

KIC 011618601

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})
011618601-01	OBS	3022.01	2.762664	132.991711	185.5	1.788	11.6	13.6	0.90	5772	1.30	543.98
011618601-02	OBS	3022.02	5.053753	135.100333	175.7	3.284	10.6	11.2	0.90	5772	1.59	243.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011618601-01	OBS	PC	0.83	0	0	0	0	NO_COMMENT
011618601-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

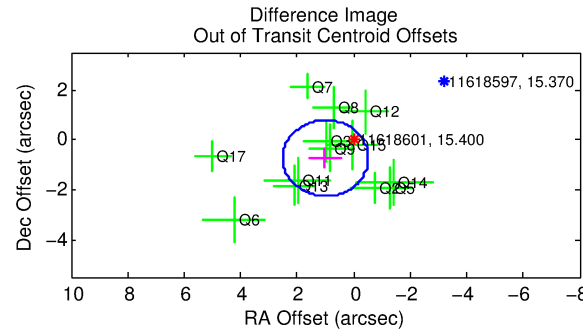
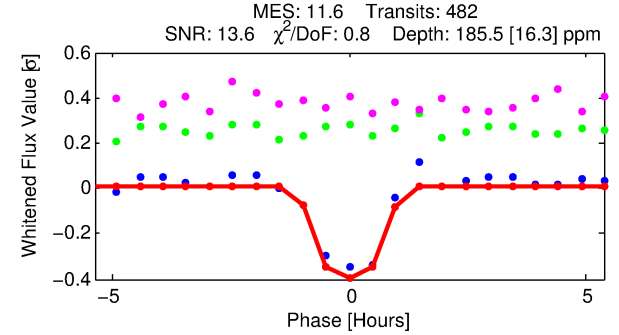
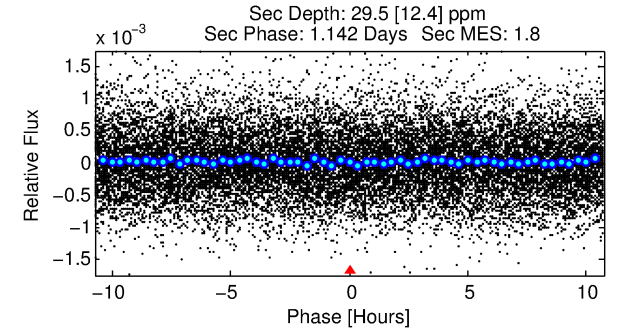
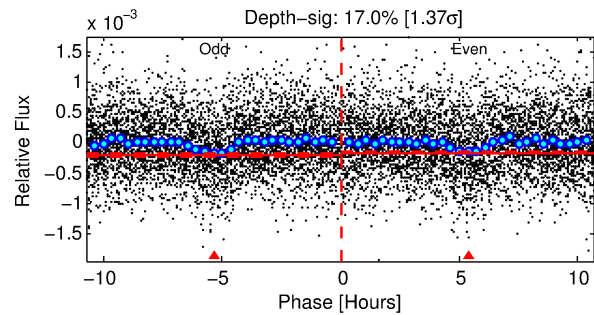
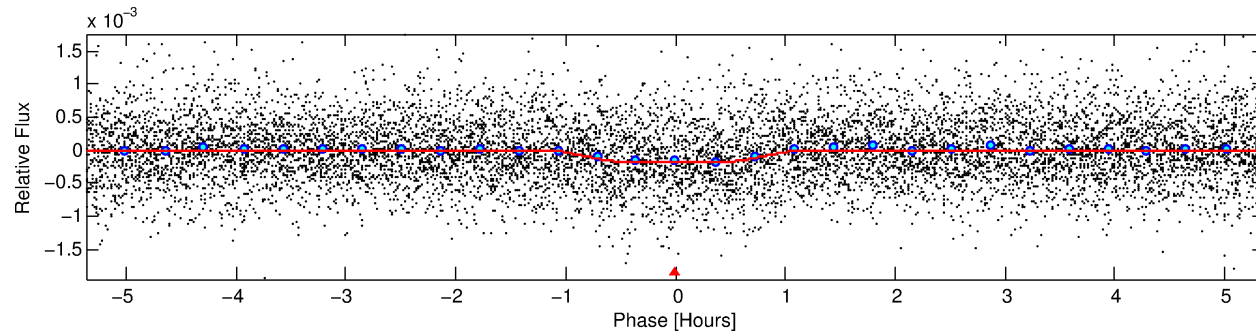
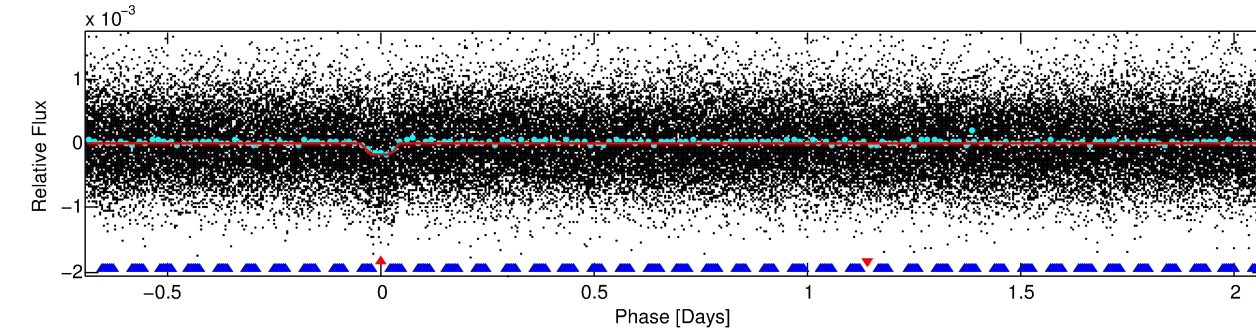
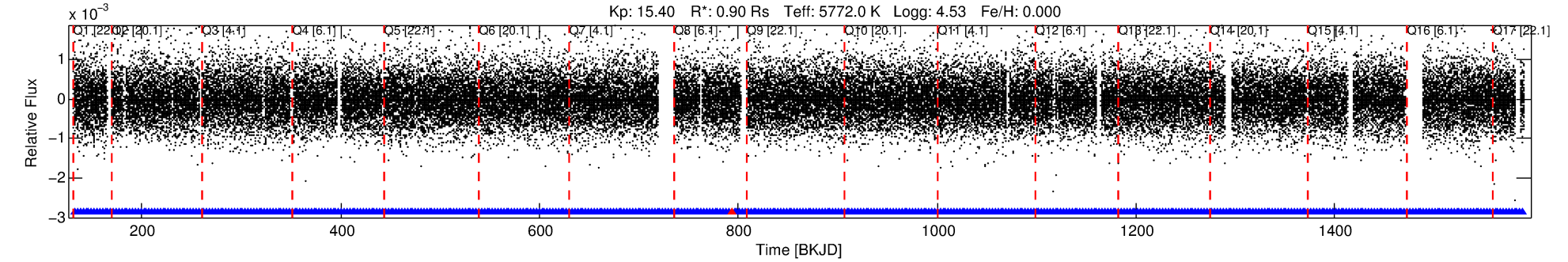
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011618601-01

No Significant Match Found

DV One-Page Summary

KIC: 11618601 Candidate: 1 of 2 Period: 2.763 d
KOI: K03022.01 Corr: 0.921



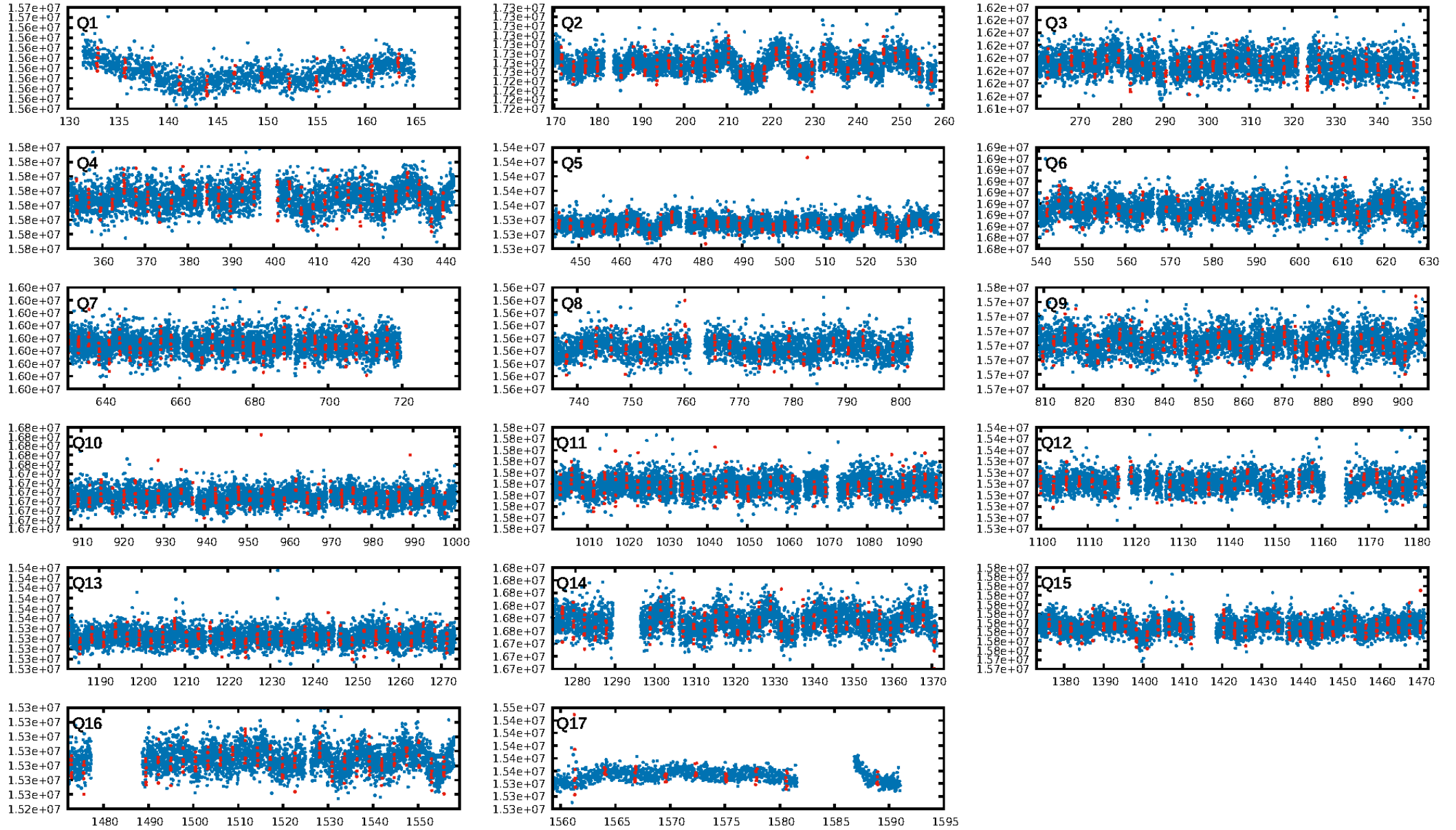
DV Fit Results:

Period = 2.76266 [0.00001] d
Epoch = 132.9917 [0.0024] BKJD
Rp/R* = 0.0132 [0.0063]
a/R* = 9.20 [19.01]
b = 0.65 [1.88]
Seff = 543.97 [218.73]
Teff = 1231 [124] K
Rp = 1.30 [0.74] Re
a = 0.0385 [0.0100] AU
Ag = 14.33 [16.02] [0.83 σ]
Teffp = 3704 [979] K [2.51 σ]

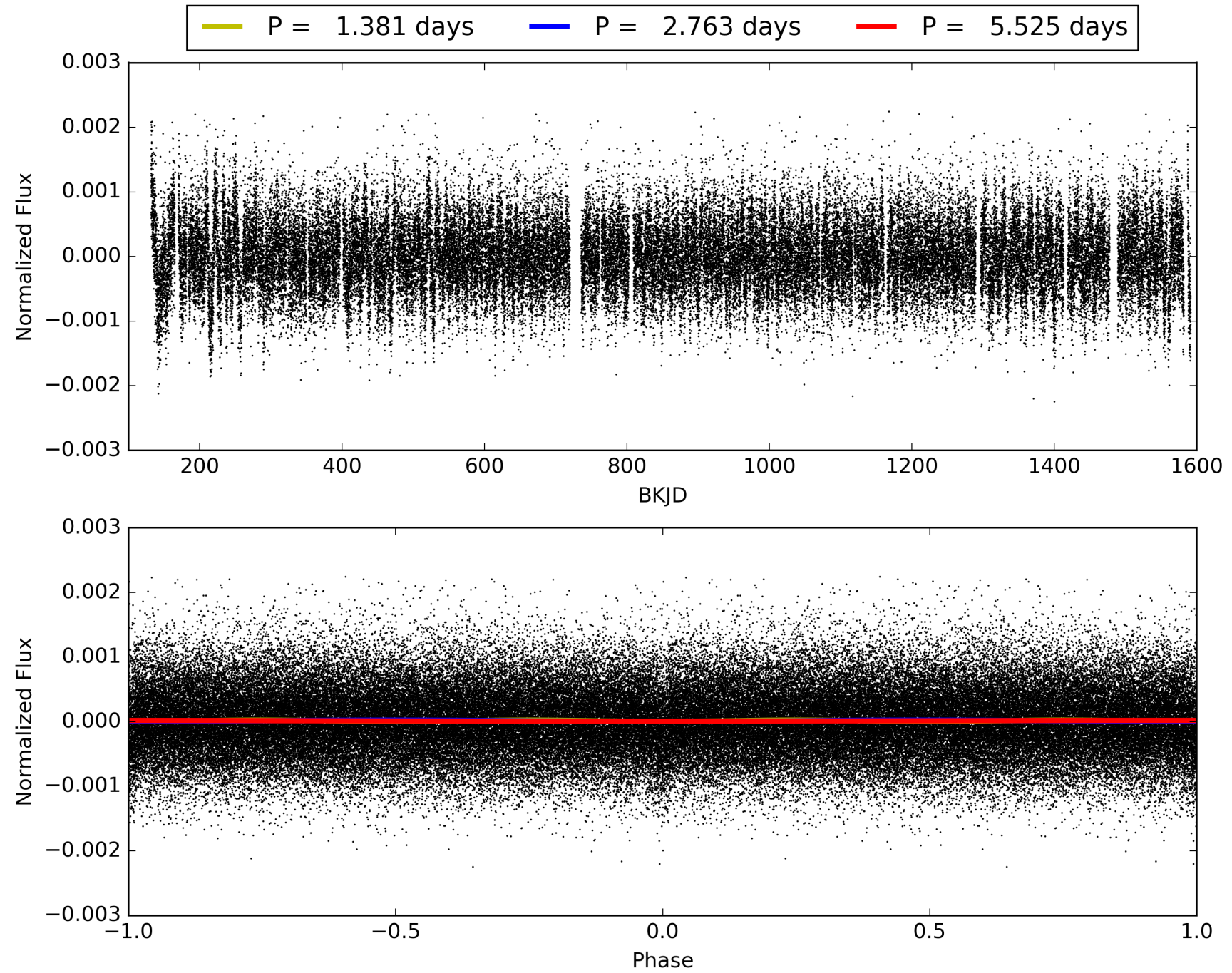
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [14.71 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.13e-31
RollingBand-fgt: 1.00 [460/461]
GhostDiagnostic-chr: 2.365
Centroid-sig: 62.4%
Centroid-so: 0.744 arcsec [0.75 σ]
OotOffset-rm: 1.244 arcsec [2.46 σ]
KicOffset-rm: 0.932 arcsec [1.77 σ]
OotOffset-st: 3/4/2/4 [13]
KicOffset-st: 3/4/2/4 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011618601-01, PDC Light Curves

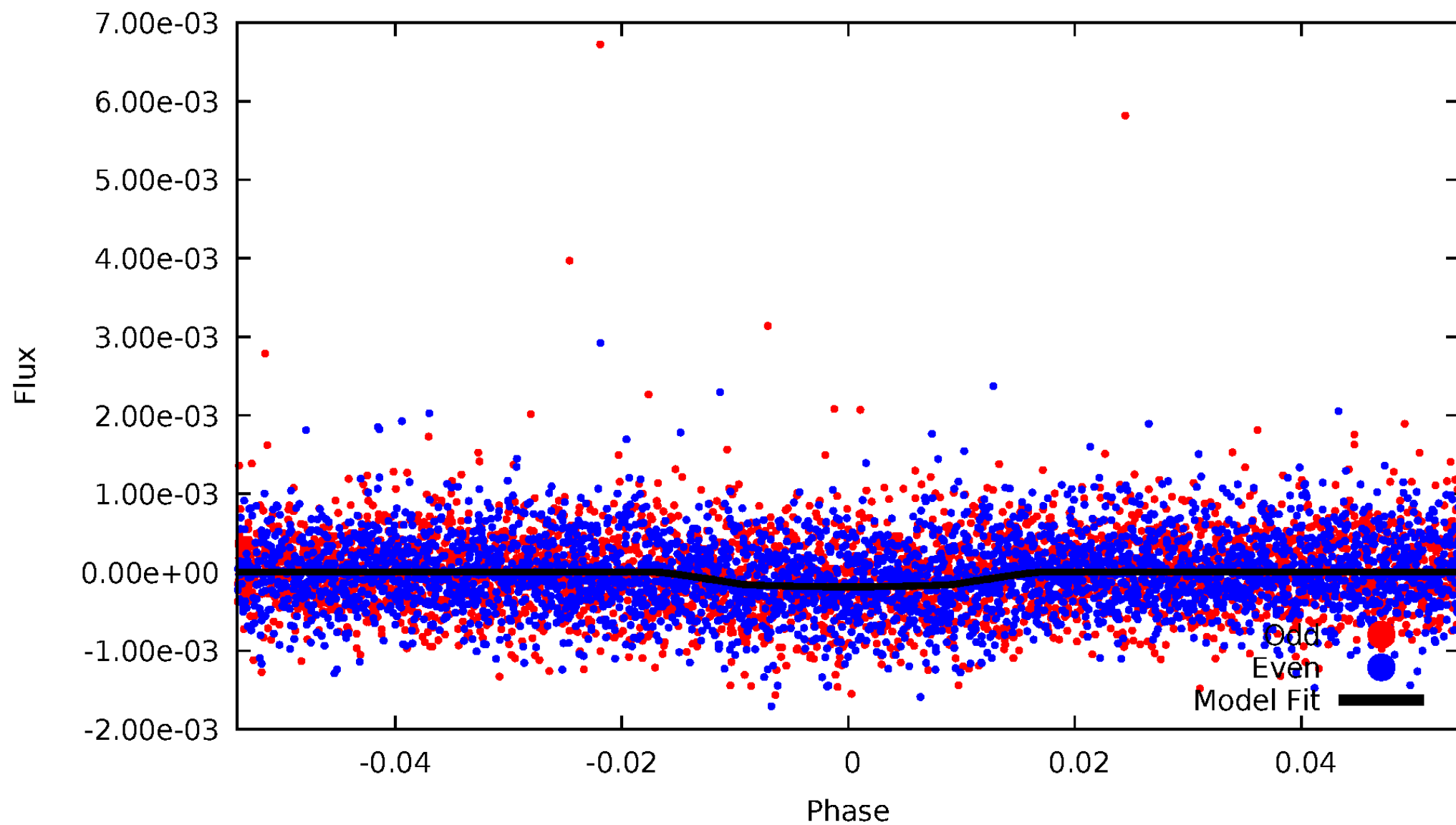


TCE 011618601-01



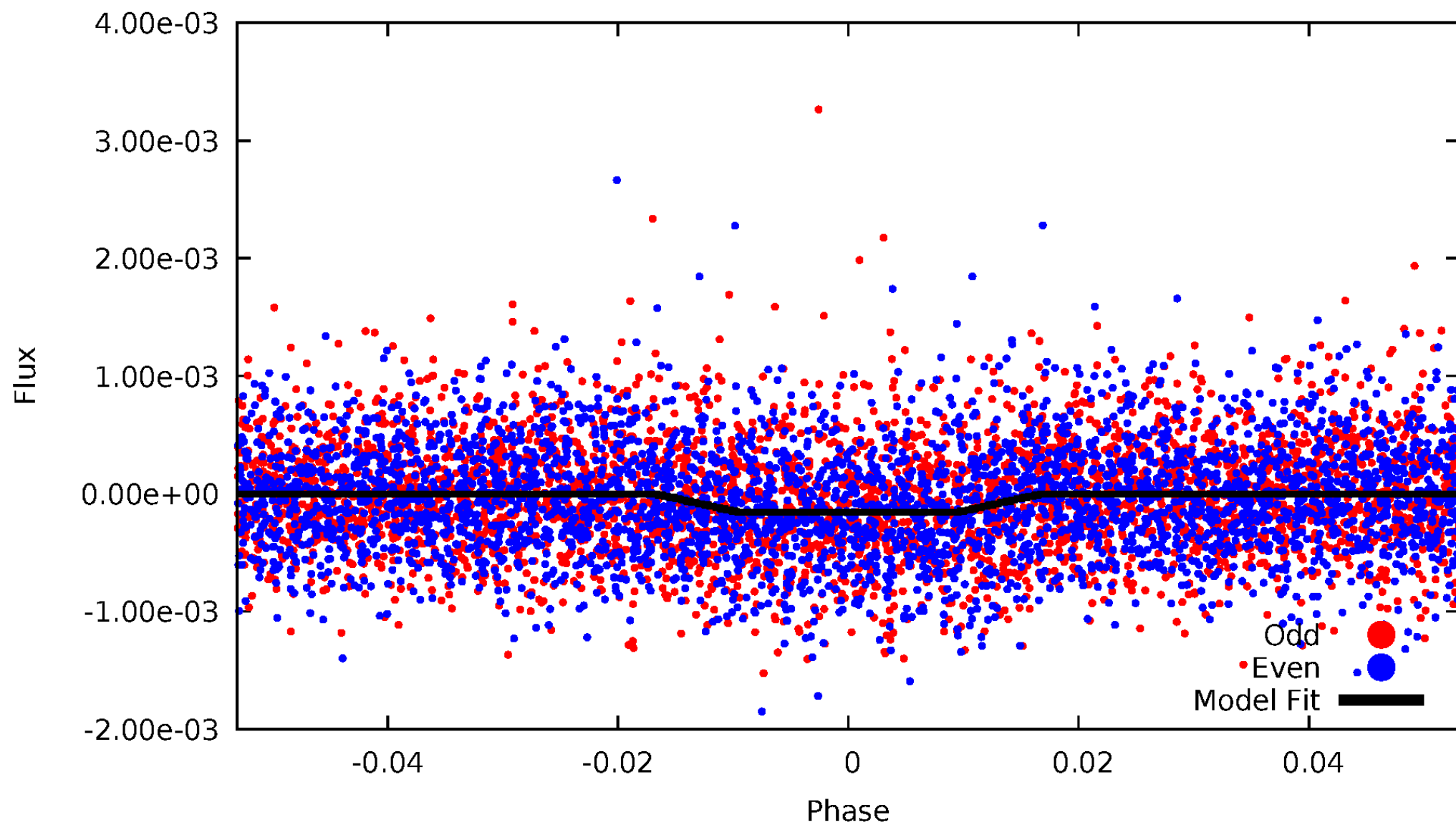
DV Odd/Even

TCE 011618601-01

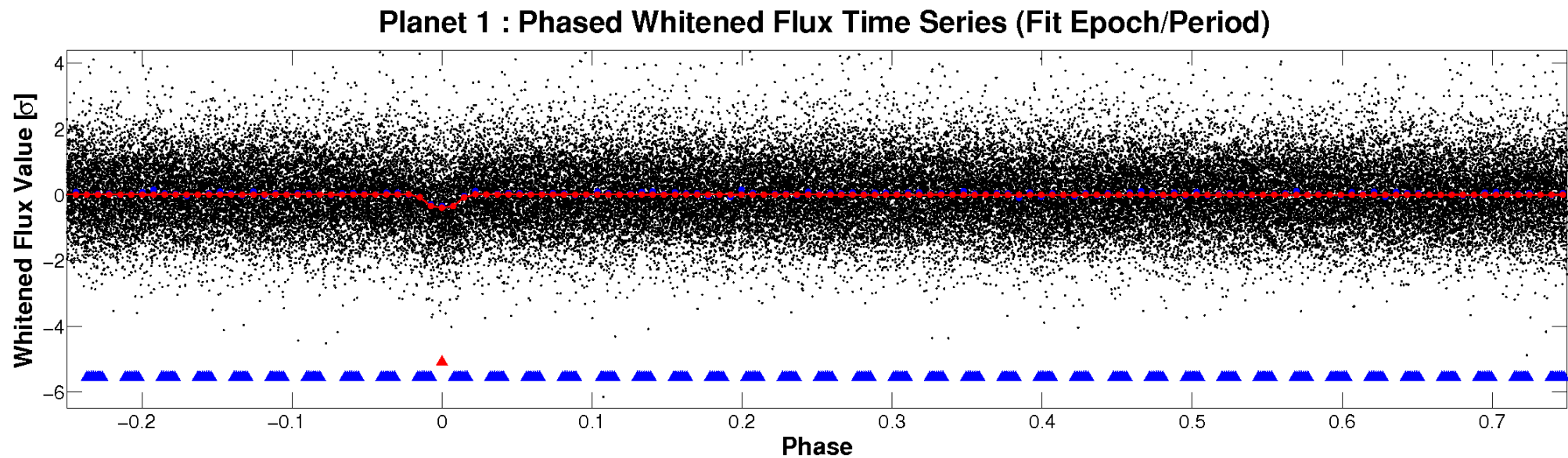
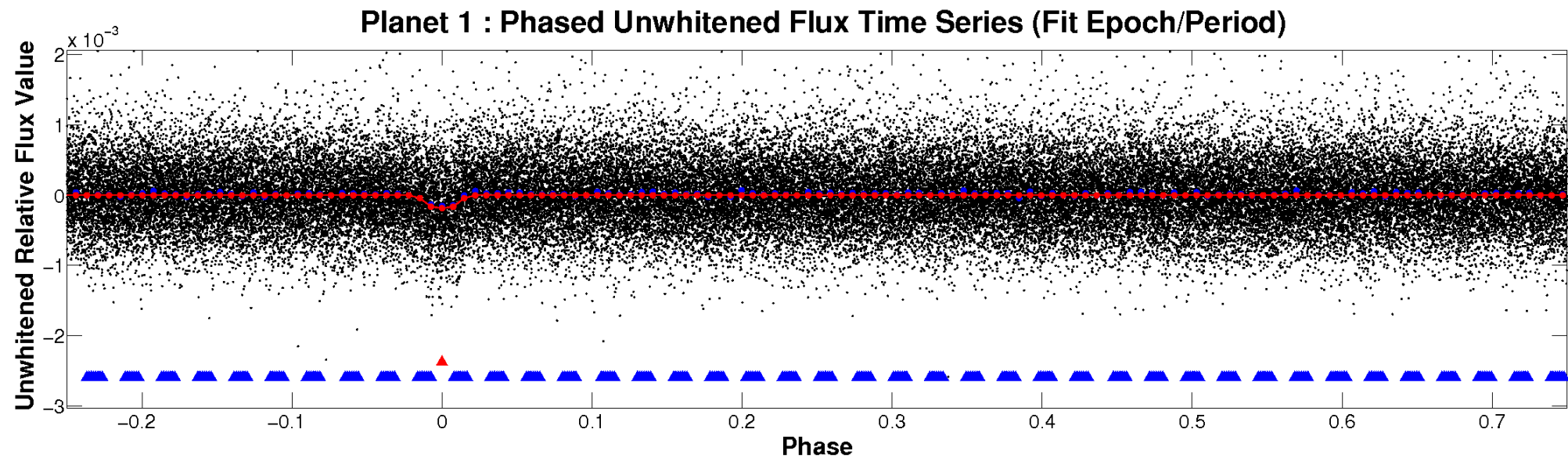


ALT Odd/Even

TCE 011618601-01

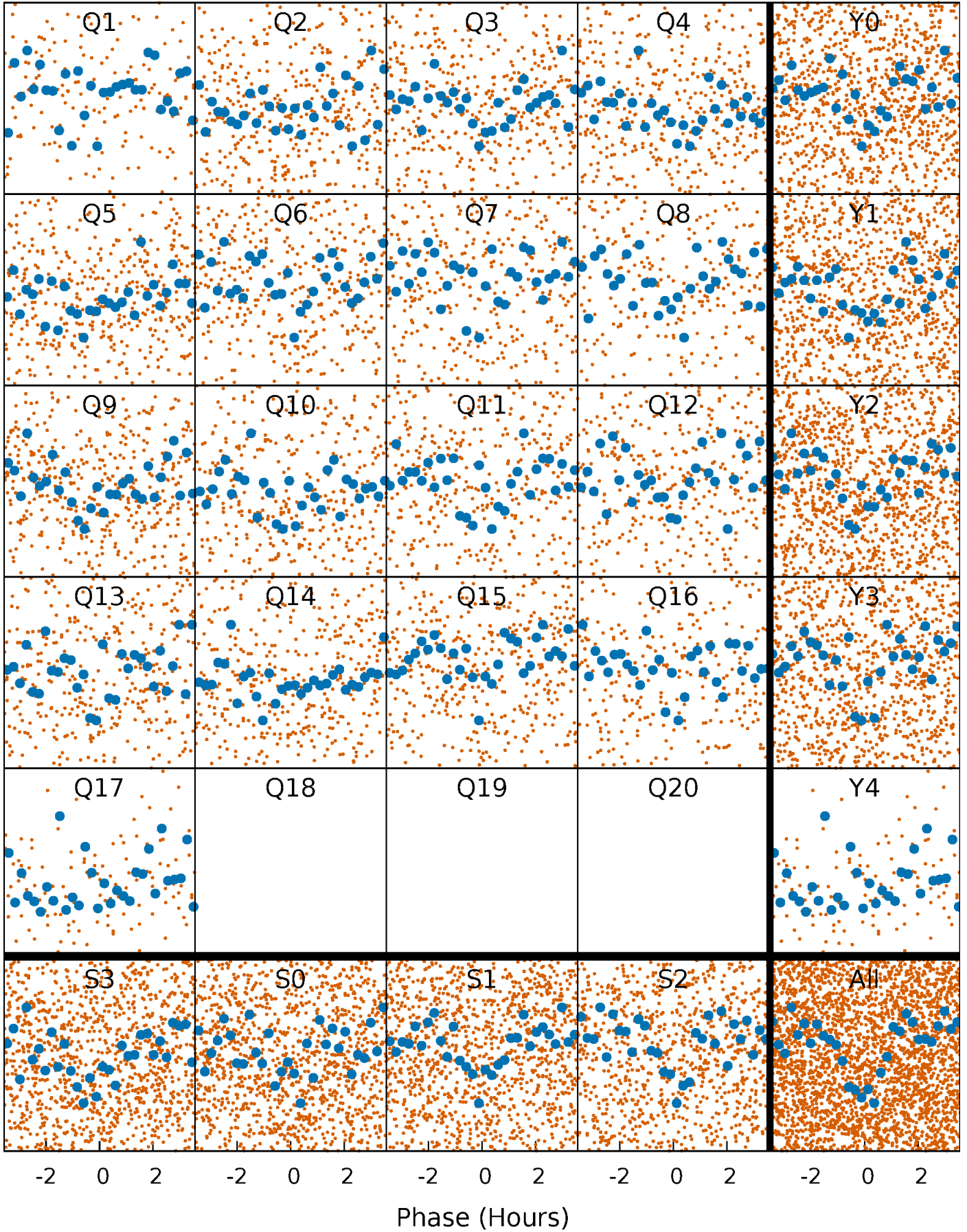


Non-Whitened Vs. Whitened Light Curve



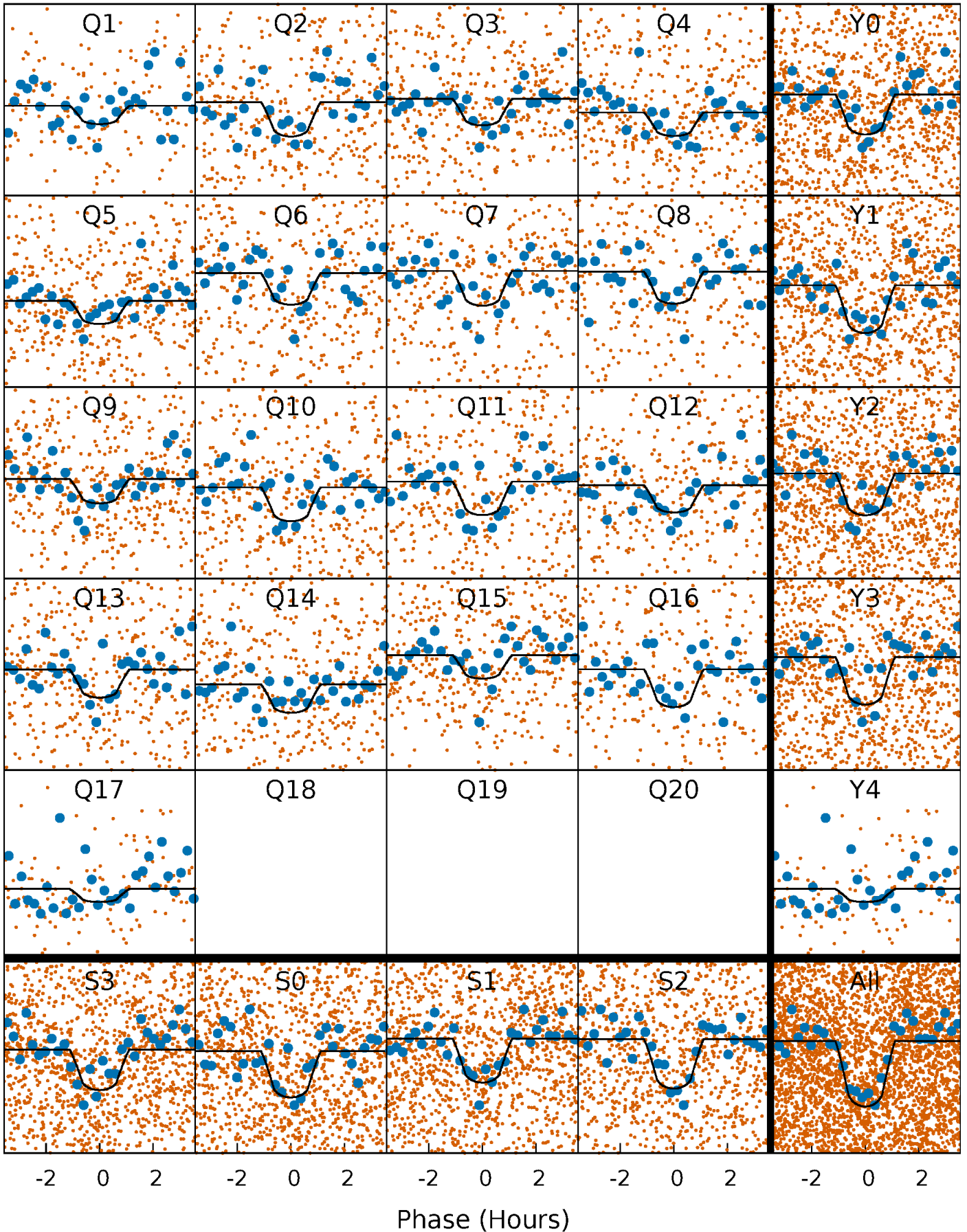
PDC Quarter-Phased Transit Curves

TCE 011618601-01 P= 2.762664 Days $T_0=132.991711$ (BKJD)



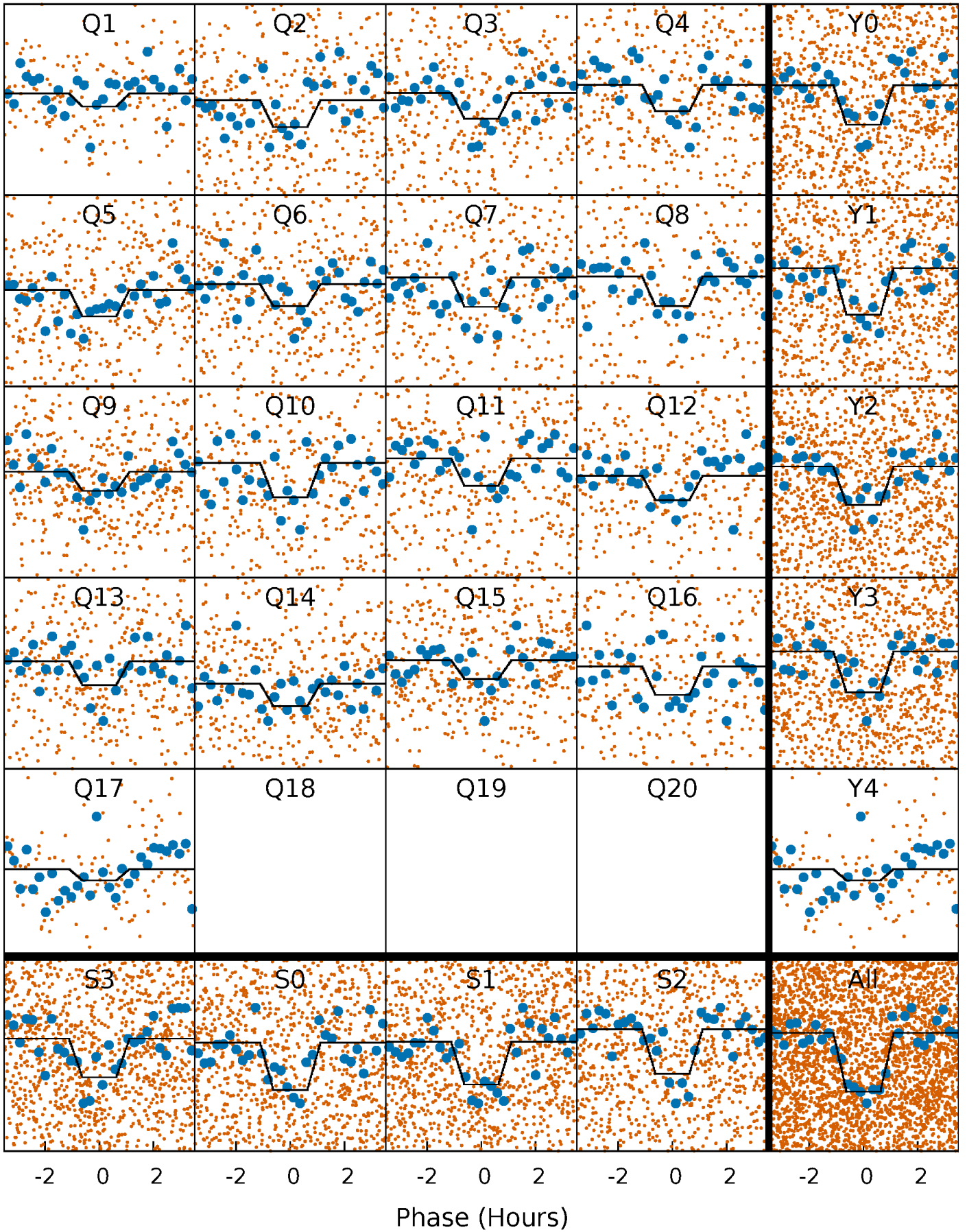
DV Quarter-Phased Transit Curves

TCE 011618601-01 P= 2.762664 Days $T_0=132.991711$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

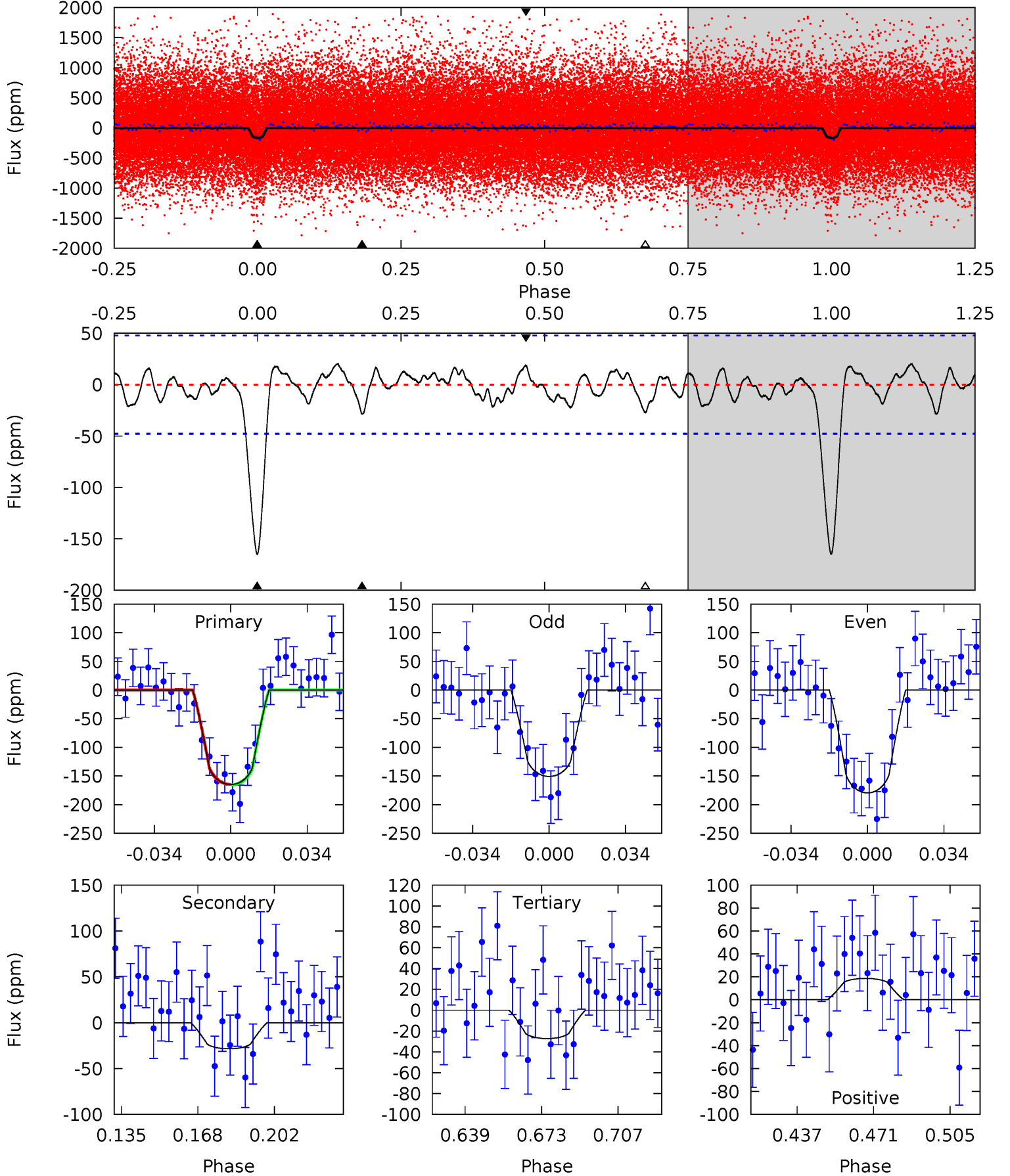
TCE 011618601-01 P= 2.762627 Days $T_0=132.998334$ (BKJD)



DV Model-Shift Uniqueness Test

011618601-01, P = 2.762664 Days, E = 130.229047 Days

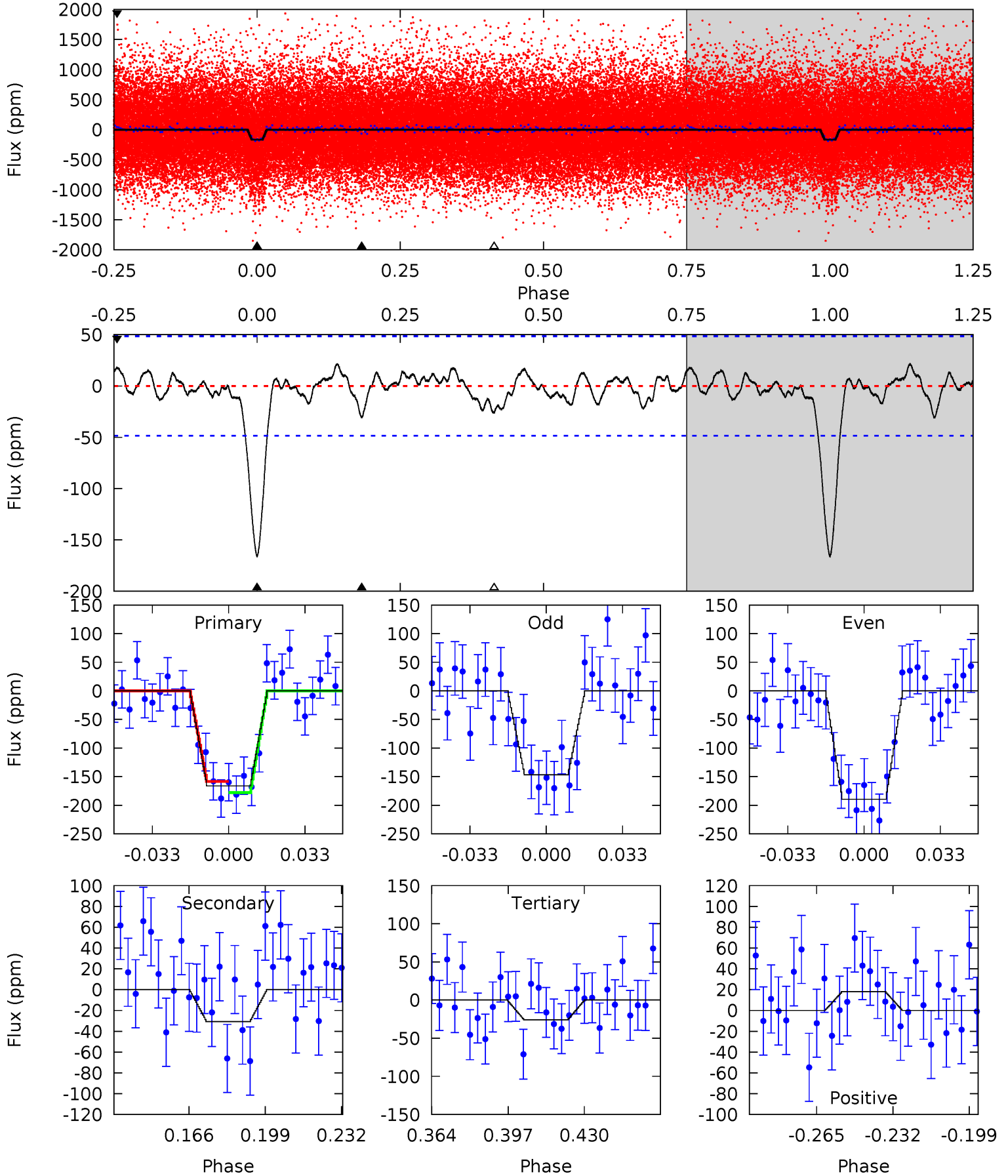
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	2.86	2.73	1.87	4.79	2.12	1.05	13.8	14.7	0.12	0.99	1.44	1.12	0.11	0.04



Alt Model-Shift Uniqueness Test

011618601-01, P = 2.762627 Days, E = 130.235707 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	3.03	2.57	1.77	4.79	2.13	0.97	13.8	14.6	0.46	1.25	2.11	1.05	0.11	0.96



Stellar Parameters For KIC 011618601

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5772^{+156}_{-173}	$4.528^{+0.038}_{-0.212}$	$0.000^{+0.250}_{-0.300}$	$0.901^{+0.275}_{-0.086}$	$0.999^{+0.114}_{-0.125}$	$1.921^{+0.384}_{-0.990}$
	+3%/-3%	+1%/-5%	+inf%/-inf%	+31%/-10%	+11%/-13%	+20%/-52%
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 011618601-01 / KOI 3022.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-28 ± 10	$1.38^{+0.65}_{-0.64}$	1760^{+132}_{-76}	3939^{+1104}_{-557}	11^{+31}_{-7}
Alt.	-31 ± 10	$1.37^{+0.67}_{-0.69}$	1768^{+120}_{-86}	4003^{+1278}_{-535}	13^{+38}_{-8}

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 $A_{obs} \gg 1.0$

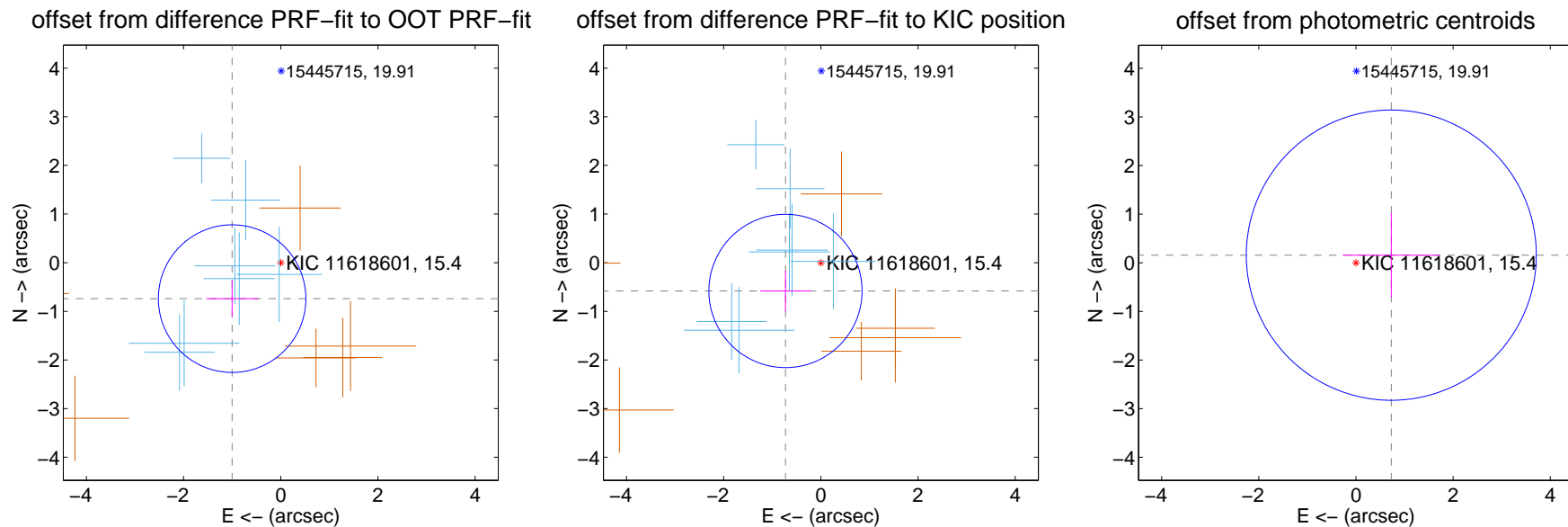
DV Centroid Data

Supplemental centroid analysis for 011618601-01. Kepler magnitude: 15.40. Transit SNR 13.59

There are 7 quarters with good PRF difference image offsets

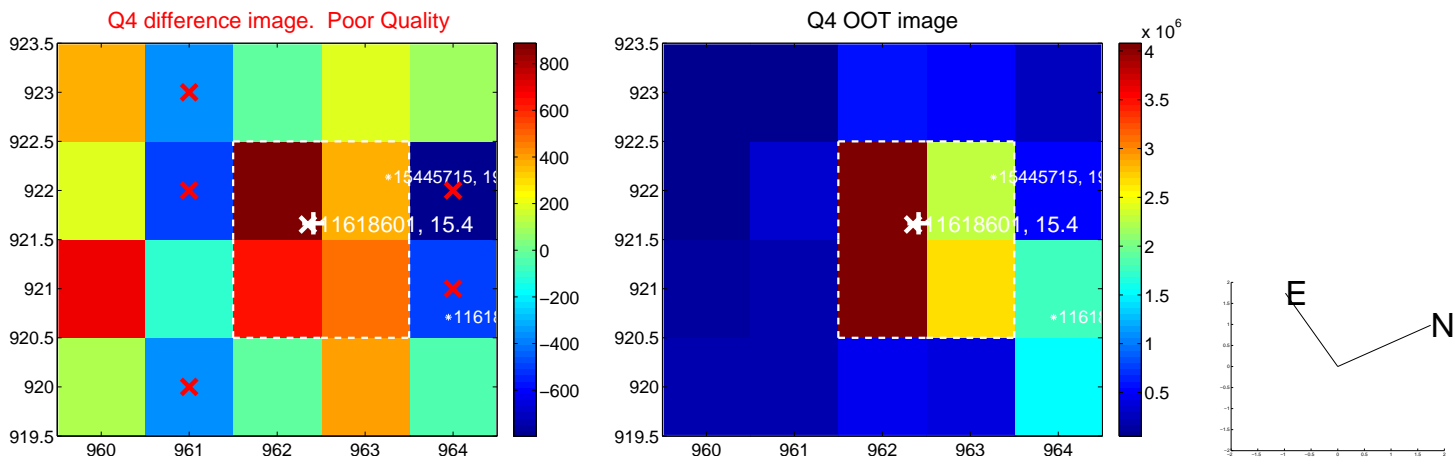
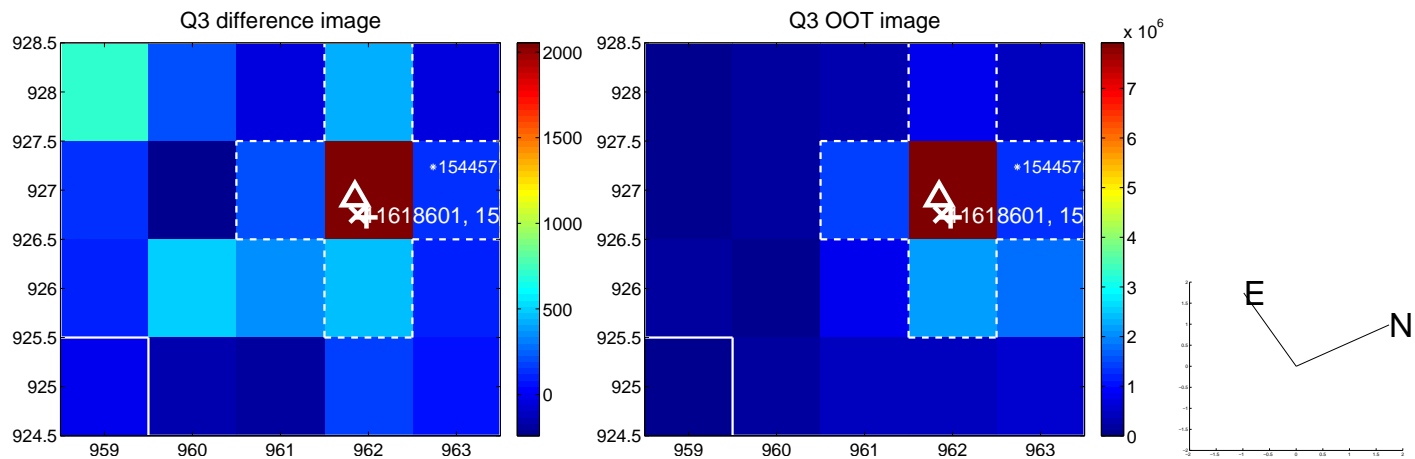
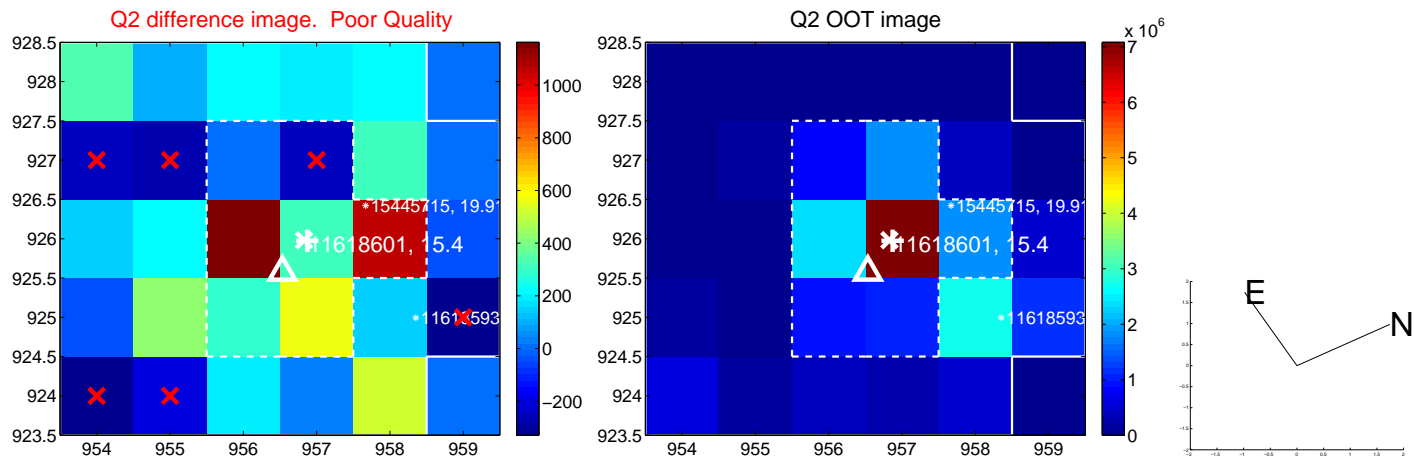
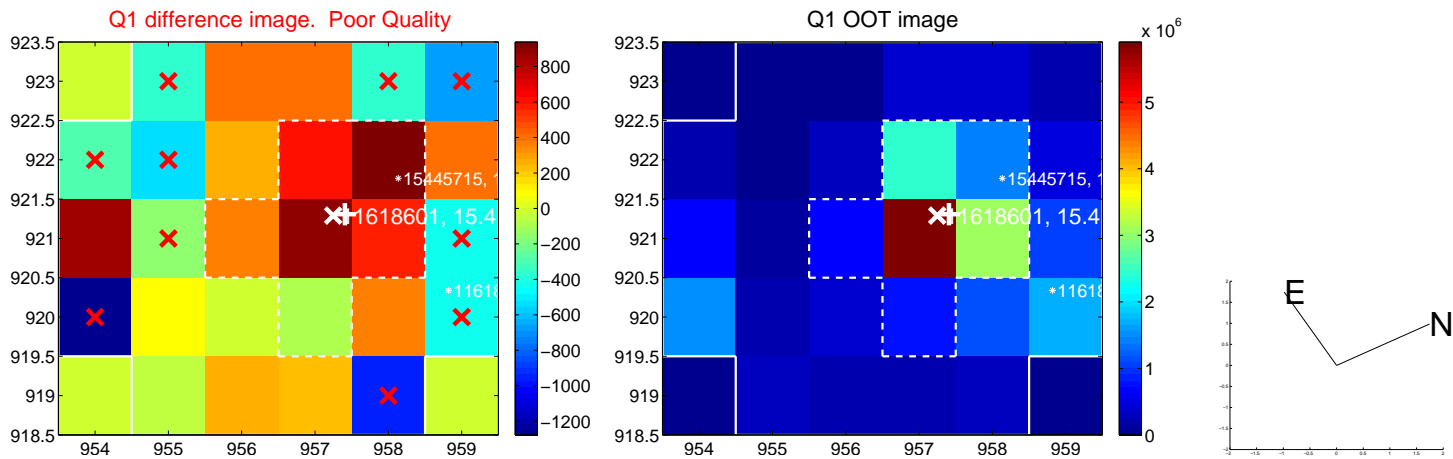
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.244 ± 0.506	2.46	1.001 ± 0.532	-0.739 ± 0.378
PRF-fit source offset from KIC position	0.932 ± 0.525	1.77	0.728 ± 0.519	-0.581 ± 0.419
photometric centroid source offset	0.74 ± 0.99	0.75	-0.73 ± 1.00	0.16 ± 0.87



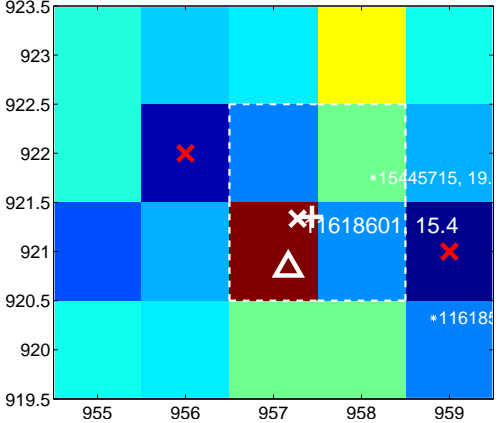
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

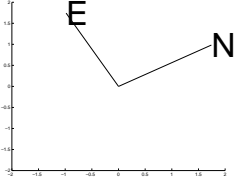
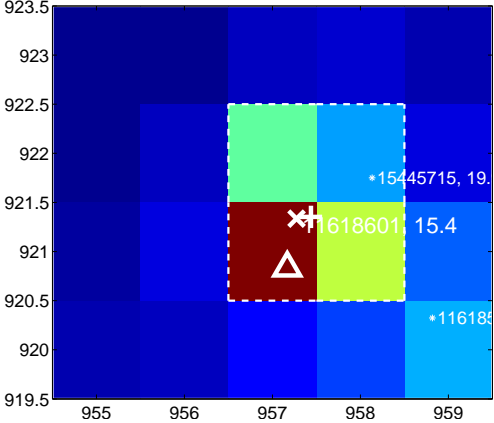


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

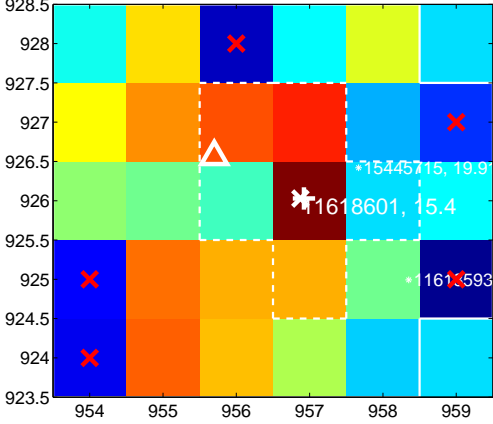
Q5 difference image. Poor Quality



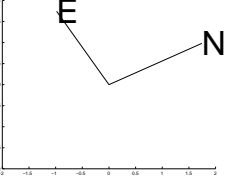
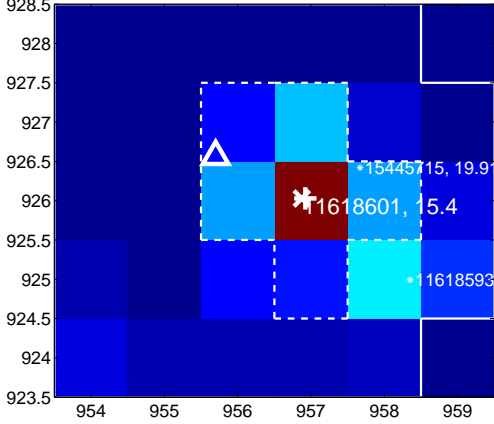
Q5 OOT image



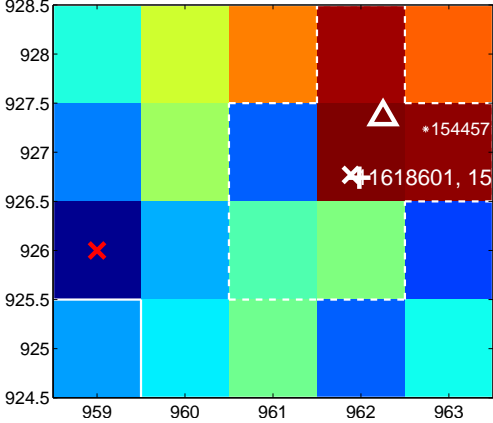
Q6 difference image. Poor Quality



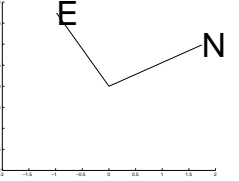
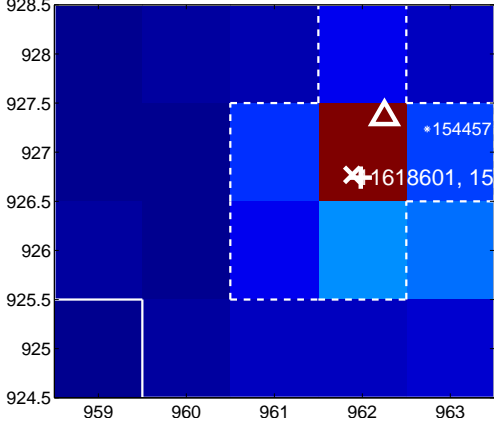
Q6 OOT image



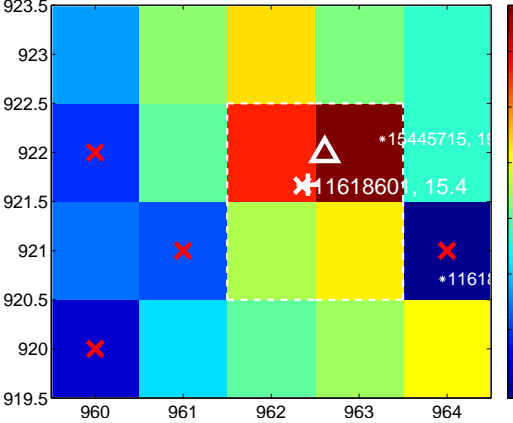
Q7 difference image



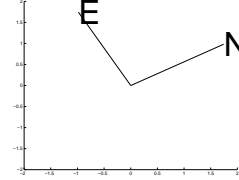
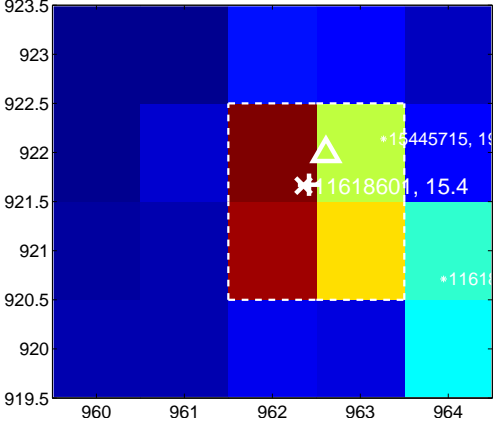
Q7 OOT image



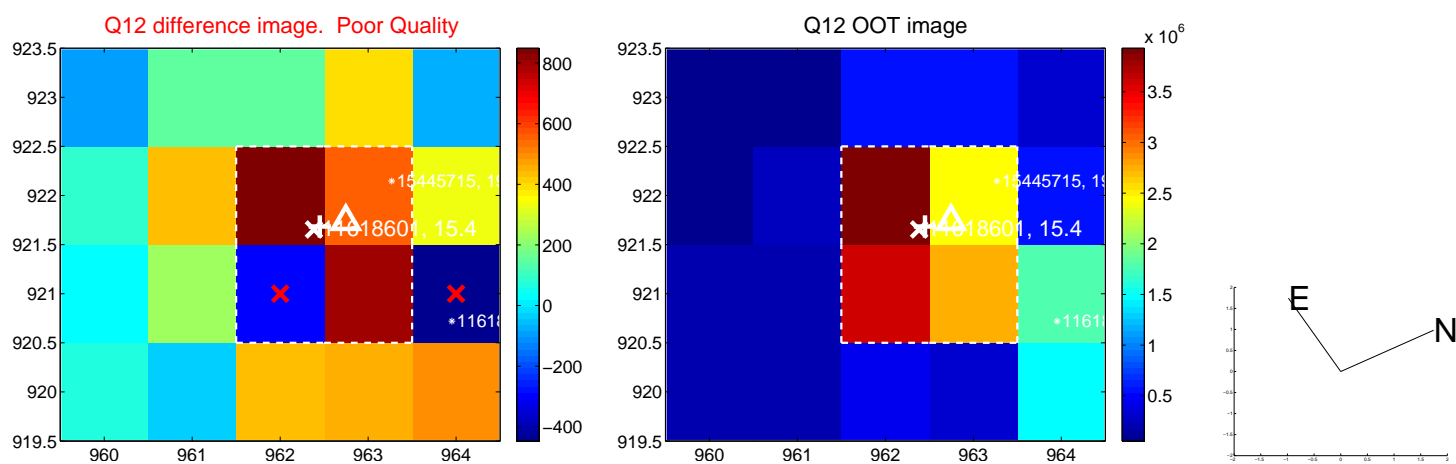
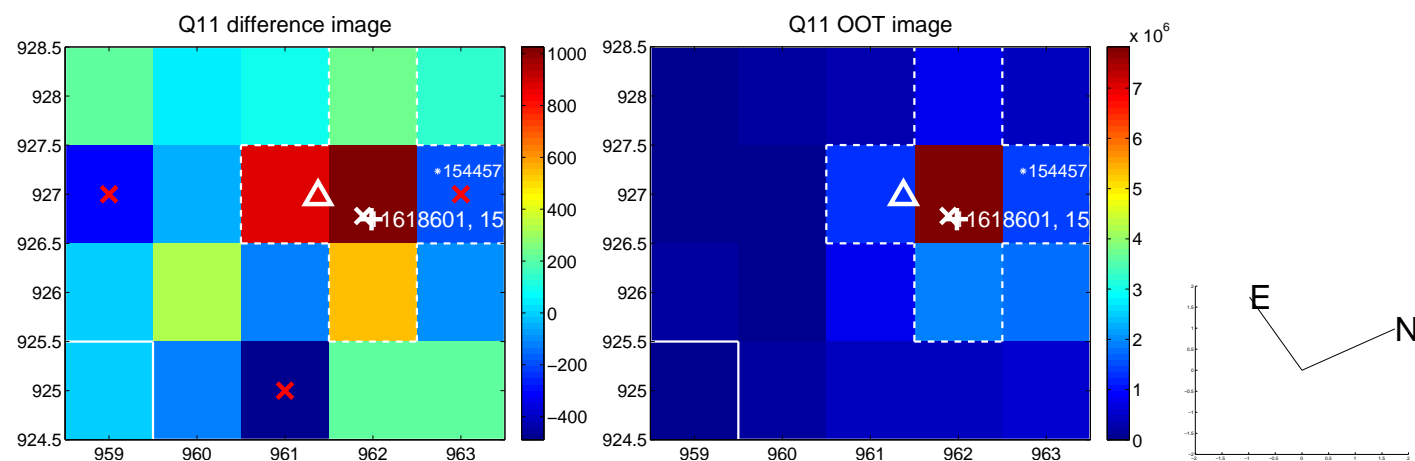
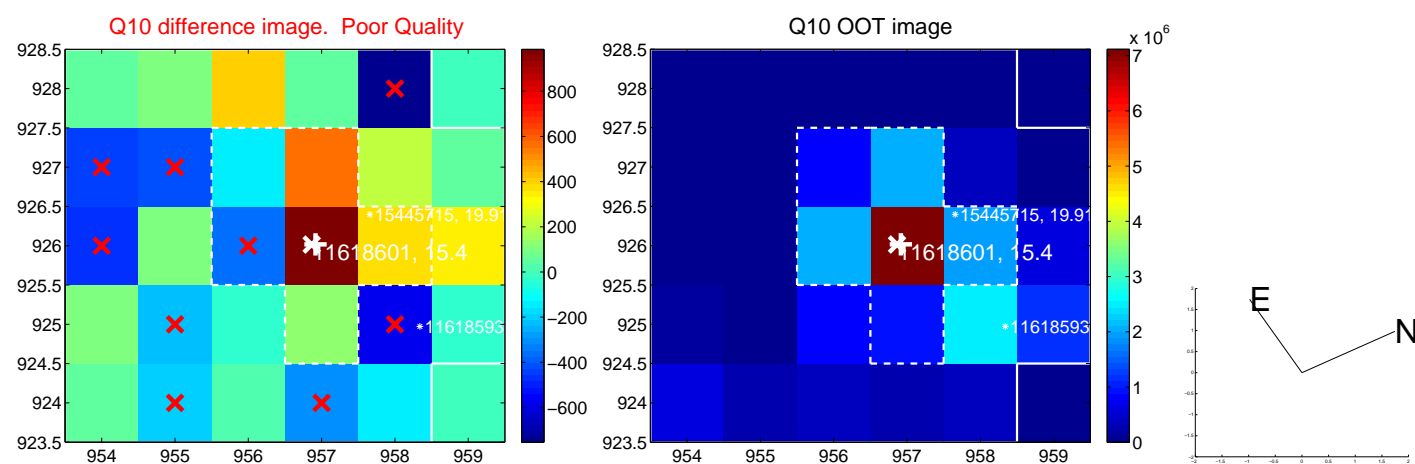
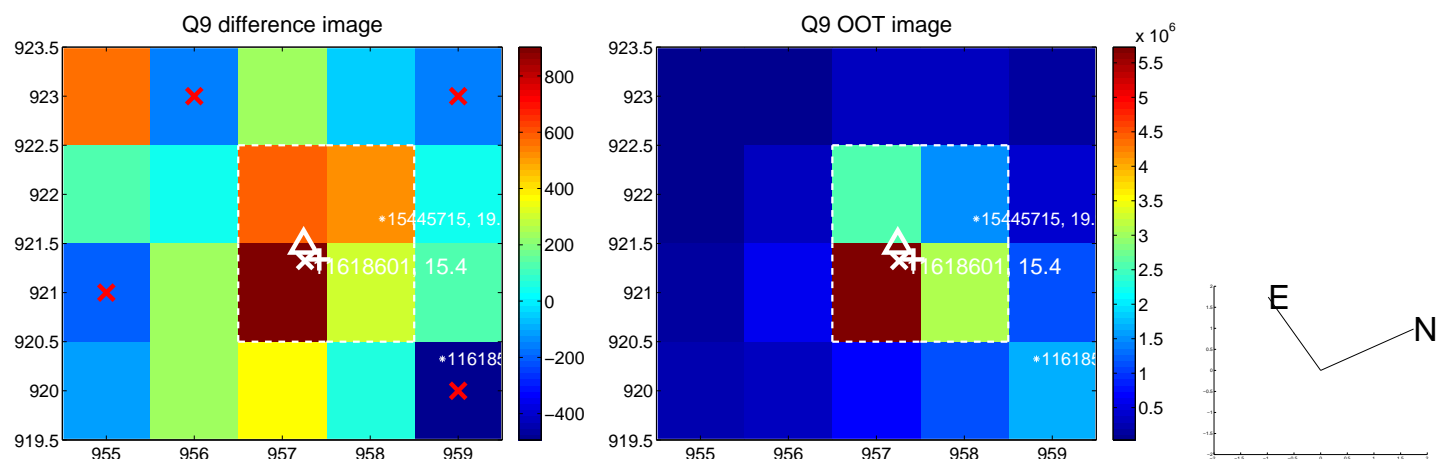
Q8 difference image



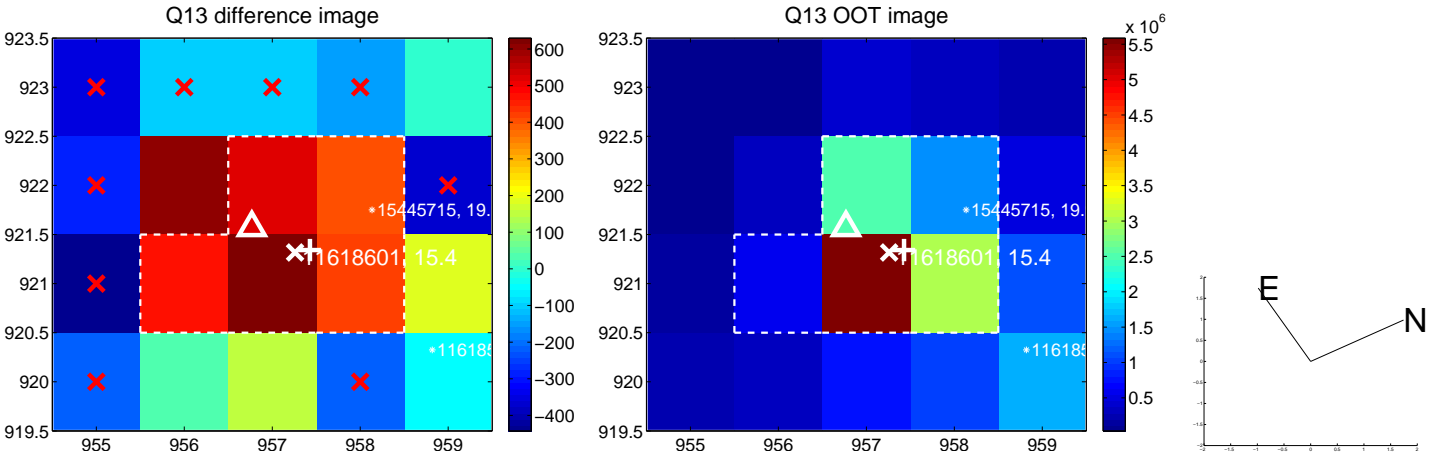
Q8 OOT image



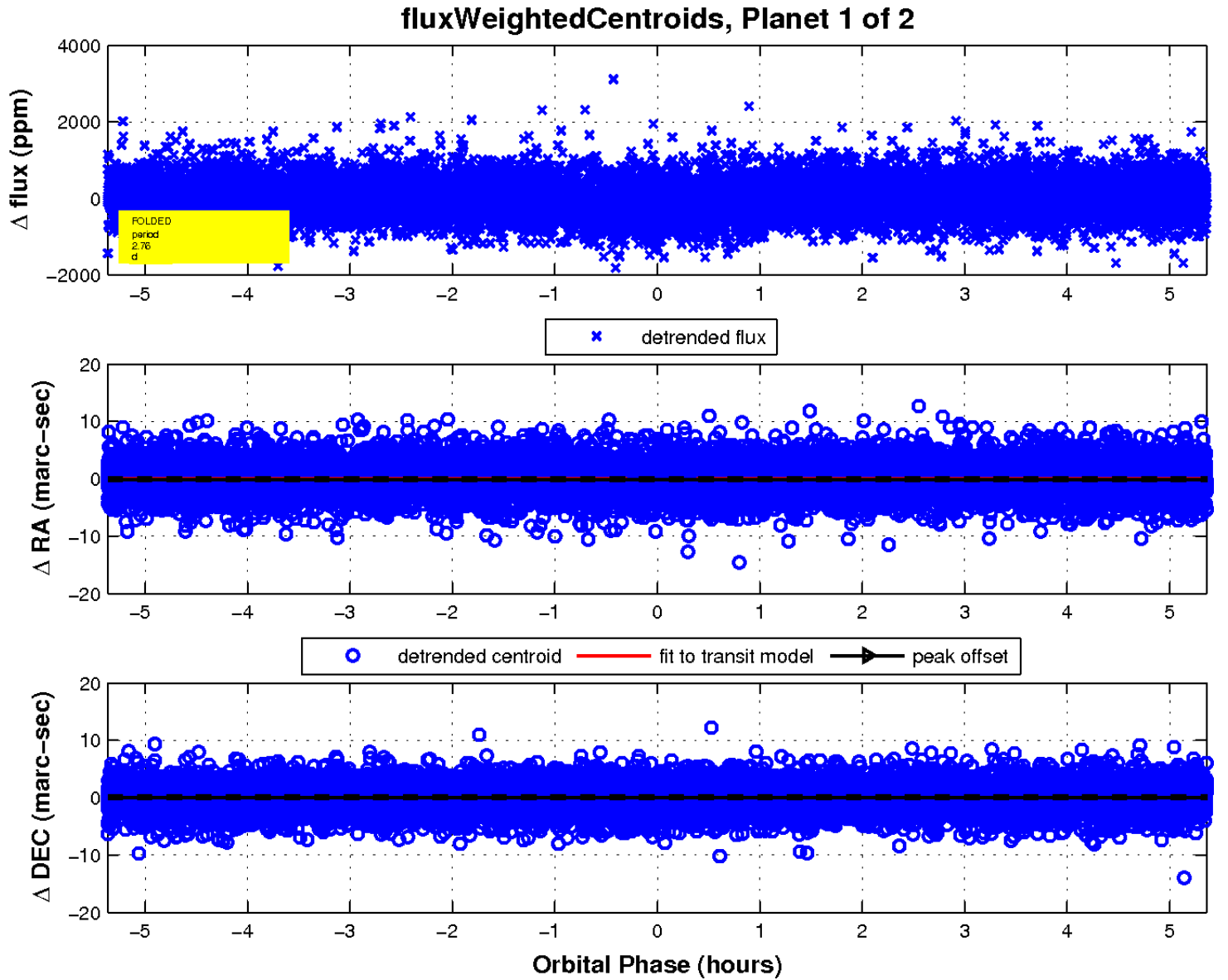
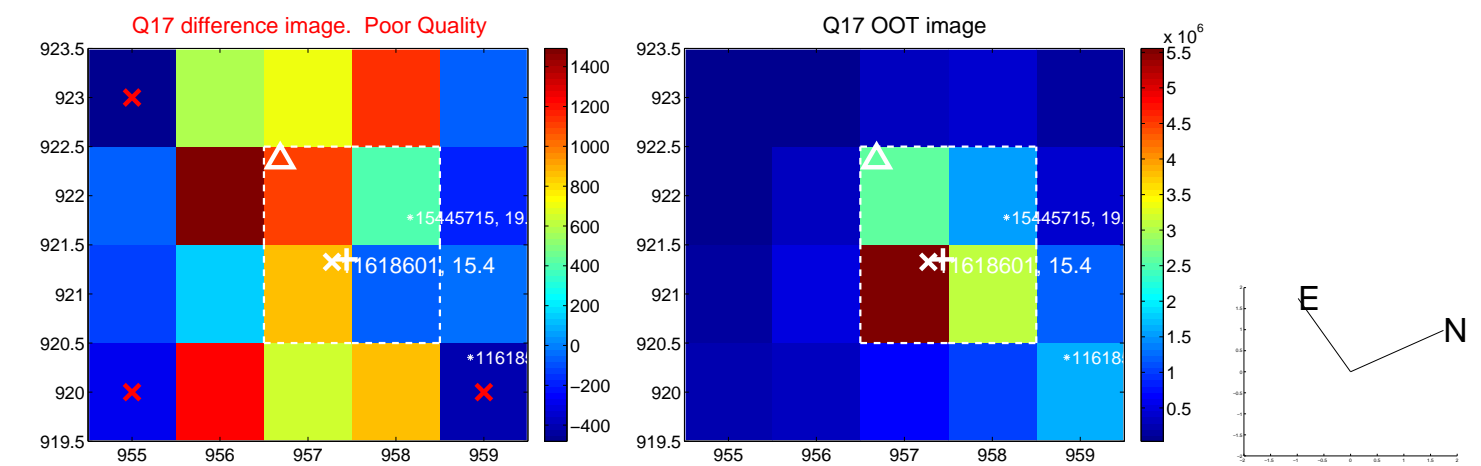
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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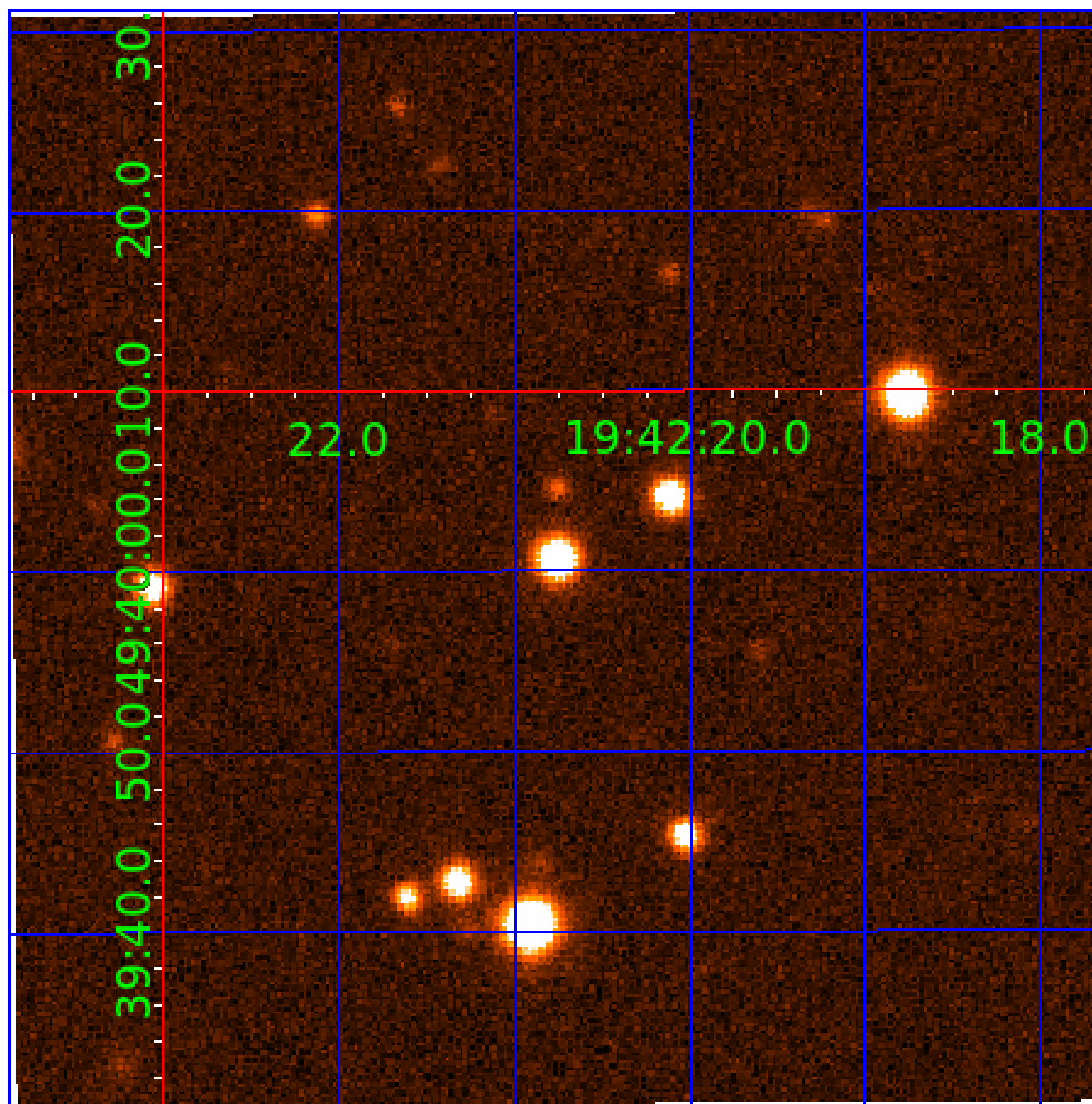


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011618601

Q1-17 DR25 TCE Parameters

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011618601-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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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.

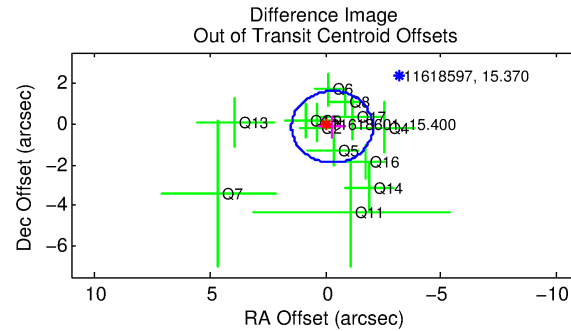
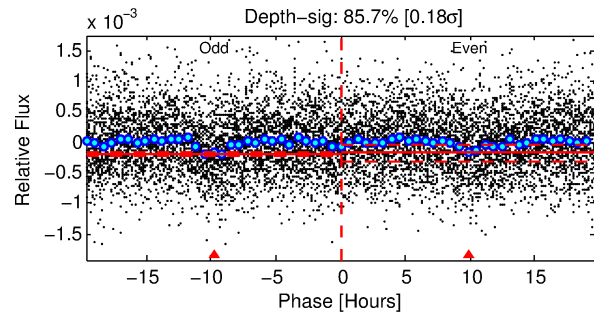
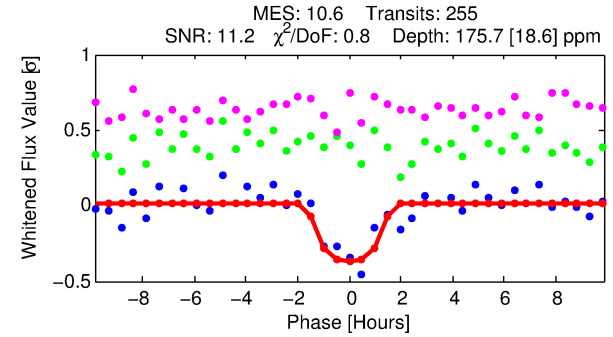
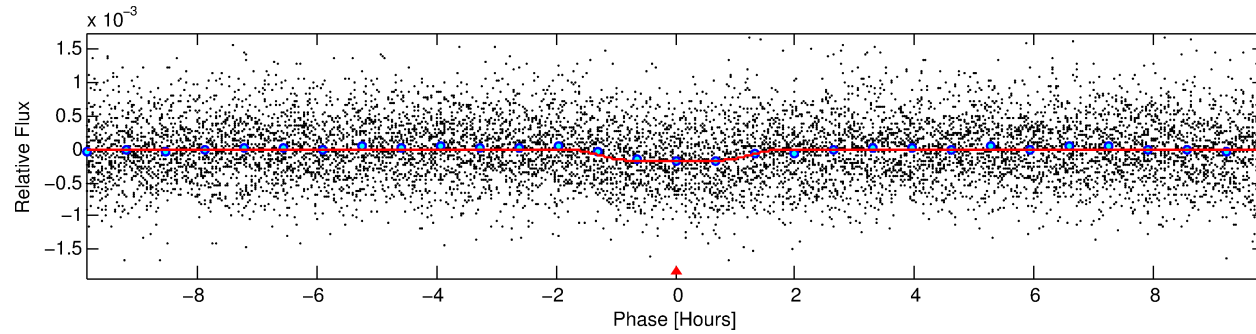
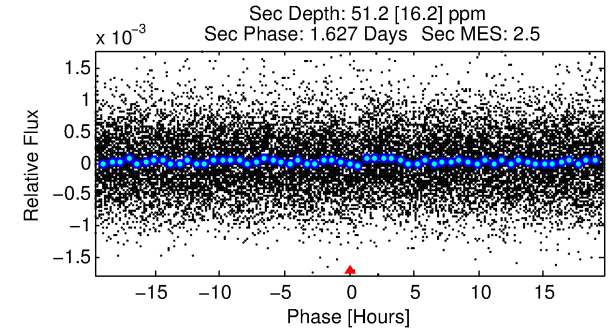
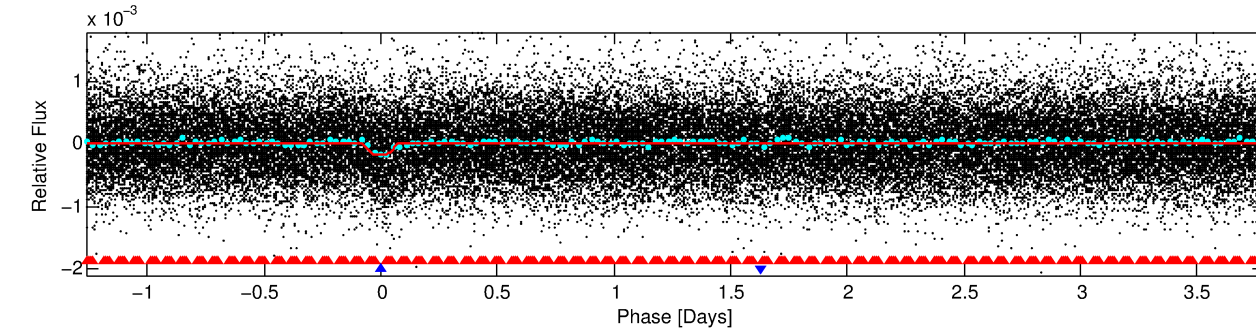
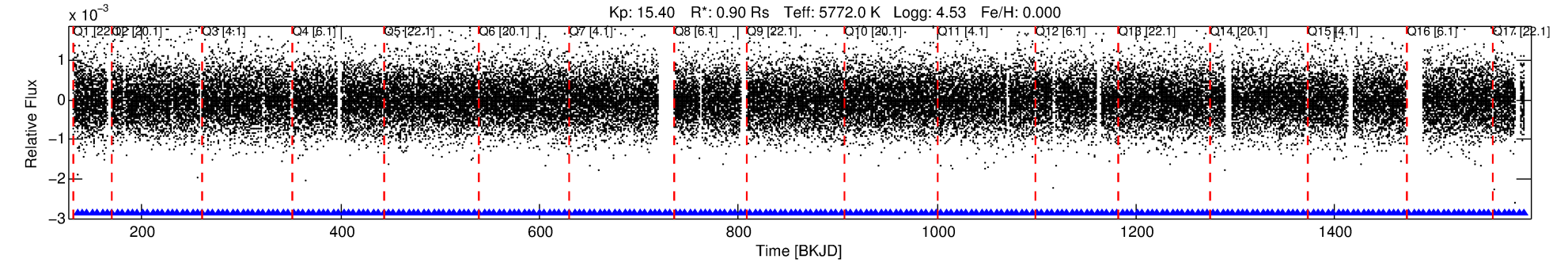
Ephemeris Match Information For 011618601-02

No Significant Match Found

DV One-Page Summary

KIC: 11618601 Candidate: 2 of 2 Period: 5.054 d

KOI: K03022.02 Corr: 0.838



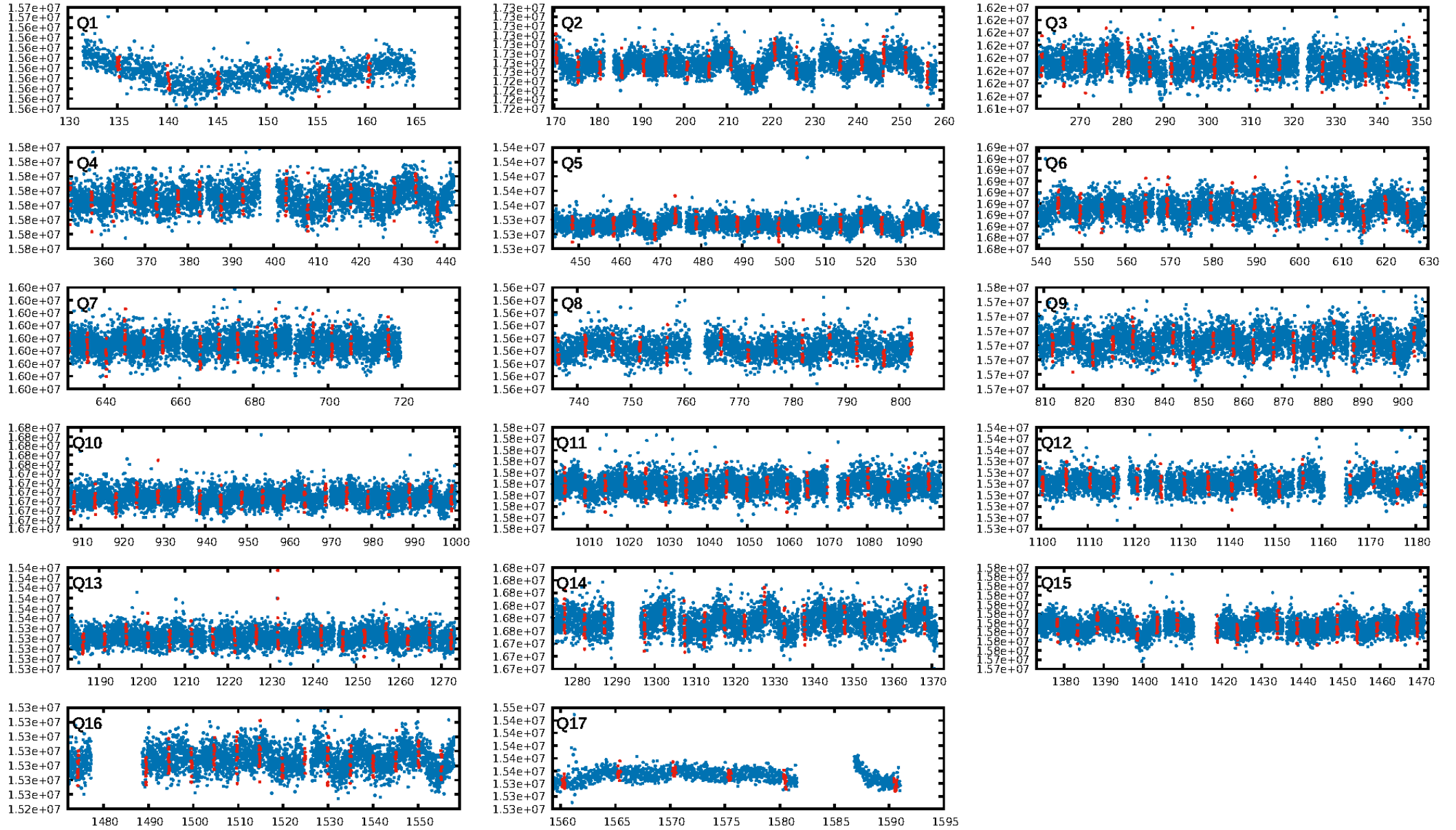
DV Fit Results:

Period = 5.05375 [0.00004] d
Epoch = 135.1003 [0.0058] BKJD
Rp/R* = 0.0162 [0.0017]
a/R* = 3.70 [1.41]
b = 0.97 [0.03]
Seff = 243.14 [97.77]
Teff = 1007 [101] K
Rp = 1.59 [0.51] Re
a = 0.0576 [0.0150] AU
Ag = 37.06 [19.96] [1.81σ]
Teffp = 3841 [381] K [7.19σ]

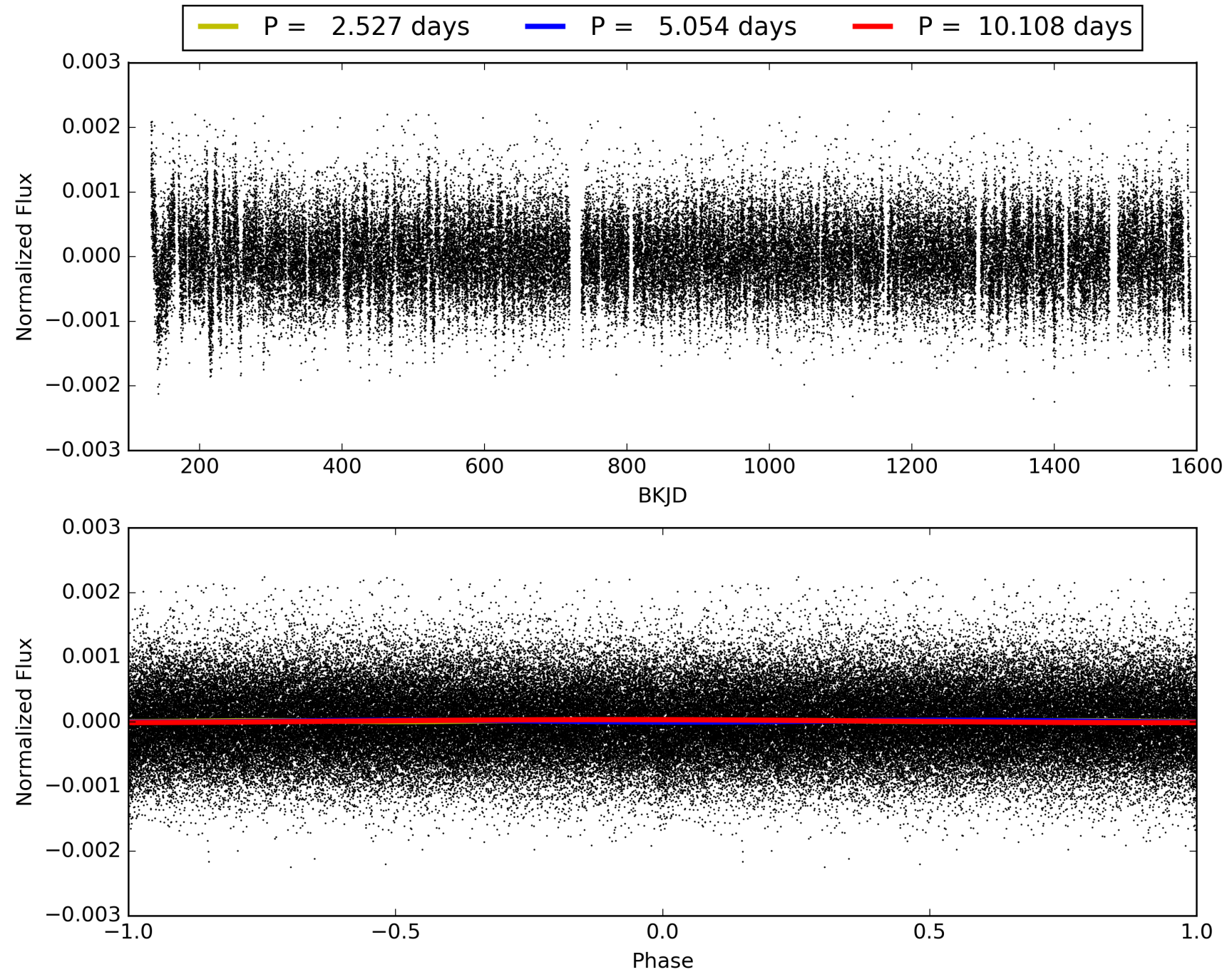
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.71σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.06e-26
RollingBand-fgt: 1.00 [243/243]
GhostDiagnostic-chr: 2.266
Centroid-sig: 62.2%
Centroid-so: 1.147 arcsec [1.08σ]
OotOffset-rm: 0.330 arcsec [0.56σ]
KicOffset-rm: 0.488 arcsec [0.89σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011618601-02, PDC Light Curves

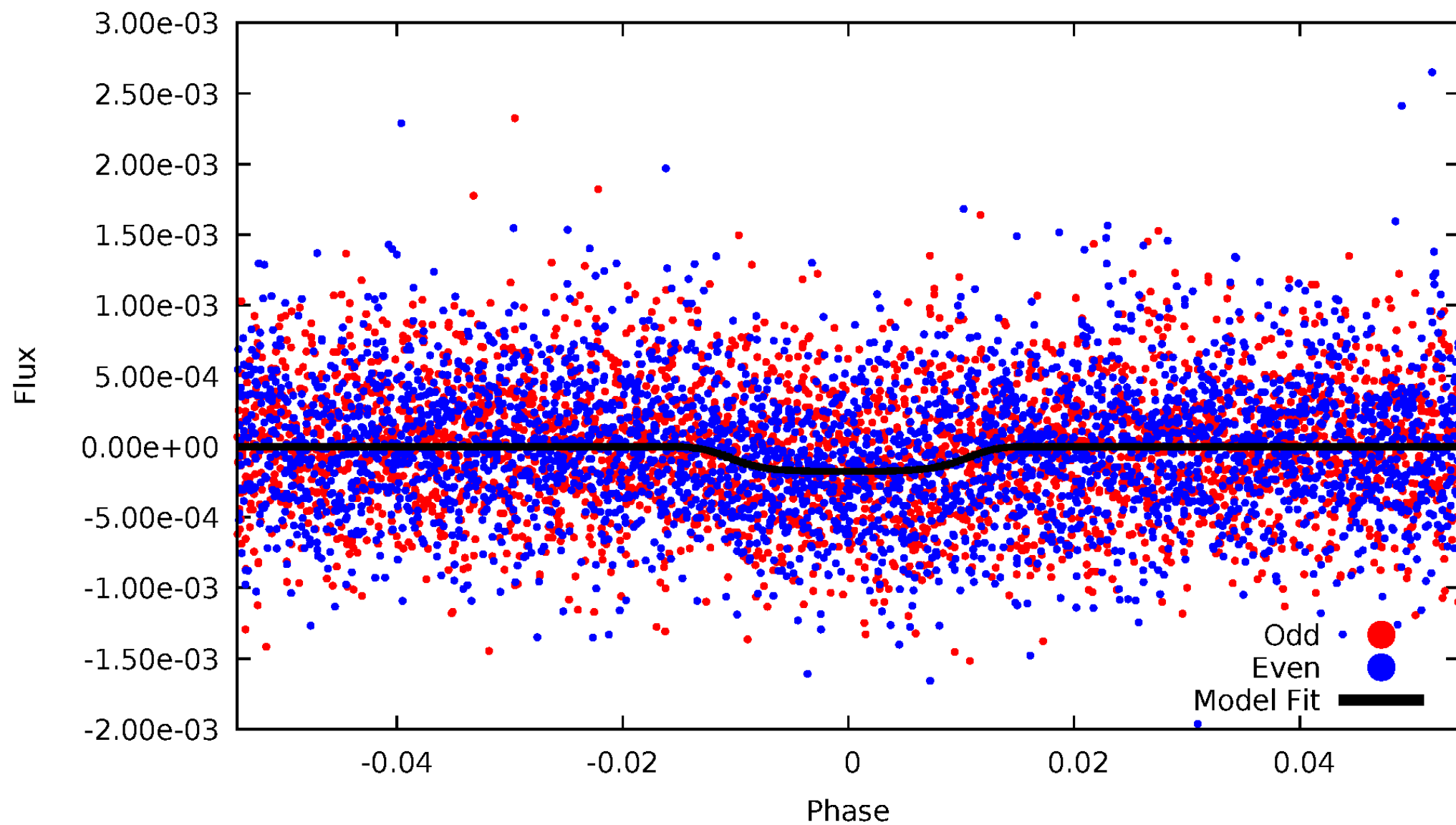


TCE 011618601-02



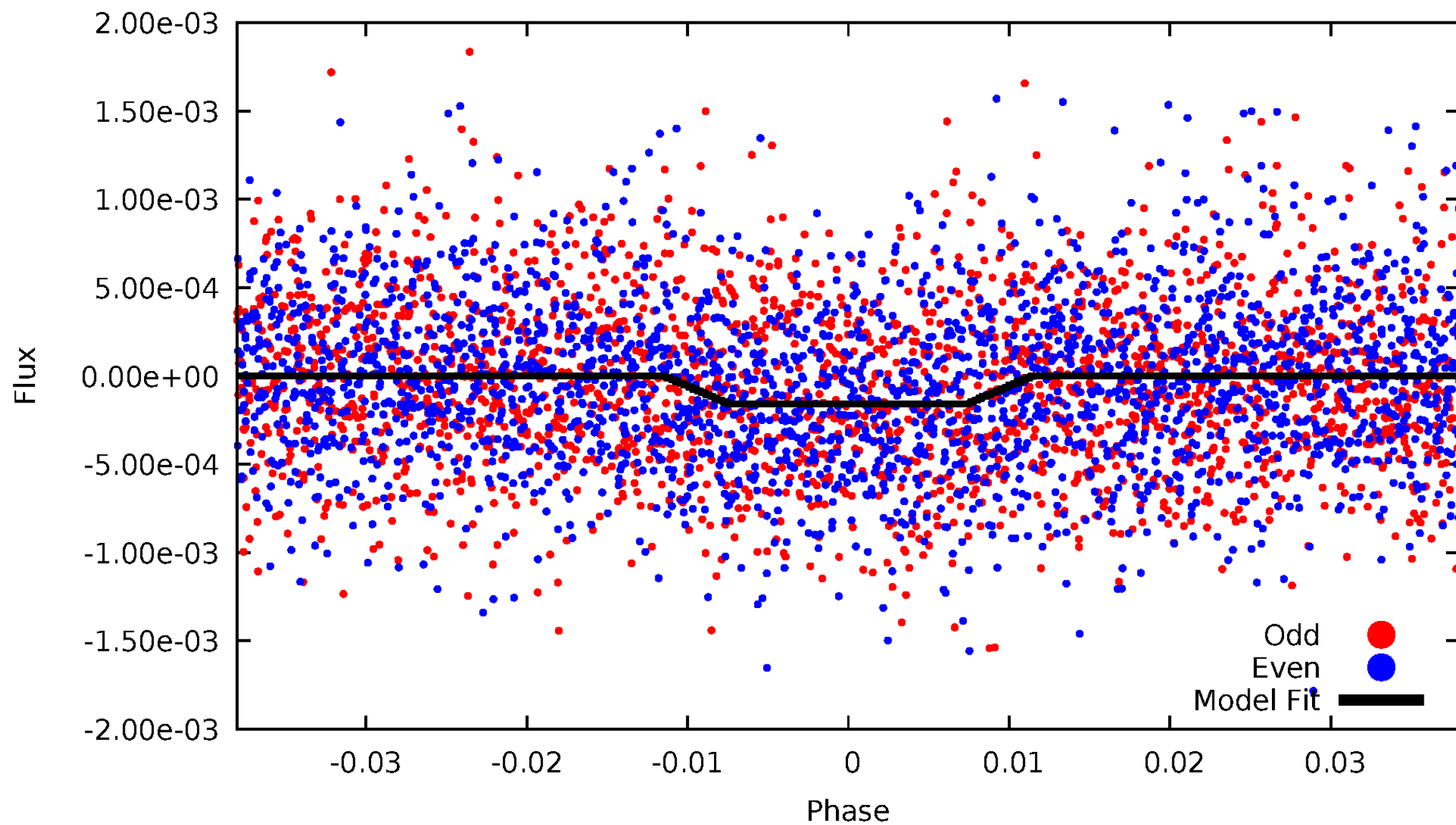
DV Odd/Even

TCE 011618601-02



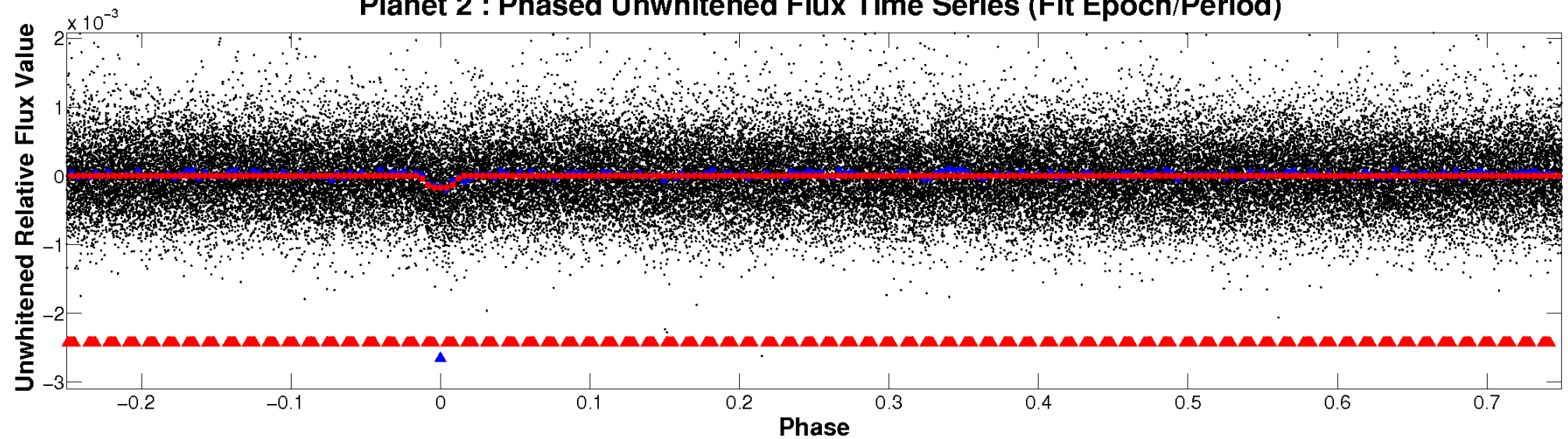
ALT Odd/Even

TCE 011618601-02

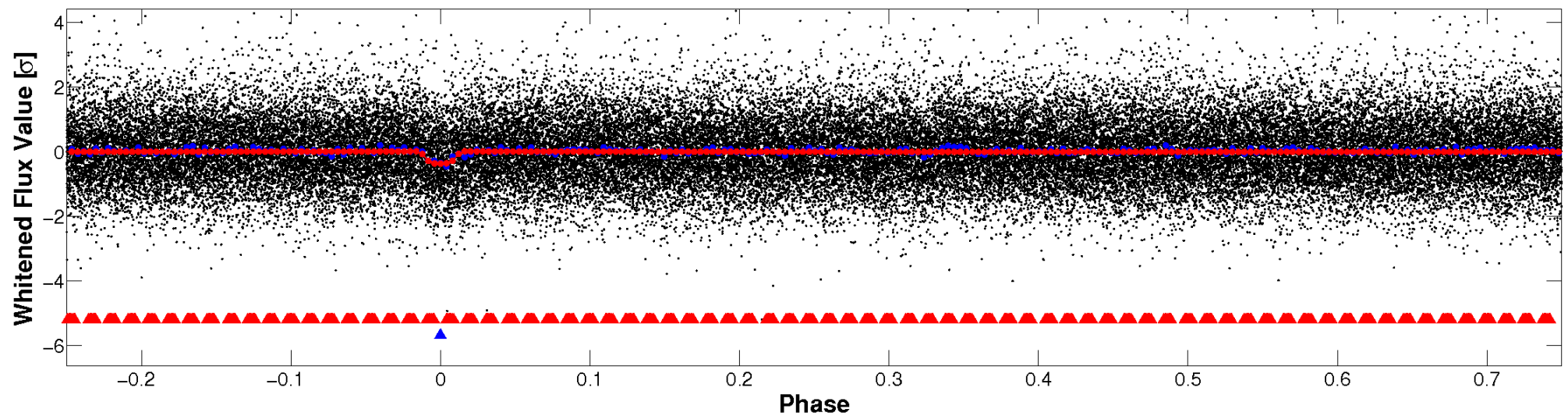


Non-Whitened Vs. Whitened Light Curve

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

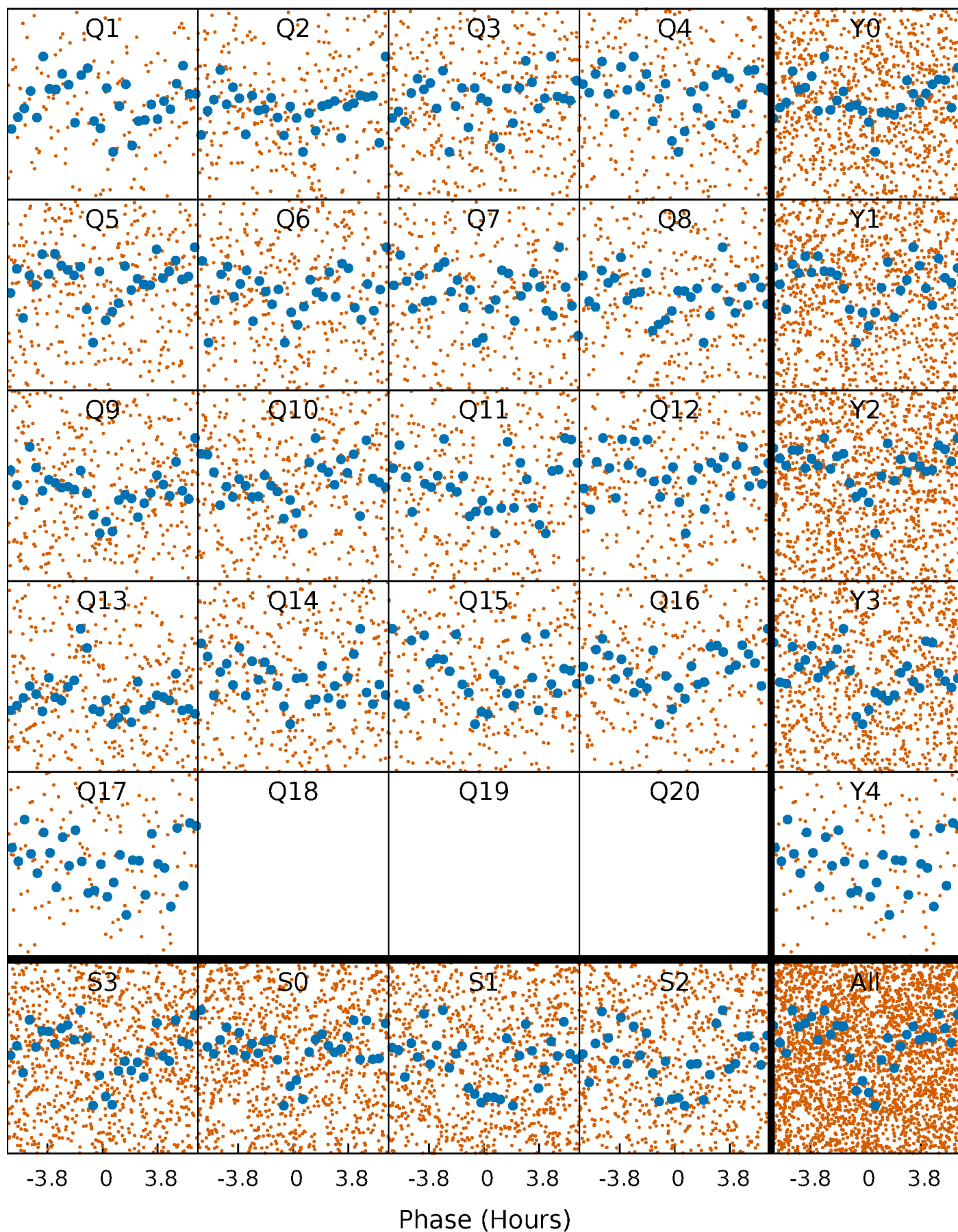


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



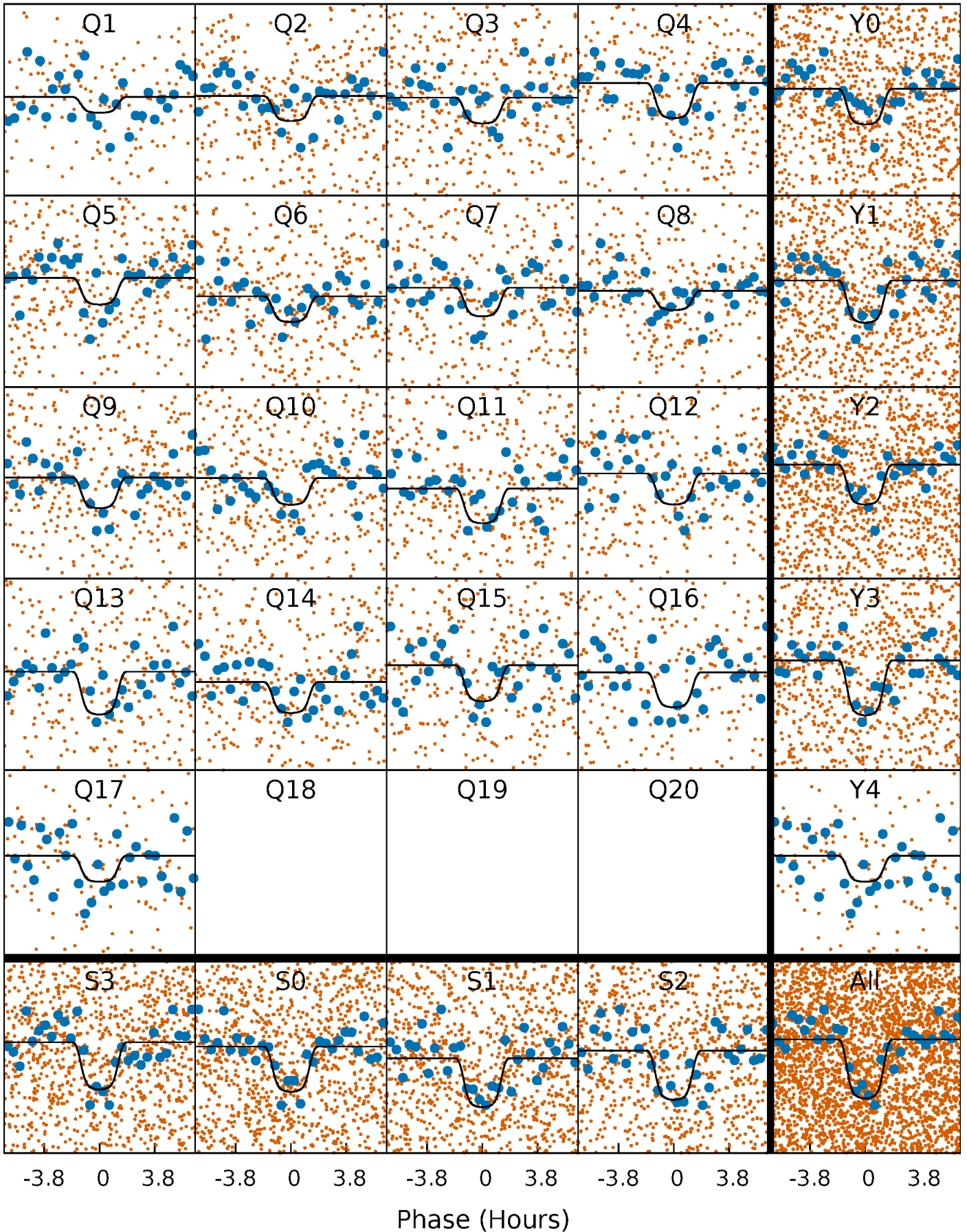
PDC Quarter-Phased Transit Curves

TCE 011618601-02 P= 5.053753 Days $T_0=135.100333$ (BKJD)



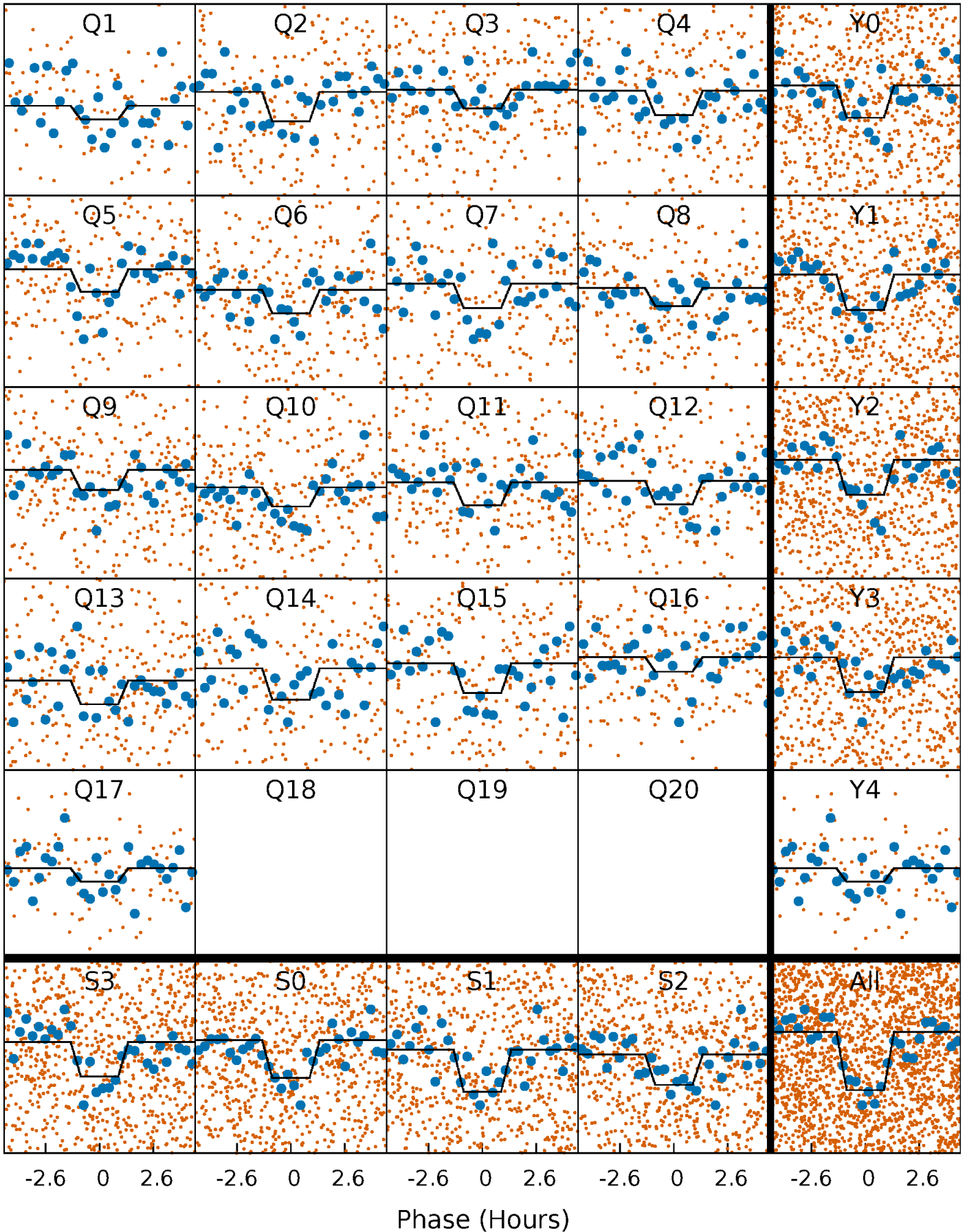
DV Quarter-Phased Transit Curves

TCE 011618601-02 P= 5.053753 Days $T_0=135.100333$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

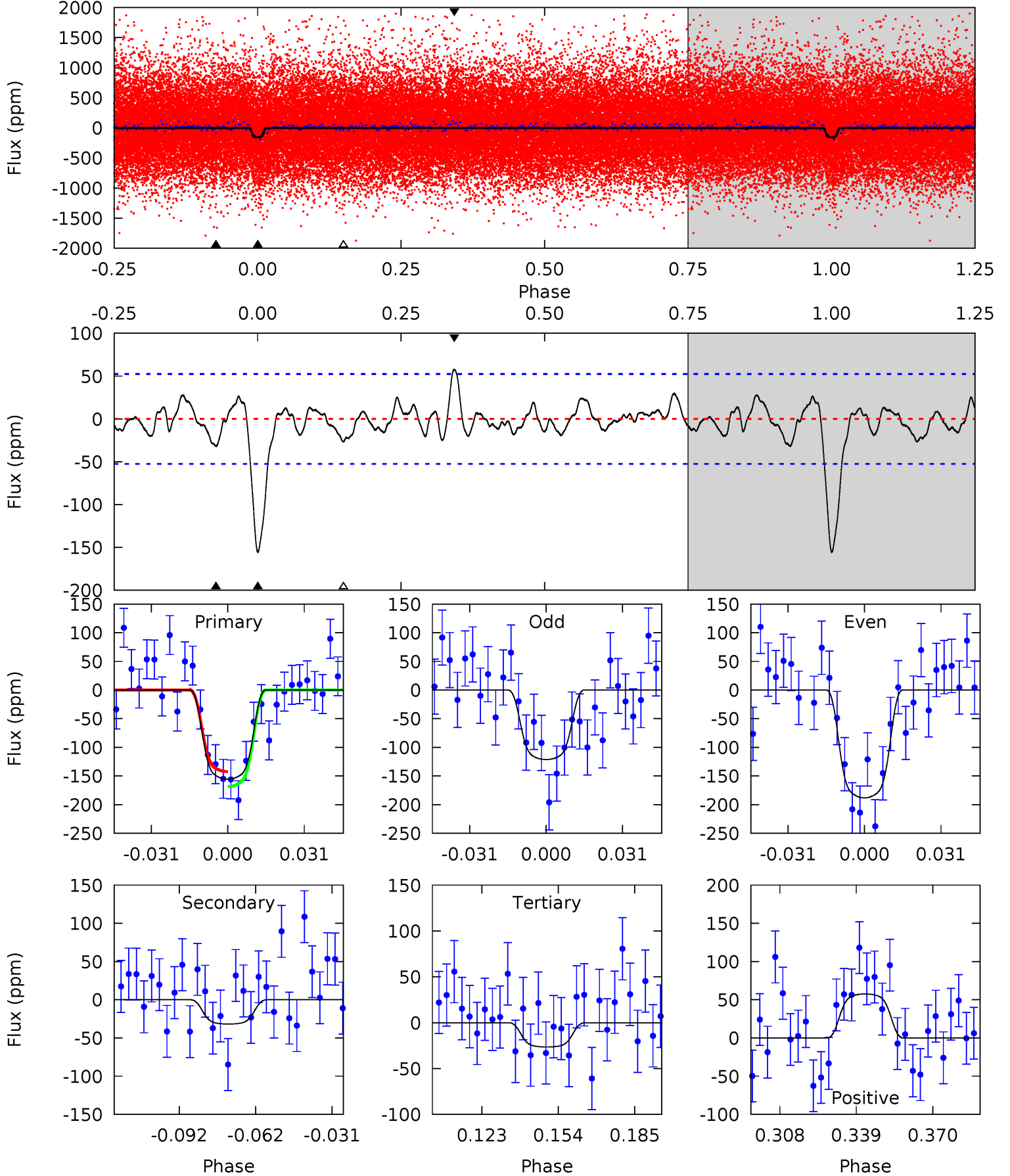
TCE 011618601-02 P= 5.053675 Days $T_0=135.112485$ (BKJD)



DV Model-Shift Uniqueness Test

011618601-02, P = 5.053753 Days, E = 130.046580 Days

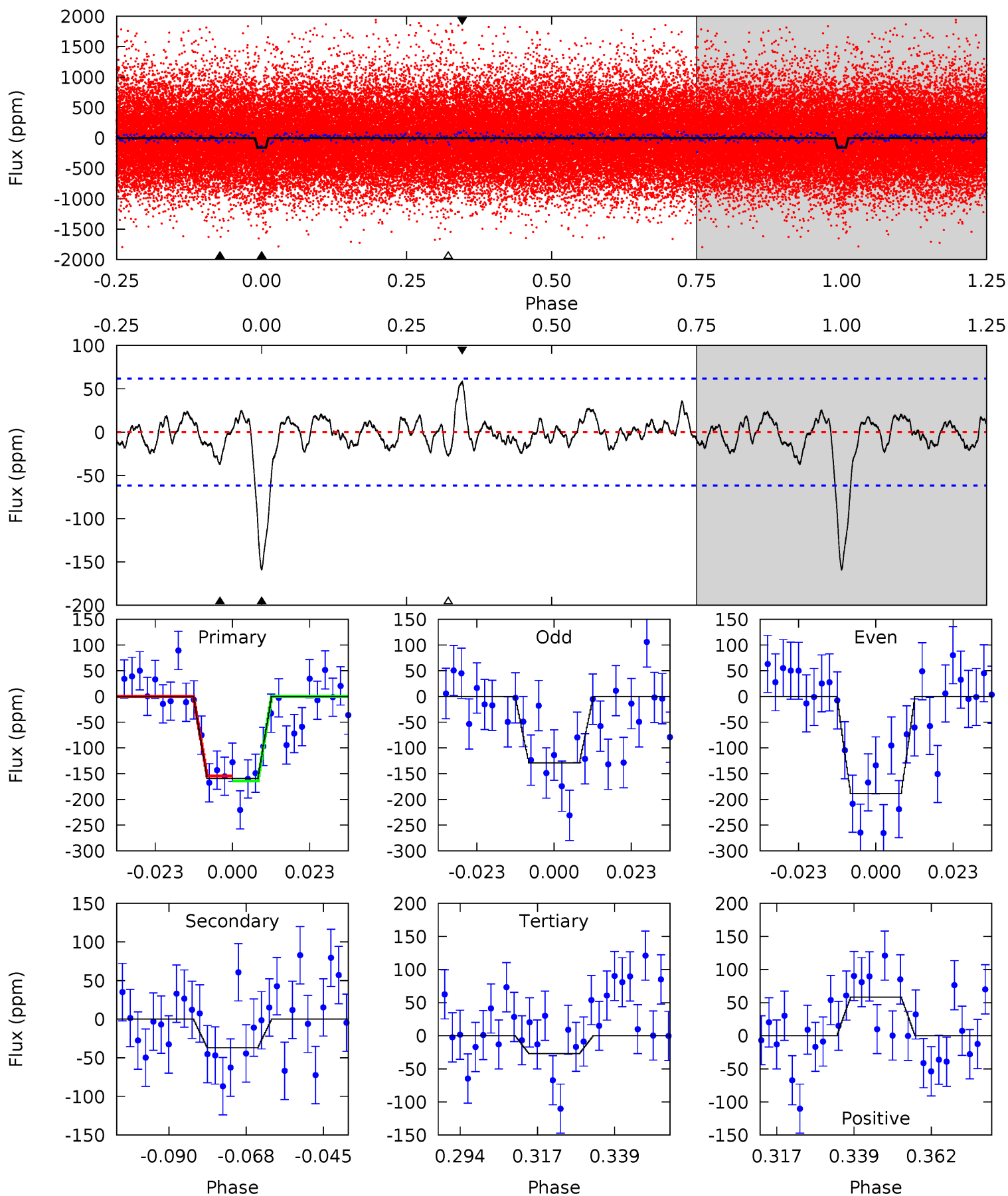
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	2.92	2.43	5.28	4.81	2.16	1.25	11.8	8.97	0.48	-2.36	3.08	0.98	0.27	1.20



Alt Model-Shift Uniqueness Test

011618601-02, P = 5.053675 Days, E = 130.058810 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	2.91	2.13	4.58	4.87	2.28	1.10	10.4	7.98	0.78	-1.68	2.35	0.89	0.27	0.40



Stellar Parameters For KIC 011618601

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5772^{+156}_{-173}	$4.528^{+0.038}_{-0.212}$	$0.000^{+0.250}_{-0.300}$	$0.901^{+0.275}_{-0.086}$	$0.999^{+0.114}_{-0.125}$	$1.921^{+0.384}_{-0.990}$
	+3%/-3%	+1%/-5%	+inf%/-inf%	+31%/-10%	+11%/-13%	+20%/-52%
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 011618601-02 / KOI 3022.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-32 ± 11	$1.68^{+0.28}_{-0.23}$	1450^{+101}_{-69}	3782^{+261}_{-294}	20^{+9}_{-8}
Alt.	-37 ± 13	$1.30^{+0.25}_{-0.19}$	1442^{+110}_{-62}	4206^{+368}_{-321}	37^{+22}_{-15}

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 $A_{obs} \gg 1.0$

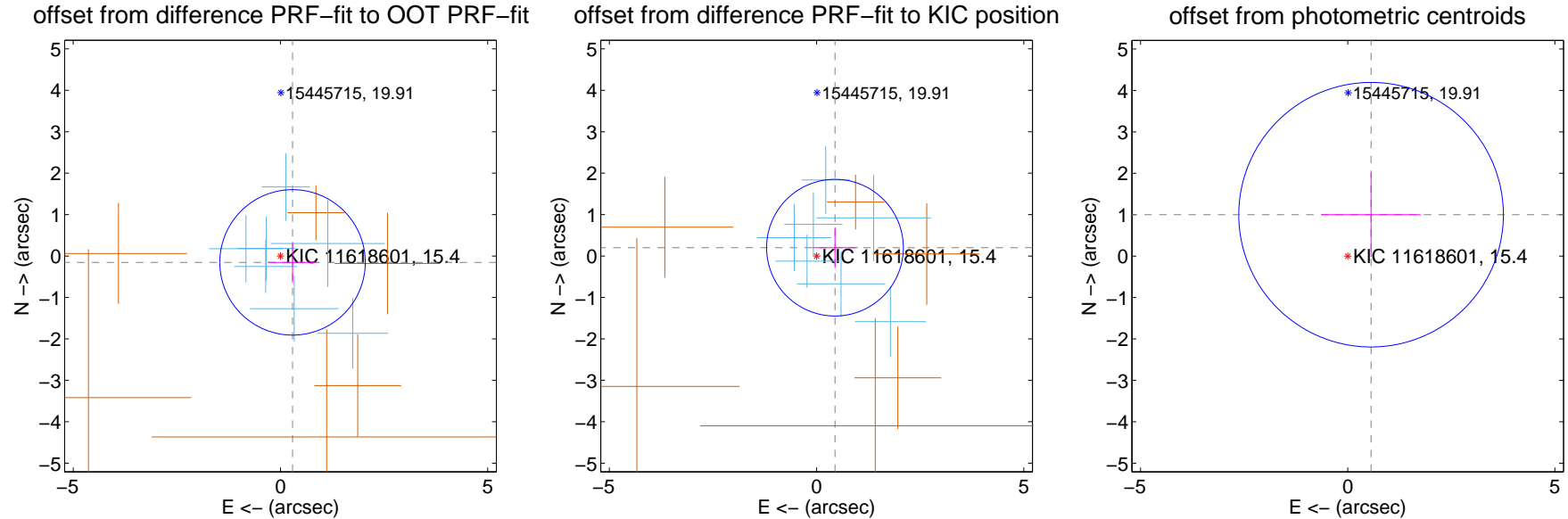
DV Centroid Data

Supplemental centroid analysis for 011618601-02. Kepler magnitude: 15.40. Transit SNR 11.21

There are 7 quarters with good PRF difference image offsets

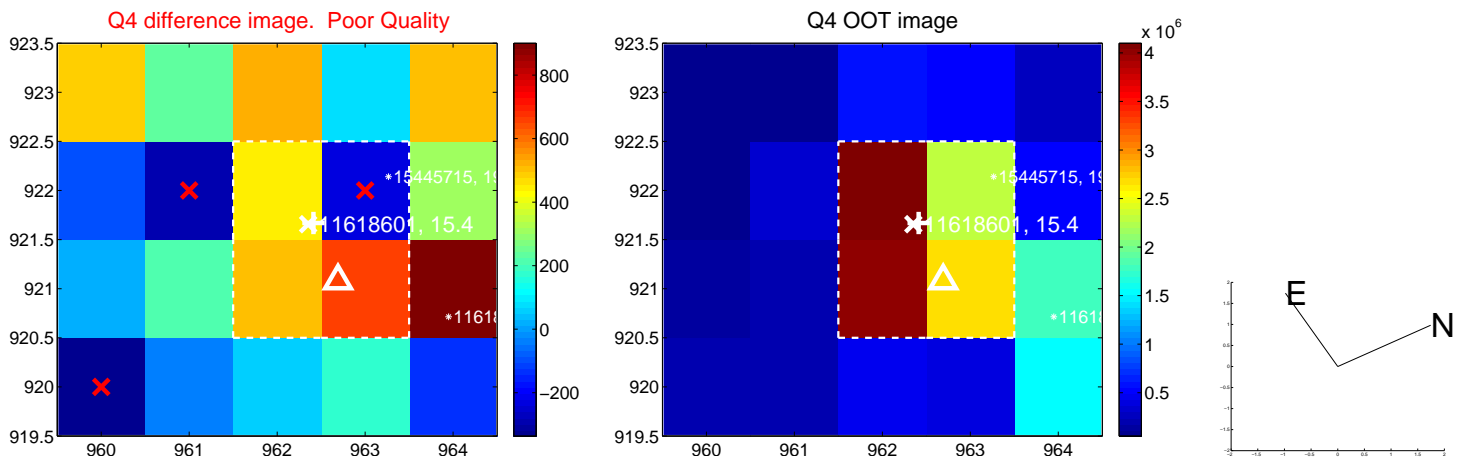
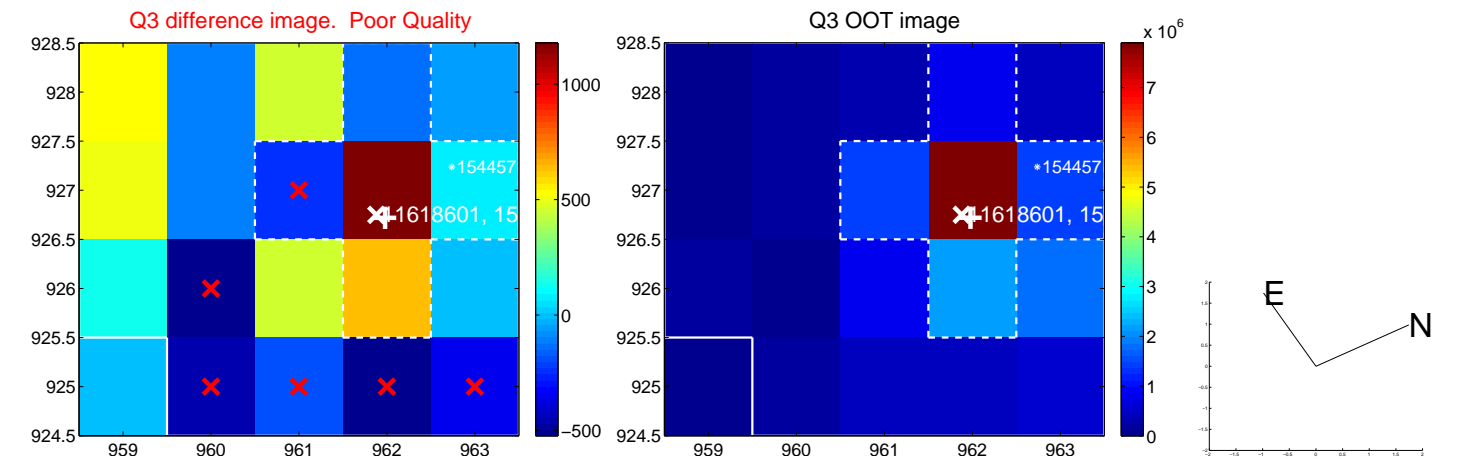
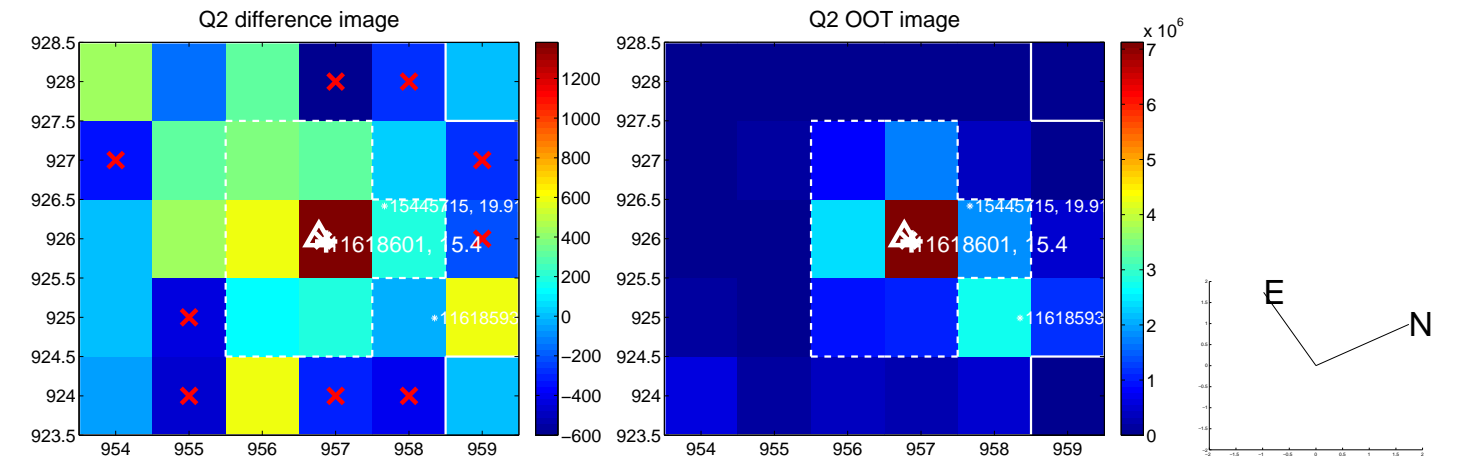
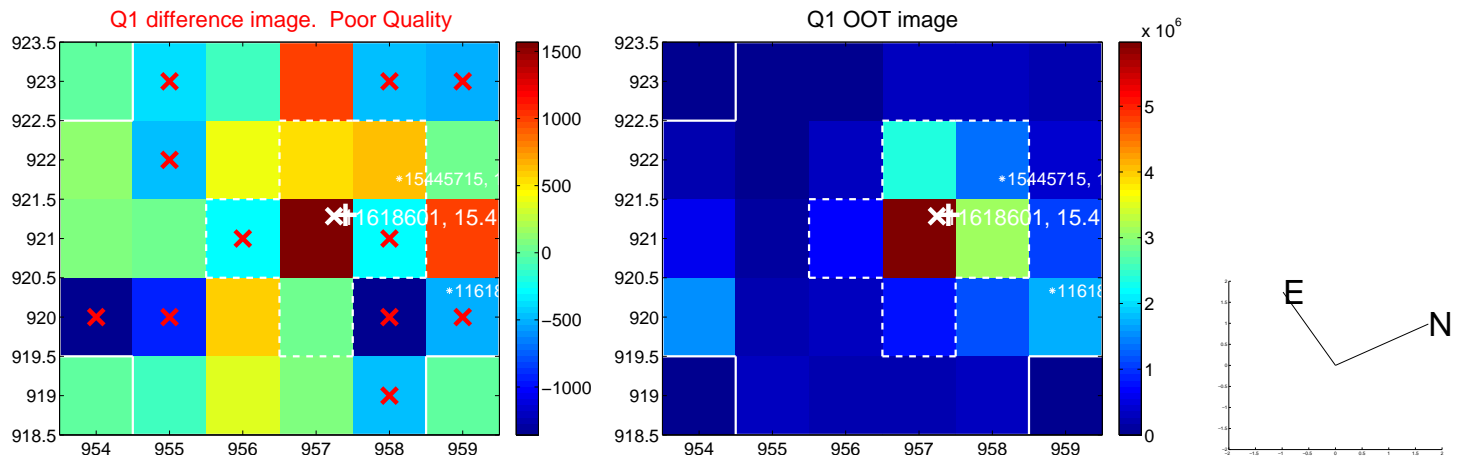
The direct PRF centroid is offset from the target star catalog position by about 0.66 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.330 ± 0.585	0.56	-0.292 ± 0.595	-0.153 ± 0.492
PRF-fit source offset from KIC position	0.488 ± 0.550	0.89	-0.444 ± 0.549	0.202 ± 0.491
photometric centroid source offset	1.15 ± 1.06	1.08	-0.56 ± 1.20	1.00 ± 1.02

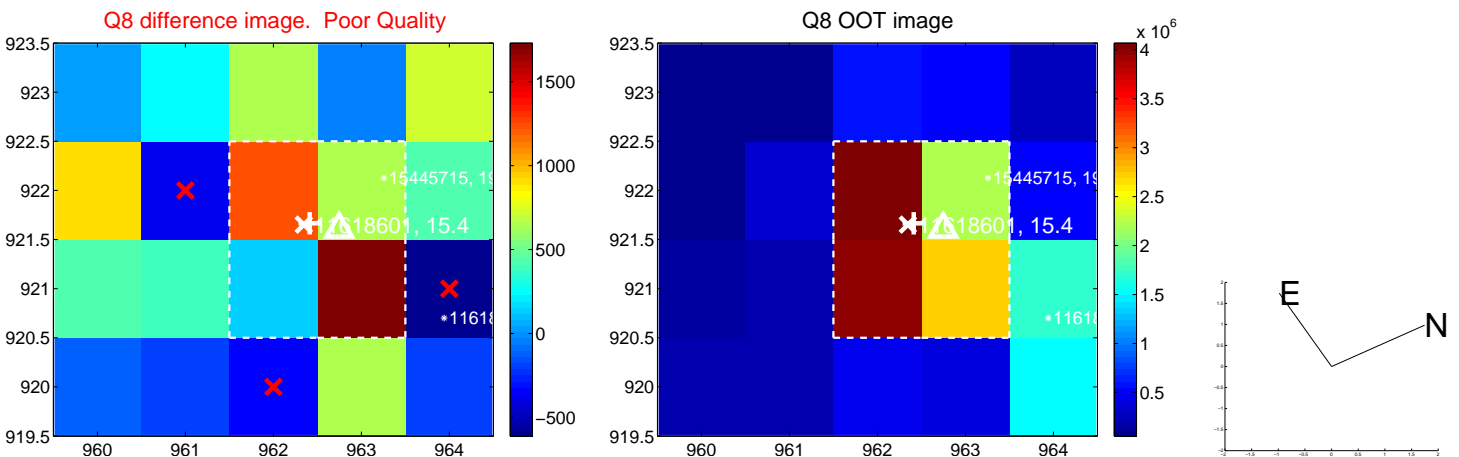
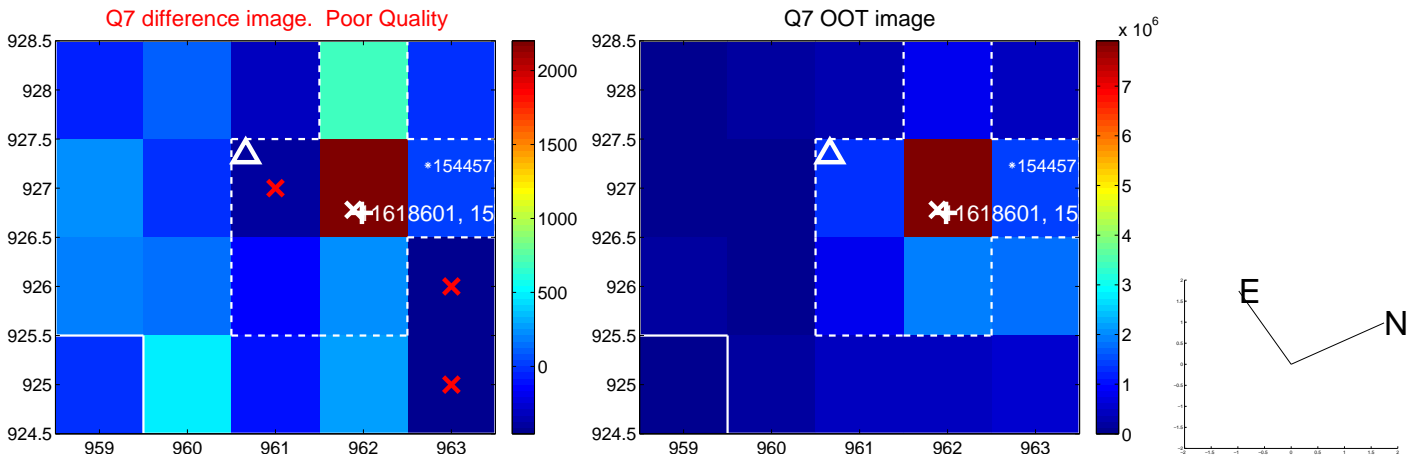
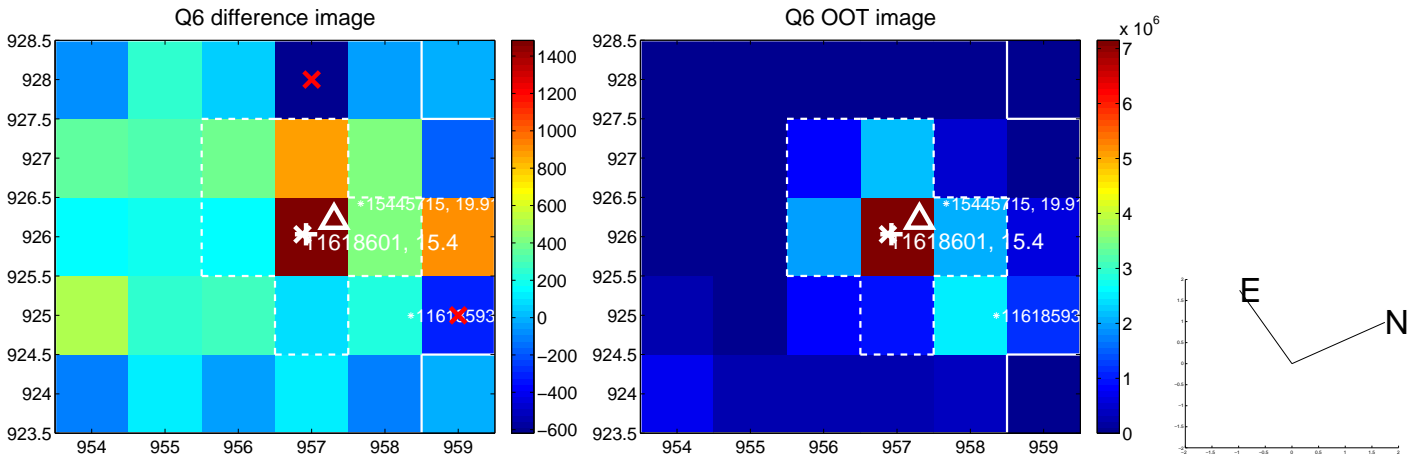
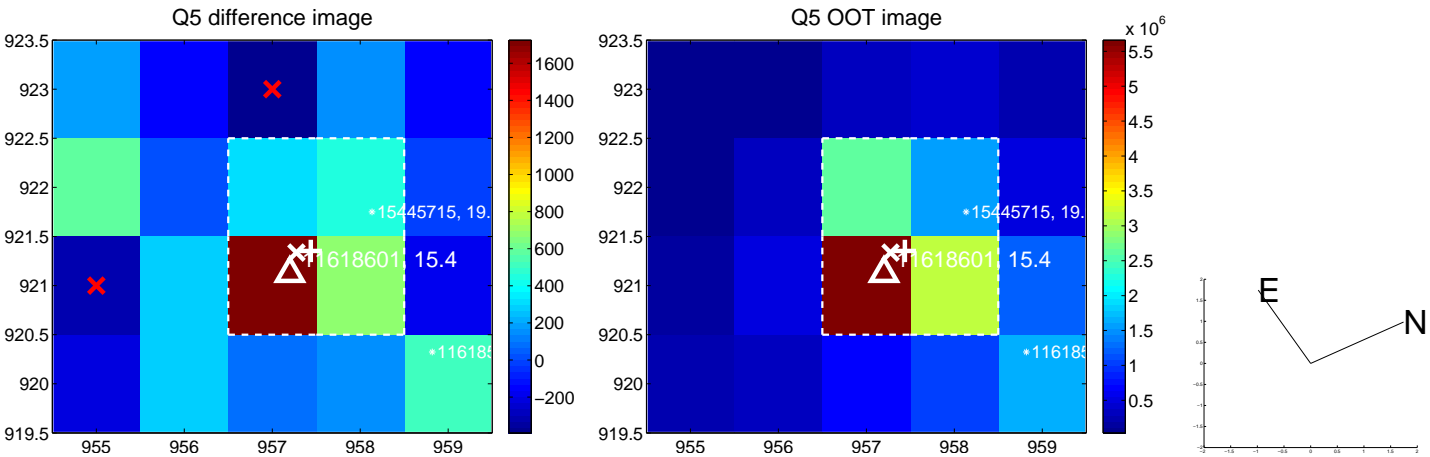


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

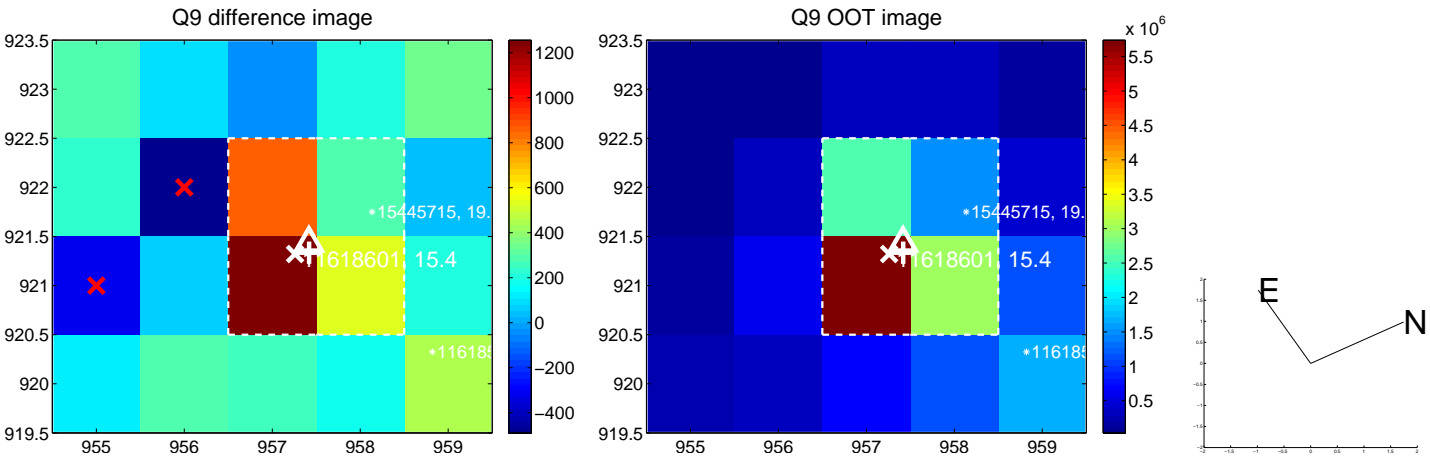
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



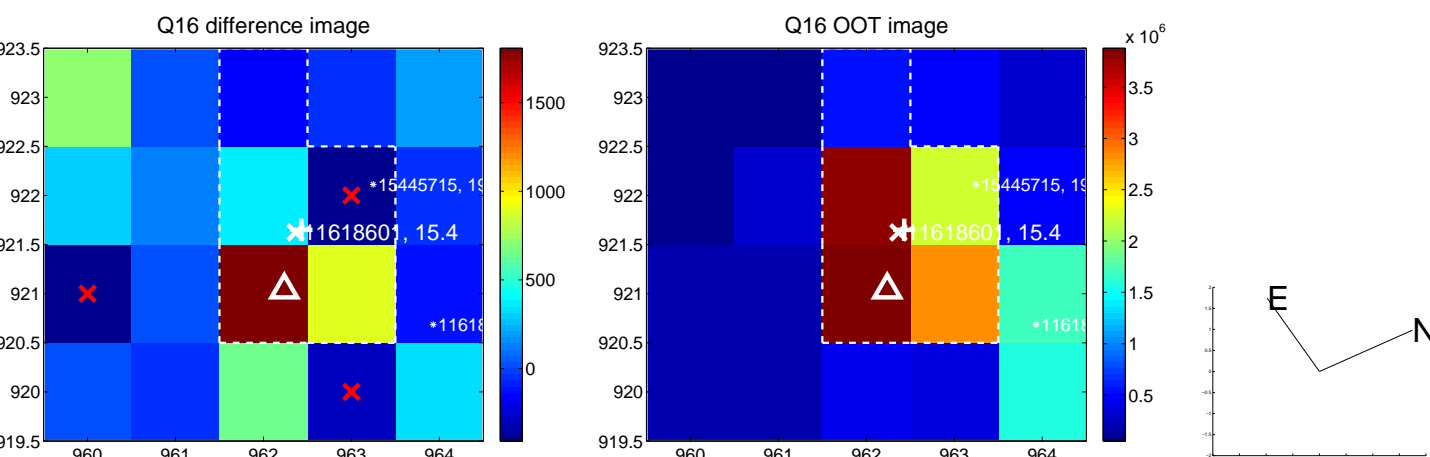
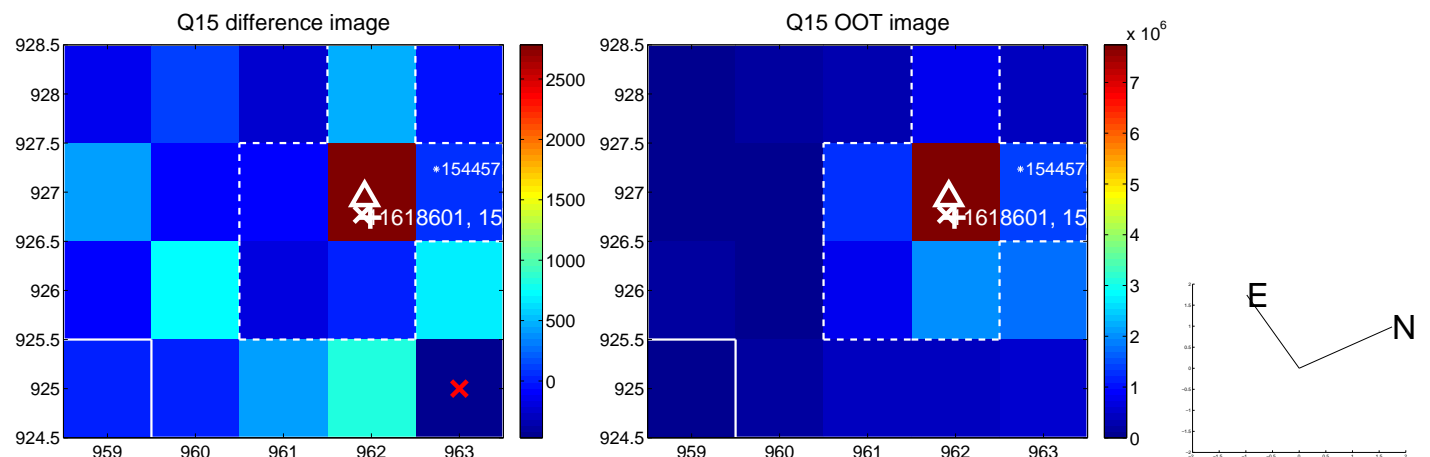
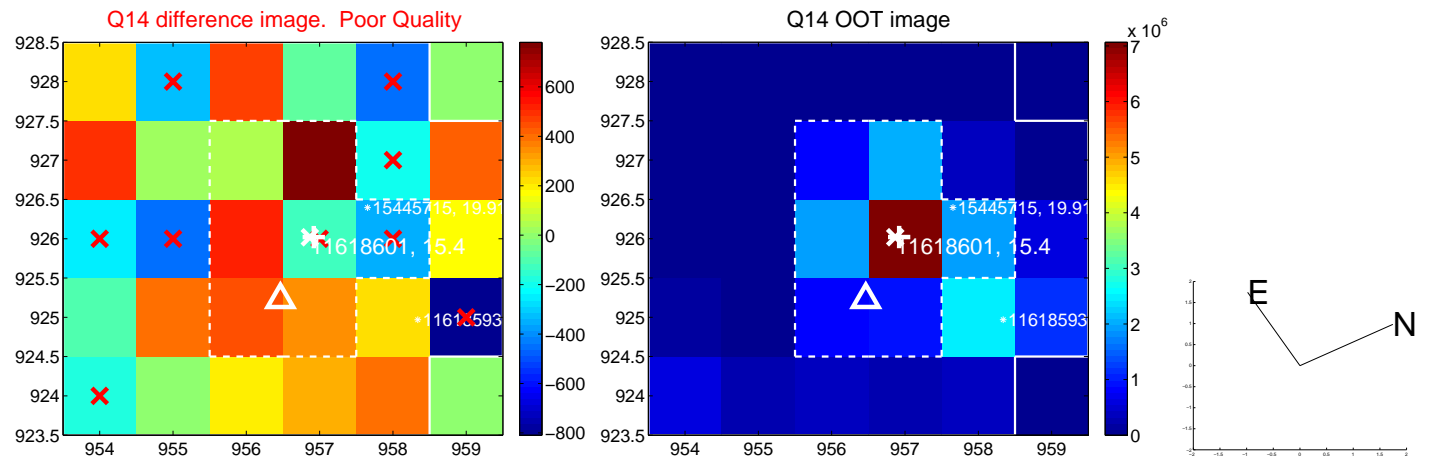
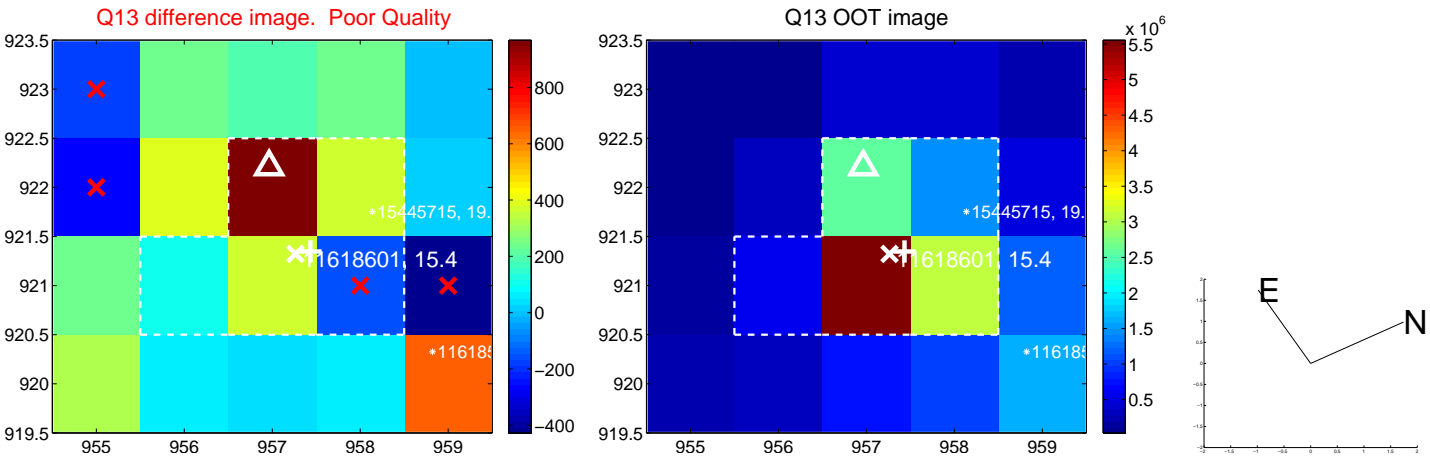
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



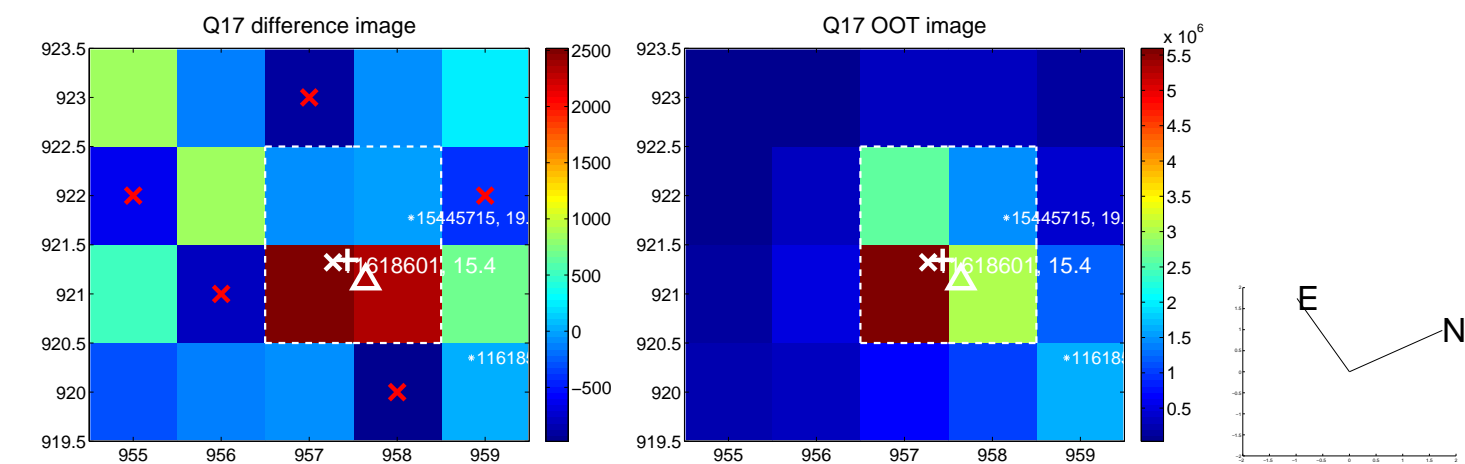
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



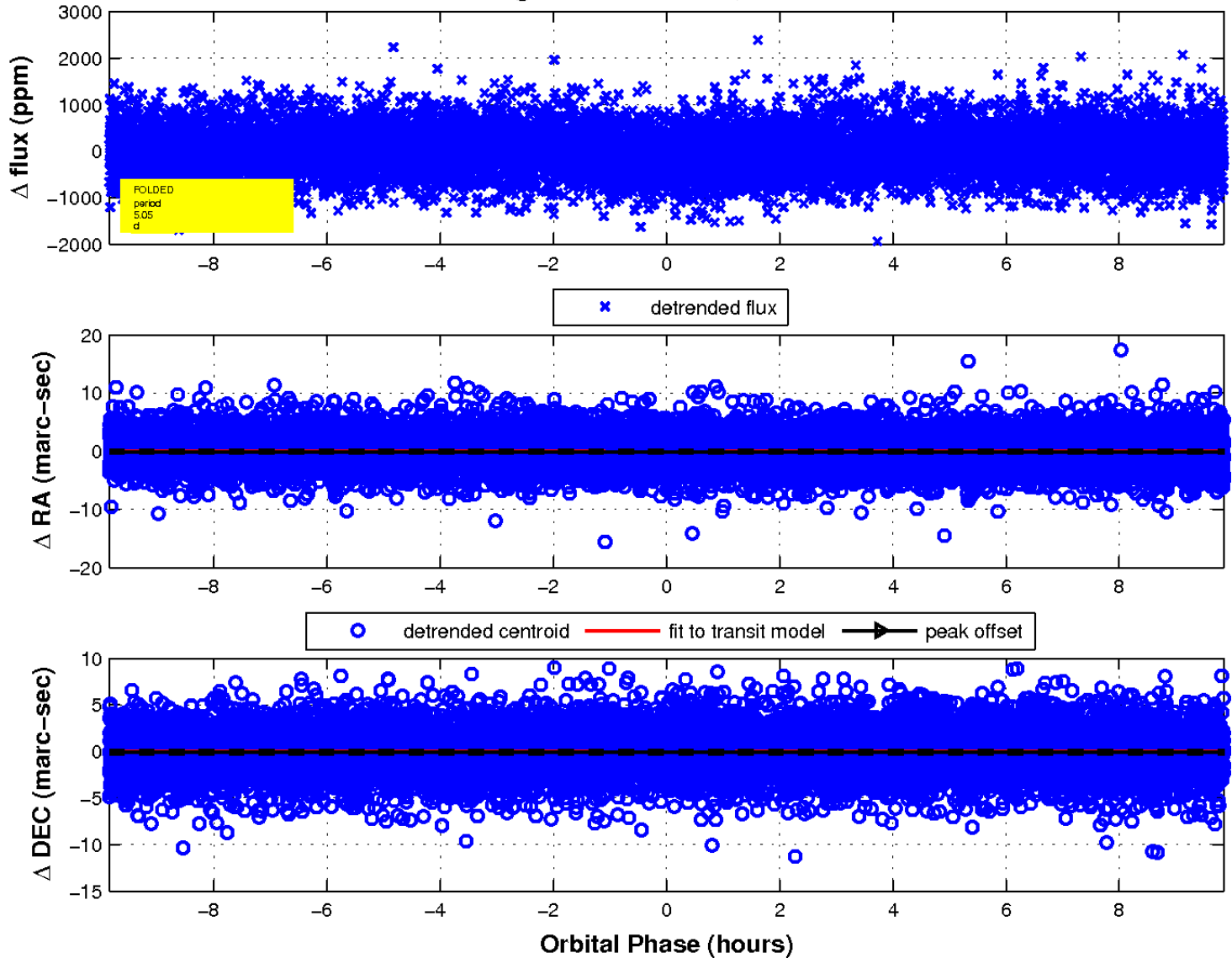
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

