

KIC 005175024

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})
005175024-01	OBS	2563.01	23.477419	145.351057	146.8	7.475	14.6	14.9	1.12	6384	1.56	70.17
005175024-02	OBS	2563.02	6.261316	133.236279	48.3	4.638	8.2	8.4	1.12	6384	0.90	408.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005175024-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
005175024-02	OBS	PC	0.98	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.

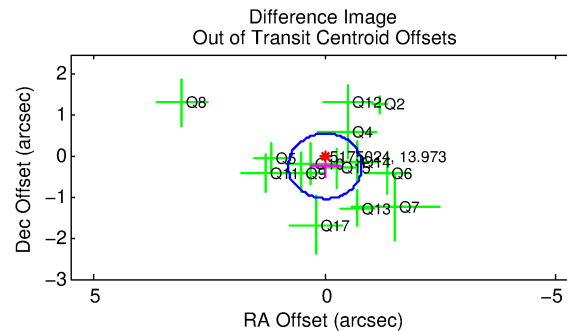
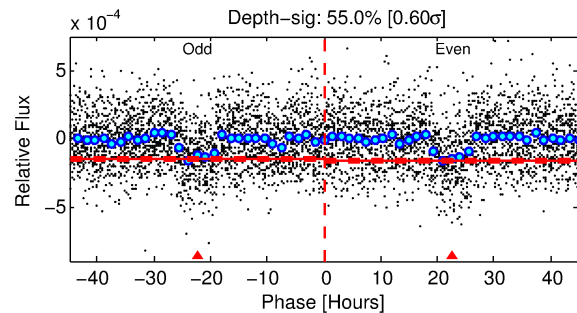
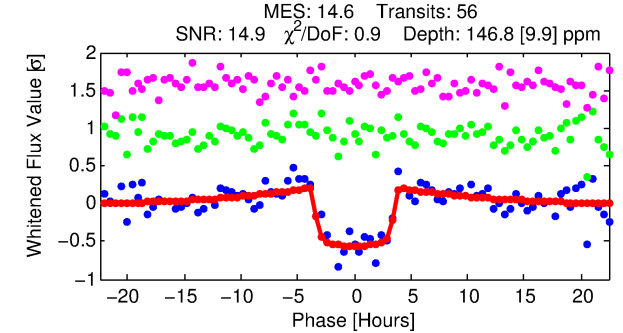
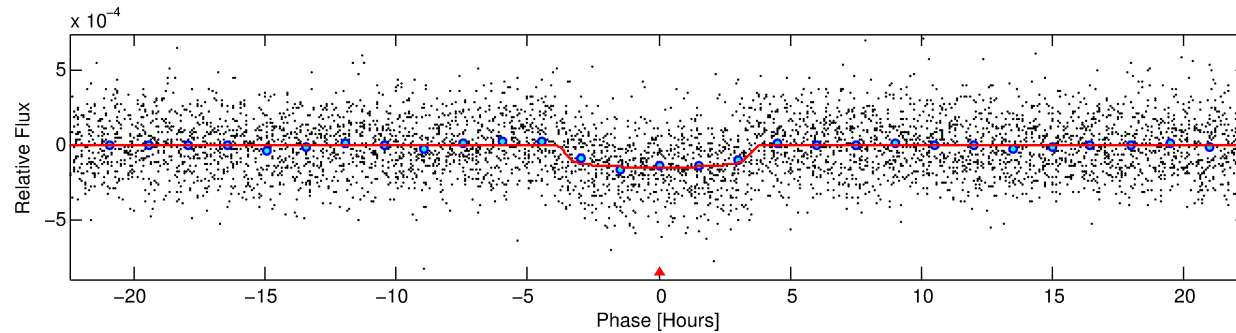
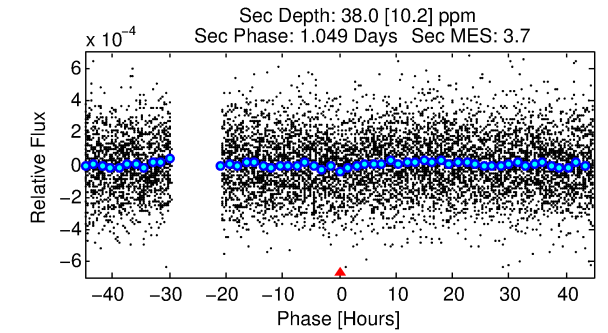
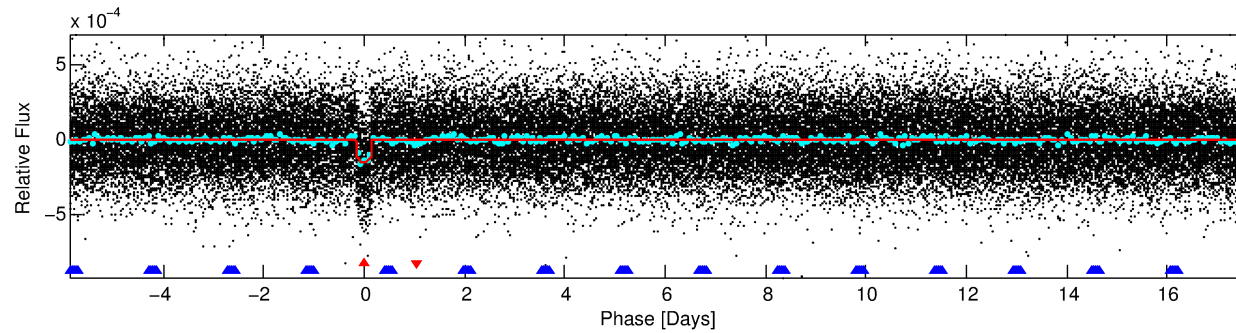
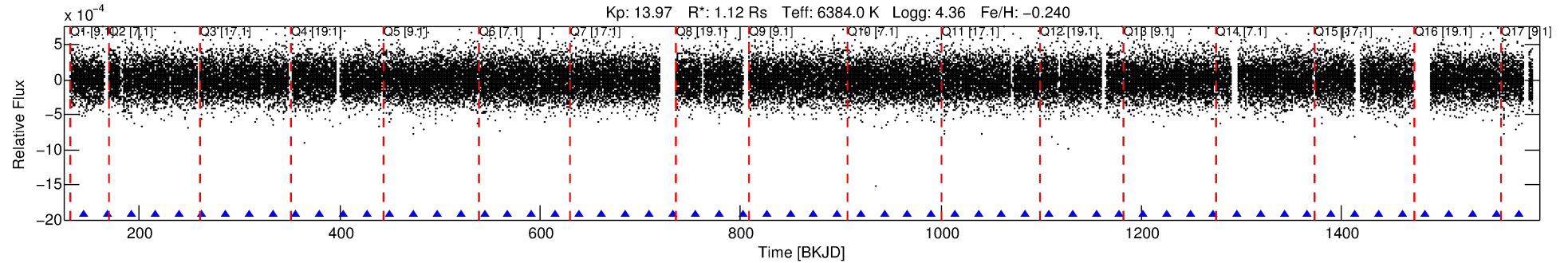
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005175024-01

No Significant Match Found

DV One-Page Summary

KIC: 5175024 Candidate: 1 of 2 Period: 23.477 d
KOI: K02563.01 Corr: 0.986



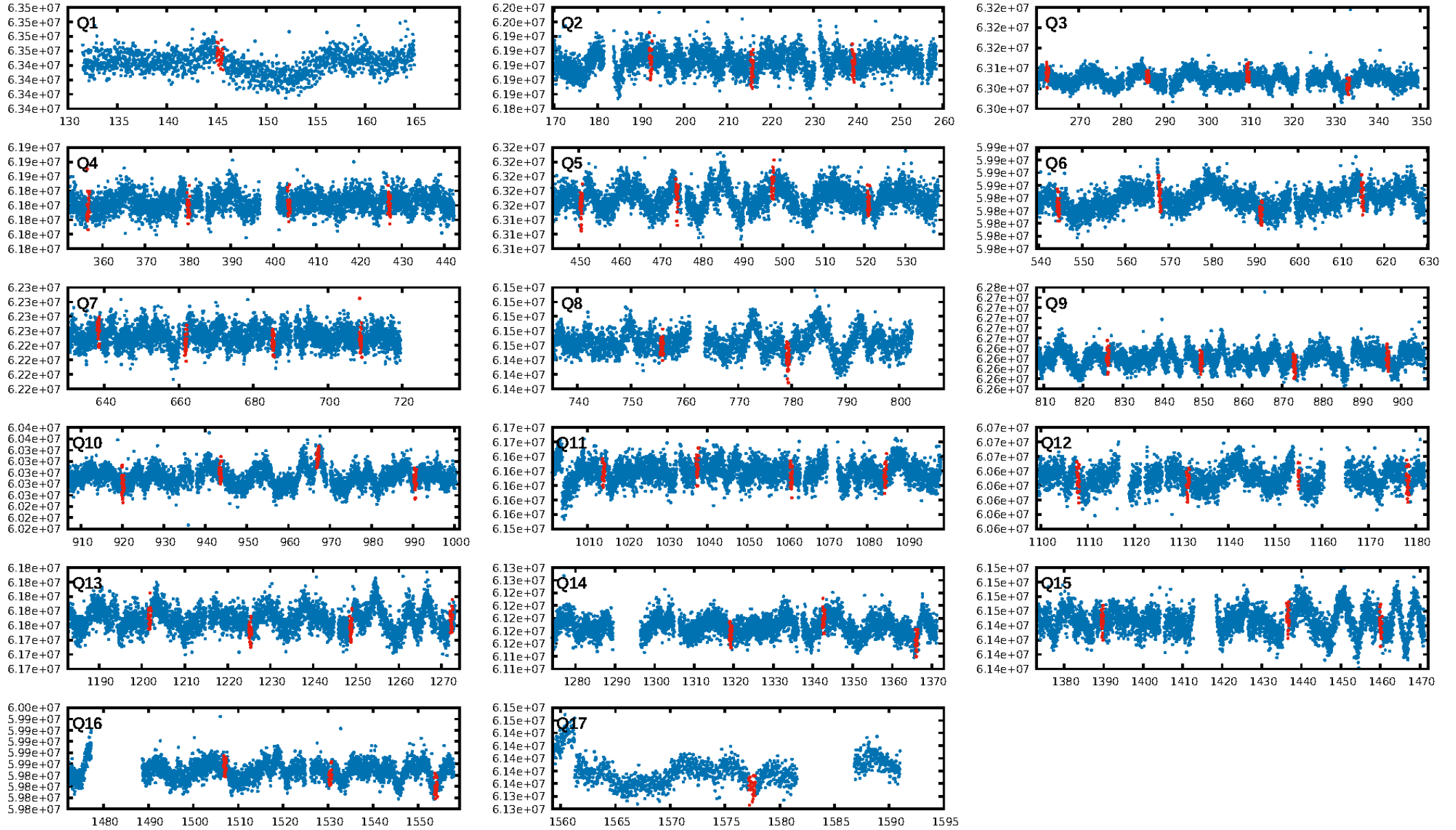
DV Fit Results:

Period = 23.47742 [0.00021] d
Epoch = 145.3511 [0.0072] BKJD
Rp/R* = 0.0128 [0.0021]
a/R* = 12.24 [10.86]
b = 0.88 [0.24]
Seff = 70.17 [27.87]
Teq = 738 [73] K
Rp = 1.56 [0.55] Re
a = 0.1633 [0.0426] AU
Ag = 229.00 [130.00] [1.75σ]
Teffp = 4439 [494] K [7.41σ]

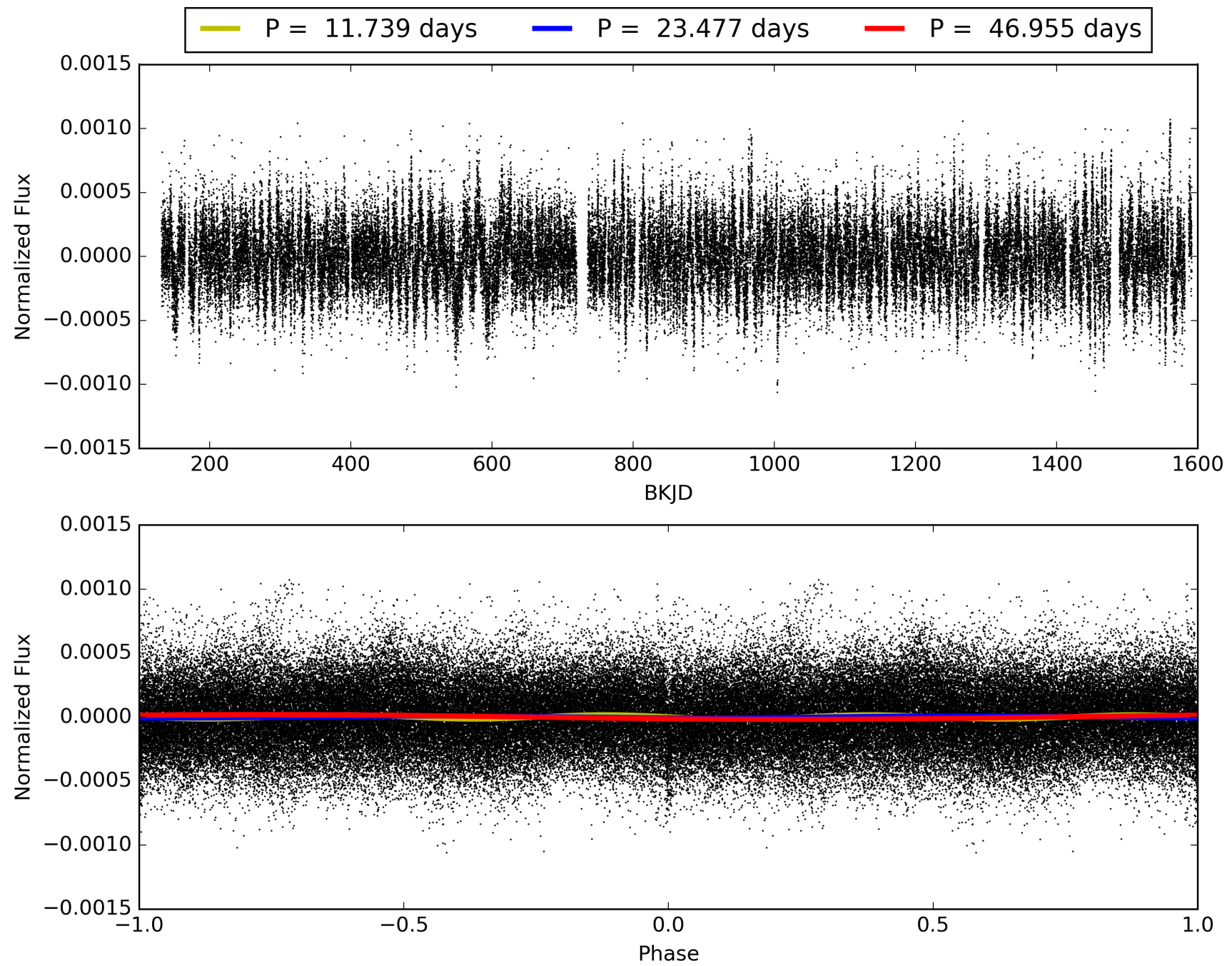
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.97σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 88.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.67e-46
RollingBand-fgt: 1.00 [54/54]
GhostDiagnostic-chr: -30.81
Centroid-sig: 40.5%
Centroid-so: 0.788 arcsec [1.13σ]
OotOffset-rm: 0.237 arcsec [0.89σ]
KicOffset-rm: 0.280 arcsec [0.99σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 0.94 [16/17]

TCE 005175024-01, PDC Light Curves

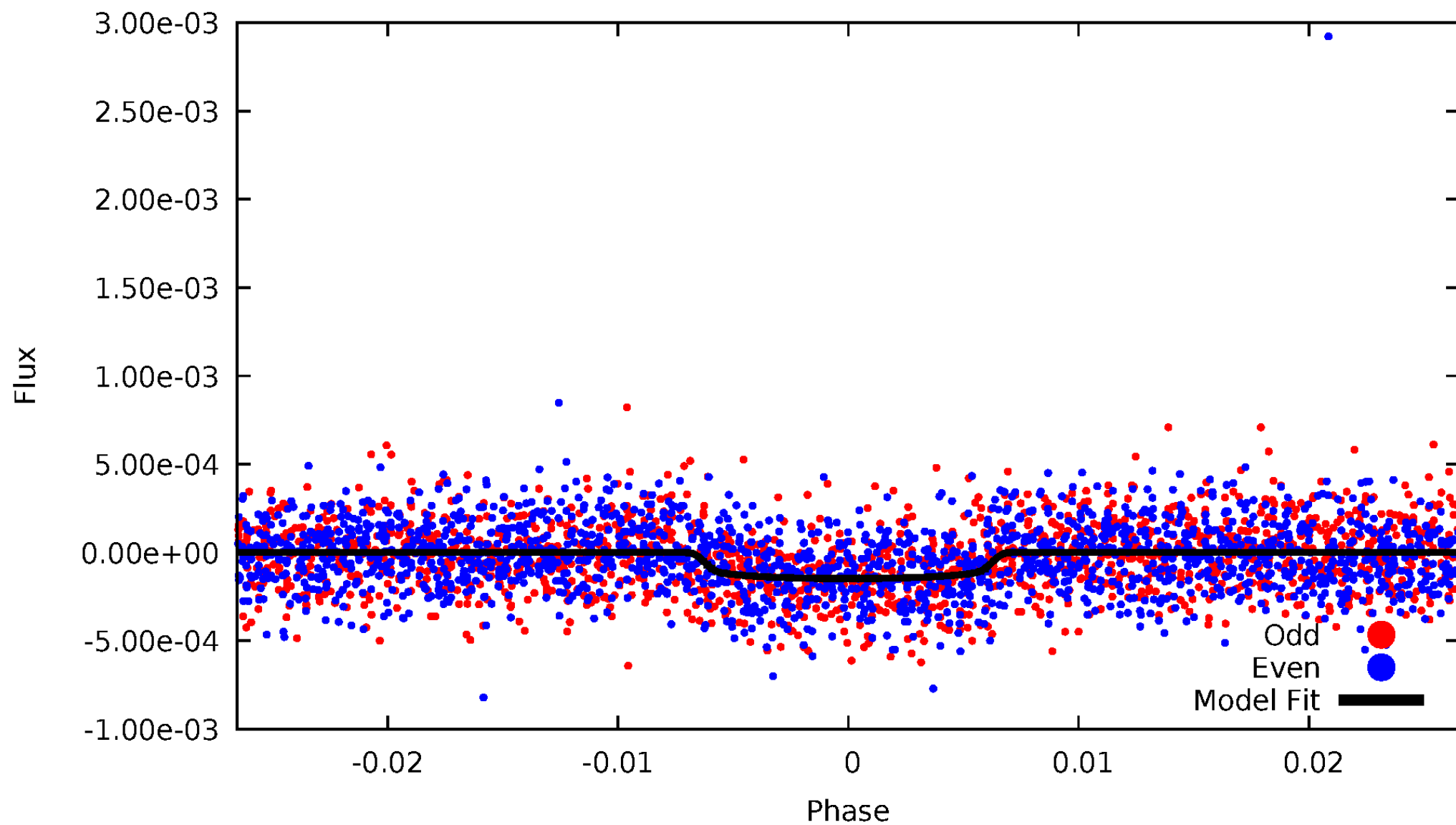


TCE 005175024-01



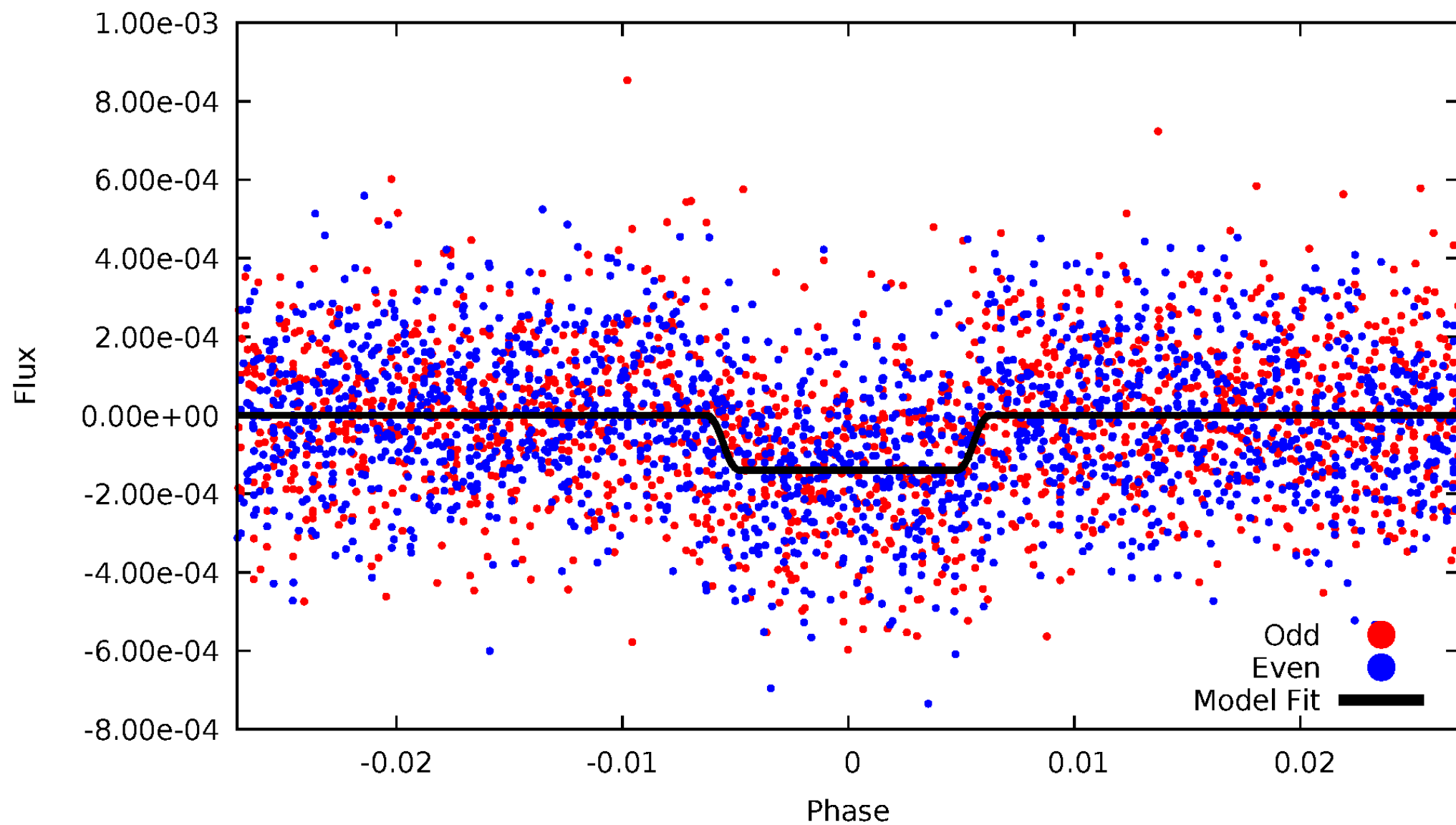
DV Odd/Even

TCE 005175024-01

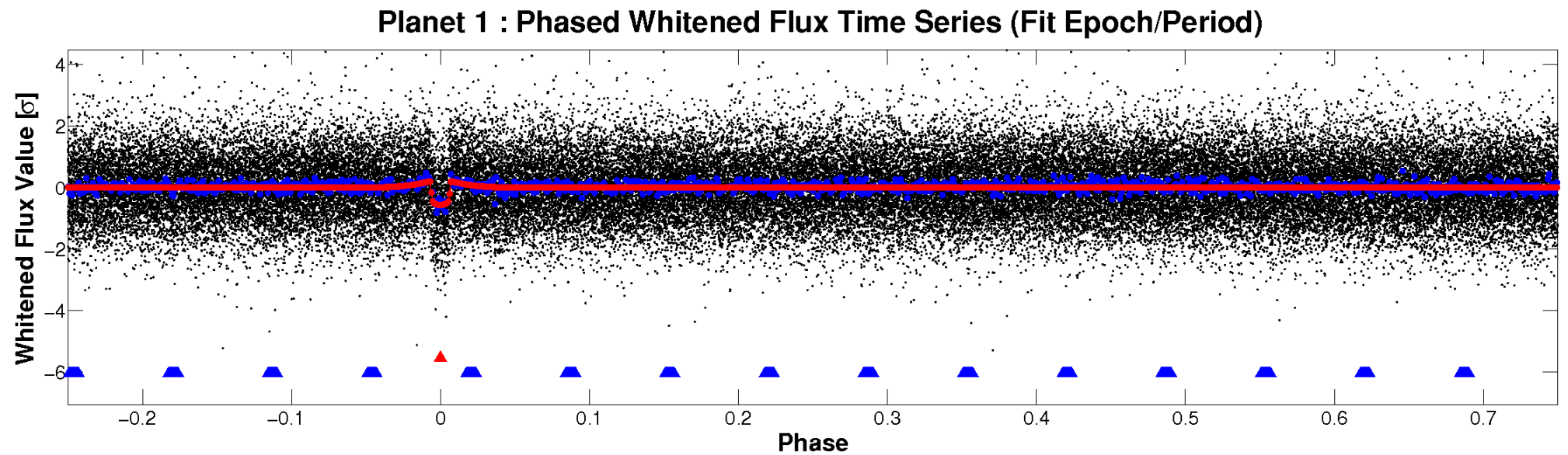
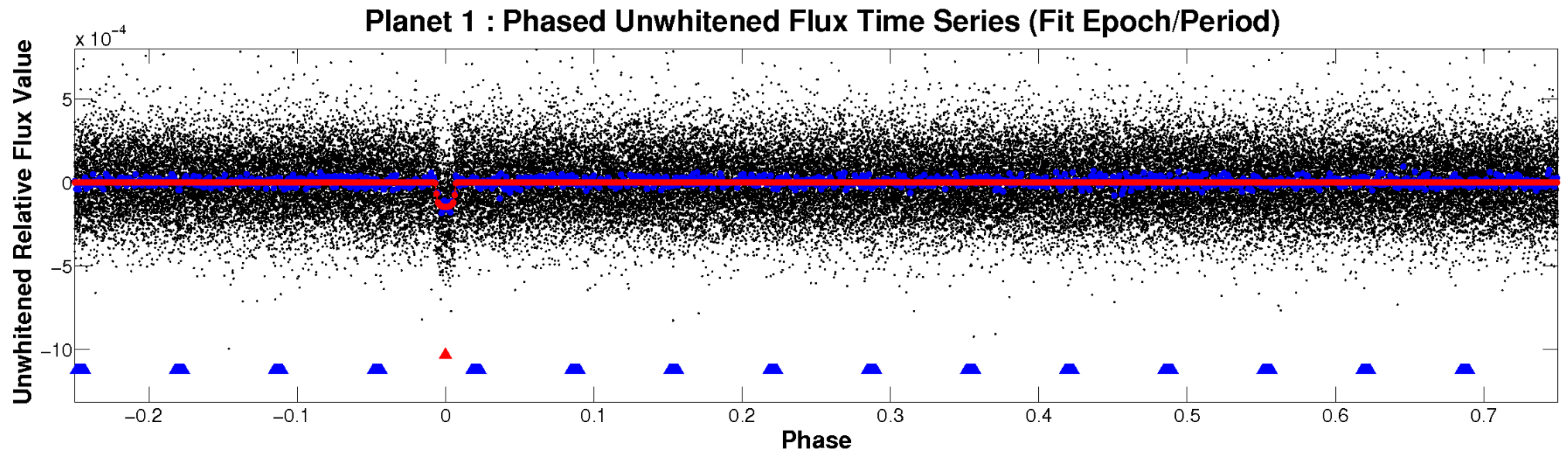


ALT Odd/Even

TCE 005175024-01

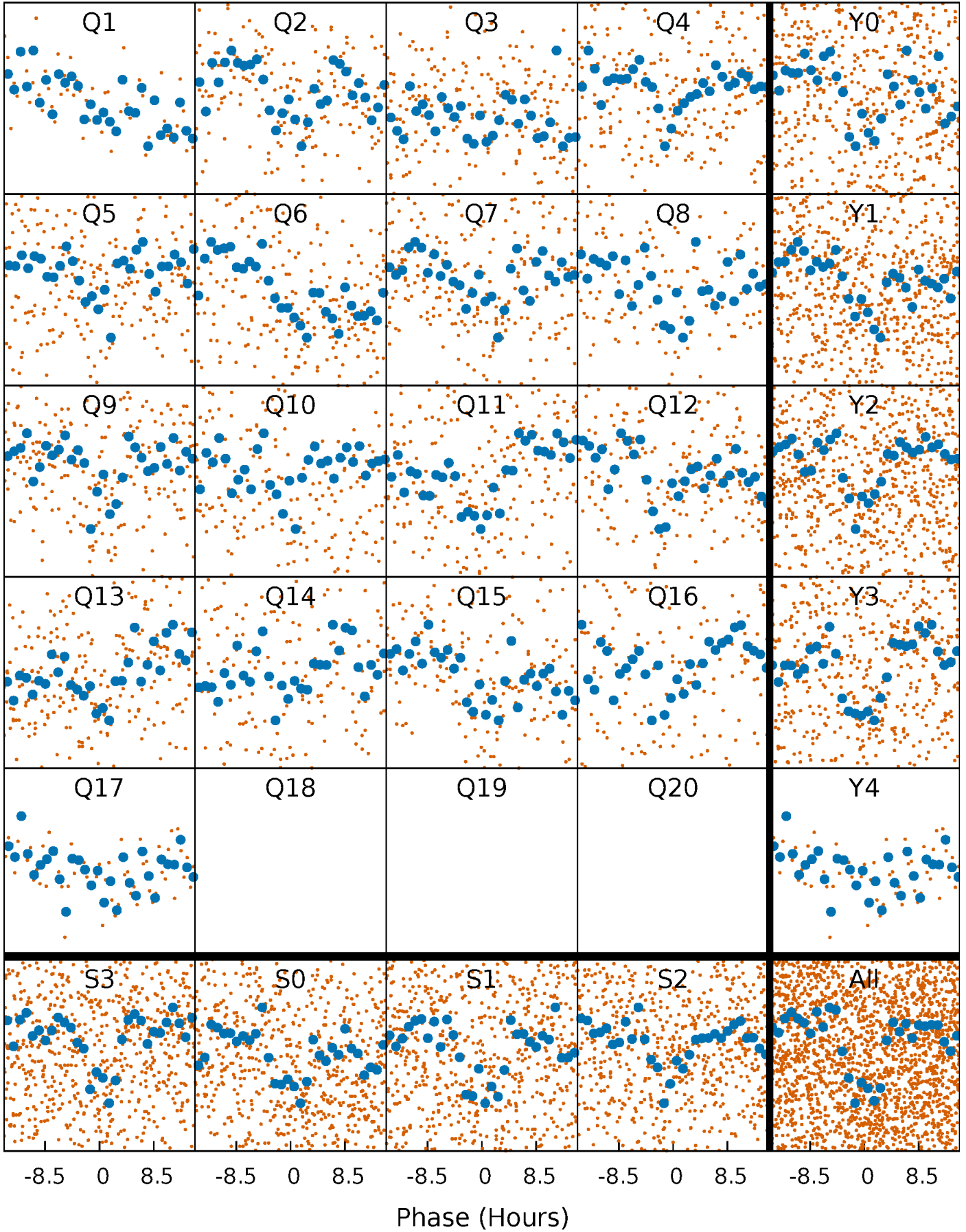


Non-Whitened Vs. Whitened Light Curve



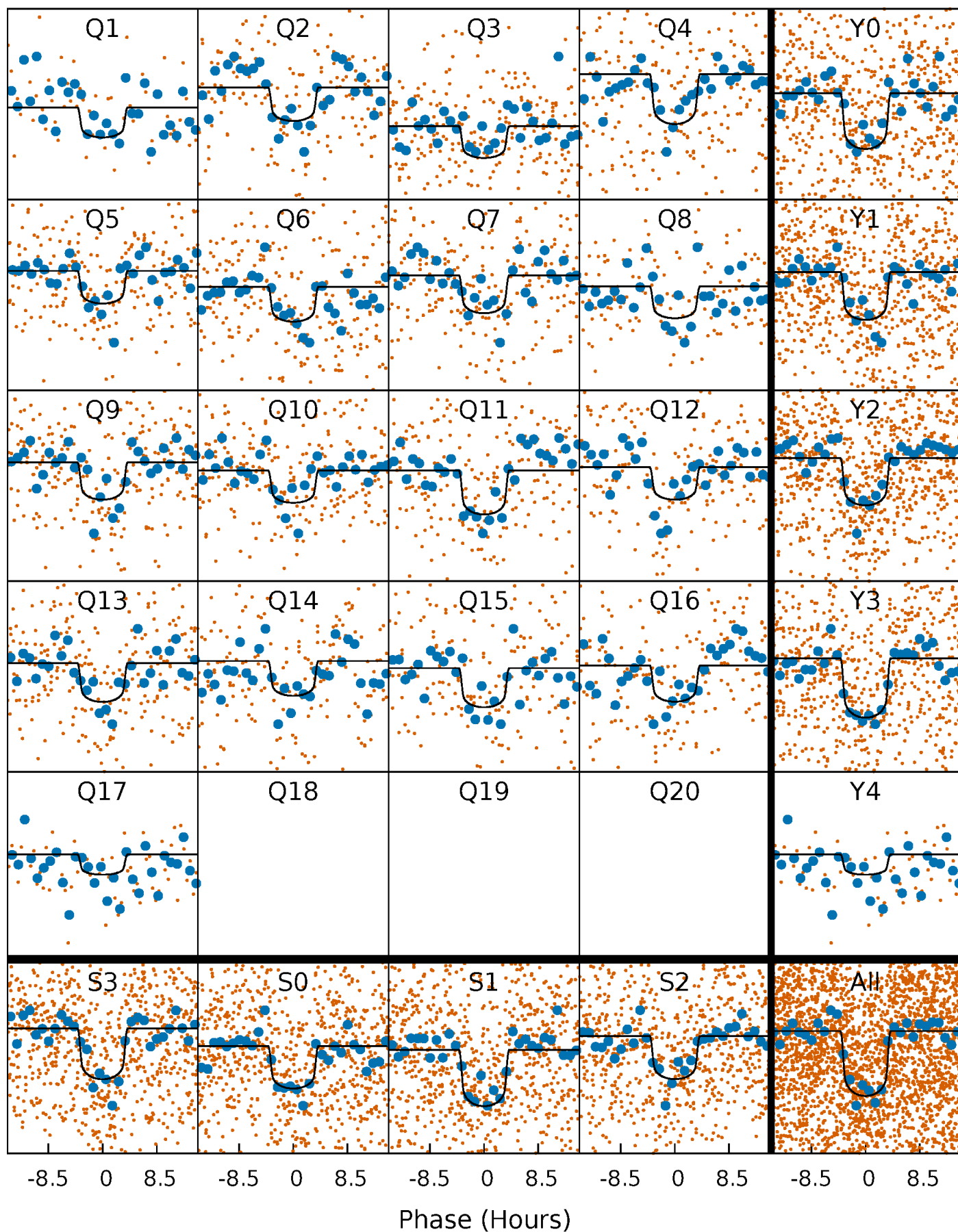
PDC Quarter-Phased Transit Curves

TCE 005175024-01 P= 23.477419 Days $T_0=145.351057$ (BKJD)



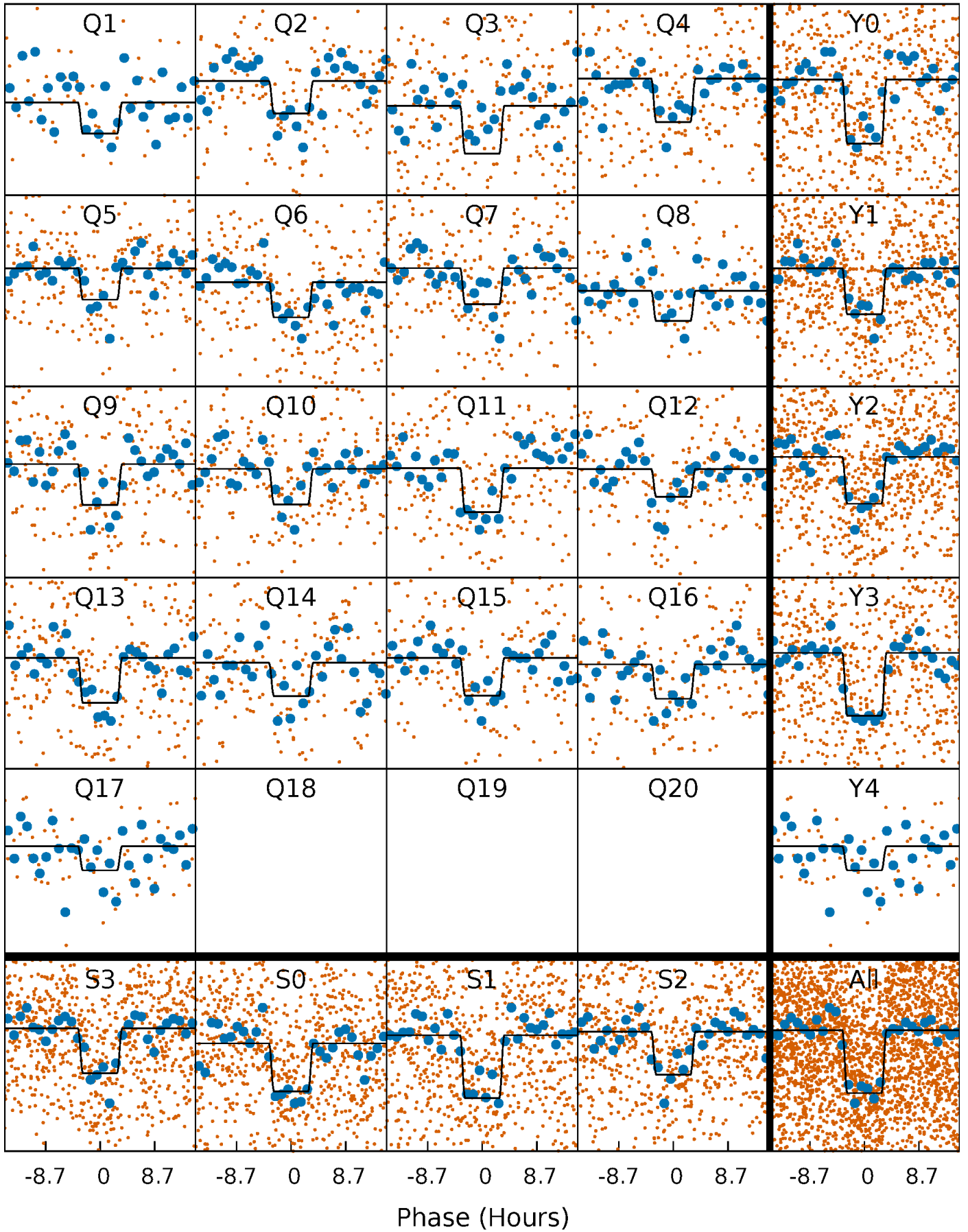
DV Quarter-Phased Transit Curves

TCE 005175024-01 P= 23.477419 Days $T_0=145.351057$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

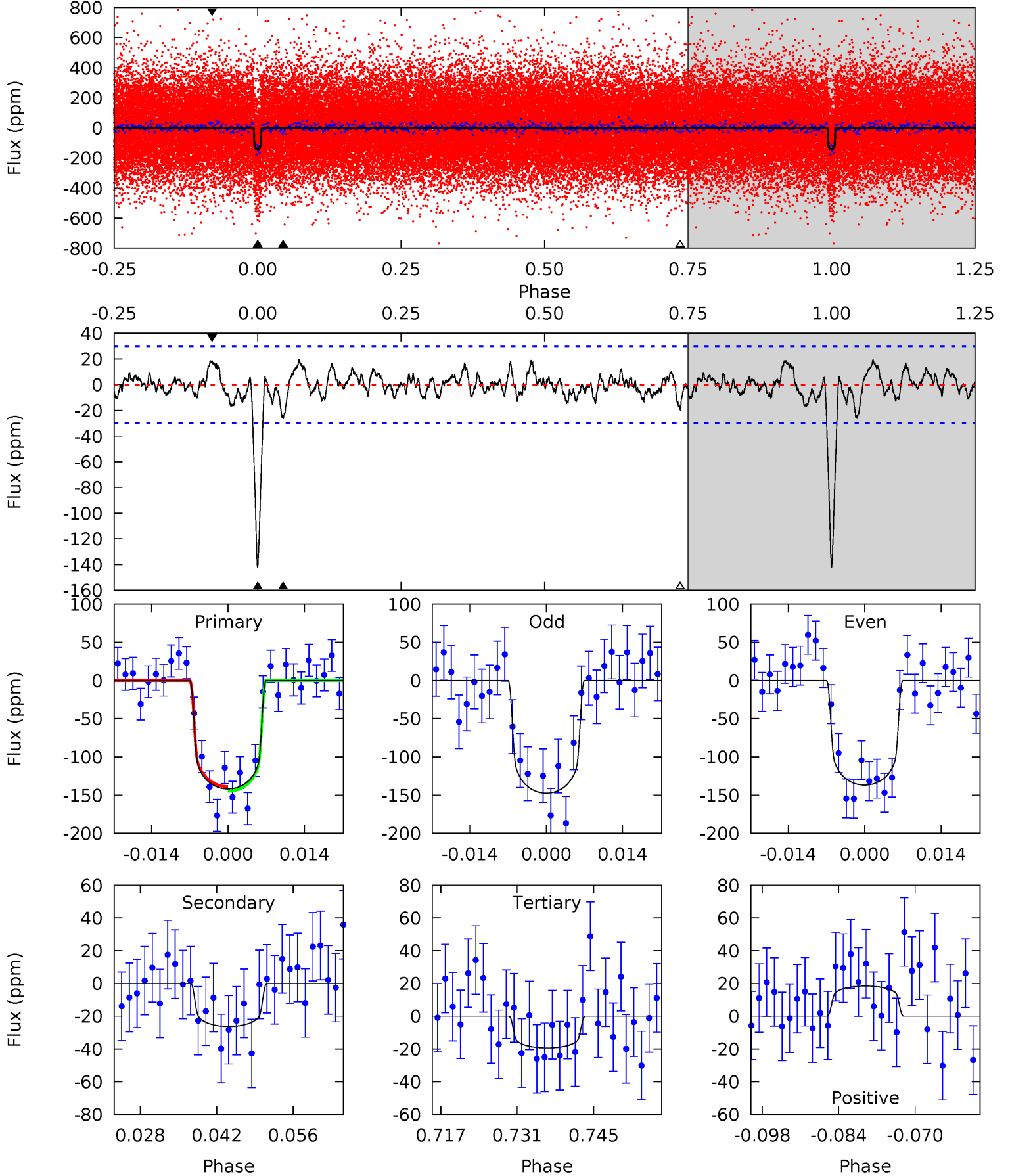
TCE 005175024-01 P= 23.477347 Days $T_0=145.355660$ (BKJD)



DV Model-Shift Uniqueness Test

005175024-01, P = 23.477419 Days, E = 121.873638 Days

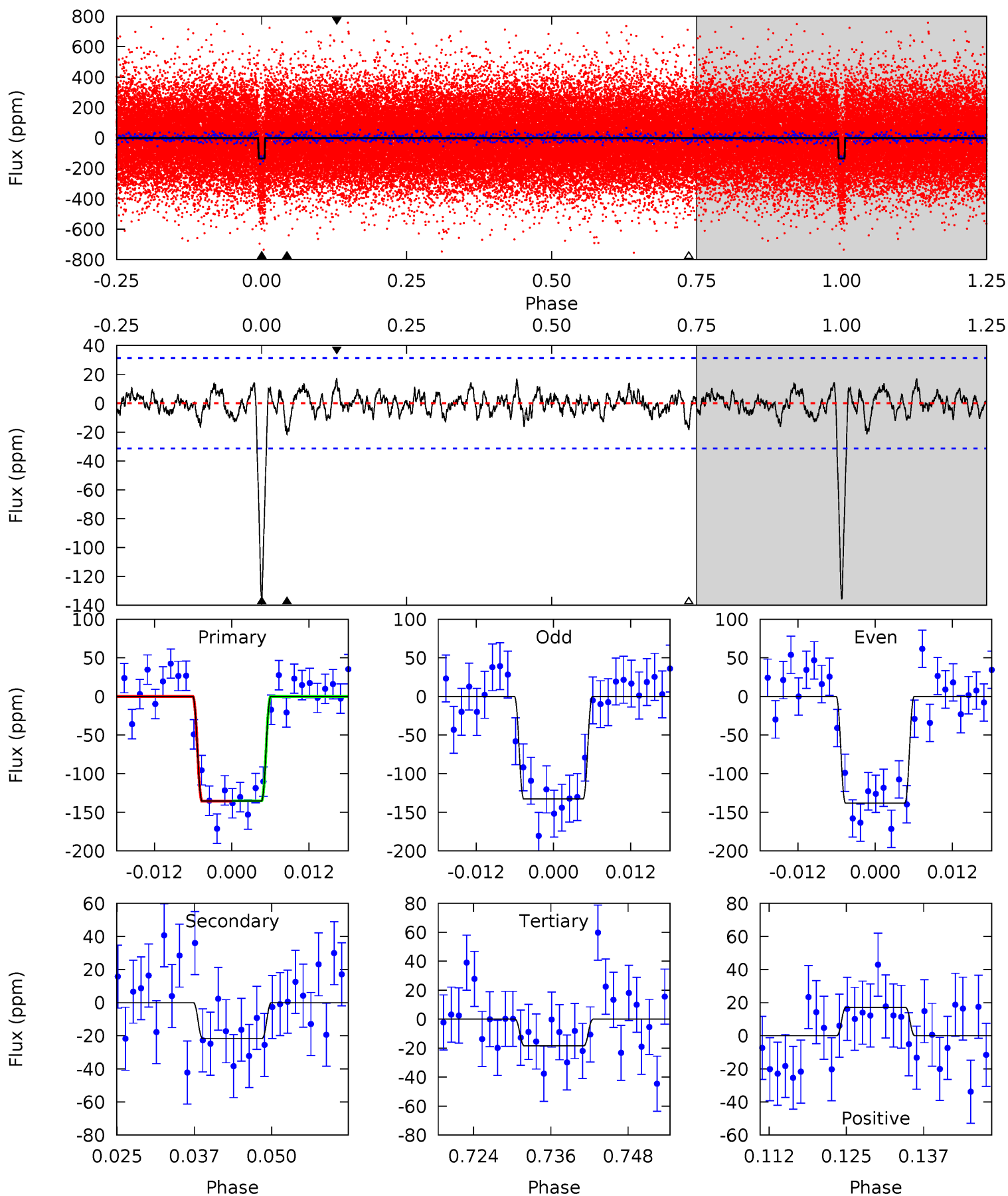
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	4.36	3.22	3.04	4.96	2.46	1.18	20.3	20.4	1.14	1.31	0.88	0.95	0.12	0.50



Alt Model-Shift Uniqueness Test

005175024-01, P = 23.477347 Days, E = 121.878313 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	3.44	2.93	2.73	4.98	2.50	0.93	18.6	18.8	0.51	0.72	0.43	1.00	0.11	0.02



Stellar Parameters For KIC 005175024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6384^{+151}_{-207}	$4.361^{+0.087}_{-0.203}$	$-0.240^{+0.250}_{-0.300}$	$1.121^{+0.352}_{-0.151}$	$1.046^{+0.184}_{-0.107}$	$1.046^{+0.410}_{-0.568}$
	+2%/-3%	+2%/-5%	+104%/-125%	+31%/-13%	+18%/-10%	+39%/-54%
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 005175024-01 / KOI 2563.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-26 ± 6	$1.62^{+0.34}_{-0.31}$	1041^{+79}_{-47}	4292^{+344}_{-345}	148^{+81}_{-57}
Alt.	-22 ± 6	$1.52^{+0.35}_{-0.32}$	1046^{+79}_{-55}	4239^{+420}_{-376}	135^{+94}_{-57}

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

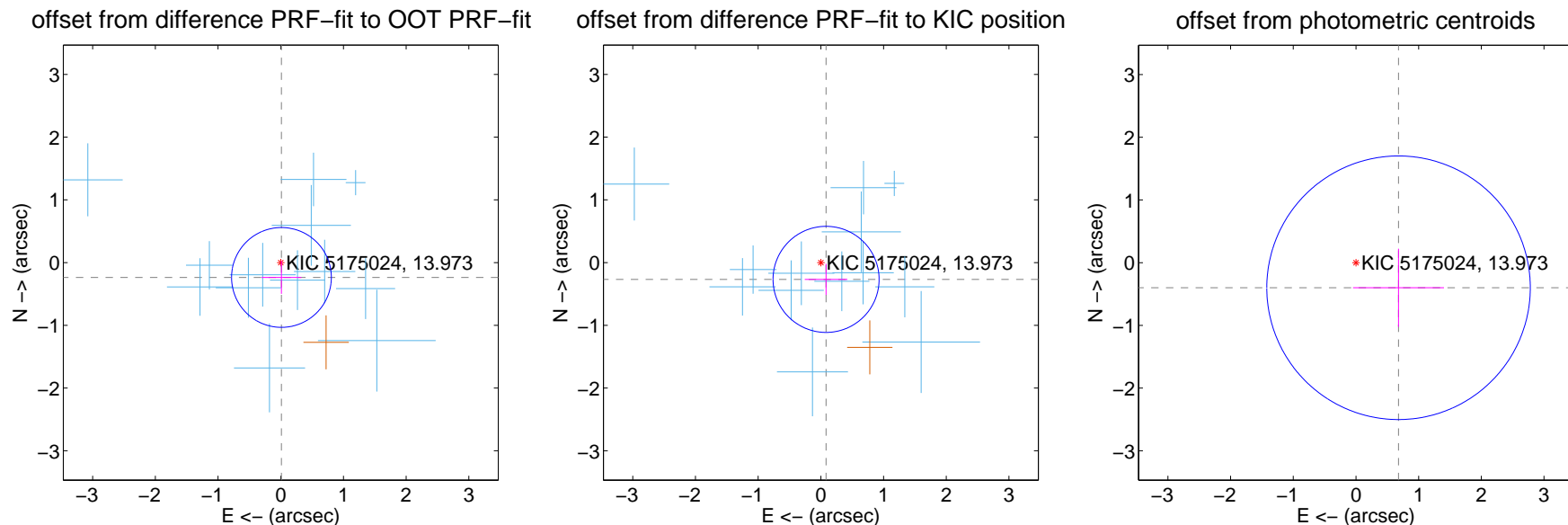
DV Centroid Data

Supplemental centroid analysis for 005175024-01. Kepler magnitude: 13.97. Transit SNR 14.94

There are 13 quarters with good PRF difference image offsets

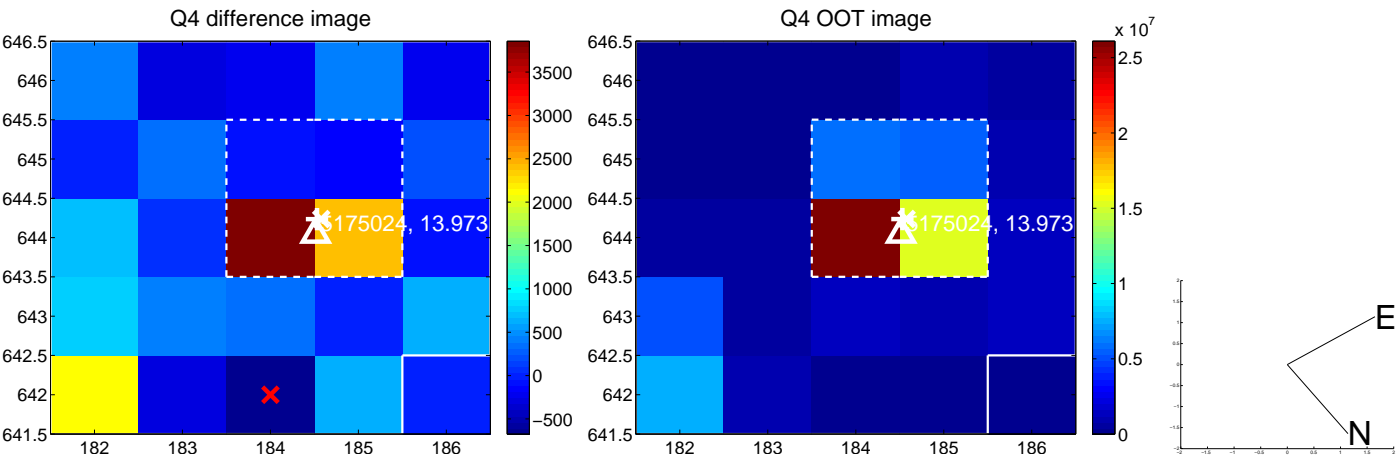
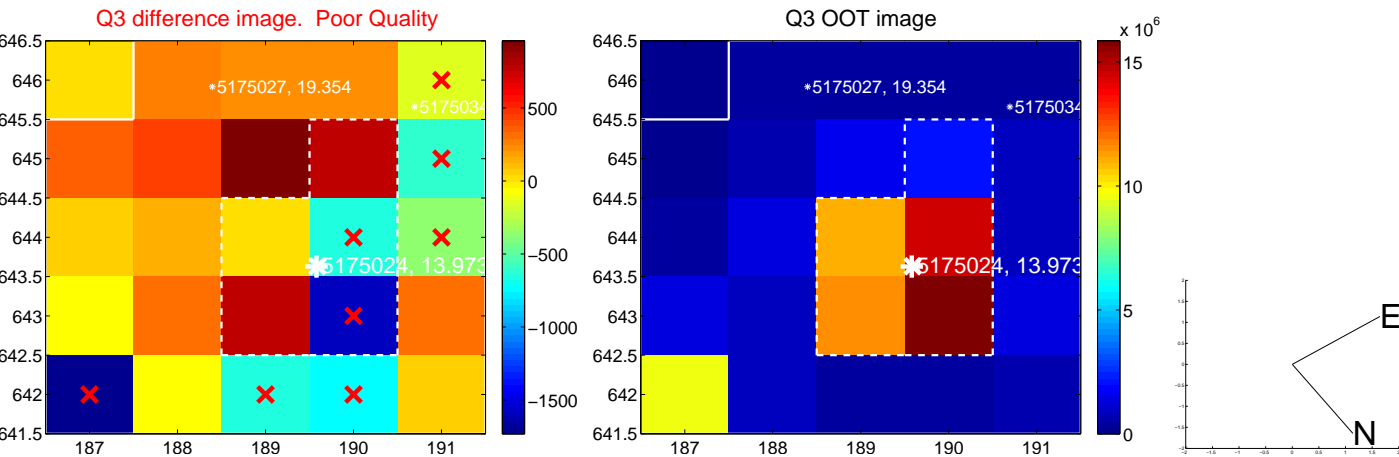
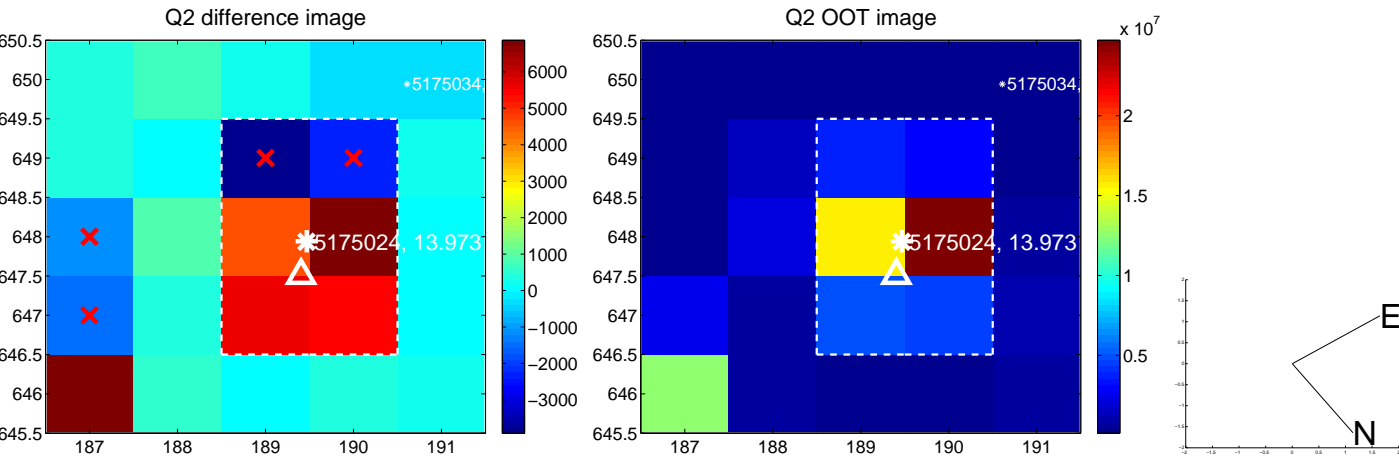
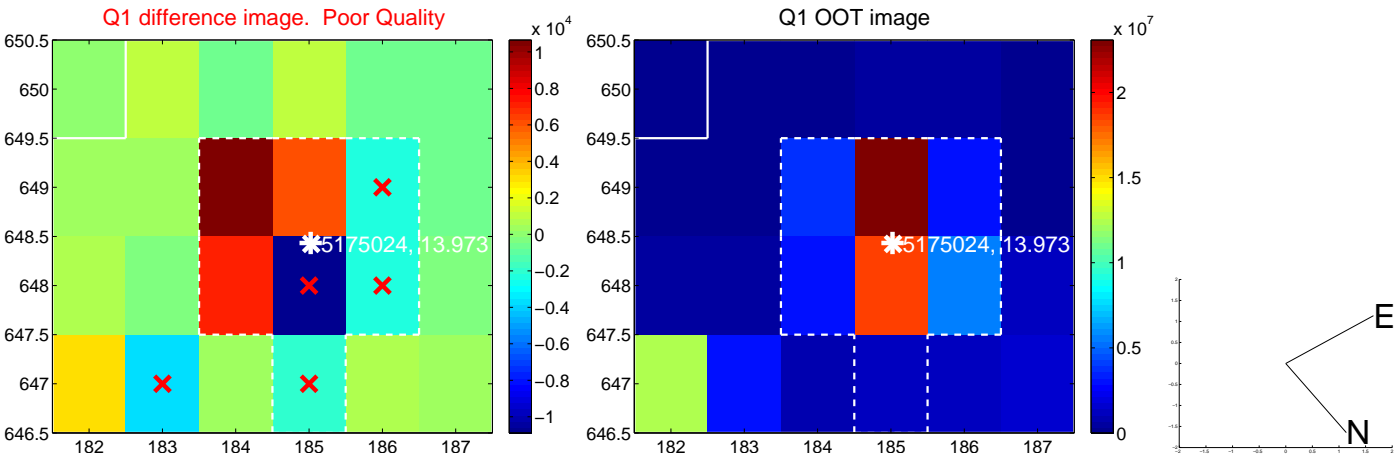
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.237 ± 0.265	0.89	-0.011 ± 0.318	-0.237 ± 0.262
PRF-fit source offset from KIC position	0.280 ± 0.282	0.99	-0.083 ± 0.340	-0.268 ± 0.248
photometric centroid source offset	0.79 ± 0.70	1.13	-0.68 ± 0.73	-0.40 ± 0.62

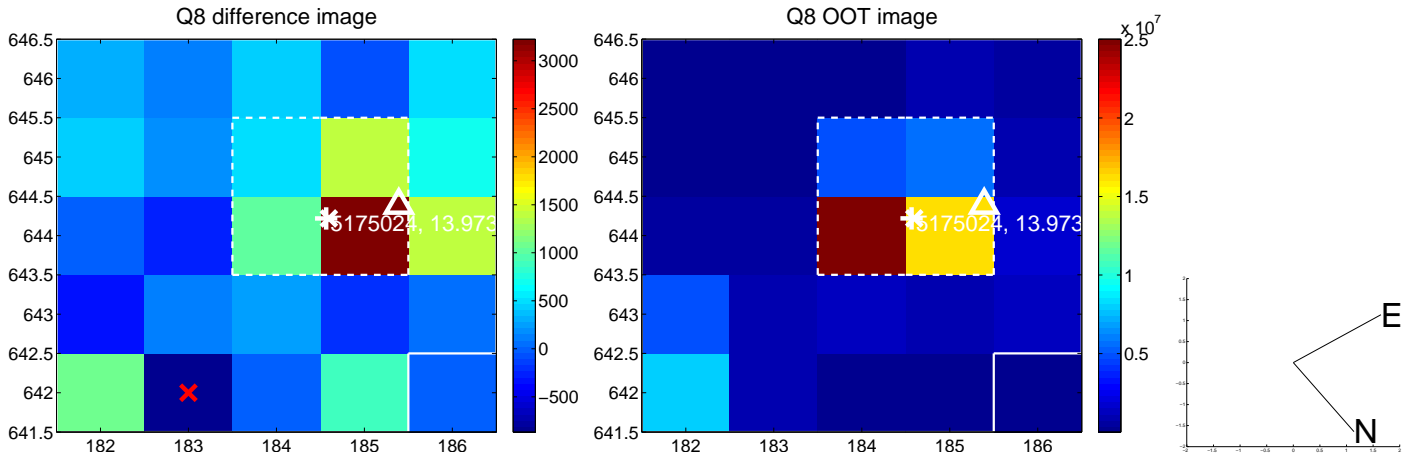
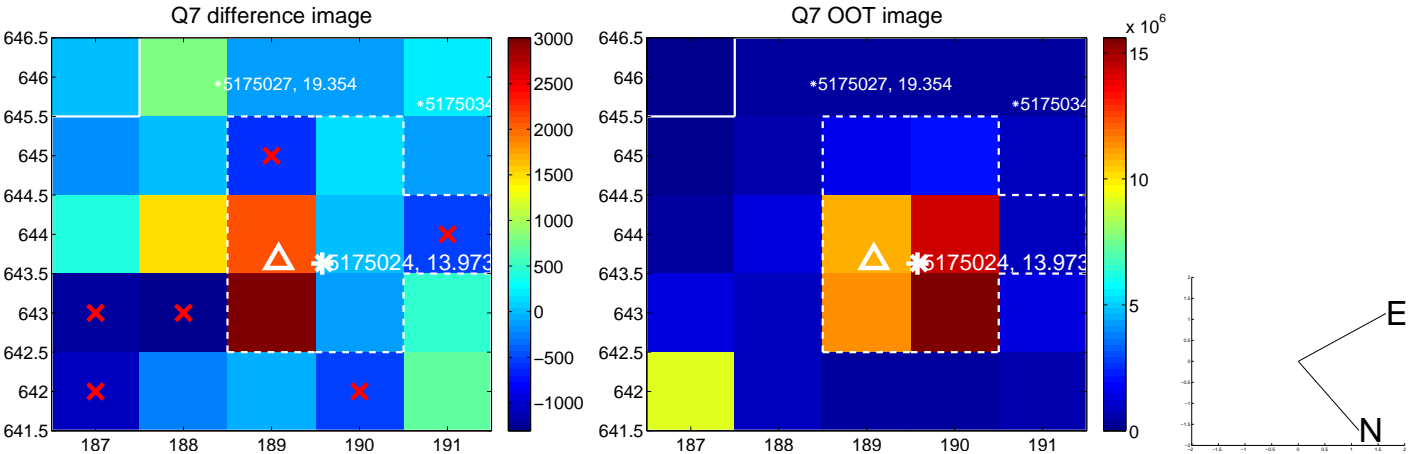
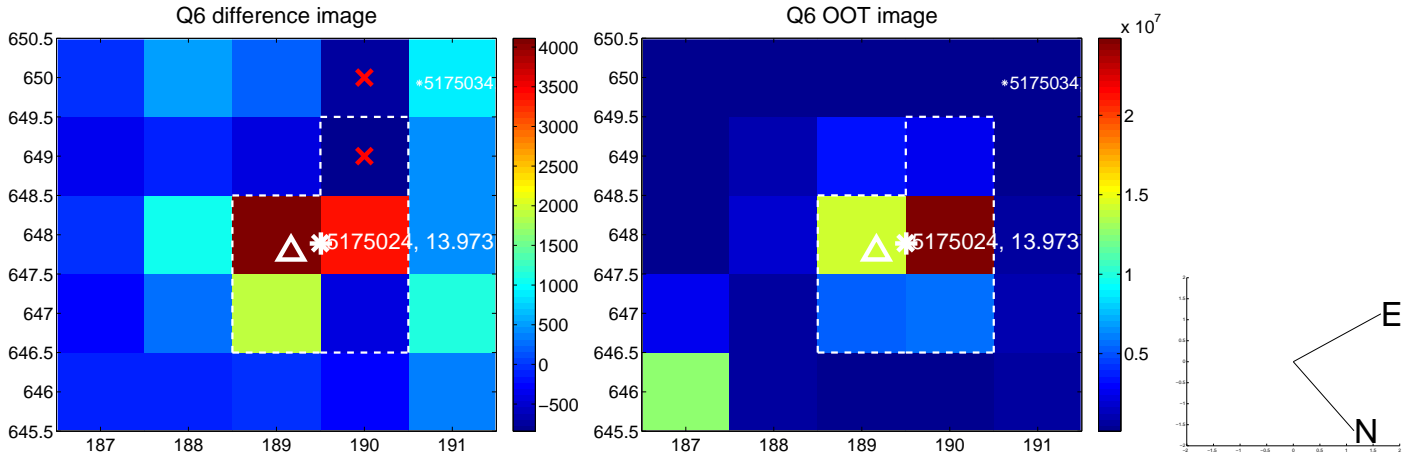
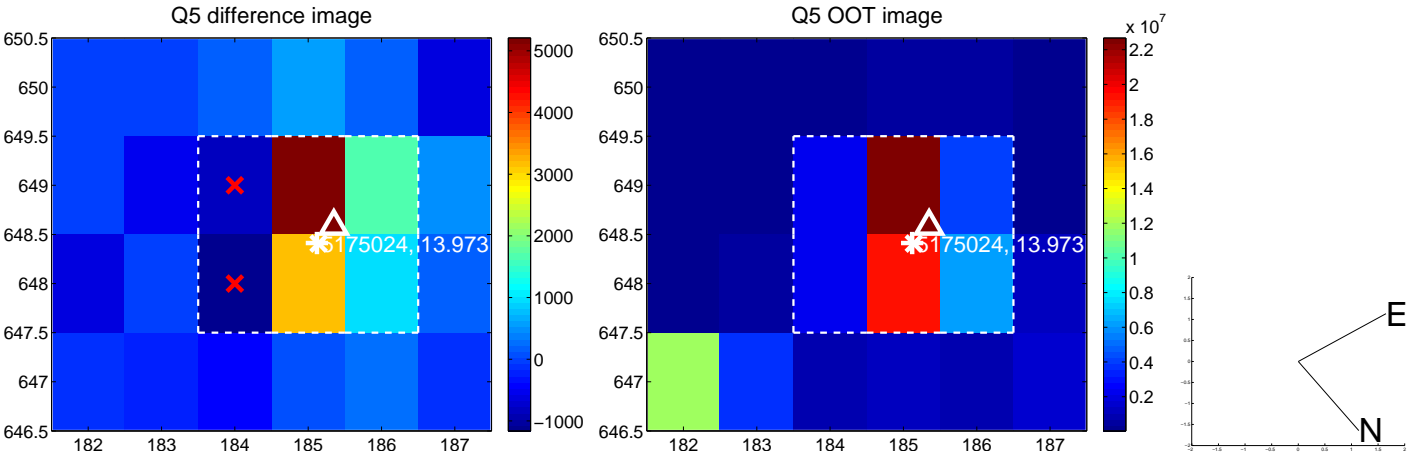


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

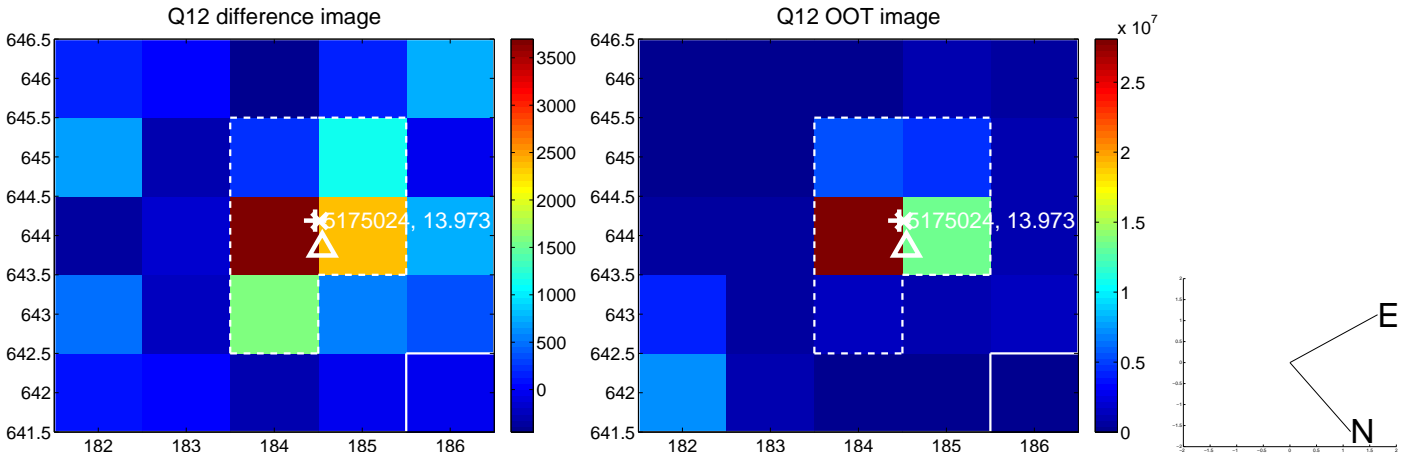
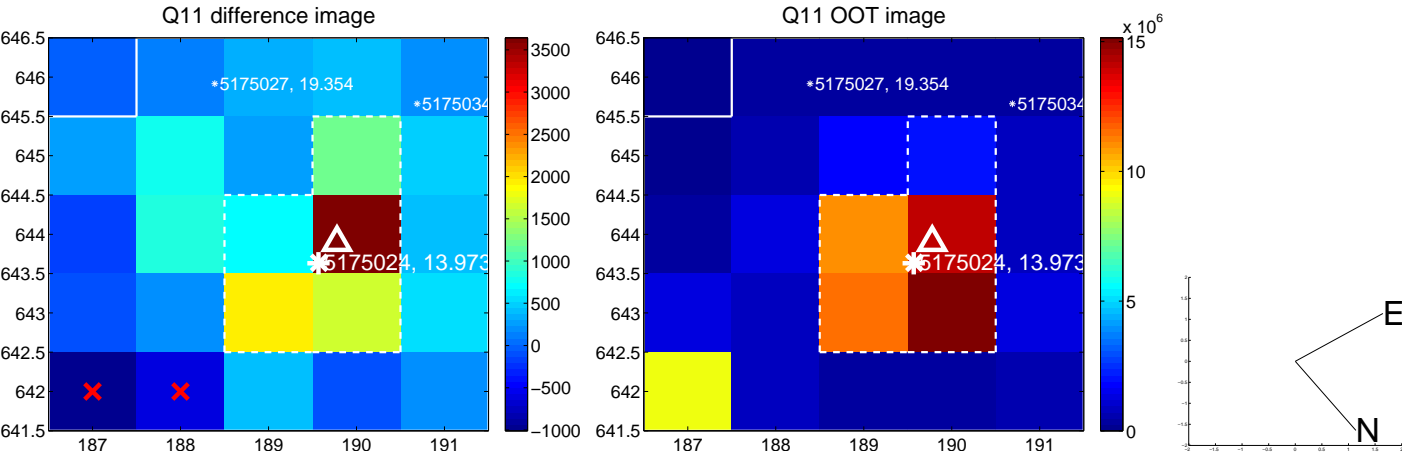
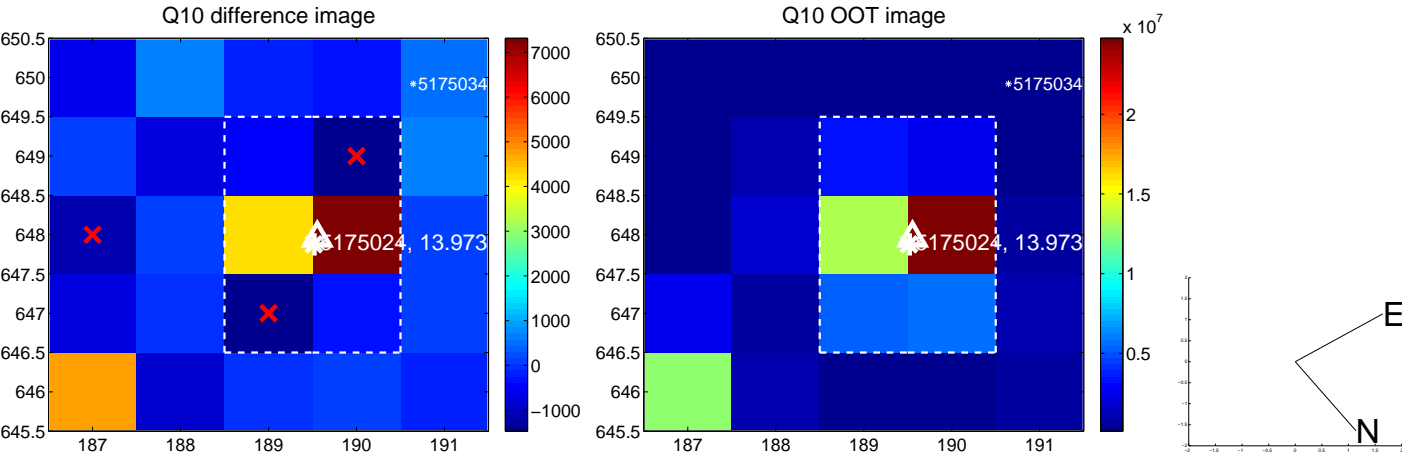
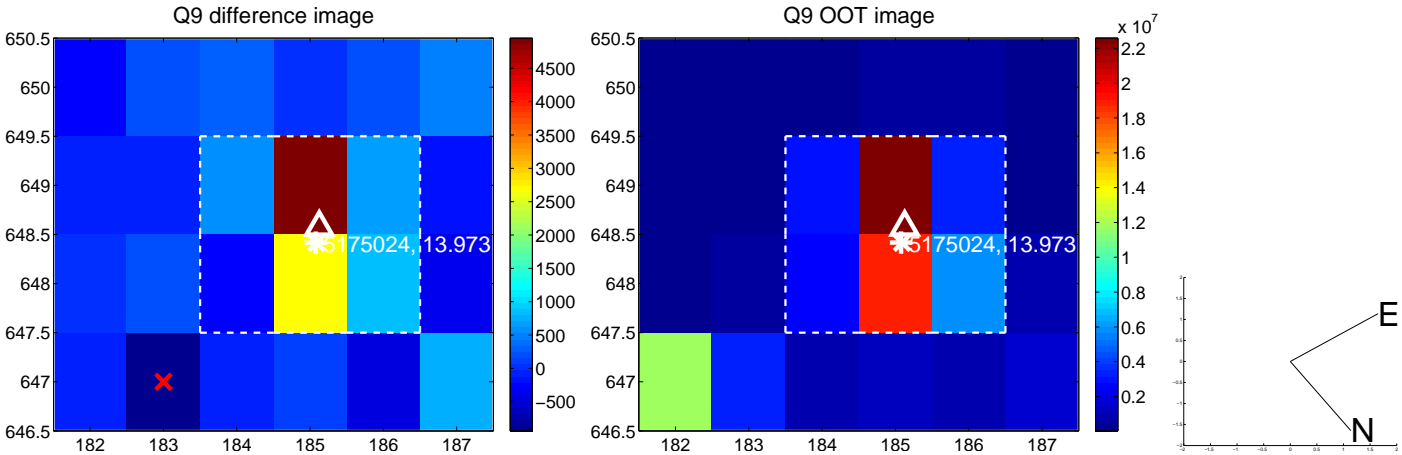
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



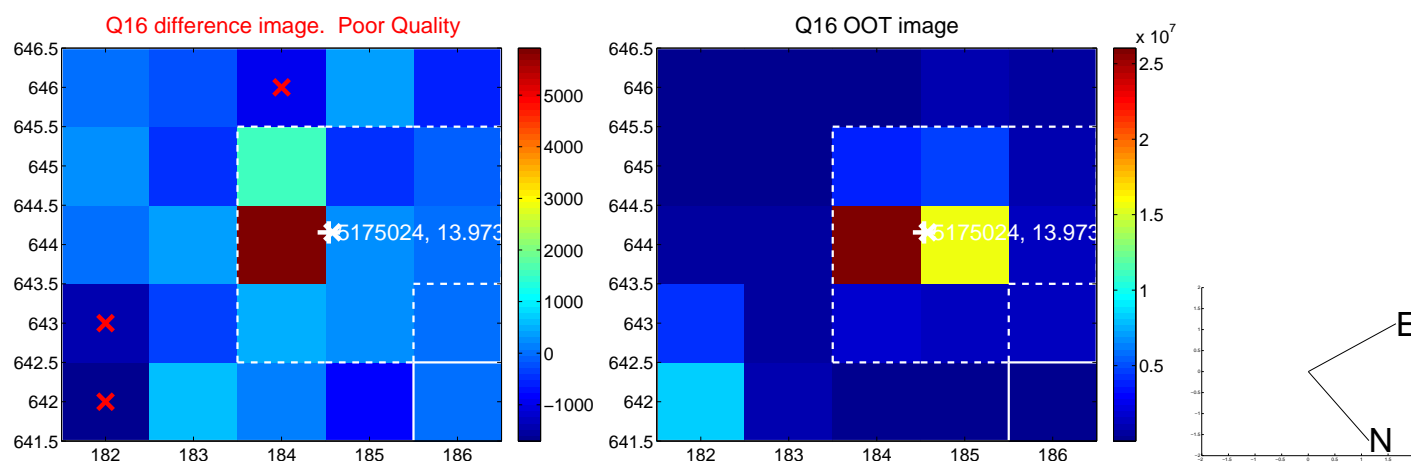
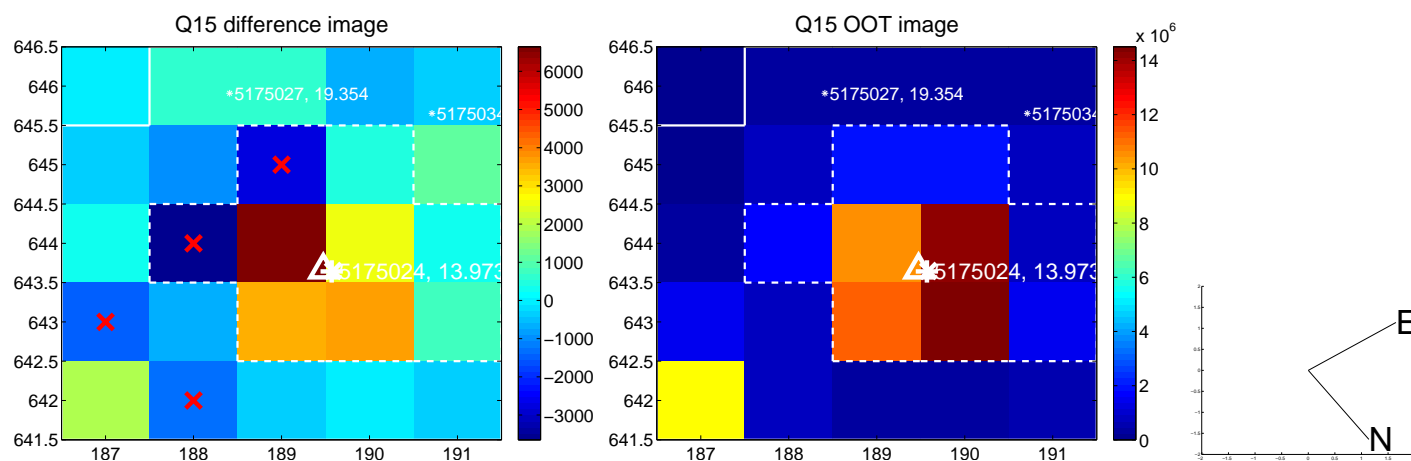
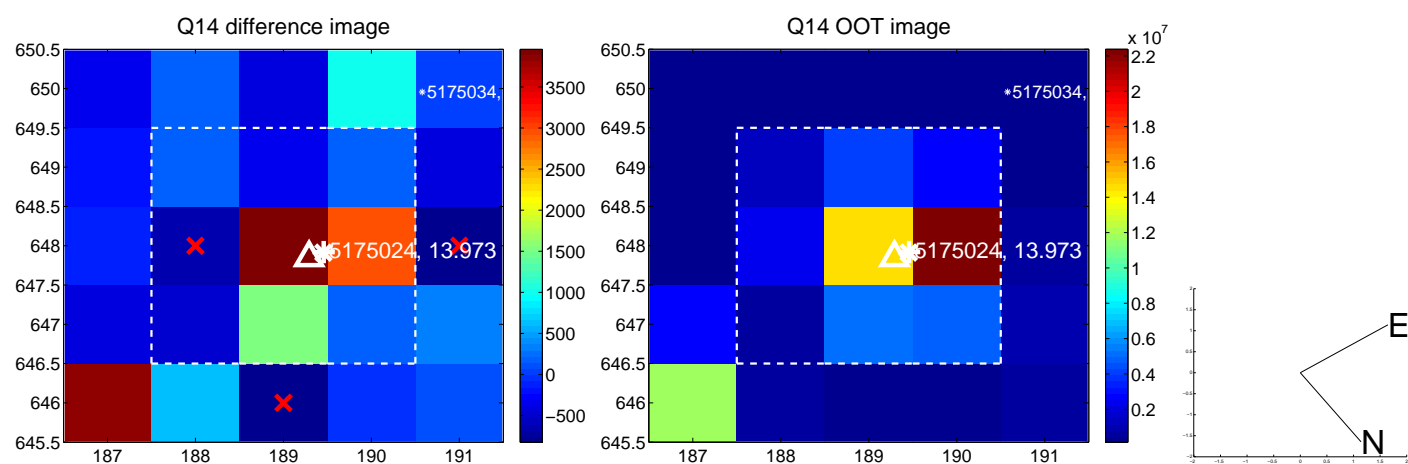
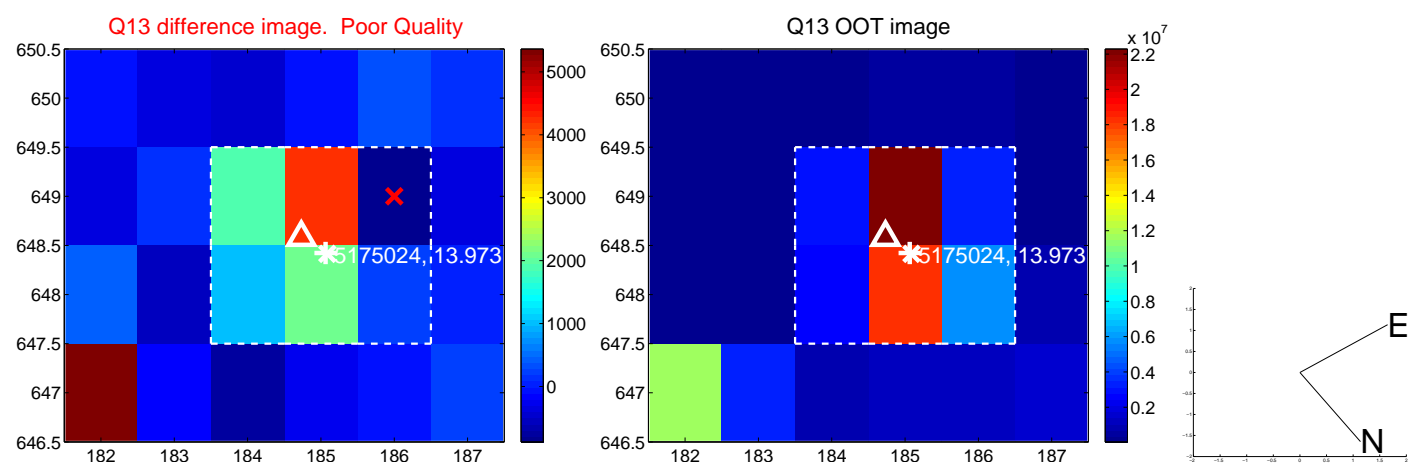
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



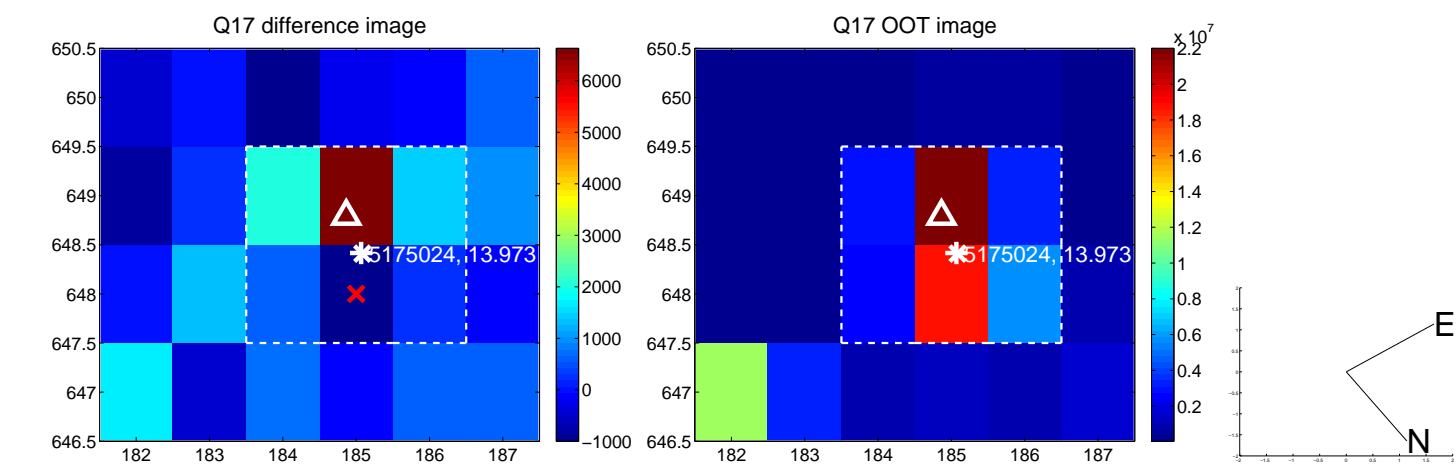
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



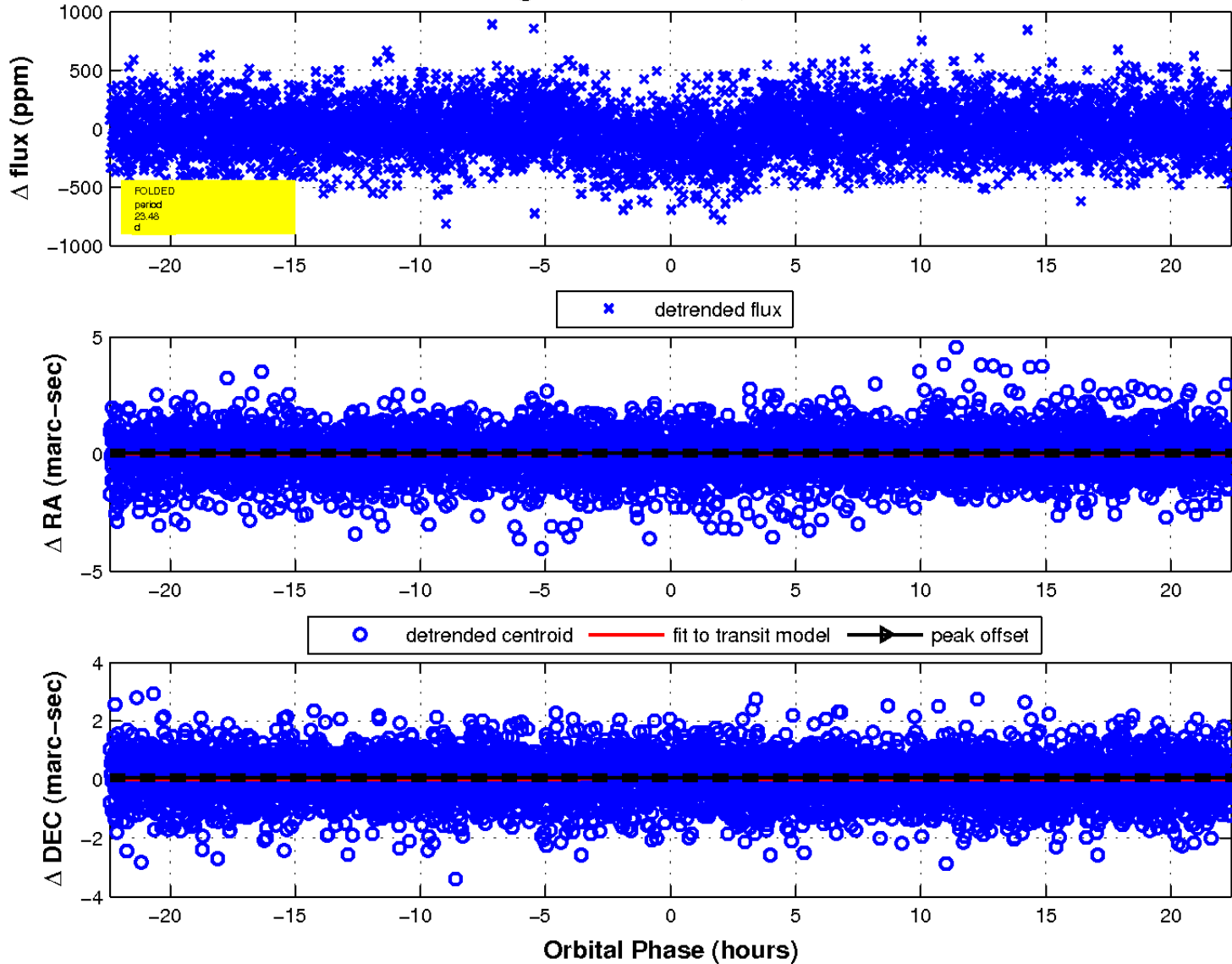
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

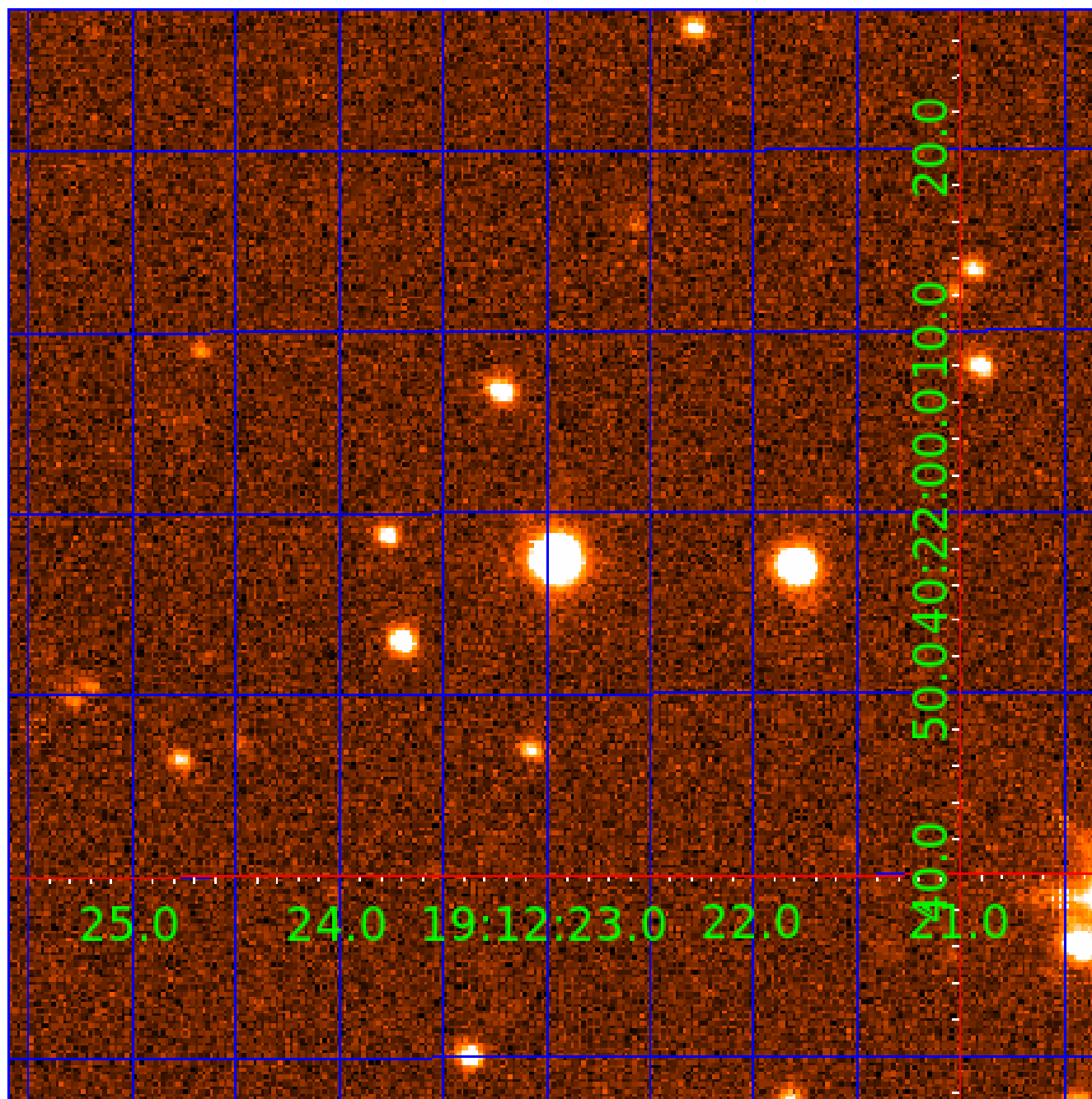


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005175024

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})
005175024-01	OBS	2563.01	23.477419	145.351057	146.8	7.475	14.6	14.9	1.12	6384	1.56	70.17
005175024-02	OBS	2563.02	6.261316	133.236279	48.3	4.638	8.2	8.4	1.12	6384	0.90	408.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005175024-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
005175024-02	OBS	PC	0.98	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.

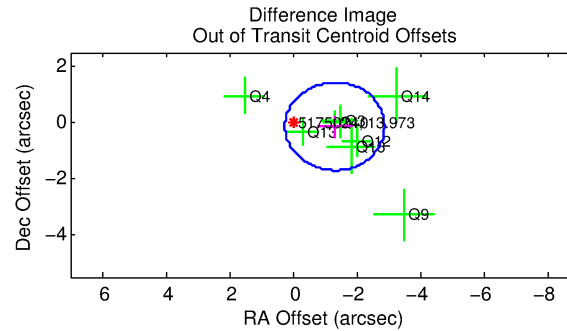
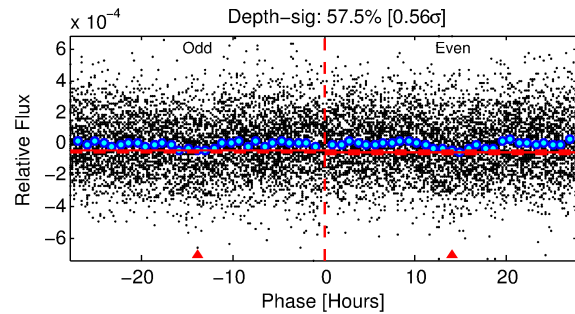
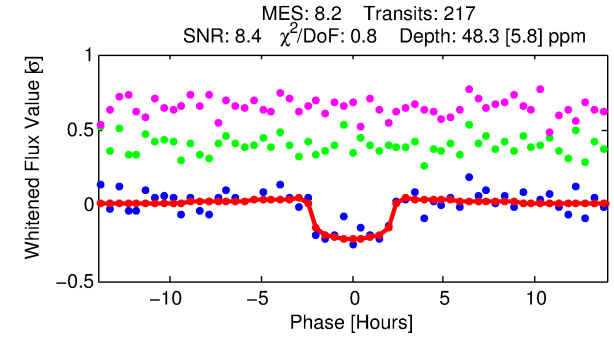
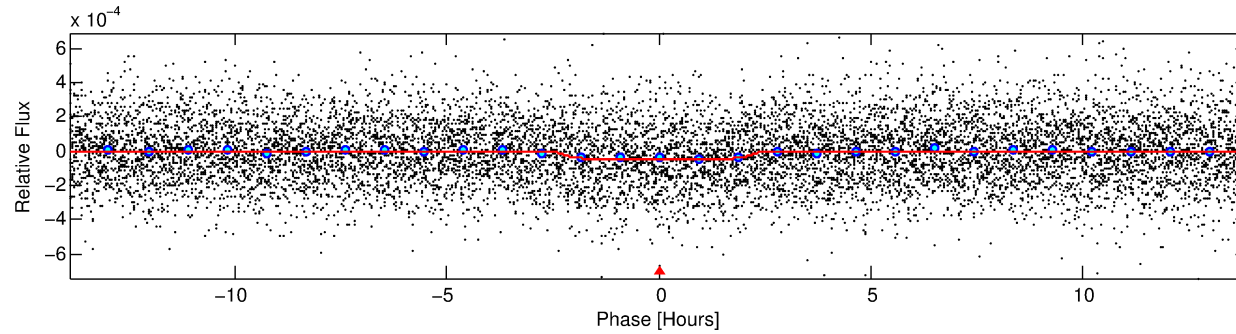
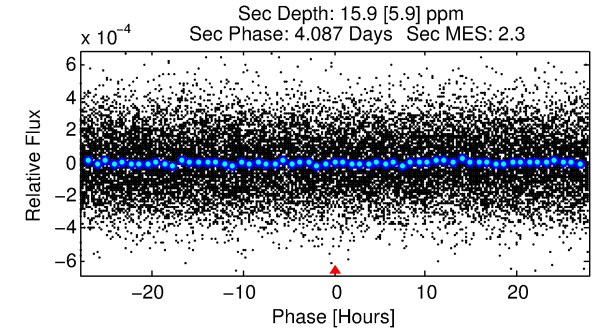
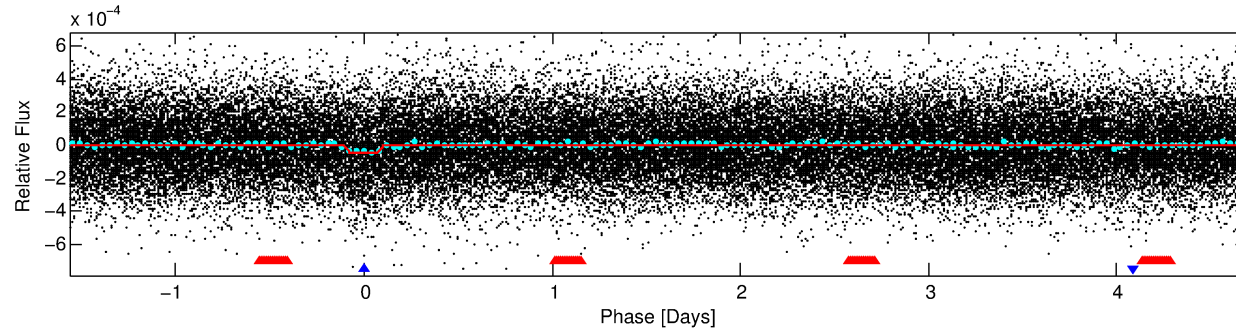
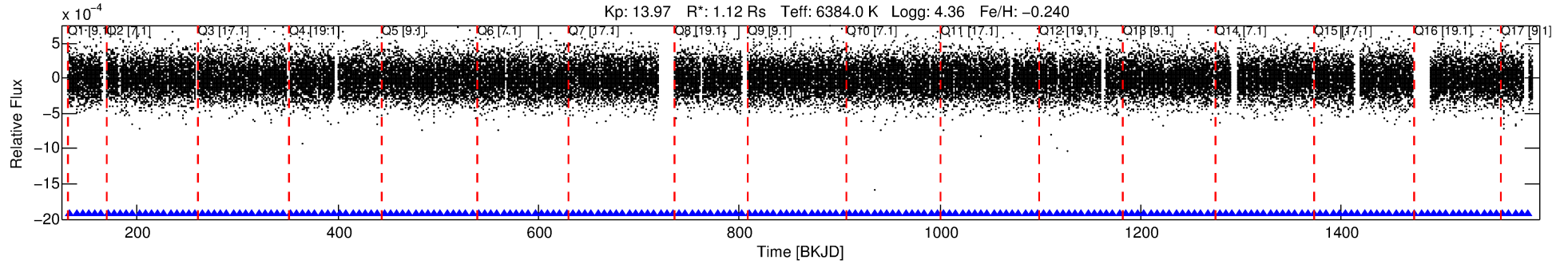
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005175024-02

No Significant Match Found

DV One-Page Summary

KIC: 5175024 Candidate: 2 of 2 Period: 6.261 d
KOI: K02563.02 Corr: 0.973



DV Fit Results:

Period = 6.26132 [0.00007] d
Epoch = 133.2363 [0.0079] BKJD
Rp/R* = 0.0073 [0.0037]
a/R* = 5.10 [13.80]
b = 0.88 [0.71]
Seff = 408.74 [162.34]
Teq = 1147 [114] K
Rp = 0.90 [0.53] Re
a = 0.0676 [0.0177] AU
Ag = 49.72 [56.01] [0.87σ]
Teffp = 4707 [1259] K [2.82σ]

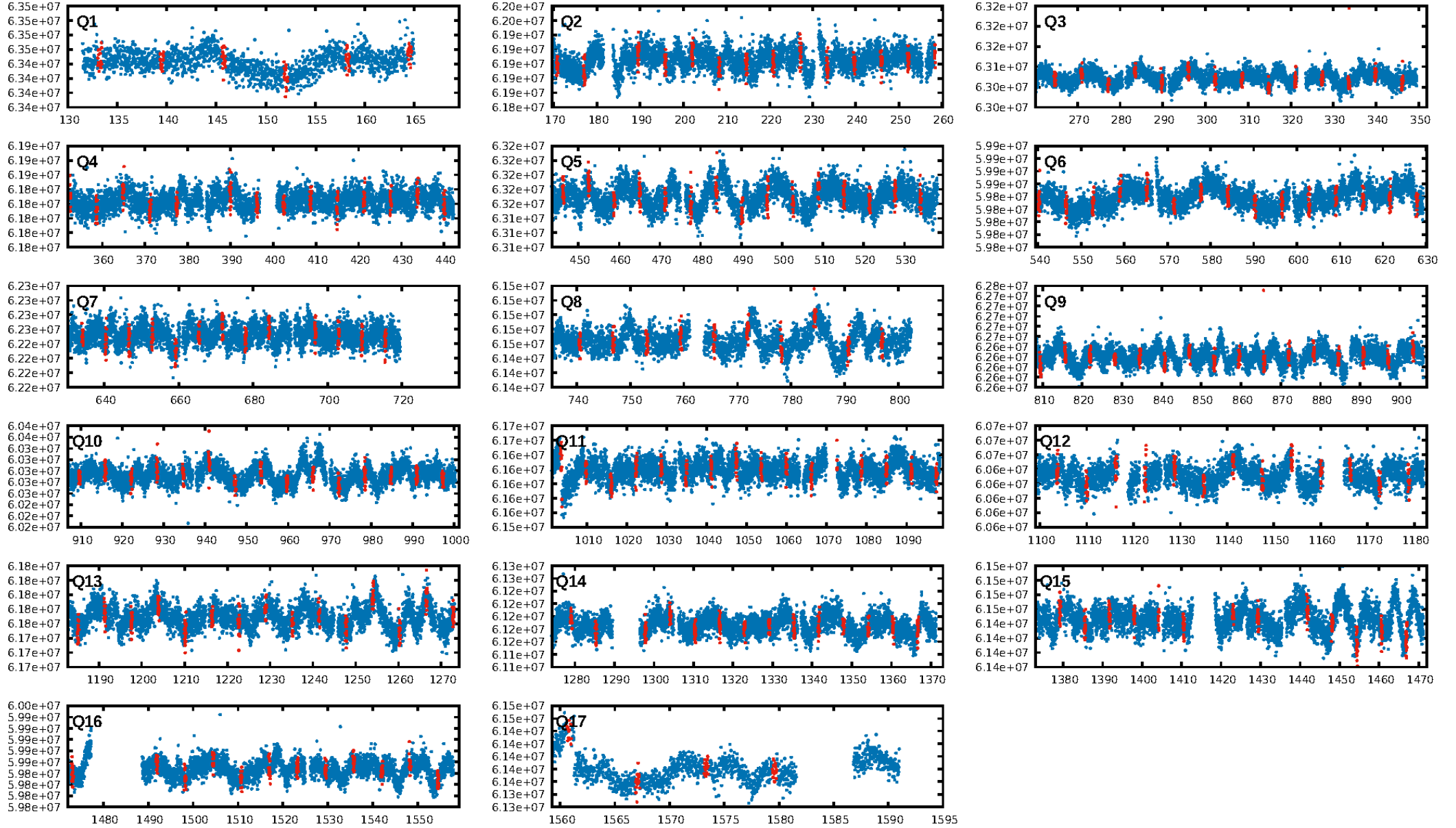
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [46.97σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.08e-16
RollingBand-fgt: 1.00 [207/207]
GhostDiagnostic-chr: -2.873
Centroid-sig: 26.2%
Centroid-so: 1.815 arcsec [1.35σ]
OotOffset-rm: 1.327 arcsec [2.54σ]
KicOffset-rm: 1.376 arcsec [2.30σ]
OotOffset-st: 2/1/3/2 [8]
KicOffset-st: 2/1/3/2 [8]
DiffImageQuality-fgm: 0.75 [6/8]
DiffImageOverlap-fno: 1.00 [17/17]

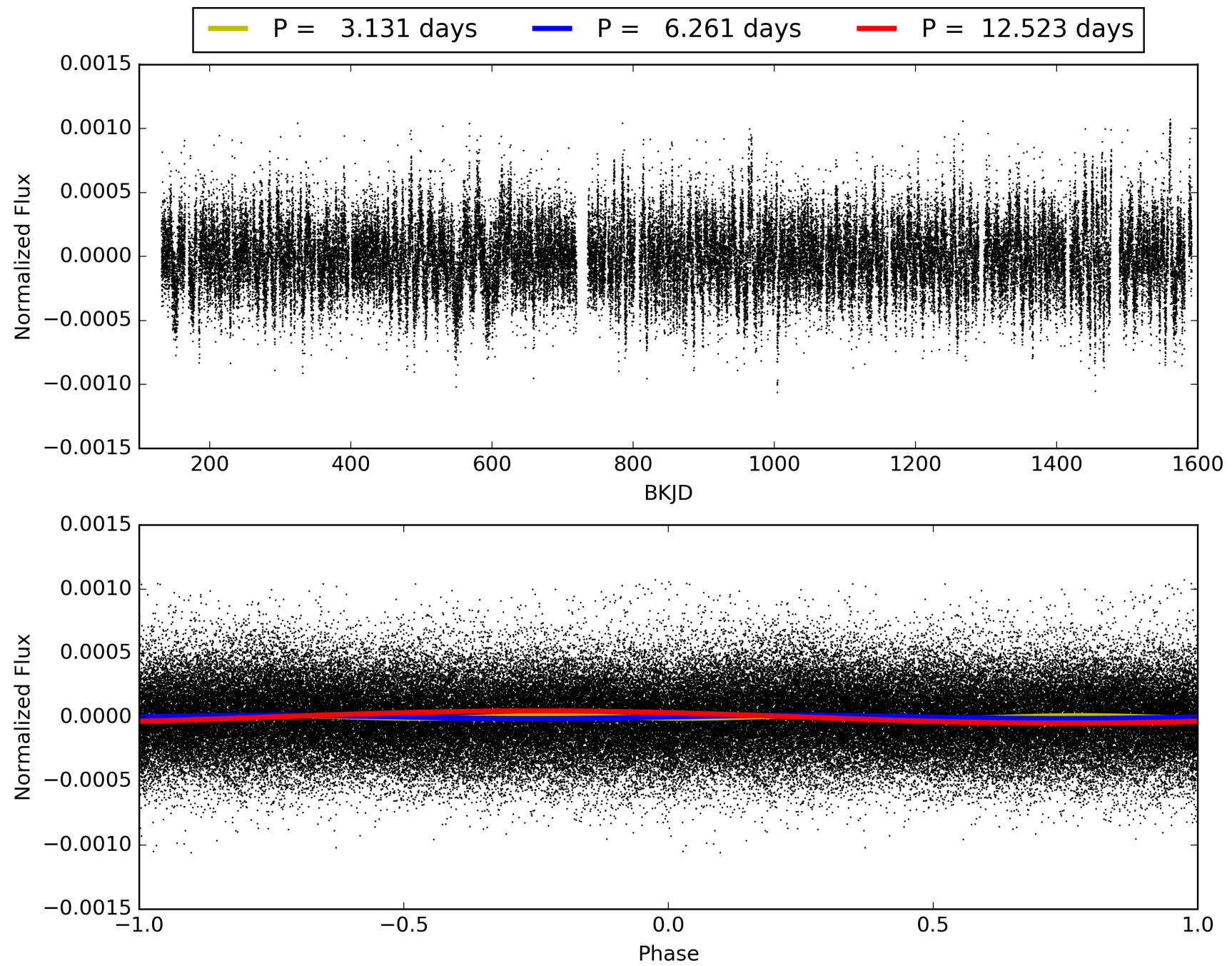
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:08:47 Z

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

TCE 005175024-02, PDC Light Curves

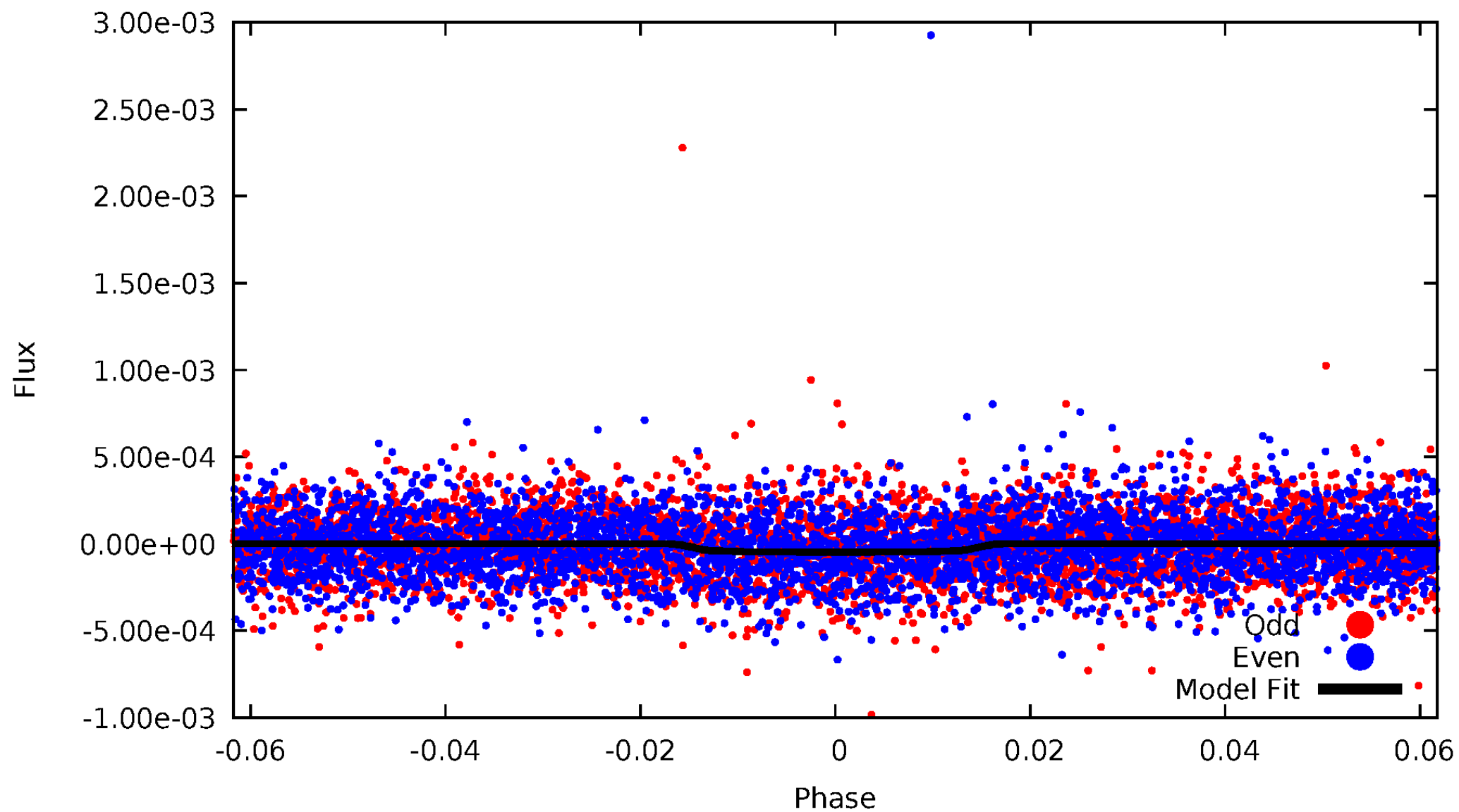


TCE 005175024-02



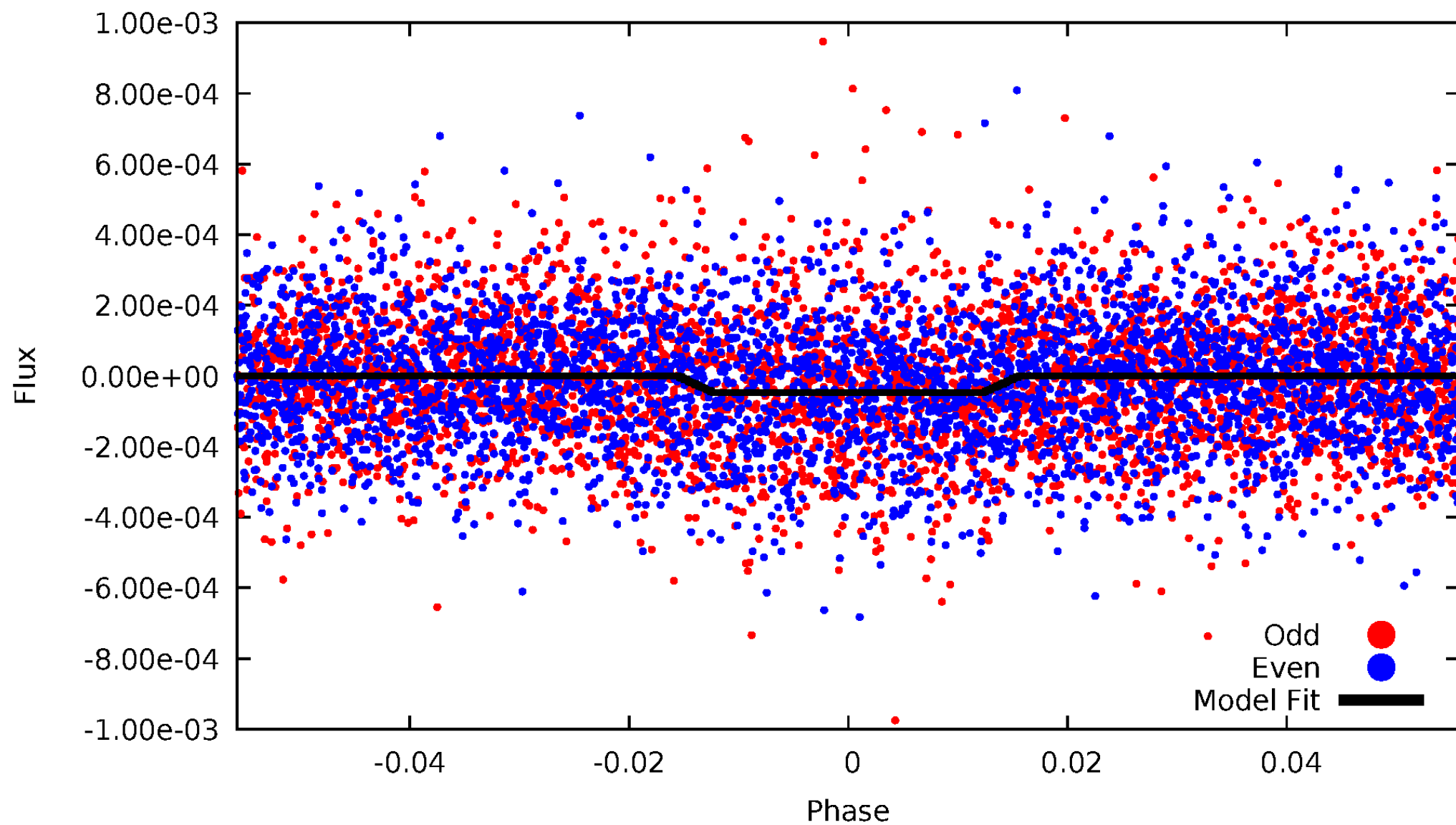
DV Odd/Even

TCE 005175024-02



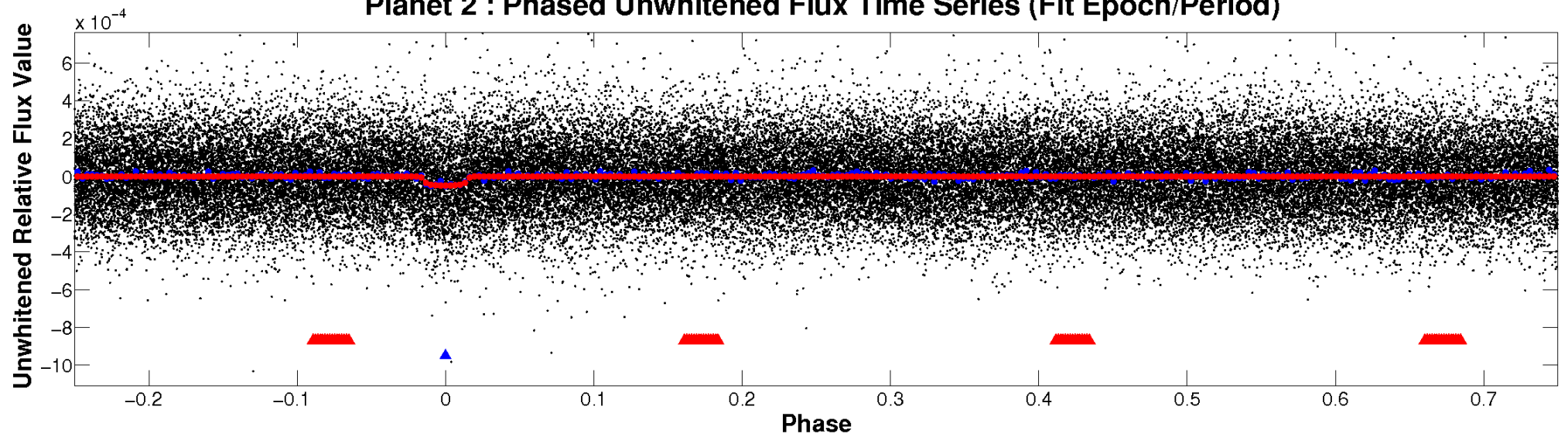
ALT Odd/Even

TCE 005175024-02

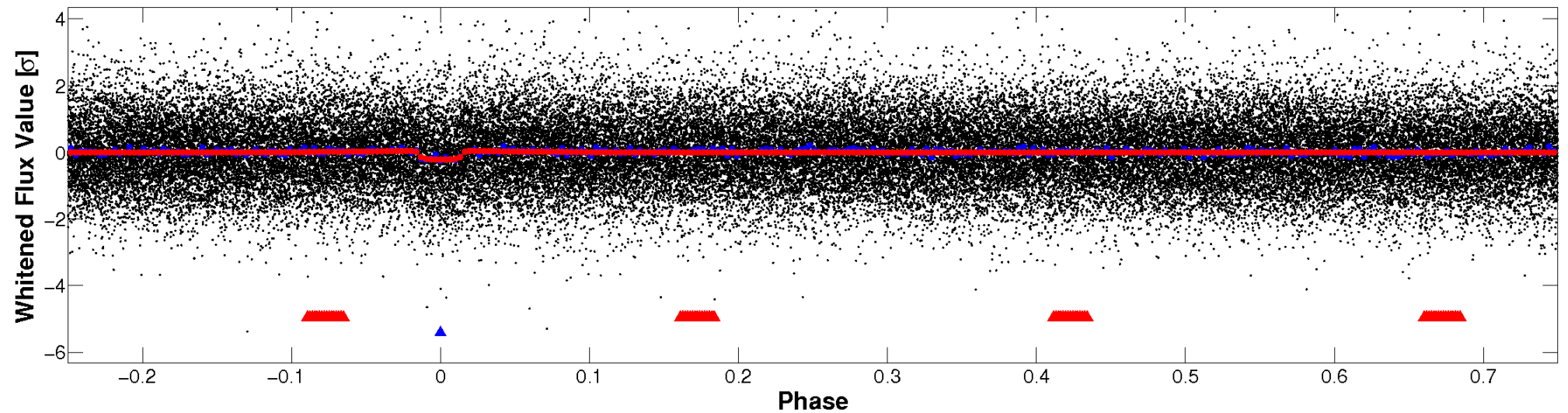


Non-Whitened Vs. Whitened Light Curve

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

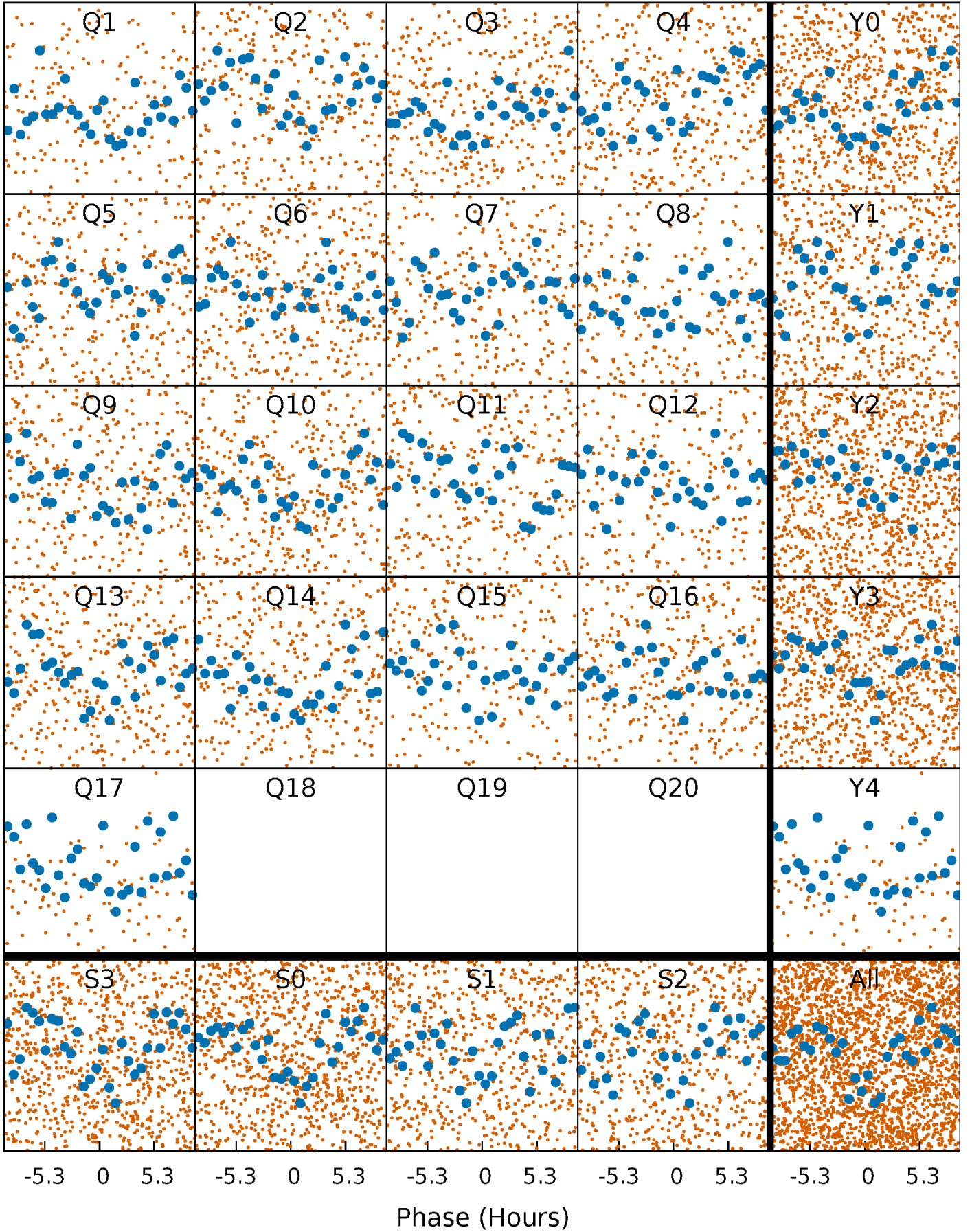


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



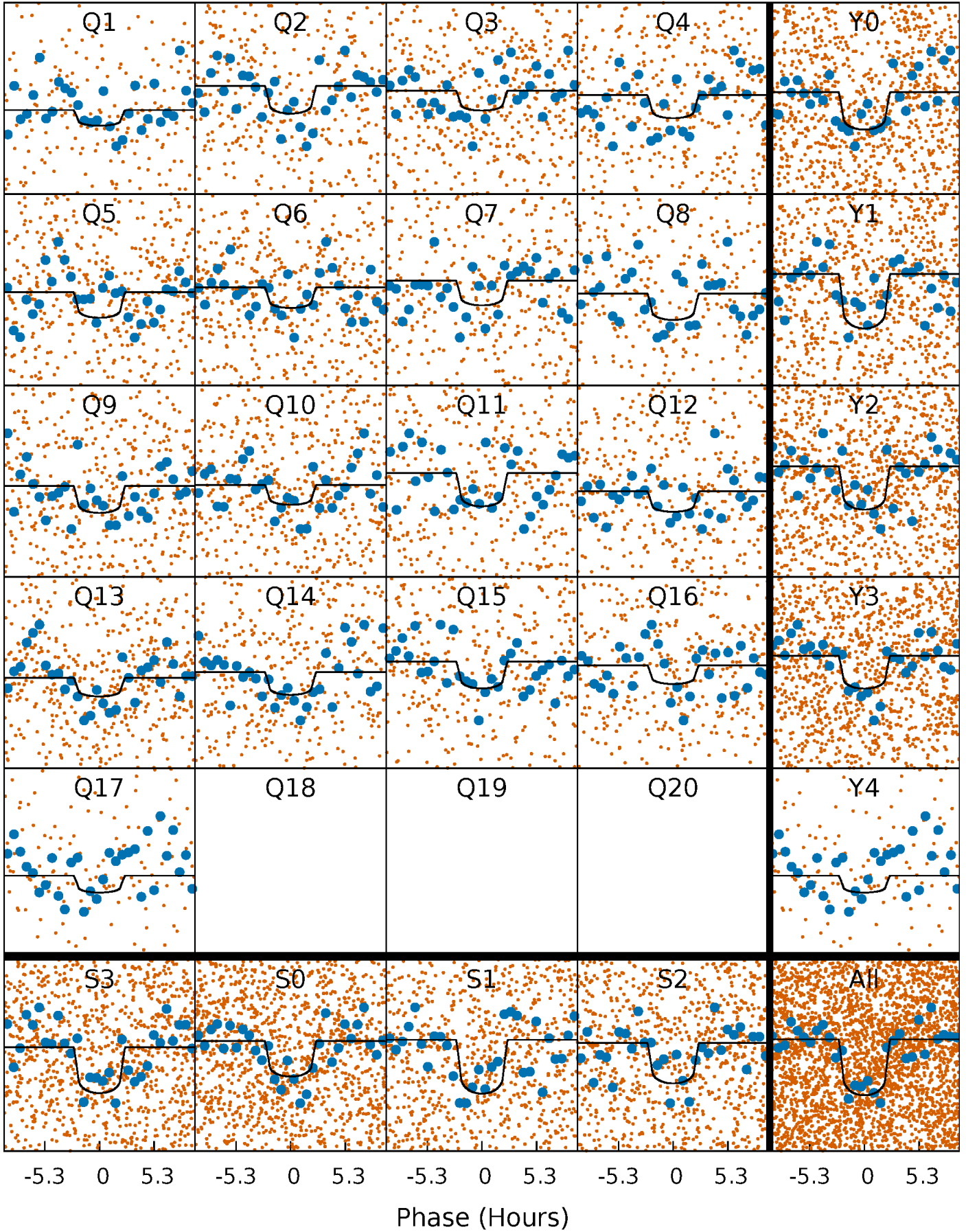
PDC Quarter-Phased Transit Curves

TCE 005175024-02 P= 6.261316 Days $T_0=133.236279$ (BKJD)



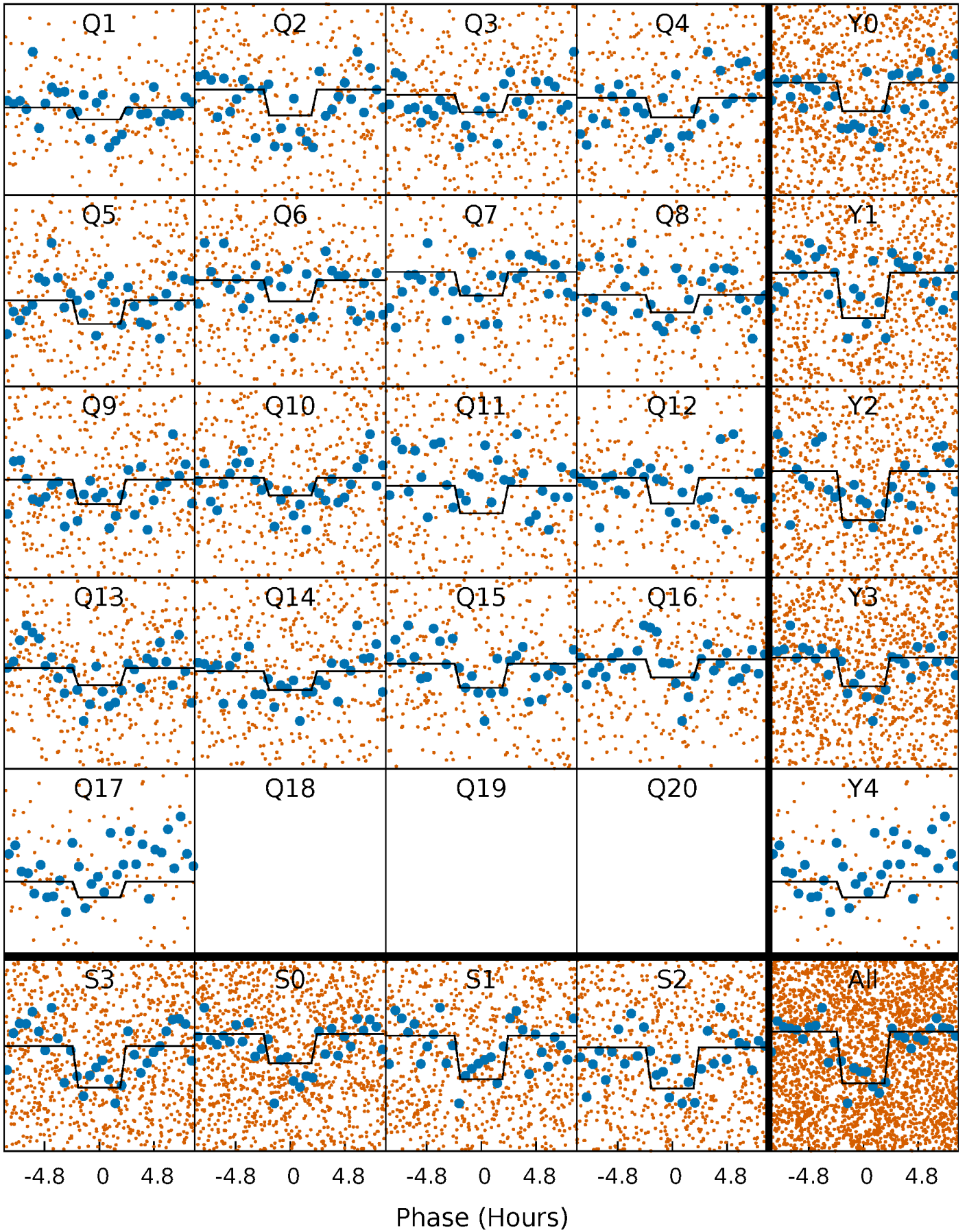
DV Quarter-Phased Transit Curves

TCE 005175024-02 P= 6.261316 Days $T_0=133.236279$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

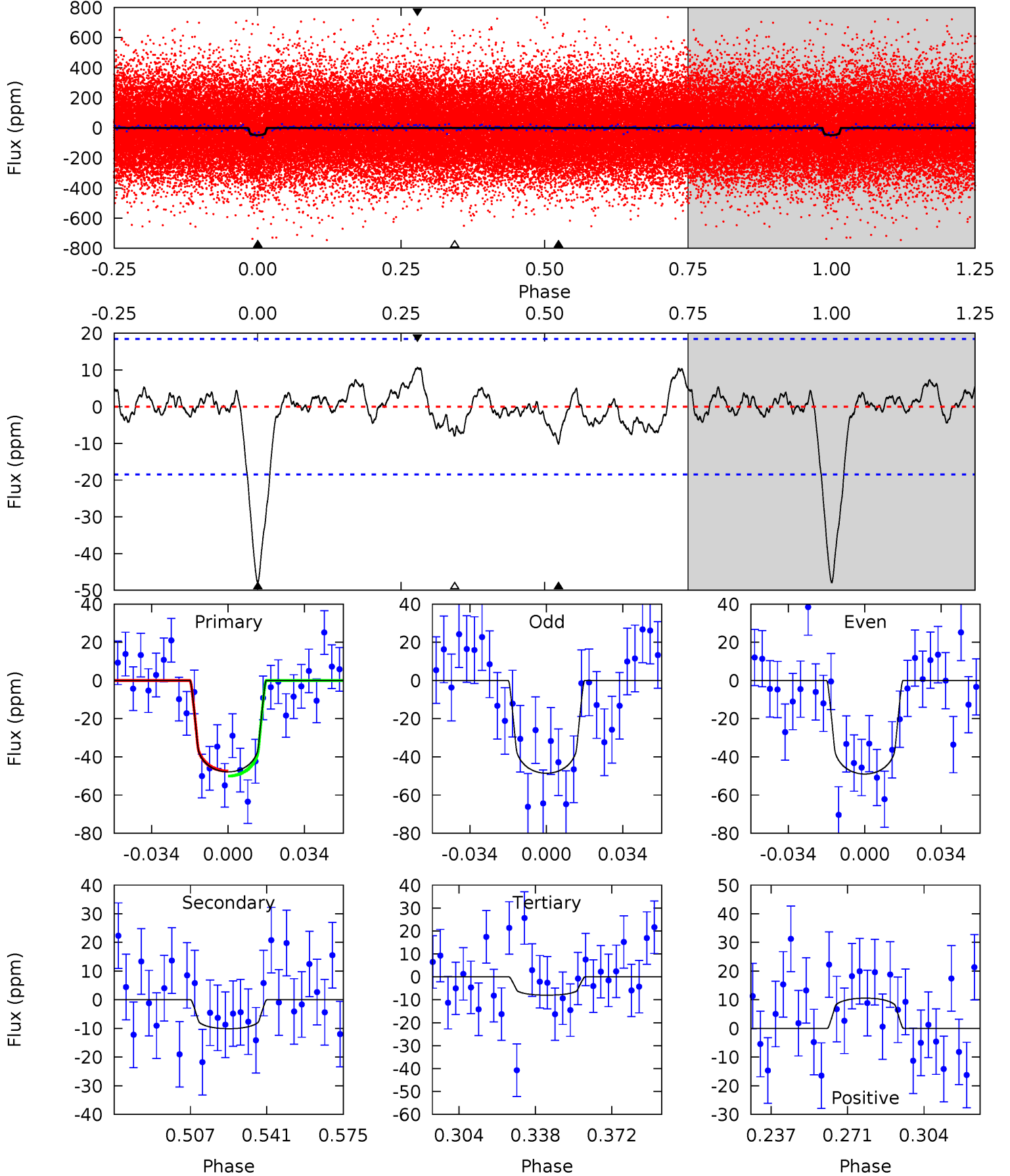
TCE 005175024-02 P= 6.261233 Days $T_0=133.245732$ (BKJD)



DV Model-Shift Uniqueness Test

005175024-02, P = 6.261316 Days, E = 126.974963 Days

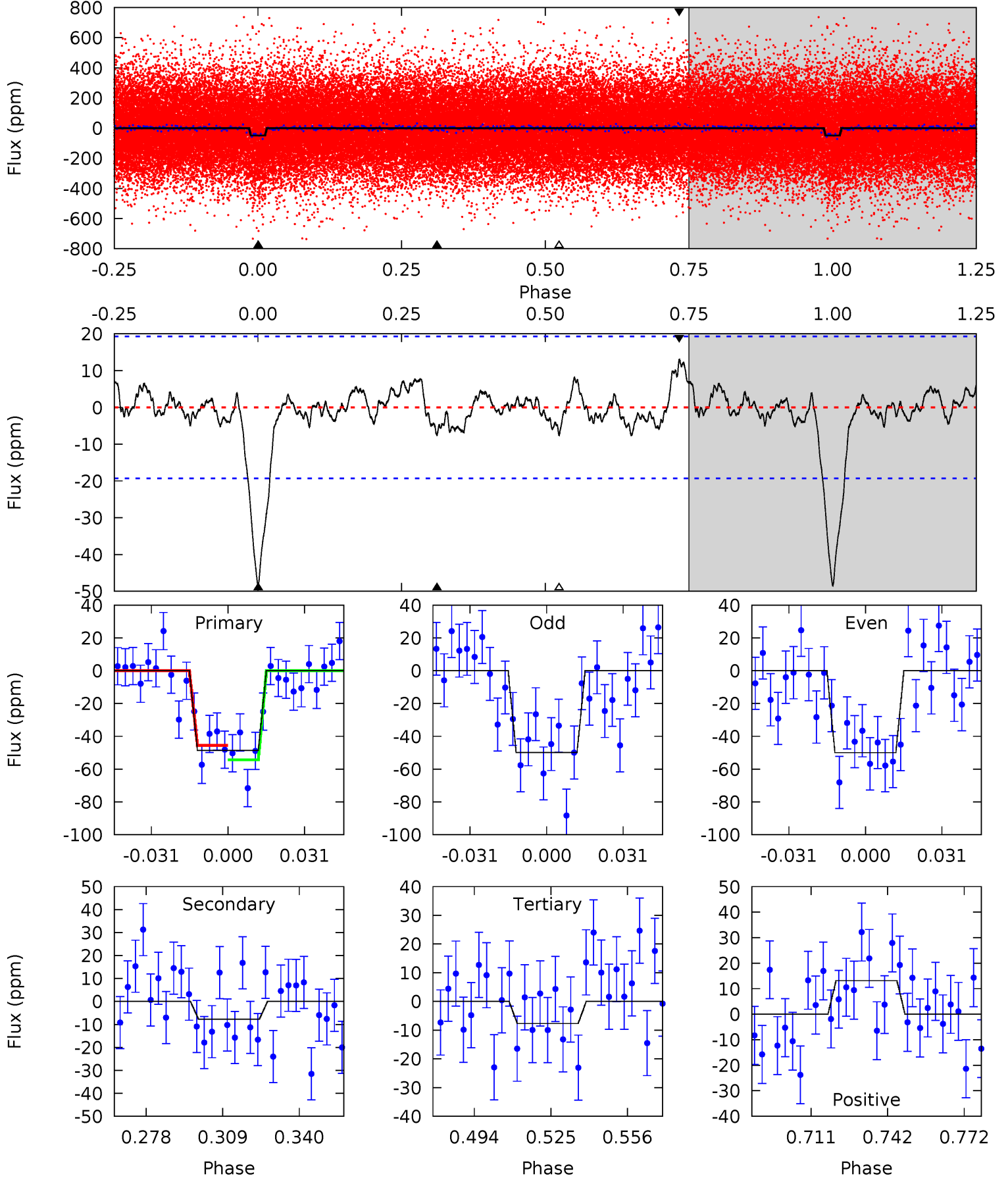
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	2.62	2.08	2.74	4.79	2.12	1.01	10.3	9.66	0.54	-0.12	0.05	0.84	0.18	0.33



Alt Model-Shift Uniqueness Test

005175024-02, P = 6.261233 Days, E = 126.984499 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	1.93	1.91	3.28	4.81	2.16	0.93	10.2	8.83	0.01	-1.36	0.01	0.93	0.21	1.10



Stellar Parameters For KIC 005175024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6384^{+151}_{-207}	$4.361^{+0.087}_{-0.203}$	$-0.240^{+0.250}_{-0.300}$	$1.121^{+0.352}_{-0.151}$	$1.046^{+0.184}_{-0.107}$	$1.046^{+0.410}_{-0.568}$
	+2%/-3%	+2%/-5%	+104%/-125%	+31%/-13%	+18%/-10%	+39%/-54%
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 005175024-02 / KOI 2563.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-10 ± 4	$0.94^{+0.48}_{-0.44}$	1617^{+110}_{-79}	4372^{+1407}_{-747}	28^{+77}_{-17}
Alt.	-8 ± 4	$0.90^{+0.46}_{-0.42}$	1624^{+120}_{-88}	4227^{+1288}_{-794}	23^{+62}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

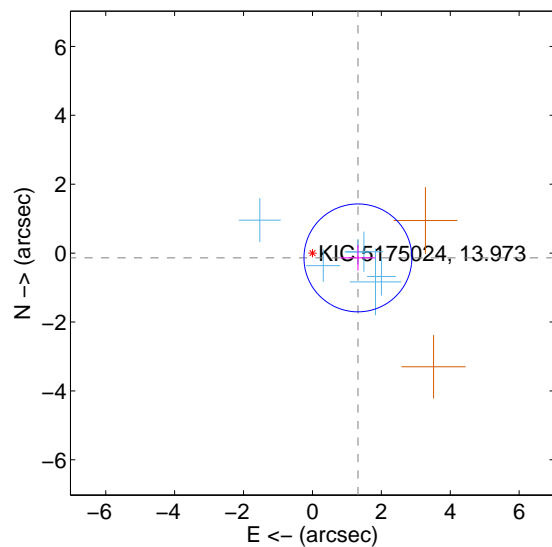
Supplemental centroid analysis for 005175024-02. Kepler magnitude: 13.97. Transit SNR 8.44

There are 6 quarters with good PRF difference image offsets

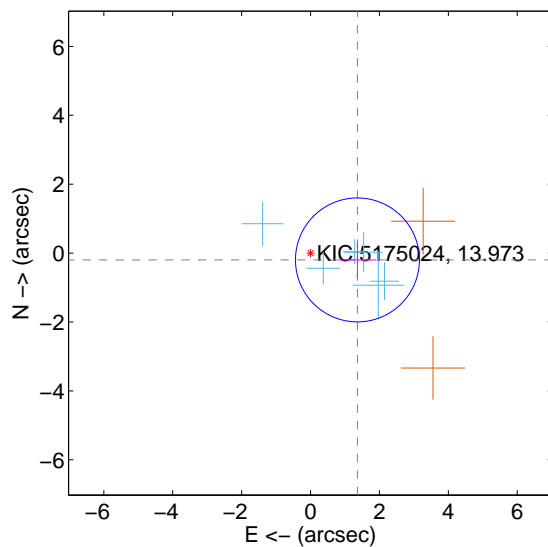
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.327 ± 0.522	2.54	-1.320 ± 0.511	-0.139 ± 0.368
PRF-fit source offset from KIC position	1.376 ± 0.599	2.30	-1.362 ± 0.553	-0.198 ± 0.511
photometric centroid source offset	1.82 ± 1.35	1.35	-1.78 ± 1.35	0.34 ± 1.16

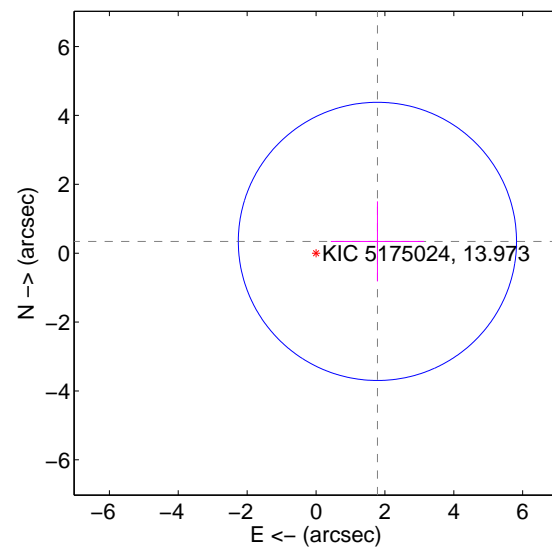
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

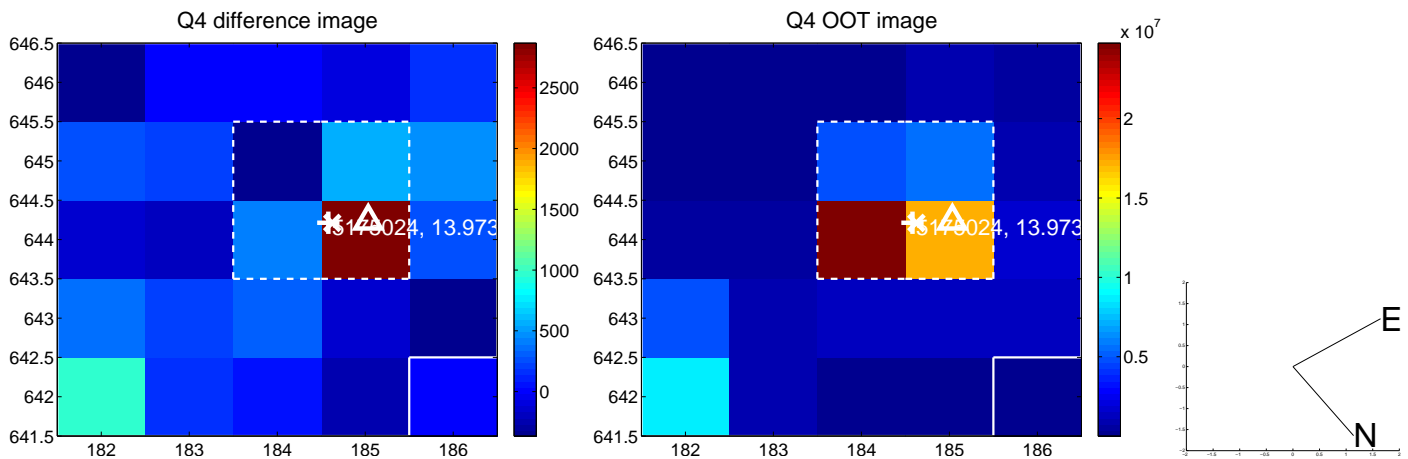
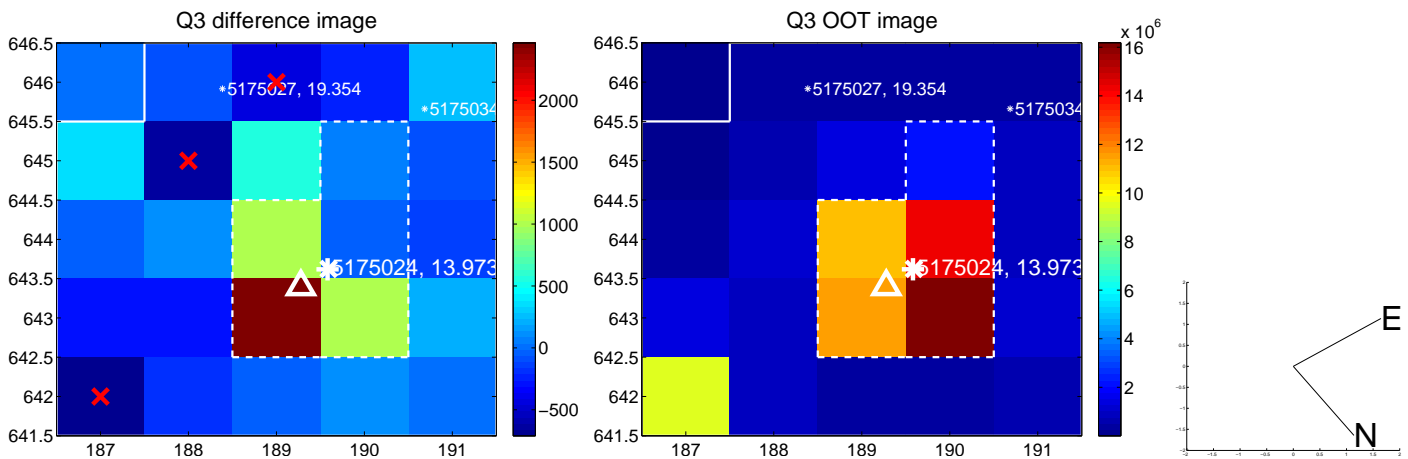
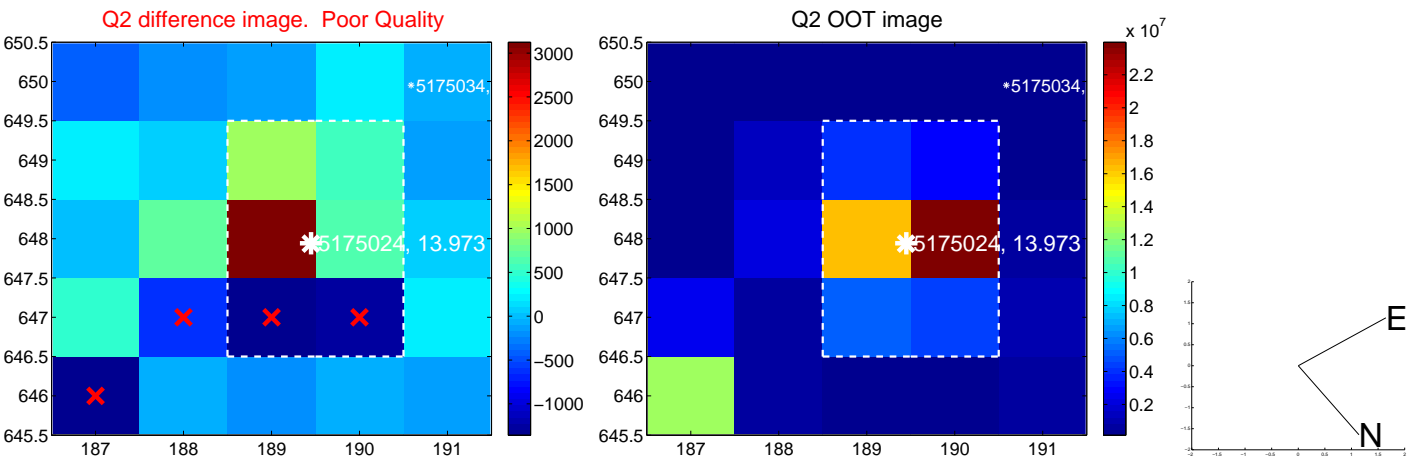
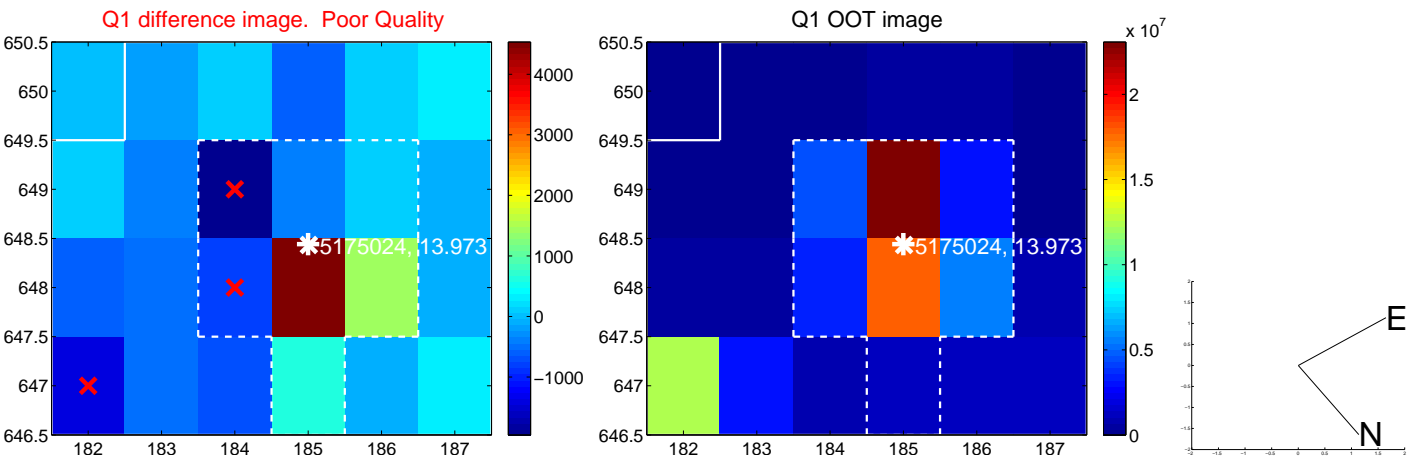


offset from photometric centroids

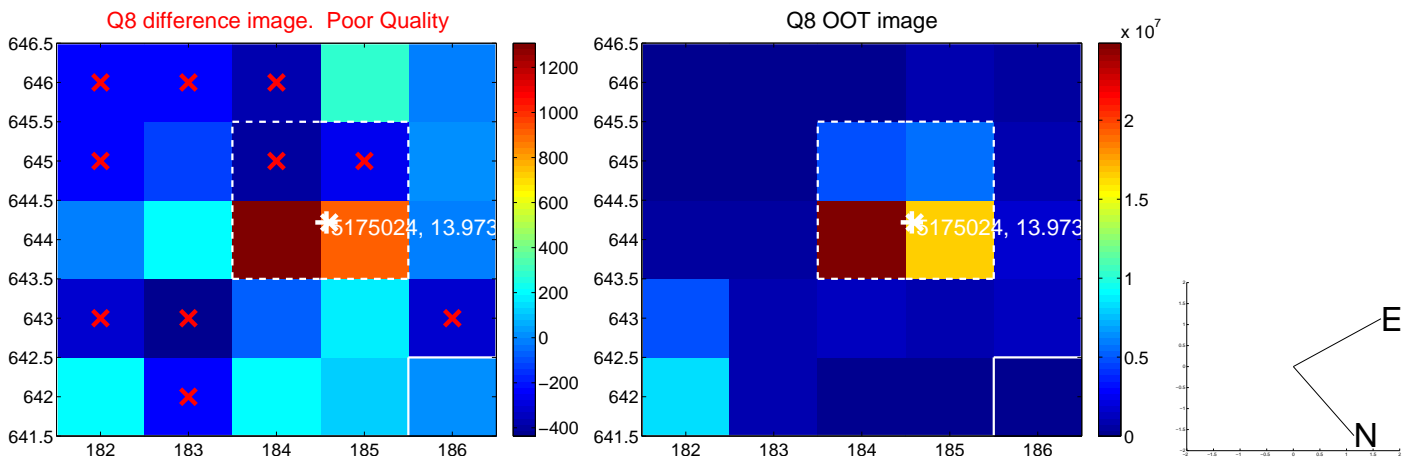
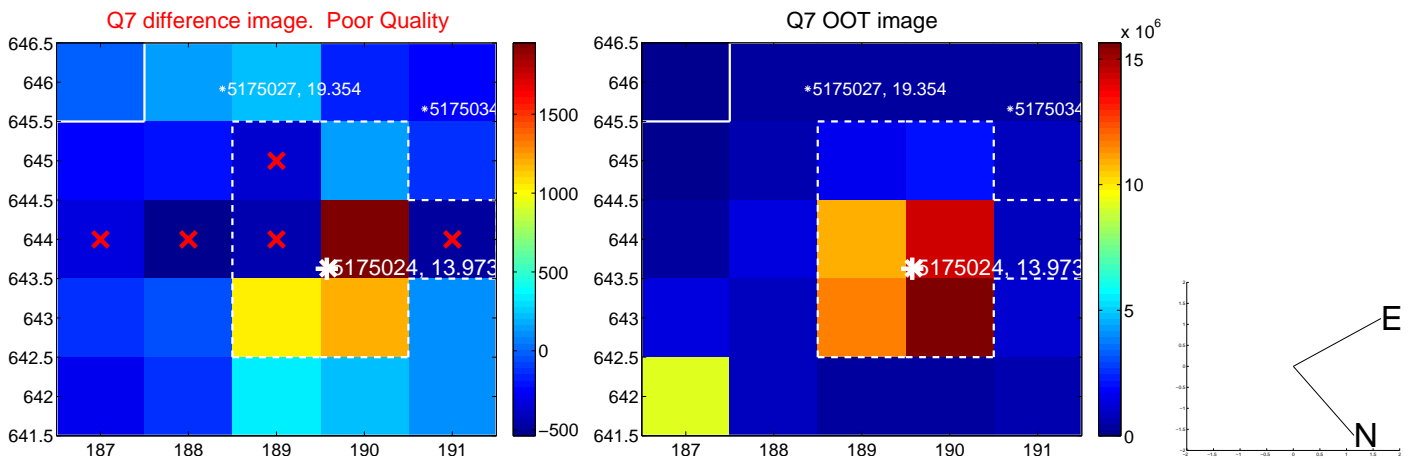
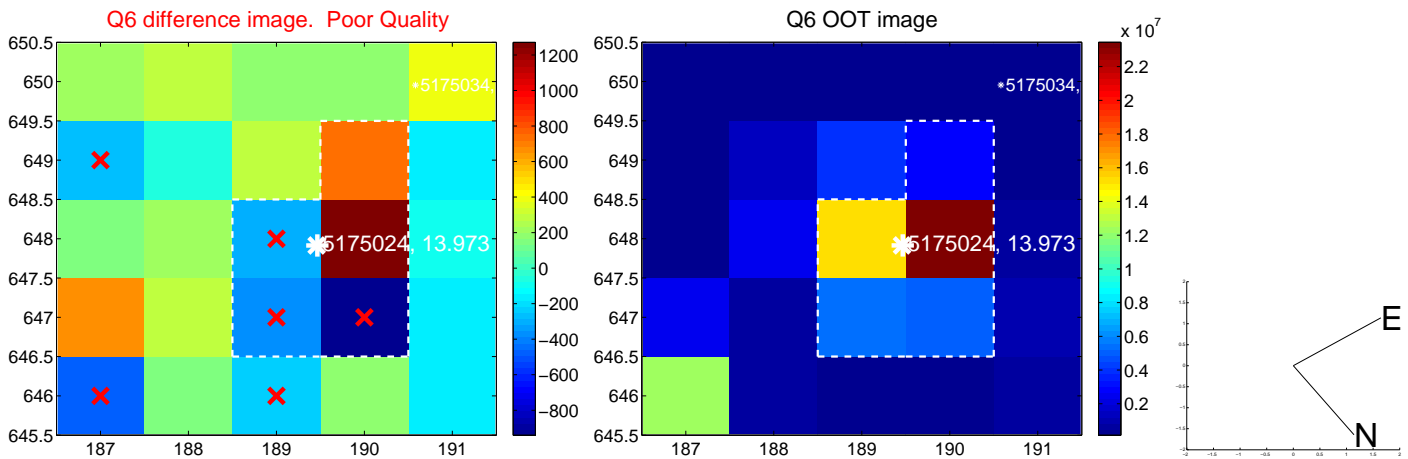
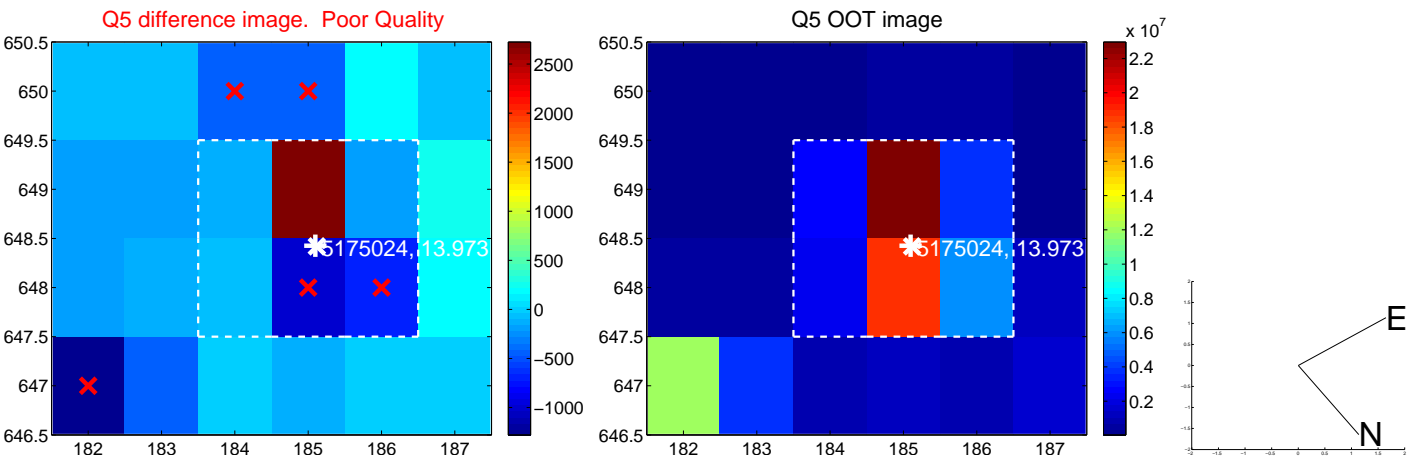


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

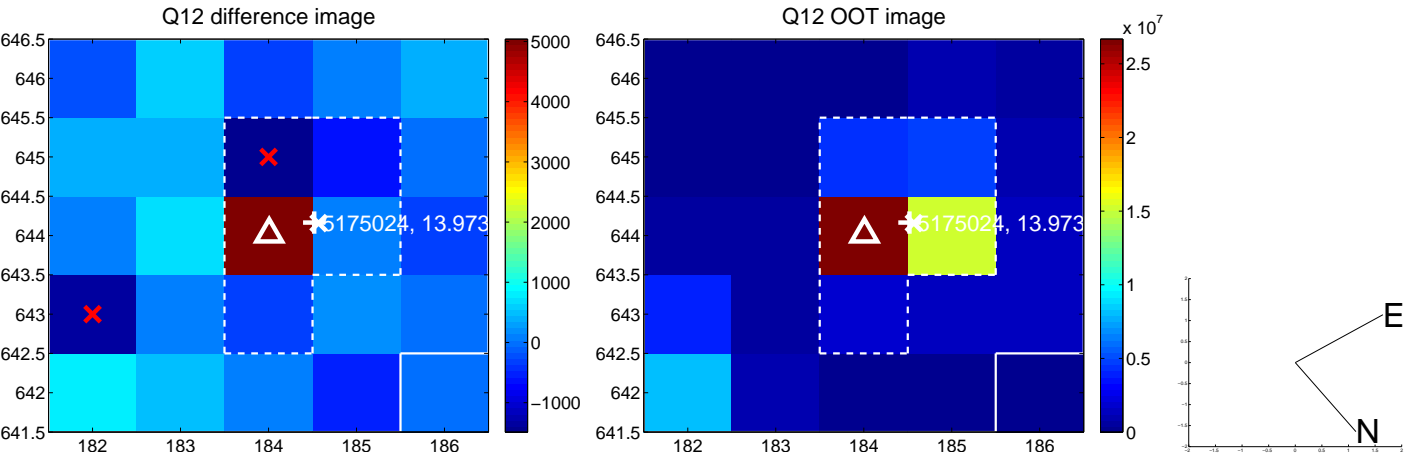
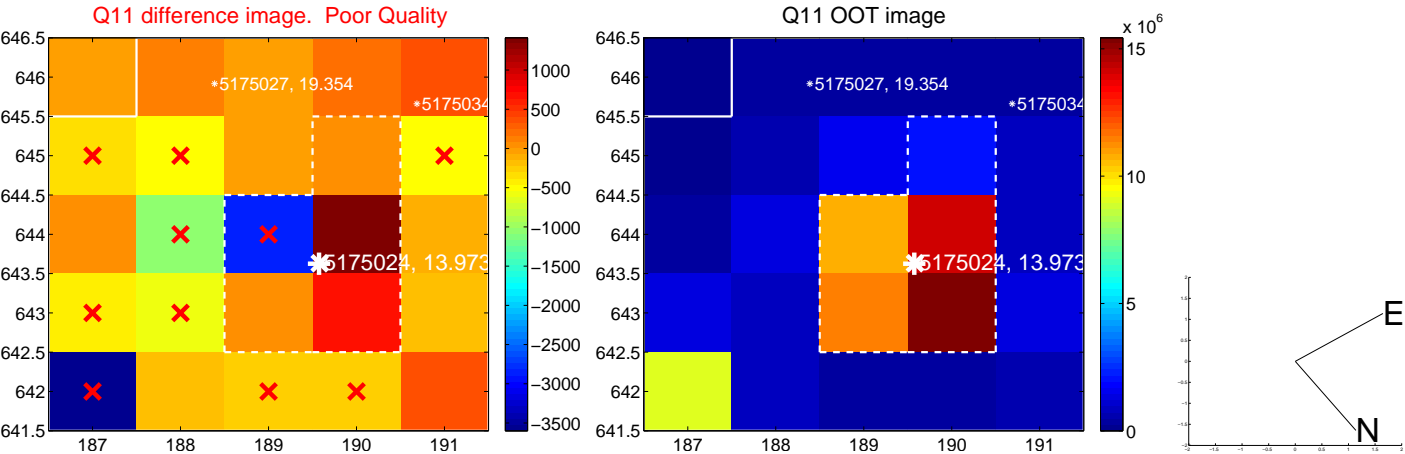
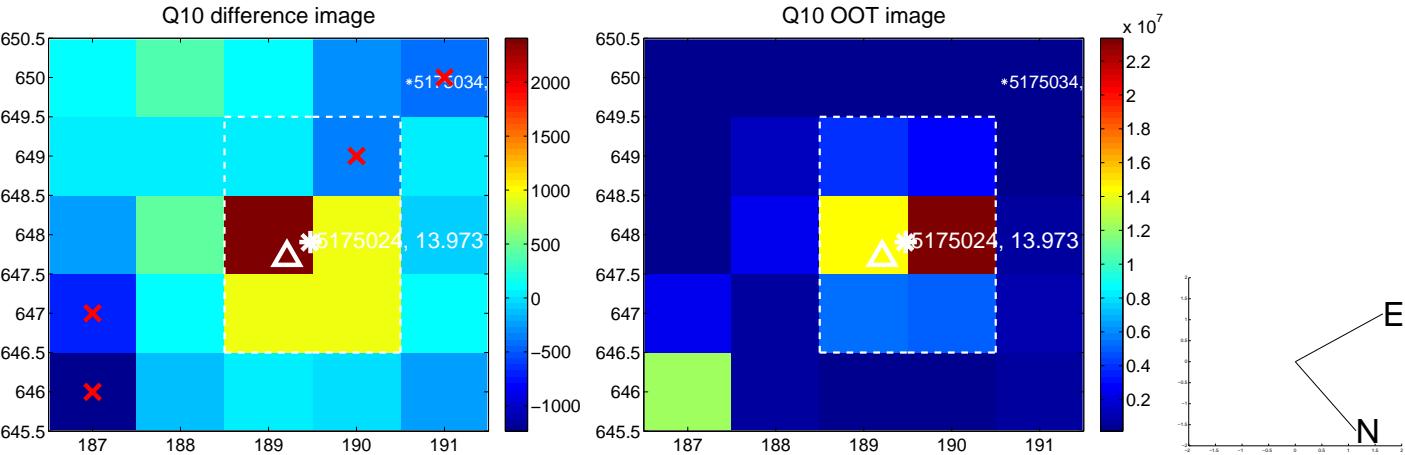
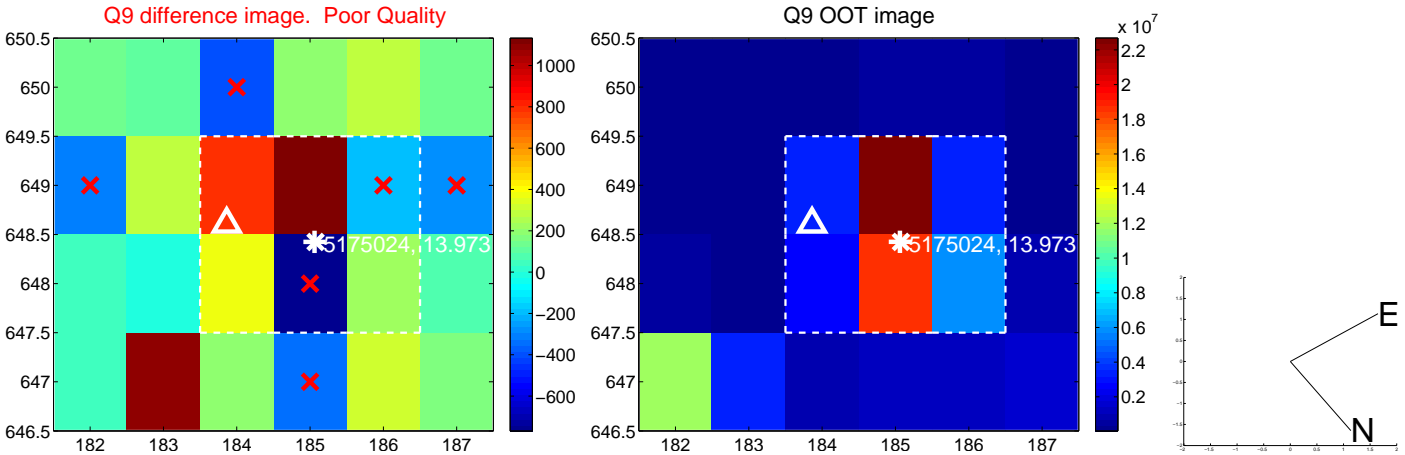
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



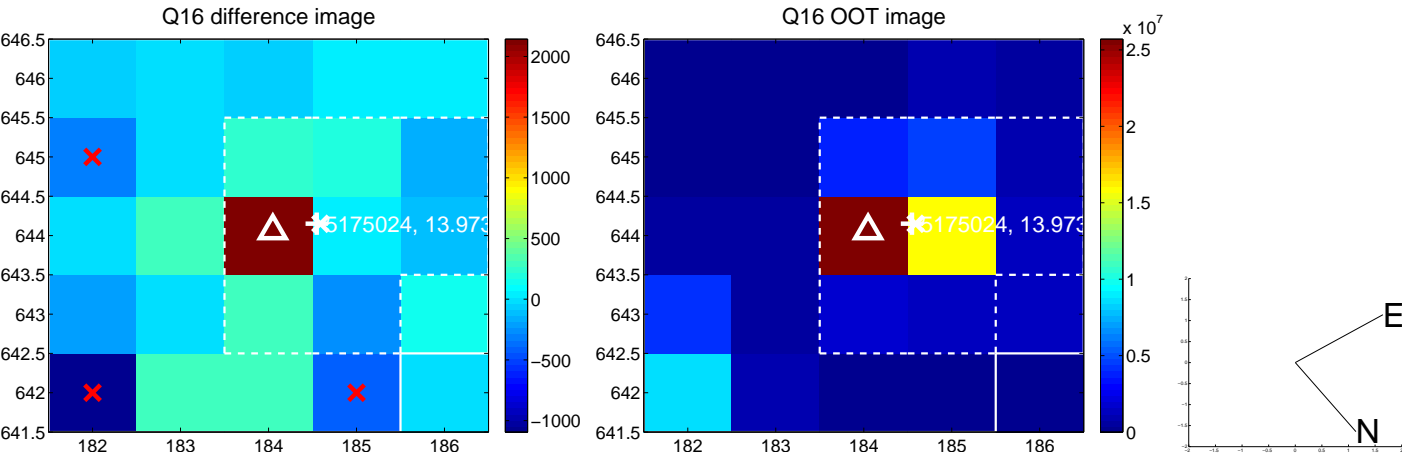
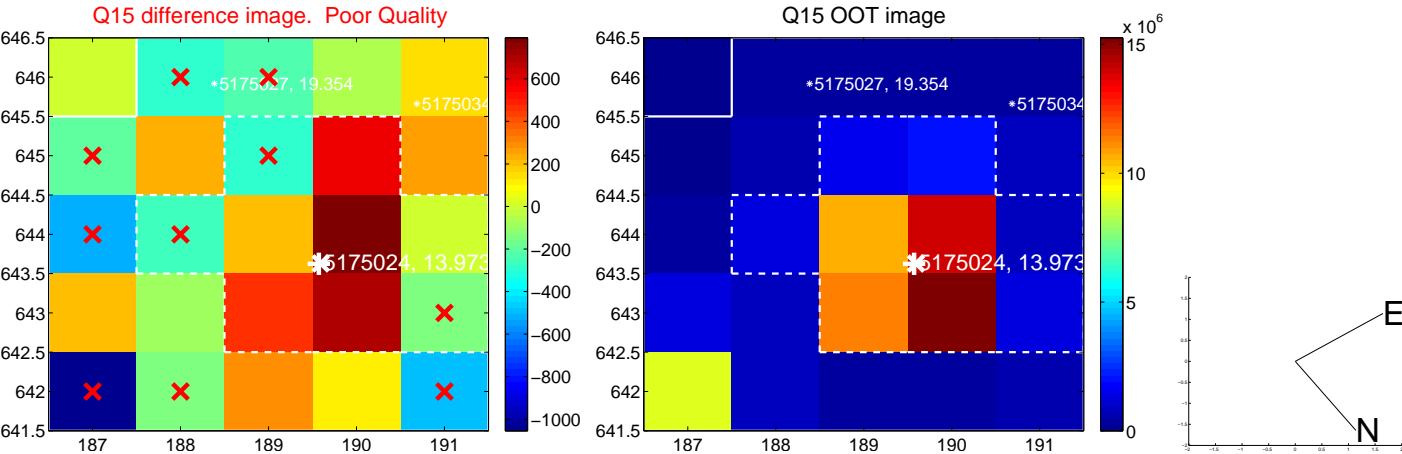
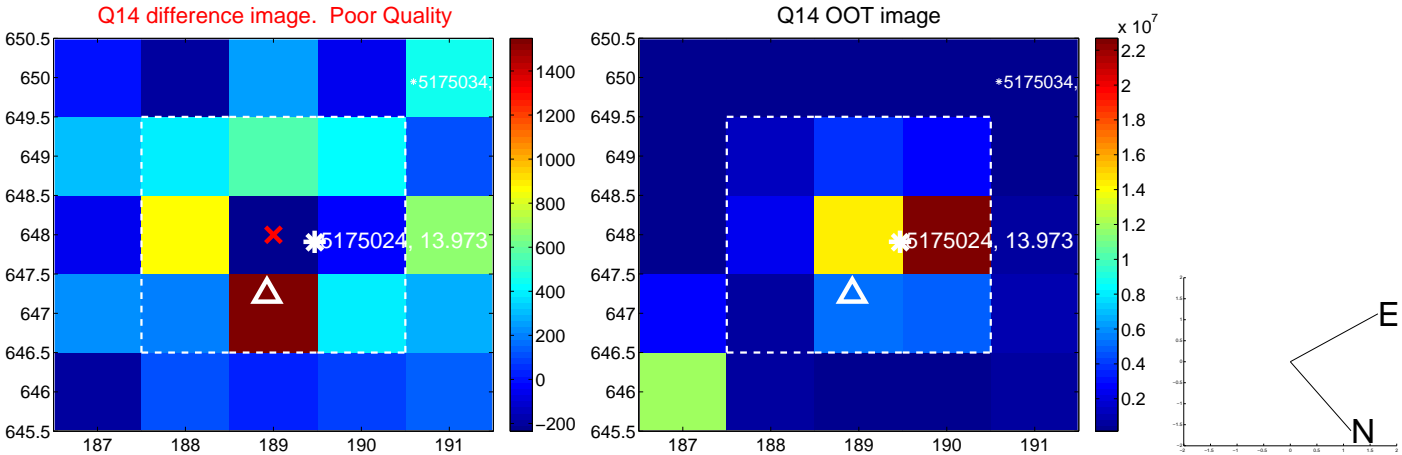
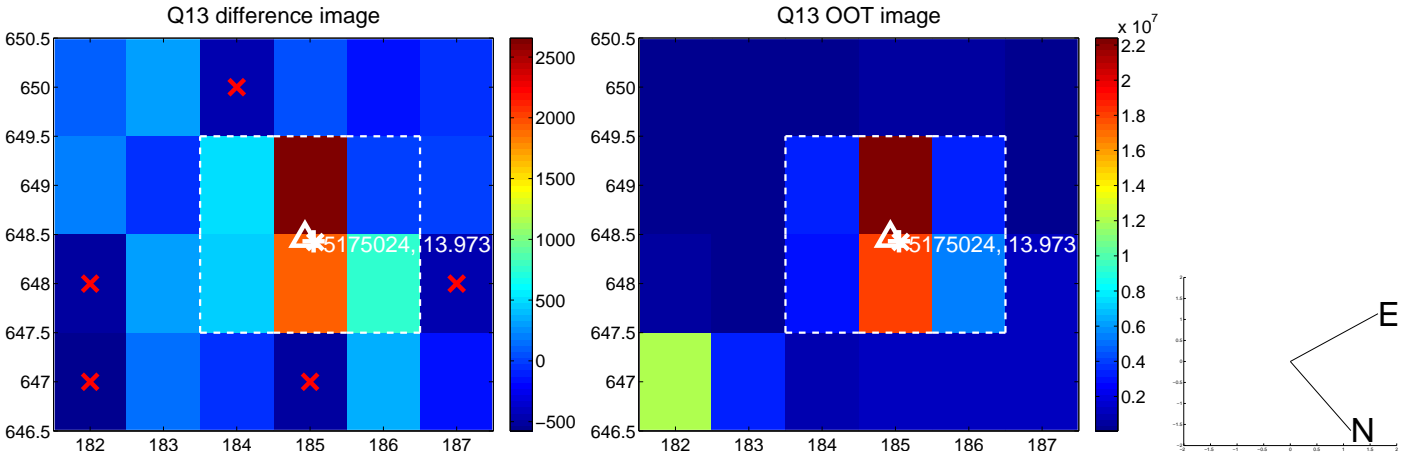
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



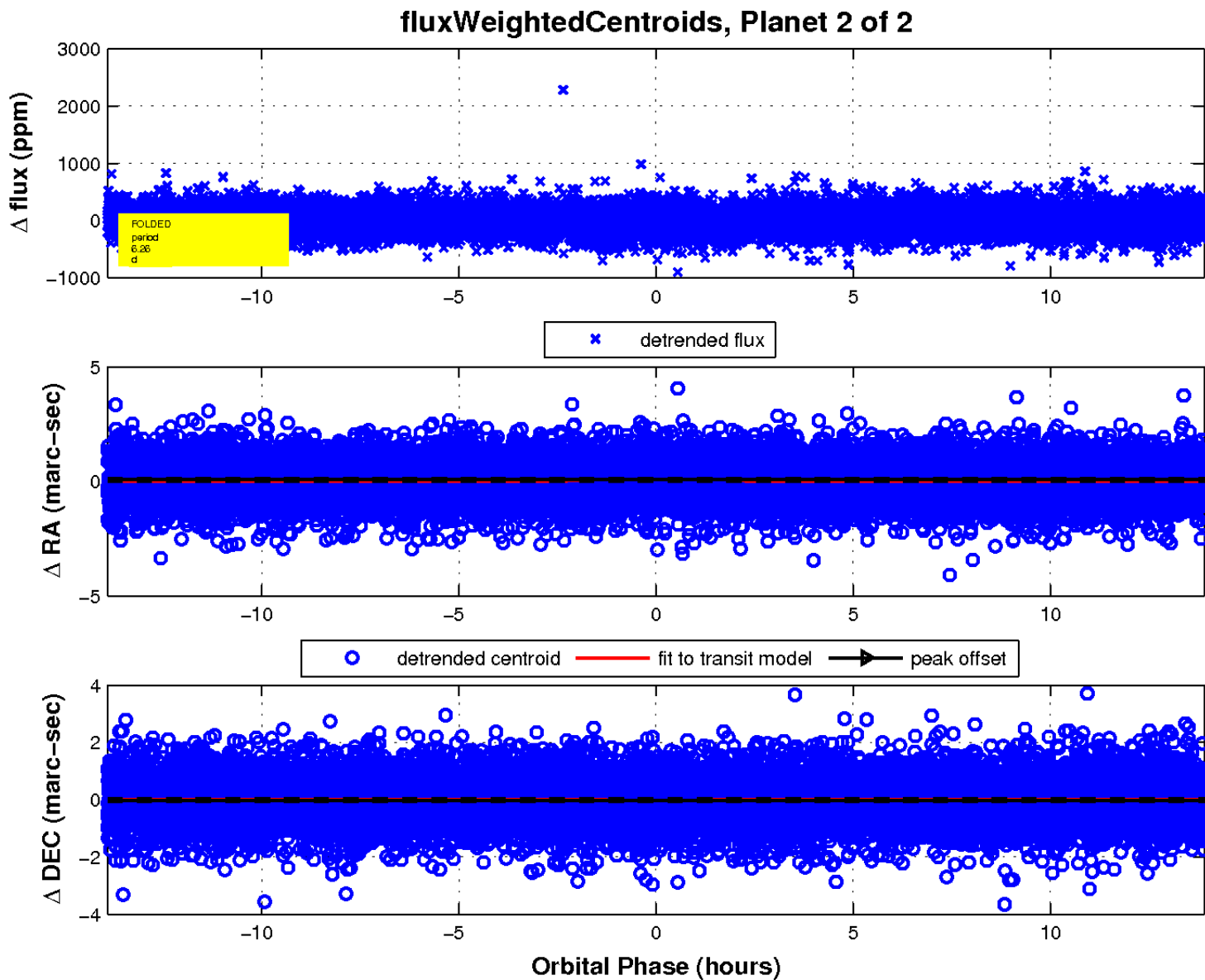
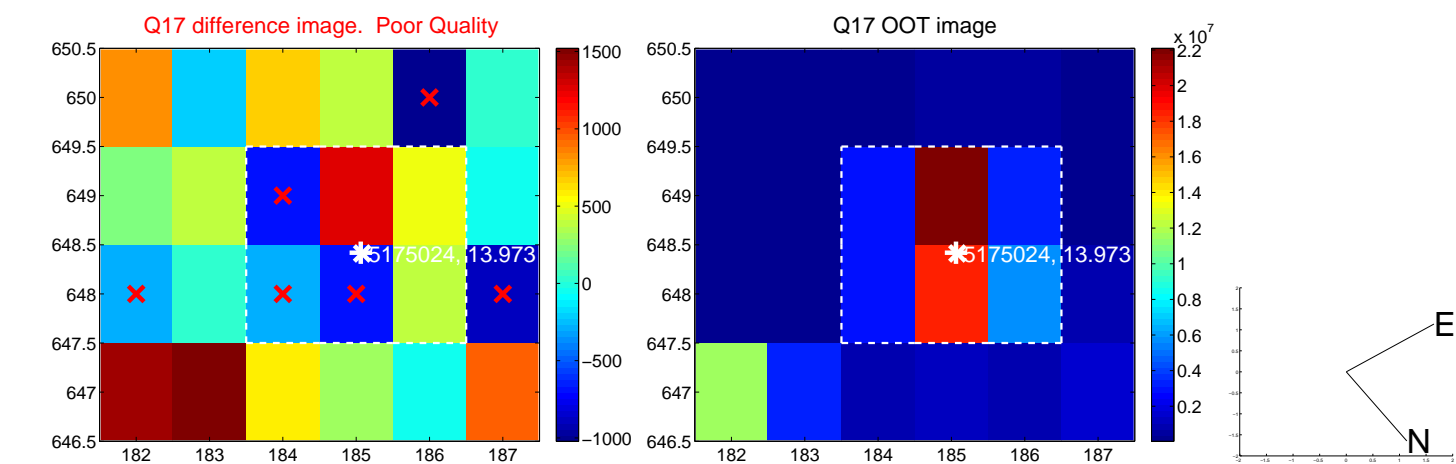
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

