

KIC 011303811

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})
011303811-01	OBS	3744.01	1.705774	133.158901	4210.8	0.987	35.3	89.4	0.59	4970	4.79	347.92
011303811-02	OBS	No	1.707682	132.439861	141.2	5.203	20.1	2.8	0.59	4970	0.70	347.40
011303811-03	OBS	No	0.852900	131.517444	1607.9	2.000	16.2	-1.0	0.59	4970	2.33	876.69
011303811-04	OBS	No	206.109701	325.177707	2160.1	2.500	9.2	-1.0	0.59	4970	2.70	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011303811-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER
011303811-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011303811-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS
011303811-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

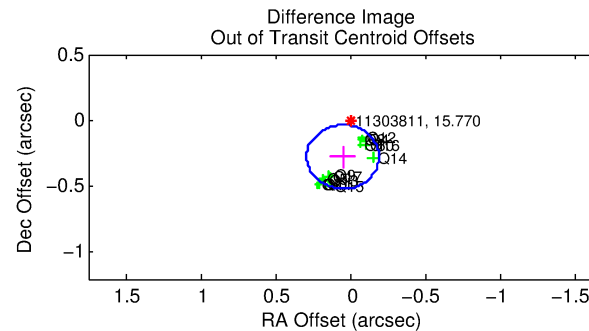
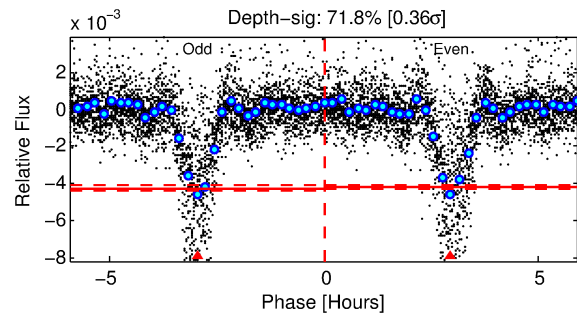
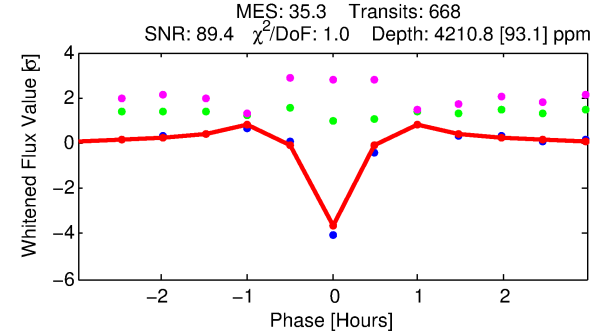
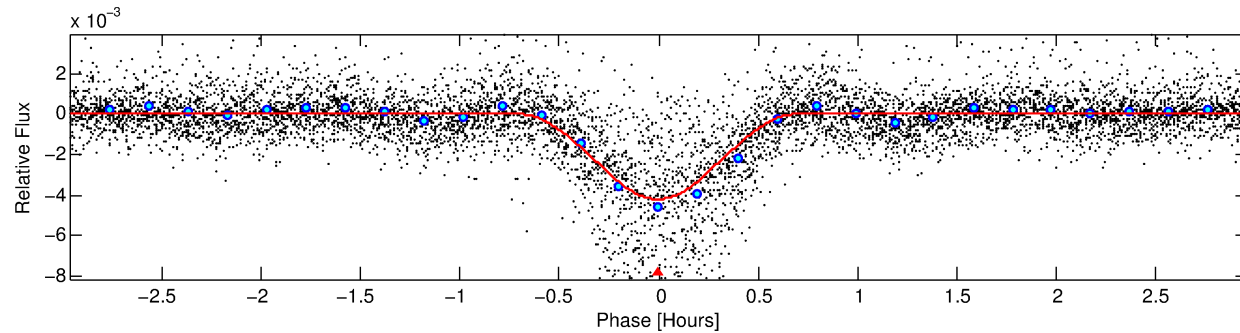
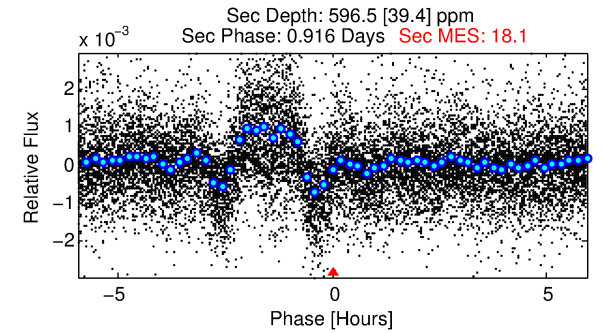
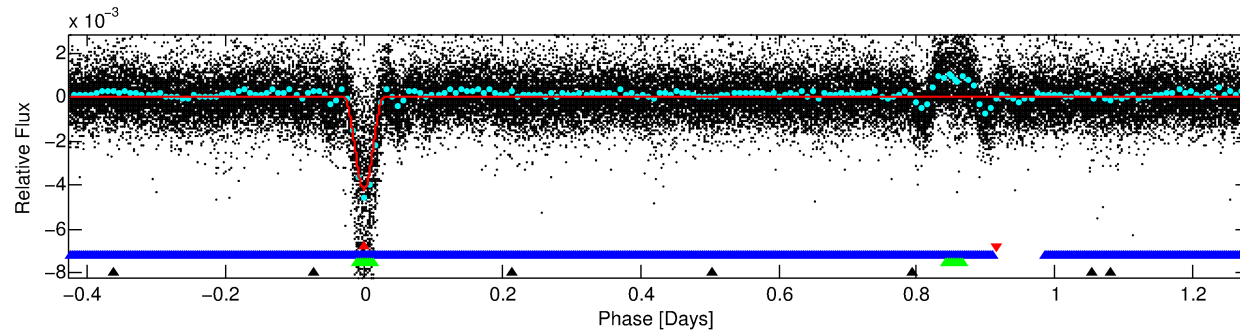
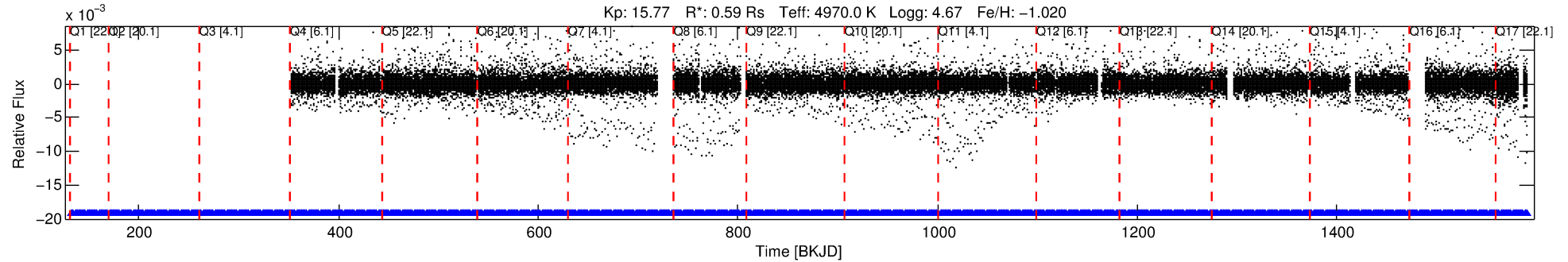
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011303811-01

No Significant Match Found

DV One-Page Summary

KIC: 11303811 Candidate: 1 of 4 Period: 1.706 d
KOI: K03744 Corr: No Ephemeris Match



DV Fit Results:

Period = 1.70577 [0.00000] d
Epoch = 133.1589 [0.0001] BKJD
Rp/R* = 0.0742 [0.0042]
a/R* = 7.71 [0.95]
b = 0.90 [0.03]
Seff = 347.92 [62.70]
Teff = 1101 [50] K
Rp = 4.79 [0.45] Re
a = 0.0234 [0.0015] AU
Ag = 7.86 [1.28] [5.36σ]
Teffp = 2851 [143] K [11.55σ]

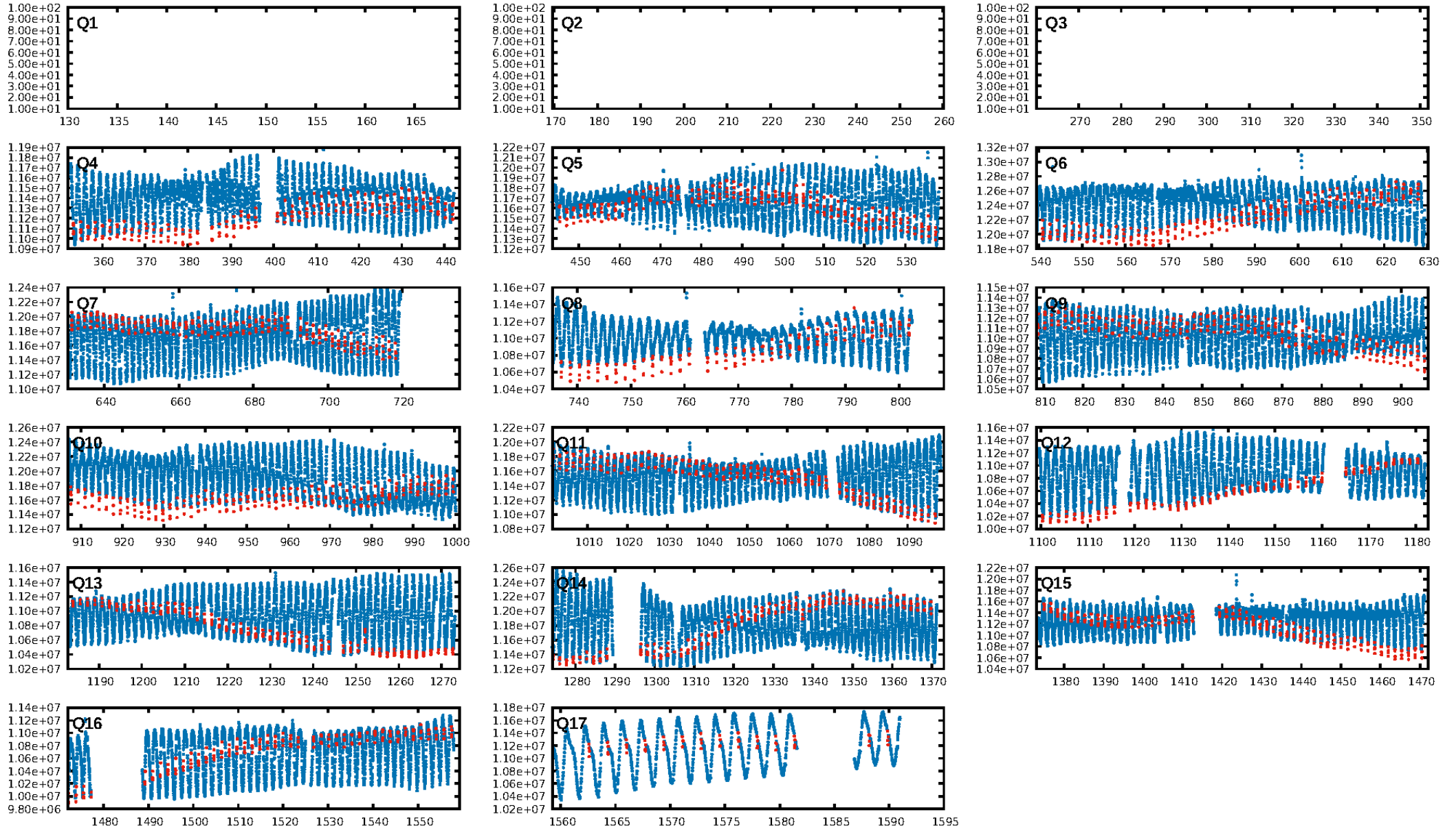
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.18σ]
LongPeriod-sig: 0.7% [0.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.83e-211
RollingBand-fgt: 1.00 [654/654]
GhostDiagnostic-chr: 1.365
Centroid-sig: 0.0%
Centroid-so: 0.420 arcsec [3.66σ]
OotOffset-rm: 0.281 arcsec [3.49σ]
KicOffset-rm: 0.099 arcsec [1.44σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

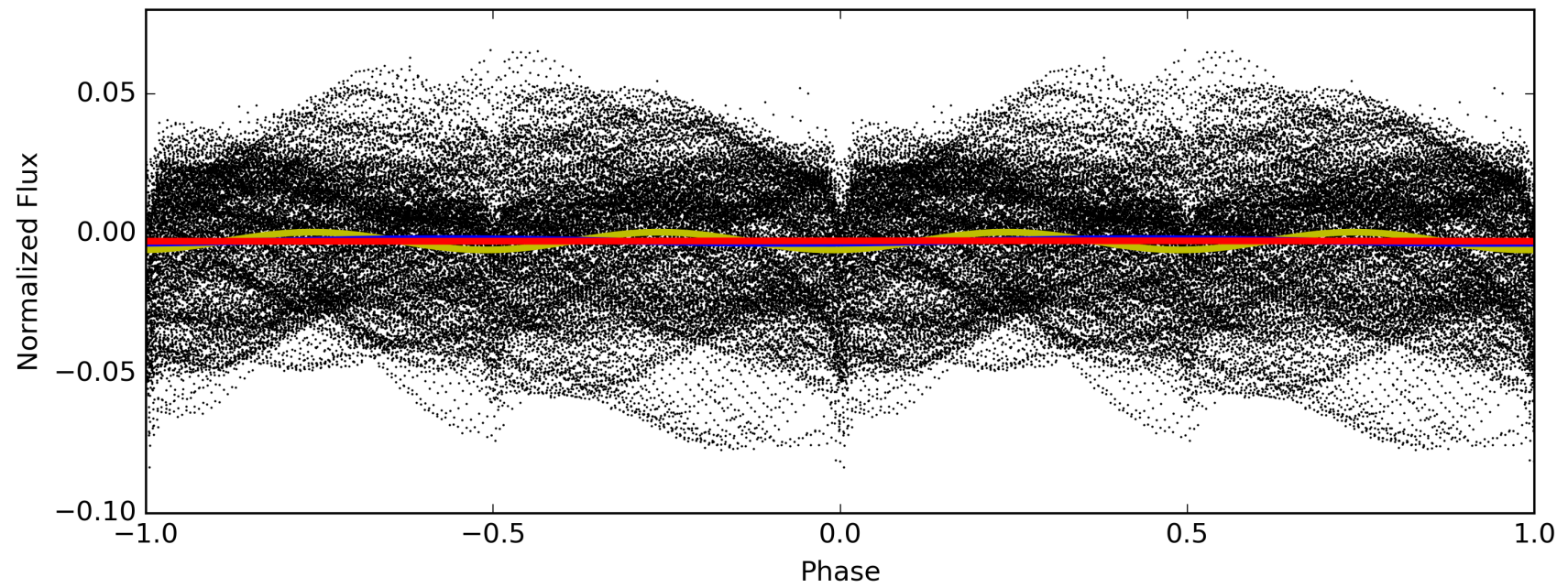
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:11:37 Z

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

TCE 011303811-01, PDC Light Curves

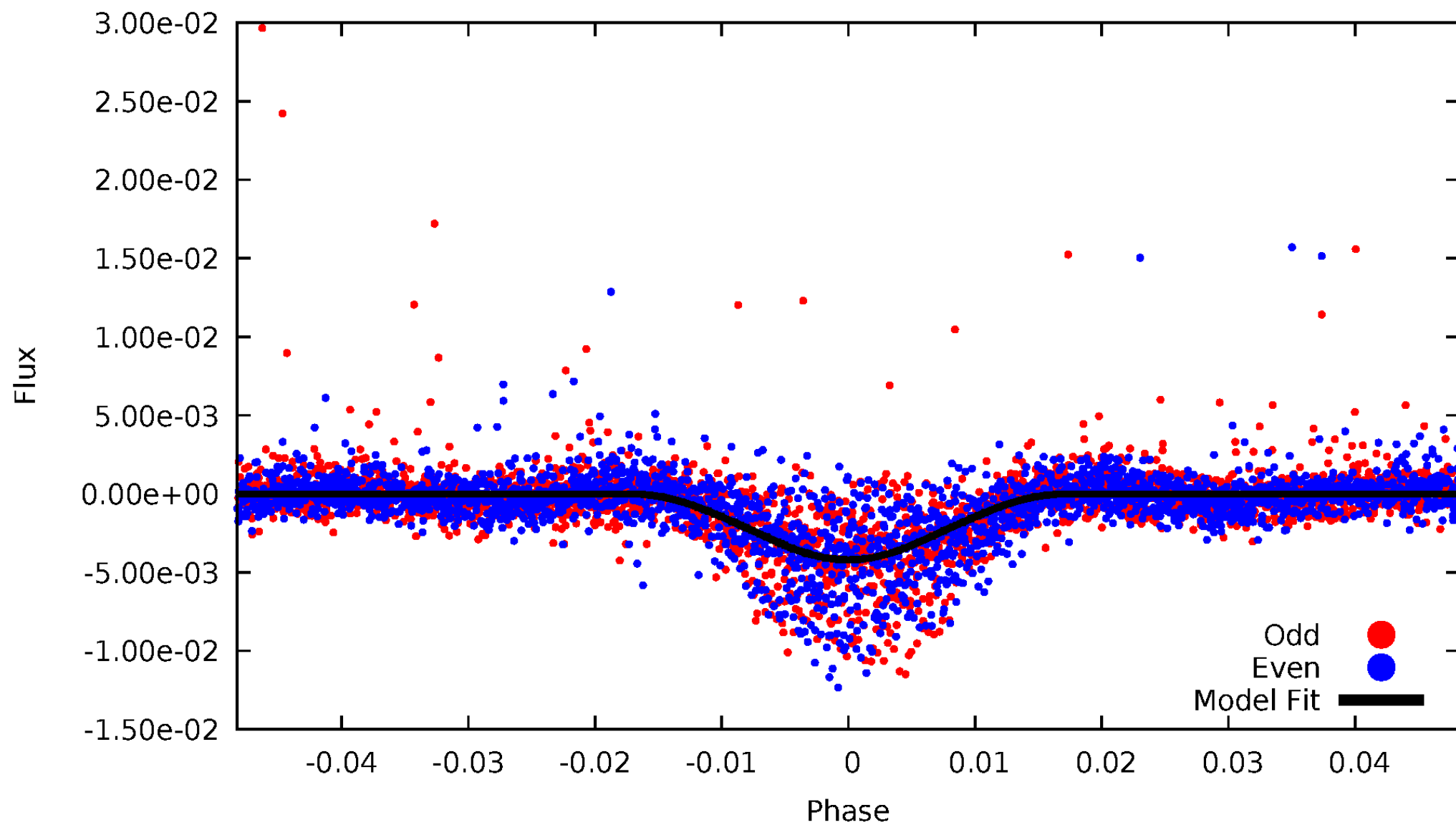


— P = 0.853 days — P = 1.706 days — P = 3.412 days



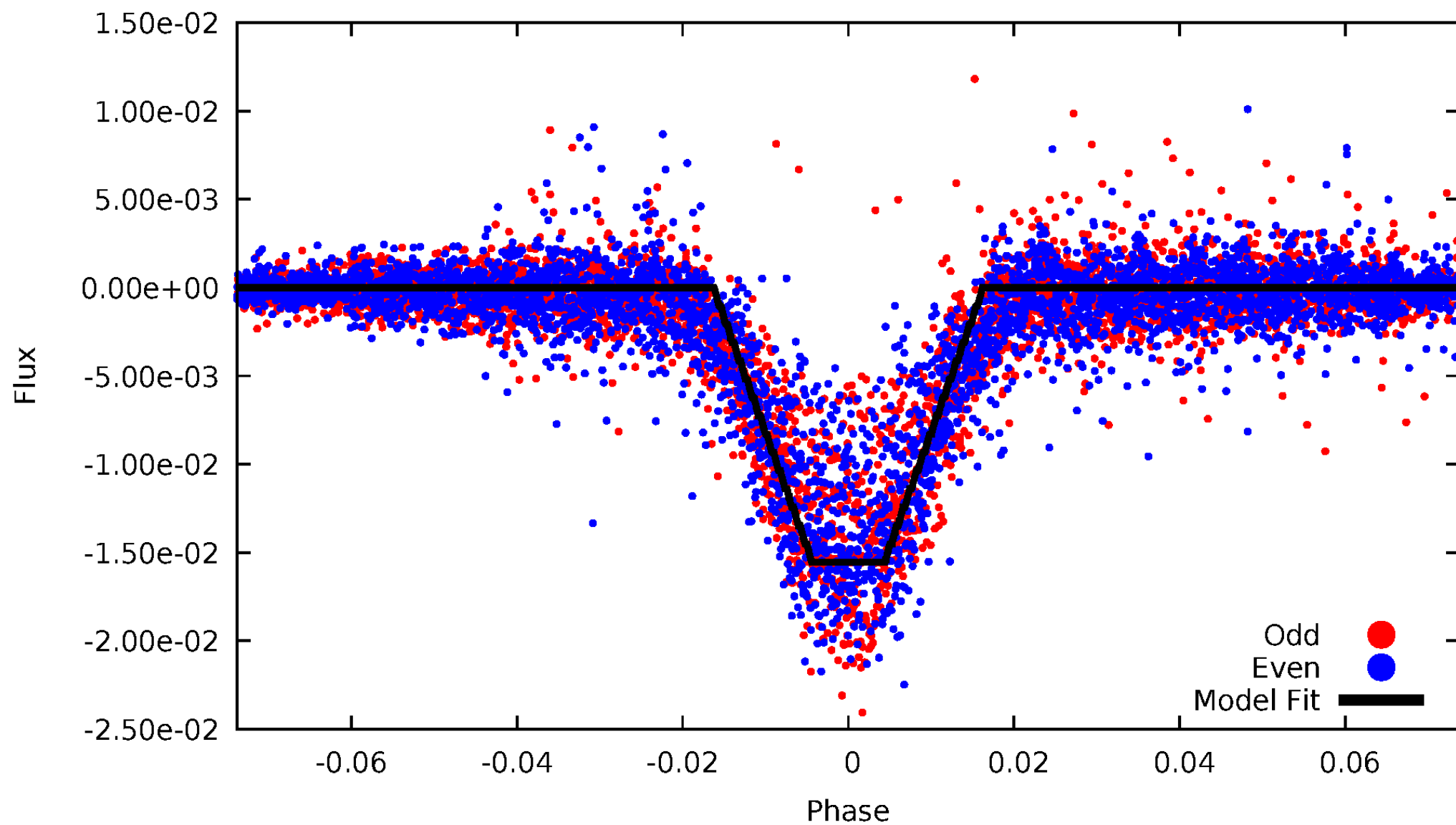
DV Odd/Even

TCE 011303811-01



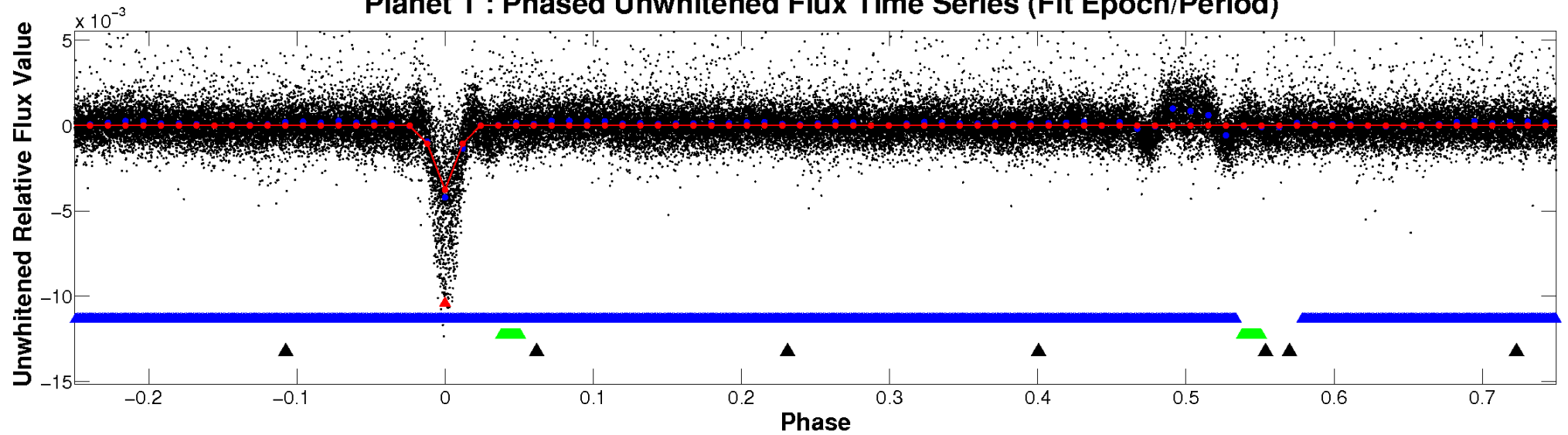
ALT Odd/Even

TCE 011303811-01

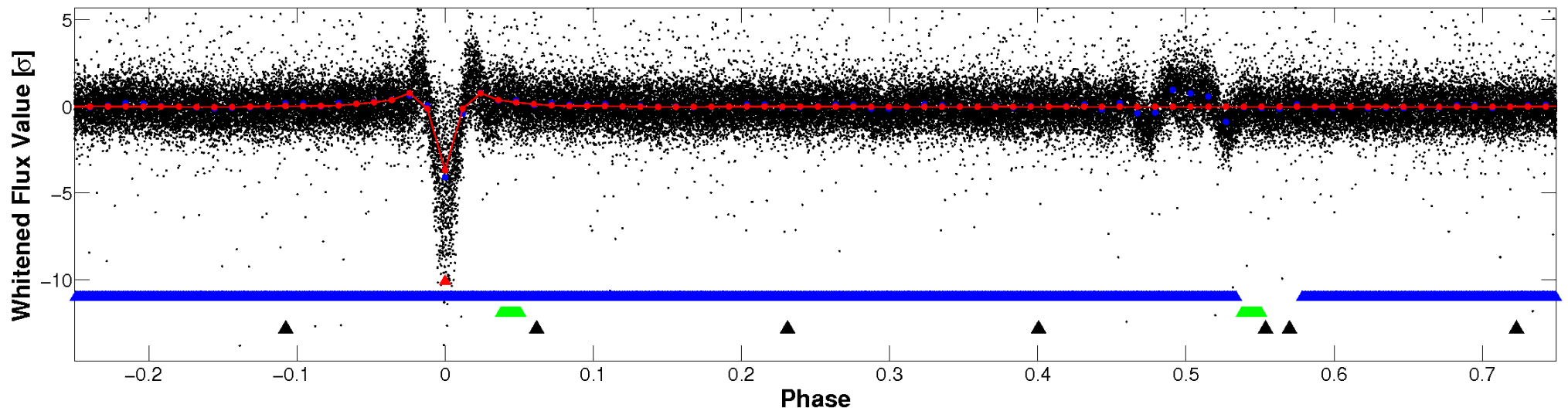


Non-Whitened Vs. Whitened Light Curve

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

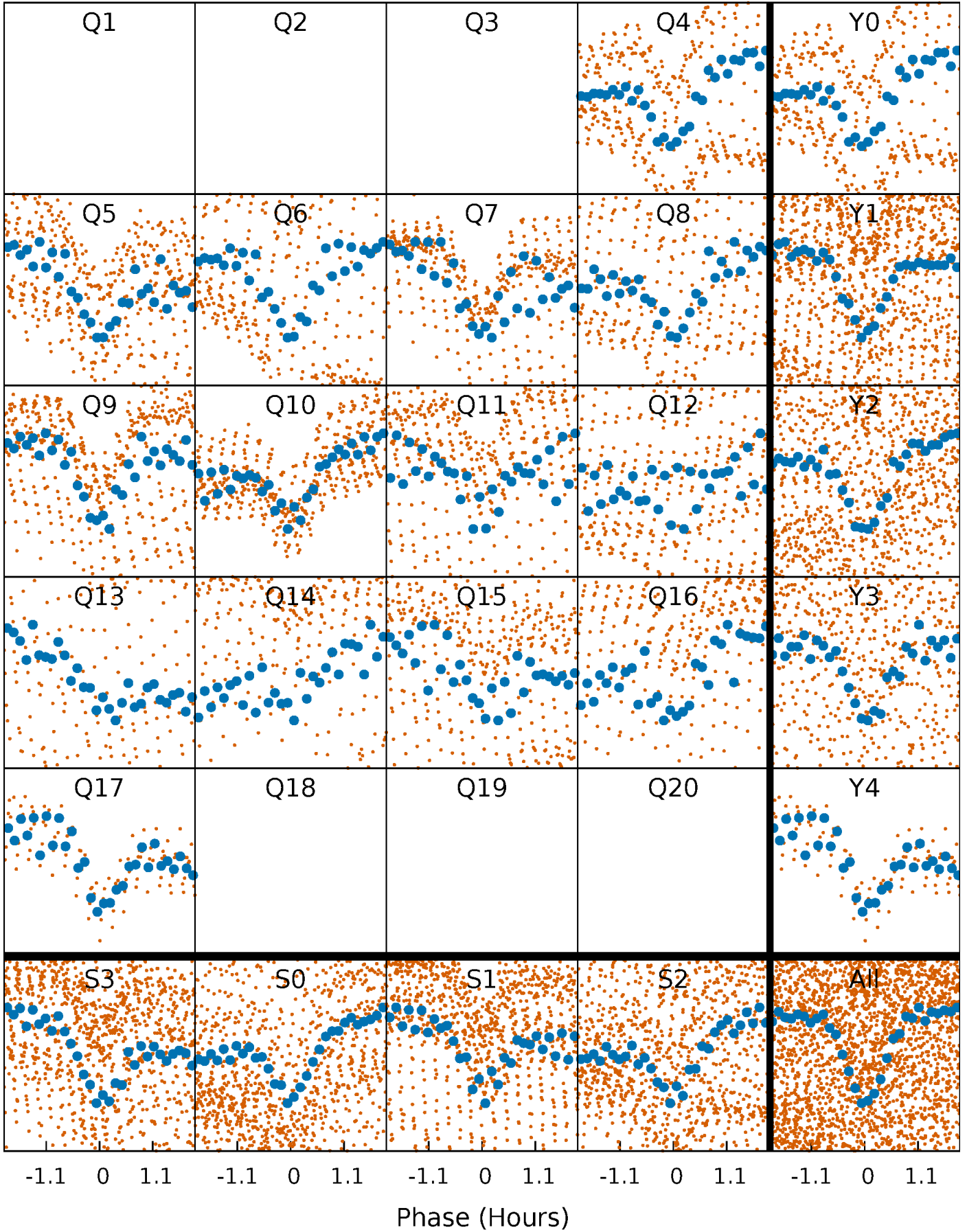


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



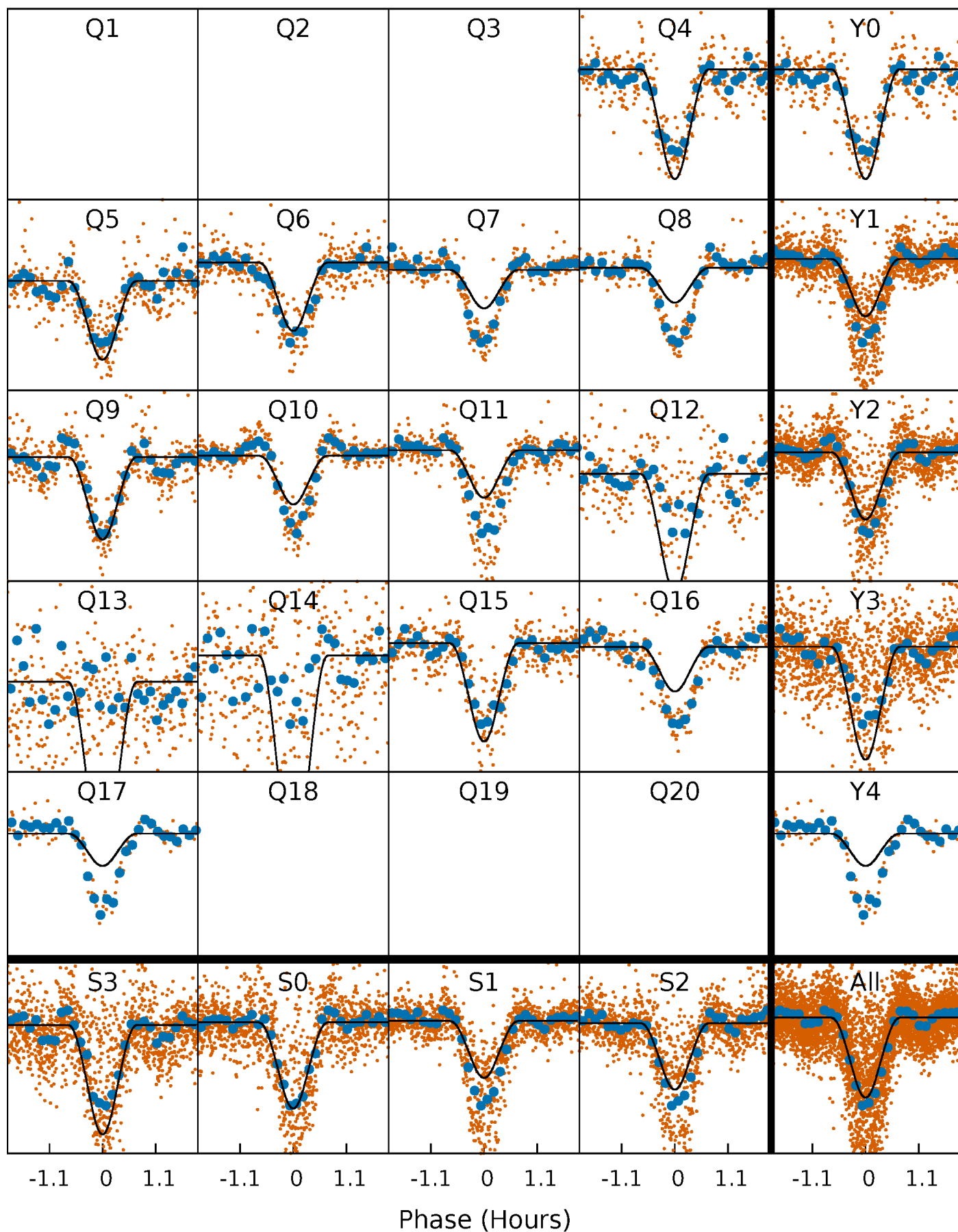
PDC Quarter-Phased Transit Curves

TCE 011303811-01 P= 1.705774 Days $T_0=133.158901$ (BKJD)



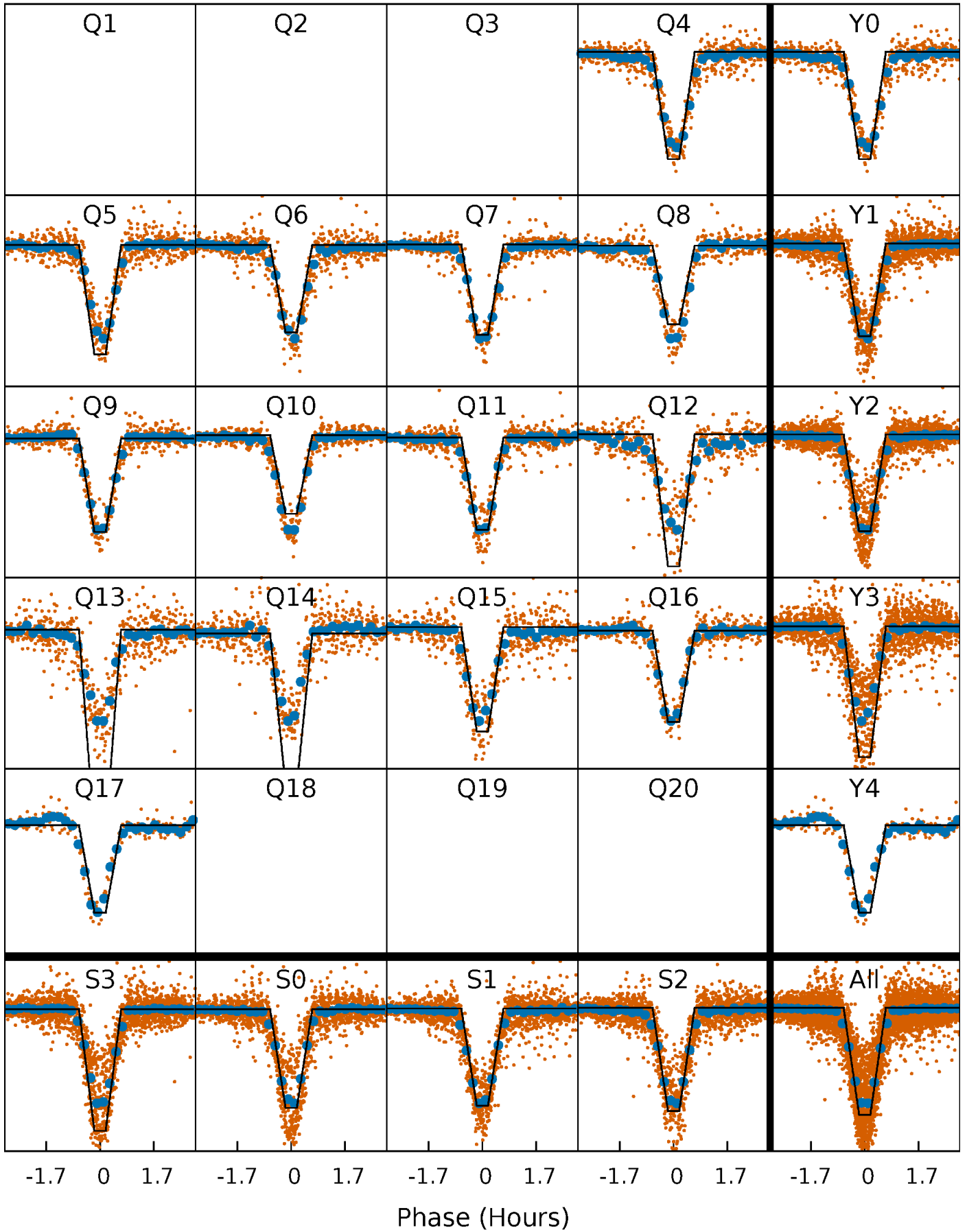
DV Quarter-Phased Transit Curves

TCE 011303811-01 P= 1.705774 Days $T_0=133.158901$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

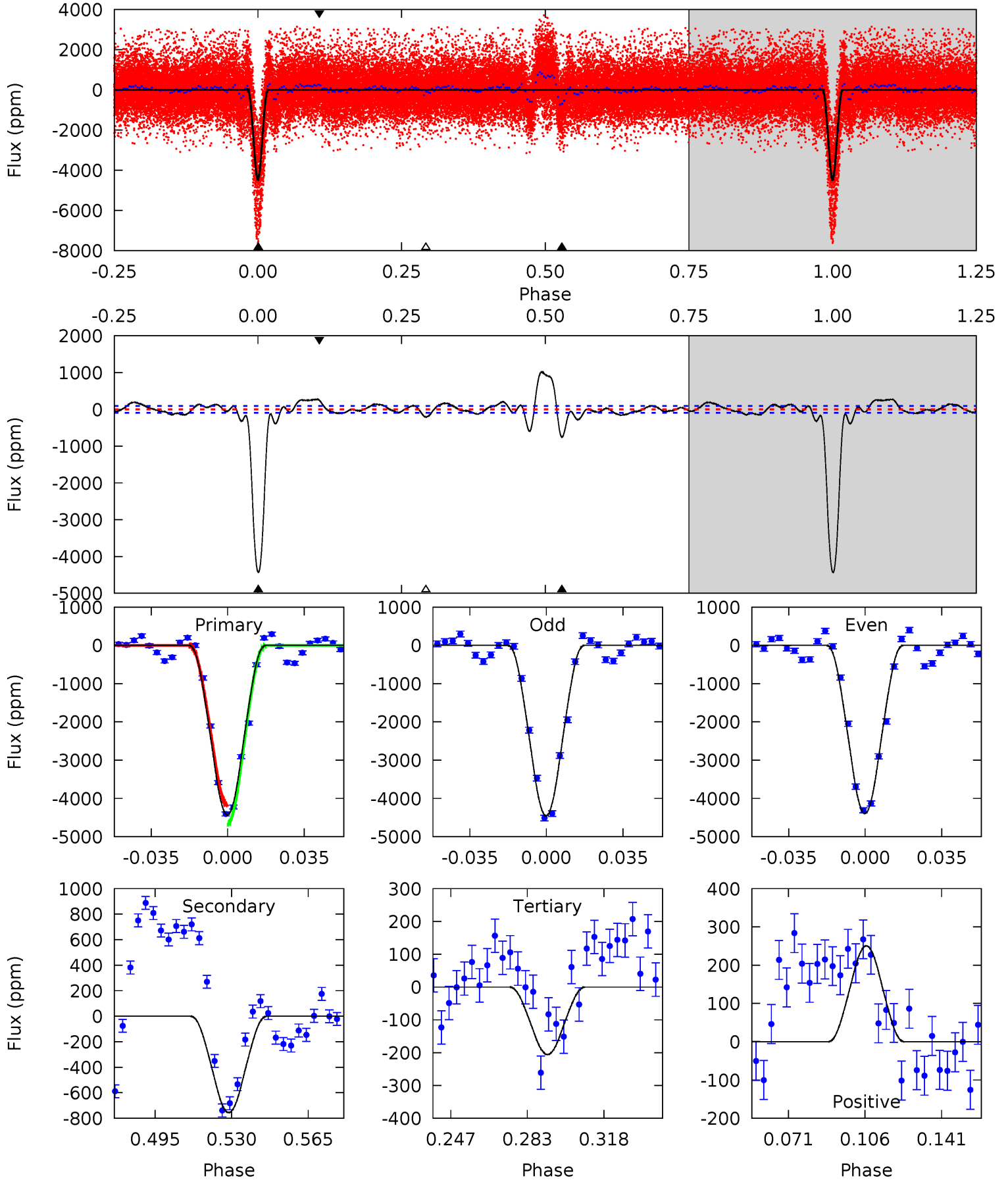
TCE 011303811-01 P= 1.705788 Days $T_0=133.153110$ (BKJD)



DV Model-Shift Uniqueness Test

011303811-01, P = 1.705774 Days, E = 133.158901 Days

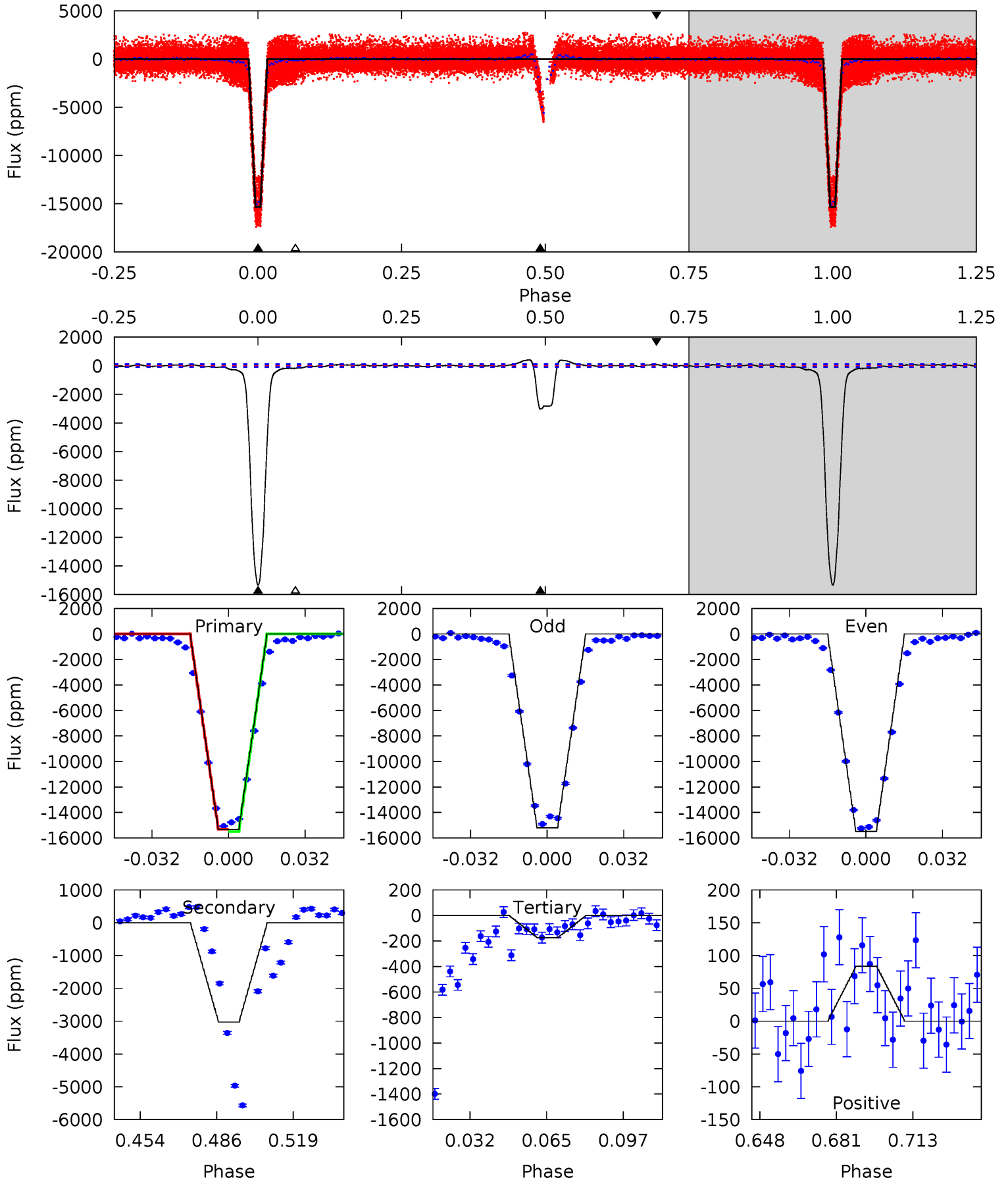
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
226.3	38.6	10.5	12.8	4.78	2.10	7.53	215.8	213.6	28.1	25.8	1.50	1.10	0.19	13.1



Alt Model-Shift Uniqueness Test

011303811-01, P = 1.705788 Days, E = 133.153110 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
761.8	150.4	8.66	4.17	4.80	2.14	4.76	753.1	757.6	141.7	146.2	6.78	0.97	0.03	0



Stellar Parameters For KIC 011303811

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4970^{+189}_{-172}	$4.665^{+0.054}_{-0.036}$	$-1.020^{+0.300}_{-0.300}$	$0.591^{+0.044}_{-0.040}$	$0.589^{+0.054}_{-0.025}$	$4.021^{+0.841}_{-0.579}$
	+4%/-3%	+1%/-1%	+29%/-29%	+7%/-7%	+9%/-4%	+21%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011303811-01 / KOI 3744.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-755 ± 20	$4.76^{+0.36}_{-0.33}$	1535^{+59}_{-62}	3452^{+112}_{-109}	10^{+2}_{-1}
Alt.	-3027 ± 20	$8.03^{+0.49}_{-0.40}$	1534^{+66}_{-68}	3656^{+115}_{-114}	14^{+2}_{-1}

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 $A_{obs} \gg 1.0$

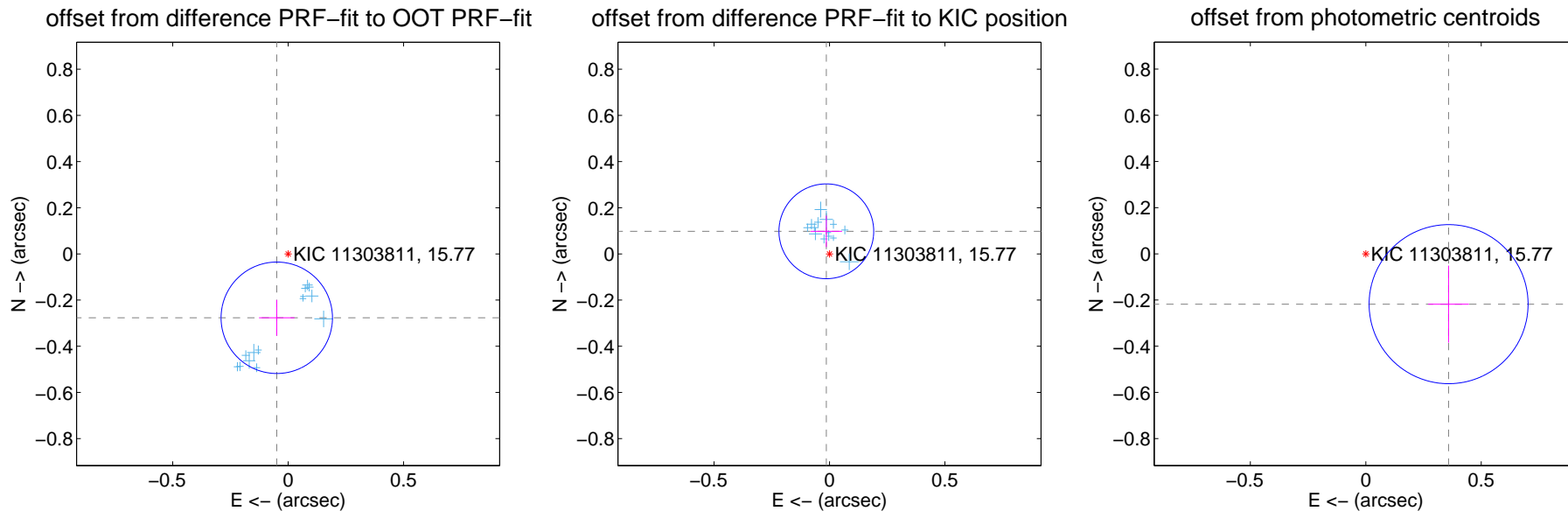
DV Centroid Data

Supplemental centroid analysis for 011303811-01. Kepler magnitude: 15.77. Transit SNR 89.36

There are 14 quarters with good PRF difference image offsets

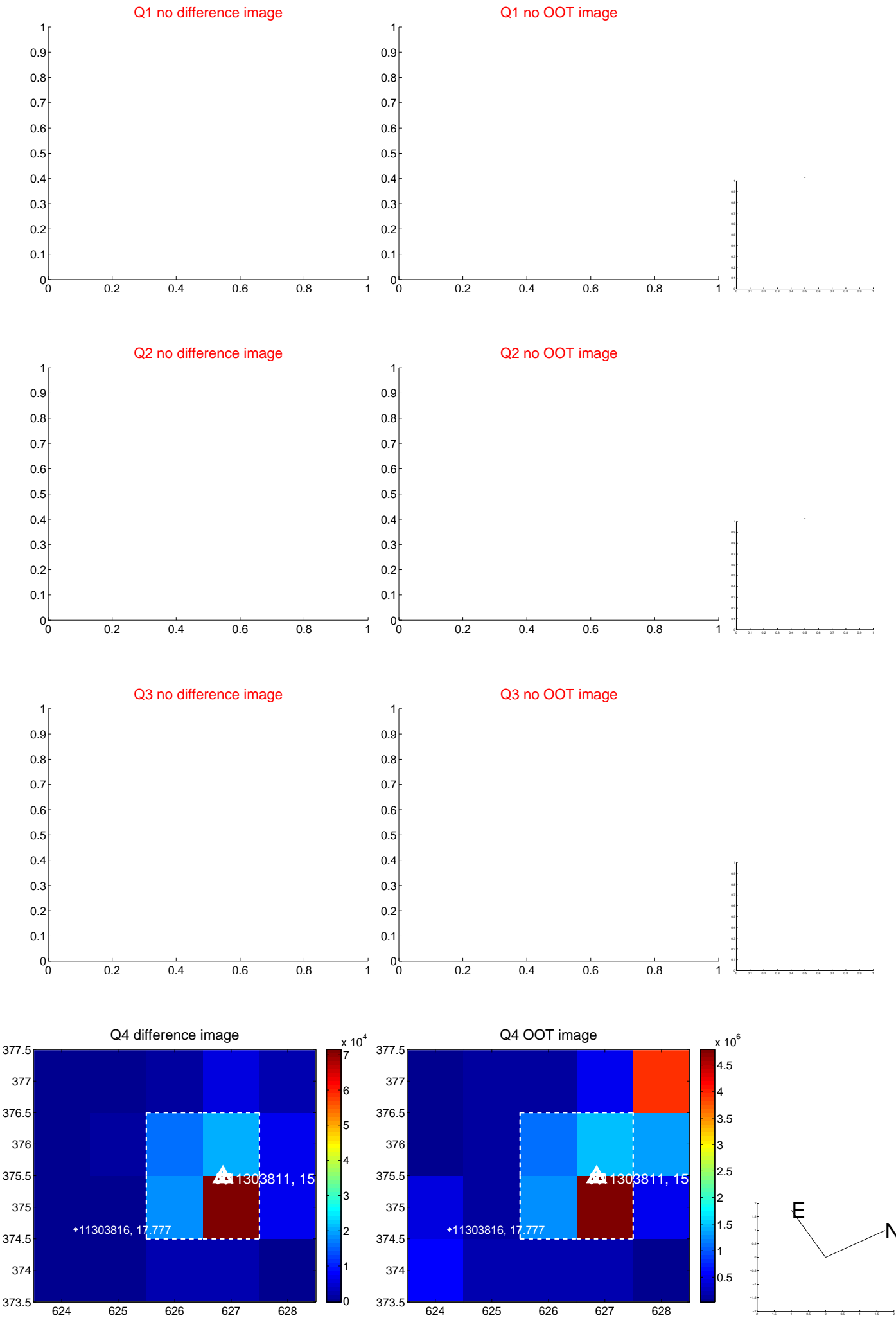
The direct PRF centroid is offset from the target star catalog position by about 0.59 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.281 ± 0.080	3.49	0.049 ± 0.077	-0.277 ± 0.077
PRF-fit source offset from KIC position	0.099 ± 0.068	1.44	0.014 ± 0.068	0.098 ± 0.068
photometric centroid source offset	0.42 ± 0.11	3.66	-0.36 ± 0.09	-0.22 ± 0.17

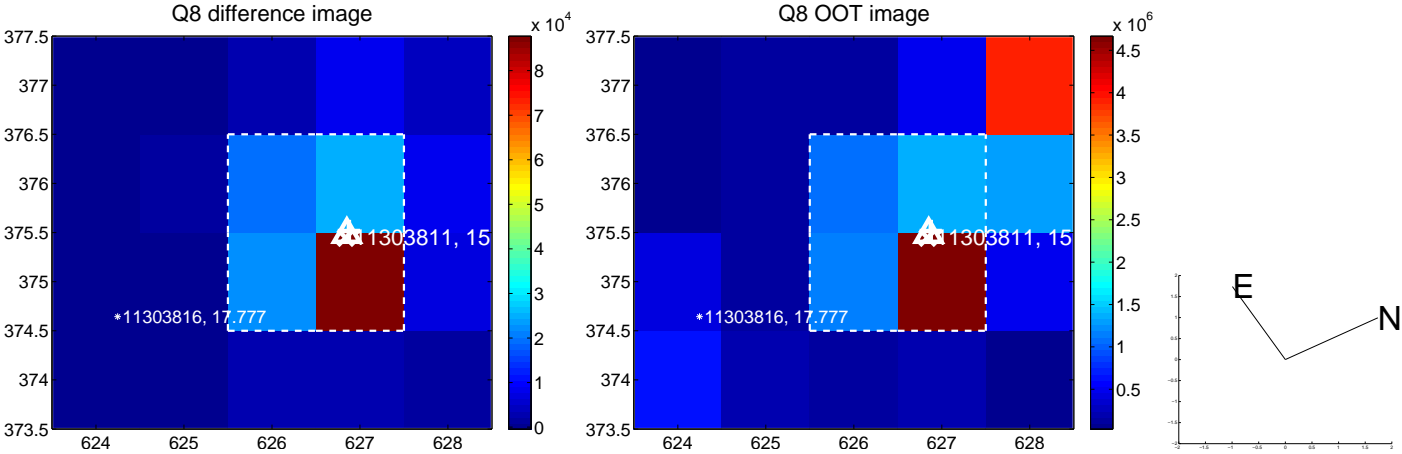
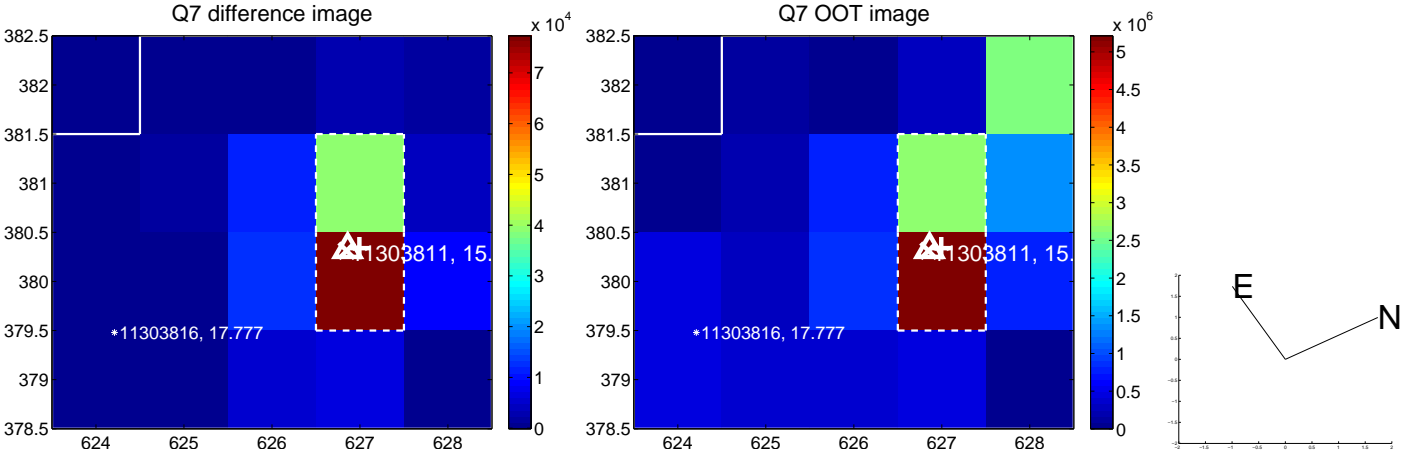
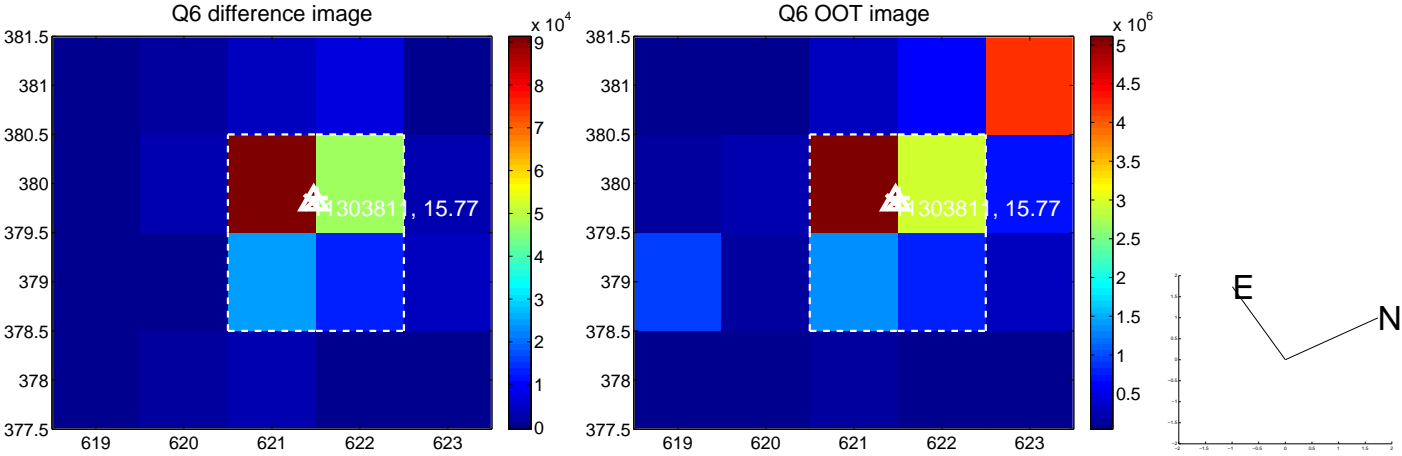
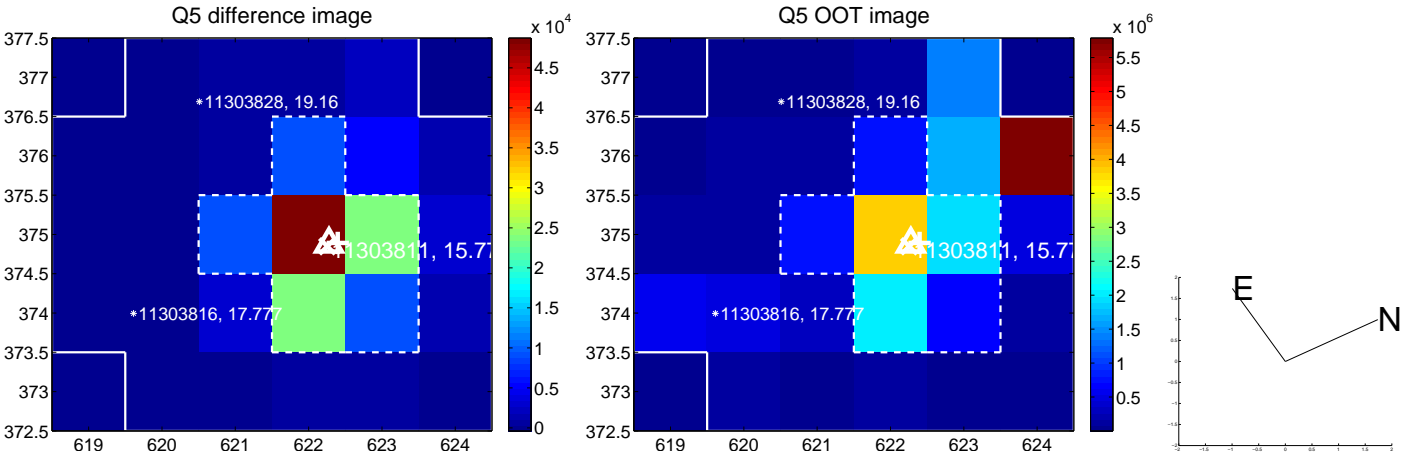


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

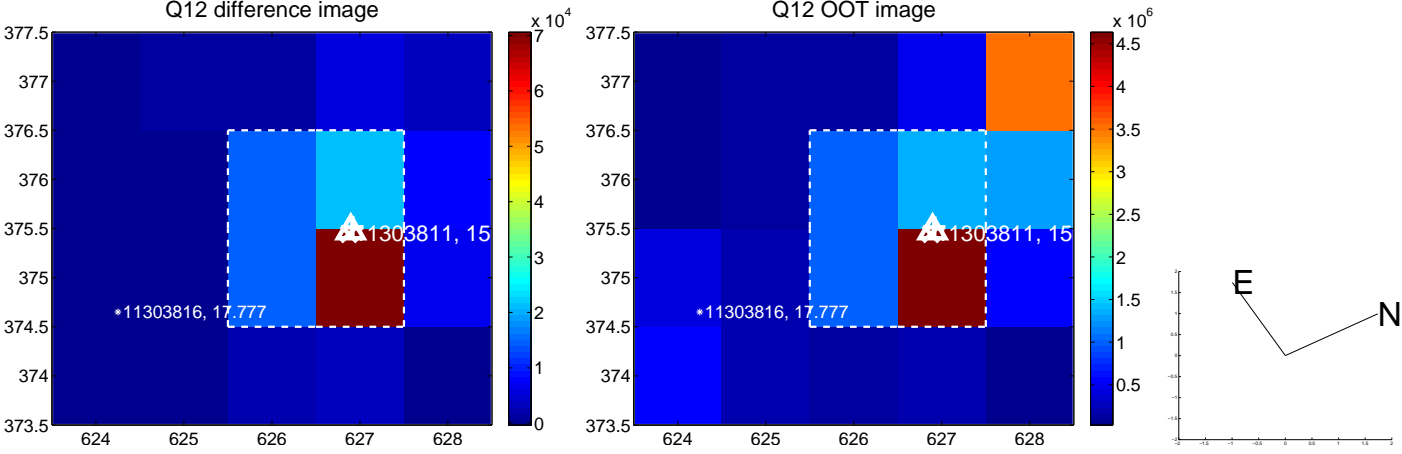
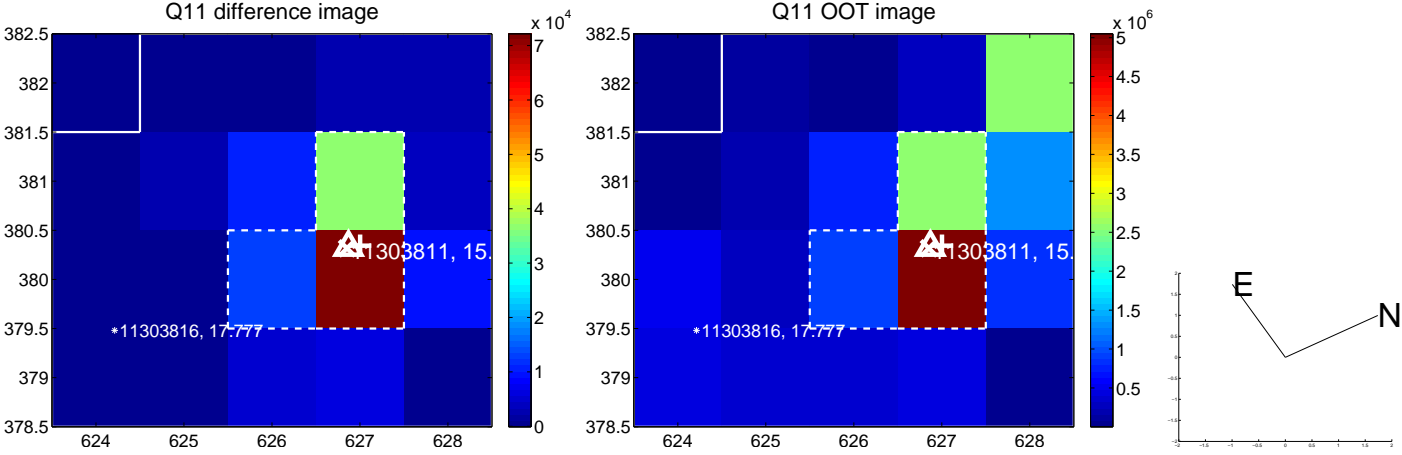
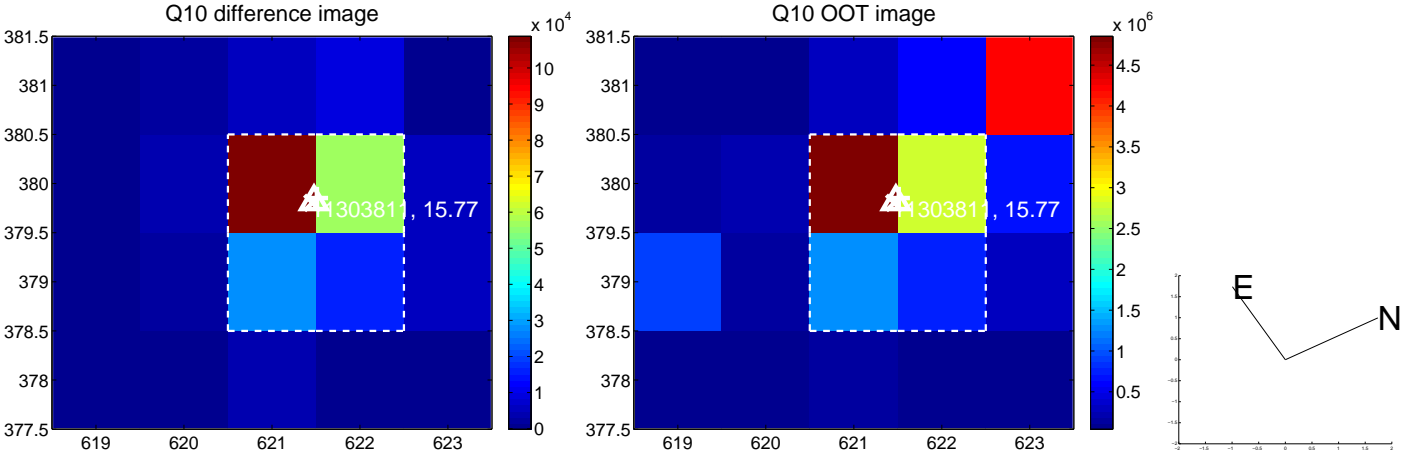
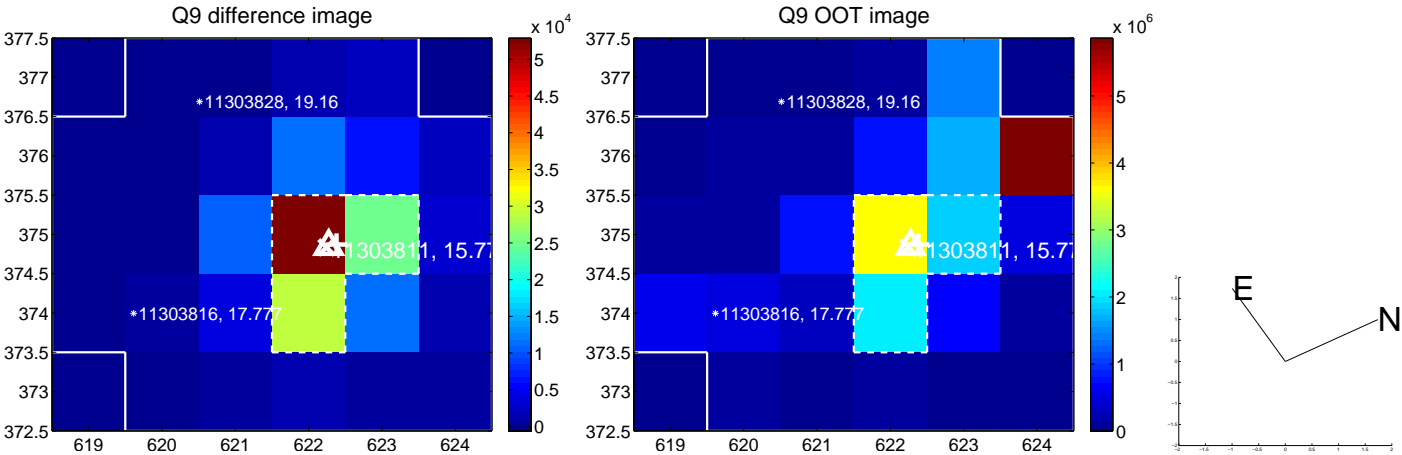
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



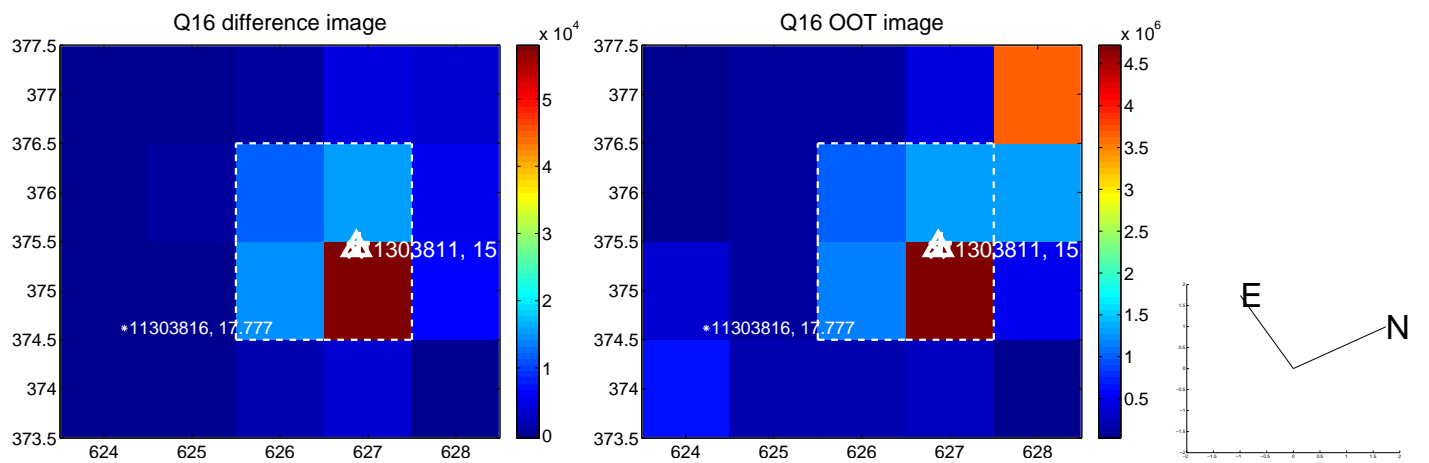
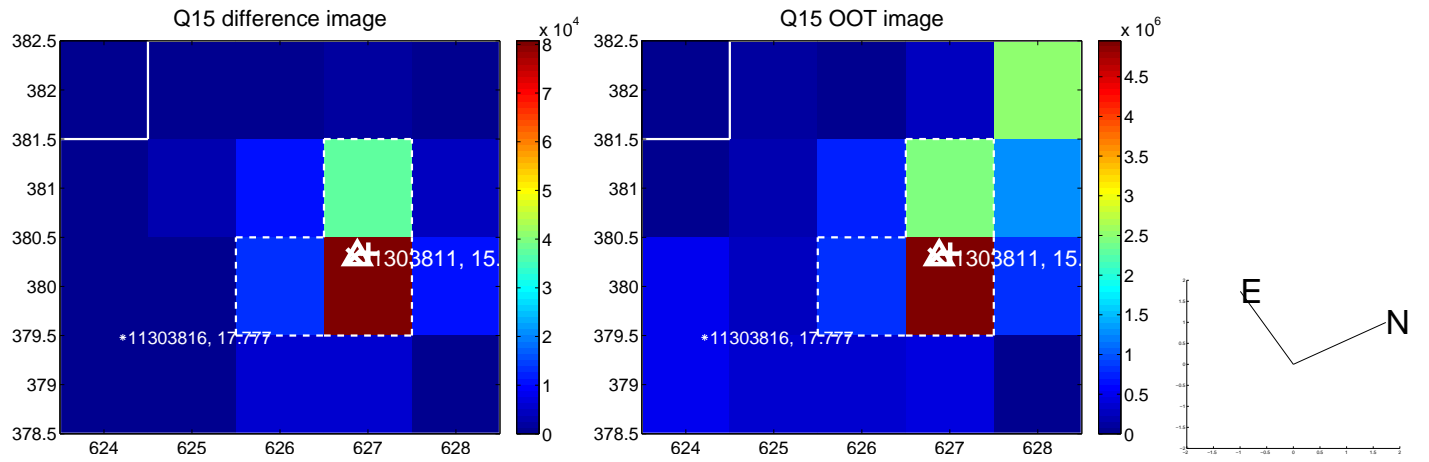
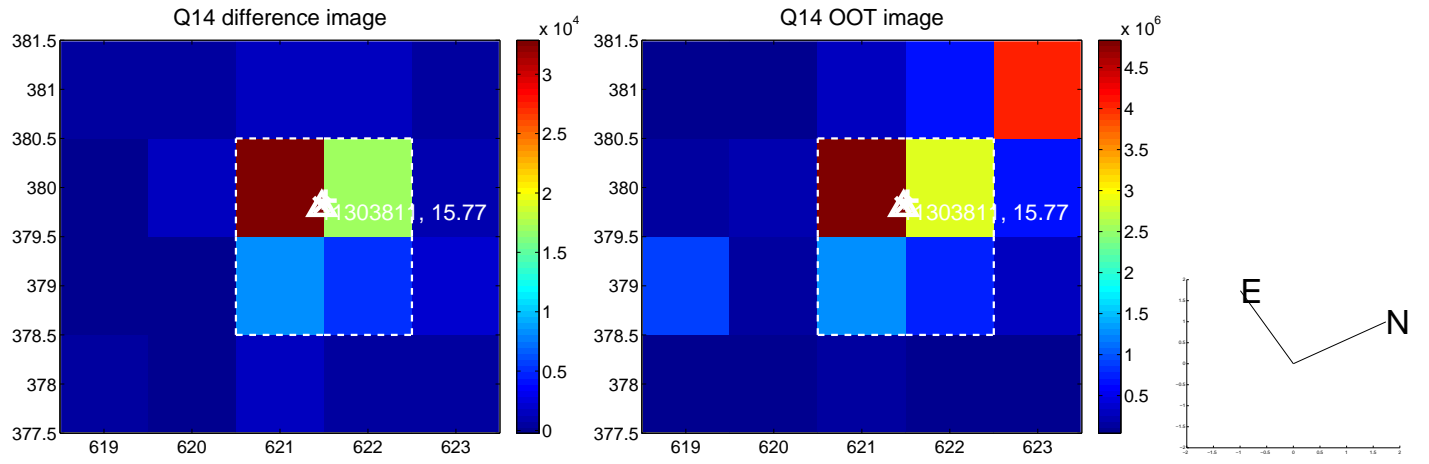
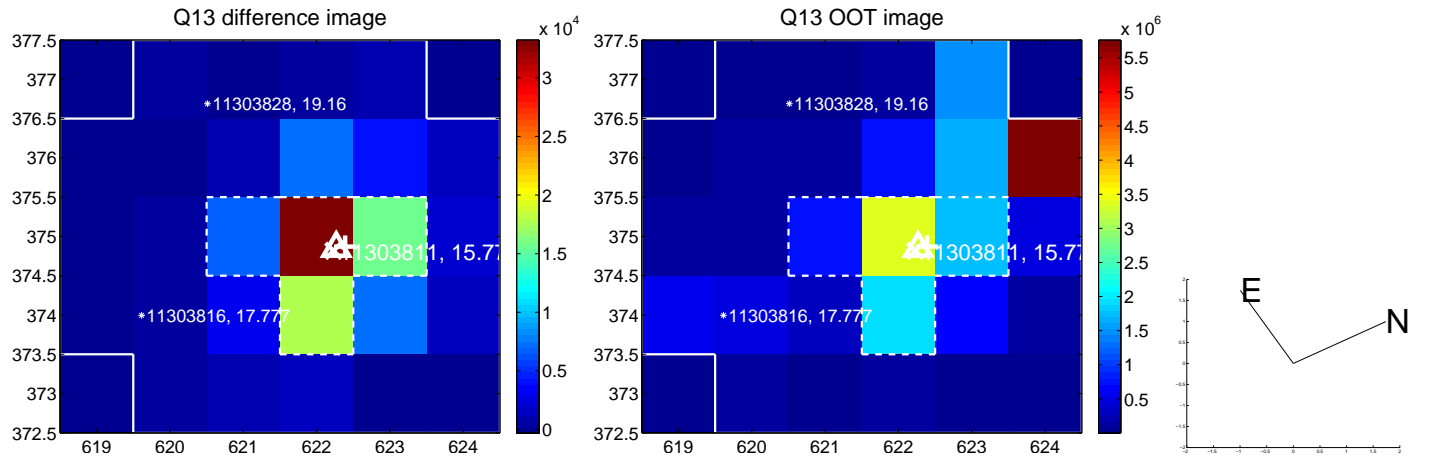
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



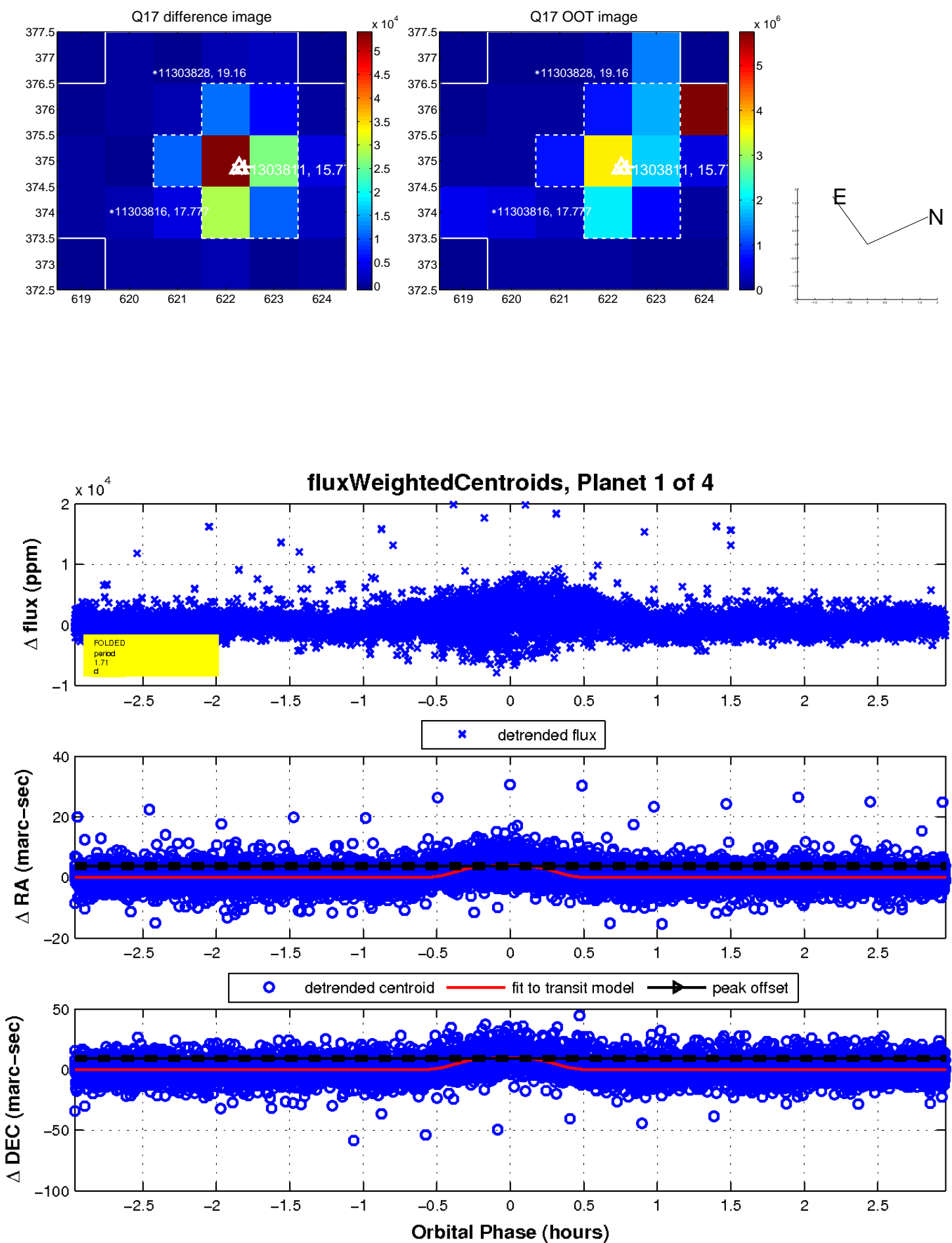
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

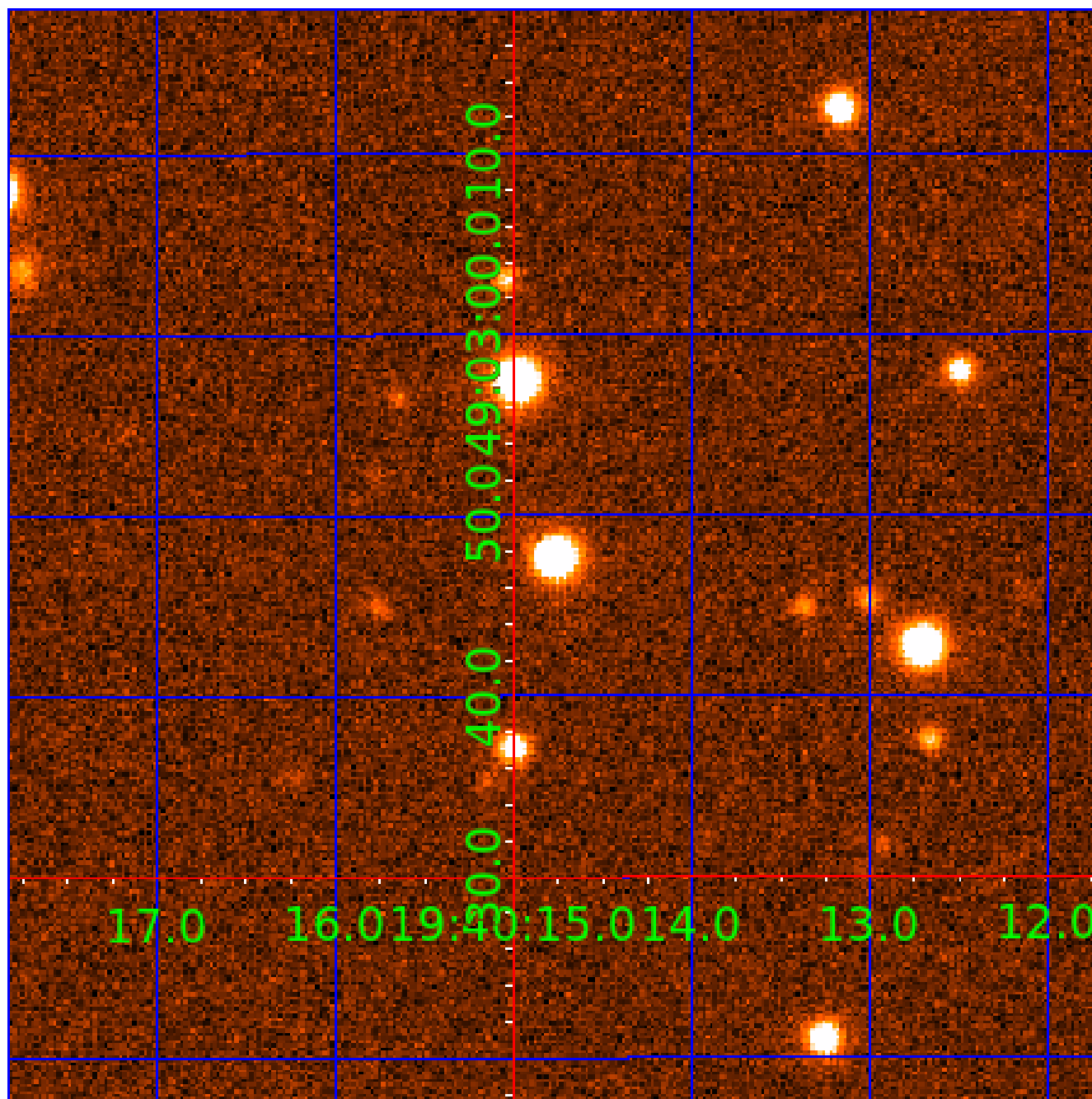


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011303811

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})
011303811-01	OBS	3744.01	1.705774	133.158901	4210.8	0.987	35.3	89.4	0.59	4970	4.79	347.92
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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011303811-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011303811-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS
011303811-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

Ephemeris Match Information For 011303811-02

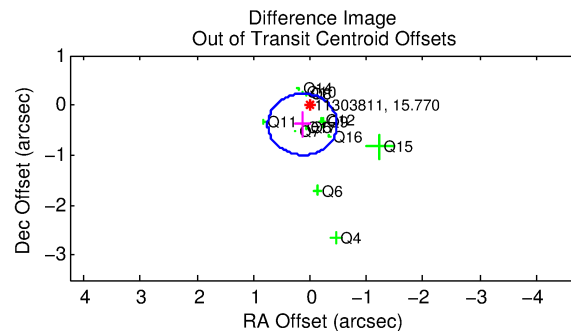
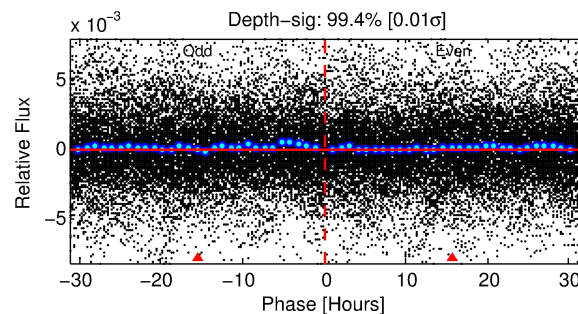
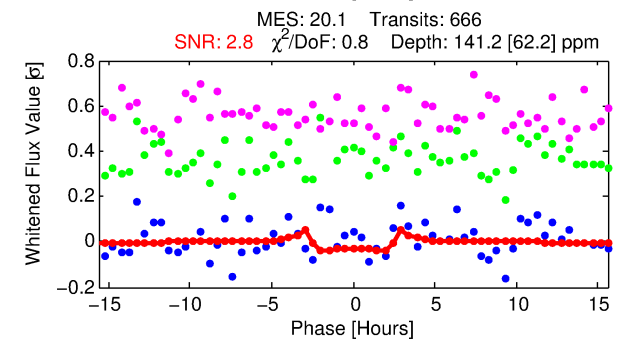
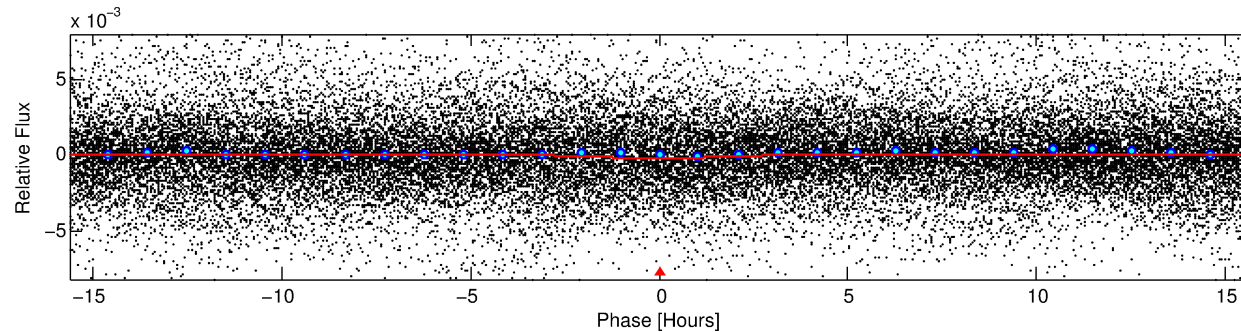
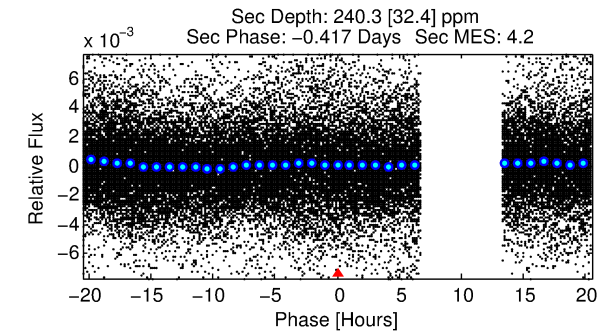
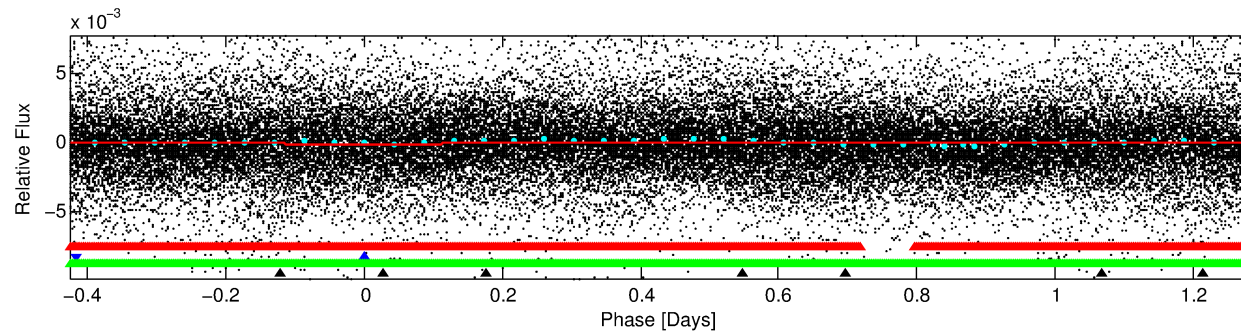
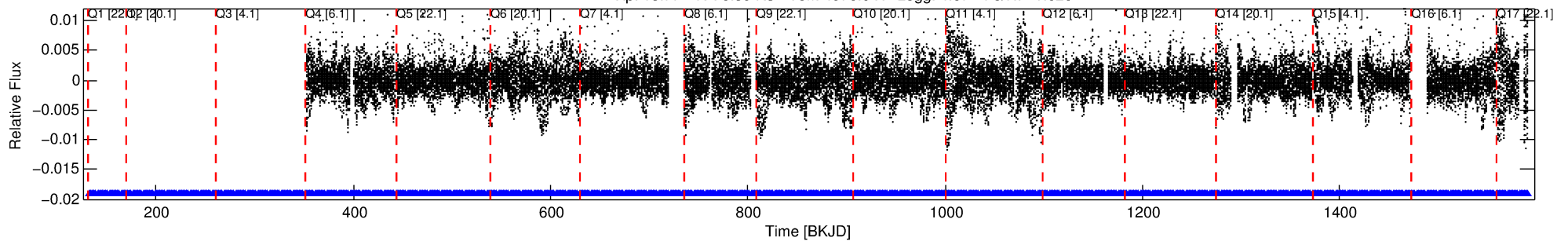
No Significant Match Found

DV One-Page Summary

KIC: 11303811 Candidate: 2 of 4 Period: 1.708 d

KOI: K03744 Corr: No Ephemeris Match

Kp: 15.77 R*: 0.59 Rs Teff: 4970.0 K Logg: 4.67 Fe/H: -1.020



DV Fit Results:

Period = 1.70768 [0.00004] d
Epoch = 132.4399 [0.0071] BKJD
Rp/R* = 0.0108 [0.0310]
a/R* = 2.50 [24.38]
b = 0.30 [35.11]
Seff = 347.40 [62.60]
Teq = 1101 [50] K
Rp = 0.70 [2.00] Re
a = 0.0234 [0.0015] AU
Ag = 149.56 [858.62] [0.17σ]
Teff = 5952 [8545] K [0.57σ]

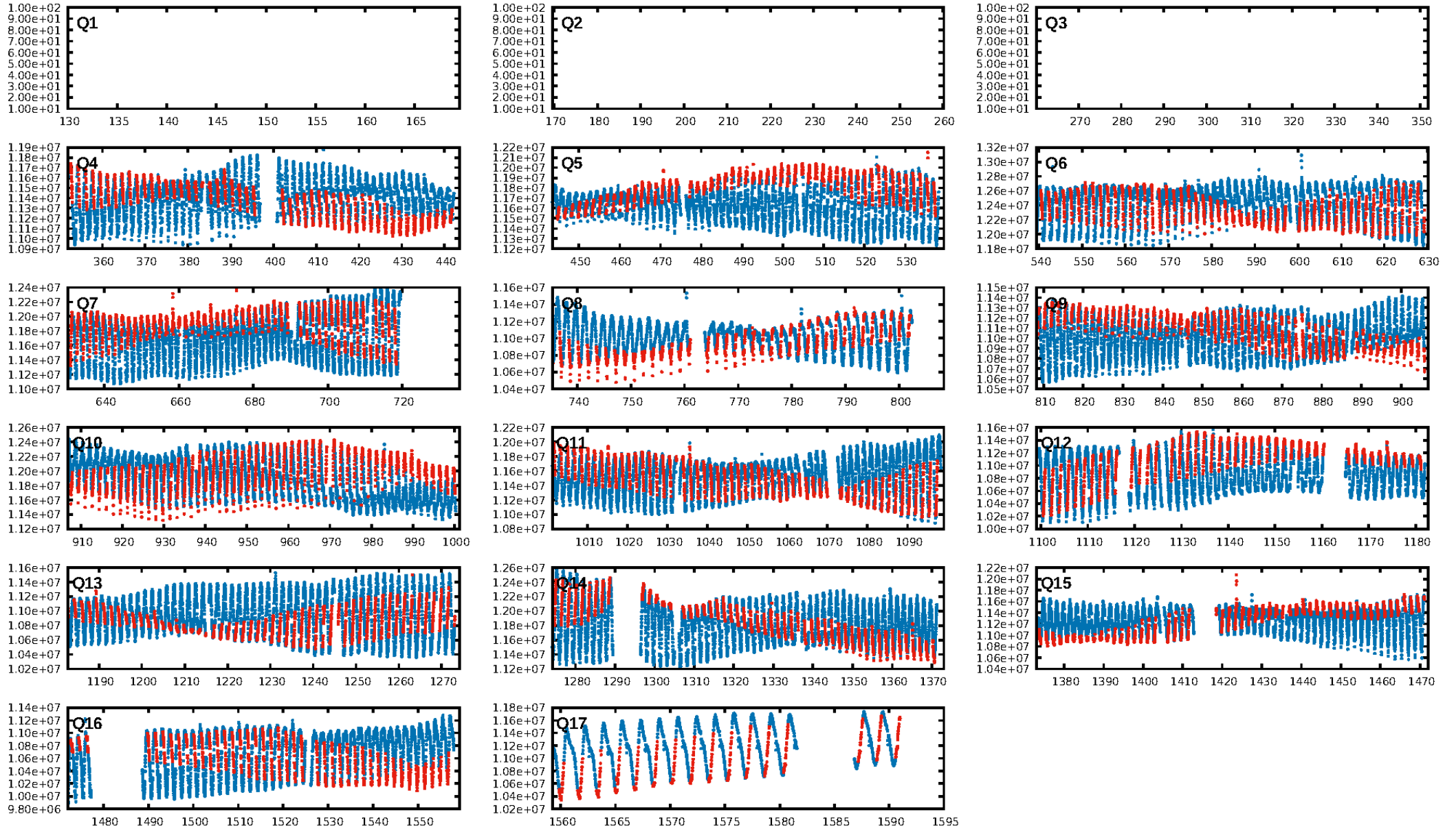
DV Diagnostic Results:

ShortPeriod-sig: 0.7% [0.01σ]
LongPeriod-sig: 100.0% [849.80σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.00e-77
RollingBand-fgt: 1.00 [650/650]
GhostDiagnostic-chr: 1.93
Centroid-sig: 8.7%
Centroid-so: 0.563 arcsec [0.25σ]
OotOffset-rm: 0.406 arcsec [1.98σ]
KicOffset-rm: 0.107 arcsec [0.46σ]
OotOffset-st: 3/3/4/3 [13]
KicOffset-st: 3/3/4/3 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 0.00 [0/14]

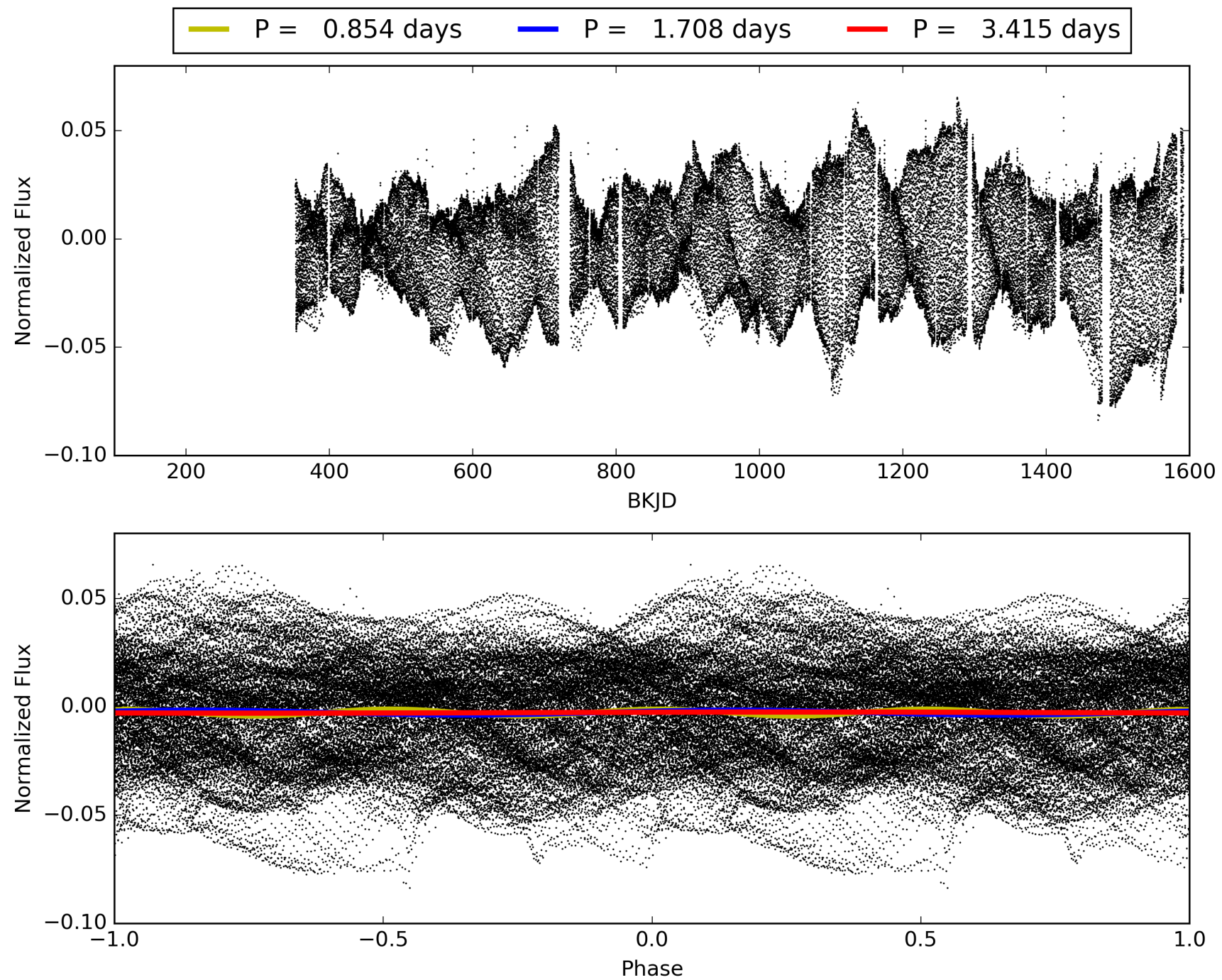
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:11:45 Z

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

TCE 011303811-02, PDC Light Curves

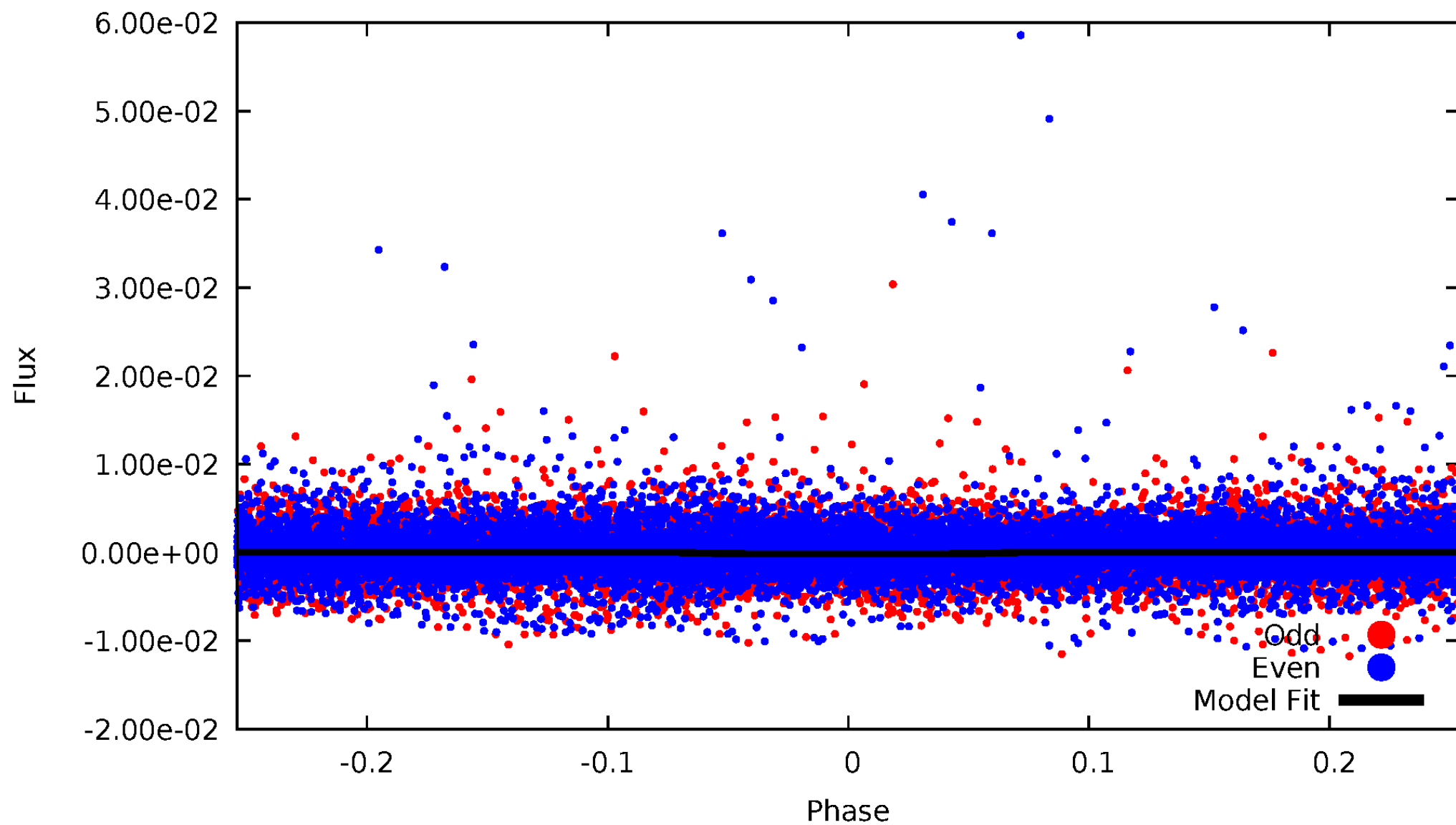


TCE 011303811-02



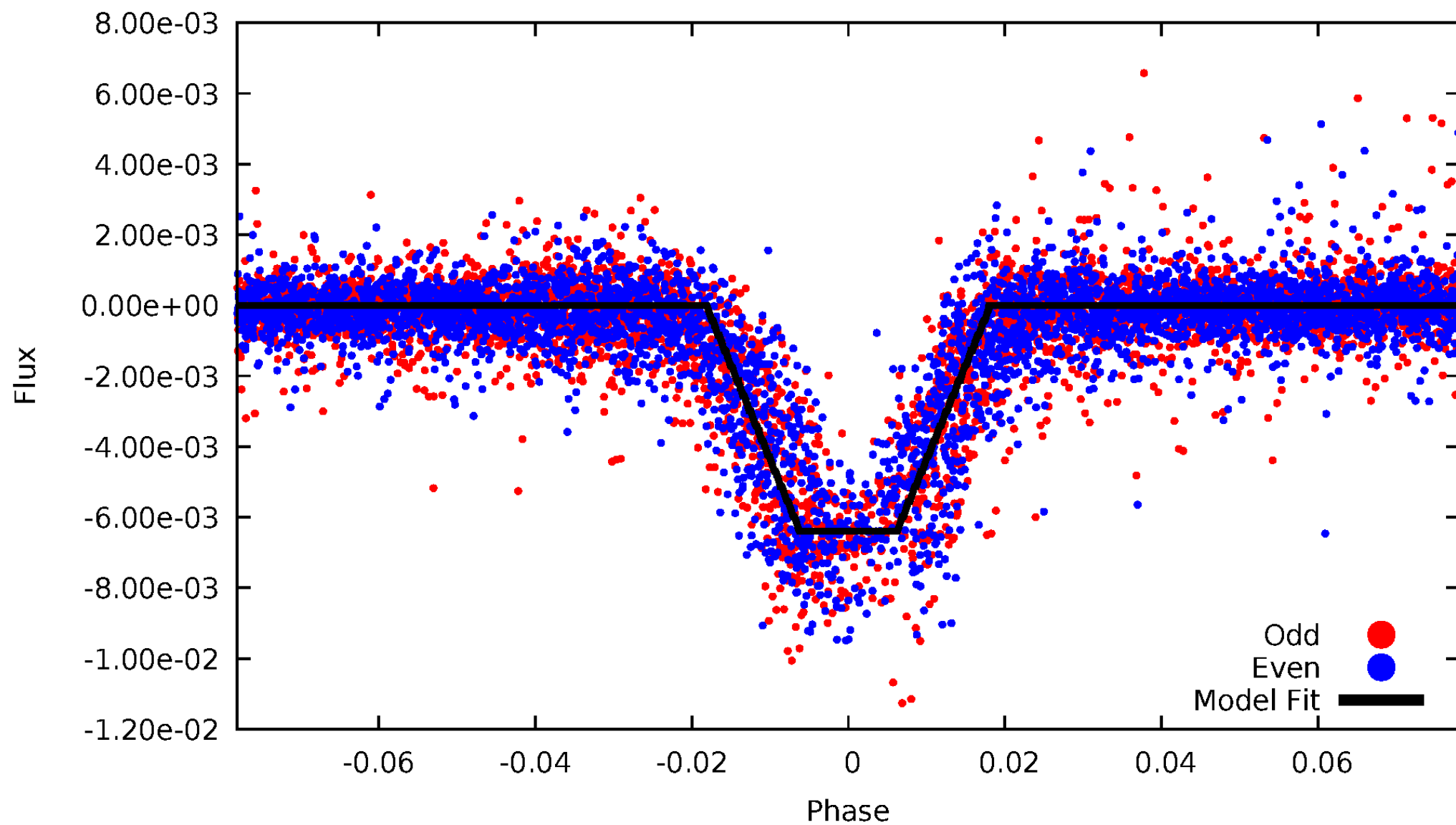
DV Odd/Even

TCE 011303811-02



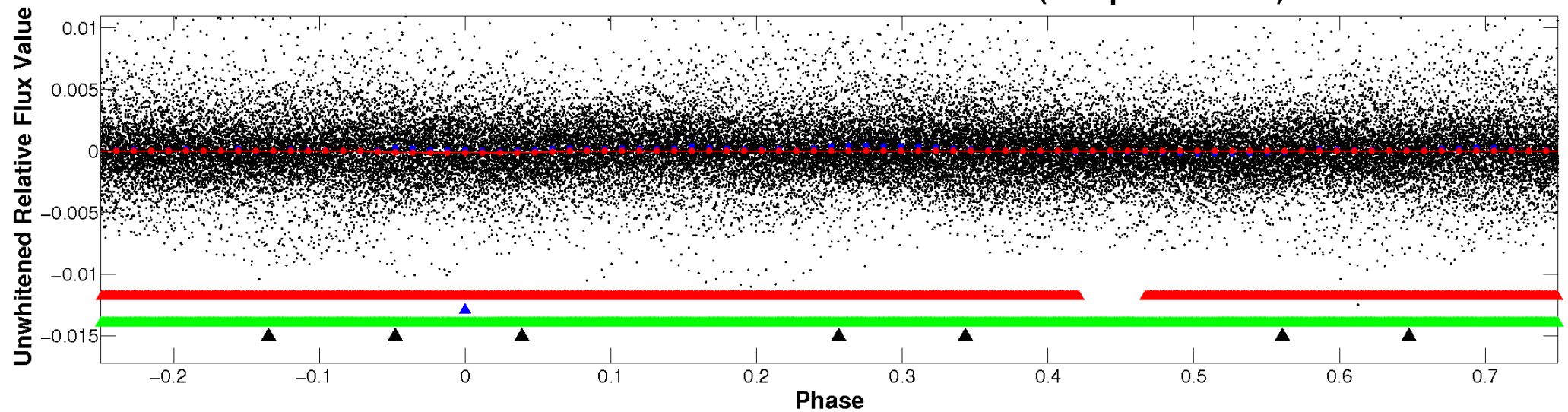
ALT Odd/Even

TCE 011303811-02

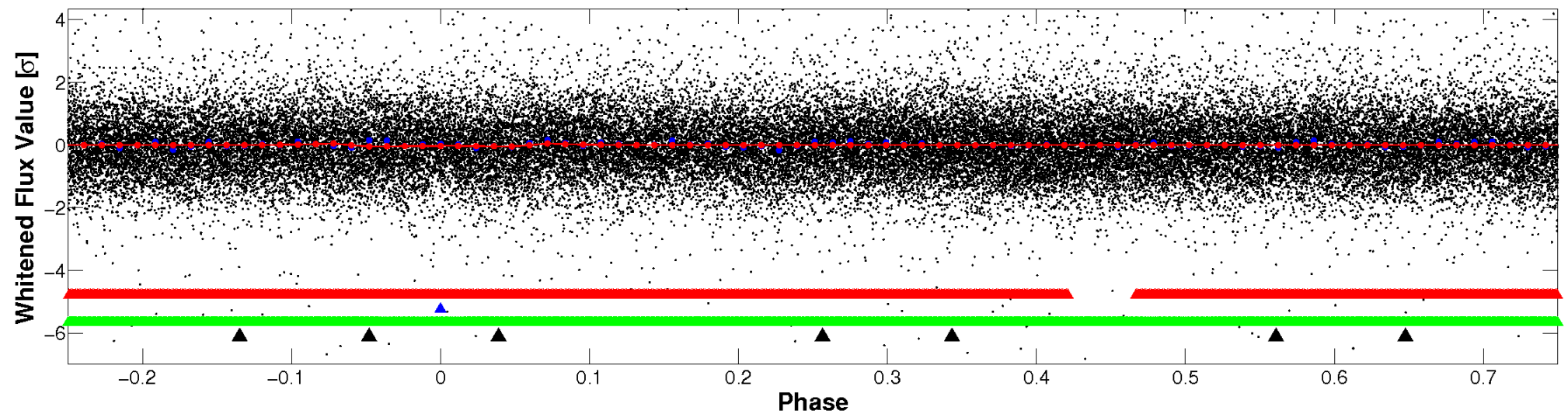


Non-Whitened Vs. Whitened Light Curve

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

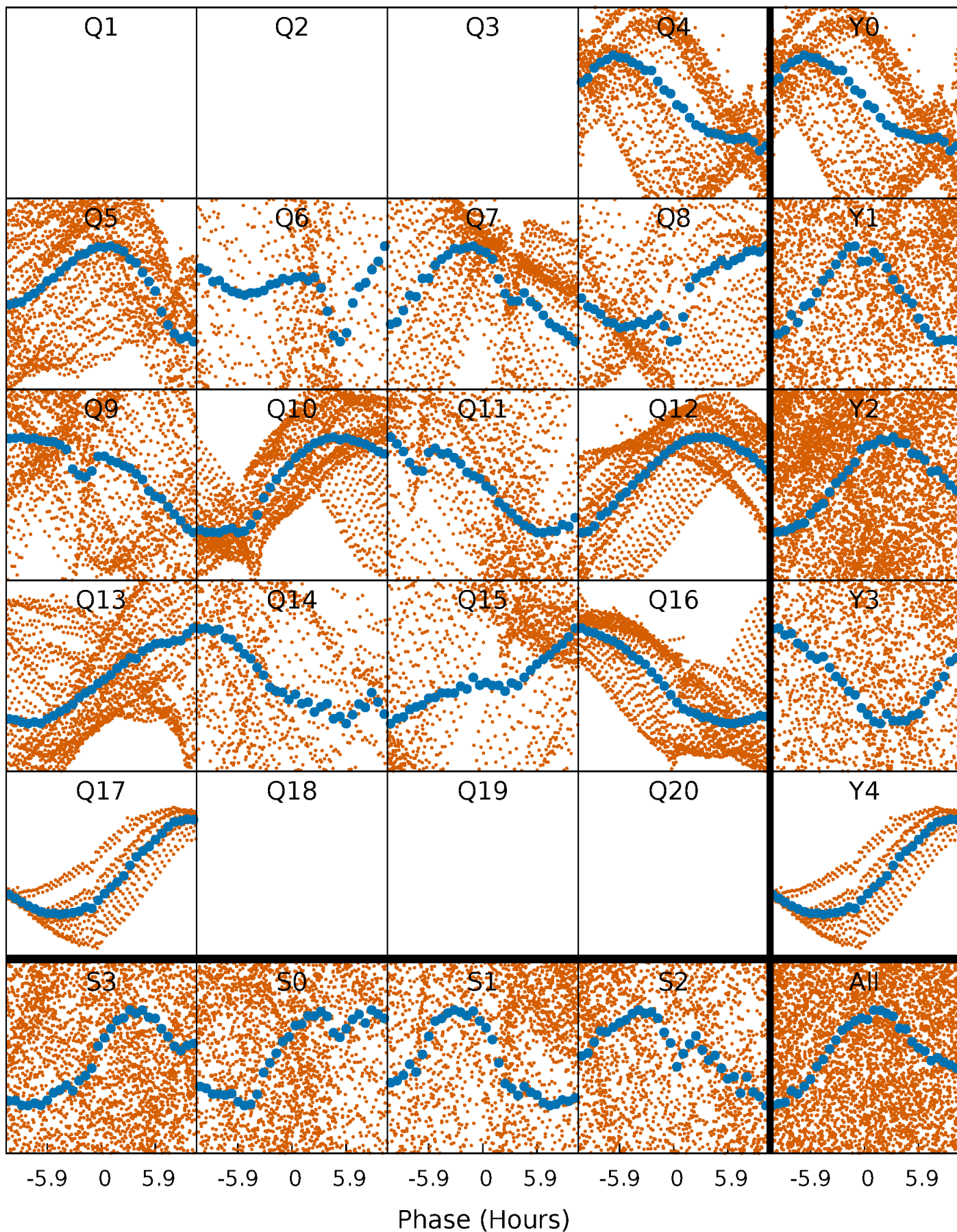


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



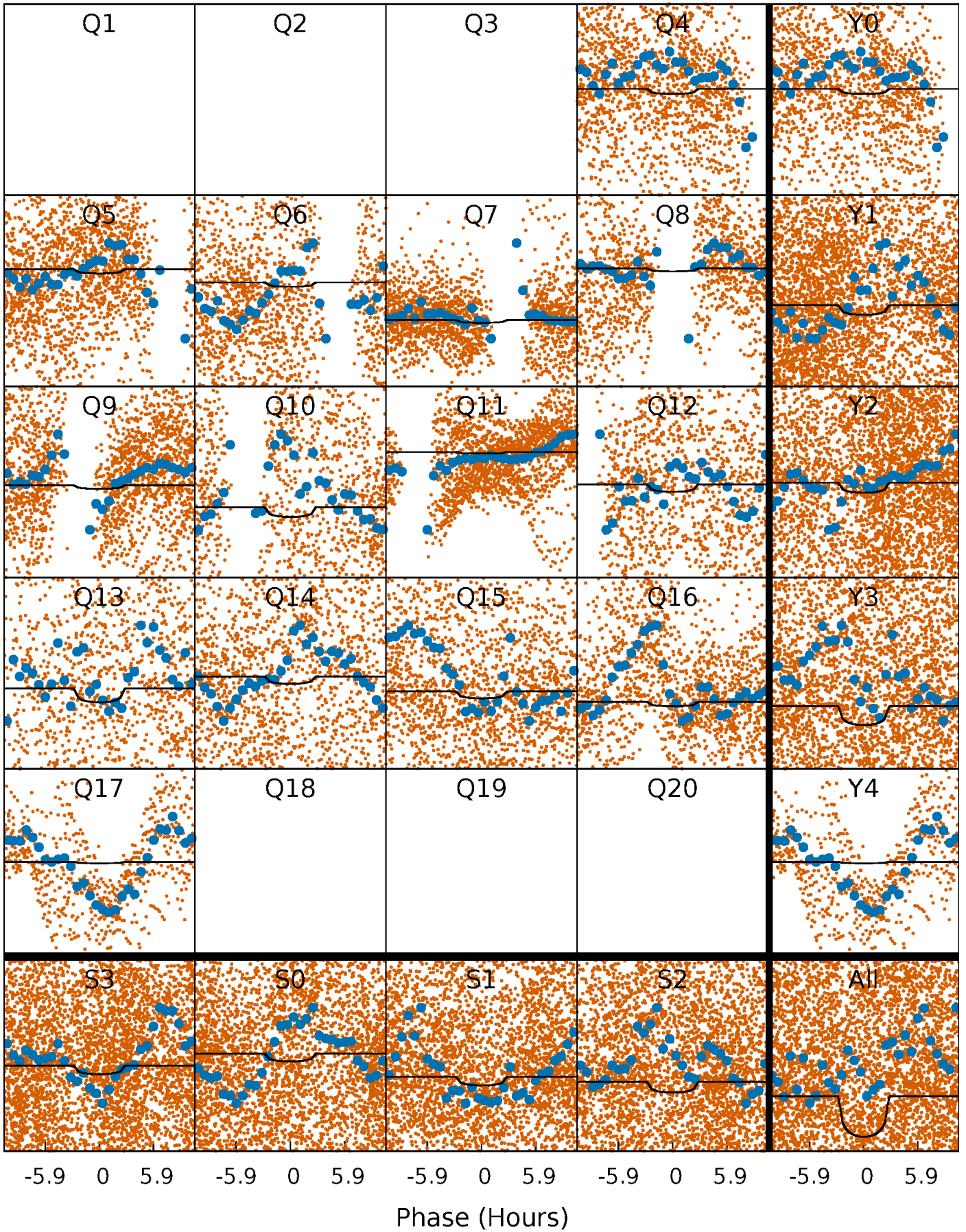
PDC Quarter-Phased Transit Curves

TCE 011303811-02 P= 1.707682 Days $T_0=132.439861$ (BKJD)



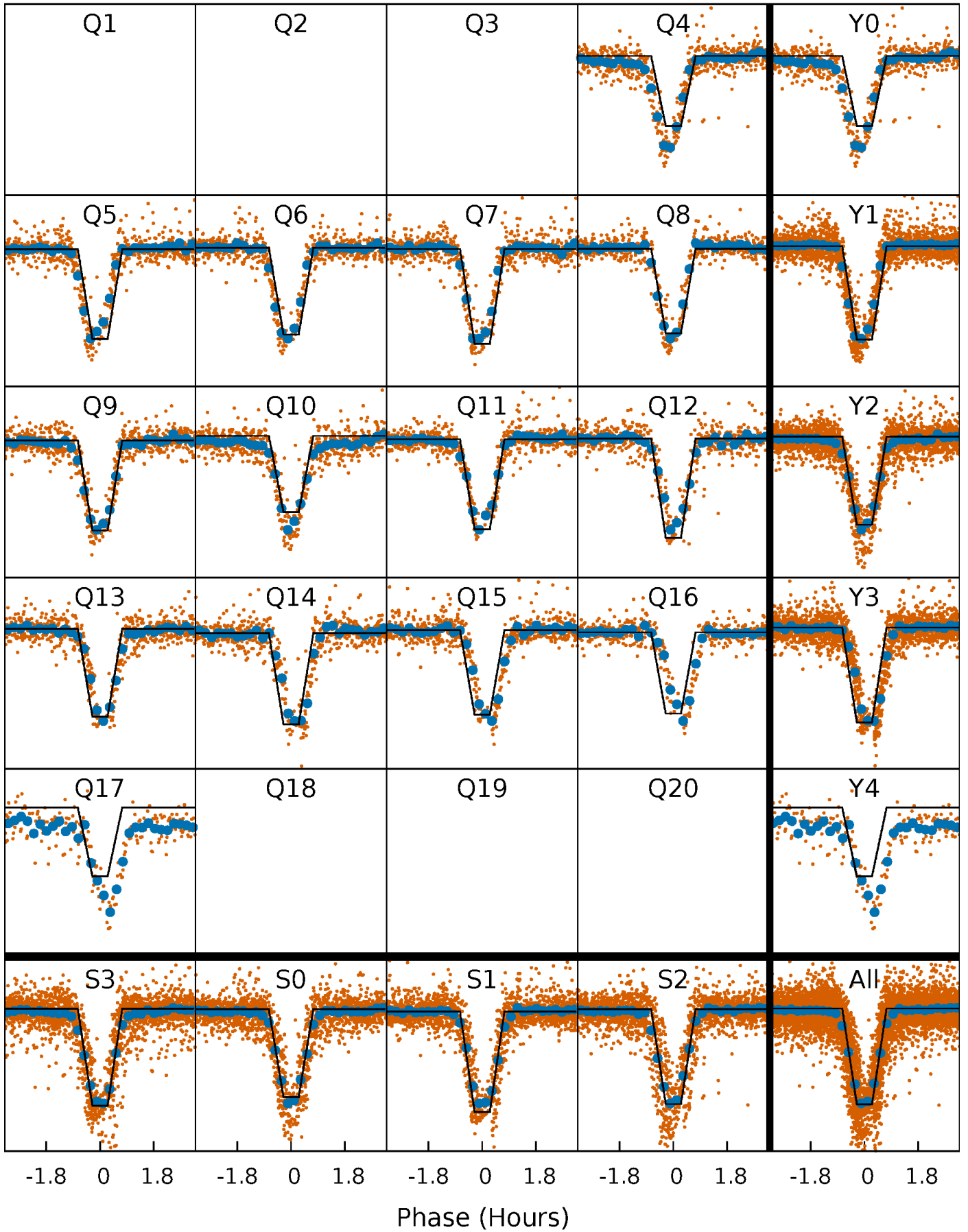
DV Quarter-Phased Transit Curves

TCE 011303811-02 P= 1.707682 Days $T_0=132.439861$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

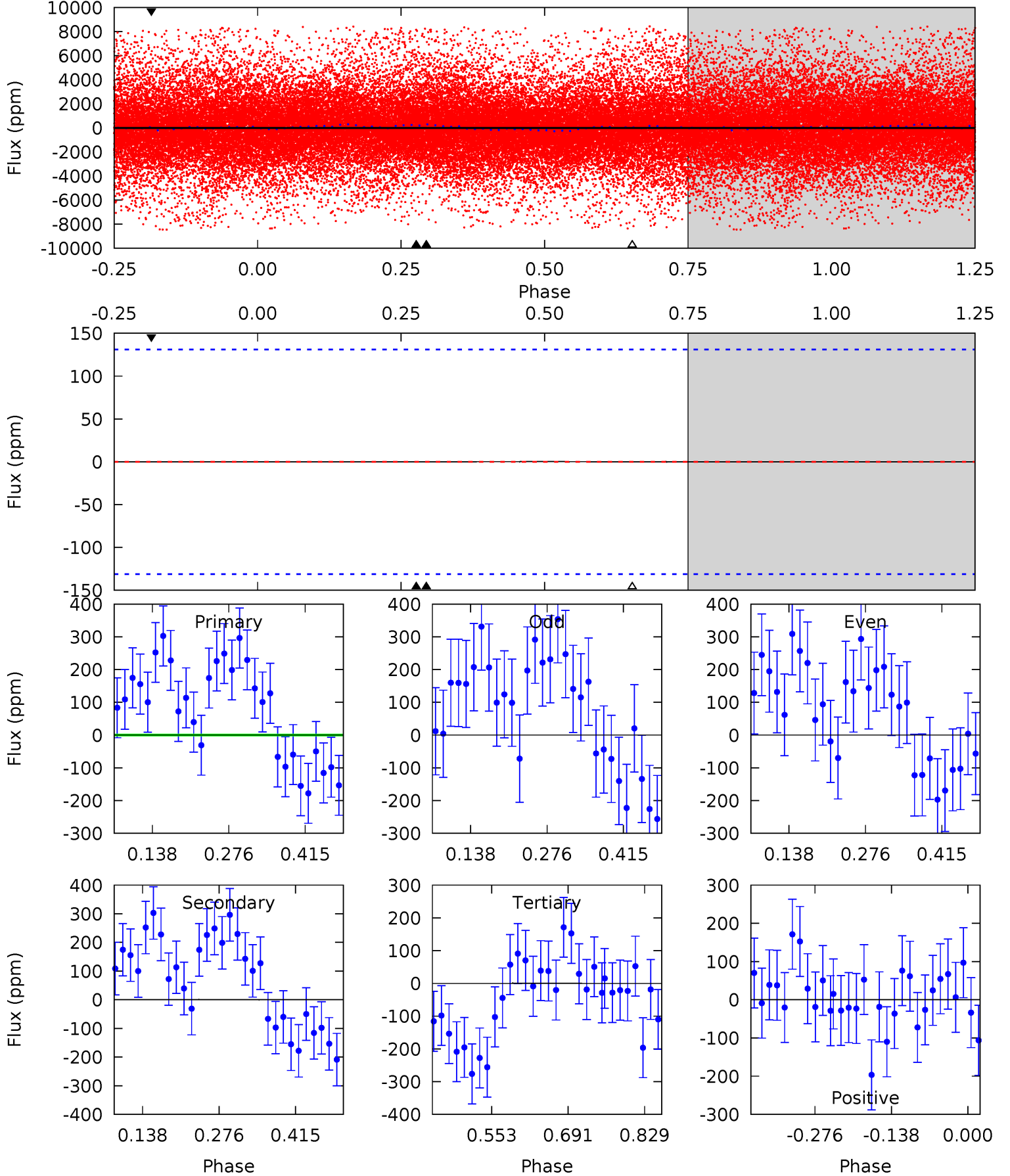
TCE 011303811-02 P= 1.705758 Days $T_0=132.314149$ (BKJD)



DV Model-Shift Uniqueness Test

011303811-02, P = 1.707682 Days, E = 132.439861 Days

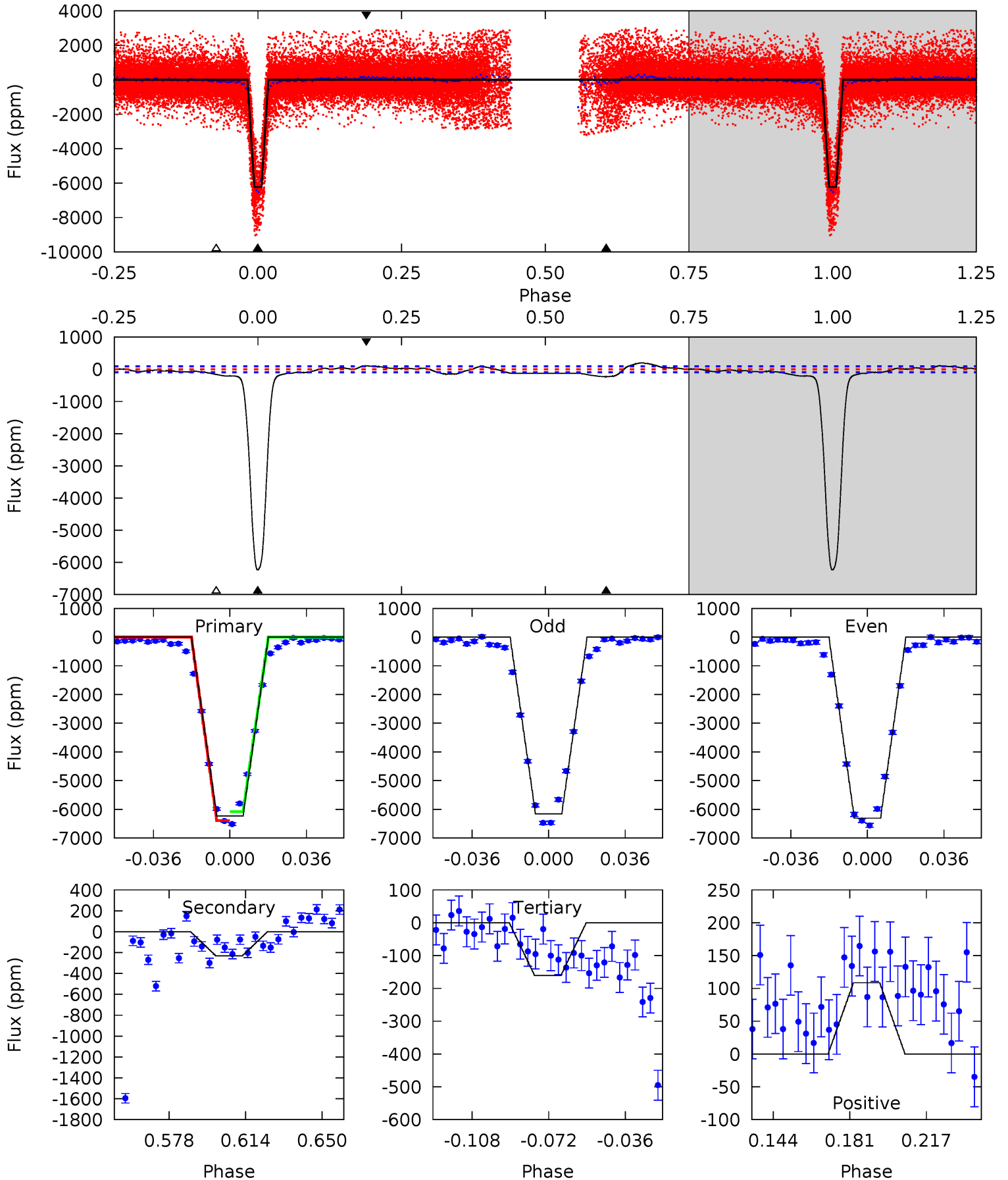
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	4.50	1.48	0.00	0	0	0	0	0.01	0.09	0.48	0.12



Alt Model-Shift Uniqueness Test

011303811-02, P = 1.705758 Days, E = 132.314149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
315.6	11.8	8.15	5.49	4.77	2.10	4.62	307.4	310.1	3.61	6.27	3.78	1.04	0.03	0



Stellar Parameters For KIC 011303811

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4970^{+189}_{-172}	$4.665^{+0.054}_{-0.036}$	$-1.020^{+0.300}_{-0.300}$	$0.591^{+0.044}_{-0.040}$	$0.589^{+0.054}_{-0.025}$	$4.021^{+0.841}_{-0.579}$
	+4%/-3%	+1%/-1%	+29%/-29%	+7%/-7%	+9%/-4%	+21%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011303811-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-0 ± 29	$1.73^{+1.50}_{-1.19}$	1532^{+60}_{-59}	-2225^{+5195}_{-957}	$-0.064^{+3.866}_{-5.860}$
Alt.	-232 ± 20	$5.17^{+1.84}_{-1.92}$	1532^{+64}_{-62}	2812^{+428}_{-257}	$2.658^{+4.118}_{-1.220}$

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

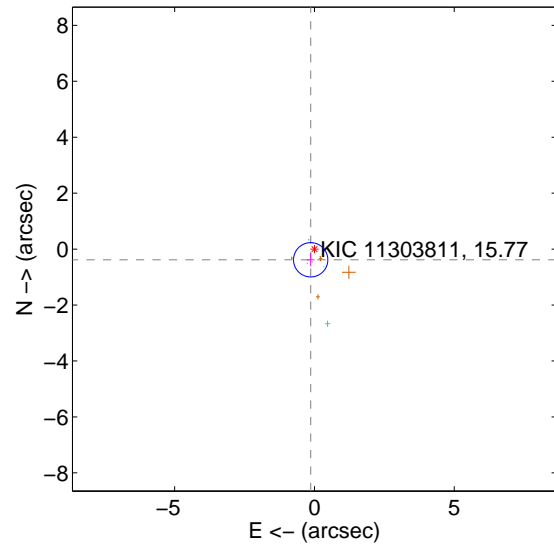
Supplemental centroid analysis for 011303811-02. Kepler magnitude: 15.77. Transit SNR 2.77

There are 5 quarters with good PRF difference image offsets

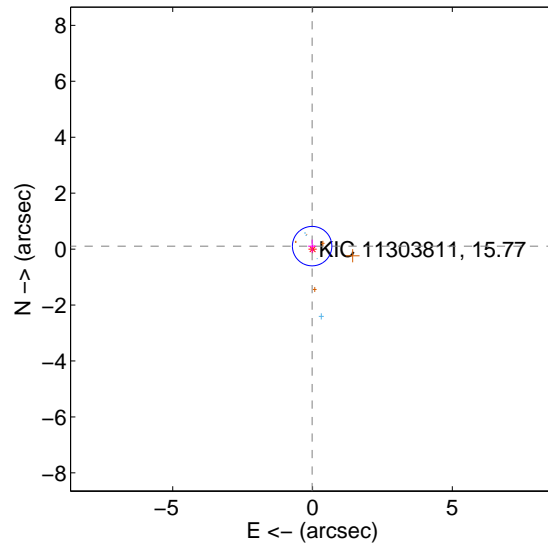
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.406 ± 0.204	1.98	0.134 ± 0.138	-0.383 ± 0.232
PRF-fit source offset from KIC position	0.107 ± 0.235	0.46	0.014 ± 0.144	0.106 ± 0.231
photometric centroid source offset	0.56 ± 2.22	0.25	0.02 ± 0.90	-0.56 ± 2.22

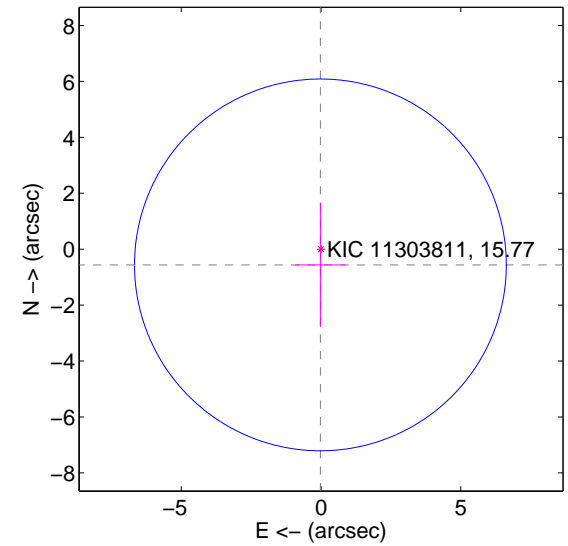
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



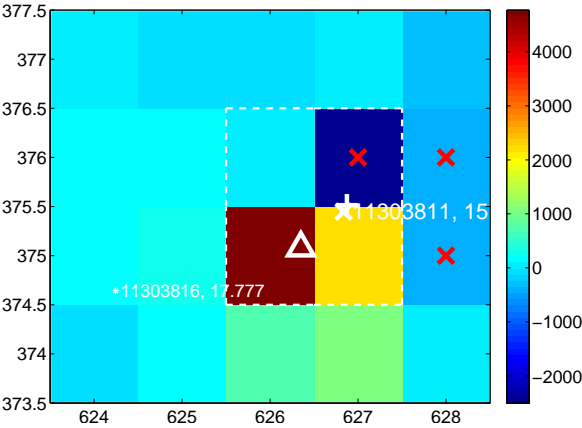
Q3 no difference image



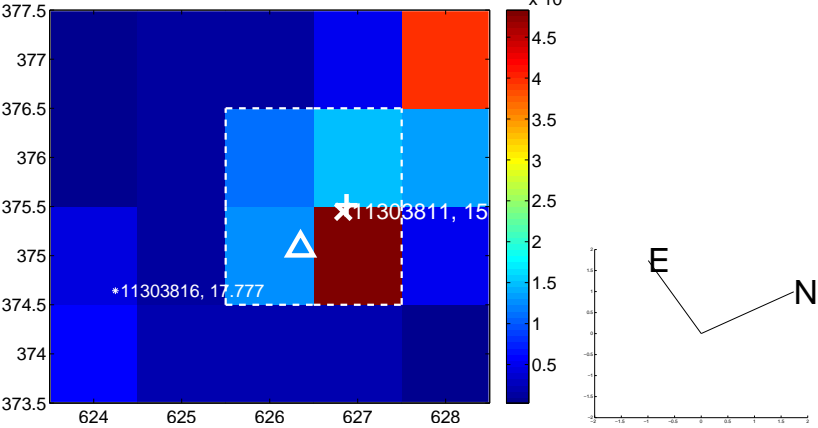
Q3 no OOT image



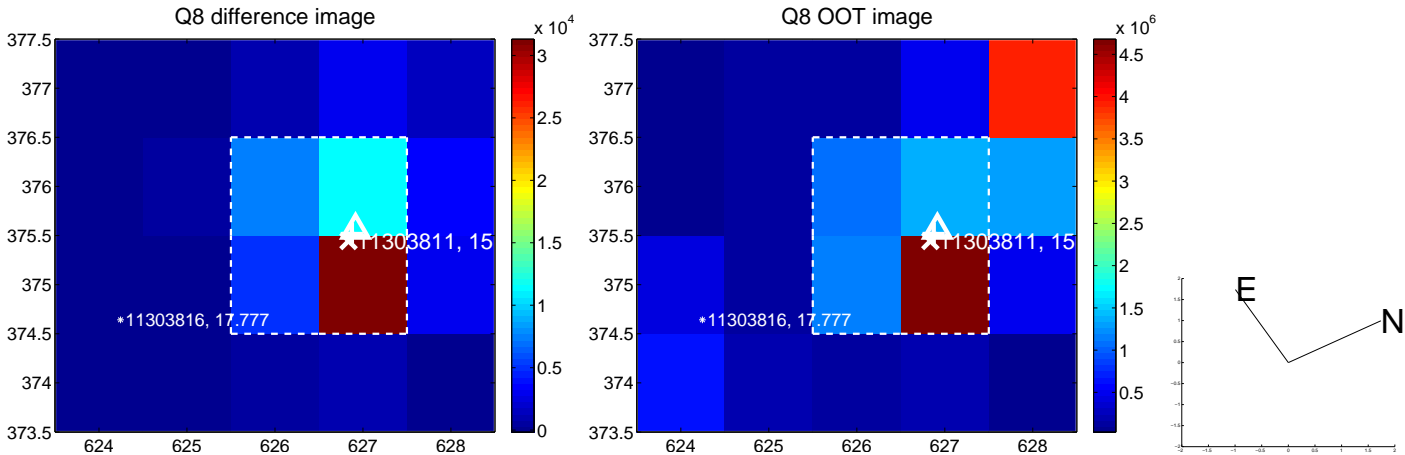
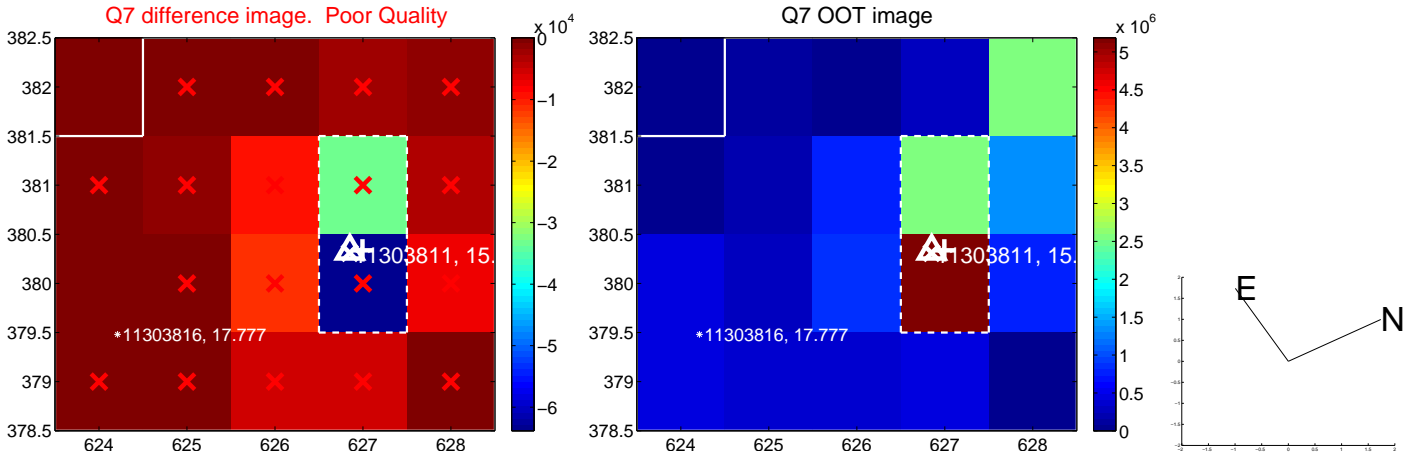
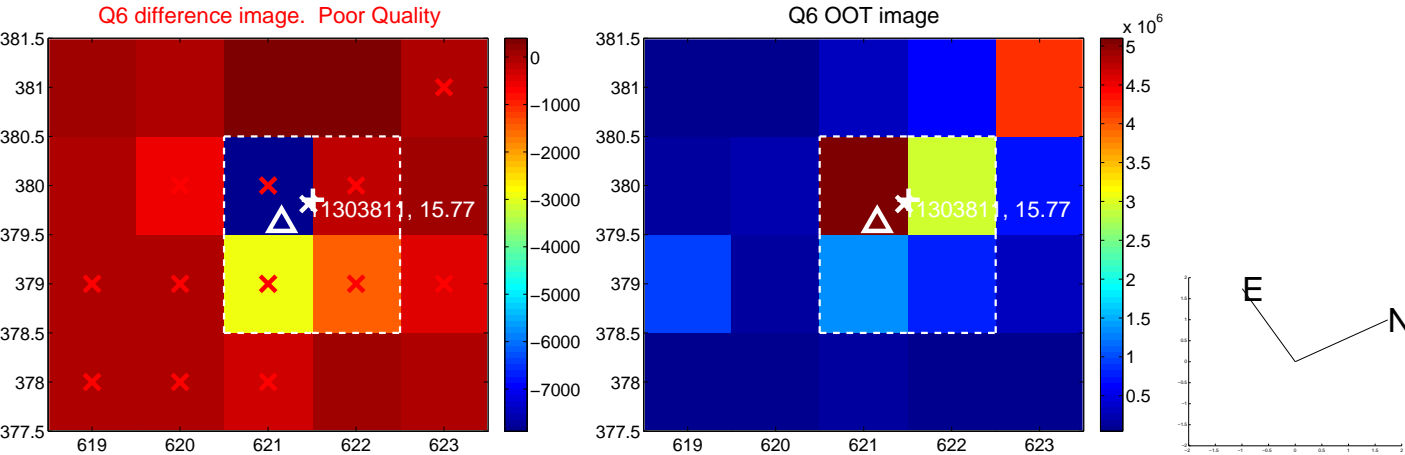
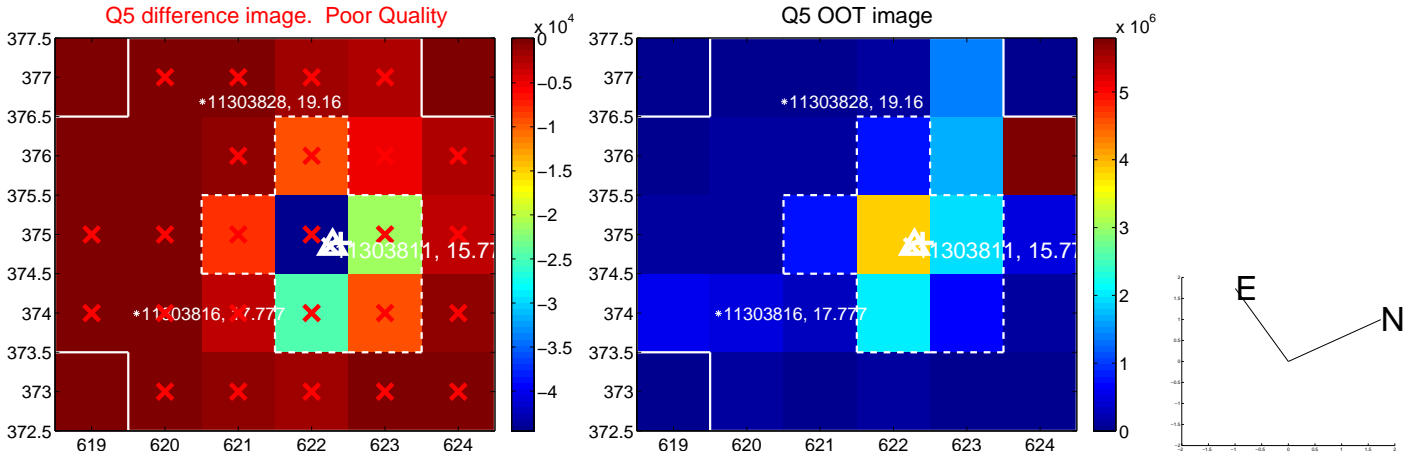
Q4 difference image



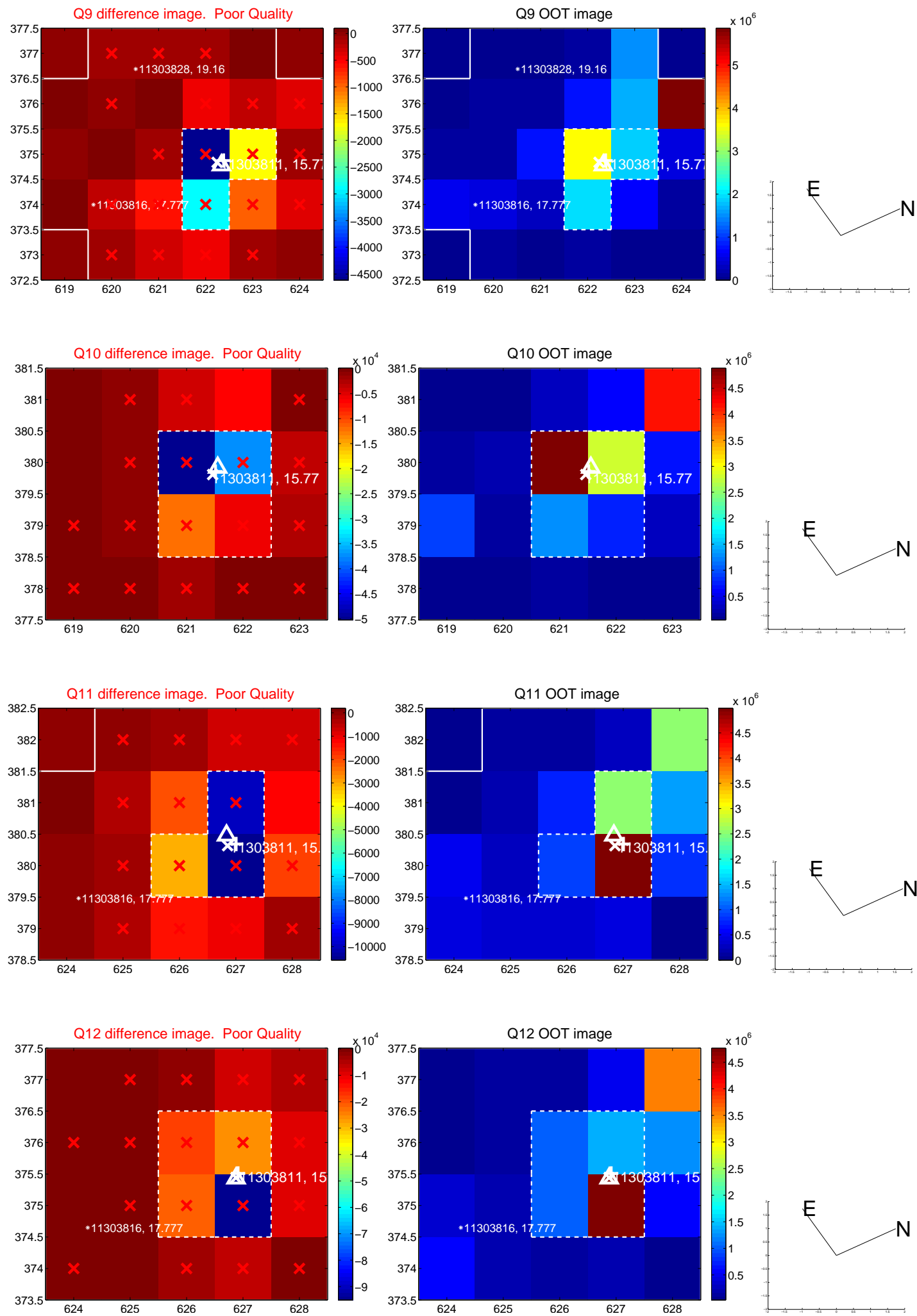
Q4 OOT image



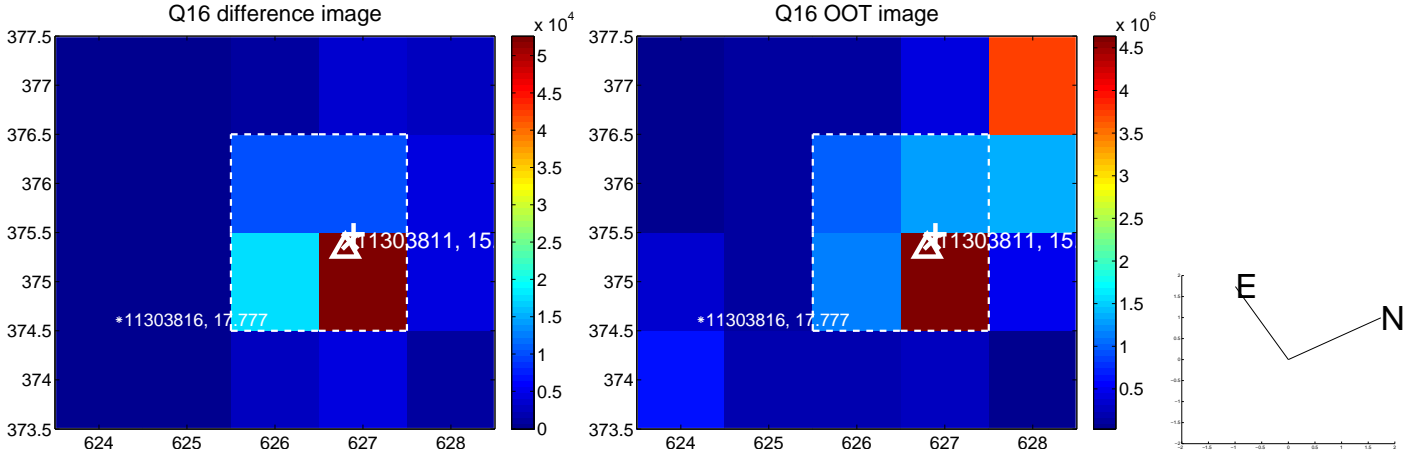
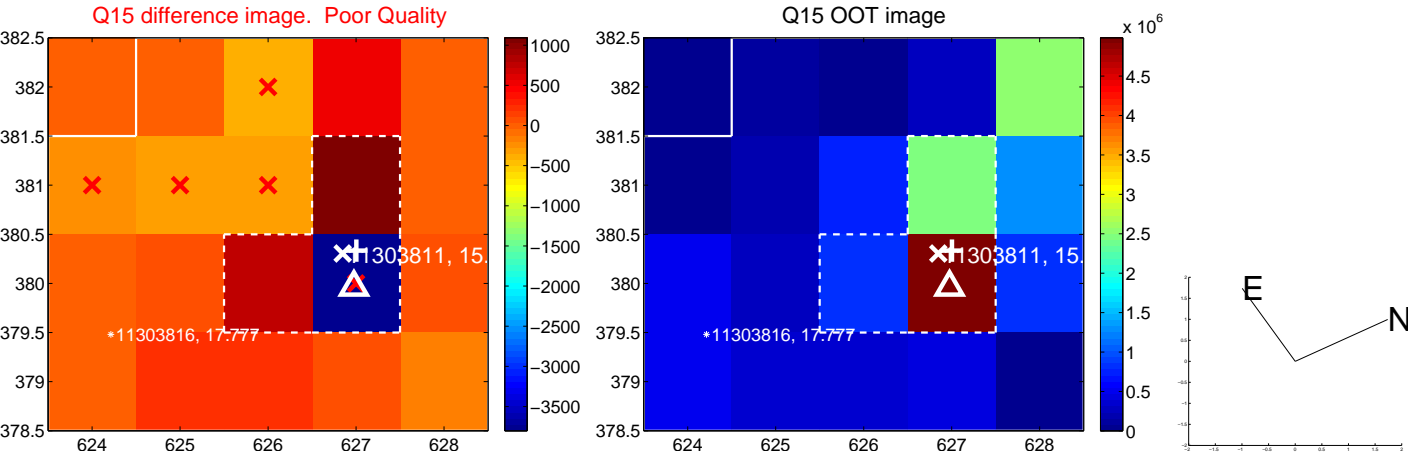
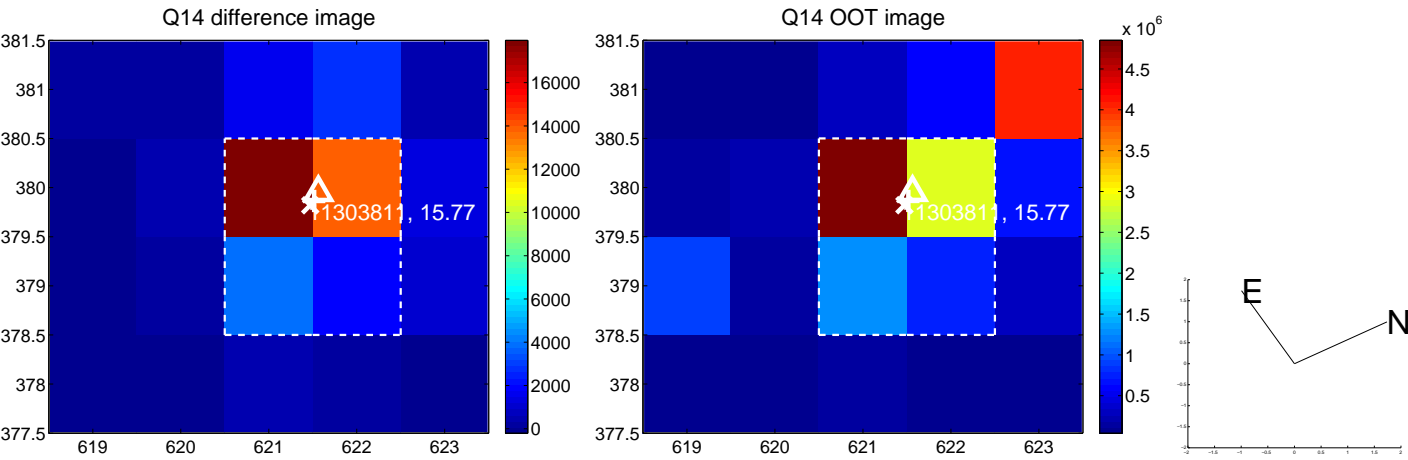
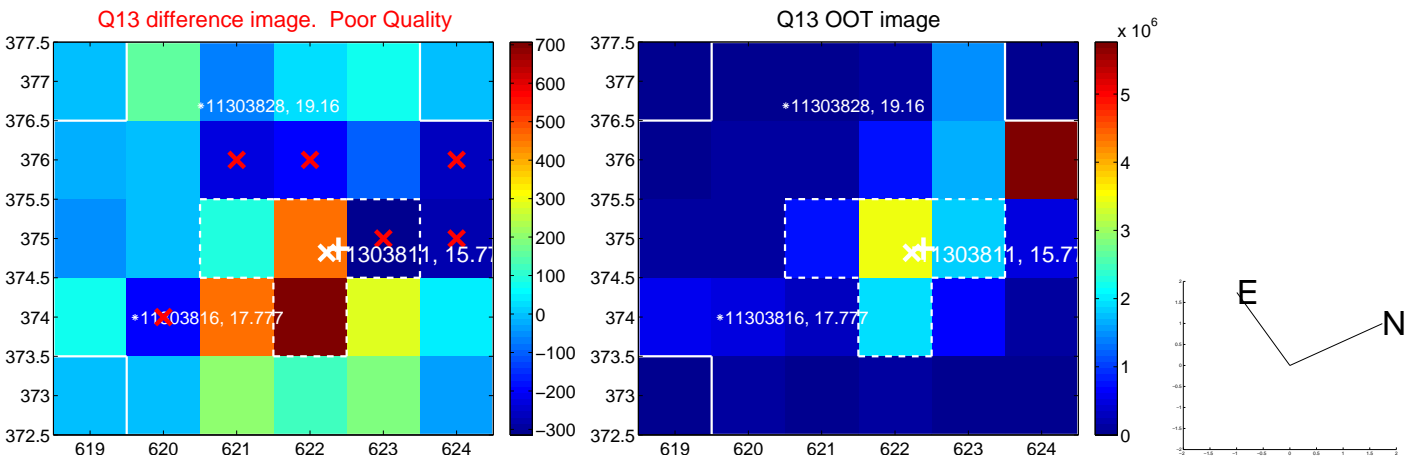
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



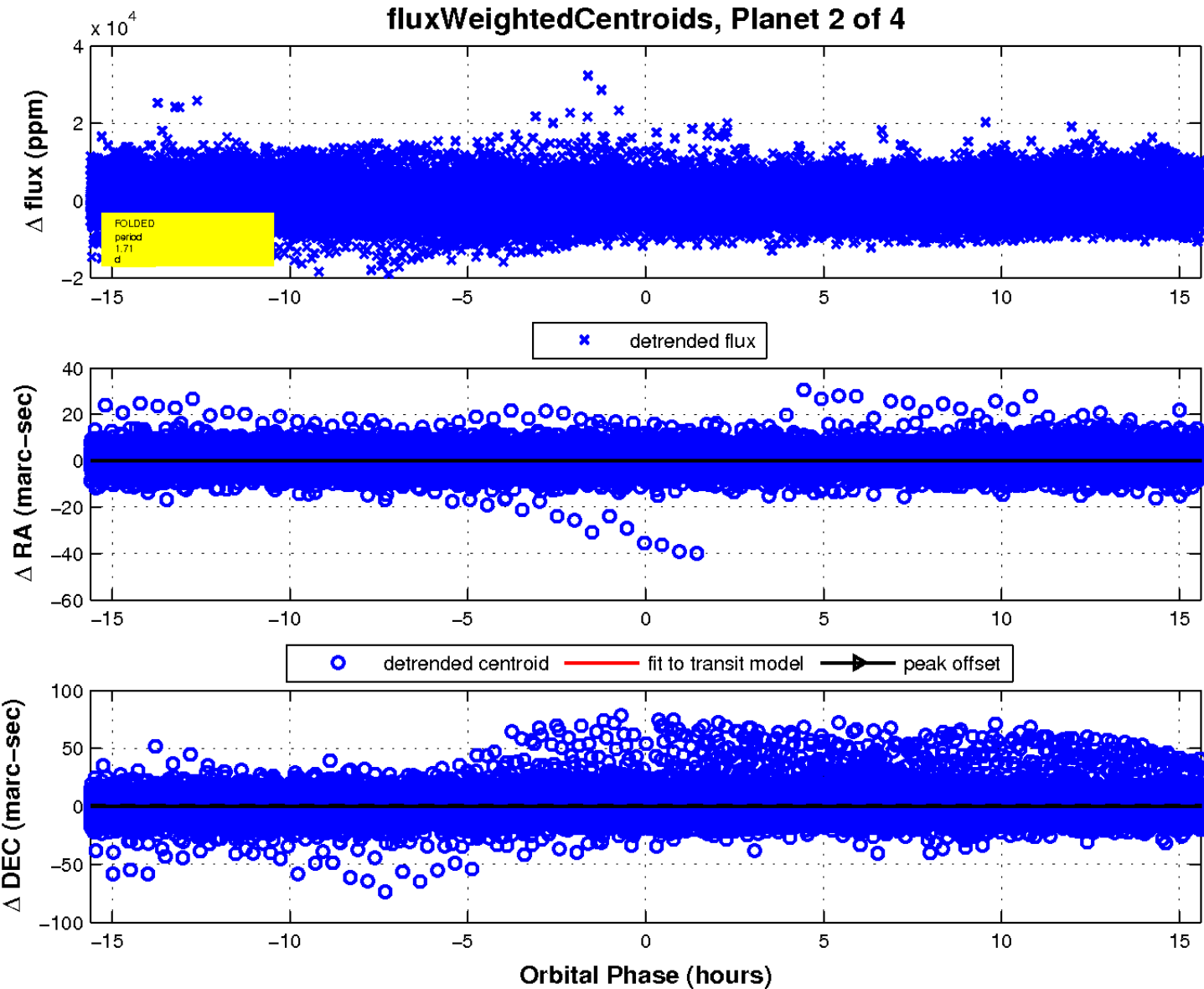
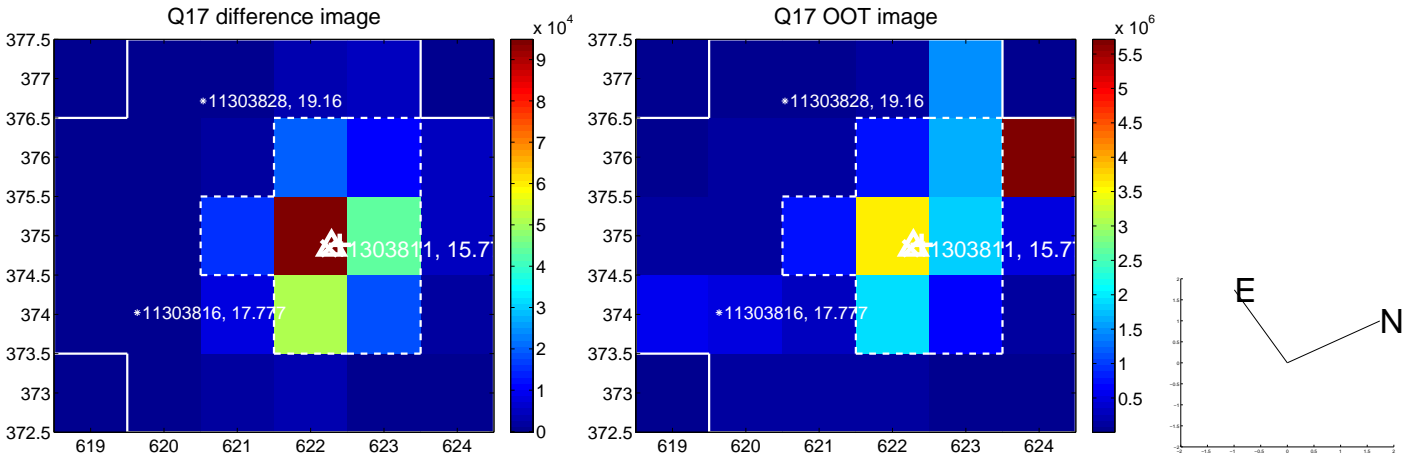
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

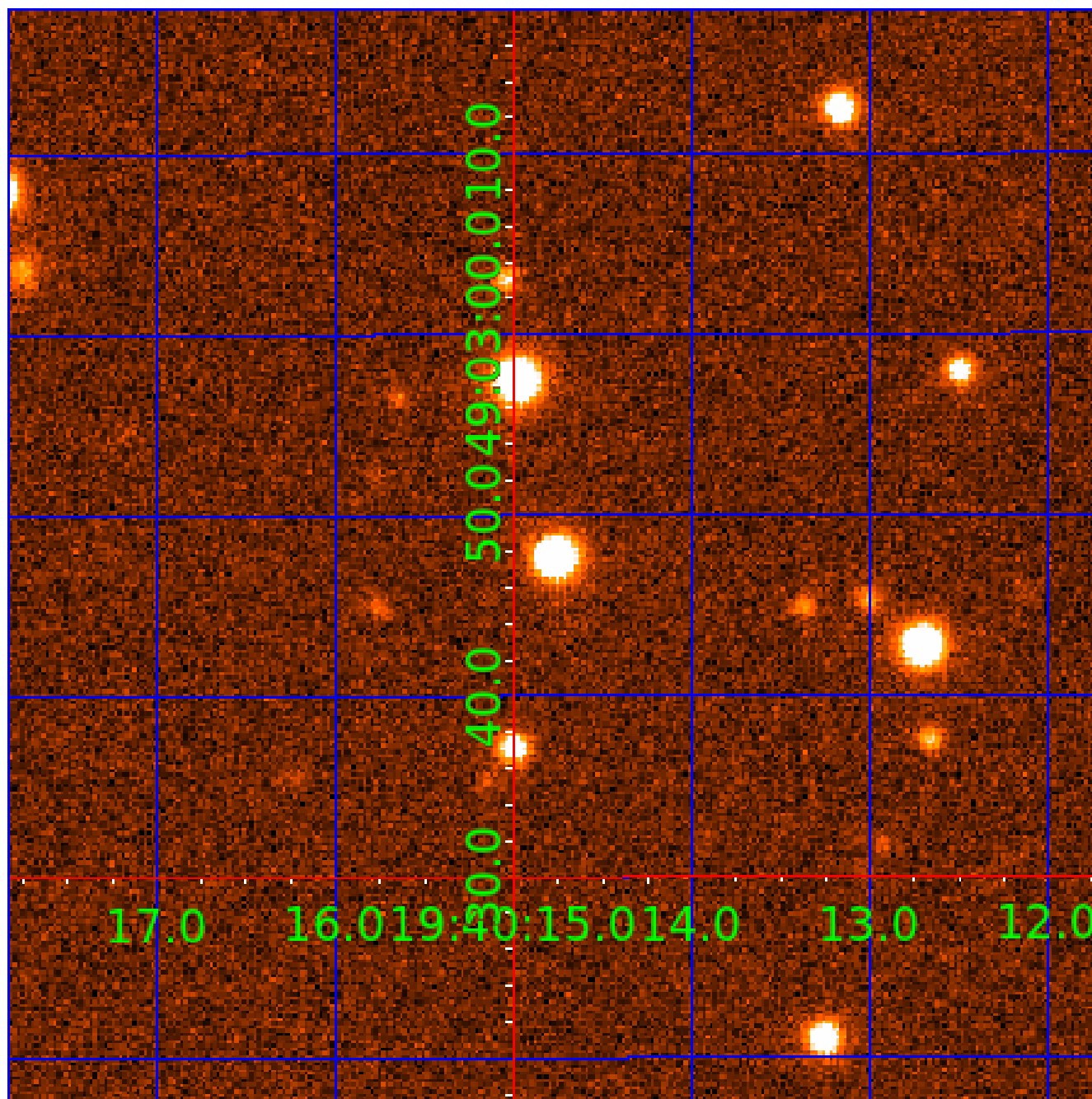


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011303811

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})
011303811-01	OBS	3744.01	1.705774	133.158901	4210.8	0.987	35.3	89.4	0.59	4970	4.79	347.92
011303811-02	OBS	No	1.707682	132.439861	141.2	5.203	20.1	2.8	0.59	4970	0.70	347.40
011303811-03	OBS	No	0.852900	131.517444	1607.9	2.000	16.2	-1.0	0.59	4970	2.33	876.69
011303811-04	OBS	No	206.109701	325.177707	2160.1	2.500	9.2	-1.0	0.59	4970	2.70	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011303811-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER
011303811-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011303811-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS
011303811-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

Ephemeris Match Information For 011303811-03

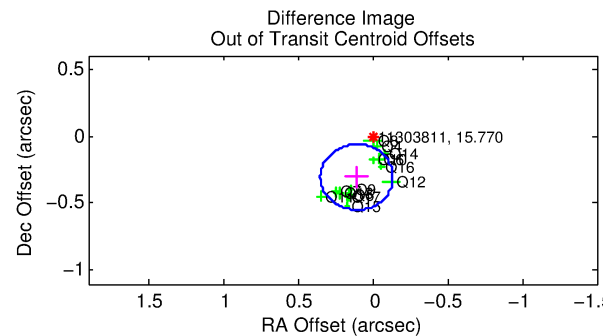
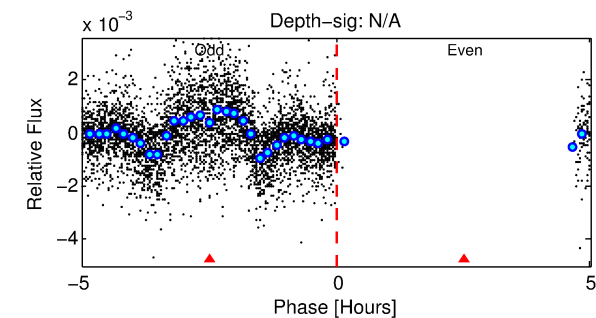
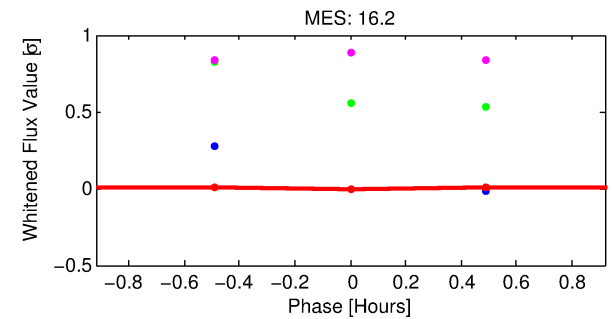
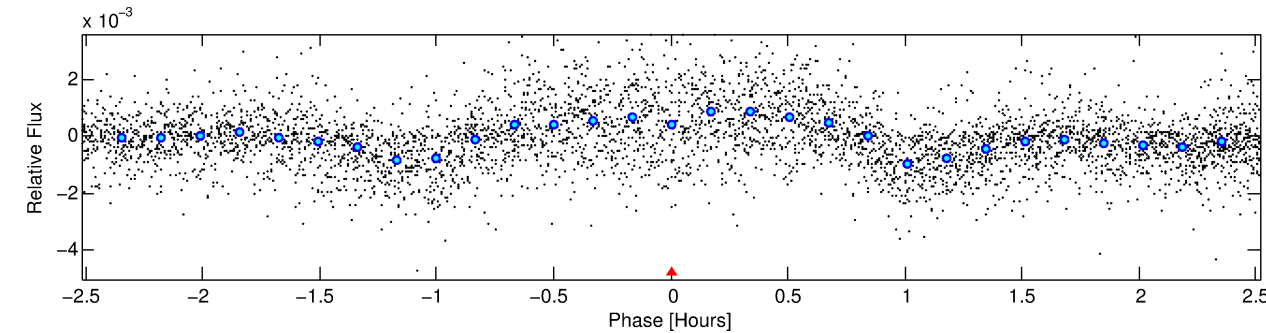
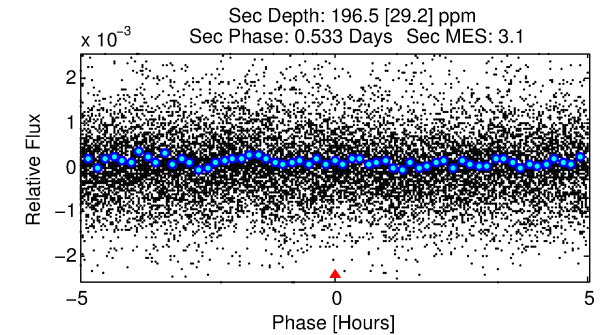
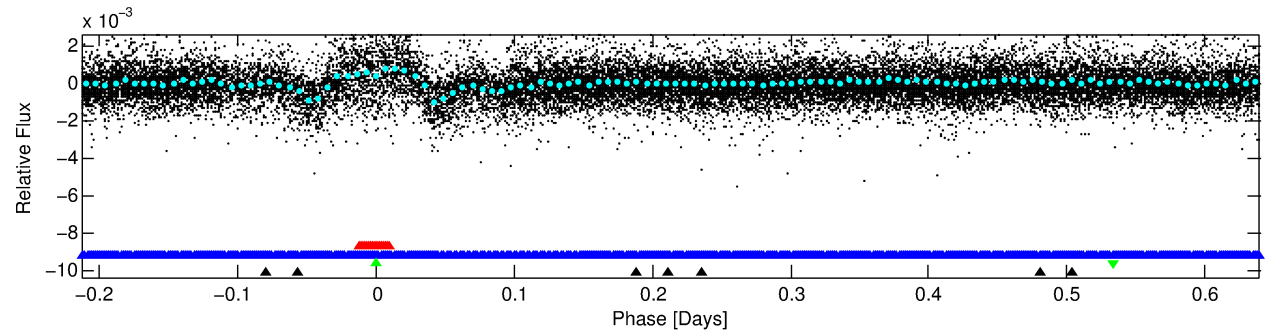
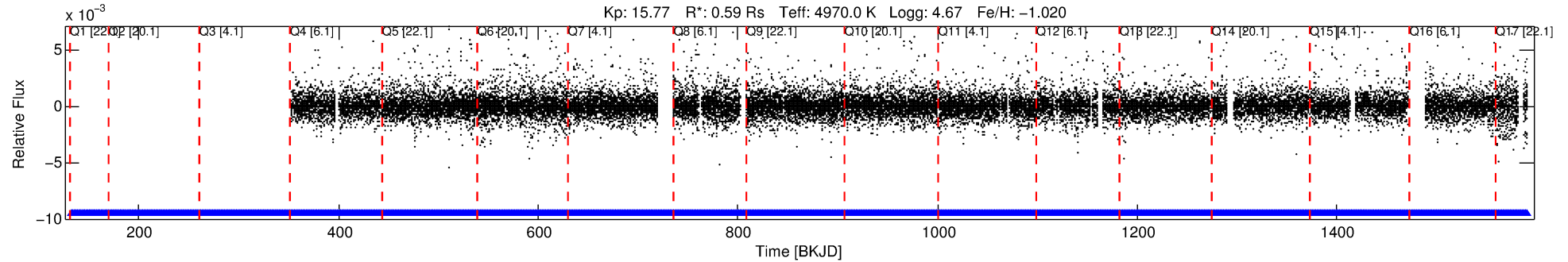
No Significant Match Found

DV One-Page Summary

KIC: 11303811 Candidate: 3 of 4 Period: 0.853 d

KOI: K03744 Corr: No Ephemeris Match

Kp: 15.77 R*: 0.59 Rs Teff: 4970.0 K Logg: 4.67 Fe/H: -1.020



TPS TCE Results:

Period = 0.85290 d
Epoch = 131.5174 BKJD

DV fit results are unavailable

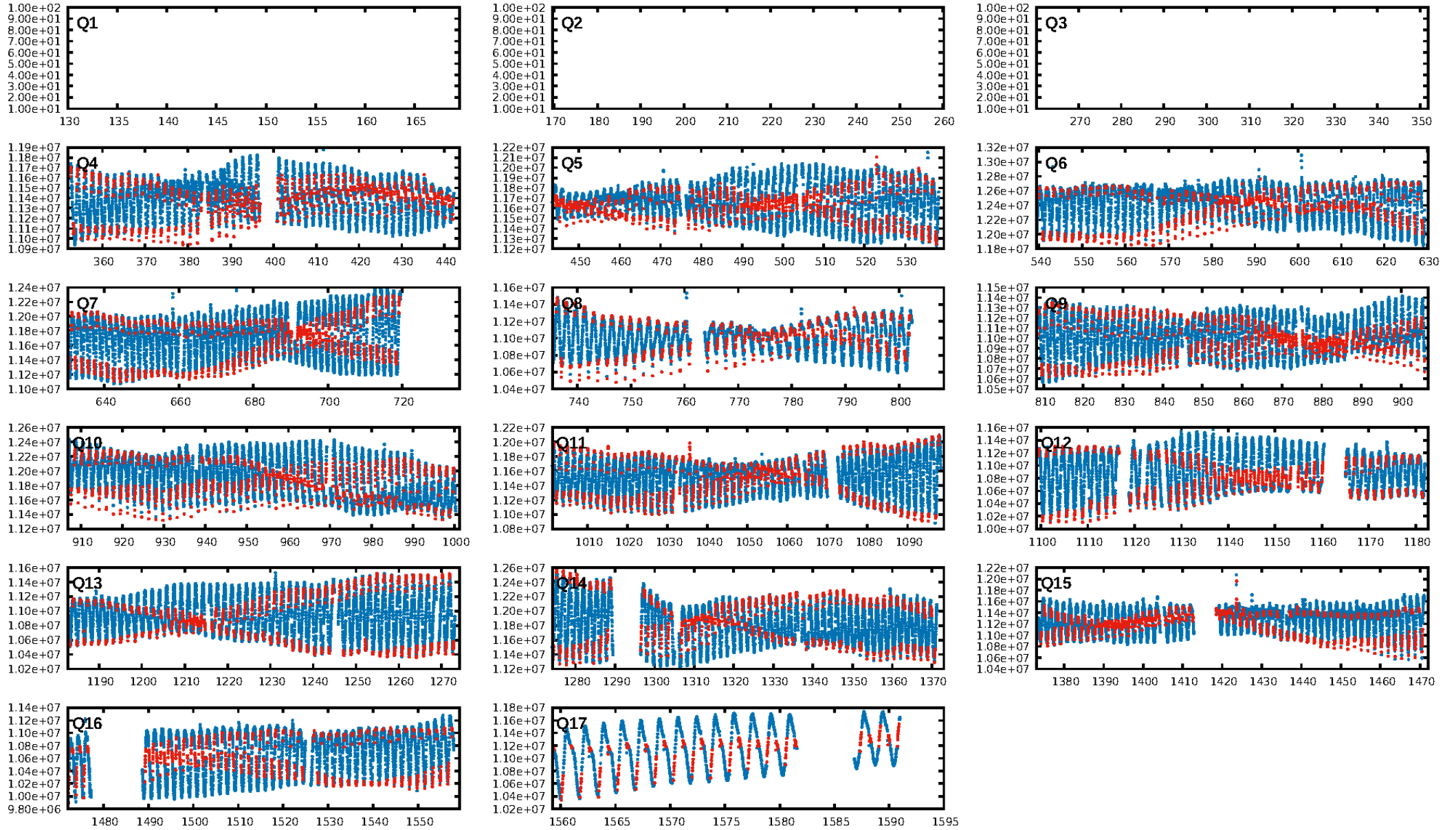
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [9.18σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.02e-50
RollingBand-fgt: 1.00 [500/500]
GhostDiagnostic-chr: -0.8642
Centroid-sig: 0.0%
Centroid-so: 1.981 arcsec [28.10σ]
OotOffset-rm: 0.323 arcsec [3.99σ]
KicOffset-rm: 0.119 arcsec [1.71σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.71 [10/14]

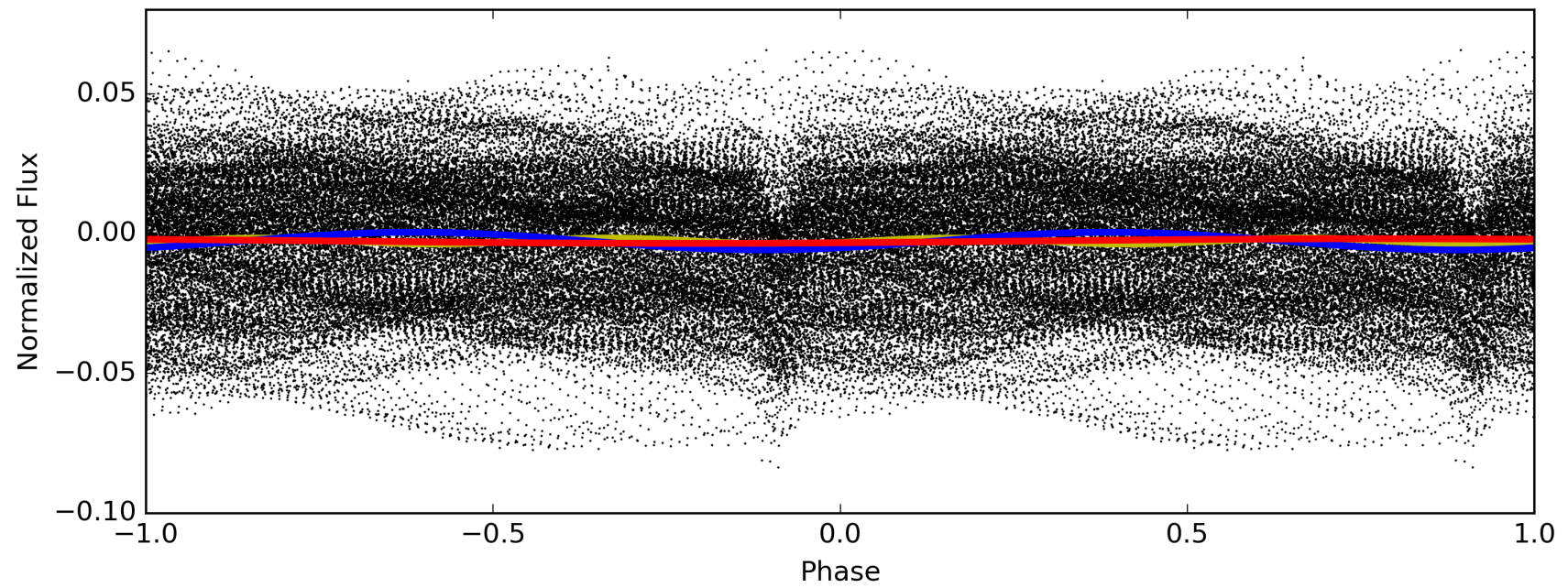
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:11:54 Z

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

TCE 011303811-03, PDC Light Curves

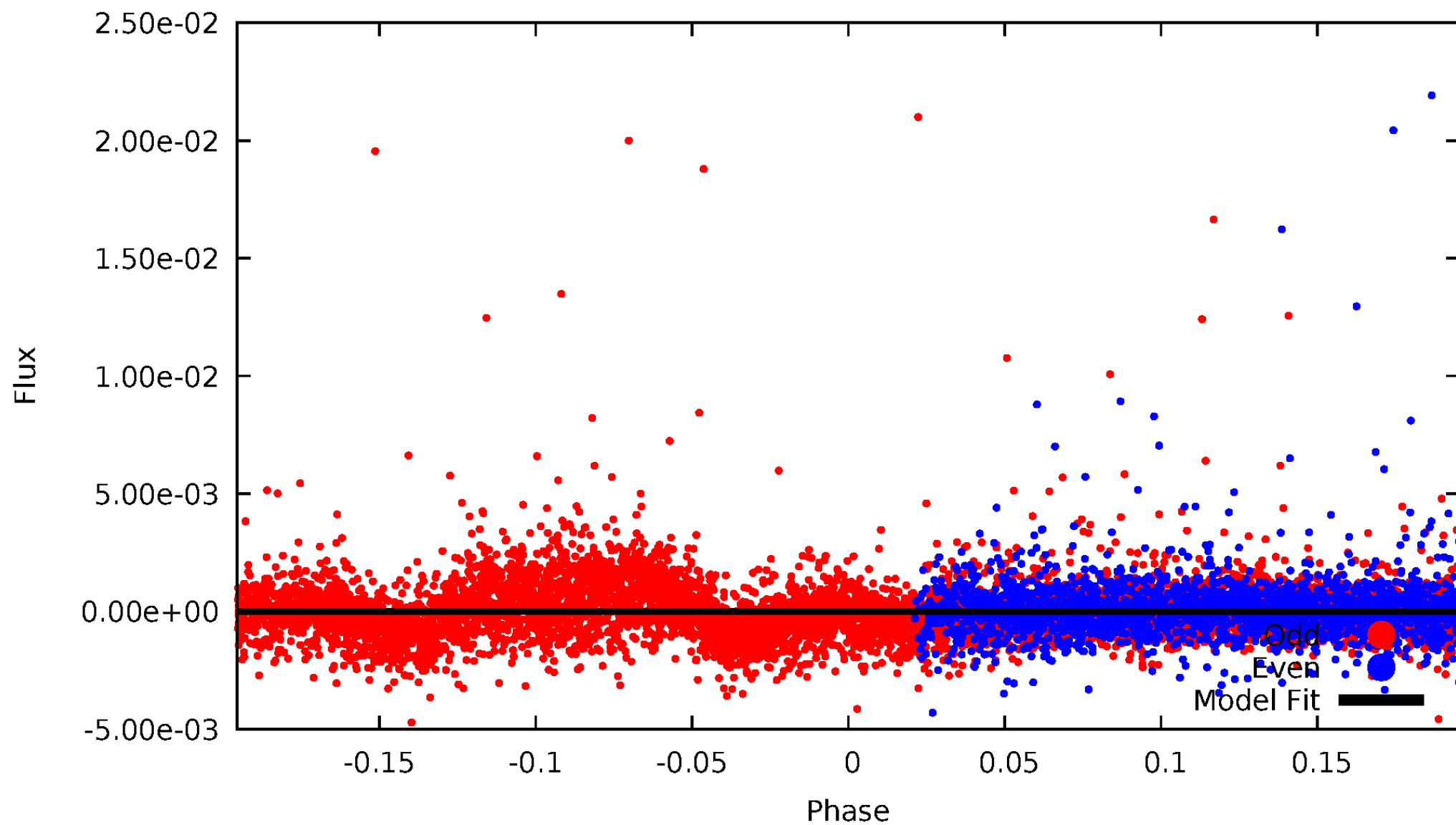


— P = 0.426 days — P = 0.853 days — P = 1.706 days



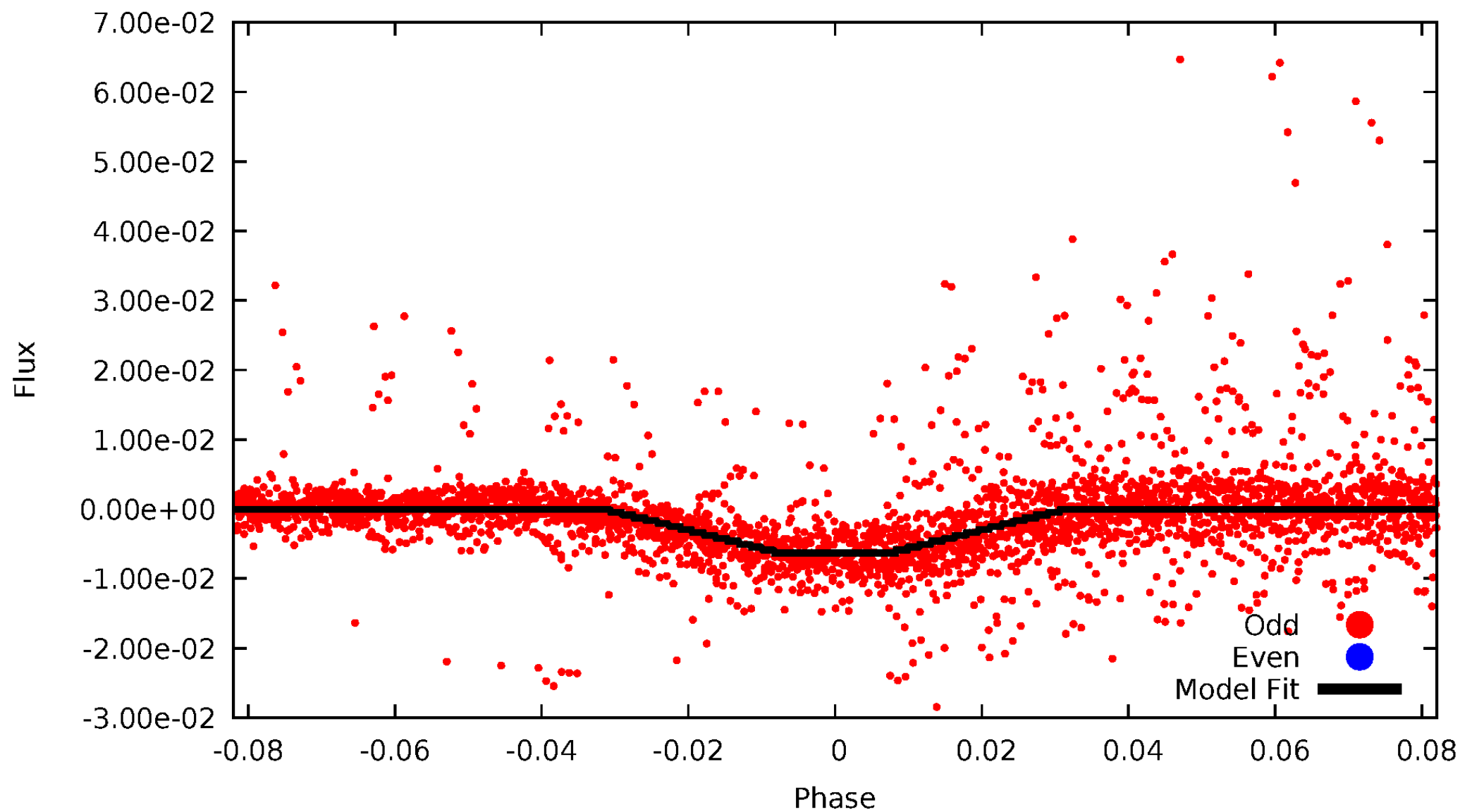
DV Odd/Even

TCE 011303811-03



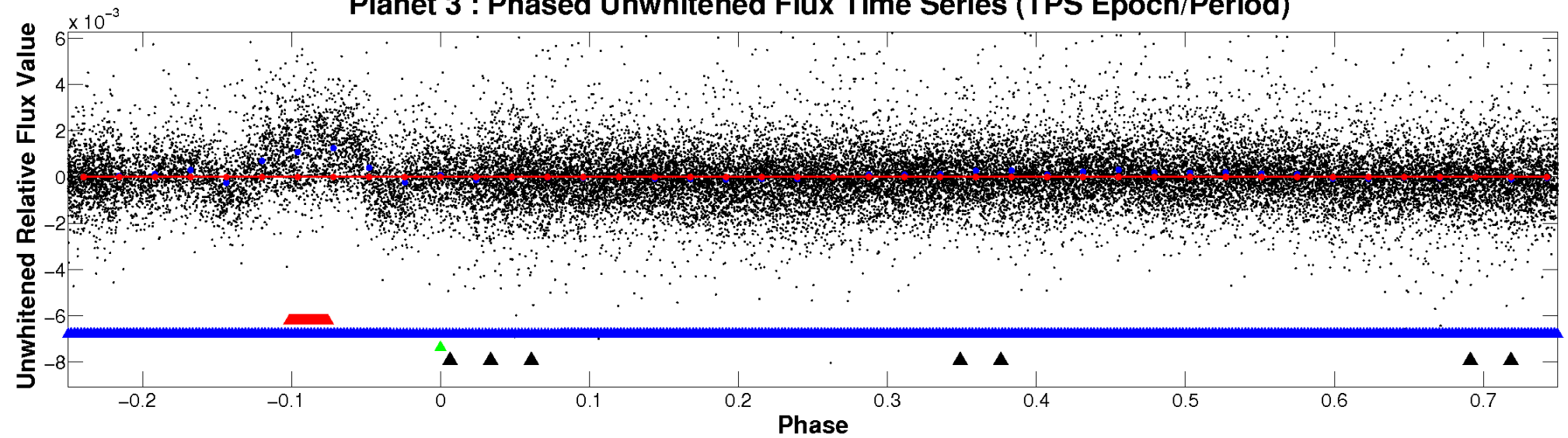
ALT Odd/Even

TCE 011303811-03

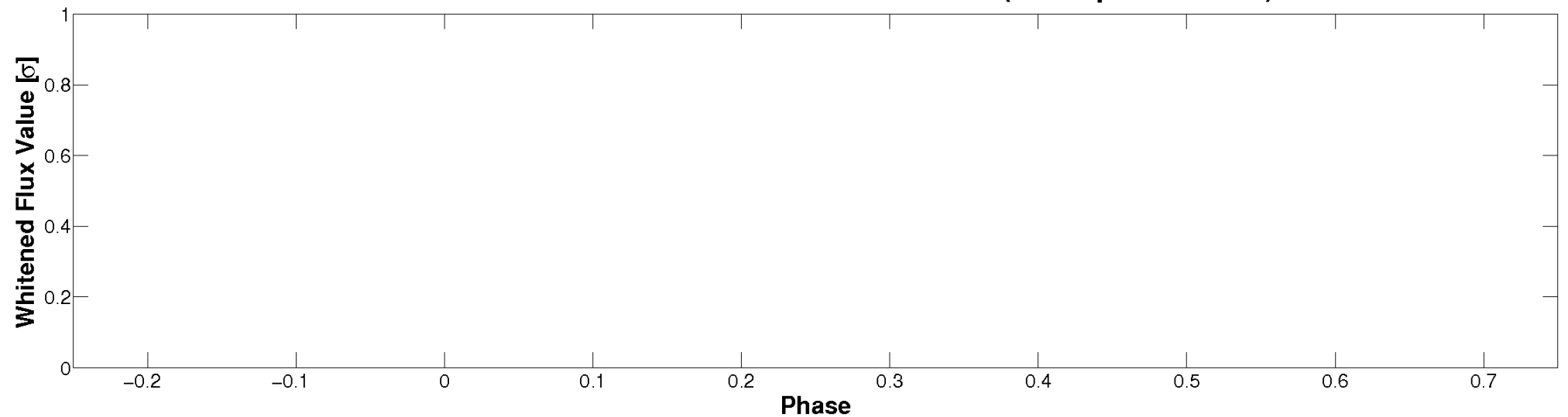


Non-Whitened Vs. Whitened Light Curve

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

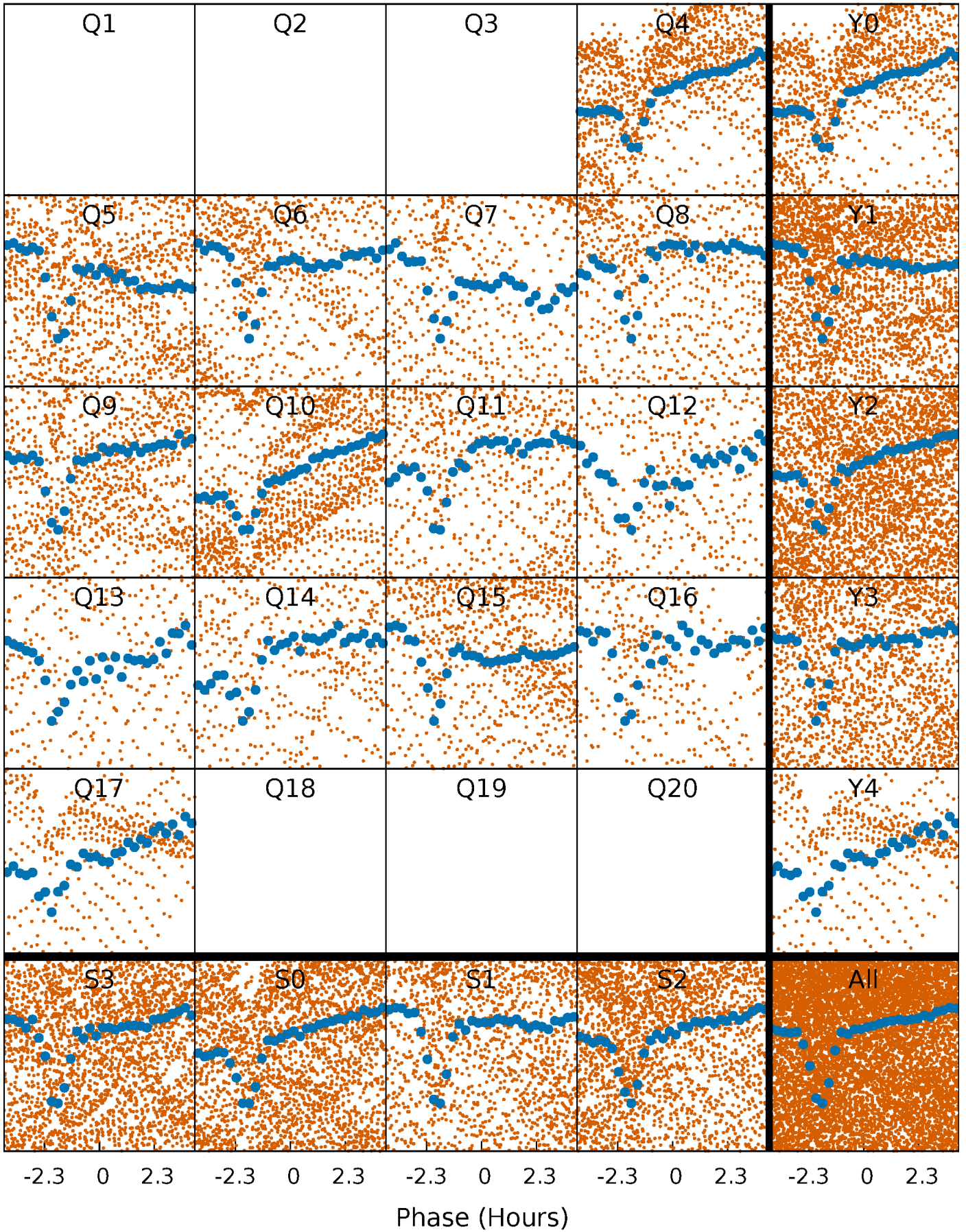


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



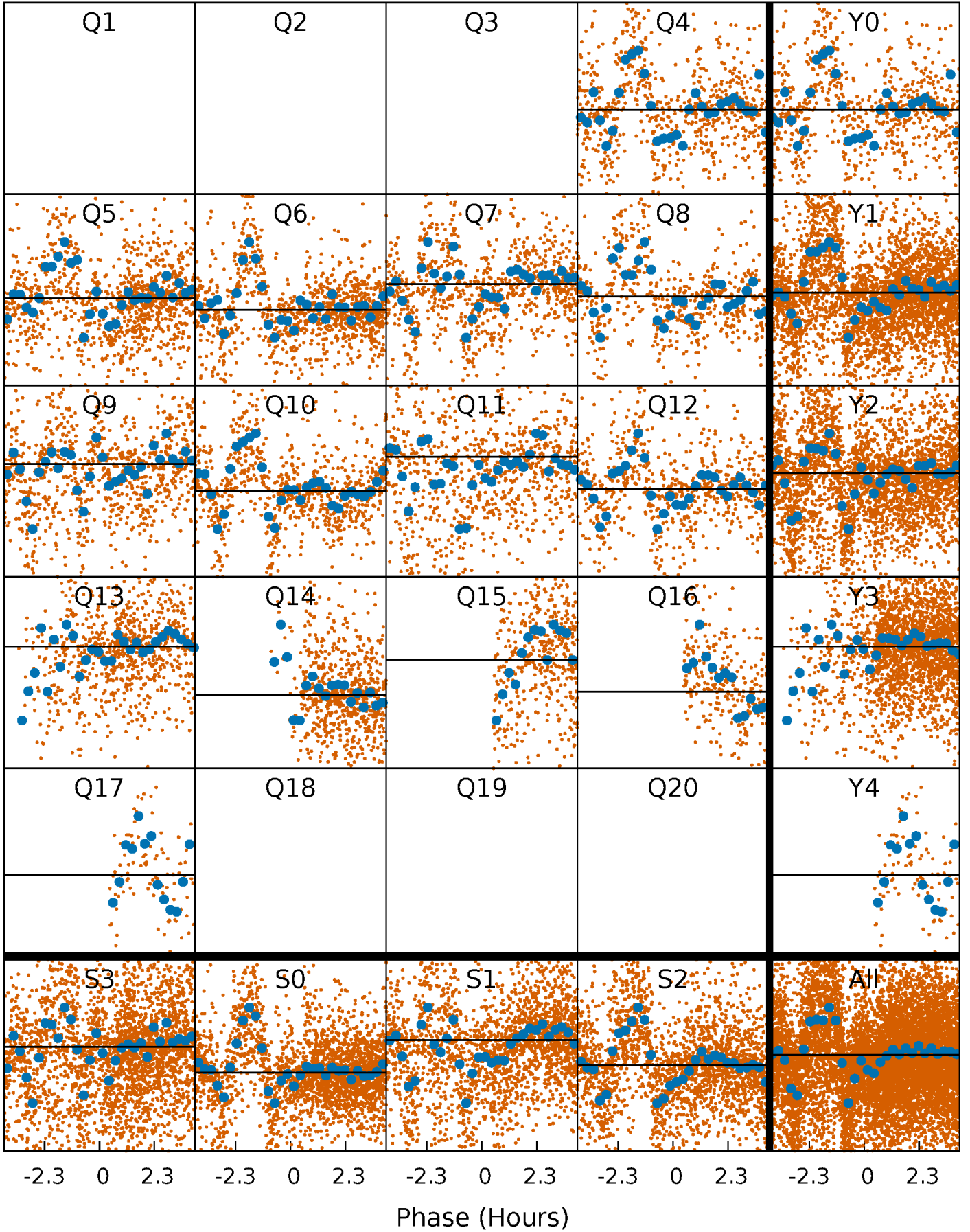
PDC Quarter-Phased Transit Curves

TCE 011303811-03 P= 0.852900 Days $T_0=131.517444$ (BKJD)



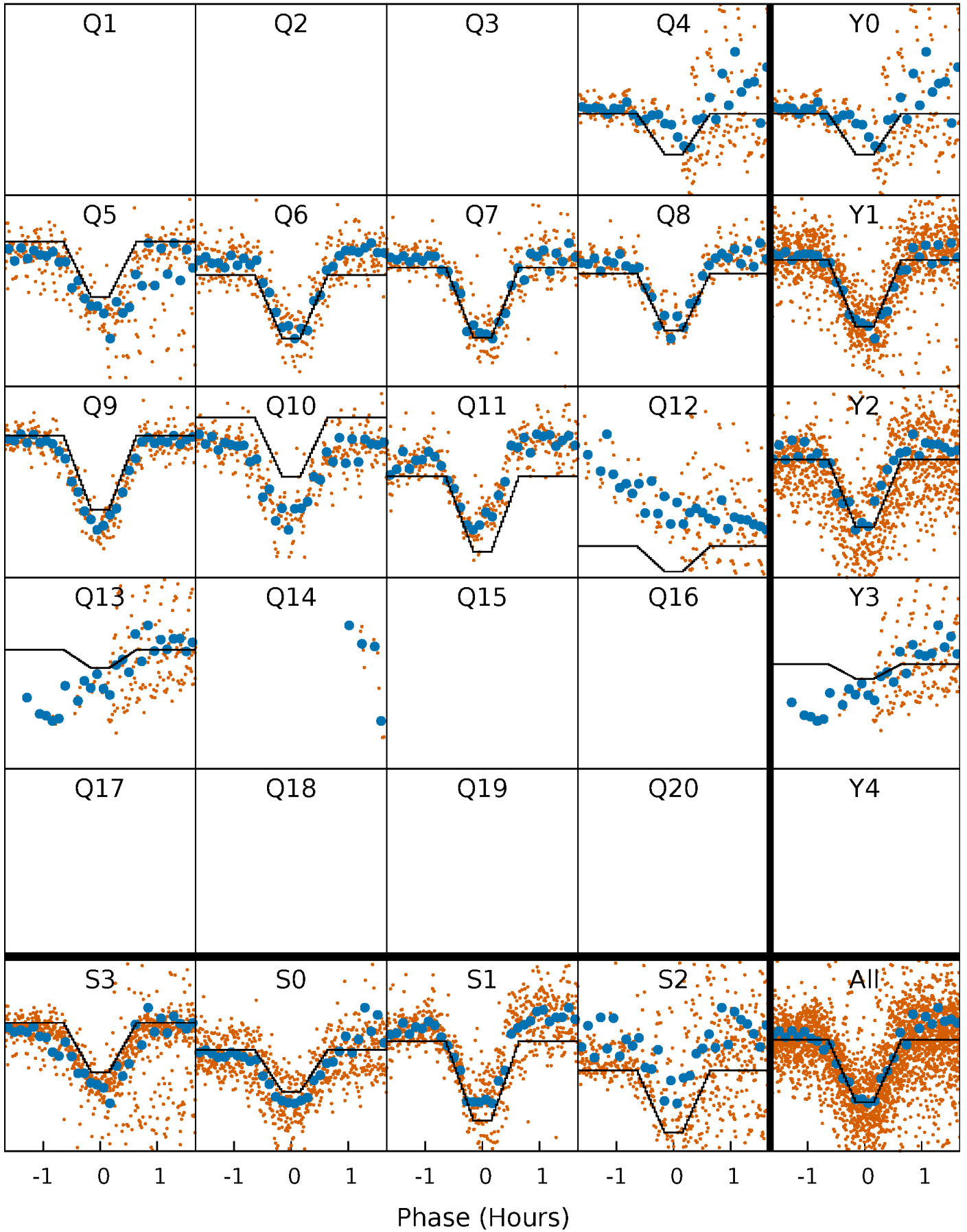
DV Quarter-Phased Transit Curves

TCE 011303811-03 P= 0.852900 Days $T_0=131.517444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

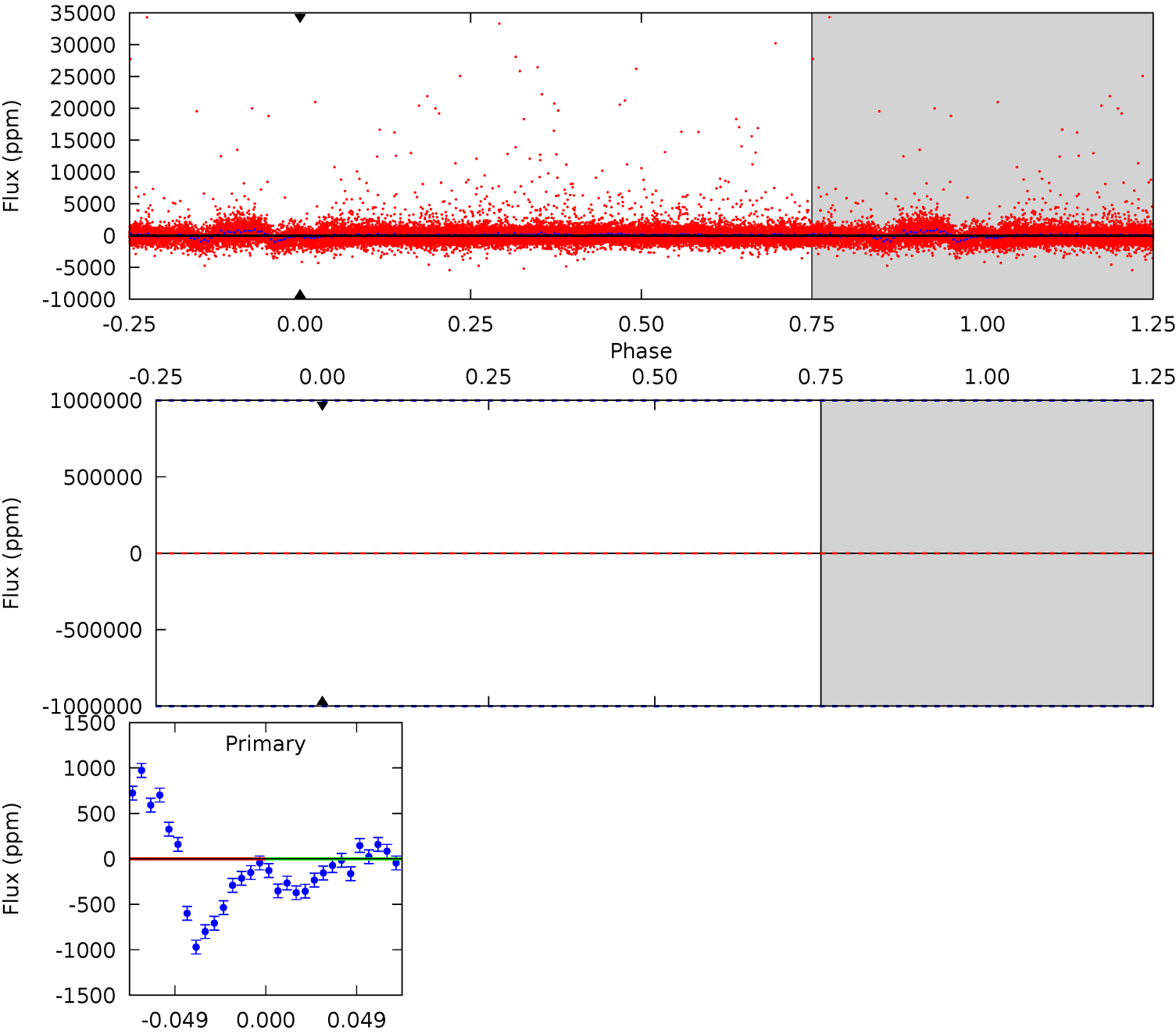
TCE 011303811-03 P= 0.852900 Days $T_0=132.296336$ (BKJD)



DV Model-Shift Uniqueness Test

011303811-03, P = 0.852900 Days, E = 131.517444 Days

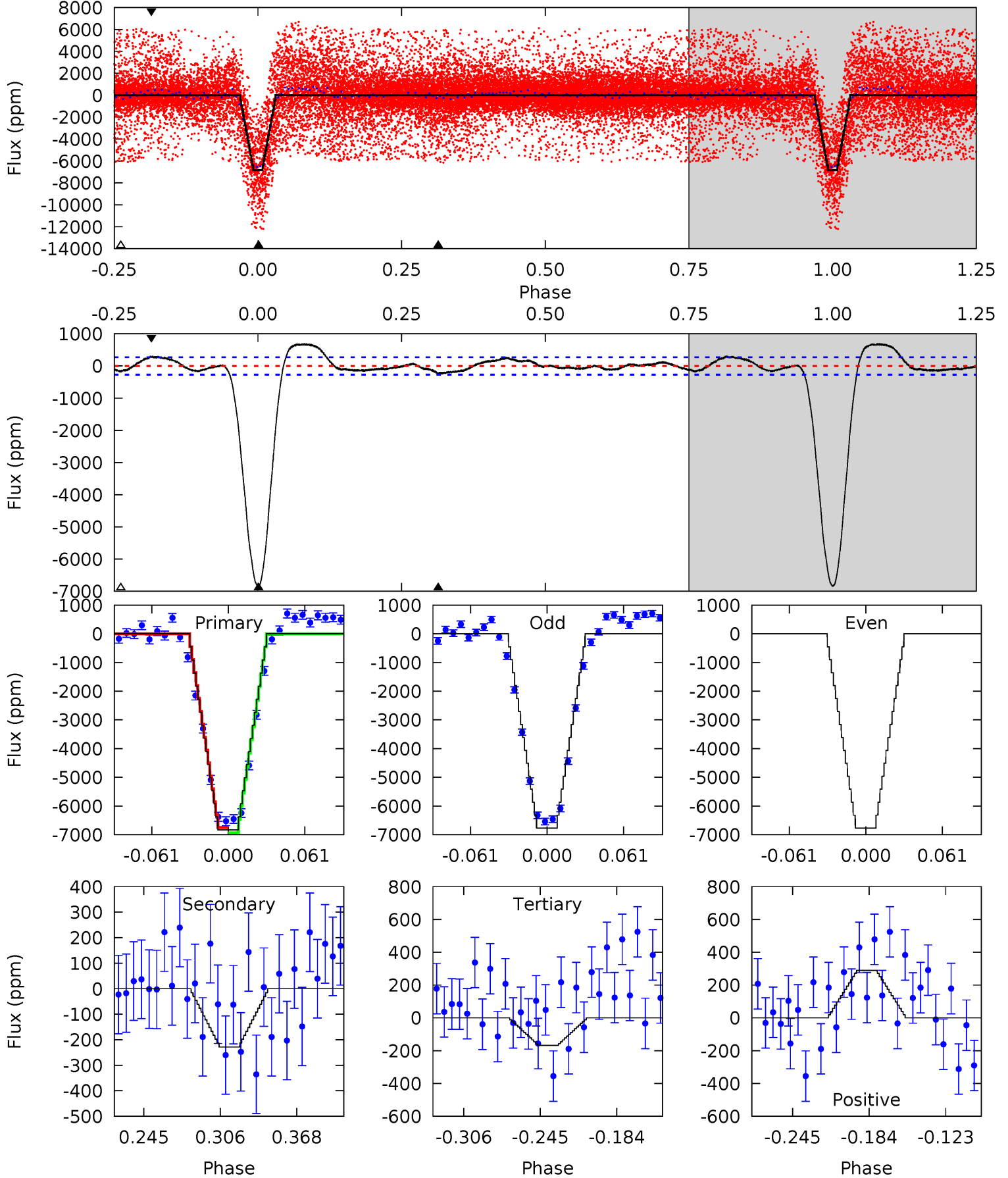
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011303811-03, P = 0.852900 Days, E = 132.296336 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
118.3	3.96	2.90	5.02	4.67	1.87	3.04	115.4	113.3	1.06	-1.07	0	1.00	0.09	1.57



Stellar Parameters For KIC 011303811

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4970^{+189}_{-172}	$4.665^{+0.054}_{-0.036}$	$-1.020^{+0.300}_{-0.300}$	$0.591^{+0.044}_{-0.040}$	$0.589^{+0.054}_{-0.025}$	$4.021^{+0.841}_{-0.579}$
	+4%/-3%	+1%/-1%	+29%/-29%	+7%/-7%	+9%/-4%	+21%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011303811-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$4.97^{+5.26}_{-3.49}$	1934^{+77}_{-79}	4077^{+10420}_{-18028}	11^{+869}_{-839}
Alt.	-229 ± 58	$7.02^{+5.40}_{-4.62}$	1929^{+83}_{-71}	2394^{+1082}_{-4606}	$0.563^{+4.094}_{-0.395}$

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

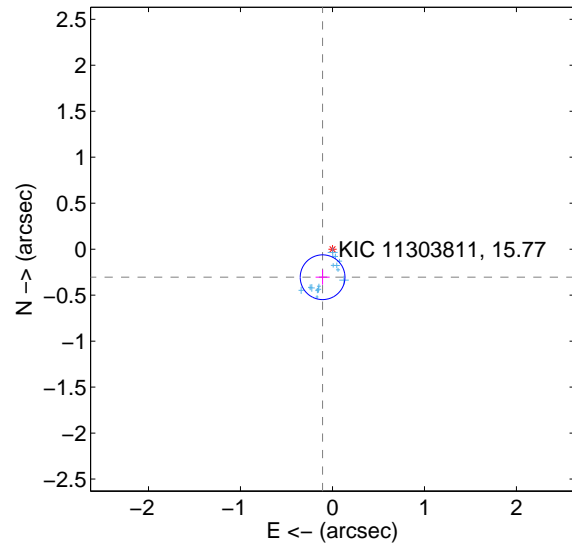
Supplemental centroid analysis for 011303811-03. Kepler magnitude: 15.77. Transit SNR -1.00

There are 14 quarters with good PRF difference image offsets

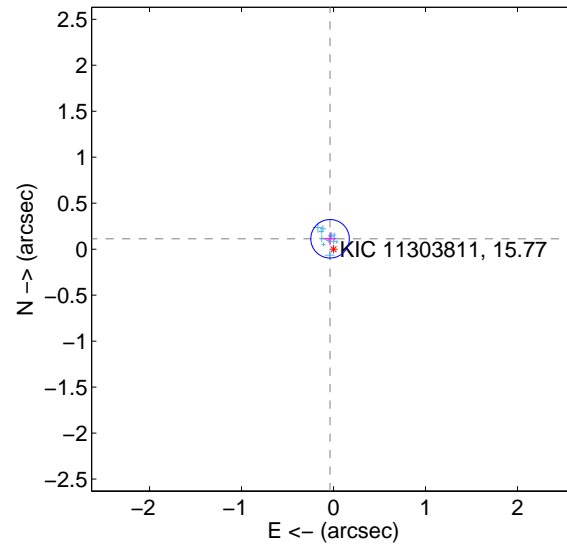
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.323 ± 0.081	3.99	0.107 ± 0.076	-0.305 ± 0.082
PRF-fit source offset from KIC position	0.119 ± 0.070	1.71	0.038 ± 0.069	0.113 ± 0.069
photometric centroid source offset	1.98 ± 0.07	28.10	0.37 ± 0.04	1.95 ± 0.07

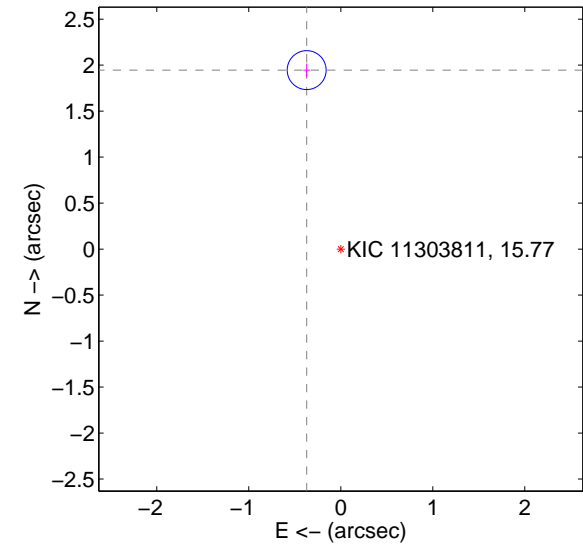
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

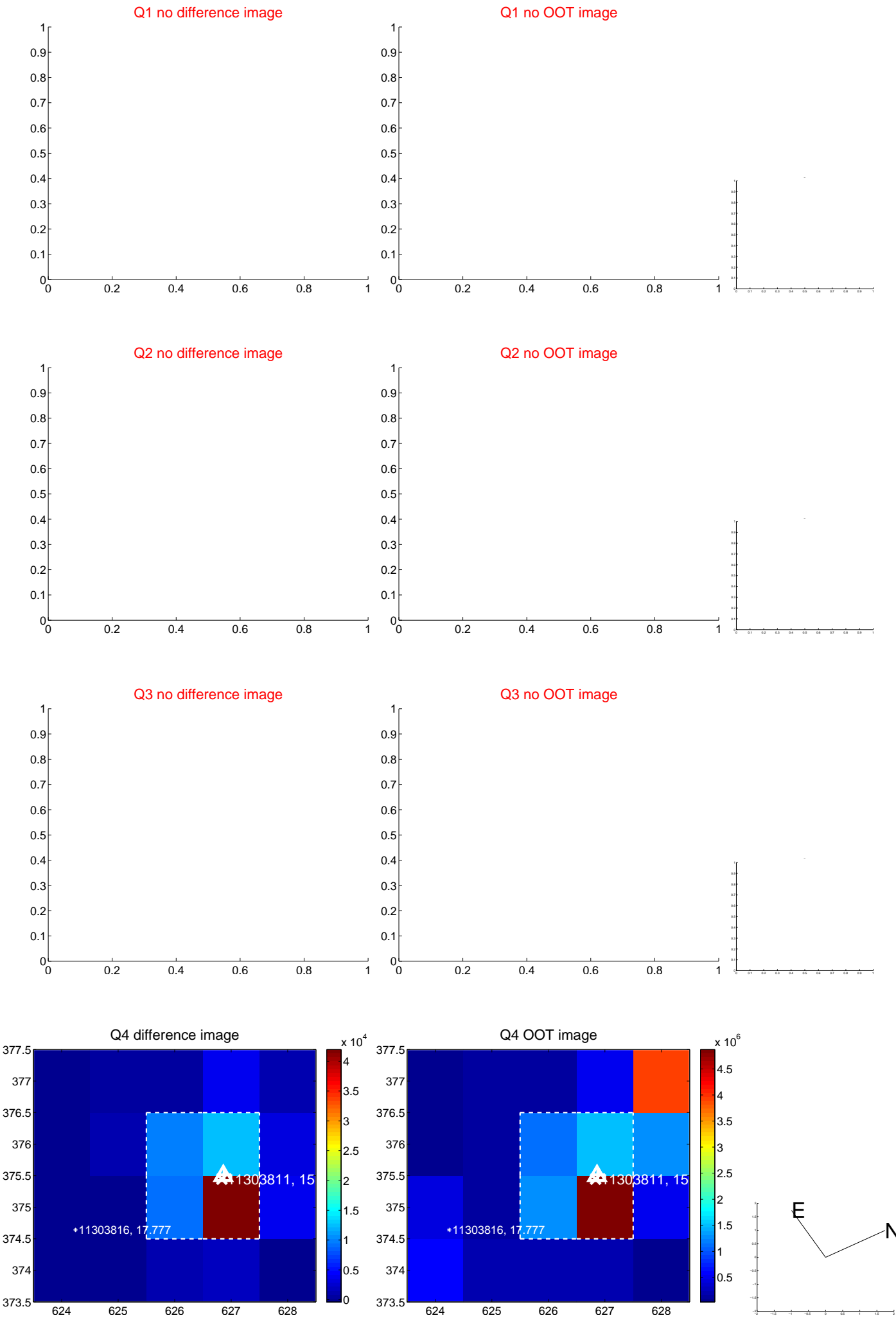


offset from photometric centroids

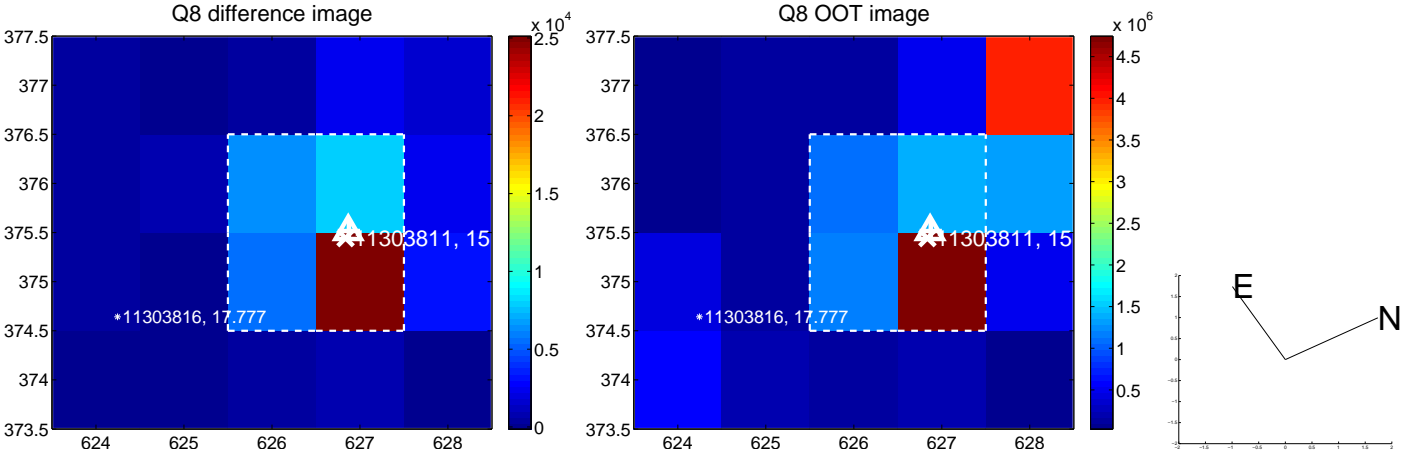
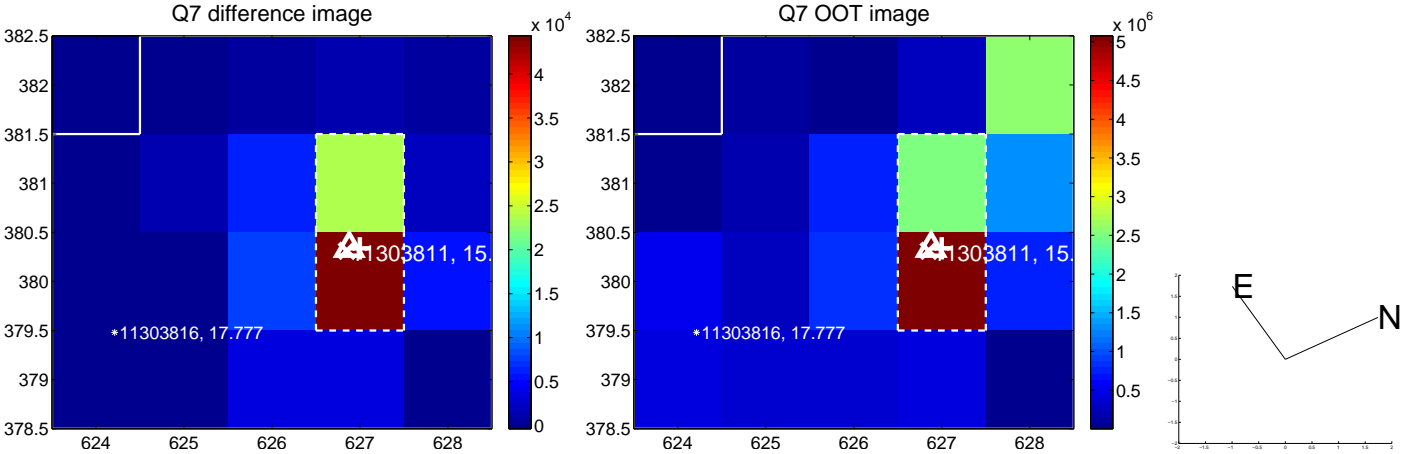
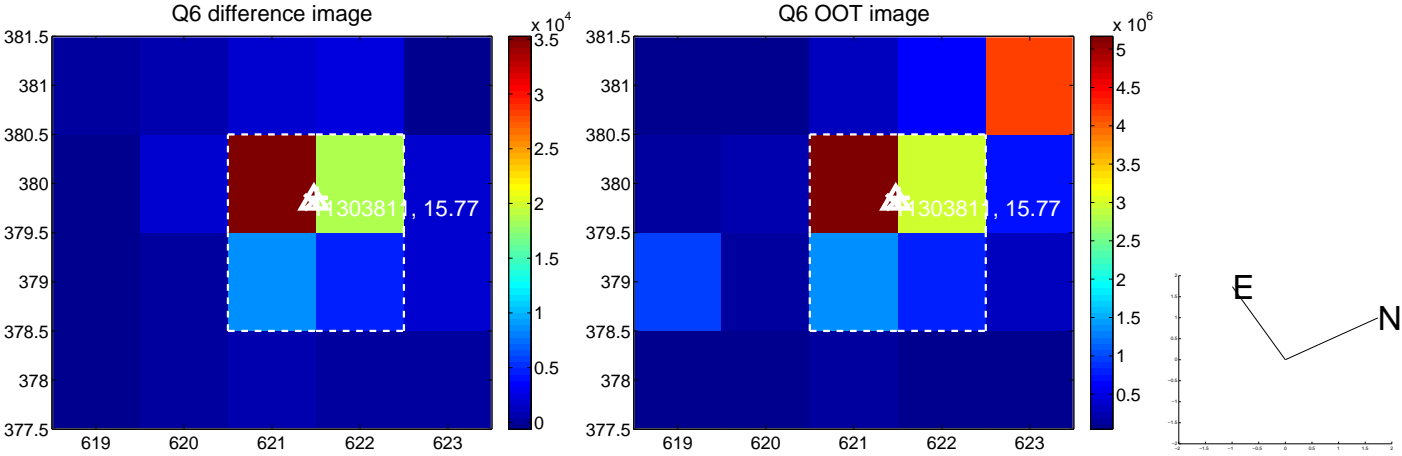
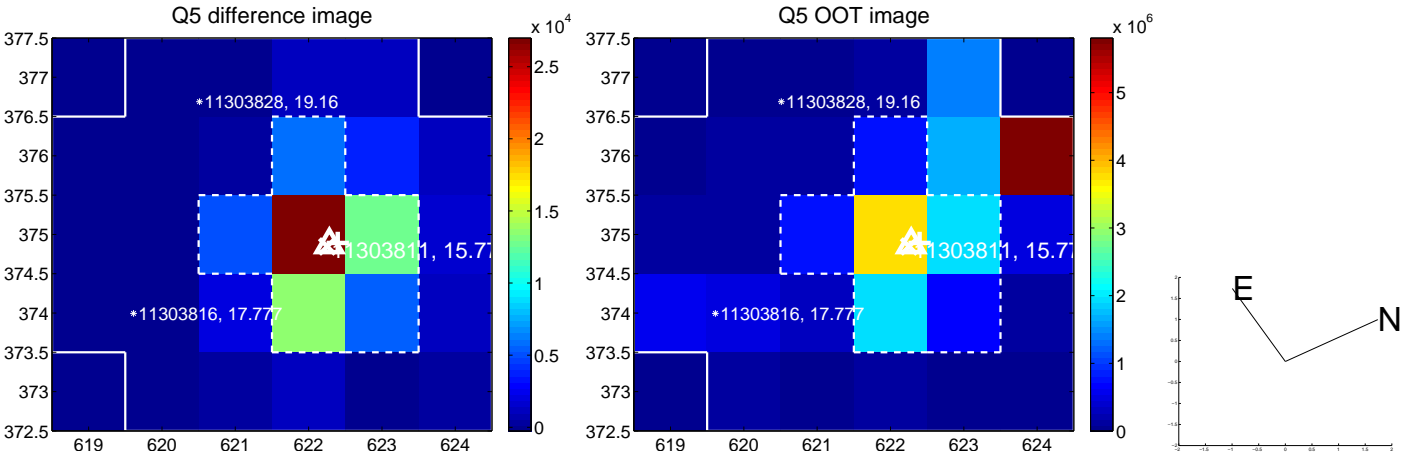


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

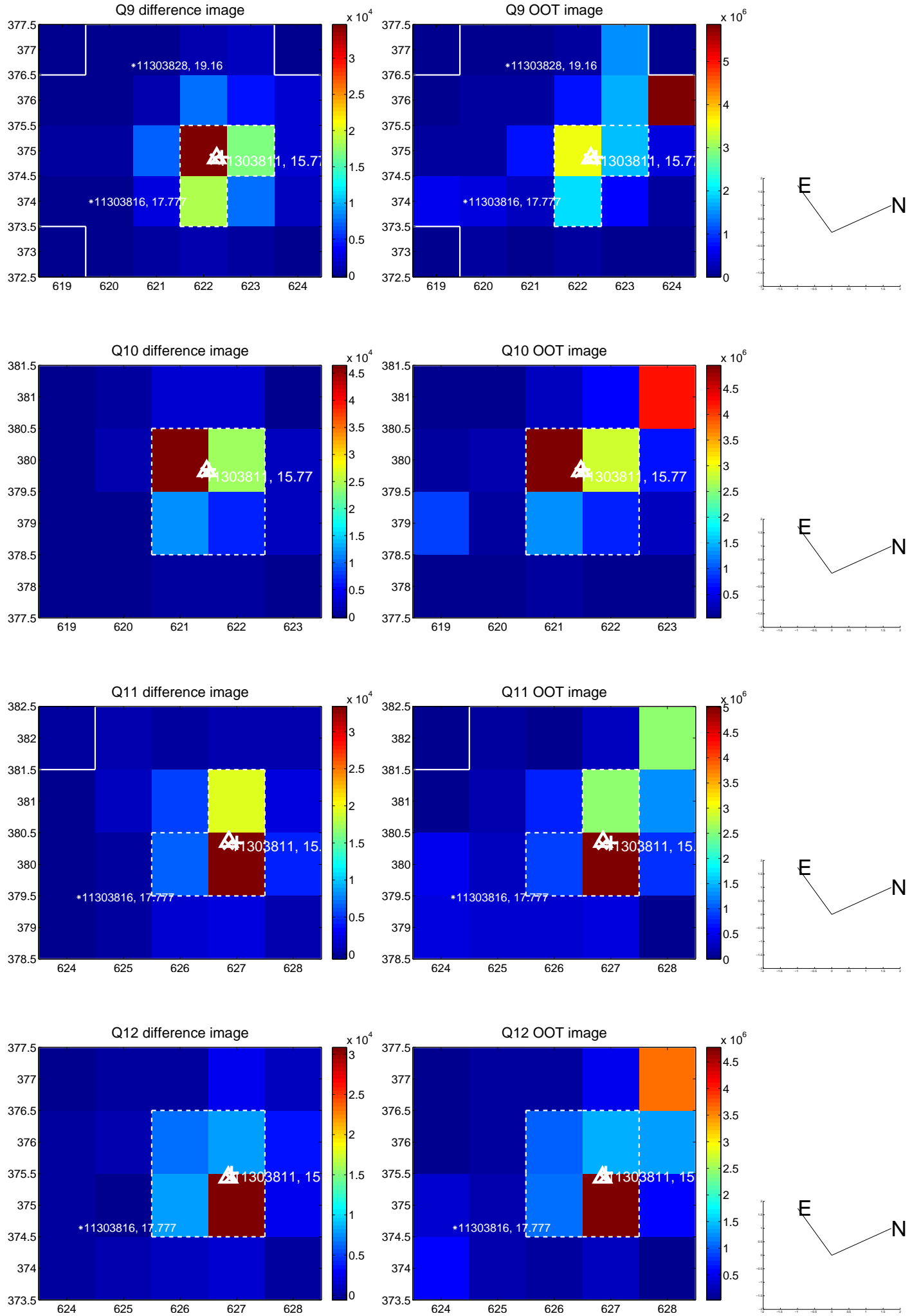
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



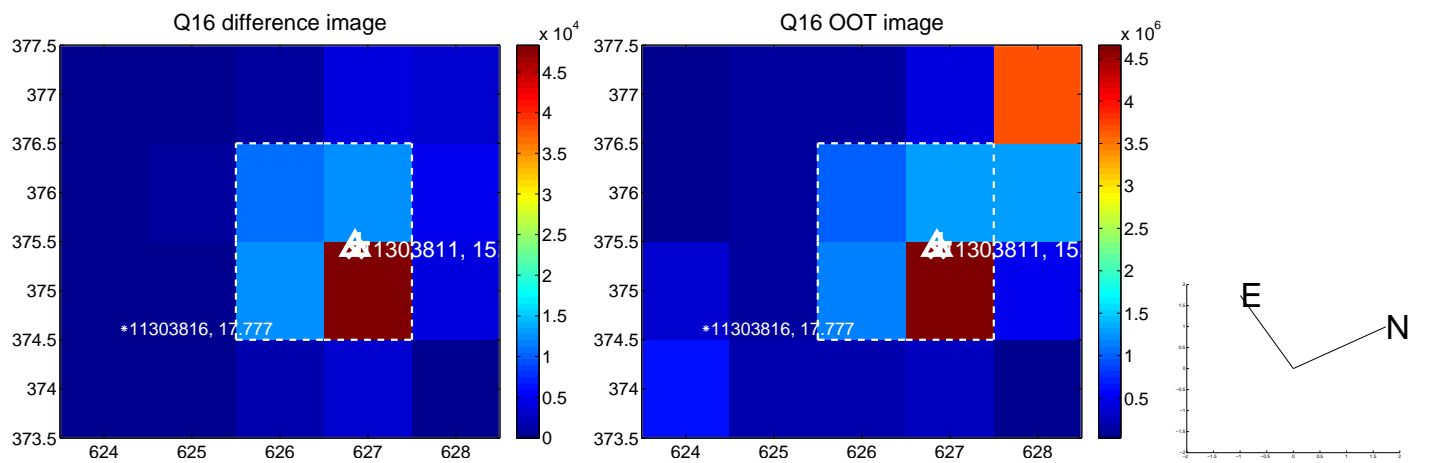
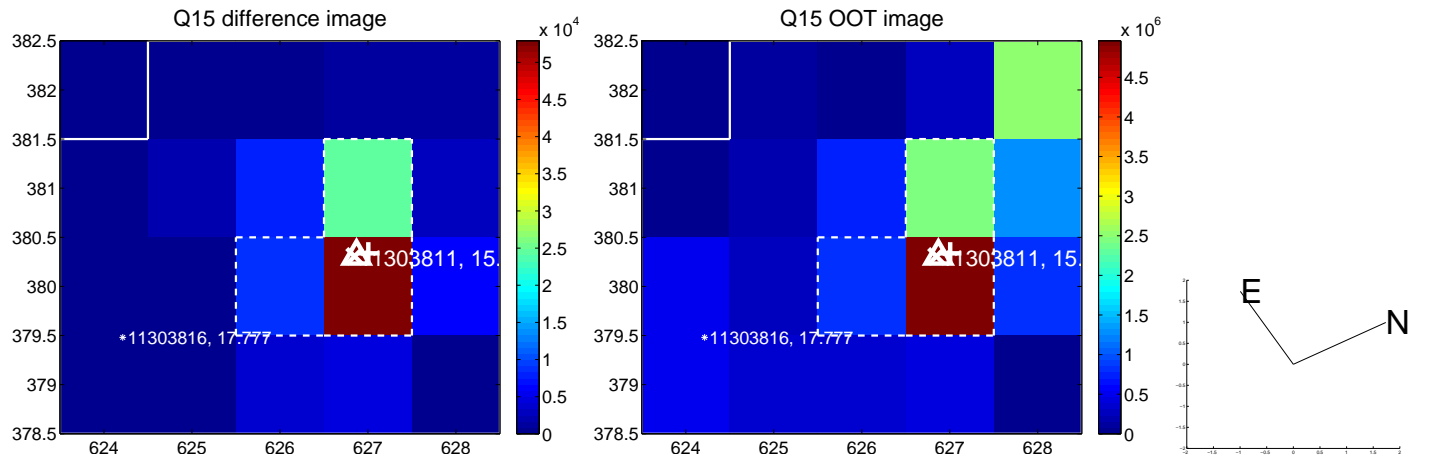
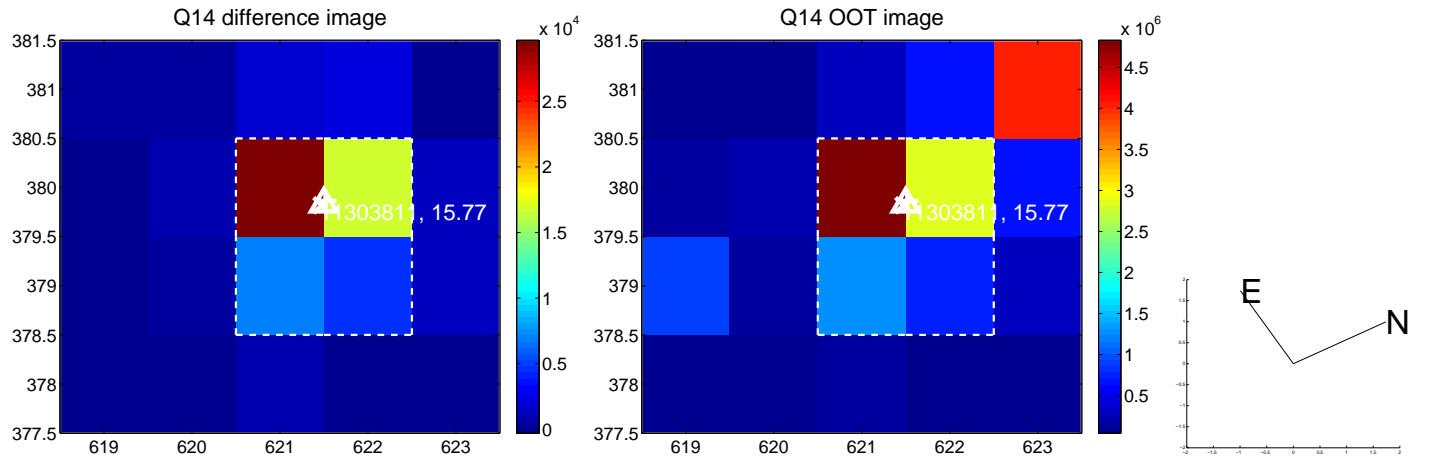
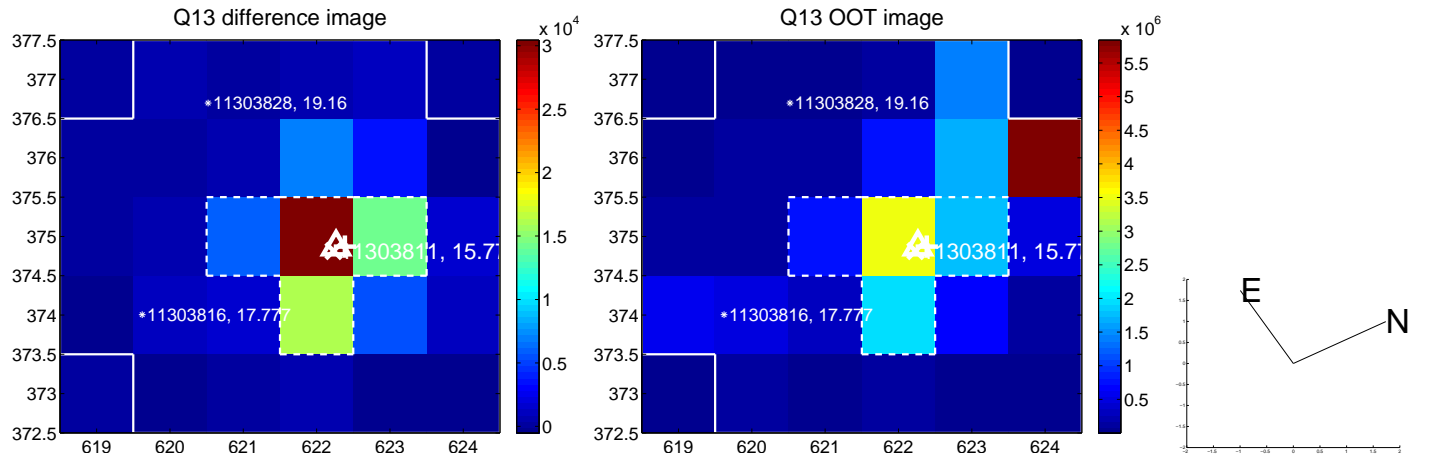
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



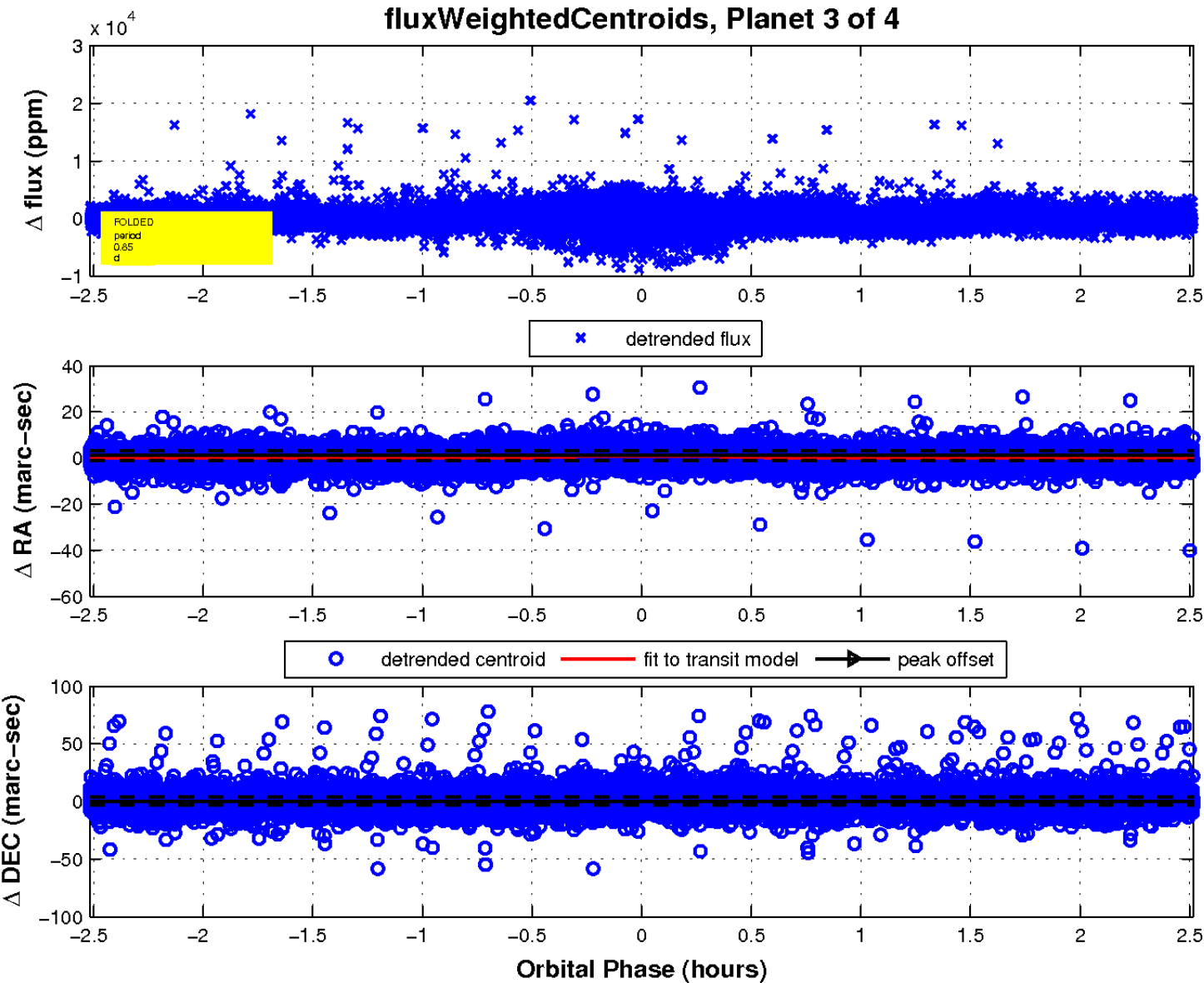
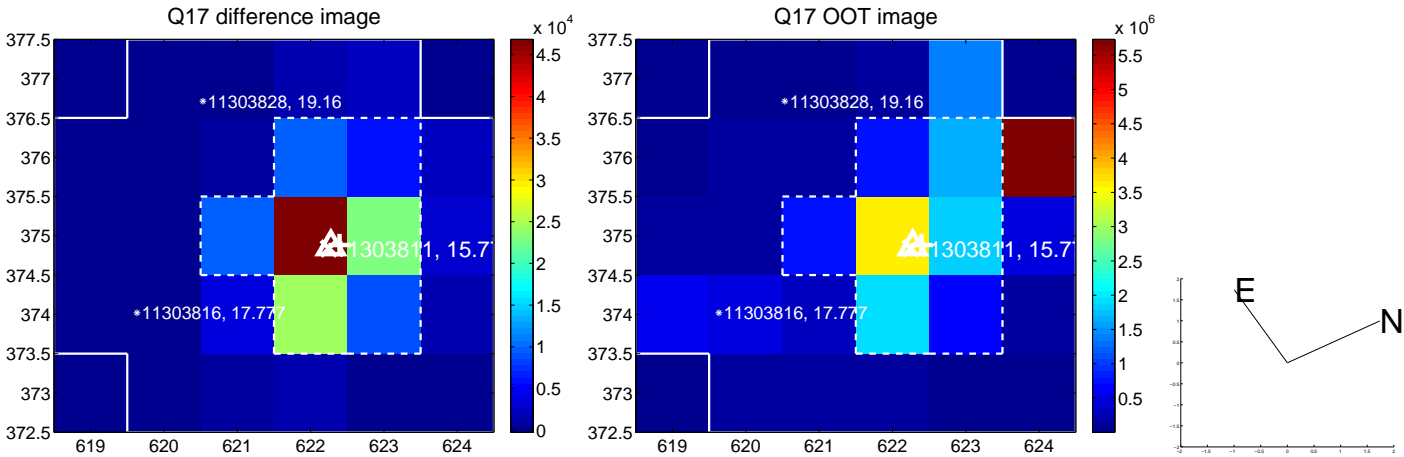
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

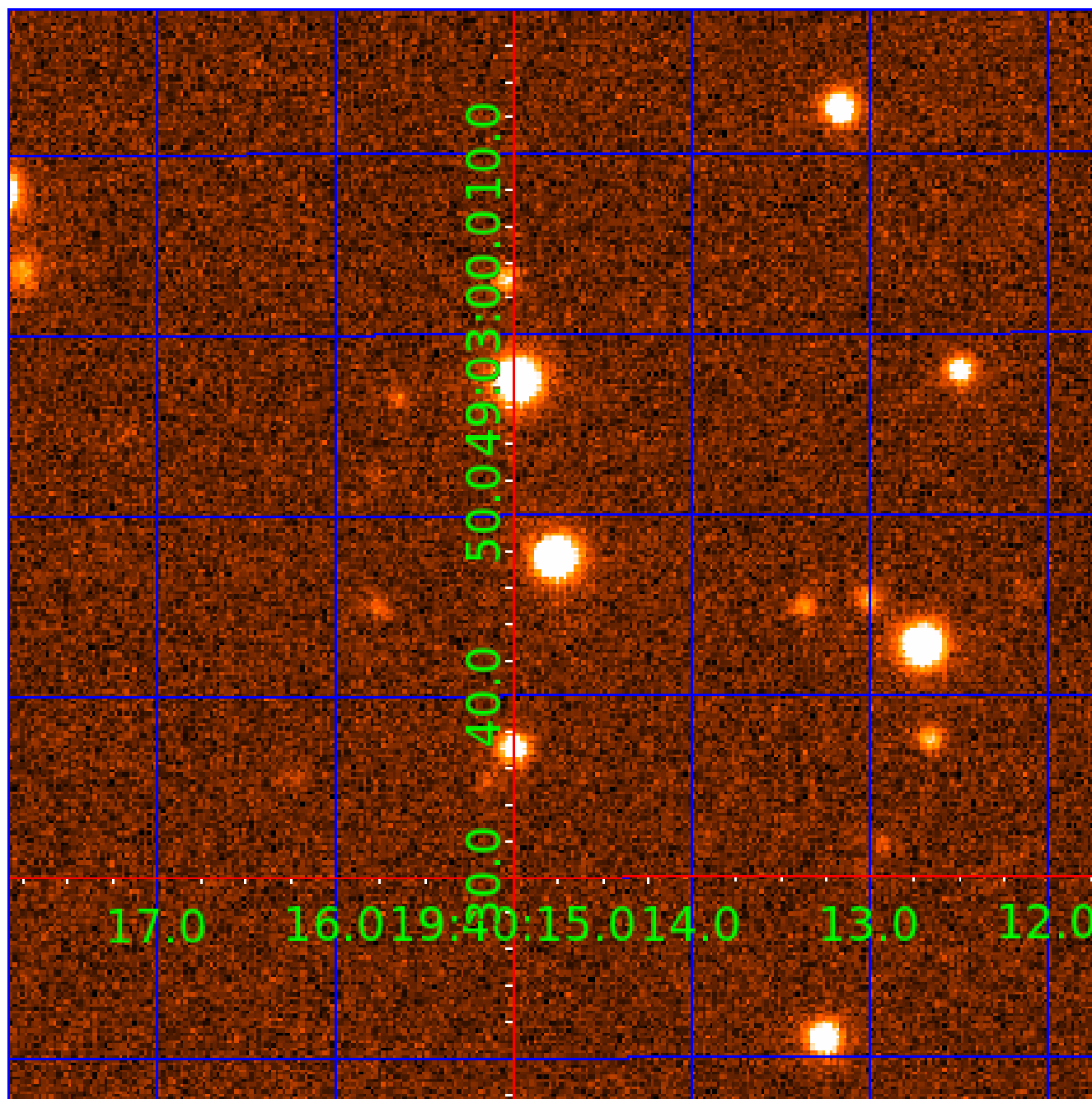


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011303811

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})
011303811-01	OBS	3744.01	1.705774	133.158901	4210.8	0.987	35.3	89.4	0.59	4970	4.79	347.92
011303811-02	OBS	No	1.707682	132.439861	141.2	5.203	20.1	2.8	0.59	4970	0.70	347.40
011303811-03	OBS	No	0.852900	131.517444	1607.9	2.000	16.2	-1.0	0.59	4970	2.33	876.69
011303811-04	OBS	No	206.109701	325.177707	2160.1	2.500	9.2	-1.0	0.59	4970	2.70	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011303811-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER
011303811-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011303811-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS
011303811-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

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

Ephemeris Match Information For 011303811-04

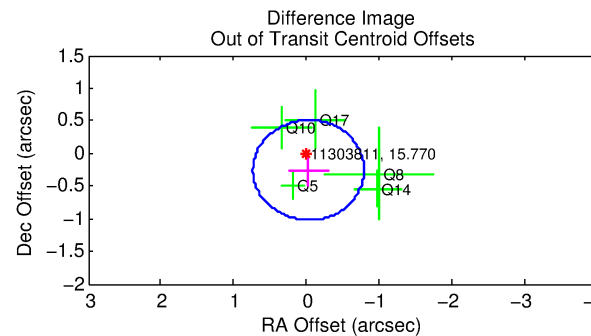
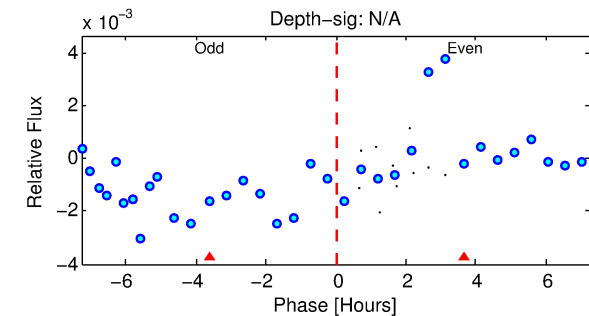
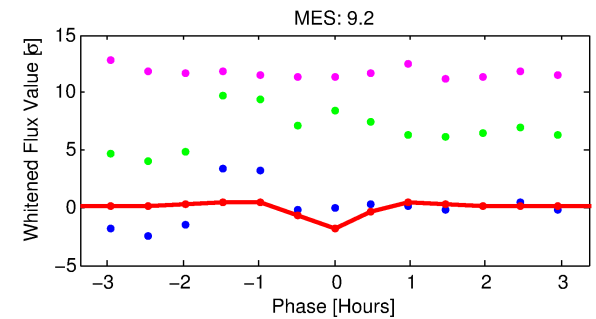
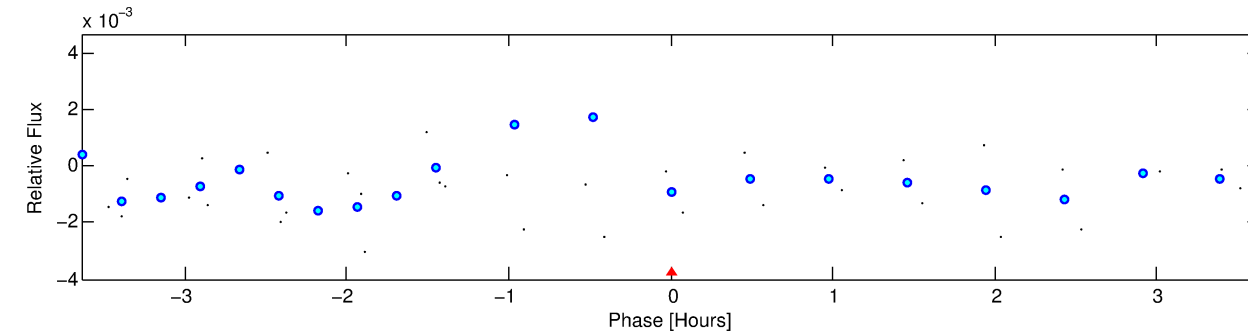
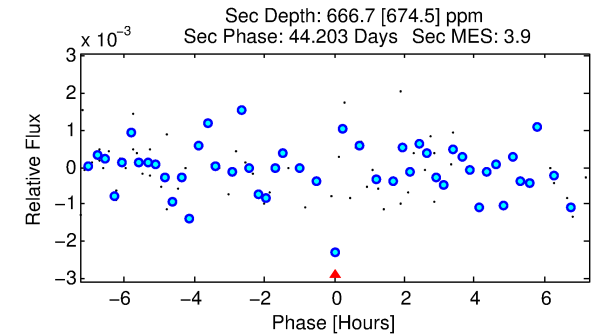
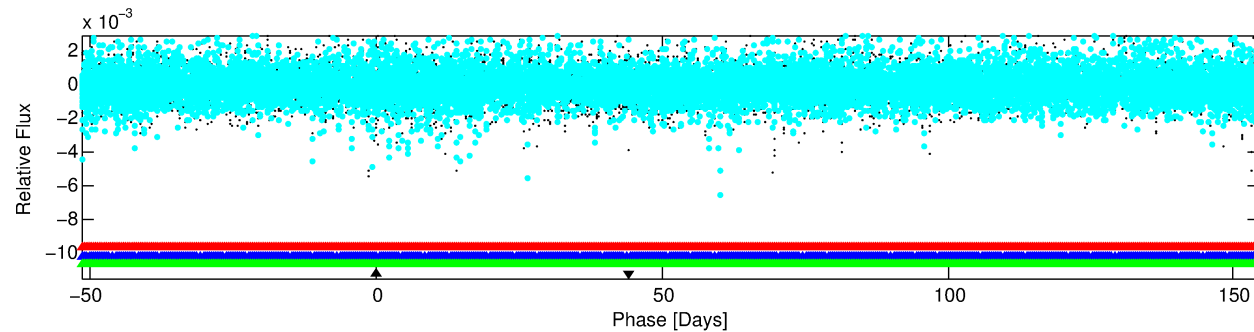
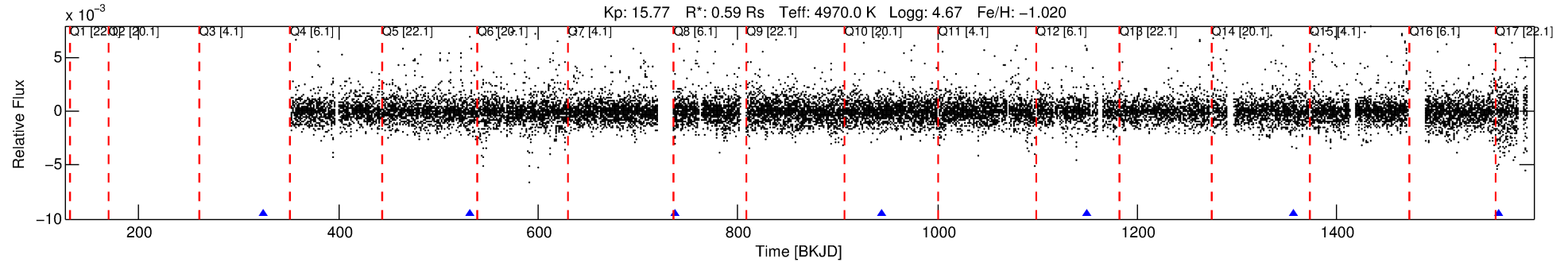
No Significant Match Found

DV One-Page Summary

KIC: 11303811 Candidate: 4 of 4 Period: 206.110 d

KOI: K03744 Corr: No Ephemeris Match

Kp: 15.77 R*: 0.59 Rs Teff: 4970.0 K Logg: 4.67 Fe/H: -1.020



TPS TCE Results:

Period = 206.10970 d
Epoch = 325.1777 BKJD

DV fit results are unavailable

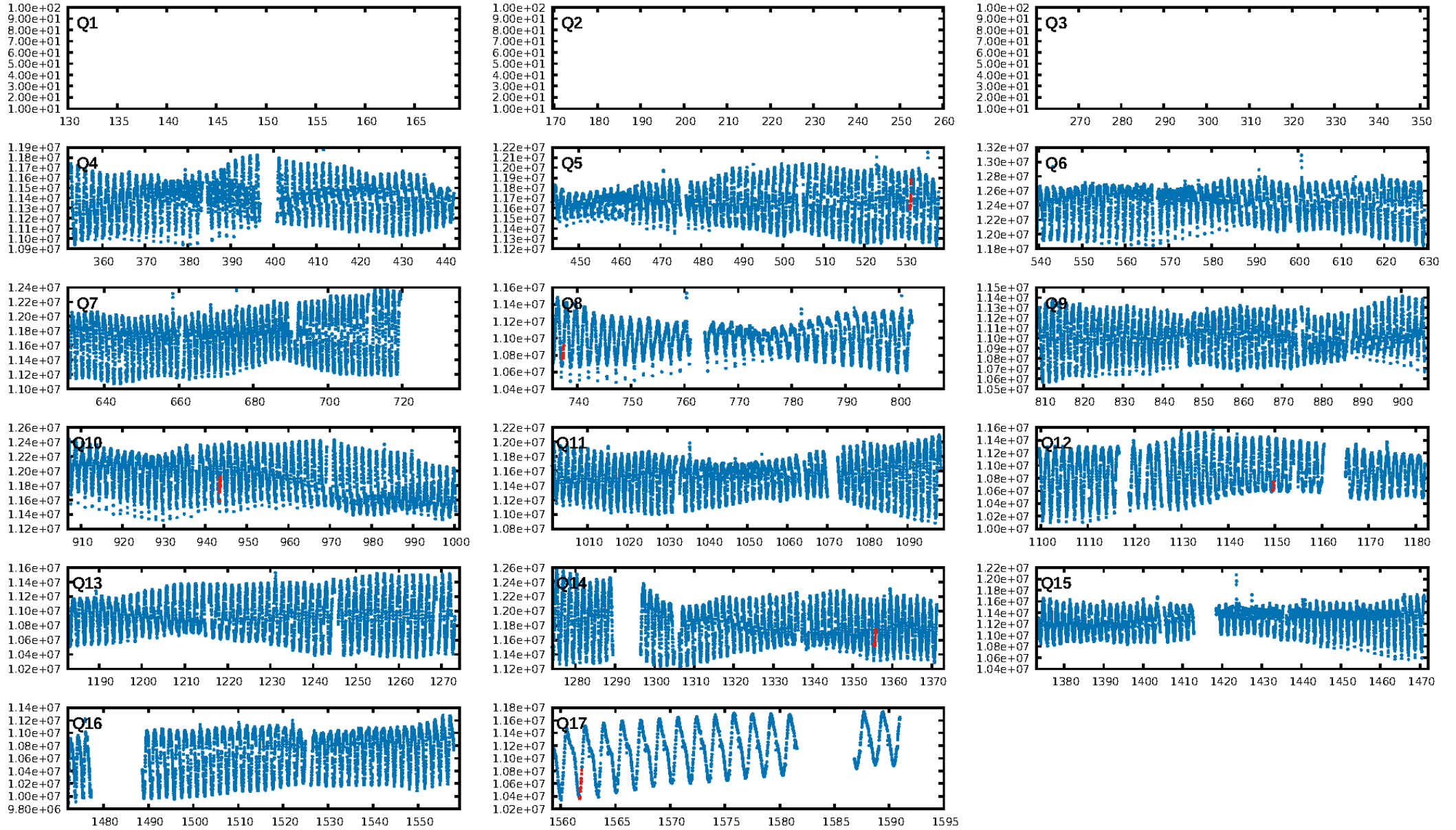
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [849.80σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.47e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.1
Centroid-sig: 34.8%
Centroid-so: 1.955 arcsec [4.93σ]
OotOffset-rm: 0.257 arcsec [1.01σ]
KicOffset-rm: 0.238 arcsec [0.99σ]
OotOffset-st: 2/0/1/2 [5]
KicOffset-st: 2/0/1/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.33 [2/6]

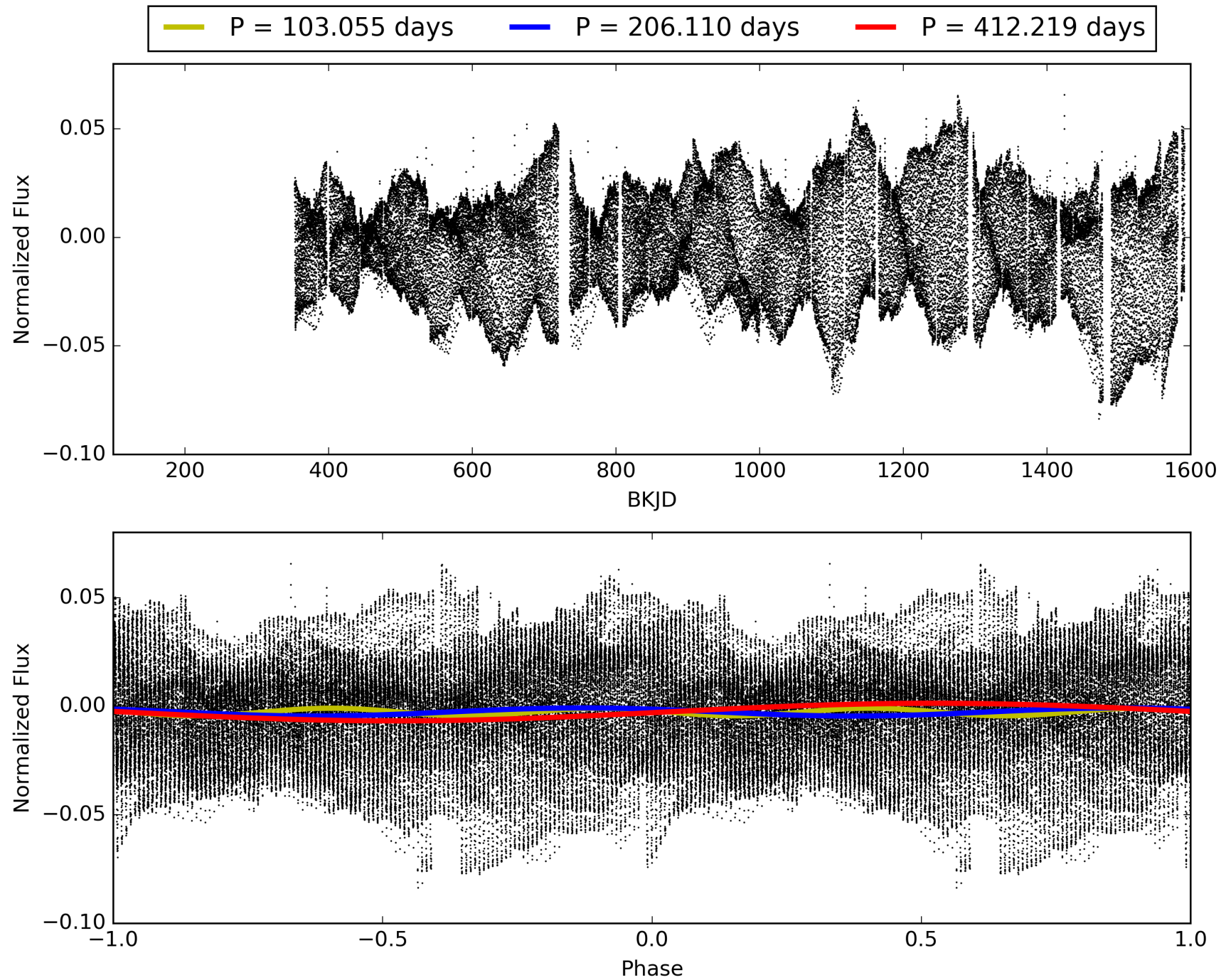
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:12:05 Z

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

TCE 011303811-04, PDC Light Curves

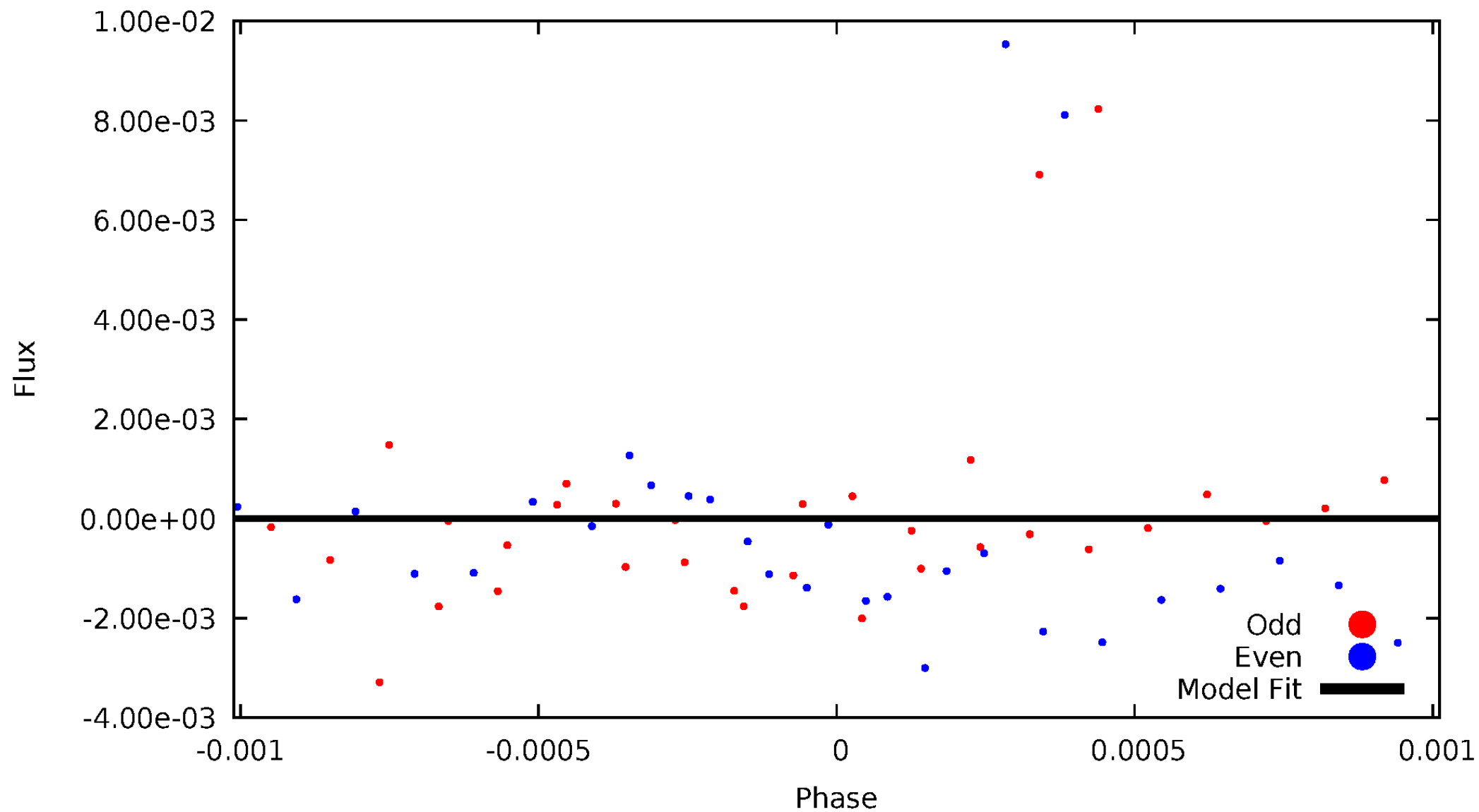


TCE 011303811-04



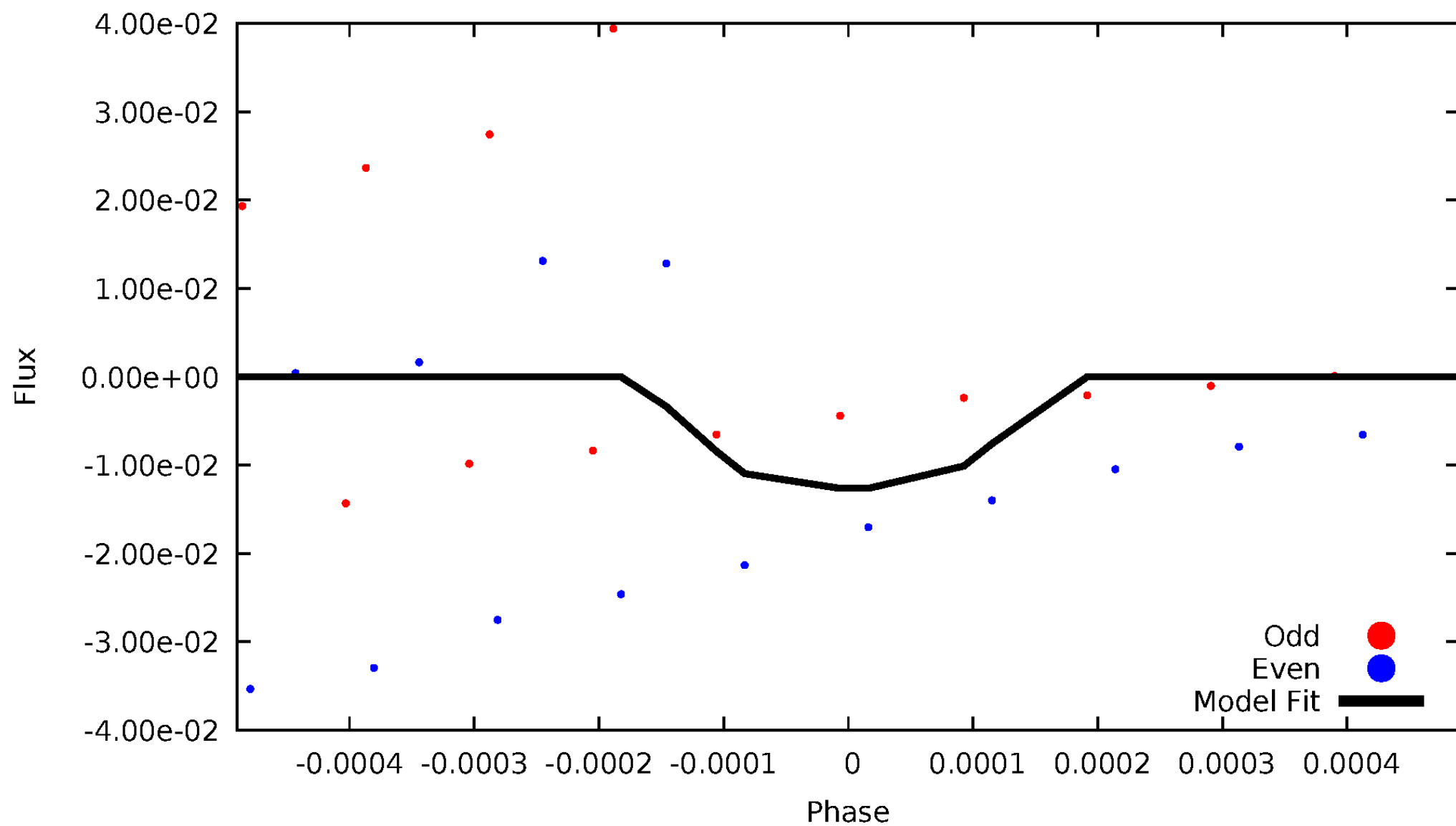
DV Odd/Even

TCE 011303811-04



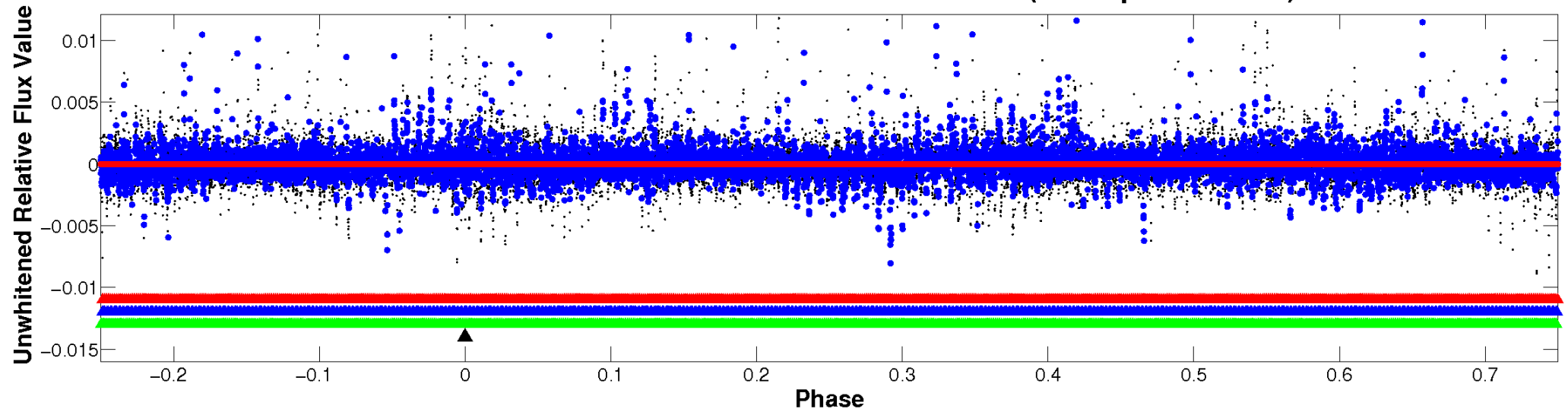
ALT Odd/Even

TCE 011303811-04

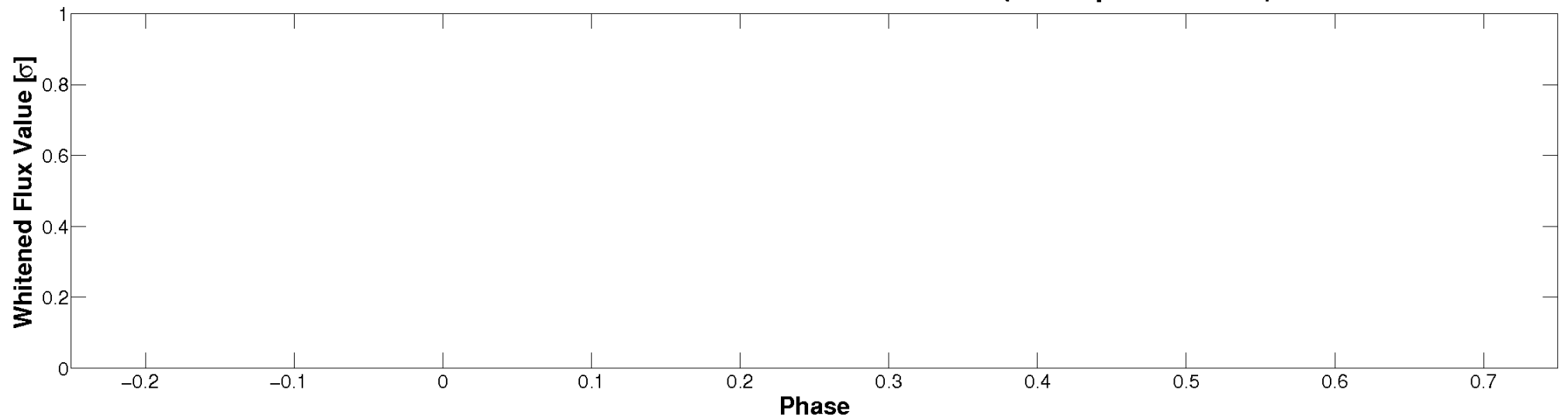


Non-Whitened Vs. Whitened Light Curve

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

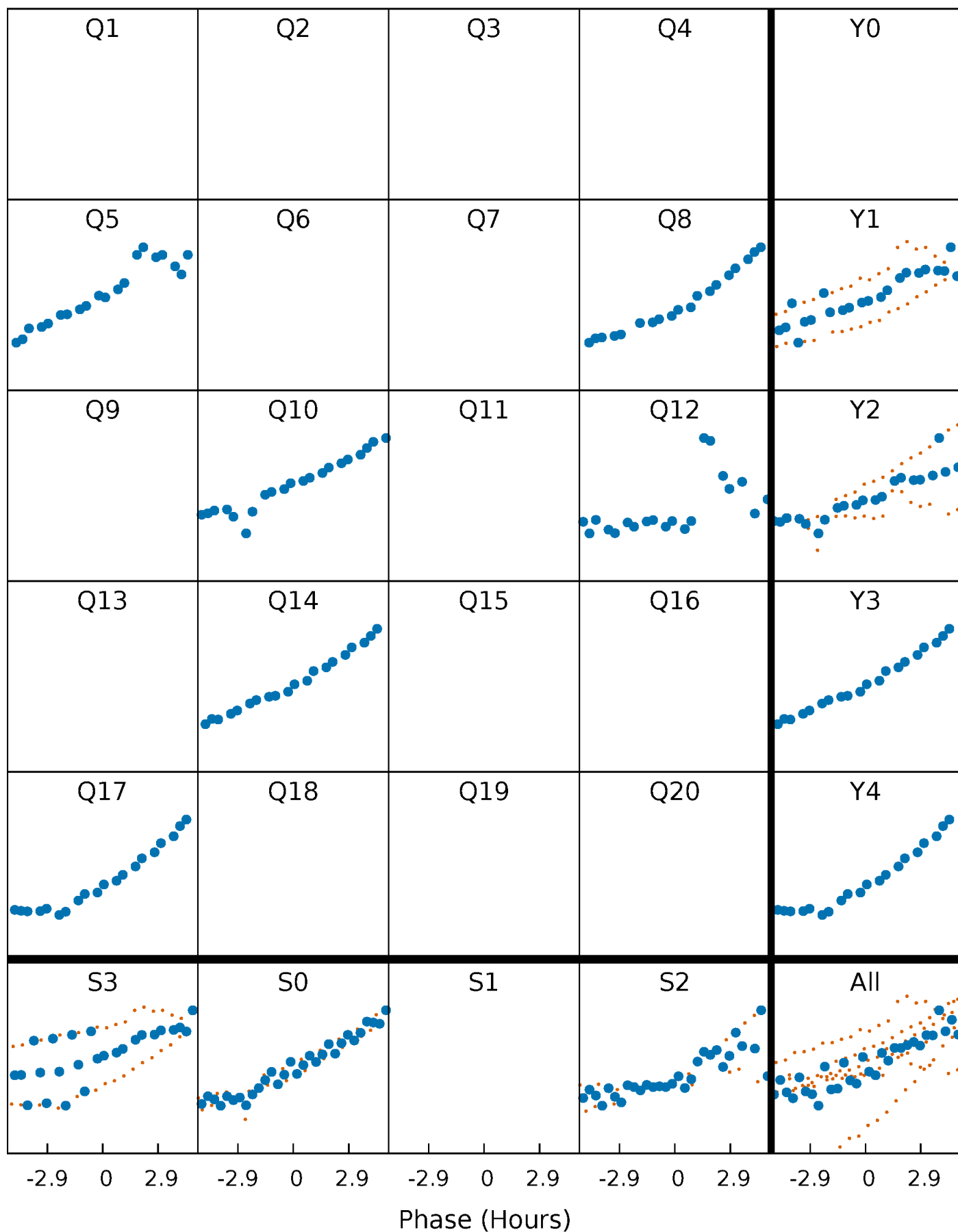


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



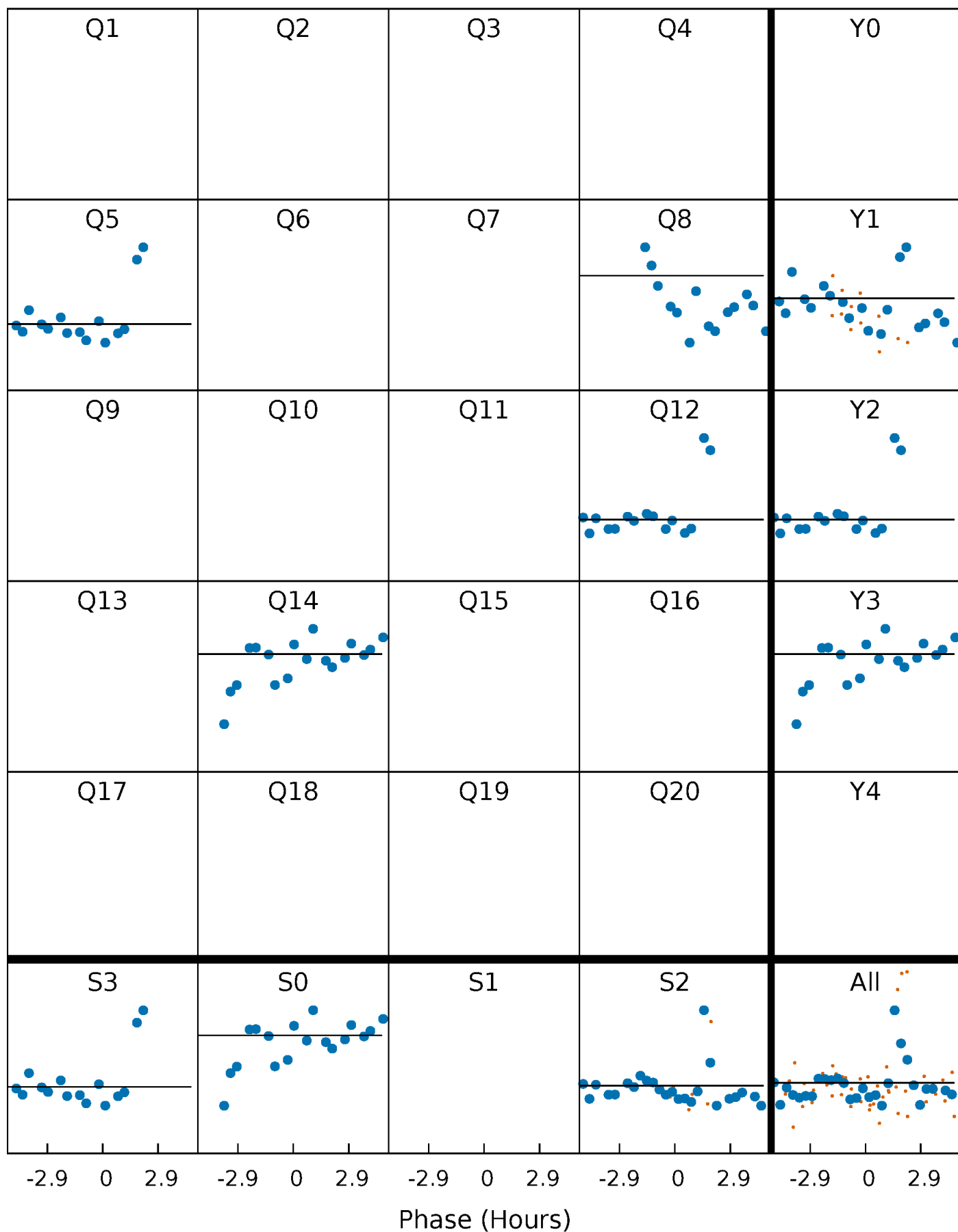
PDC Quarter-Phased Transit Curves

TCE 011303811-04 $P=206.109701$ Days $T_0=325.177707$ (BKJD)



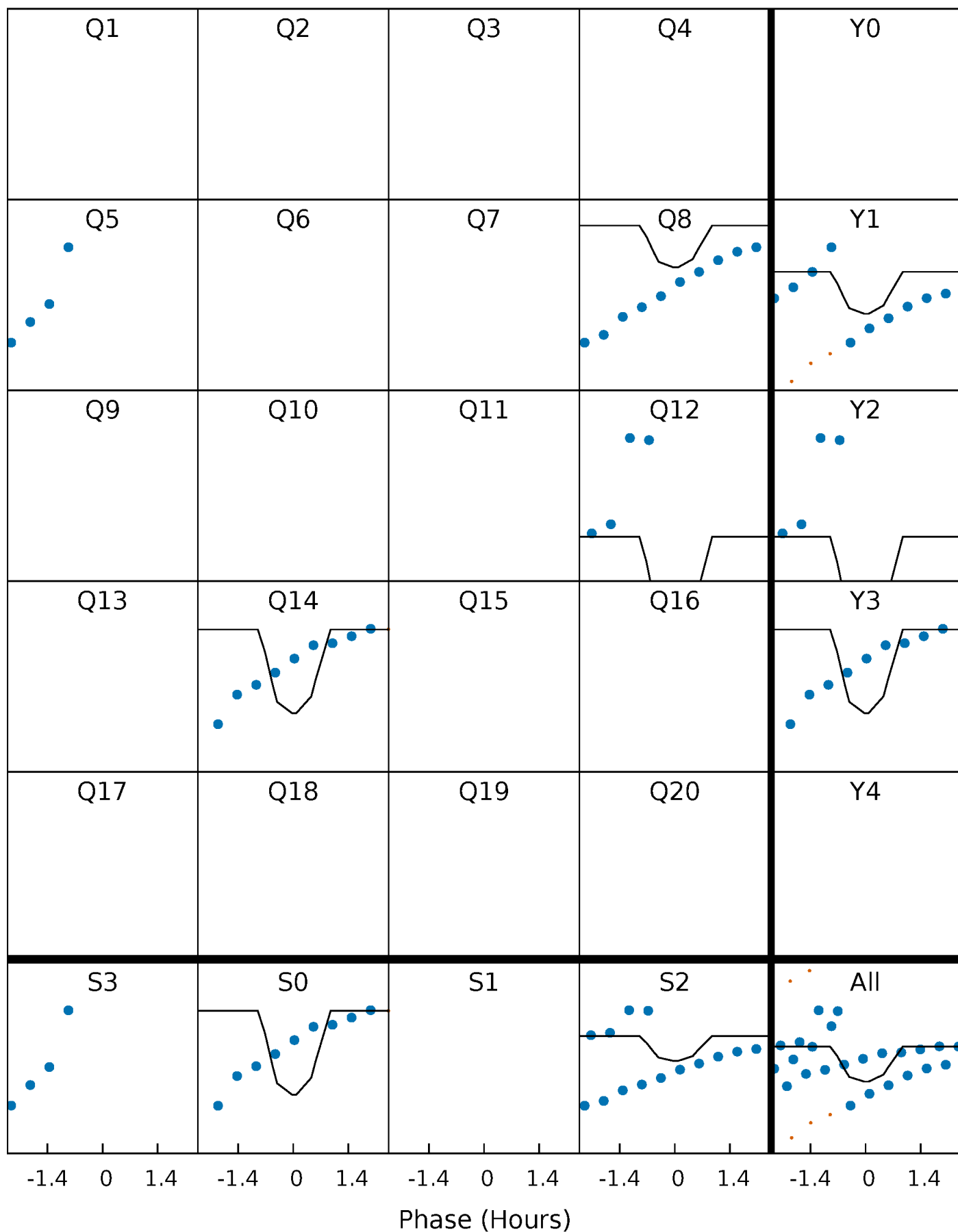
DV Quarter-Phased Transit Curves

TCE 011303811-04 P=206.109701 Days $T_0=325.177707$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

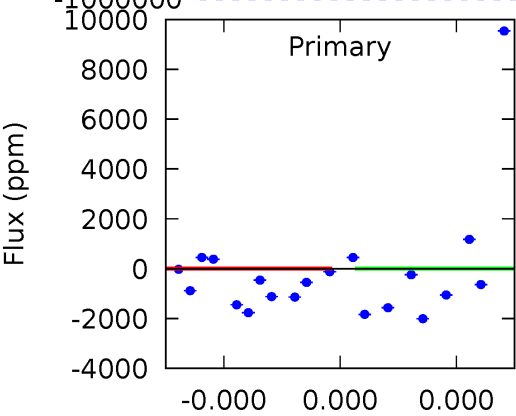
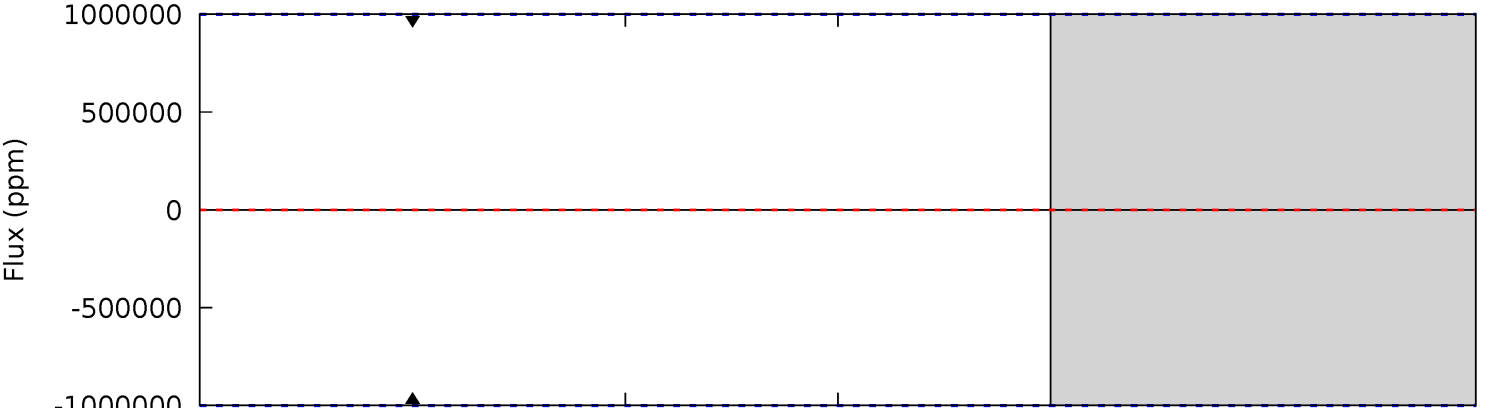
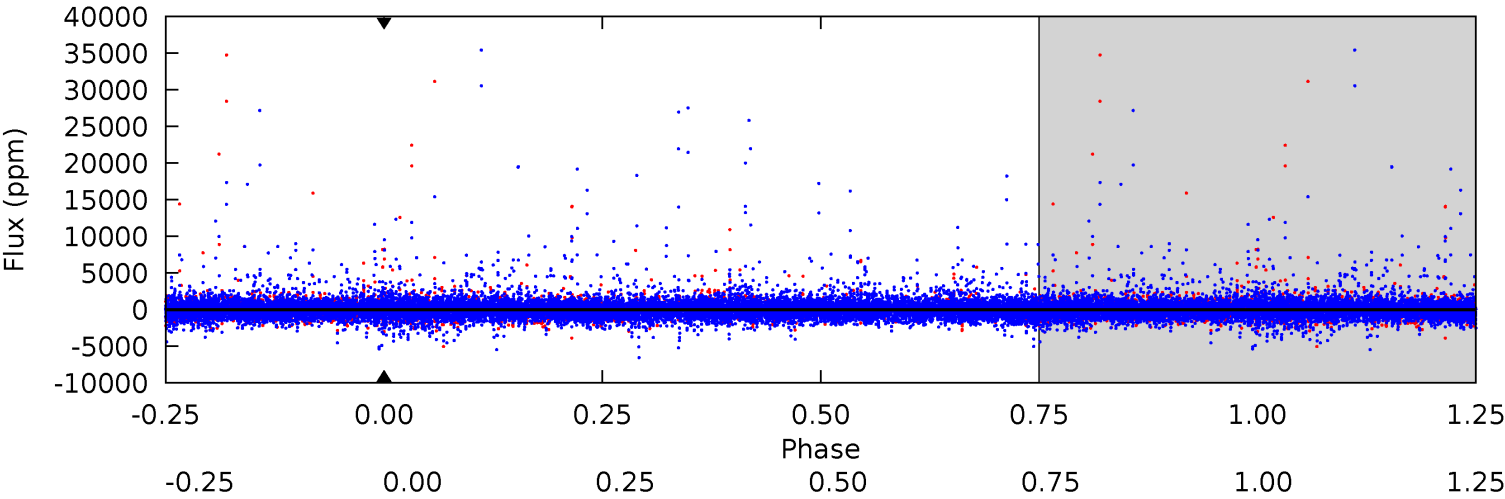
TCE 011303811-04 P=206.109701 Days $T_0=325.286670$ (BKJD)



DV Model-Shift Uniqueness Test

011303811-04, P = 206.109701 Days, E = 325.177707 Days

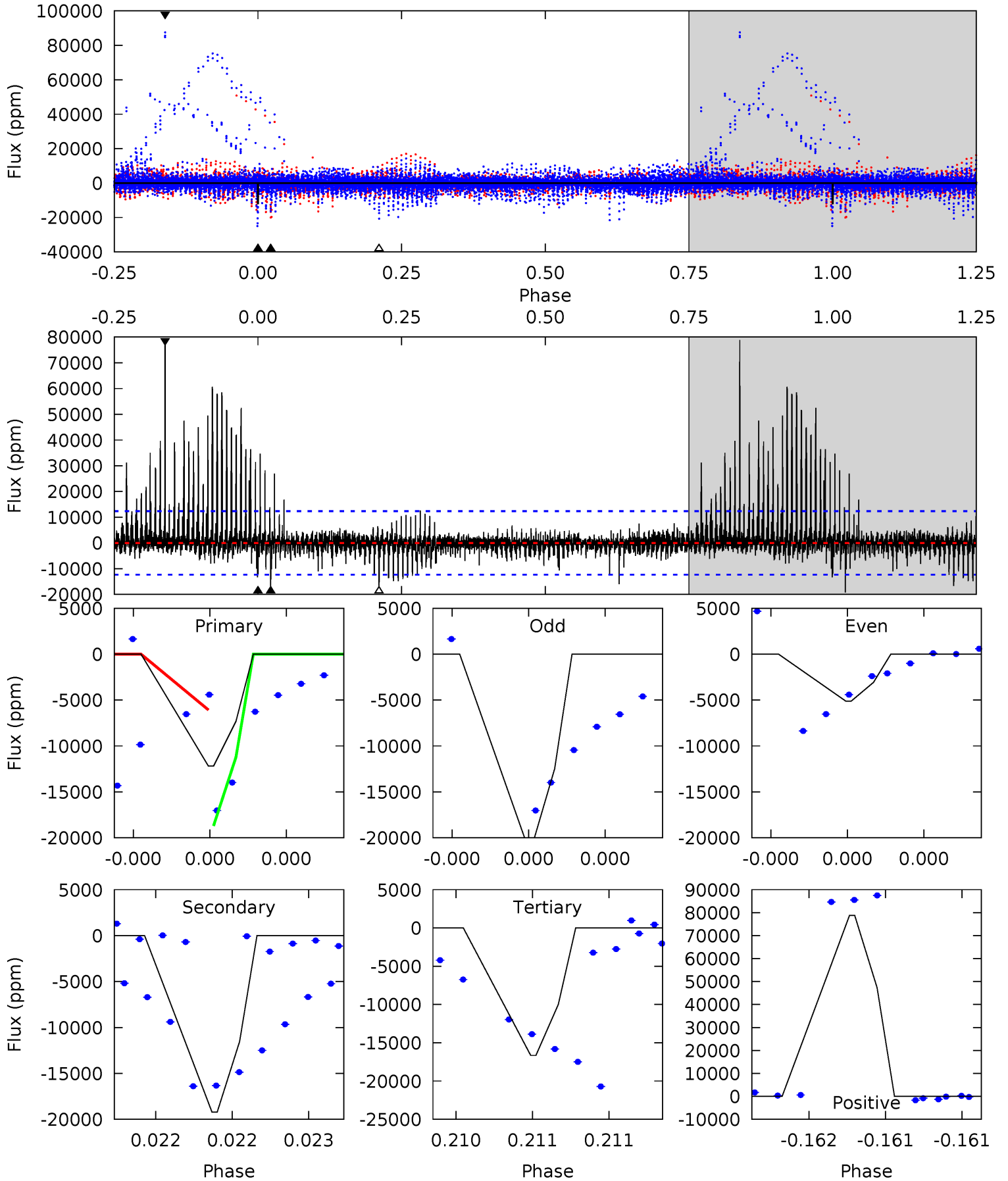
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011303811-04, P = 206.109701 Days, E = 325.286670 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.56	8.76	7.59	35.9	5.64	3.58	1.63	-2.04	-30.4	1.17	-27.2	3.37	1.00	0.80	2.87



Stellar Parameters For KIC 011303811

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4970^{+189}_{-172}	$4.665^{+0.054}_{-0.036}$	$-1.020^{+0.300}_{-0.300}$	$0.591^{+0.044}_{-0.040}$	$0.589^{+0.054}_{-0.025}$	$4.021^{+0.841}_{-0.579}$
	+4%/-3%	+1%/-1%	+29%/-29%	+7%/-7%	+9%/-4%	+21%/-14%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011303811-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$5.45^{+5.48}_{-3.80}$	310^{+12}_{-12}	3978^{+10250}_{-14810}	$12319^{+1240271}_{-743414}$
Alt.	-19216 ± 2193	$8.44^{+5.35}_{-5.02}$	311^{+13}_{-13}	5124^{+3031}_{-927}	$51009^{+242725}_{-32460}$

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

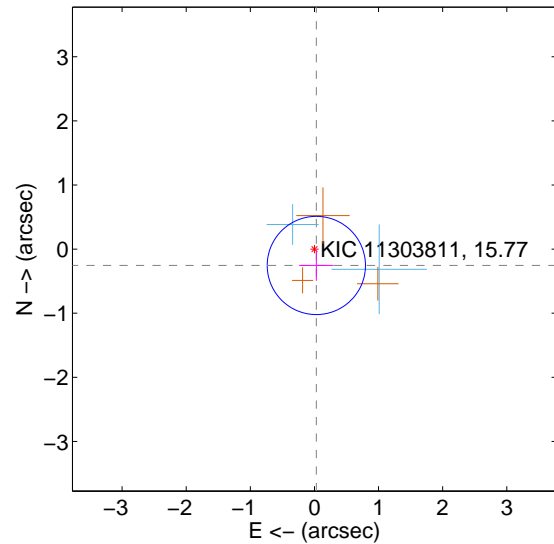
Supplemental centroid analysis for 011303811-04. Kepler magnitude: 15.77. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

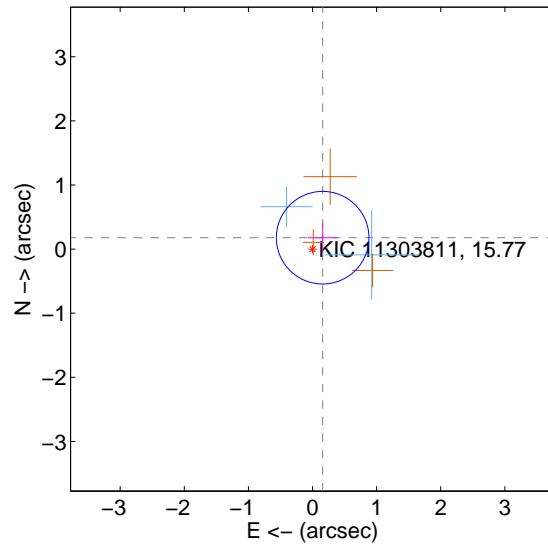
The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.257 ± 0.255	1.01	-0.030 ± 0.268	-0.255 ± 0.238
PRF-fit source offset from KIC position	0.238 ± 0.241	0.99	-0.158 ± 0.228	0.178 ± 0.250
photometric centroid source offset	1.95 ± 0.40	4.93	0.69 ± 0.19	1.83 ± 0.42

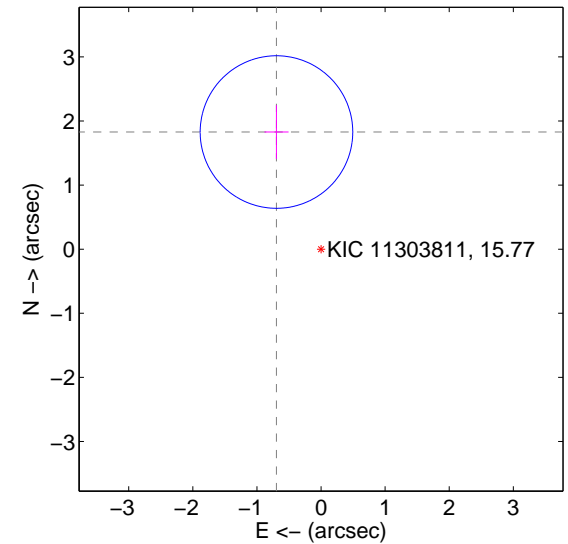
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

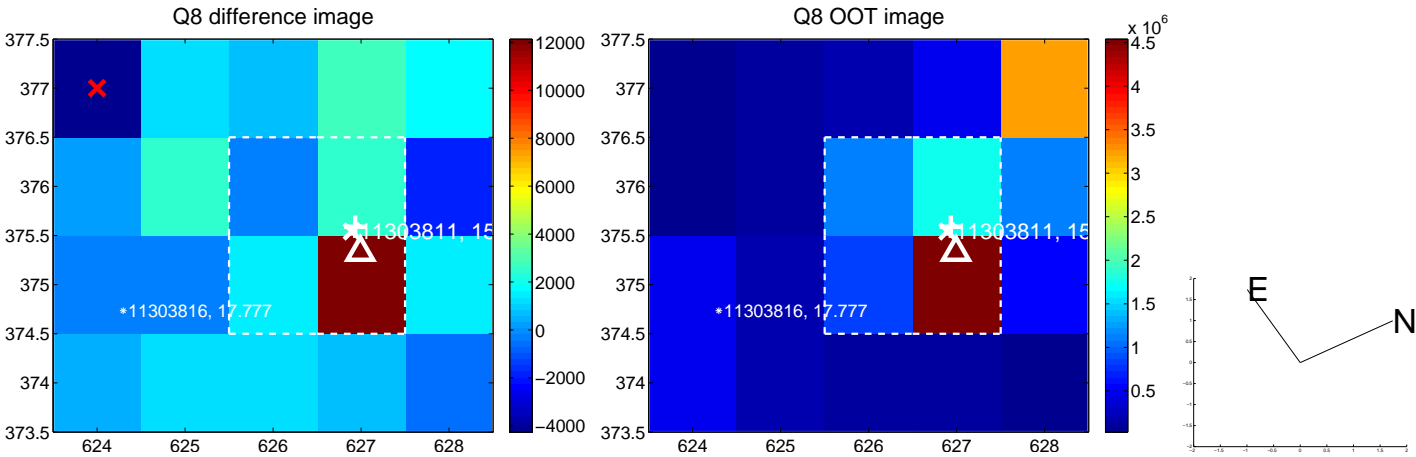
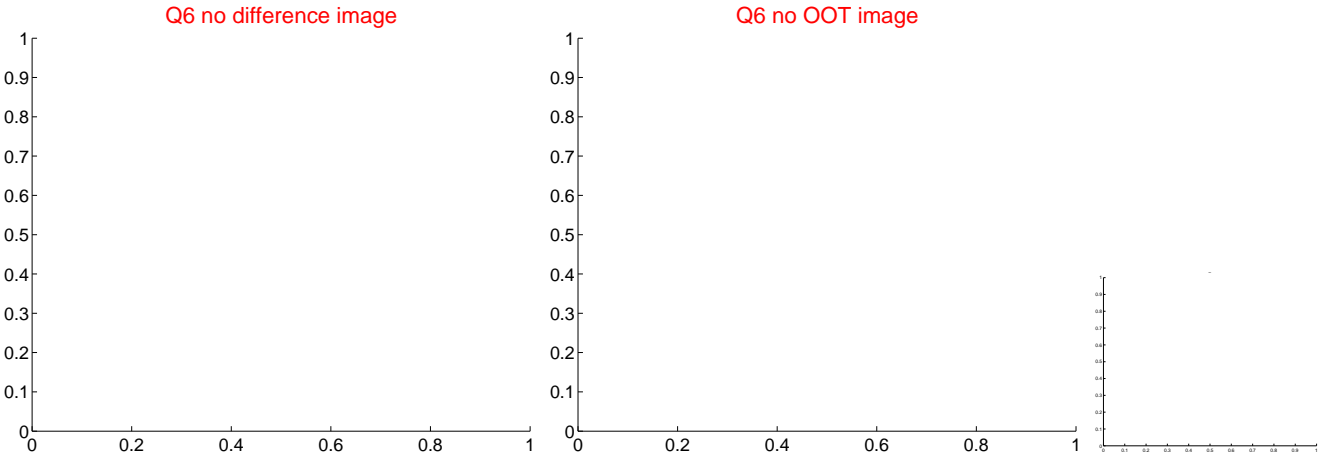
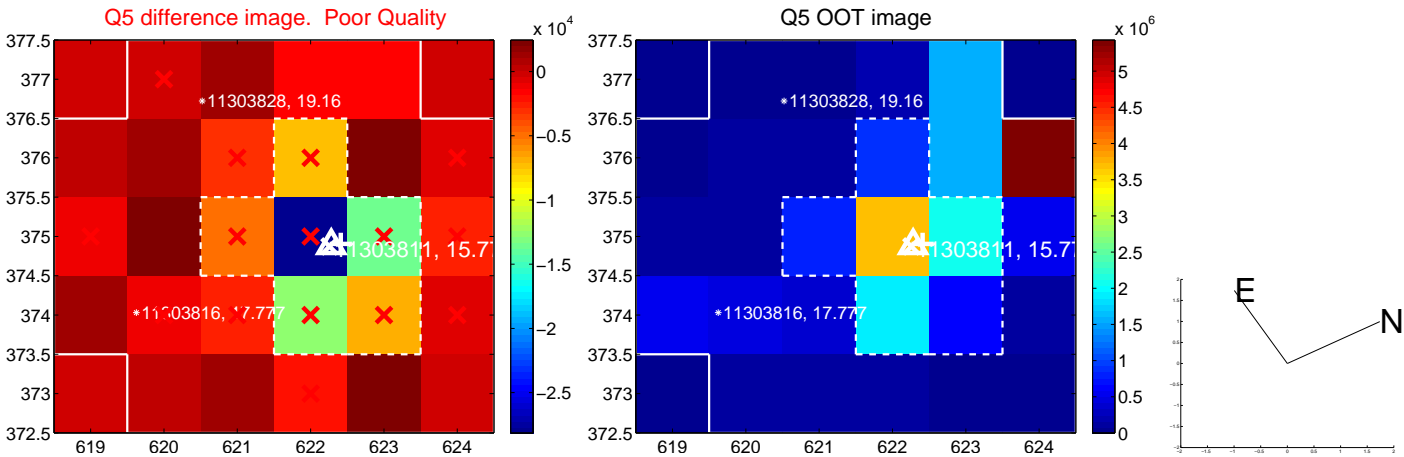


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

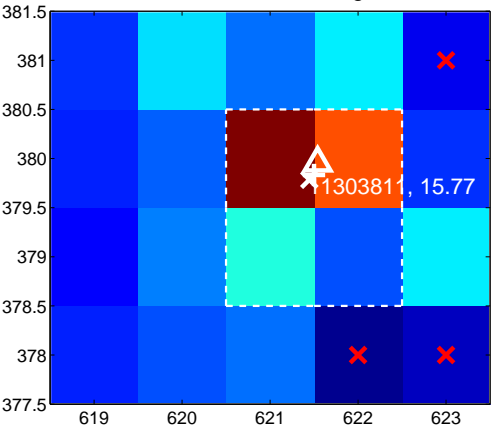
Q9 no difference image



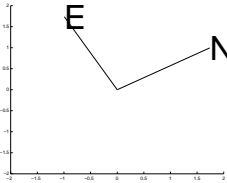
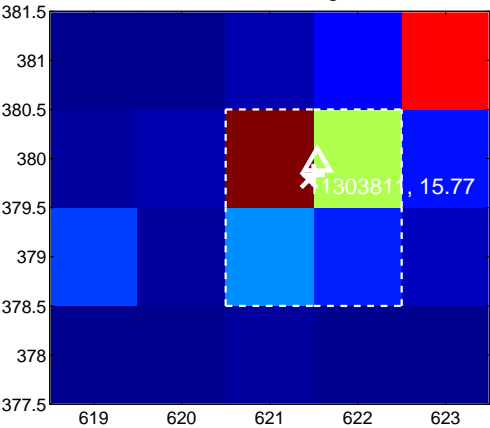
Q9 no OOT image



Q10 difference image



Q10 OOT image



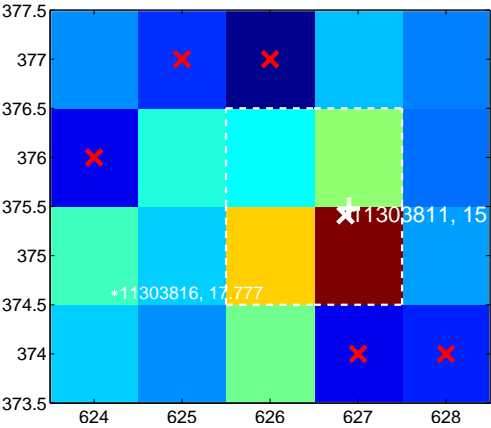
Q11 no difference image



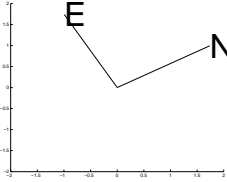
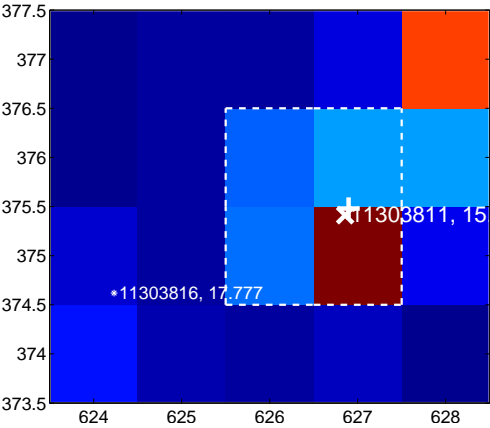
Q11 no OOT image



Q12 difference image. Poor Quality



Q12 OOT image



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

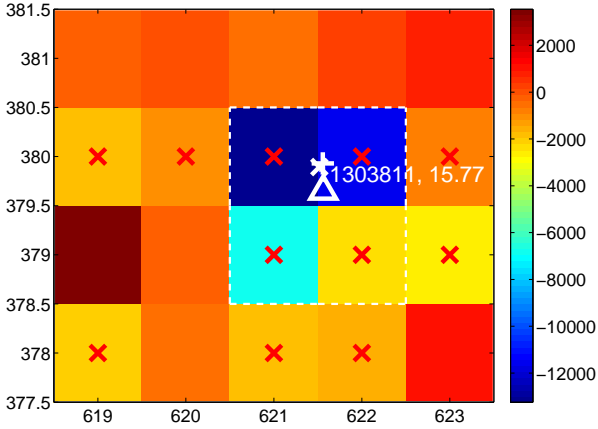
Q13 no difference image



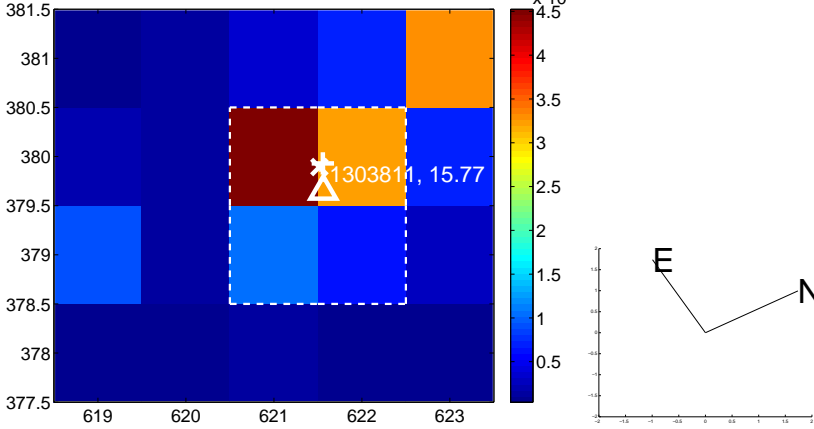
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



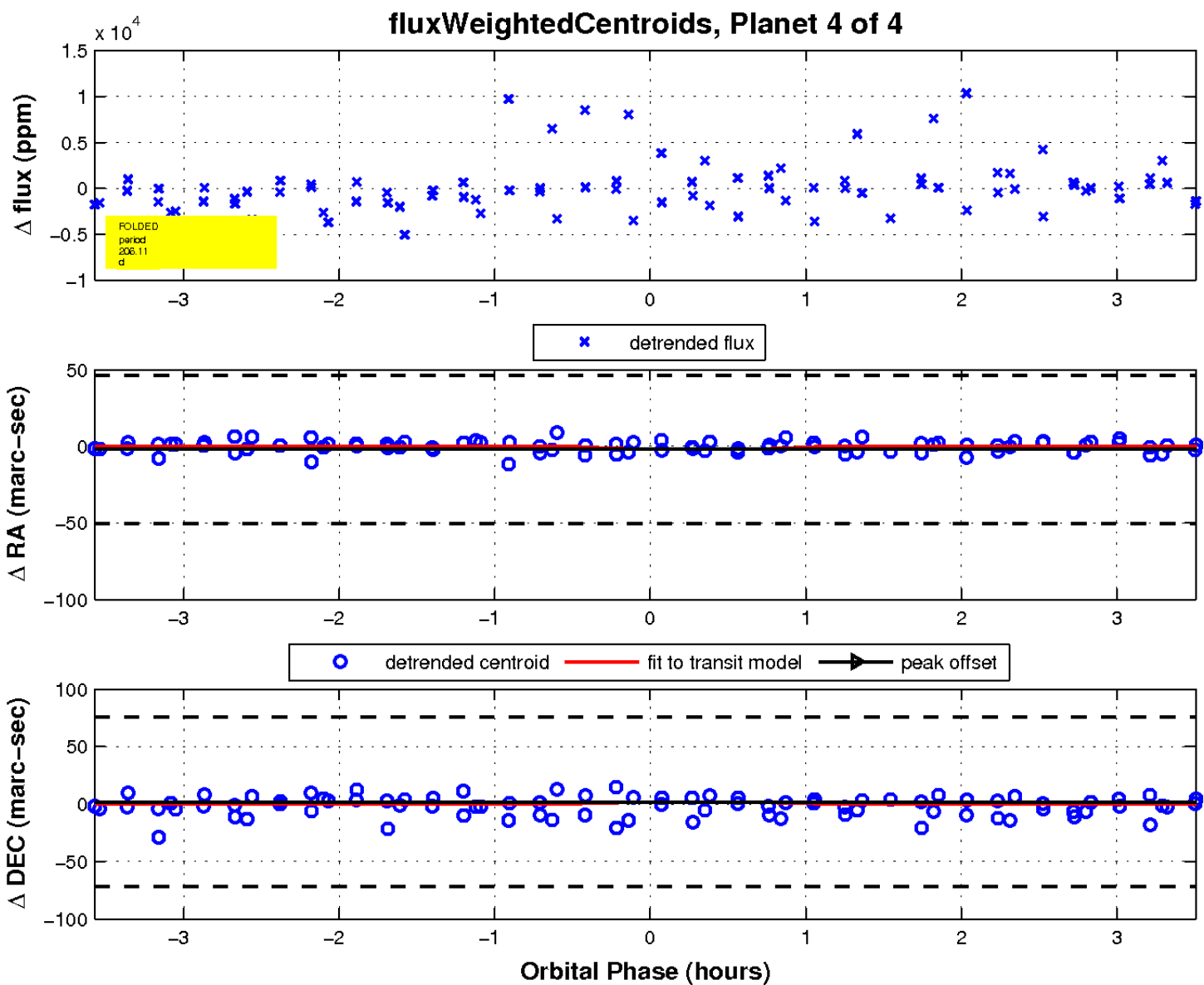
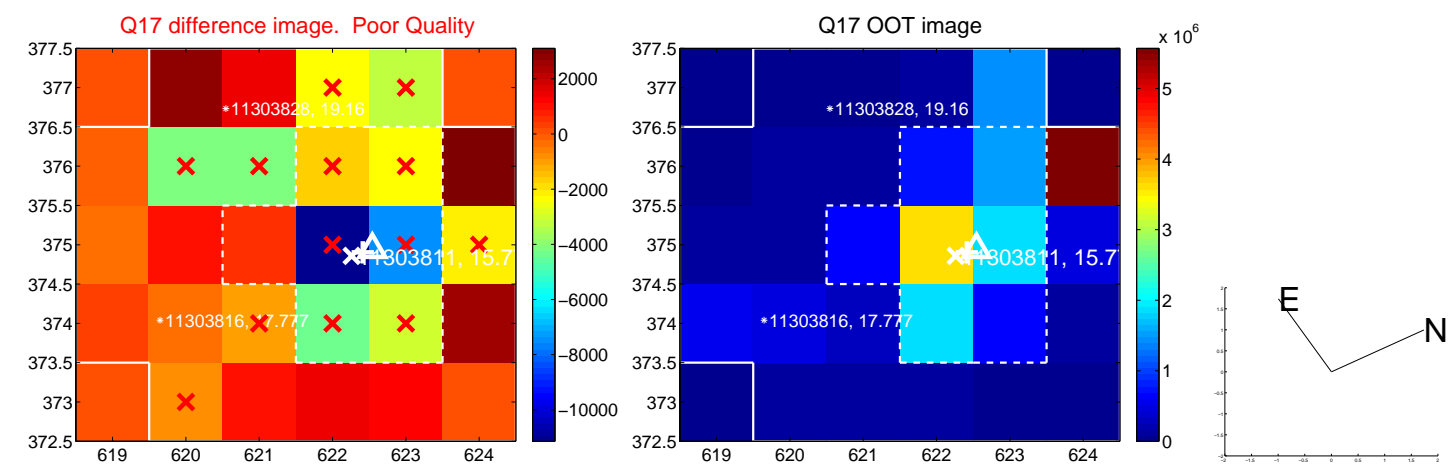
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

