

KIC 009402583

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})
009402583-01	OBS	4168.01	0.536514	132.046349	67.6	3.700	14.7	11.9	0.73	5041	0.59	2195.88
009402583-02	OBS	No	44.277643	152.140167	1714.3	0.723	9.1	10.0	0.73	5041	3.31	6.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009402583-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_KIC_POS—HALO_GHOST
009402583-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS

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 009402583-01

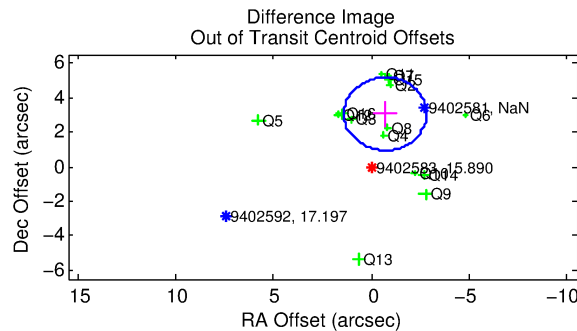
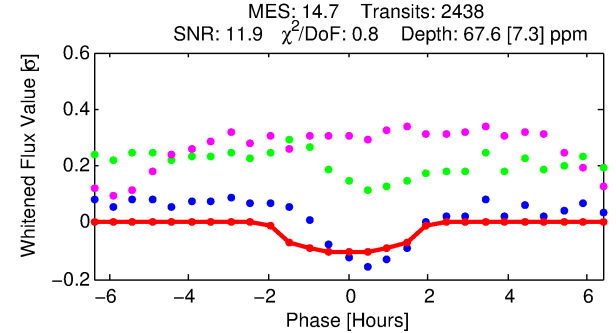
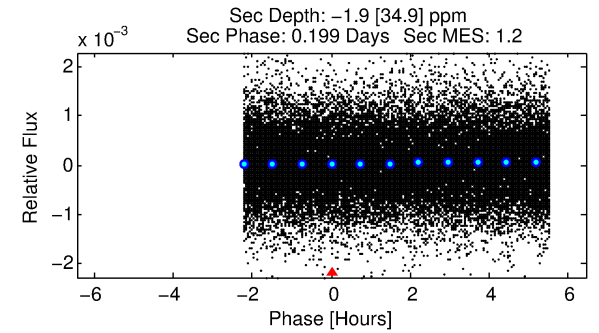
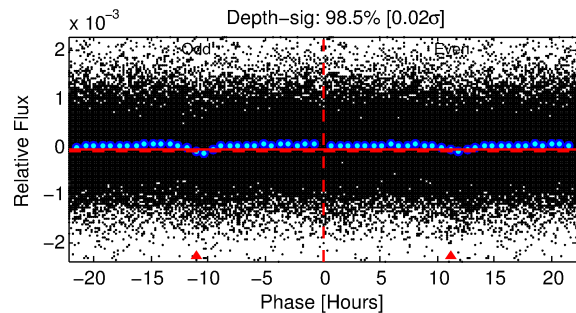
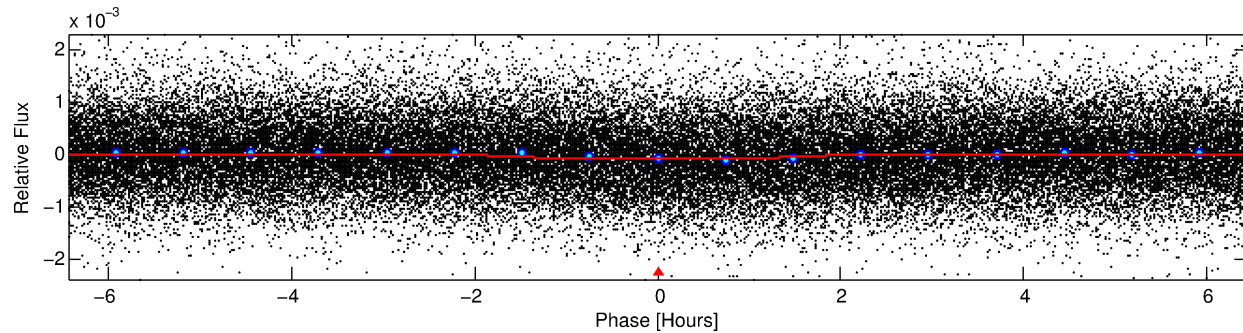
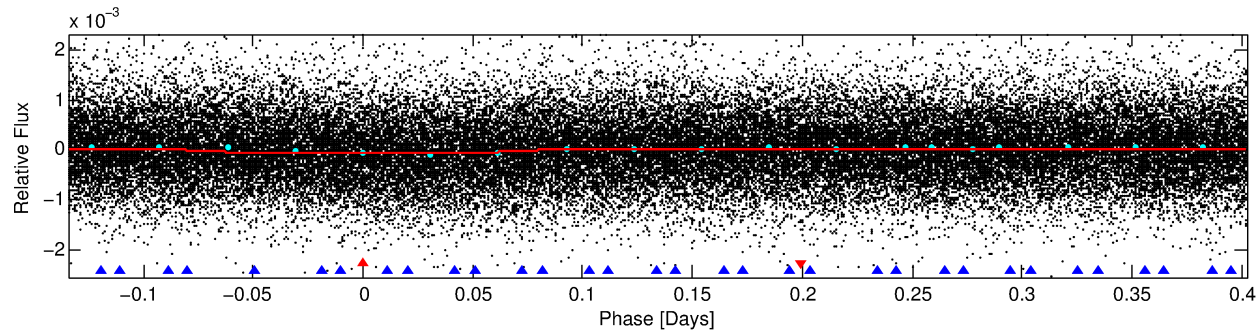
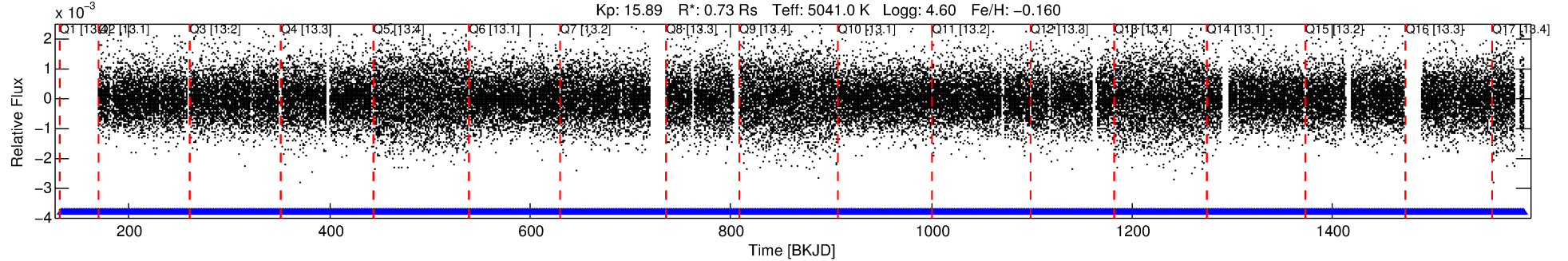
No Significant Match Found

DV One-Page Summary

KIC: 9402583 Candidate: 1 of 2 Period: 0.537 d

KOI: K04168.01 Corr: 0.763

Kp: 15.89 R*: 0.73 Rs Teff: 5041.0 K Logg: 4.60 Fe/H: -0.160



DV Fit Results:

Period = 0.53651 [0.00001] d
Epoch = 132.0463 [0.0039] BKJD
Rp/R* = 0.0074 [0.0089]
a/R* = 1.26 [1.93]
b = 0.31 [12.30]
Seff = 2195.87 [374.21]
Teff = 1746 [74] K
Rp = 0.59 [0.71] Re
a = 0.0118 [0.0011] AU
Ag = N/A
Teffp = N/A

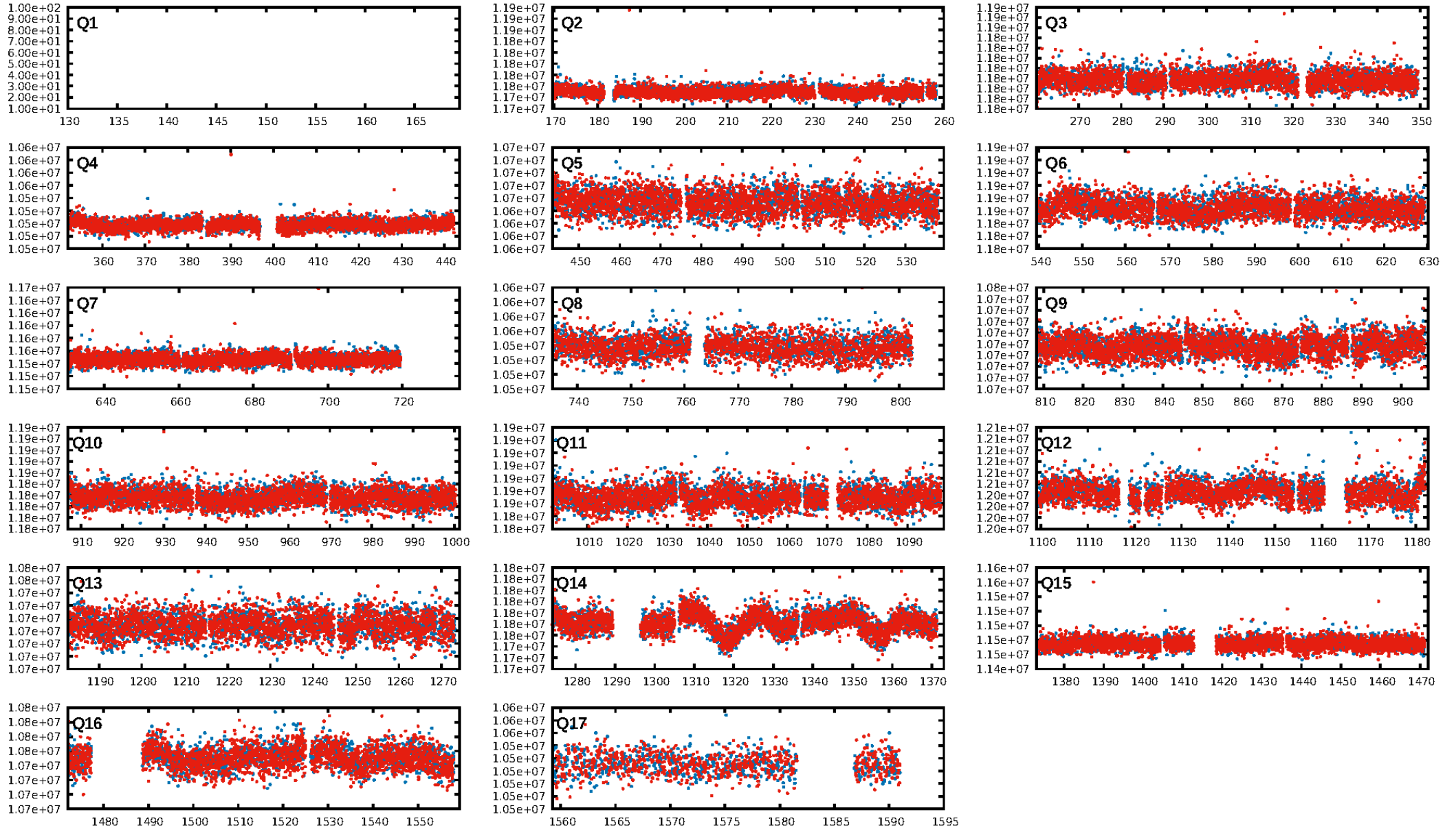
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [278.50σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.18e-32
RollingBand-fgt: 1.00 [2388/2388]
GhostDiagnostic-chr: 0.2377
Centroid-sig: 0.0%
Centroid-so: 6.973 arcsec [7.06σ]
OotOffset-rm: 3.129 arcsec [4.44σ]
KicOffset-rm: 3.474 arcsec [4.57σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.13 [2/15]
DiffImageOverlap-fno: 1.00 [16/16]

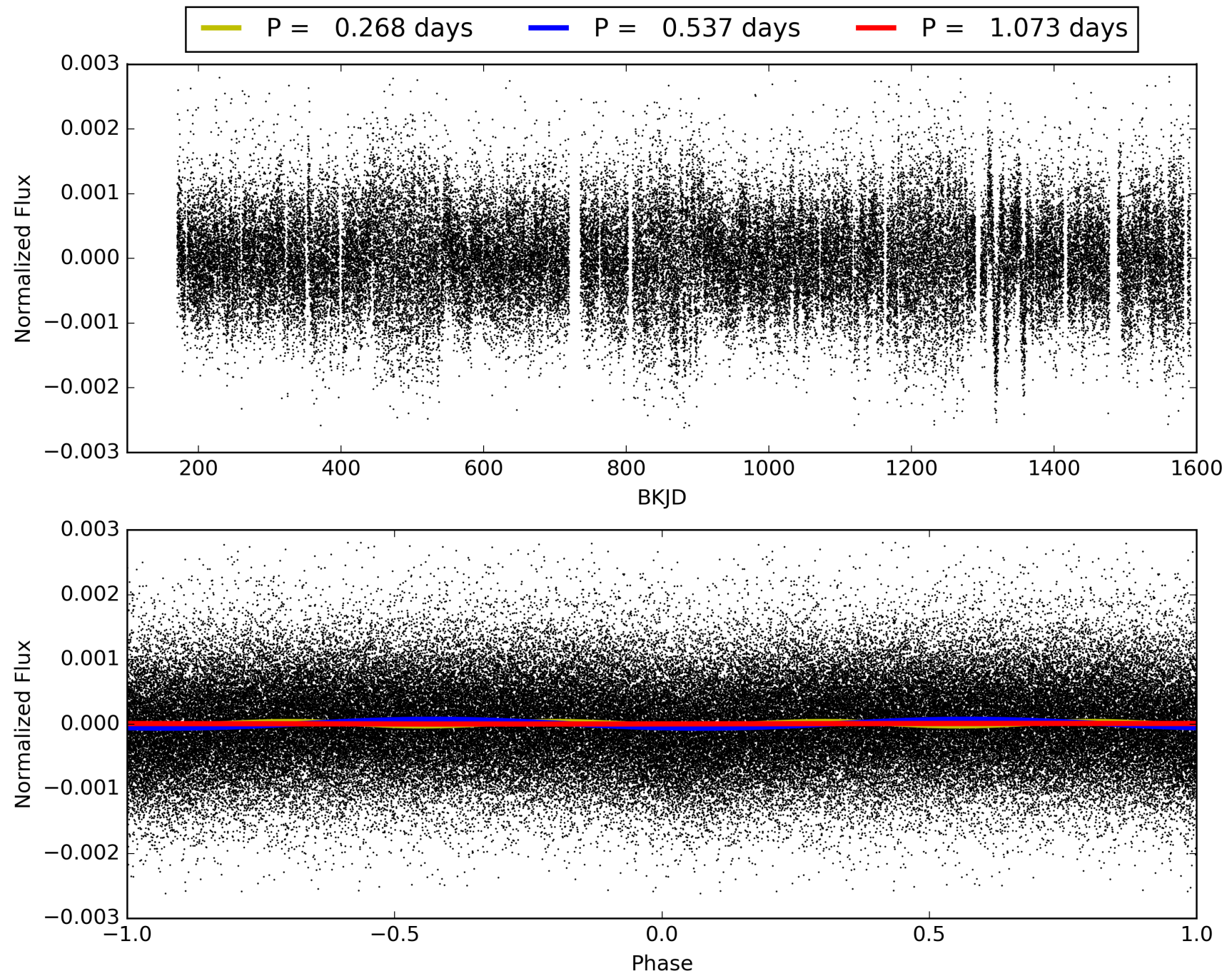
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:16:30 Z

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

TCE 009402583-01, PDC Light Curves

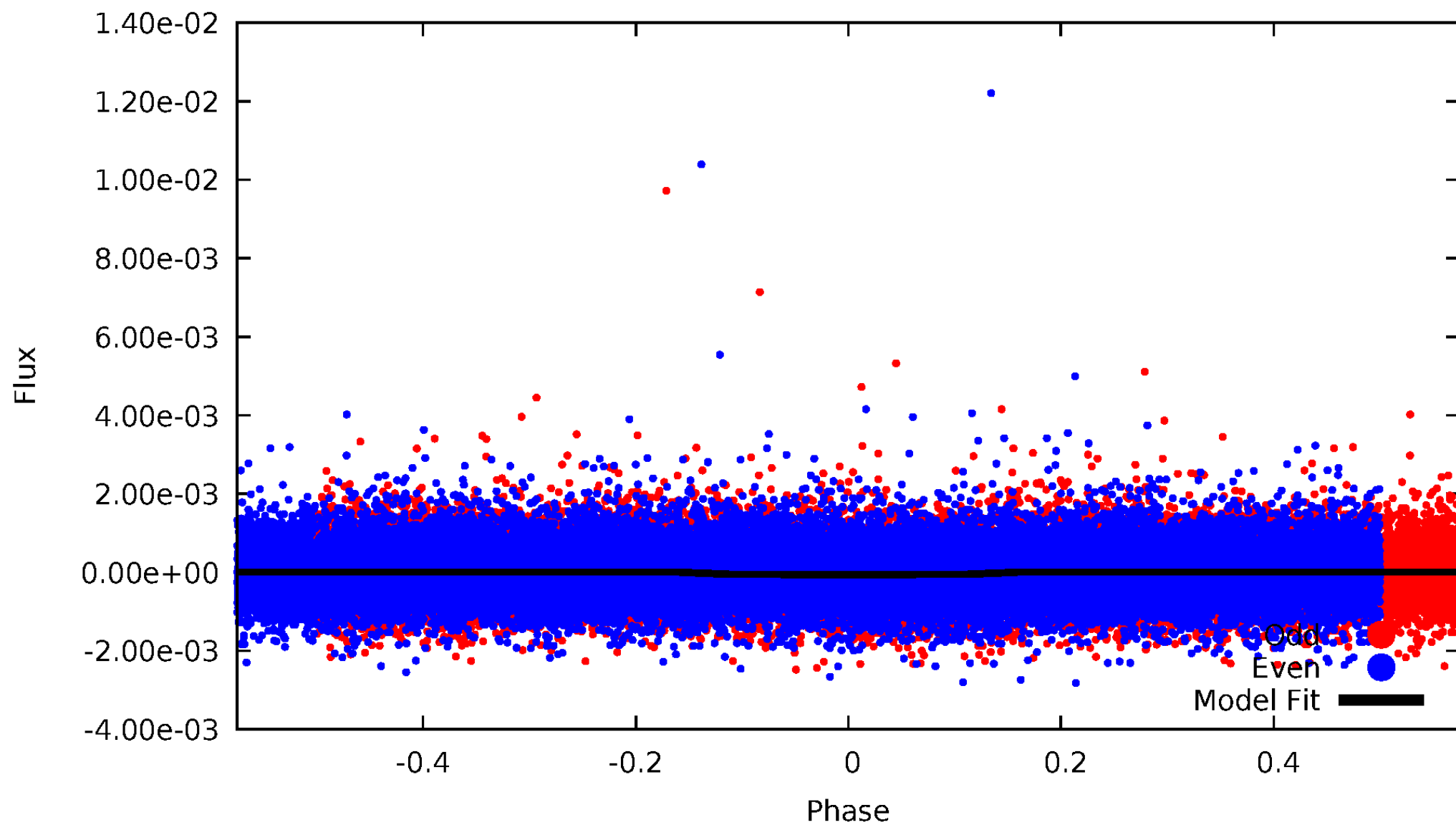


TCE 009402583-01



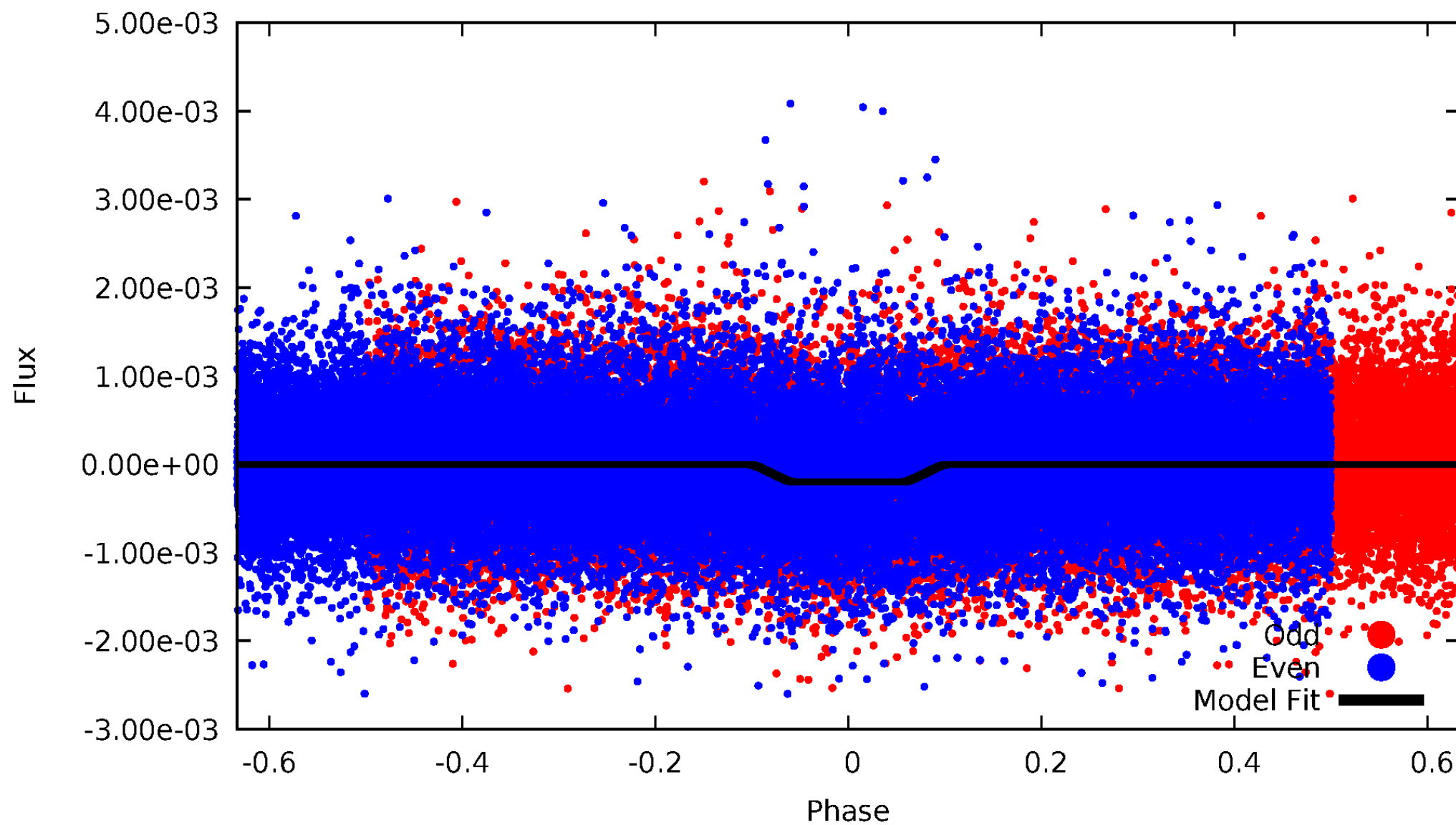
DV Odd/Even

TCE 009402583-01



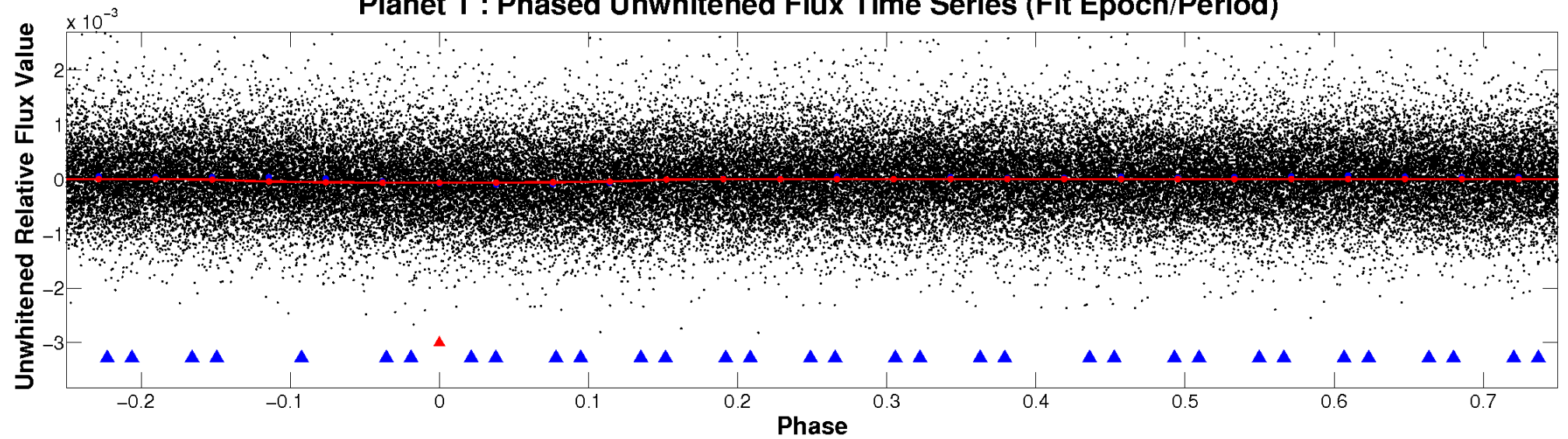
ALT Odd/Even

TCE 009402583-01

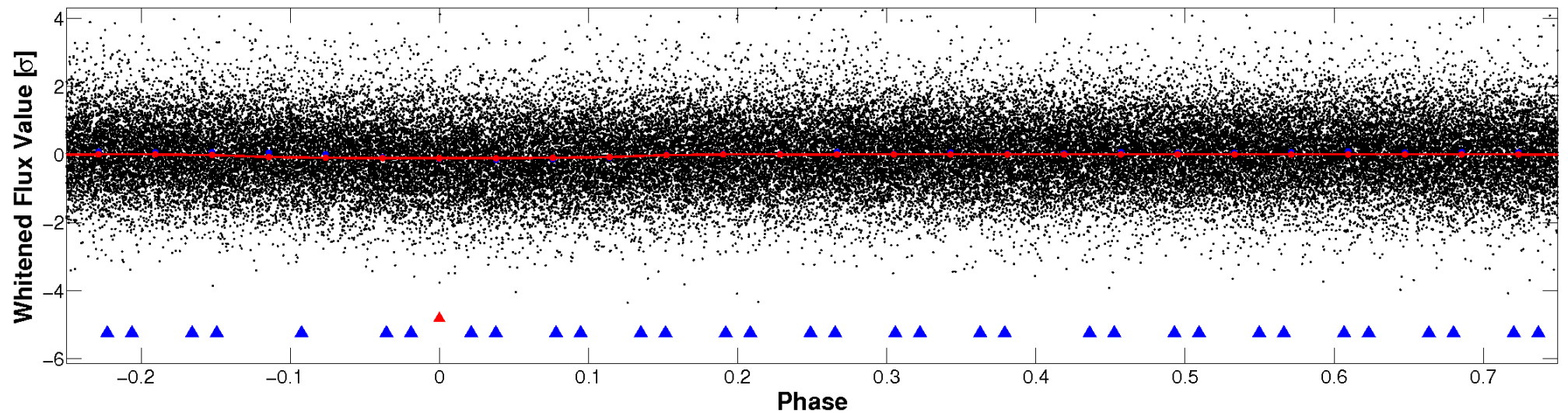


Non-Whitened Vs. Whitened Light Curve

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

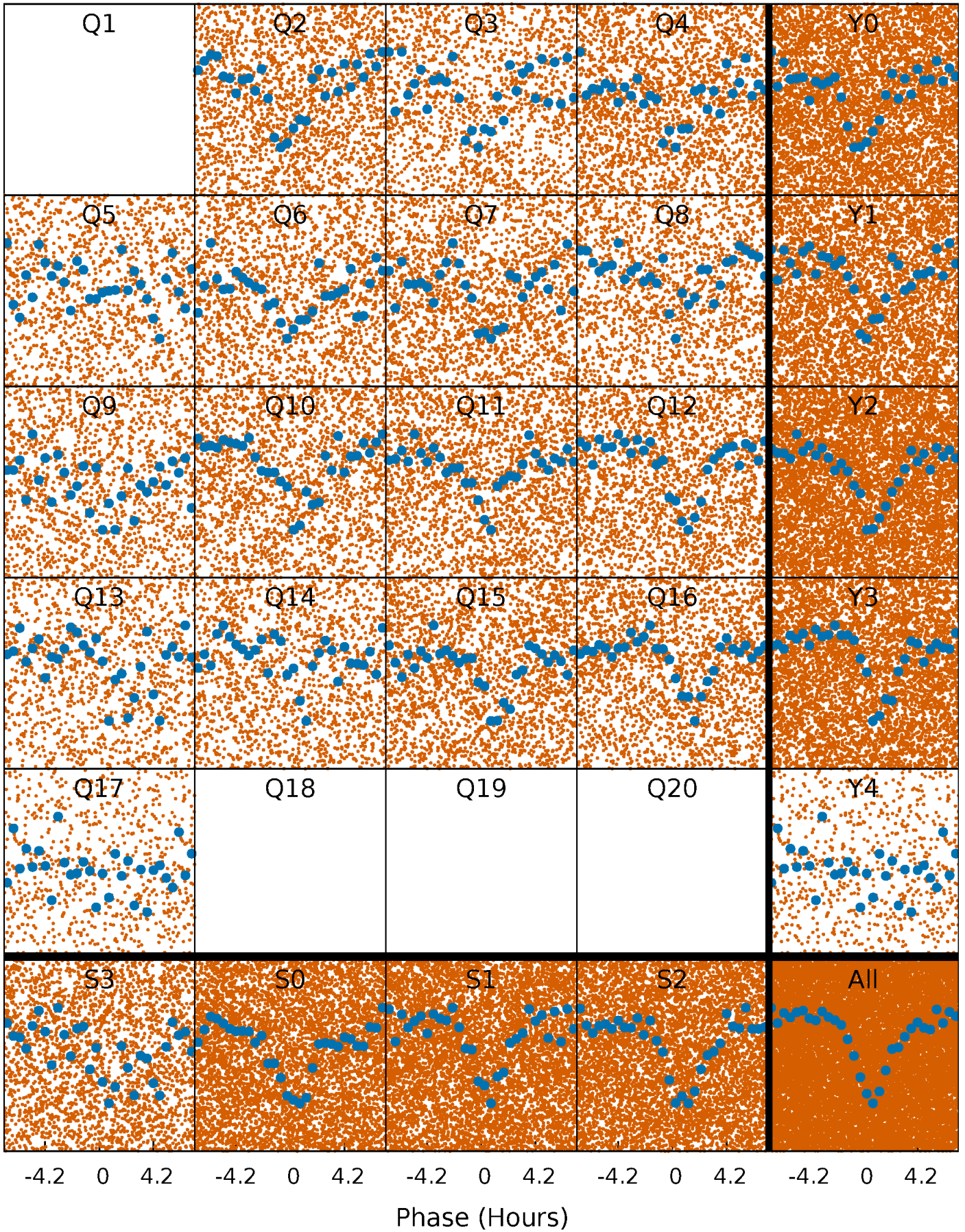


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



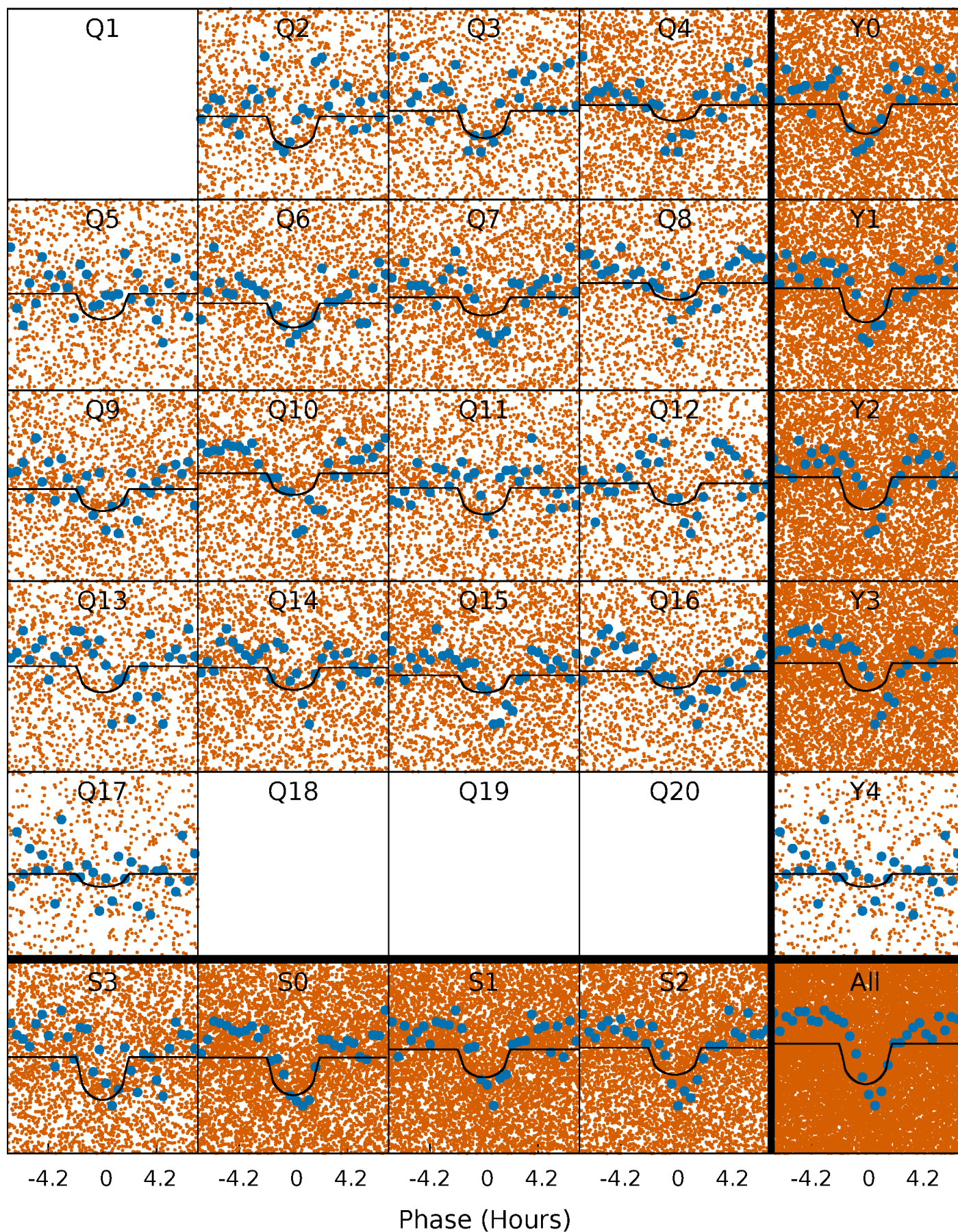
PDC Quarter-Phased Transit Curves

TCE 009402583-01 P= 0.536514 Days $T_0=132.046349$ (BKJD)



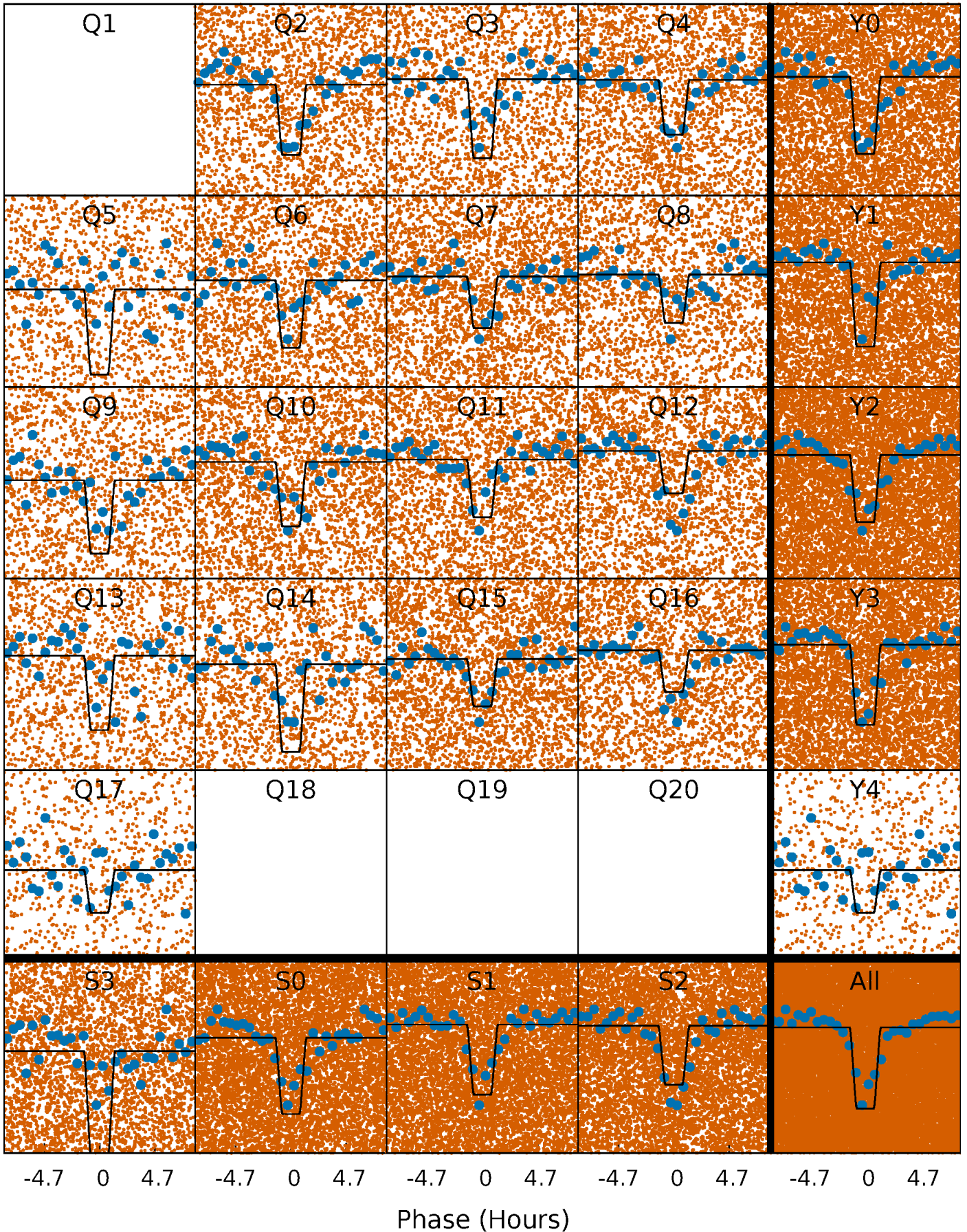
DV Quarter-Phased Transit Curves

TCE 009402583-01 P= 0.536514 Days $T_0=132.046349$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

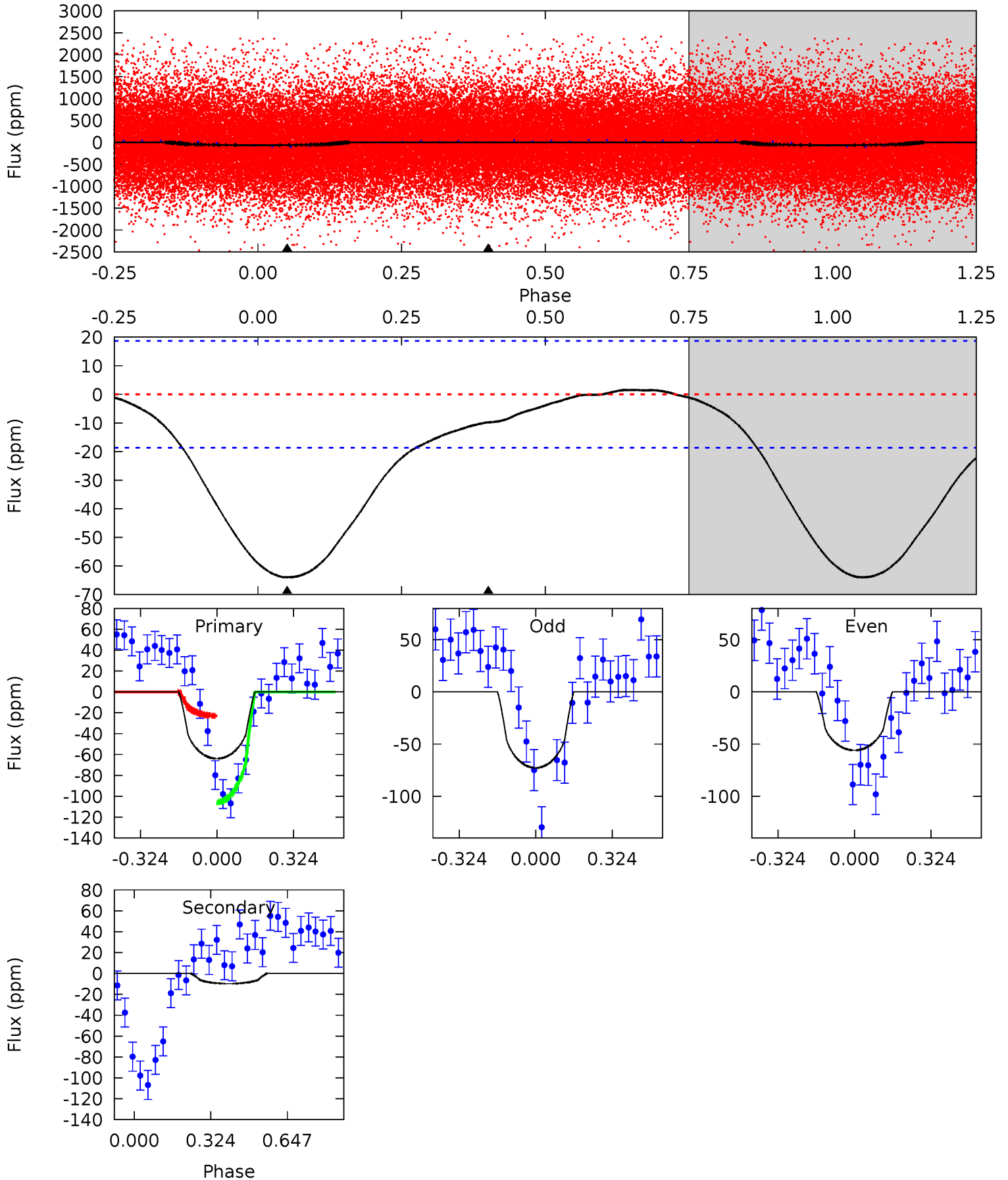
TCE 009402583-01 P= 0.536544 Days $T_0=132.027881$ (BKJD)



DV Model-Shift Uniqueness Test

009402583-01, P = 0.536514 Days, E = 132.046349 Days

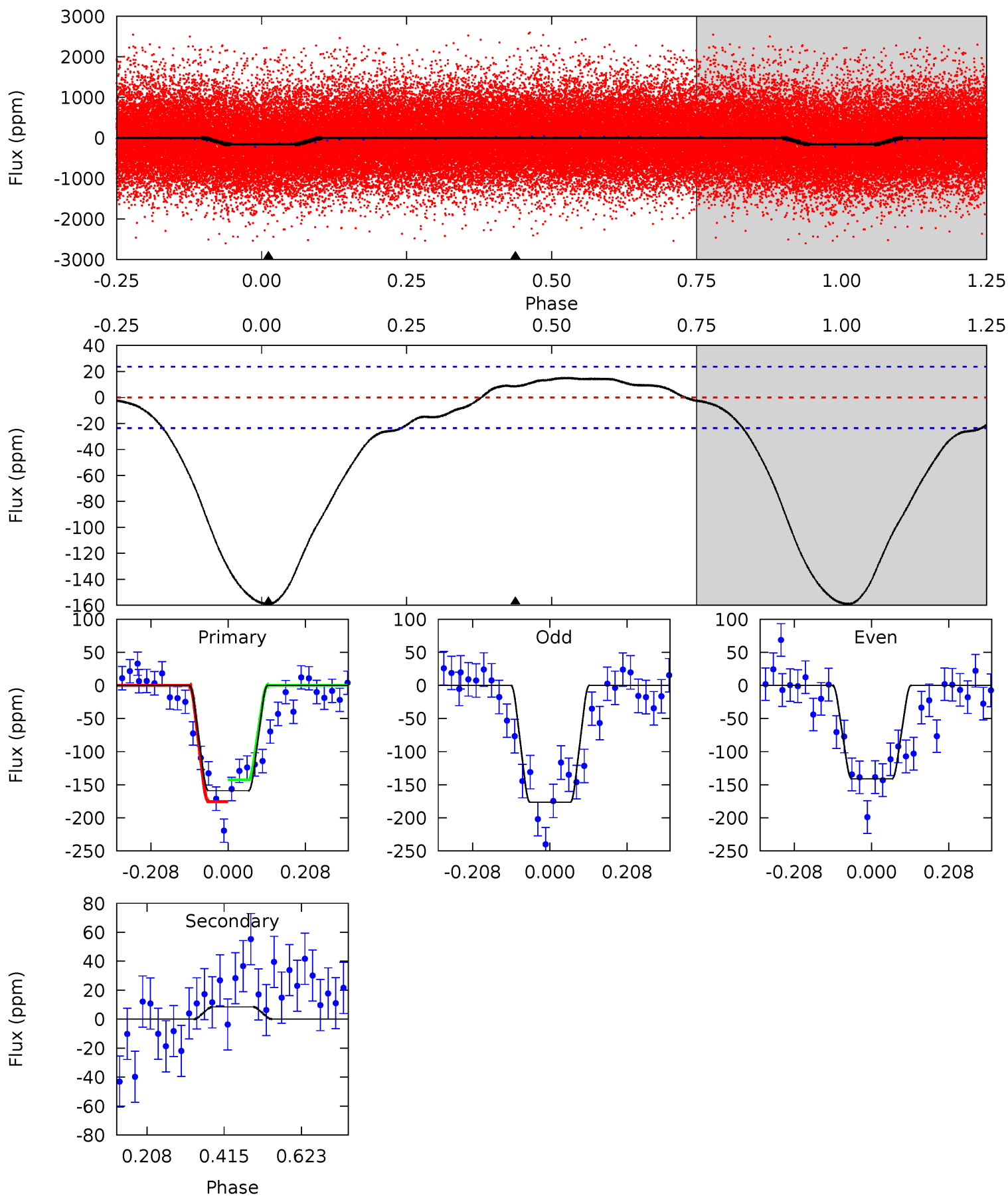
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	2.27	0	0	4.31	0.99	0.32	14.8	14.8	2.27	2.27	1.94	0.95	0.02	9.57



Alt Model-Shift Uniqueness Test

009402583-01, P = 0.536544 Days, E = 132.027881 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.6	-1.58	0	0	4.41	1.26	1.70	29.6	29.6	-1.58	-1.58	3.25	0.95	0.09	3.06



Stellar Parameters For KIC 009402583

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5041^{+151}_{-151}	$4.597^{+0.040}_{-0.060}$	$-0.160^{+0.300}_{-0.300}$	$0.728^{+0.086}_{-0.065}$	$0.766^{+0.079}_{-0.071}$	$2.796^{+0.531}_{-0.594}$
	+3%/-3%	+1%/-1%	+188%/-188%	+12%/-9%	+10%/-9%	+19%/-21%
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 009402583-01 / KOI 4168.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-10 ± 4	$0.77^{+0.65}_{-0.50}$	2449^{+92}_{-86}	3175^{+1630}_{-4924}	$1.176^{+8.409}_{-0.881}$
Alt.	8 ± 5	$1.21^{+0.64}_{-0.67}$	2451^{+94}_{-89}	-3108^{+252}_{-636}	$-0.426^{+0.315}_{-1.726}$

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

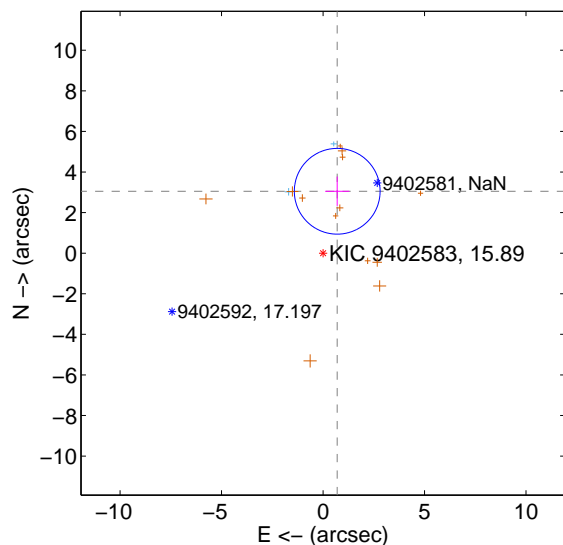
Supplemental centroid analysis for 009402583-01. Kepler magnitude: 15.89. Transit SNR 11.85

There are 2 quarters with good PRF difference image offsets

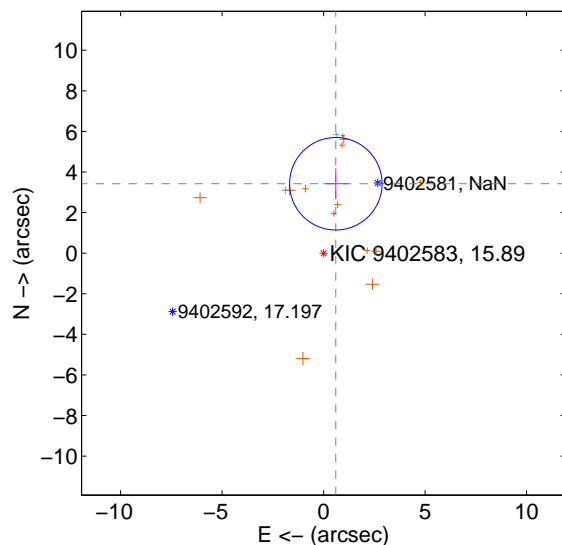
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.129 ± 0.704	4.44	-0.698 ± 0.596	3.051 ± 0.724
PRF-fit source offset from KIC position	3.474 ± 0.760	4.57	-0.603 ± 0.607	3.421 ± 0.764
photometric centroid source offset	6.97 ± 0.99	7.06	-4.82 ± 0.94	5.04 ± 1.03

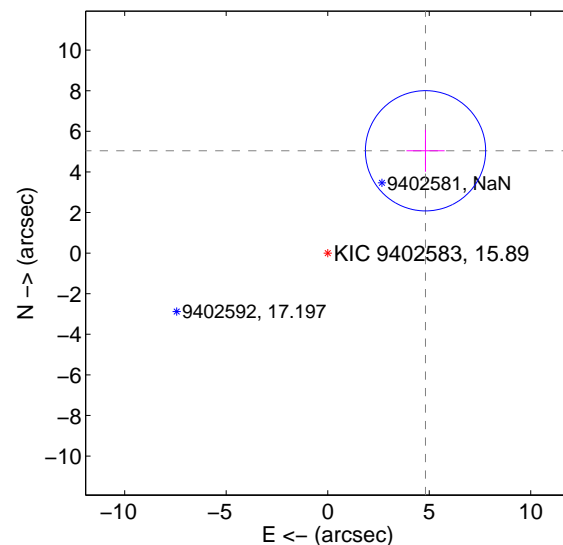
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

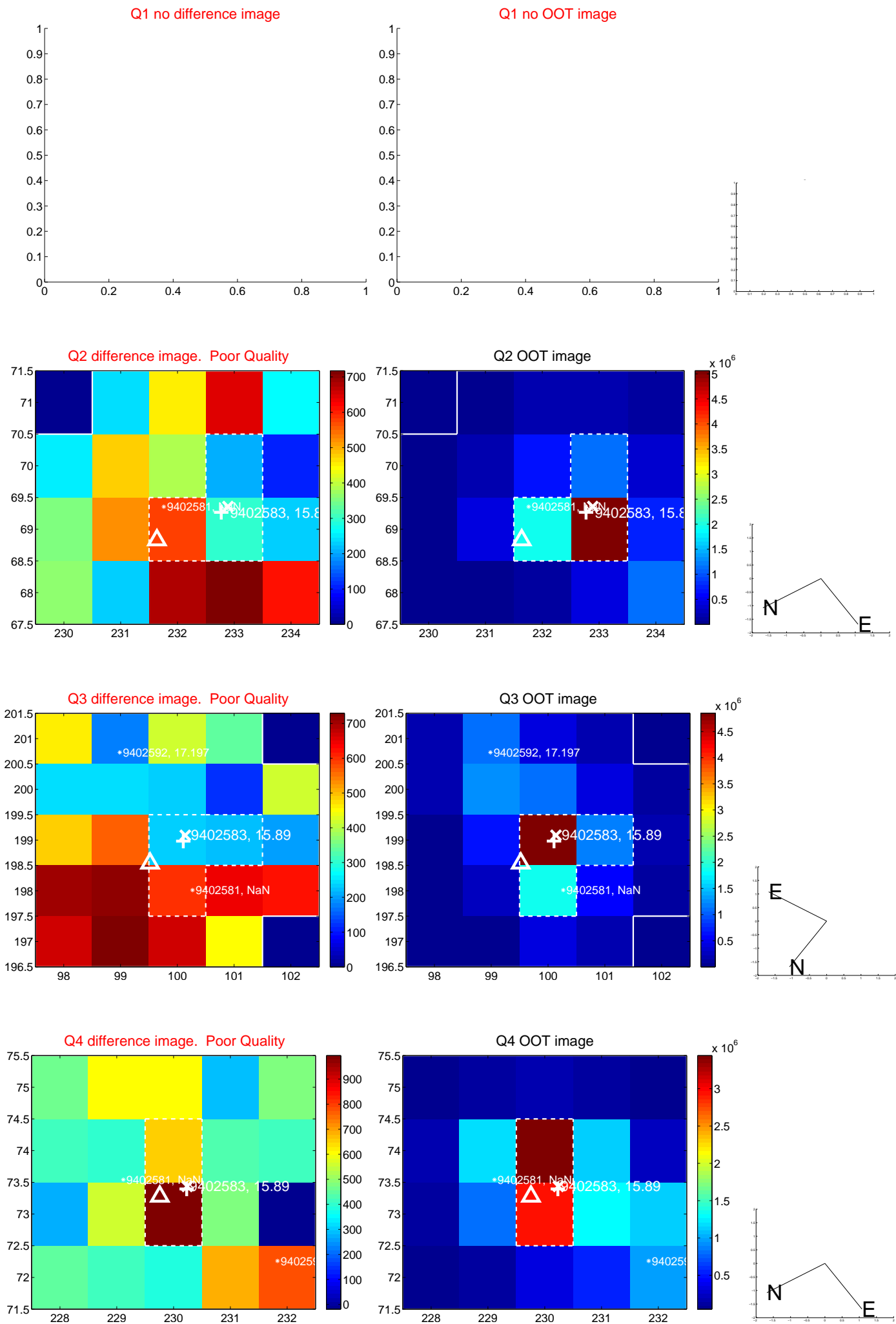


offset from photometric centroids

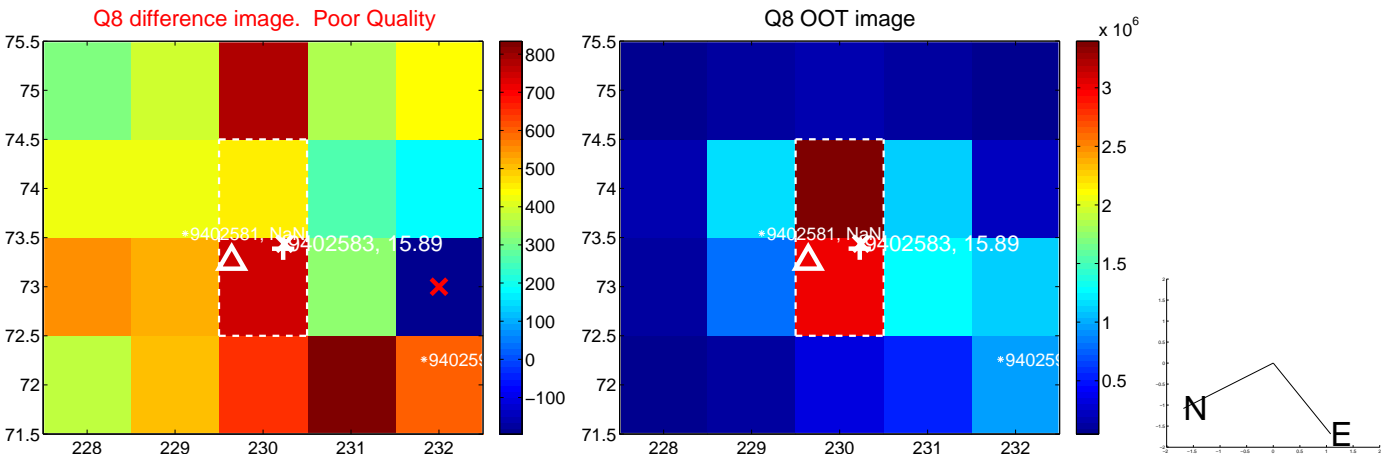
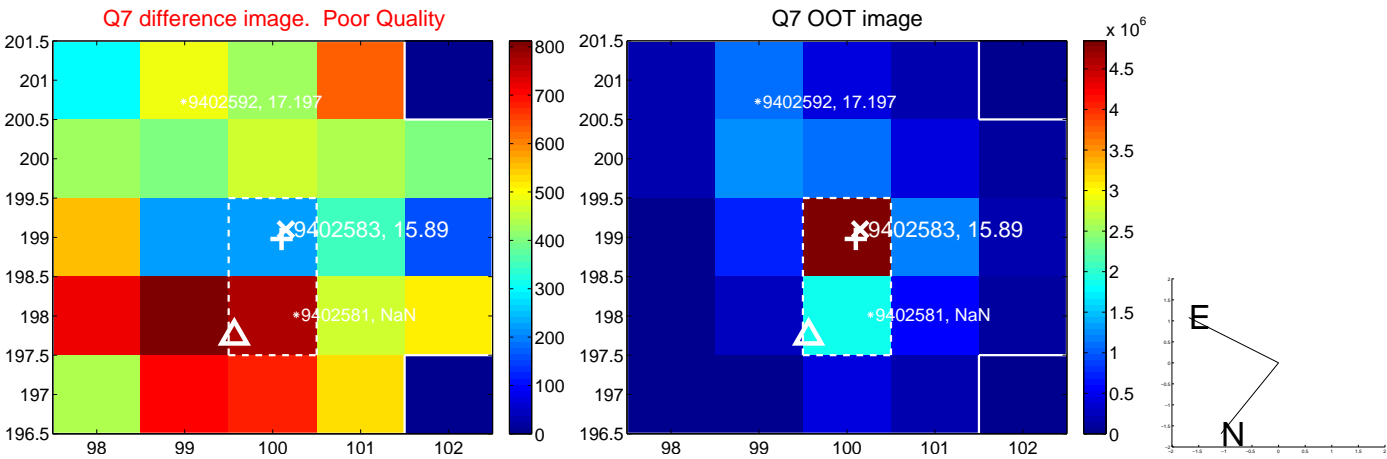
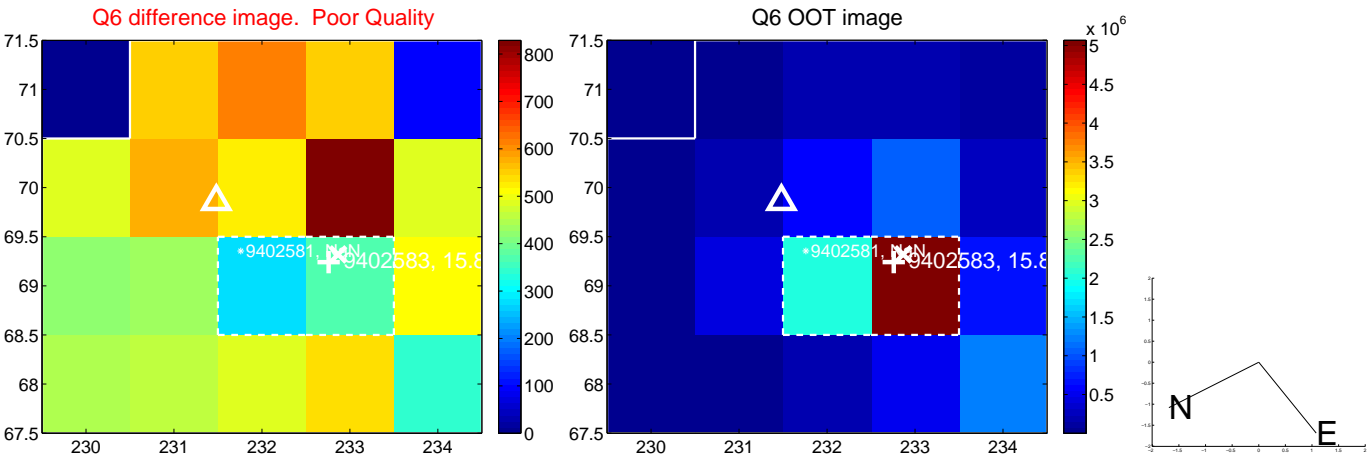
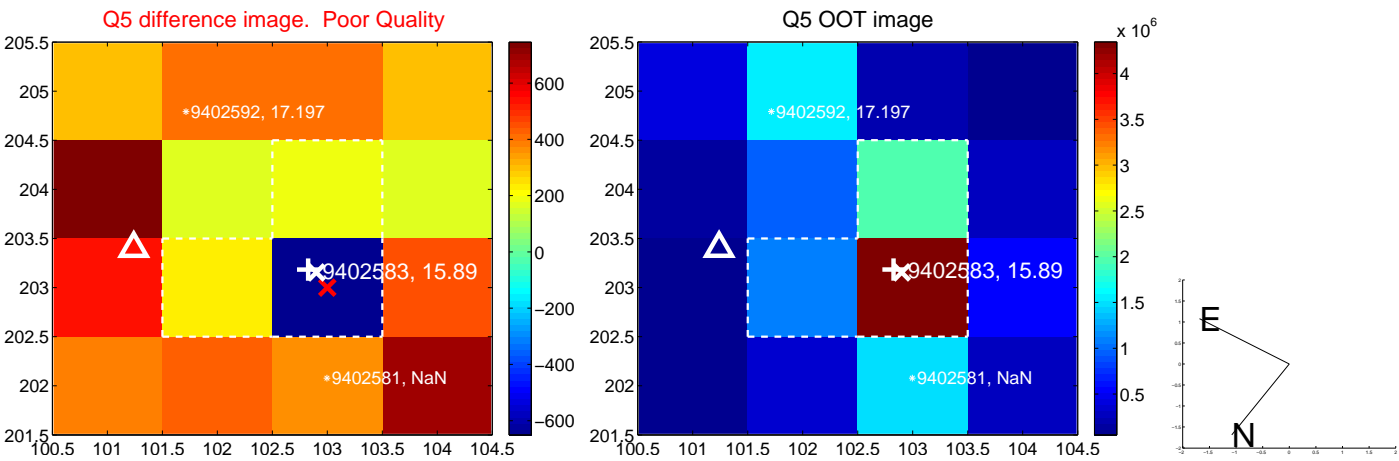


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

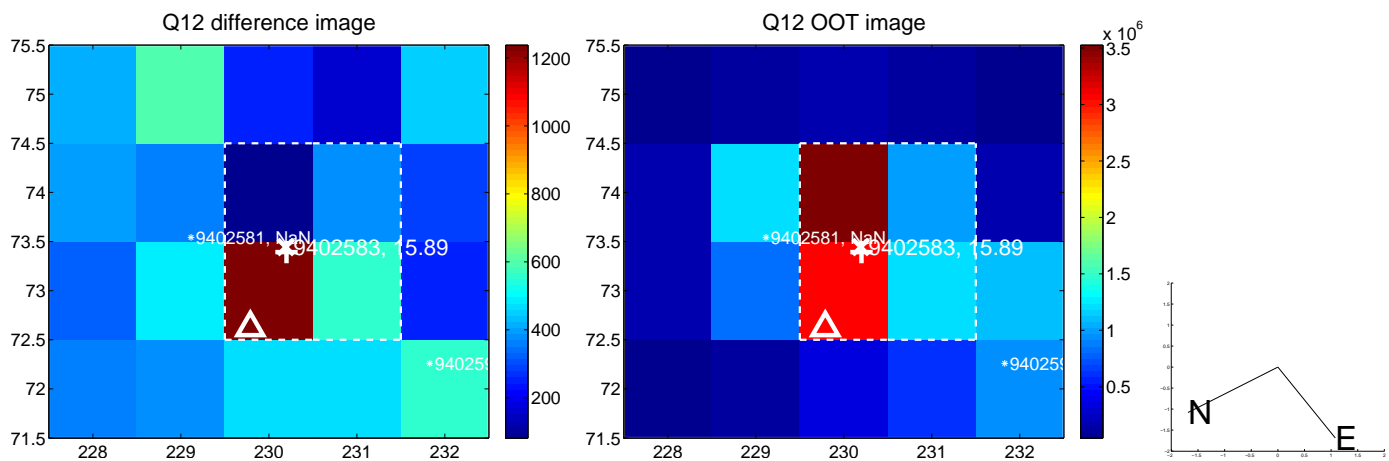
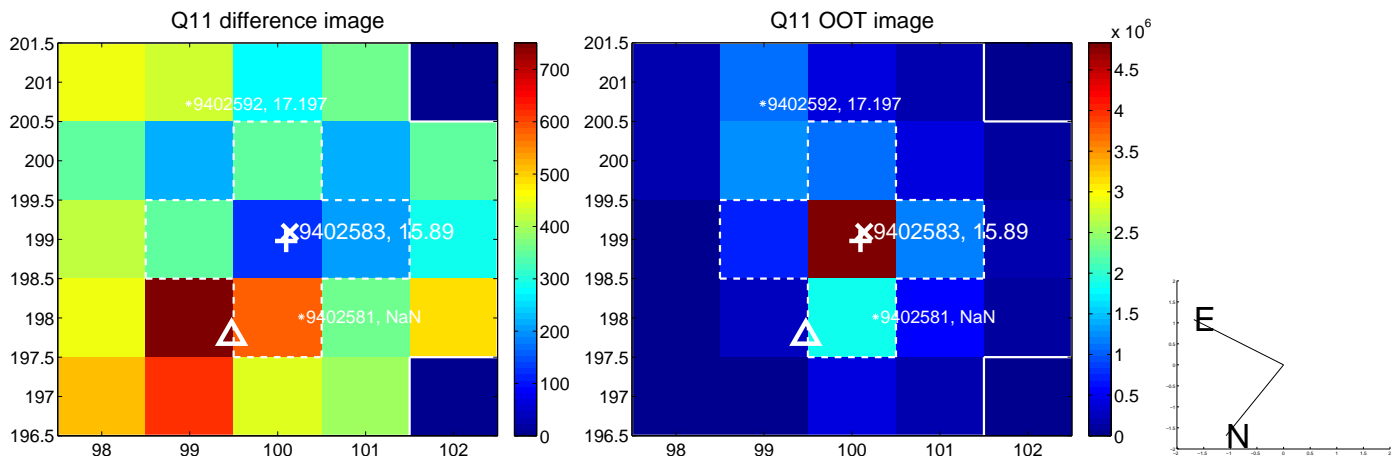
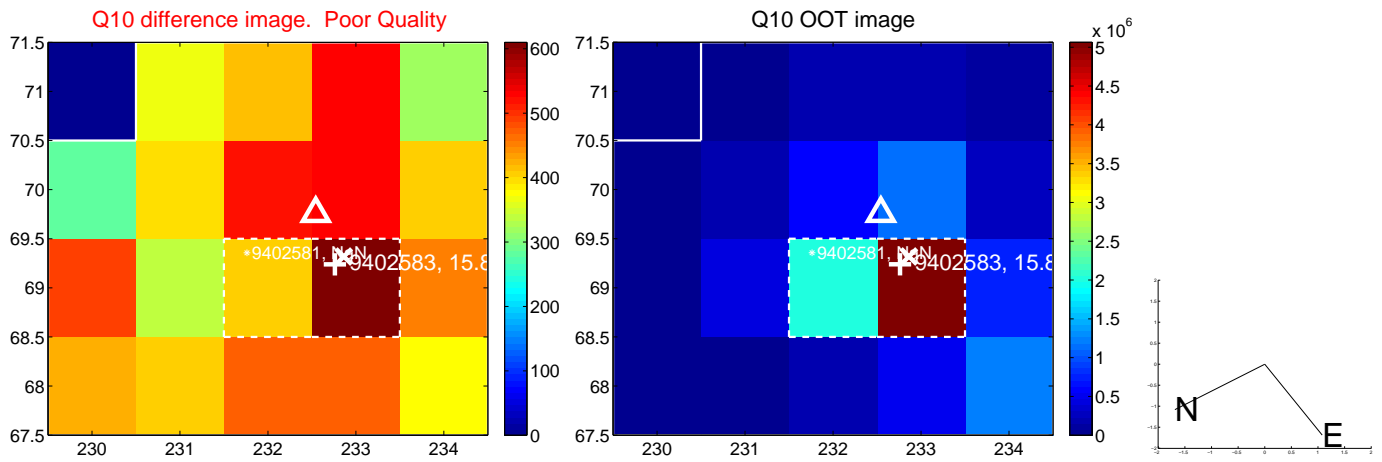
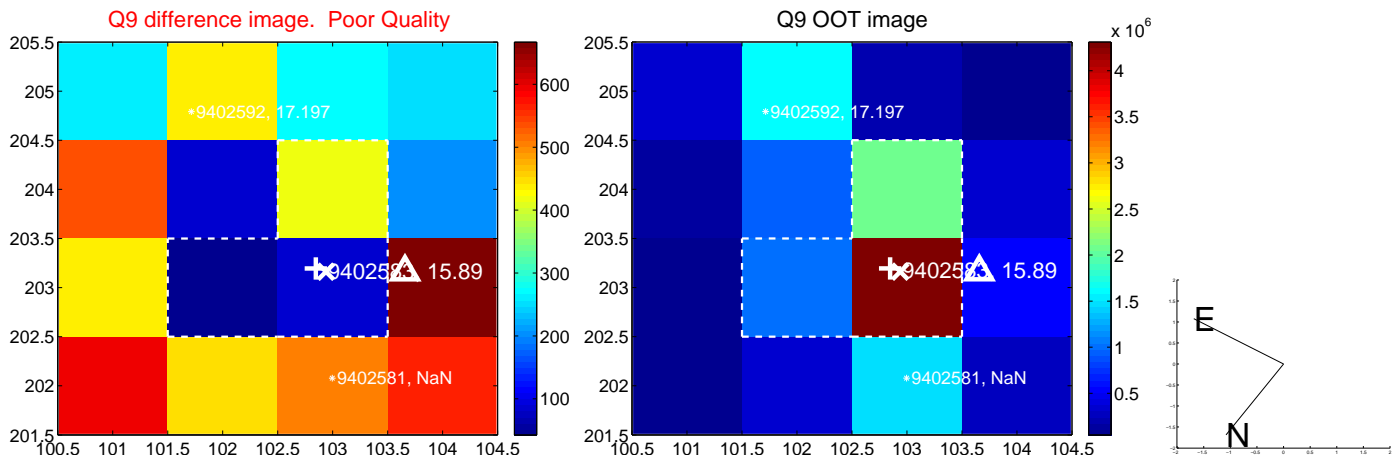
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



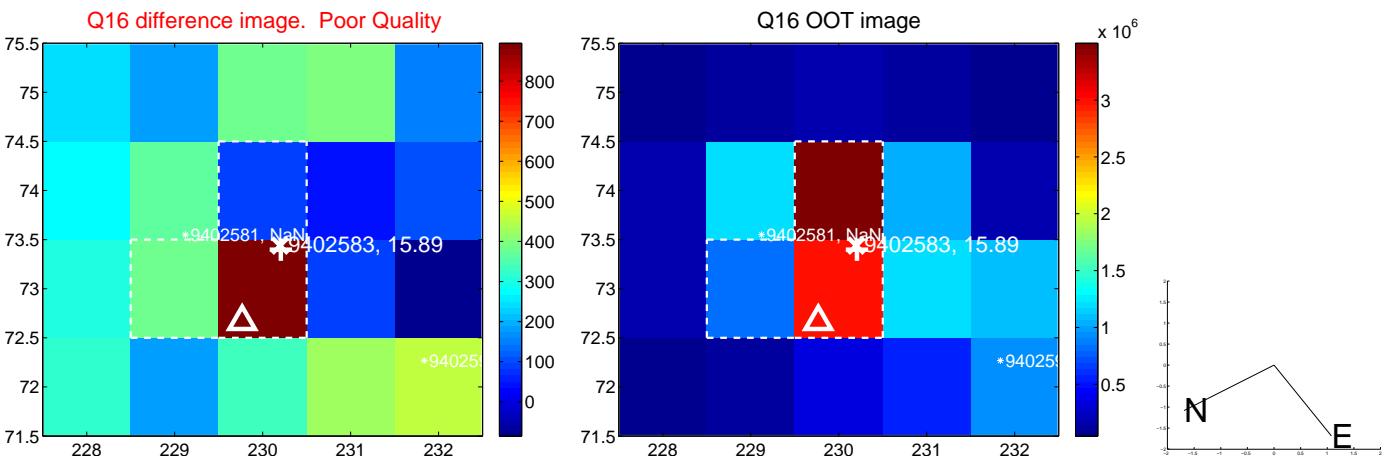
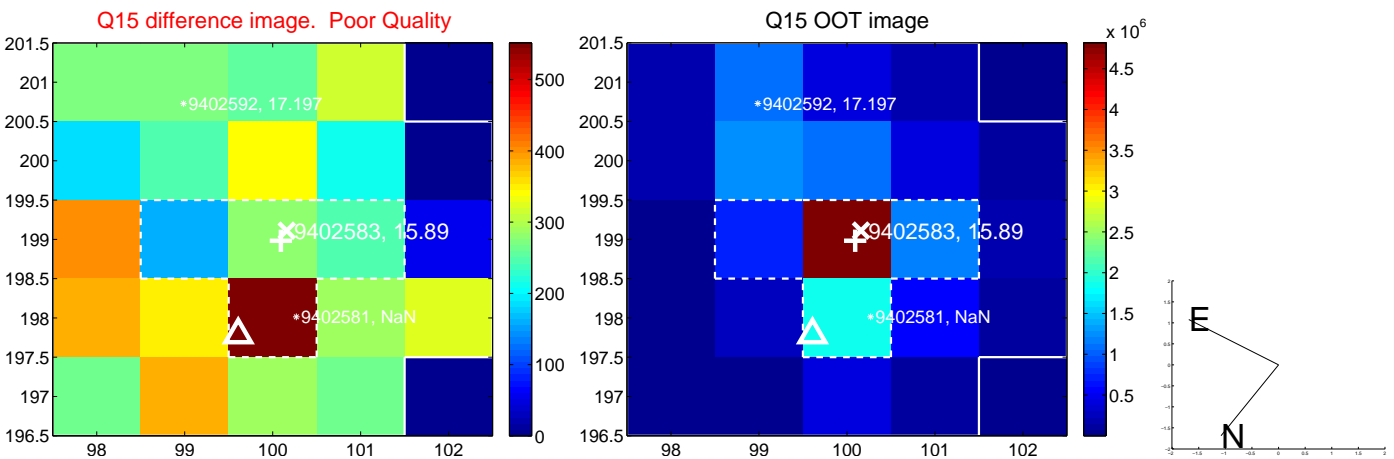
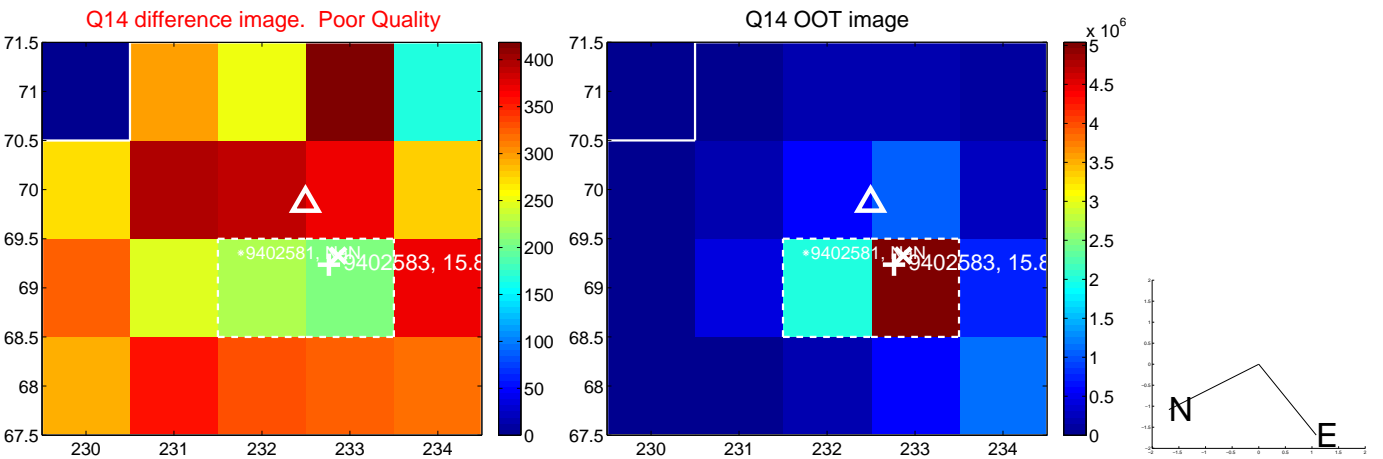
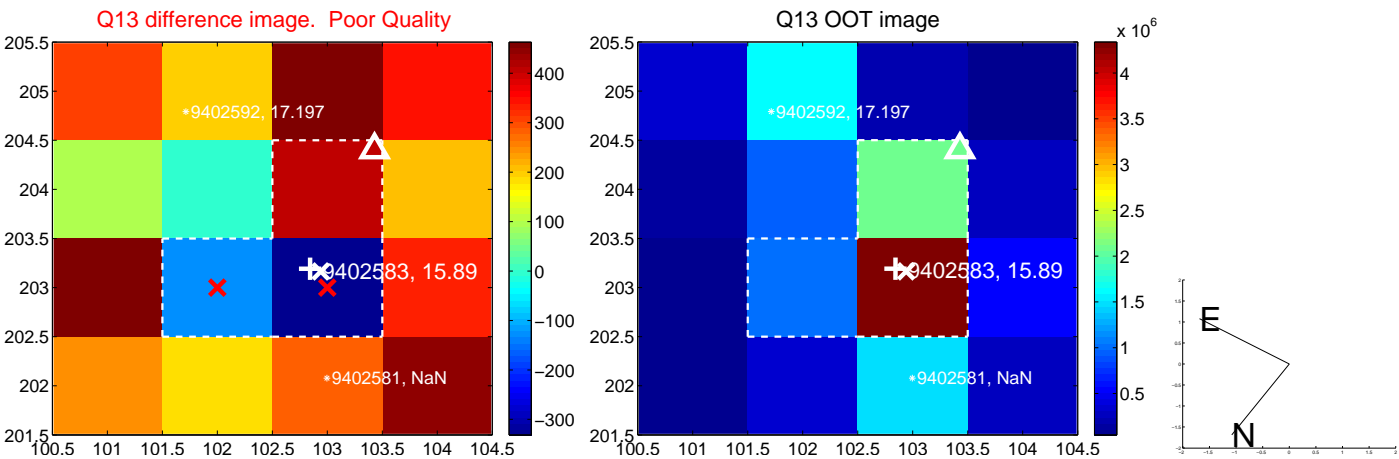
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

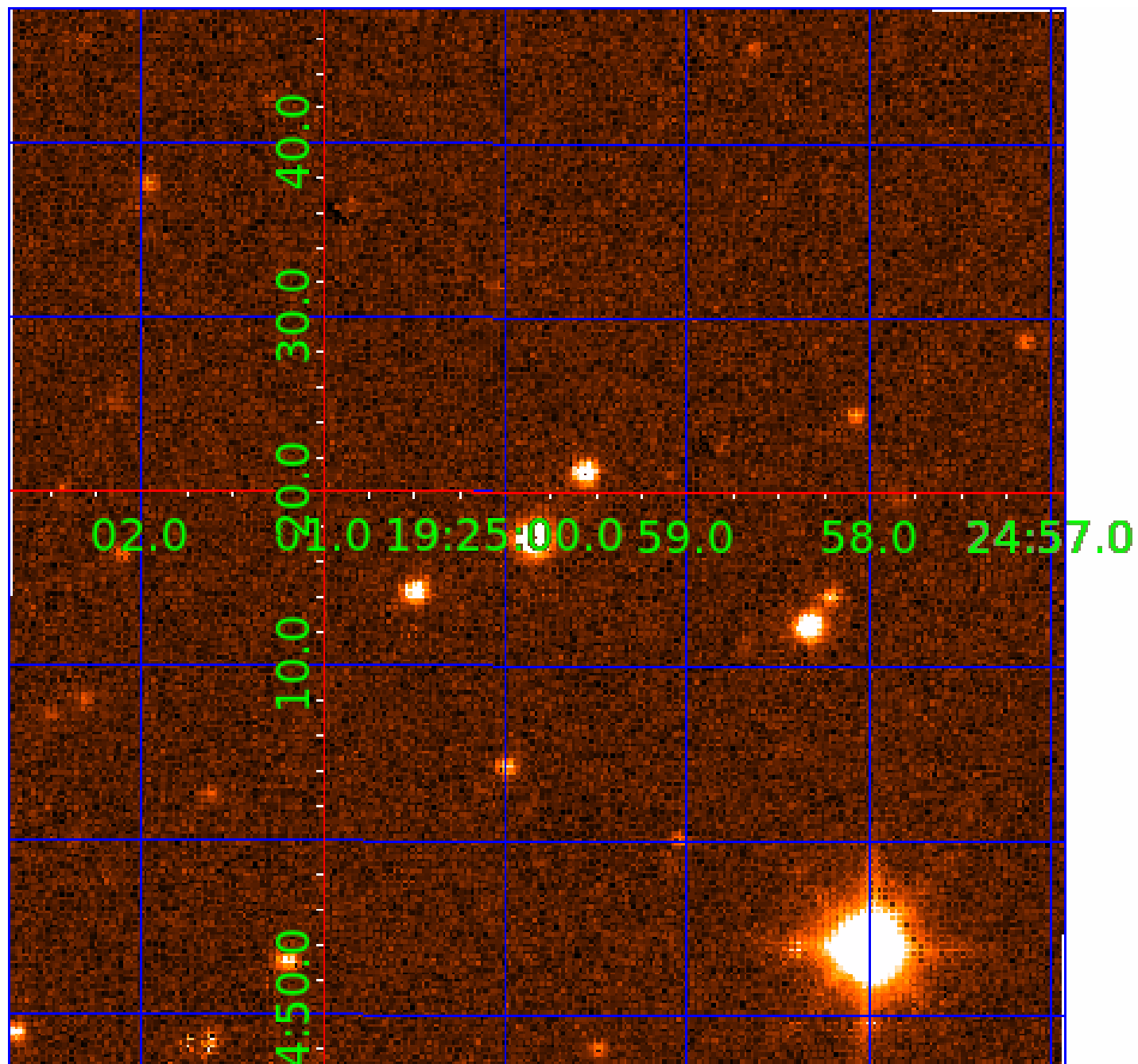


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009402583

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})
009402583-01	OBS	4168.01	0.536514	132.046349	67.6	3.700	14.7	11.9	0.73	5041	0.59	2195.88
009402583-02	OBS	No	44.277643	152.140167	1714.3	0.723	9.1	10.0	0.73	5041	3.31	6.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009402583-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_KIC_POS—HALO_GHOST
009402583-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS

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 009402583-02

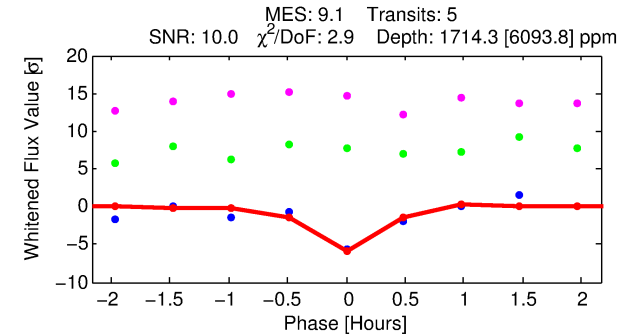
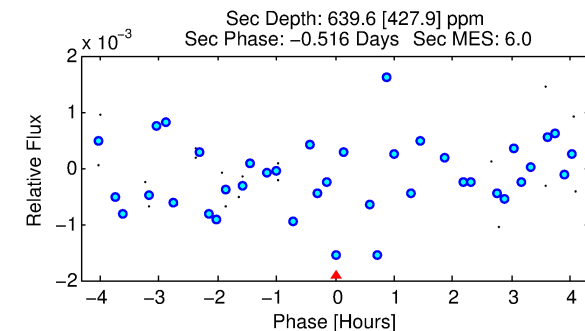
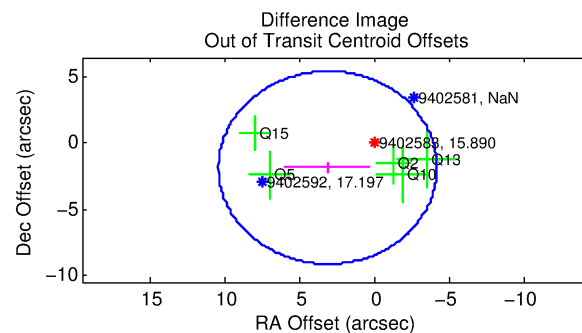
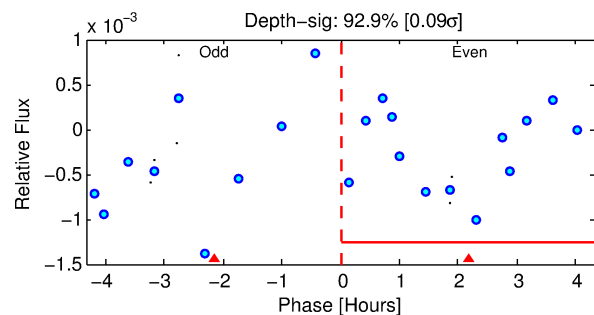
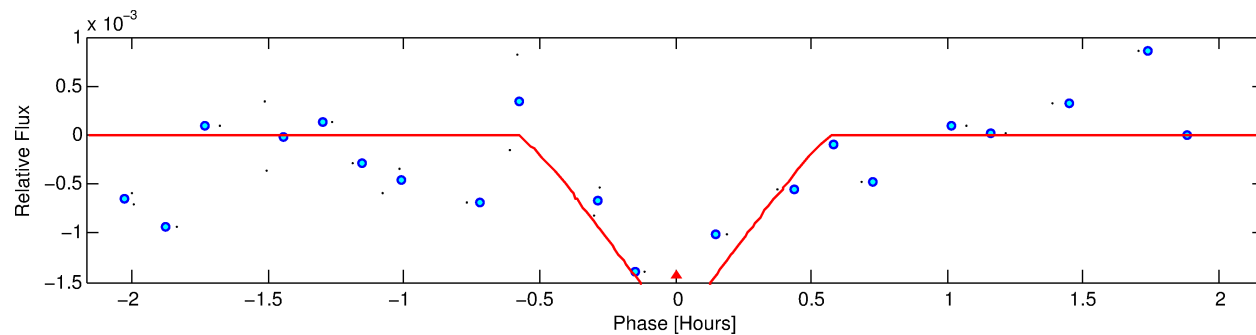
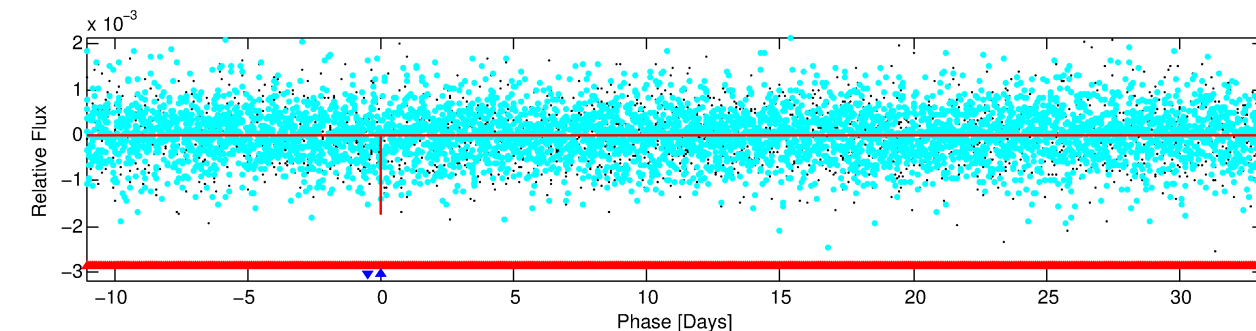
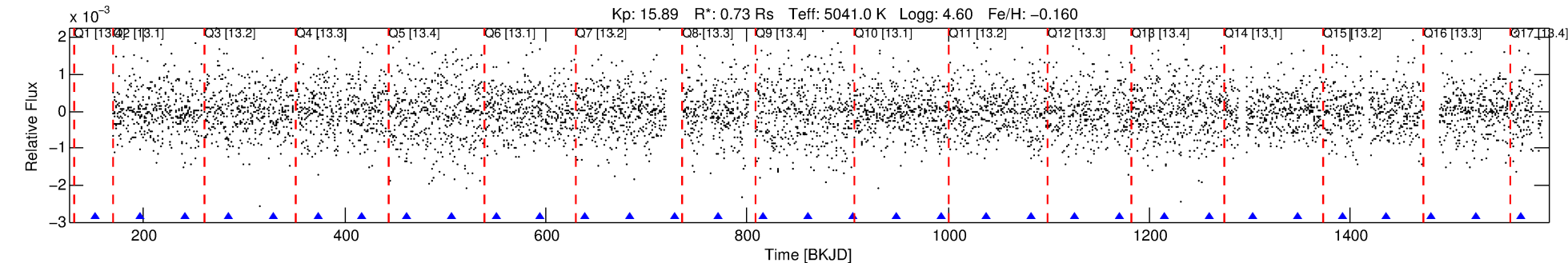
No Significant Match Found

DV One-Page Summary

KIC: 9402583 Candidate: 2 of 2 Period: 44.278 d

KOI: K04168 Corr: No Ephemeris Match

Kp: 15.89 R*: 0.73 Rs Teff: 5041.0 K Logg: 4.60 Fe/H: -0.160



DV Fit Results:

Period = 44.27764 [0.00159] d
Epoch = 152.1402 [0.0272] BKJD
Rp/R* = 0.0417 [0.2925]
a/R* = 359.64 [5177.93]
b = 0.70 [13.36]
Seff = 6.11 [1.04]
Teq = 401 [17] K
Rp = 3.31 [23.24] Re
a = 0.2240 [0.0204] AU
Ag = 1609.17 [22604.34] [0.07σ]
Teff = 3926 [13787] K [0.26σ]

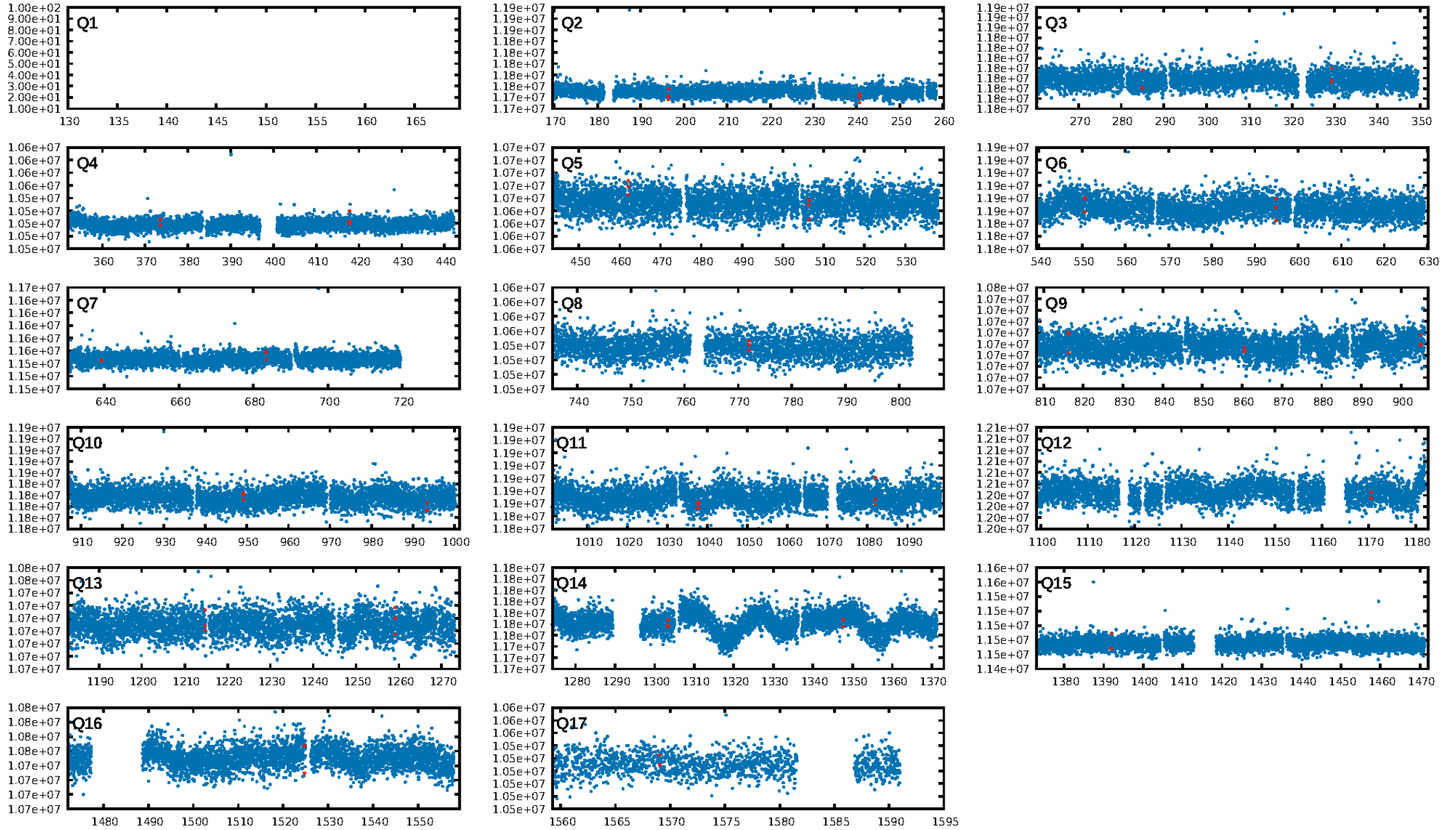
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [278.50σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 61.3%
Bootstrap-pfa: 5.22e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.394
Centroid-sig: 0.7%
Centroid-so: 1.084 arcsec [1.22σ]
OotOffset-rm: 3.593 arcsec [1.48σ]
KicOffset-rm: 3.478 arcsec [1.35σ]
OotOffset-st: 2/1/0/2 [5]
KicOffset-st: 2/1/0/2 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.00 [0/12]

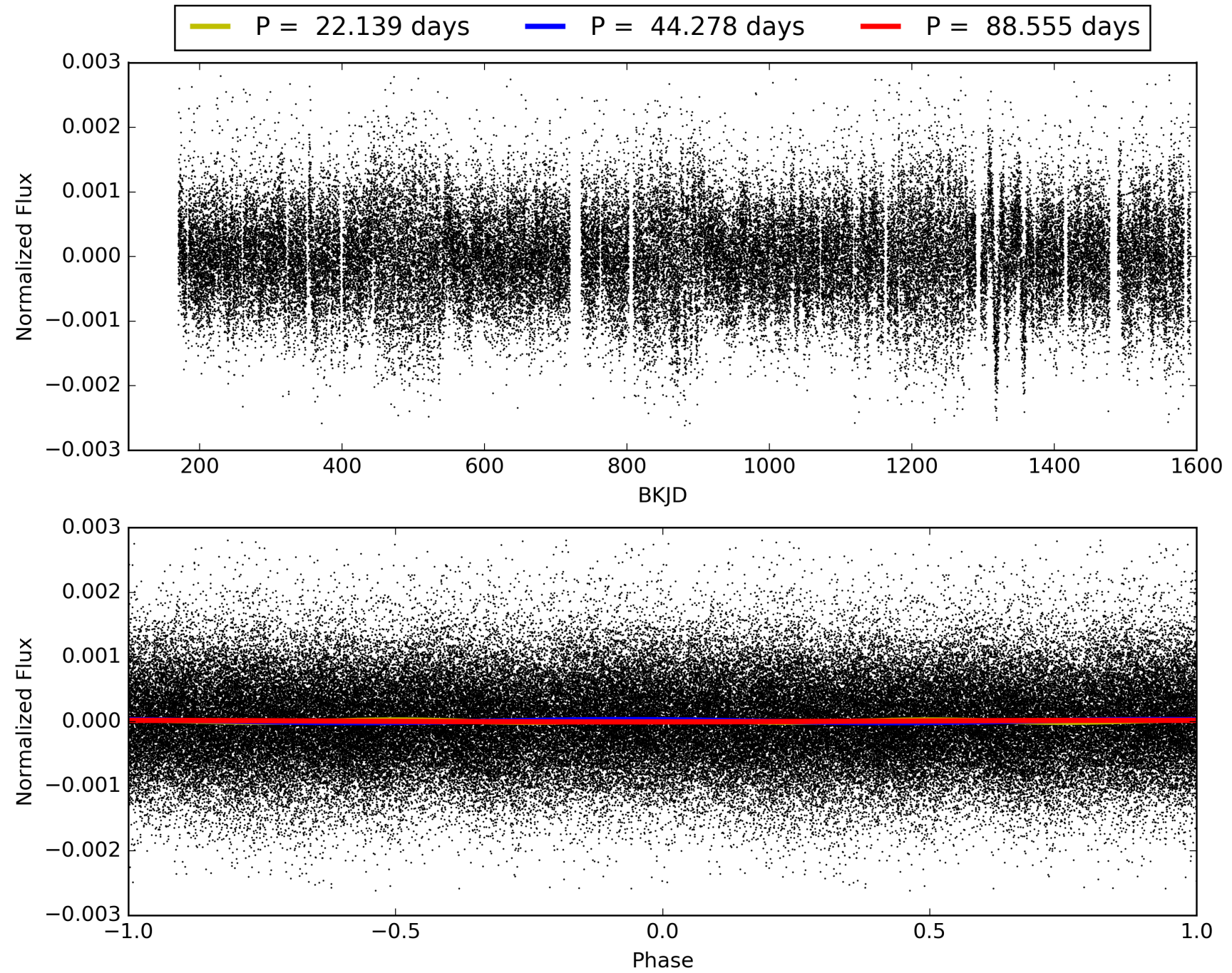
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:16:41 Z

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

TCE 009402583-02, PDC Light Curves

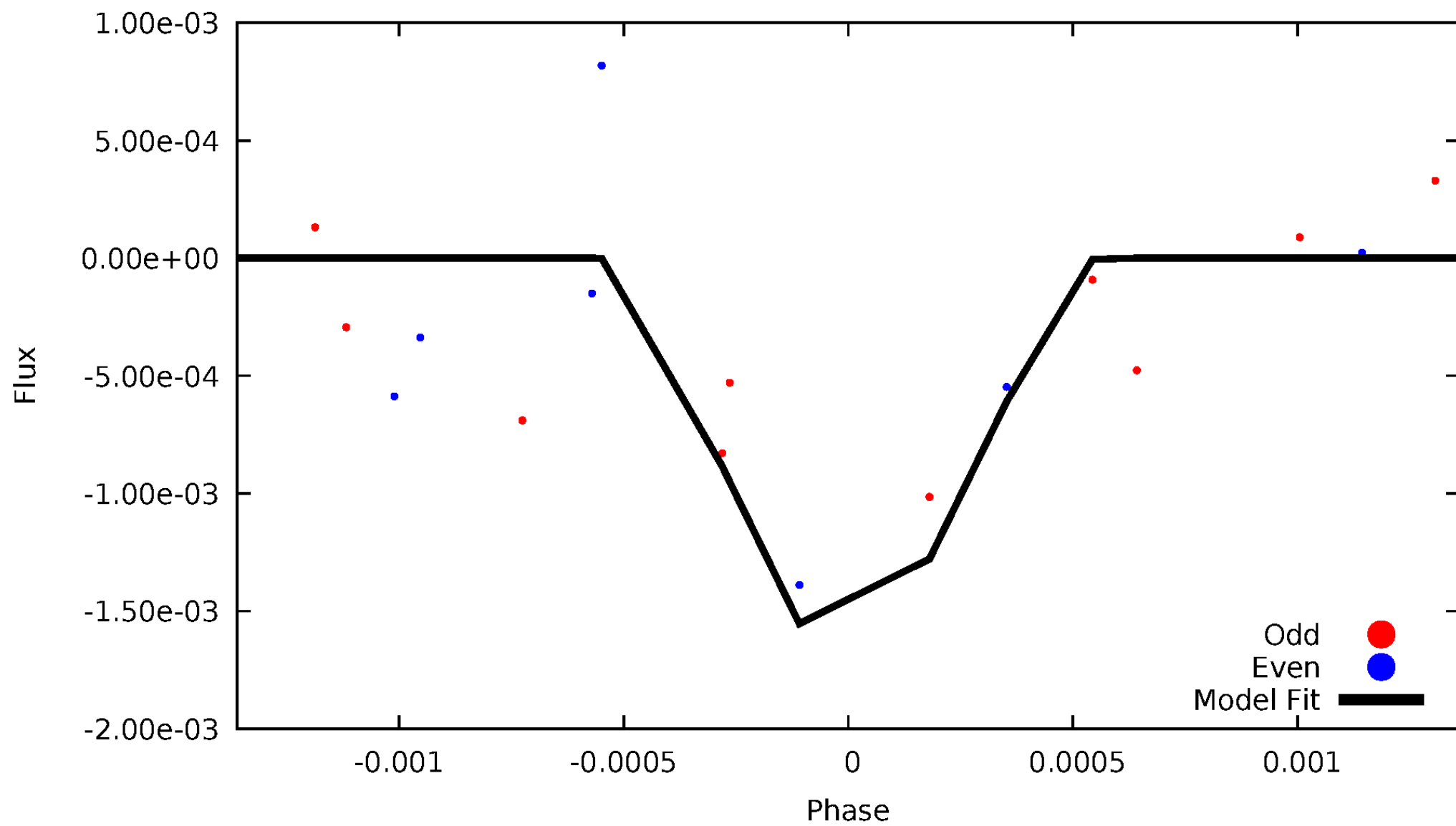


TCE 009402583-02



DV Odd/Even

TCE 009402583-02

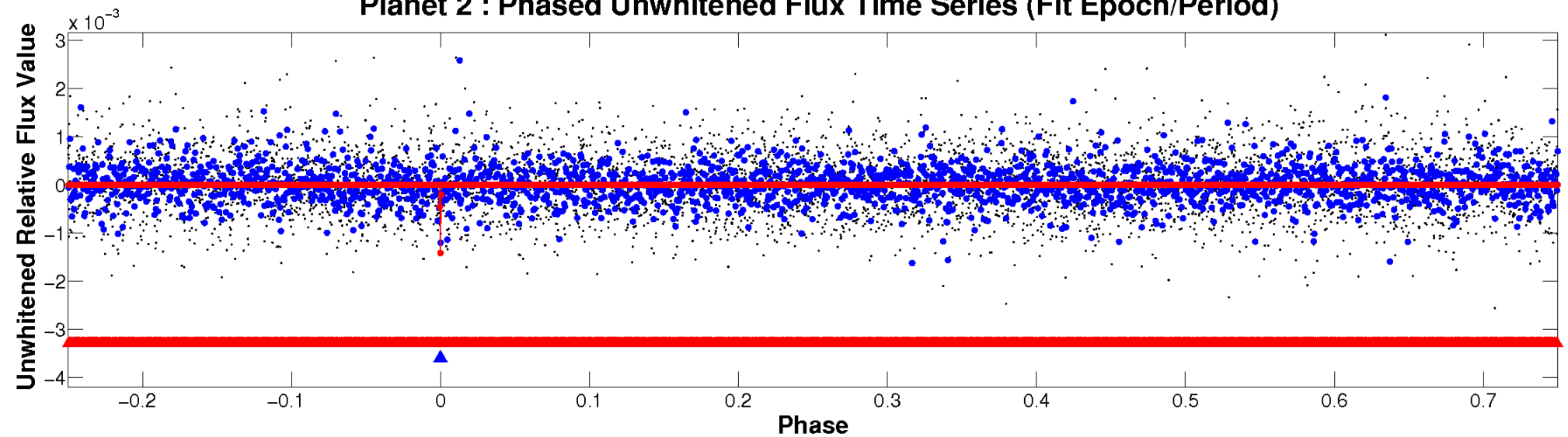


ALT Odd/Even

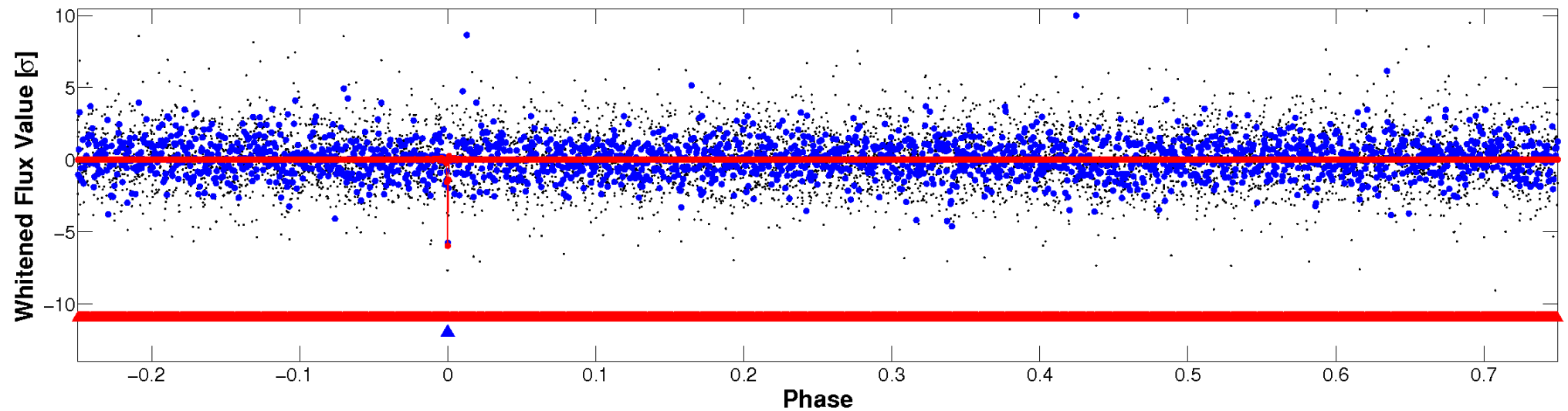
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

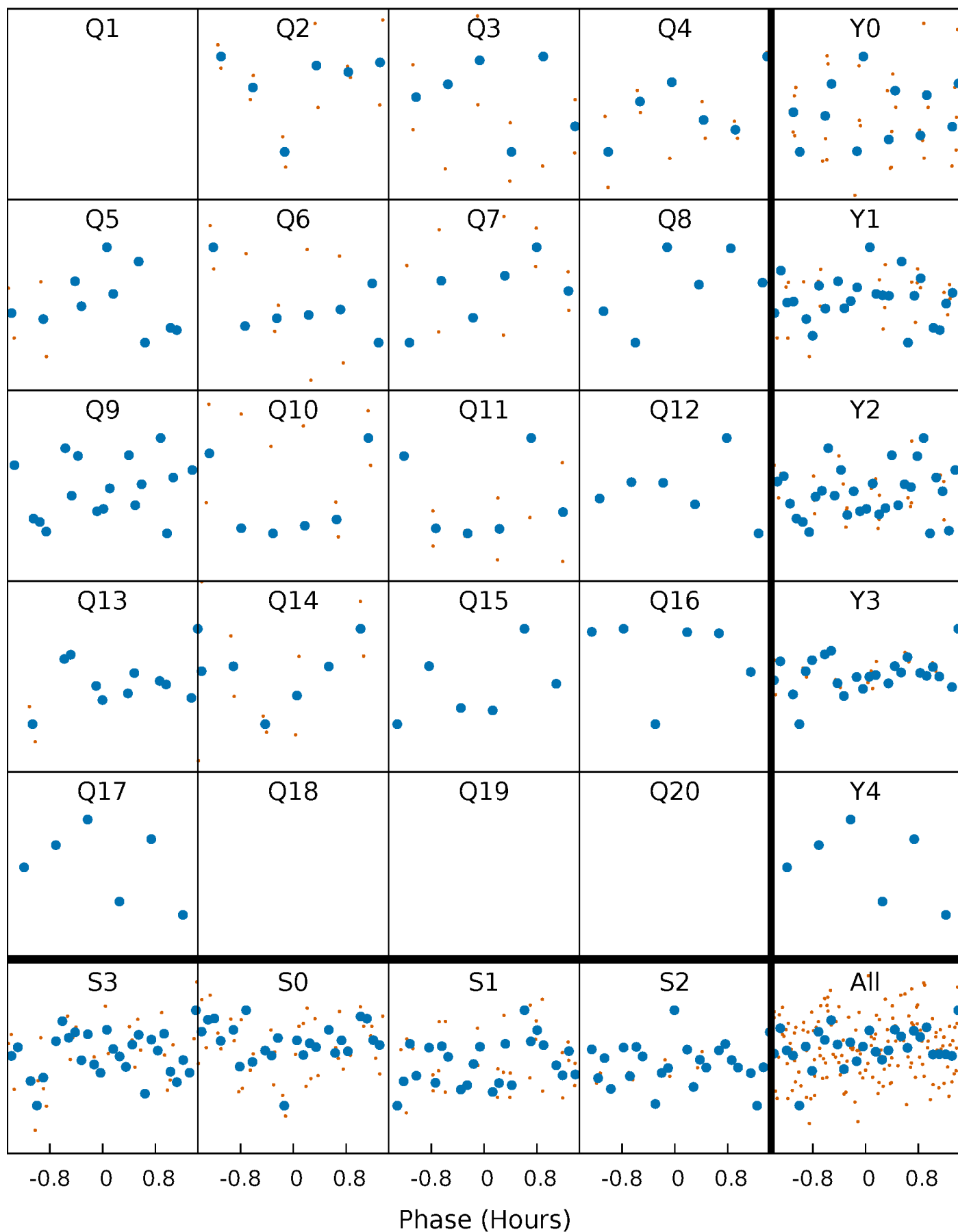


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



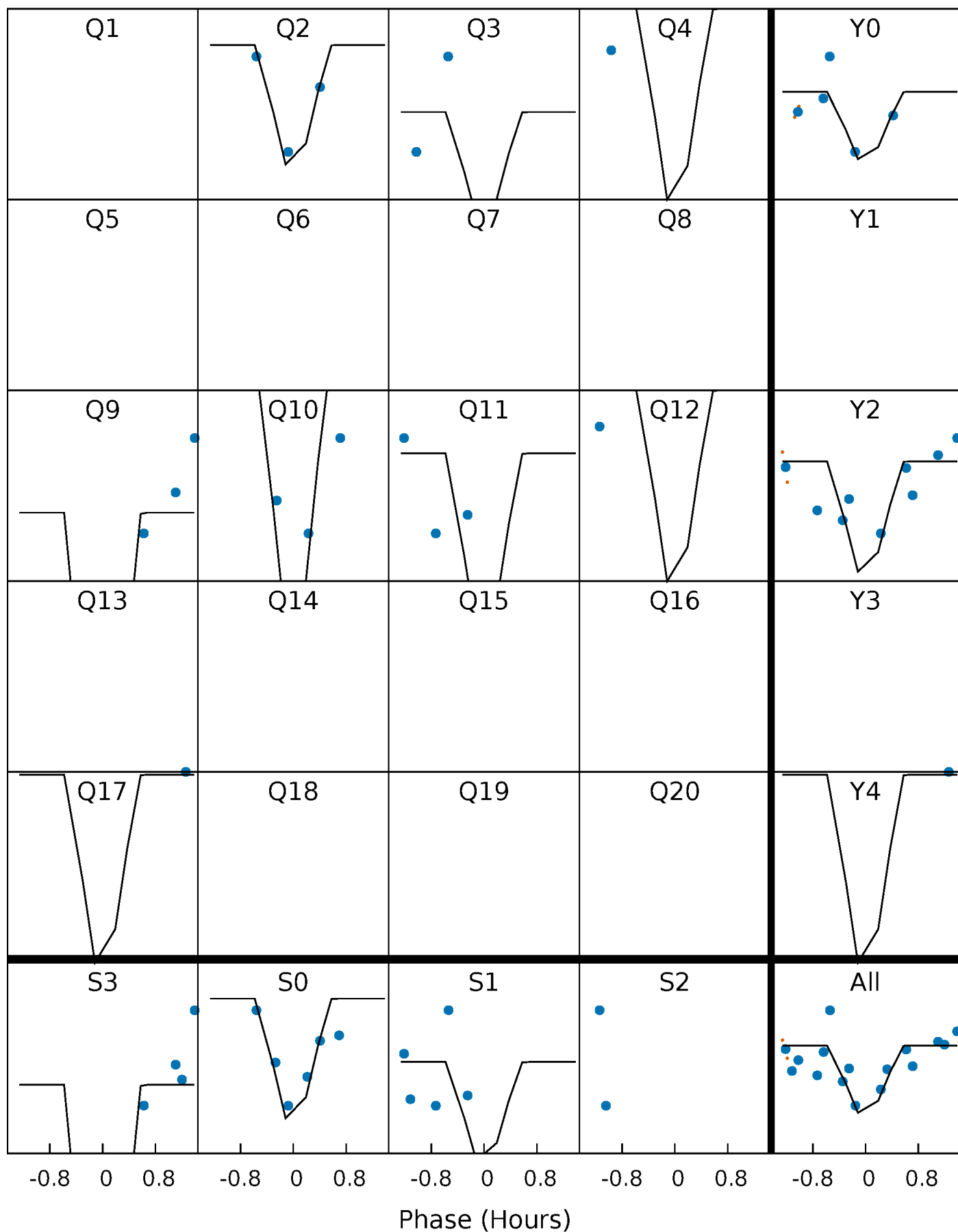
PDC Quarter-Phased Transit Curves

TCE 009402583-02 $P = 44.277643$ Days $T_0 = 152.140167$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009402583-02 P= 44.277643 Days $T_0=152.140167$ (BKJD)

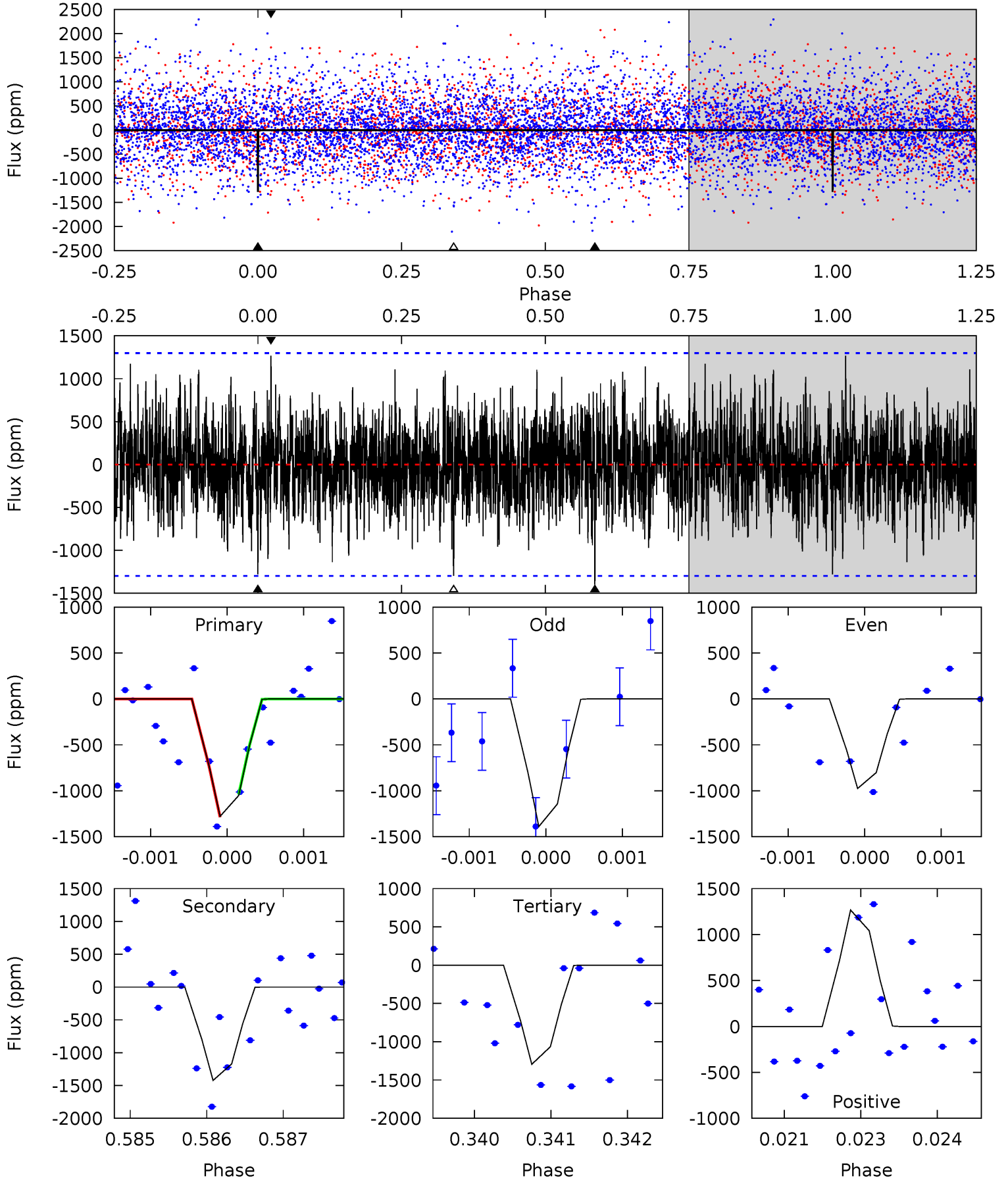


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009402583-02, P = 44.277643 Days, E = 152.140167 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.34	5.94	5.41	5.29	5.42	3.24	1.50	-0.07	0.05	0.54	0.65	0.81	1.00	0.47	0.52



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009402583

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5041^{+151}_{-151}	$4.597^{+0.040}_{-0.060}$	$-0.160^{+0.300}_{-0.300}$	$0.728^{+0.086}_{-0.065}$	$0.766^{+0.079}_{-0.071}$	$2.796^{+0.531}_{-0.594}$
	+3%/-3%	+1%/-1%	+188%/-188%	+12%/-9%	+10%/-9%	+19%/-21%
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 009402583-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1423 ± 239	$17.38^{+17.62}_{-11.61}$	562^{+21}_{-20}	2815^{+1110}_{-456}	127^{+1056}_{-95}
Alt.	N/A	N/A	N/A	N/A	N/A

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

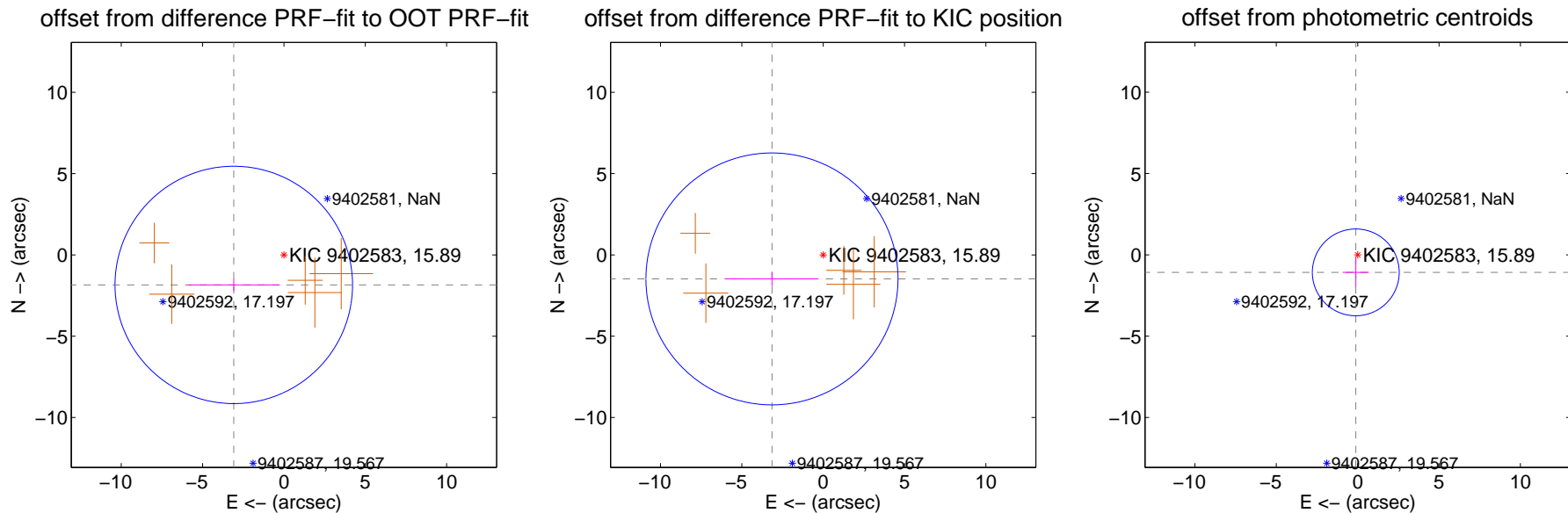
DV Centroid Data

Supplemental centroid analysis for 009402583-02. Kepler magnitude: 15.89. Transit SNR 10.04

There are 0 quarters with good PRF difference image offsets

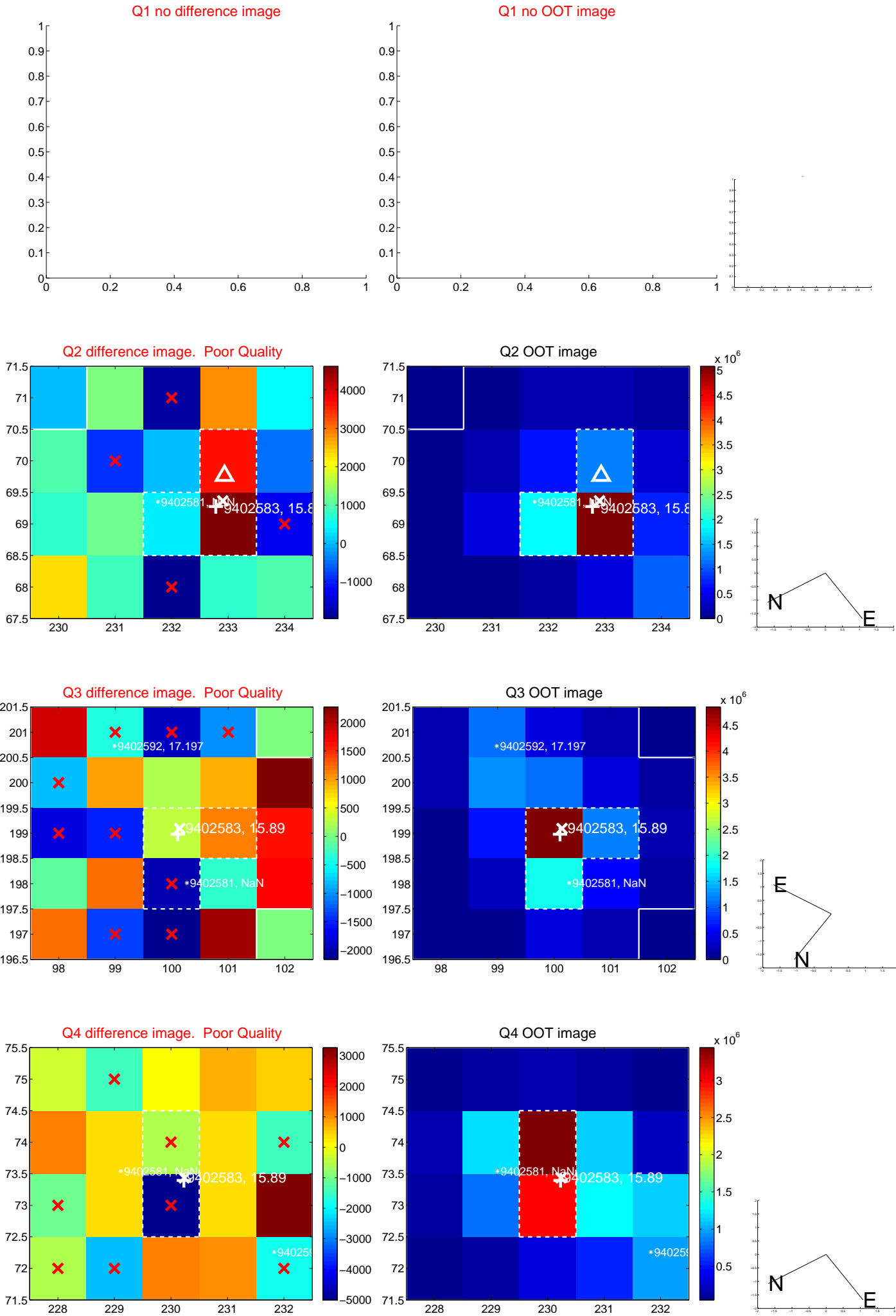
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.593 ± 2.433	1.48	3.082 ± 2.827	-1.847 ± 0.374
PRF-fit source offset from KIC position	3.478 ± 2.582	1.35	3.148 ± 2.845	-1.478 ± 0.434
photometric centroid source offset	1.08 ± 0.89	1.22	0.12 ± 0.80	-1.08 ± 0.89

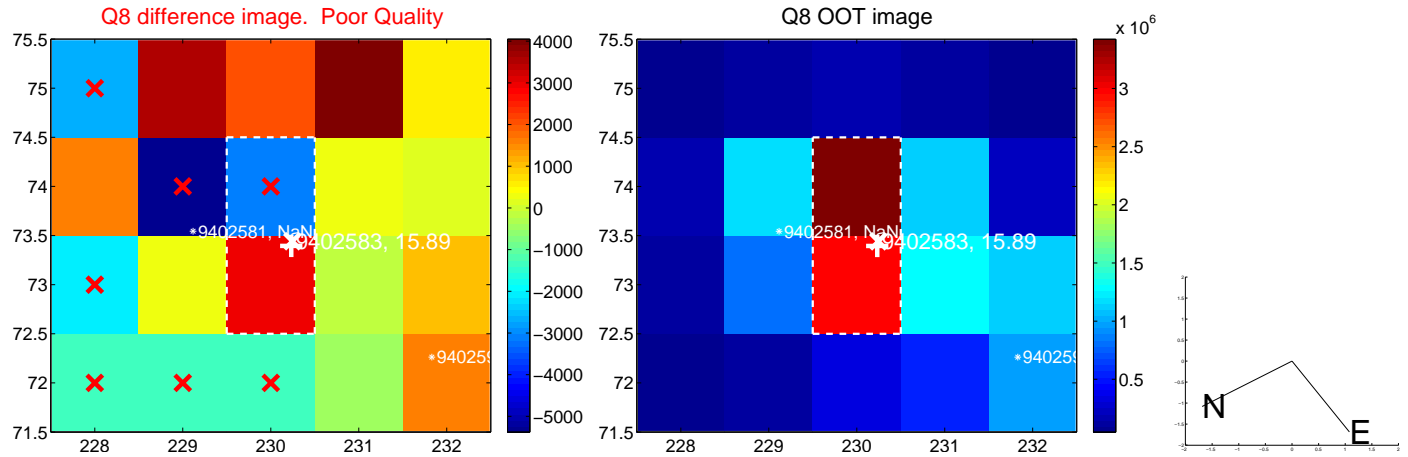
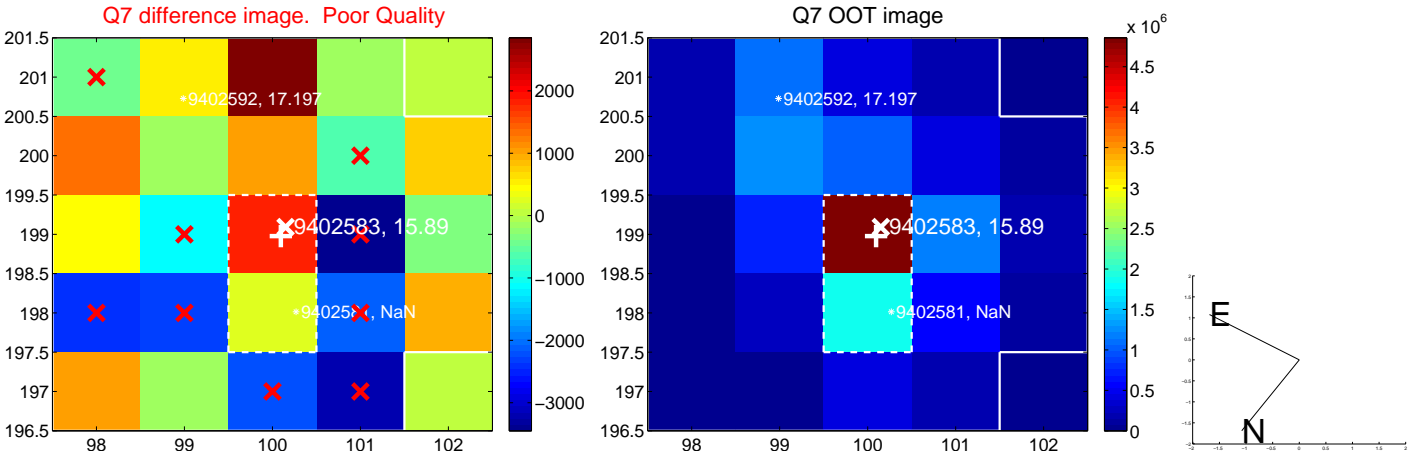
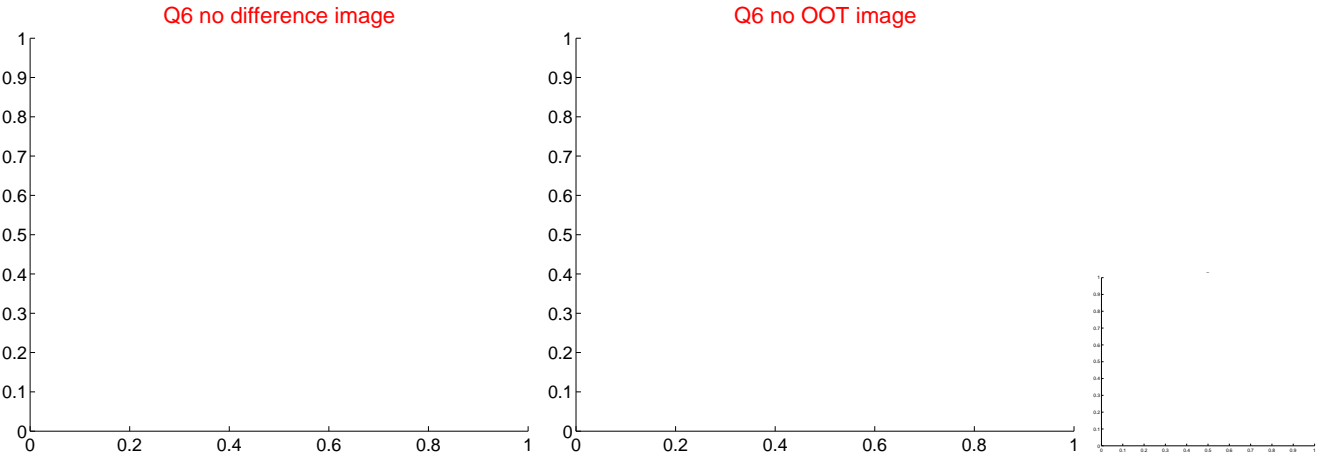
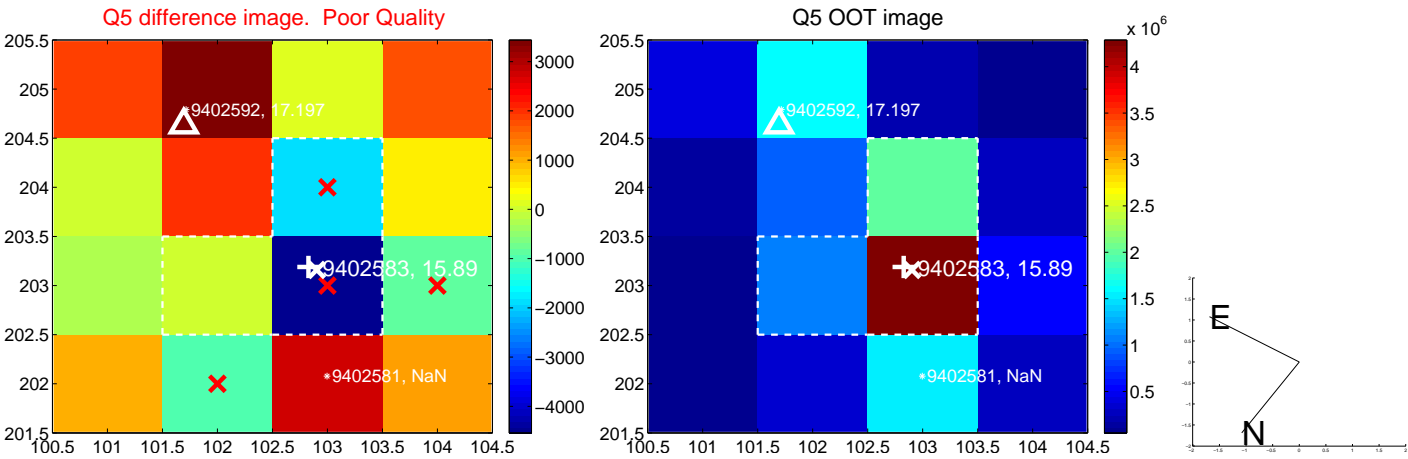


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

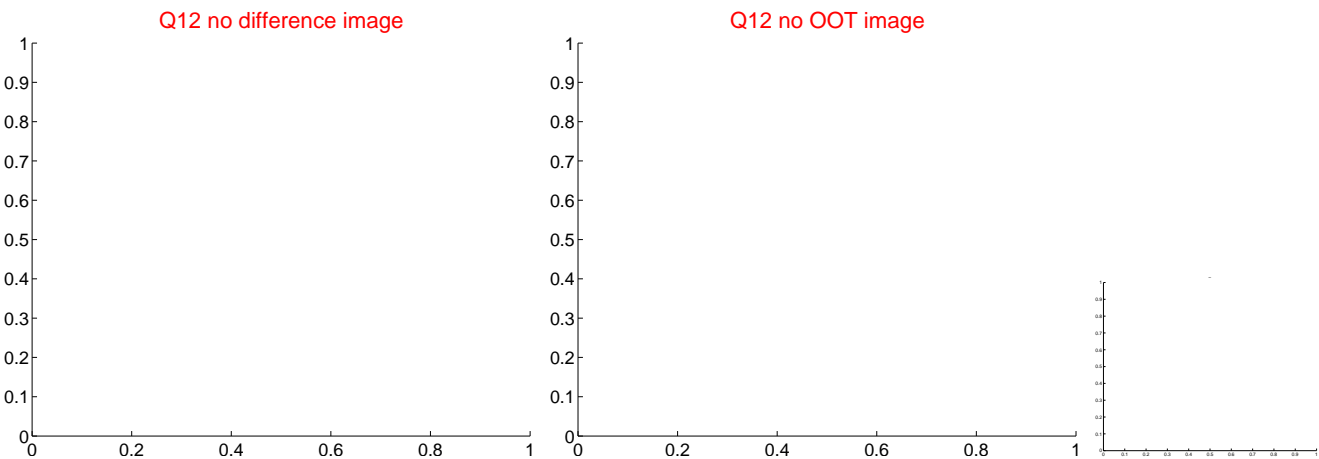
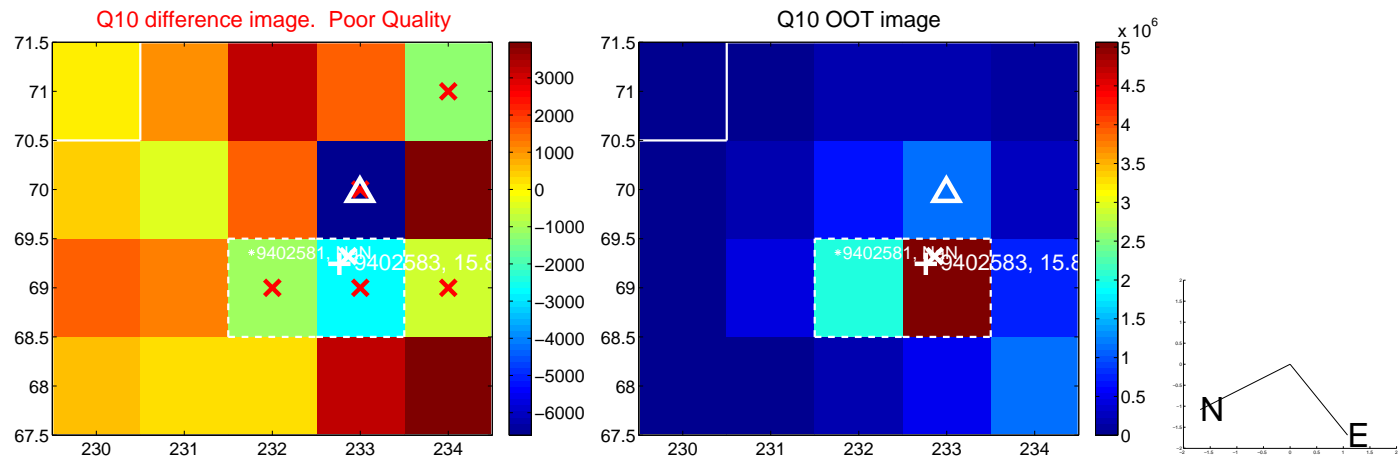
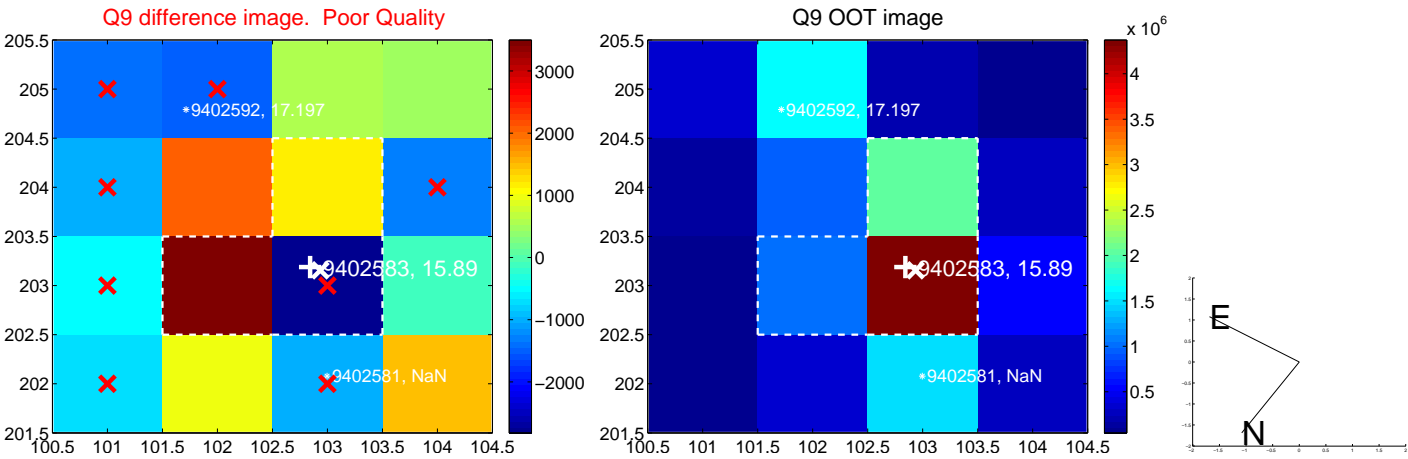
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



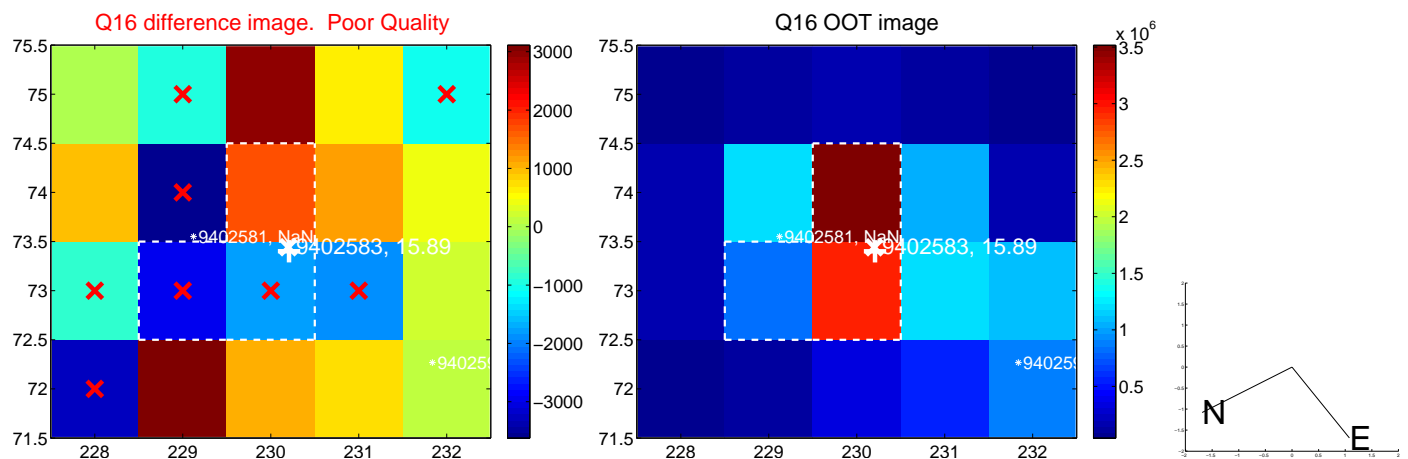
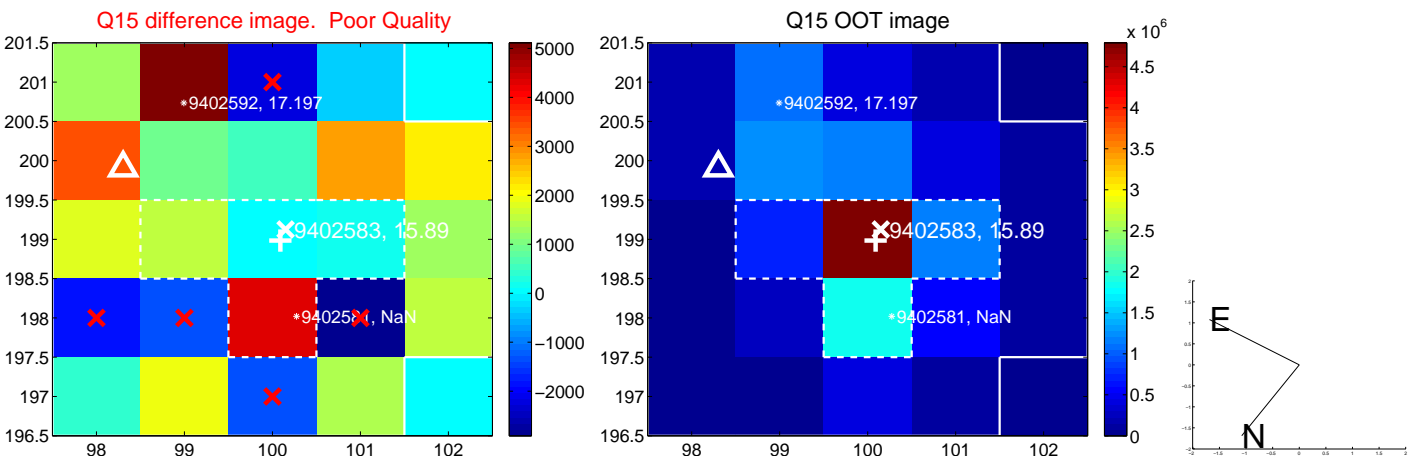
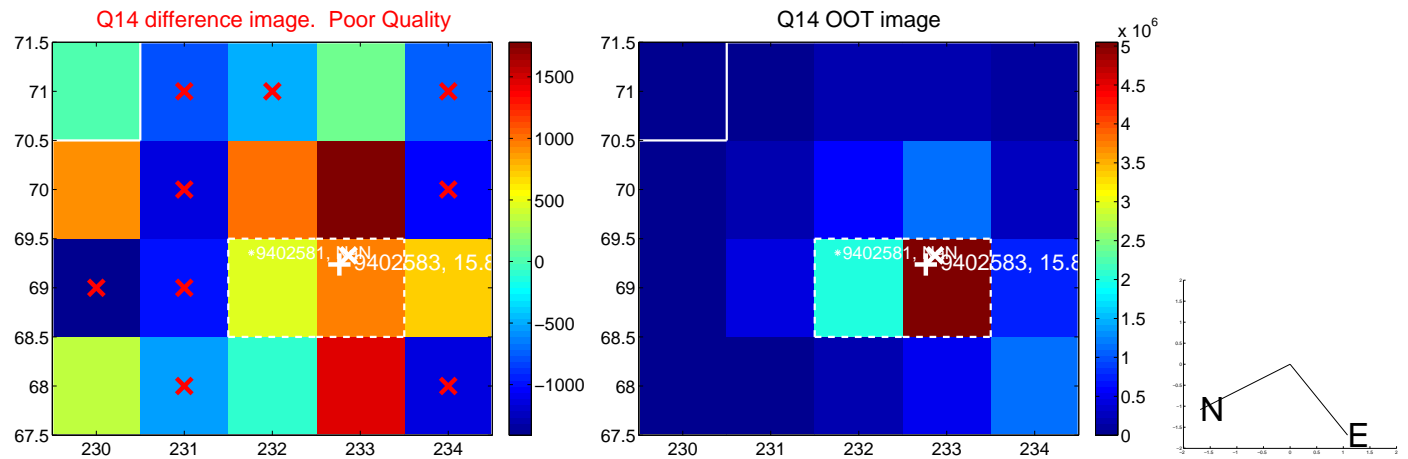
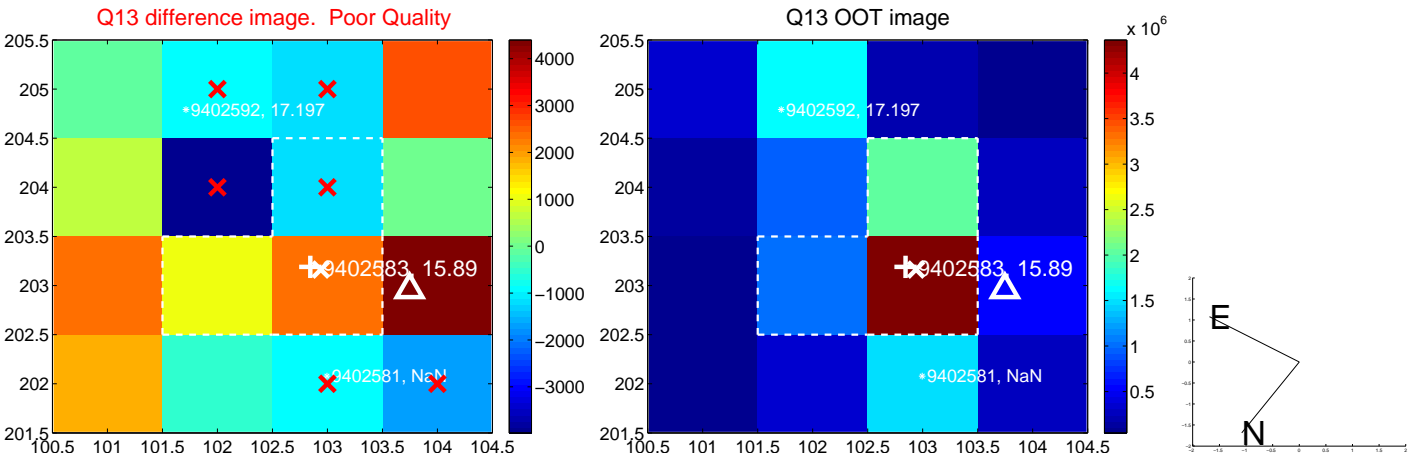
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



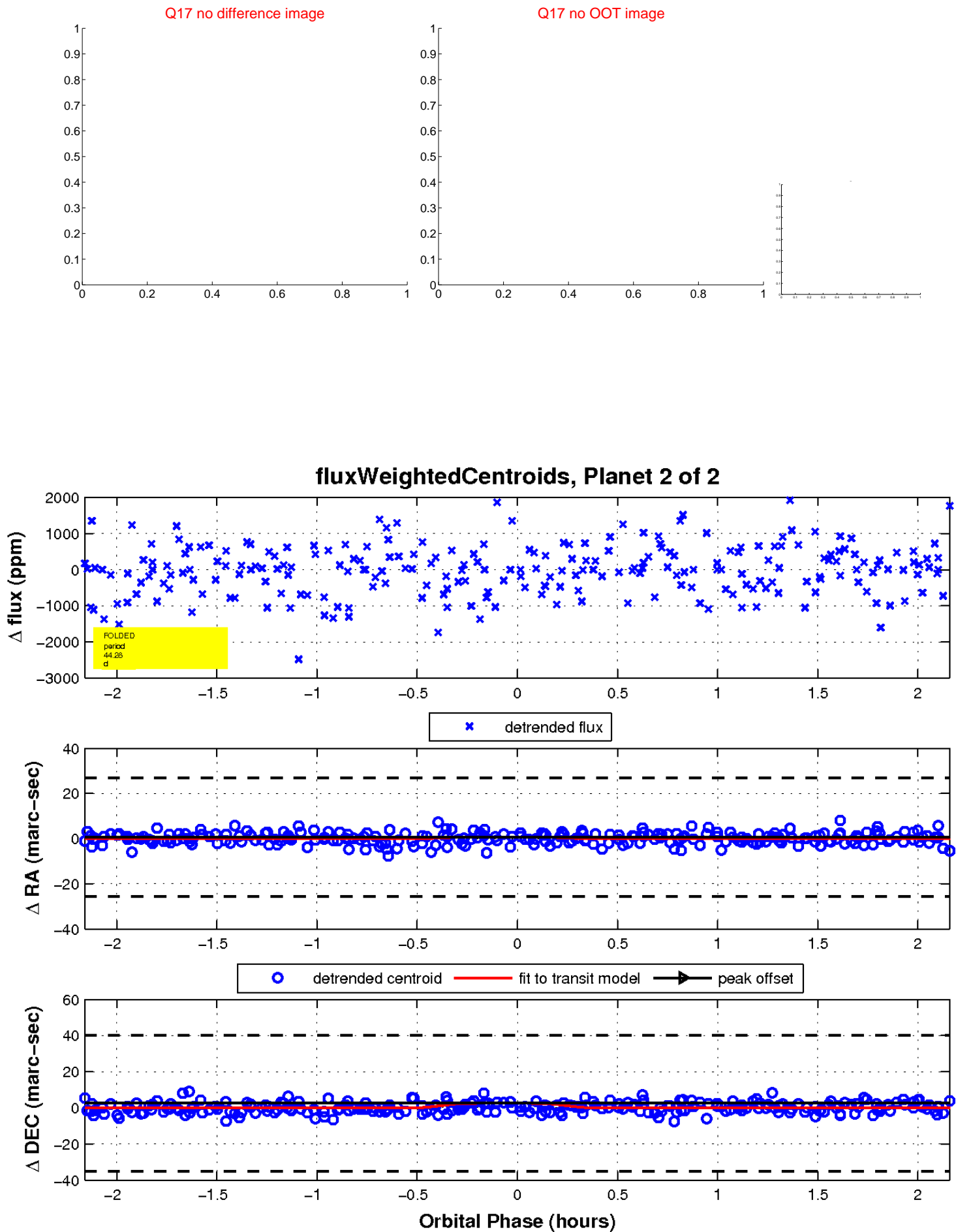
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UKIRT Image

Declination

