

KIC 007281399

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})
007281399-01	OBS	6854.01	0.566752	131.868705	46.1	3.787	12.7	7.1	0.54	4373	0.37	785.64
007281399-02	OBS	No	87.833954	199.646269	1085.2	1.738	8.1	7.8	0.54	4373	3.66	0.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007281399-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—EPHEM_MATCH
007281399-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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.

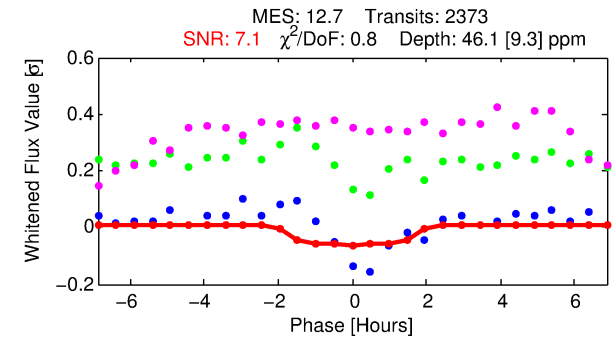
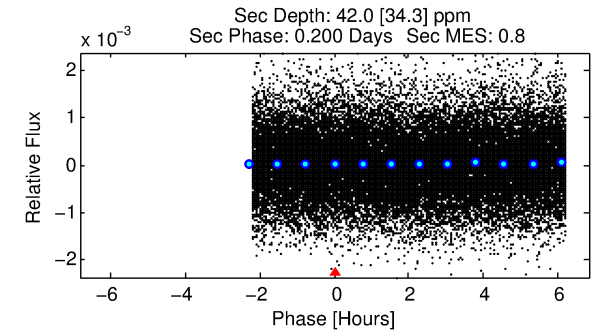
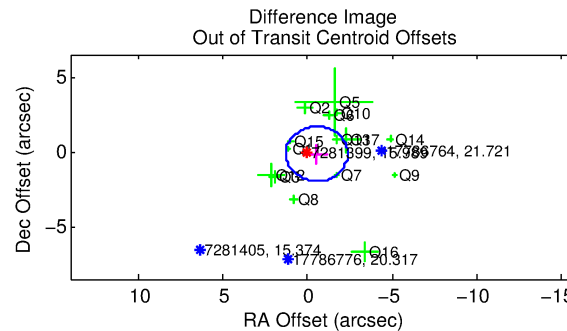
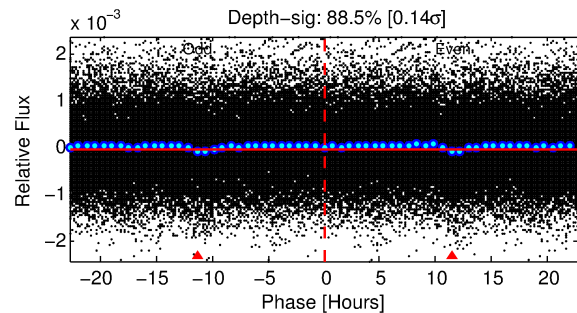
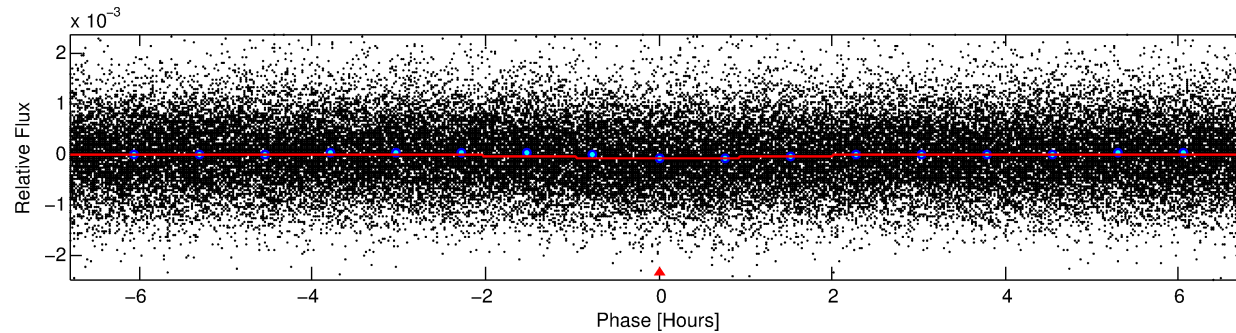
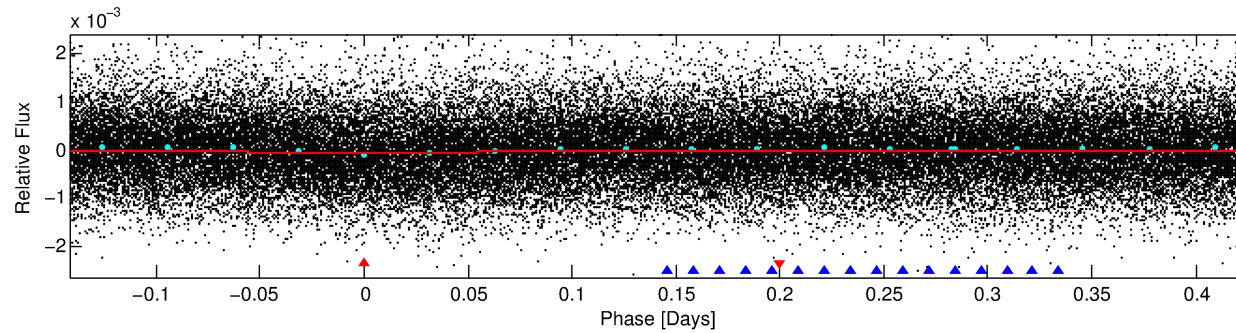
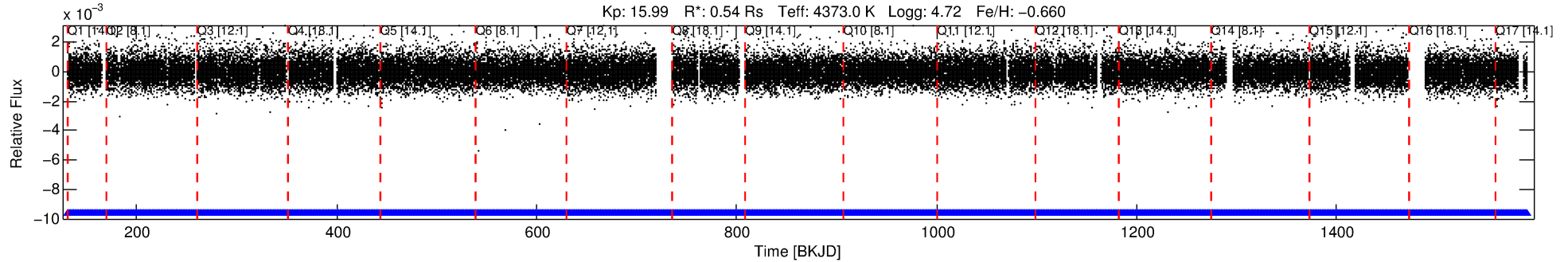
Ephemeris Match Information For 007281399-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
007281399-01	7281399	RR-Lyr-pri	7198959	1:1	596.7	42	143	7.86	15.99	13550.00	Direct-PRF	0	0.78	21.59

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7281399 Candidate: 1 of 2 Period: 0.567 d
KOI: K06854.01 Corr: 0.777



DV Fit Results:

Period = 0.56675 [0.00001] d
Epoch = 131.8687 [0.0061] BKJD
Rp/R* = 0.0062 [0.0072]
a/R* = 1.27 [1.90]
b = 0.41 [8.49]
Seff = 785.64 [129.08]
Teff = 1350 [55] K
Rp = 0.37 [0.43] Re
a = 0.0111 [0.0008] AU
Ag = 21.02 [51.56] [0.39 σ]
Teffp = 4469 [2742] K [1.14 σ]

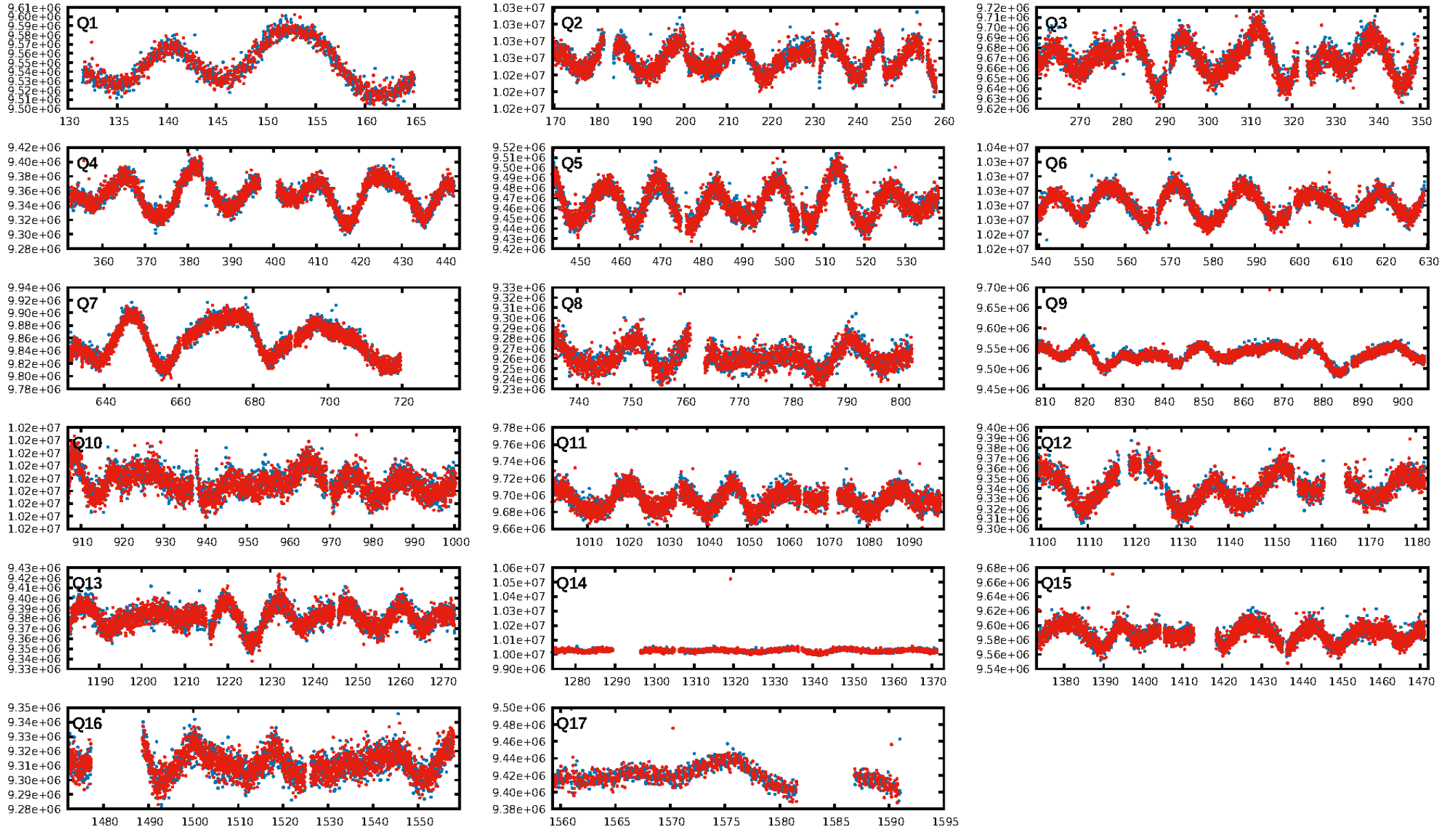
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [502.65 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.54e-22
RollingBand-fgt: 1.00 [2267/2267]
GhostDiagnostic-chr: 0.6329
Centroid-sig: 3.8%
Centroid-so: 3.554 arcsec [1.92 σ]
OotOffset-rm: 0.557 arcsec [0.92 σ]
KicOffset-rm: 0.582 arcsec [0.95 σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.07 [1/15]
DiffImageOverlap-fno: 1.00 [17/17]

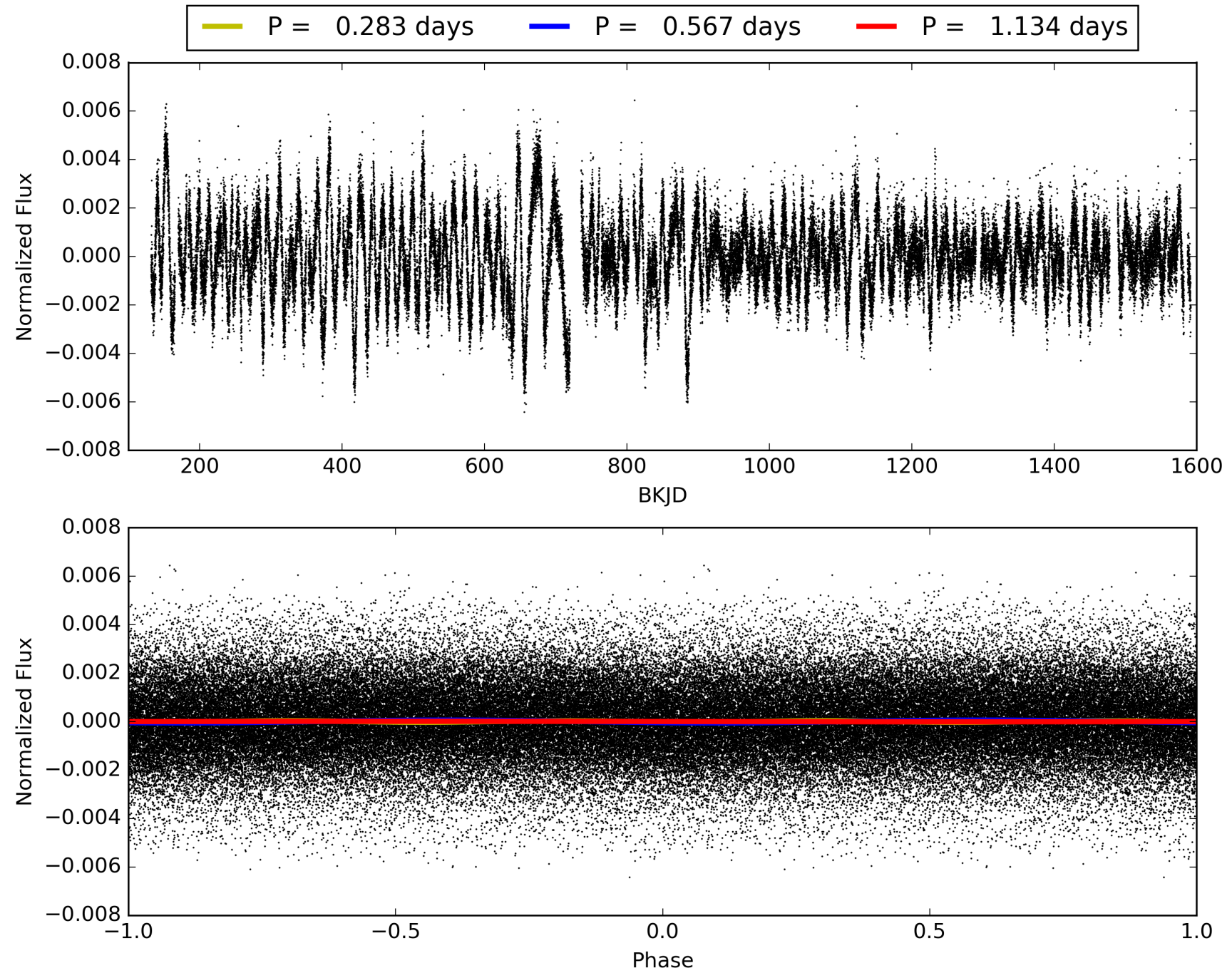
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:53:57 Z

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

TCE 007281399-01, PDC Light Curves

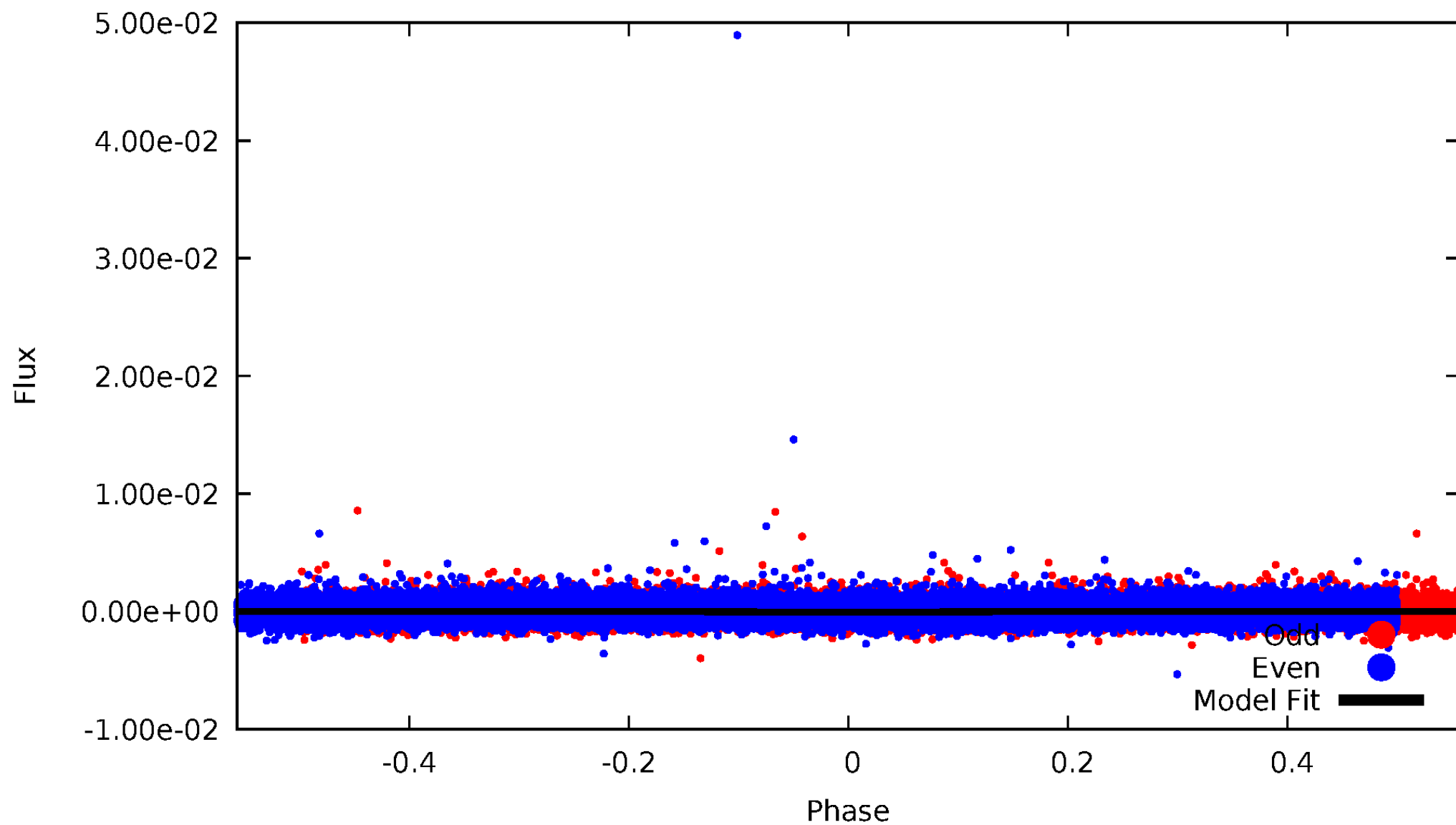


TCE 007281399-01



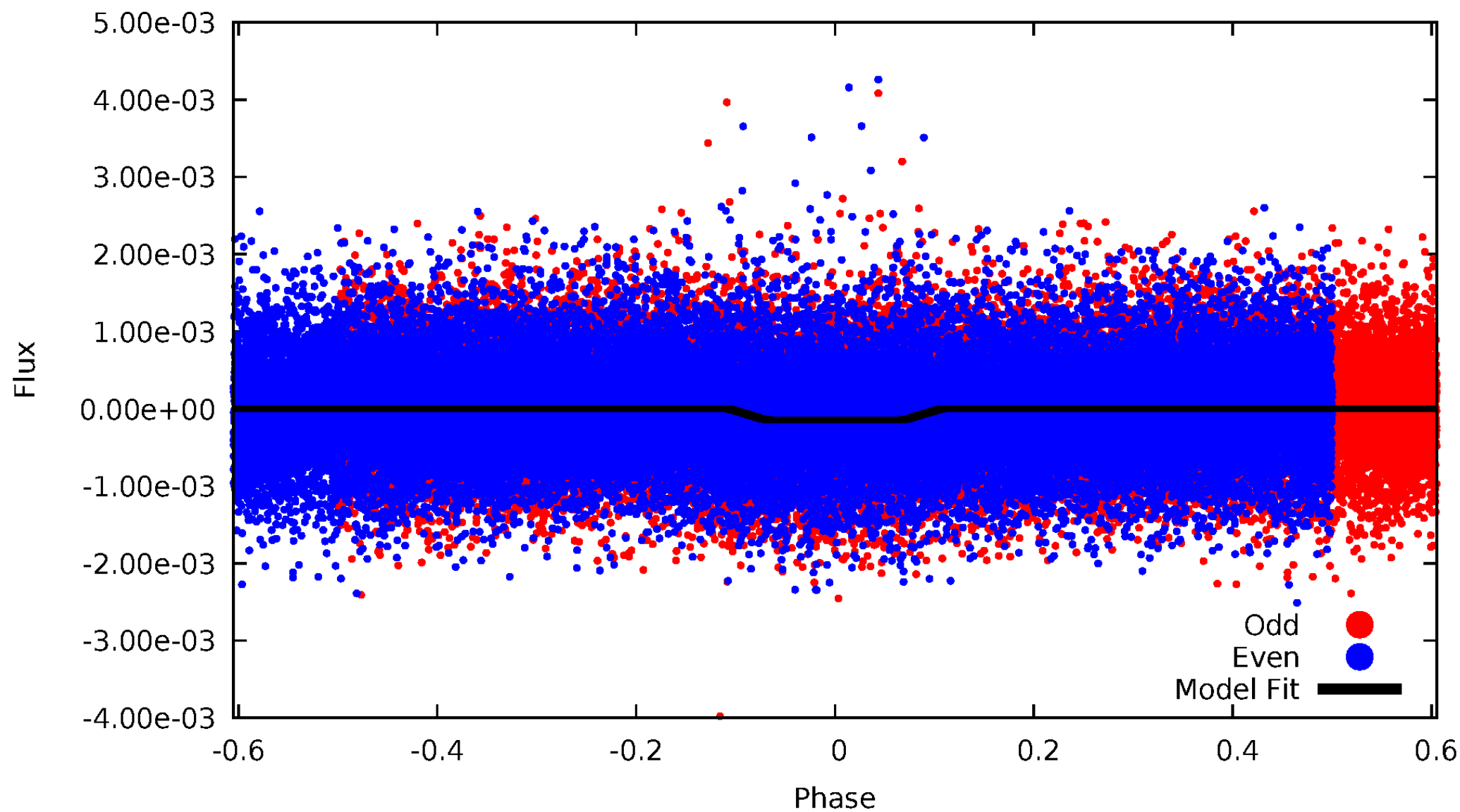
DV Odd/Even

TCE 007281399-01



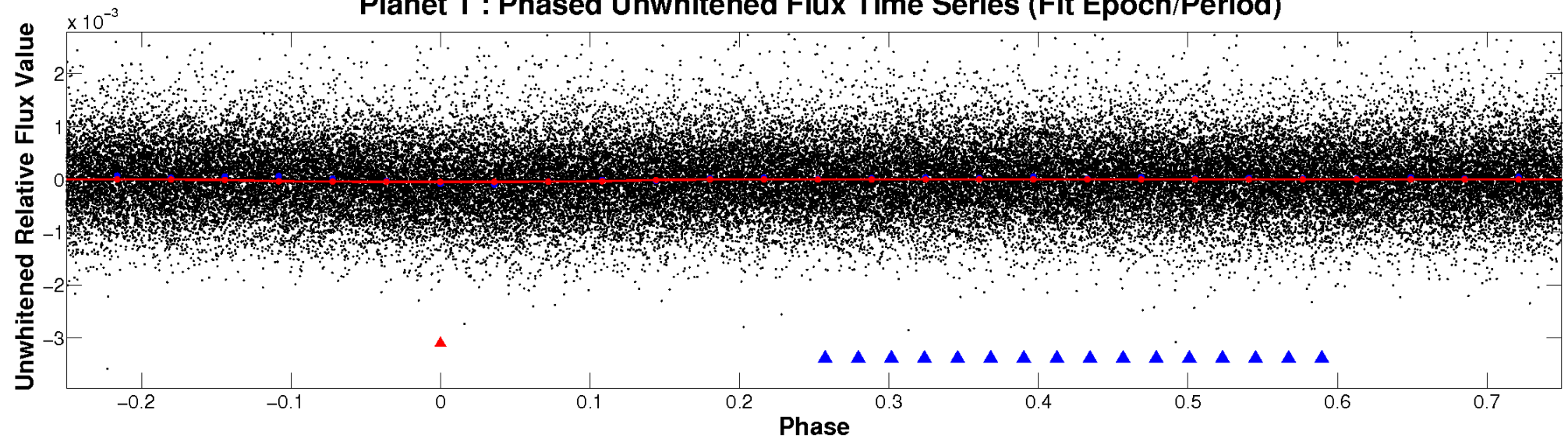
ALT Odd/Even

TCE 007281399-01

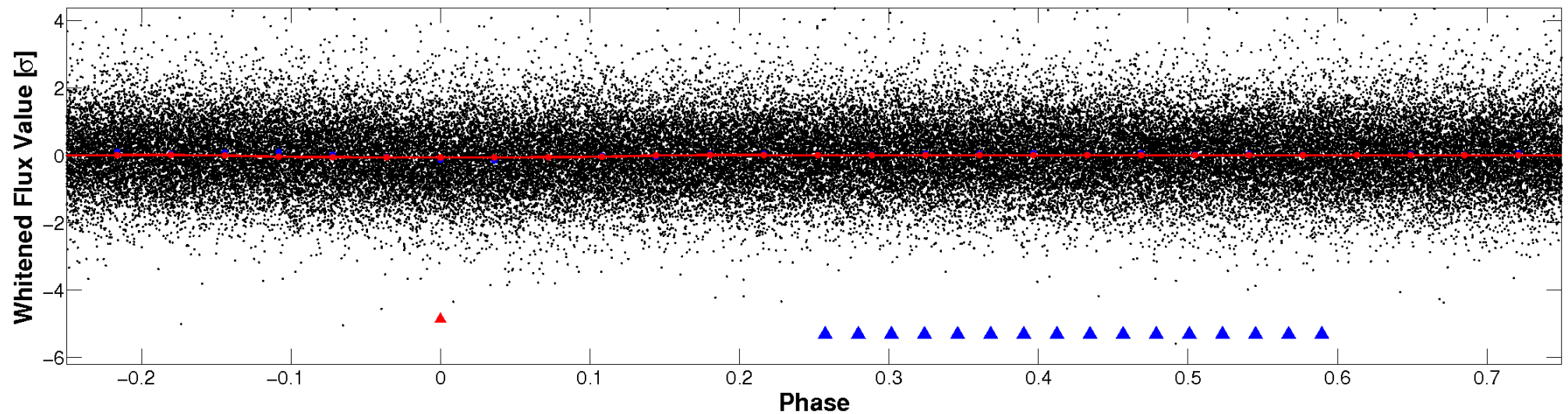


Non-Whitened Vs. Whitened Light Curve

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

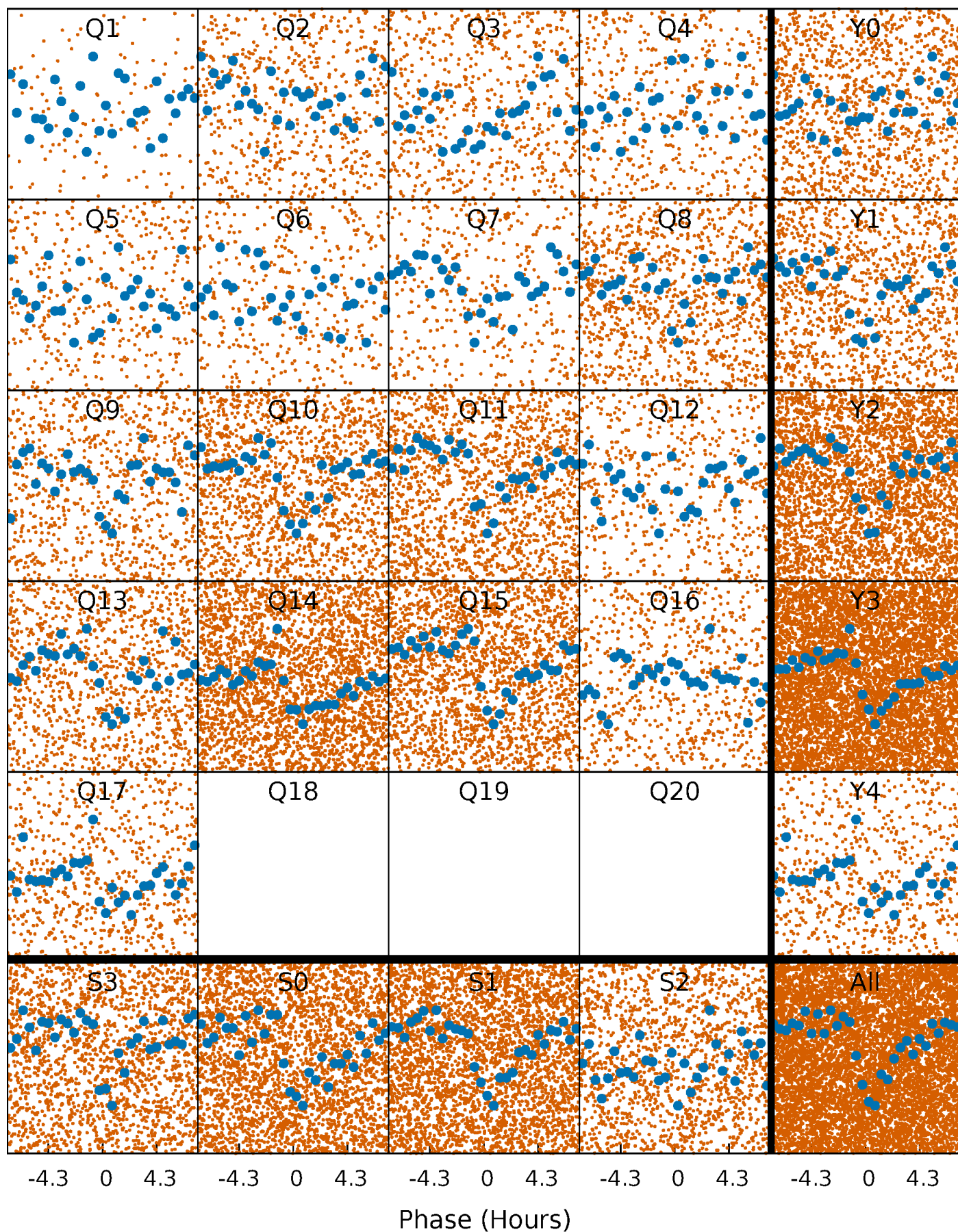


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



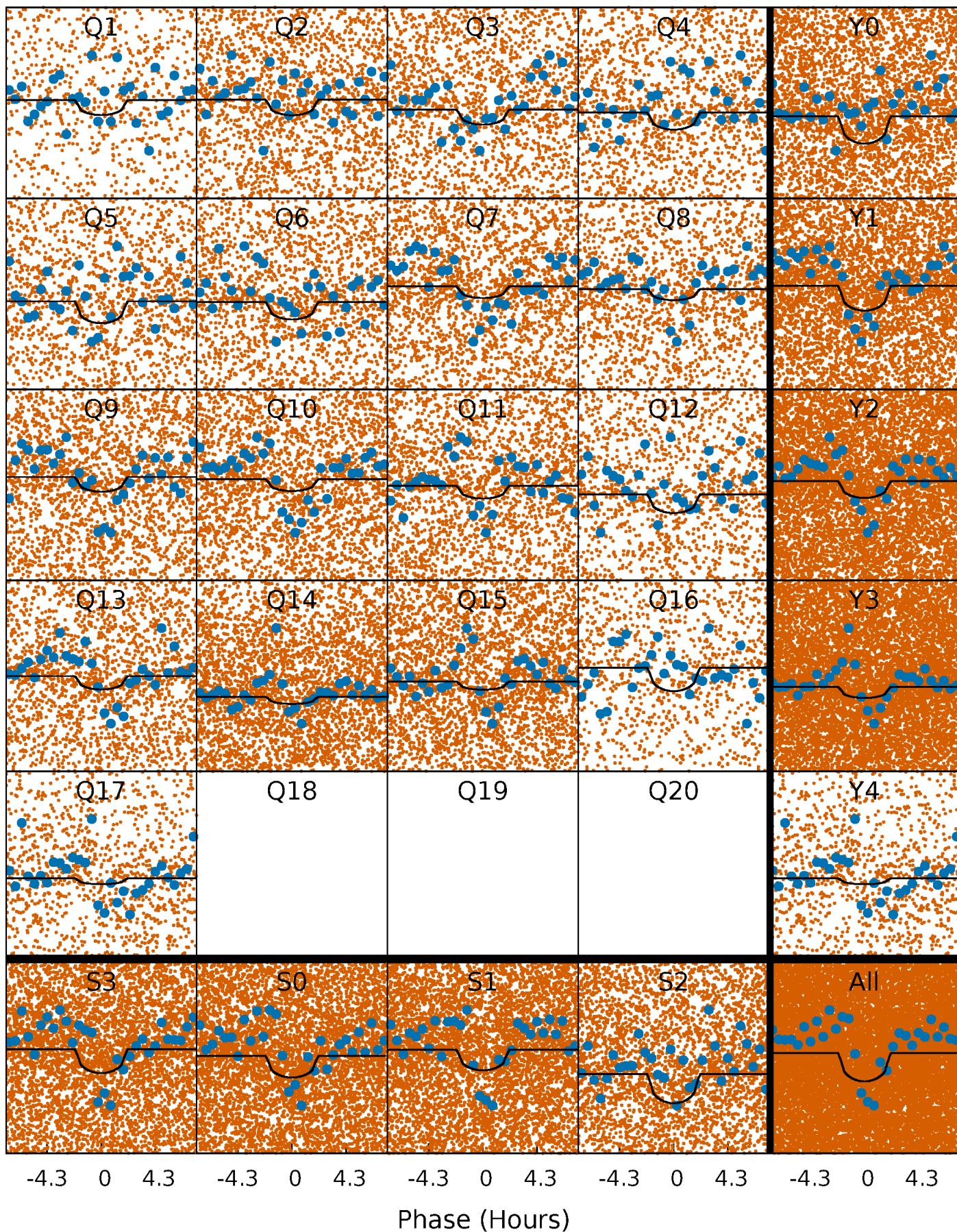
PDC Quarter-Phased Transit Curves

TCE 007281399-01 P= 0.566752 Days $T_0=131.868705$ (BKJD)



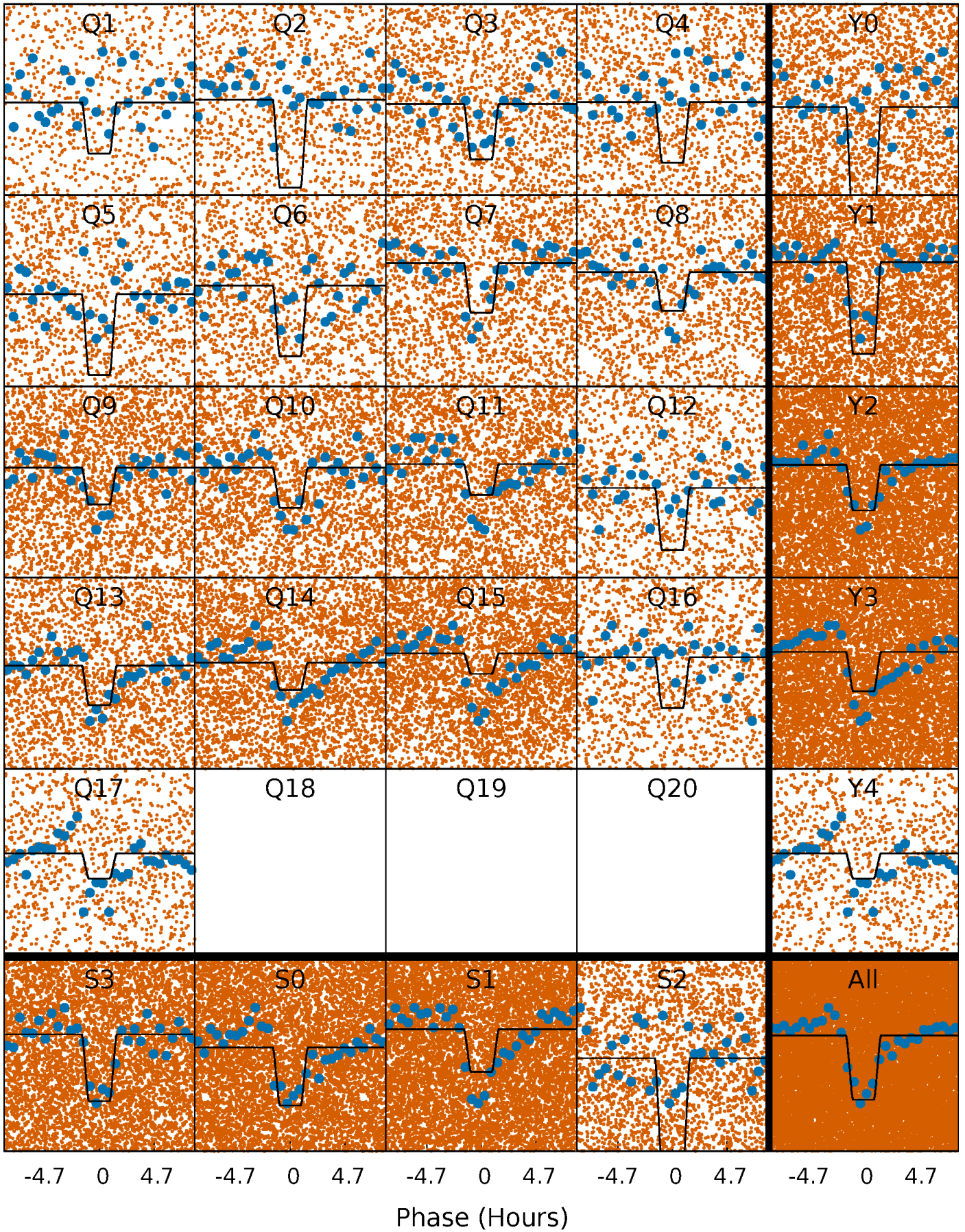
DV Quarter-Phased Transit Curves

TCE 007281399-01 P= 0.566752 Days $T_0=131.868705$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

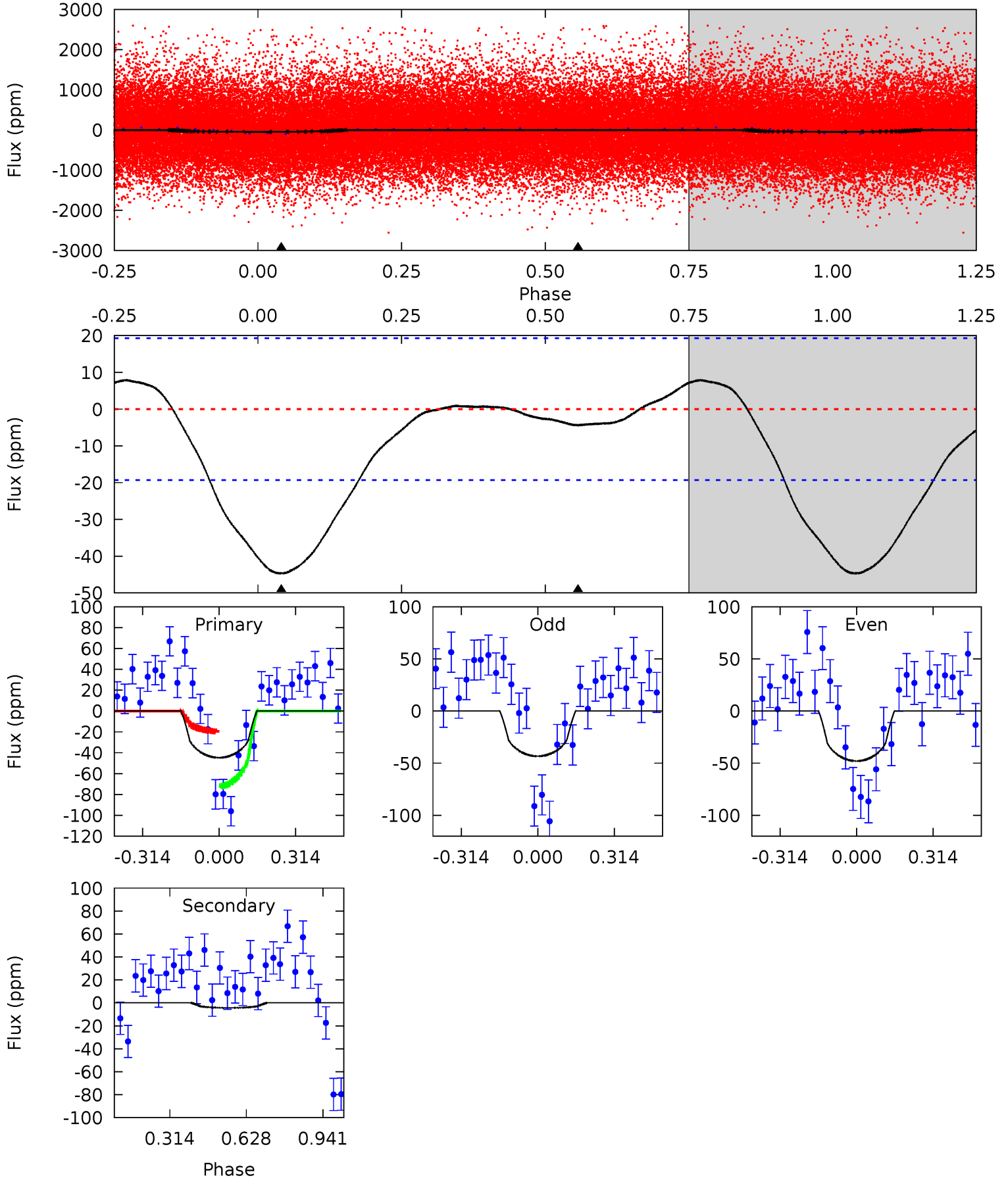
TCE 007281399-01 P= 0.566788 Days $T_0=131.829557$ (BKJD)



DV Model-Shift Uniqueness Test

007281399-01, P = 0.566752 Days, E = 131.301953 Days

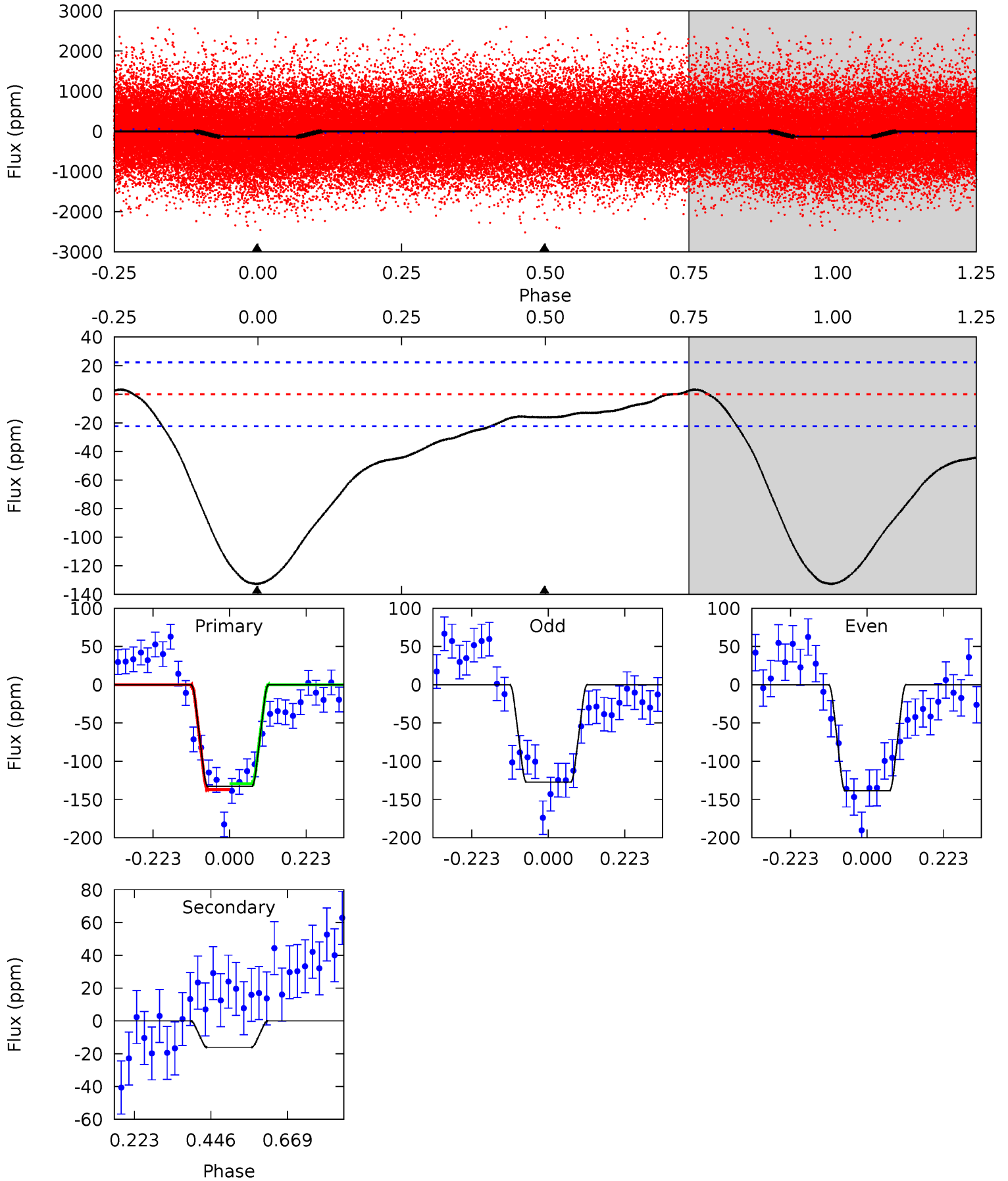
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	0.99	0	0	4.32	1.01	0.86	10.0	10.0	0.99	0.99	0.52	0.81	0.15	5.90



Alt Model-Shift Uniqueness Test

007281399-01, P = 0.566788 Days, E = 131.262769 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.1	3.18	0	0	4.39	1.22	4.52	26.1	26.1	3.18	3.18	1.10	0.92	0.02	0.74



Stellar Parameters For KIC 007281399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4373^{+118}_{-144}	$4.722^{+0.036}_{-0.050}$	$-0.660^{+0.300}_{-0.300}$	$0.544^{+0.050}_{-0.045}$	$0.569^{+0.052}_{-0.047}$	$4.967^{+0.900}_{-0.915}$
	+3%/-3%	+1%/-1%	+45%/-45%	+9%/-8%	+9%/-8%	+18%/-18%
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 007281399-01 / KOI 6854.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 4	$0.47^{+0.39}_{-0.31}$	1891^{+67}_{-74}	2586^{+1233}_{-4960}	$0.927^{+8.674}_{-0.937}$
Alt.	-16 ± 5	$0.75^{+0.41}_{-0.38}$	1892^{+64}_{-72}	2918^{+797}_{-442}	$1.883^{+6.348}_{-1.125}$

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 $A_{obs} \gg 1.0$

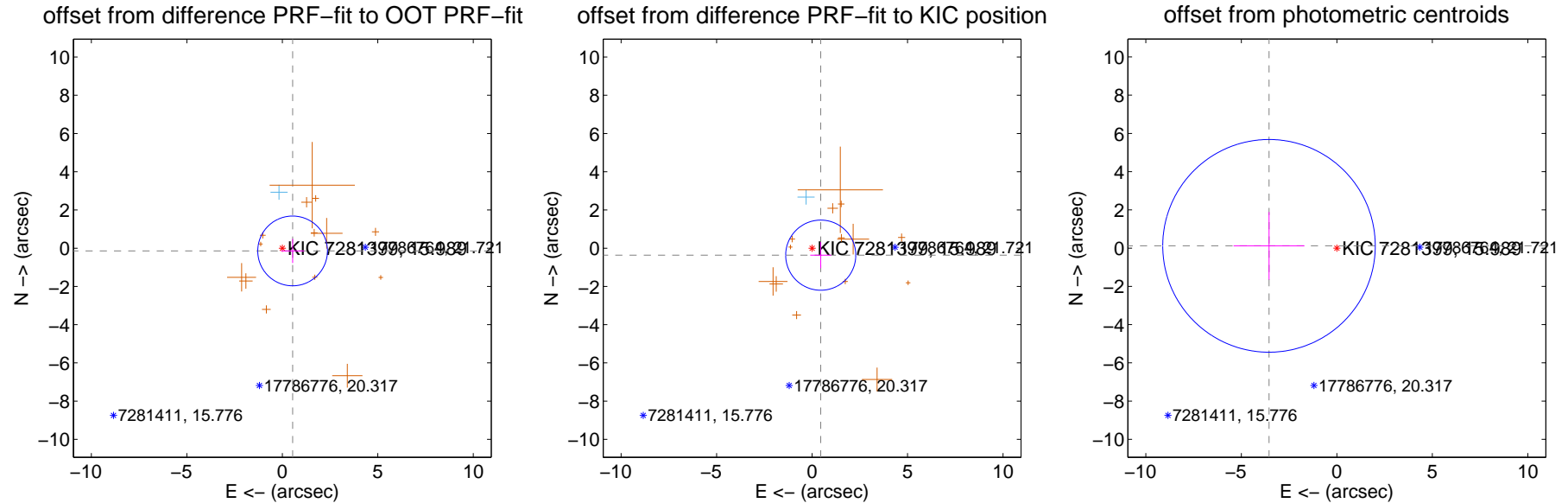
DV Centroid Data

Supplemental centroid analysis for 007281399-01. Kepler magnitude: 15.99. Transit SNR 7.09

There are 1 quarters with good PRF difference image offsets

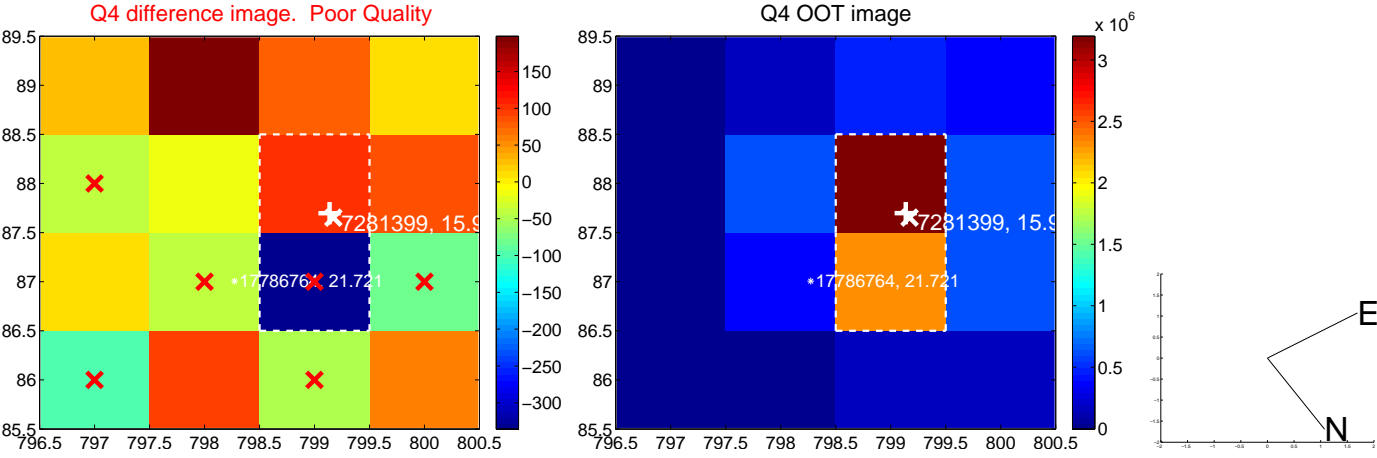
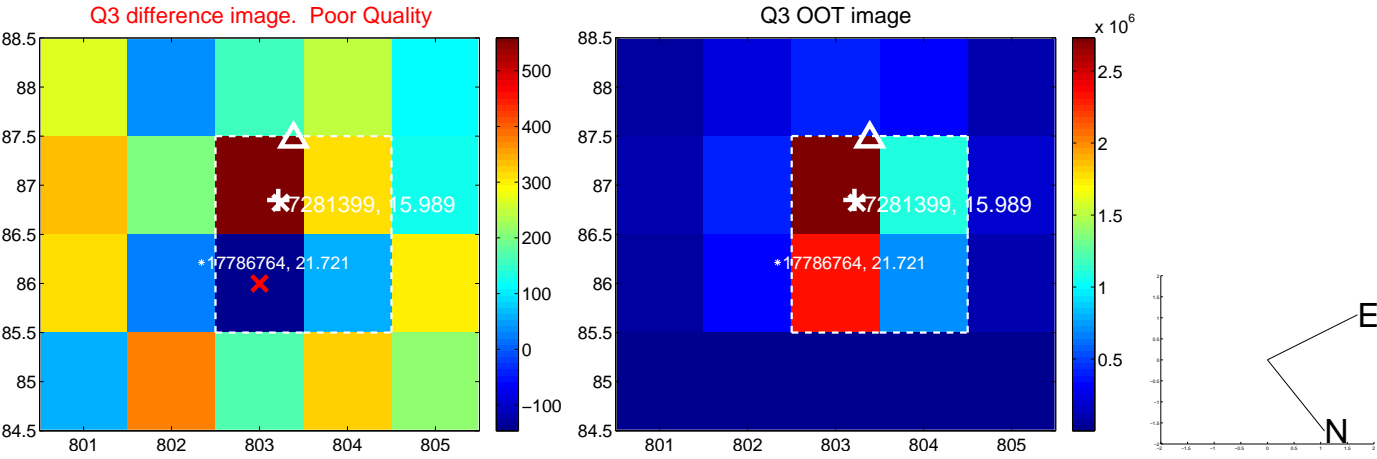
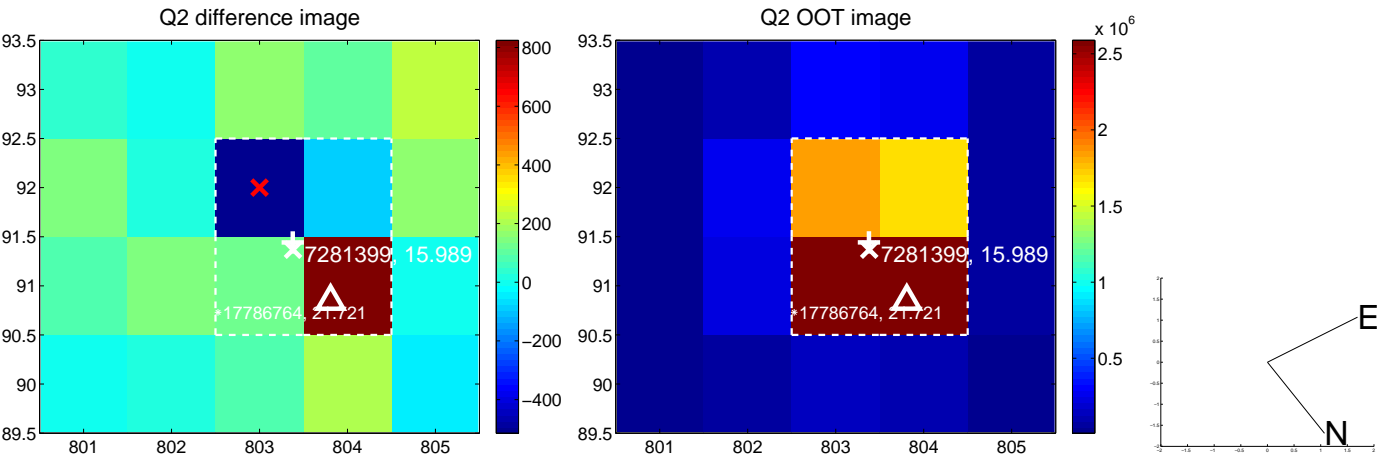
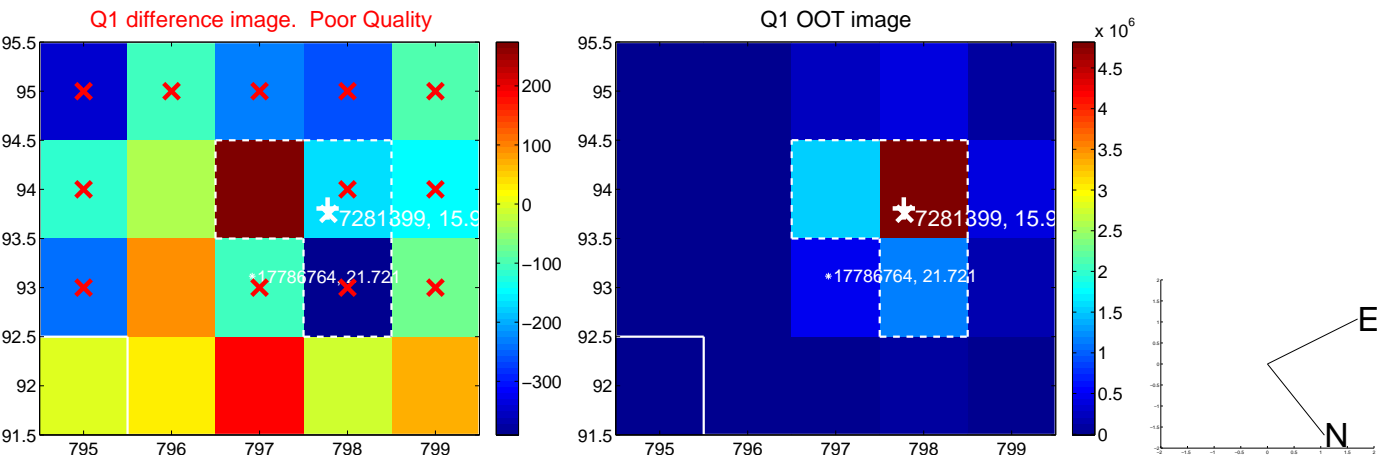
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.557 ± 0.608	0.92	-0.539 ± 0.603	-0.143 ± 0.629
PRF-fit source offset from KIC position	0.582 ± 0.612	0.95	-0.453 ± 0.550	-0.365 ± 0.682
photometric centroid source offset	3.55 ± 1.85	1.92	3.55 ± 1.85	0.12 ± 1.77

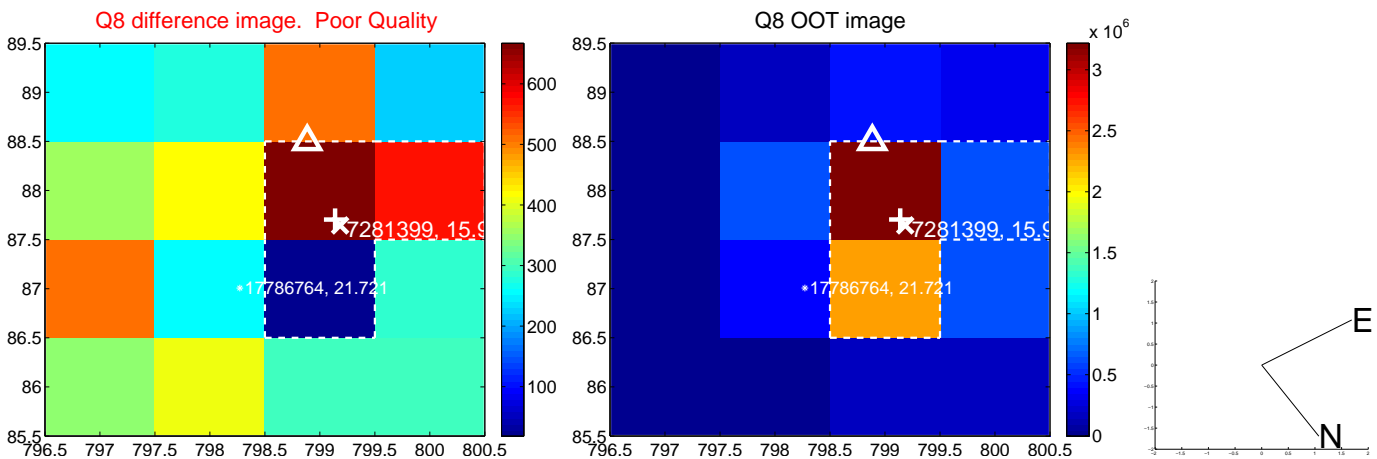
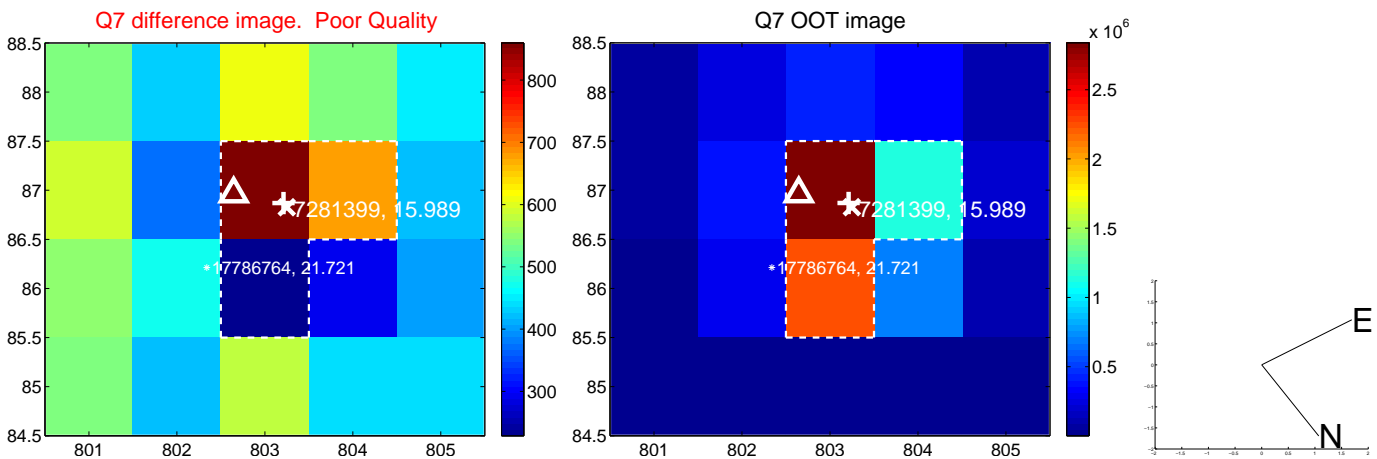
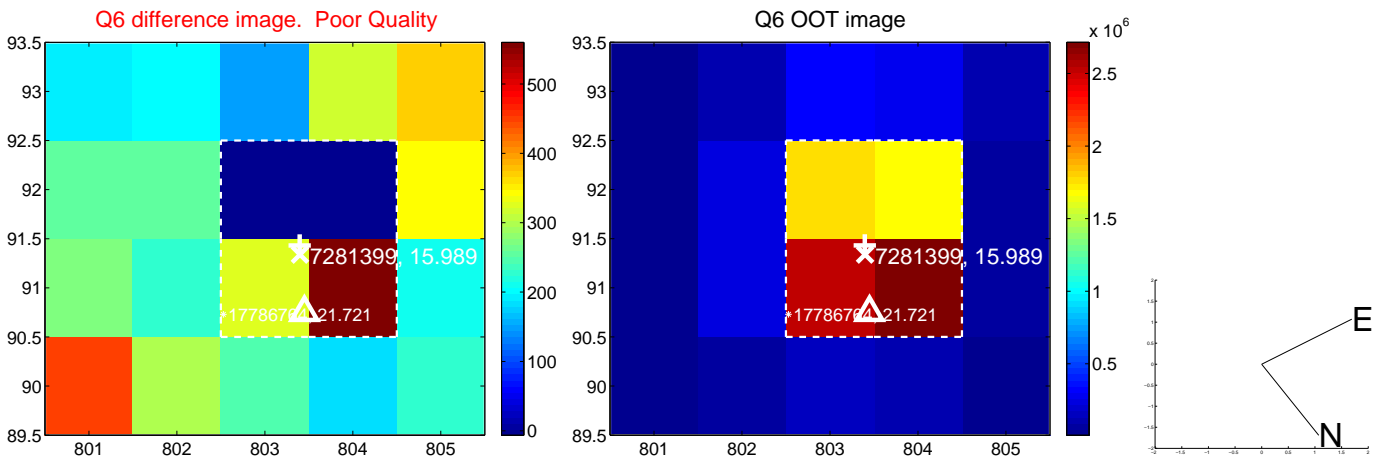
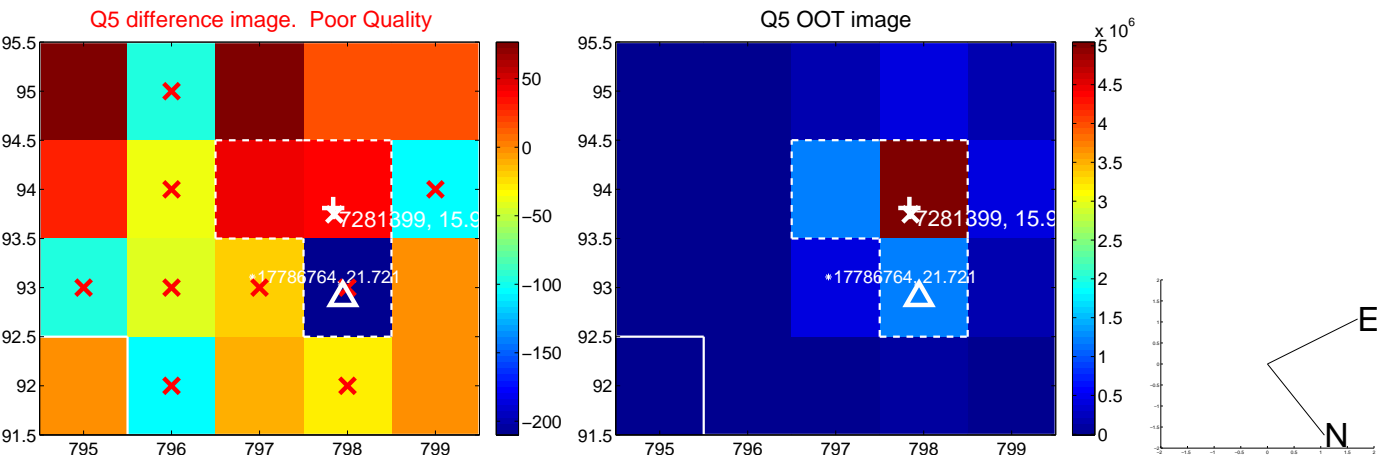


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

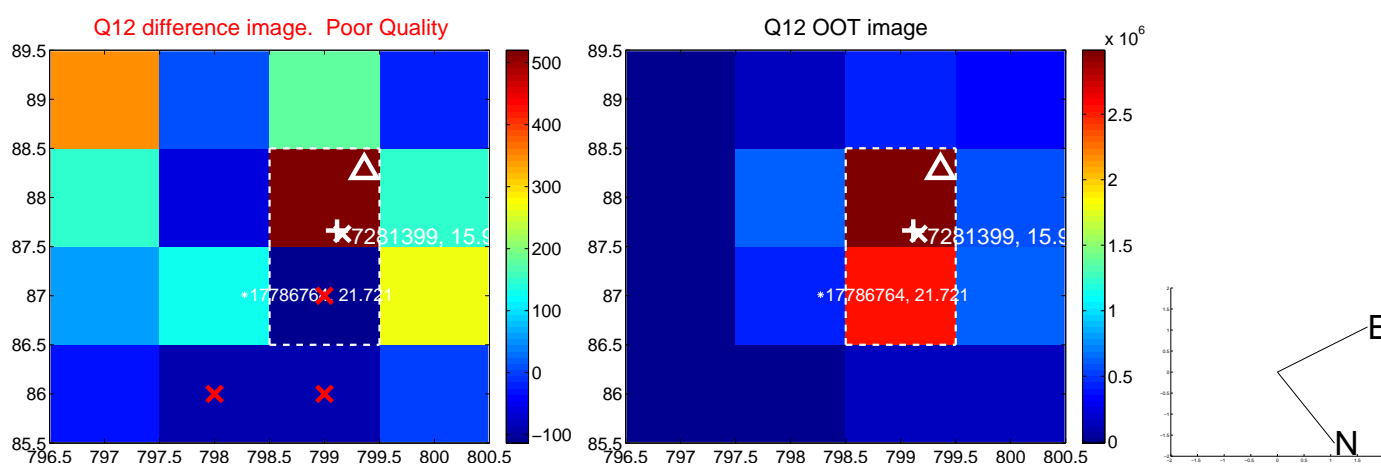
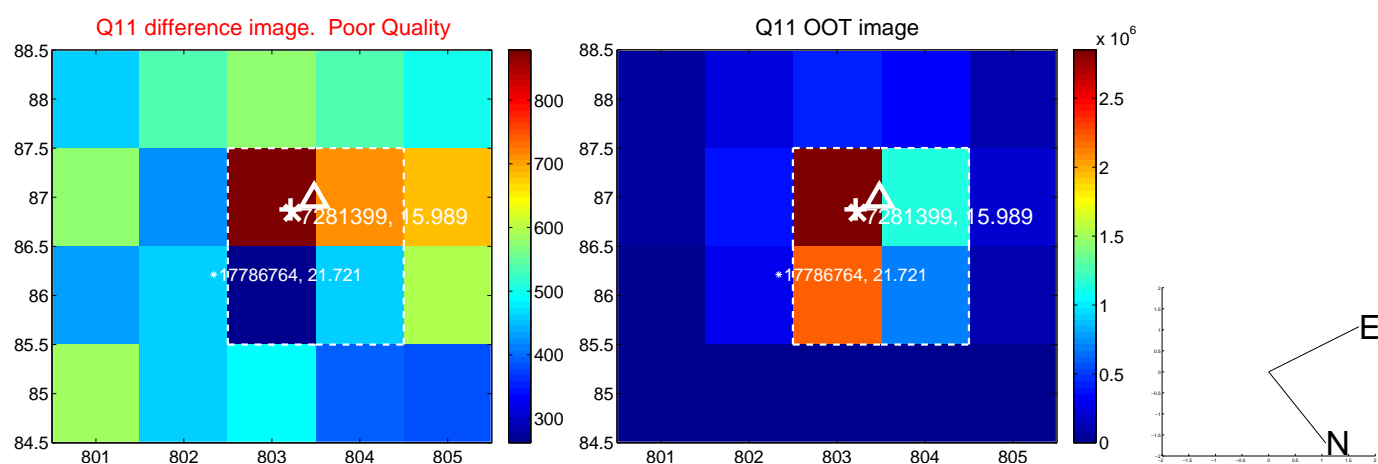
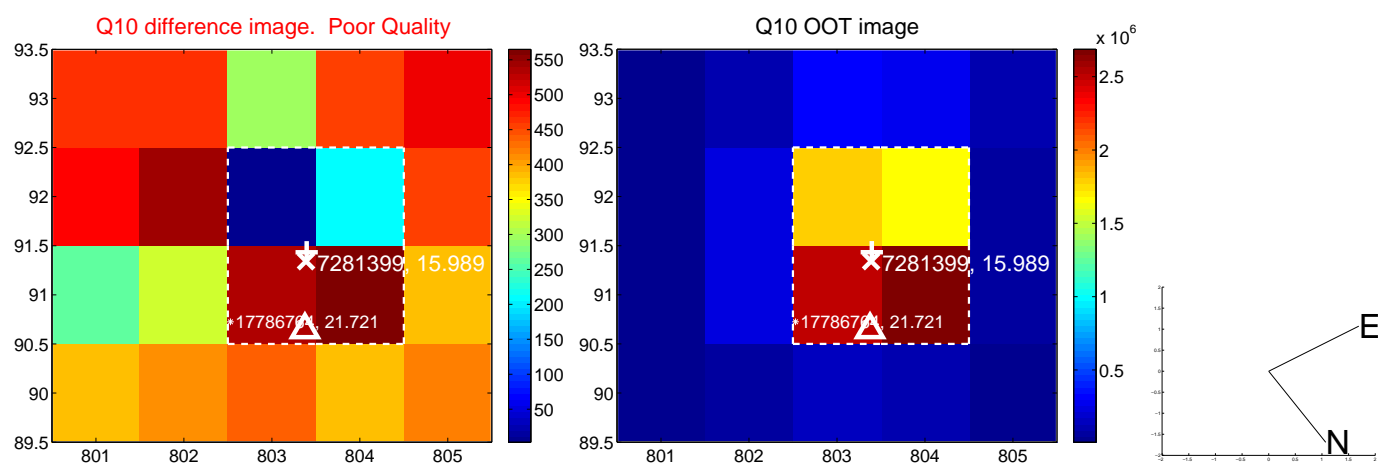
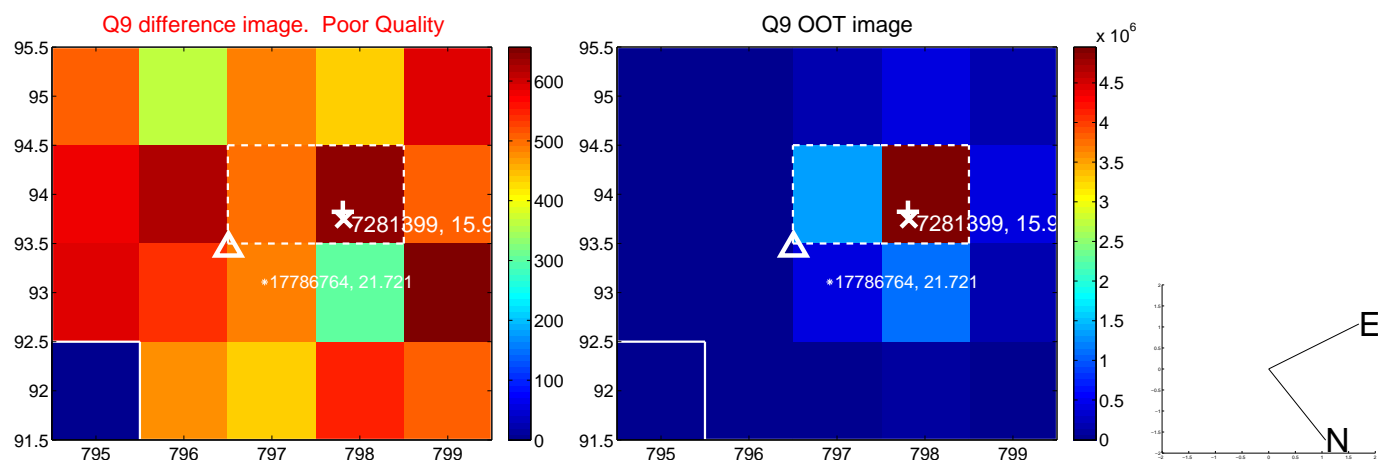
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



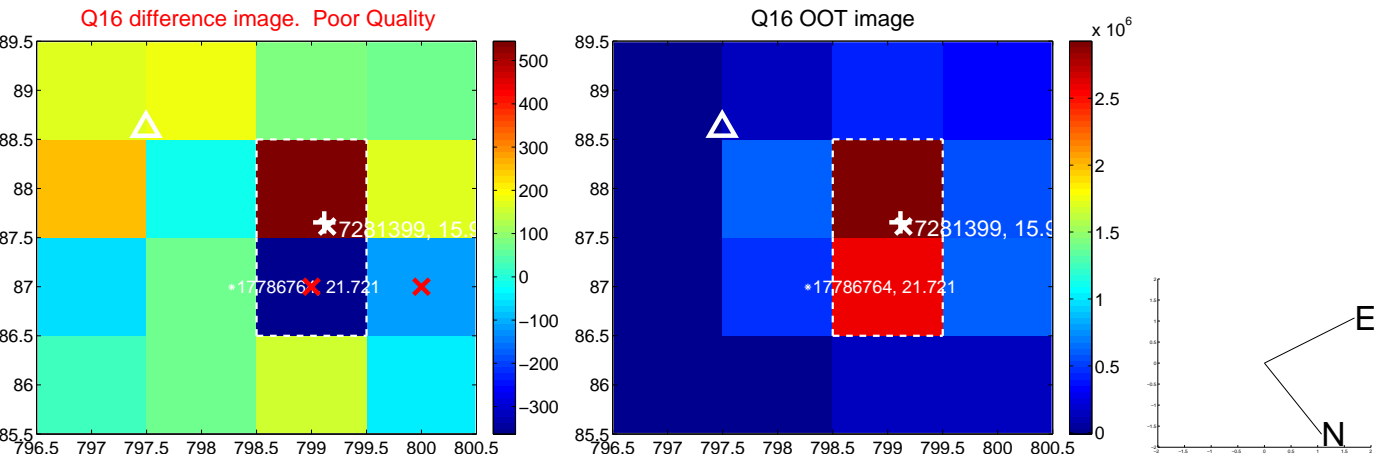
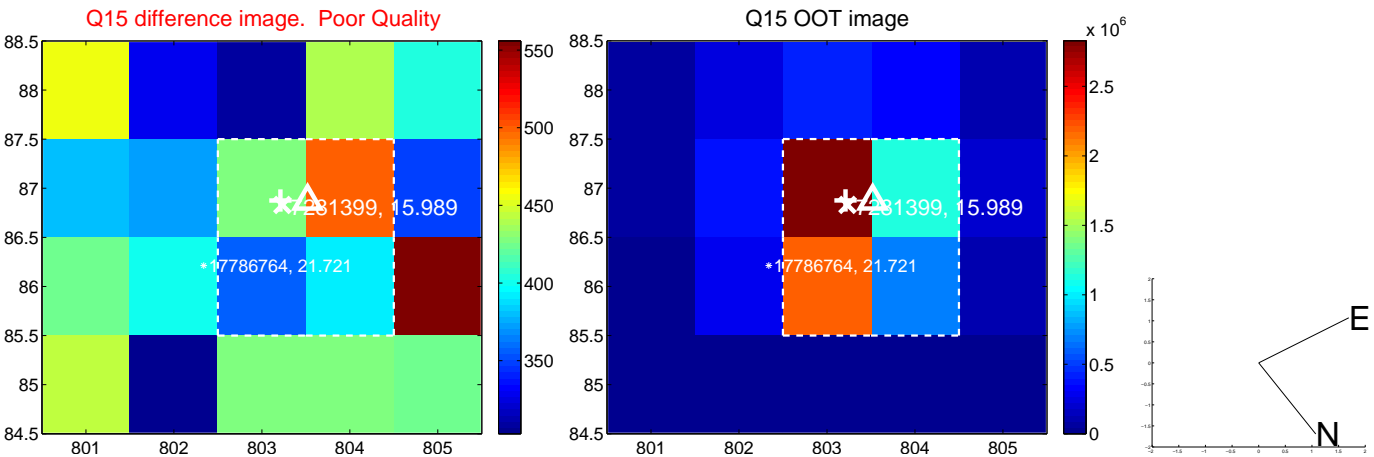
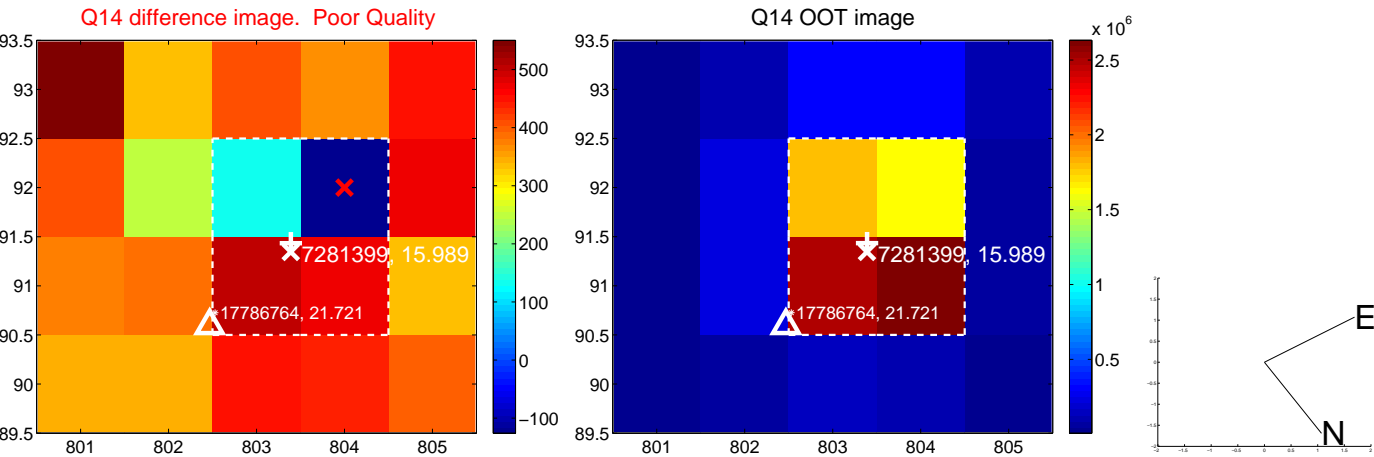
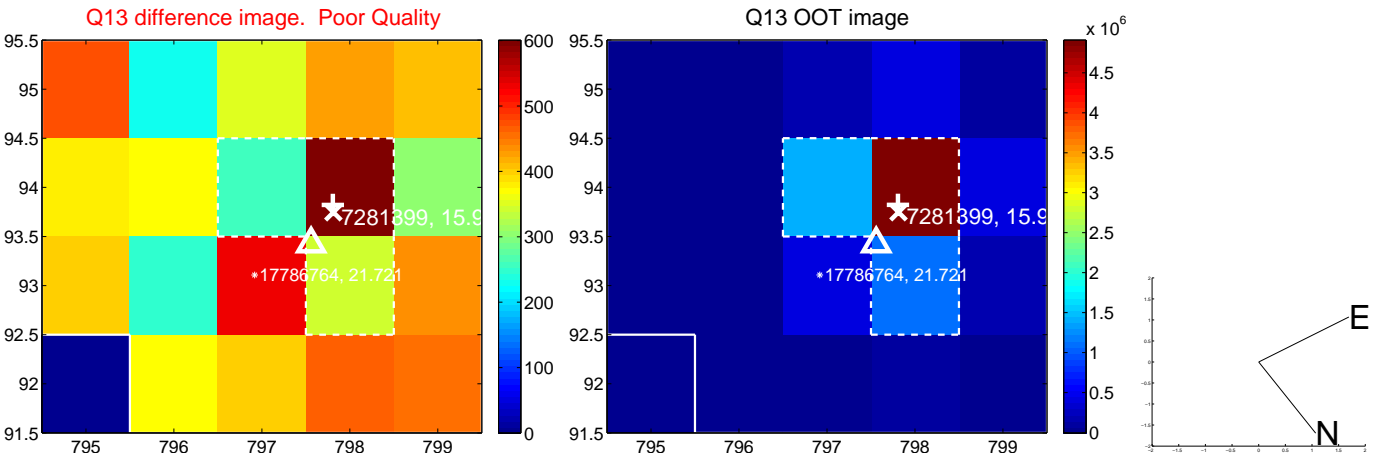
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



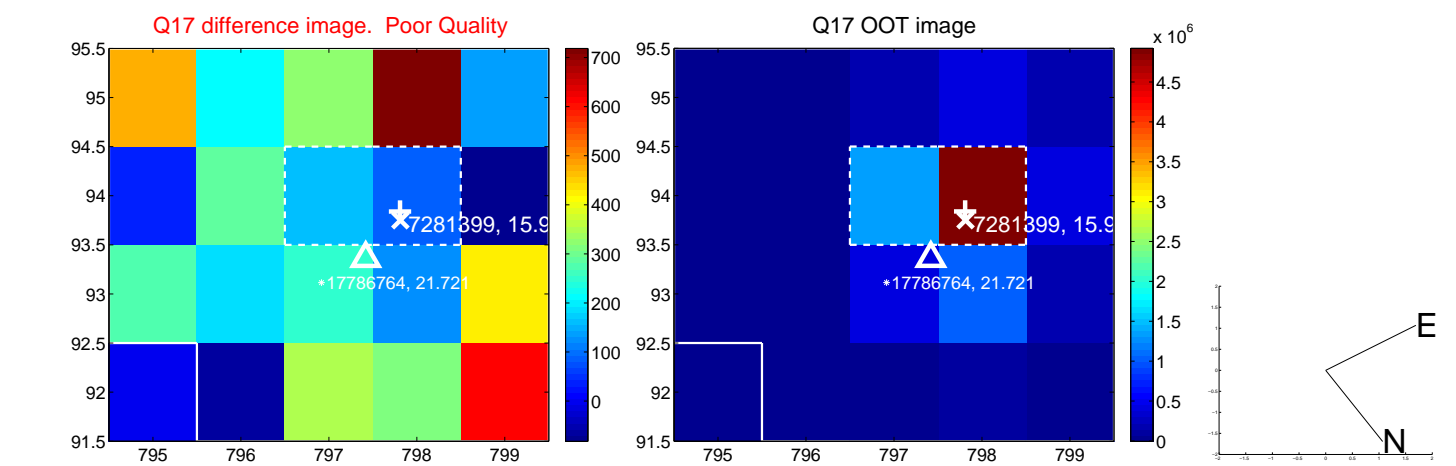
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



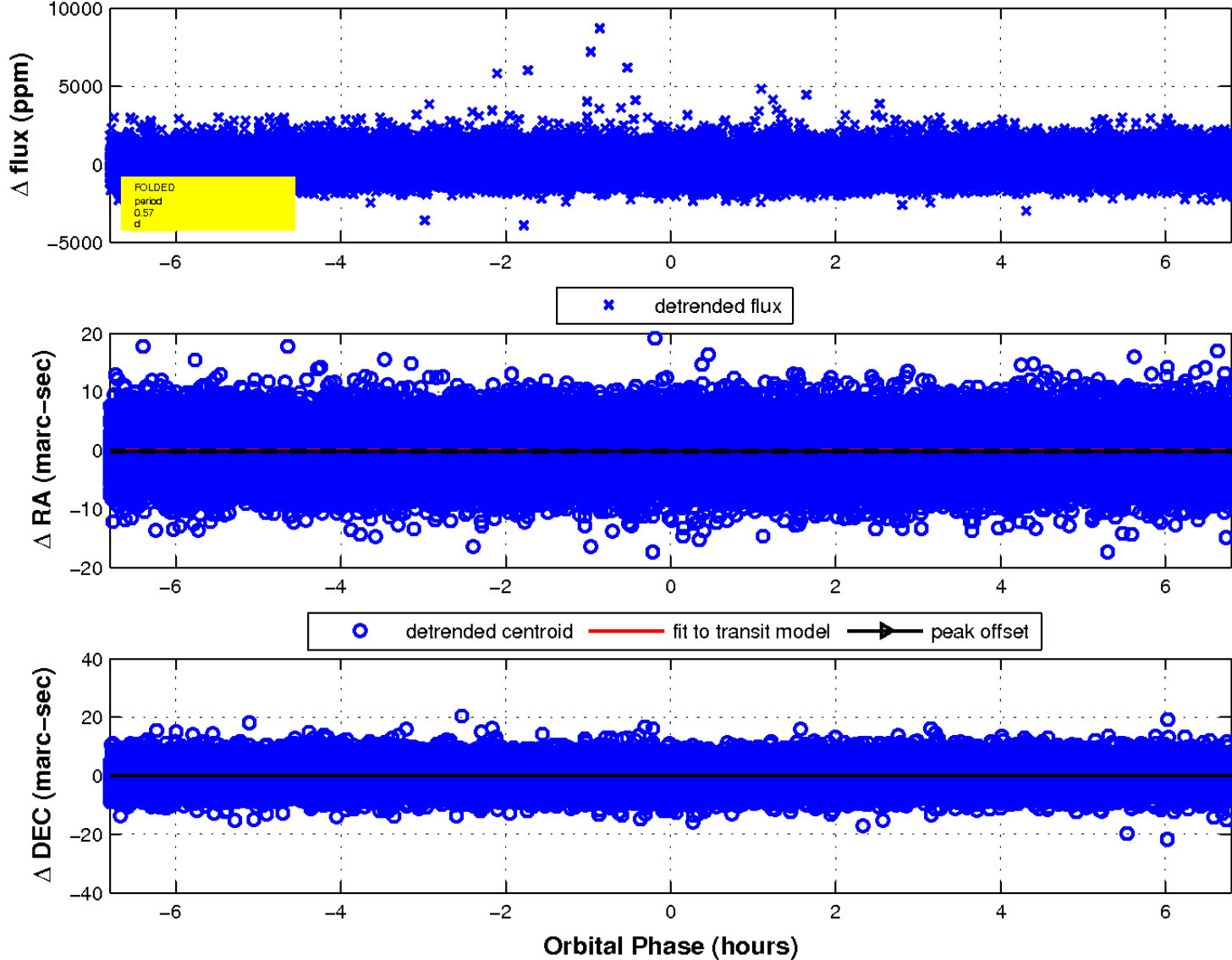
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

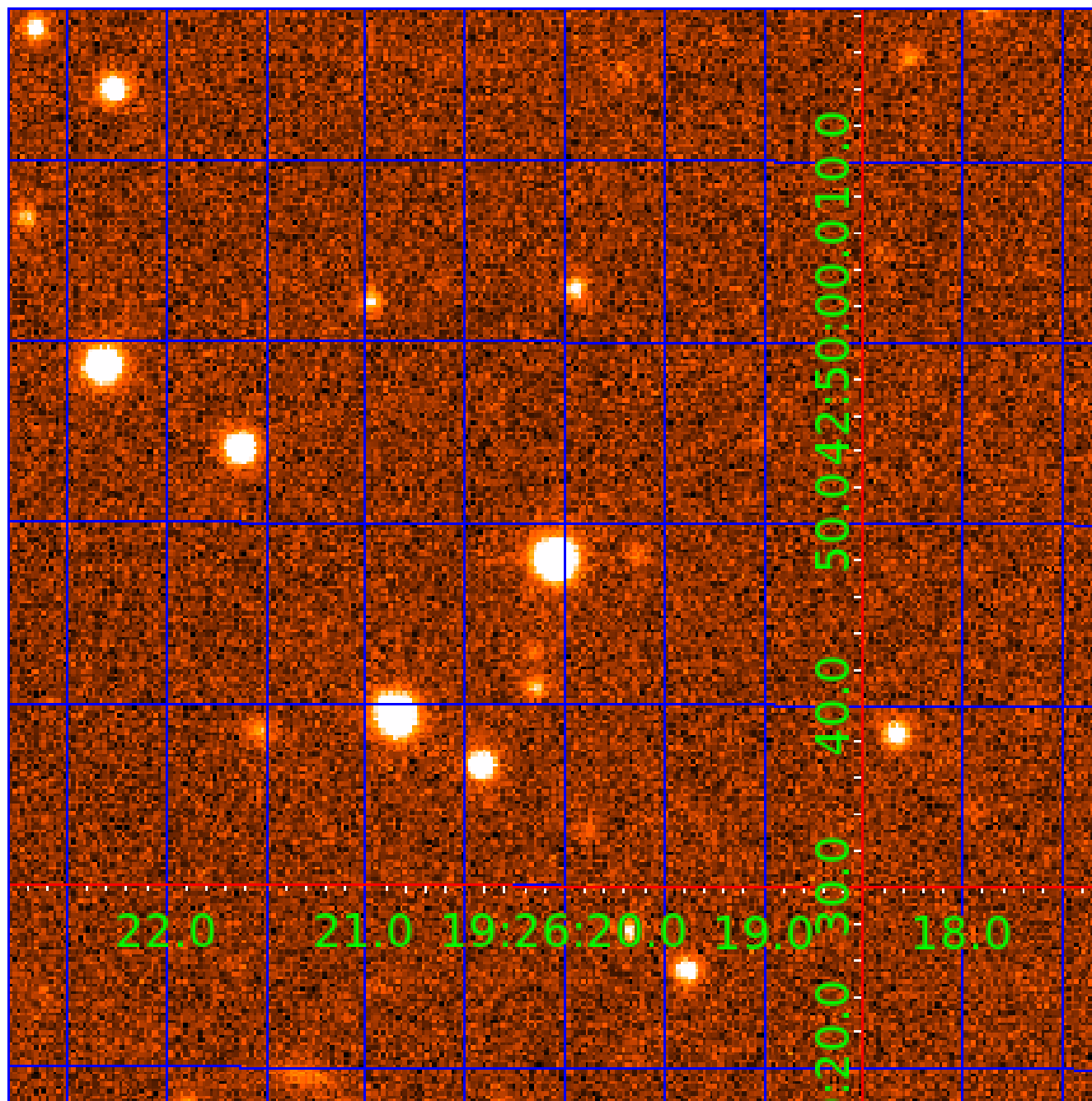


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007281399

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})
007281399-01	OBS	6854.01	0.566752	131.868705	46.1	3.787	12.7	7.1	0.54	4373	0.37	785.64
007281399-02	OBS	No	87.833954	199.646269	1085.2	1.738	8.1	7.8	0.54	4373	3.66	0.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007281399-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—EPHEM_MATCH
007281399-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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.

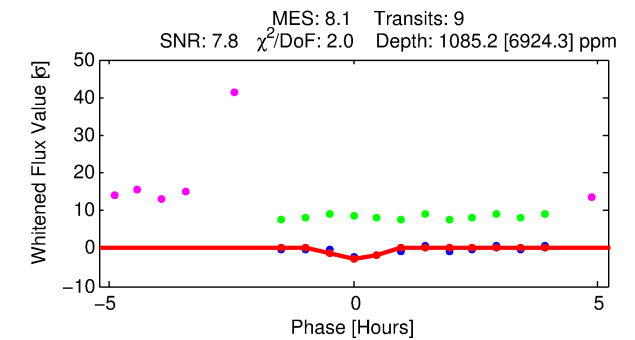
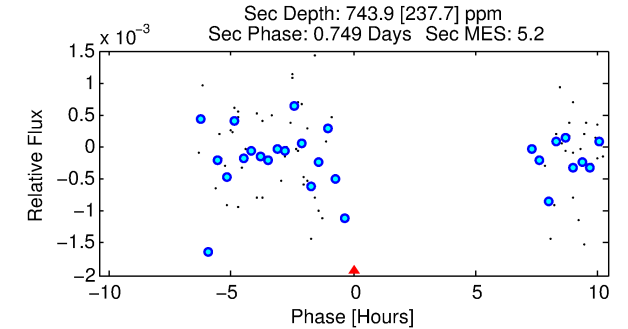
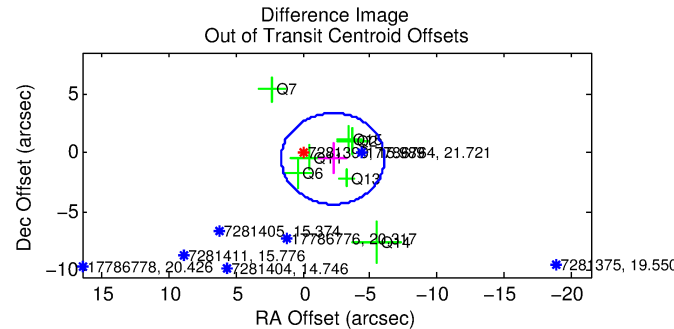
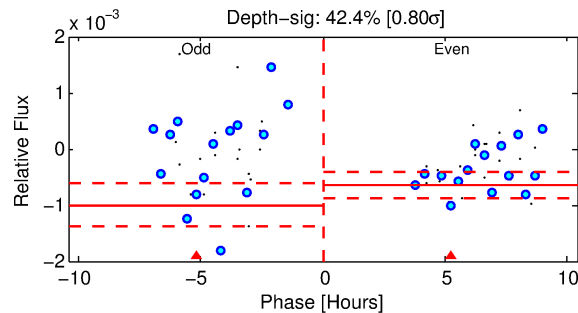
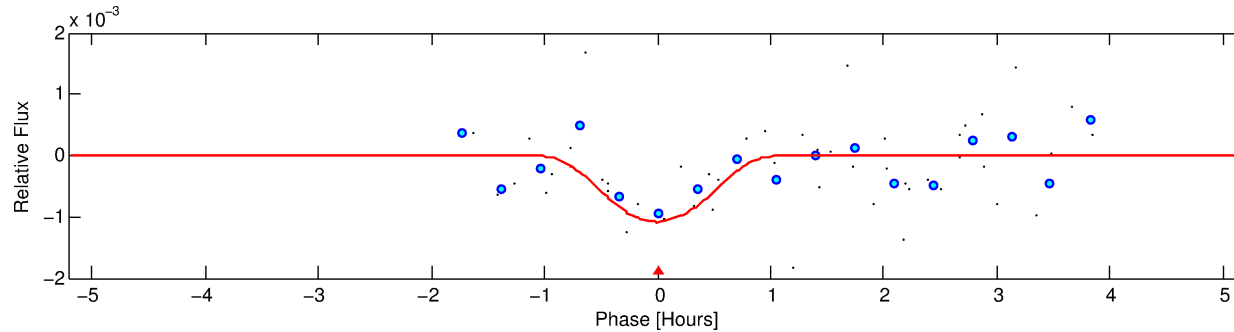
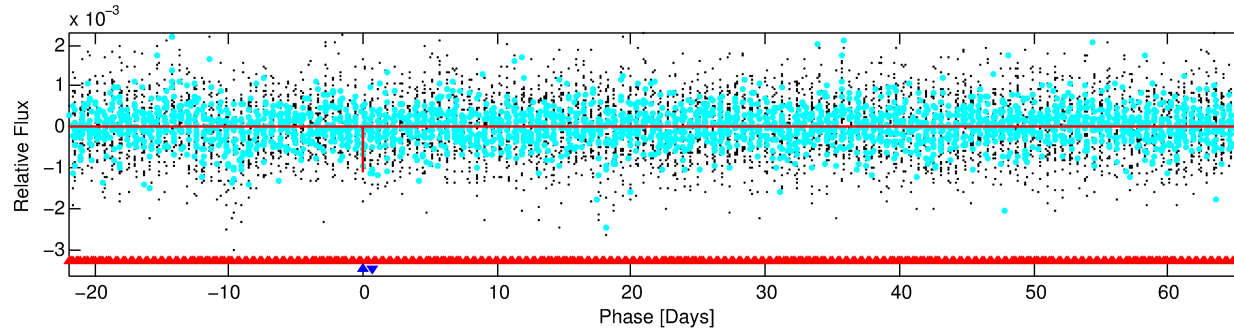
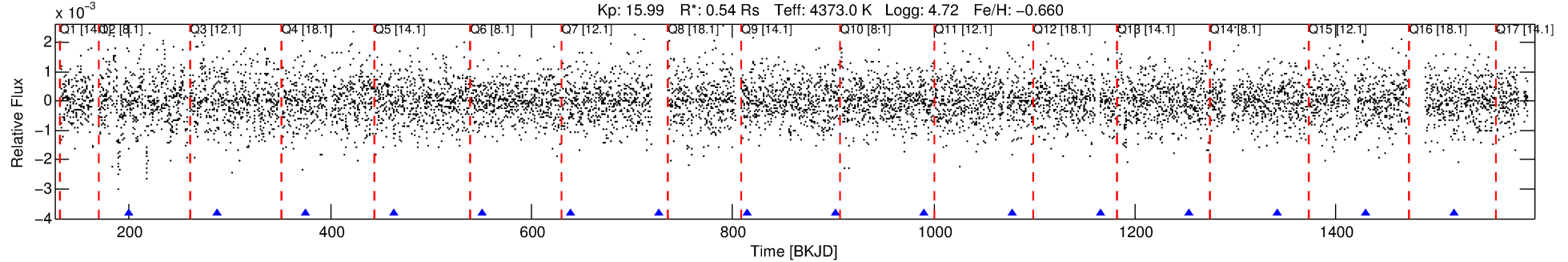
Ephemeris Match Information For 007281399-02

No Significant Match Found

DV One-Page Summary

KIC: 7281399 Candidate: 2 of 2 Period: 87.834 d
KOI: K06854 Corr: No Ephemeris Match

Kp: 15.99 R*: 0.54 Rs Teff: 4373.0 K Logg: 4.72 Fe/H: -0.660



DV Fit Results:

Period = 87.83395 [0.00268] d
Epoch = 199.6463 [0.0113] BKJD
Rp/R* = 0.0617 [1.0136]
a/R* = 137.69 [533.69]
b = 1.00 [1.18]
Seff = 0.94 [0.16]
Teq = 251 [10] K
Rp = 3.66 [60.17] Re
a = 0.3205 [0.0232] AU
Ag = 3136.06 [103078.99] [0.03σ]
Teffp = 2908 [23895] K [0.1σ]

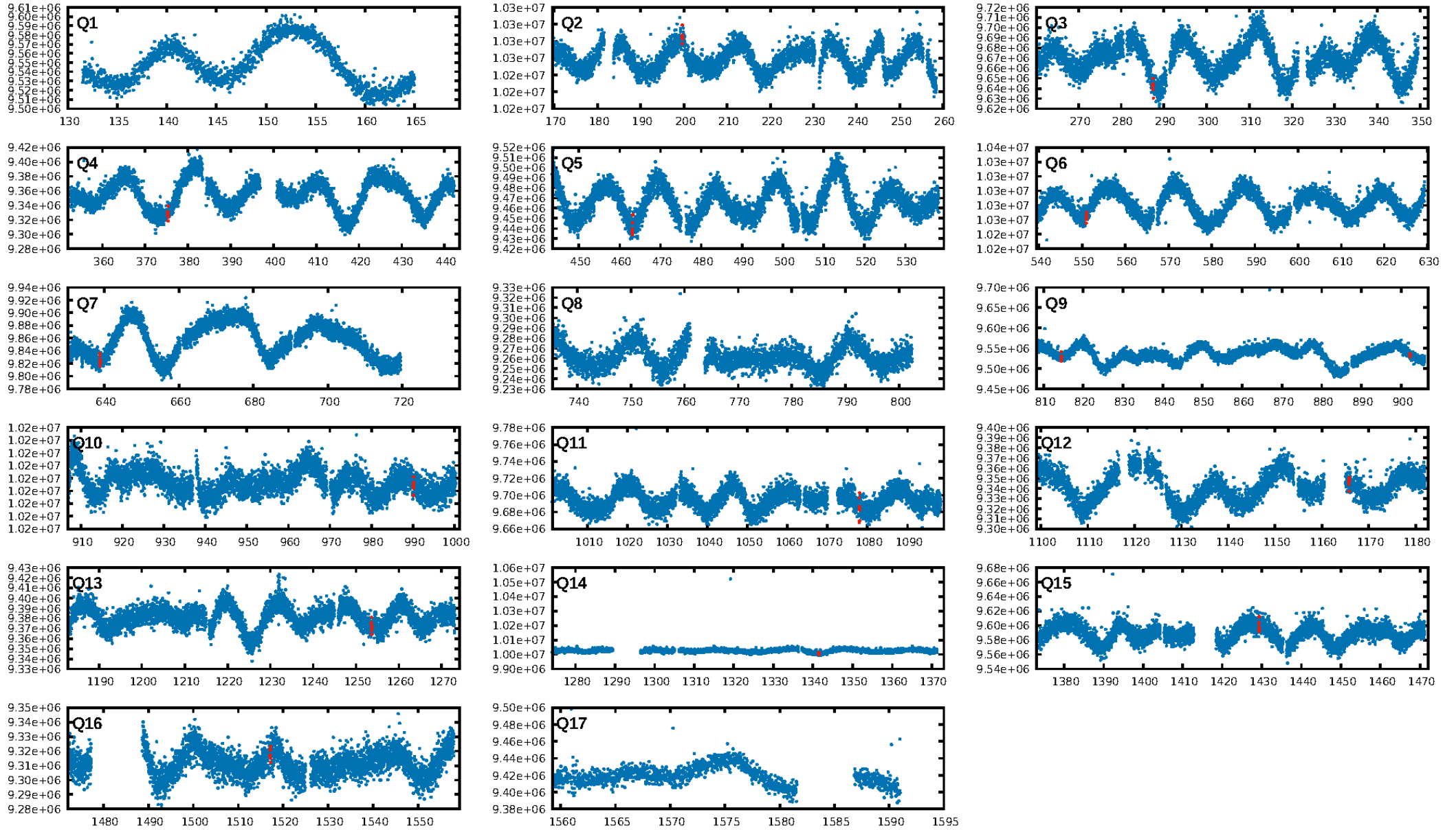
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [502.65σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.84e-11
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -6.232
Centroid-sig: 56.8%
Centroid-so: 1.129 arcsec [0.64σ]
OotOffset-rm: 2.276 arcsec [1.77σ]
KicOffset-rm: 2.267 arcsec [2.09σ]
OotOffset-st: 3/3/0/1 [7]
KicOffset-st: 3/3/0/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.00 [0/14]

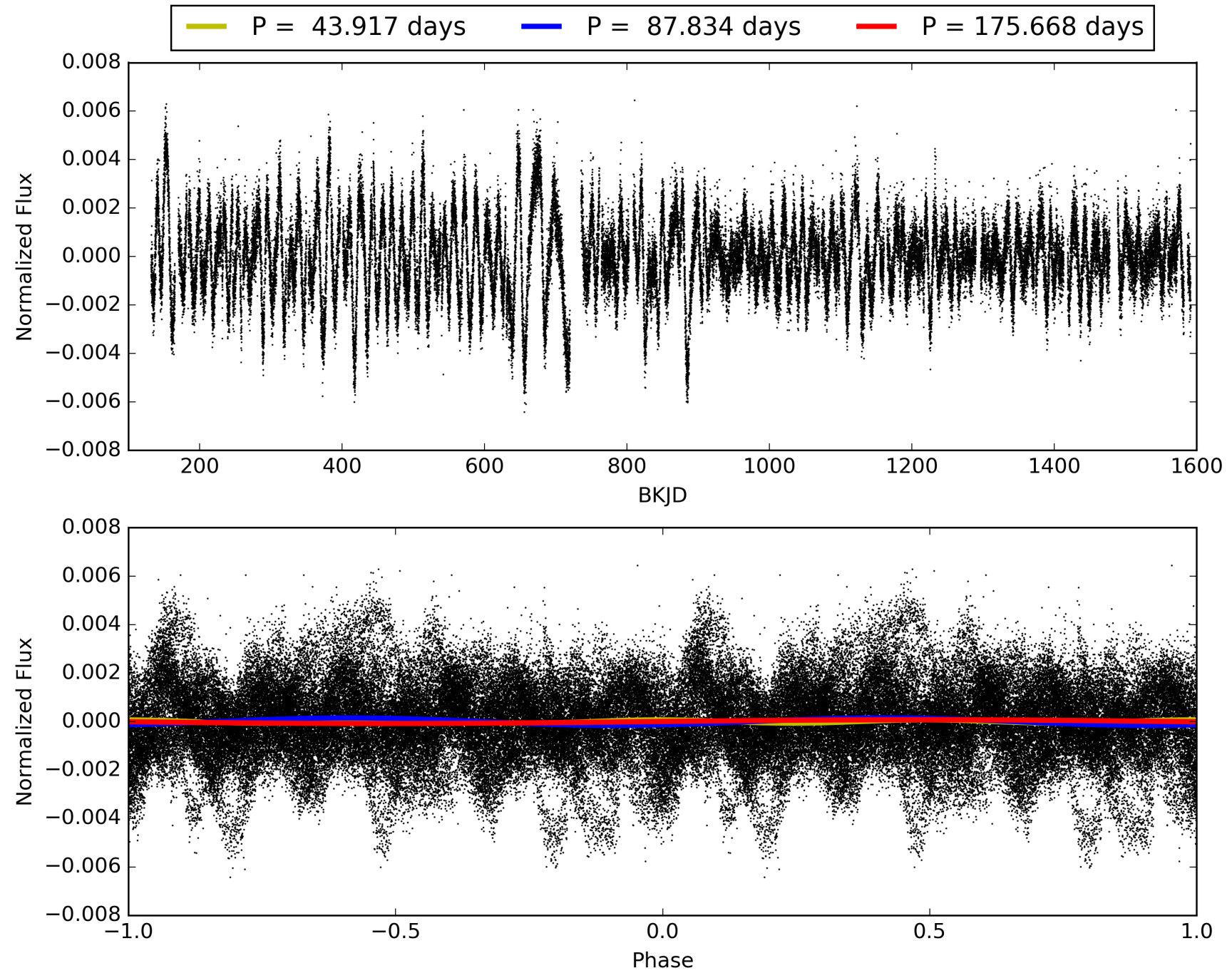
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:54:09 Z

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

TCE 007281399-02, PDC Light Curves

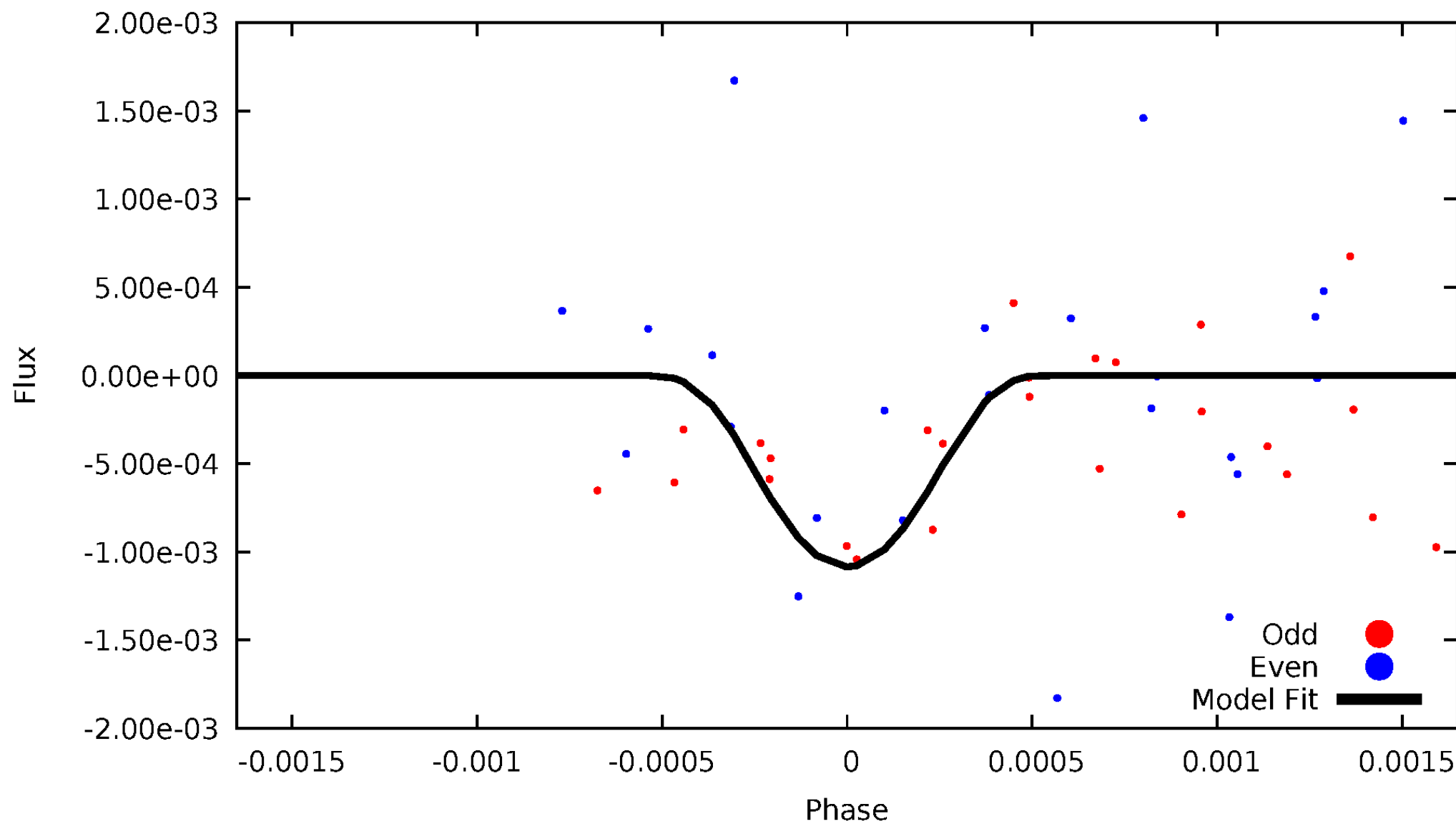


TCE 007281399-02



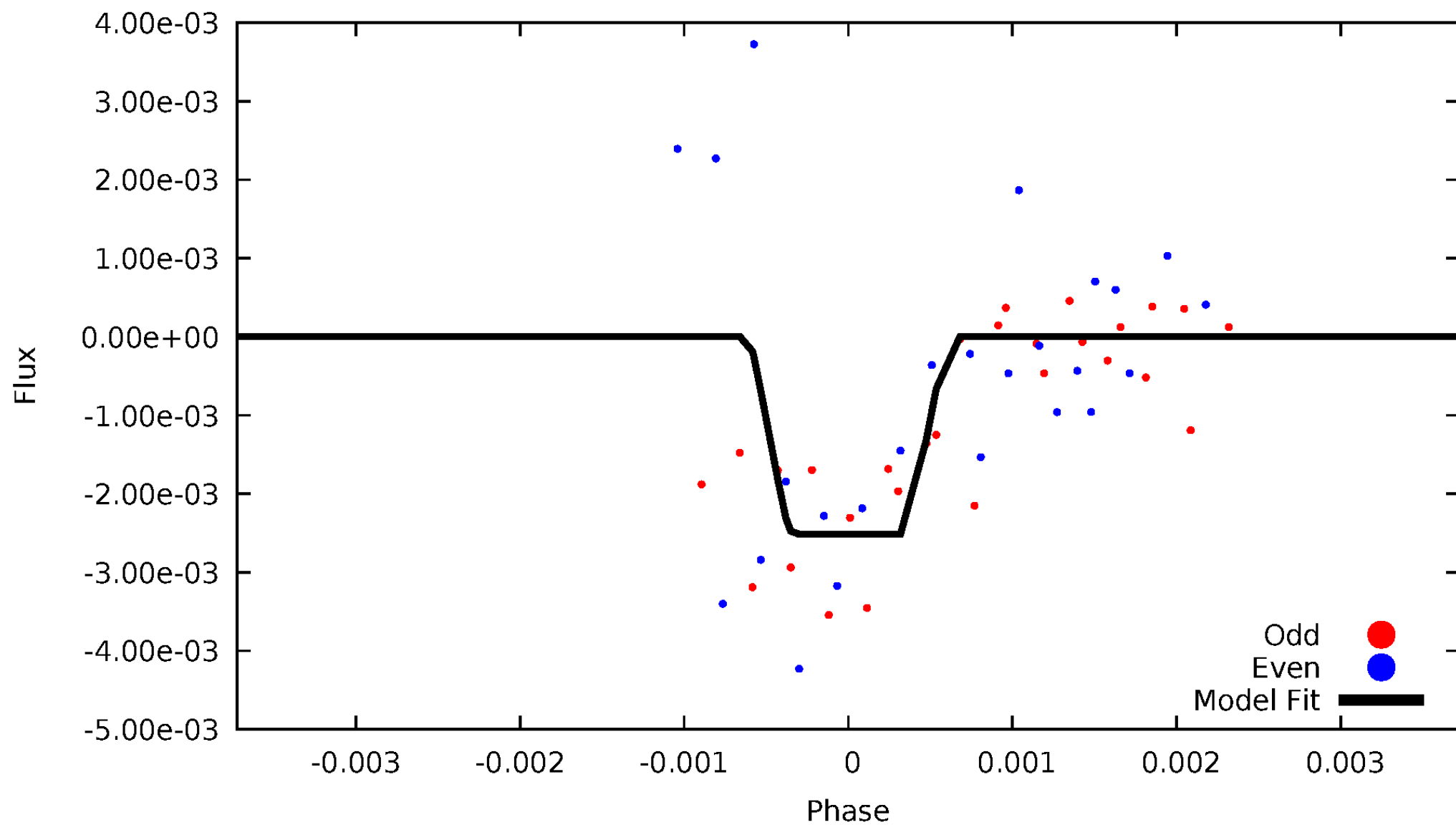
DV Odd/Even

TCE 007281399-02



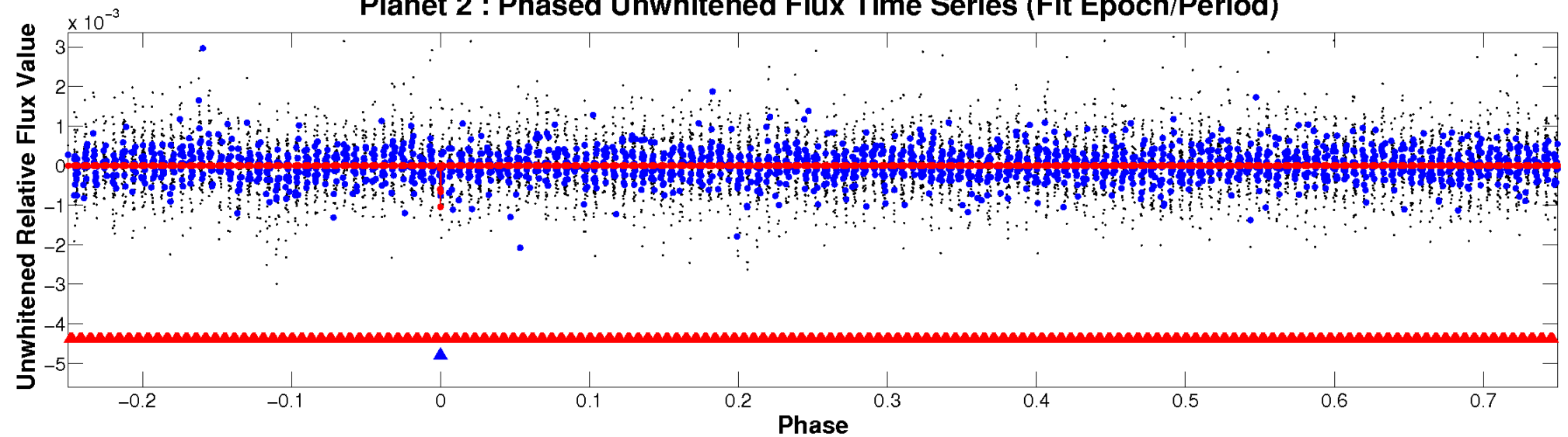
ALT Odd/Even

TCE 007281399-02

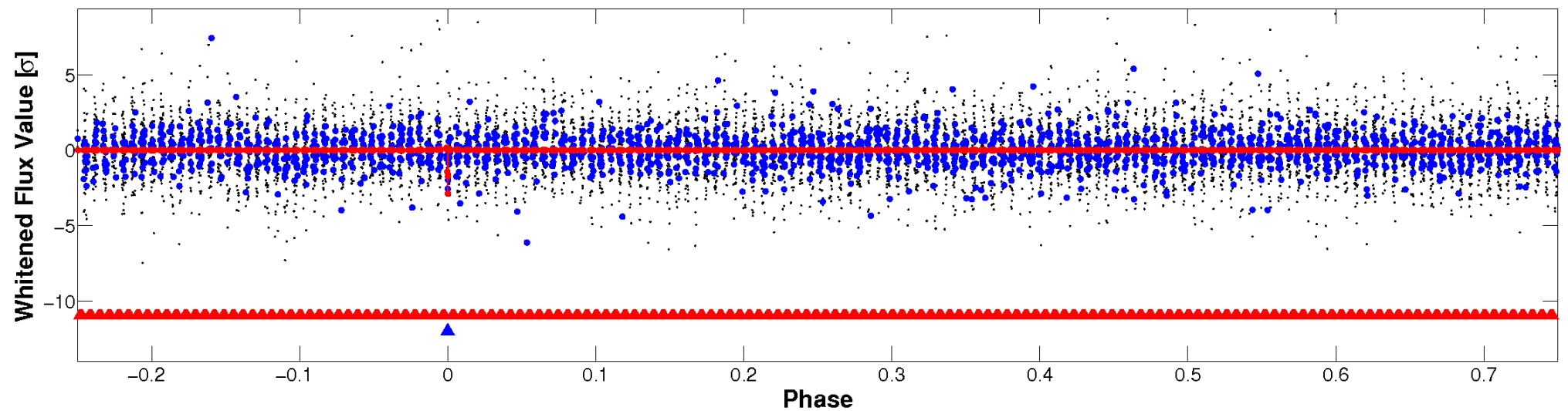


Non-Whitened Vs. Whitened Light Curve

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

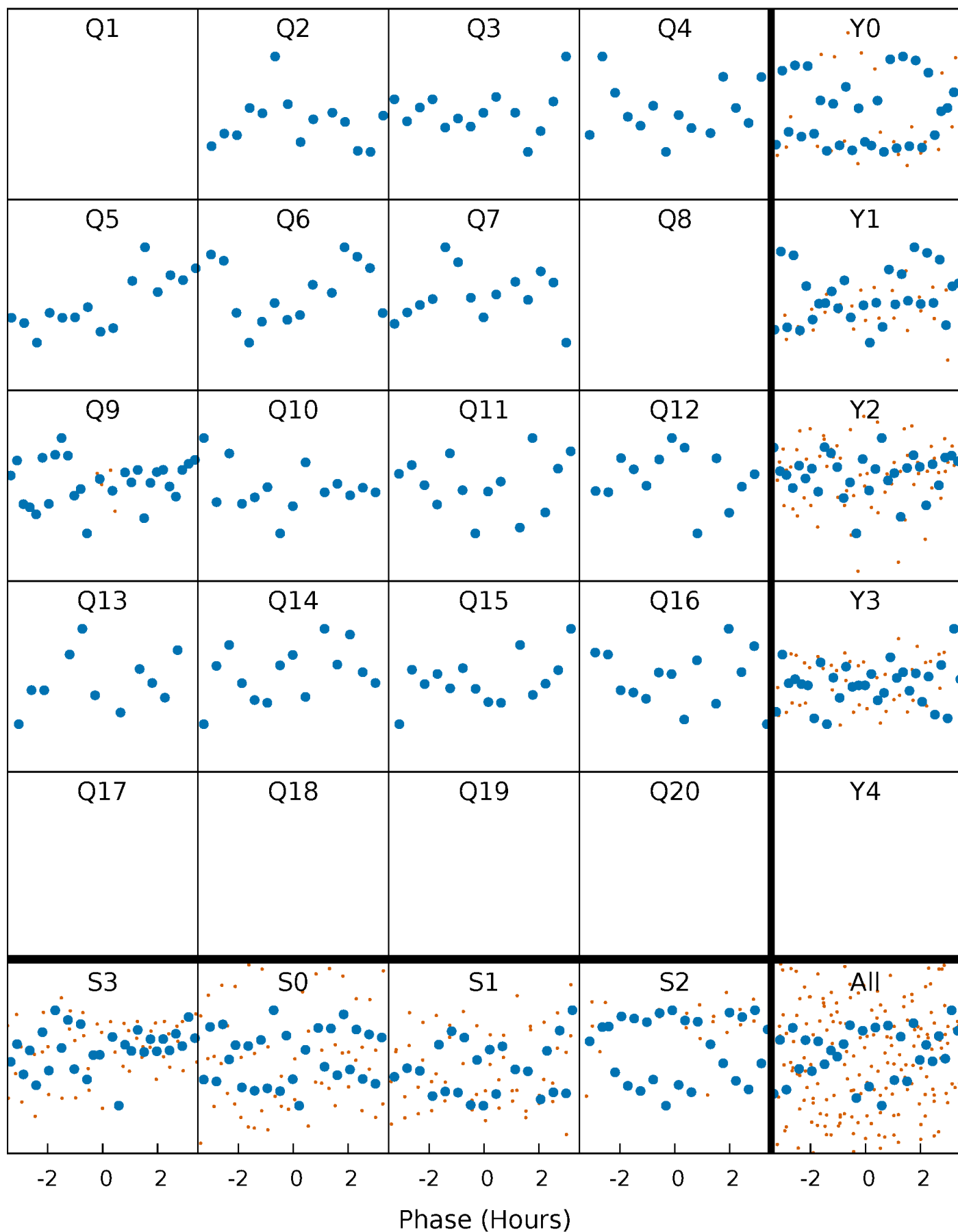


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



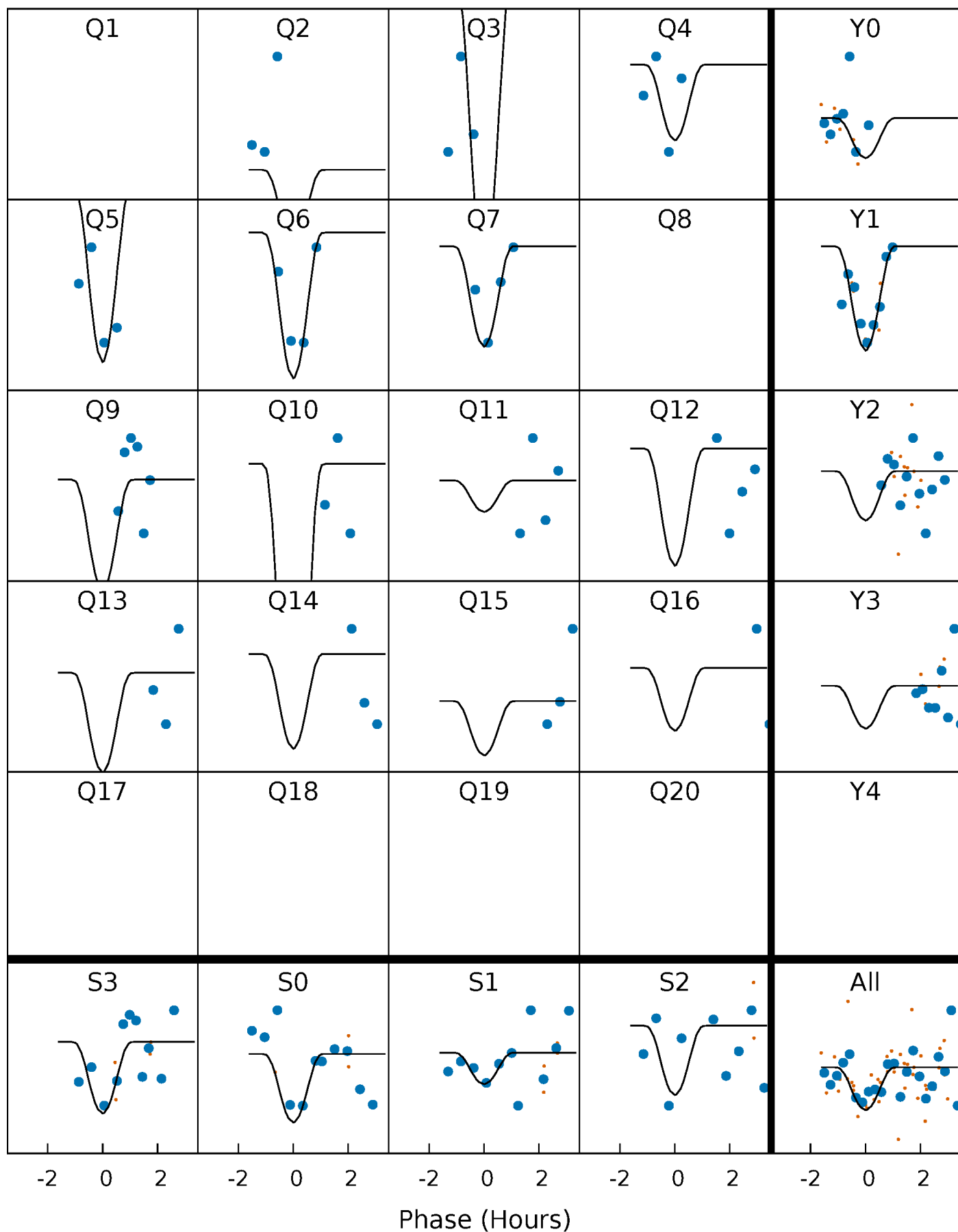
PDC Quarter-Phased Transit Curves

TCE 007281399-02 $P = 87.833954$ Days $T_0 = 199.646269$ (BKJD)



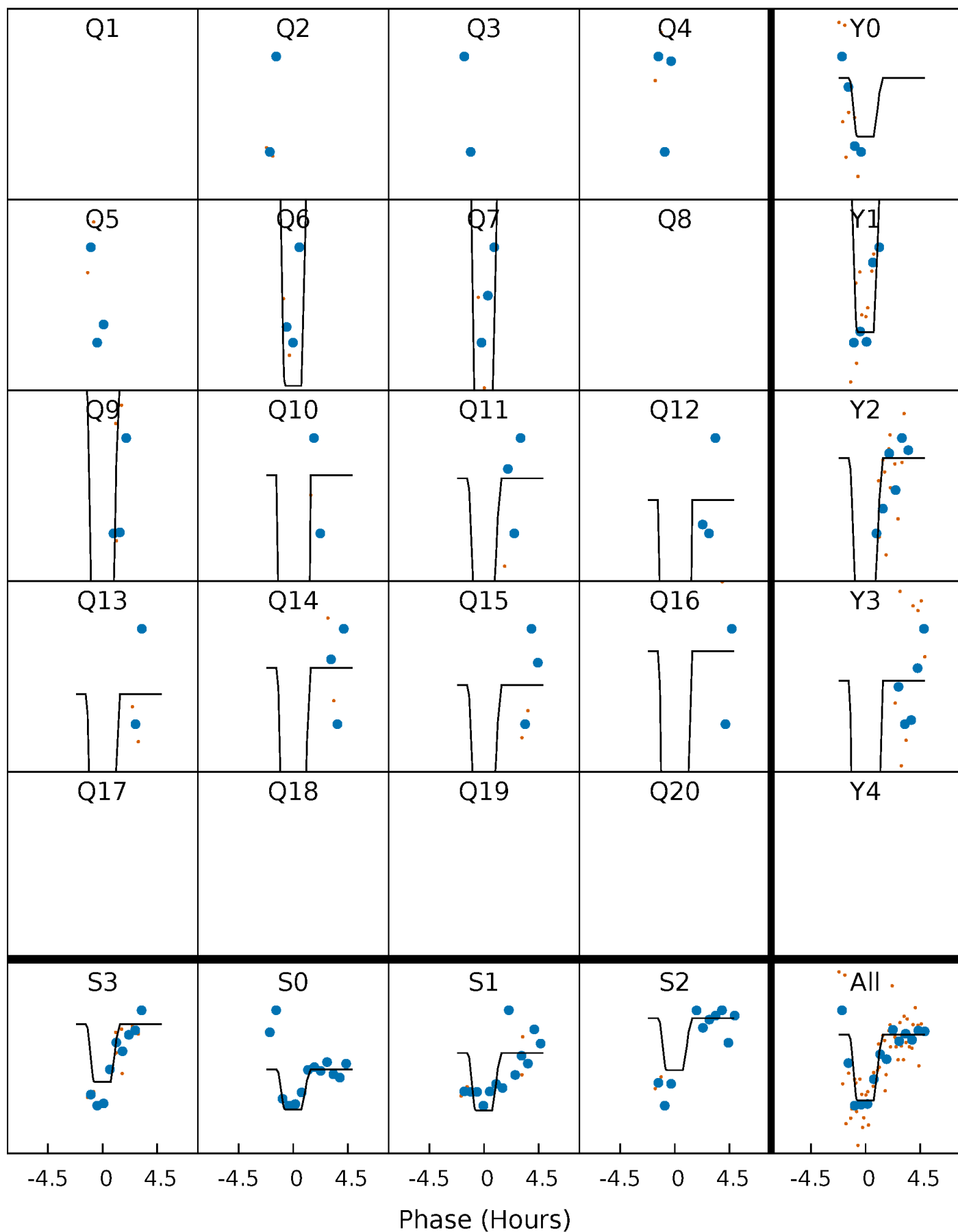
DV Quarter-Phased Transit Curves

TCE 007281399-02 $P = 87.833954$ Days $T_0 = 199.646269$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

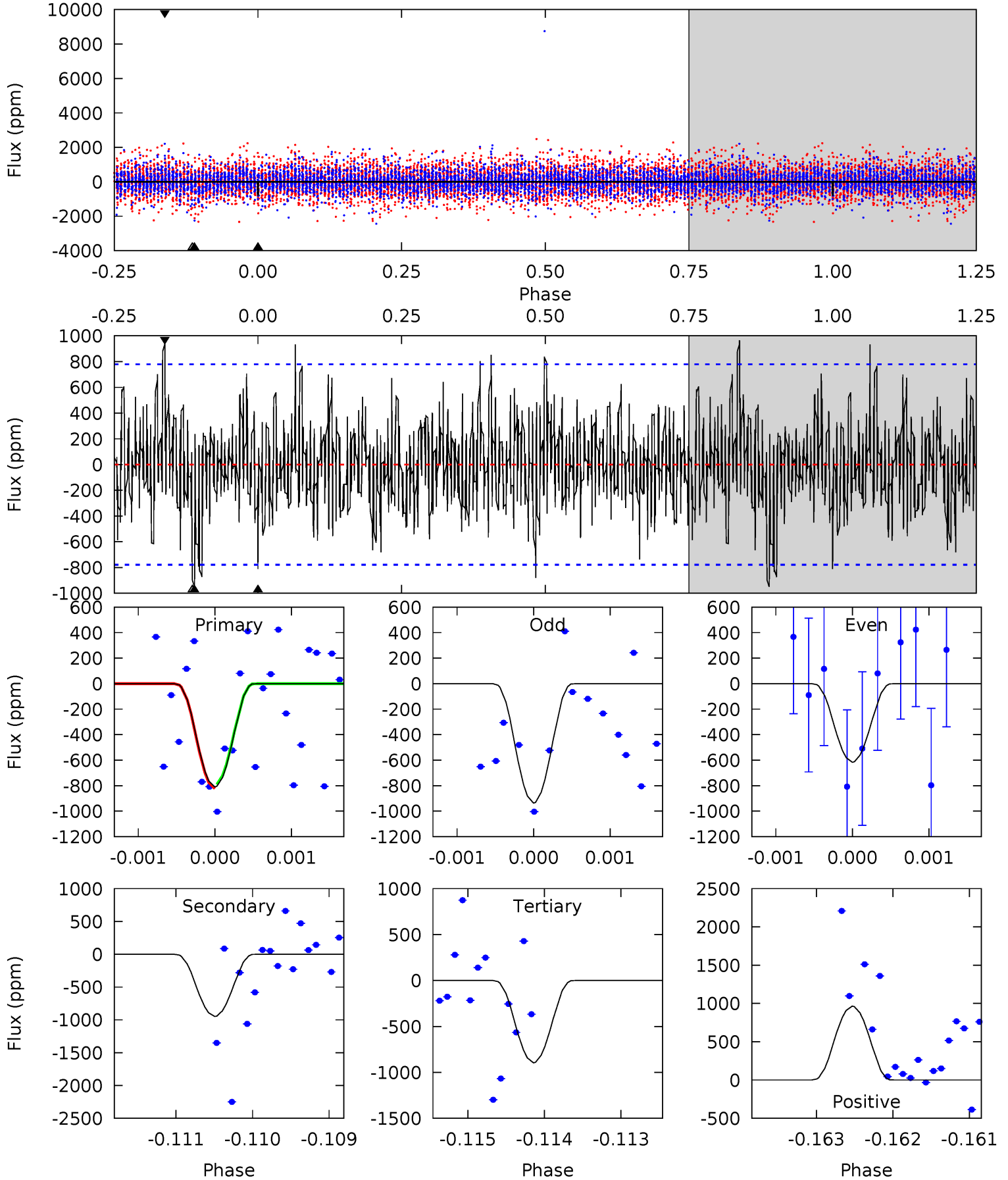
TCE 007281399-02 $P = 87.829485$ Days $T_0 = 199.669985$ (BKJD)



DV Model-Shift Uniqueness Test

007281399-02, P = 87.833954 Days, E = 111.812315 Days

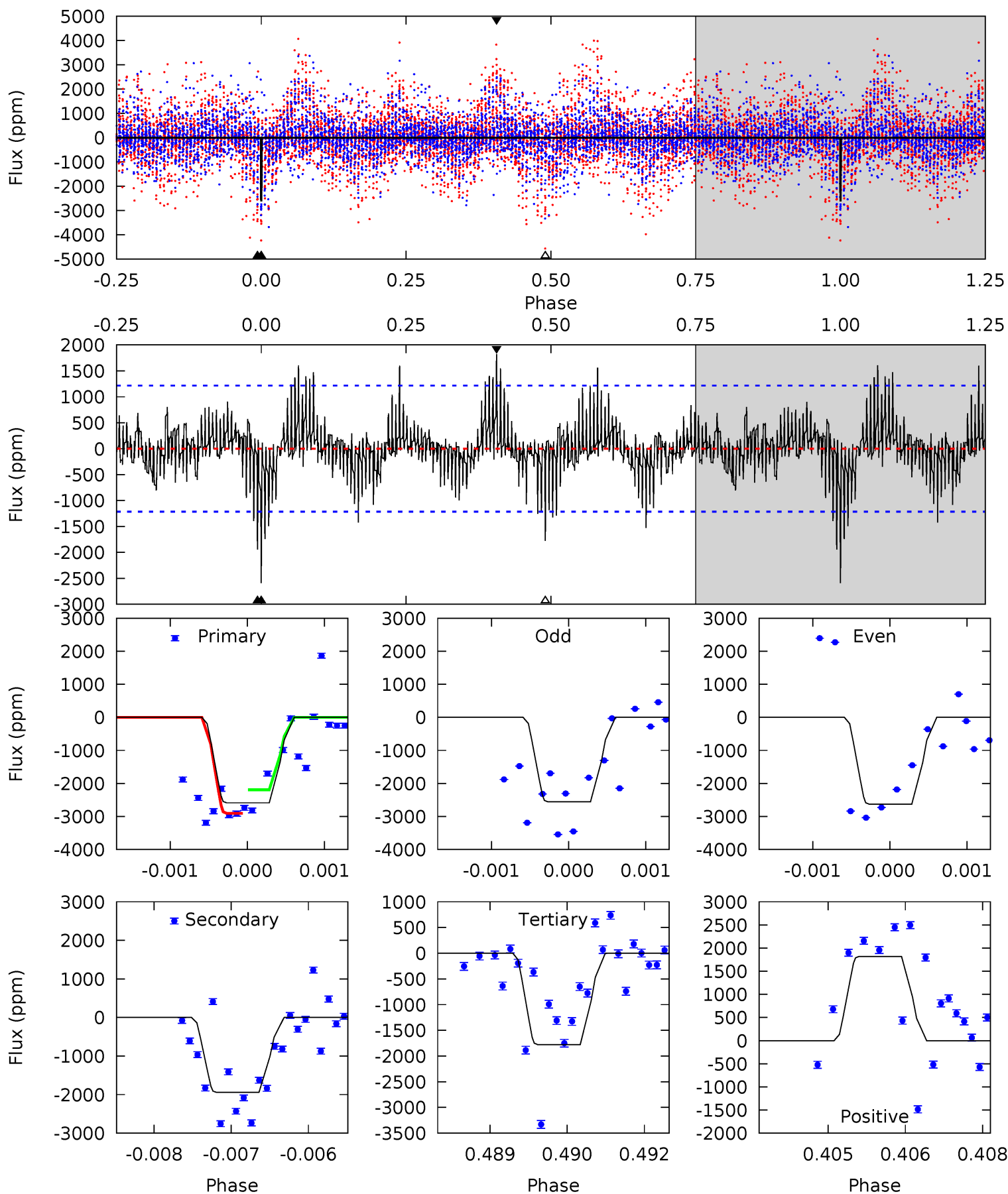
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.66	6.63	6.26	6.75	5.45	3.29	1.69	-0.60	-1.09	0.37	-0.12	1.12	0.91	0.50	0.11



Alt Model-Shift Uniqueness Test

007281399-02, P = 87.829485 Days, E = 111.840500 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	8.67	7.94	8.12	5.43	3.26	1.88	3.62	3.44	0.73	0.55	0.15	1.25	0.41	1.60



Stellar Parameters For KIC 007281399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4373^{+118}_{-144}	$4.722^{+0.036}_{-0.050}$	$-0.660^{+0.300}_{-0.300}$	$0.544^{+0.050}_{-0.045}$	$0.569^{+0.052}_{-0.047}$	$4.967^{+0.900}_{-0.915}$
	+3%/-3%	+1%/-1%	+45%/-45%	+9%/-8%	+9%/-8%	+18%/-18%
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 007281399-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-948 ± 143	$44.03^{+46.39}_{-31.26}$	352^{+12}_{-13}	1877^{+564}_{-241}	28^{+294}_{-21}
Alt.	-1942 ± 224	$42.98^{+41.96}_{-28.87}$	351^{+12}_{-12}	2020^{+588}_{-253}	62^{+498}_{-47}

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

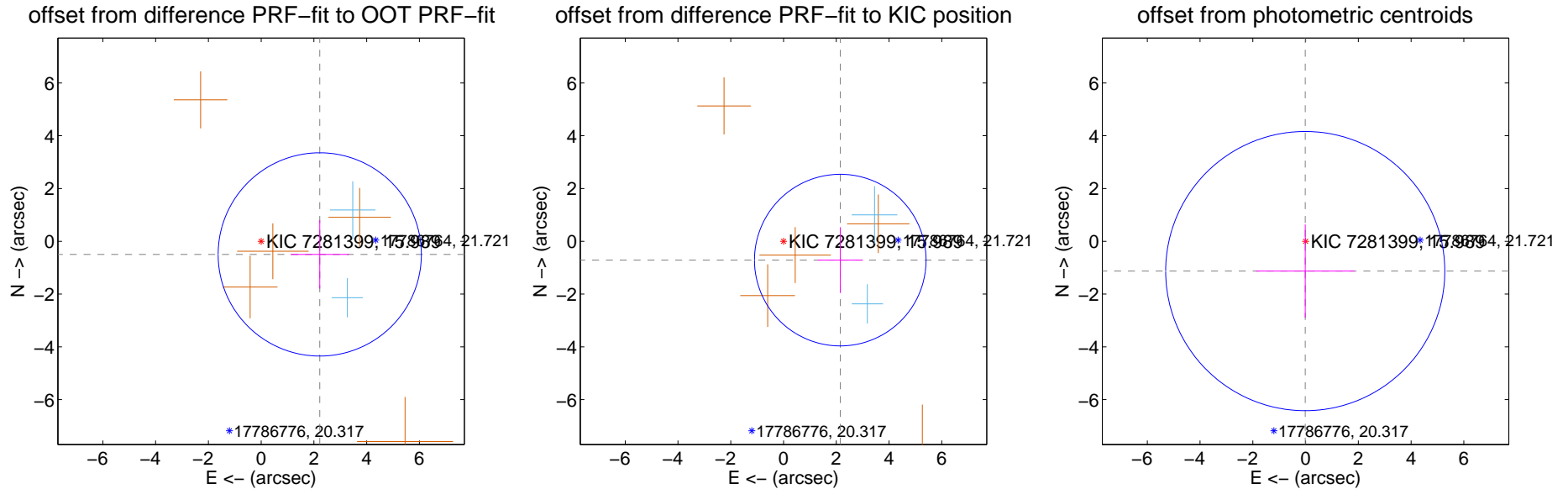
DV Centroid Data

Supplemental centroid analysis for 007281399-02. Kepler magnitude: 15.99. Transit SNR 7.77

There are 2 quarters with good PRF difference image offsets

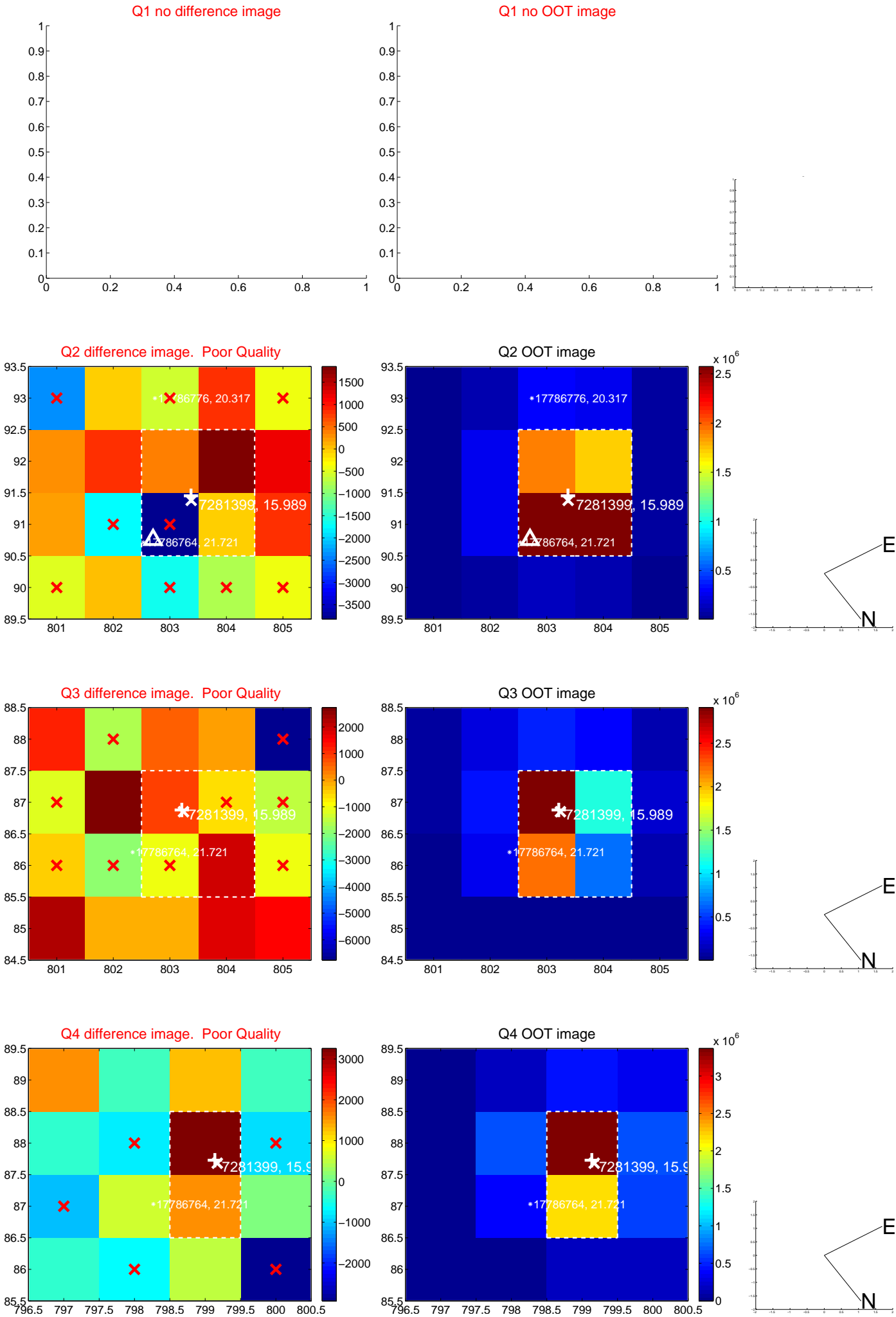
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.276 ± 1.284	1.77	-2.221 ± 1.112	-0.498 ± 1.293
PRF-fit source offset from KIC position	2.267 ± 1.084	2.09	-2.151 ± 0.856	-0.713 ± 1.246
photometric centroid source offset	1.13 ± 1.76	0.64	0.01 ± 1.87	-1.13 ± 1.76

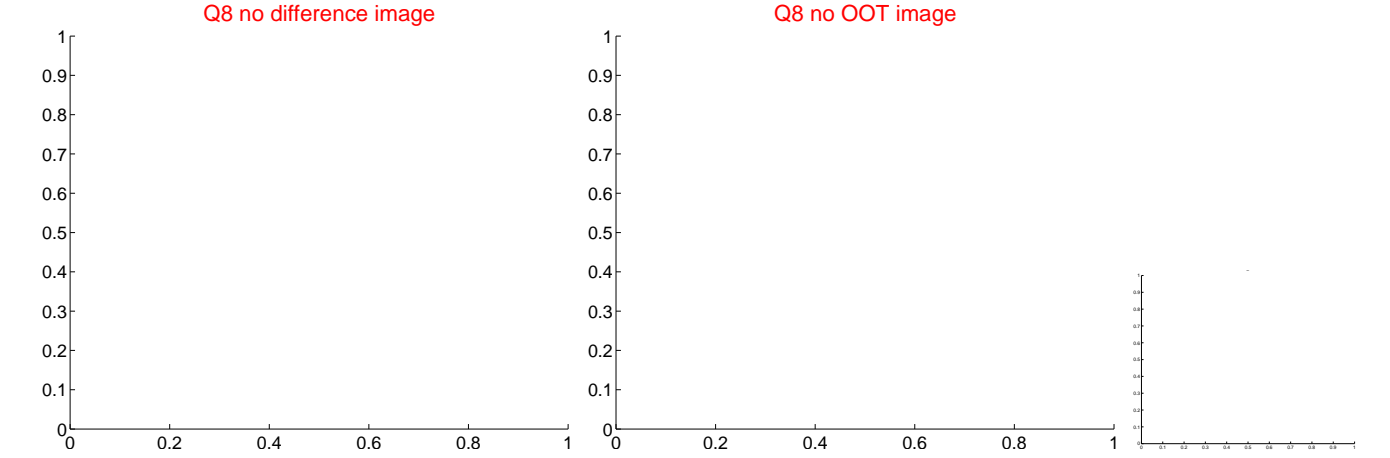
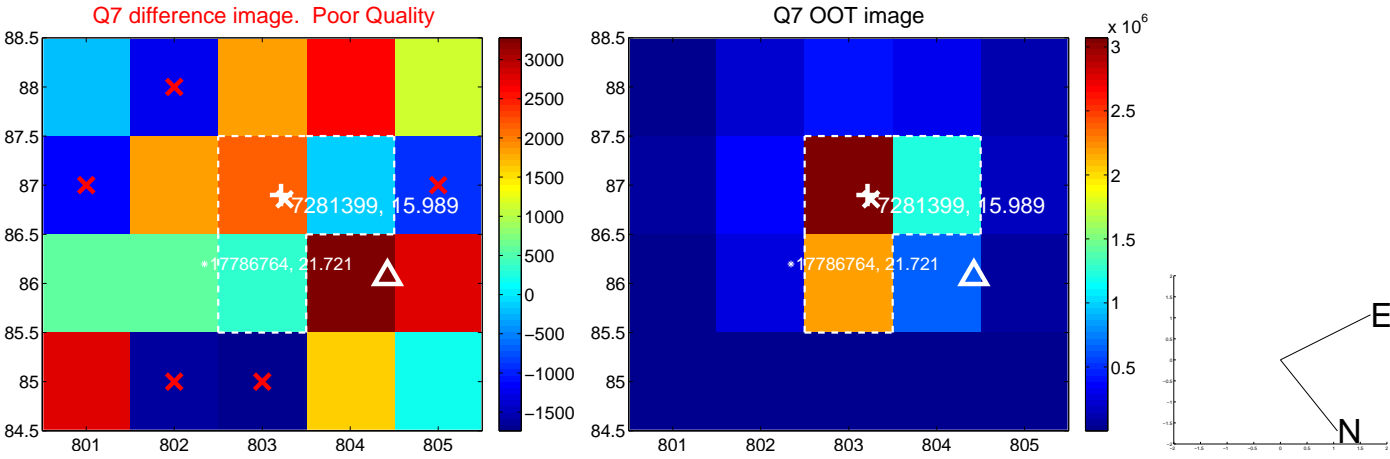
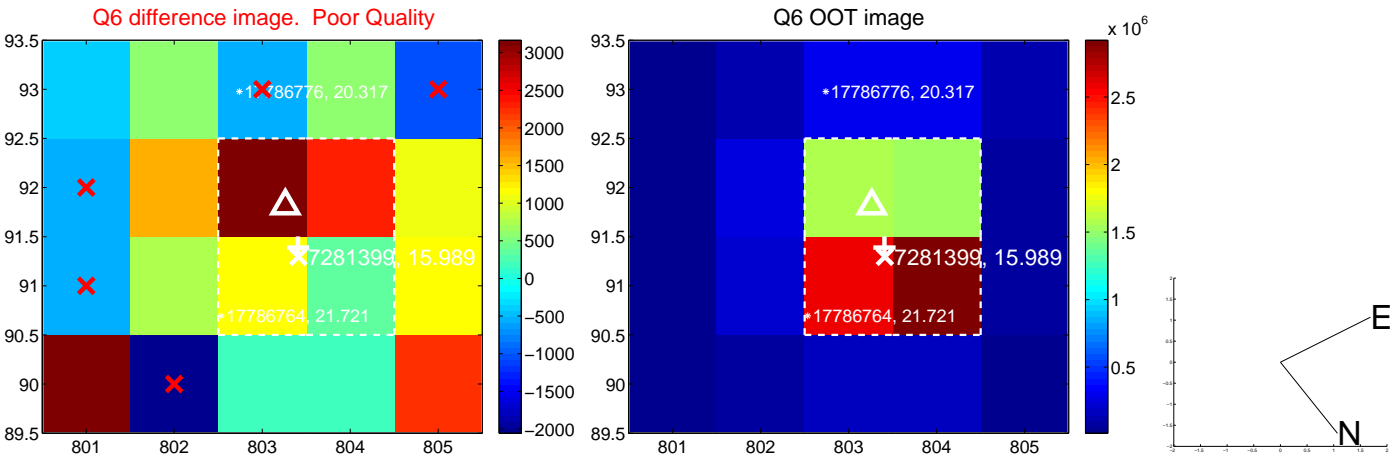
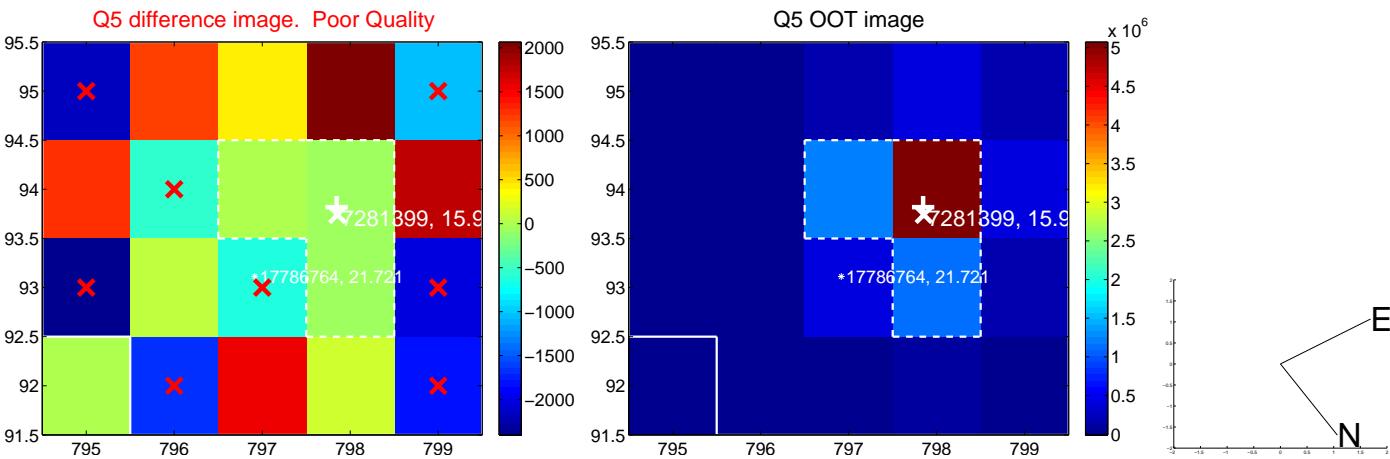


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

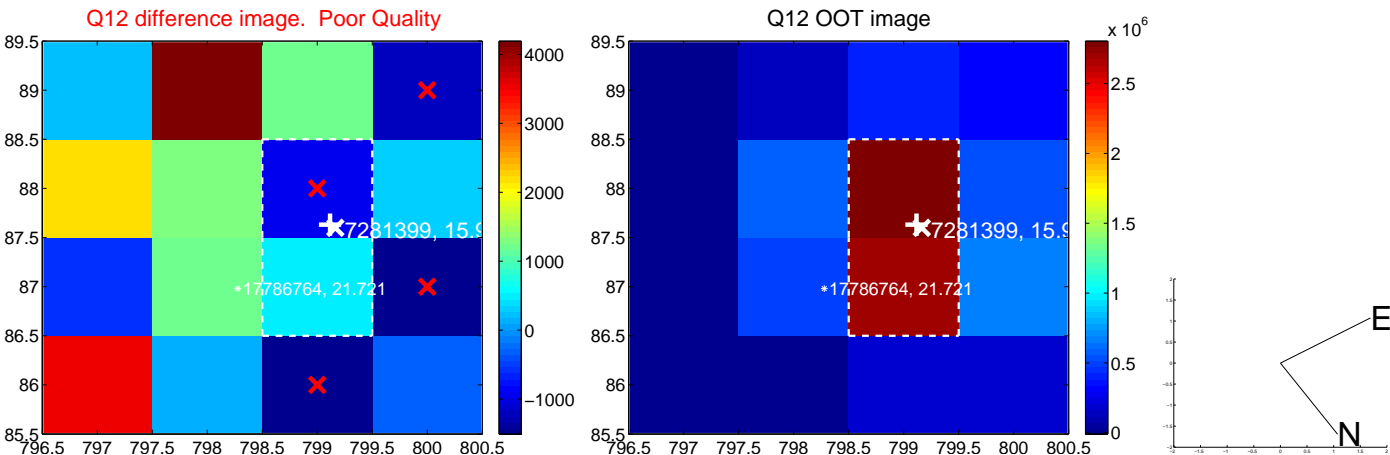
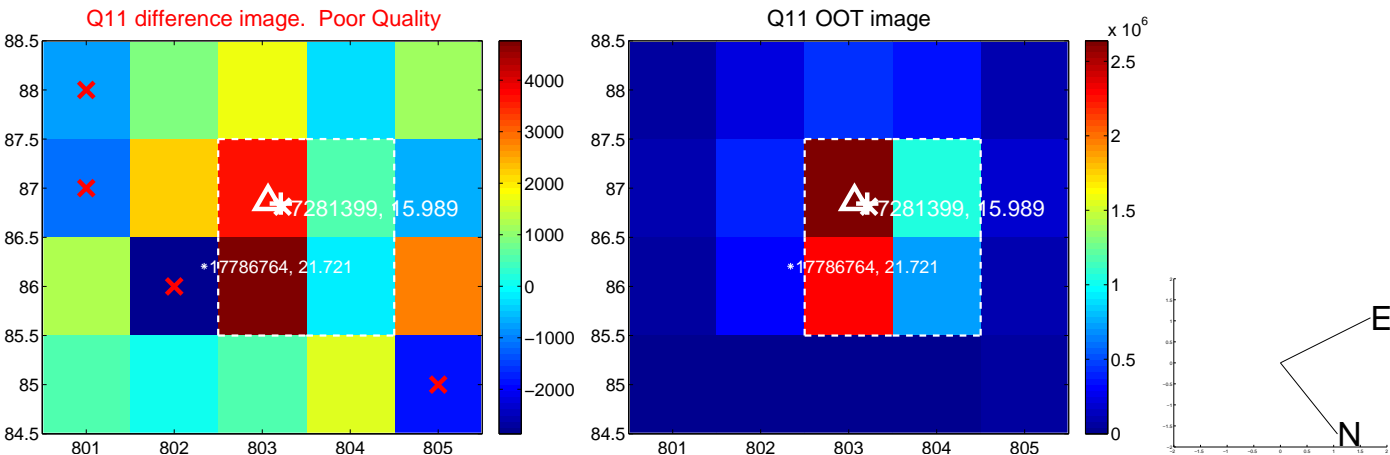
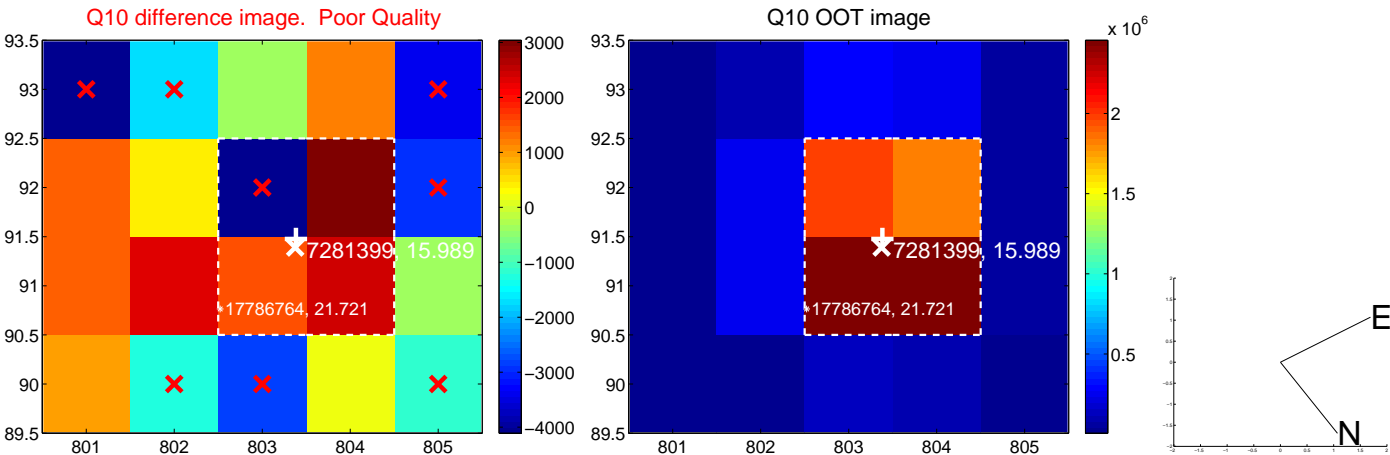
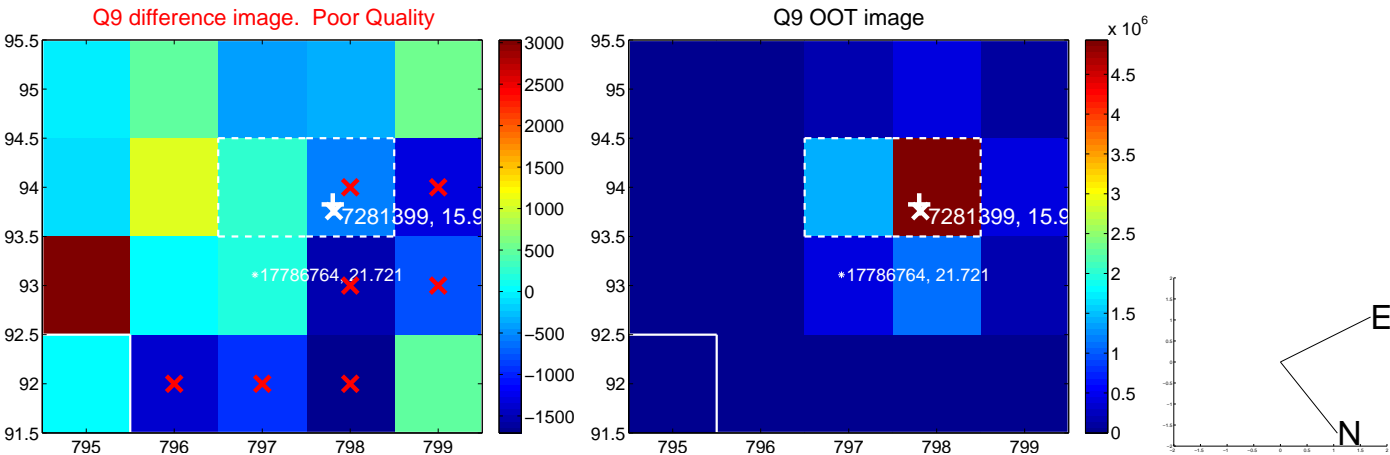
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



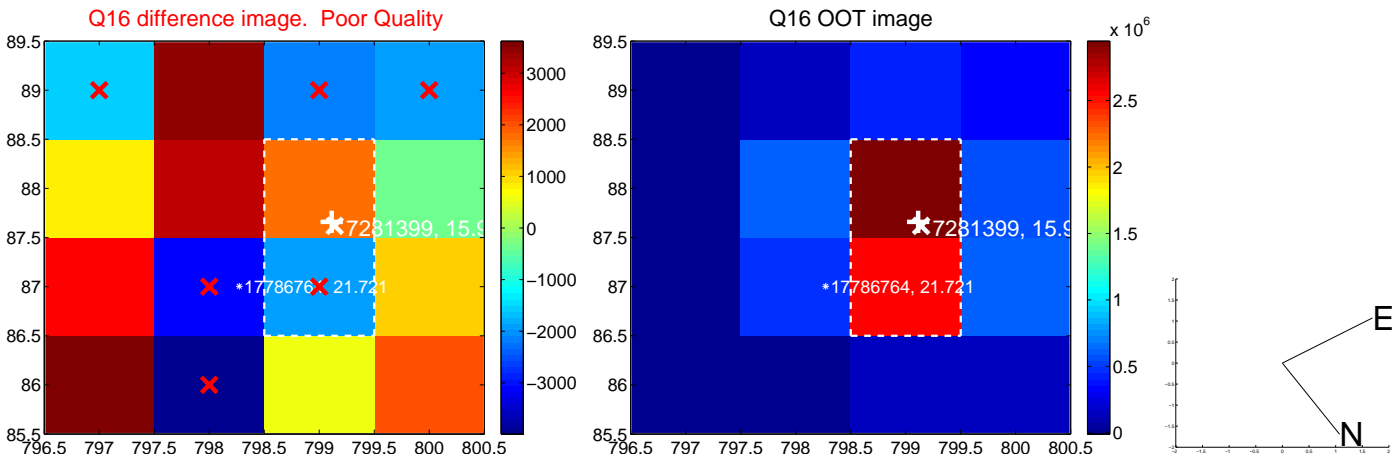
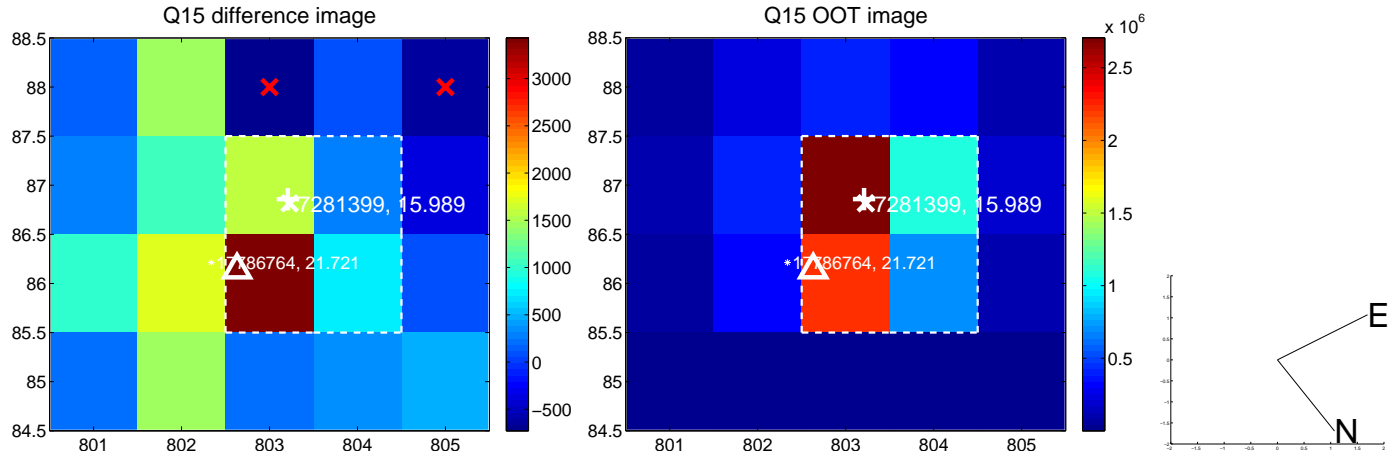
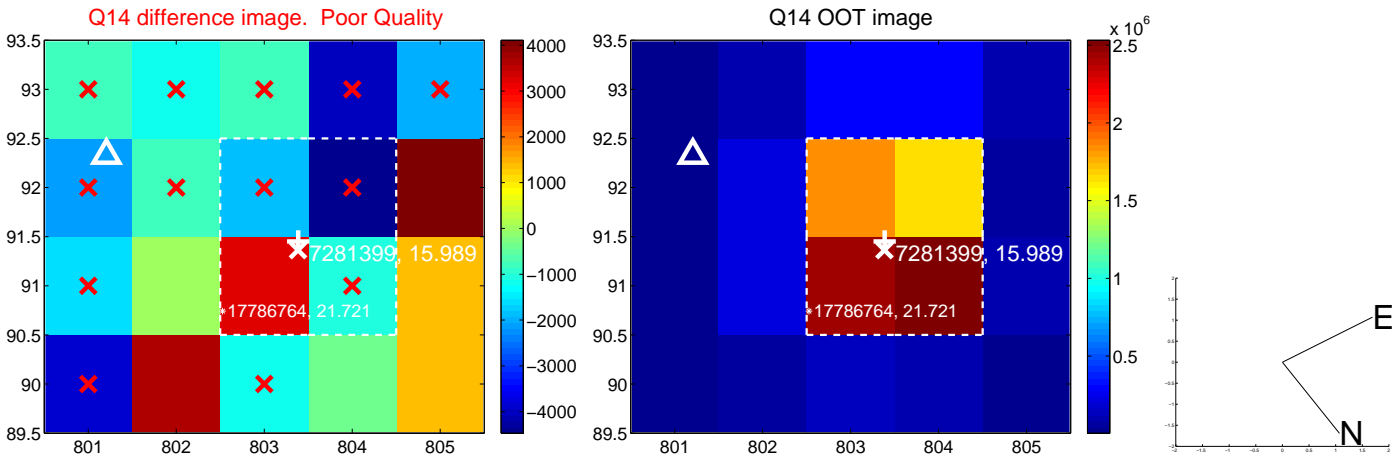
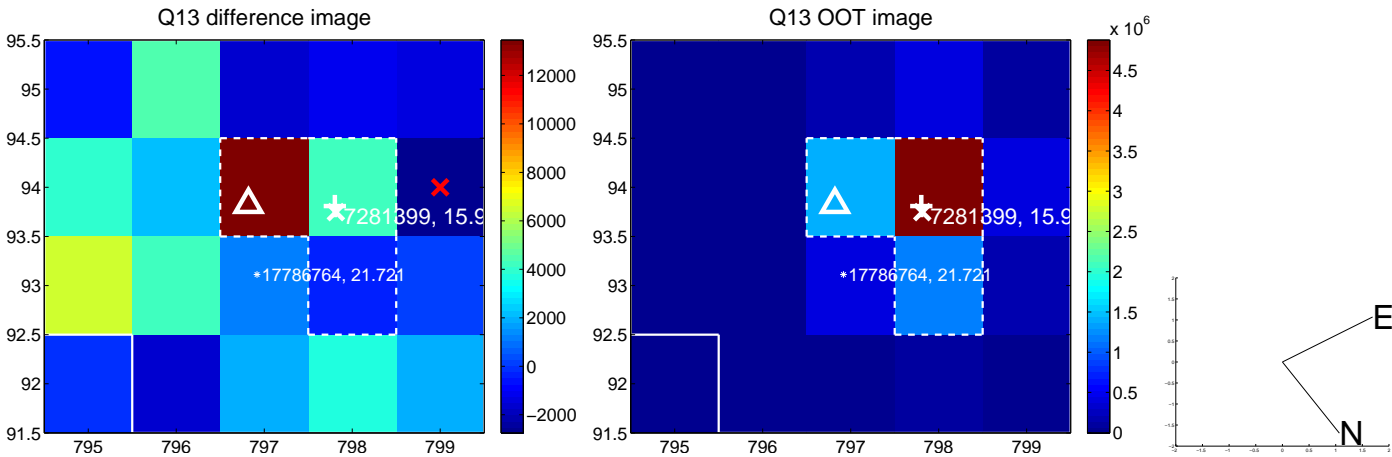
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



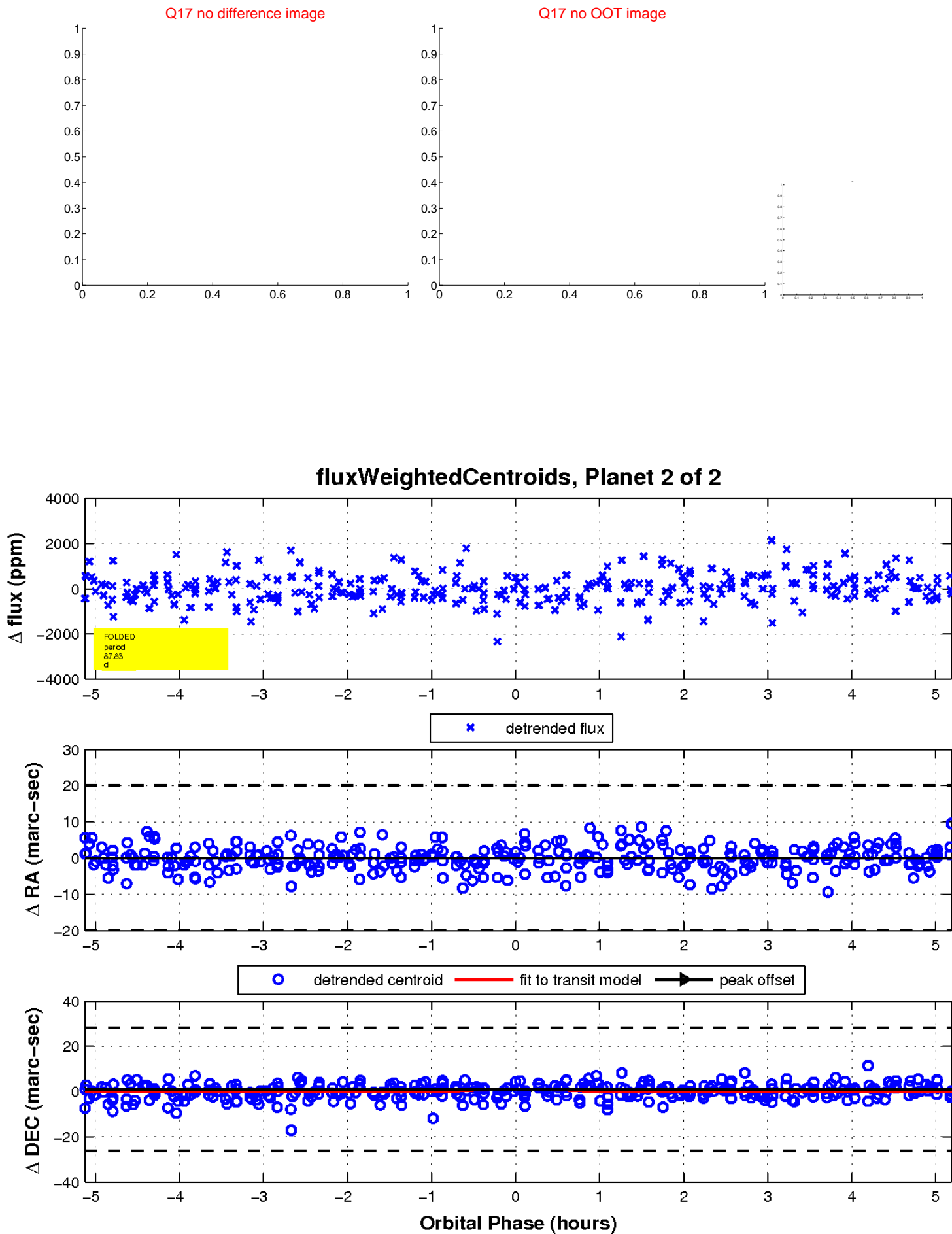
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

