

KIC 008580228

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})
008580228-01	OBS	No	4.210143	134.047318	29.8	8.737	8.4	5.5	3.58	7500	2.09	8619.74
008580228-02	OBS	No	4.210411	132.517818	29.1	20.923	11.2	8.6	3.58	7500	2.05	8619.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008580228-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008580228-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

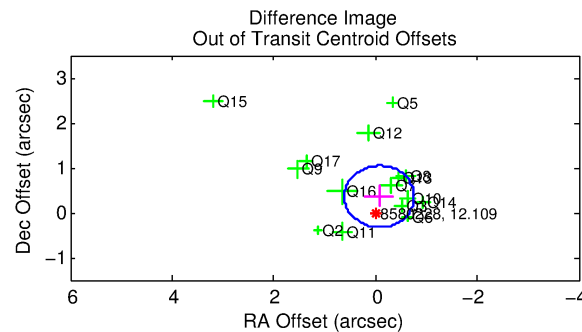
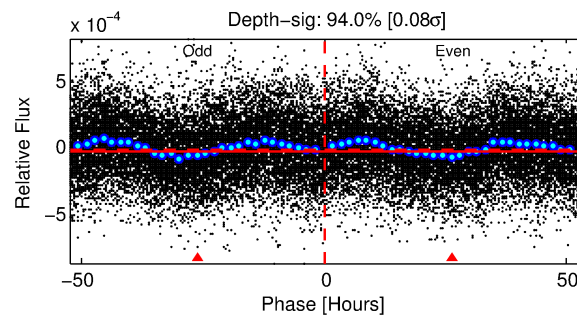
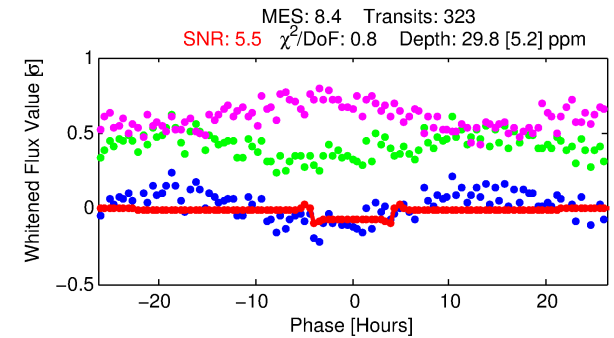
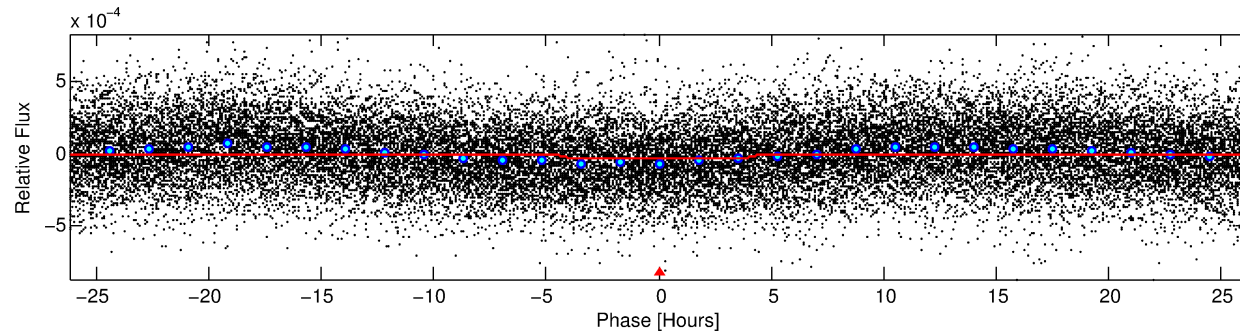
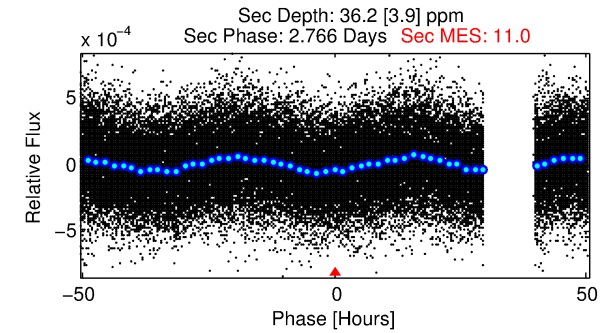
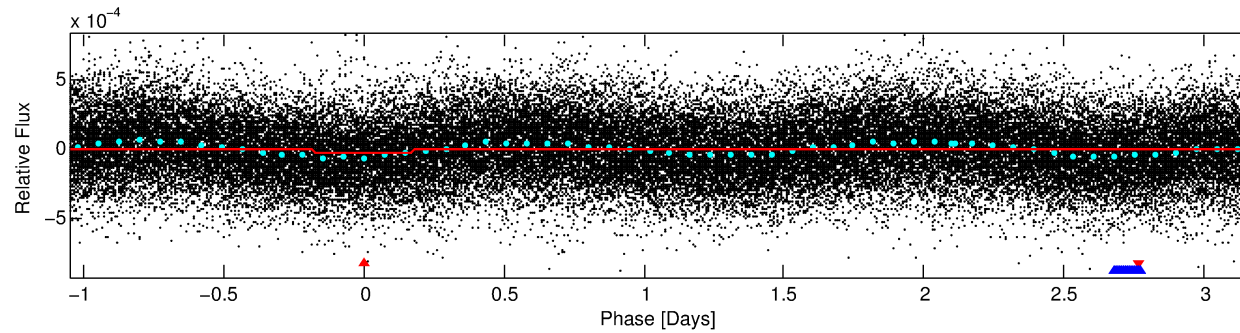
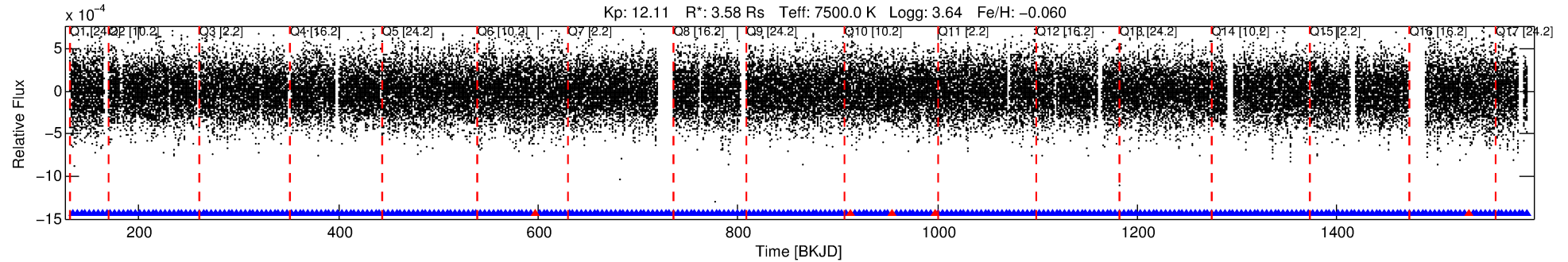
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008580228-01

No Significant Match Found

DV One-Page Summary

KIC: 8580228 Candidate: 1 of 2 Period: 4.210 d



DV Fit Results:

Period = 4.21014 [0.00005] d
Epoch = 134.0473 [0.0064] BKJD
Rp/R* = 0.0054 [0.0012]
a/R* = 2.80 [2.99]
b = 0.69 [0.92]
Seff = 8619.74 [7328.16]
Teq = 2457 [522] K
Rp = 2.09 [1.17] Re
a = 0.0650 [0.0332] AU
Ag = 19.19 [18.23] [1.00σ]
Teffp = 7951 [965] K [5.01σ]

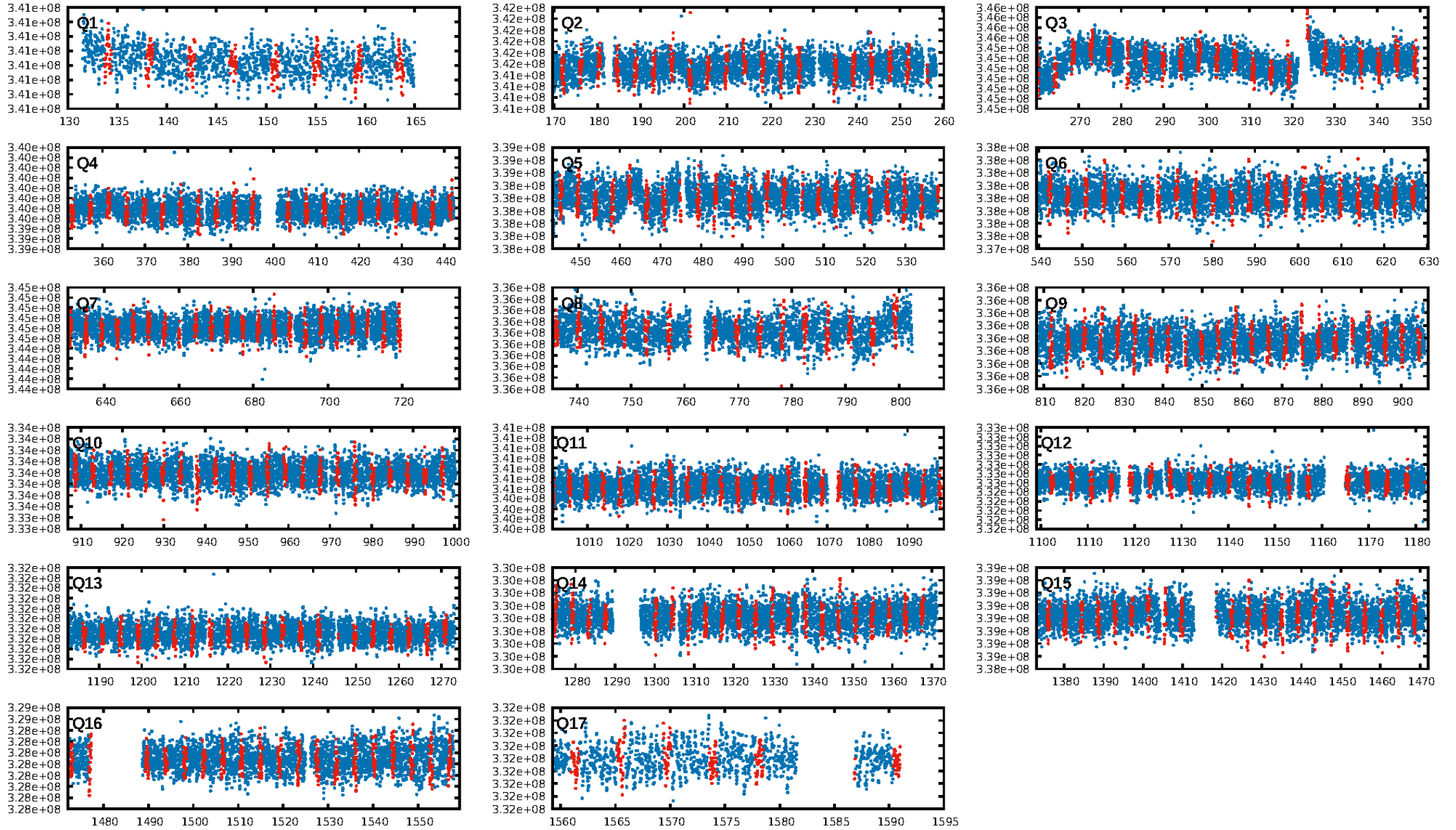
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.01e-09
RollingBand-fgt: 0.98 [304/309]
GhostDiagnostic-chr: 1.131
Centroid-sig: 2.7%
Centroid-so: 1.376 arcsec [1.97σ]
OotOffset-rm: 0.364 arcsec [1.59σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.428 arcsec [1.93σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 1.00 [17/17]

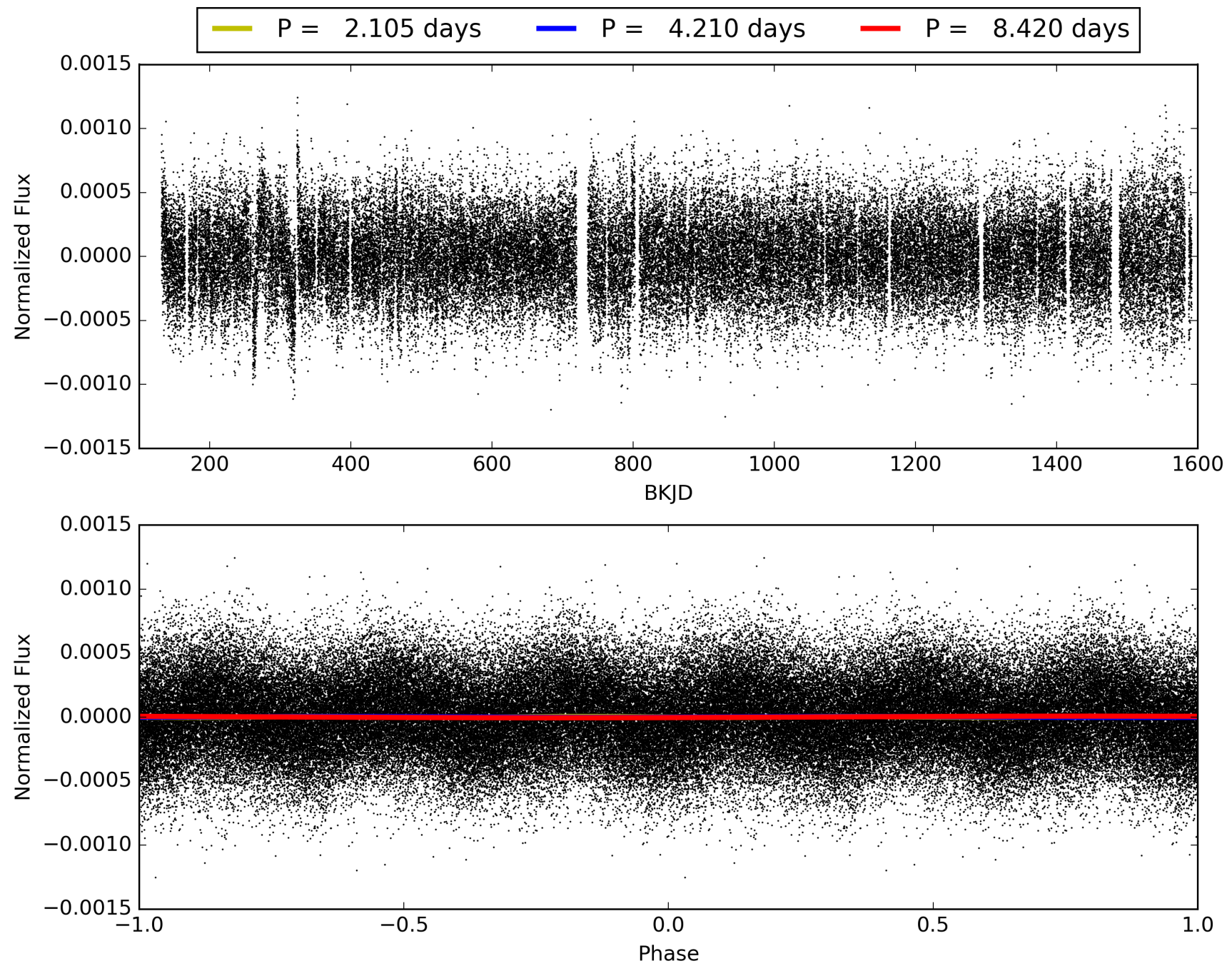
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:25:12 Z

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

TCE 00580228-01, PDC Light Curves

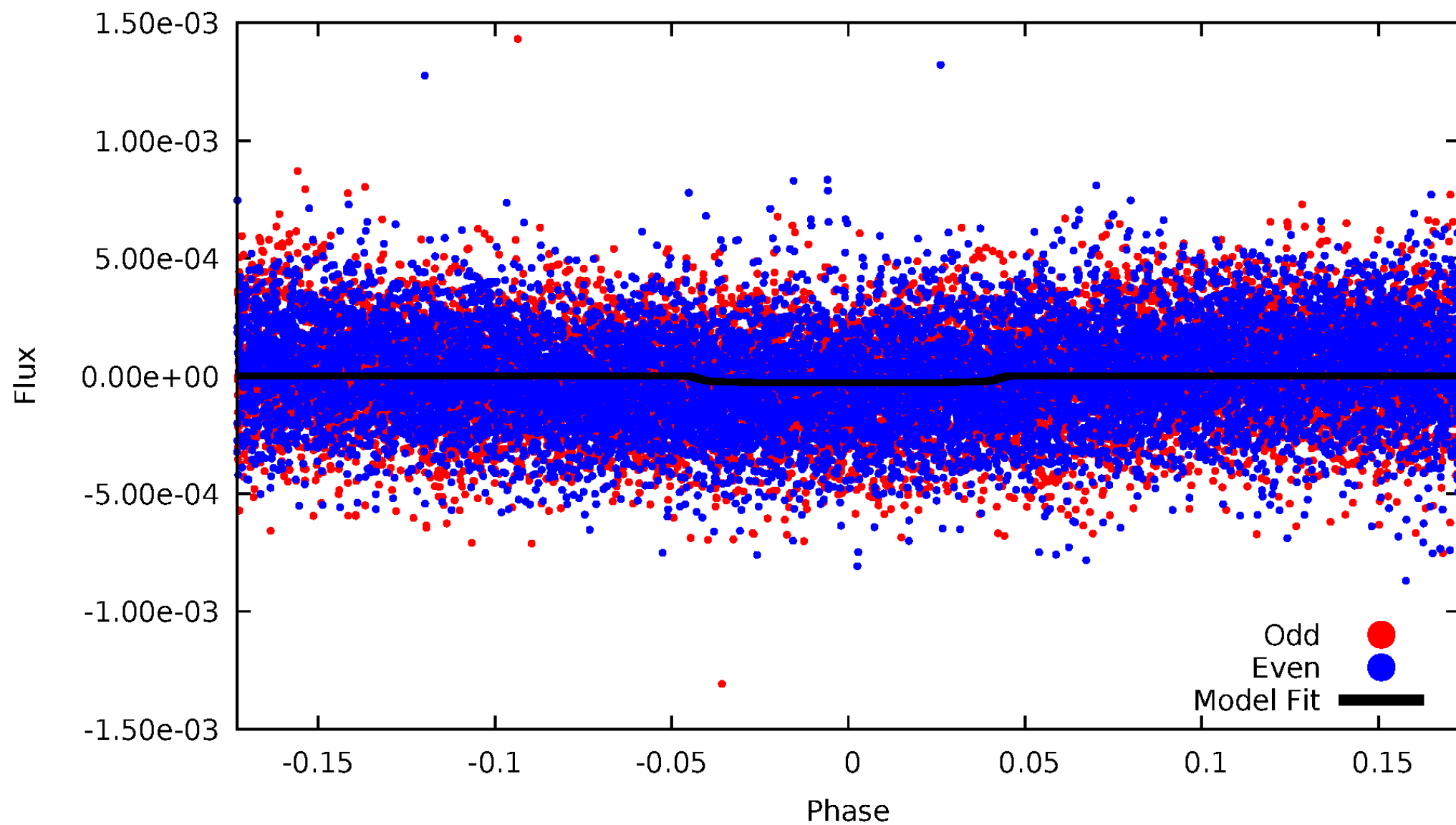


TCE 008580228-01



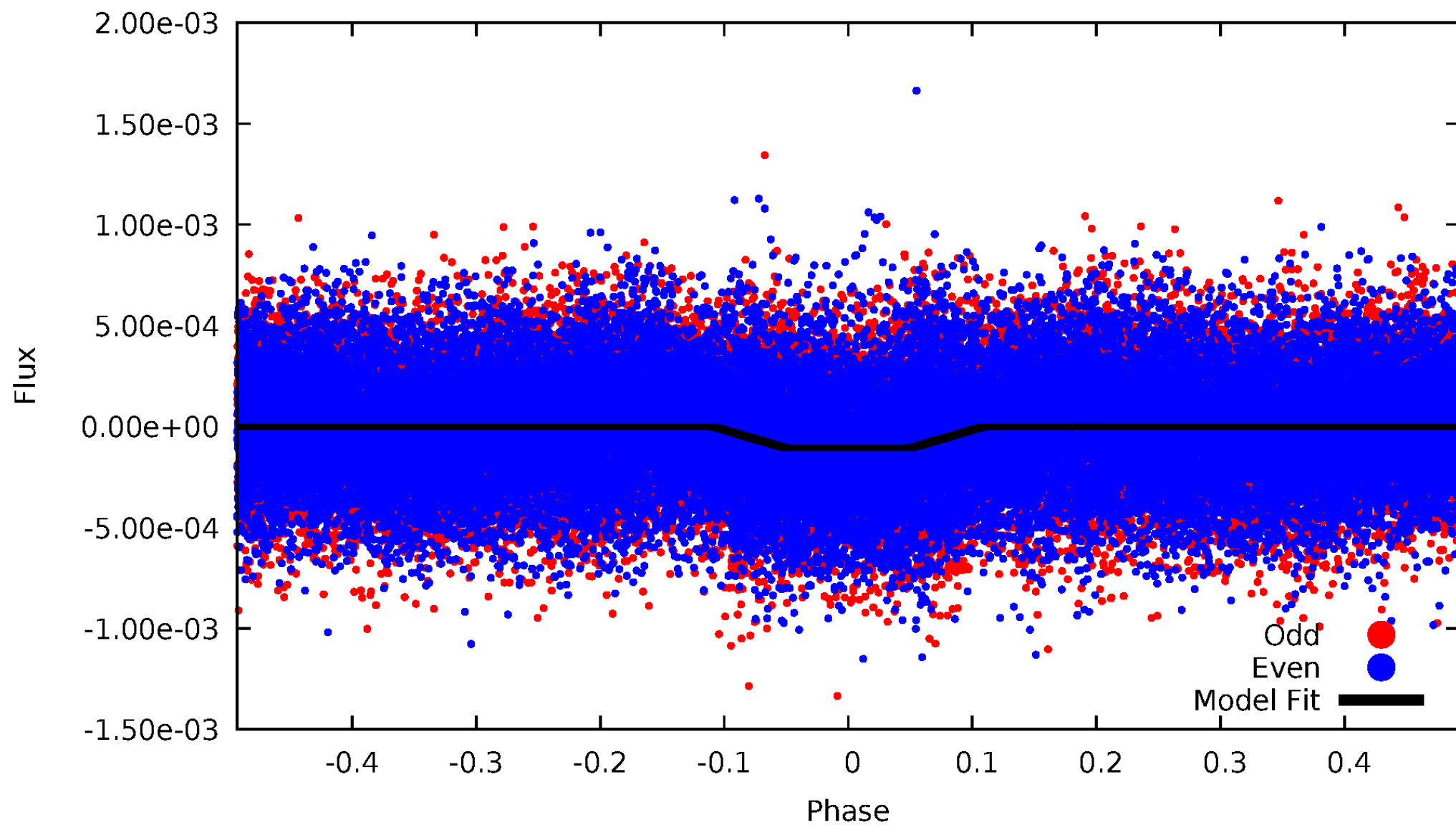
DV Odd/Even

TCE 008580228-01

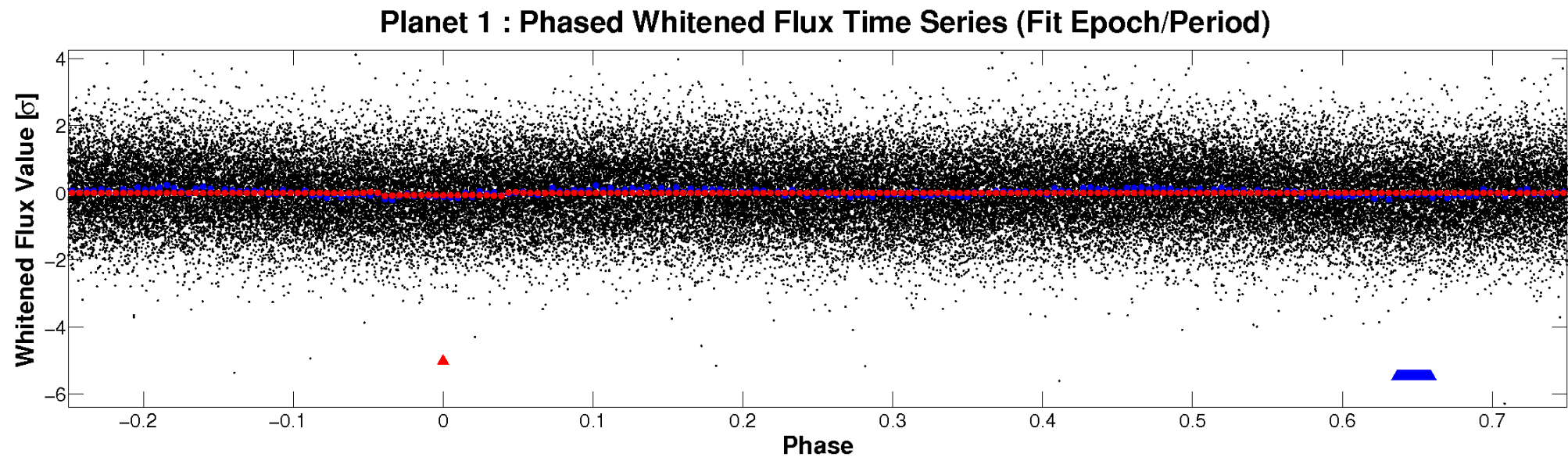
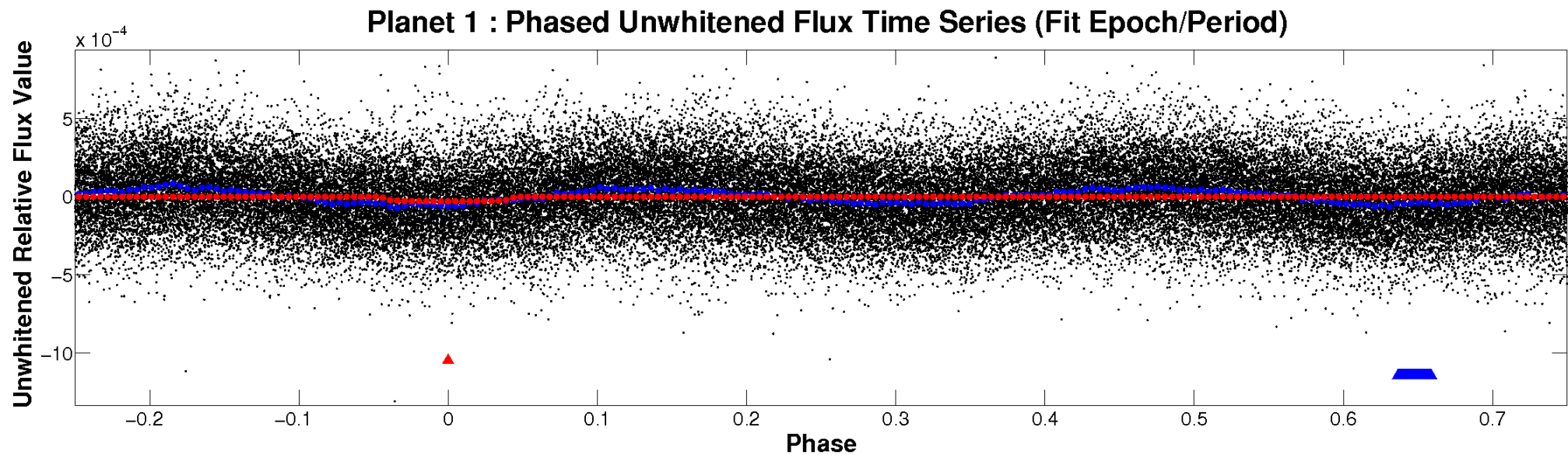


ALT Odd/Even

TCE 008580228-01

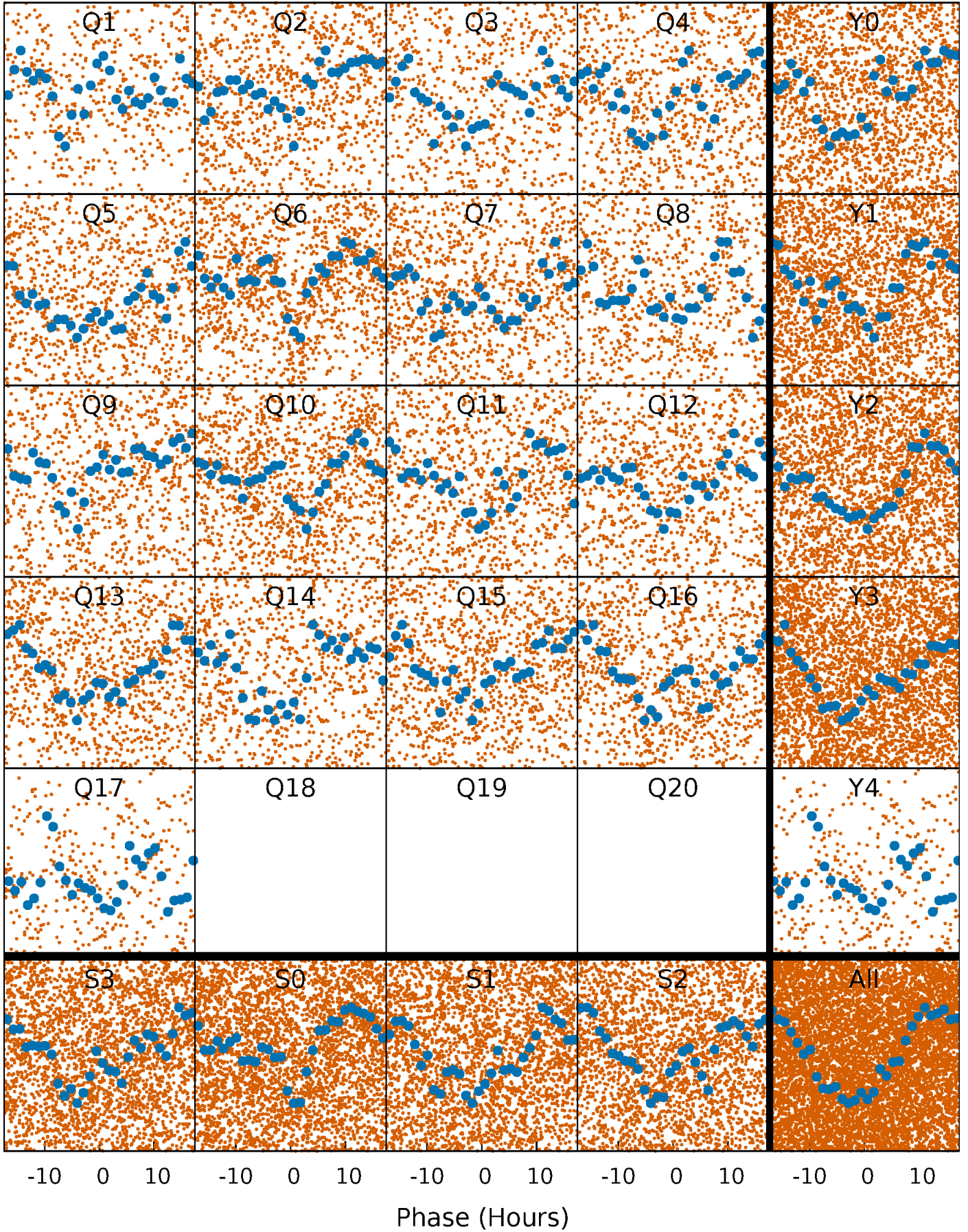


Non-Whitened Vs. Whitened Light Curve



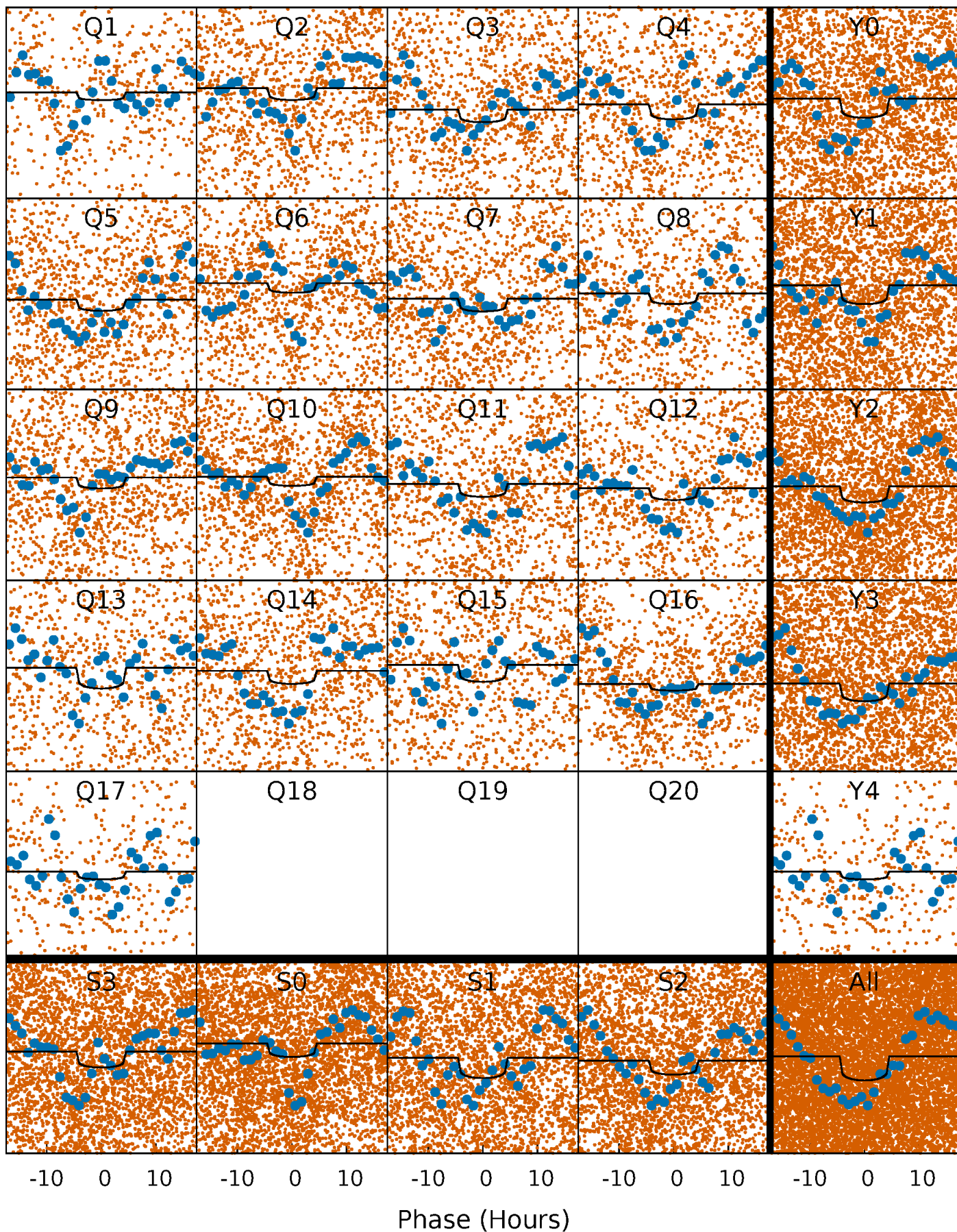
PDC Quarter-Phased Transit Curves

TCE 008580228-01 P= 4.210143 Days $T_0=134.047318$ (BKJD)



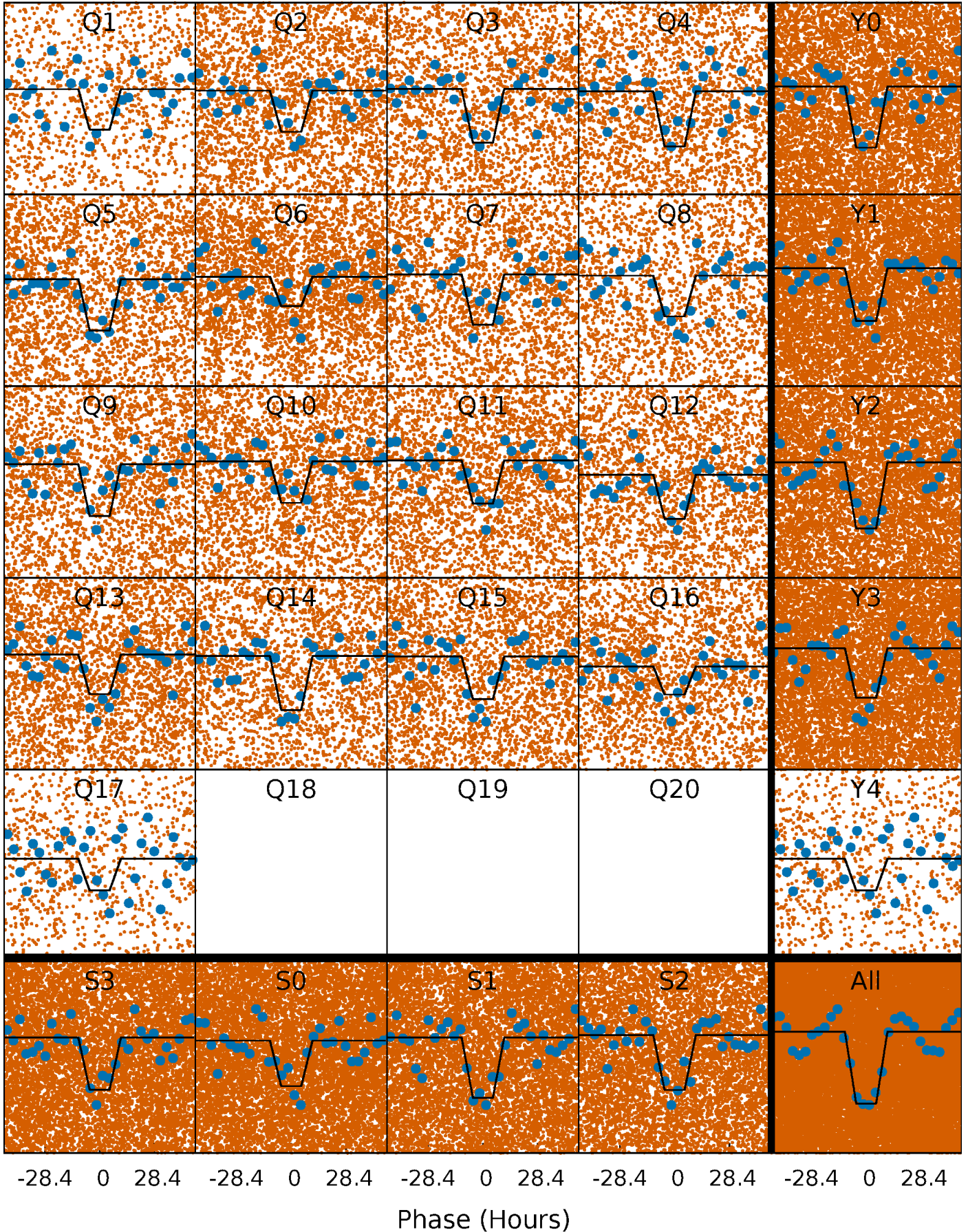
DV Quarter-Phased Transit Curves

TCE 008580228-01 P= 4.210143 Days $T_0=134.047318$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

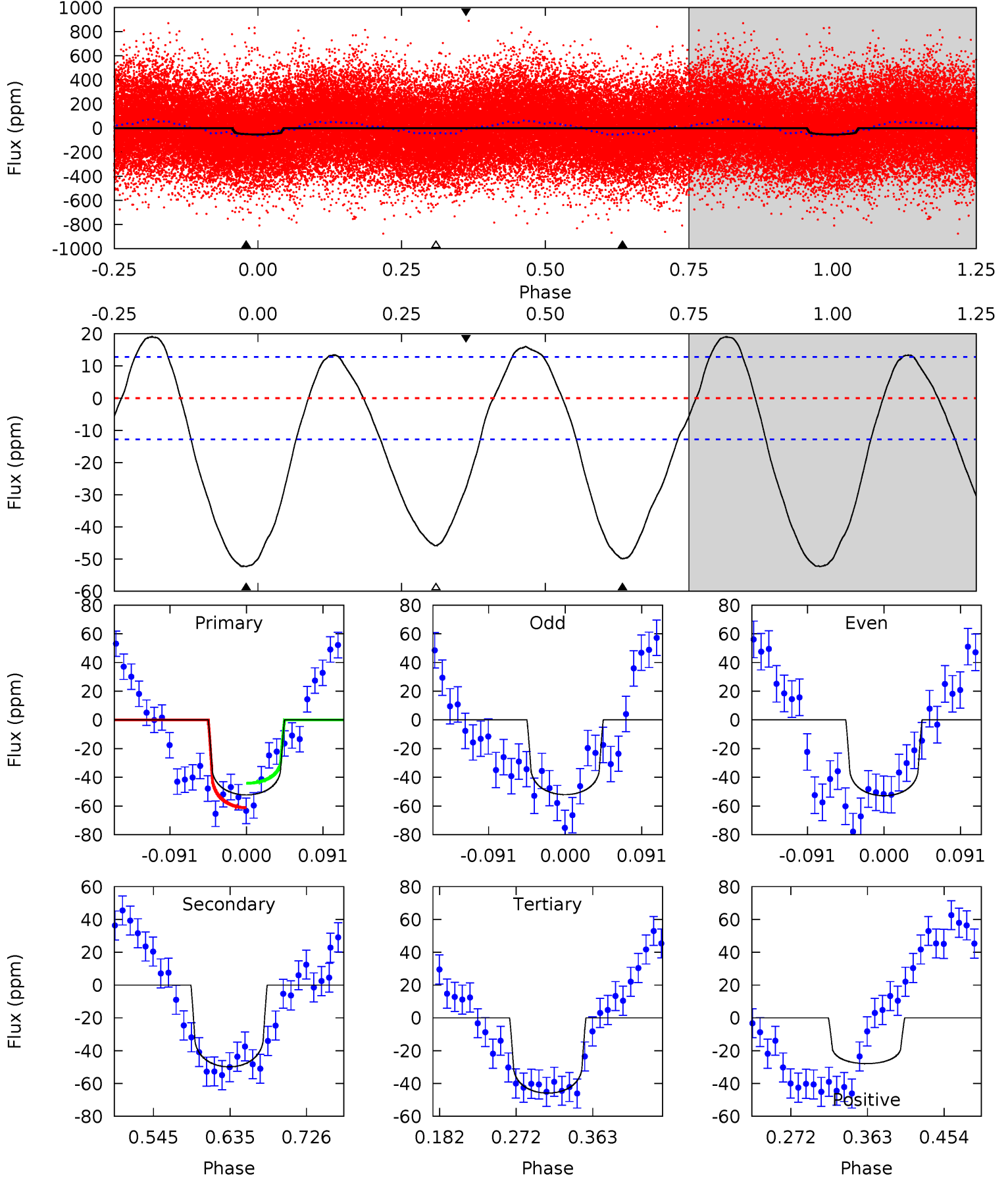
TCE 008580228-01 P= 4.210198 Days $T_0=133.925149$ (BKJD)



DV Model-Shift Uniqueness Test

008580228-01, P = 4.210143 Days, E = 129.837175 Days

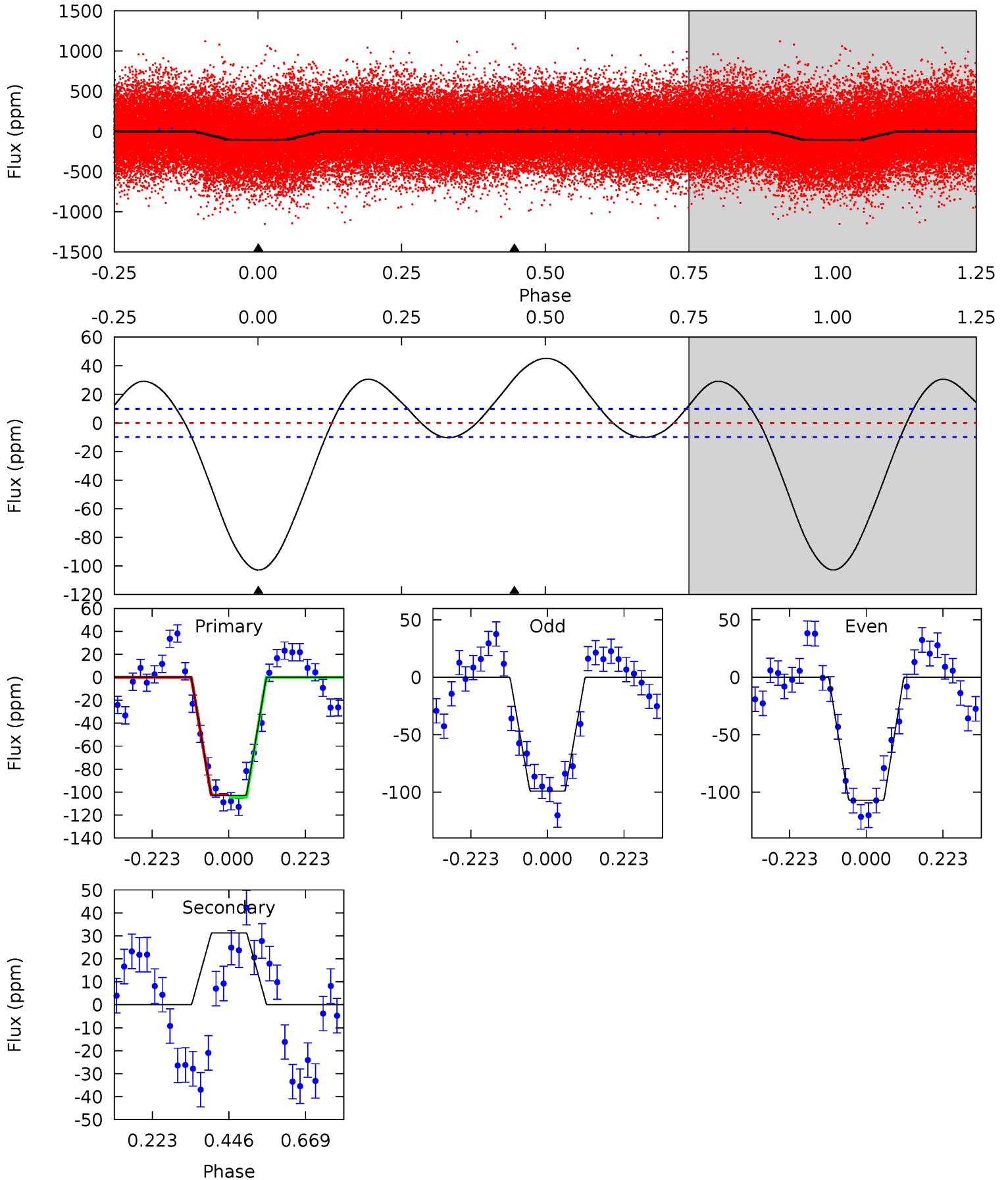
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	17.9	16.4	-9.99	4.59	1.69	6.96	2.30	28.7	1.42	27.8	0.14	0.82	0.27	3.04



Alt Model-Shift Uniqueness Test

008580228-01, P = 4.210198 Days, E = 129.714951 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.0	-14.0	0	0	4.39	1.22	5.02	46.0	46.0	-14.0	-14.0	1.79	1.04	0.31	0.43



Stellar Parameters For KIC 008580228

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7500^{+209}_{-313}	$3.644^{+0.495}_{-0.082}$	$-0.060^{+0.200}_{-0.300}$	$3.582^{+0.461}_{-1.842}$	$2.058^{+0.231}_{-0.578}$	$0.063^{+0.332}_{-0.016}$
	+3%/-4%	+14%/-2%	+333%/-500%	+13%/-51%	+11%/-28%	+526%/-26%
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 008580228-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-50 ± 3	$1.88^{+0.60}_{-0.62}$	3306^{+229}_{-395}	8856^{+1858}_{-1167}	32^{+36}_{-14}
Alt.	31 ± 2	$3.78^{+0.74}_{-1.01}$	3322^{+234}_{-393}	-5536^{+318}_{-390}	$-5.145^{+1.537}_{-3.617}$

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

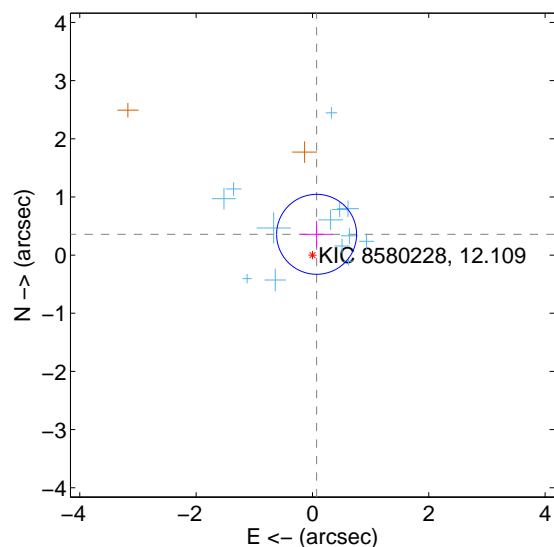
Supplemental centroid analysis for 008580228-01. Kepler magnitude: 12.11. Transit SNR 5.54

There are 13 quarters with good PRF difference image offsets

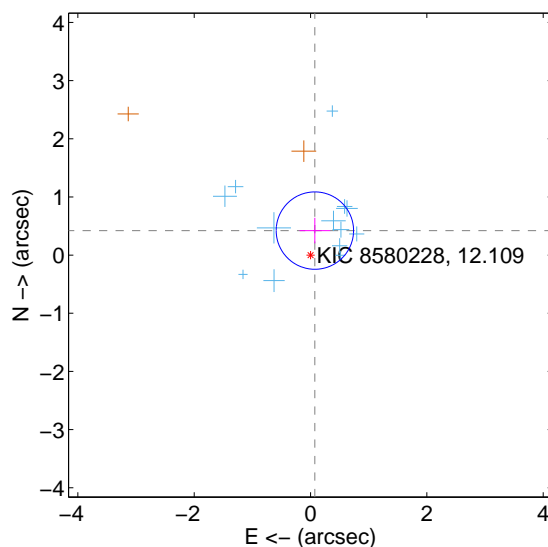
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.364 ± 0.229	1.59	-0.072 ± 0.280	0.357 ± 0.227
PRF-fit source offset from KIC position	0.428 ± 0.222	1.93	-0.075 ± 0.264	0.421 ± 0.220
photometric centroid source offset	1.38 ± 0.70	1.97	-1.38 ± 0.70	-0.01 ± 0.51

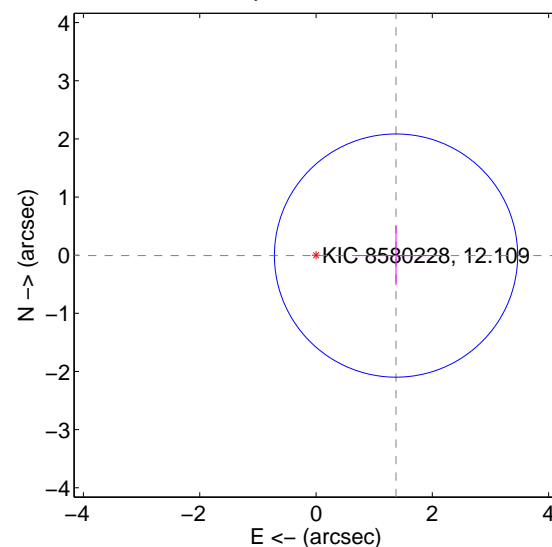
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

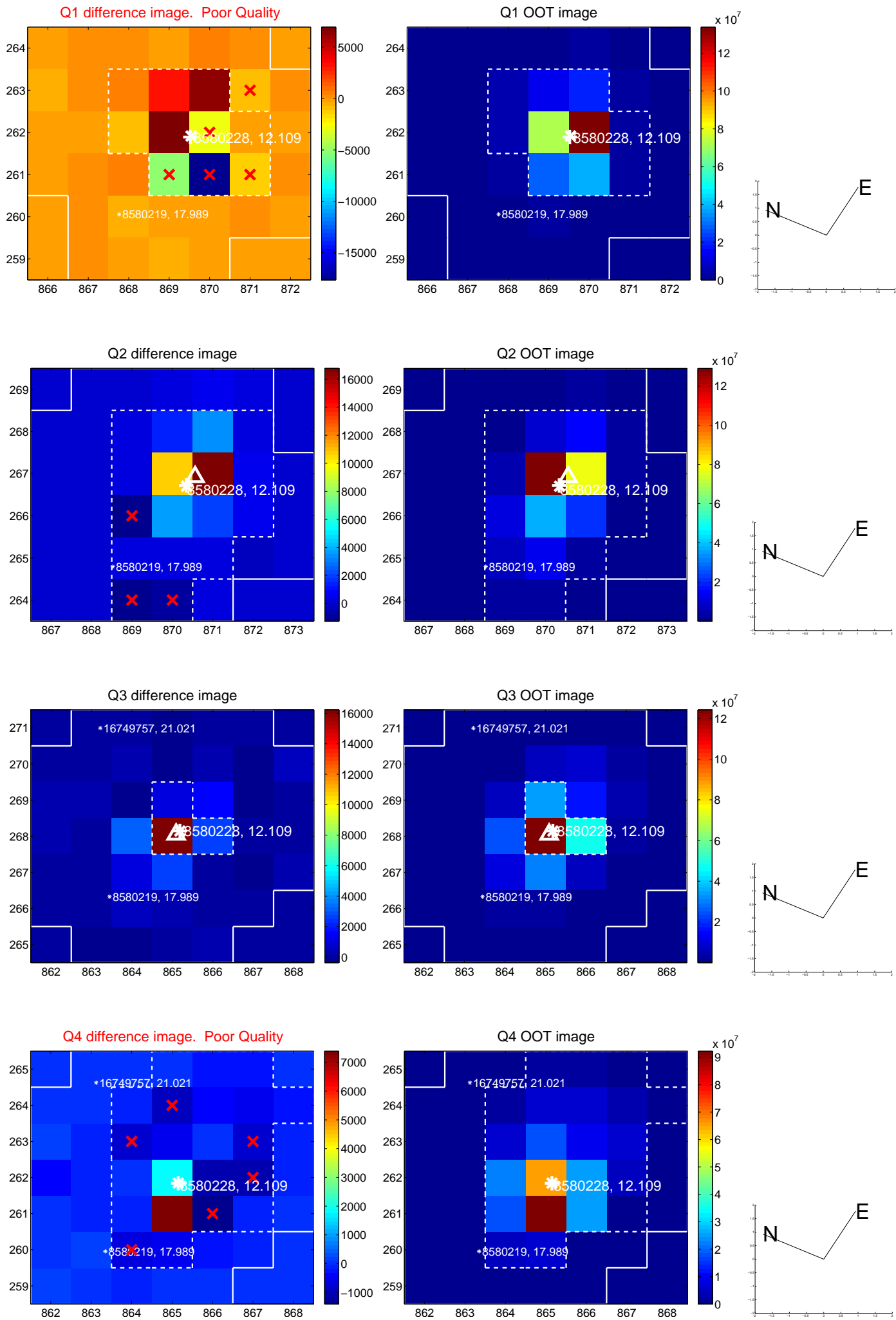


offset from photometric centroids

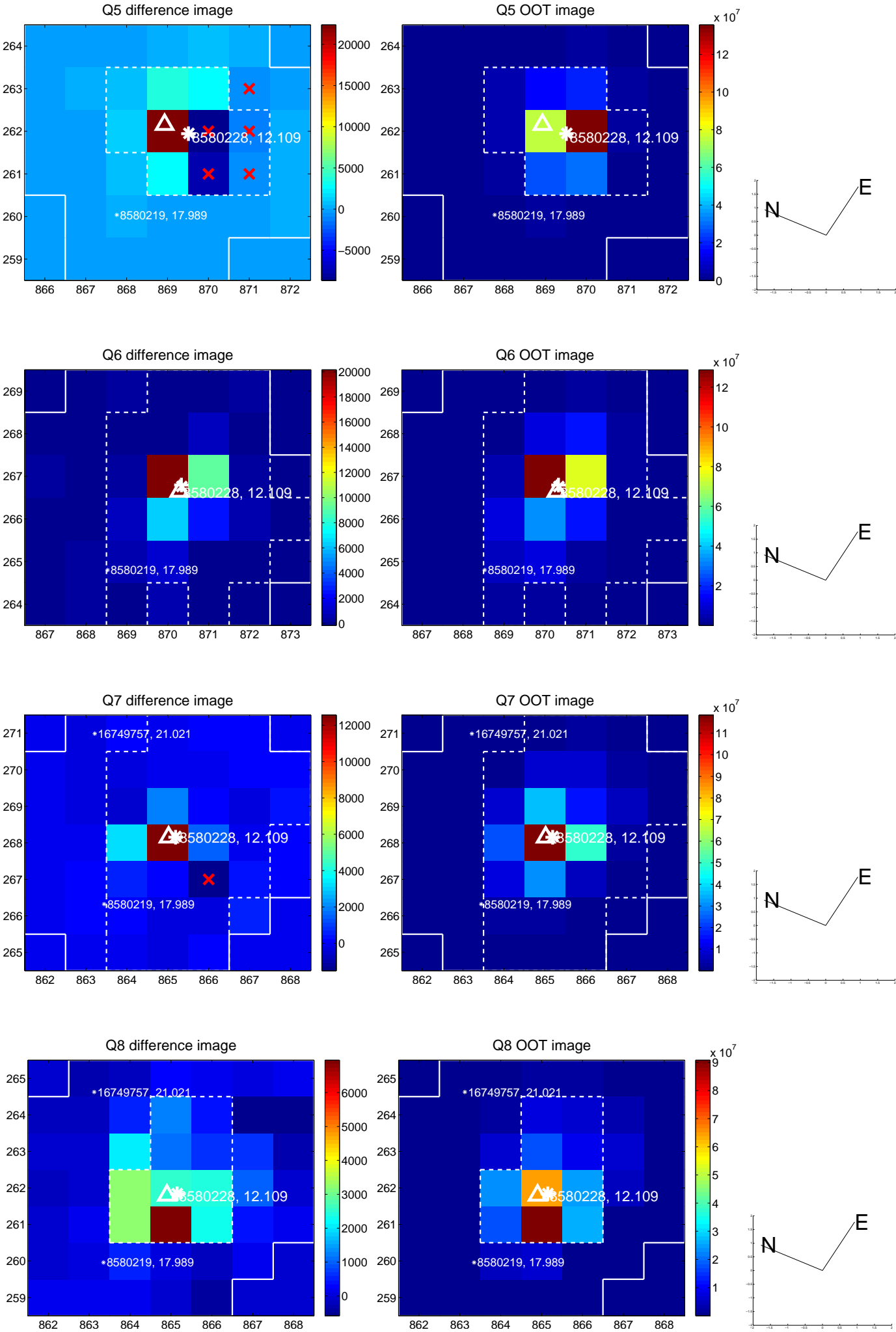


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

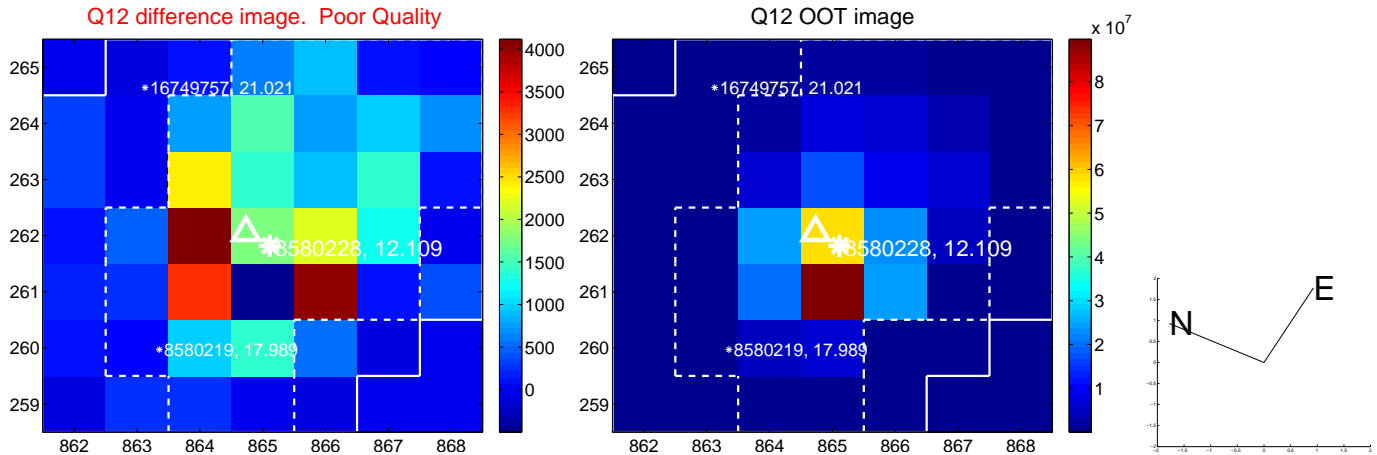
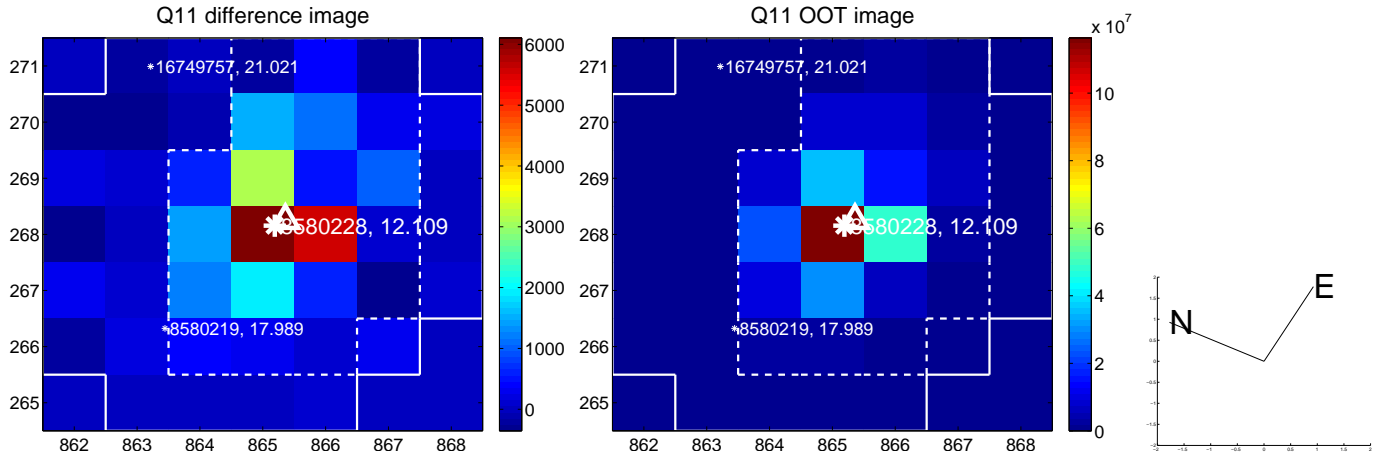
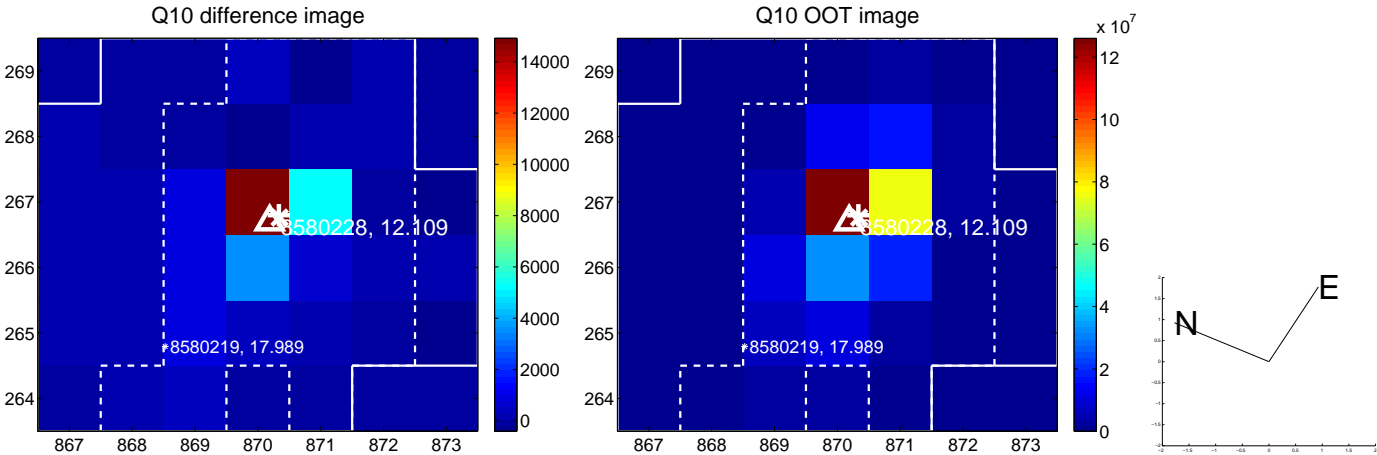
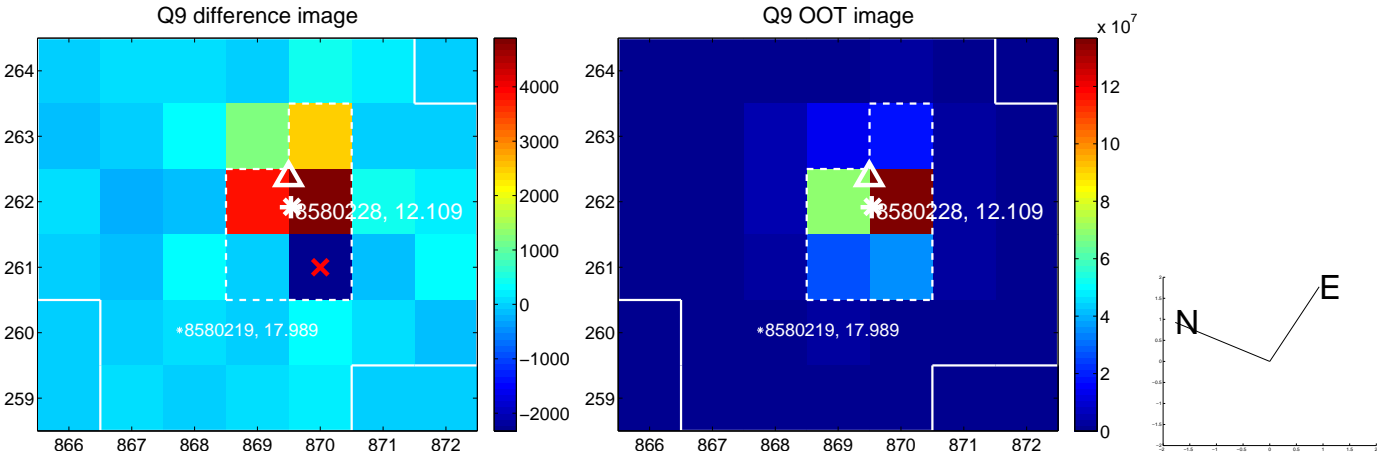
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



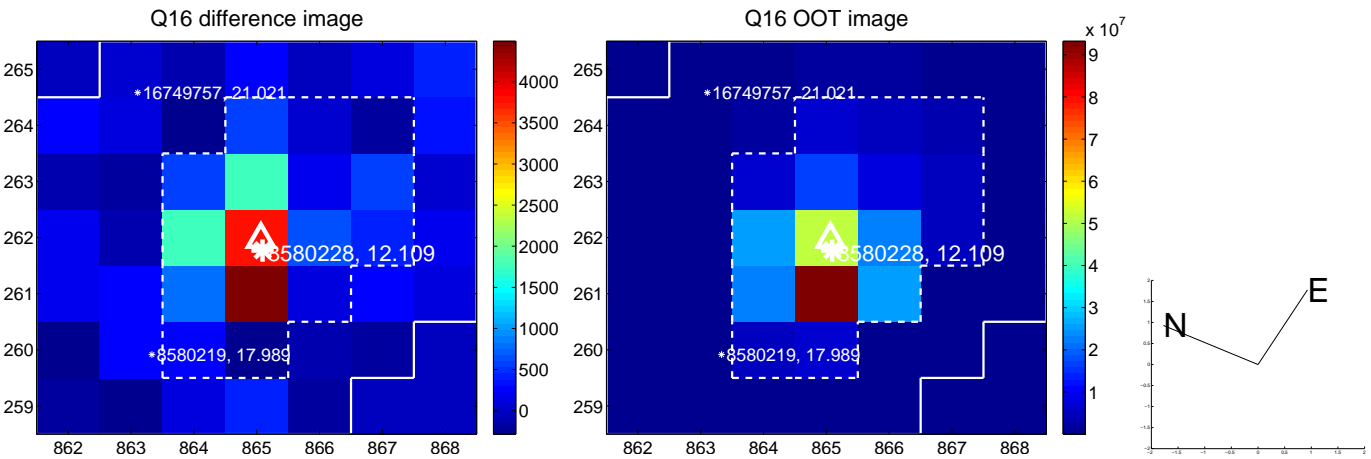
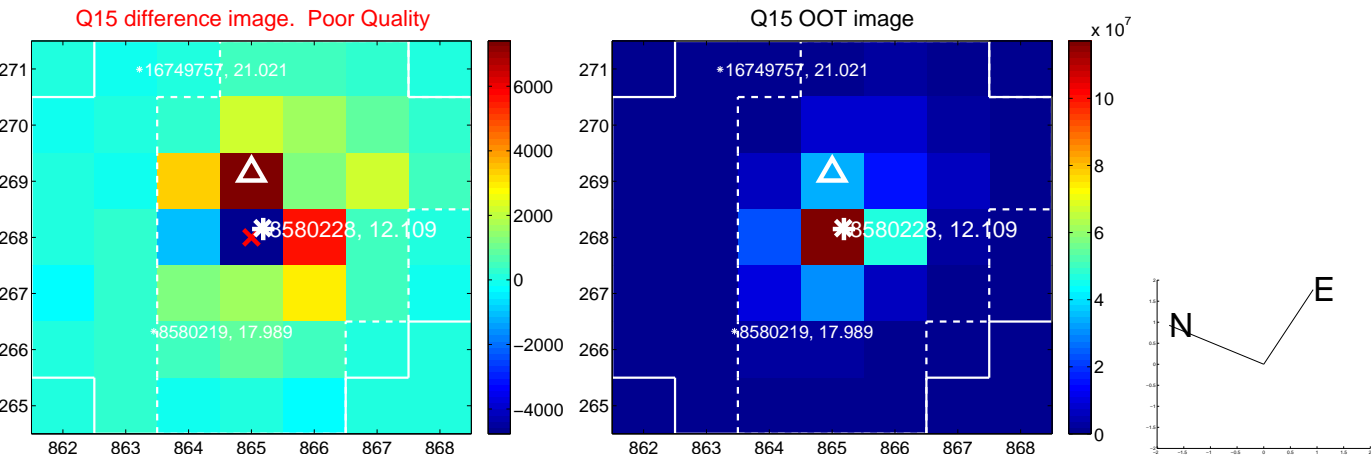
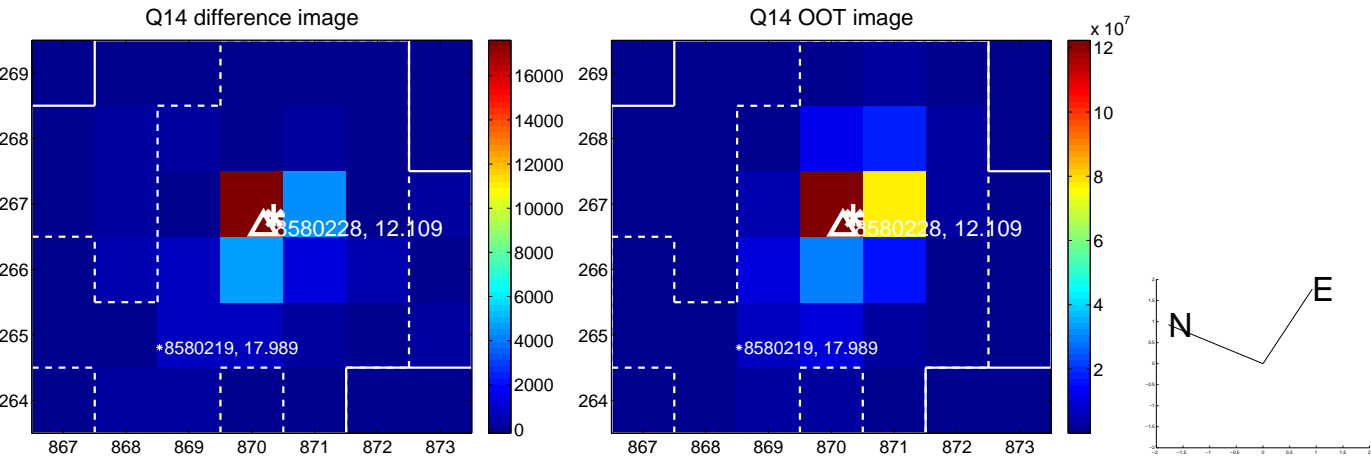
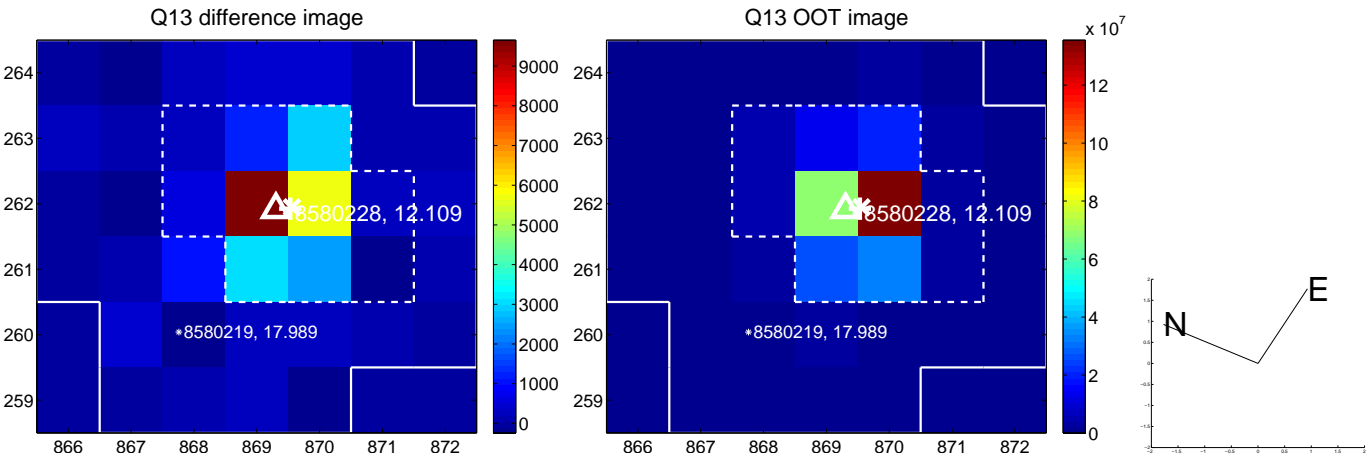
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



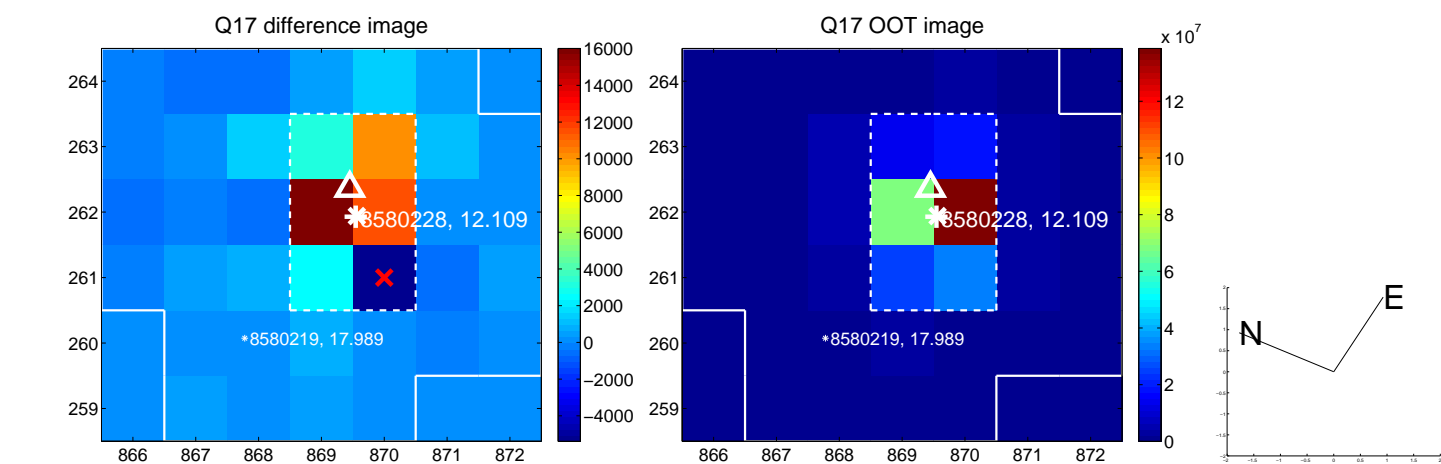
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



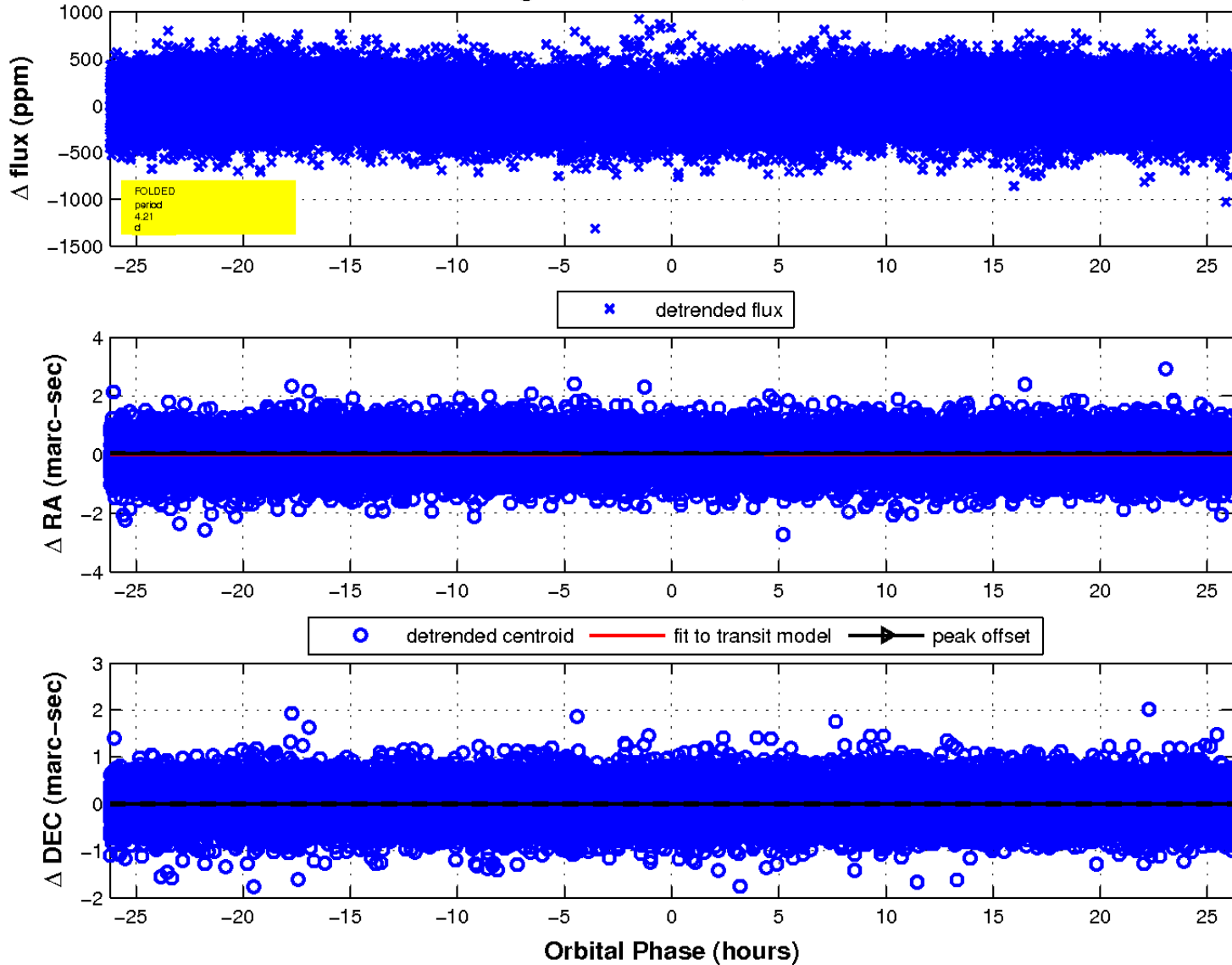
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

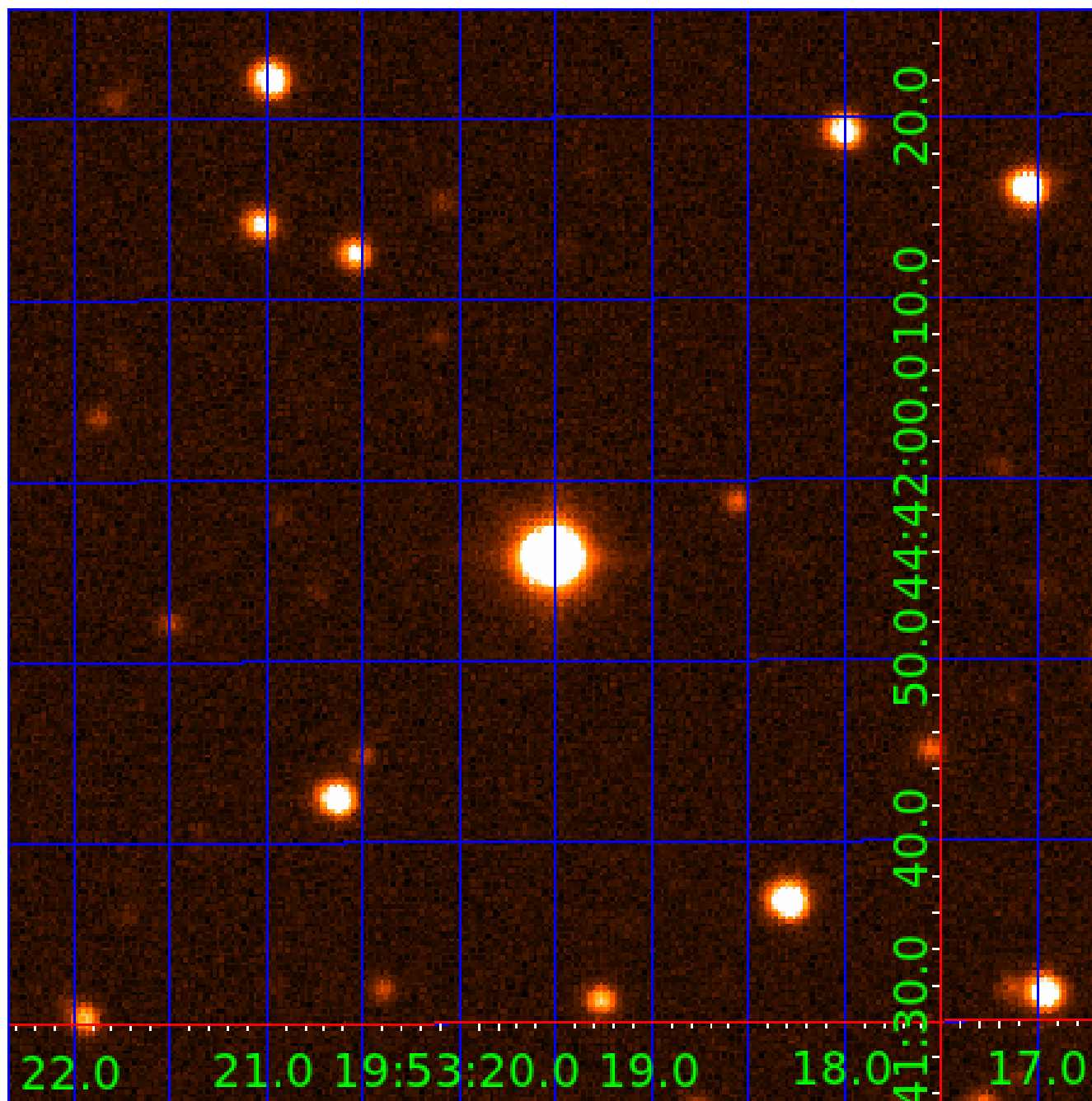


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008580228

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})
008580228-01	OBS	No	4.210143	134.047318	29.8	8.737	8.4	5.5	3.58	7500	2.09	8619.74
008580228-02	OBS	No	4.210411	132.517818	29.1	20.923	11.2	8.6	3.58	7500	2.05	8619.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008580228-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008580228-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

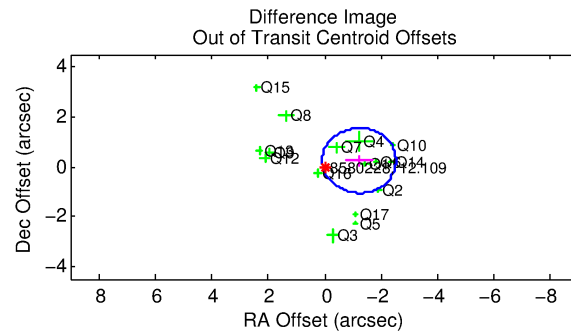
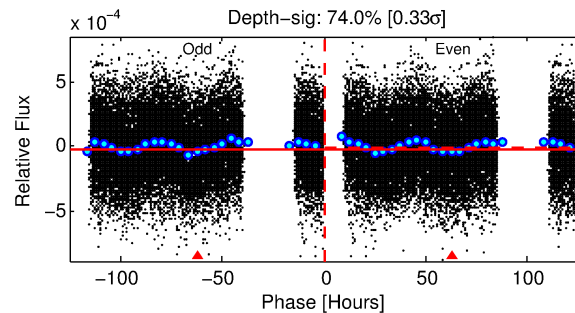
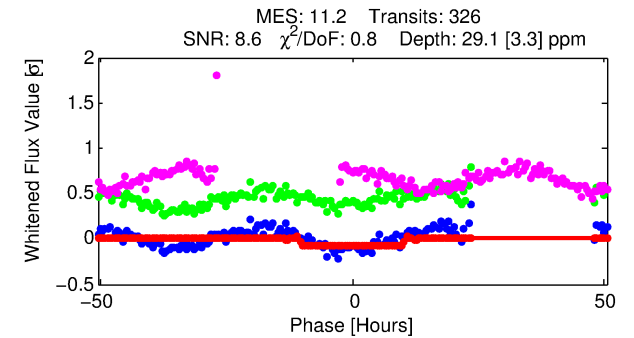
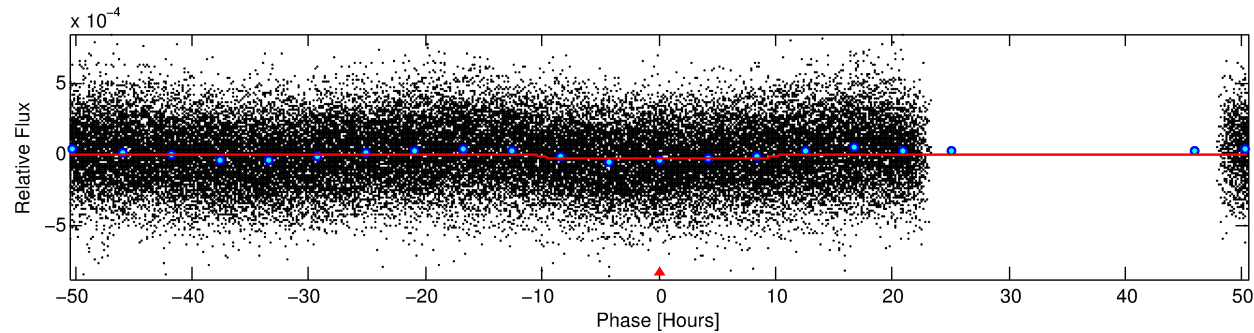
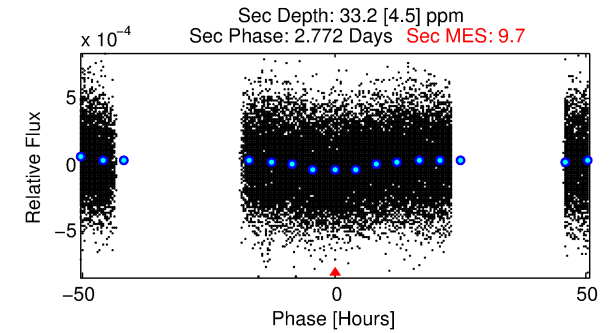
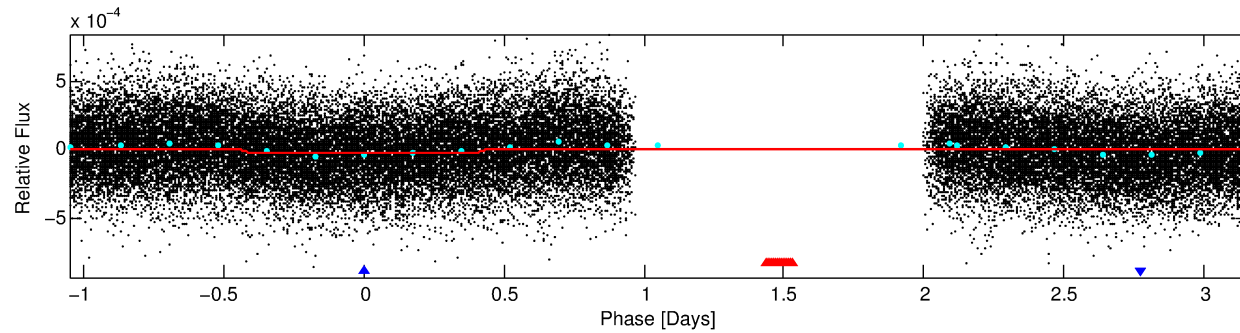
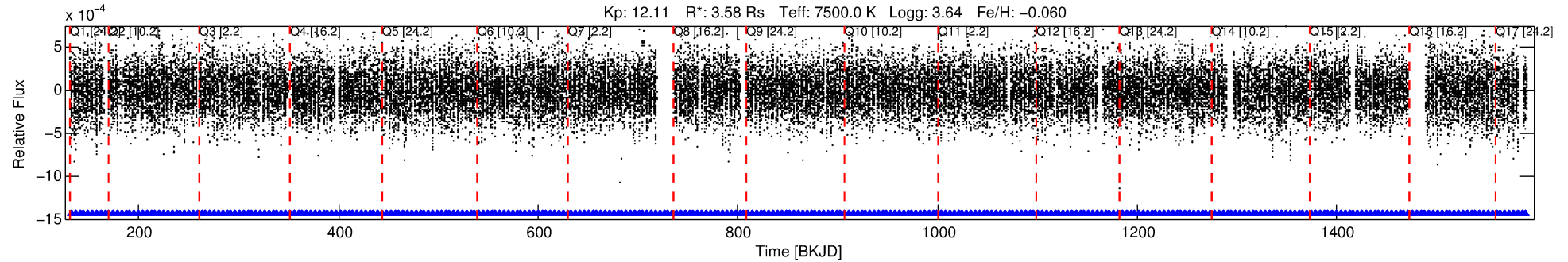
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008580228-02

No Significant Match Found

DV One-Page Summary

KIC: 8580228 Candidate: 2 of 2 Period: 4.210 d



DV Fit Results:

Period = 4.21041 [0.00006] d
Epoch = 132.5178 [0.0084] BKJD
Rp/R* = 0.0052 [0.0011]
a/R* = 1.43 [0.91]
b = 0.65 [1.13]
Seff = 8619.01 [7327.54]
Teq = 2457 [522] K
Rp = 2.05 [1.14] Re
a = 0.0650 [0.0332] AU
Ag = 18.41 [17.48] [1.00σ]
Teffp = 7869 [953] K [4.98σ]

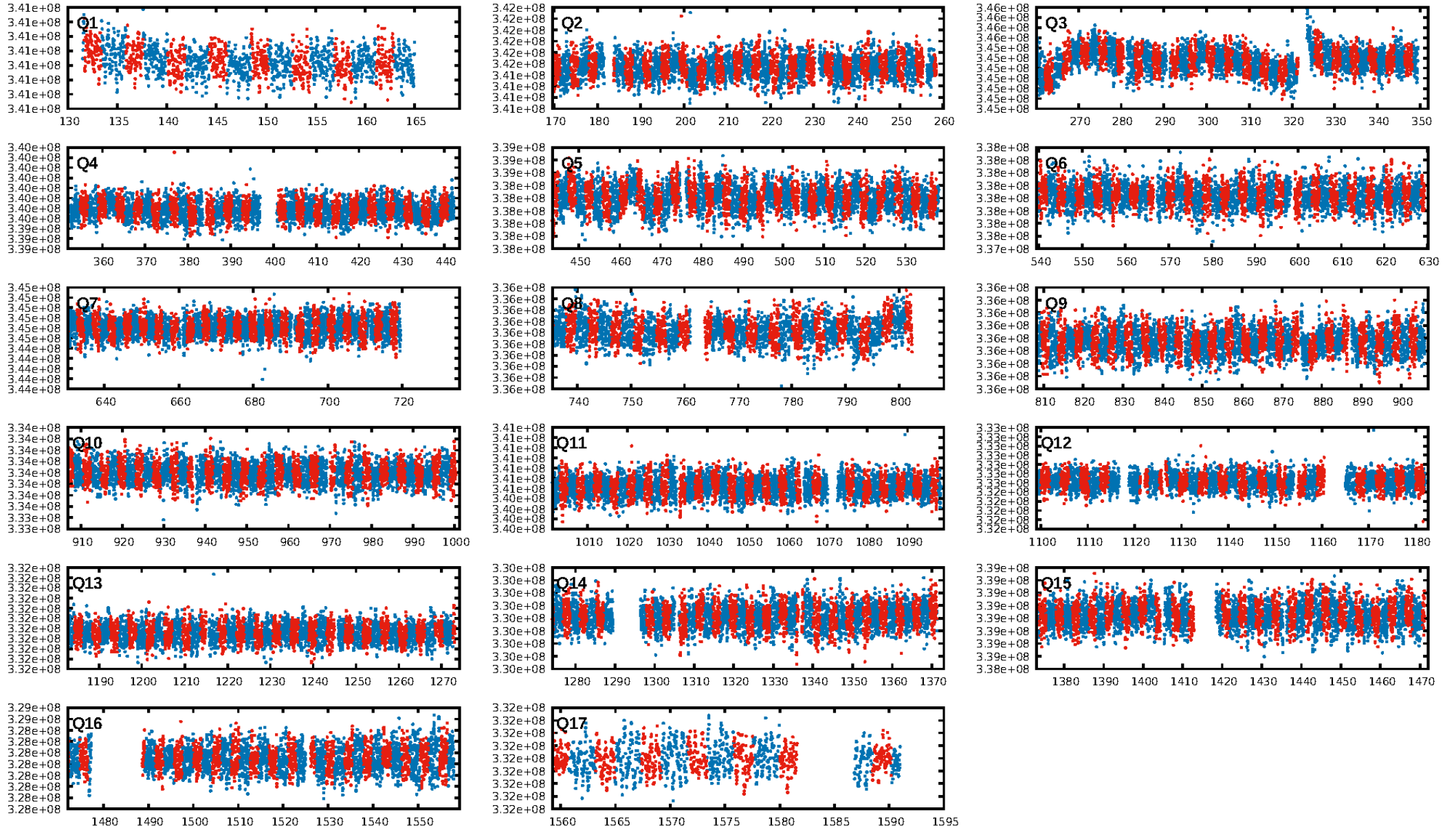
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.23e-16
RollingBand-fgt: 1.00 [311/311]
GhostDiagnostic-chr: 2.973
Centroid-sig: 88.2%
Centroid-so: 0.151 arcsec [0.28σ]
OotOffset-rm: 1.243 arcsec [2.86σ]
KicOffset-rm: 1.236 arcsec [3.03σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.00 [0/17]

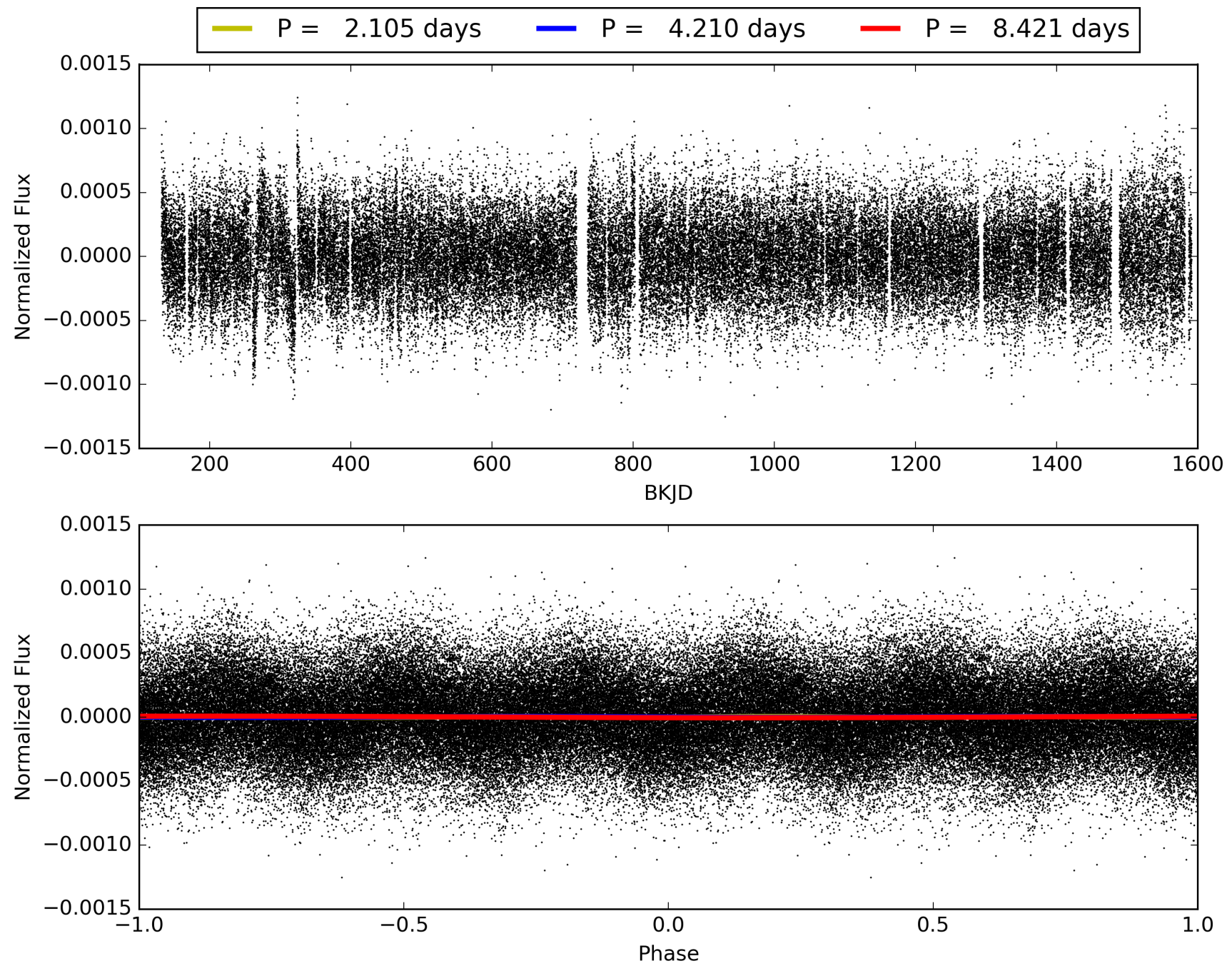
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:25:25 Z

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

TCE 00580228-02, PDC Light Curves

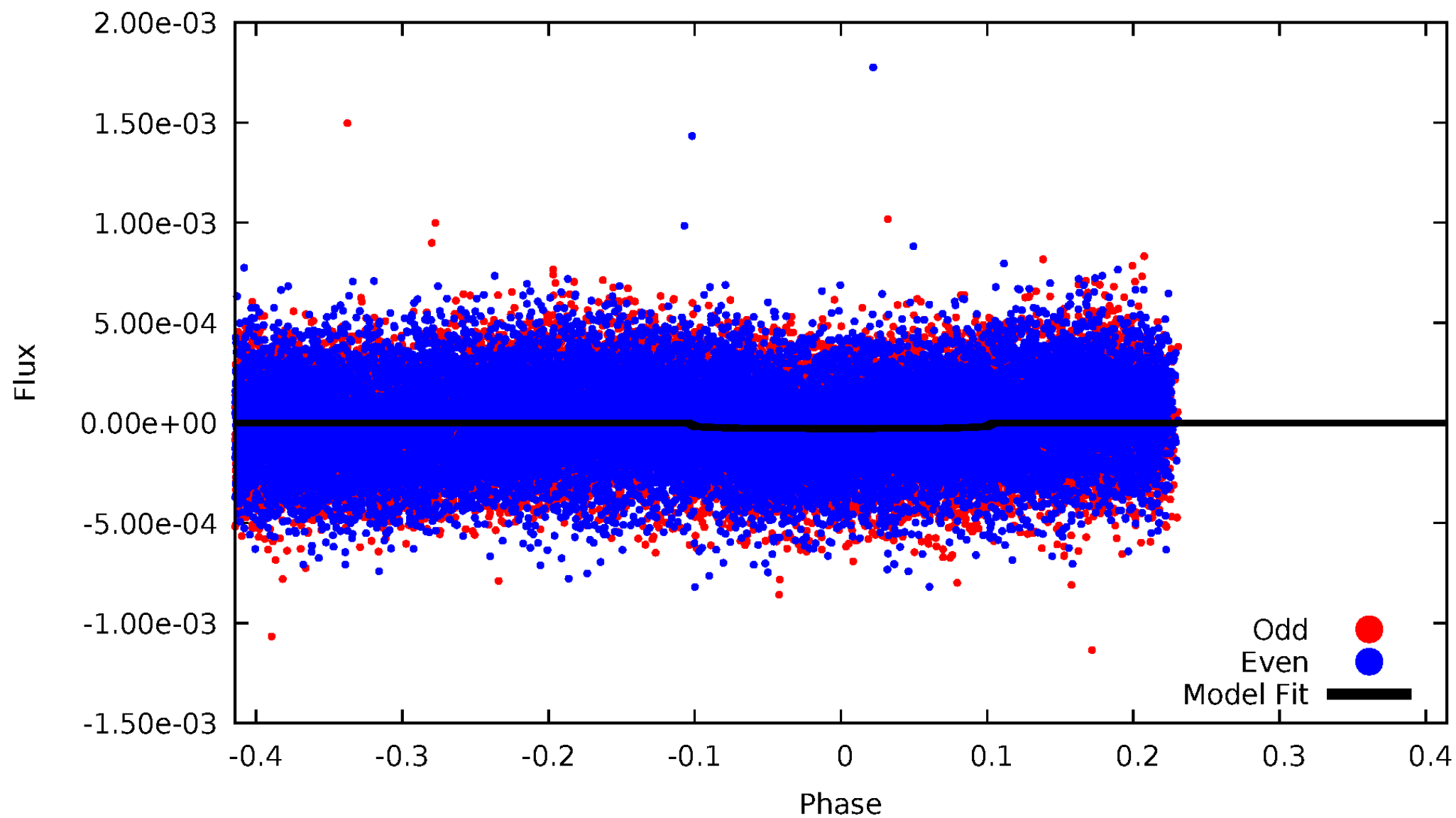


TCE 008580228-02



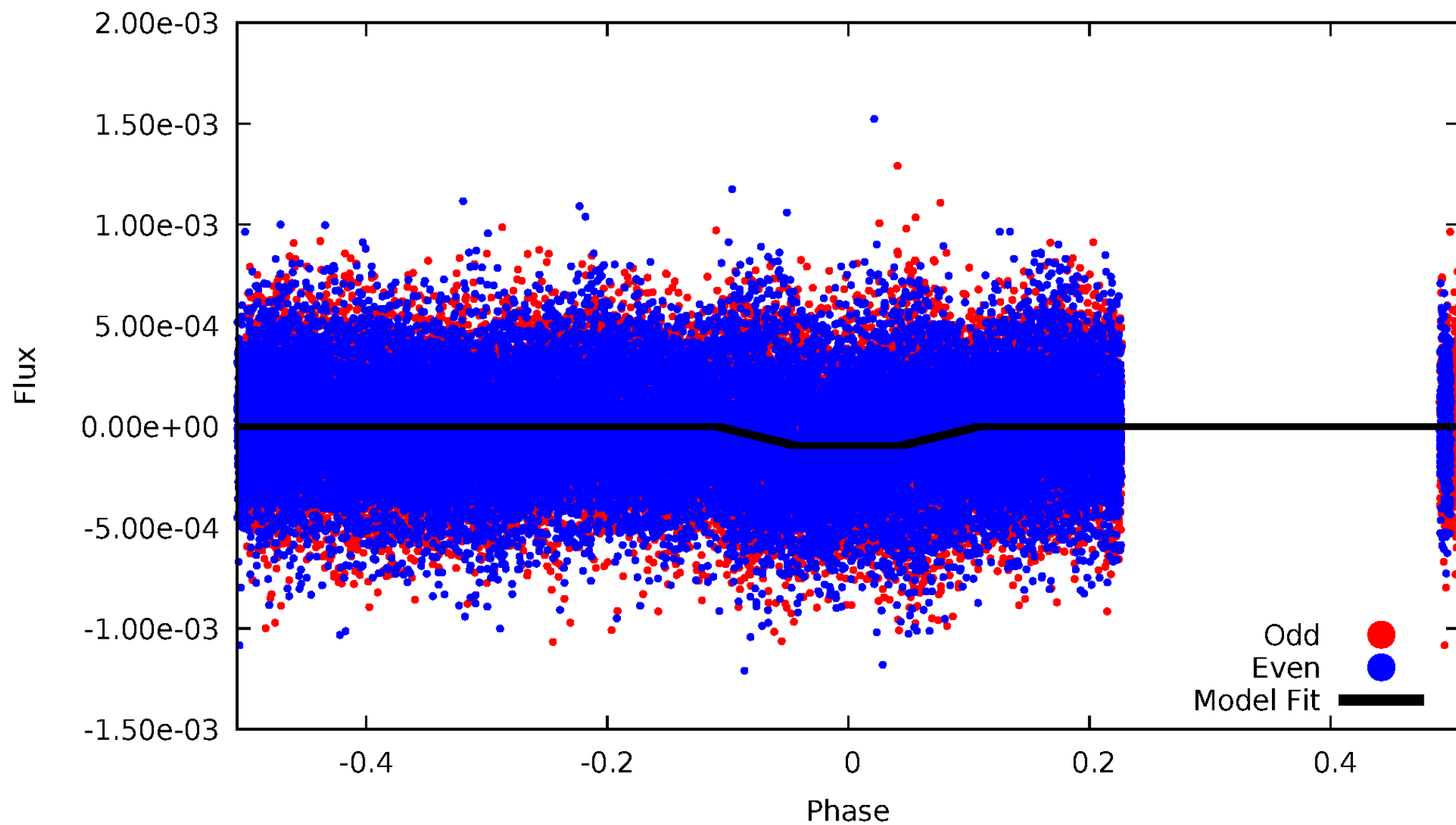
DV Odd/Even

TCE 008580228-02



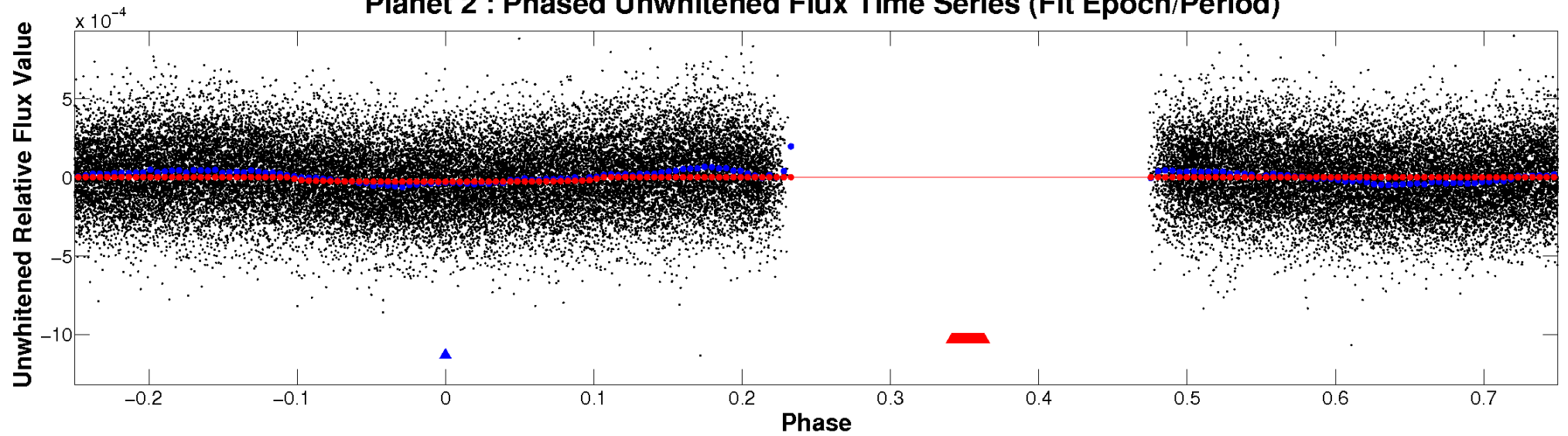
ALT Odd/Even

TCE 008580228-02

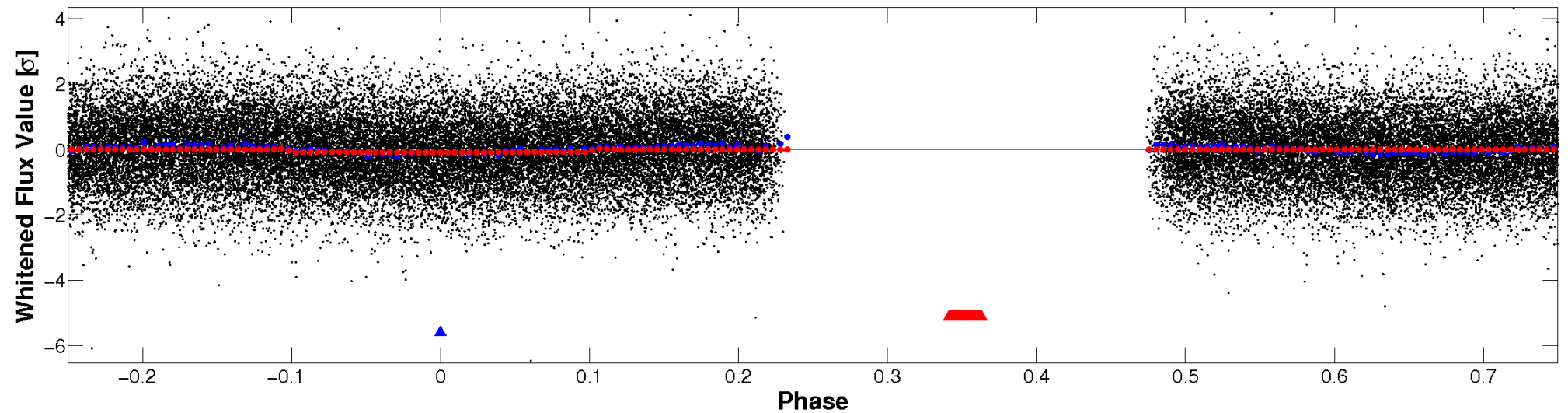


Non-Whitened Vs. Whitened Light Curve

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

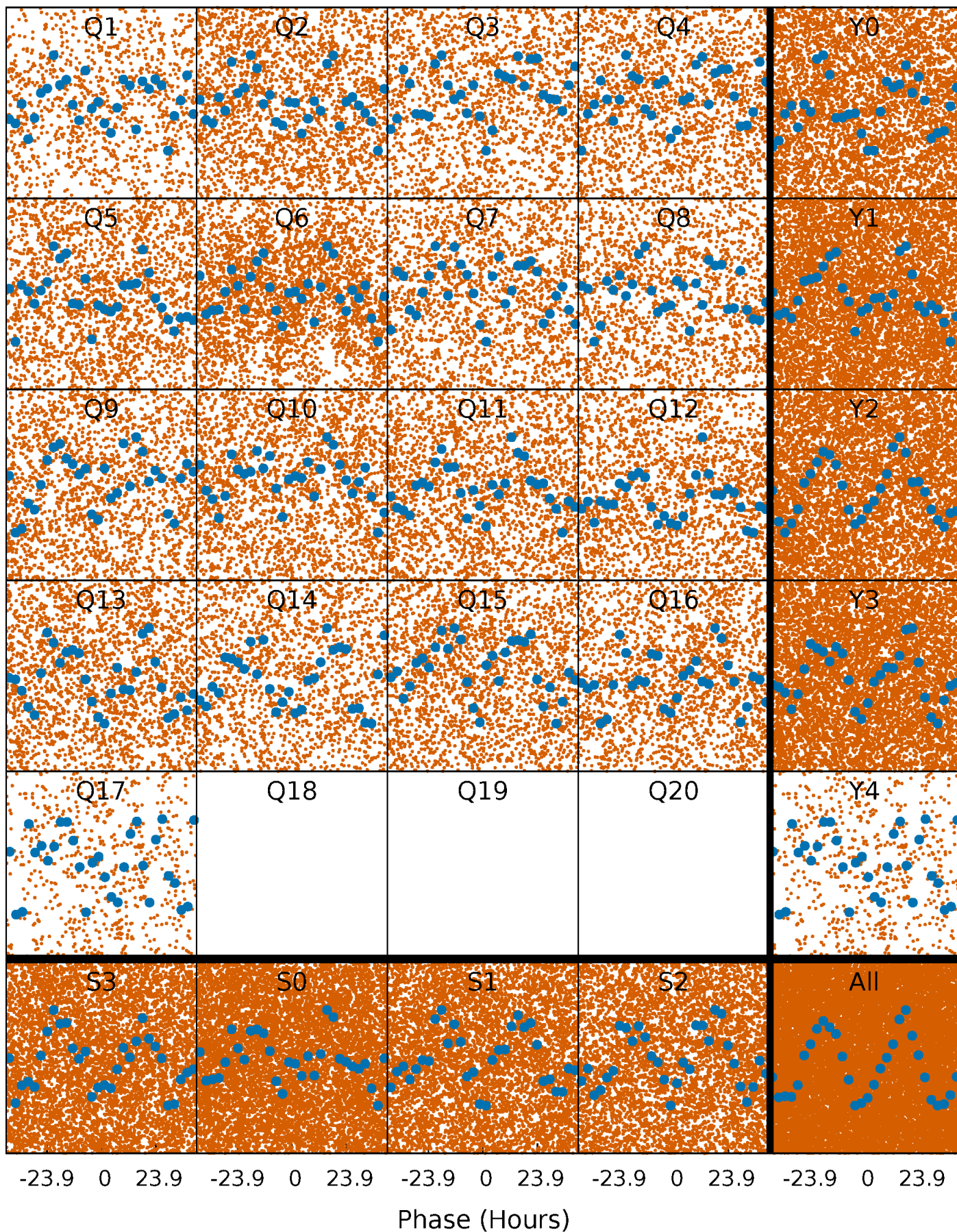


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



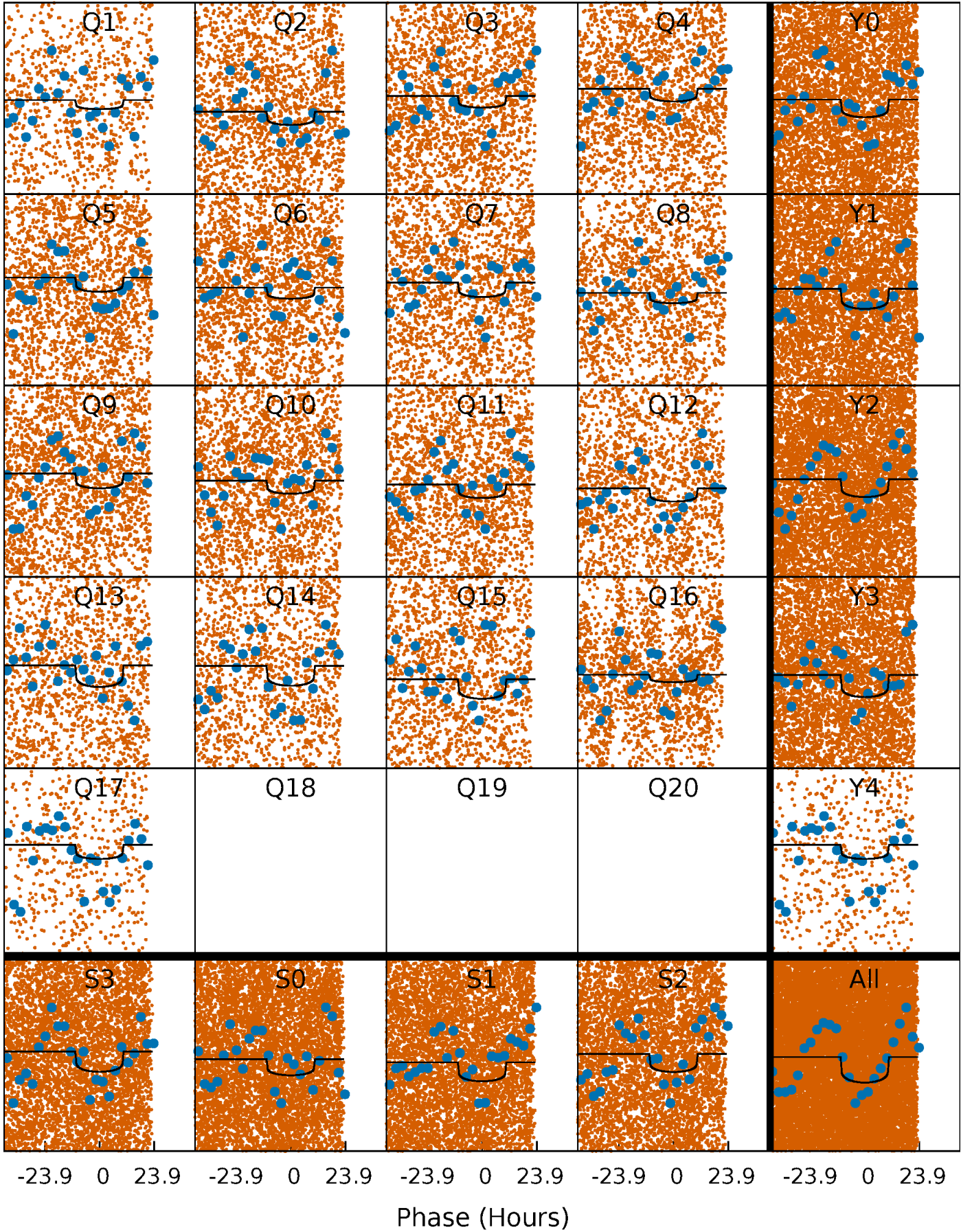
PDC Quarter-Phased Transit Curves

TCE 008580228-02 P= 4.210411 Days $T_0=132.517818$ (BKJD)



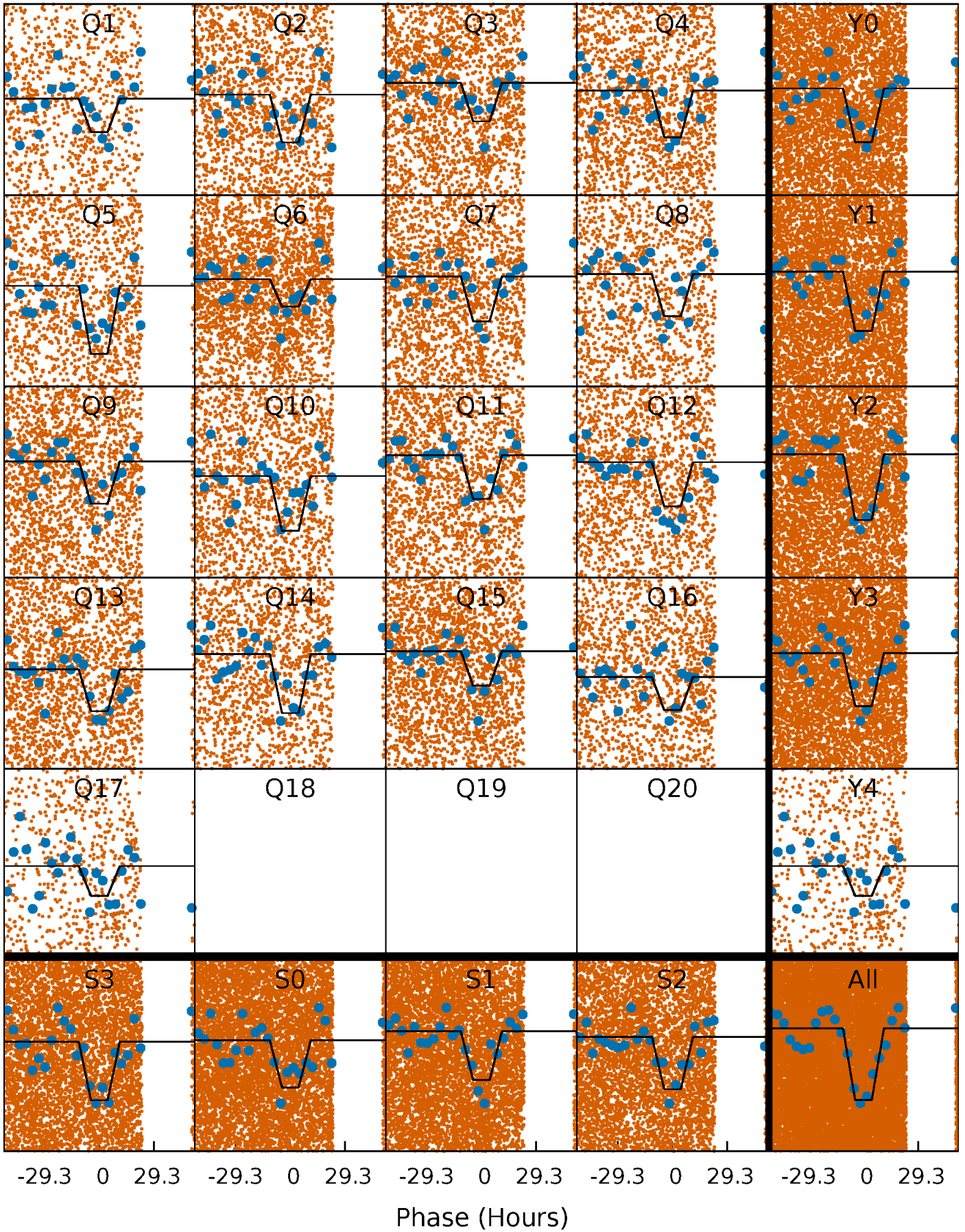
DV Quarter-Phased Transit Curves

TCE 008580228-02 P= 4.210411 Days $T_0=132.517818$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

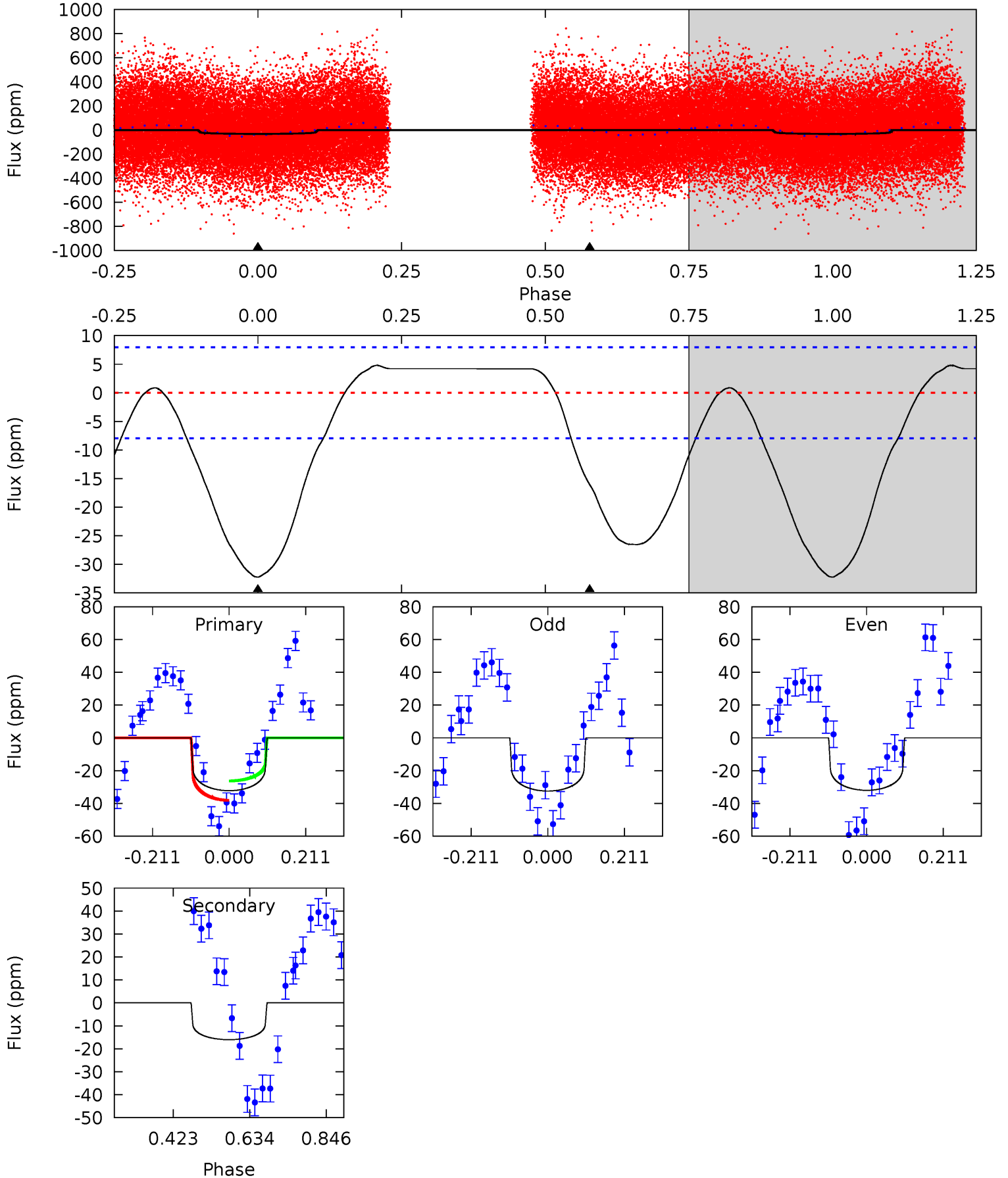
TCE 008580228-02 P= 4.210151 Days $T_0=132.535552$ (BKJD)



DV Model-Shift Uniqueness Test

008580228-02, P = 4.210411 Days, E = 128.307407 Days

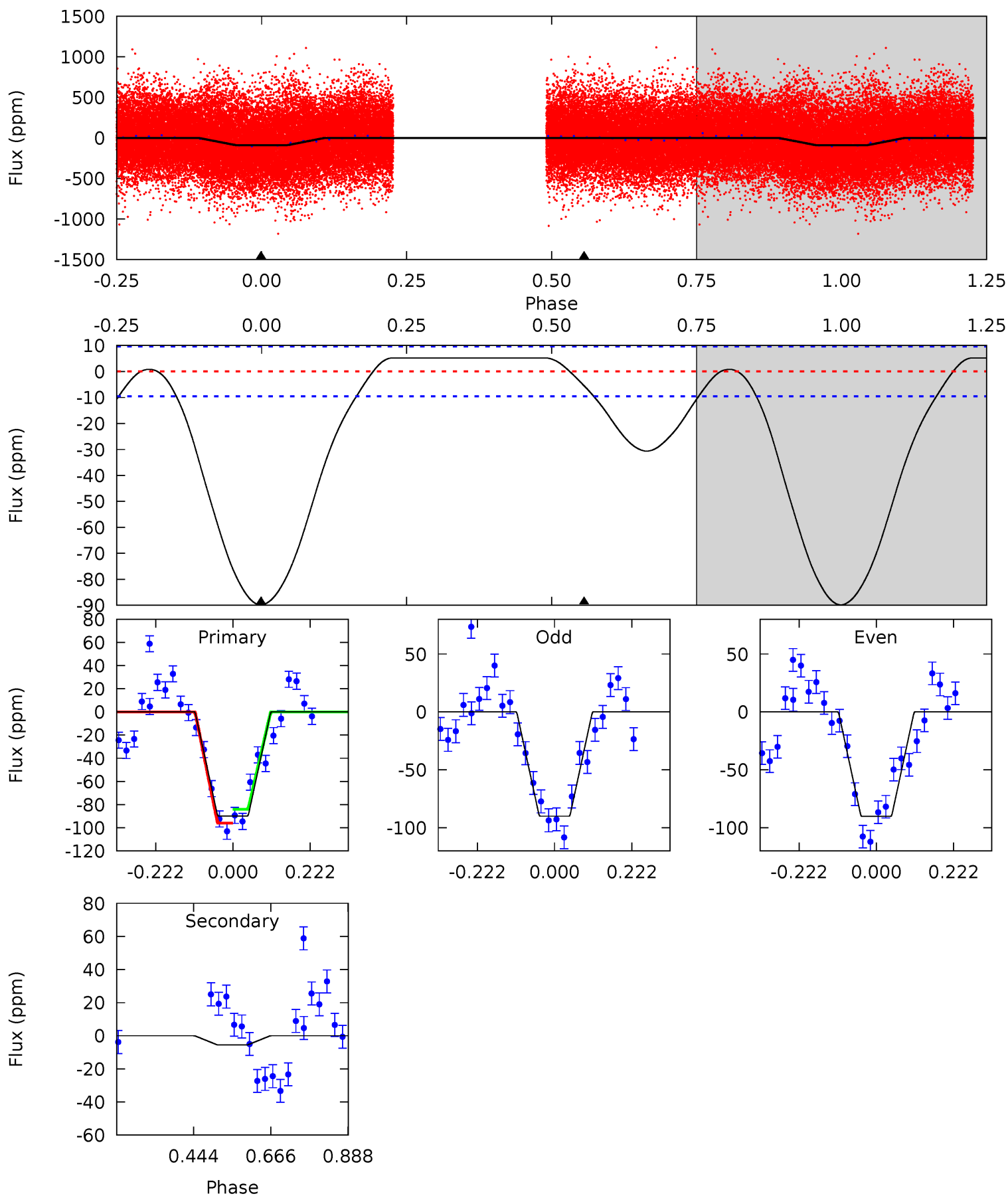
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	8.88	0	0	4.41	1.25	2.12	17.8	17.8	8.88	8.88	0.13	1.21	0.13	3.33



Alt Model-Shift Uniqueness Test

008580228-02, P = 4.210151 Days, E = 128.325401 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.2	2.52	0	0	4.39	1.22	1.95	41.2	41.2	2.52	2.52	0.04	0.94	0.05	2.76



Stellar Parameters For KIC 008580228

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7500^{+209}_{-313}	$3.644^{+0.495}_{-0.082}$	$-0.060^{+0.200}_{-0.300}$	$3.582^{+0.461}_{-1.842}$	$2.058^{+0.231}_{-0.578}$	$0.063^{+0.332}_{-0.016}$
	+3%/-4%	+14%/-2%	+333%/-500%	+13%/-51%	+11%/-28%	+526%/-26%
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 008580228-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-16 ± 2	$1.83^{+0.61}_{-0.58}$	3325^{+222}_{-449}	6420^{+932}_{-716}	11^{+12}_{-5}
Alt.	-6 ± 2	$3.54^{+0.77}_{-0.99}$	3302^{+230}_{-420}	3711^{+376}_{-532}	$1.042^{+0.966}_{-0.495}$

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

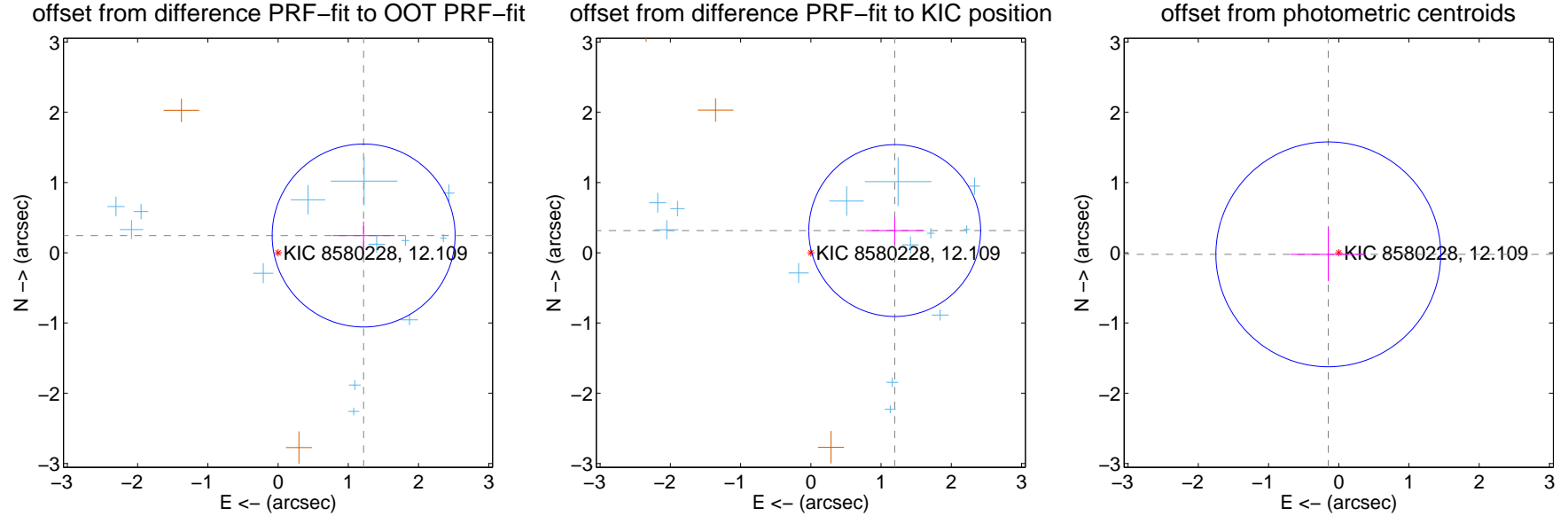
DV Centroid Data

Supplemental centroid analysis for 008580228-02. Kepler magnitude: 12.11. Transit SNR 8.64

There are 13 quarters with good PRF difference image offsets

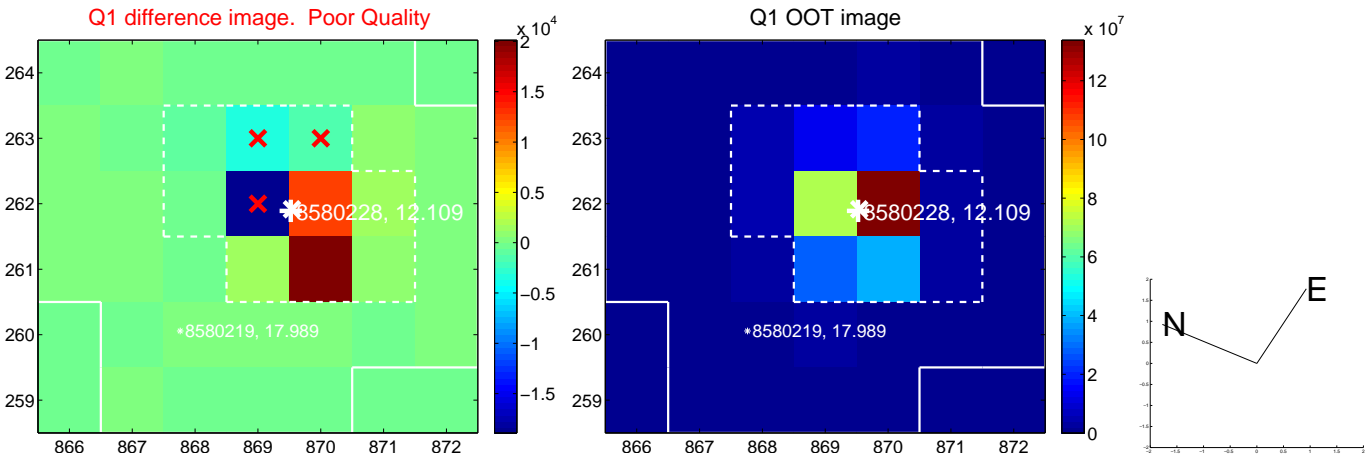
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.243 ± 0.434	2.86	-1.219 ± 0.441	0.246 ± 0.199
PRF-fit source offset from KIC position	1.236 ± 0.408	3.03	-1.194 ± 0.419	0.316 ± 0.199
photometric centroid source offset	0.15 ± 0.53	0.28	0.15 ± 0.54	-0.02 ± 0.38

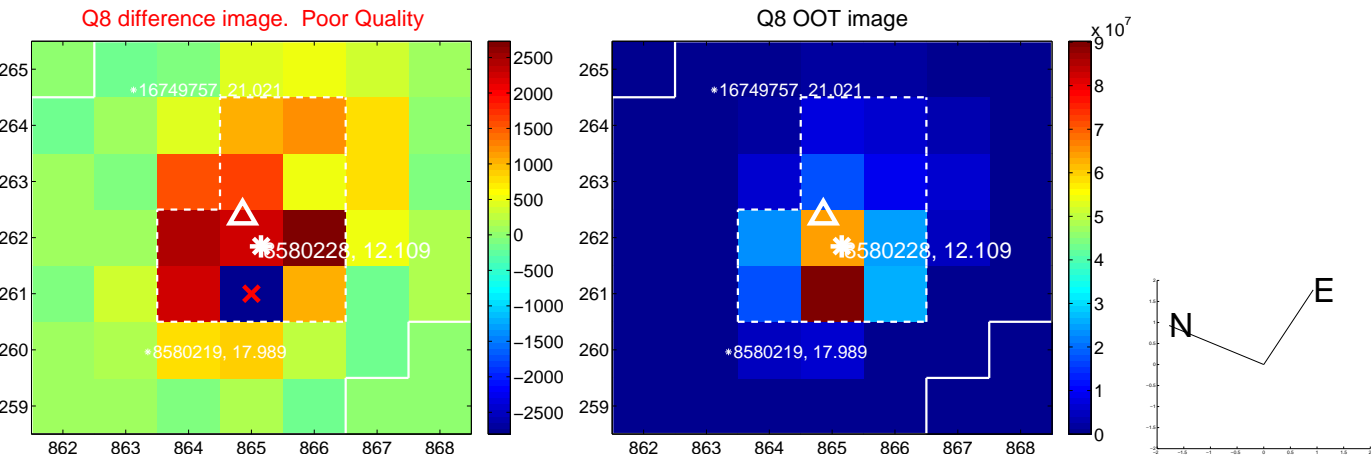
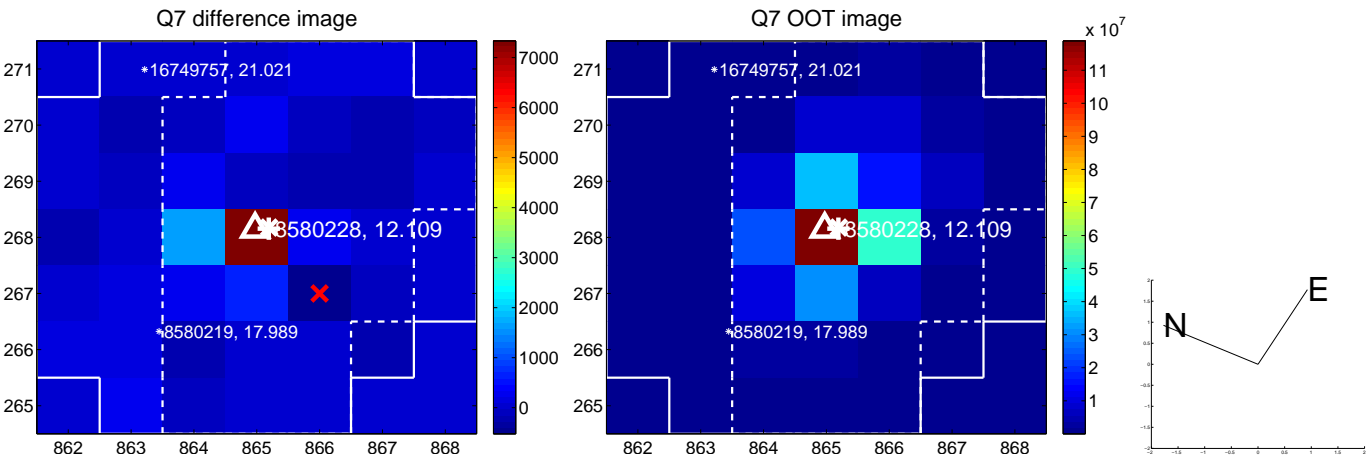
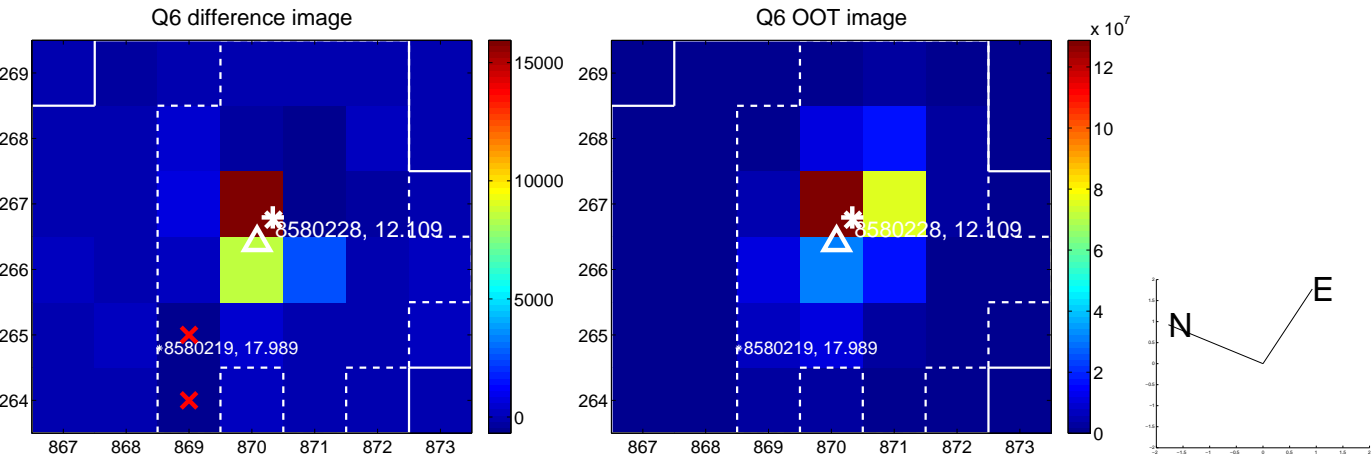
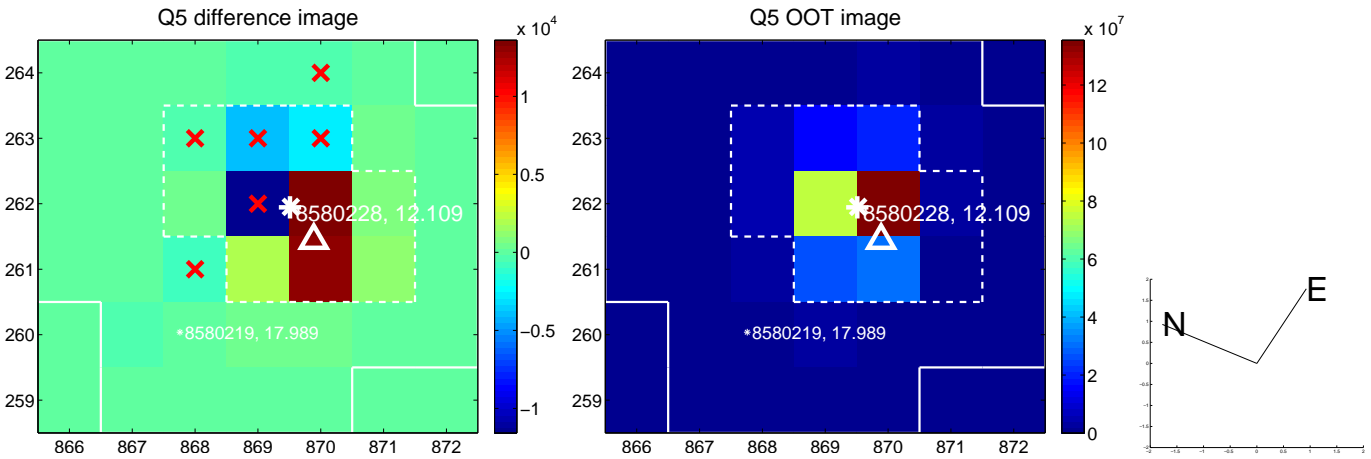


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

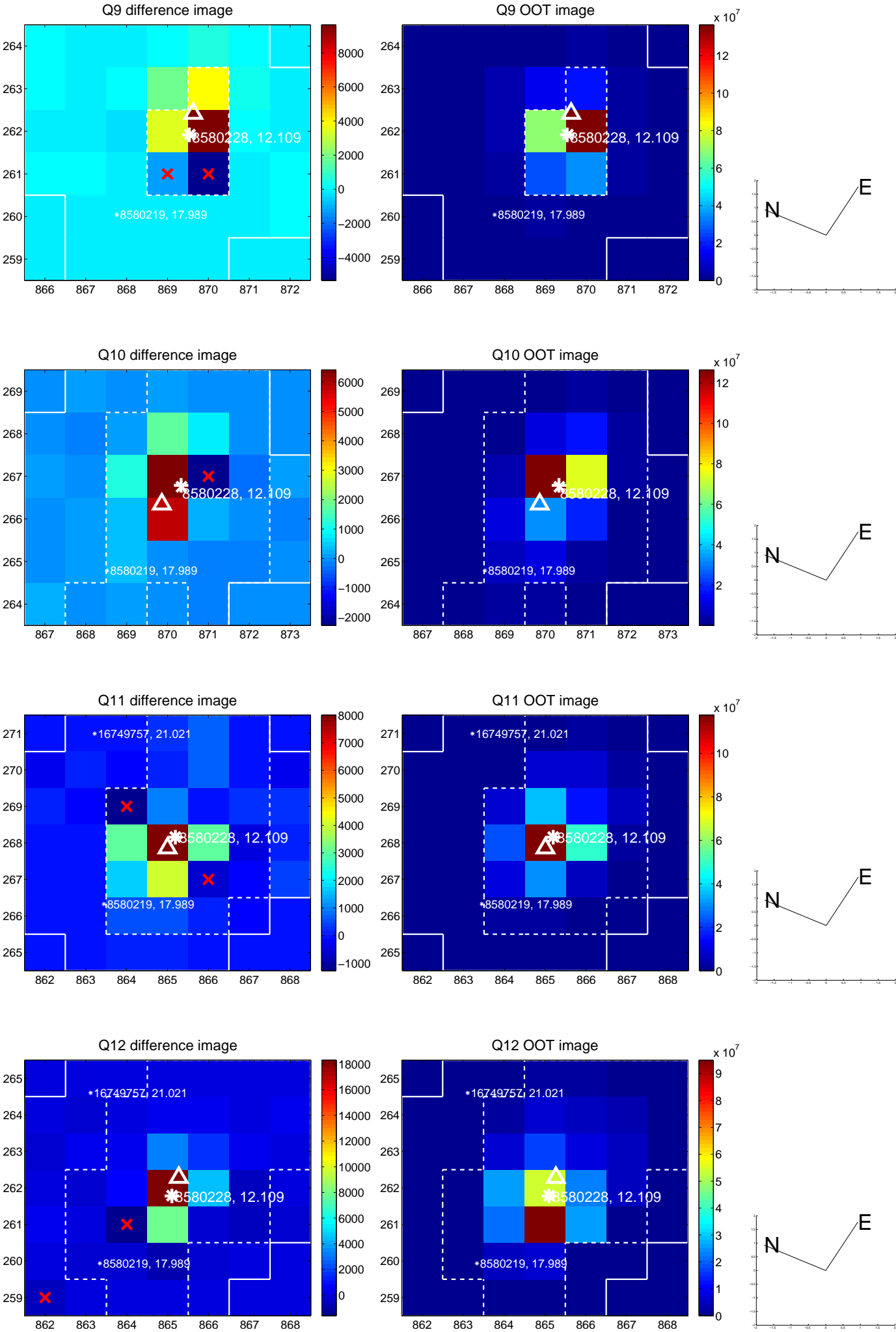
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



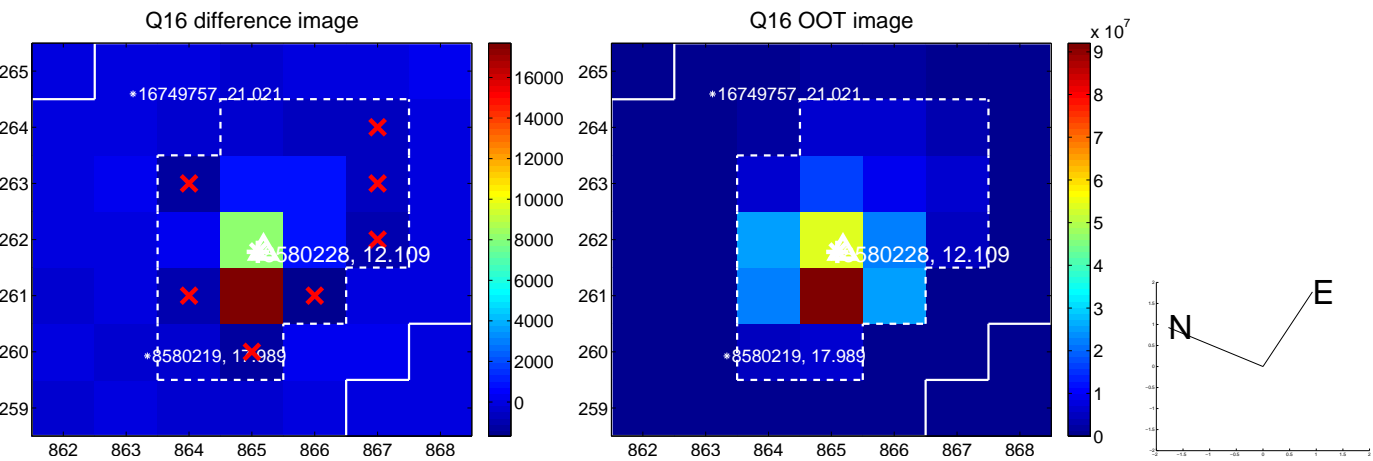
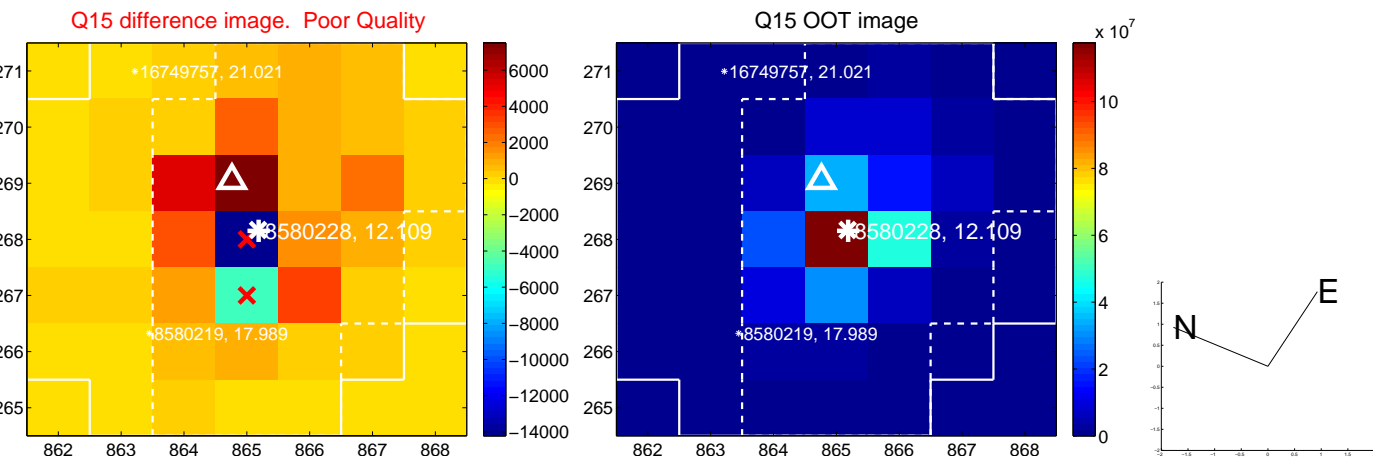
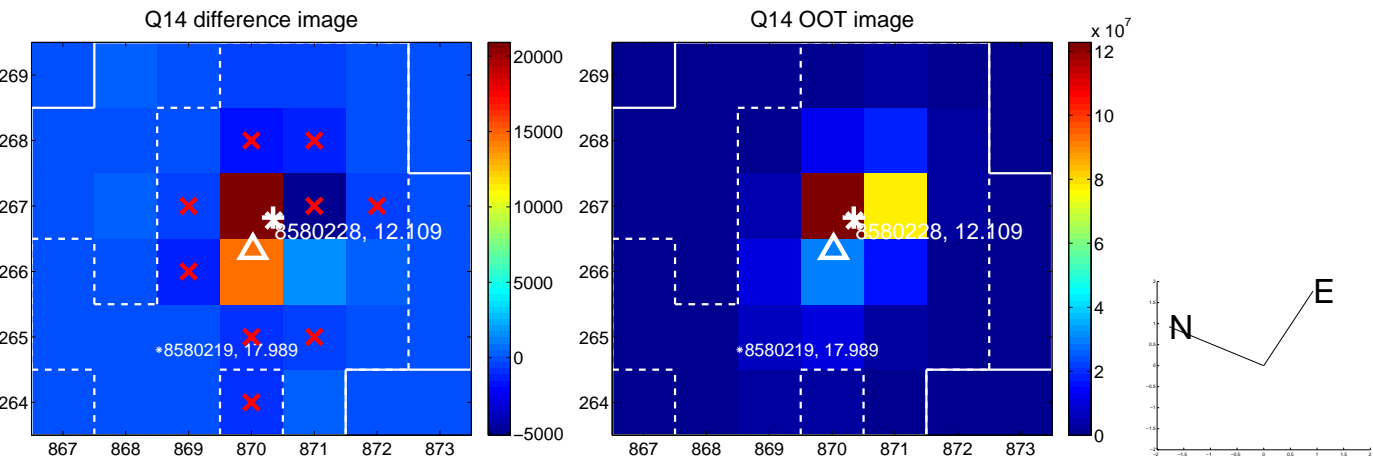
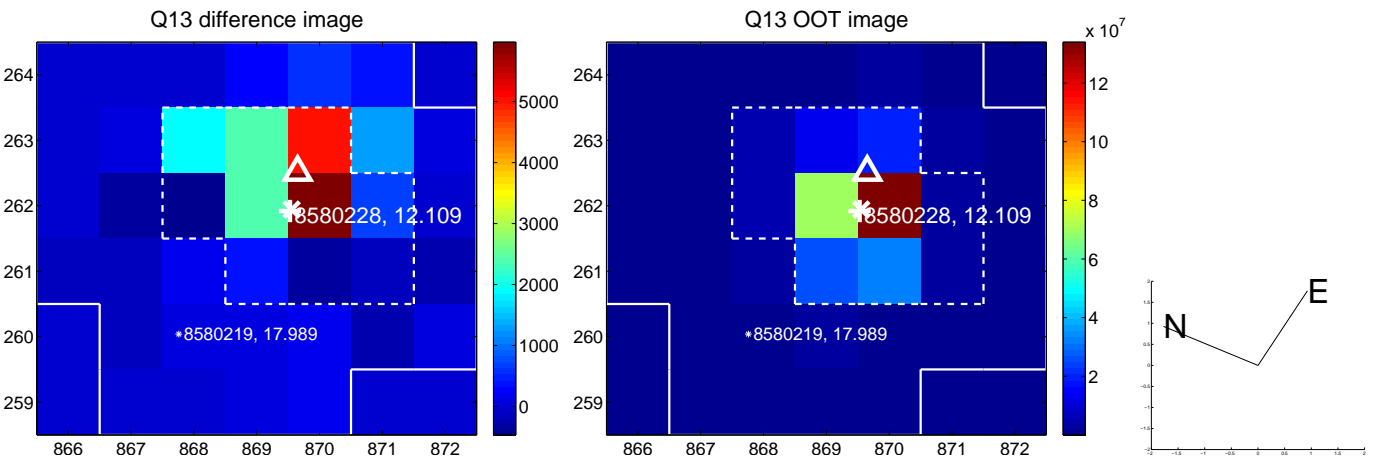
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



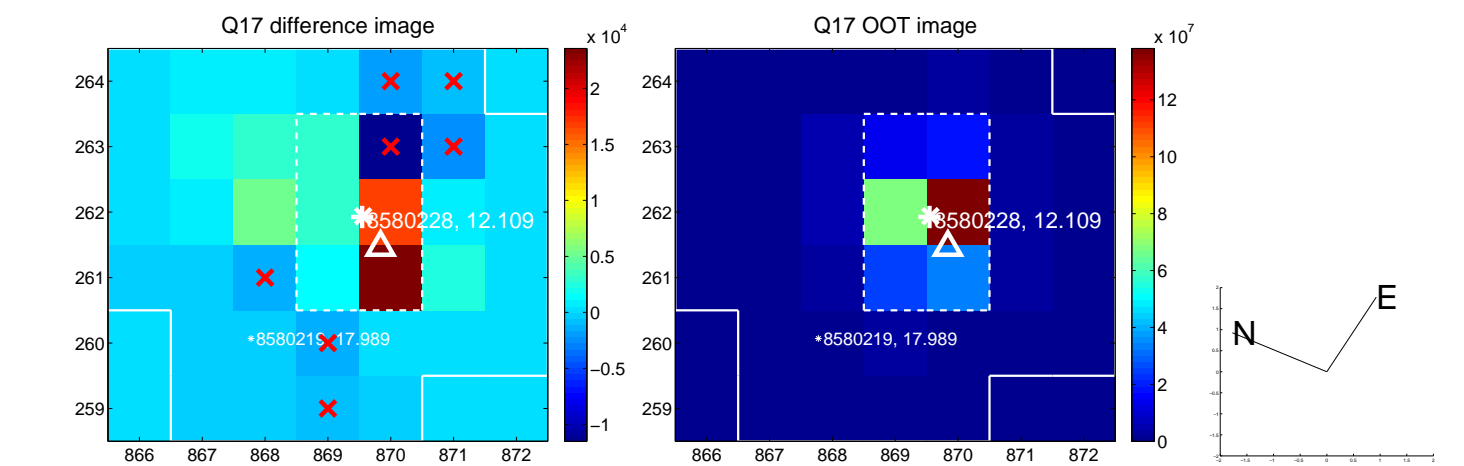
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



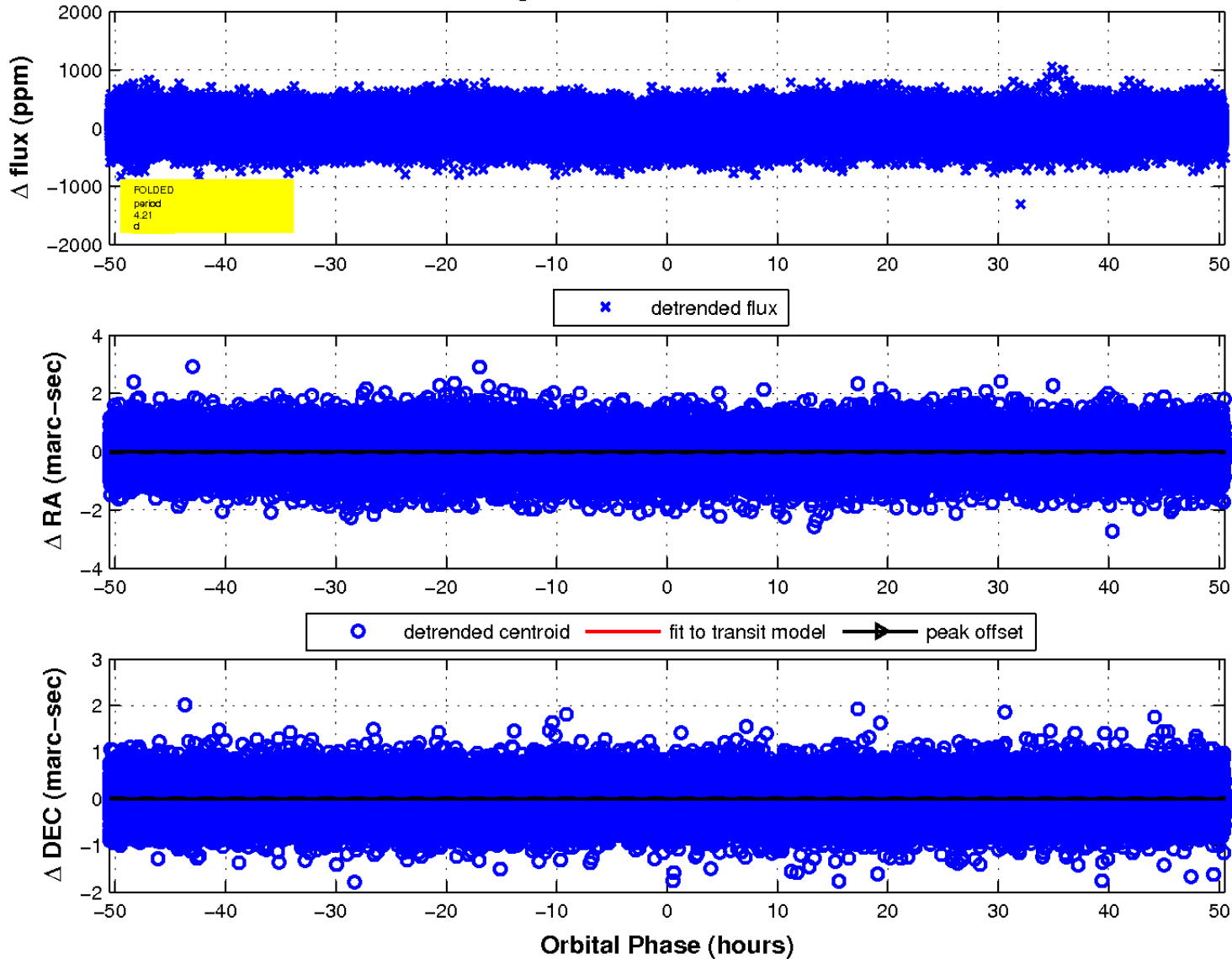
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

