

KIC 008822585

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})
008822585-01	OBS	7095.01	1.627609	131.919366	30.0	6.435	13.2	12.3	2.09	6854	1.15	9544.60
008822585-02	OBS	No	1.627500	132.996605	9.9	17.870	10.1	4.7	2.09	6854	0.84	9545.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008822585-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_FEW_DIFFS
008822585-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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

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

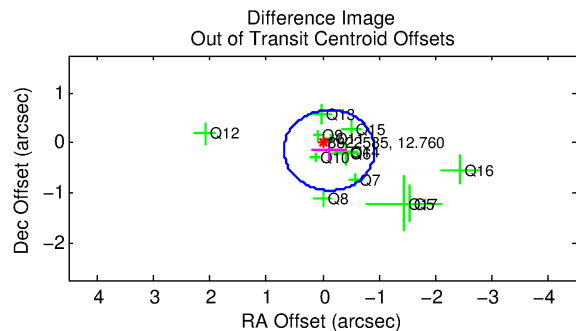
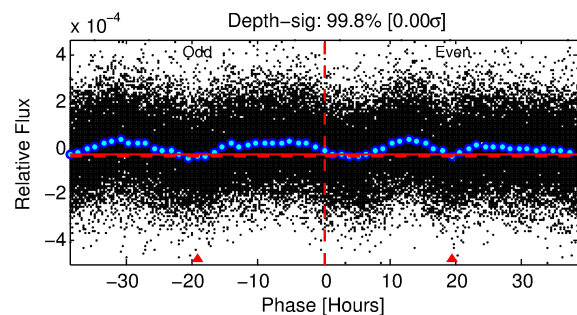
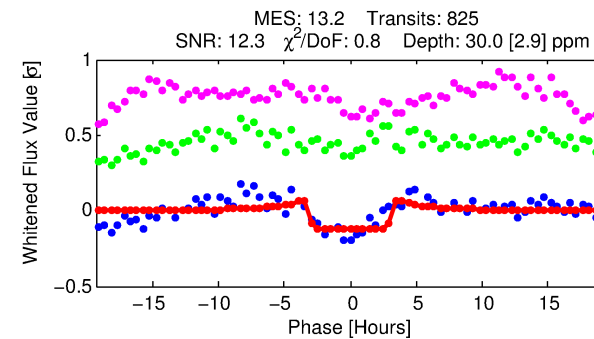
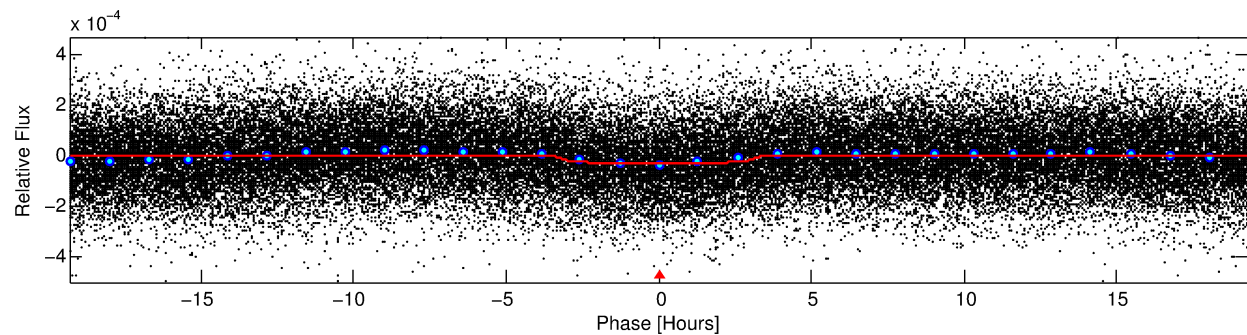
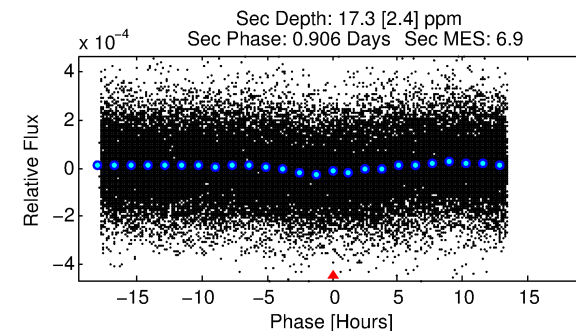
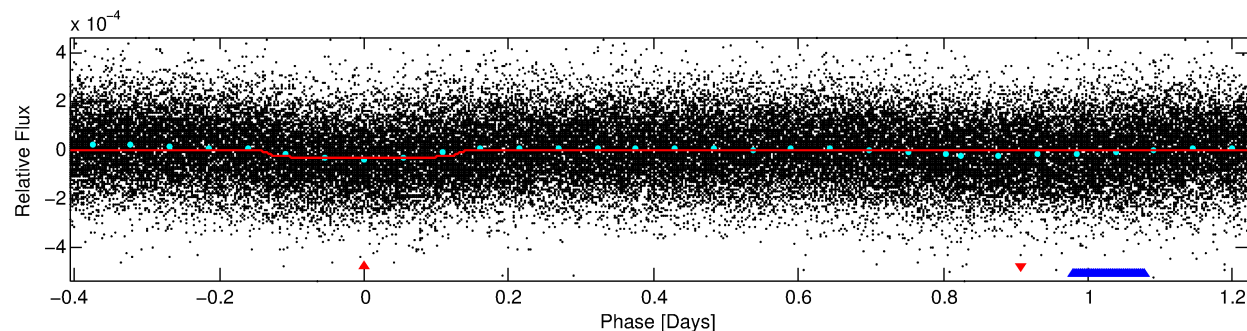
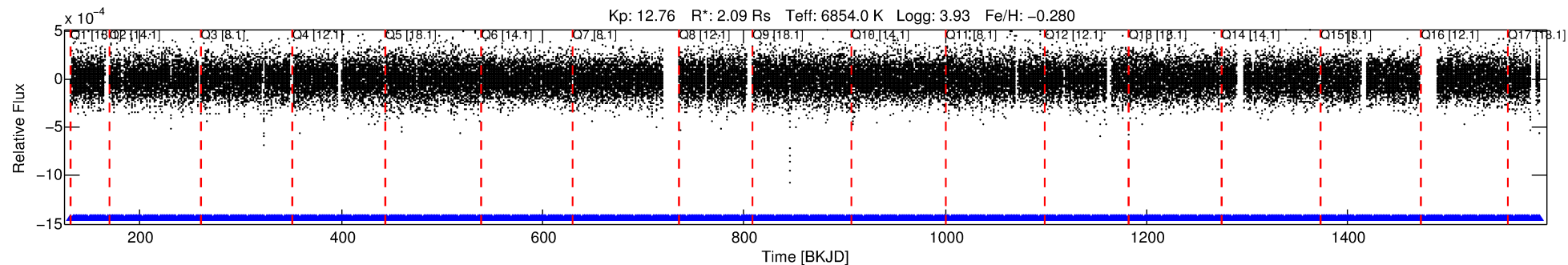
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008822585-01

No Significant Match Found

DV One-Page Summary

KIC: 8822585 Candidate: 1 of 2 Period: 1.628 d
KOI: K07095.01 Corr: 0.868



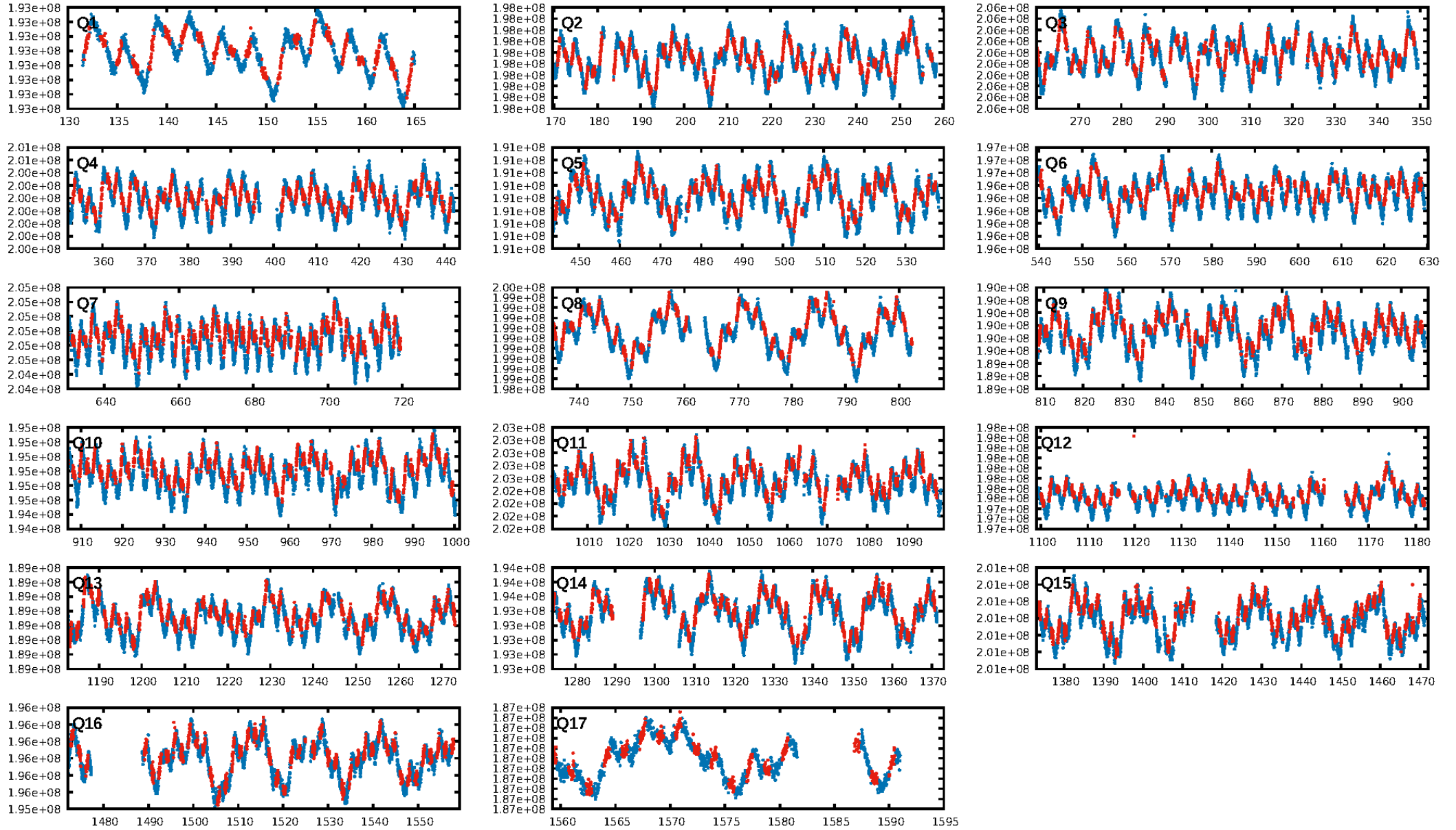
DV Fit Results:

Period = 1.62761 [0.00001] d
Epoch = 131.9194 [0.0028] BKJD
Rp/R* = 0.0051 [0.0028]
a/R* = 2.03 [4.68]
b = 0.04 [78.69]
Seff = 9544.60 [4386.88]
Teq = 2520 [290] K
Rp = 1.15 [0.71] Re
a = 0.0301 [0.0083] AU
Ag = 6.46 [7.65] [0.71σ]
Teffp = 6214 [1718] K [2.12σ]

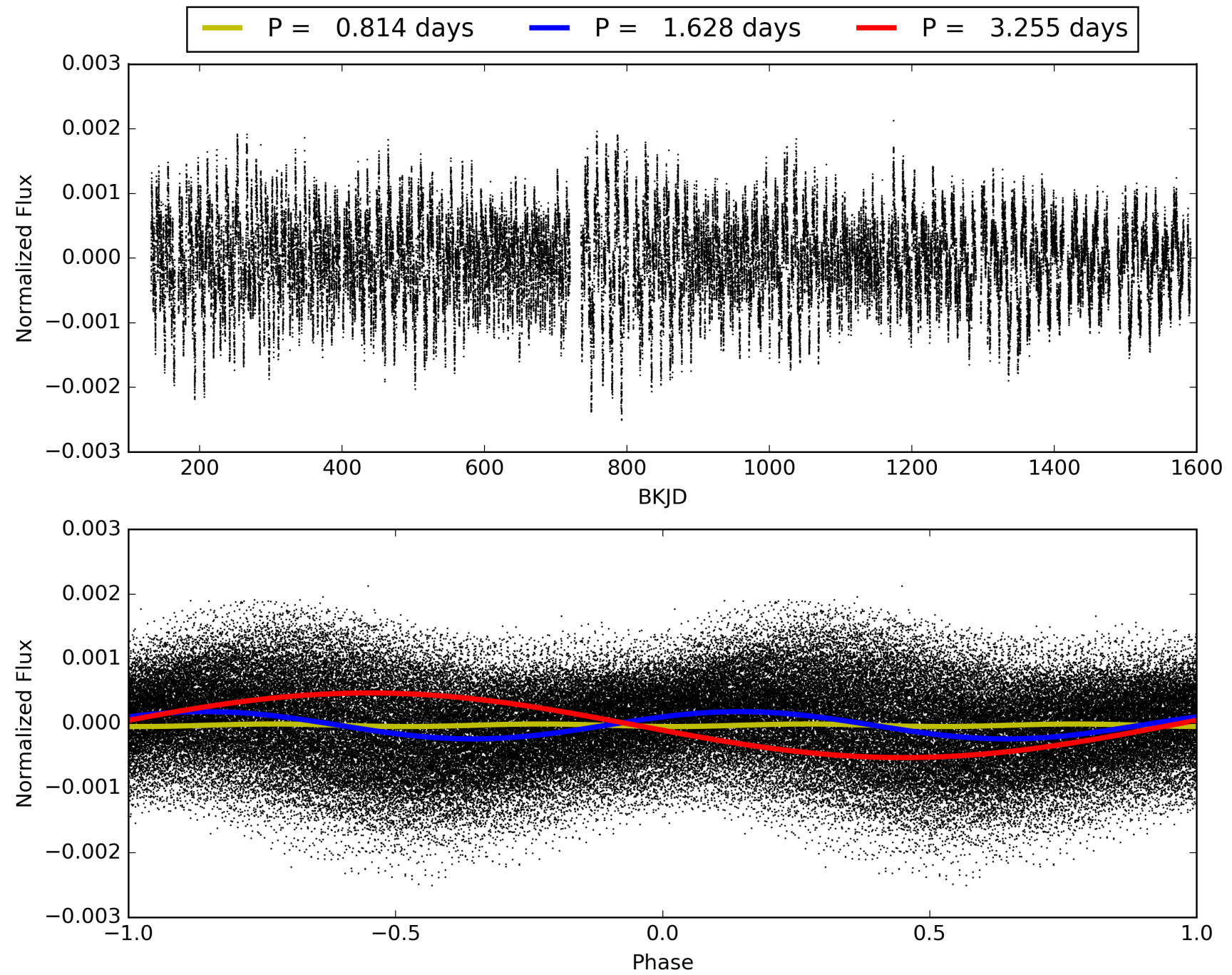
DV Diagnostic Results:

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 [787/787]
GhostDiagnostic-chr: 1.096
Centroid-sig: 66.7%
Centroid-so: 0.192 arcsec [0.43σ]
OotOffset-rm: 0.192 arcsec [0.72σ]
KicOffset-rm: 0.136 arcsec [0.66σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 008822585-01, PDC Light Curves

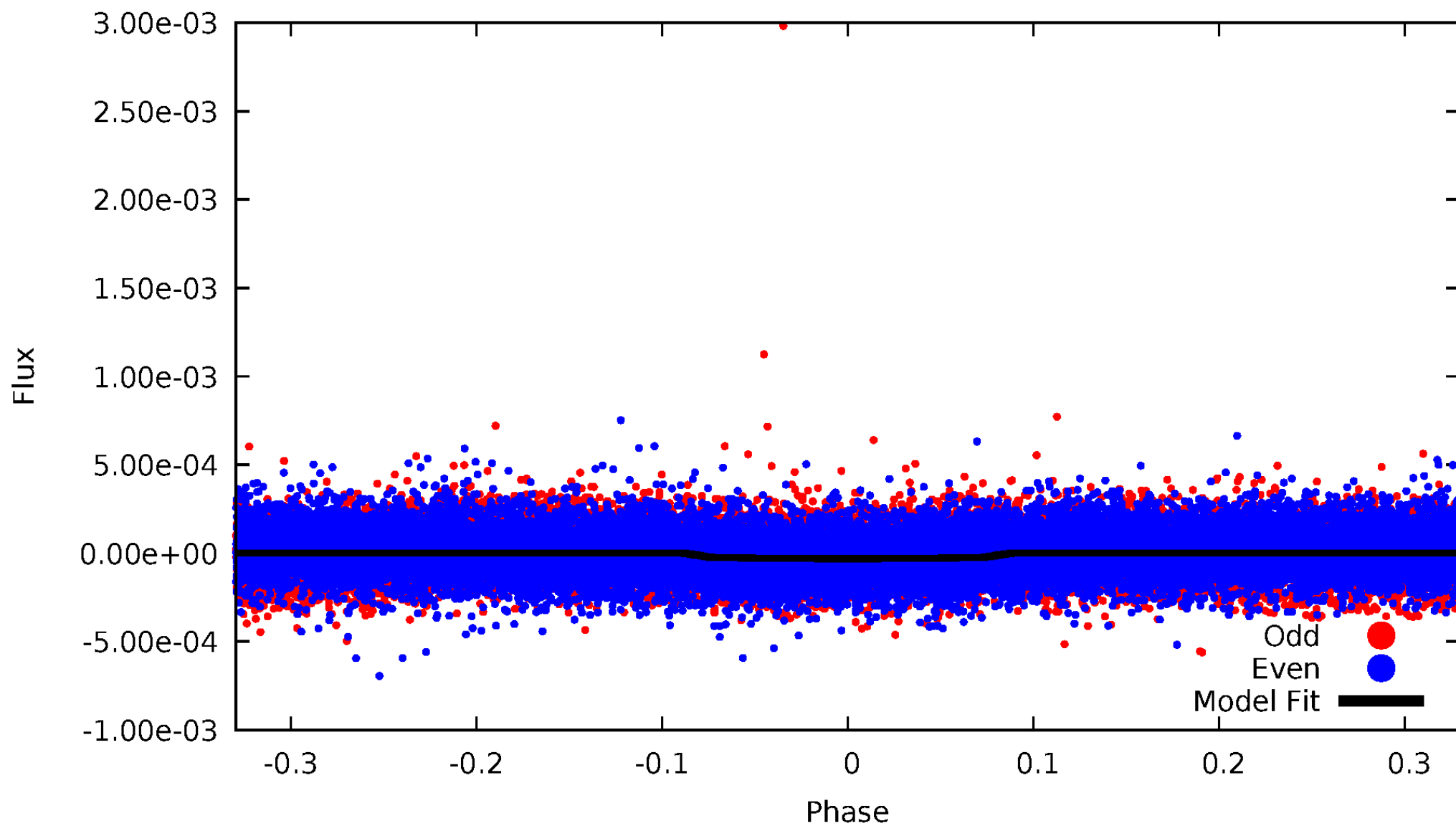


TCE 008822585-01



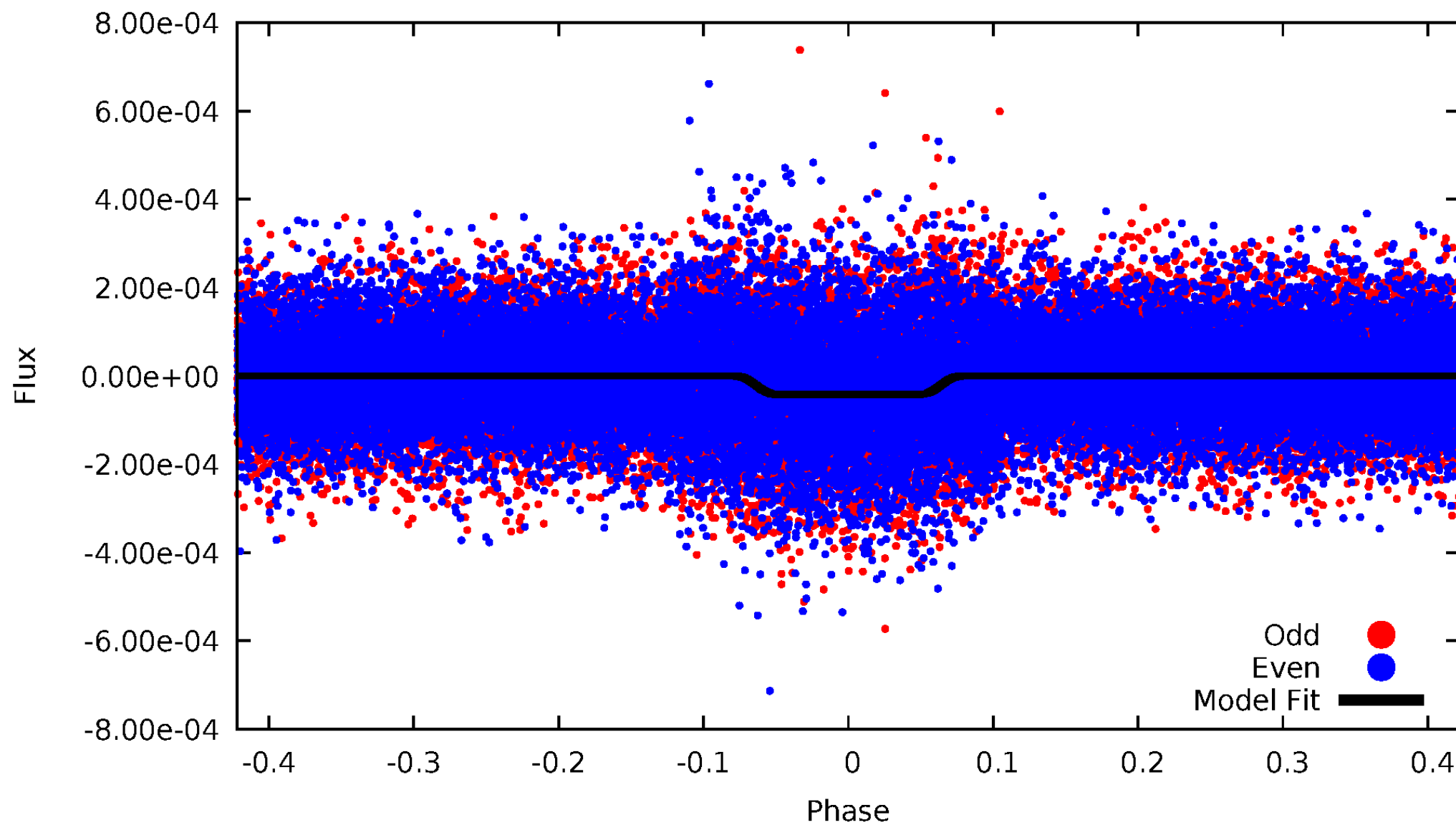
DV Odd/Even

TCE 008822585-01



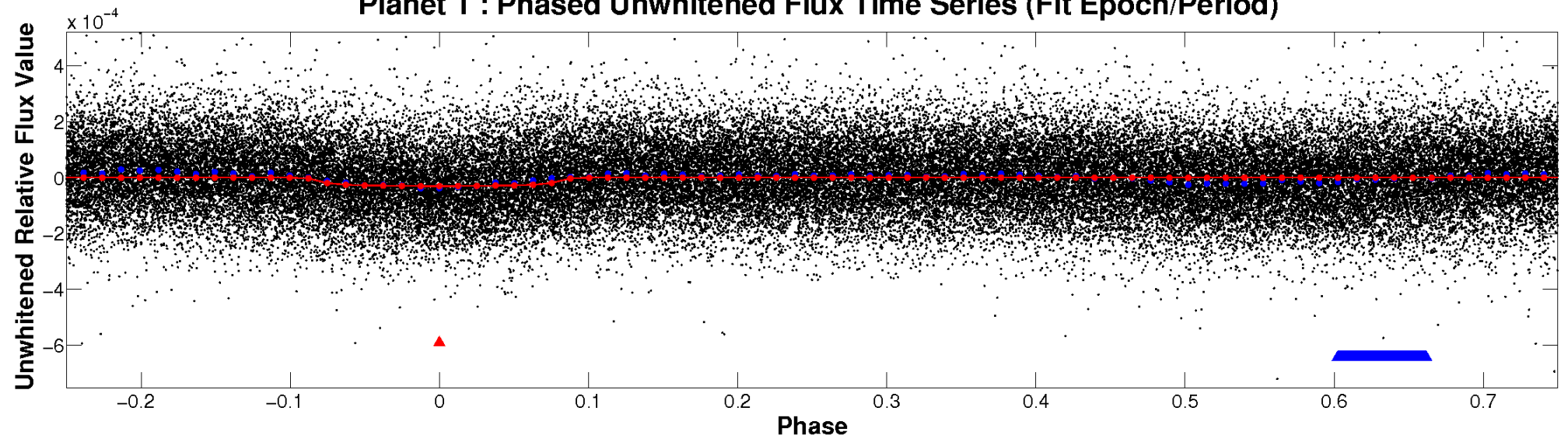
ALT Odd/Even

TCE 008822585-01

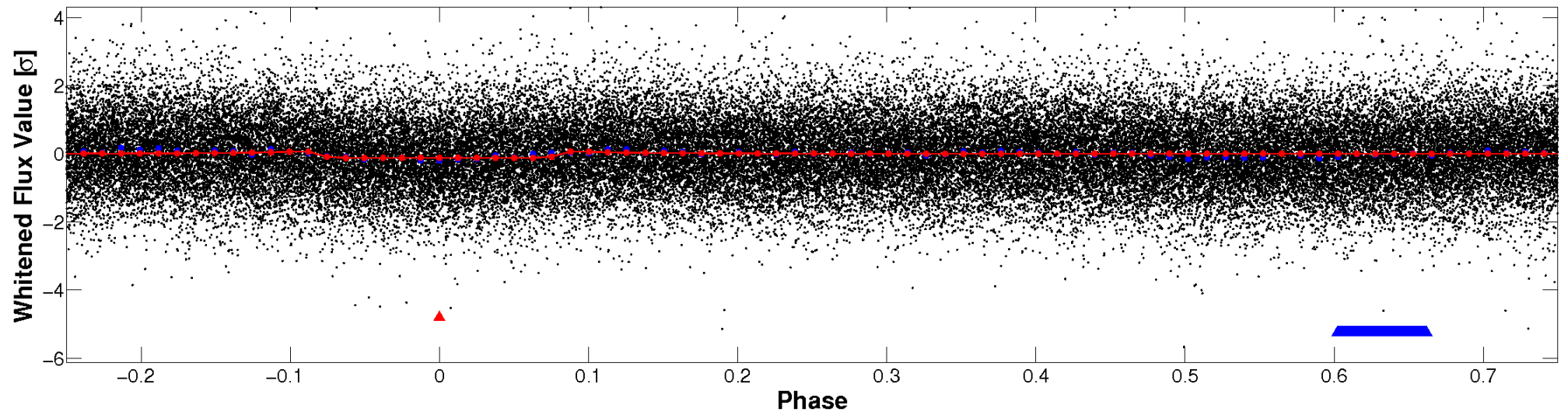


Non-Whitened Vs. Whitened Light Curve

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

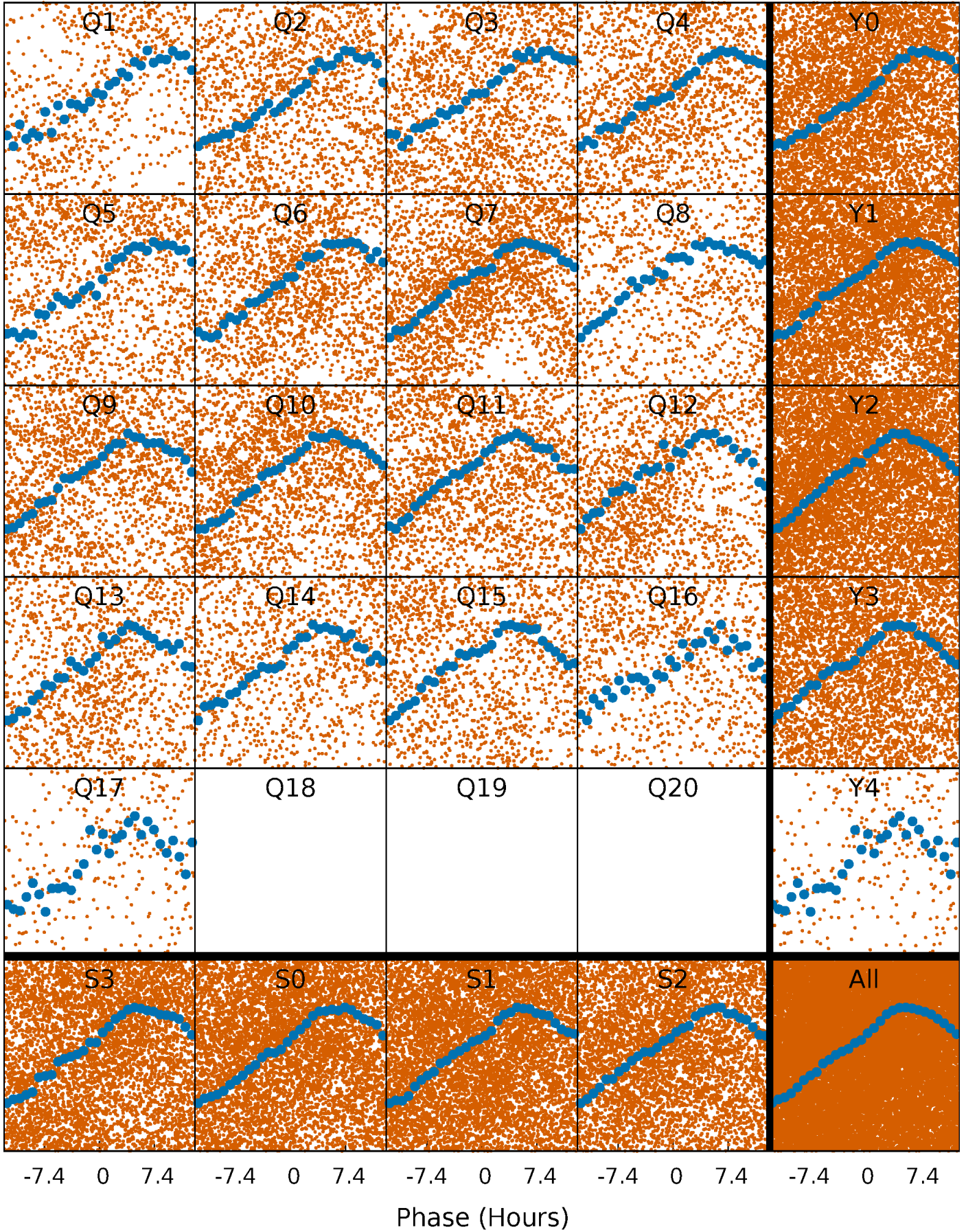


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



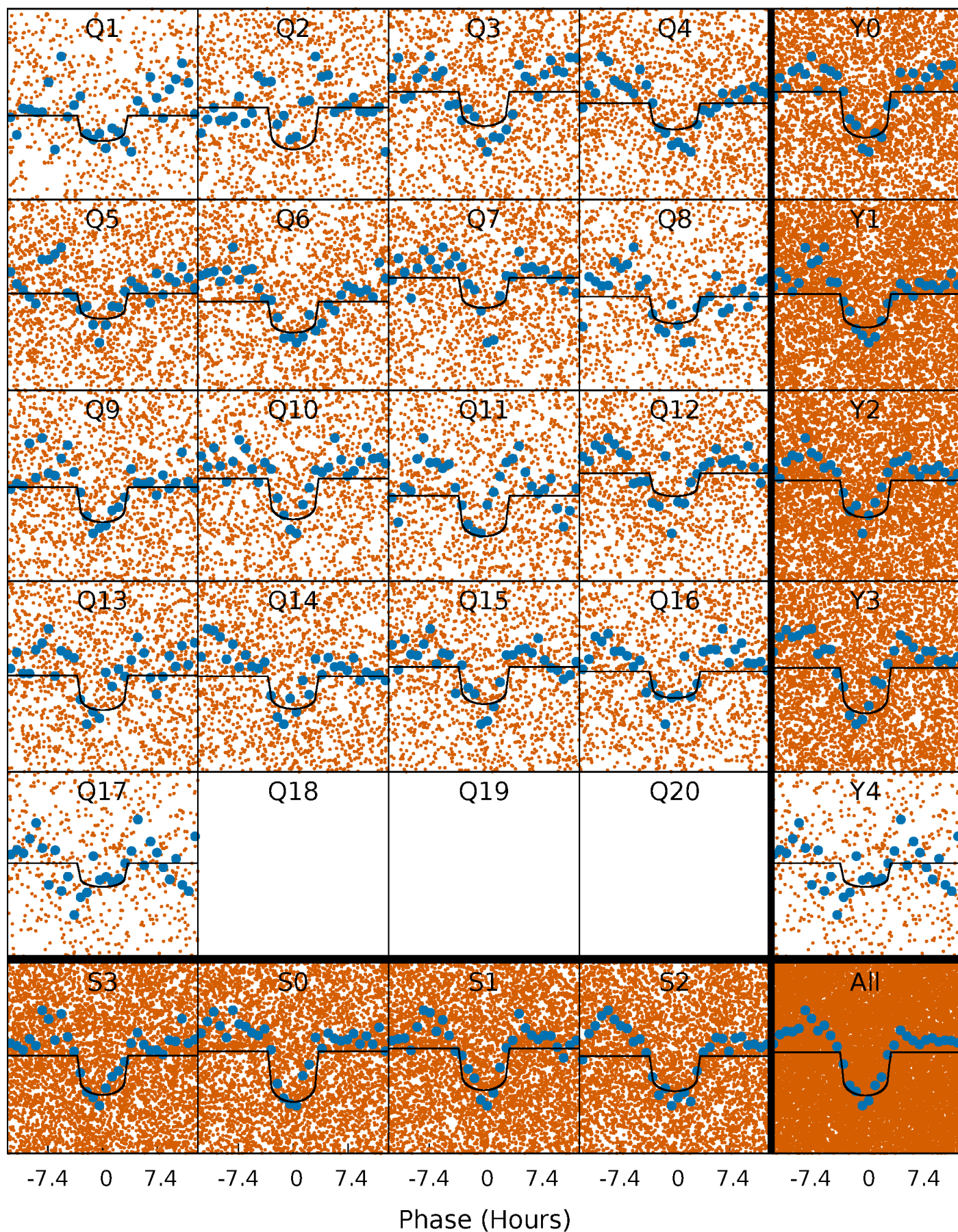
PDC Quarter-Phased Transit Curves

TCE 008822585-01 P= 1.627609 Days $T_0=131.919366$ (BKJD)



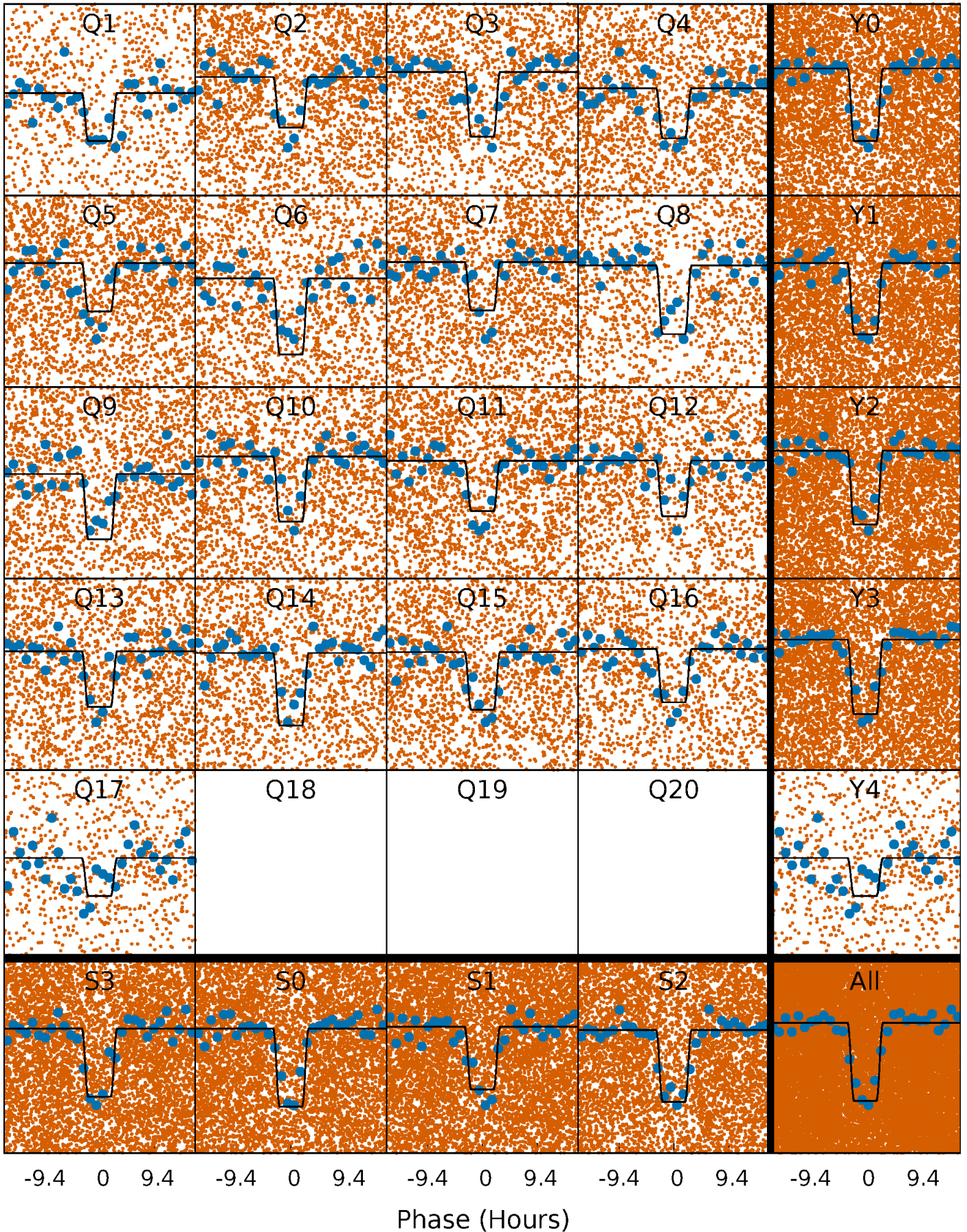
DV Quarter-Phased Transit Curves

TCE 008822585-01 P= 1.627609 Days $T_0=131.919366$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

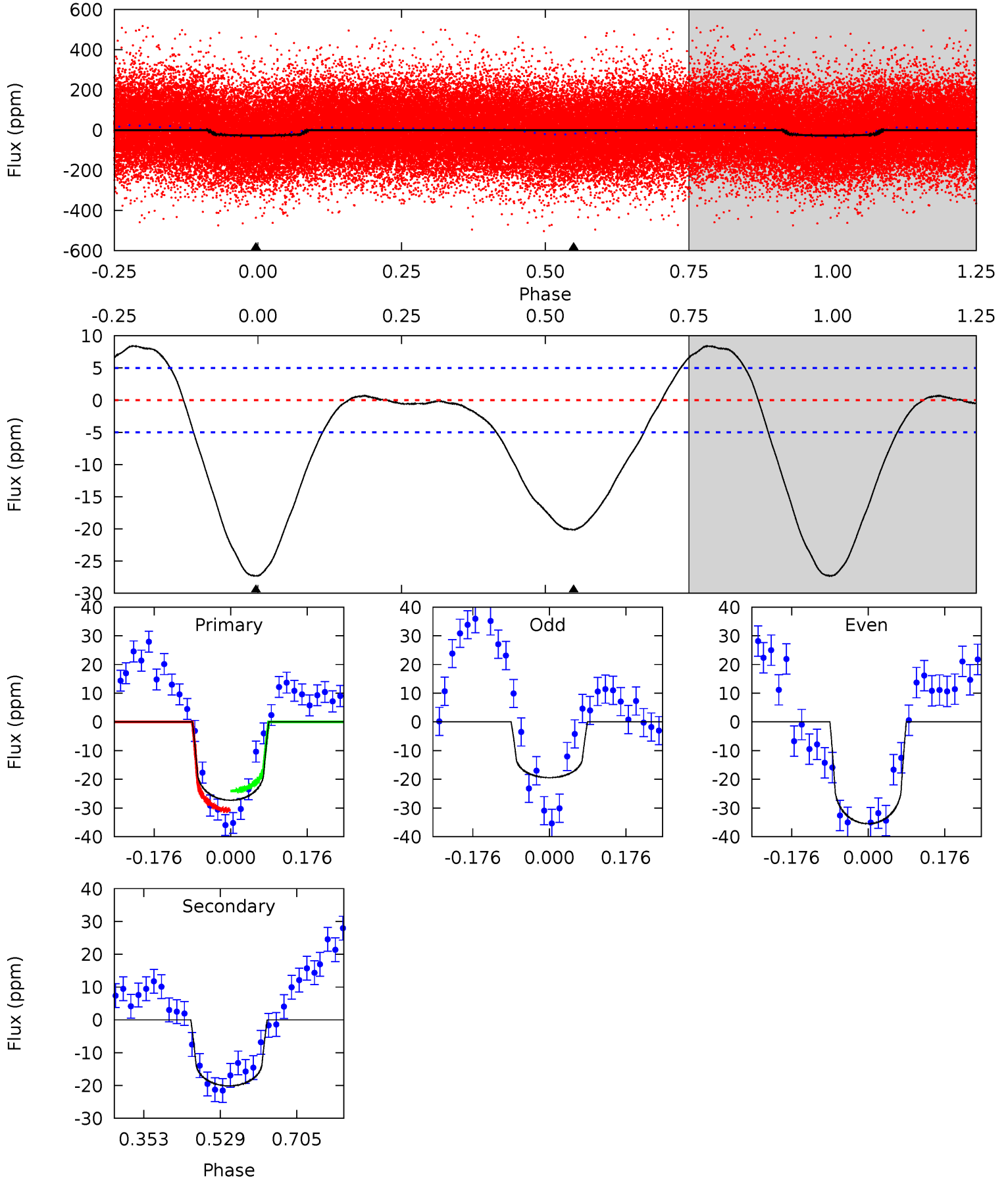
TCE 008822585-01 P= 1.627533 Days $T_0=131.933617$ (BKJD)



DV Model-Shift Uniqueness Test

008822585-01, P = 1.627609 Days, E = 130.291757 Days

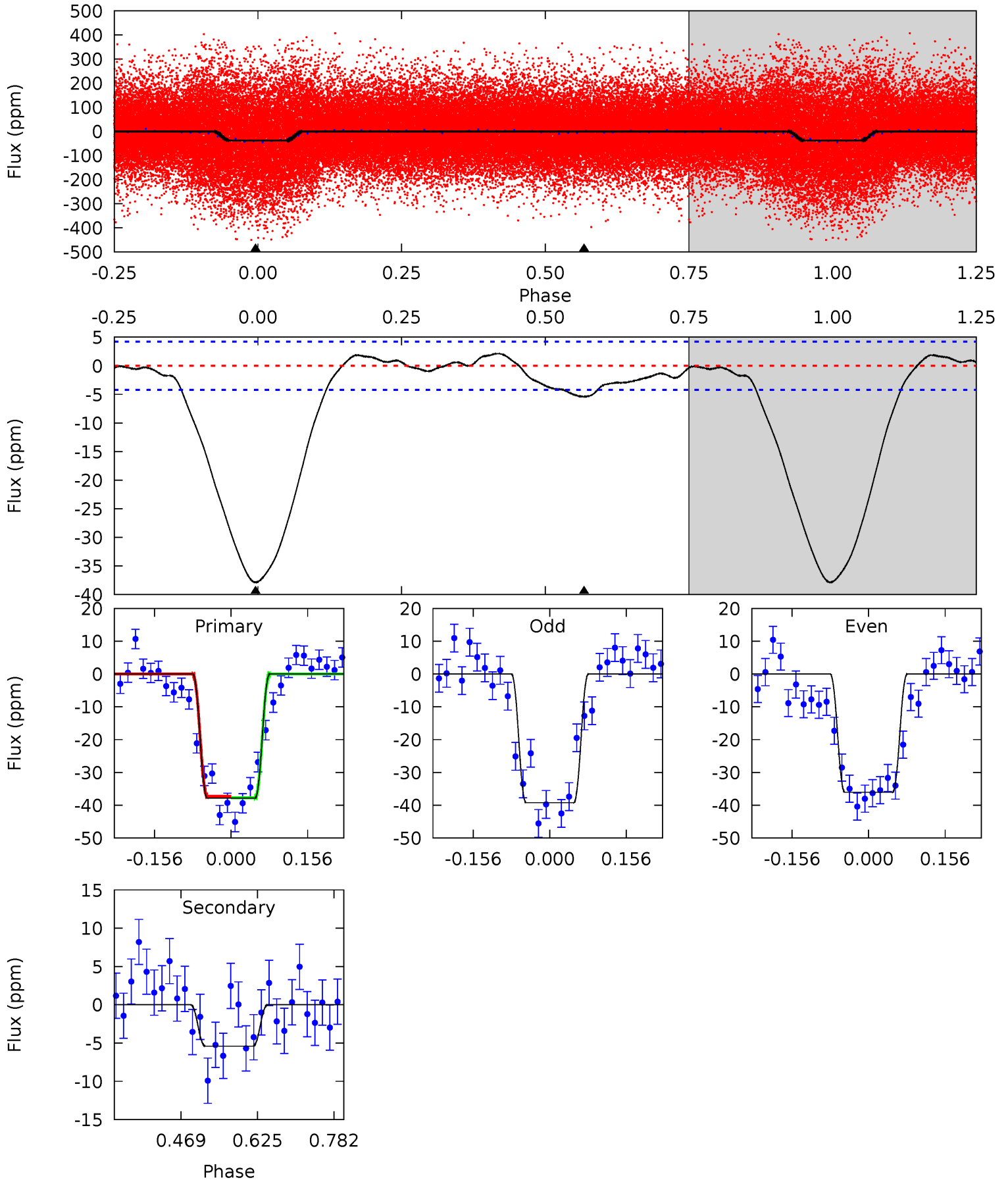
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	17.9	0	0	4.44	1.35	3.21	24.3	24.3	17.9	17.9	7.14	0.95	0.24	3.00



Alt Model-Shift Uniqueness Test

008822585-01, P = 1.627533 Days, E = 130.306084 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.3	5.75	0	0	4.47	1.42	1.07	40.3	40.3	5.75	5.75	1.68	1.01	0.05	0.27



Stellar Parameters For KIC 008822585

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6854^{+163}_{-224}	$3.934^{+0.259}_{-0.111}$	$-0.280^{+0.300}_{-0.250}$	$2.088^{+0.433}_{-0.595}$	$1.368^{+0.216}_{-0.216}$	$0.212^{+0.317}_{-0.084}$
	+2%/-3%	+7%/-3%	+107%/-89%	+21%/-28%	+16%/-16%	+150%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008822585-01 / KOI 7095.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 1	$1.13^{+0.63}_{-0.57}$	3452^{+211}_{-274}	6233^{+3115}_{-1128}	$7.787^{+23.611}_{-4.420}$
Alt.	-5 ± 1	$1.41^{+0.69}_{-0.63}$	3446^{+232}_{-251}	4117^{+1168}_{-745}	$1.360^{+2.913}_{-0.757}$

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

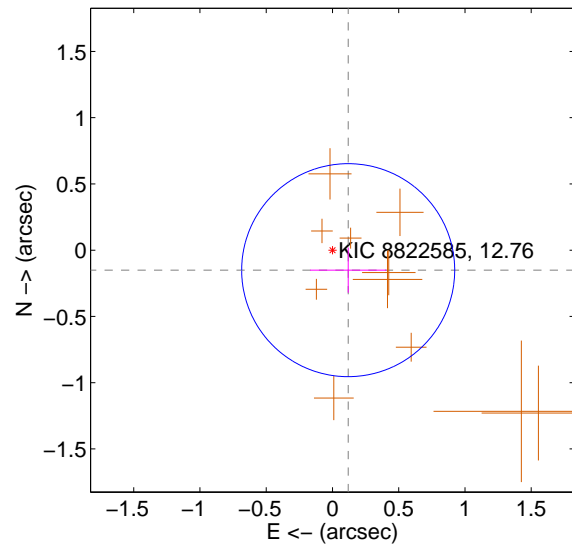
Supplemental centroid analysis for 008822585-01. Kepler magnitude: 12.76. Transit SNR 12.25

There are 0 quarters with good PRF difference image offsets

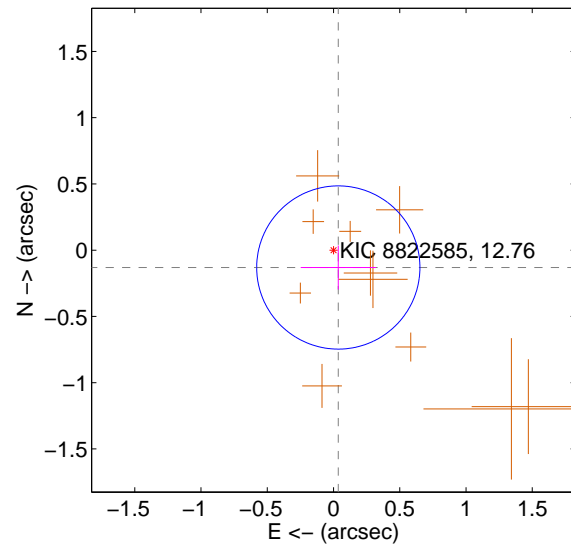
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.192 ± 0.268	0.72	-0.119 ± 0.288	-0.151 ± 0.170
PRF-fit source offset from KIC position	0.136 ± 0.205	0.66	-0.036 ± 0.284	-0.131 ± 0.166
photometric centroid source offset	0.19 ± 0.44	0.43	-0.12 ± 0.44	-0.15 ± 0.44

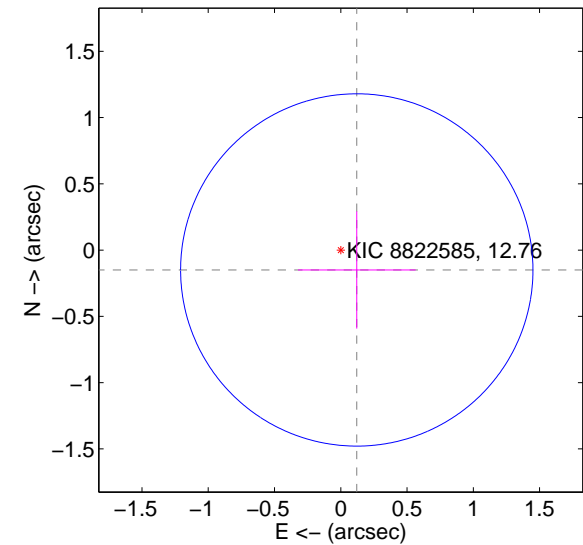
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

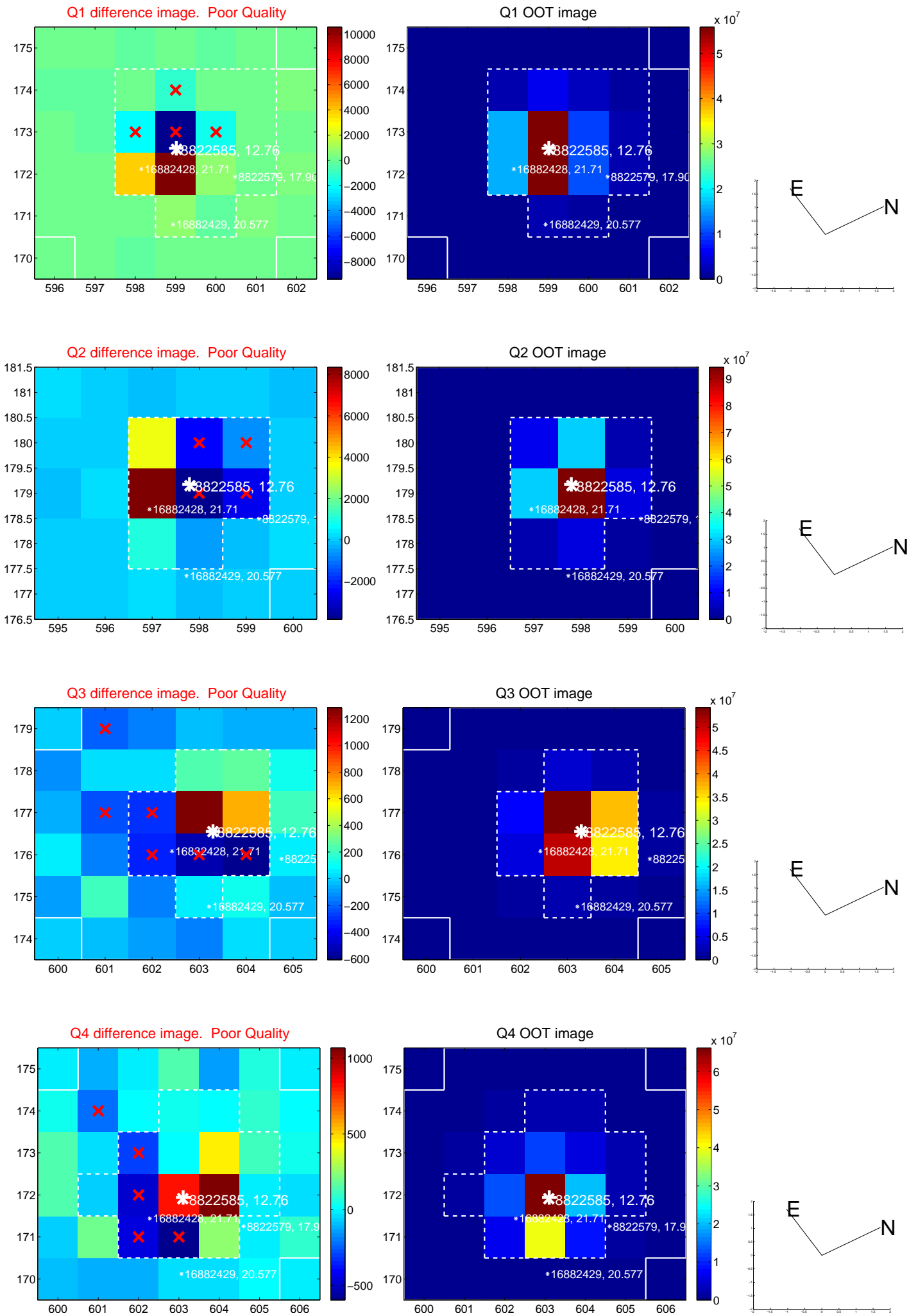


offset from photometric centroids

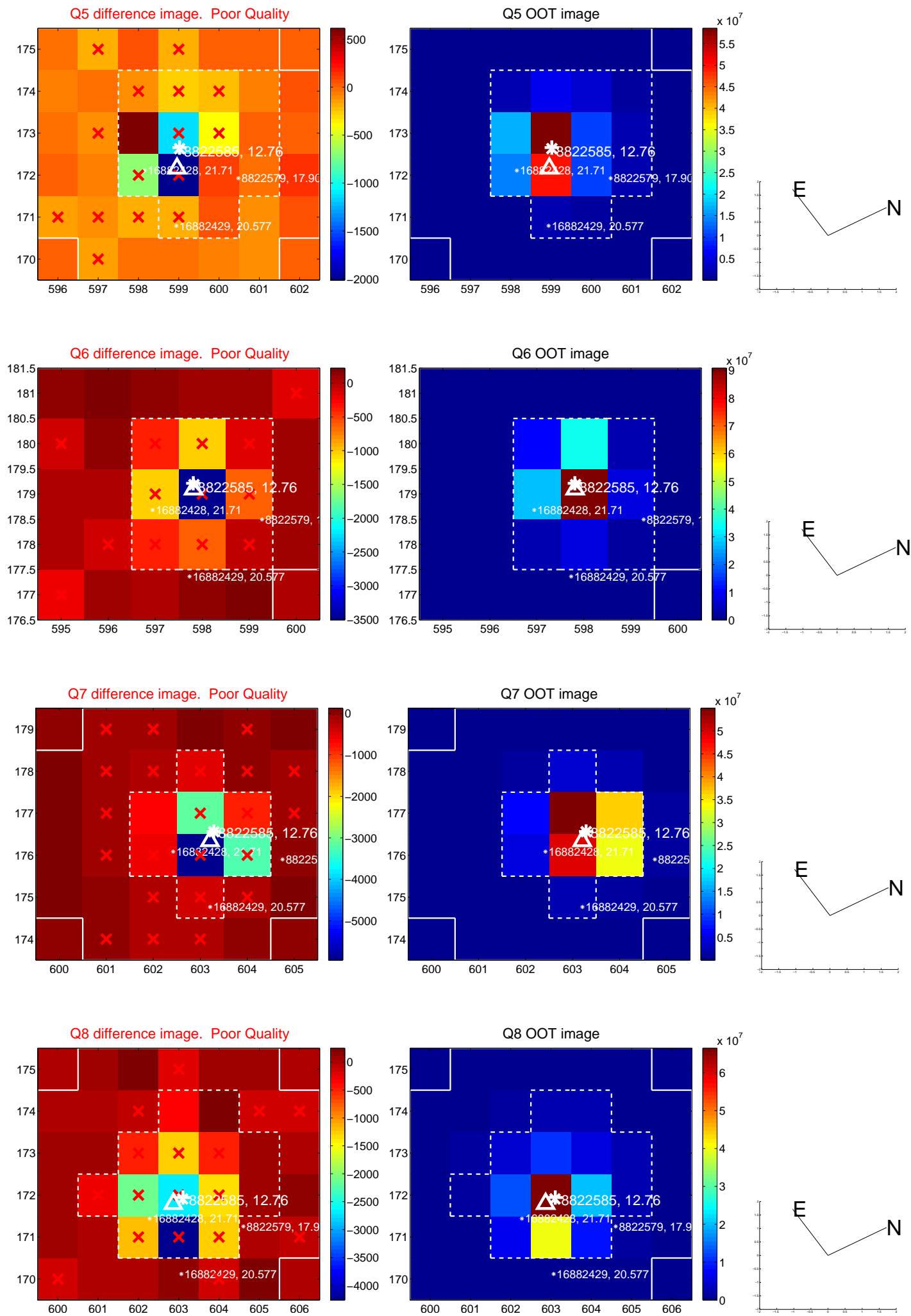


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

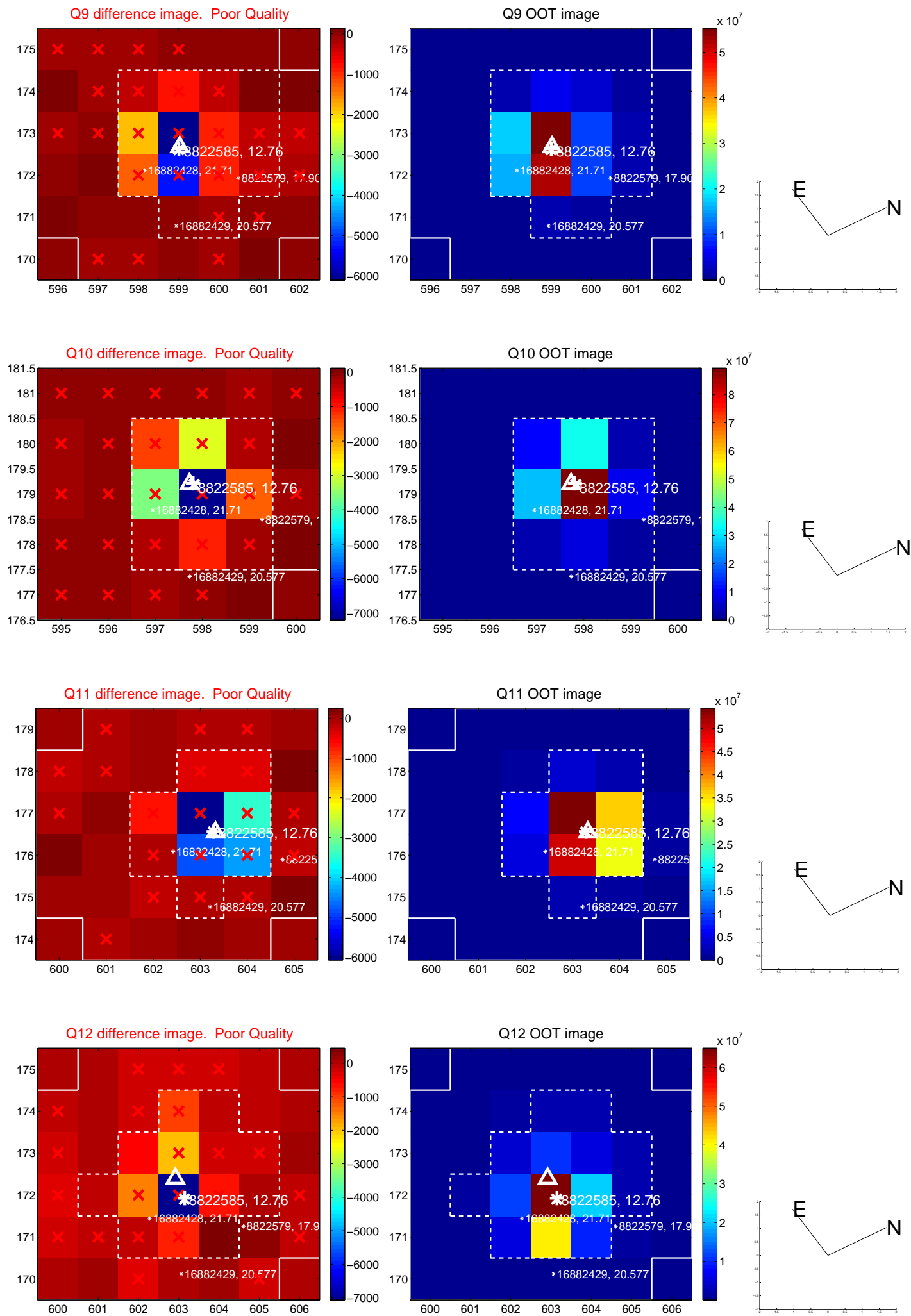
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



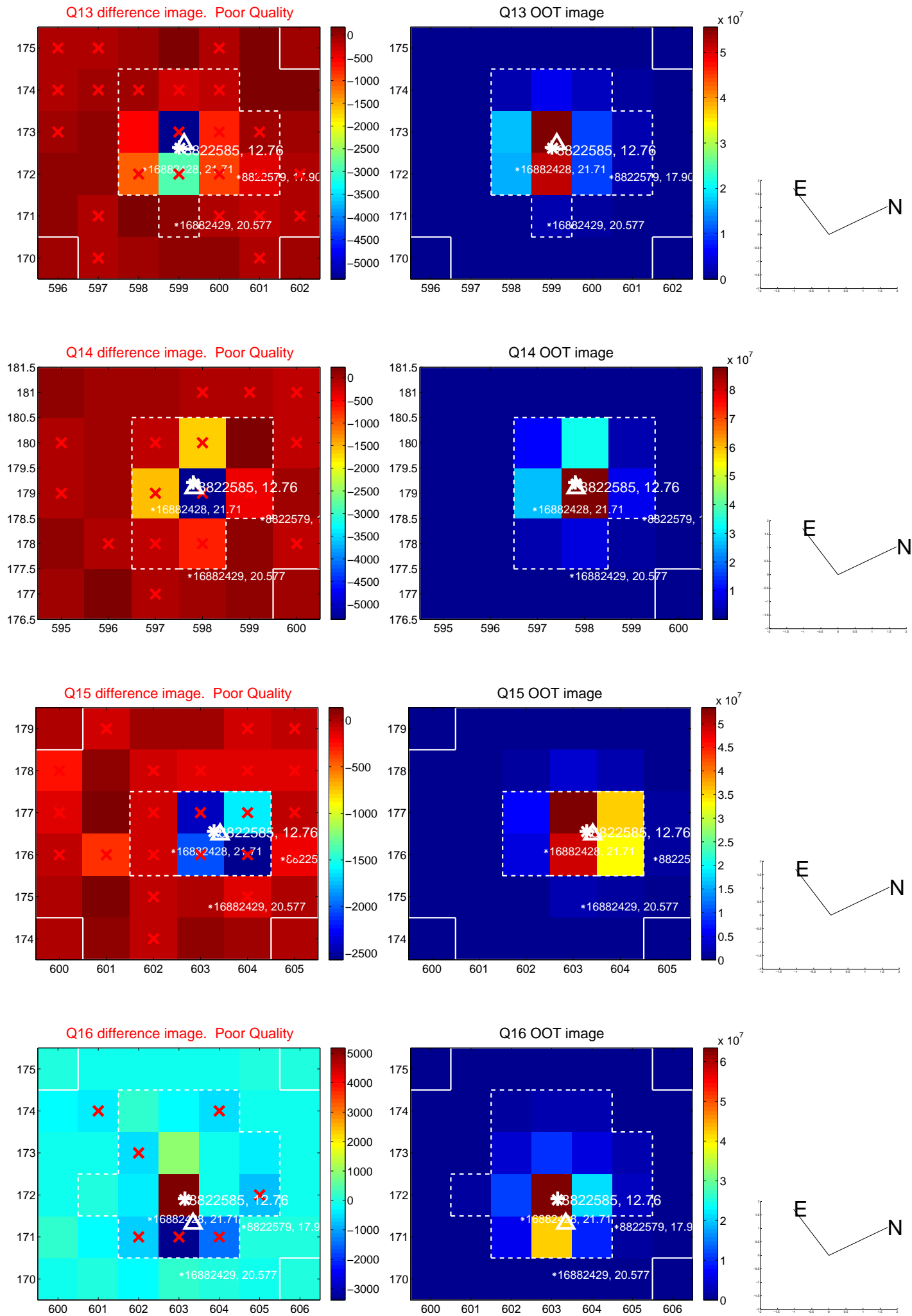
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



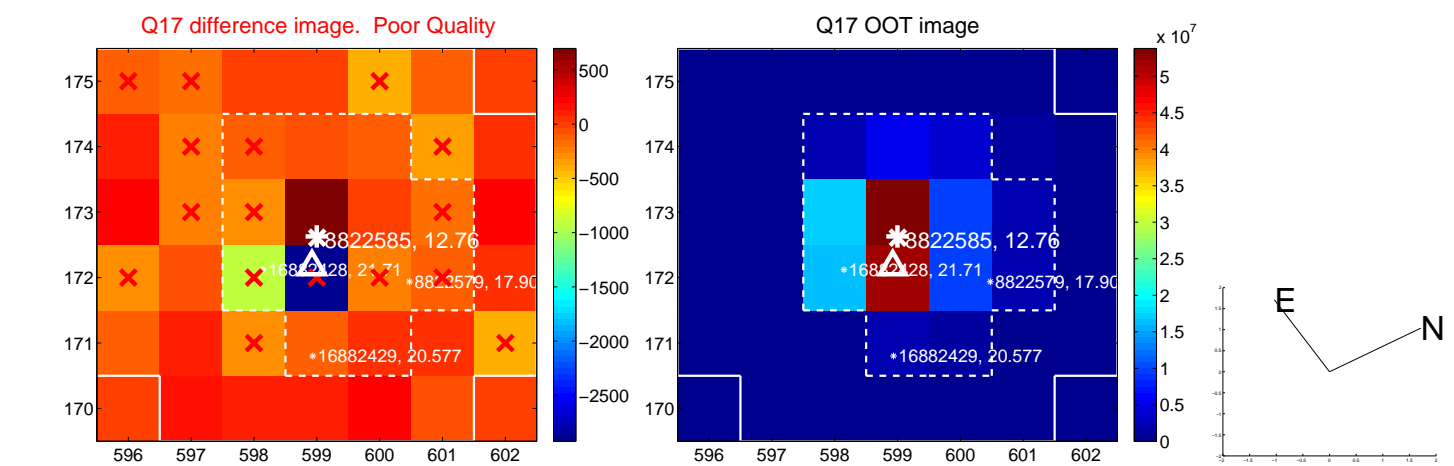
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



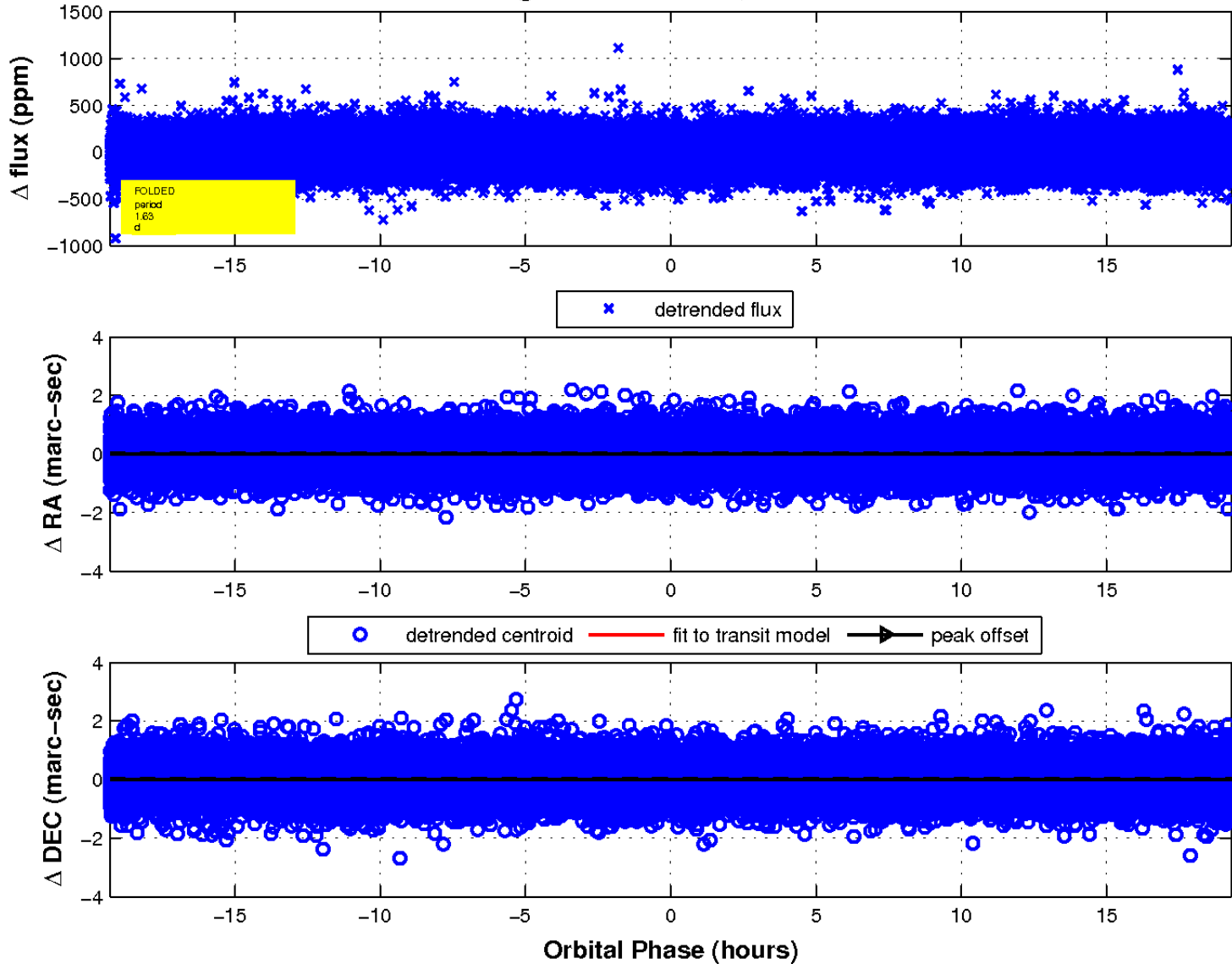
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

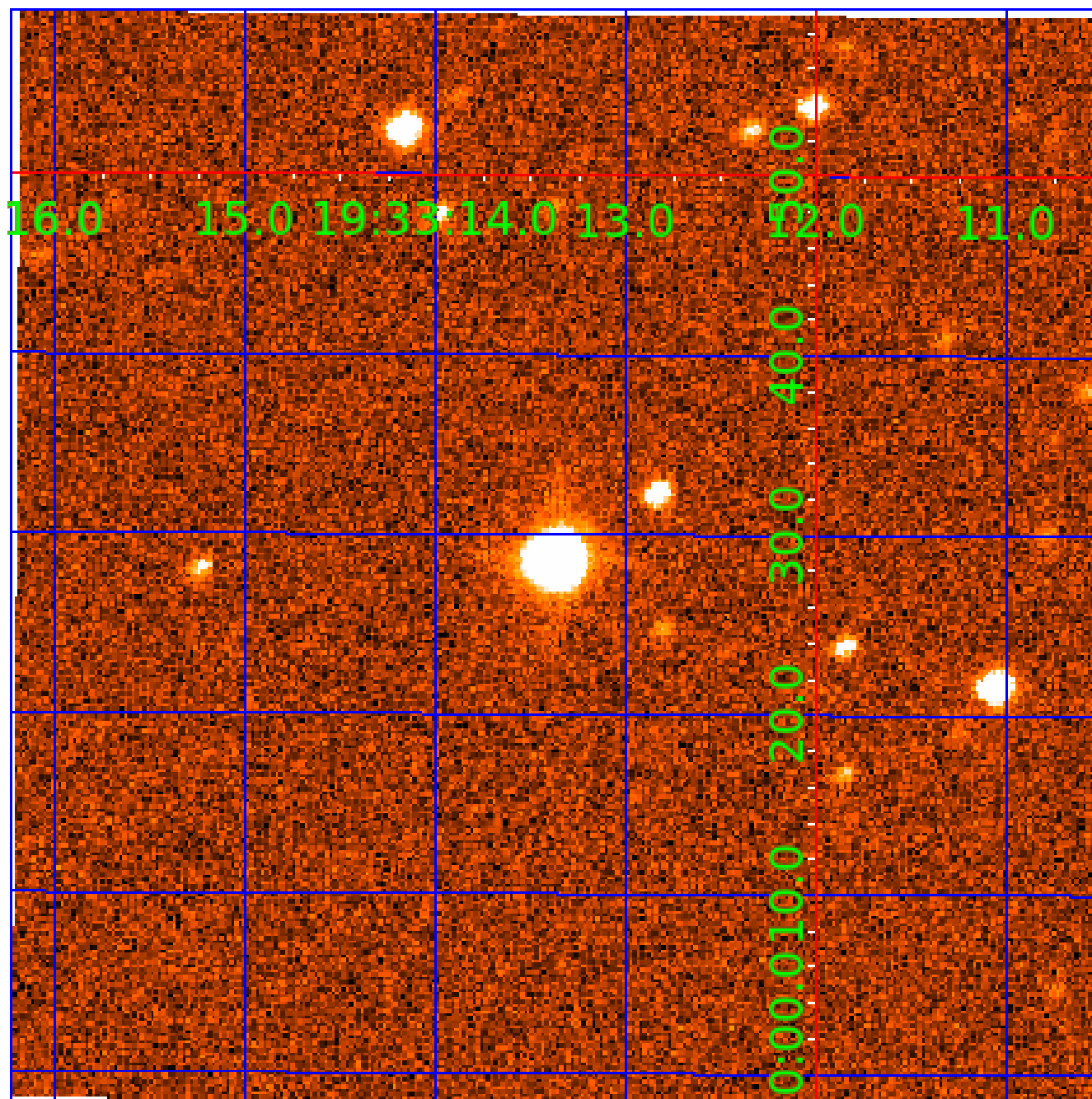


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008822585

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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008822585-02	OBS	No	1.627500	132.996605	9.9	17.870	10.1	4.7	2.09	6854	0.84	9545.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008822585-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—CENT_FEW_DIFFS
008822585-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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 008822585-02

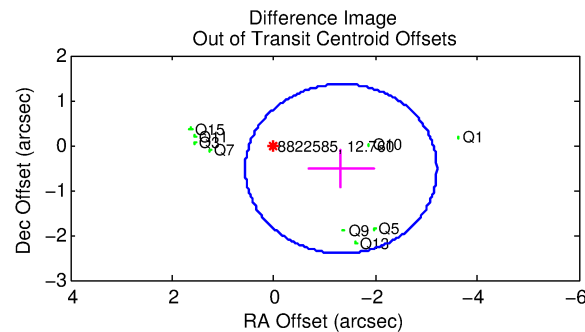
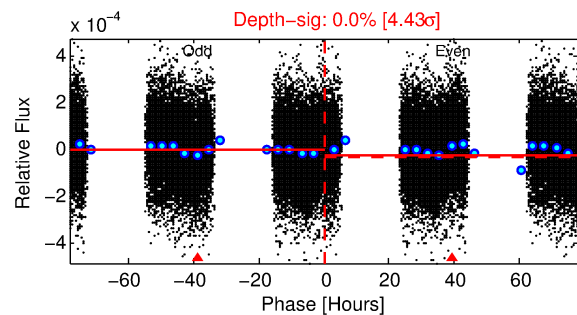
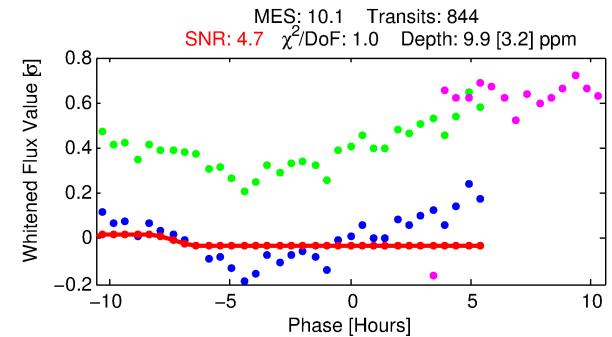
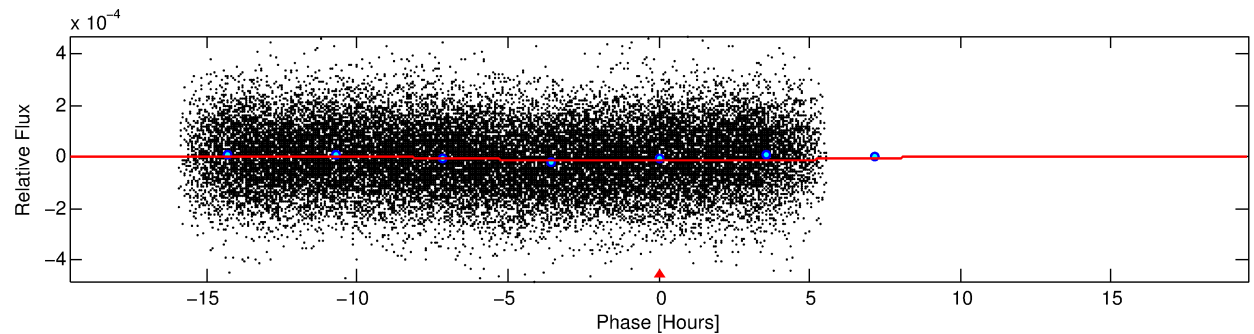
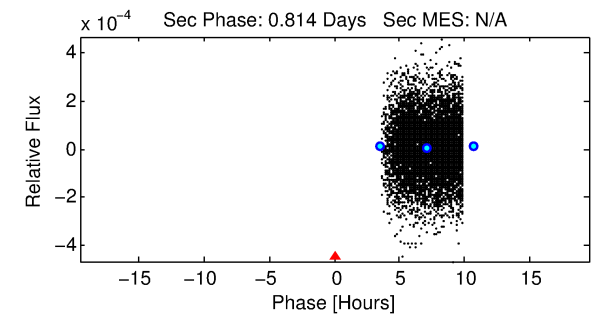
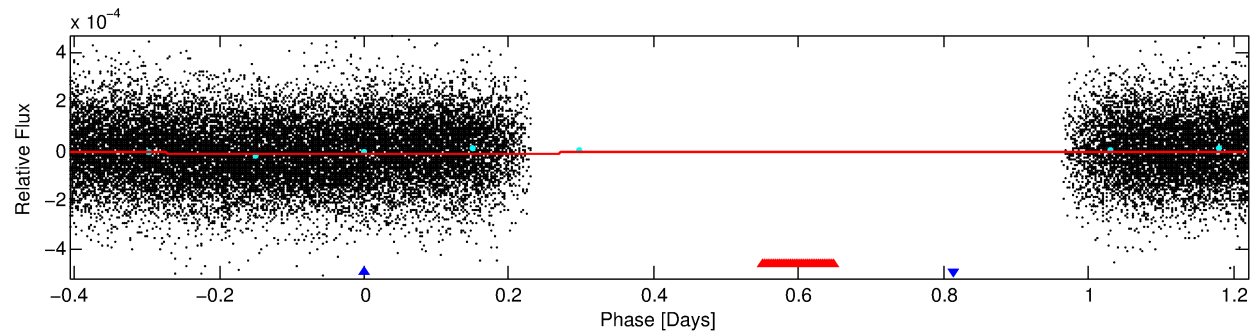
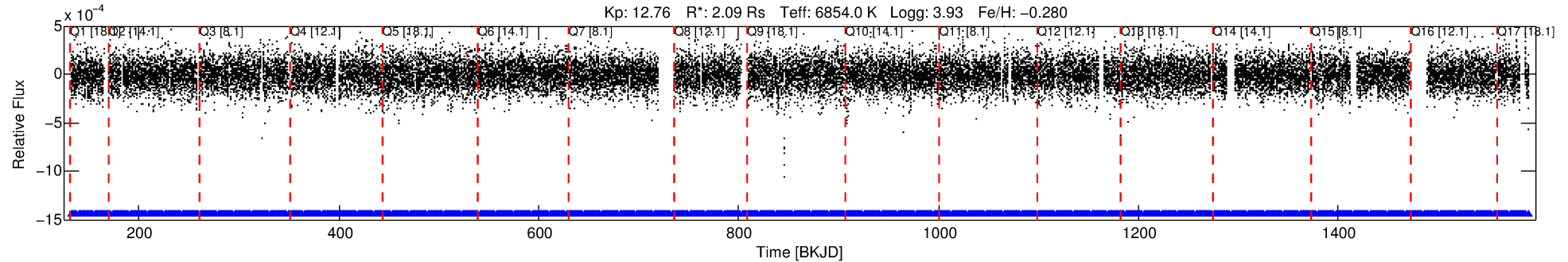
No Significant Match Found

DV One-Page Summary

KIC: 8822585 Candidate: 2 of 2 Period: 1.628 d

KOI: K07095 Corr: No Ephemeris Match

Kp: 12.76 R*: 2.09 Rs Teff: 6854.0 K Logg: 3.93 Fe/H: -0.280



DV Fit Results:

Period = 1.62750 [0.00009] d
Epoch = 132.9966 [0.1664] BKJD
Rp/R* = 0.0037 [0.0006]
a/R* = 1.00 [0.01]
b = 0.97 [0.08]
Seff = 9545.45 [4387.27]
Teq = 2520 [290] K
Rp = 0.84 [0.27] Re
a = 0.0301 [0.0083] AU

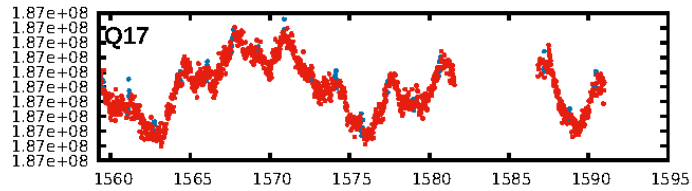
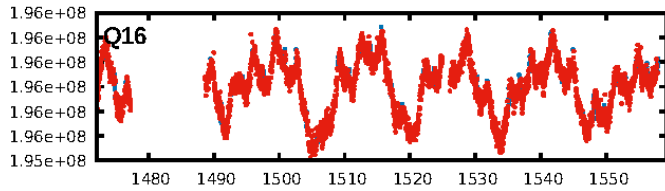
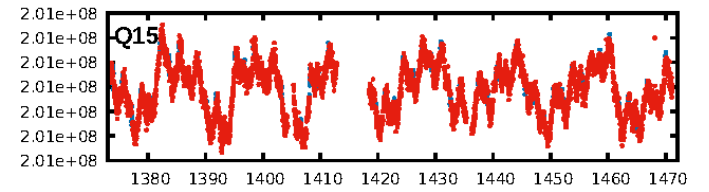
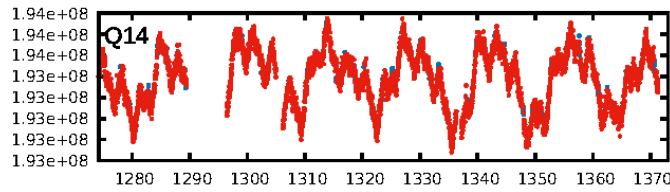
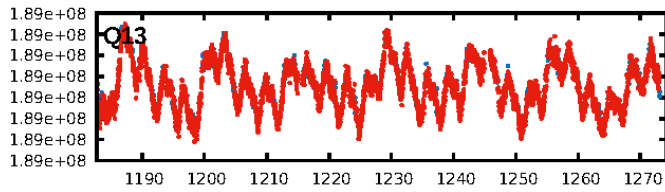
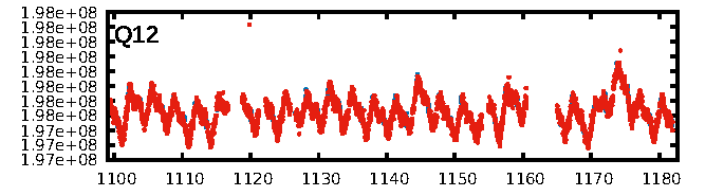
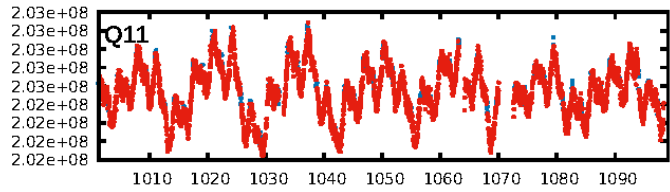
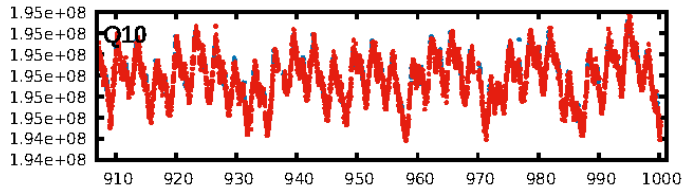
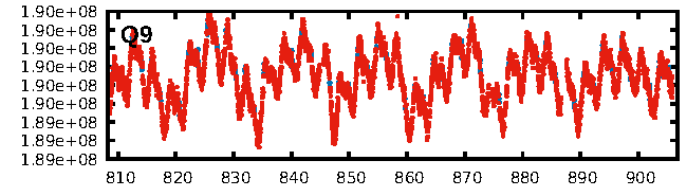
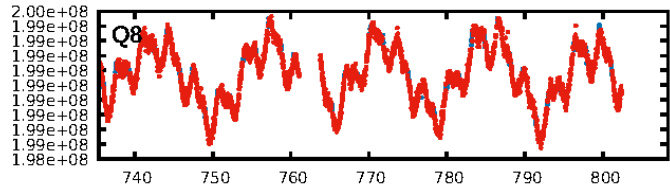
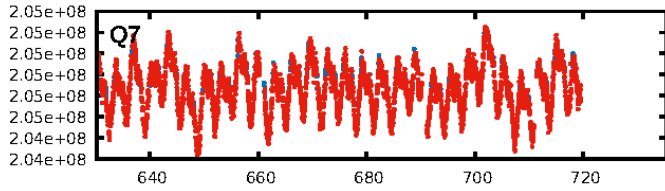
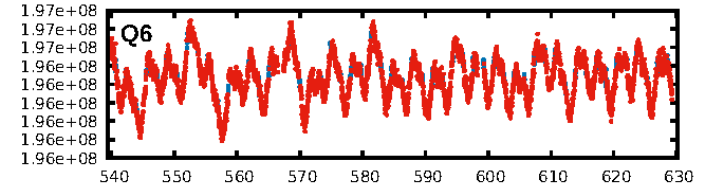
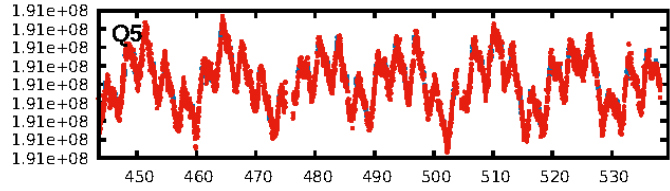
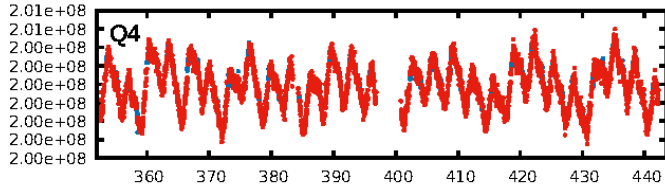
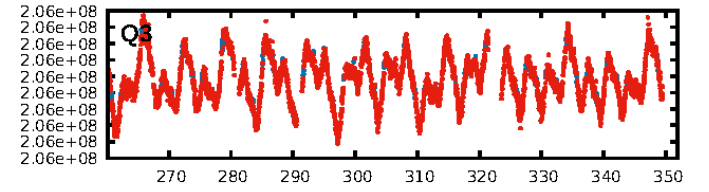
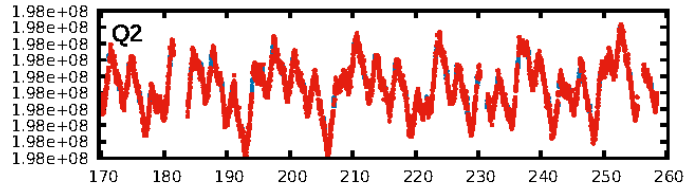
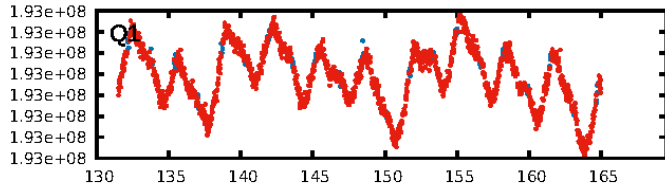
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00x]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [807/807]
GhostDiagnostic-chr: 0.5651
Centroid-sig: 0.1%
Centroid-so: 2.197 arcsec [2.31σ]
OotOffset-rm: 1.426 arcsec [2.27σ]
KicOffset-rm: 1.345 arcsec [2.20σ]
OotOffset-st: 1/4/0/4 [9]
KicOffset-st: 1/4/0/4 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 0.00 [0/17]

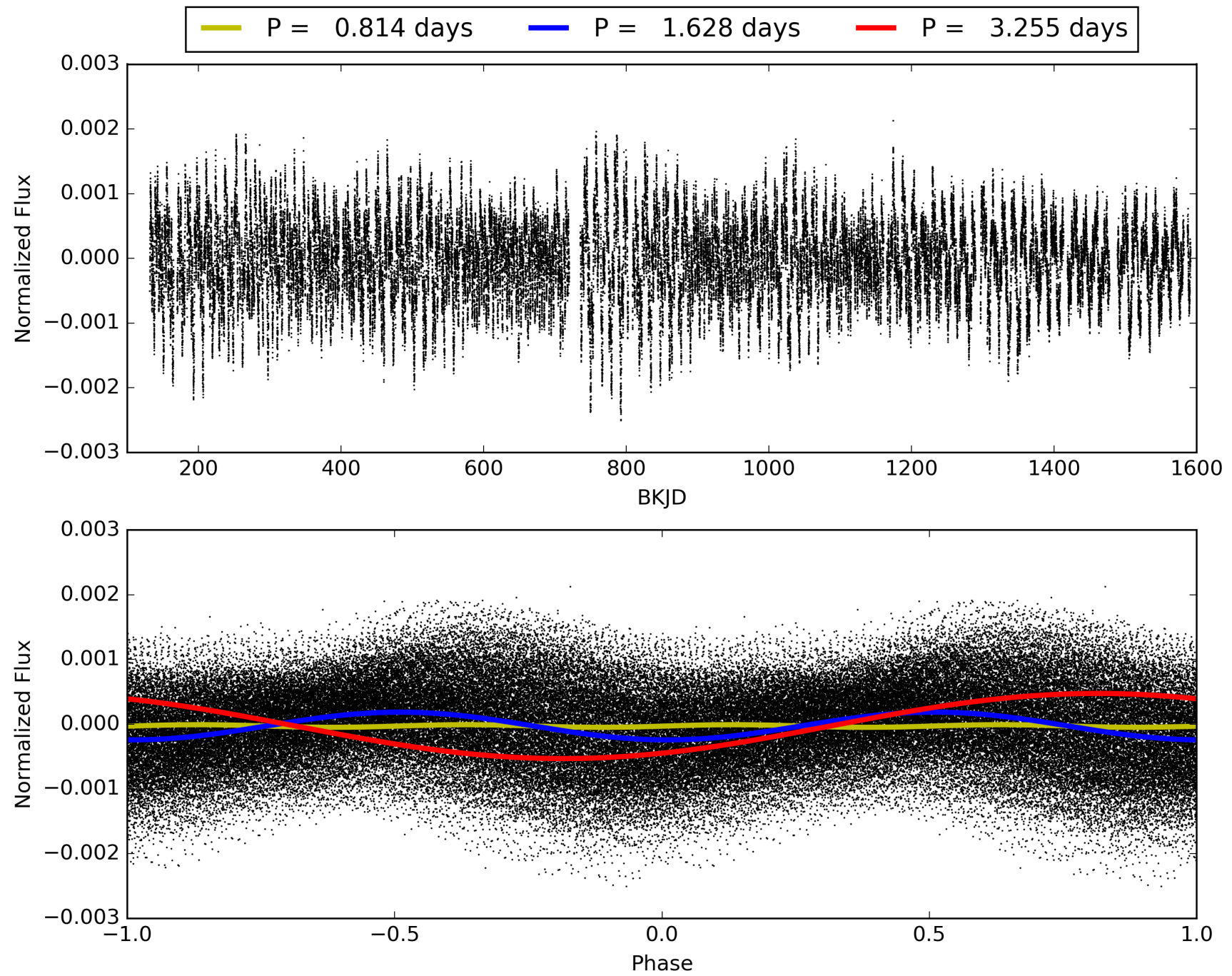
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008822585-02, PDC Light Curves

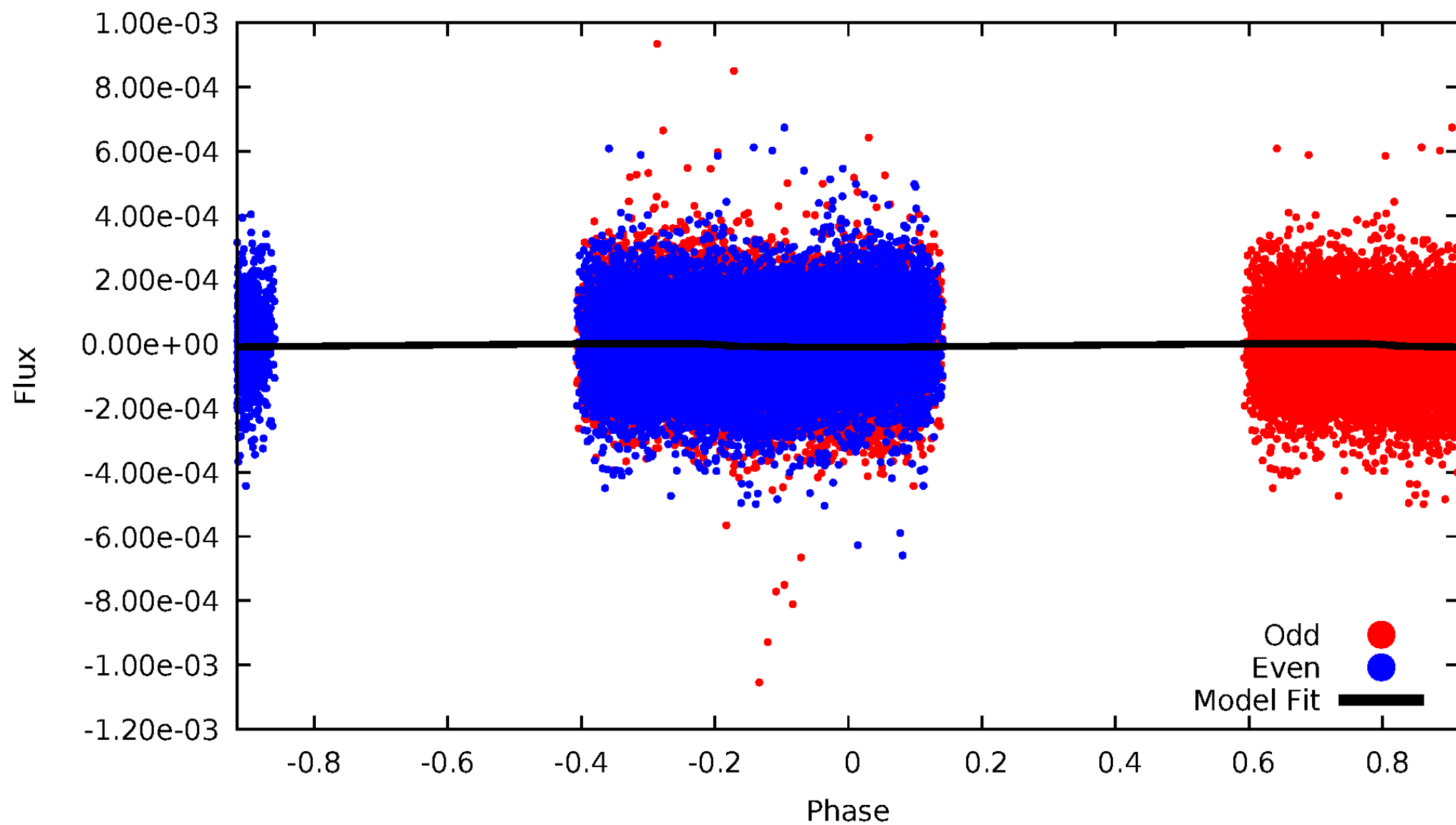


TCE 008822585-02



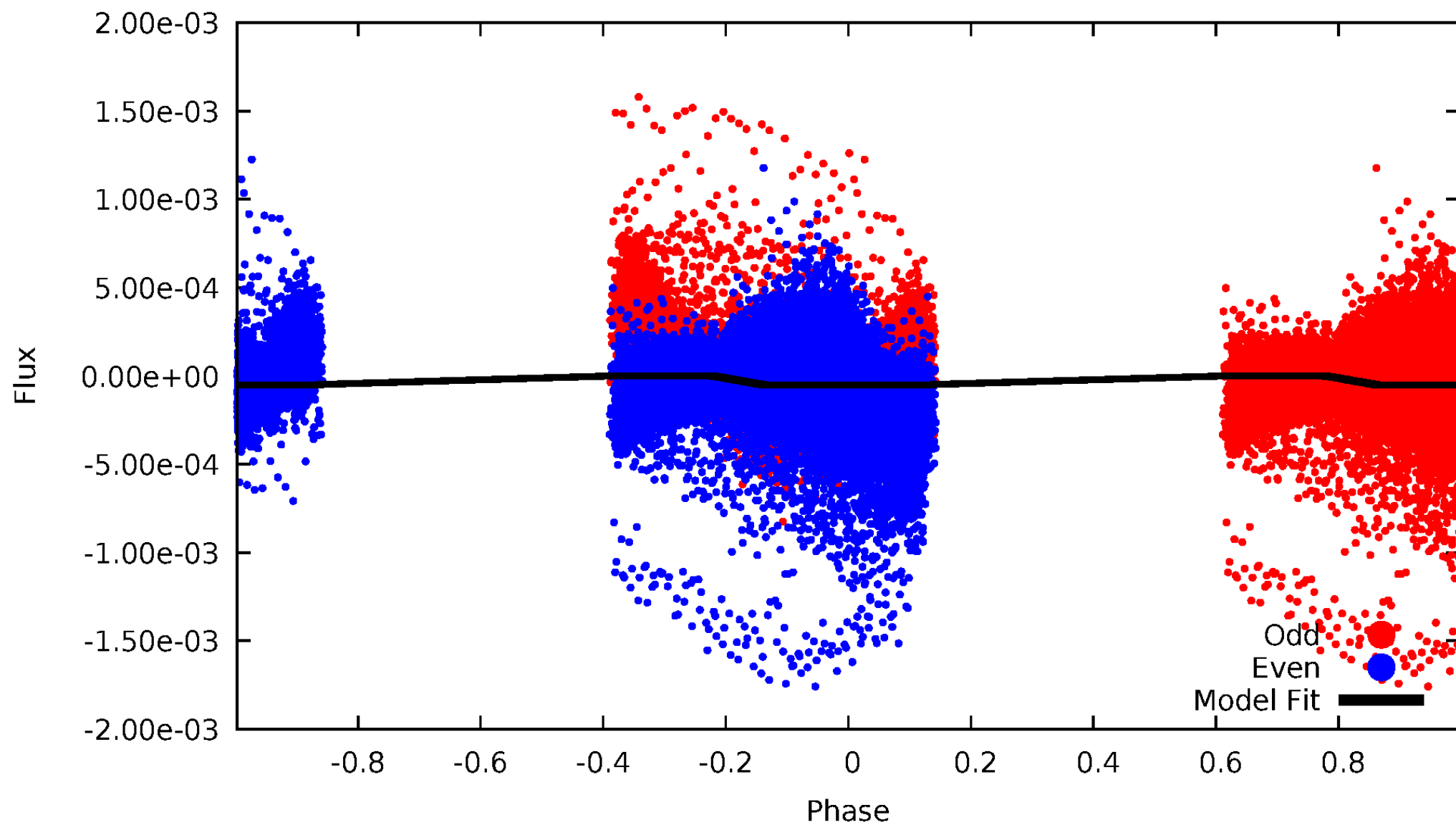
DV Odd/Even

TCE 008822585-02



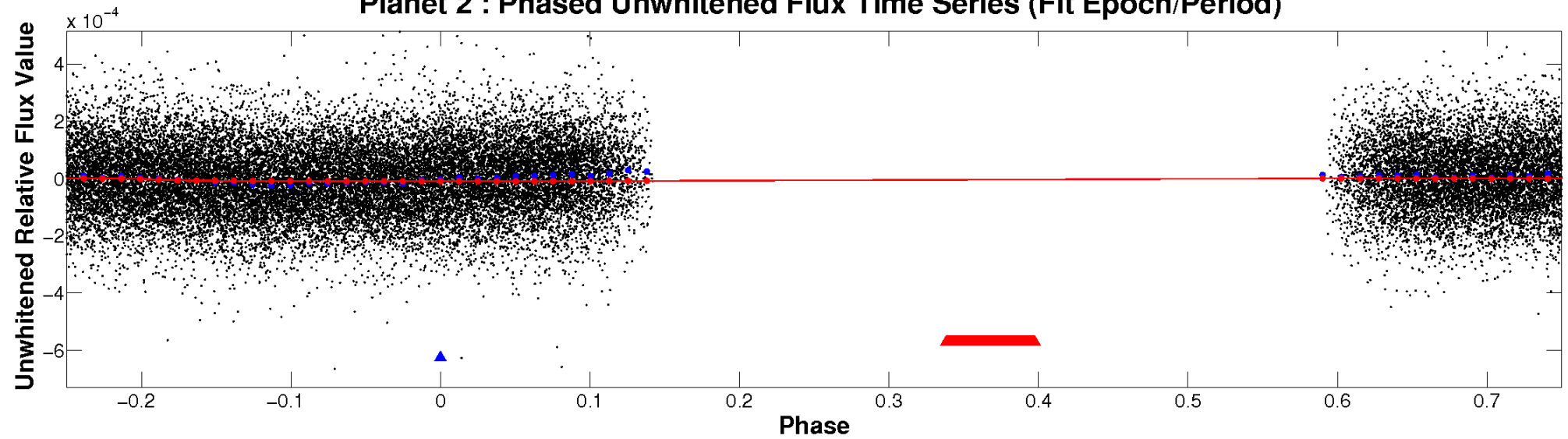
ALT Odd/Even

TCE 008822585-02

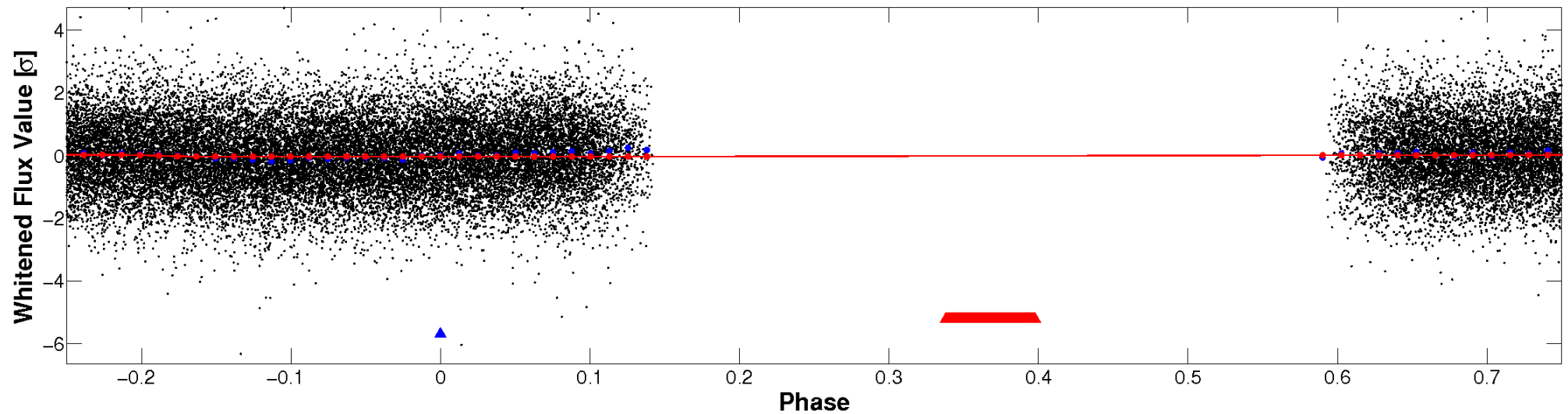


Non-Whitened Vs. Whitened Light Curve

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

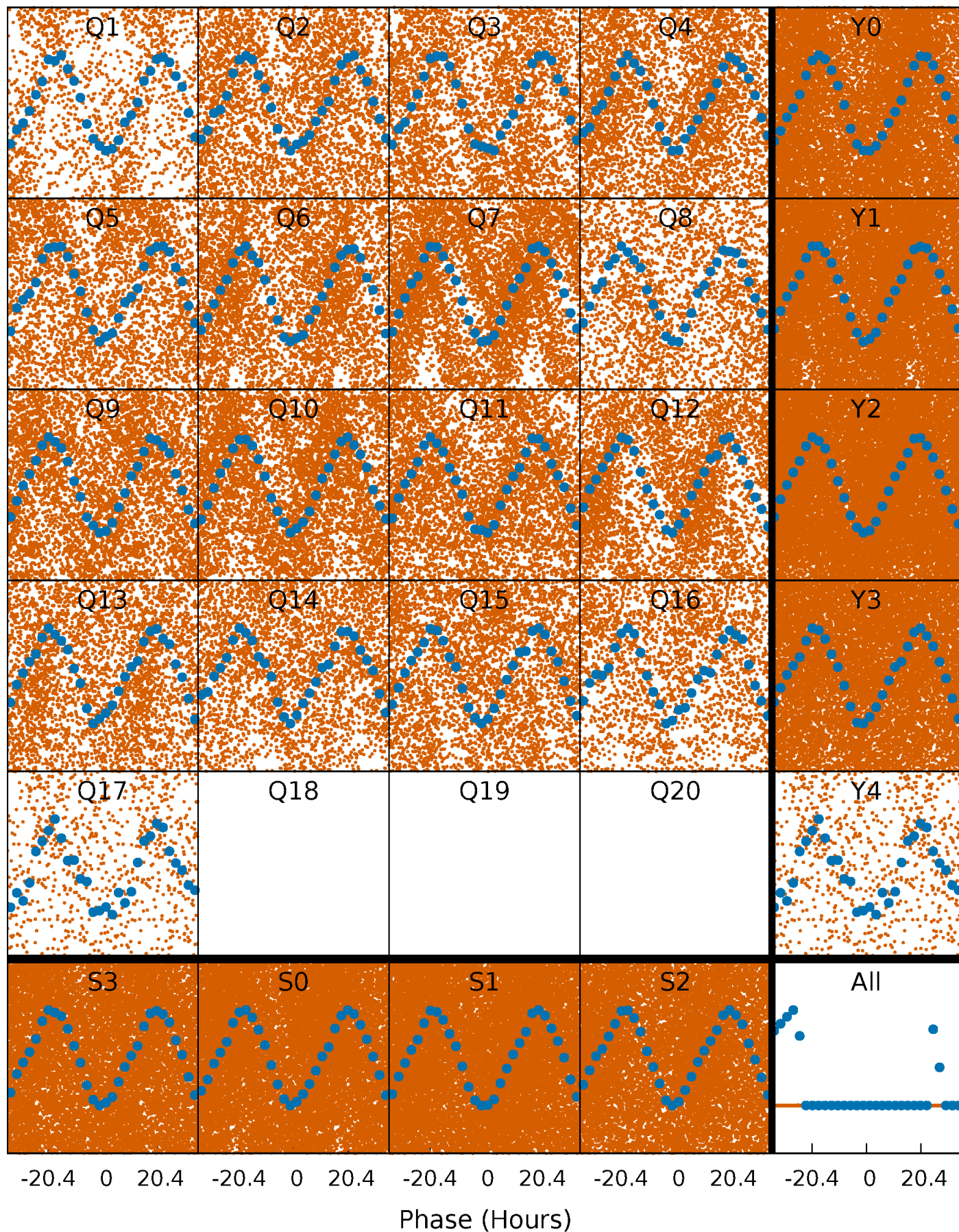


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



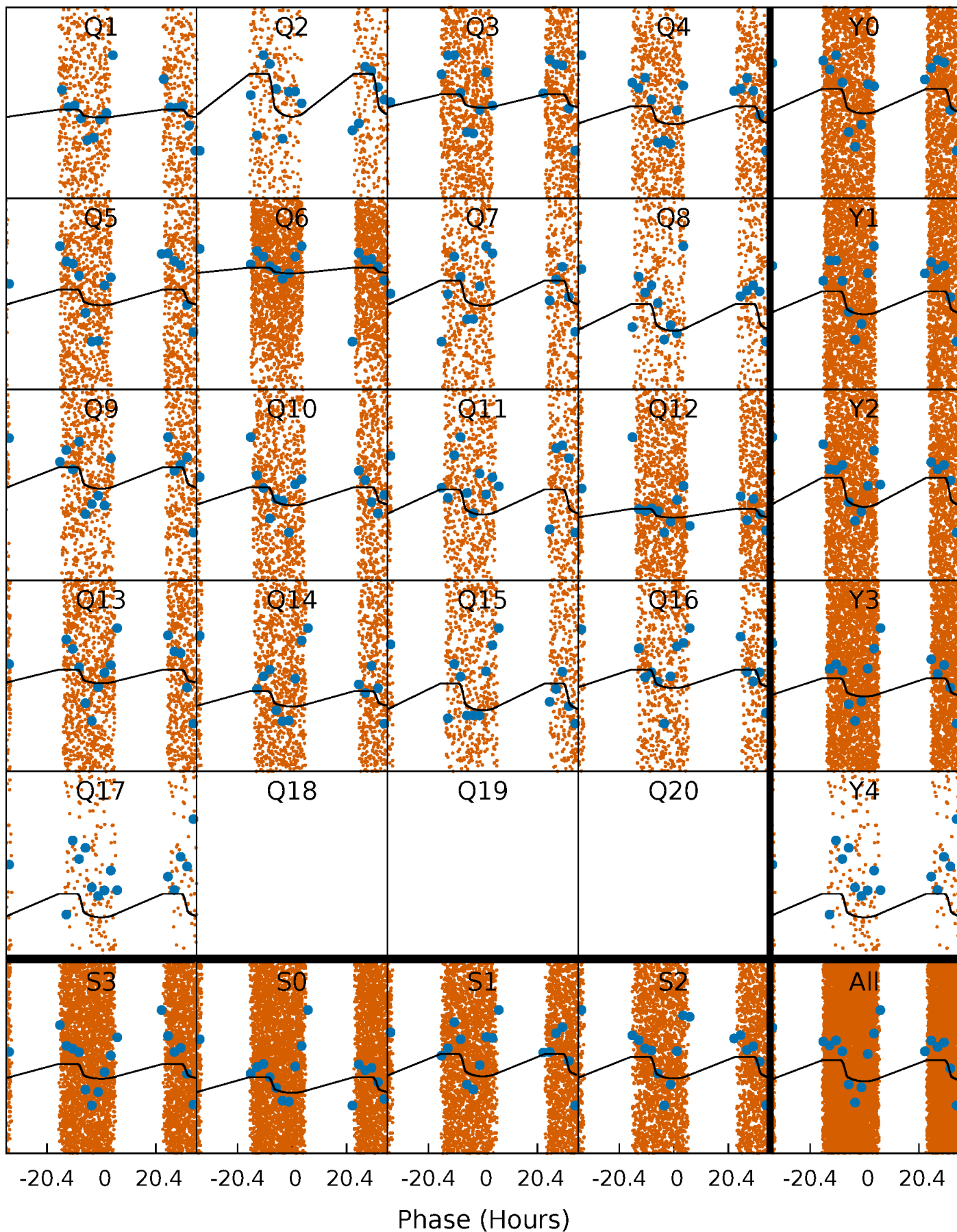
PDC Quarter-Phased Transit Curves

TCE 008822585-02 P= 1.627500 Days $T_0=132.996605$ (BKJD)



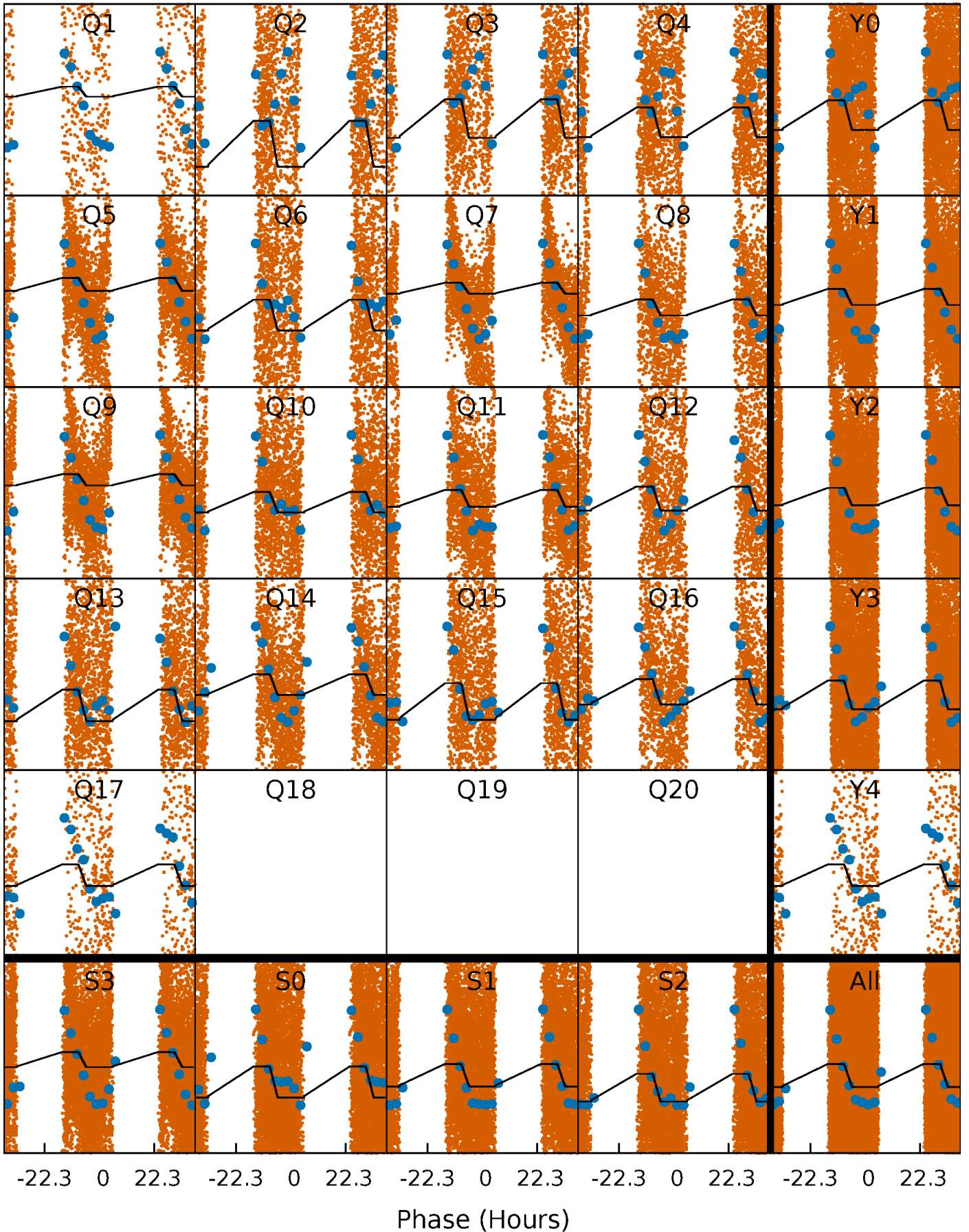
DV Quarter-Phased Transit Curves

TCE 008822585-02 P= 1.627500 Days $T_0=132.996605$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

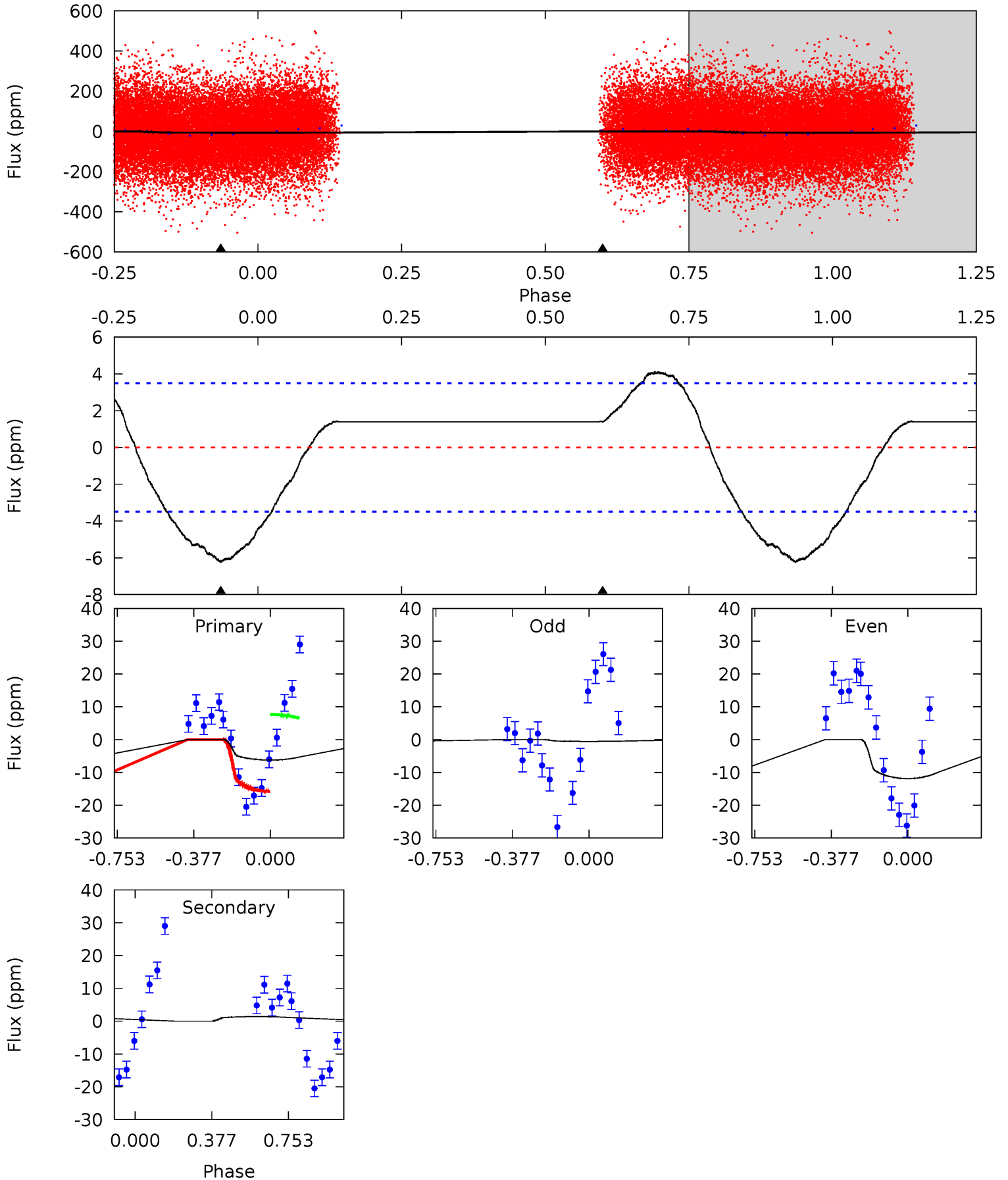
TCE 008822585-02 P= 1.627533 Days $T_0=132.966817$ (BKJD)



DV Model-Shift Uniqueness Test

008822585-02, P = 1.627500 Days, E = 131.369105 Days

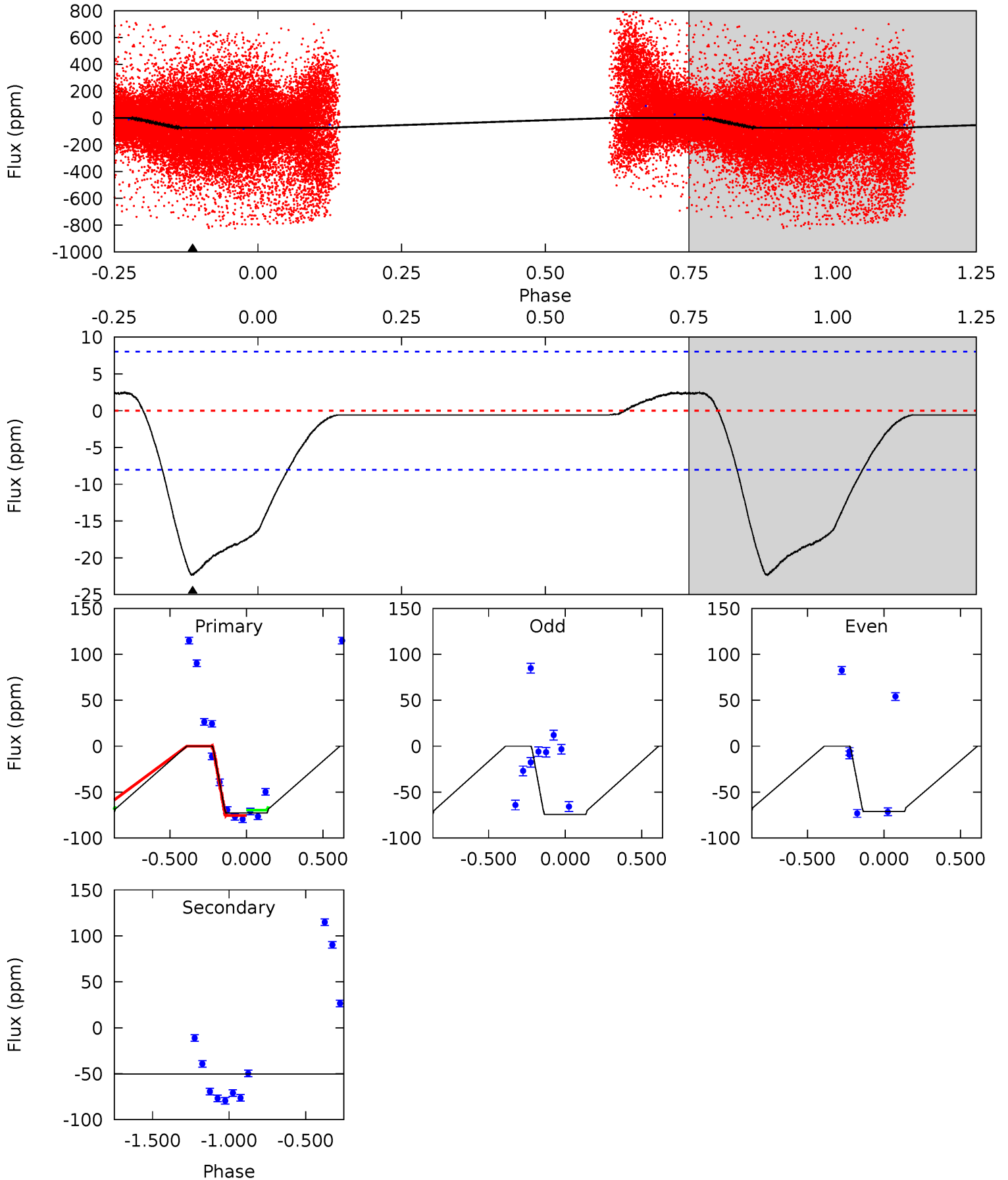
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.66	-1.70	0	0	4.28	0.88	1.01	7.66	7.66	-1.70	-1.70	6.87	-0.69	0.40	4.81



Alt Model-Shift Uniqueness Test

008822585-02, P = 1.627533 Days, E = 131.339284 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	0	0	0	4.21	0.67	0.46	11.7	11.7	0	0	0.23	0	0.10	1.48



Stellar Parameters For KIC 008822585

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6854^{+163}_{-224}	$3.934^{+0.259}_{-0.111}$	$-0.280^{+0.300}_{-0.250}$	$2.088^{+0.433}_{-0.595}$	$1.368^{+0.216}_{-0.216}$	$0.212^{+0.317}_{-0.084}$
	+2%/-3%	+7%/-3%	+107%/-89%	+21%/-28%	+16%/-16%	+150%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008822585-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	1 ± 1	$0.79^{+0.18}_{-0.17}$	3449^{+217}_{-270}	-4343^{+492}_{-454}	$-1.127^{+0.728}_{-0.970}$
Alt.	0 ± 2	$1.58^{+0.25}_{-0.27}$	3471^{+208}_{-285}	-3321^{+6160}_{-523}	$0.022^{+0.378}_{-0.417}$

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 $A_{obs} \gg 1.0$

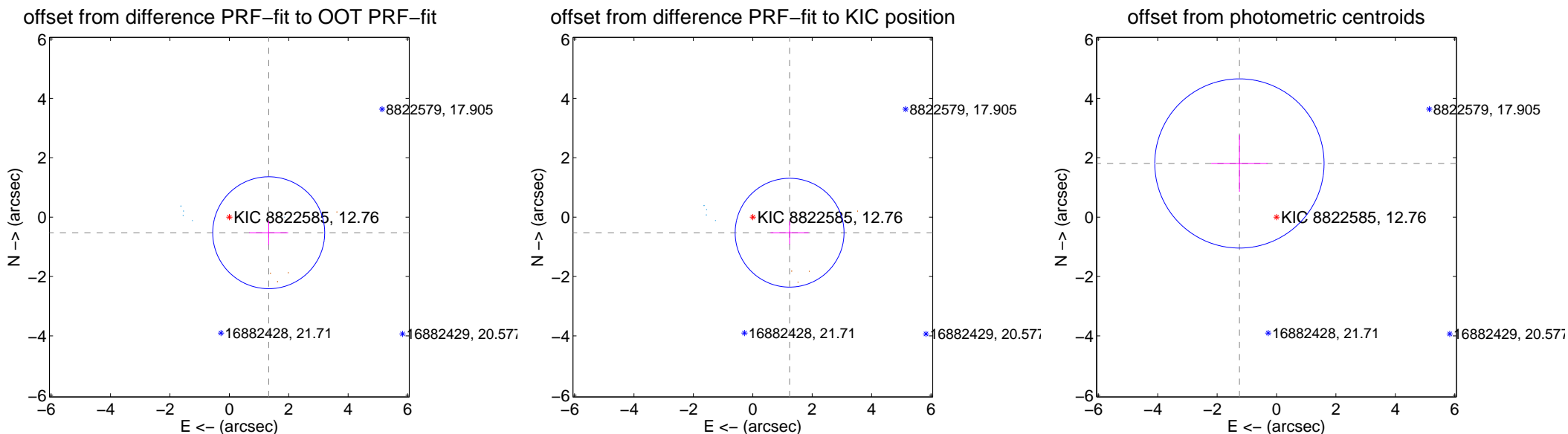
DV Centroid Data

Supplemental centroid analysis for 008822585-02. Kepler magnitude: 12.76. Transit SNR 4.67

There are 5 quarters with good PRF difference image offsets

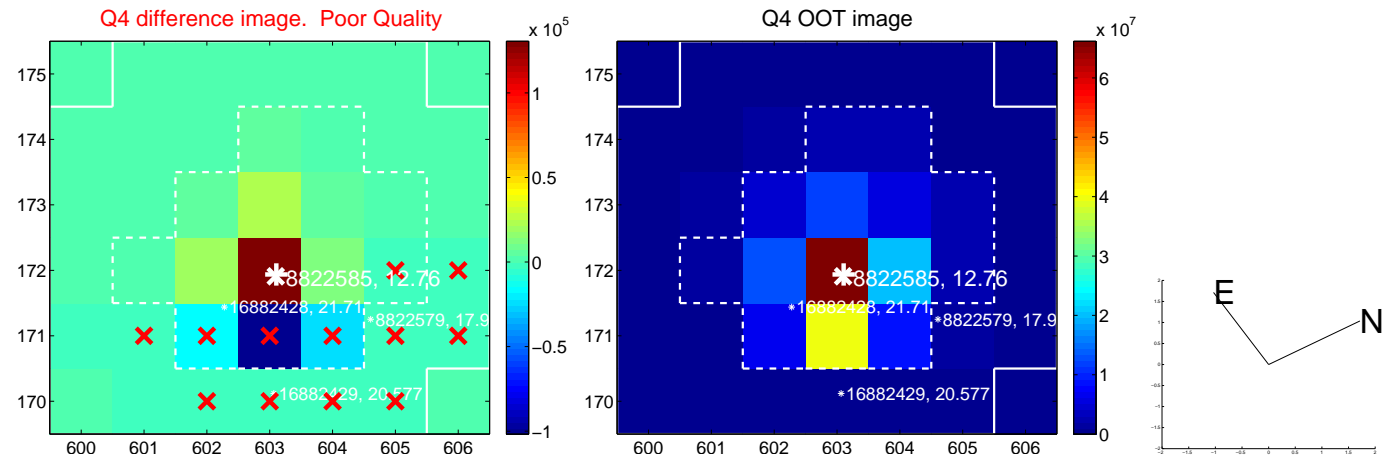
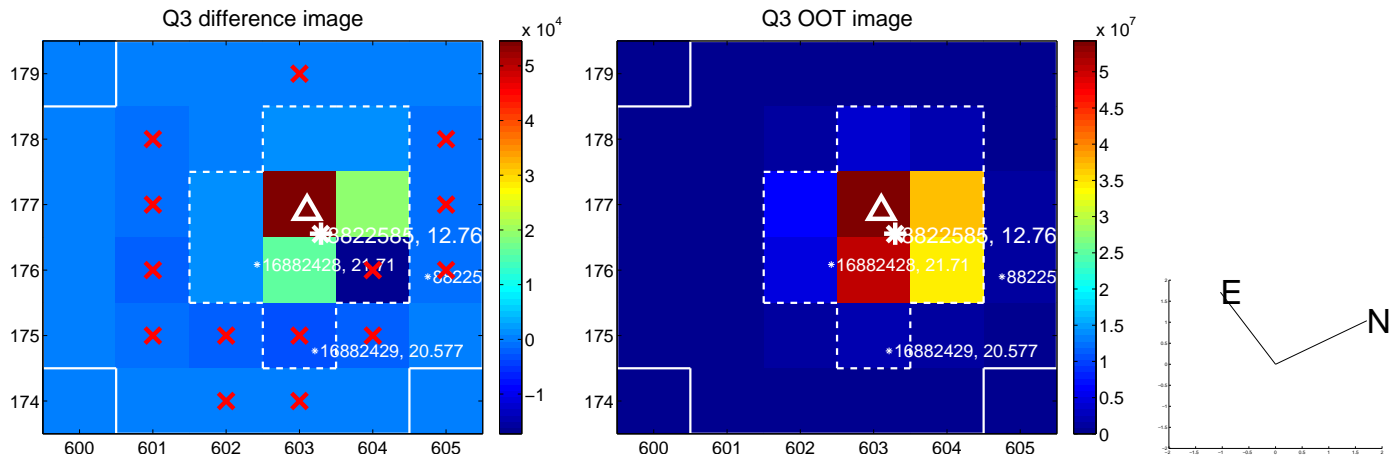
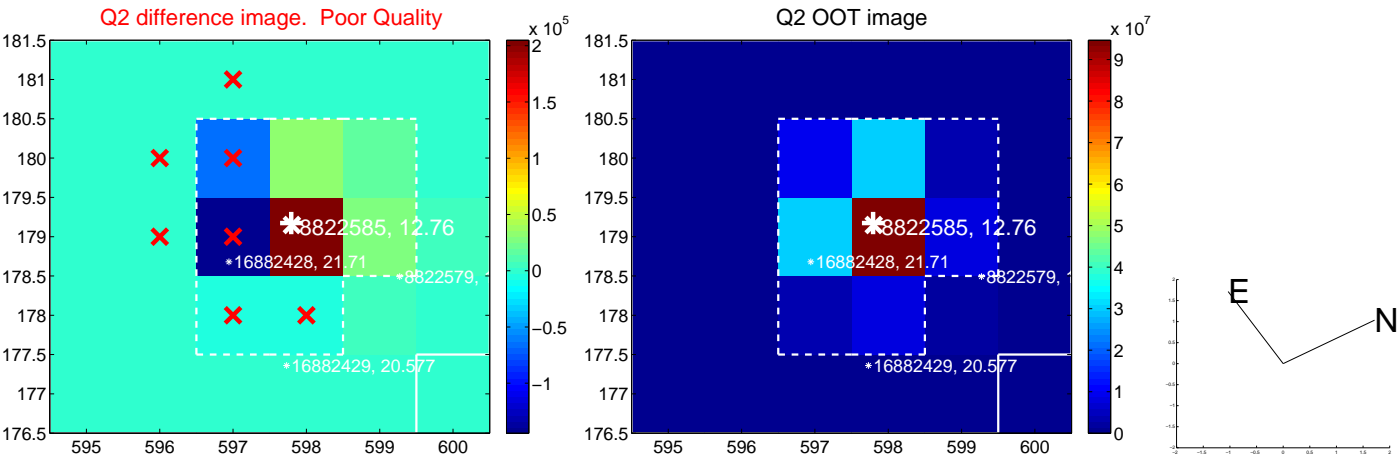
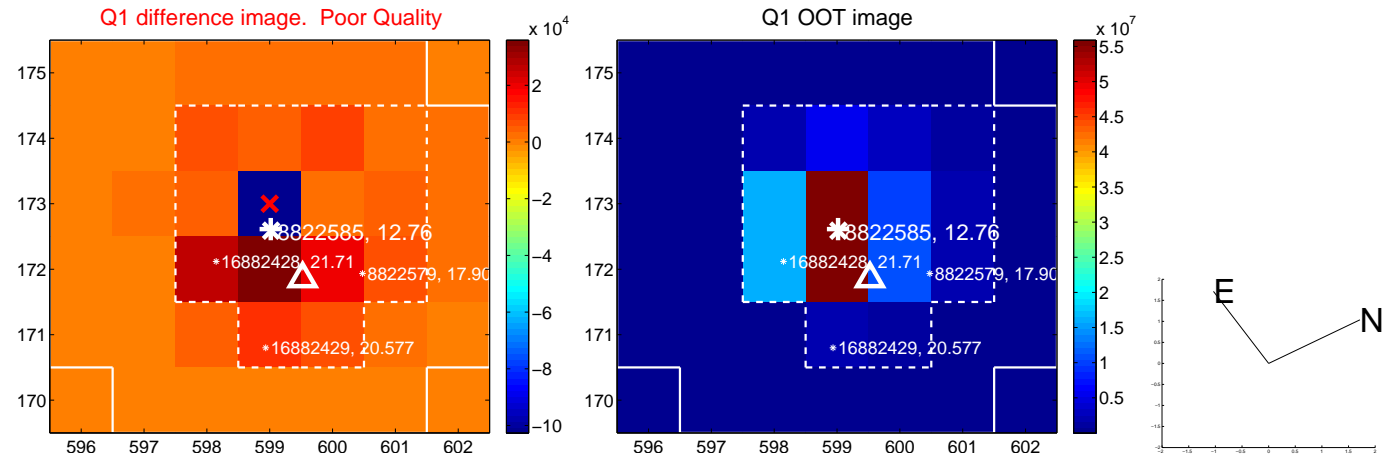
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.426 ± 0.628	2.27	-1.326 ± 0.656	-0.525 ± 0.405
PRF-fit source offset from KIC position	1.345 ± 0.611	2.20	-1.239 ± 0.643	-0.525 ± 0.389
photometric centroid source offset	2.20 ± 0.95	2.31	1.25 ± 0.95	1.81 ± 0.95

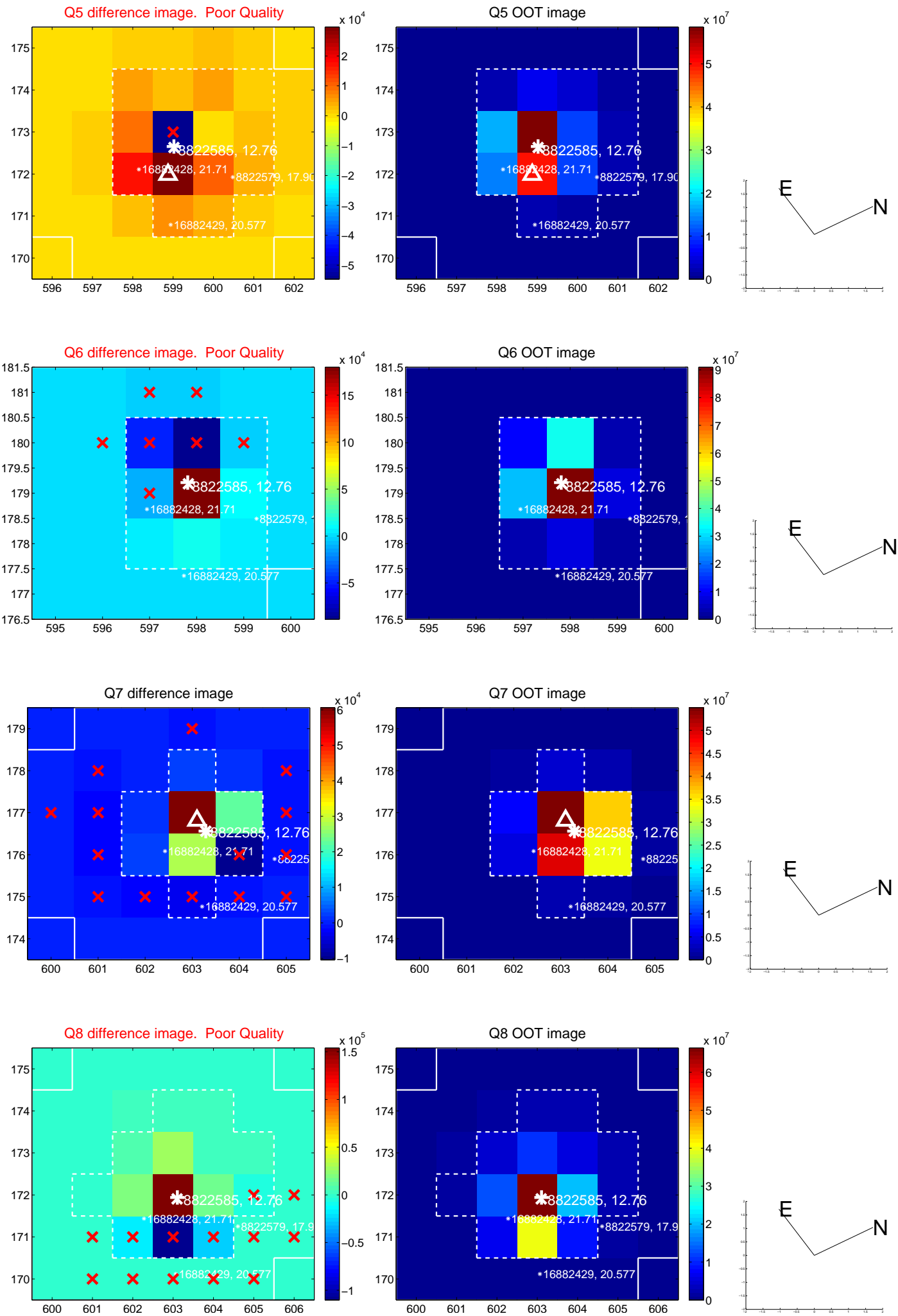


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

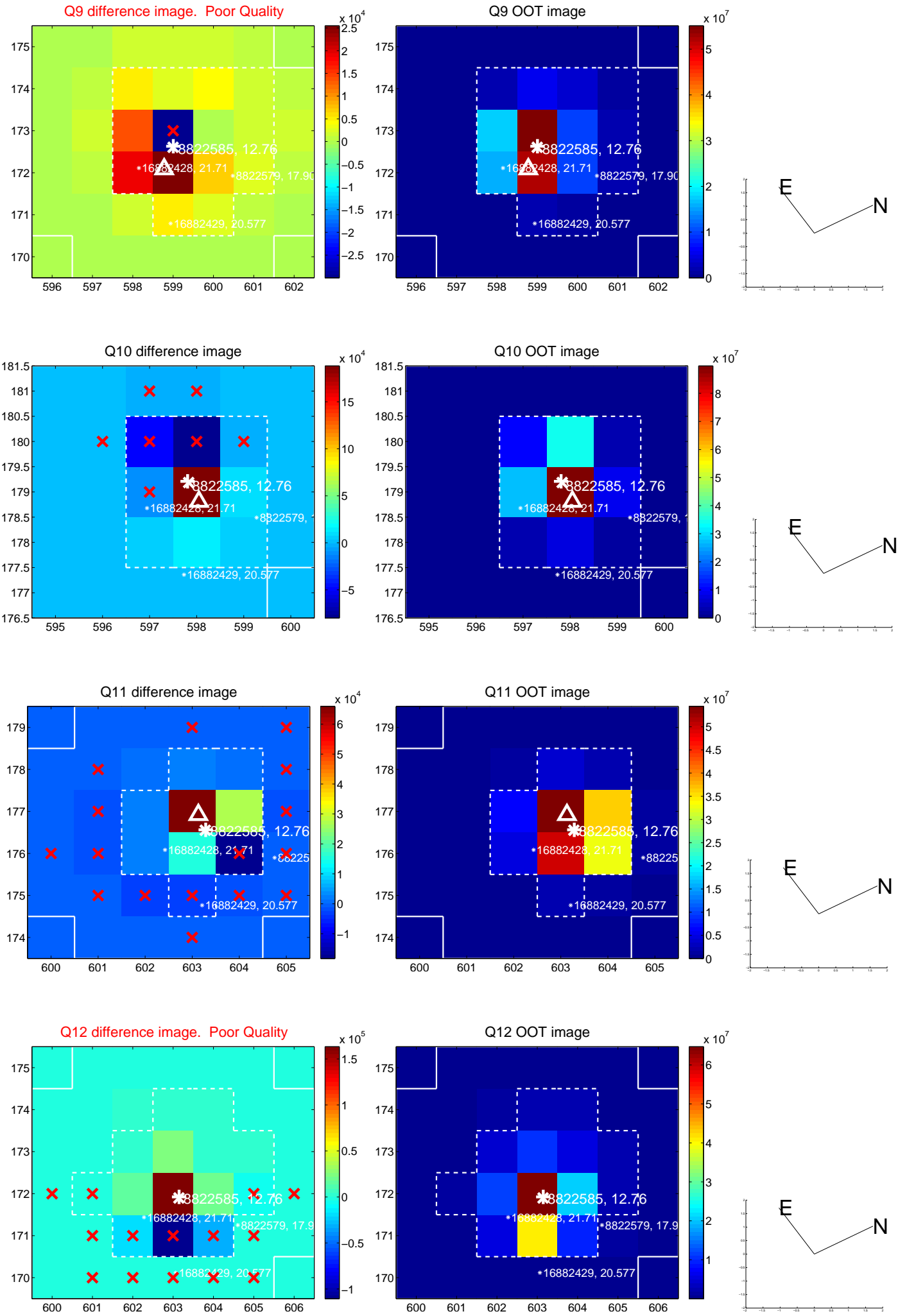
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



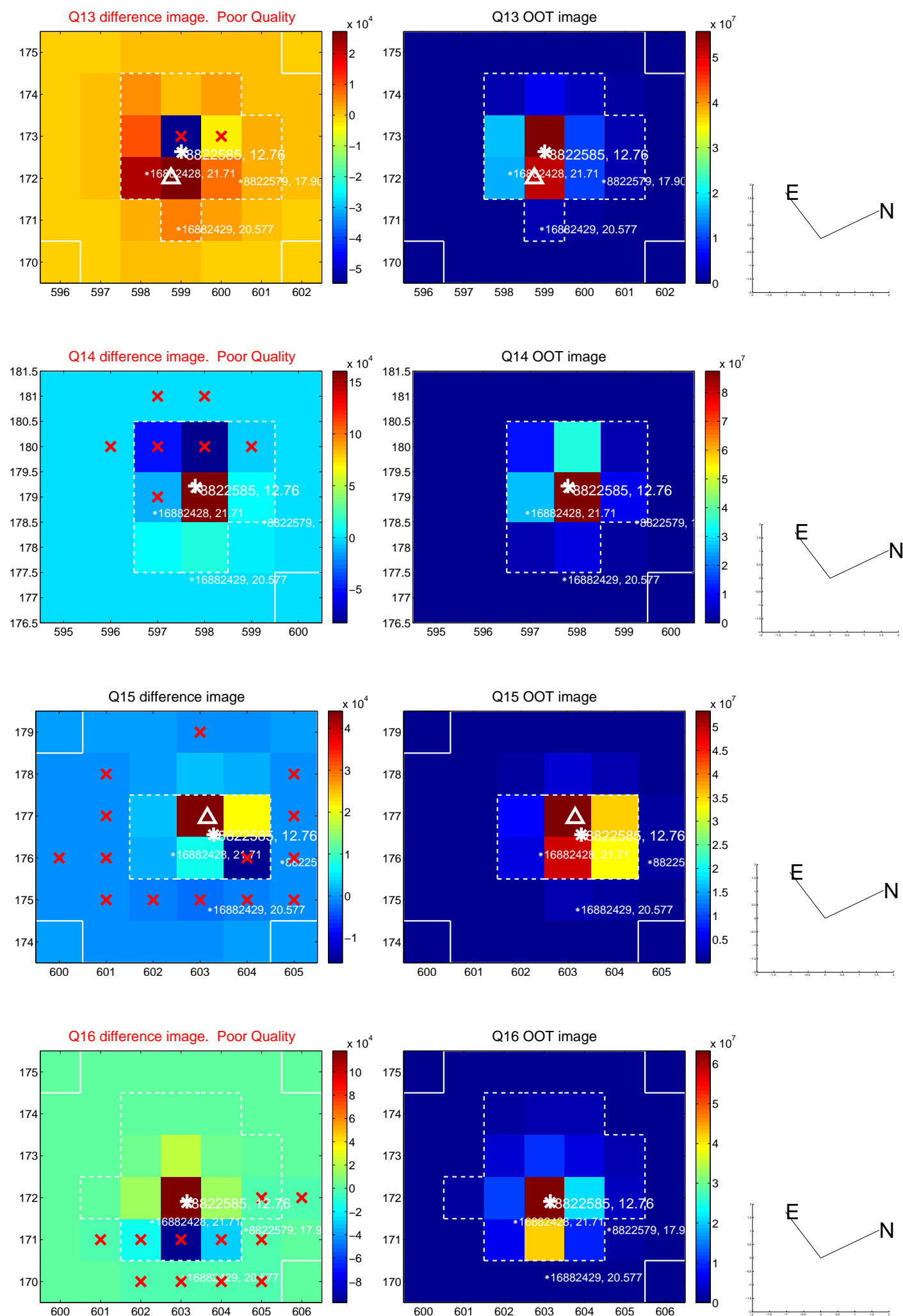
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



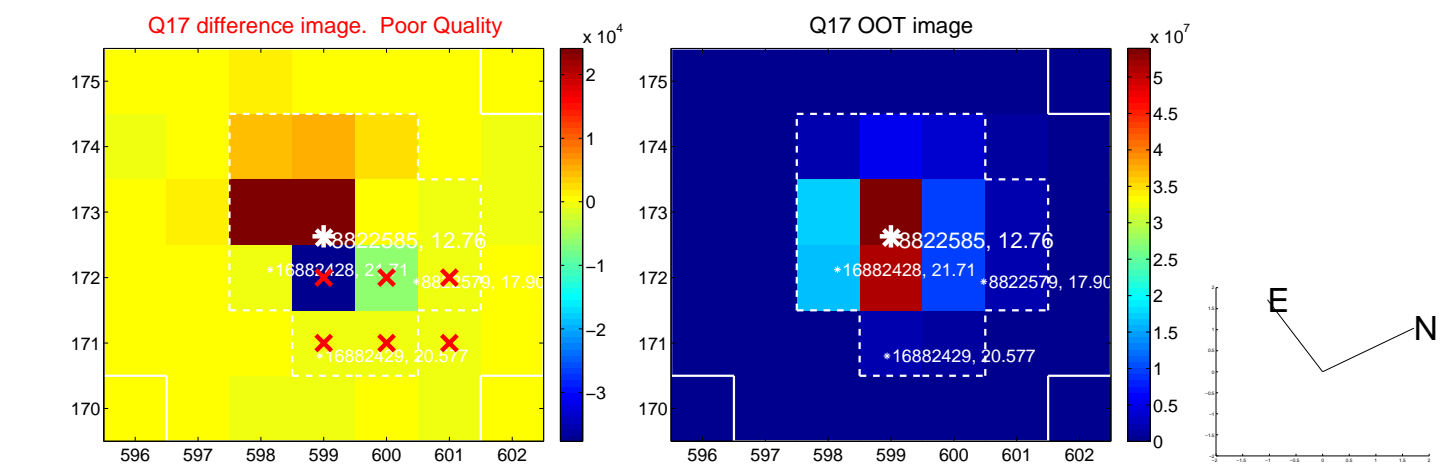
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



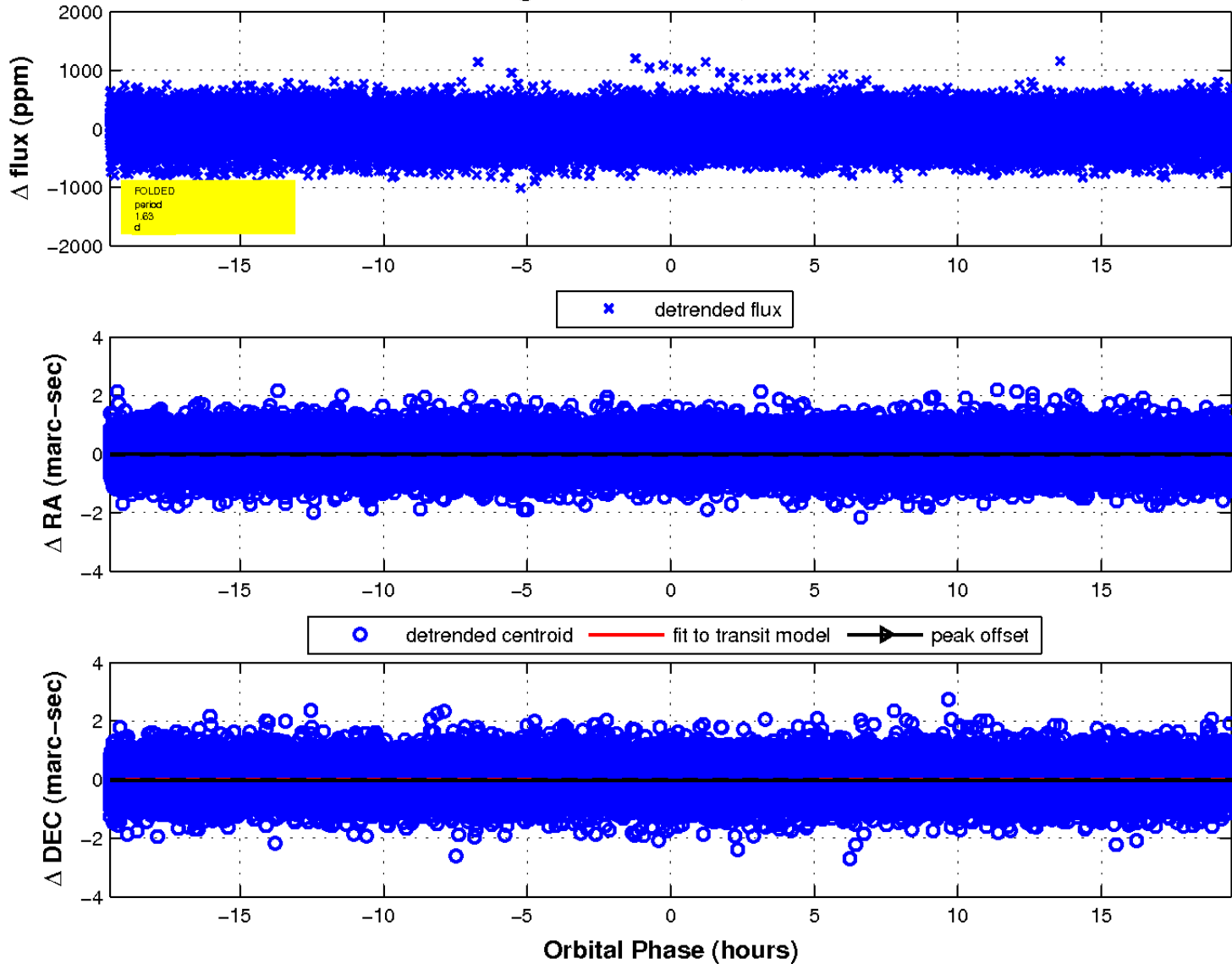
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

