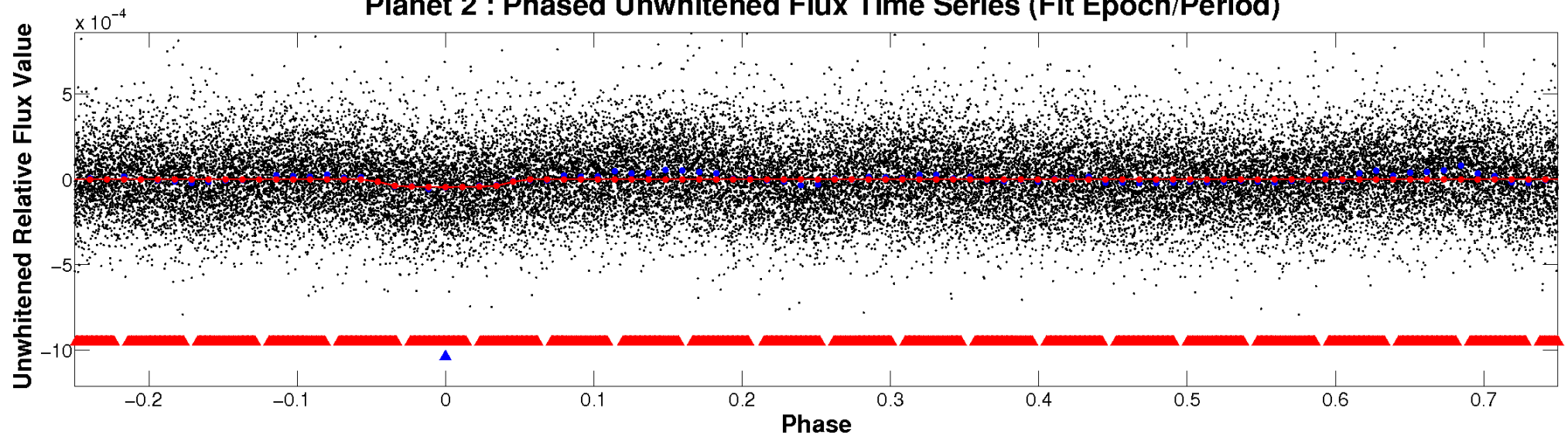
ALT Odd/Even

TCE 004282390-02

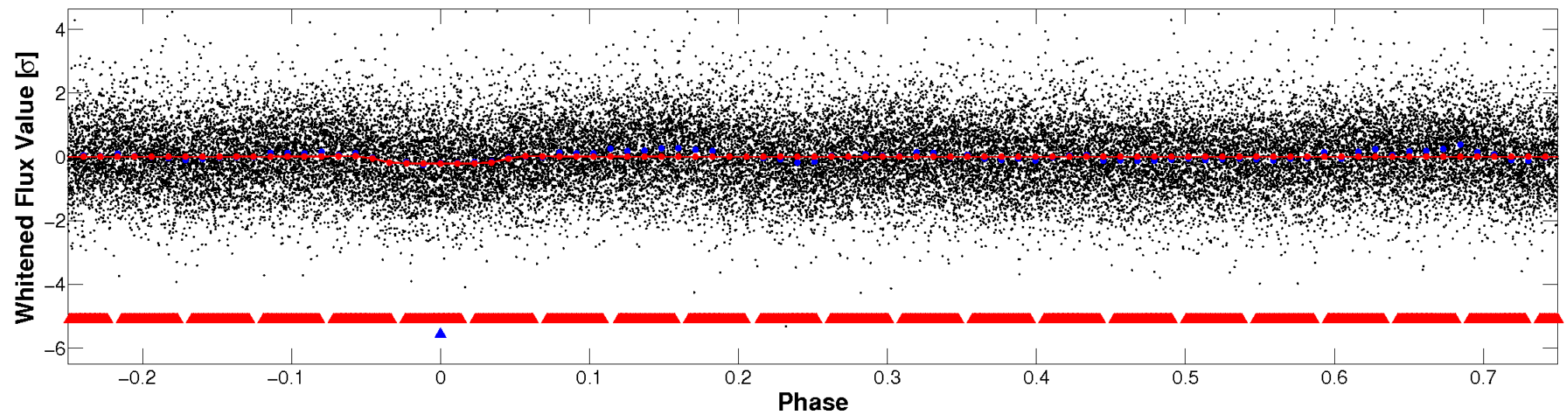


Non-Whitened Vs. Whitened Light Curve

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

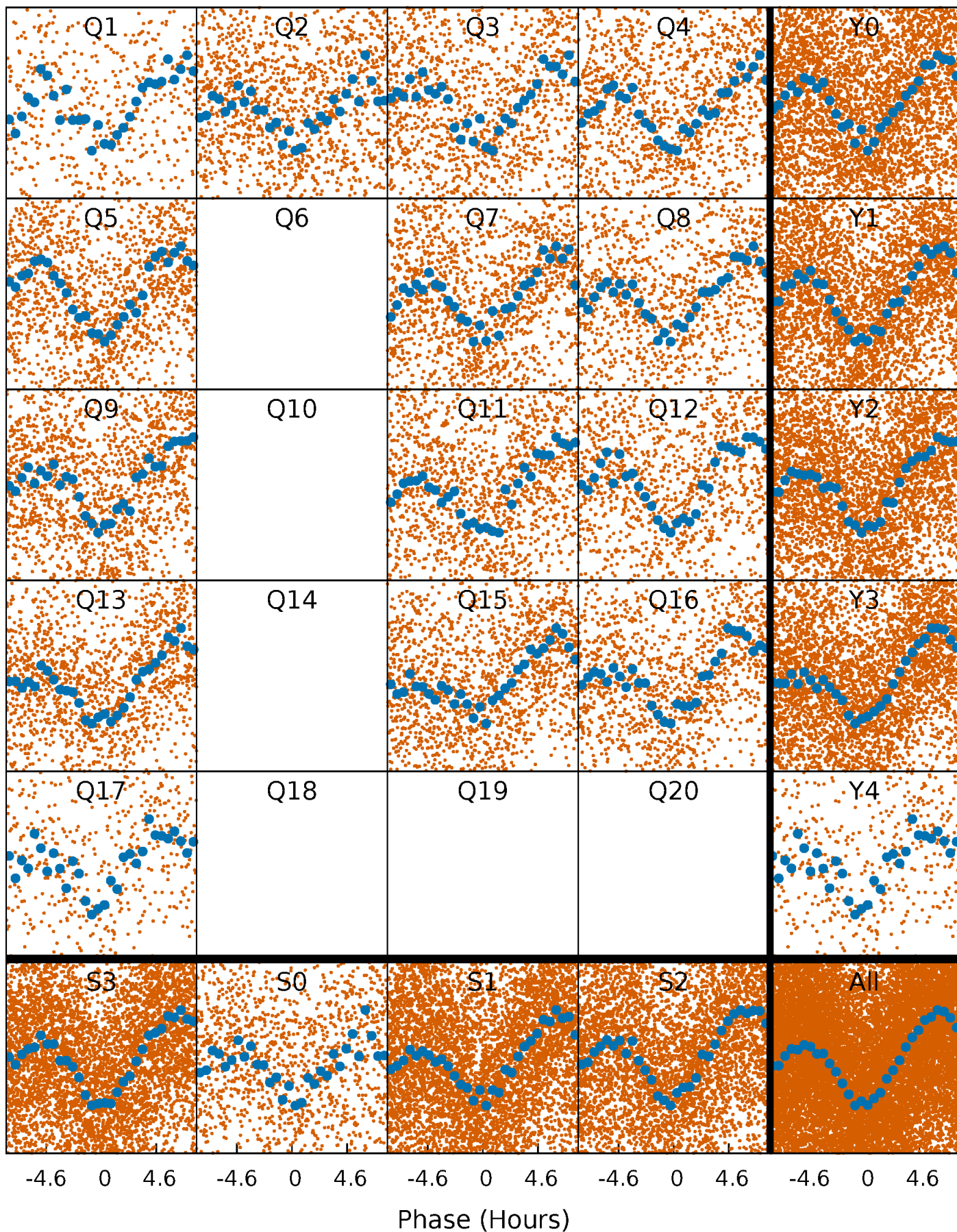


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



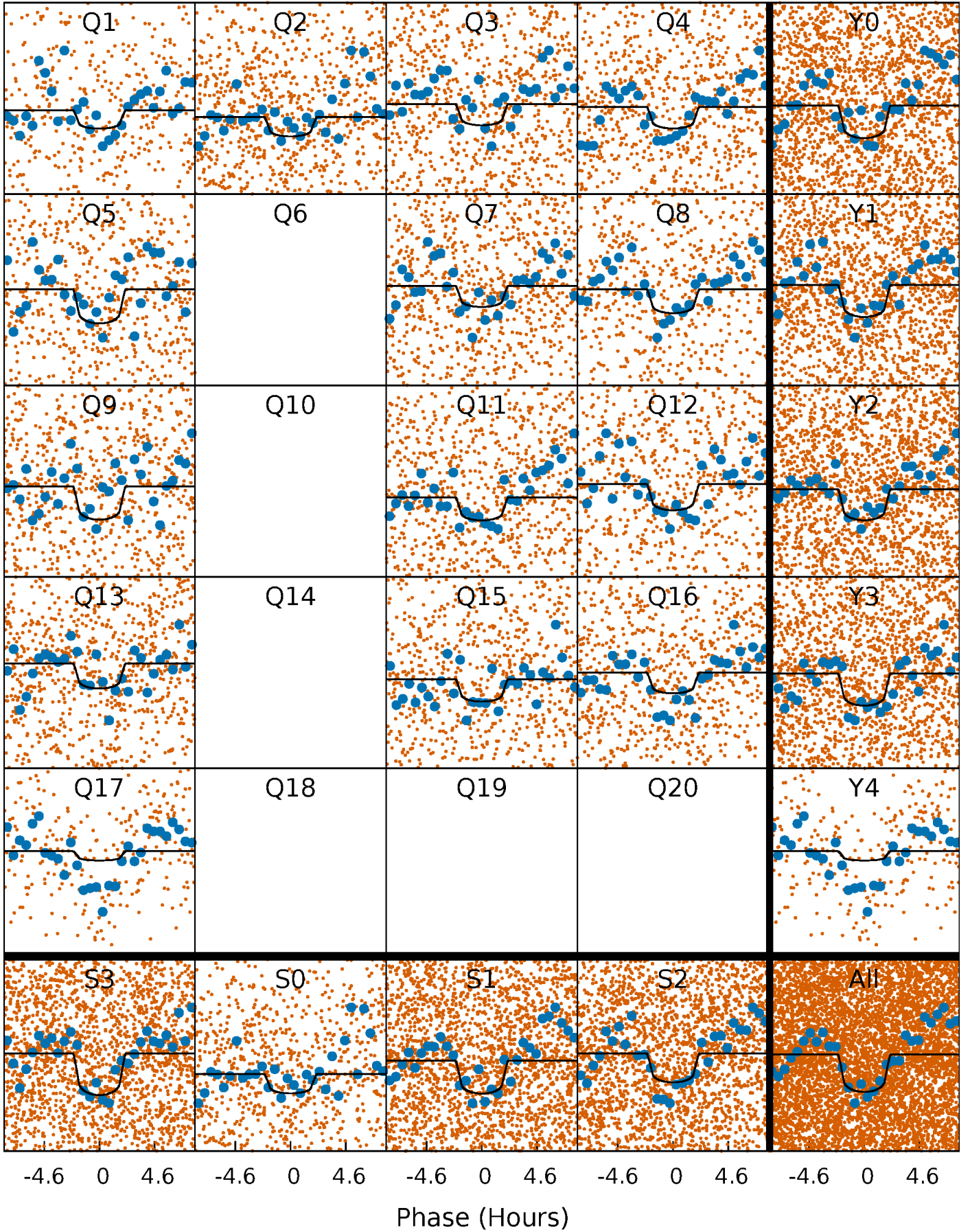
PDC Quarter-Phased Transit Curves

TCE 004282390-02 P= 1.790932 Days $T_0=131.763366$ (BKJD)



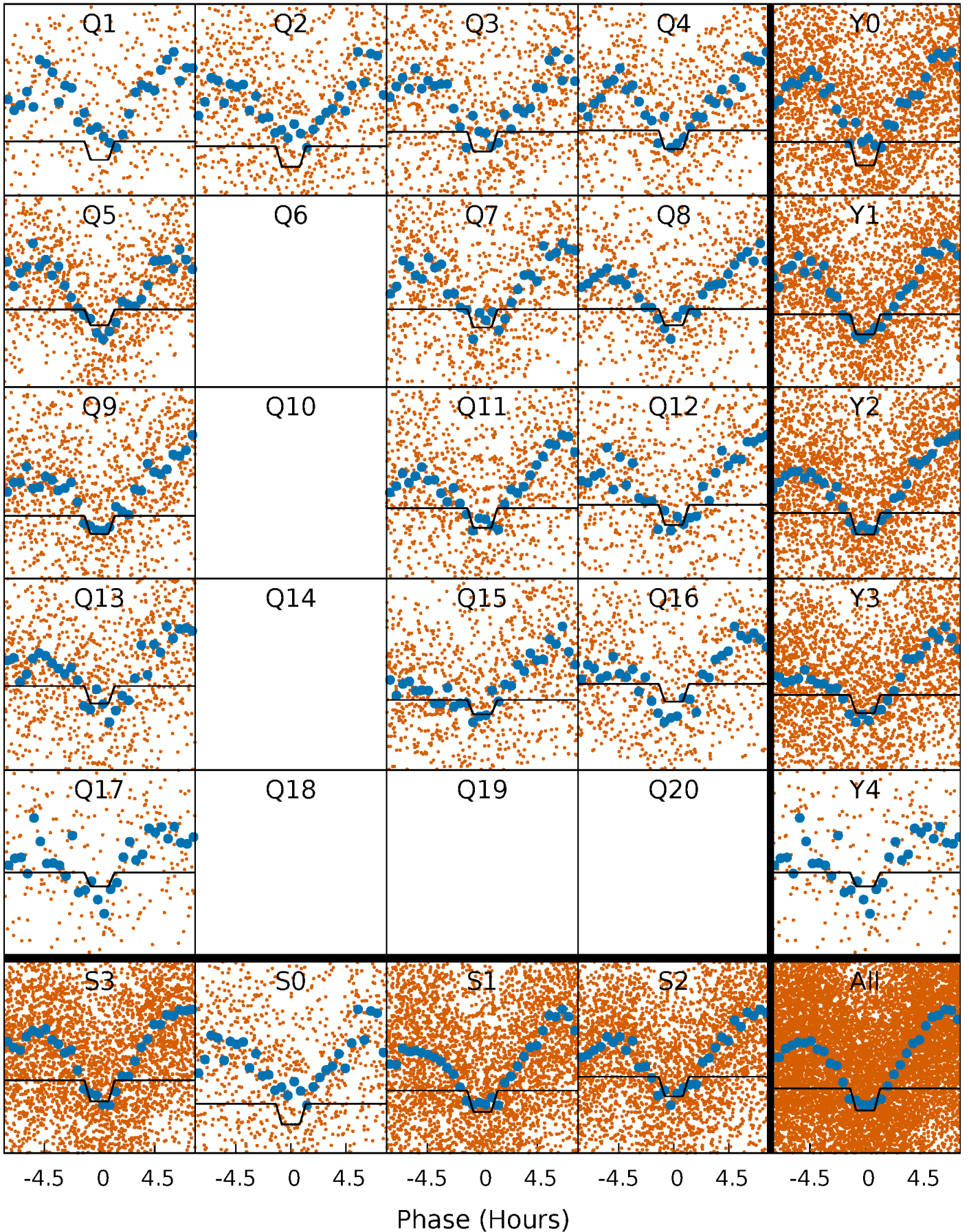
DV Quarter-Phased Transit Curves

TCE 004282390-02 P= 1.790932 Days $T_0=131.763366$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

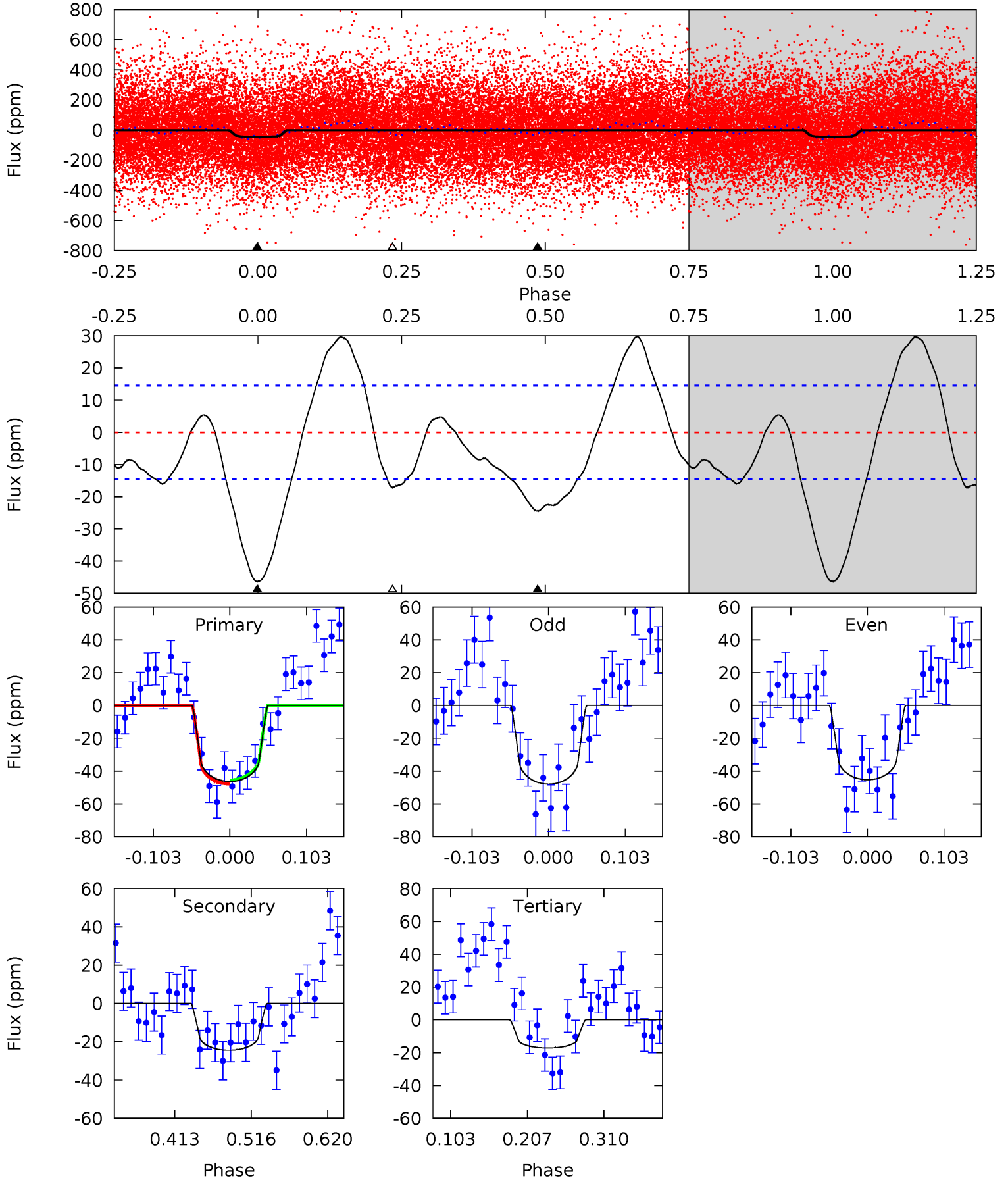
TCE 004282390-02 P= 1.790944 Days $T_0=131.751992$ (BKJD)



DV Model-Shift Uniqueness Test

004282390-02, P = 1.790932 Days, E = 129.972434 Days

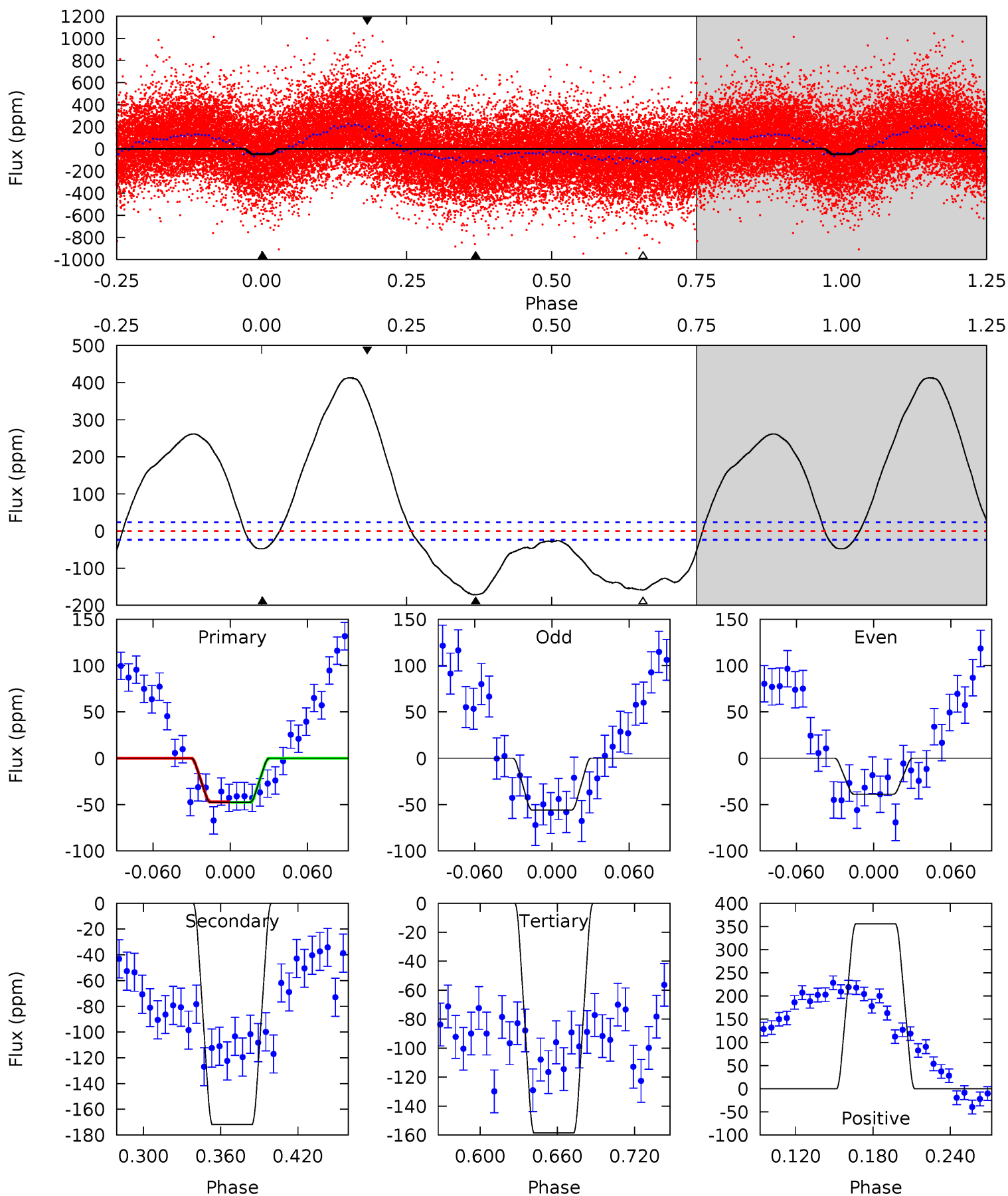
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	7.67	5.38	0	4.56	1.63	4.64	9.15	14.5	2.29	7.67	0.41	0.90	0.39	0.39



Alt Model-Shift Uniqueness Test

004282390-02, P = 1.790944 Days, E = 129.961048 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.41	34.1	31.4	70.5	4.67	1.88	35.4	-22.0	-61.1	2.62	-36.4	1.69	0.99	0.71	0.05



Stellar Parameters For KIC 004282390

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6221^{+74}_{-80}	$3.935^{+0.180}_{-0.120}$	$0.260^{+0.150}_{-0.150}$	$2.198^{+0.423}_{-0.517}$	$1.516^{+0.146}_{-0.182}$	$0.201^{+0.201}_{-0.074}$
	+1%/-1%	+5%/-3%	+58%/-58%	+19%/-24%	+10%/-12%	+100%/-37%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004282390-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 3	$1.64^{+0.85}_{-0.73}$	3106^{+148}_{-192}	5163^{+1867}_{-818}	$5.400^{+12.725}_{-3.022}$
Alt.	-172 ± 5	$1.87^{+0.89}_{-0.76}$	3110^{+148}_{-184}	8158^{+3542}_{-1599}	30^{+56}_{-16}

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

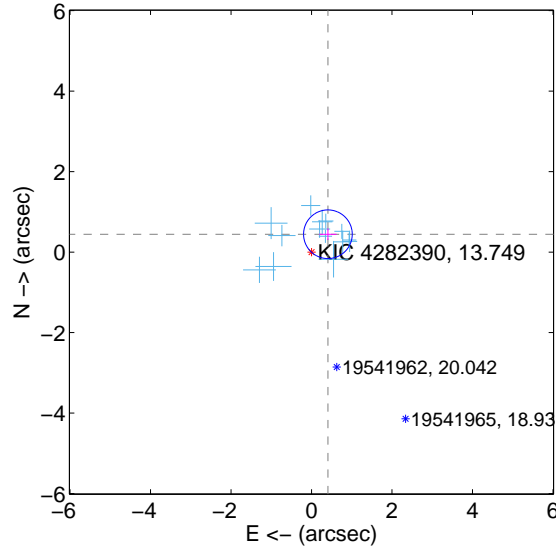
Supplemental centroid analysis for 004282390-02. Kepler magnitude: 13.75. Transit SNR 10.52

There are 14 quarters with good PRF difference image offsets

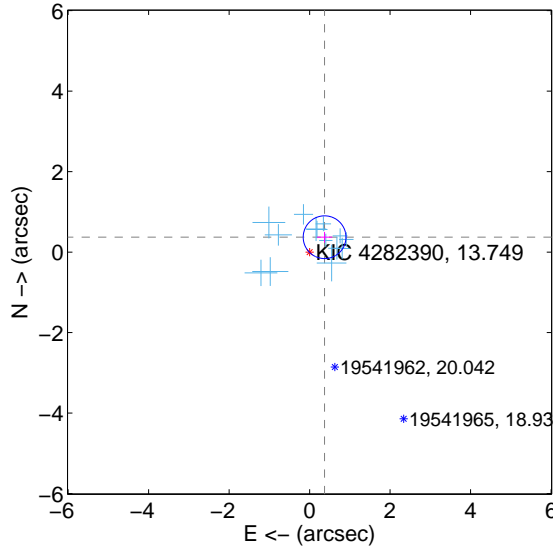
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.602 ± 0.201	2.99	-0.407 ± 0.215	0.444 ± 0.144
PRF-fit source offset from KIC position	0.525 ± 0.177	2.97	-0.372 ± 0.190	0.370 ± 0.132
photometric centroid source offset	1.60 ± 1.14	1.41	0.06 ± 0.92	-1.60 ± 1.14

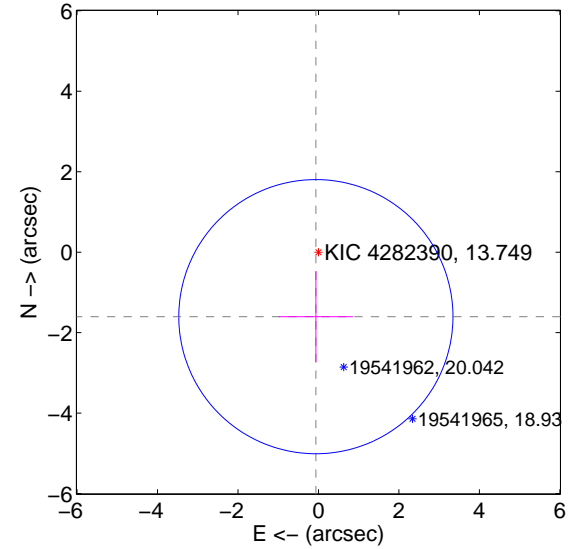
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

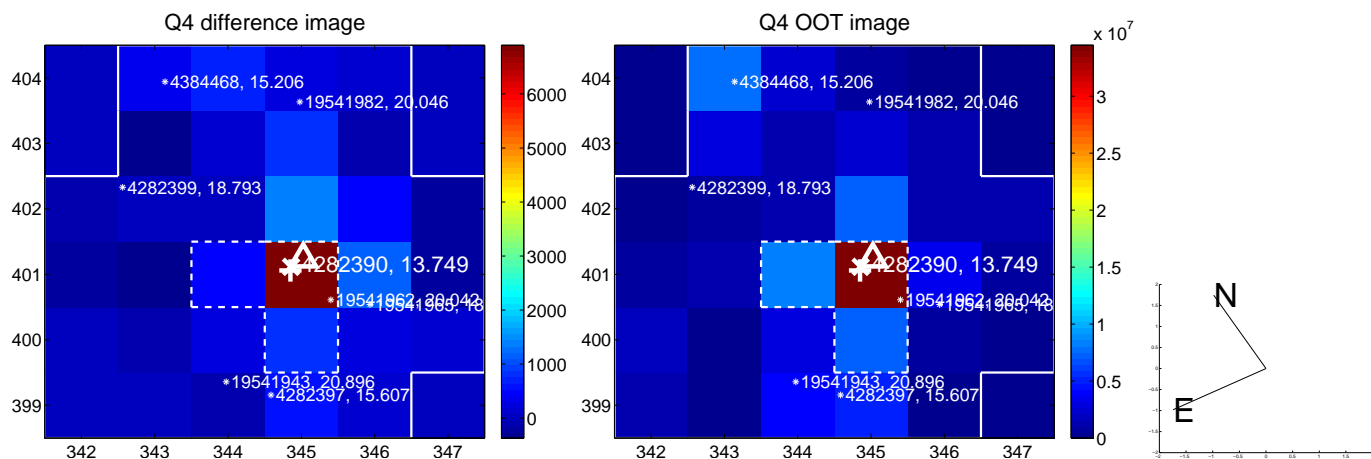
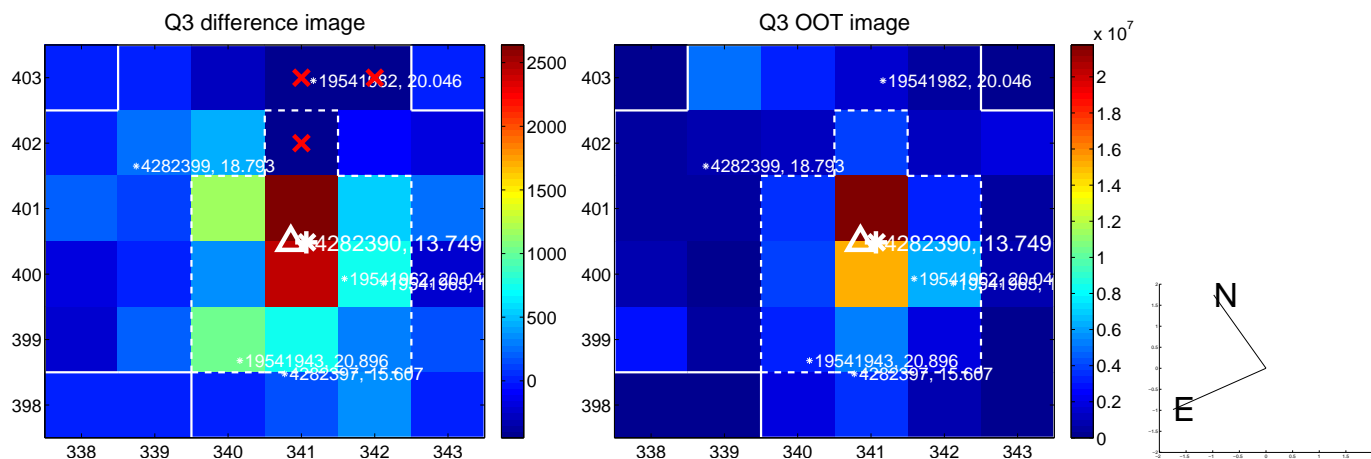
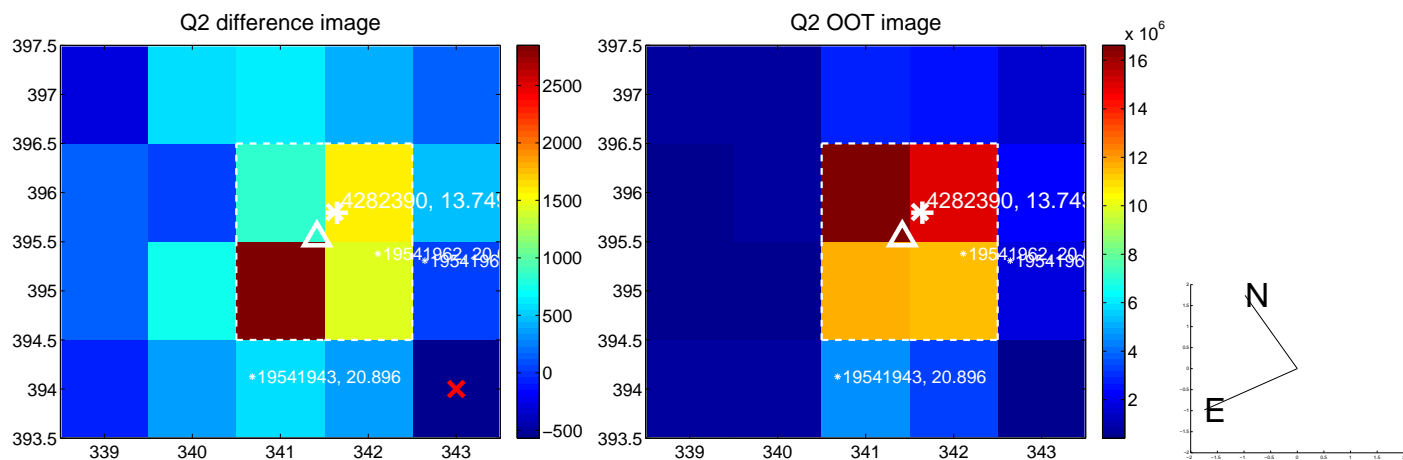
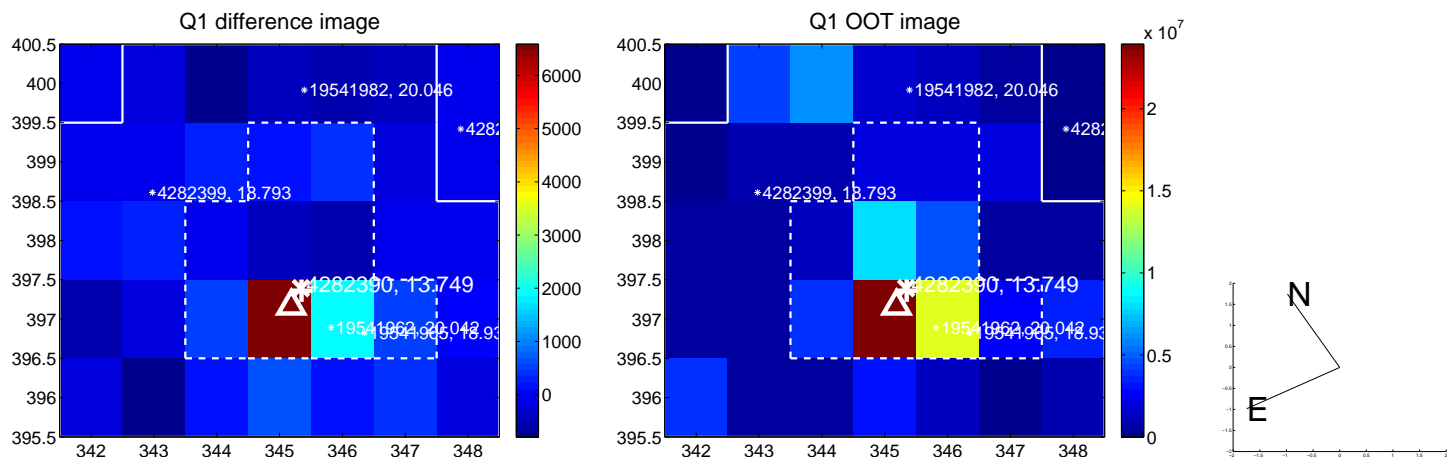


offset from photometric centroids

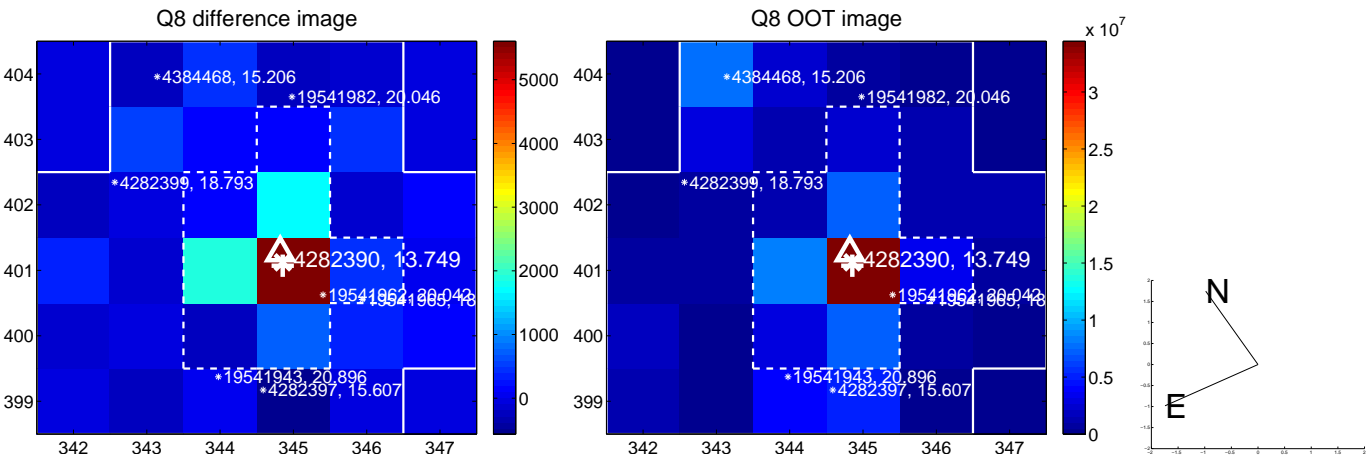
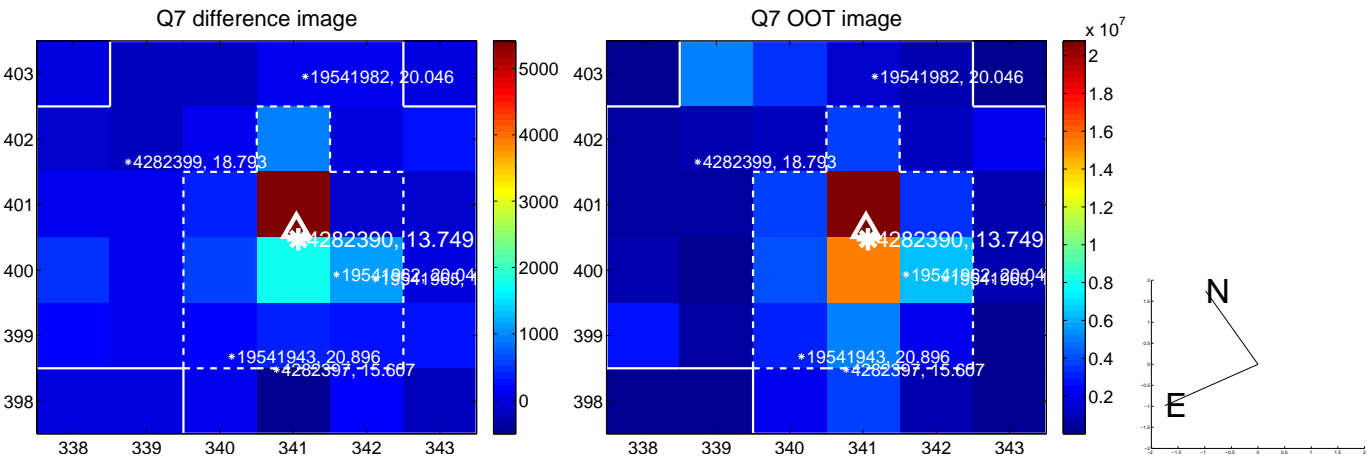
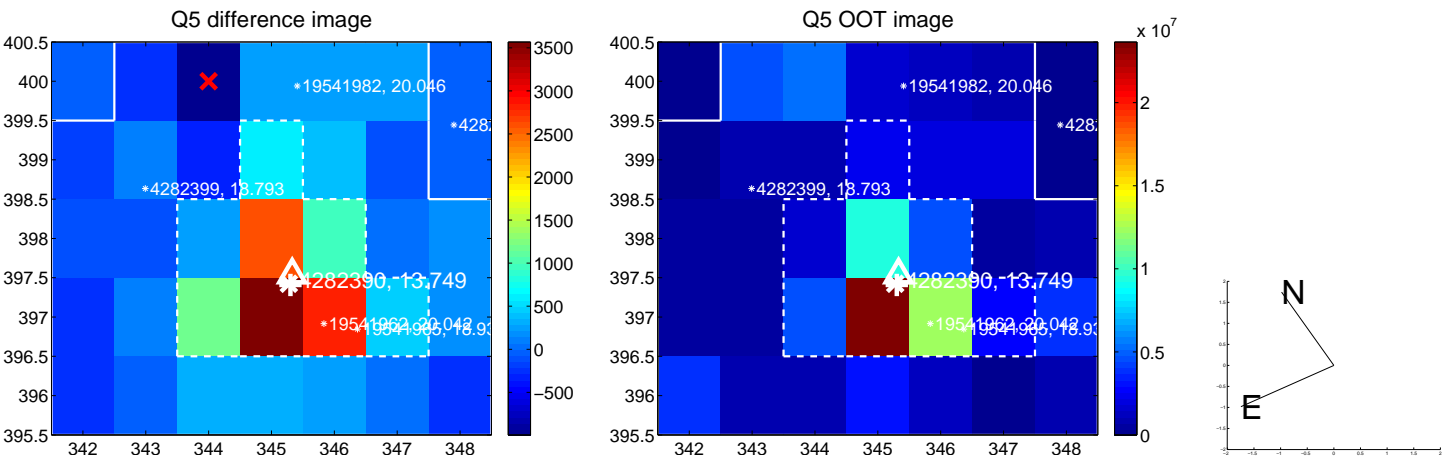


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

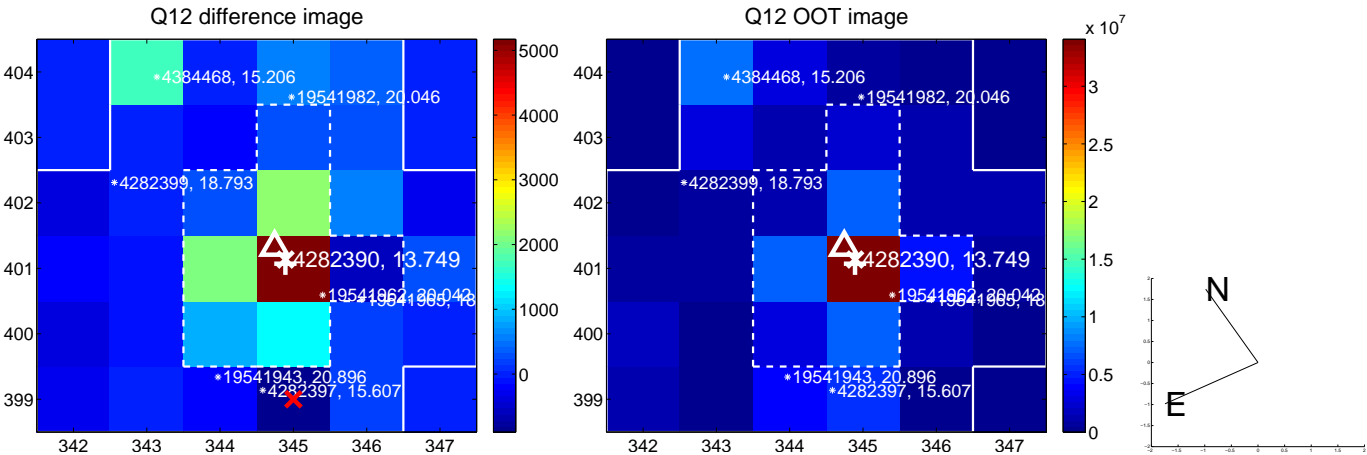
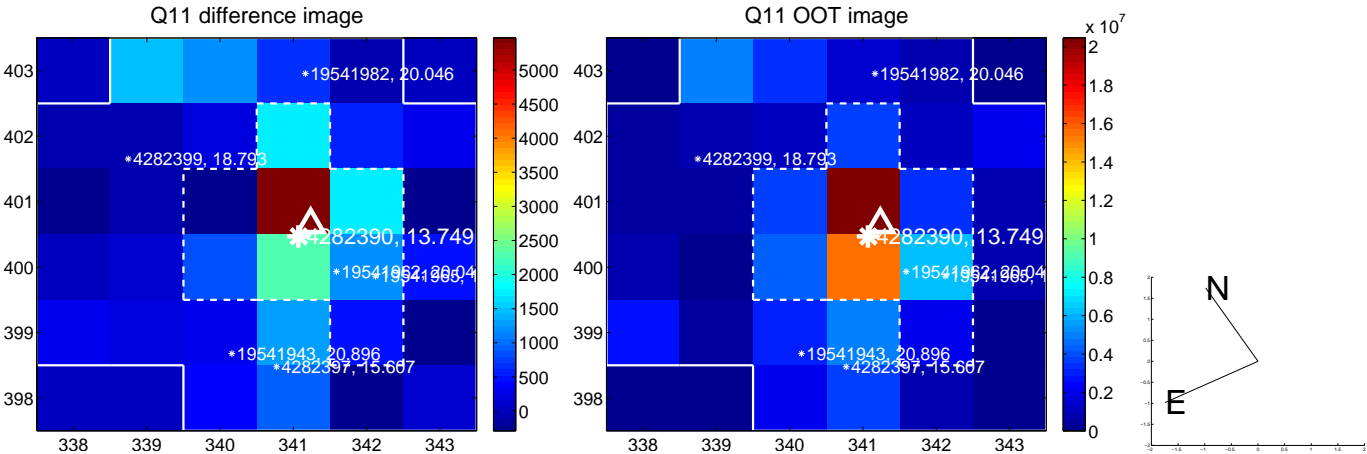
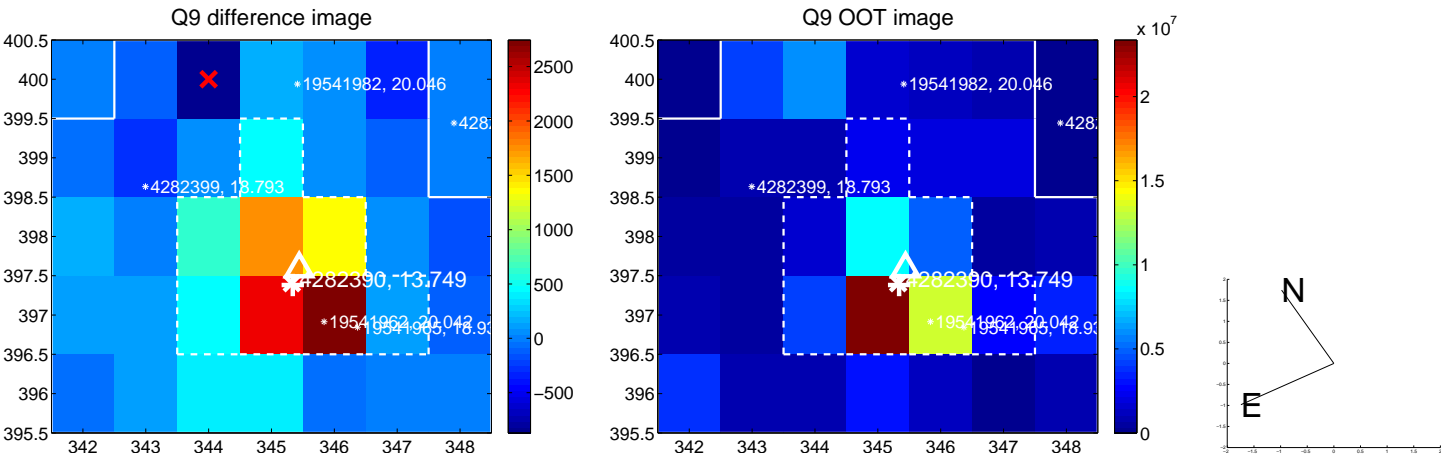
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



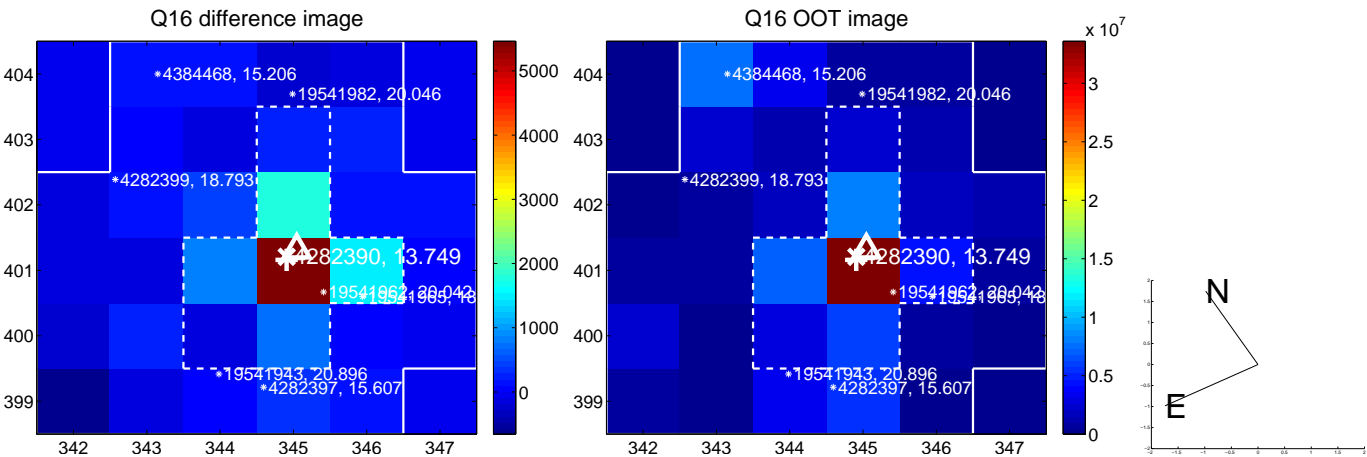
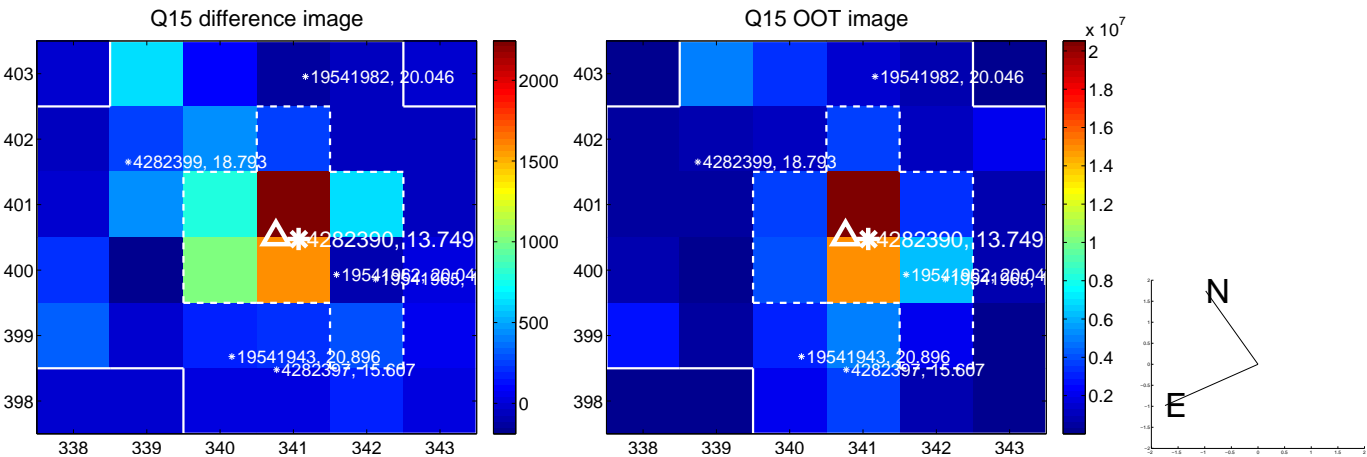
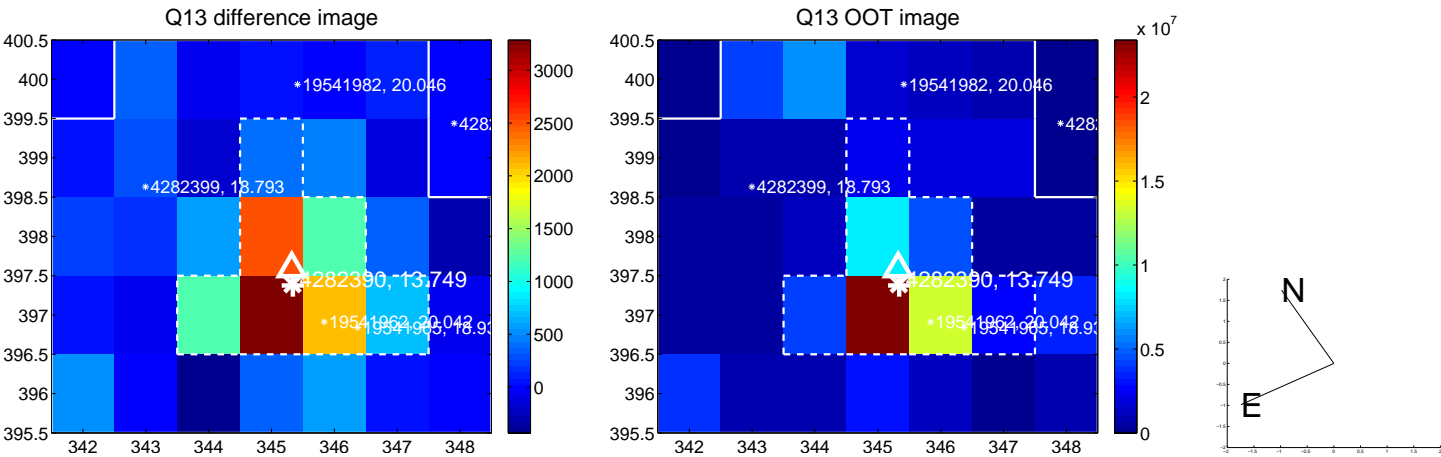
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



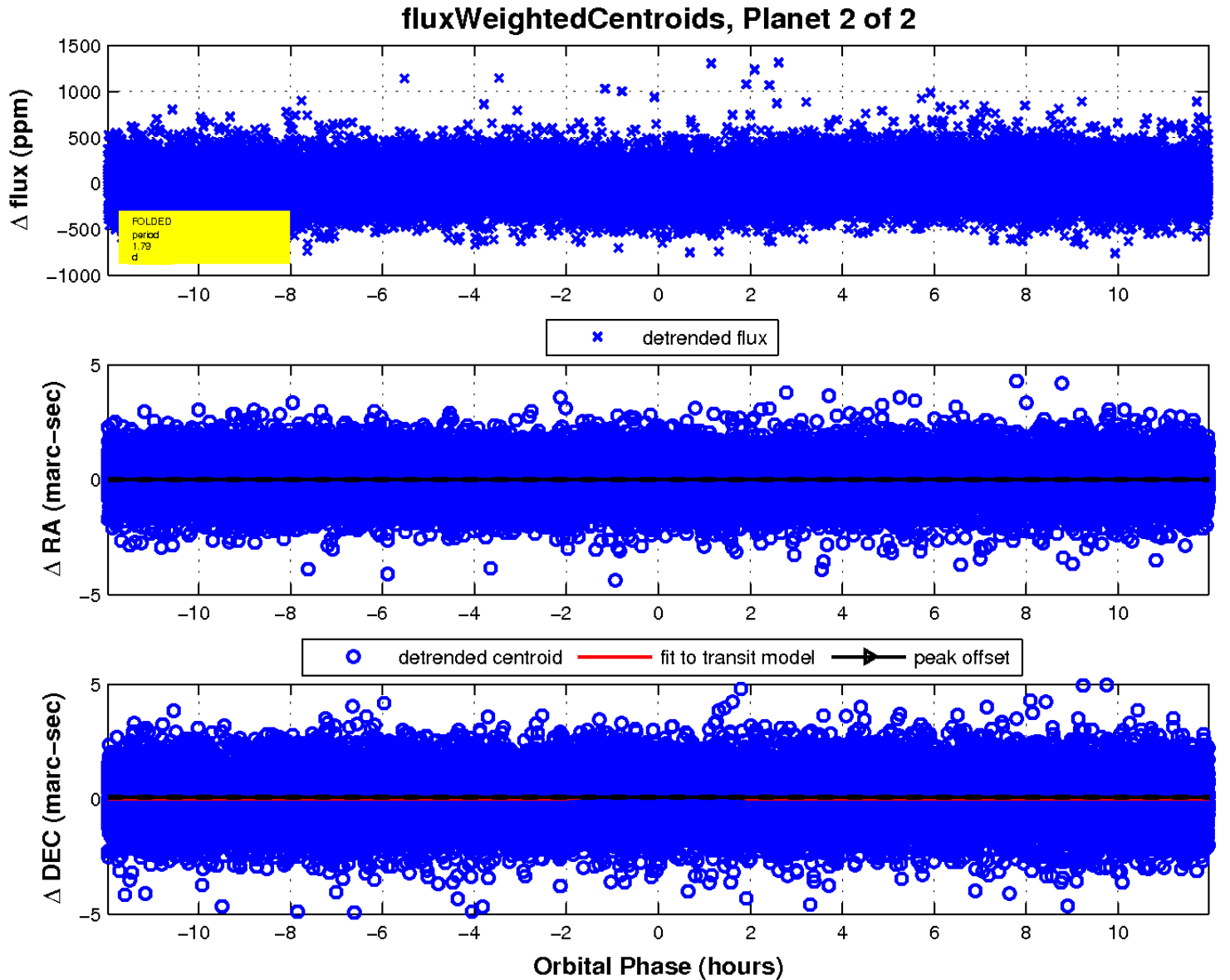
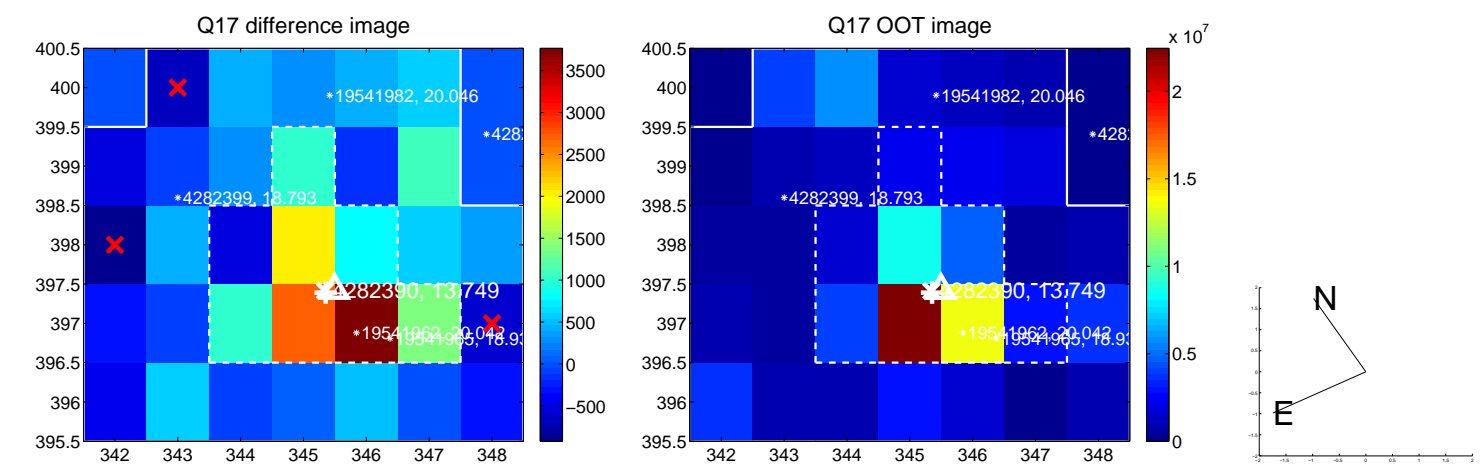
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

Declination

