

KIC 011242721

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})
011242721-01	OBS	0763.01	19.651205	140.099848	11758.5	5.292	509.5	496.1	1.06	6074	12.51	67.19
011242721-02	OBS	No	19.651458	150.253990	219.8	3.817	7.8	9.0	1.06	6074	1.82	67.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011242721-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
011242721-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

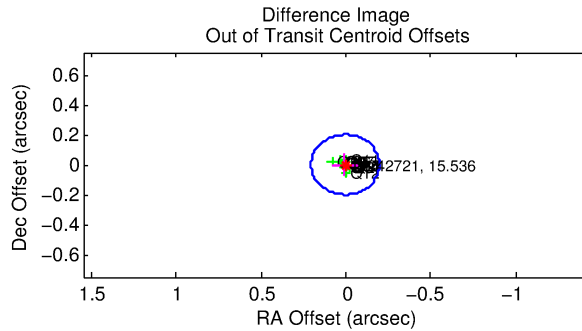
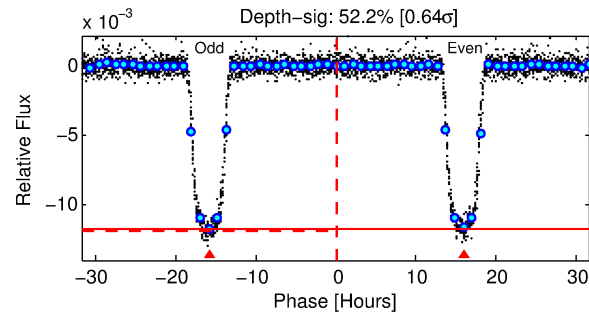
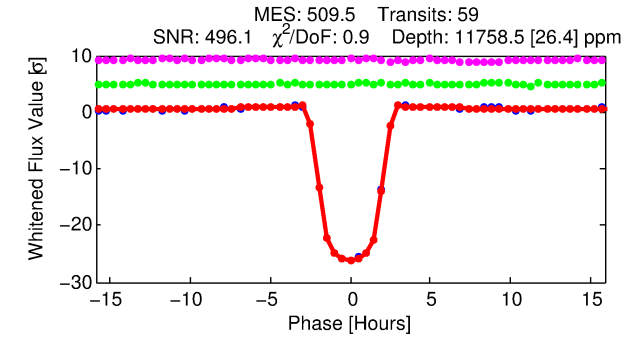
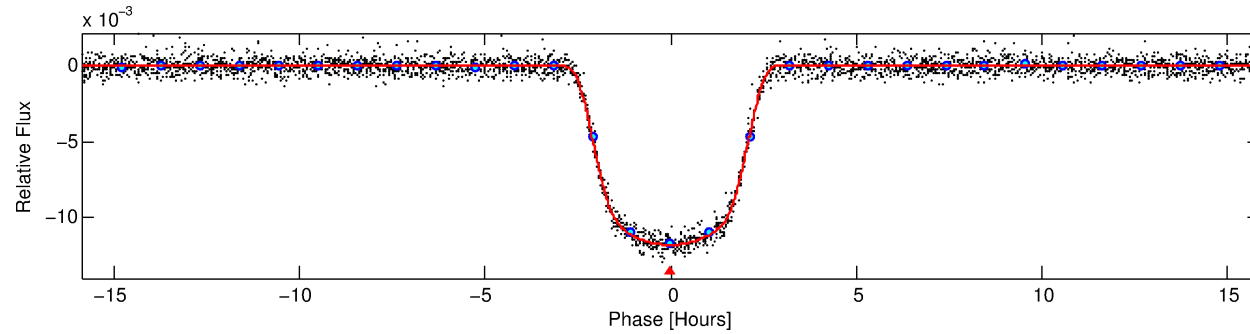
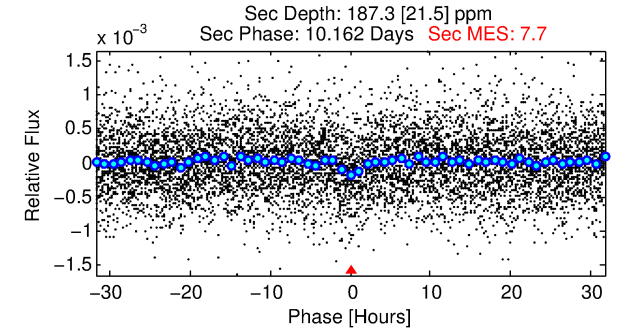
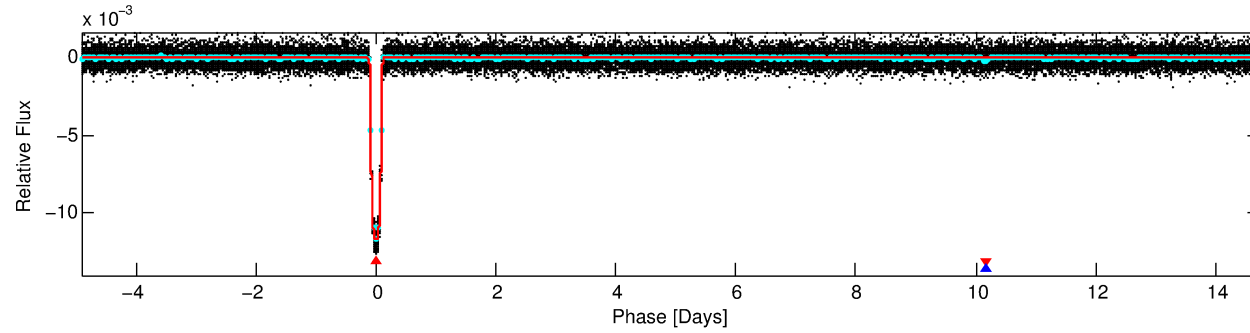
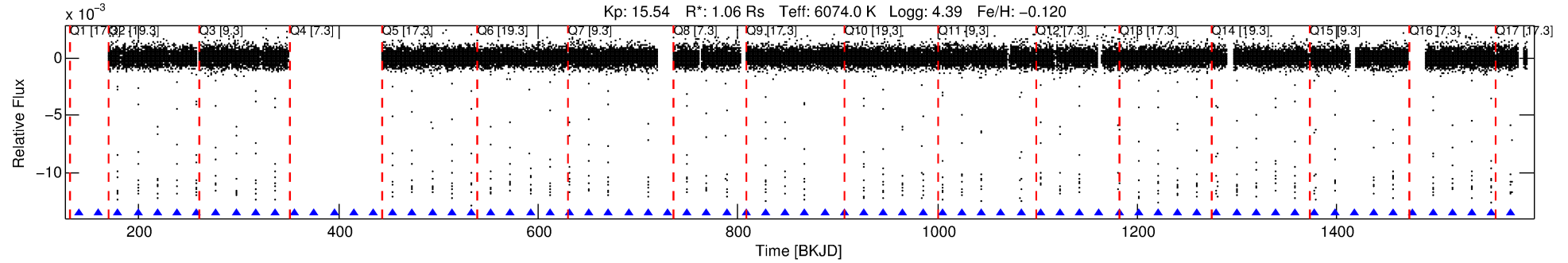
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011242721-01

No Significant Match Found

DV One-Page Summary

KIC: 11242721 Candidate: 1 of 2 Period: 19.651 d
KOI: K00763.01 Corr: 0.997



DV Fit Results:

Period = 19.65120 [0.00001] d
Epoch = 140.0998 [0.0003] BKJD
Rp/R* = 0.1078 [0.0003]
a/R* = 23.37 [0.20]
b = 0.74 [0.01]
Seff = 67.19 [27.49]
Teq = 730 [75] K
Rp = 12.51 [3.95] Re
a = 0.1432 [0.0380] AU
Ag = 13.50 [5.43] [2.30 σ]
Teffp = 2164 [97] K [11.69 σ]

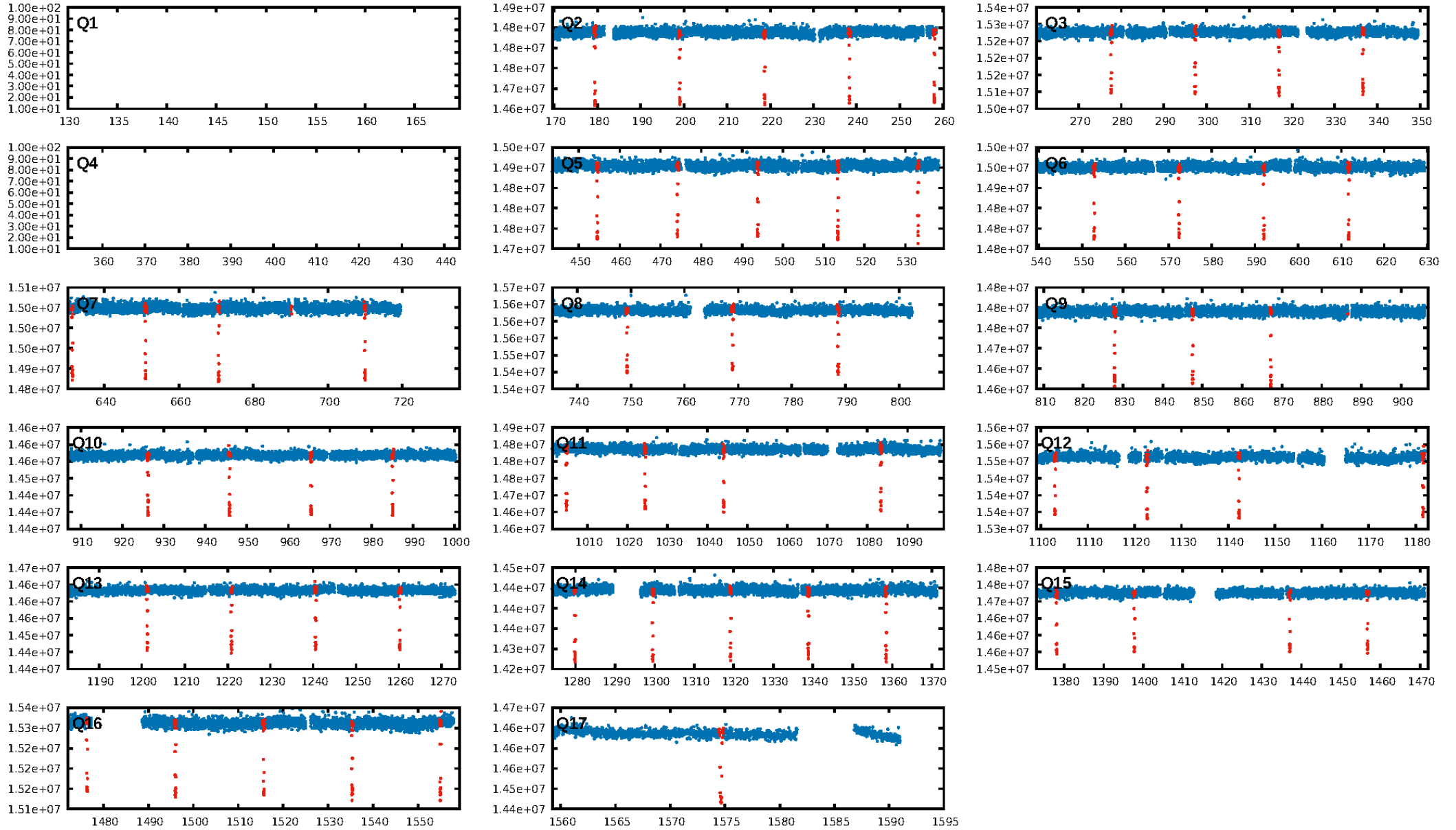
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: 81.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [58/58]
GhostDiagnostic-chr: 6.57
Centroid-sig: 51.8%
Centroid-so: 0.063 arcsec [2.11 σ]
OotOffset-rm: 0.006 arcsec [0.10 σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.043 arcsec [0.64 σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [15/15]

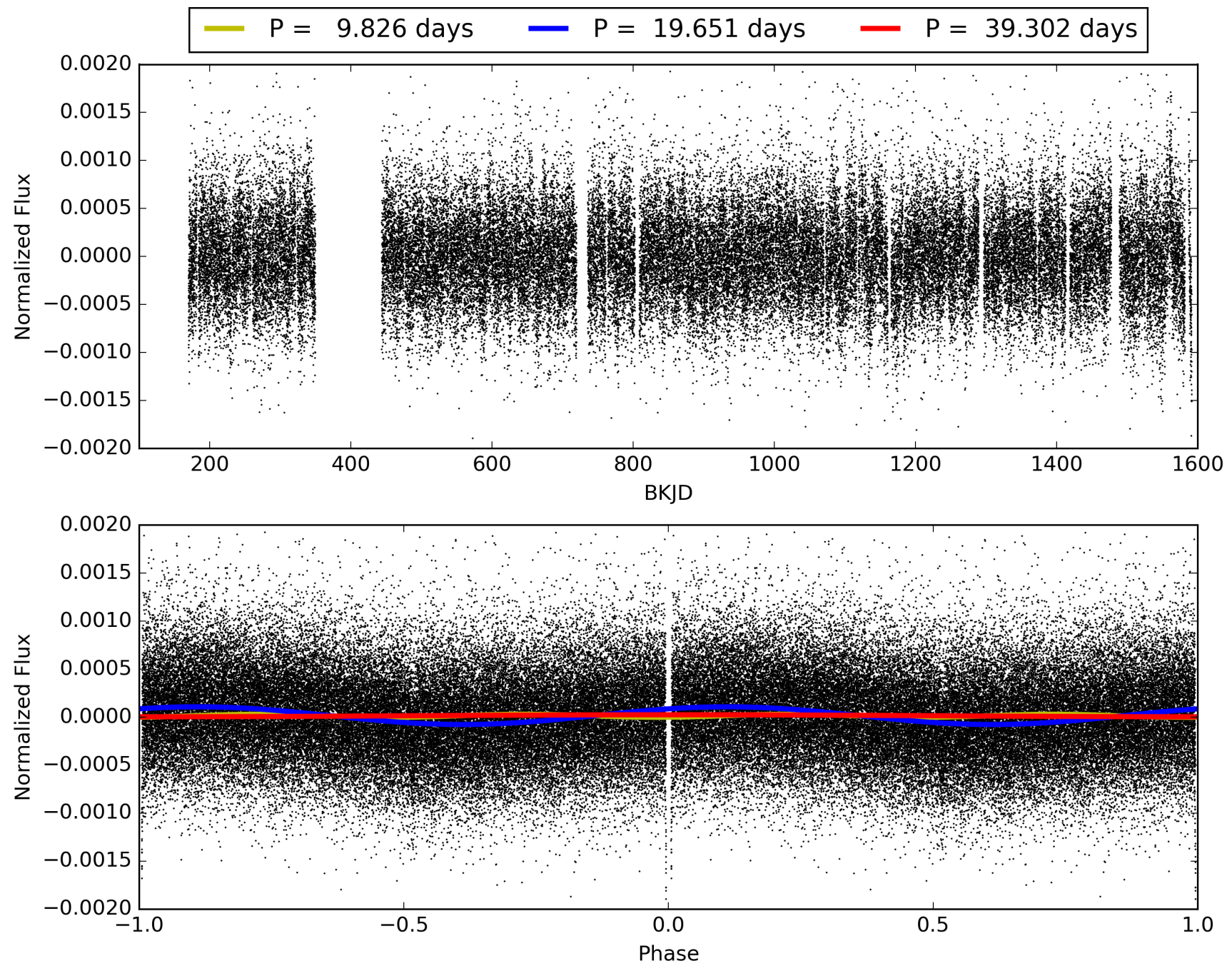
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:55:36 Z

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

TCE 011242721-01, PDC Light Curves

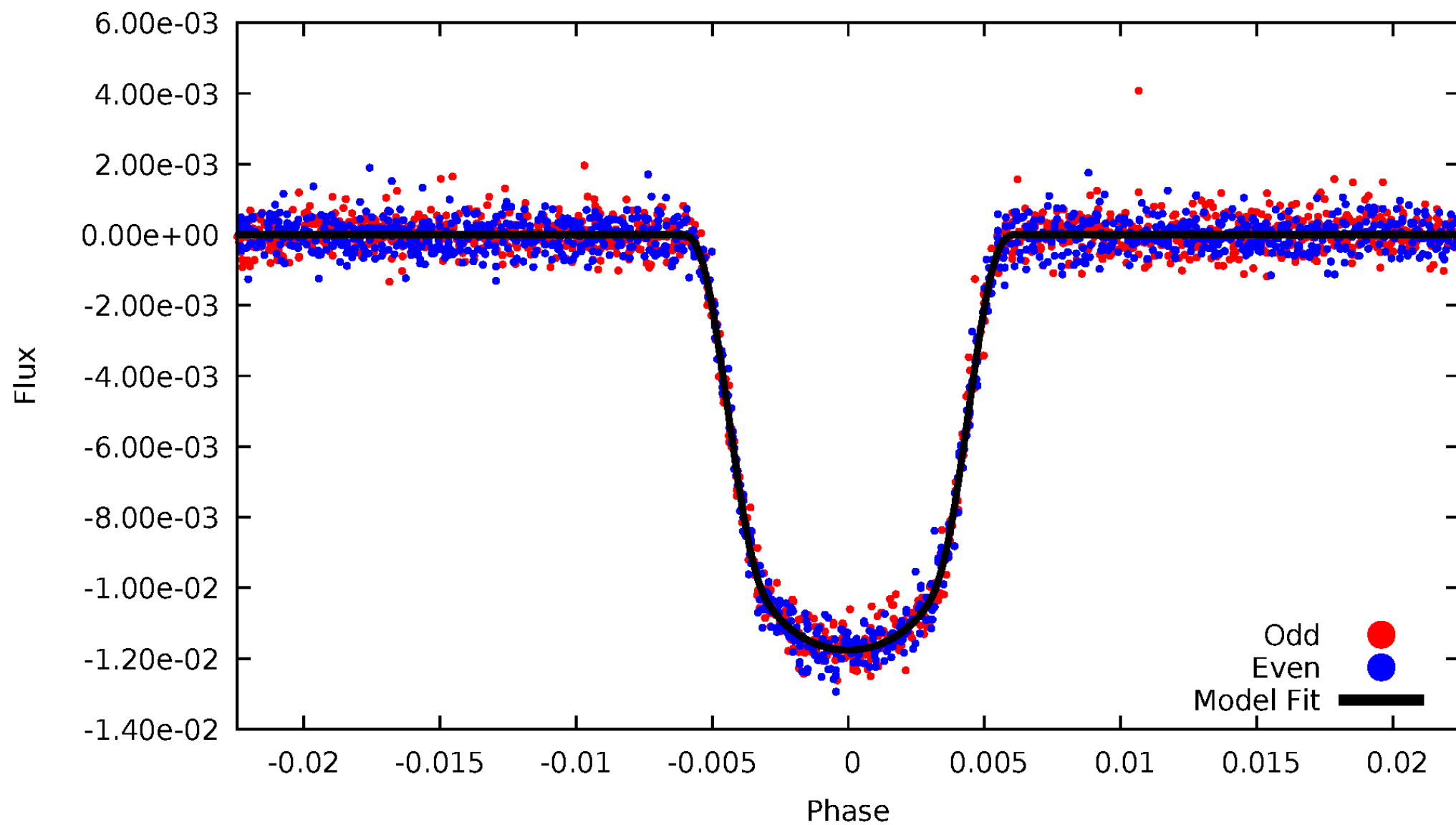


TCE 011242721-01



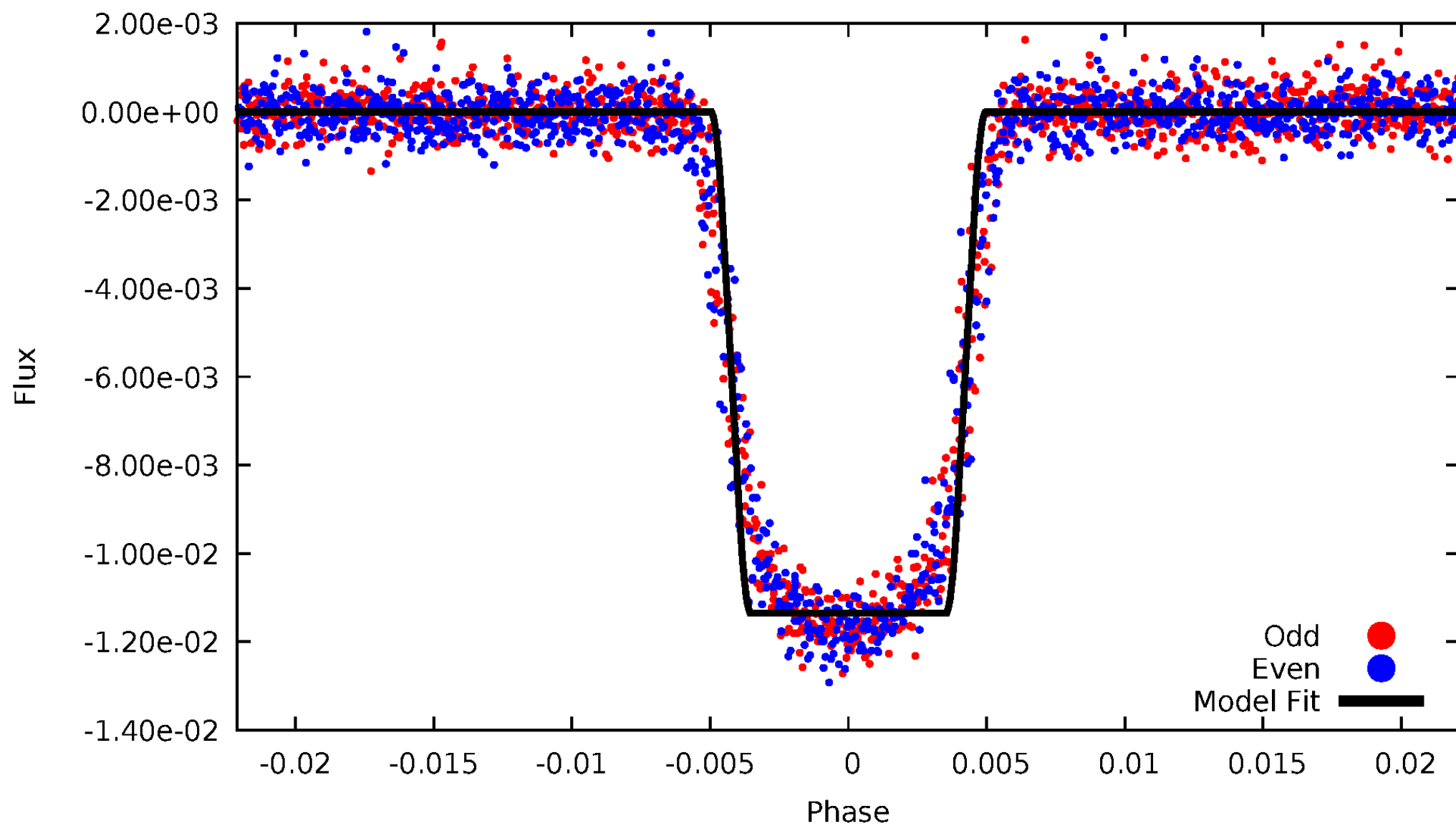
DV Odd/Even

TCE 011242721-01



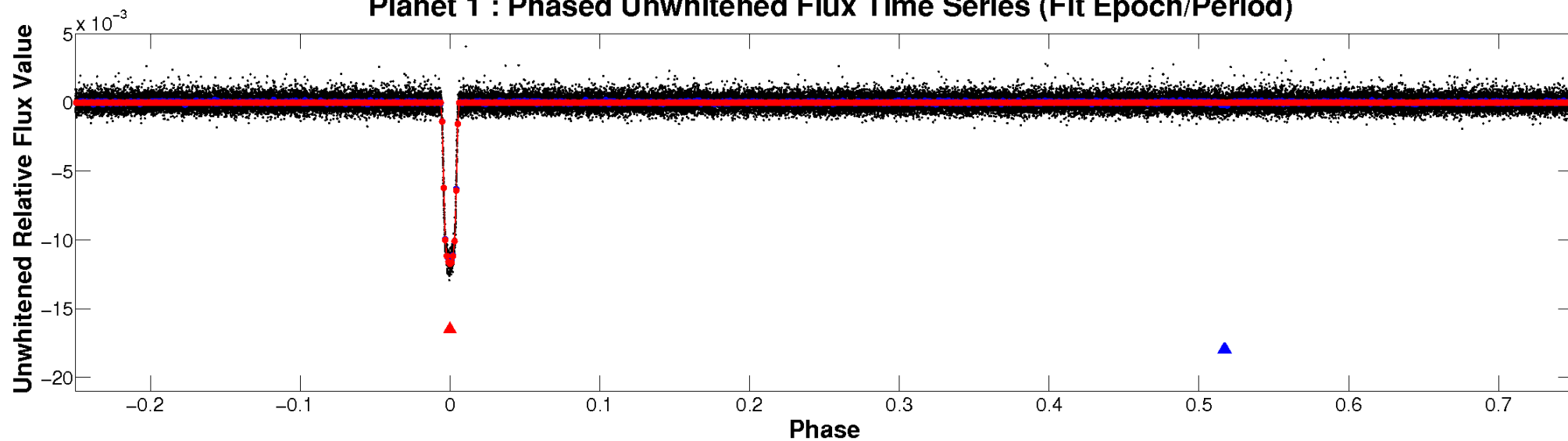
ALT Odd/Even

TCE 011242721-01

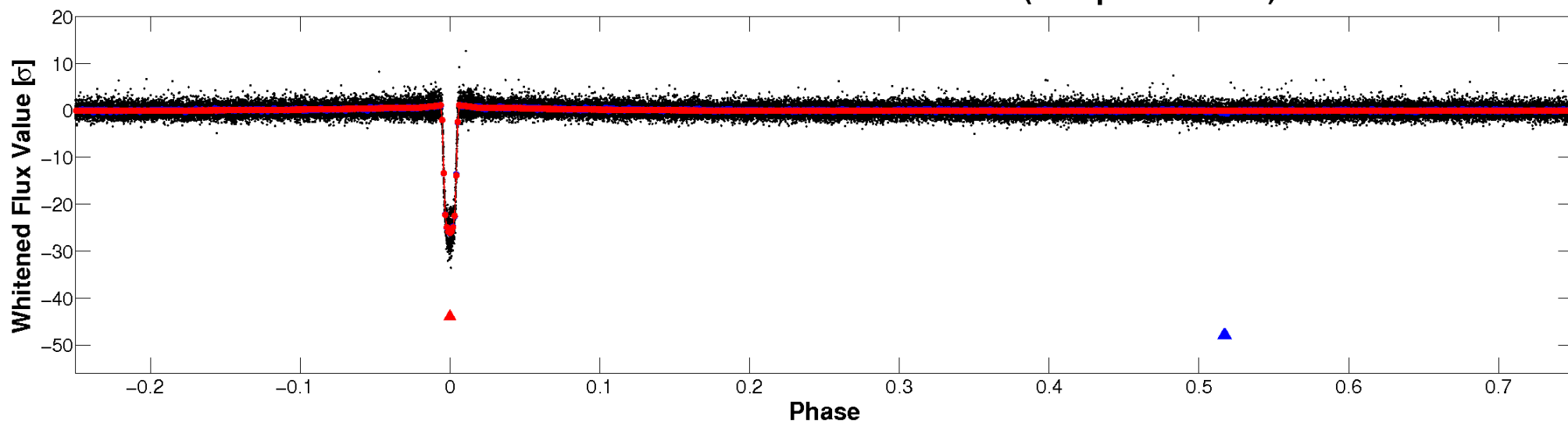


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

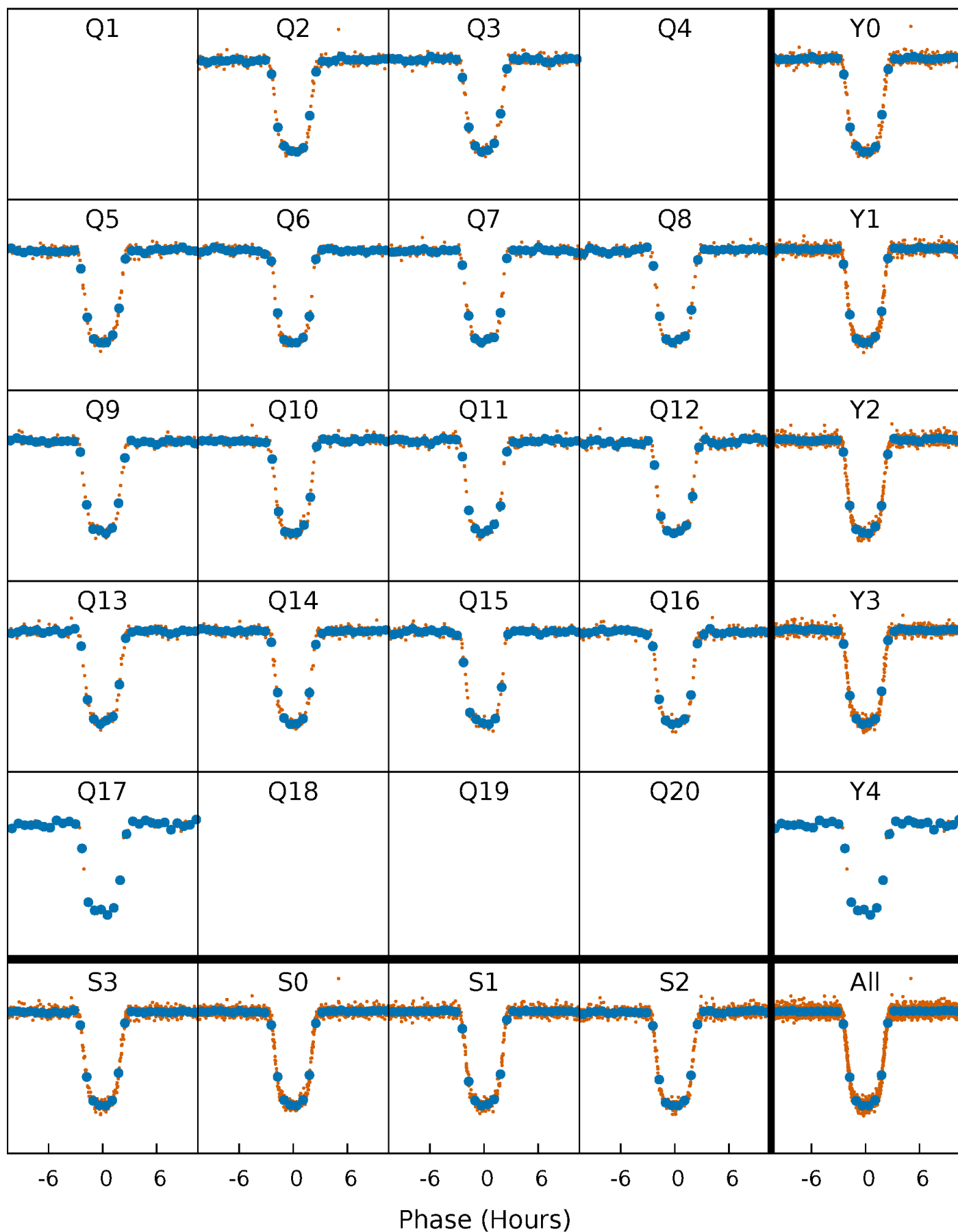


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



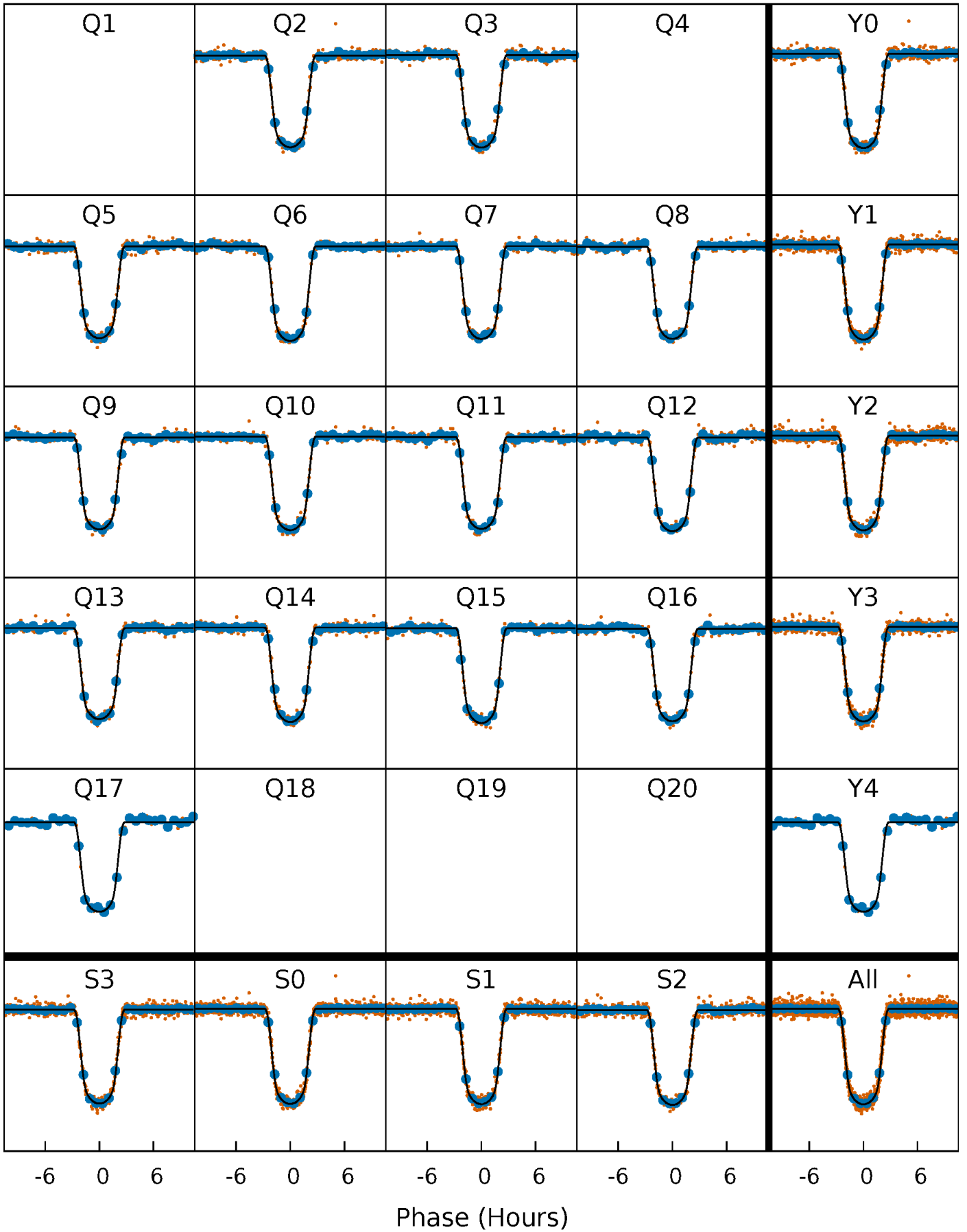
PDC Quarter-Phased Transit Curves

TCE 011242721-01 P= 19.651205 Days $T_0=140.099848$ (BKJD)



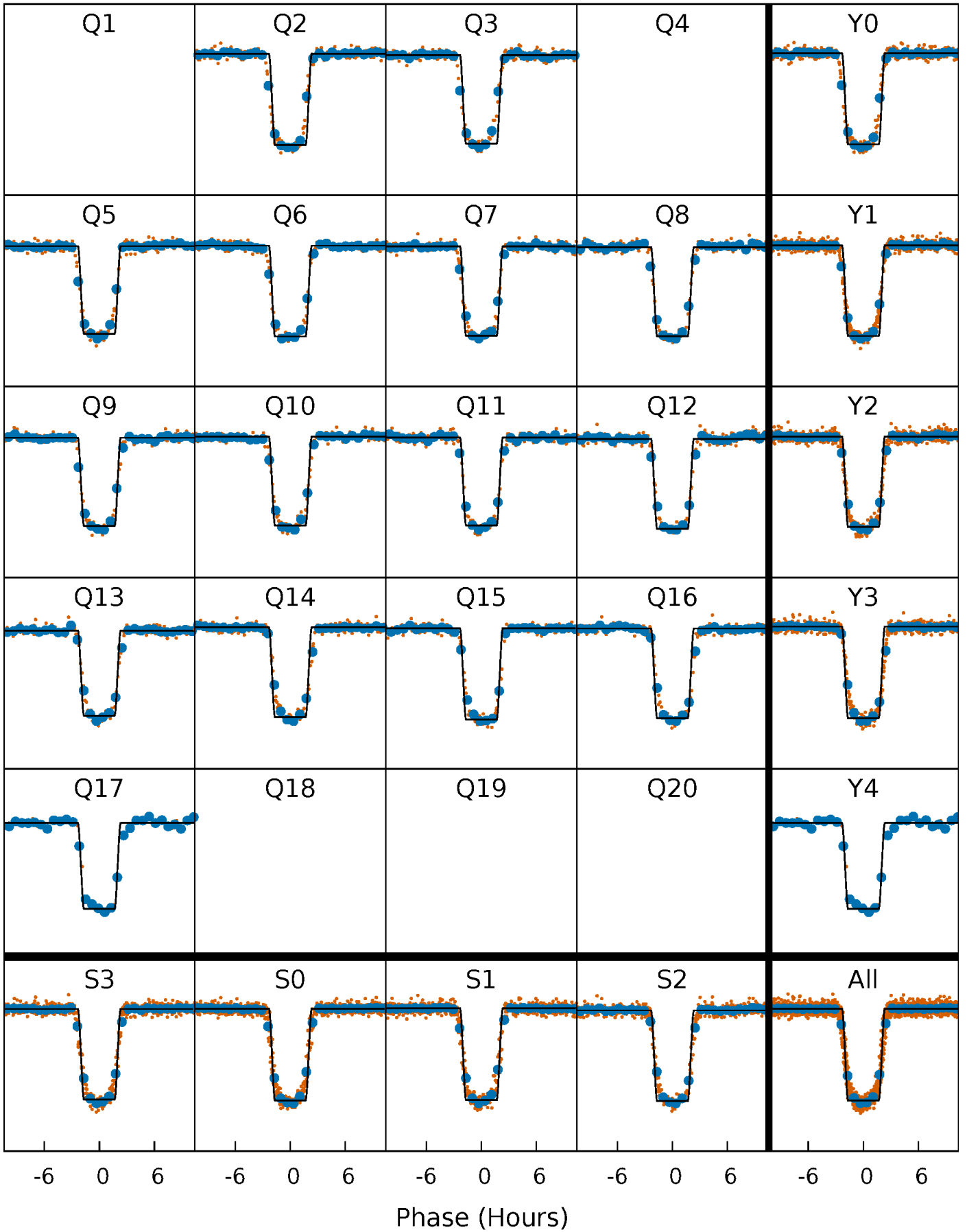
DV Quarter-Phased Transit Curves

TCE 011242721-01 P= 19.651205 Days $T_0=140.099848$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

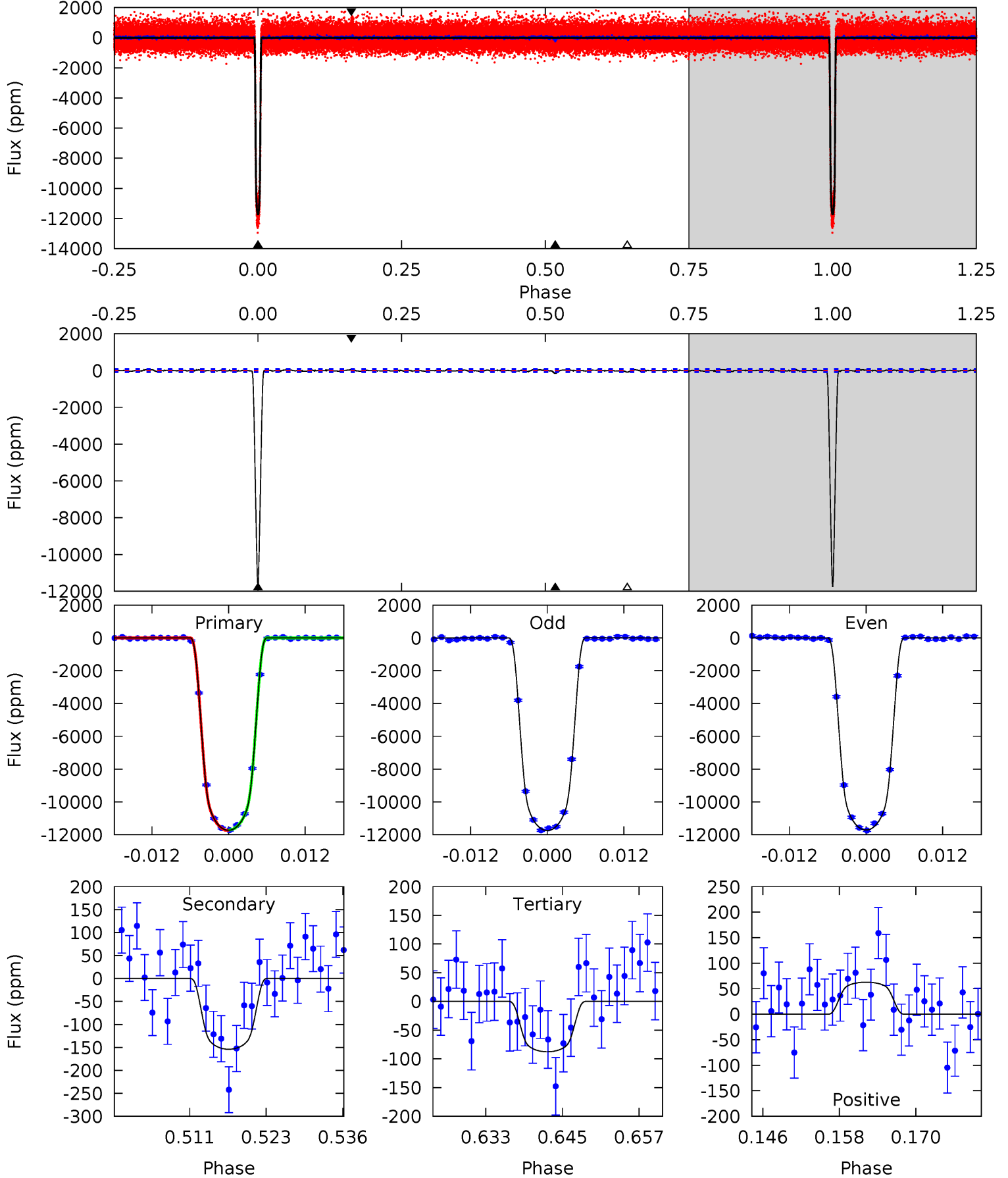
TCE 011242721-01 P= 19.650951 Days $T_0=140.109645$ (BKJD)



DV Model-Shift Uniqueness Test

011242721-01, P = 19.651205 Days, E = 140.099848 Days

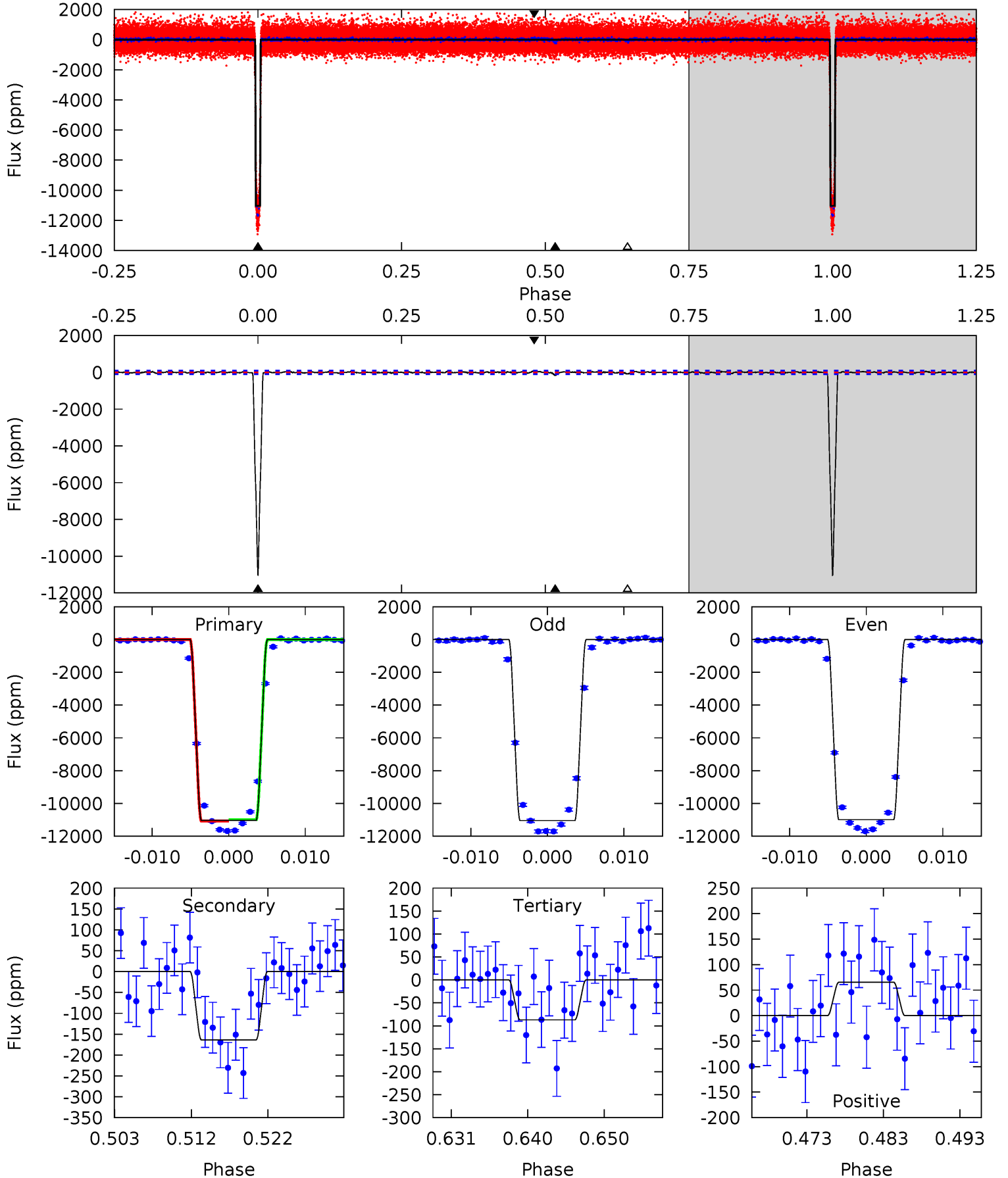
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
703.5	9.24	5.26	3.76	4.99	2.51	1.24	698.3	699.8	3.98	5.48	1.04	1.00	0.01	0.67



Alt Model-Shift Uniqueness Test

011242721-01, P = 19.650951 Days, E = 140.109645 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
559.6	8.30	4.42	3.32	5.03	2.58	1.02	555.2	556.3	3.88	4.98	1.43	1.00	0.01	1.88



Stellar Parameters For KIC 011242721

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6074^{+168}_{-210}	$4.391^{+0.090}_{-0.210}$	$-0.120^{+0.300}_{-0.300}$	$1.063^{+0.336}_{-0.144}$	$1.014^{+0.153}_{-0.126}$	$1.189^{+0.551}_{-0.597}$
	+3%/-3%	+2%/-5%	+250%/-250%	+32%/-14%	+15%/-12%	+46%/-50%
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 011242721-01 / KOI 0763.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-154 ± 17	$12.68^{+2.09}_{-1.09}$	1035^{+72}_{-54}	2794^{+57}_{-64}	10^{+3}_{-3}
Alt.	-164 ± 20	$12.49^{+2.10}_{-1.01}$	1032^{+75}_{-55}	2825^{+69}_{-73}	11^{+3}_{-3}

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

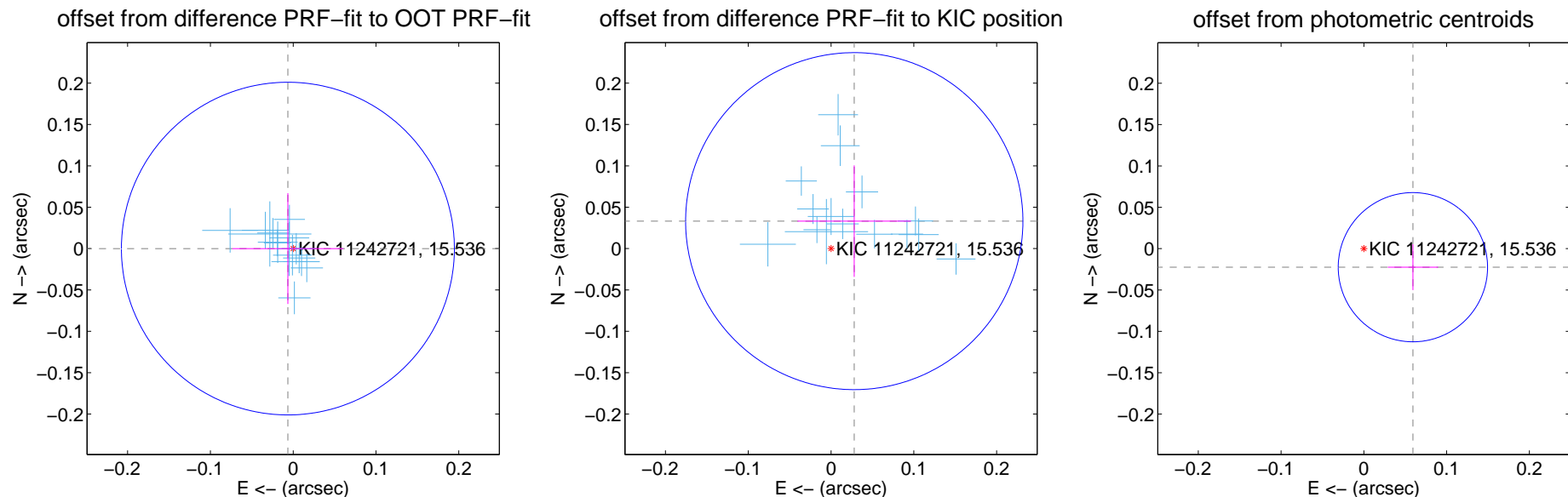
DV Centroid Data

Supplemental centroid analysis for 011242721-01. Kepler magnitude: 15.54. Transit SNR 496.09

There are 15 quarters with good PRF difference image offsets

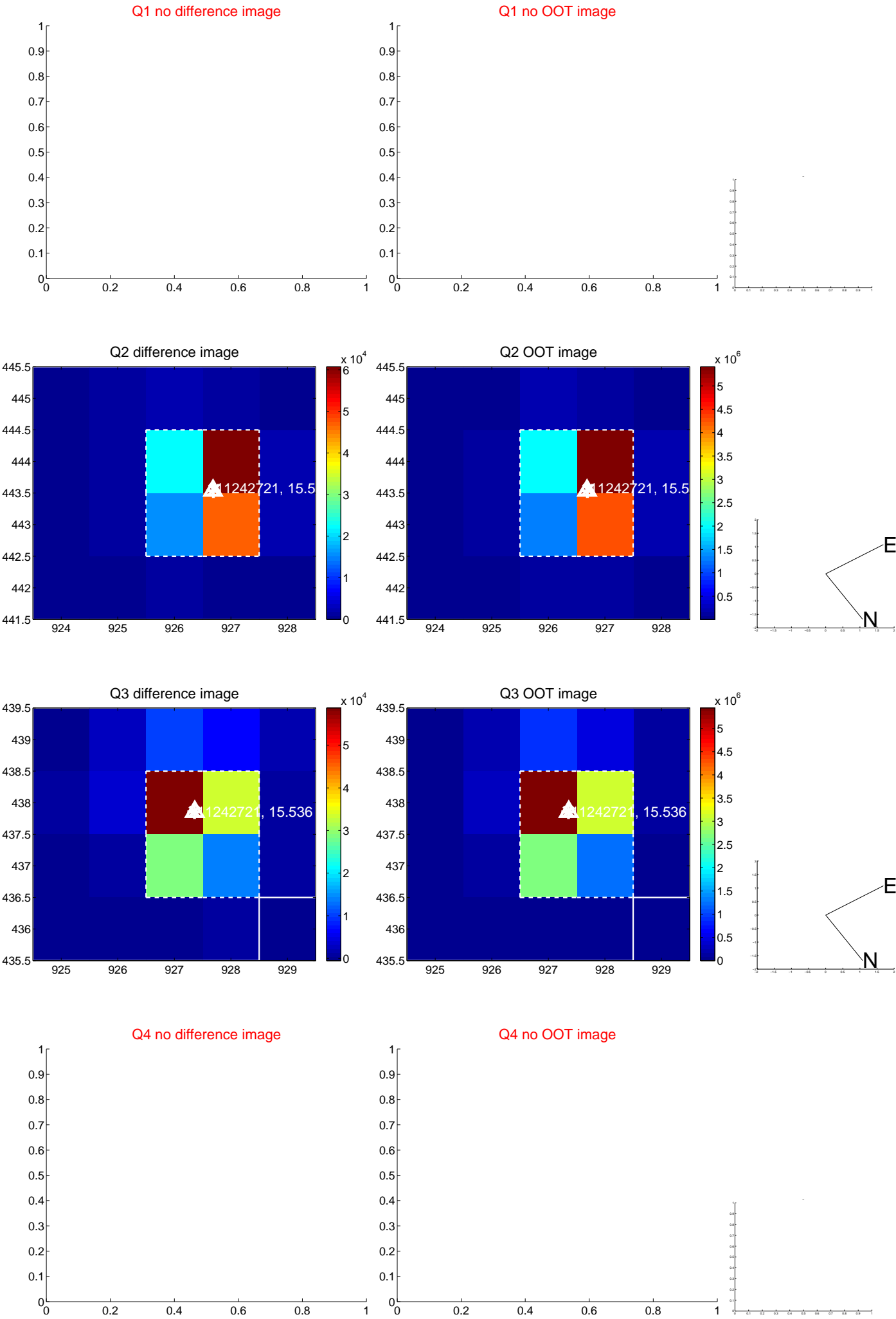
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.006 ± 0.067	0.10	0.006 ± 0.067	-0.000 ± 0.067
PRF-fit source offset from KIC position	0.043 ± 0.068	0.64	-0.028 ± 0.069	0.033 ± 0.067
photometric centroid source offset	0.06 ± 0.03	2.11	-0.06 ± 0.03	-0.02 ± 0.03

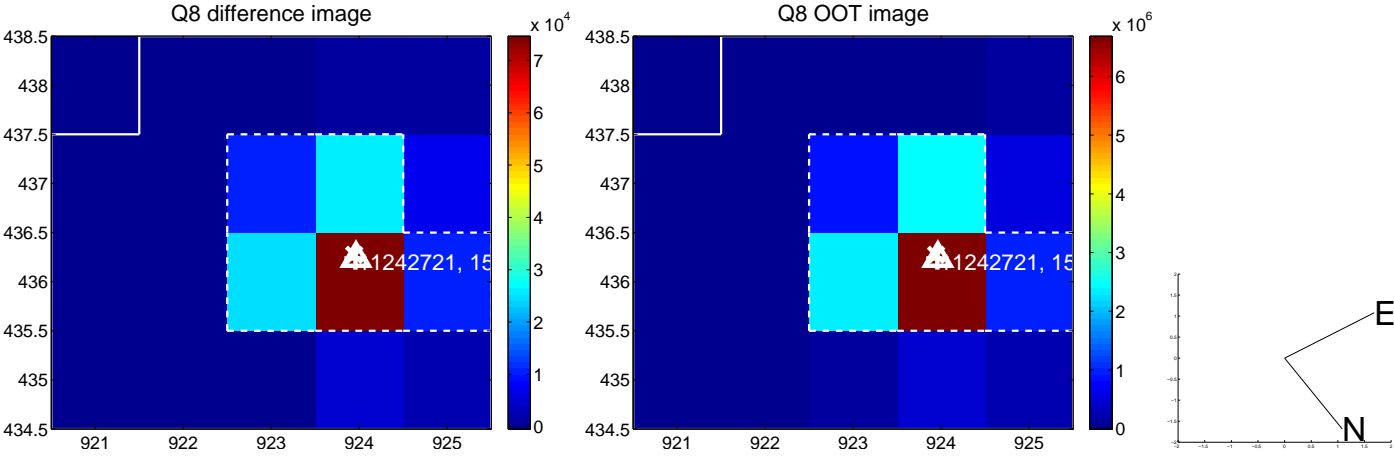
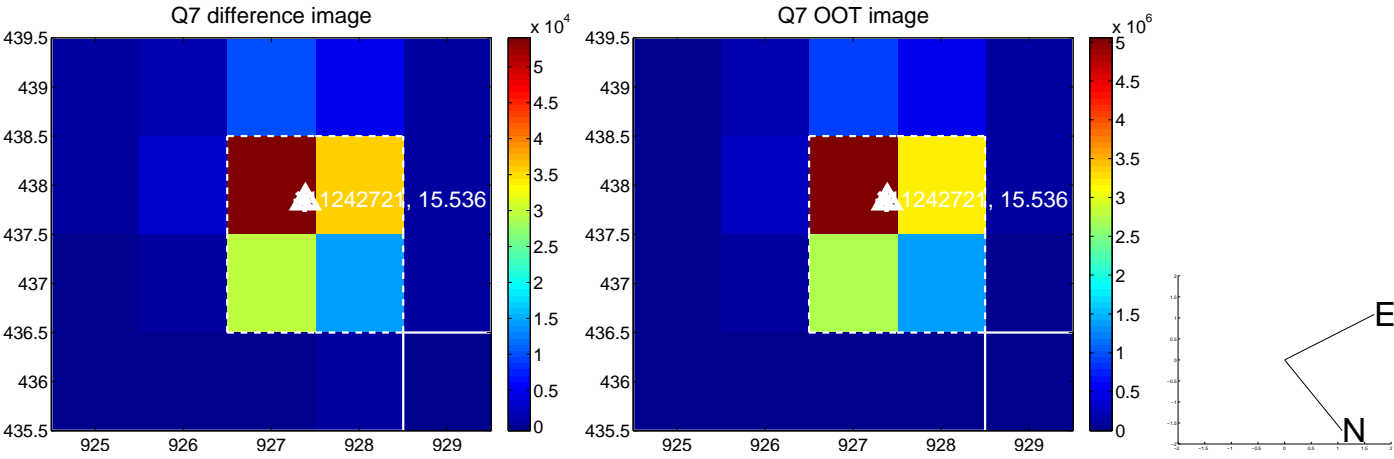
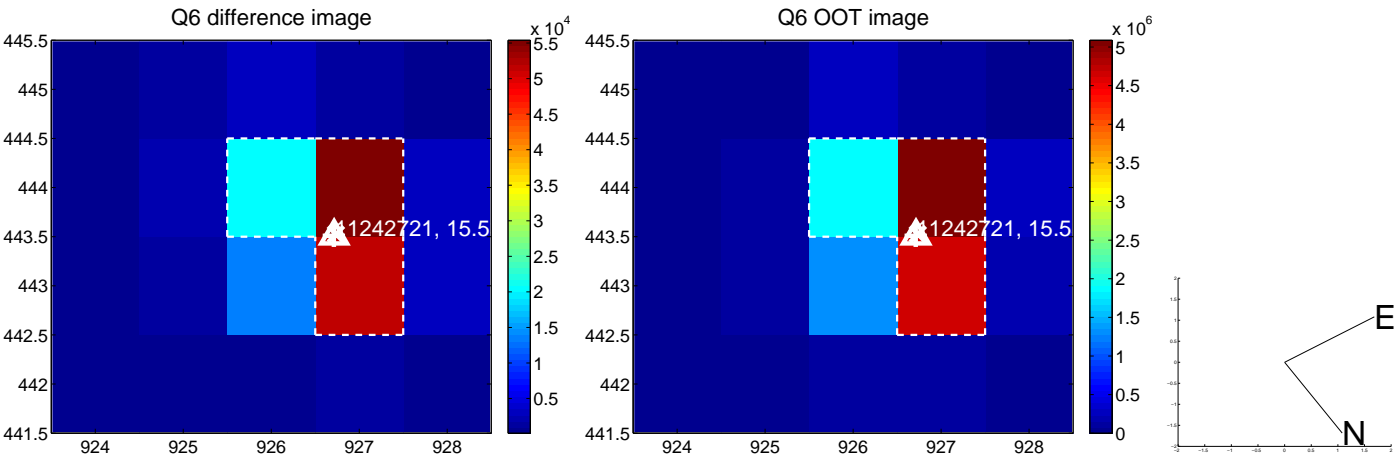
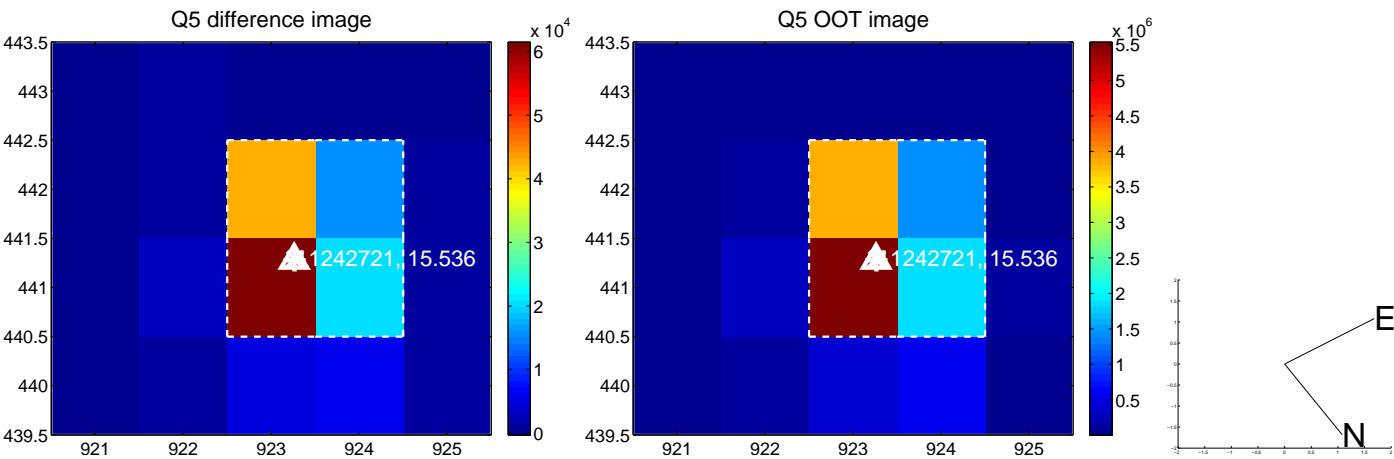


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

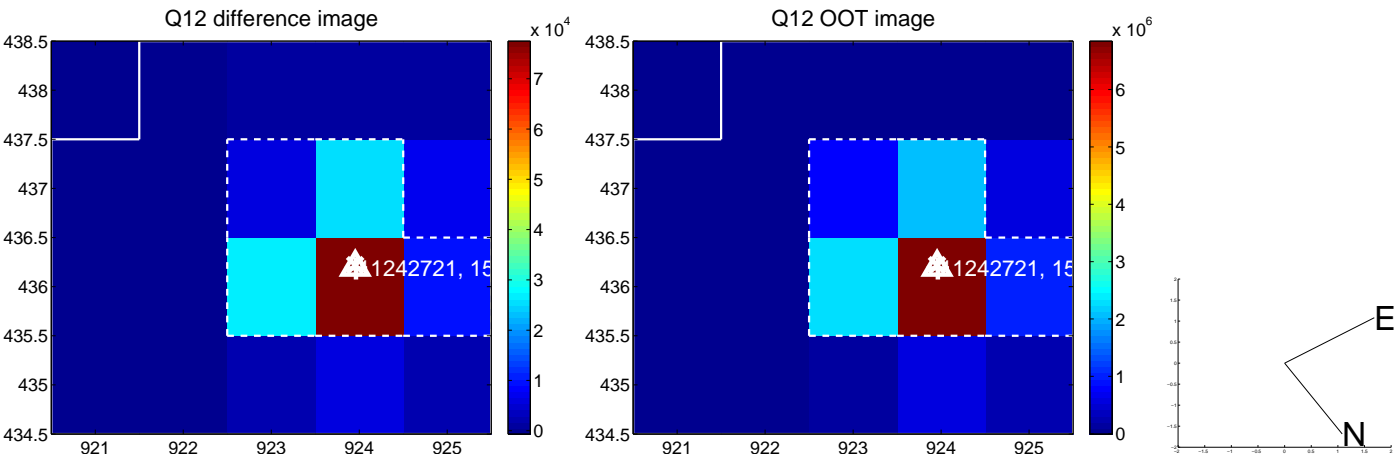
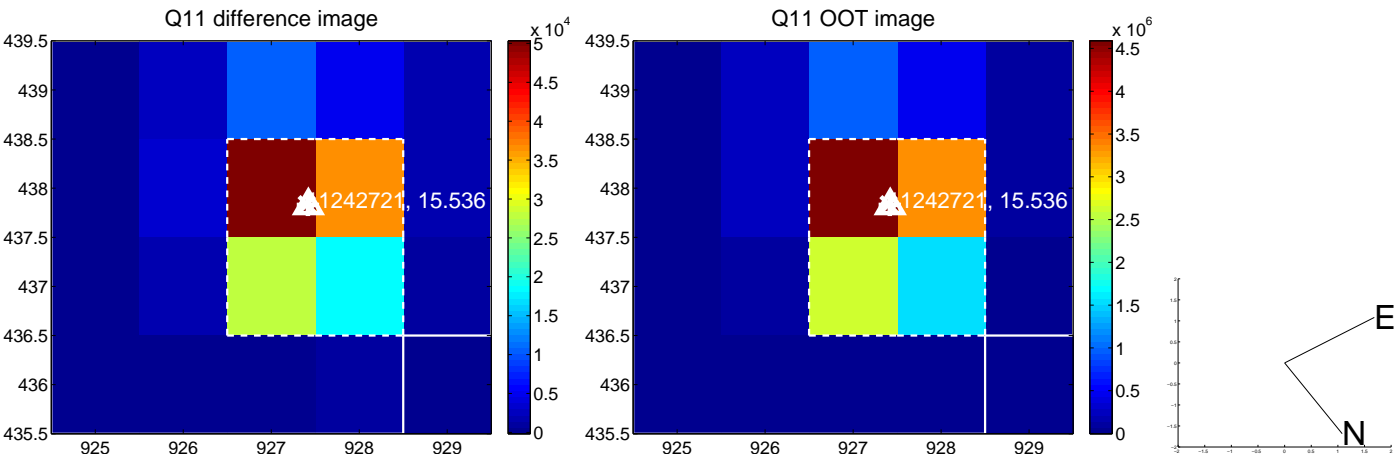
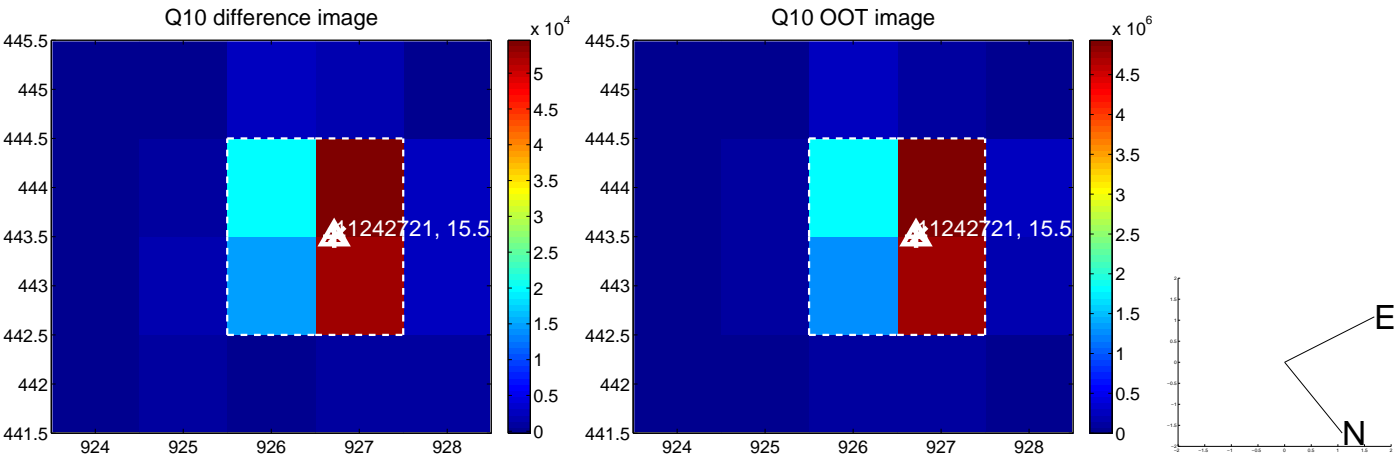
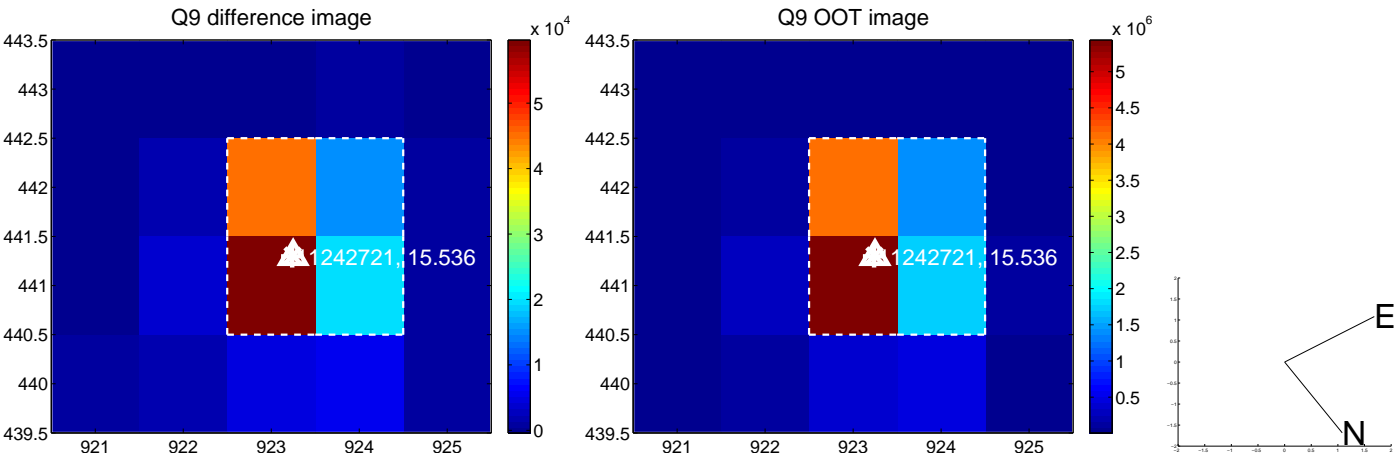
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



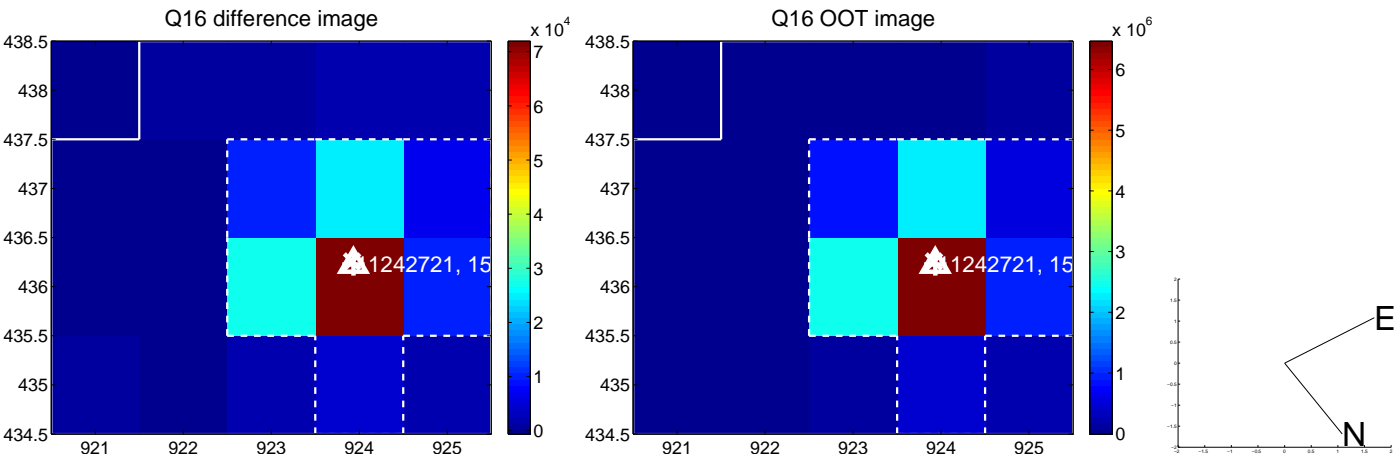
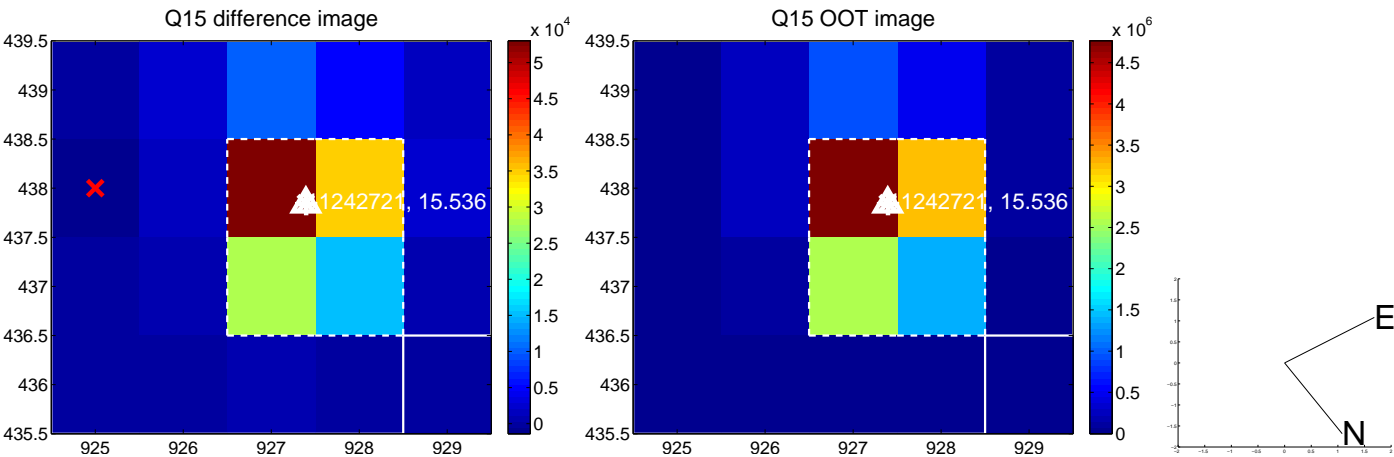
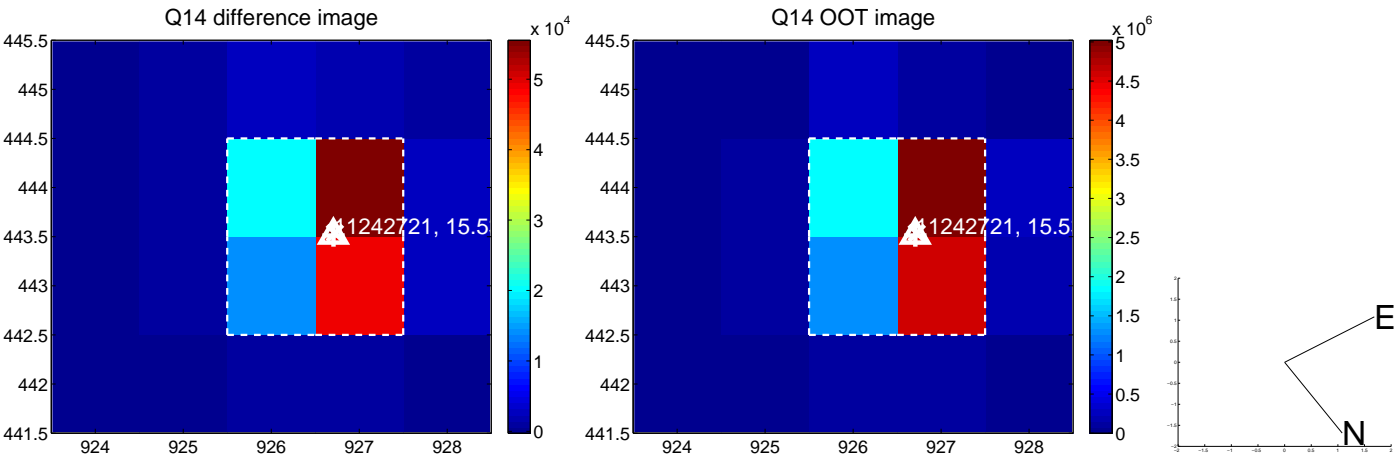
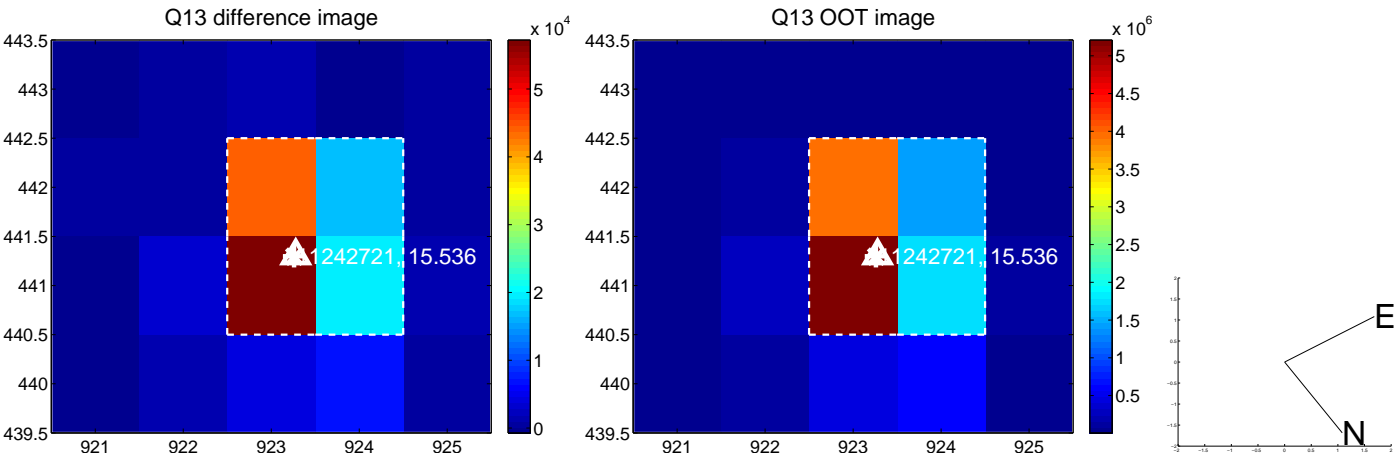
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



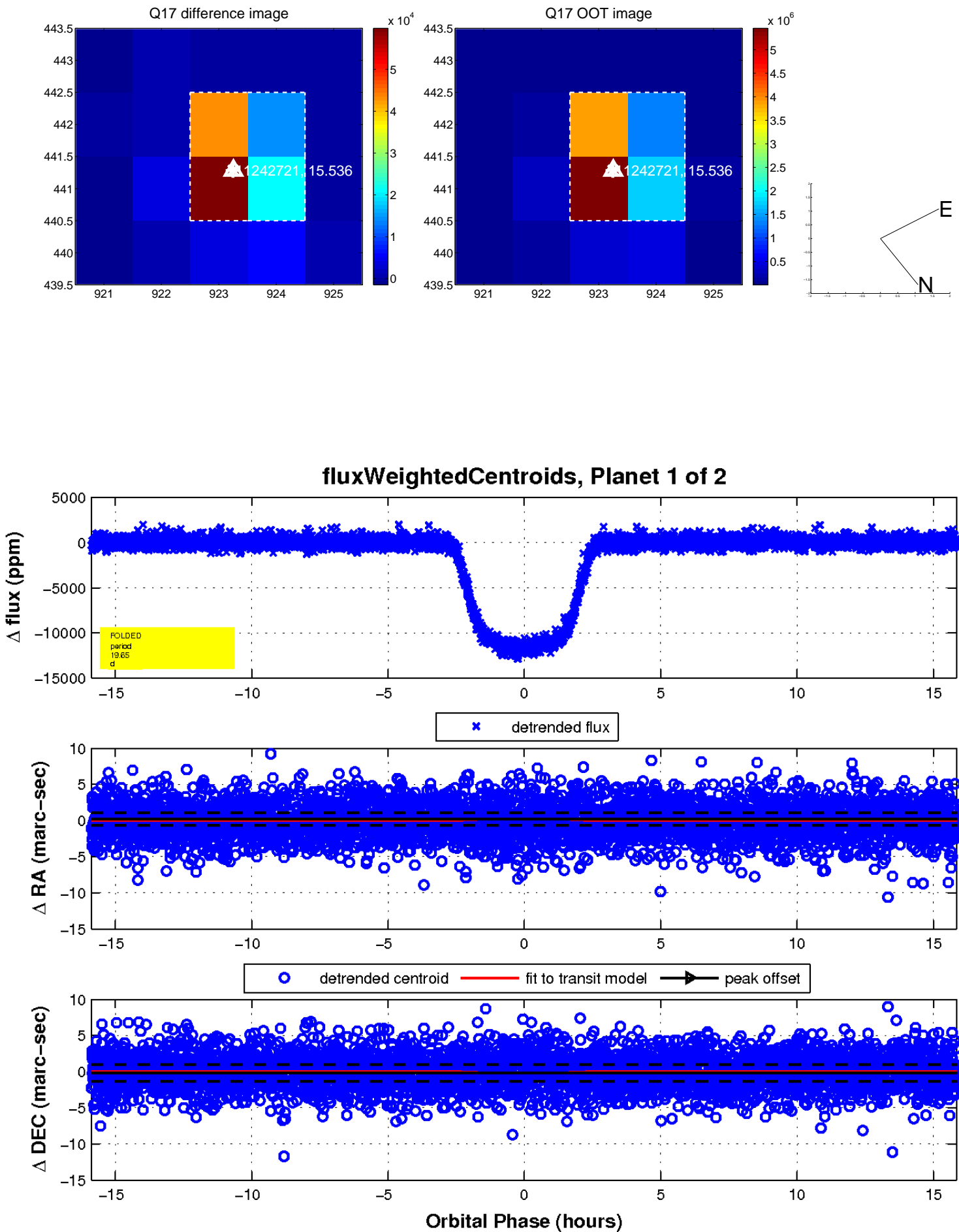
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

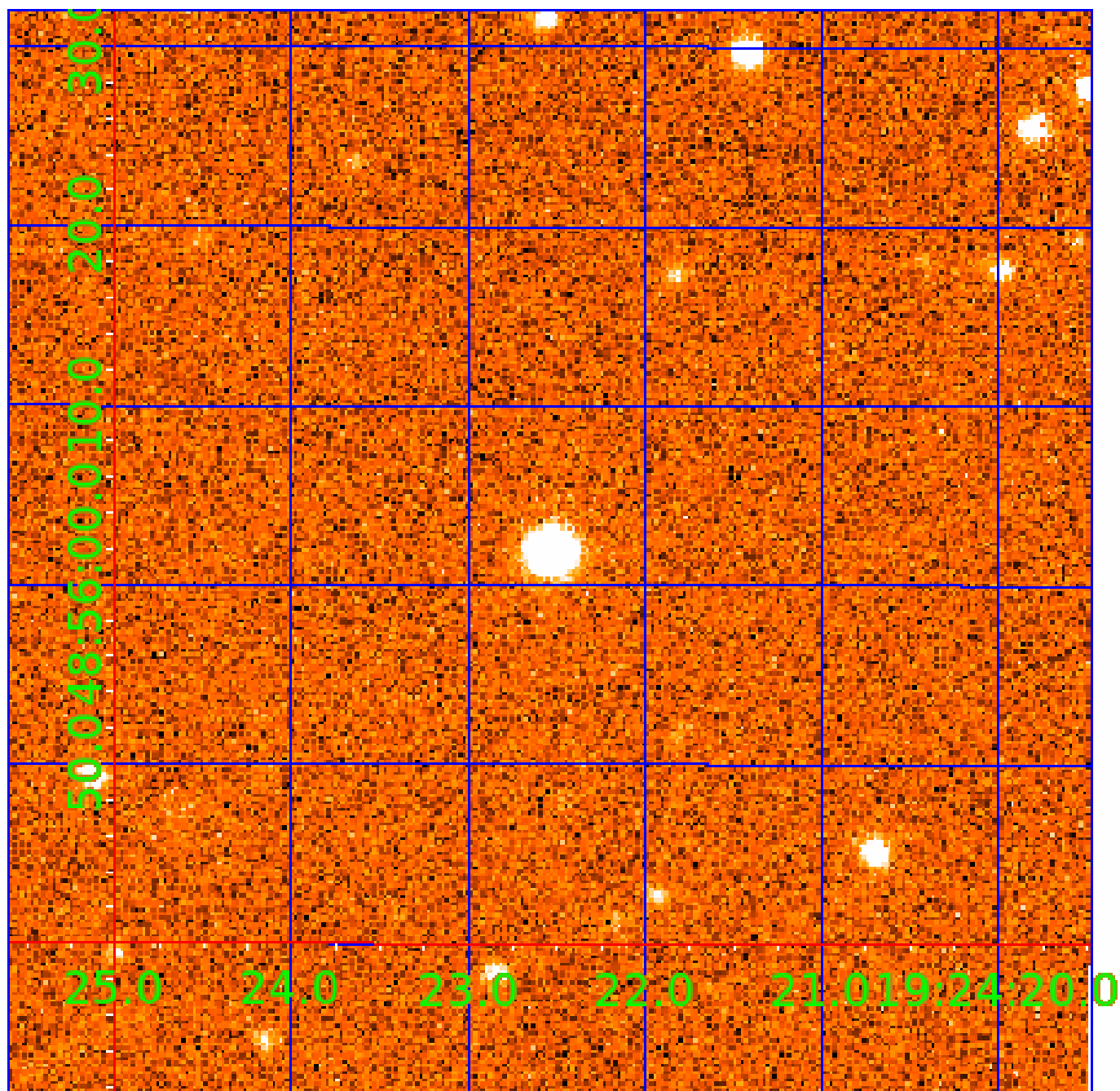


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011242721

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})
011242721-01	OBS	0763.01	19.651205	140.099848	11758.5	5.292	509.5	496.1	1.06	6074	12.51	67.19
011242721-02	OBS	No	19.651458	150.253990	219.8	3.817	7.8	9.0	1.06	6074	1.82	67.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011242721-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
011242721-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

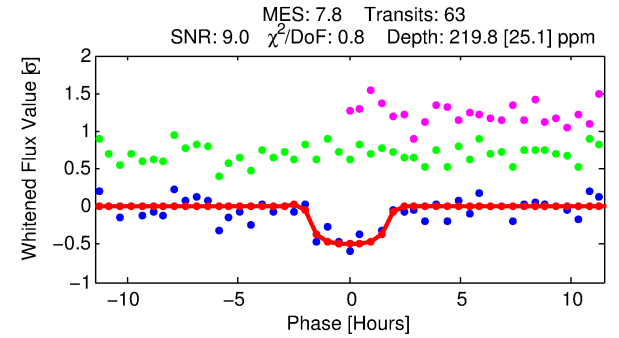
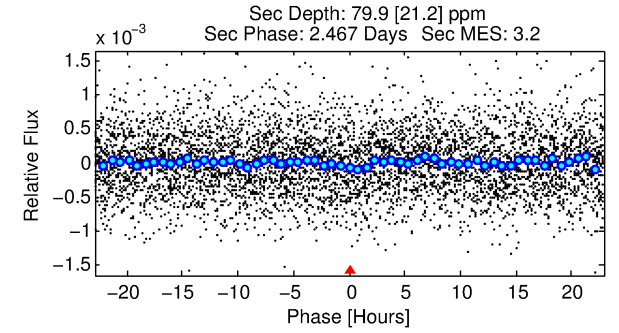
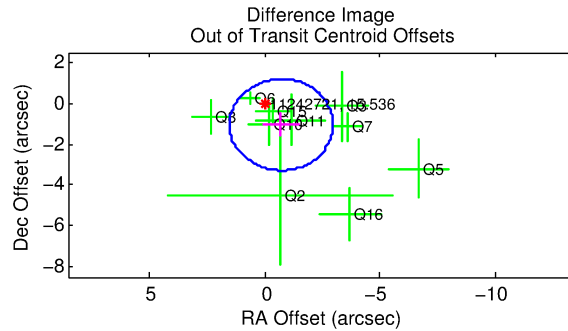
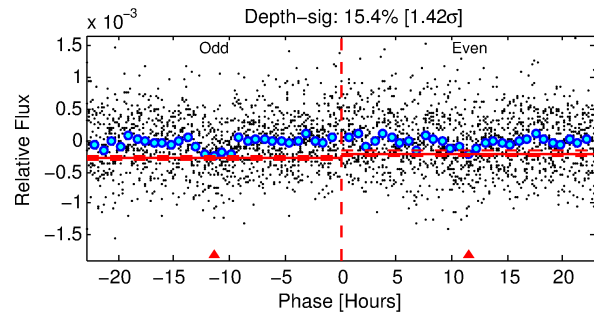
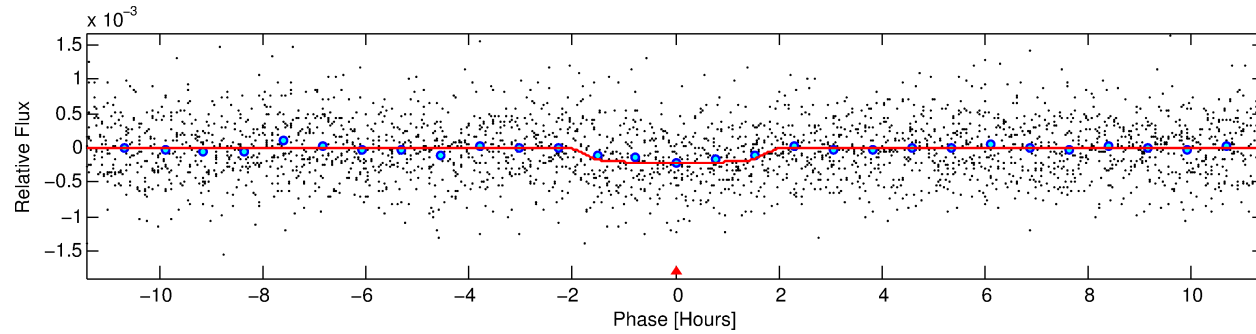
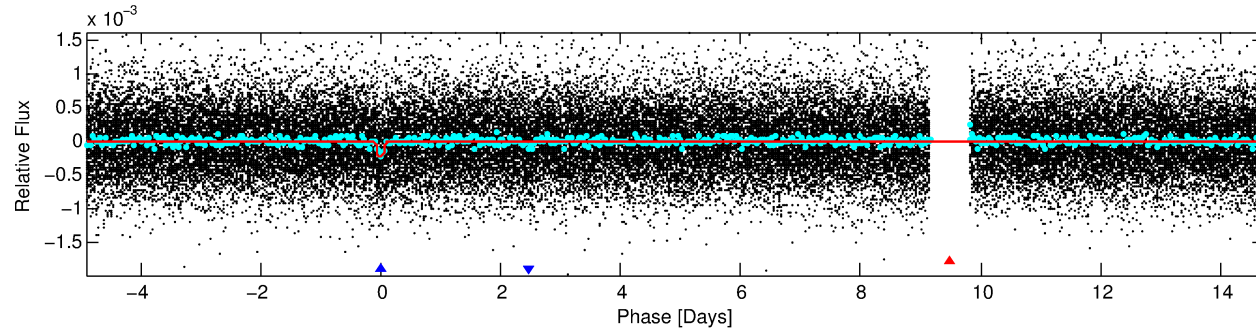
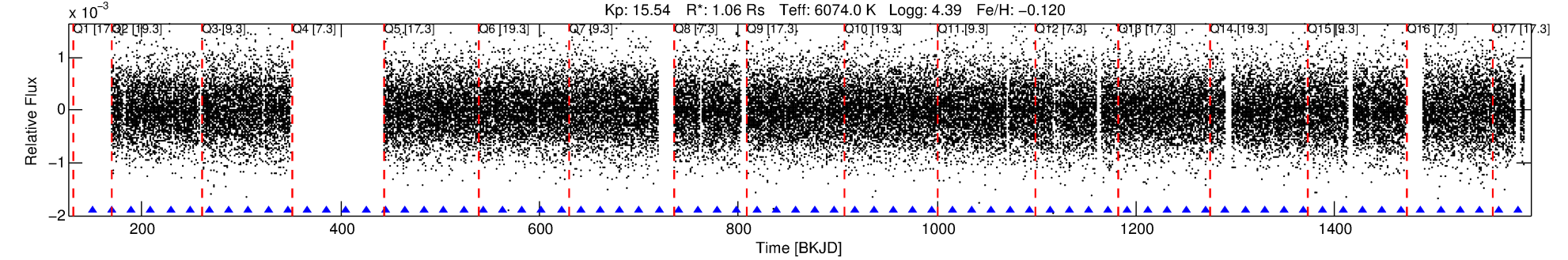
Ephemeris Match Information For 011242721-02

No Significant Match Found

DV One-Page Summary

KIC: 11242721 Candidate: 2 of 2 Period: 19.651 d
KOI: K00763 Corr: No Ephemeris Match

Kp: 15.54 R*: 1.06 Rs Teff: 6074.0 K Logg: 4.39 Fe/H: -0.120



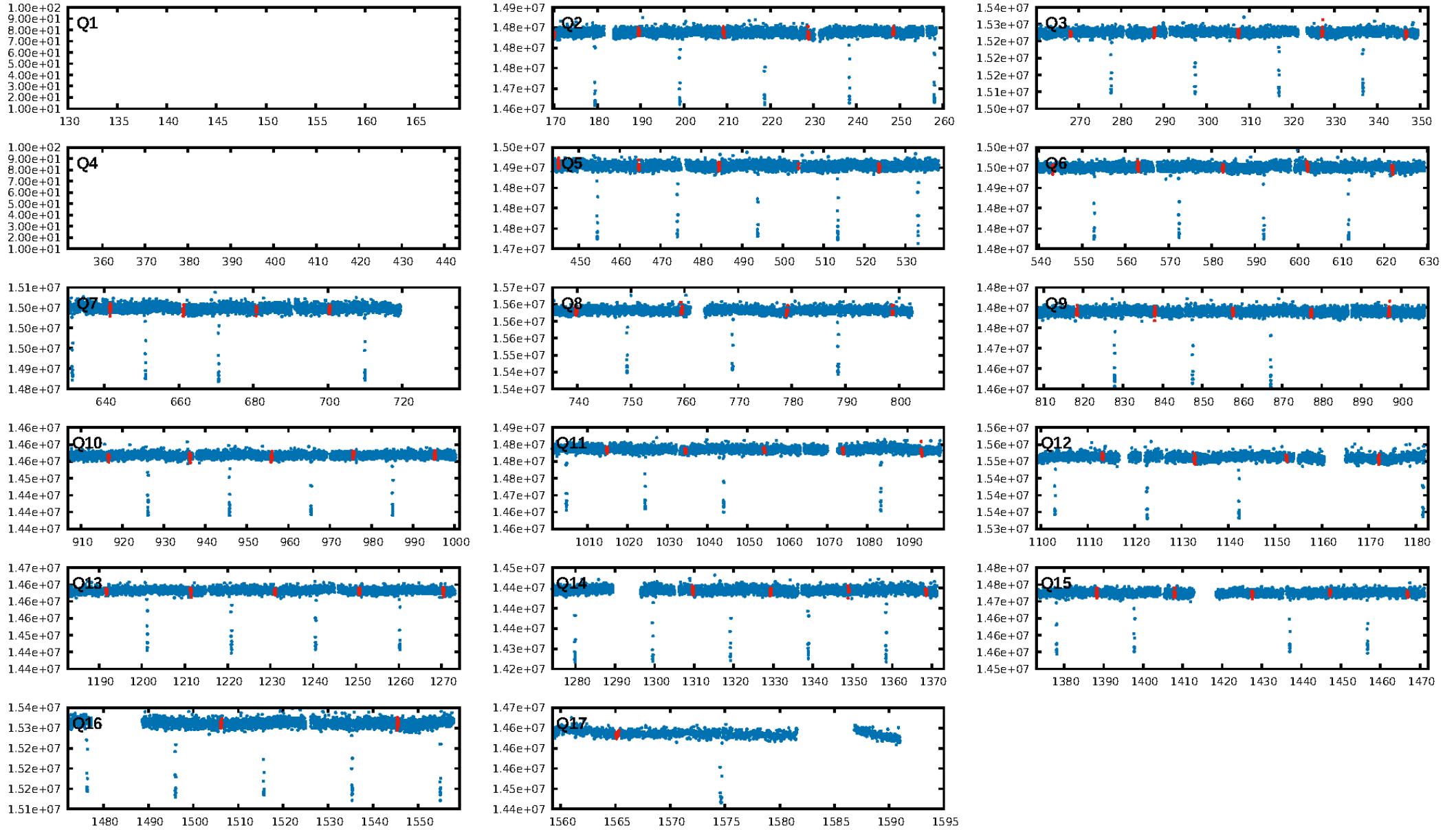
DV Fit Results:

Period = 19.65146 [0.00023] d
Epoch = 150.2540 [0.0097] BKJD
Rp/R* = 0.0157 [0.0089]
a/R* = 20.07 [58.47]
b = 0.88 [0.77]
Seff = 67.19 [27.49]
Teff = 730 [75] K
Rp = 1.82 [1.19] Re
a = 0.1432 [0.0380] AU
Ag = 270.88 [333.11] [0.81σ]
Teffp = 4579 [1346] K [2.85σ]

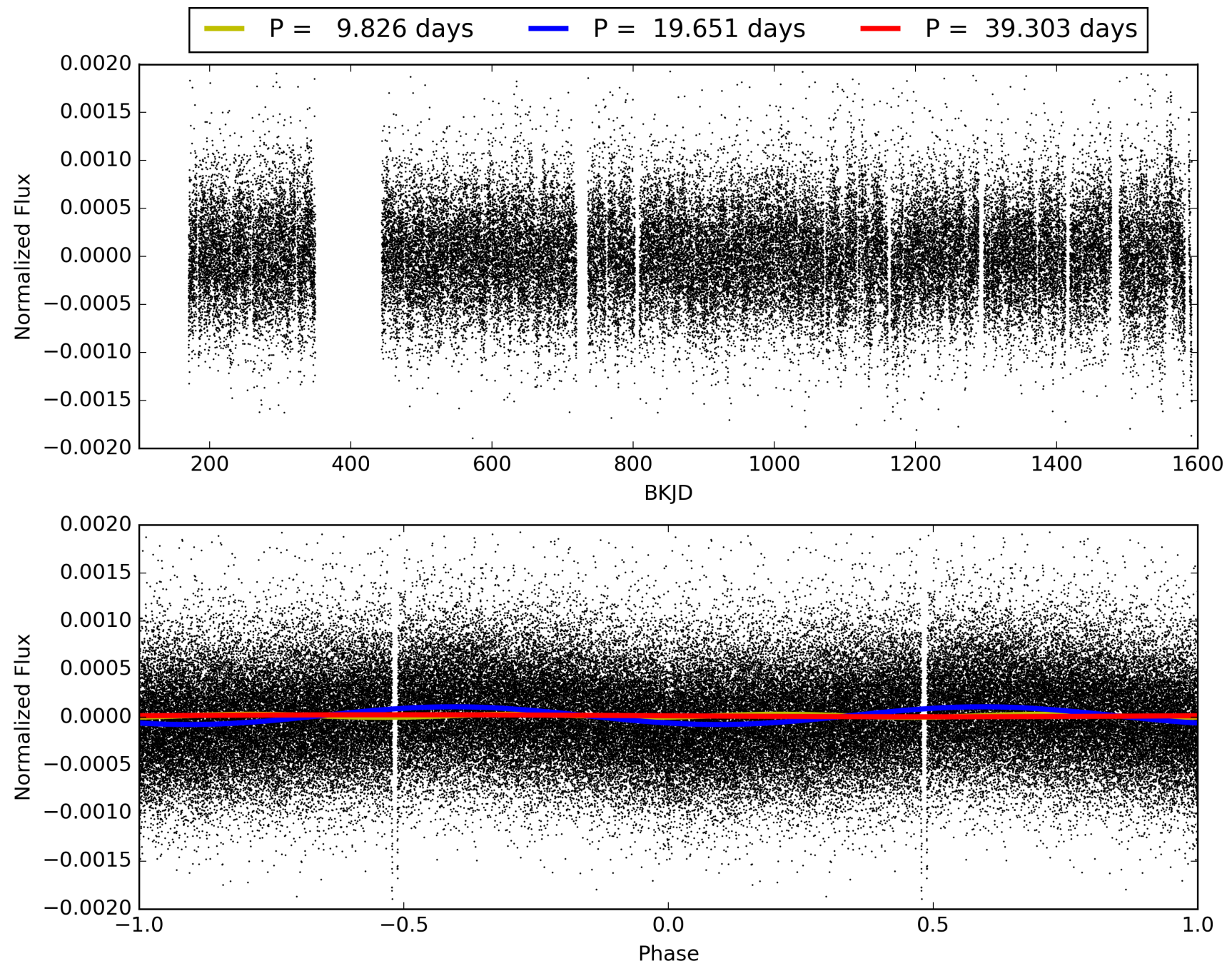
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 89.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.86e-15
RollingBand-fgt: 1.00 [62/62]
GhostDiagnostic-chr: 3.399
Centroid-sig: 61.4%
Centroid-so: 1.025 arcsec [0.63σ]
OotOffset-rm: 1.267 arcsec [1.70σ]
KicOffset-rm: 1.278 arcsec [1.51σ]
OotOffset-st: 3/4/2/1 [10]
KicOffset-st: 3/4/2/1 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 1.00 [15/15]

TCE 011242721-02, PDC Light Curves

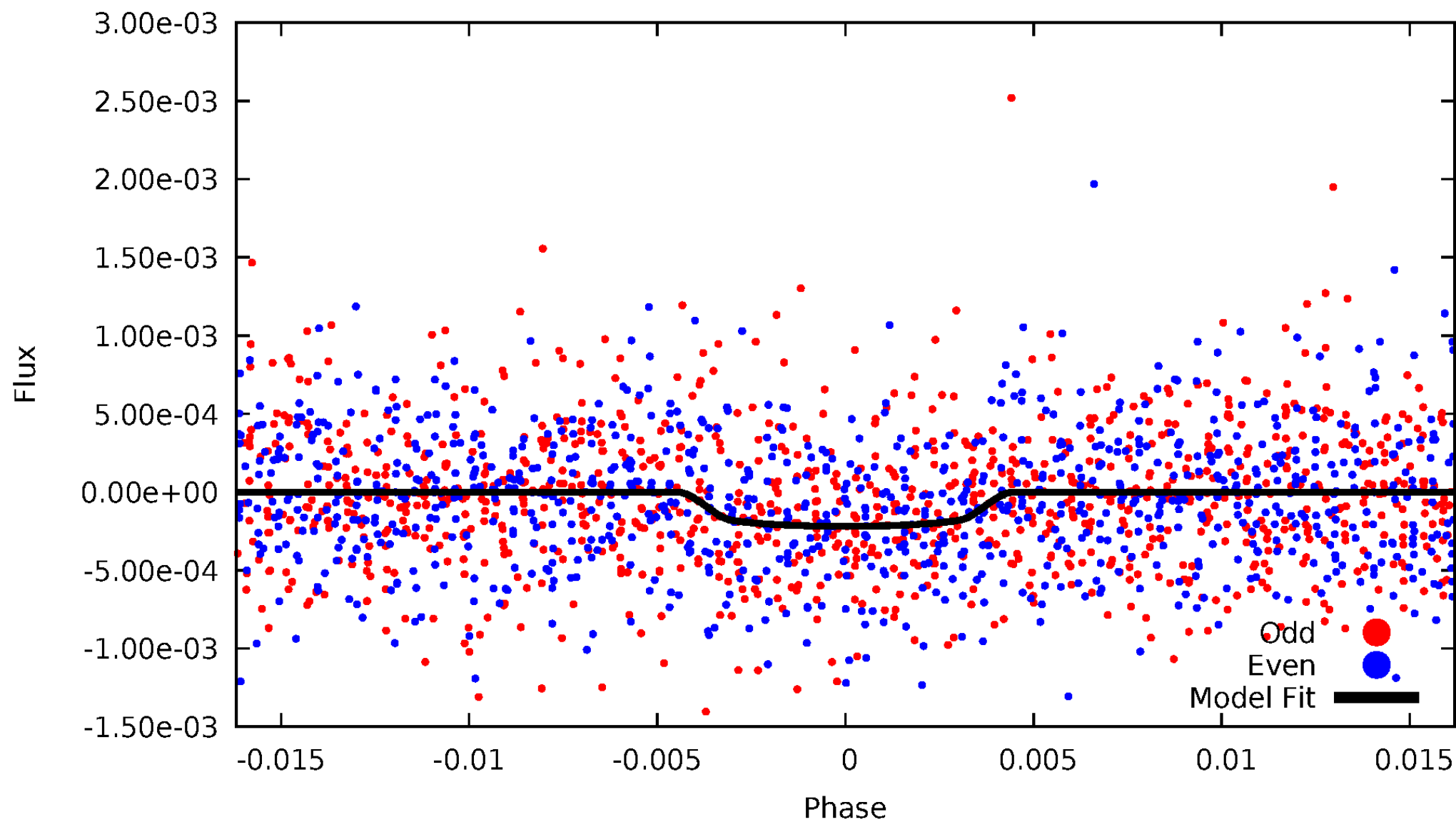


TCE 011242721-02



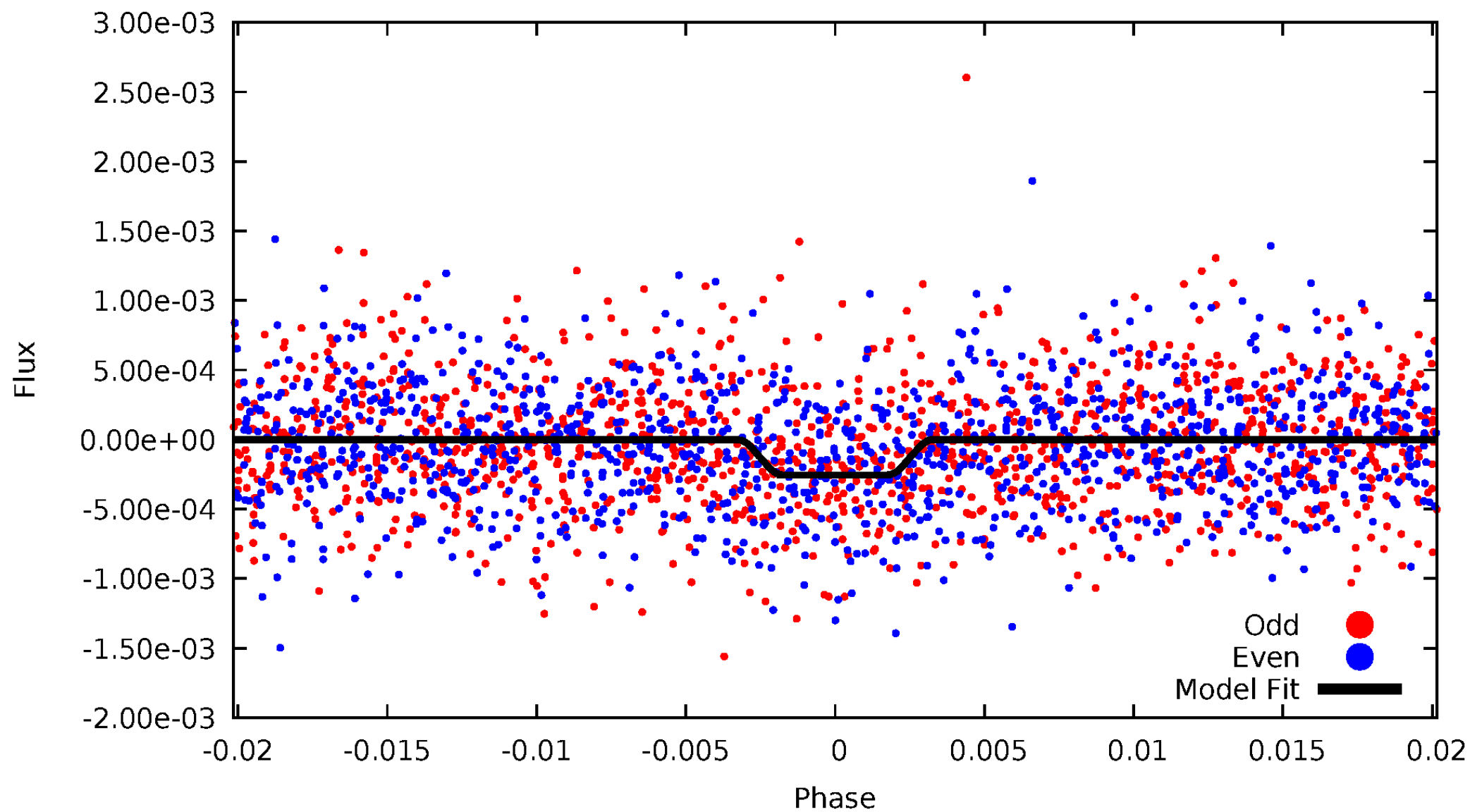
DV Odd/Even

TCE 011242721-02



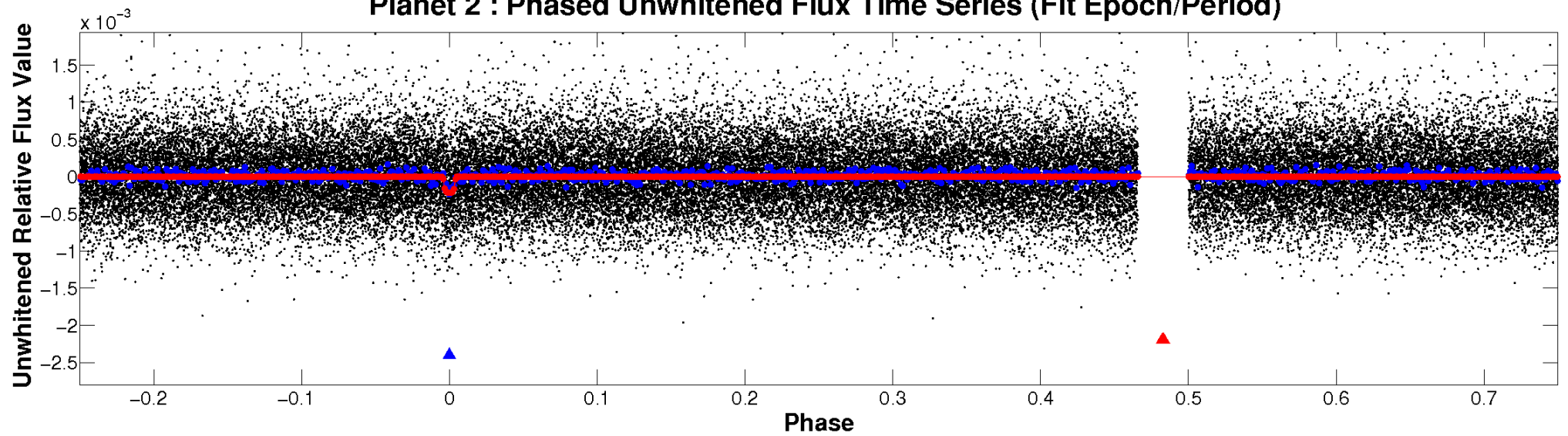
ALT Odd/Even

TCE 011242721-02

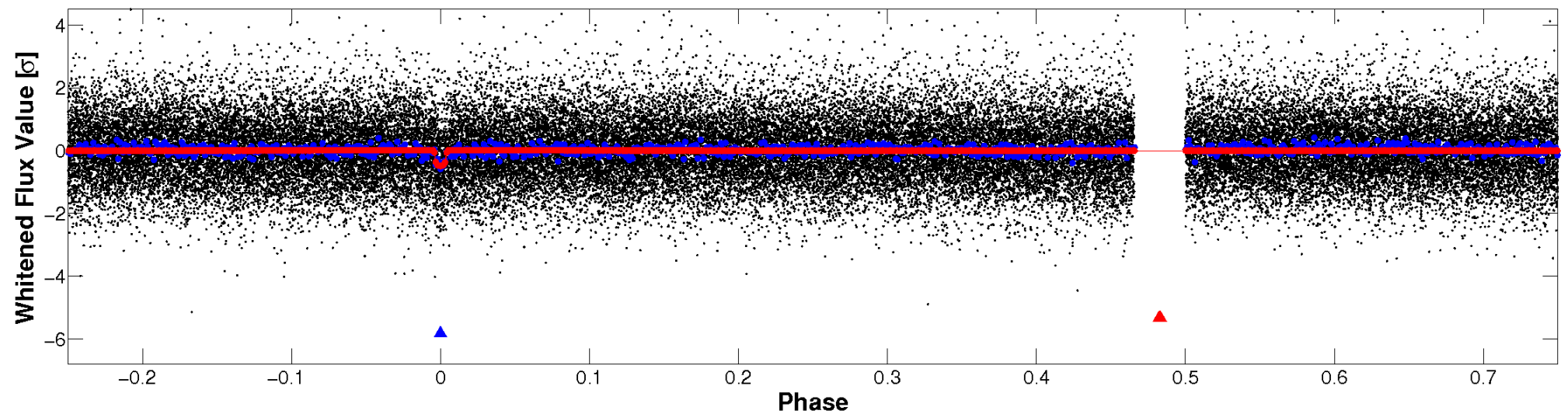


Non-Whitened Vs. Whitened Light Curve

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

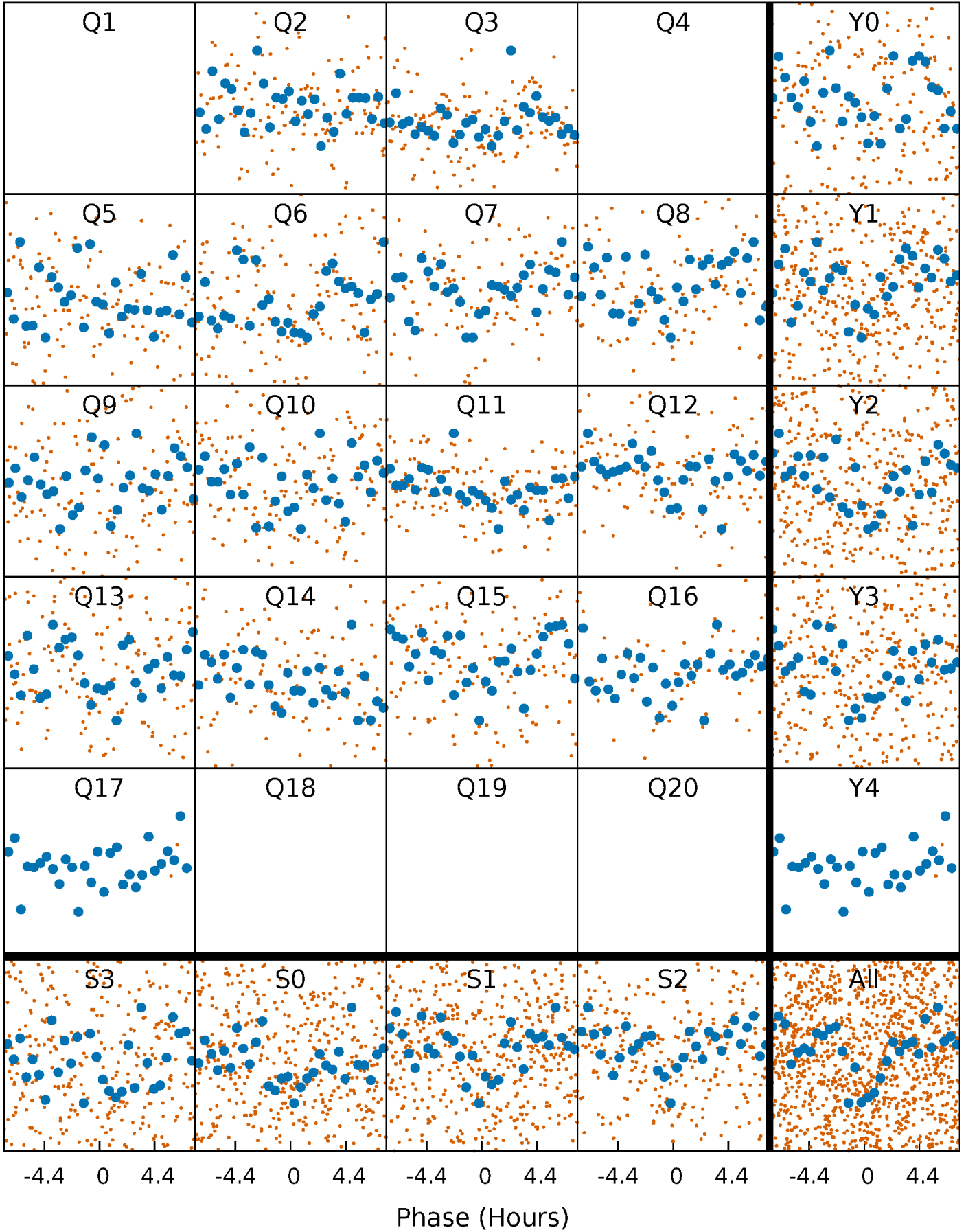


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



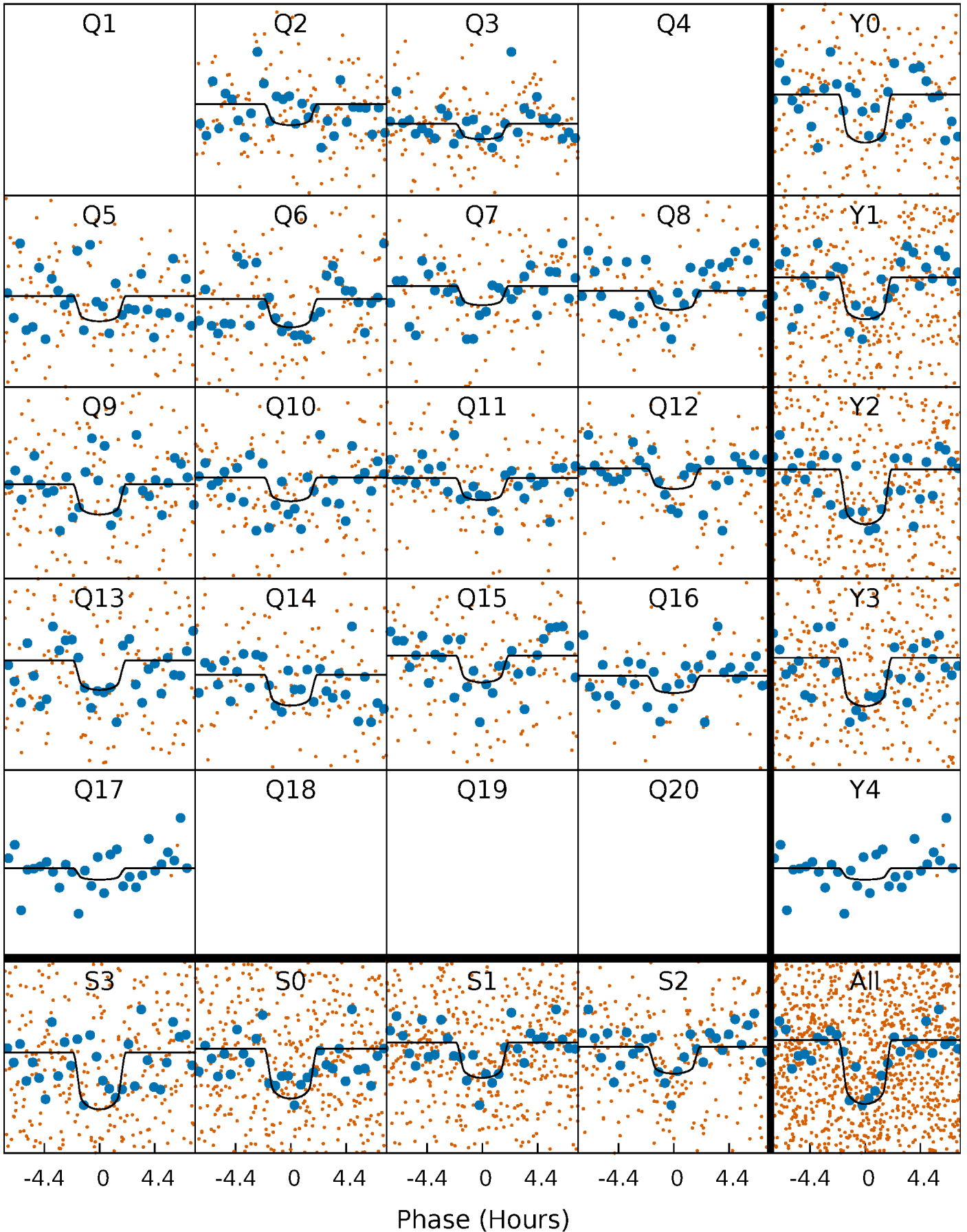
PDC Quarter-Phased Transit Curves

TCE 011242721-02 P= 19.651458 Days $T_0=150.253990$ (BKJD)



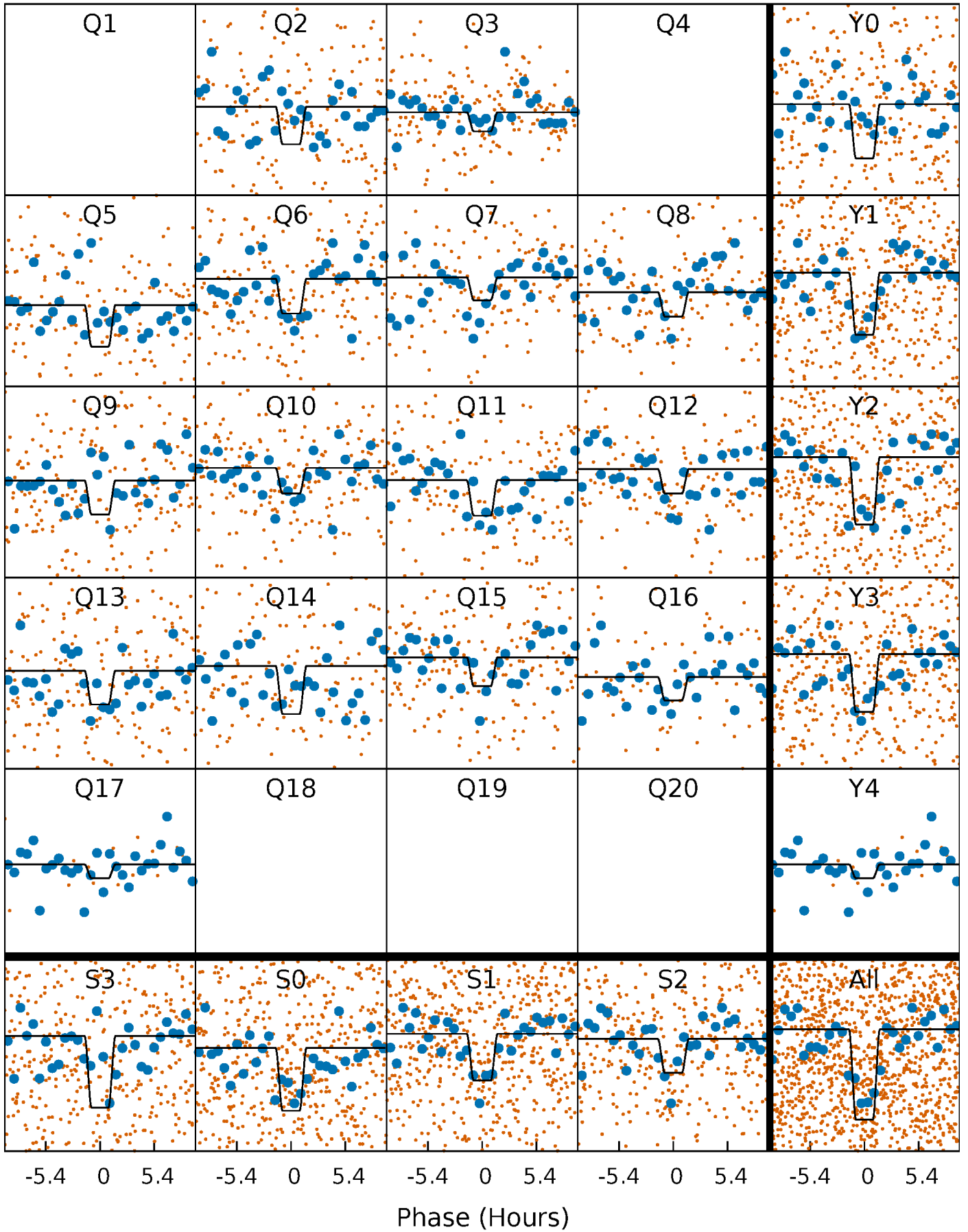
DV Quarter-Phased Transit Curves

TCE 011242721-02 P= 19.651458 Days $T_0=150.253990$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

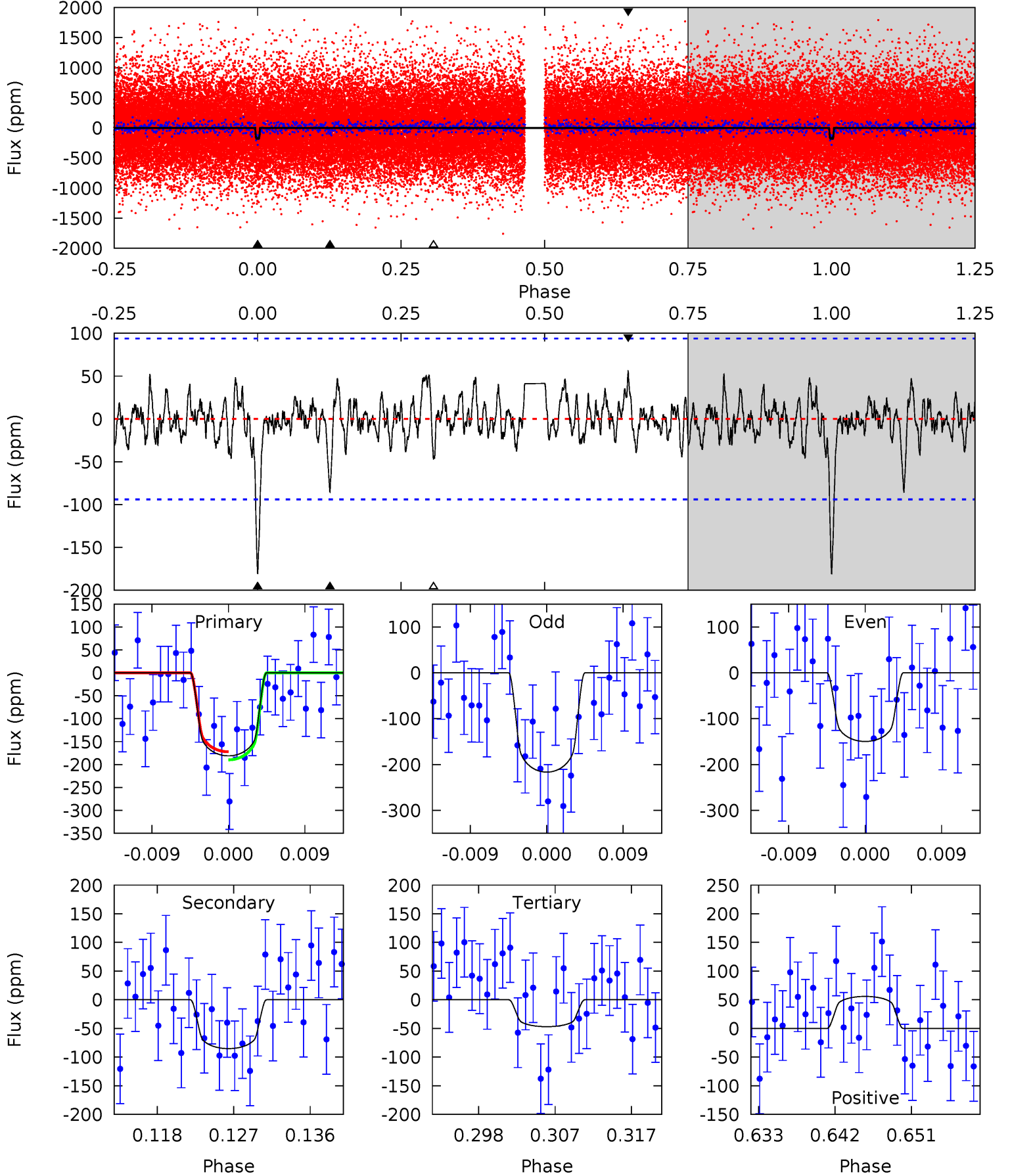
TCE 011242721-02 P= 19.651451 Days $T_0=150.254347$ (BKJD)



DV Model-Shift Uniqueness Test

011242721-02, $P = 19.651458$ Days, $E = 150.253990$ Days

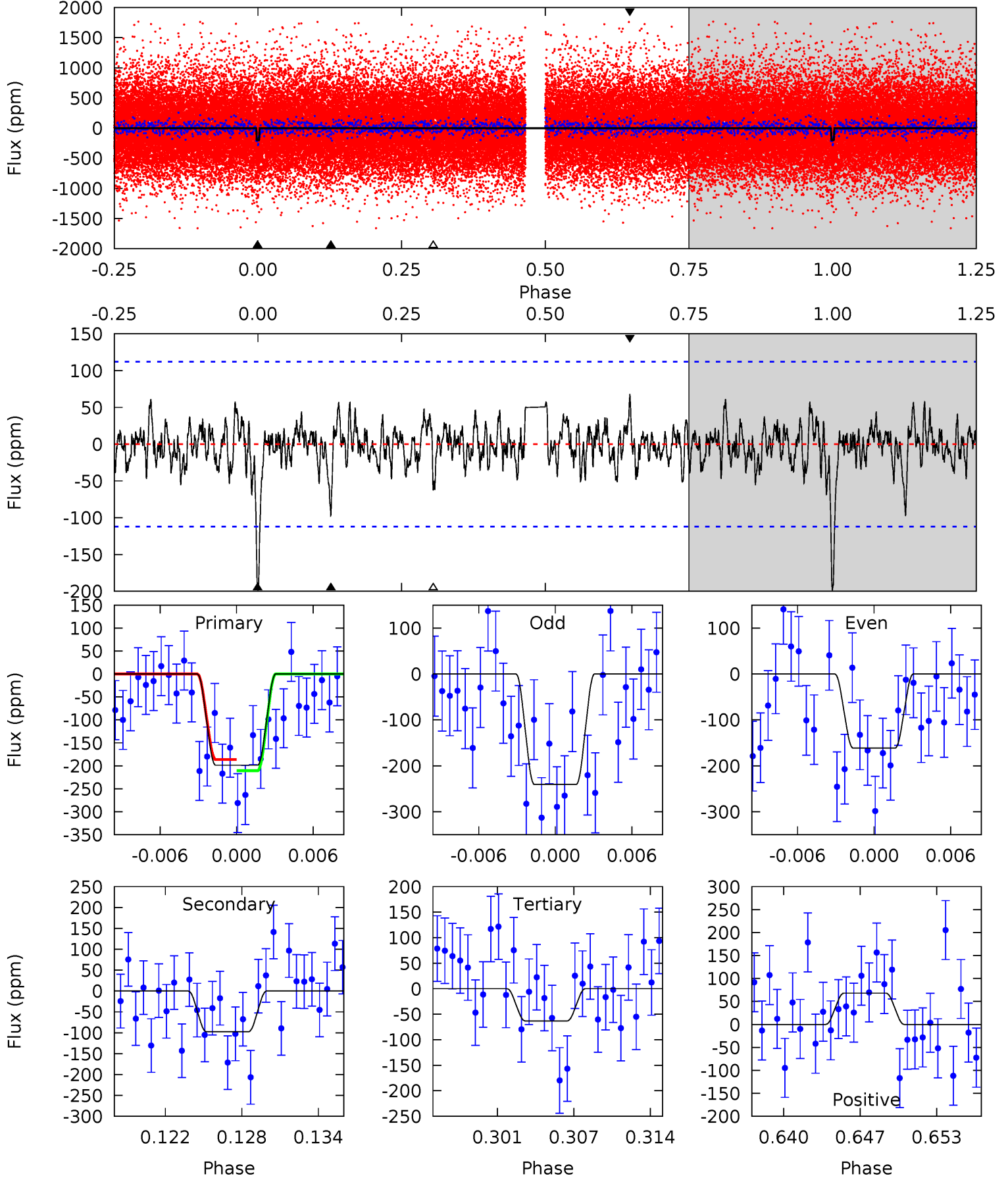
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	4.58	2.52	3.00	5.05	2.61	0.99	7.21	6.73	2.06	1.58	1.80	0.91	0.24	0.47



Alt Model-Shift Uniqueness Test

011242721-02, $P = 19.651451$ Days, $E = 150.254347$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.05	4.44	2.88	3.10	5.11	2.73	0.99	6.18	5.95	1.57	1.34	1.80	0.96	0.26	0.56



Stellar Parameters For KIC 011242721

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6074^{+168}_{-210}	$4.391^{+0.090}_{-0.210}$	$-0.120^{+0.300}_{-0.300}$	$1.063^{+0.336}_{-0.144}$	$1.014^{+0.153}_{-0.126}$	$1.189^{+0.551}_{-0.597}$
	+3%/-3%	+2%/-5%	+250%/-250%	+32%/-14%	+15%/-12%	+46%/-50%
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 011242721-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-85 ± 19	$1.92^{+1.21}_{-0.94}$	1037^{+80}_{-58}	4724^{+1692}_{-751}	255^{+689}_{-158}
Alt.	-97 ± 22	$2.01^{+1.13}_{-0.98}$	1035^{+78}_{-56}	4815^{+1694}_{-806}	263^{+853}_{-159}

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

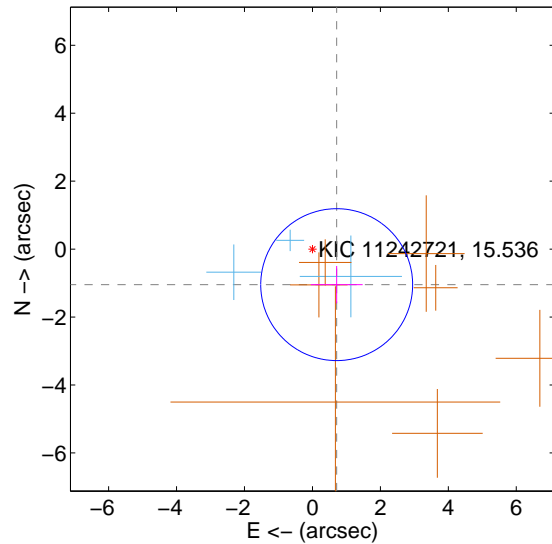
Supplemental centroid analysis for 011242721-02. Kepler magnitude: 15.54. Transit SNR 8.97

There are 3 quarters with good PRF difference image offsets

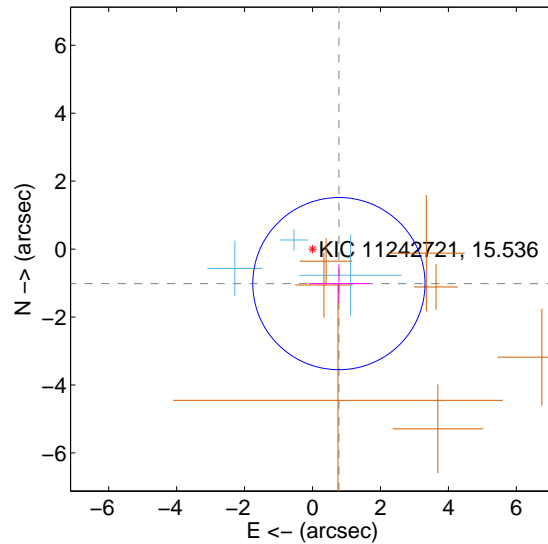
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.267 ± 0.745	1.70	-0.714 ± 0.763	-1.046 ± 0.550
PRF-fit source offset from KIC position	1.278 ± 0.845	1.51	-0.776 ± 0.884	-1.016 ± 0.568
photometric centroid source offset	1.03 ± 1.64	0.63	0.90 ± 1.68	0.49 ± 1.48

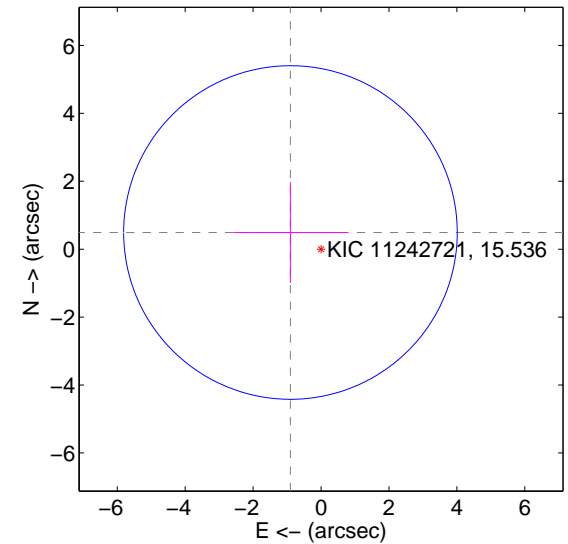
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

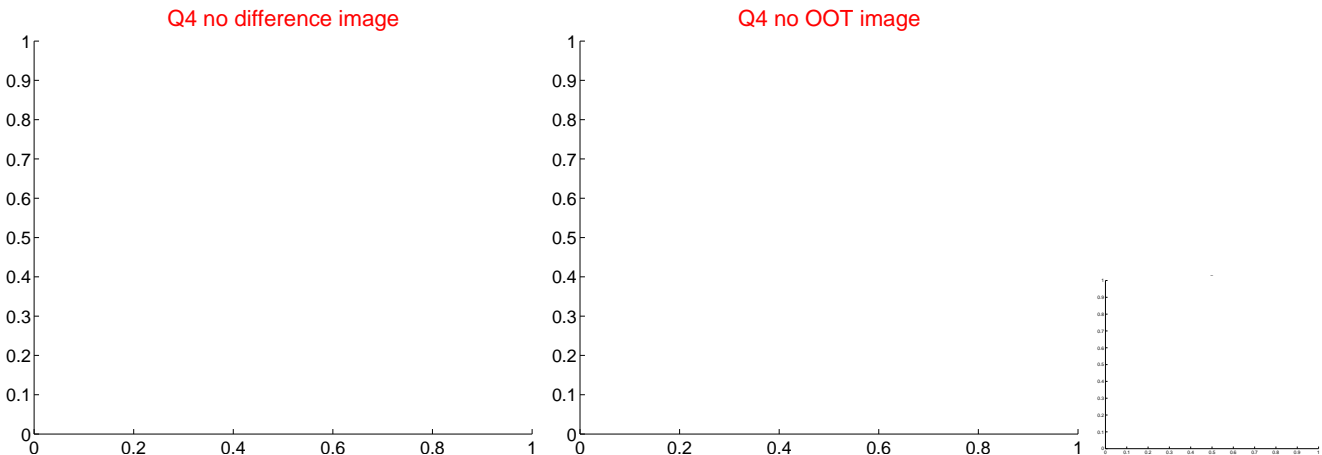
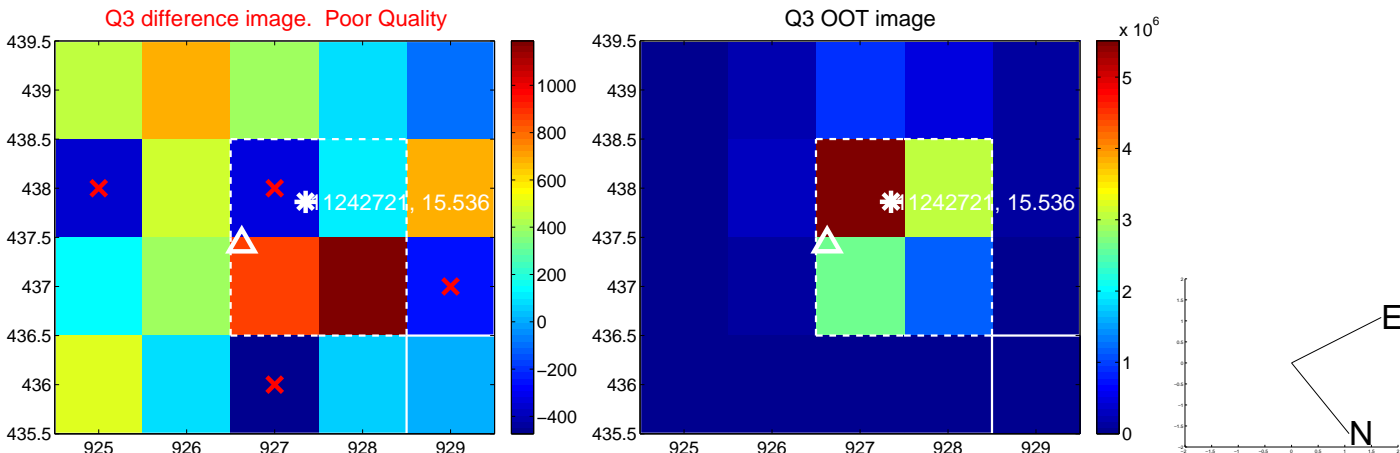
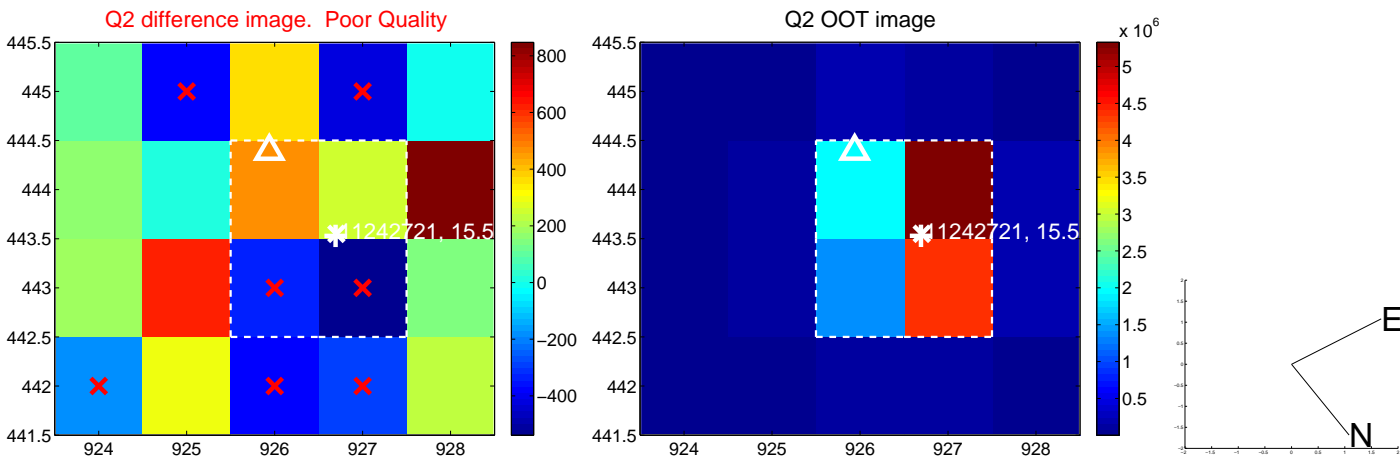
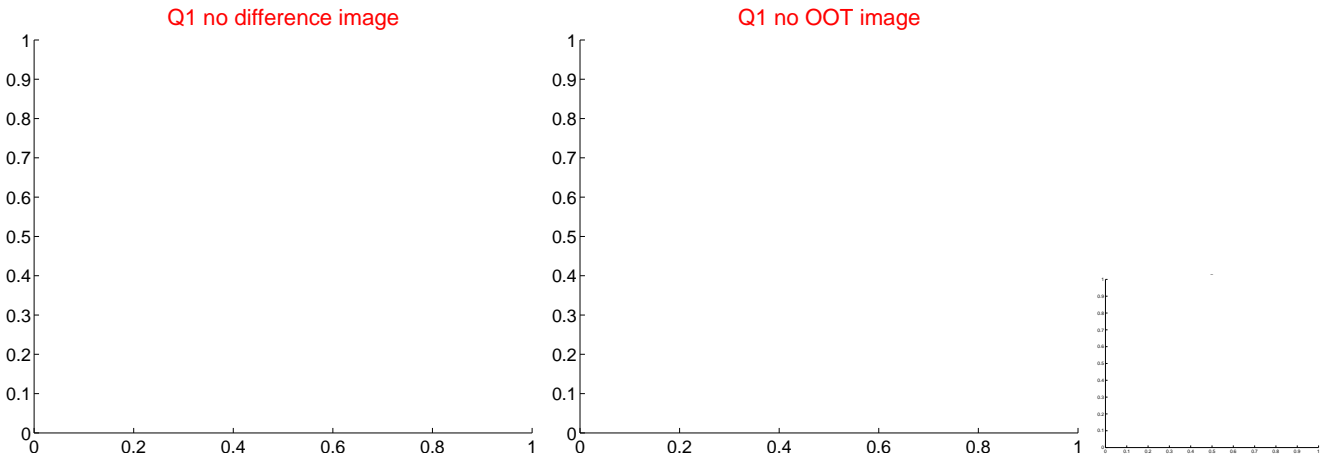


offset from photometric centroids

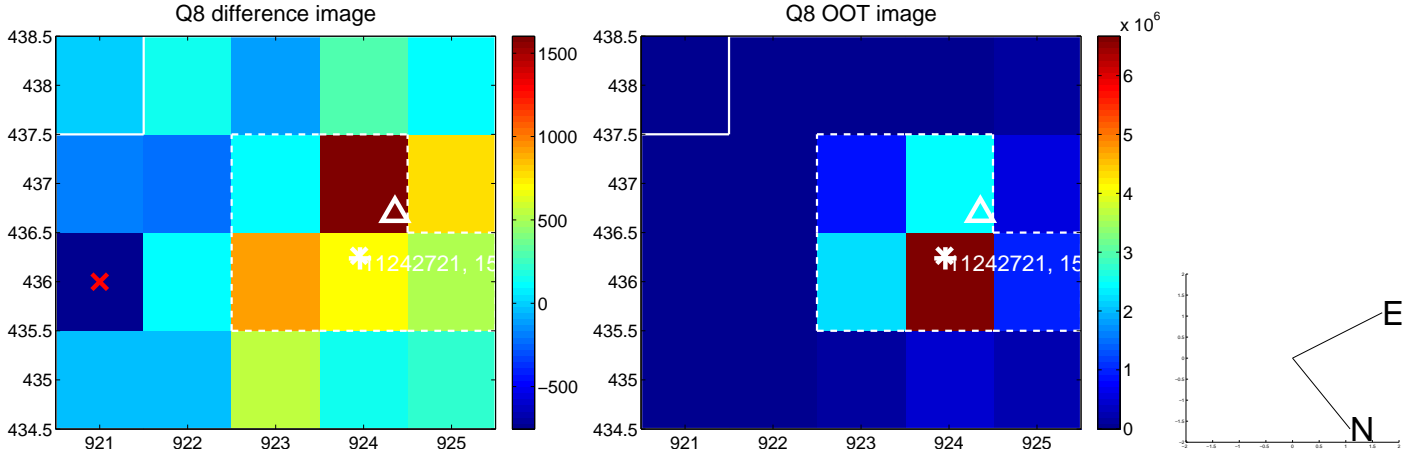
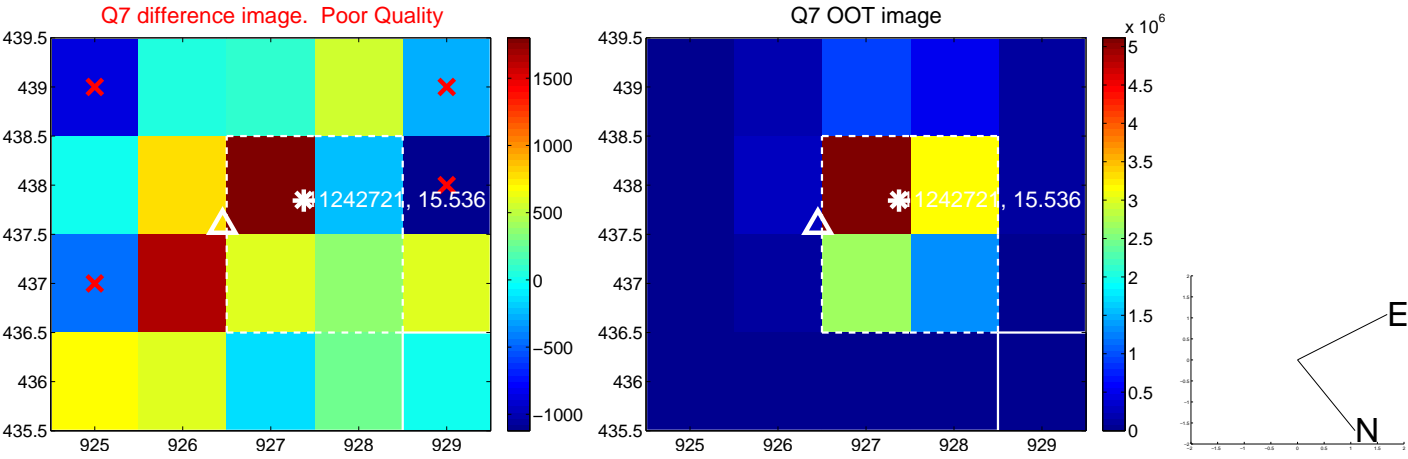
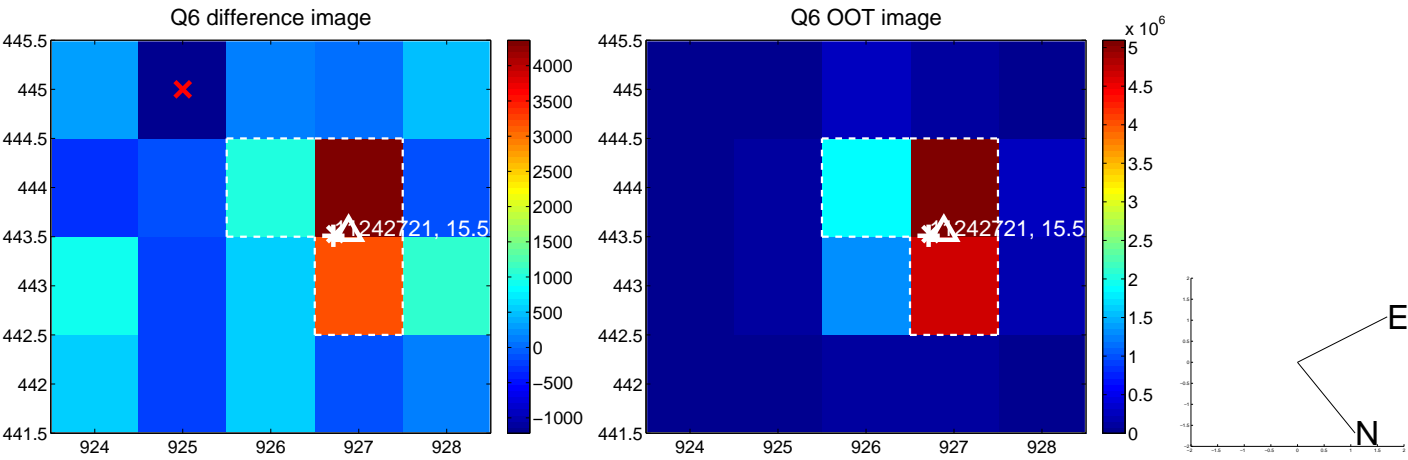
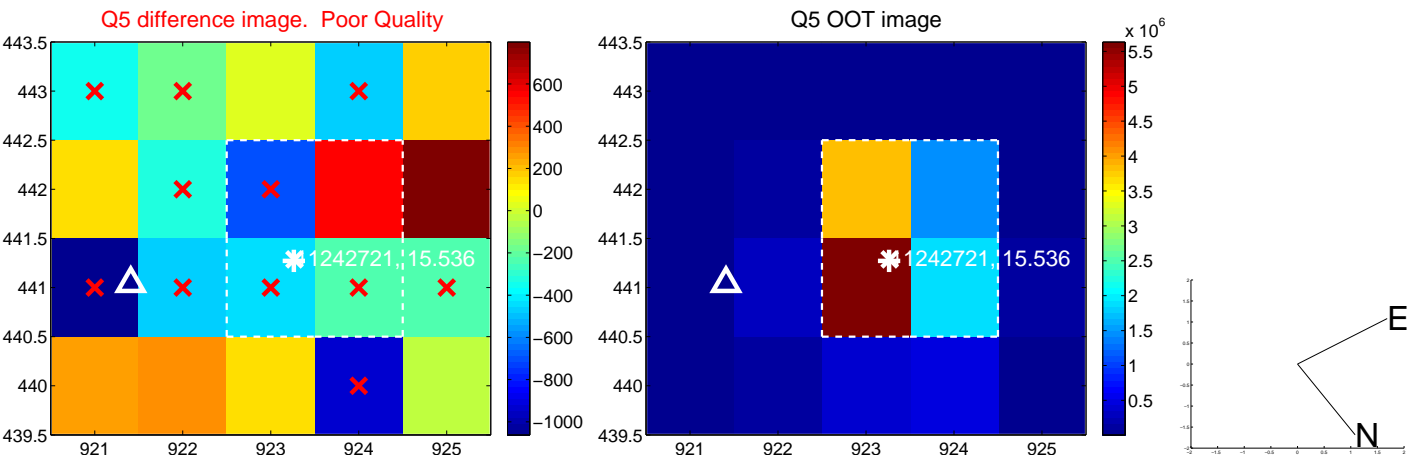


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

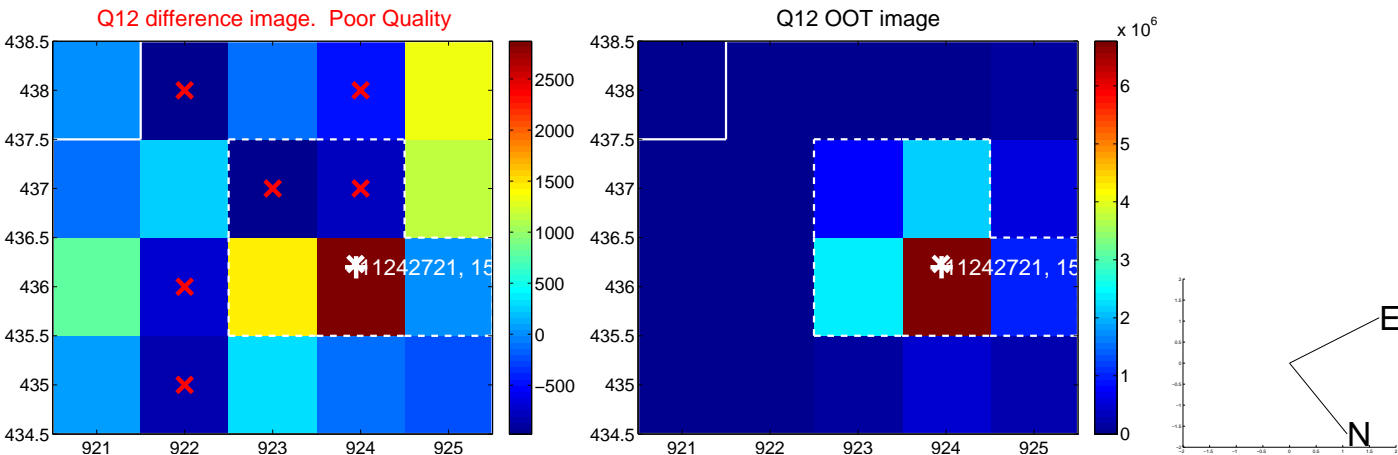
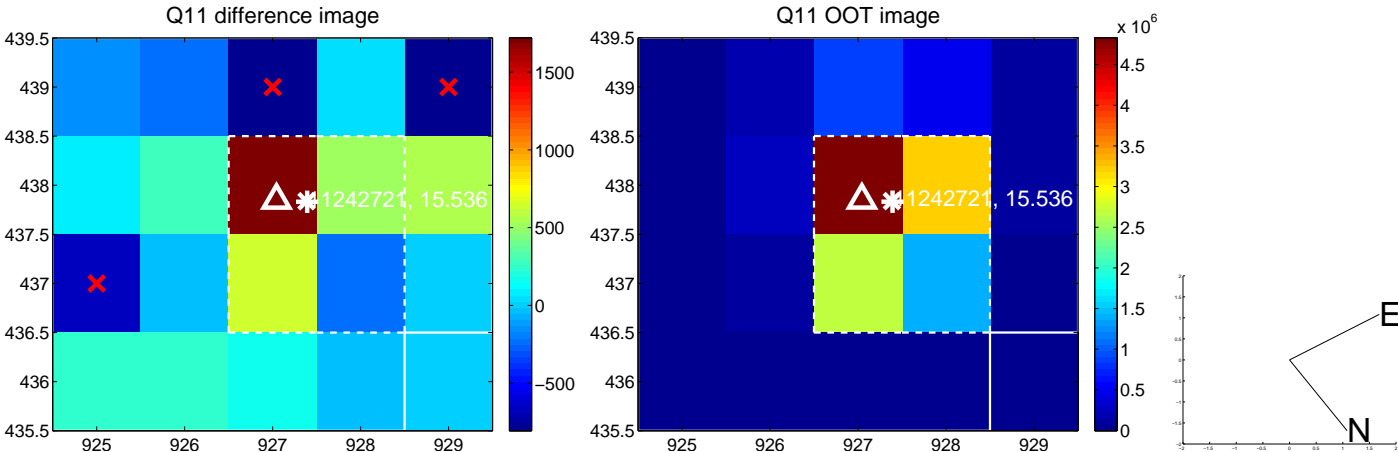
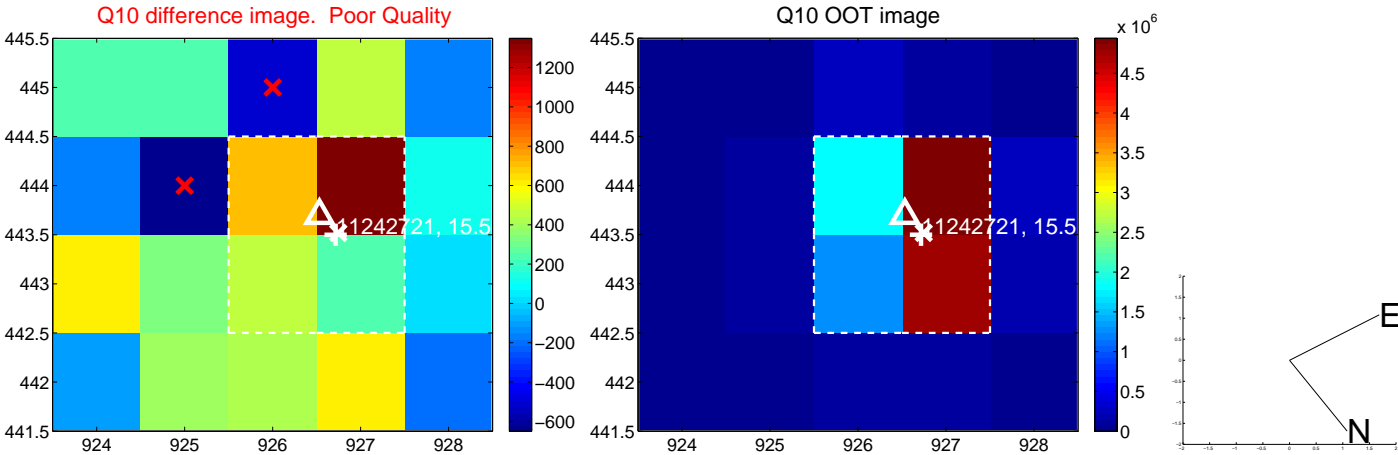
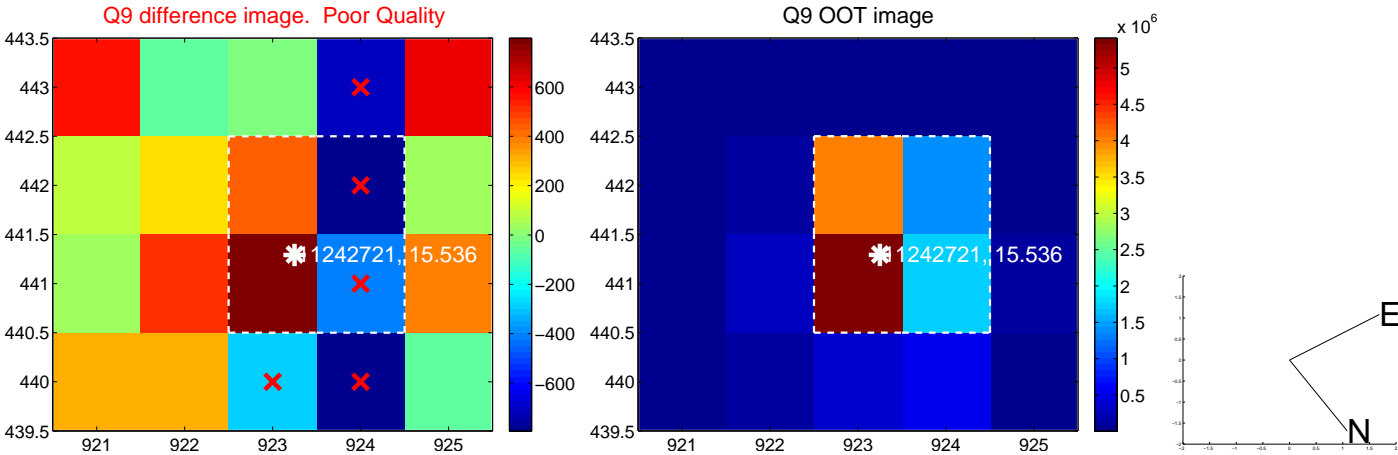
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



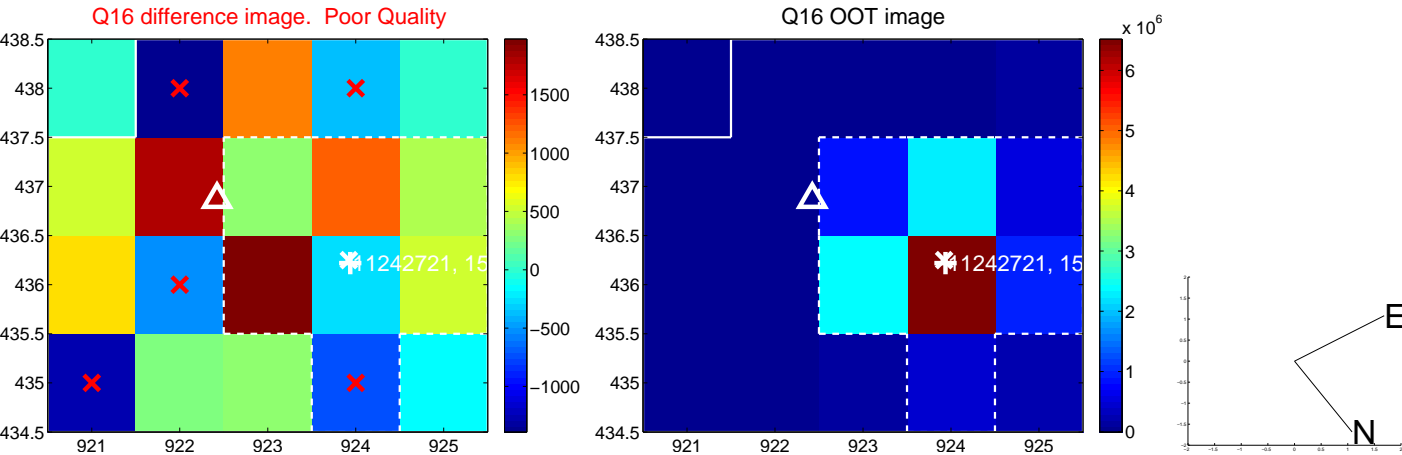
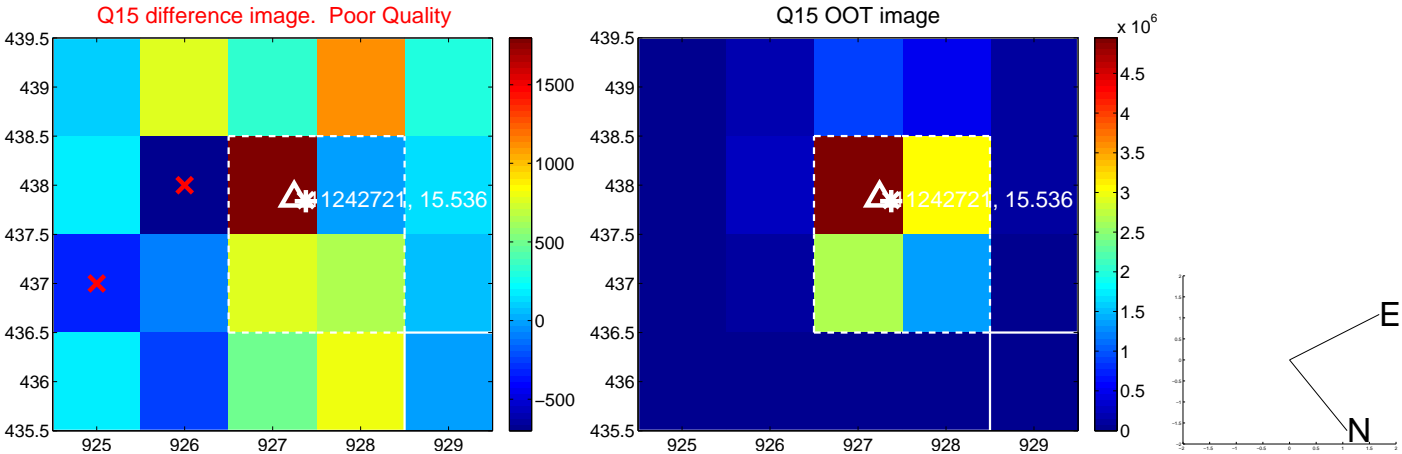
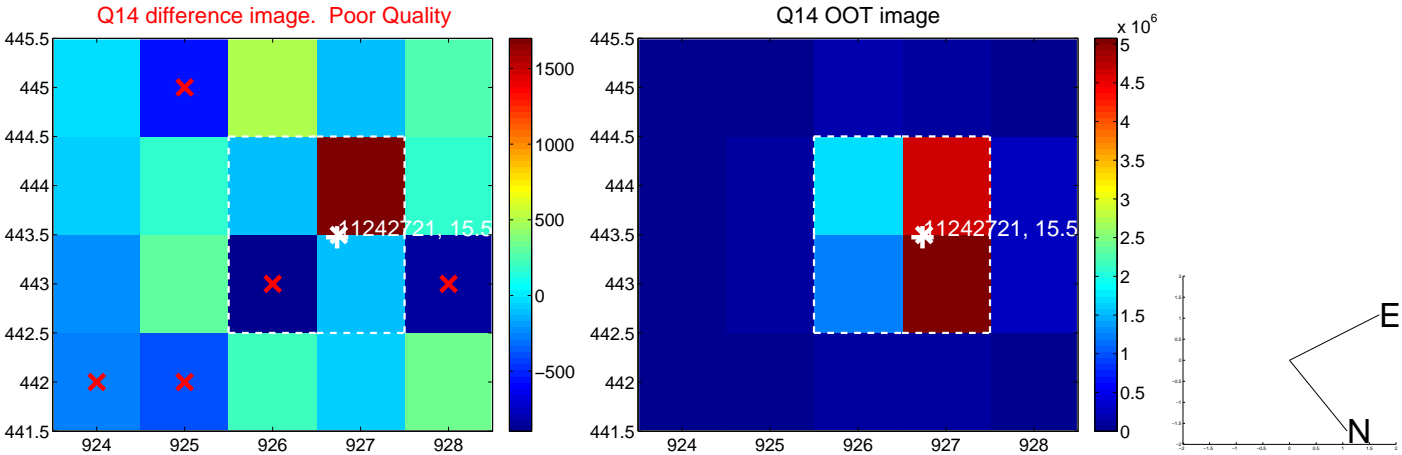
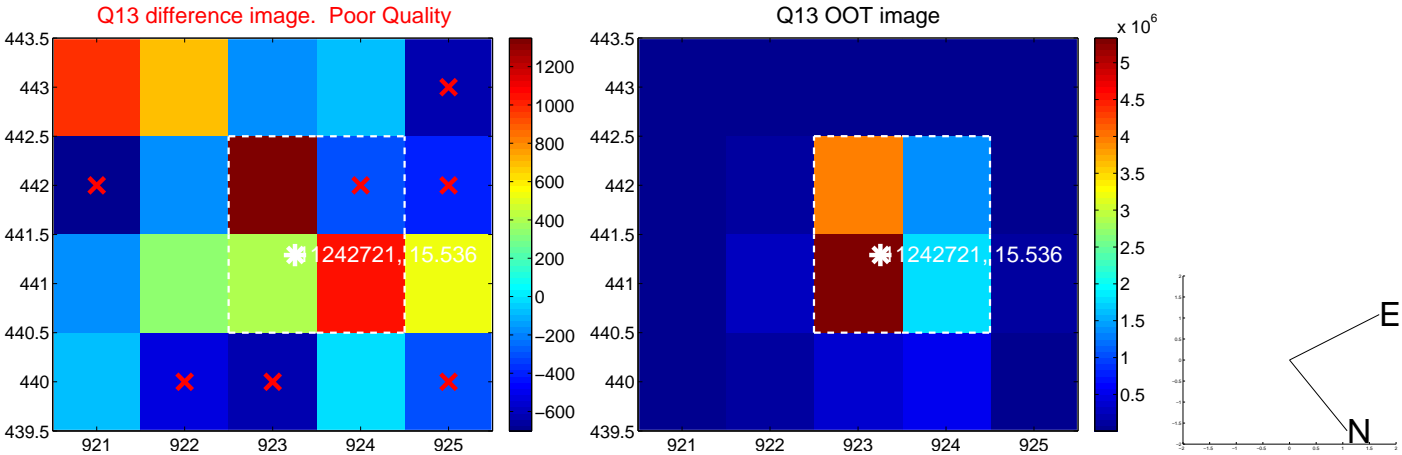
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



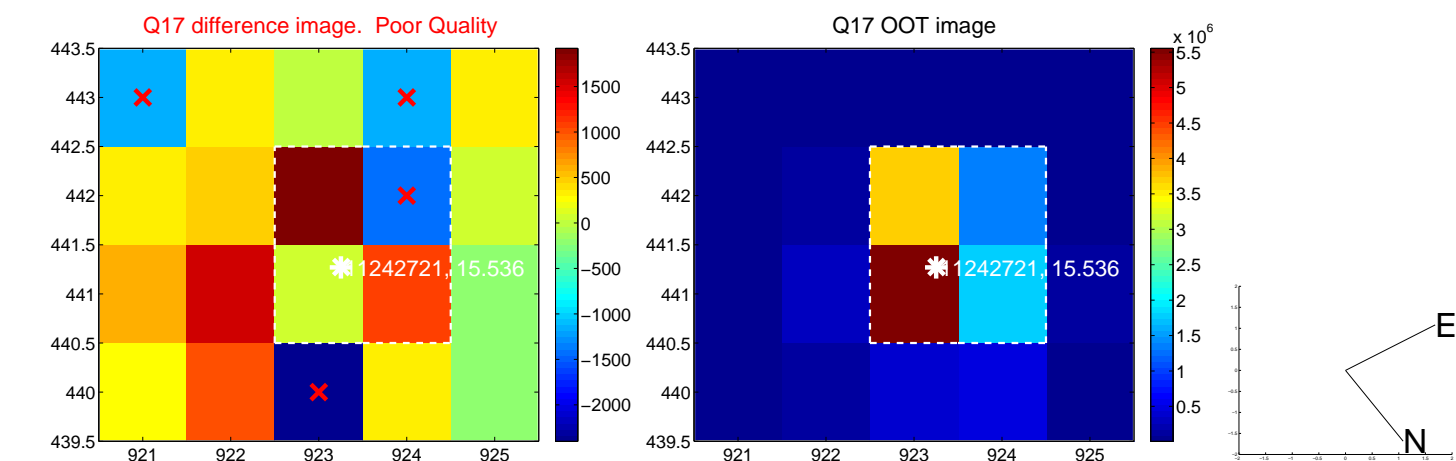
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



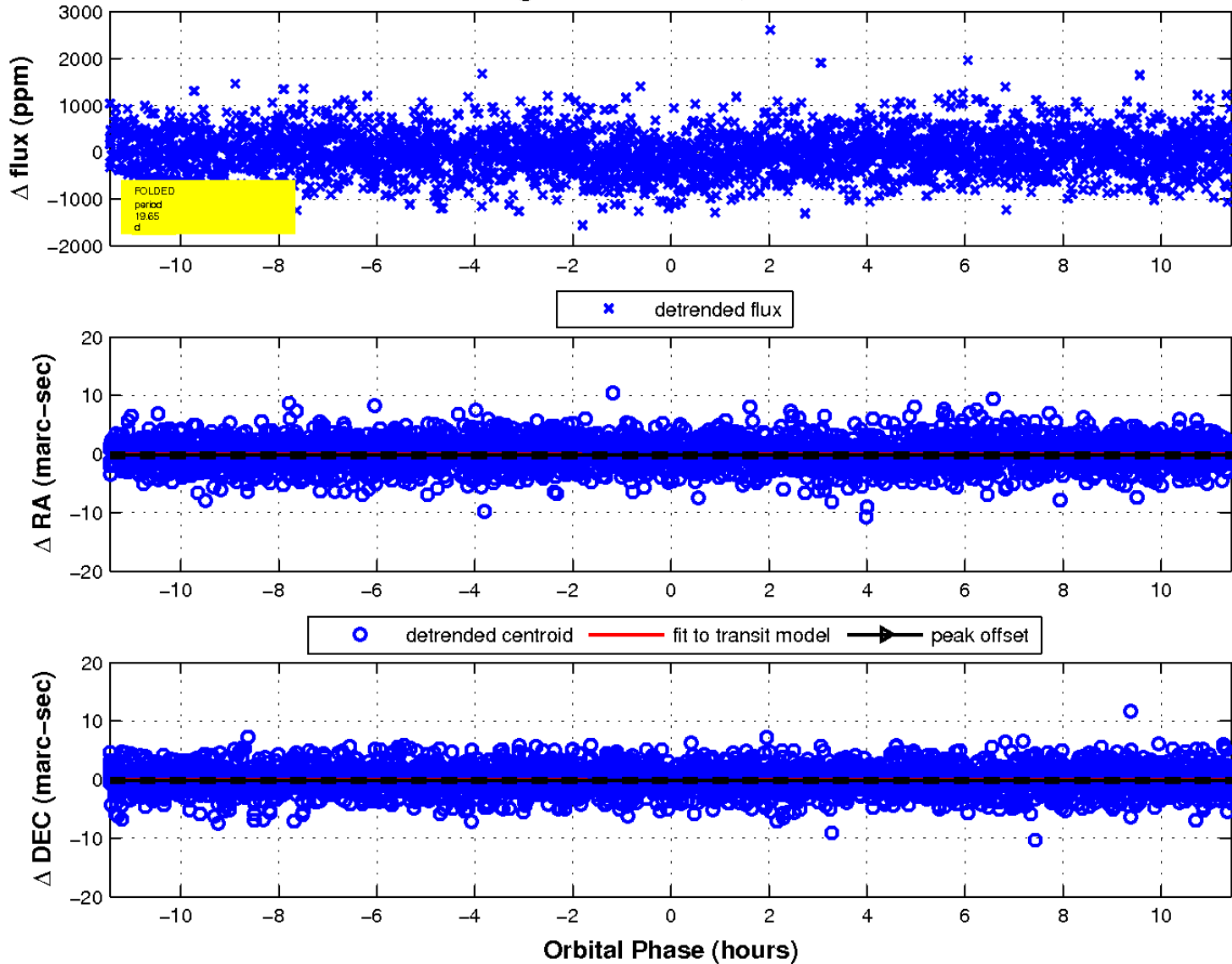
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

