

KIC 010155816

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})
010155816-01	OBS	No	3.733362	135.355733	16.0	15.107	9.6	3.8	3.78	6714	1.76	8422.69
010155816-02	OBS	No	85.096618	149.536845	377.4	2.877	8.8	9.0	3.78	6714	9.07	130.33
010155816-03	OBS	No	601.400105	316.067504	317.4	8.560	8.6	8.5	3.78	6714	7.12	9.61
010155816-04	OBS	No	126.459032	235.491471	303.0	2.683	8.5	7.6	3.78	6714	7.14	76.85
010155816-05	OBS	No	0.746530	132.297229	36.1	8.958	9.8	12.4	3.78	6714	2.64	72031.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010155816-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
010155816-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
010155816-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010155816-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010155816-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

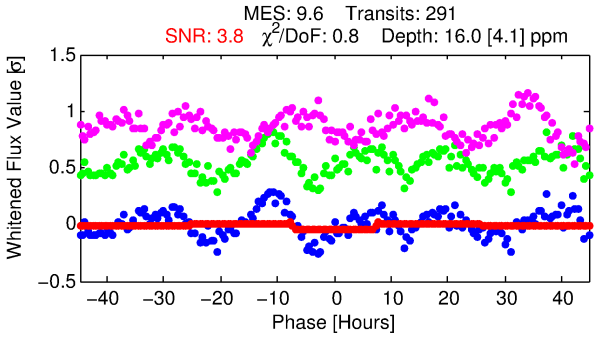
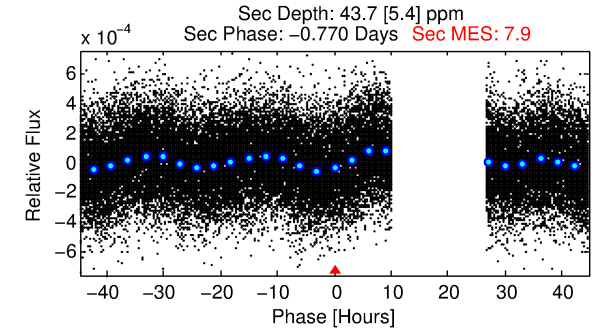
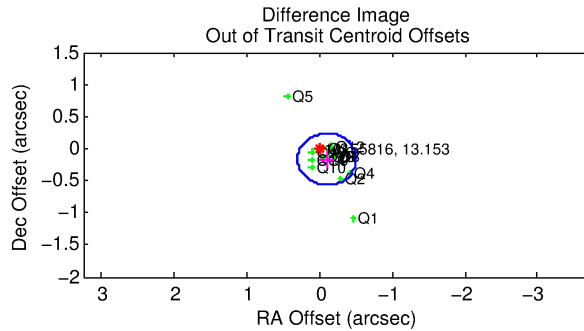
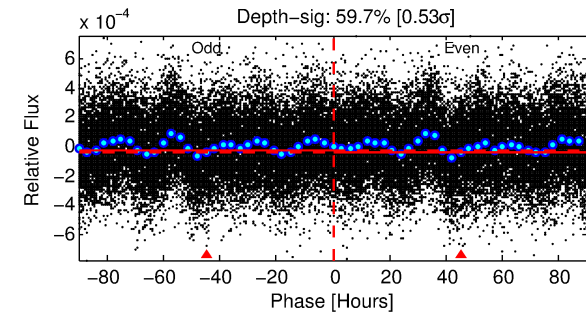
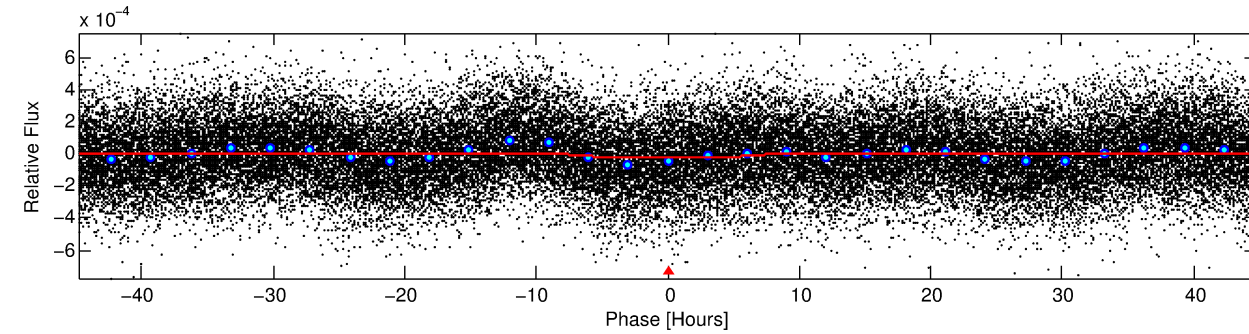
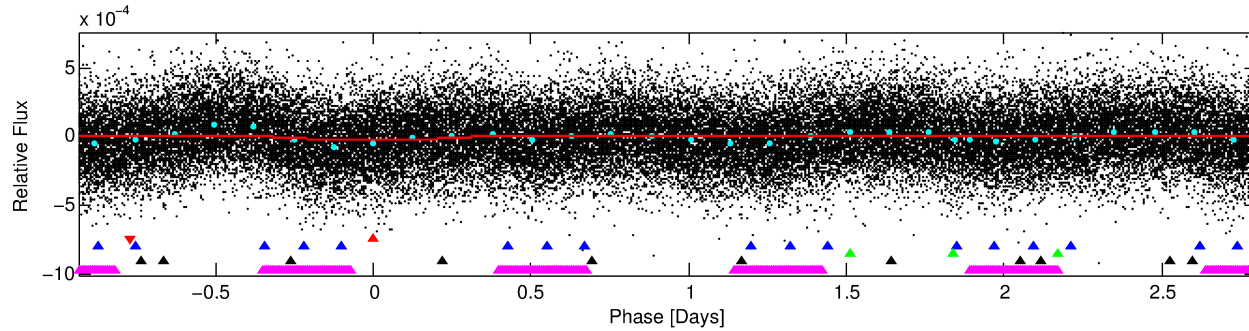
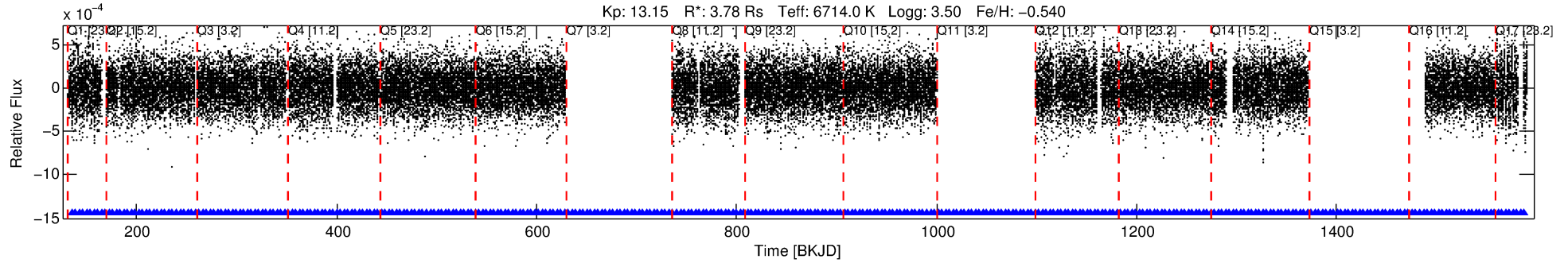
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010155816-01

No Significant Match Found

DV One-Page Summary

KIC: 10155816 Candidate: 1 of 5 Period: 3.733 d



DV Fit Results:

Period = 3.73336 [0.00012] d
Epoch = 135.3557 [0.0186] BKJD
Rp/R* = 0.0043 [0.0012]
a/R* = 1.26 [0.74]
b = 0.90 [0.34]
Seff = 8422.69 [5535.23]
Teq = 2443 [401] K
Rp = 1.76 [0.93] Re
a = 0.0555 [0.0229] AU
Ag = 23.98 [21.04] [1.09 σ]
Teffp = 8357 [1256] K [4.48 σ]

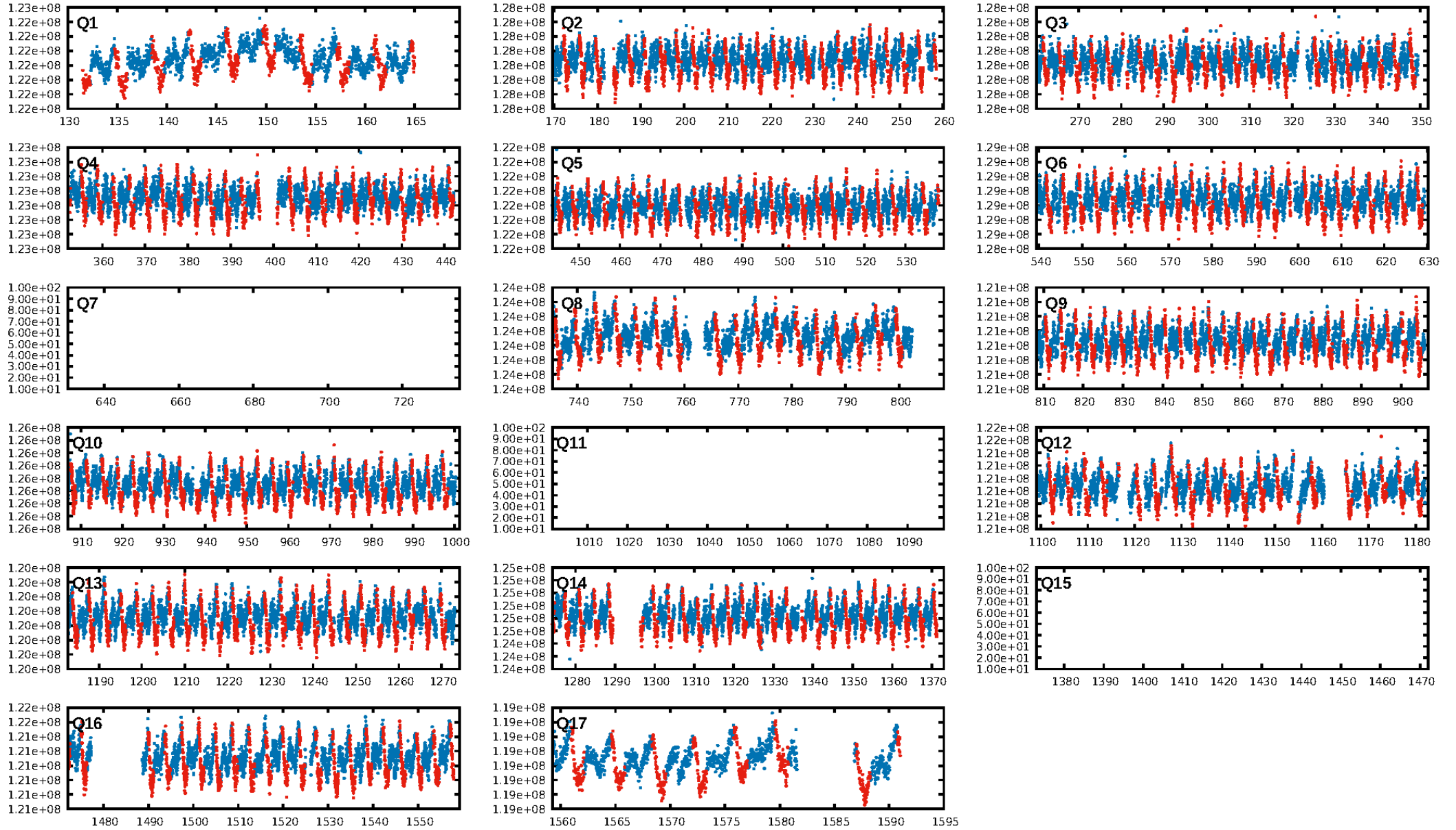
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.08 σ]
LongPeriod-sig: 100.0% [126.98 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [274/274]
GhostDiagnostic-chr: 0.8456
Centroid-sig: N/A
Centroid-so: 5.150 arcsec [3.82 σ]
OotOffset-rm: 0.195 arcsec [1.45 σ]
KicOffset-rm: 0.229 arcsec [1.77 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

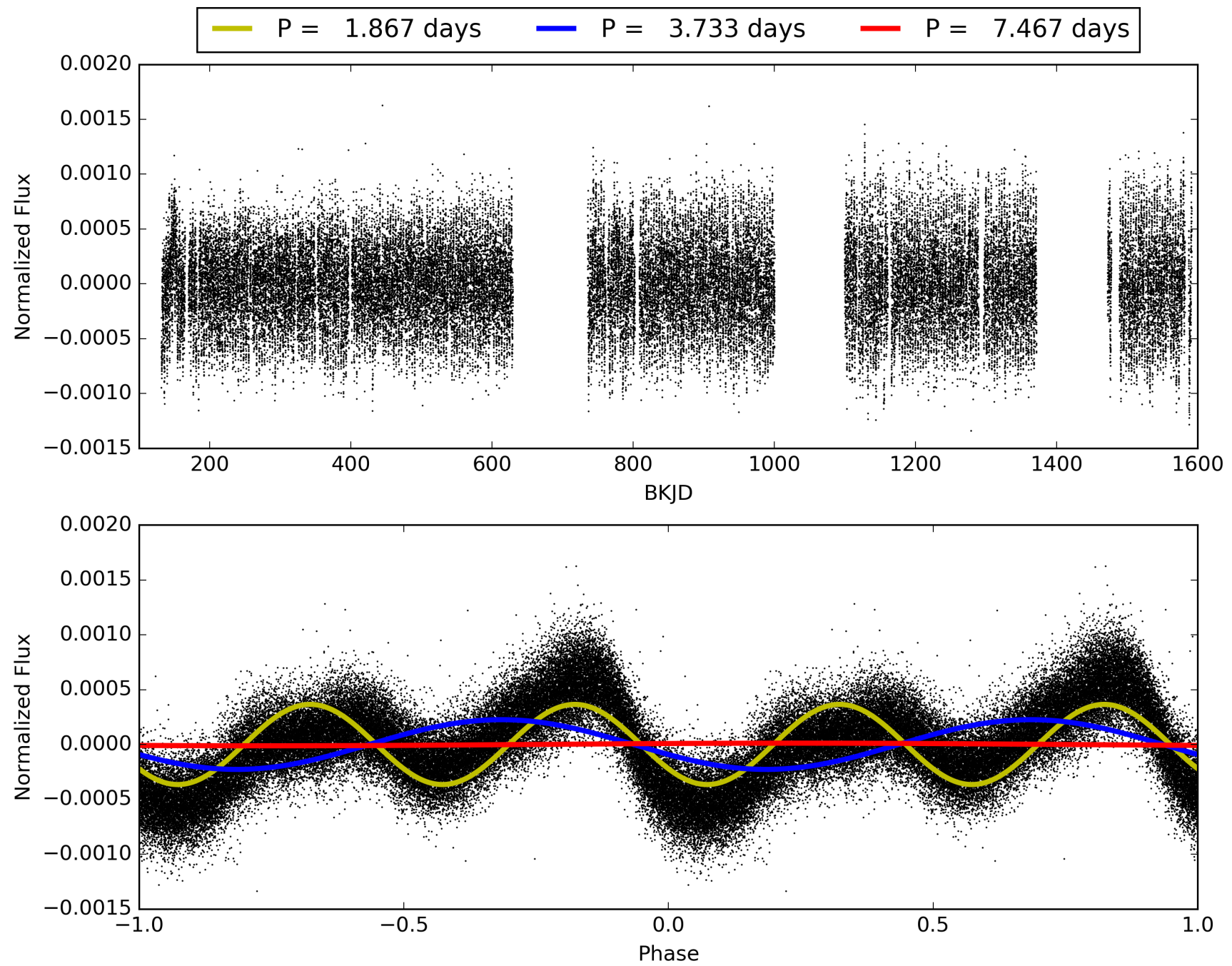
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010155816-01, PDC Light Curves

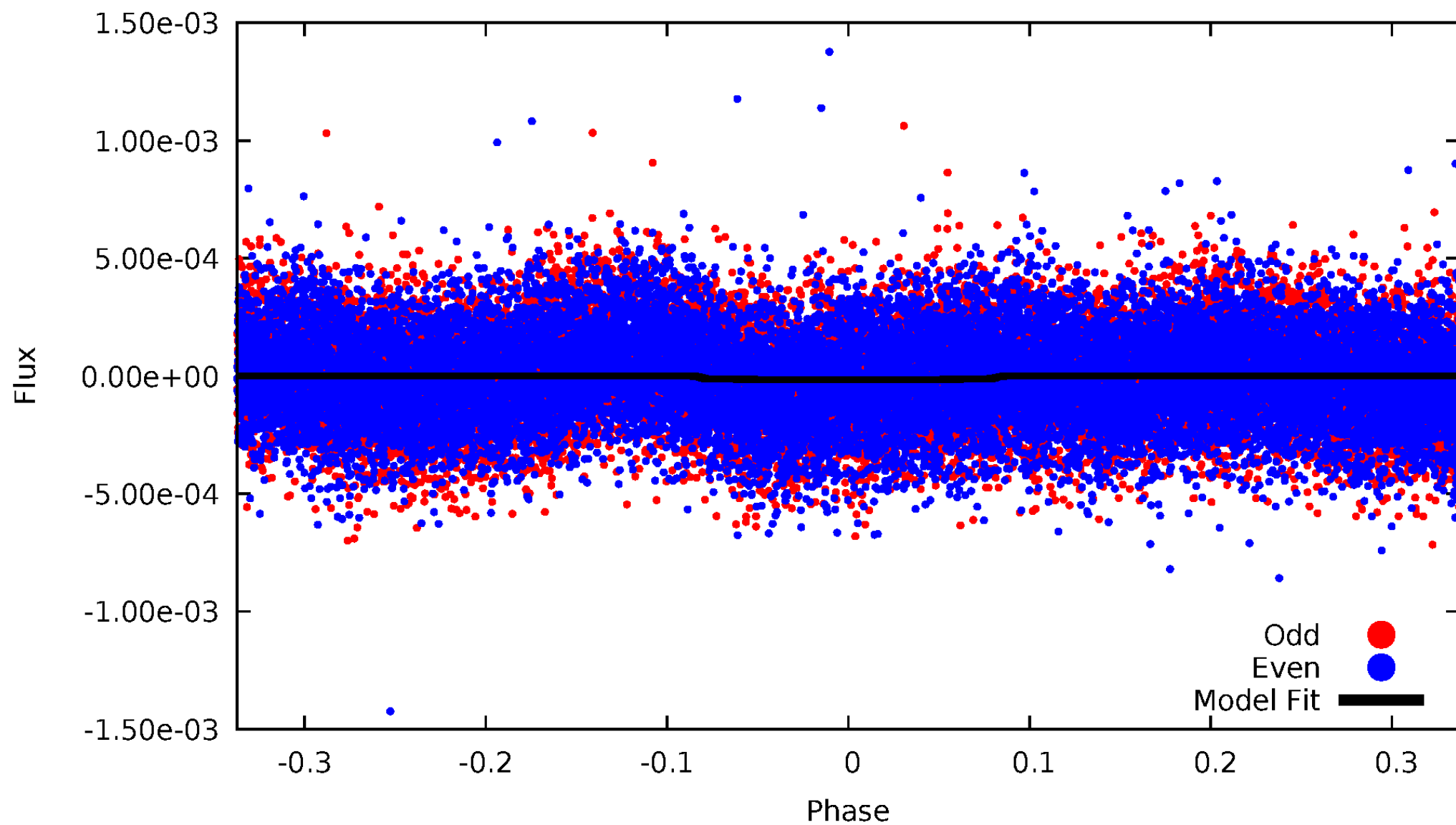


TCE 010155816-01



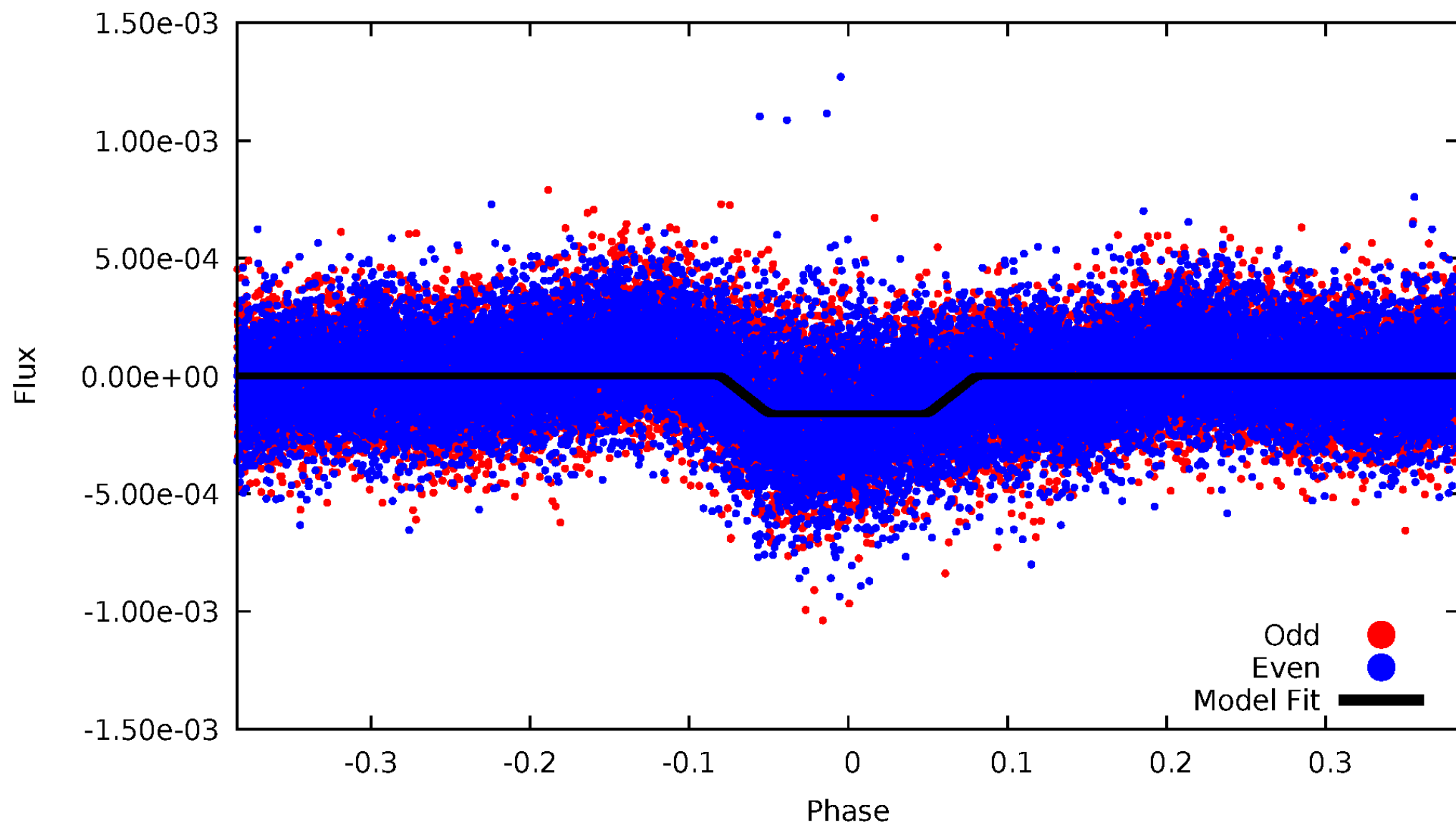
DV Odd/Even

TCE 010155816-01

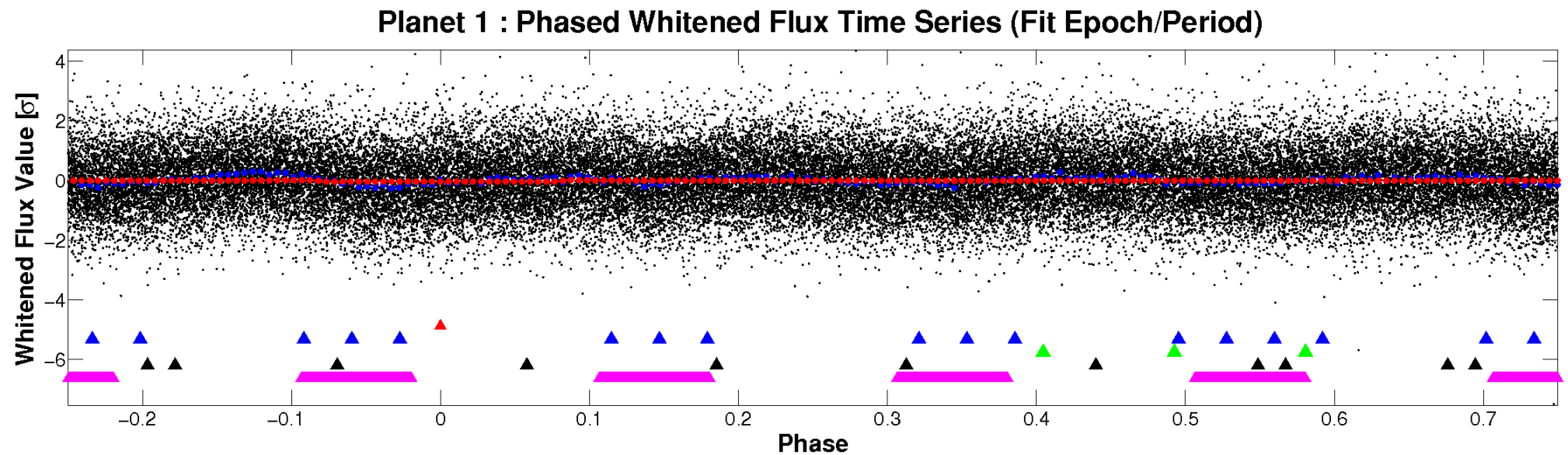
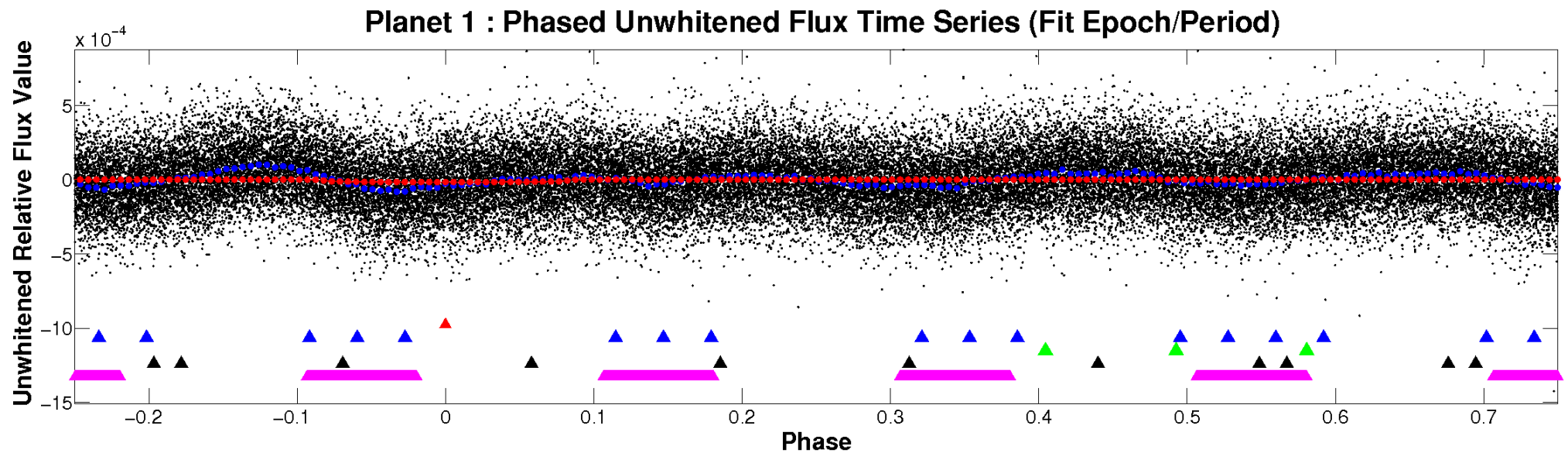


ALT Odd/Even

TCE 010155816-01

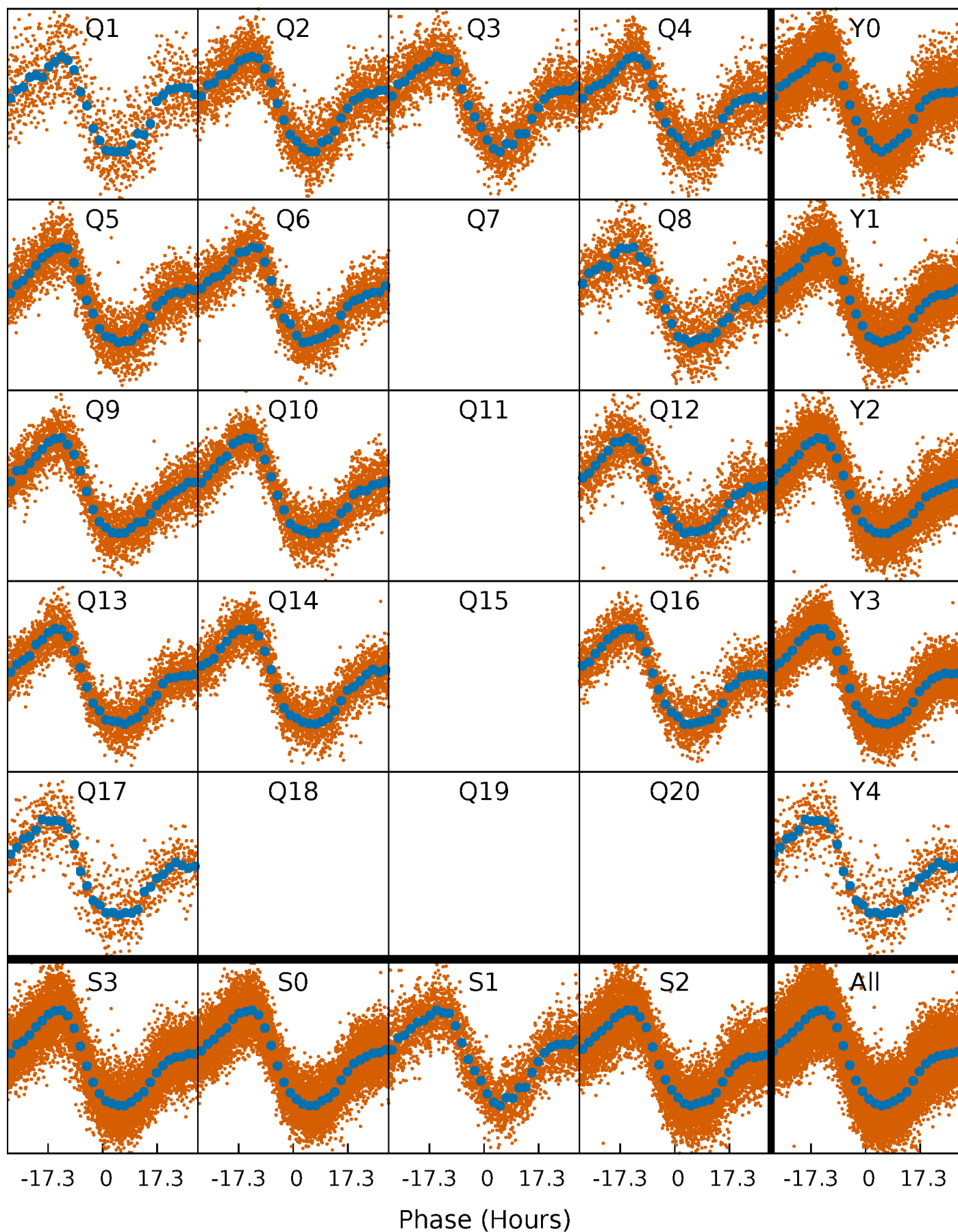


Non-Whitened Vs. Whitened Light Curve



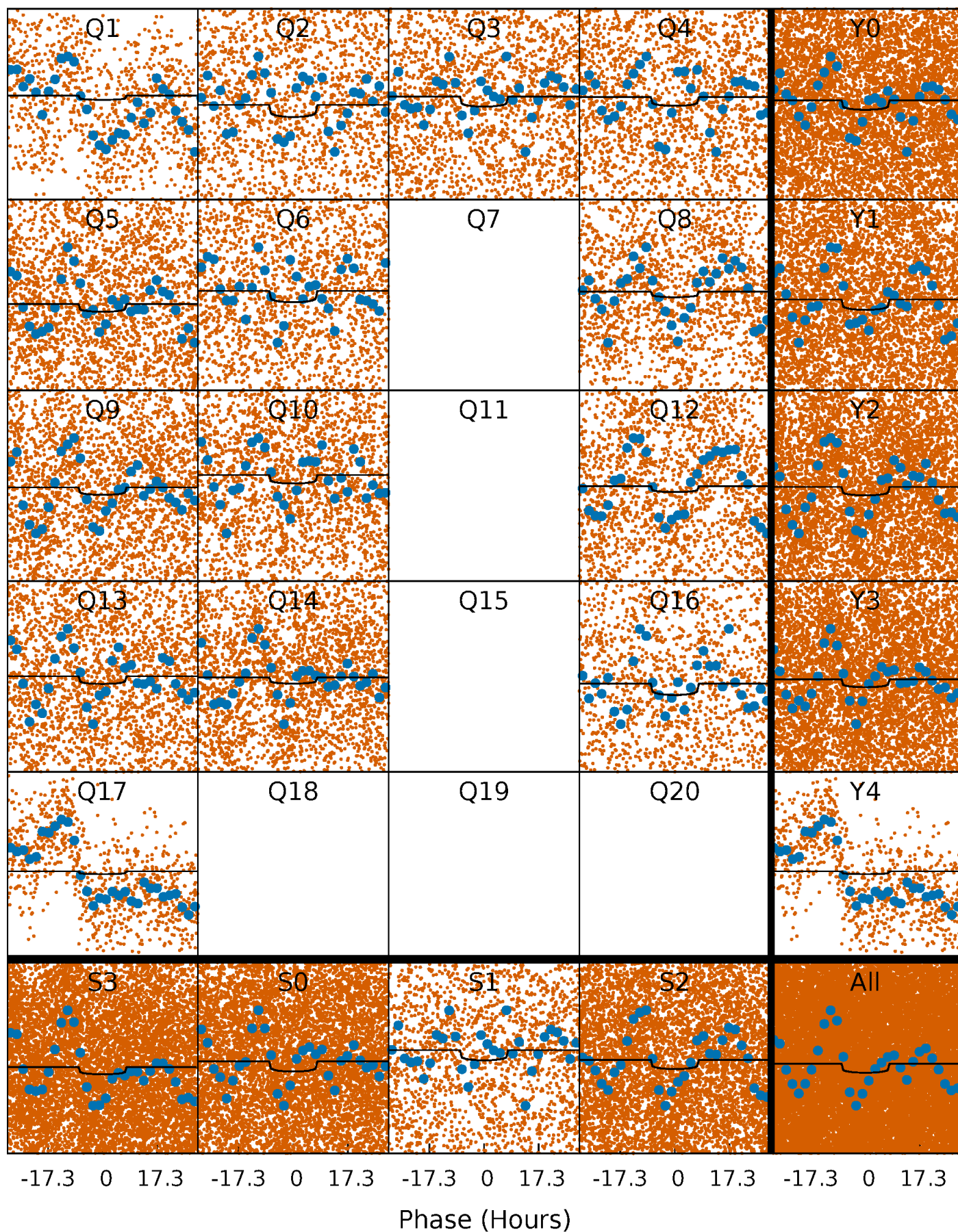
PDC Quarter-Phased Transit Curves

TCE 010155816-01 P= 3.733362 Days $T_0=135.355733$ (BKJD)



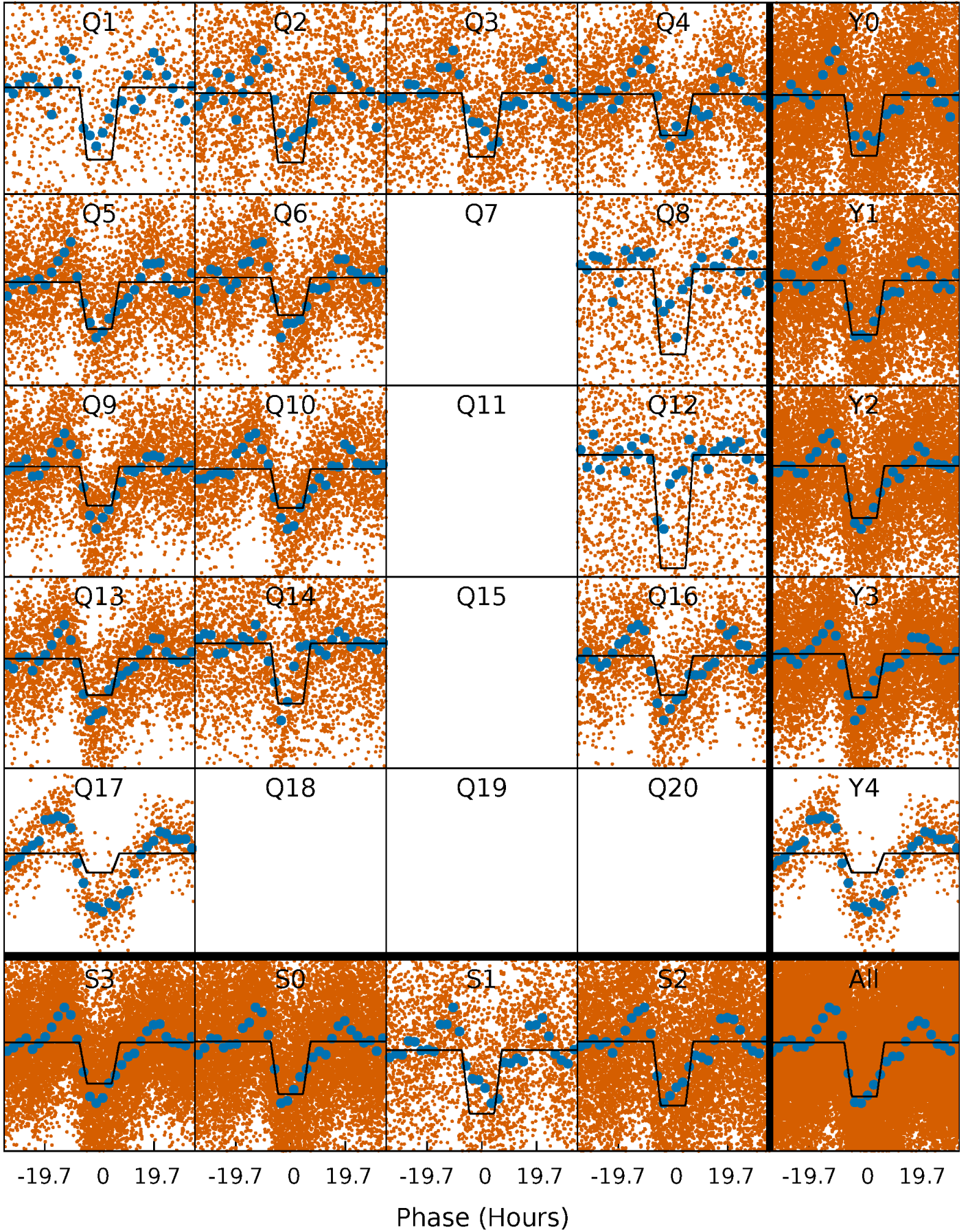
DV Quarter-Phased Transit Curves

TCE 010155816-01 P= 3.733362 Days $T_0=135.355733$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

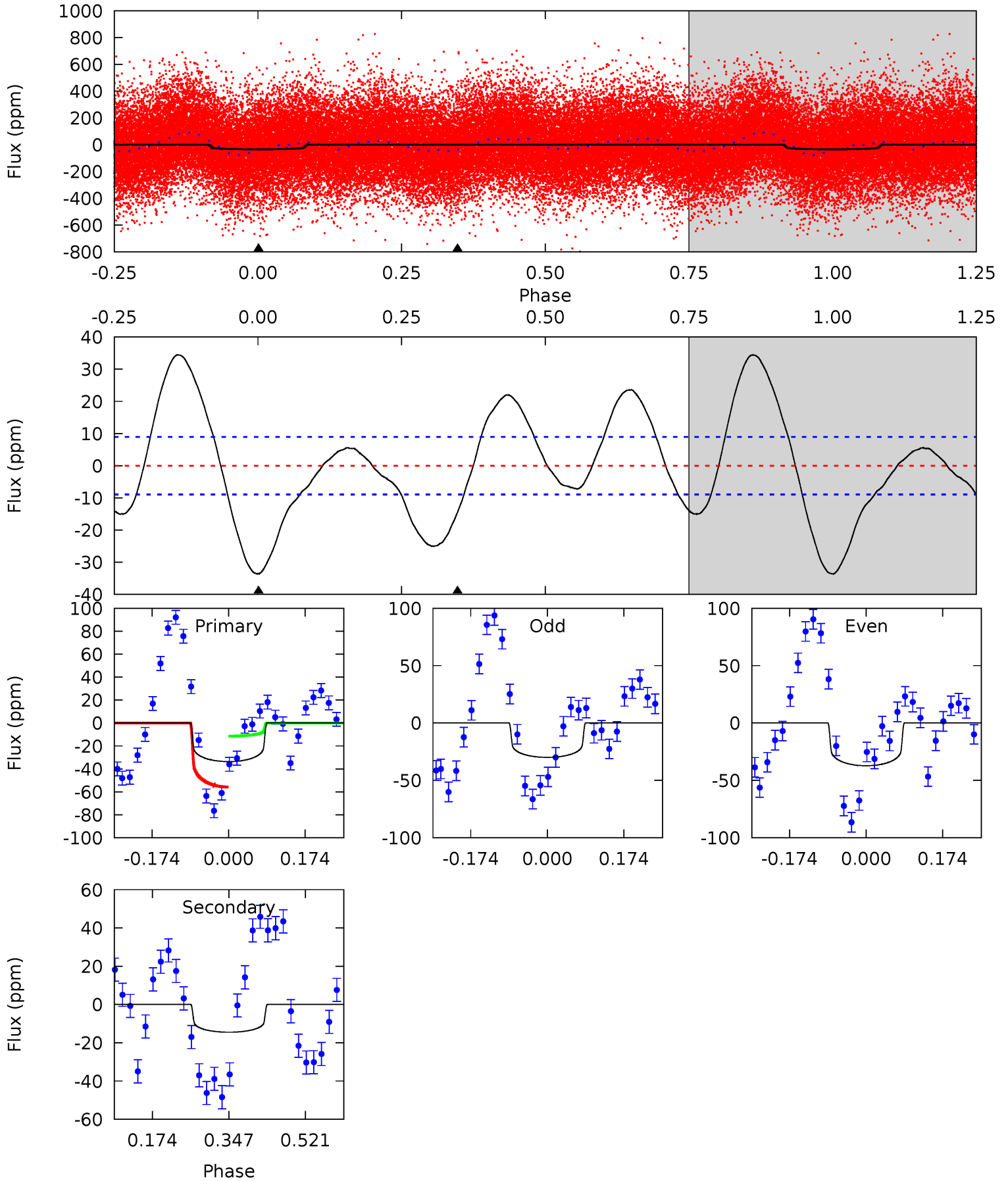
TCE 010155816-01 P= 3.733436 Days $T_0=135.330977$ (BKJD)



DV Model-Shift Uniqueness Test

010155816-01, P = 3.733362 Days, E = 127.889009 Days

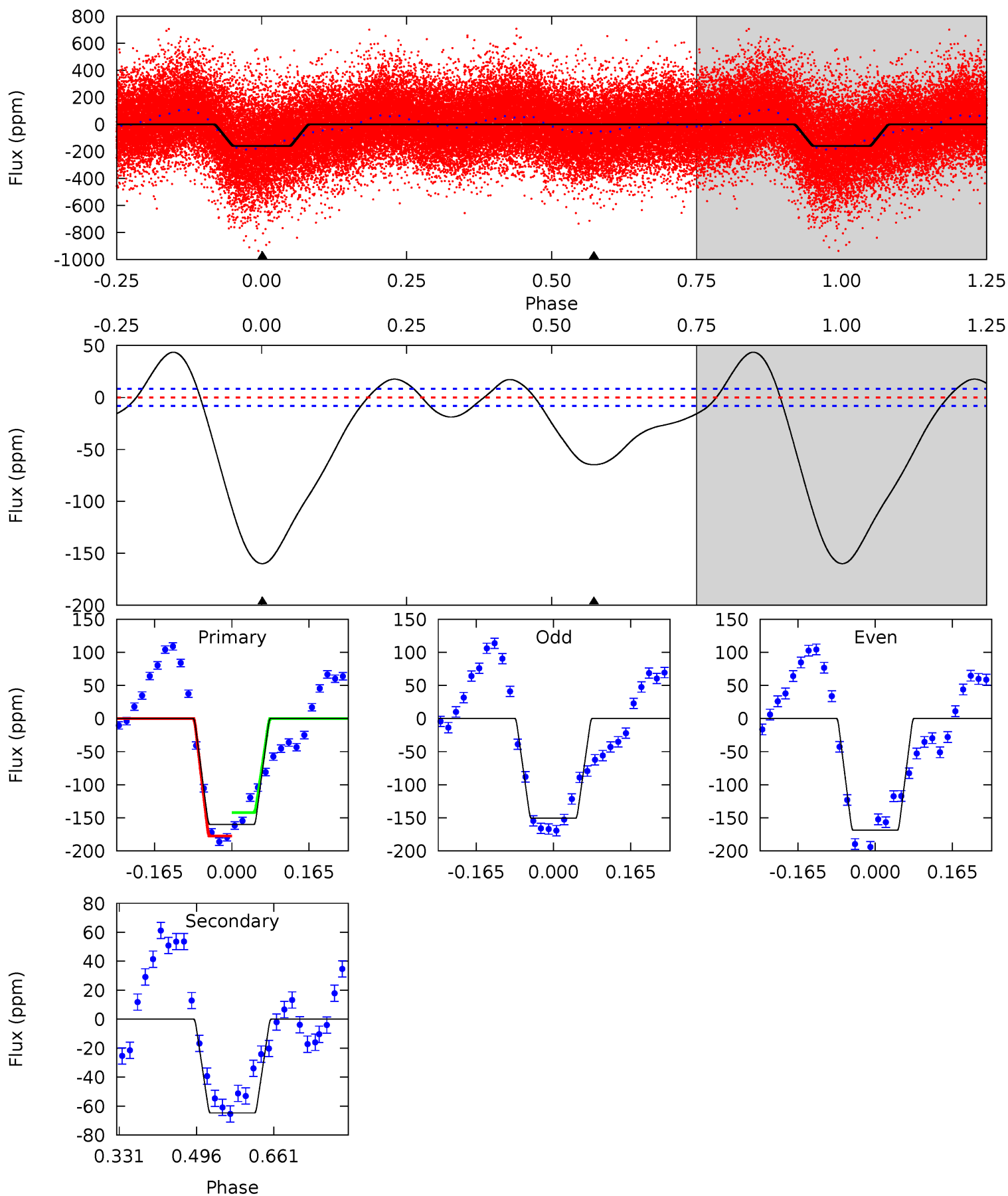
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	7.20	0	0	4.45	1.36	6.18	16.7	16.7	7.20	7.20	1.82	1.10	0.51	10.9



Alt Model-Shift Uniqueness Test

010155816-01, P = 3.733436 Days, E = 127.864105 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.7	35.1	0	0	4.46	1.39	8.04	86.7	86.7	35.1	35.1	4.87	1.05	0.21	9.64



Stellar Parameters For KIC 010155816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6714^{+182}_{-182}	$3.498^{+0.376}_{-0.094}$	$-0.540^{+0.400}_{-0.300}$	$3.777^{+0.522}_{-1.671}$	$1.635^{+0.229}_{-0.425}$	$0.043^{+0.136}_{-0.013}$
	+3%/-3%	+11%/-3%	+74%/-56%	+14%/-44%	+14%/-26%	+318%/-30%
Source	PHO1	FLK73	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 010155816-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-14 ± 2	$1.65^{+0.58}_{-0.52}$	3348^{+202}_{-332}	6280^{+1189}_{-842}	$9.301^{+9.961}_{-4.474}$
Alt.	-65 ± 2	$4.96^{+0.88}_{-1.03}$	3358^{+192}_{-339}	5309^{+273}_{-250}	$4.508^{+2.404}_{-1.211}$

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 $A_{obs} \gg 1.0$

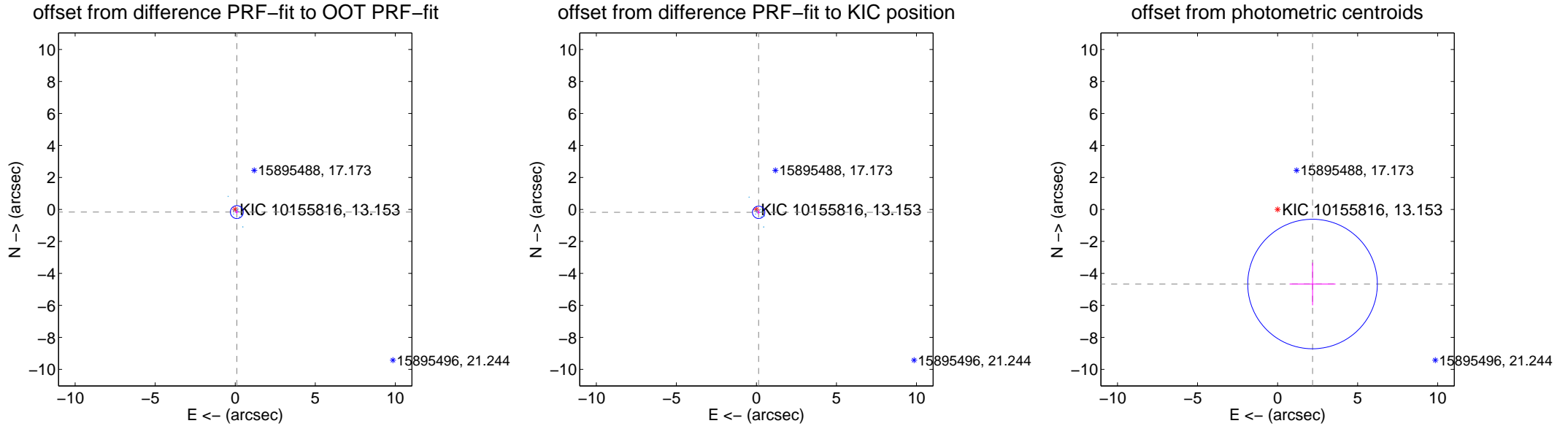
DV Centroid Data

Supplemental centroid analysis for 010155816-01. Kepler magnitude: 13.15. Transit SNR 3.78

There are 14 quarters with good PRF difference image offsets

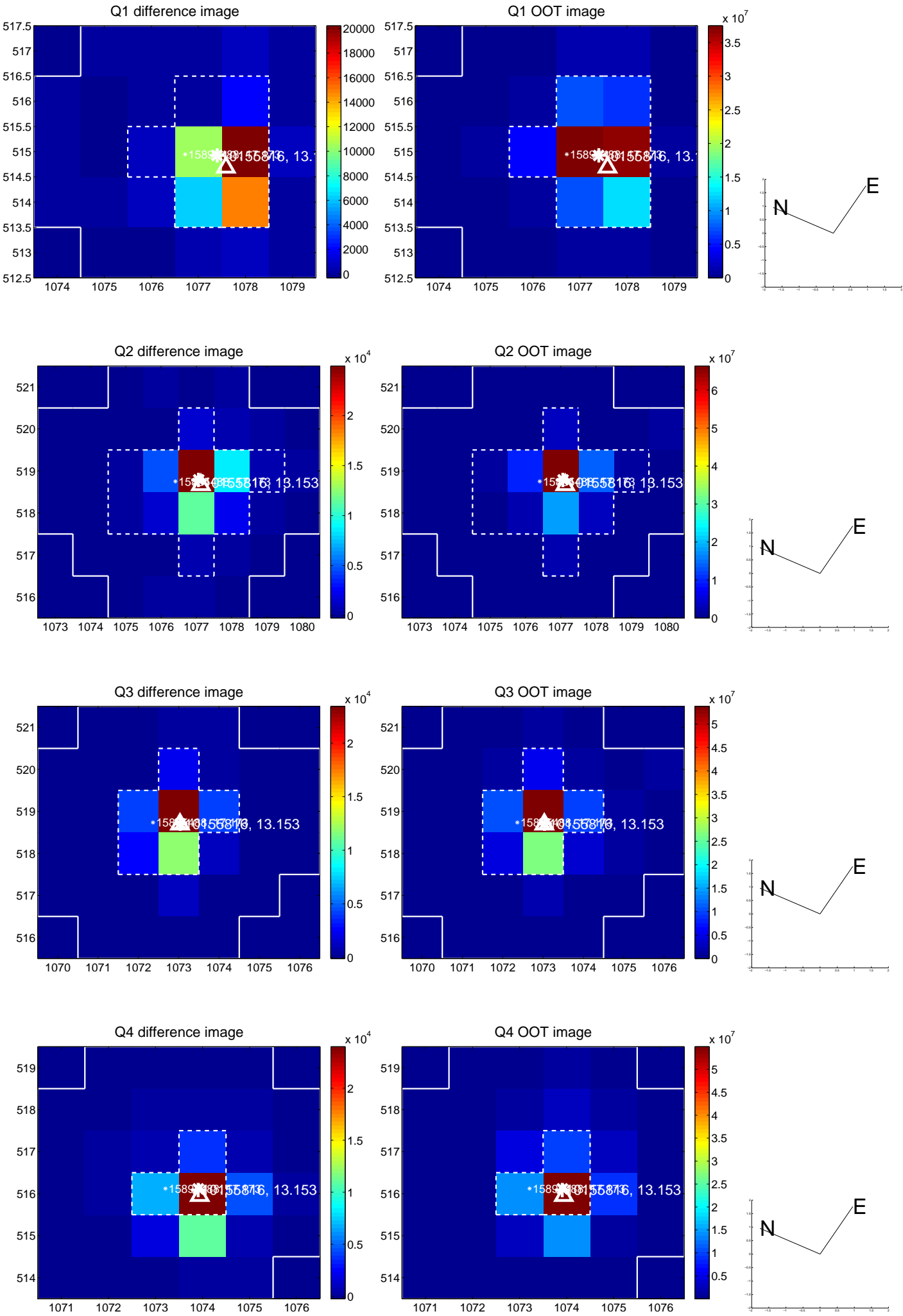
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.195 ± 0.134	1.45	-0.102 ± 0.092	-0.166 ± 0.123
PRF-fit source offset from KIC position	0.229 ± 0.129	1.77	-0.141 ± 0.091	-0.181 ± 0.120
photometric centroid source offset	5.15 ± 1.35	3.82	-2.18 ± 1.44	-4.66 ± 1.33

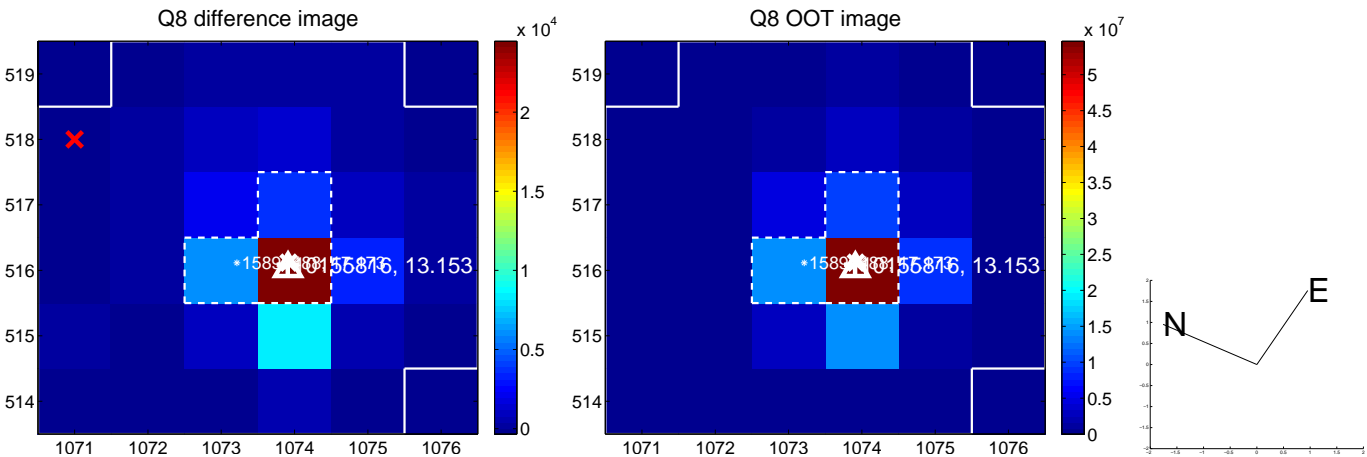
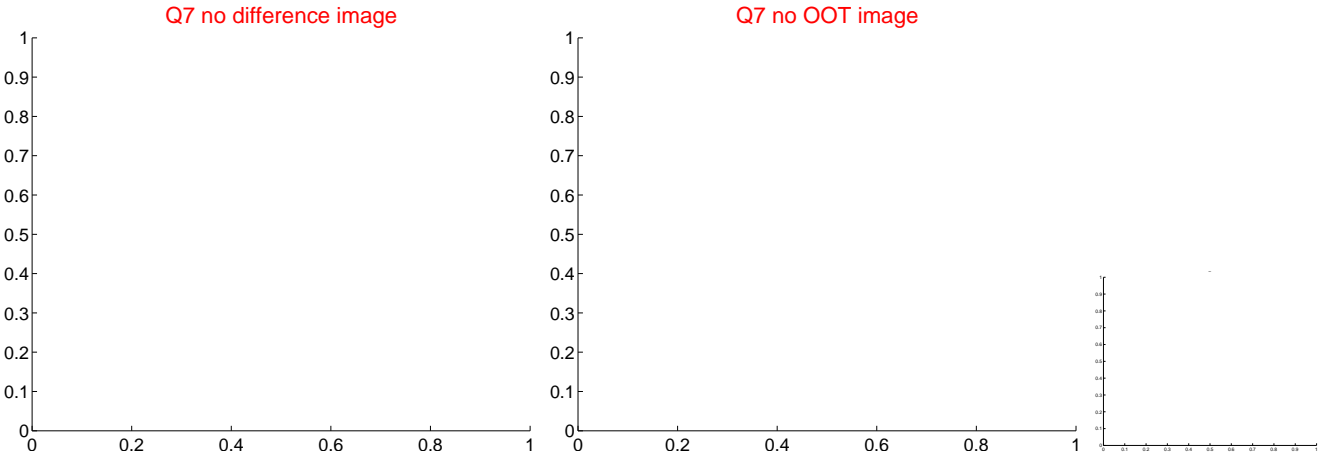
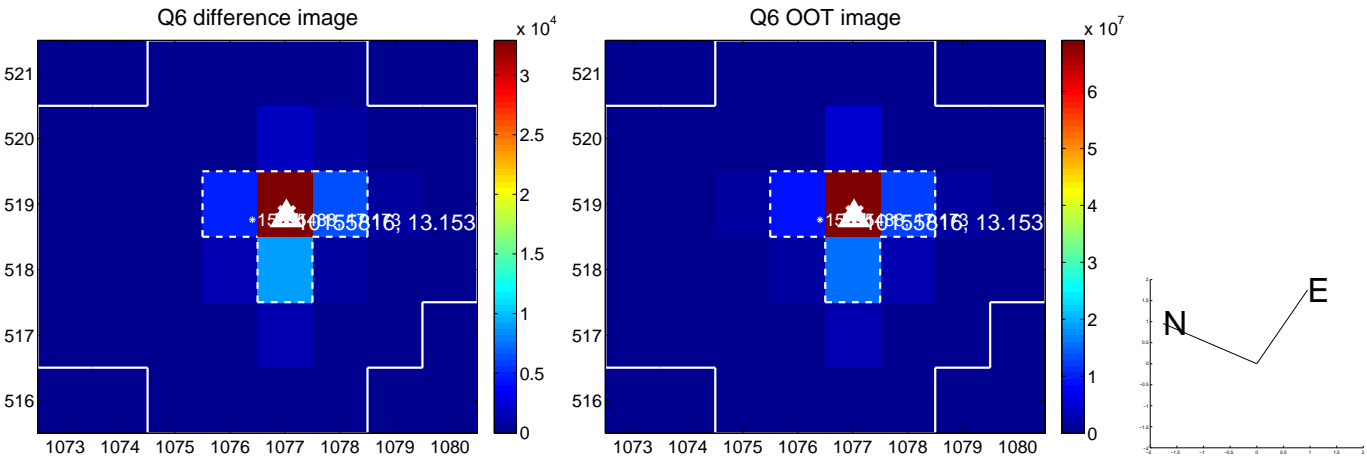
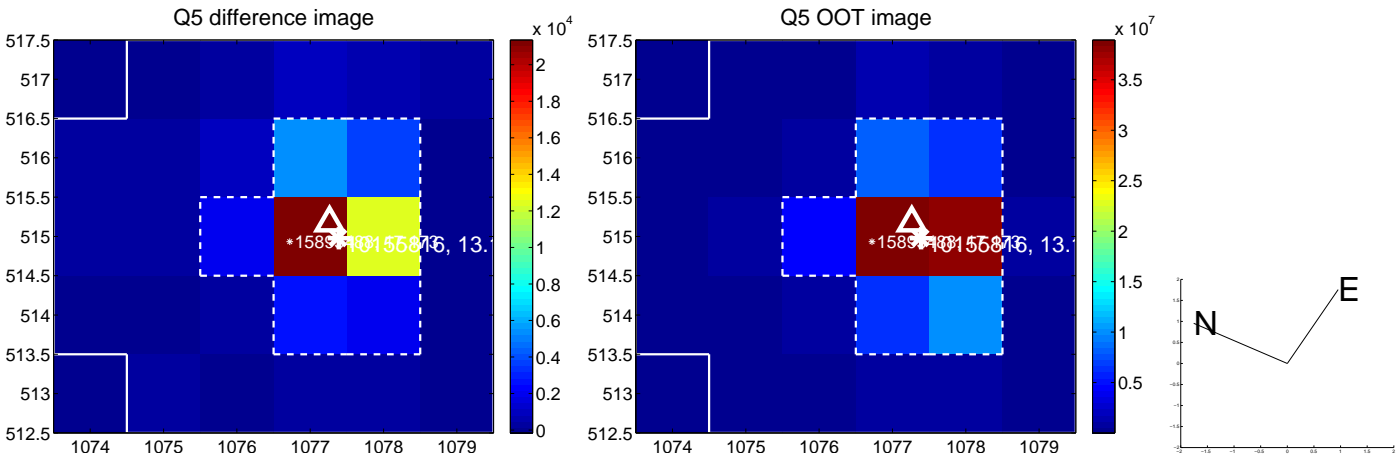


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

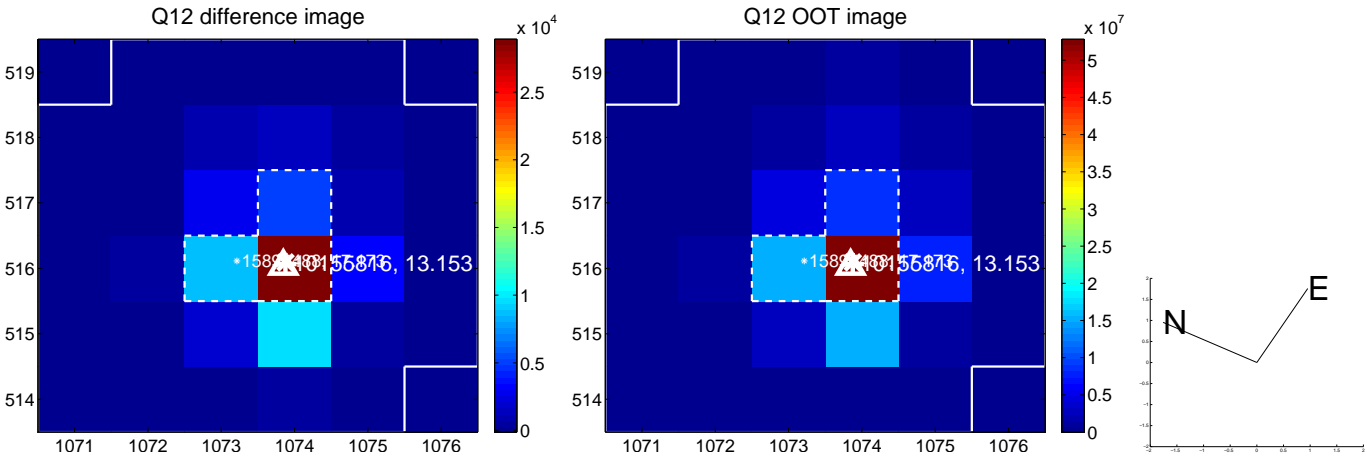
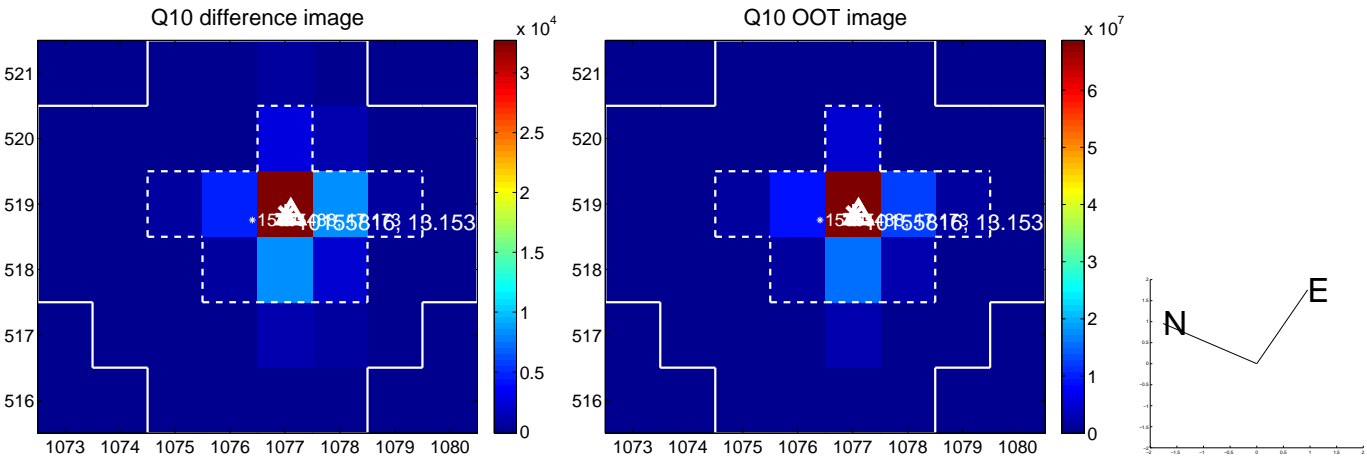
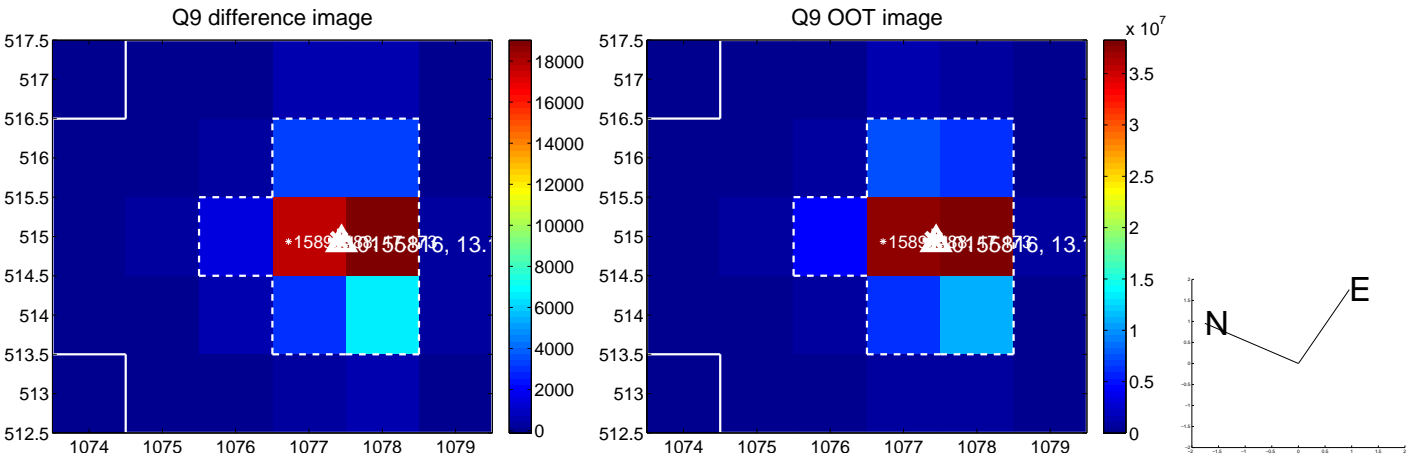
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



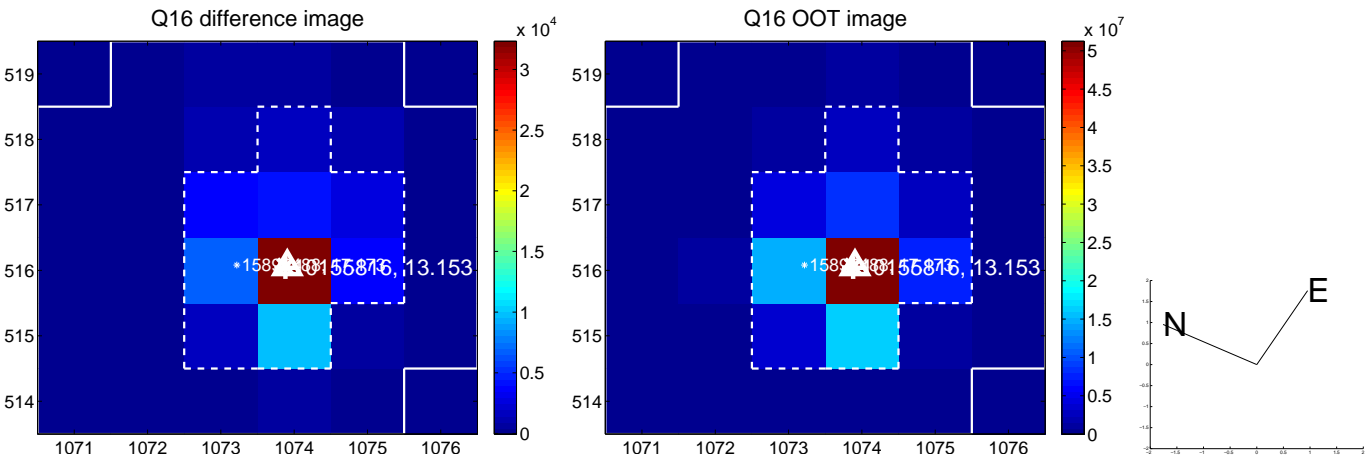
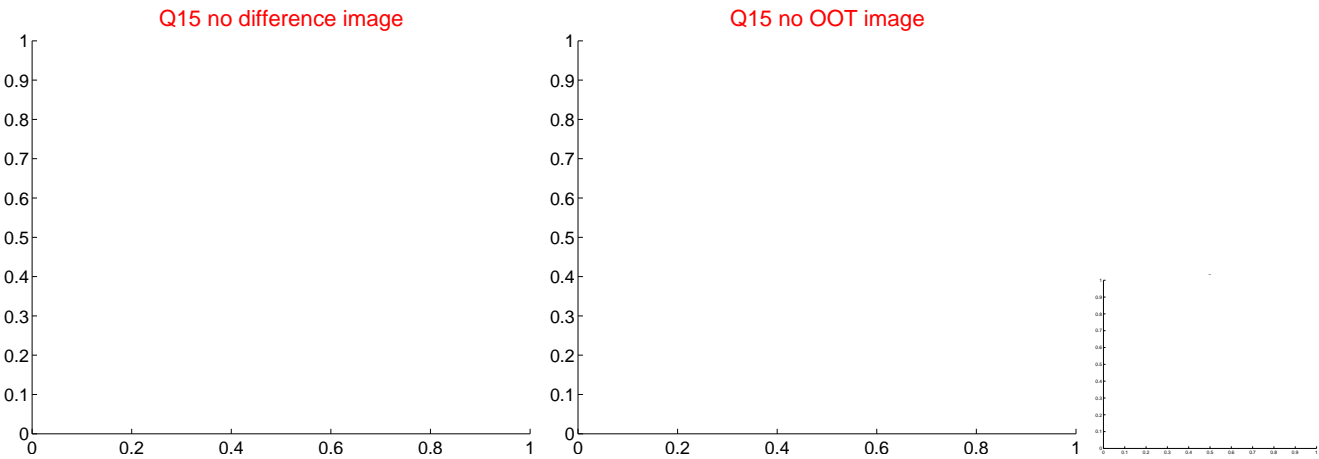
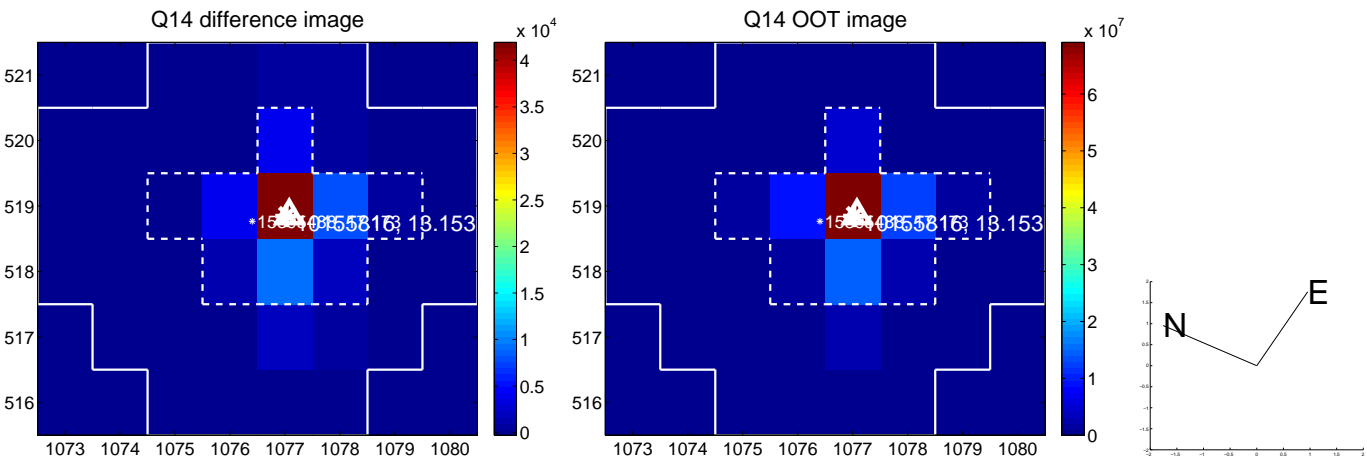
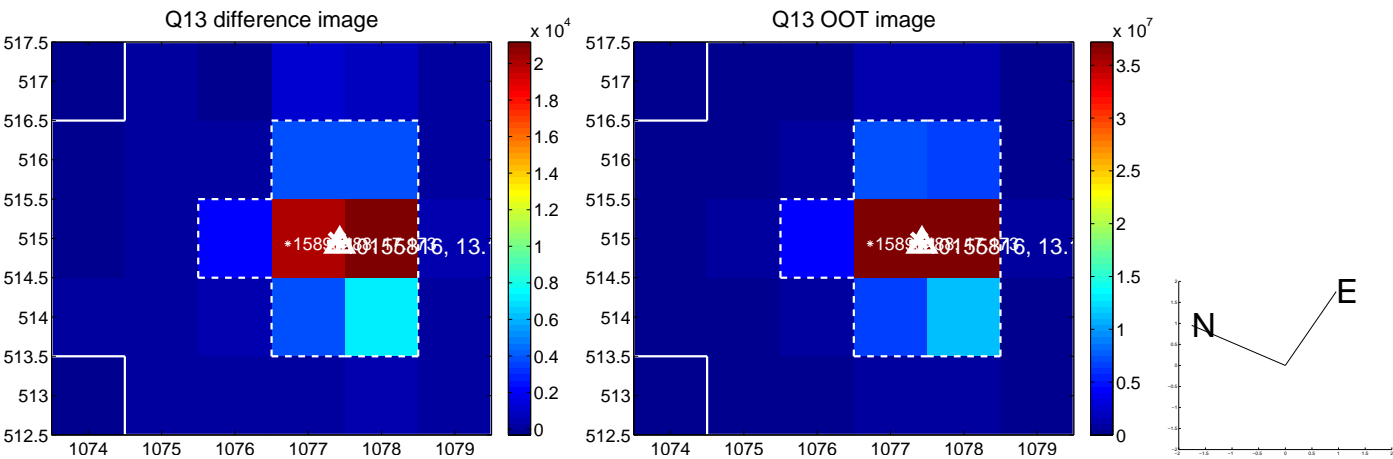
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



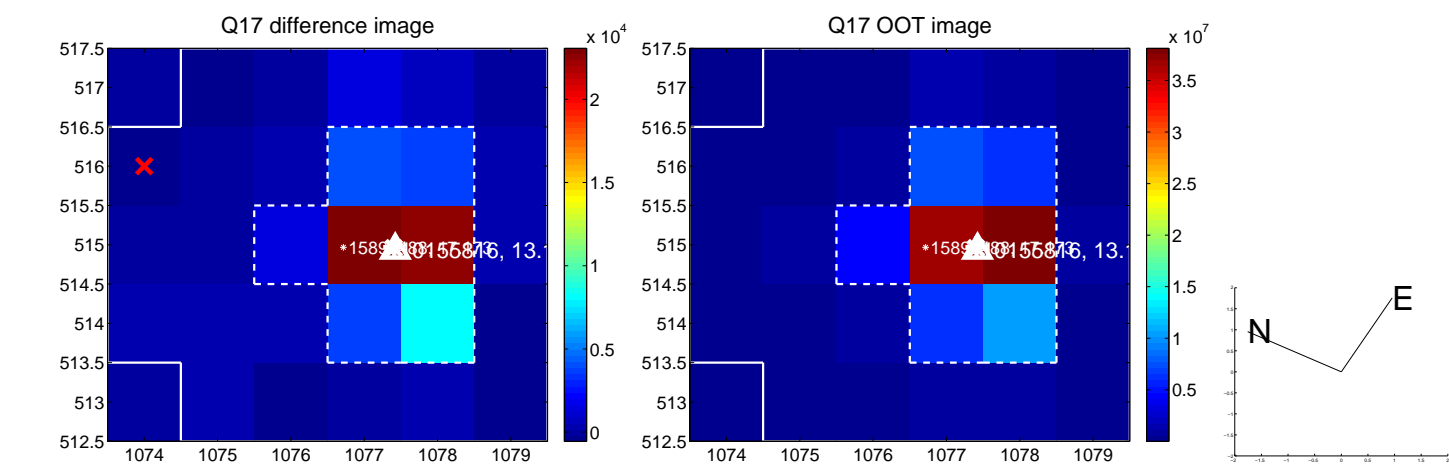
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



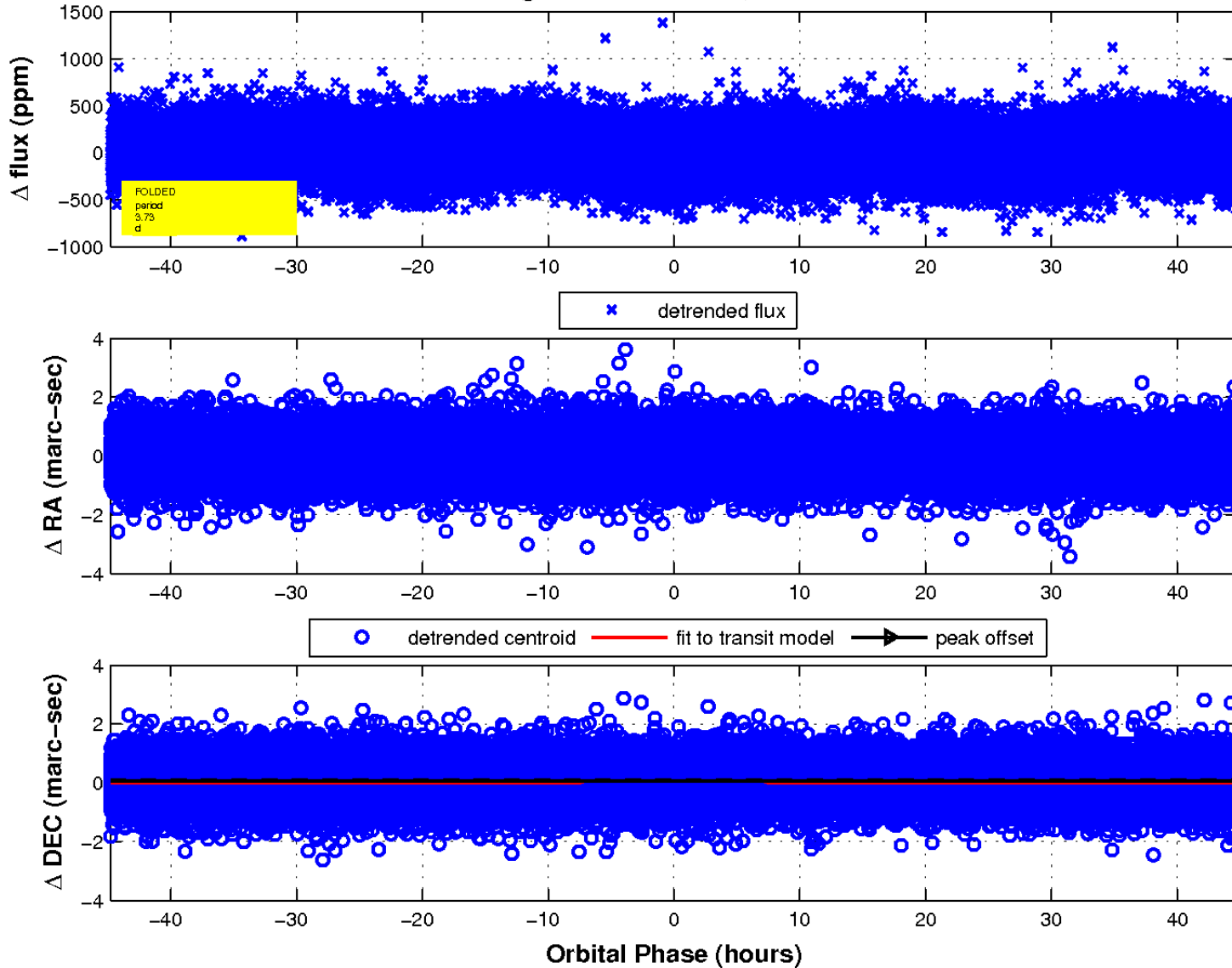
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

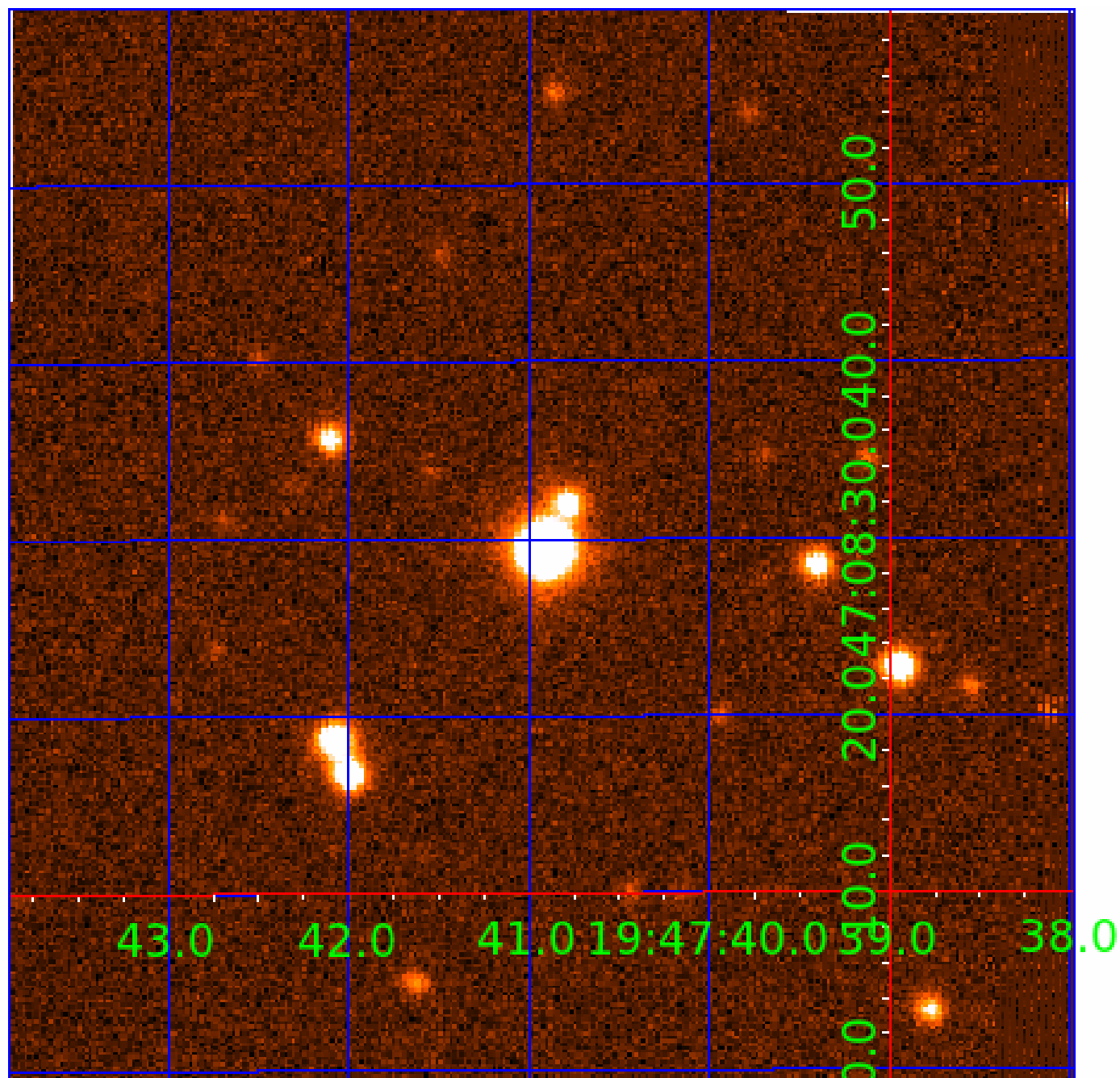


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 010155816

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})
010155816-01	OBS	No	3.733362	135.355733	16.0	15.107	9.6	3.8	3.78	6714	1.76	8422.69
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010155816-04	OBS	No	126.459032	235.491471	303.0	2.683	8.5	7.6	3.78	6714	7.14	76.85
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010155816-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
010155816-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
010155816-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010155816-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010155816-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

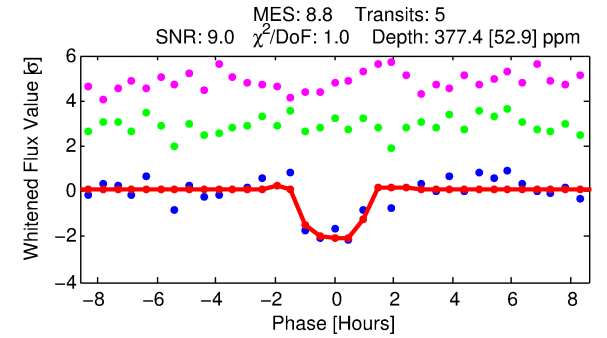
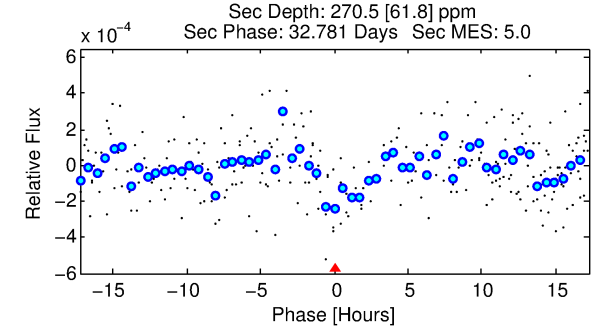
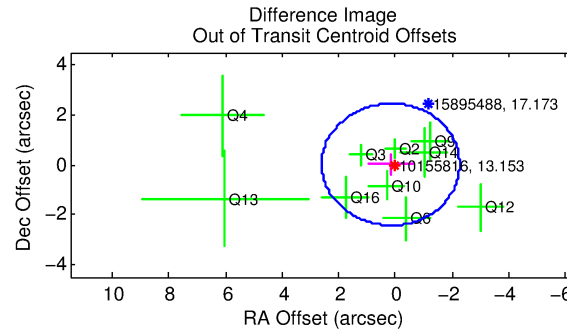
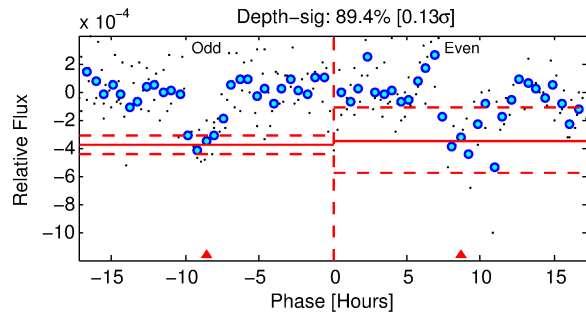
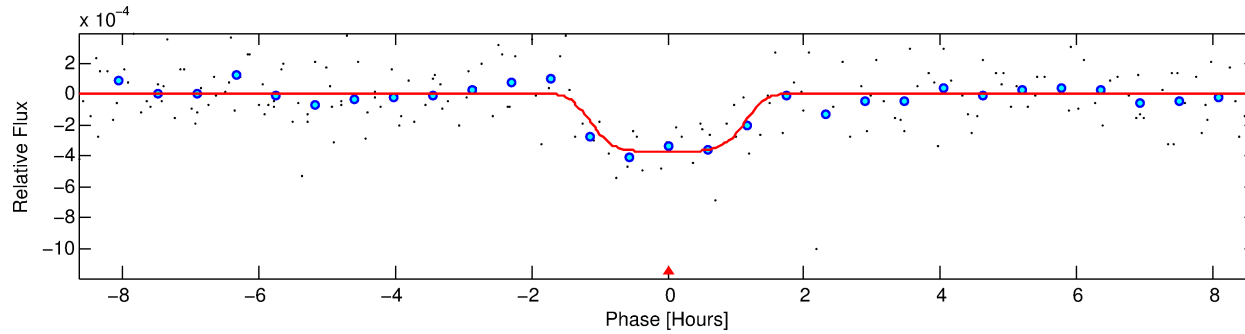
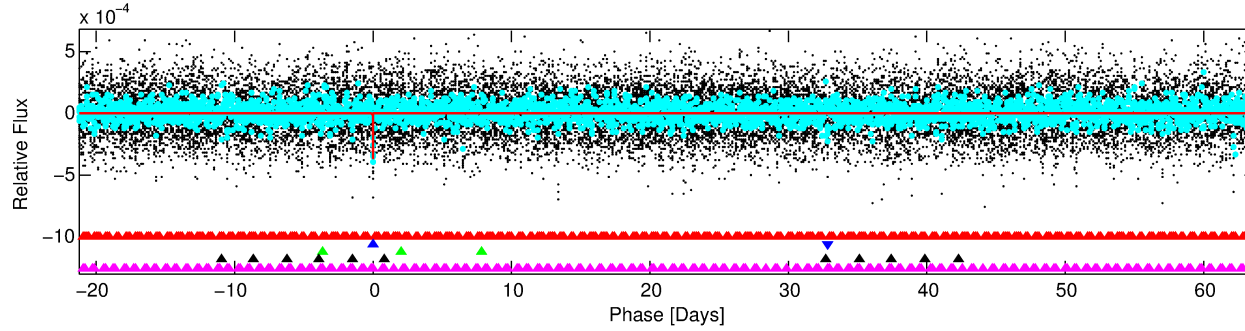
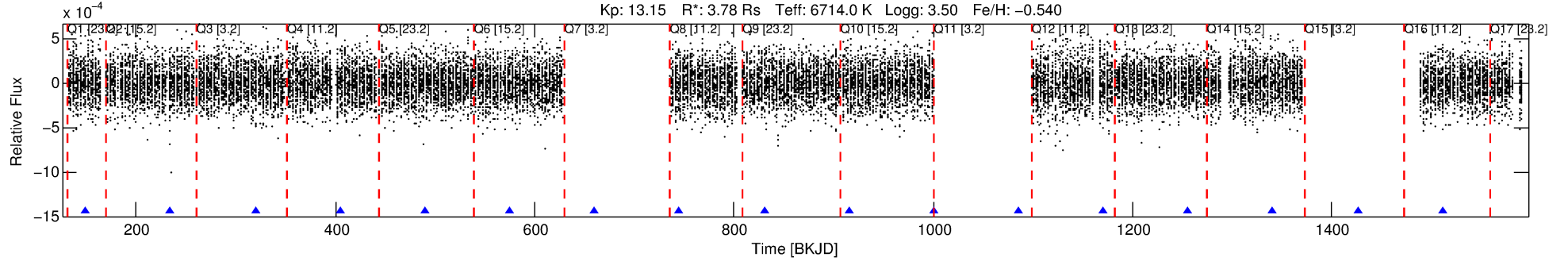
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010155816-02

No Significant Match Found

DV One-Page Summary

KIC: 10155816 Candidate: 2 of 5 Period: 85.097 d



DV Fit Results:

Period = 85.09662 [0.00071] d
Epoch = 149.5368 [0.0063] BKJD
Rp/R* = 0.0220 [0.0028]
a/R* = 83.39 [46.07]
b = 0.95 [0.05]
Seff = 130.33 [85.65]
Teq = 862 [142] K
Rp = 9.07 [4.18] Re
a = 0.4464 [0.1842] AU
Ag = 360.49 [264.64] [1.36 σ]
Teffp = 5804 [524] K [9.10 σ]

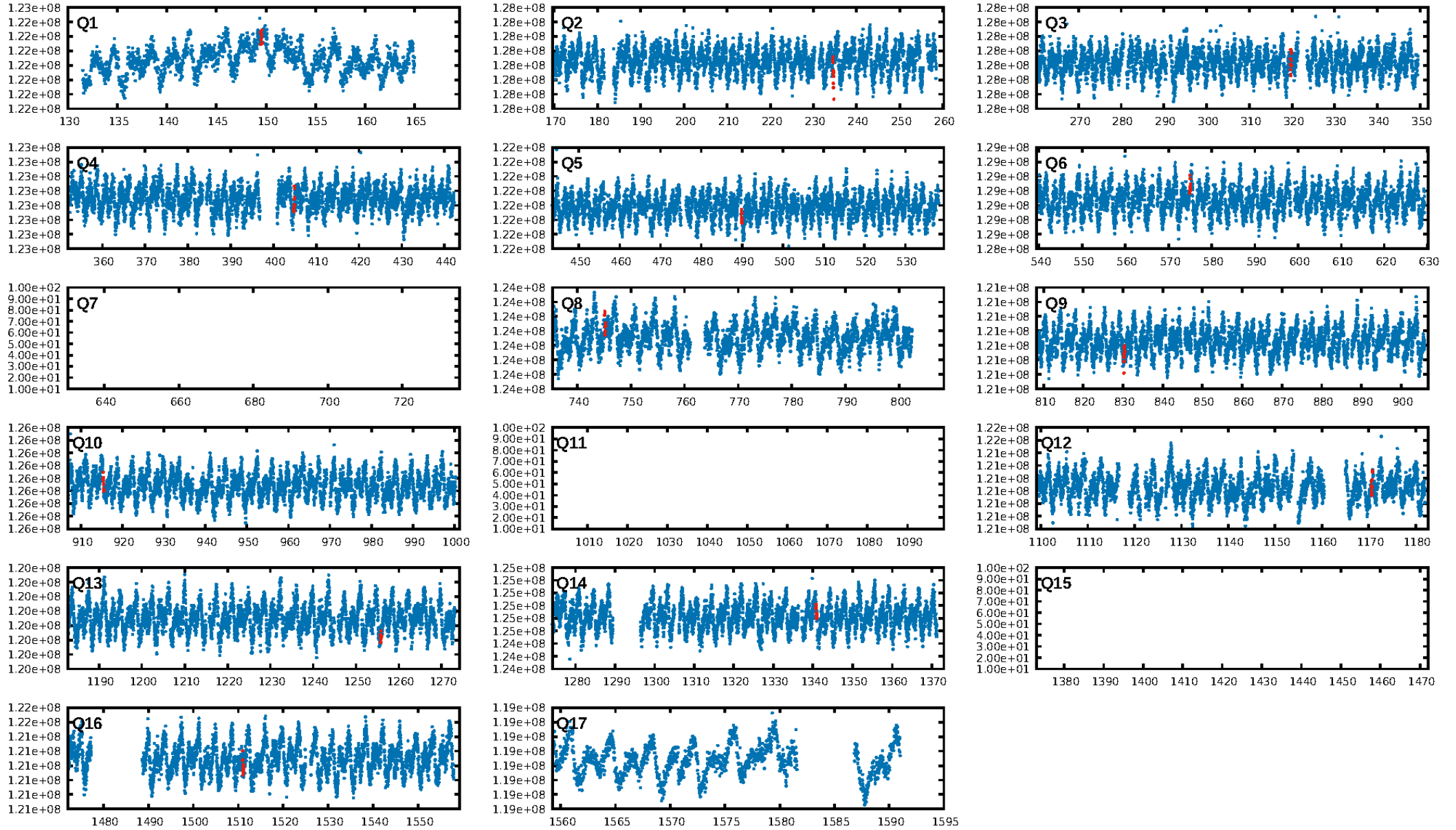
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [126.98 σ]
LongPeriod-sig: 100.0% [252.37 σ]
ModelChiSquare2-sig: 14.7%
ModelChiSquareGof-sig: 83.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1611
Centroid-sig: N/A
Centroid-so: 0.951 arcsec [1.71 σ]
OotOffset-rm: 0.164 arcsec [0.20 σ]
KicOffset-rm: 0.145 arcsec [0.15 σ]
OotOffset-st: 4/1/3/2 [10]
KicOffset-st: 4/1/3/2 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 0.00 [0/13]

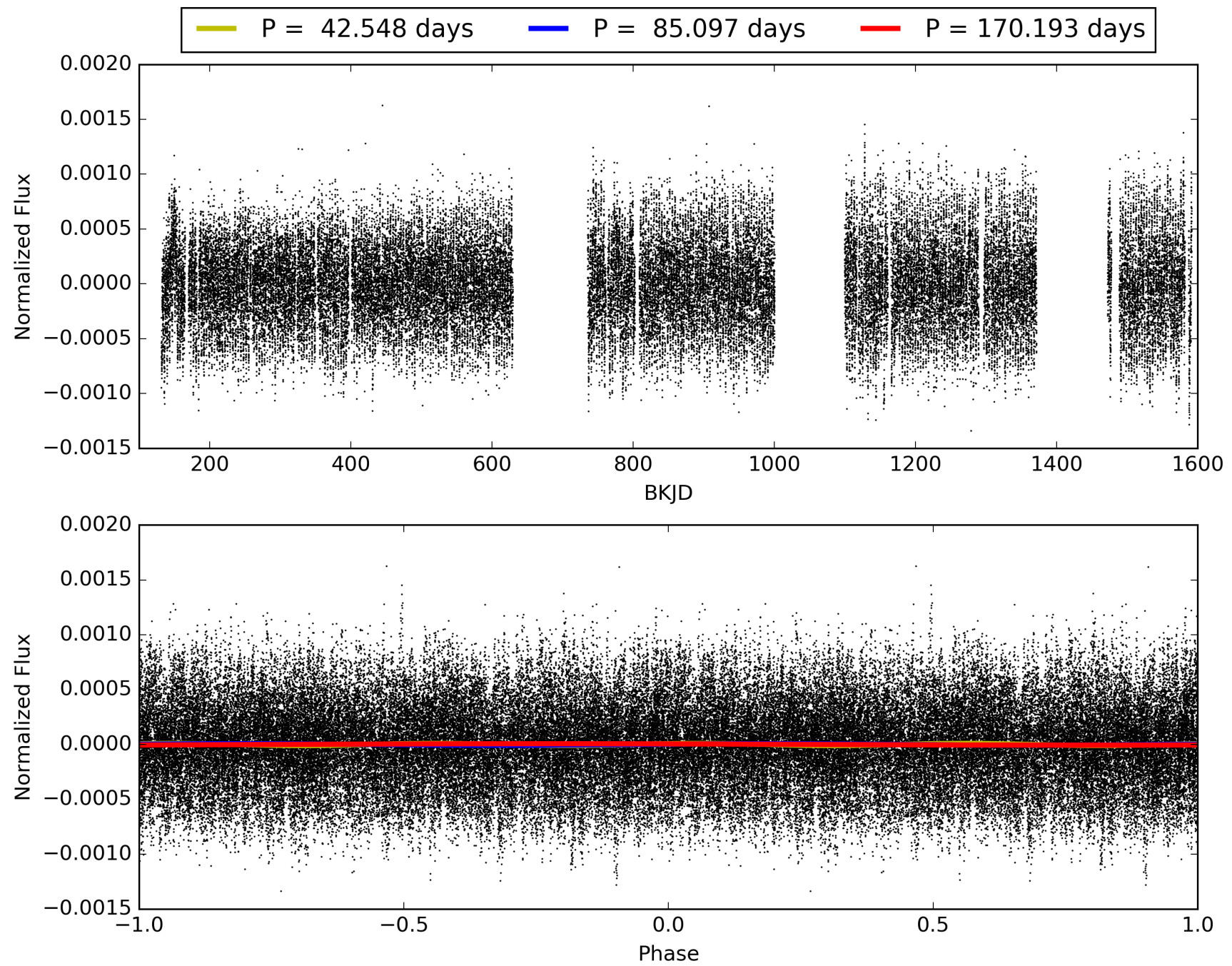
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:39:22 Z

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

TCE 010155816-02, PDC Light Curves

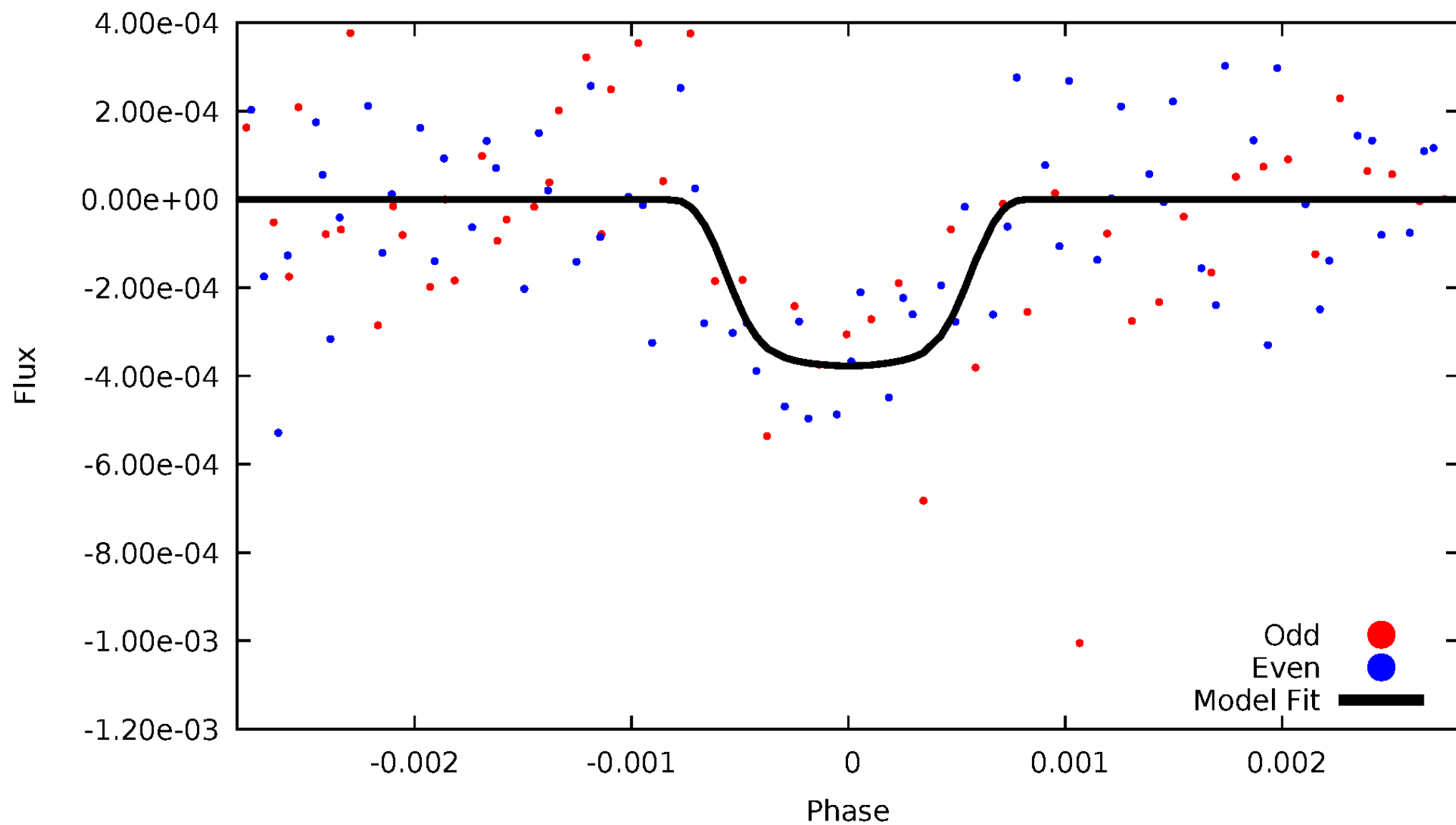


TCE 010155816-02



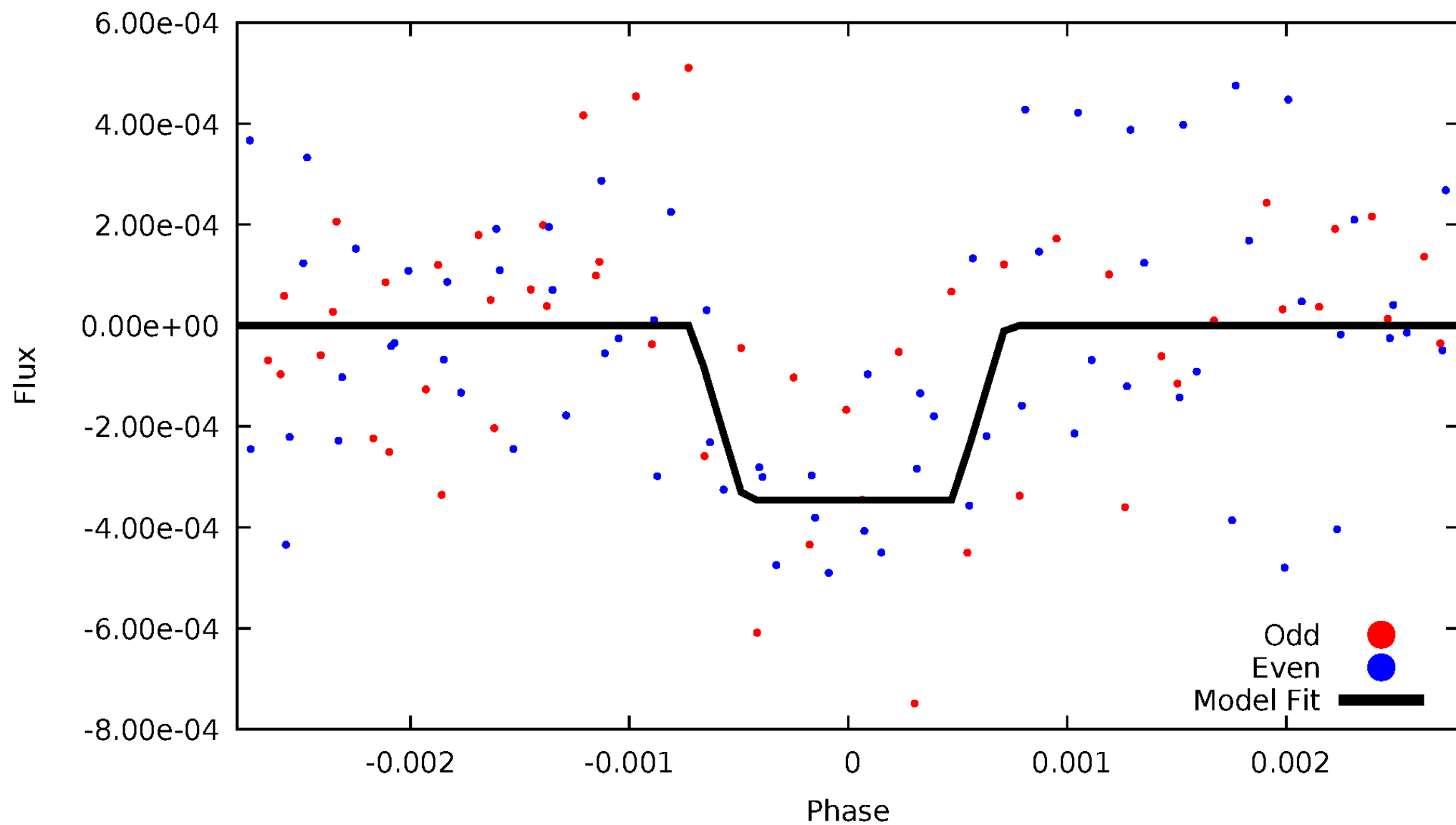
DV Odd/Even

TCE 010155816-02



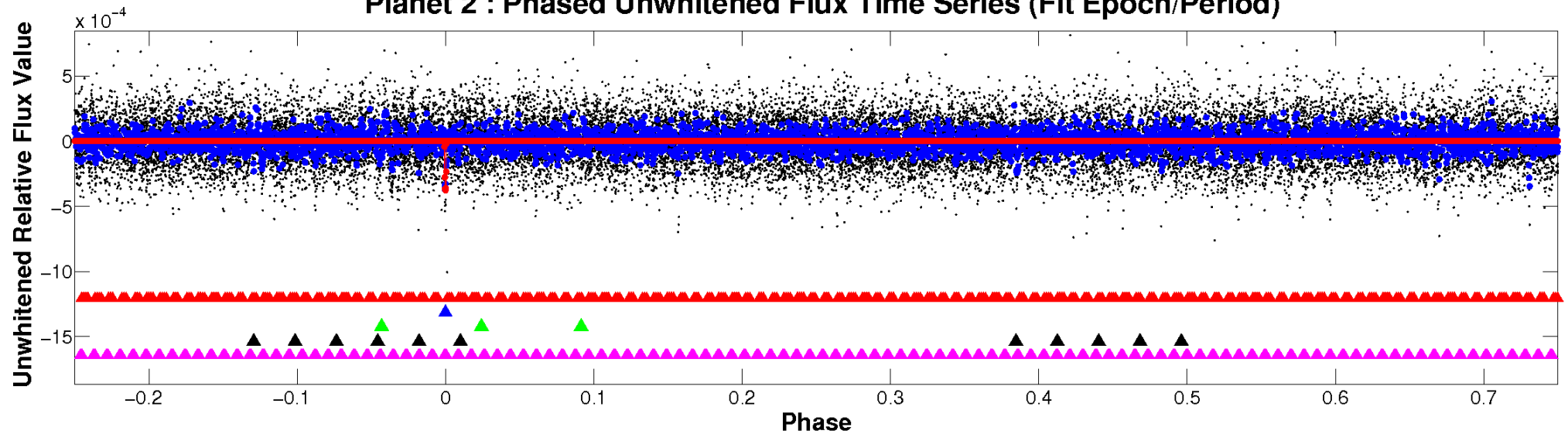
ALT Odd/Even

TCE 010155816-02

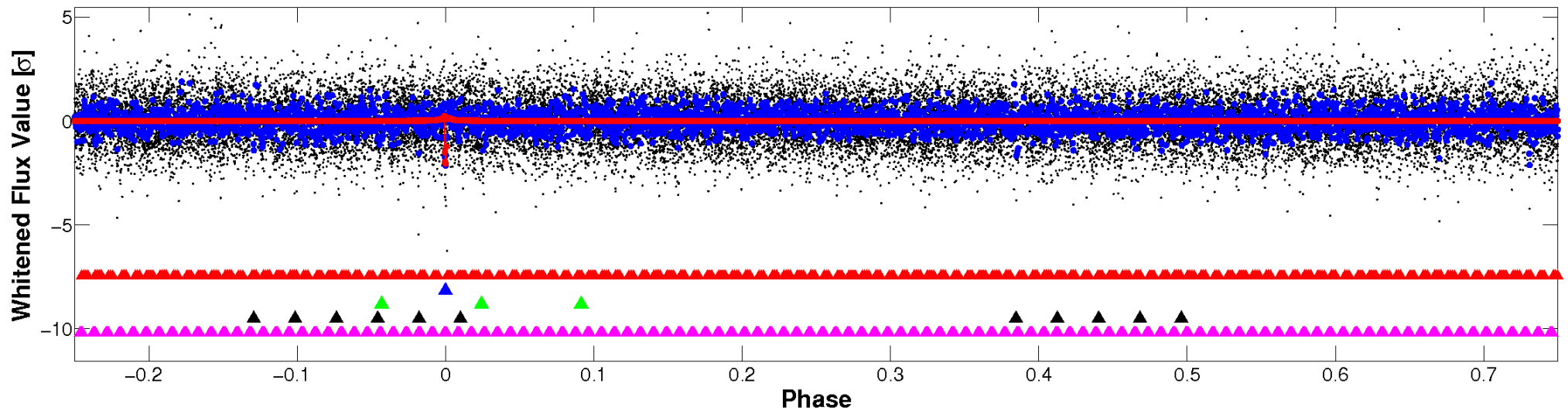


Non-Whitened Vs. Whitened Light Curve

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

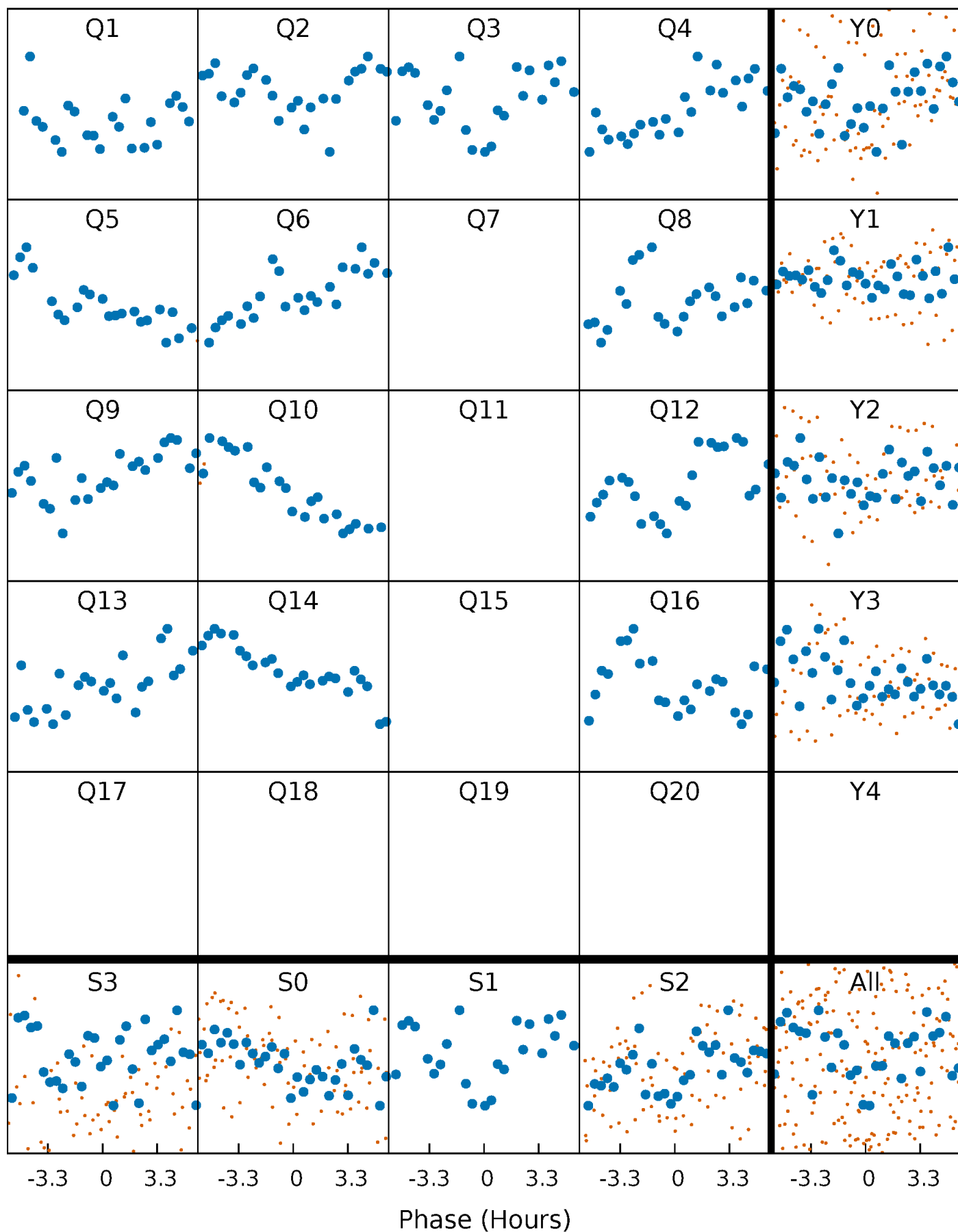


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



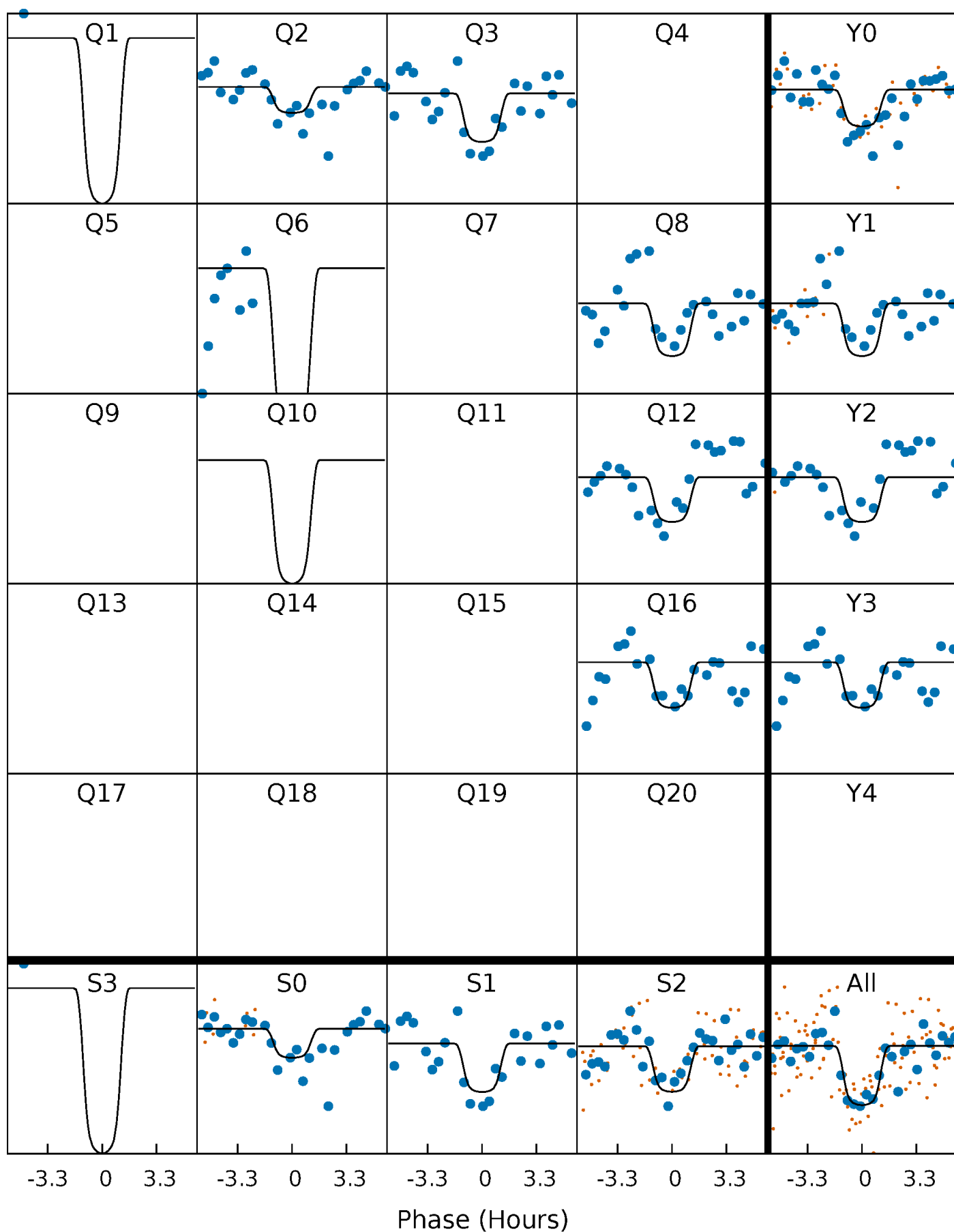
PDC Quarter-Phased Transit Curves

TCE 010155816-02 P= 85.096618 Days $T_0=149.536845$ (BKJD)



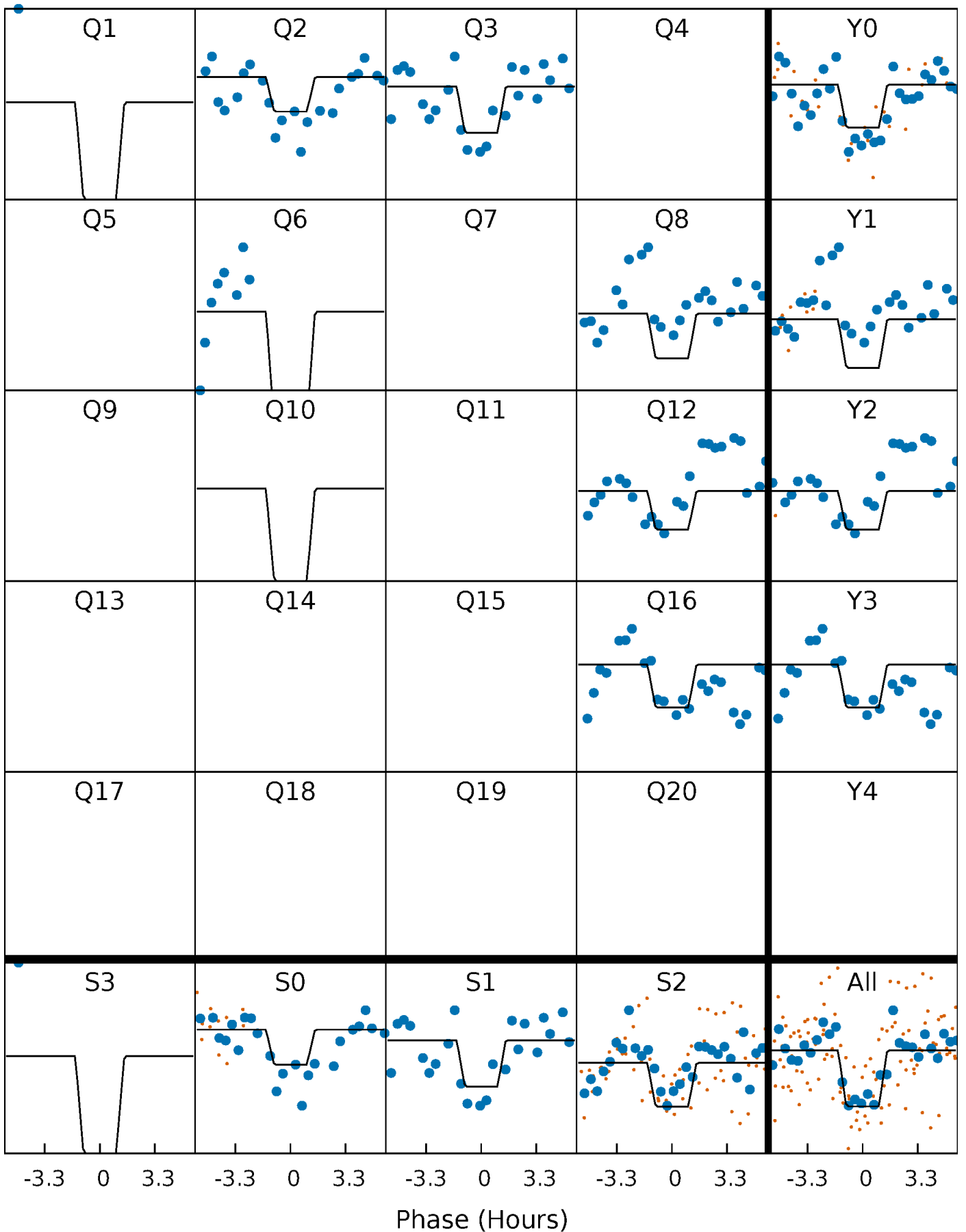
DV Quarter-Phased Transit Curves

TCE 010155816-02 P= 85.096618 Days $T_0=149.536845$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

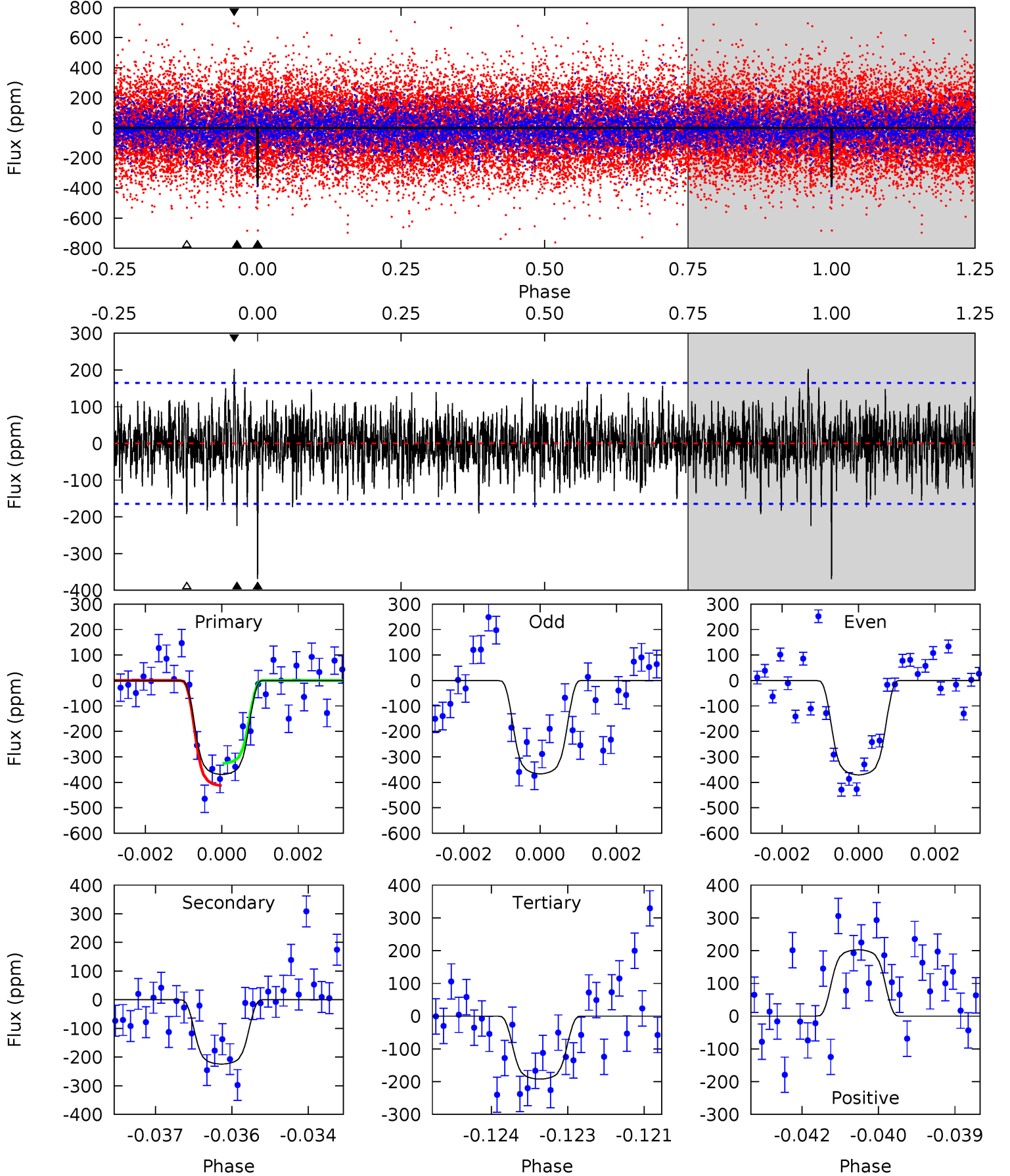
TCE 010155816-02 P= 85.096037 Days $T_0=149.541075$ (BKJD)



DV Model-Shift Uniqueness Test

010155816-02, P = 85.096618 Days, E = 64.440227 Days

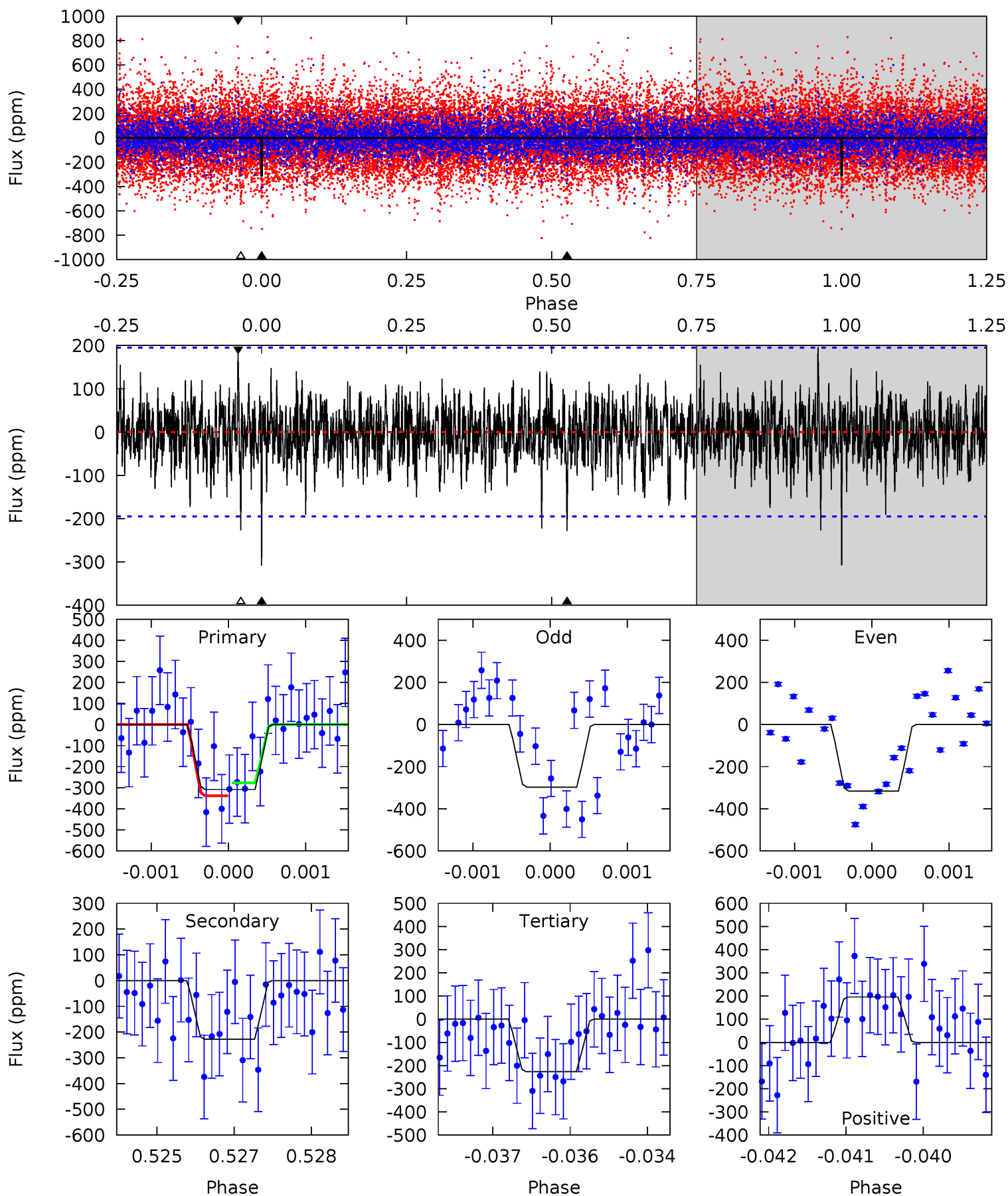
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	7.33	6.27	6.61	5.37	3.16	1.73	5.78	5.44	1.06	0.72	0.07	1.08	0.35	1.42



Alt Model-Shift Uniqueness Test

010155816-02, P = 85.096037 Days, E = 64.445038 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.53	6.31	6.28	5.42	5.40	3.20	1.40	2.24	3.11	0.03	0.89	0.25	0.94	0.39	0.85



Stellar Parameters For KIC 010155816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6714^{+182}_{-182}	$3.498^{+0.376}_{-0.094}$	$-0.540^{+0.400}_{-0.300}$	$3.777^{+0.522}_{-1.671}$	$1.635^{+0.229}_{-0.425}$	$0.043^{+0.136}_{-0.013}$
	+3%/-3%	+11%/-3%	+74%/-56%	+14%/-44%	+14%/-26%	+318%/-30%
Source	PHO1	FLK73	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 010155816-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-224 ± 31	$8.54^{+1.77}_{-2.11}$	1183^{+70}_{-122}	5537^{+486}_{-360}	336^{+229}_{-105}
Alt.	-228 ± 36	$7.19^{+1.69}_{-1.69}$	1182^{+71}_{-120}	6033^{+631}_{-513}	474^{+331}_{-170}

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 $A_{obs} \gg 1.0$

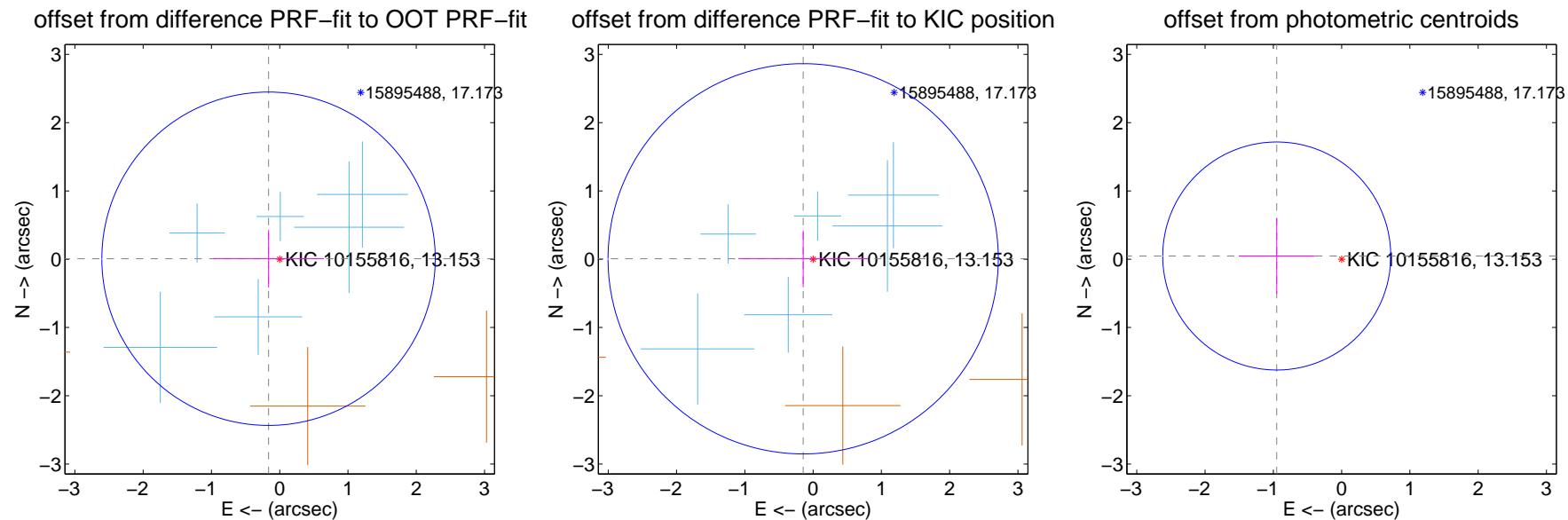
DV Centroid Data

Supplemental centroid analysis for 010155816-02. Kepler magnitude: 13.15. Transit SNR 8.96

There are 6 quarters with good PRF difference image offsets

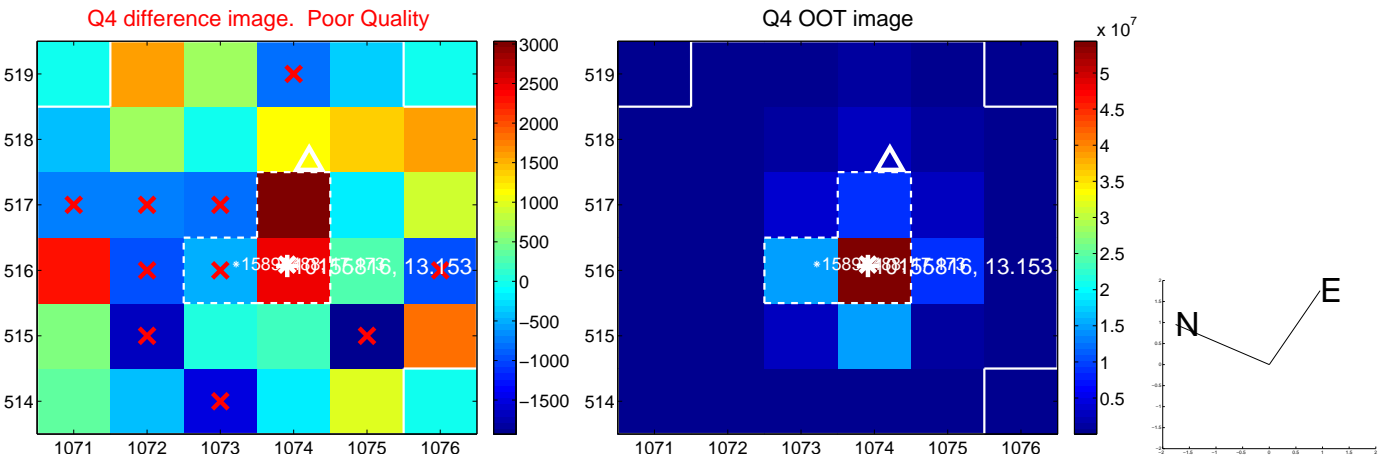
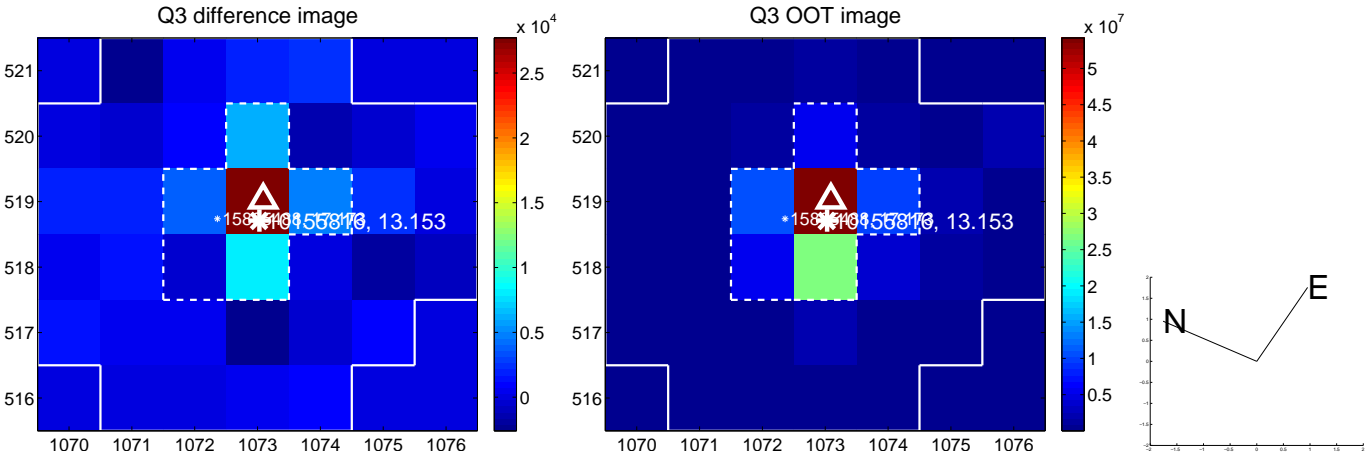
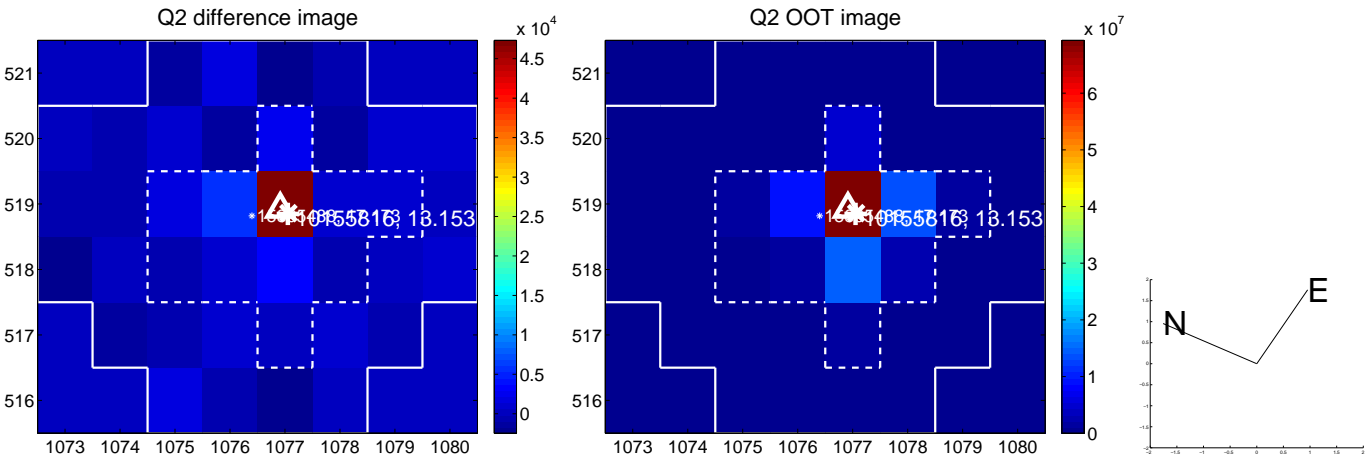
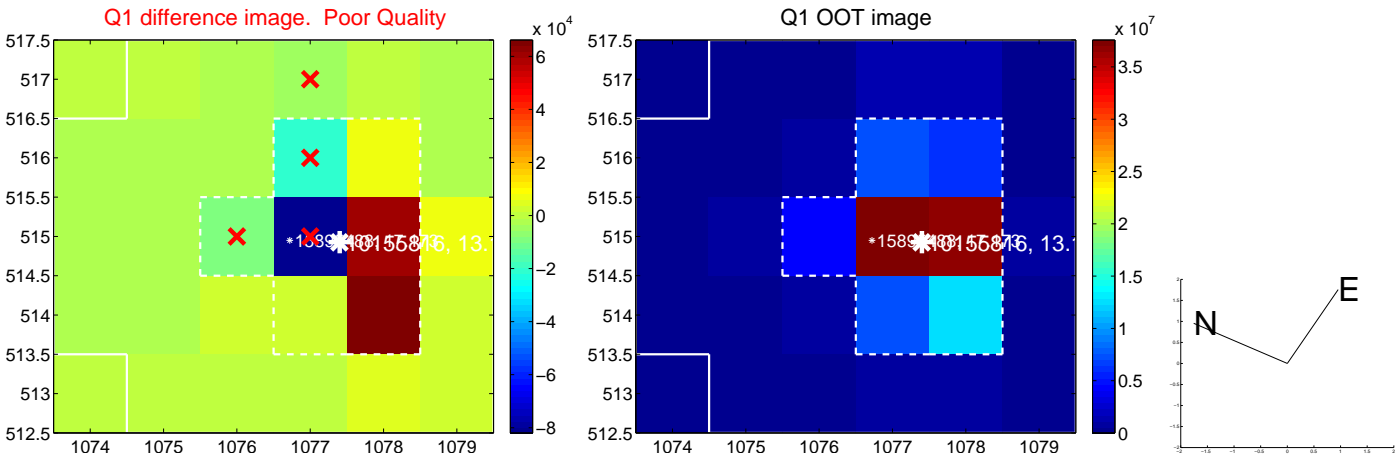
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.164 ± 0.814	0.20	0.164 ± 0.810	0.007 ± 0.421
PRF-fit source offset from KIC position	0.145 ± 0.952	0.15	0.145 ± 0.947	0.006 ± 0.416
photometric centroid source offset	0.95 ± 0.56	1.71	0.95 ± 0.56	0.05 ± 0.55

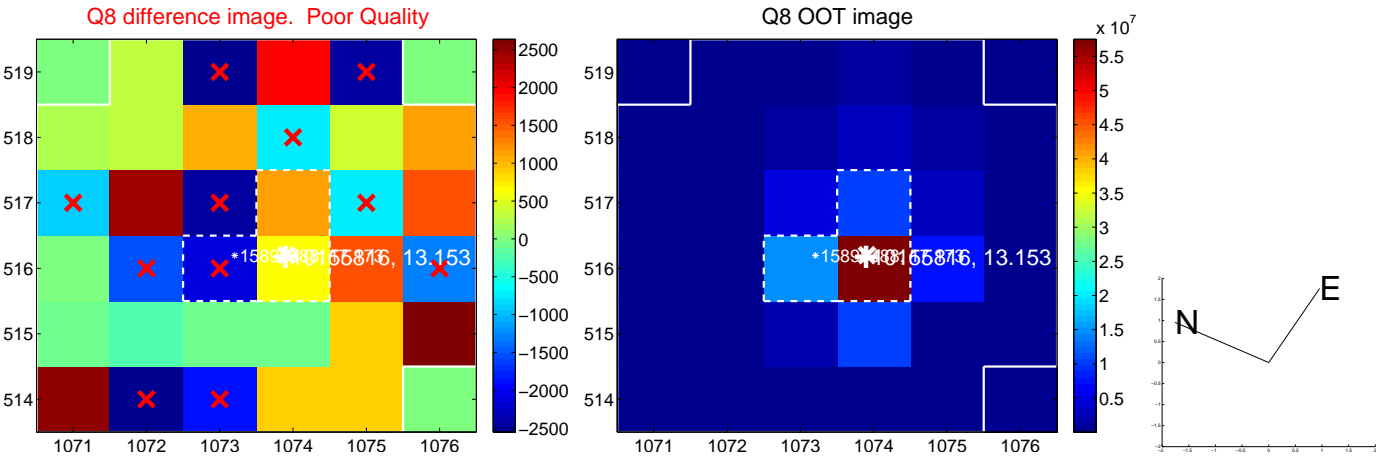
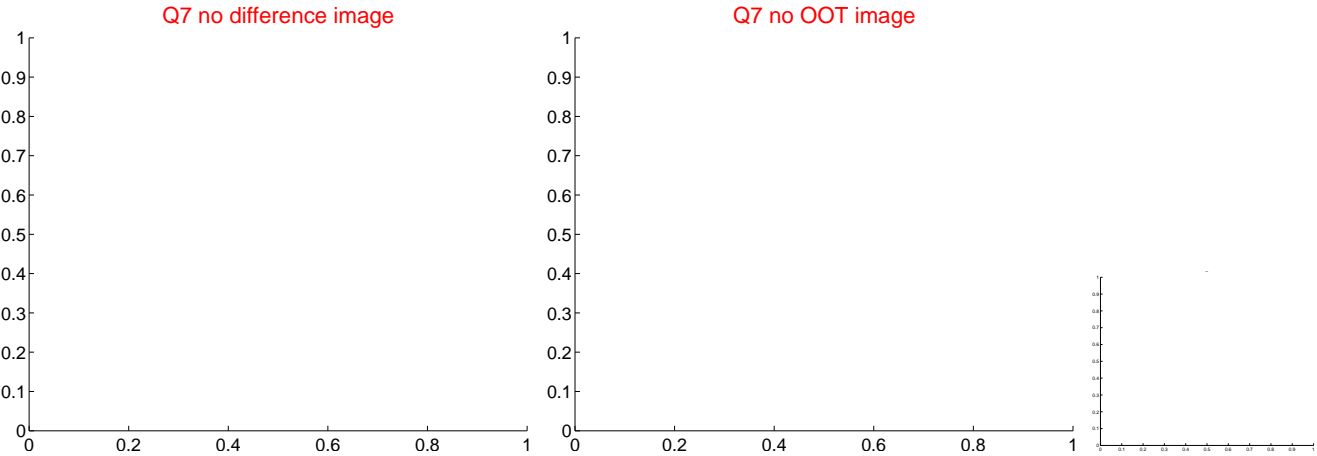
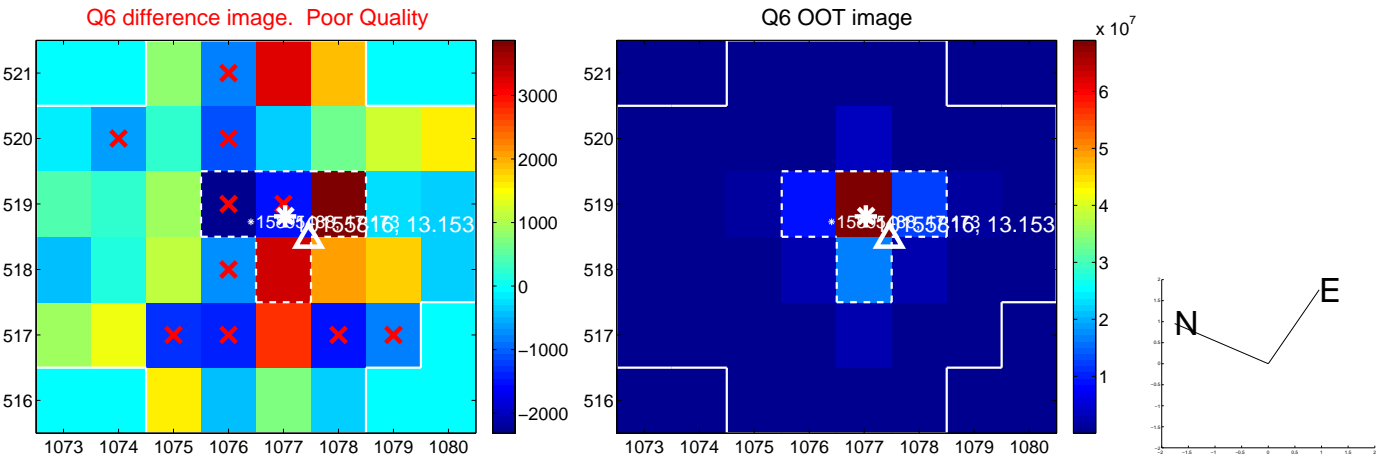
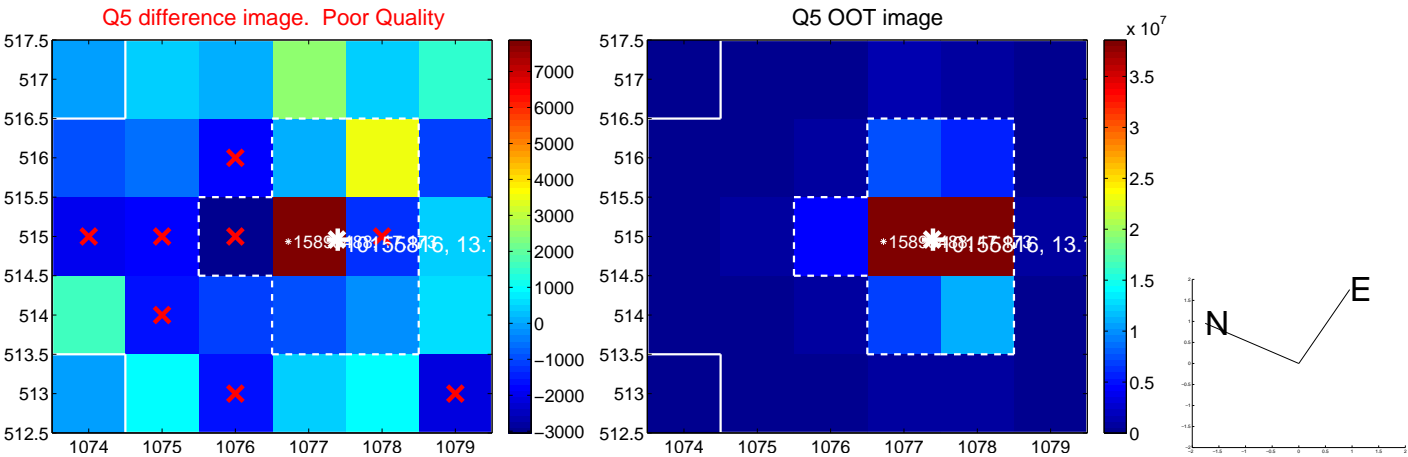


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

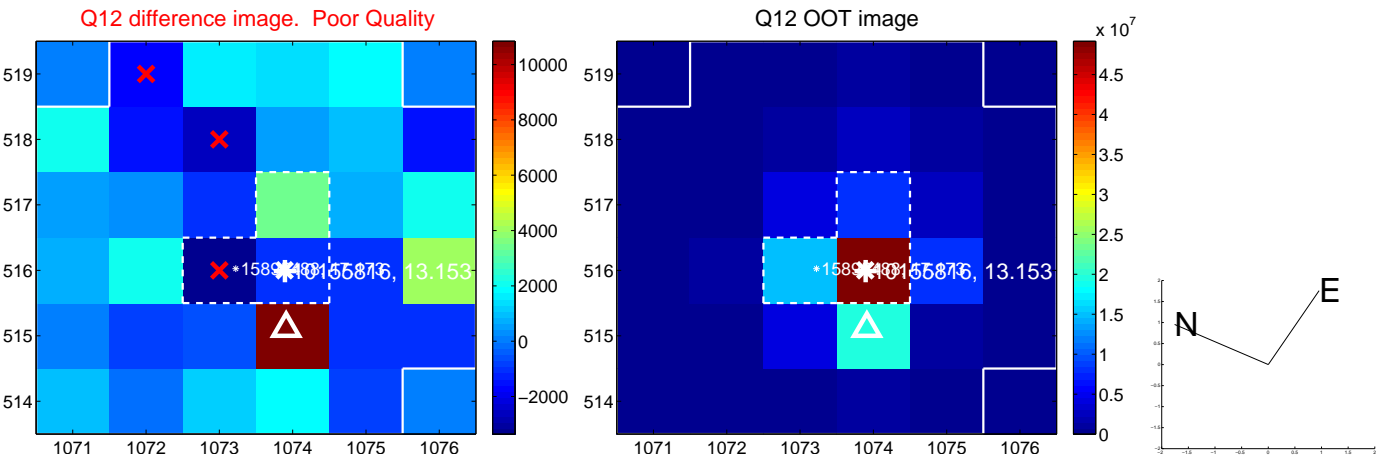
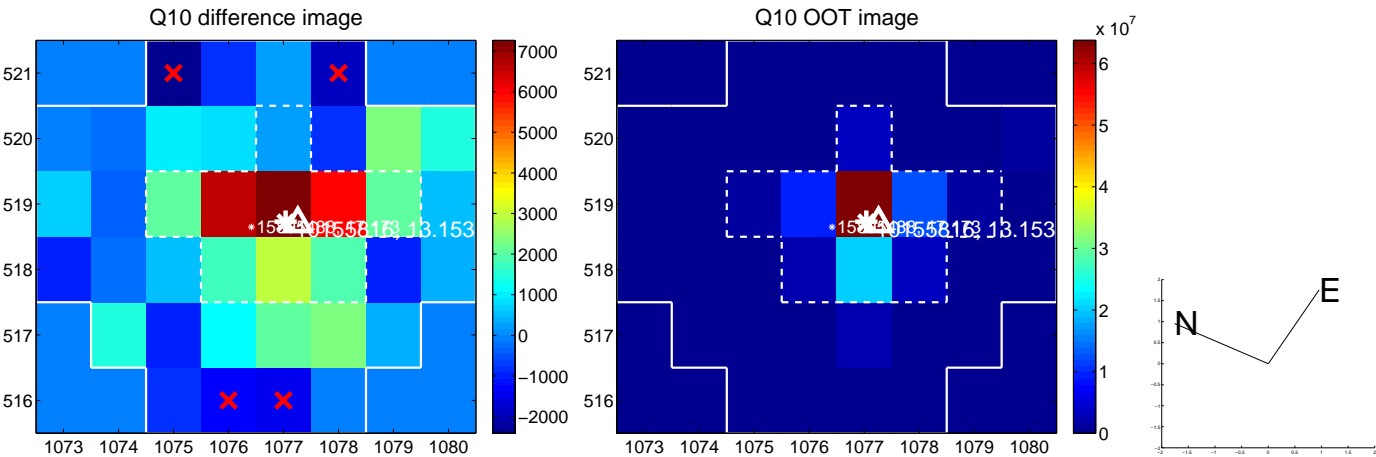
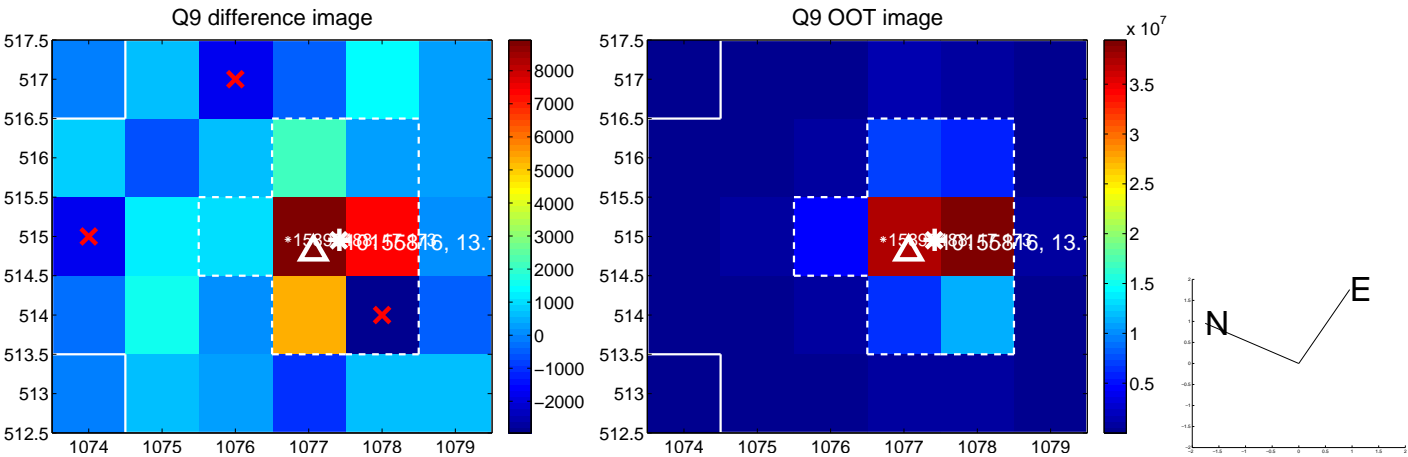
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



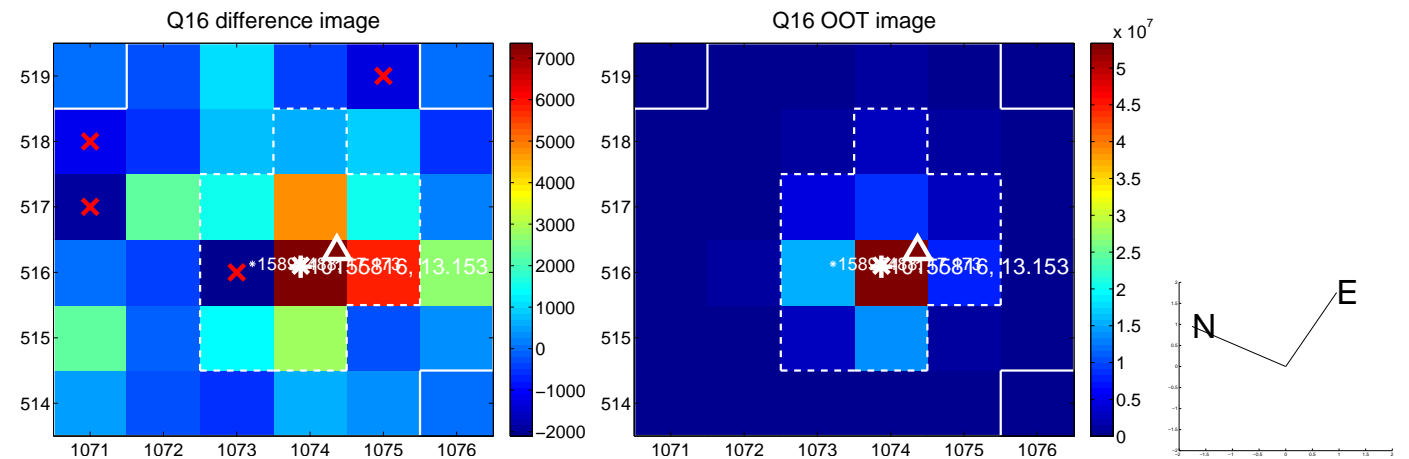
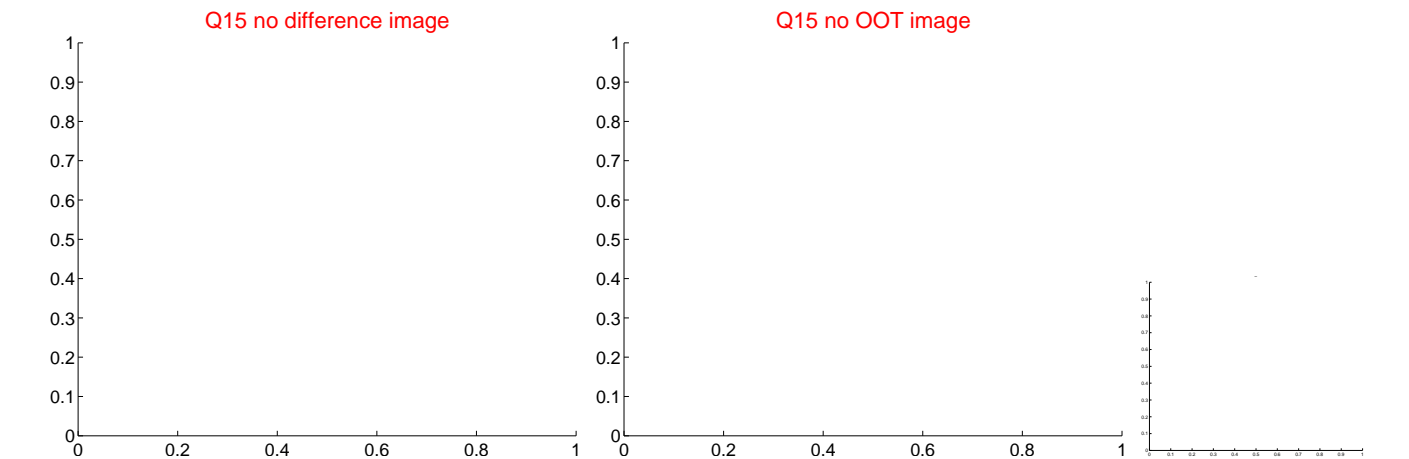
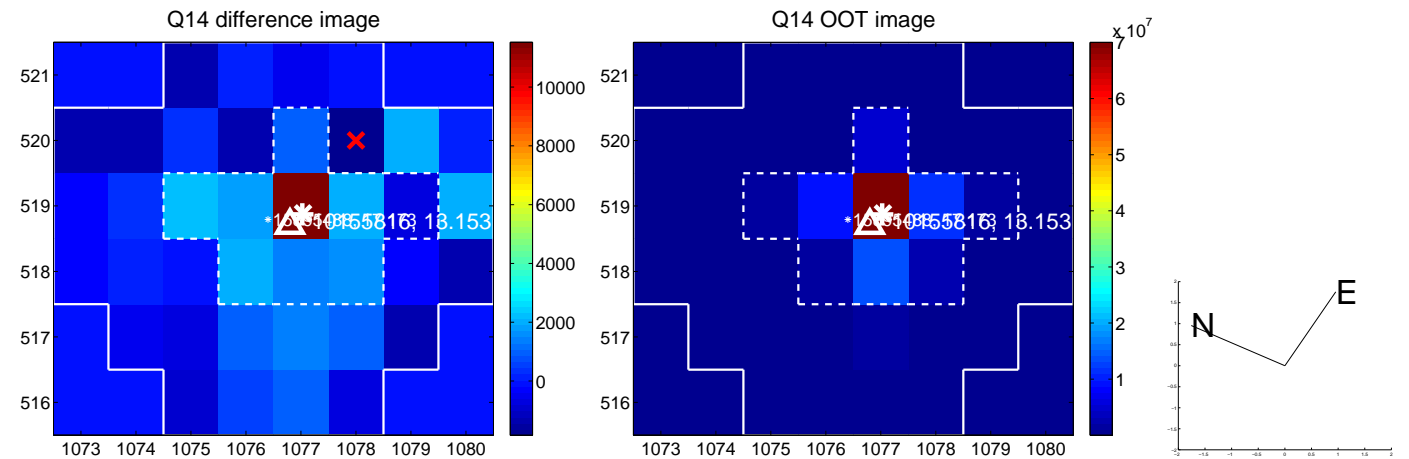
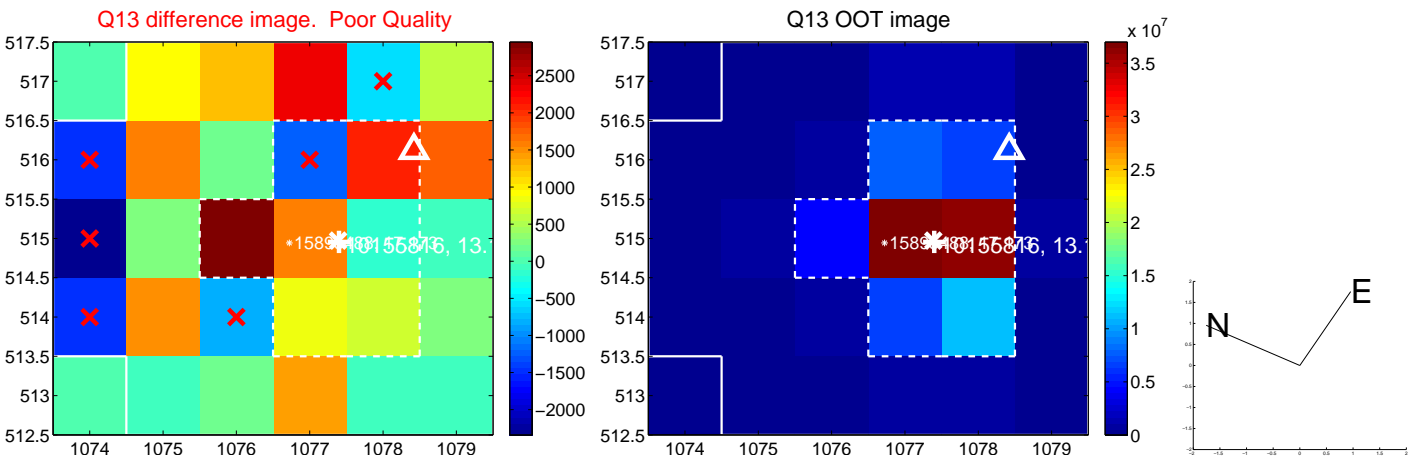
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



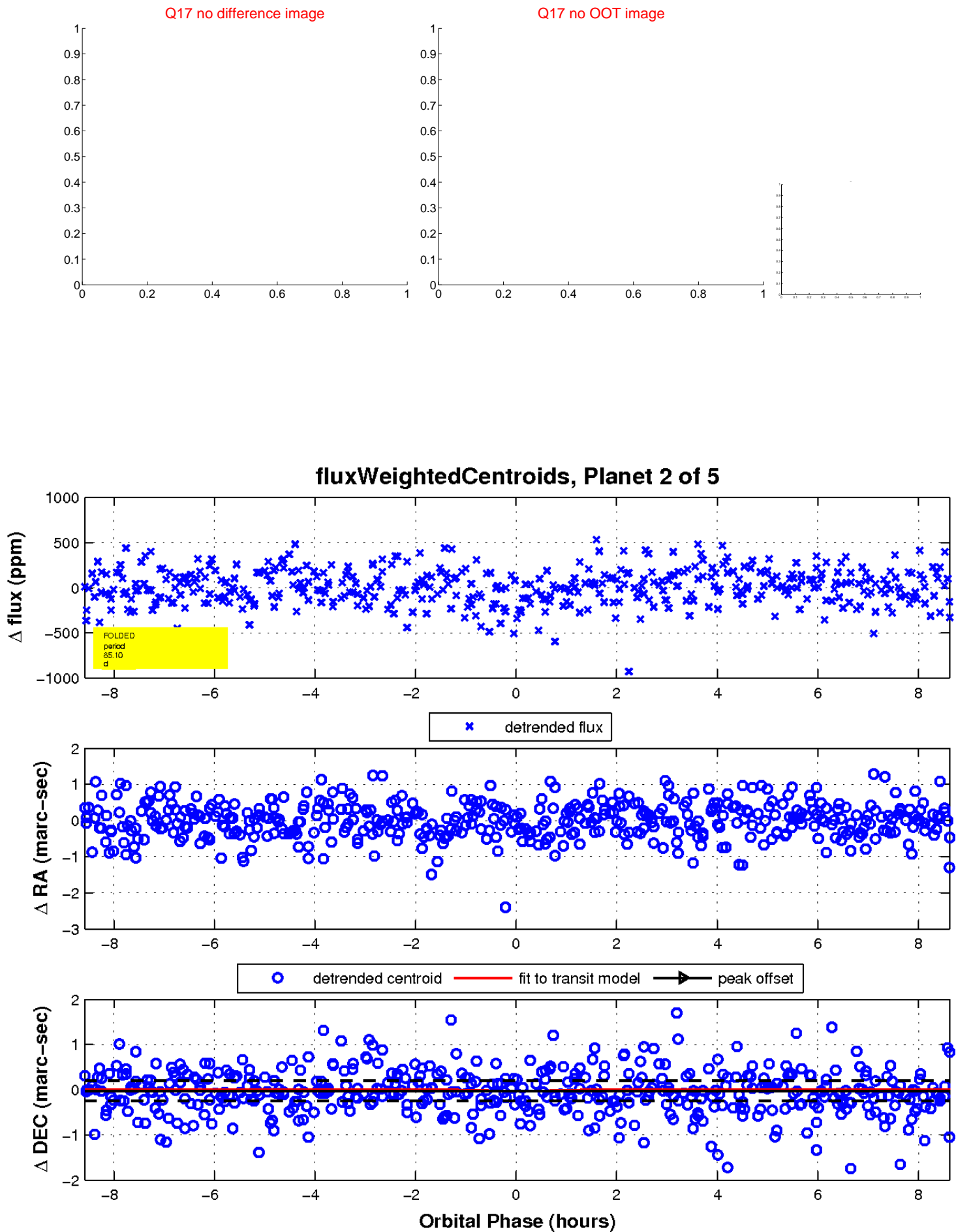
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

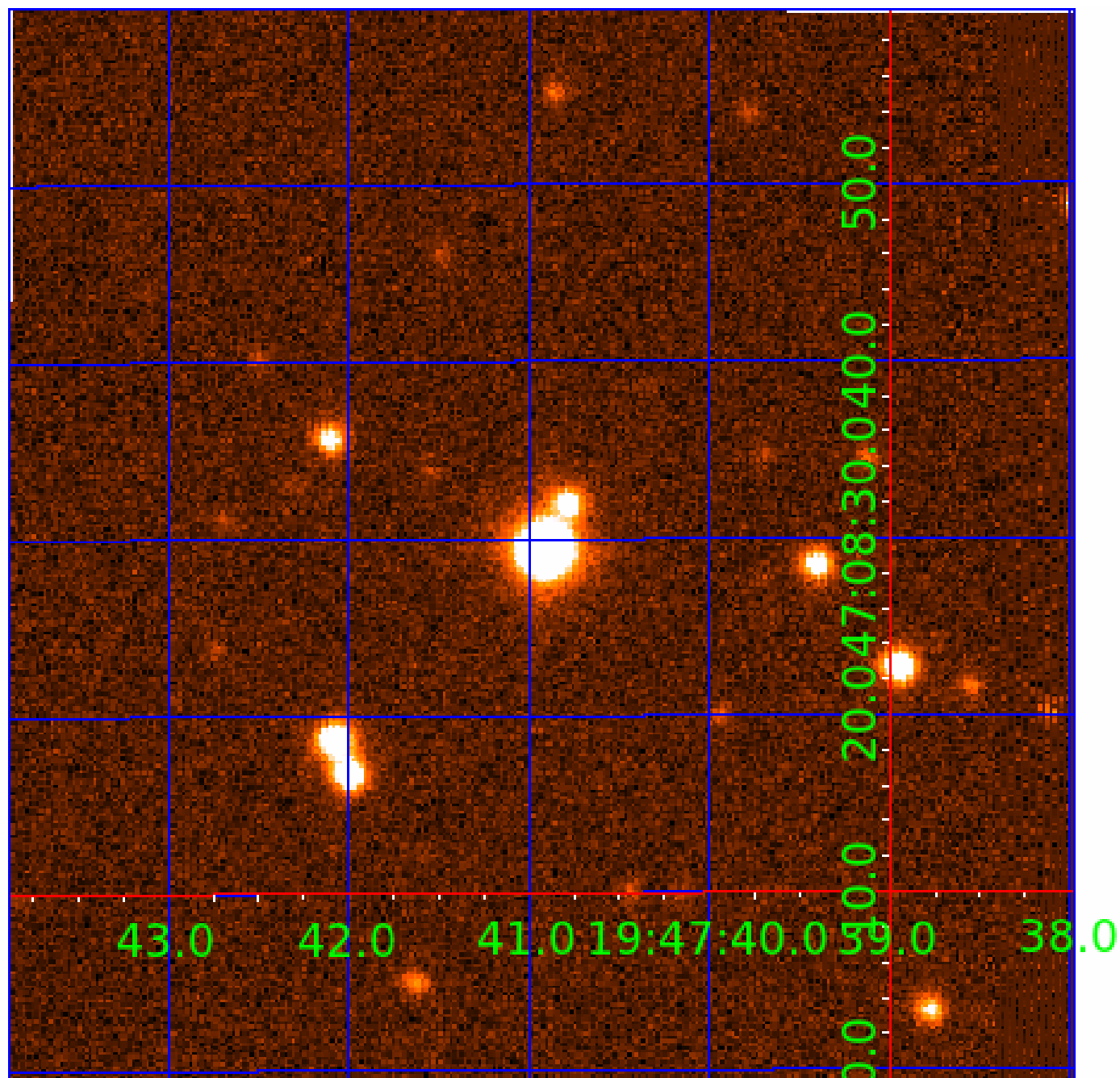


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010155816

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})
010155816-01	OBS	No	3.733362	135.355733	16.0	15.107	9.6	3.8	3.78	6714	1.76	8422.69
010155816-02	OBS	No	85.096618	149.536845	377.4	2.877	8.8	9.0	3.78	6714	9.07	130.33
010155816-03	OBS	No	601.400105	316.067504	317.4	8.560	8.6	8.5	3.78	6714	7.12	9.61
010155816-04	OBS	No	126.459032	235.491471	303.0	2.683	8.5	7.6	3.78	6714	7.14	76.85
010155816-05	OBS	No	0.746530	132.297229	36.1	8.958	9.8	12.4	3.78	6714	2.64	72031.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010155816-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
010155816-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
010155816-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010155816-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010155816-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

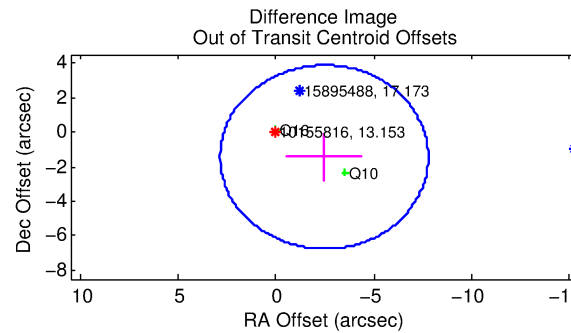
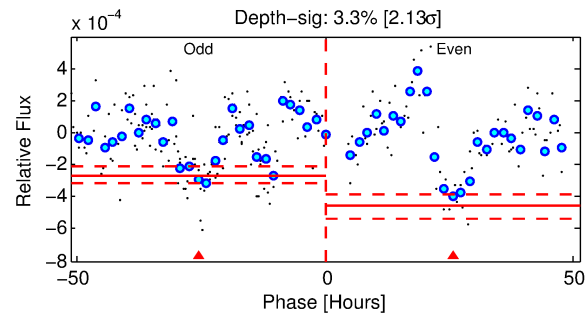
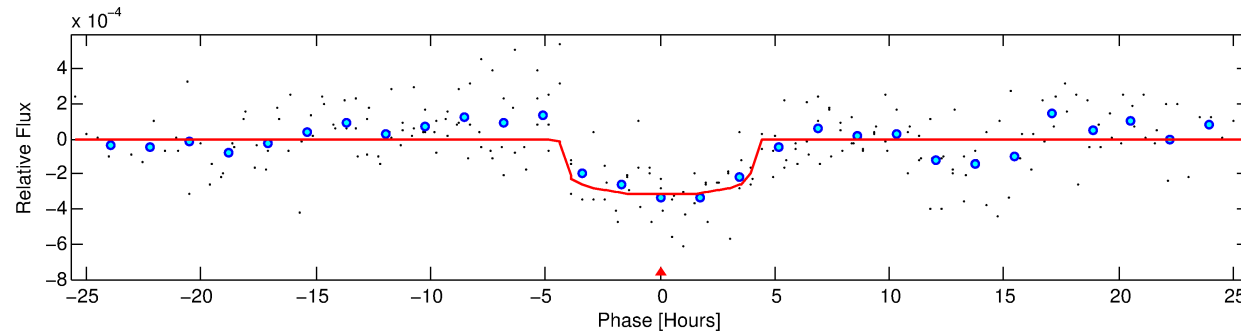
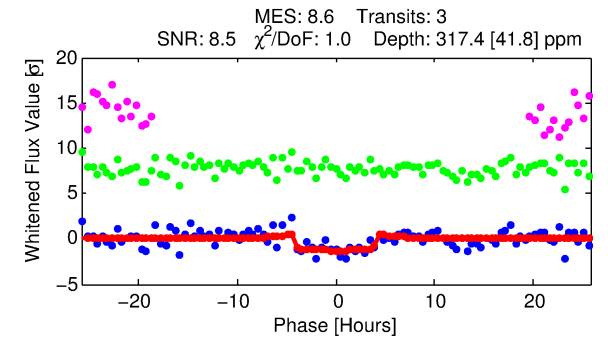
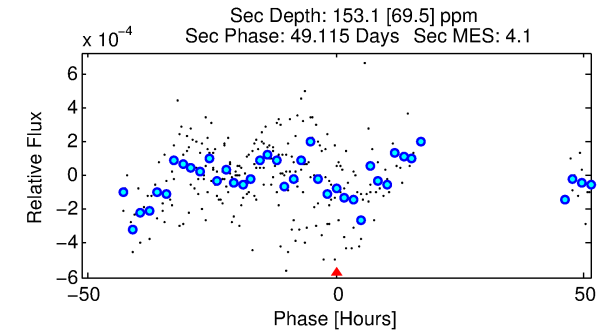
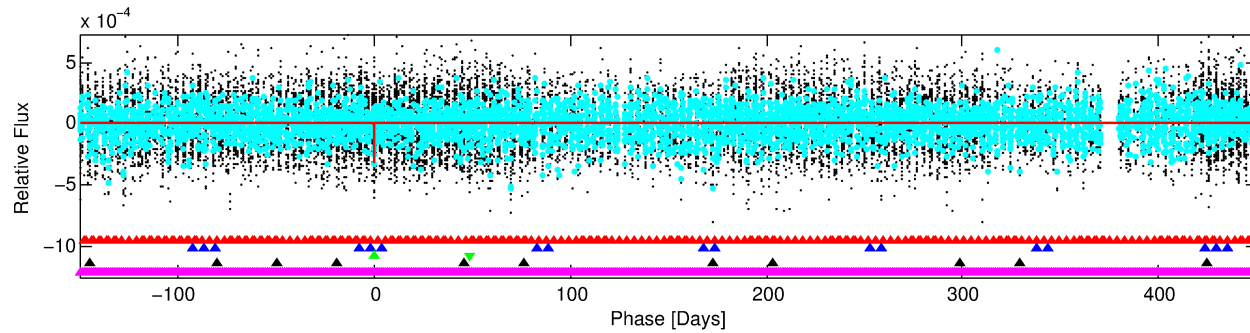
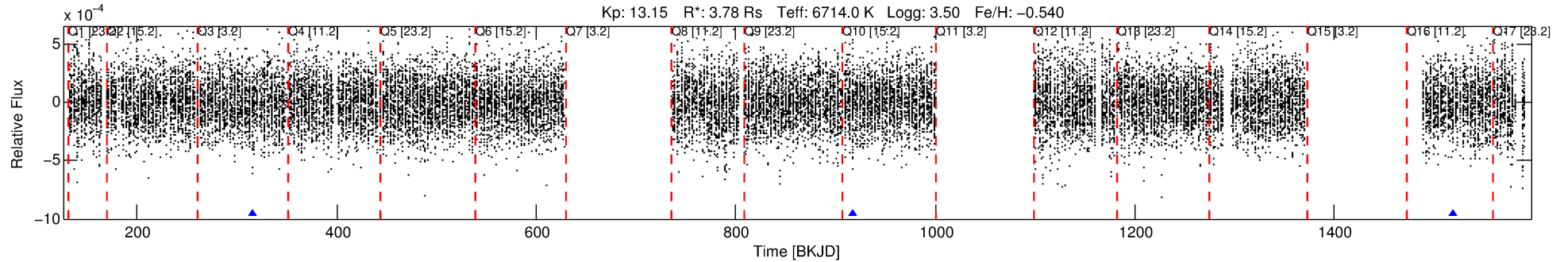
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010155816-03

No Significant Match Found

DV One-Page Summary

KIC: 10155816 Candidate: 3 of 5 Period: 601.400 d



DV Fit Results:

Period = 601.40010 [0.00962] d
Epoch = 316.0675 [0.0127] BKJD
Rp/R* = 0.0173 [0.0072]
a/R* = 422.16 [968.78]
b = 0.65 [2.08]
Seff = 9.61 [6.32]
Teq = 449 [74] K
Rp = 7.12 [4.32] Re
a = 1.6440 [0.6784] AU
Ag = 4488.80 [5148.35] [0.87σ]
Teffp = 5682 [1353] K [3.86σ]

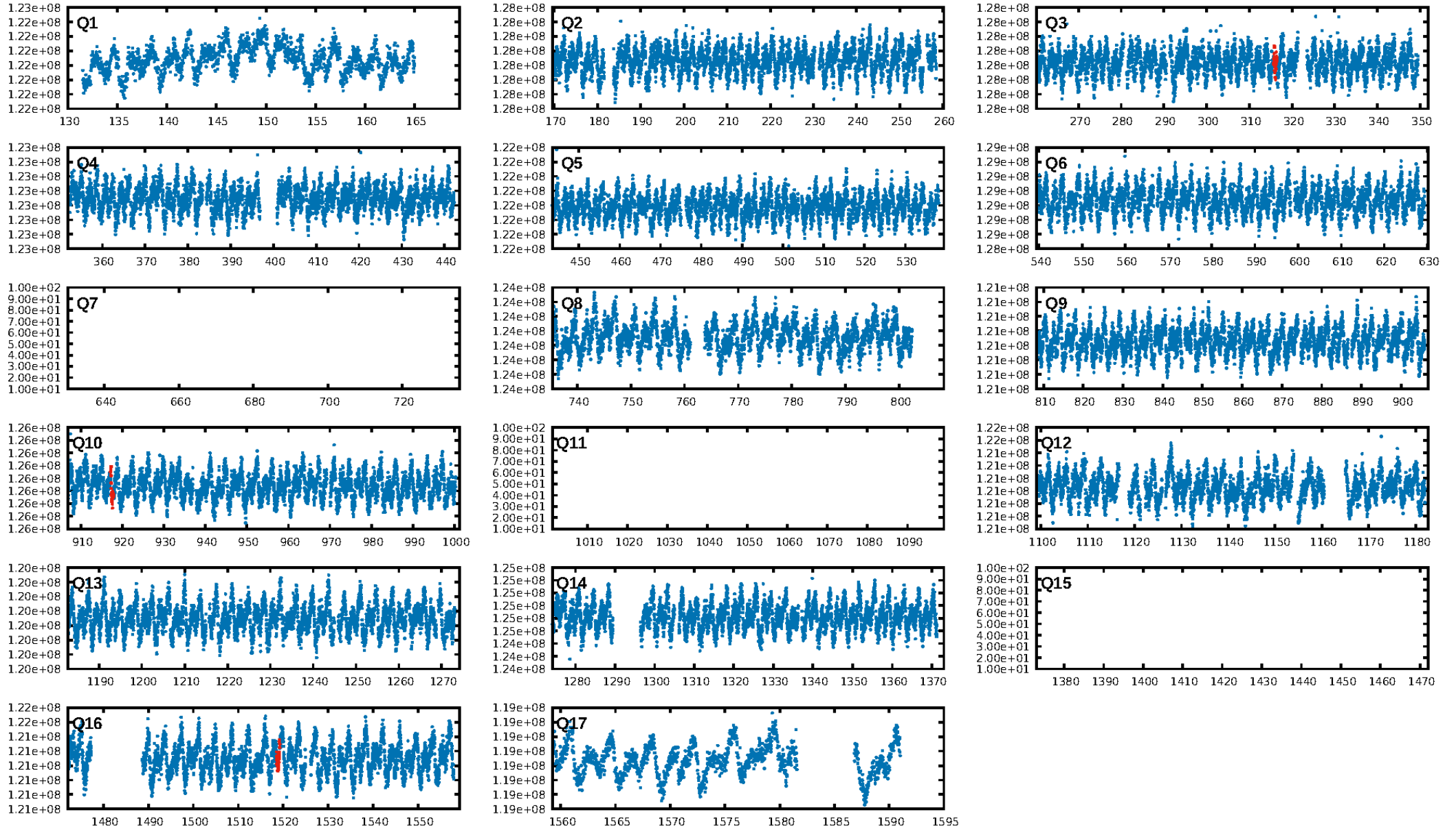
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1270.70σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.3%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9789
Centroid-sig: N/A
Centroid-so: 2.444 arcsec [2.66σ]
OotOffset-rm: 2.856 arcsec [1.61σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 2.836 arcsec [1.65σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

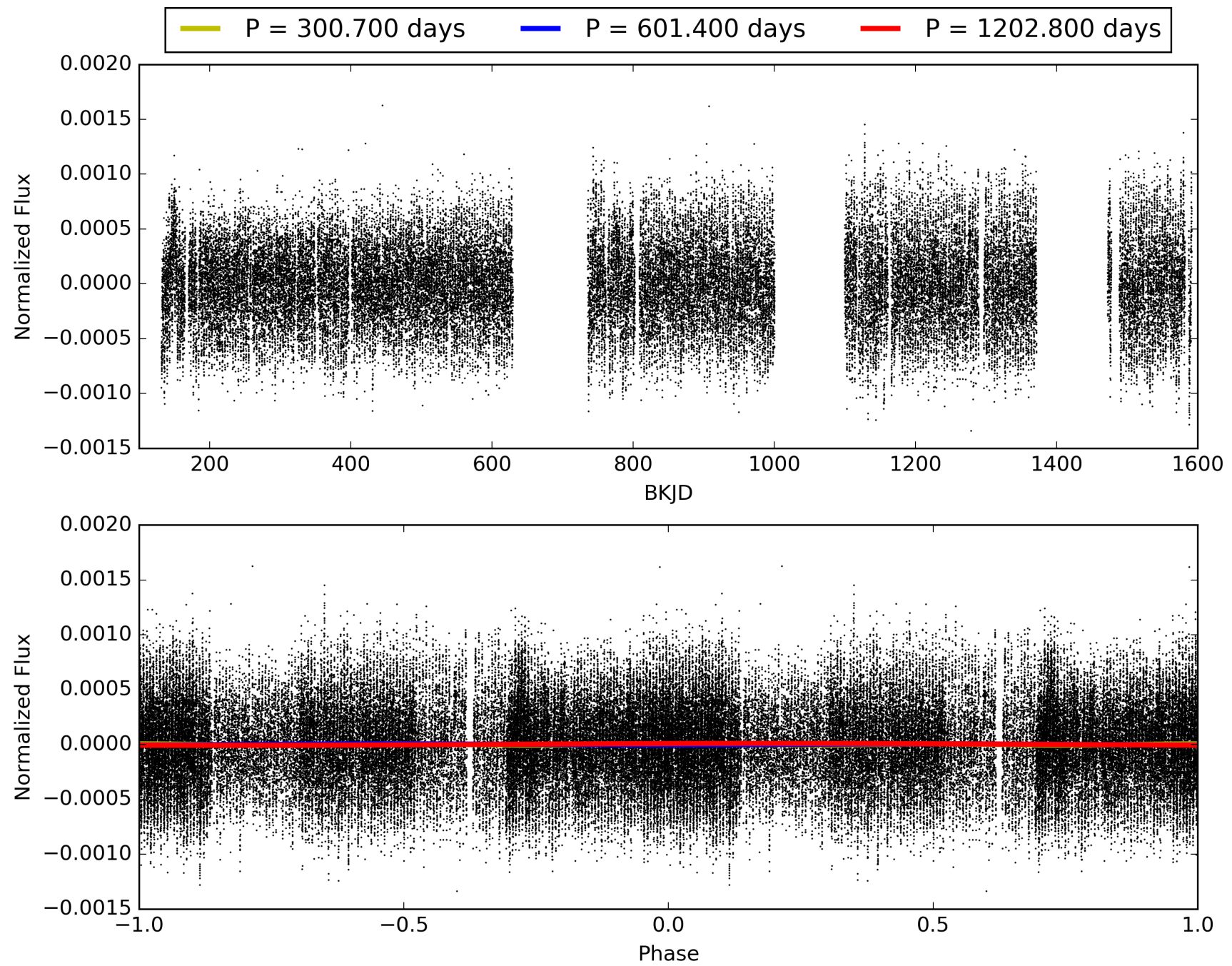
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:39:29 Z

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

TCE 010155816-03, PDC Light Curves

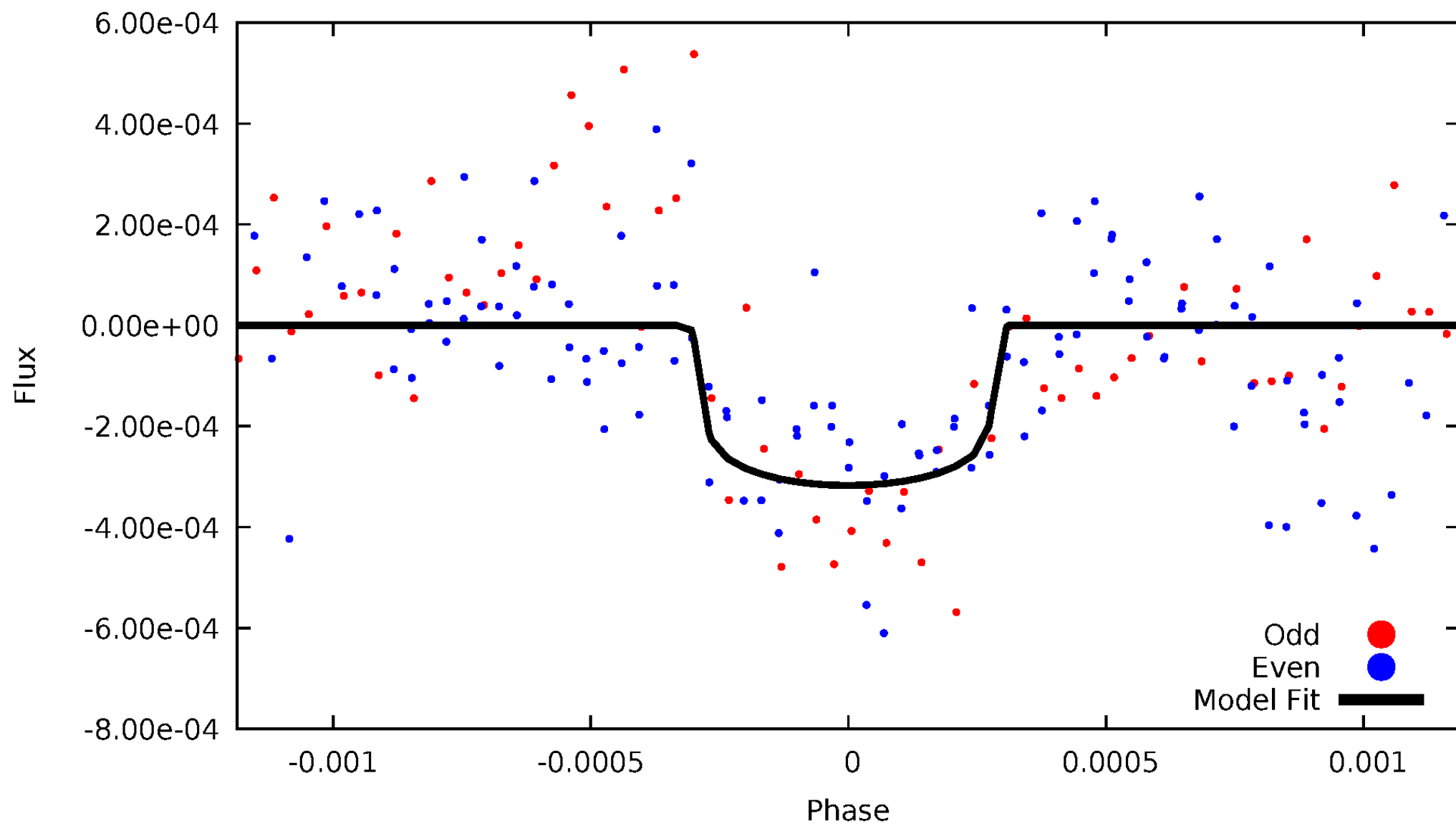


TCE 010155816-03



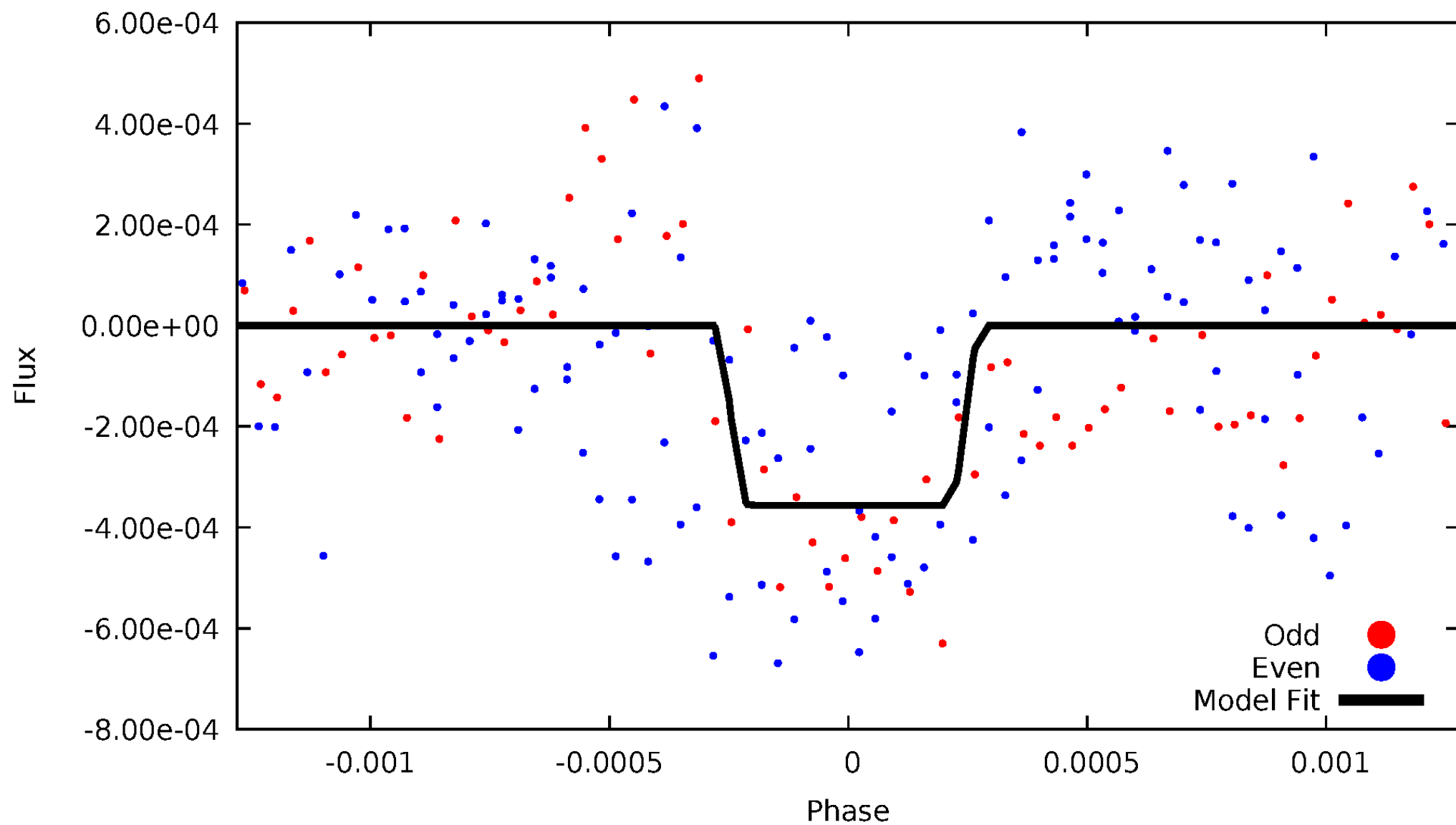
DV Odd/Even

TCE 010155816-03



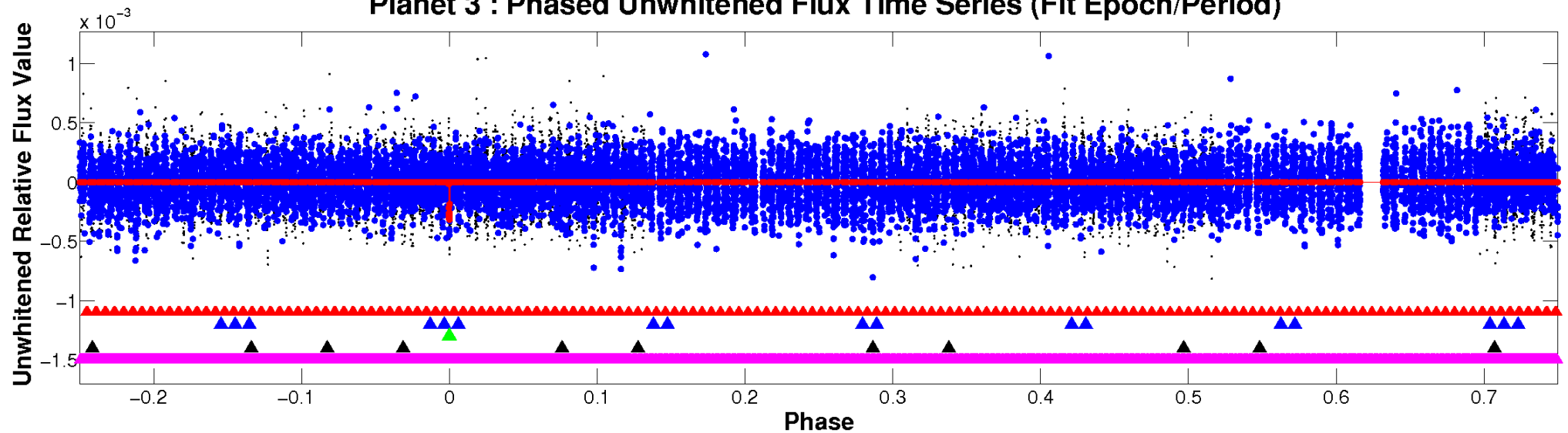
ALT Odd/Even

TCE 010155816-03

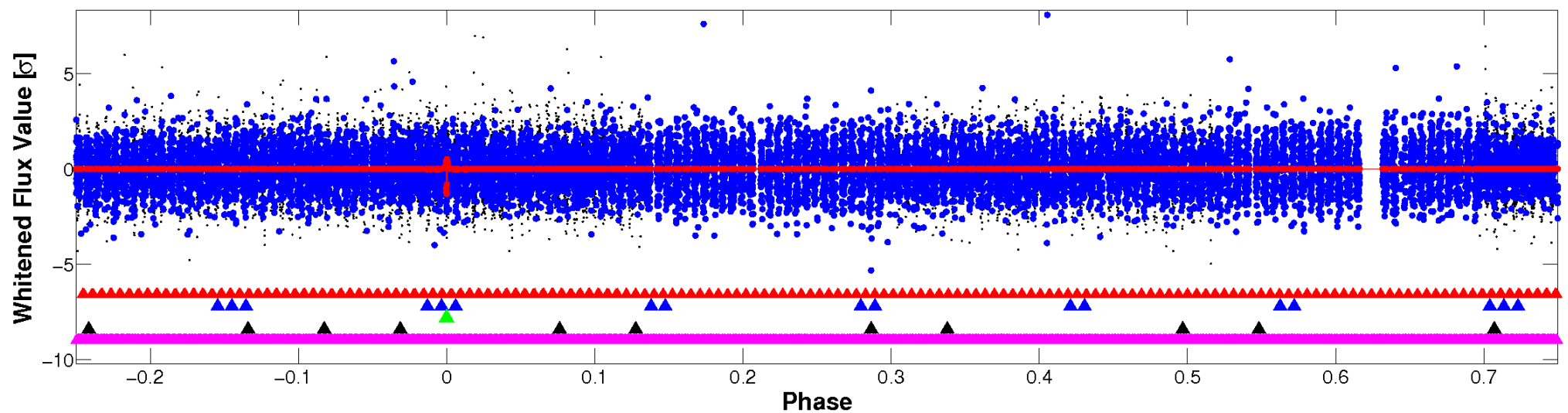


Non-Whitened Vs. Whitened Light Curve

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

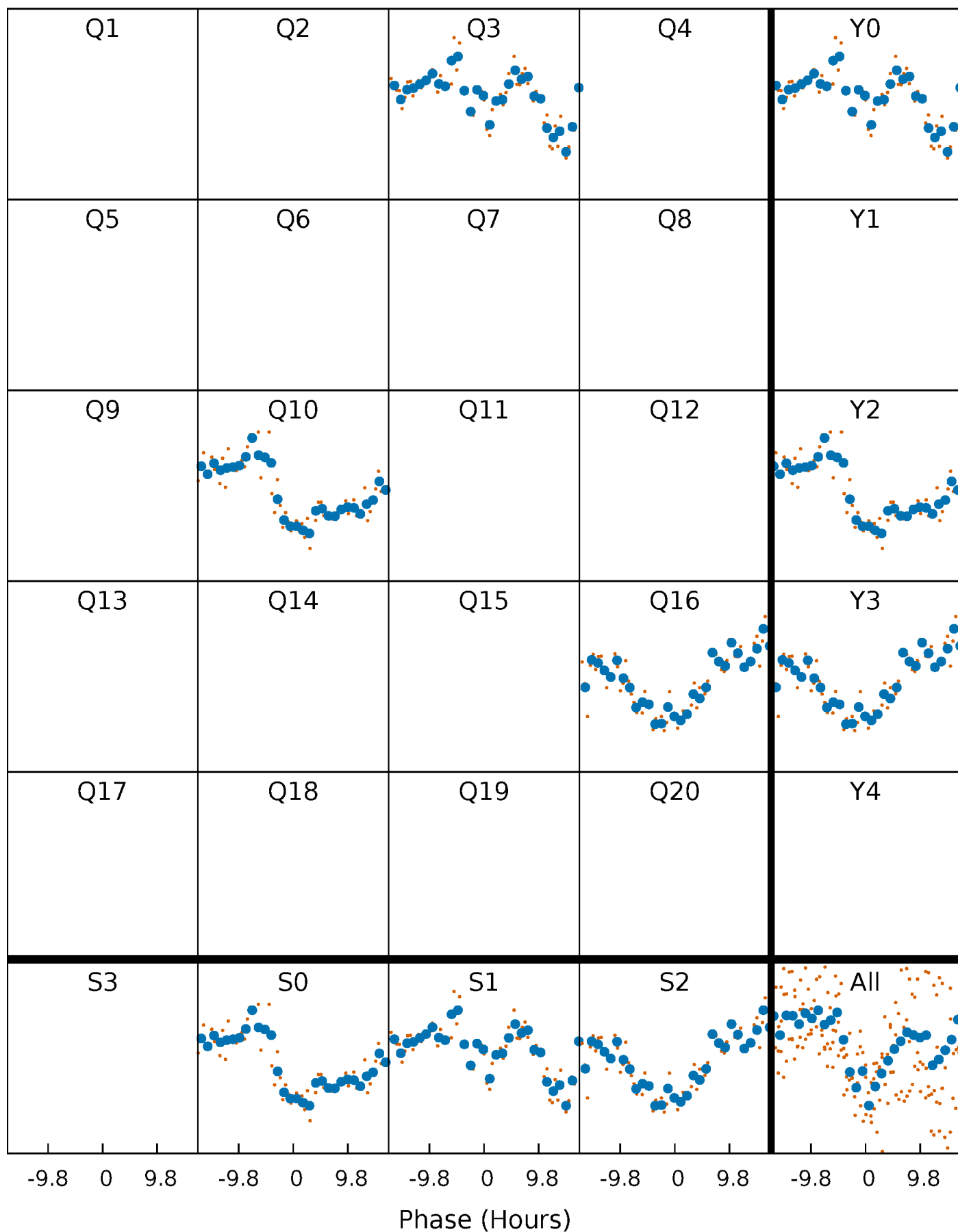


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



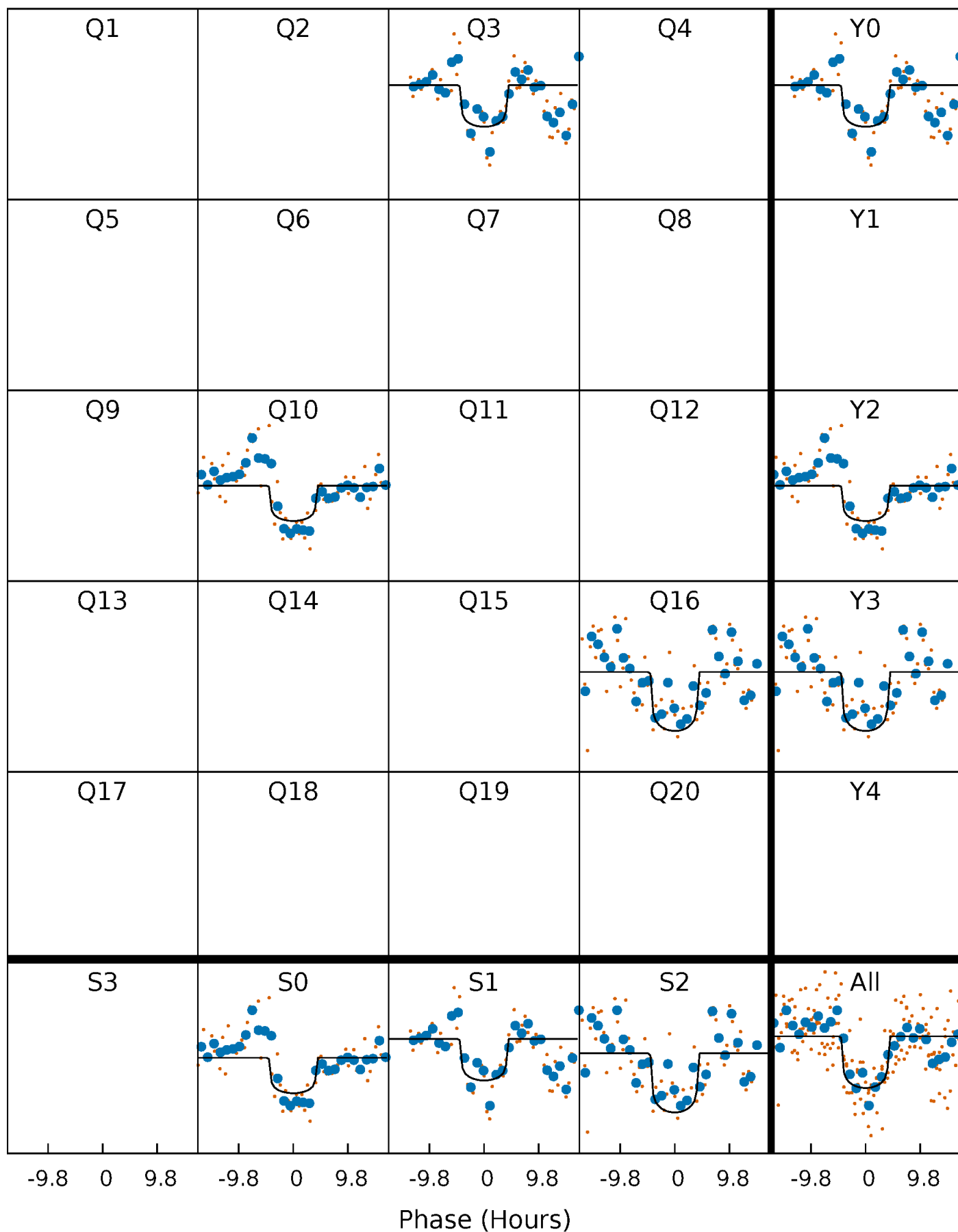
PDC Quarter-Phased Transit Curves

TCE 010155816-03 P=601.400105 Days $T_0=316.067504$ (BKJD)



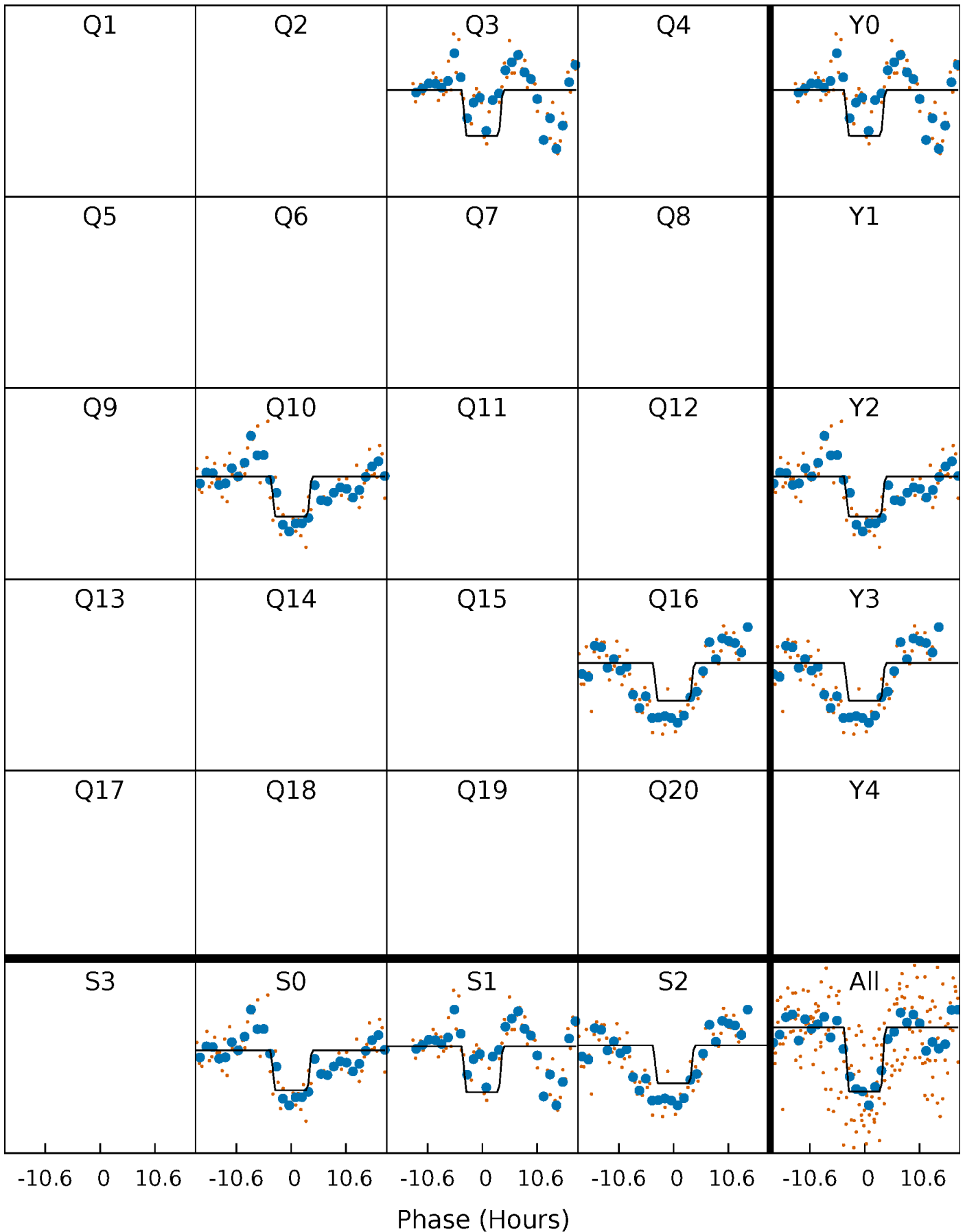
DV Quarter-Phased Transit Curves

TCE 010155816-03 P=601.400105 Days $T_0=316.067504$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

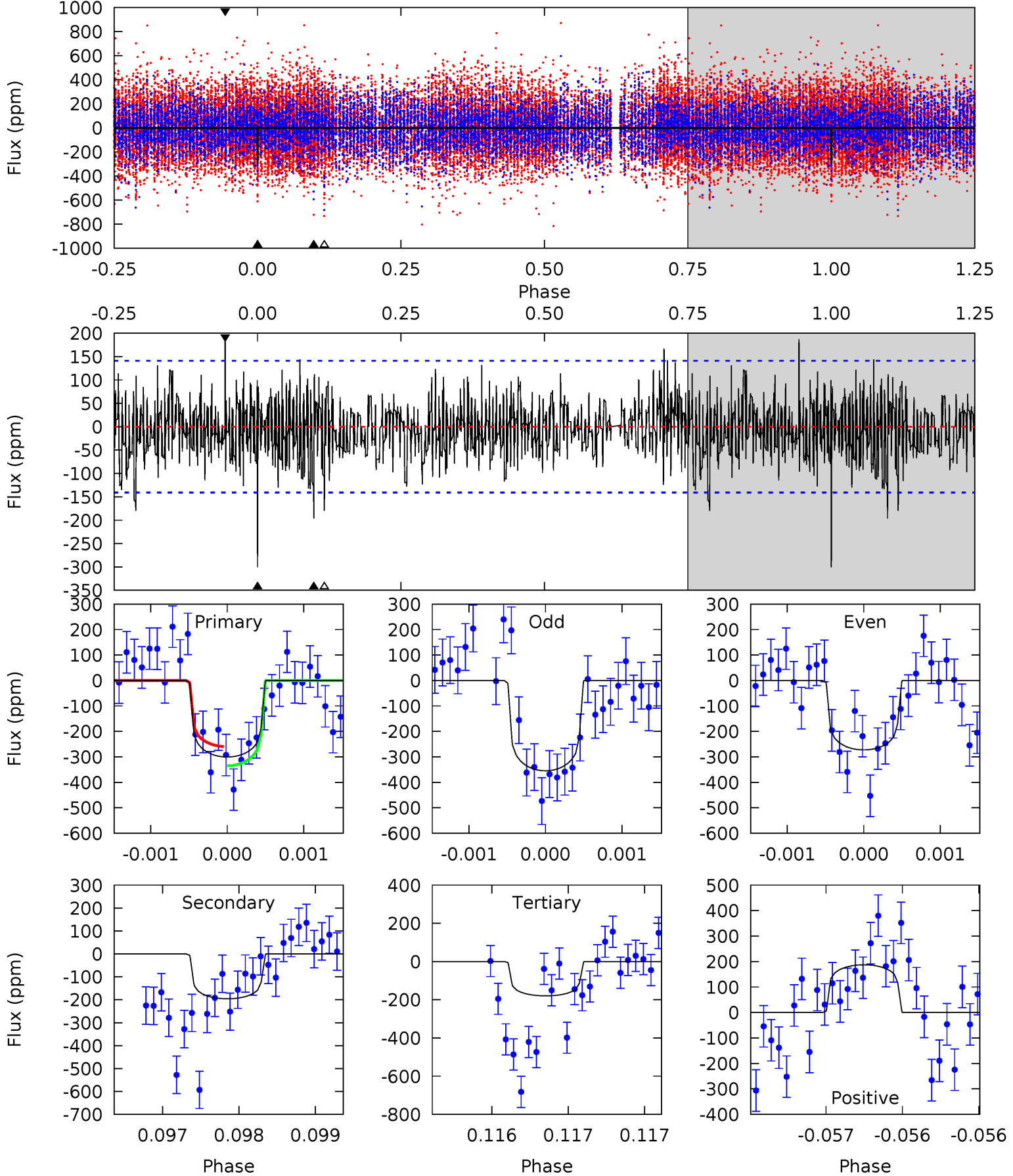
TCE 010155816-03 P=601.400538 Days $T_0=316.074786$ (BKJD)



DV Model-Shift Uniqueness Test

010155816-03, P = 601.400105 Days, E = 316.067504 Days

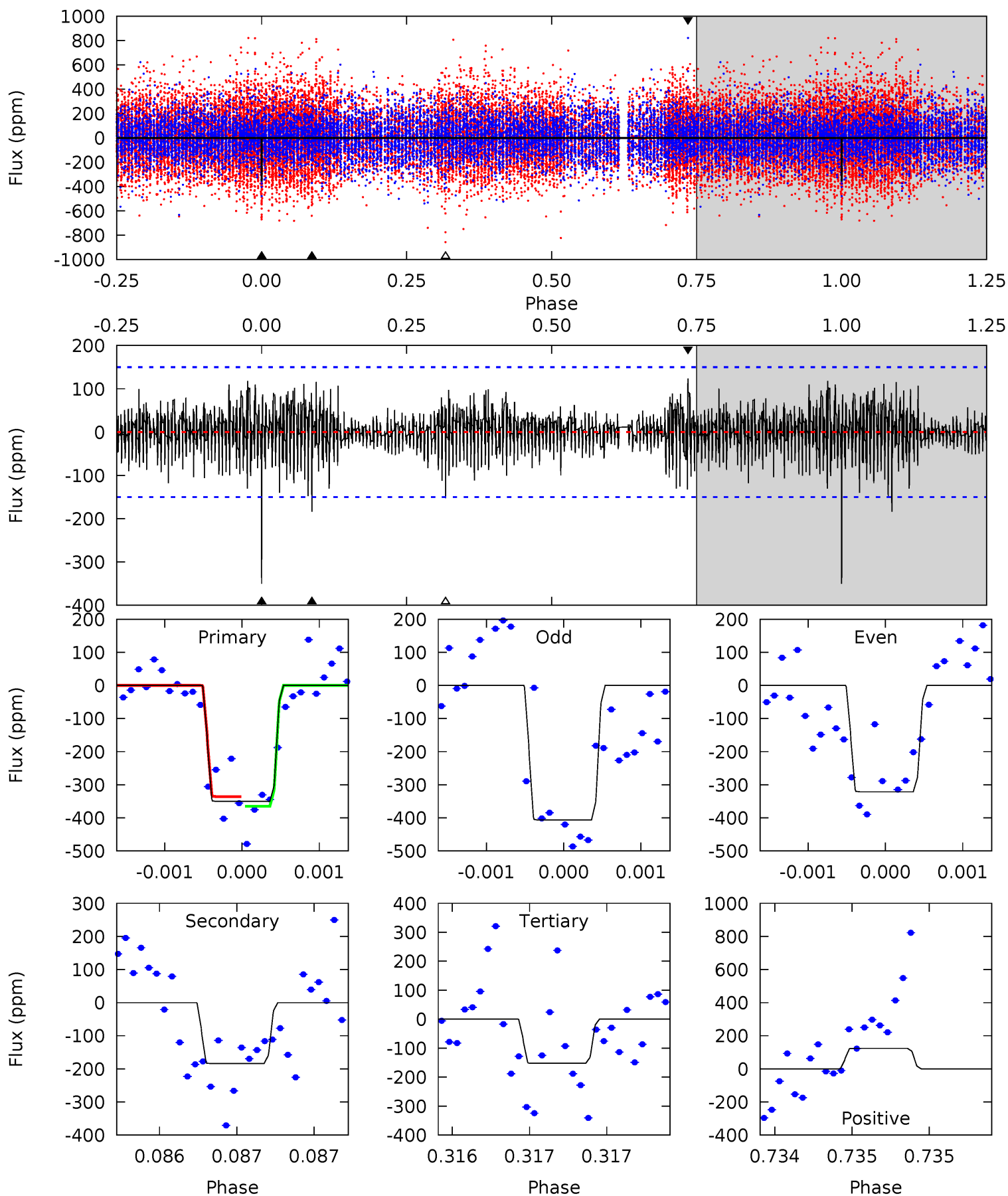
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	7.70	7.06	7.36	5.54	3.42	1.82	4.75	4.45	0.64	0.34	1.51	0.92	0.38	1.48



Alt Model-Shift Uniqueness Test

010155816-03, P = 601.400538 Days, E = 316.074786 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	6.81	5.64	4.59	5.56	3.46	1.46	7.35	8.41	1.17	2.23	1.47	0.87	0.26	0.54



Stellar Parameters For KIC 010155816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6714^{+182}_{-182}	$3.498^{+0.376}_{-0.094}$	$-0.540^{+0.400}_{-0.300}$	$3.777^{+0.522}_{-1.671}$	$1.635^{+0.229}_{-0.425}$	$0.043^{+0.136}_{-0.013}$
	+3%/-3%	+11%/-3%	+74%/-56%	+14%/-44%	+14%/-26%	+318%/-30%
Source	PHO1	FLK73	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 010155816-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-196 ± 25	$6.64^{+3.31}_{-2.96}$	614^{+38}_{-66}	5971^{+1935}_{-932}	6639^{+14655}_{-3631}
Alt.	-184 ± 27	$7.28^{+3.06}_{-3.11}$	617^{+36}_{-66}	5661^{+1567}_{-743}	5277^{+9927}_{-2685}

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

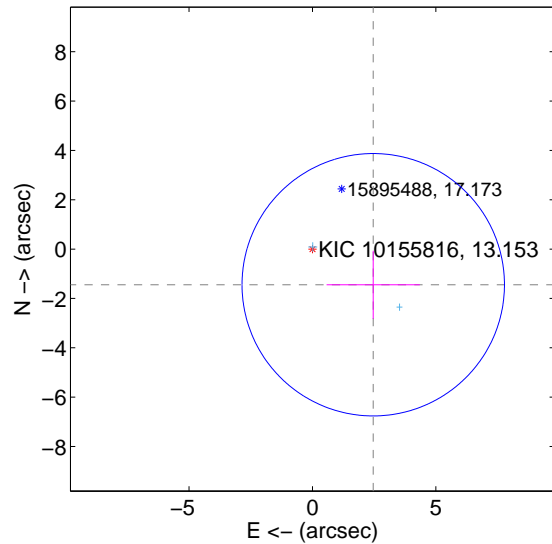
Supplemental centroid analysis for 010155816-03. Kepler magnitude: 13.15. Transit SNR 8.49

There are 2 quarters with good PRF difference image offsets

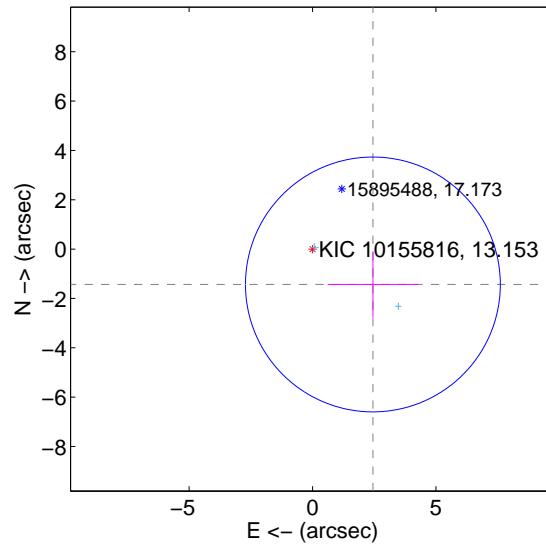
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.856 ± 1.772	1.61	-2.464 ± 1.889	-1.444 ± 1.378
PRF-fit source offset from KIC position	2.836 ± 1.721	1.65	-2.447 ± 1.833	-1.434 ± 1.344
photometric centroid source offset	2.44 ± 0.92	2.66	0.71 ± 0.94	-2.34 ± 0.92

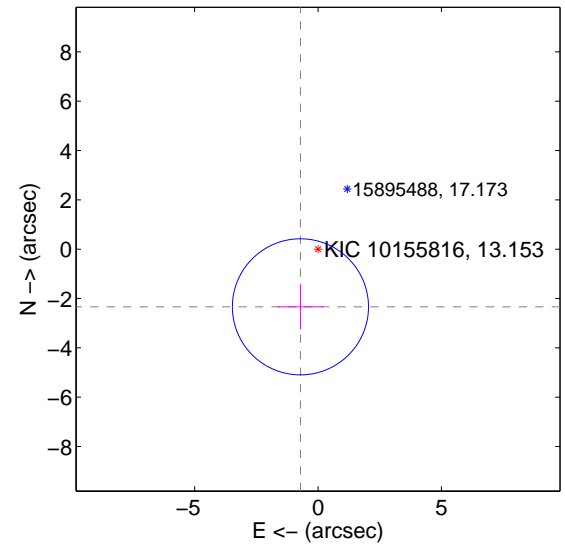
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

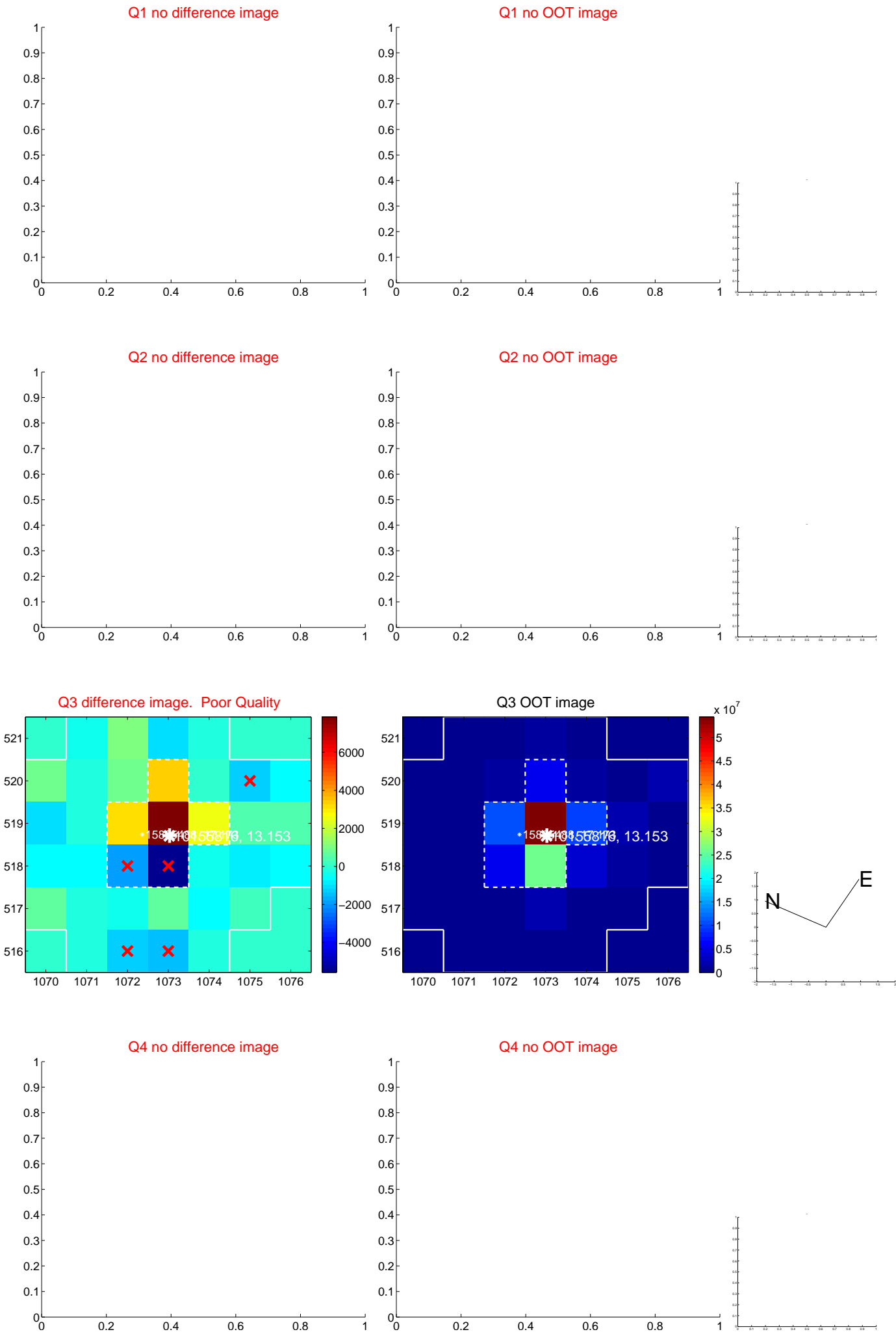


offset from photometric centroids



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.

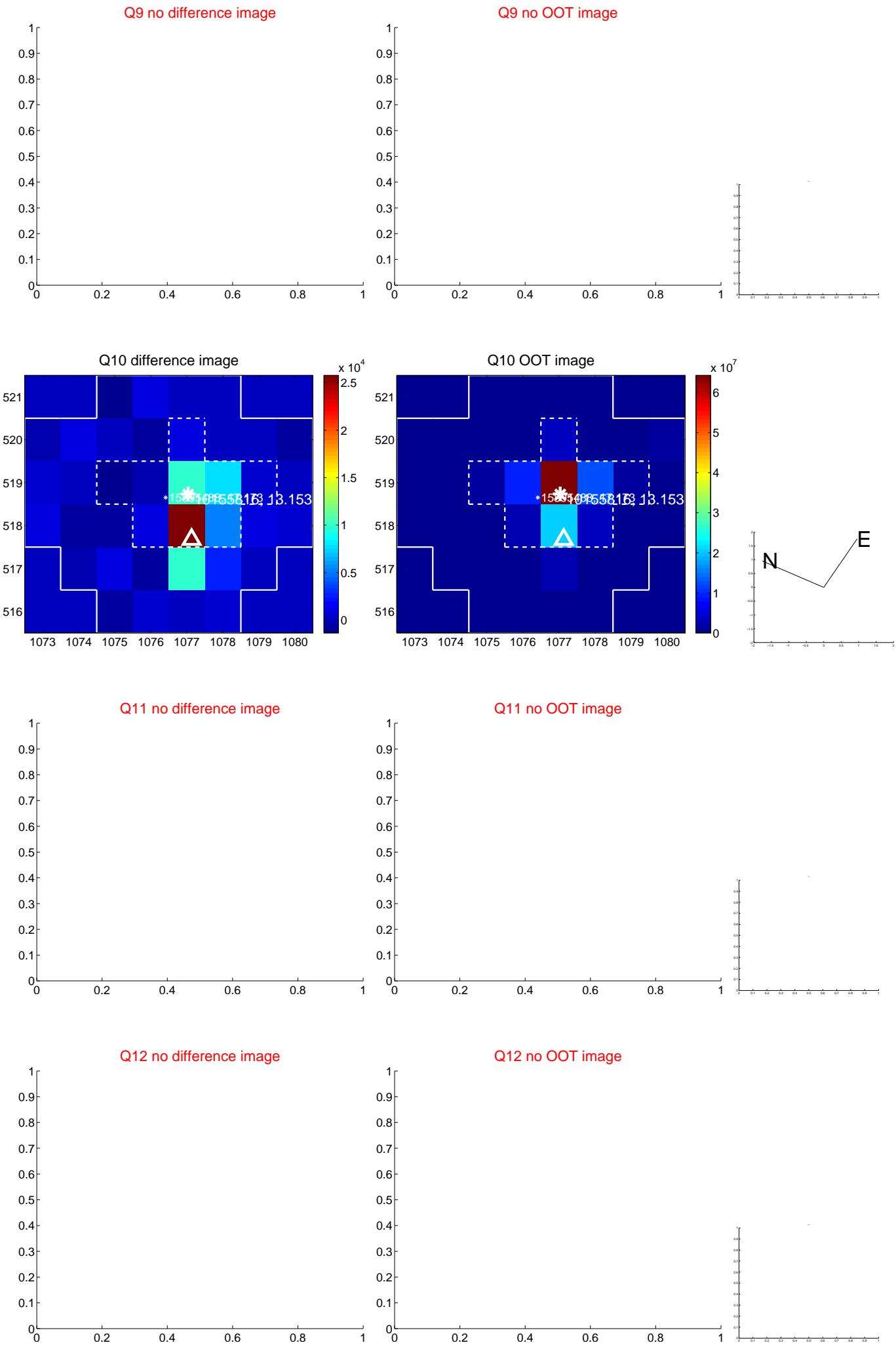
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



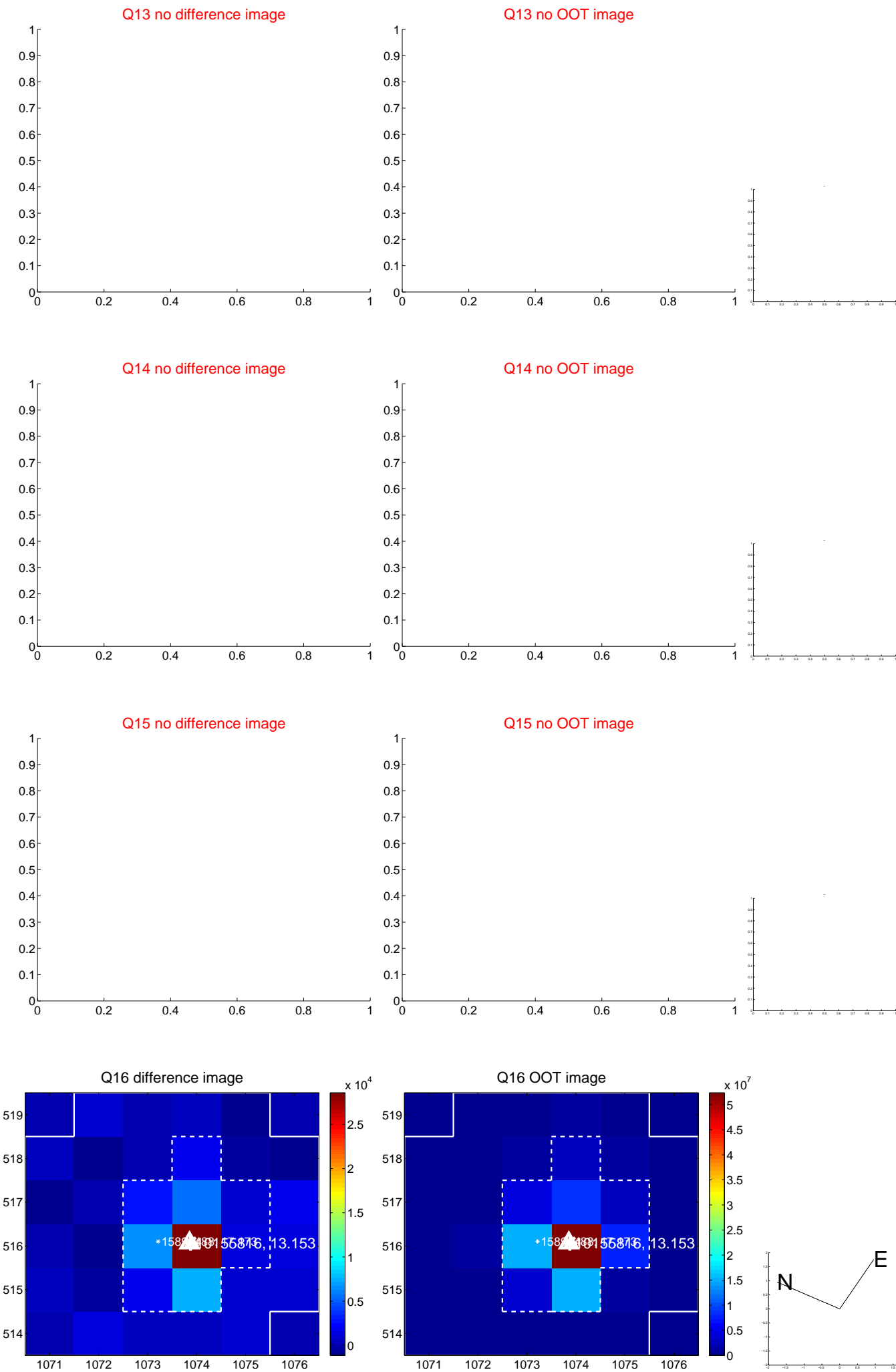
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



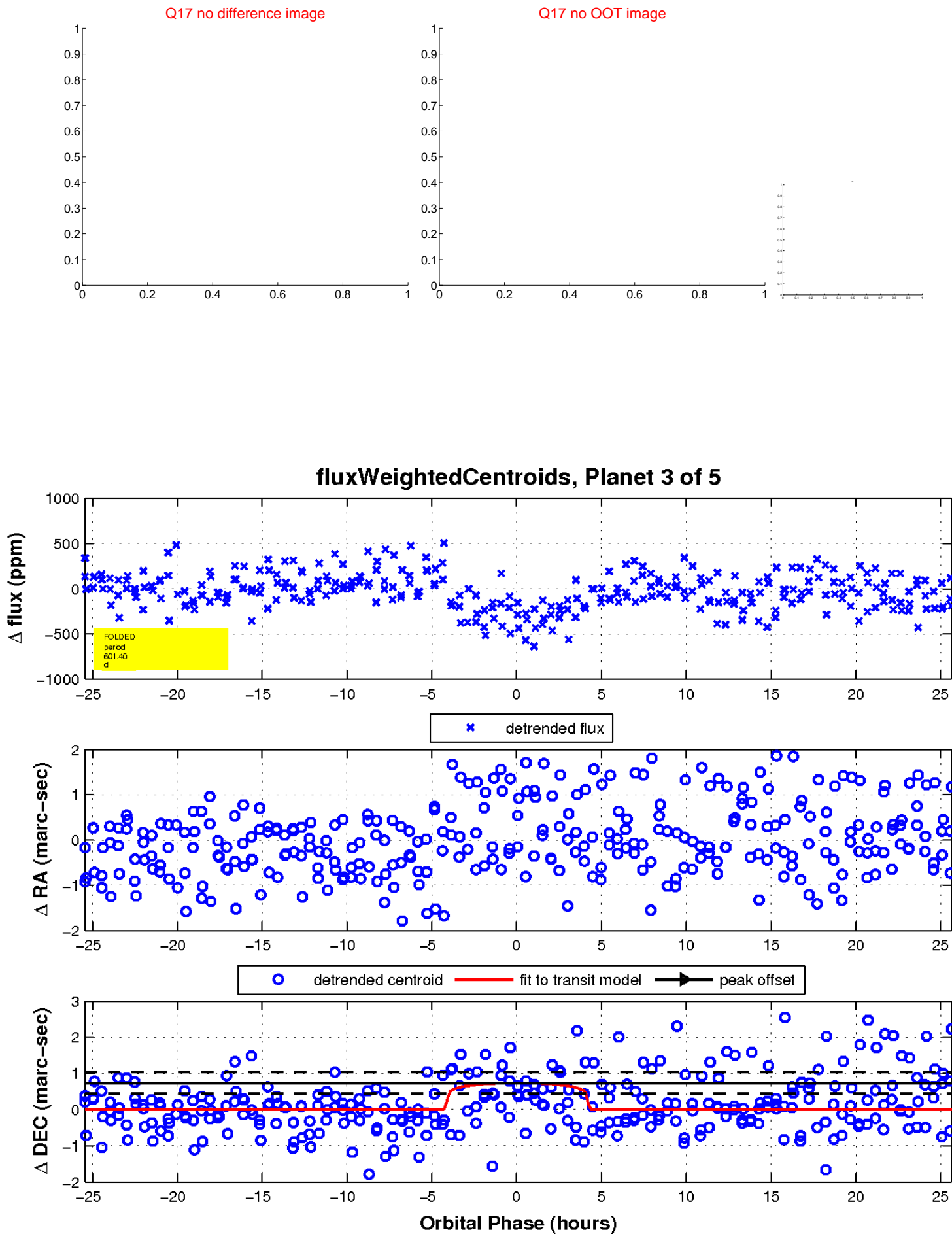
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

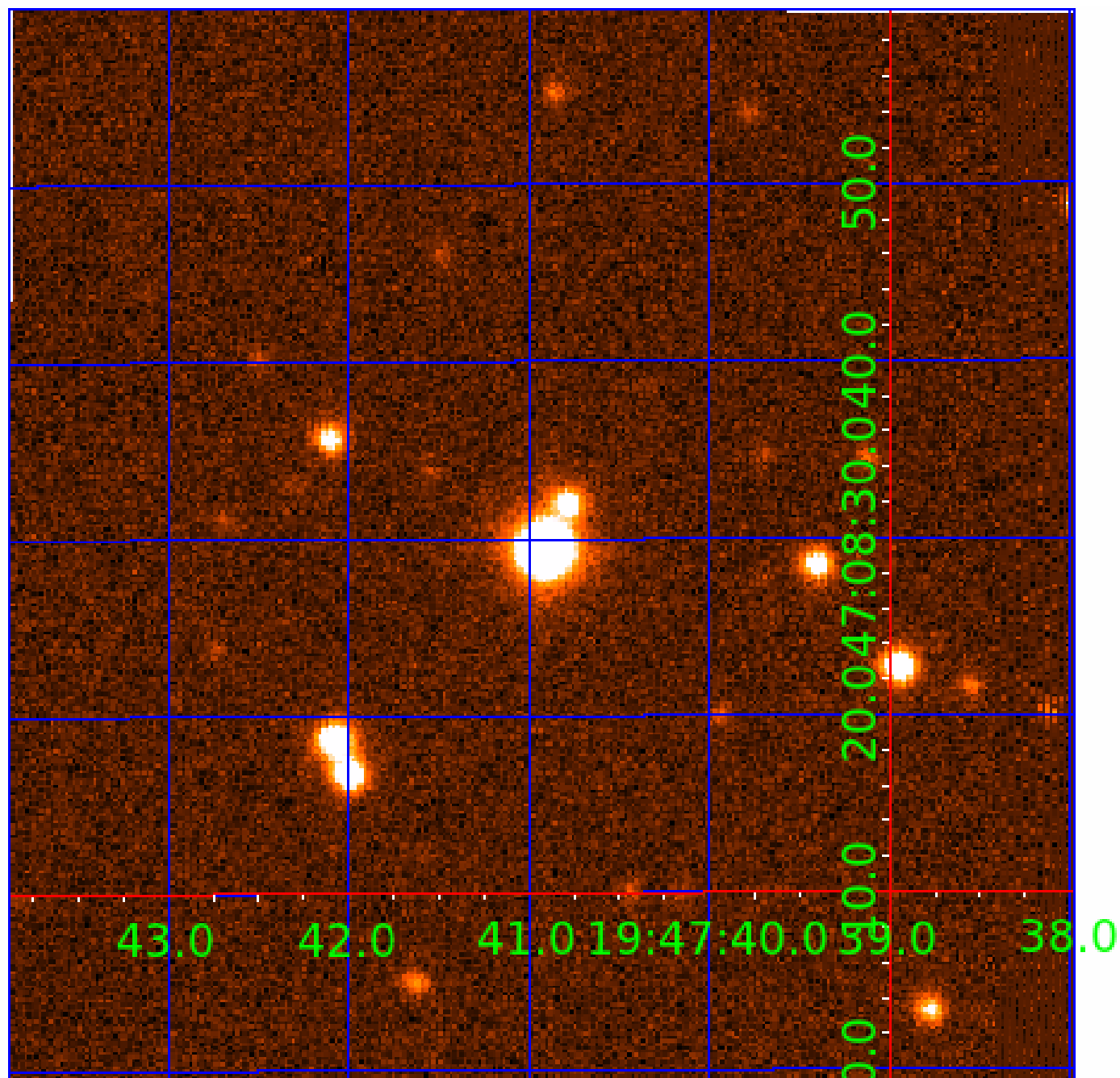


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010155816

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})
010155816-01	OBS	No	3.733362	135.355733	16.0	15.107	9.6	3.8	3.78	6714	1.76	8422.69
010155816-02	OBS	No	85.096618	149.536845	377.4	2.877	8.8	9.0	3.78	6714	9.07	130.33
010155816-03	OBS	No	601.400105	316.067504	317.4	8.560	8.6	8.5	3.78	6714	7.12	9.61
010155816-04	OBS	No	126.459032	235.491471	303.0	2.683	8.5	7.6	3.78	6714	7.14	76.85
010155816-05	OBS	No	0.746530	132.297229	36.1	8.958	9.8	12.4	3.78	6714	2.64	72031.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010155816-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
010155816-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
010155816-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010155816-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010155816-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

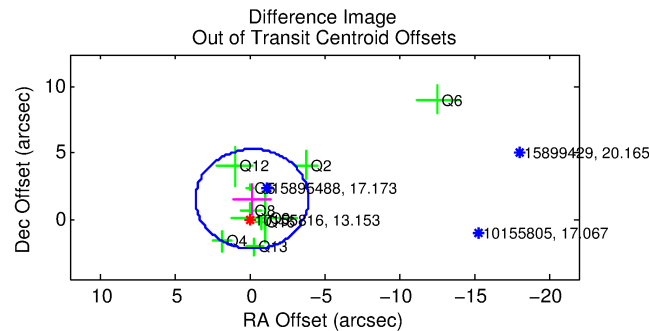
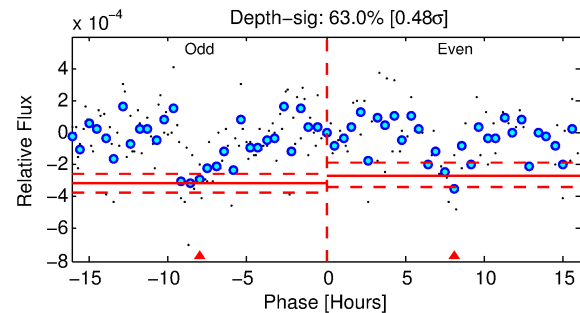
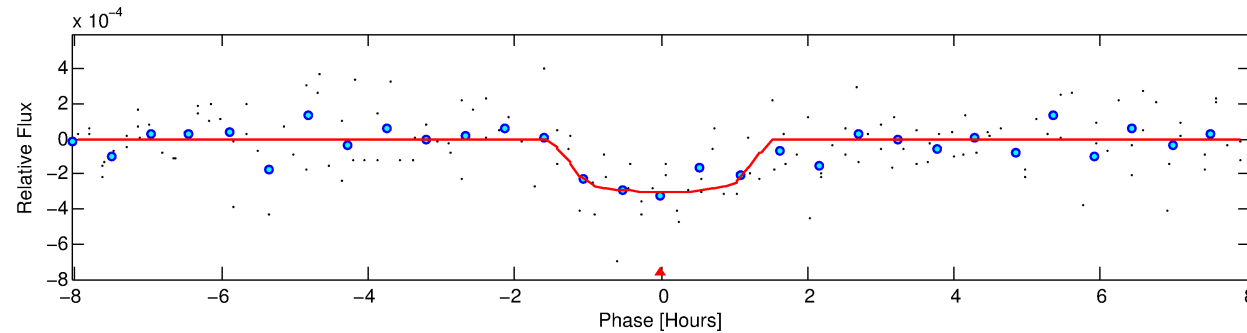
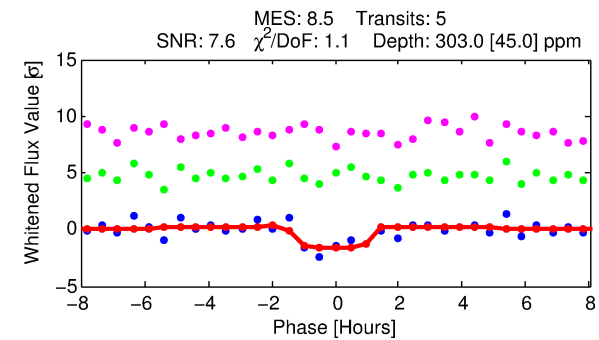
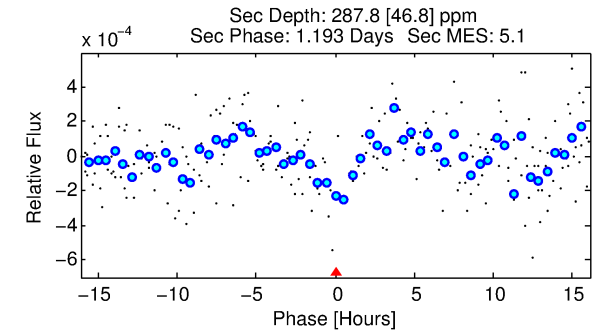
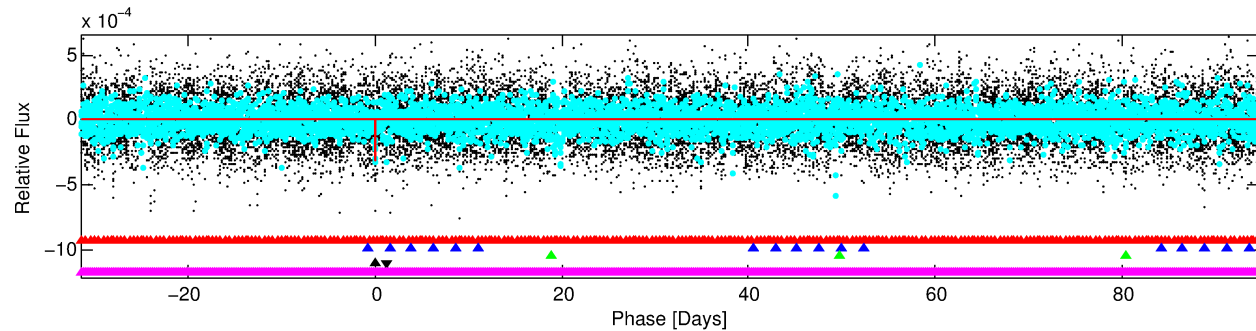
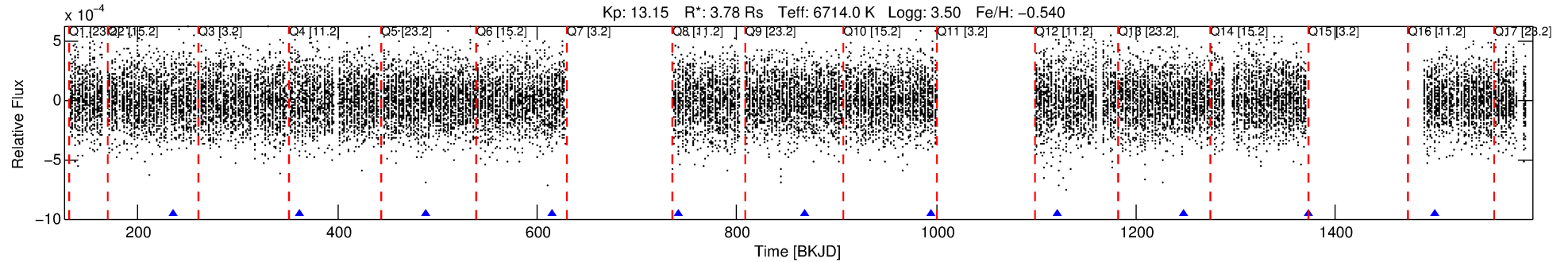
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010155816-04

No Significant Match Found

DV One-Page Summary

KIC: 10155816 Candidate: 4 of 5 Period: 126.459 d



DV Fit Results:

Period = 126.45903 [0.00141] d
Epoch = 235.4915 [0.0068] BKJD
Rp/R* = 0.0173 [0.0198]
a/R* = 248.84 [1630.45]
b = 0.75 [3.92]
Seff = 76.85 [50.51]
Teq = 755 [124] K
Rp = 7.14 [8.75] Re
a = 0.5813 [0.2399] AU
Ag = 1050.83 [2503.69] [0.42 sigma]
Teffp = 6646 [3814] K [1.54 sigma]

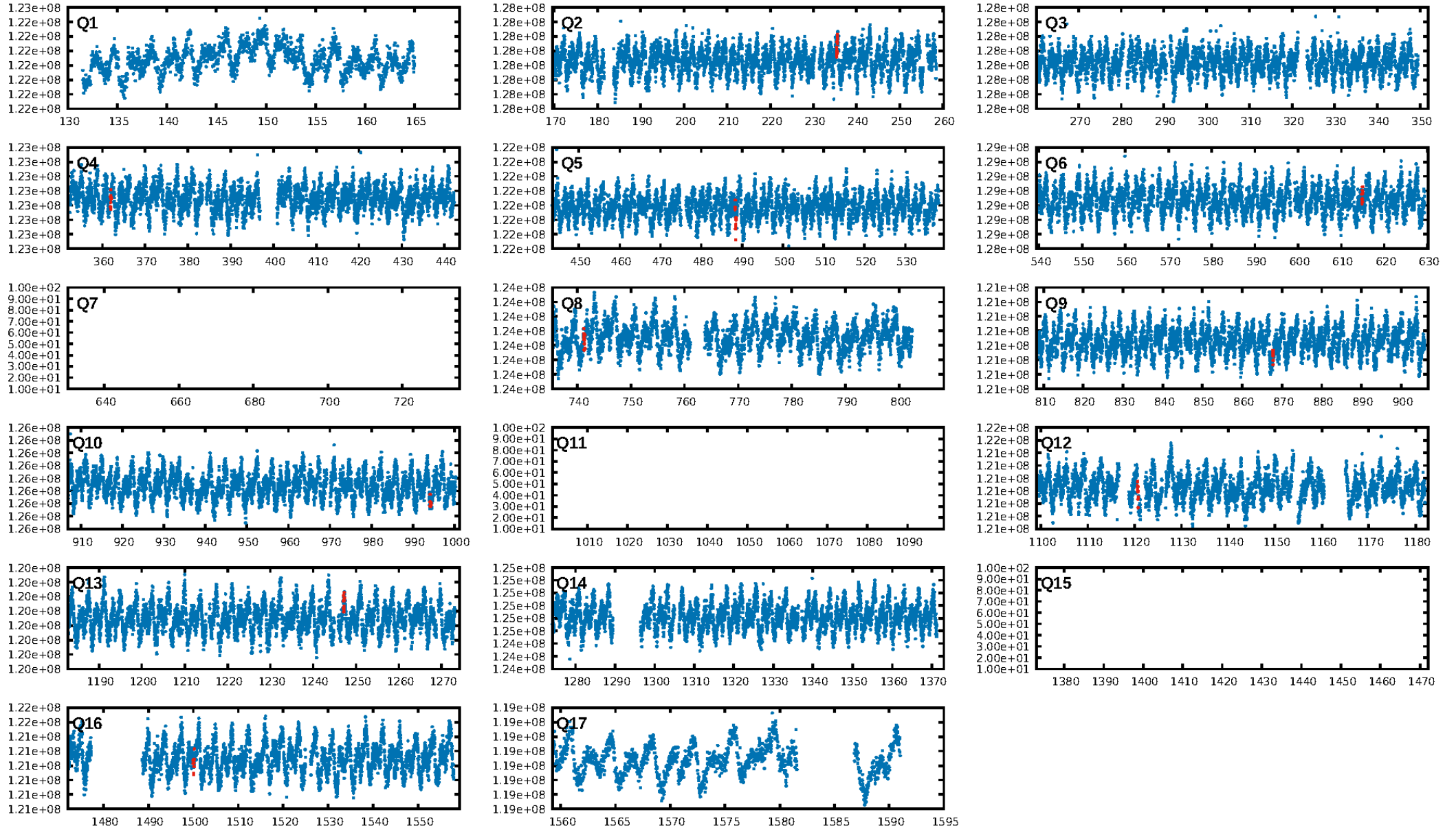
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [252.37 sigma]
LongPeriod-sig: 100.0% [1270.70 sigma]
ModelChiSquare2-sig: 53.8%
ModelChiSquareGof-sig: 91.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.744
Centroid-sig: N/A
Centroid-so: 1.681 arcsec [2.25 sigma]
OotOffset-rm: 1.559 arcsec [1.24 sigma]
OotOffset-st: 2/0/4/3 [9]
KicOffset-rm: 1.547 arcsec [1.19 sigma]
KicOffset-st: 2/0/4/3 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 0.00 [0/10]

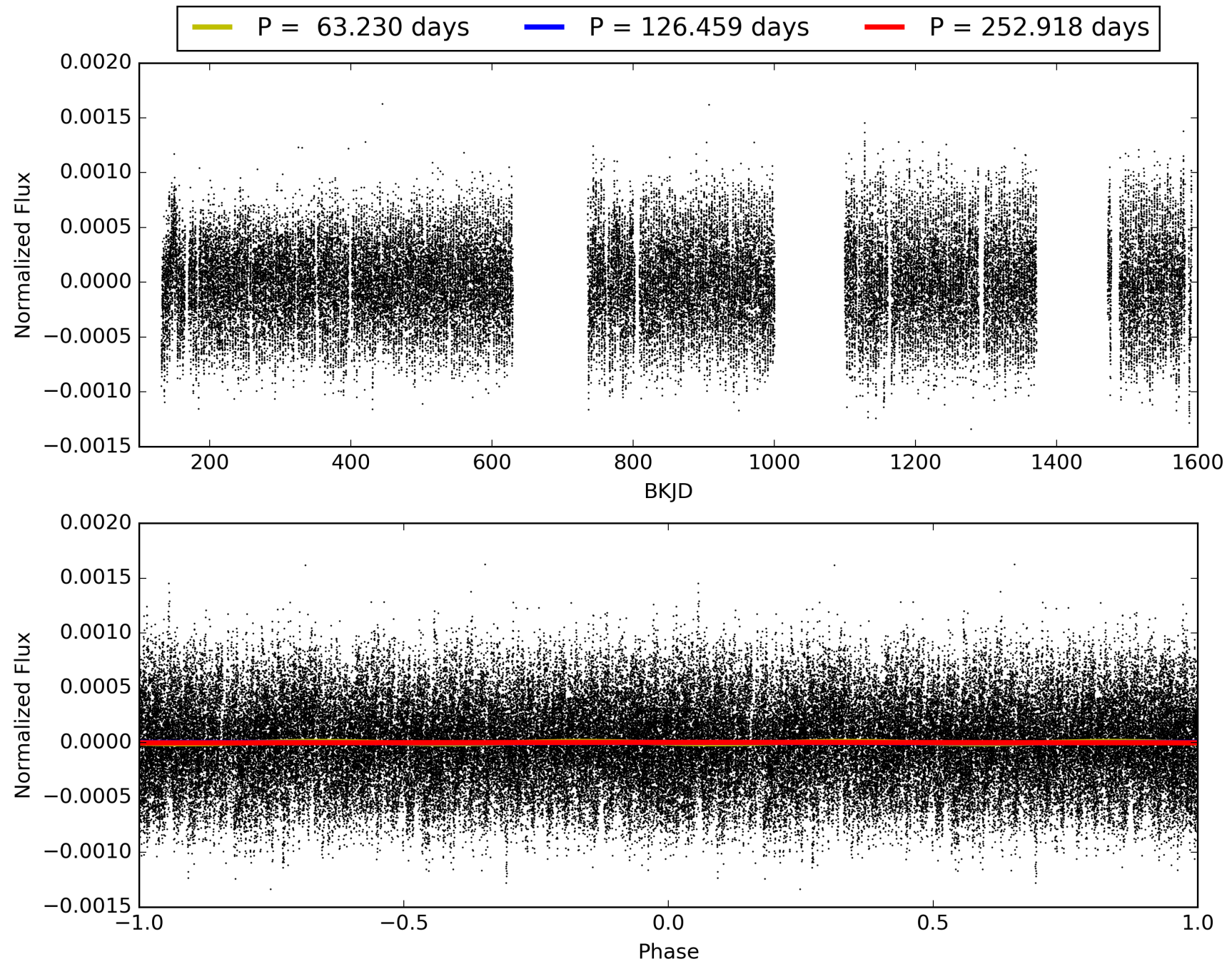
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:39:35 Z

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

TCE 010155816-04, PDC Light Curves

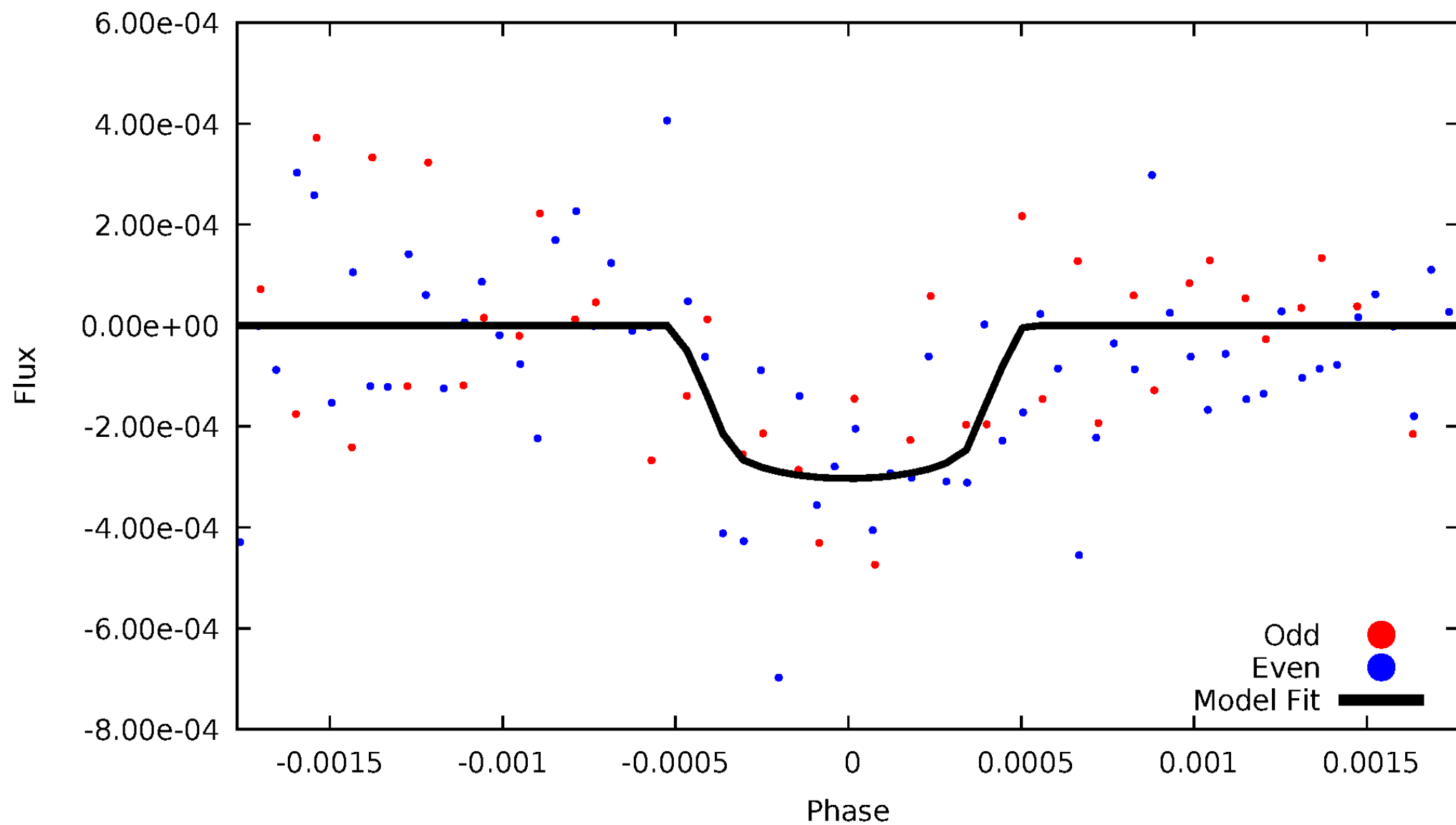


TCE 010155816-04



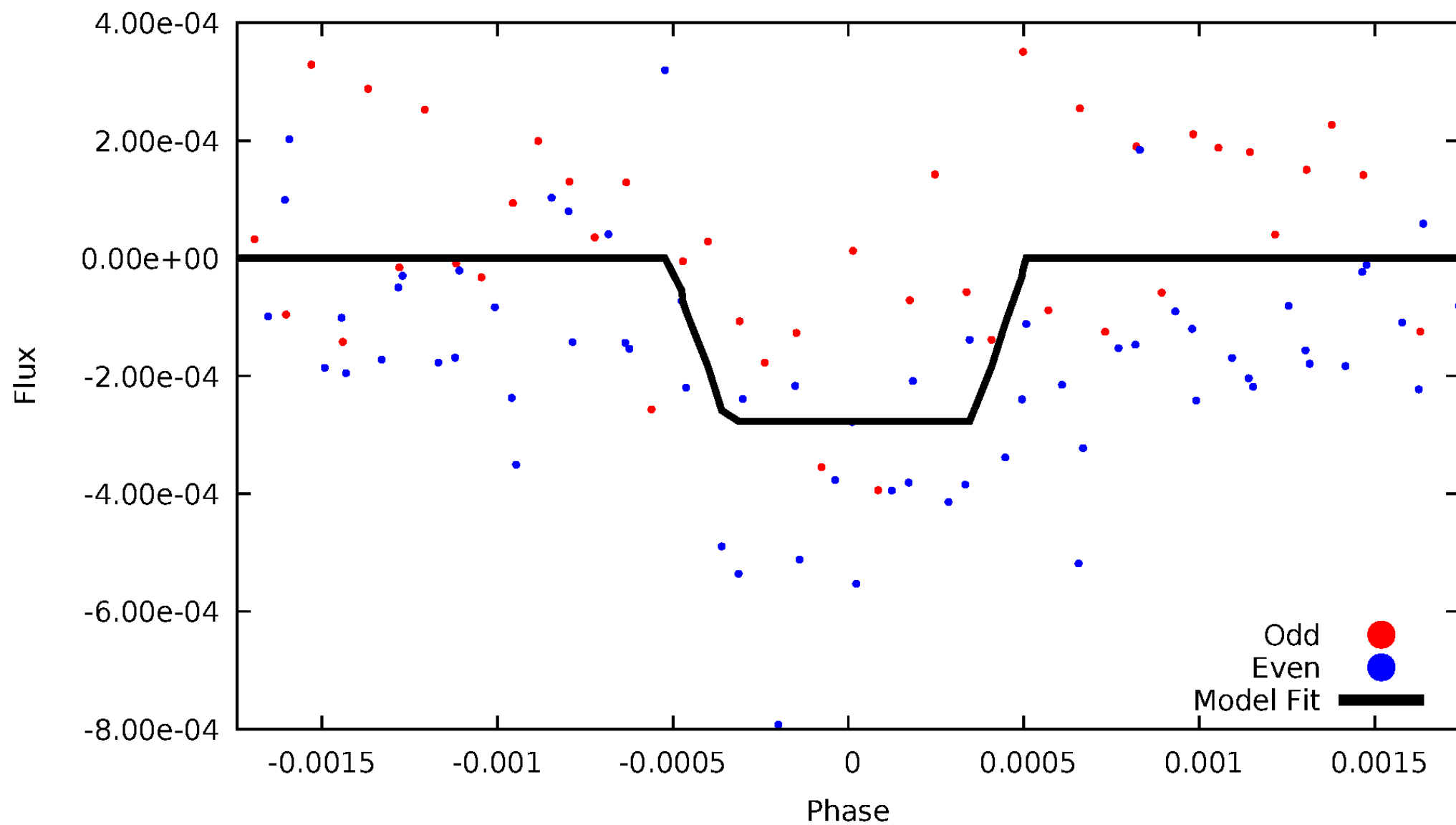
DV Odd/Even

TCE 010155816-04



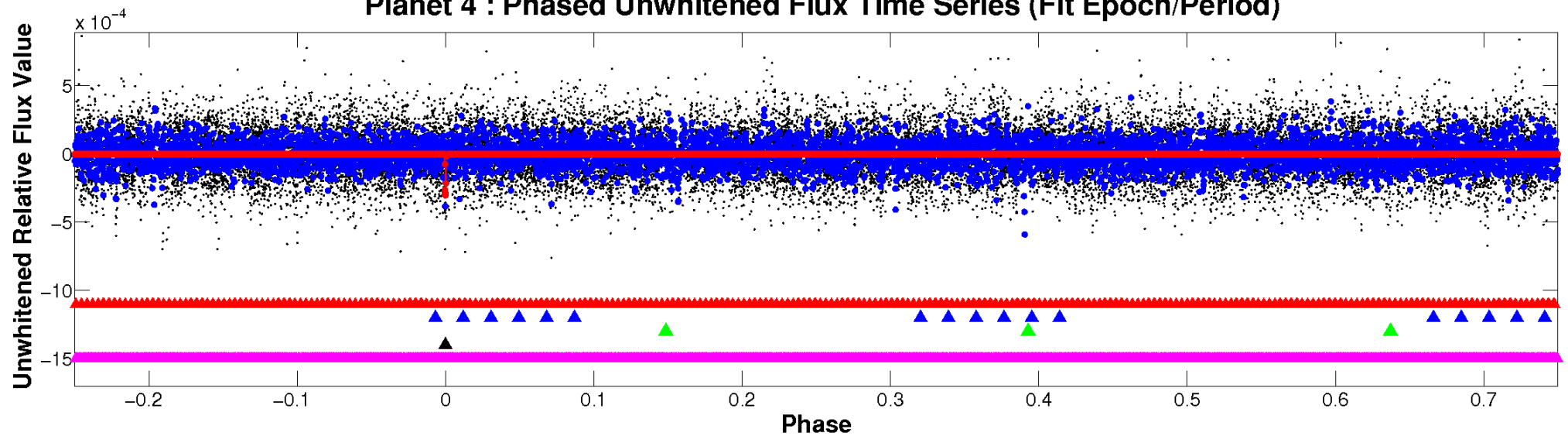
ALT Odd/Even

TCE 010155816-04

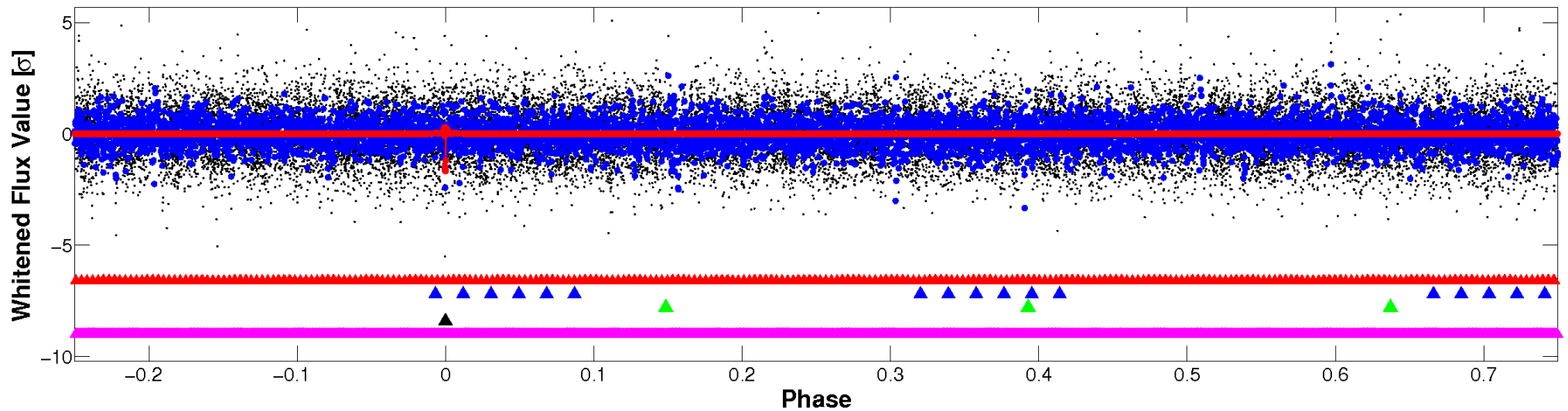


Non-Whitened Vs. Whitened Light Curve

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

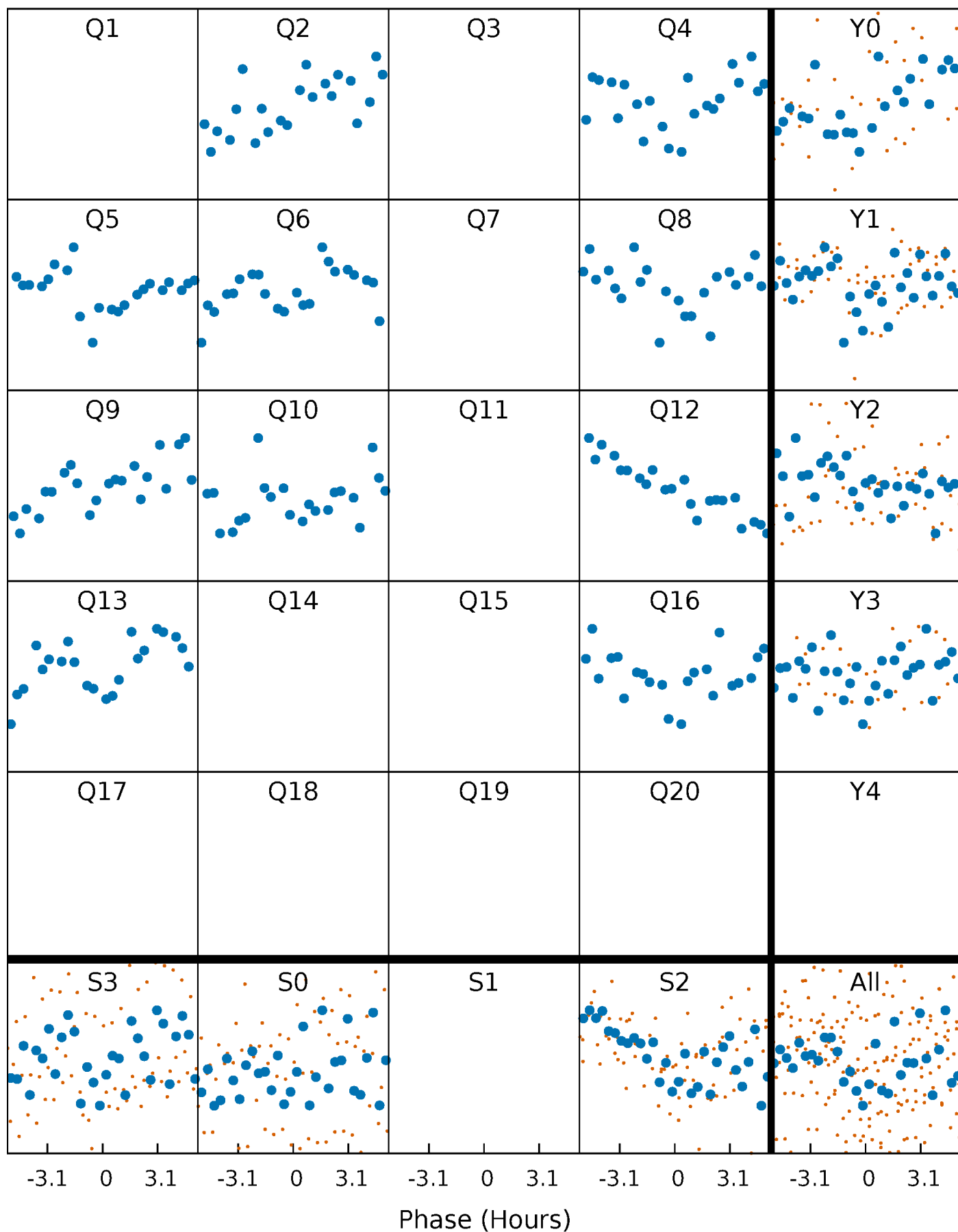


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



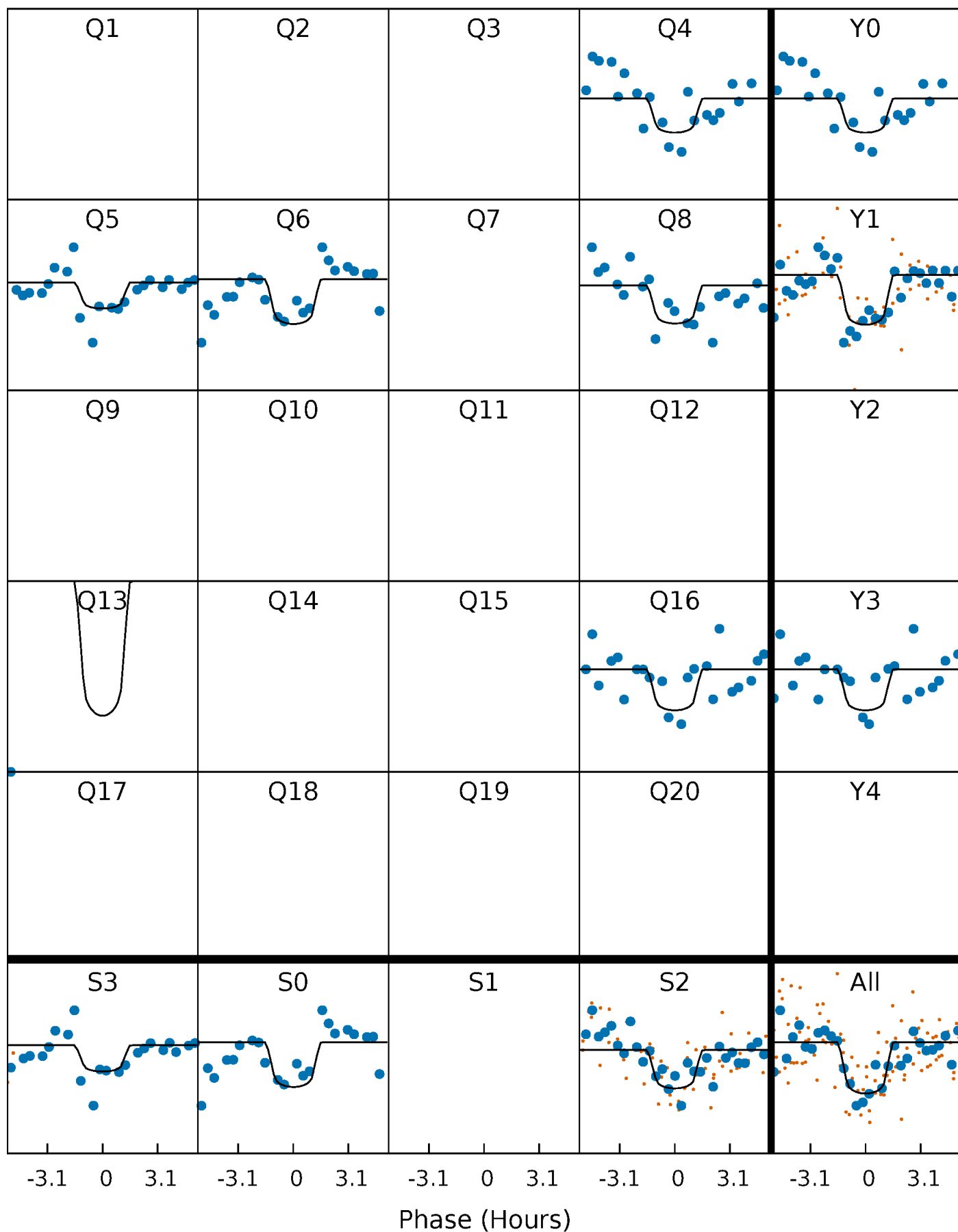
PDC Quarter-Phased Transit Curves

TCE 010155816-04 P=126.459032 Days $T_0=235.491471$ (BKJD)



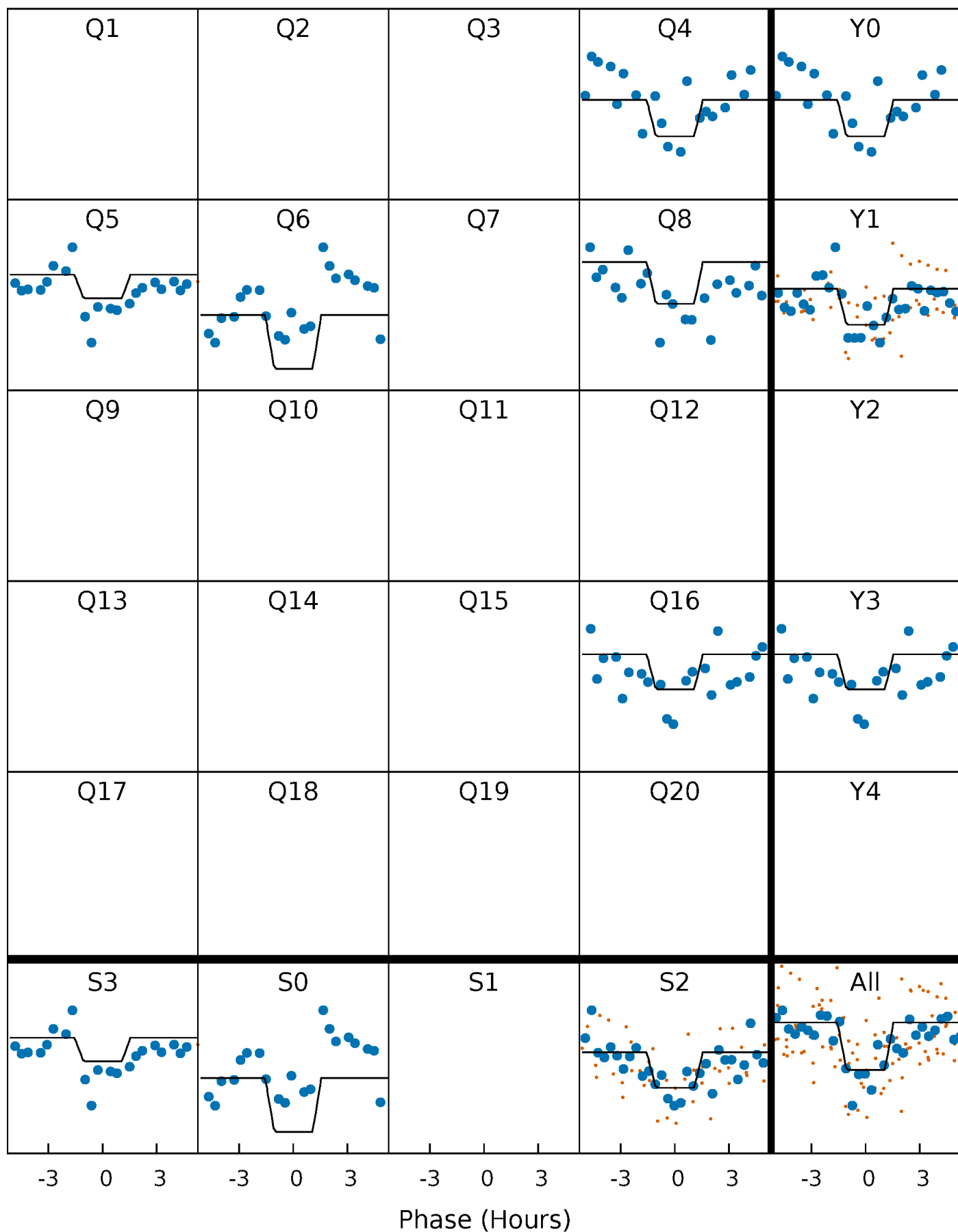
DV Quarter-Phased Transit Curves

TCE 010155816-04 P=126.459032 Days $T_0=235.491471$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

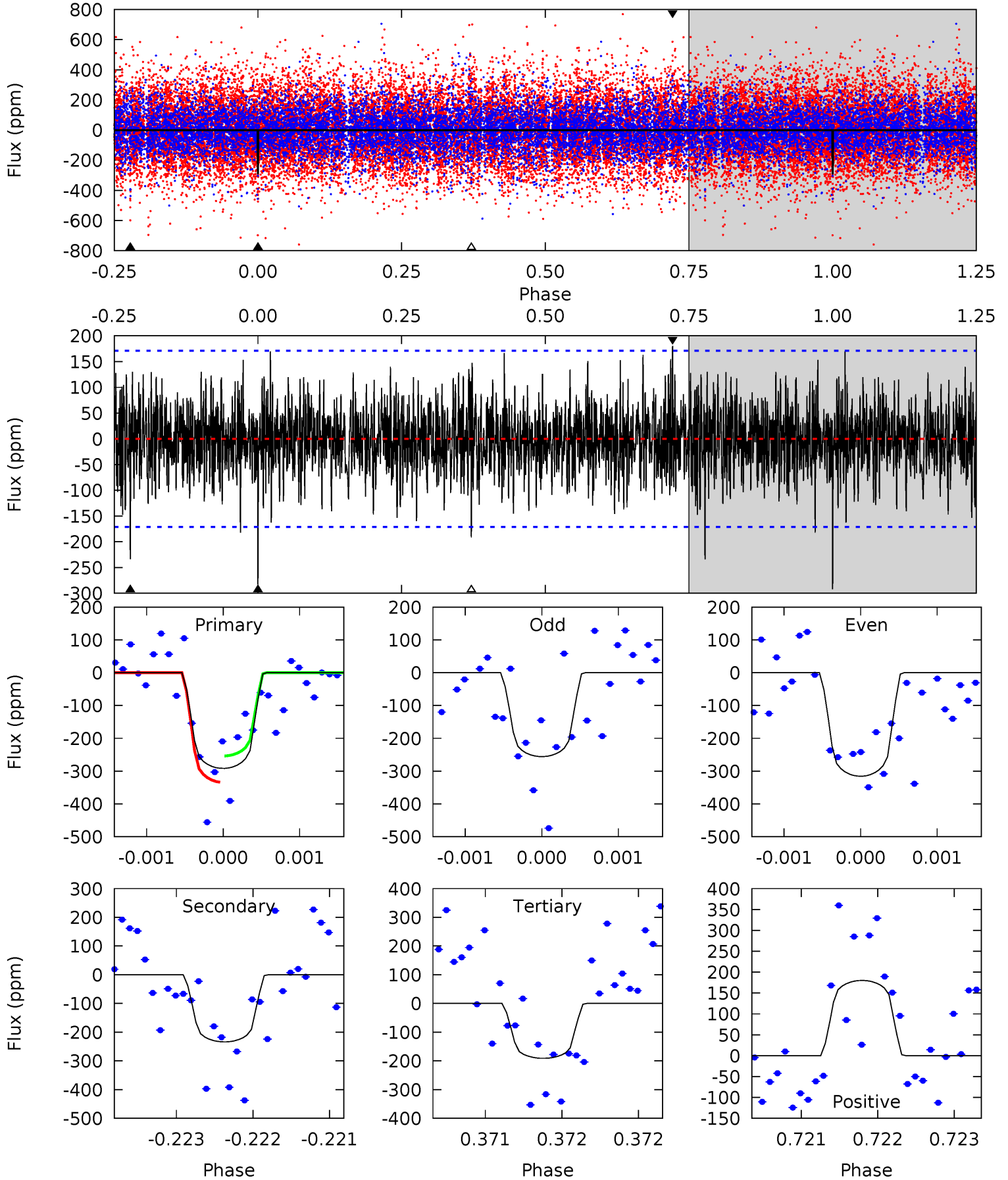
TCE 010155816-04 P=126.459824 Days $T_0=235.489639$ (BKJD)



DV Model-Shift Uniqueness Test

010155816-04, P = 126.459032 Days, E = 109.032439 Days

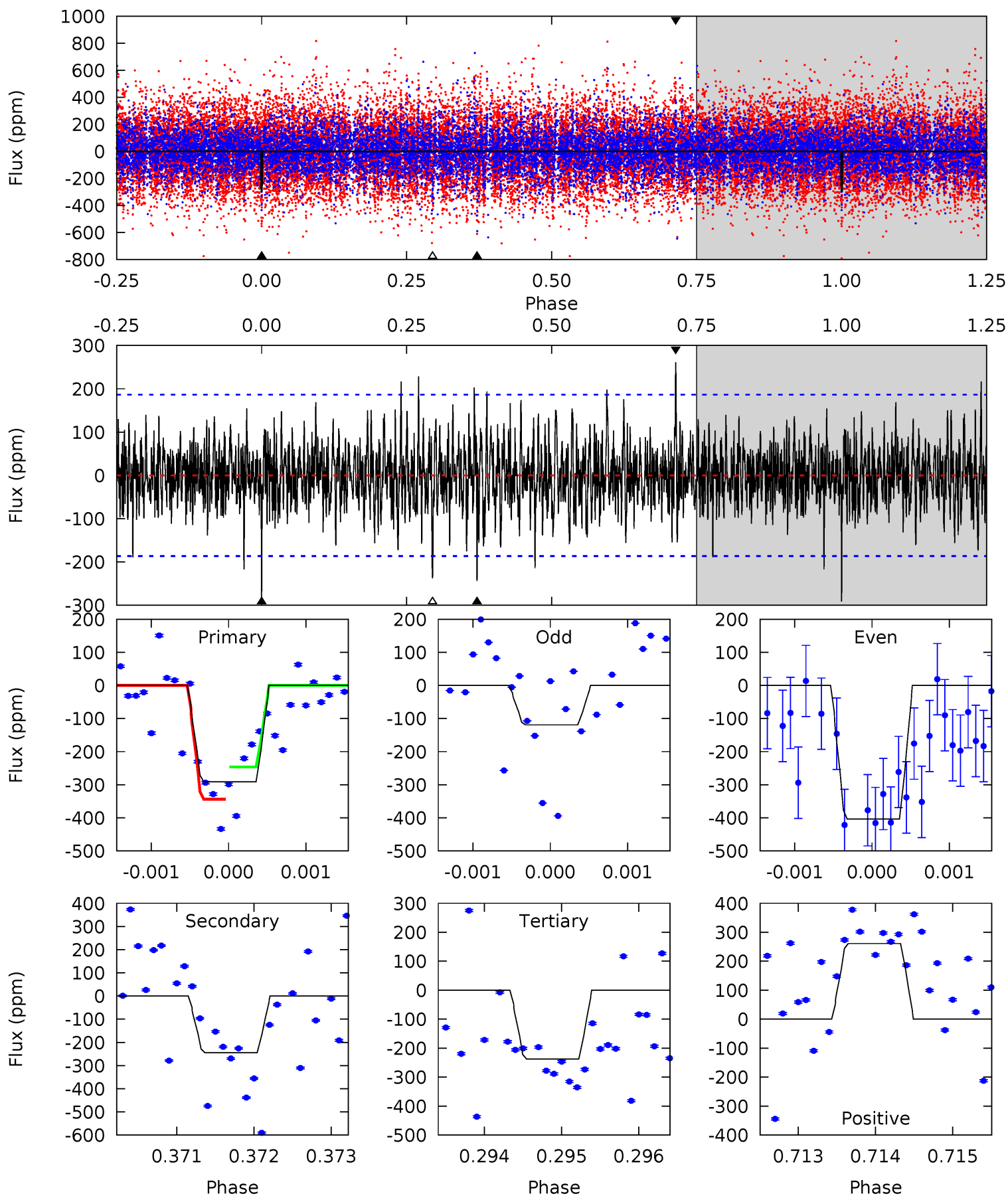
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.30	7.46	6.09	5.74	5.46	3.30	1.66	3.21	3.56	1.37	1.72	0.94	1.07	0.38	1.27



Alt Model-Shift Uniqueness Test

010155816-04, P = 126.459824 Days, E = 109.029815 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.51	7.14	6.94	7.64	5.46	3.30	1.74	1.57	0.87	0.20	-0.50	4.06	0.86	0.47	1.43



Stellar Parameters For KIC 010155816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6714^{+182}_{-182}	$3.498^{+0.376}_{-0.094}$	$-0.540^{+0.400}_{-0.300}$	$3.777^{+0.522}_{-1.671}$	$1.635^{+0.229}_{-0.425}$	$0.043^{+0.136}_{-0.013}$
	+3%/-3%	+11%/-3%	+74%/-56%	+14%/-44%	+14%/-26%	+318%/-30%
Source	PHO1	FLK73	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 010155816-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-234 ± 31	$8.29^{+6.94}_{-5.33}$	1033^{+62}_{-111}	5515^{+4667}_{-1146}	639^{+4201}_{-458}
Alt.	-244 ± 34	$8.14^{+7.18}_{-5.23}$	1036^{+60}_{-106}	5723^{+4330}_{-1300}	679^{+4408}_{-482}

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 $A_{obs} \gg 1.0$

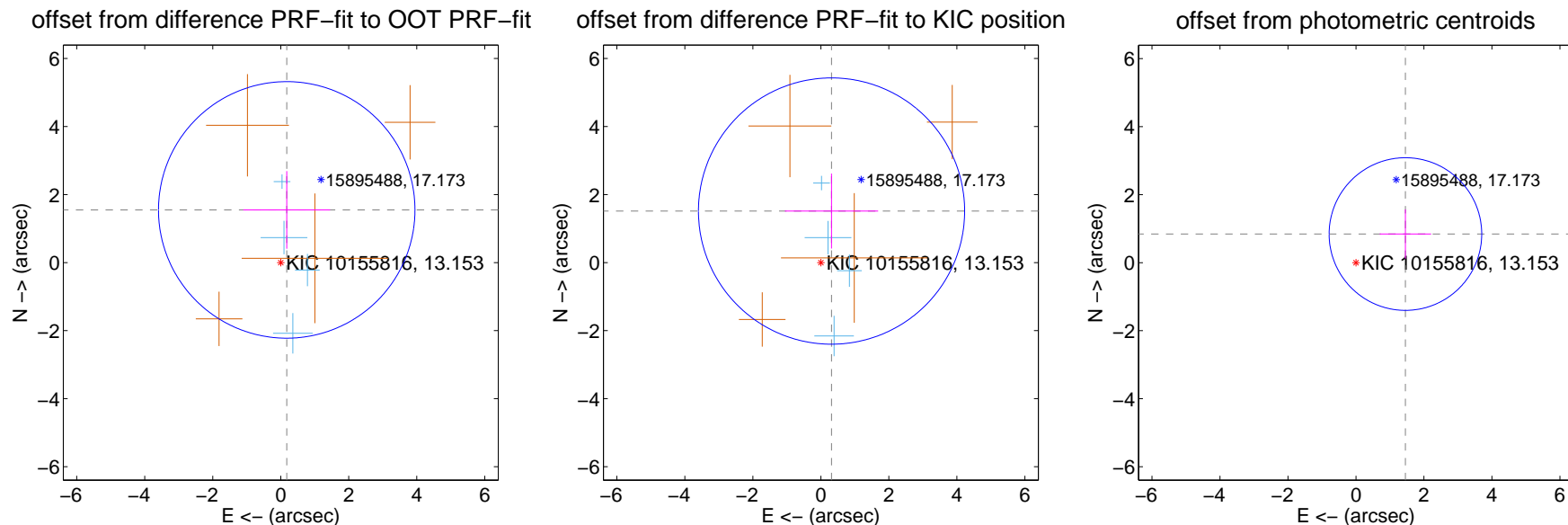
DV Centroid Data

Supplemental centroid analysis for 010155816-04. Kepler magnitude: 13.15. Transit SNR 7.63

There are 4 quarters with good PRF difference image offsets

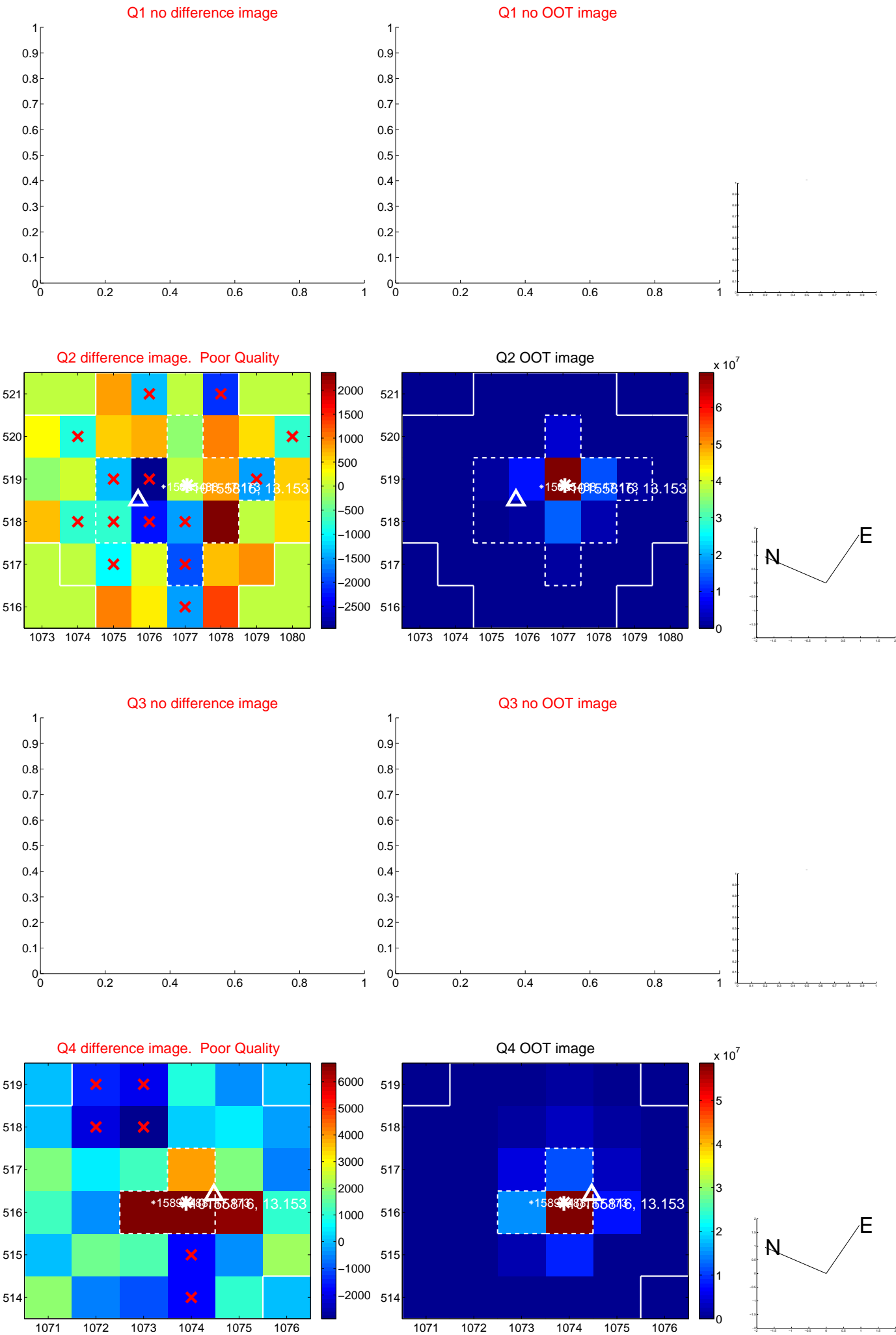
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.559 ± 1.257	1.24	-0.176 ± 1.277	1.549 ± 1.142
PRF-fit source offset from KIC position	1.547 ± 1.305	1.19	-0.314 ± 1.371	1.515 ± 1.102
photometric centroid source offset	1.68 ± 0.75	2.25	-1.46 ± 0.76	0.84 ± 0.72

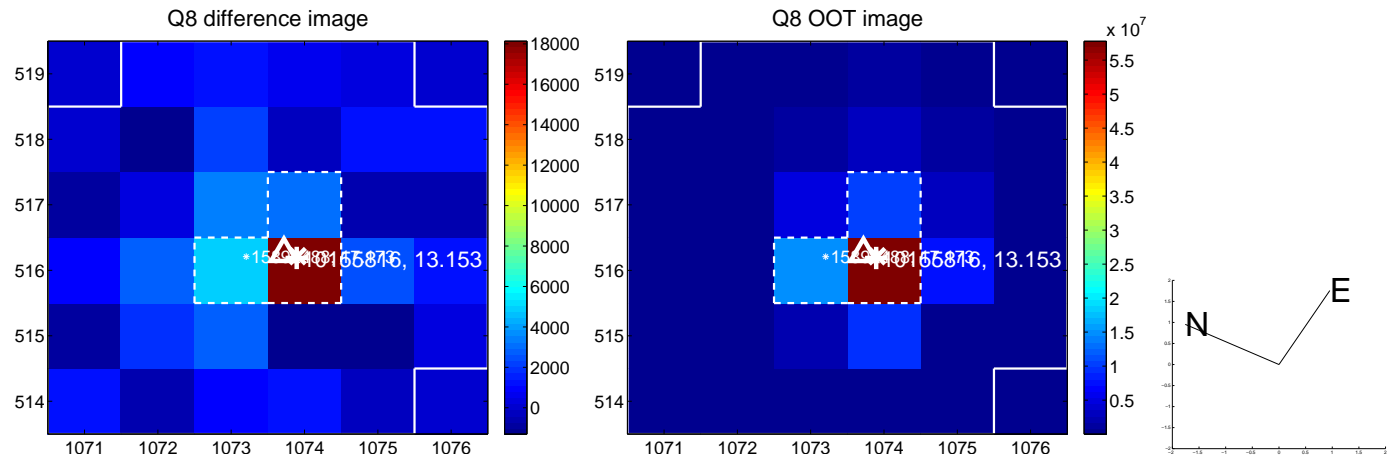
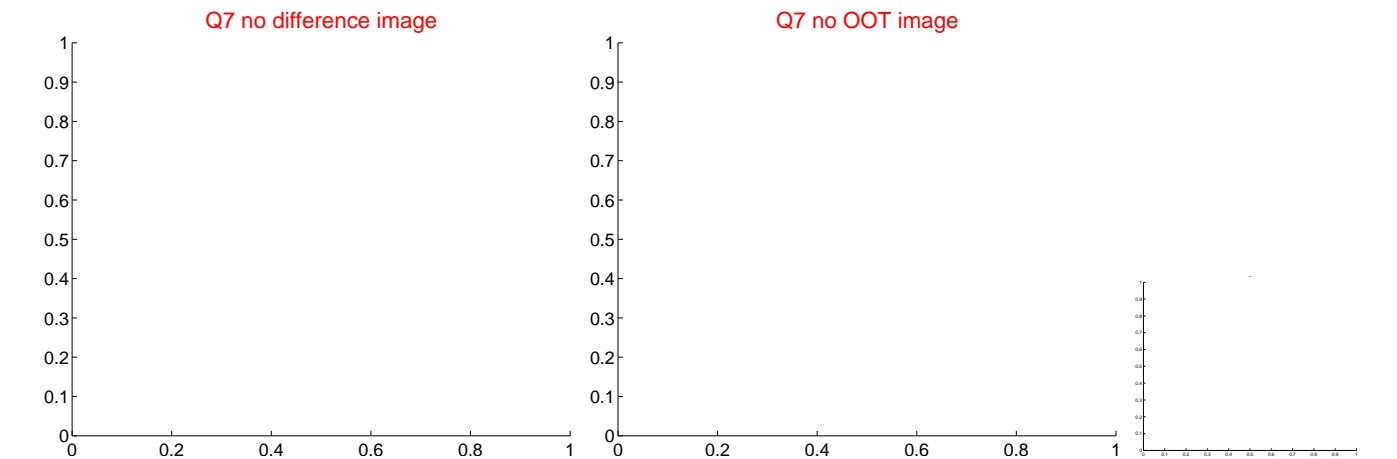
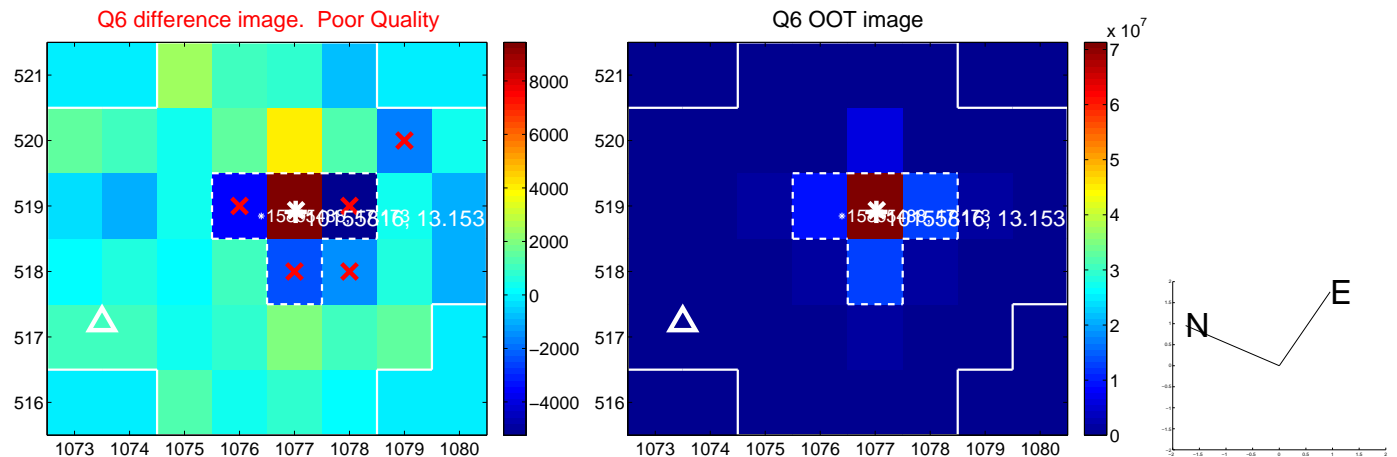
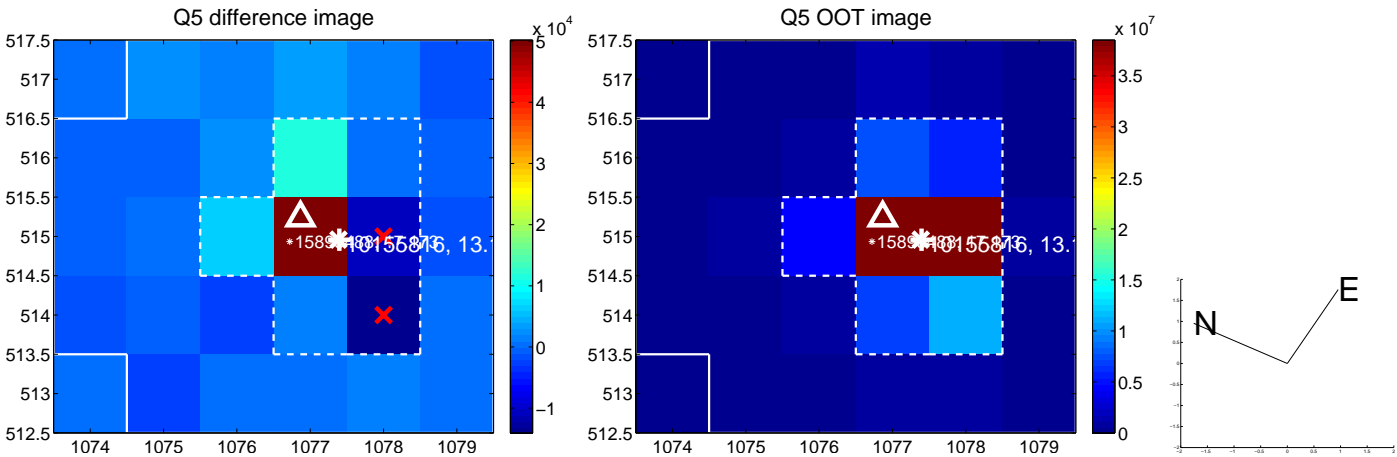


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

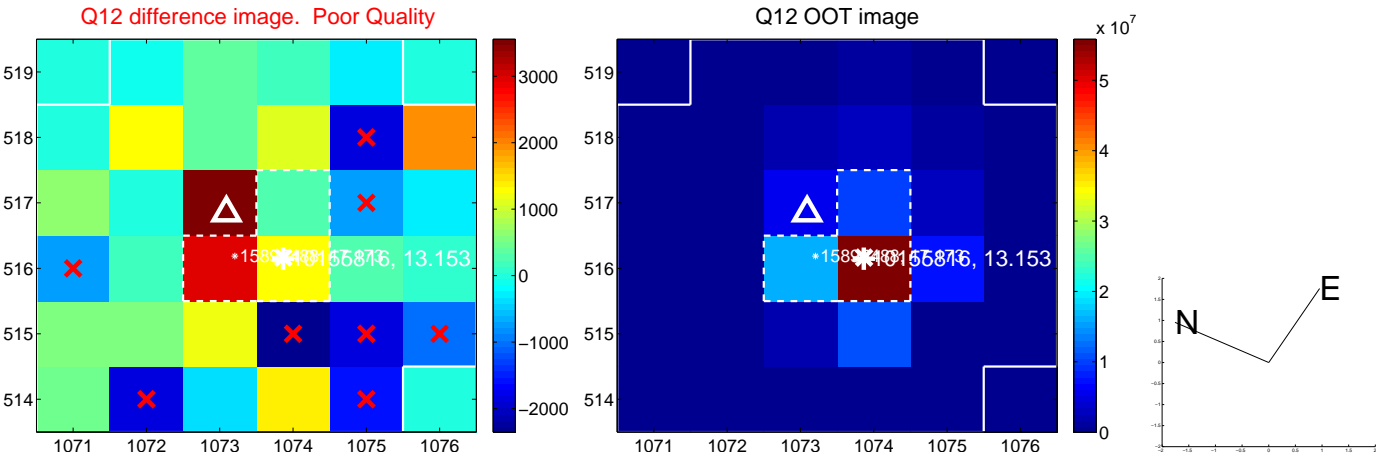
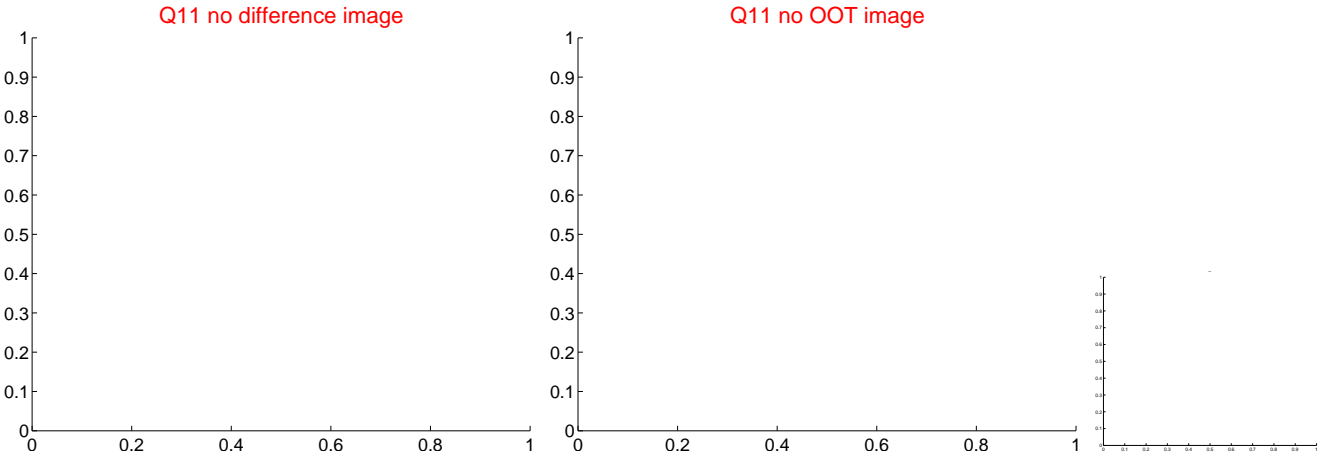
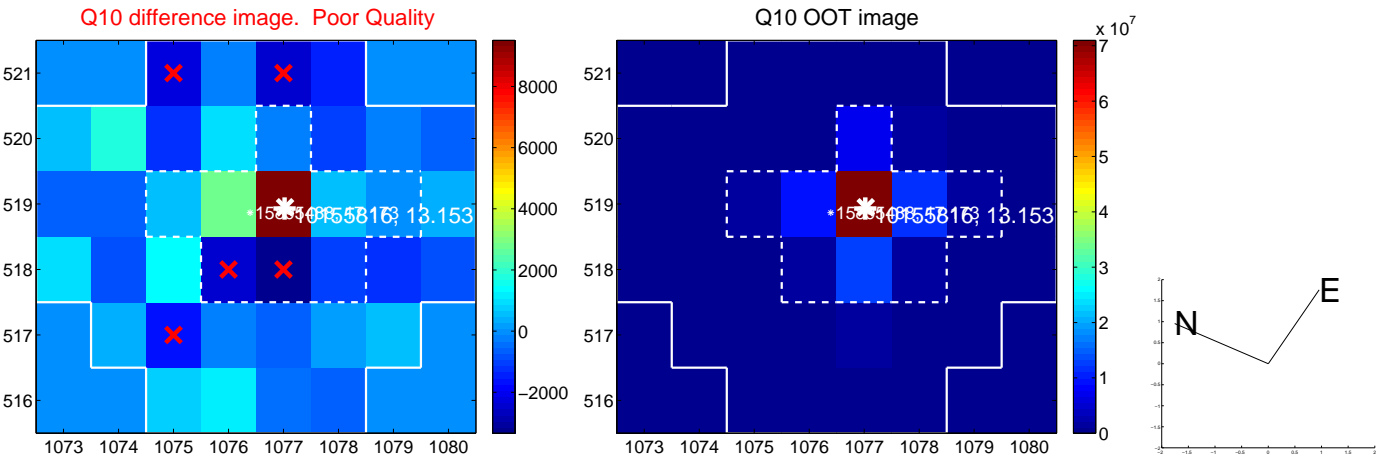
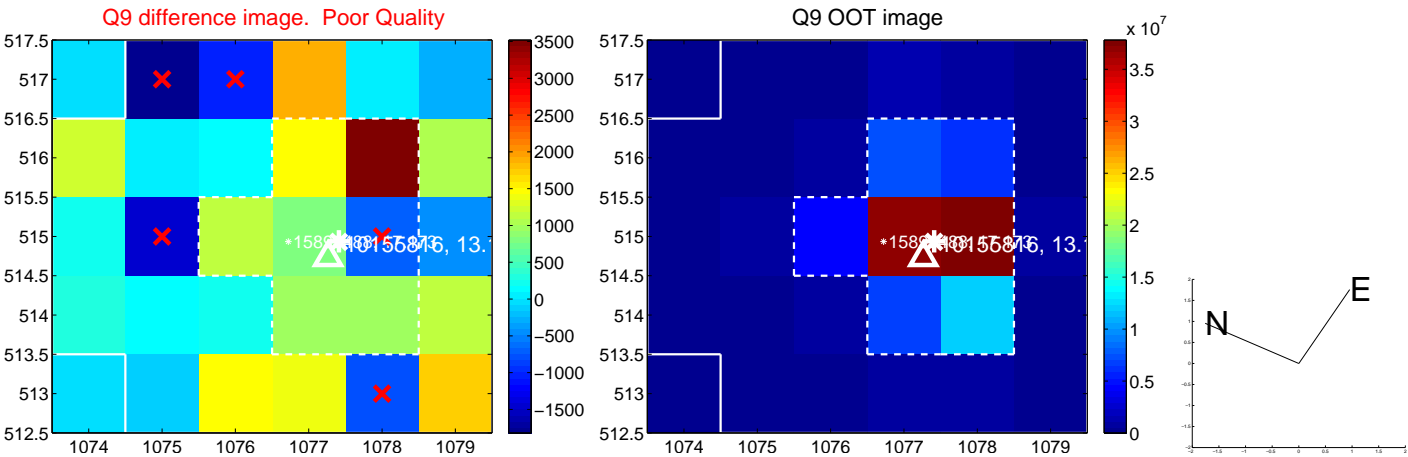
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



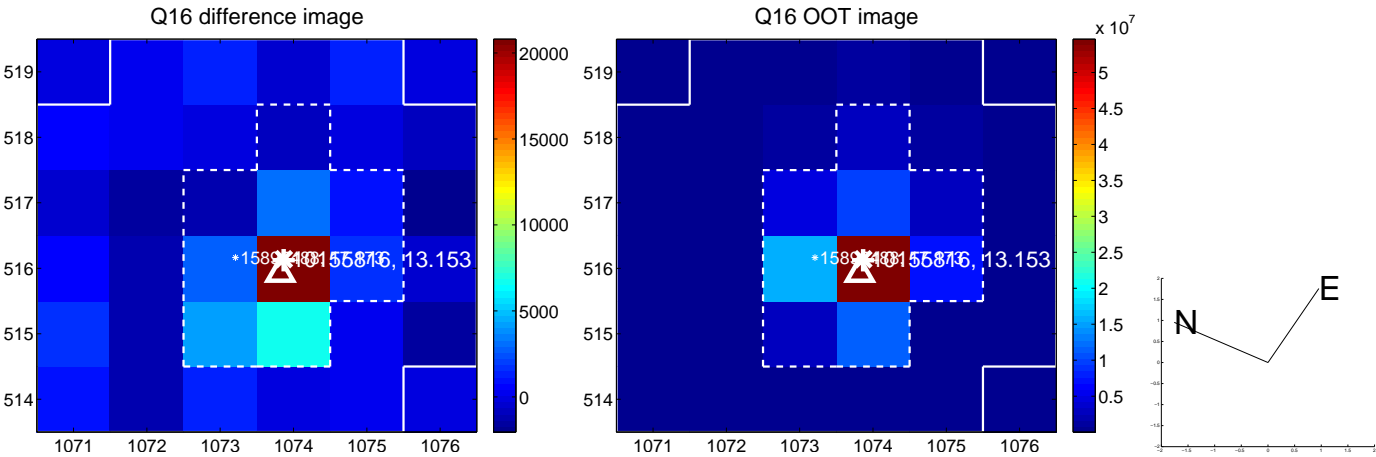
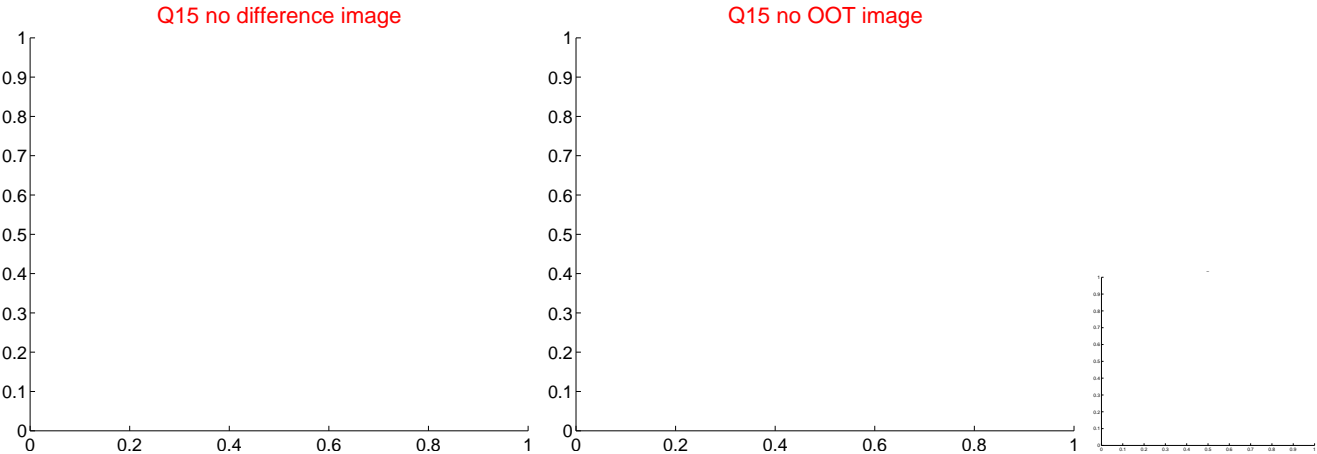
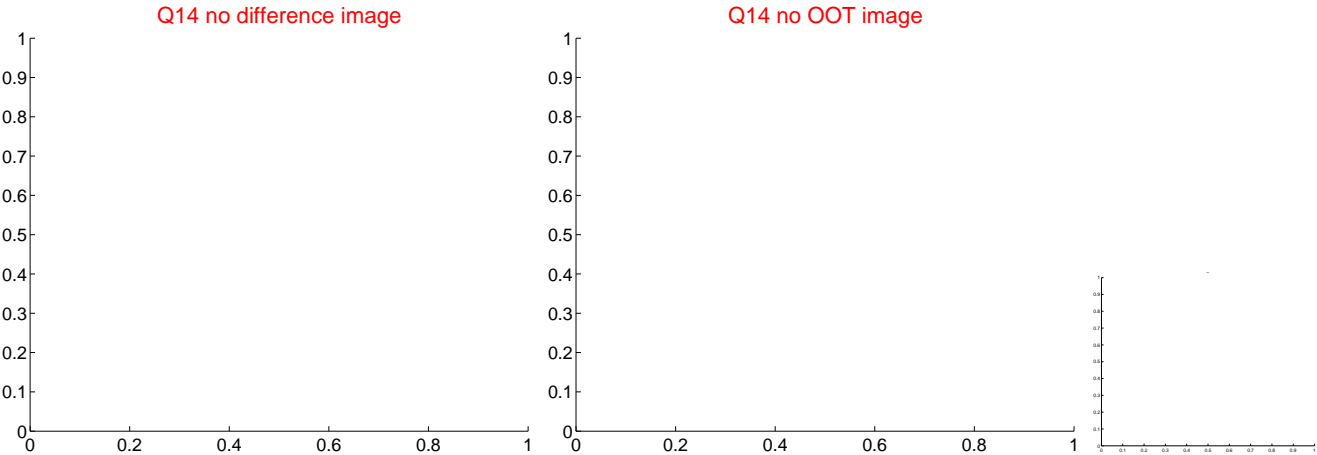
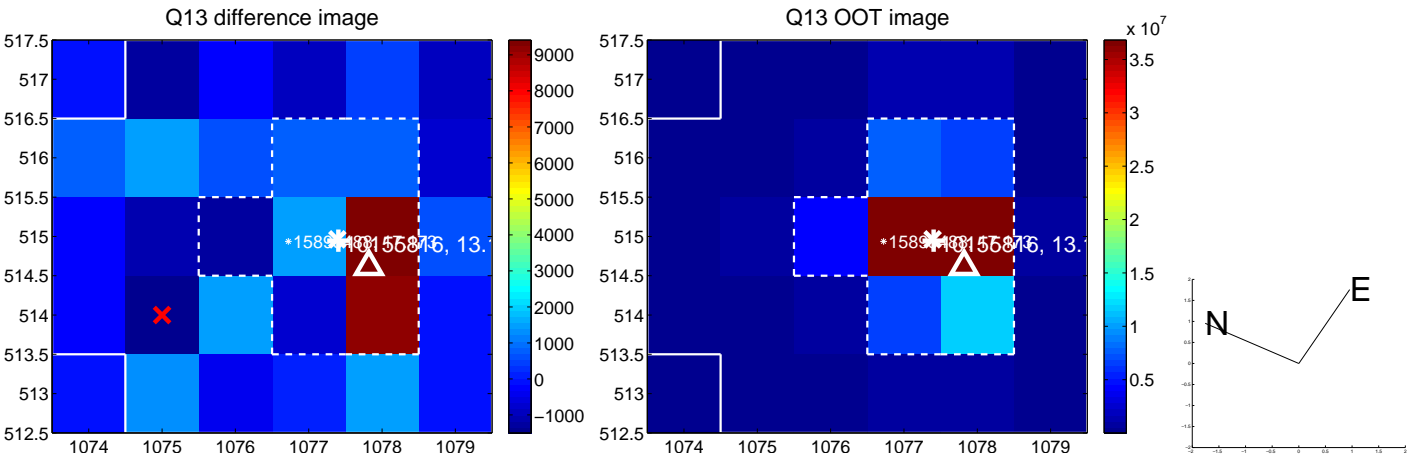
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



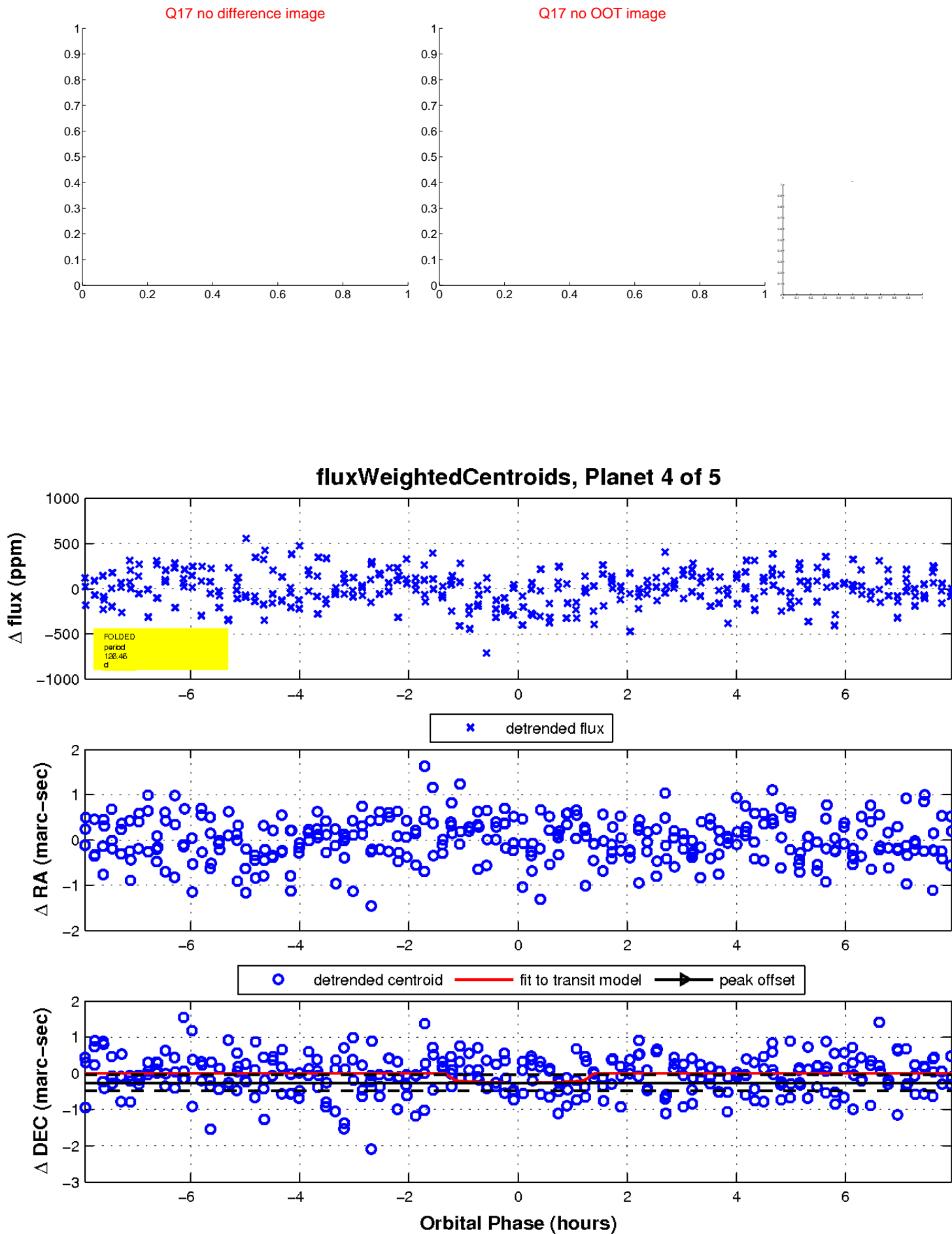
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

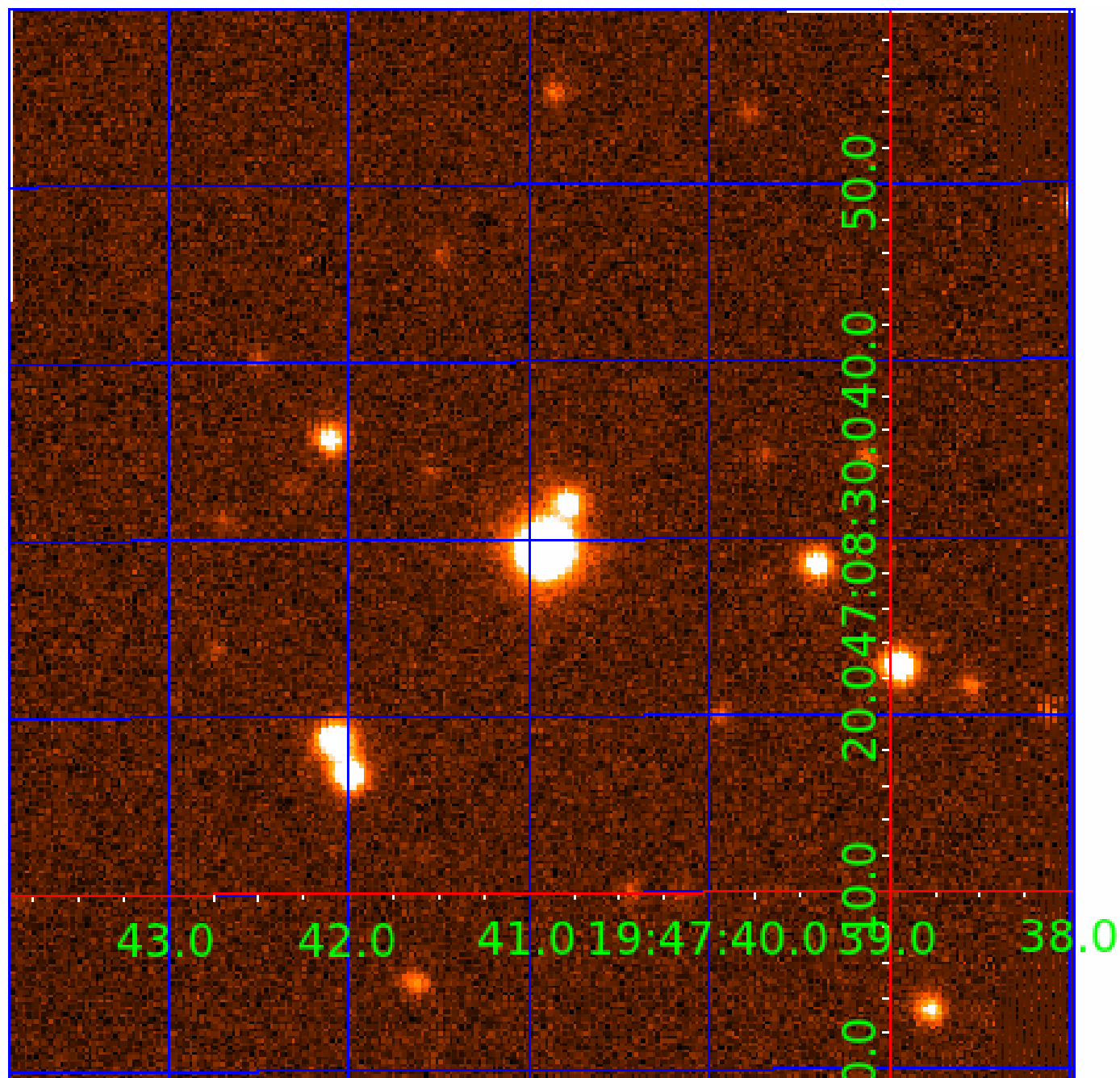


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010155816

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})
010155816-01	OBS	No	3.733362	135.355733	16.0	15.107	9.6	3.8	3.78	6714	1.76	8422.69
010155816-02	OBS	No	85.096618	149.536845	377.4	2.877	8.8	9.0	3.78	6714	9.07	130.33
010155816-03	OBS	No	601.400105	316.067504	317.4	8.560	8.6	8.5	3.78	6714	7.12	9.61
010155816-04	OBS	No	126.459032	235.491471	303.0	2.683	8.5	7.6	3.78	6714	7.14	76.85
010155816-05	OBS	No	0.746530	132.297229	36.1	8.958	9.8	12.4	3.78	6714	2.64	72031.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010155816-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
010155816-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
010155816-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010155816-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010155816-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

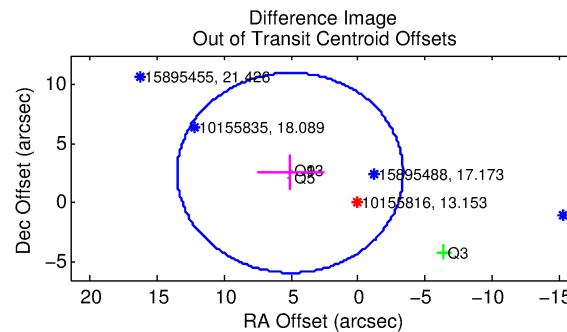
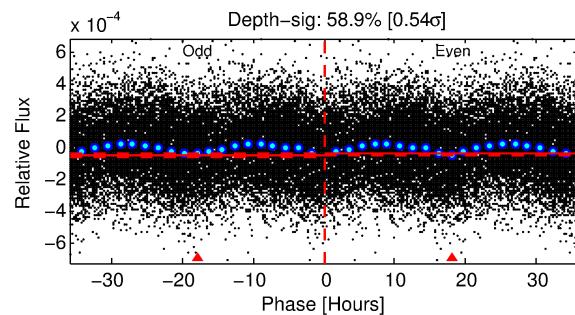
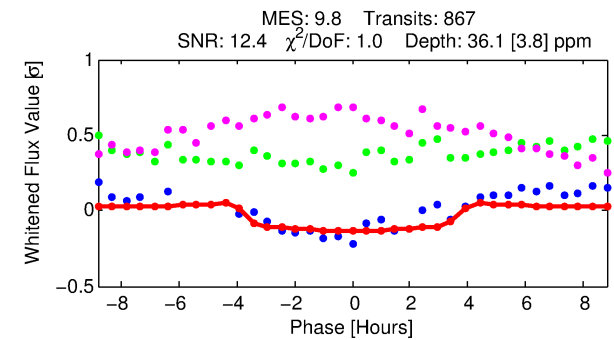
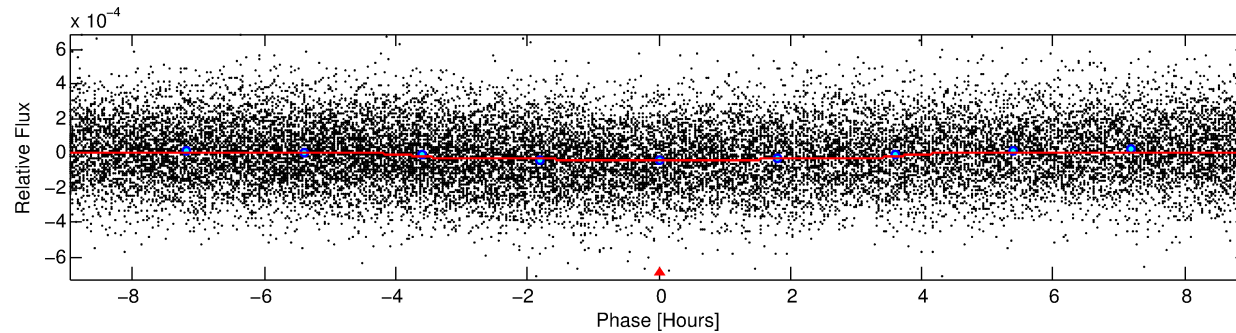
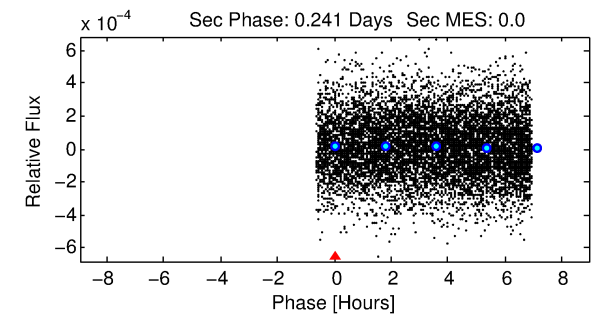
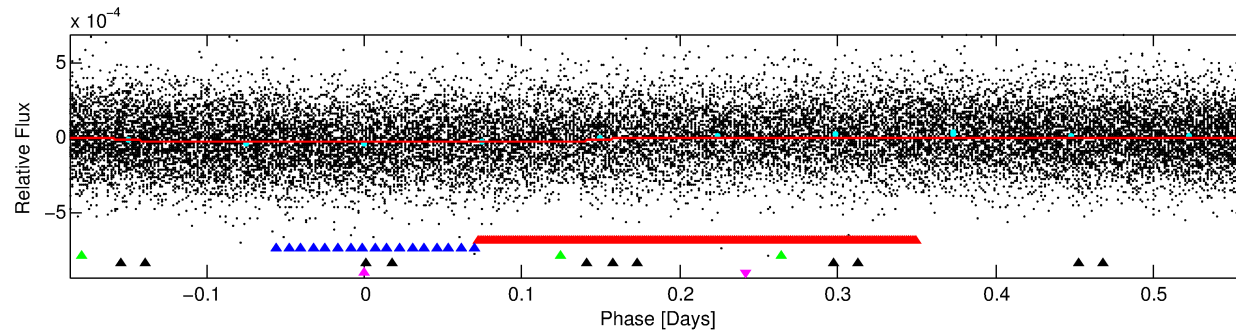
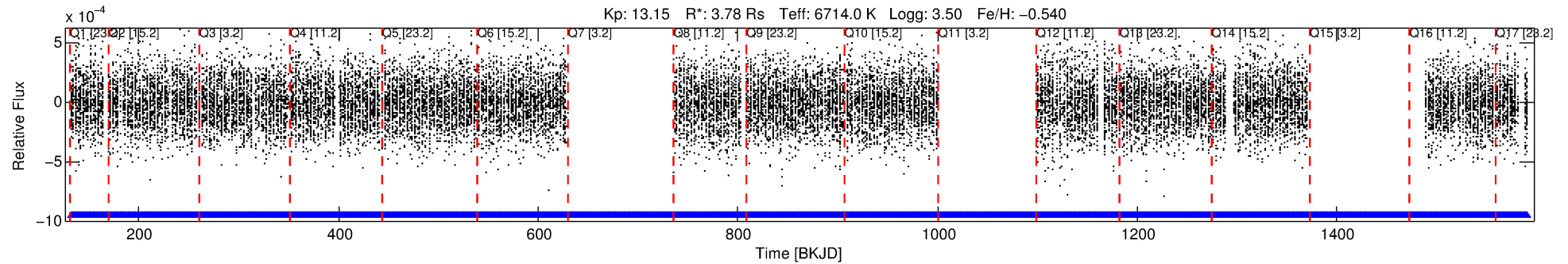
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010155816-05

No Significant Match Found

DV One-Page Summary

KIC: 10155816 Candidate: 5 of 5 Period: 0.747 d



DV Fit Results:

Period = 0.74653 [0.00001] d
Epoch = 132.2972 [0.0057] BKJD
Rp/R* = 0.0064 [0.0006]
a/R* = 1.01 [0.00]
b = 0.90 [0.09]
Seff = 72031.30 [47337.60]
Teq = 4177 [686] K
Rp = 2.64 [1.19] Re
a = 0.0190 [0.0078] AU
Ag = N/A
Teffp = N/A

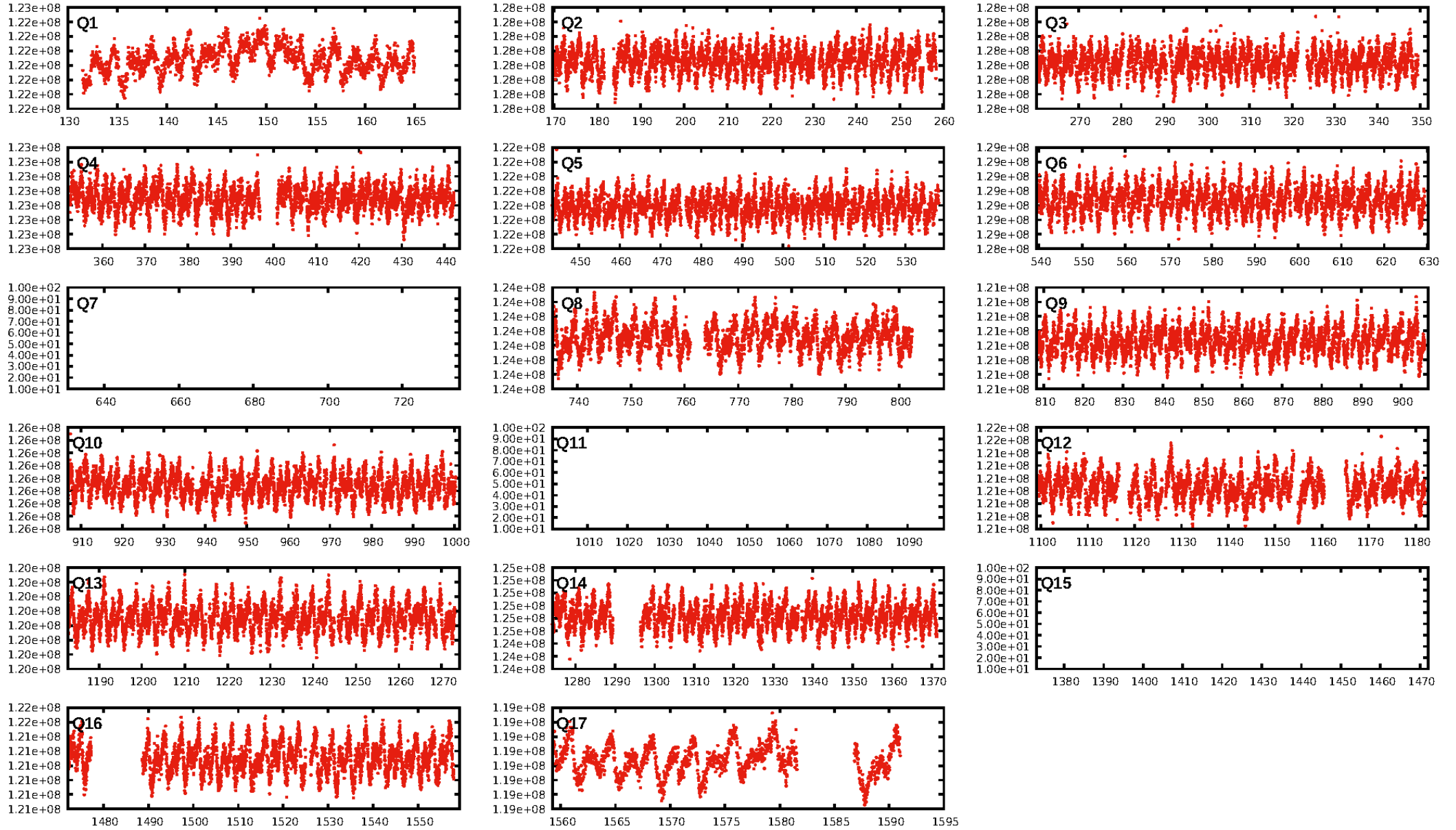
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.08σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [819/819]
GhostDiagnostic-chr: 2.019
Centroid-sig: N/A
Centroid-so: 0.740 arcsec [2.10σ]
OotOffset-rm: 5.675 arcsec [2.01σ]
KicOffset-rm: 5.659 arcsec [1.92σ]
OotOffset-st: 0/1/0/3 [4]
KicOffset-st: 0/1/0/3 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [14/14]

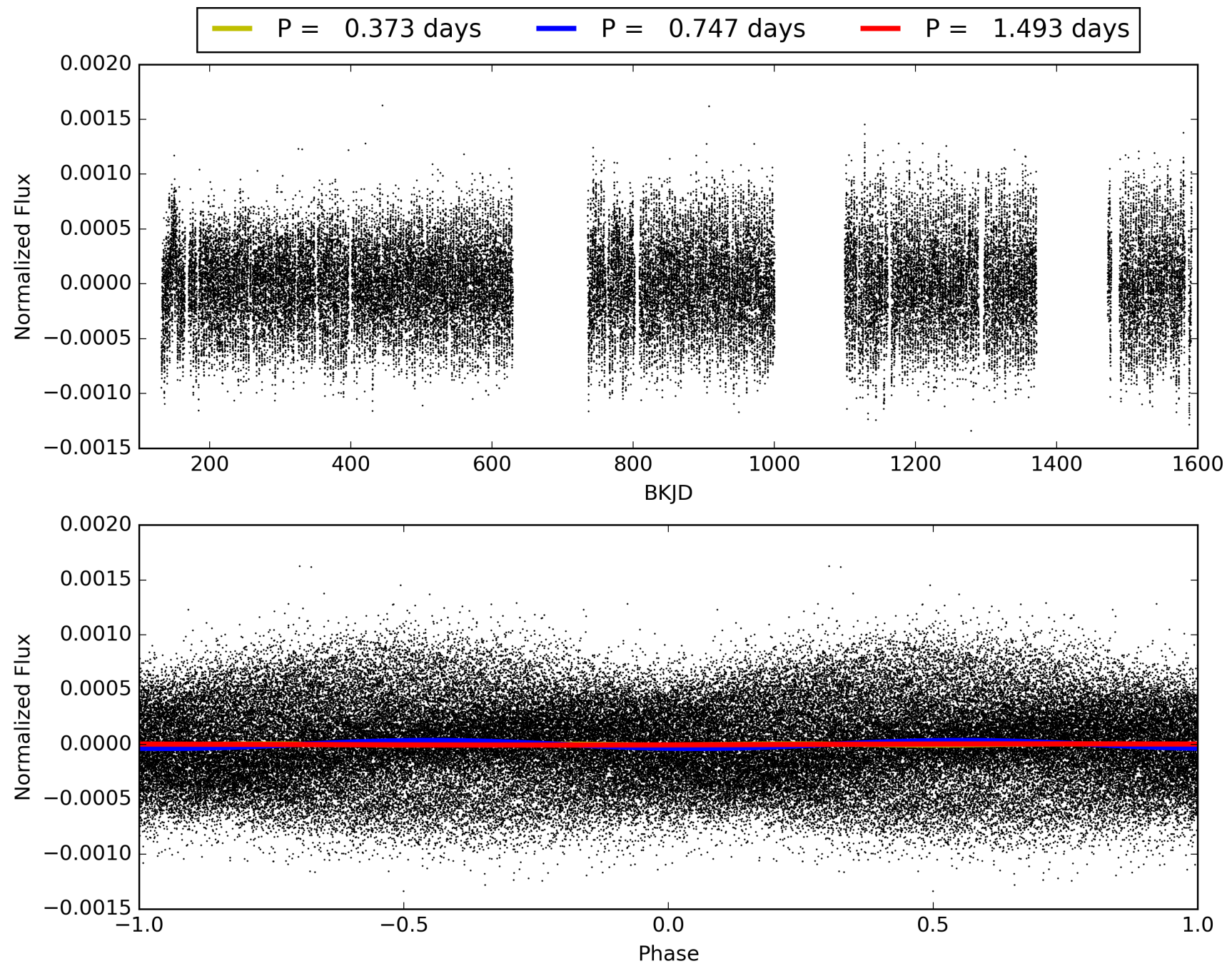
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:39:46 Z

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

TCE 010155816-05, PDC Light Curves

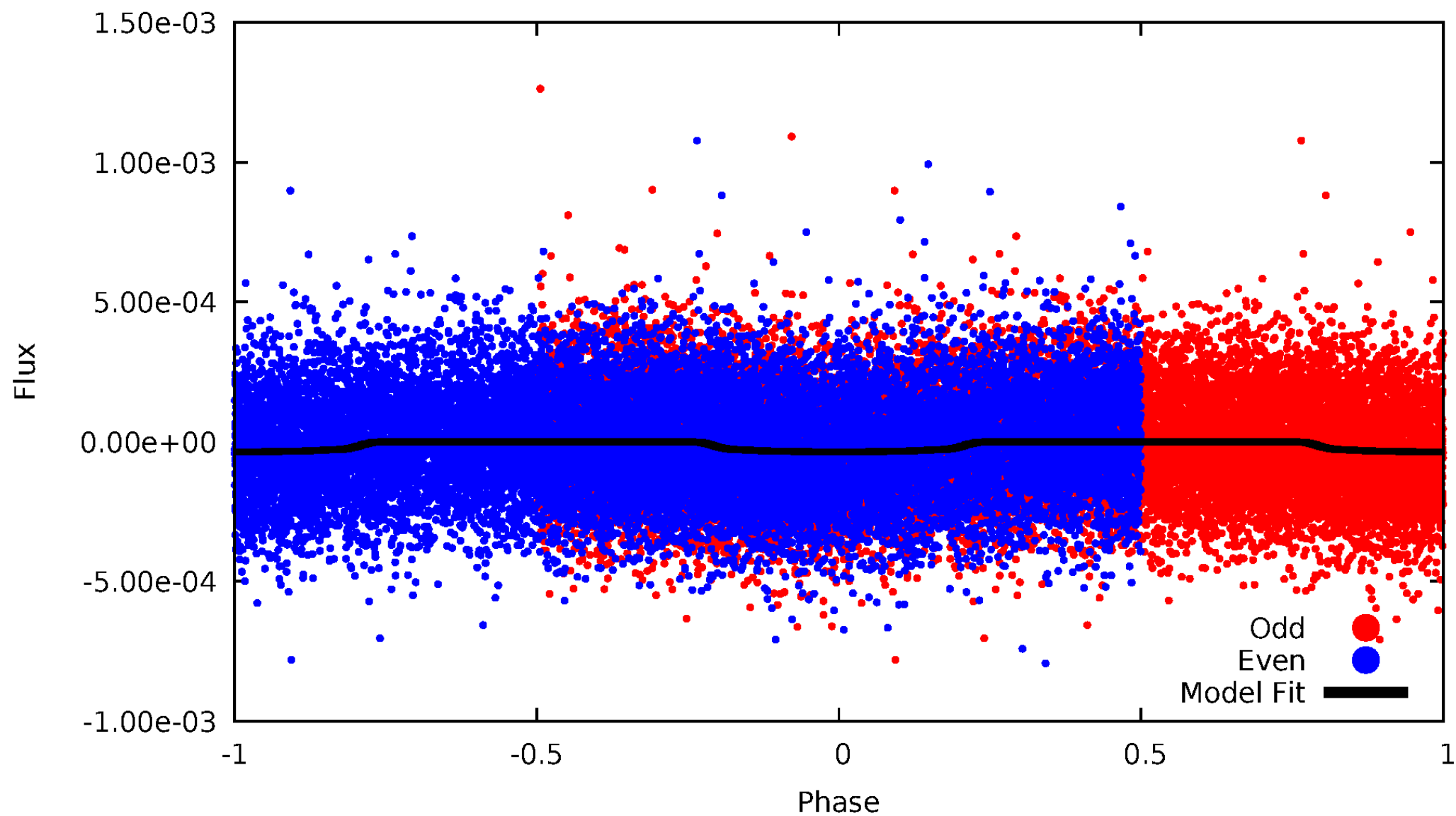


TCE 010155816-05



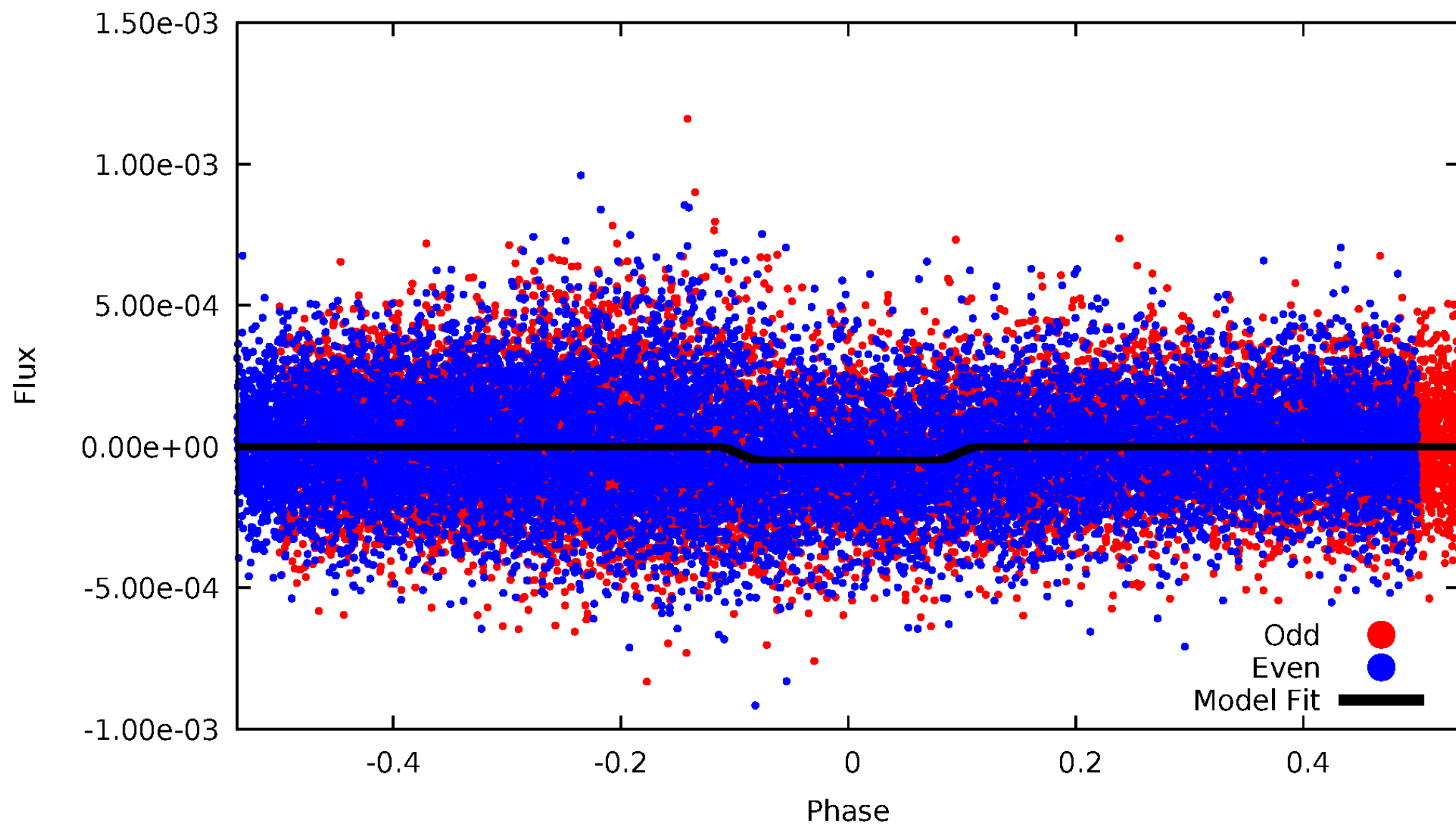
DV Odd/Even

TCE 010155816-05



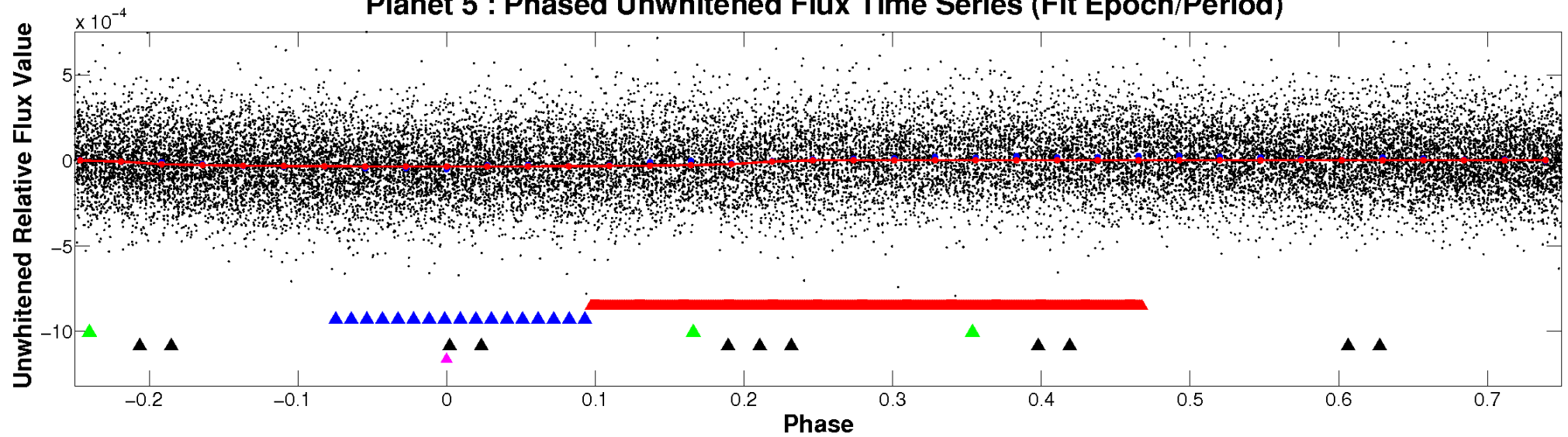
ALT Odd/Even

TCE 010155816-05

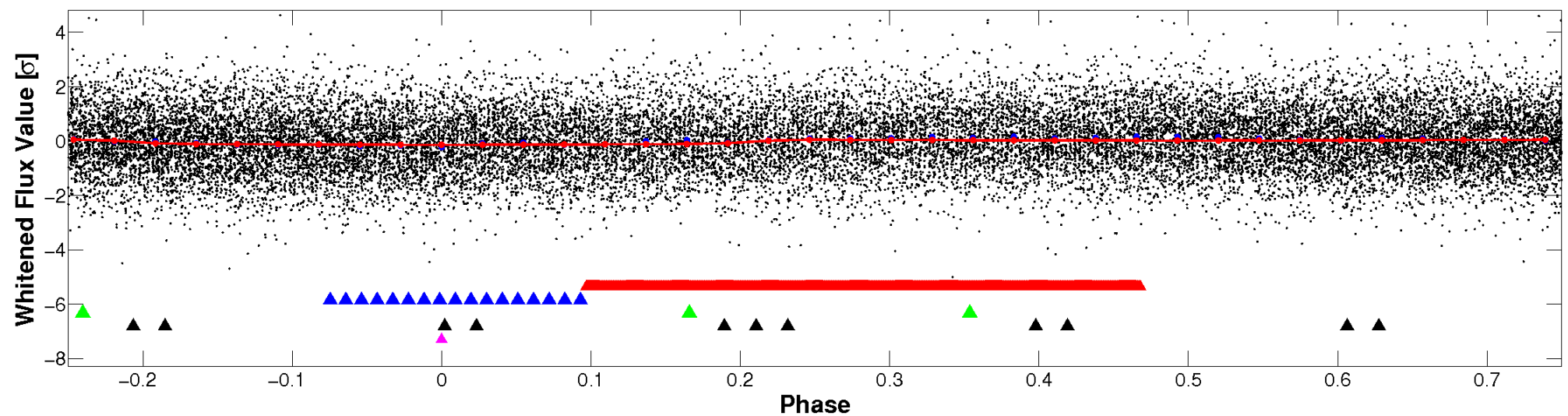


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

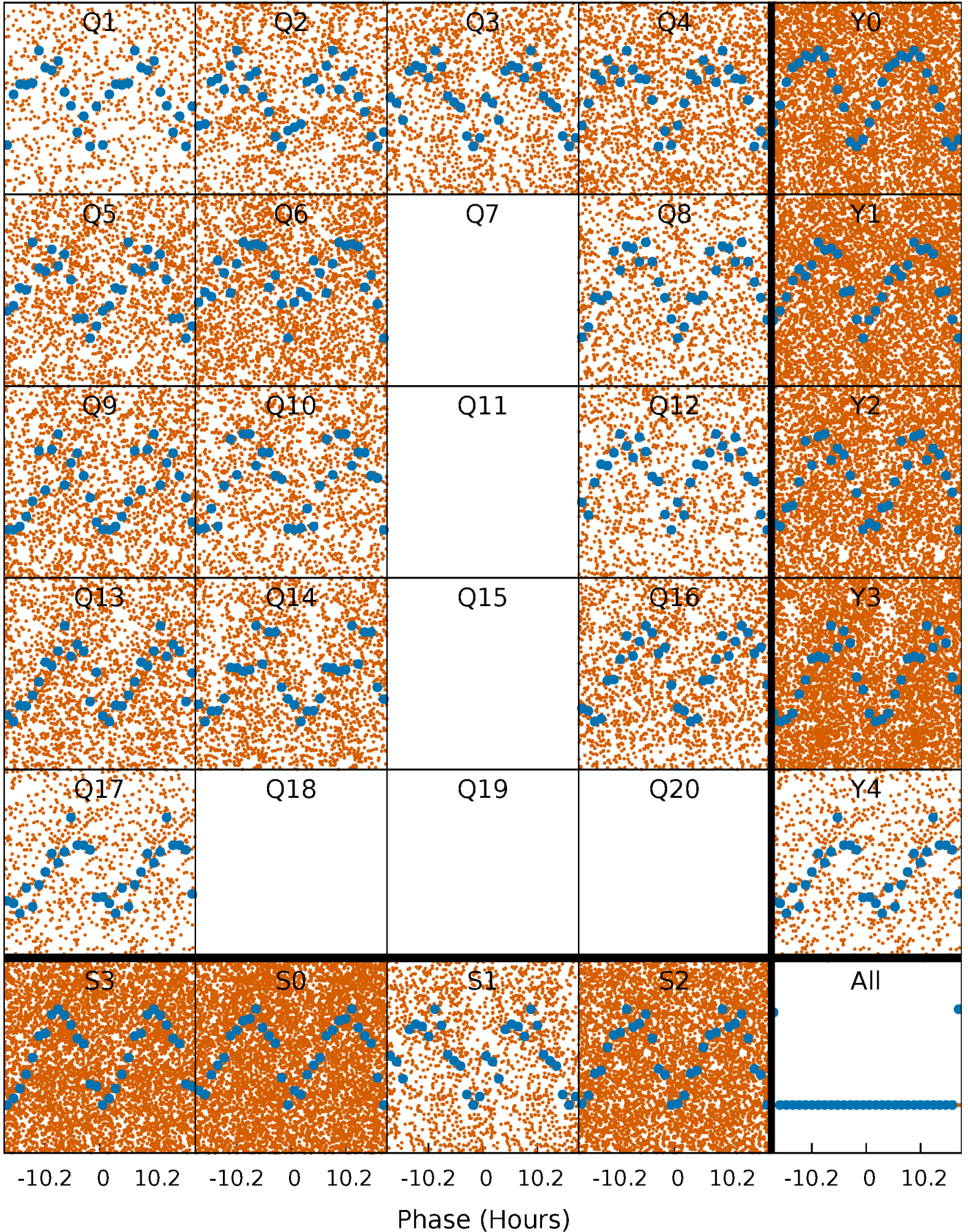


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



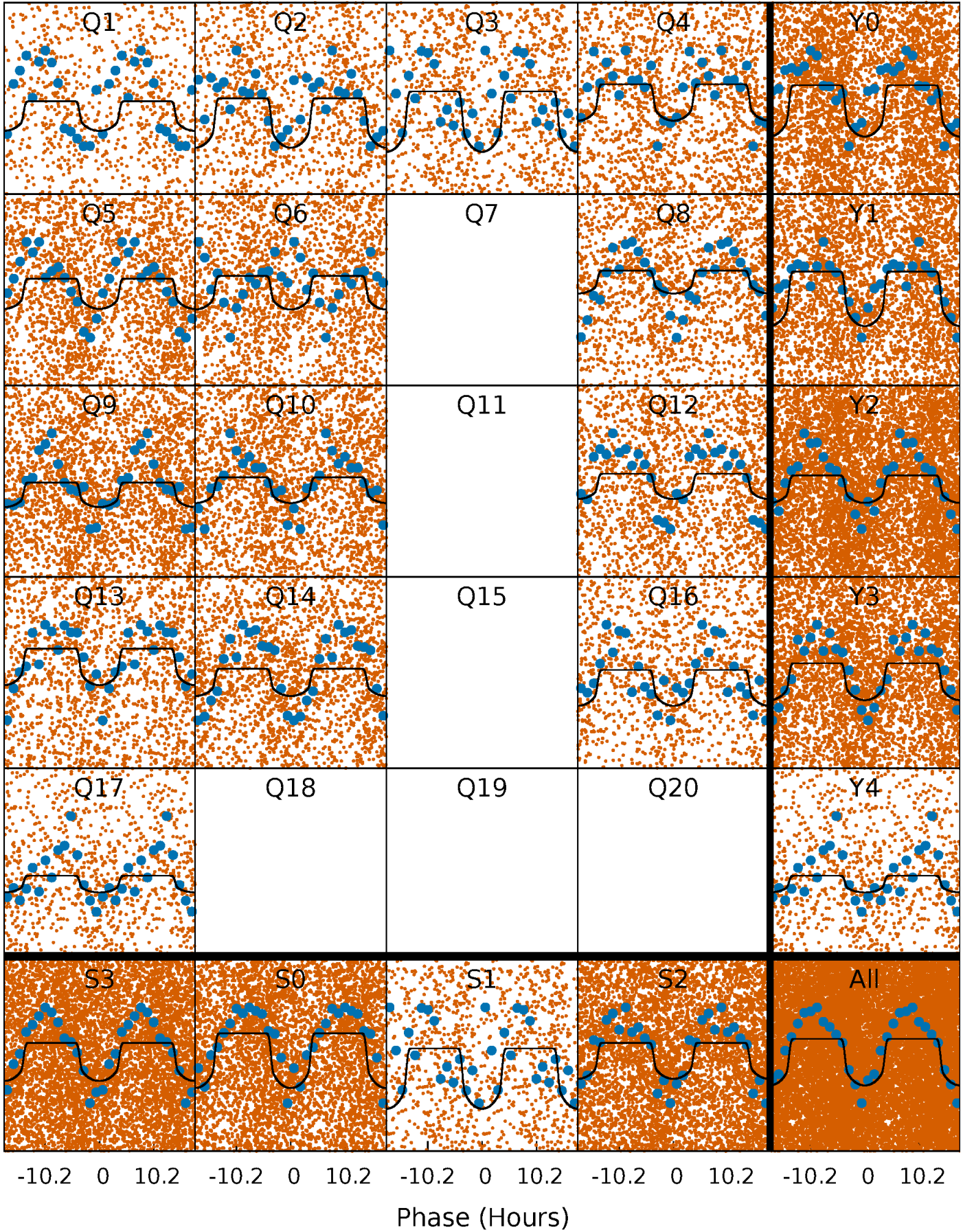
PDC Quarter-Phased Transit Curves

TCE 010155816-05 P= 0.746530 Days $T_0=132.297229$ (BKJD)



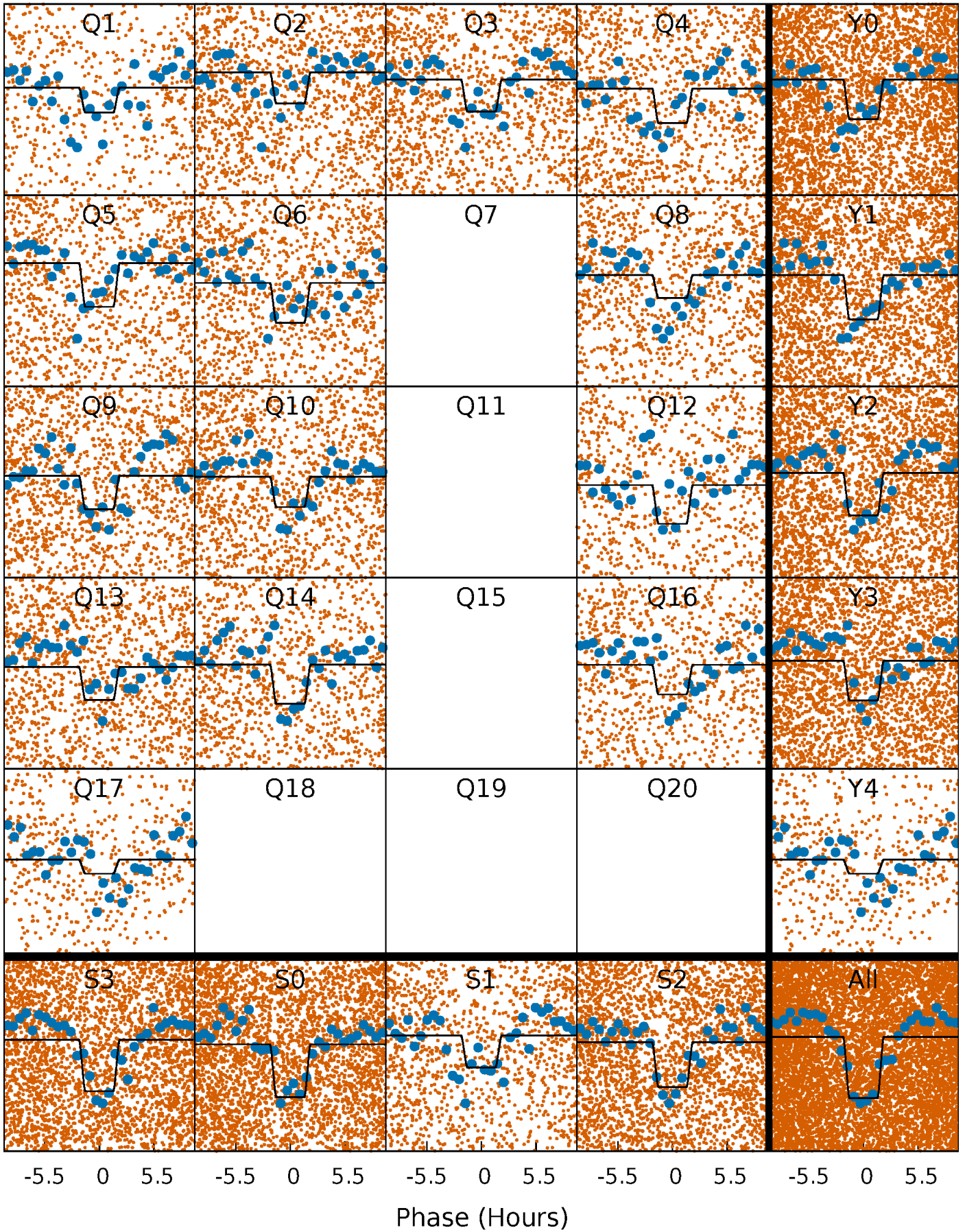
DV Quarter-Phased Transit Curves

TCE 010155816-05 $P = 0.746530$ Days $T_0 = 132.297229$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

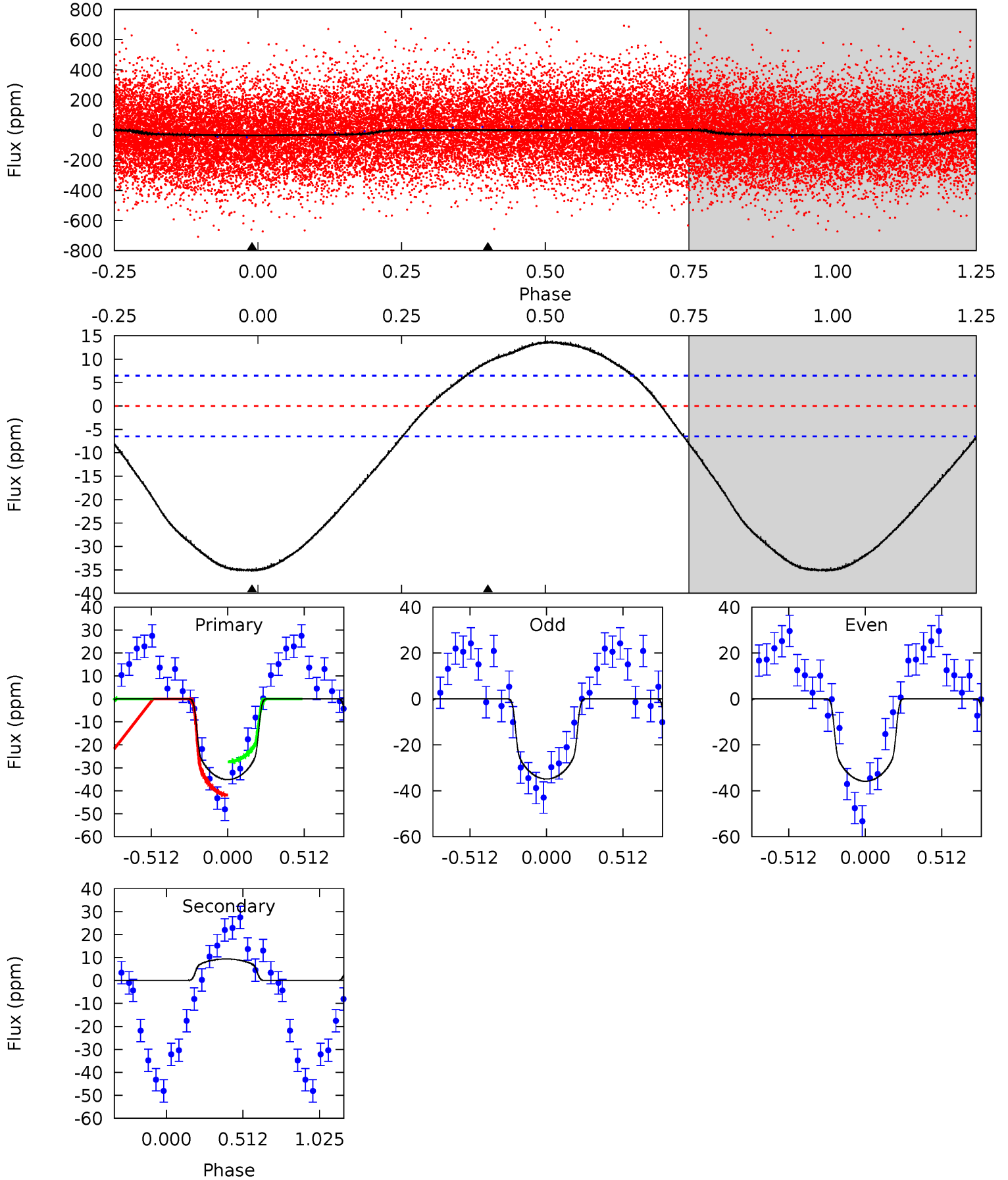
TCE 010155816-05 $P = 0.746611$ Days $T_0 = 132.313367$ (BKJD)



DV Model-Shift Uniqueness Test

010155816-05, P = 0.746530 Days, E = 132.297229 Days

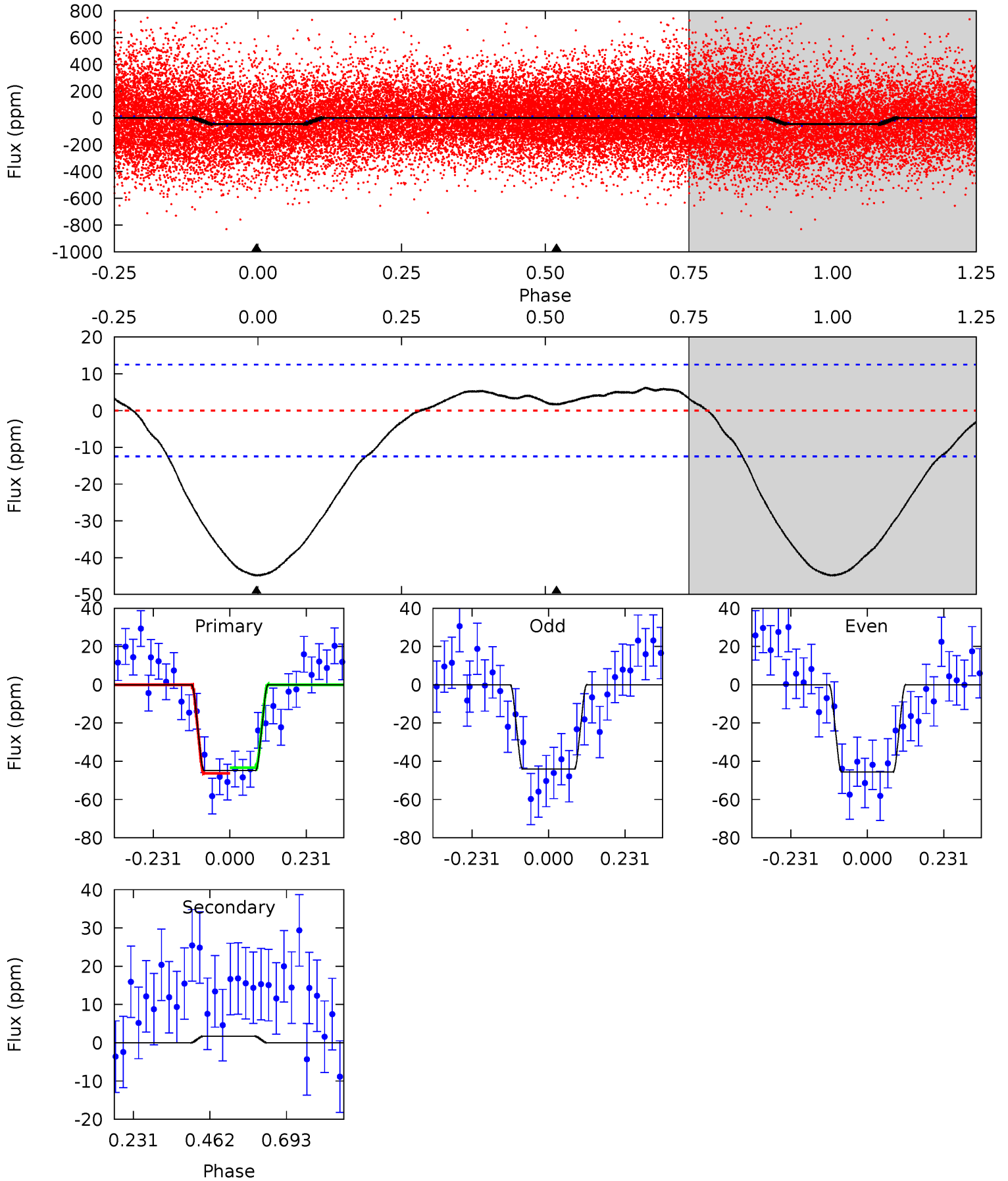
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.8	-6.08	0	0	4.21	0.65	2.55	22.8	22.8	-6.08	-6.08	0.31	1.34	0.28	4.64



Alt Model-Shift Uniqueness Test

010155816-05, P = 0.746611 Days, E = 132.313367 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	-0.60	0	0	4.39	1.20	1.09	15.7	15.7	-0.60	-0.60	0.24	0.61	0.12	0.50



Stellar Parameters For KIC 010155816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6714^{+182}_{-182}	$3.498^{+0.376}_{-0.094}$	$-0.540^{+0.400}_{-0.300}$	$3.777^{+0.522}_{-1.671}$	$1.635^{+0.229}_{-0.425}$	$0.043^{+0.136}_{-0.013}$
	+3%/-3%	+11%/-3%	+74%/-56%	+14%/-44%	+14%/-26%	+318%/-30%
Source	PHO1	FLK73	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 010155816-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	9 ± 2	$2.55^{+0.41}_{-0.53}$	5725^{+341}_{-540}	-5547^{+277}_{-264}	$-0.292^{+0.083}_{-0.145}$
Alt.	2 ± 3	$2.72^{+0.42}_{-0.62}$	5712^{+328}_{-565}	-4908^{+460}_{-333}	$-0.046^{+0.082}_{-0.081}$

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 $A_{obs} \gg 1.0$

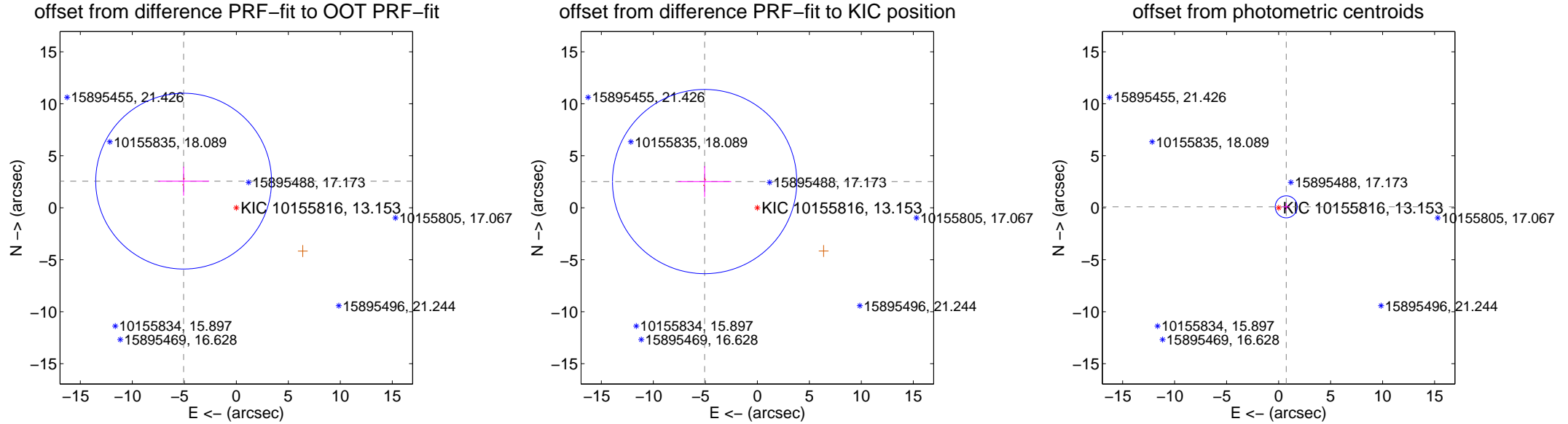
DV Centroid Data

Supplemental centroid analysis for 010155816-05. Kepler magnitude: 13.15. Transit SNR 12.40

There are 0 quarters with good PRF difference image offsets

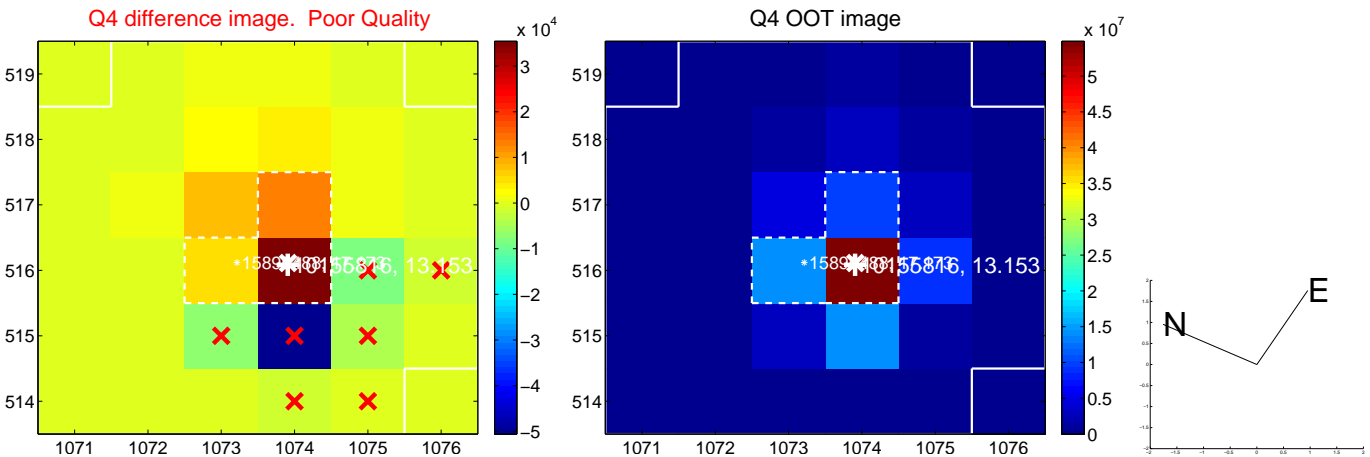
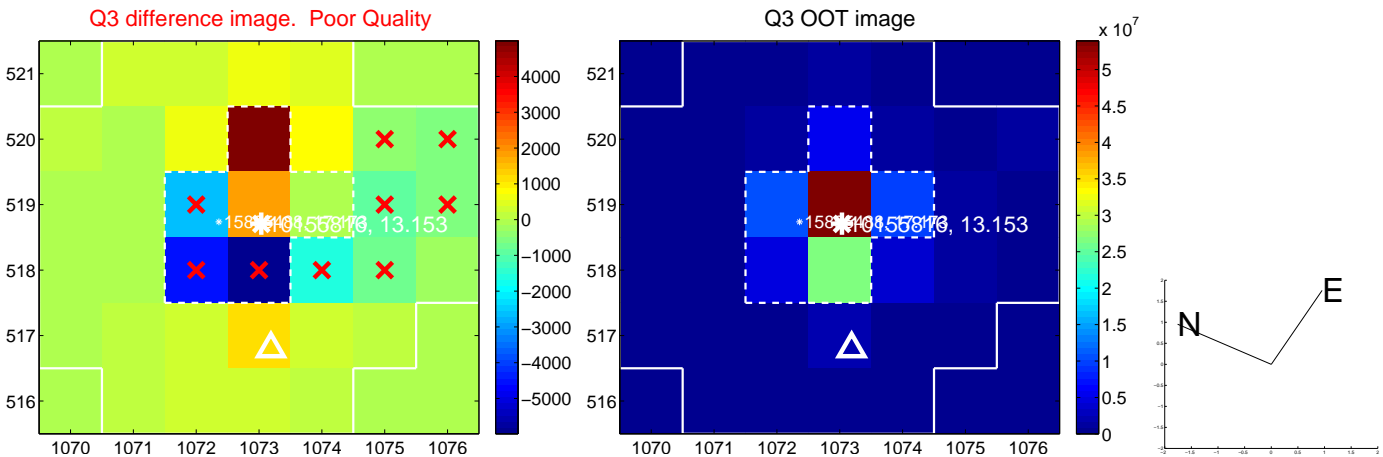
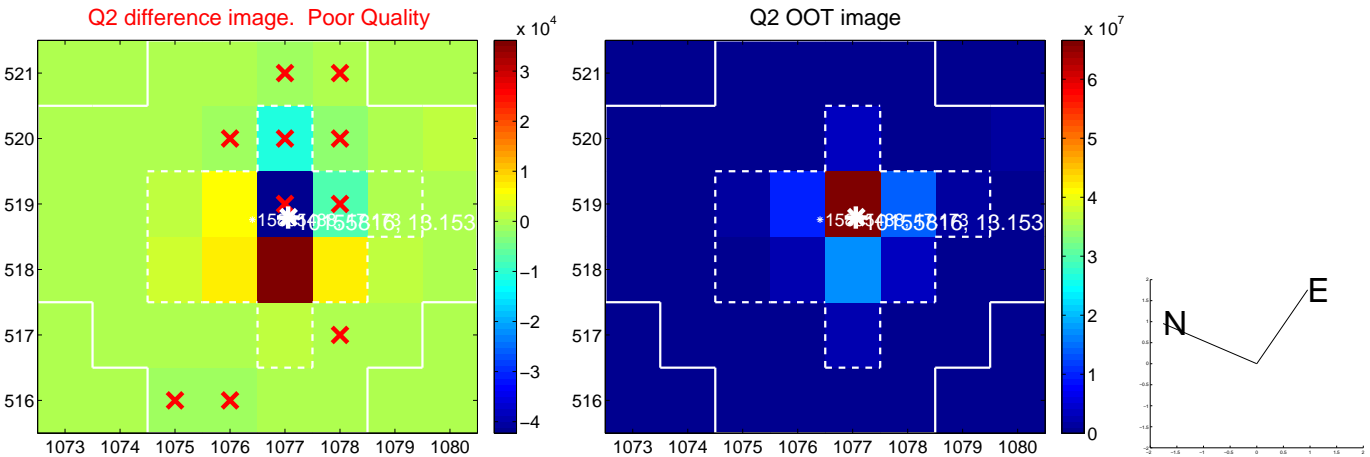
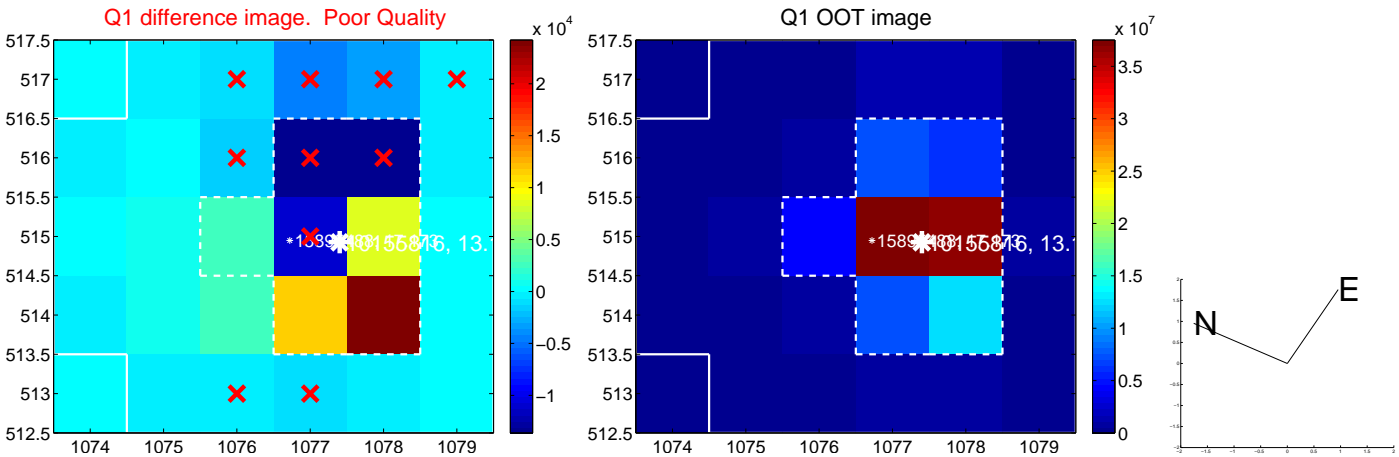
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.675 ± 2.817	2.01	5.065 ± 2.454	2.558 ± 1.395
PRF-fit source offset from KIC position	5.659 ± 2.953	1.92	5.067 ± 2.563	2.518 ± 1.485
photometric centroid source offset	0.74 ± 0.35	2.10	-0.73 ± 0.35	0.09 ± 0.33

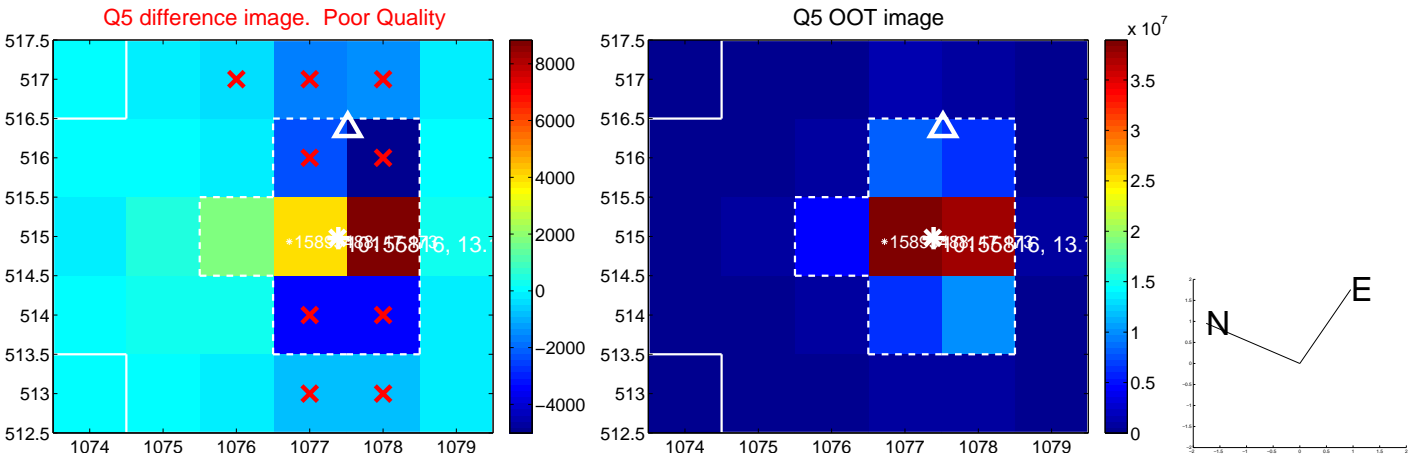


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

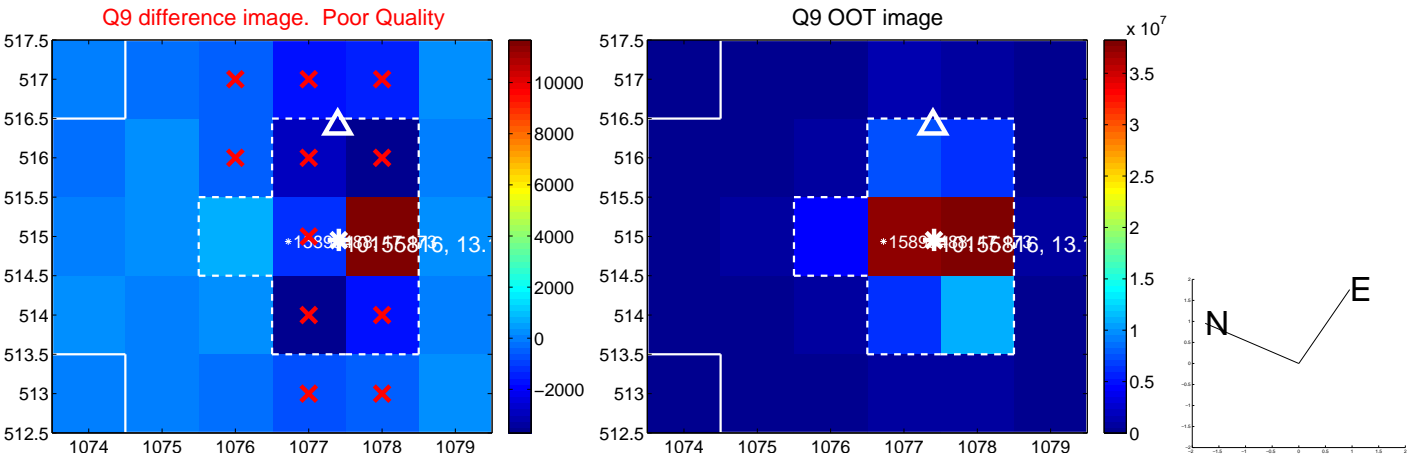
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



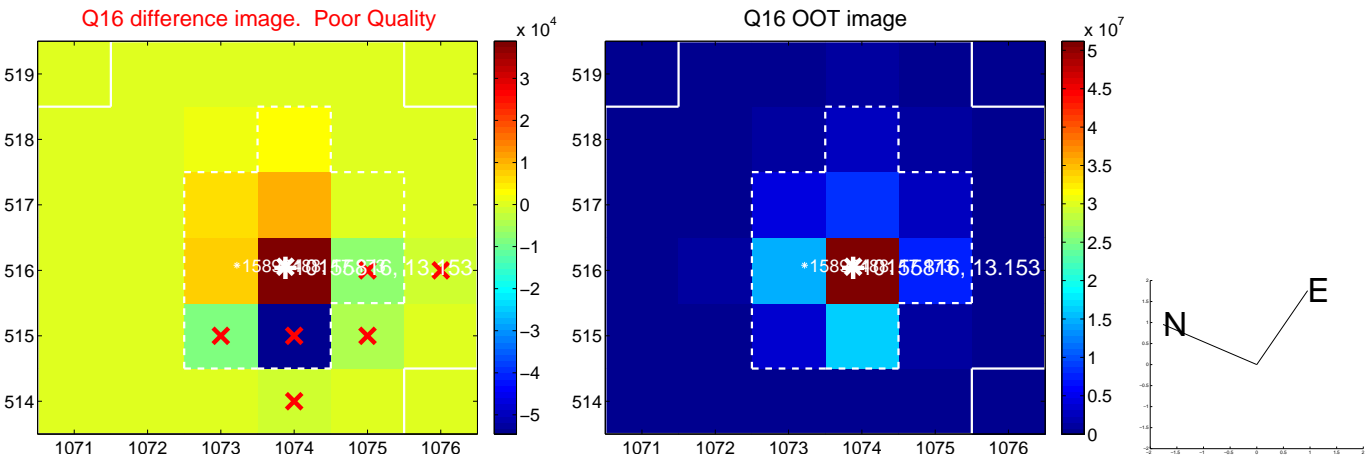
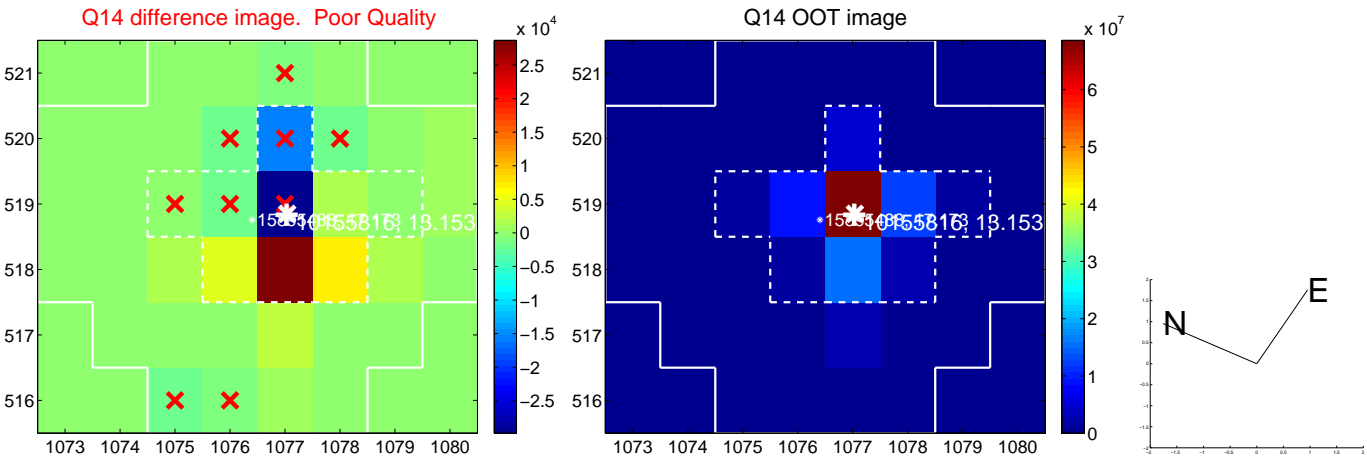
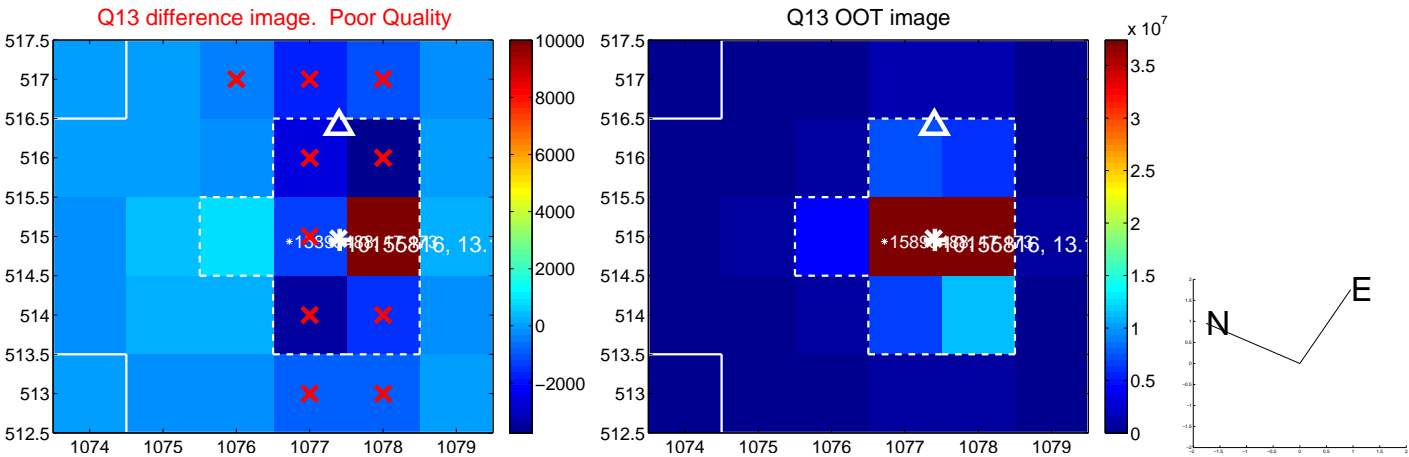
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



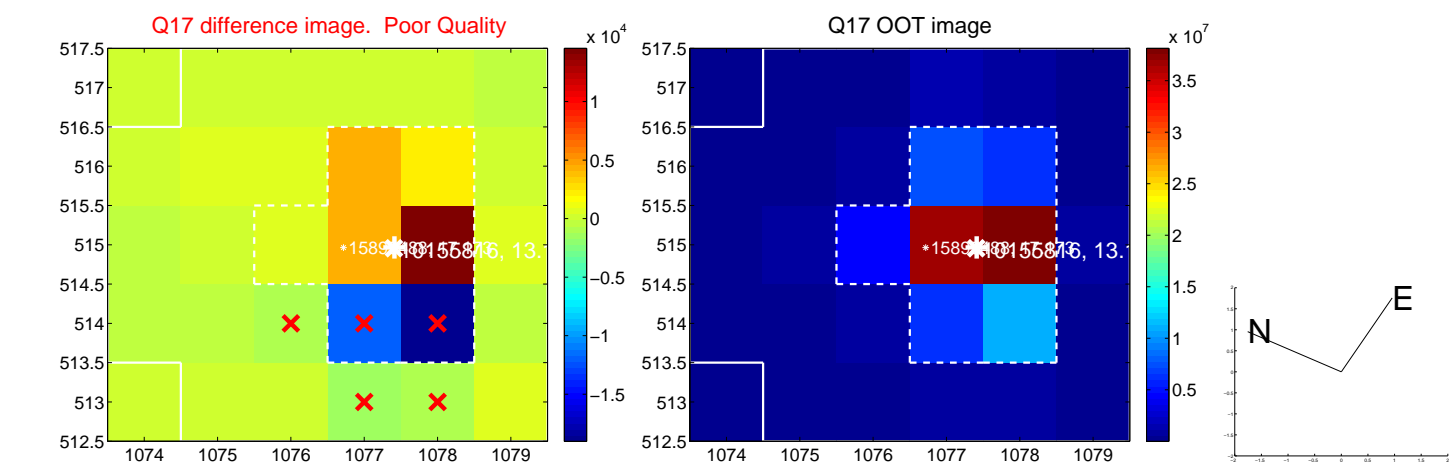
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



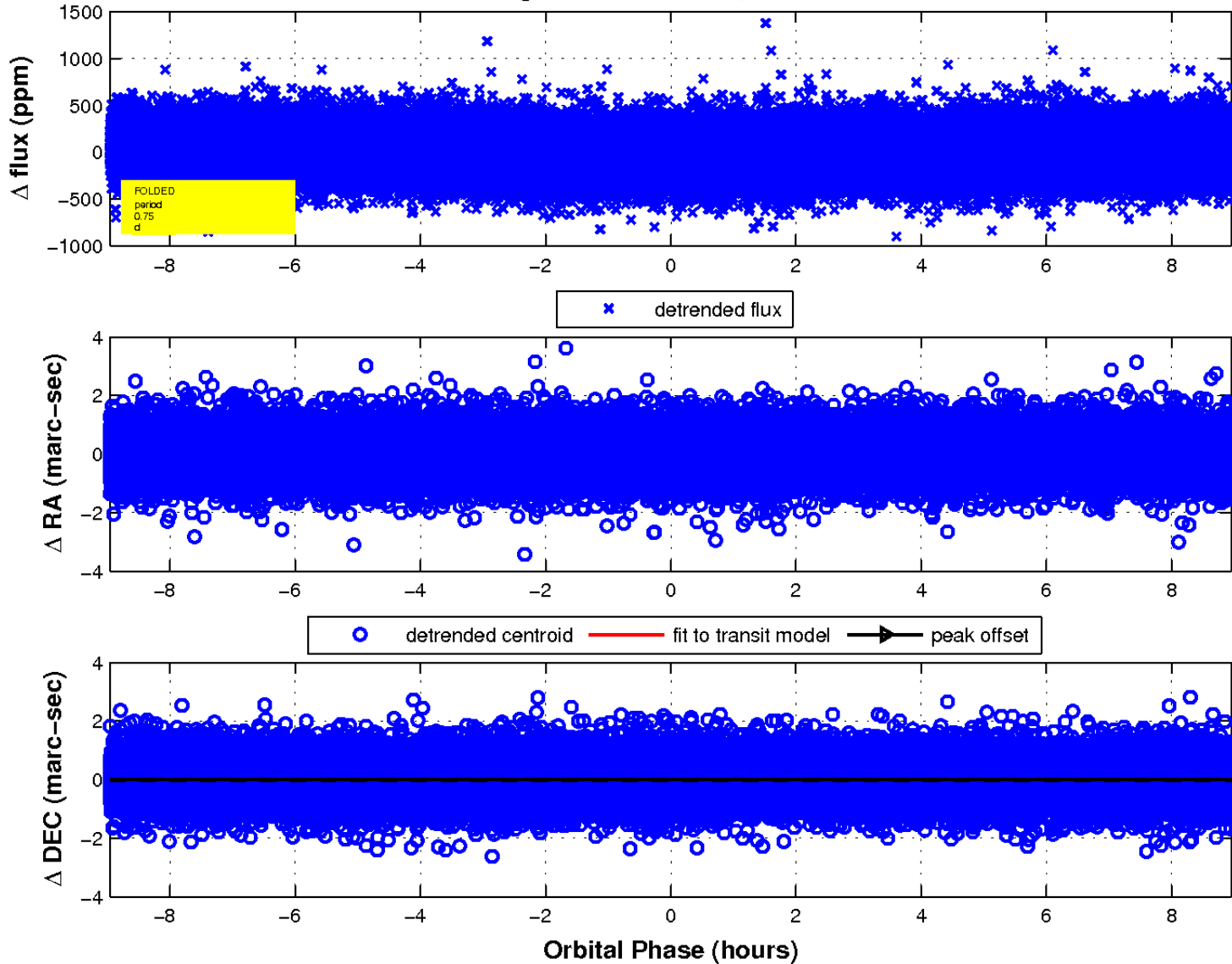
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

