

KIC 008782821

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})
008782821-01	OBS	No	1.584904	133.240139	77.1	3.309	11.2	7.0	1.48	6722	1.51	4971.32
008782821-02	OBS	No	1.584909	132.905157	365.5	6.097	12.6	15.0	1.48	6722	4.76	4971.30
008782821-03	OBS	No	1.584847	132.307903	416.5	4.500	16.0	-1.0	1.48	6722	3.04	4971.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008782821-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008782821-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008782821-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

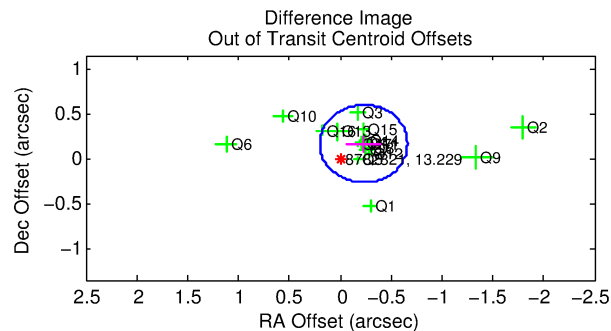
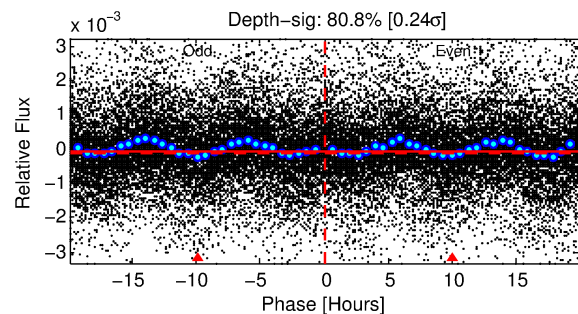
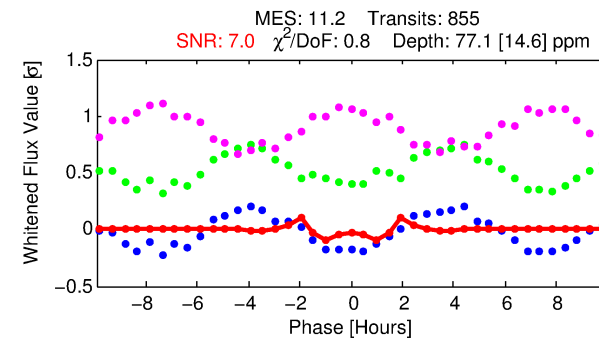
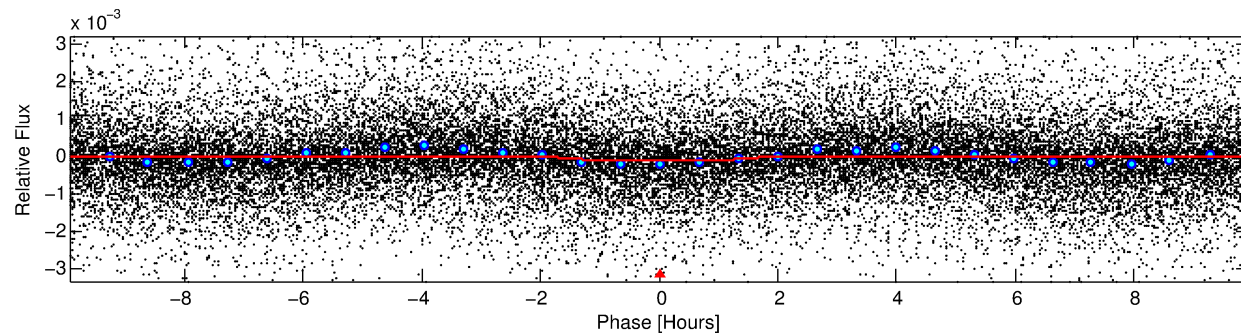
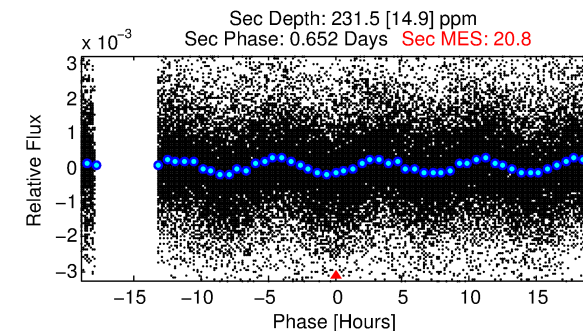
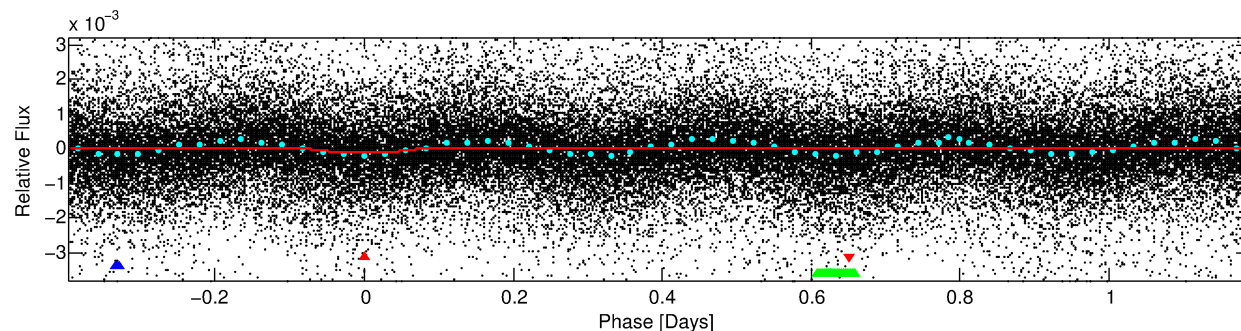
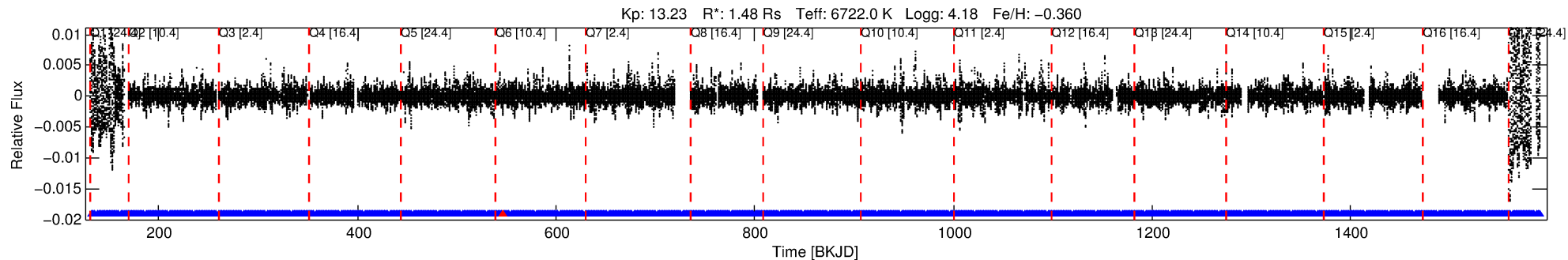
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008782821-01

No Significant Match Found

DV One-Page Summary

KIC: 8782821 Candidate: 1 of 3 Period: 1.585 d



DV Fit Results:

Period = 1.58490 [0.00001] d
Epoch = 133.2401 [0.0019] BKJD
Rp/R* = 0.0094 [0.0022]
a/R* = 1.93 [1.70]
b = 0.90 [0.26]
Seff = 4971.32 [1802.77]
Teq = 2141 [194] K
Rp = 1.51 [0.55] Re
a = 0.0283 [0.0065] AU
Ag = 44.91 [26.12] [1.68σ]
Teff = 8570 [1068] K [5.92σ]

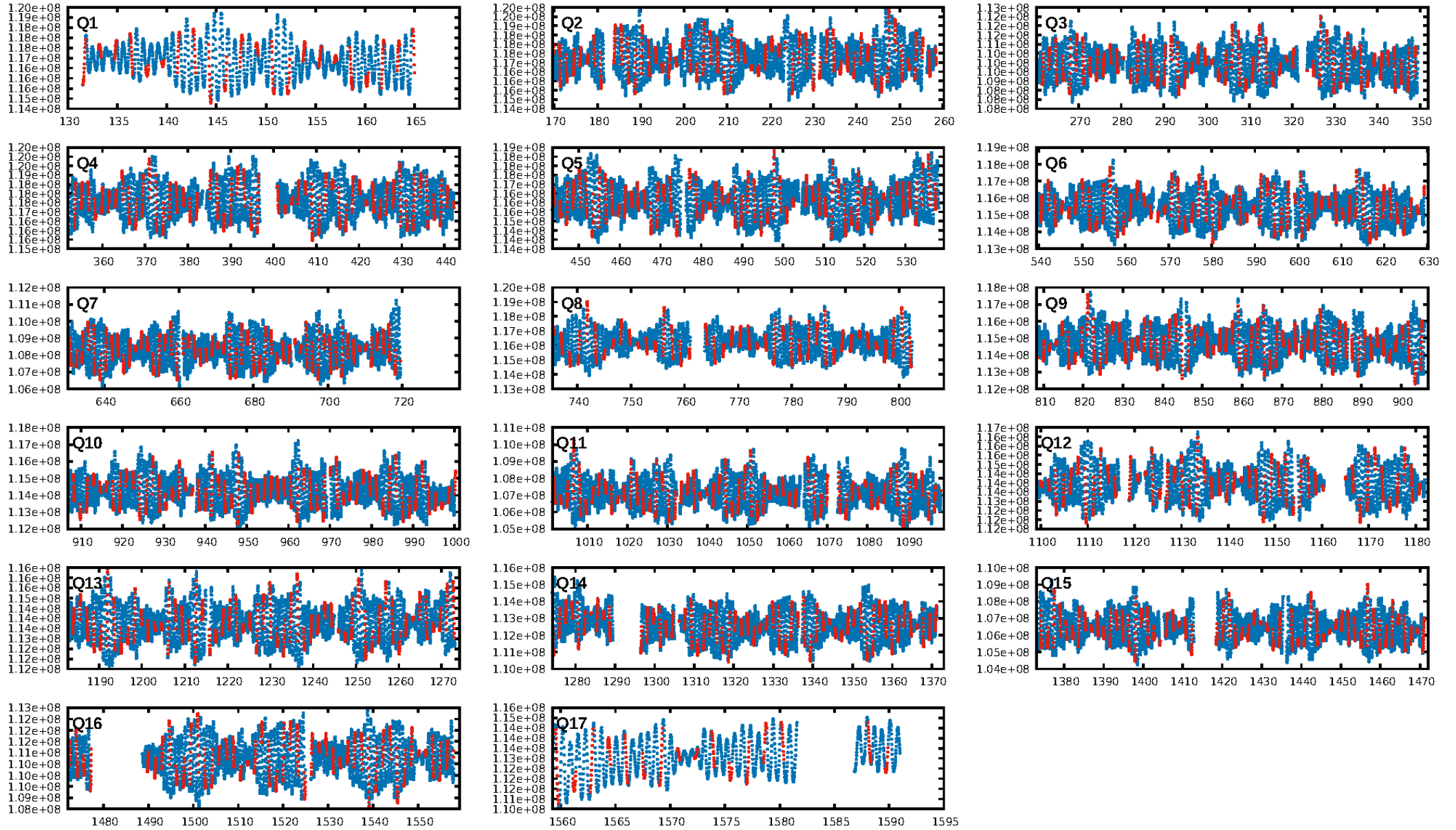
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [816/817]
GhostDiagnostic-chr: 1.41
Centroid-sig: N/A
Centroid-so: 0.768 arcsec [1.34σ]
OotOffset-rm: 0.283 arcsec [1.97σ]
KicOffset-rm: 0.170 arcsec [1.07σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.00 [0/17]

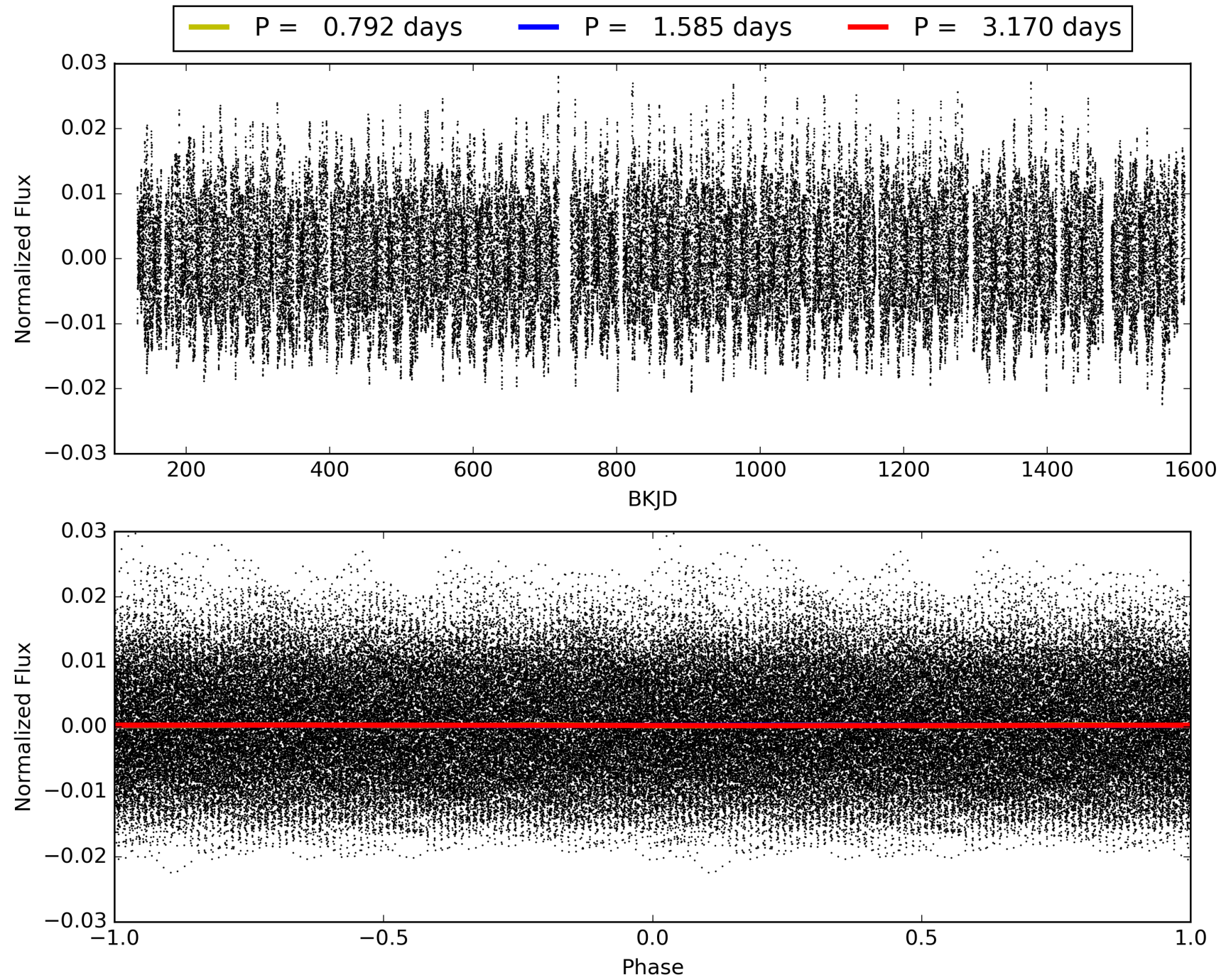
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008782821-01, PDC Light Curves

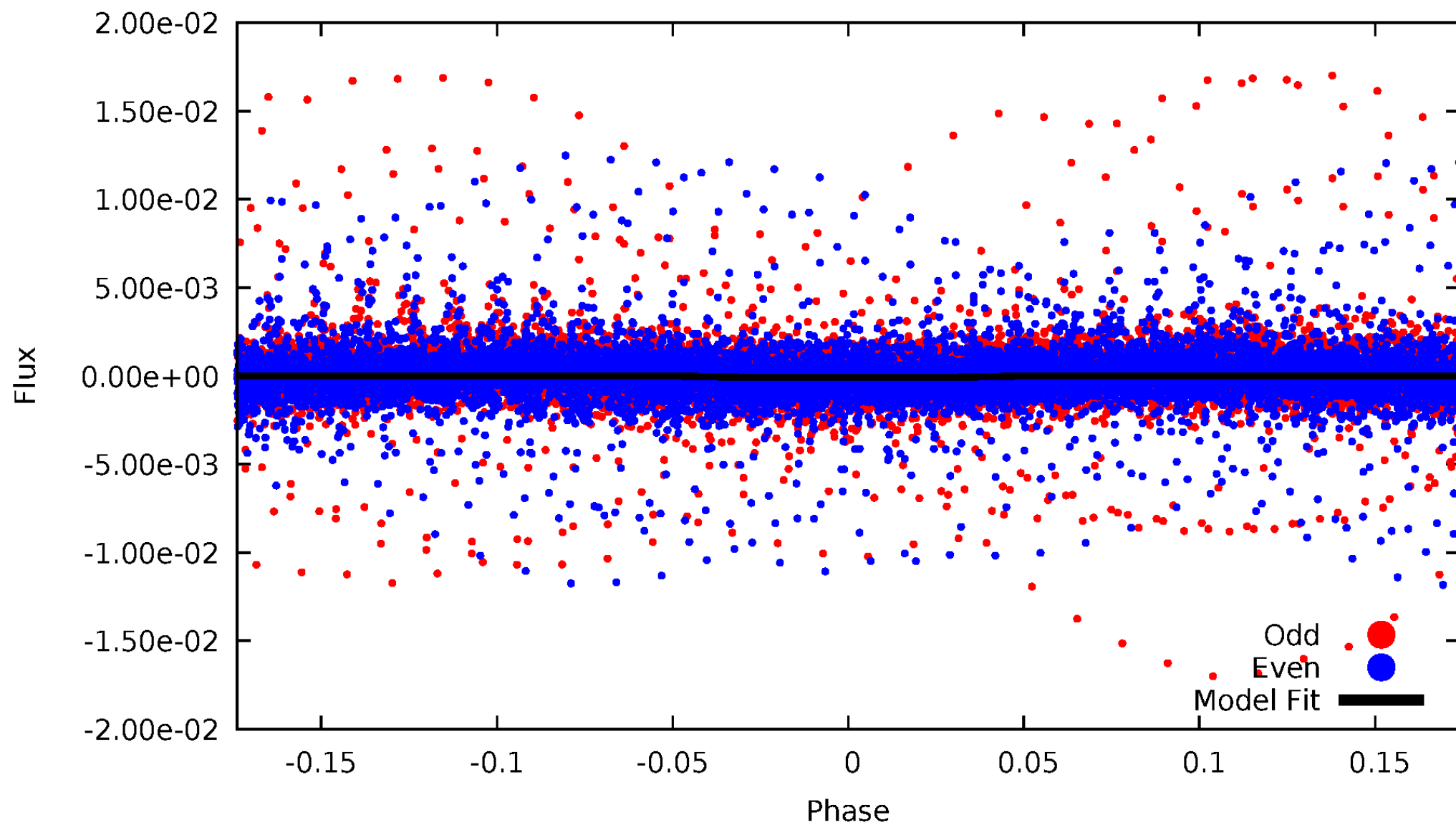


TCE 008782821-01



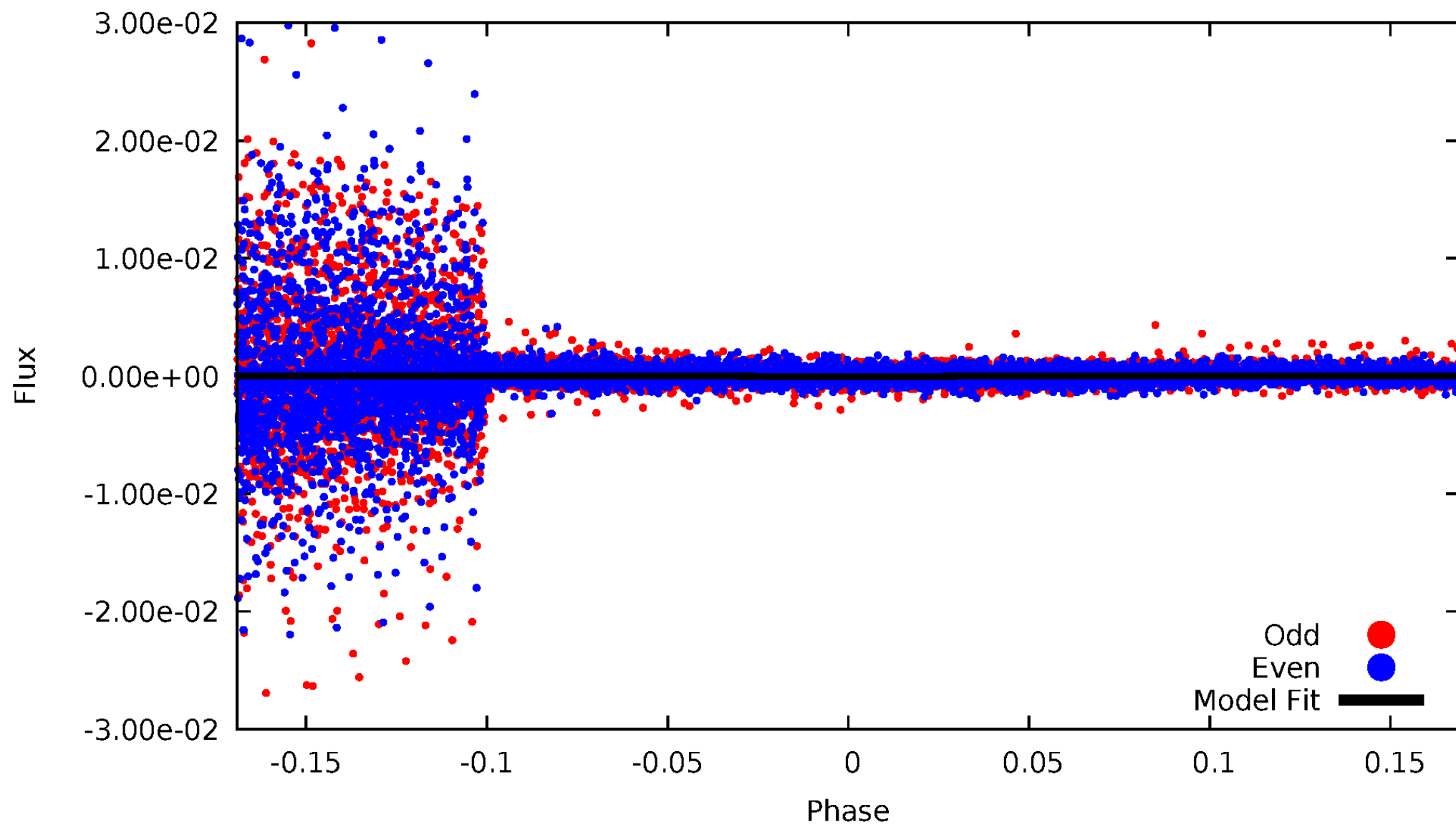
DV Odd/Even

TCE 008782821-01



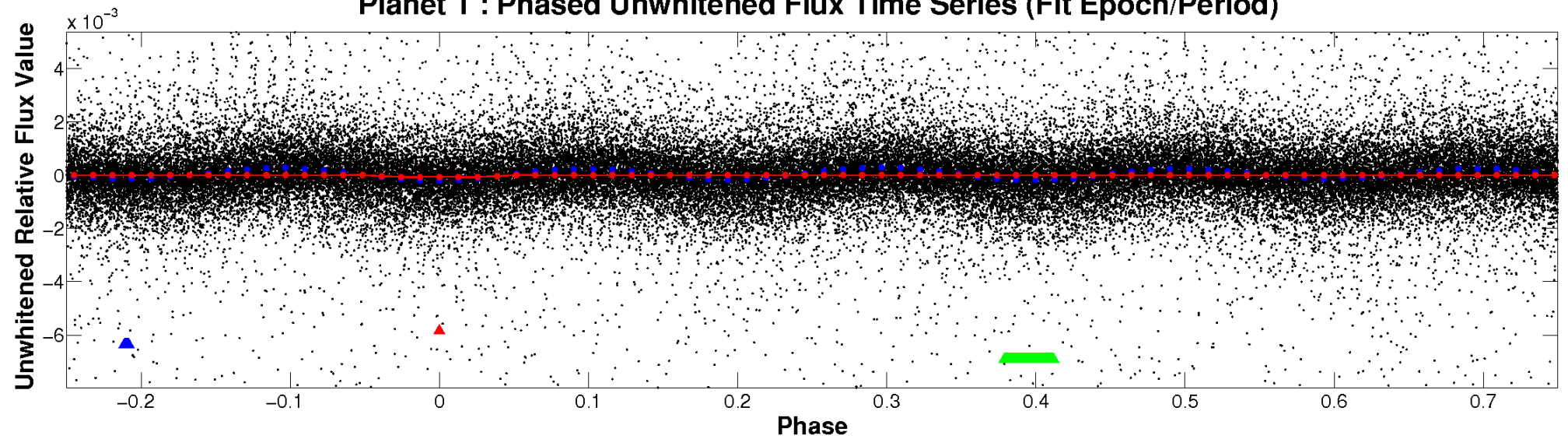
ALT Odd/Even

TCE 008782821-01

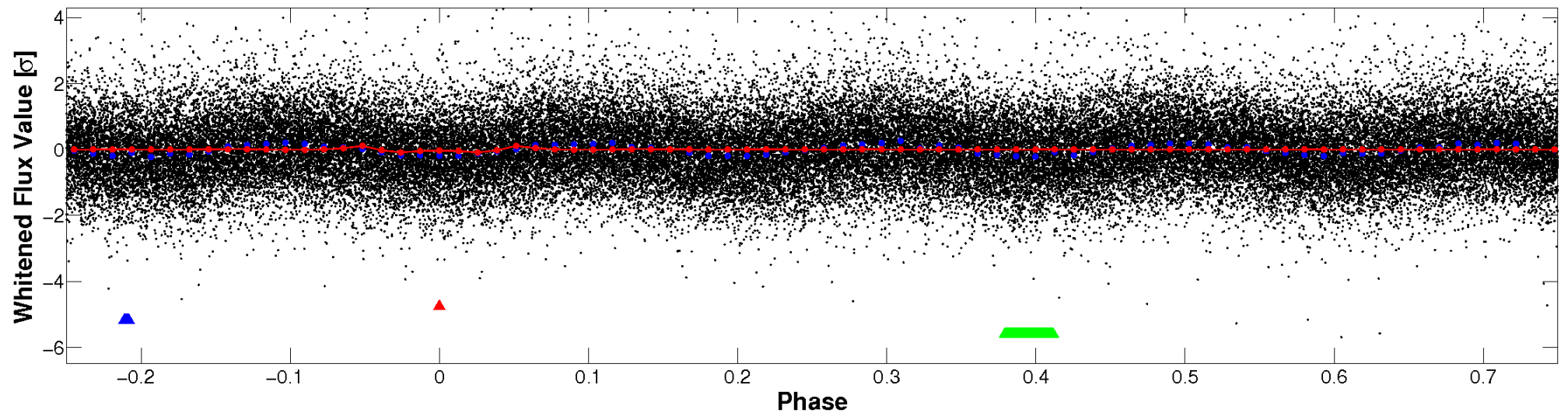


Non-Whitened Vs. Whitened Light Curve

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

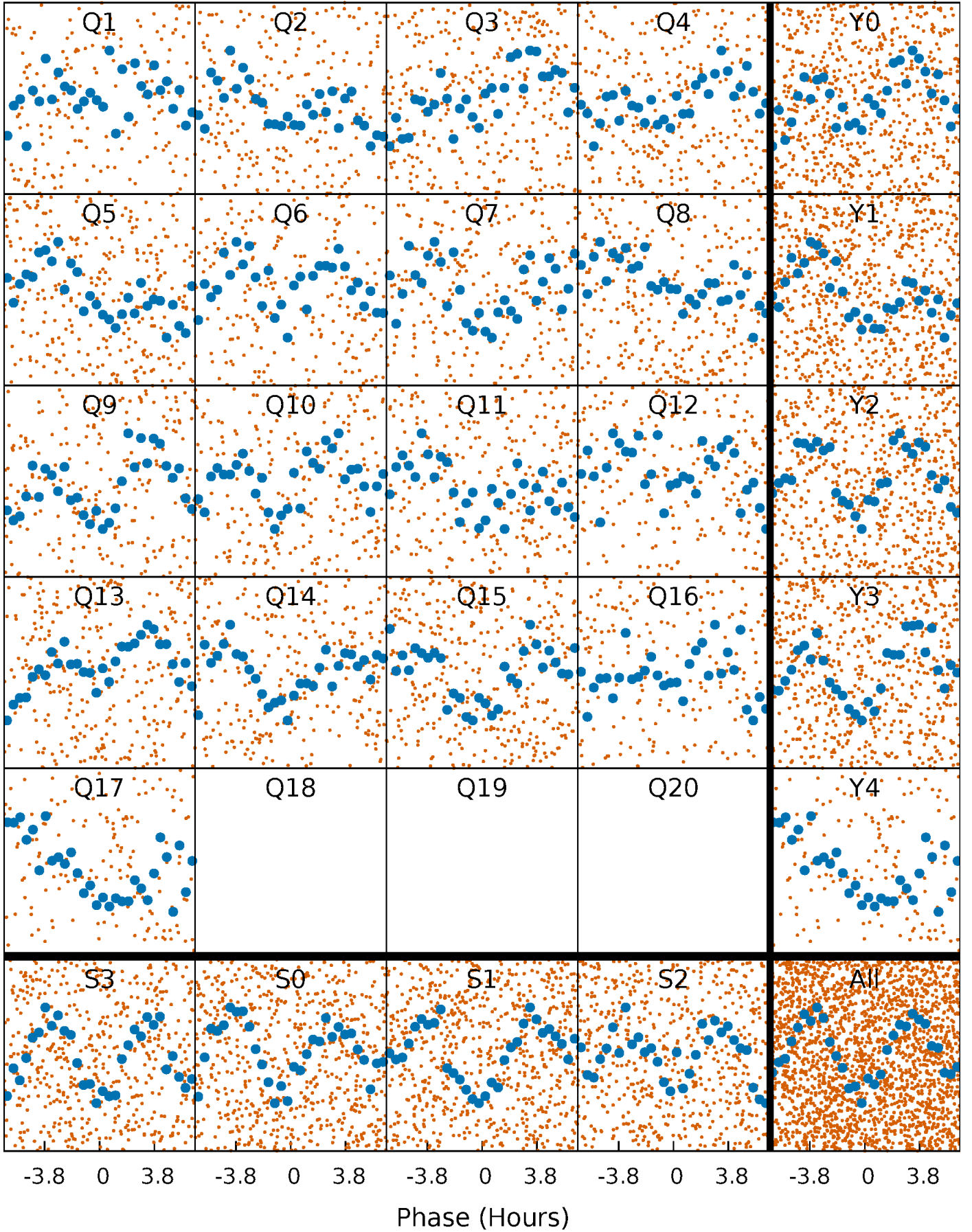


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



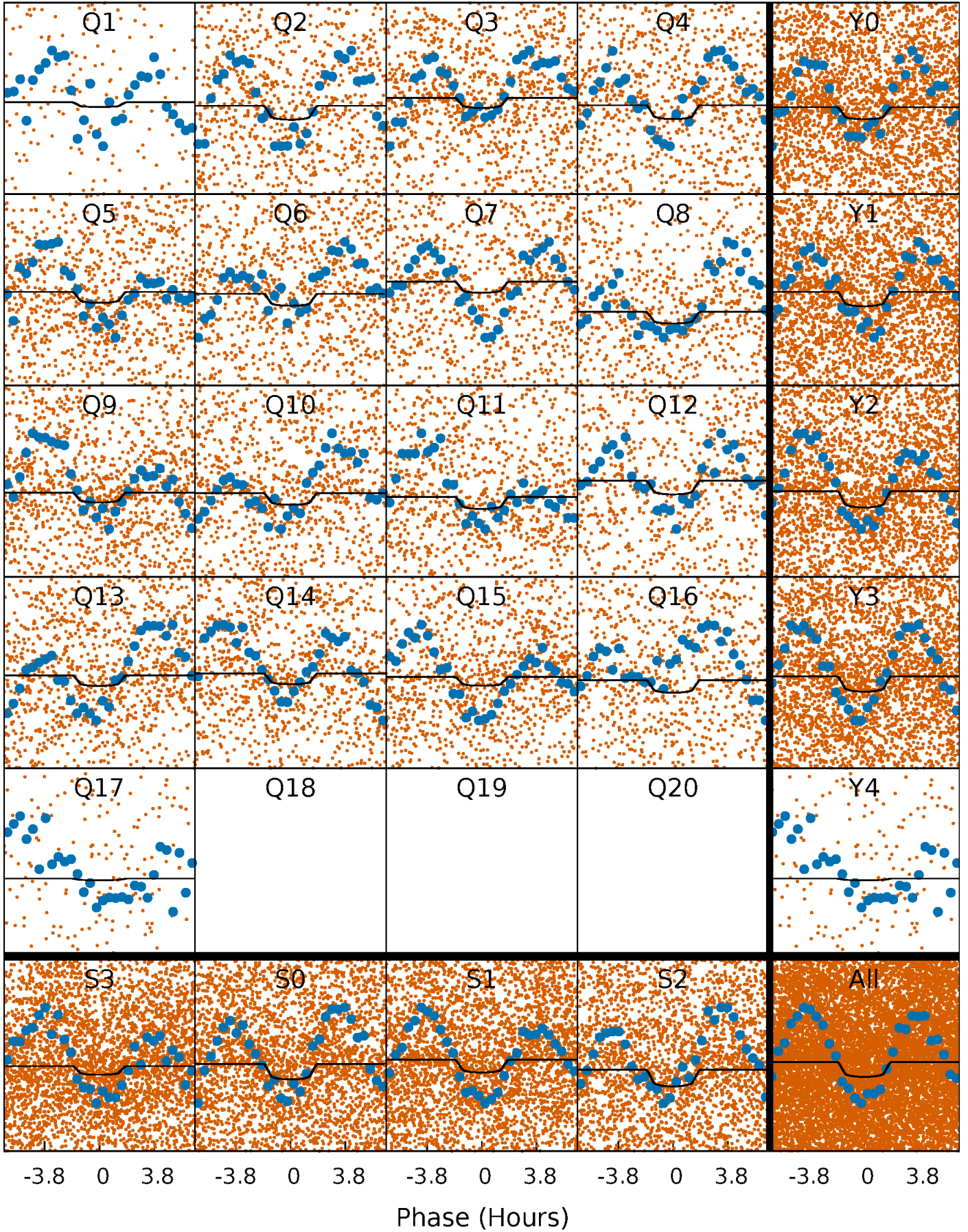
PDC Quarter-Phased Transit Curves

TCE 008782821-01 P= 1.584904 Days $T_0=133.240139$ (BKJD)



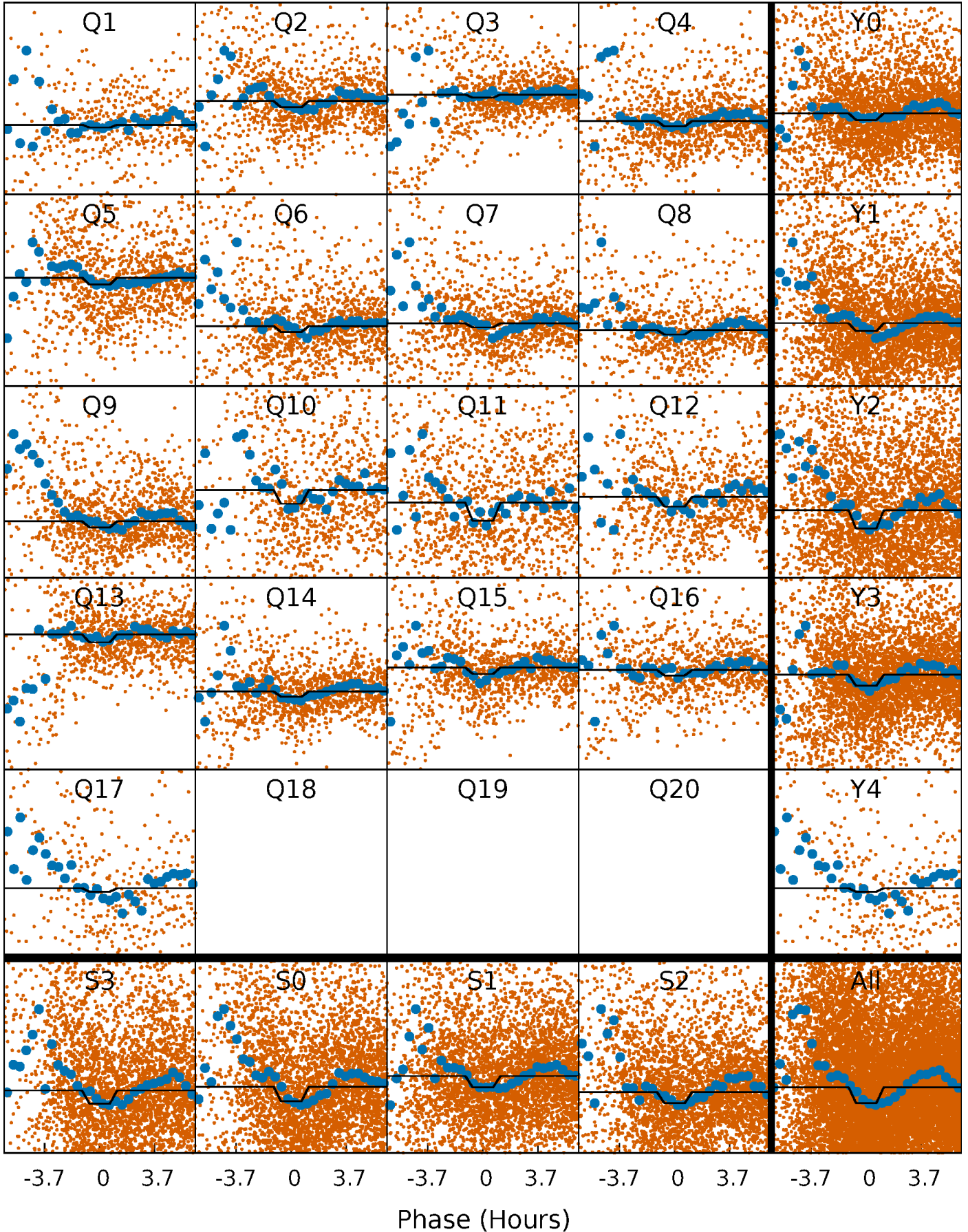
DV Quarter-Phased Transit Curves

TCE 008782821-01 P= 1.584904 Days $T_0=133.240139$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

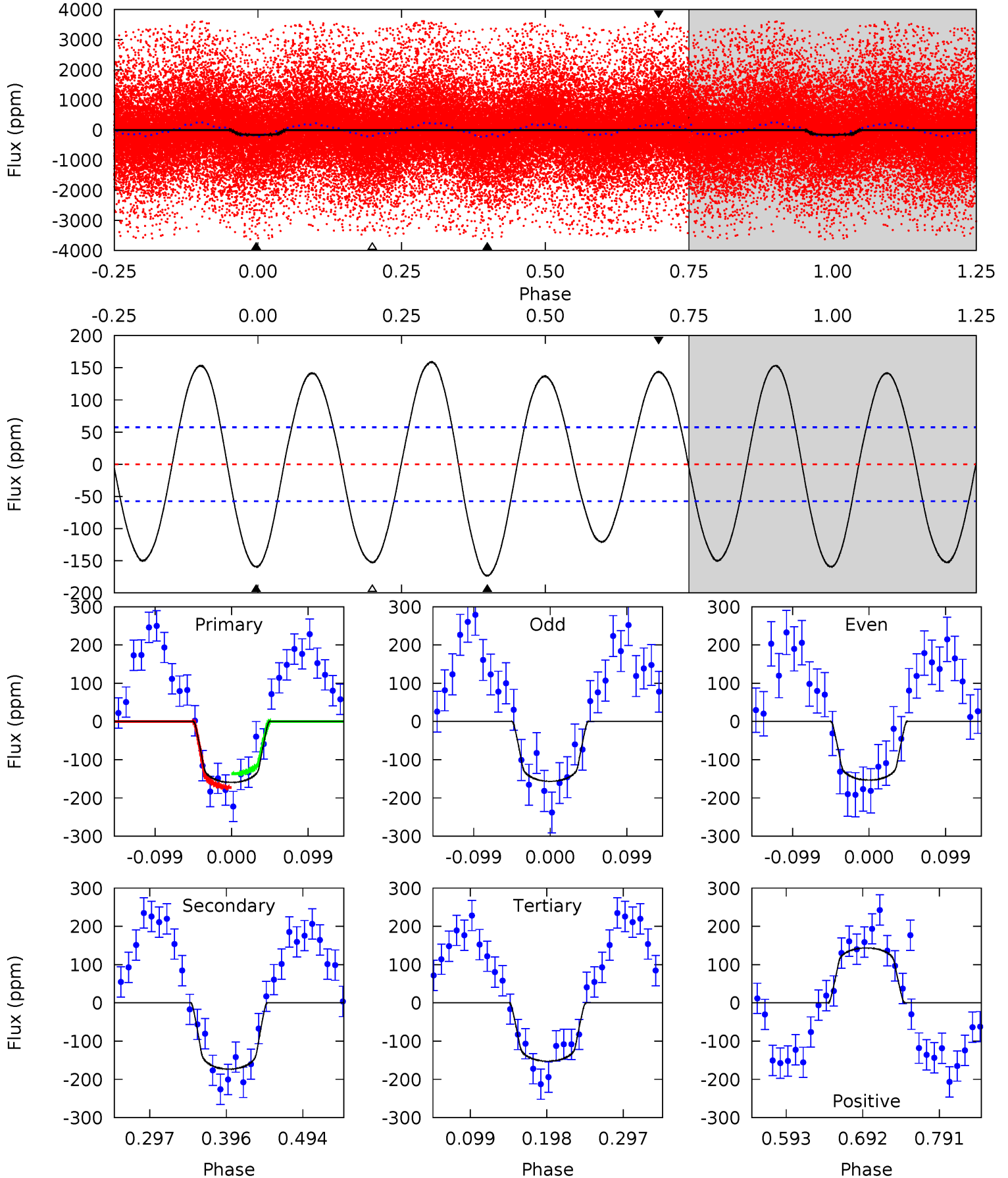
TCE 008782821-01 P= 1.584878 Days $T_0=133.237526$ (BKJD)



DV Model-Shift Uniqueness Test

008782821-01, P = 1.584904 Days, E = 130.070331 Days

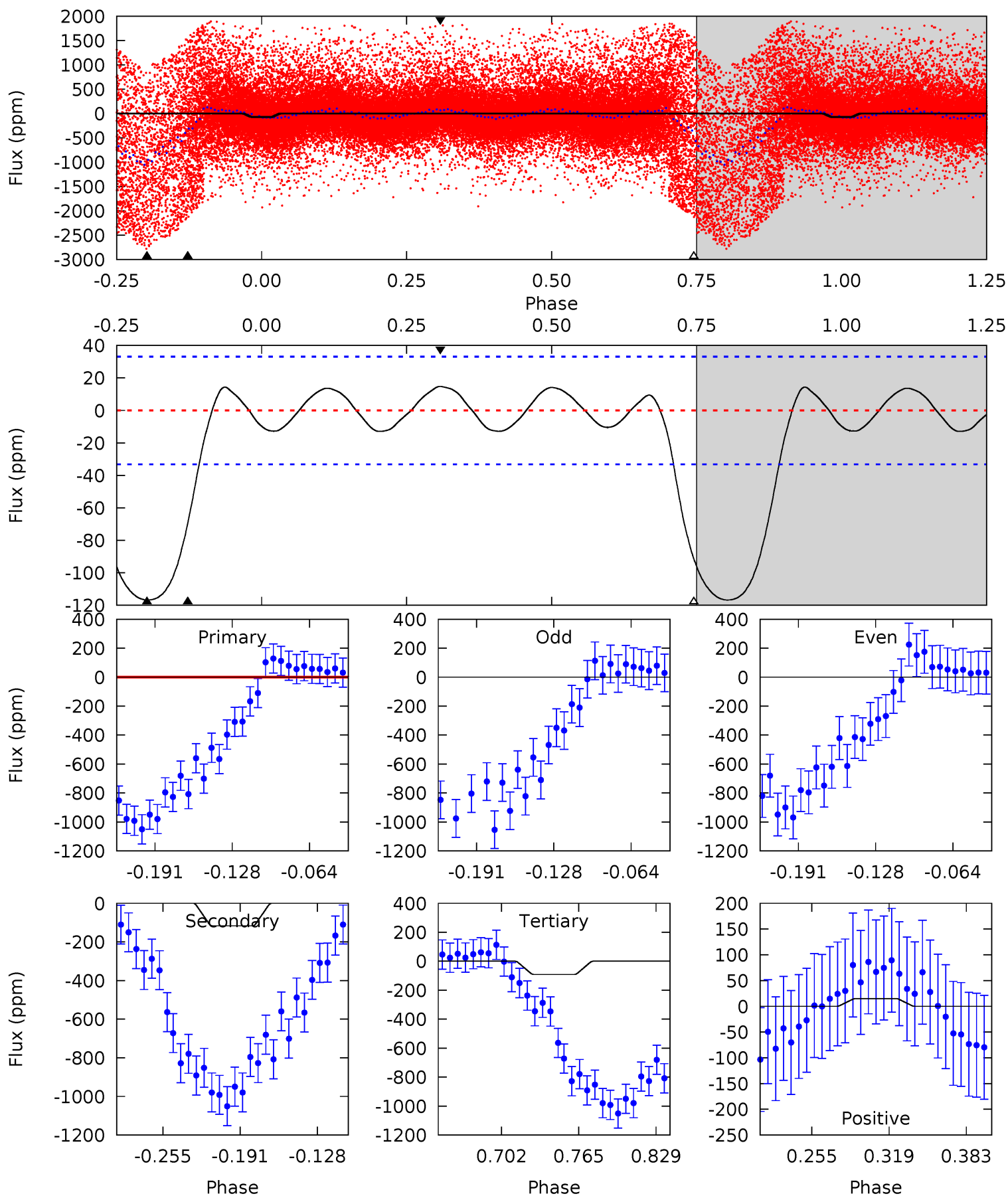
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	13.8	12.1	11.4	4.57	1.65	8.08	0.55	1.26	1.65	2.36	0.13	1.20	0.48	1.46



Alt Model-Shift Uniqueness Test

008782821-01, P = 1.584878 Days, E = 130.067770 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.76	16.4	12.8	2.08	4.66	1.85	1.95	-3.06	7.68	3.58	14.3	0.07	0.68	0.11	3.35



Stellar Parameters For KIC 008782821

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6722^{+182}_{-243}	$4.181^{+0.180}_{-0.180}$	$-0.360^{+0.250}_{-0.300}$	$1.477^{+0.410}_{-0.336}$	$1.214^{+0.170}_{-0.189}$	$0.531^{+0.500}_{-0.260}$
	+3%/-4%	+4%/-4%	+69%/-83%	+28%/-23%	+14%/-16%	+94%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008782821-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-173 ± 13	$1.51^{+0.46}_{-0.38}$	2984^{+217}_{-213}	8123^{+1622}_{-1028}	35^{+26}_{-14}
Alt.	-117 ± 7	$1.41^{+0.46}_{-0.39}$	2986^{+228}_{-206}	7509^{+1470}_{-942}	26^{+22}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

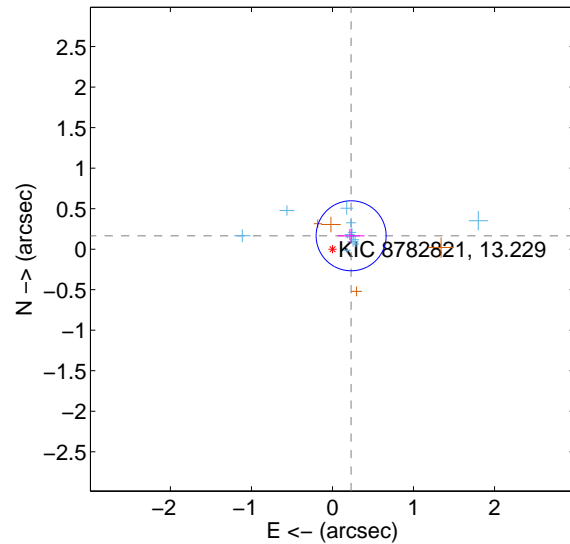
Supplemental centroid analysis for 008782821-01. Kepler magnitude: 13.23. Transit SNR 7.04

There are 13 quarters with good PRF difference image offsets

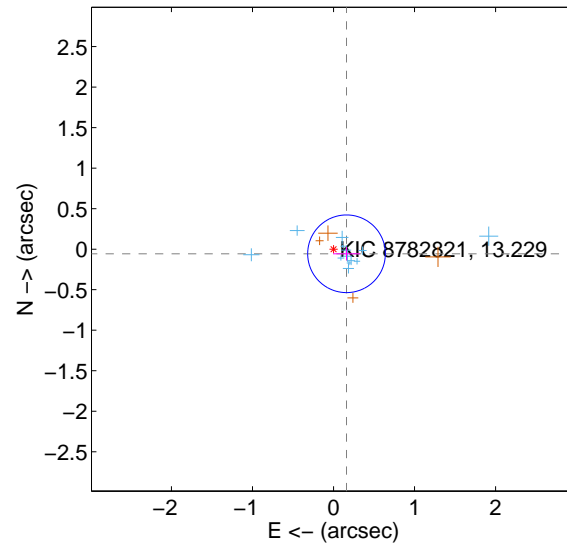
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.283 ± 0.144	1.97	-0.230 ± 0.165	0.165 ± 0.088
PRF-fit source offset from KIC position	0.170 ± 0.160	1.07	-0.160 ± 0.167	-0.057 ± 0.081
photometric centroid source offset	0.77 ± 0.57	1.34	-0.23 ± 0.66	-0.73 ± 0.56

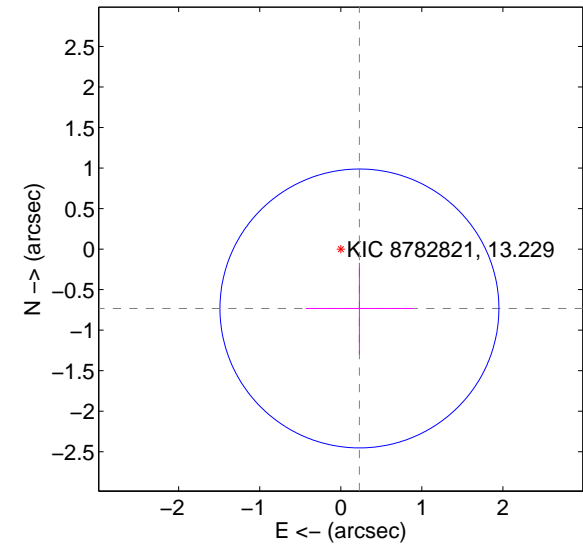
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

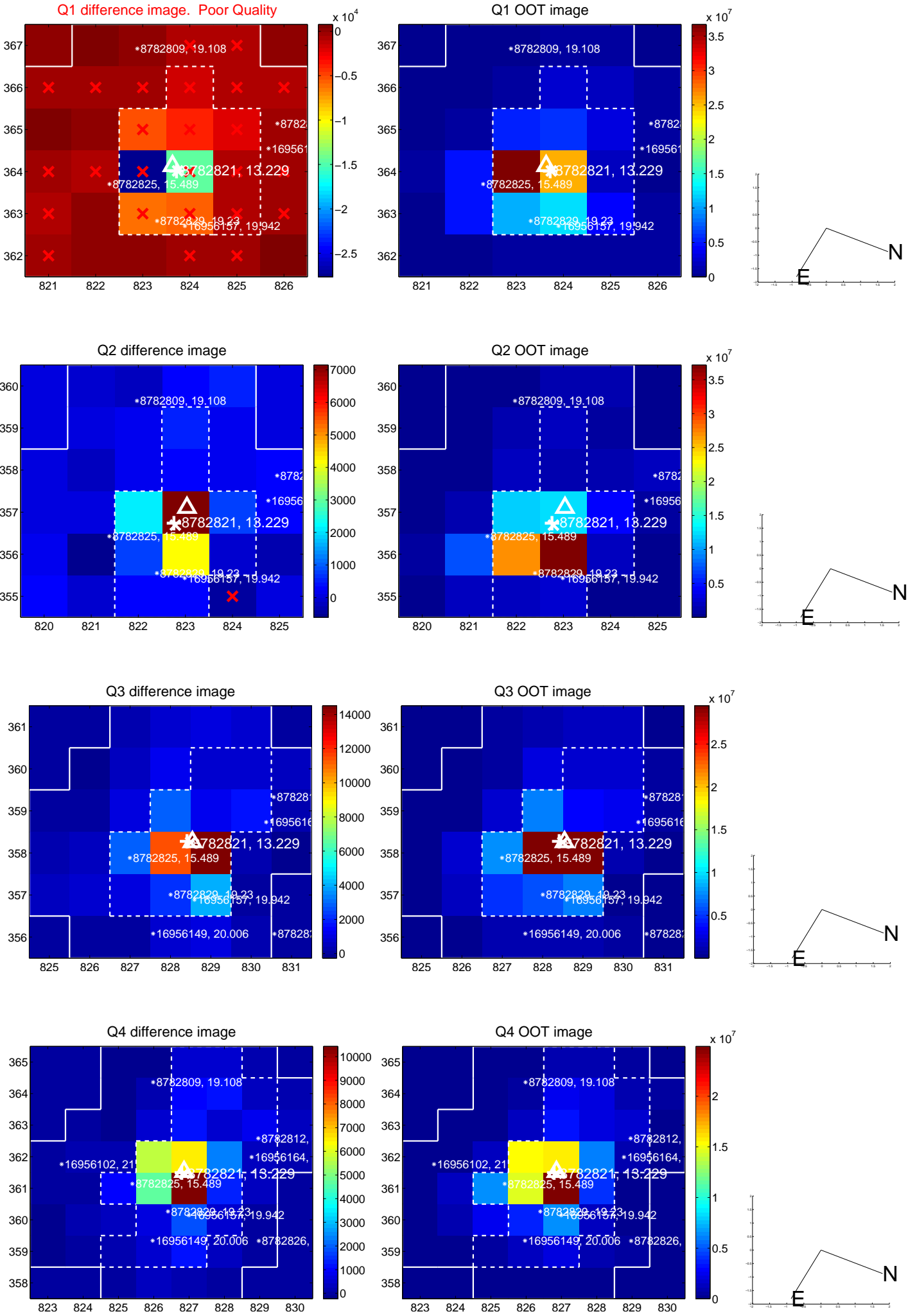


offset from photometric centroids

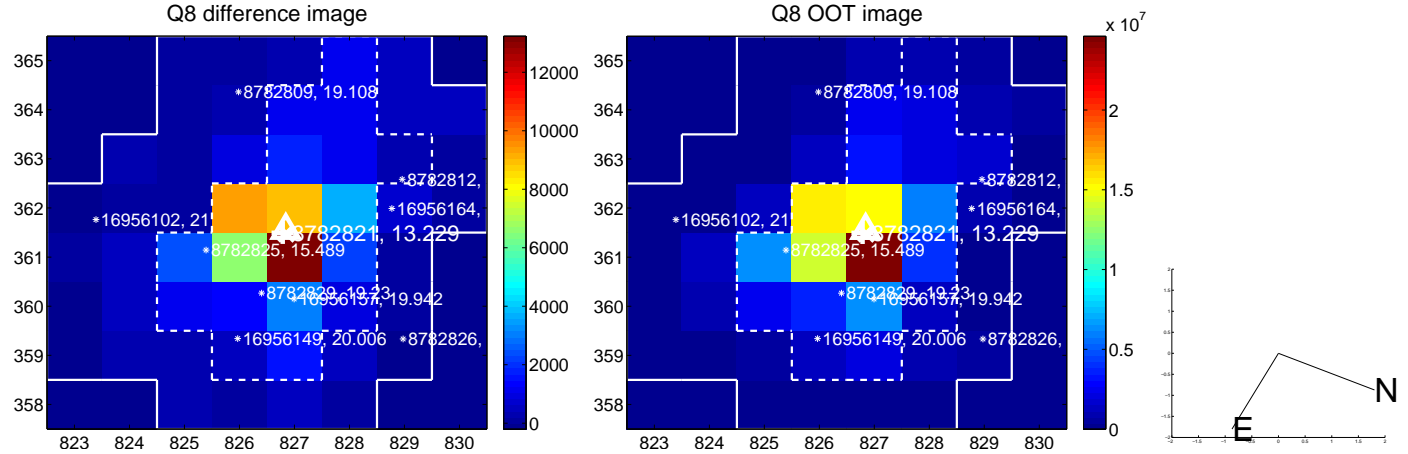
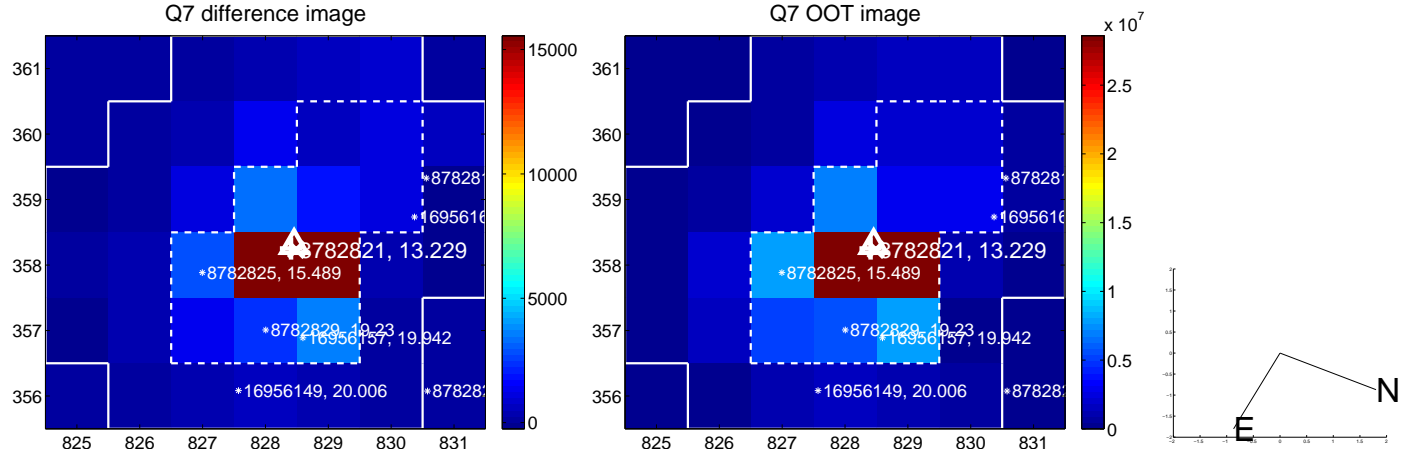
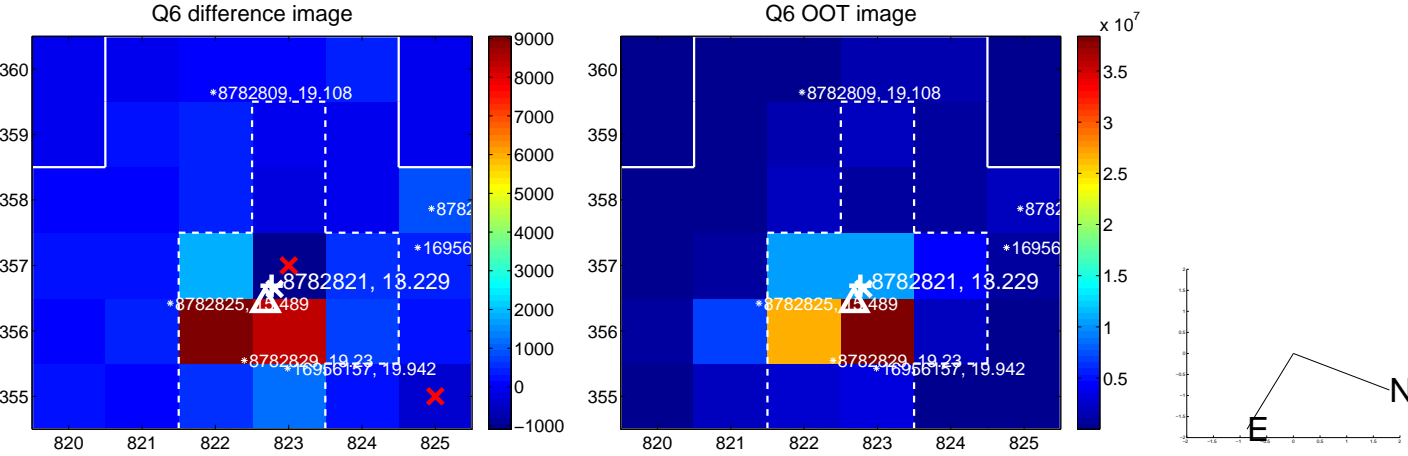
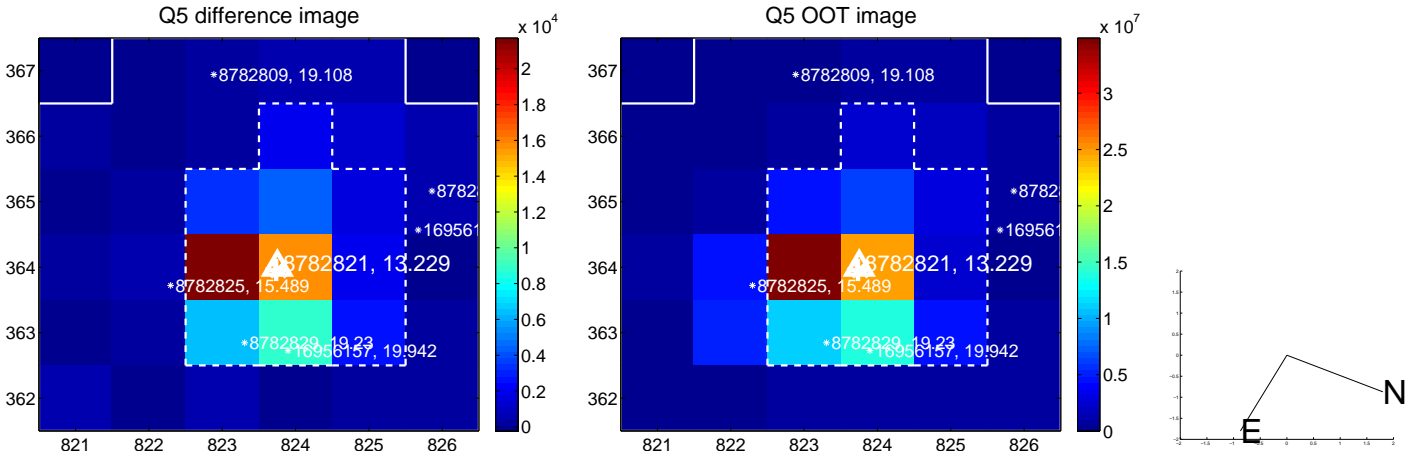


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

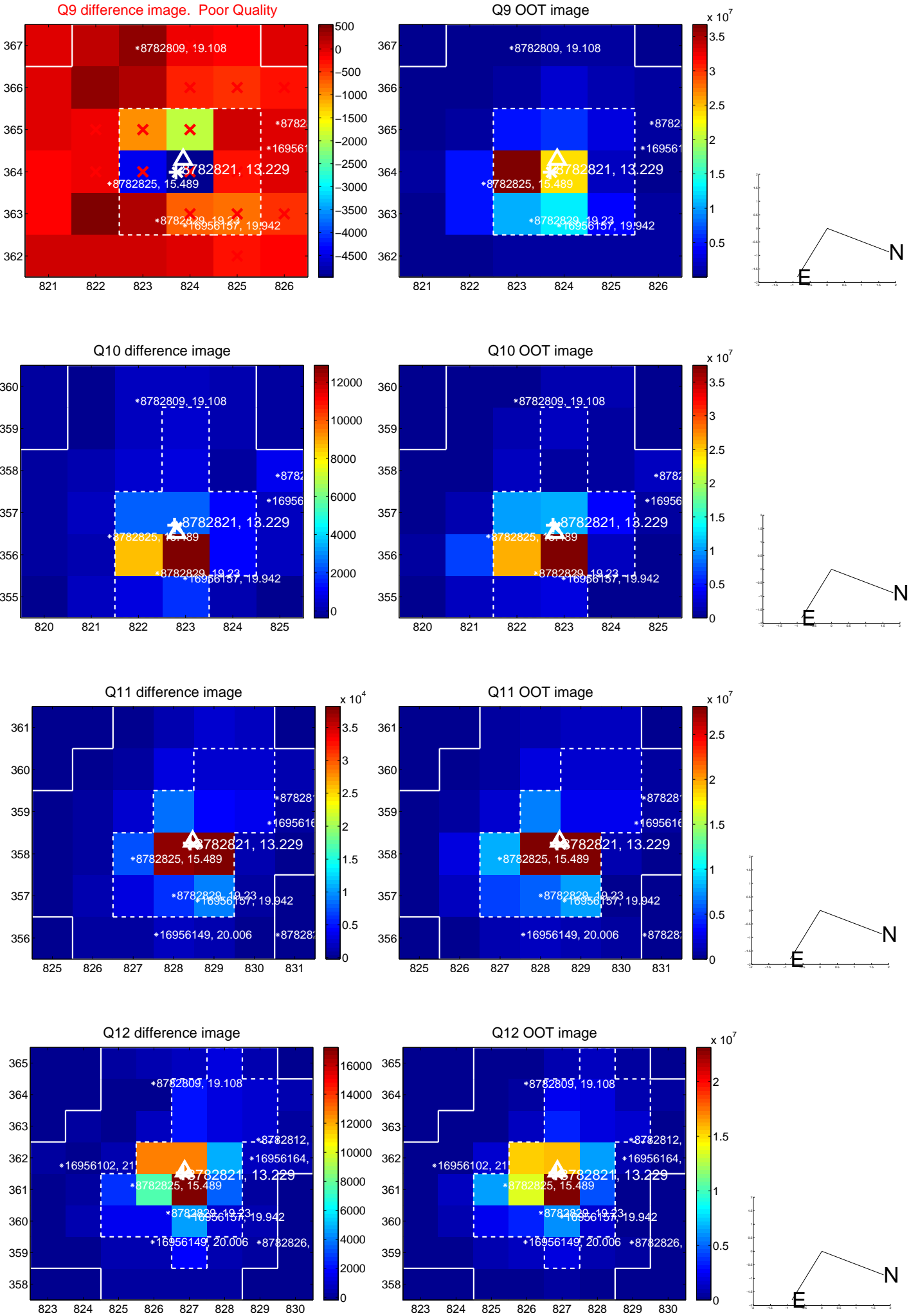
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



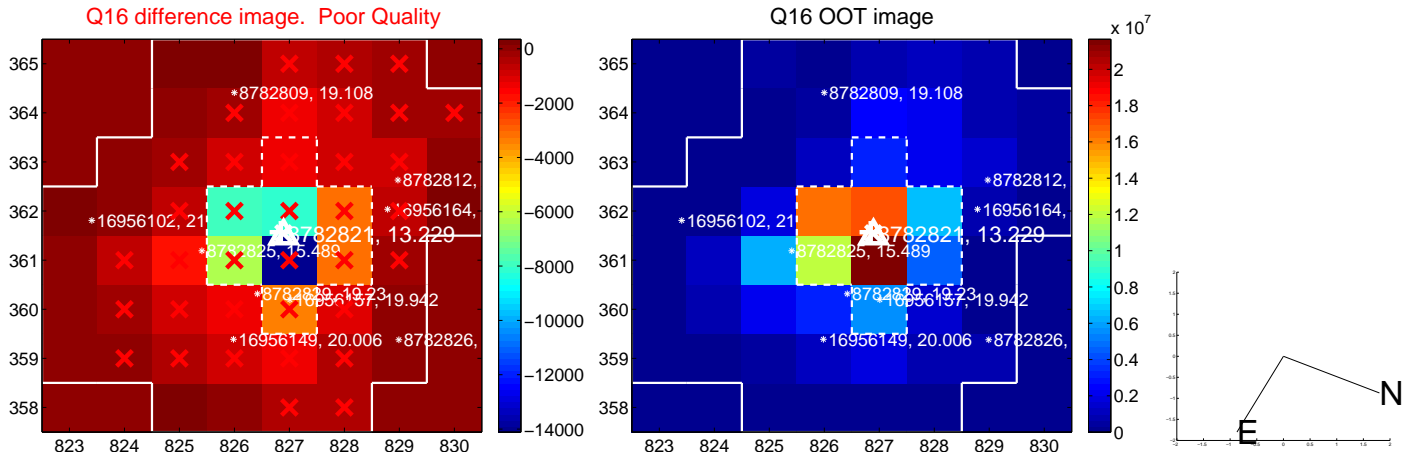
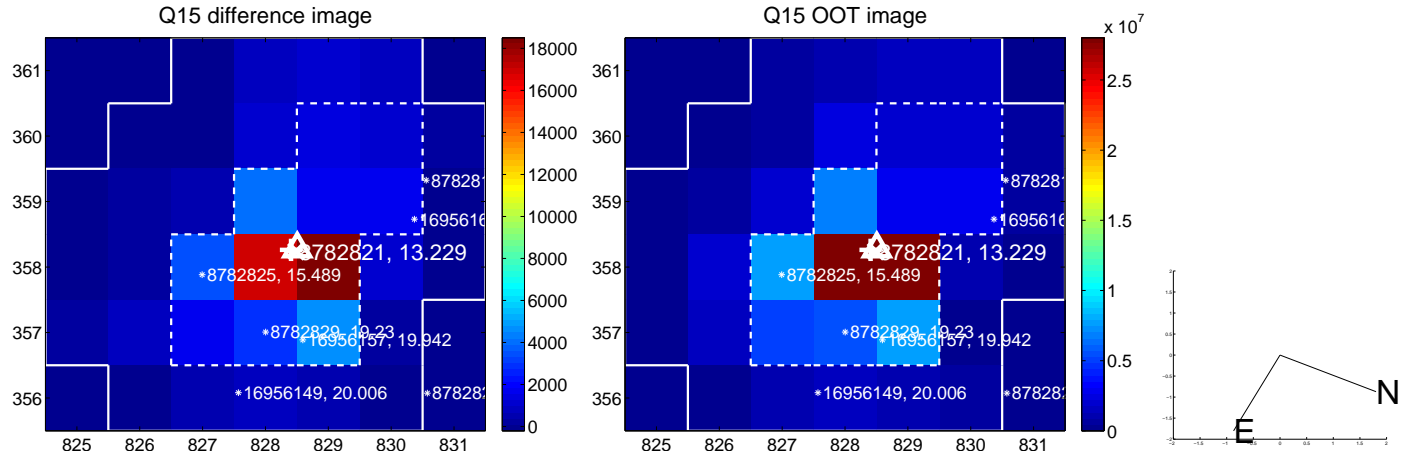
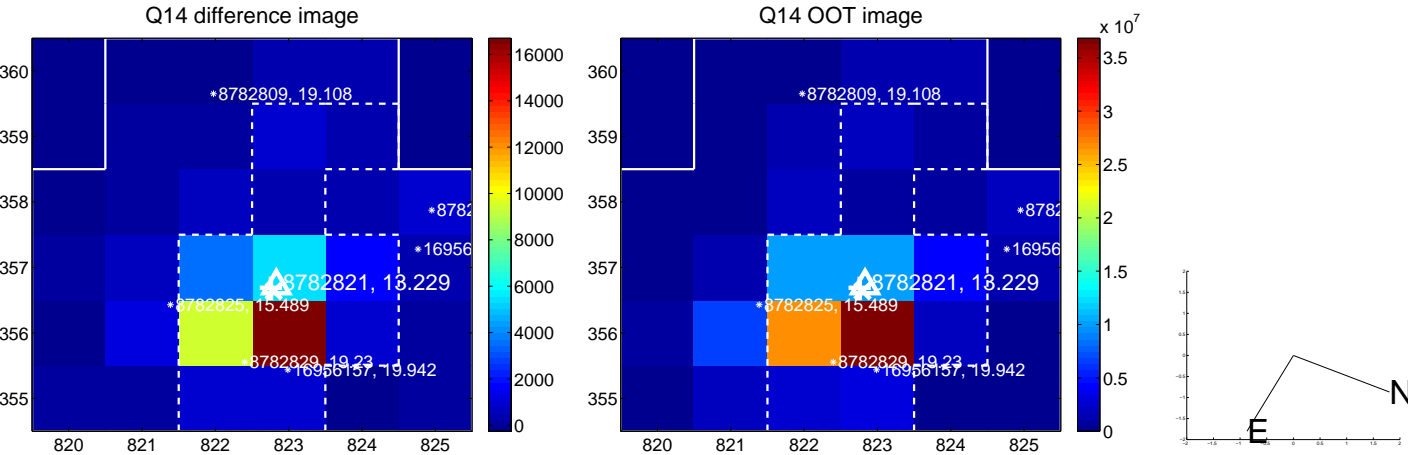
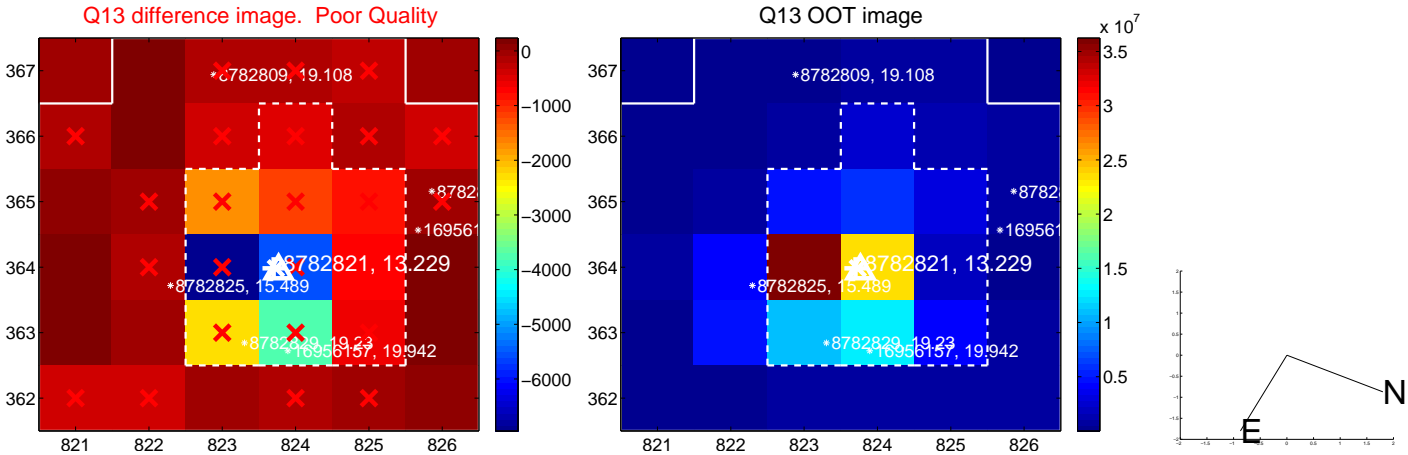
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



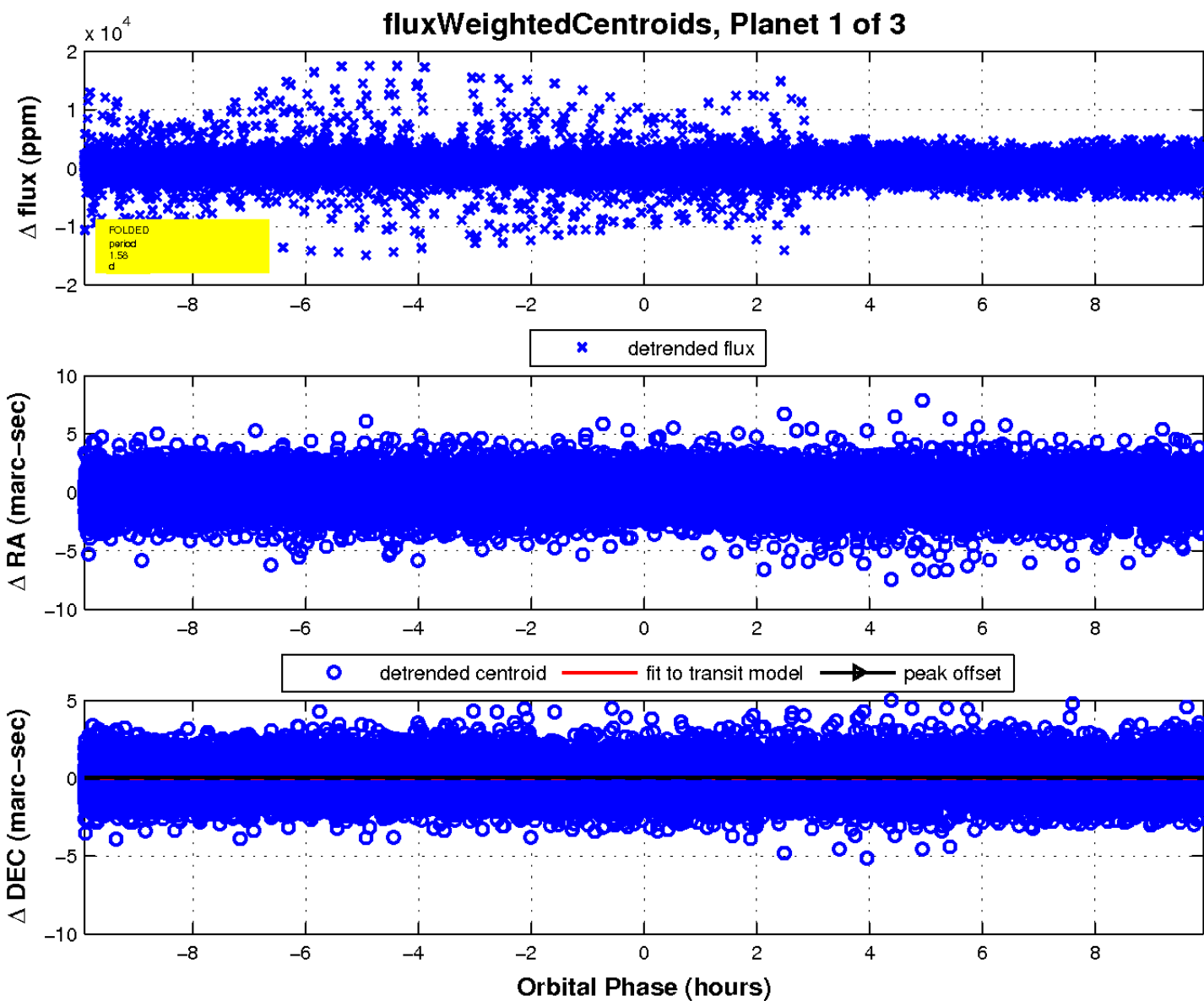
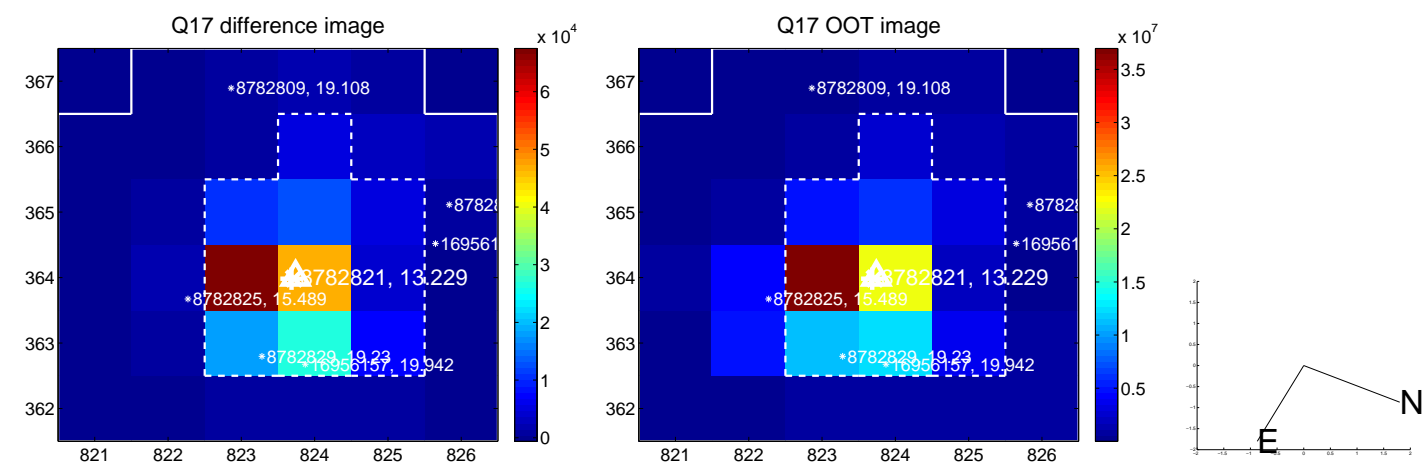
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



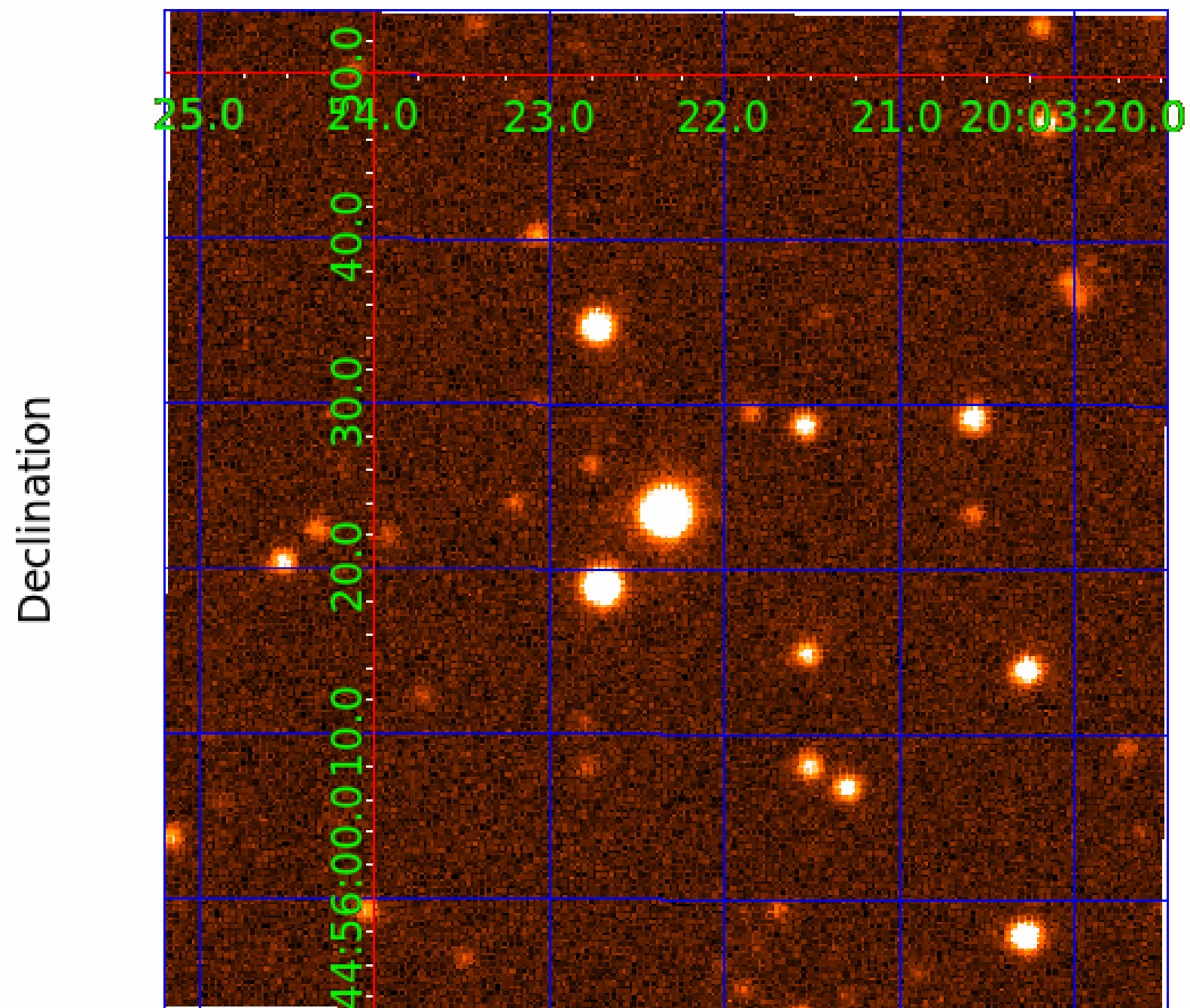
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008782821

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})
008782821-01	OBS	No	1.584904	133.240139	77.1	3.309	11.2	7.0	1.48	6722	1.51	4971.32
008782821-02	OBS	No	1.584909	132.905157	365.5	6.097	12.6	15.0	1.48	6722	4.76	4971.30
008782821-03	OBS	No	1.584847	132.307903	416.5	4.500	16.0	-1.0	1.48	6722	3.04	4971.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008782821-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008782821-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008782821-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

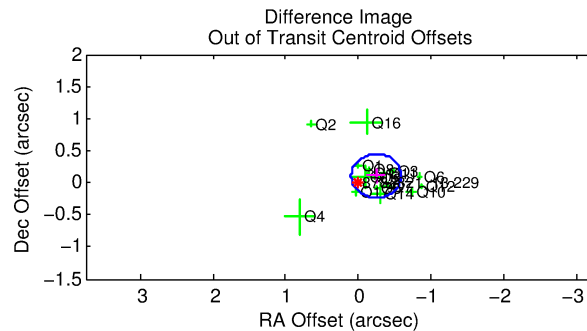
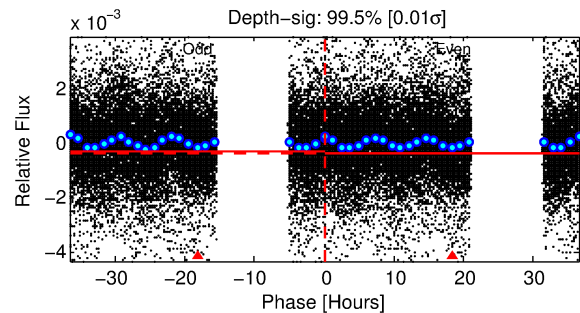
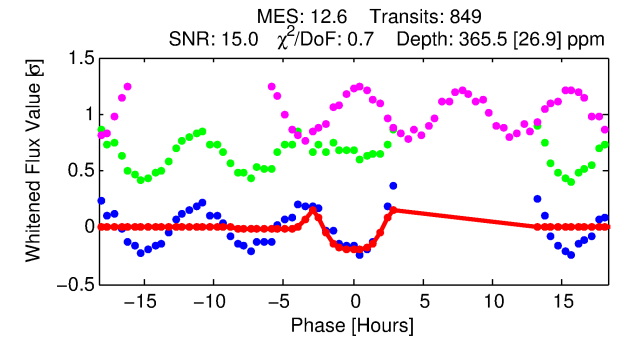
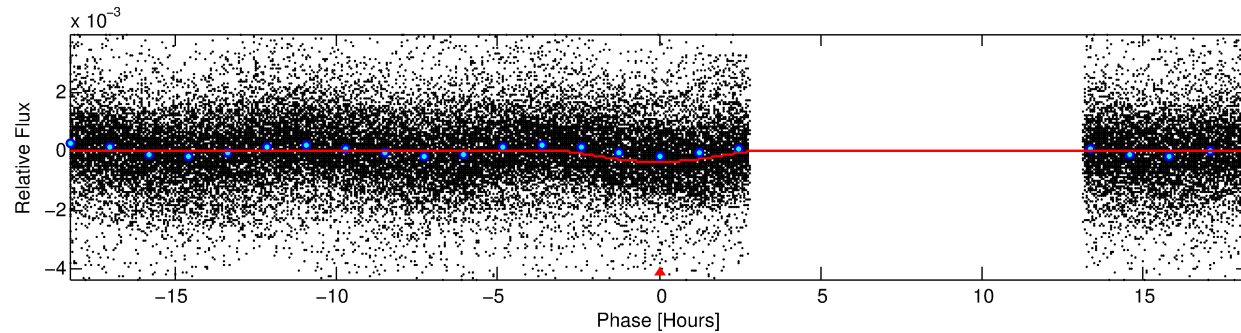
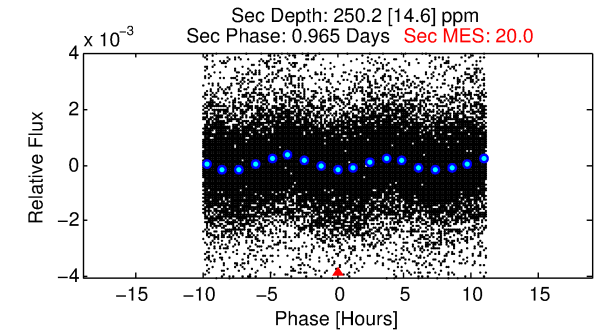
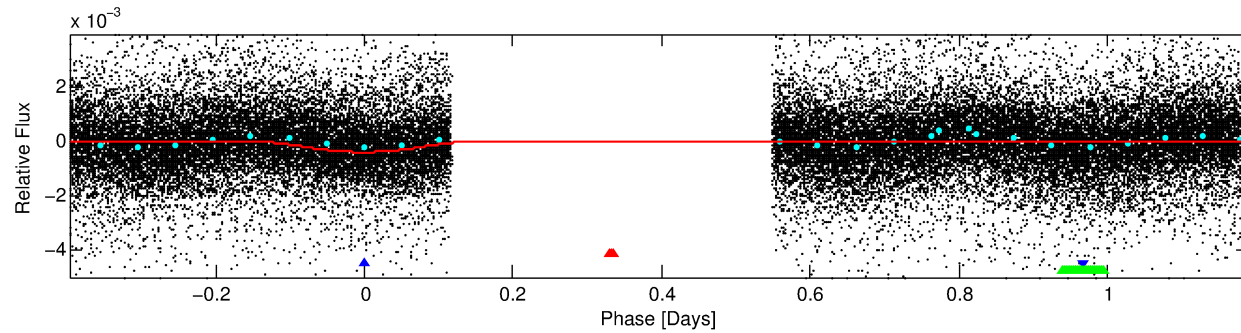
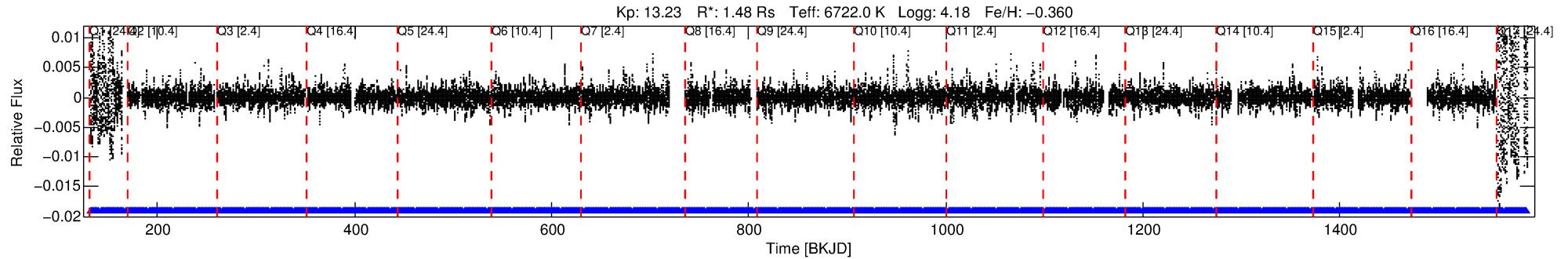
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008782821-02

No Significant Match Found

DV One-Page Summary

KIC: 8782821 Candidate: 2 of 3 Period: 1.585 d



DV Fit Results:

Period = 1.58491 [0.00001] d
Epoch = 132.9052 [0.0031] BKJD
Rp/R* = 0.0295 [0.0070]
a/R* = 1.14 [0.01]
b = 0.99 [0.01]
Seff = 4971.30 [1802.76]
Teq = 2141 [194] K
Rp = 4.76 [1.74] Re
a = 0.0283 [0.0065] AU
Ag = 4.88 [2.85] [1.36σ]
Teff = 4920 [617] K [4.30σ]

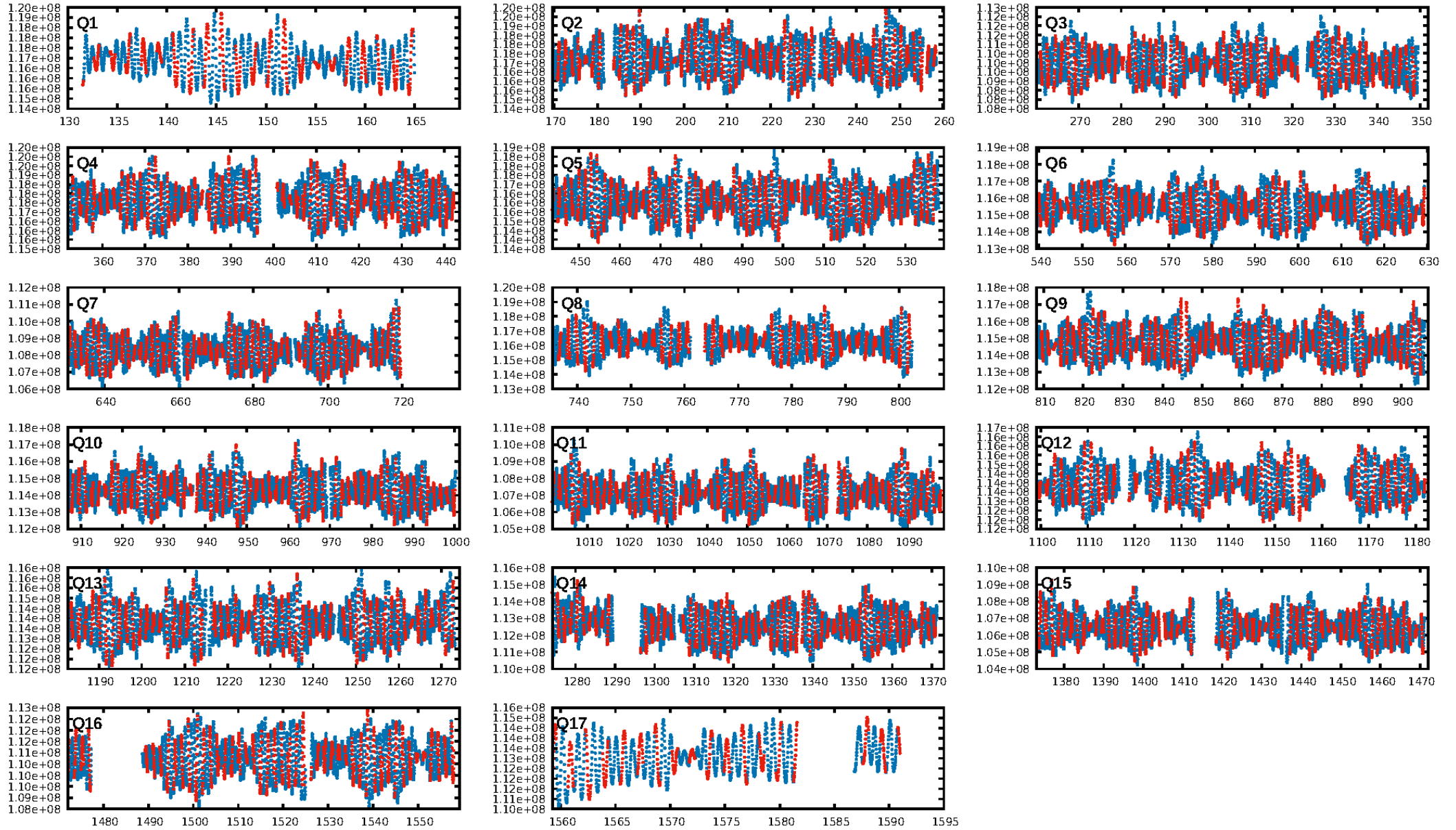
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [810/810]
GhostDiagnostic-chr: 0.9262
Centroid-sig: N/A
Centroid-so: 0.423 arcsec [2.94σ]
OotOffset-rm: 0.265 arcsec [2.33σ]
KicOffset-rm: 0.155 arcsec [1.24σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 0.00 [0/17]

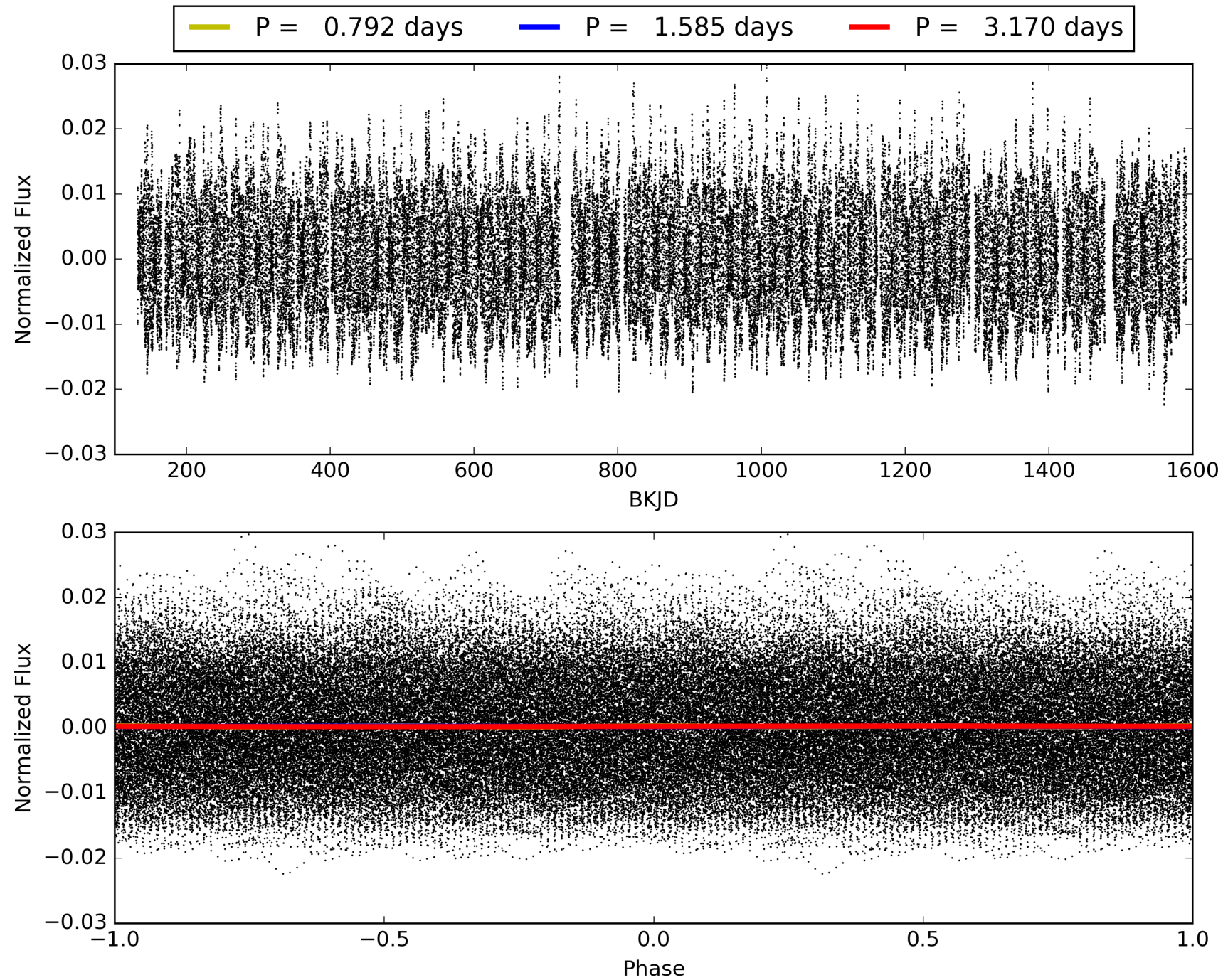
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:52:23 Z

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

TCE 008782821-02, PDC Light Curves

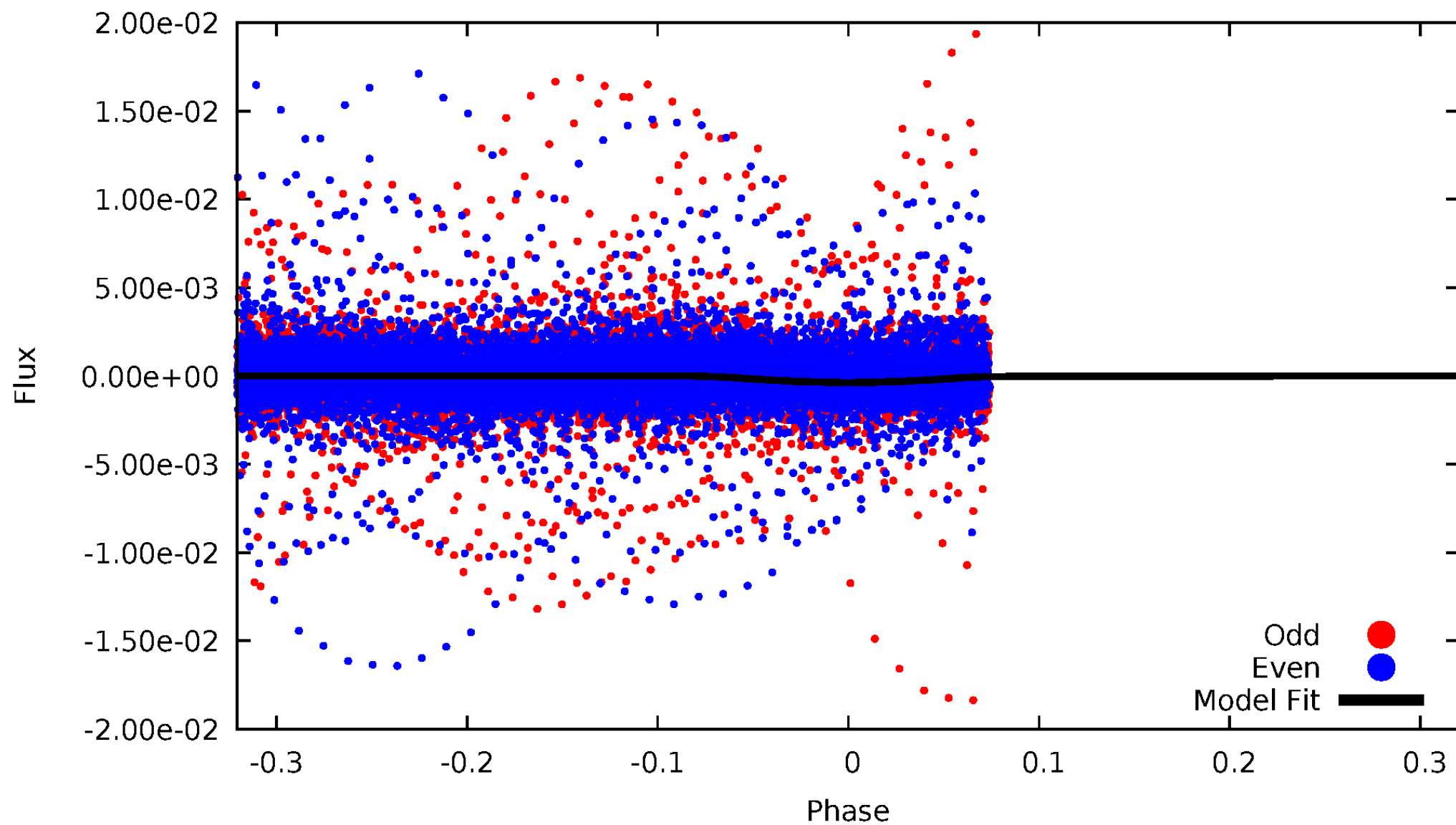


TCE 008782821-02



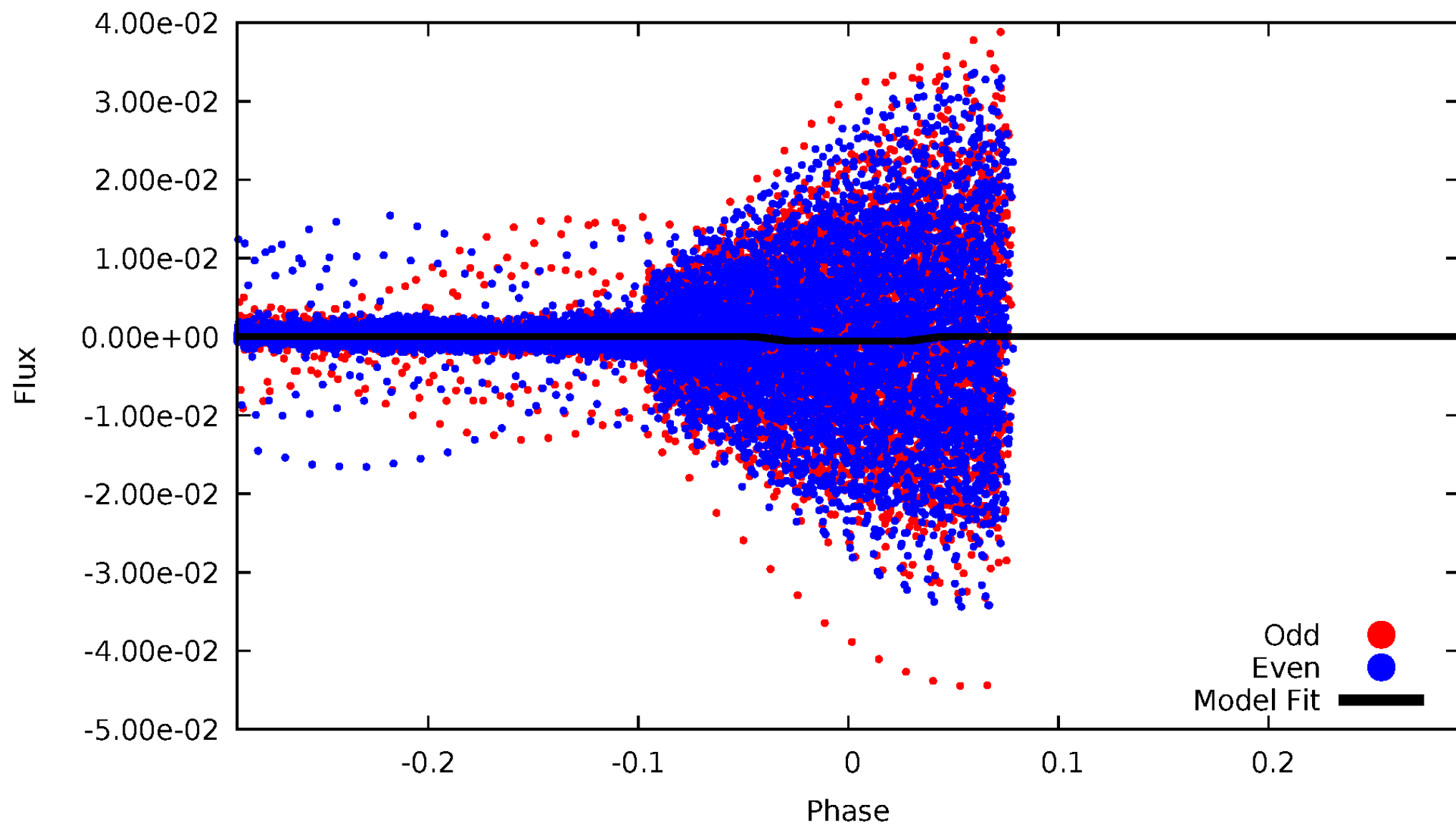
DV Odd/Even

TCE 008782821-02



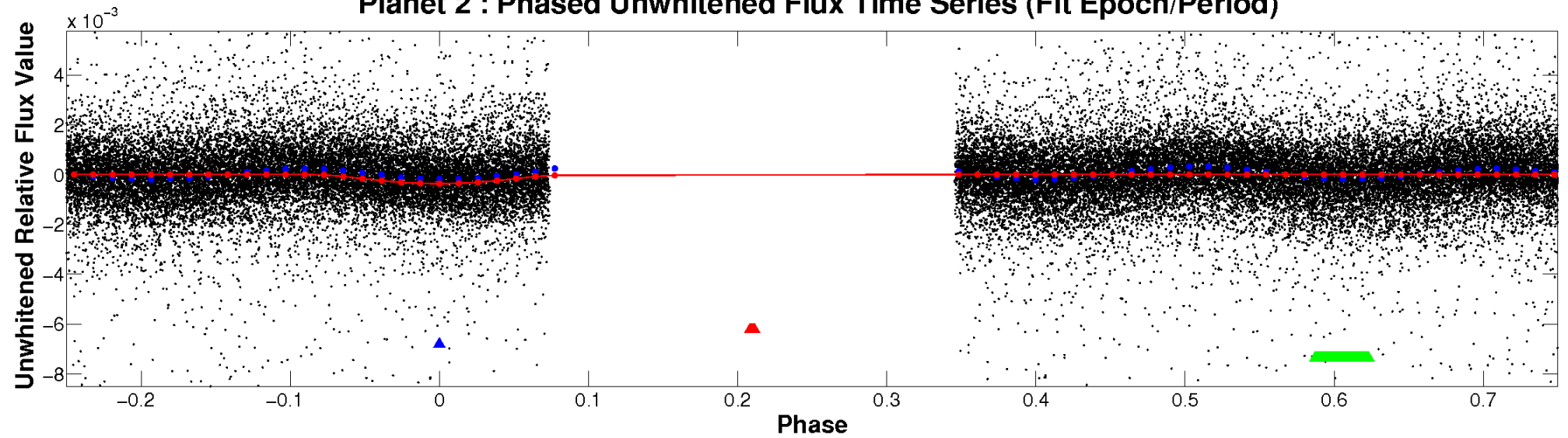
ALT Odd/Even

TCE 008782821-02

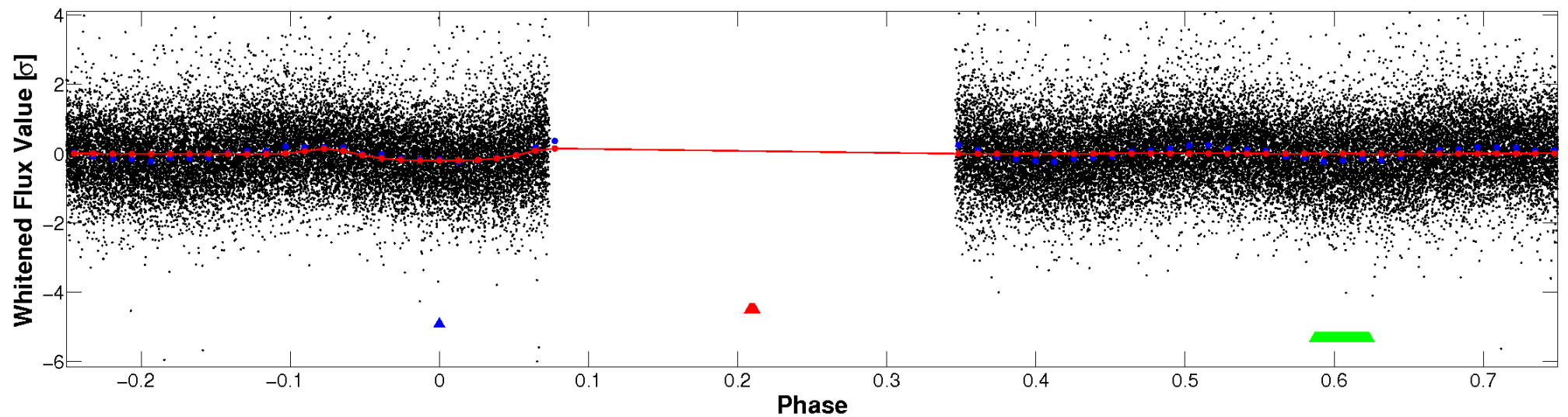


Non-Whitened Vs. Whitened Light Curve

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

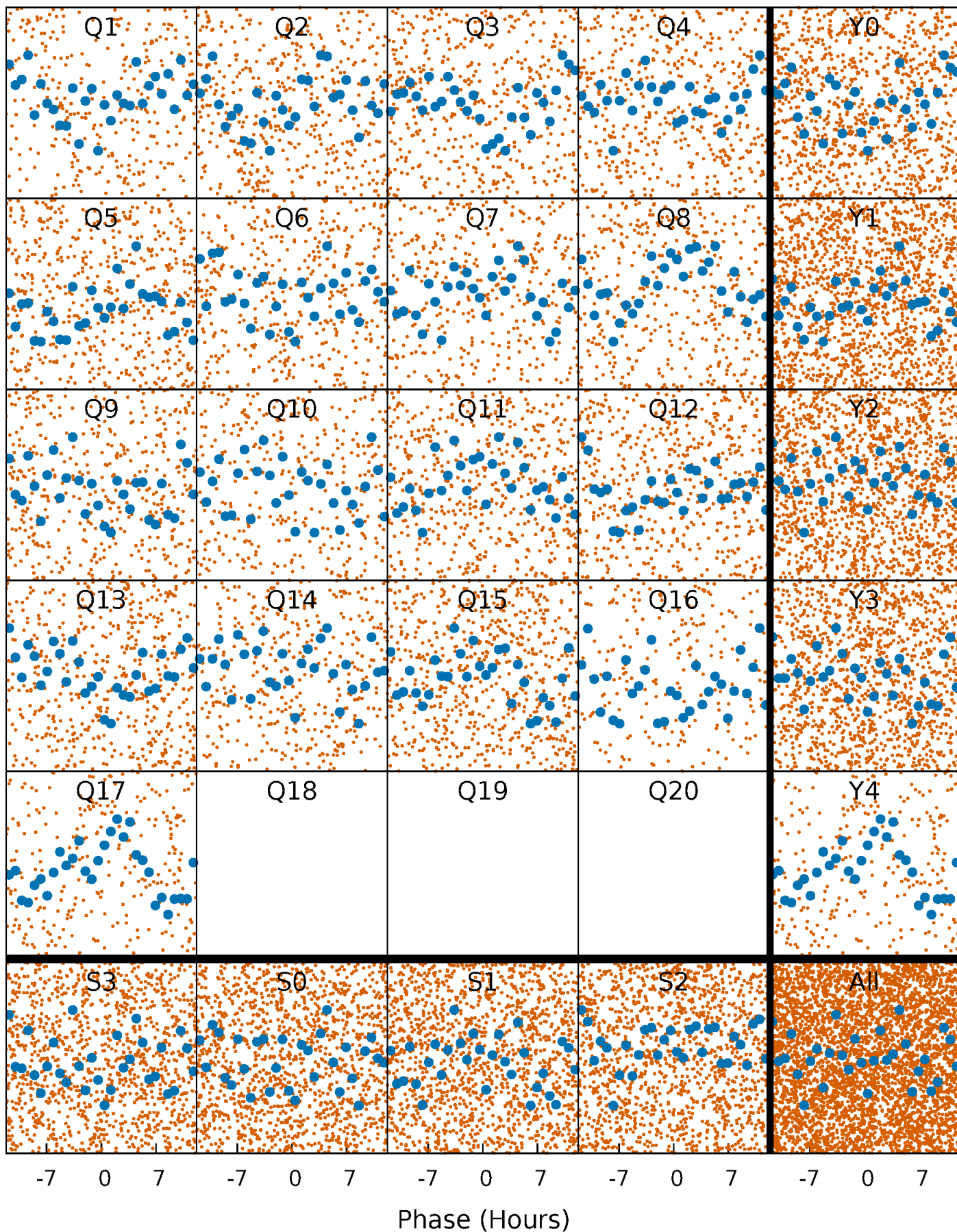


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



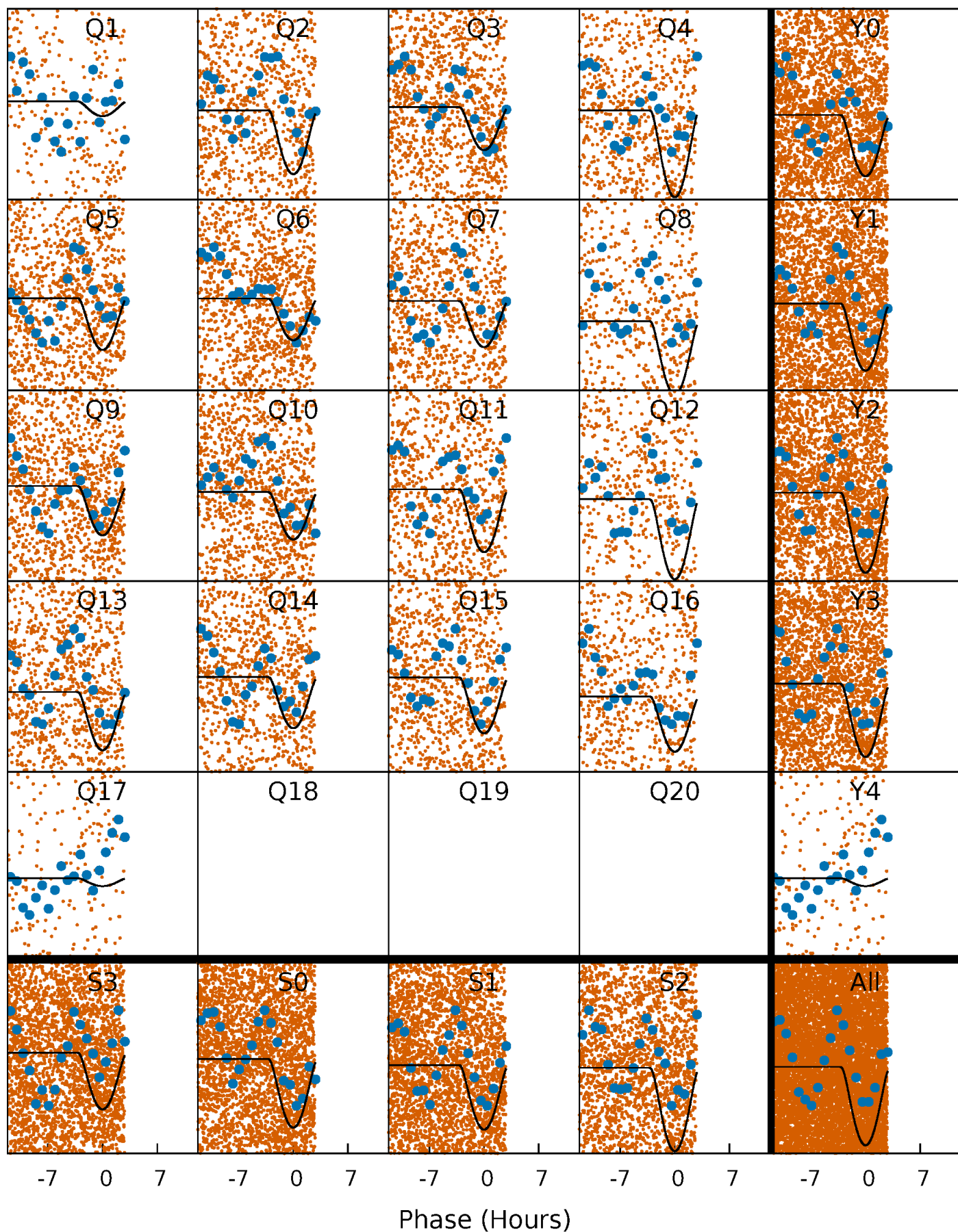
PDC Quarter-Phased Transit Curves

TCE 008782821-02 P= 1.584909 Days $T_0=132.905158$ (BKJD)



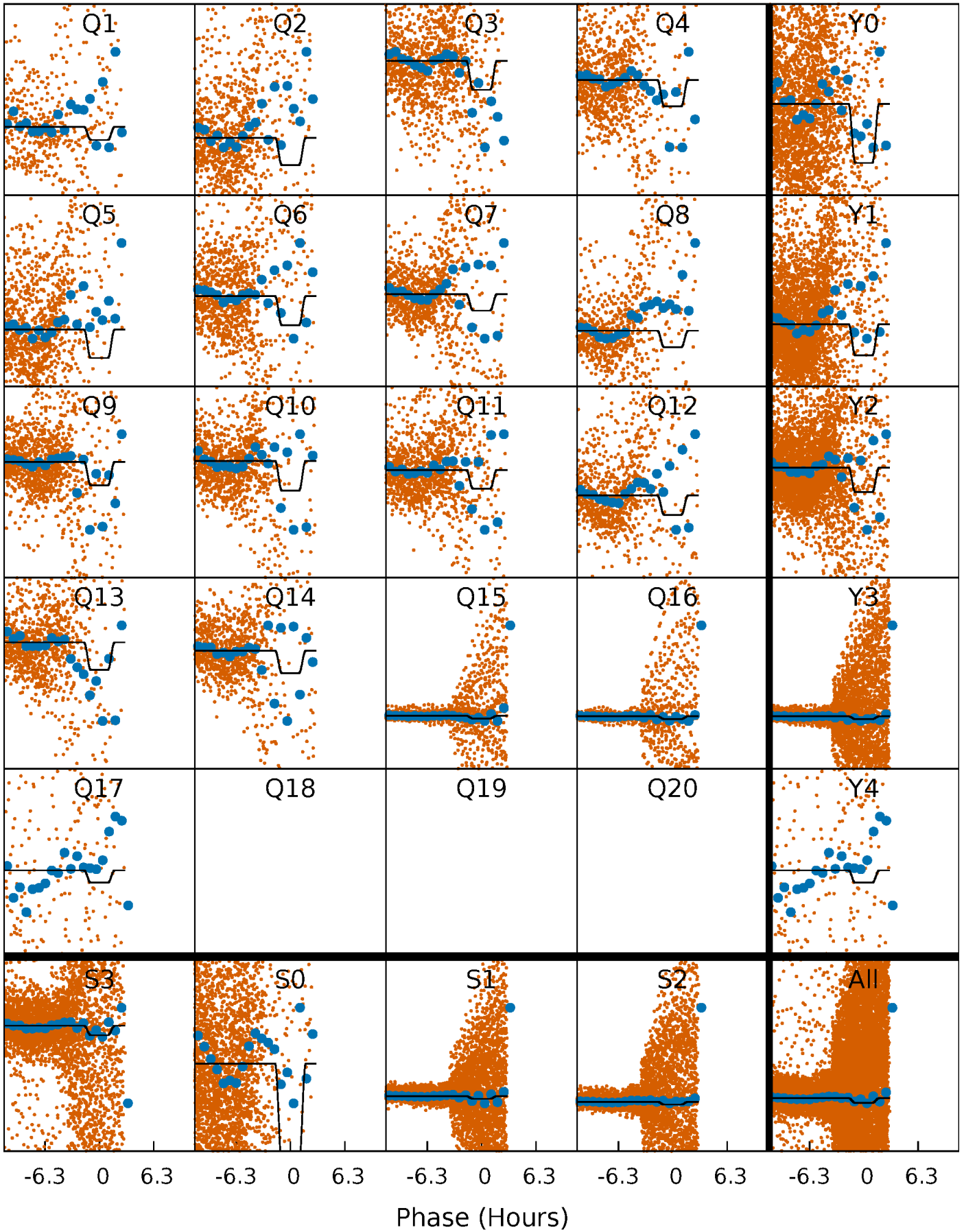
DV Quarter-Phased Transit Curves

TCE 008782821-02 P= 1.584909 Days $T_0=132.905158$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

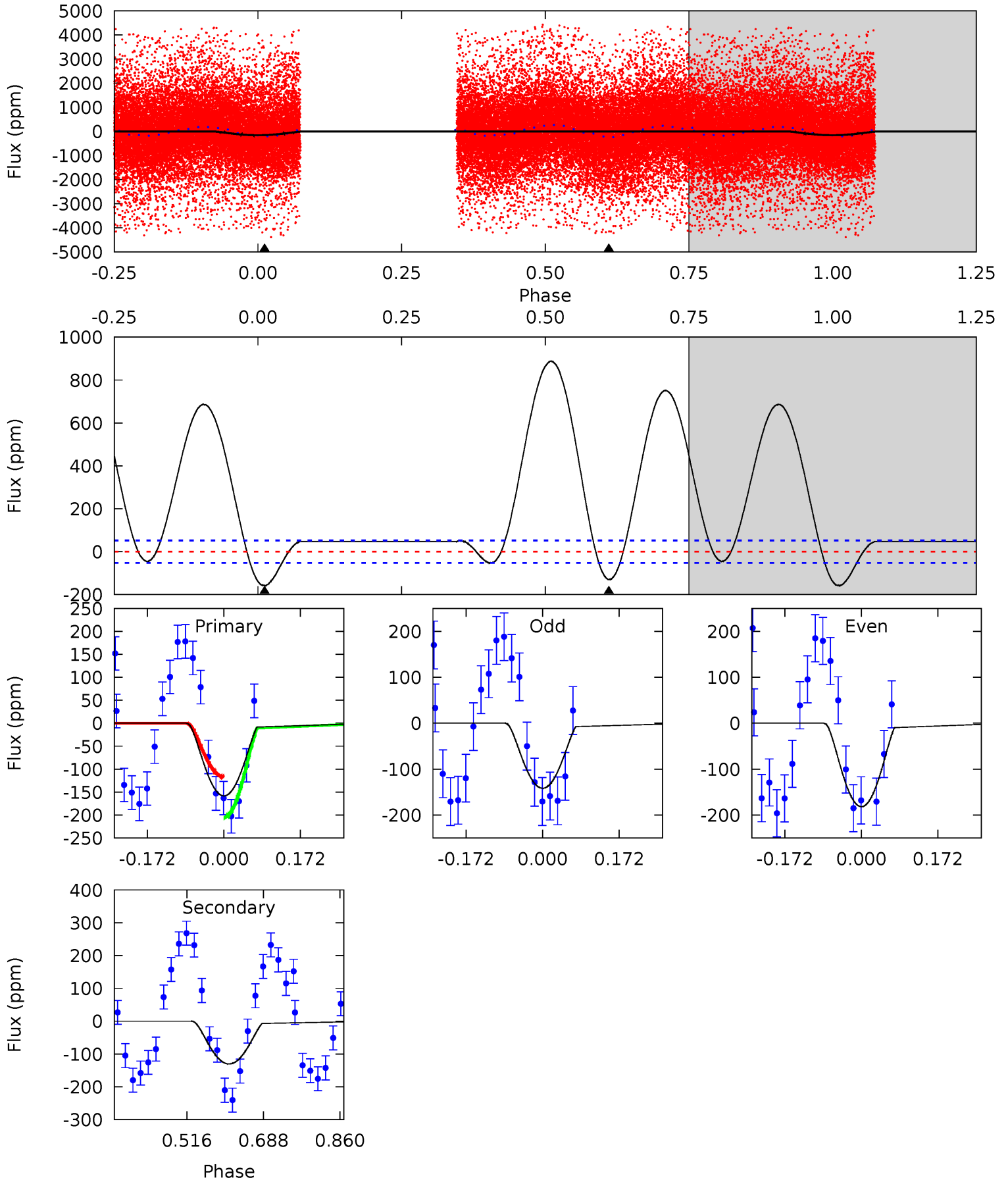
TCE 008782821-02 $P = 1.584888$ Days $T_0 = 132.912804$ (BKJD)



DV Model-Shift Uniqueness Test

008782821-02, P = 1.584909 Days, E = 131.320249 Days

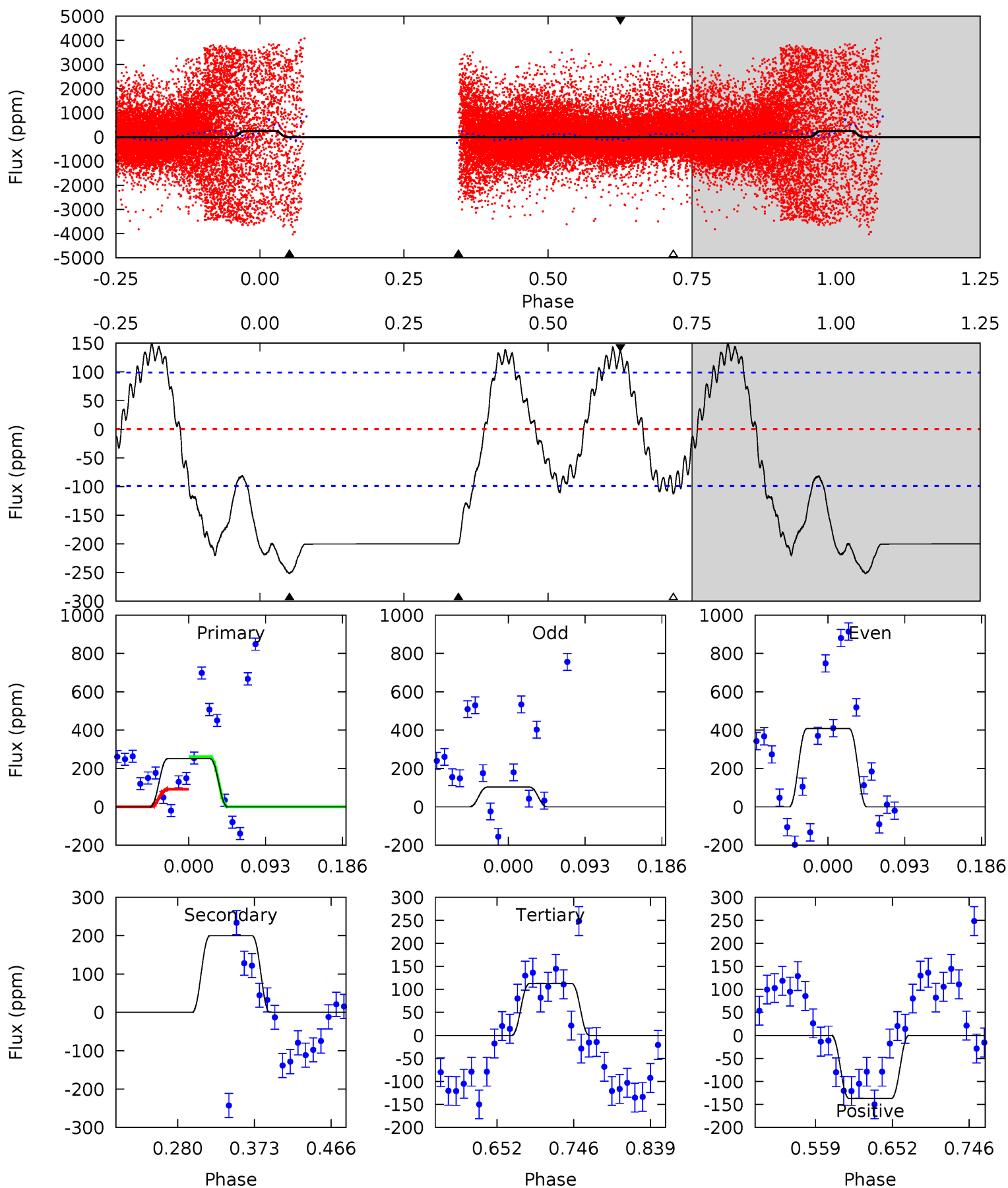
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	11.1	0	0	4.45	1.37	3.93	13.4	13.4	11.1	11.1	1.71	0.59	0.85	3.89



Alt Model-Shift Uniqueness Test

008782821-02, P = 1.584888 Days, E = 131.327916 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	9.27	5.23	6.36	4.58	1.68	4.44	6.43	5.29	4.04	2.91	7.91	-1.27	0.37	0



Stellar Parameters For KIC 008782821

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6722^{+182}_{-243}	$4.181^{+0.180}_{-0.180}$	$-0.360^{+0.250}_{-0.300}$	$1.477^{+0.410}_{-0.336}$	$1.214^{+0.170}_{-0.189}$	$0.531^{+0.500}_{-0.260}$
	+3%/-4%	+4%/-4%	+69%/-83%	+28%/-23%	+14%/-16%	+94%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008782821-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-130 ± 12	$4.72^{+1.47}_{-1.27}$	2973^{+253}_{-197}	4241^{+579}_{-376}	$2.520^{+2.267}_{-1.020}$
Alt.	-200 ± 22	$3.70^{+1.39}_{-1.18}$	2998^{+217}_{-213}	5198^{+1011}_{-583}	$6.519^{+7.055}_{-3.103}$

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 $A_{obs} \gg 1.0$

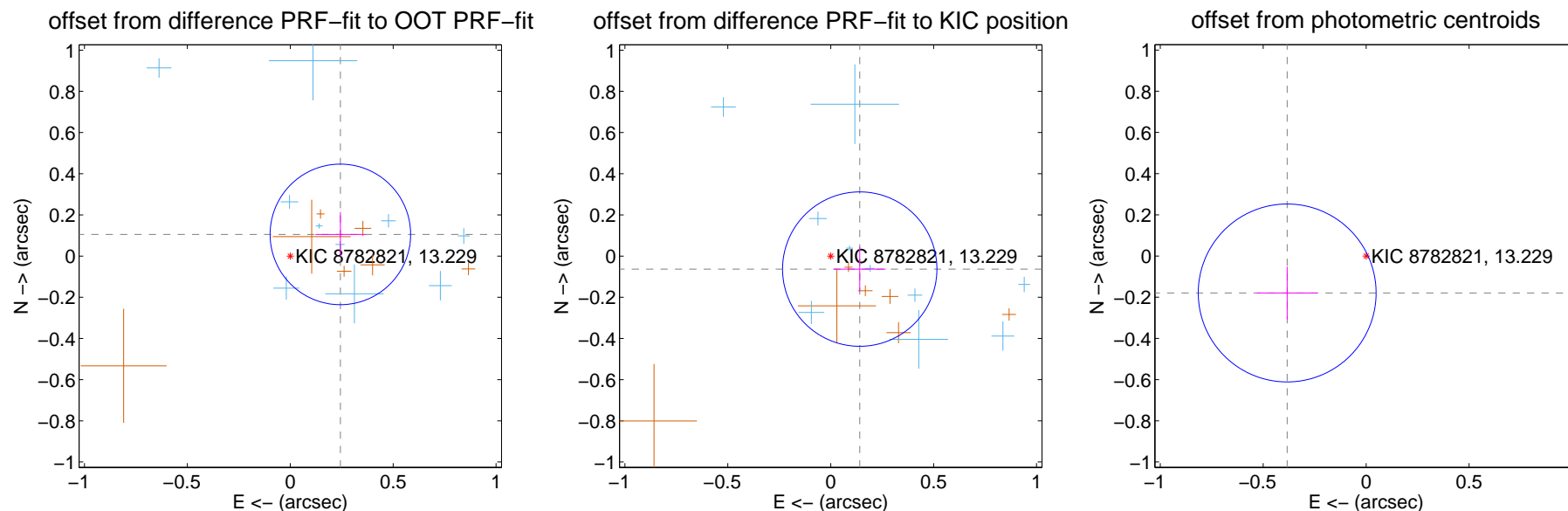
DV Centroid Data

Supplemental centroid analysis for 008782821-02. Kepler magnitude: 13.23. Transit SNR 14.98

There are 10 quarters with good PRF difference image offsets

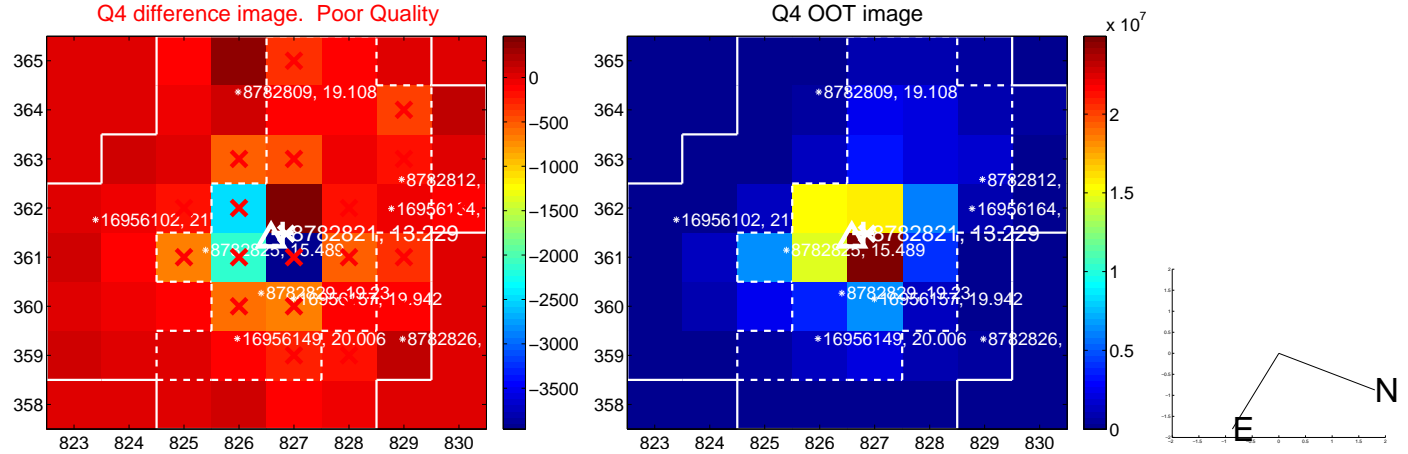
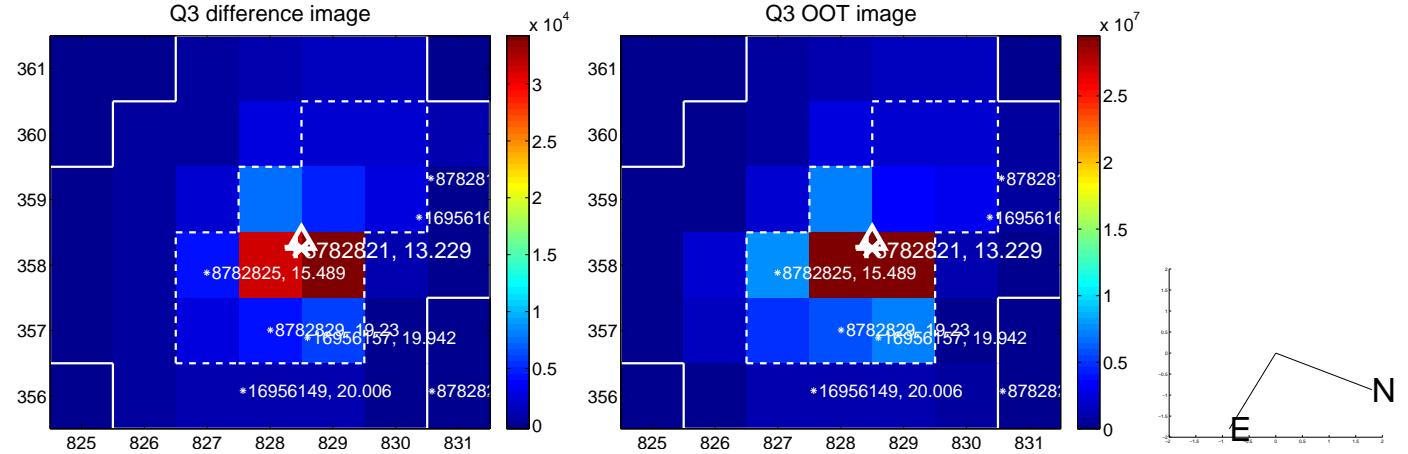
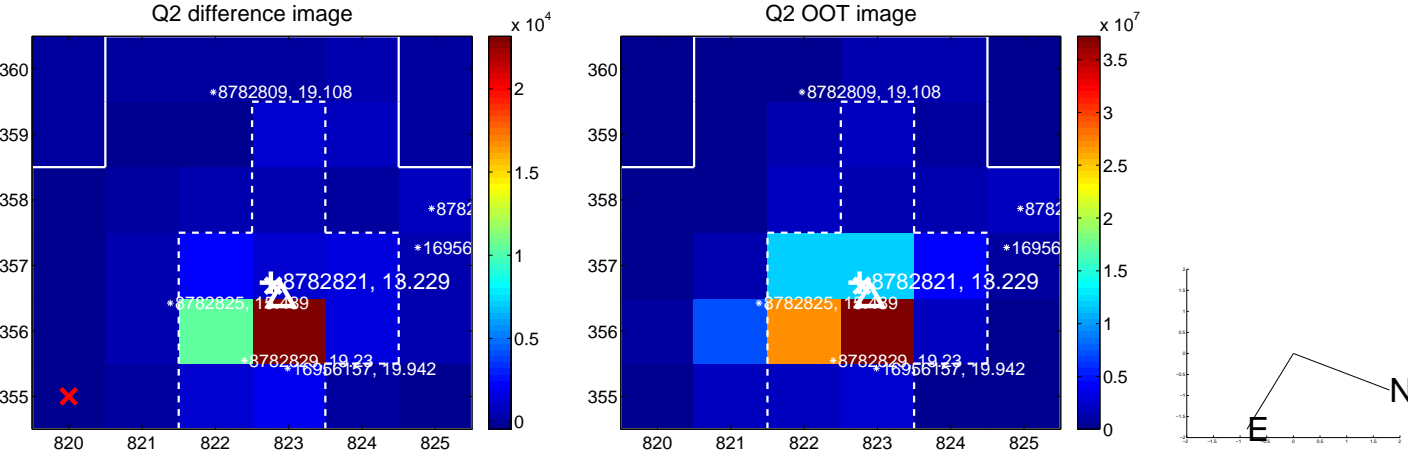
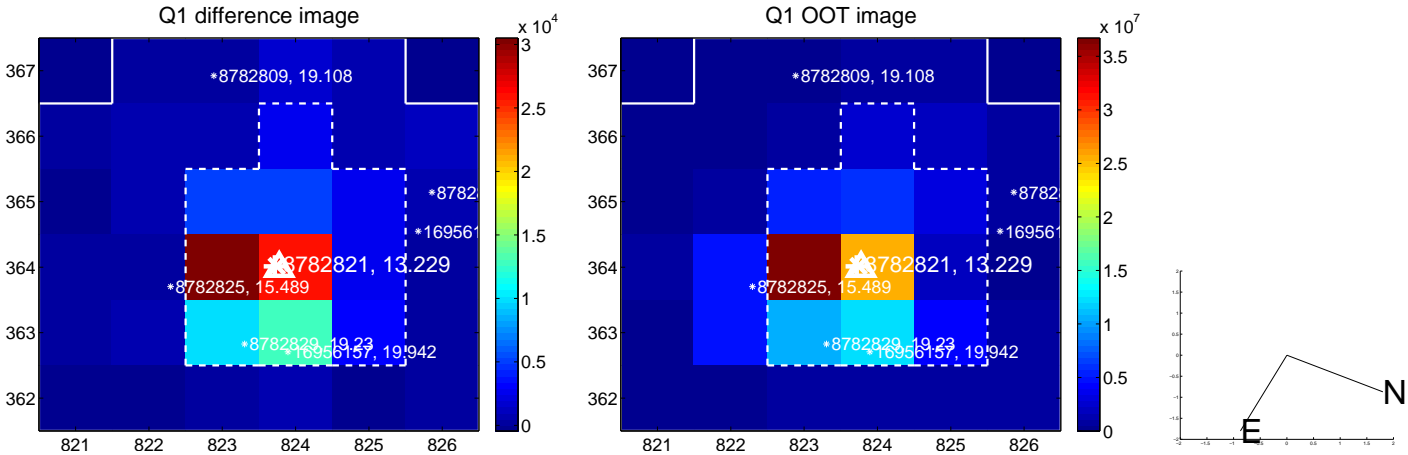
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.265 ± 0.114	2.33	-0.243 ± 0.121	0.105 ± 0.109
PRF-fit source offset from KIC position	0.155 ± 0.125	1.24	-0.141 ± 0.126	-0.063 ± 0.108
photometric centroid source offset	0.42 ± 0.14	2.94	0.38 ± 0.15	-0.18 ± 0.13

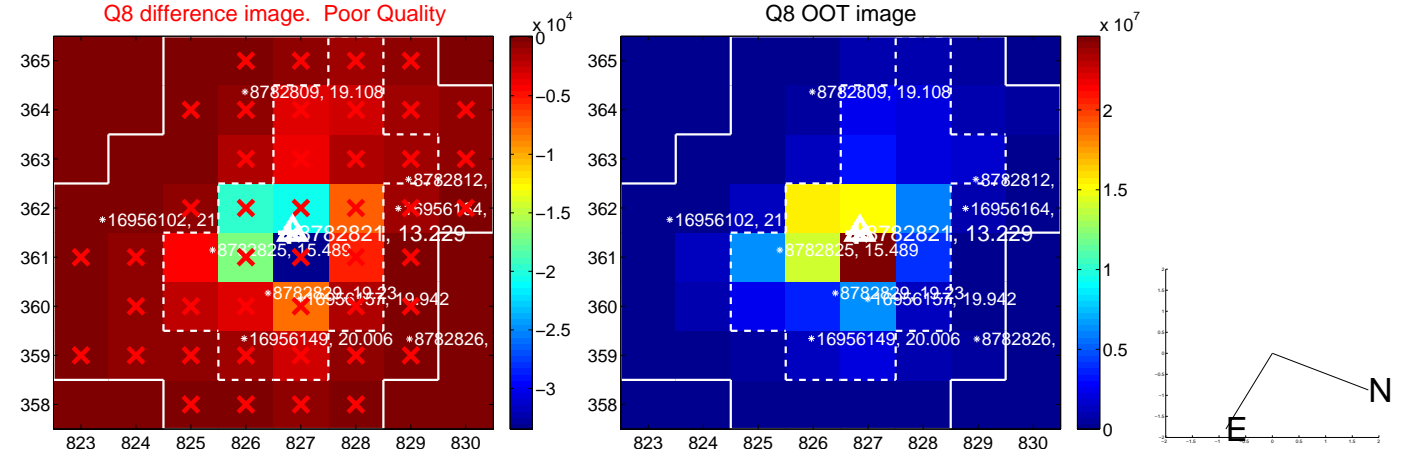
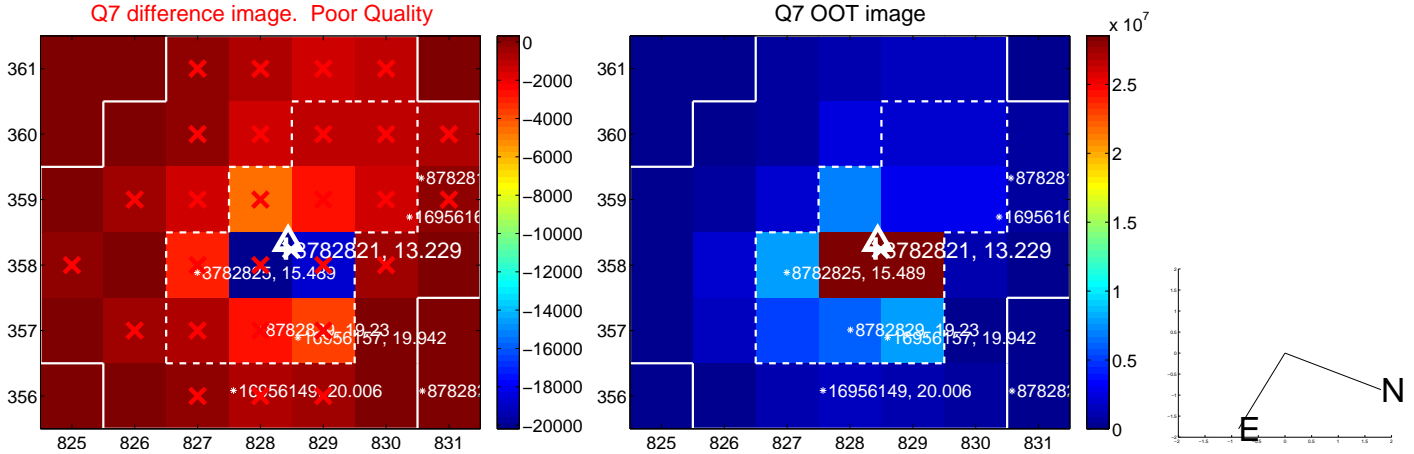
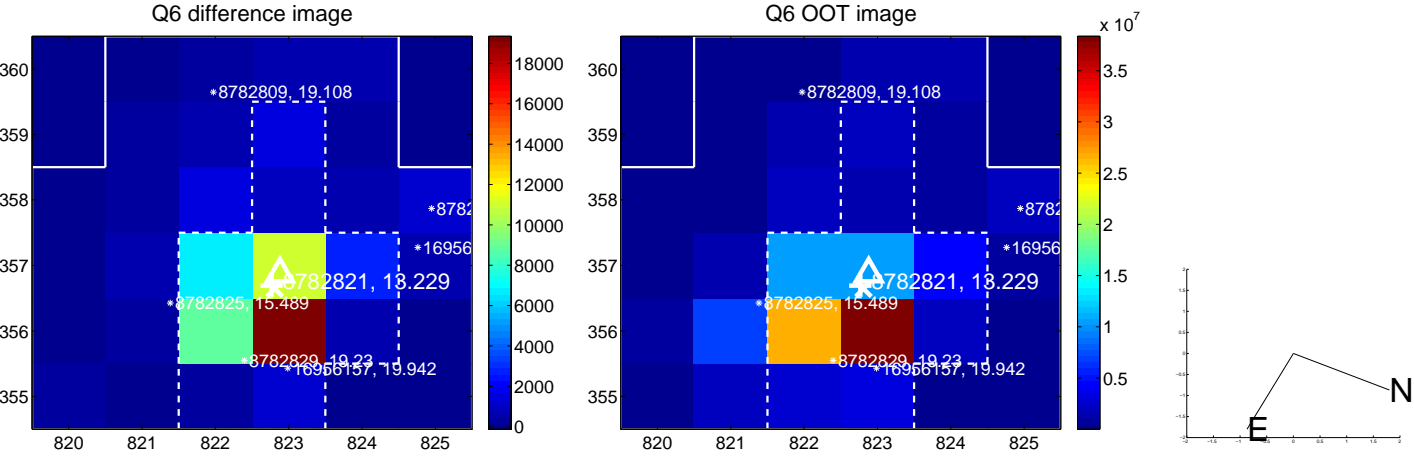
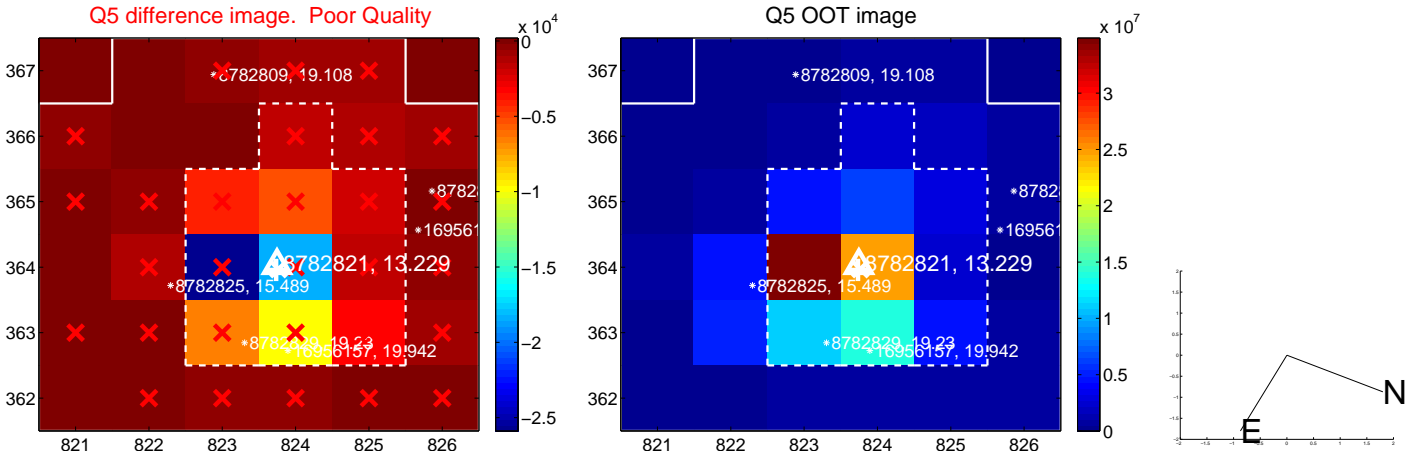


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

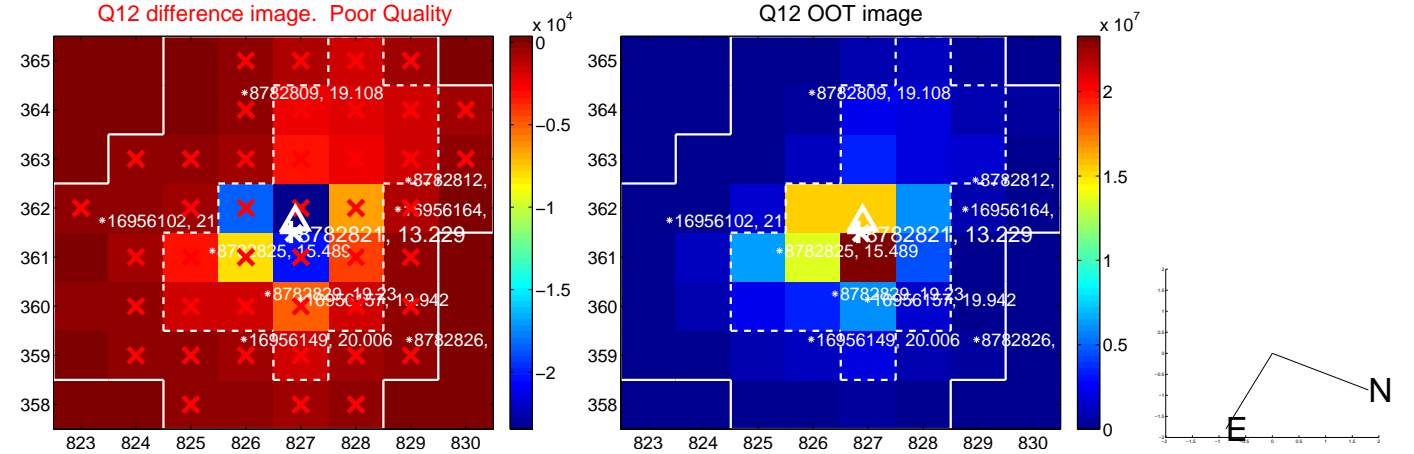
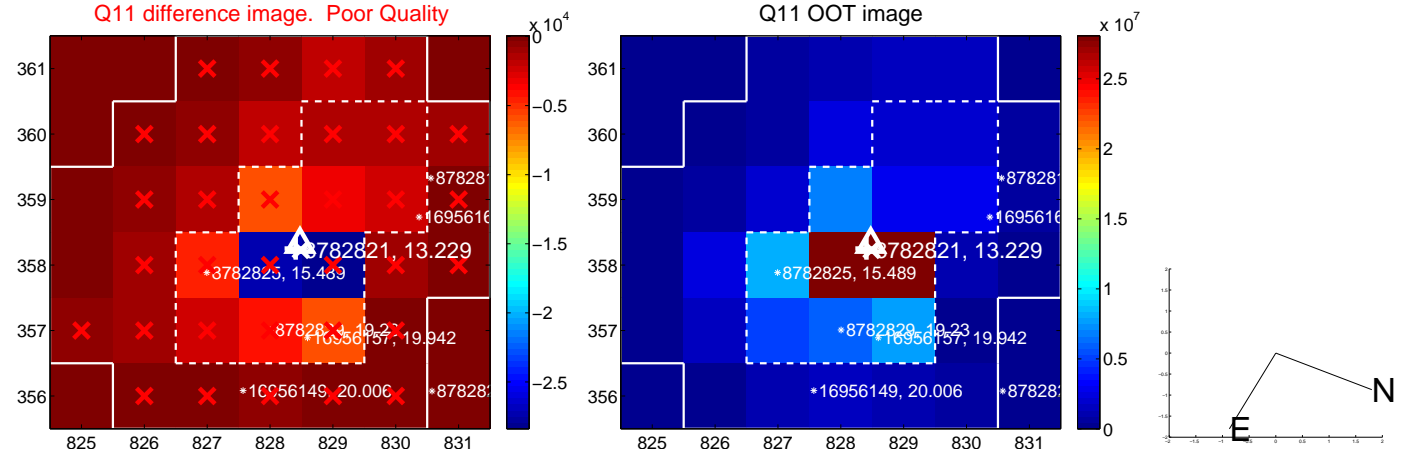
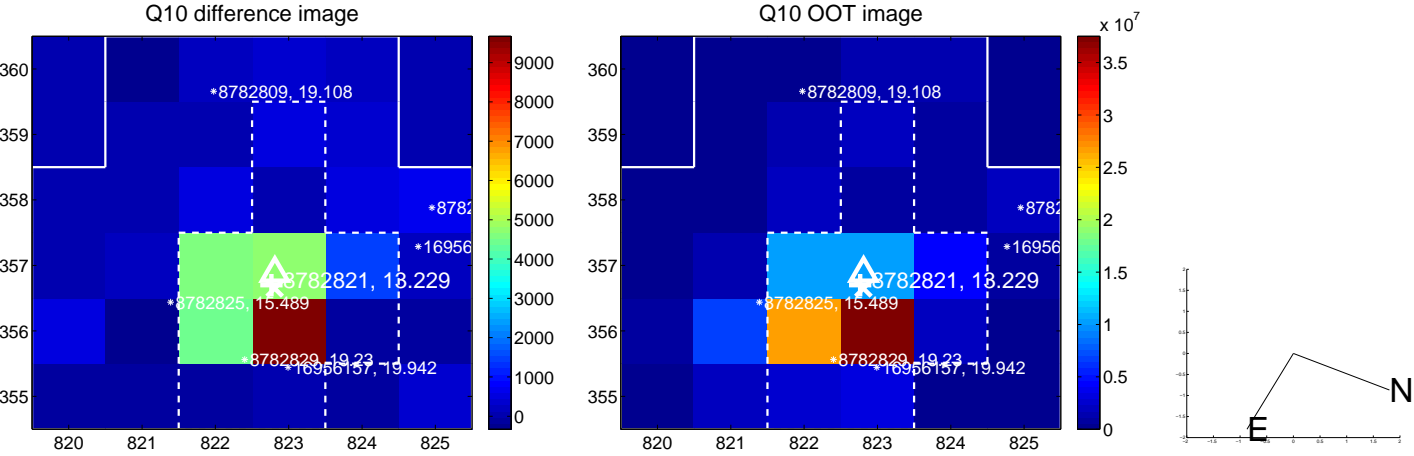
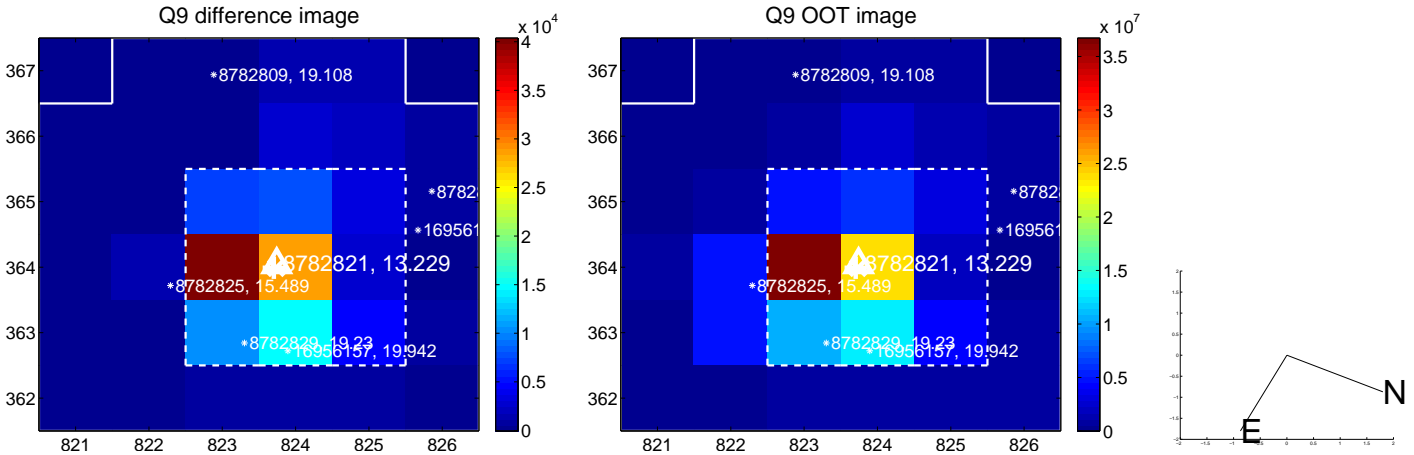
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



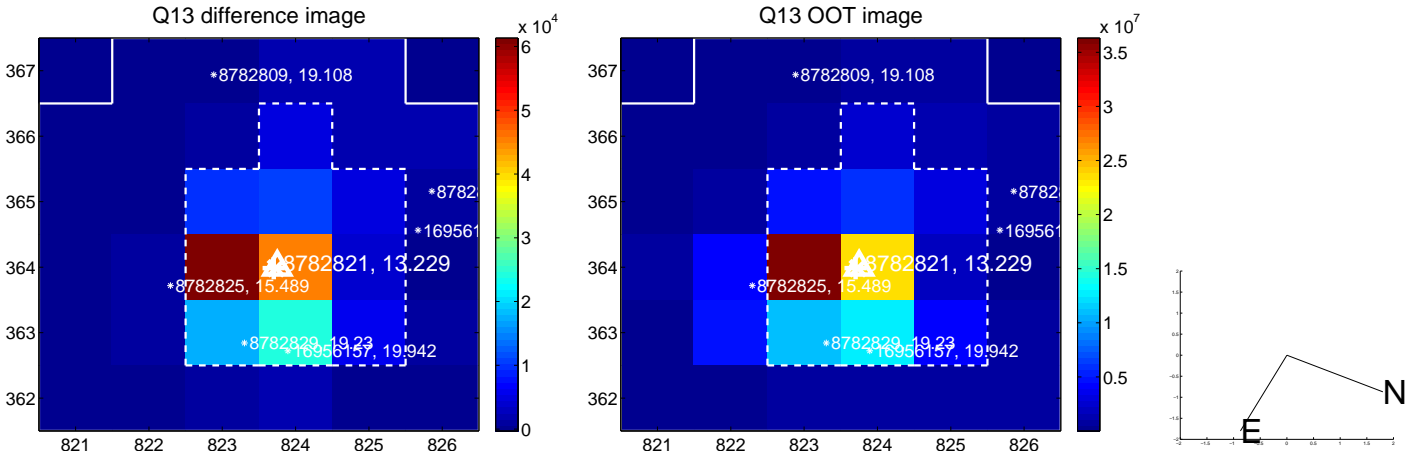
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



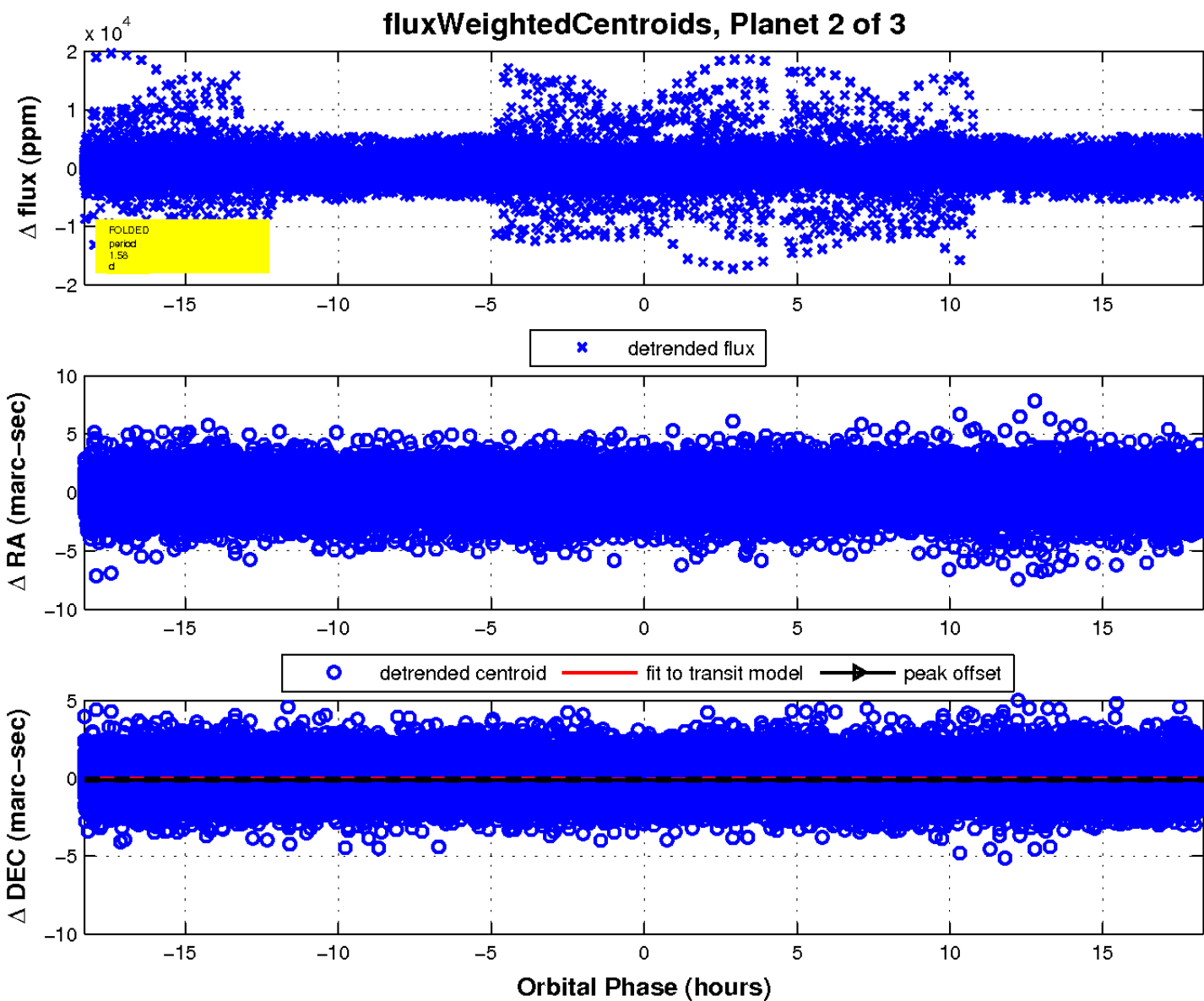
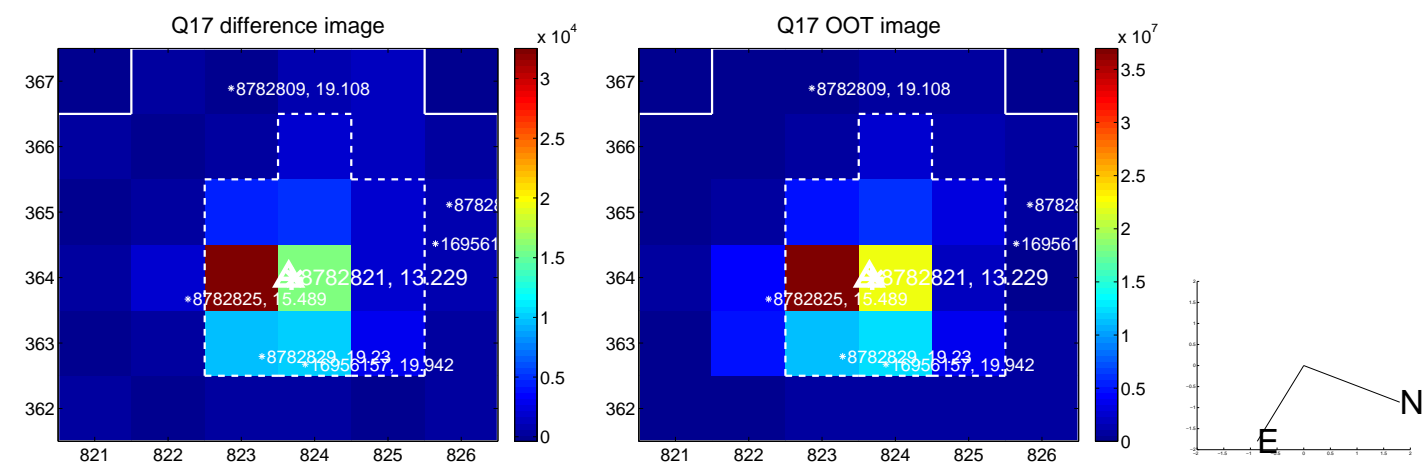
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



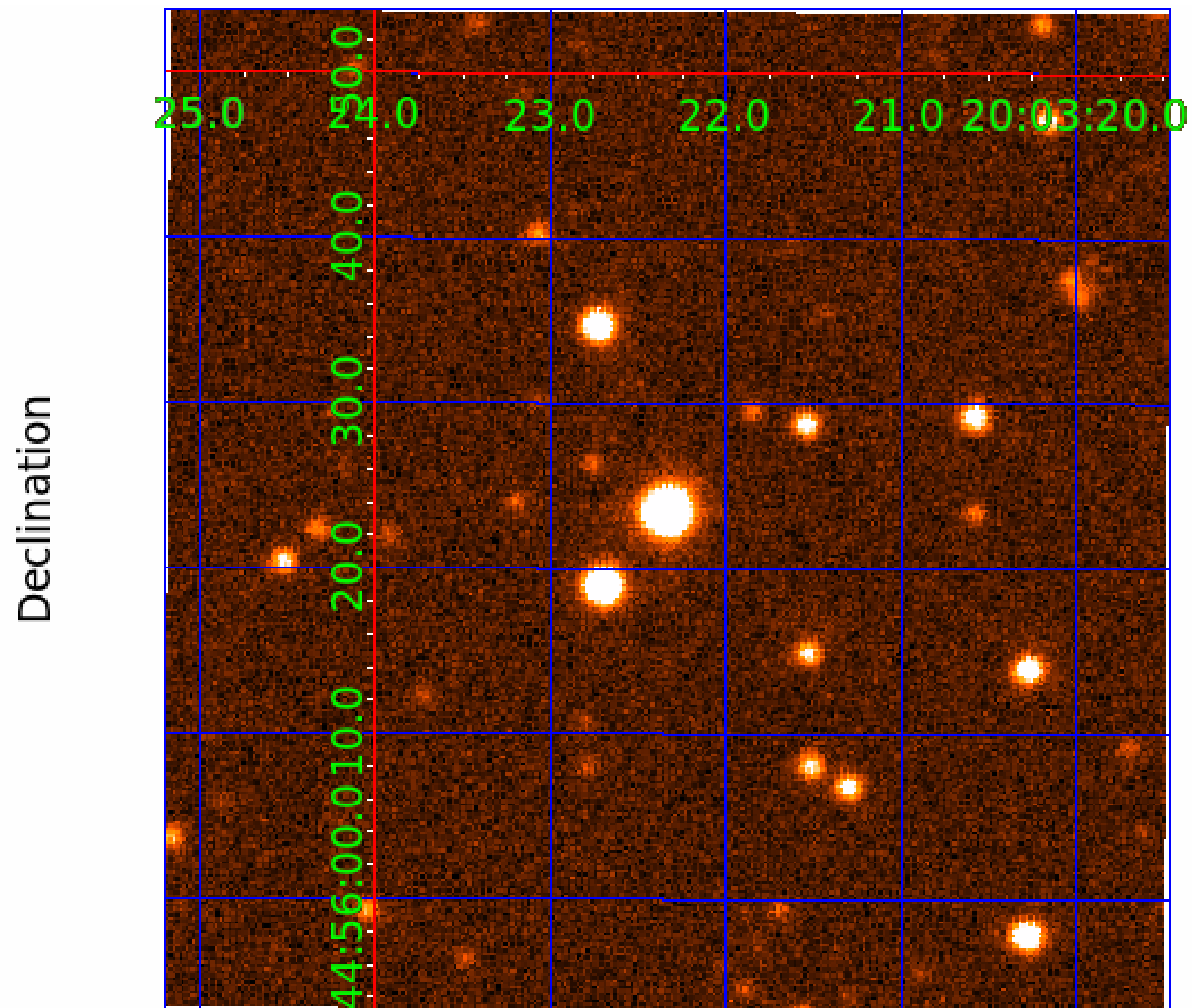
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008782821

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})
008782821-01	OBS	No	1.584904	133.240139	77.1	3.309	11.2	7.0	1.48	6722	1.51	4971.32
008782821-02	OBS	No	1.584909	132.905157	365.5	6.097	12.6	15.0	1.48	6722	4.76	4971.30
008782821-03	OBS	No	1.584847	132.307903	416.5	4.500	16.0	-1.0	1.48	6722	3.04	4971.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008782821-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008782821-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008782821-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

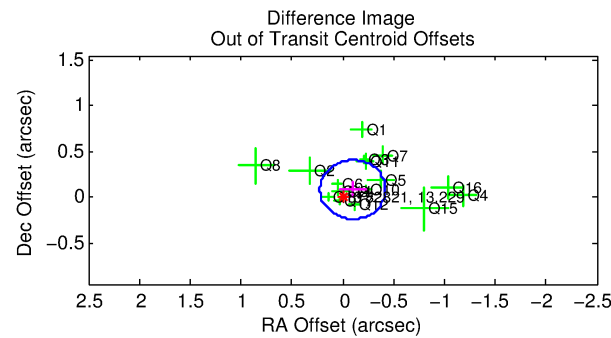
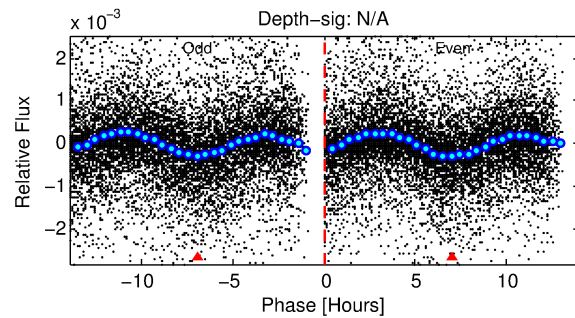
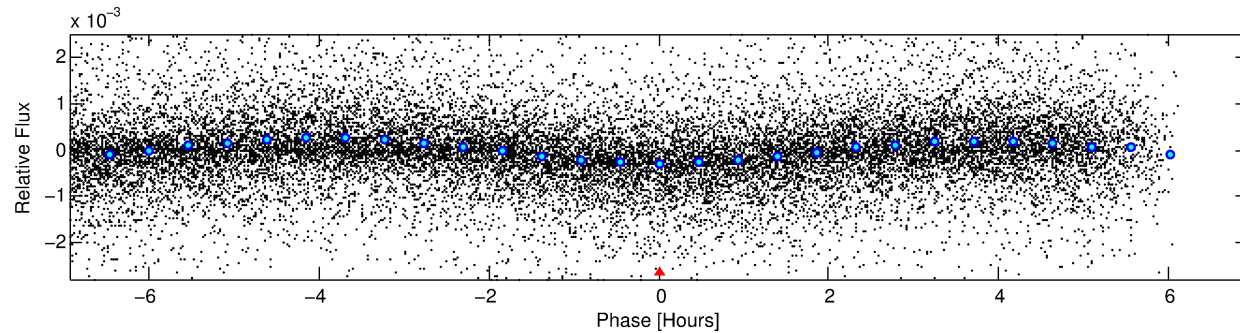
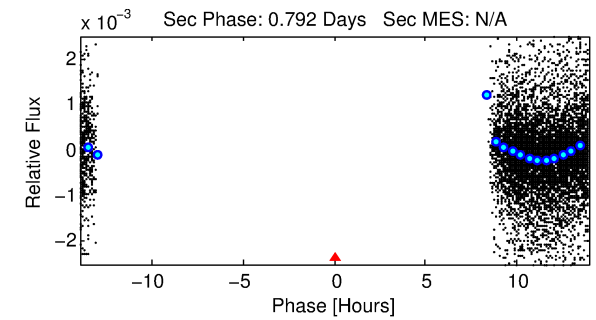
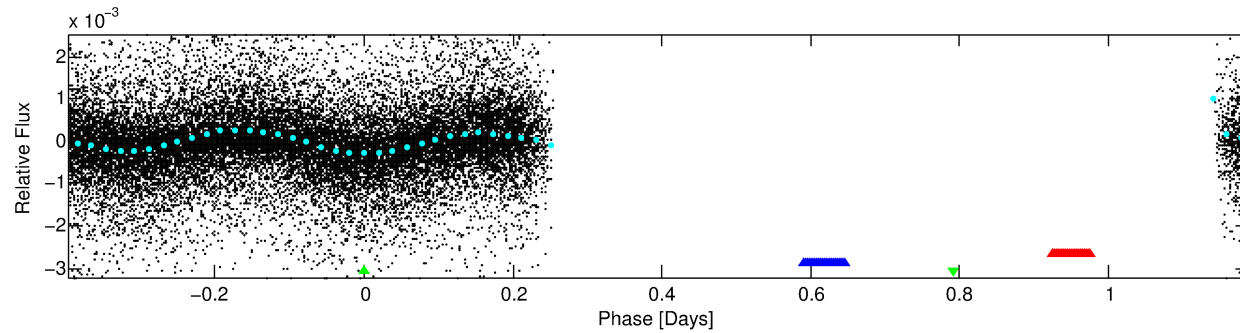
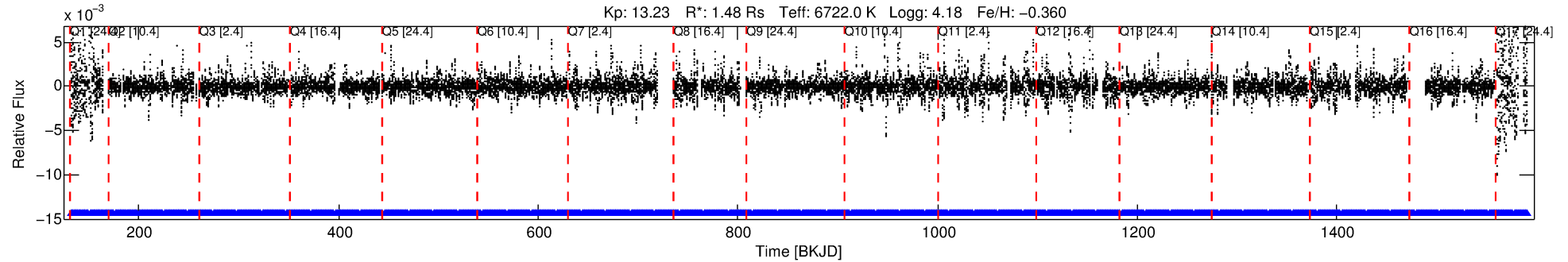
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008782821-03

No Significant Match Found

DV One-Page Summary

KIC: 8782821 Candidate: 3 of 3 Period: 1.585 d



TPS TCE Results:

Period = 1.58485 d
Epoch = 132.3079 BKJD

DV fit results are unavailable

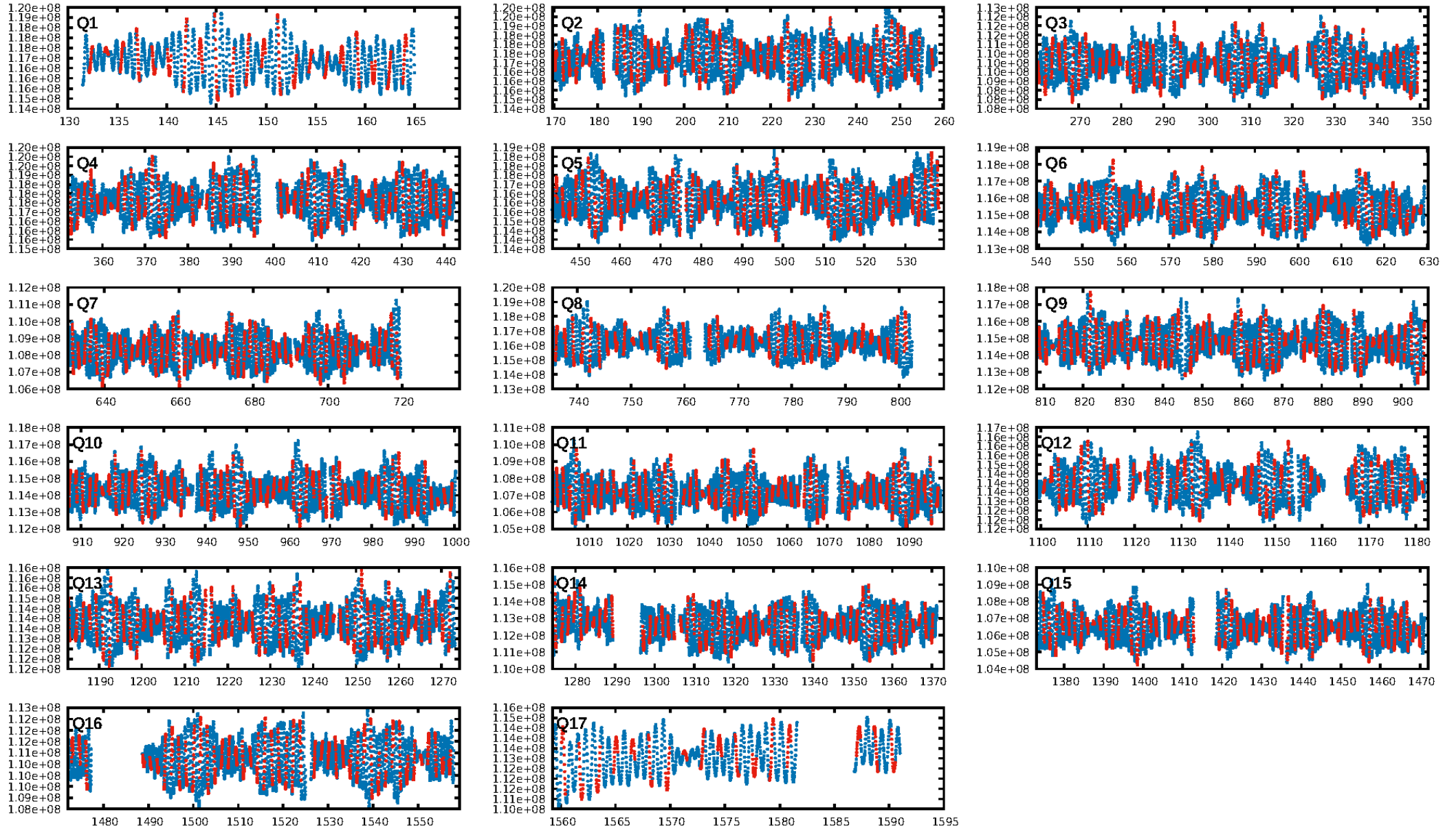
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [805/805]
GhostDiagnostic-chr: 2.323
Centroid-sig: N/A
Centroid-so: 0.358 arcsec [2.15 σ]
OotOffset-rm: 0.129 arcsec [1.20 σ]
KicOffset-rm: 0.135 arcsec [1.14 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

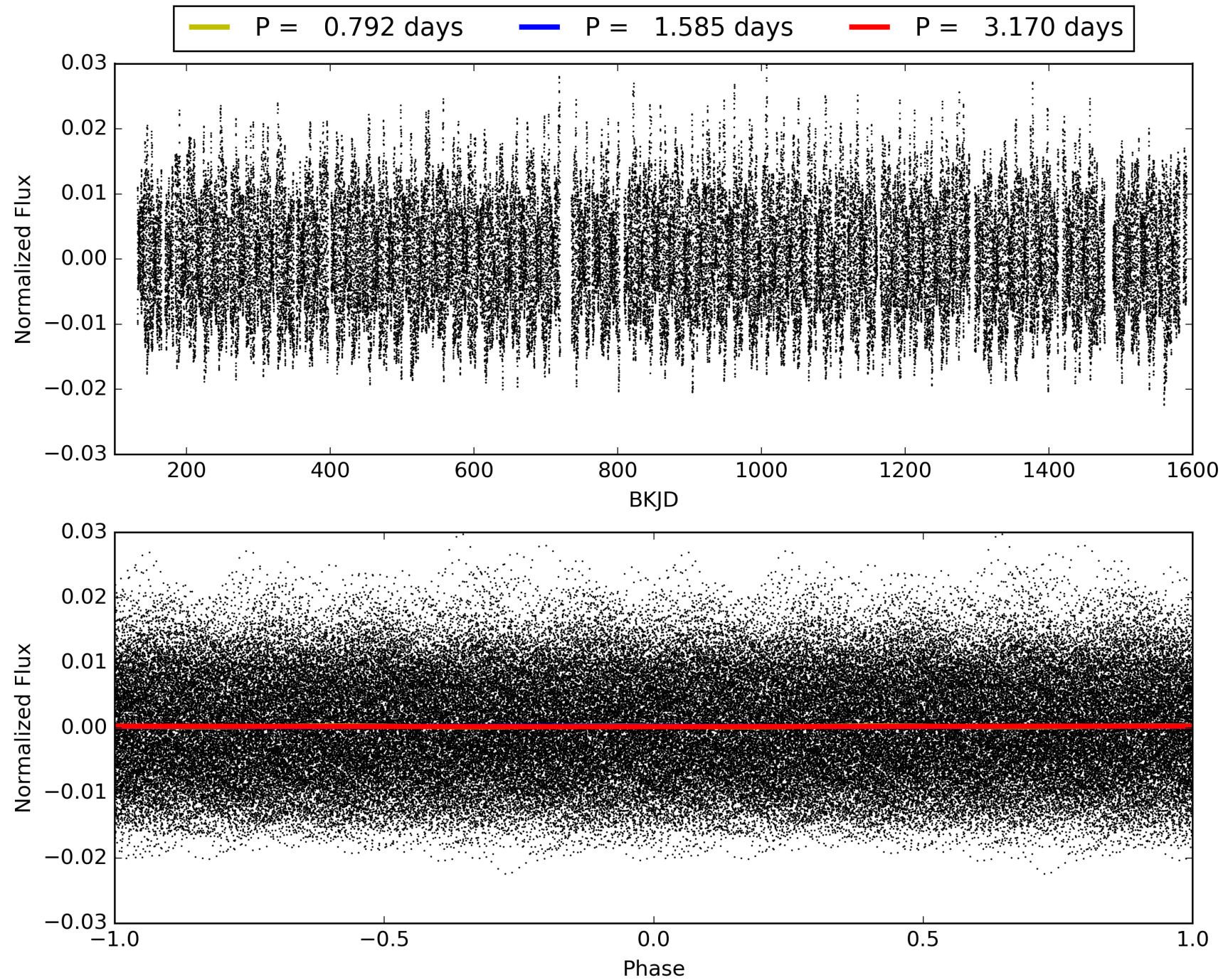
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:52:32 Z

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

TCE 008782821-03, PDC Light Curves

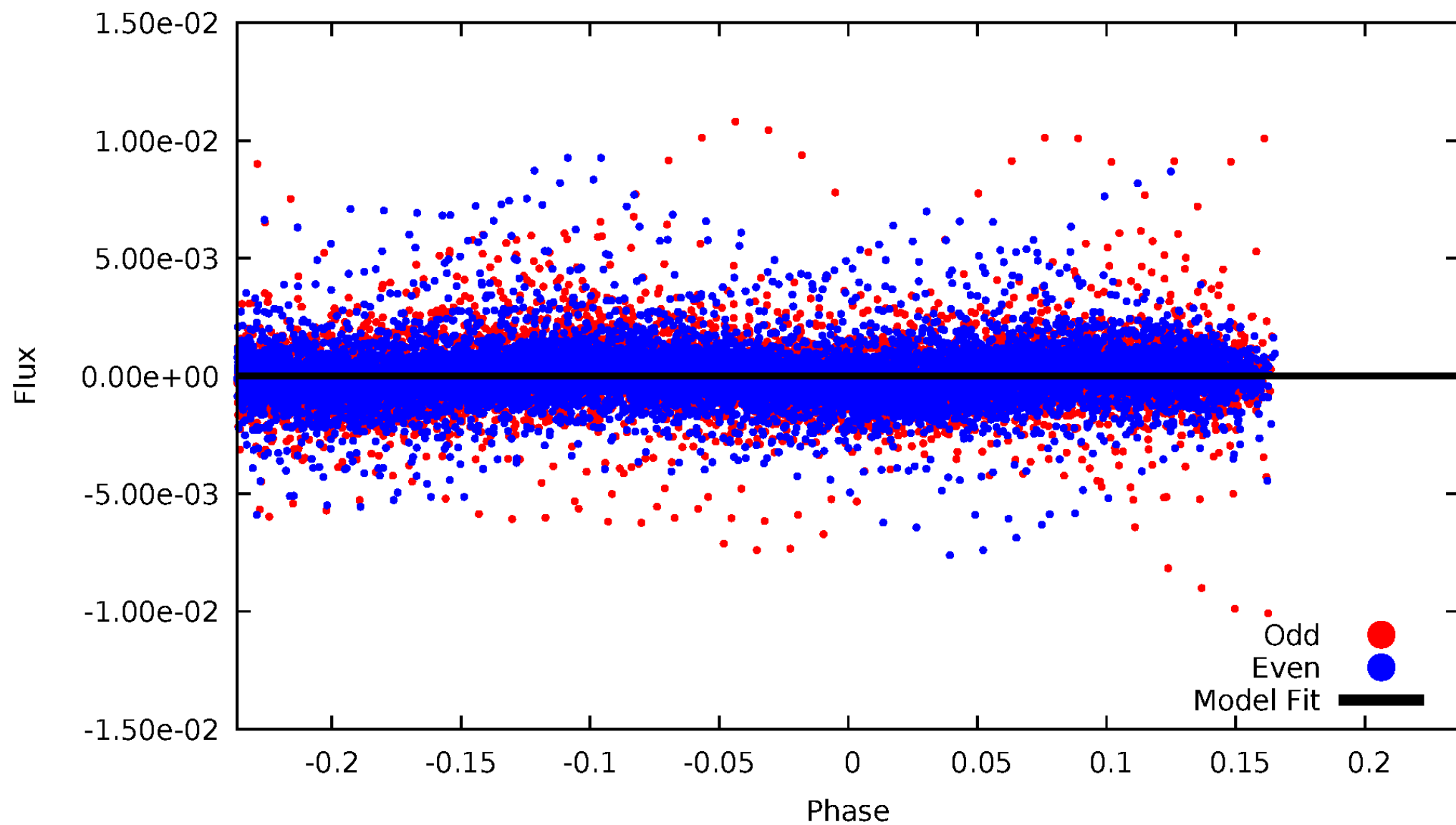


TCE 008782821-03



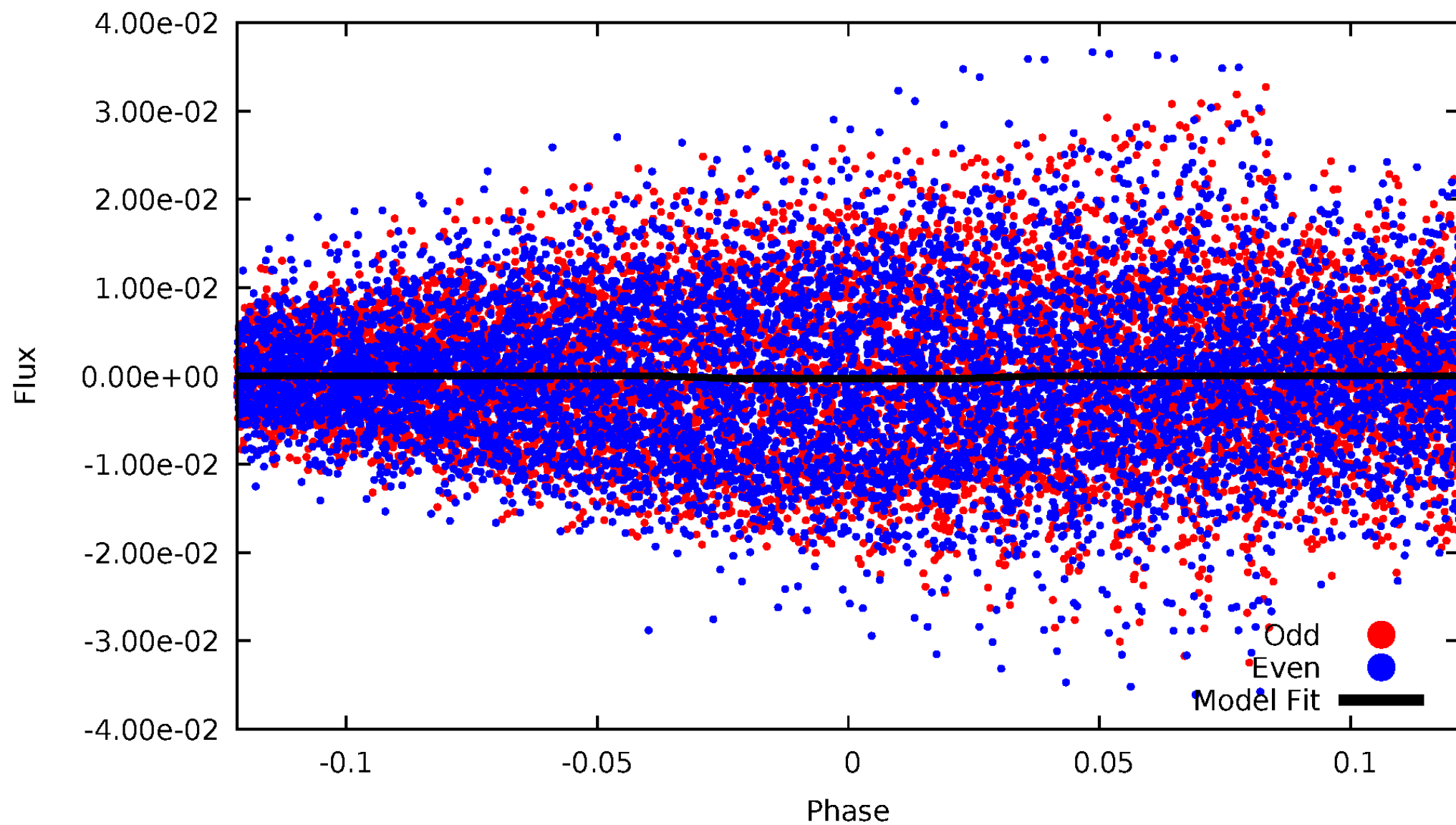
DV Odd/Even

TCE 008782821-03

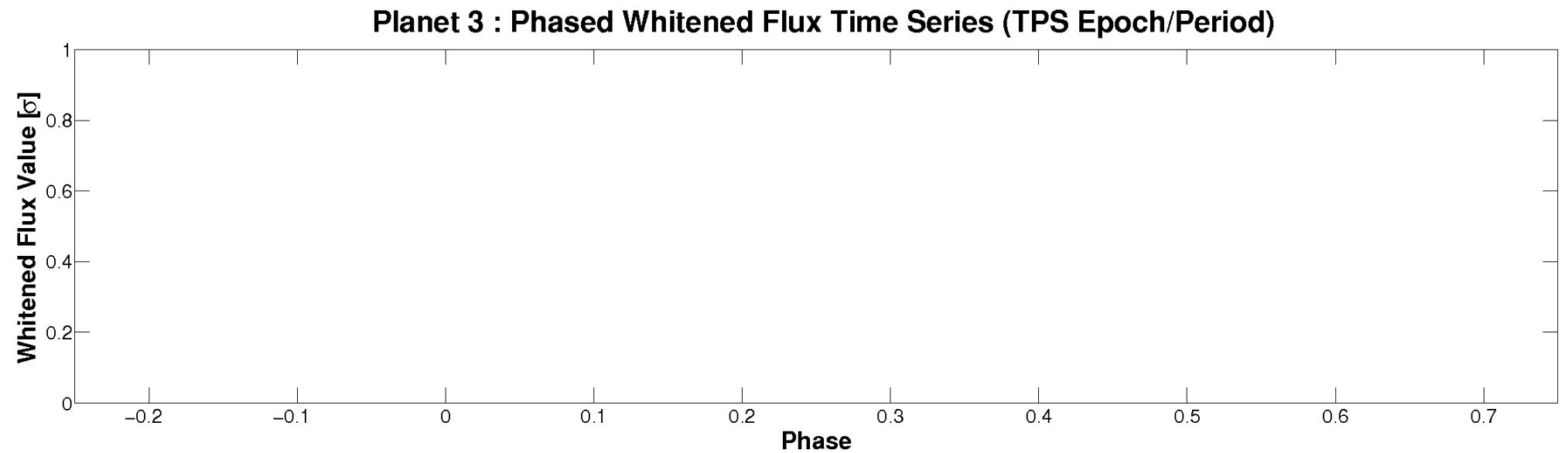
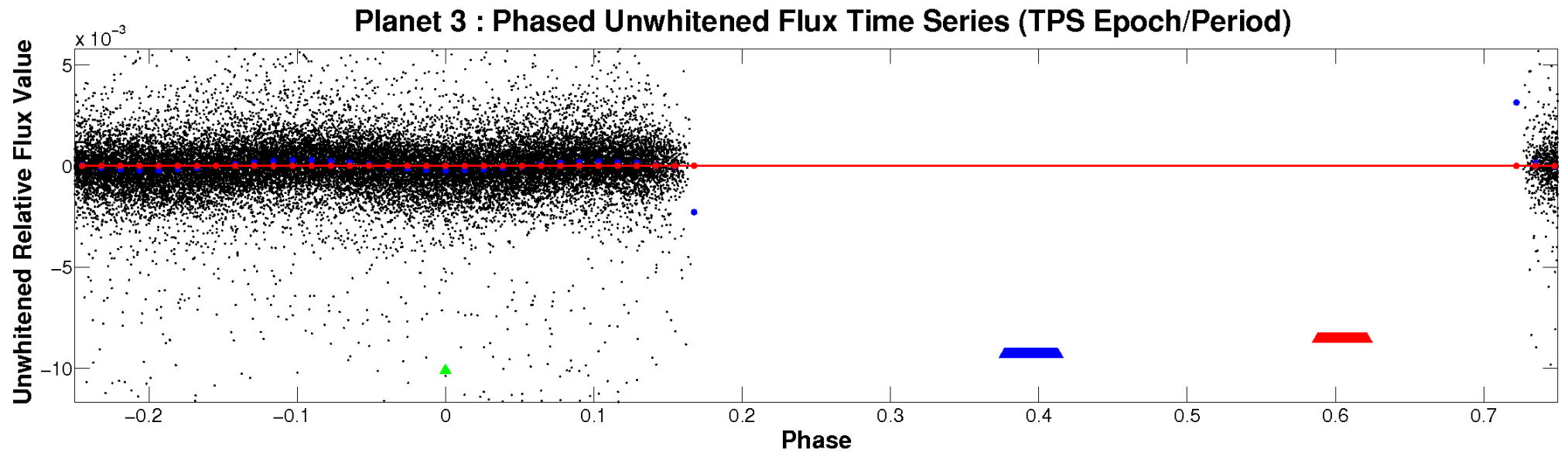


ALT Odd/Even

TCE 008782821-03

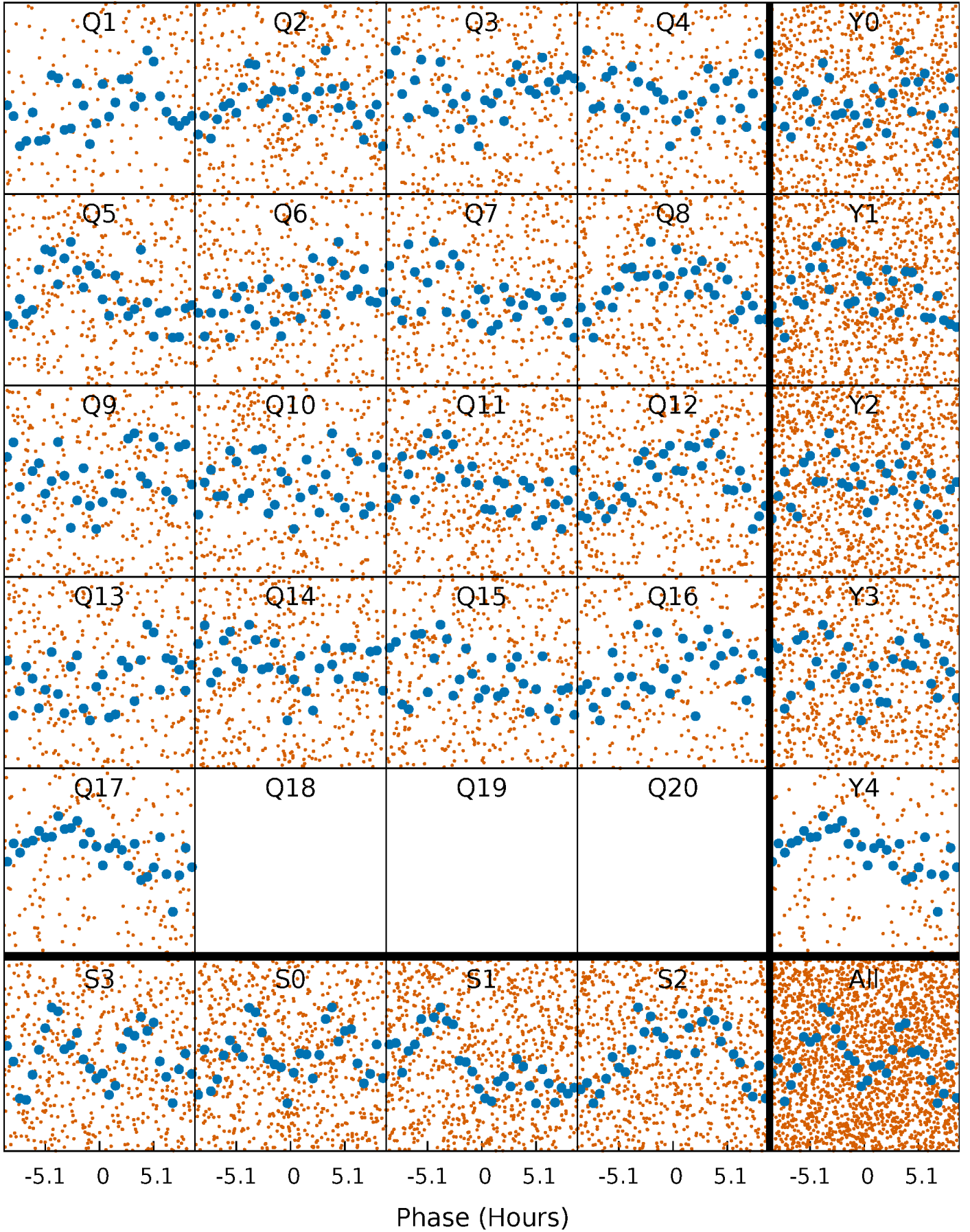


Non-Whitened Vs. Whitened Light Curve



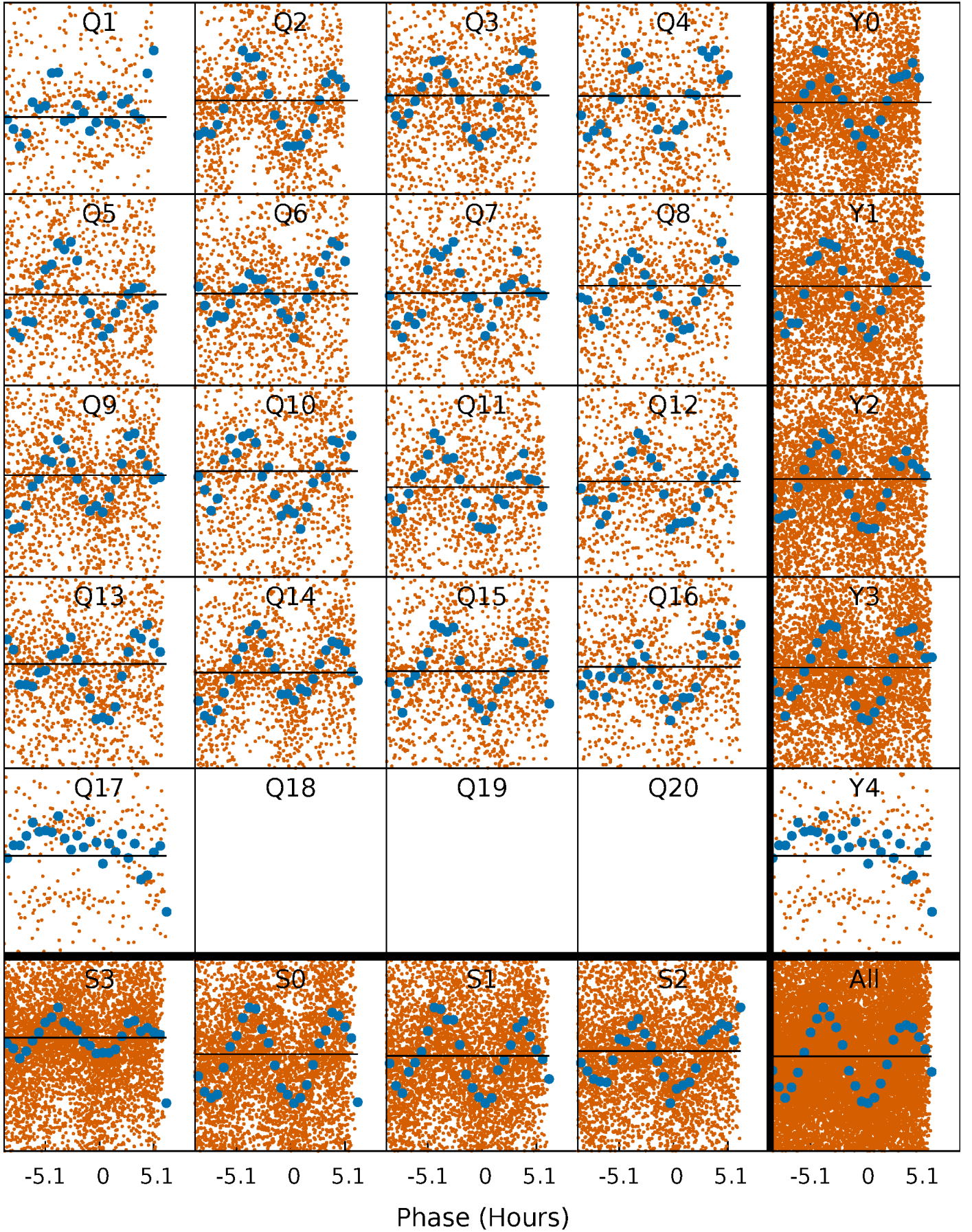
PDC Quarter-Phased Transit Curves

TCE 008782821-03 P= 1.584847 Days $T_0=132.307903$ (BKJD)



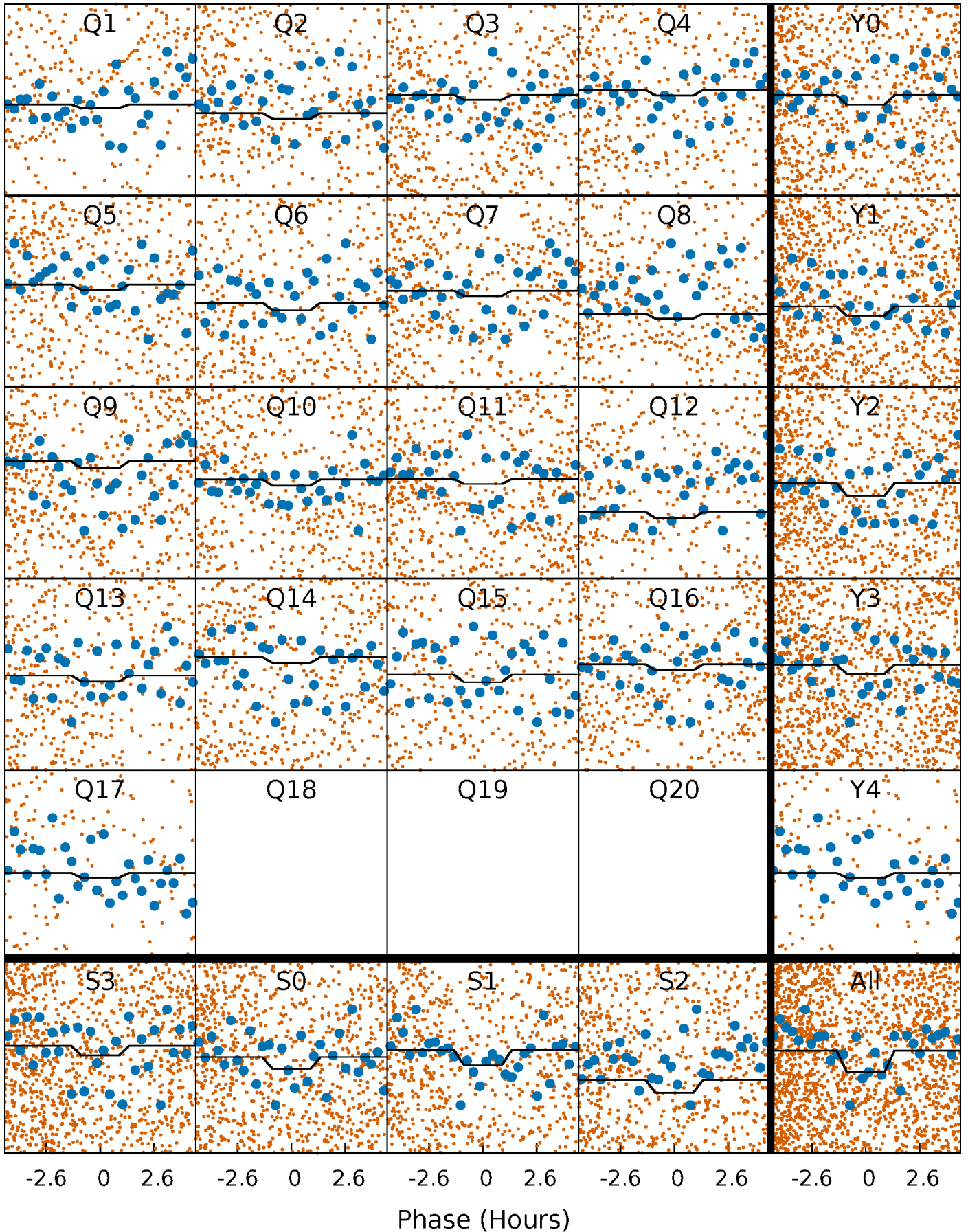
DV Quarter-Phased Transit Curves

TCE 008782821-03 P= 1.584847 Days $T_0=132.307903$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

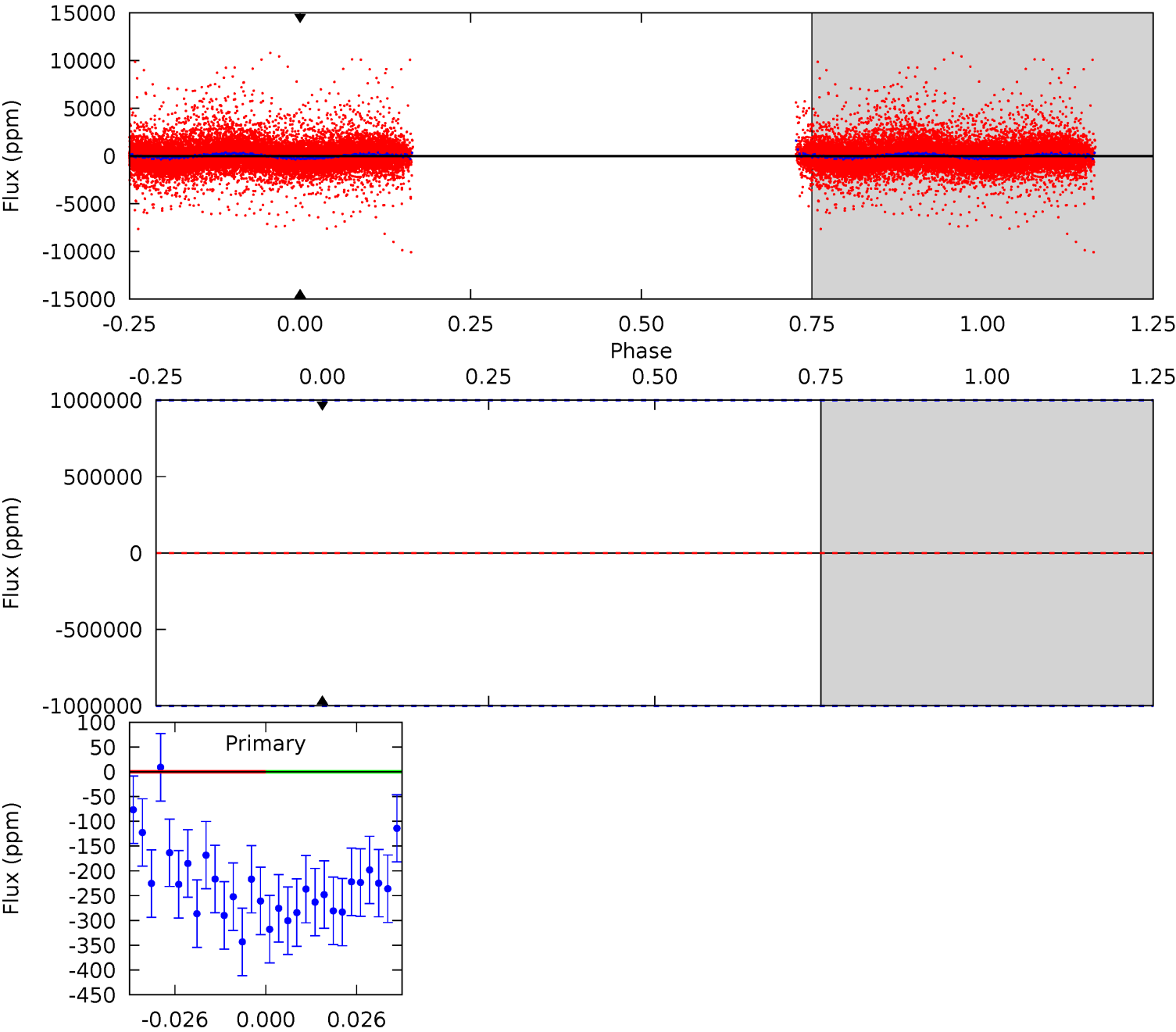
TCE 008782821-03 P= 1.584847 Days $T_0=132.315049$ (BKJD)



DV Model-Shift Uniqueness Test

008782821-03, P = 1.584847 Days, E = 130.723056 Days

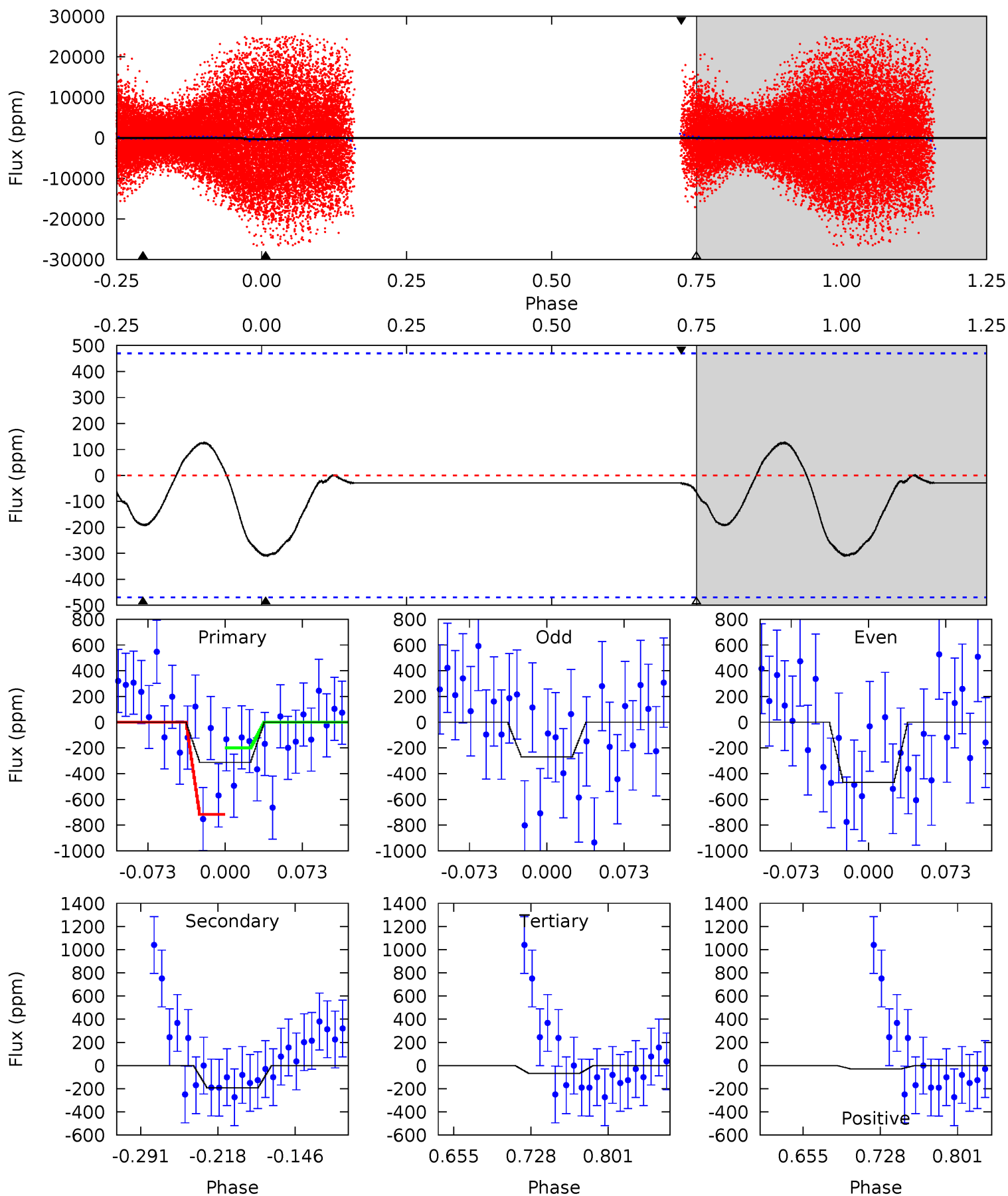
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008782821-03, P = 1.584847 Days, E = 130.730202 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.07	1.90	0.67	-0.28	4.63	1.79	0.68	2.41	3.35	1.23	2.17	0.98	0.20	0.29	2.15



Stellar Parameters For KIC 008782821

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6722^{+182}_{-243}	$4.181^{+0.180}_{-0.180}$	$-0.360^{+0.250}_{-0.300}$	$1.477^{+0.410}_{-0.336}$	$1.214^{+0.170}_{-0.189}$	$0.531^{+0.500}_{-0.260}$
	+3%/-4%	+4%/-4%	+69%/-83%	+28%/-23%	+14%/-16%	+94%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008782821-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$12.26^{+12.99}_{-8.71}$	2982^{+234}_{-212}	-5287^{+34049}_{-21204}	$-6.364^{+585.367}_{-493.781}$
Alt.	-193 ± 101	$12.31^{+12.12}_{-8.33}$	2992^{+234}_{-212}	2918^{+2035}_{-5862}	$0.487^{+4.401}_{-0.400}$

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

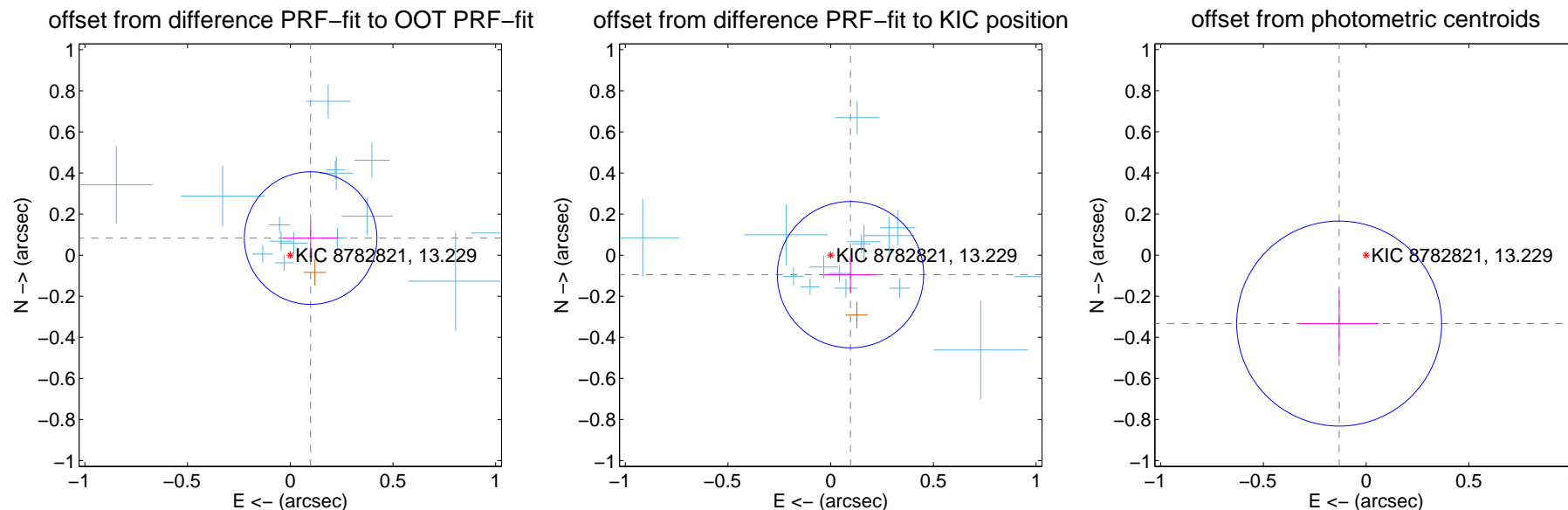
DV Centroid Data

Supplemental centroid analysis for 008782821-03. Kepler magnitude: 13.23. Transit SNR -1.00

There are 16 quarters with good PRF difference image offsets

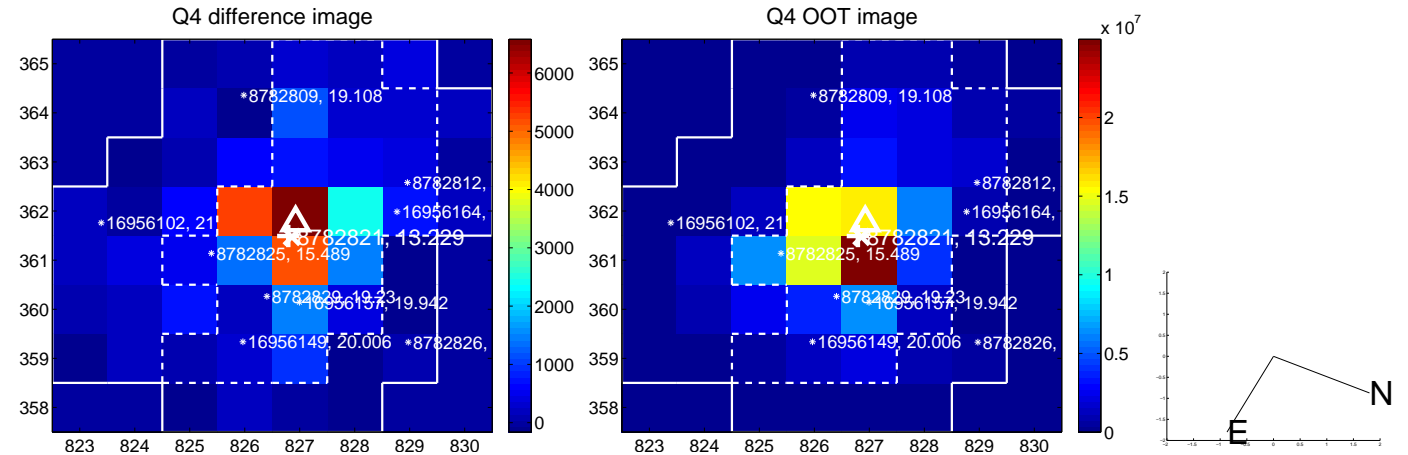
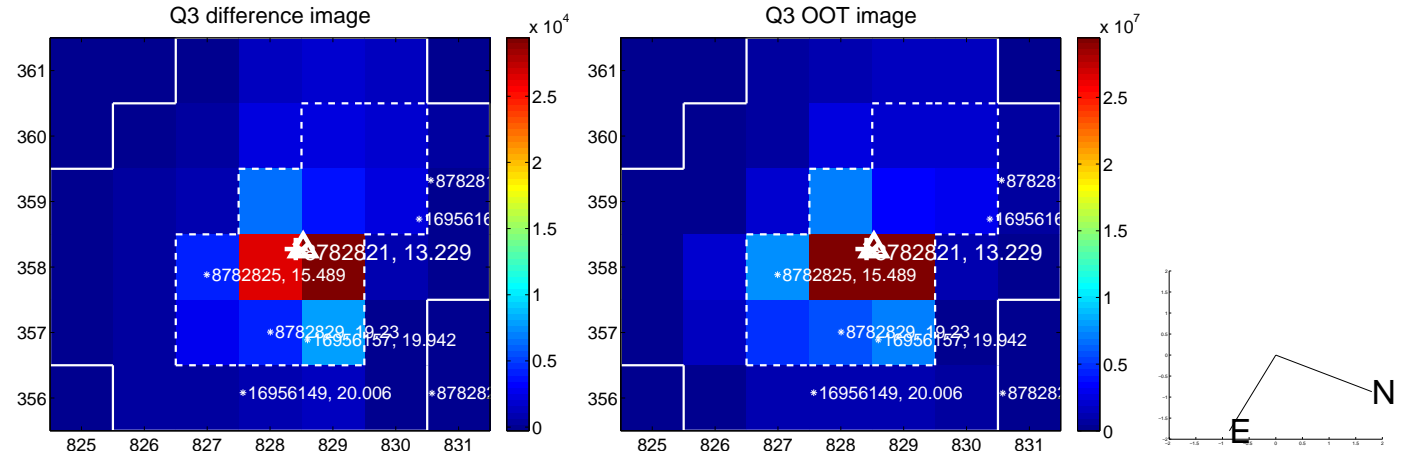
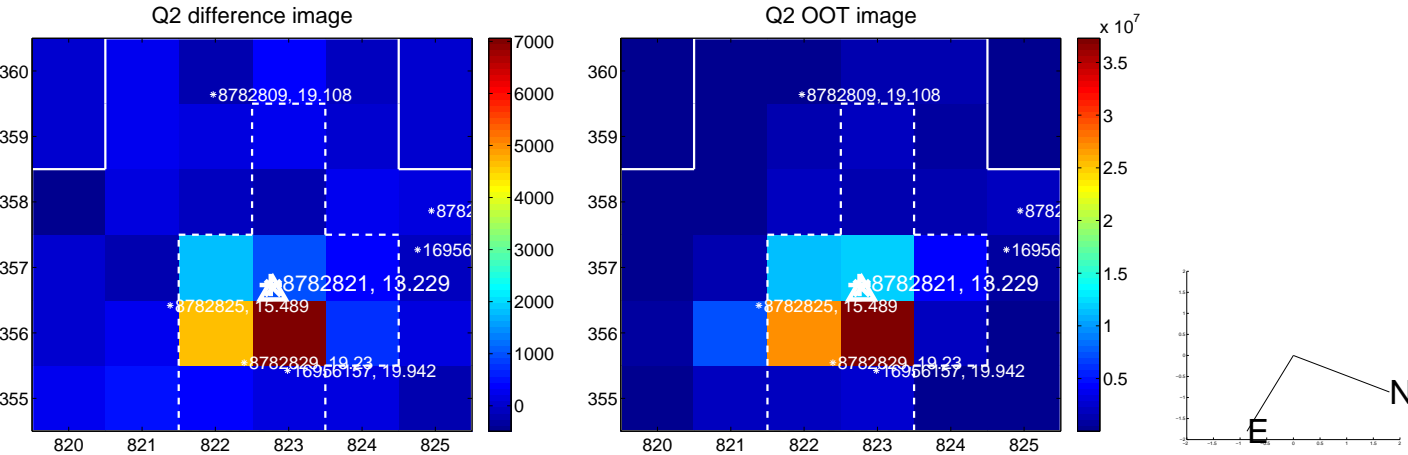
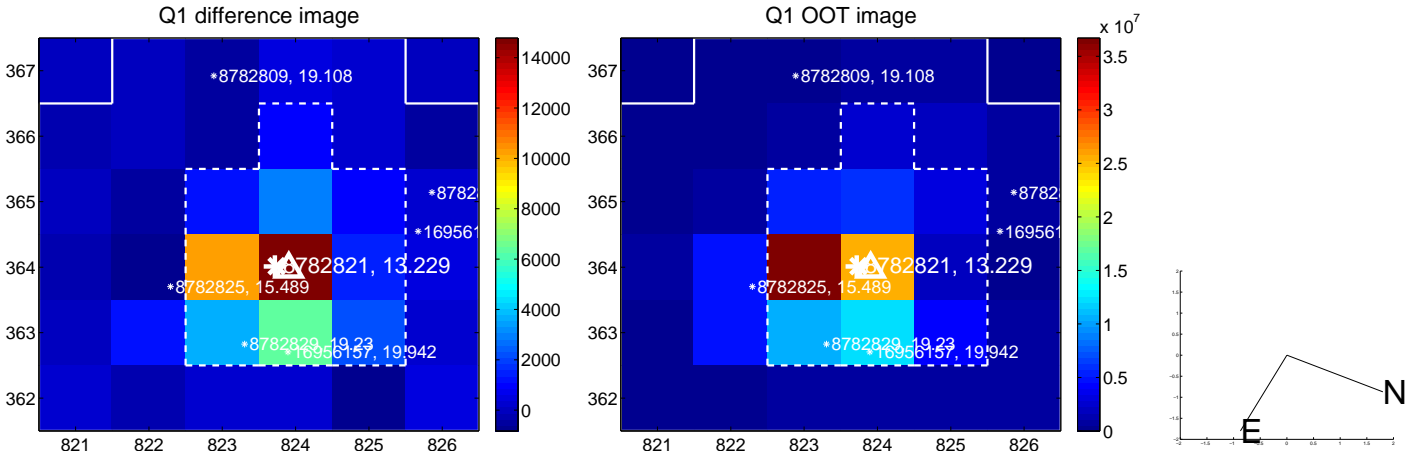
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.108	1.20	-0.099 ± 0.132	0.083 ± 0.084
PRF-fit source offset from KIC position	0.135 ± 0.119	1.14	-0.096 ± 0.127	-0.095 ± 0.087
photometric centroid source offset	0.36 ± 0.17	2.15	0.13 ± 0.19	-0.33 ± 0.16

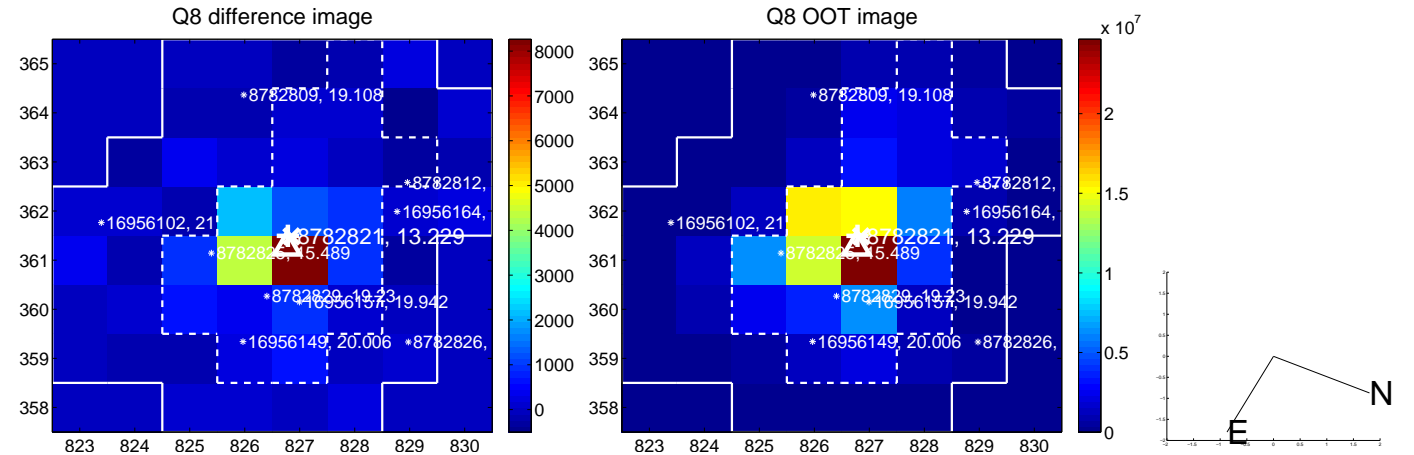
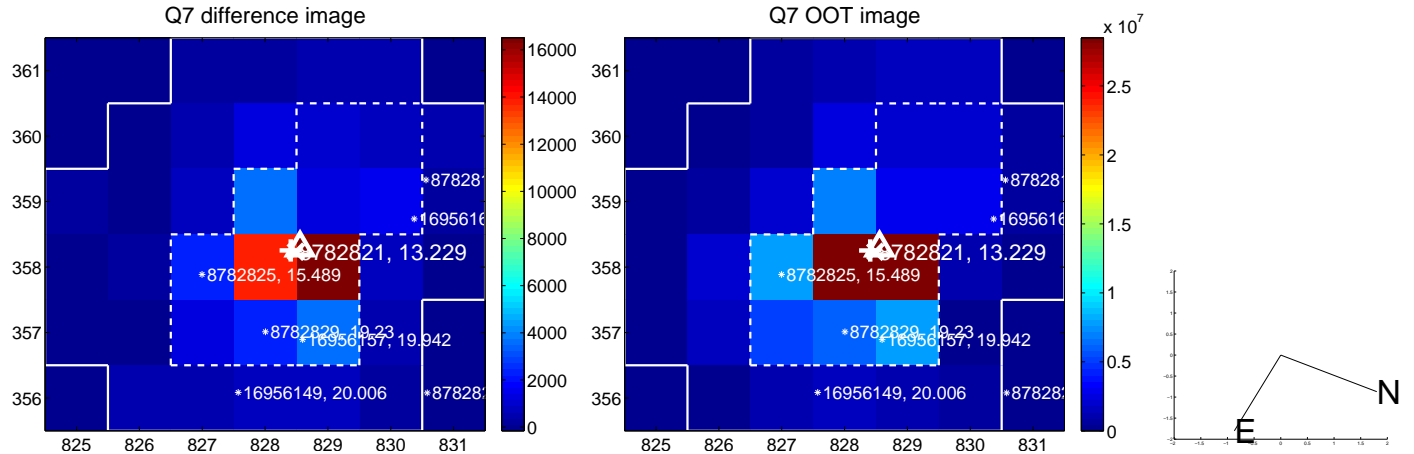
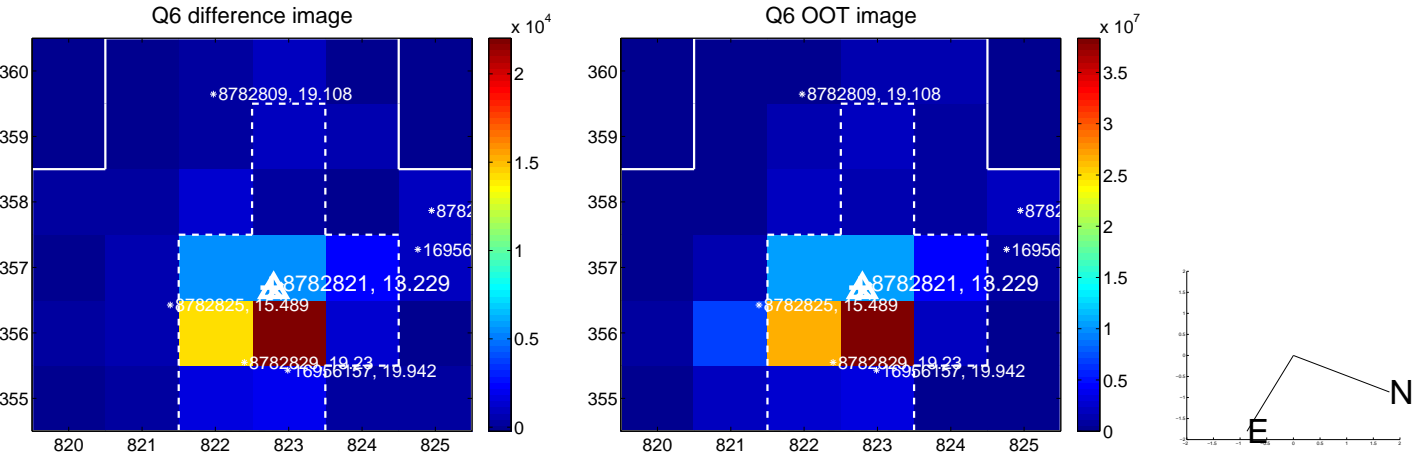
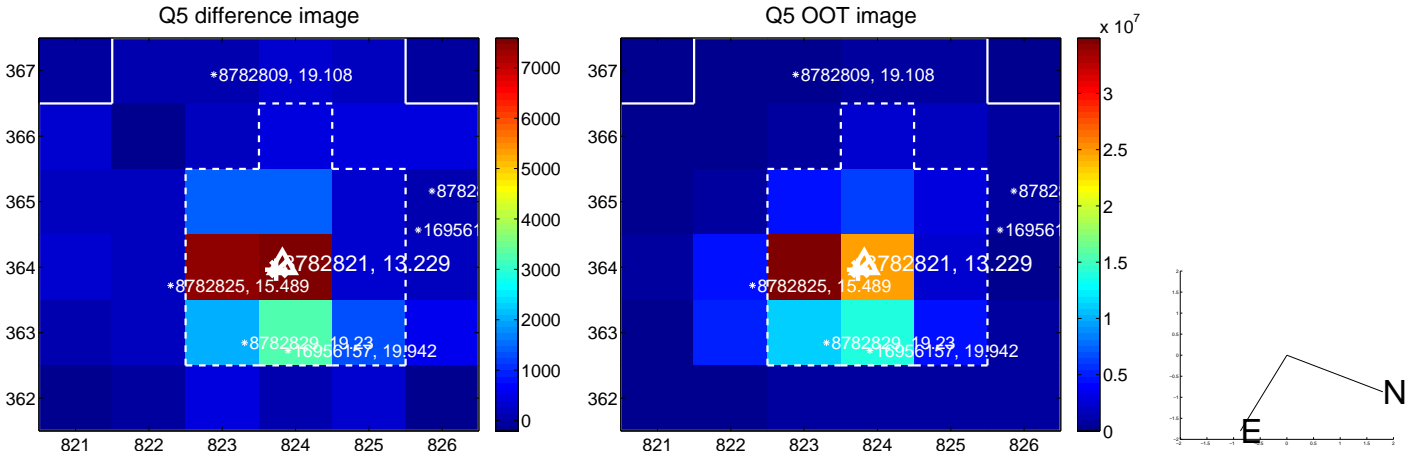


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

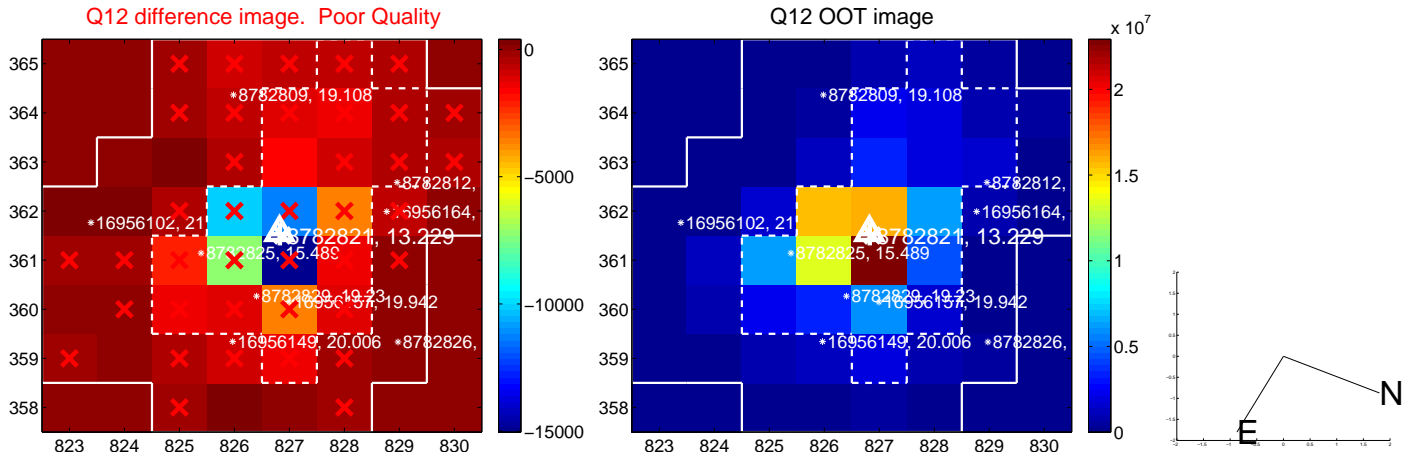
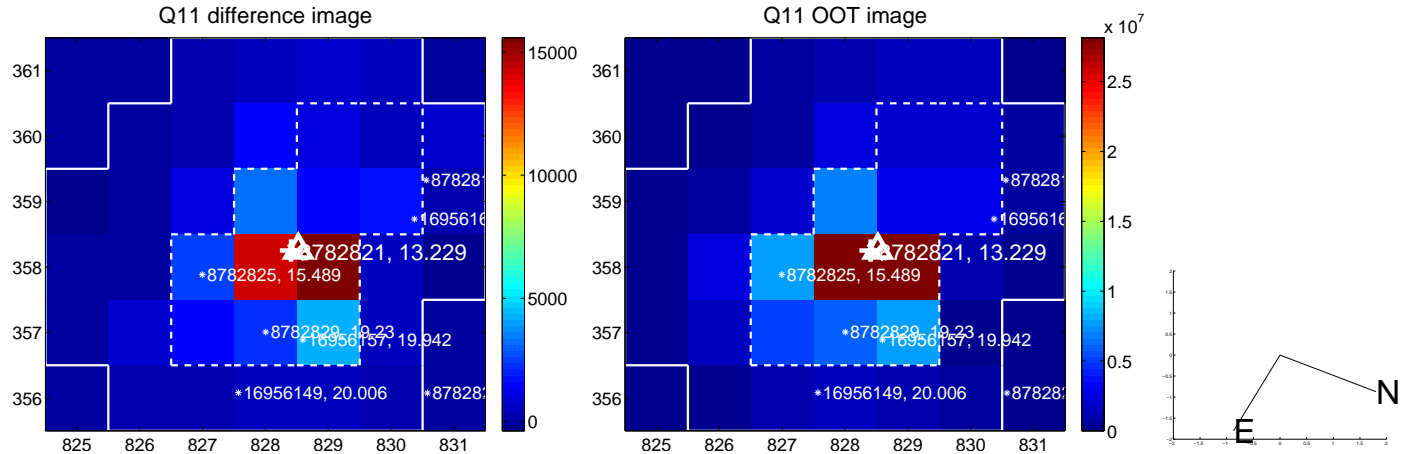
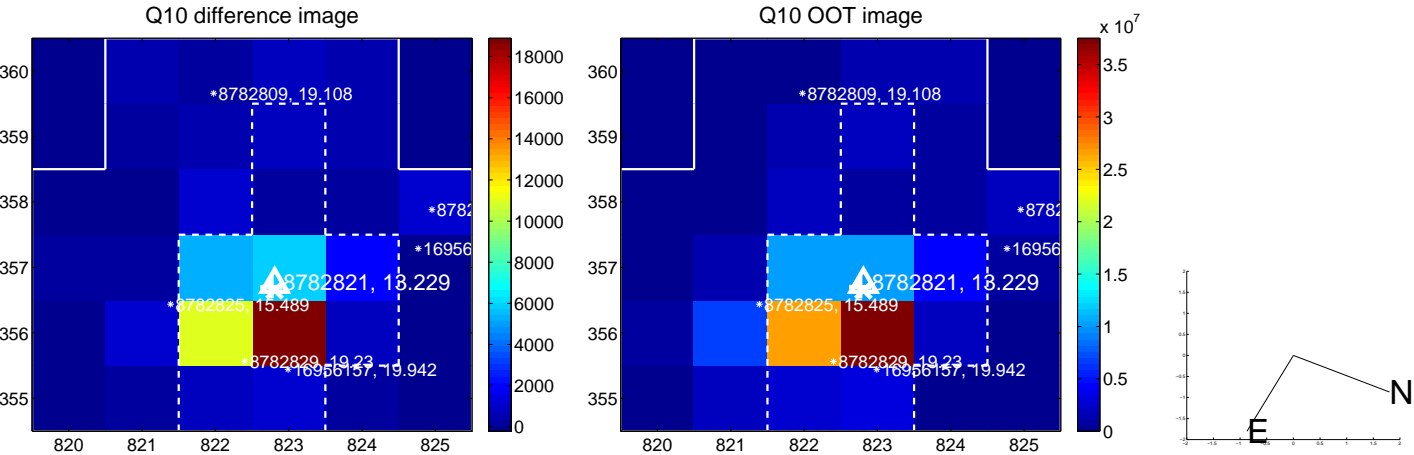
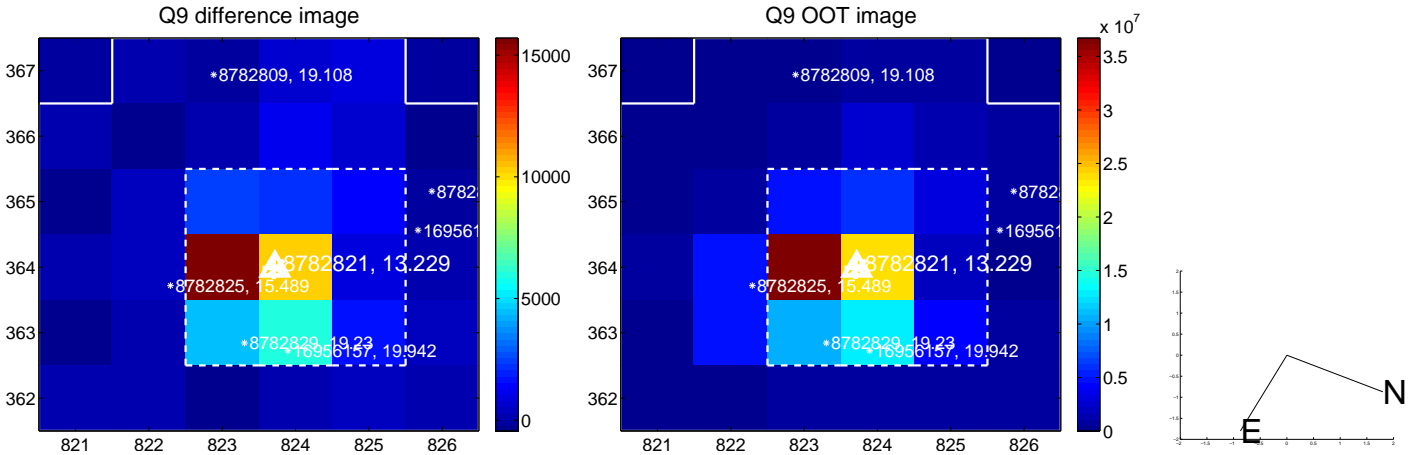
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



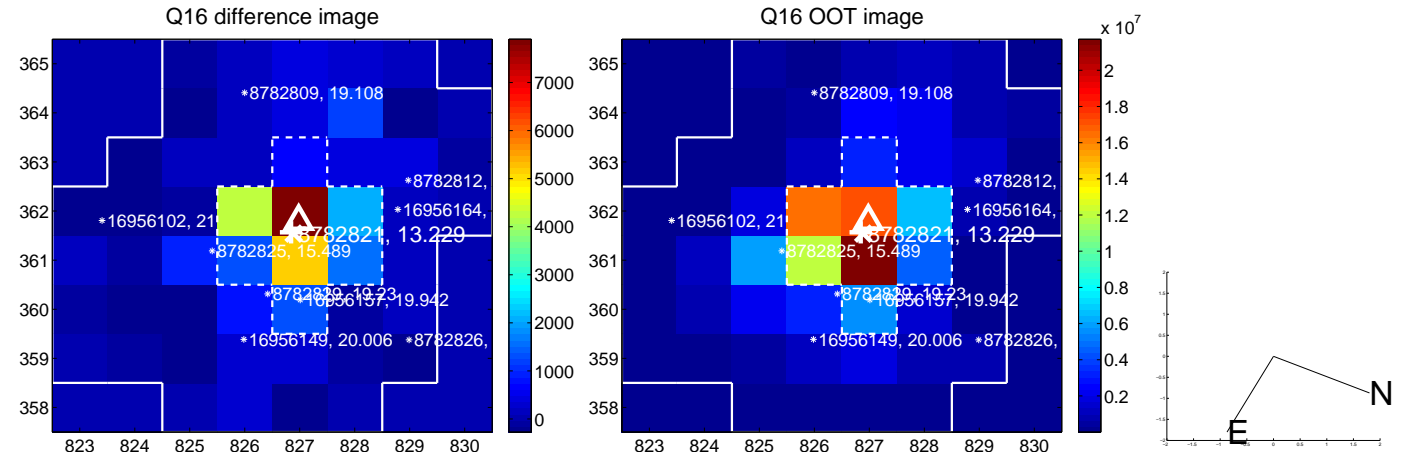
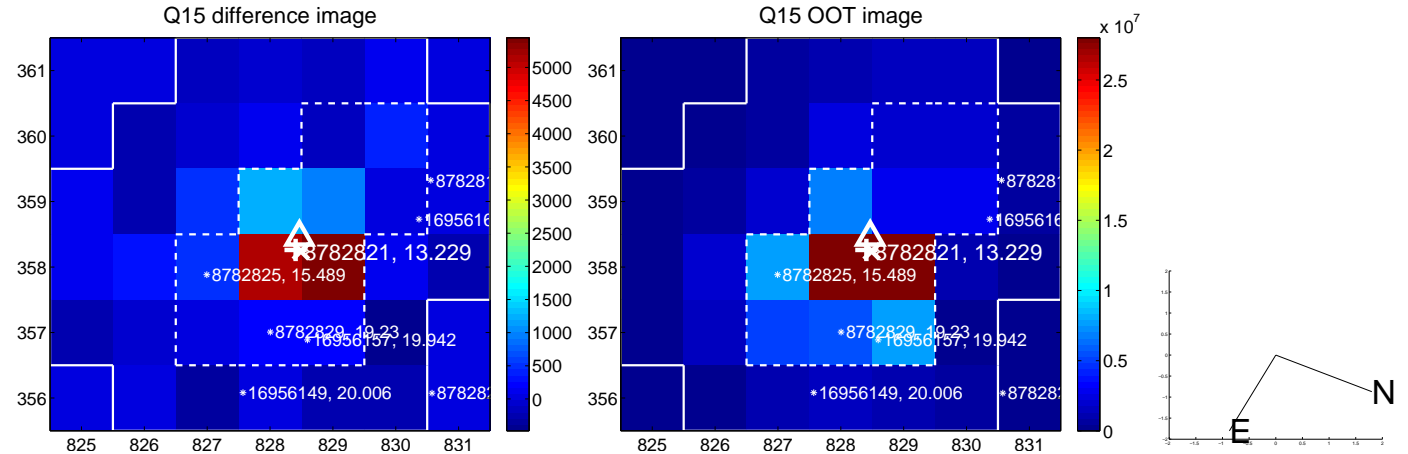
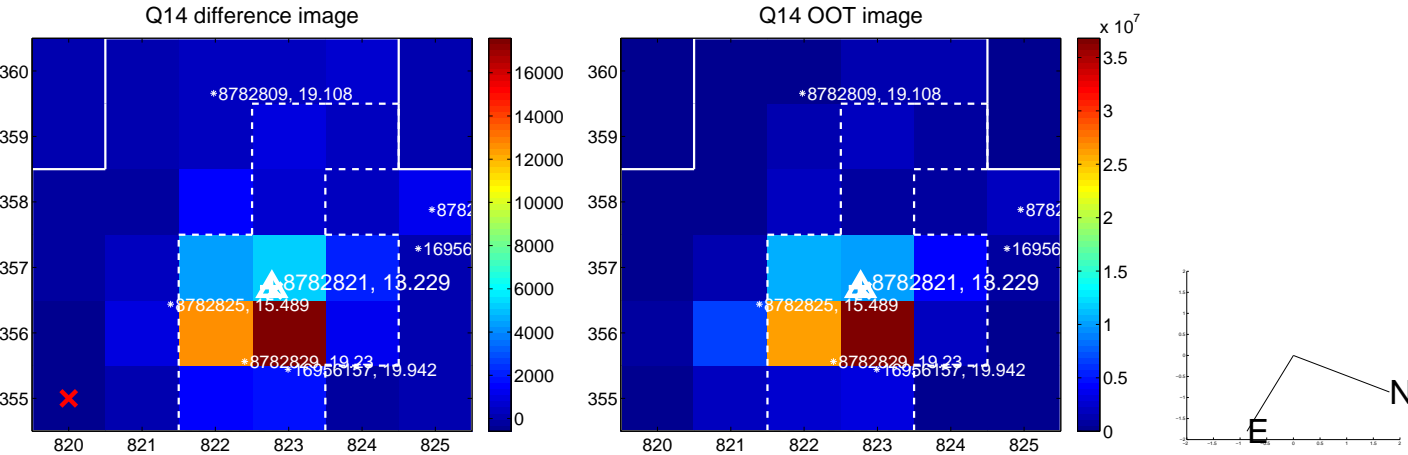
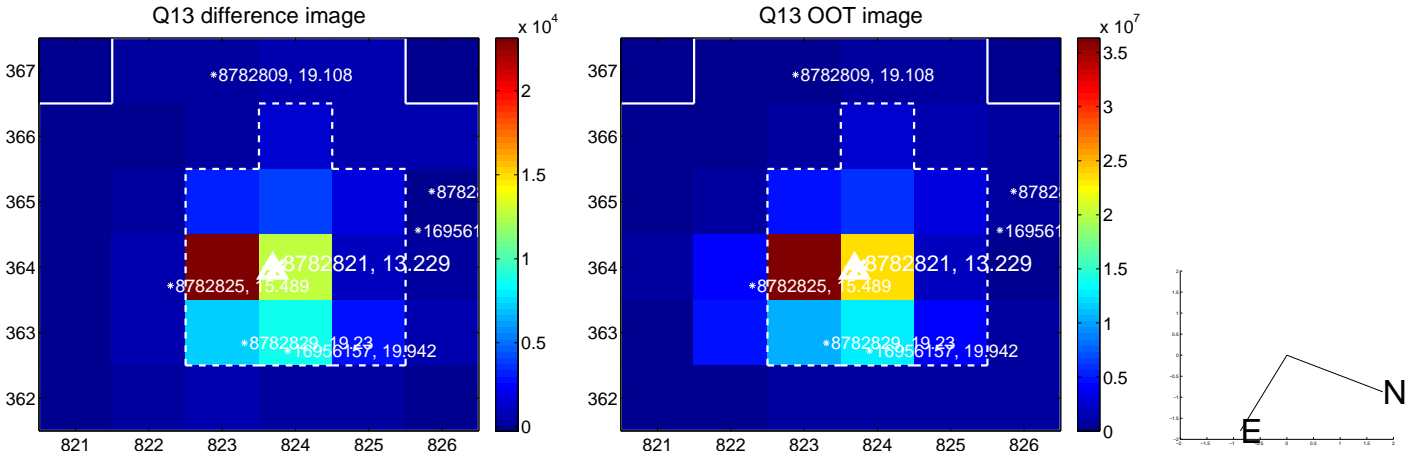
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



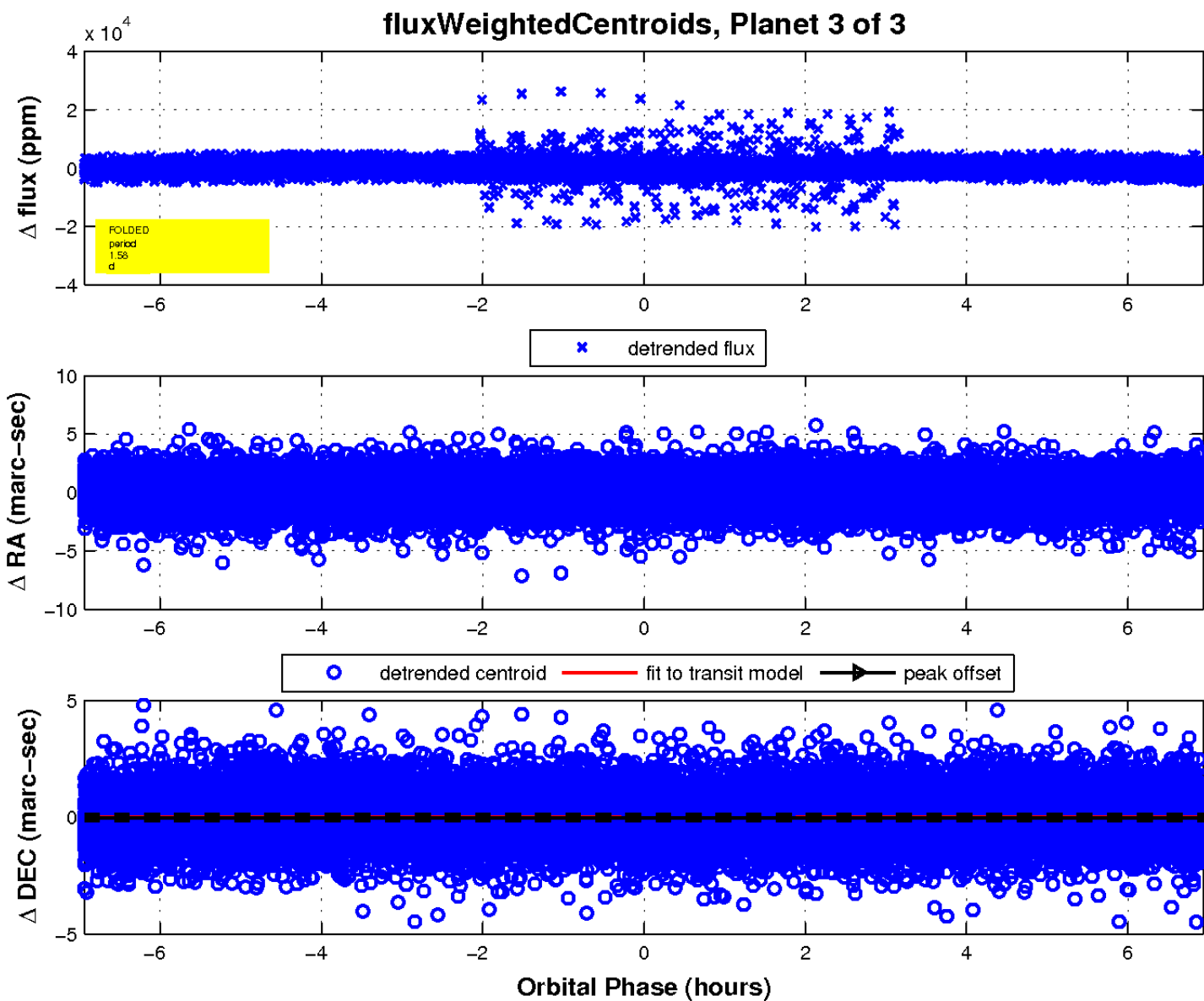
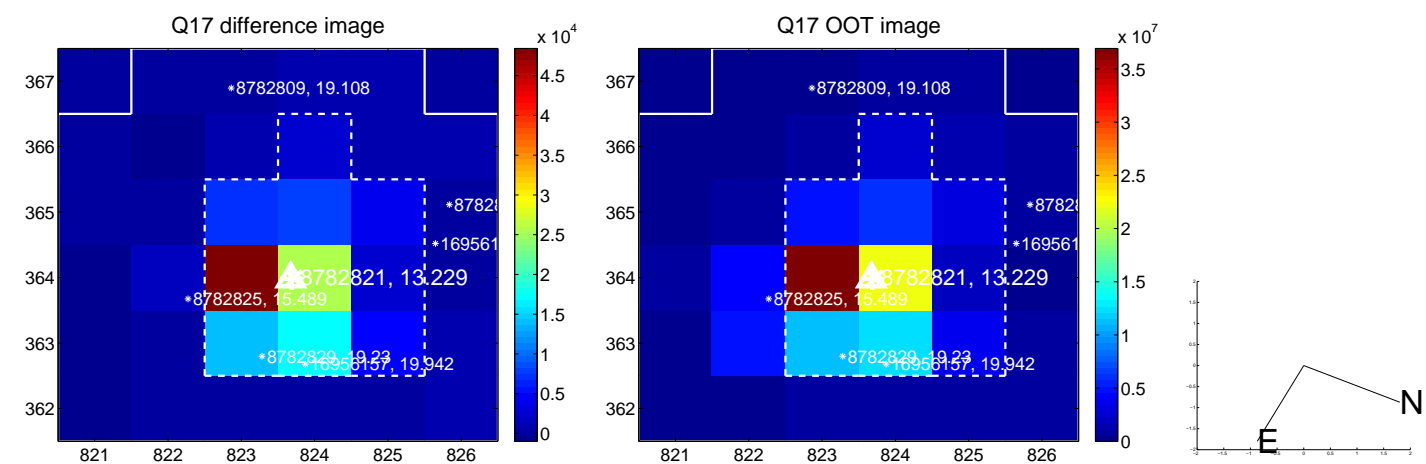
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

