

KIC 011564013

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})
011564013-01	OBS	3714.01	1.750537	132.906834	3527.4	0.943	48.7	119.9	0.90	5821	5.86	1251.72
011564013-02	OBS	No	1.750453	131.998029	329.8	2.324	23.9	13.2	0.90	5821	1.67	1251.80
011564013-03	OBS	No	1.749596	131.771094	69.5	0.582	8.0	1.9	0.90	5821	0.91	1252.62
011564013-04	OBS	No	0.583433	131.782869	821.1	1.500	7.4	-1.0	0.90	5821	2.58	5416.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011564013-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE
011564013-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—HALO_GHOST
011564013-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011564013-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS

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

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

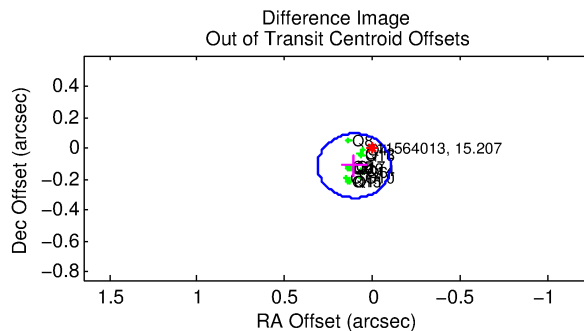
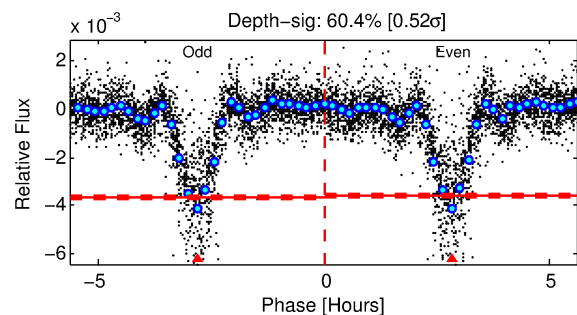
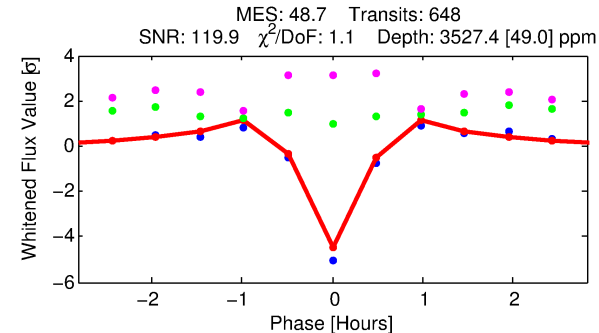
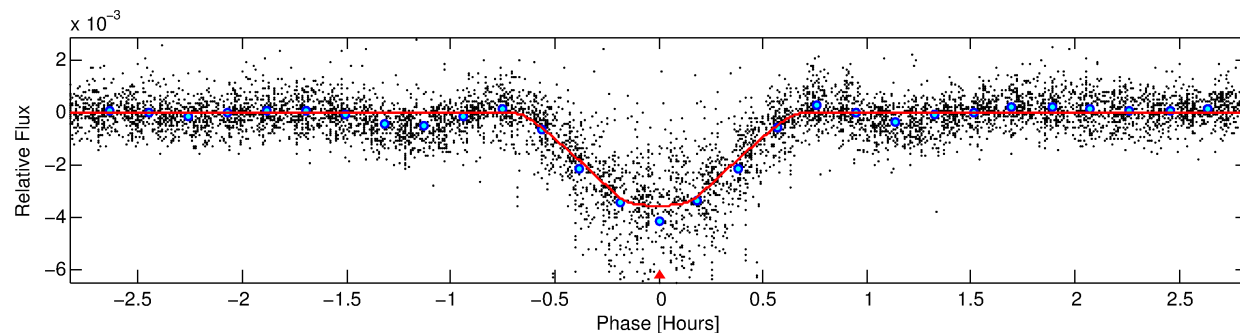
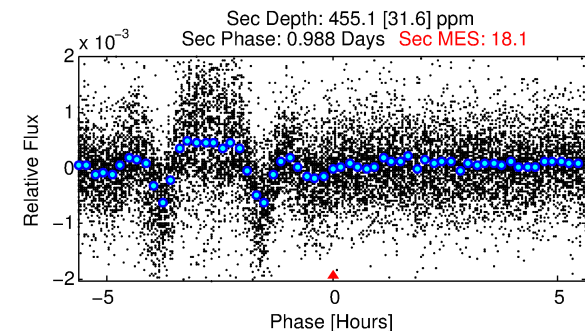
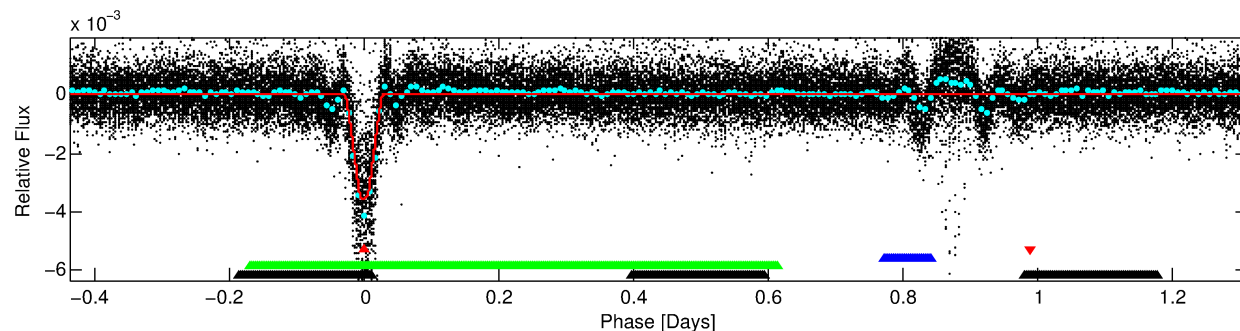
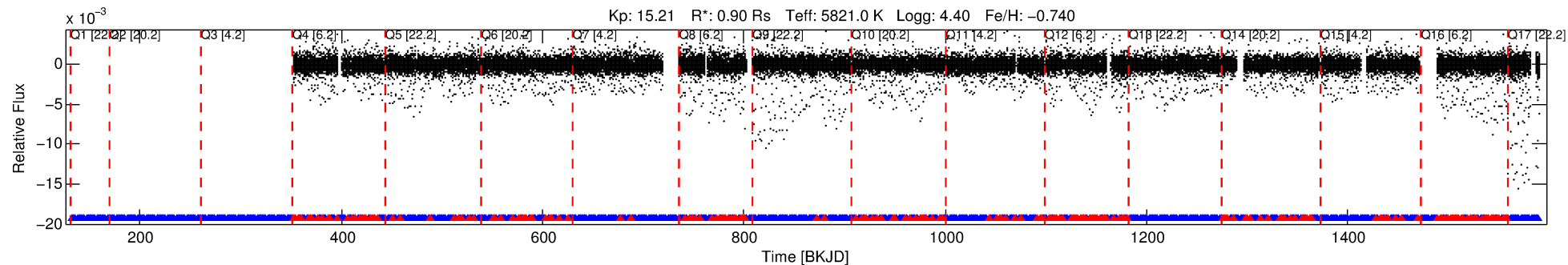
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011564013-01

No Significant Match Found

DV One-Page Summary

KIC: 11564013 Candidate: 1 of 4 Period: 1.751 d
KOI: K03714 Corr: No Ephemeris Match



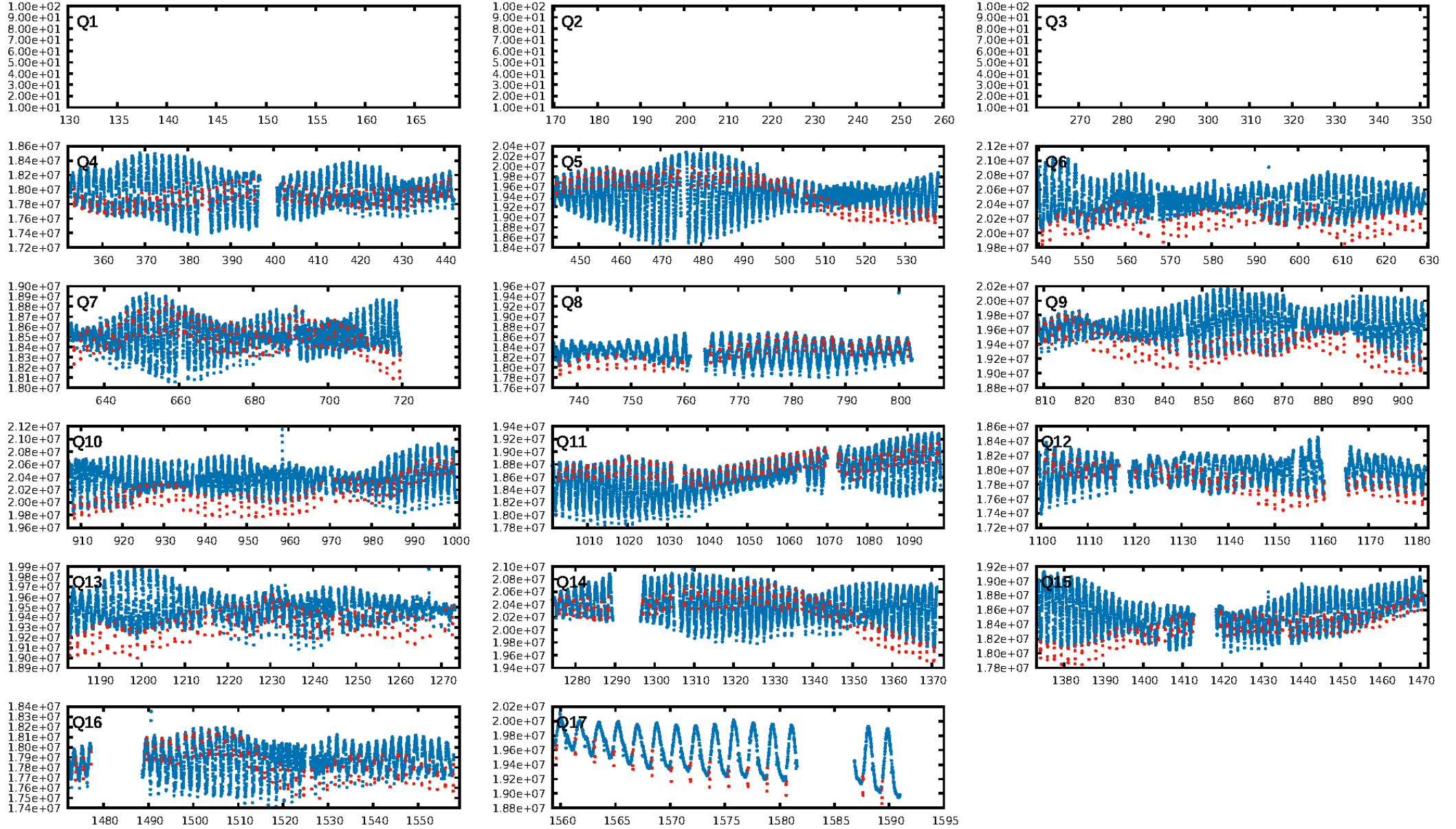
DV Fit Results:

Period = 1.75054 [0.00000] d
Epoch = 132.9068 [0.0001] BKJD
Rp/R* = 0.0598 [0.0037]
a/R* = 10.70 [3.18]
b = 0.75 [0.18]
Seff = 1251.72 [442.50]
Teff = 1517 [134] K
Rp = 5.86 [1.49] Re
a = 0.0257 [0.0056] AU
Ag = 4.84 [1.73] [2.22σ]
Teffp = 3478 [169] K [9.08σ]

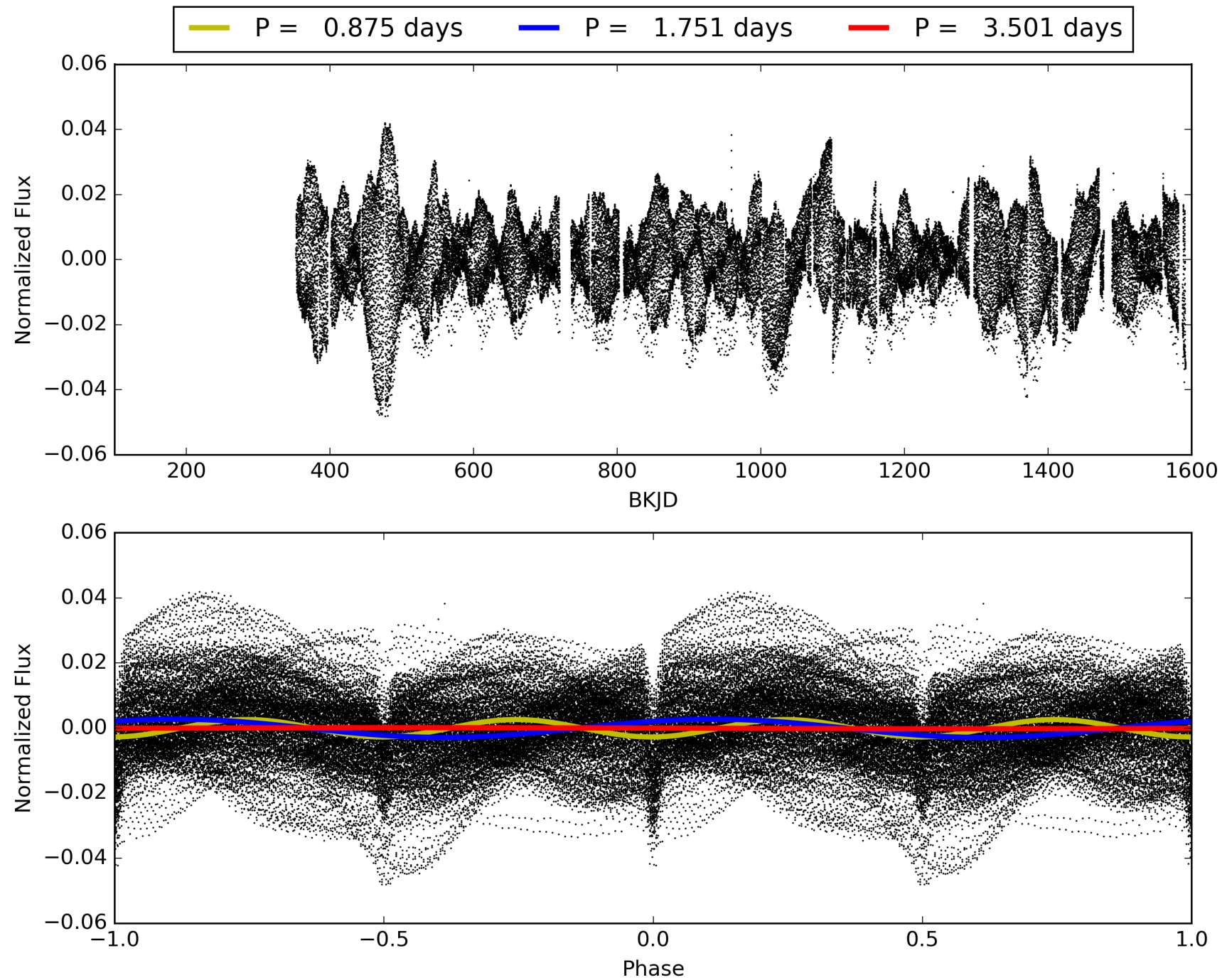
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.70 [444/633]
GhostDiagnostic-chr: 1.047
Centroid-sig: 0.0%
Centroid-so: 0.892 arcsec [13.34σ]
OotOffset-rm: 0.155 arcsec [2.24σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-rm: 0.123 arcsec [1.83σ]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 011564013-01, PDC Light Curves

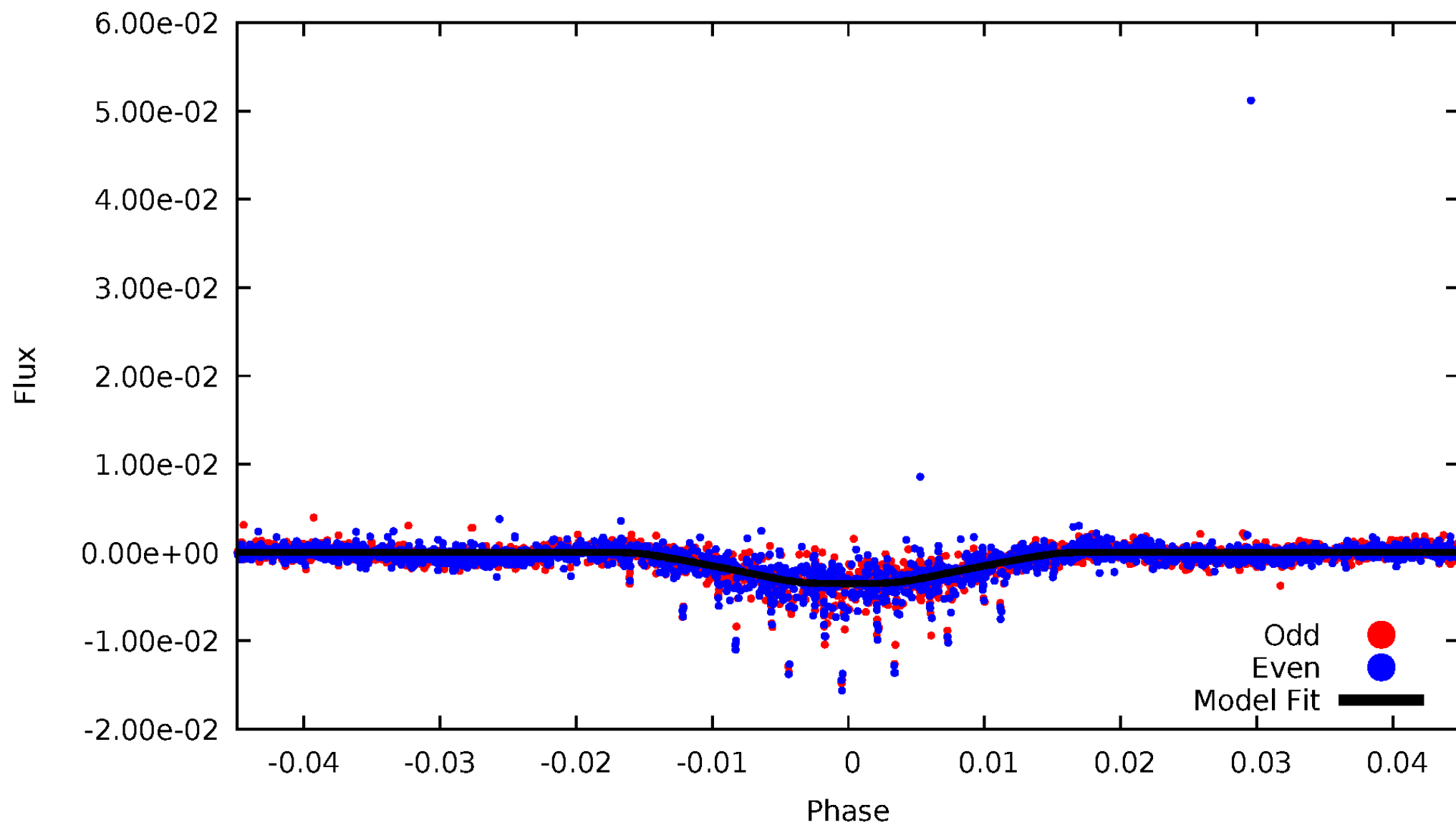


TCE 011564013-01



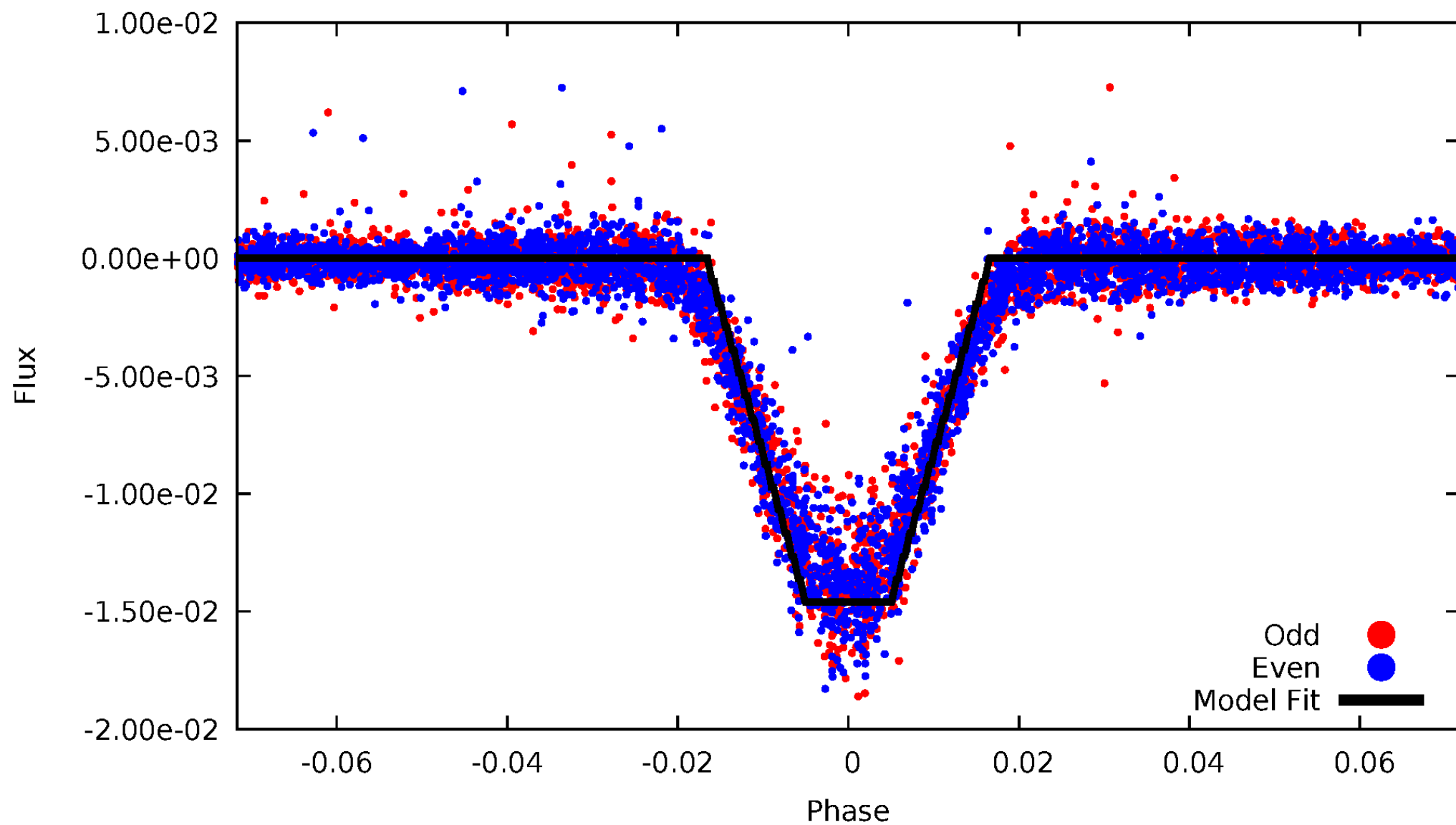
DV Odd/Even

TCE 011564013-01

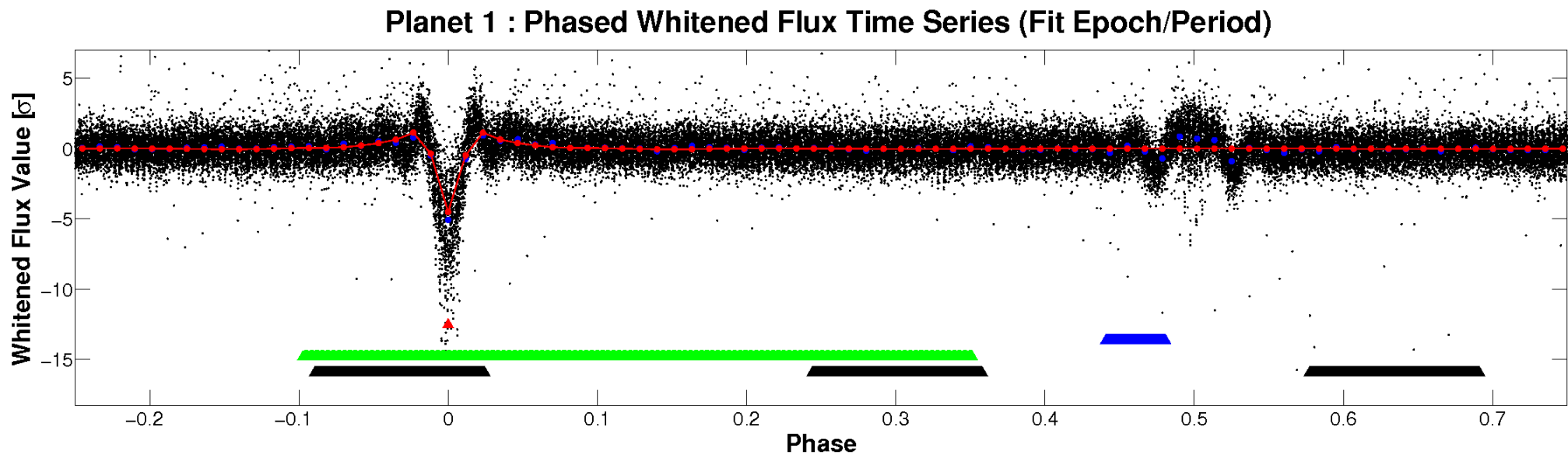
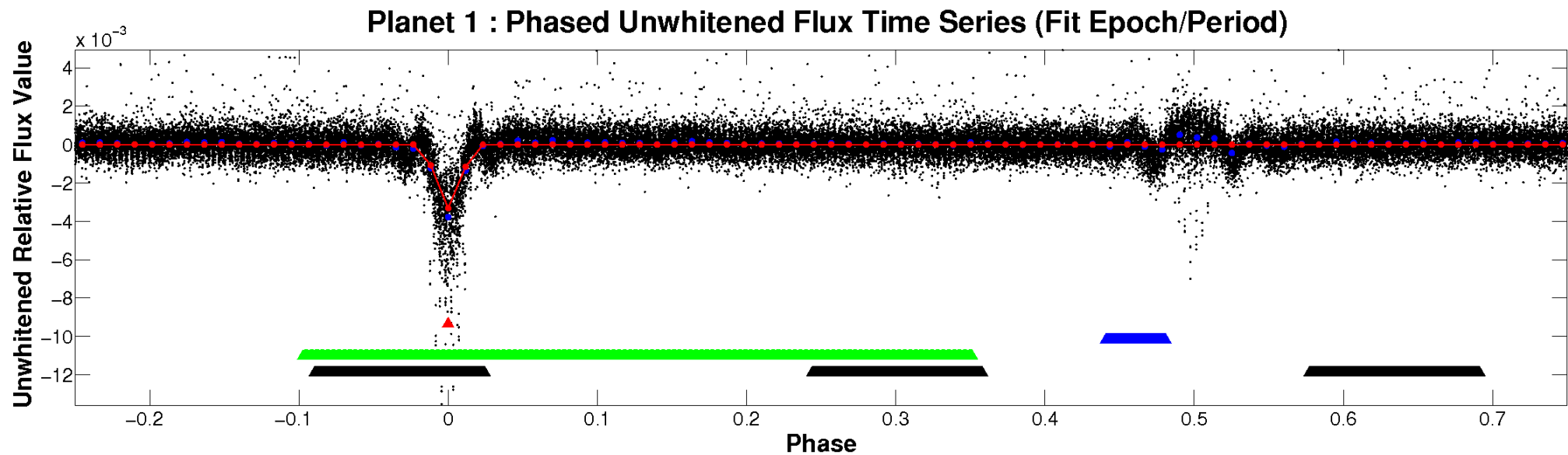


ALT Odd/Even

TCE 011564013-01

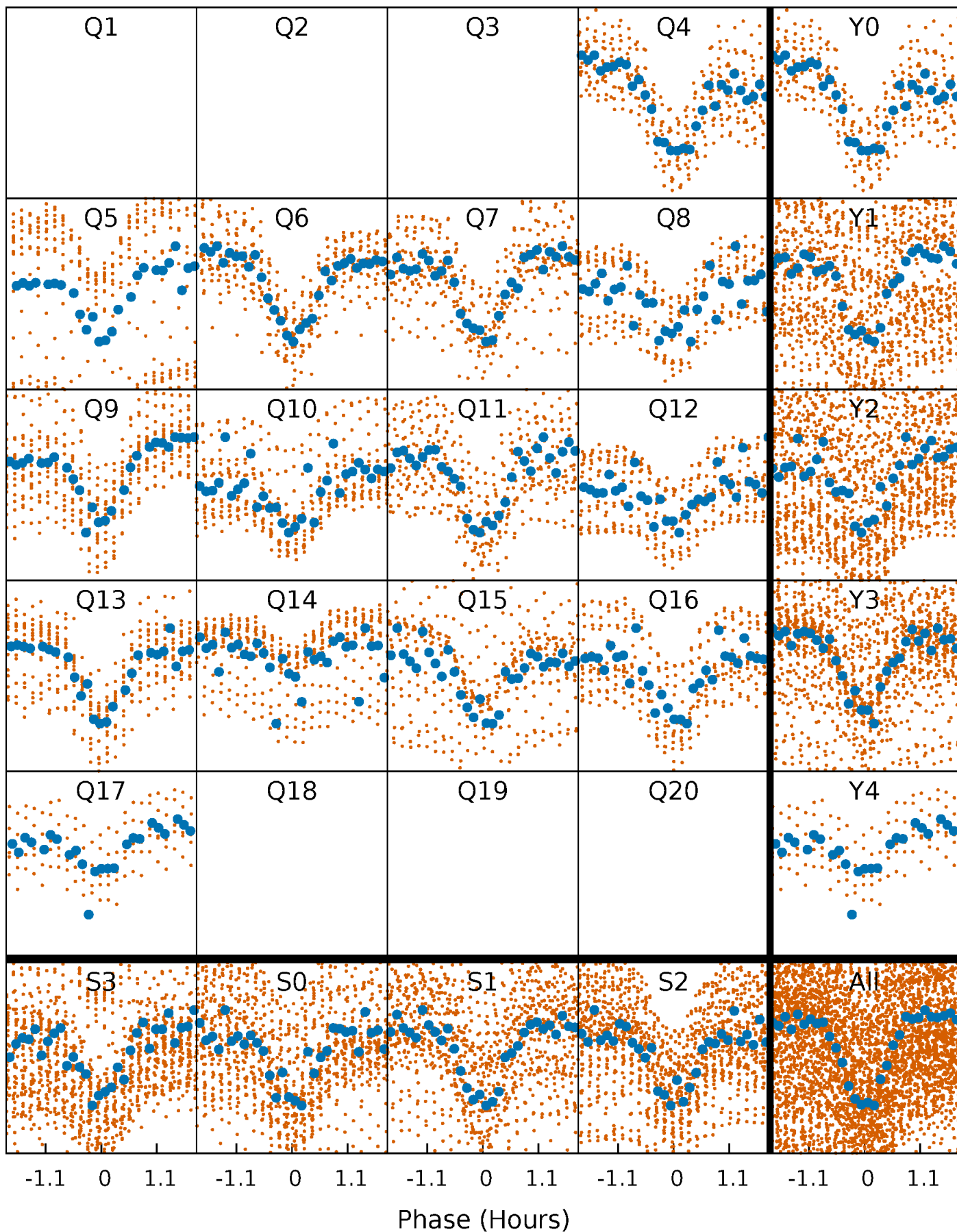


Non-Whitened Vs. Whitened Light Curve



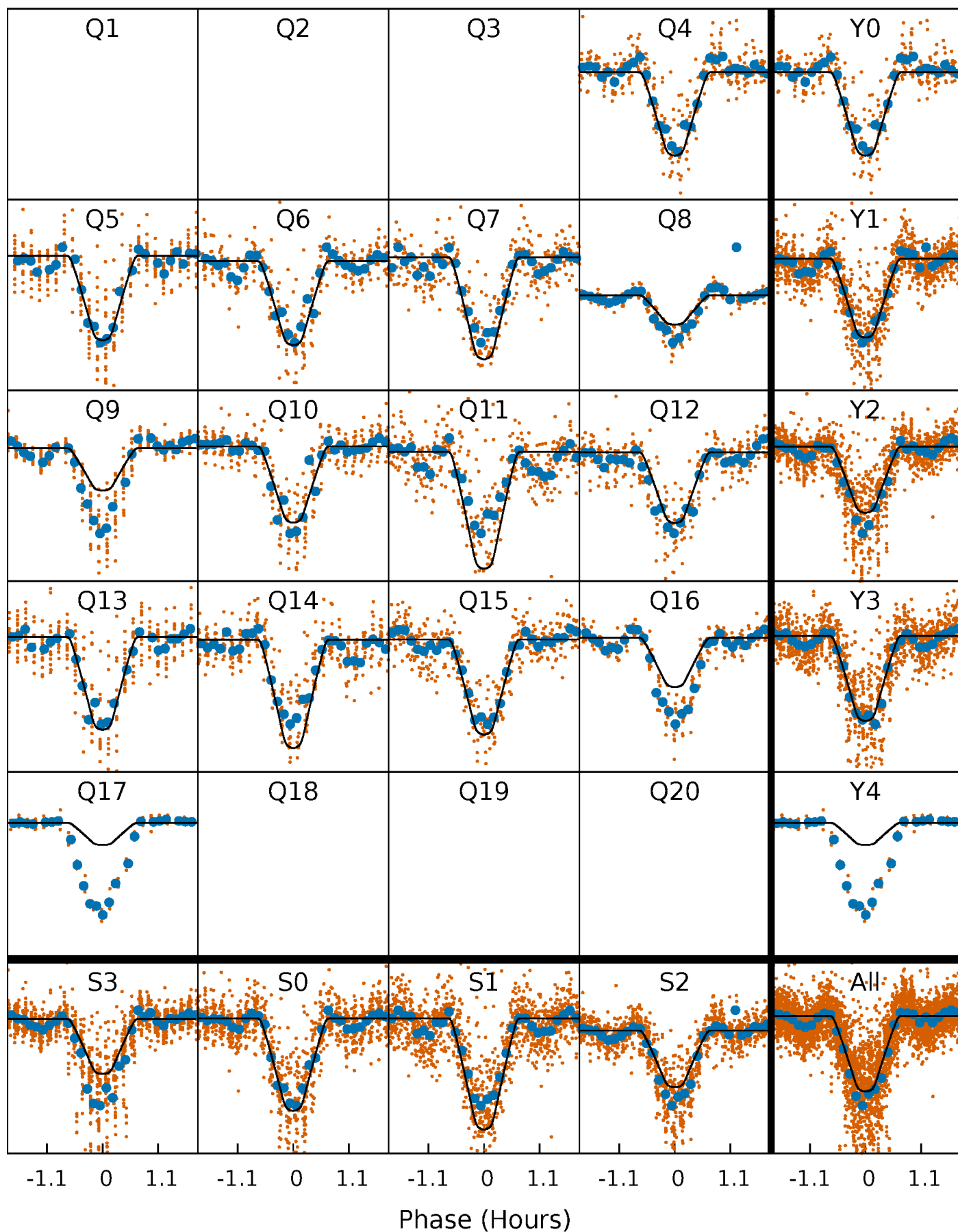
PDC Quarter-Phased Transit Curves

TCE 011564013-01 P= 1.750537 Days $T_0=132.906834$ (BKJD)



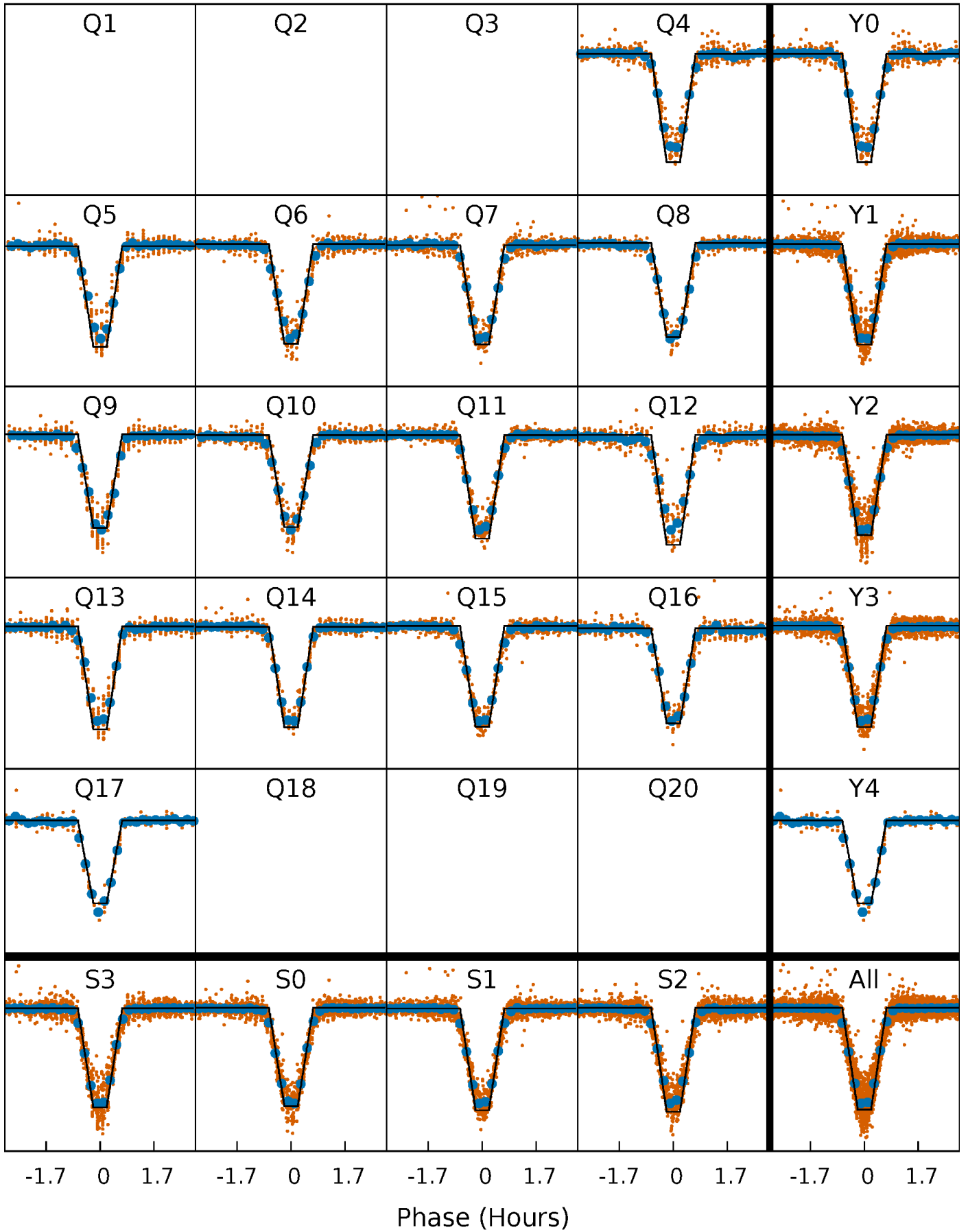
DV Quarter-Phased Transit Curves

TCE 011564013-01 P= 1.750537 Days $T_0=132.906834$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

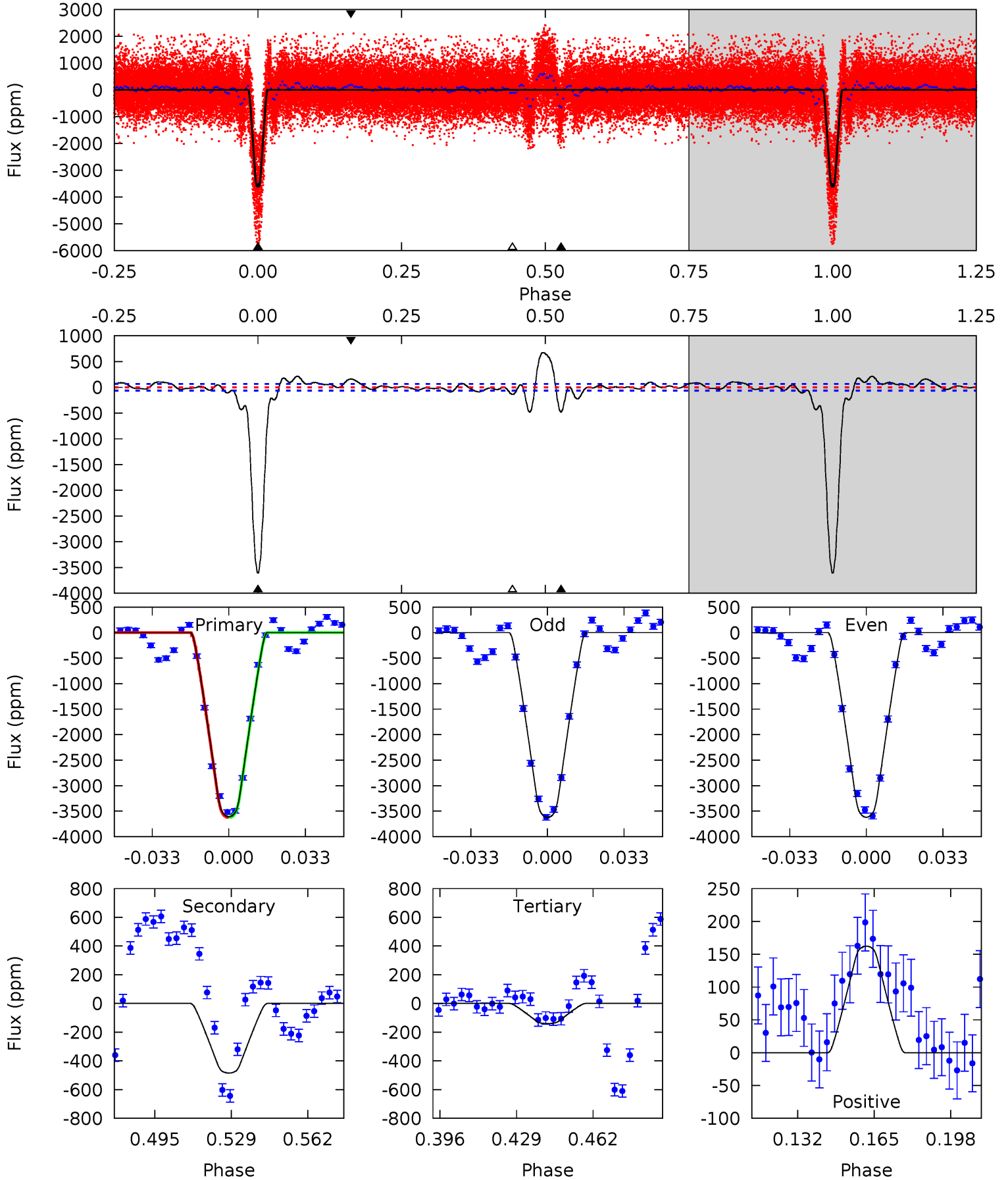
TCE 011564013-01 P= 1.750537 Days $T_0=132.907217$ (BKJD)



DV Model-Shift Uniqueness Test

011564013-01, P = 1.750537 Days, E = 132.906834 Days

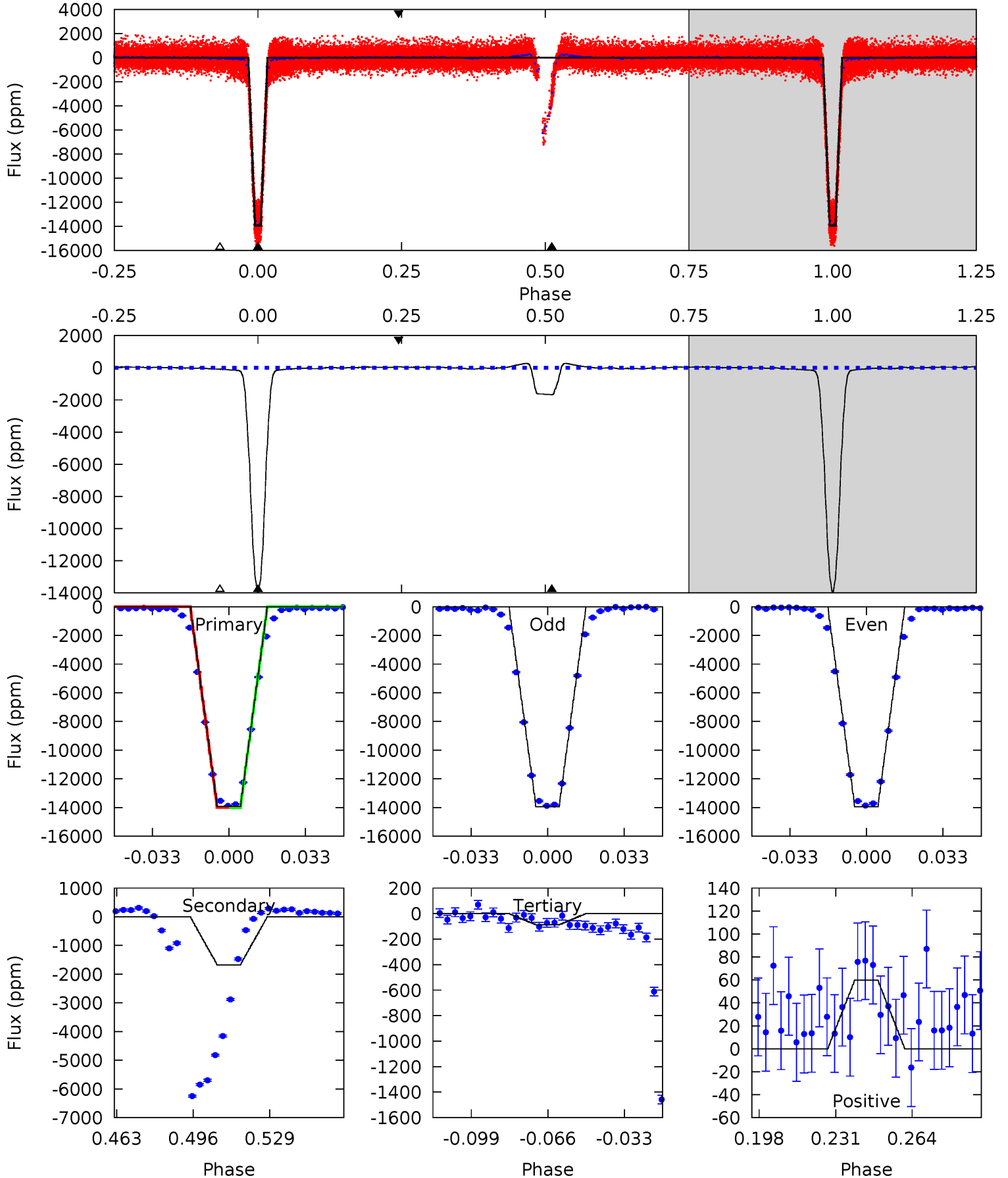
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
266.2	35.8	10.3	12.0	4.79	2.13	7.32	255.8	254.2	25.4	23.8	0.18	1.13	0.16	0



Alt Model-Shift Uniqueness Test

011564013-01, P = 1.750537 Days, E = 132.907217 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1143	137.6	7.19	4.90	4.79	2.13	5.58	1135	1138	130.4	132.7	0.33	1.00	0.02	0.88



Stellar Parameters For KIC 011564013

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5821^{+192}_{-174}	$4.402^{+0.167}_{-0.185}$	$-0.740^{+0.300}_{-0.300}$	$0.898^{+0.221}_{-0.161}$	$0.742^{+0.103}_{-0.040}$	$1.445^{+1.147}_{-0.693}$
	+3%/-3%	+4%/-4%	+41%/-41%	+25%/-18%	+14%/-5%	+79%/-48%
Source	KIC0	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 011564013-01 / KOI 3714.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-485 ± 14	$5.89^{+1.06}_{-0.73}$	2122^{+165}_{-140}	3841^{+140}_{-114}	$5.177^{+1.483}_{-1.422}$
Alt.	-1678 ± 12	$11.97^{+1.85}_{-1.23}$	2128^{+143}_{-123}	3738^{+97}_{-94}	$4.349^{+1.042}_{-1.009}$

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

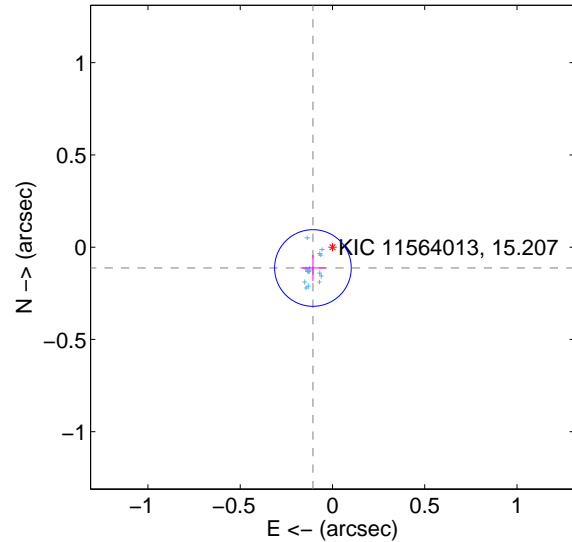
Supplemental centroid analysis for 011564013-01. Kepler magnitude: 15.21. Transit SNR 119.90

There are 14 quarters with good PRF difference image offsets

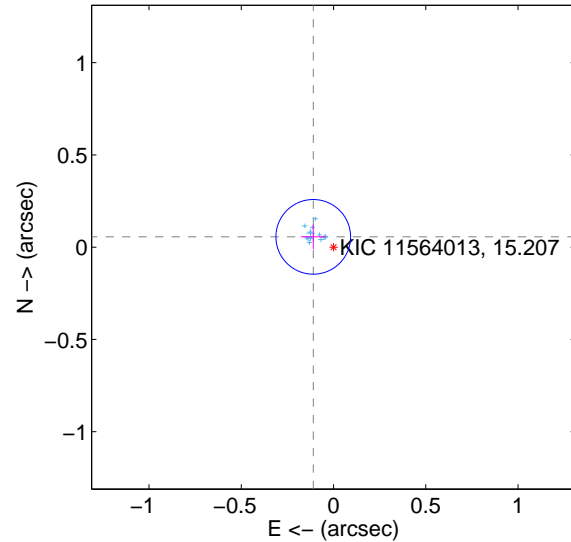
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.155 ± 0.069	2.24	0.106 ± 0.068	-0.113 ± 0.071
PRF-fit source offset from KIC position	0.123 ± 0.067	1.83	0.110 ± 0.067	0.056 ± 0.067
photometric centroid source offset	0.89 ± 0.07	13.34	0.77 ± 0.06	-0.46 ± 0.08

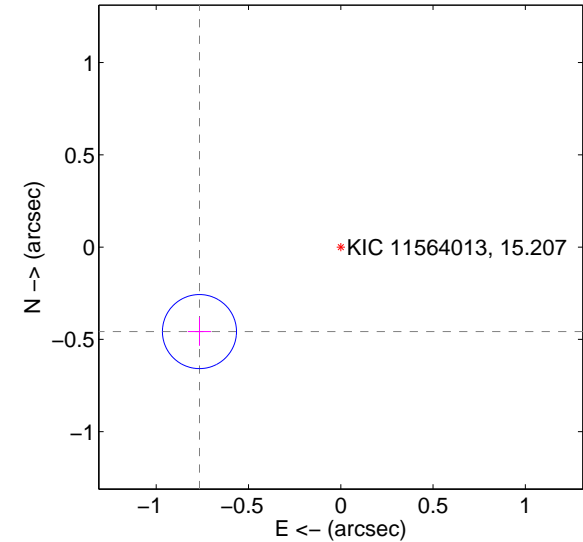
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

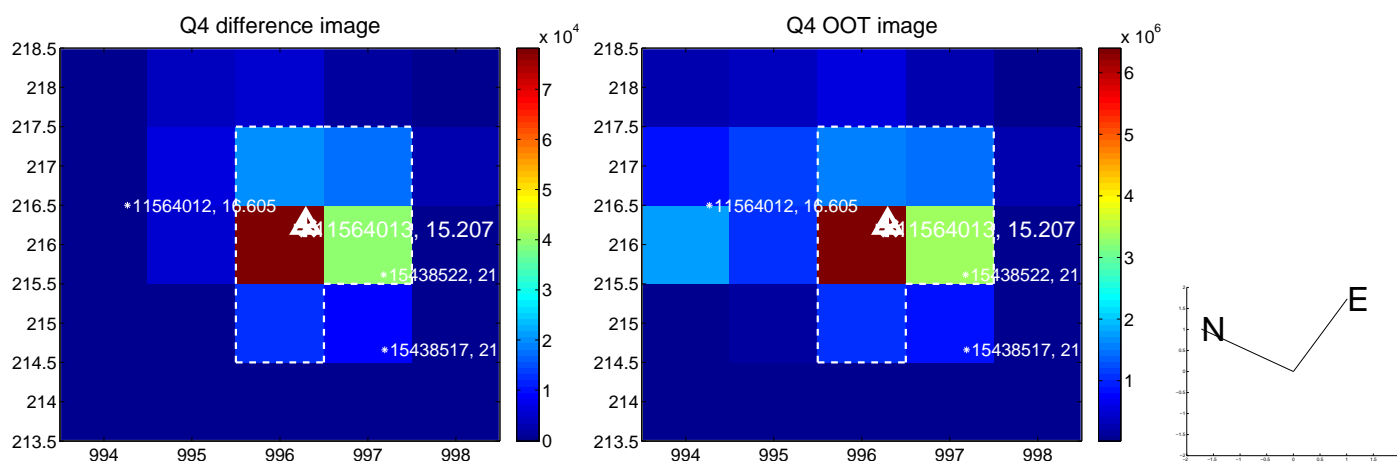
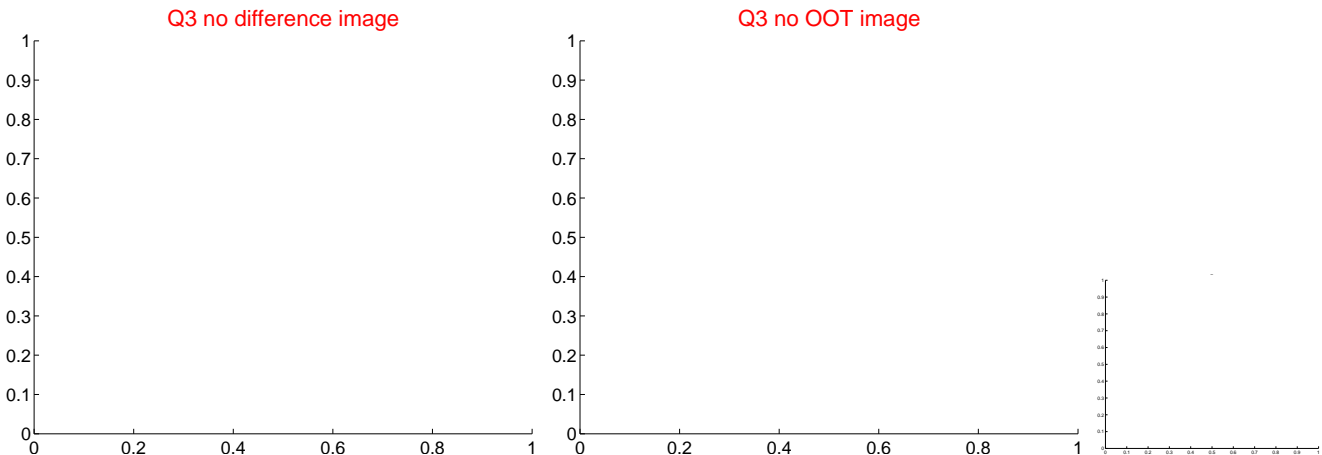
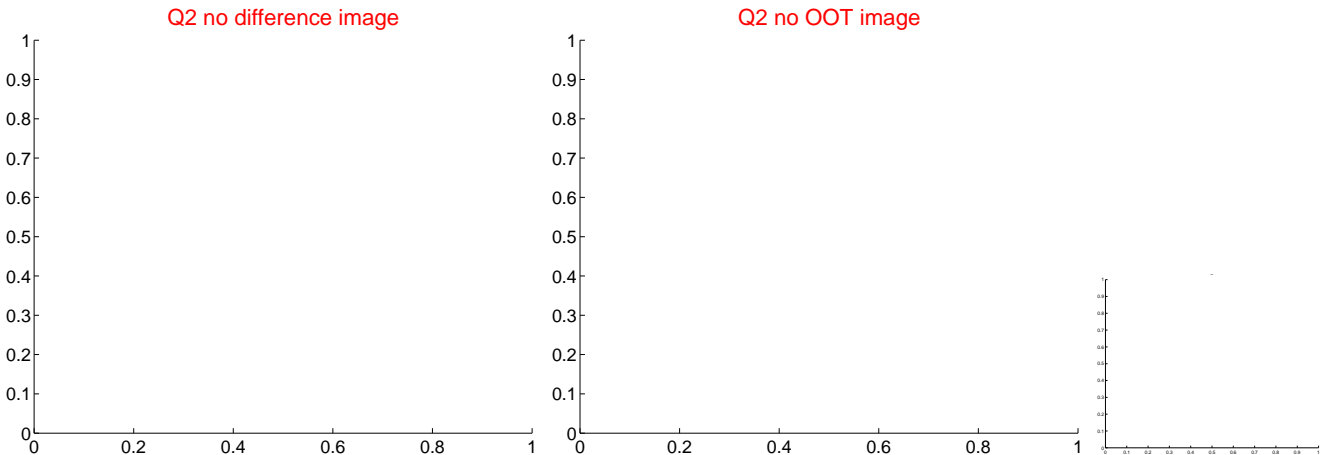
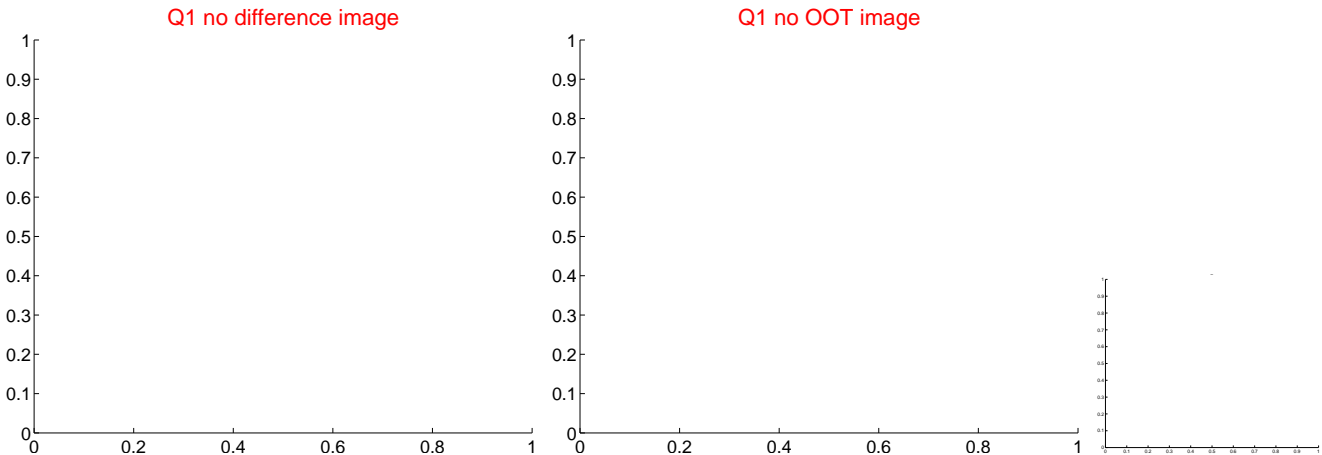


offset from photometric centroids

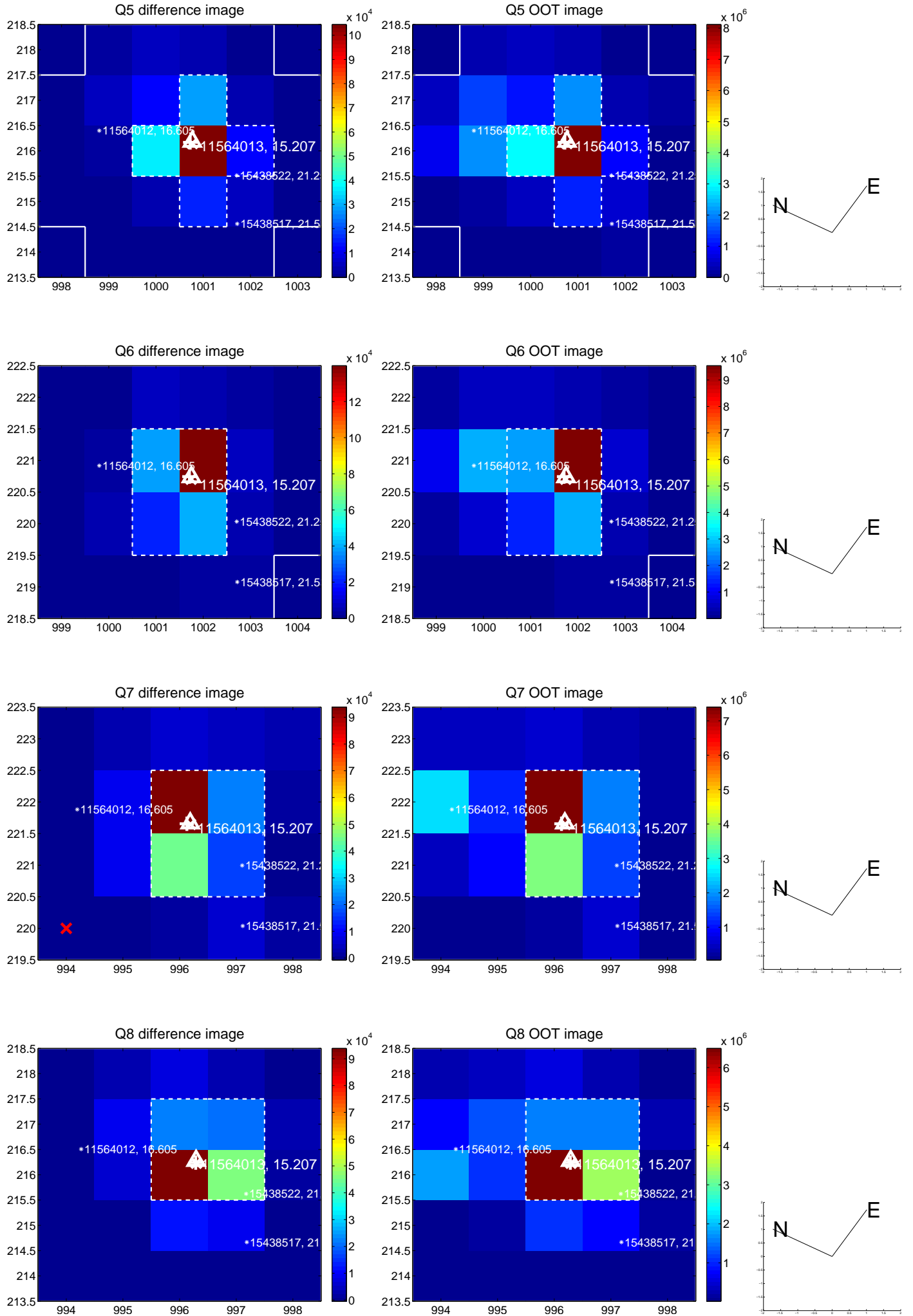


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

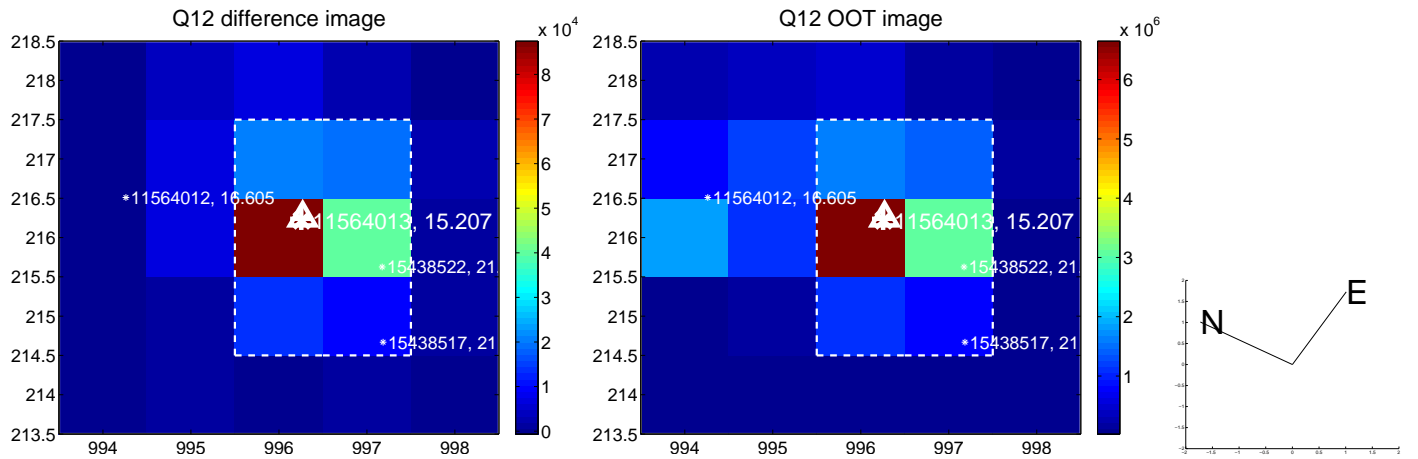
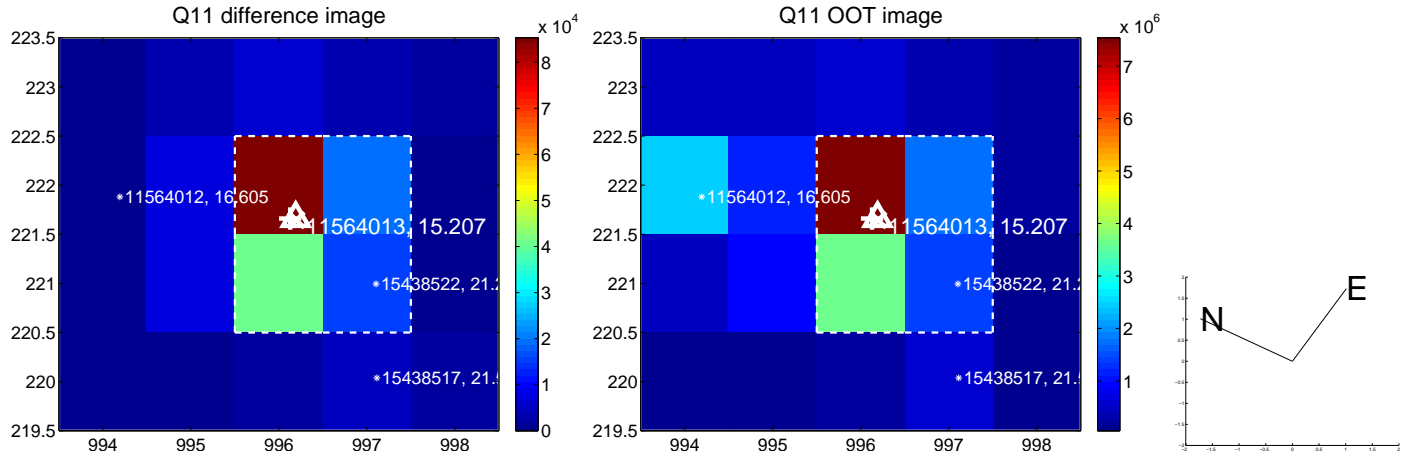
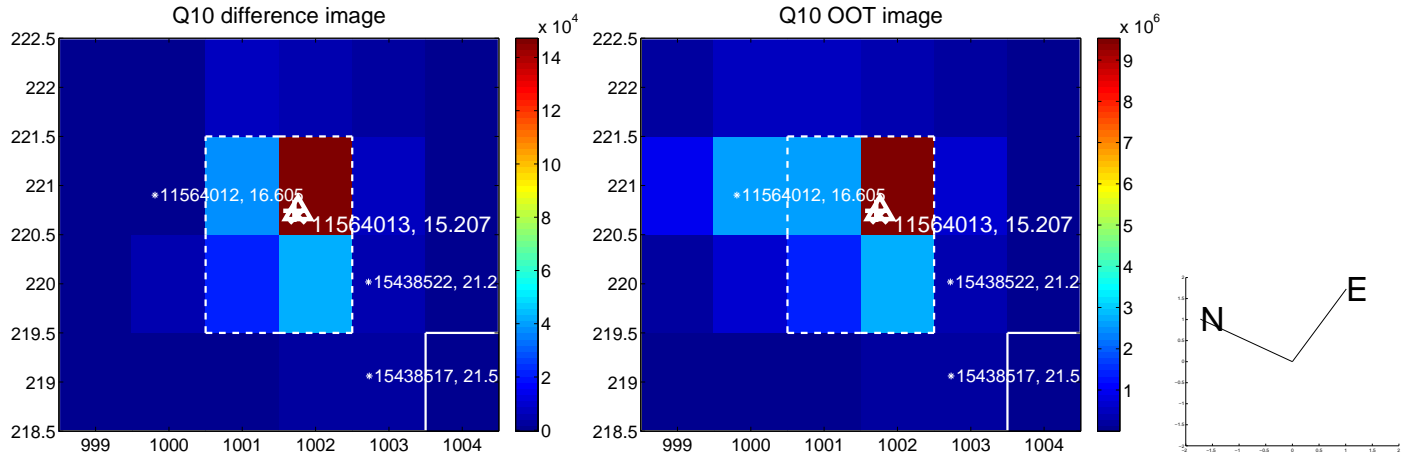
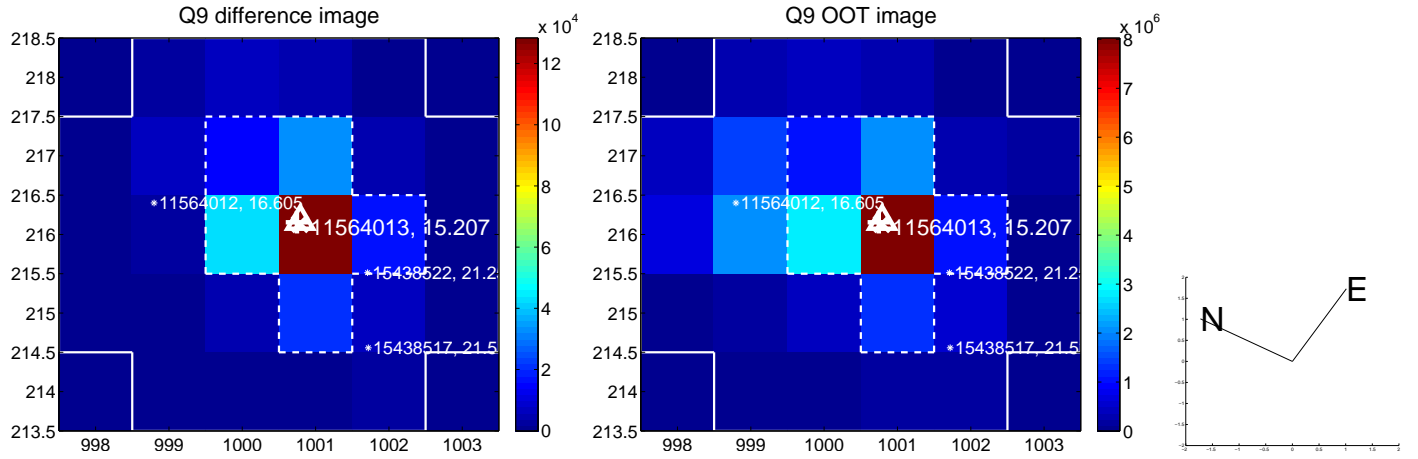
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



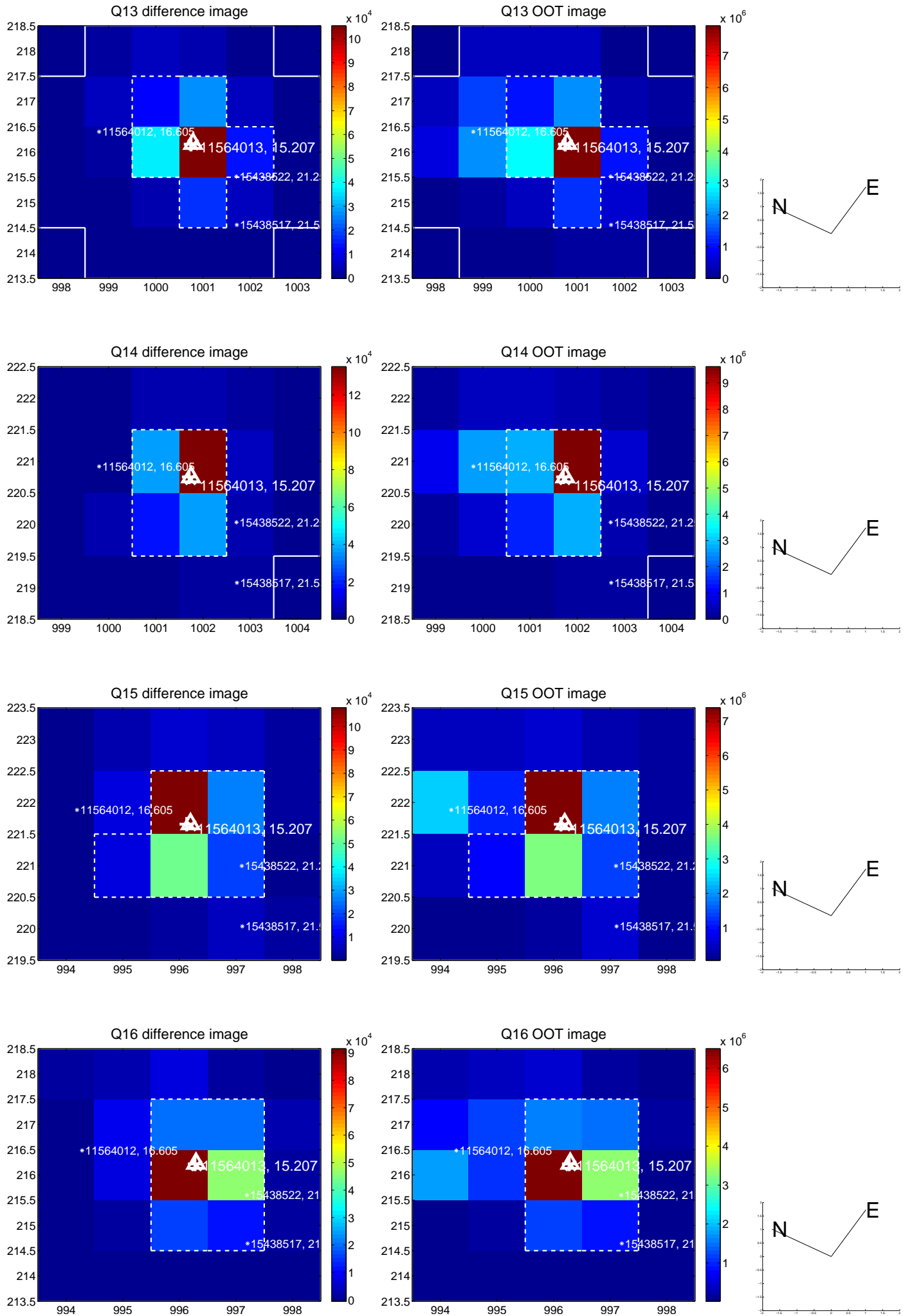
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



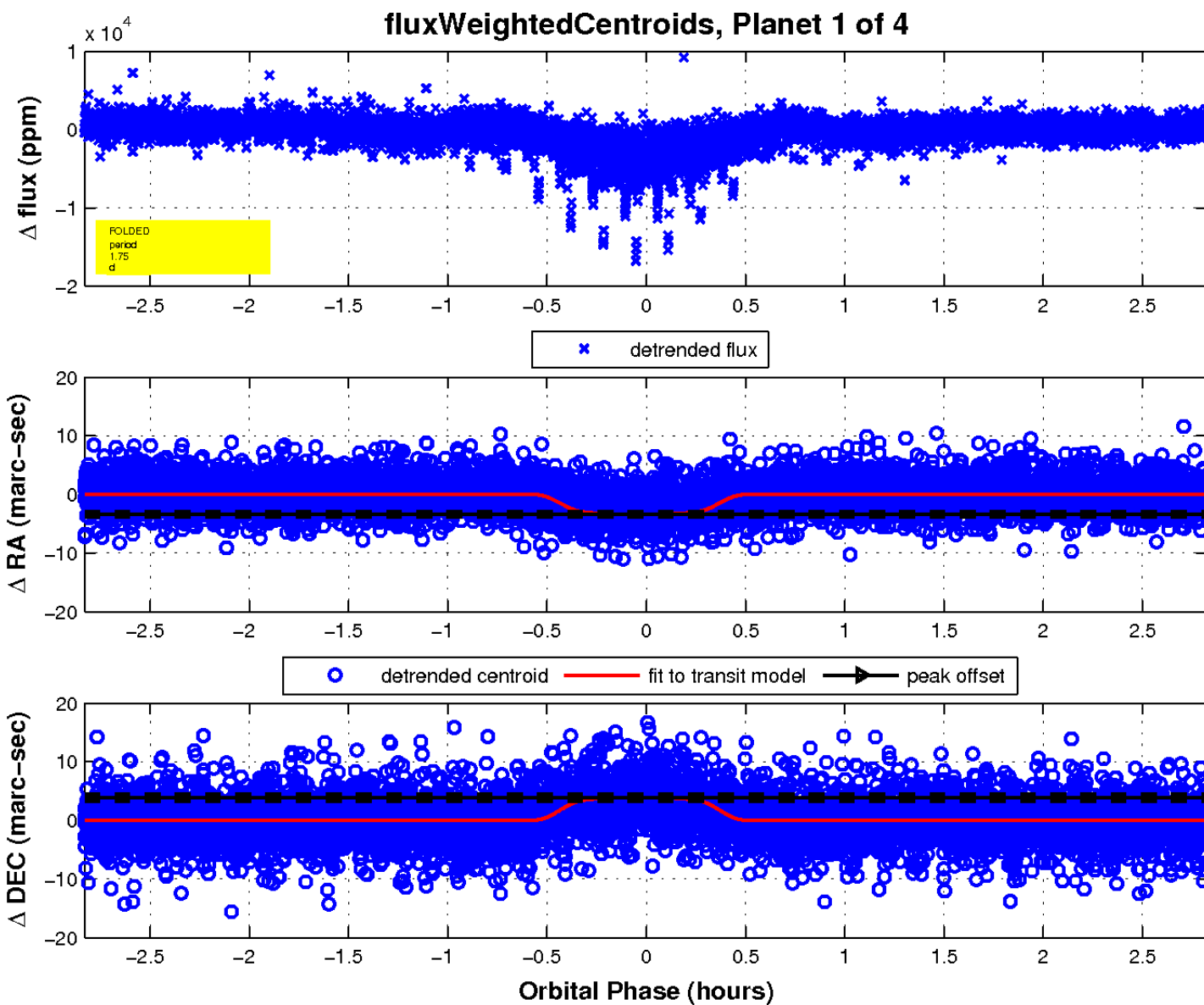
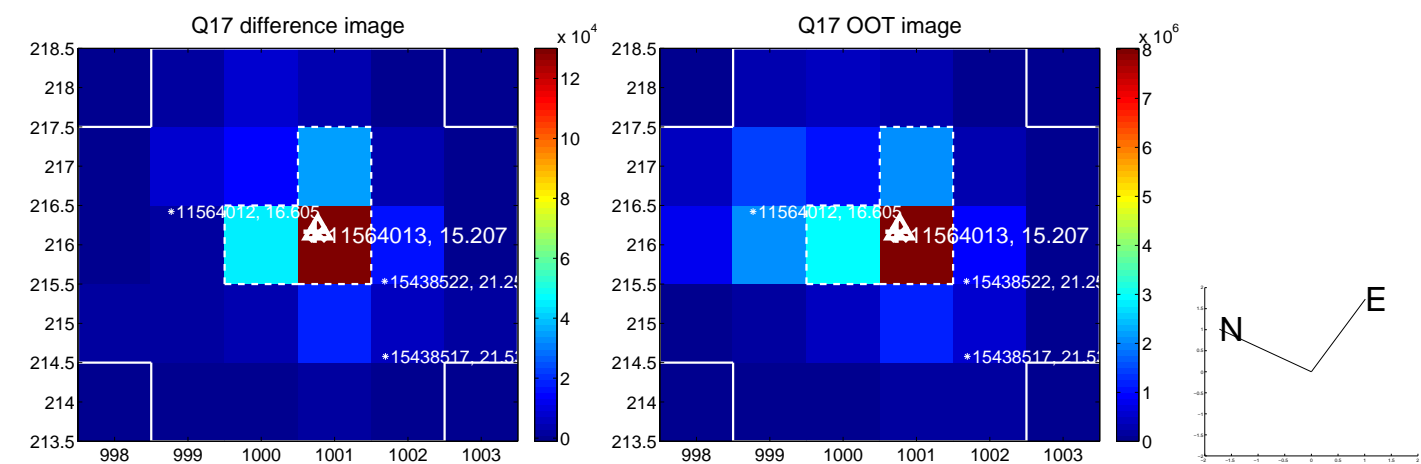
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

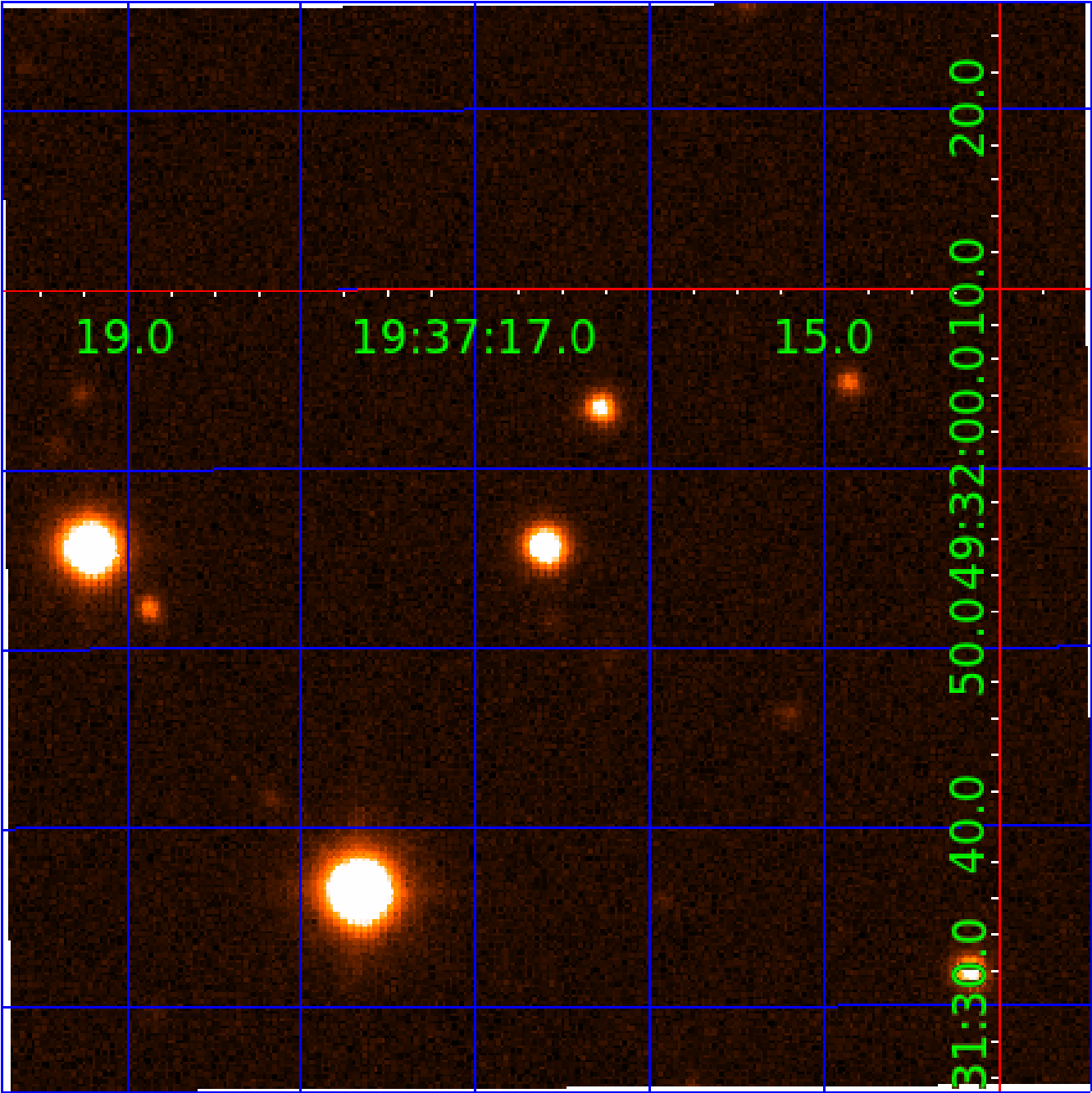


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011564013

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})
011564013-01	OBS	3714.01	1.750537	132.906834	3527.4	0.943	48.7	119.9	0.90	5821	5.86	1251.72
011564013-02	OBS	No	1.750453	131.998029	329.8	2.324	23.9	13.2	0.90	5821	1.67	1251.80
011564013-03	OBS	No	1.749596	131.771094	69.5	0.582	8.0	1.9	0.90	5821	0.91	1252.62
011564013-04	OBS	No	0.583433	131.782869	821.1	1.500	7.4	-1.0	0.90	5821	2.58	5416.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011564013-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE
011564013-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—HALO_GHOST
011564013-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011564013-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS

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 011564013-02

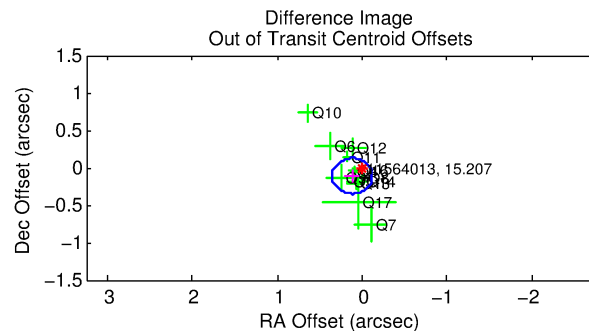
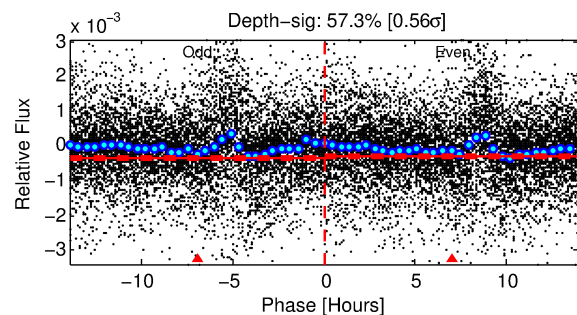
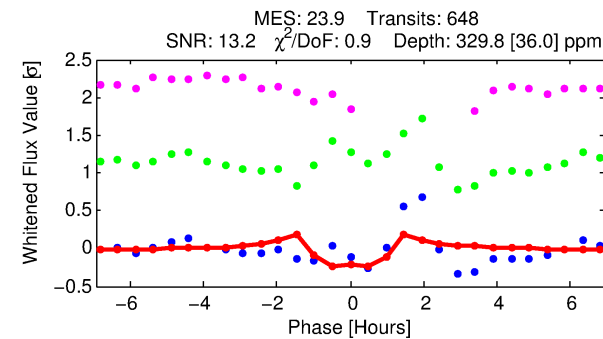
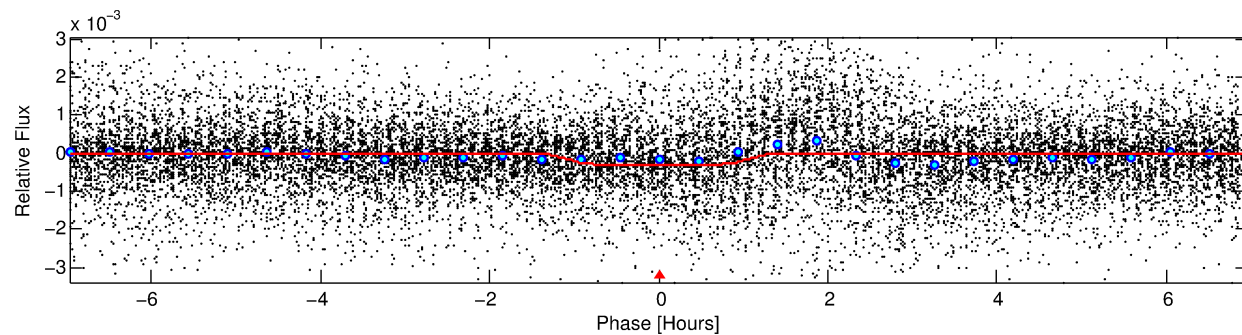
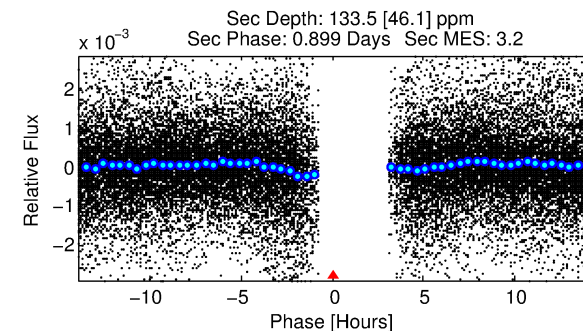
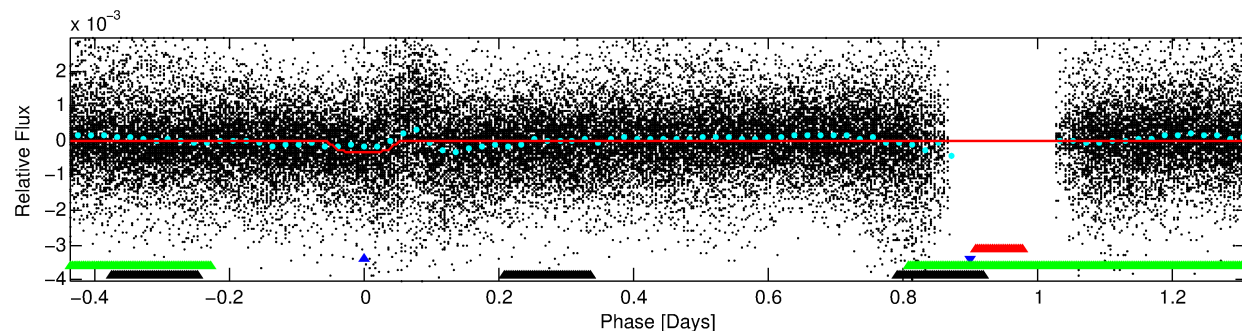
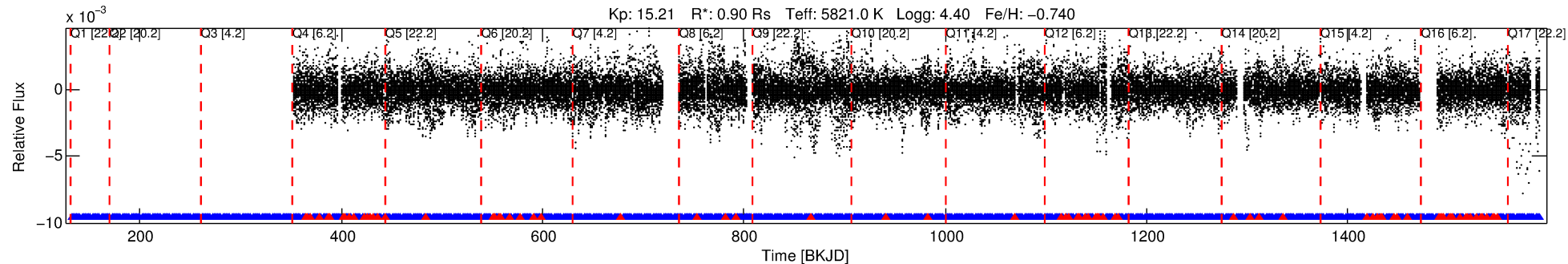
No Significant Match Found

DV One-Page Summary

KIC: 11564013 Candidate: 2 of 4 Period: 1.750 d

KOI: K03714 Corr: No Ephemeris Match

Kp: 15.21 R*: 0.90 Rs Teff: 5821.0 K Logg: 4.40 Fe/H: -0.740



DV Fit Results:

Period = 1.75045 [0.00001] d
Epoch = 131.9980 [0.0015] BKJD
Rp/R* = 0.0171 [0.0074]
a/R* = 5.25 [10.71]
b = 0.46 [3.60]
Seff = 1251.80 [442.53]
Teff = 1517 [134] K
Rp = 1.67 [0.83] Re
a = 0.0257 [0.0056] AU
Ag = 17.41 [17.15] [0.96σ]
Teffp = 4790 [1123] K [2.89σ]

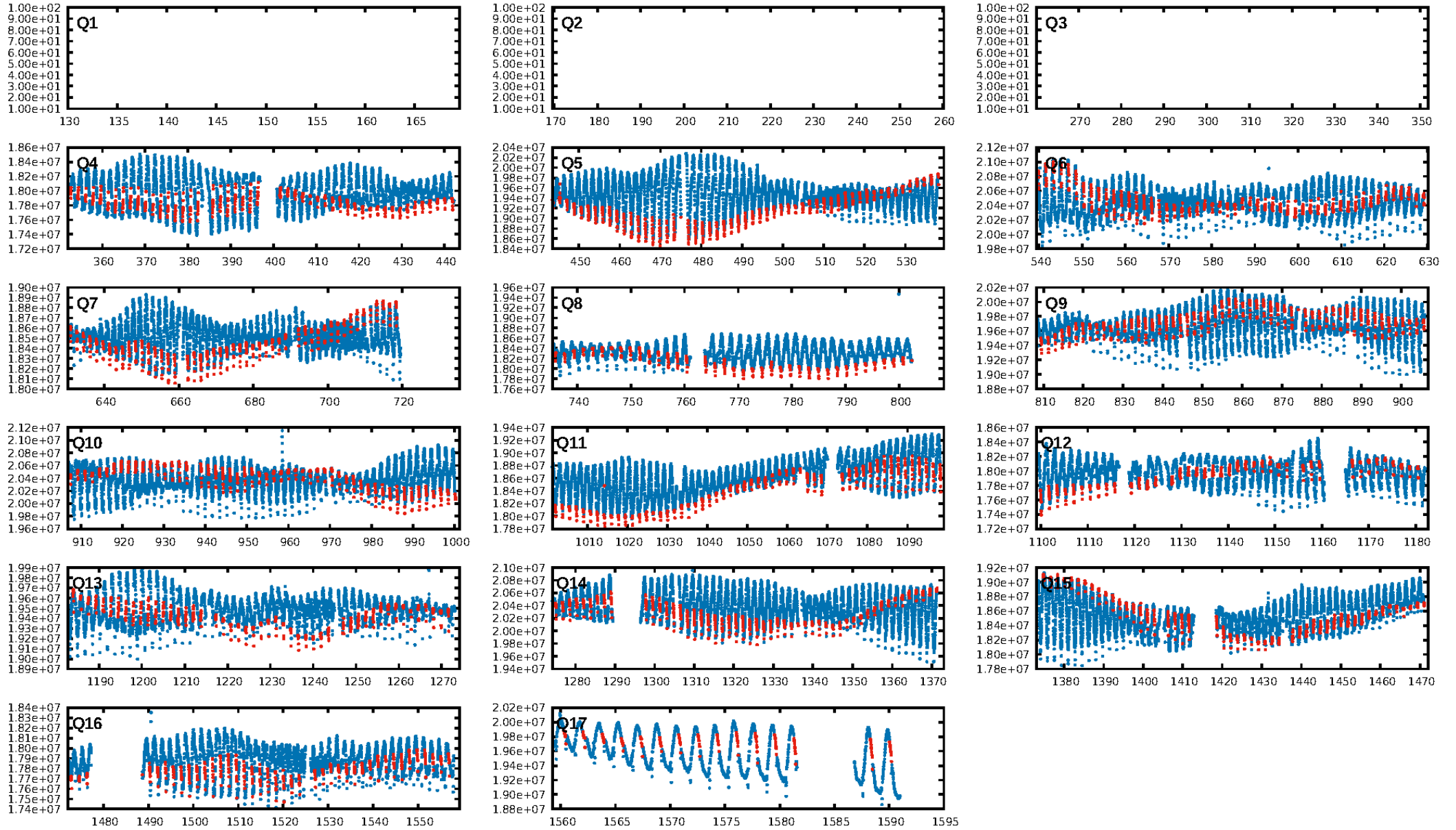
DV Diagnostic Results:

ShortPeriod-sig: 0.7% [0.01σ]
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.88 [557/633]
GhostDiagnostic-chr: -0.03502
Centroid-sig: 2.9%
Centroid-so: 1.441 arcsec [2.78σ]
OotOffset-rm: 0.162 arcsec [2.04σ]
KicOffset-rm: 0.120 arcsec [1.07σ]
OotOffset-st: 3/2/4/4 [13]
KicOffset-st: 3/2/4/4 [13]
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DiffImageOverlap-fno: 0.00 [0/14]

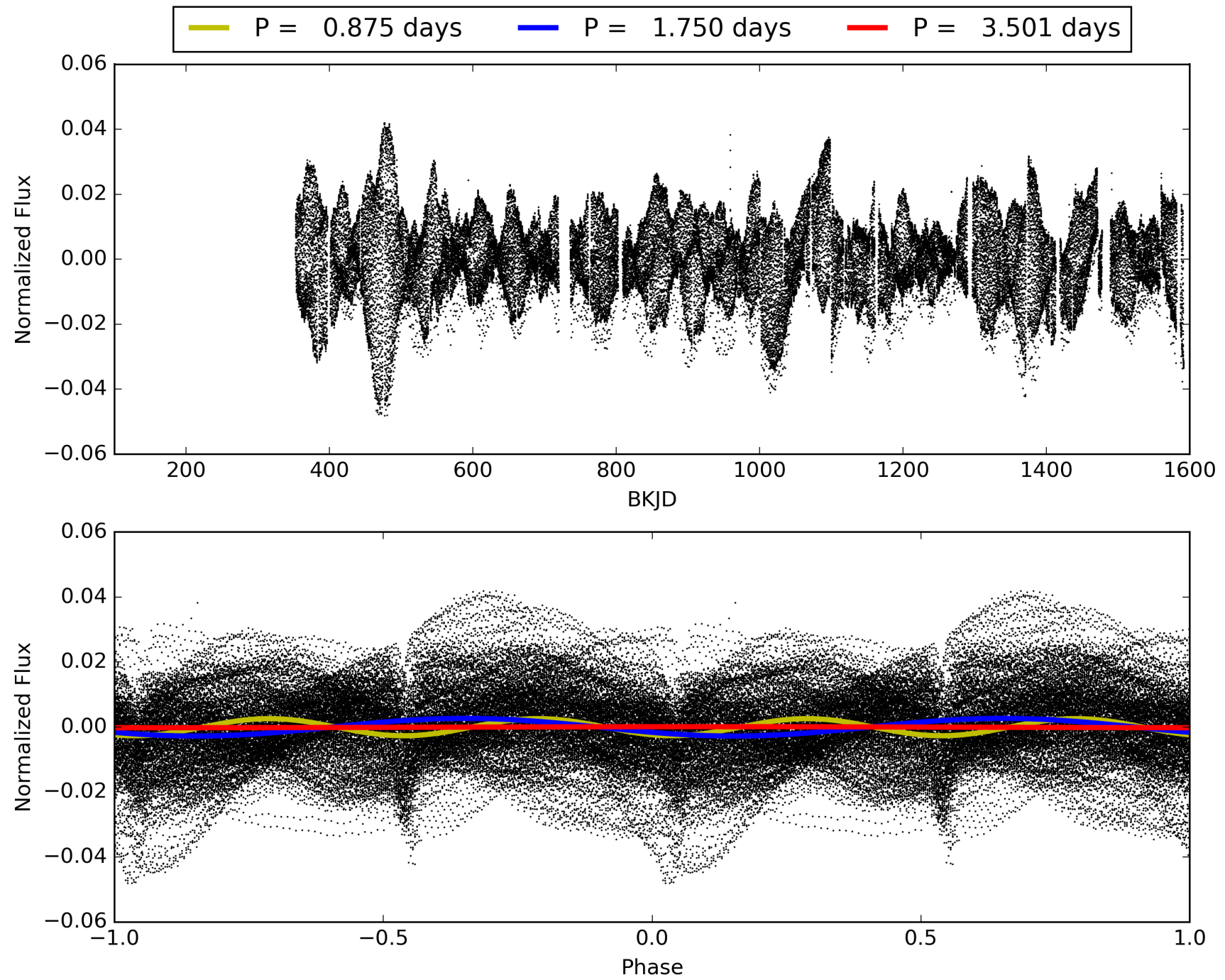
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:45:26 Z

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

TCE 011564013-02, PDC Light Curves

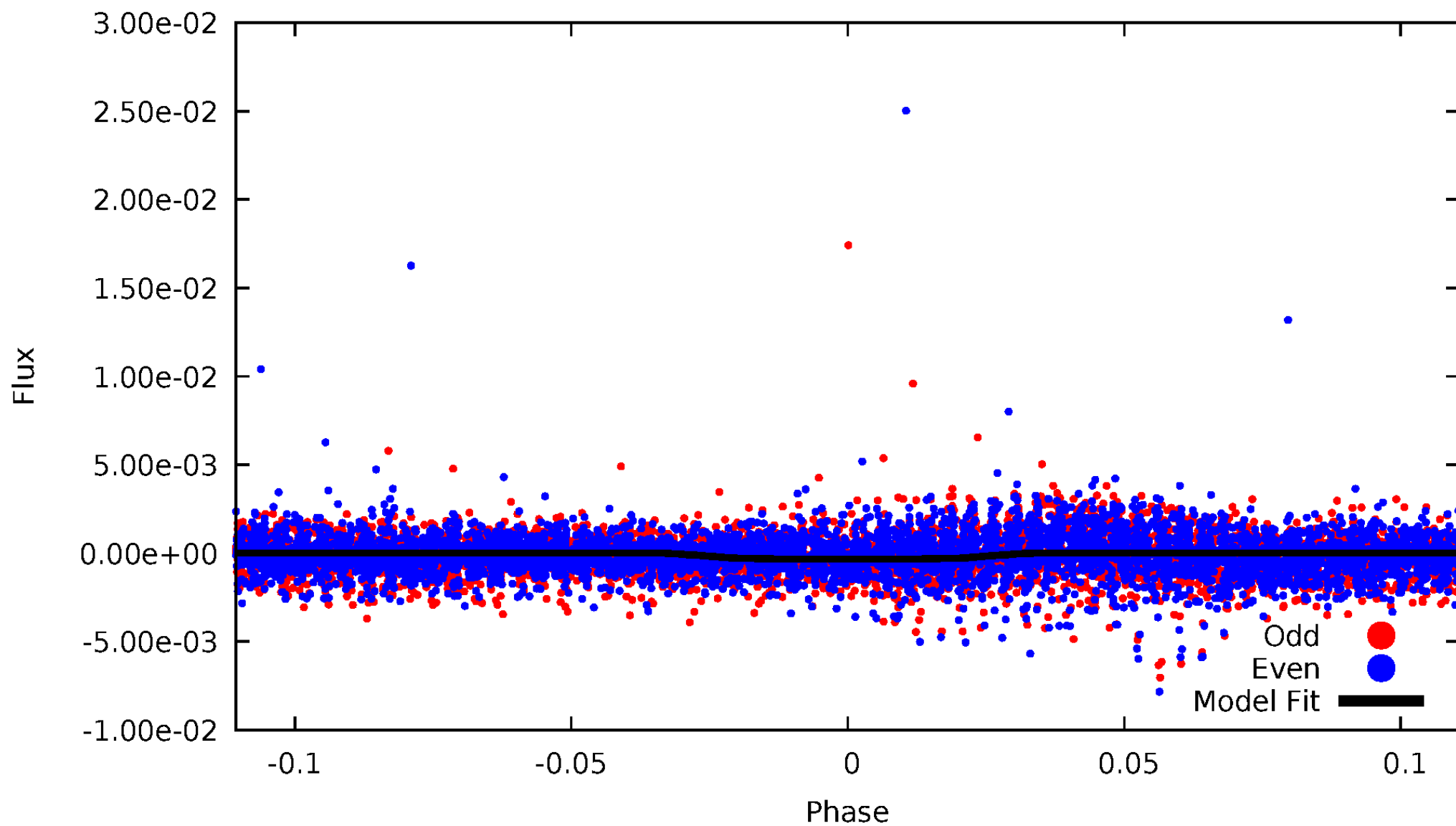


TCE 011564013-02



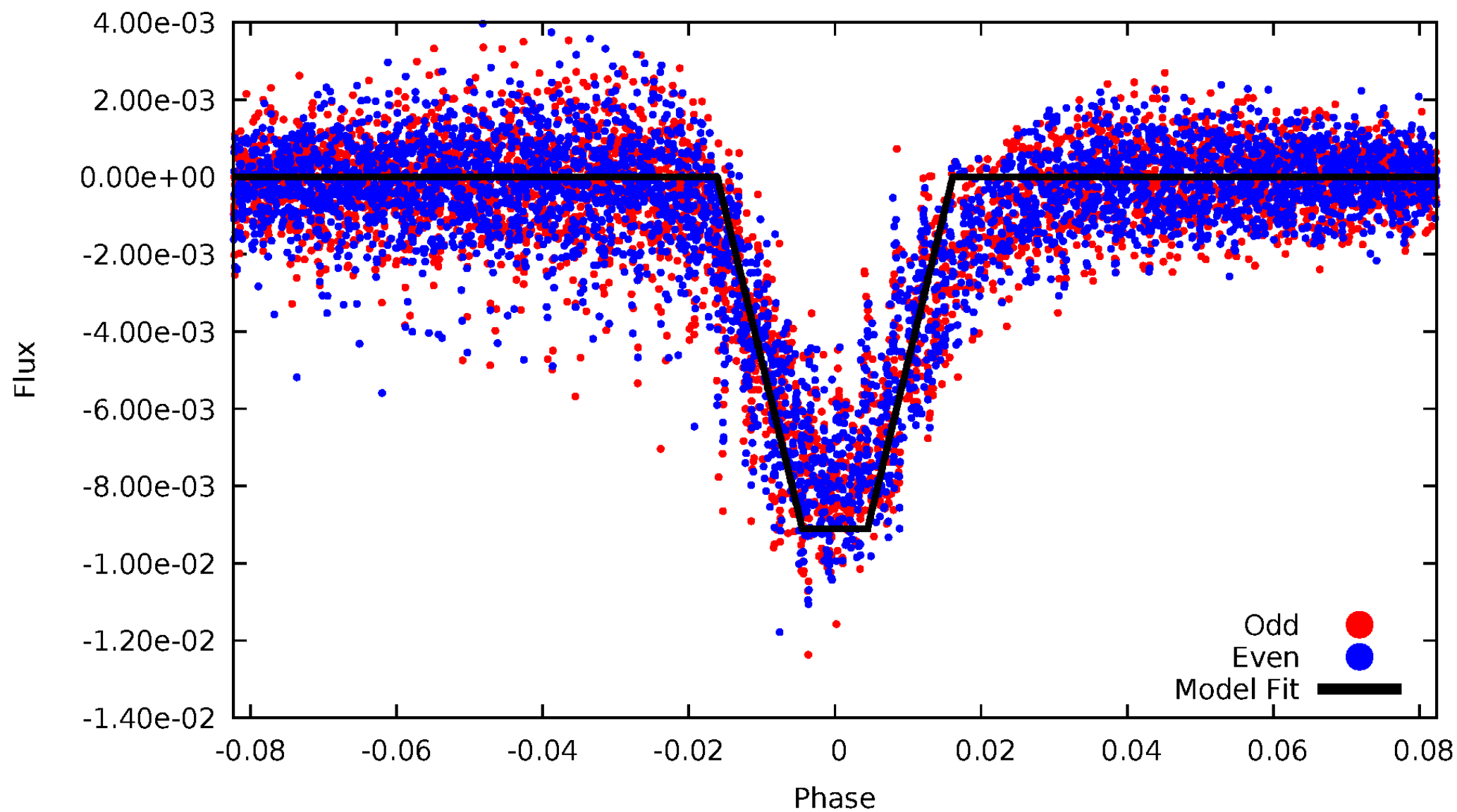
DV Odd/Even

TCE 011564013-02



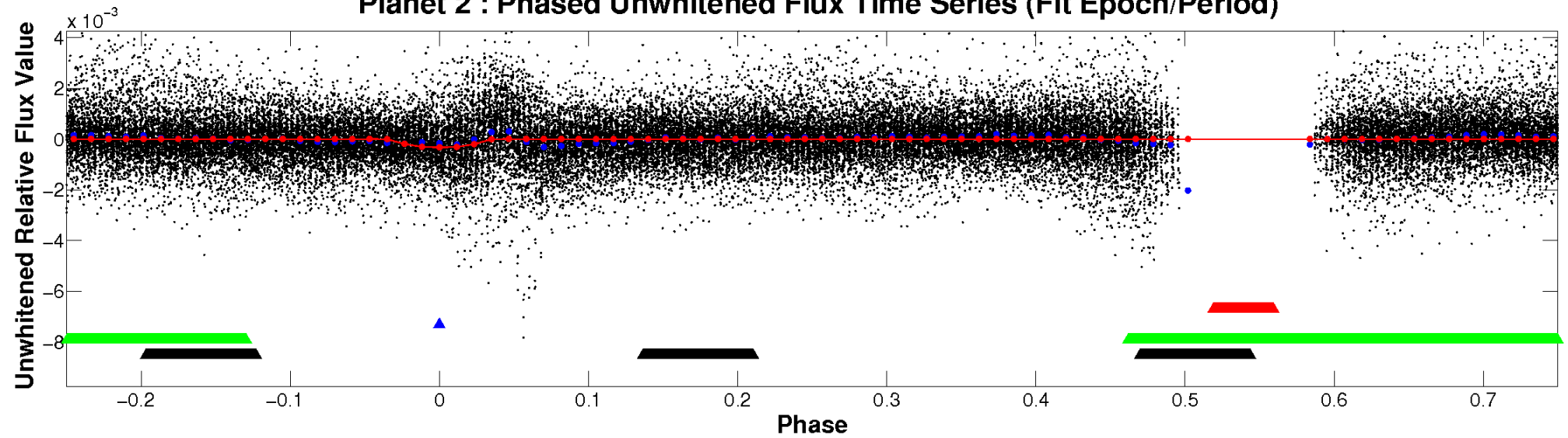
ALT Odd/Even

TCE 011564013-02

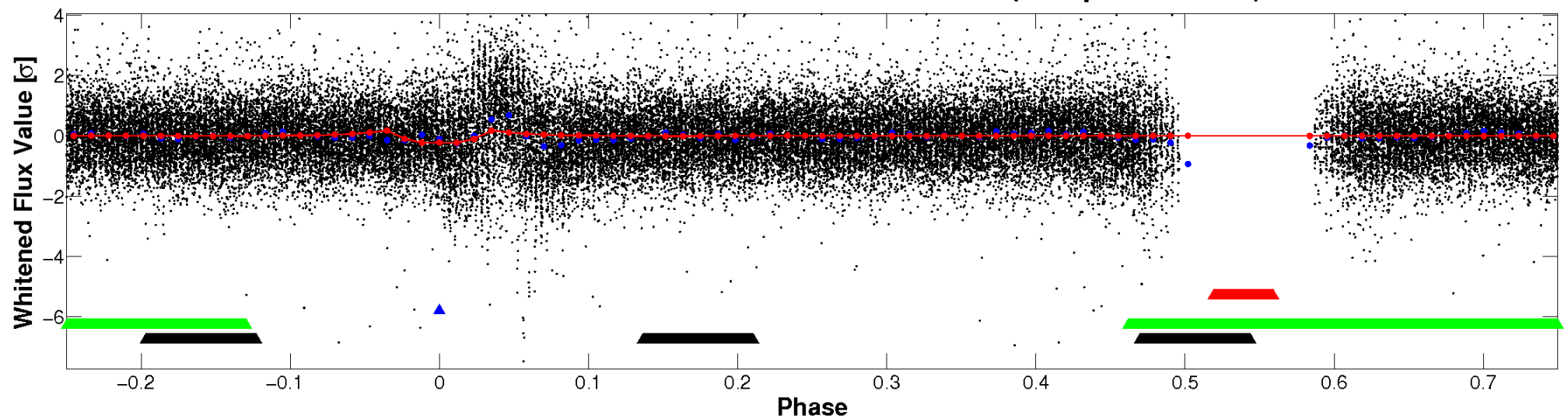


Non-Whitened Vs. Whitened Light Curve

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

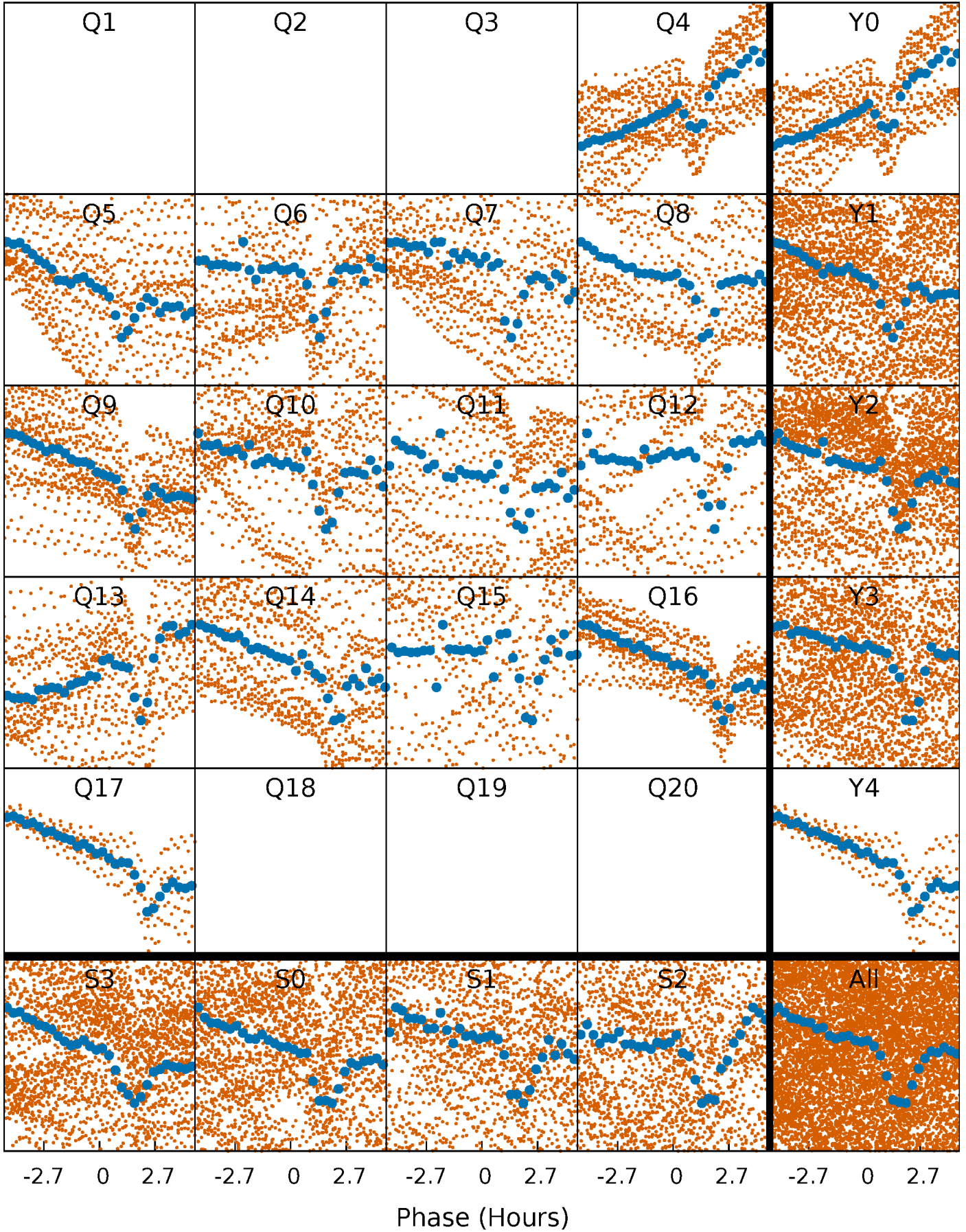


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



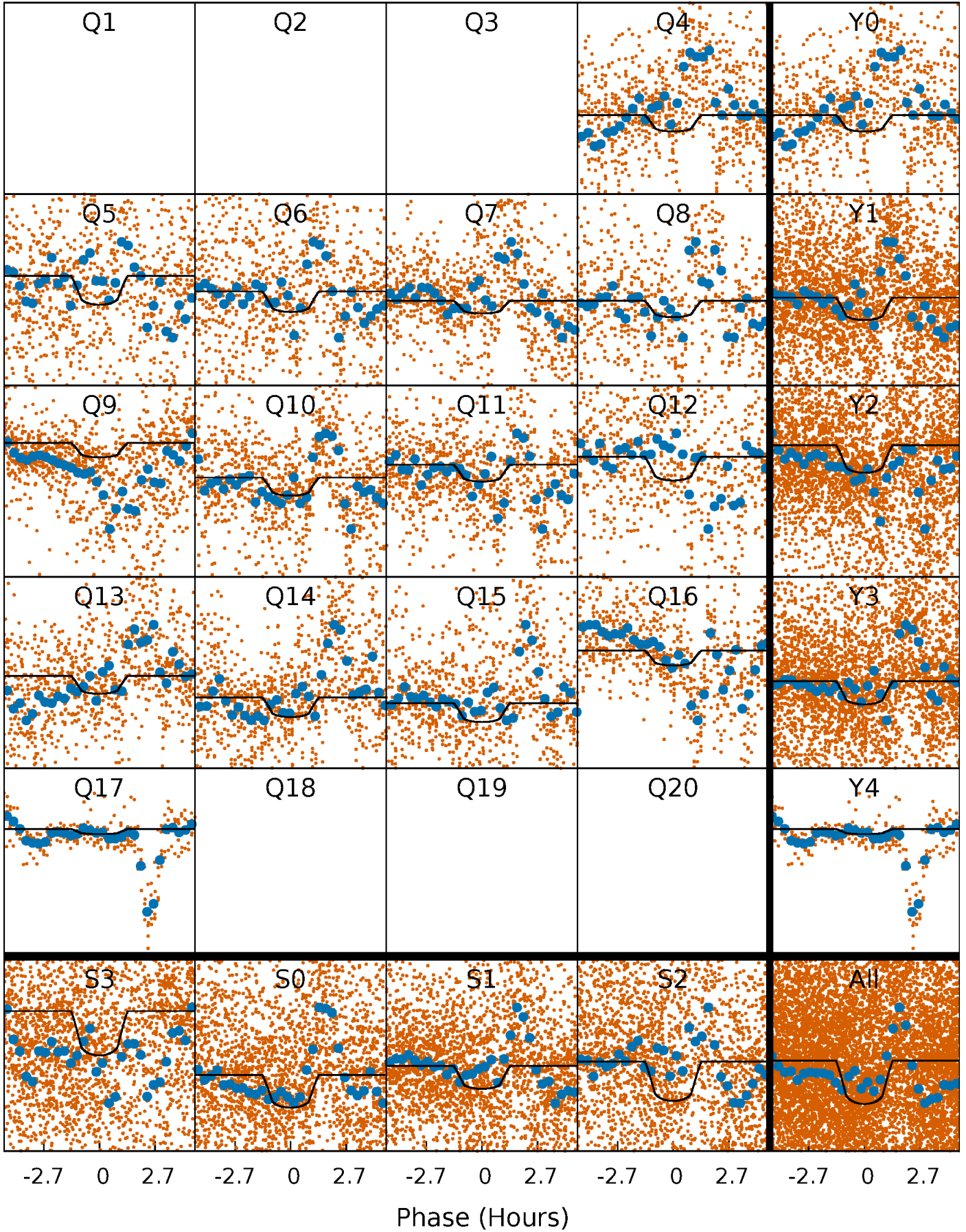
PDC Quarter-Phased Transit Curves

TCE 011564013-02 P= 1.750453 Days $T_0=131.998029$ (BKJD)



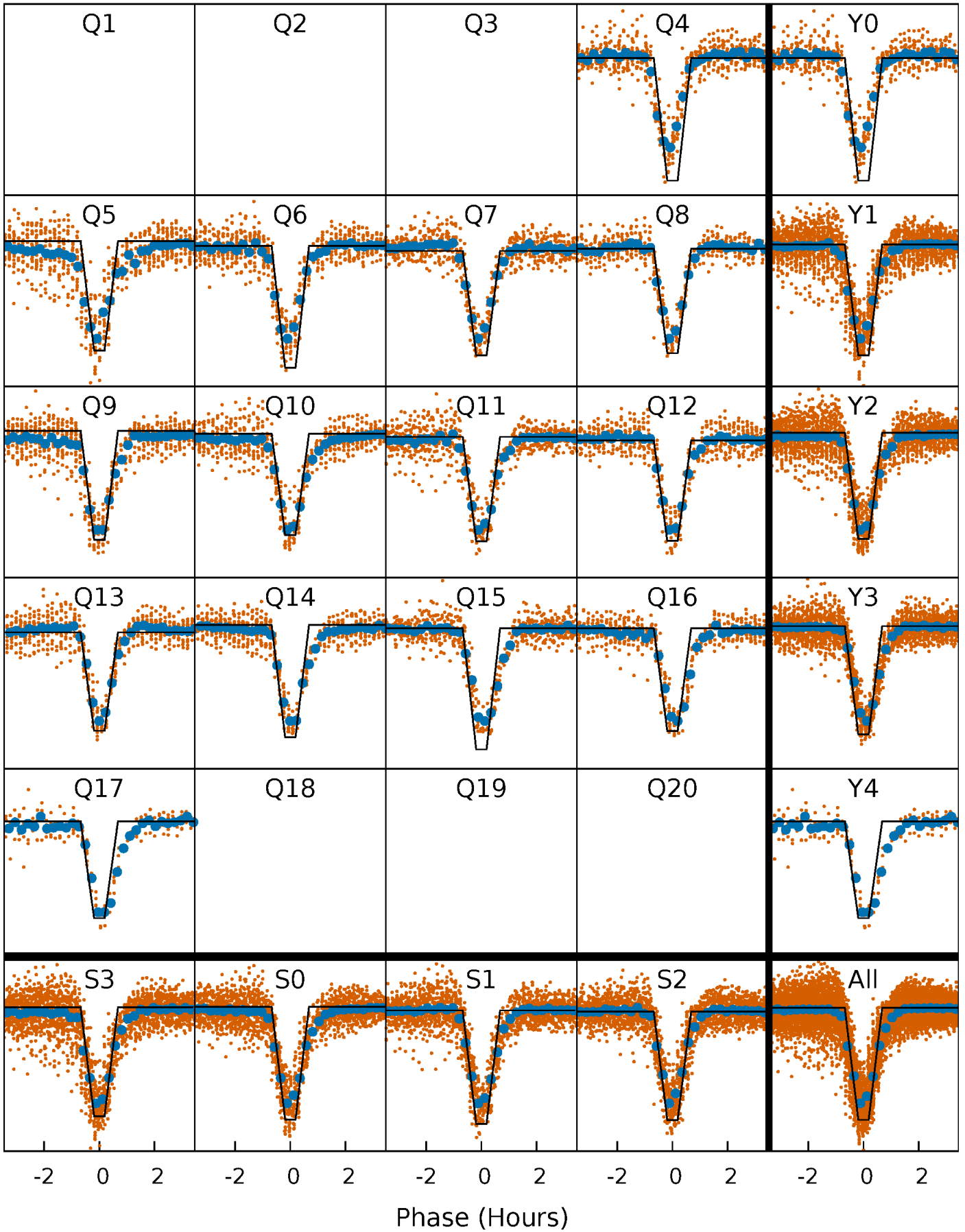
DV Quarter-Phased Transit Curves

TCE 011564013-02 P= 1.750453 Days $T_0=131.998029$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

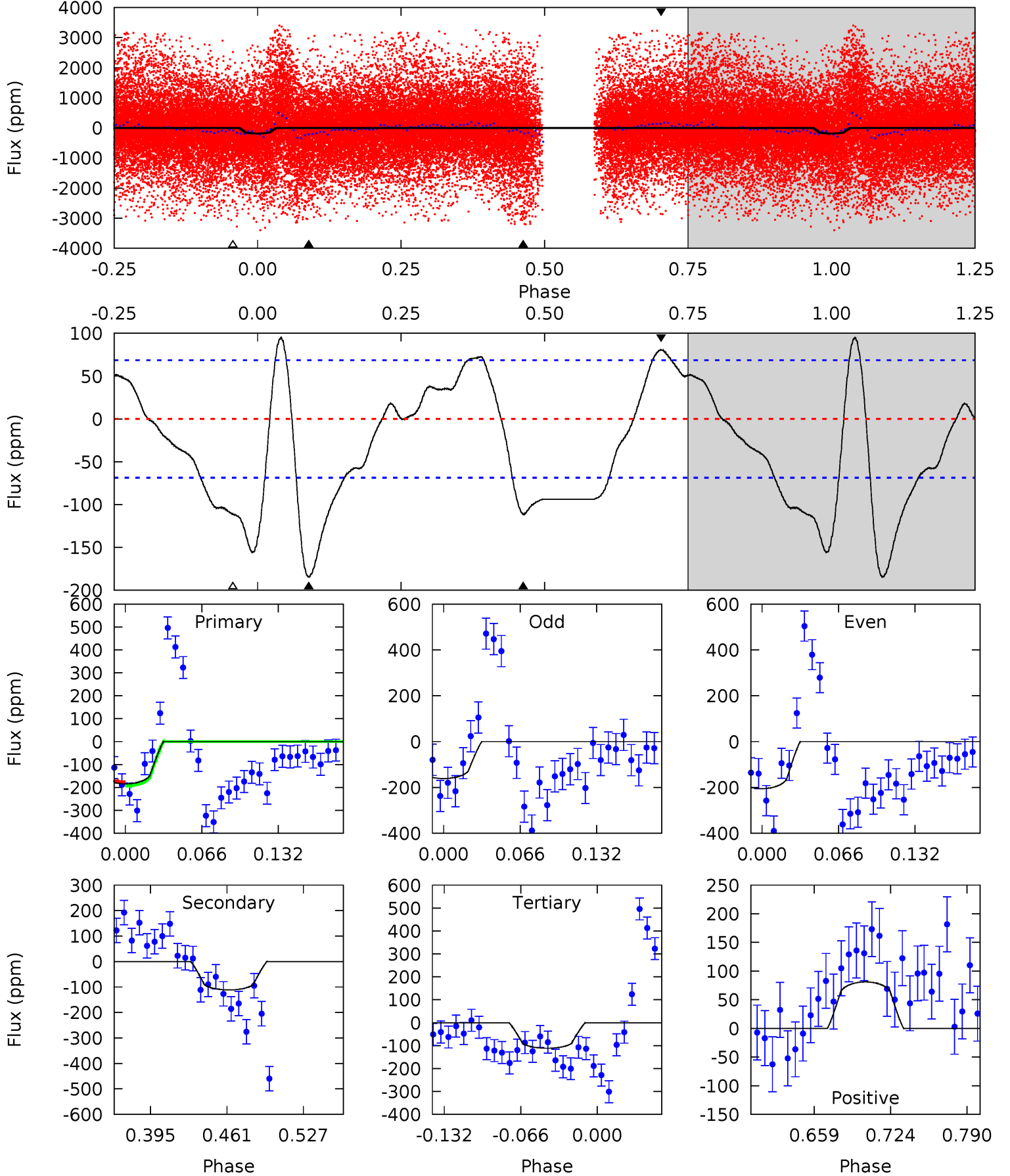
TCE 011564013-02 P= 1.750519 Days $T_0=132.040702$ (BKJD)



DV Model-Shift Uniqueness Test

011564013-02, P = 1.750453 Days, E = 131.998029 Days

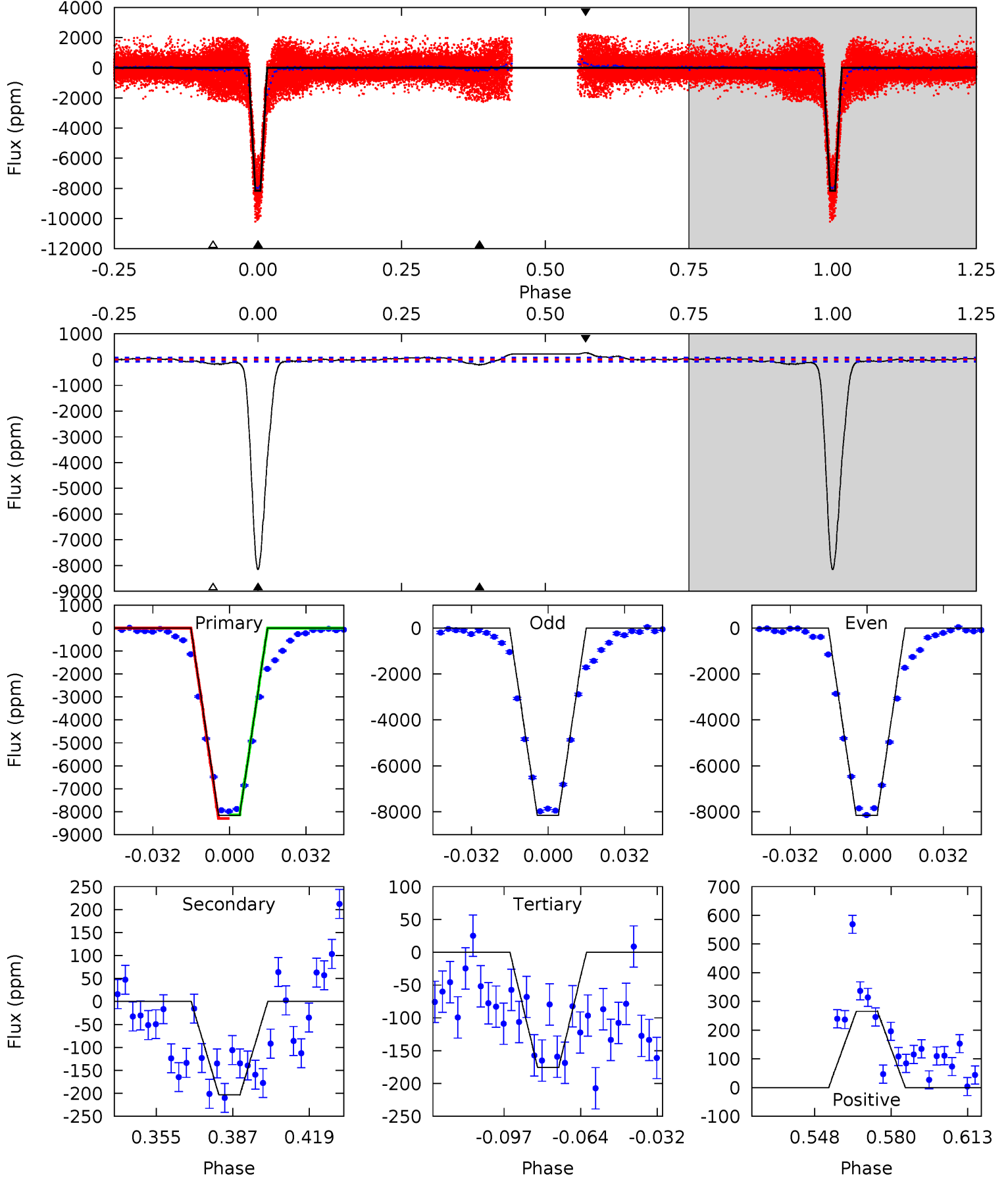
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	7.57	7.56	5.50	4.65	1.84	4.17	4.94	7.00	0.01	2.07	1.51	0.96	0.34	0.62



Alt Model-Shift Uniqueness Test

011564013-02, P = 1.750519 Days, E = 132.040702 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
507.8	12.6	10.9	16.6	4.80	2.14	4.86	496.9	491.3	1.72	-3.91	0.09	1.02	0.03	4.89



Stellar Parameters For KIC 011564013

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5821^{+192}_{-174}	$4.402^{+0.167}_{-0.185}$	$-0.740^{+0.300}_{-0.300}$	$0.898^{+0.221}_{-0.161}$	$0.742^{+0.103}_{-0.040}$	$1.445^{+1.147}_{-0.693}$
	+3%/-3%	+4%/-4%	+41%/-41%	+25%/-18%	+14%/-5%	+79%/-48%
Source	KIC0	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 011564013-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-112±15	$1.69^{+0.79}_{-0.68}$	2122^{+152}_{-133}	4680^{+1217}_{-647}	15^{+25}_{-8}
Alt.	-203±16	$9.50^{+1.59}_{-1.32}$	2118^{+172}_{-142}	2758^{+129}_{-130}	$0.840^{+0.290}_{-0.233}$

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 $A_{obs} \gg 1.0$

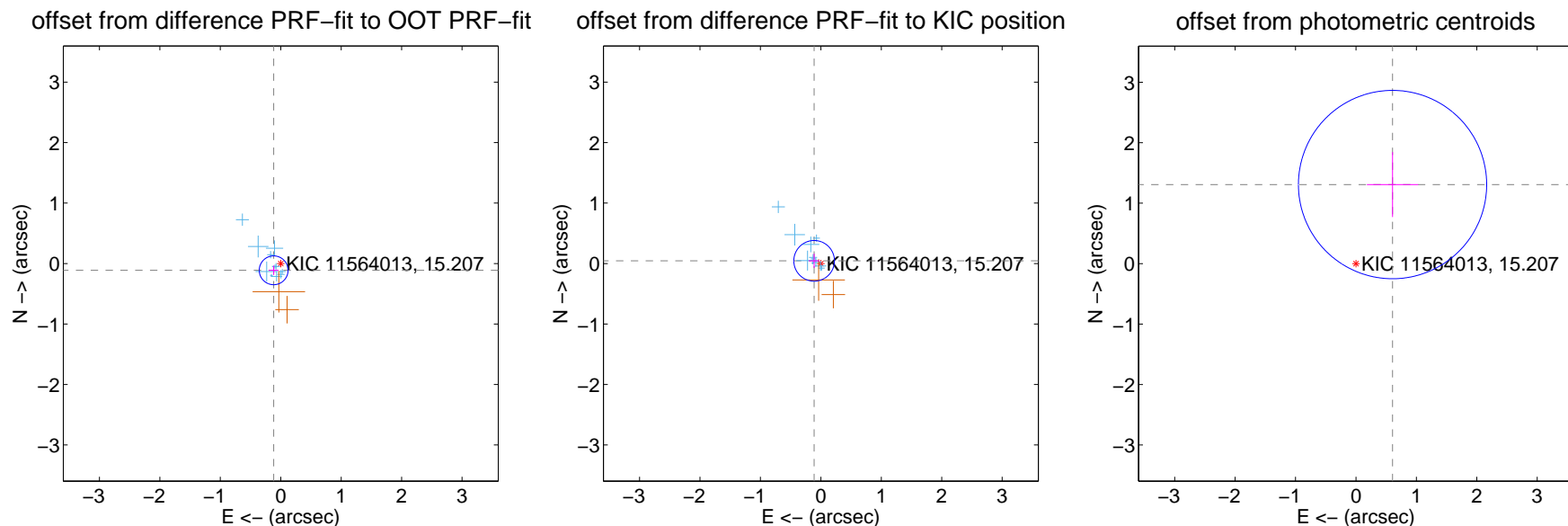
DV Centroid Data

Supplemental centroid analysis for 011564013-02. Kepler magnitude: 15.21. Transit SNR 13.22

There are 11 quarters with good PRF difference image offsets

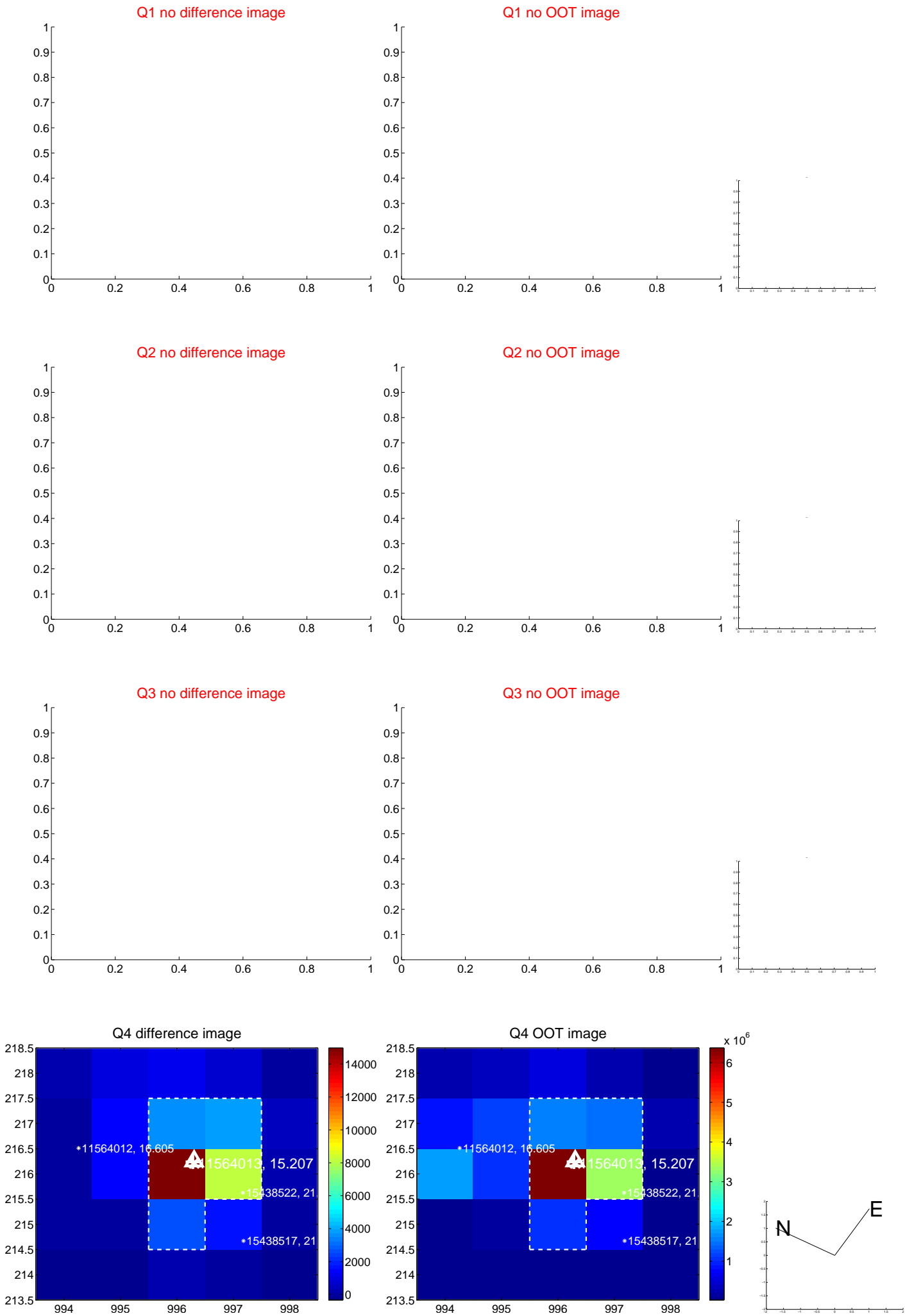
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.162 ± 0.079	2.04	0.117 ± 0.081	-0.112 ± 0.078
PRF-fit source offset from KIC position	0.120 ± 0.112	1.07	0.111 ± 0.090	0.045 ± 0.118
photometric centroid source offset	1.44 ± 0.52	2.78	-0.61 ± 0.42	1.31 ± 0.54

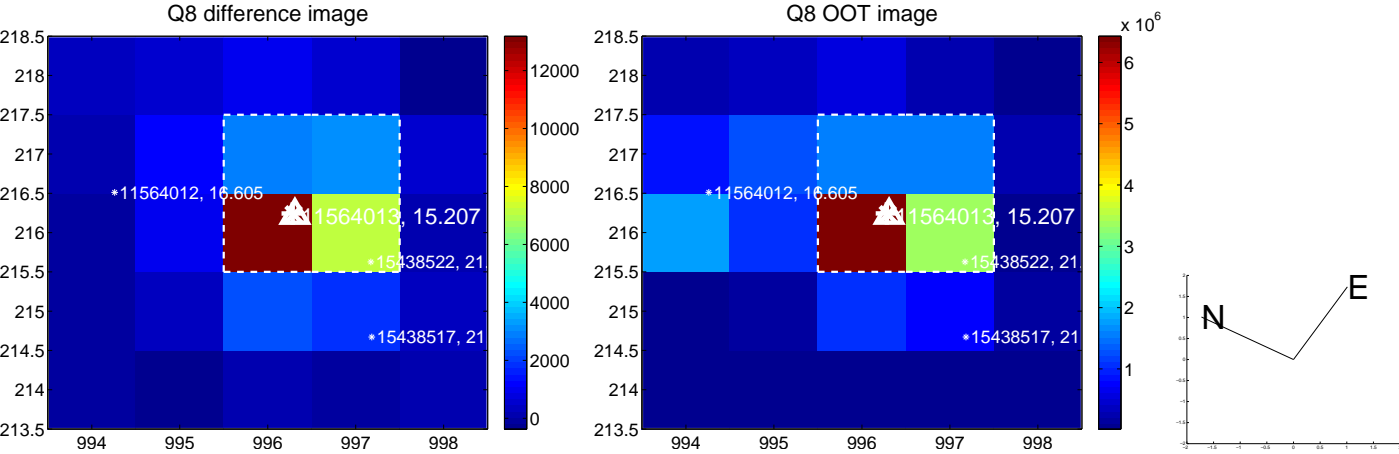
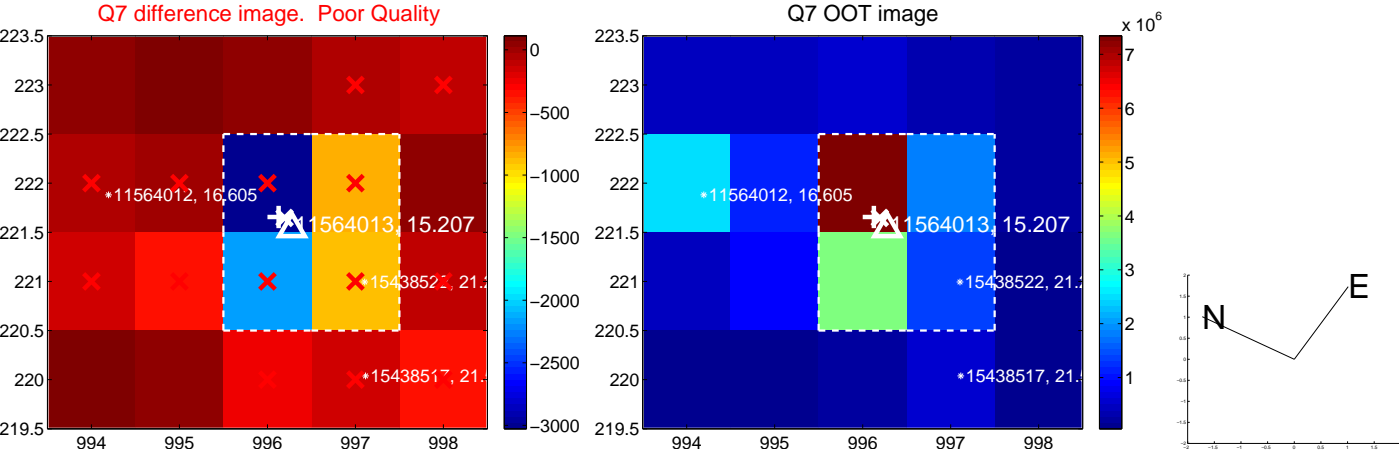
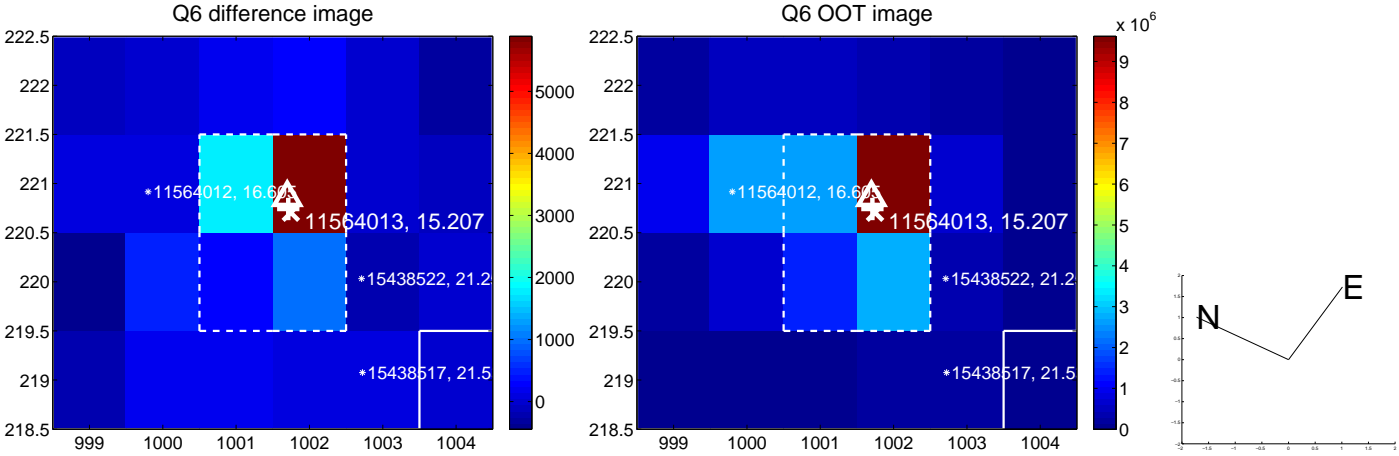
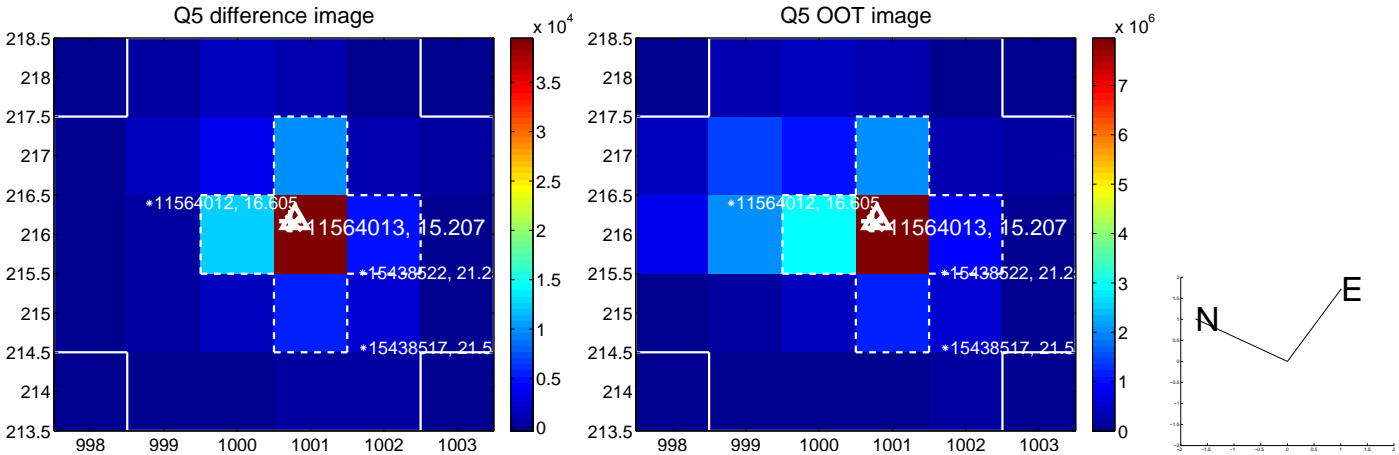


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

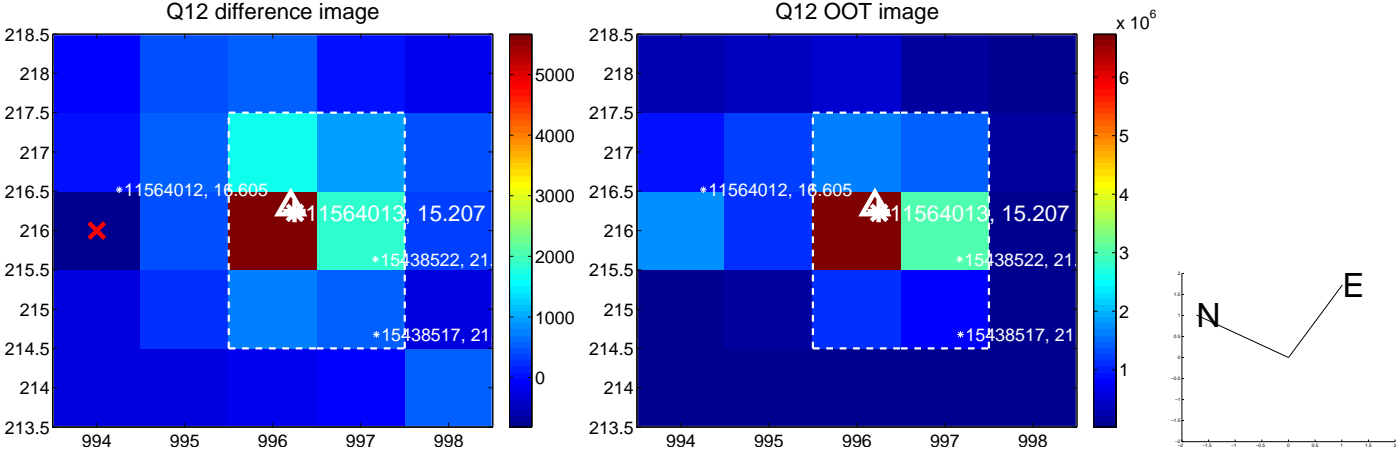
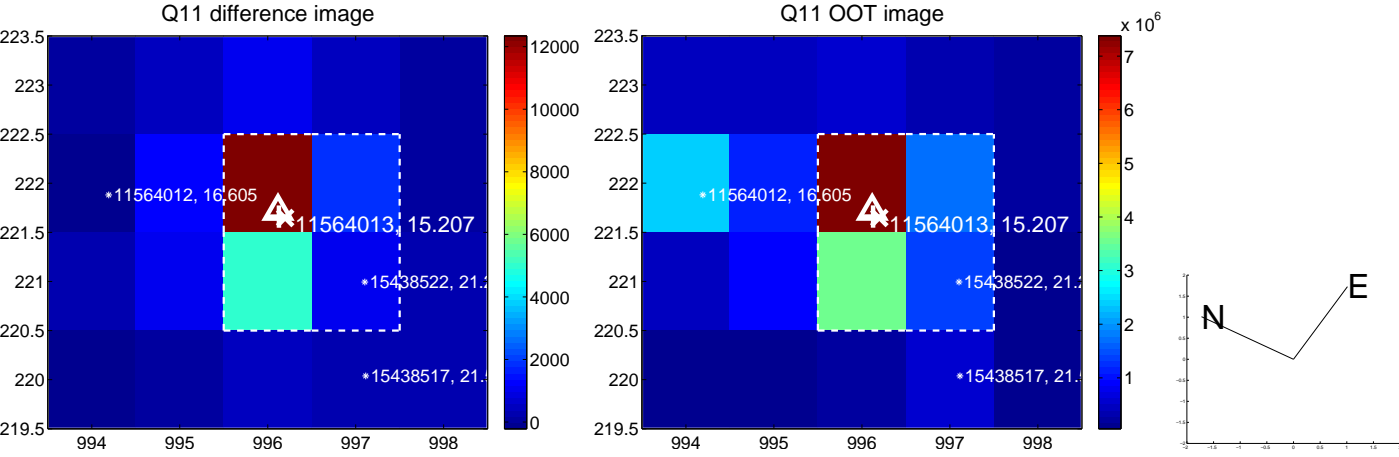
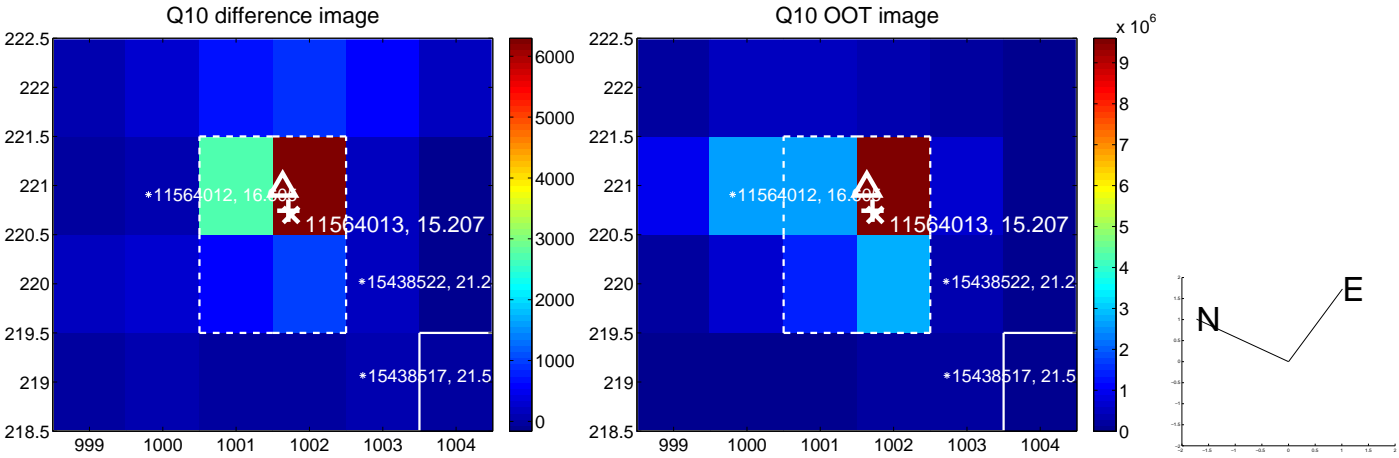
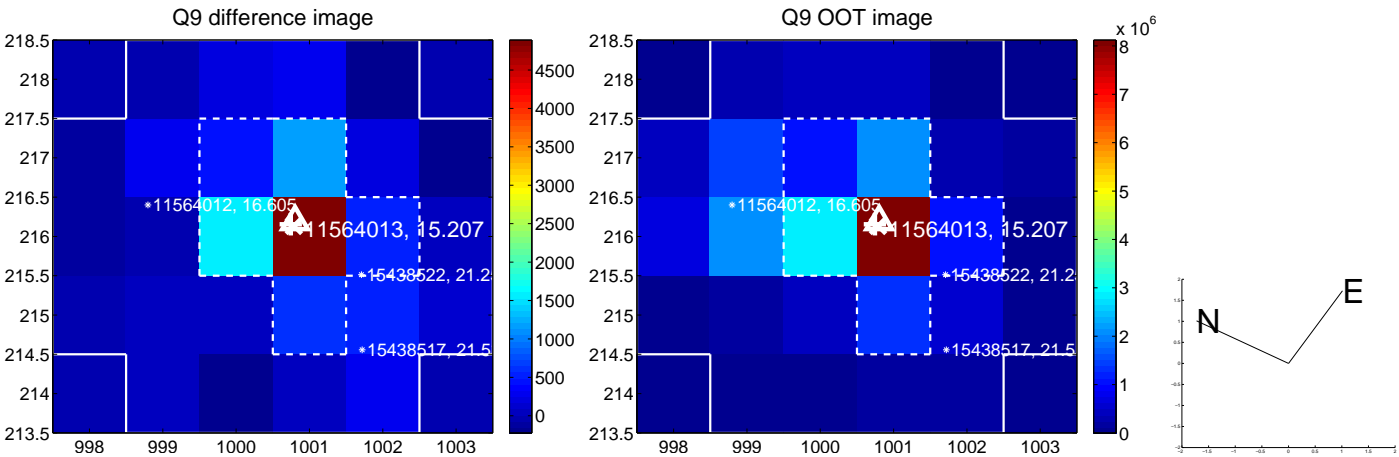
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



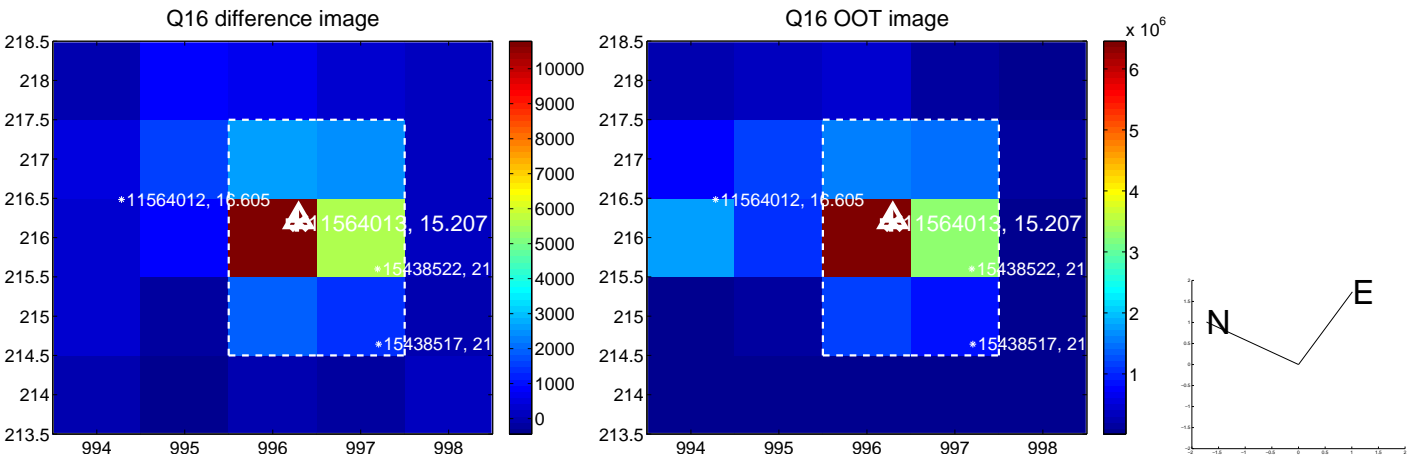
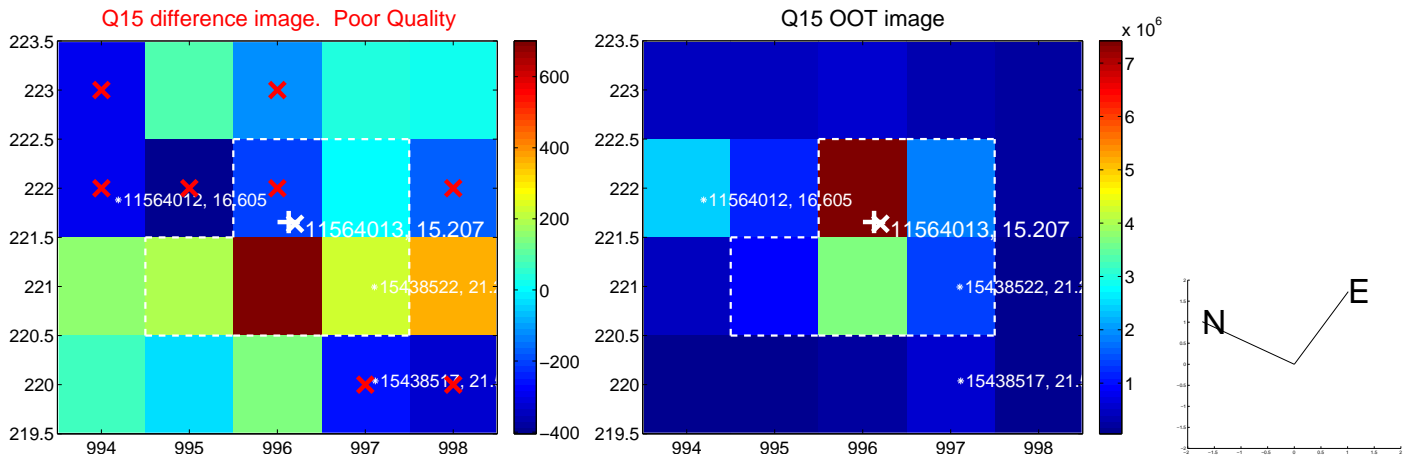
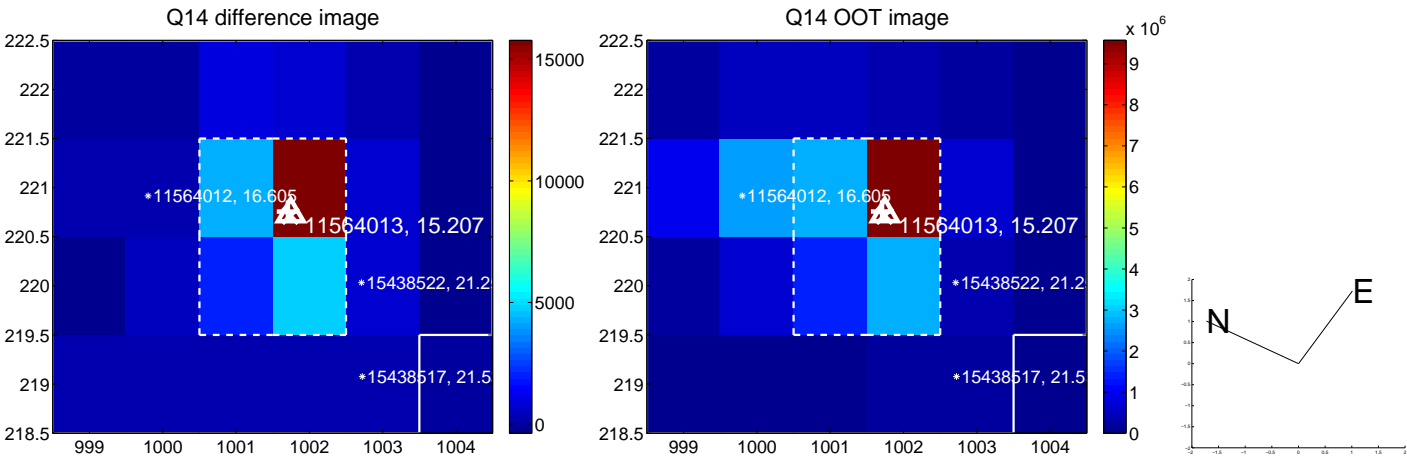
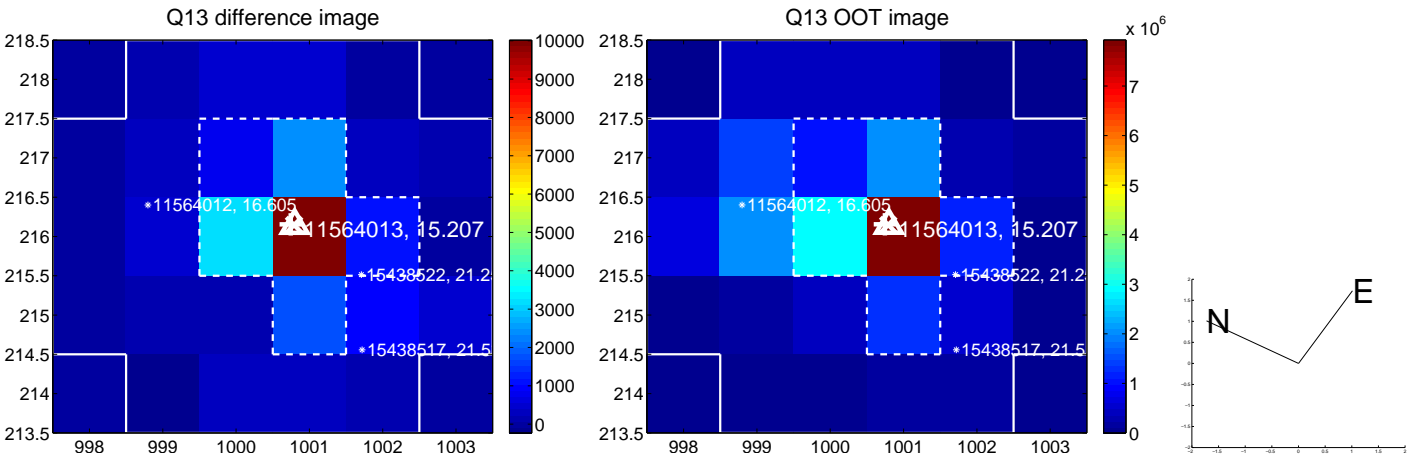
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



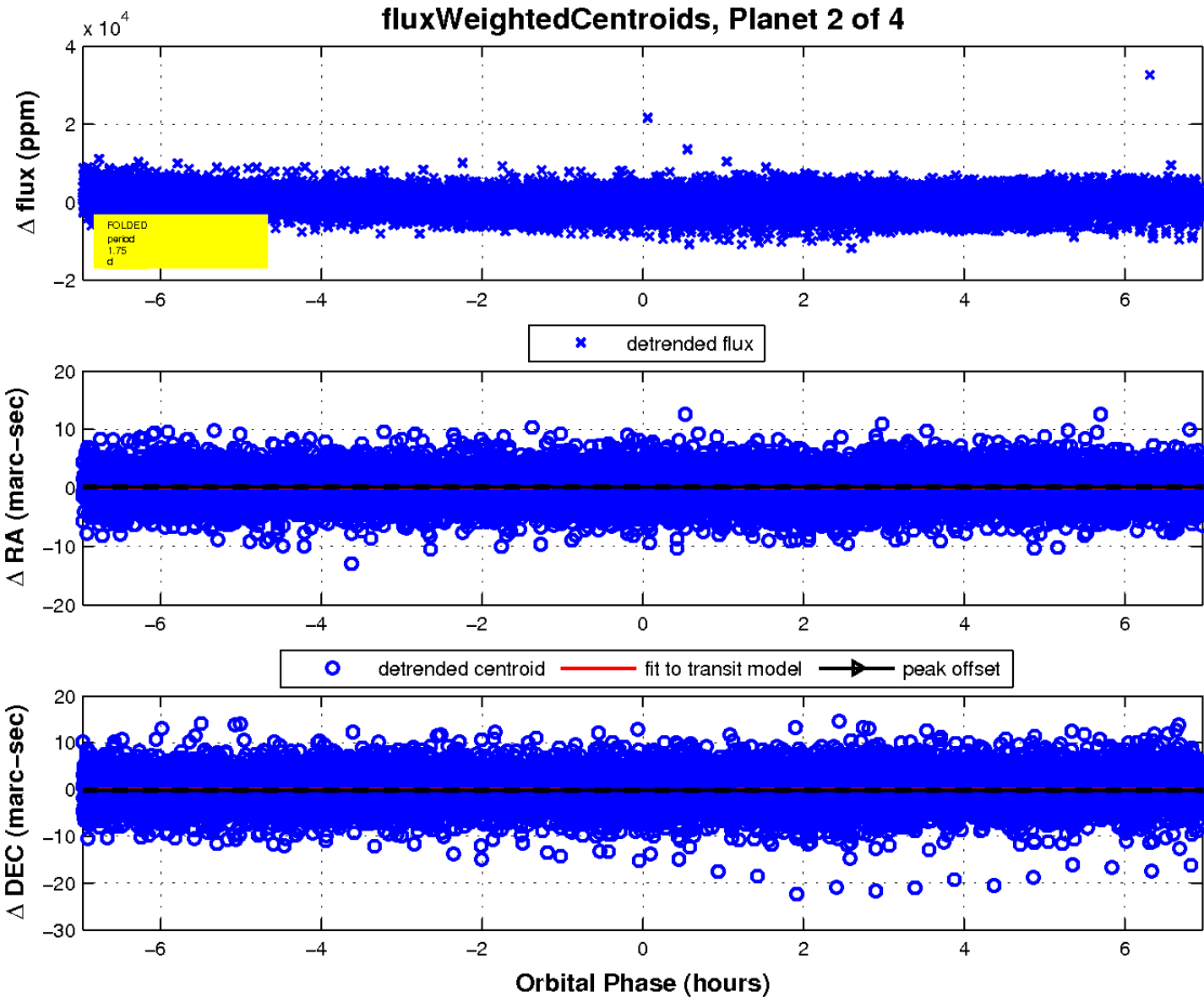
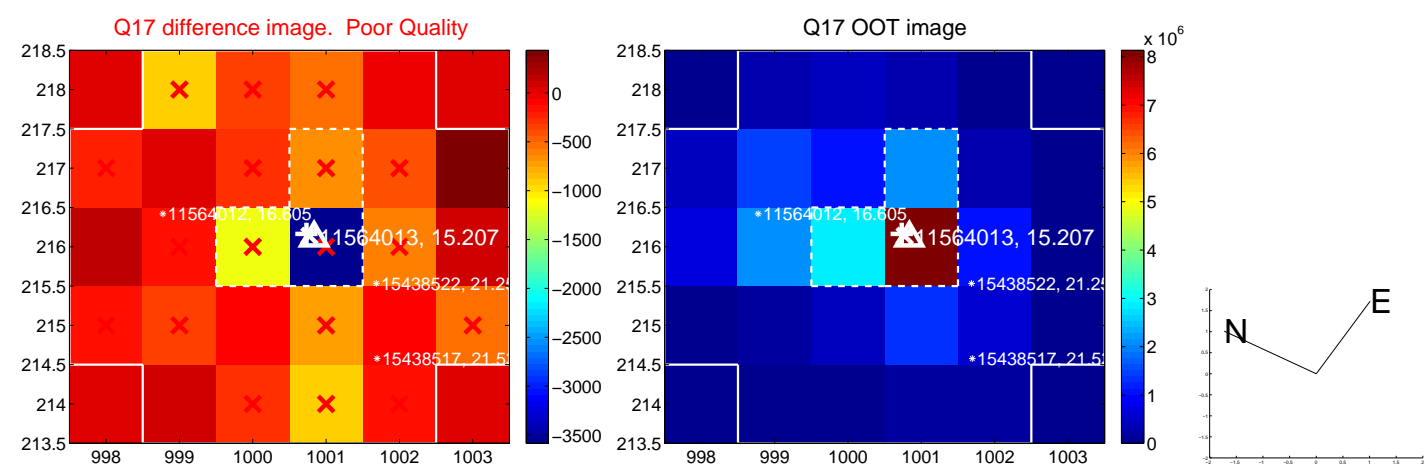
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

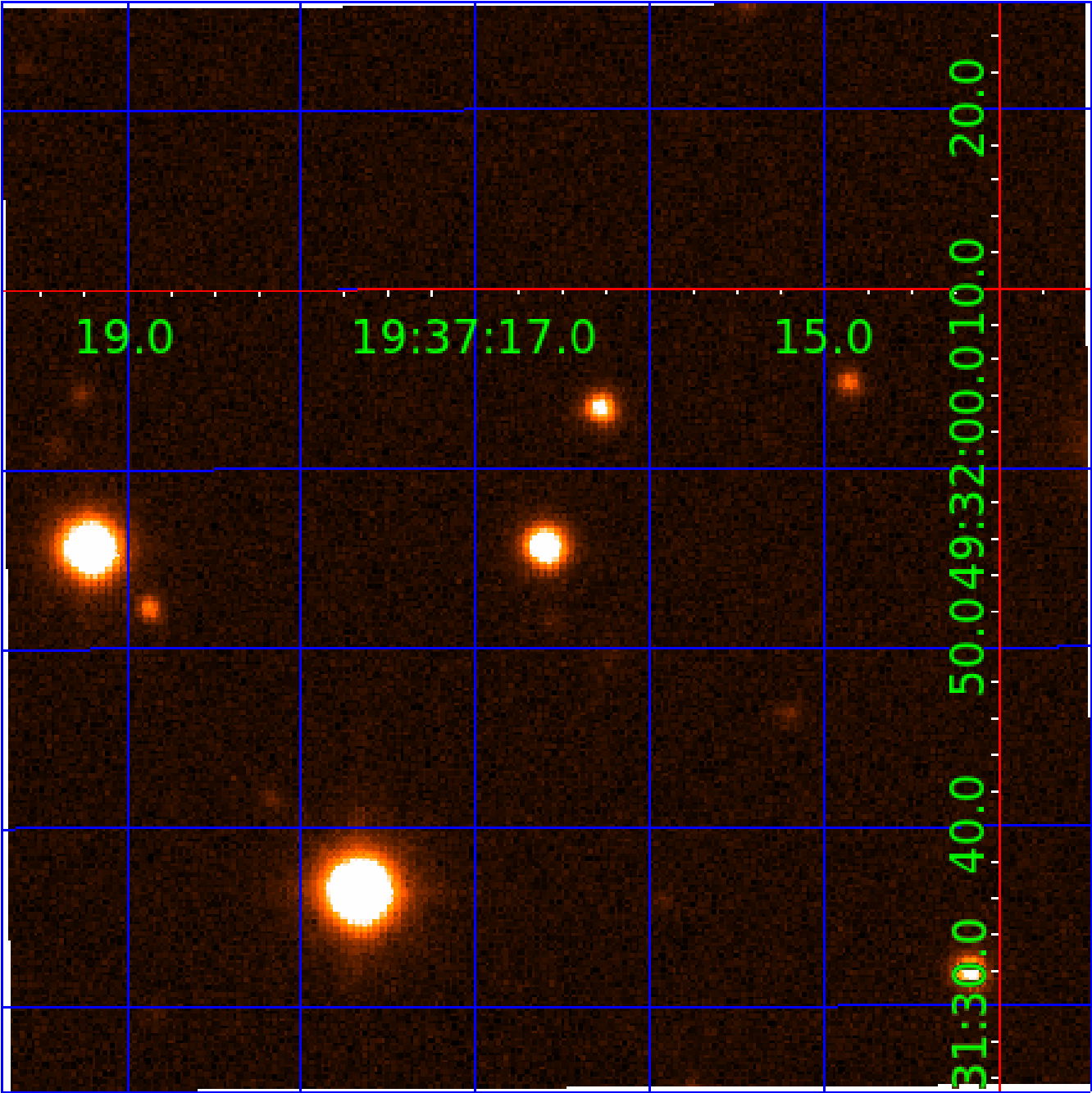


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011564013

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})
011564013-01	OBS	3714.01	1.750537	132.906834	3527.4	0.943	48.7	119.9	0.90	5821	5.86	1251.72
011564013-02	OBS	No	1.750453	131.998029	329.8	2.324	23.9	13.2	0.90	5821	1.67	1251.80
011564013-03	OBS	No	1.749596	131.771094	69.5	0.582	8.0	1.9	0.90	5821	0.91	1252.62
011564013-04	OBS	No	0.583433	131.782869	821.1	1.500	7.4	-1.0	0.90	5821	2.58	5416.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011564013-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE
011564013-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—HALO_GHOST
011564013-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011564013-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS

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 011564013-03

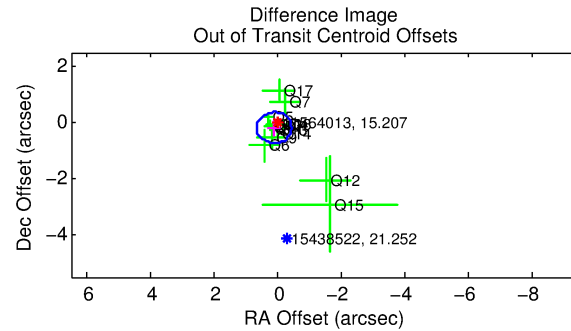
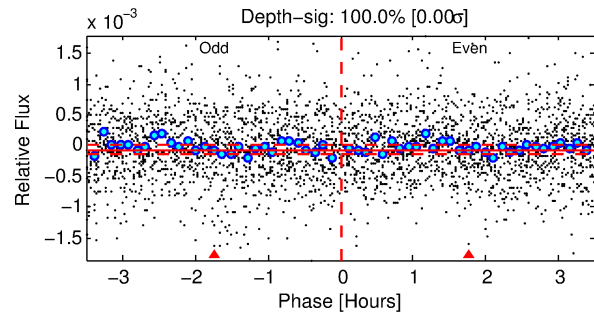
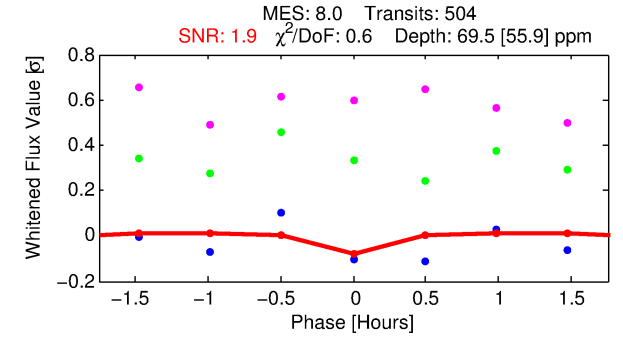
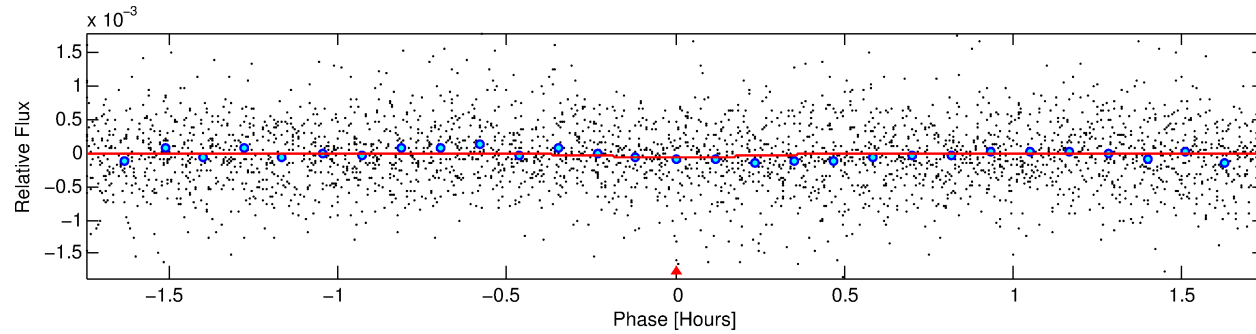
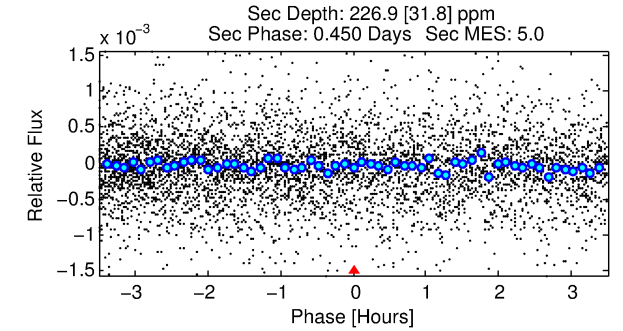
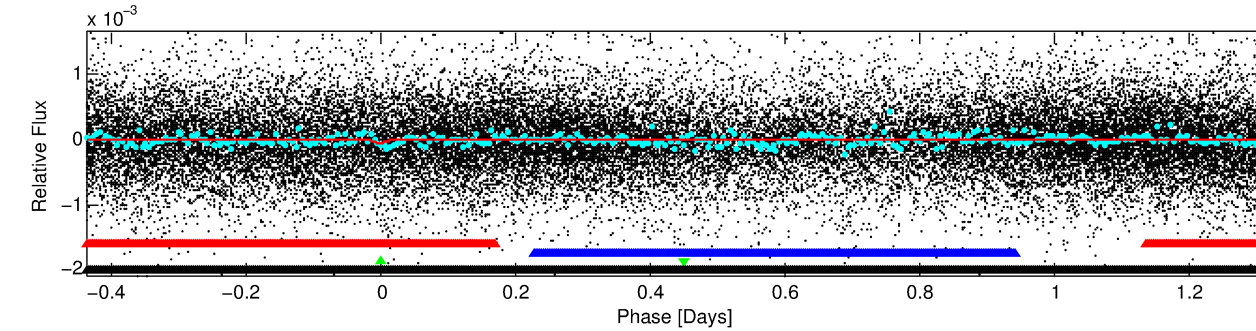
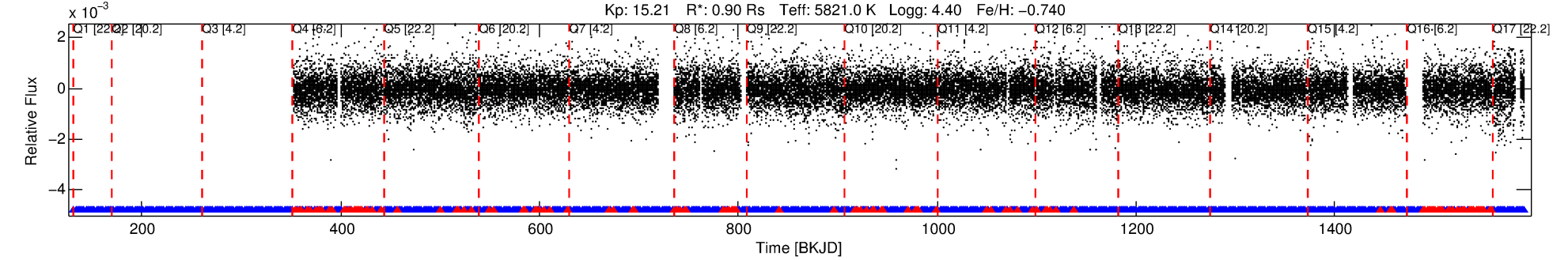
No Significant Match Found

DV One-Page Summary

KIC: 11564013 Candidate: 3 of 4 Period: 1.750 d

KOI: K03714 Corr: No Ephemeris Match

Kp: 15.21 R*: 0.90 Rs Teff: 5821.0 K Logg: 4.40 Fe/H: -0.740



DV Fit Results:

Period = 1.74960 [0.00005] d
Epoch = 131.7711 [0.0047] BKJD
Rp/R* = 0.0093 [0.0141]
a/R* = 10.53 [80.28]
b = 0.90 [1.66]
Seff = 1252.62 [442.82]
Teff = 1517 [134] K
Rp = 0.91 [1.40] Re
a = 0.0257 [0.0056] AU
Ag = 100.40 [307.41] [0.32σ]
Teffp = 7424 [5656] K [1.04σ]

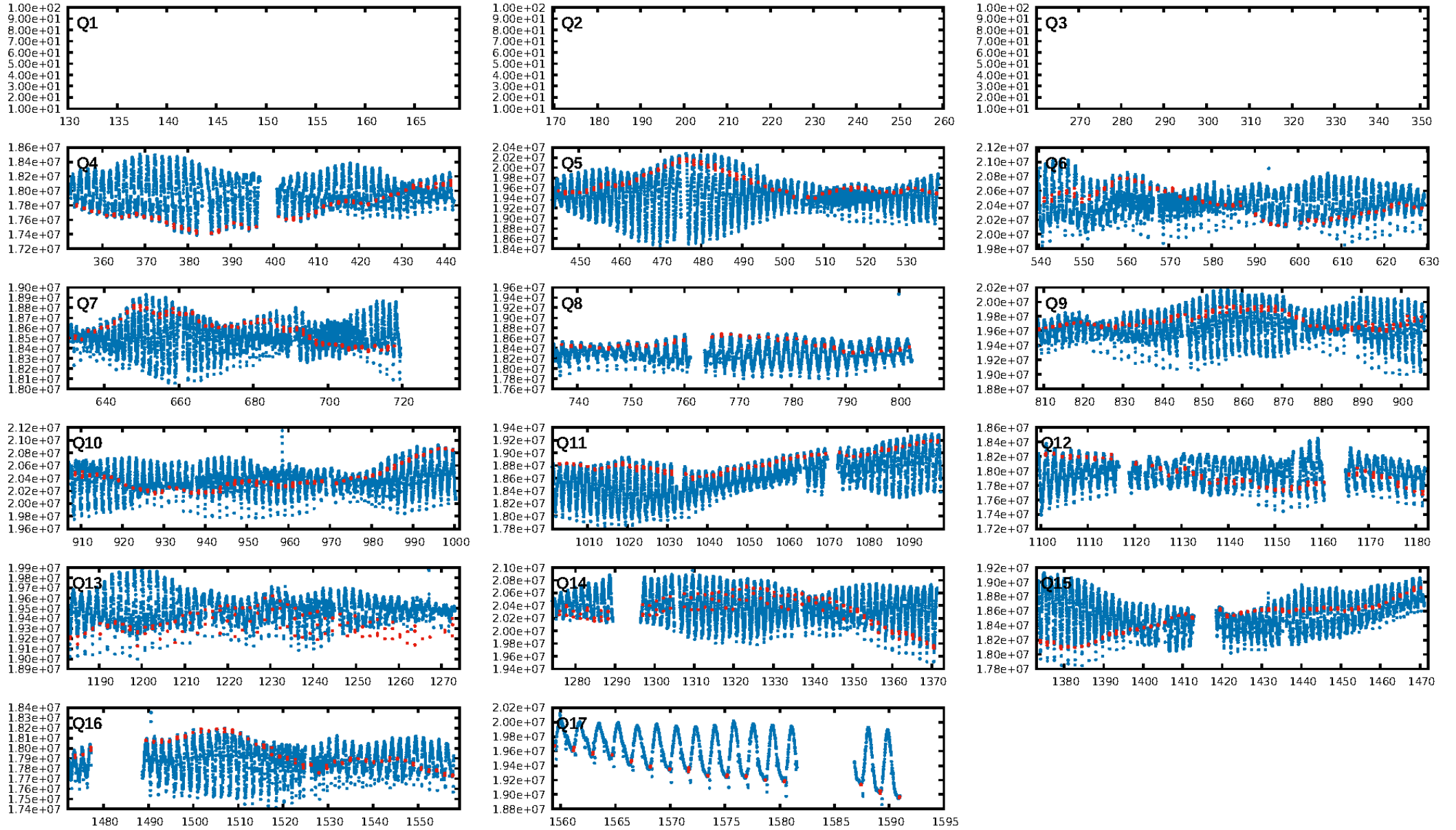
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.40σ]
LongPeriod-sig: 0.7% [0.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.76 [371/488]
GhostDiagnostic-chr: 0.7053
Centroid-sig: 3.4%
Centroid-so: 7.730 arcsec [1.80σ]
OotOffset-rm: 0.215 arcsec [1.17σ]
KicOffset-rm: 0.095 arcsec [0.47σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.29 [4/14]
DiffImageOverlap-fno: 0.00 [0/14]

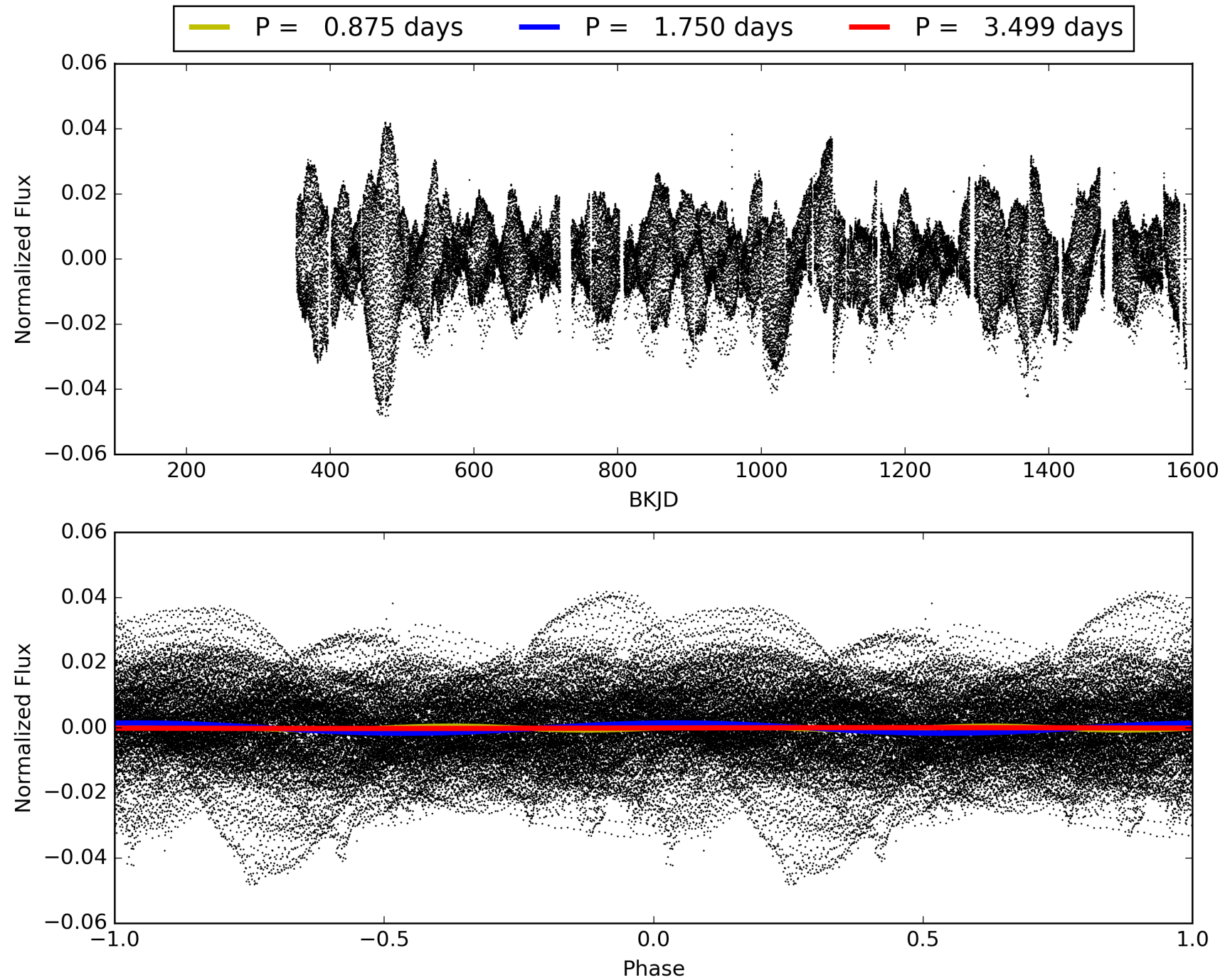
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:45:34 Z

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

TCE 011564013-03, PDC Light Curves

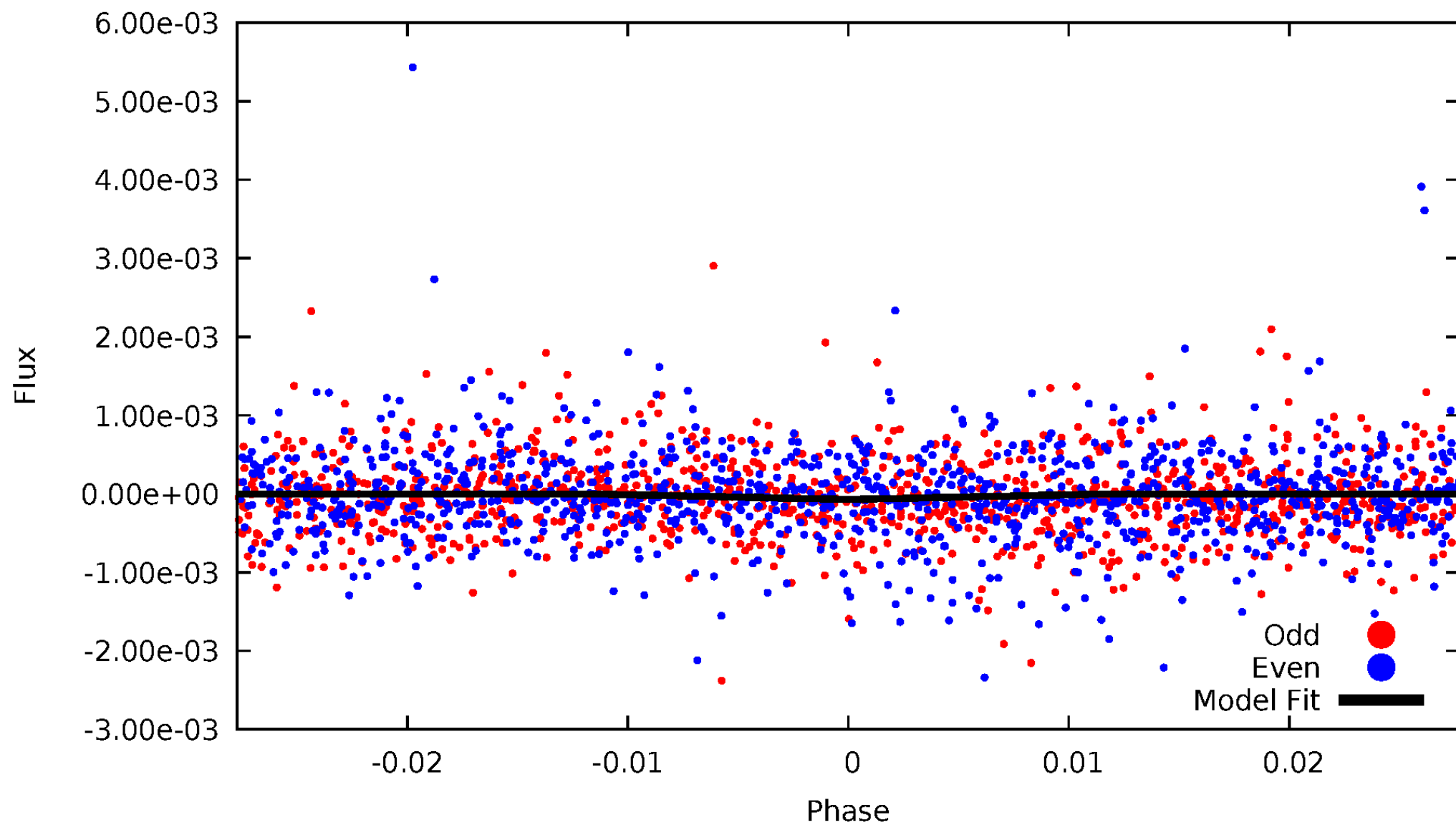


TCE 011564013-03



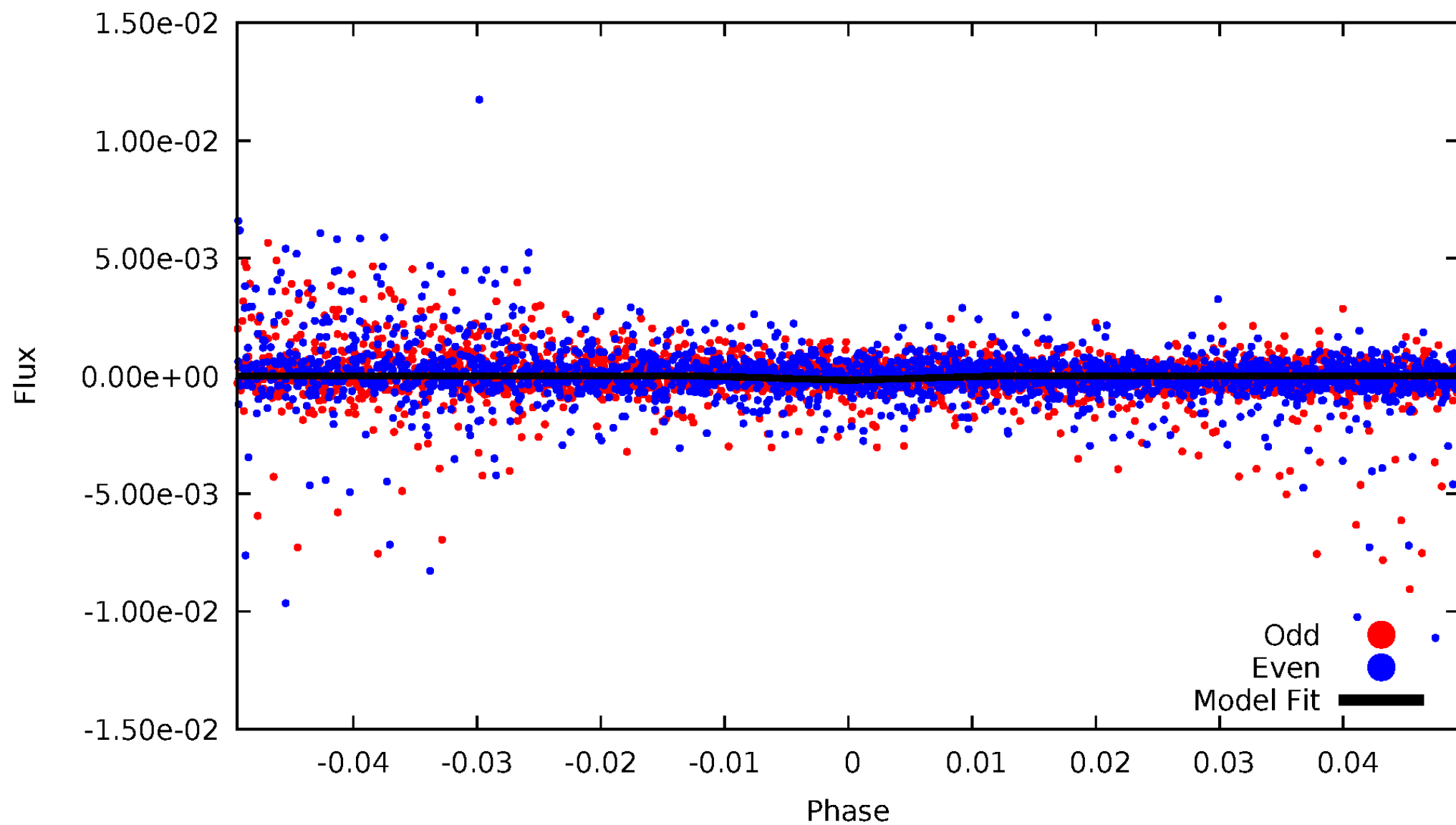
DV Odd/Even

TCE 011564013-03



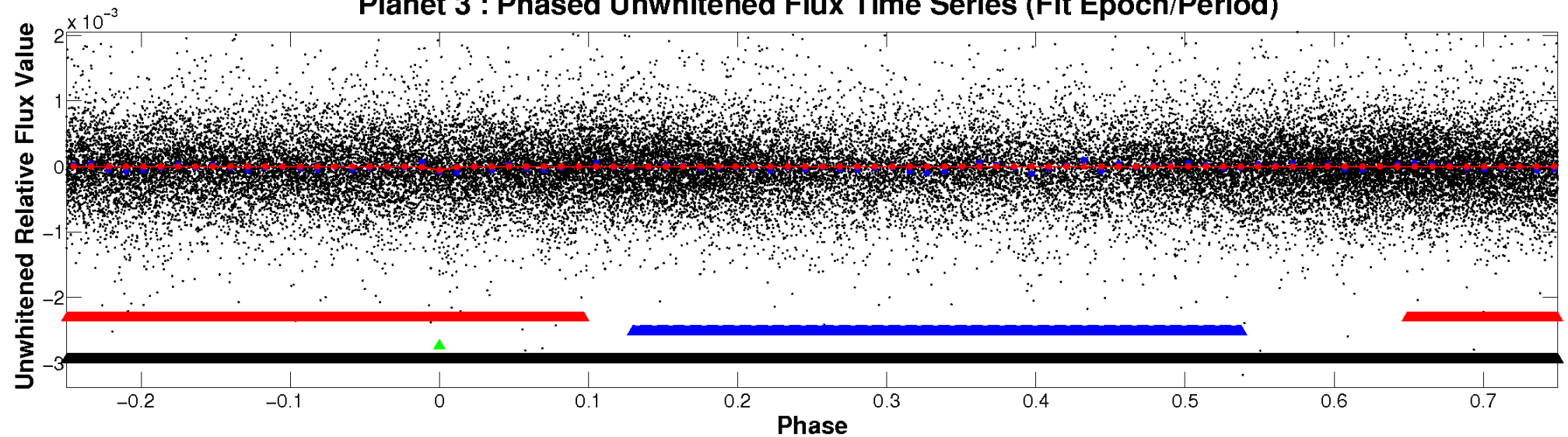
ALT Odd/Even

TCE 011564013-03

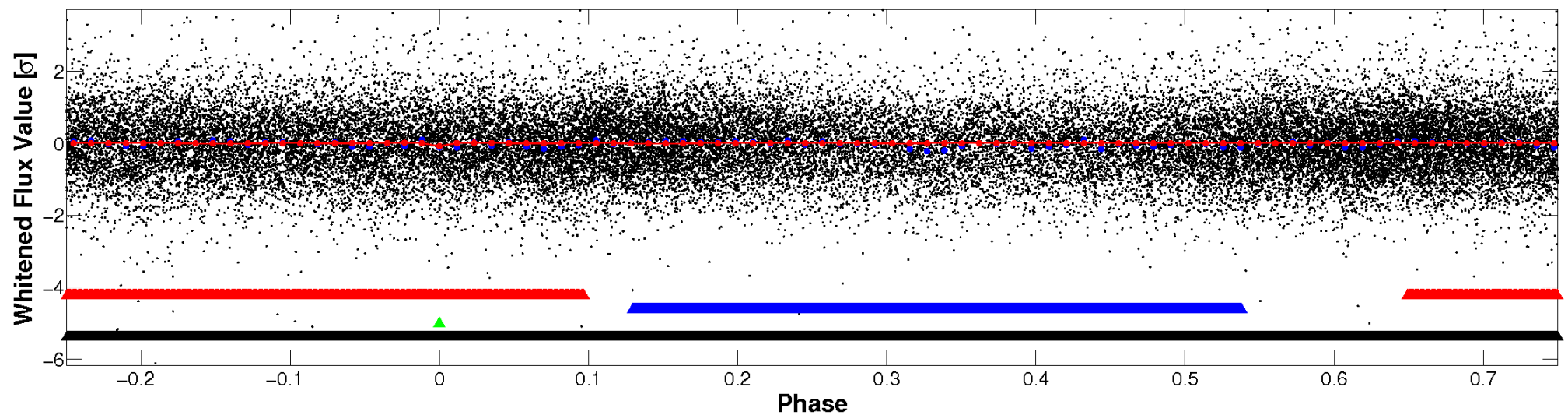


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

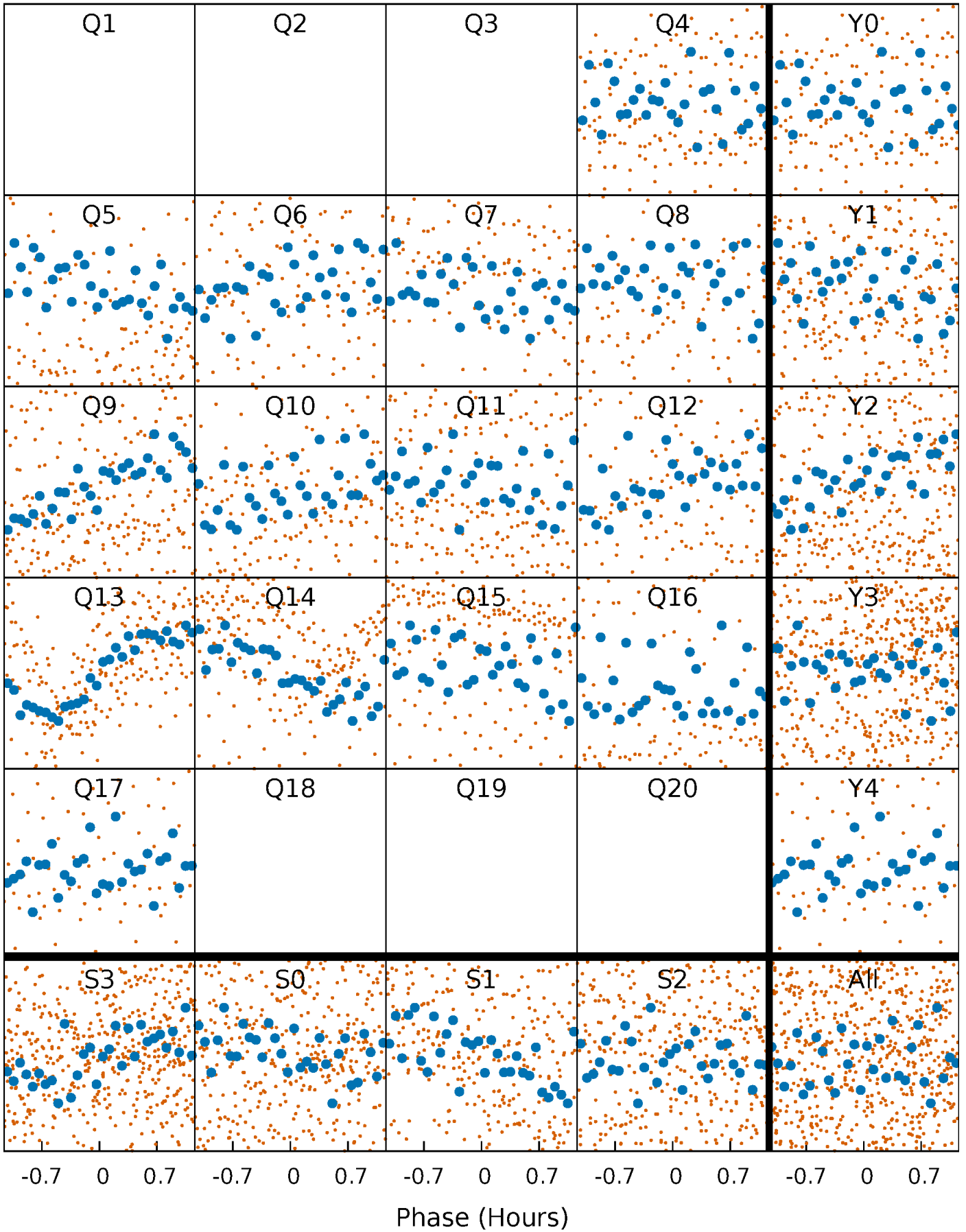


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



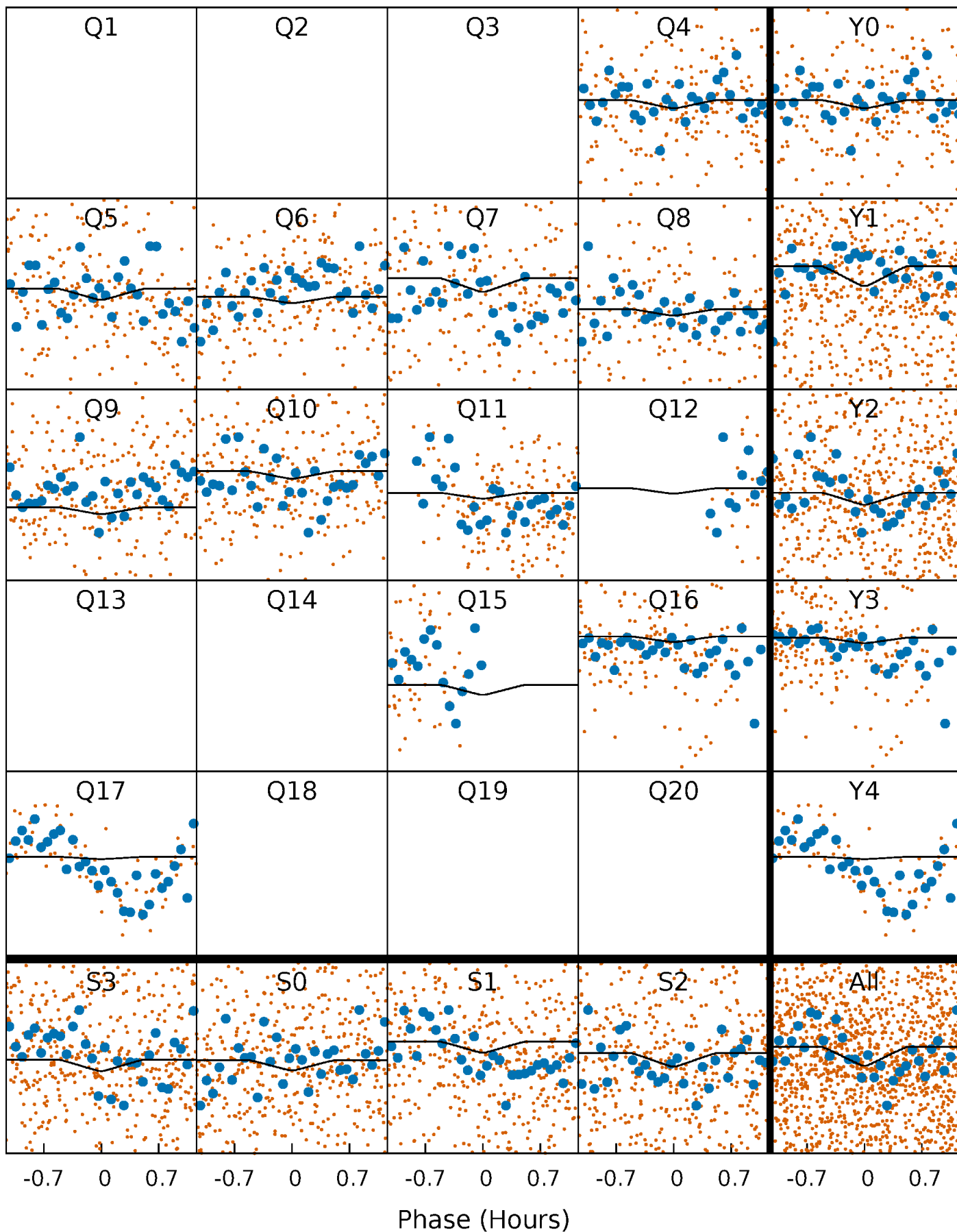
PDC Quarter-Phased Transit Curves

TCE 011564013-03 P= 1.749596 Days $T_0=131.771094$ (BKJD)



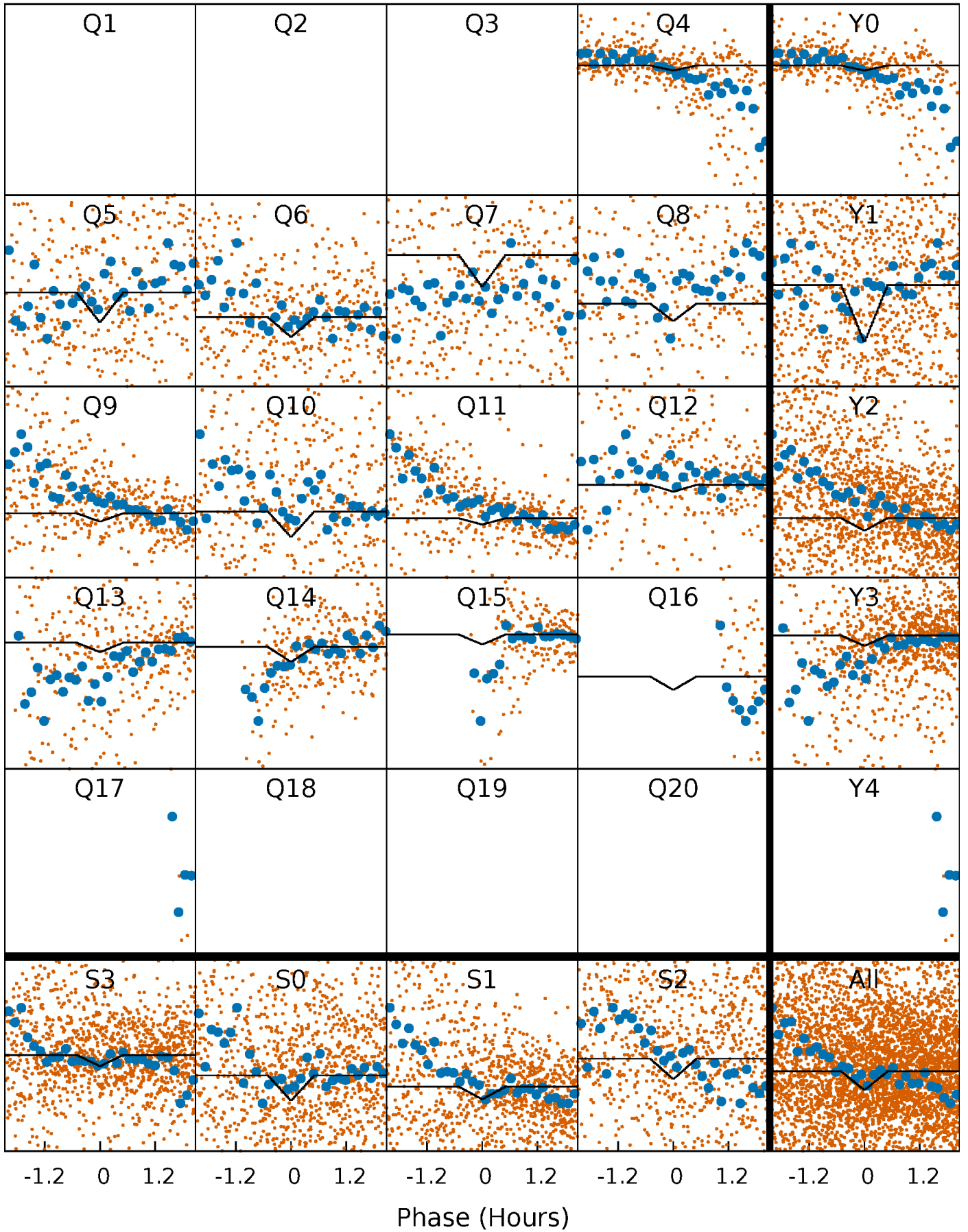
DV Quarter-Phased Transit Curves

TCE 011564013-03 P= 1.749596 Days $T_0=131.771094$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

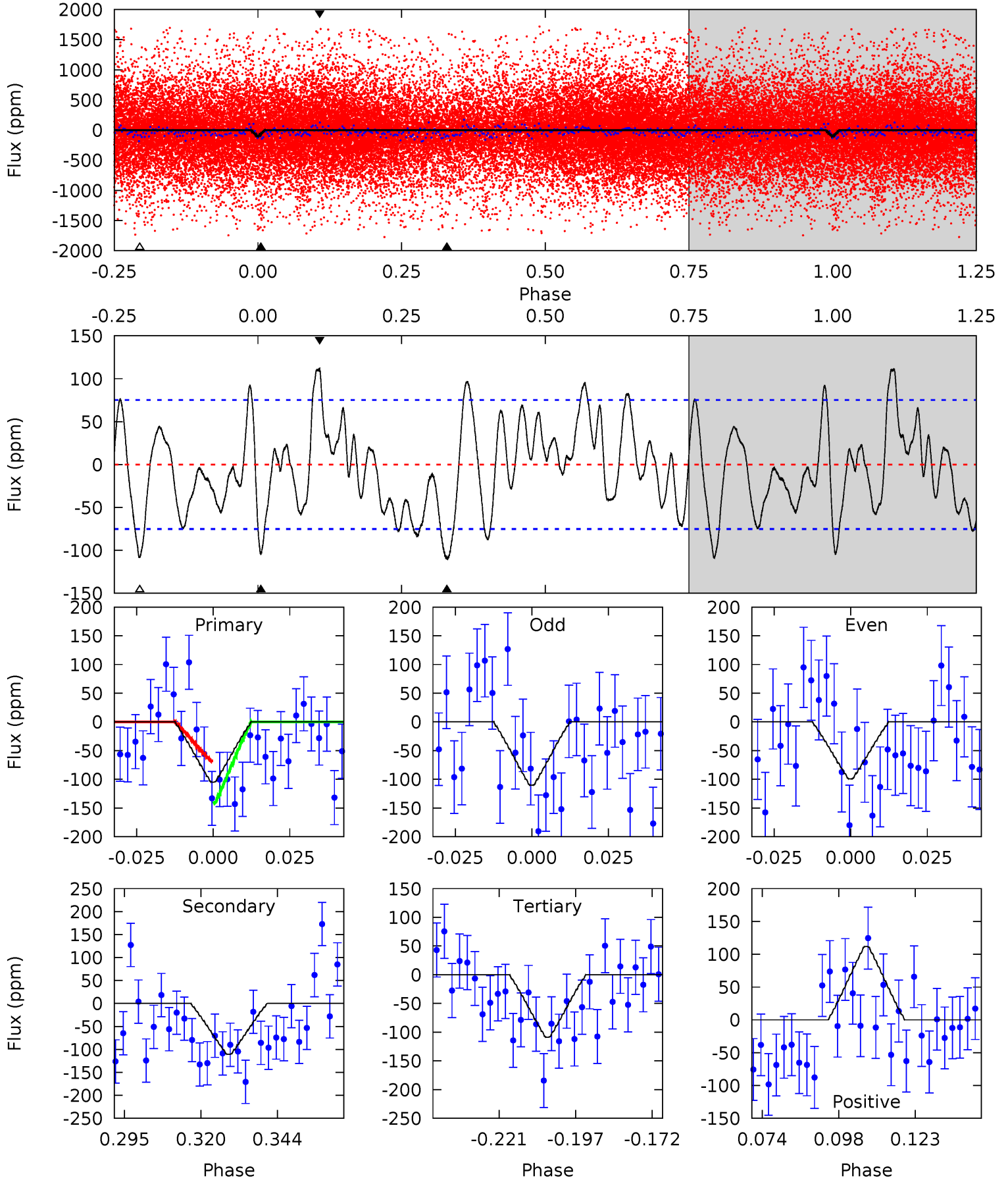
TCE 011564013-03 P= 1.749895 Days $T_0=131.726472$ (BKJD)



DV Model-Shift Uniqueness Test

011564013-03, P = 1.749596 Days, E = 131.771094 Days

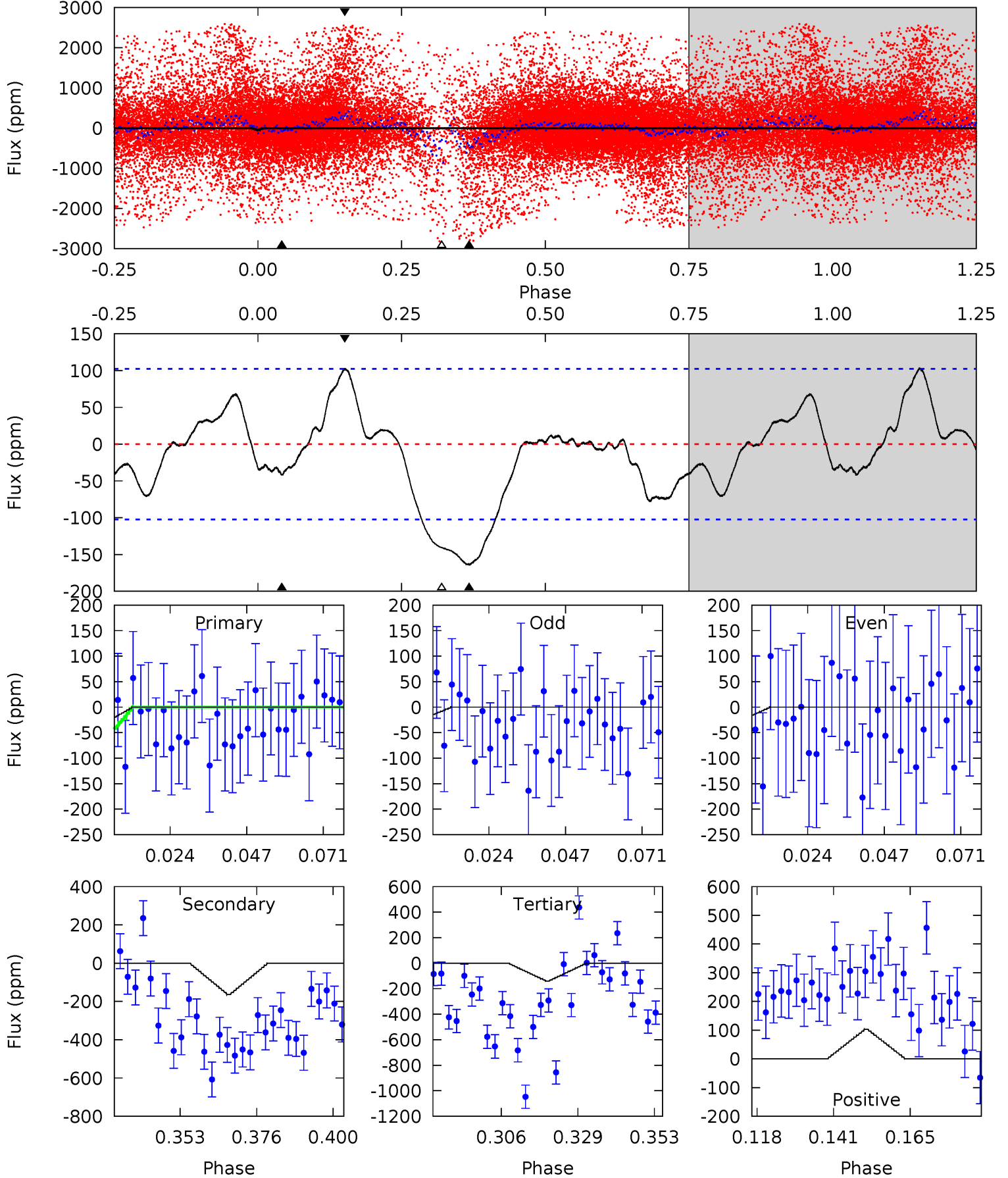
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.78	7.15	7.03	7.22	4.85	2.25	2.96	-0.25	-0.44	0.12	-0.07	0.36	1.06	0.50	2.39



Alt Model-Shift Uniqueness Test

011564013-03, P = 1.749895 Days, E = 131.726472 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.98	7.77	6.68	4.91	4.86	2.27	2.12	-4.70	-2.92	1.09	2.87	0.07	1.60	0.39	1.34



Stellar Parameters For KIC 011564013

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5821^{+192}_{-174}	$4.402^{+0.167}_{-0.185}$	$-0.740^{+0.300}_{-0.300}$	$0.898^{+0.221}_{-0.161}$	$0.742^{+0.103}_{-0.040}$	$1.445^{+1.147}_{-0.693}$
	+3%/-3%	+4%/-4%	+41%/-41%	+25%/-18%	+14%/-5%	+79%/-48%
Source	KIC0	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 011564013-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-111±15	$1.41^{+1.16}_{-0.93}$	2130^{+151}_{-133}	5103^{+3820}_{-1101}	21^{+156}_{-15}
Alt.	-164±21	$1.56^{+1.37}_{-1.03}$	2122^{+150}_{-123}	5329^{+4346}_{-1279}	25^{+192}_{-18}

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 $A_{obs} \gg 1.0$

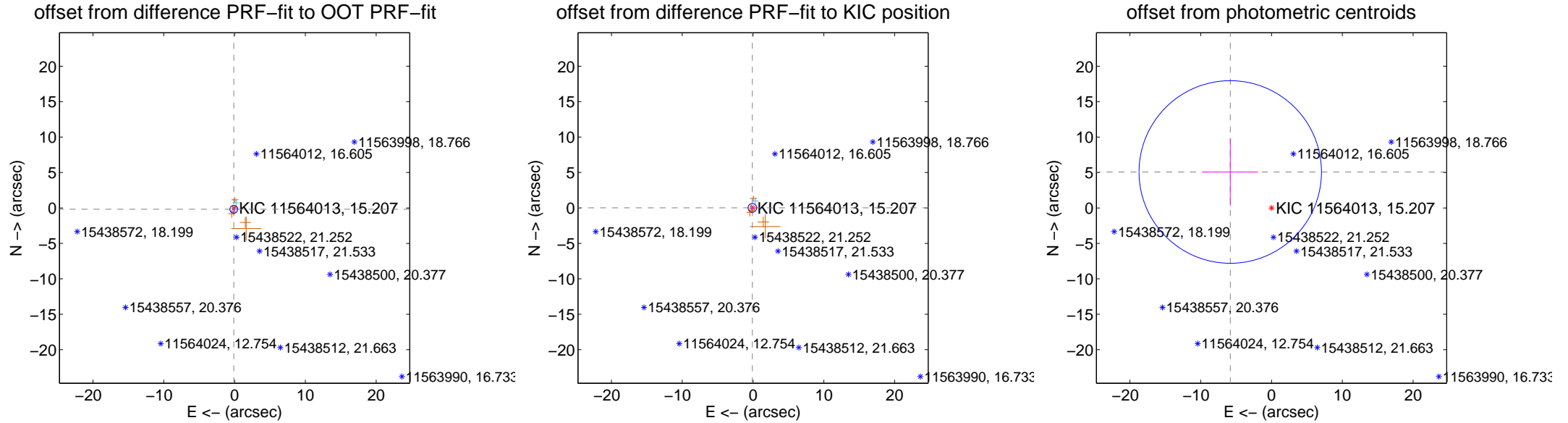
DV Centroid Data

Supplemental centroid analysis for 011564013-03. Kepler magnitude: 15.21. Transit SNR 1.92

There are 4 quarters with good PRF difference image offsets

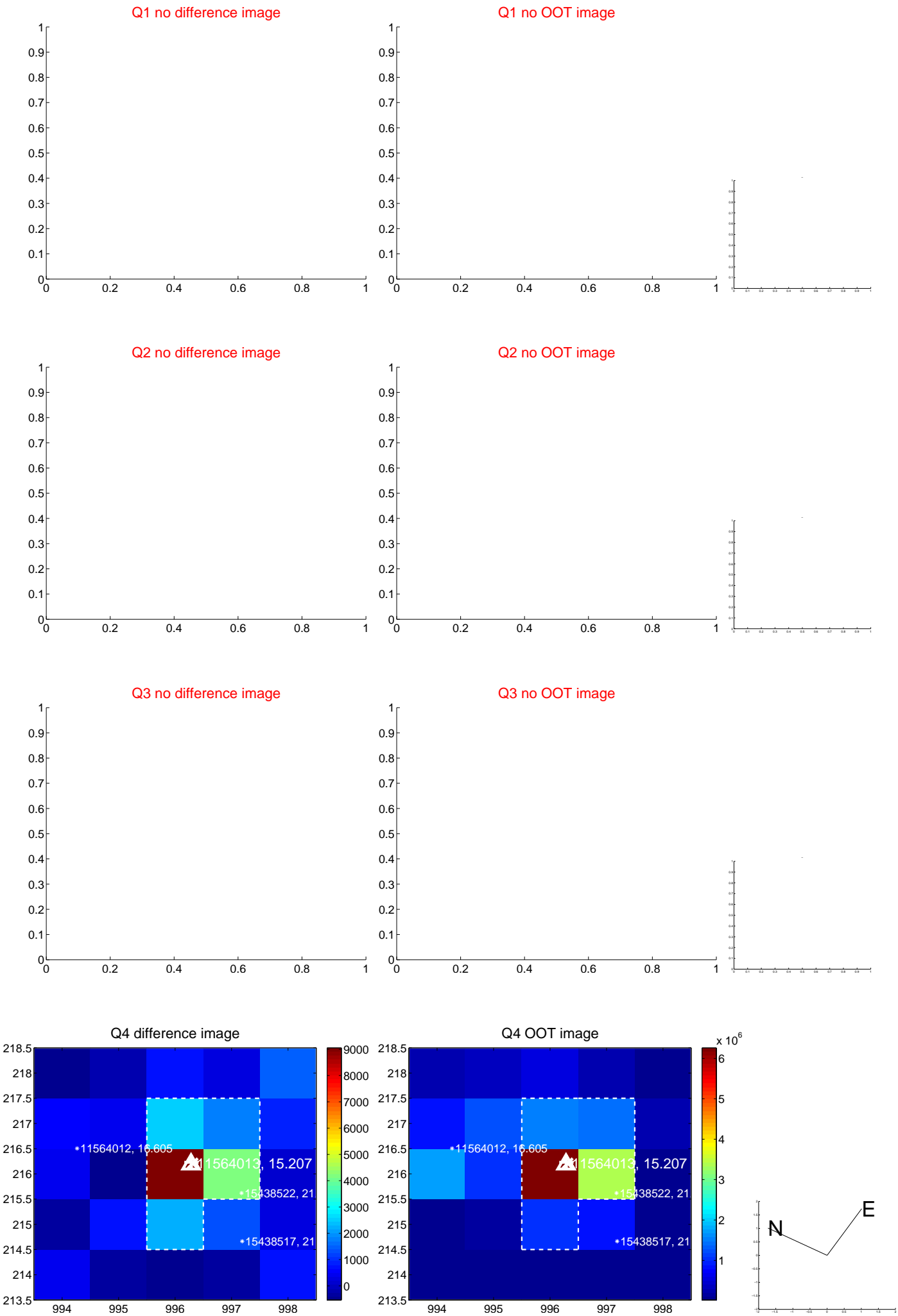
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.215 ± 0.184	1.17	0.111 ± 0.174	-0.184 ± 0.271
PRF-fit source offset from KIC position	0.095 ± 0.204	0.47	0.094 ± 0.175	0.014 ± 0.282
photometric centroid source offset	7.73 ± 4.29	1.80	5.83 ± 3.91	5.08 ± 4.75

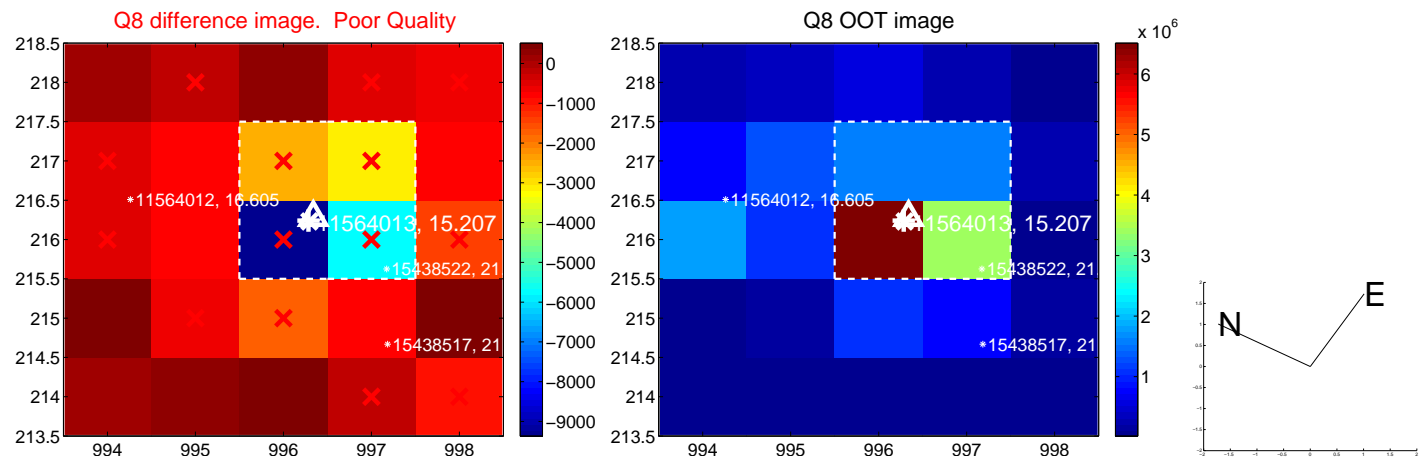
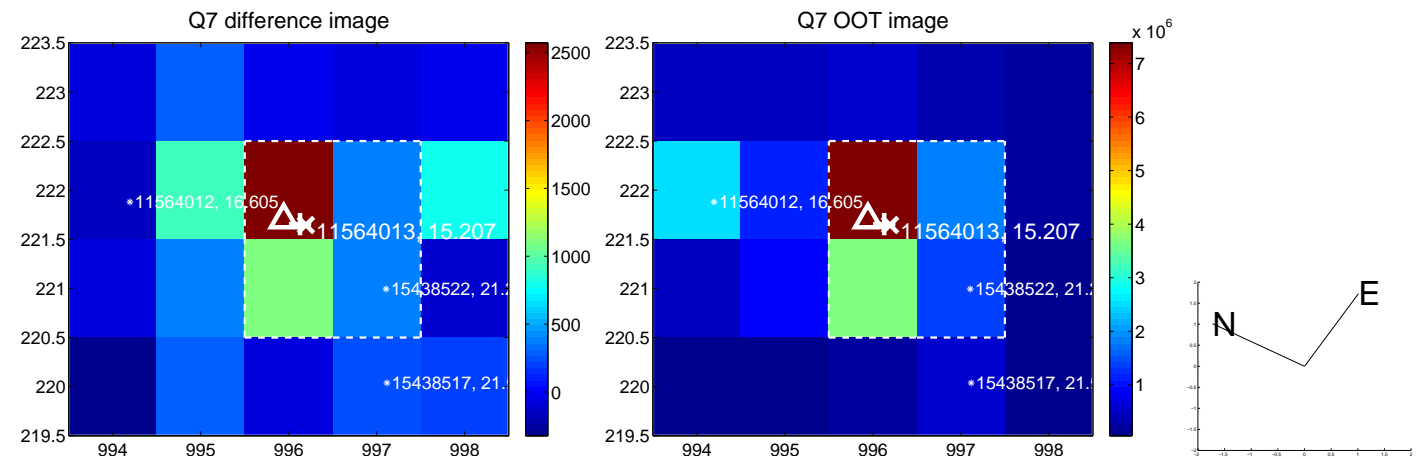
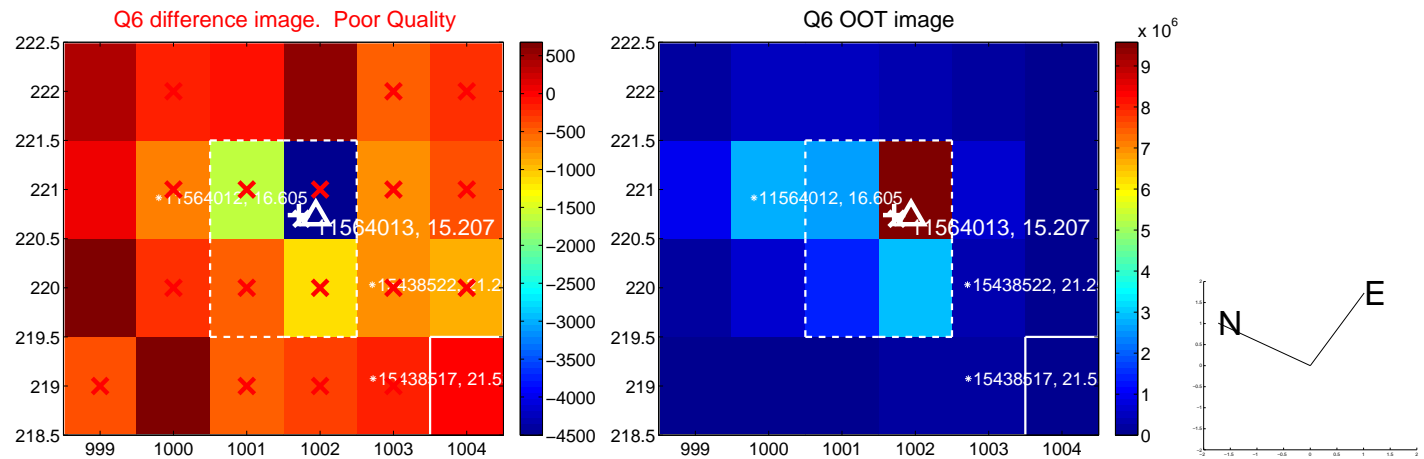
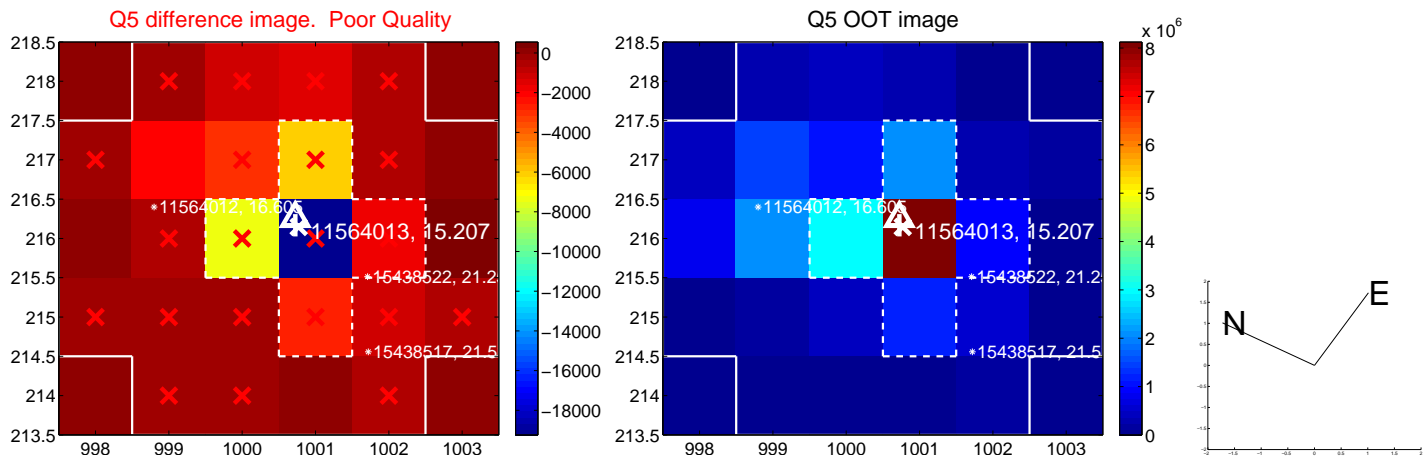


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

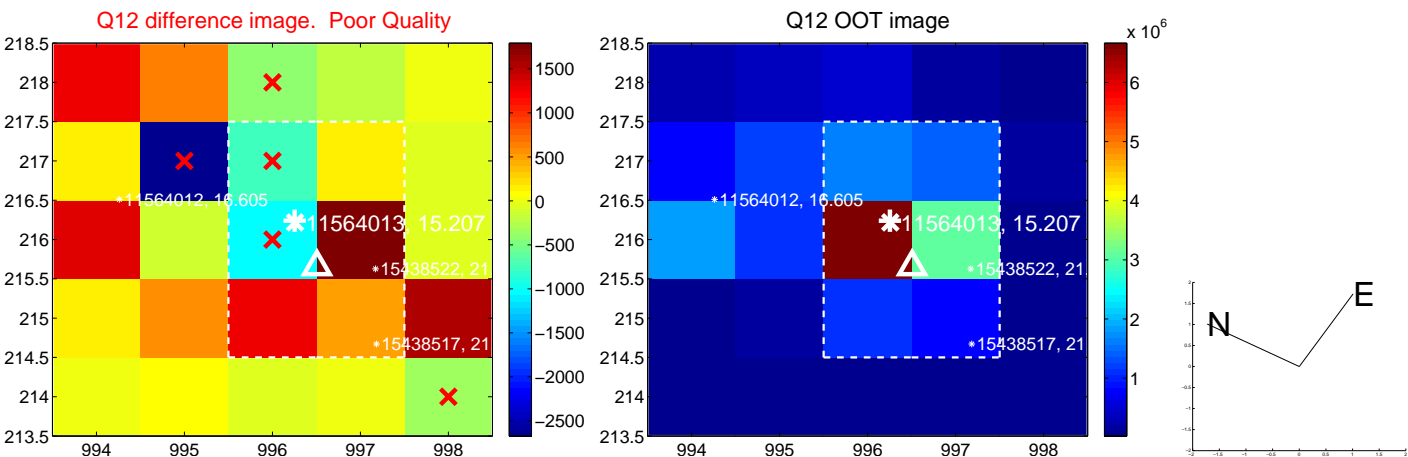
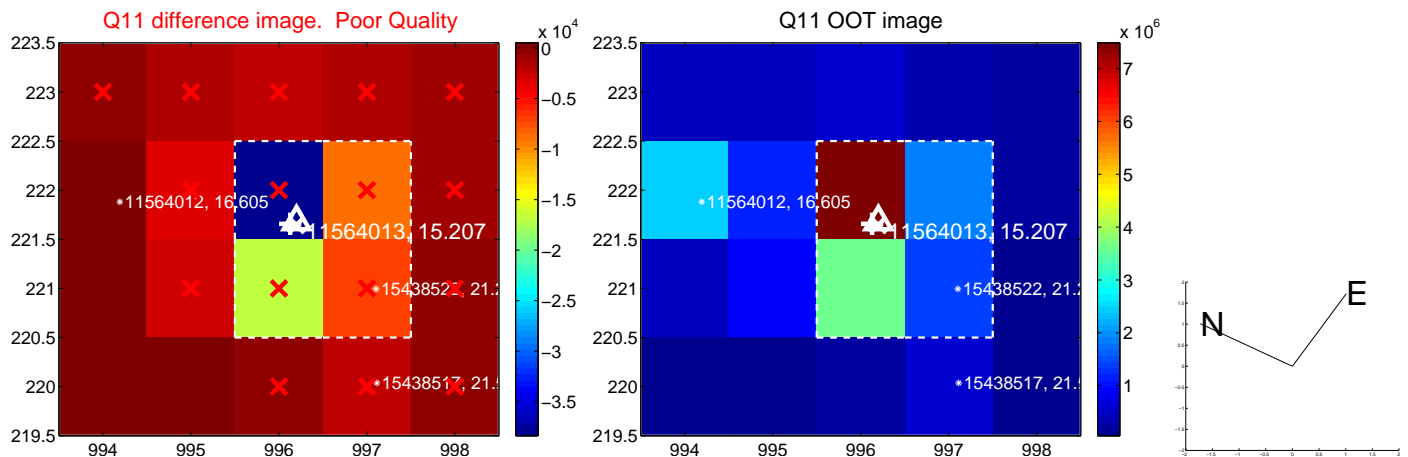
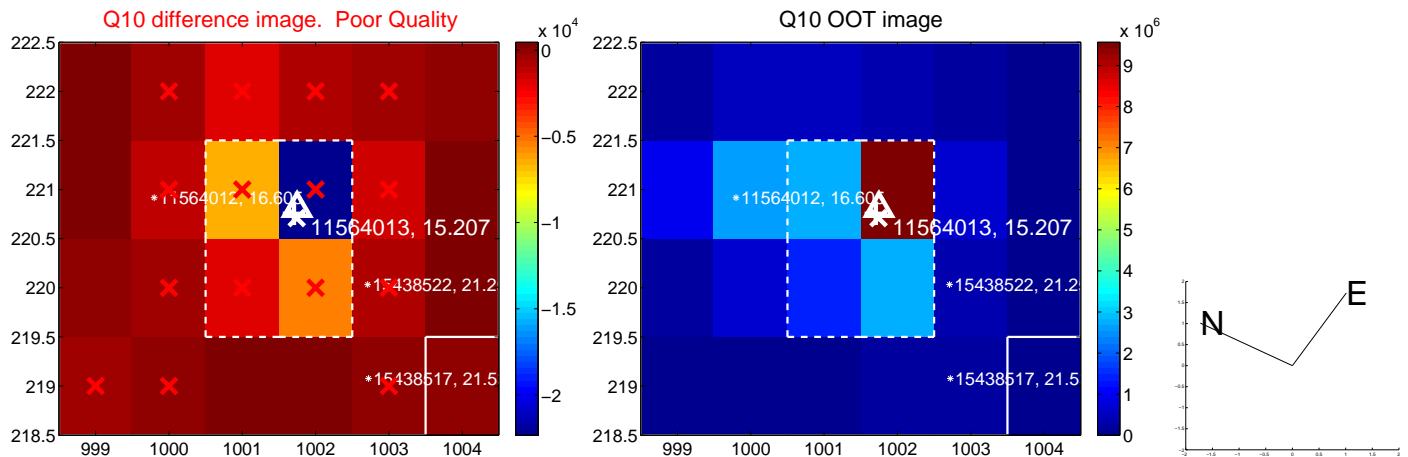
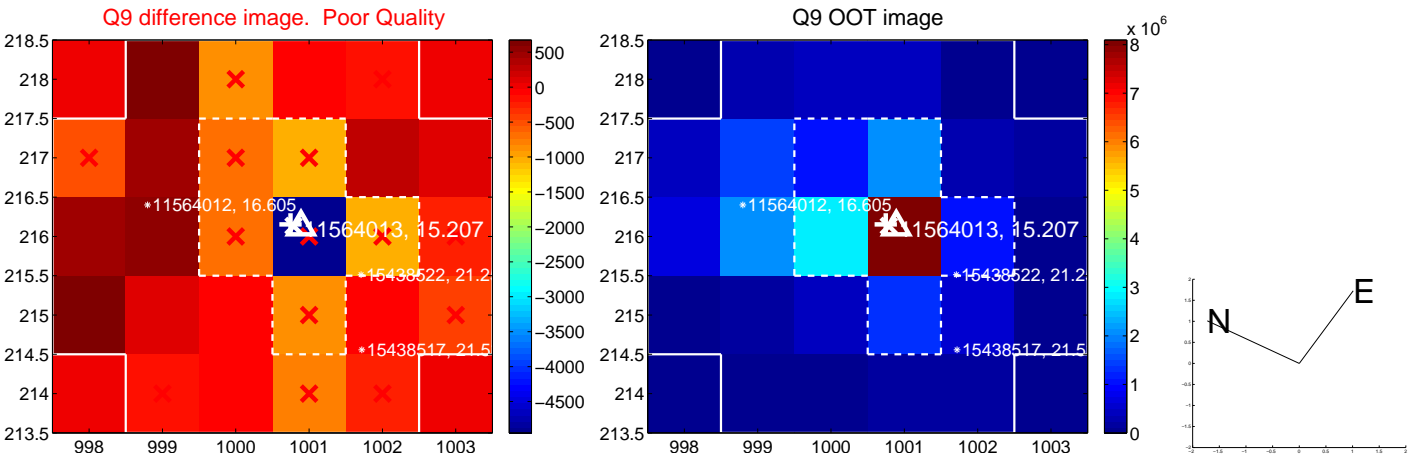
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



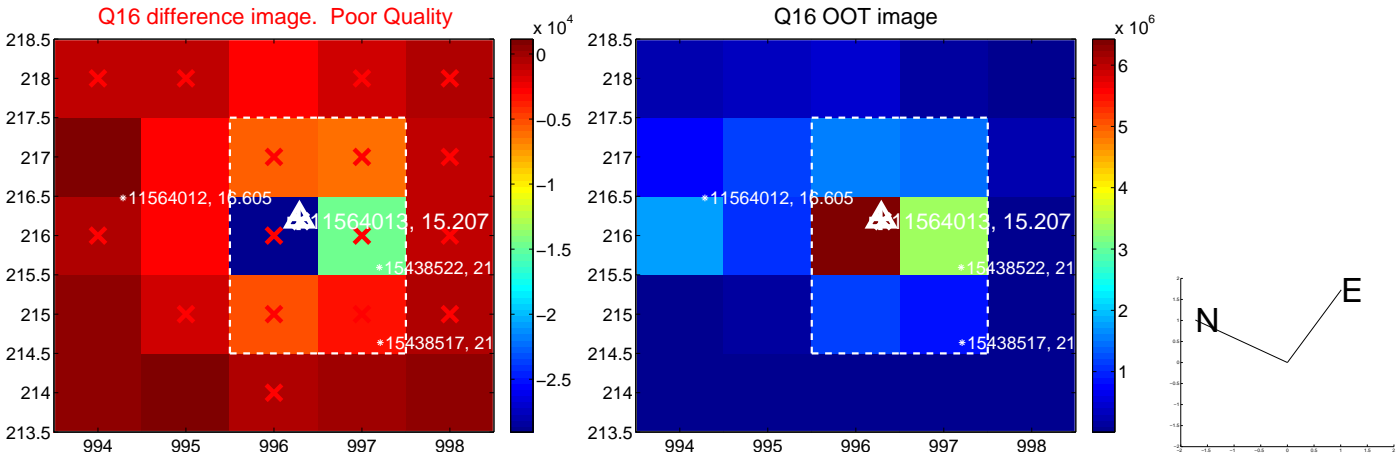
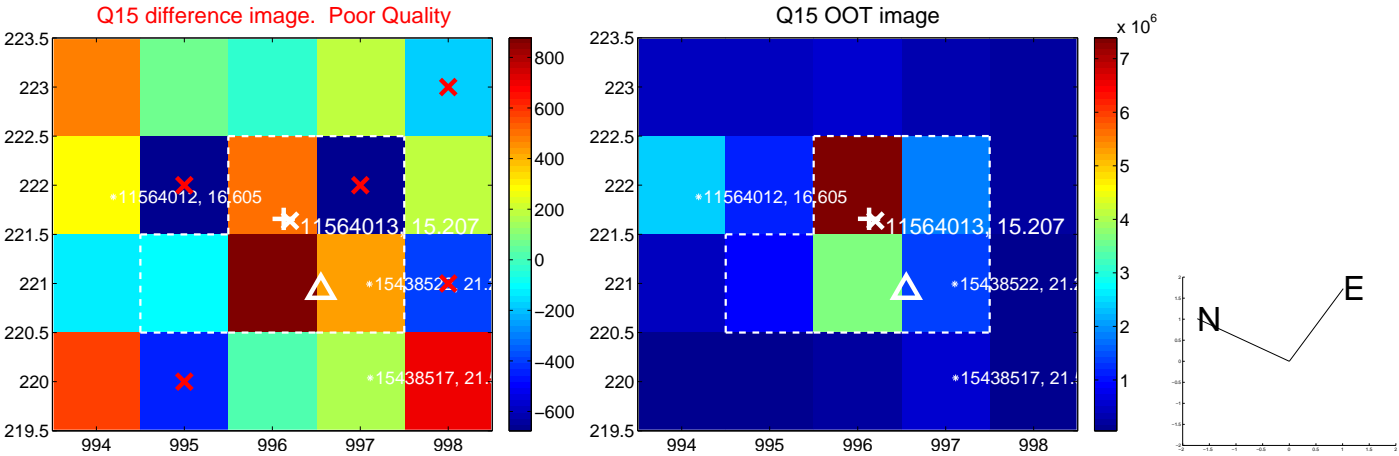
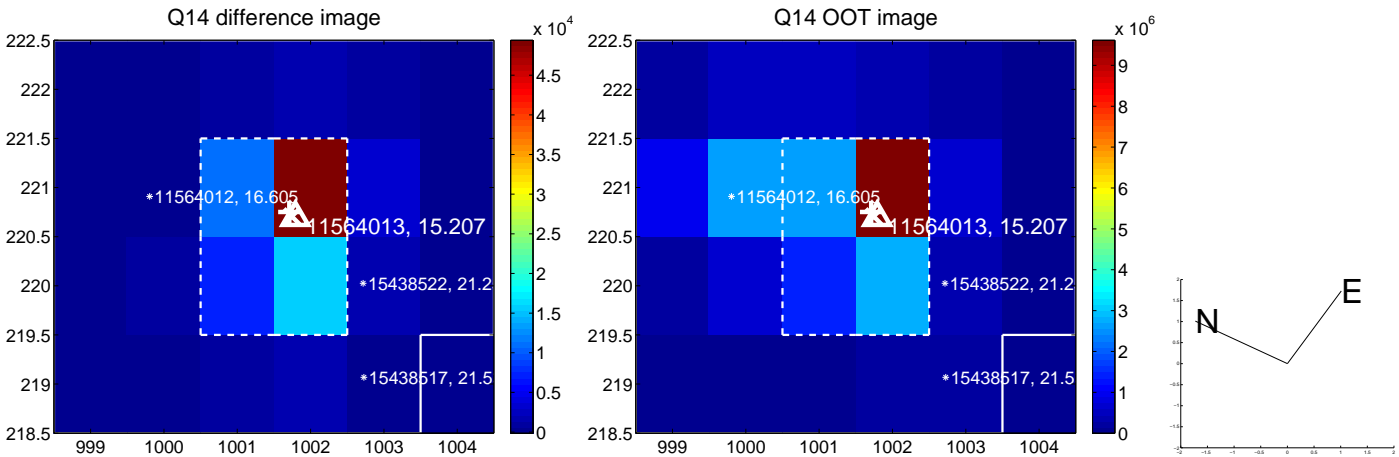
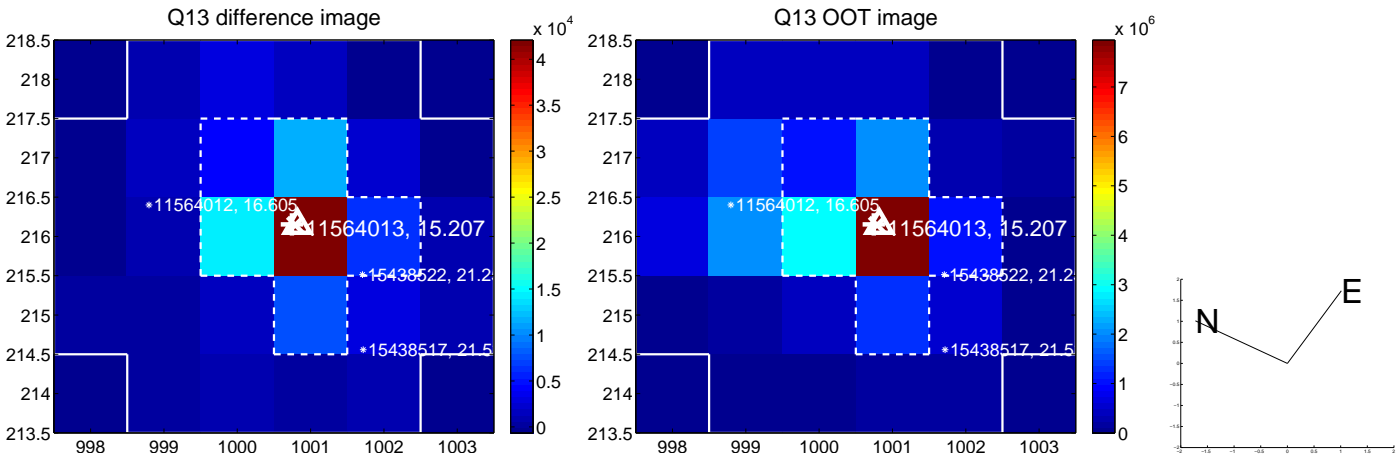
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



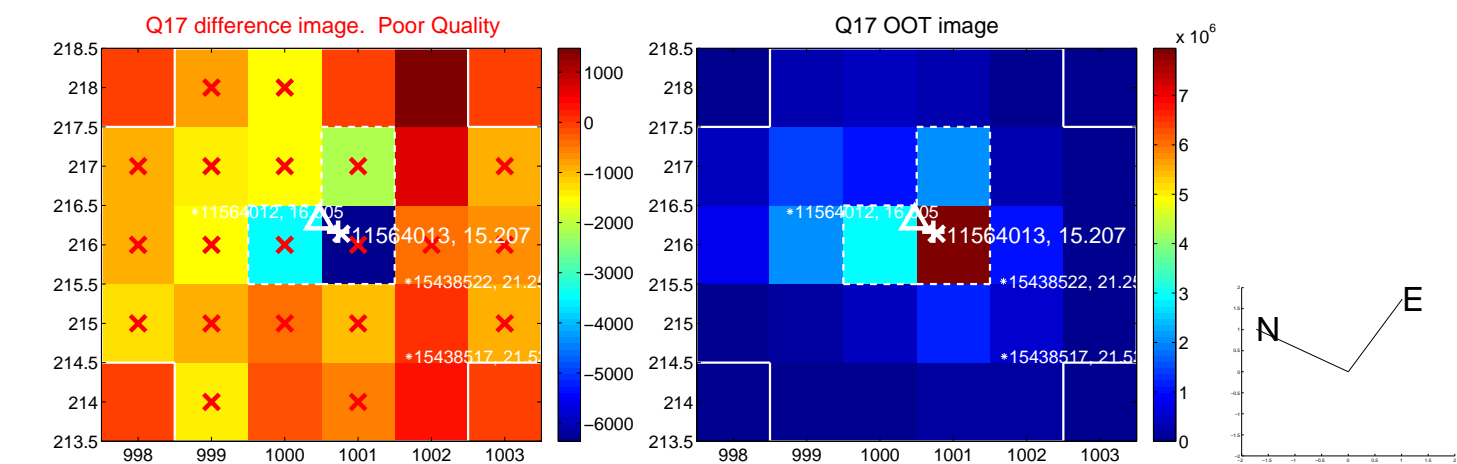
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



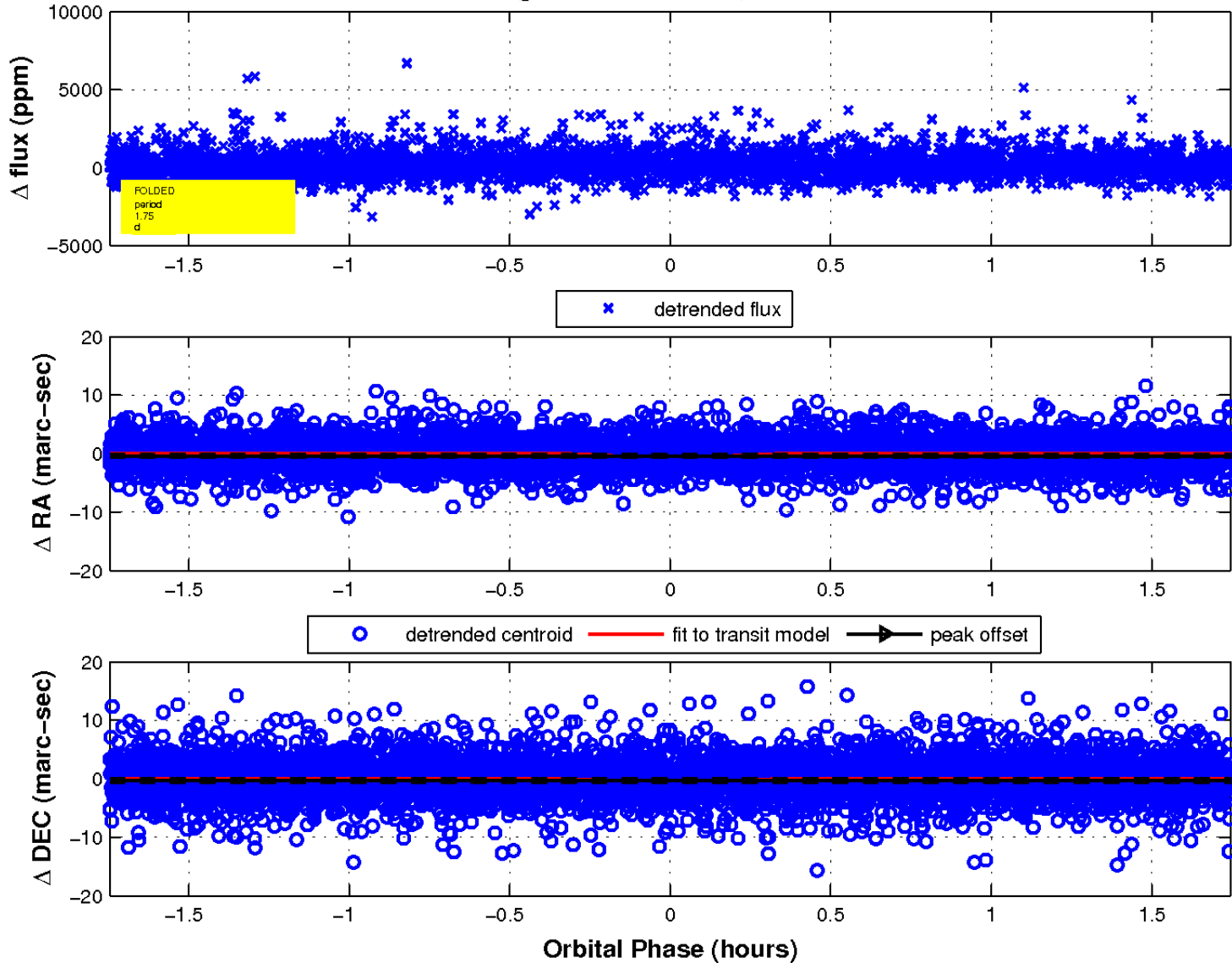
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

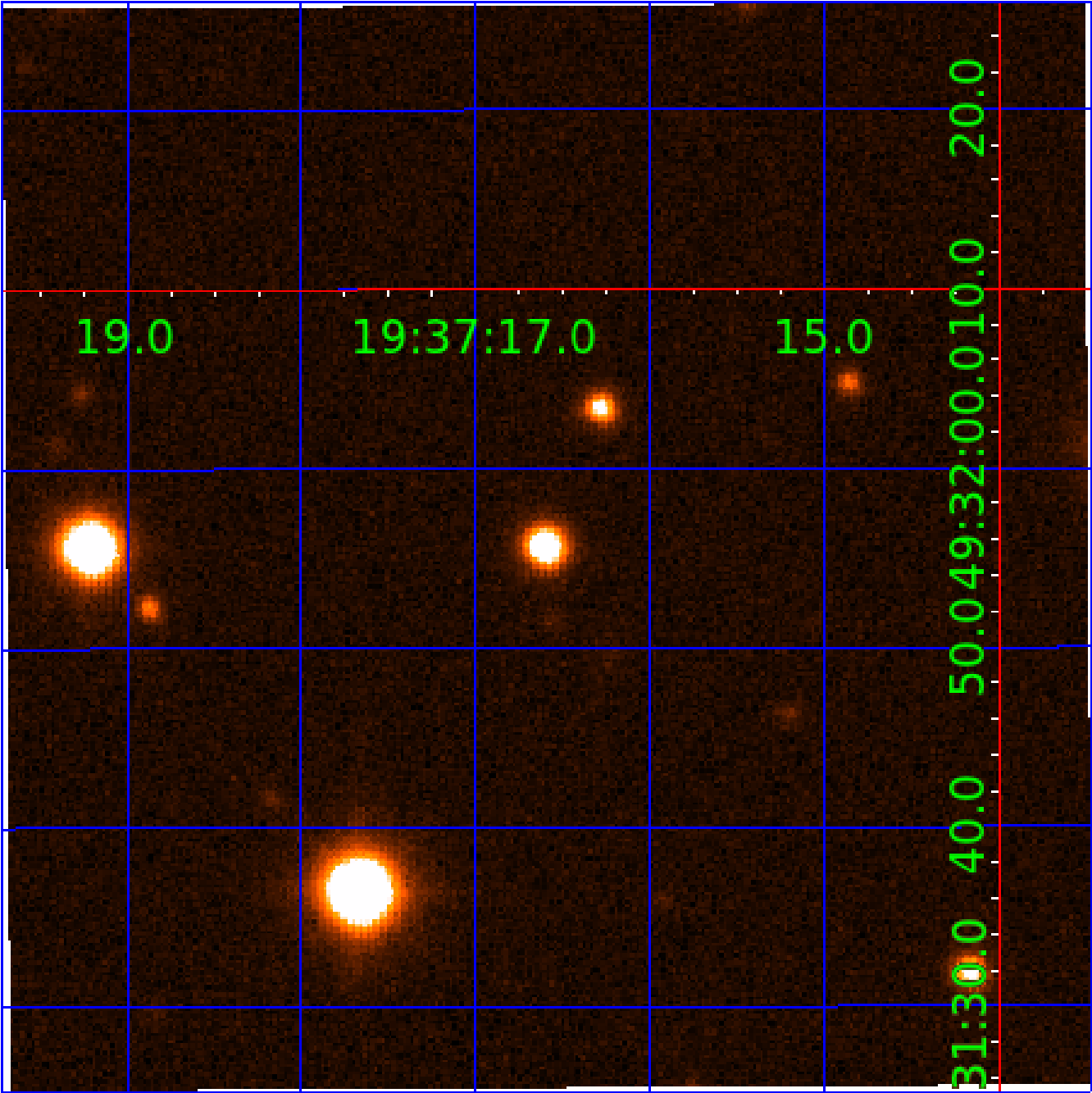


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 011564013

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})
011564013-01	OBS	3714.01	1.750537	132.906834	3527.4	0.943	48.7	119.9	0.90	5821	5.86	1251.72
011564013-02	OBS	No	1.750453	131.998029	329.8	2.324	23.9	13.2	0.90	5821	1.67	1251.80
011564013-03	OBS	No	1.749596	131.771094	69.5	0.582	8.0	1.9	0.90	5821	0.91	1252.62
011564013-04	OBS	No	0.583433	131.782869	821.1	1.500	7.4	-1.0	0.90	5821	2.58	5416.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011564013-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE
011564013-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—HALO_GHOST
011564013-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011564013-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS

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 011564013-04

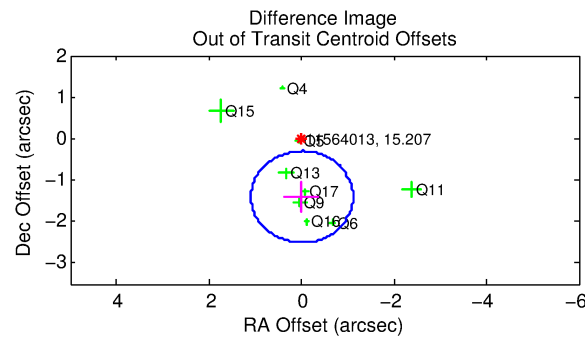
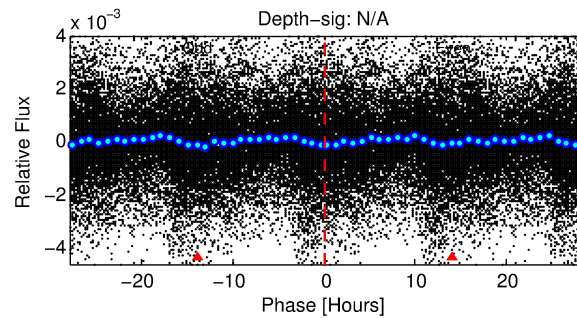
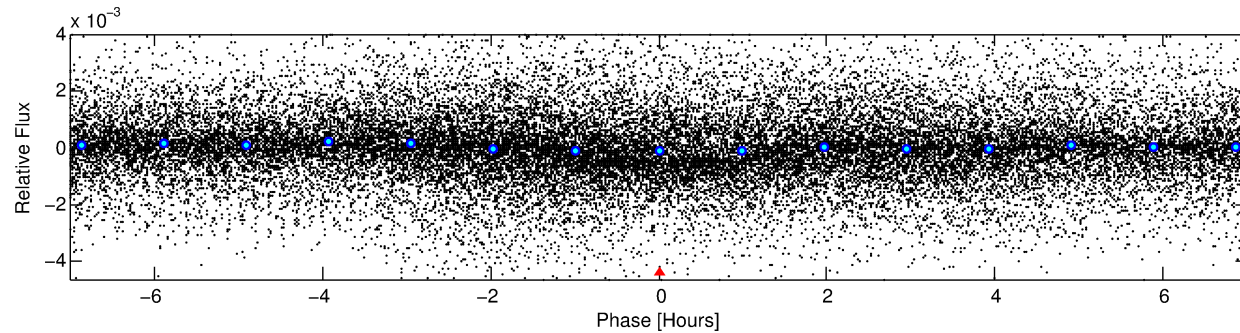
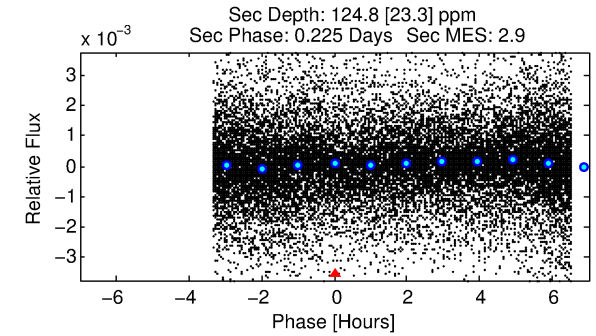
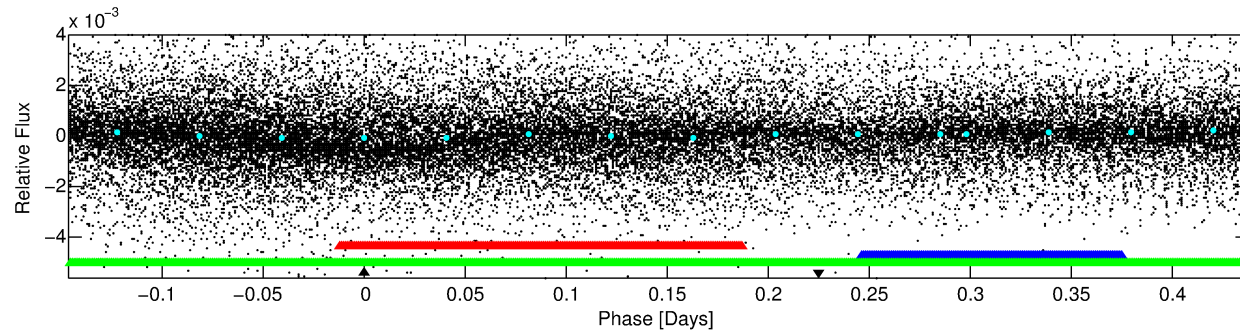
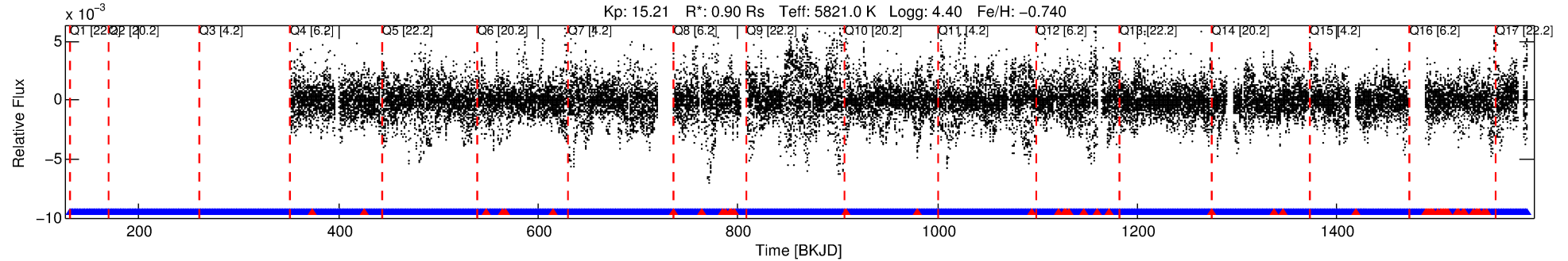
No Significant Match Found

DV One-Page Summary

KIC: 11564013 Candidate: 4 of 4 Period: 0.583 d

KOI: K03714 Corr: No Ephemeris Match

Kp: 15.21 R*: 0.90 Rs Teff: 5821.0 K Logg: 4.40 Fe/H: -0.740



TPS TCE Results:

Period = 0.58343 d
Epoch = 131.7829 BKJD

DV fit results are unavailable

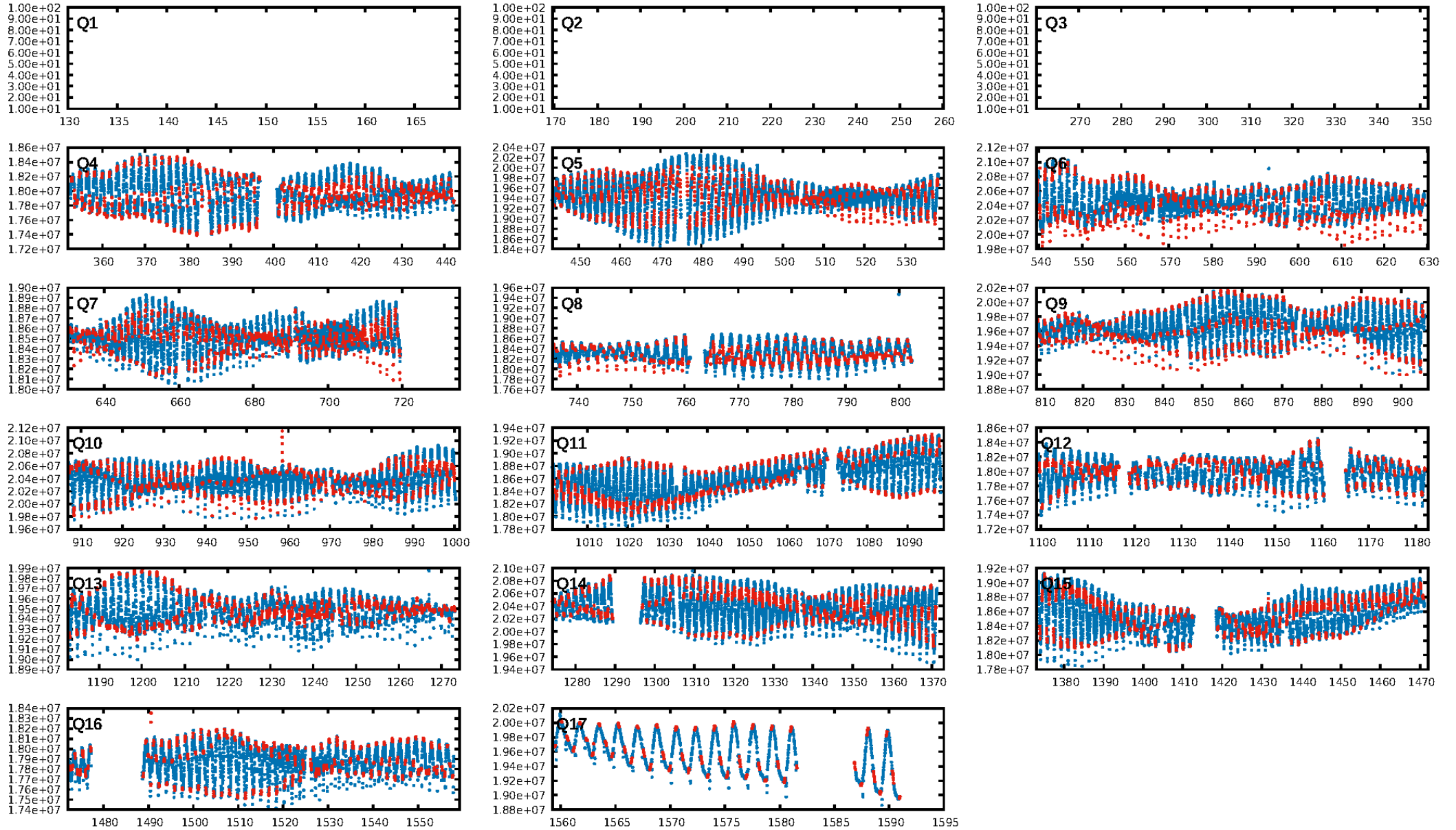
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [17.40 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [1843/1902]
GhostDiagnostic-chr: -43.26
Centroid-sig: 12.5%
Centroid-so: 0.594 arcsec [3.96 σ]
OotOffset-rm: 1.403 arcsec [3.81 σ]
KicOffset-rm: 1.205 arcsec [3.18 σ]
OotOffset-st: 1/2/2/4 [9]
KicOffset-st: 1/2/2/4 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.00 [0/14]

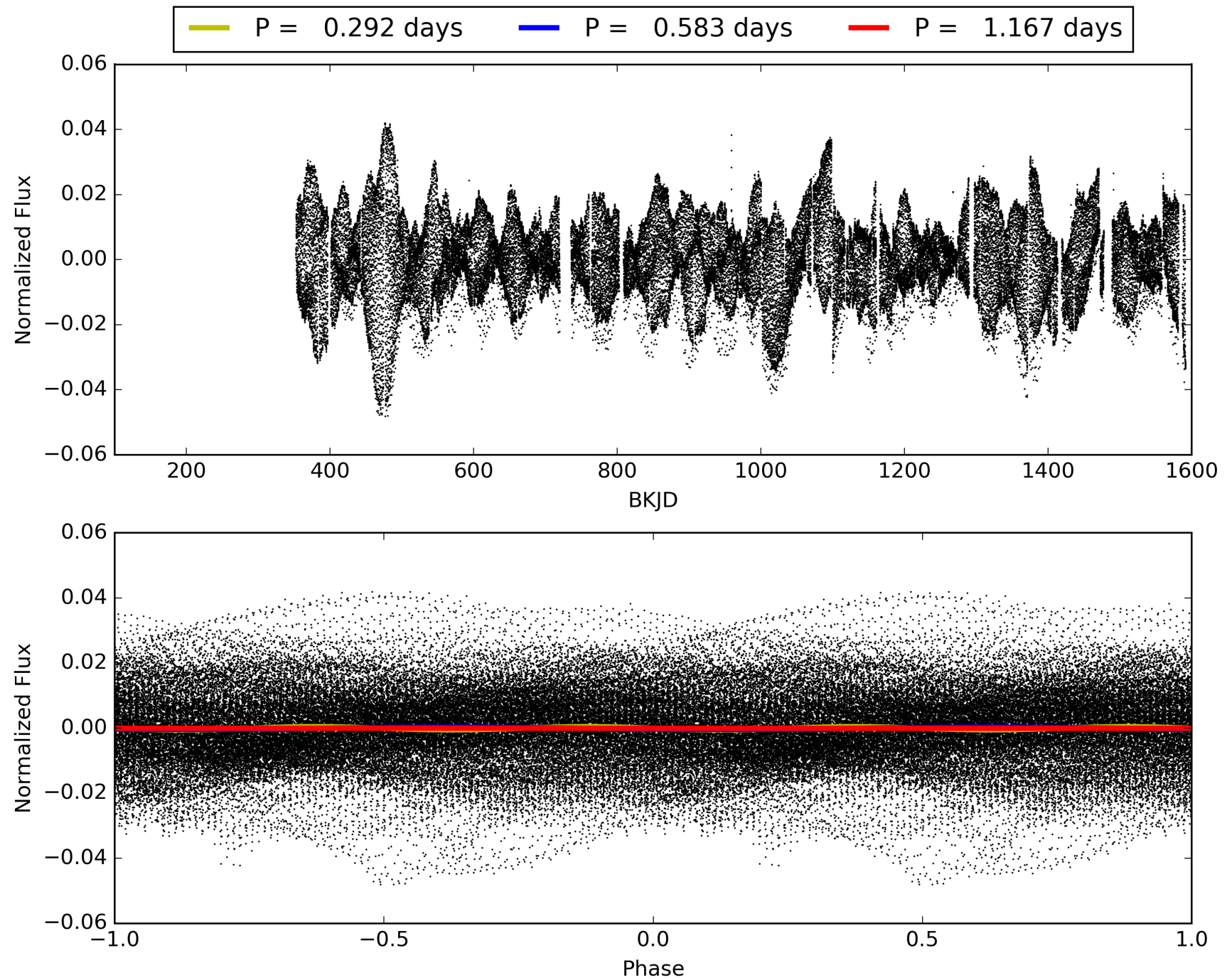
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:45:42 Z

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

TCE 011564013-04, PDC Light Curves

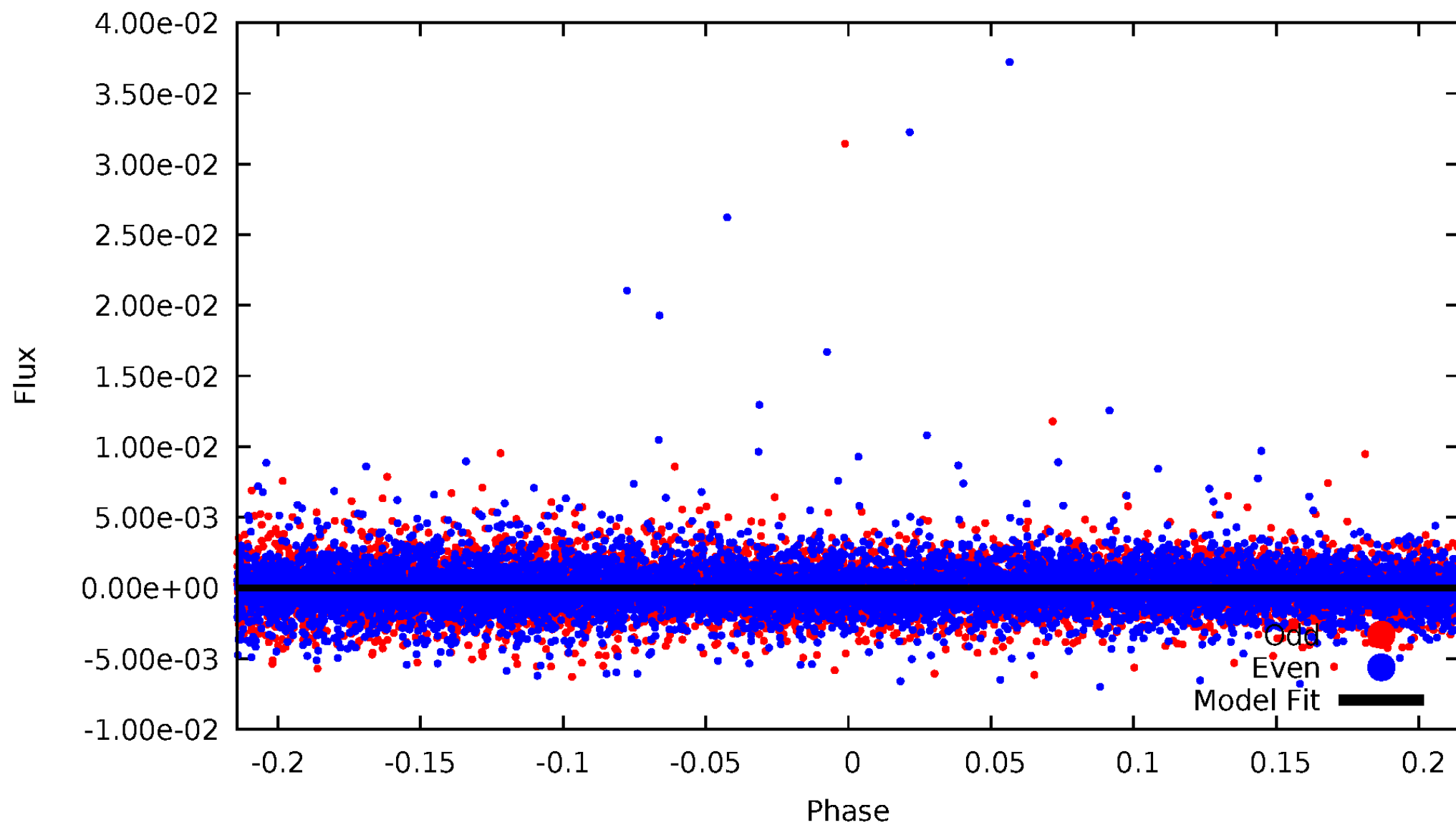


TCE 011564013-04



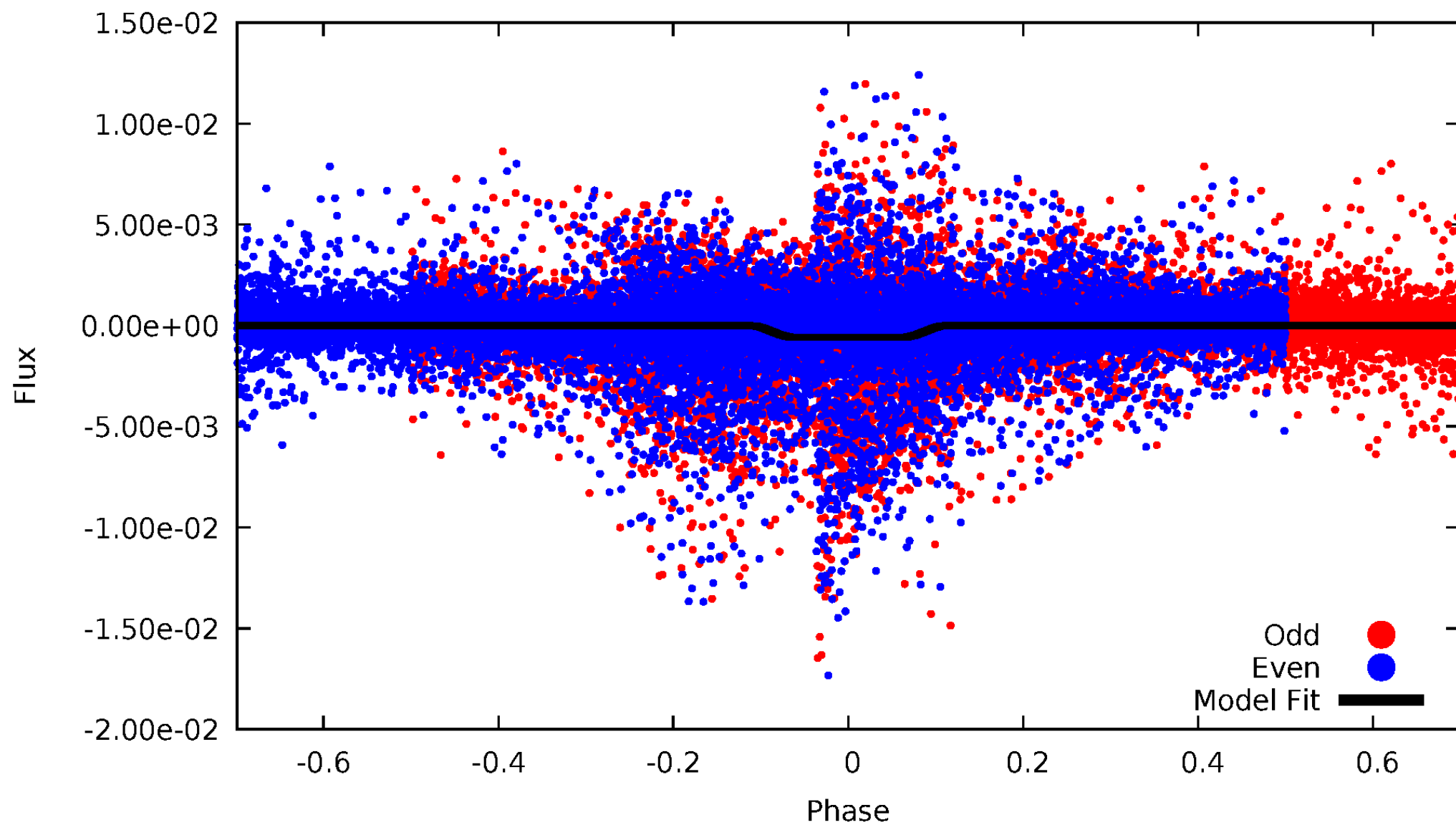
DV Odd/Even

TCE 011564013-04



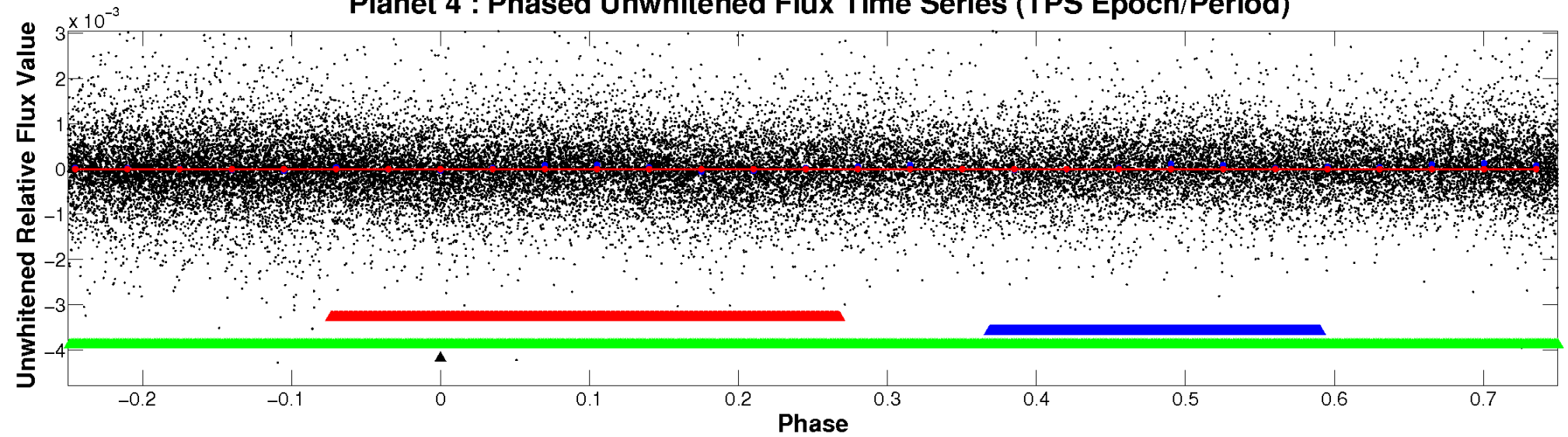
ALT Odd/Even

TCE 011564013-04

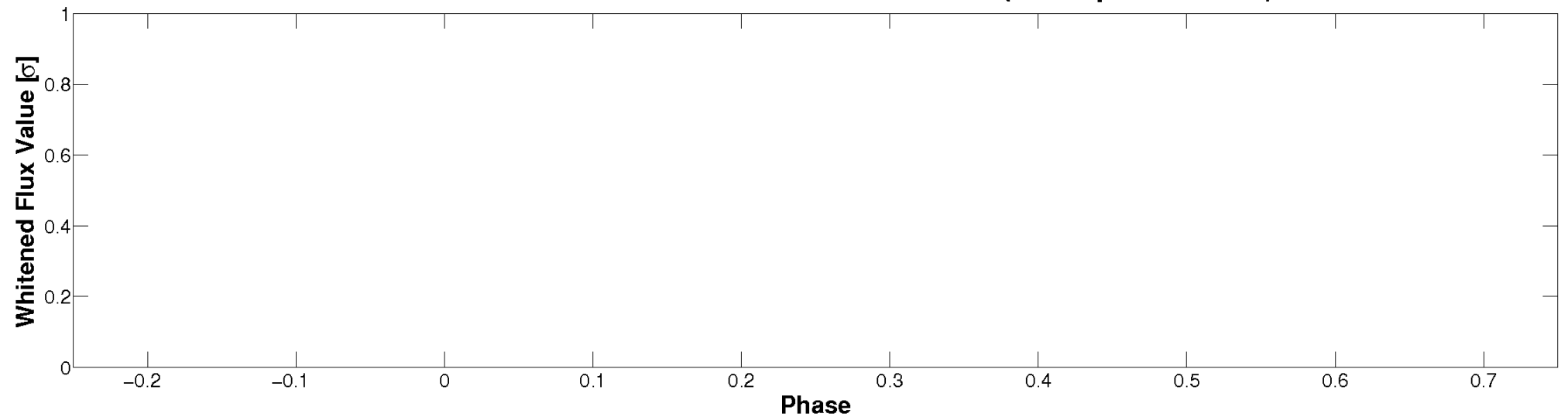


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

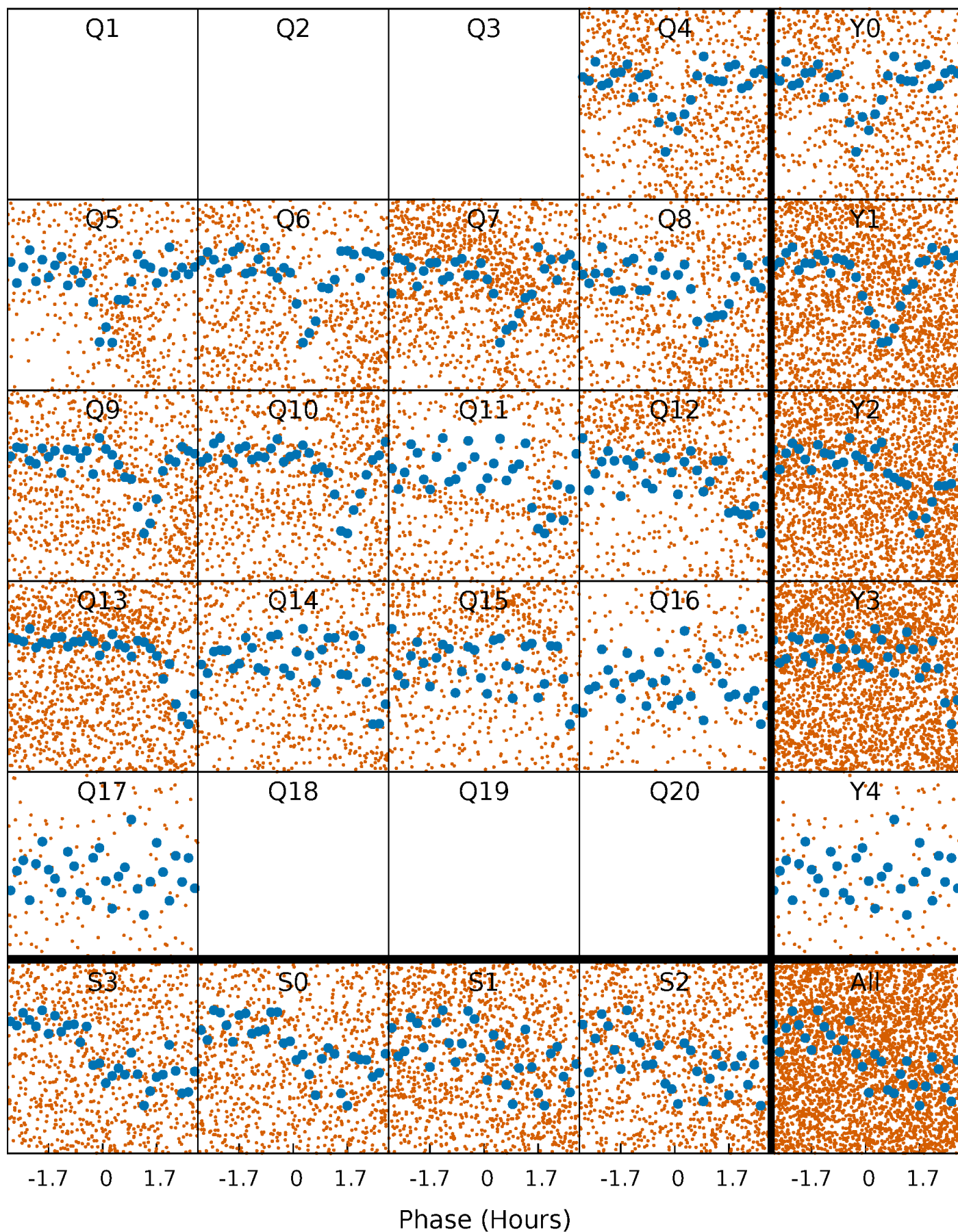


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



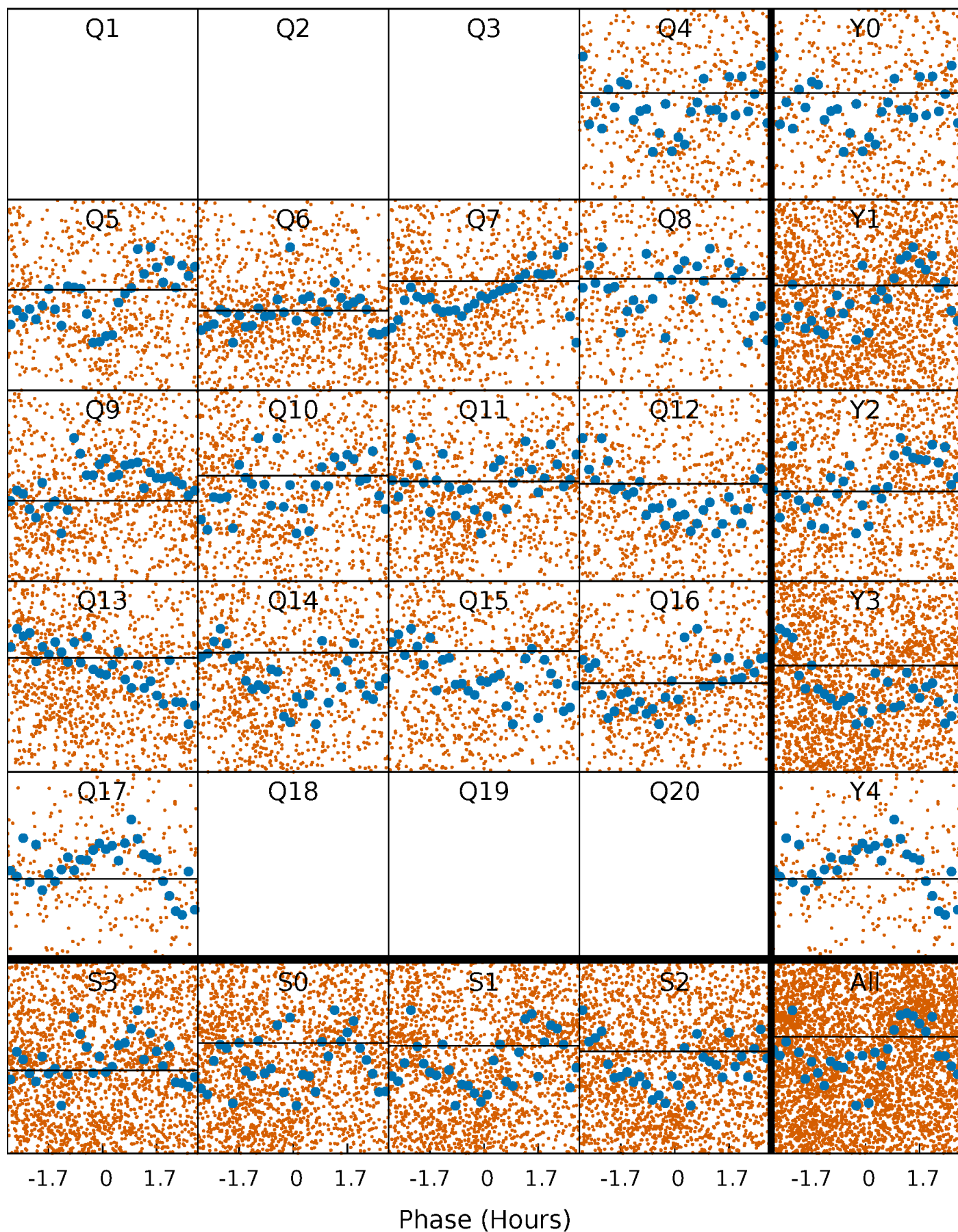
PDC Quarter-Phased Transit Curves

TCE 011564013-04 P= 0.583433 Days $T_0=131.782869$ (BKJD)



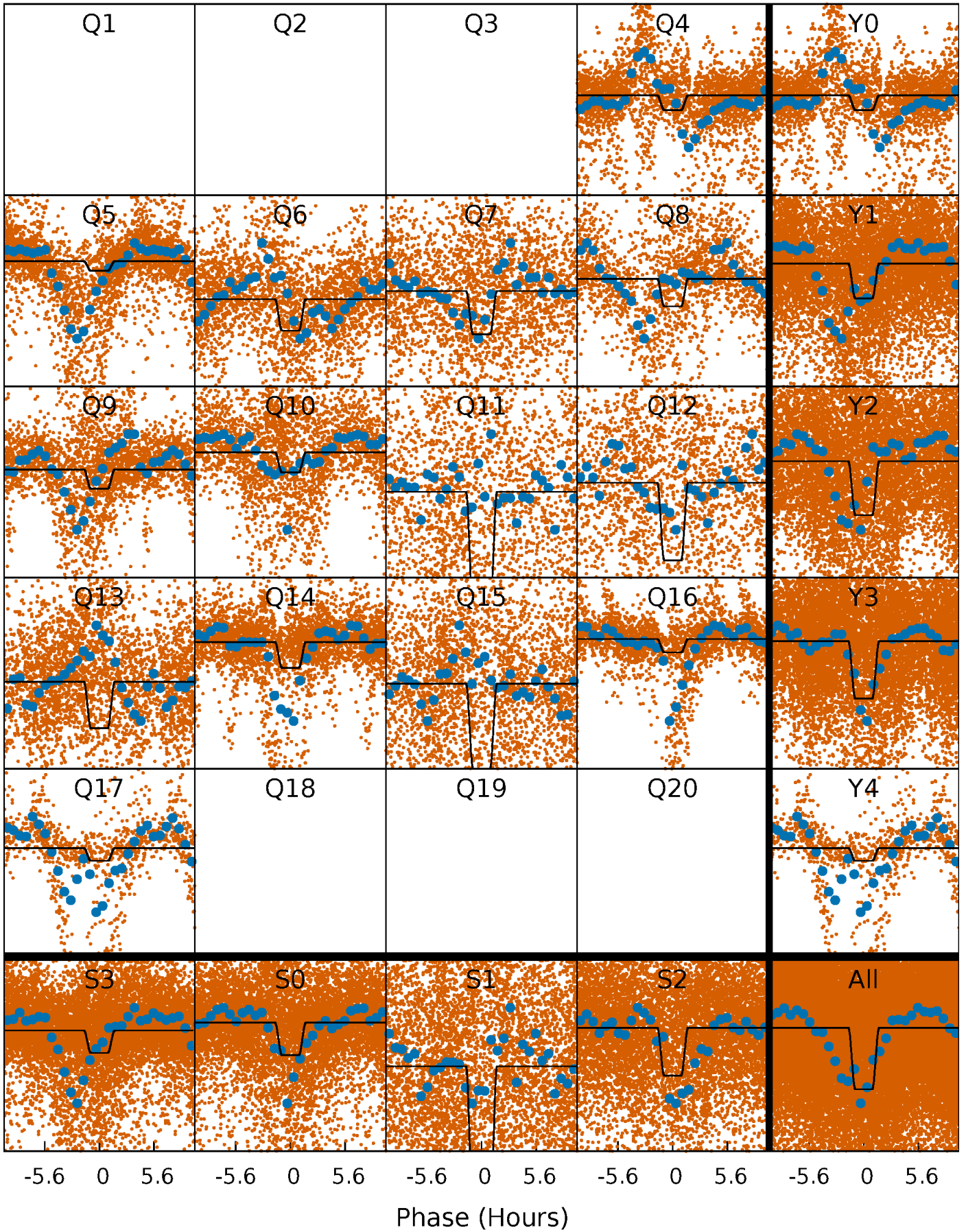
DV Quarter-Phased Transit Curves

TCE 011564013-04 P= 0.583433 Days $T_0=131.782869$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

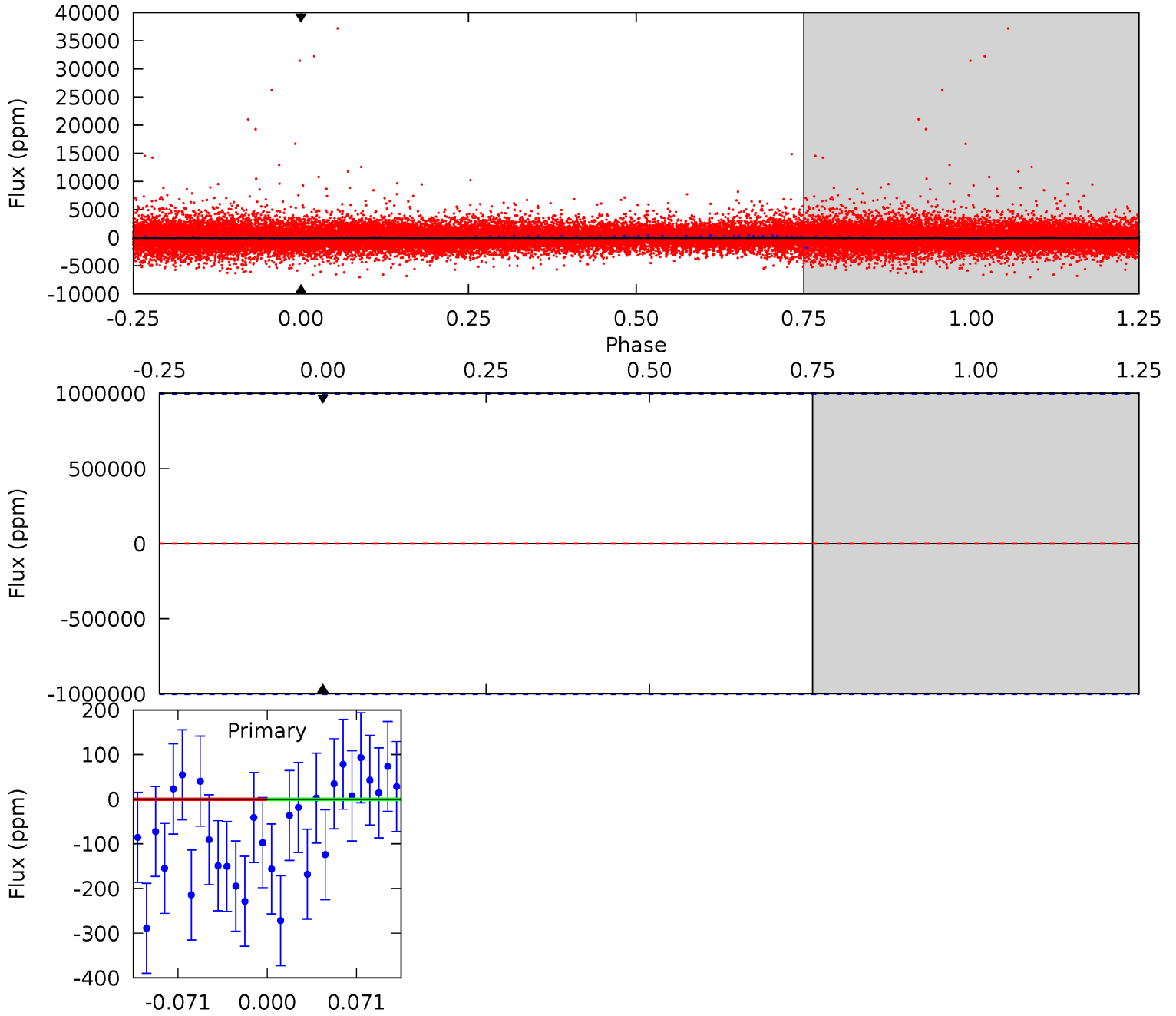
TCE 011564013-04 P= 0.583433 Days $T_0=131.751918$ (BKJD)



DV Model-Shift Uniqueness Test

011564013-04, P = 0.583433 Days, E = 131.782869 Days

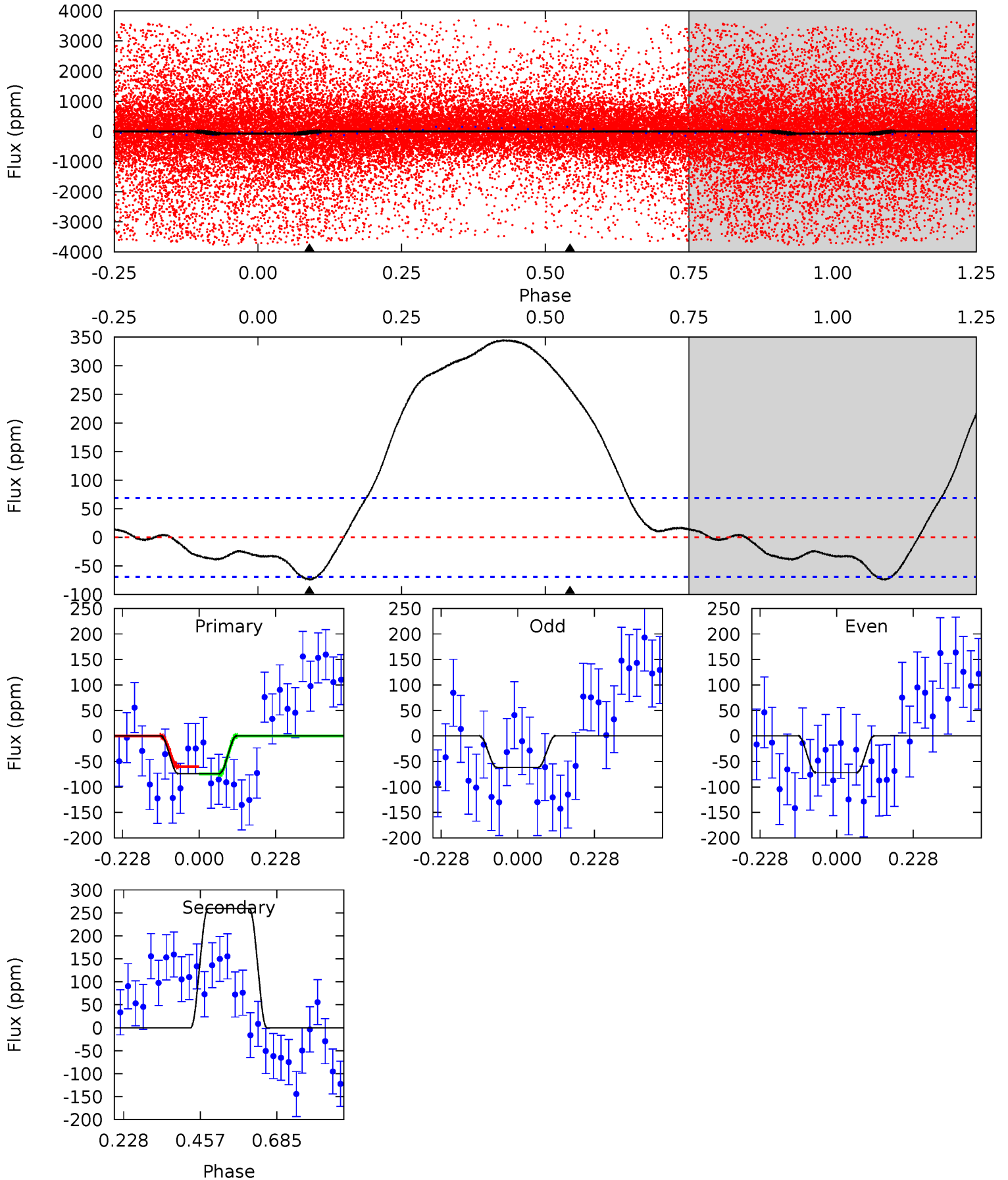
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011564013-04, P = 0.583433 Days, E = 131.751918 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.70	-16.5	0	0	4.39	1.20	1.97	4.70	4.70	-16.5	-16.5	0.33	6.07	0.82	0



Stellar Parameters For KIC 011564013

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5821^{+192}_{-174}	$4.402^{+0.167}_{-0.185}$	$-0.740^{+0.300}_{-0.300}$	$0.898^{+0.221}_{-0.161}$	$0.742^{+0.103}_{-0.040}$	$1.445^{+1.147}_{-0.693}$
	+3%/-3%	+4%/-4%	+41%/-41%	+25%/-18%	+14%/-5%	+79%/-48%
Source	KIC0	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 011564013-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$7.46^{+8.79}_{-5.19}$	3066^{+218}_{-190}	-3122^{+23235}_{-17754}	$0.010^{+276.651}_{-280.327}$
Alt.	259 ± 16	$7.50^{+8.52}_{-5.11}$	3066^{+230}_{-177}	-3585^{+327}_{-1462}	$-0.396^{+0.310}_{-3.439}$

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 $A_{obs} \gg 1.0$

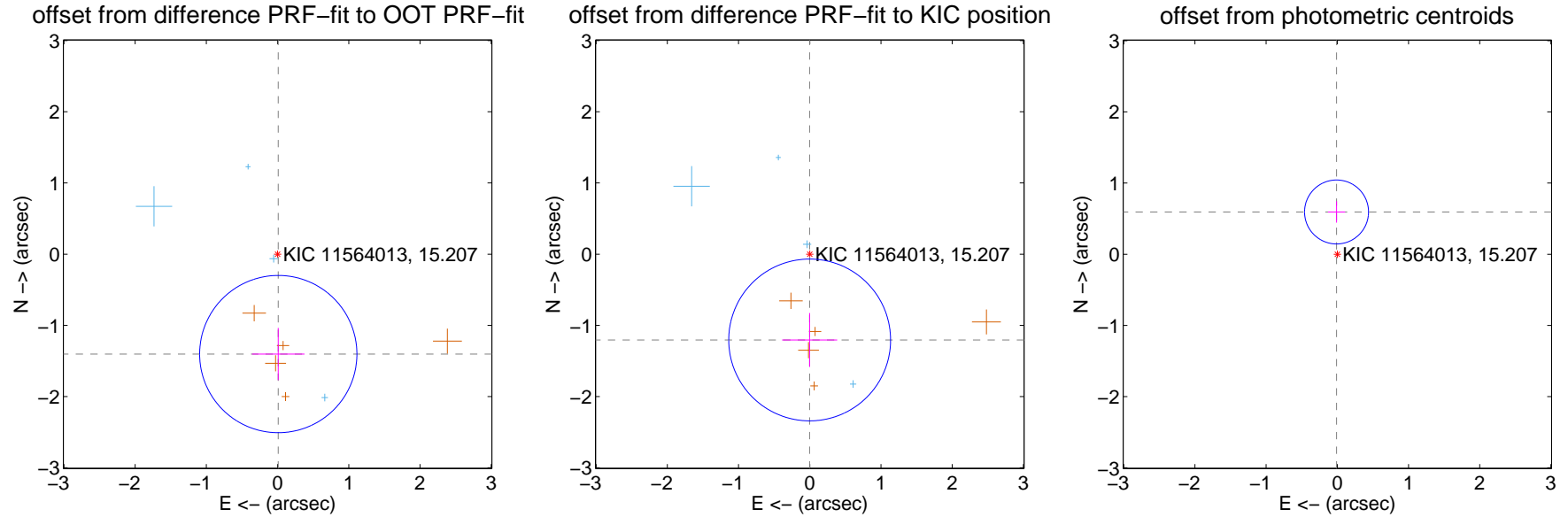
DV Centroid Data

Supplemental centroid analysis for 011564013-04. Kepler magnitude: 15.21. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

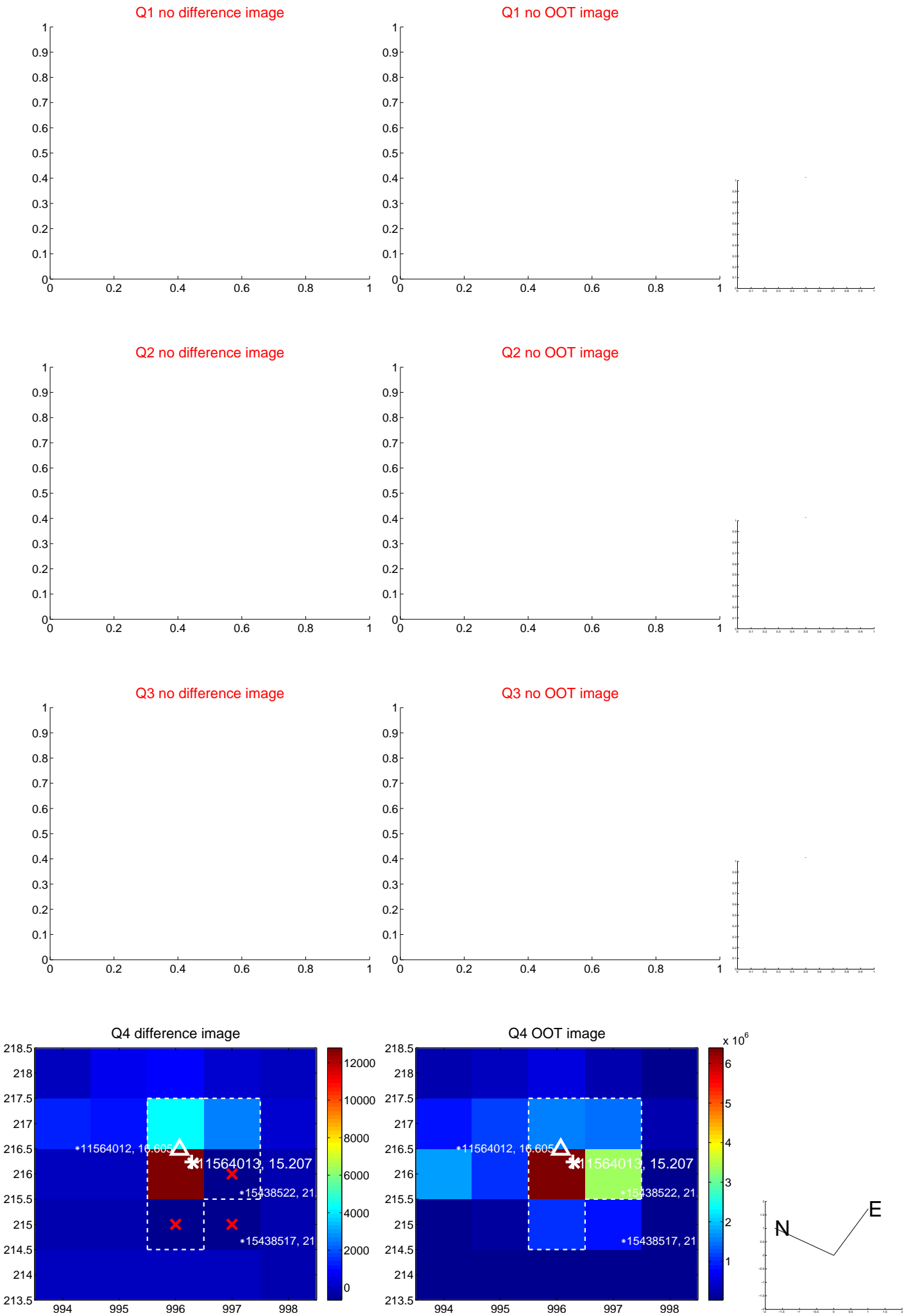
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.403 ± 0.368	3.81	-0.010 ± 0.369	-1.403 ± 0.367
PRF-fit source offset from KIC position	1.205 ± 0.379	3.18	0.001 ± 0.386	-1.205 ± 0.379
photometric centroid source offset	0.59 ± 0.15	3.96	0.01 ± 0.12	0.59 ± 0.15

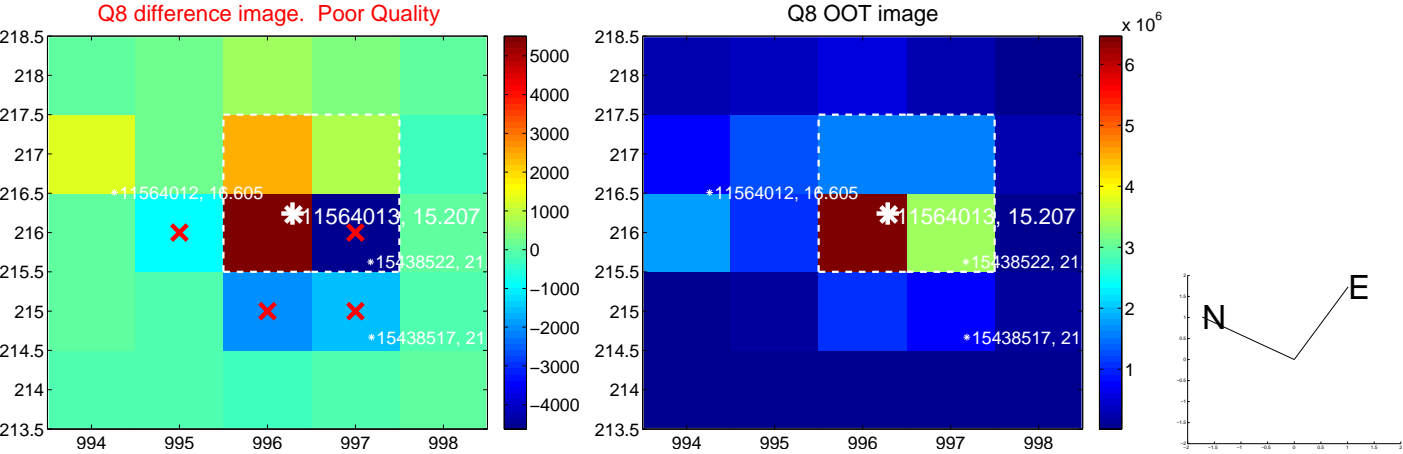
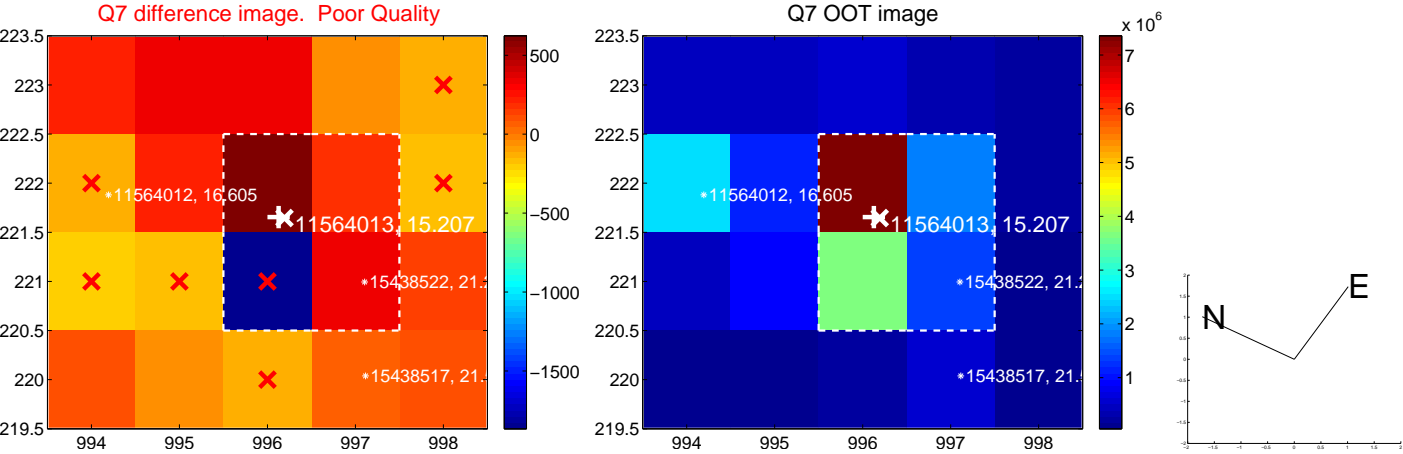
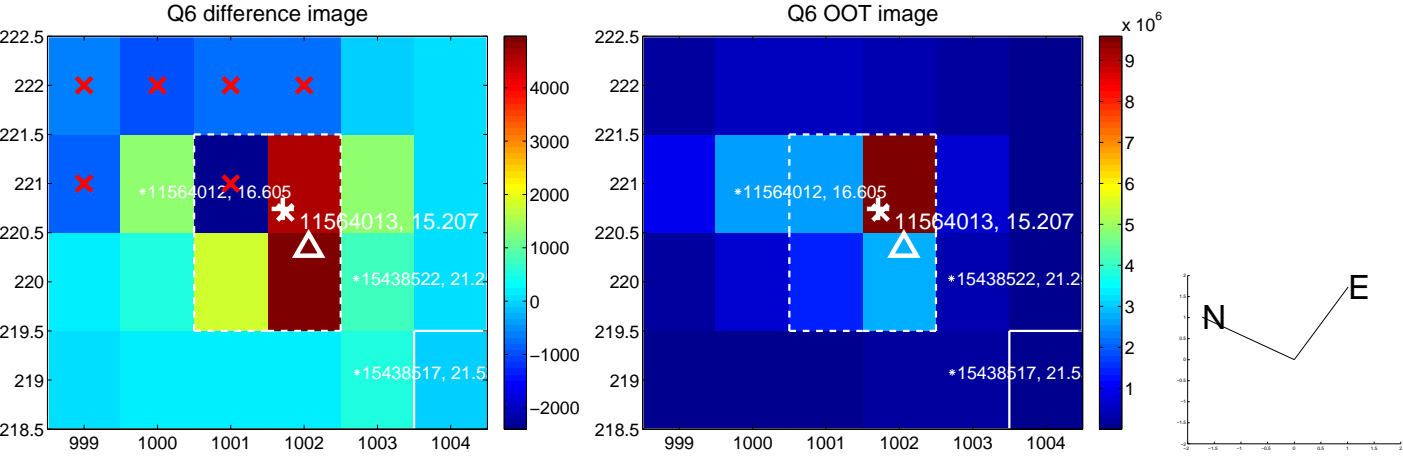
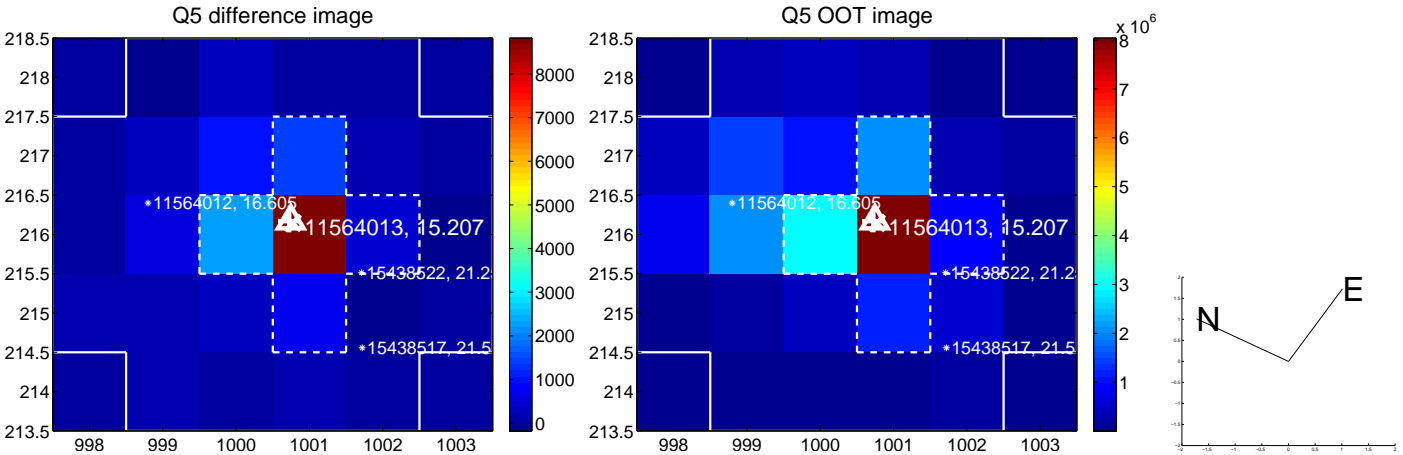


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

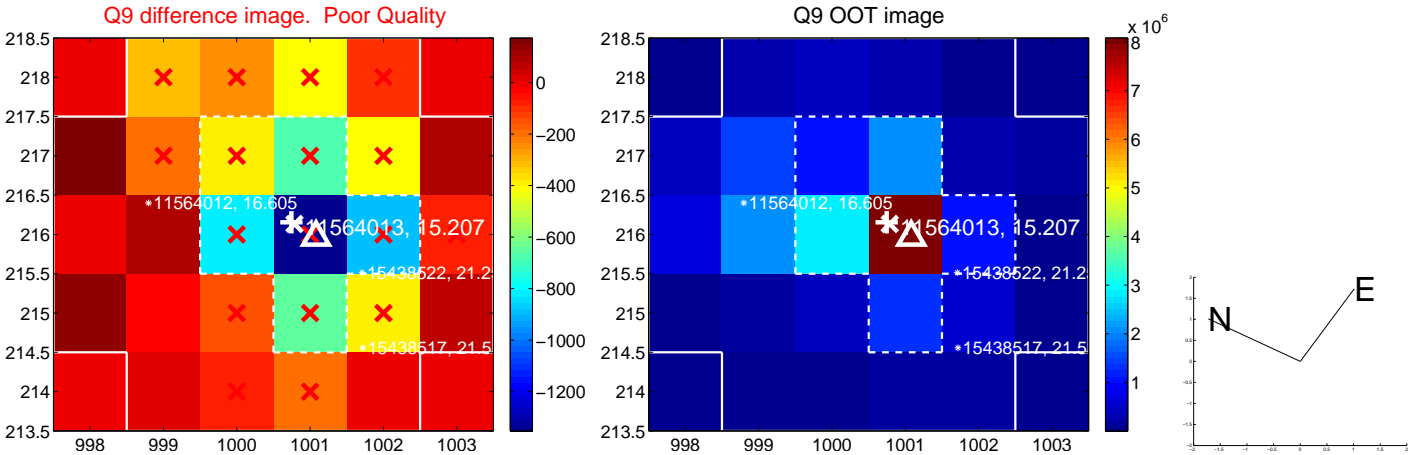
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



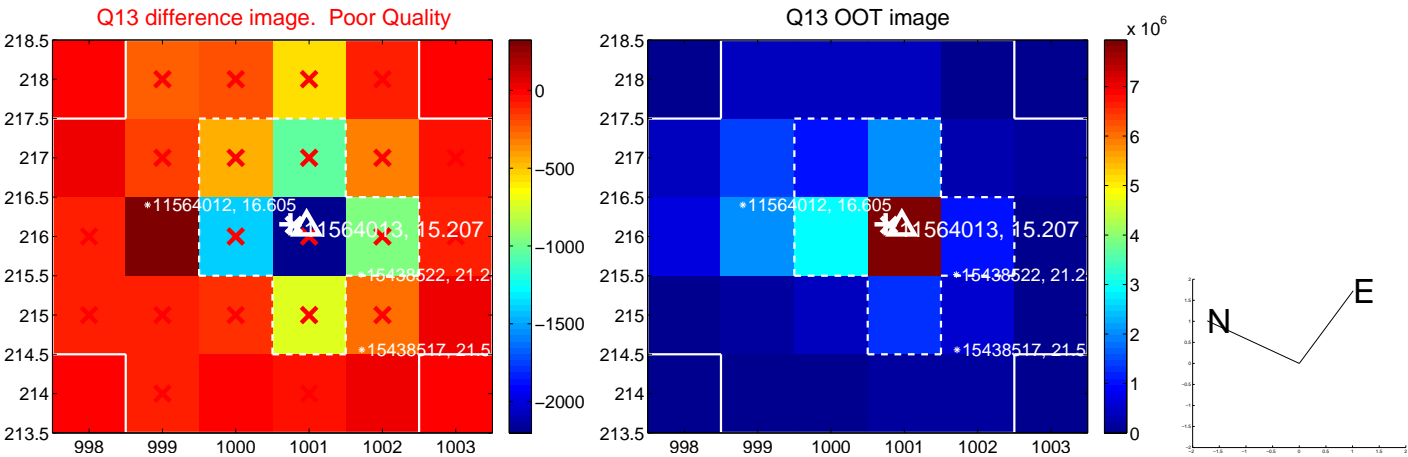
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



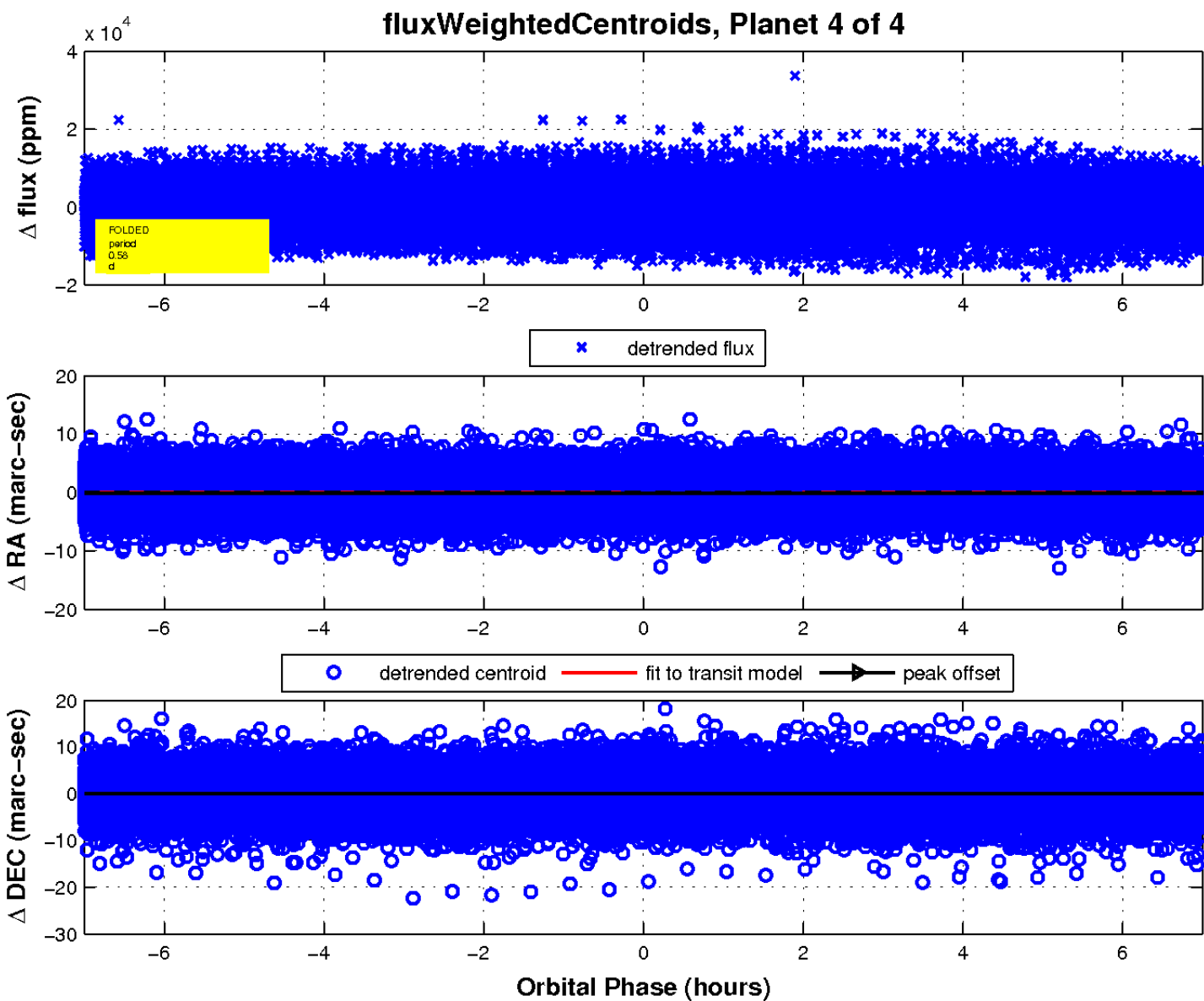
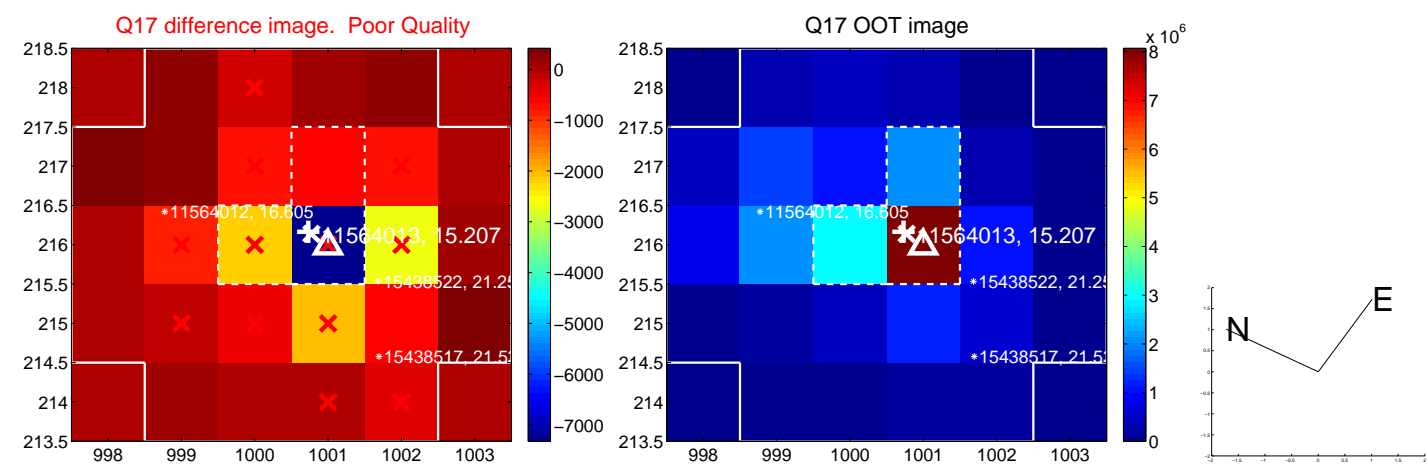
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

