

KIC 003230578

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})
003230578-01	OBS	0381.01	6.337613	132.164246	1760.7	1.724	195.6	201.6	1.54	6581	8.71	789.02
003230578-02	OBS	No	6.337658	135.329382	159.0	1.427	18.0	20.3	1.54	6581	2.27	789.01
003230578-03	OBS	No	6.337453	134.133301	92.2	15.000	8.2	-1.0	1.54	6581	1.49	789.05
003230578-04	OBS	No	6.337248	132.084117	51.2	24.727	8.9	12.2	1.54	6581	1.29	789.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003230578-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003230578-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003230578-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
003230578-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE

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.

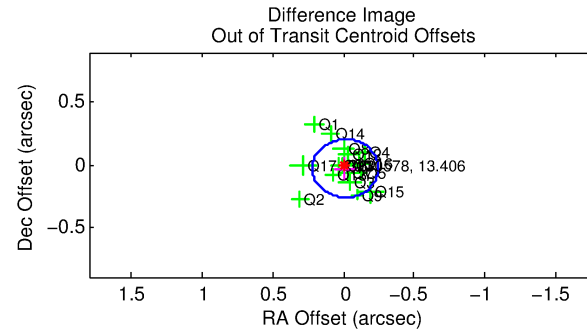
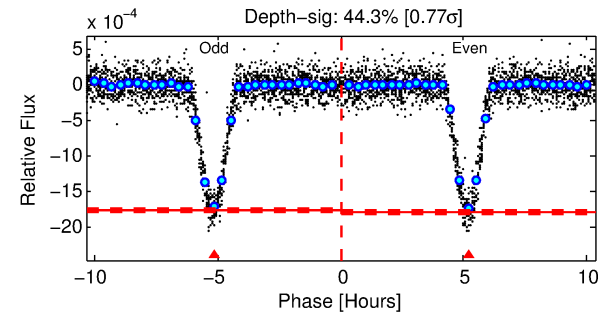
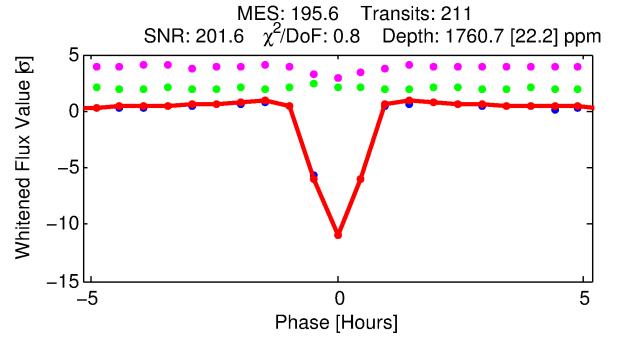
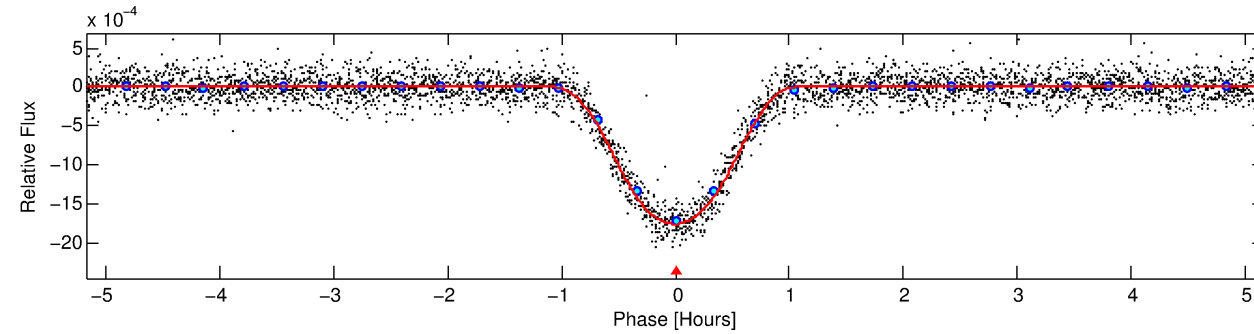
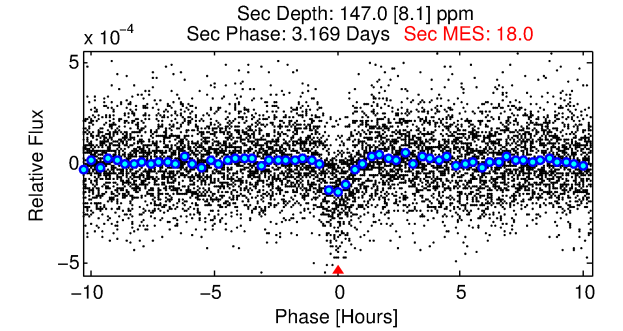
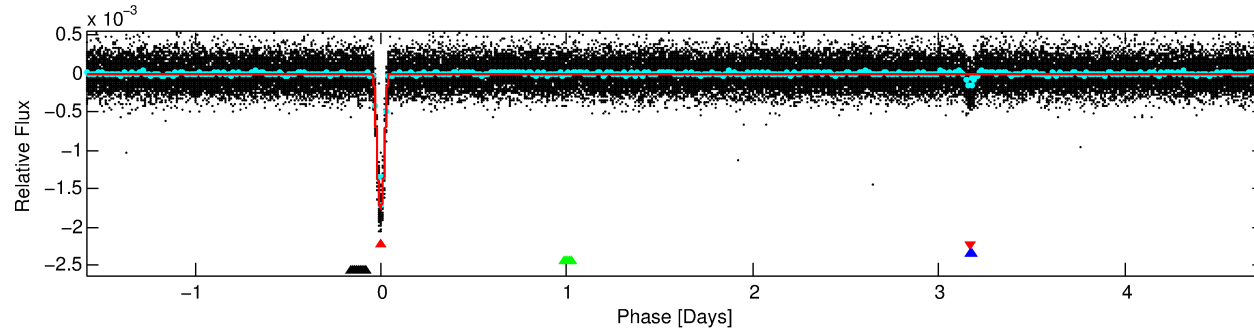
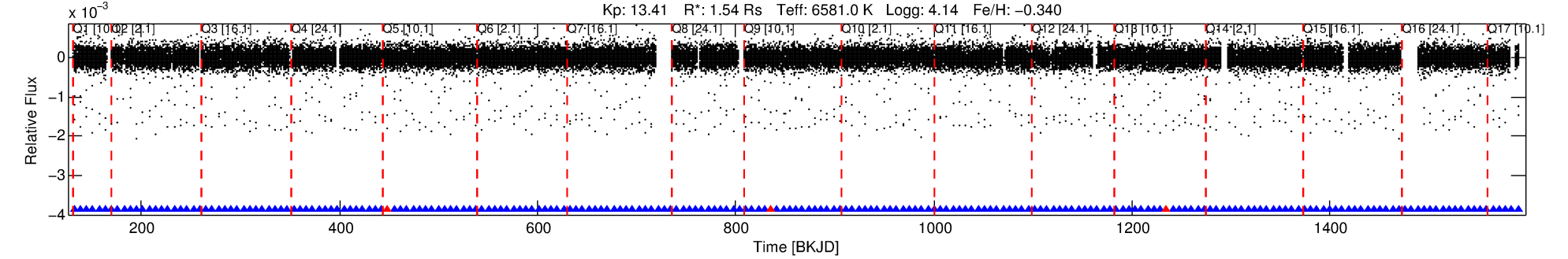
Ephemeris Match Information For 003230578-01

No Significant Match Found

DV One-Page Summary

KIC: 3230578 Candidate: 1 of 4 Period: 6.338 d

KOI: K00381.01 Corr: 0.972



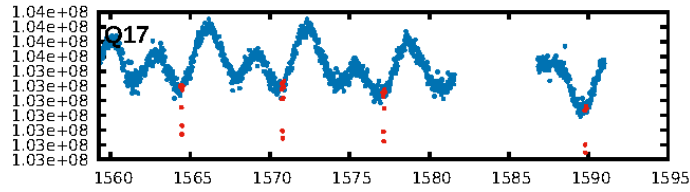
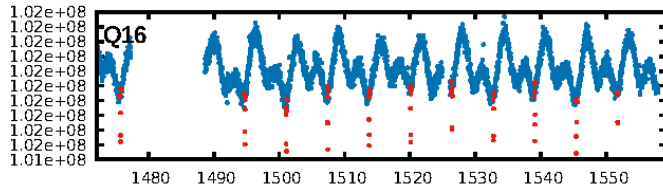
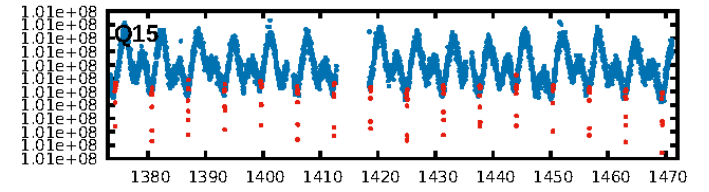
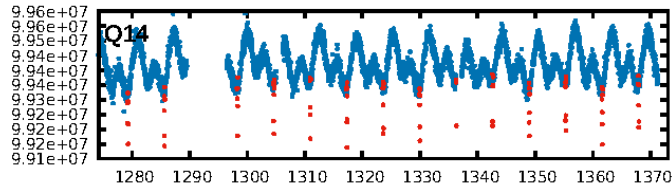
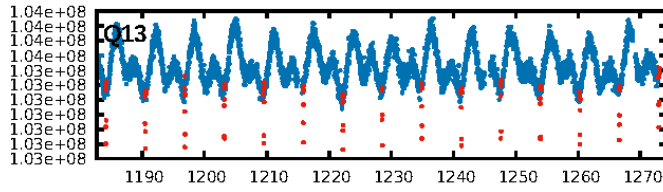
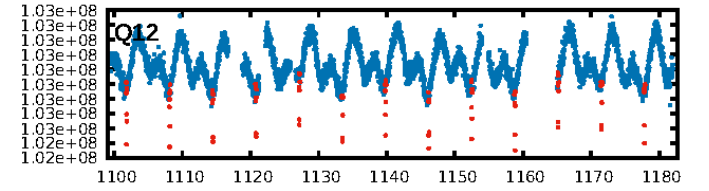
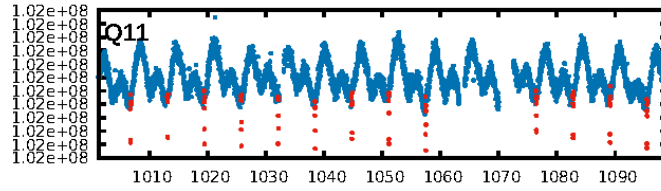
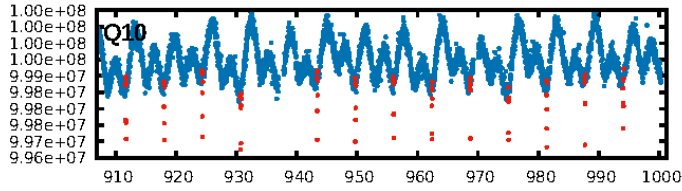
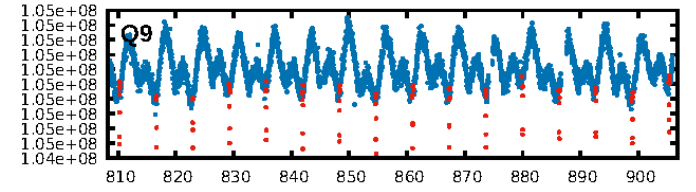
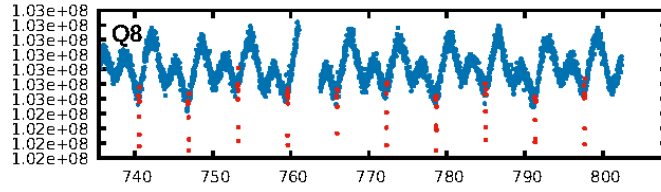
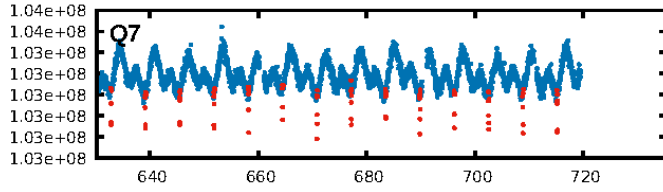
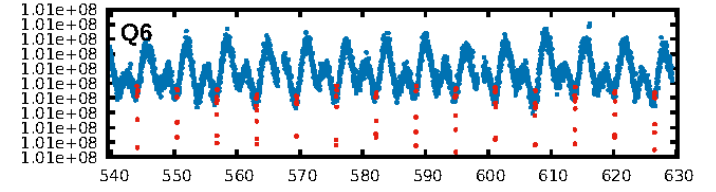
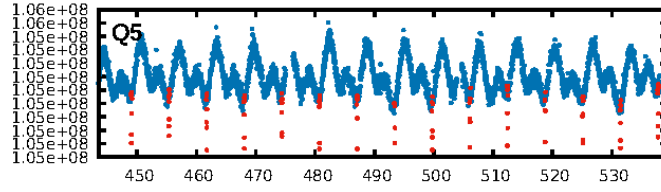
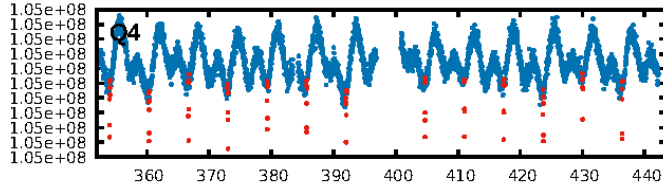
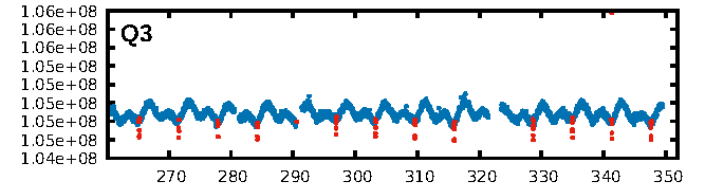
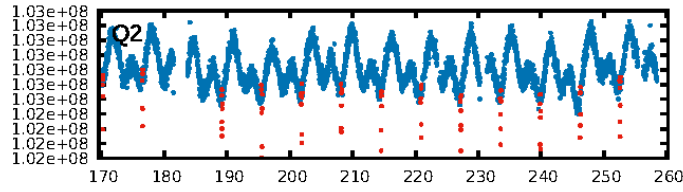
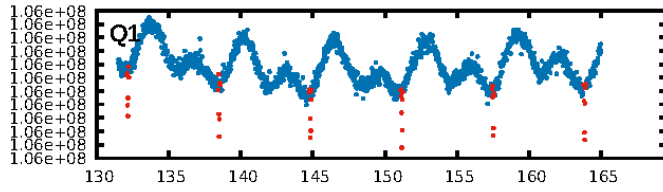
DV Fit Results:

Period = 6.33761 [0.00000] d
Epoch = 132.1642 [0.0002] BKJD
Rp/R* = 0.0520 [0.0031]
a/R* = 11.90 [0.41]
b = 0.96 [0.01]
Seff = 789.02 [323.39]
Teq = 1351 [138] K
Rp = 8.71 [2.45] Re
a = 0.0709 [0.0177] AU
Ag = 5.35 [2.17] [2.00σ]
Teffp = 3178 [153] K [8.85σ]

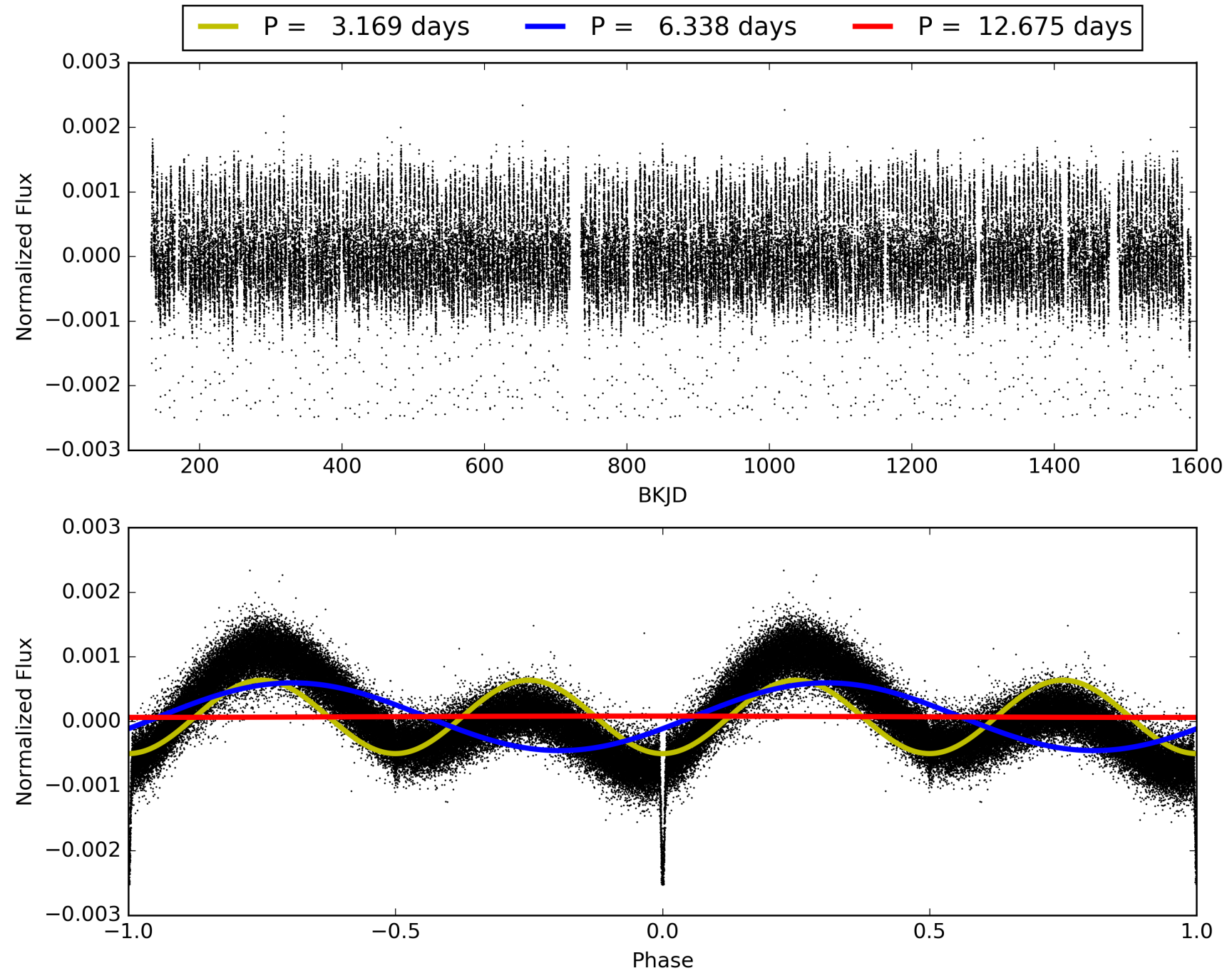
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [198/201]
GhostDiagnostic-chr: 4.376
Centroid-sig: 0.0%
Centroid-so: 0.084 arcsec [1.15σ]
OotOffset-rm: 0.032 arcsec [0.42σ]
KicOffset-rm: 0.049 arcsec [0.62σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 003230578-01, PDC Light Curves

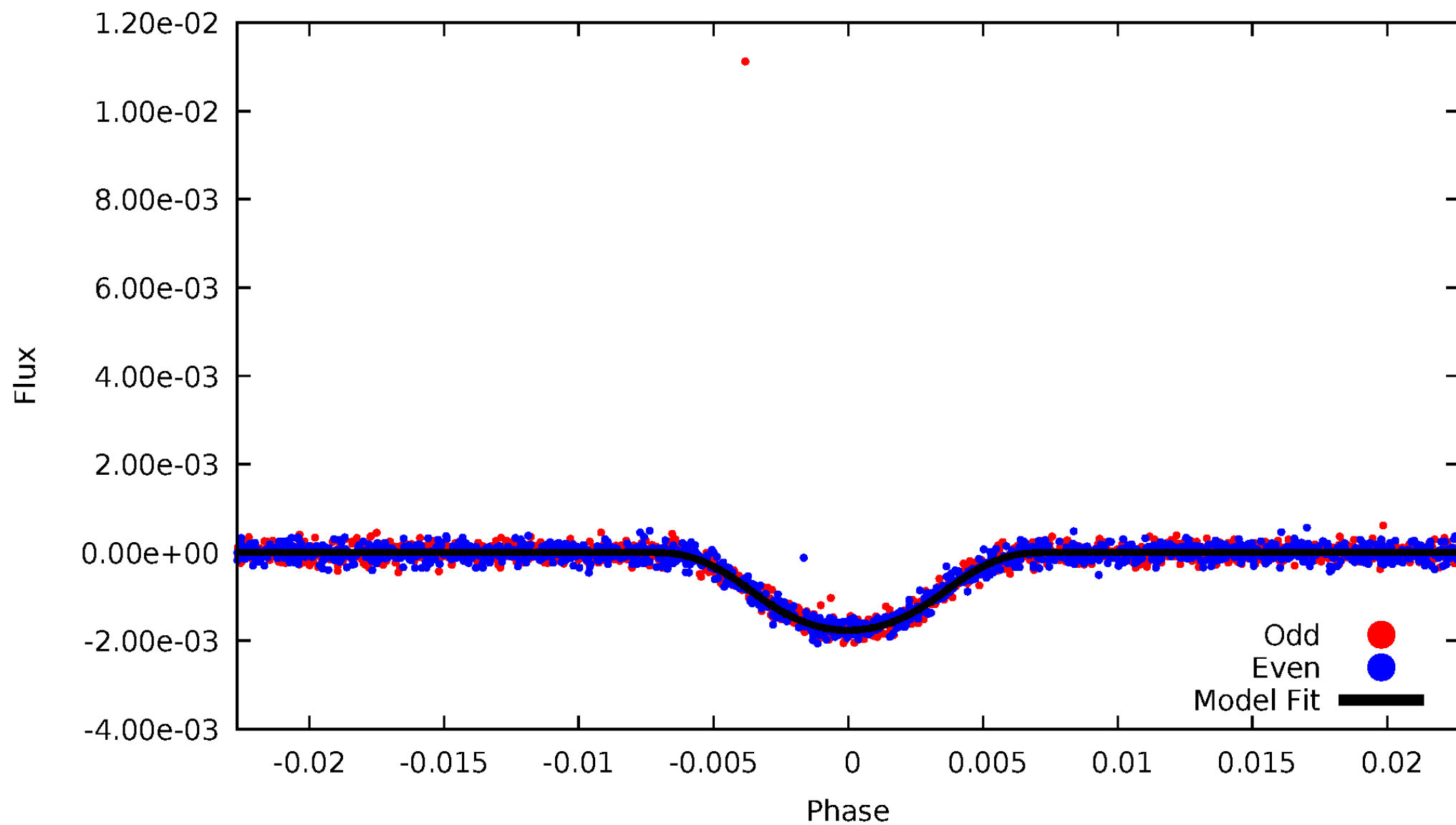


TCE 003230578-01



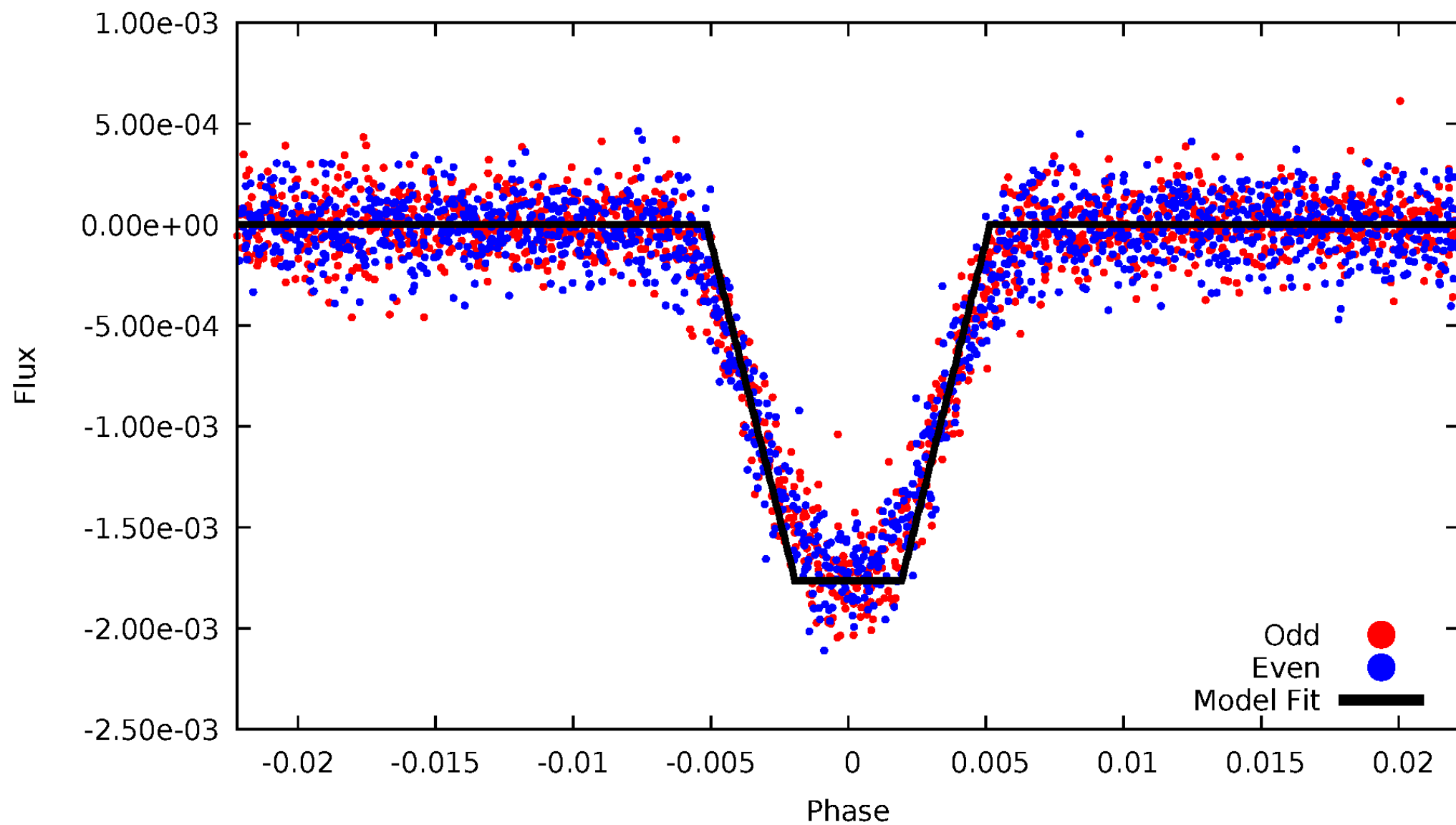
DV Odd/Even

TCE 003230578-01



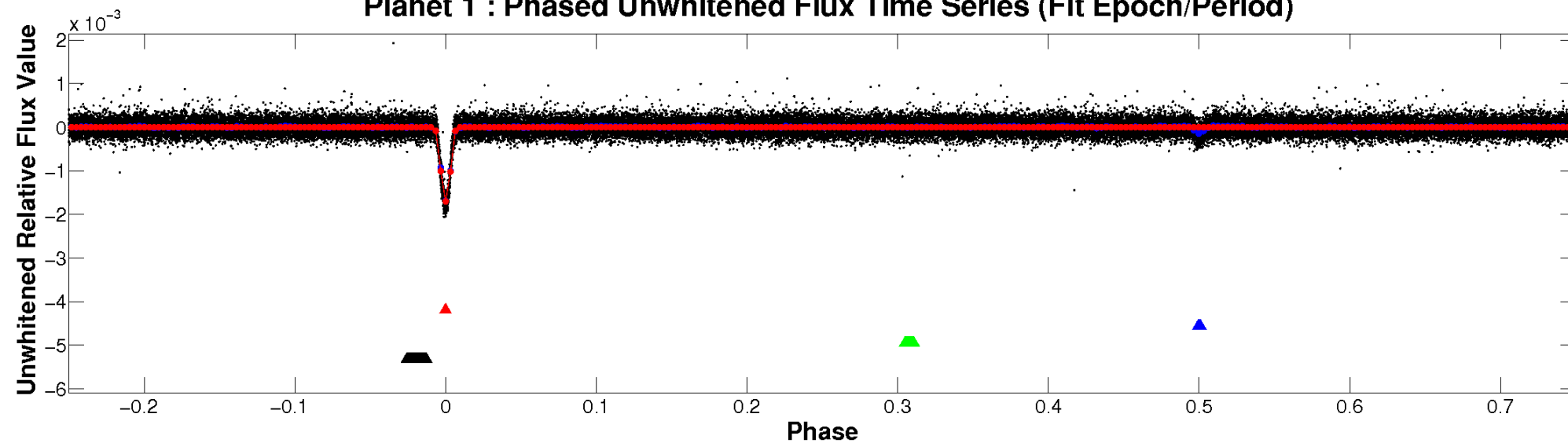
ALT Odd/Even

TCE 003230578-01

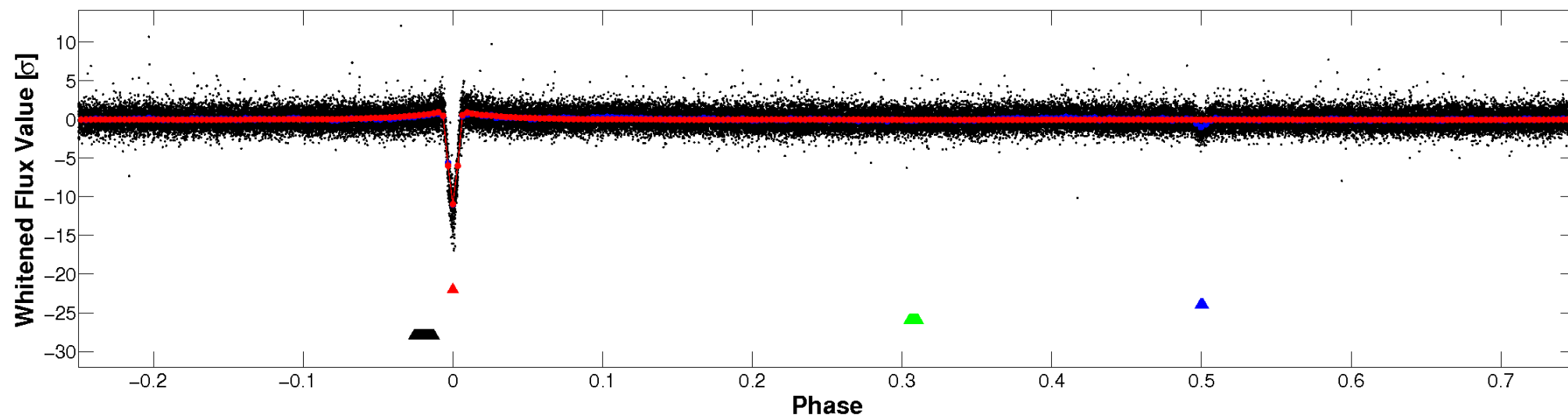


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

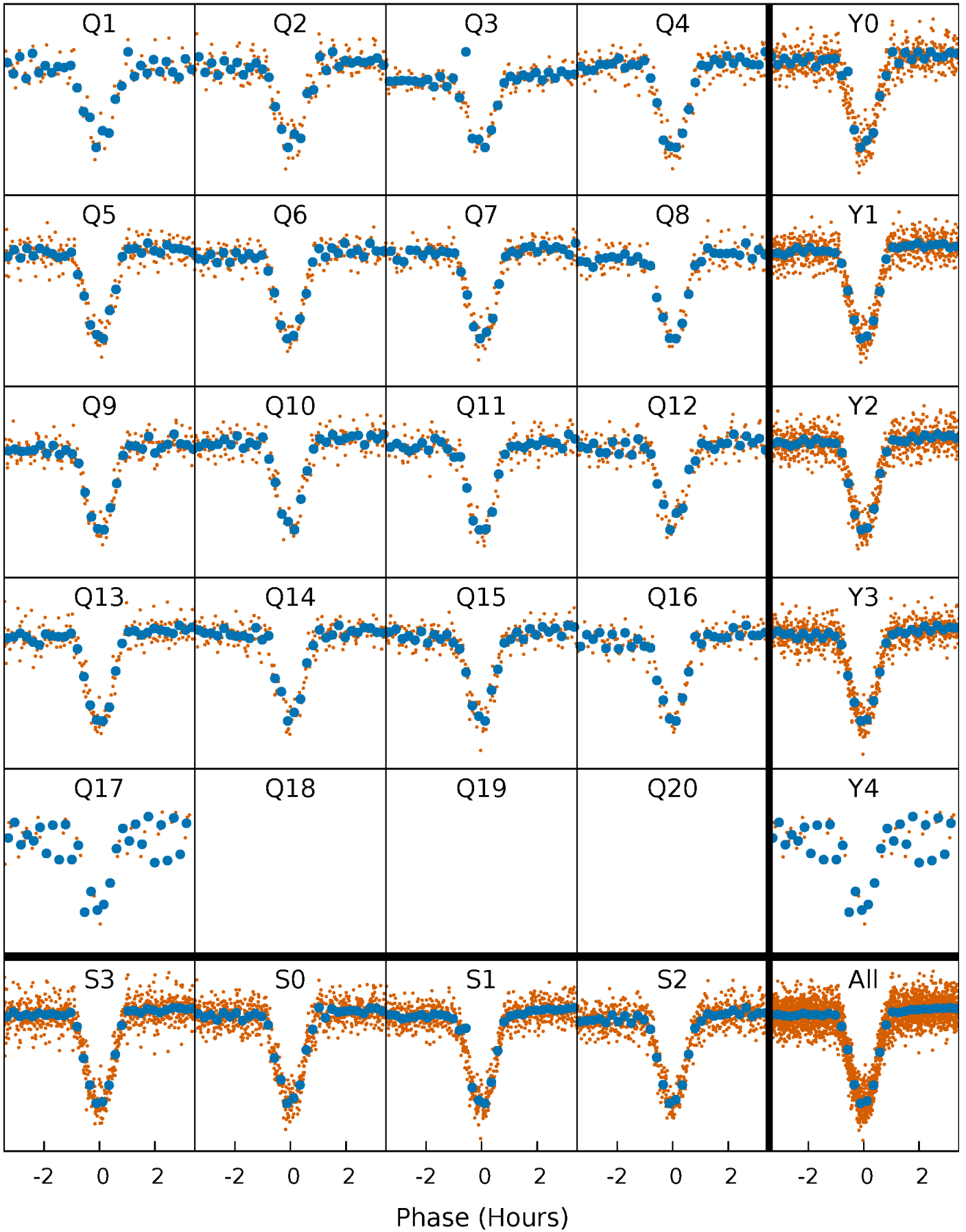


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



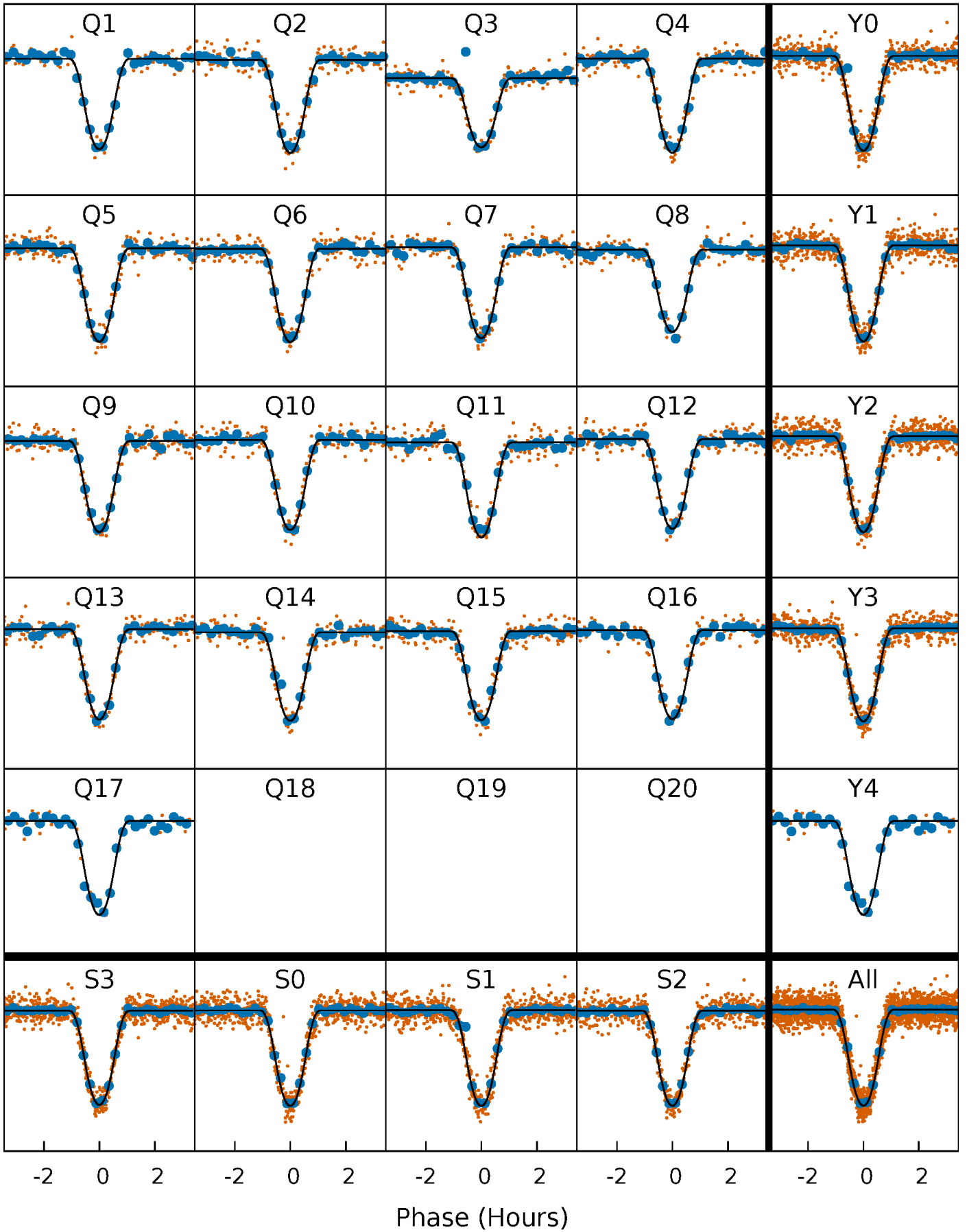
PDC Quarter-Phased Transit Curves

TCE 003230578-01 P= 6.337613 Days $T_0=132.164246$ (BKJD)



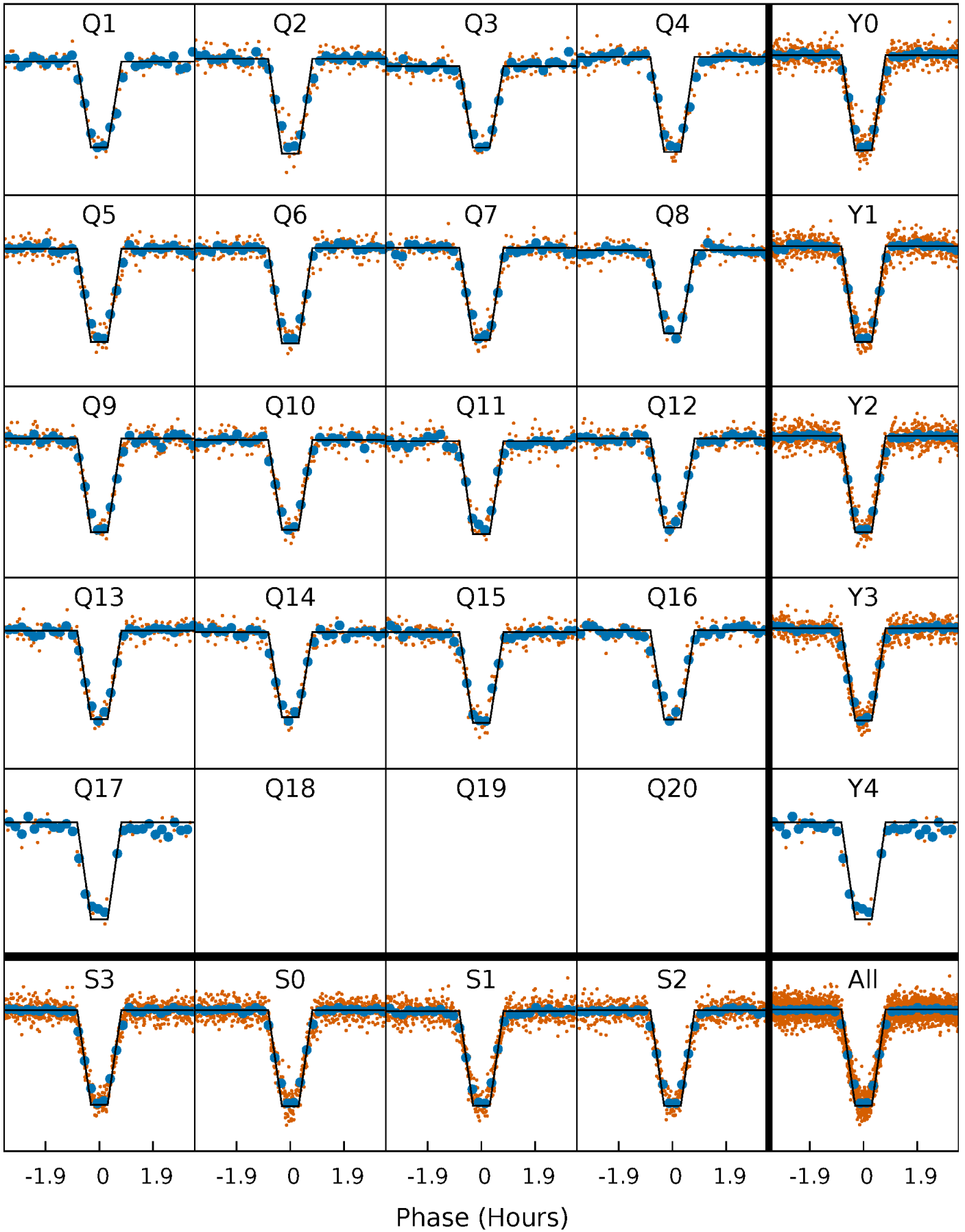
DV Quarter-Phased Transit Curves

TCE 003230578-01 P= 6.337613 Days $T_0=132.164246$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

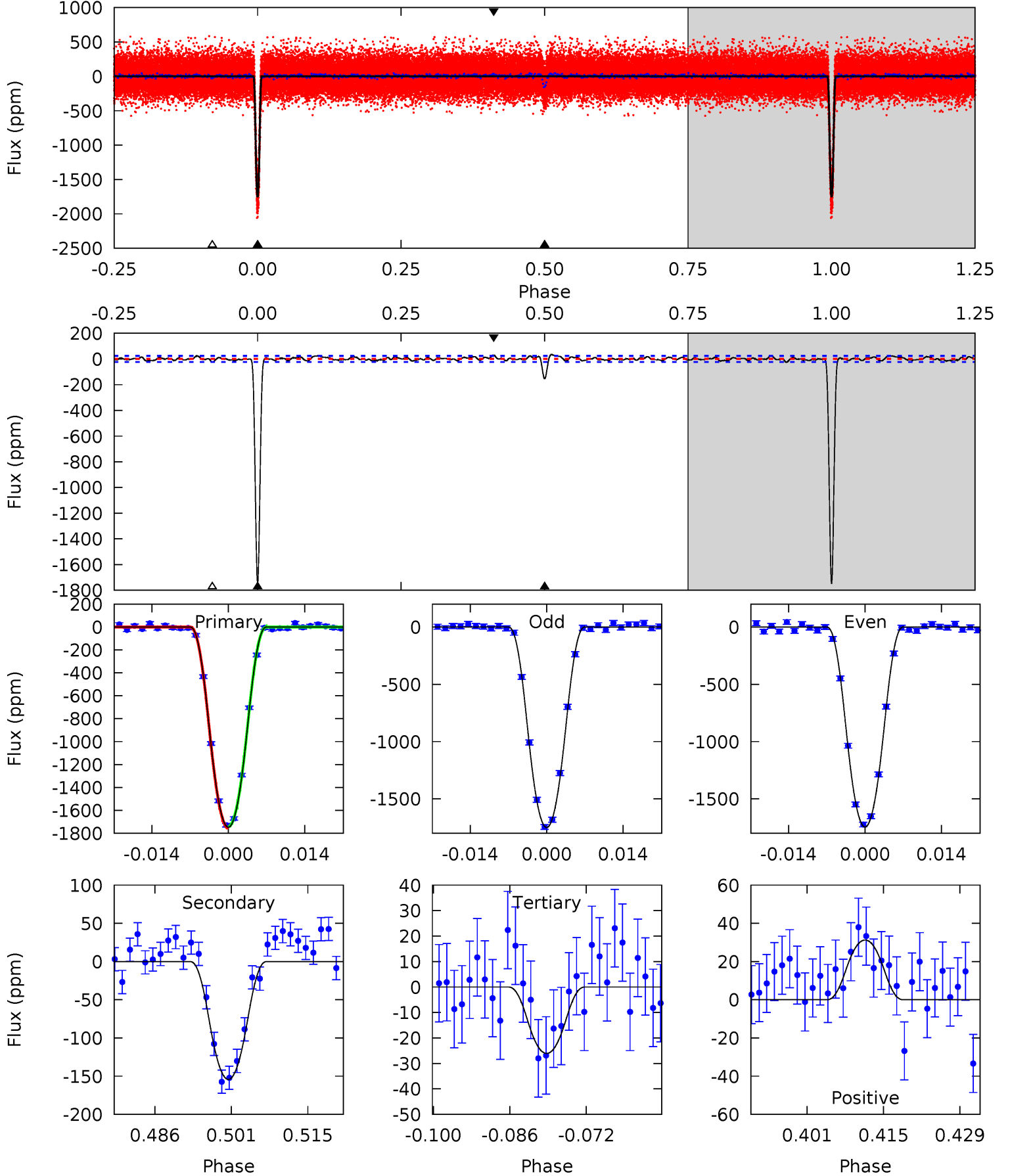
TCE 003230578-01 P= 6.337628 Days $T_0=132.162452$ (BKJD)



DV Model-Shift Uniqueness Test

003230578-01, P = 6.337613 Days, E = 125.826633 Days

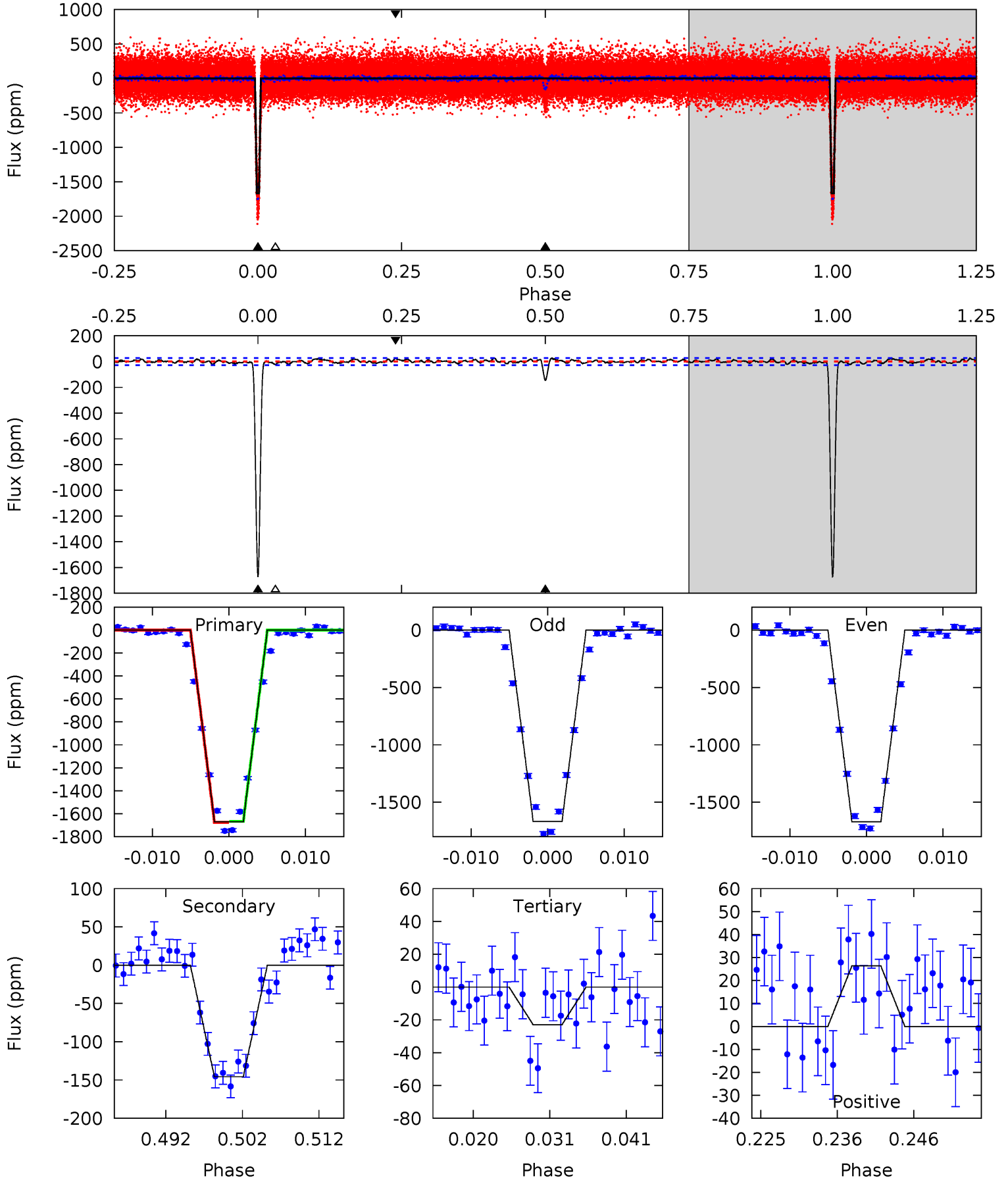
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
364.3	32.1	5.43	6.51	4.96	2.45	1.99	358.8	357.7	26.7	25.6	0.50	0.99	0.02	1.37



Alt Model-Shift Uniqueness Test

003230578-01, P = 6.337628 Days, E = 125.824824 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
297.4	26.0	4.09	4.71	5.02	2.57	1.61	293.4	292.7	21.9	21.3	0.32	0.99	0.02	0.84



Stellar Parameters For KIC 003230578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6581^{+187}_{-234}	$4.138^{+0.220}_{-0.160}$	$-0.340^{+0.250}_{-0.300}$	$1.536^{+0.423}_{-0.423}$	$1.185^{+0.178}_{-0.196}$	$0.461^{+0.594}_{-0.231}$
	+3%/-4%	+5%/-4%	+74%/-88%	+28%/-28%	+15%/-17%	+129%/-50%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003230578-01 / KOI 0381.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-154 ± 5	$8.75^{+1.46}_{-1.48}$	1882^{+141}_{-151}	3607^{+109}_{-102}	$5.581^{+2.335}_{-1.341}$
Alt.	-146 ± 6	$6.98^{+1.21}_{-1.24}$	1872^{+150}_{-151}	3846^{+128}_{-123}	$8.289^{+3.685}_{-2.221}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

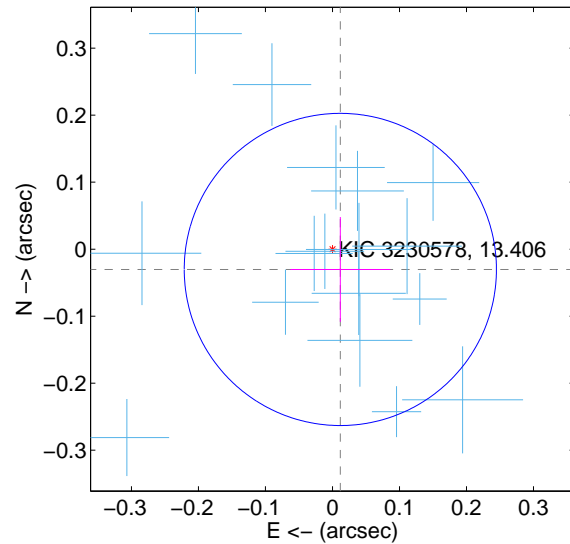
Supplemental centroid analysis for 003230578-01. Kepler magnitude: 13.41. Transit SNR 201.61

There are 17 quarters with good PRF difference image offsets

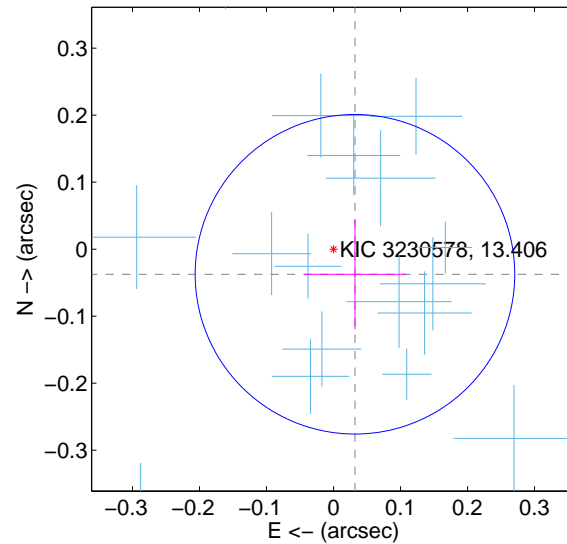
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.032 ± 0.078	0.42	-0.012 ± 0.074	-0.030 ± 0.078
PRF-fit source offset from KIC position	0.049 ± 0.079	0.62	-0.032 ± 0.076	-0.037 ± 0.082
photometric centroid source offset	0.08 ± 0.07	1.15	-0.01 ± 0.06	-0.08 ± 0.07

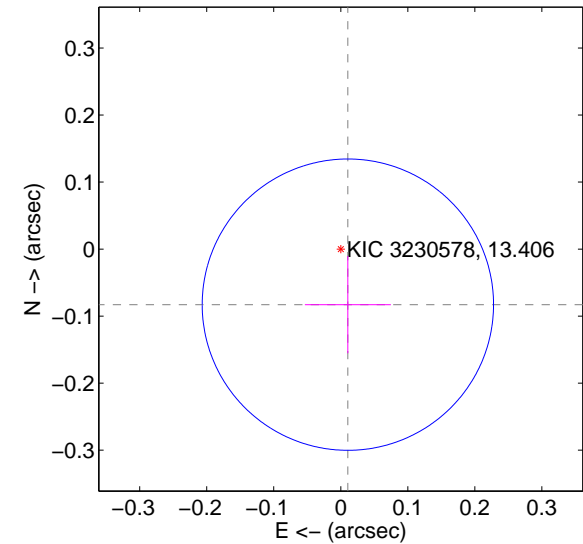
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

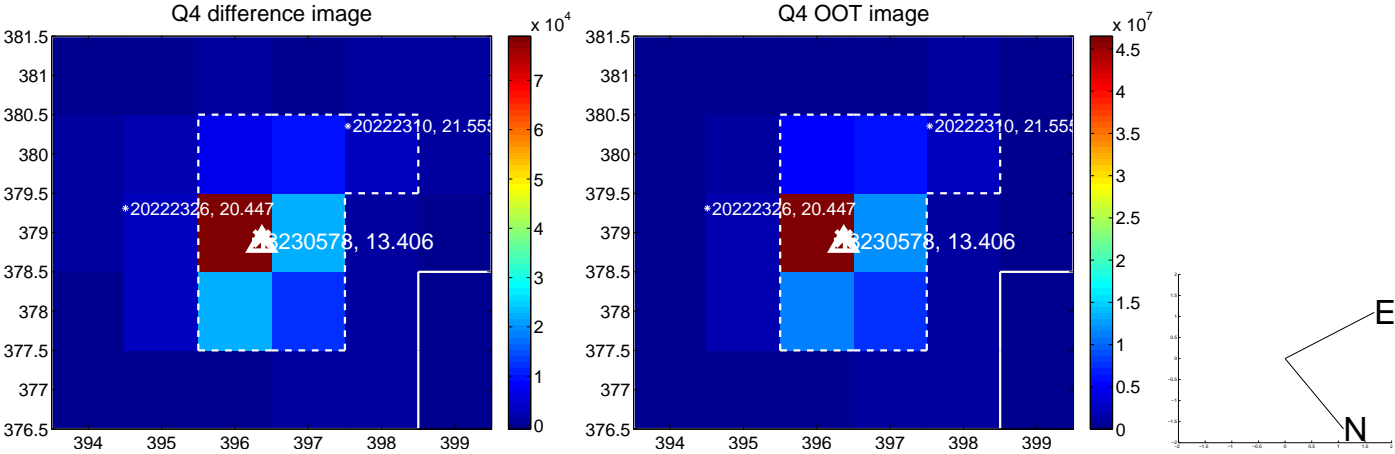
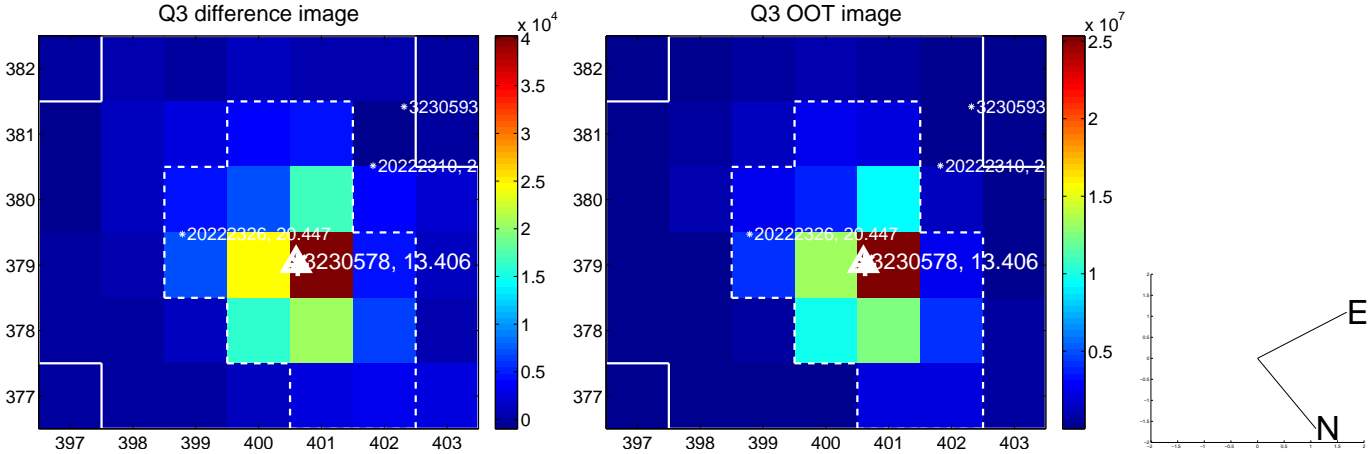
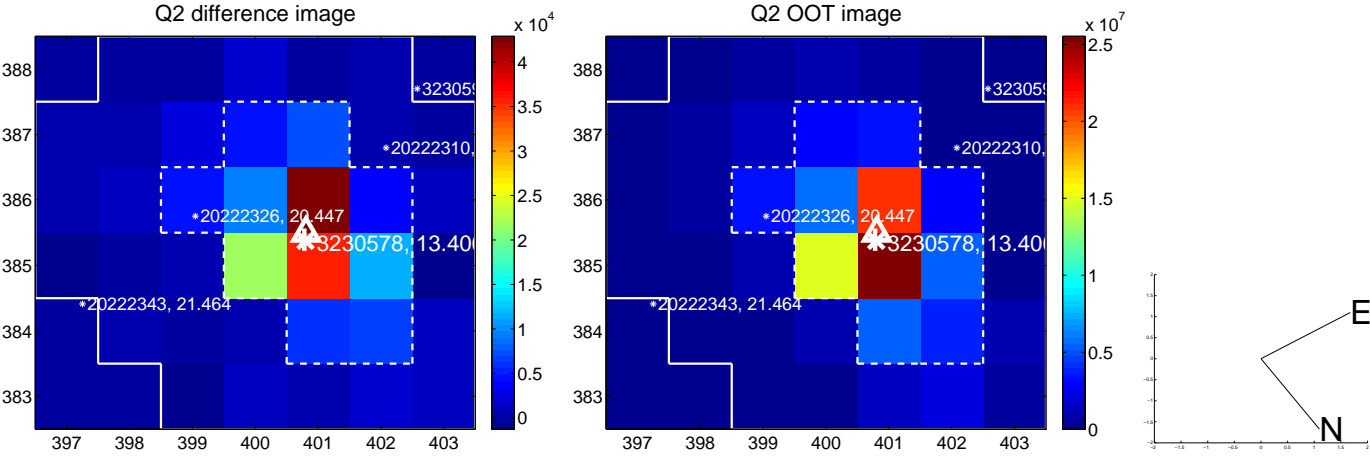
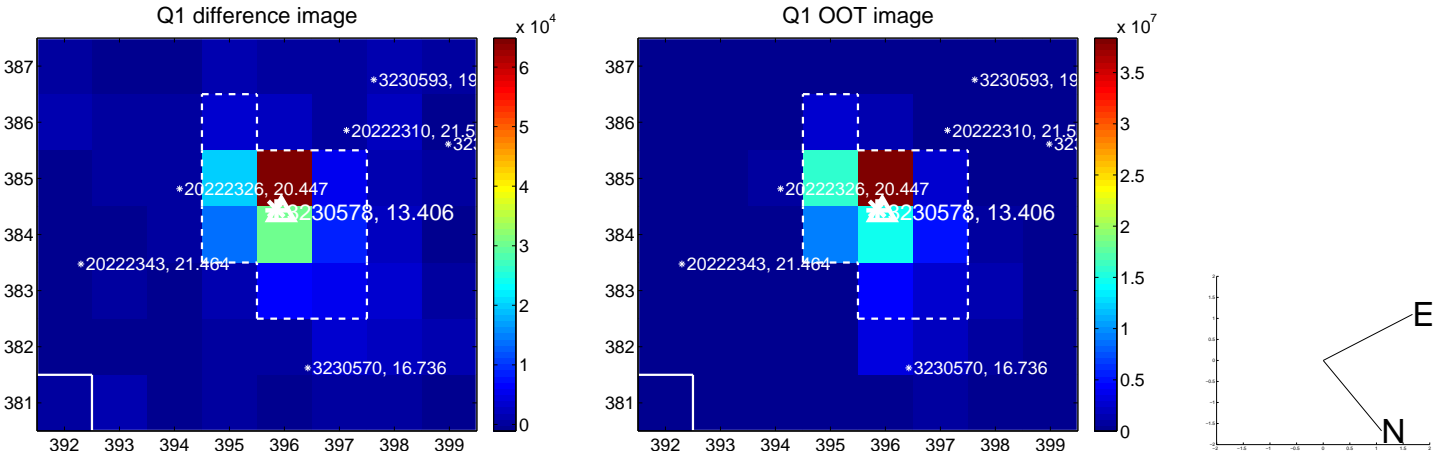


offset from photometric centroids

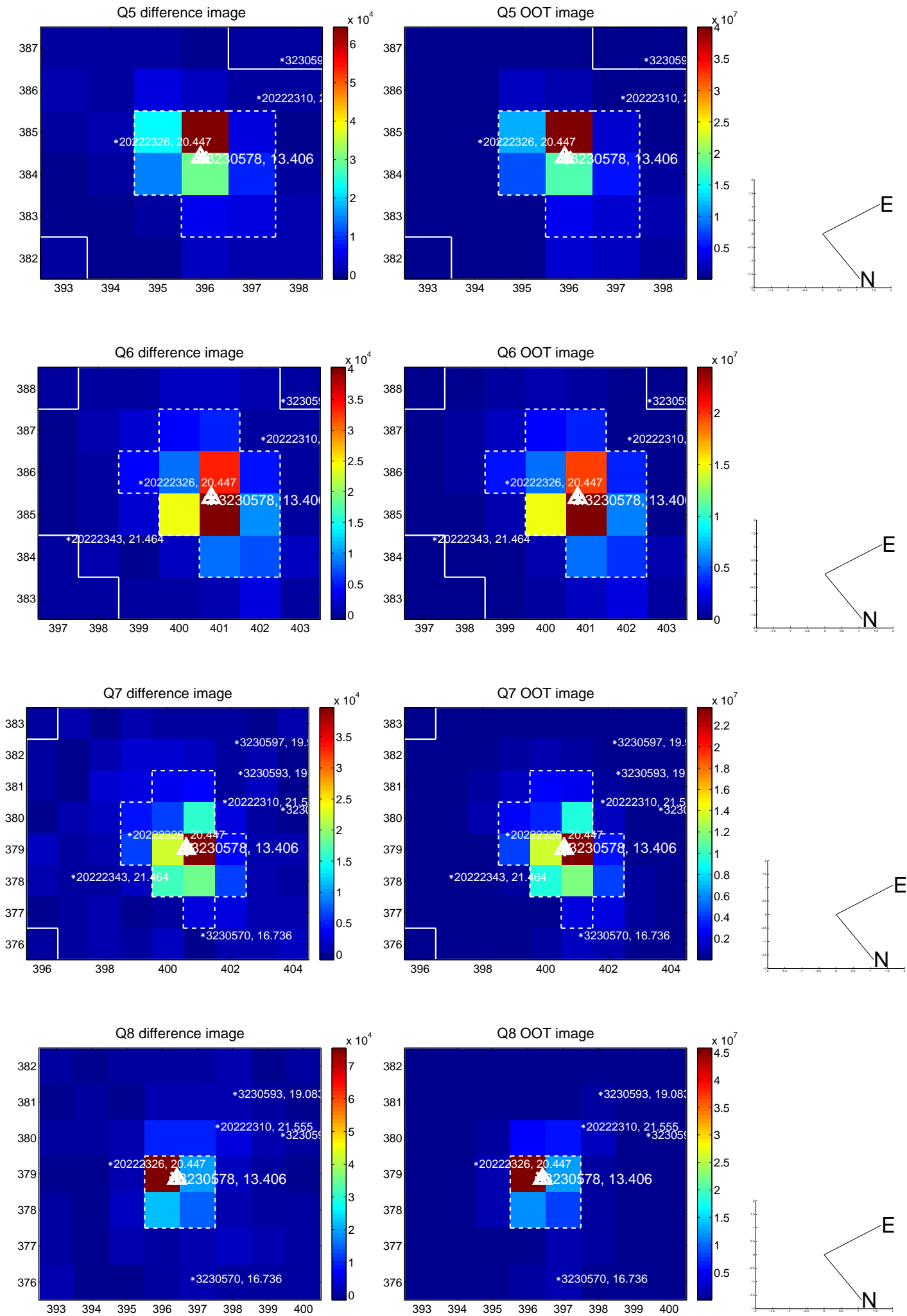


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

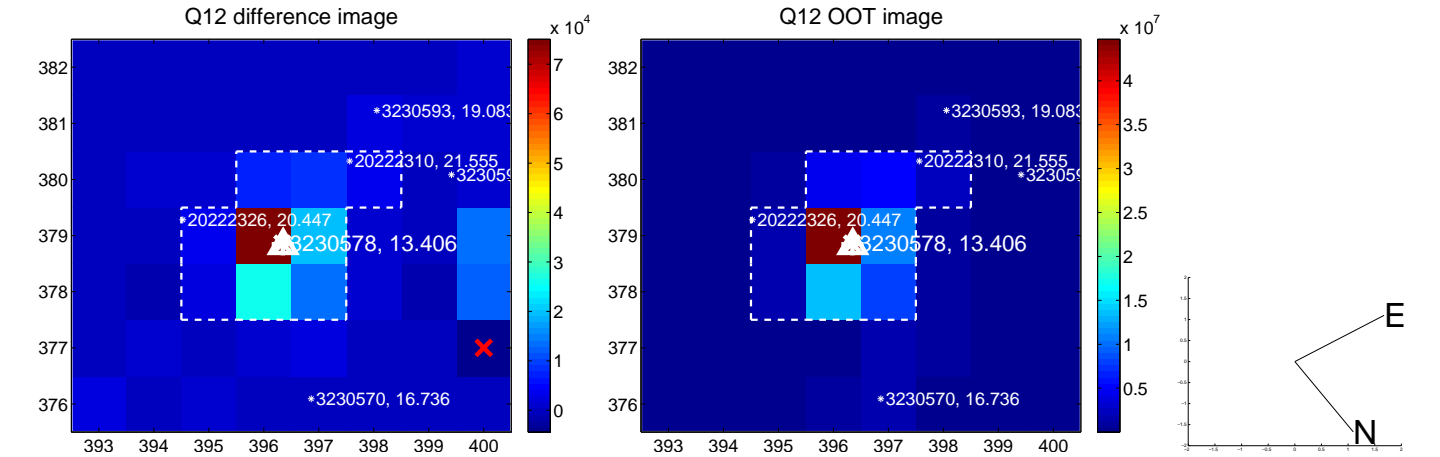
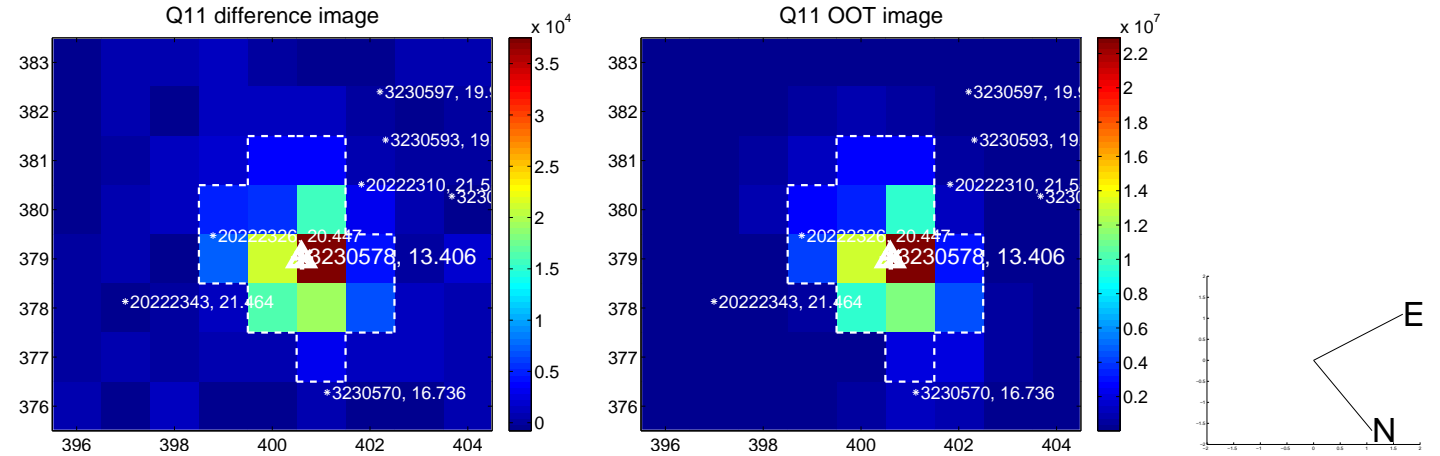
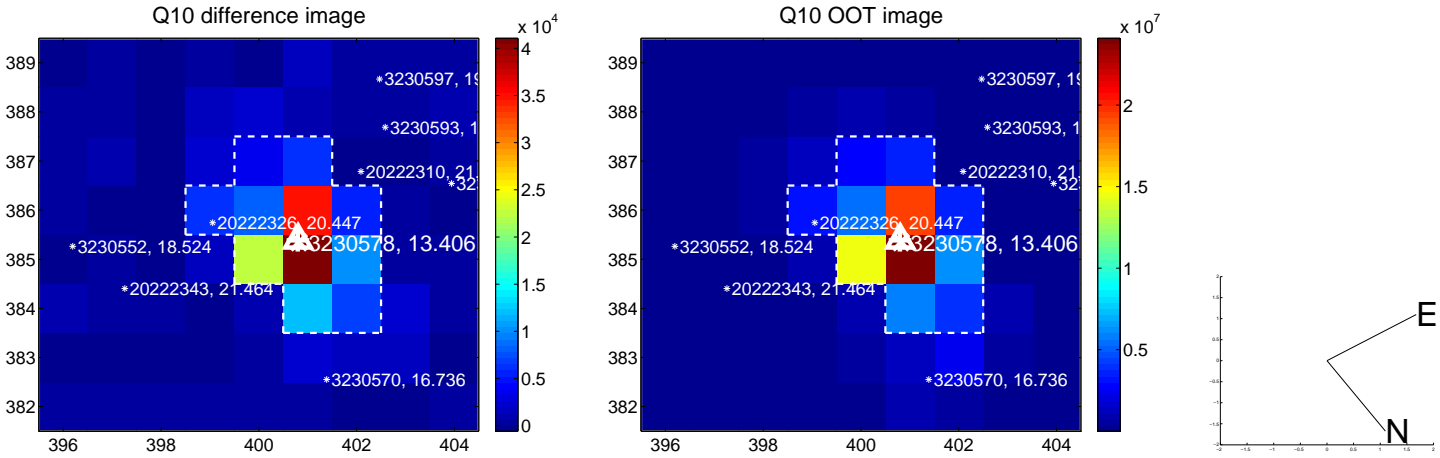
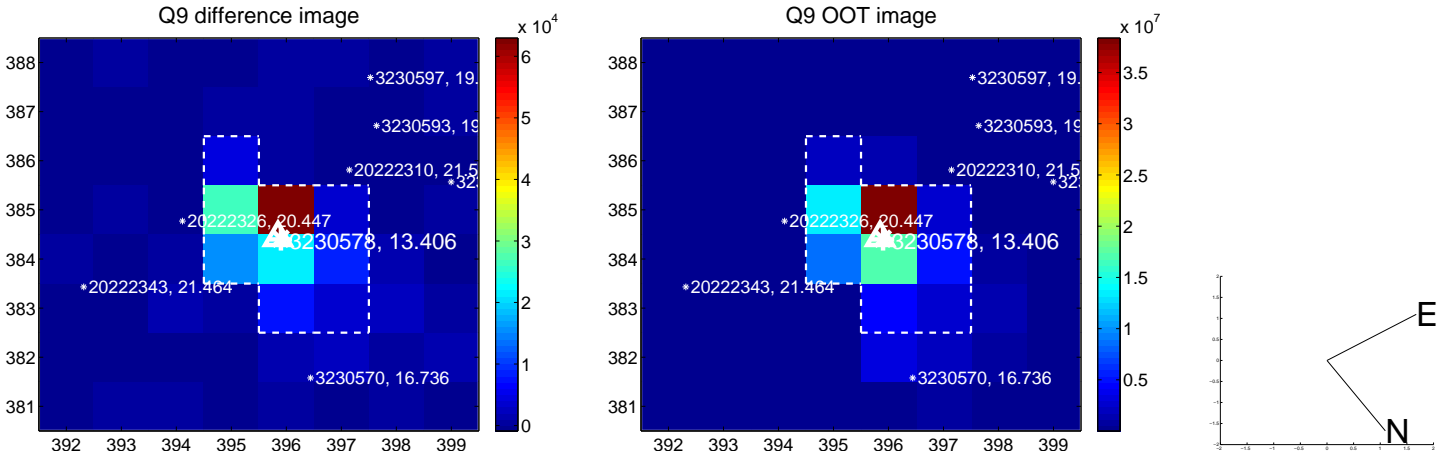
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



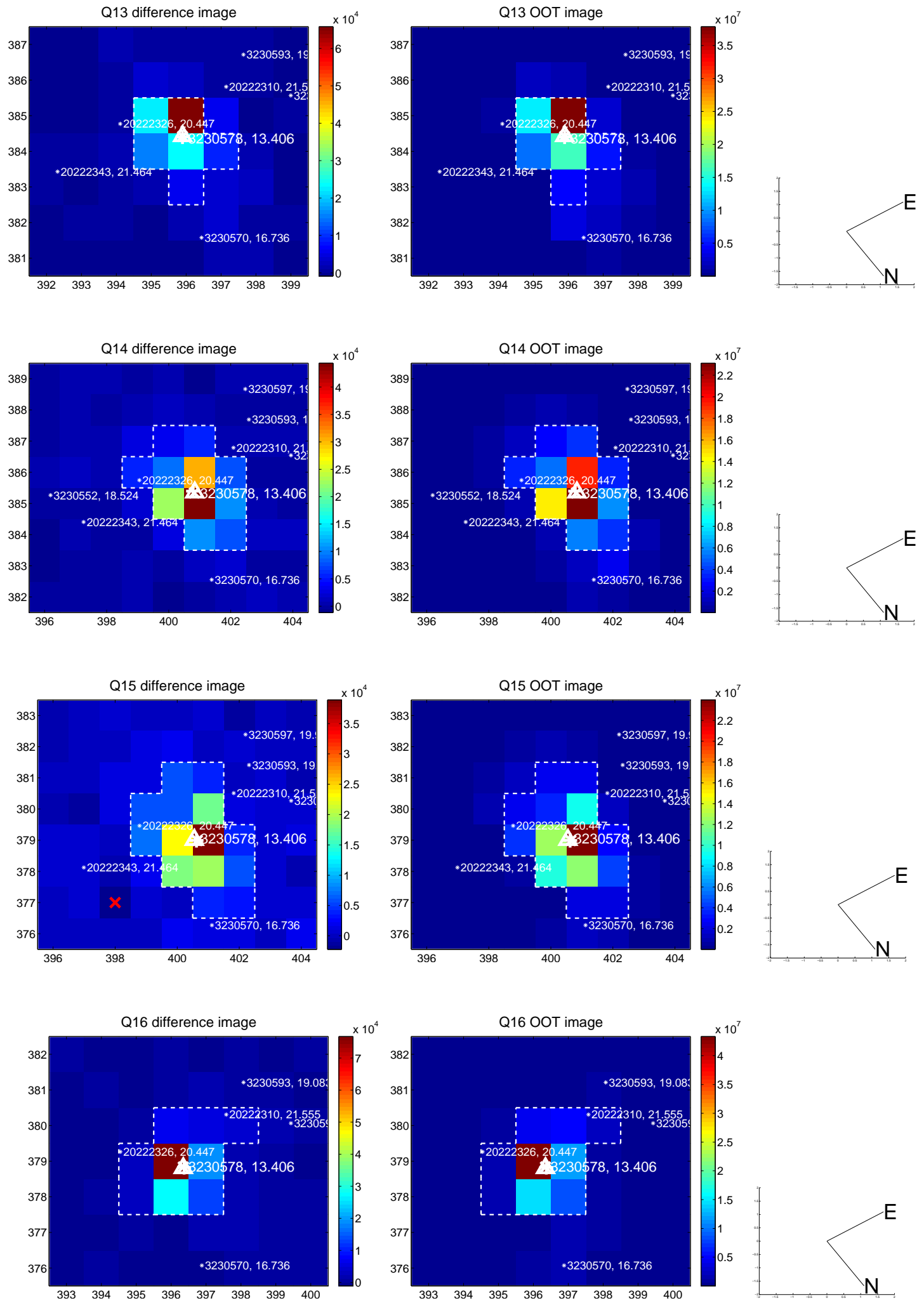
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



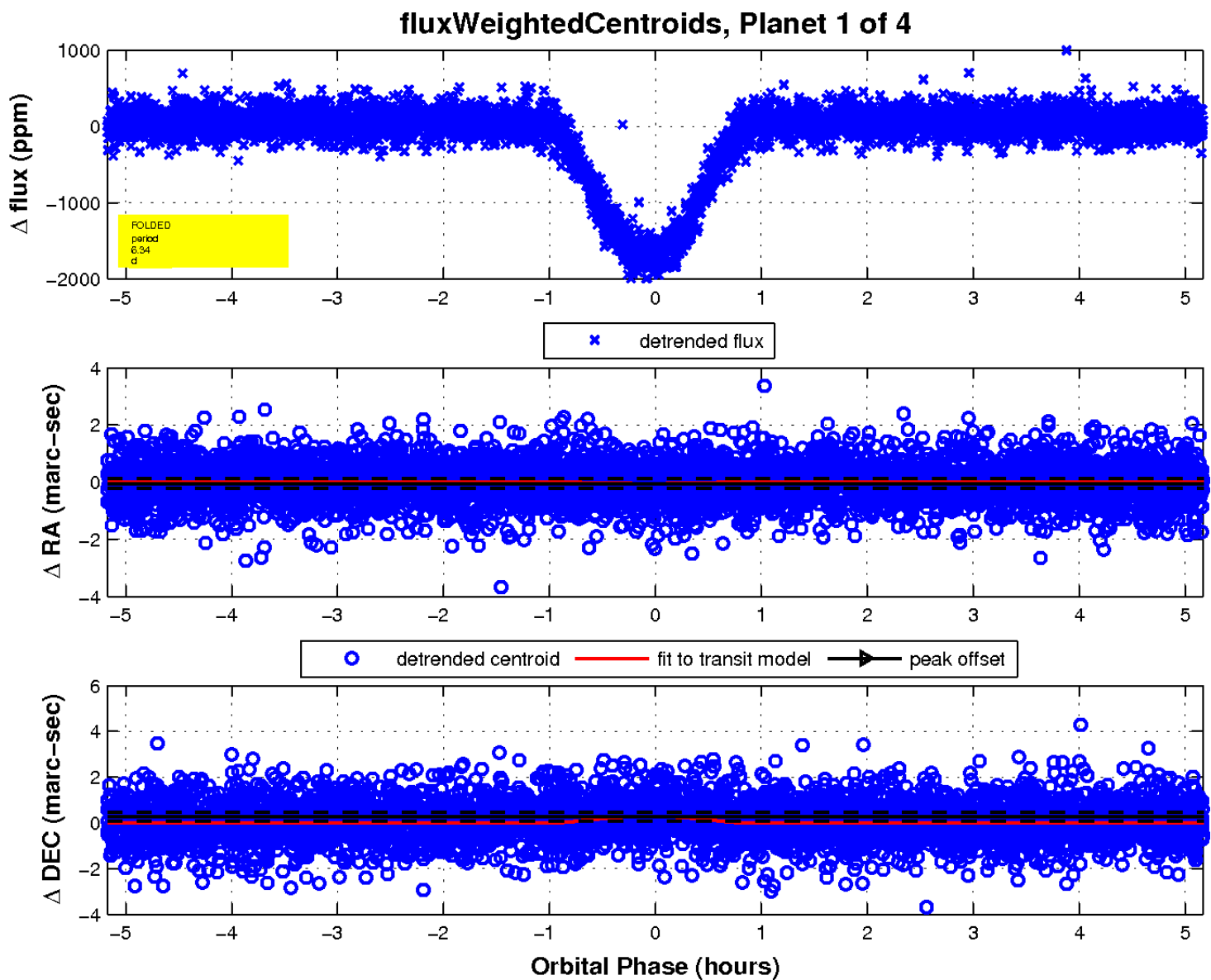
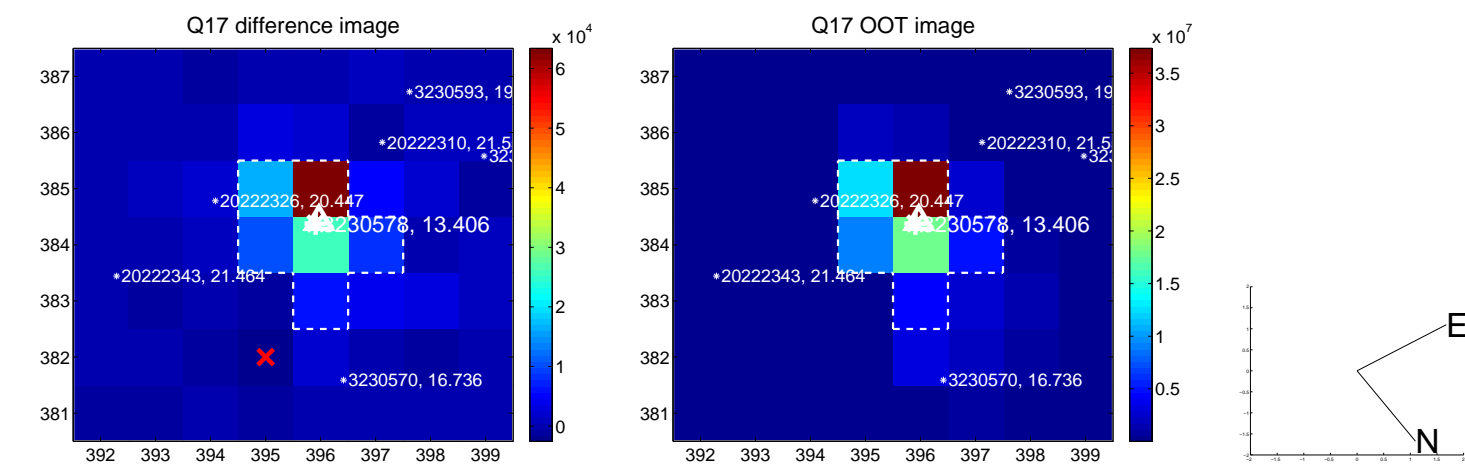
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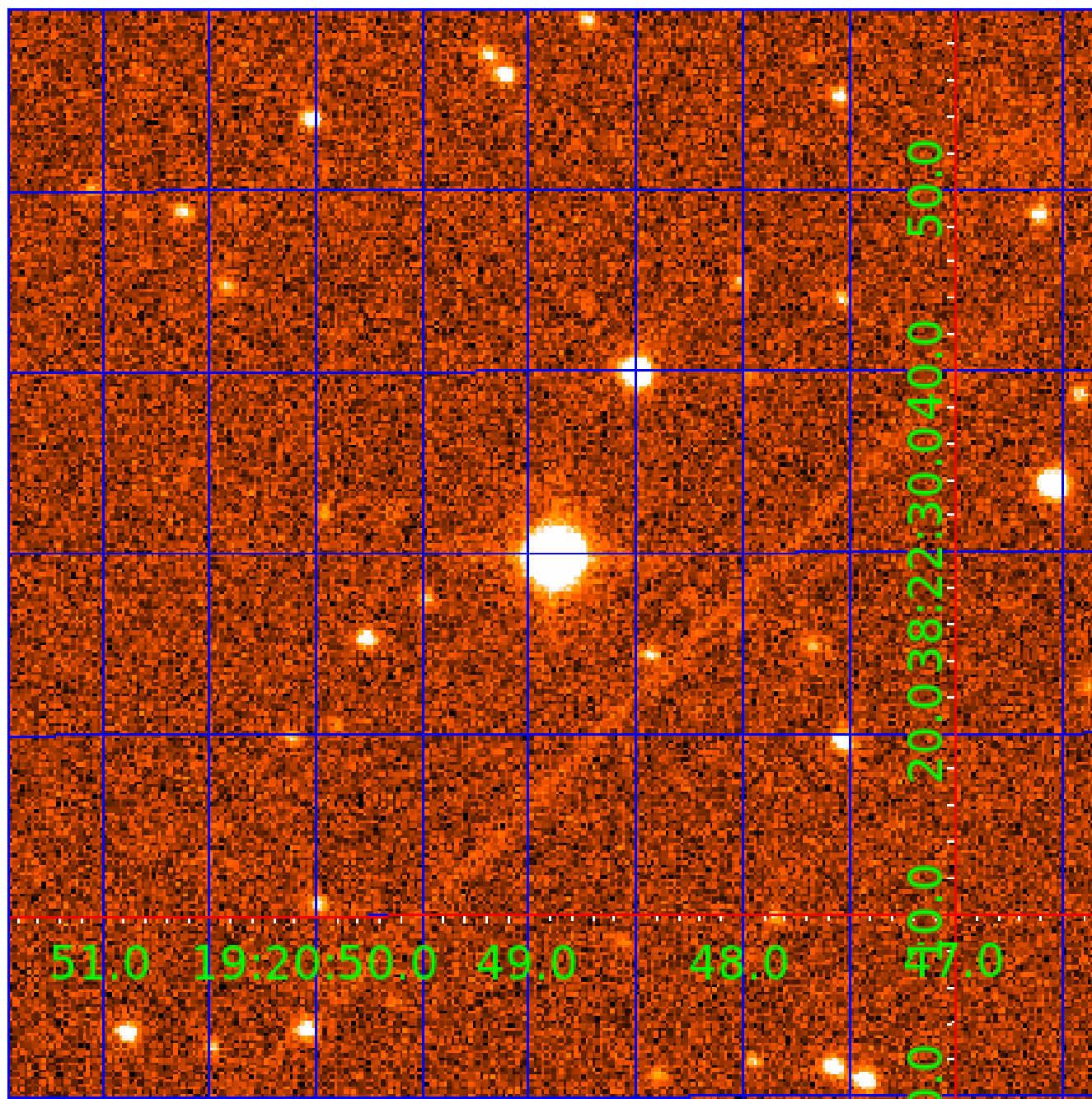


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003230578

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003230578-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003230578-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003230578-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
003230578-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE

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 003230578-02

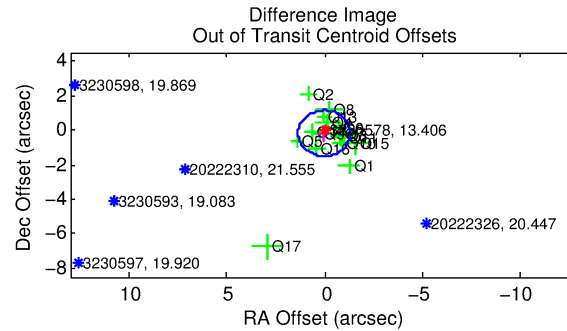
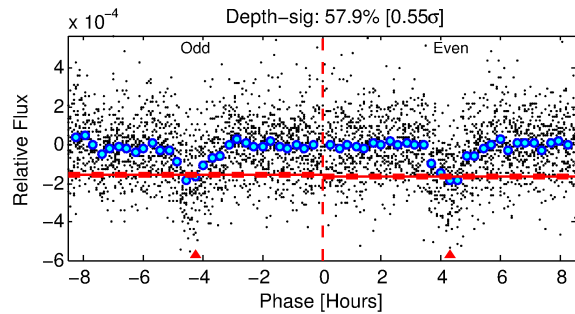
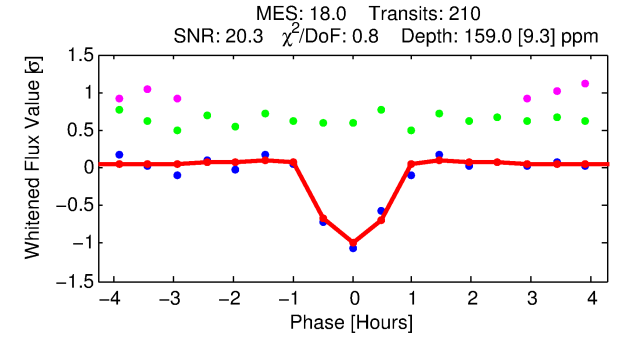
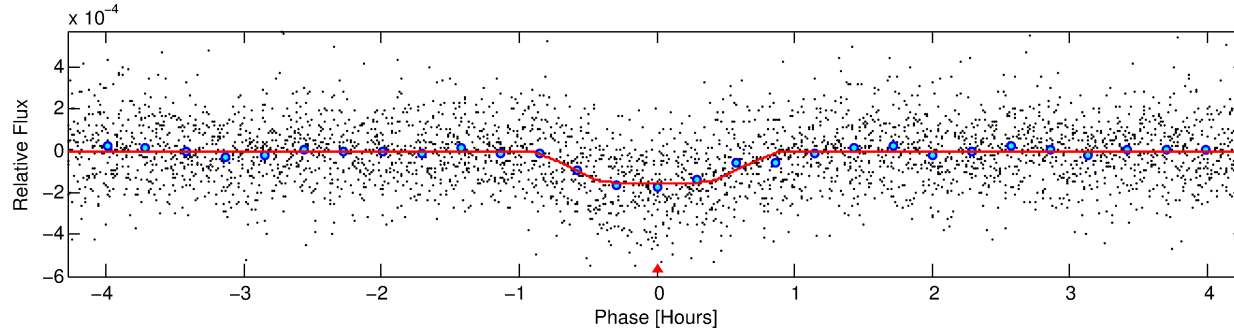
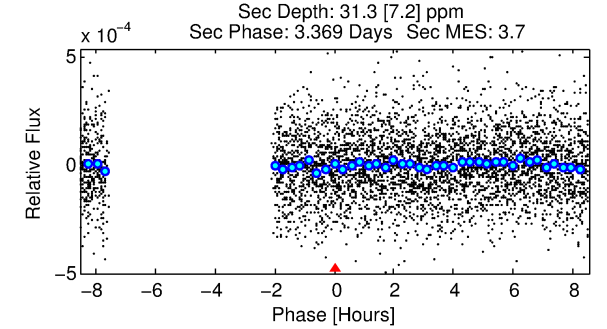
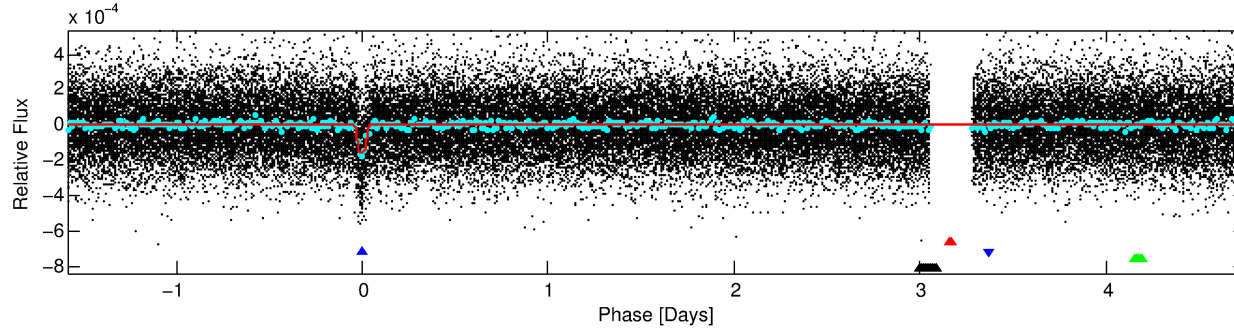
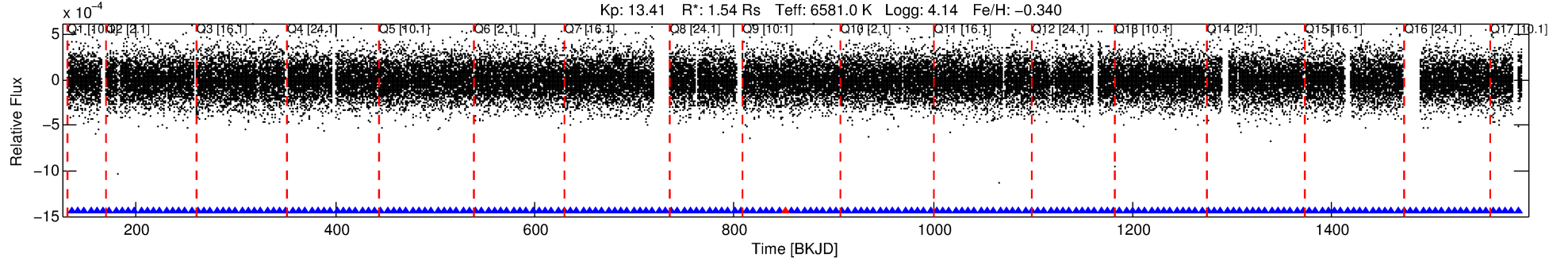
No Significant Match Found

DV One-Page Summary

KIC: 3230578 Candidate: 2 of 4 Period: 6.338 d

KOI: K00381 Corr: No Ephemeris Match

Kp: 13.41 R*: 1.54 Rs Teff: 6581.0 K Logg: 4.14 Fe/H: -0.340



DV Fit Results:

Period = 6.33766 [0.00001] d
Epoch = 135.3294 [0.0015] BKJD
Rp/R* = 0.0135 [0.0037]
a/R* = 15.89 [24.92]
b = 0.90 [0.34]
Seff = 789.01 [323.38]
Teq = 1351 [138] K
Rp = 2.27 [0.87] Re
a = 0.0709 [0.0177] AU
Ag = 16.86 [11.84] [1.34σ]
Teffp = 4234 [640] K [4.40σ]

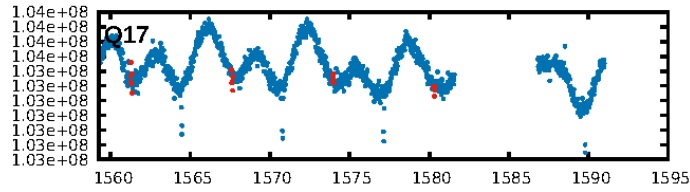
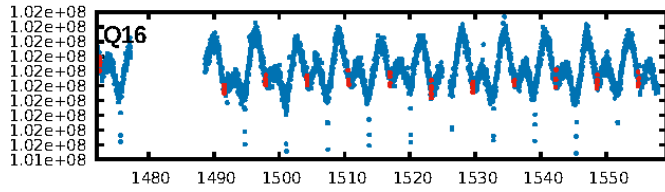
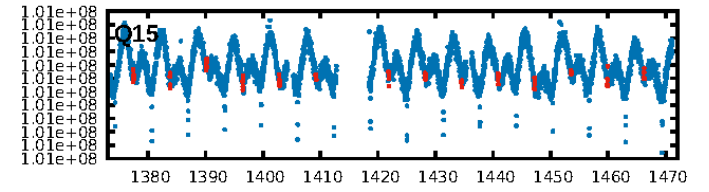
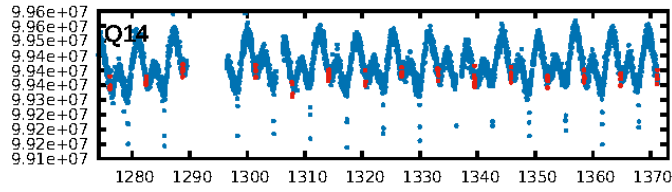
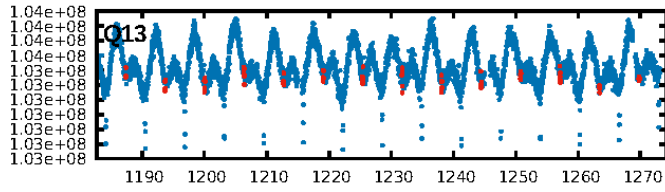
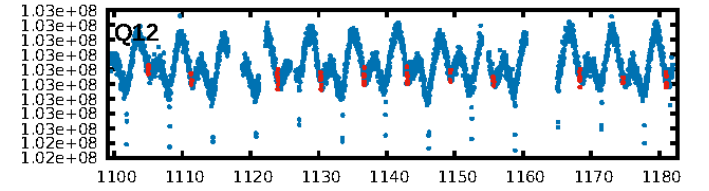
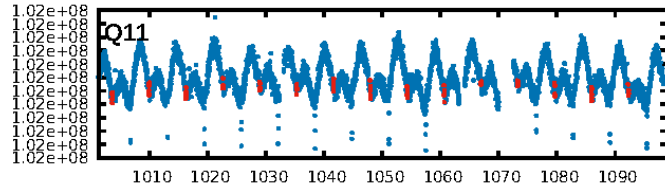
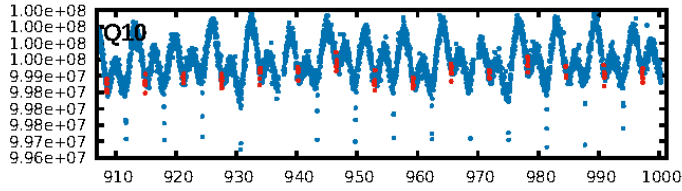
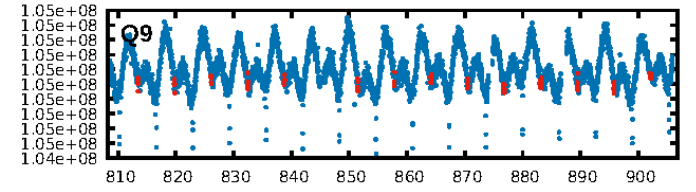
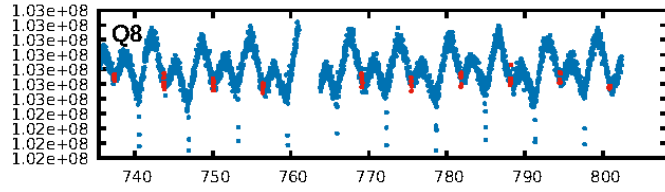
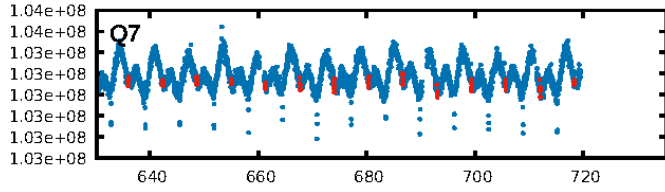
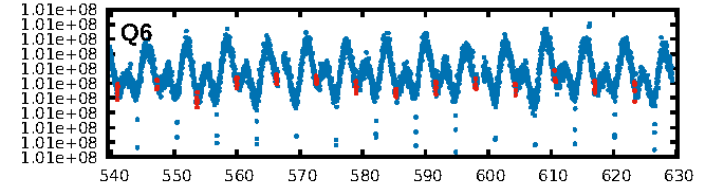
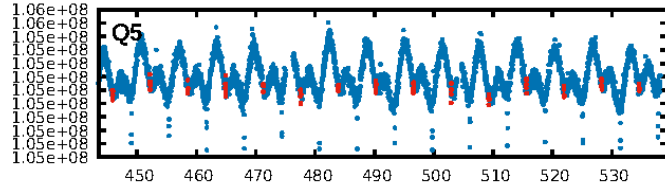
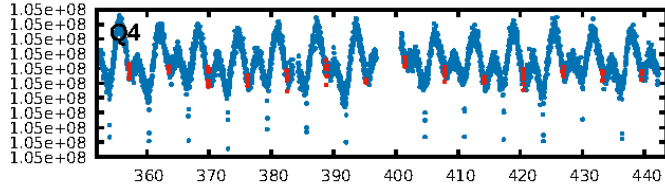
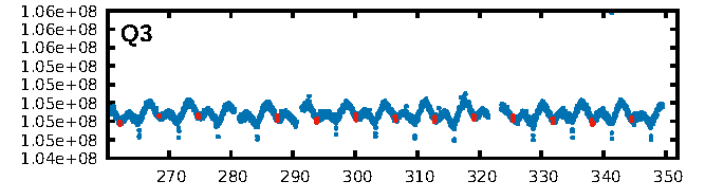
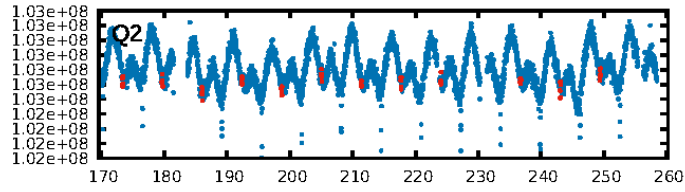
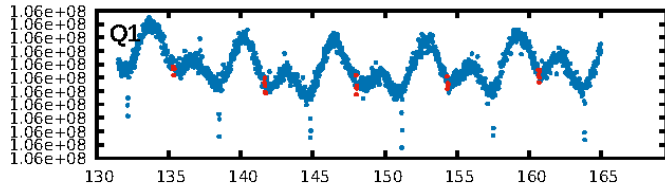
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.58e-68
RollingBand-fgt: 1.00 [200/201]
GhostDiagnostic-chr: 2.3
Centroid-sig: 0.2%
Centroid-so: 1.260 arcsec [1.85σ]
OotOffset-rm: 0.185 arcsec [0.42σ]
KicOffset-rm: 0.194 arcsec [0.40σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

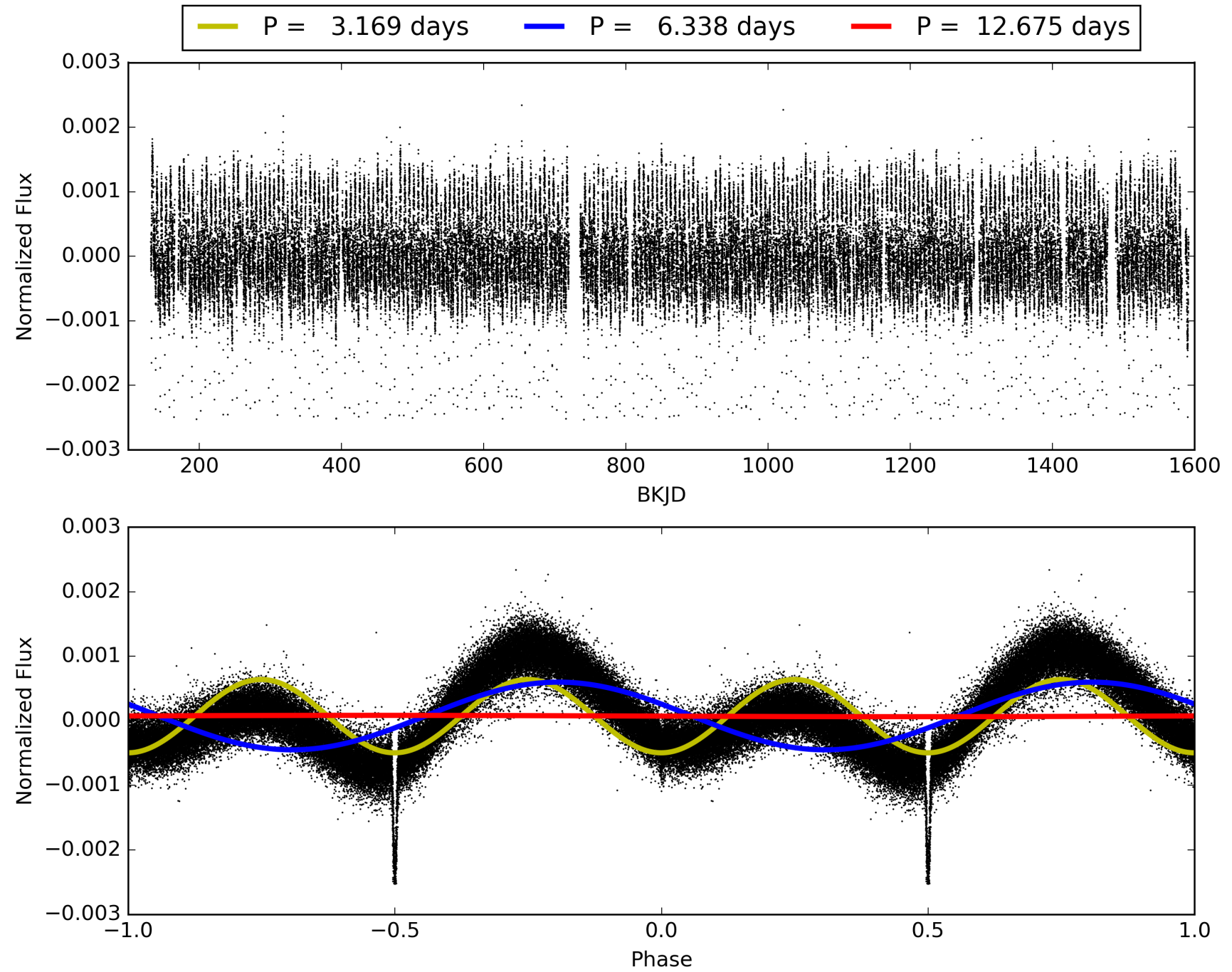
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:30:20 Z

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

TCE 003230578-02, PDC Light Curves

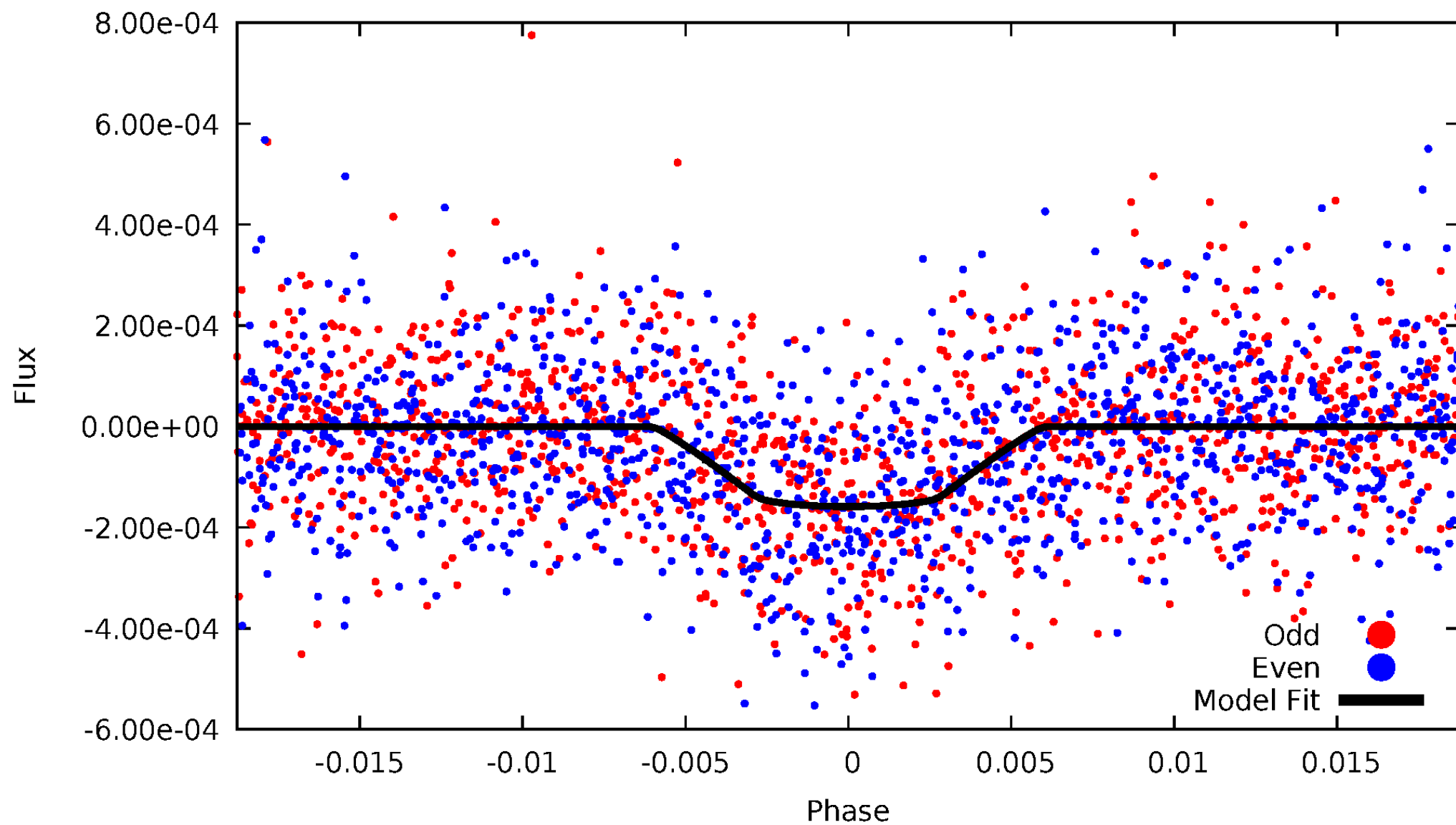


TCE 003230578-02



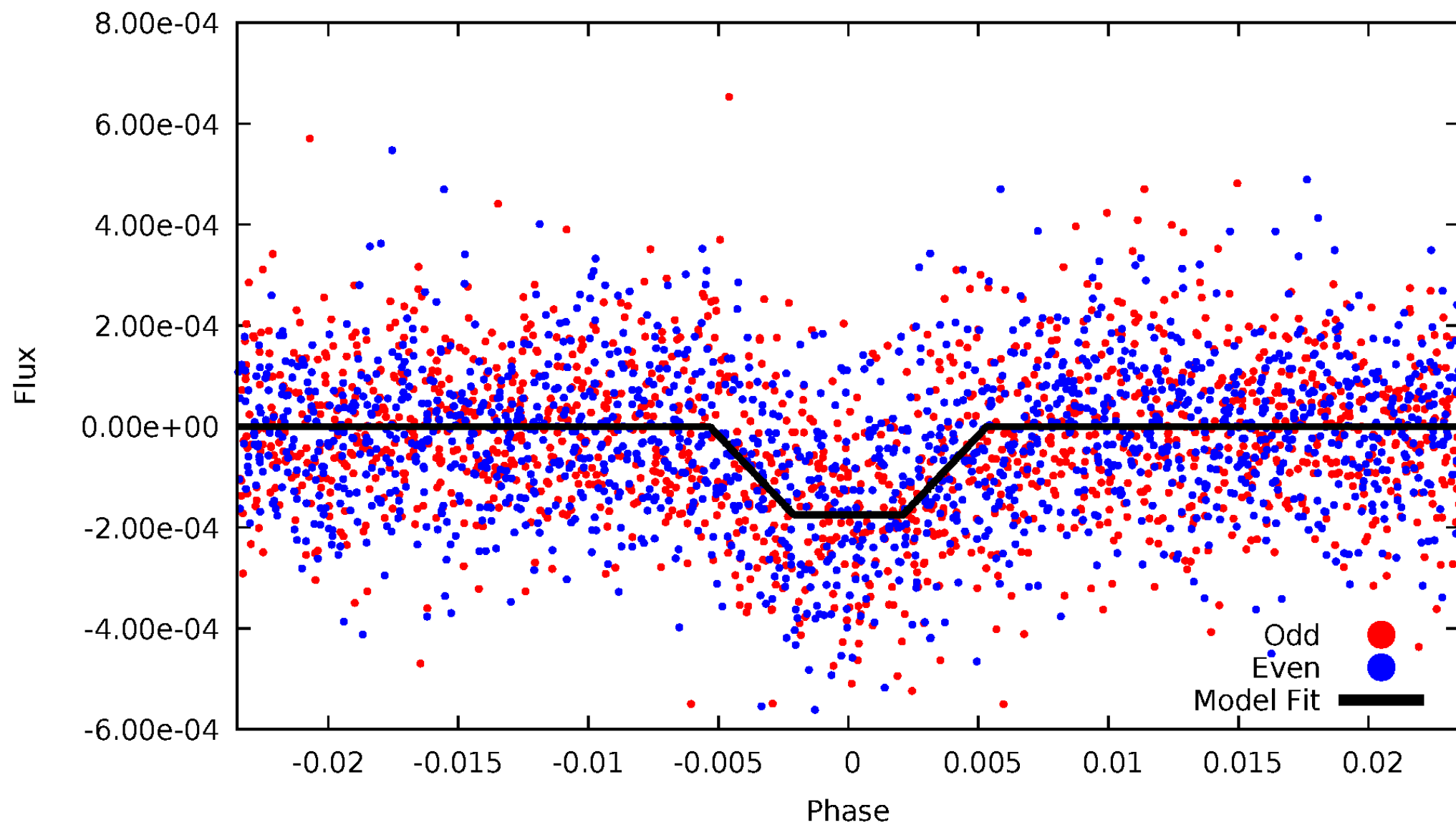
DV Odd/Even

TCE 003230578-02



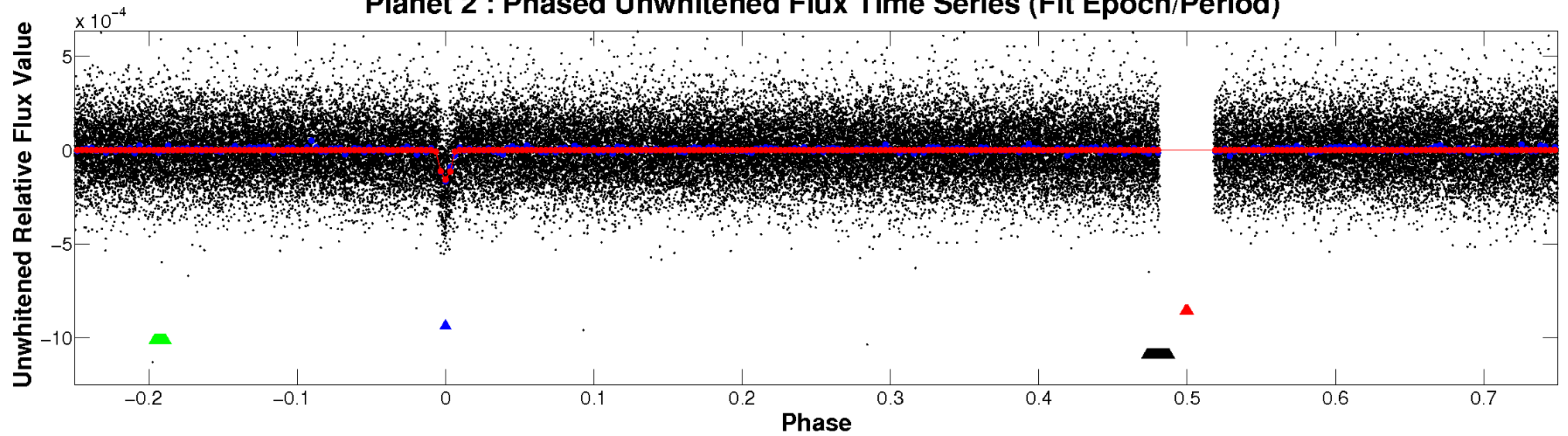
ALT Odd/Even

TCE 003230578-02

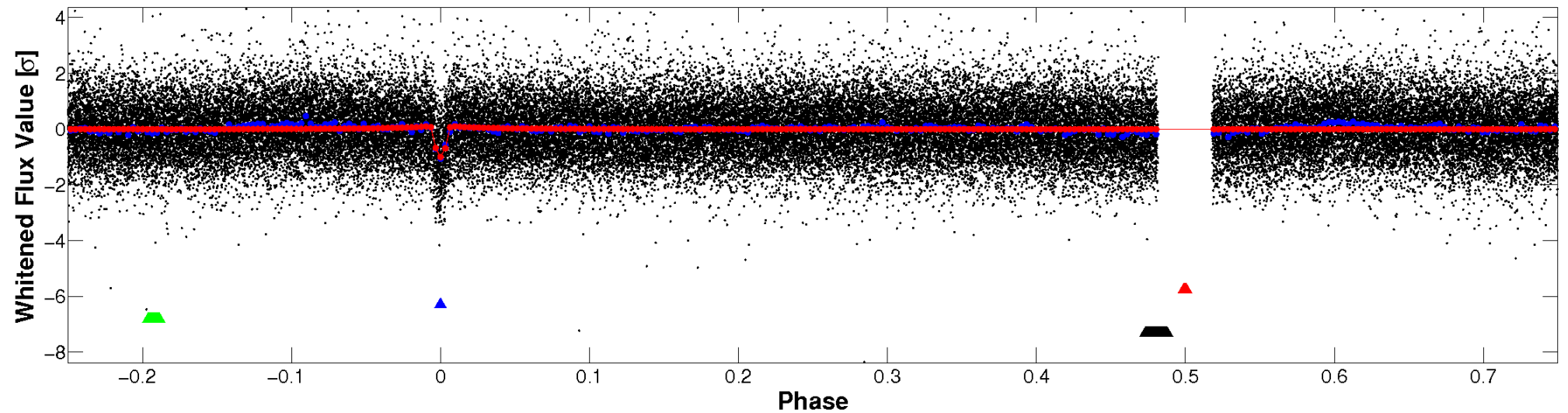


Non-Whitened Vs. Whitened Light Curve

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

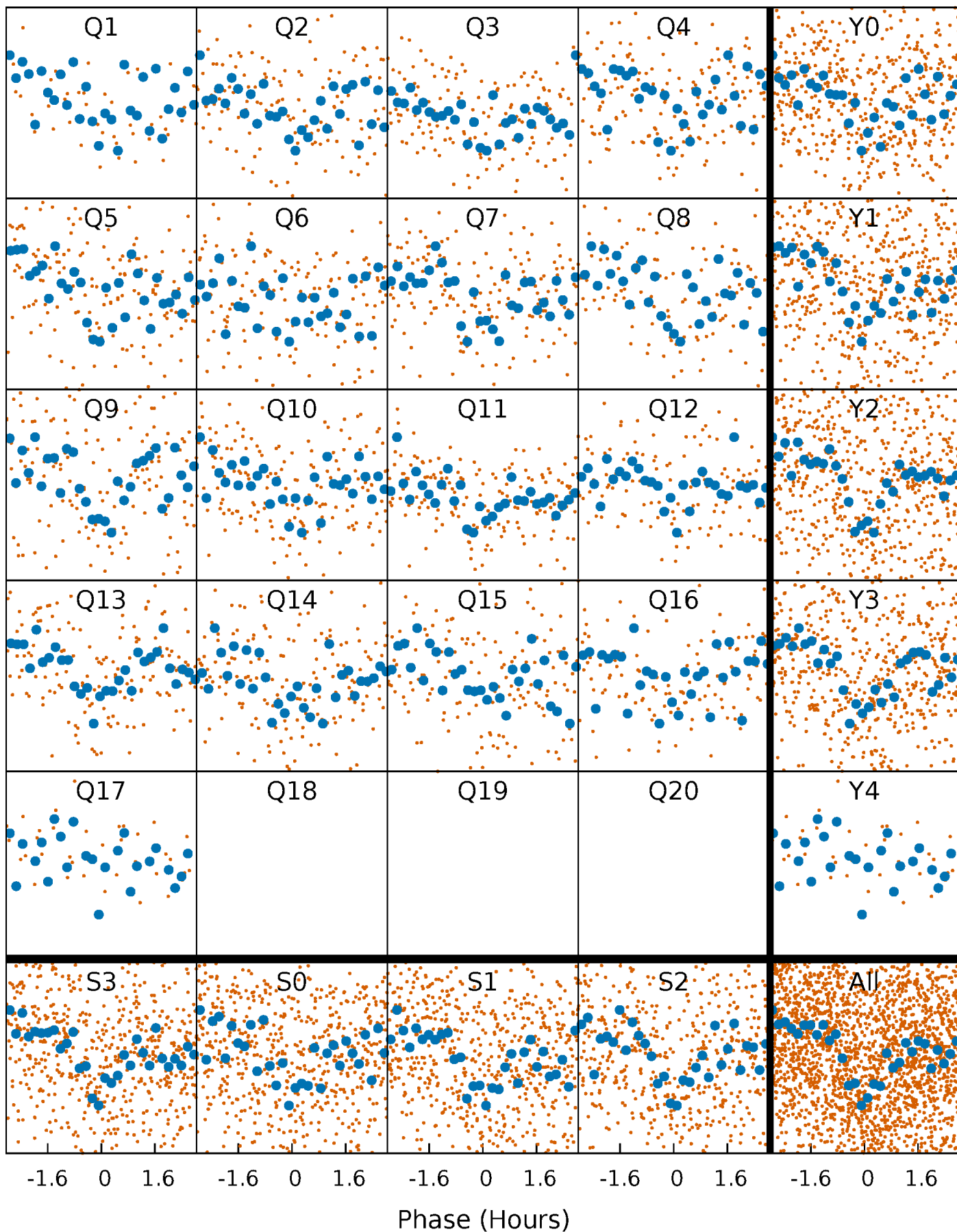


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



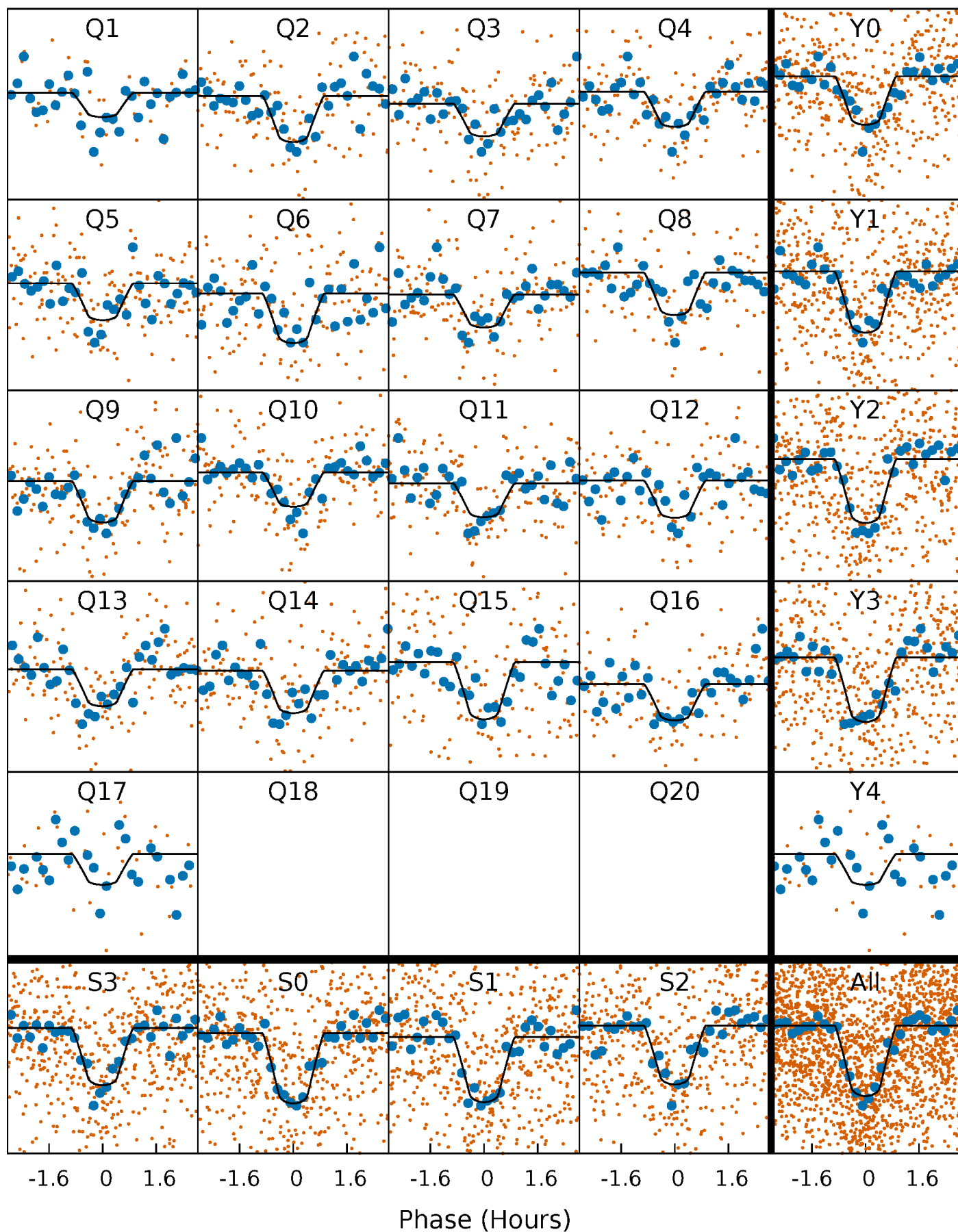
PDC Quarter-Phased Transit Curves

TCE 003230578-02 P= 6.337658 Days $T_0=135.329382$ (BKJD)



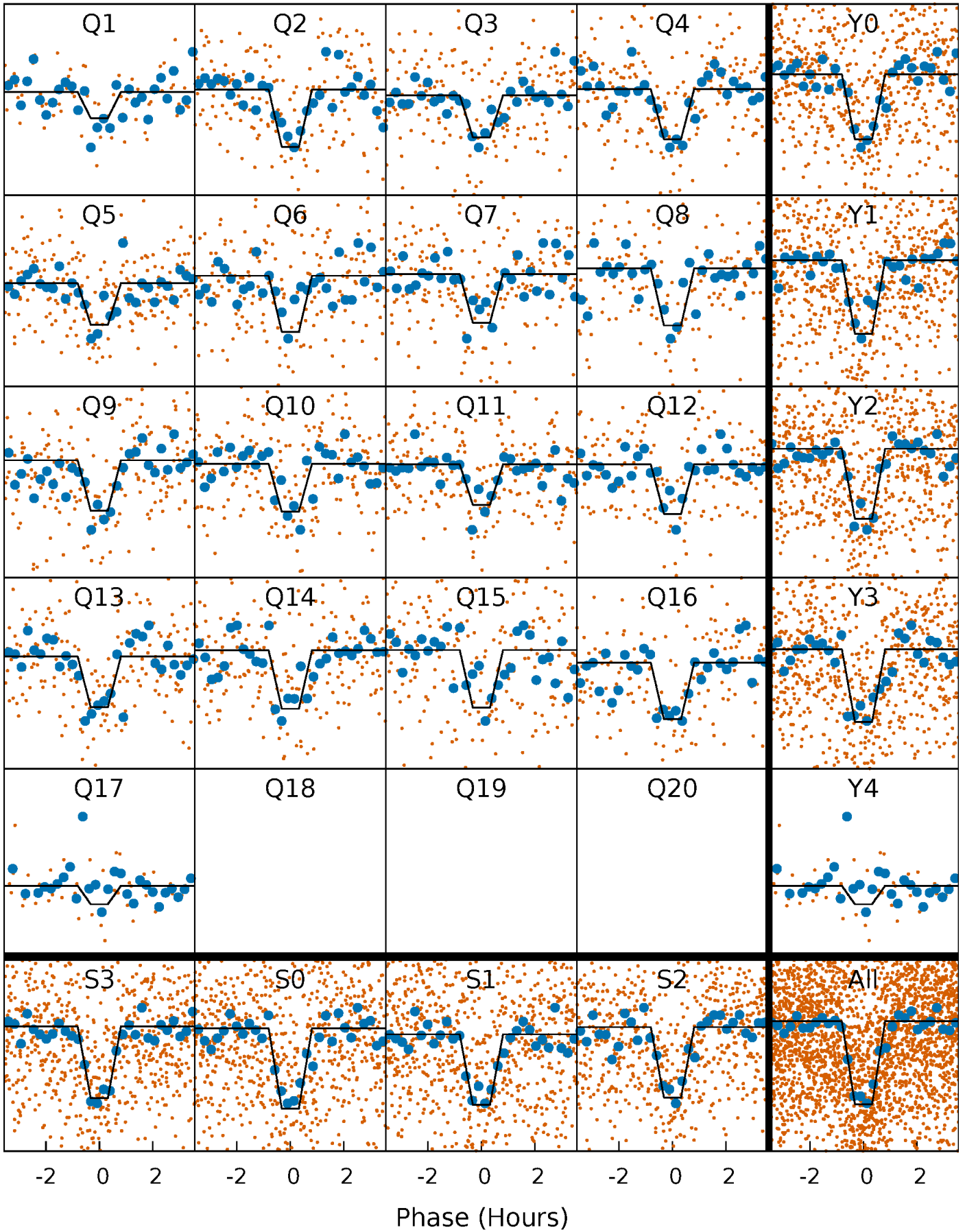
DV Quarter-Phased Transit Curves

TCE 003230578-02 P= 6.337658 Days $T_0=135.329382$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

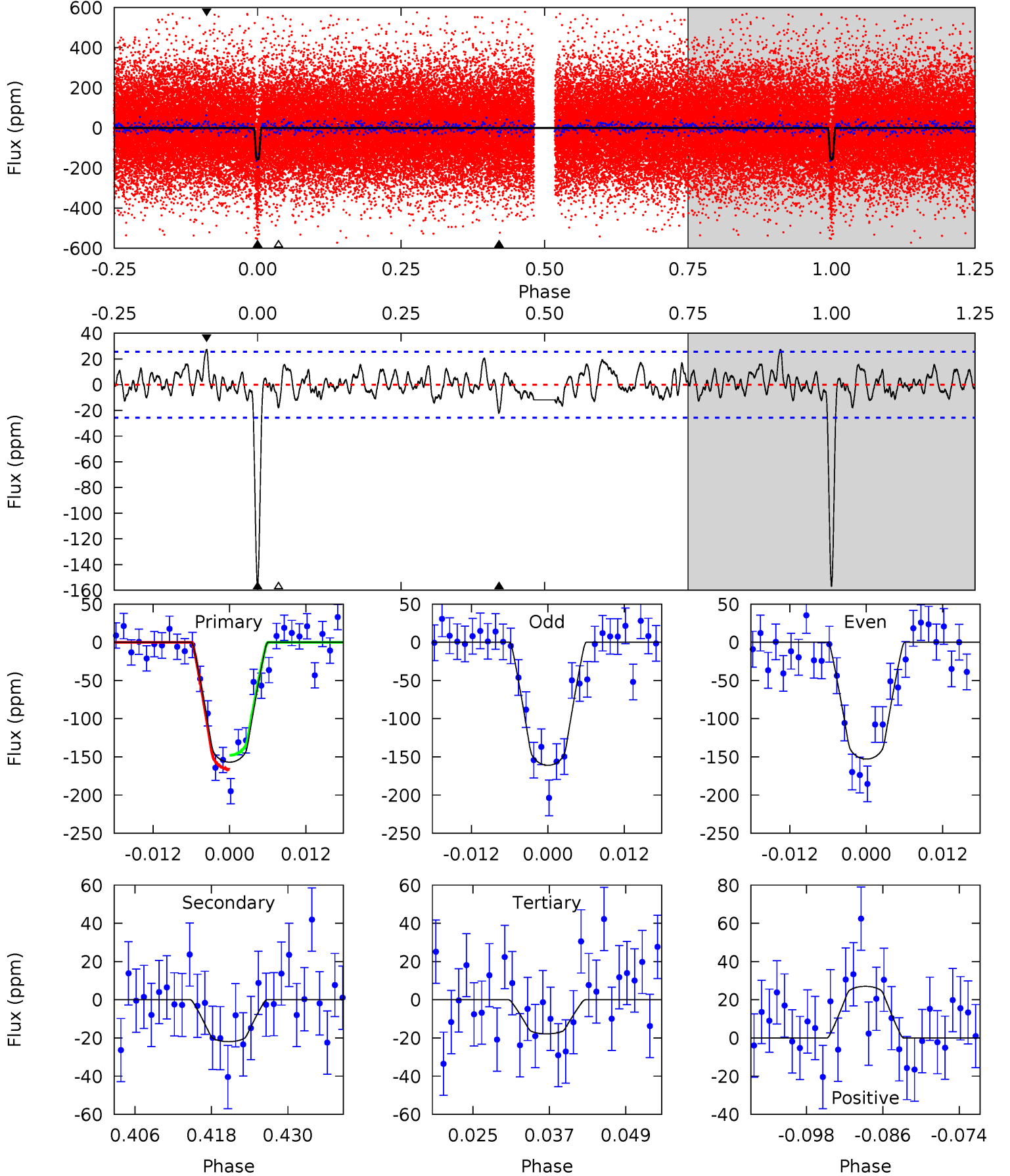
TCE 003230578-02 $P = 6.337628$ Days $T_0 = 135.332170$ (BKJD)



DV Model-Shift Uniqueness Test

003230578-02, P = 6.337658 Days, E = 128.991724 Days

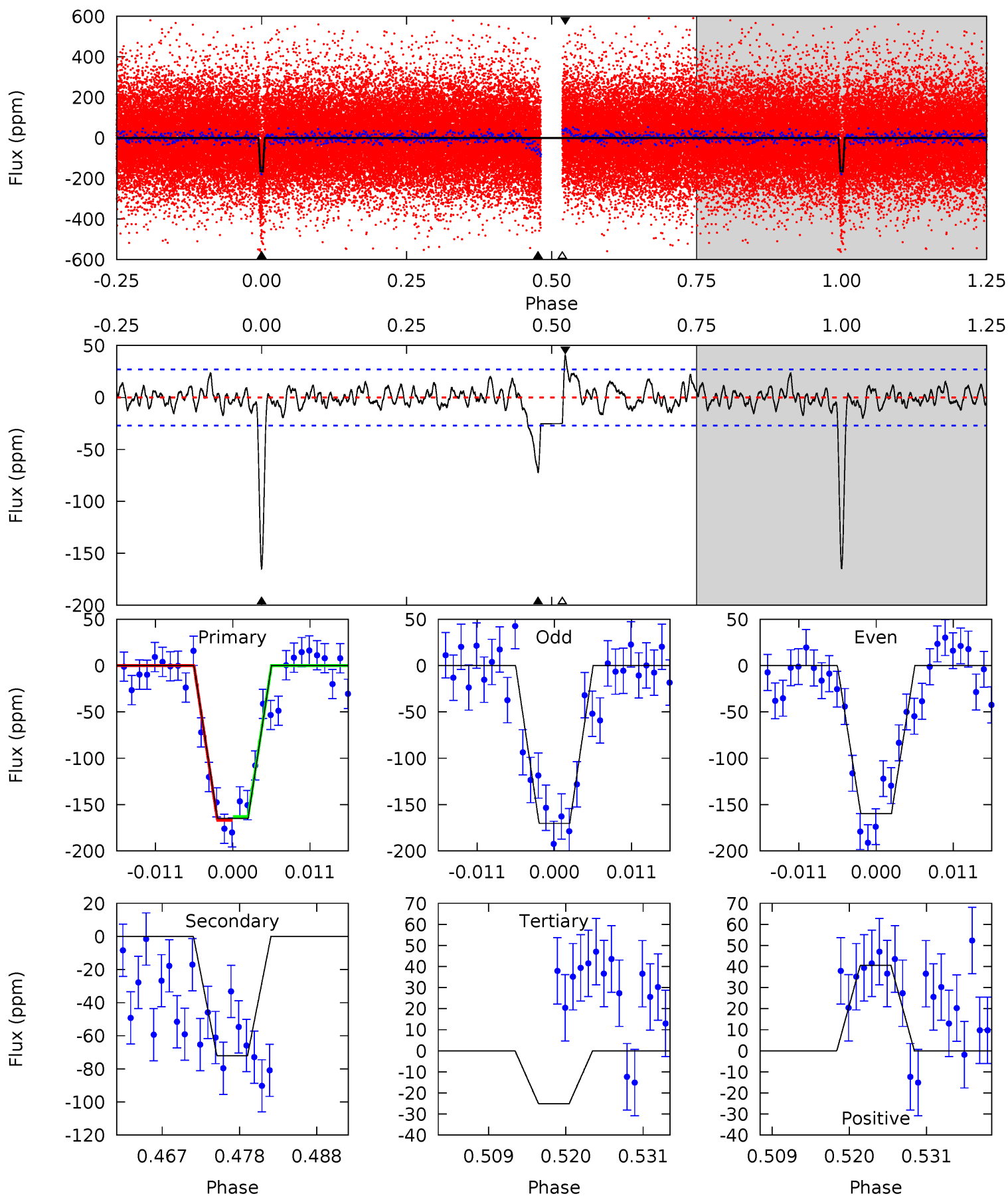
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.5	4.26	3.47	5.26	4.99	2.50	1.51	27.0	25.3	0.79	-0.99	0.79	0.99	0.15	1.79



Alt Model-Shift Uniqueness Test

003230578-02, P = 6.337628 Days, E = 128.994542 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	13.4	4.66	7.52	5.01	2.56	1.68	25.9	23.1	8.71	5.85	0.97	0.98	0.20	0.38



Stellar Parameters For KIC 003230578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6581^{+187}_{-234}	$4.138^{+0.220}_{-0.160}$	$-0.340^{+0.250}_{-0.300}$	$1.536^{+0.423}_{-0.423}$	$1.185^{+0.178}_{-0.196}$	$0.461^{+0.594}_{-0.231}$
	+3%/-4%	+5%/-4%	+74%/-88%	+28%/-28%	+15%/-17%	+129%/-50%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003230578-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 5	$2.21^{+0.78}_{-0.63}$	1884^{+143}_{-154}	4140^{+479}_{-406}	12^{+12}_{-6}
Alt.	-72 ± 5	$2.14^{+0.79}_{-0.59}$	1874^{+146}_{-153}	5313^{+768}_{-556}	44^{+39}_{-20}

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 $A_{obs} \gg 1.0$

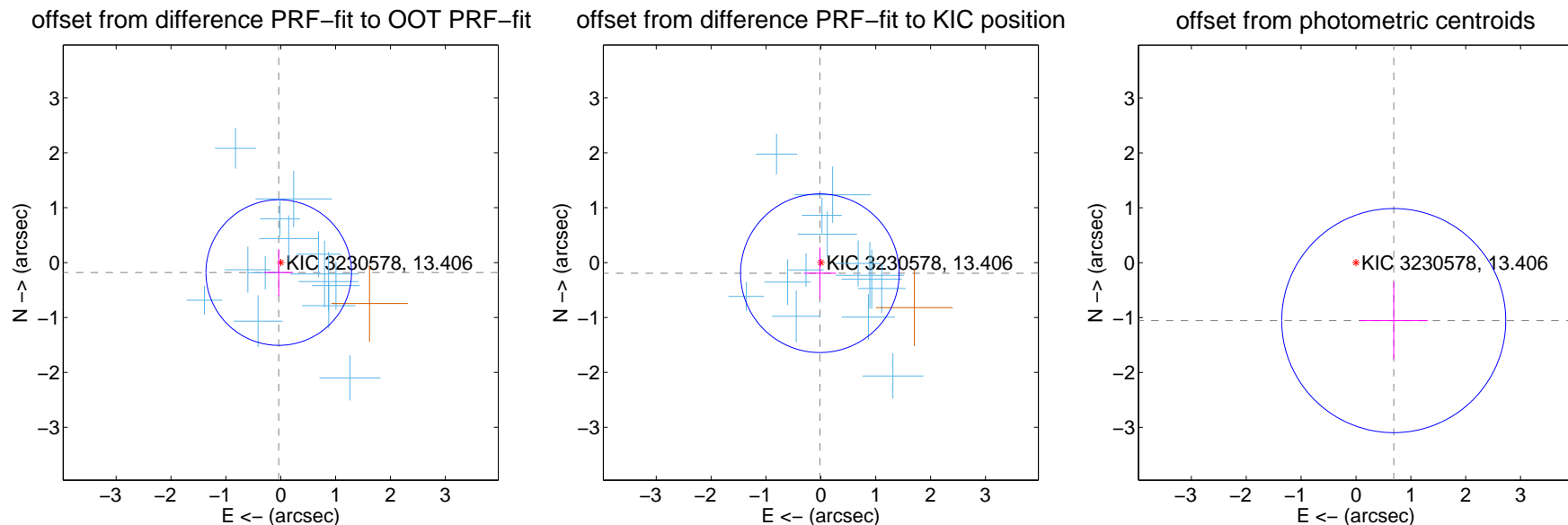
DV Centroid Data

Supplemental centroid analysis for 003230578-02. Kepler magnitude: 13.41. Transit SNR 20.32

There are 14 quarters with good PRF difference image offsets

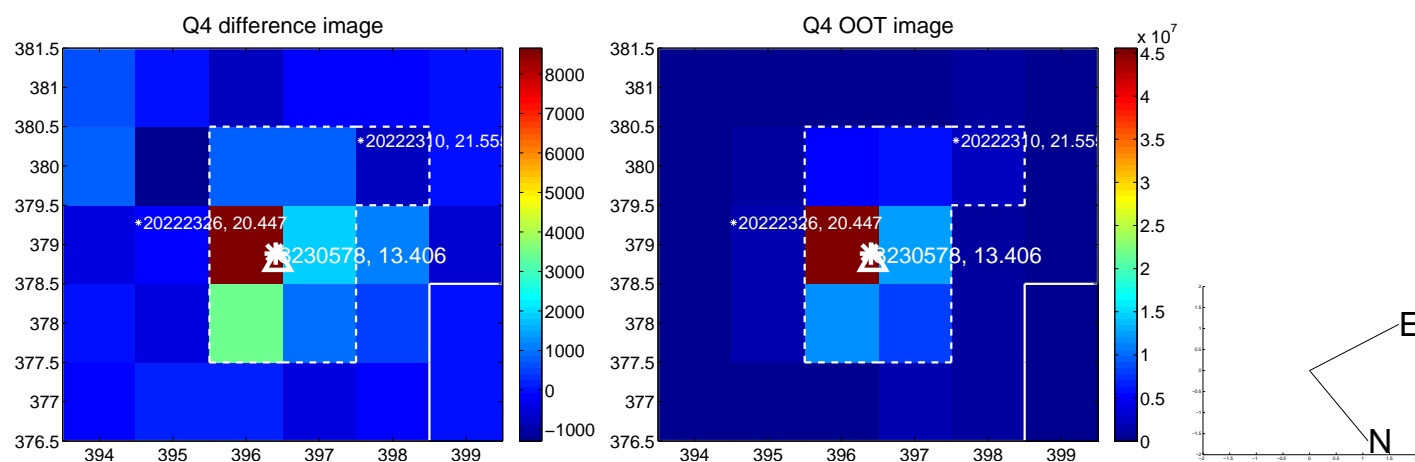
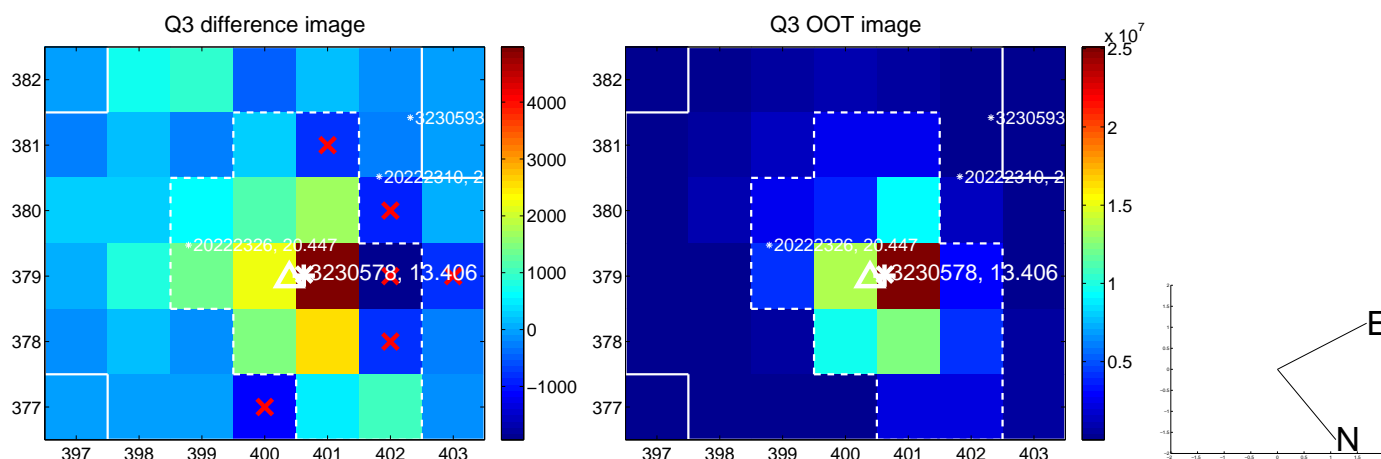
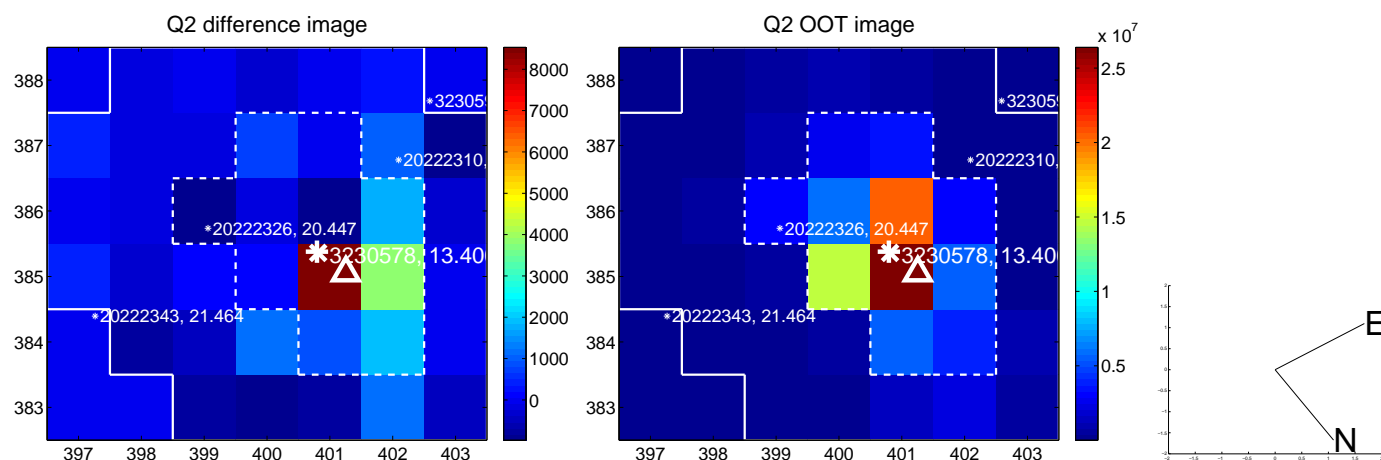
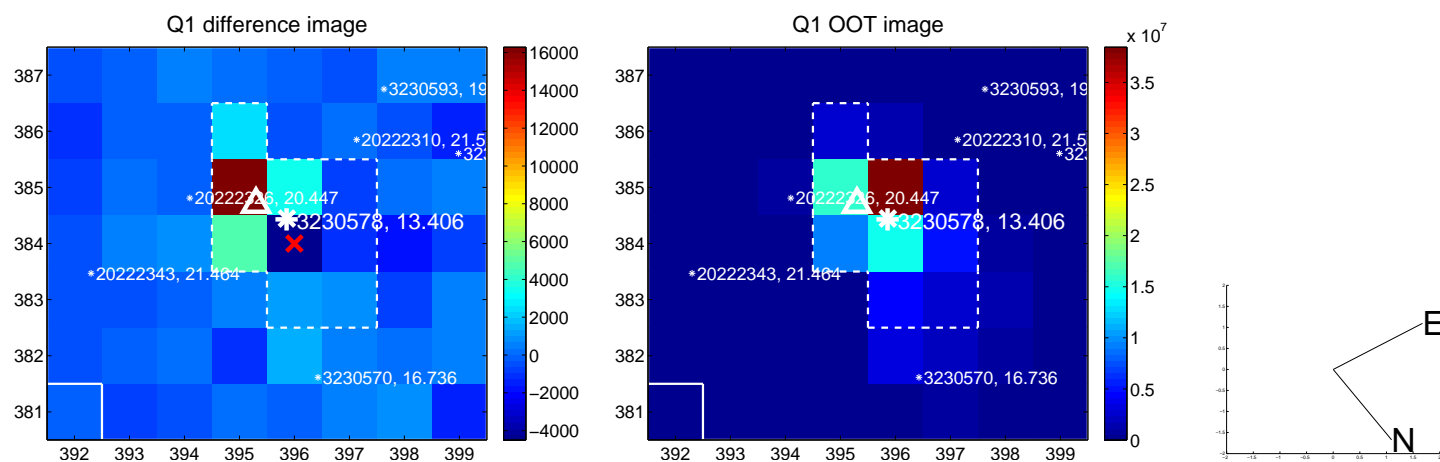
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.185 ± 0.442	0.42	0.037 ± 0.264	-0.181 ± 0.427
PRF-fit source offset from KIC position	0.194 ± 0.482	0.40	0.018 ± 0.295	-0.193 ± 0.471
photometric centroid source offset	1.26 ± 0.68	1.85	-0.69 ± 0.62	-1.06 ± 0.70

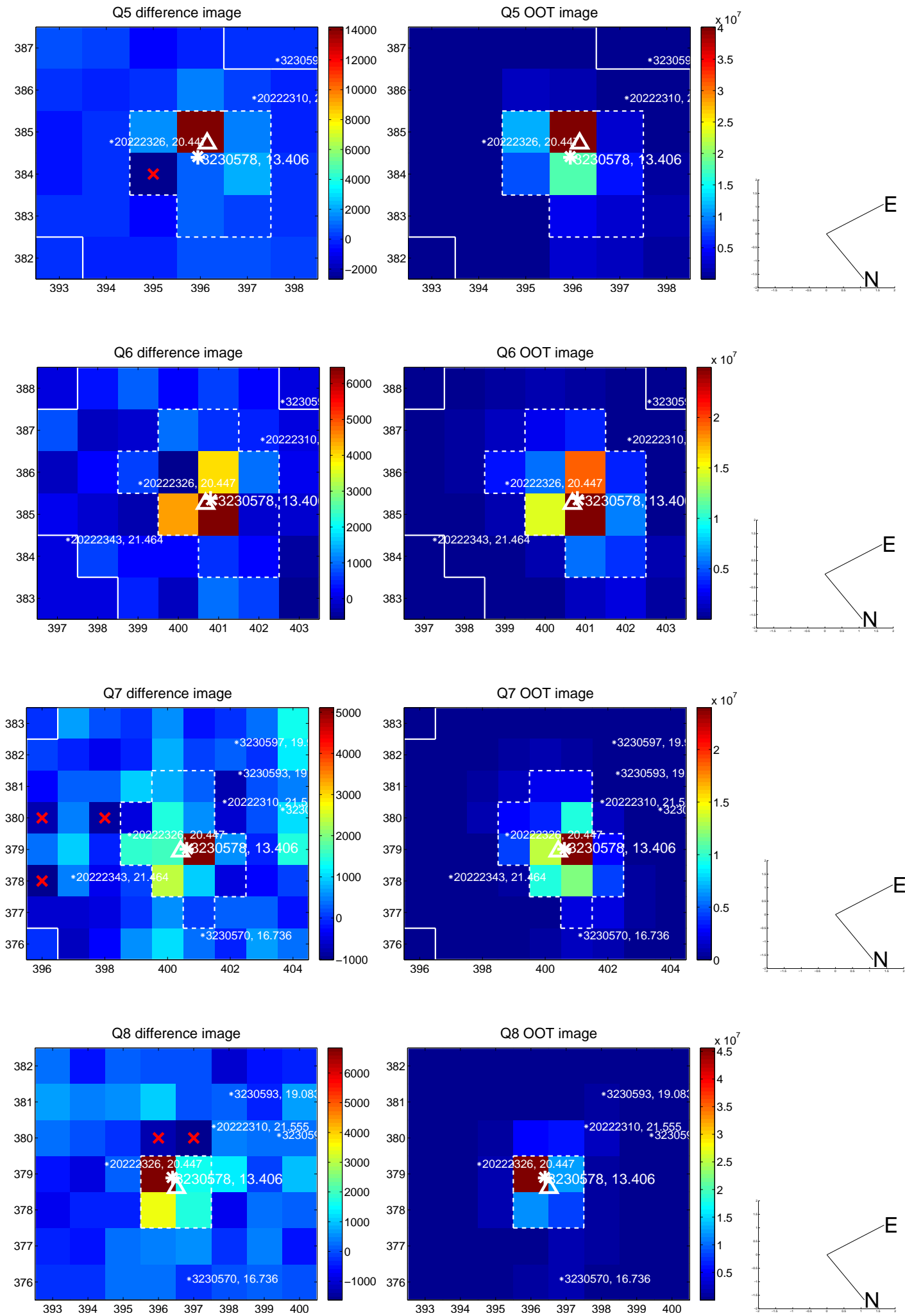


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

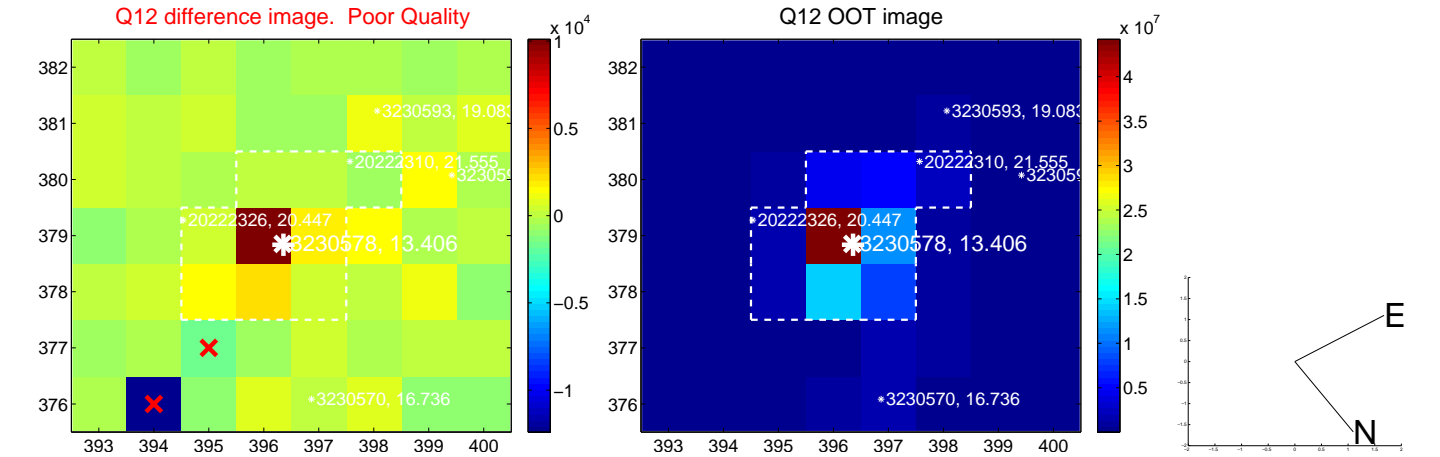
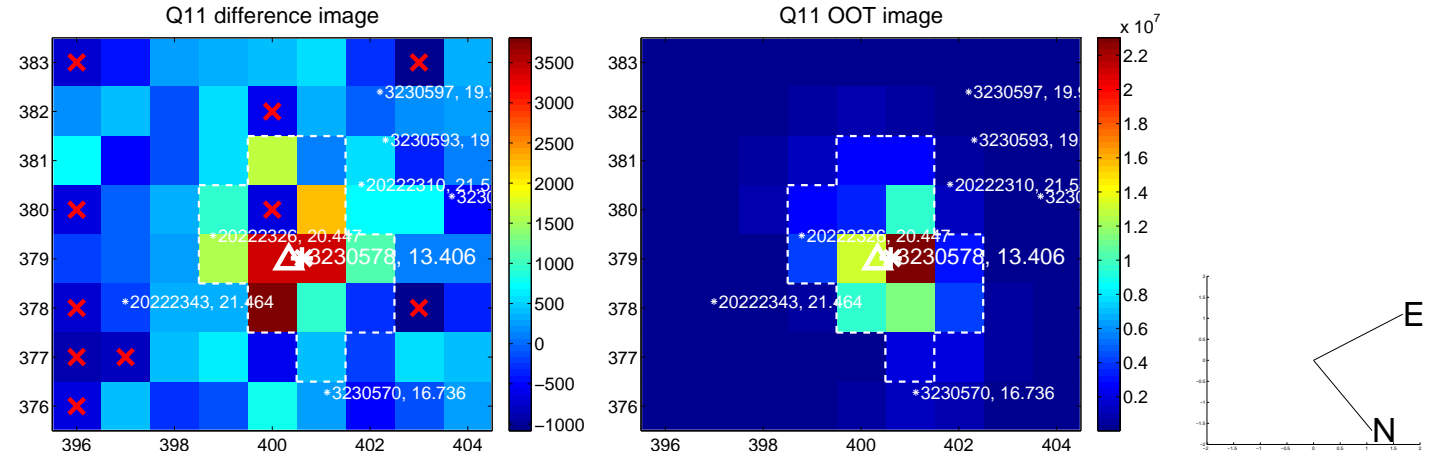
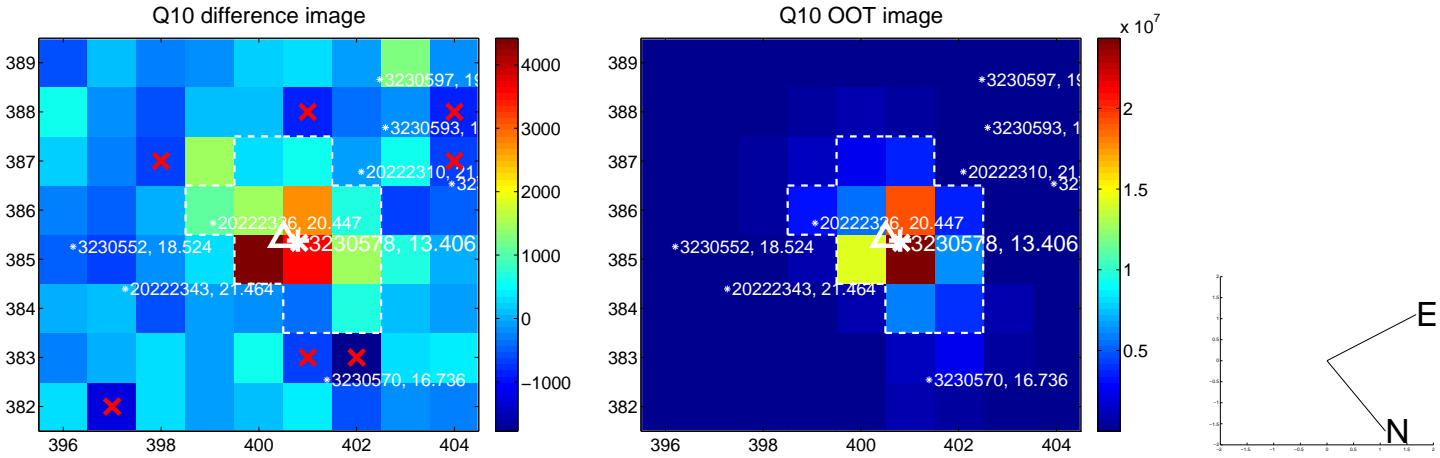
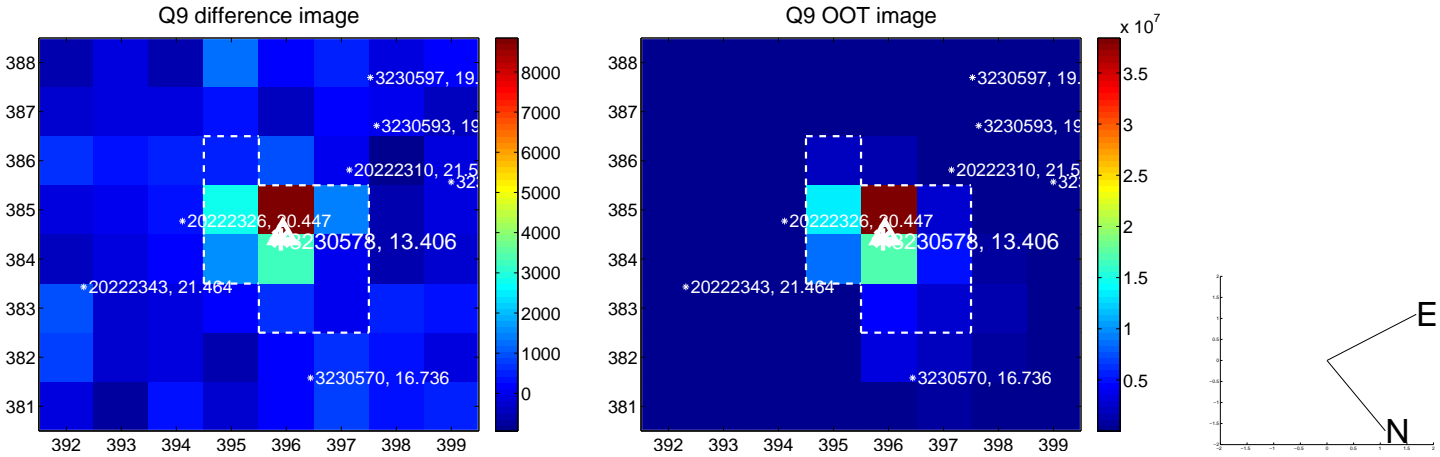
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



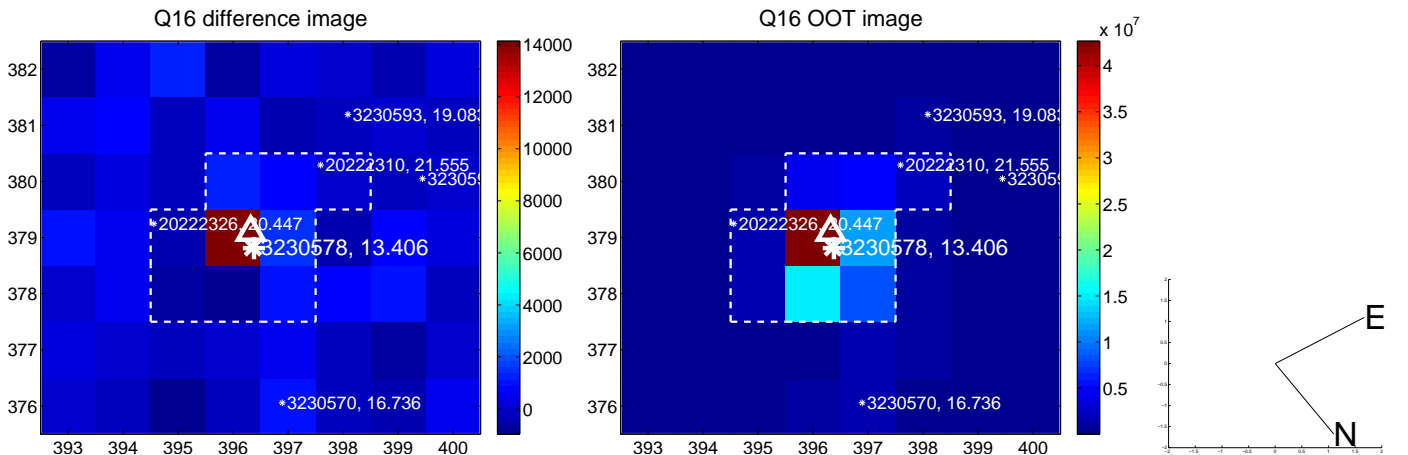
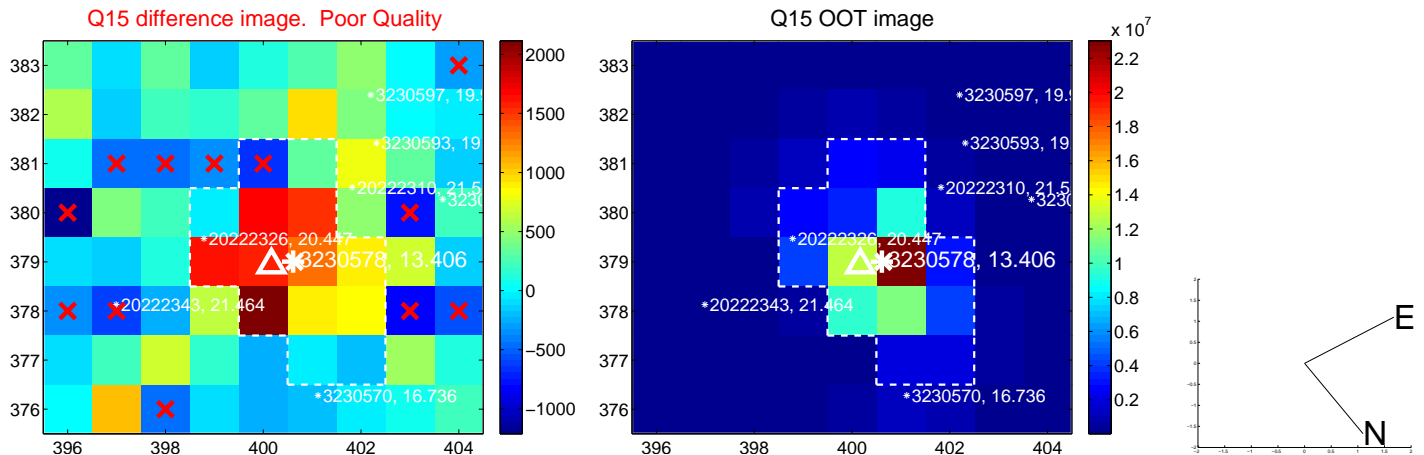
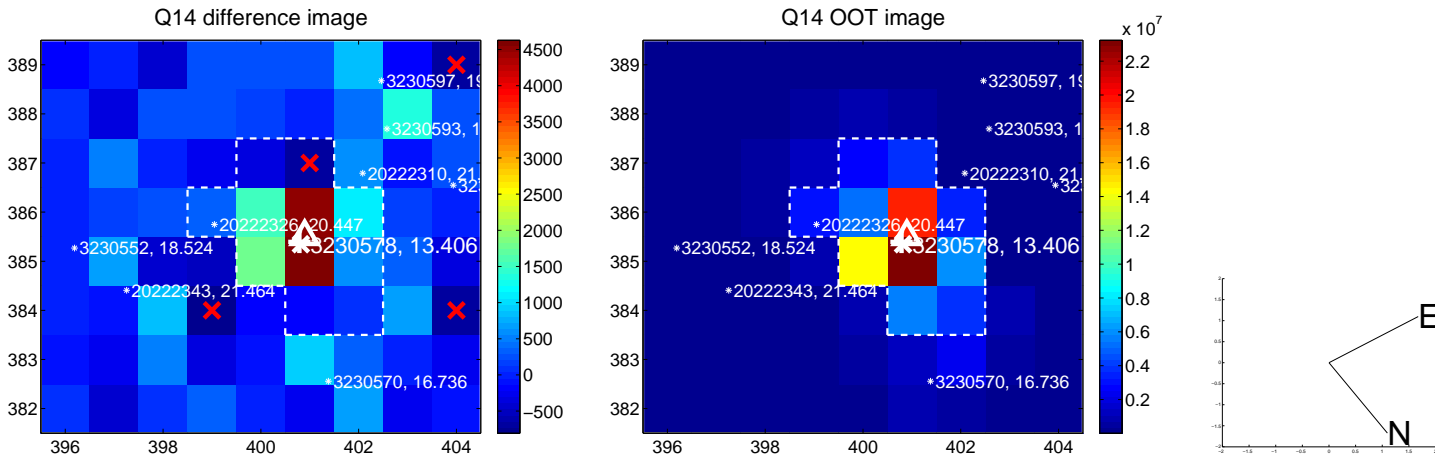
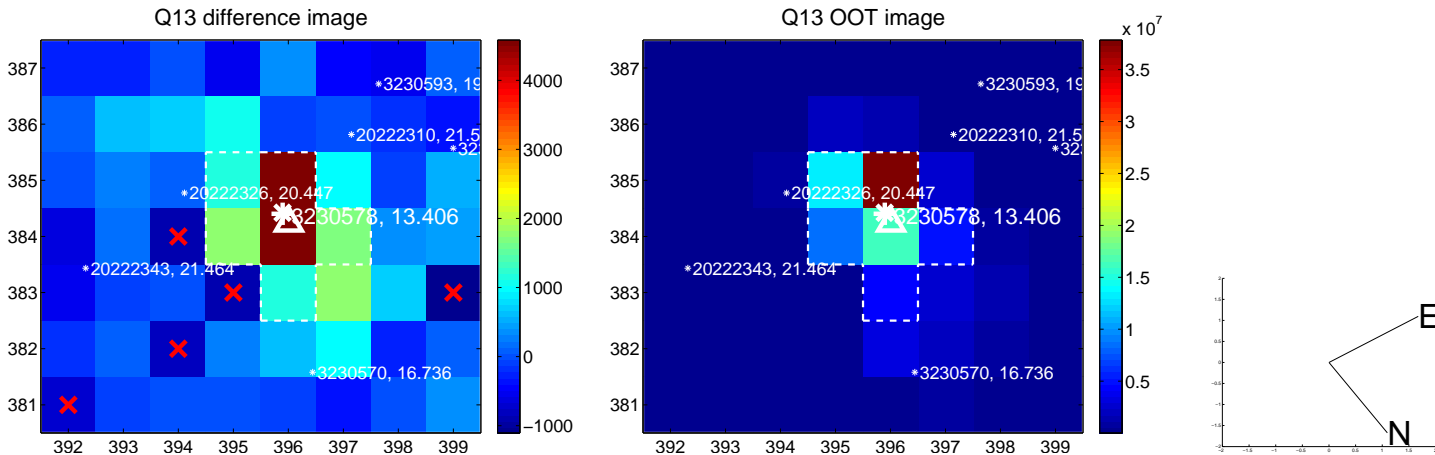
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



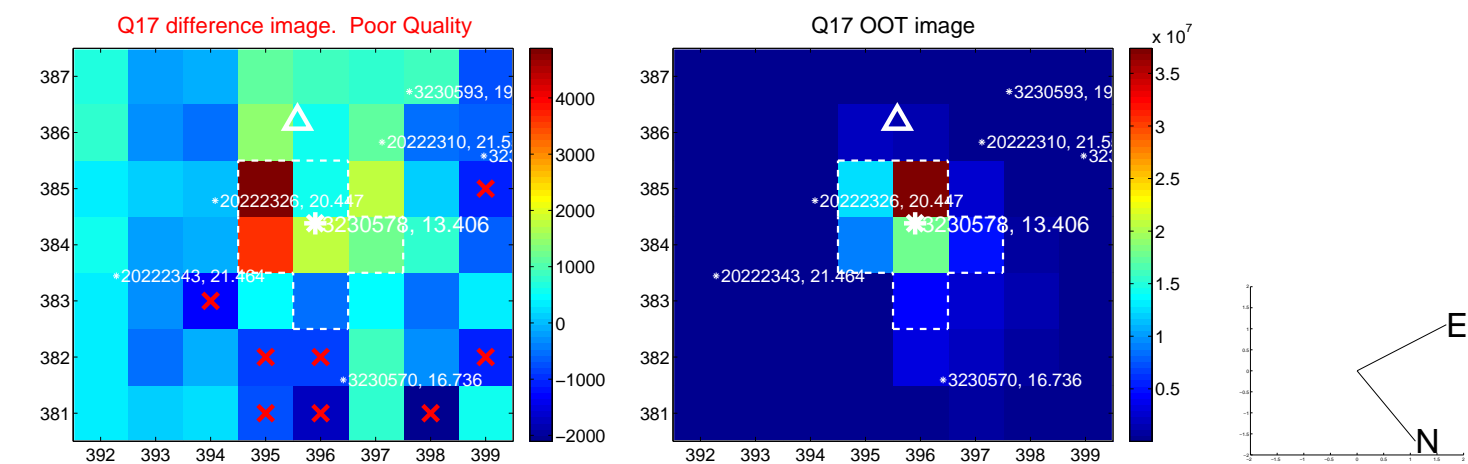
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



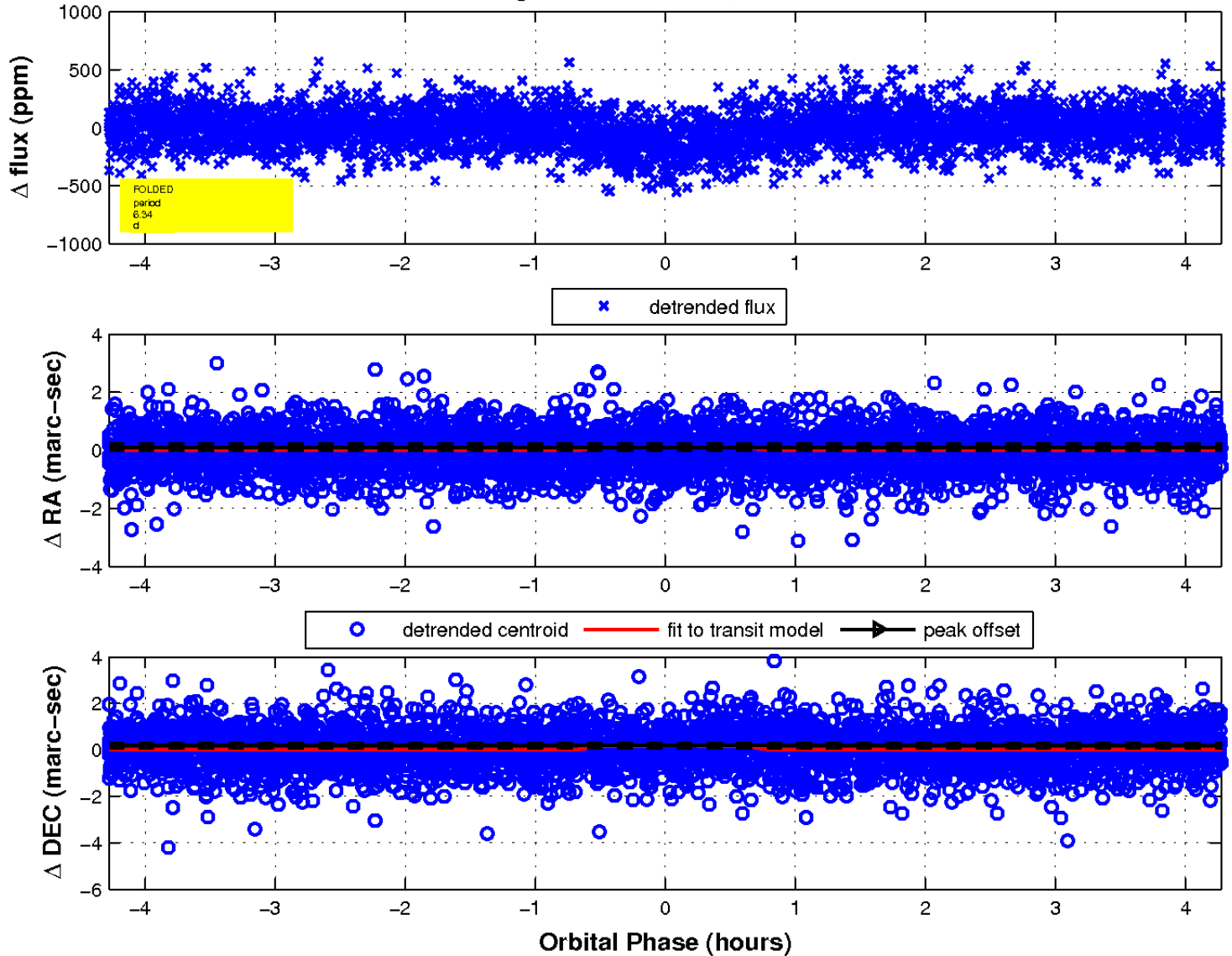
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

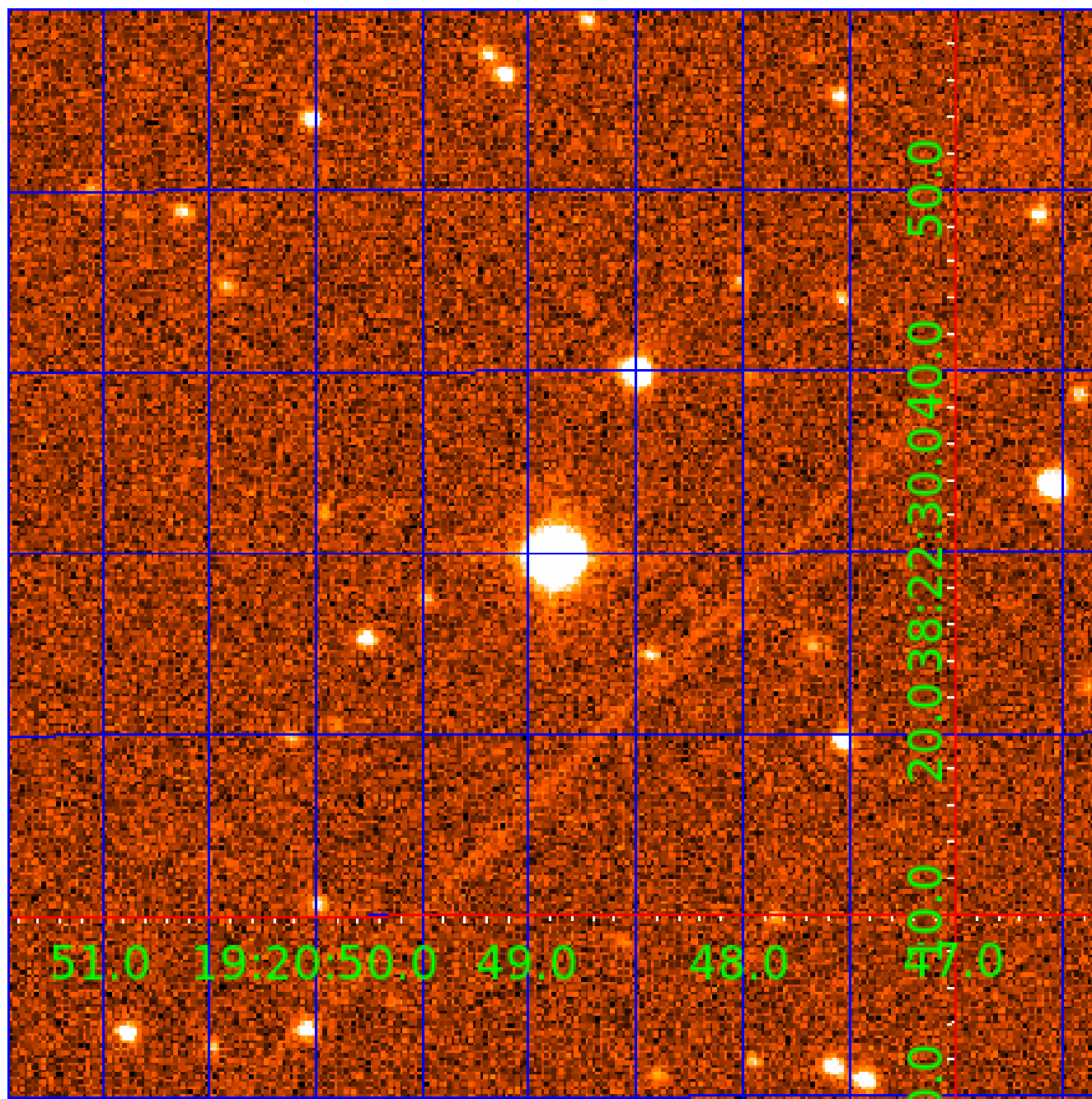


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 003230578

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})
003230578-01	OBS	0381.01	6.337613	132.164246	1760.7	1.724	195.6	201.6	1.54	6581	8.71	789.02
003230578-02	OBS	No	6.337658	135.329382	159.0	1.427	18.0	20.3	1.54	6581	2.27	789.01
003230578-03	OBS	No	6.337453	134.133301	92.2	15.000	8.2	-1.0	1.54	6581	1.49	789.05
003230578-04	OBS	No	6.337248	132.084117	51.2	24.727	8.9	12.2	1.54	6581	1.29	789.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003230578-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003230578-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003230578-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
003230578-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE

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 003230578-03

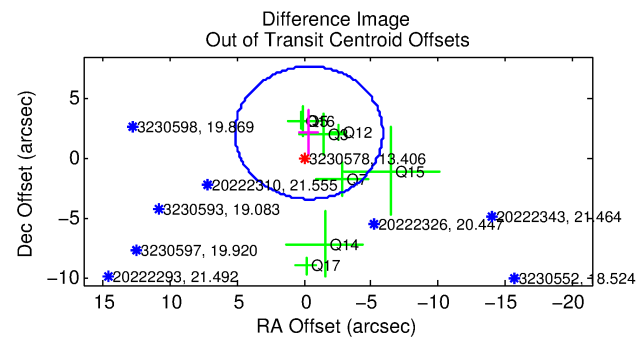
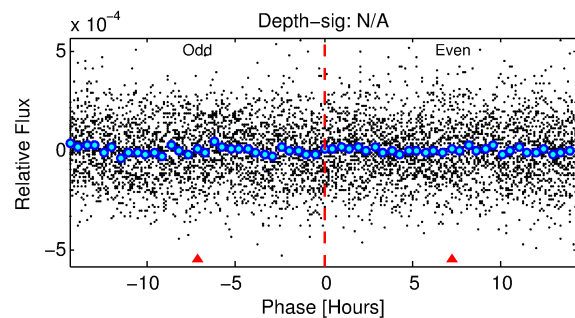
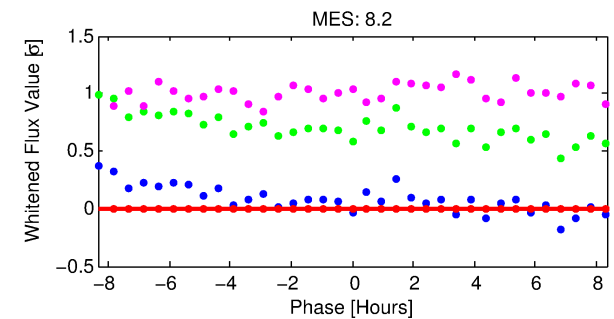
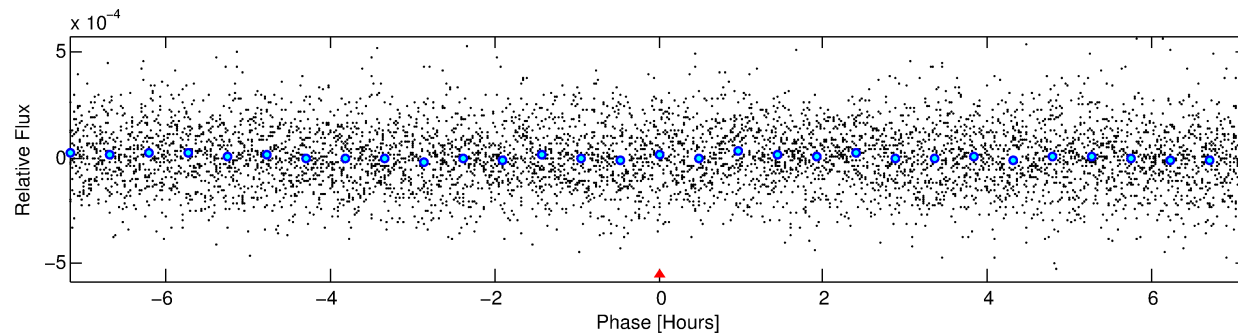
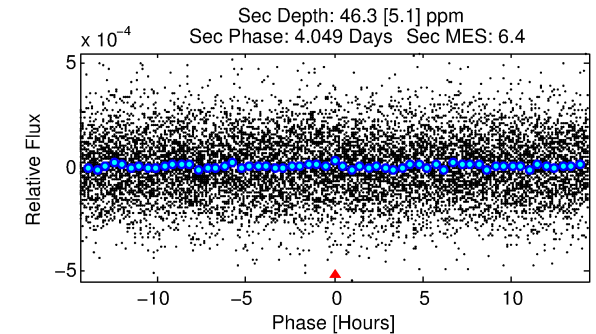
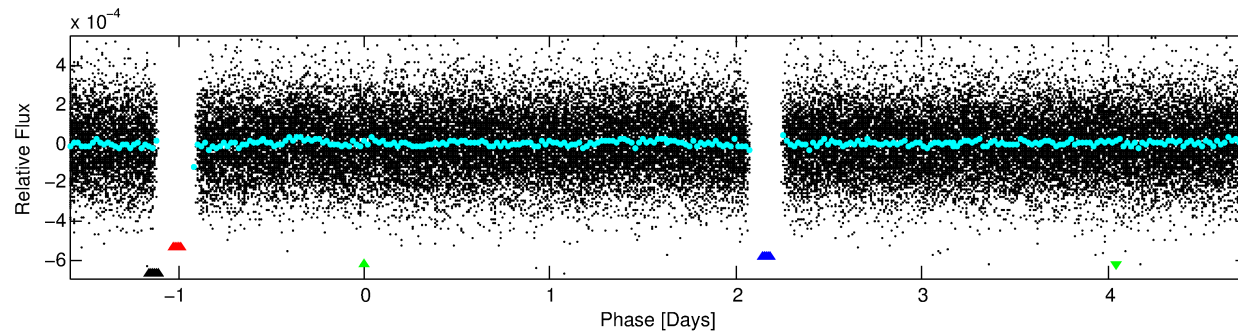
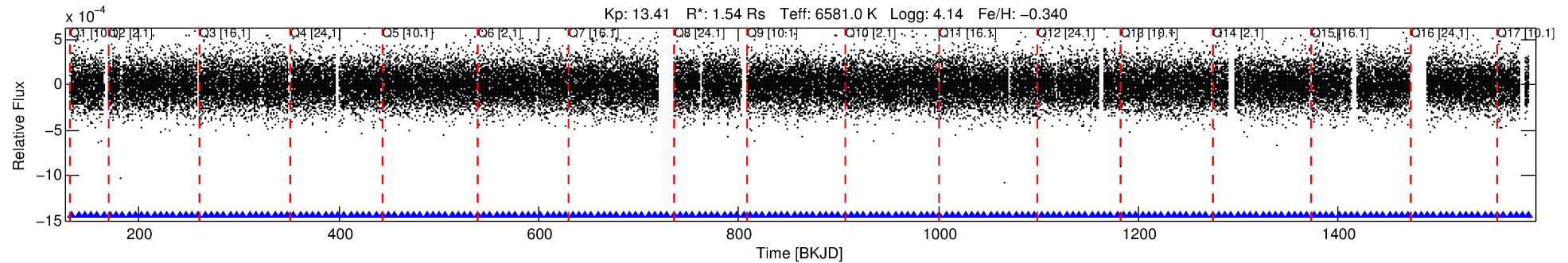
No Significant Match Found

DV One-Page Summary

KIC: 3230578 Candidate: 3 of 4 Period: 6.337 d

KOI: K00381 Corr: No Ephemeris Match

Kp: 13.41 R*: 1.54 Rs Teff: 6581.0 K Logg: 4.14 Fe/H: -0.340



TPS TCE Results:

Period = 6.33745 d

Epoch = 134.1333 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]

LongPeriod-sig: 0.0% [0.00σ]

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: 1.06e-09

RollingBand-fgt: 1.00 [195/195]

GhostDiagnostic-chr: -20.18

Centroid-sig: 15.0%

Centroid-so: 15.918 arcsec [0.98σ]

OotOffset-rm: 2.193 arcsec [1.19σ]

KicOffset-rm: 2.262 arcsec [1.35σ]

OotOffset-st: 1/3/2/2 [8]

KicOffset-st: 1/3/2/2 [8]

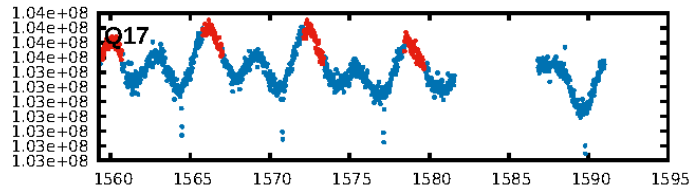
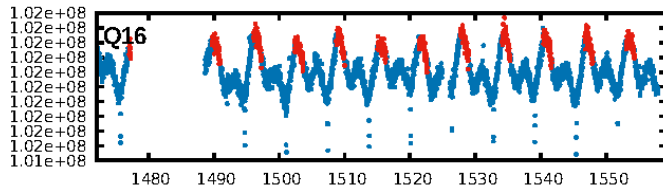
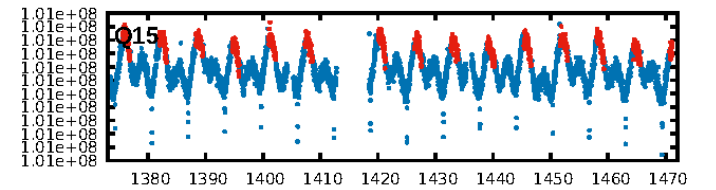
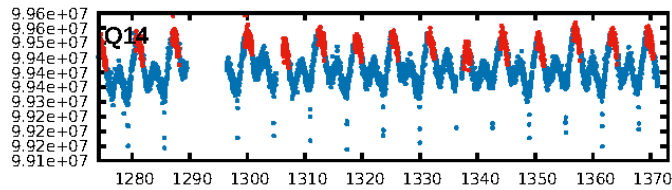
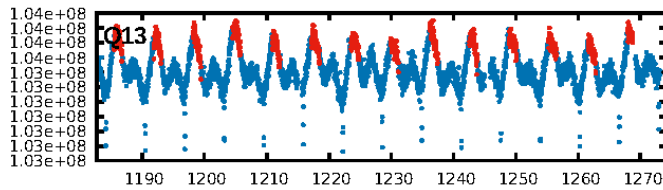
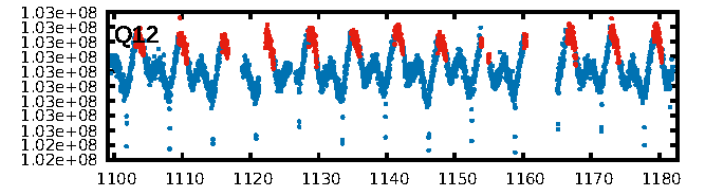
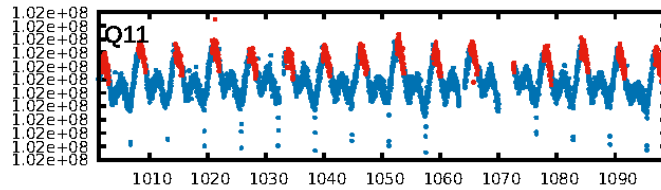
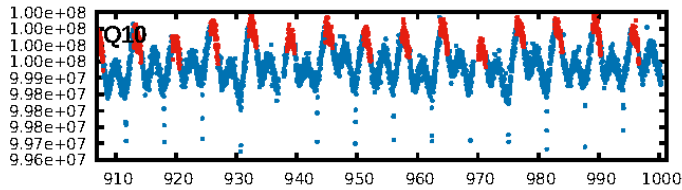
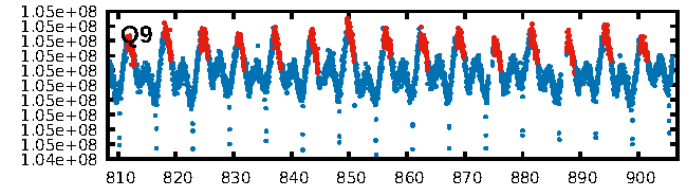
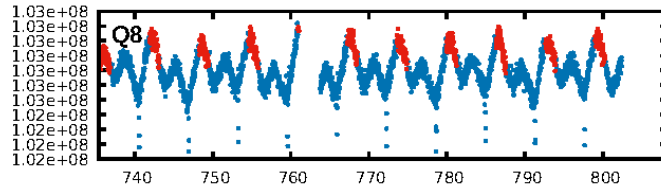
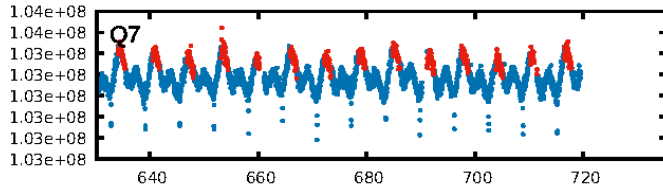
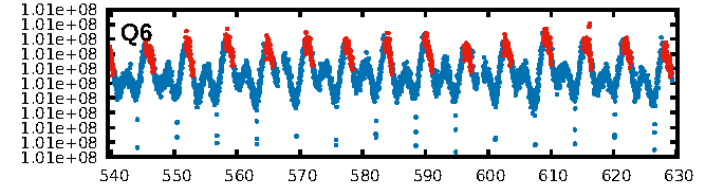
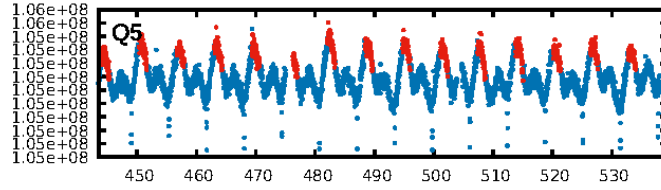
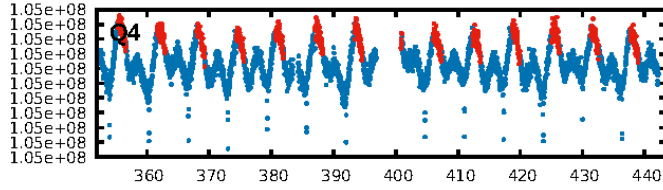
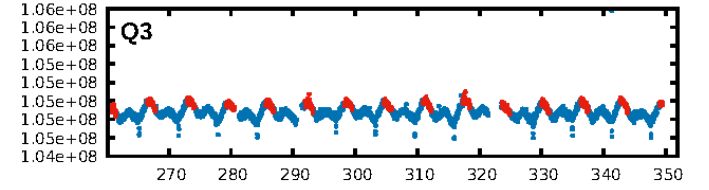
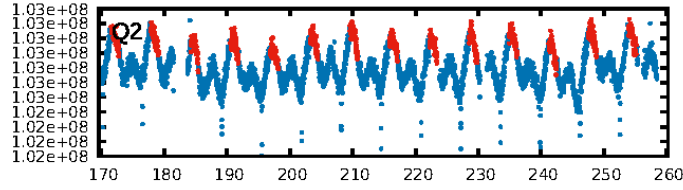
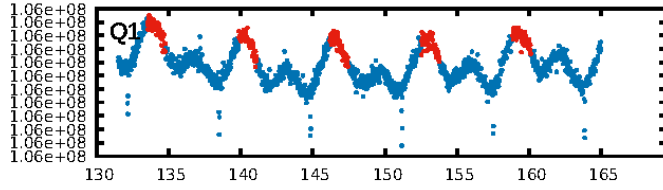
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DiffImageOverlap-fno: 1.00 [17/17]

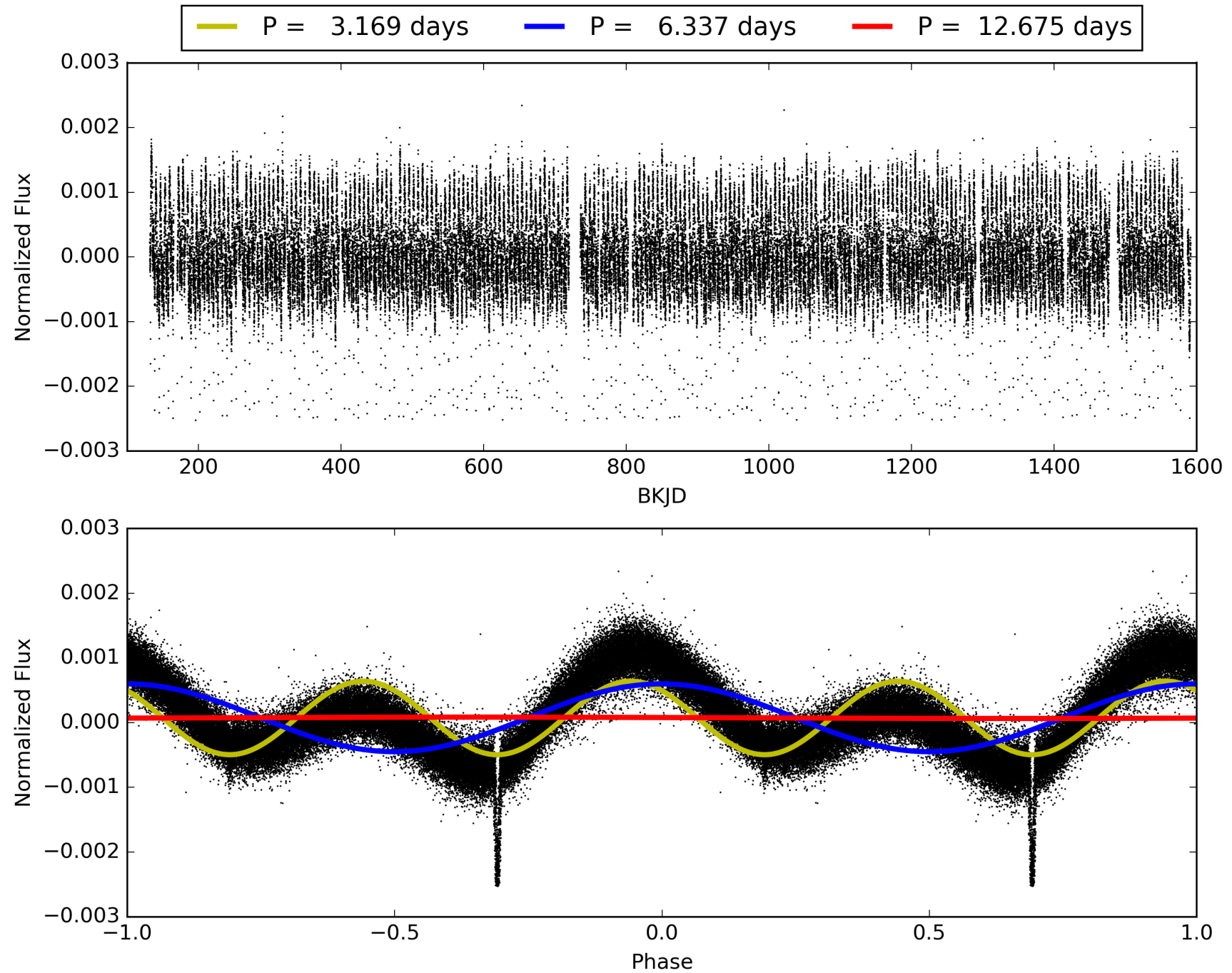
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:30:27 Z

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

TCE 003230578-03, PDC Light Curves

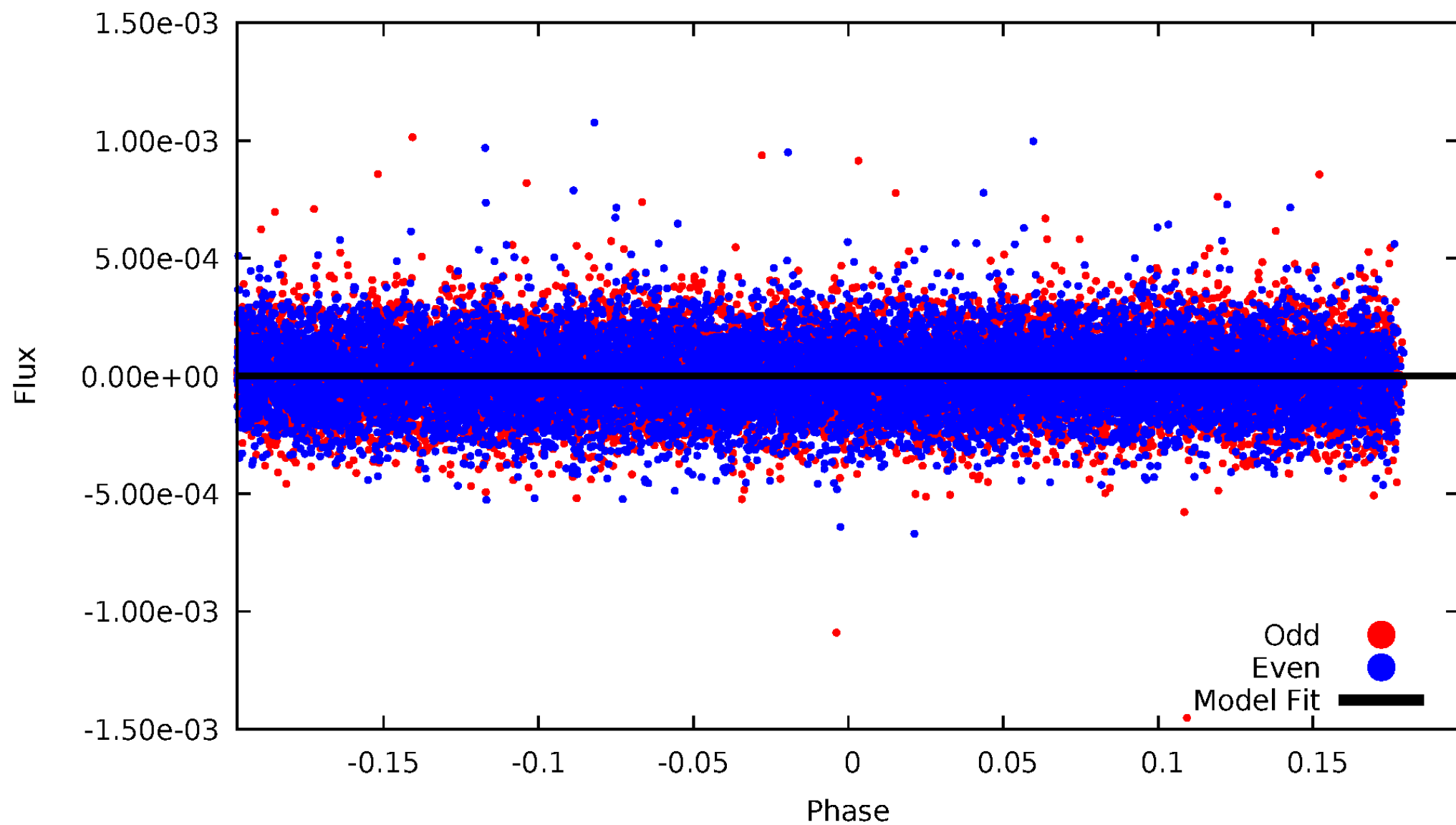


TCE 003230578-03



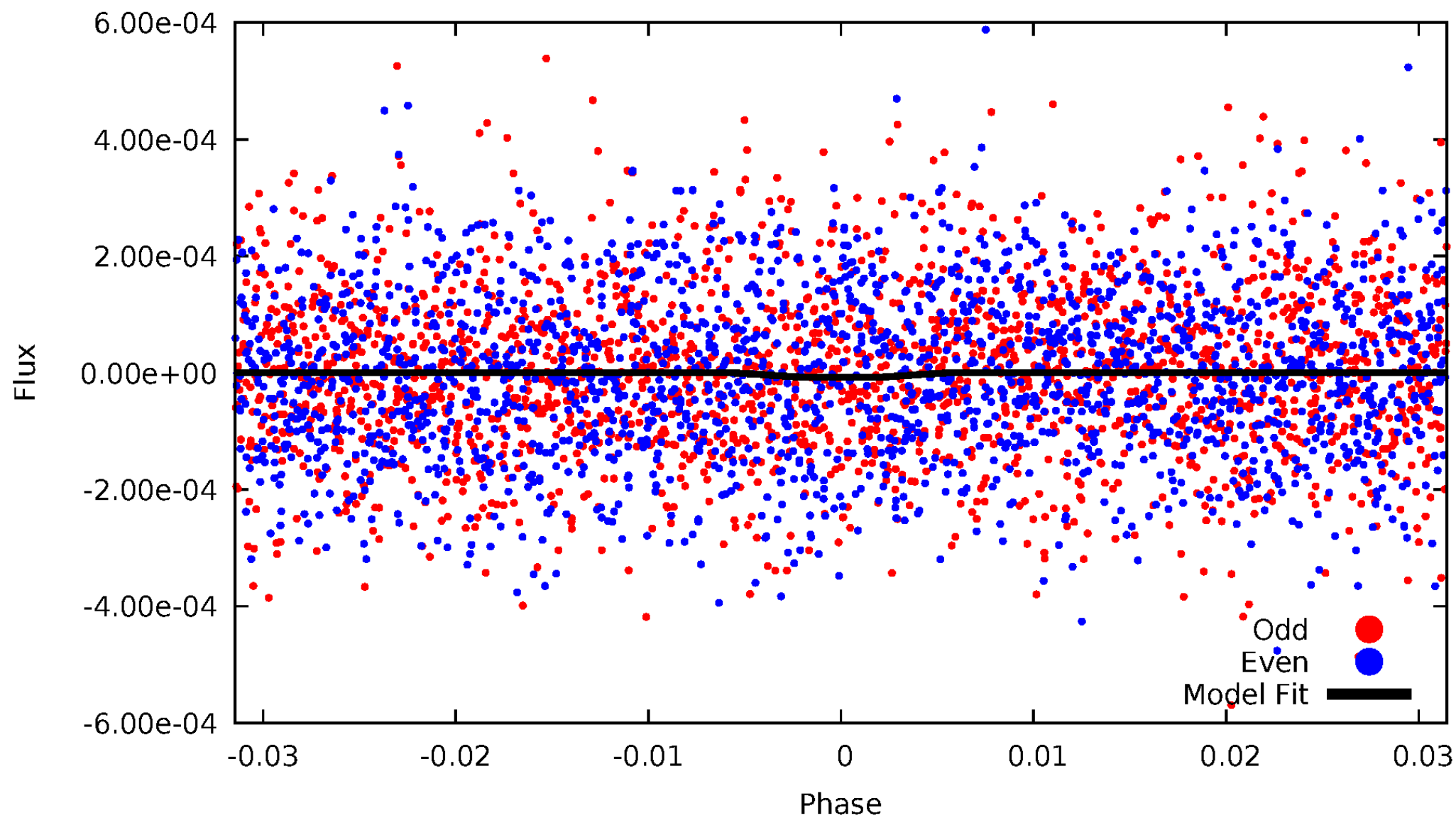
DV Odd/Even

TCE 003230578-03

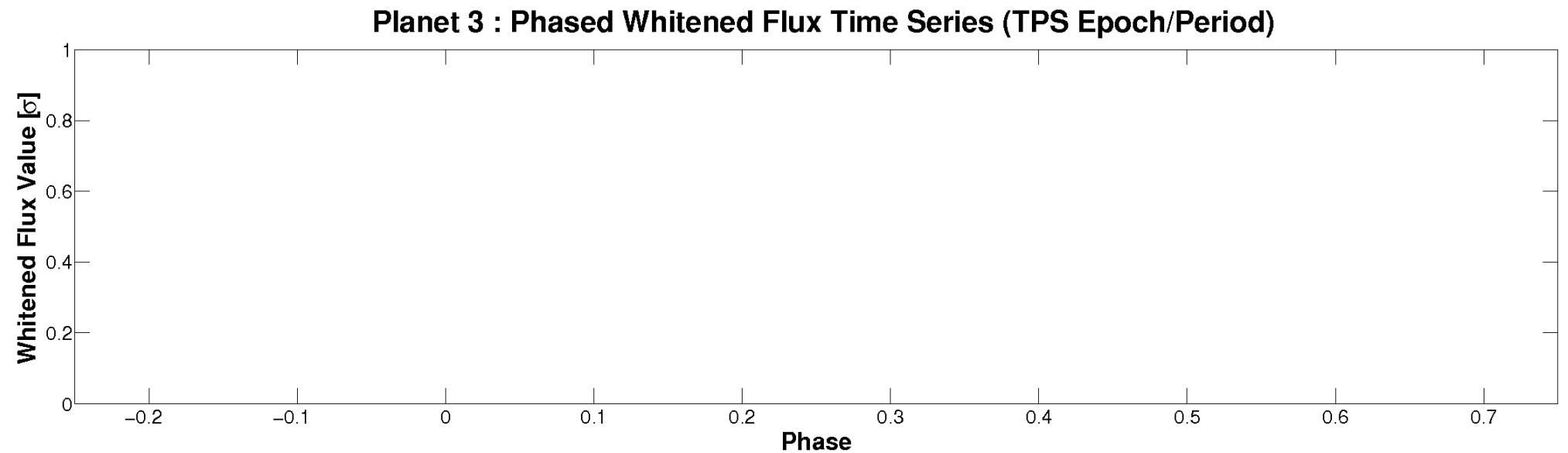
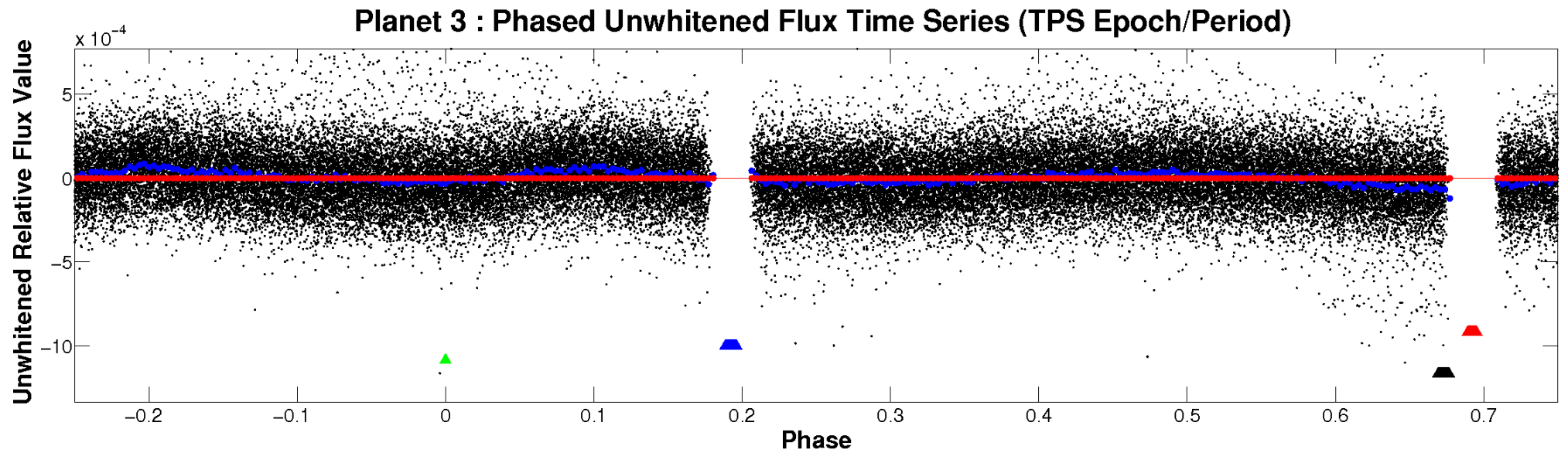


ALT Odd/Even

TCE 003230578-03

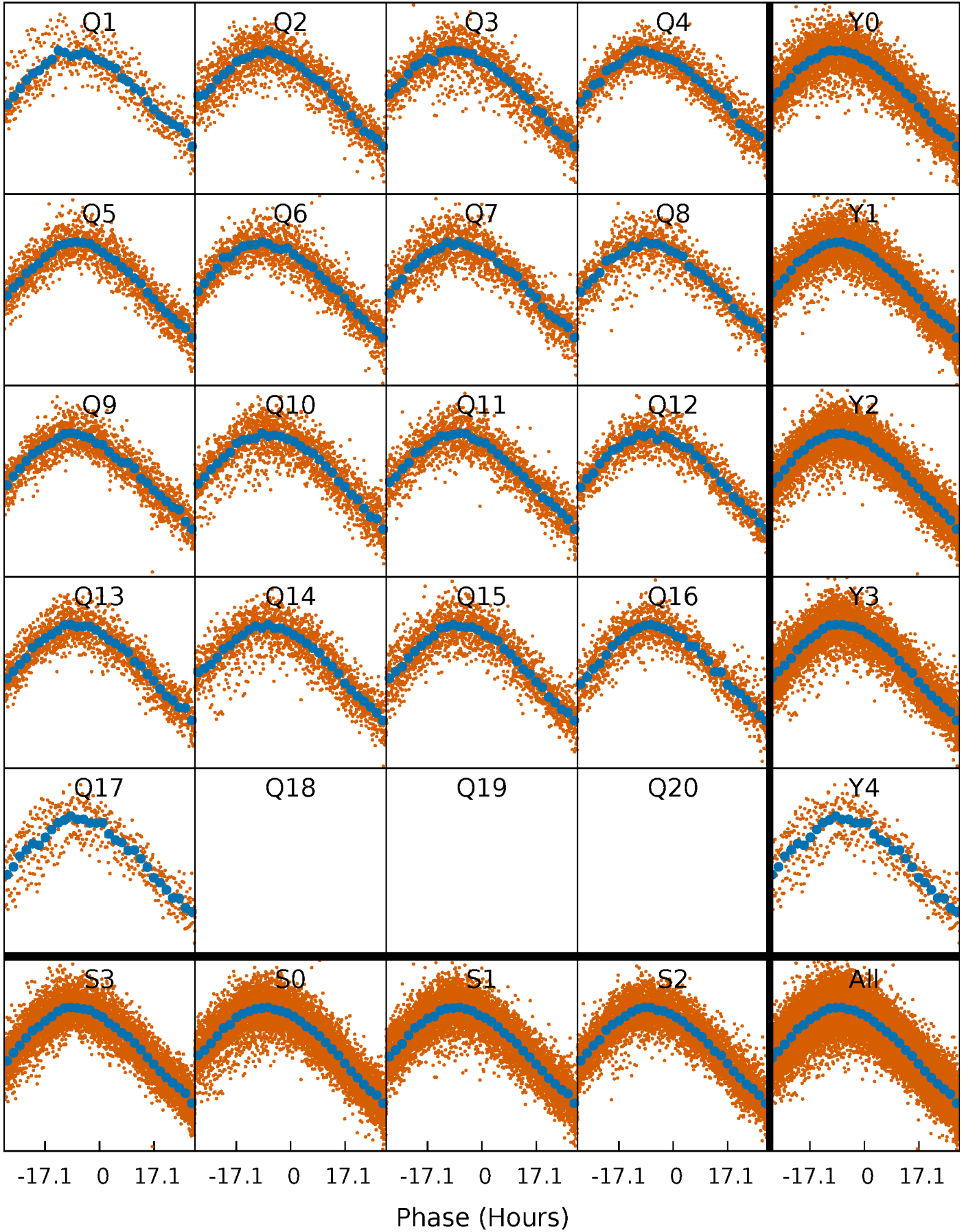


Non-Whitened Vs. Whitened Light Curve



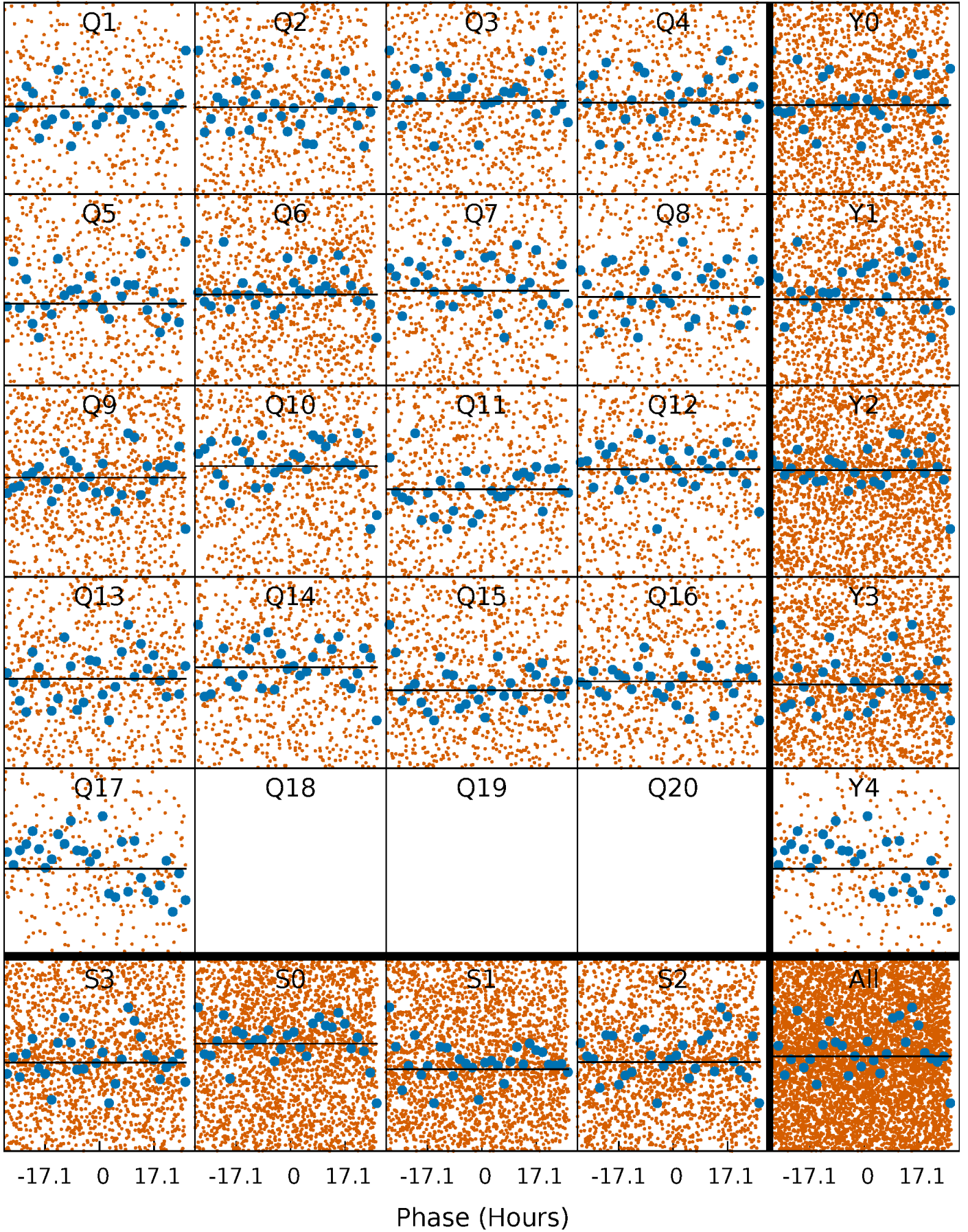
PDC Quarter-Phased Transit Curves

TCE 003230578-03 P= 6.337453 Days $T_0=134.133301$ (BKJD)



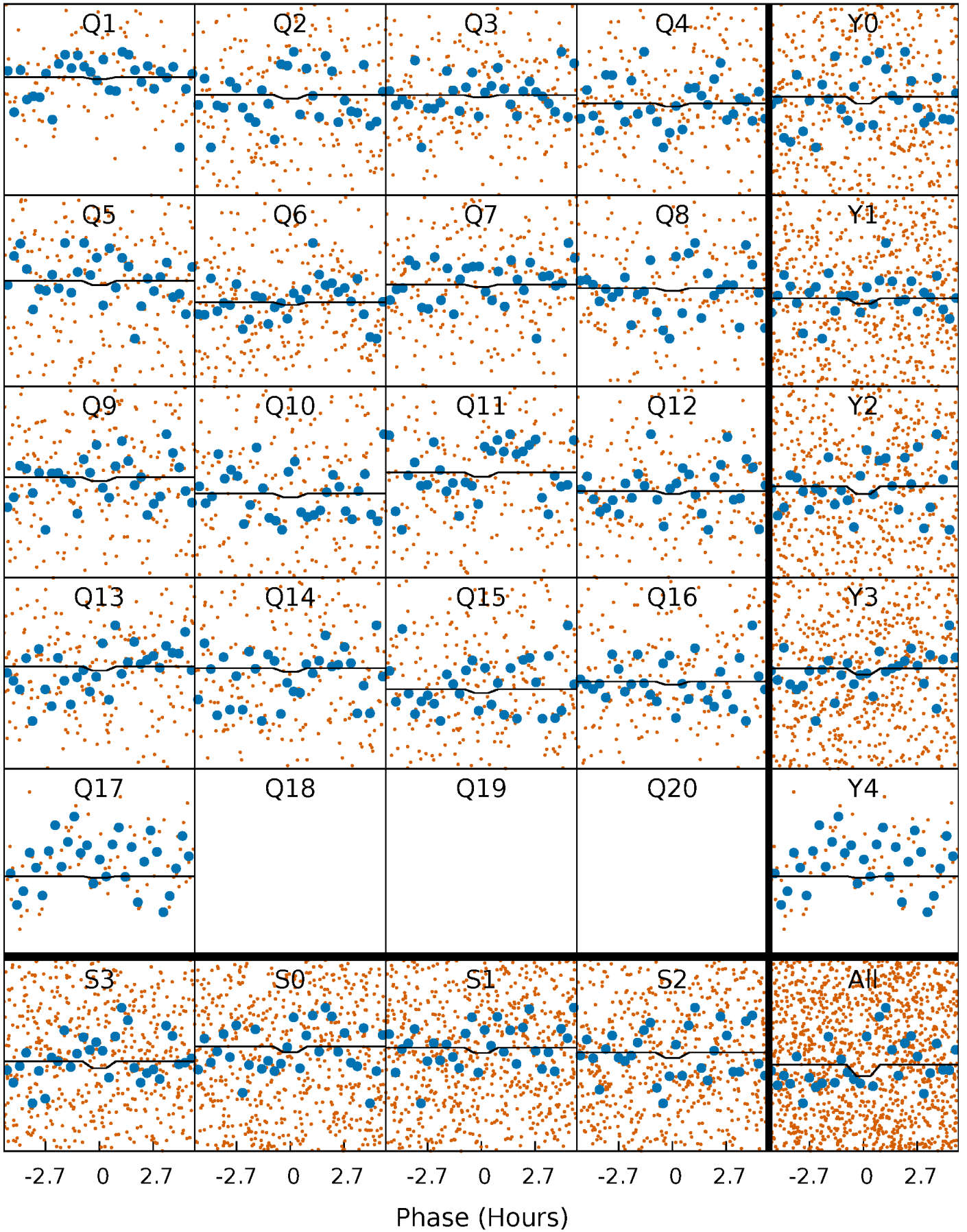
DV Quarter-Phased Transit Curves

TCE 003230578-03 P= 6.337453 Days $T_0=134.133301$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

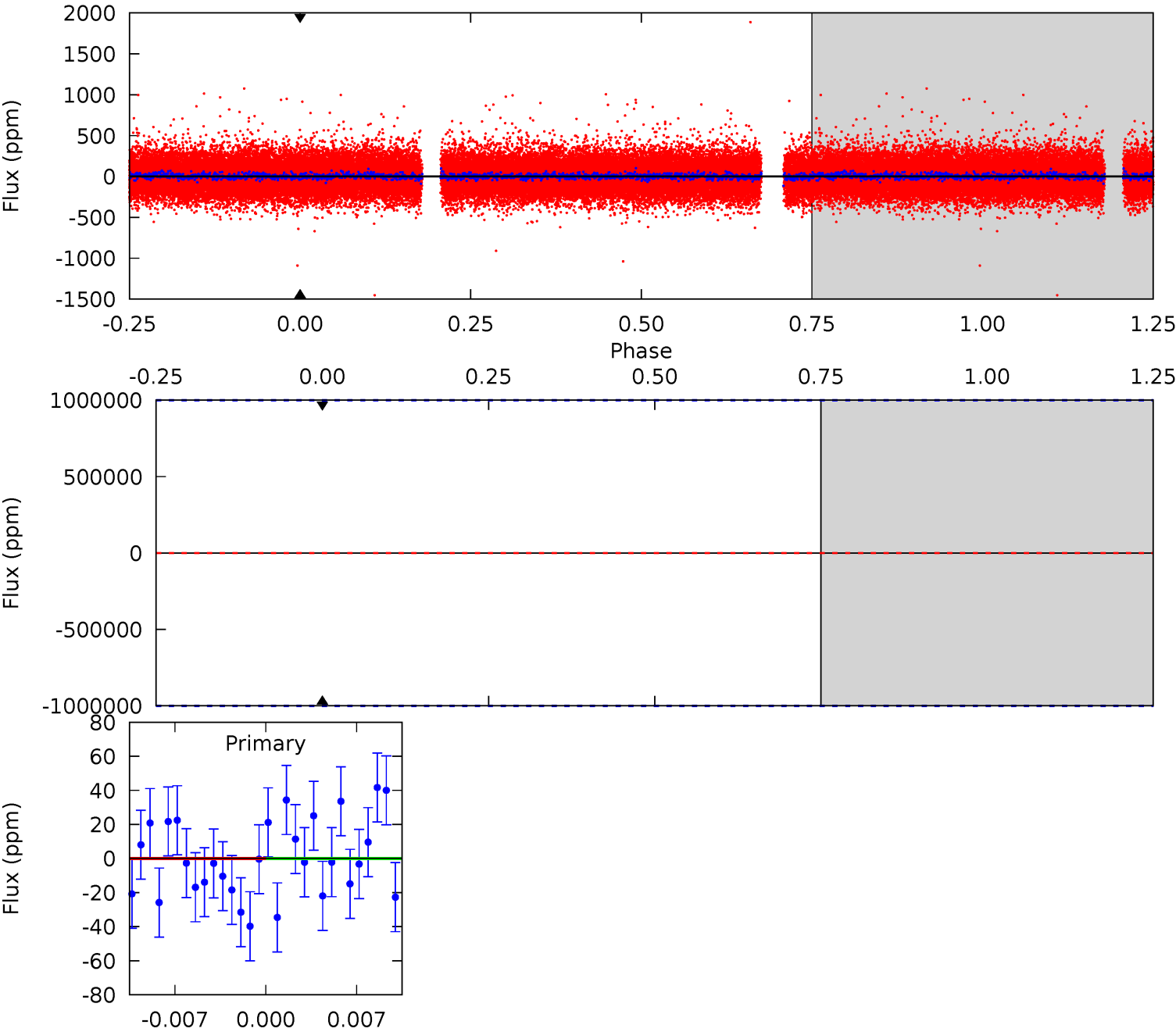
TCE 003230578-03 P= 6.337453 Days $T_0=133.190943$ (BKJD)



DV Model-Shift Uniqueness Test

003230578-03, P = 6.337453 Days, E = 127.795848 Days

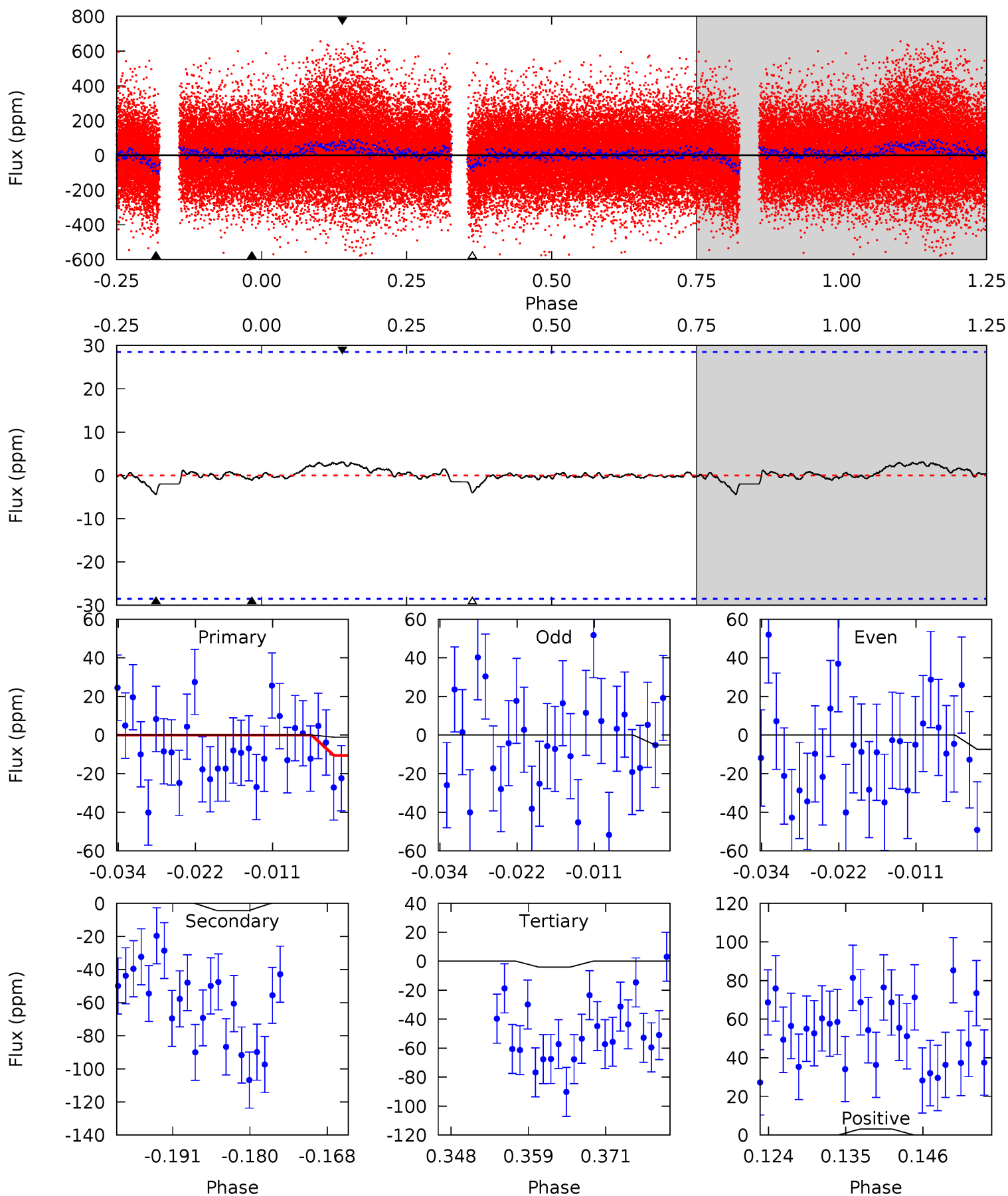
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003230578-03, P = 6.337453 Days, E = 126.853490 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.19	0.77	0.70	0.55	5.00	2.54	0.20	-0.51	-0.36	0.07	0.23	0.20	-0.10	0.41	0.20



Stellar Parameters For KIC 003230578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6581^{+187}_{-234}	$4.138^{+0.220}_{-0.160}$	$-0.340^{+0.250}_{-0.300}$	$1.536^{+0.423}_{-0.423}$	$1.185^{+0.178}_{-0.196}$	$0.461^{+0.594}_{-0.231}$
	+3%/-4%	+5%/-4%	+74%/-88%	+28%/-28%	+15%/-17%	+129%/-50%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003230578-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$11.28^{+12.59}_{-7.90}$	1874^{+143}_{-144}	4417^{+35662}_{-32939}	11^{+5308}_{-3499}
Alt.	-4 ± 6	$11.27^{+12.75}_{-8.14}$	1875^{+150}_{-132}	-2329^{+4929}_{-162}	$0.062^{+0.750}_{-0.078}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

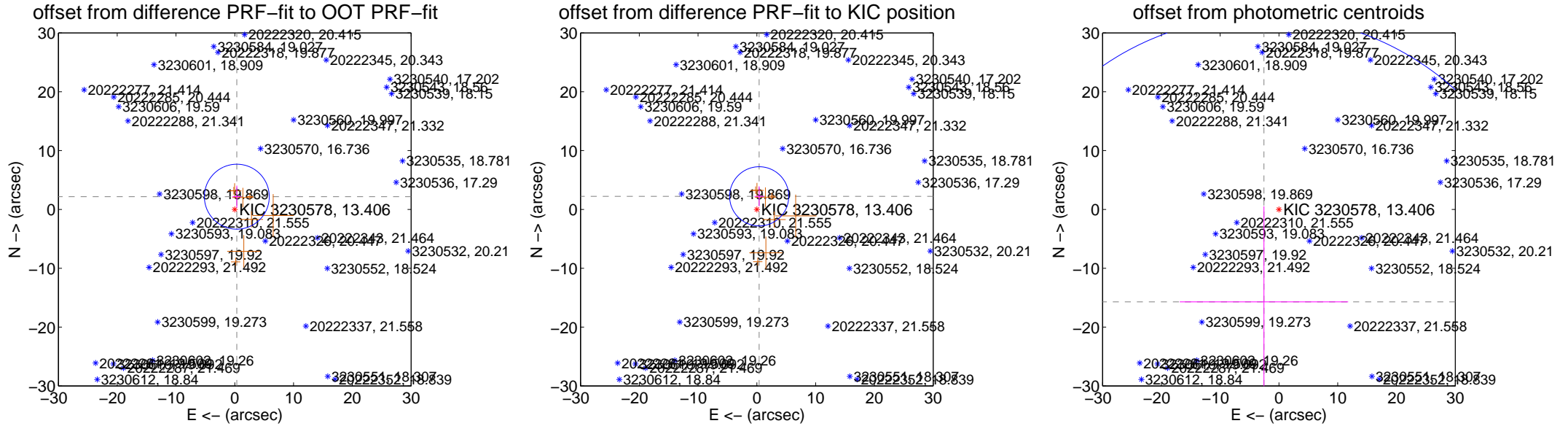
DV Centroid Data

Supplemental centroid analysis for 003230578-03. Kepler magnitude: 13.41. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

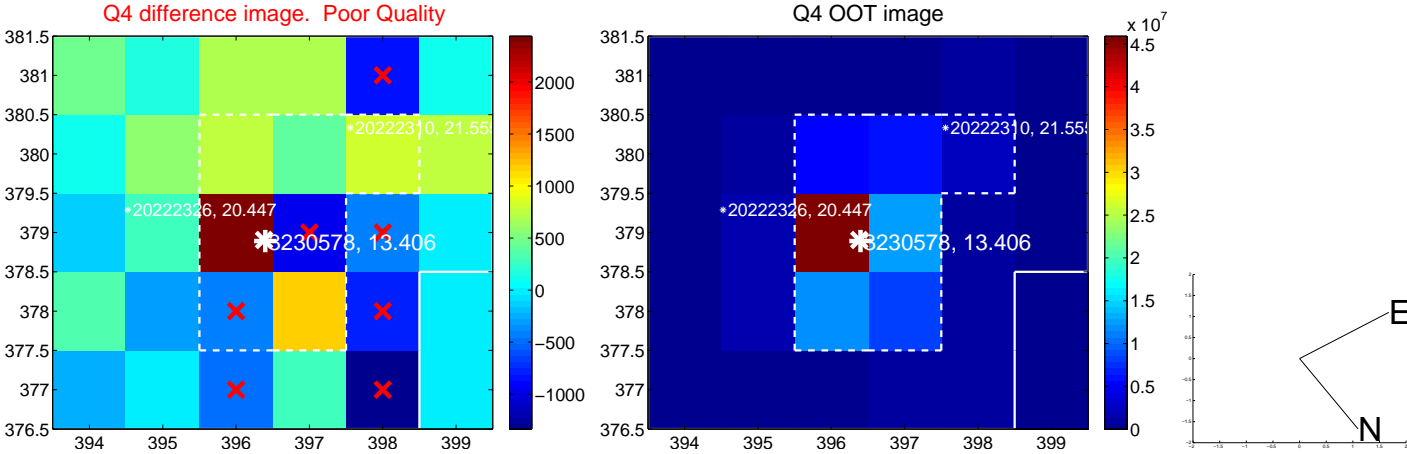
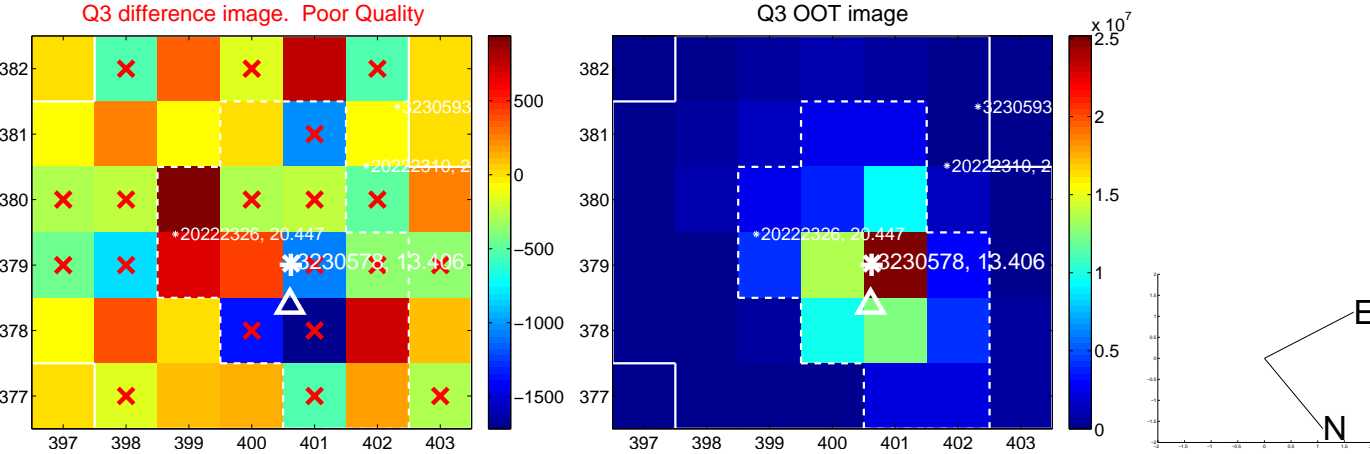
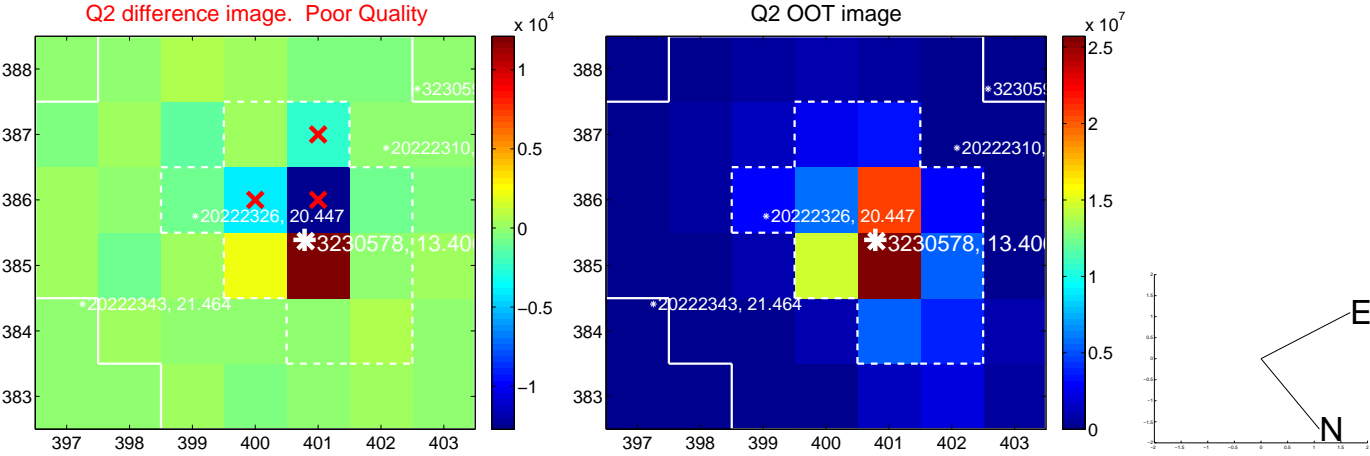
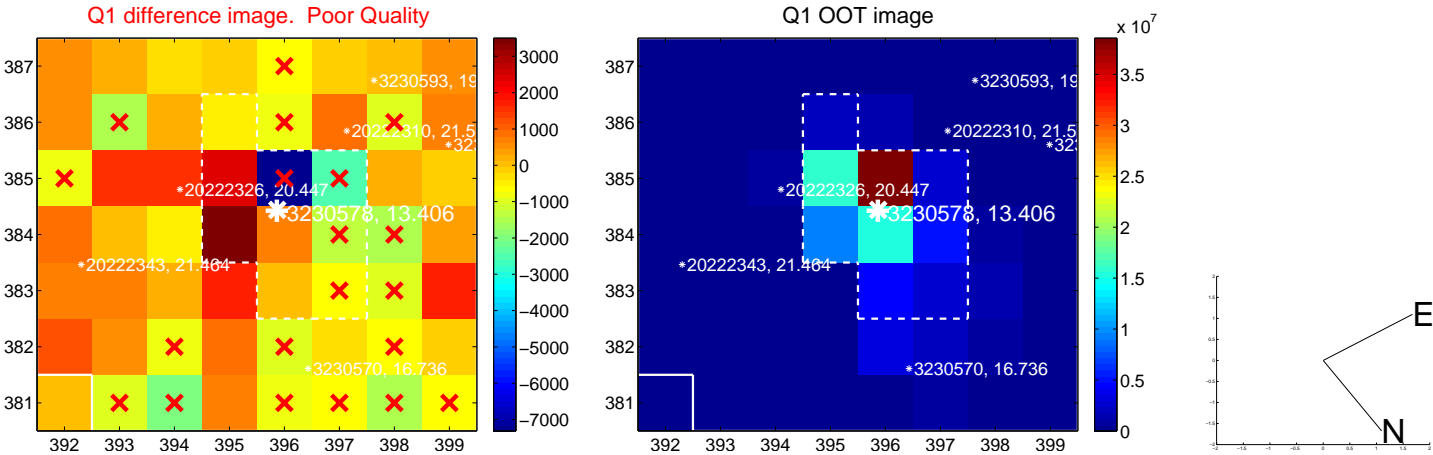
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.193 ± 1.840	1.19	-0.353 ± 0.725	2.164 ± 1.877
PRF-fit source offset from KIC position	2.262 ± 1.676	1.35	-0.397 ± 0.782	2.227 ± 1.694
photometric centroid source offset	15.92 ± 16.19	0.98	2.55 ± 14.32	-15.71 ± 16.24

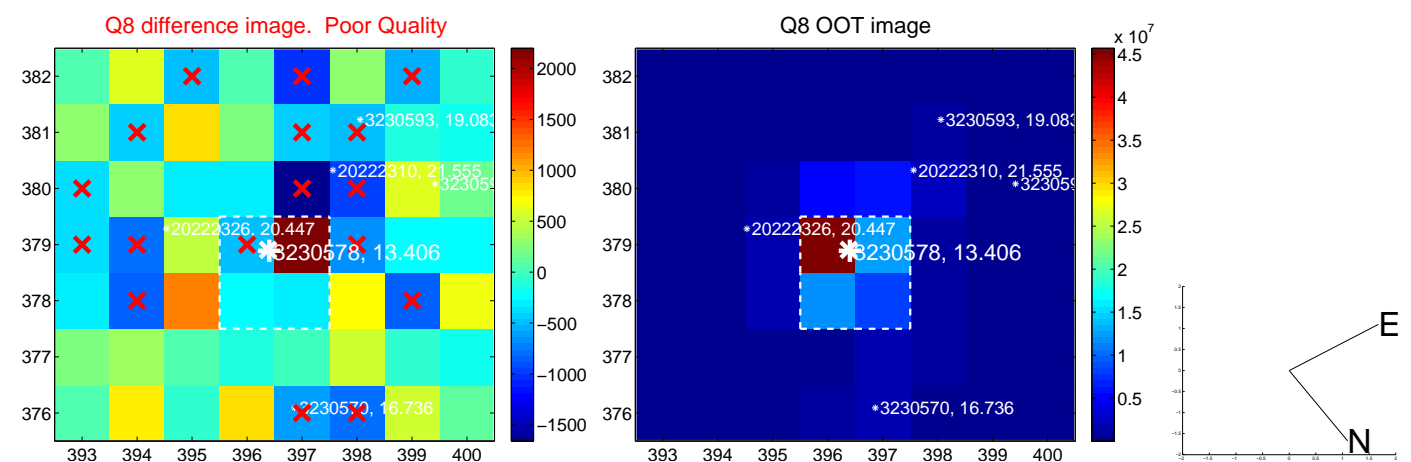
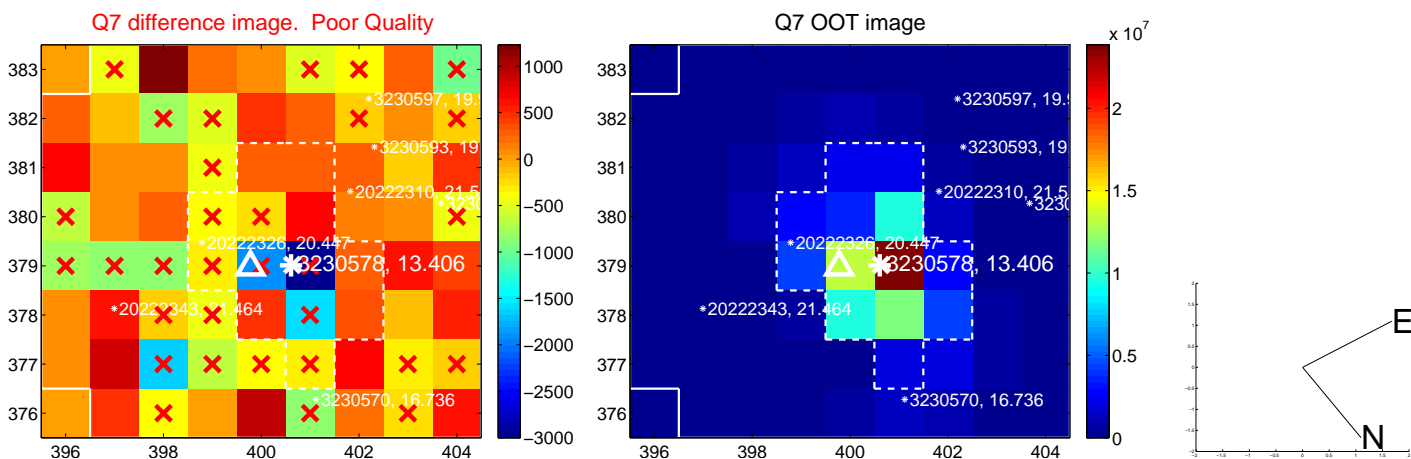
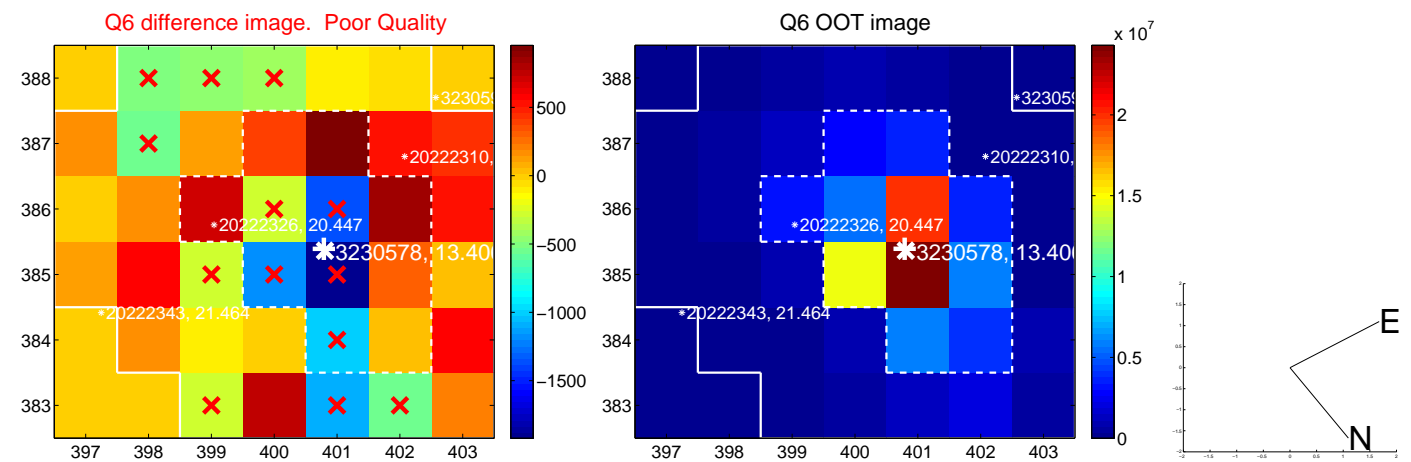
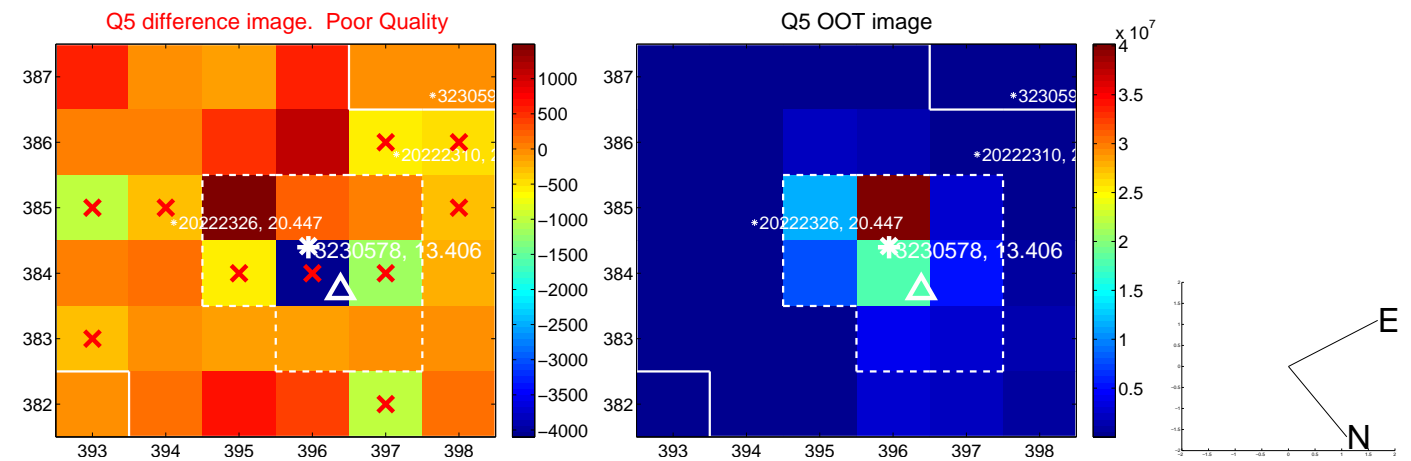


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

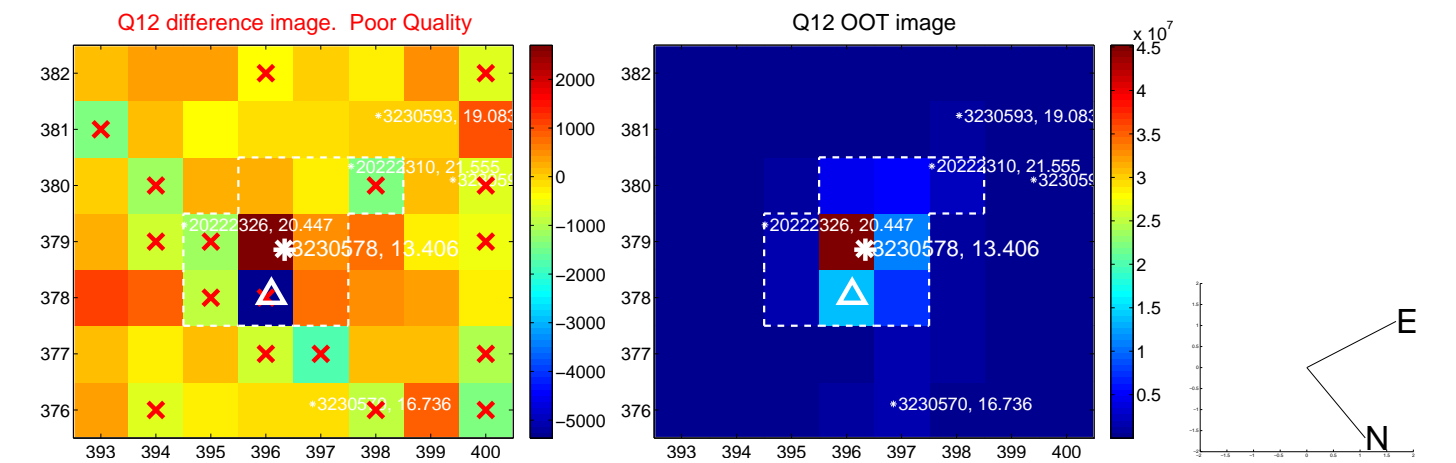
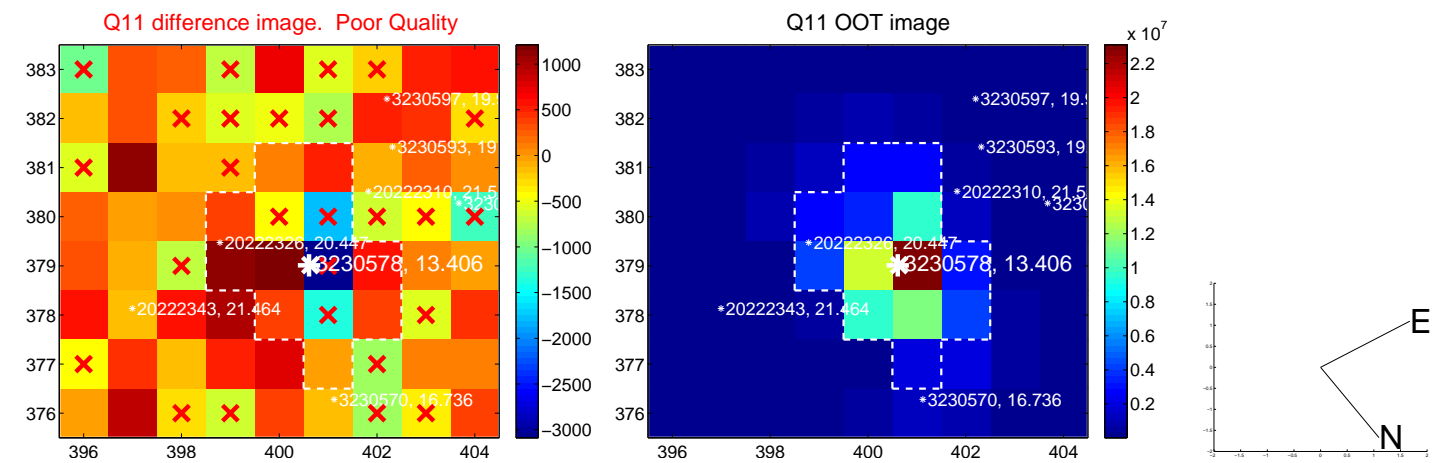
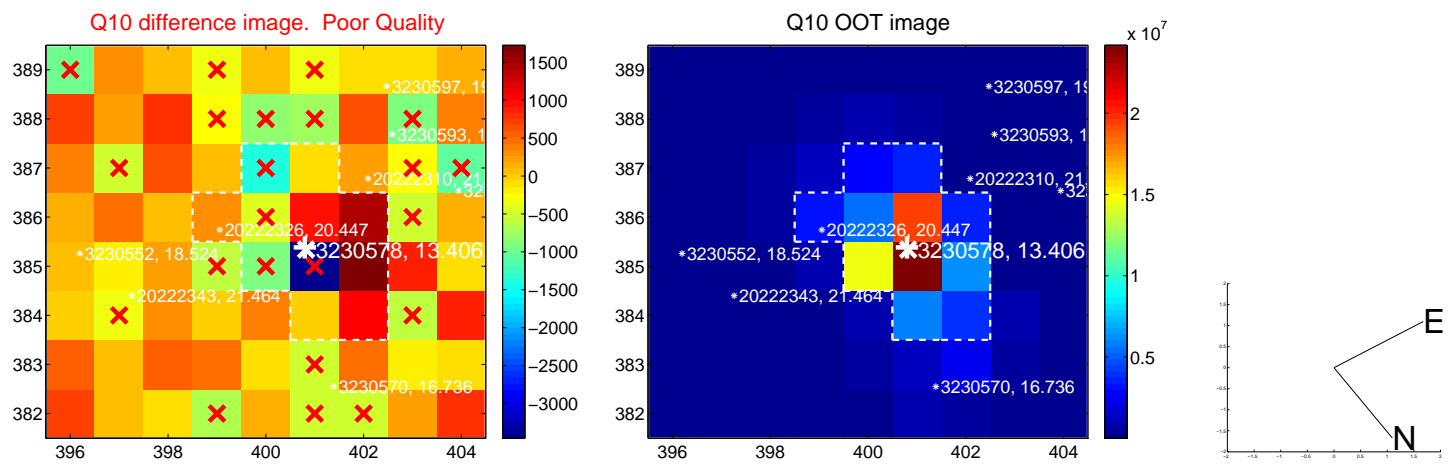
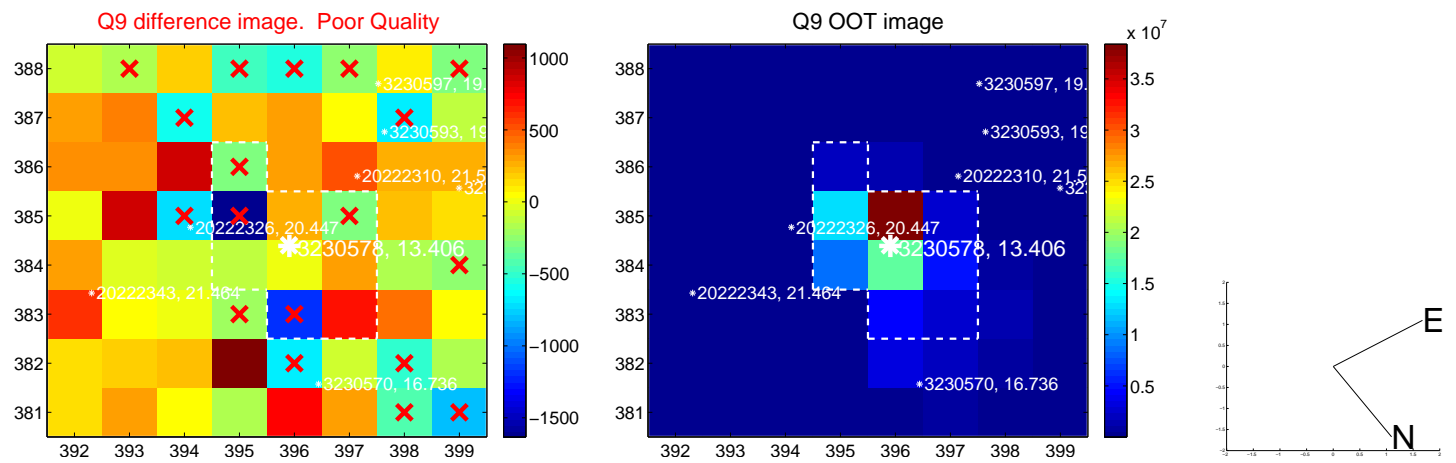
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



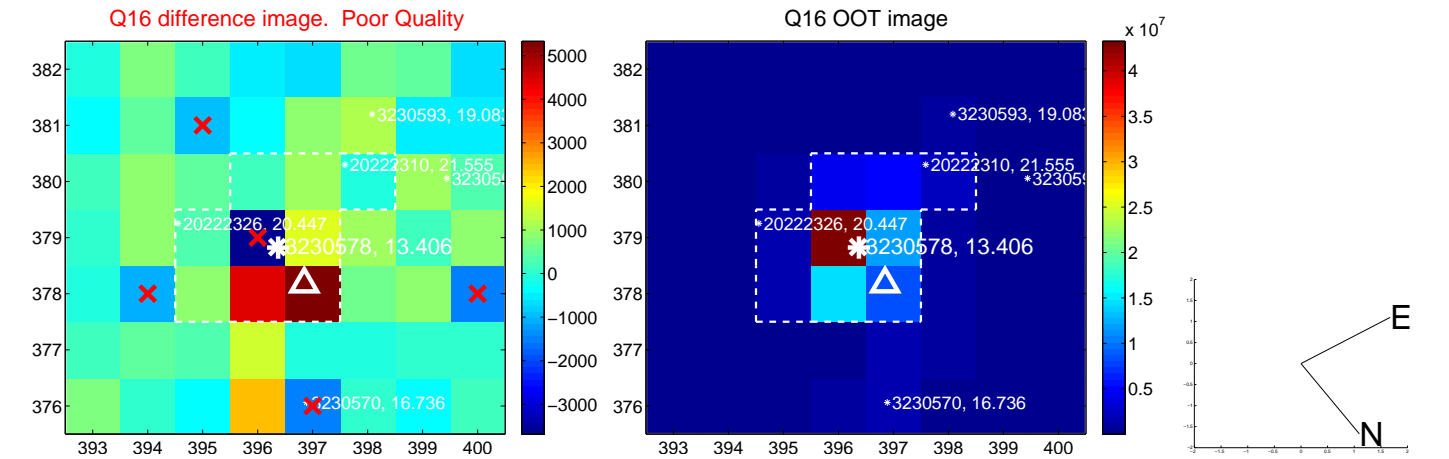
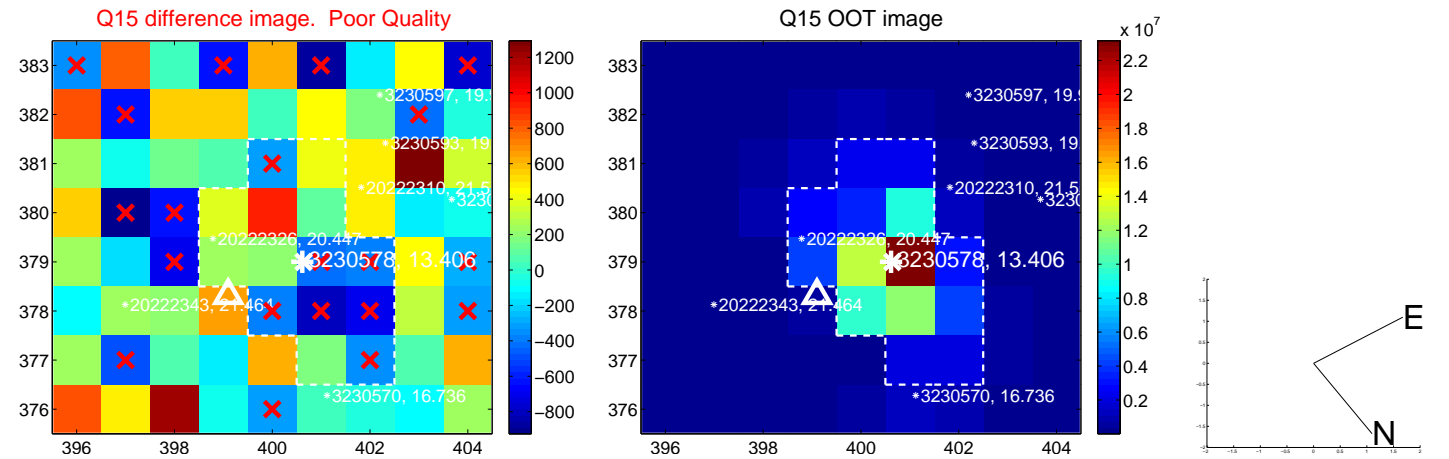
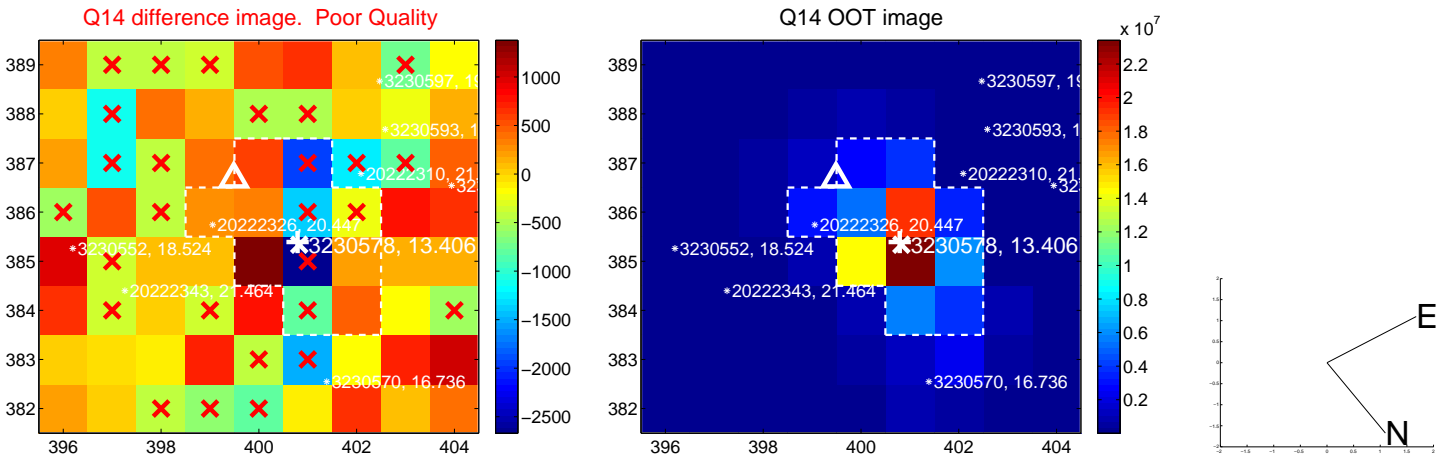
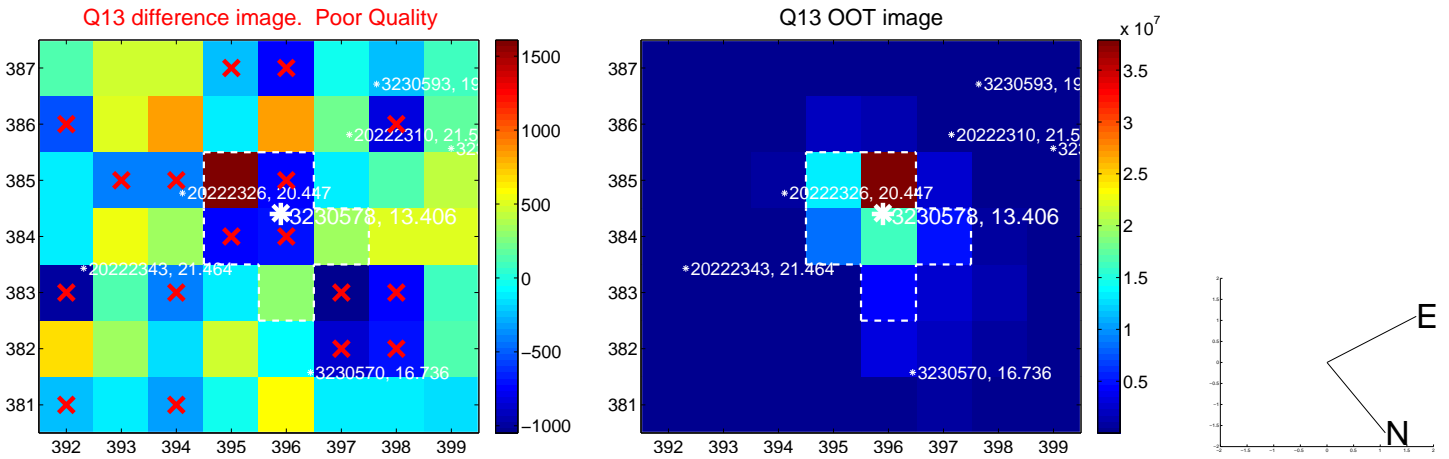
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



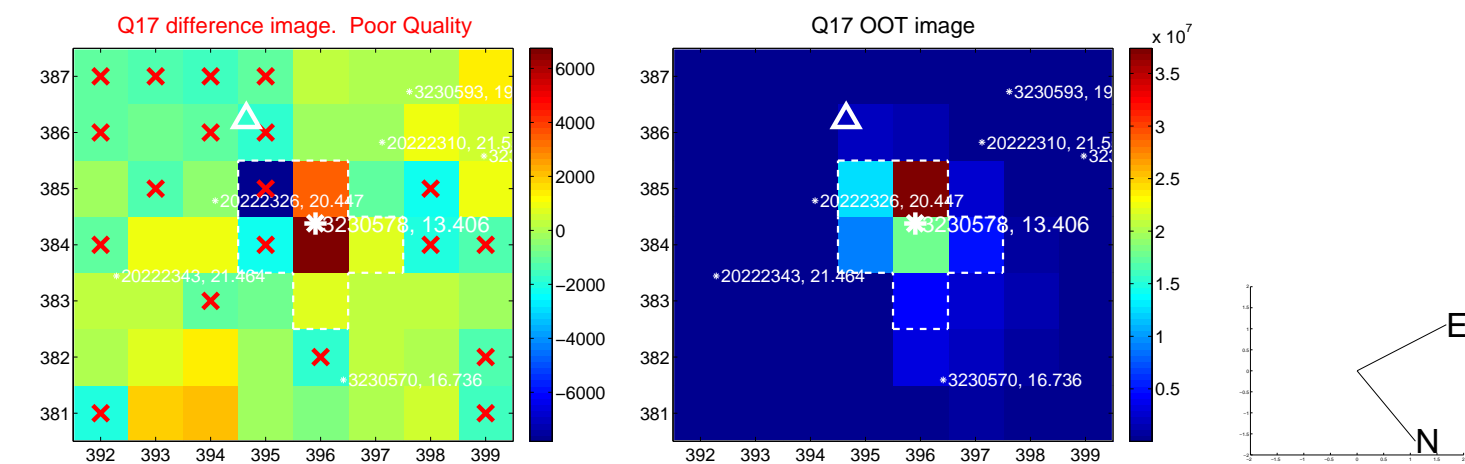
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



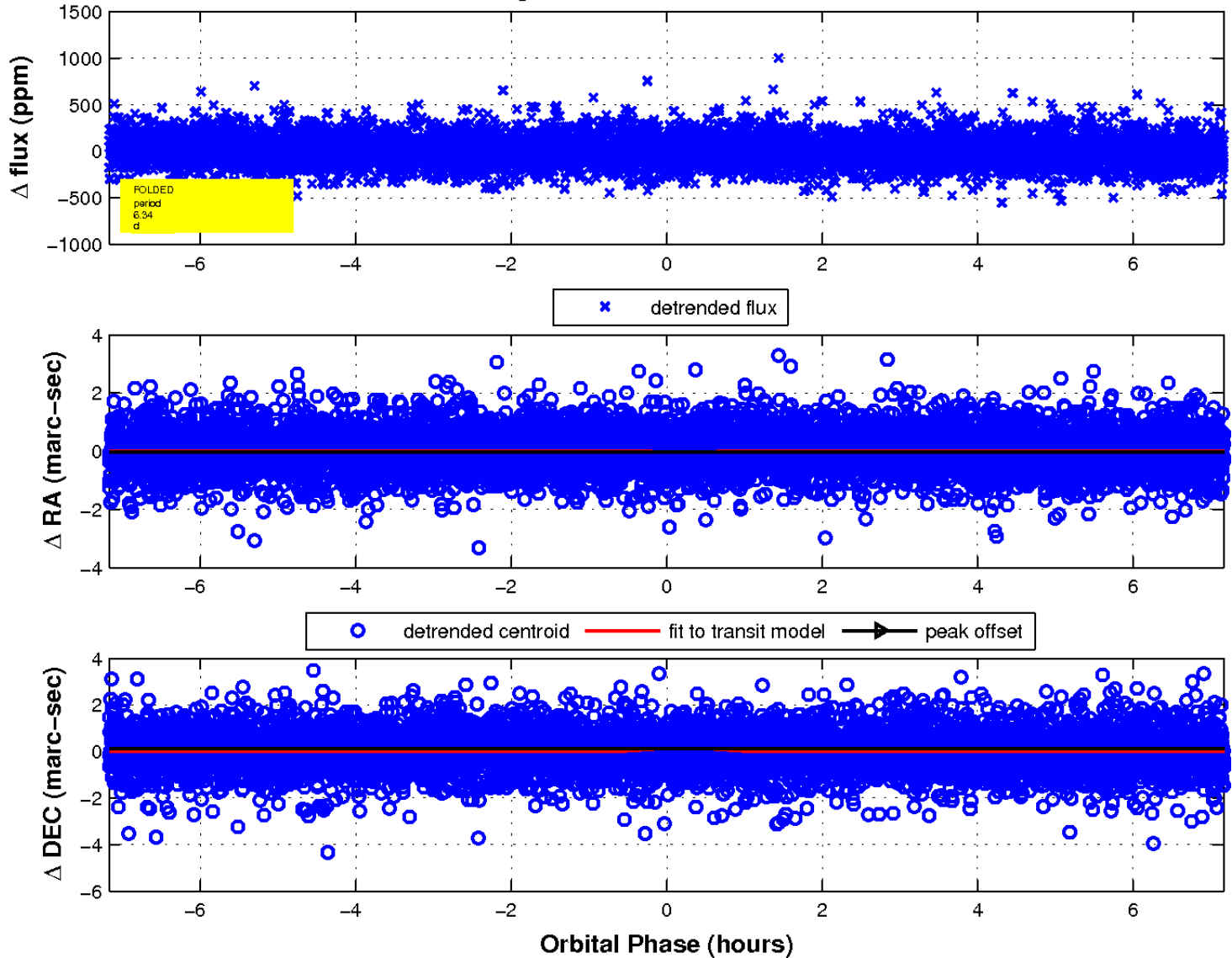
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

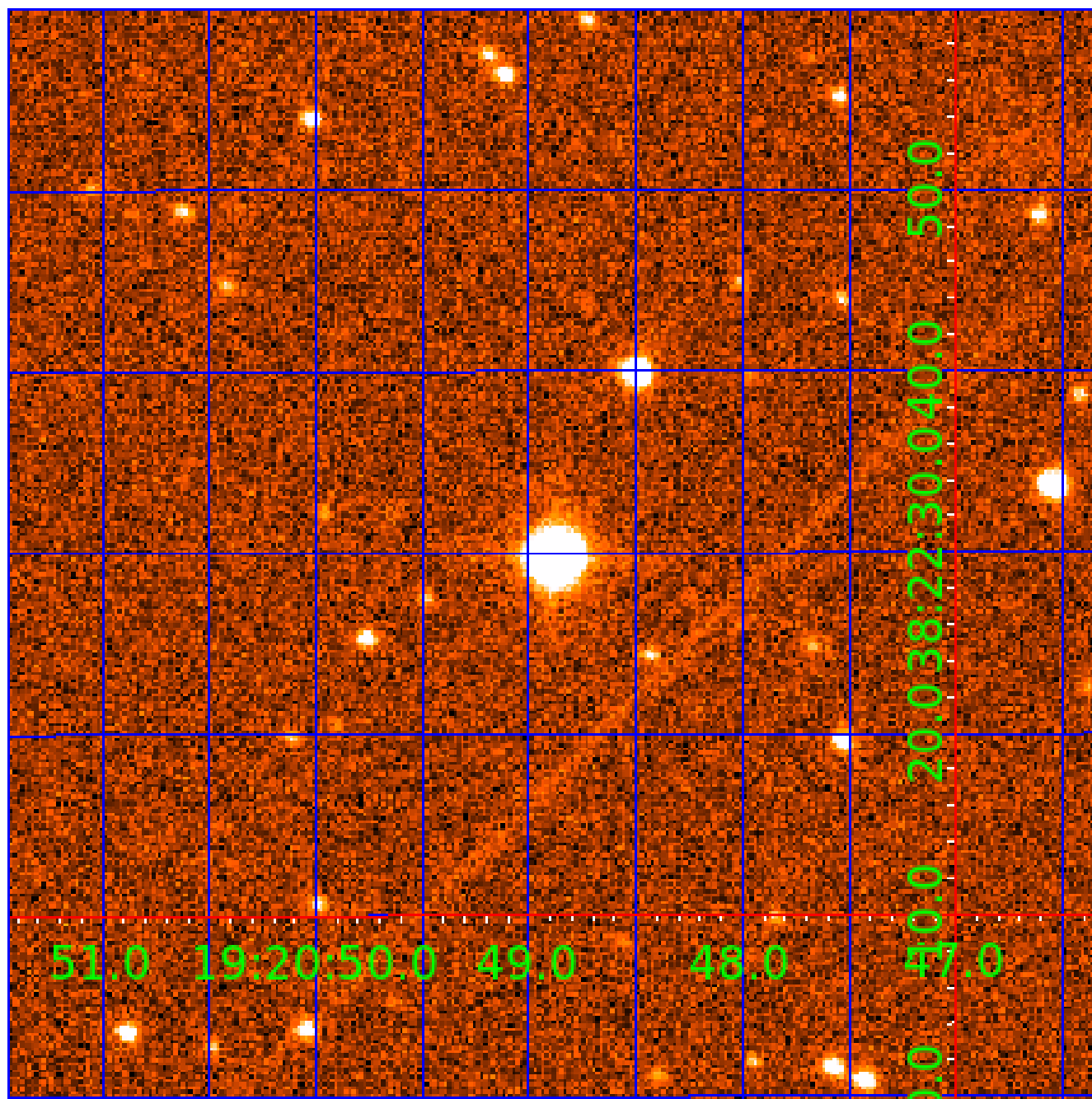


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 003230578

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})
003230578-01	OBS	0381.01	6.337613	132.164246	1760.7	1.724	195.6	201.6	1.54	6581	8.71	789.02
003230578-02	OBS	No	6.337658	135.329382	159.0	1.427	18.0	20.3	1.54	6581	2.27	789.01
003230578-03	OBS	No	6.337453	134.133301	92.2	15.000	8.2	-1.0	1.54	6581	1.49	789.05
003230578-04	OBS	No	6.337248	132.084117	51.2	24.727	8.9	12.2	1.54	6581	1.29	789.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003230578-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003230578-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
003230578-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_NOFITS
003230578-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE

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

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

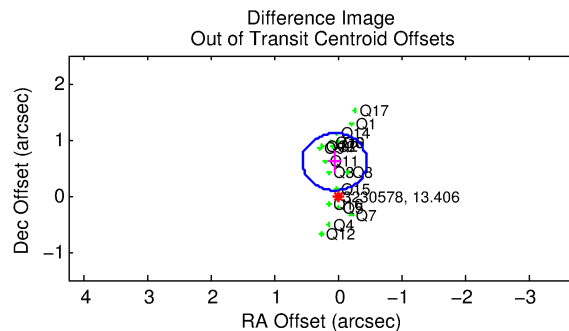
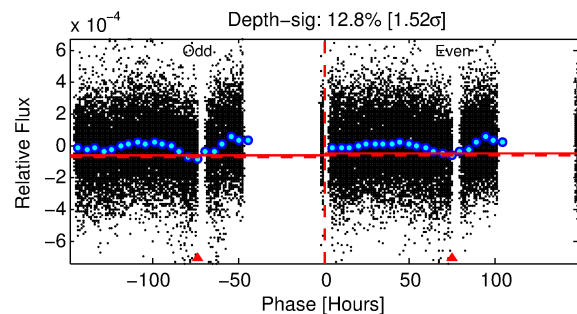
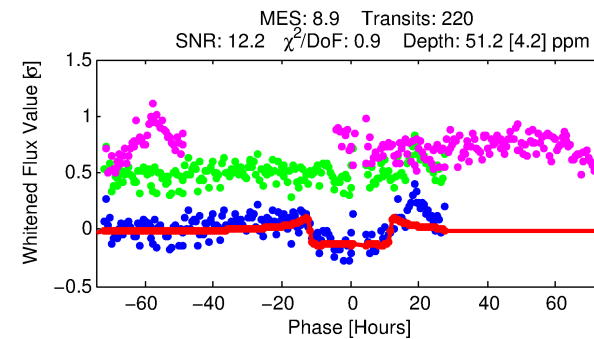
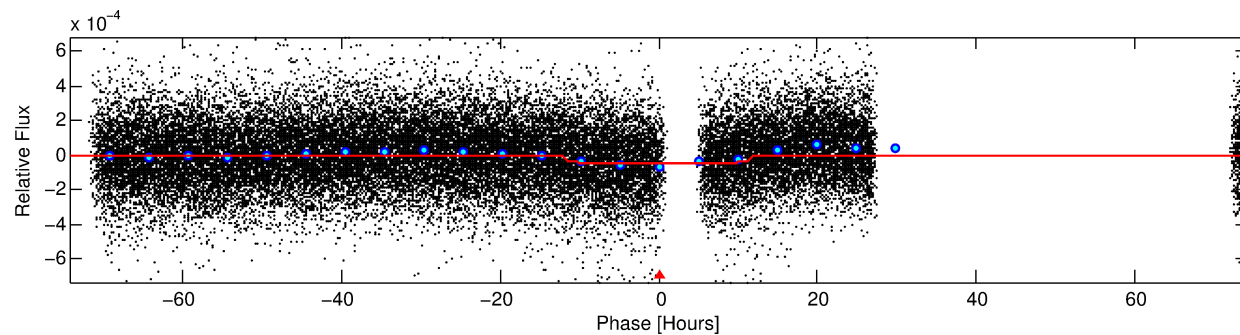
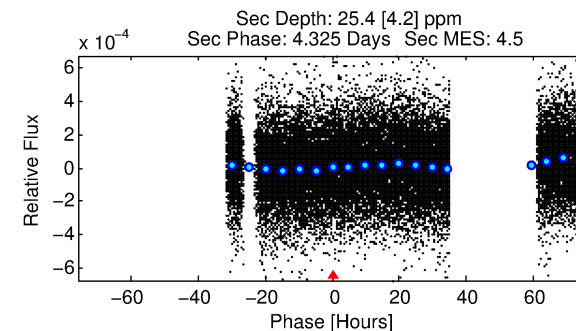
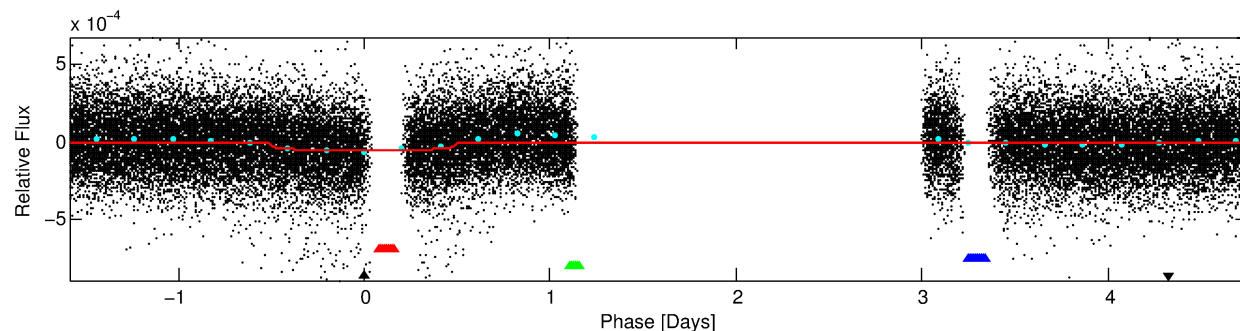
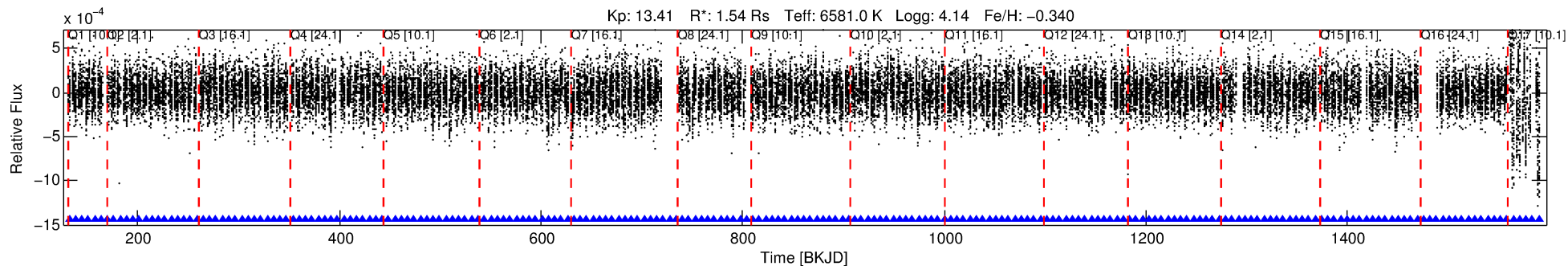
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003230578-04

No Significant Match Found

DV One-Page Summary

KIC: 3230578 Candidate: 4 of 4 Period: 6.337 d
KOI: K00381 Corr: No Ephemeris Match



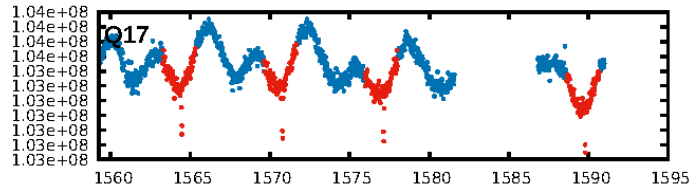
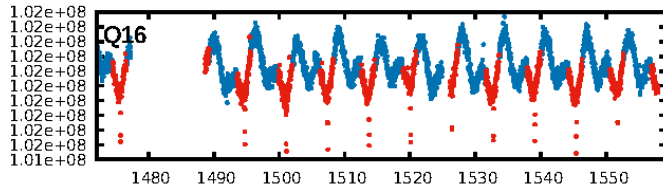
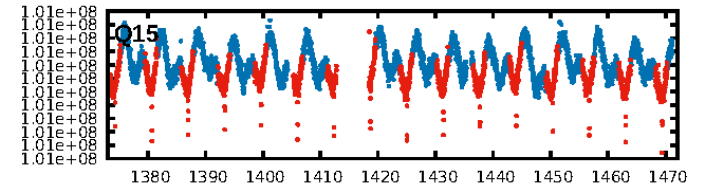
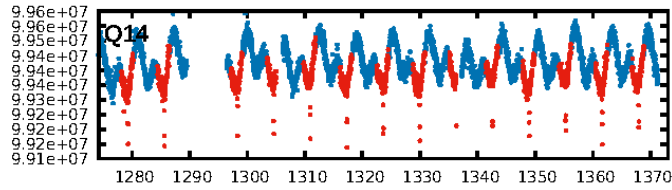
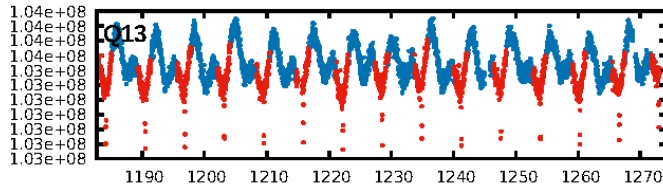
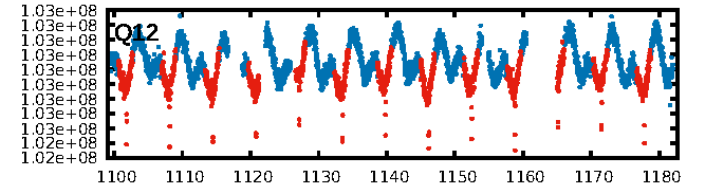
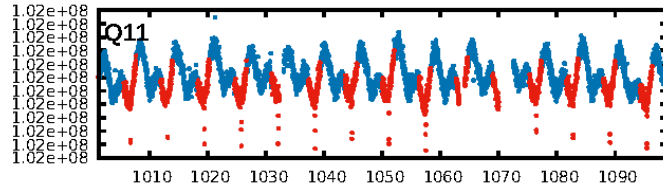
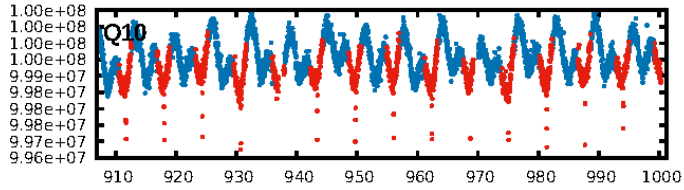
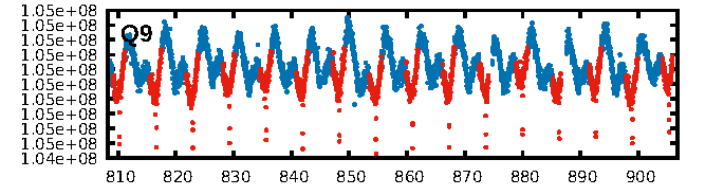
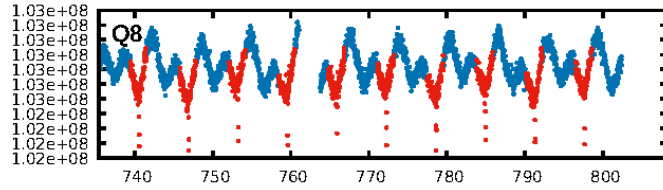
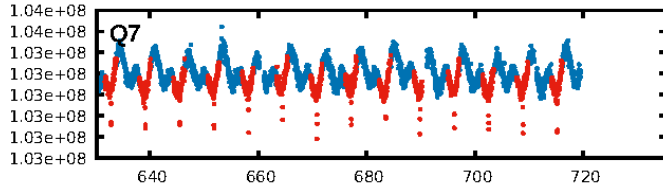
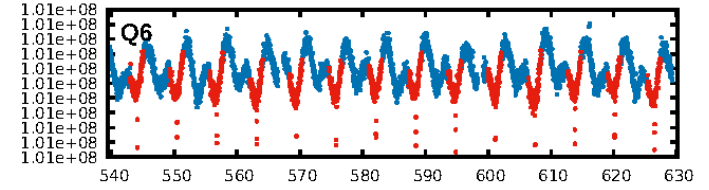
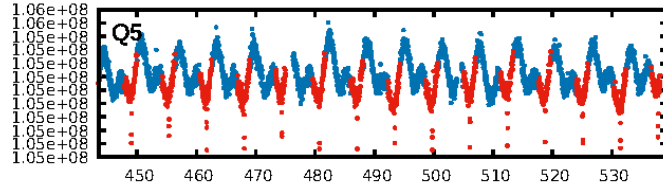
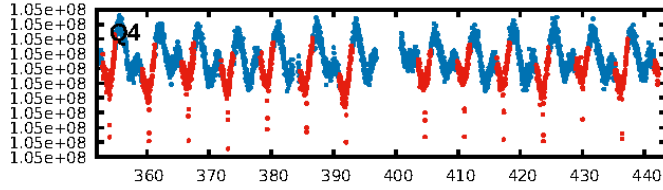
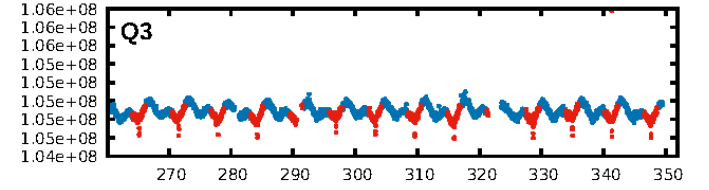
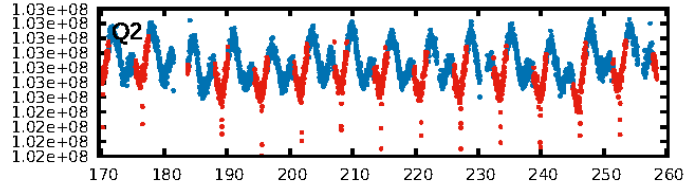
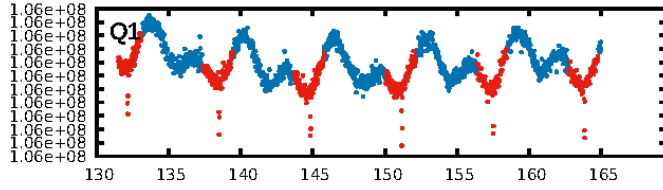
DV Fit Results:

Period = 6.33725 [0.00011] d
Epoch = 132.0841 [0.0130] BKJD
Rp/R* = 0.0077 [0.0005]
a/R* = 1.28 [0.14]
b = 0.91 [0.06]
Seff = 789.08 [323.41]
Teq = 1351 [138] K
Rp = 1.29 [0.36] Re
a = 0.0709 [0.0177] AU
Ag = 42.39 [18.62] [2.22σ]
Teffp = 5332 [341] K [10.82σ]

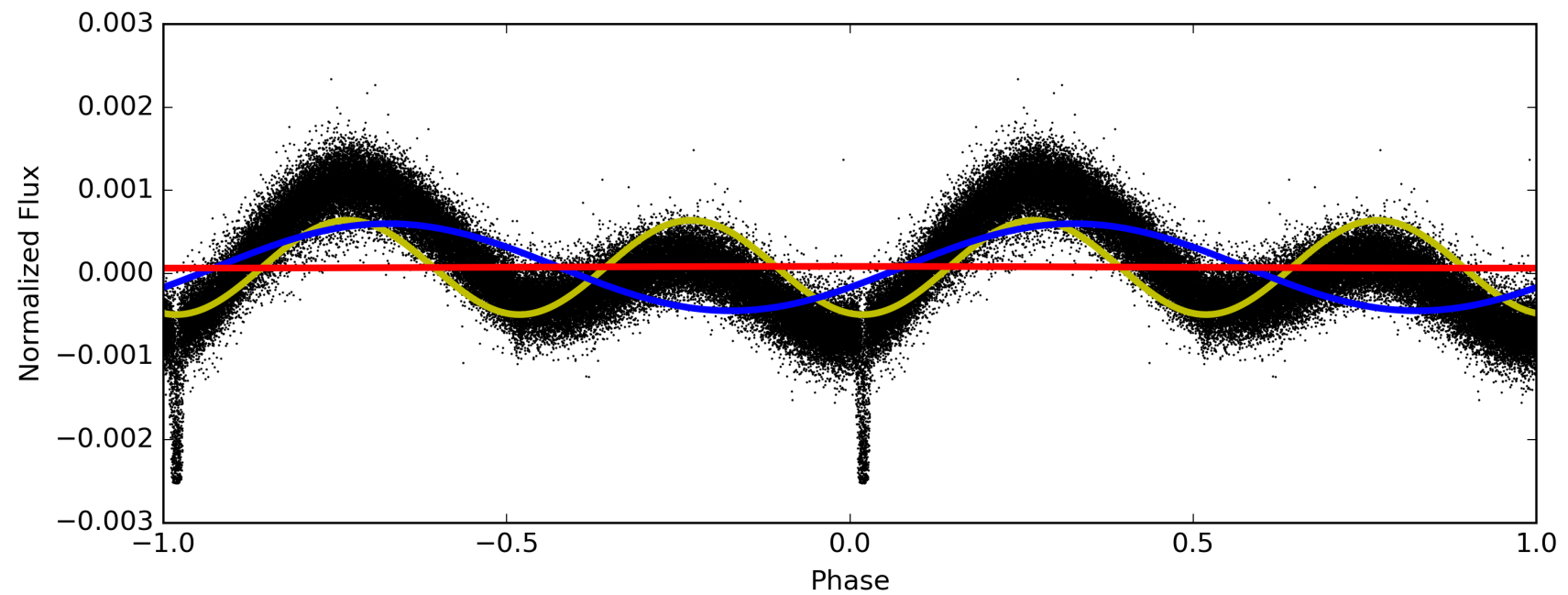
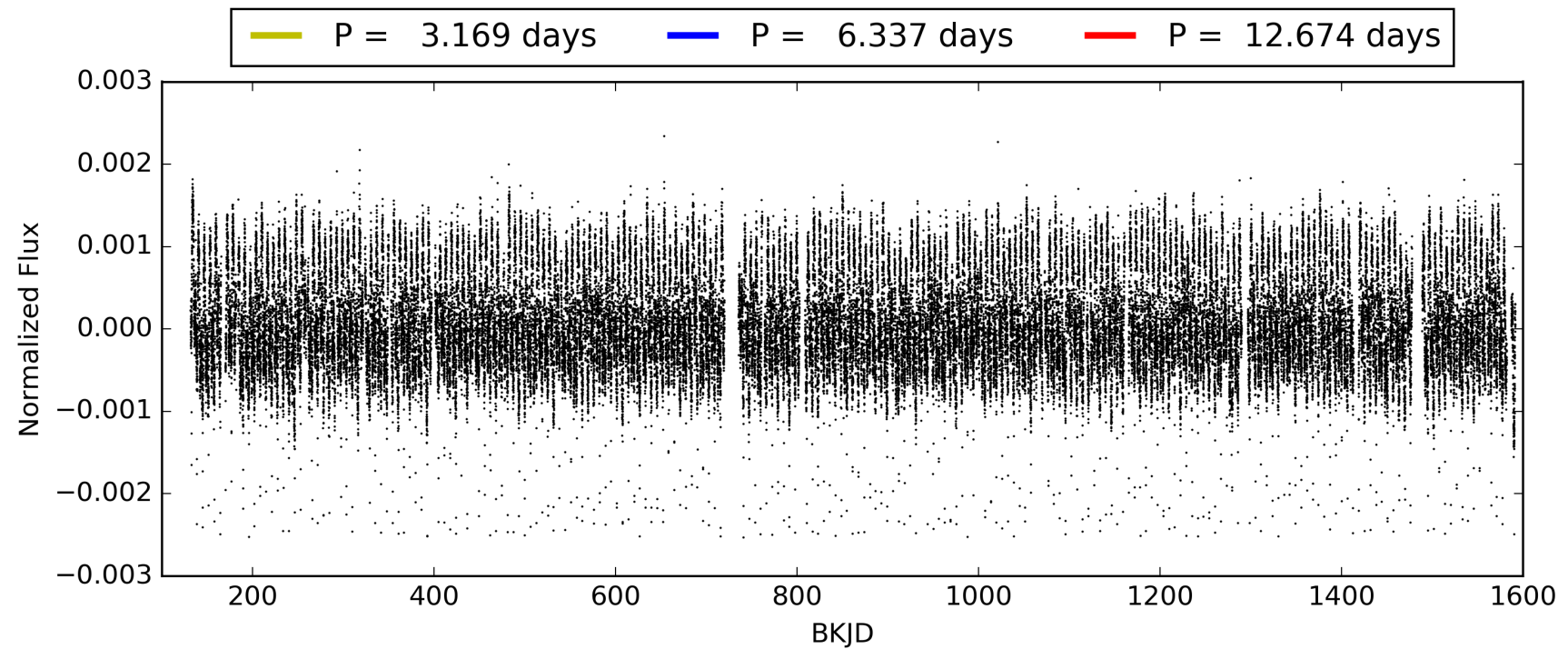
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.02e-11
RollingBand-fgt: 1.00 [210/210]
GhostDiagnostic-chr: 0.761
Centroid-sig: 0.0%
Centroid-so: 1.436 arcsec [2.40σ]
OotOffset-rm: 0.607 arcsec [3.57σ]
KicOffset-rm: 0.573 arcsec [3.47σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 003230578-04, PDC Light Curves

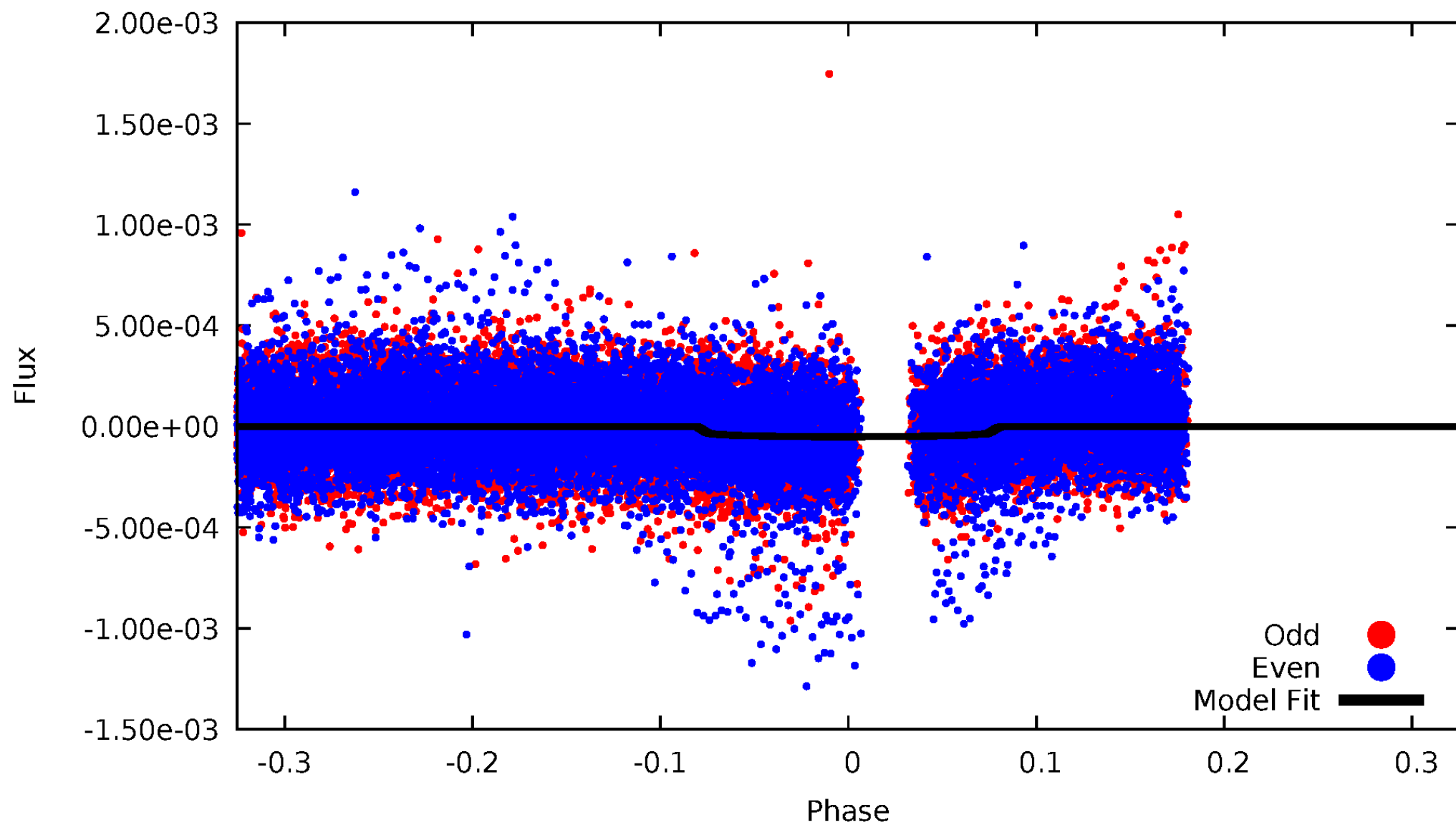


TCE 003230578-04



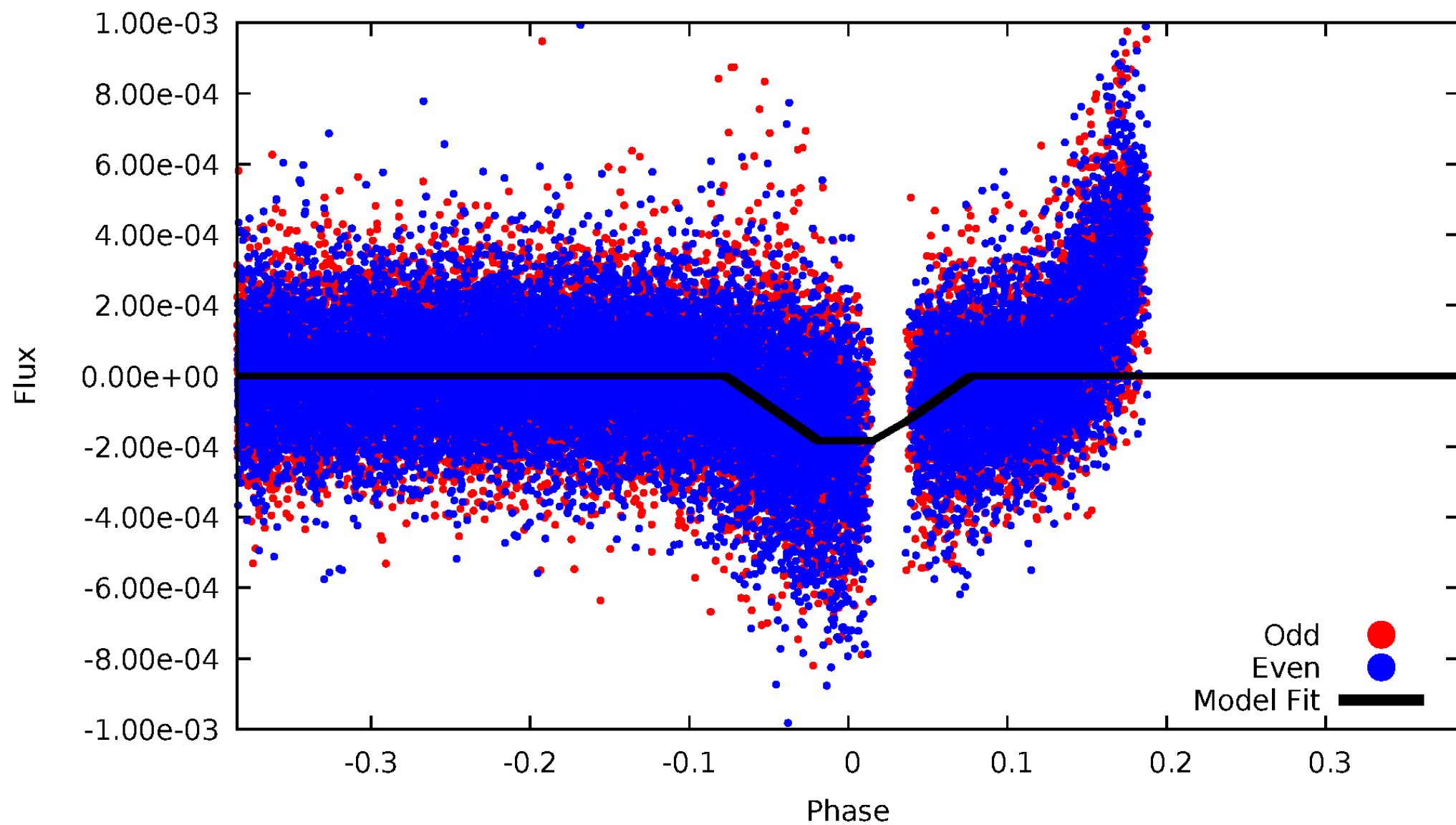
DV Odd/Even

TCE 003230578-04



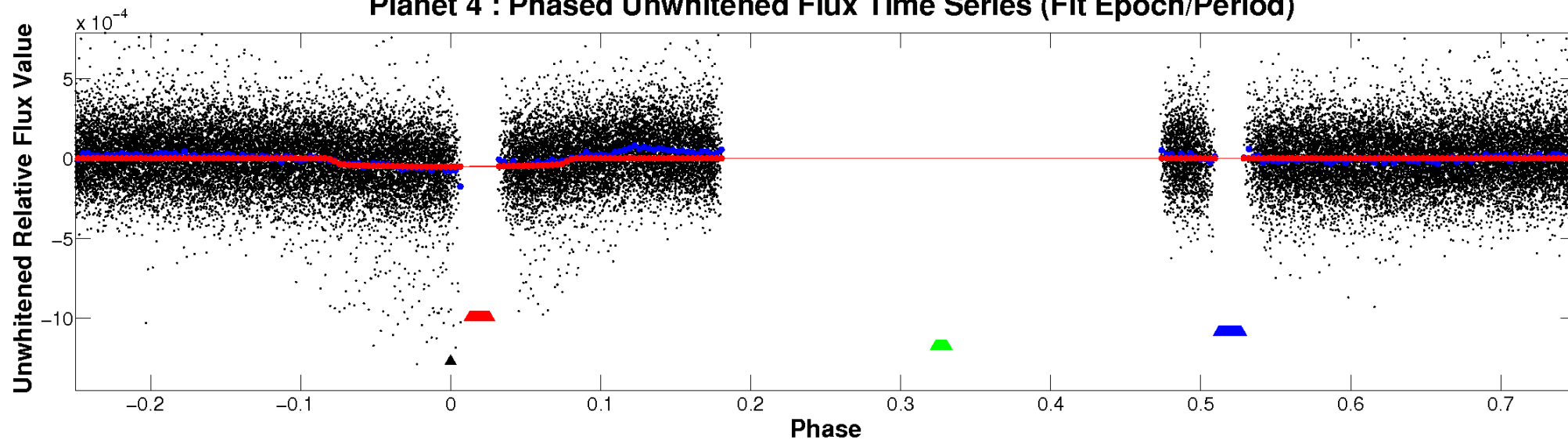
ALT Odd/Even

TCE 003230578-04

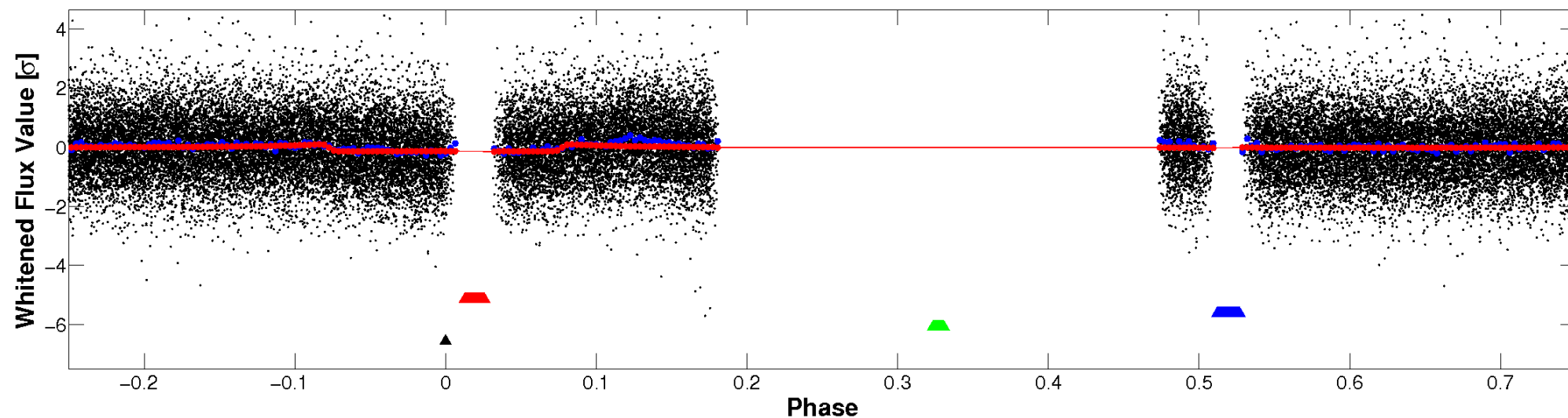


Non-Whitened Vs. Whitened Light Curve

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

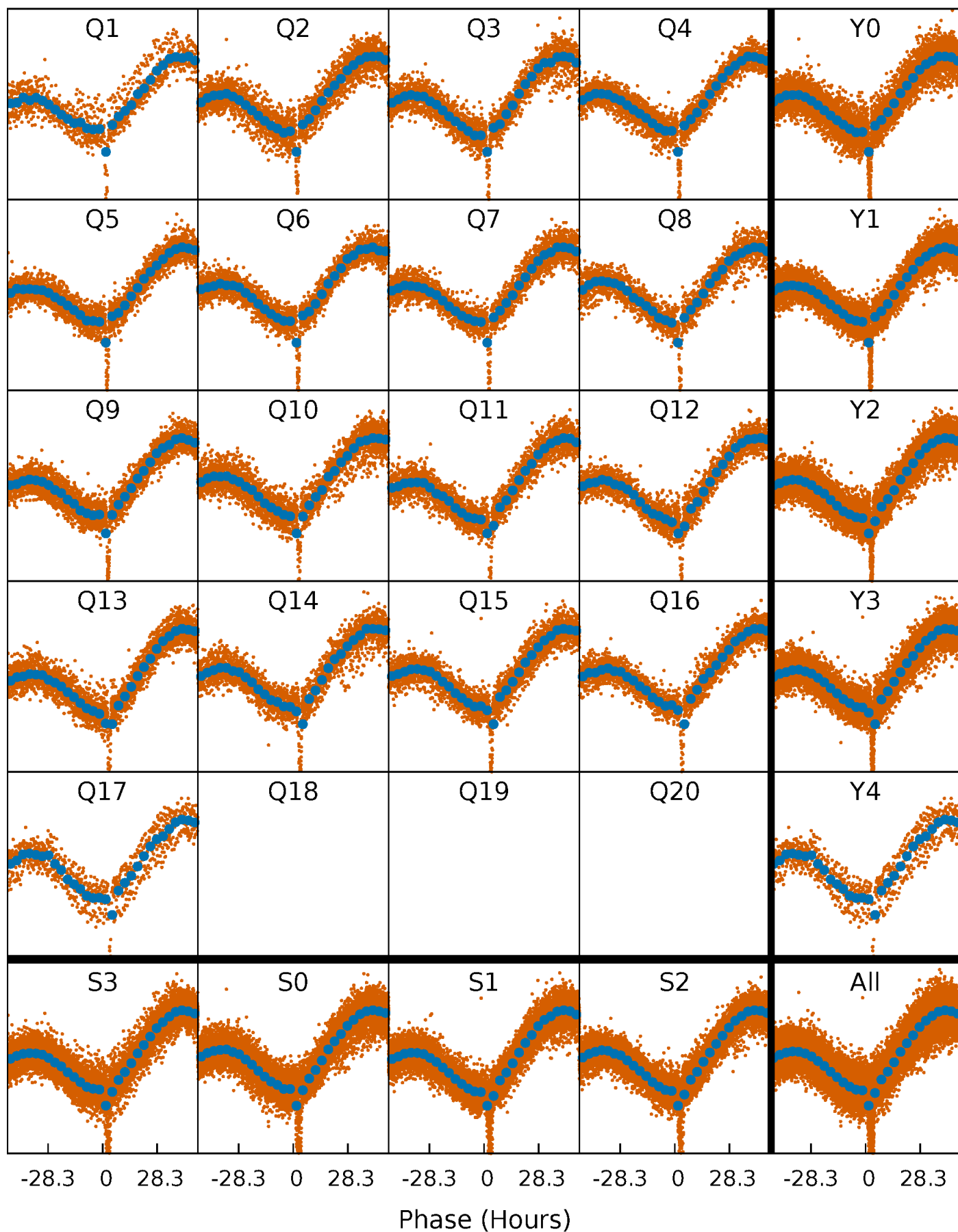


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



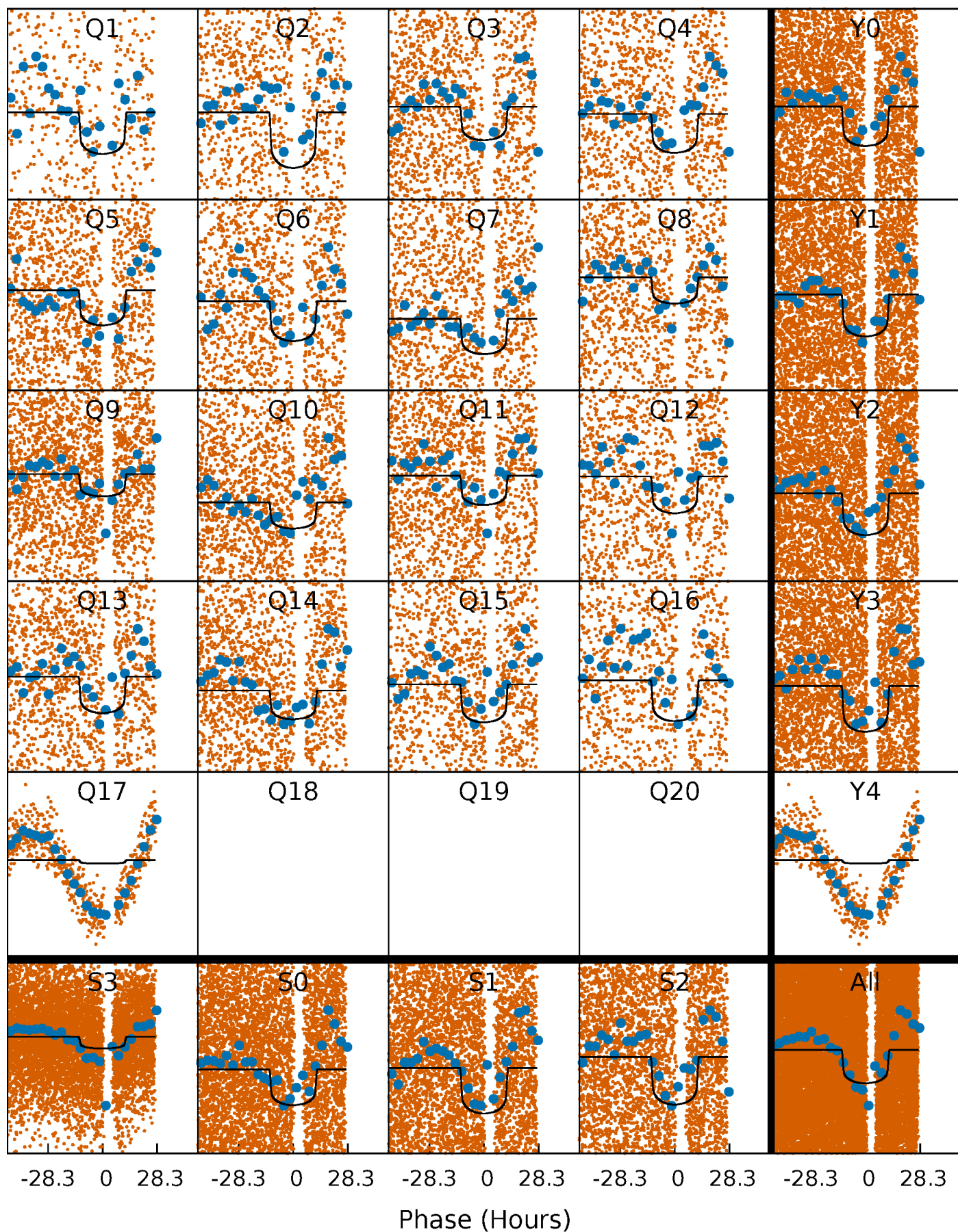
PDC Quarter-Phased Transit Curves

TCE 003230578-04 $P = 6.337248$ Days $T_0 = 132.084116$ (BKJD)



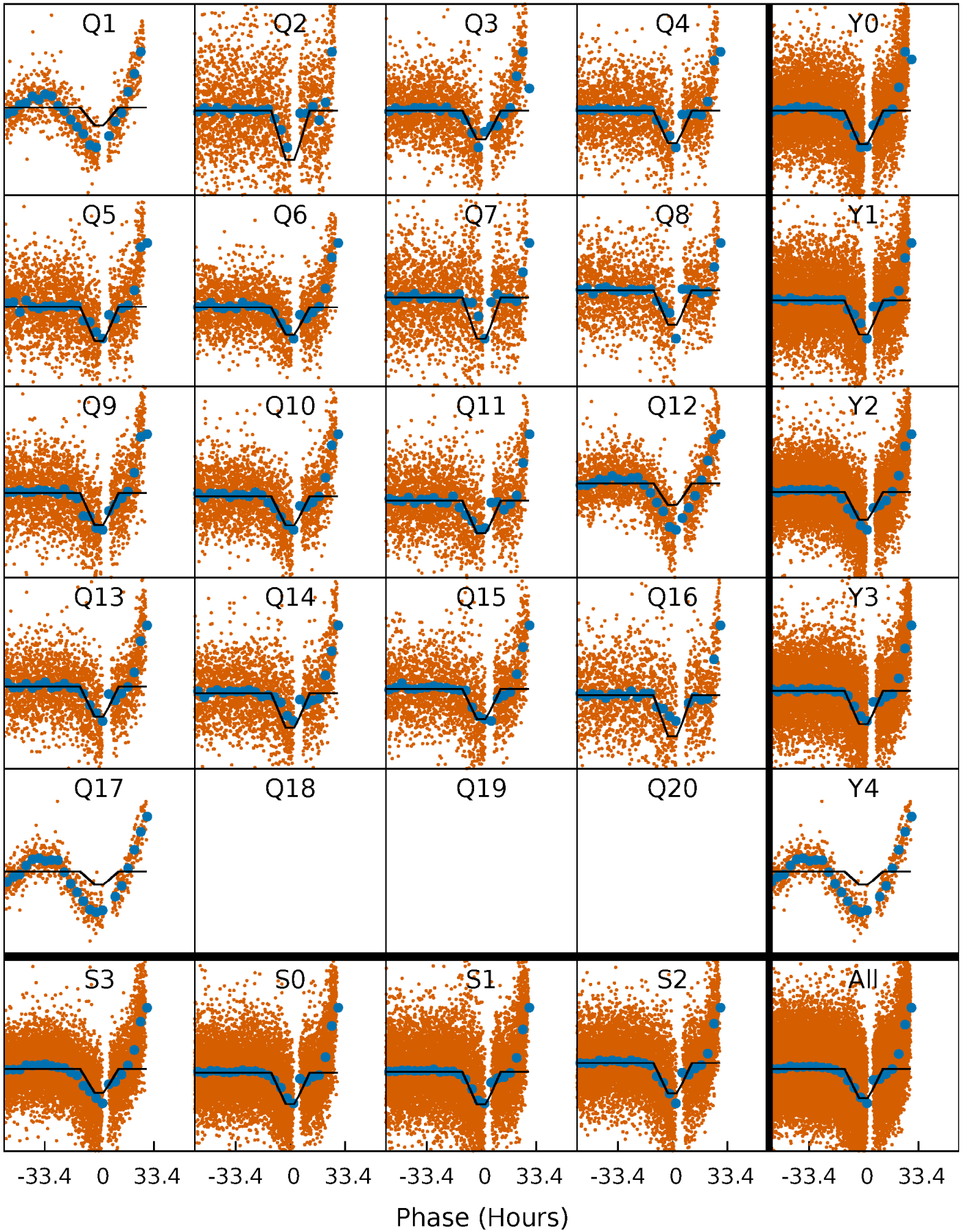
DV Quarter-Phased Transit Curves

TCE 003230578-04 P= 6.337248 Days $T_0=132.084116$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

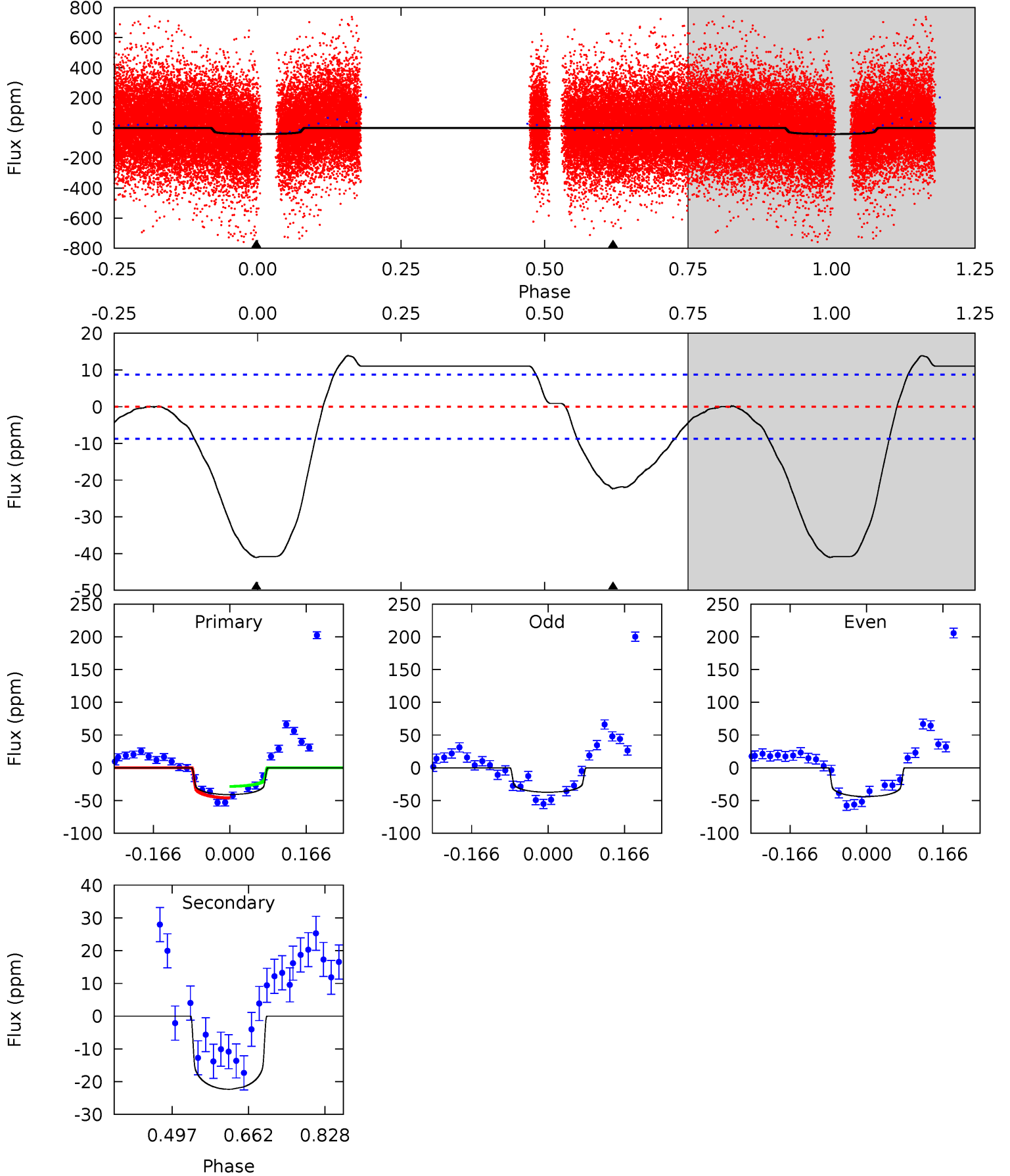
TCE 003230578-04 P= 6.337133 Days $T_0=132.055637$ (BKJD)



DV Model-Shift Uniqueness Test

003230578-04, P = 6.337248 Days, E = 125.746868 Days

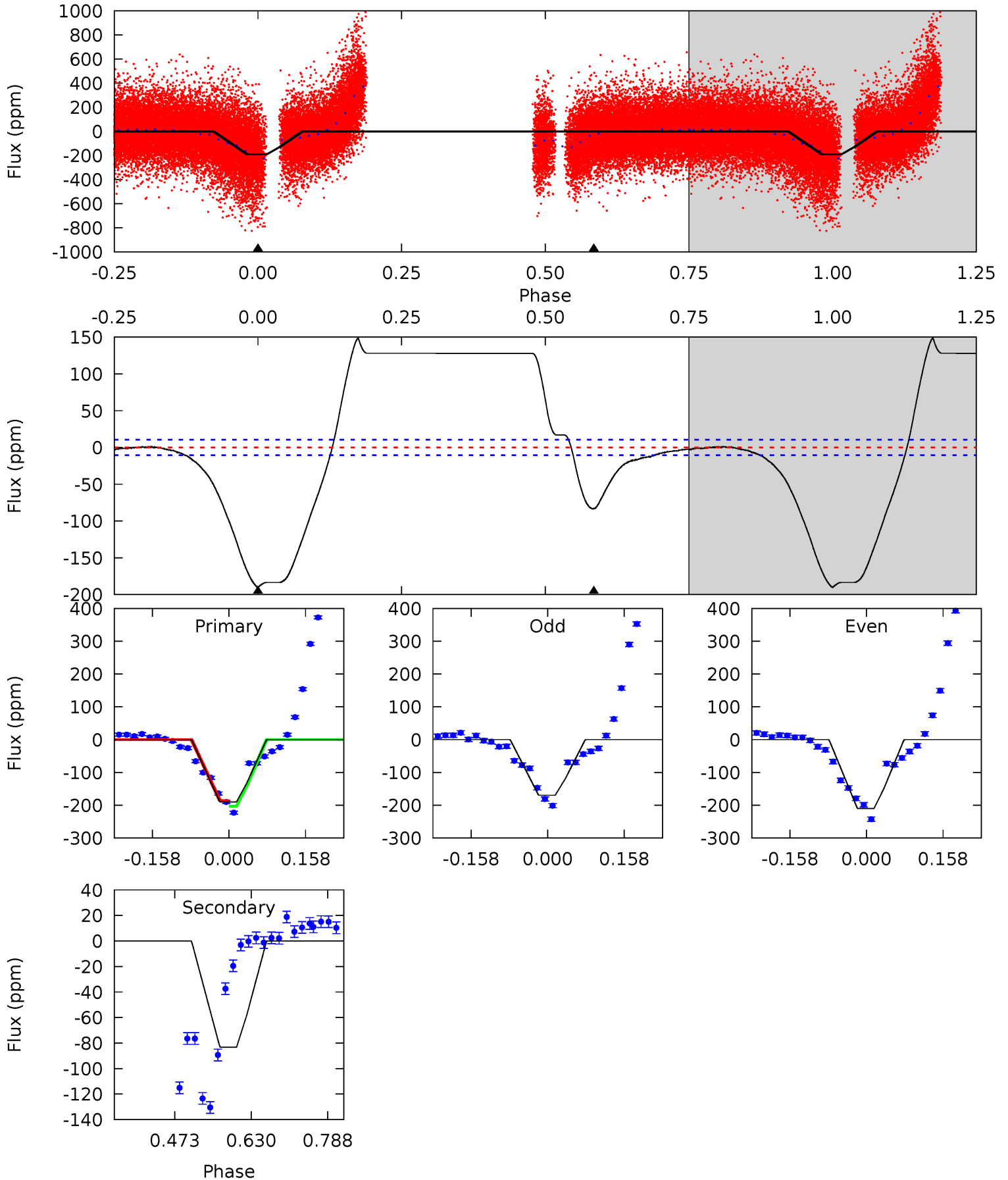
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	11.4	0	0	4.46	1.39	2.75	20.9	20.9	11.4	11.4	1.73	1.38	0.25	4.38



Alt Model-Shift Uniqueness Test

003230578-04, P = 6.337133 Days, E = 125.718504 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.6	35.3	0	0	4.47	1.41	22.4	80.6	80.6	35.3	35.3	8.58	1.19	0.44	2.26



Stellar Parameters For KIC 003230578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6581^{+187}_{-234}	$4.138^{+0.220}_{-0.160}$	$-0.340^{+0.250}_{-0.300}$	$1.536^{+0.423}_{-0.423}$	$1.185^{+0.178}_{-0.196}$	$0.461^{+0.594}_{-0.231}$
	+3%/-4%	+5%/-4%	+74%/-88%	+28%/-28%	+15%/-17%	+129%/-50%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003230578-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 2	$1.29^{+0.19}_{-0.21}$	1874^{+147}_{-143}	5195^{+211}_{-236}	38^{+14}_{-10}
Alt.	-83 ± 2	$2.26^{+0.35}_{-0.34}$	1873^{+140}_{-154}	5413^{+178}_{-184}	45^{+16}_{-11}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

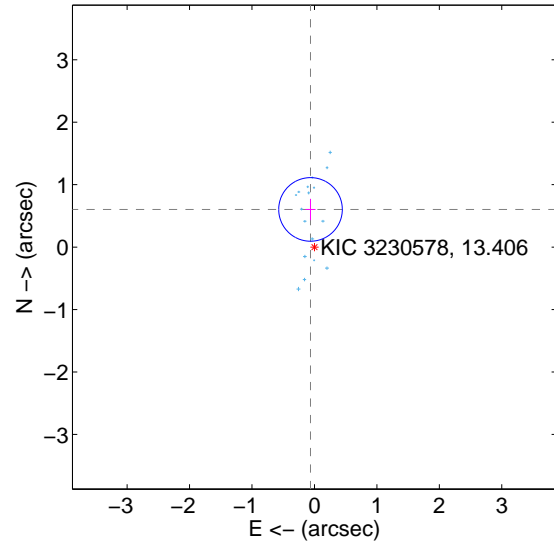
Supplemental centroid analysis for 003230578-04. Kepler magnitude: 13.41. Transit SNR 12.24

There are 17 quarters with good PRF difference image offsets

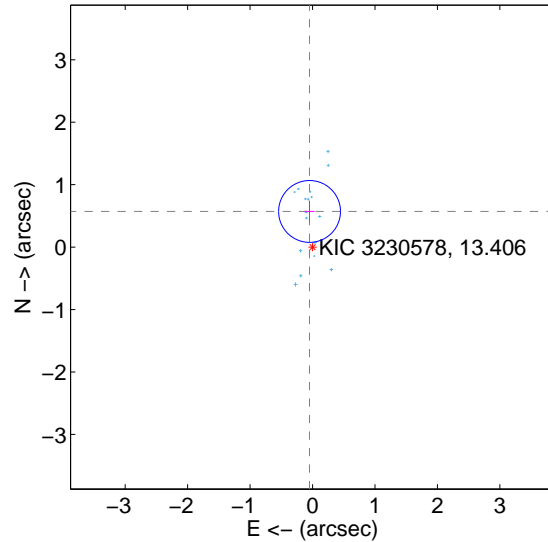
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.607 \pm 0.170	3.57	0.063 \pm 0.080	0.604 \pm 0.171
PRF-fit source offset from KIC position	0.573 \pm 0.165	3.47	0.048 \pm 0.079	0.571 \pm 0.166
photometric centroid source offset	1.44 \pm 0.60	2.40	1.04 \pm 0.54	-0.99 \pm 0.66

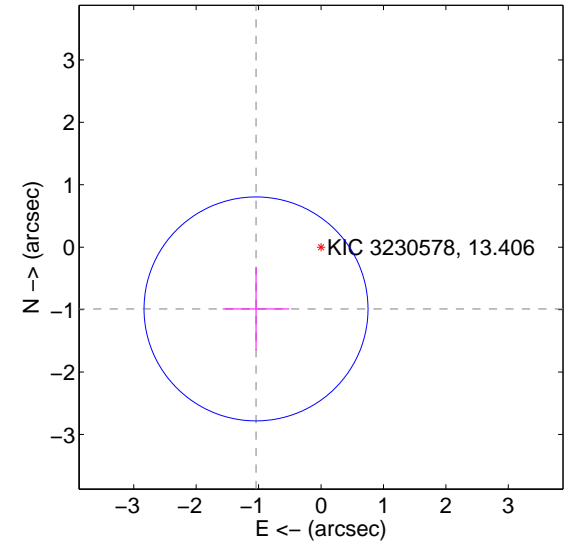
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

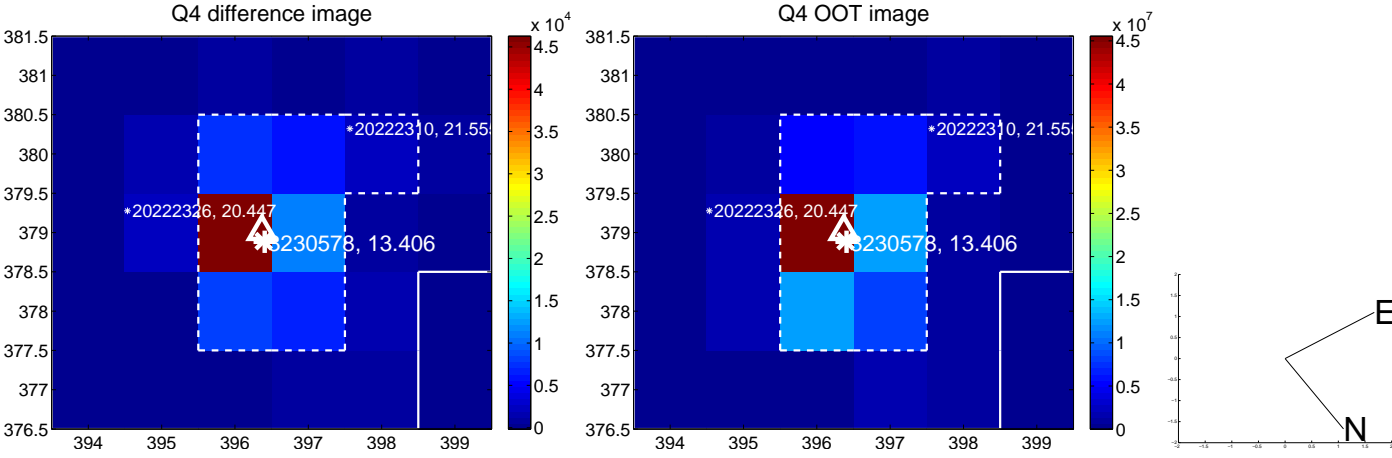
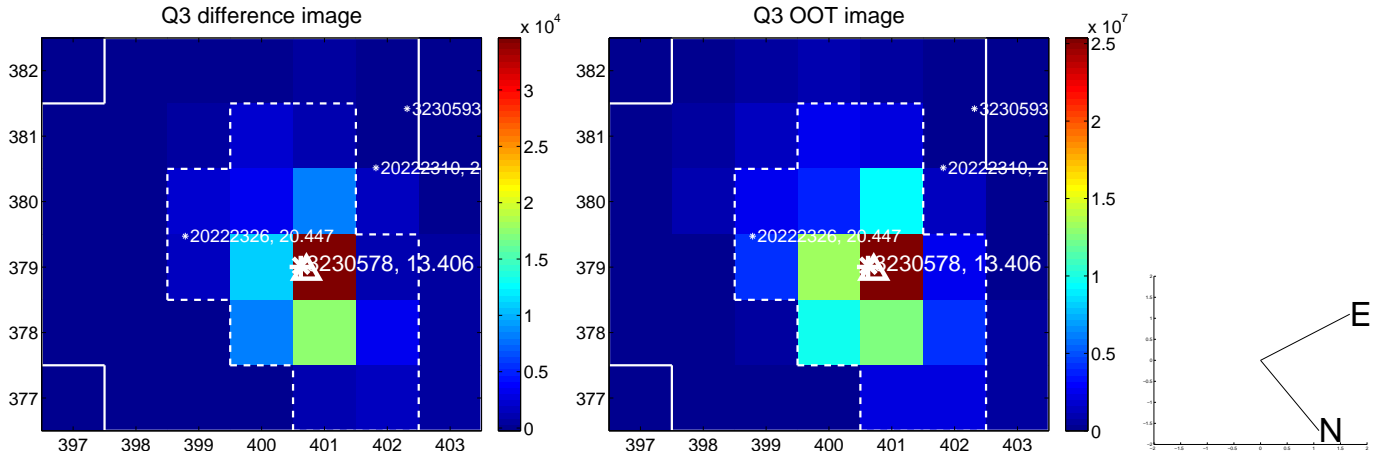
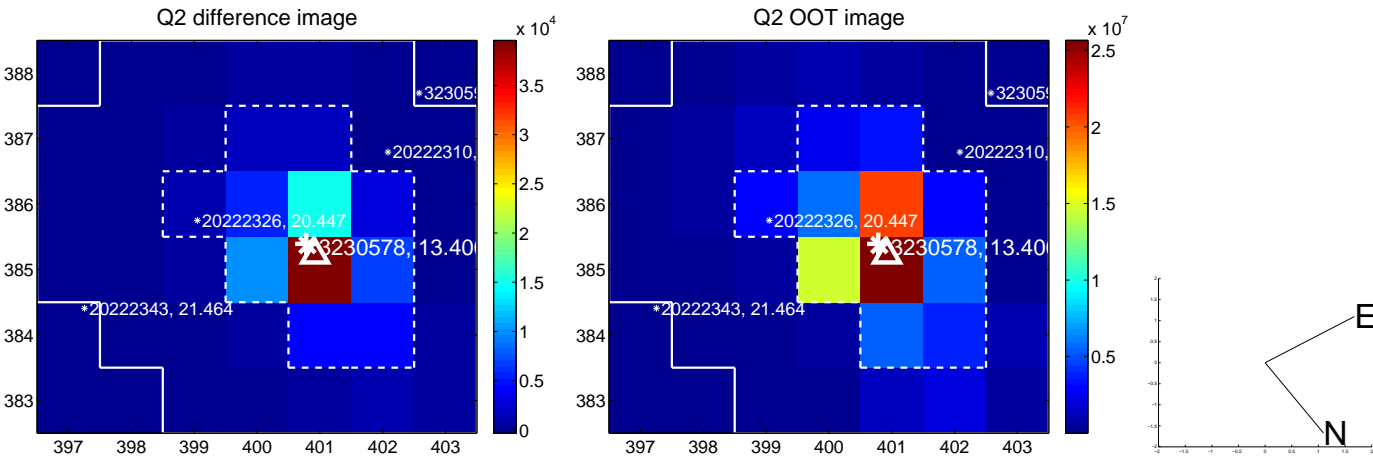
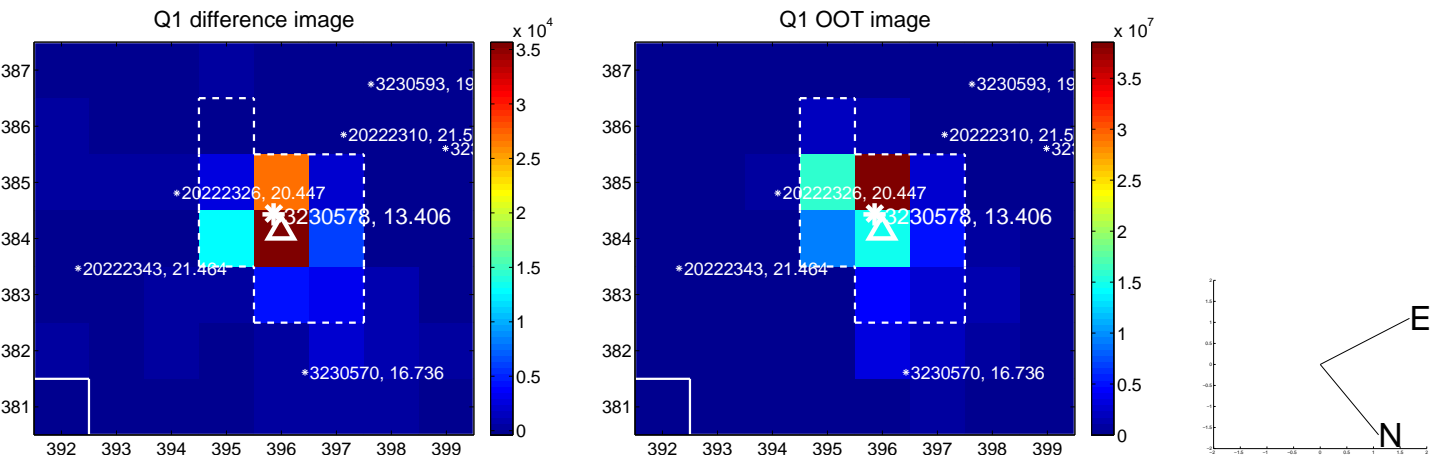


offset from photometric centroids

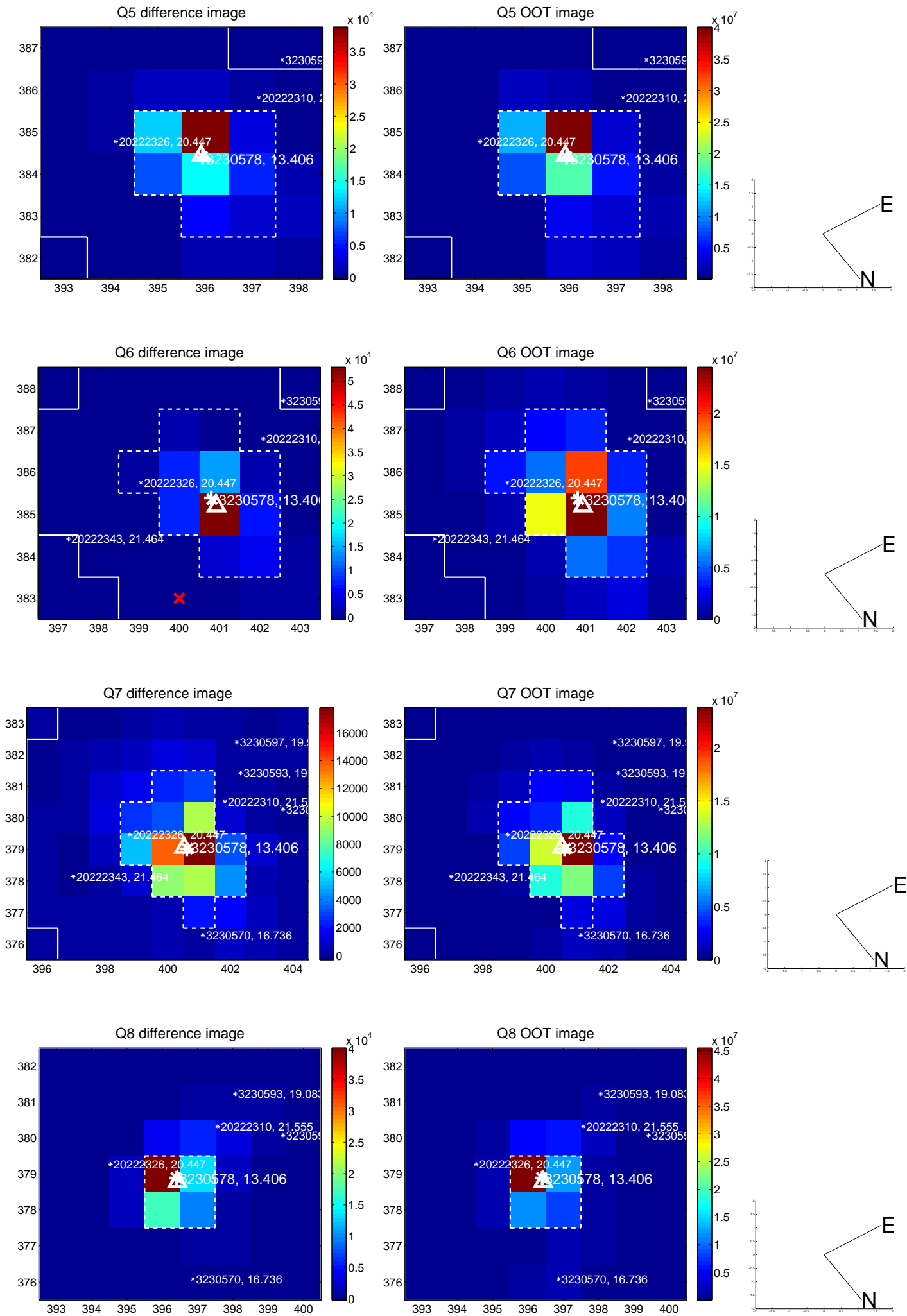


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

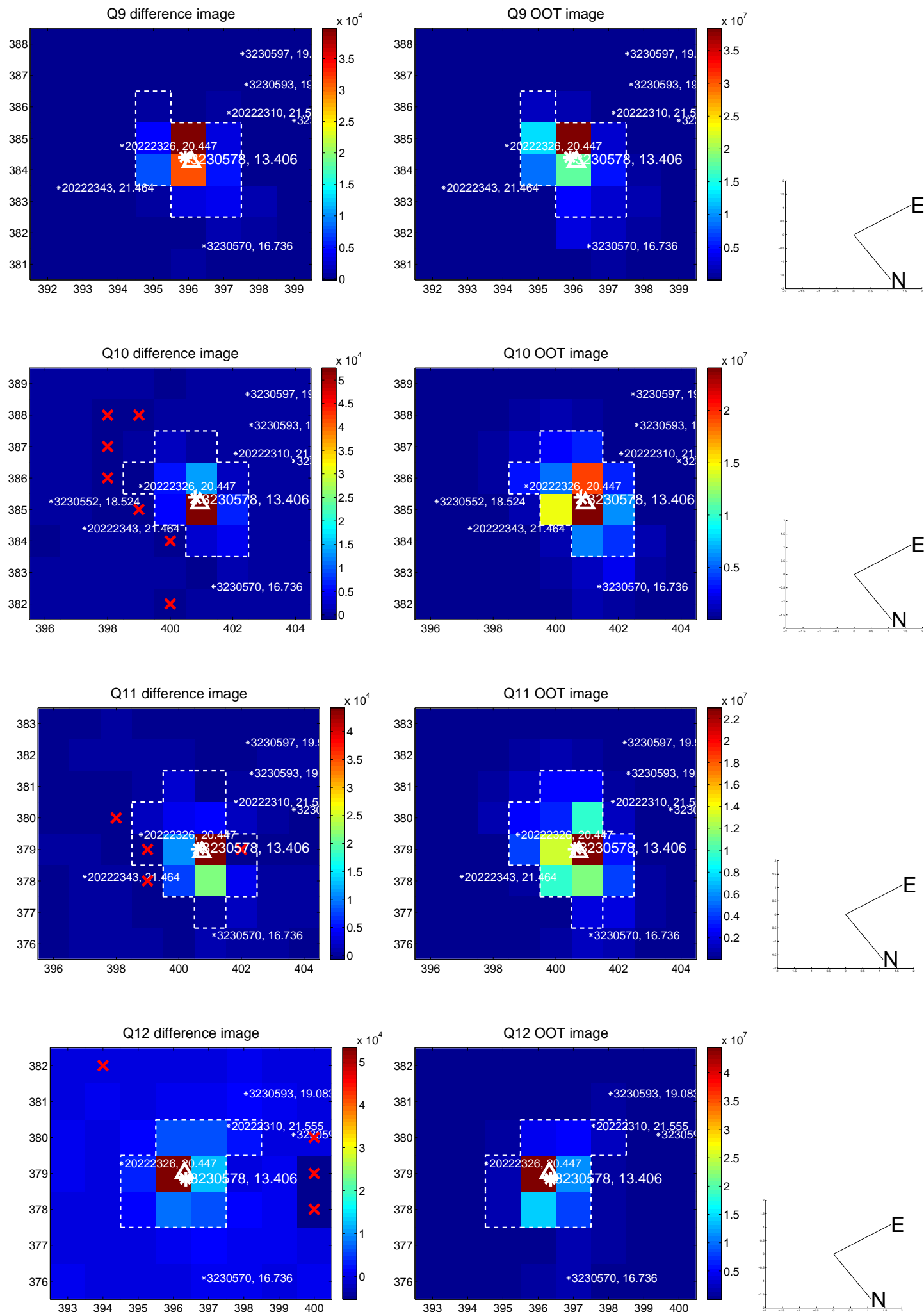
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



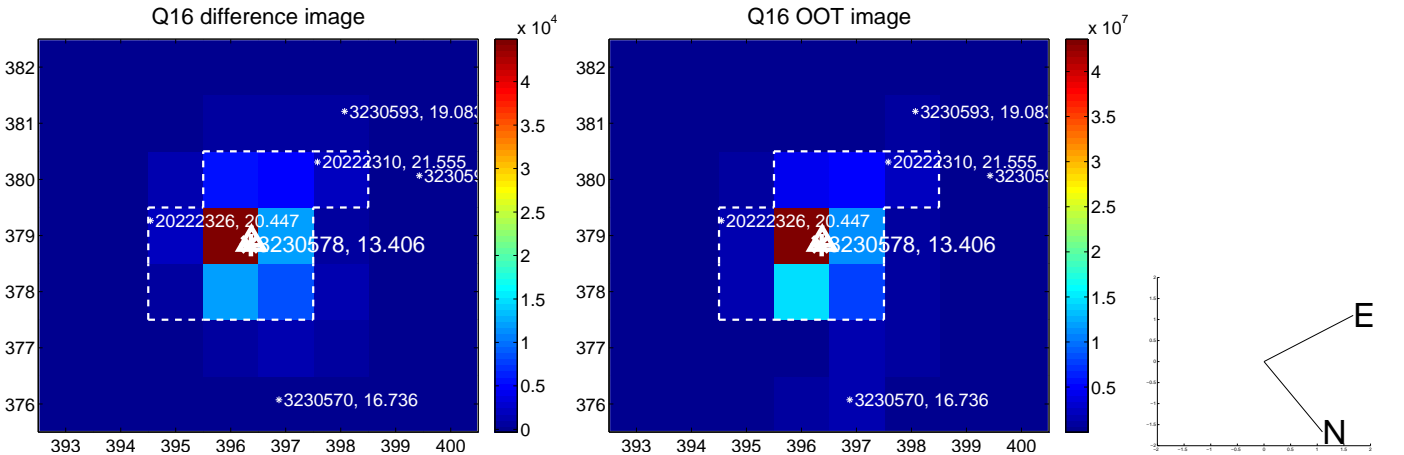
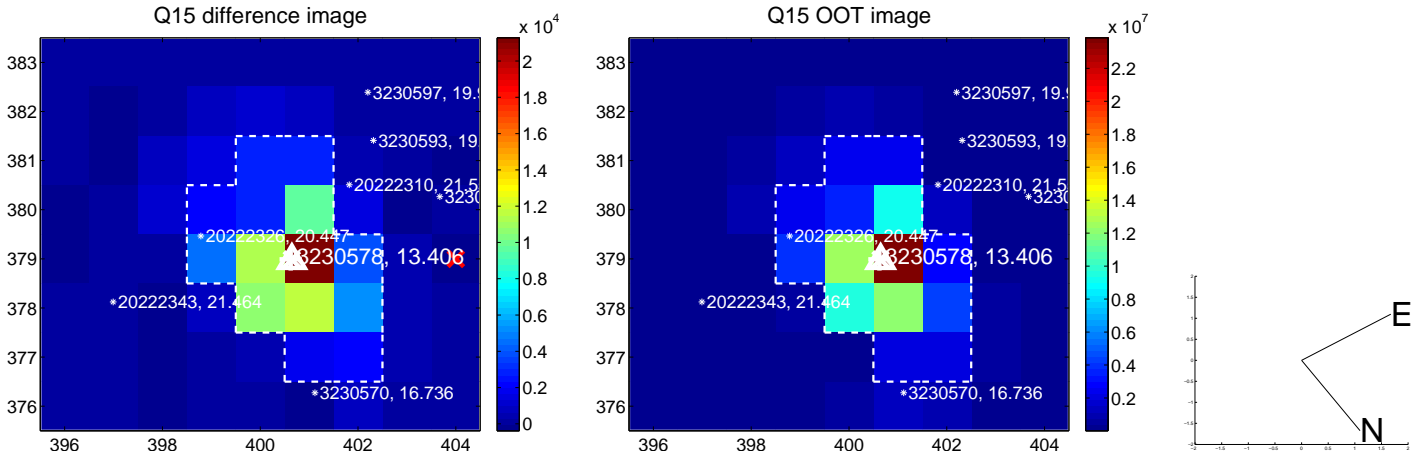
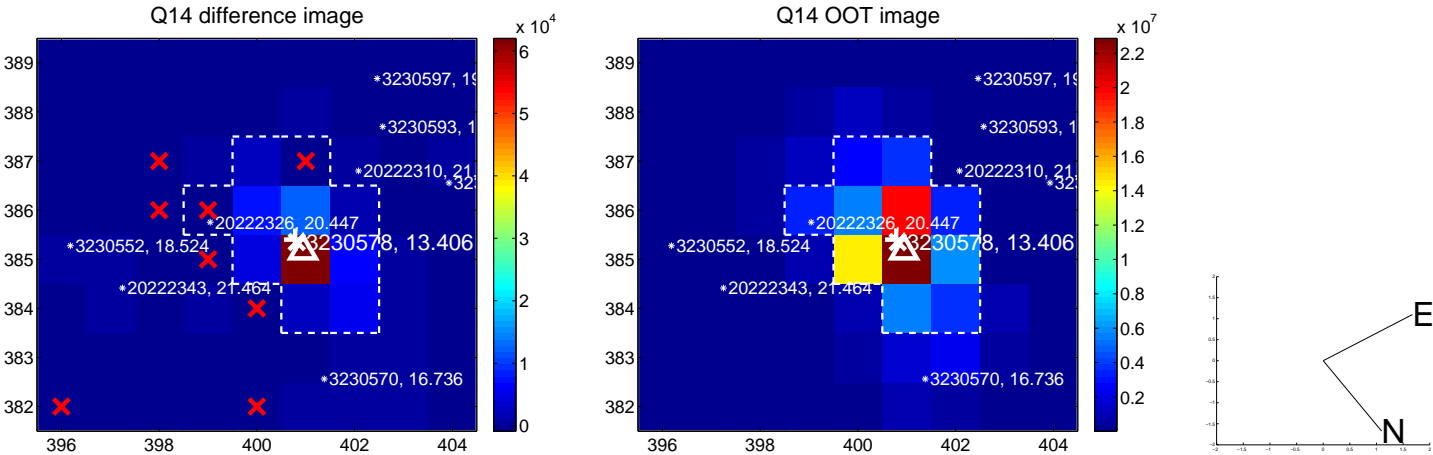
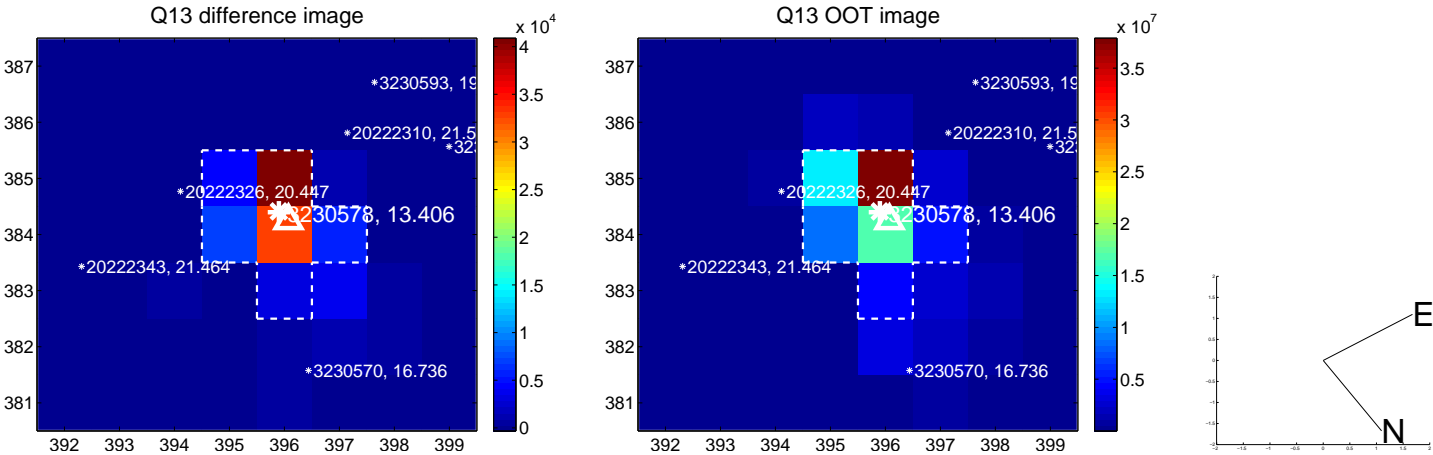
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



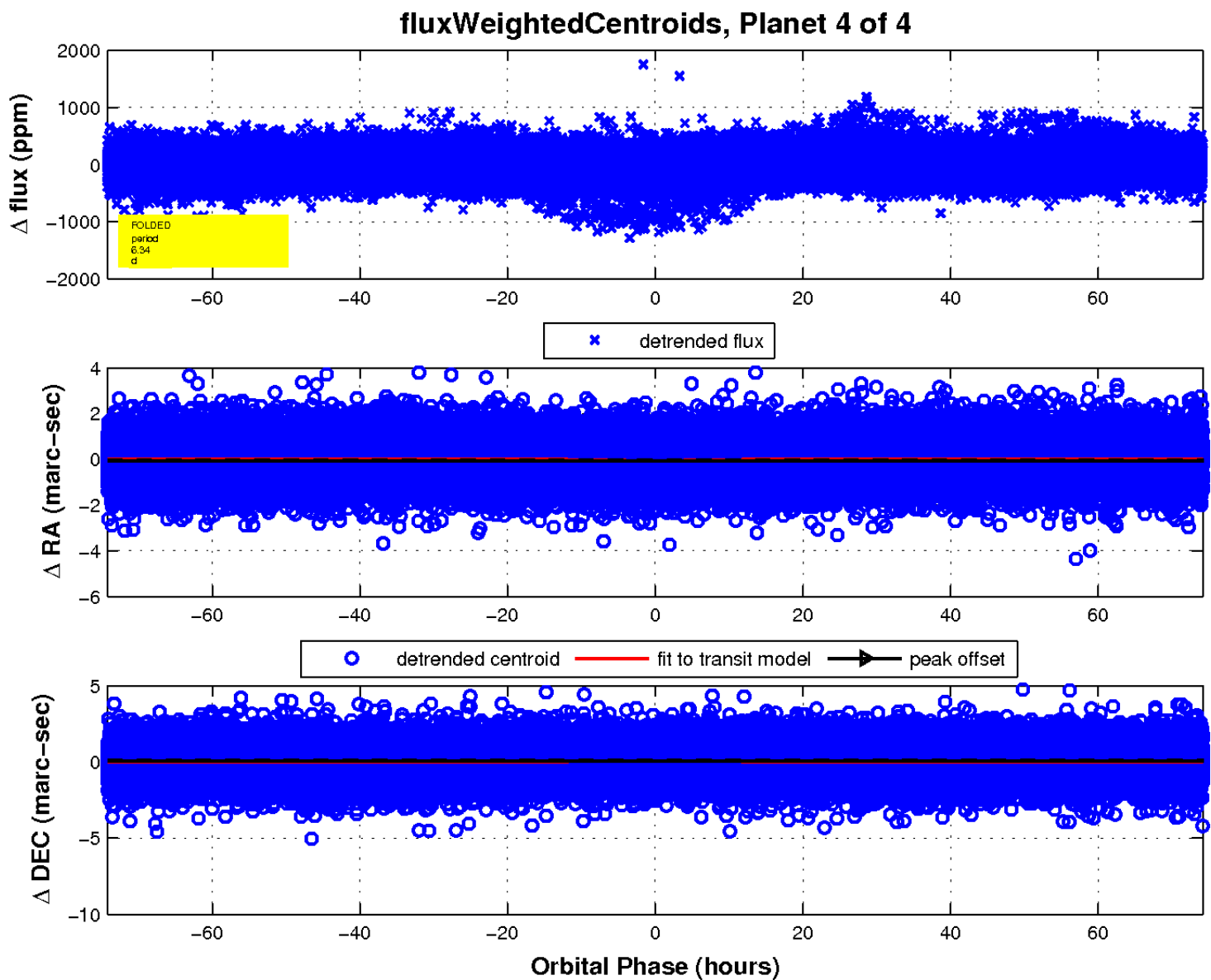
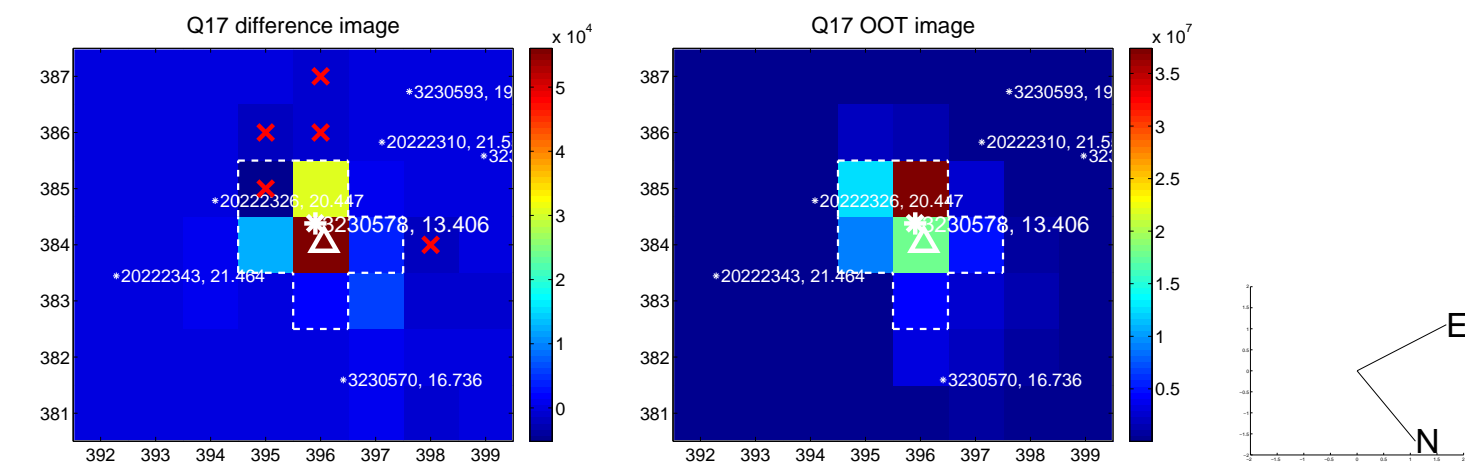
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

