

KIC 007620413

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})
007620413-01	OBS	2103.01	2.543069	132.679391	144.7	2.986	22.3	24.5	1.03	5579	1.49	717.11
007620413-02	OBS	2103.02	3.665305	135.169443	55.9	3.989	8.1	8.7	1.03	5579	0.93	440.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007620413-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007620413-02	OBS	PC	0.99	0	0	0	0	CENT_FEW_DIFFS

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

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

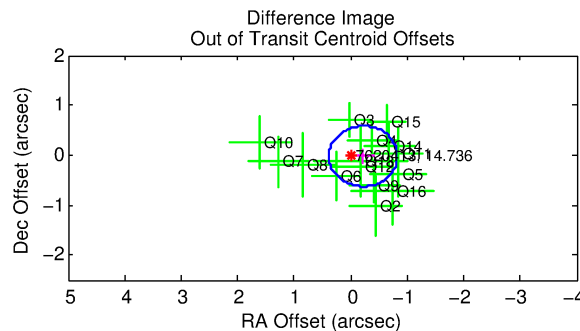
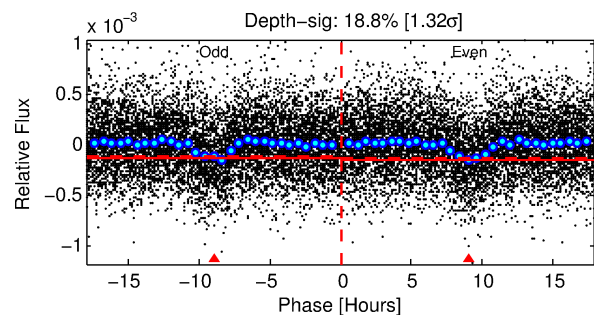
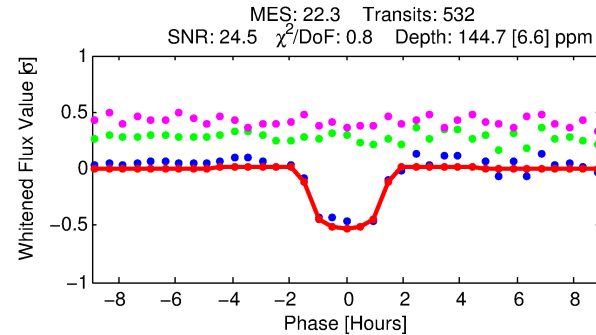
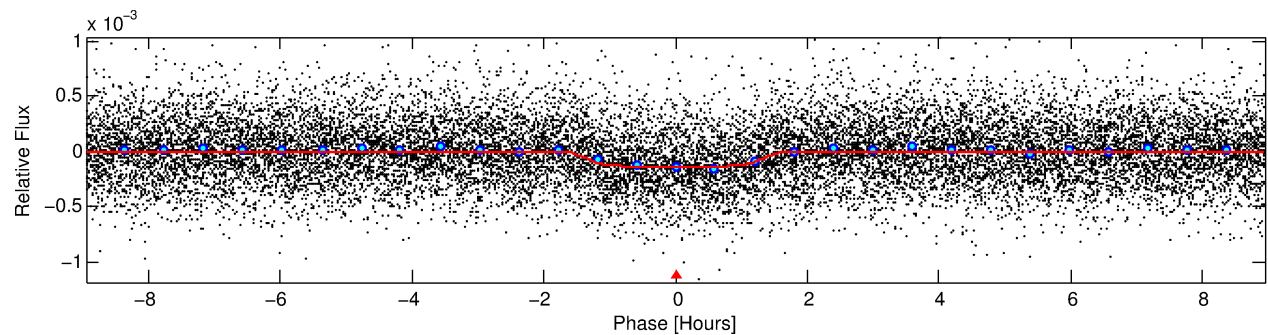
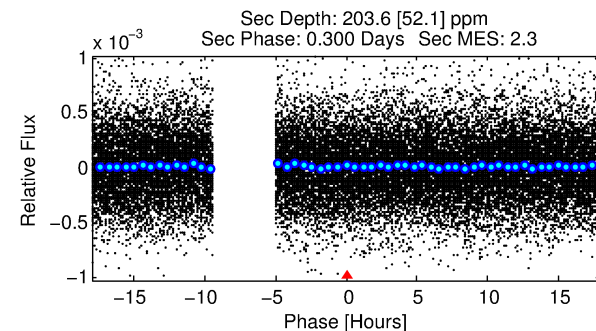
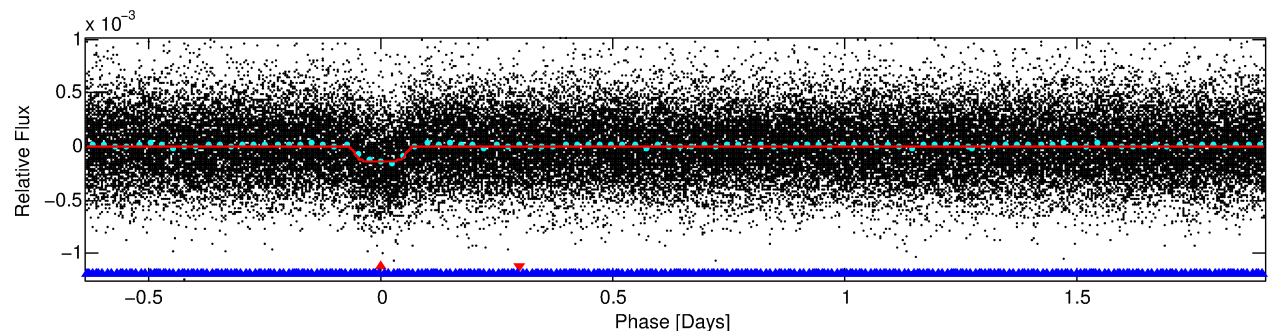
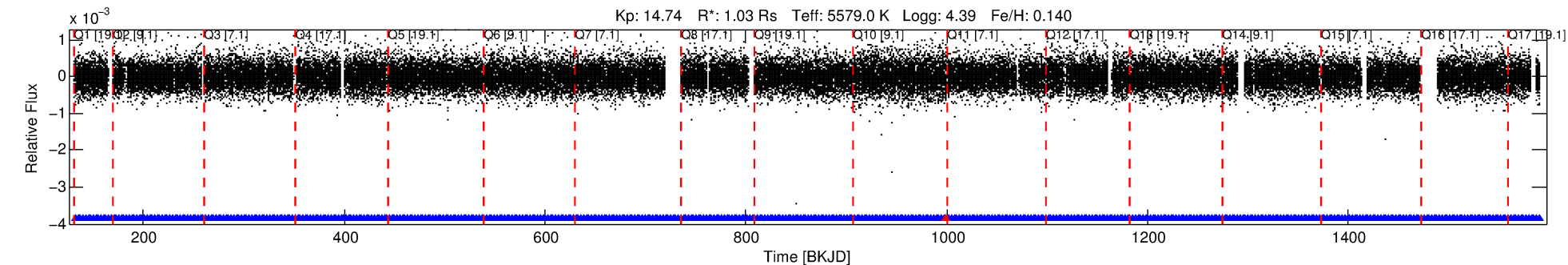
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007620413-01

No Significant Match Found

DV One-Page Summary

KIC: 7620413 Candidate: 1 of 2 Period: 2.543 d
KOI: K02103.01 Corr: 0.960



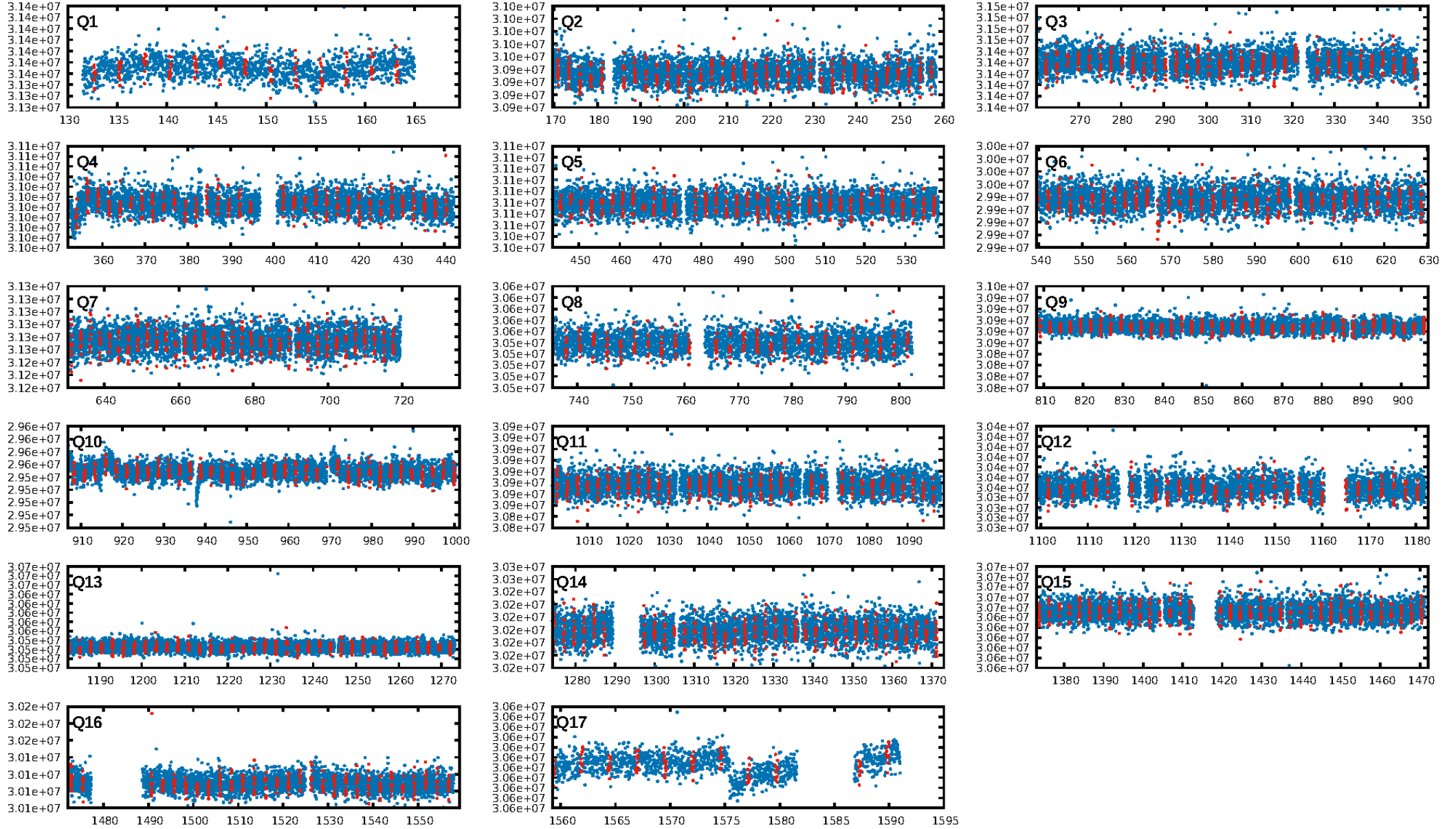
DV Fit Results:

Period = 2.54307 [0.00001] d
Epoch = 132.6794 [0.0019] BKJD
Rp/R* = 0.0133 [0.0035]
a/R* = 3.09 [3.35]
b = 0.91 [0.24]
Seff = 717.11 [140.83]
Teff = 1320 [65] K
Rp = 1.49 [0.45] Re
a = 0.0358 [0.0046] AU
Ag = 64.29 [39.79] [1.59σ]
Teffp = 5777 [855] K [5.20σ]

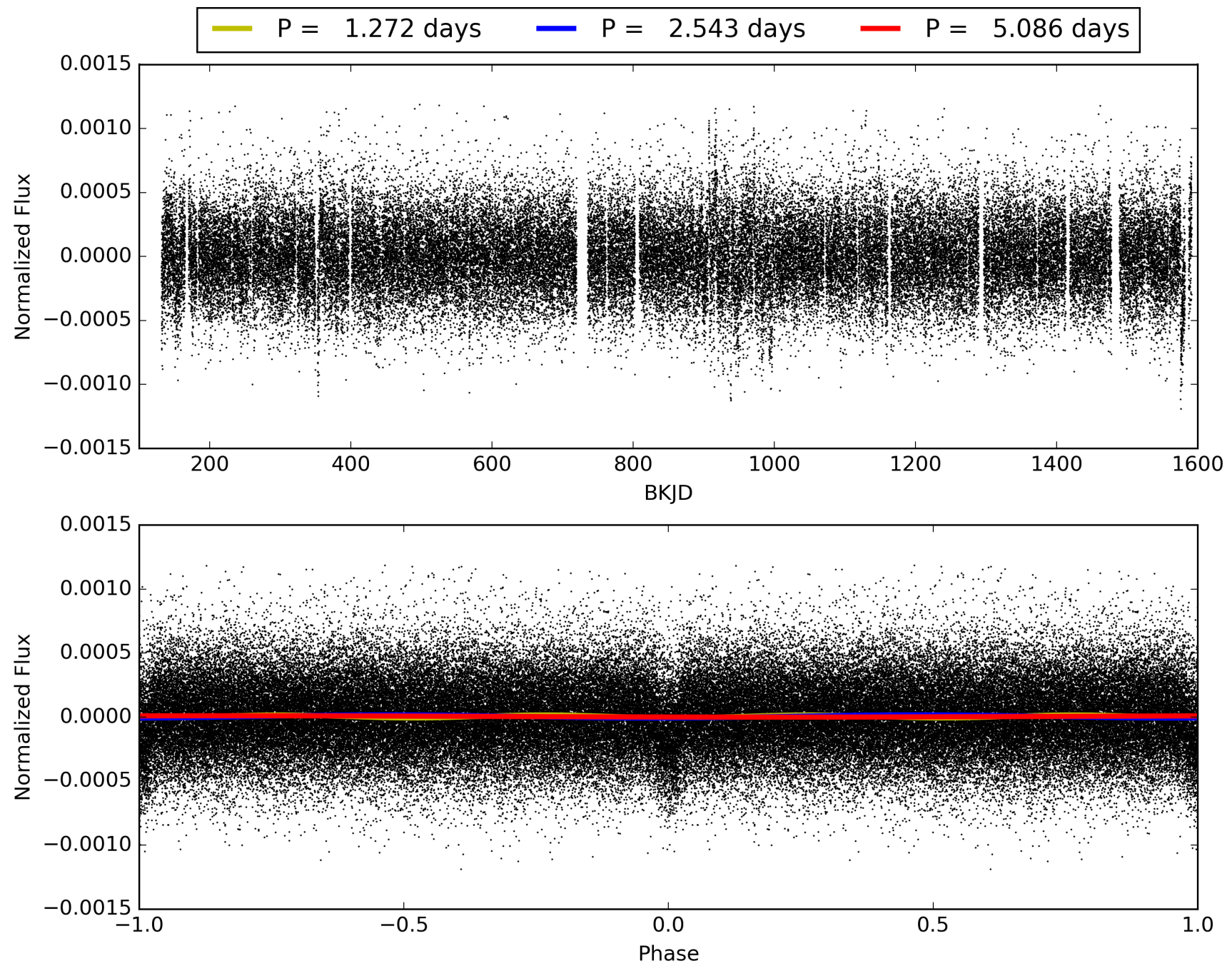
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.41σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.65e-104
RollingBand-fgt: 1.00 [507/508]
GhostDiagnostic-chr: 6.134
Centroid-sig: 77.5%
Centroid-so: 0.428 arcsec [0.73σ]
OotOffset-rm: 0.217 arcsec [1.07σ]
KicOffset-rm: 0.275 arcsec [1.30σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007620413-01, PDC Light Curves

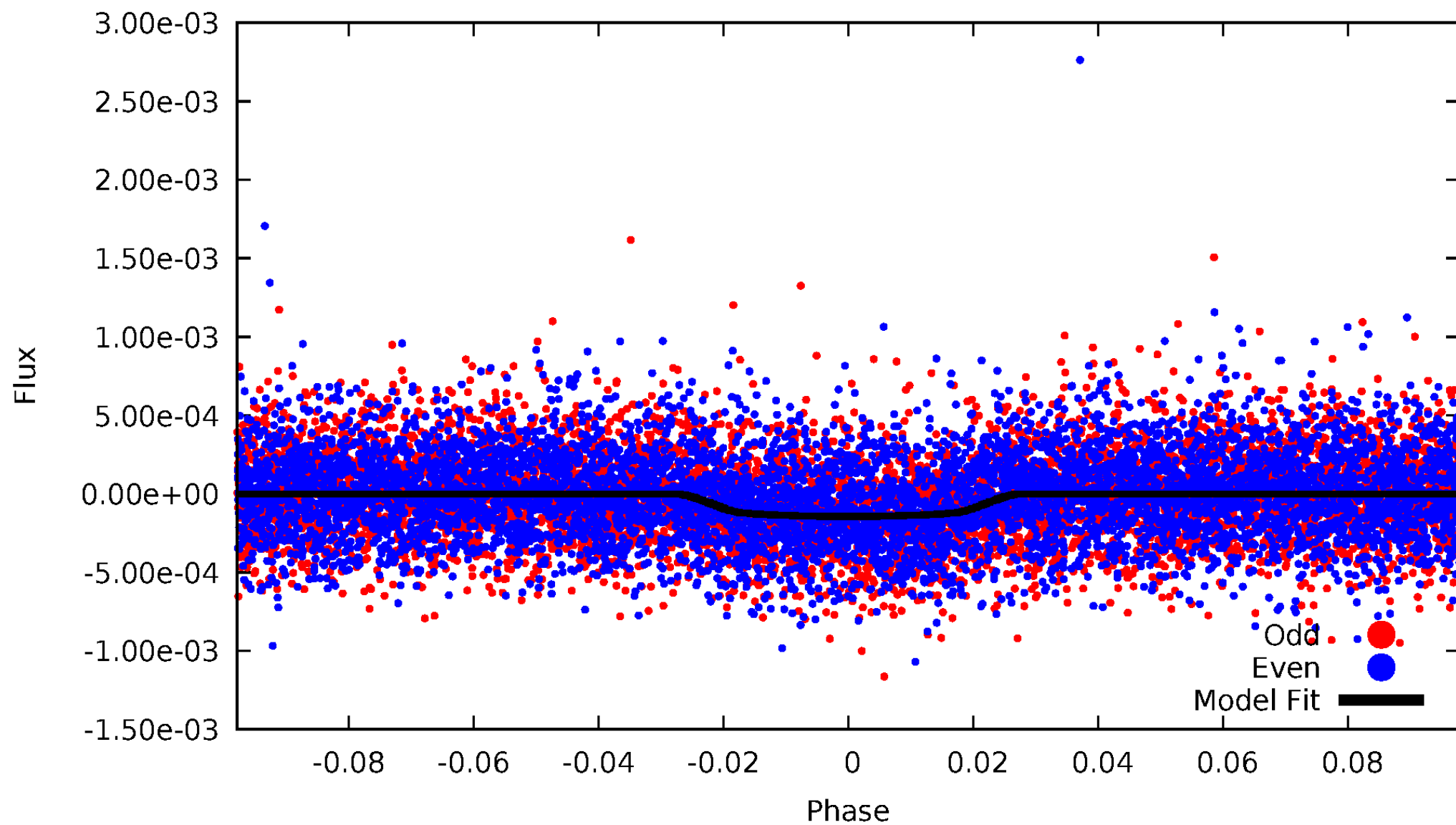


TCE 007620413-01



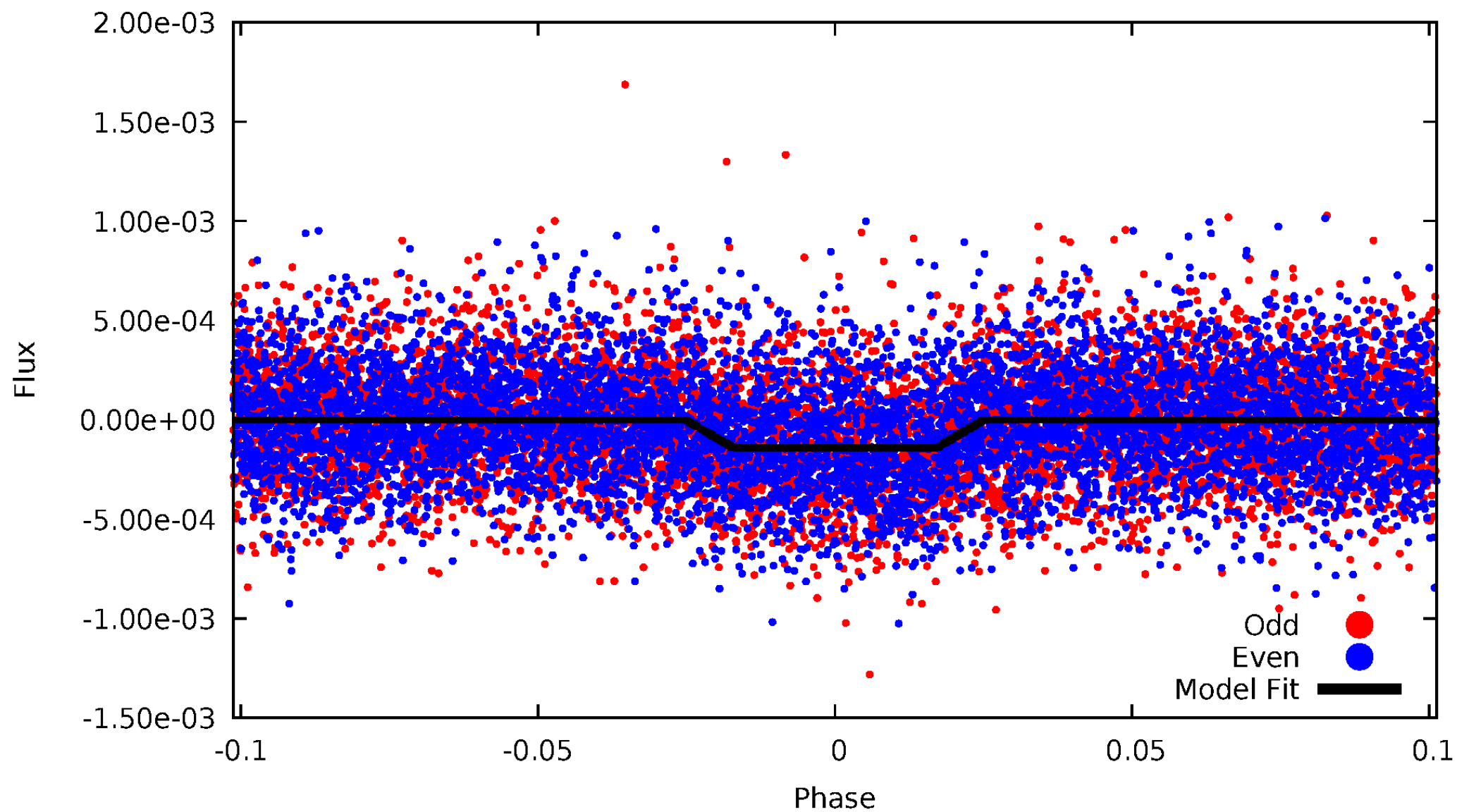
DV Odd/Even

TCE 007620413-01

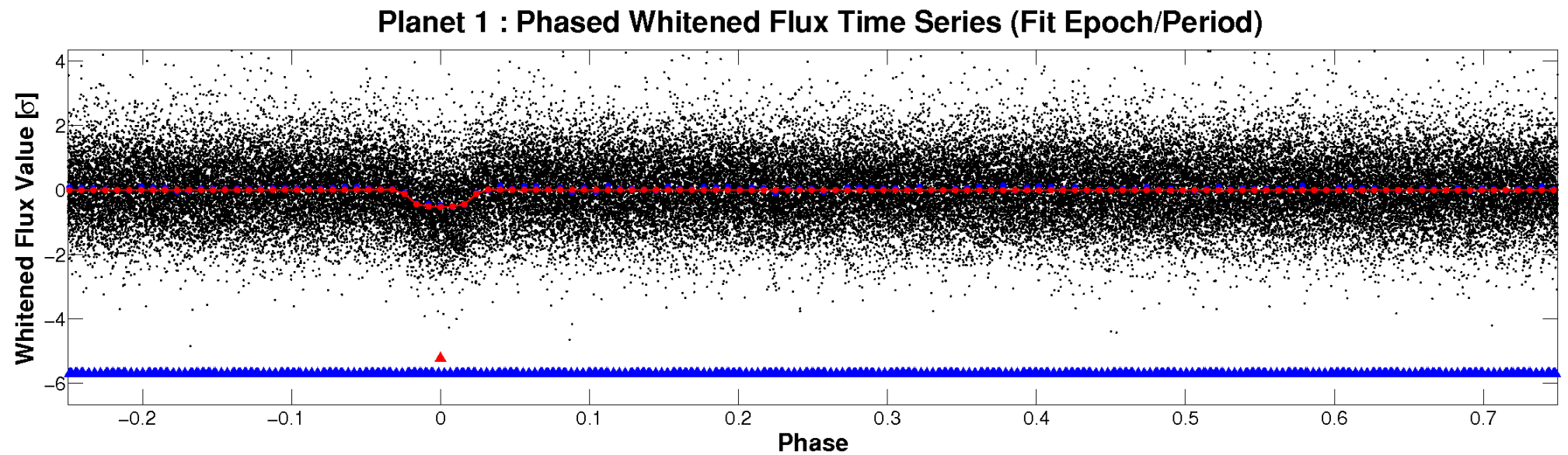
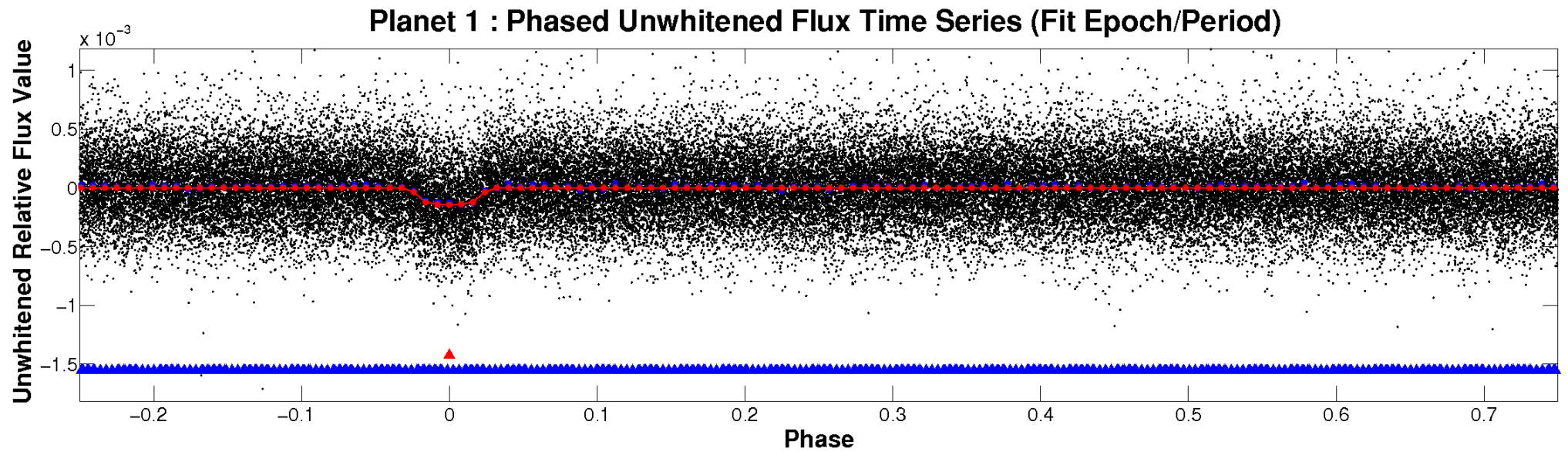


ALT Odd/Even

TCE 007620413-01

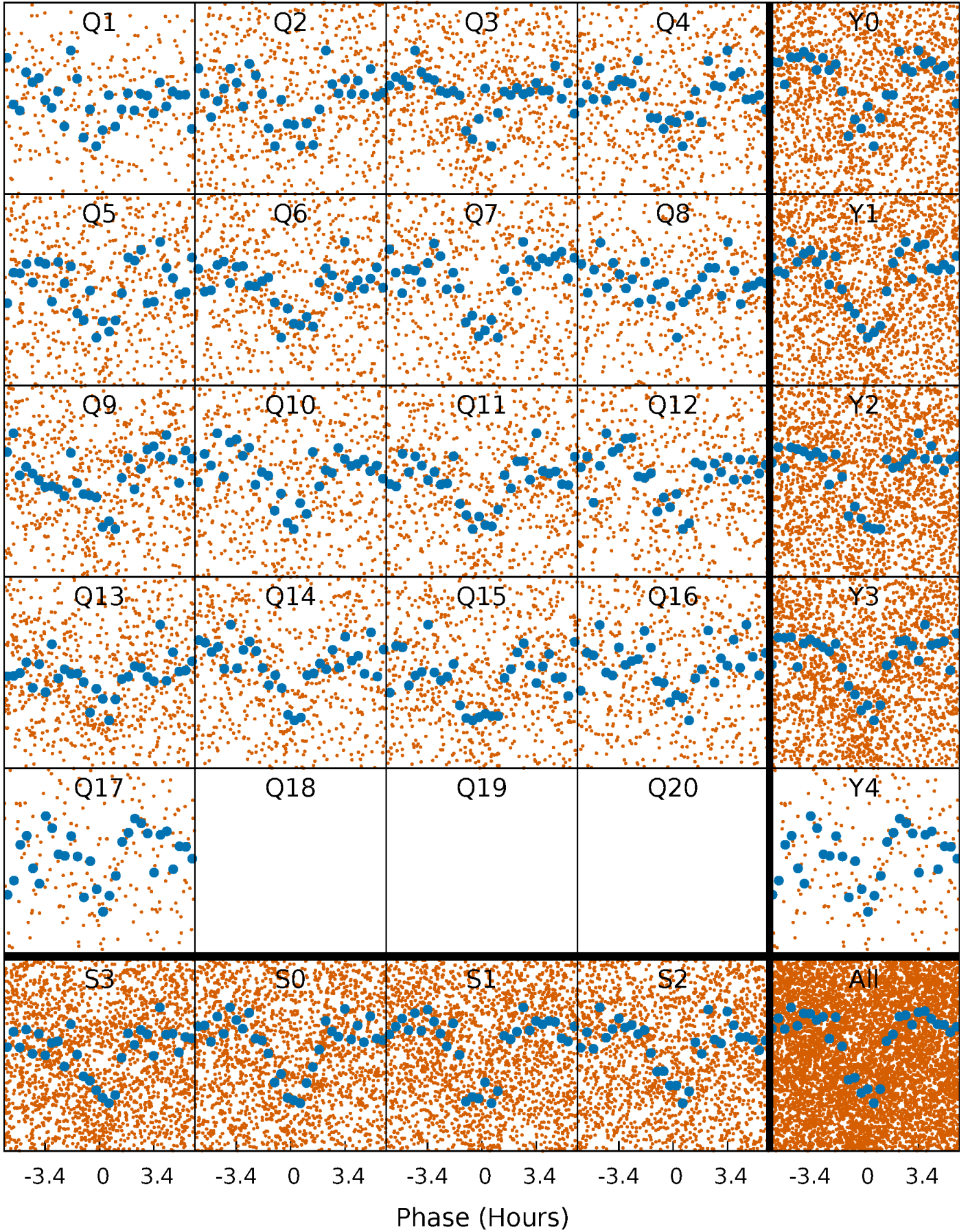


Non-Whitened Vs. Whitened Light Curve



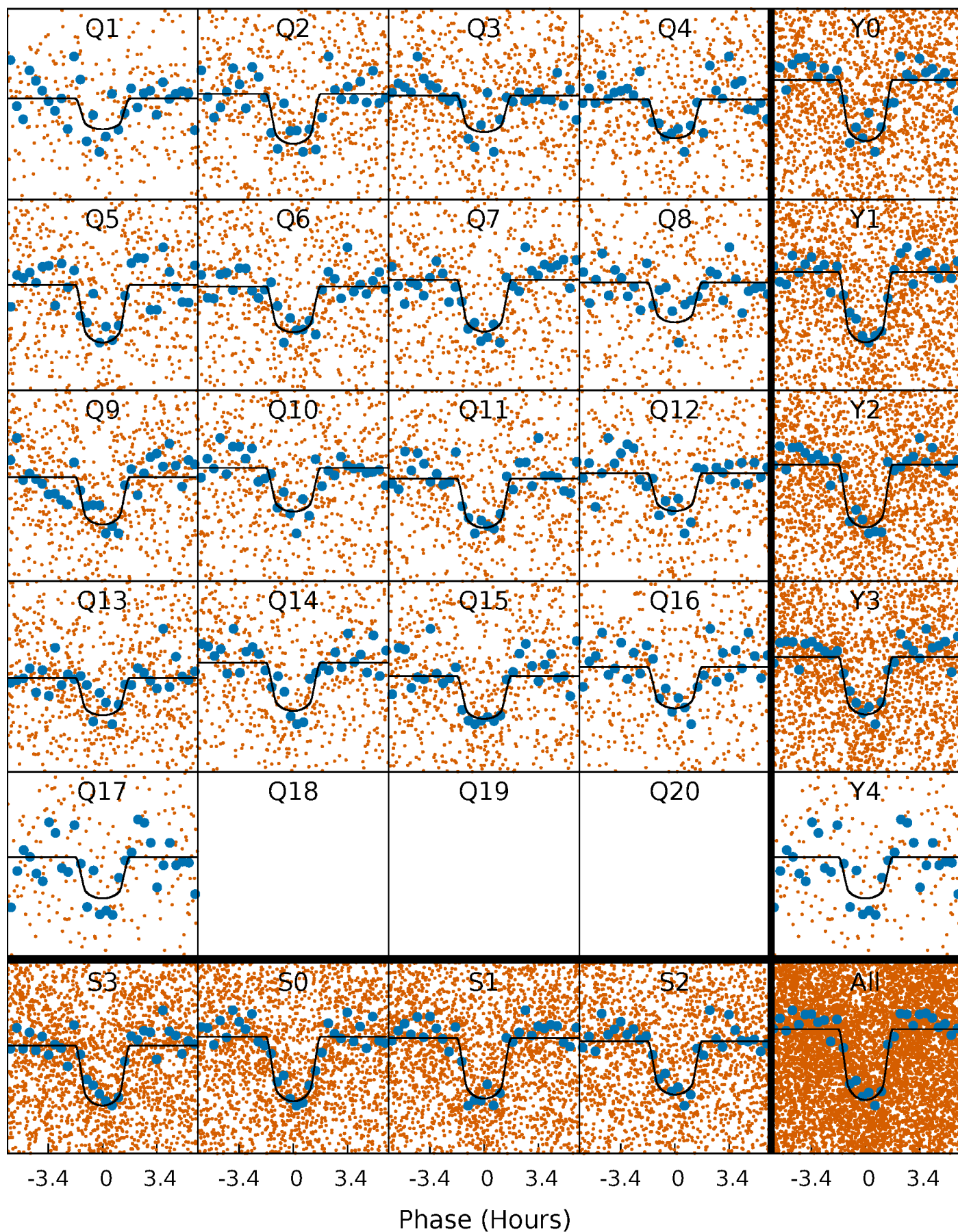
PDC Quarter-Phased Transit Curves

TCE 007620413-01 P= 2.543069 Days $T_0=132.679391$ (BKJD)



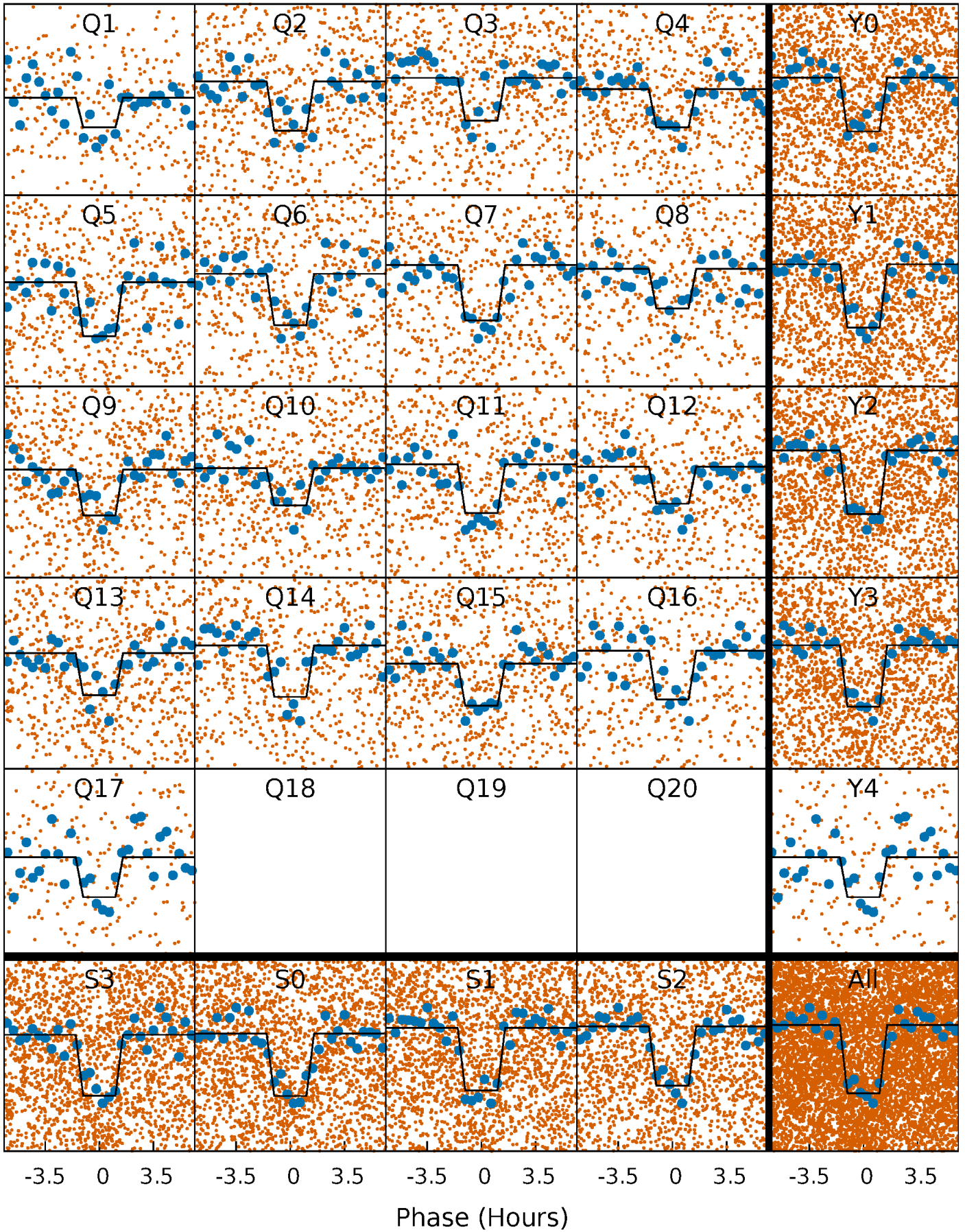
DV Quarter-Phased Transit Curves

TCE 007620413-01 P= 2.543069 Days $T_0=132.679391$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

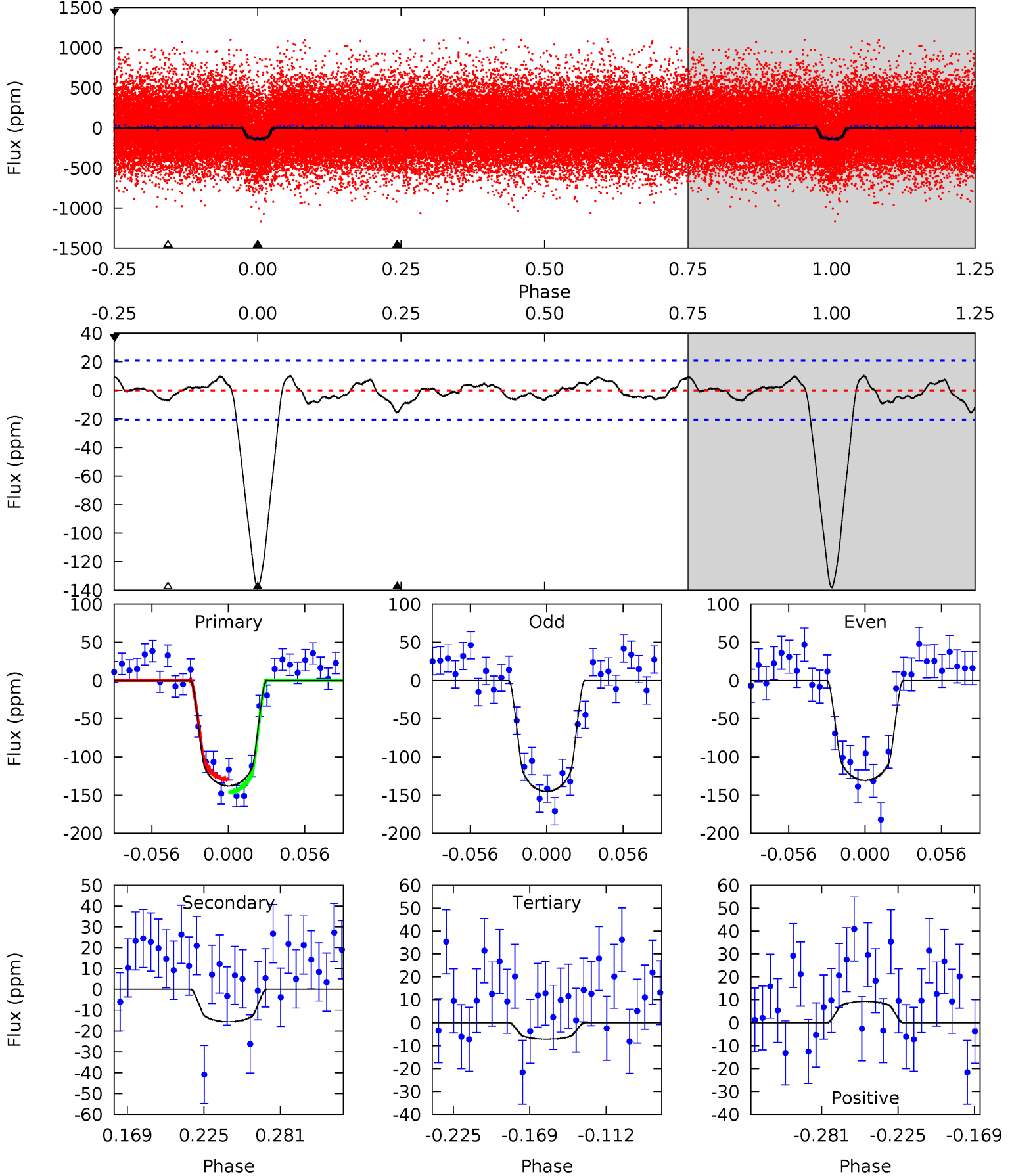
TCE 007620413-01 P= 2.543064 Days $T_0=132.681347$ (BKJD)



DV Model-Shift Uniqueness Test

007620413-01, P = 2.543069 Days, E = 130.136322 Days

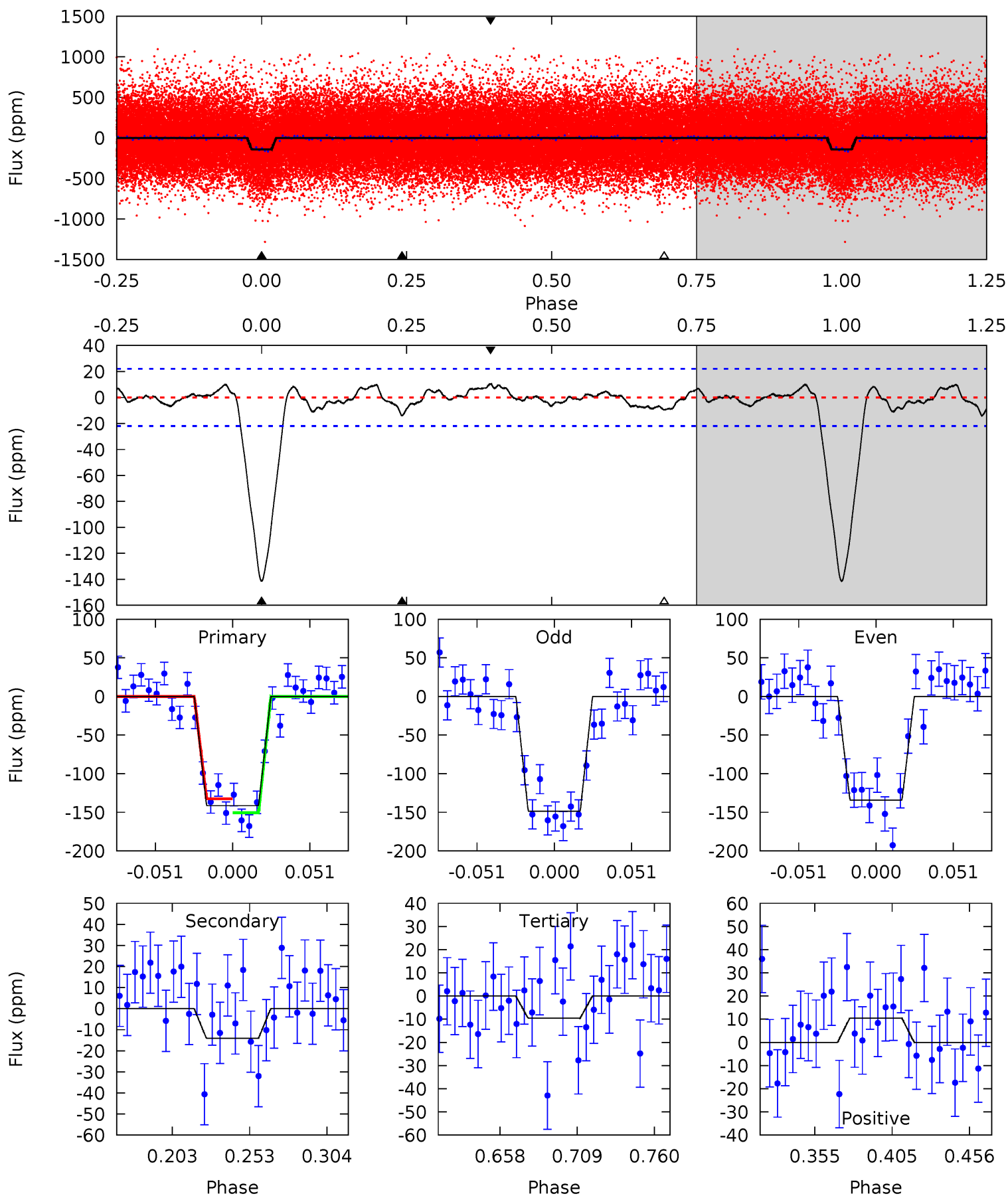
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.0	3.50	1.61	2.08	4.68	1.91	1.03	29.4	29.0	1.89	1.42	1.64	0.96	0.07	1.90



Alt Model-Shift Uniqueness Test

007620413-01, P = 2.543064 Days, E = 130.138283 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.2	3.02	2.05	2.24	4.71	1.95	1.04	28.2	28.0	0.97	0.78	1.54	0.96	0.07	1.94



Stellar Parameters For KIC 007620413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5579^{+75}_{-75}	$4.389^{+0.105}_{-0.105}$	$0.140^{+0.150}_{-0.150}$	$1.029^{+0.152}_{-0.114}$	$0.945^{+0.066}_{-0.048}$	$1.223^{+0.486}_{-0.381}$
	+1%/-1%	+2%/-2%	+107%/-107%	+15%/-11%	+7%/-5%	+40%/-31%
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 007620413-01 / KOI 2103.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 4	$1.49^{+0.45}_{-0.41}$	1848^{+67}_{-71}	3468^{+425}_{-317}	$4.857^{+5.032}_{-2.225}$
Alt.	-14 ± 5	$1.36^{+0.40}_{-0.39}$	1841^{+71}_{-66}	3529^{+484}_{-351}	$5.440^{+6.000}_{-2.620}$

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 $A_{obs} \gg 1.0$

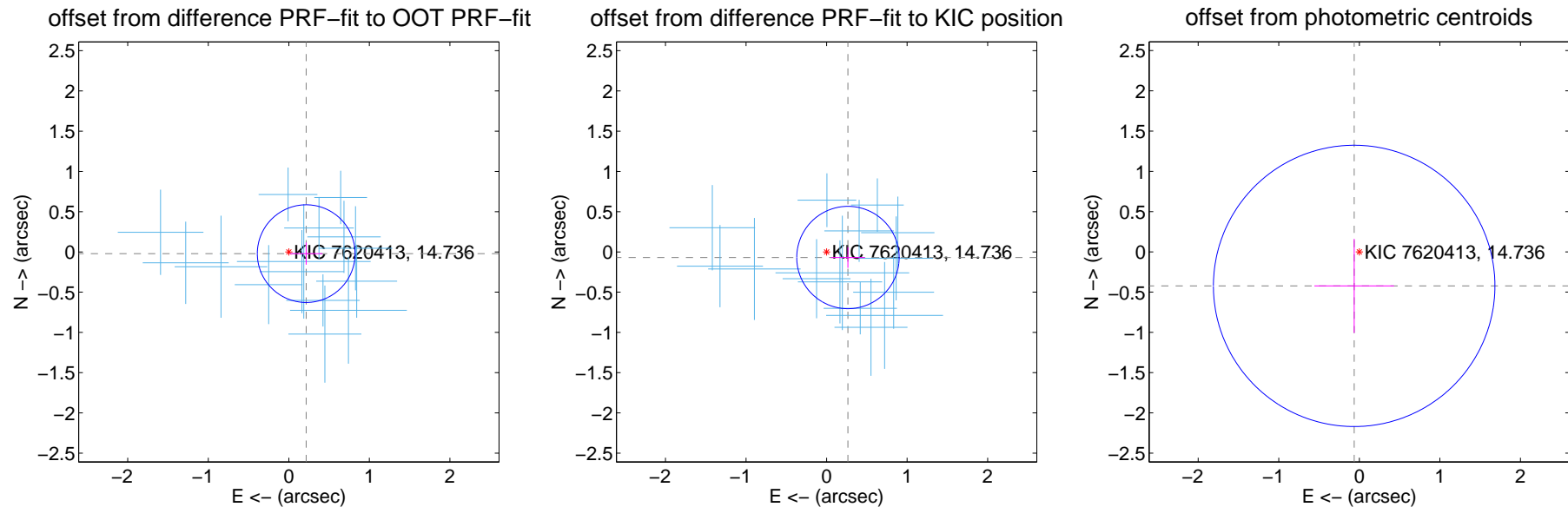
DV Centroid Data

Supplemental centroid analysis for 007620413-01. Kepler magnitude: 14.74. Transit SNR 24.53

There are 15 quarters with good PRF difference image offsets

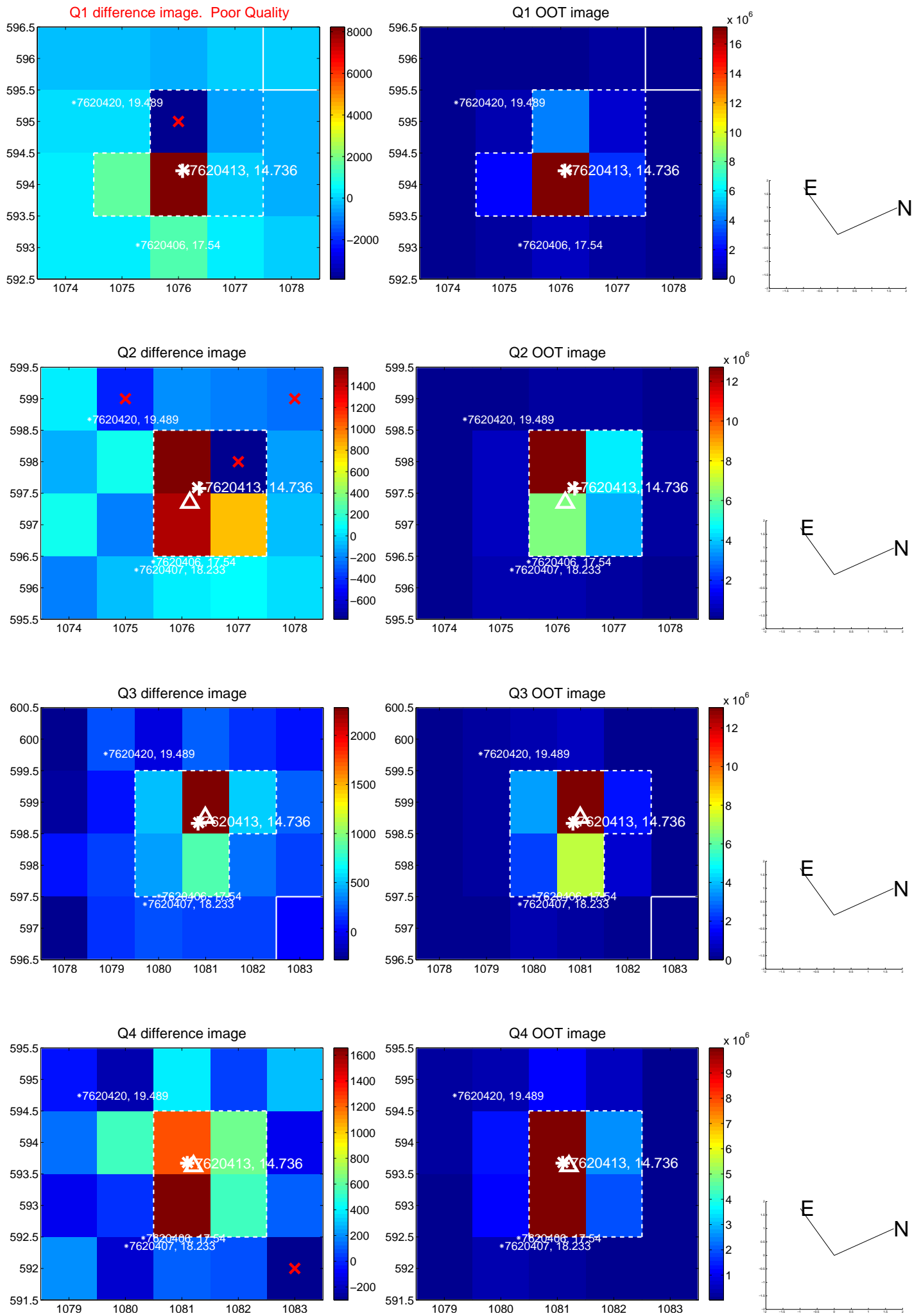
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.217 ± 0.202	1.07	-0.216 ± 0.202	-0.021 ± 0.138
PRF-fit source offset from KIC position	0.275 ± 0.212	1.30	-0.266 ± 0.210	-0.070 ± 0.129
photometric centroid source offset	0.43 ± 0.58	0.73	0.06 ± 0.49	-0.42 ± 0.58

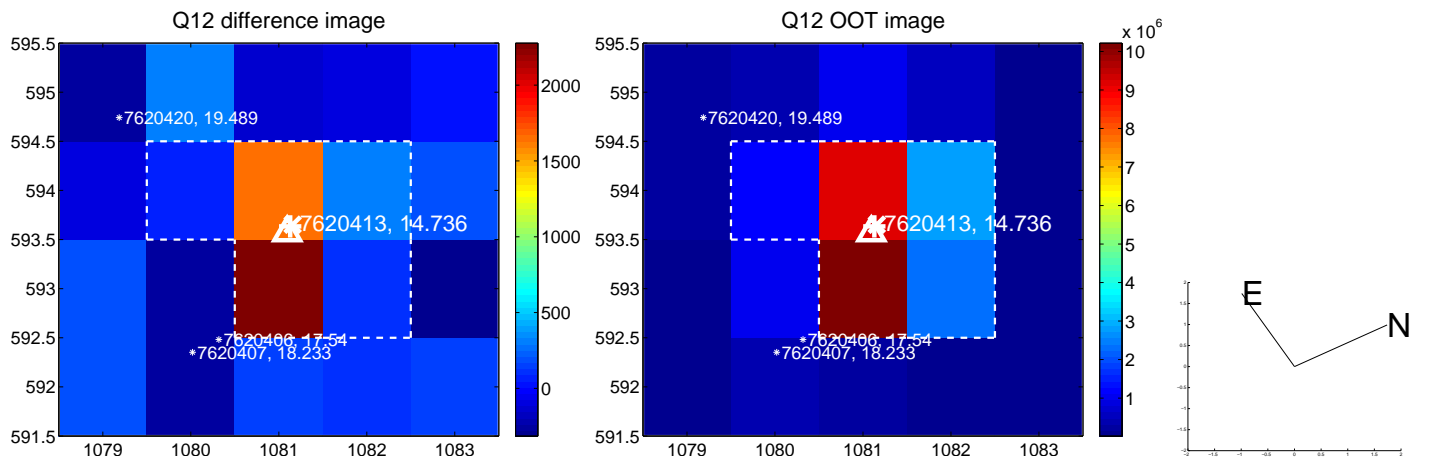
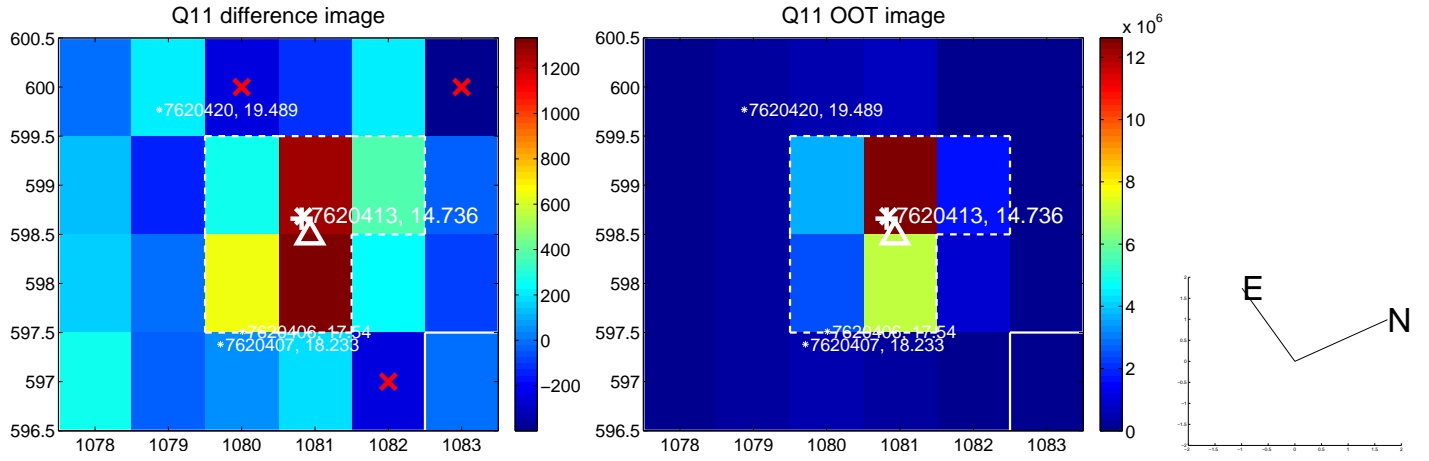
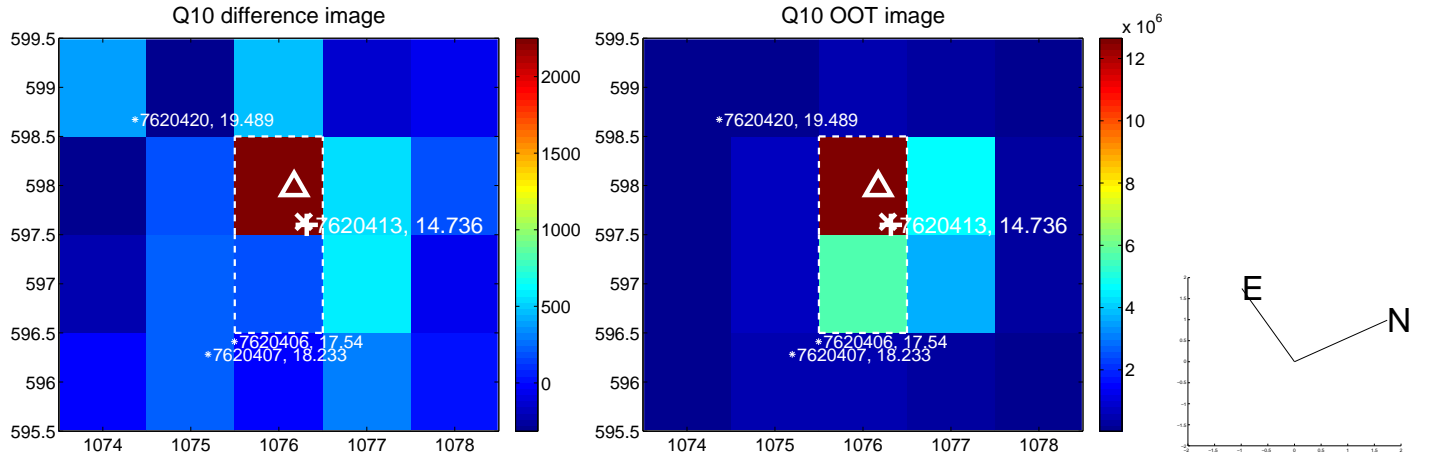
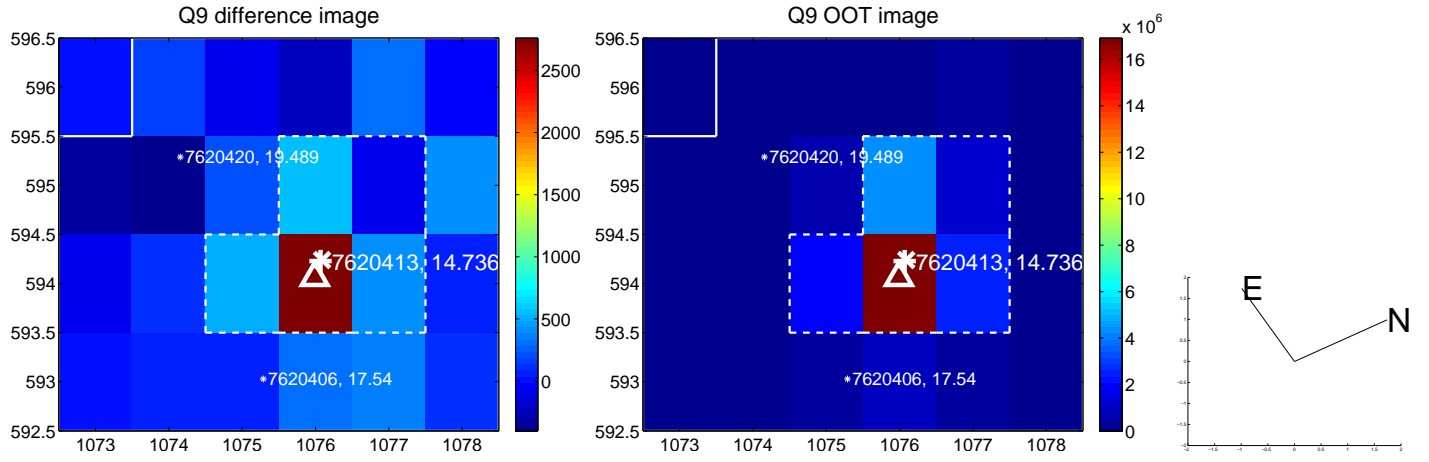


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

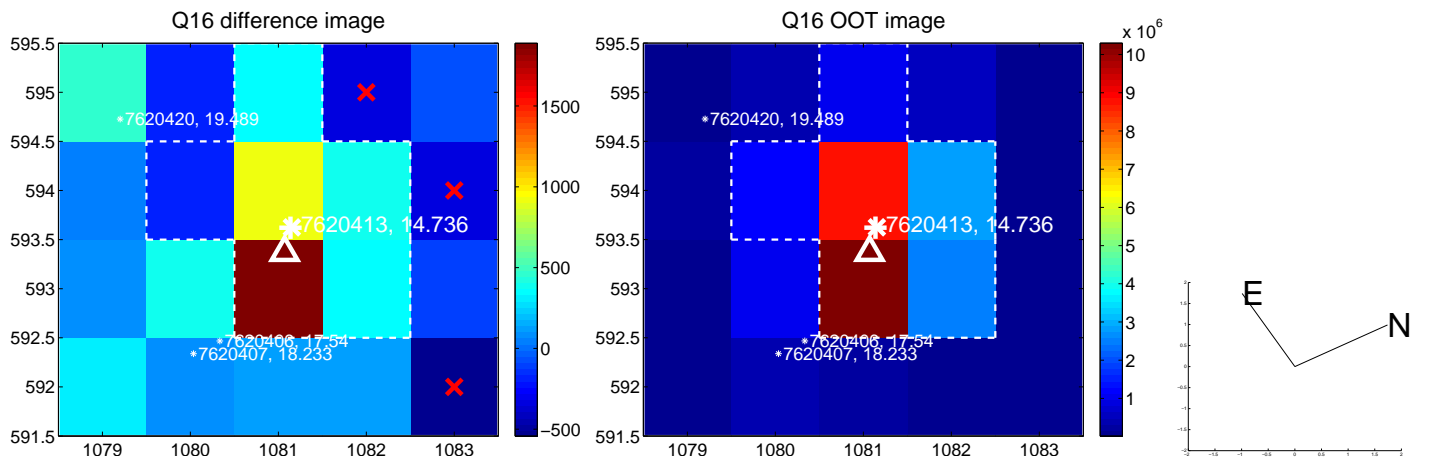
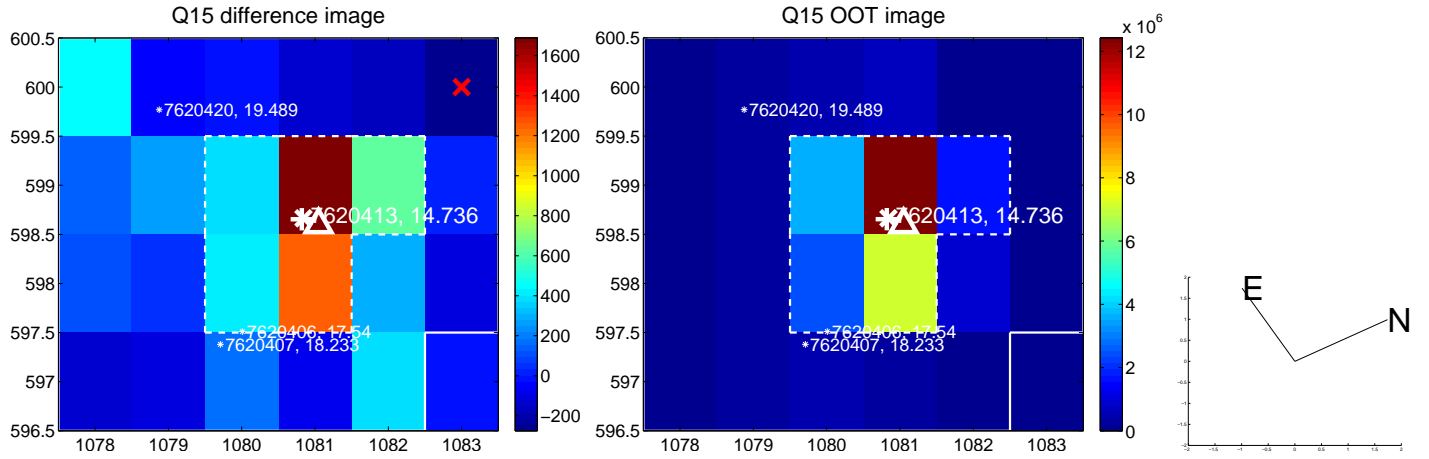
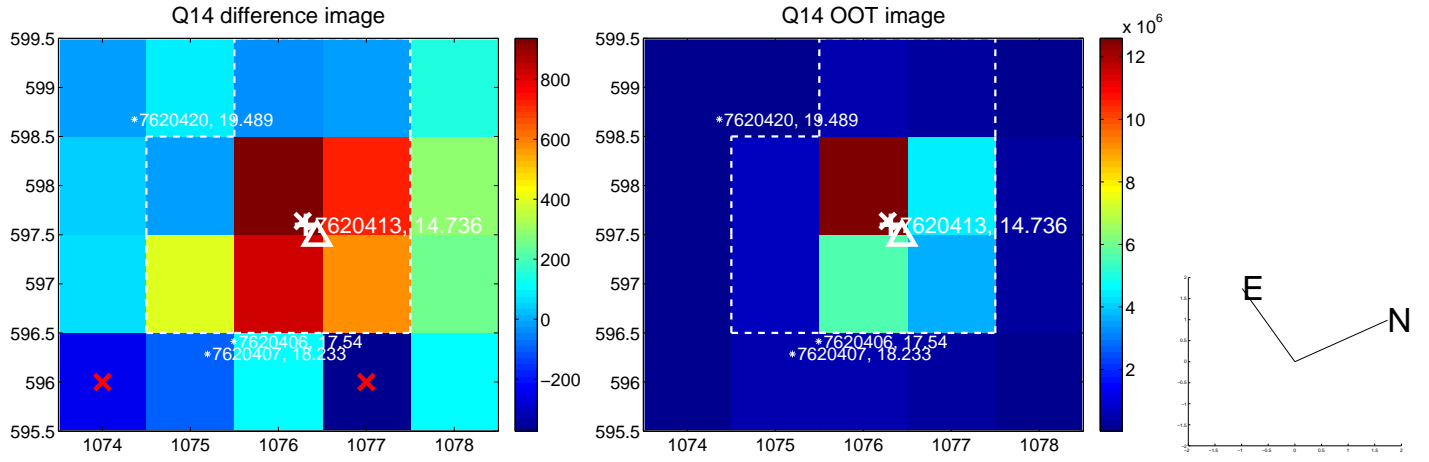
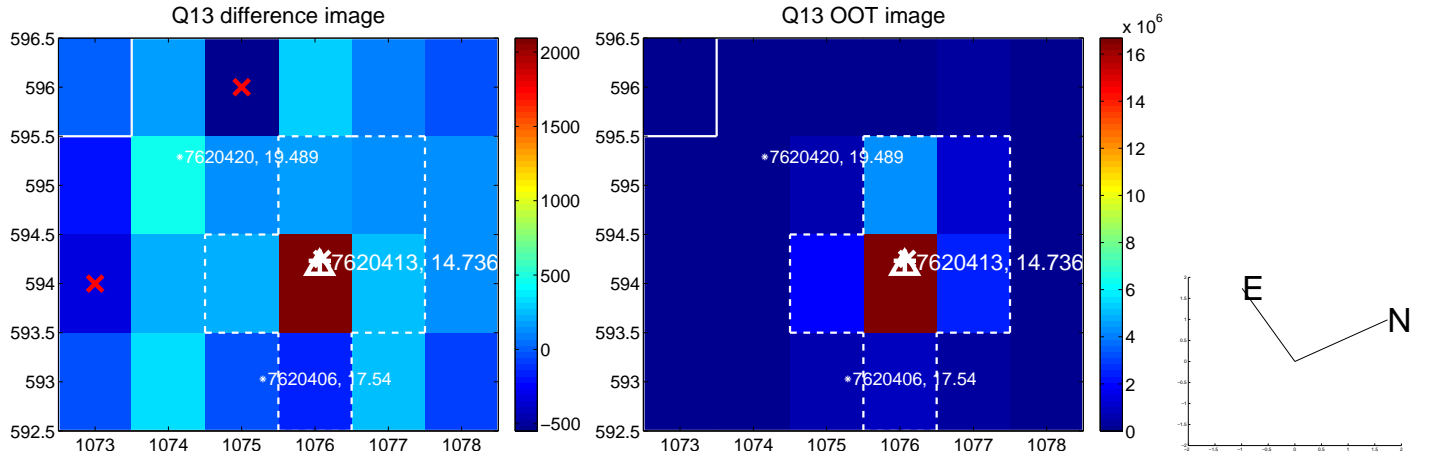
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



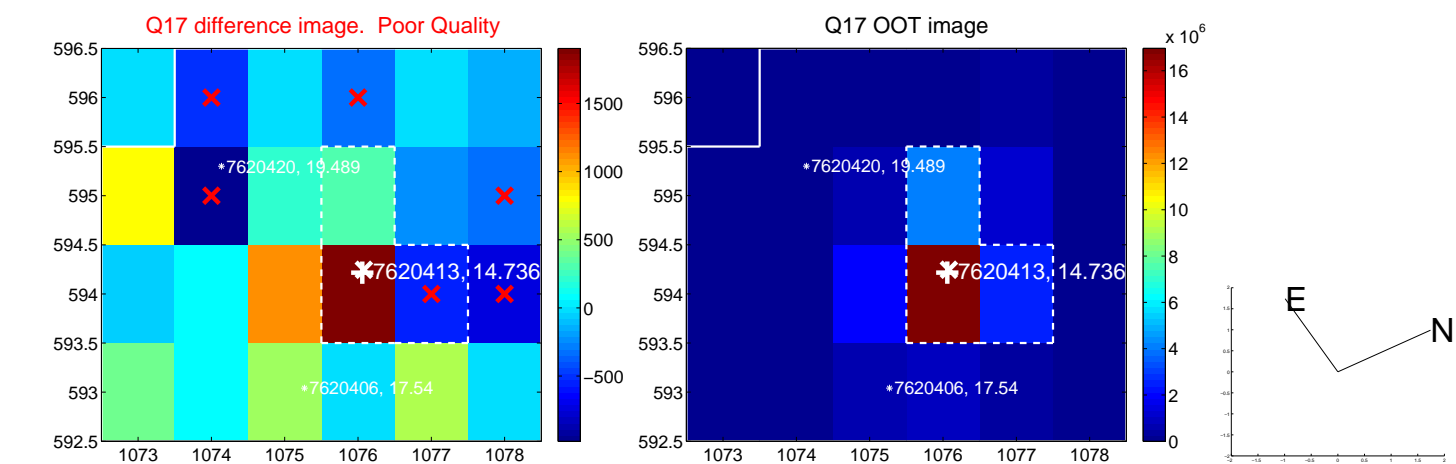
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



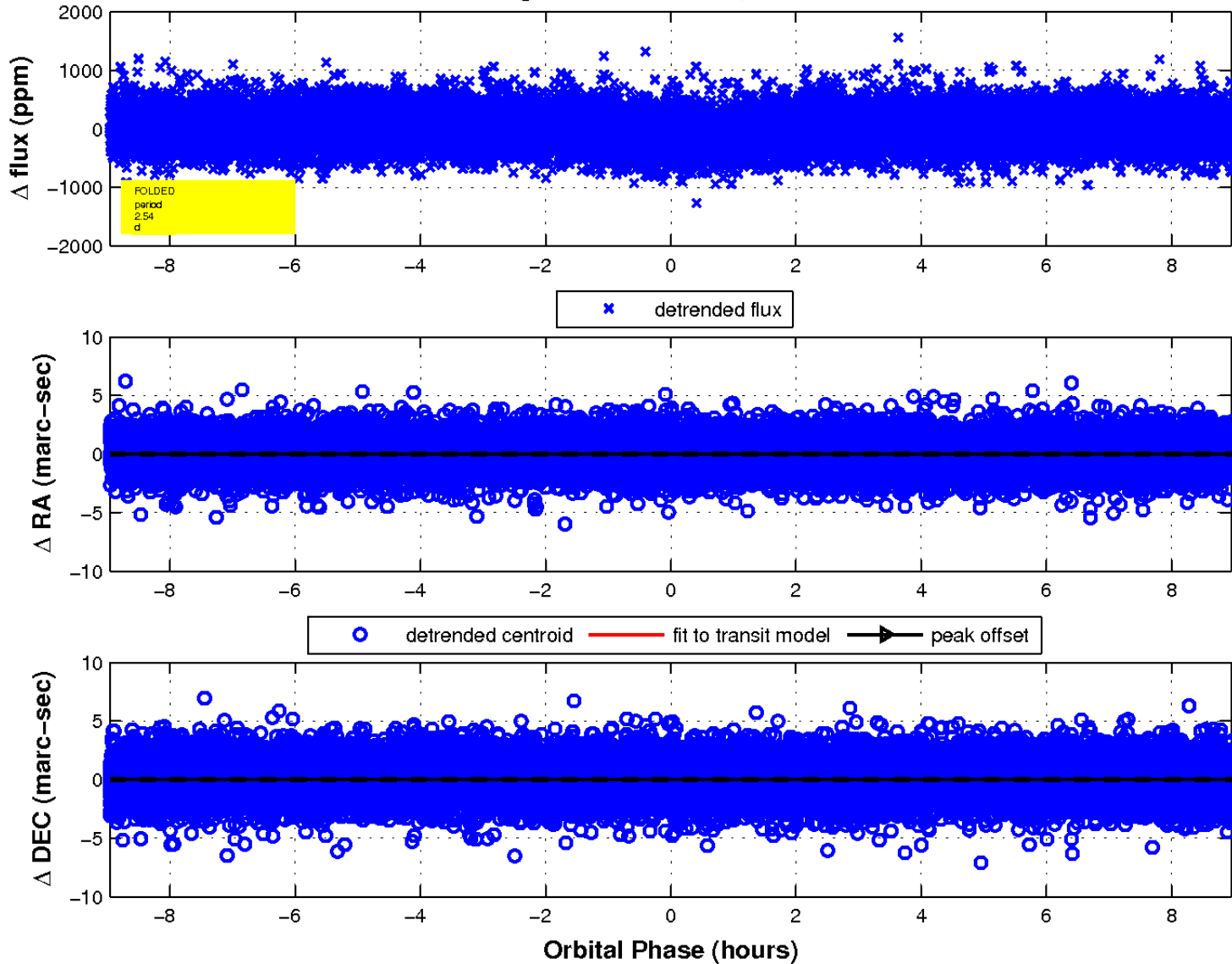
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

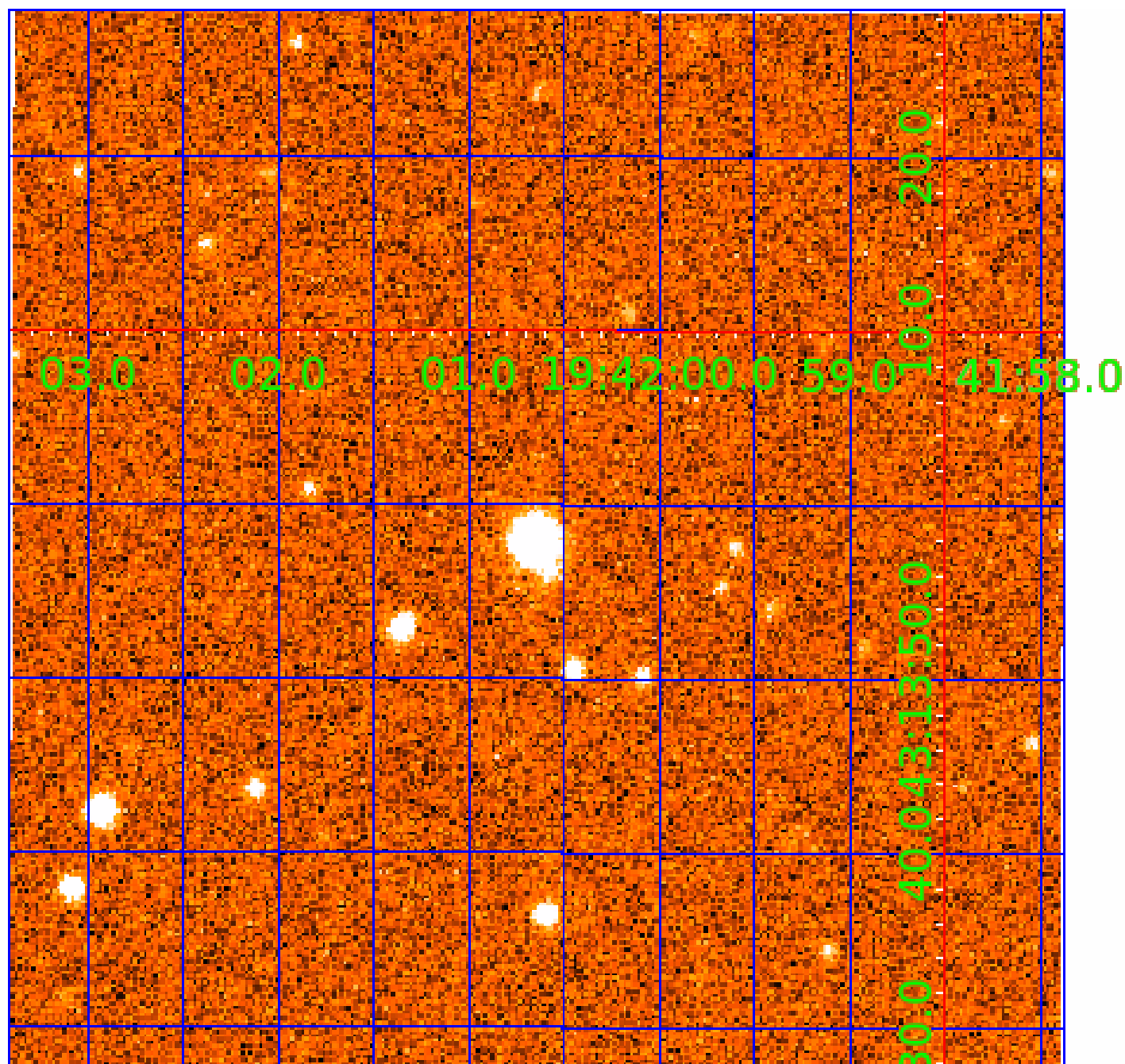


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007620413

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})
007620413-01	OBS	2103.01	2.543069	132.679391	144.7	2.986	22.3	24.5	1.03	5579	1.49	717.11
007620413-02	OBS	2103.02	3.665305	135.169443	55.9	3.989	8.1	8.7	1.03	5579	0.93	440.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007620413-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007620413-02	OBS	PC	0.99	0	0	0	0	CENT_FEW_DIFFS

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

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

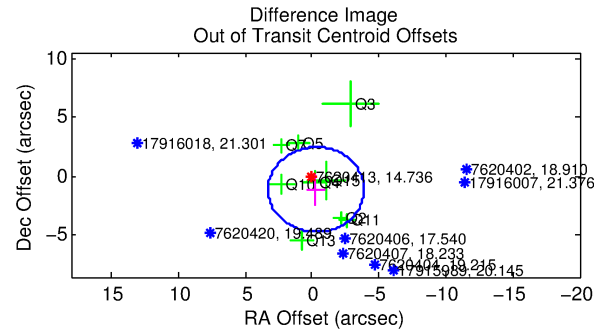
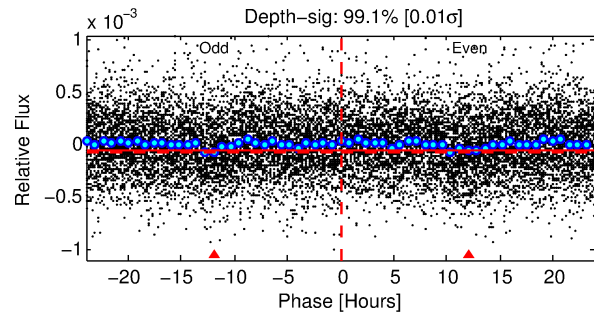
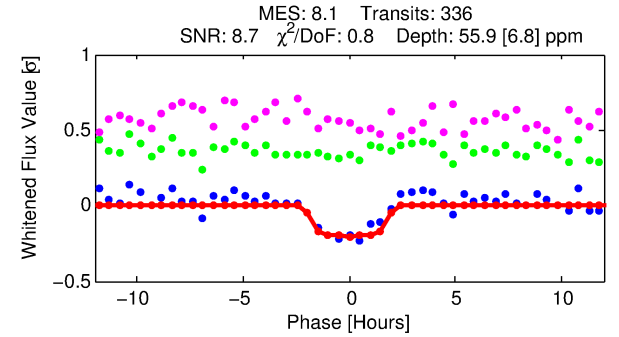
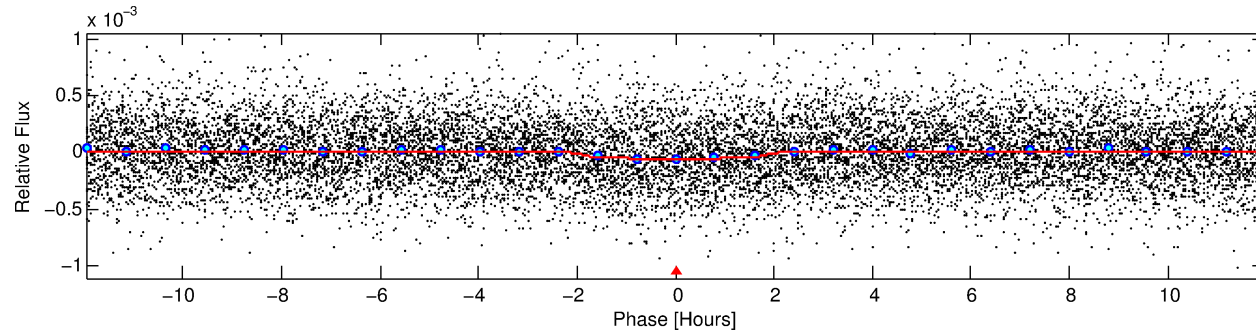
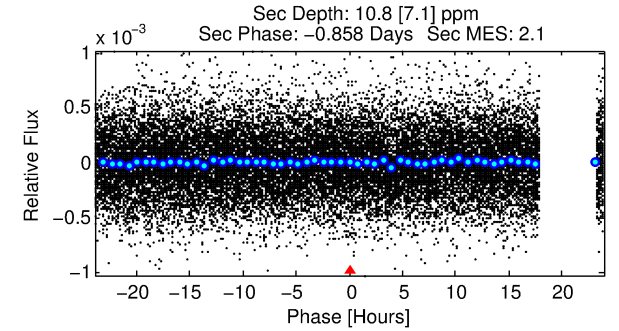
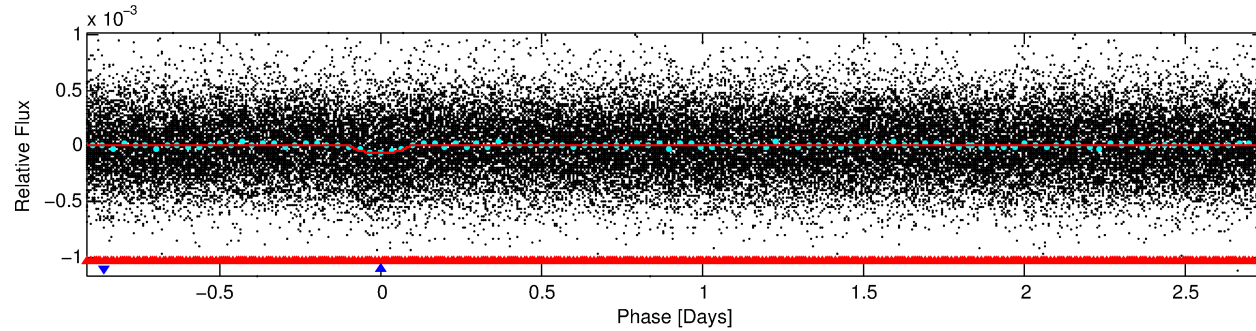
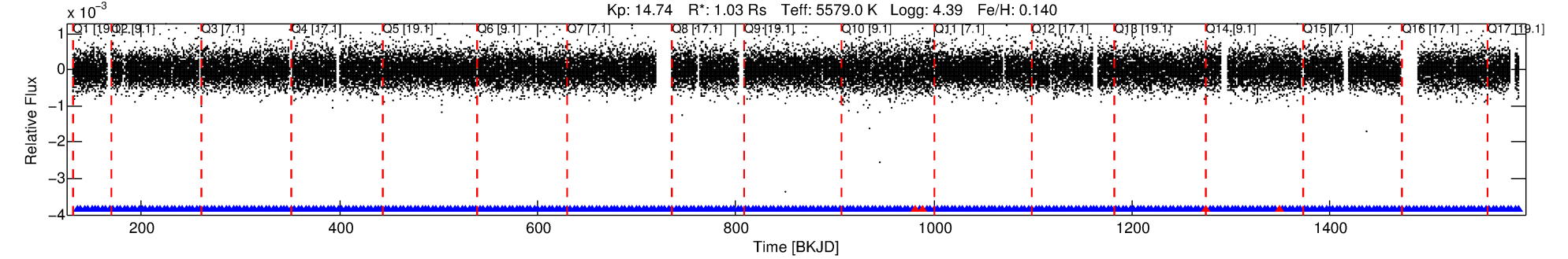
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007620413-02

No Significant Match Found

DV One-Page Summary

KIC: 7620413 Candidate: 2 of 2 Period: 3.665 d
KOI: K02103.02 Corr: 0.916



DV Fit Results:

Period = 3.66530 [0.00004] d
Epoch = 135.1694 [0.0072] BKJD
Rp/R* = 0.0083 [0.0058]
a/R* = 3.20 [9.40]
b = 0.91 [0.63]
Seff = 440.47 [86.50]
Teff = 1168 [57] K
Rp = 0.93 [0.67] Re
a = 0.0457 [0.0058] AU
Ag = 14.33 [22.34] [0.60σ]
Teffp = 3514 [1360] K [1.72σ]

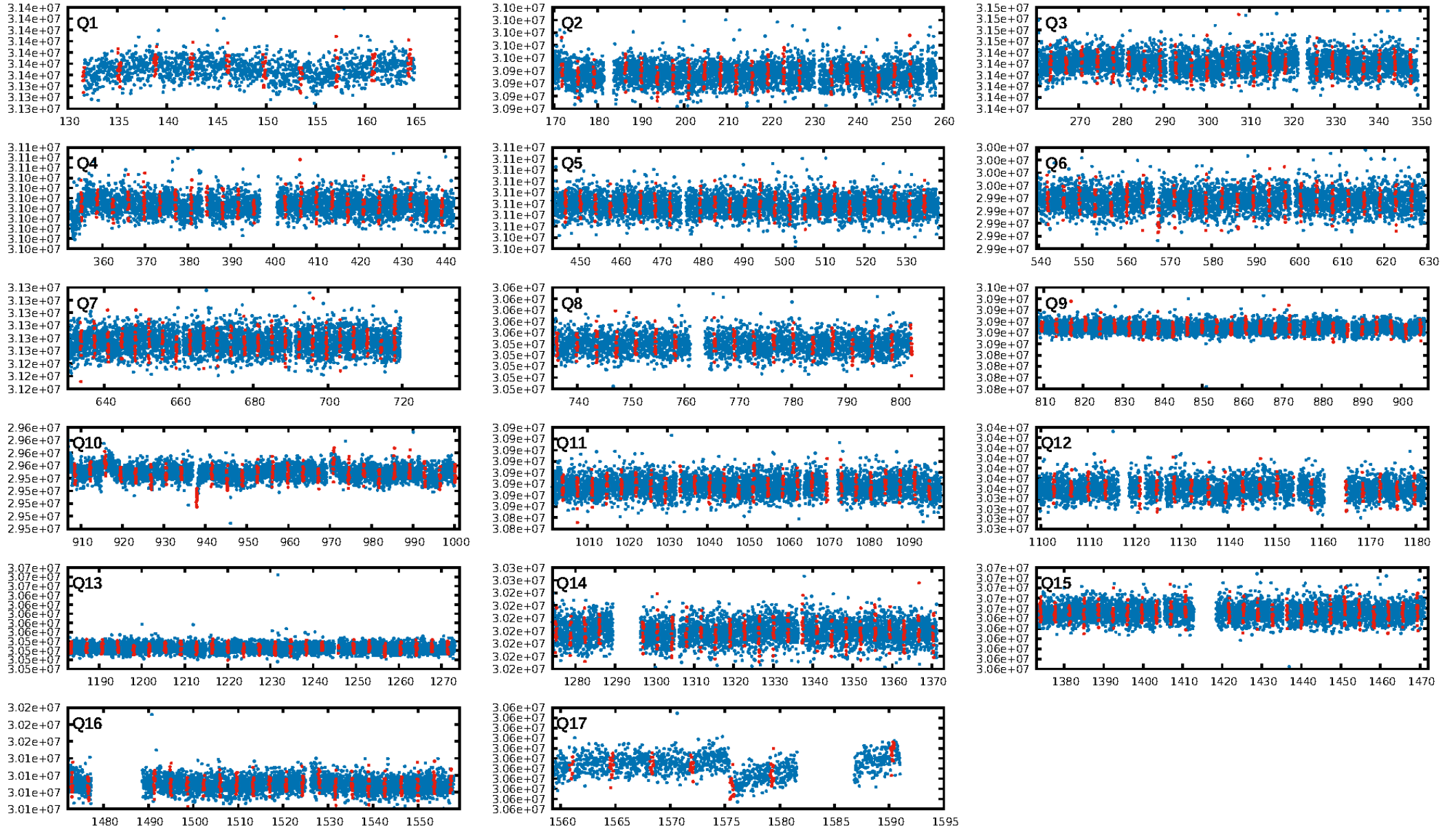
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.41σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.16e-16
RollingBand-fgt: 0.99 [317/321]
GhostDiagnostic-chr: -2.236
Centroid-sig: 9.6%
Centroid-so: 2.056 arcsec [1.56σ]
OotOffset-rm: 1.143 arcsec [0.96σ]
KicOffset-rm: 1.196 arcsec [1.06σ]
OotOffset-st: 2/4/1/2 [9]
KicOffset-st: 2/4/1/2 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 1.00 [17/17]

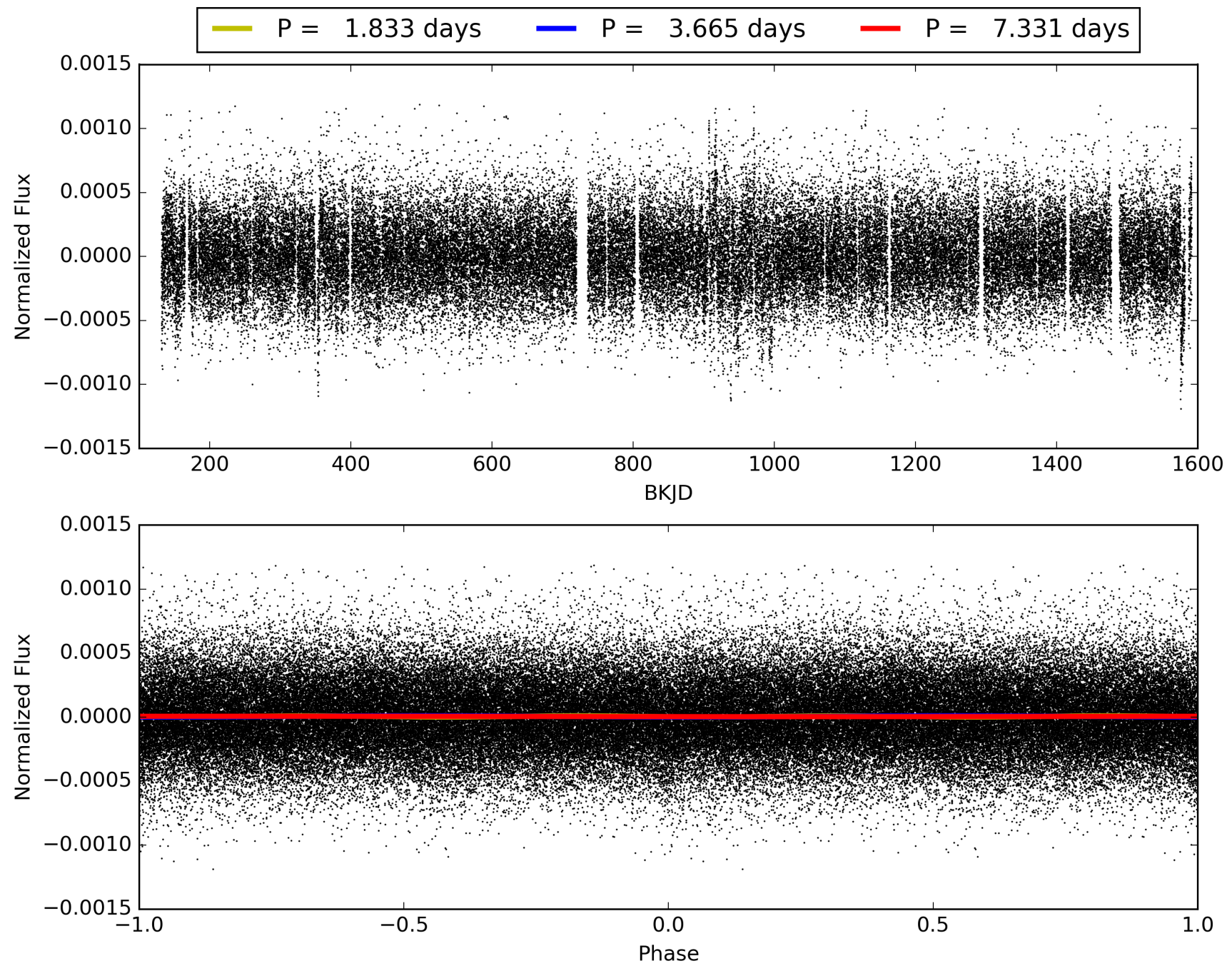
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:35:50 Z

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

TCE 007620413-02, PDC Light Curves

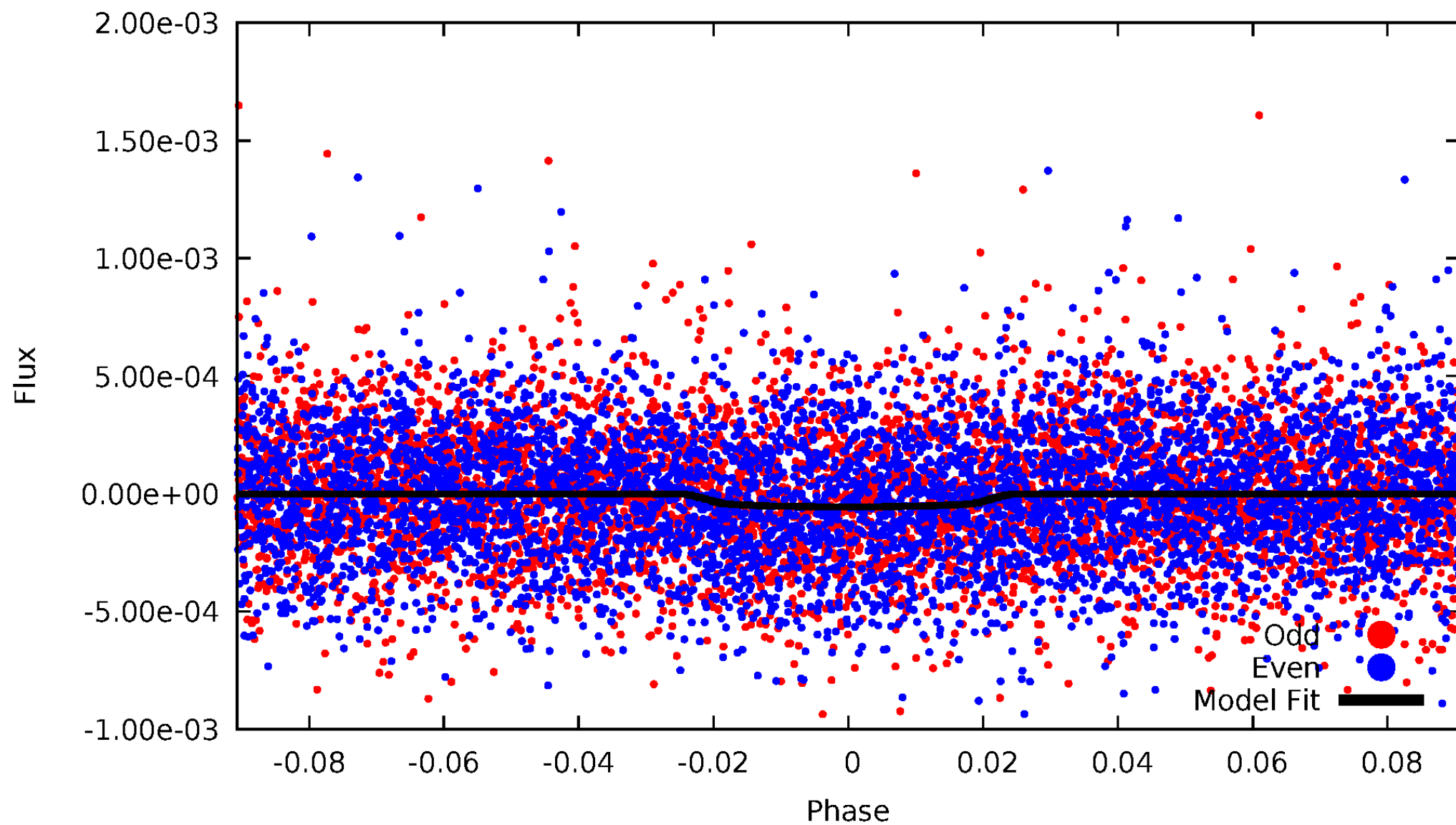


TCE 007620413-02



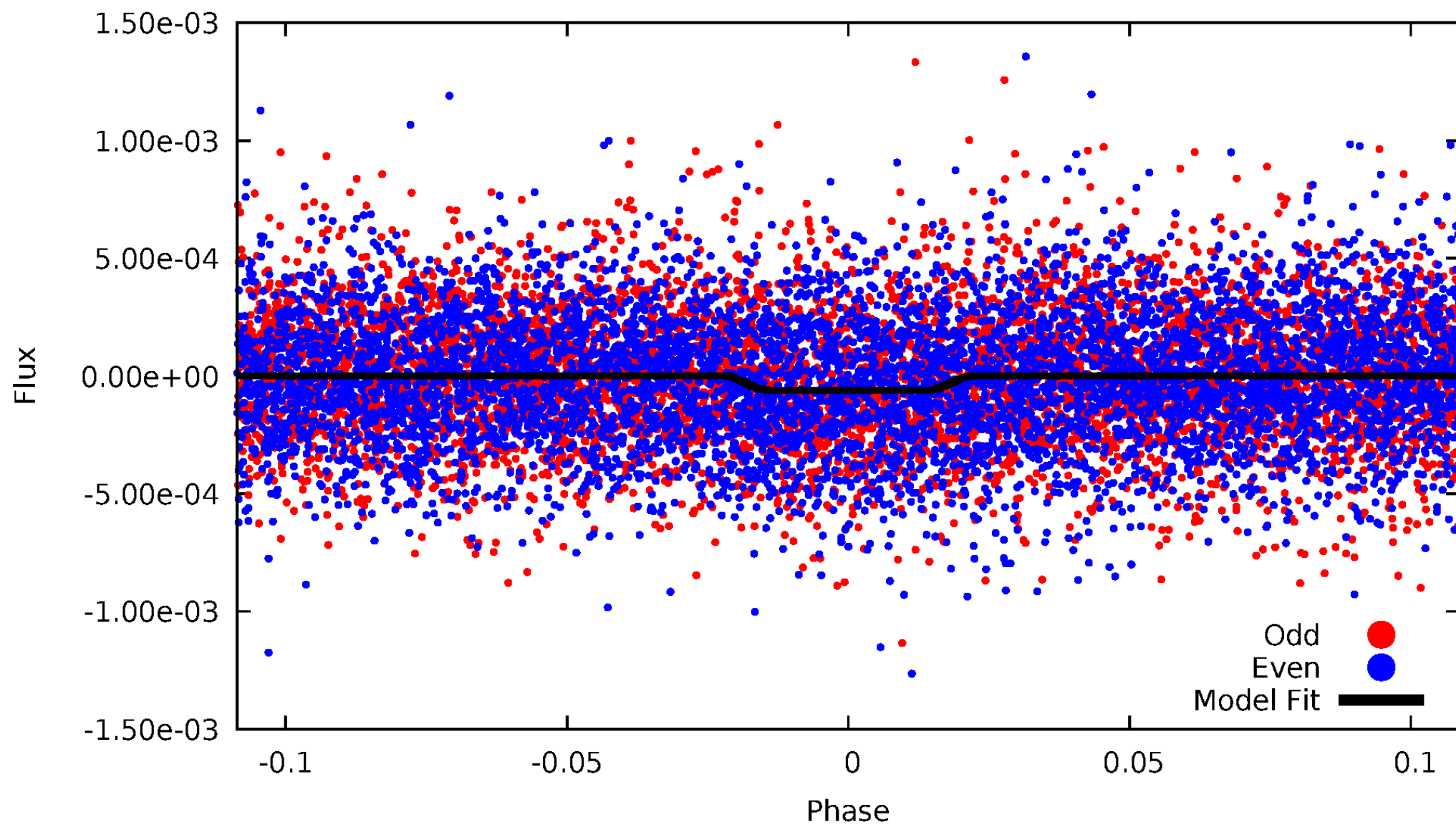
DV Odd/Even

TCE 007620413-02



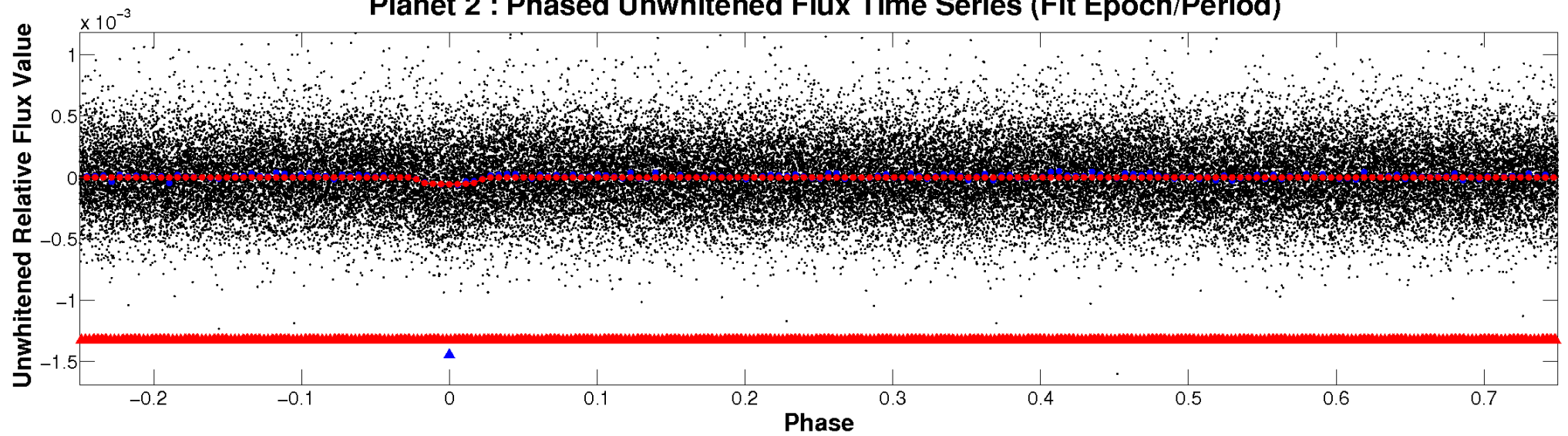
ALT Odd/Even

TCE 007620413-02

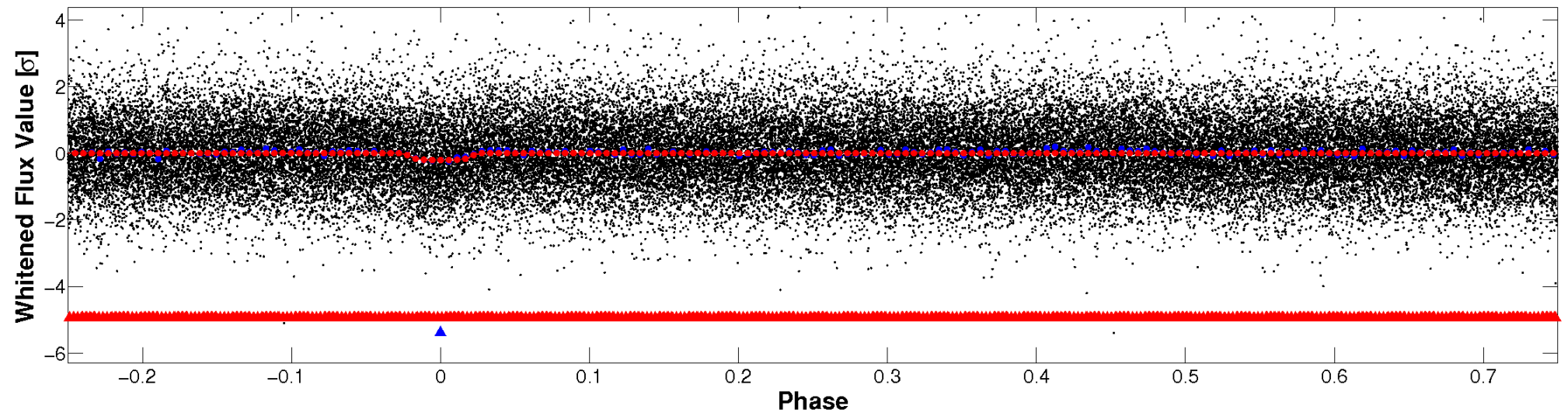


Non-Whitened Vs. Whitened Light Curve

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

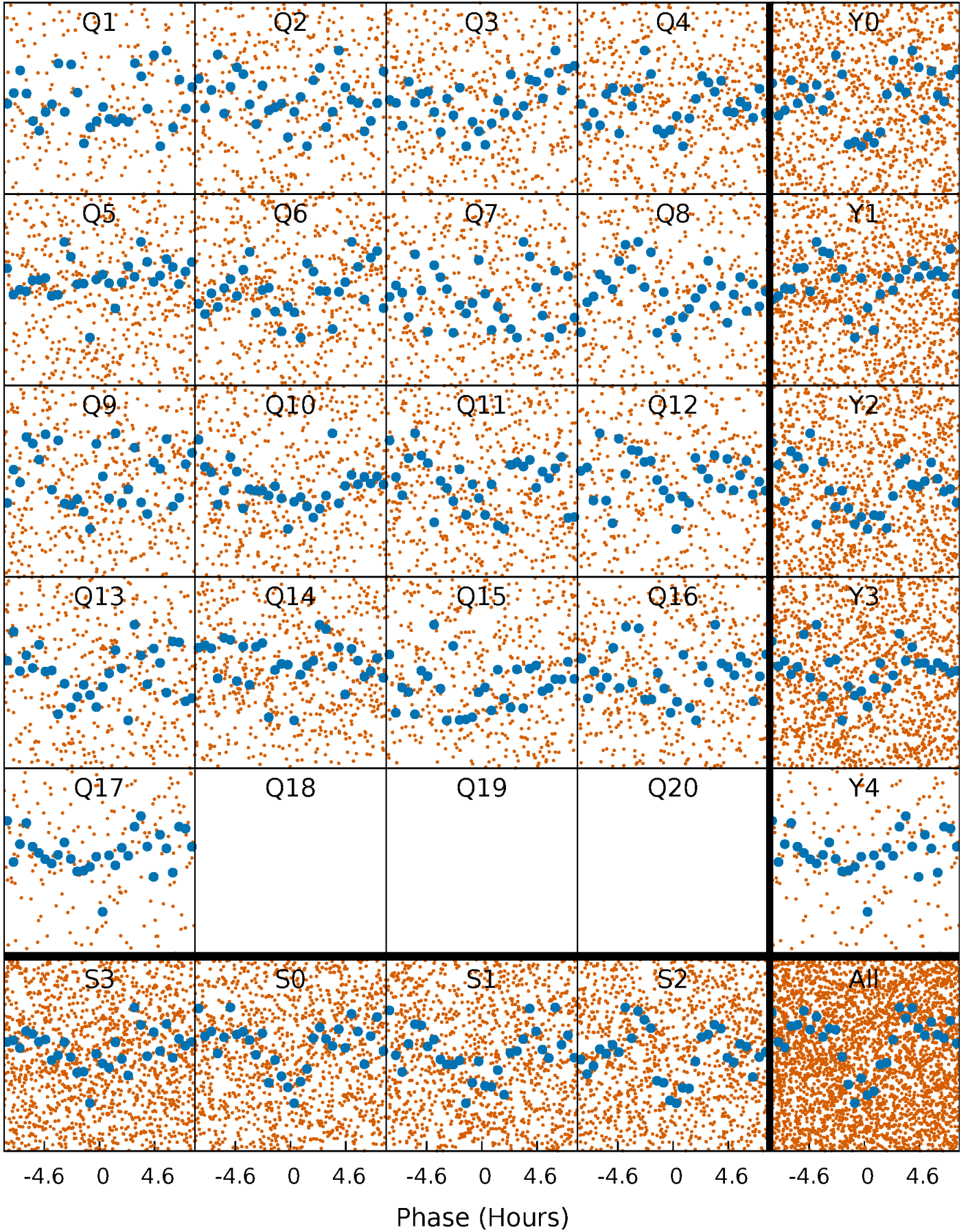


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



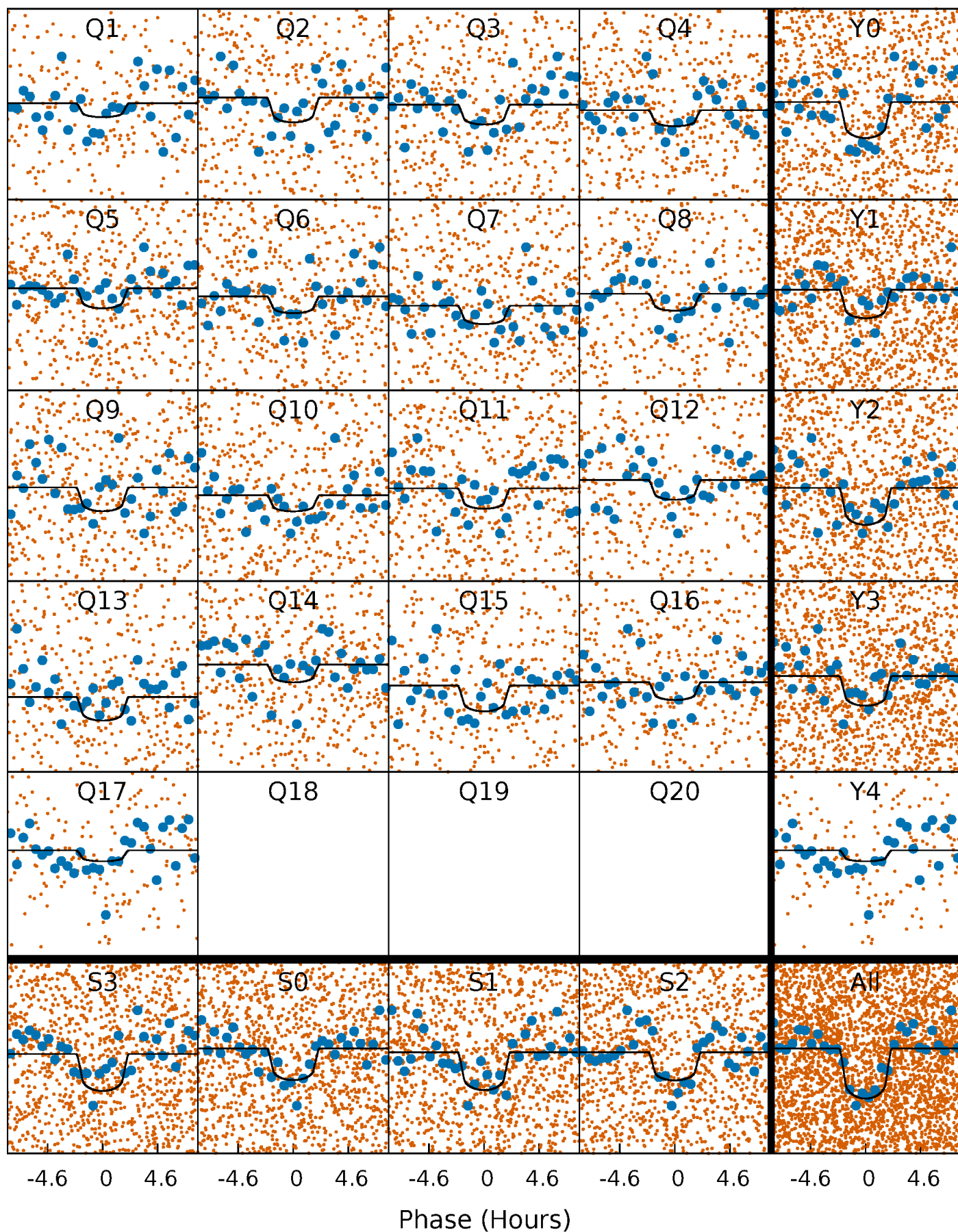
PDC Quarter-Phased Transit Curves

TCE 007620413-02 P= 3.665305 Days $T_0=135.169443$ (BKJD)



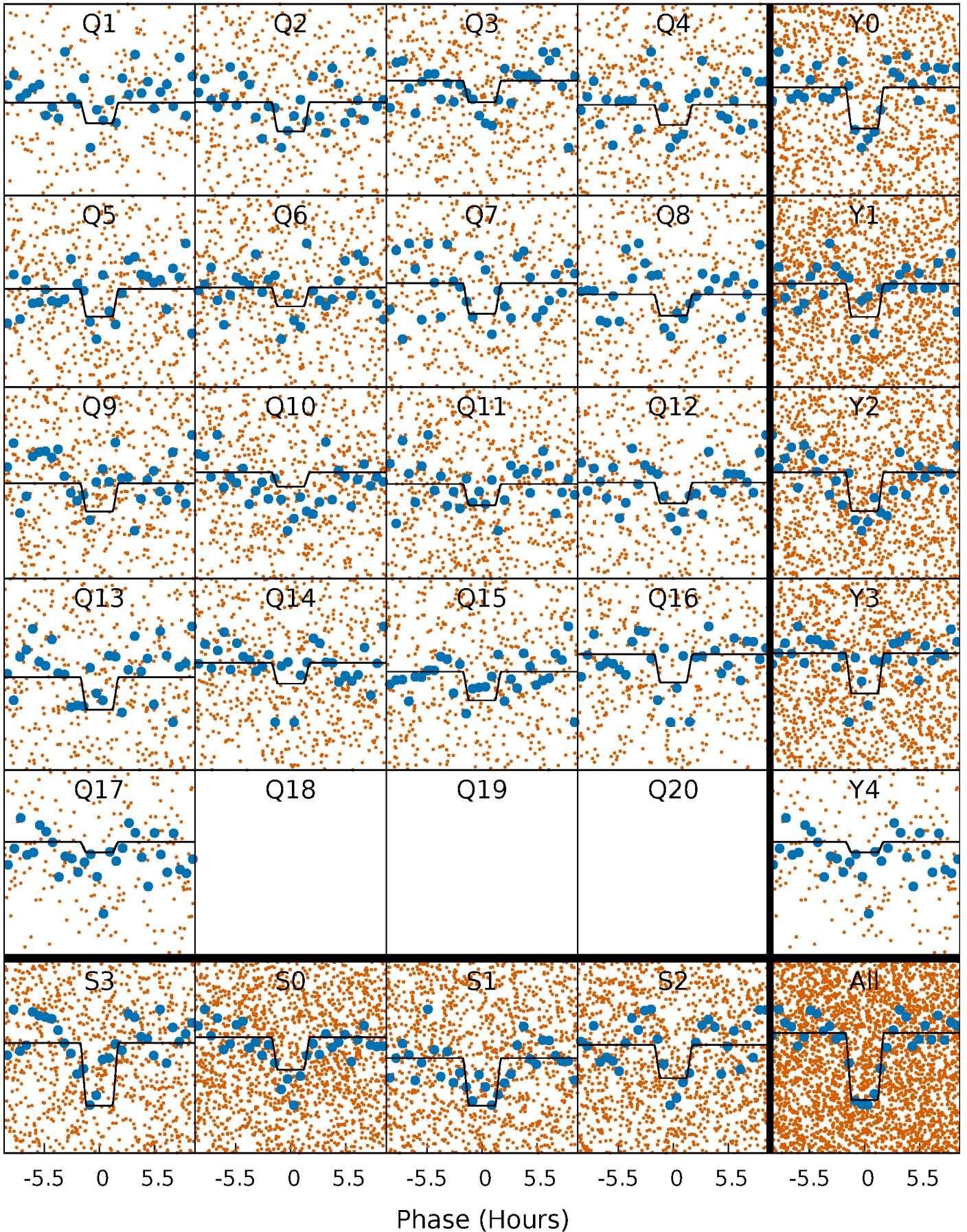
DV Quarter-Phased Transit Curves

TCE 007620413-02 P= 3.665305 Days $T_0=135.169443$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

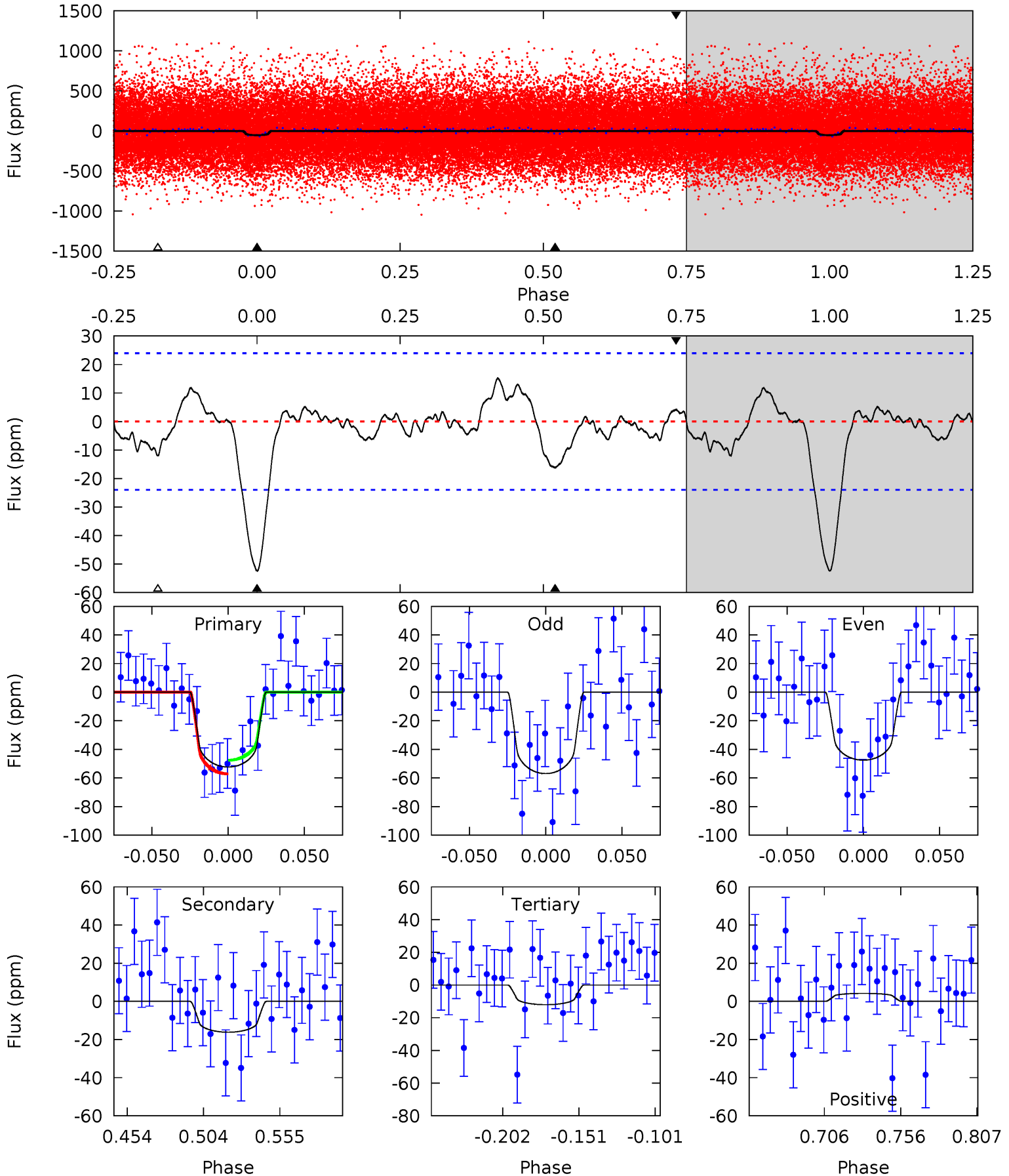
TCE 007620413-02 P= 3.665306 Days $T_0=135.162379$ (BKJD)



DV Model-Shift Uniqueness Test

007620413-02, P = 3.665305 Days, E = 131.504138 Days

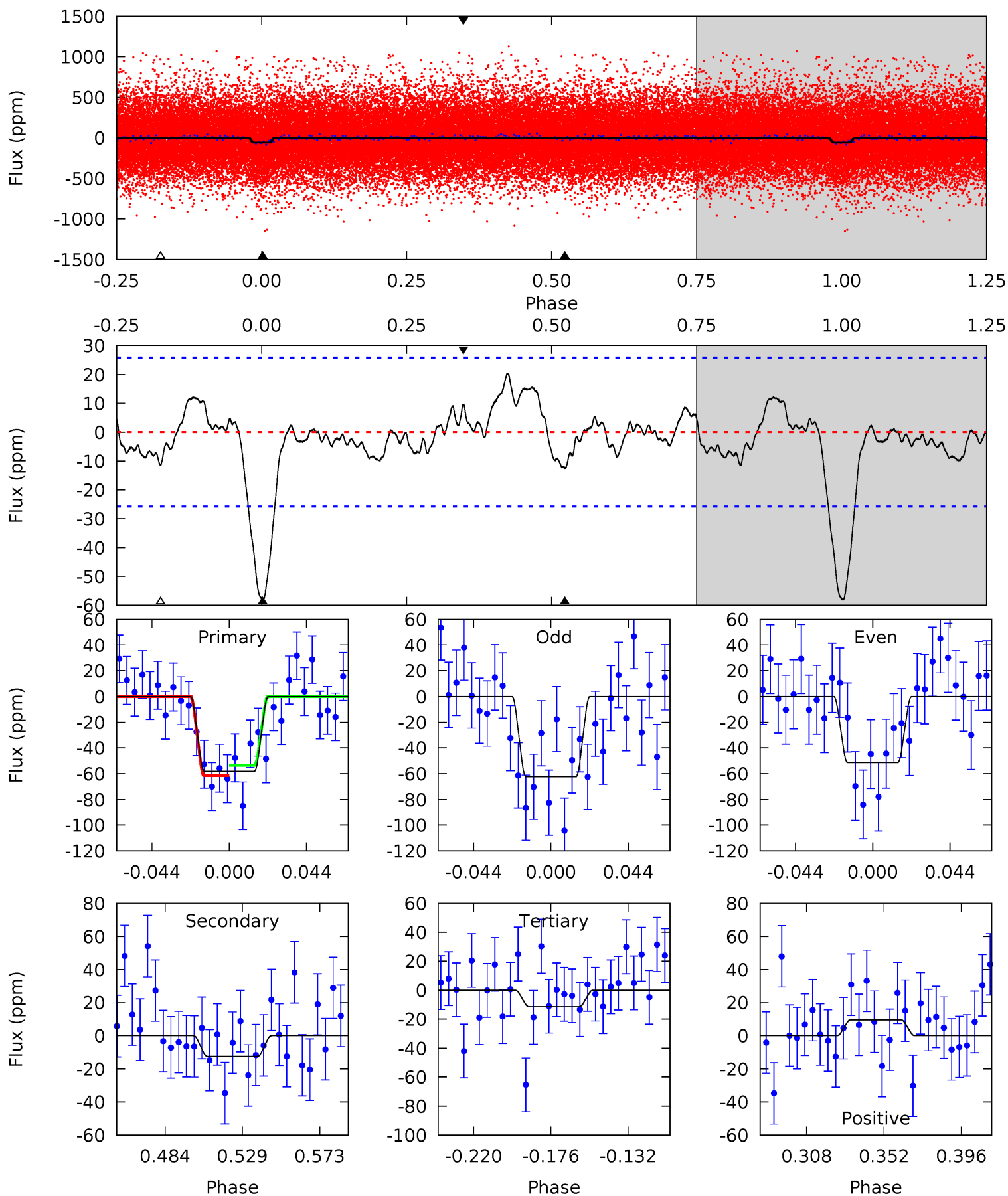
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	3.18	2.36	0.82	4.71	1.96	1.03	7.92	9.46	0.82	2.35	0.92	1.19	0.22	0.93



Alt Model-Shift Uniqueness Test

007620413-02, P = 3.665306 Days, E = 131.497073 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	2.27	2.10	1.76	4.73	2.01	1.20	8.56	8.90	0.18	0.51	1.01	1.24	0.26	0.74



Stellar Parameters For KIC 007620413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5579^{+75}_{-75}	$4.389^{+0.105}_{-0.105}$	$0.140^{+0.150}_{-0.150}$	$1.029^{+0.152}_{-0.114}$	$0.945^{+0.066}_{-0.048}$	$1.223^{+0.486}_{-0.381}$
	+1%/-1%	+2%/-2%	+107%/-107%	+15%/-11%	+7%/-5%	+40%/-31%
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 007620413-02 / KOI 2103.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 5	$1.03^{+0.64}_{-0.58}$	1628^{+65}_{-53}	4024^{+1529}_{-698}	19^{+70}_{-13}
Alt.	-12 ± 5	$0.95^{+0.67}_{-0.55}$	1629^{+70}_{-57}	3890^{+1631}_{-748}	15^{+67}_{-11}

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 $A_{obs} \gg 1.0$

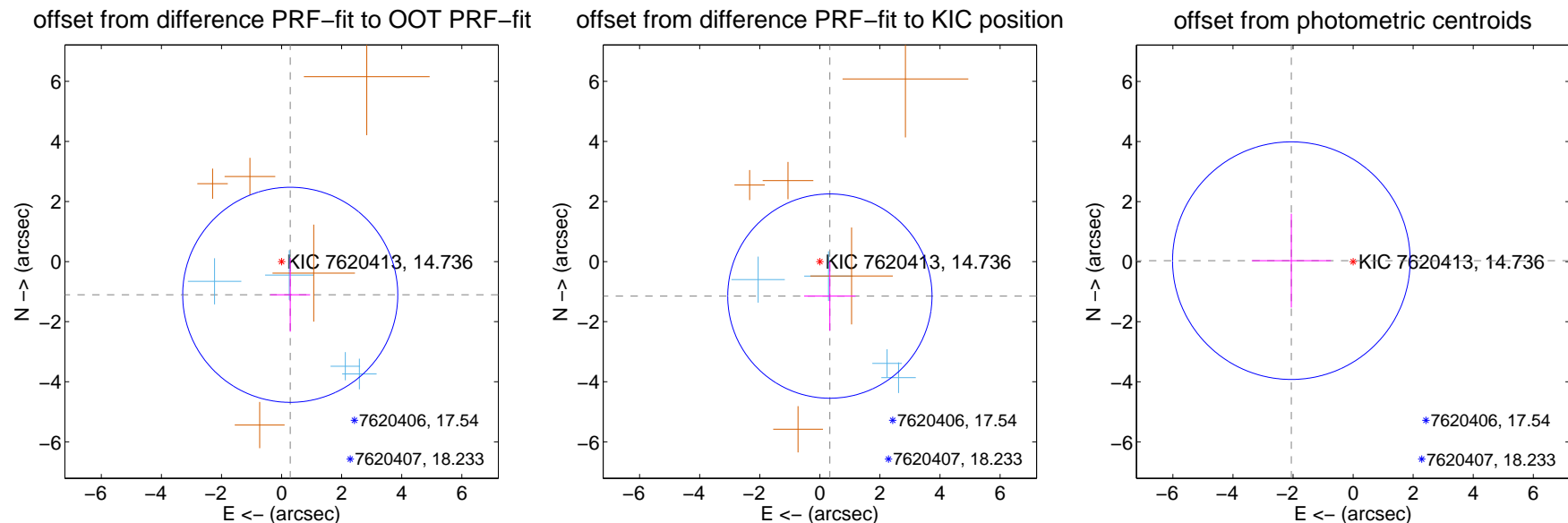
DV Centroid Data

Supplemental centroid analysis for 007620413-02. Kepler magnitude: 14.74. Transit SNR 8.68

There are 4 quarters with good PRF difference image offsets

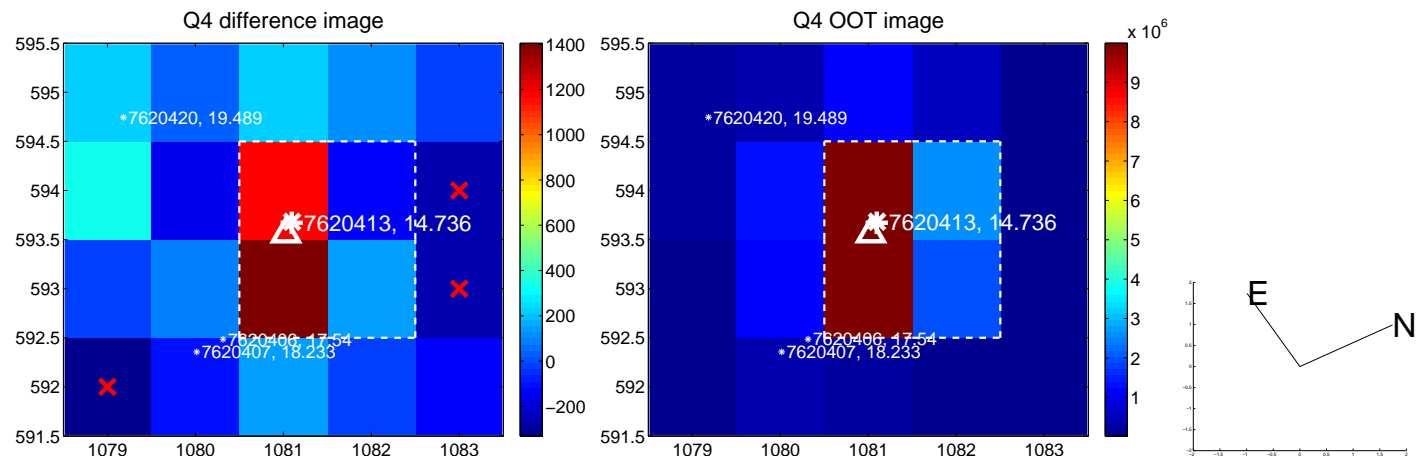
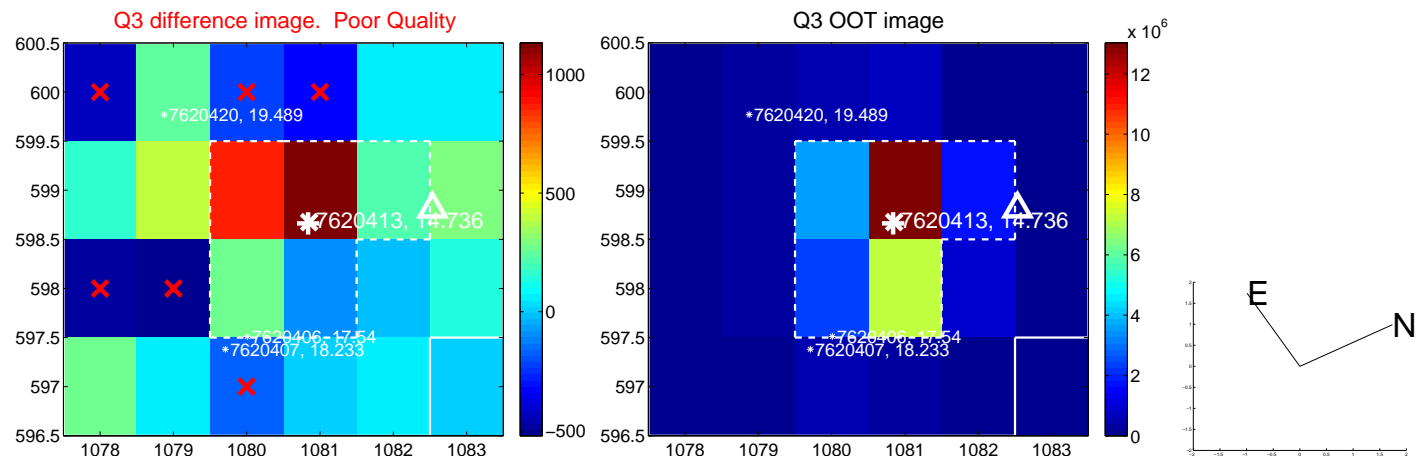
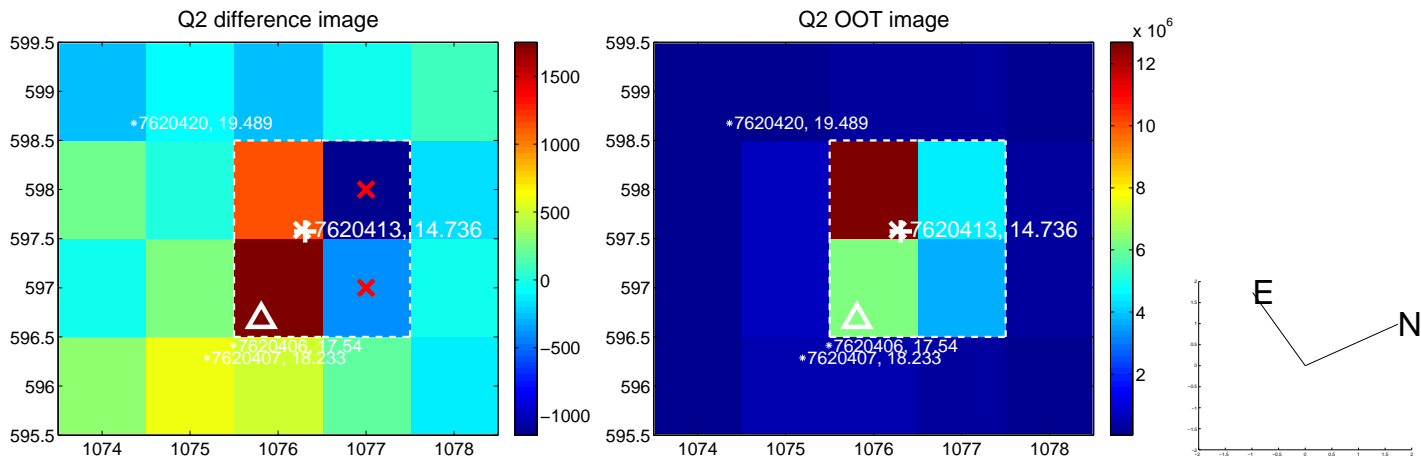
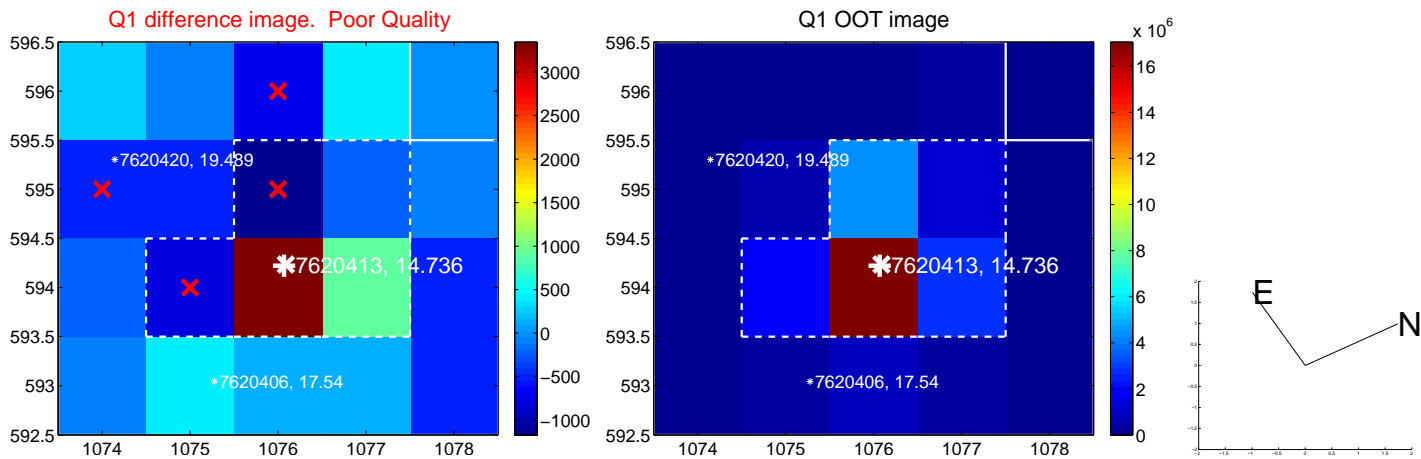
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.143 ± 1.193	0.96	-0.289 ± 0.663	-1.106 ± 1.226
PRF-fit source offset from KIC position	1.196 ± 1.133	1.06	-0.334 ± 0.857	-1.148 ± 1.154
photometric centroid source offset	2.06 ± 1.32	1.56	2.06 ± 1.32	0.03 ± 1.56

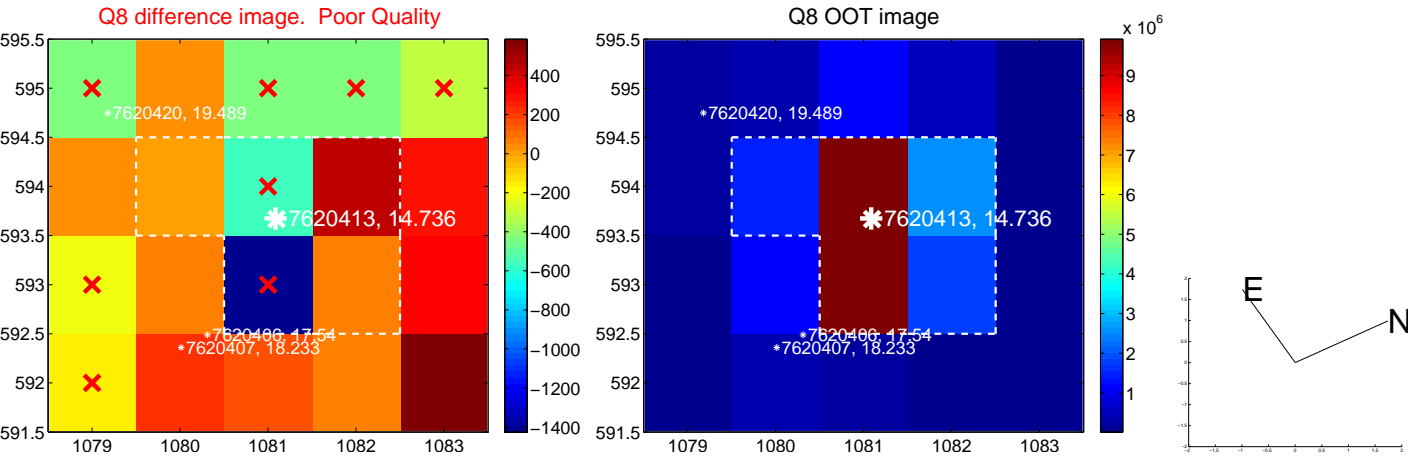
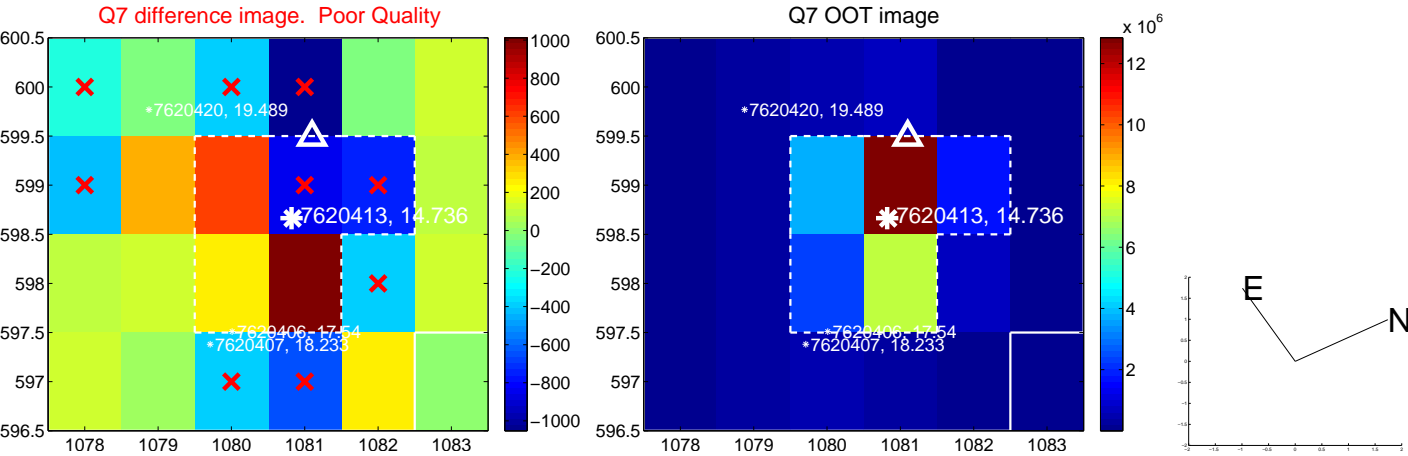
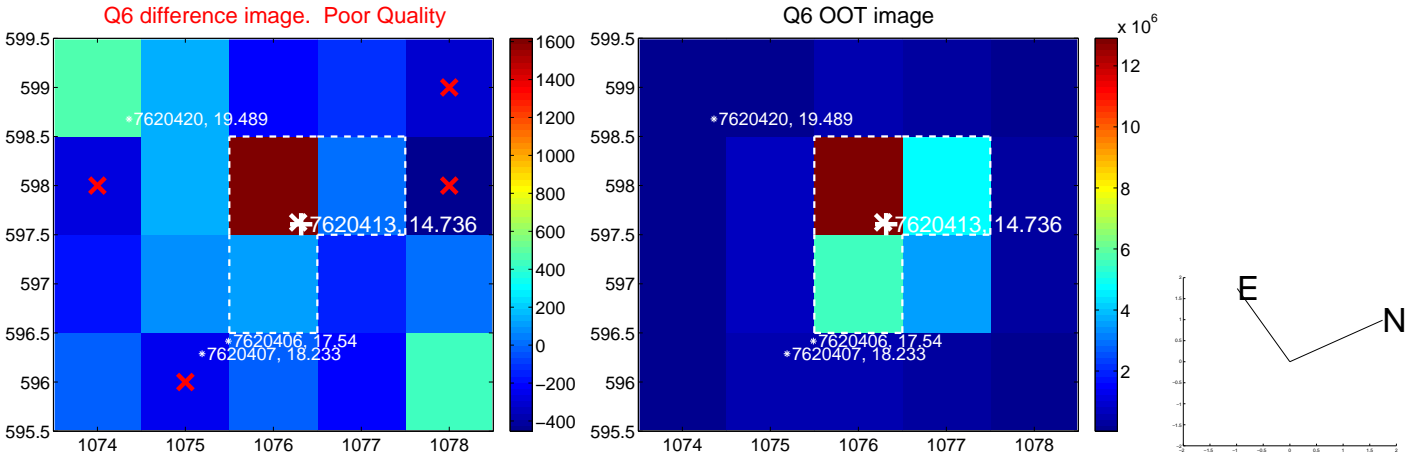
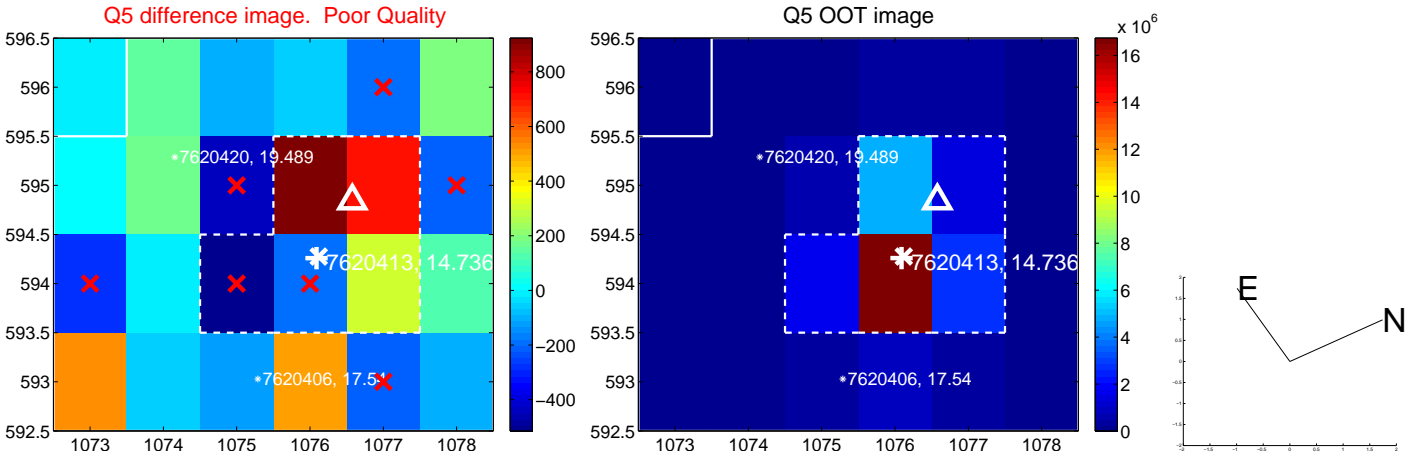


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

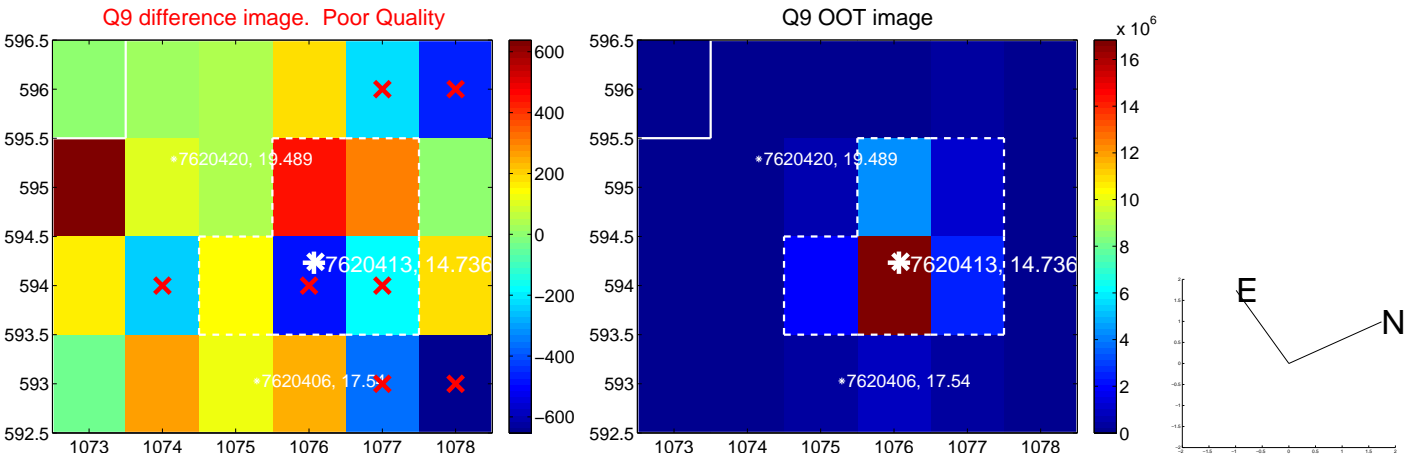
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



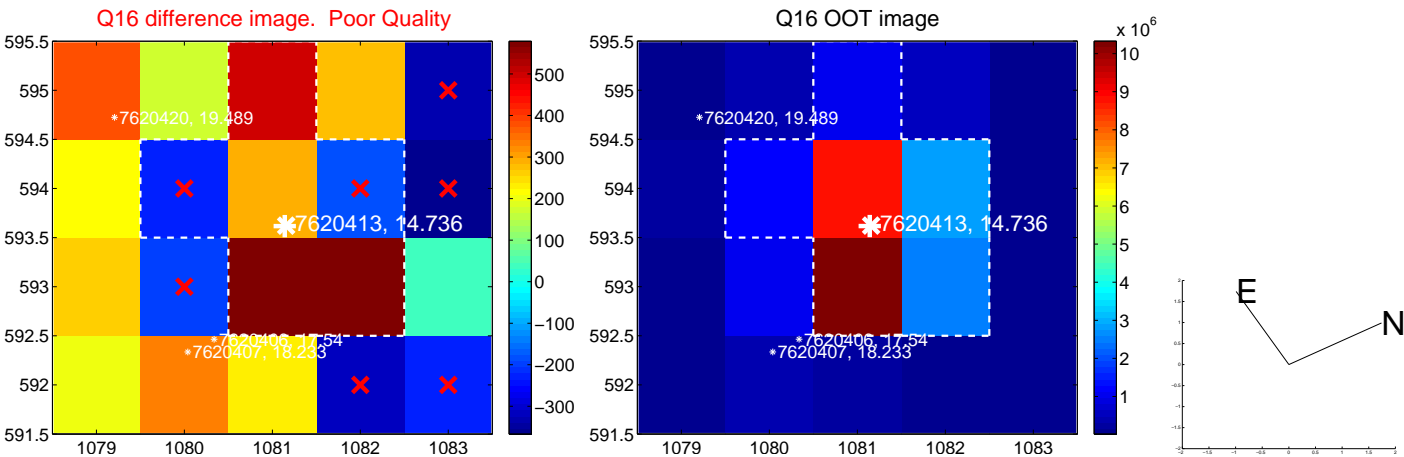
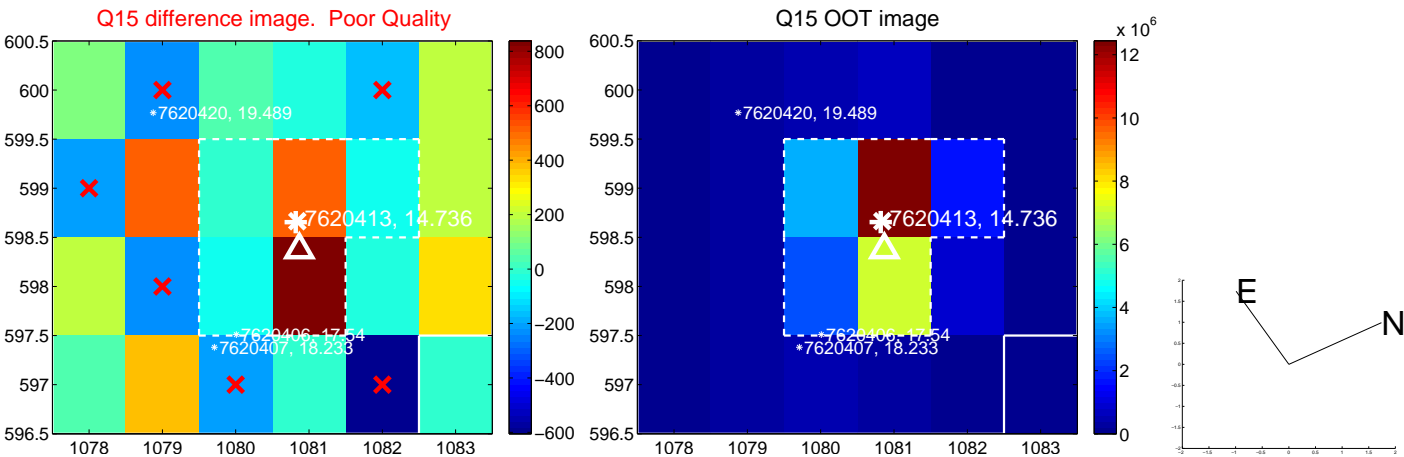
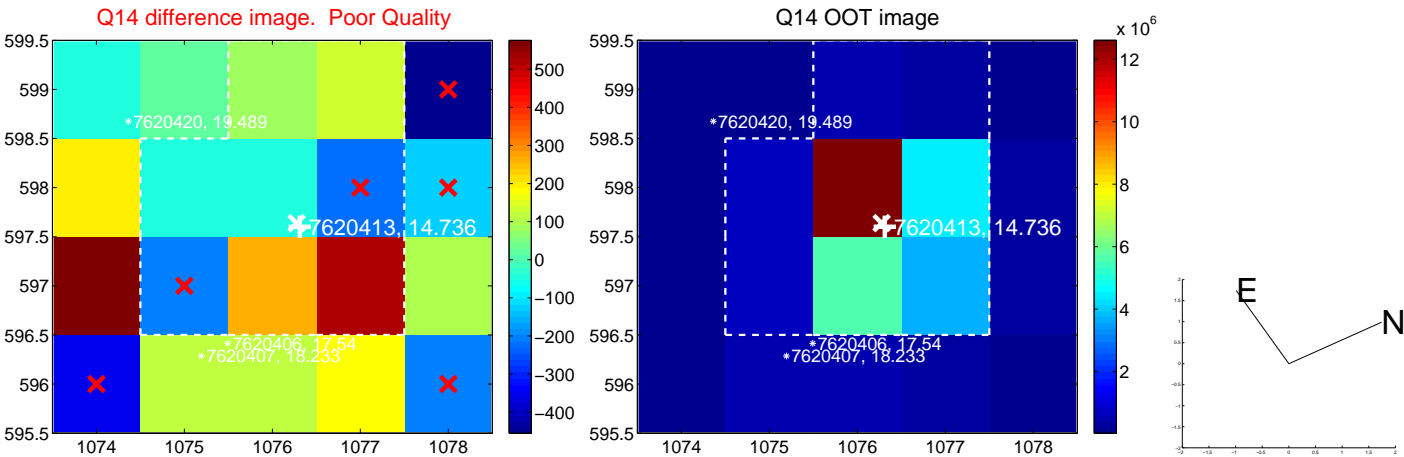
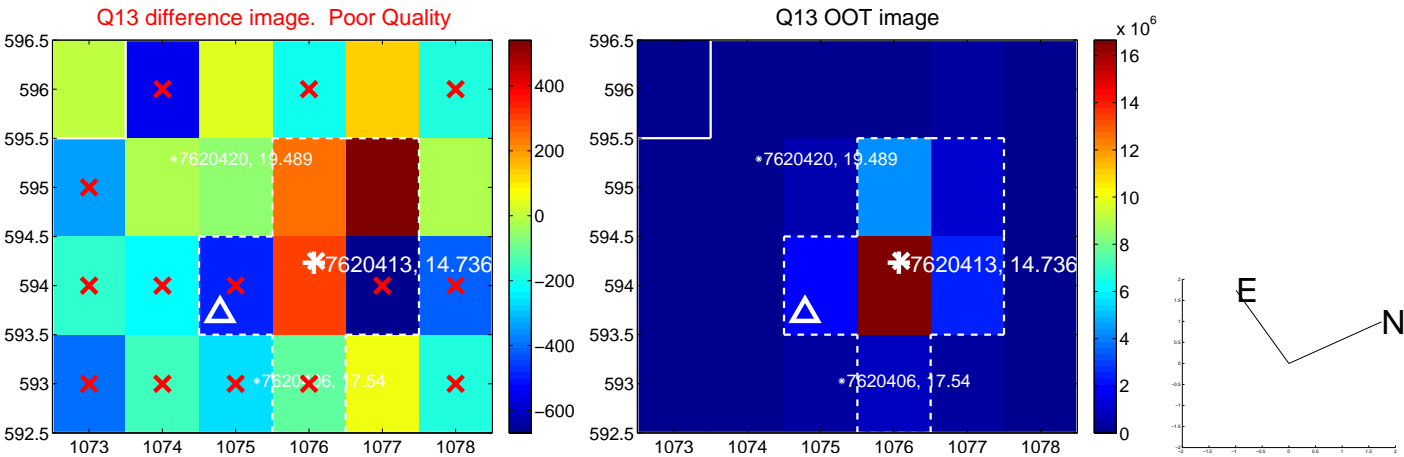
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



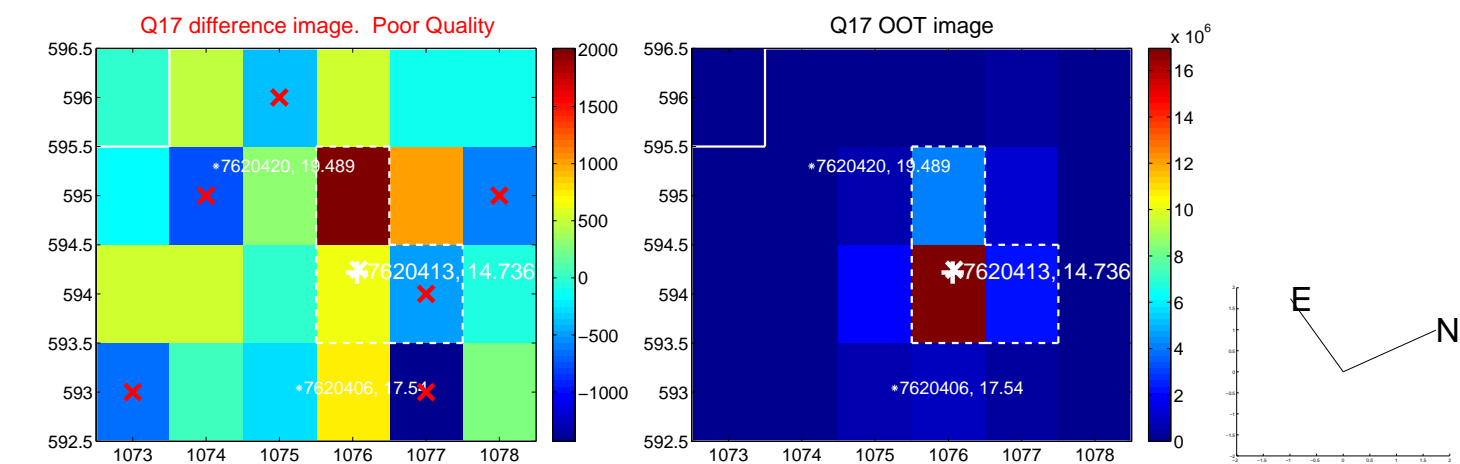
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



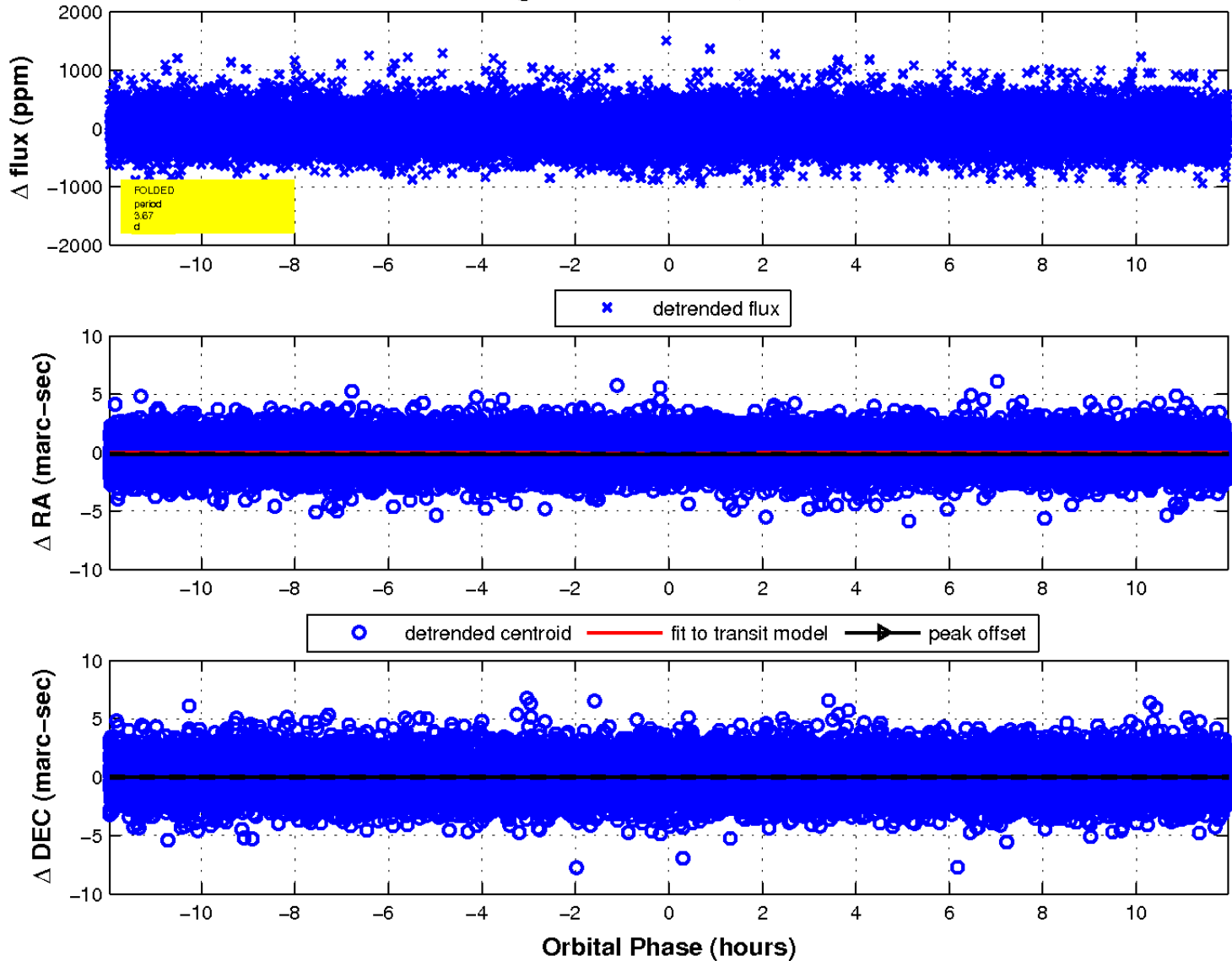
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

