

KIC 005563024

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})
005563024-01	OBS	No	1.978337	131.565019	59.3	8.082	13.6	13.1	2.39	6605	2.17	8040.45
005563024-02	OBS	No	1.978483	132.794812	43.3	7.140	8.8	10.2	2.39	6605	1.58	8039.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005563024-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005563024-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

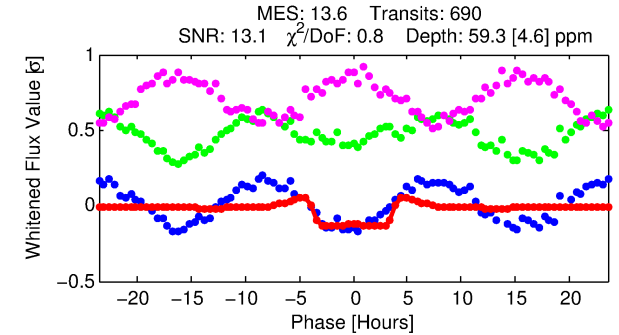
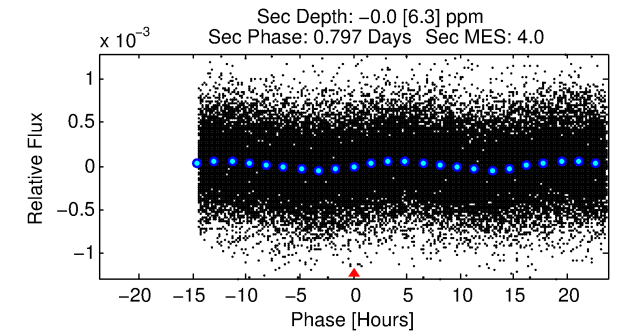
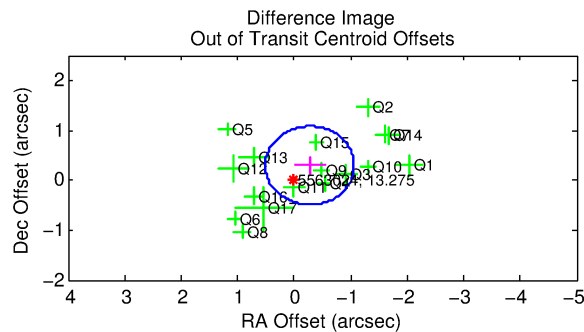
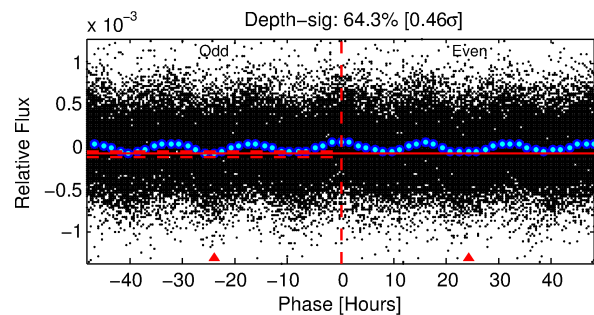
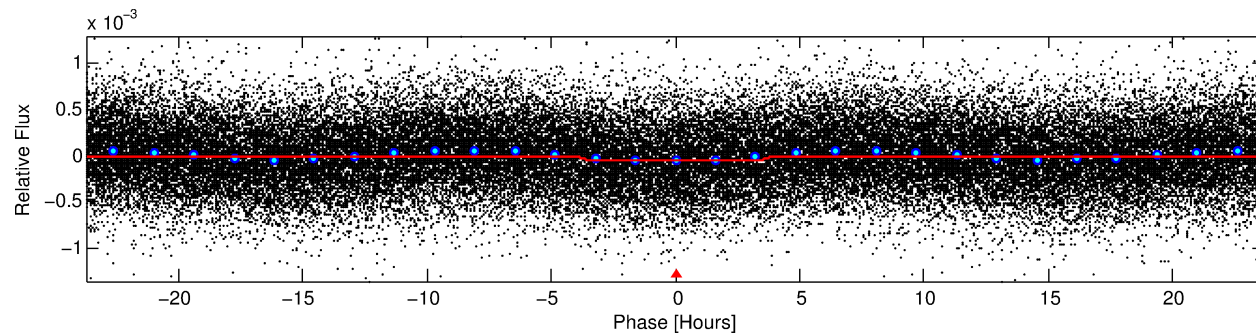
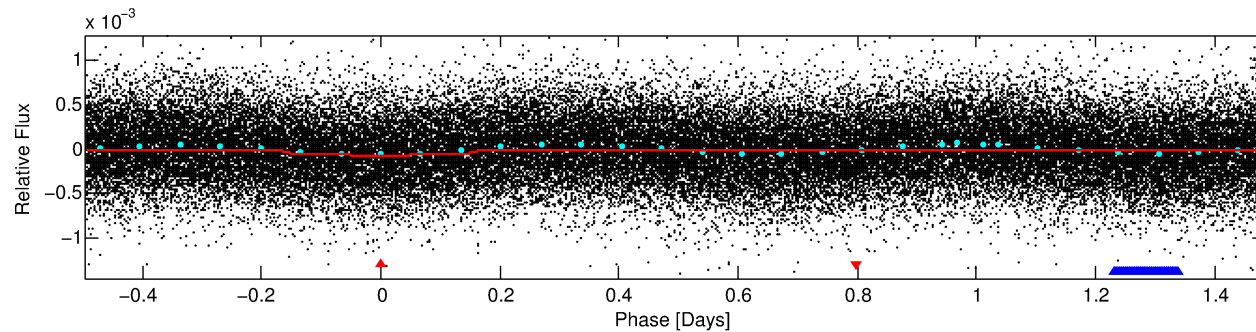
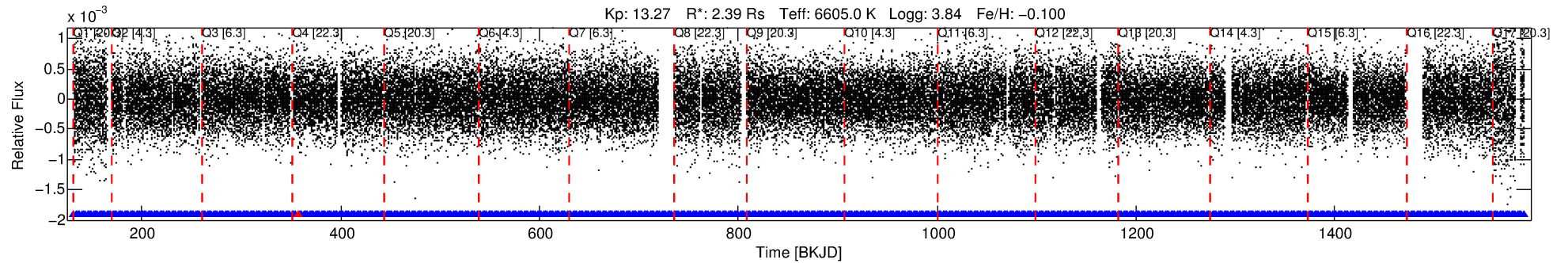
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005563024-01

No Significant Match Found

DV One-Page Summary

KIC: 5563024 Candidate: 1 of 2 Period: 1.978 d



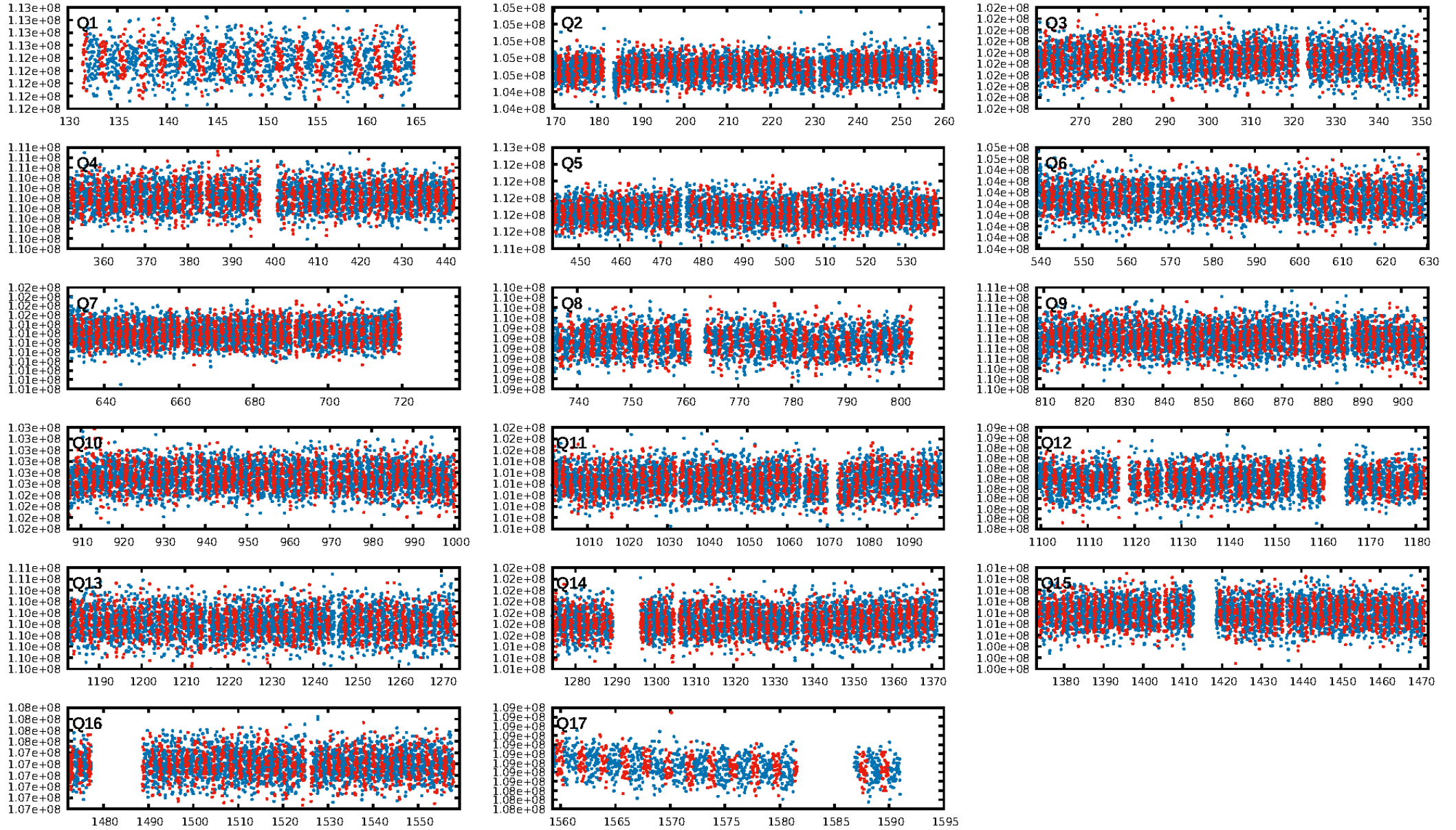
DV Fit Results:

Period = 1.97834 [0.00002] d
Epoch = 131.5650 [0.0050] BKJD
Rp/R* = 0.0083 [0.0014]
a/R* = 1.25 [0.44]
b = 0.91 [0.19]
Seff = 8040.45 [5897.46]
Teq = 2415 [443] K
Rp = 2.17 [0.97] Re
a = 0.0348 [0.0150] AU
Ag = N/A
Teffp = N/A

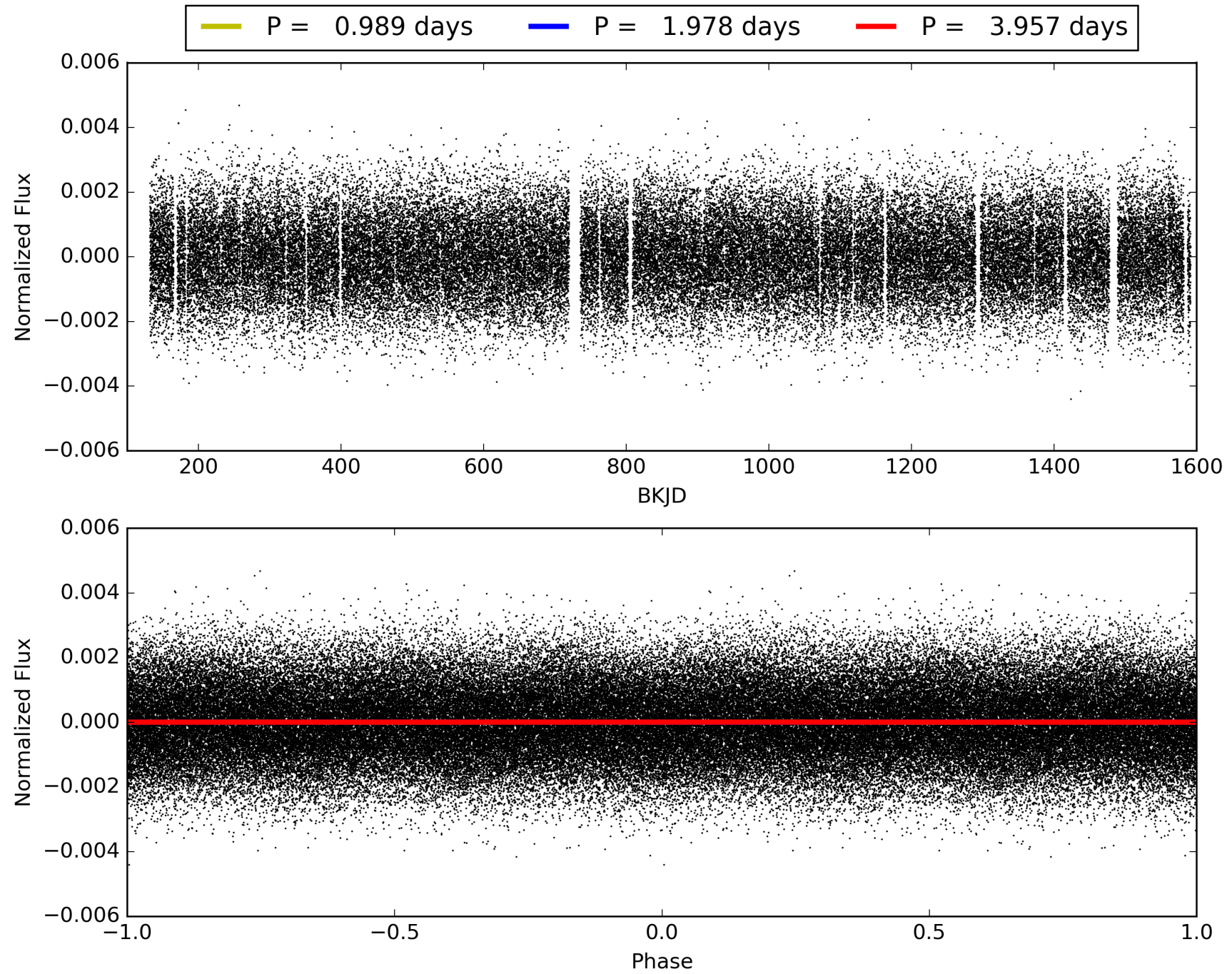
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.66e-25
RollingBand-fgt: 1.00 [658/659]
GhostDiagnostic-chr: 4.787
Centroid-sig: 0.0%
Centroid-so: 1.144 arcsec [2.44 σ]
OotOffset-rm: 0.401 arcsec [1.53 σ]
KicOffset-rm: 0.474 arcsec [1.76 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 005563024-01, PDC Light Curves

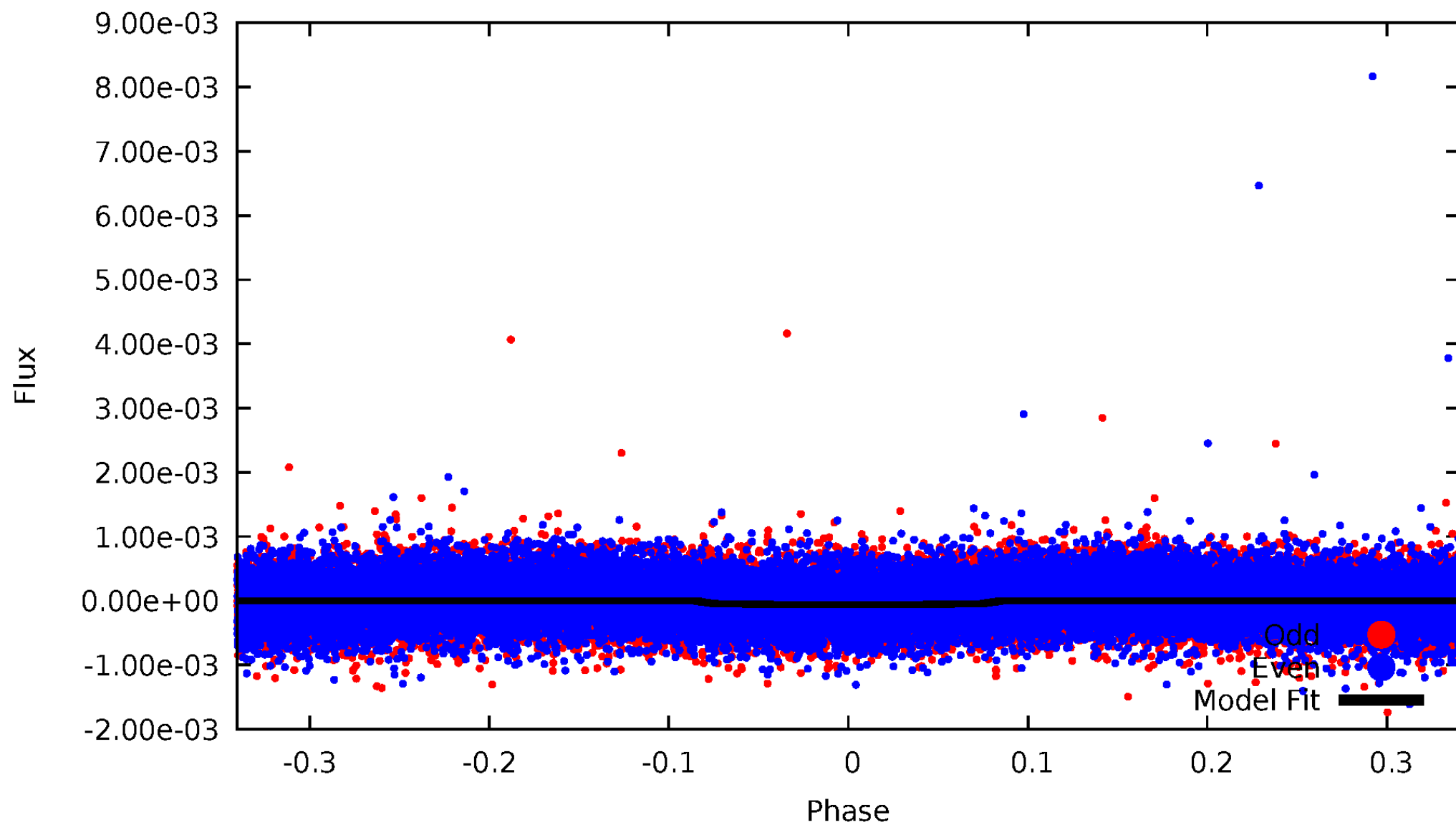


TCE 005563024-01



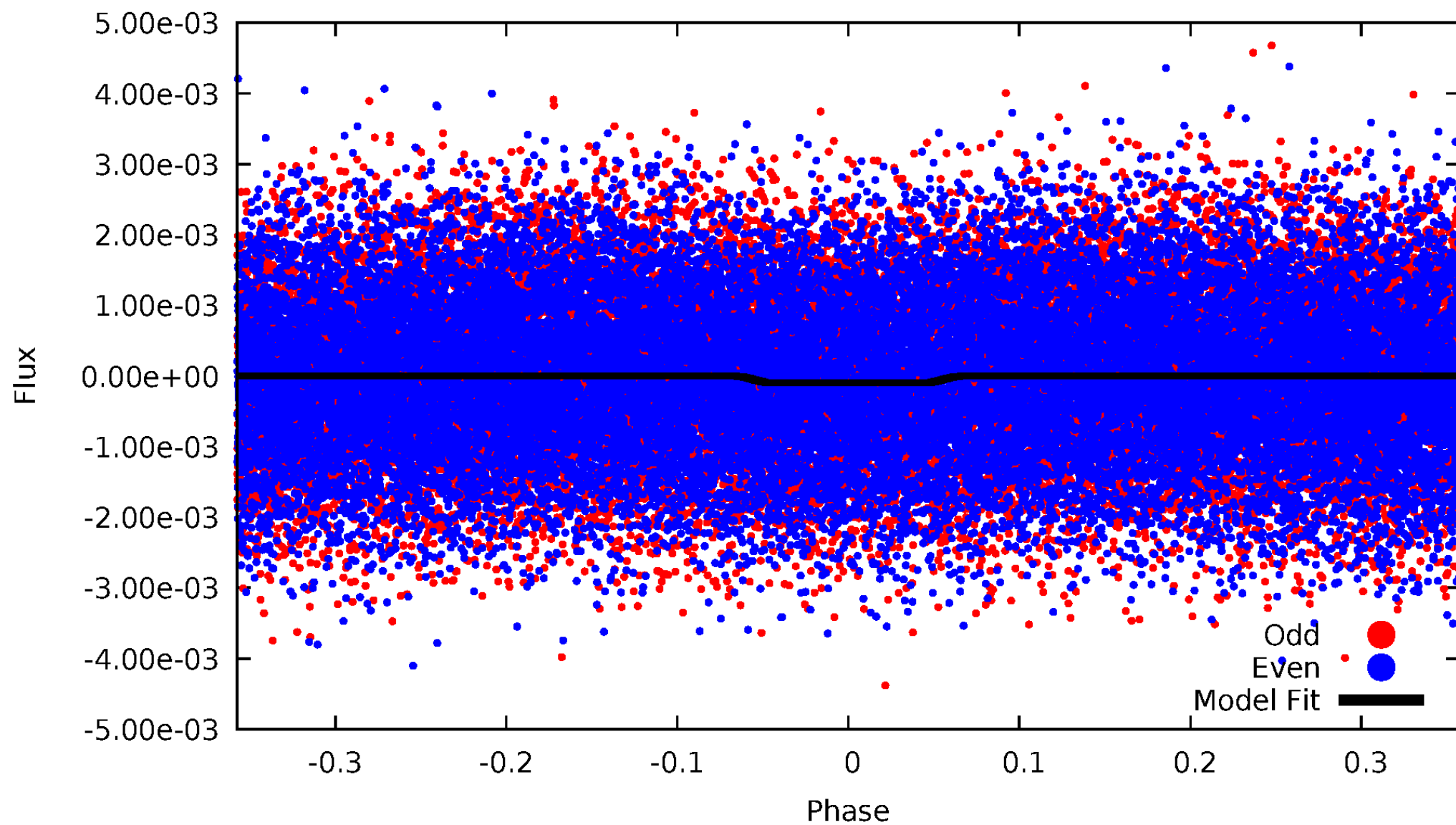
DV Odd/Even

TCE 005563024-01

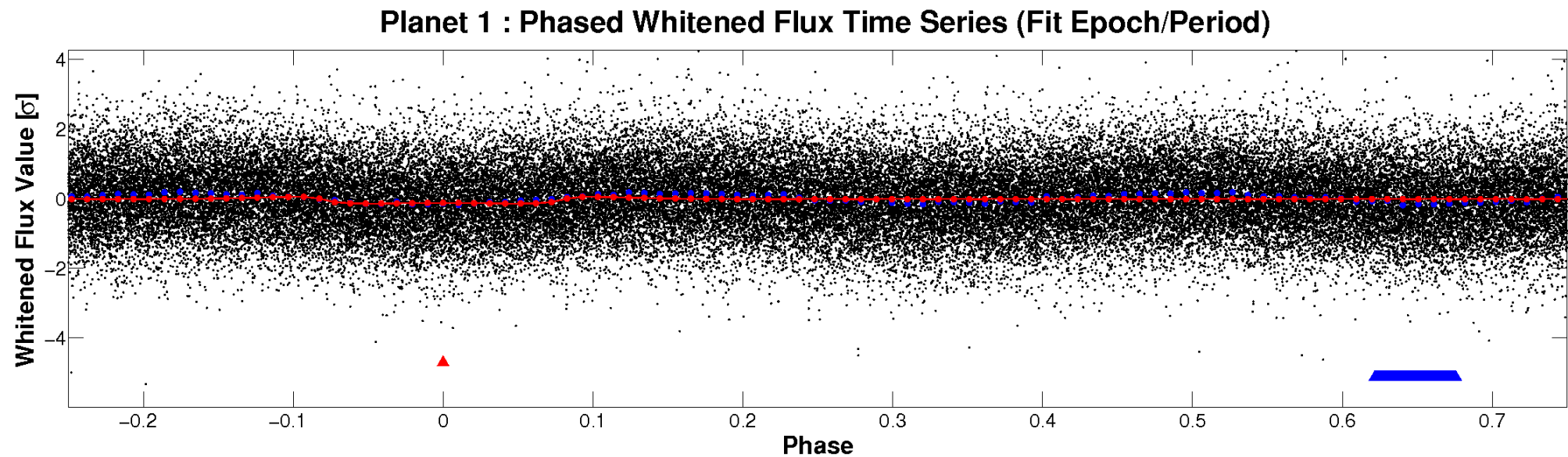
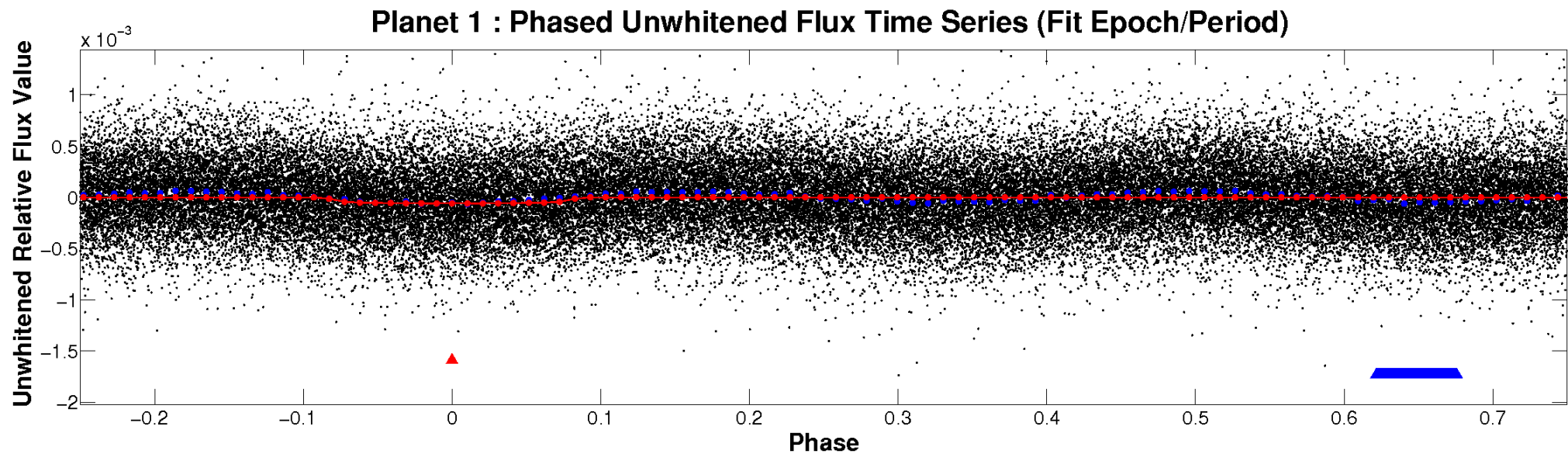


ALT Odd/Even

TCE 005563024-01

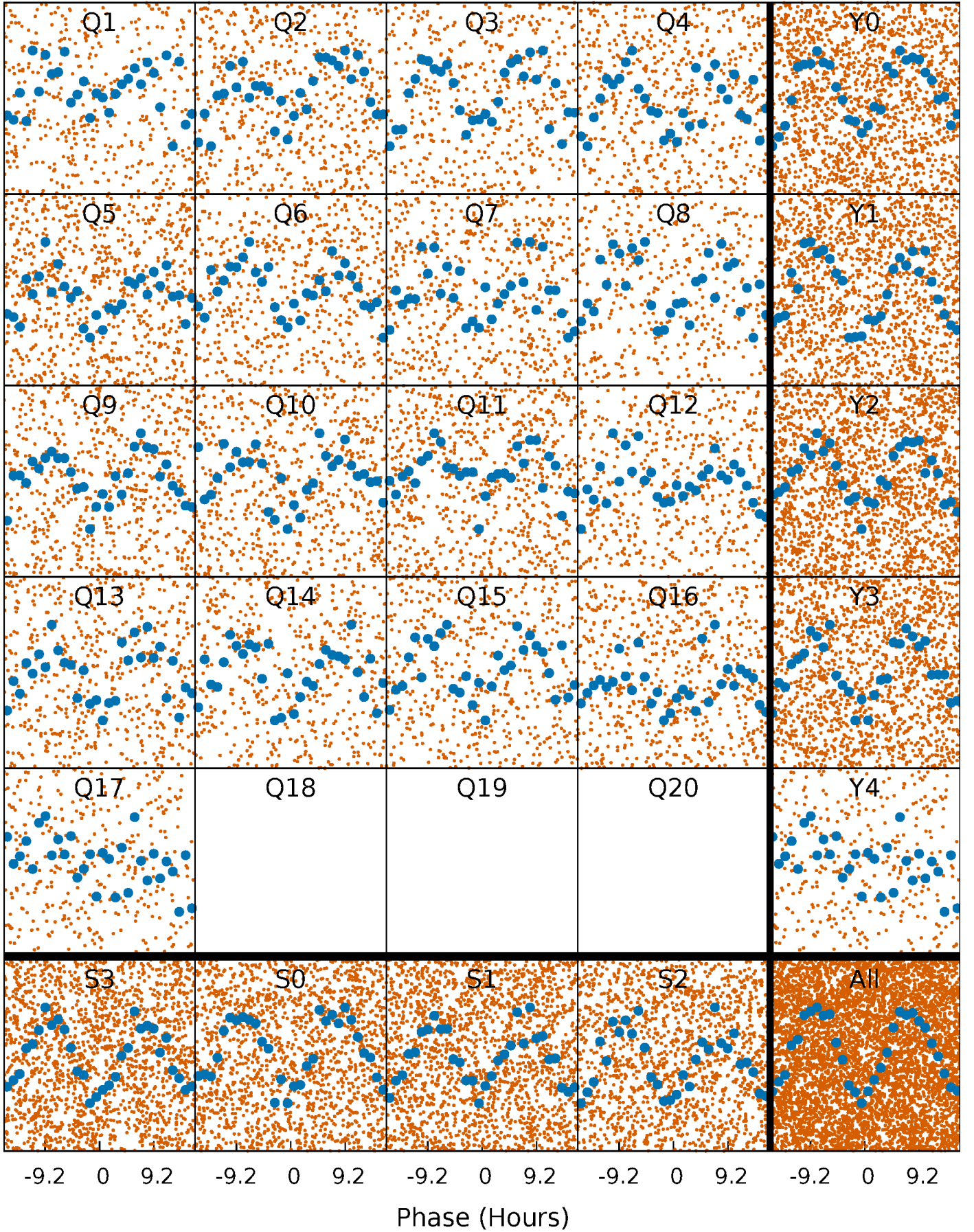


Non-Whitened Vs. Whitened Light Curve



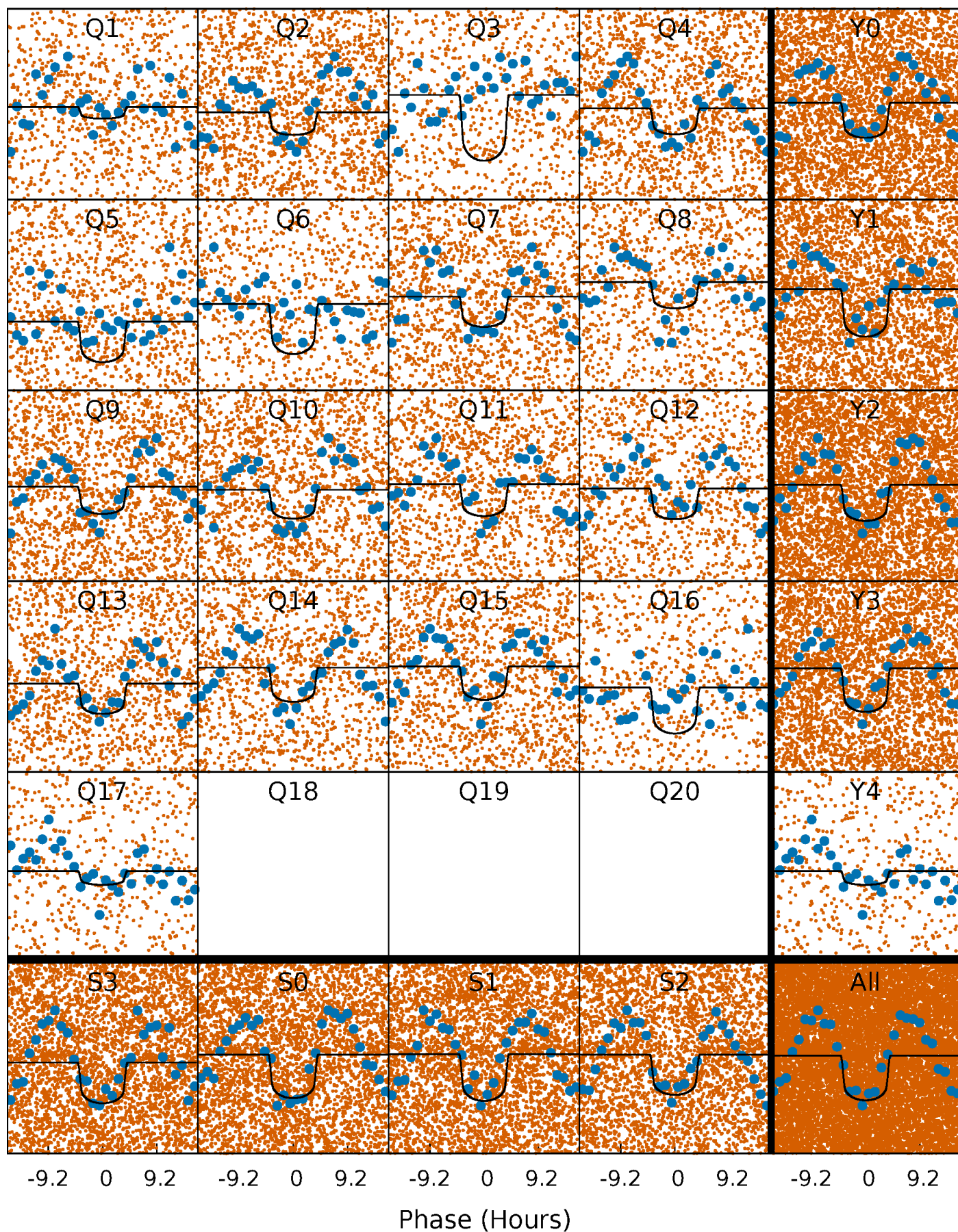
PDC Quarter-Phased Transit Curves

TCE 005563024-01 P= 1.978337 Days $T_0=131.565019$ (BKJD)



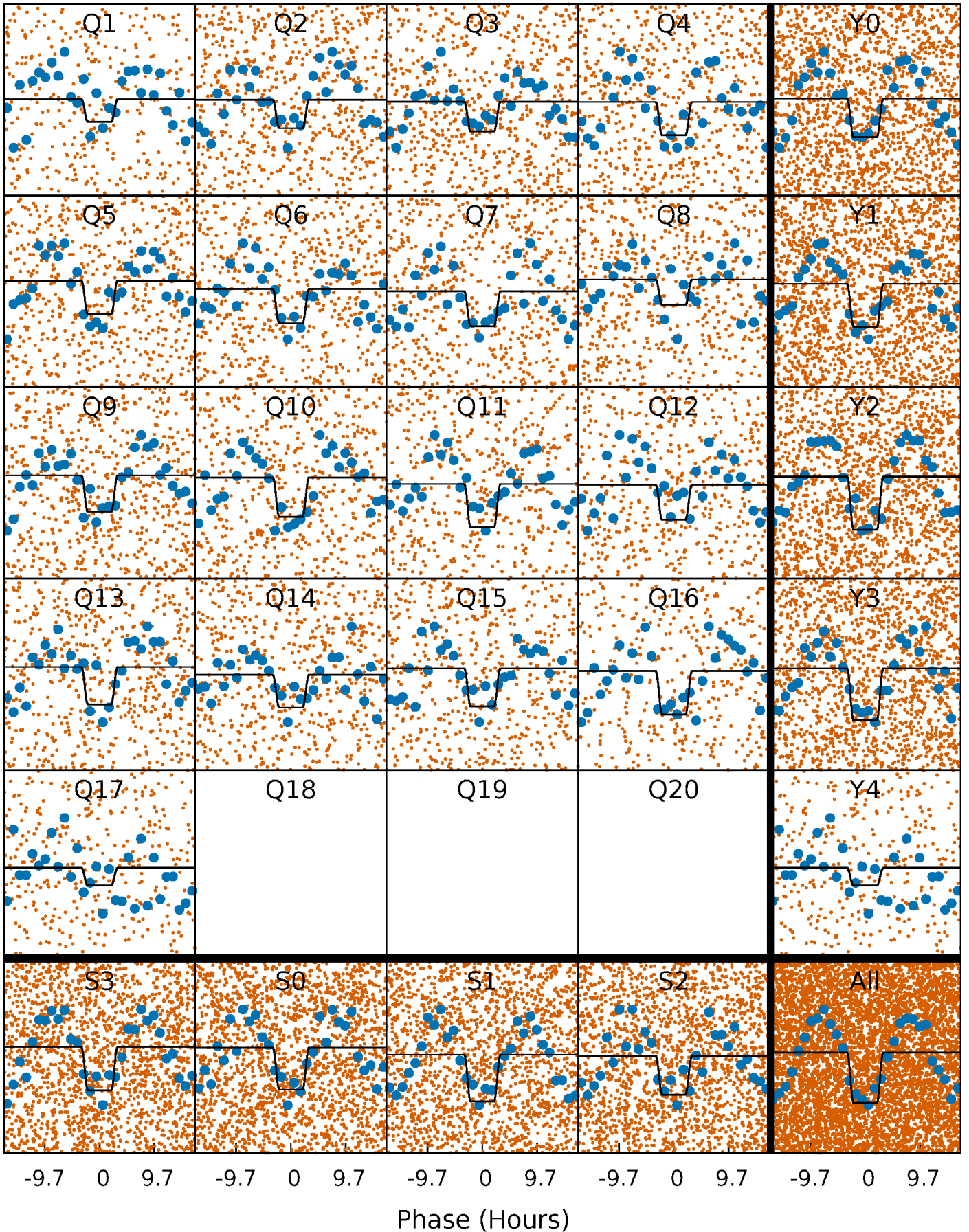
DV Quarter-Phased Transit Curves

TCE 005563024-01 P= 1.978337 Days $T_0=131.565019$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

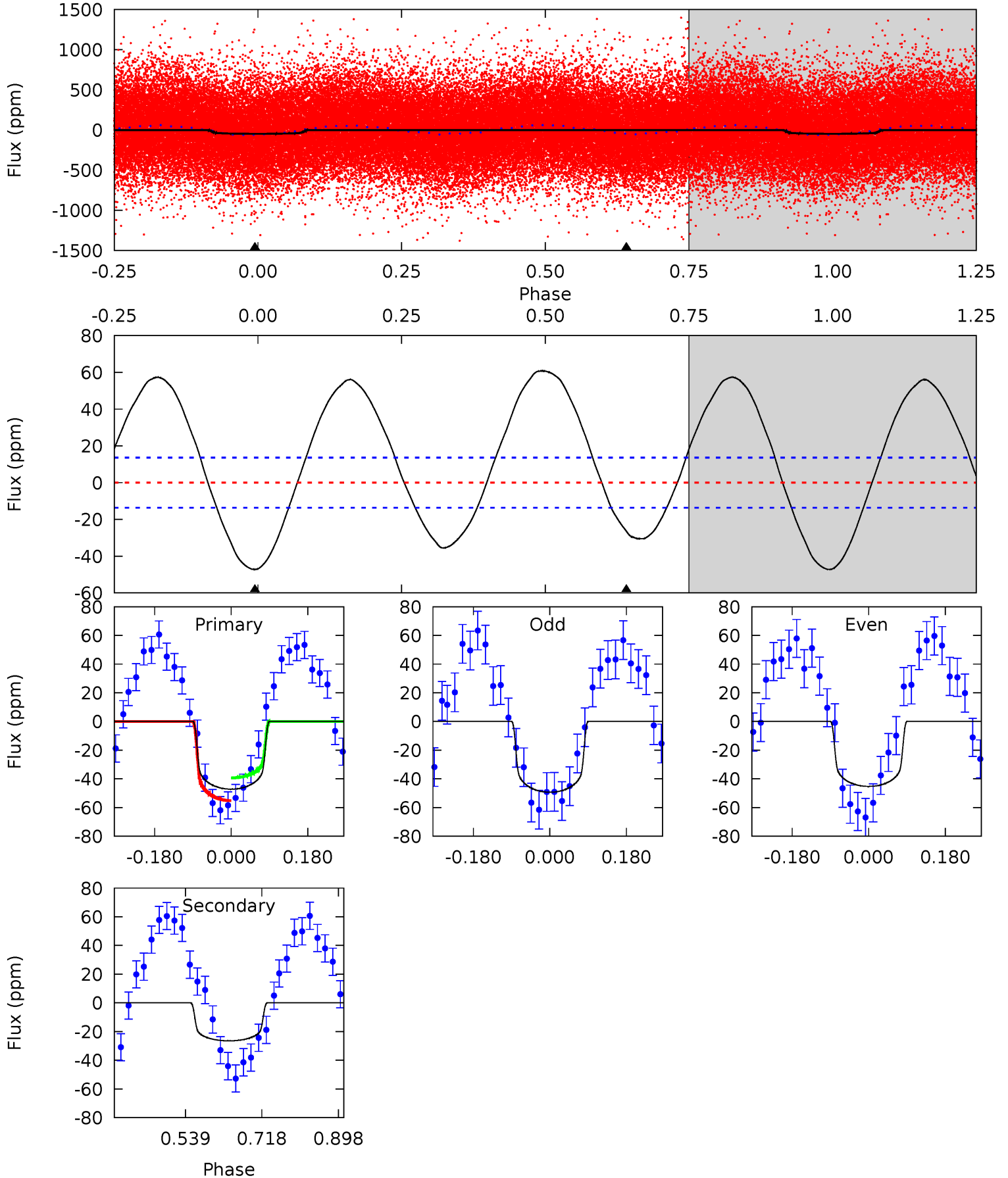
TCE 005563024-01 P= 1.978276 Days $T_0=131.569528$ (BKJD)



DV Model-Shift Uniqueness Test

005563024-01, P = 1.978337 Days, E = 129.586682 Days

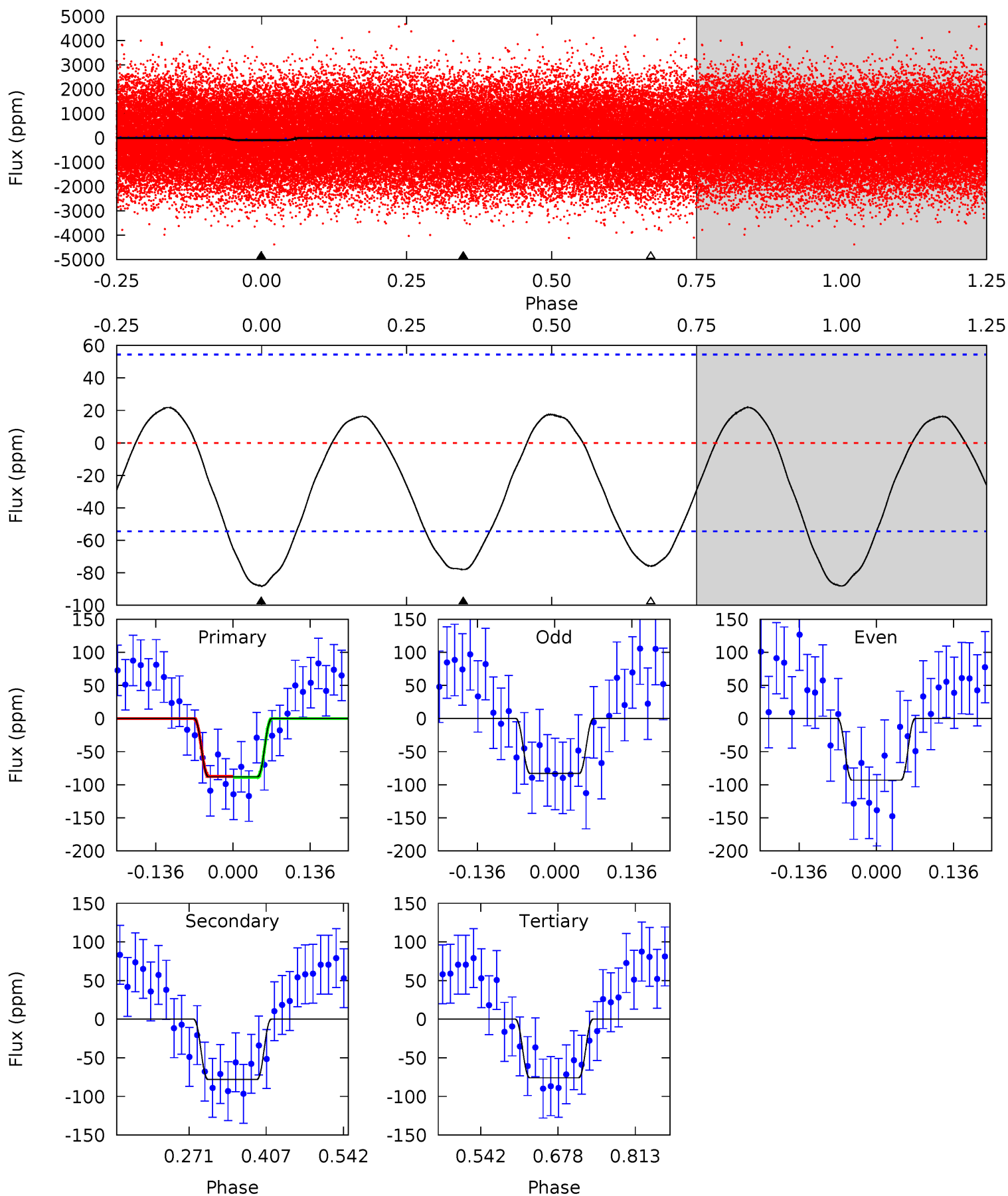
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	8.61	0	0	4.44	1.34	9.38	15.4	15.4	8.61	8.61	0.66	1.19	0.56	2.60



Alt Model-Shift Uniqueness Test

005563024-01, P = 1.978276 Days, E = 129.591252 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.29	6.45	6.27	0	4.50	1.49	2.84	1.01	7.29	0.18	6.45	0.41	0.95	0.20	0.06



Stellar Parameters For KIC 005563024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6605^{+182}_{-250}	$3.839^{+0.432}_{-0.108}$	$-0.100^{+0.250}_{-0.300}$	$2.393^{+0.574}_{-0.985}$	$1.445^{+0.220}_{-0.330}$	$0.148^{+0.521}_{-0.057}$
	+3%/-4%	+11%/-3%	+250%/-300%	+24%/-41%	+15%/-23%	+351%/-38%
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 005563024-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-26 ± 3	$1.98^{+0.52}_{-0.50}$	3255^{+252}_{-356}	5163^{+500}_{-392}	$4.451^{+3.648}_{-1.587}$
Alt.	-78 ± 12	$2.39^{+0.58}_{-0.64}$	3253^{+256}_{-402}	6161^{+579}_{-515}	$9.275^{+7.700}_{-3.325}$

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

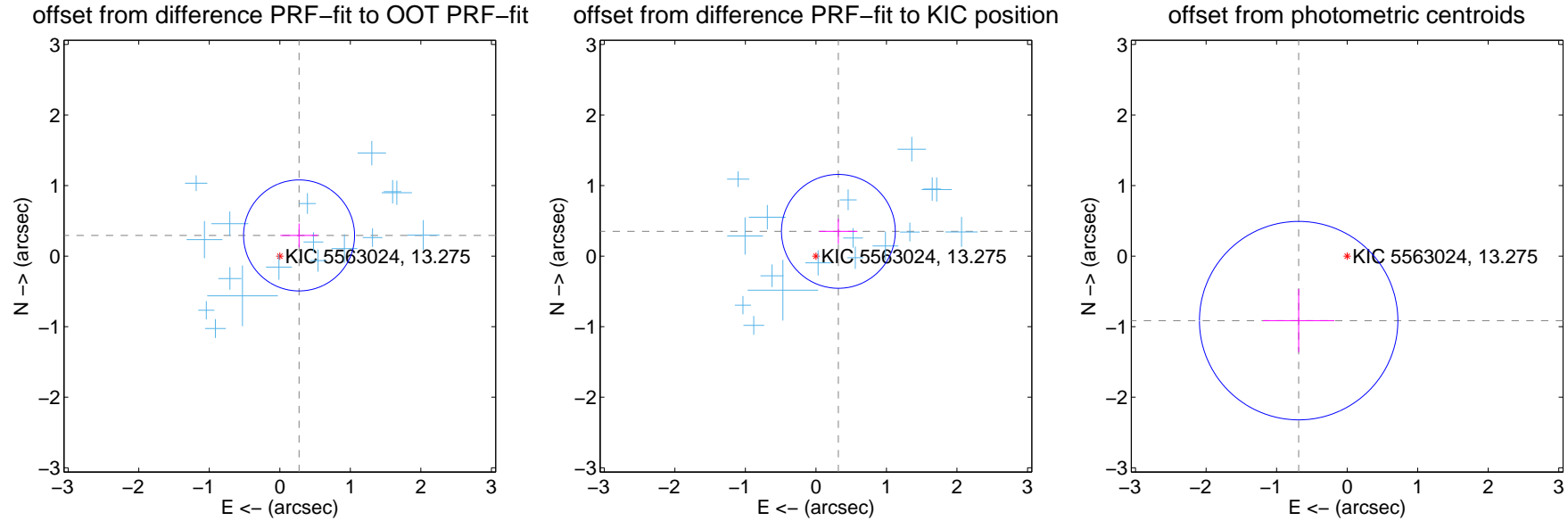
DV Centroid Data

Supplemental centroid analysis for 005563024-01. Kepler magnitude: 13.28. Transit SNR 13.06

There are 17 quarters with good PRF difference image offsets

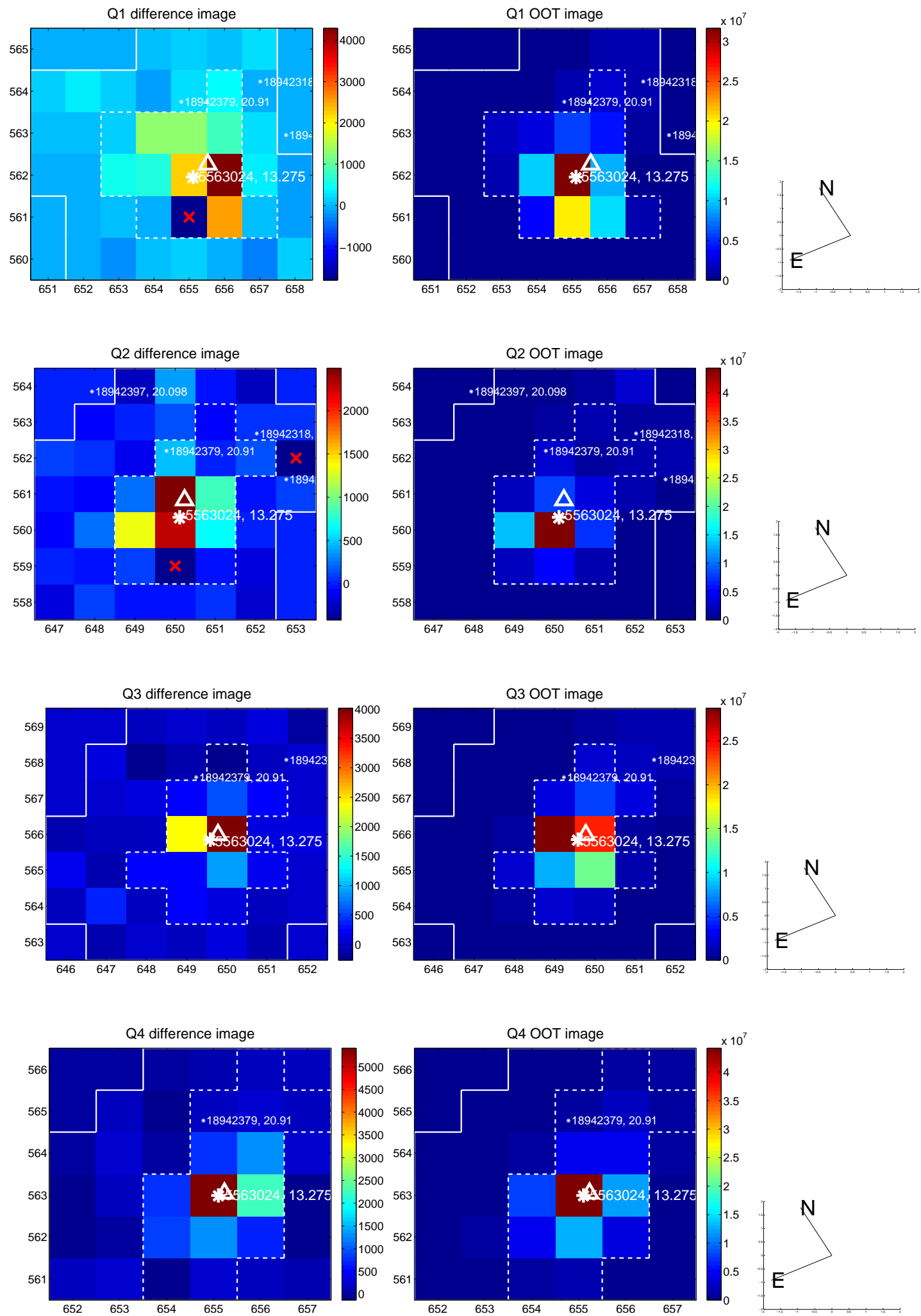
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.401 ± 0.262	1.53	-0.273 ± 0.266	0.293 ± 0.170
PRF-fit source offset from KIC position	0.474 ± 0.269	1.76	-0.318 ± 0.270	0.351 ± 0.176
photometric centroid source offset	1.14 ± 0.47	2.44	0.69 ± 0.51	-0.91 ± 0.45

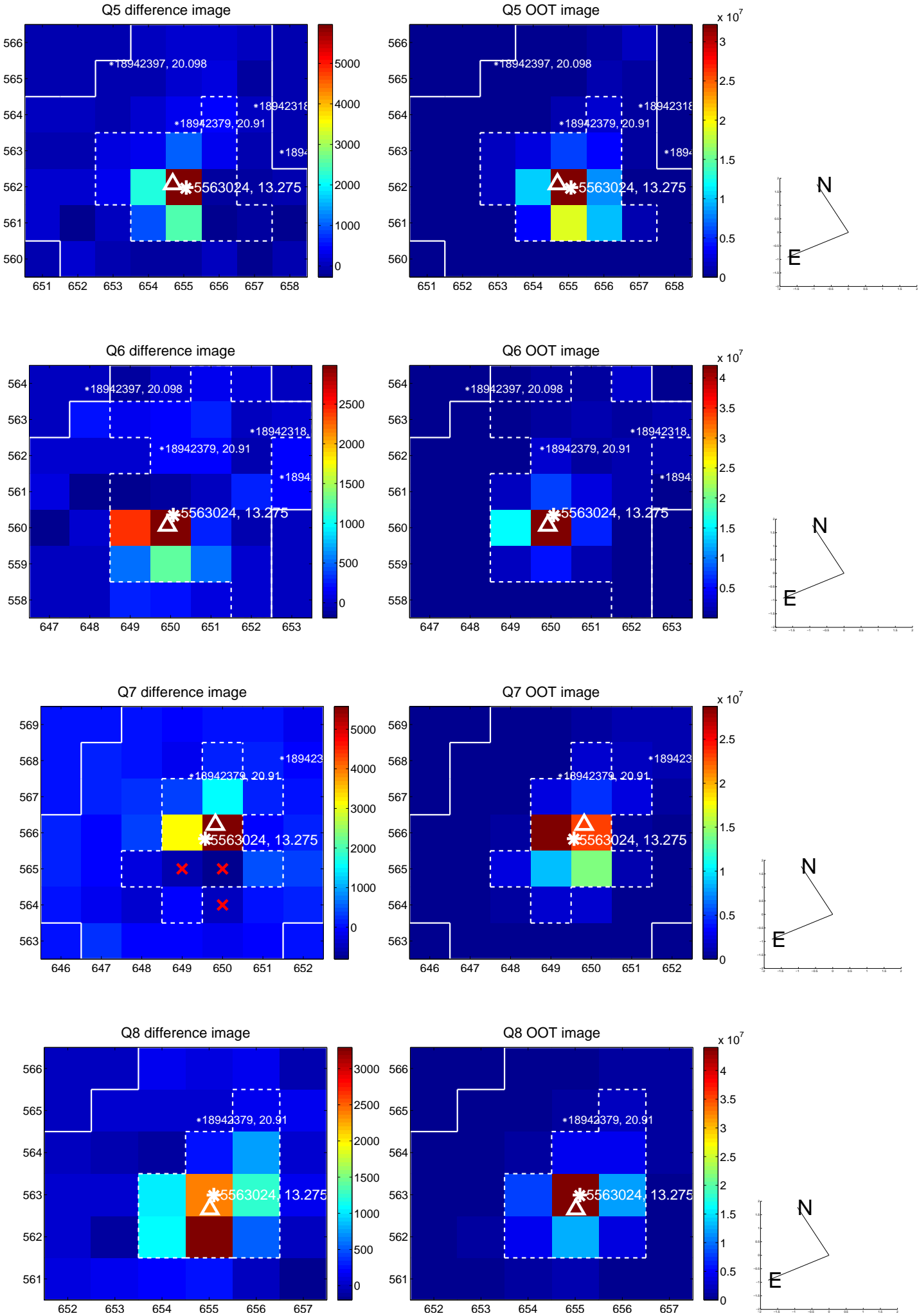


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

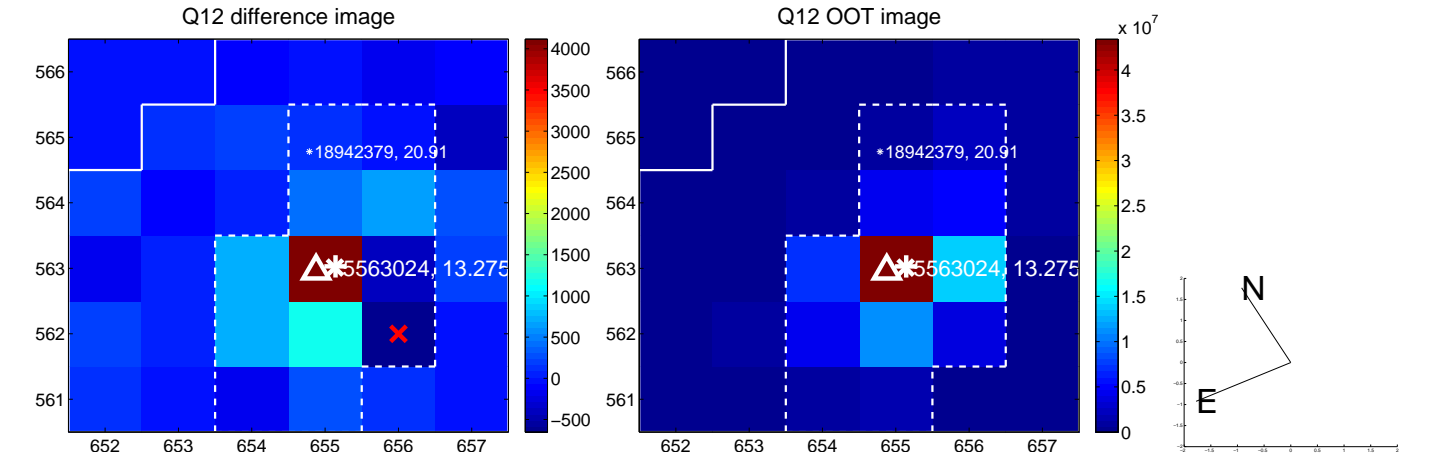
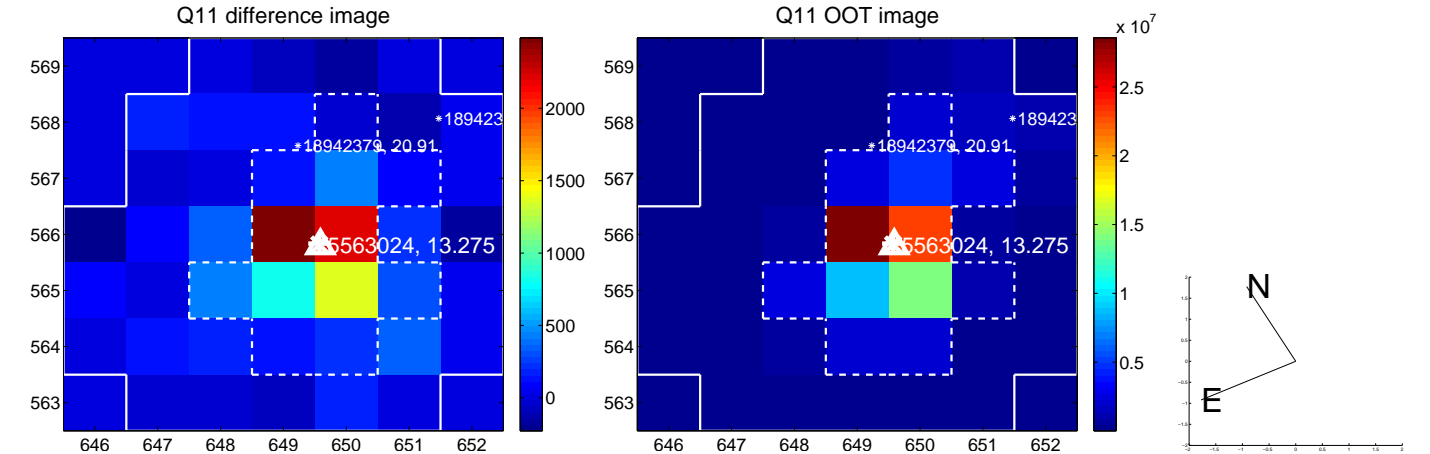
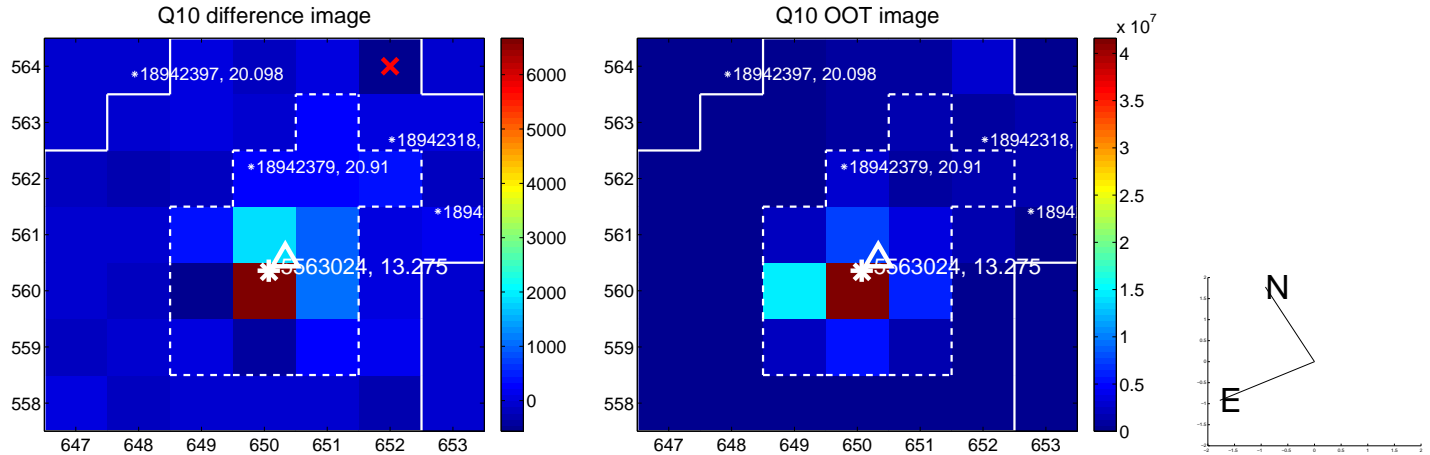
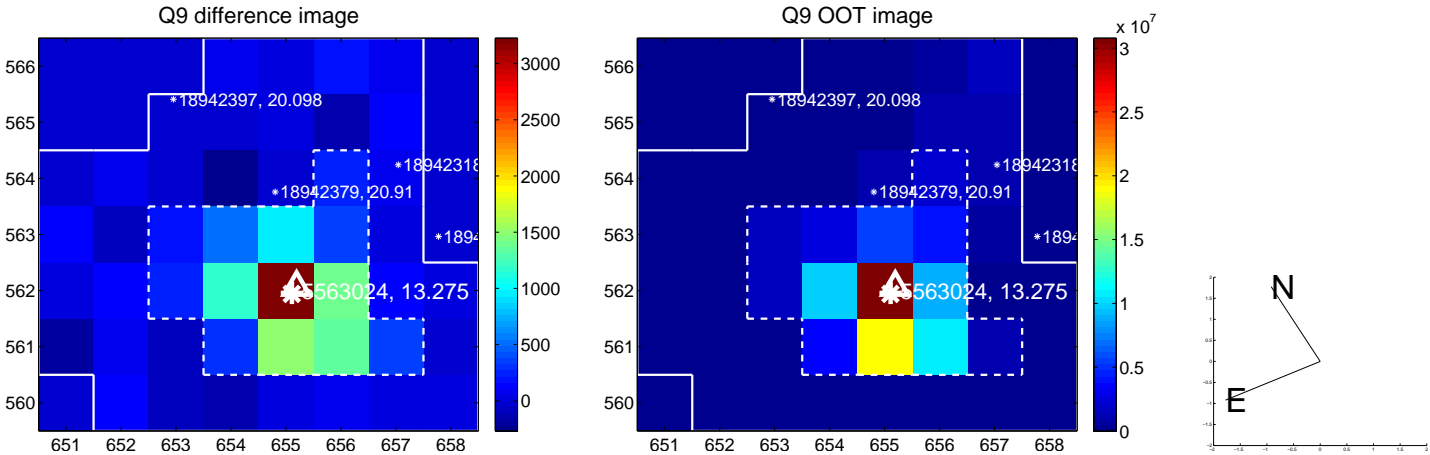
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



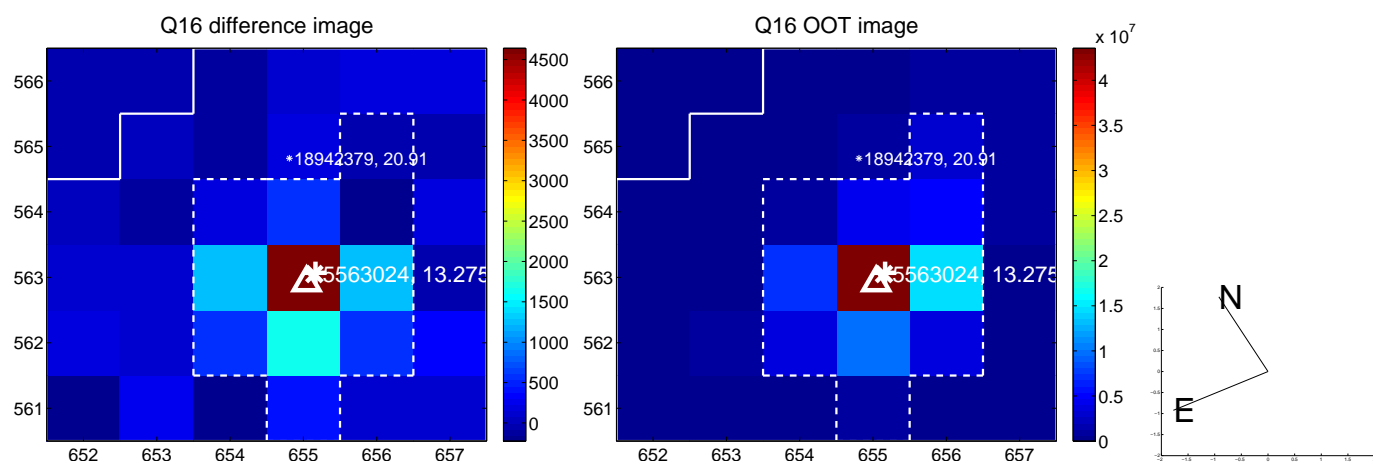
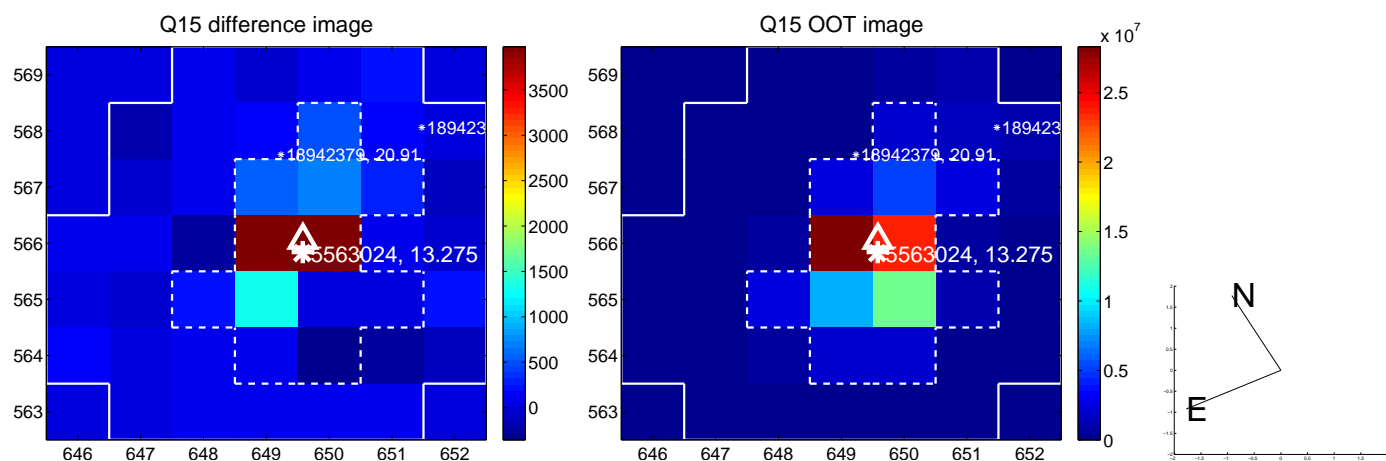
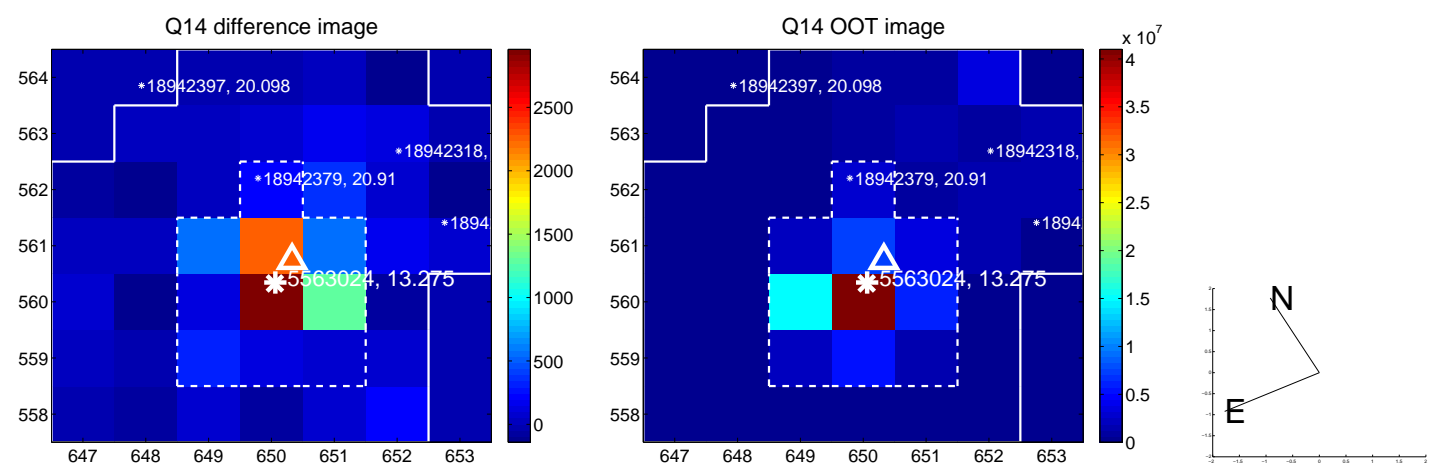
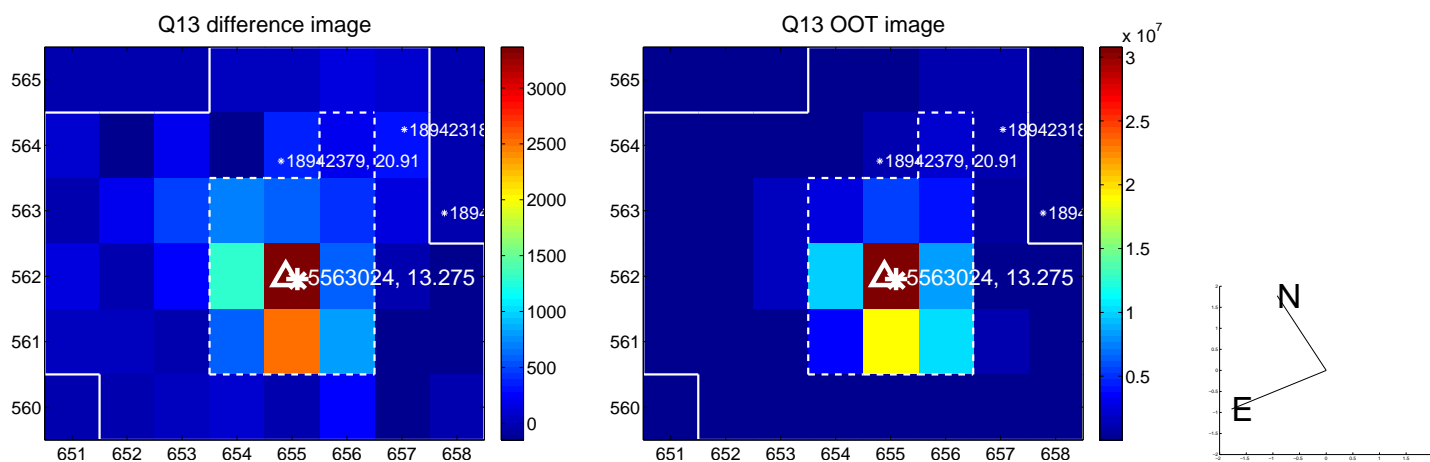
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



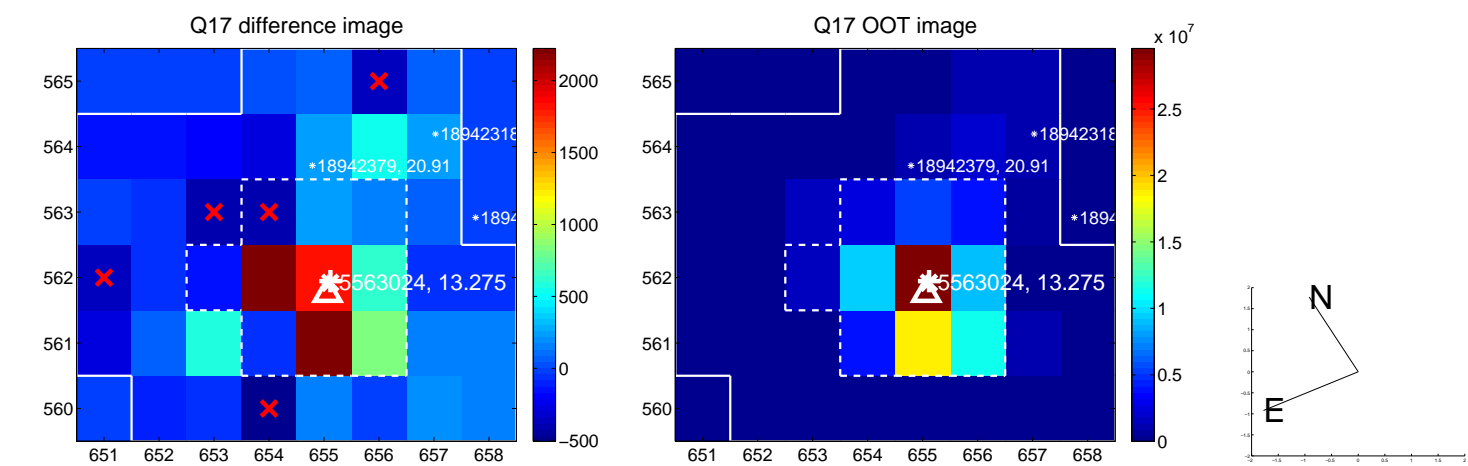
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



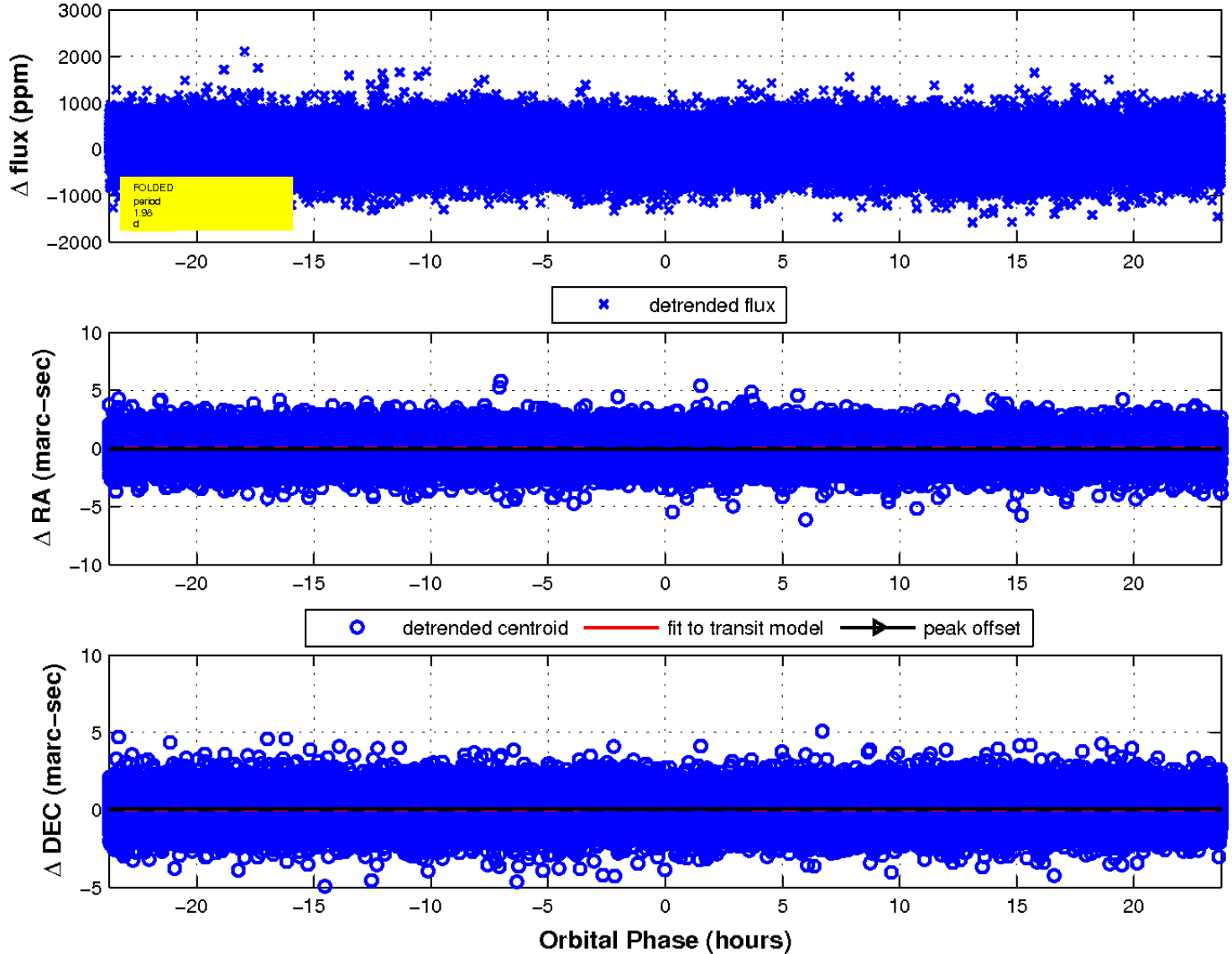
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

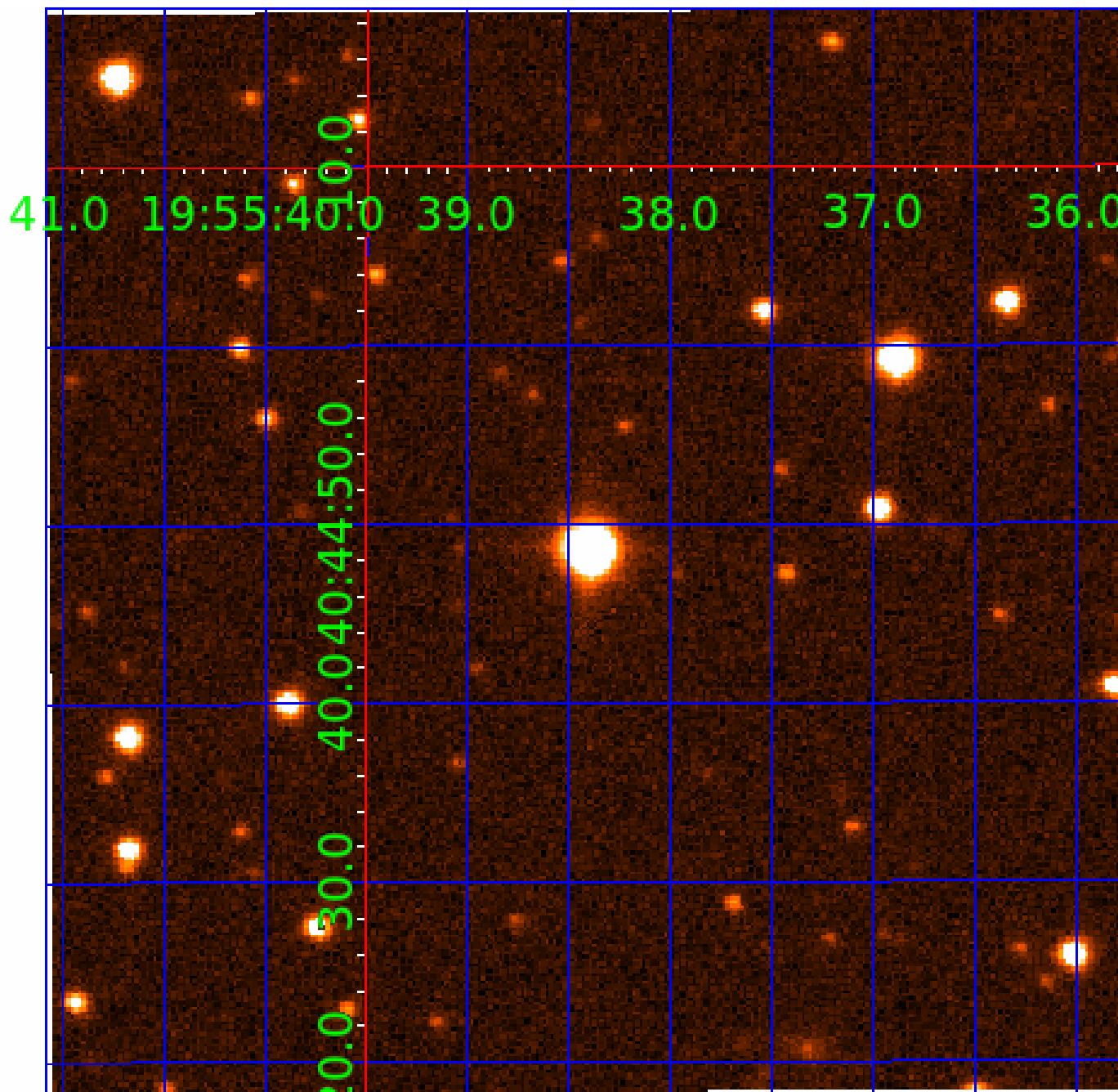


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005563024

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})
005563024-01	OBS	No	1.978337	131.565019	59.3	8.082	13.6	13.1	2.39	6605	2.17	8040.45
005563024-02	OBS	No	1.978483	132.794812	43.3	7.140	8.8	10.2	2.39	6605	1.58	8039.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005563024-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005563024-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

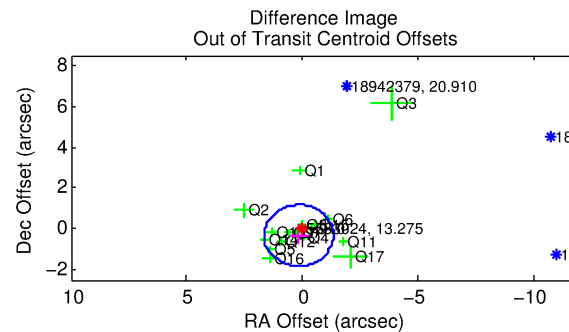
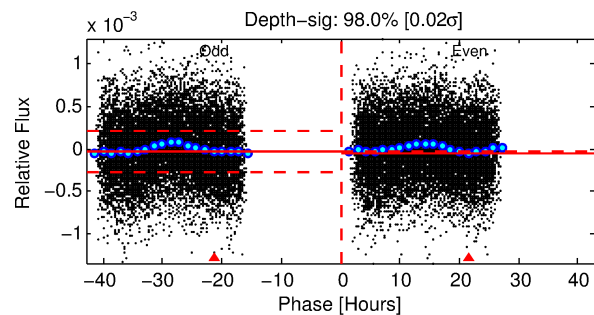
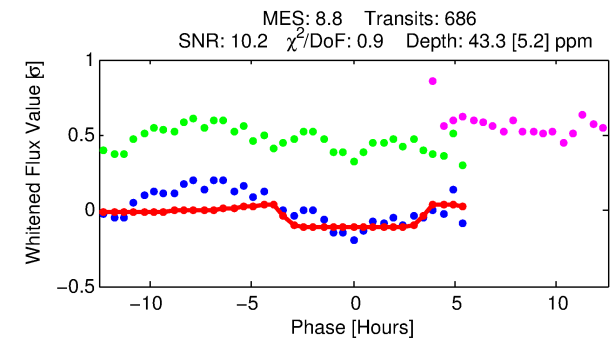
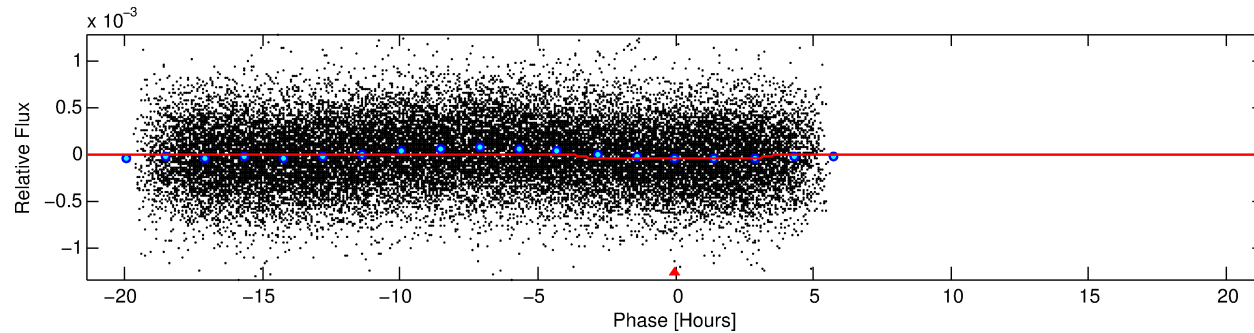
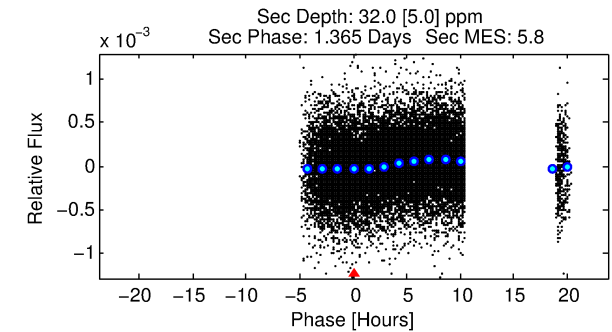
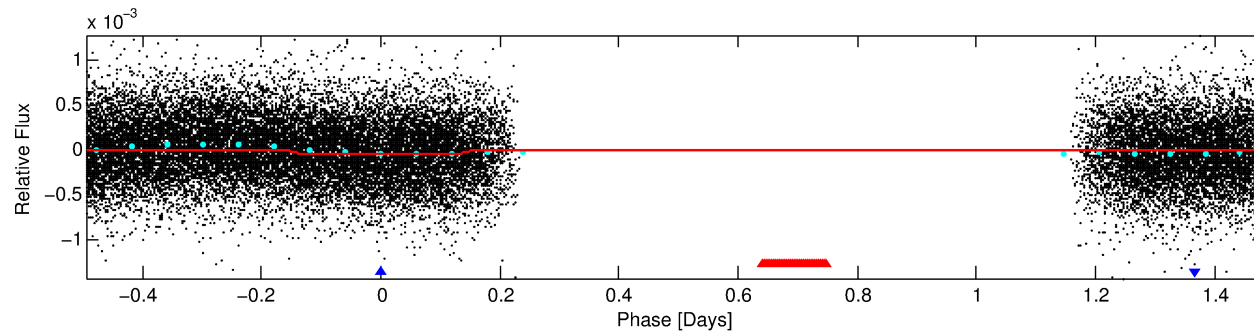
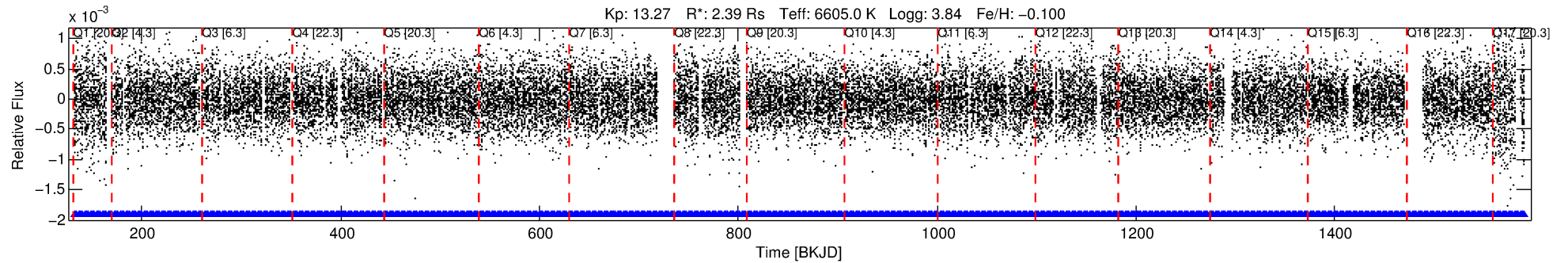
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005563024-02

No Significant Match Found

DV One-Page Summary

KIC: 5563024 Candidate: 2 of 2 Period: 1.978 d



DV Fit Results:

Period = 1.97848 [0.00003] d
Epoch = 132.7948 [0.0075] BKJD
Rp/R* = 0.0061 [0.0059]
a/R* = 2.21 [9.00]
b = 0.07 [74.07]
Seff = 8039.66 [5896.88]
Teff = 2415 [443] K
Rp = 1.58 [1.67] Re
a = 0.0349 [0.0150] AU
Ag = 8.51 [17.67] [0.43σ]
Teffp = 6377 [3115] K [1.26σ]

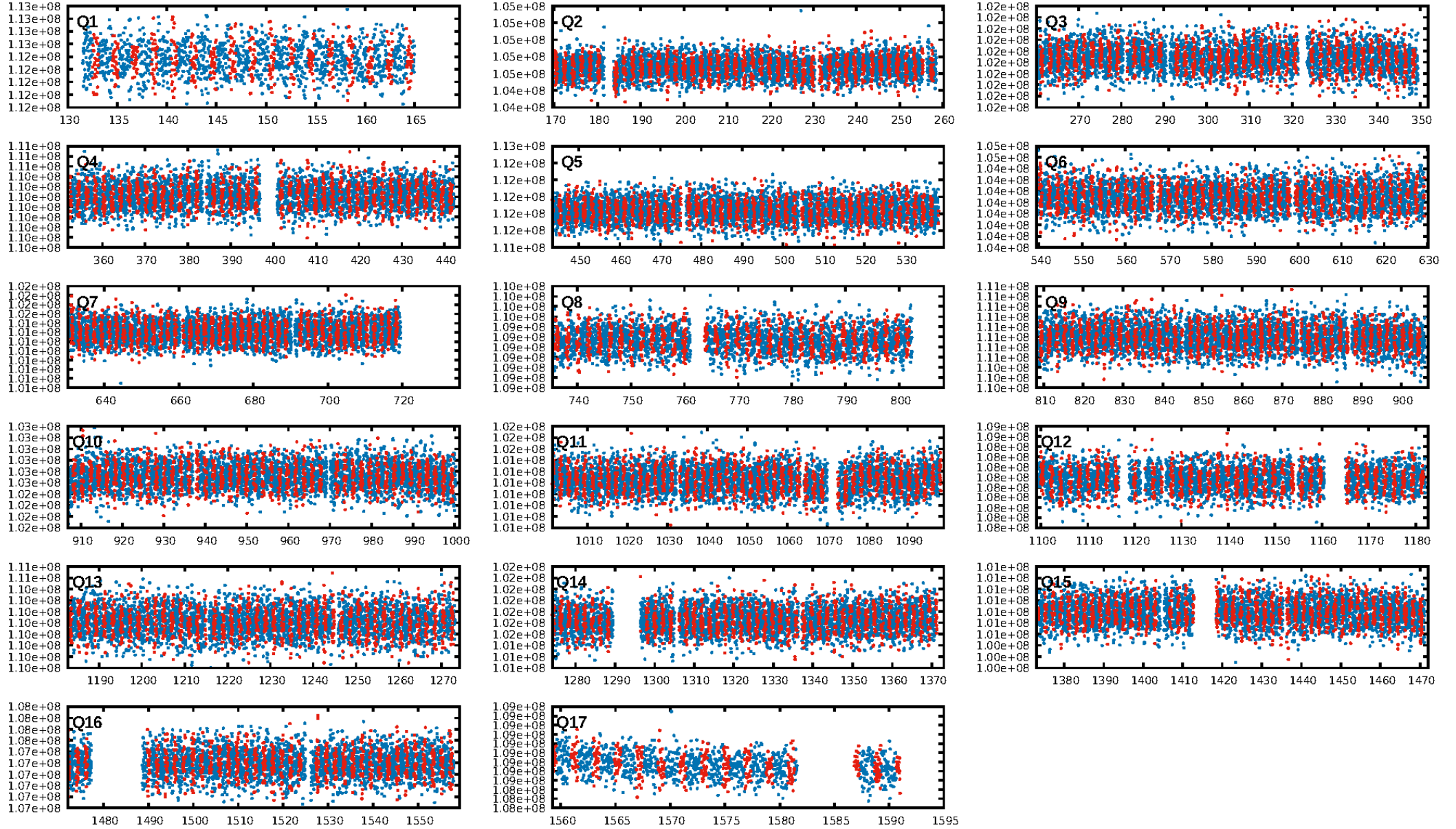
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.14e-07
RollingBand-fgt: 1.00 [654/654]
GhostDiagnostic-chr: 4.491
Centroid-sig: 75.6%
Centroid-so: 0.171 arcsec [0.24σ]
OotOffset-rm: 0.356 arcsec [0.71σ]
KicOffset-rm: 0.291 arcsec [0.60σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.18 [3/17]

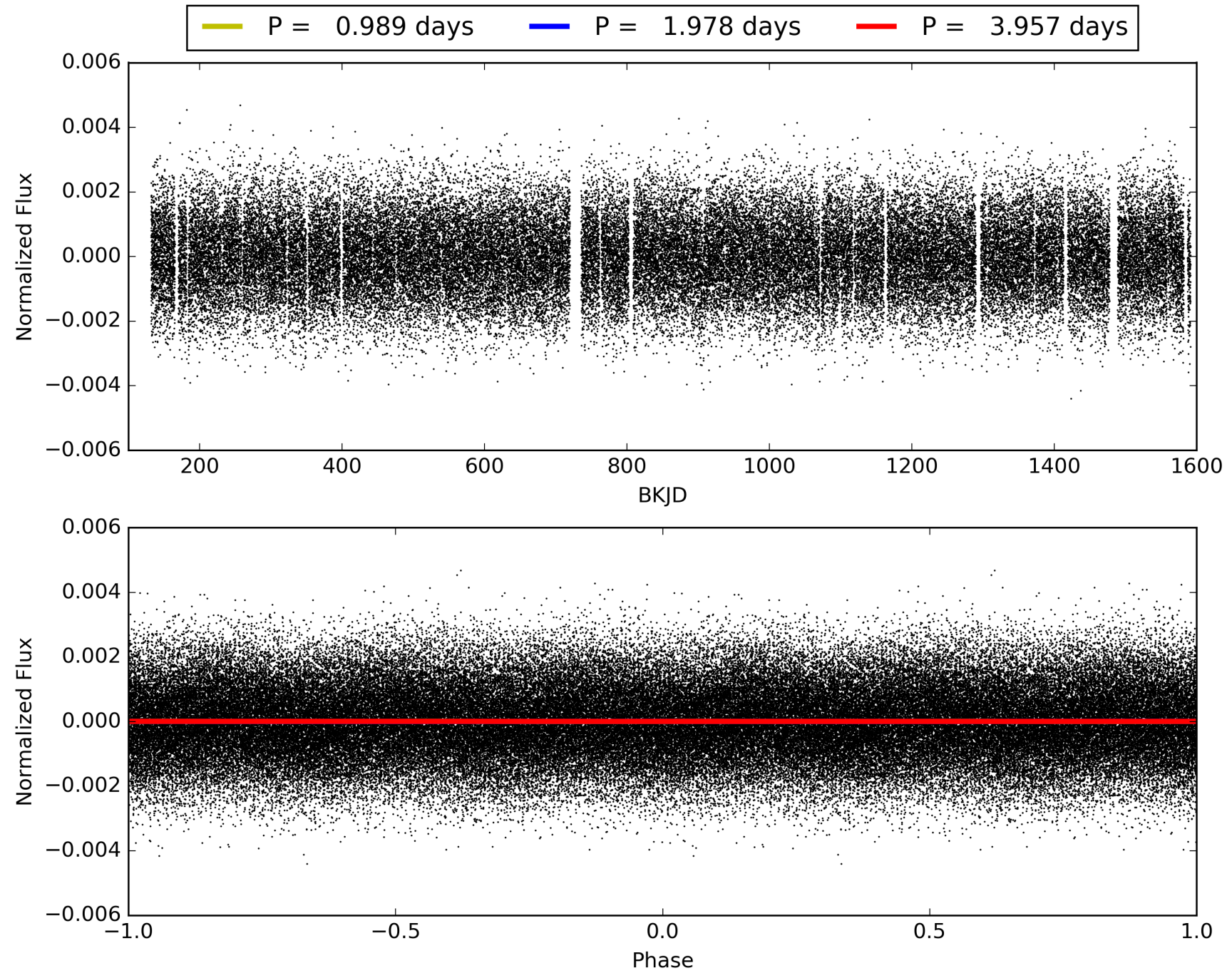
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:06:06 Z

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

TCE 005563024-02, PDC Light Curves

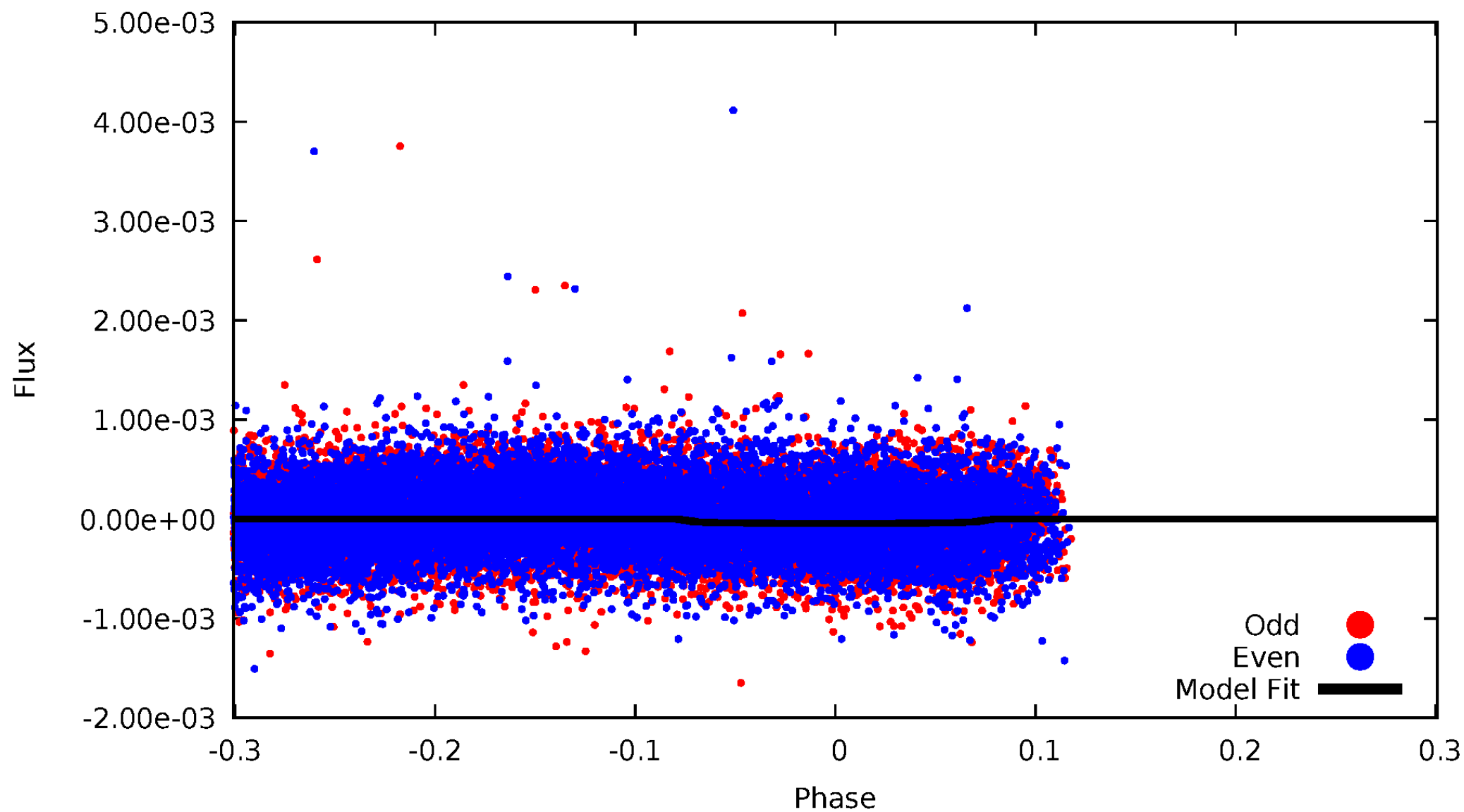


TCE 005563024-02



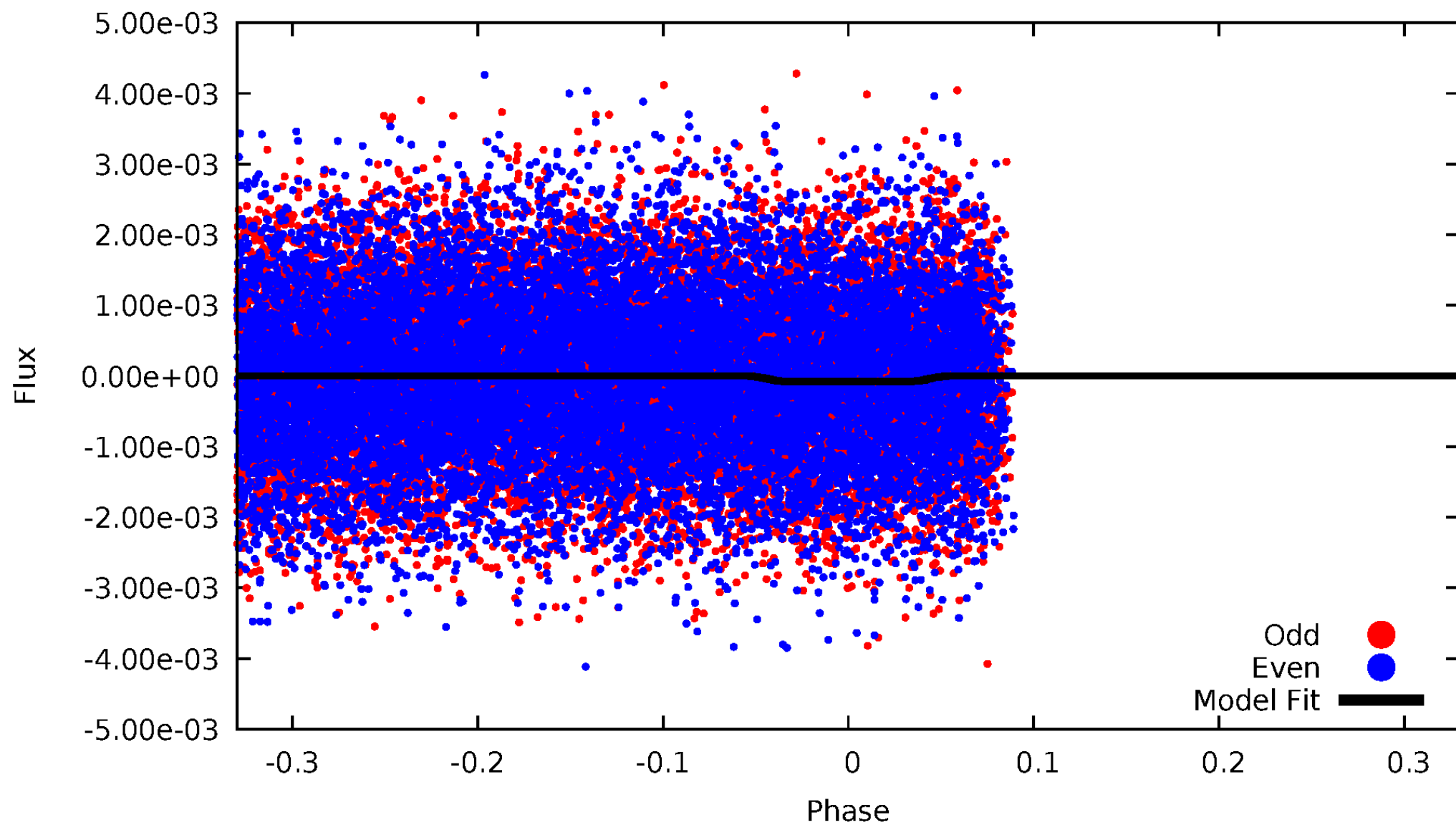
DV Odd/Even

TCE 005563024-02



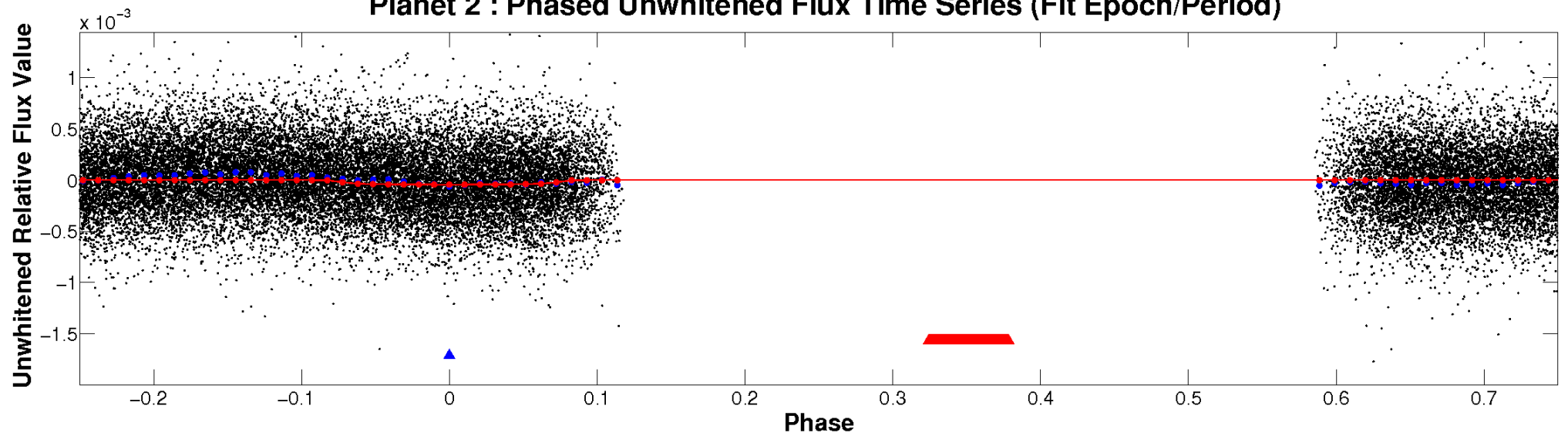
ALT Odd/Even

TCE 005563024-02

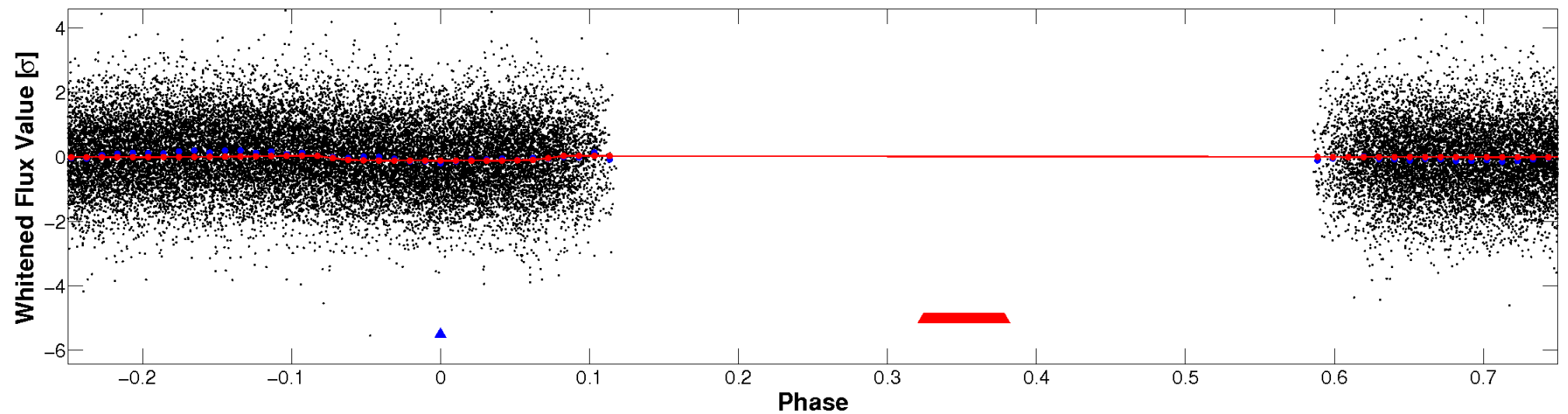


Non-Whitened Vs. Whitened Light Curve

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

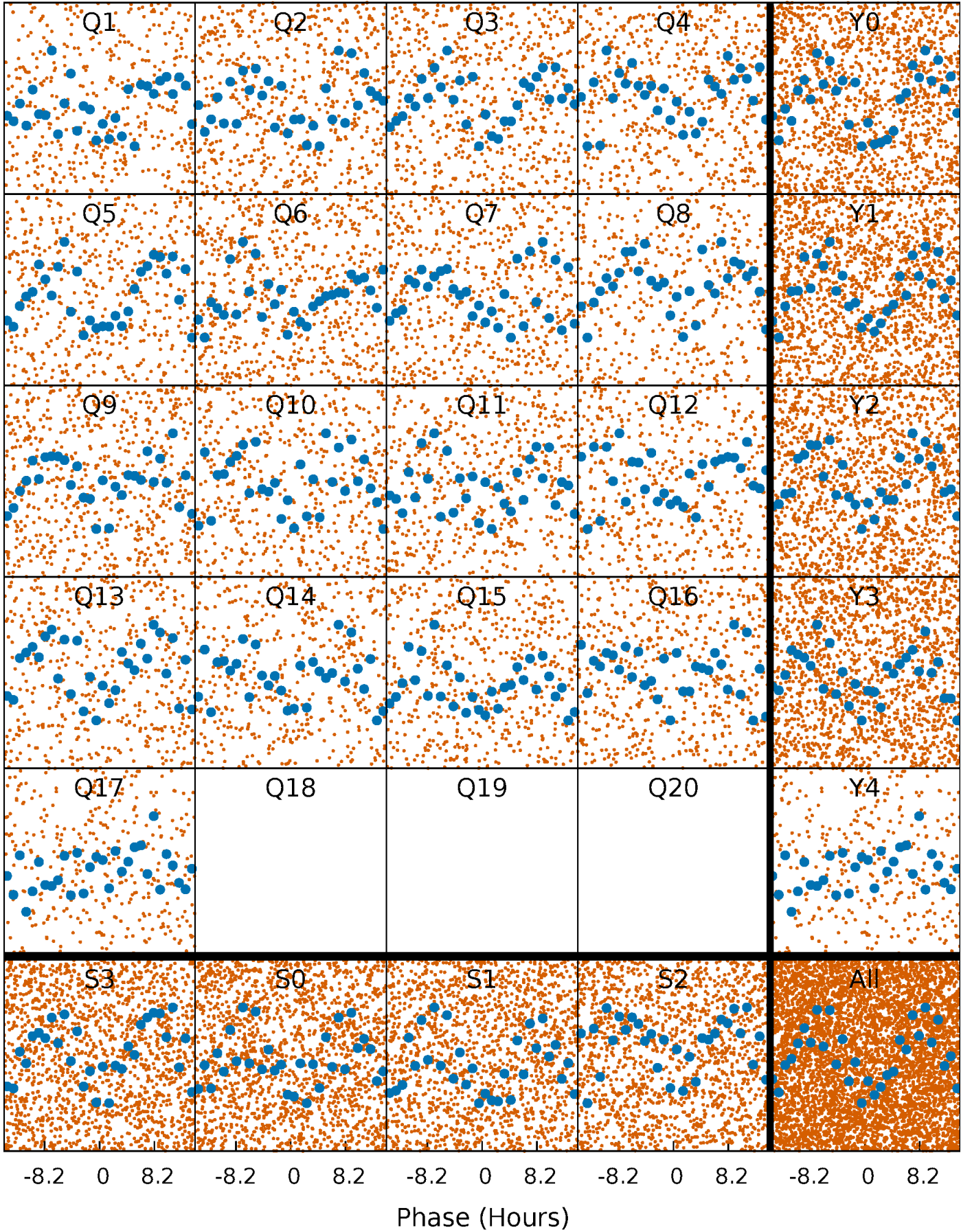


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



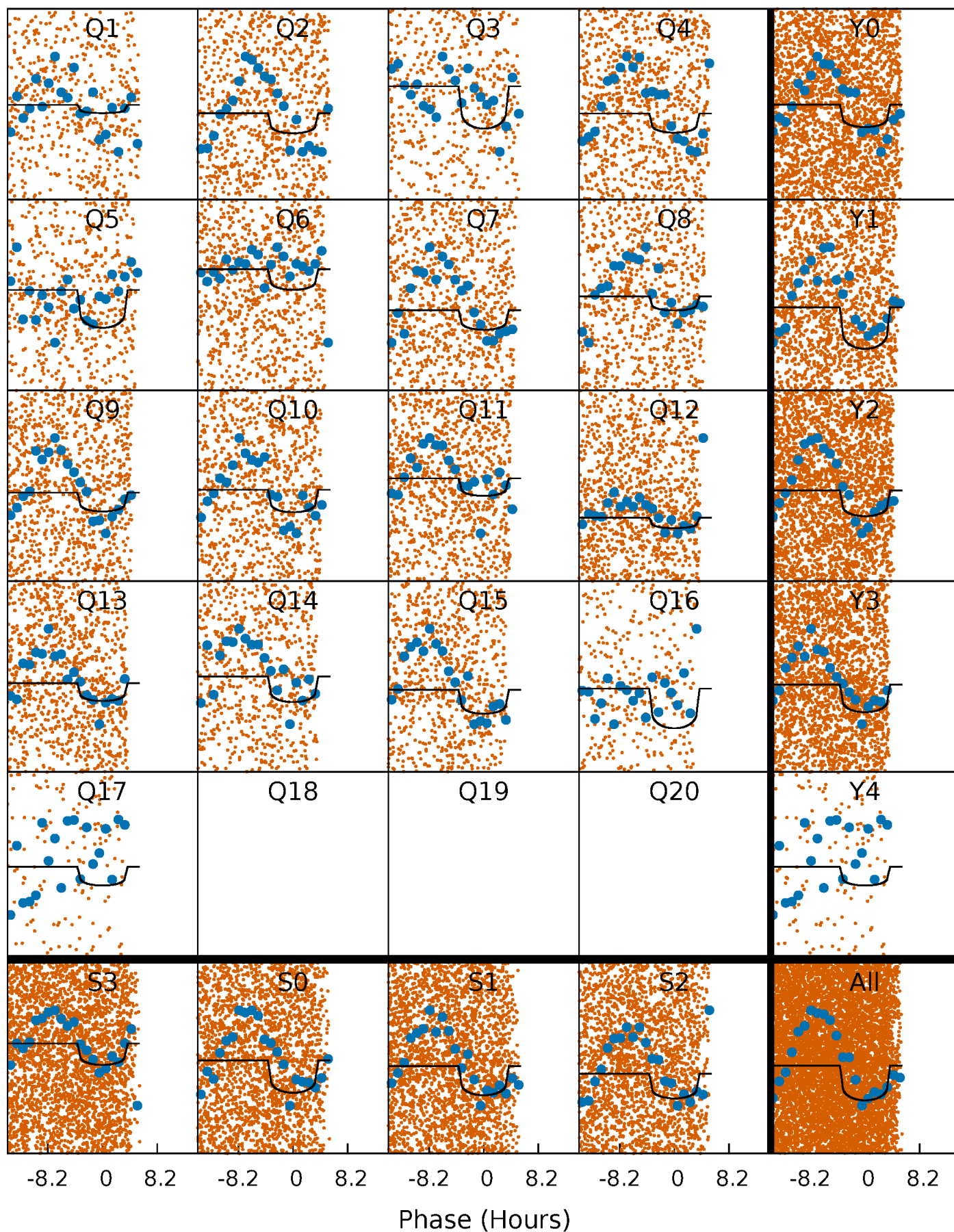
PDC Quarter-Phased Transit Curves

TCE 005563024-02 P= 1.978483 Days $T_0=132.794812$ (BKJD)



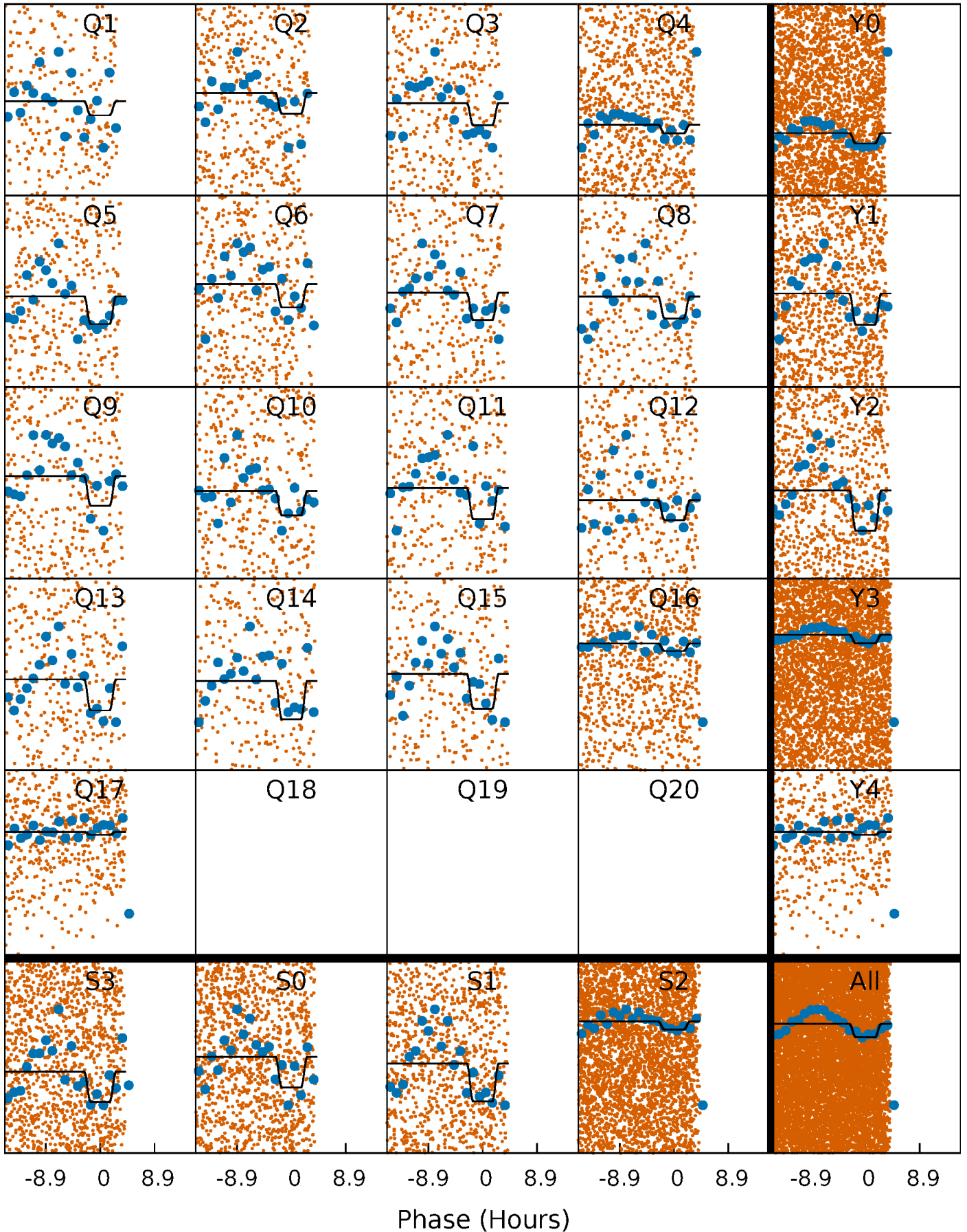
DV Quarter-Phased Transit Curves

TCE 005563024-02 P= 1.978483 Days $T_0=132.794812$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

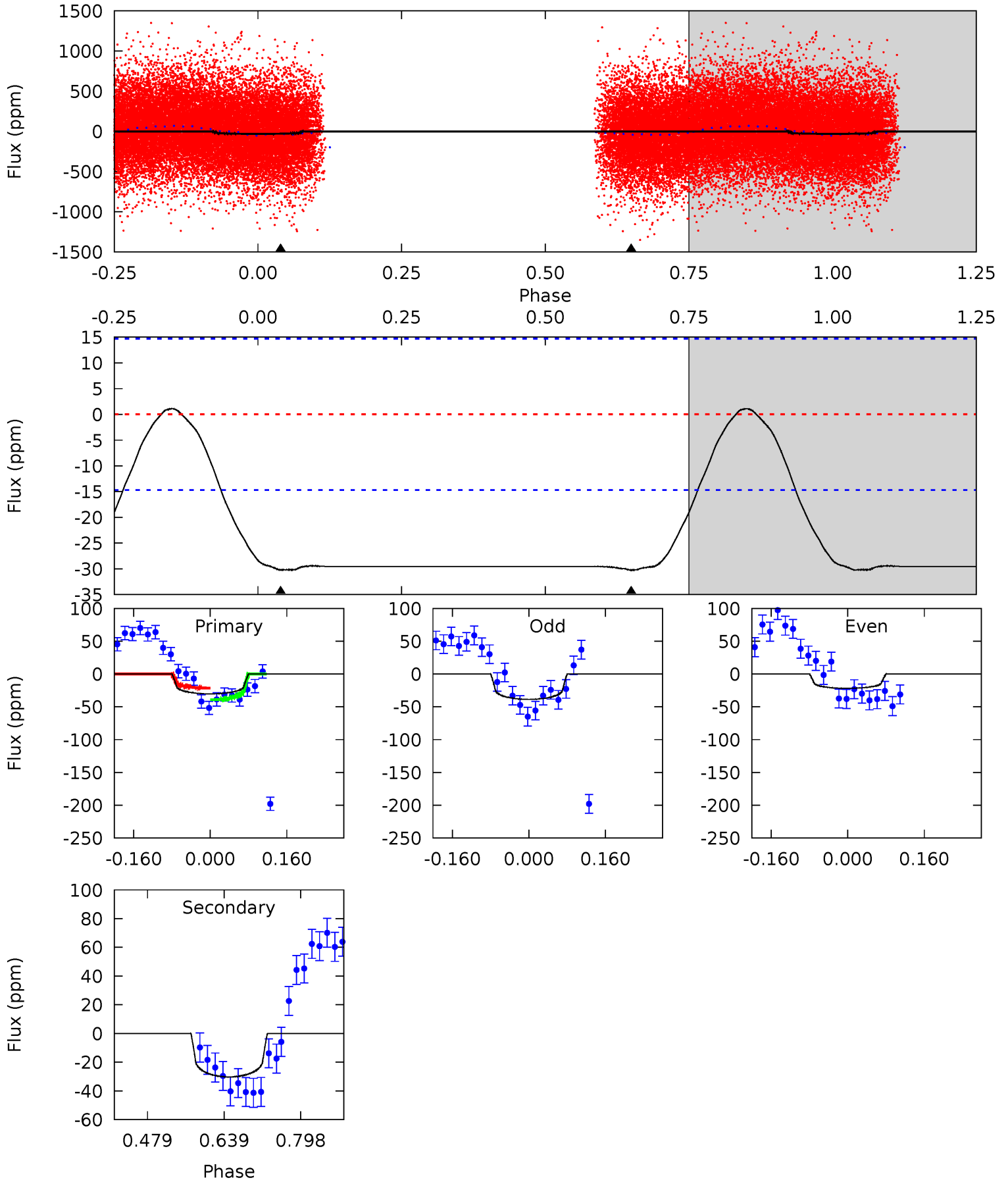
TCE 005563024-02 P= 1.978264 Days $T_0=132.903682$ (BKJD)



DV Model-Shift Uniqueness Test

005563024-02, P = 1.978483 Days, E = 130.816329 Days

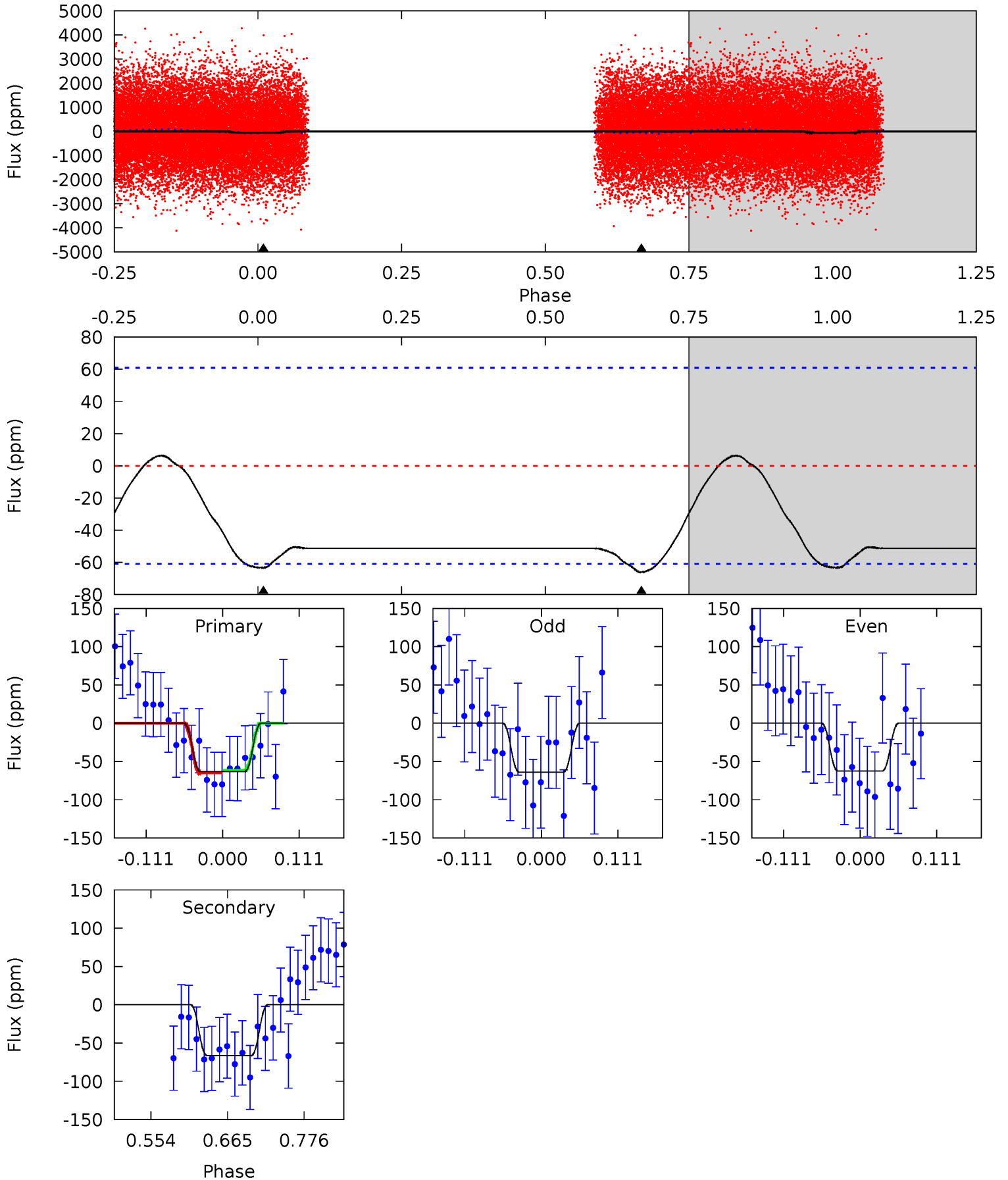
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.18	9.19	0	0	4.47	1.41	0.38	9.18	9.18	9.19	9.19	2.61	0.98	0.04	2.80



Alt Model-Shift Uniqueness Test

005563024-02, P = 1.978264 Days, E = 130.925418 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.72	4.94	0	0	4.54	1.59	0.49	4.72	4.72	4.94	4.94	0.05	1.29	0.09	0.14



Stellar Parameters For KIC 005563024

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6605^{+182}_{-250}	$3.839^{+0.432}_{-0.108}$	$-0.100^{+0.250}_{-0.300}$	$2.393^{+0.574}_{-0.985}$	$1.445^{+0.220}_{-0.330}$	$0.148^{+0.521}_{-0.057}$
	+3%/-4%	+11%/-3%	+250%/-300%	+24%/-41%	+15%/-23%	+351%/-38%
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 005563024-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-30 ± 3	$1.65^{+1.42}_{-0.97}$	3267^{+240}_{-382}	5739^{+4098}_{-1305}	$7.176^{+37.619}_{-5.059}$
Alt.	-66 ± 13	$2.15^{+1.50}_{-1.14}$	3271^{+259}_{-377}	6085^{+3456}_{-1298}	$9.225^{+33.649}_{-5.912}$

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 $A_{obs} \gg 1.0$

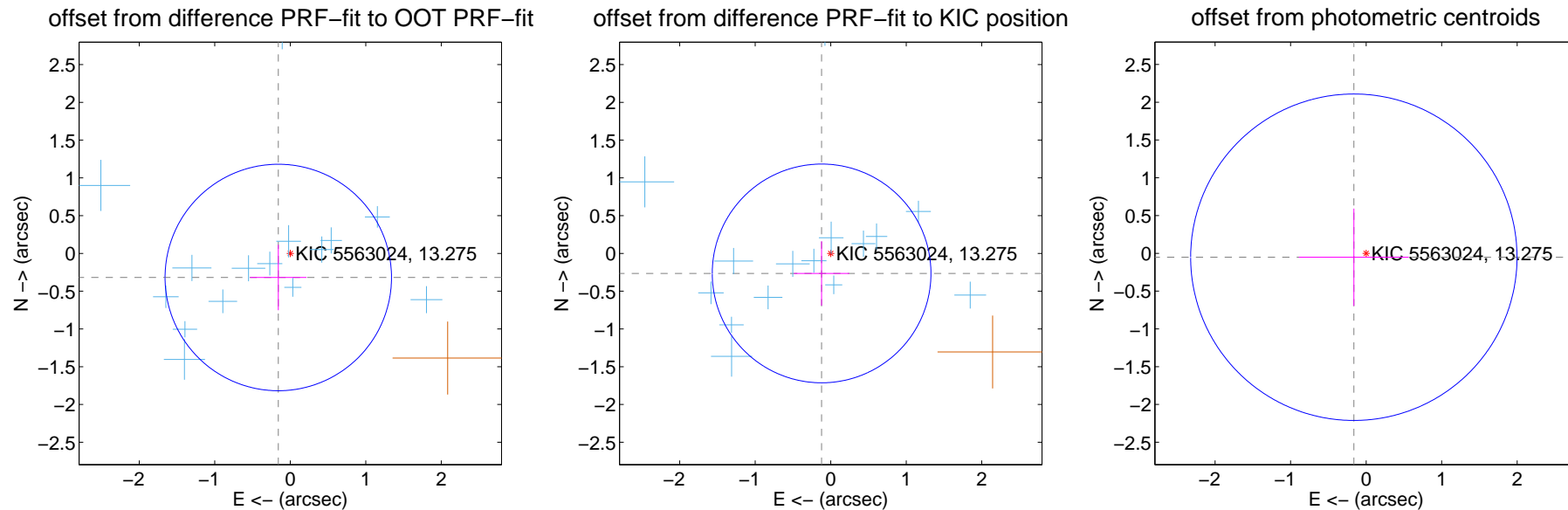
DV Centroid Data

Supplemental centroid analysis for 005563024-02. Kepler magnitude: 13.28. Transit SNR 10.18

There are 15 quarters with good PRF difference image offsets

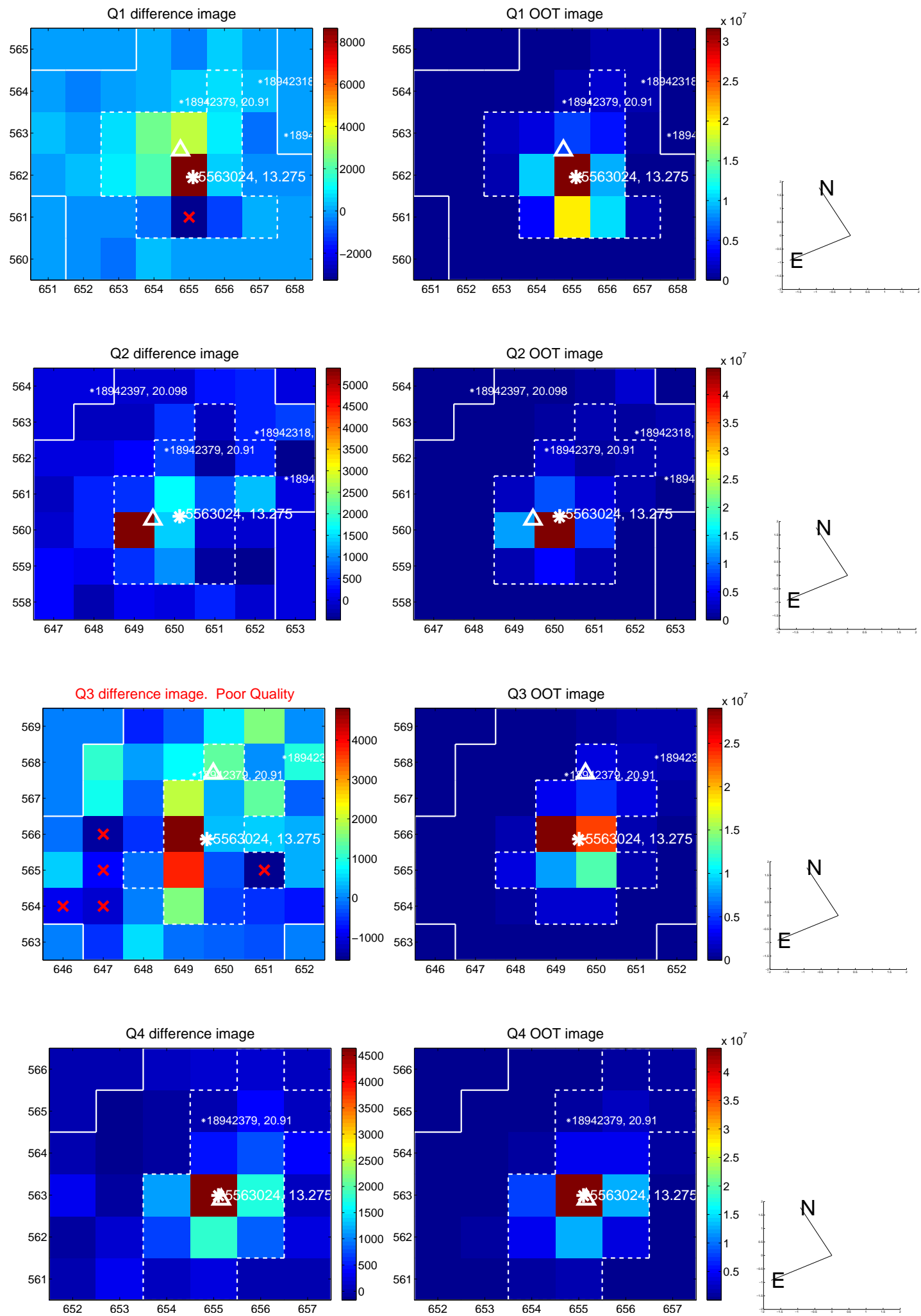
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.356 ± 0.500	0.71	0.159 ± 0.373	-0.319 ± 0.434
PRF-fit source offset from KIC position	0.291 ± 0.483	0.60	0.121 ± 0.367	-0.265 ± 0.426
photometric centroid source offset	0.17 ± 0.72	0.24	0.16 ± 0.73	-0.05 ± 0.64

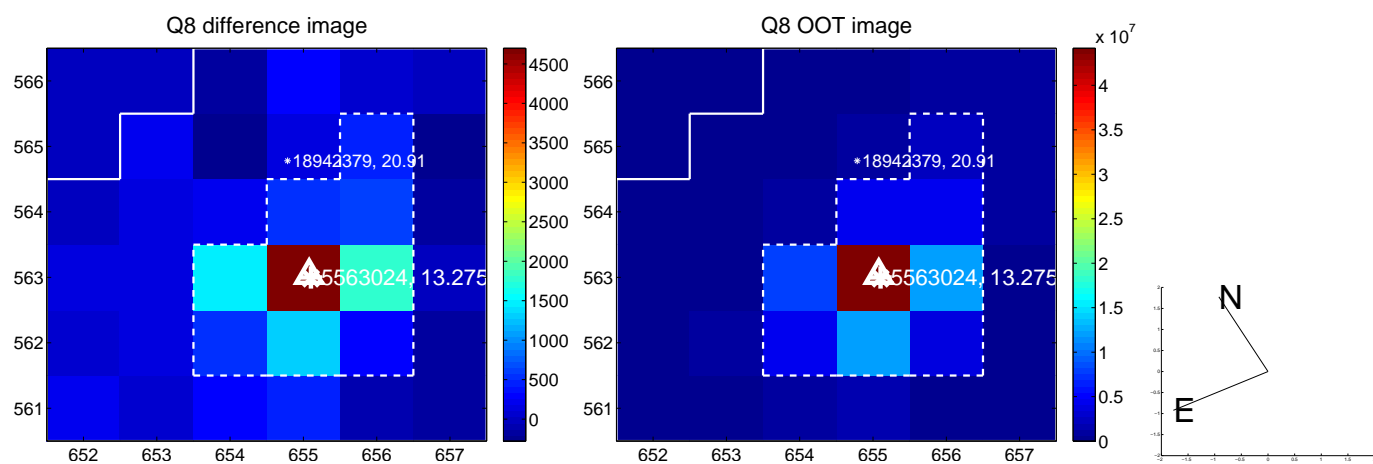
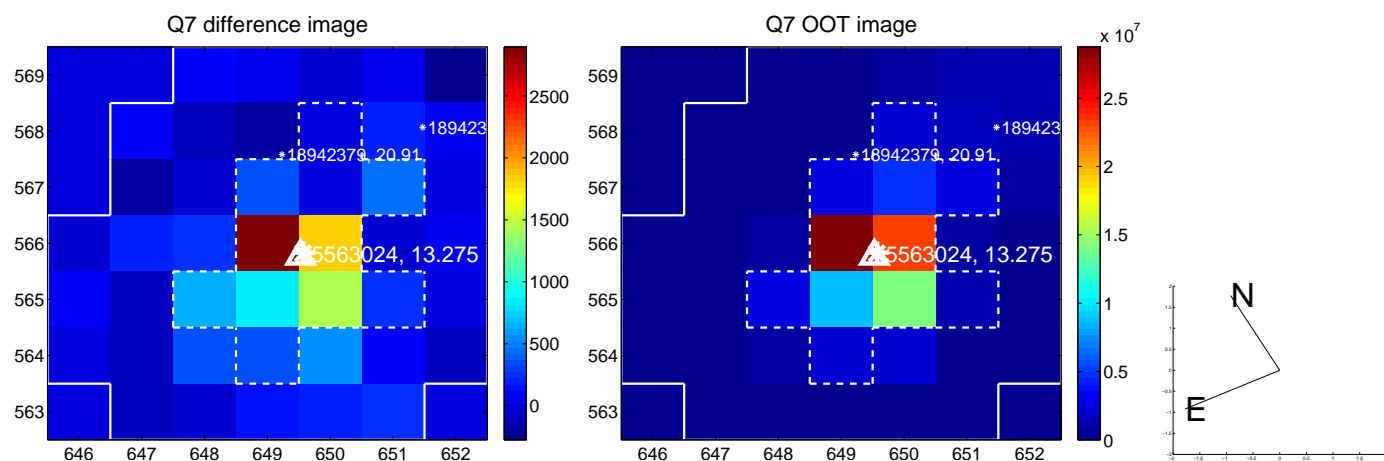
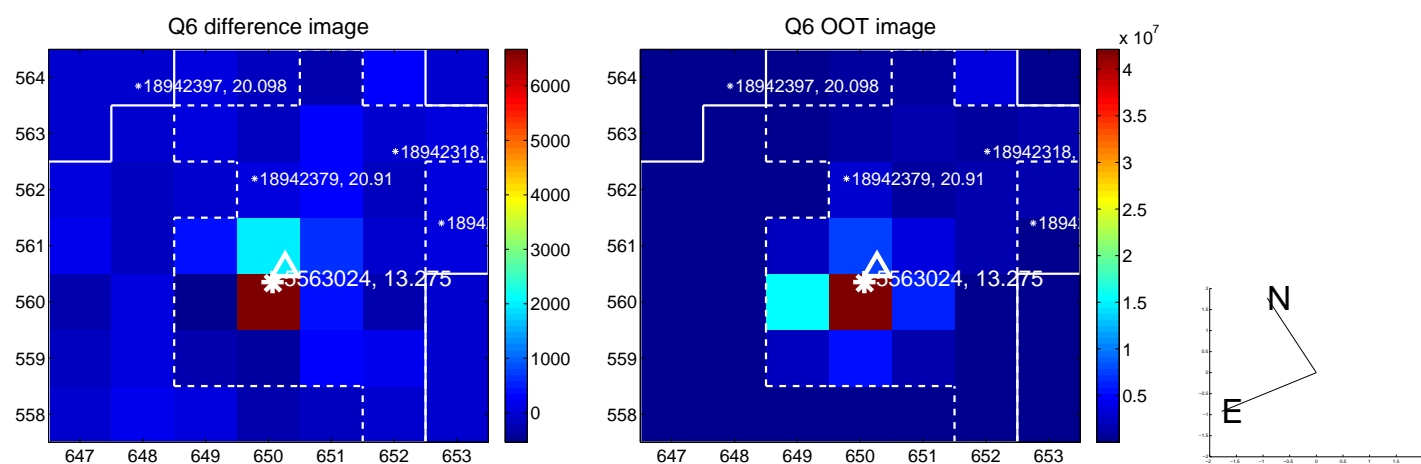
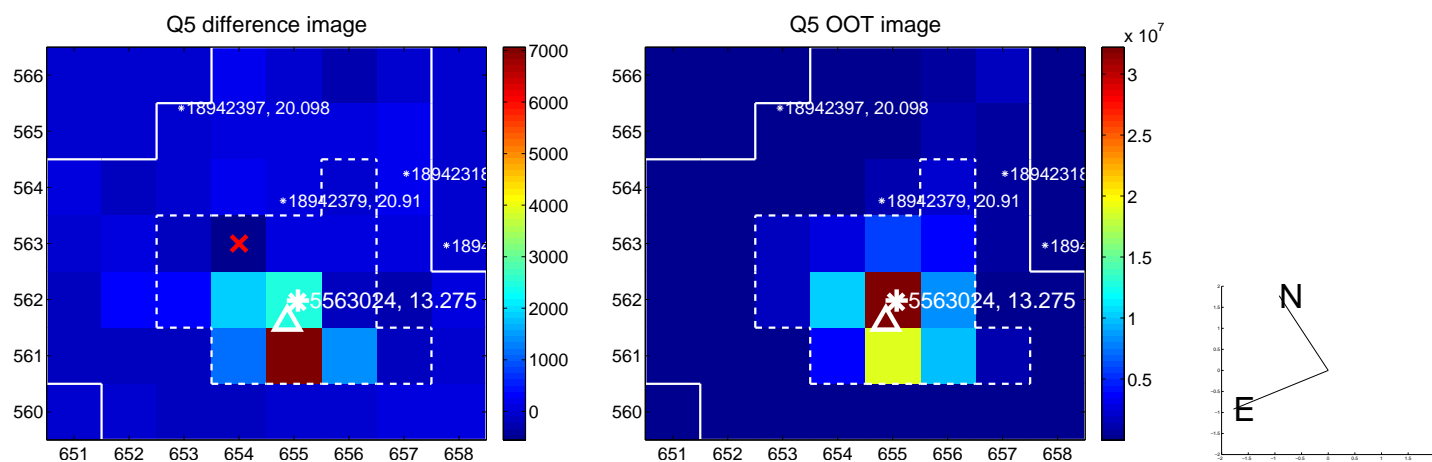


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

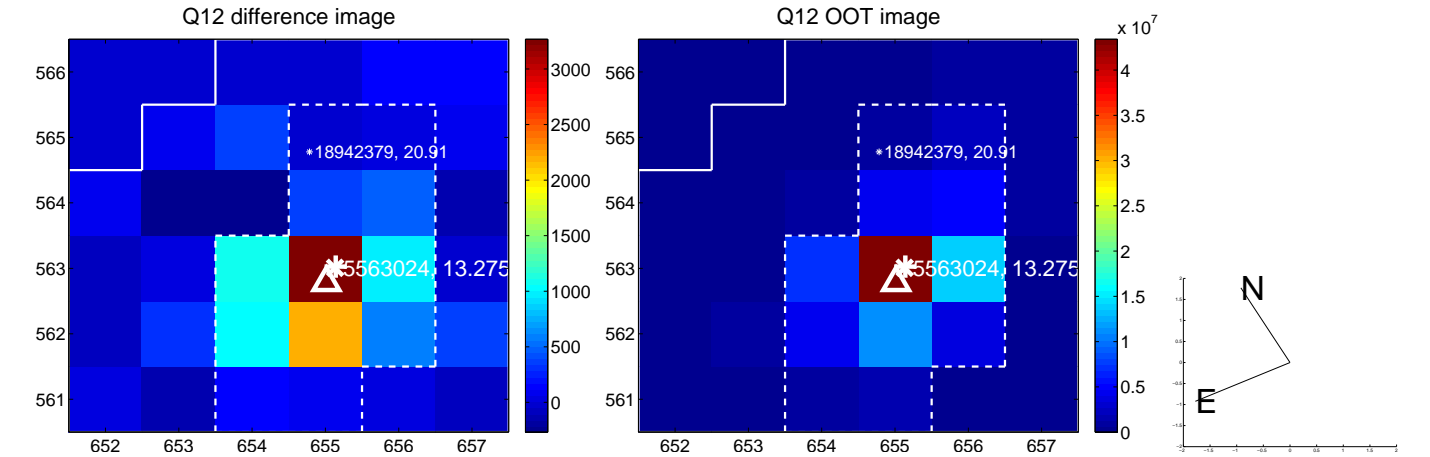
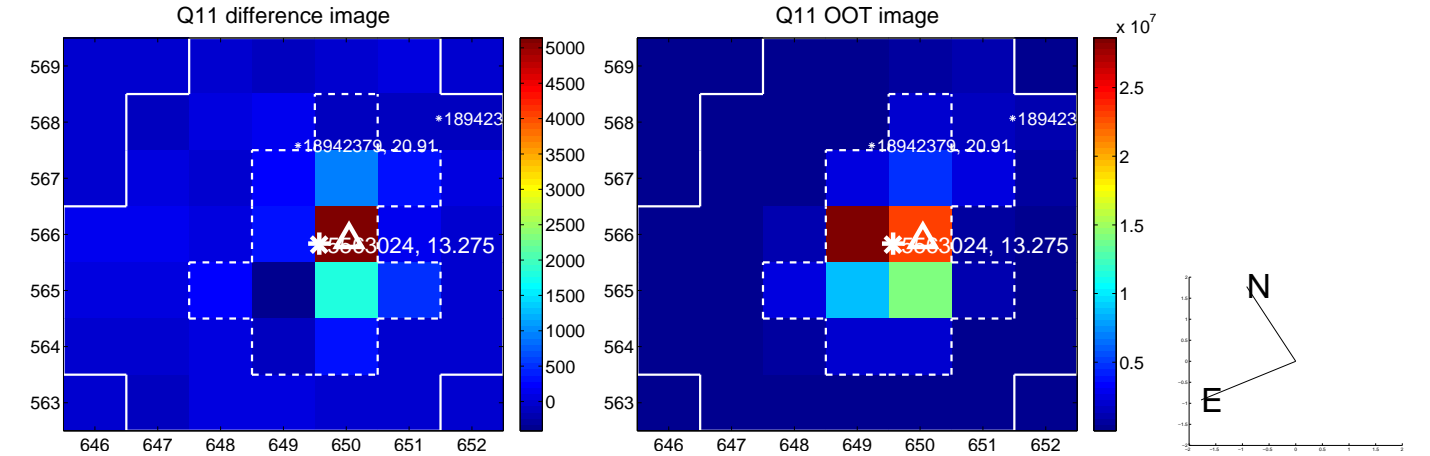
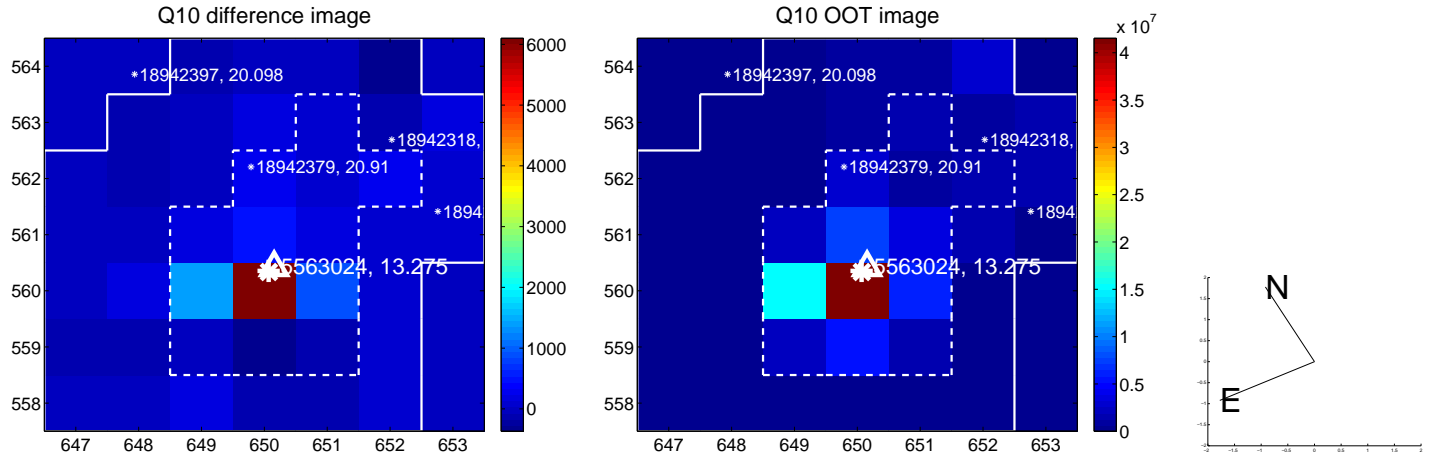
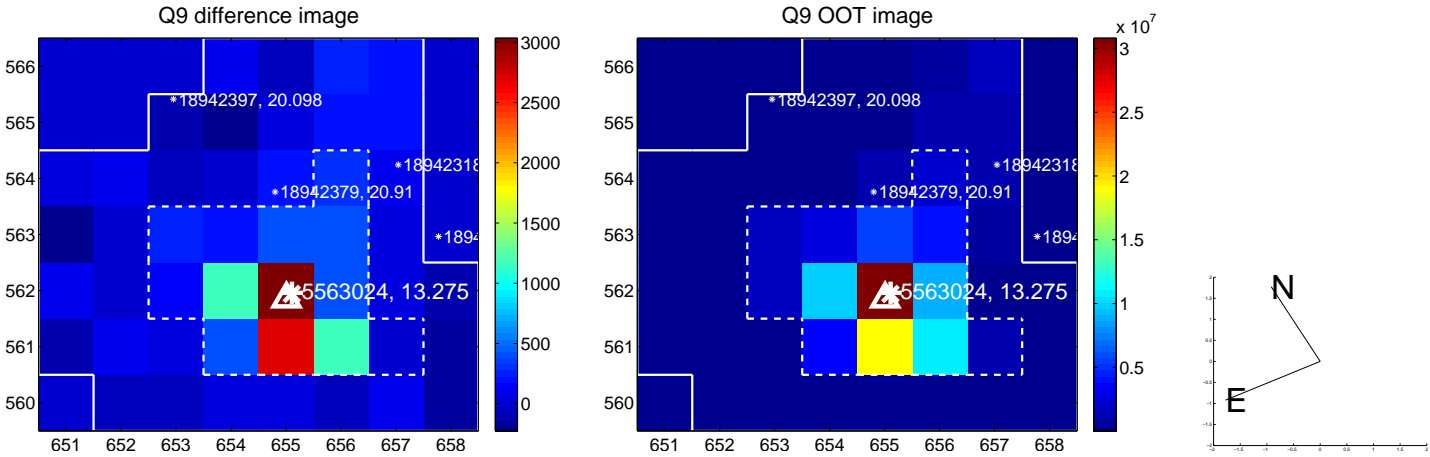
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



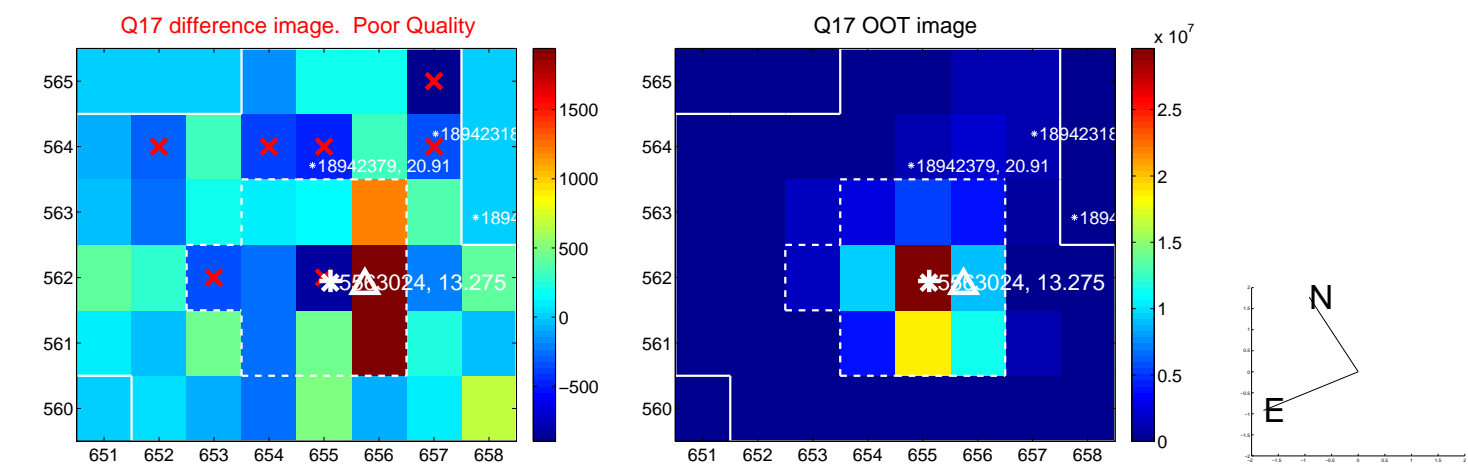
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



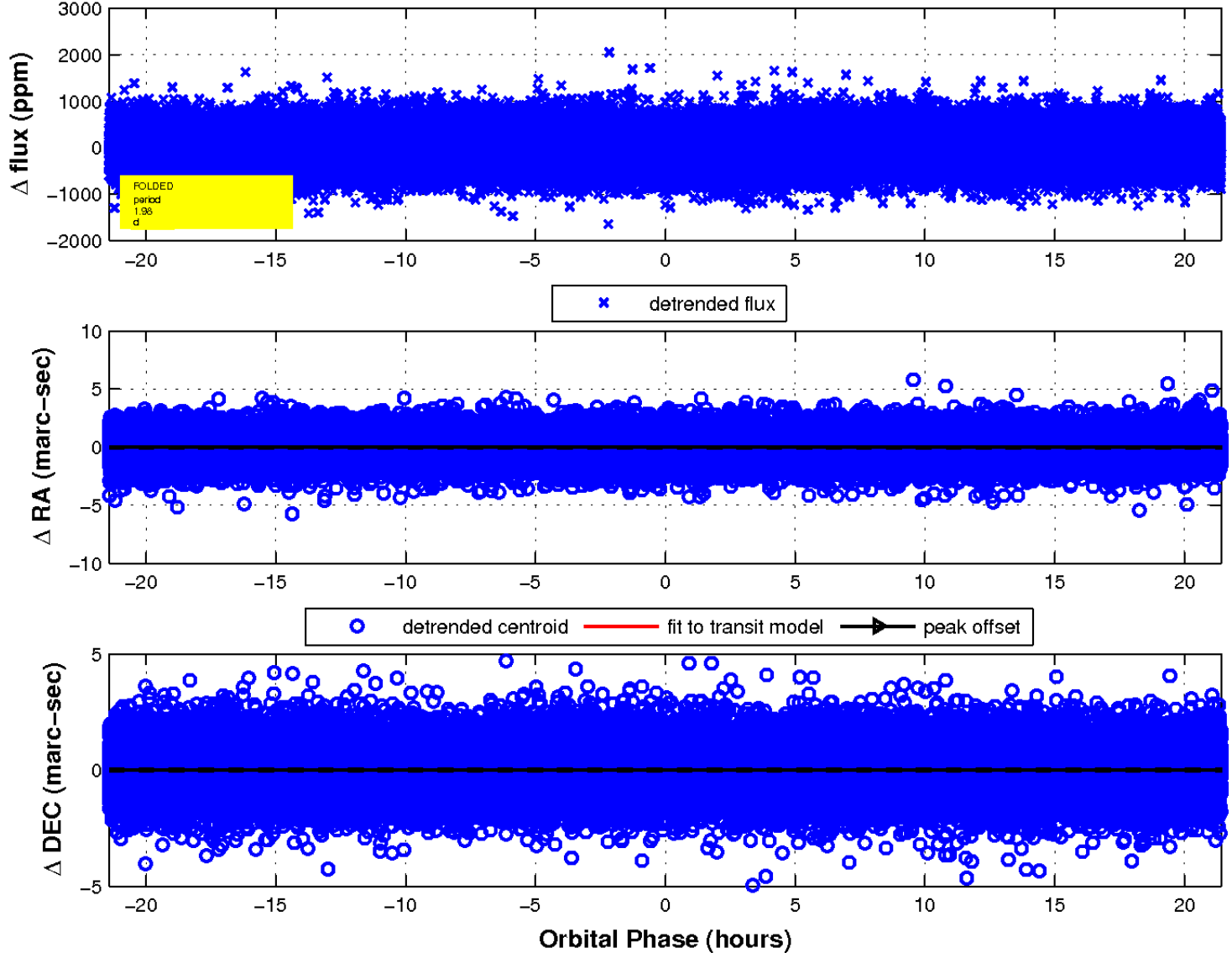
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

