

KIC 002853280

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})
002853280-01	OBS	No	1.320977	132.069810	36.2	6.973	12.9	9.4	4.04	7543	2.46	49370.20
002853280-02	OBS	No	1.321001	132.582573	33.8	10.963	14.2	9.7	4.04	7543	2.70	49368.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002853280-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002853280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

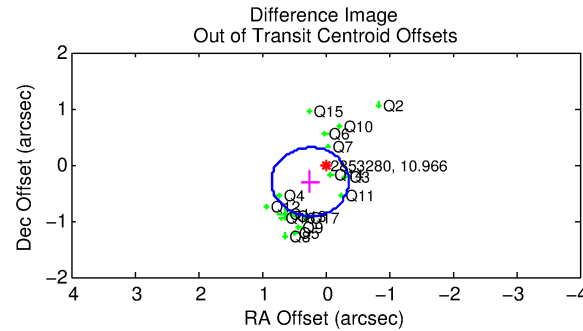
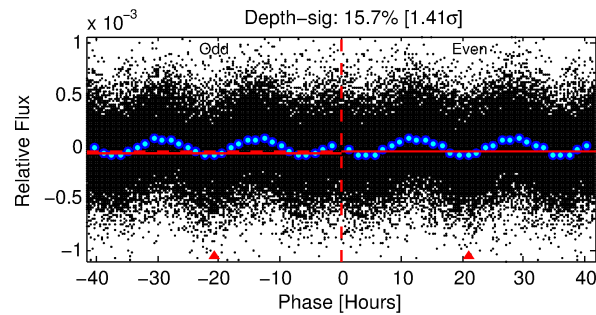
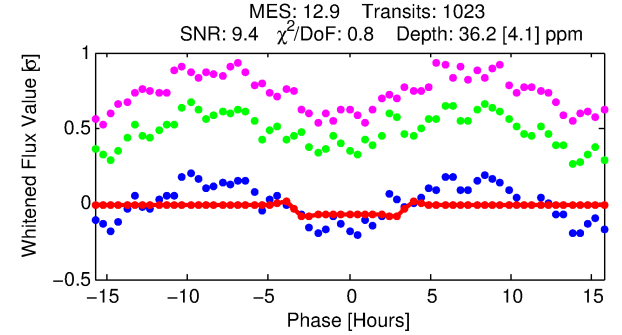
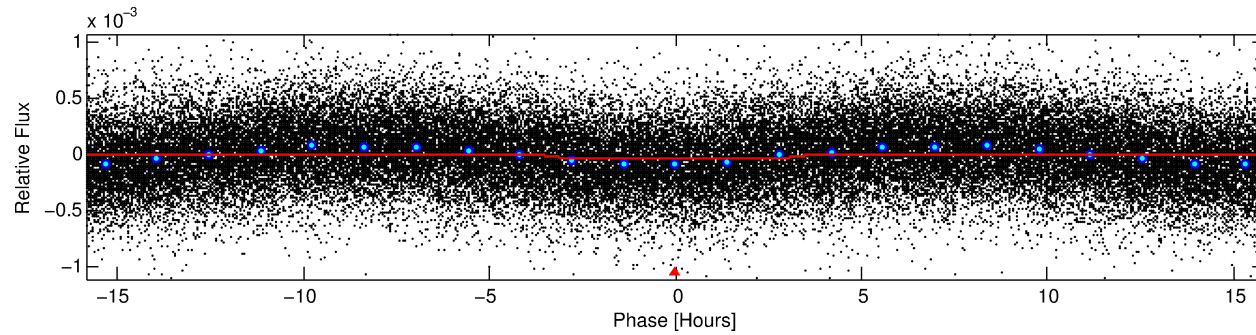
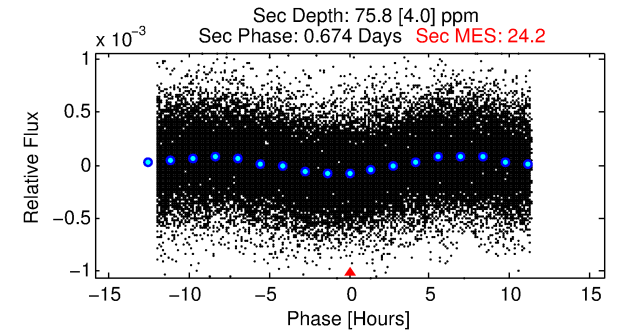
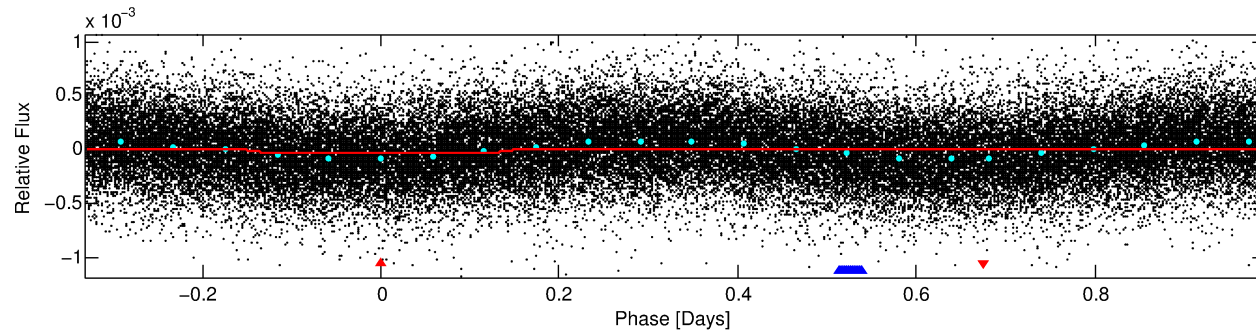
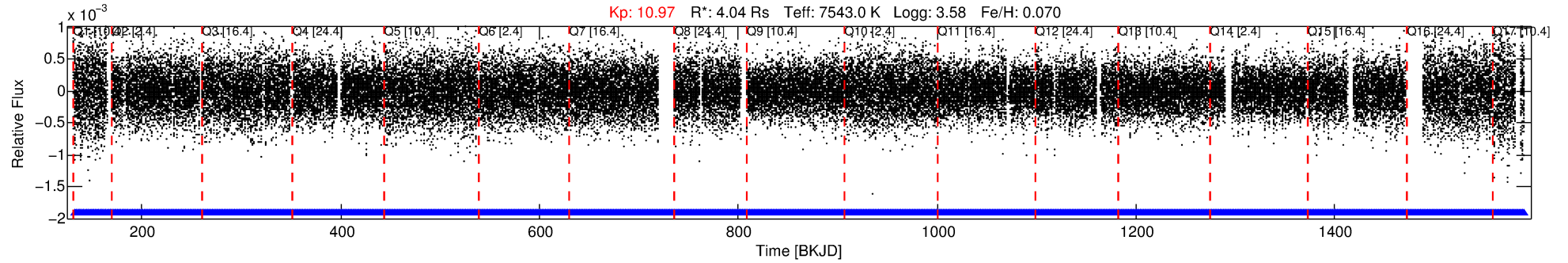
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002853280-01

No Significant Match Found

DV One-Page Summary

KIC: 2853280 Candidate: 1 of 2 Period: 1.321 d



DV Fit Results:

Period = 1.32098 [0.00002] d
Epoch = 132.0698 [0.0036] BKJD
Rp/R* = 0.0056 [0.0036]
a/R* = 1.56 [3.34]
b = 0.17 [20.80]
Seff = 49370.20 [43521.20]
Teff = 3801 [838] K
Rp = 2.46 [2.06] Re
a = 0.0310 [0.0165] AU
Ag = 6.60 [10.17] [0.55σ]
Teffp = 9418 [3028] K [1.79σ]

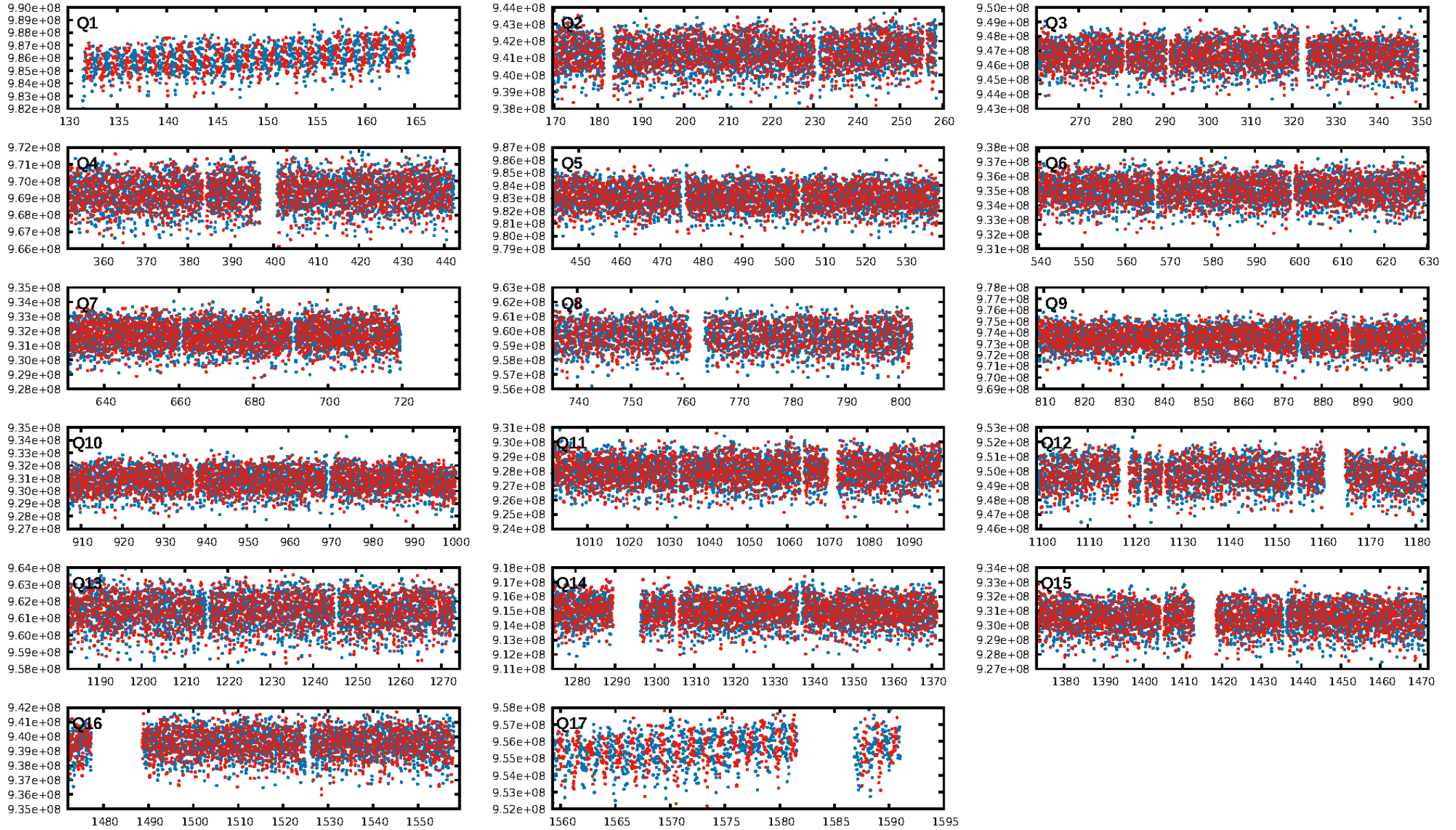
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [977/977]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 0.870 arcsec [2.19σ]
OotOffset-rm: 0.388 arcsec [1.91σ]
KicOffset-rm: 0.481 arcsec [1.91σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

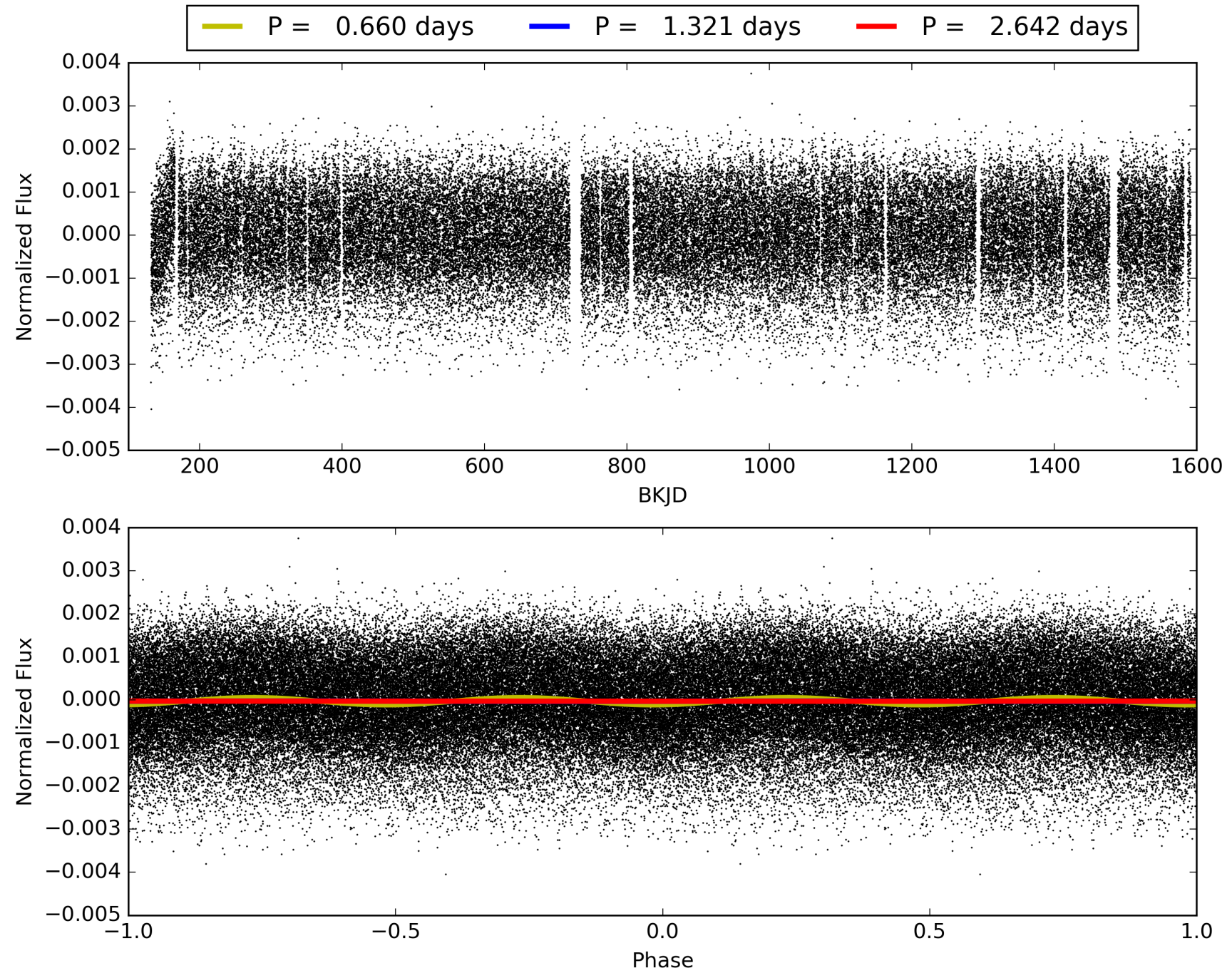
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:41:11 Z

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

TCE 002853280-01, PDC Light Curves

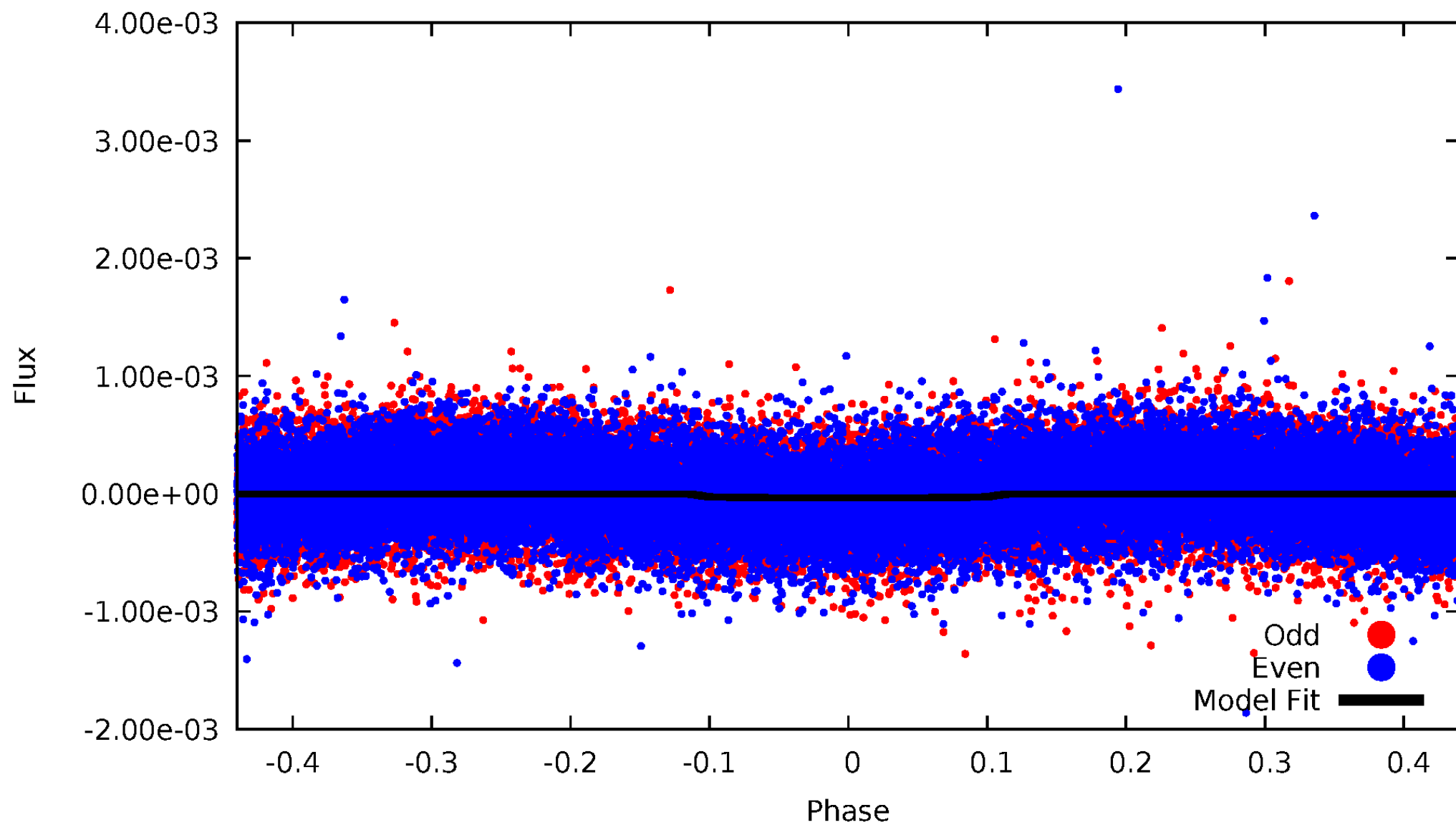


TCE 002853280-01



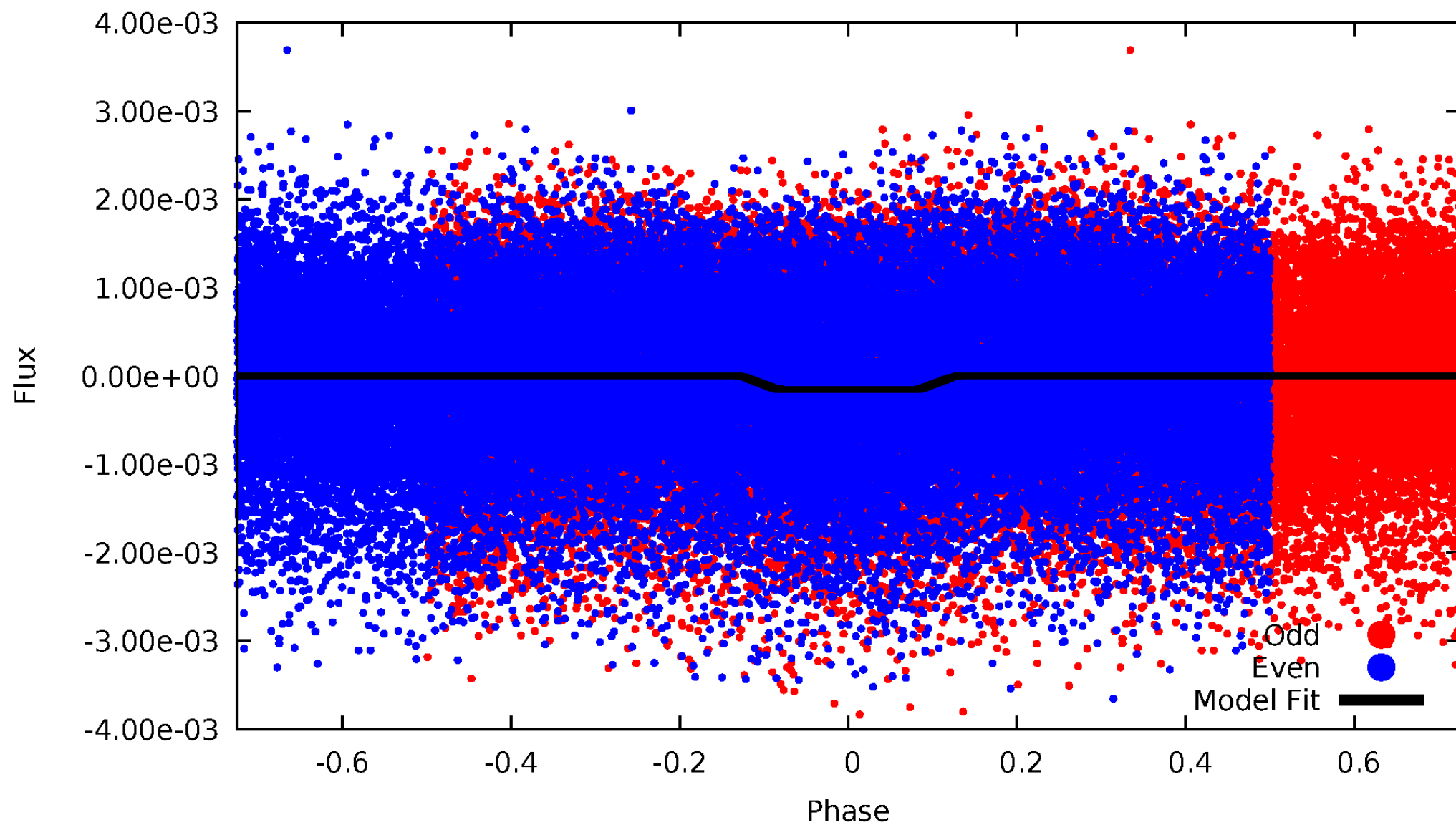
DV Odd/Even

TCE 002853280-01

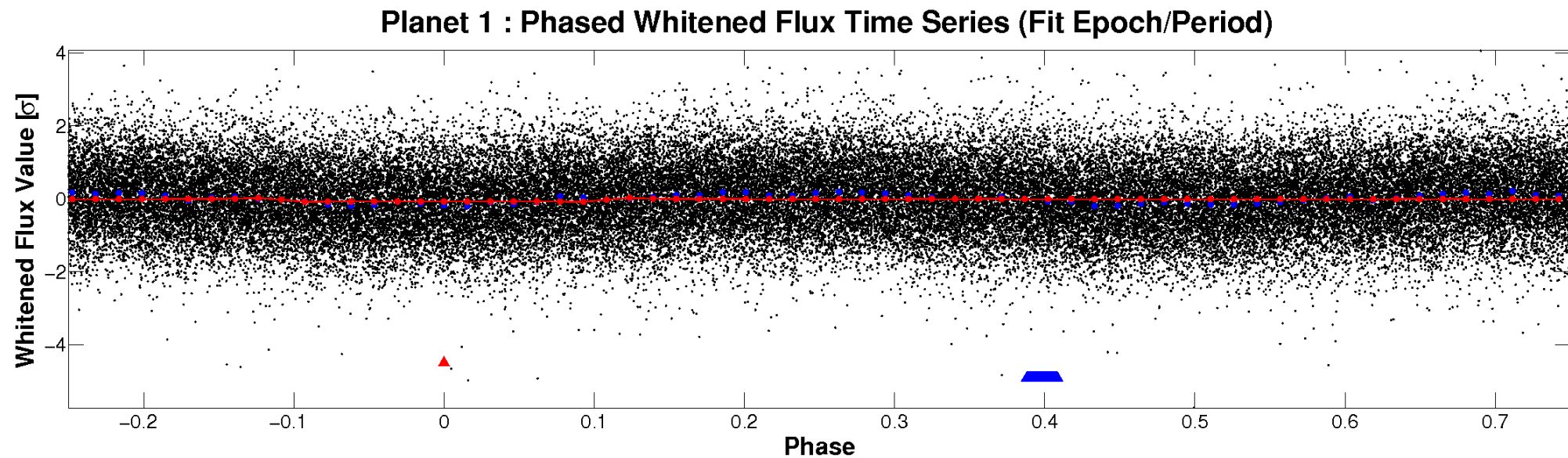
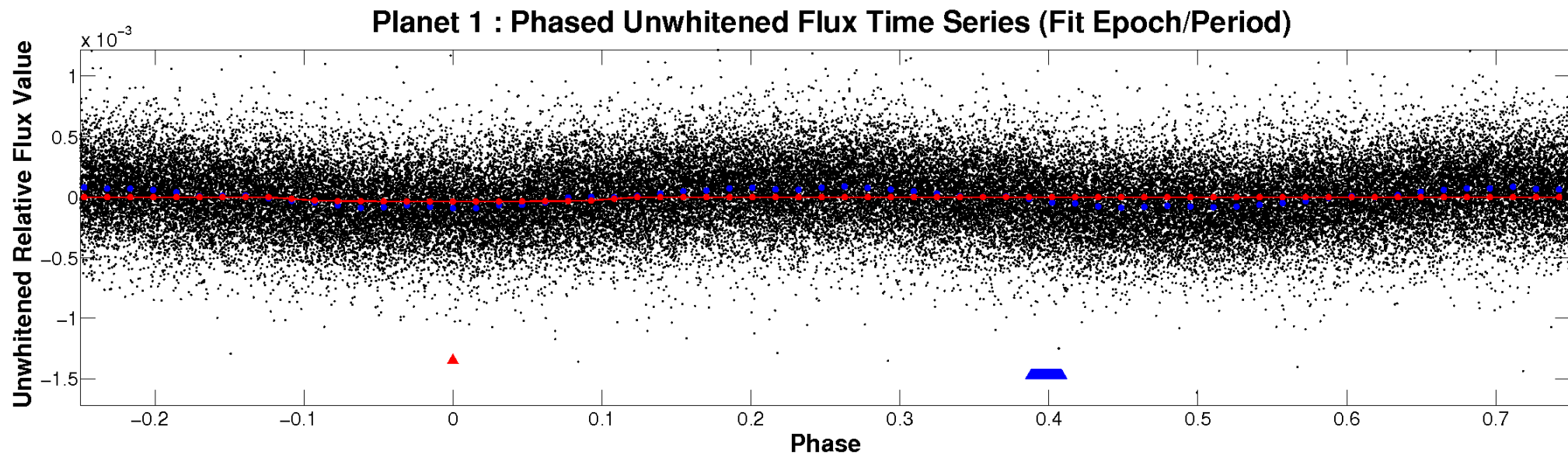


ALT Odd/Even

TCE 002853280-01

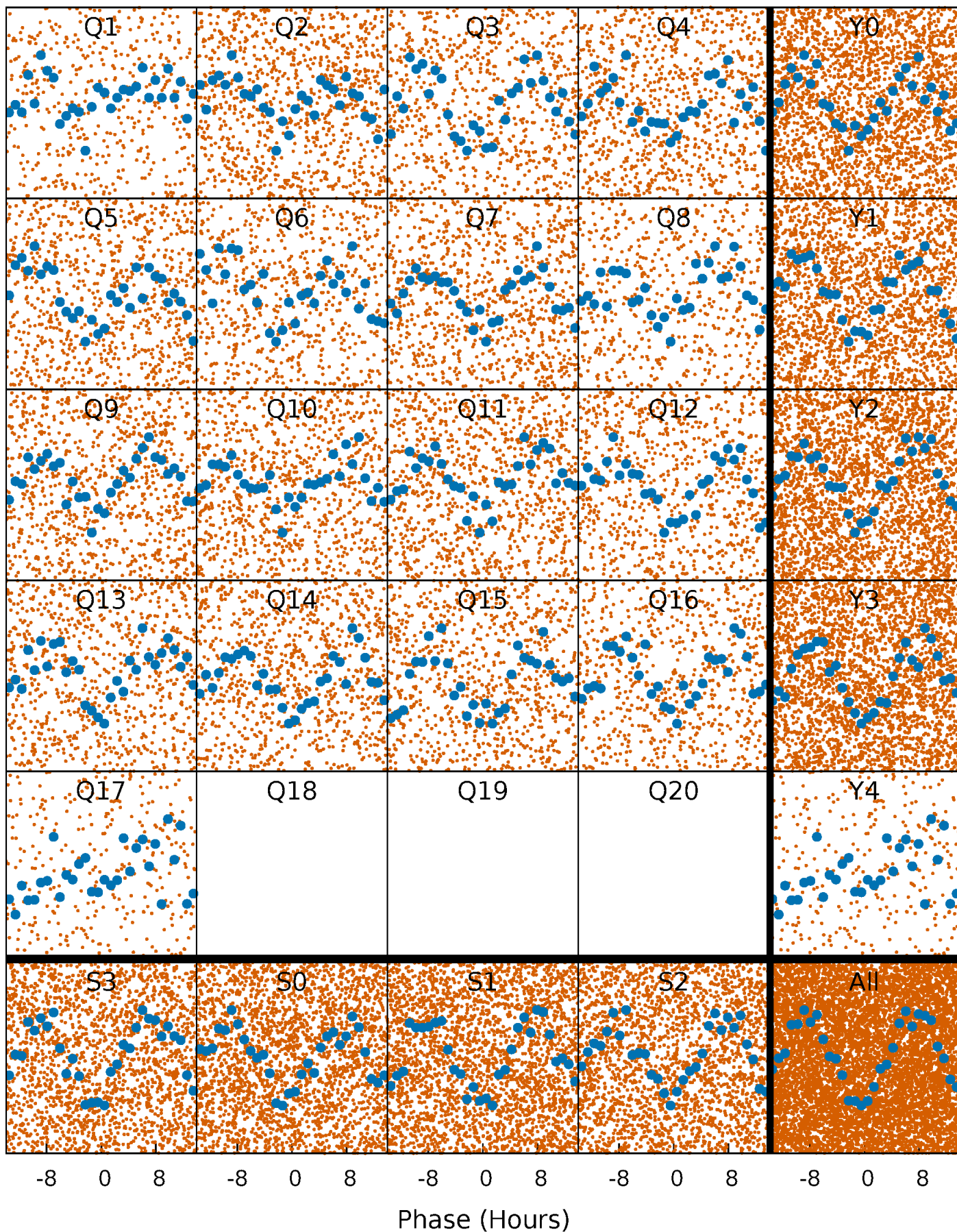


Non-Whitened Vs. Whitened Light Curve



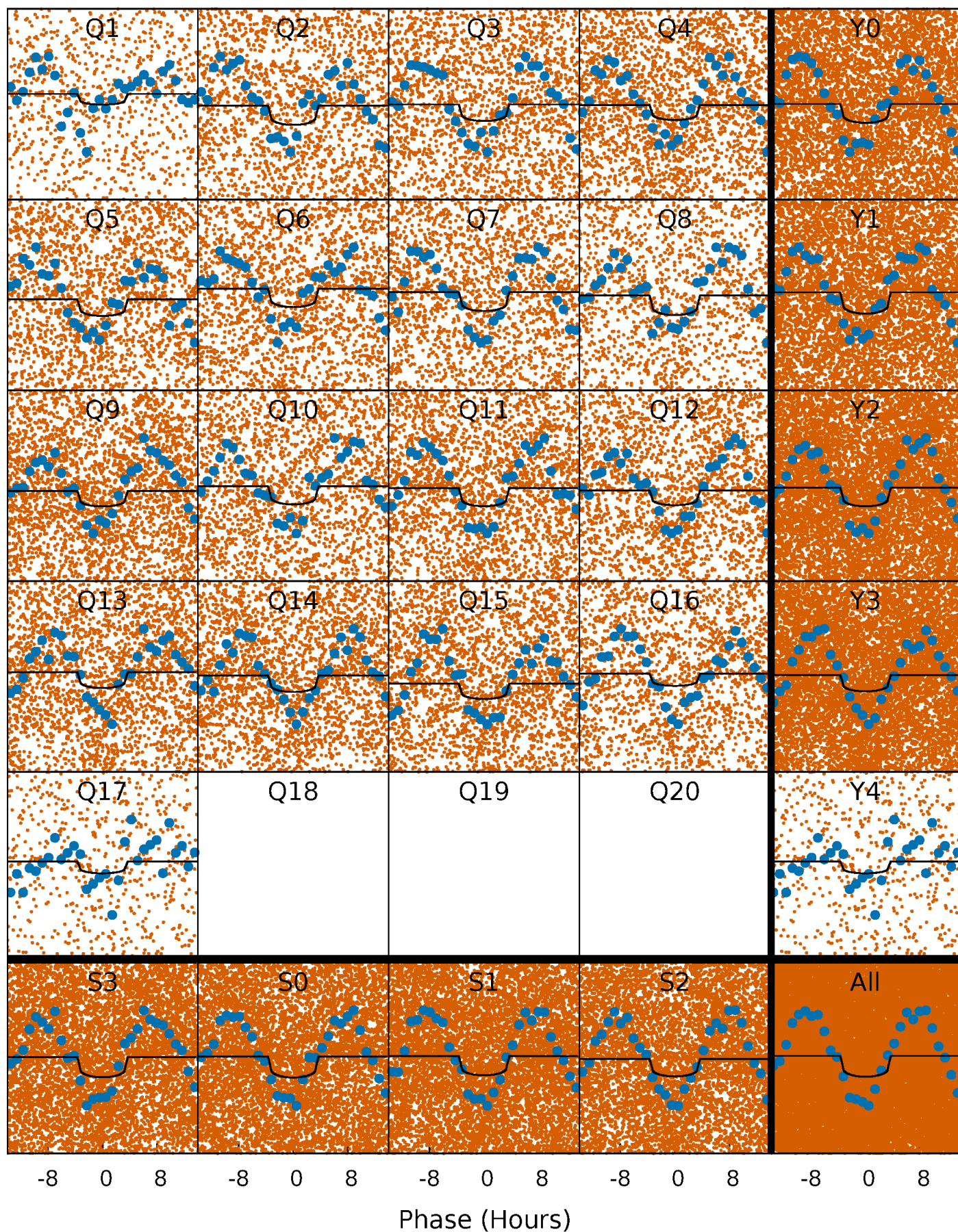
PDC Quarter-Phased Transit Curves

TCE 002853280-01 P= 1.320977 Days $T_0=132.069810$ (BKJD)



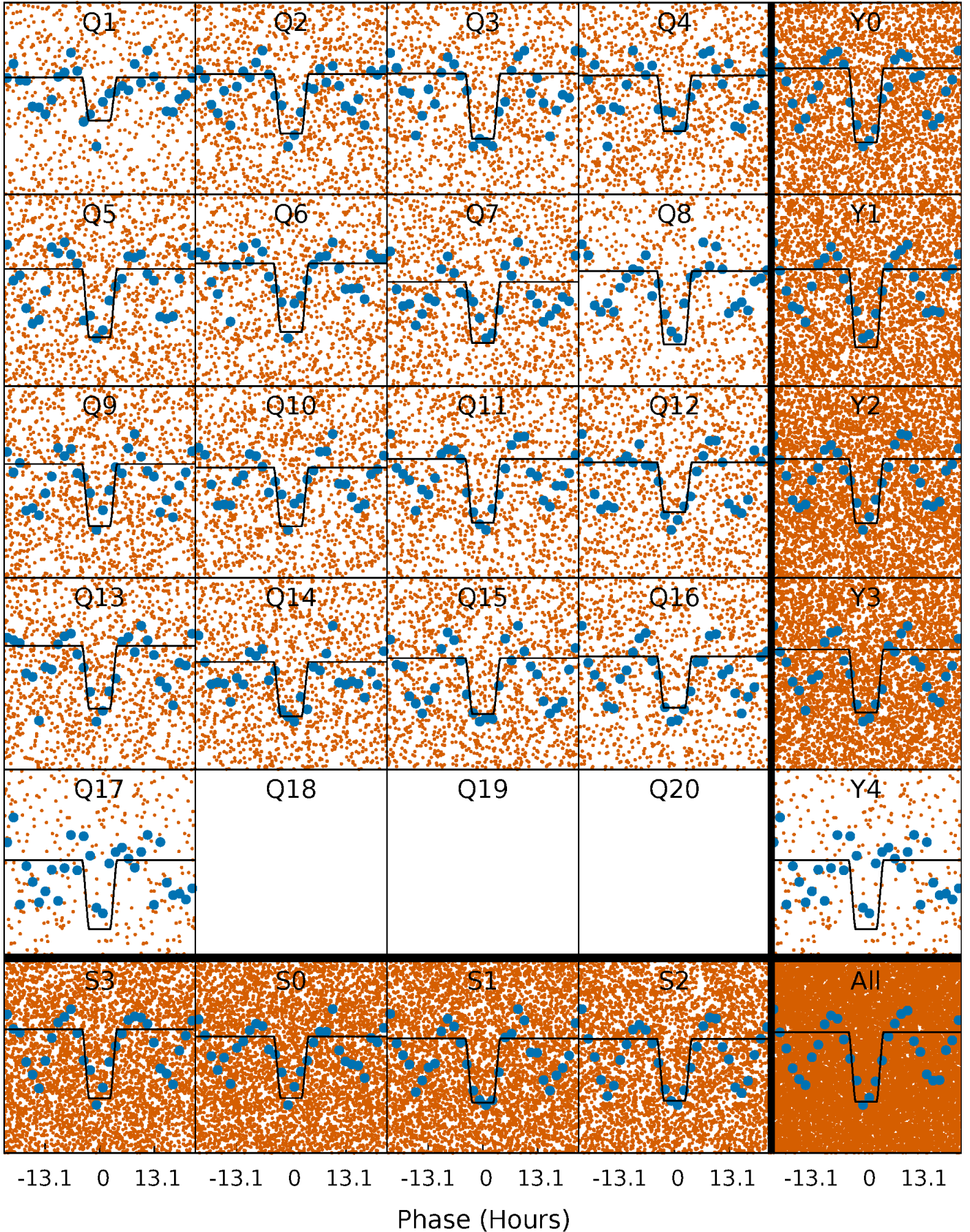
DV Quarter-Phased Transit Curves

TCE 002853280-01 P= 1.320977 Days $T_0=132.069810$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

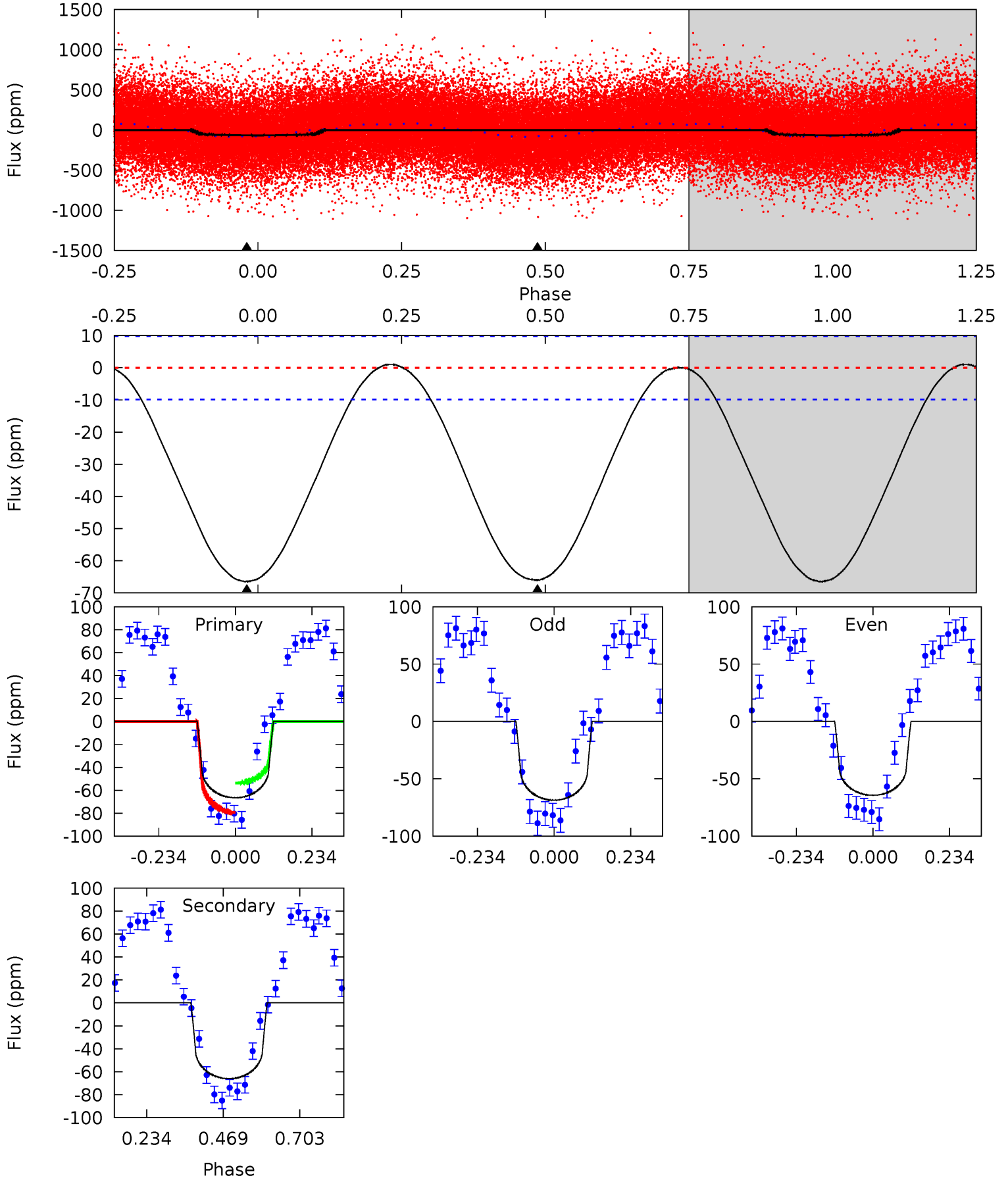
TCE 002853280-01 P= 1.321058 Days $T_0=131.995378$ (BKJD)



DV Model-Shift Uniqueness Test

002853280-01, P = 1.320977 Days, E = 130.748833 Days

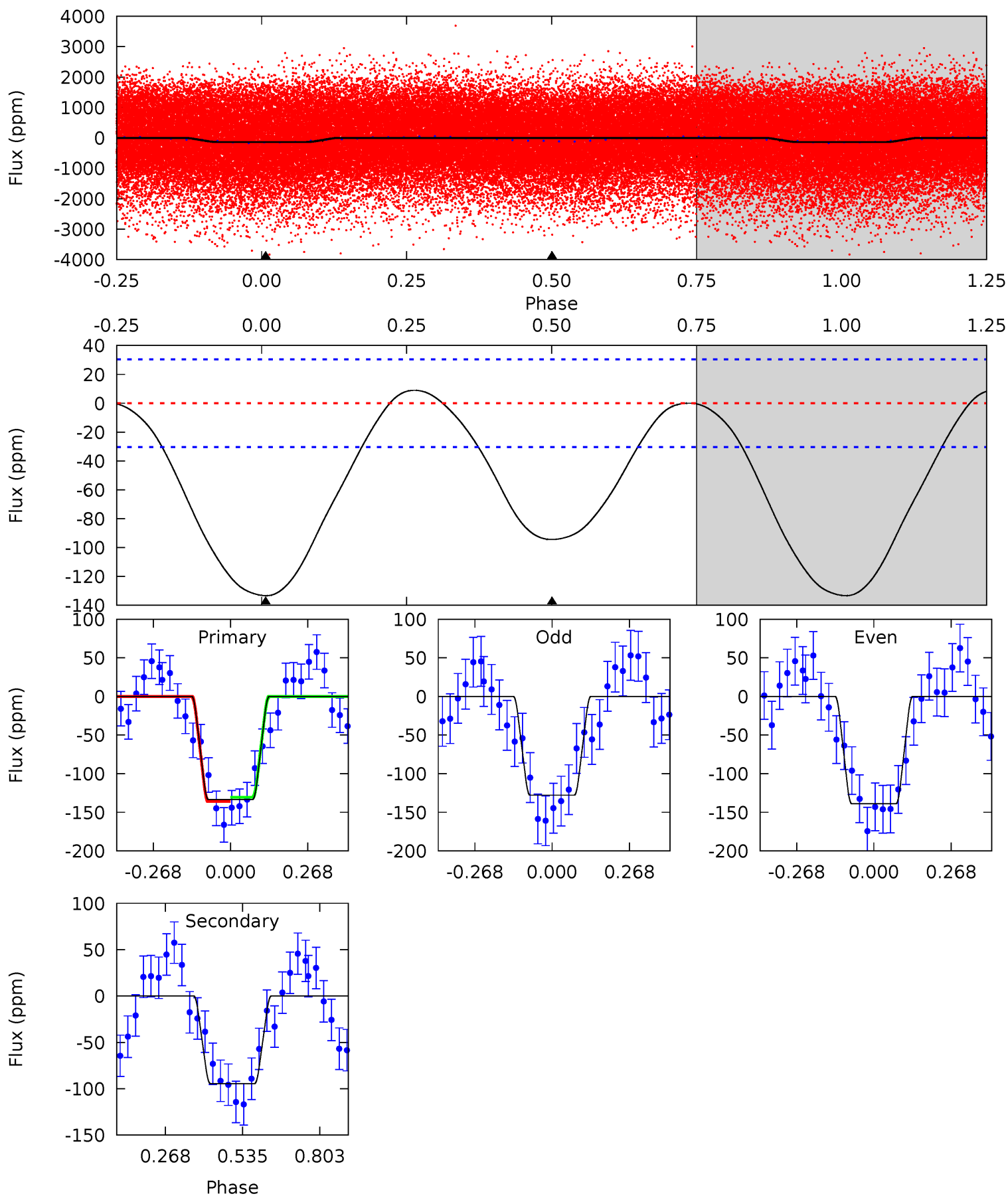
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.5	29.3	0	0	4.38	1.19	0.25	29.5	29.5	29.3	29.3	0.96	0.95	0.02	5.80



Alt Model-Shift Uniqueness Test

002853280-01, P = 1.321058 Days, E = 130.674320 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	13.6	0	0	4.35	1.11	0.73	19.1	19.1	13.6	13.6	0.79	1.38	0.06	0.37



Stellar Parameters For KIC 002853280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7543^{+209}_{-313}	$3.581^{+0.513}_{-0.057}$	$0.070^{+0.150}_{-0.350}$	$4.040^{+0.545}_{-2.180}$	$2.269^{+0.236}_{-0.709}$	$0.048^{+0.296}_{-0.009}$
	+3%/-4%	+14%/-2%	+214%/-500%	+13%/-54%	+10%/-31%	+610%/-19%
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 002853280-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-66 ± 2	$2.24^{+1.62}_{-1.25}$	5037^{+383}_{-580}	9003^{+7675}_{-2435}	$6.700^{+26.906}_{-4.342}$
Alt.	-94 ± 7	$4.74^{+1.95}_{-1.74}$	5050^{+399}_{-649}	6274^{+1634}_{-950}	$2.148^{+3.134}_{-1.011}$

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

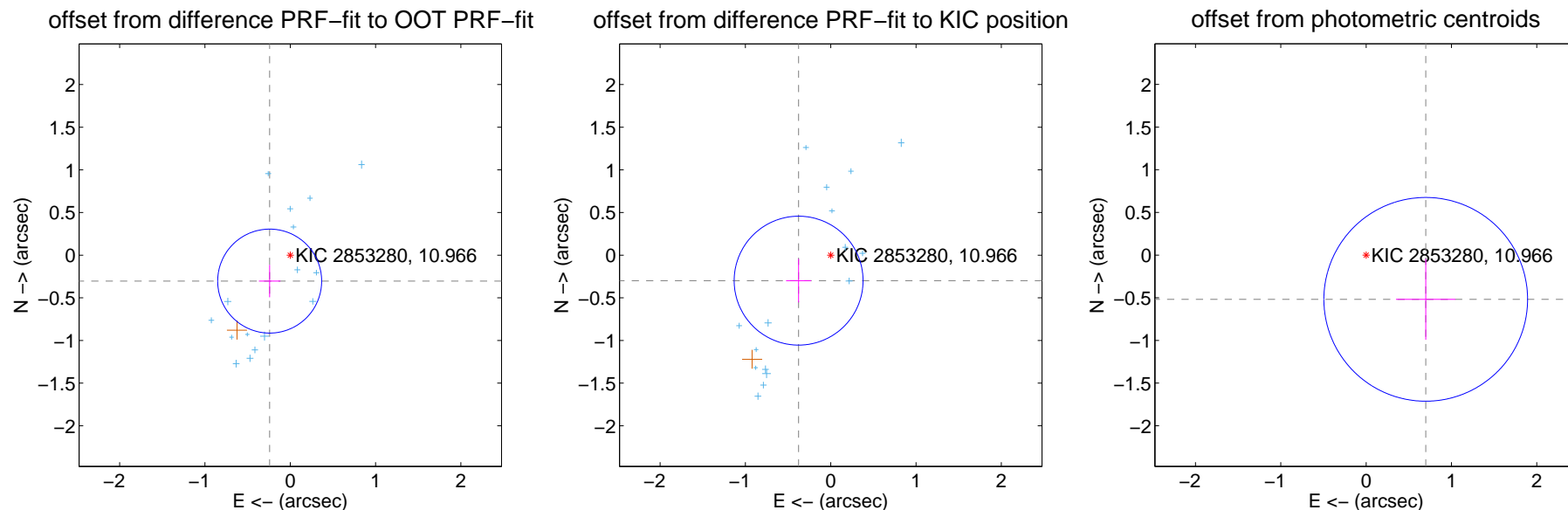
DV Centroid Data

Supplemental centroid analysis for 002853280-01. **Kepler magnitude: 10.97.** Transit SNR 9.37

There are 16 quarters with good PRF difference image offsets

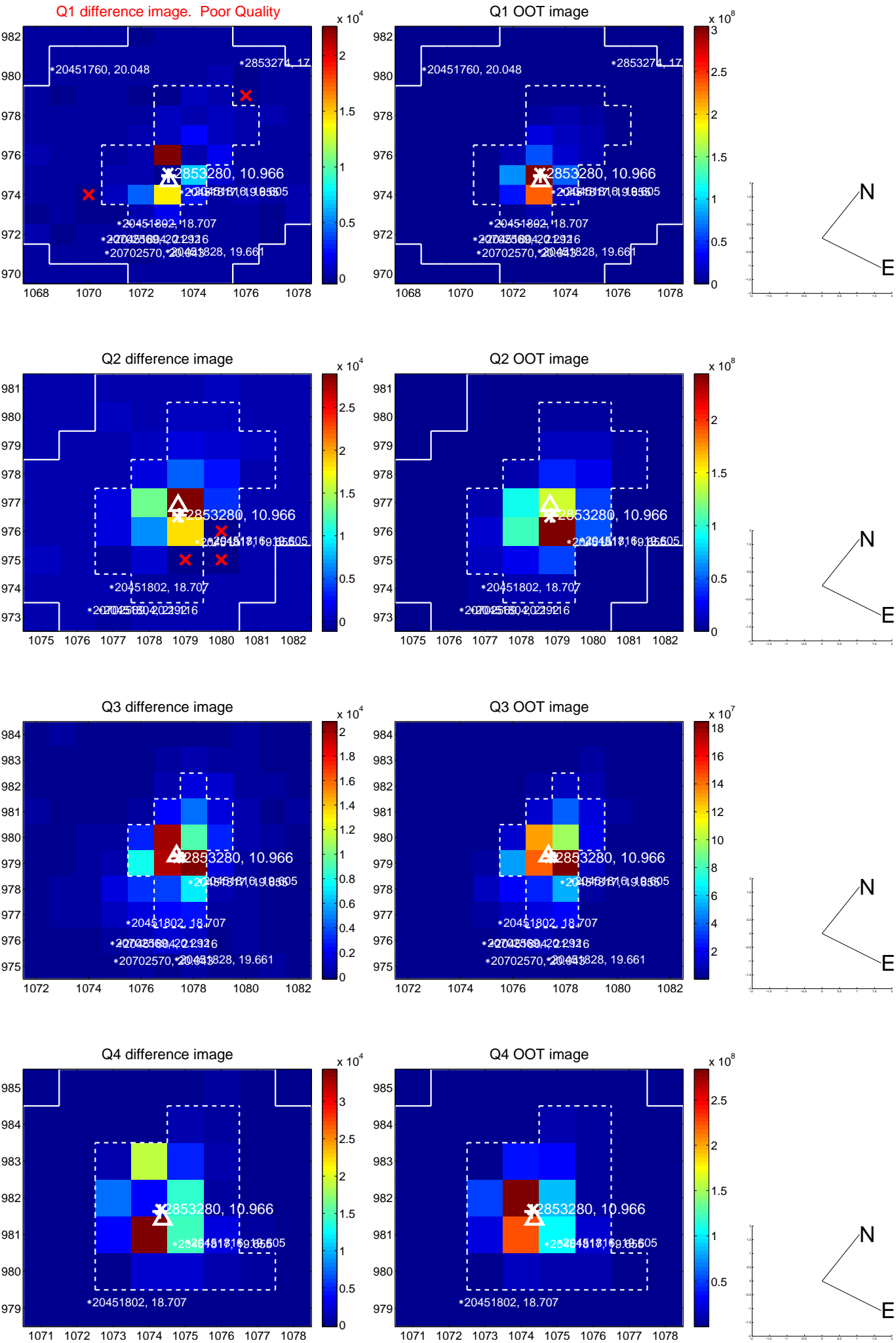
The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.388 ± 0.203	1.91	0.242 ± 0.126	-0.304 ± 0.190
PRF-fit source offset from KIC position	0.481 ± 0.252	1.91	0.376 ± 0.147	-0.299 ± 0.255
photometric centroid source offset	0.87 ± 0.40	2.19	-0.70 ± 0.35	-0.52 ± 0.47

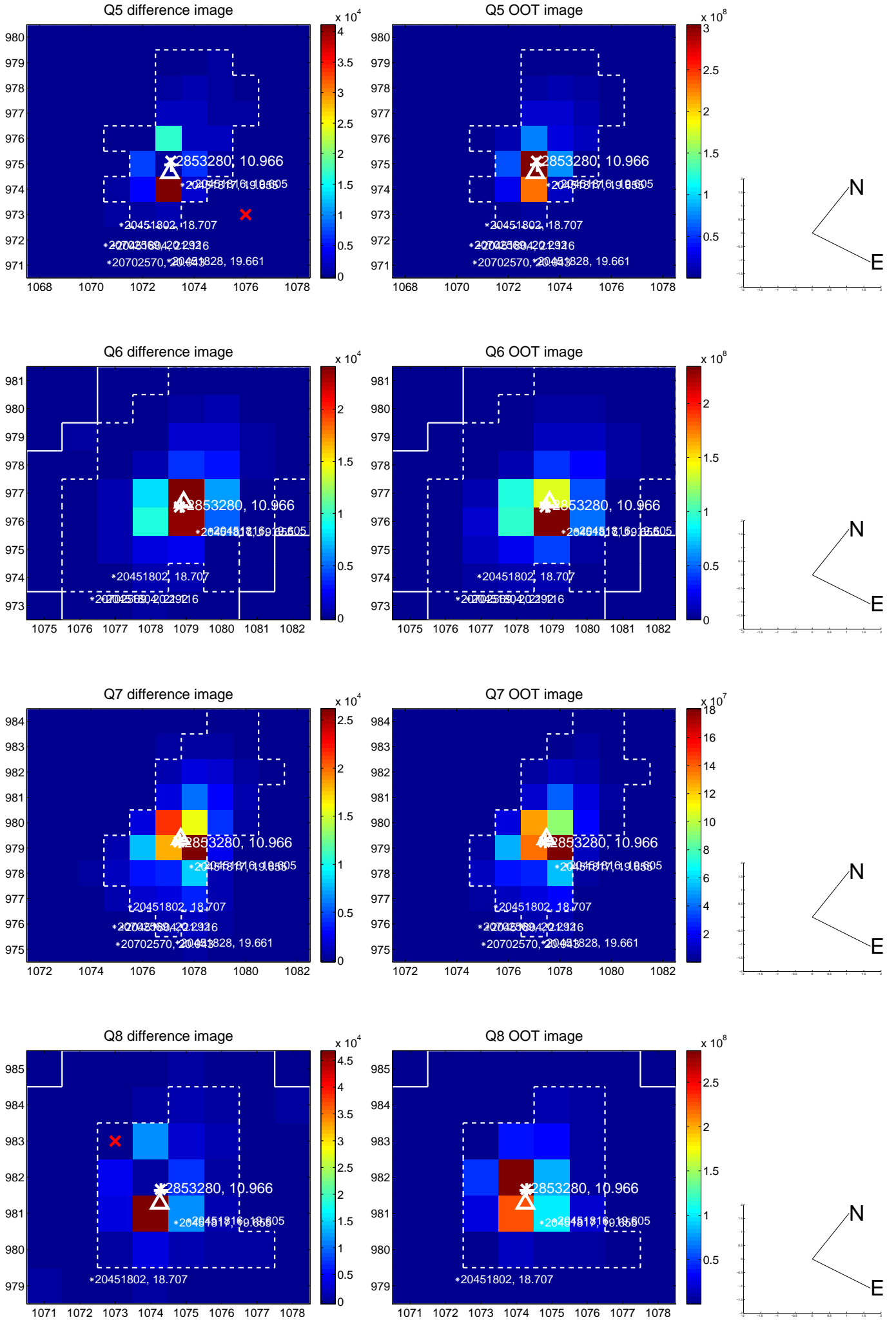


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

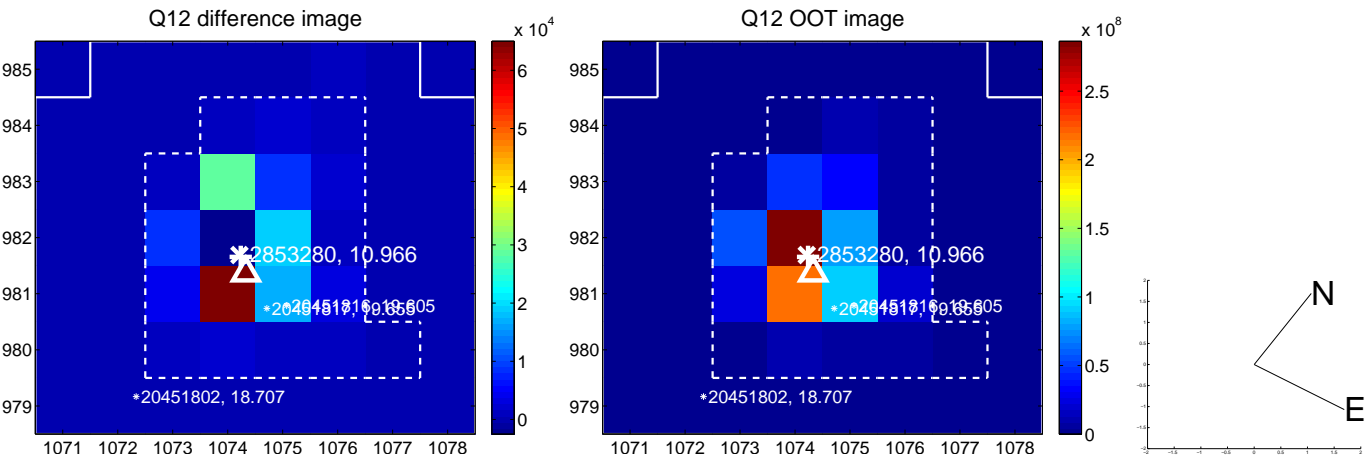
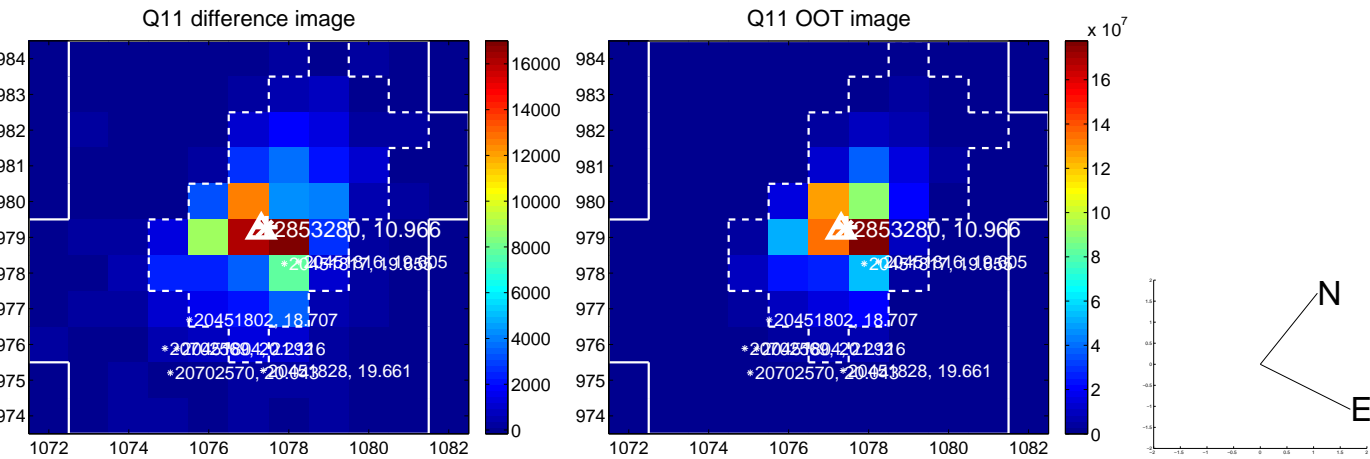
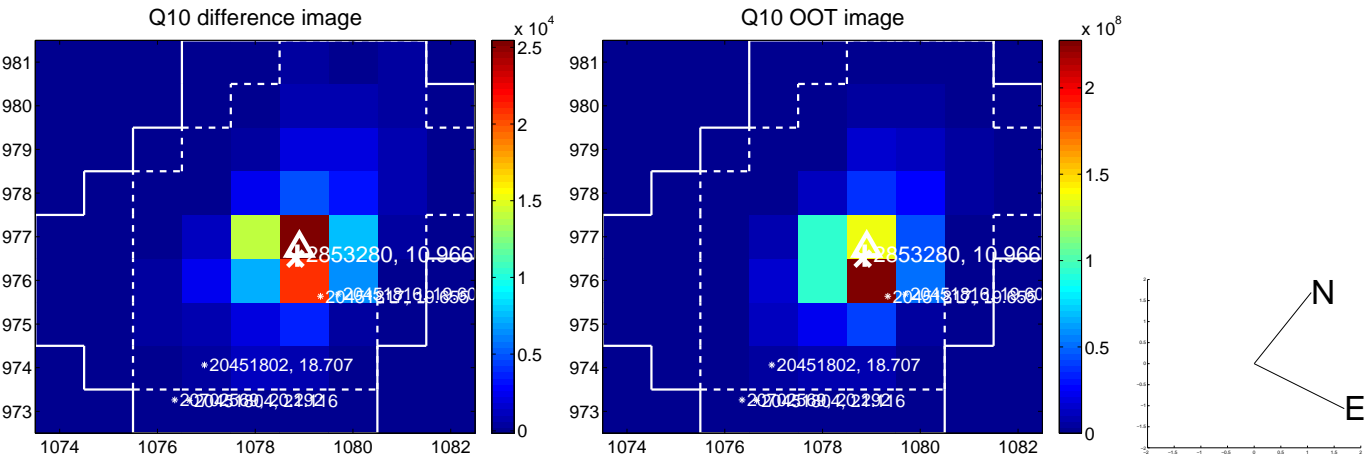
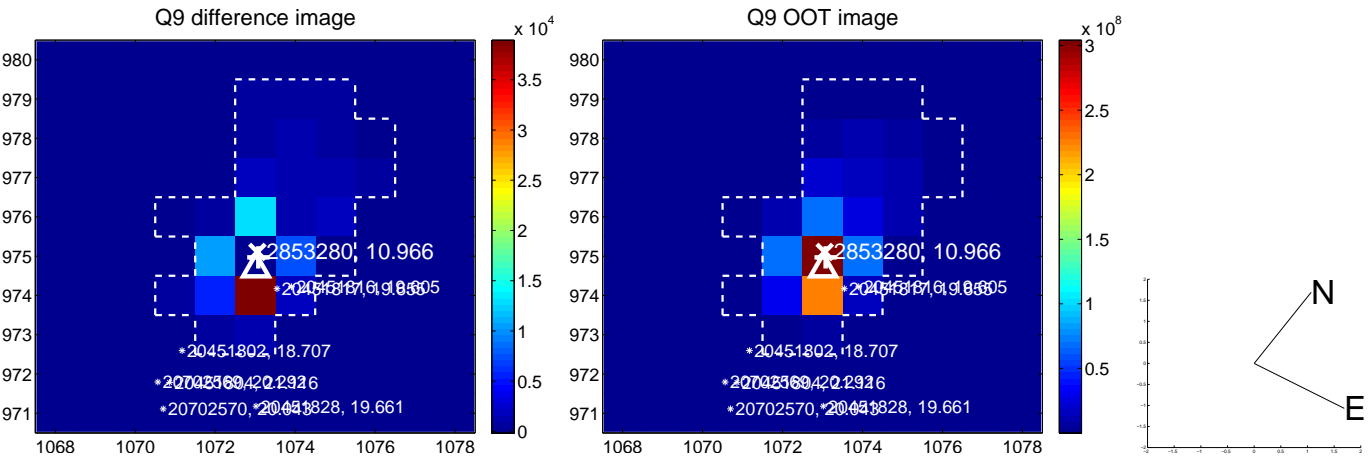
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



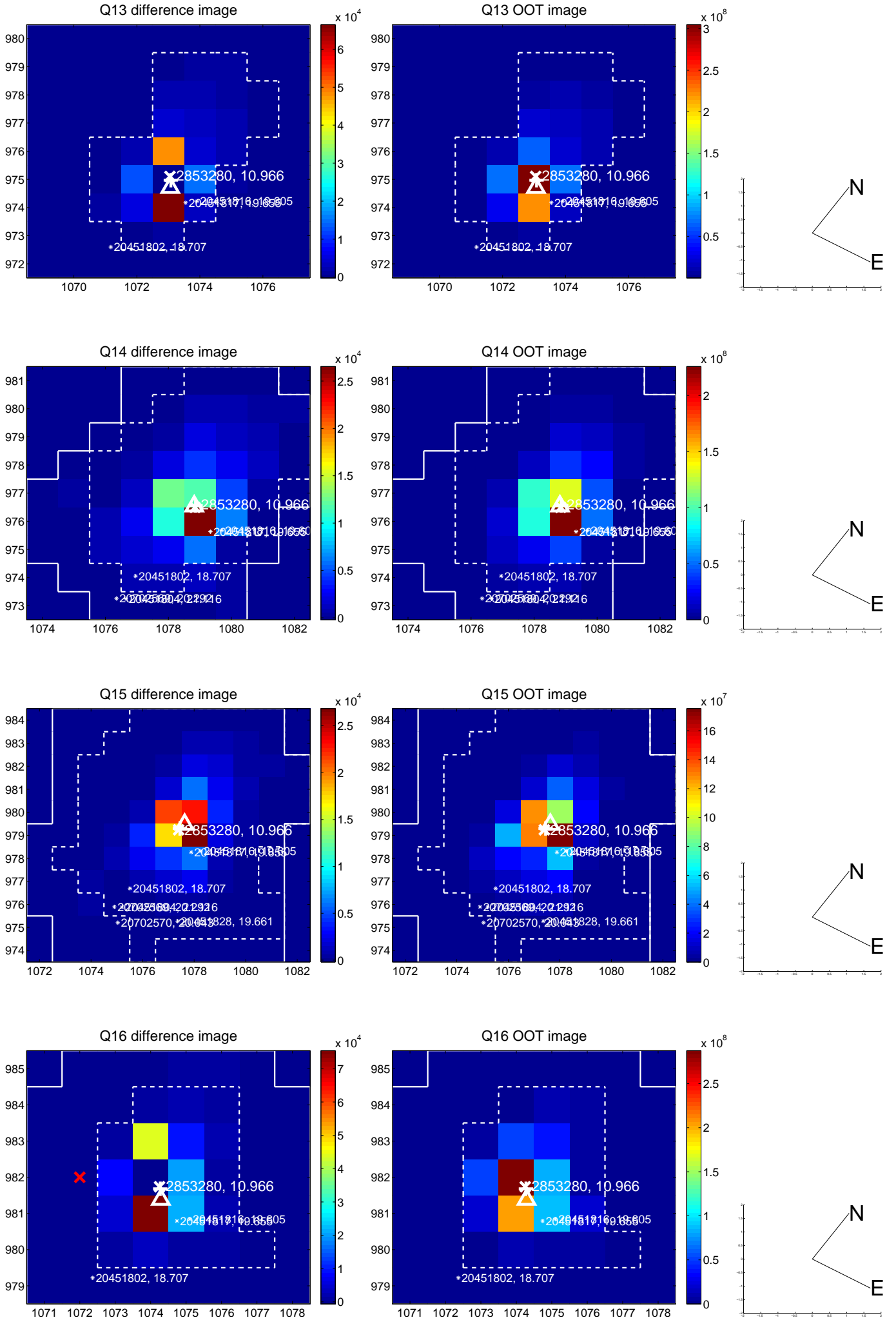
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



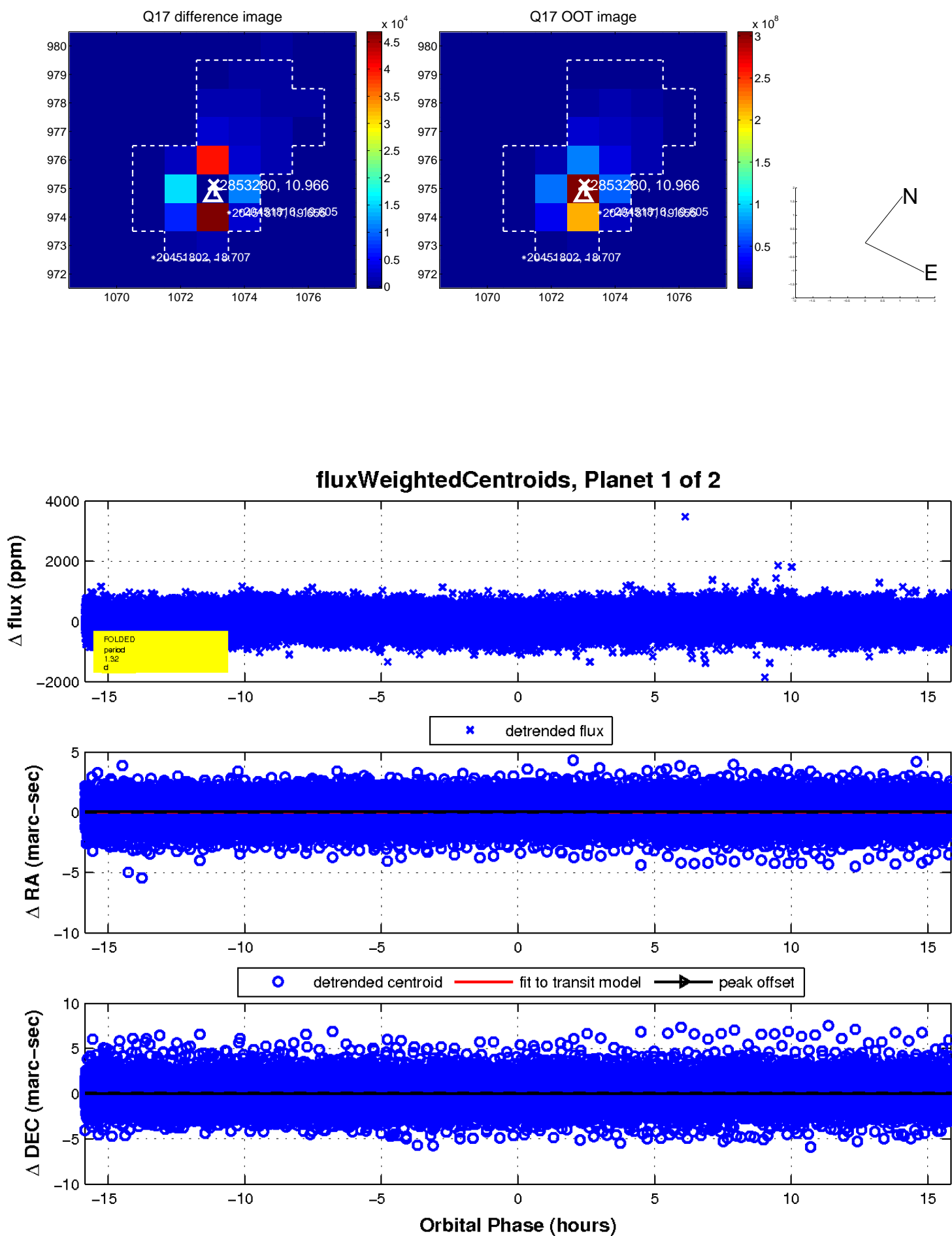
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

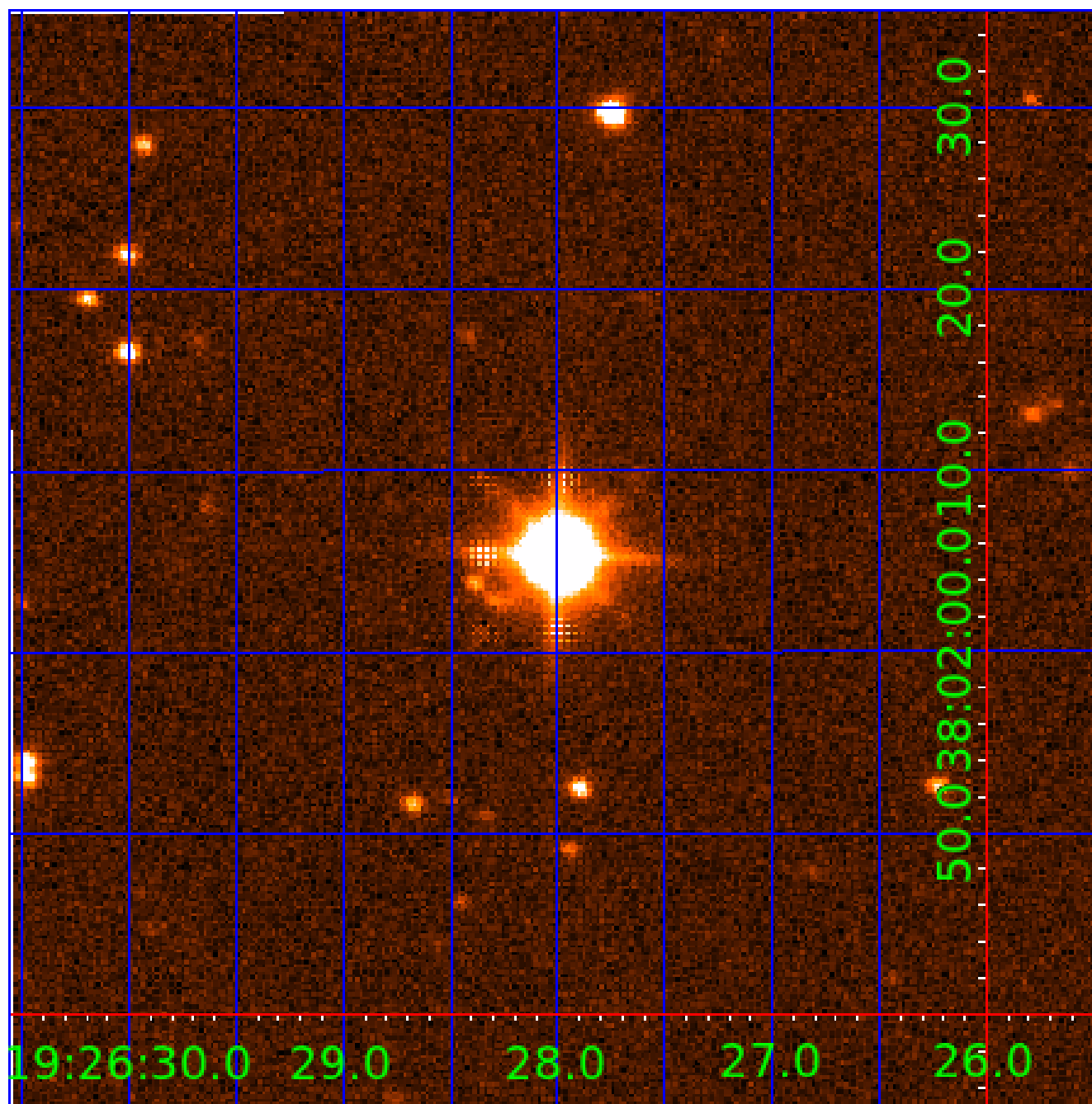


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002853280

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})
002853280-01	OBS	No	1.320977	132.069810	36.2	6.973	12.9	9.4	4.04	7543	2.46	49370.20
002853280-02	OBS	No	1.321001	132.582573	33.8	10.963	14.2	9.7	4.04	7543	2.70	49368.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002853280-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002853280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

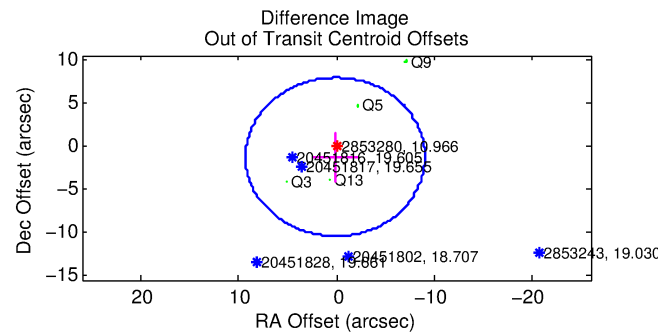
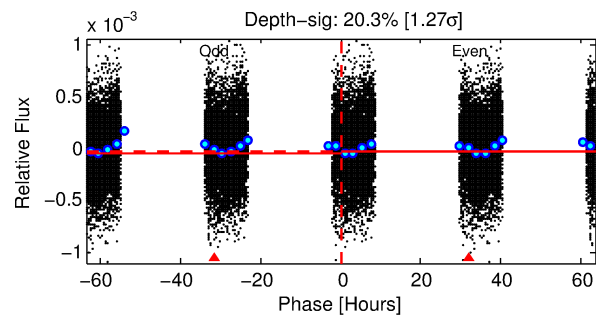
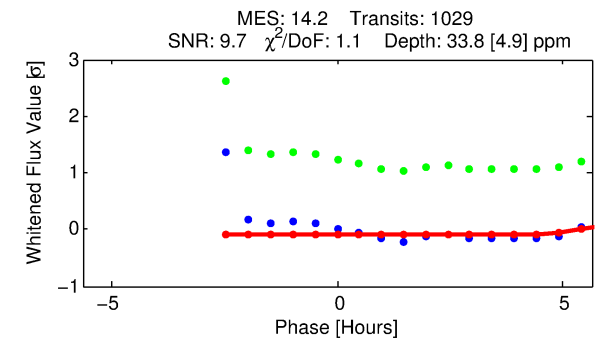
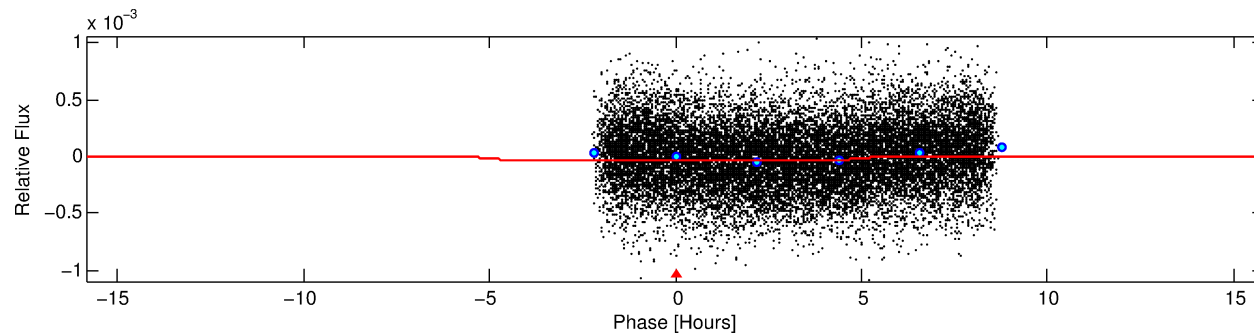
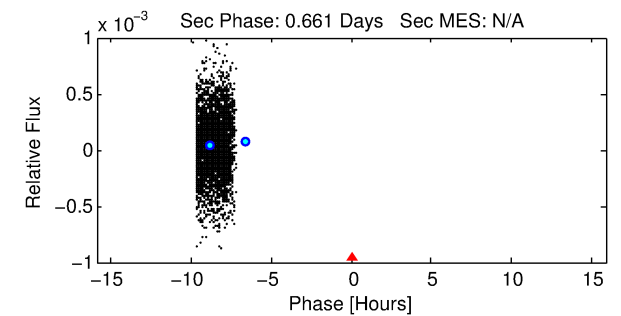
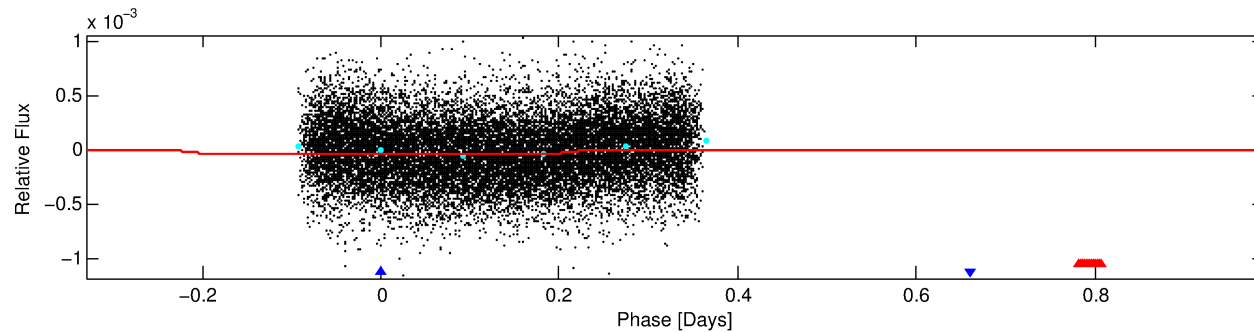
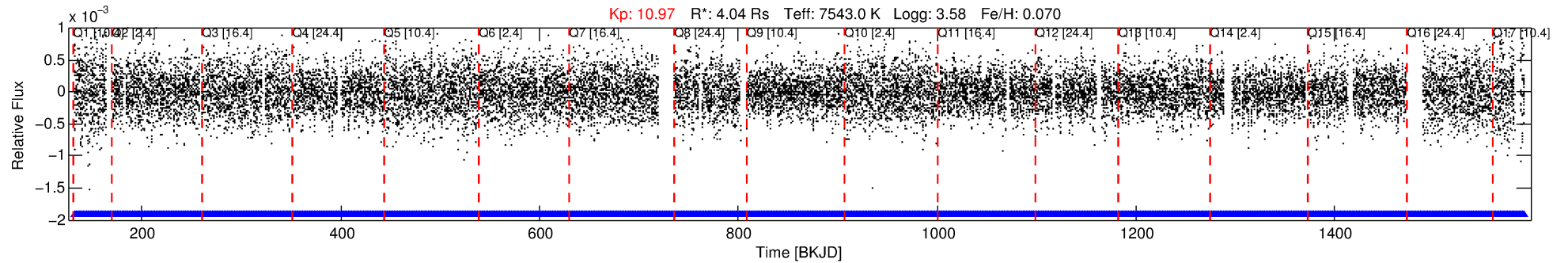
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002853280-02

No Significant Match Found

DV One-Page Summary

KIC: 2853280 Candidate: 2 of 2 Period: 1.321 d



DV Fit Results:

Period = 1.32100 [0.00003] d
Epoch = 132.5826 [0.0863] BKJD
 $R_p/R^* = 0.0061$ [0.0028]
 $a/R^* = 1.04$ [0.25]
 $b = 0.88$ [0.66]
 $\text{Seff} = 49368.99$ [43520.13]
 $T_{\text{eq}} = 3801$ [838] K
 $R_p = 2.70$ [1.92] R_e
 $a = 0.0310$ [0.0165] AU

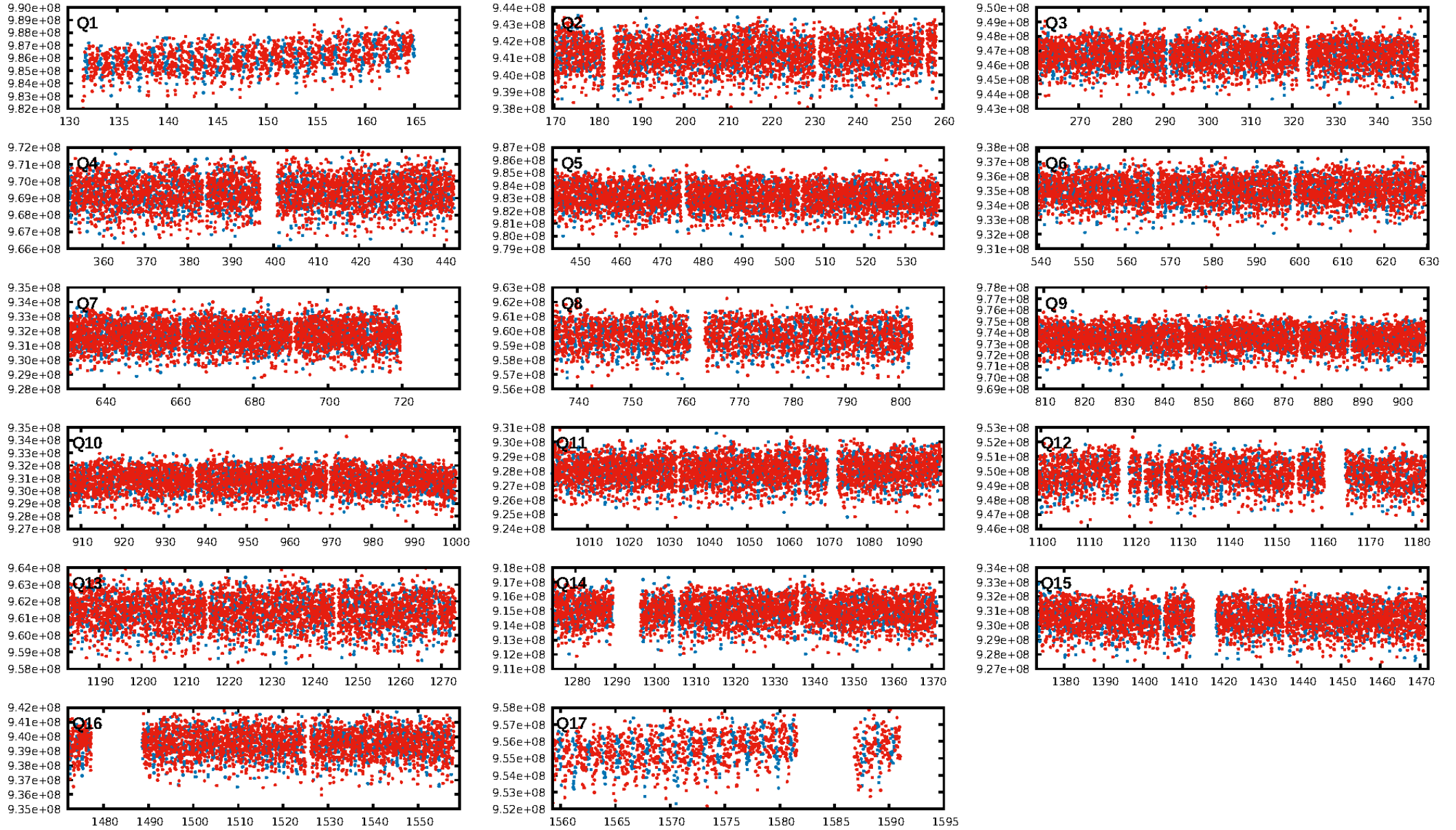
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [983/983]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.3%
Centroid-so: 0.899 arcsec [1.97 σ]
OotOffset-rm: 1.265 arcsec [0.41 σ]
KicOffset-rm: 1.625 arcsec [0.55 σ]
OotOffset-st: 0/1/0/3 [4]
KicOffset-st: 0/1/0/3 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.00 [0/17]

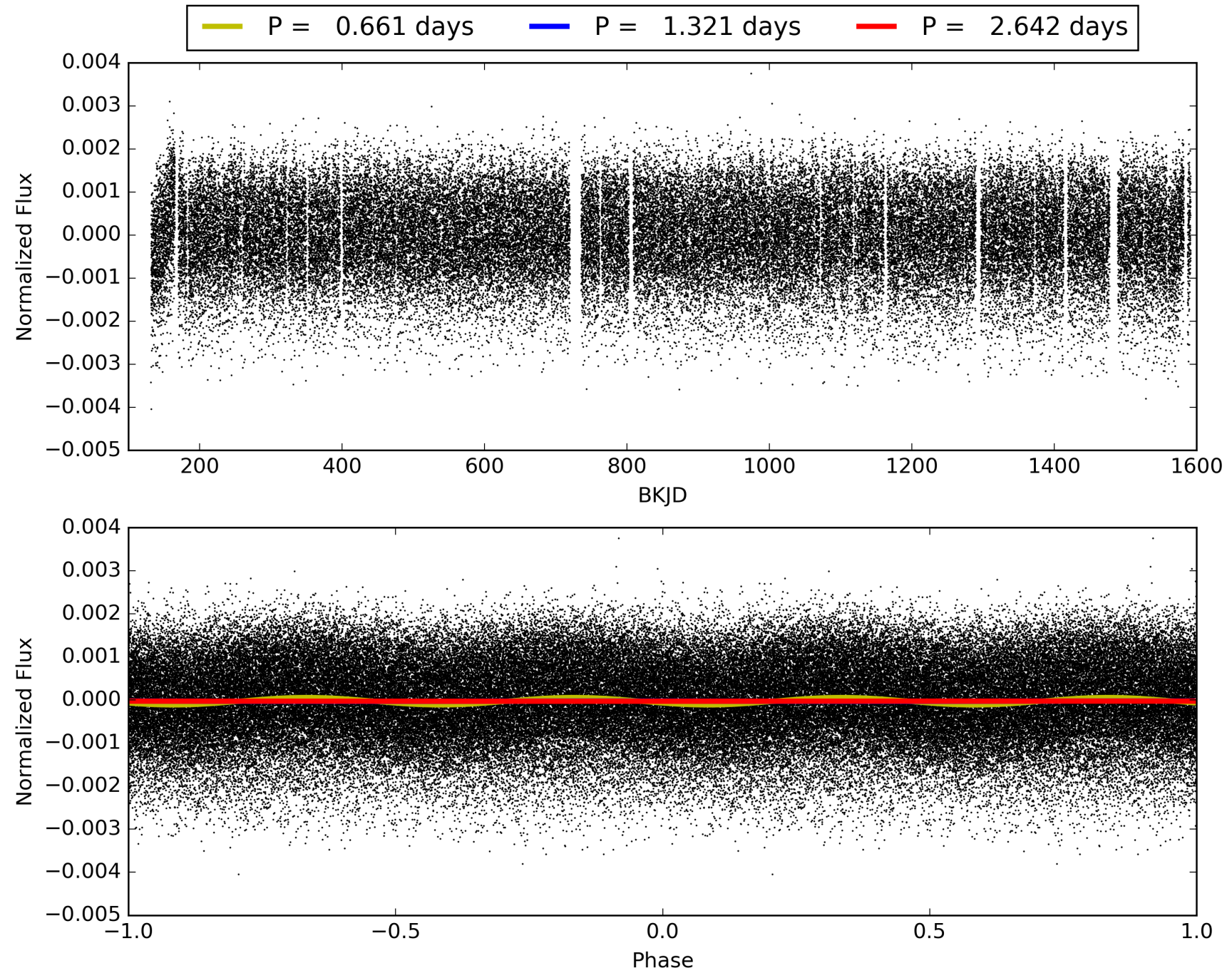
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:41:26 Z

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

TCE 002853280-02, PDC Light Curves

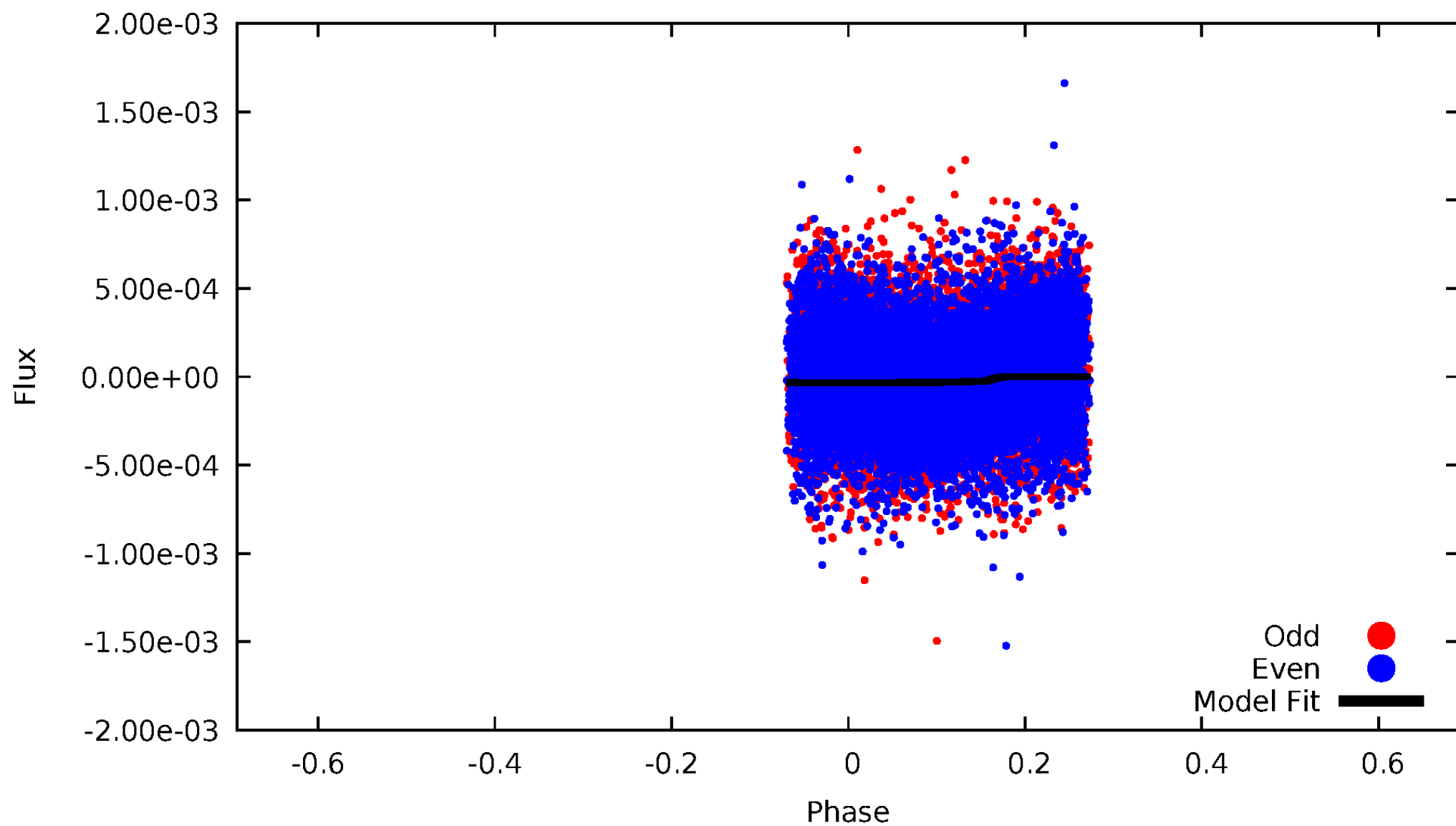


TCE 002853280-02



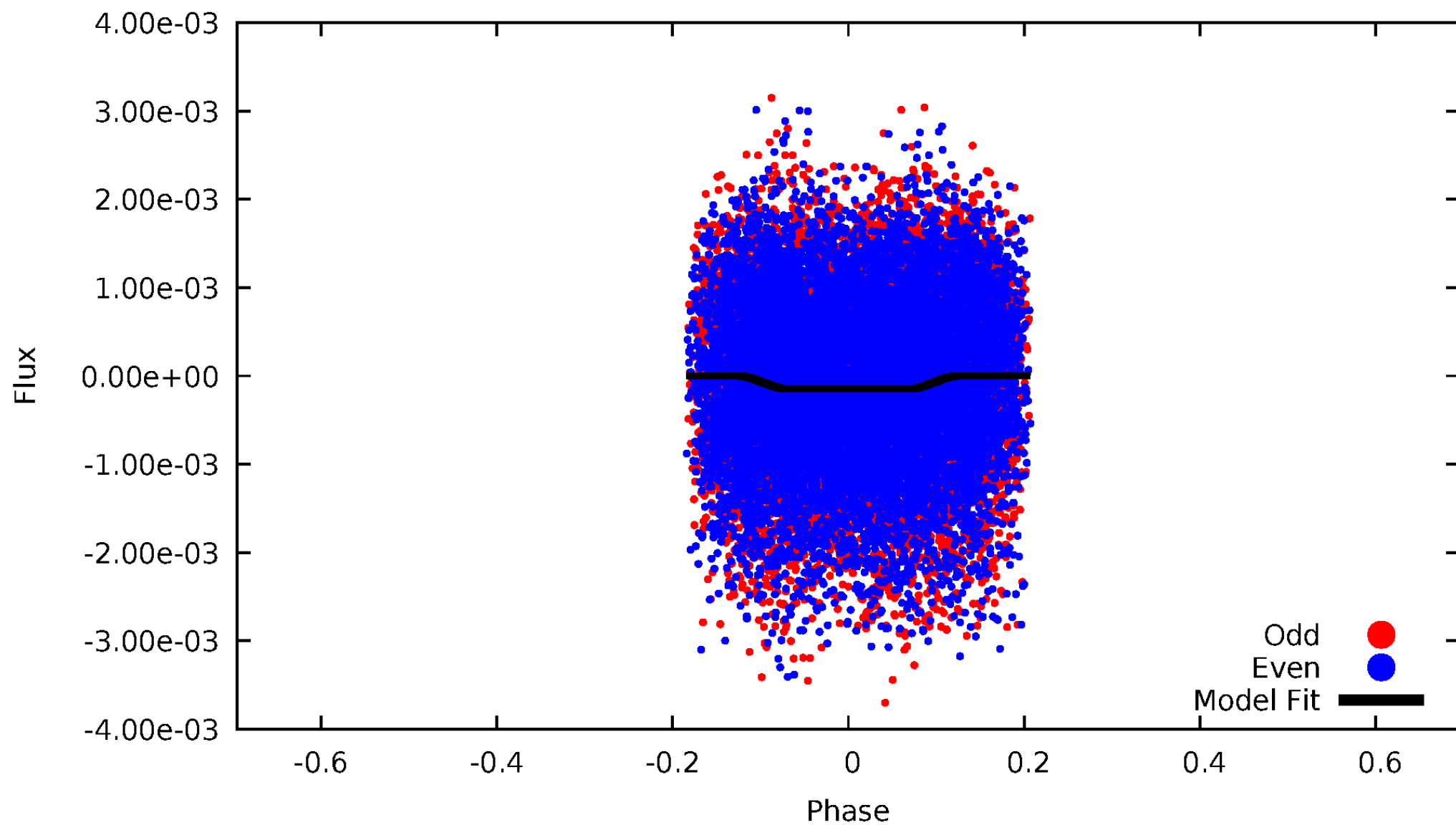
DV Odd/Even

TCE 002853280-02



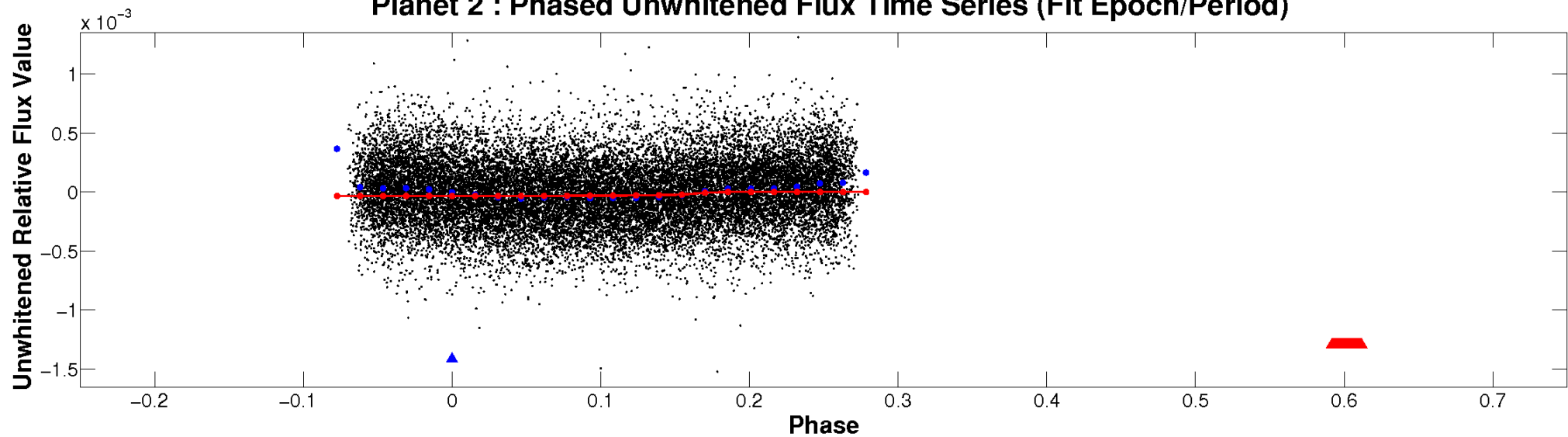
ALT Odd/Even

TCE 002853280-02

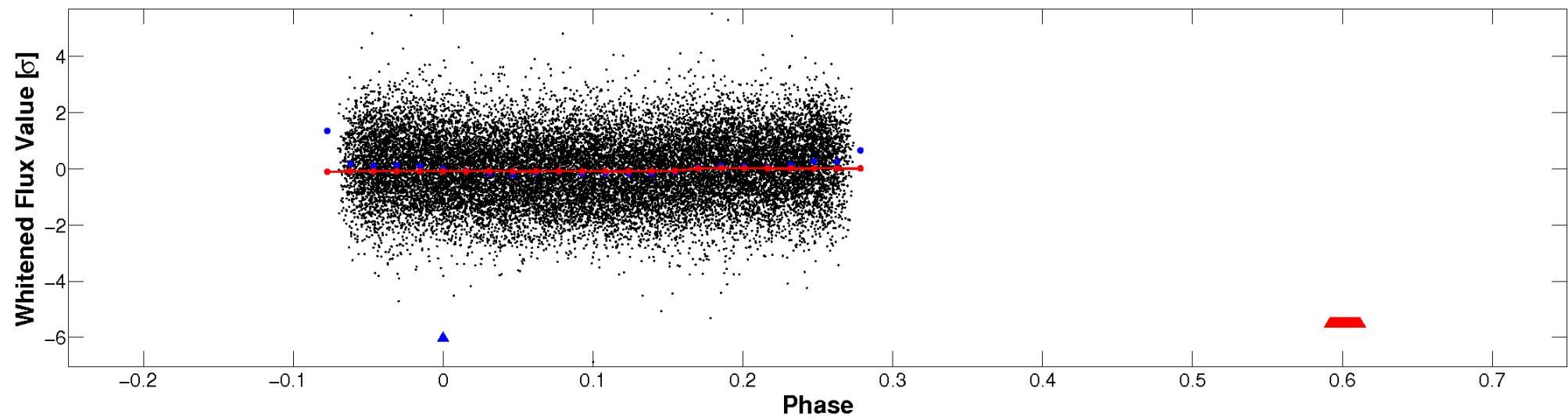


Non-Whitened Vs. Whitened Light Curve

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

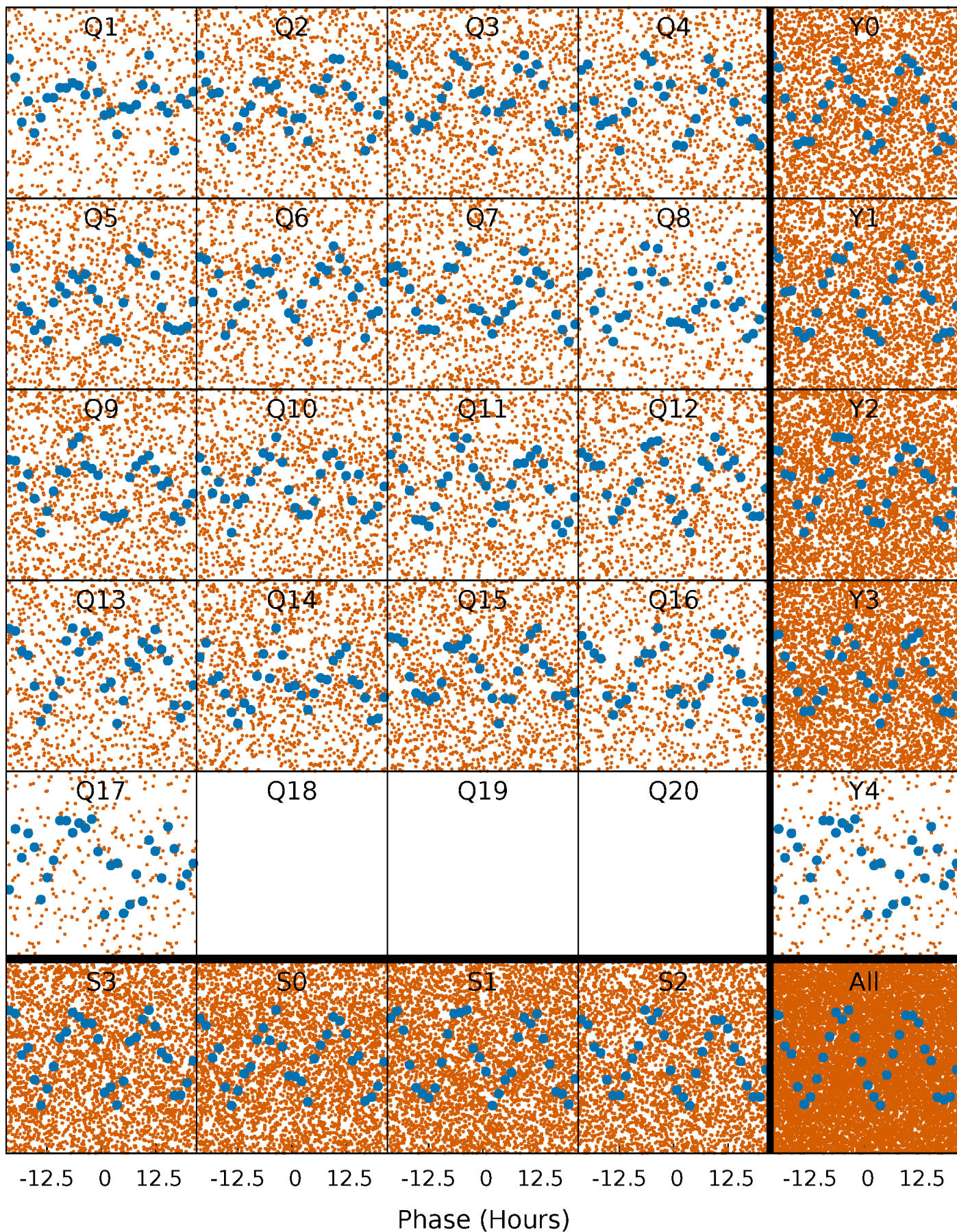


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



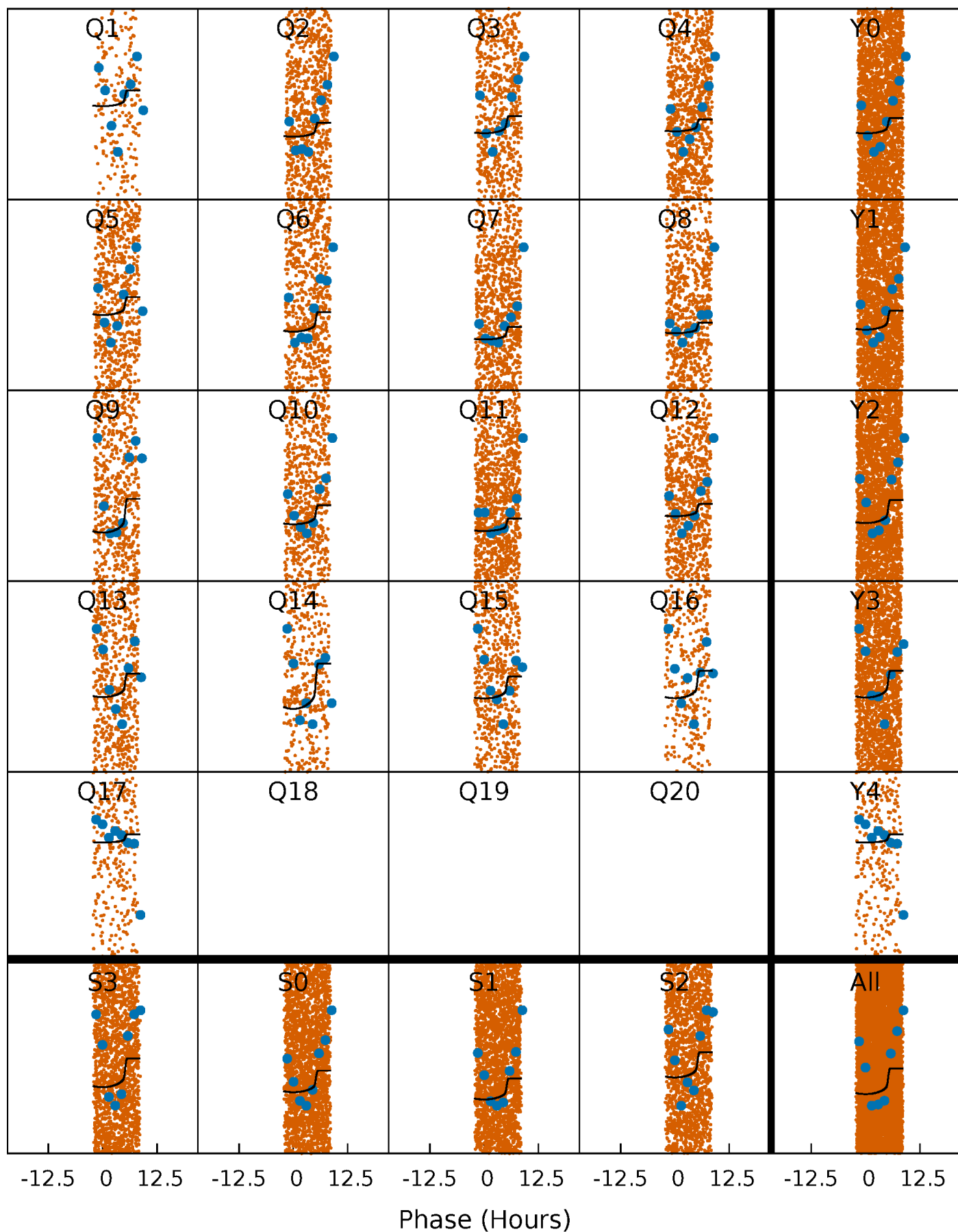
PDC Quarter-Phased Transit Curves

TCE 002853280-02 P= 1.321001 Days $T_0=132.582573$ (BKJD)



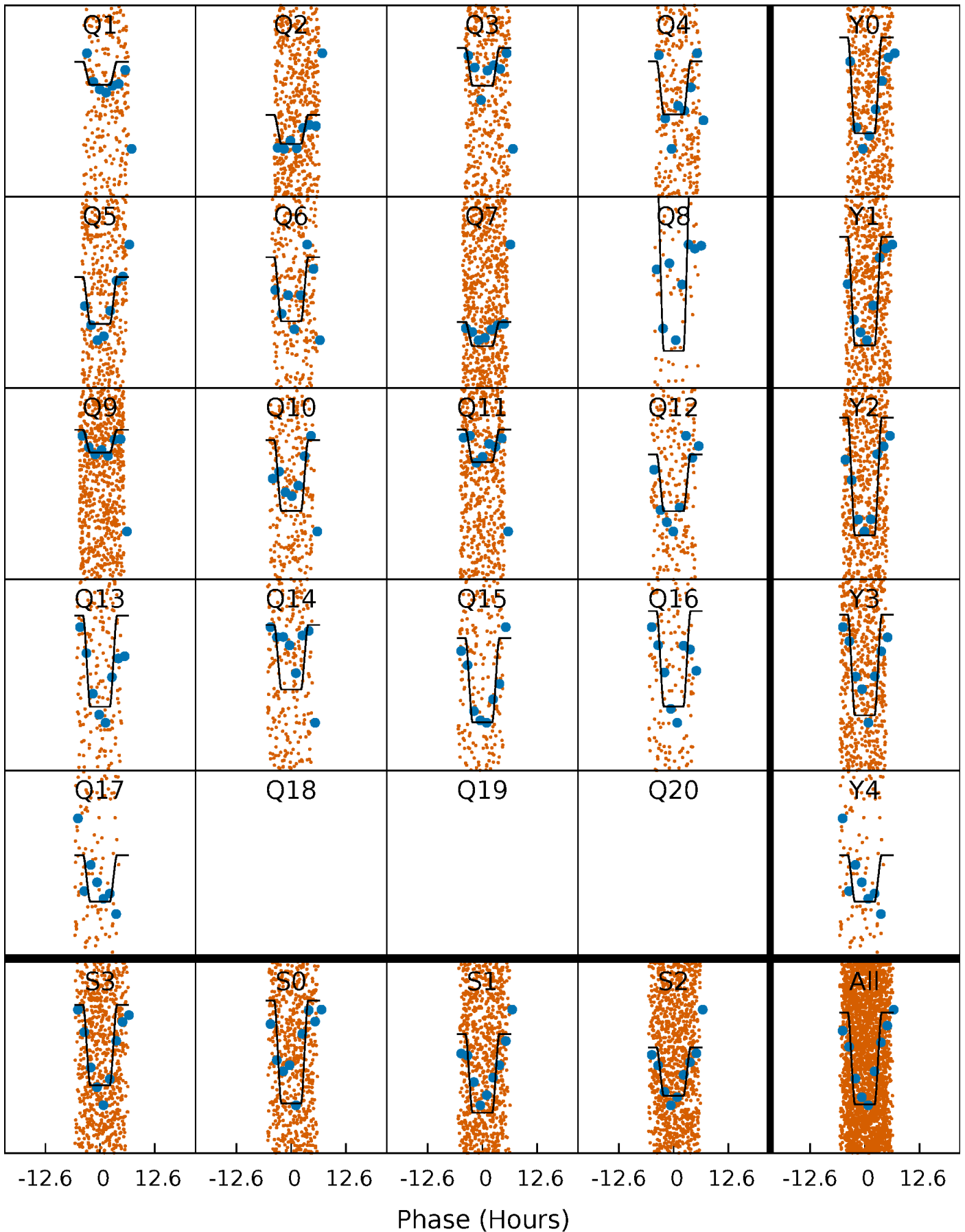
DV Quarter-Phased Transit Curves

TCE 002853280-02 $P = 1.321001$ Days $T_0 = 132.582573$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

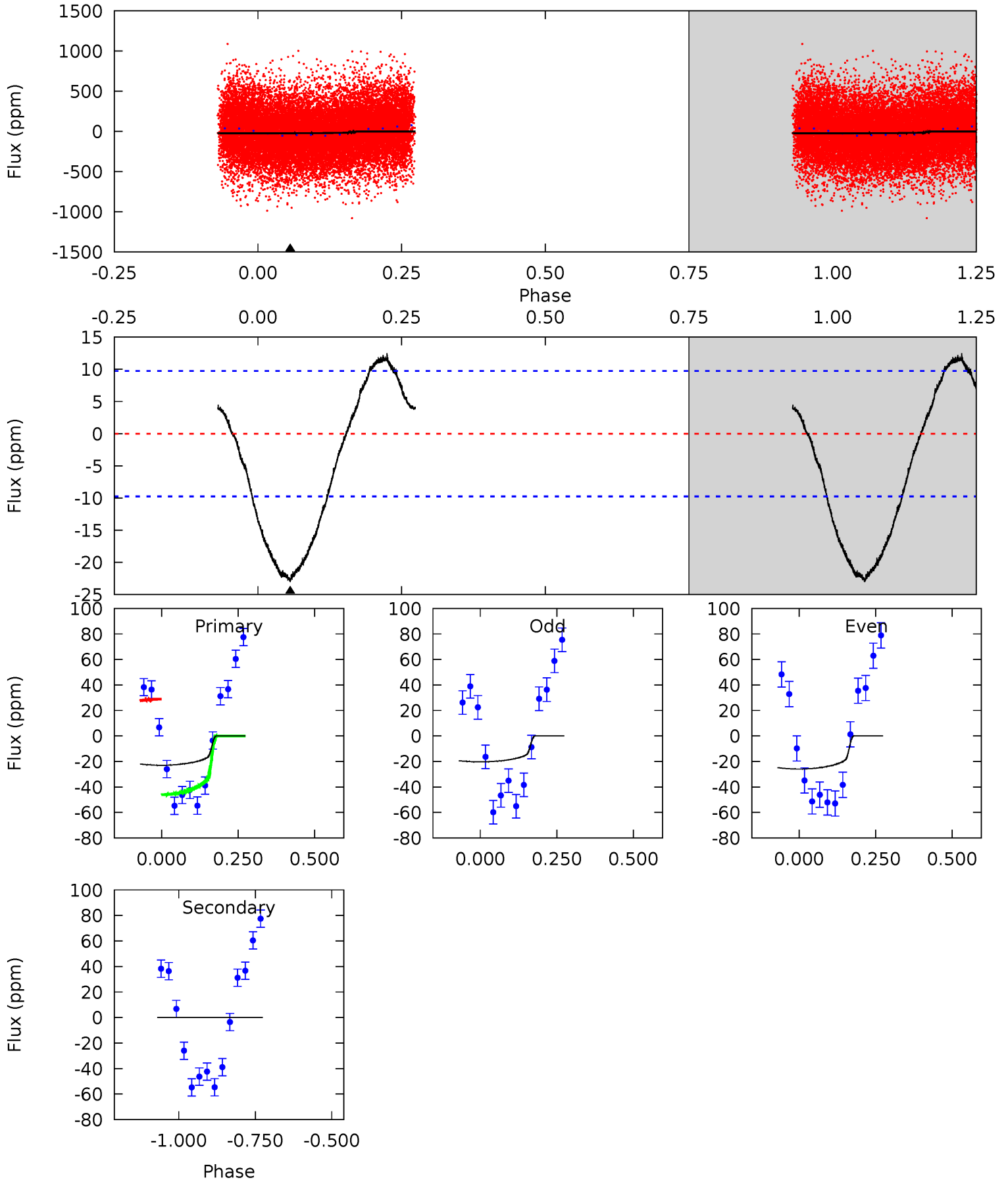
TCE 002853280-02 $P = 1.321058$ Days $T_0 = 132.670306$ (BKJD)



DV Model-Shift Uniqueness Test

002853280-02, P = 1.321001 Days, E = 131.261572 Days

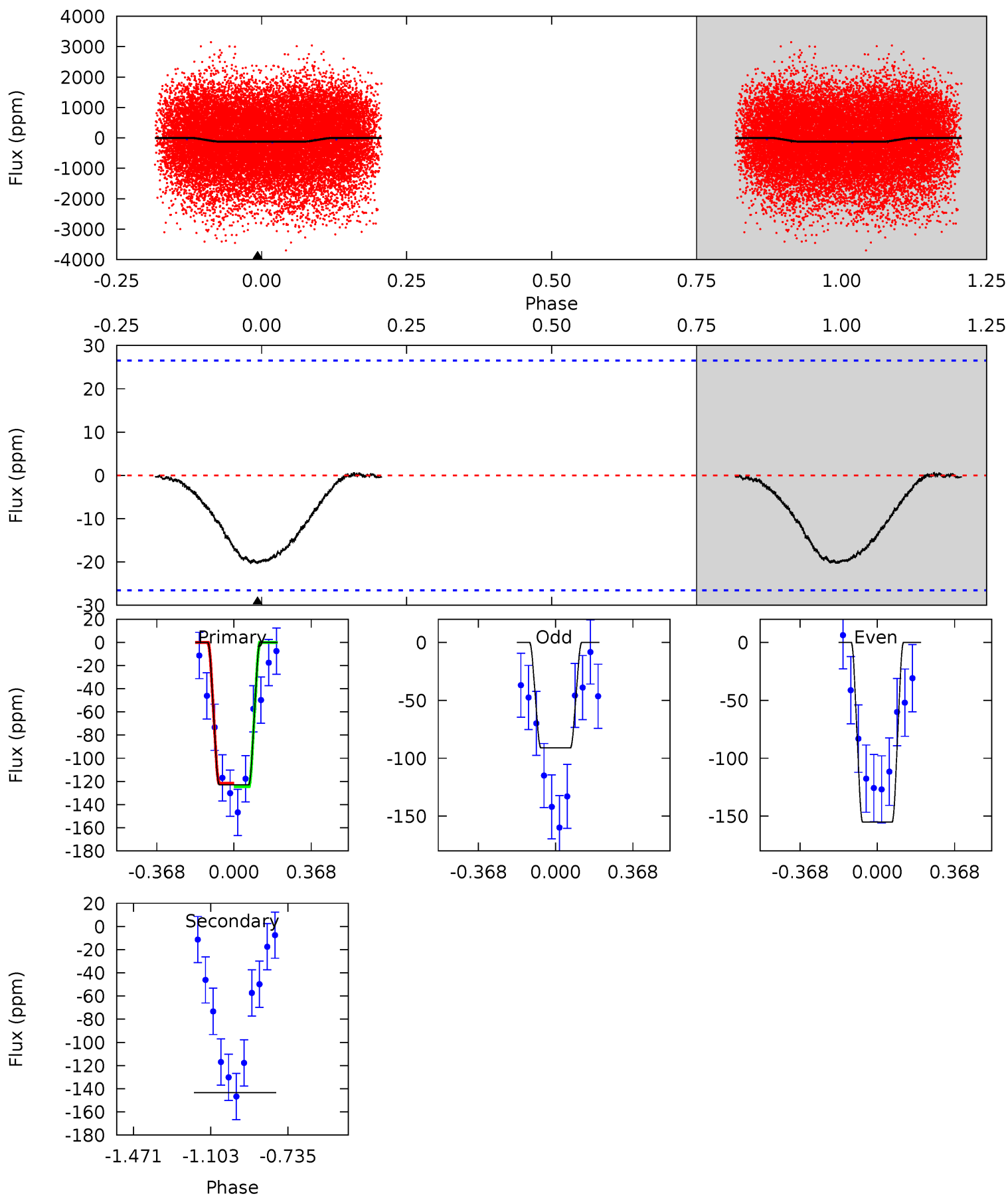
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	0	0	0	4.37	1.15	1.01	10.3	10.3	0	0	1.28	1.15	0.35	3.57



Alt Model-Shift Uniqueness Test

002853280-02, P = 1.321058 Days, E = 131.349248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.29	0	0	0	4.28	0.90	0.05	3.29	3.29	0	0	0.85	0	0.03	0.24



Stellar Parameters For KIC 002853280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7543^{+209}_{-313}	$3.581^{+0.513}_{-0.057}$	$0.070^{+0.150}_{-0.350}$	$4.040^{+0.545}_{-2.180}$	$2.269^{+0.236}_{-0.709}$	$0.048^{+0.296}_{-0.009}$
	+3%/-4%	+14%/-2%	+214%/-500%	+13%/-54%	+10%/-31%	+610%/-19%
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 002853280-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 2	$2.29^{+1.31}_{-1.11}$	5071^{+386}_{-661}	-4305^{+6476}_{-545}	$0.003^{+0.300}_{-0.284}$
Alt.	0 ± 6	$4.61^{+1.59}_{-1.48}$	5062^{+384}_{-696}	-4279^{+756}_{-429}	$0.010^{+0.162}_{-0.172}$

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

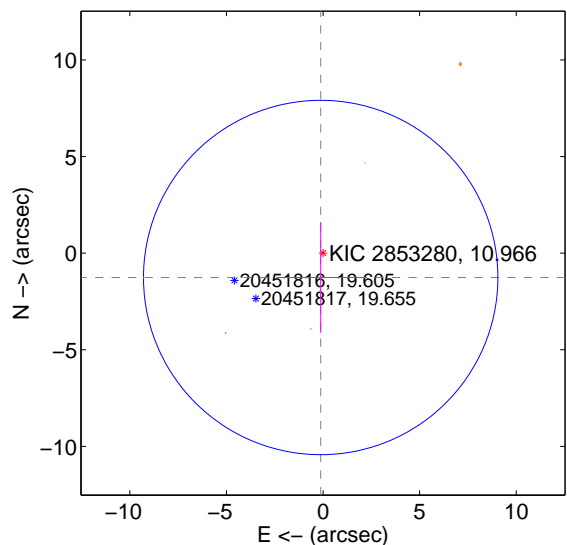
Supplemental centroid analysis for 002853280-02. **Kepler magnitude: 10.97.** Transit SNR 9.67

There are 1 quarters with good PRF difference image offsets

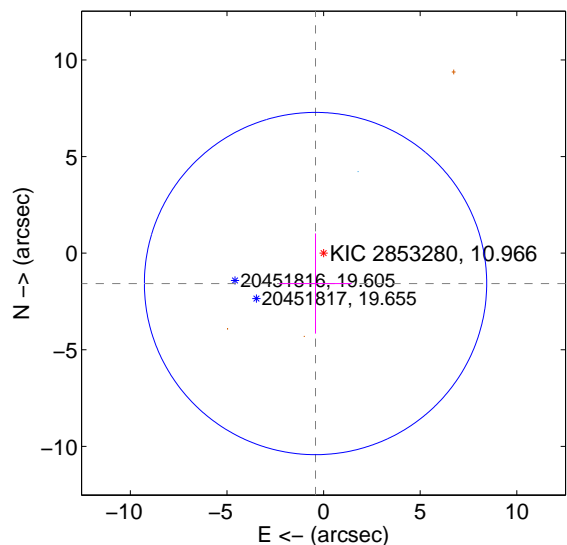
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.265 ± 3.056	0.41	0.122 ± 2.237	-1.259 ± 2.867
PRF-fit source offset from KIC position	1.625 ± 2.952	0.55	0.416 ± 1.871	-1.571 ± 2.595
photometric centroid source offset	0.90 ± 0.46	1.97	-0.20 ± 0.34	0.88 ± 0.46

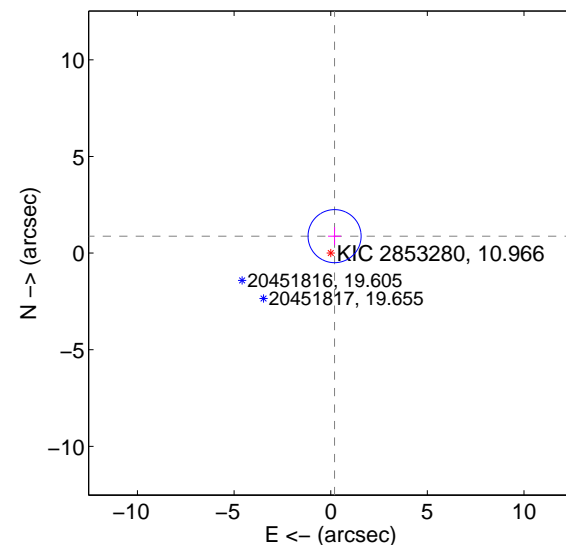
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

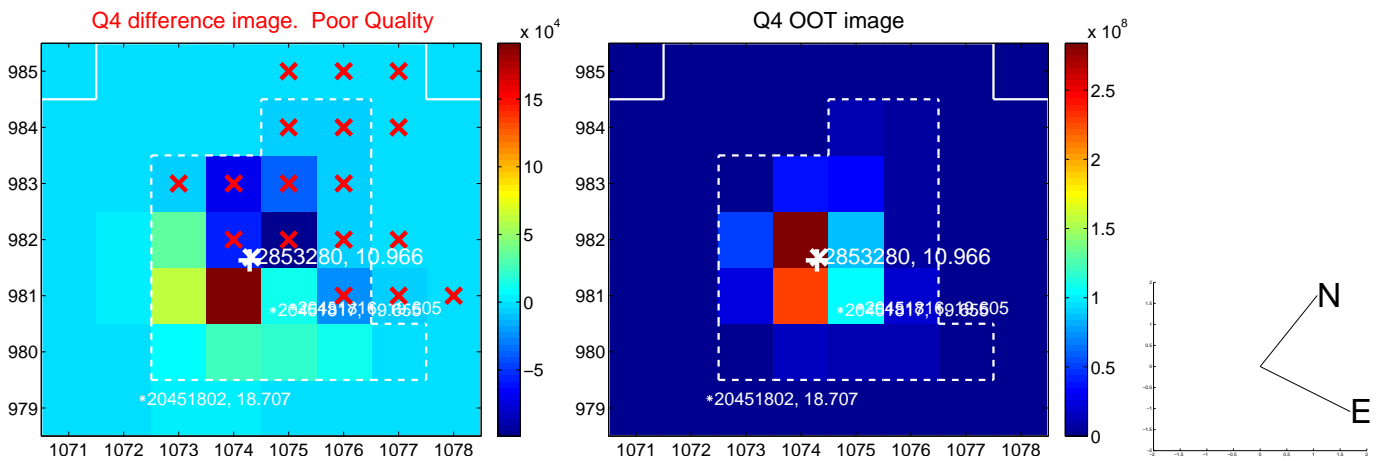
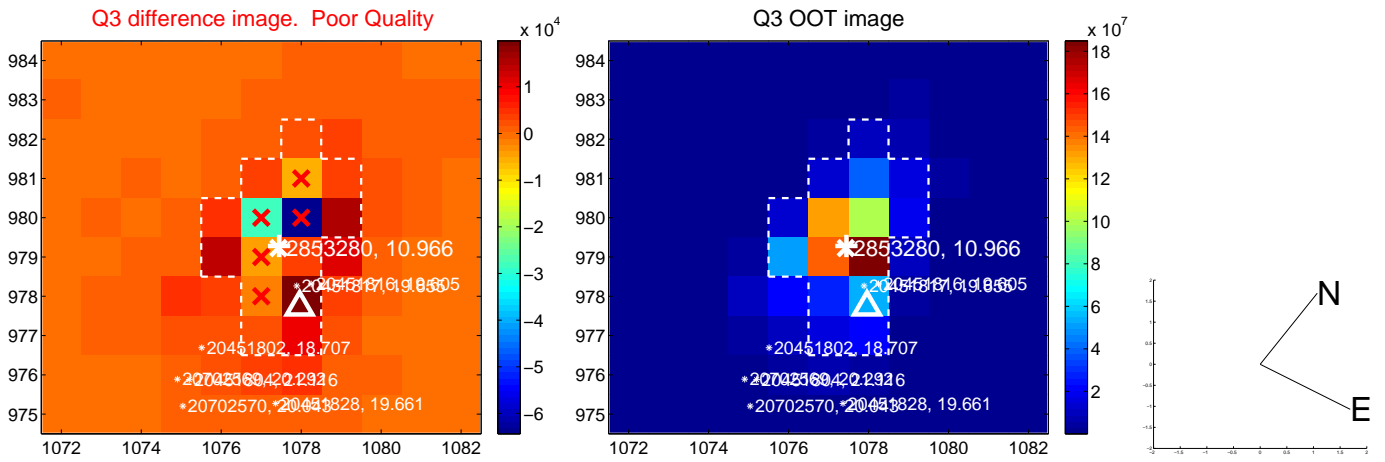
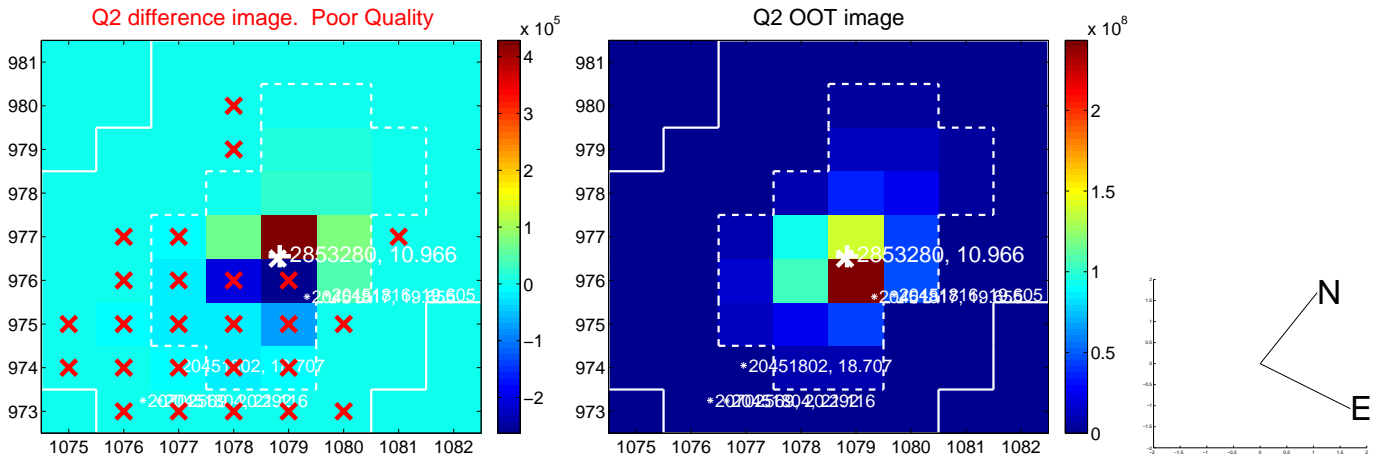
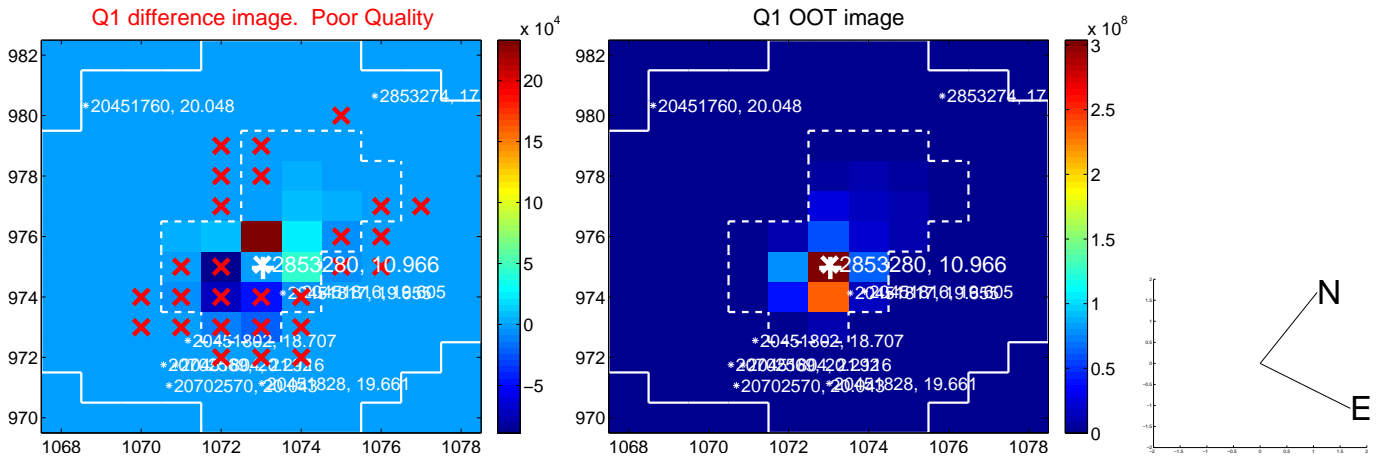


offset from photometric centroids

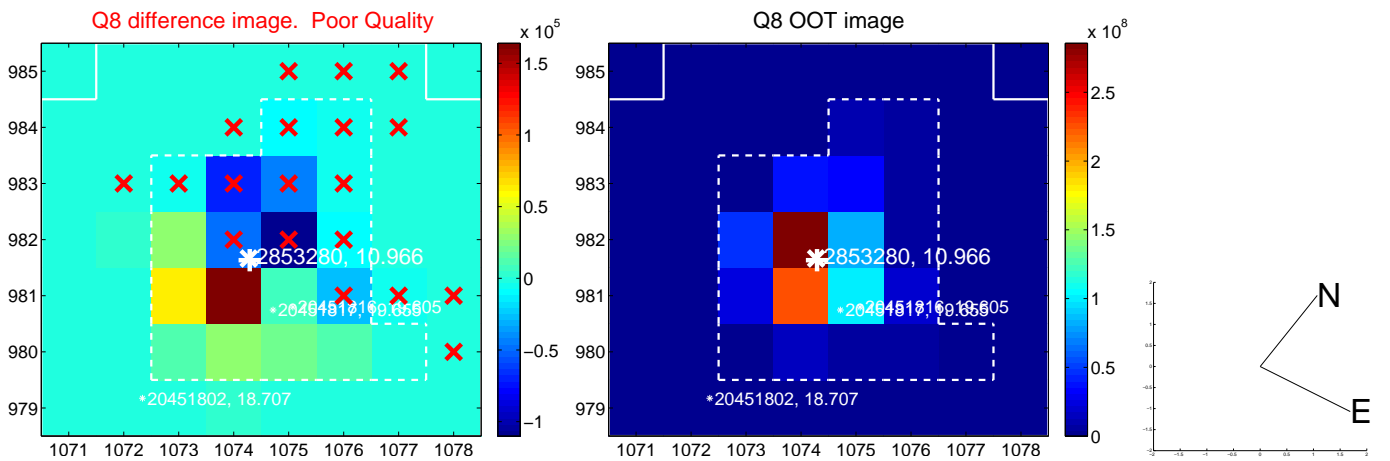
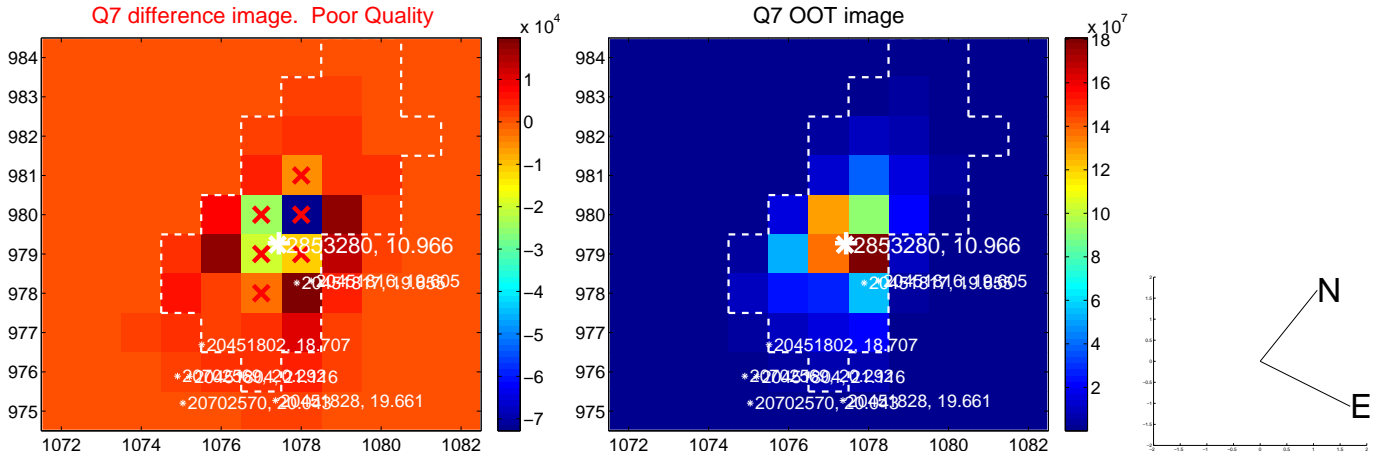
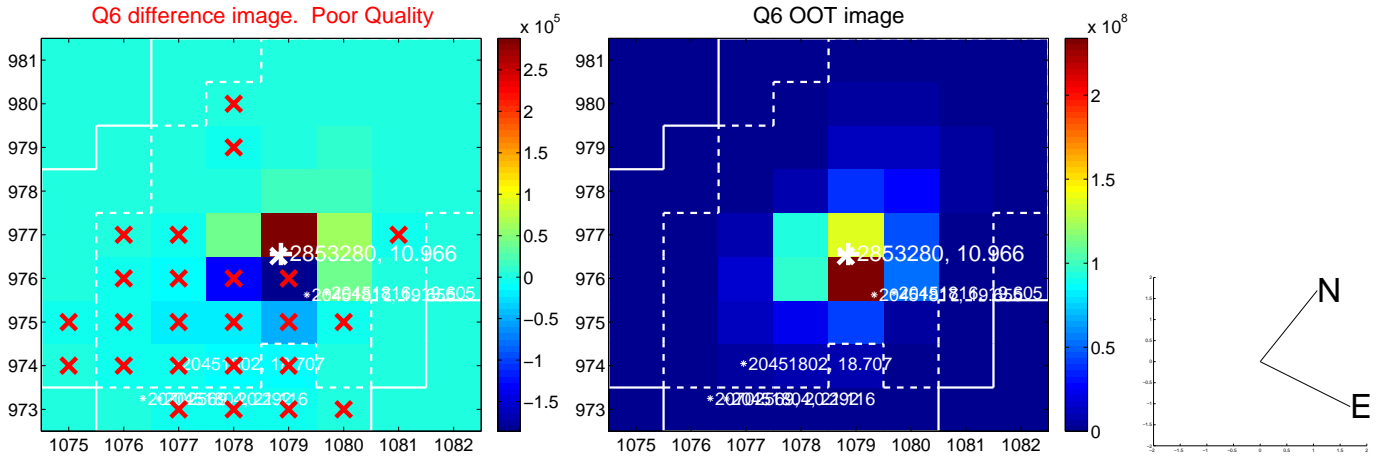
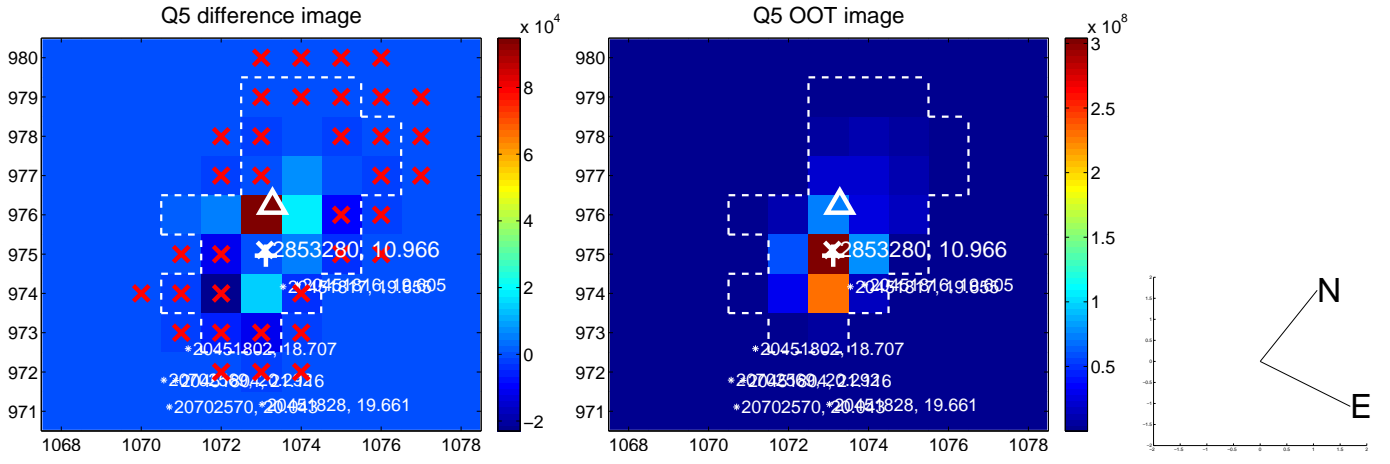


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

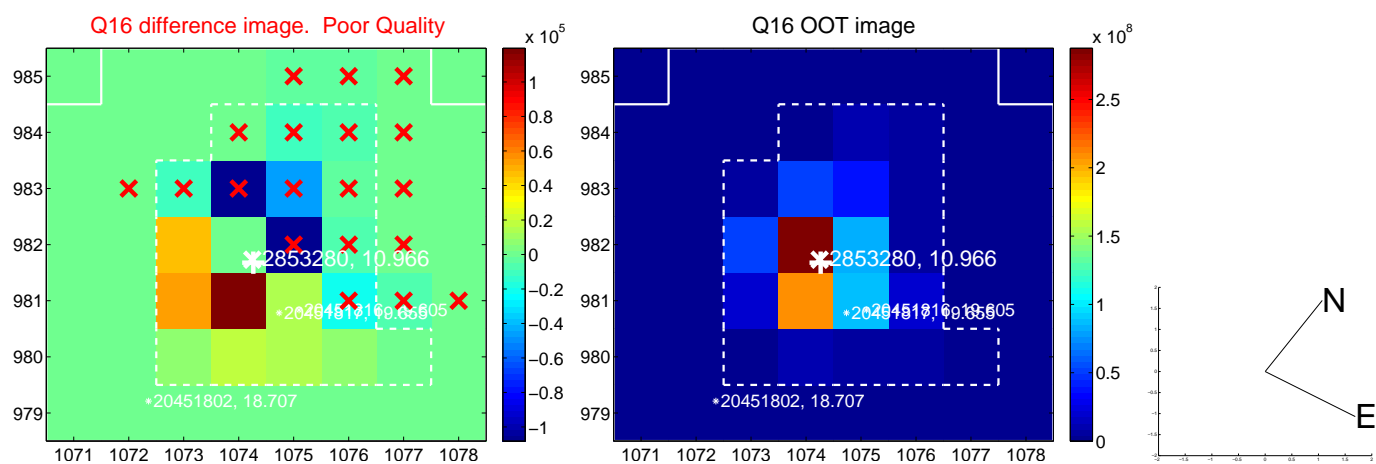
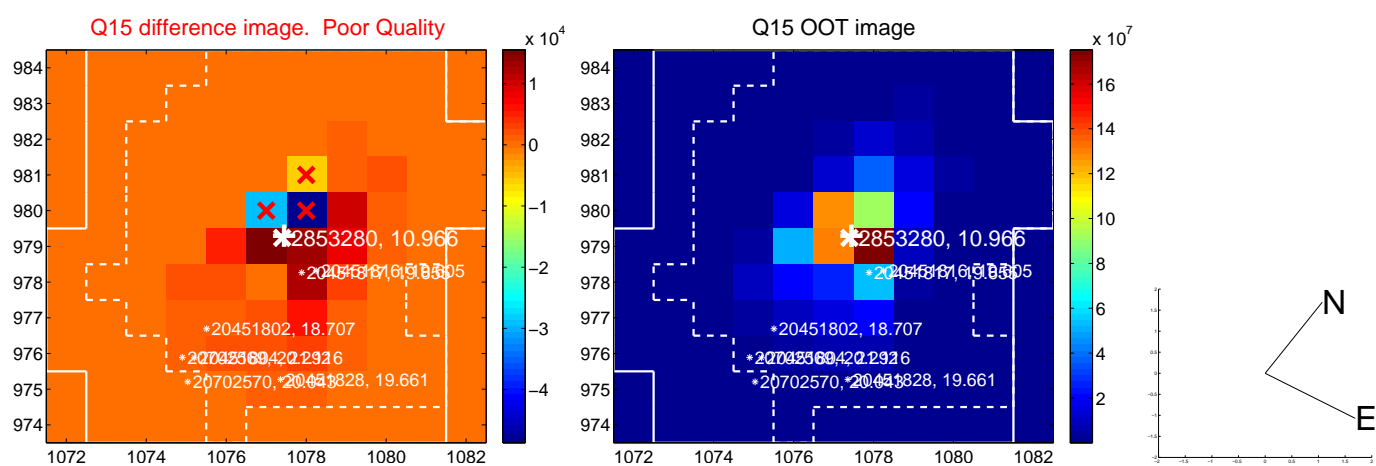
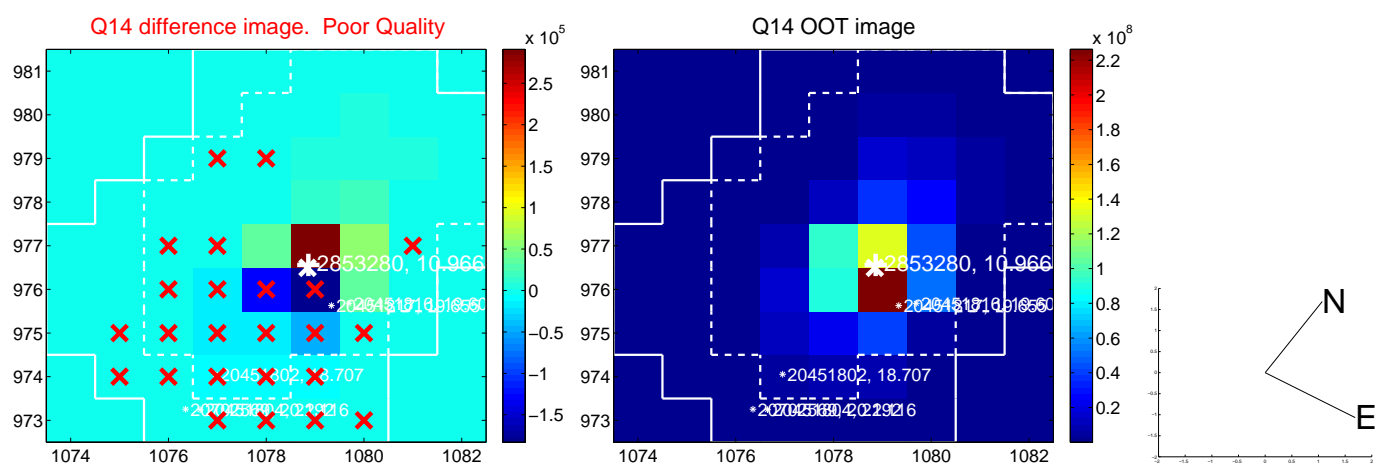
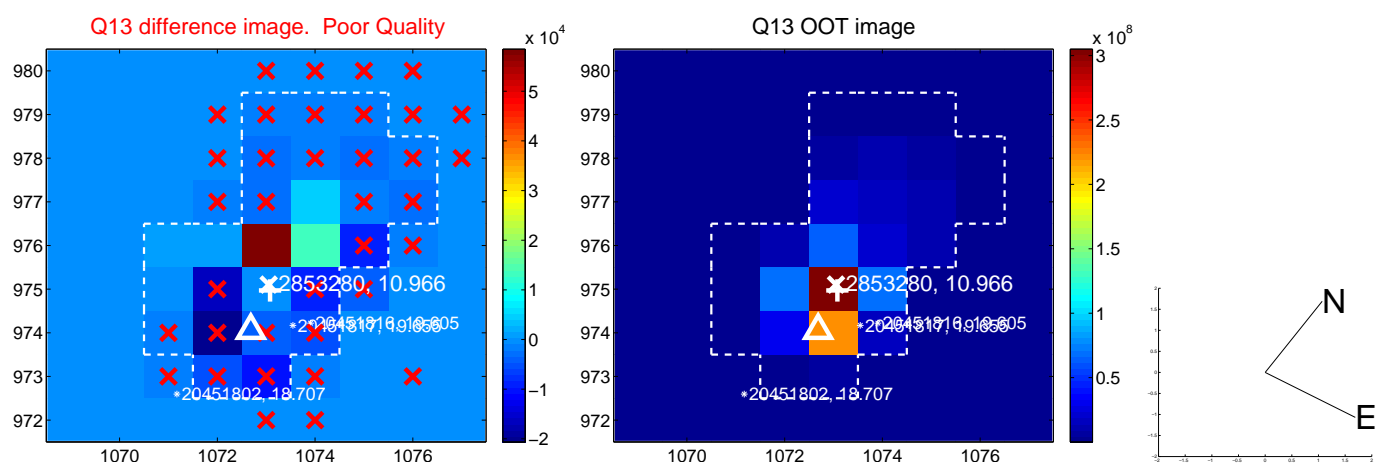
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



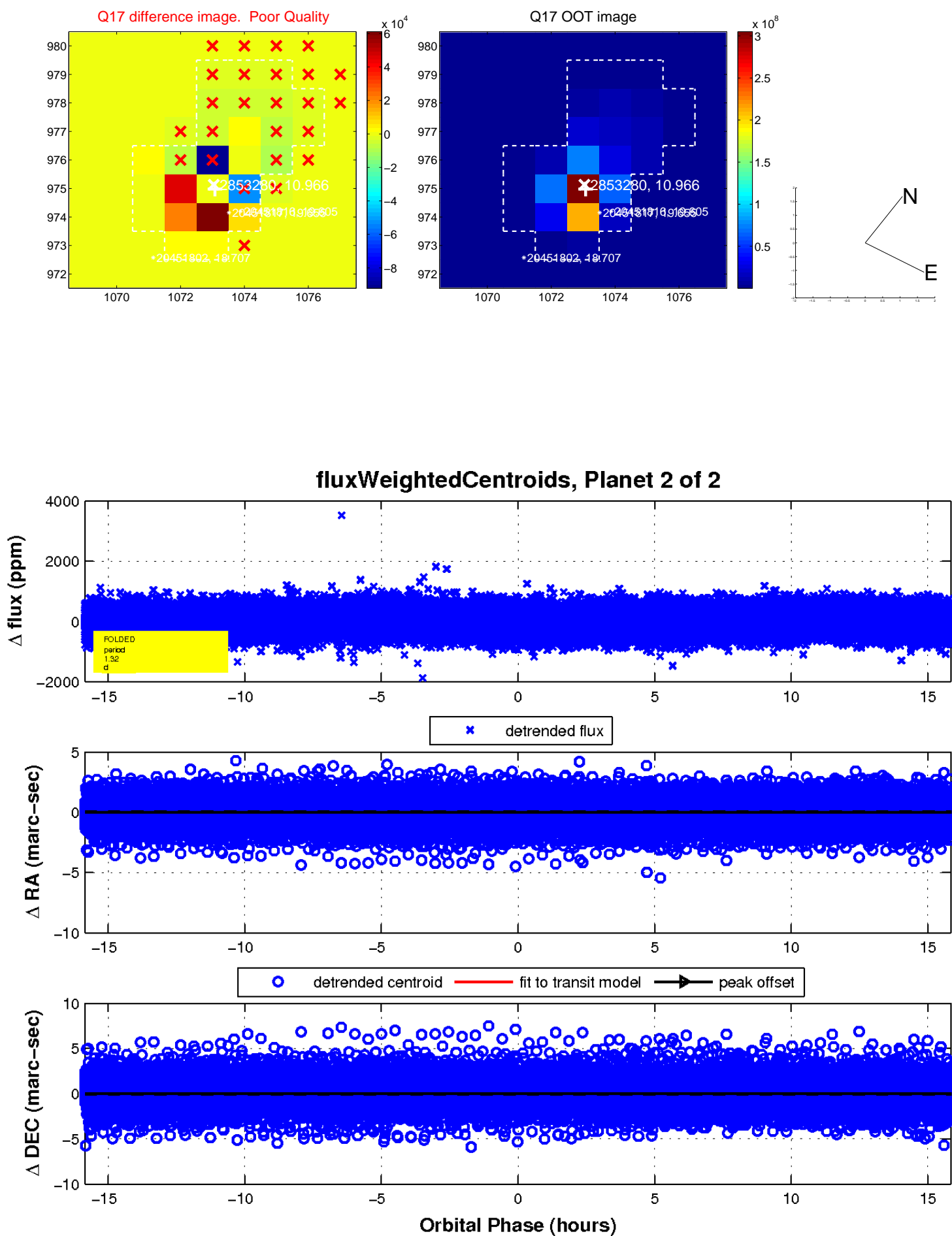
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

