

KIC 009959279

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})
009959279-01	OBS	No	1.096978	132.553047	8.8	6.759	8.7	9.3	1.73	7691	0.53	14715.01
009959279-02	OBS	No	62.171580	189.803484	188.7	1.849	8.3	7.8	1.73	7691	2.76	67.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009959279-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009959279-02	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_NONUNIQ_ALT—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.

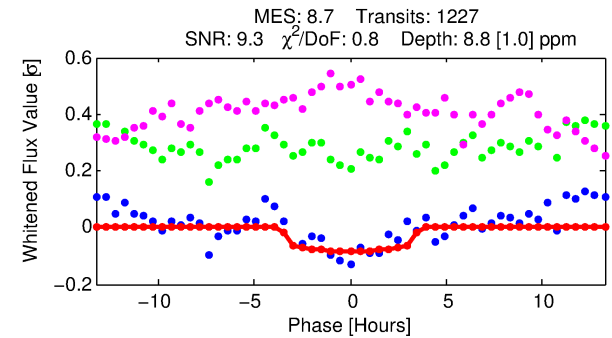
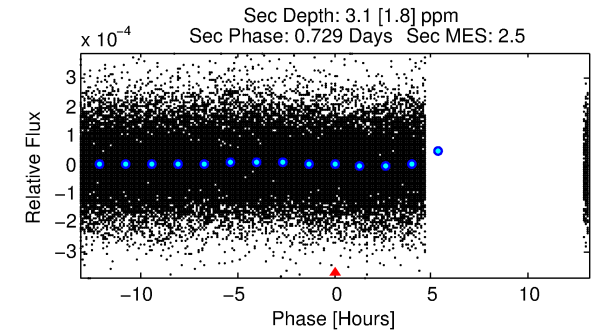
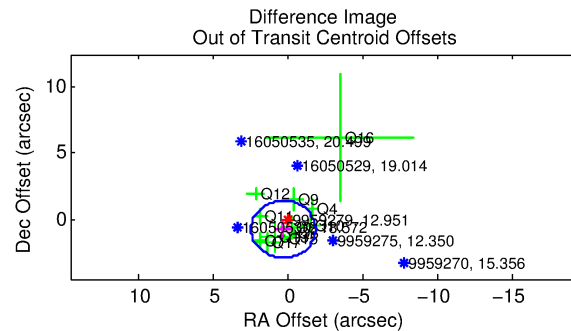
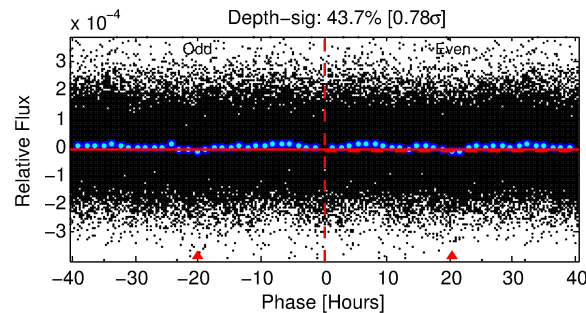
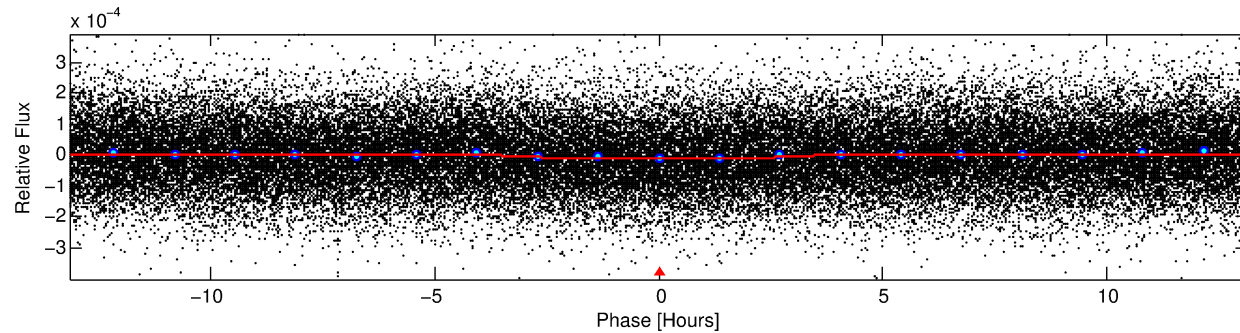
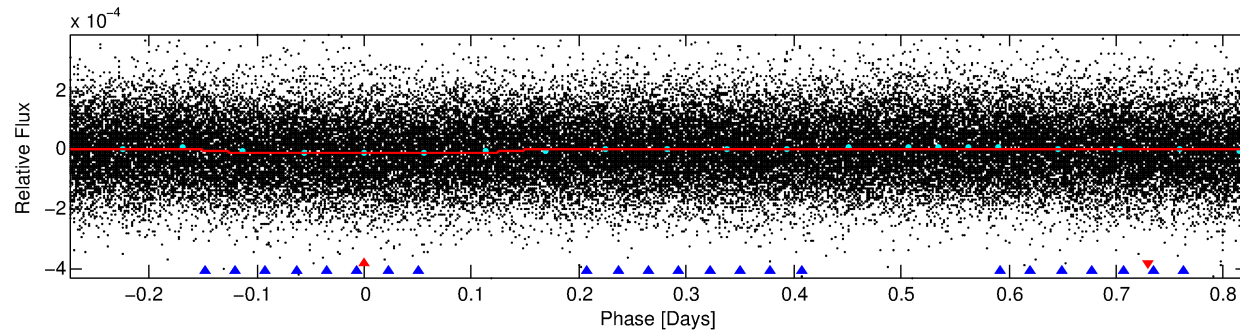
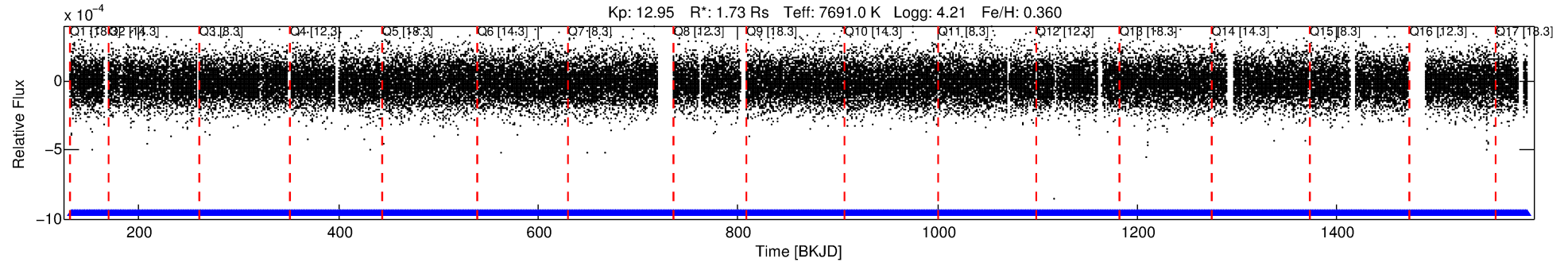
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009959279-01

No Significant Match Found

DV One-Page Summary

KIC: 9959279 Candidate: 1 of 2 Period: 1.097 d



DV Fit Results:

Period = 1.09698 [0.00002] d
Epoch = 132.5530 [0.0073] BKJD
Rp/R* = 0.0028 [0.0012]
a/R* = 1.31 [1.37]
b = 0.49 [3.91]
Seff = 14715.01 [6407.60]
Teq = 2808 [306] K
Rp = 0.53 [0.28] Re
a = 0.0253 [0.0070] AU
Ag = 3.80 [4.18] [0.67 σ]
Teffp = 6061 [1579] K [2.02 σ]

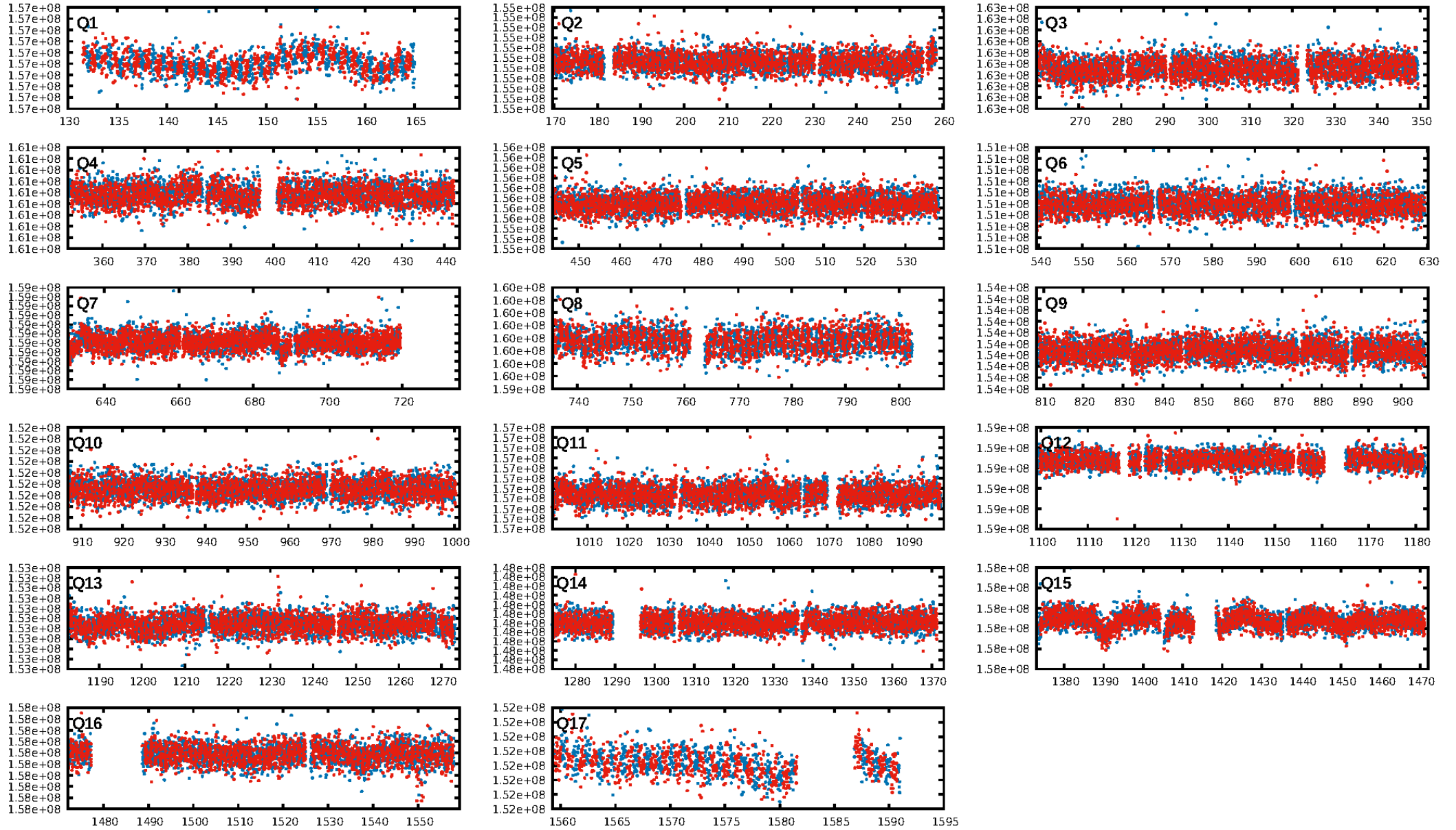
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [209.18 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.90e-15
RollingBand-fgt: 1.00 [1171/1171]
GhostDiagnostic-chr: 2.541
Centroid-sig: 7.9%
Centroid-so: 1.173 arcsec [0.92 σ]
OotOffset-rm: 0.789 arcsec [1.10 σ]
KicOffset-rm: 0.833 arcsec [1.17 σ]
OotOffset-st: 2/3/4/3 [12]
KicOffset-st: 2/3/4/3 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 1.00 [17/17]

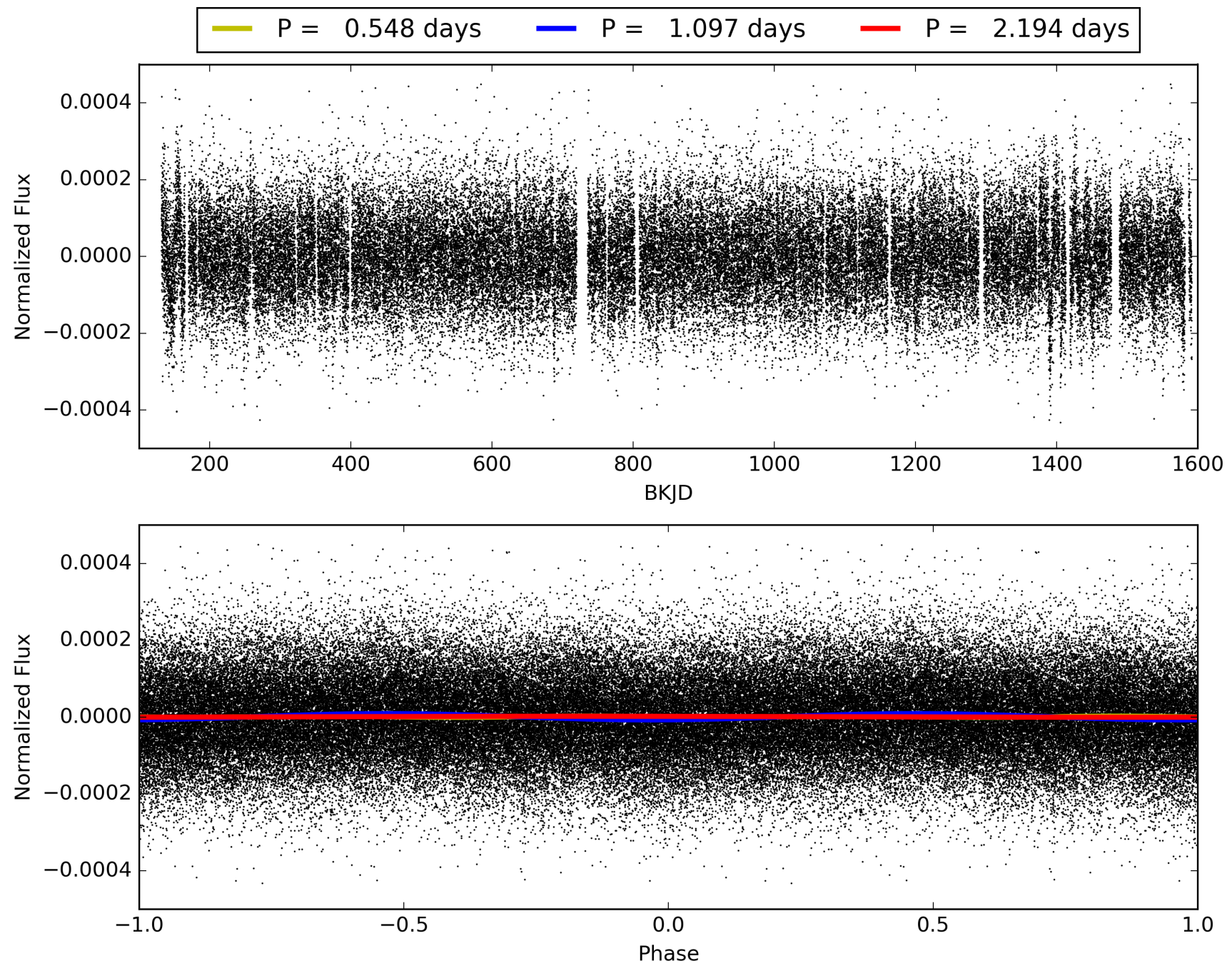
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:00:44 Z

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

TCE 009959279-01, PDC Light Curves

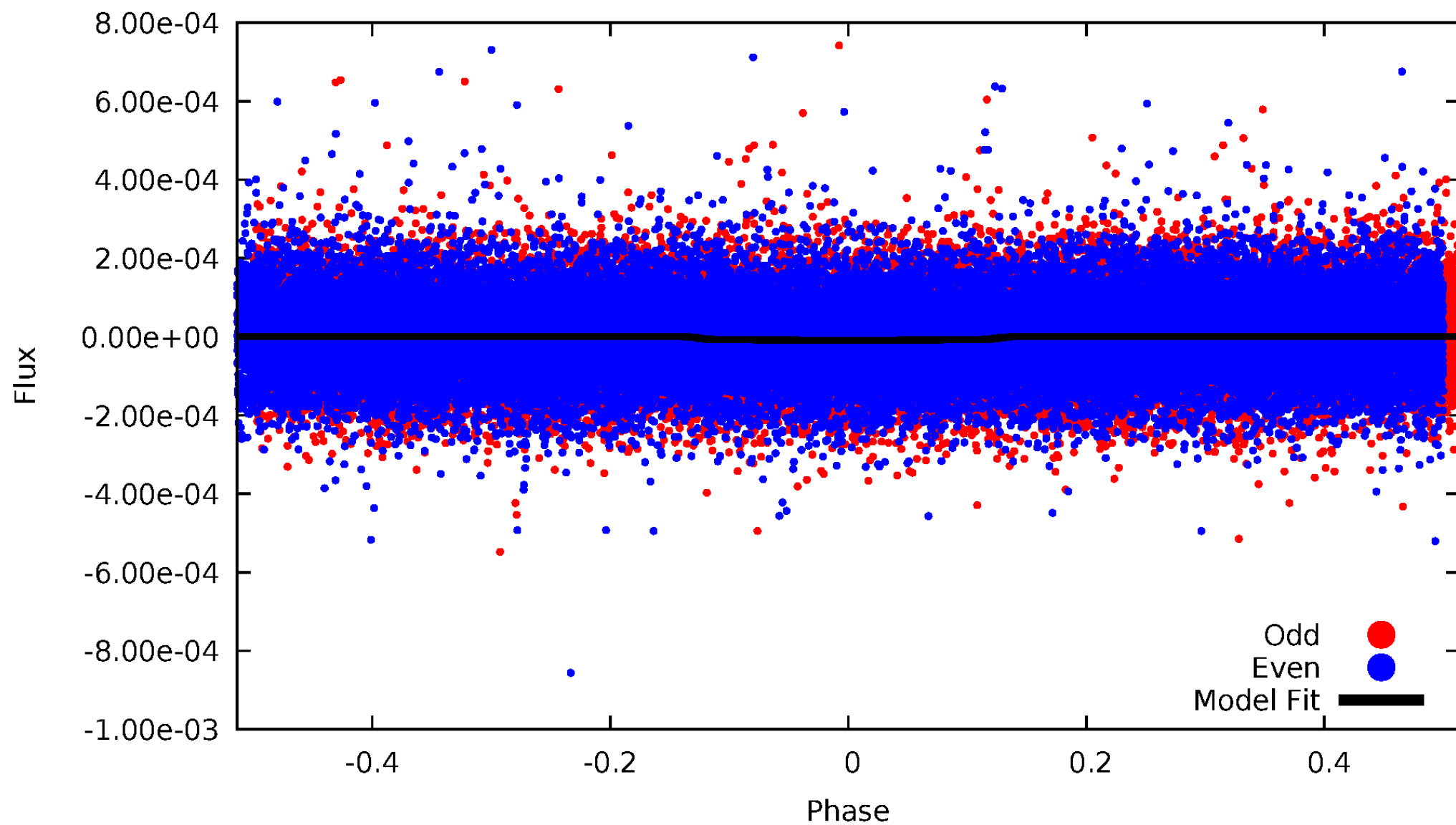


TCE 009959279-01



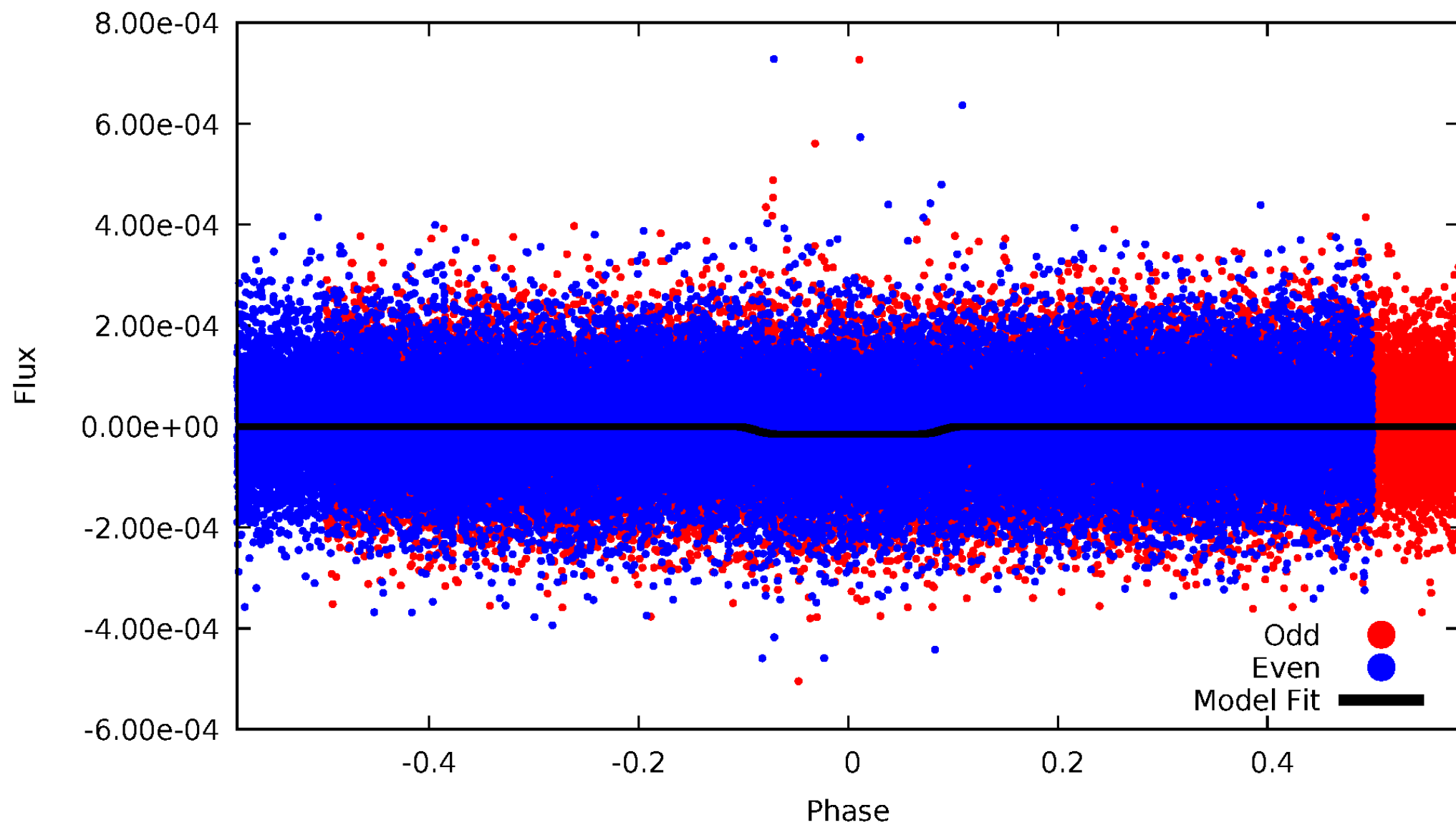
DV Odd/Even

TCE 009959279-01



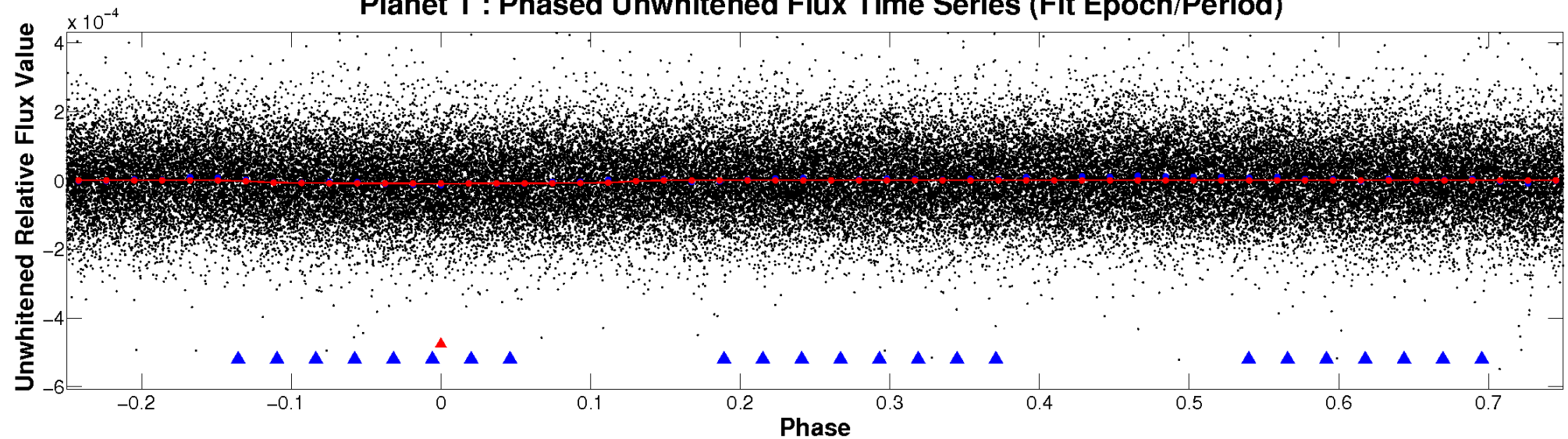
ALT Odd/Even

TCE 009959279-01

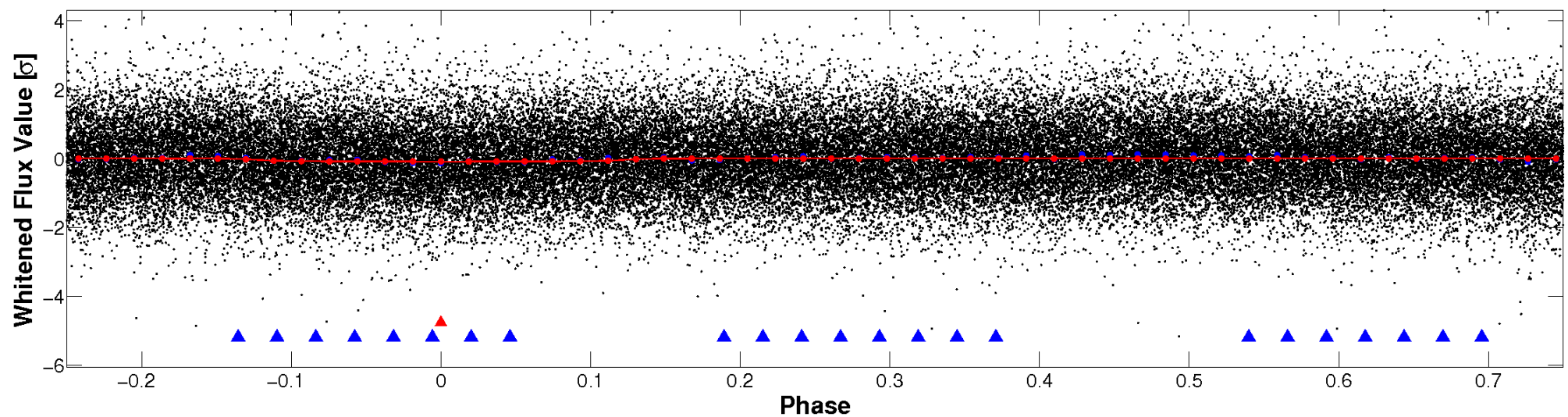


Non-Whitened Vs. Whitened Light Curve

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

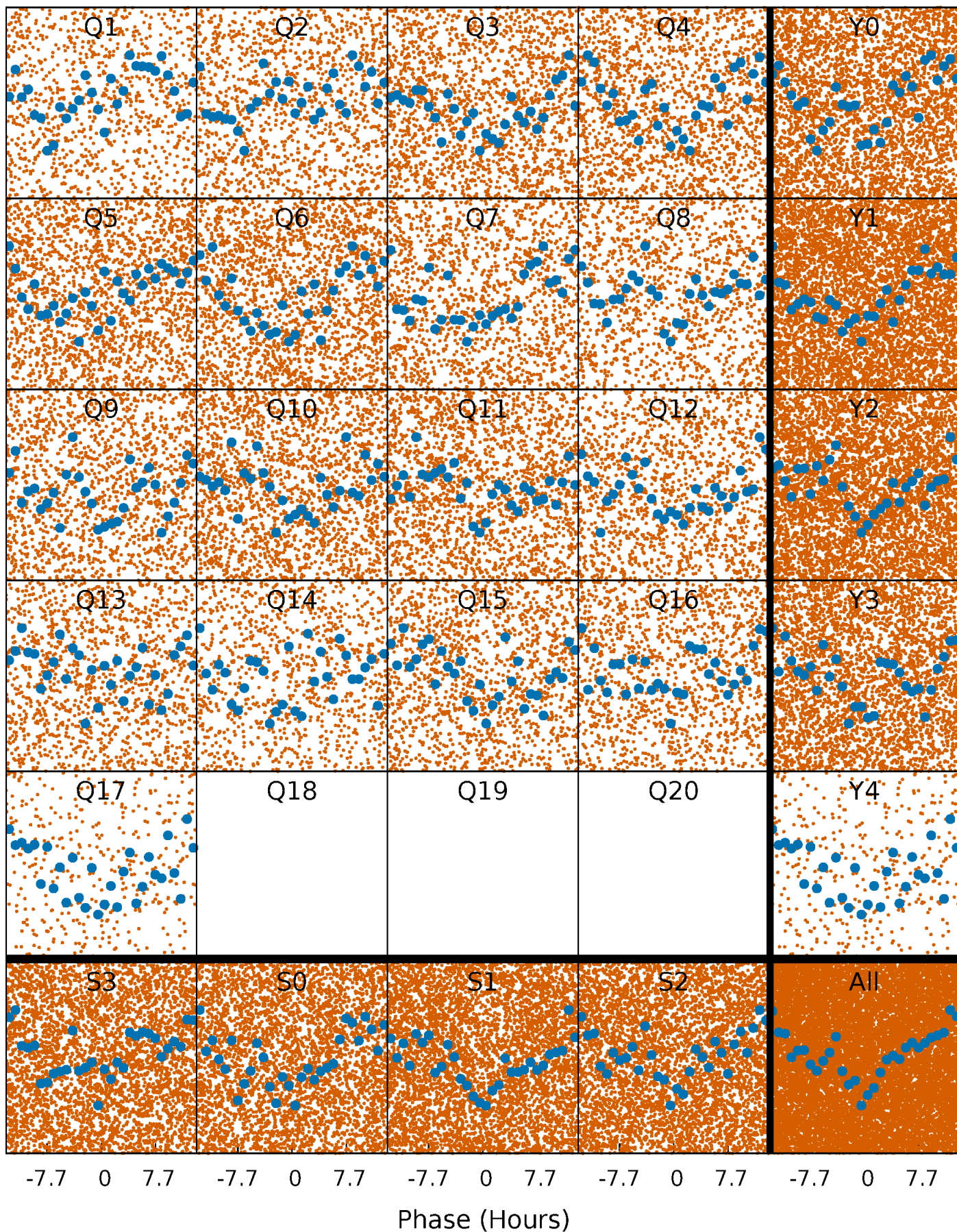


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



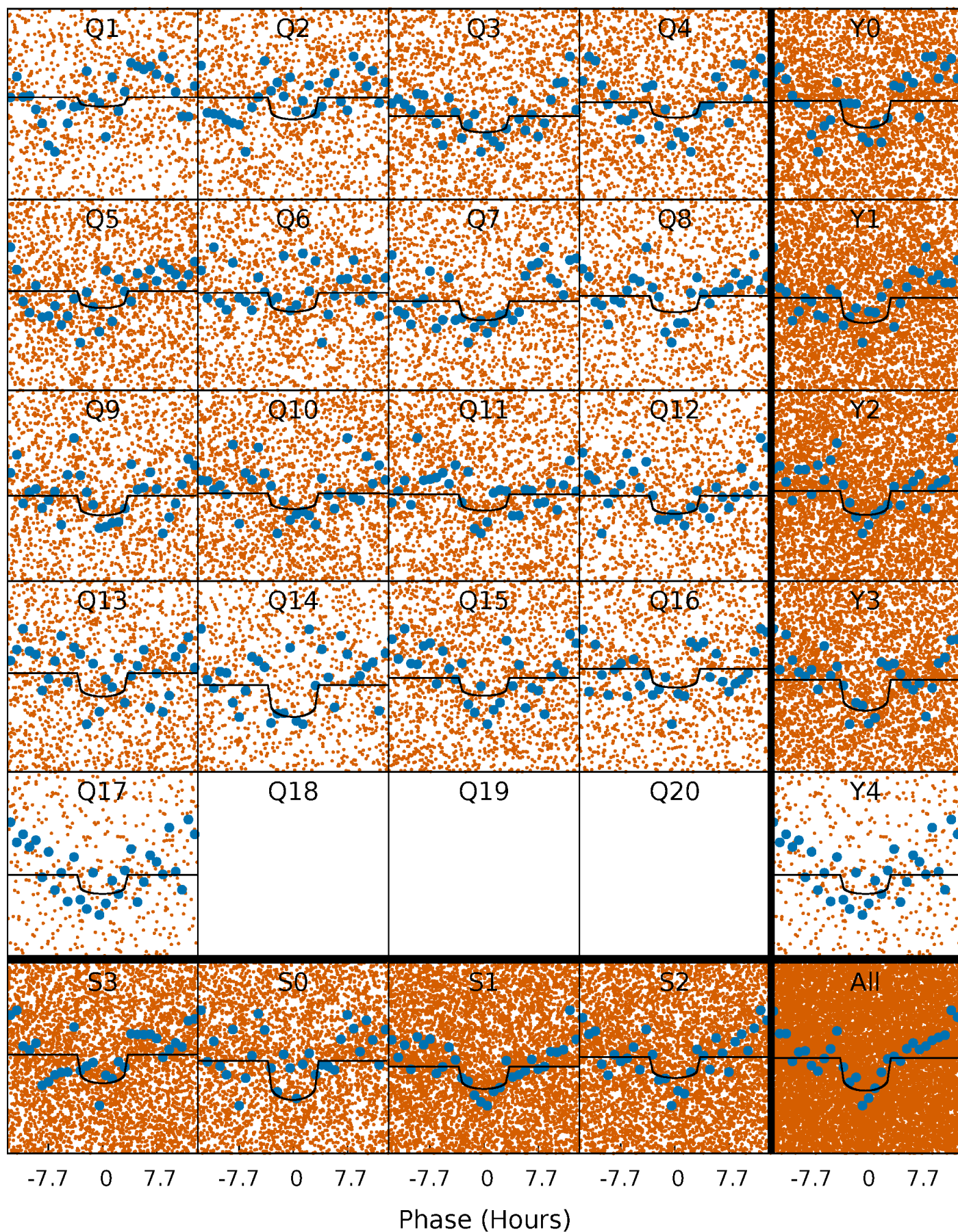
PDC Quarter-Phased Transit Curves

TCE 009959279-01 P= 1.096978 Days $T_0=132.553047$ (BKJD)



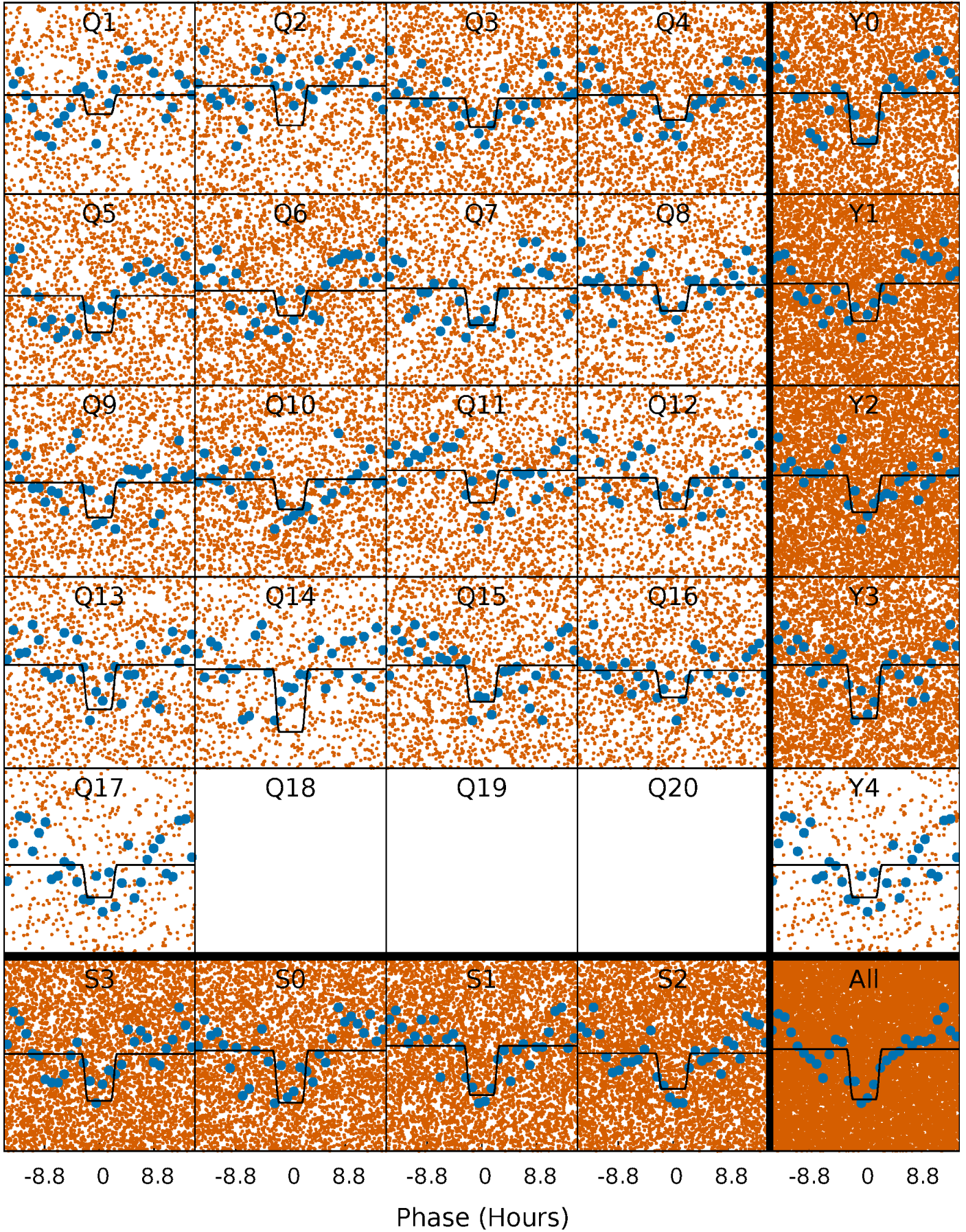
DV Quarter-Phased Transit Curves

TCE 009959279-01 P= 1.096978 Days $T_0=132.553047$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

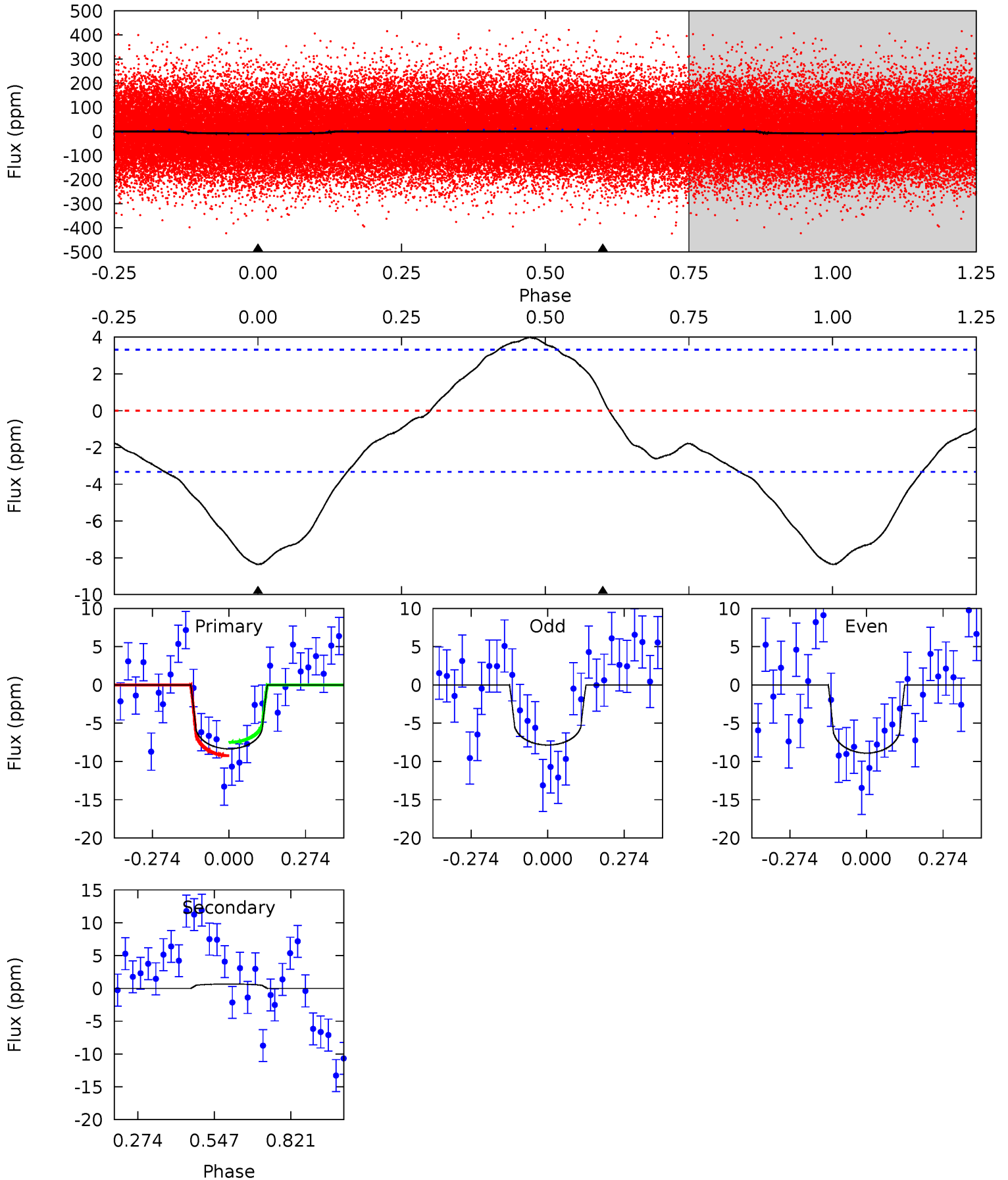
TCE 009959279-01 P= 1.096931 Days $T_0=132.582624$ (BKJD)



DV Model-Shift Uniqueness Test

009959279-01, P = 1.096978 Days, E = 131.456069 Days

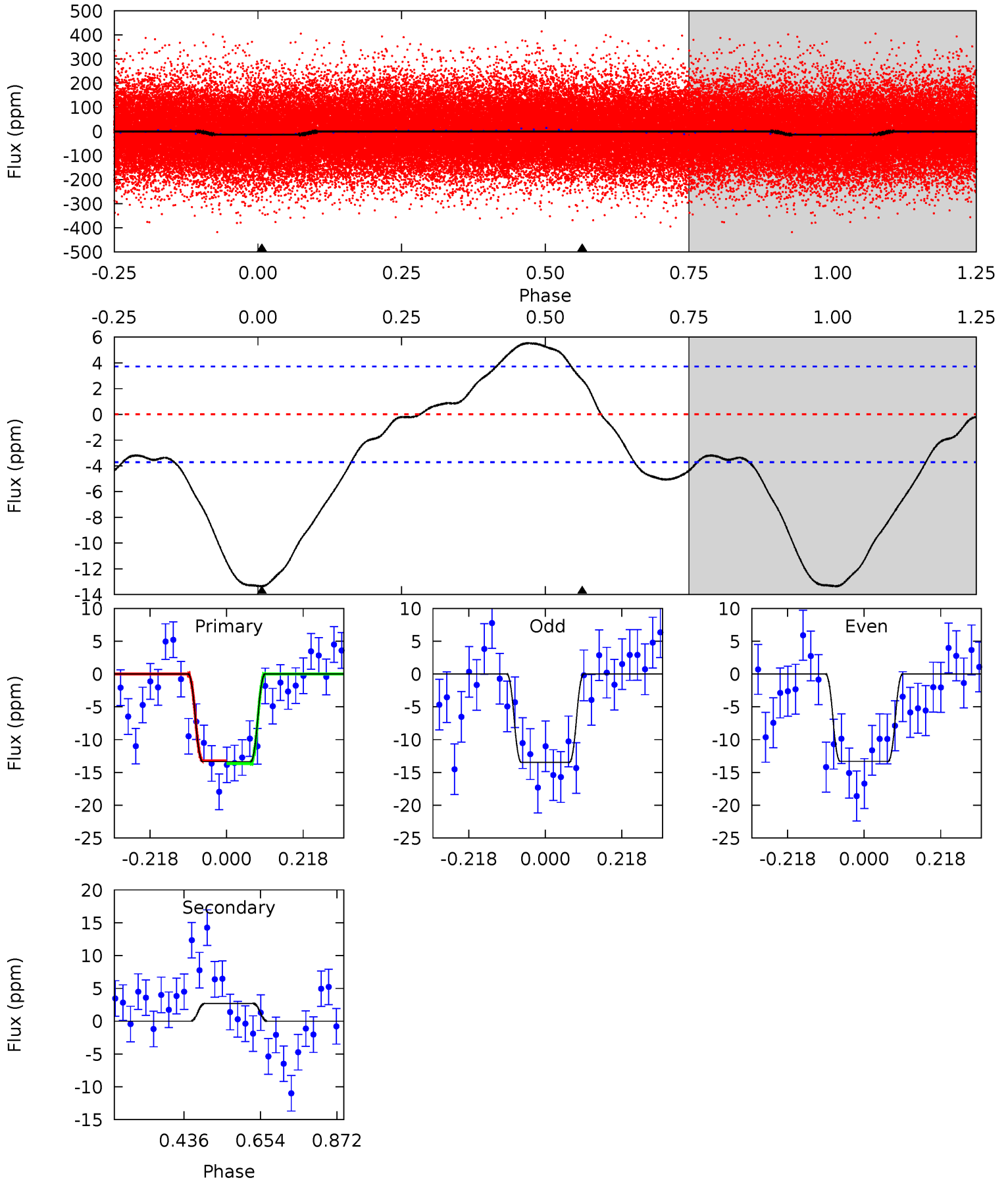
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	-0.86	0	0	4.35	1.09	1.00	10.9	10.9	-0.86	-0.86	0.69	1.03	0.32	1.15



Alt Model-Shift Uniqueness Test

009959279-01, P = 1.096931 Days, E = 131.485693 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	-3.18	0	0	4.40	1.23	1.09	15.8	15.8	-3.18	-3.18	0.09	1.03	0.29	0.25



Stellar Parameters For KIC 009959279

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7691^{+216}_{-339}	$4.214^{+0.054}_{-0.216}$	$0.360^{+0.100}_{-0.450}$	$1.733^{+0.573}_{-0.191}$	$1.793^{+0.189}_{-0.252}$	$0.486^{+0.140}_{-0.269}$
	+3%/-4%	+1%/-5%	+28%/-125%	+33%/-11%	+11%/-14%	+29%/-55%
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 009959279-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	1 ± 1	$0.56^{+0.26}_{-0.22}$	4020^{+318}_{-226}	-4517^{+1087}_{-1180}	$-0.605^{+0.704}_{-1.860}$
Alt.	3 ± 1	$0.76^{+0.26}_{-0.25}$	4004^{+275}_{-226}	-5140^{+508}_{-927}	$-1.525^{+0.770}_{-2.053}$

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 $A_{obs} \gg 1.0$

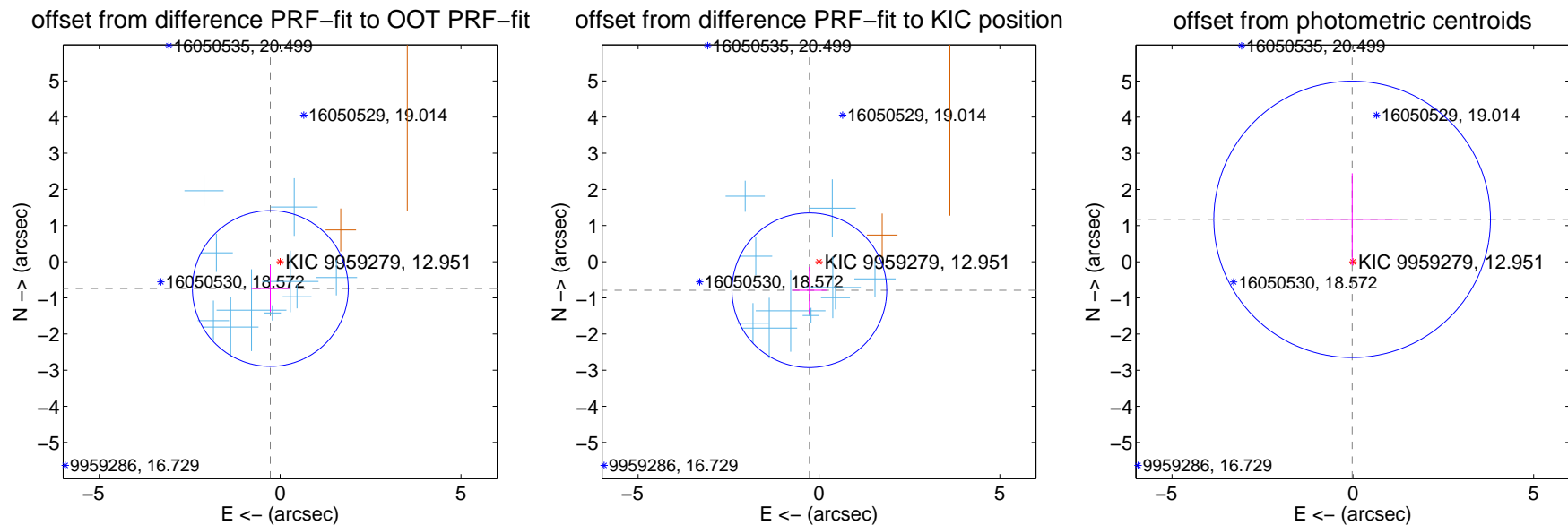
DV Centroid Data

Supplemental centroid analysis for 009959279-01. Kepler magnitude: 12.95. Transit SNR 9.30

There are 10 quarters with good PRF difference image offsets

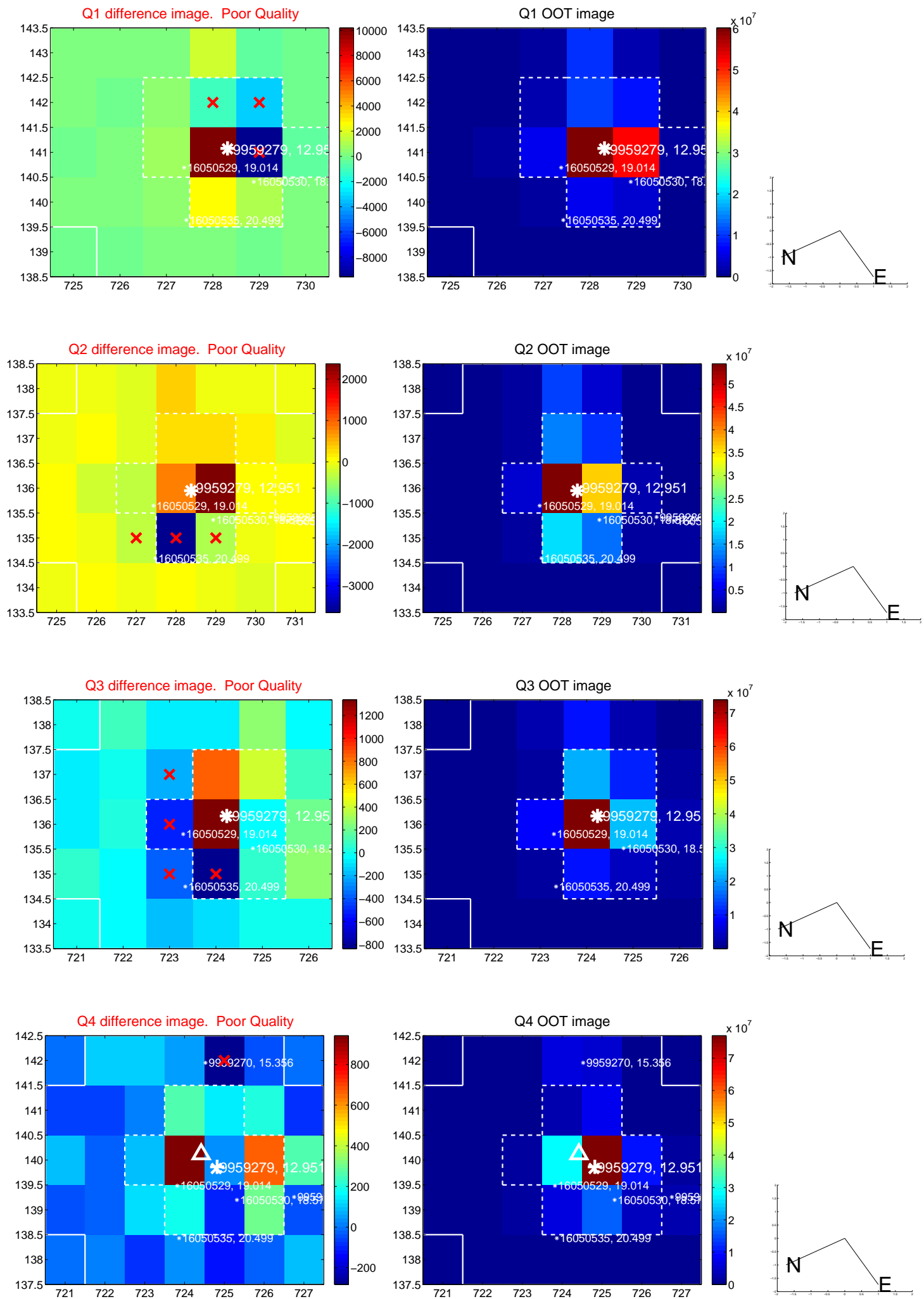
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.789 ± 0.718	1.10	0.270 ± 0.529	-0.741 ± 0.640
PRF-fit source offset from KIC position	0.833 ± 0.713	1.17	0.266 ± 0.475	-0.789 ± 0.647
photometric centroid source offset	1.17 ± 1.27	0.92	0.02 ± 1.28	1.17 ± 1.27

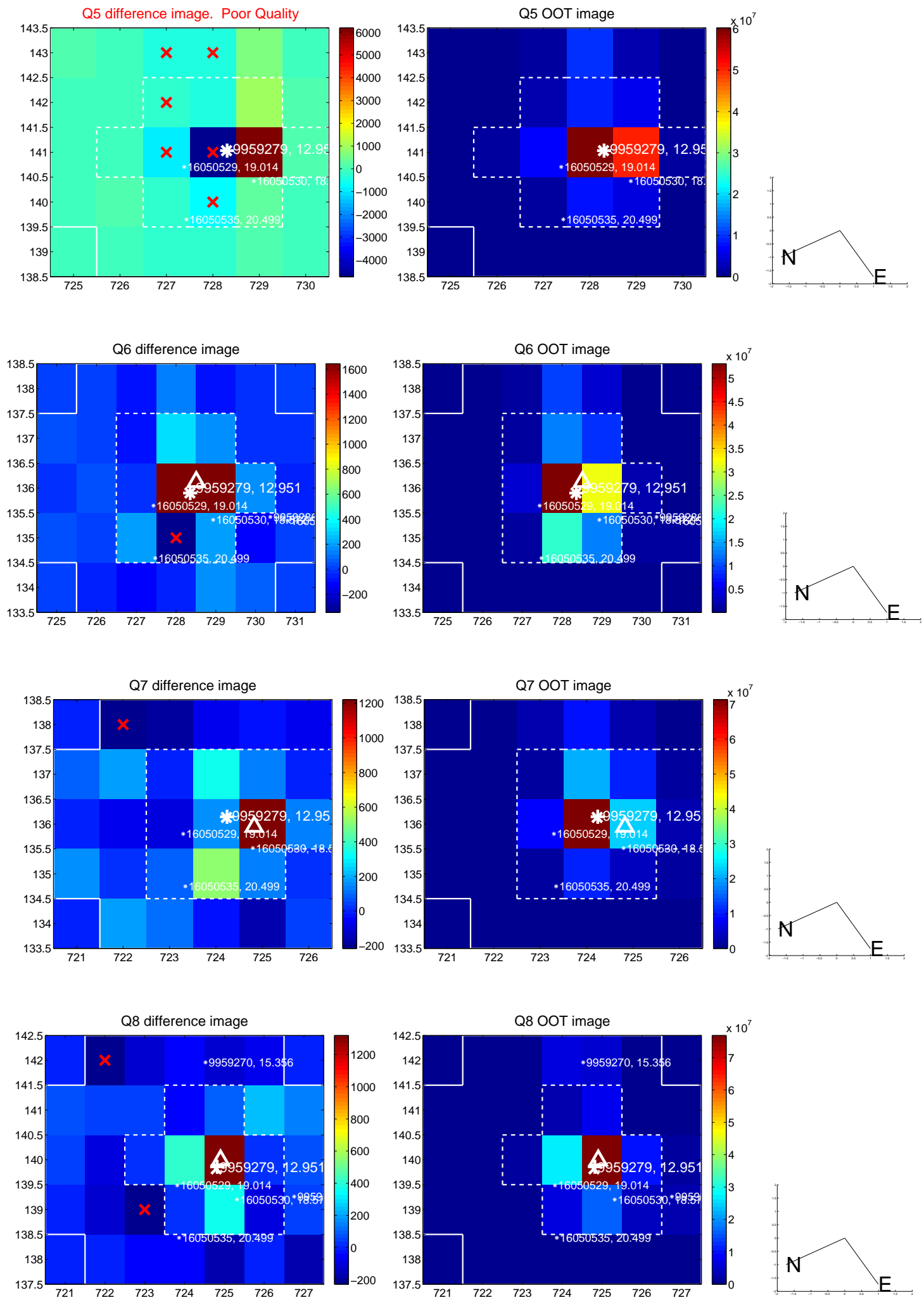


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

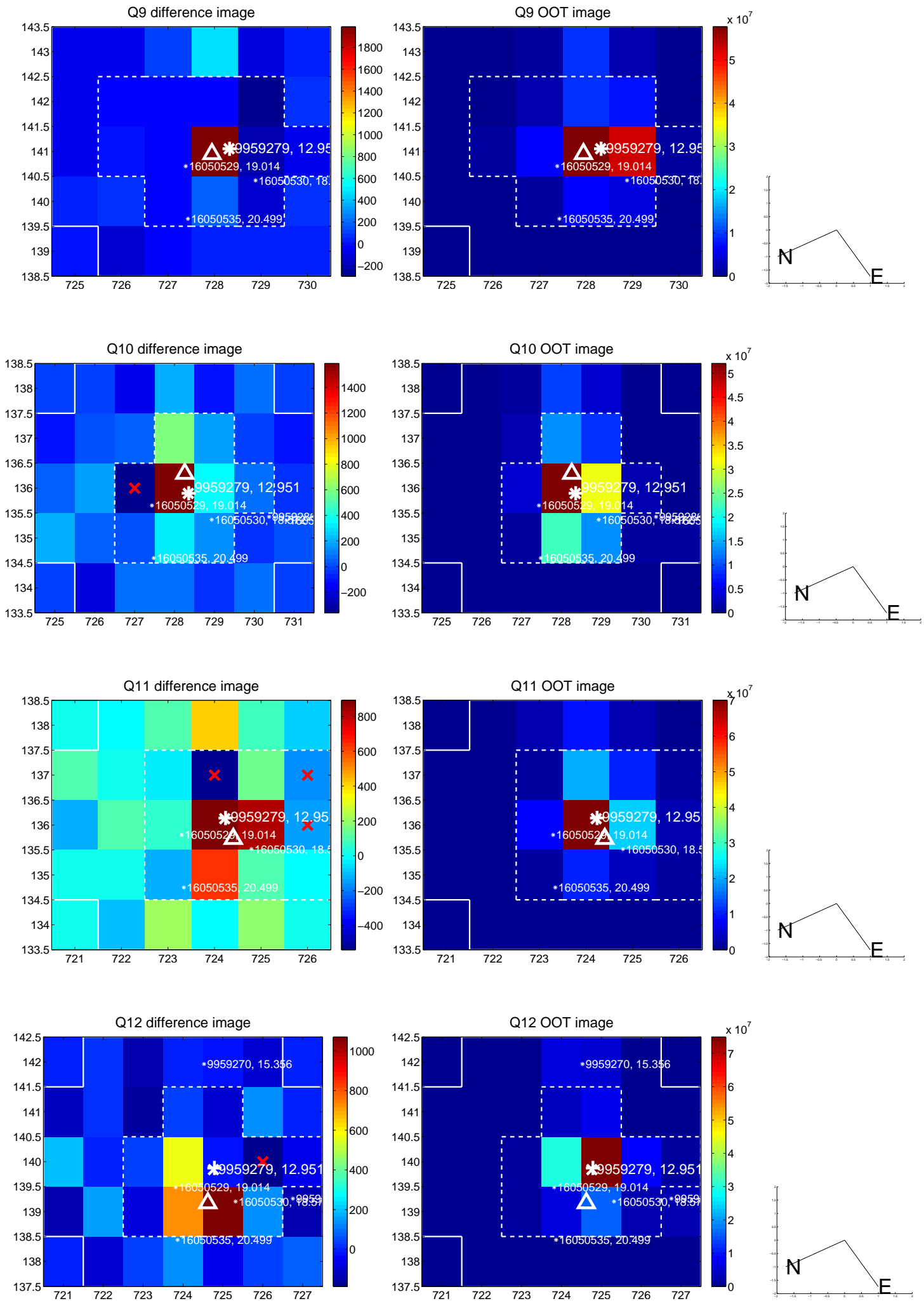
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



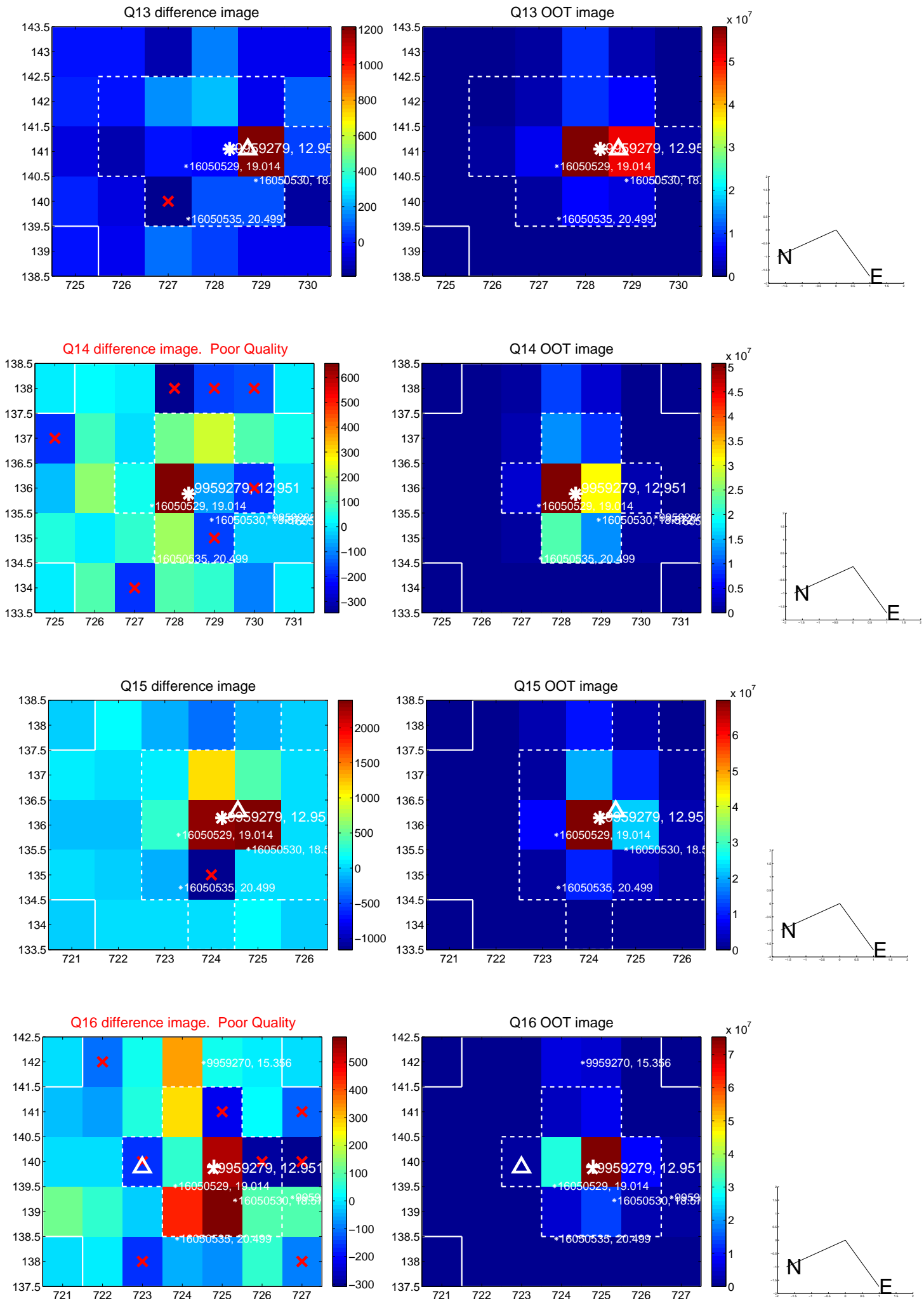
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



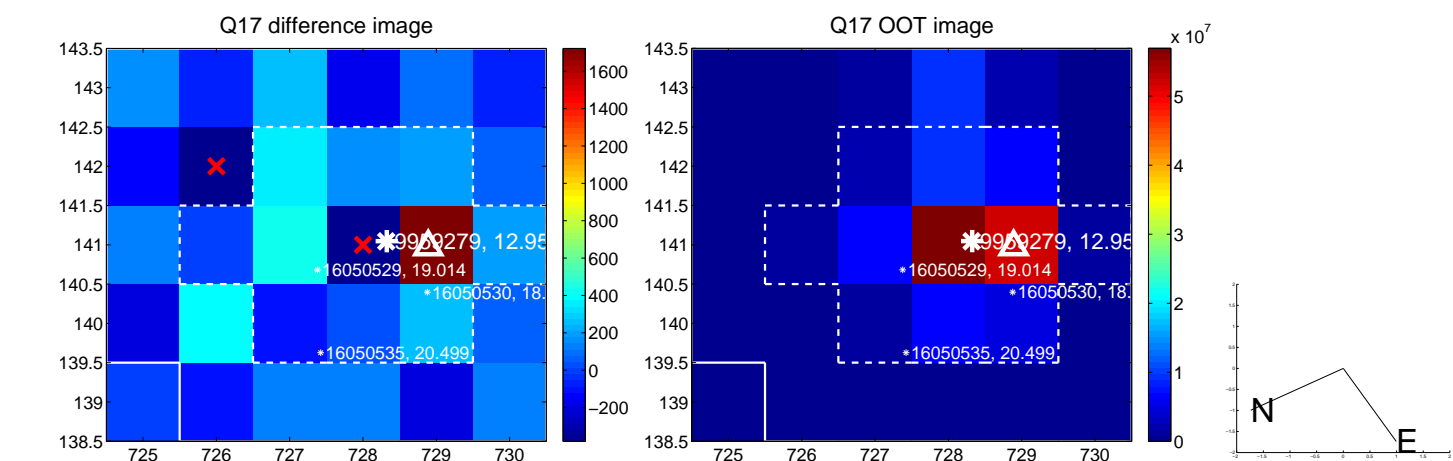
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



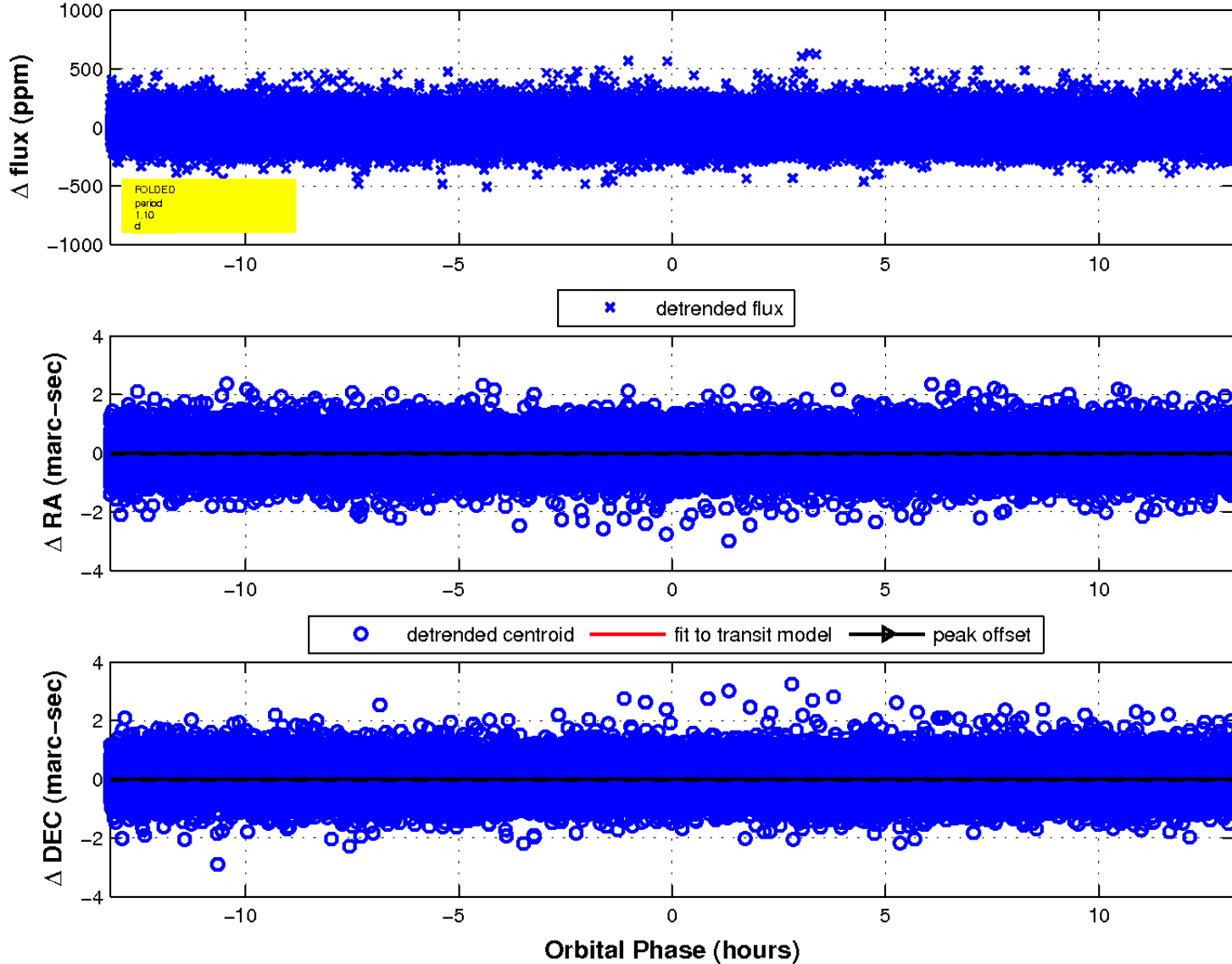
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

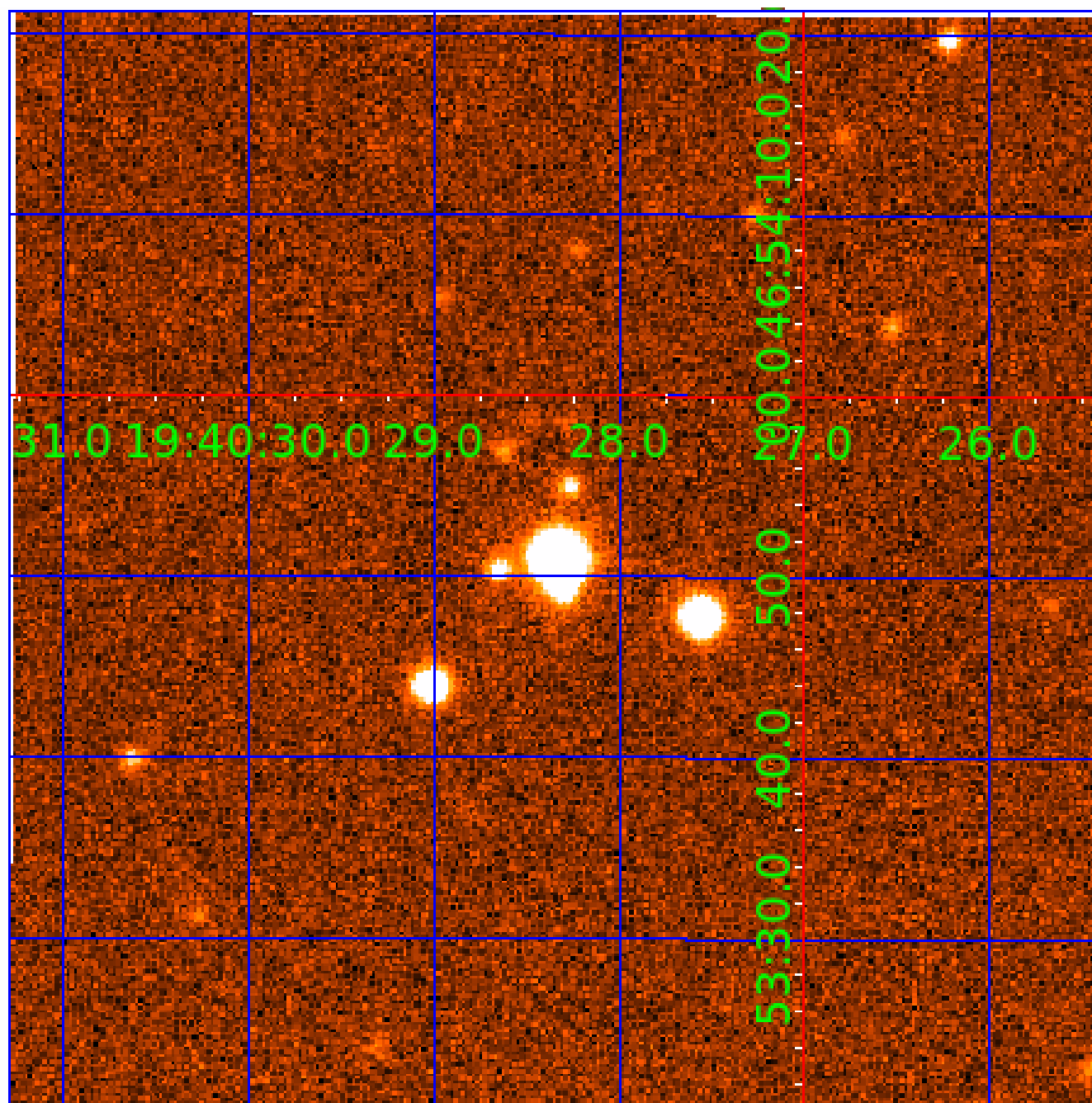


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009959279

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})
009959279-01	OBS	No	1.096978	132.553047	8.8	6.759	8.7	9.3	1.73	7691	0.53	14715.01
009959279-02	OBS	No	62.171580	189.803484	188.7	1.849	8.3	7.8	1.73	7691	2.76	67.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009959279-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009959279-02	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_NONUNIQ_ALT—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.

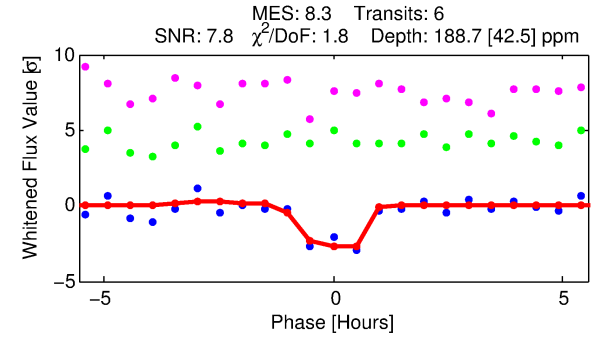
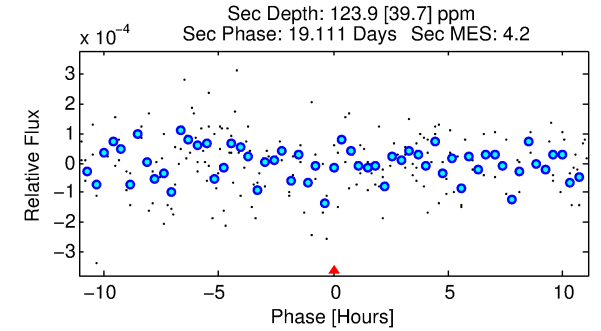
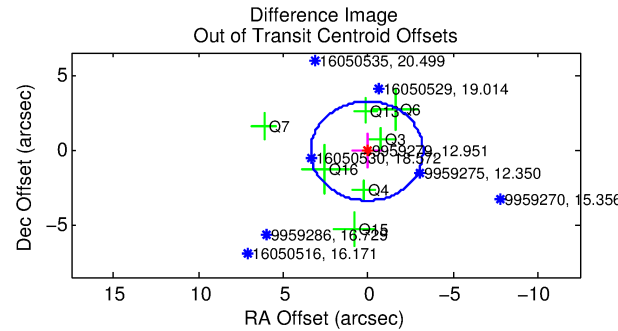
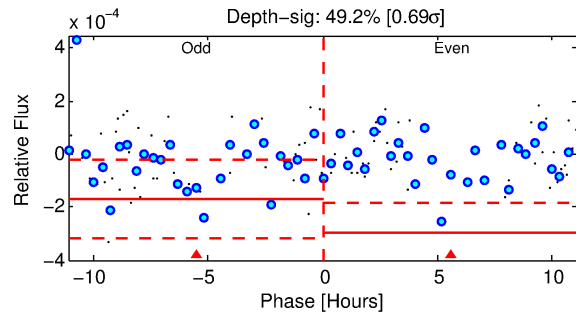
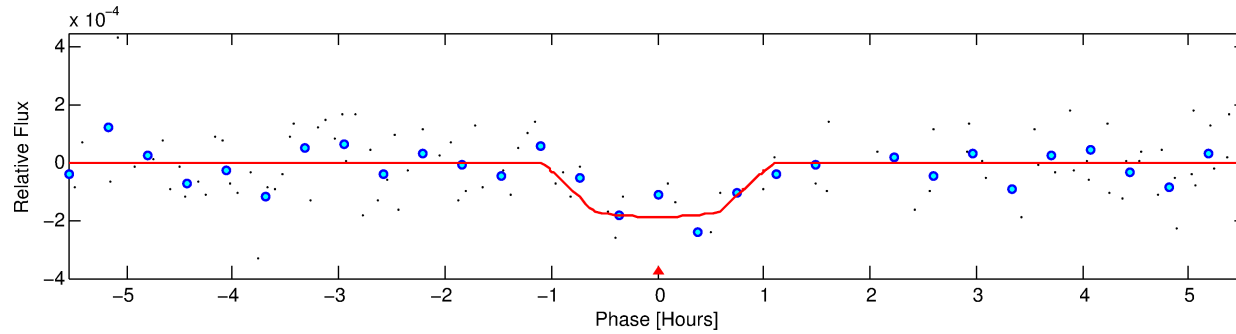
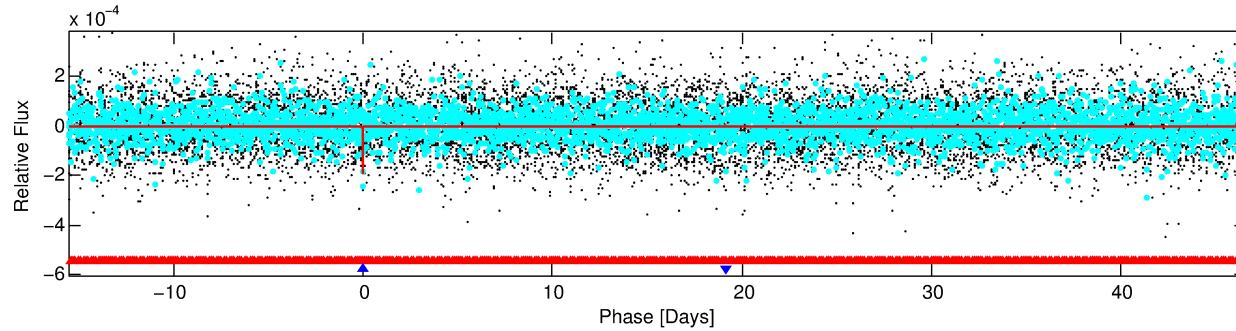
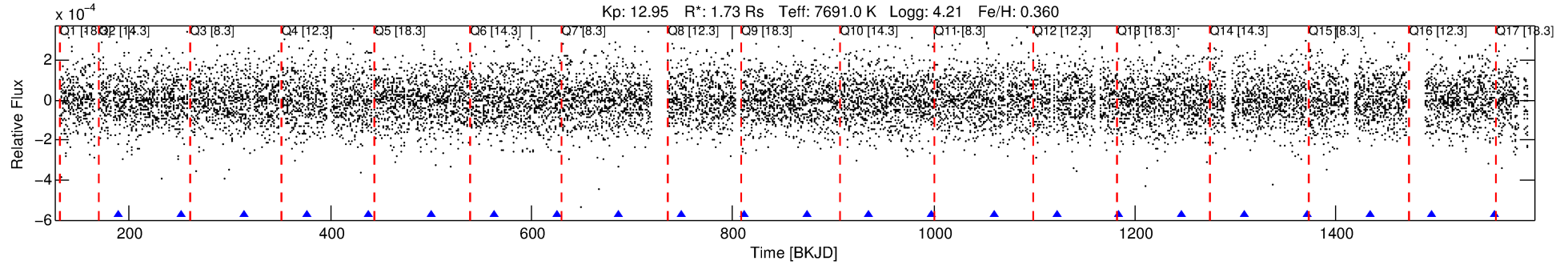
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009959279-02

No Significant Match Found

DV One-Page Summary

KIC: 9959279 Candidate: 2 of 2 Period: 62.172 d



DV Fit Results:

Period = 62.17158 [0.00113] d
Epoch = 189.8035 [0.0088] BKJD
Rp/R* = 0.0146 [0.0147]
a/R* = 120.07 [752.22]
b = 0.90 [1.34]
Seff = 67.59 [29.43]
Teq = 731 [80] K
Rp = 2.76 [2.92] Re
a = 0.3732 [0.1029] AU
Ag = 1243.28 [2579.63] [0.48 σ]
Teffp = 6712 [3430] K [1.74 σ]

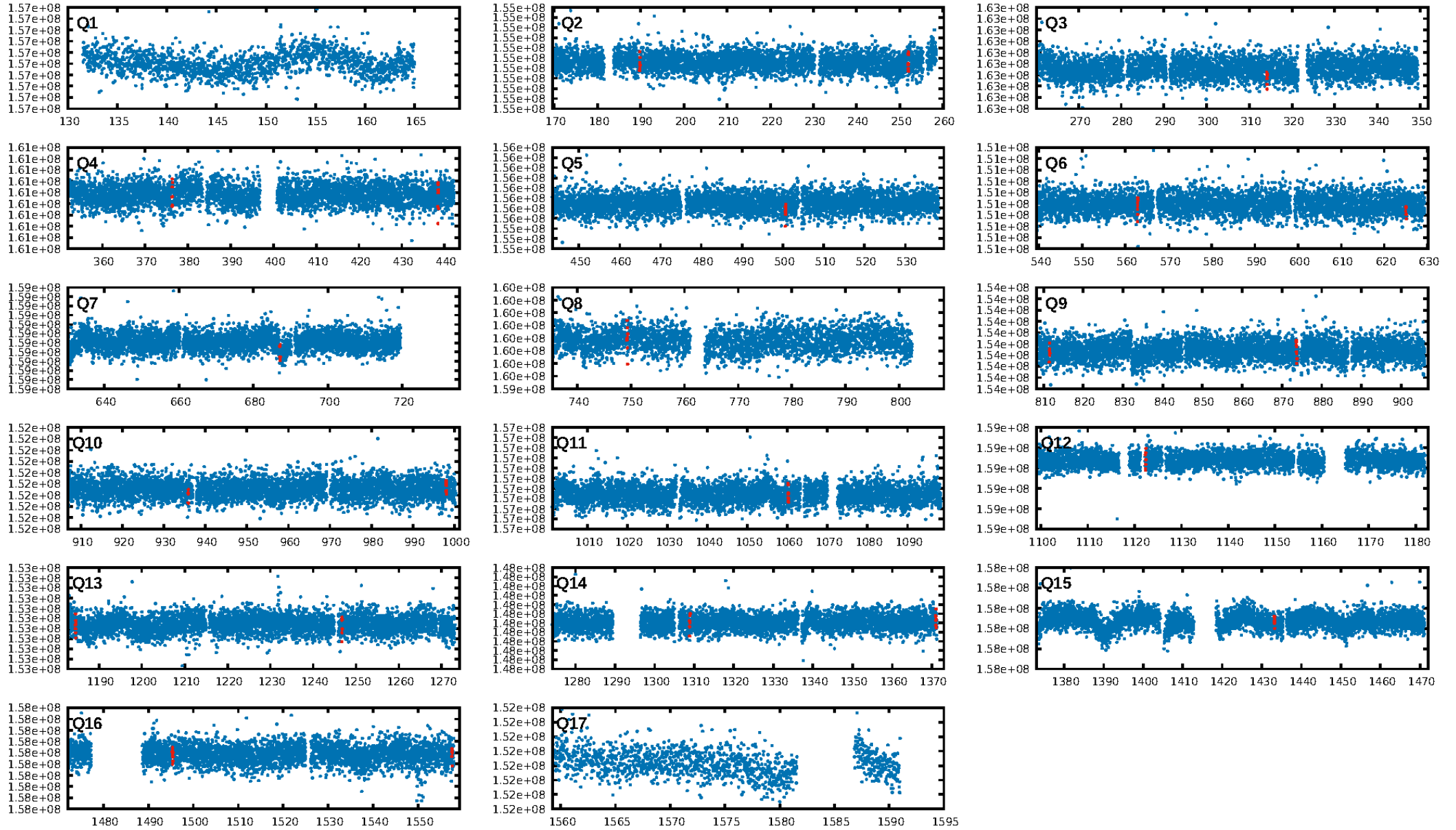
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [209.18 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 83.7%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: 2.52e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.5938
Centroid-sig: 50.0%
Centroid-so: 1.225 arcsec [1.44 σ]
OotOffset-rm: 0.110 arcsec [0.10 σ]
KicOffset-rm: 0.158 arcsec [0.12 σ]
OotOffset-st: 1/3/2/1 [7]
KicOffset-st: 1/3/2/1 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.43 [6/14]

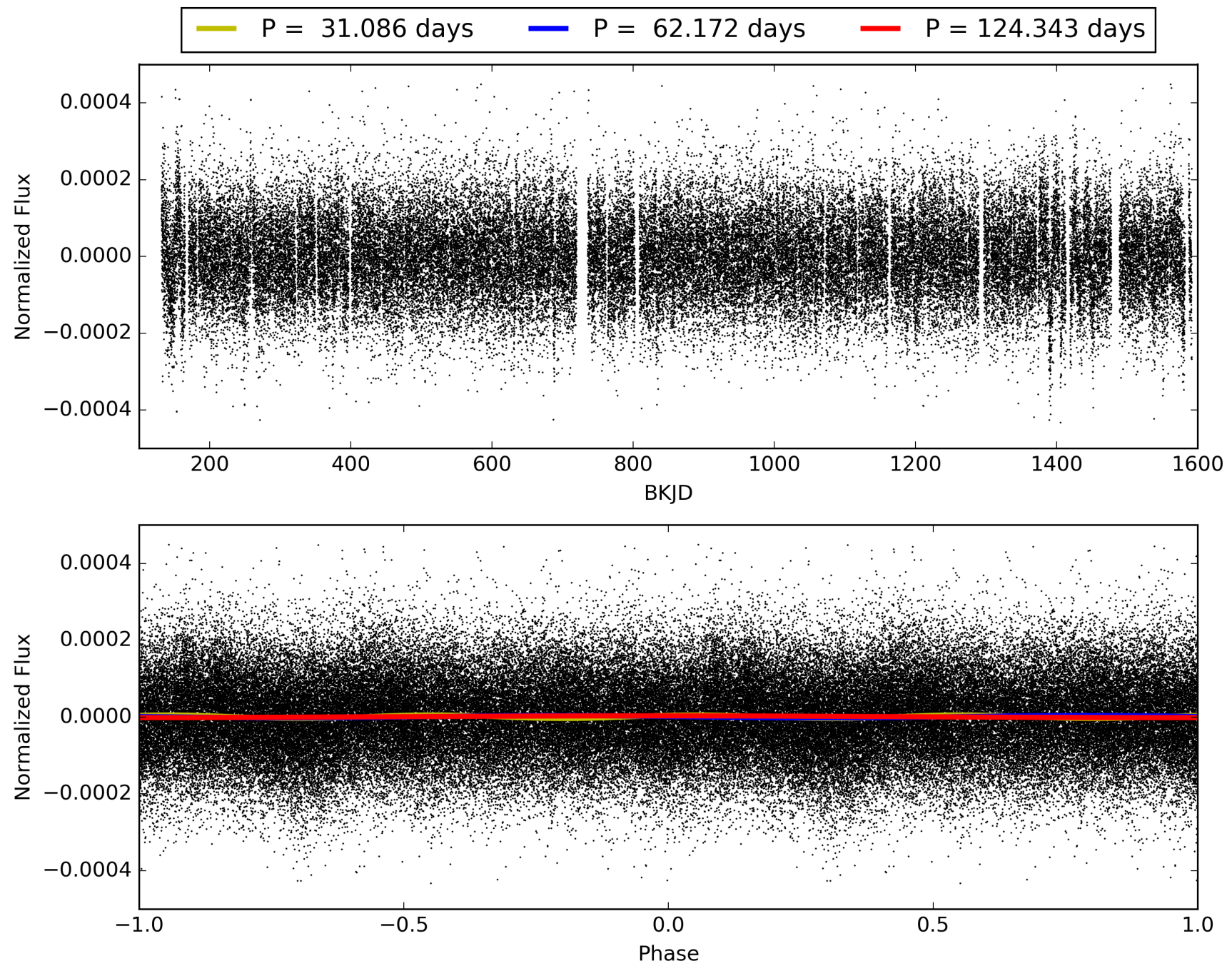
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:00:57 Z

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

TCE 009959279-02, PDC Light Curves

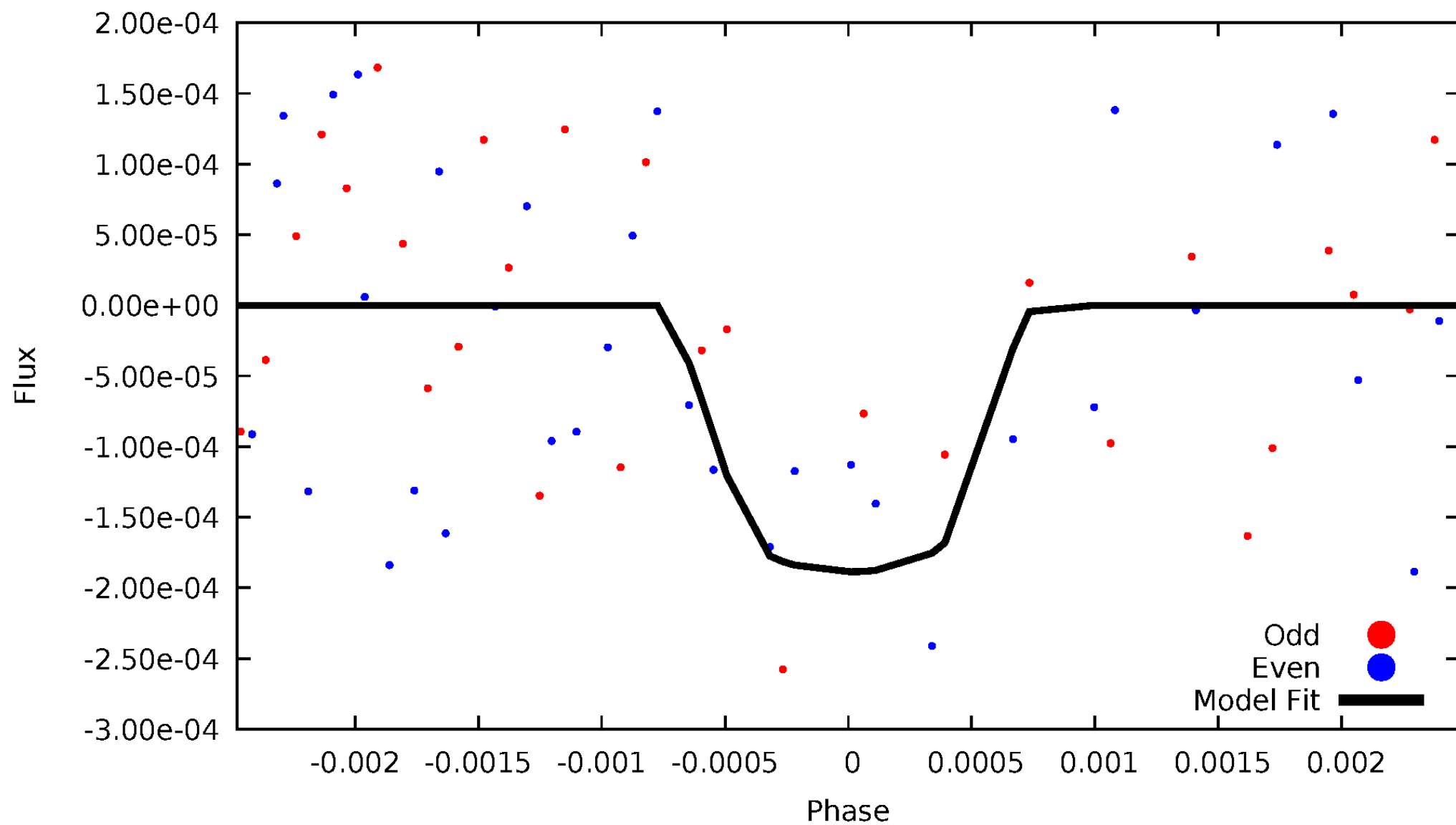


TCE 009959279-02



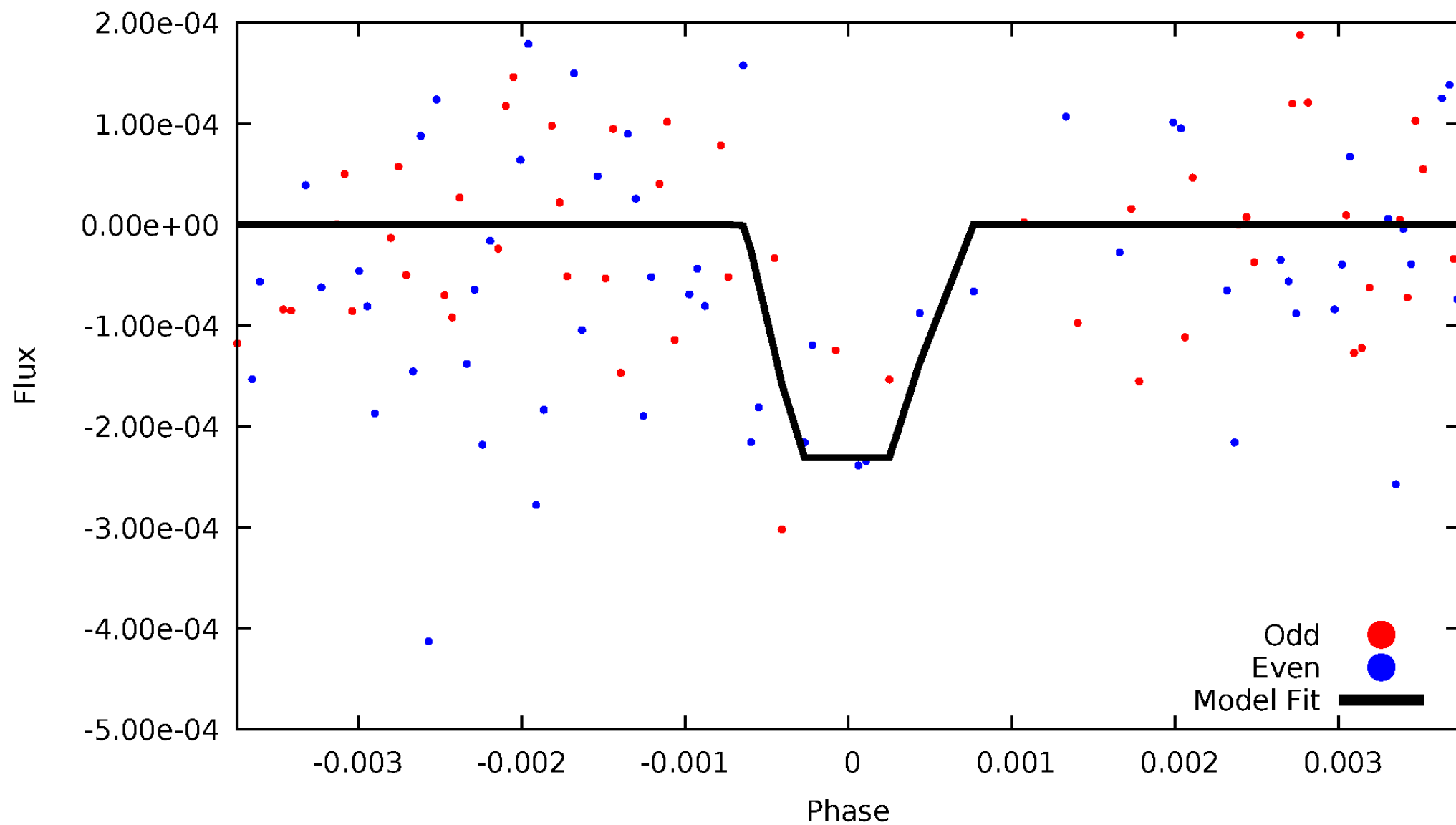
DV Odd/Even

TCE 009959279-02



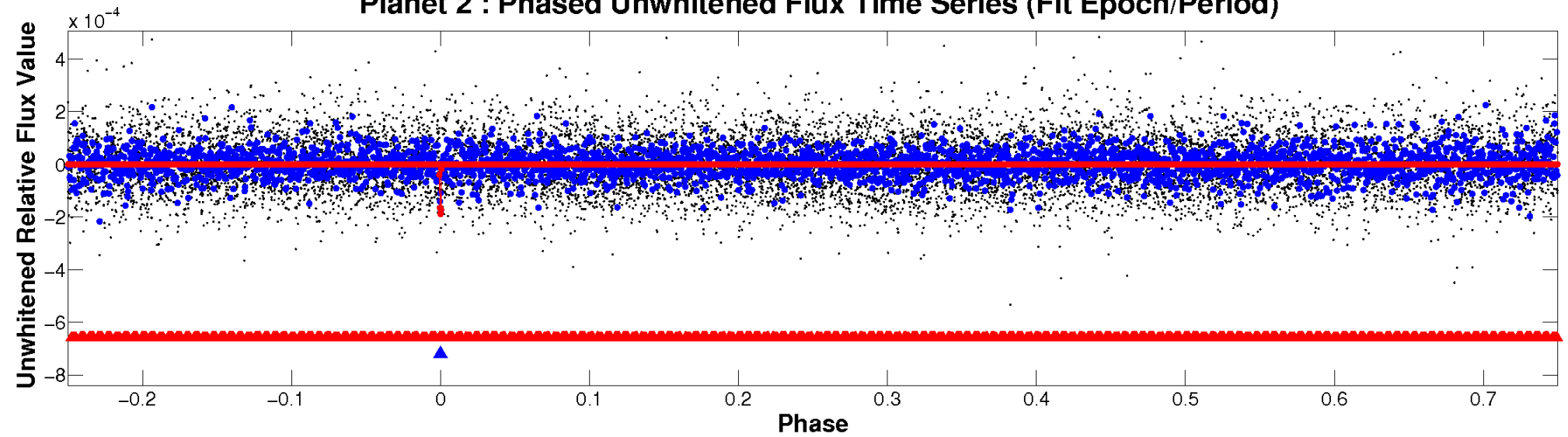
ALT Odd/Even

TCE 009959279-02

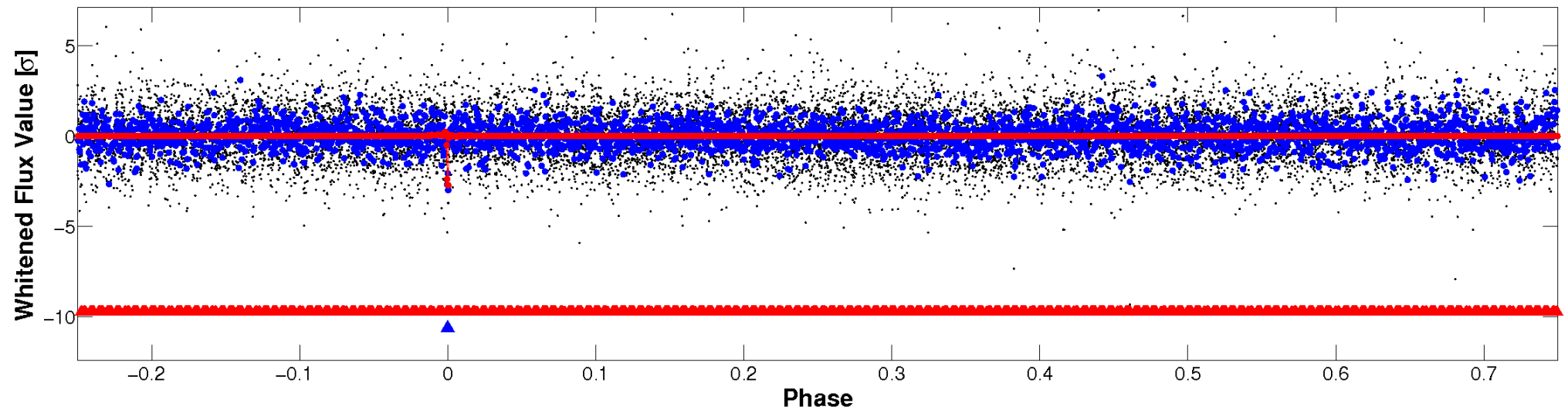


Non-Whitened Vs. Whitened Light Curve

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

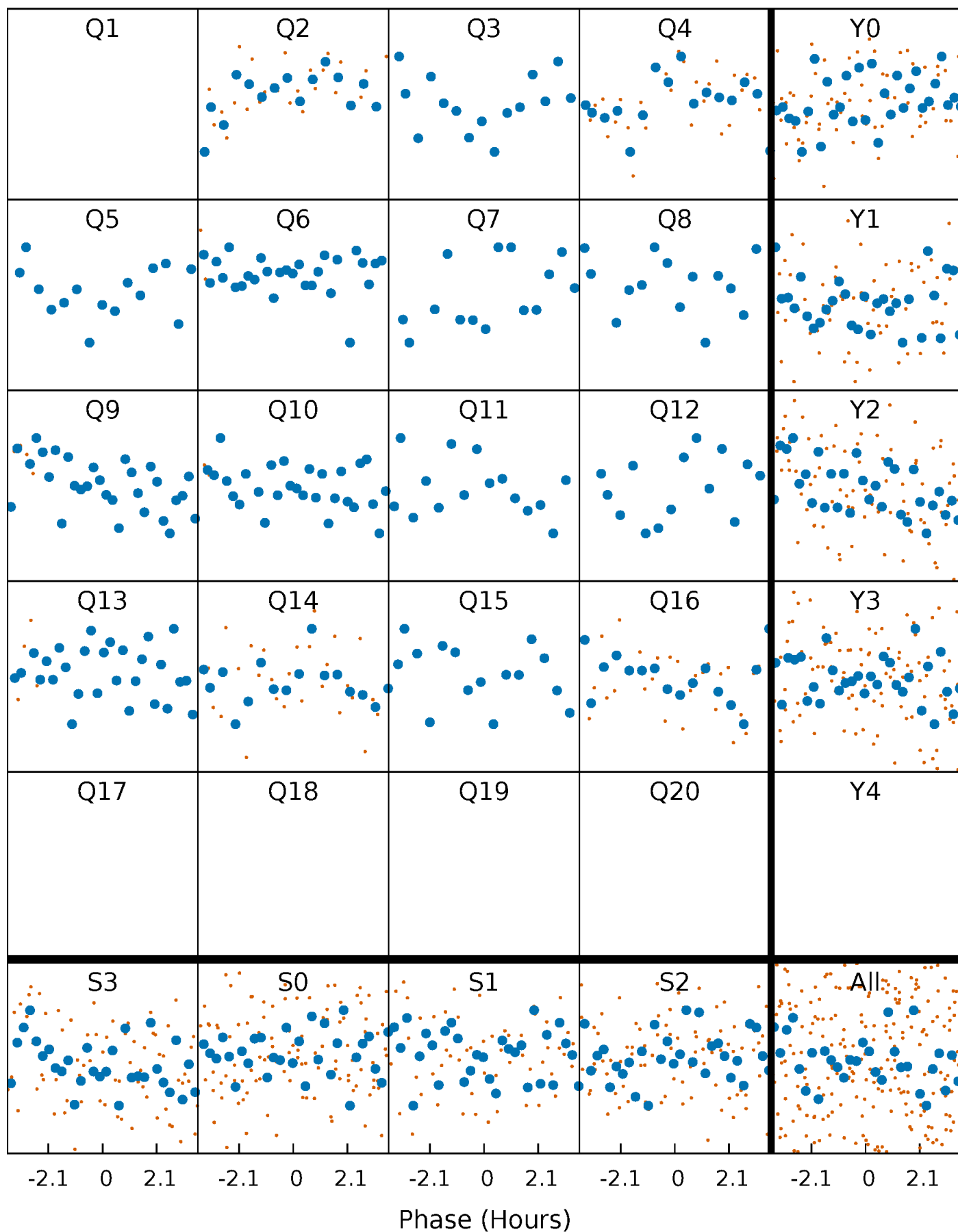


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



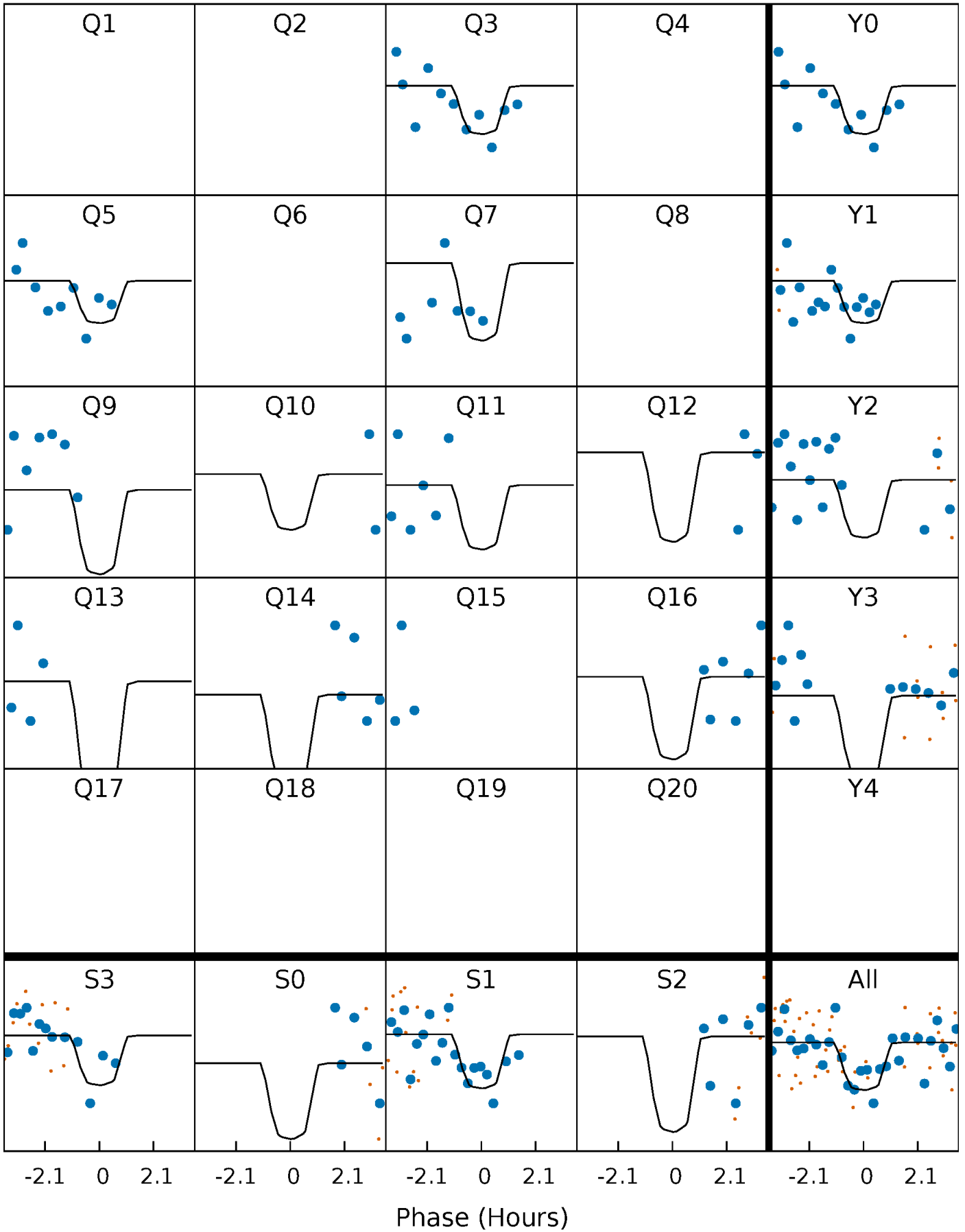
PDC Quarter-Phased Transit Curves

TCE 009959279-02 P= 62.171580 Days $T_0=189.803484$ (BKJD)



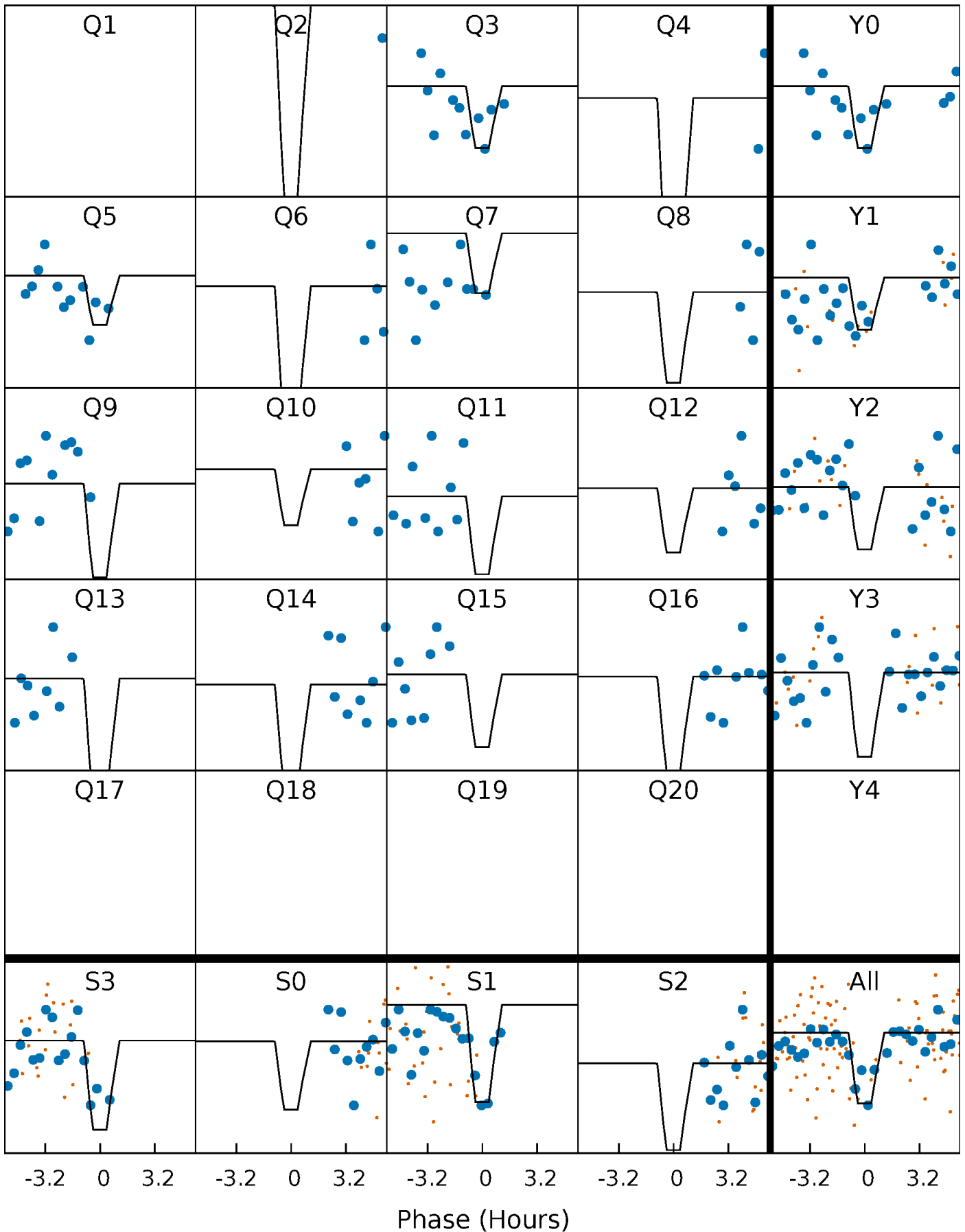
DV Quarter-Phased Transit Curves

TCE 009959279-02 P= 62.171580 Days $T_0=189.803484$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

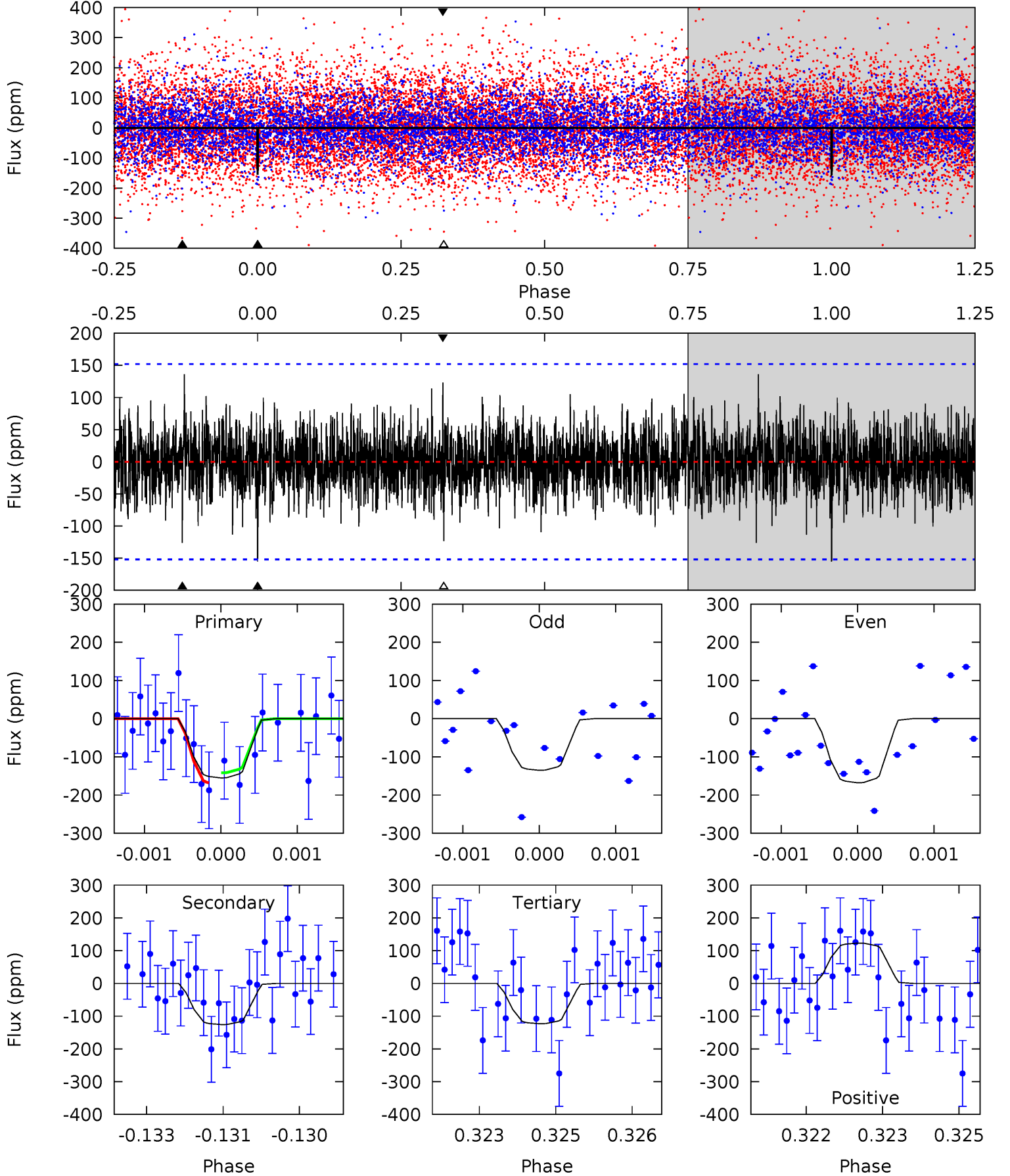
TCE 009959279-02 P= 62.169714 Days $T_0=189.821518$ (BKJD)



DV Model-Shift Uniqueness Test

009959279-02, P = 62.171580 Days, E = 127.631904 Days

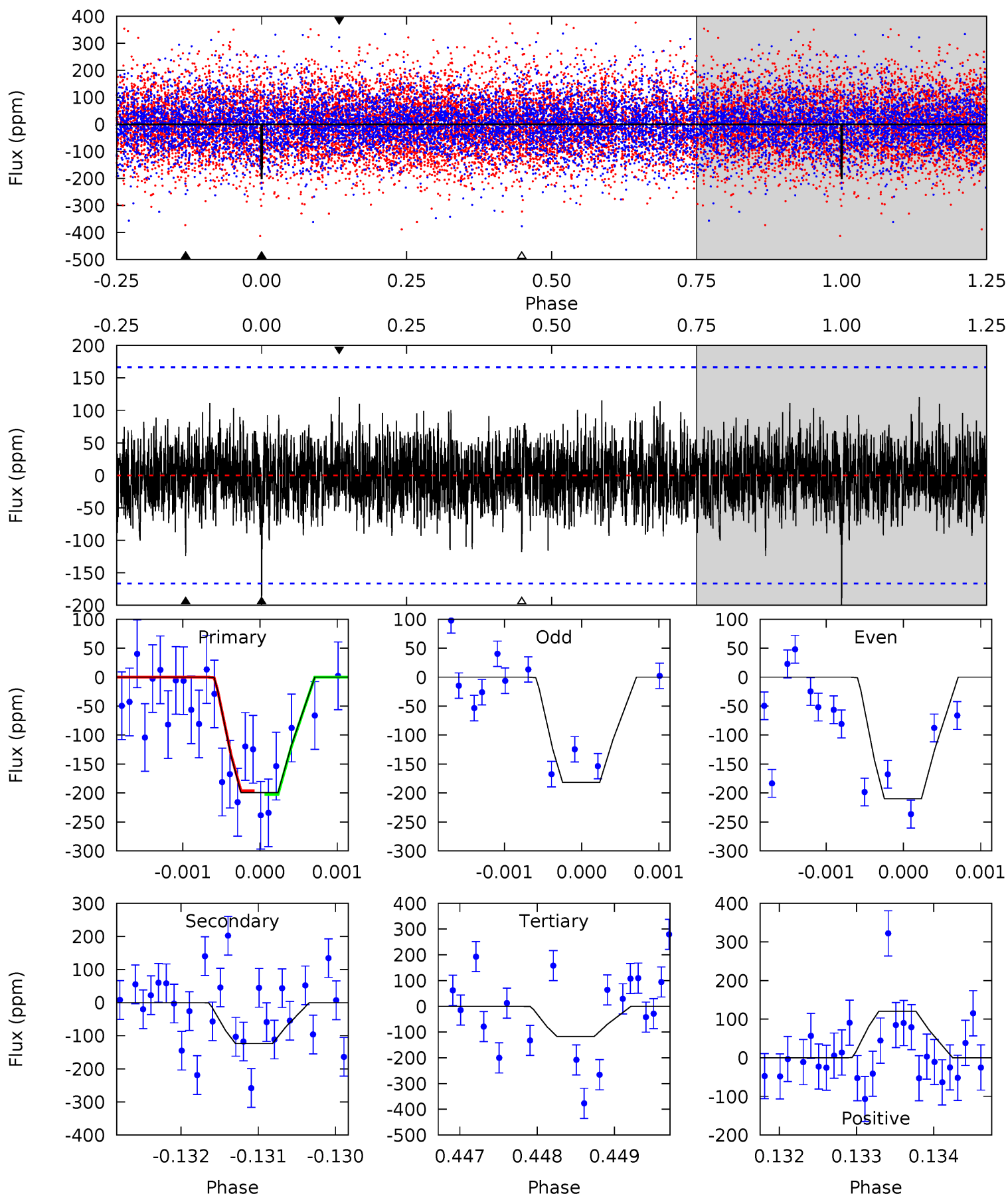
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.50	4.47	4.38	4.37	5.39	3.20	1.18	1.13	1.13	0.09	0.10	0.59	1.06	0.47	0.47



Alt Model-Shift Uniqueness Test

009959279-02, P = 62.169714 Days, E = 127.651804 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.50	4.03	3.84	3.93	5.44	3.27	1.11	2.67	2.57	0.20	0.10	0.45	1.05	0.38	0.09



Stellar Parameters For KIC 009959279

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7691^{+216}_{-339}	$4.214^{+0.054}_{-0.216}$	$0.360^{+0.100}_{-0.450}$	$1.733^{+0.573}_{-0.191}$	$1.793^{+0.189}_{-0.252}$	$0.486^{+0.140}_{-0.269}$
	+3%/-4%	+1%/-5%	+28%/-125%	+33%/-11%	+11%/-14%	+29%/-55%
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 009959279-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-126 ± 28	$3.29^{+2.84}_{-2.01}$	1042^{+85}_{-60}	6108^{+5347}_{-1413}	844^{+5078}_{-601}
Alt.	-124 ± 31	$3.61^{+2.94}_{-2.23}$	1043^{+75}_{-55}	5869^{+4445}_{-1376}	707^{+4084}_{-504}

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 $A_{obs} \gg 1.0$

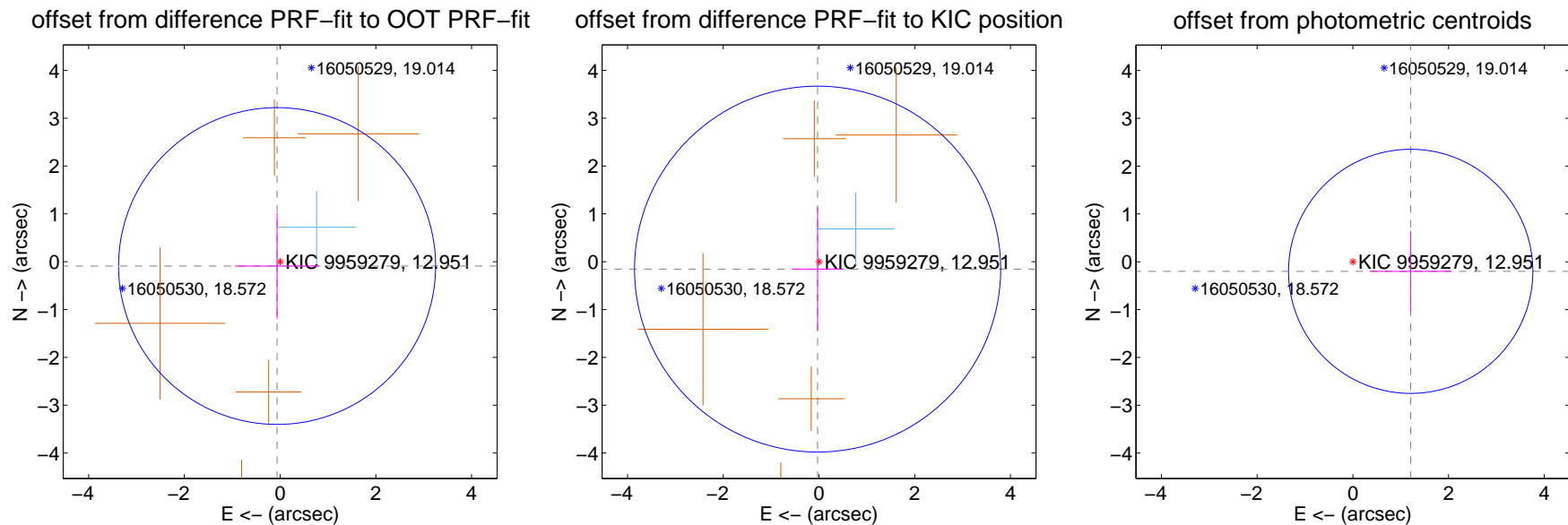
DV Centroid Data

Supplemental centroid analysis for 009959279-02. Kepler magnitude: 12.95. Transit SNR 7.84

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.110 ± 1.104	0.10	0.063 ± 0.883	-0.091 ± 1.104
PRF-fit source offset from KIC position	0.158 ± 1.275	0.12	0.029 ± 0.535	-0.155 ± 1.293
photometric centroid source offset	1.23 ± 0.85	1.44	-1.21 ± 0.85	-0.20 ± 0.84



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.

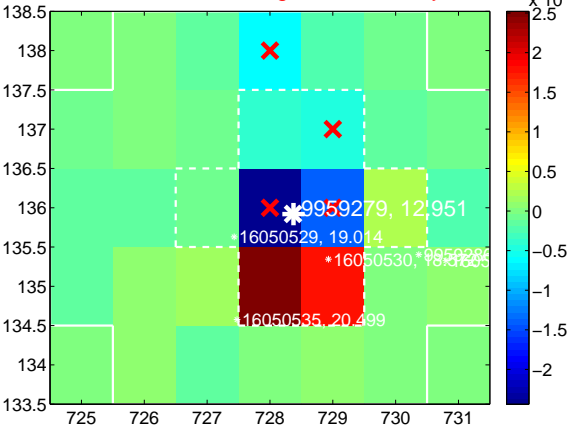
Q1 no difference image



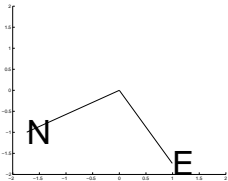
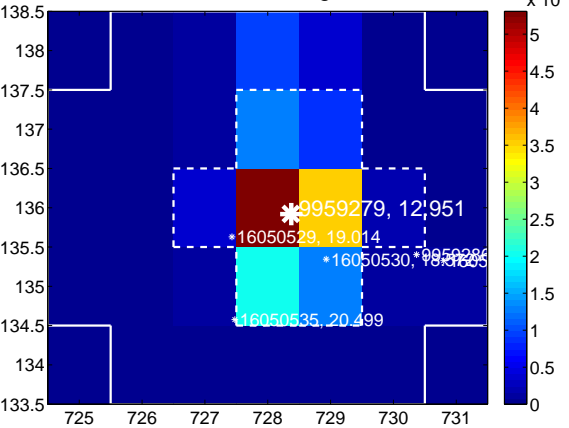
Q1 no OOT image



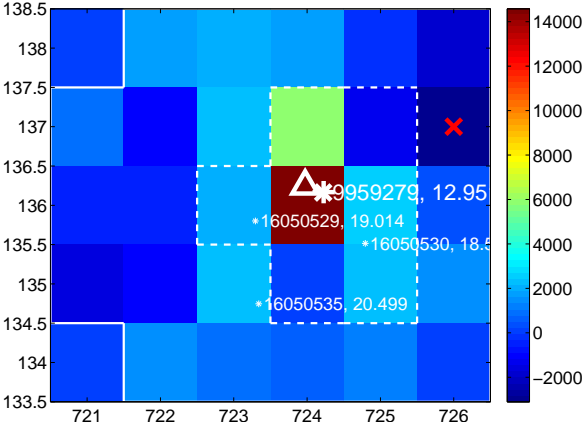
Q2 difference image. Poor Quality



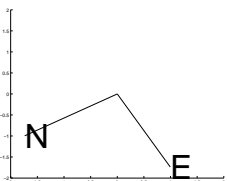
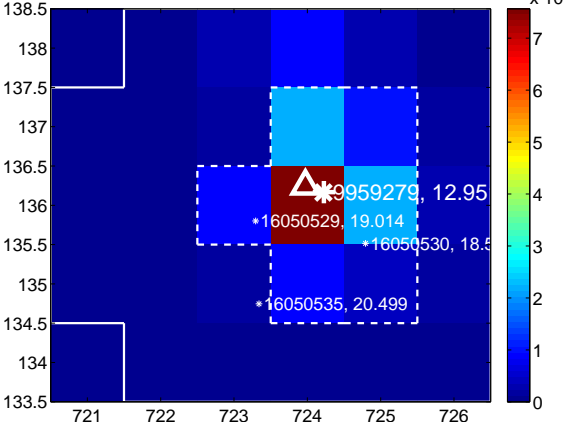
Q2 OOT image



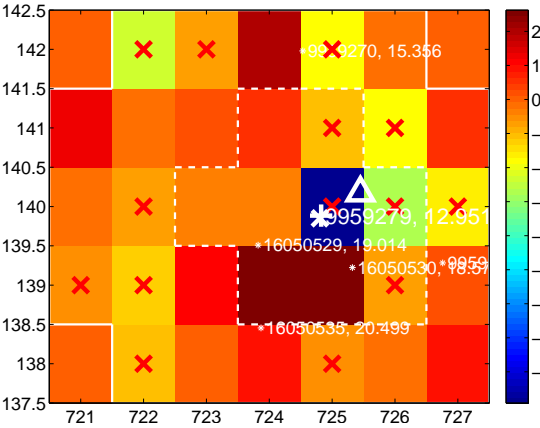
Q3 difference image



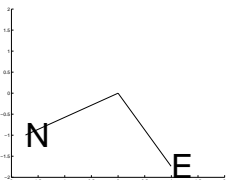
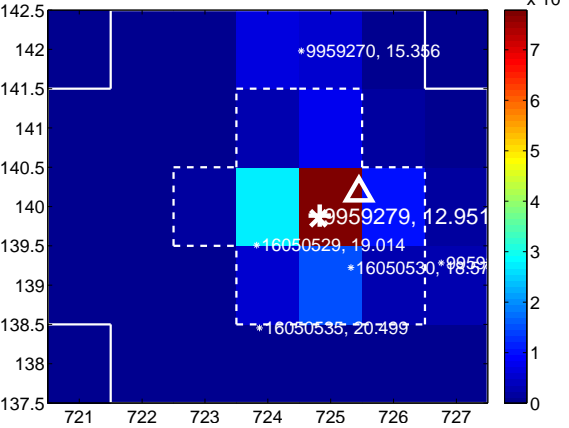
Q3 OOT image



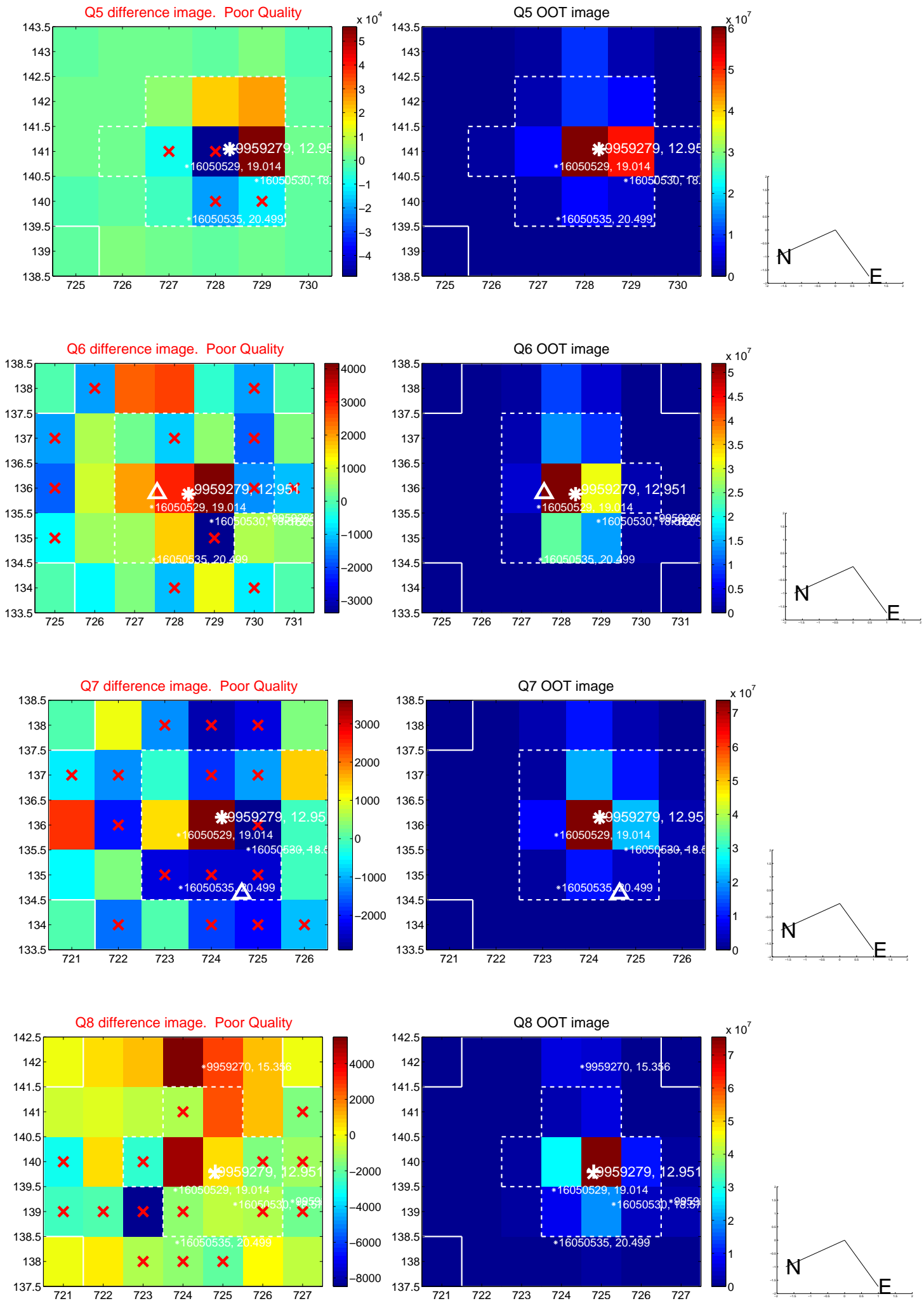
Q4 difference image. Poor Quality



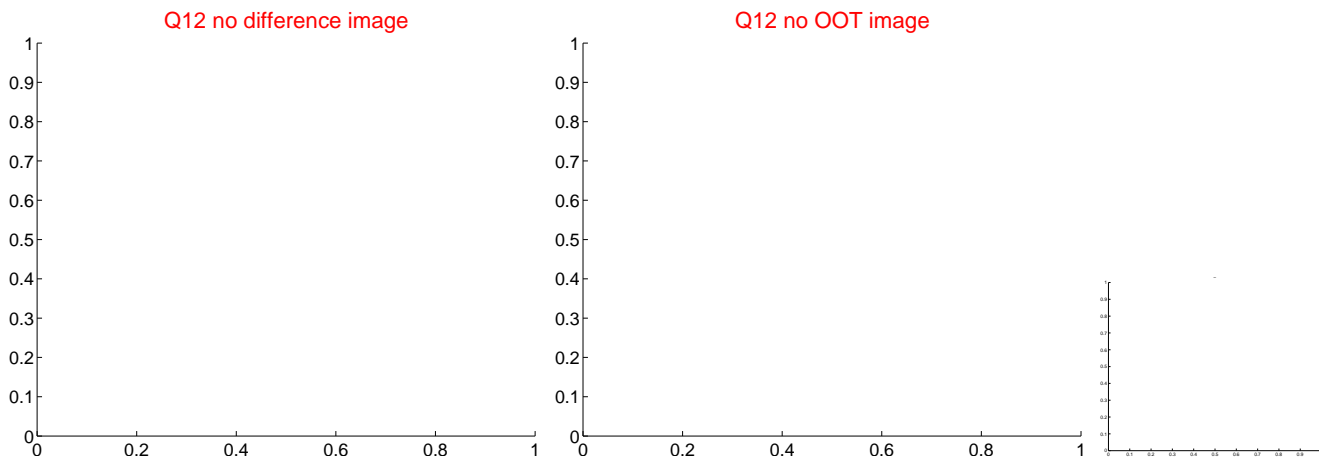
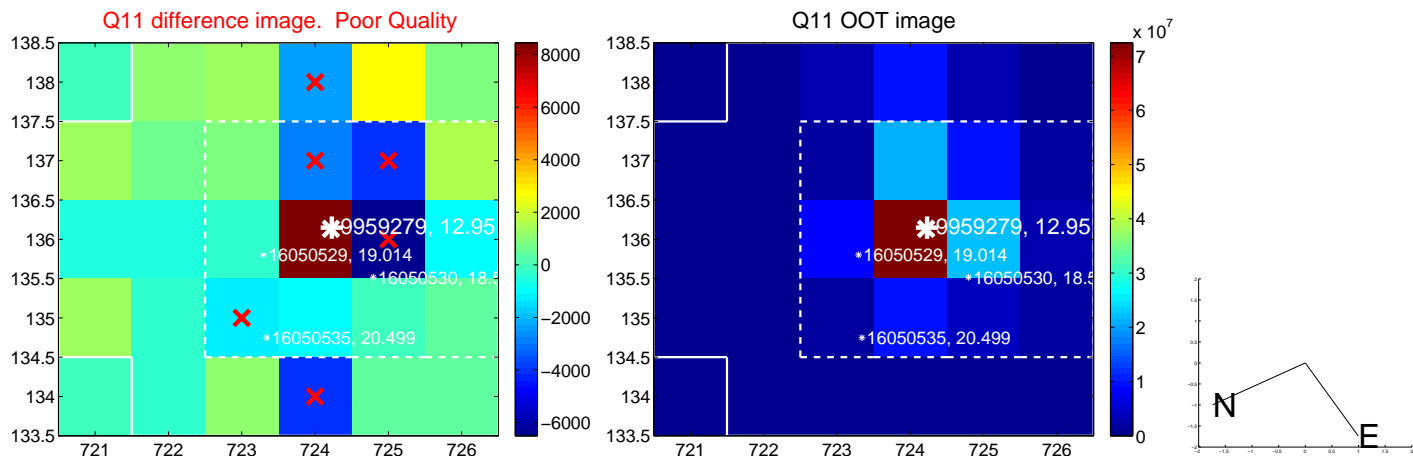
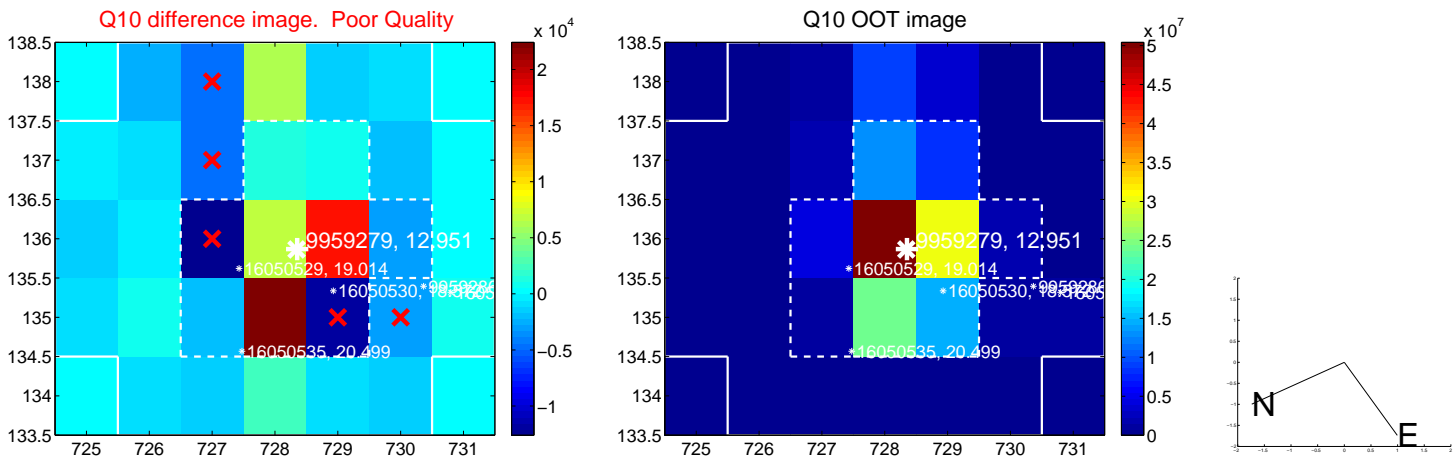
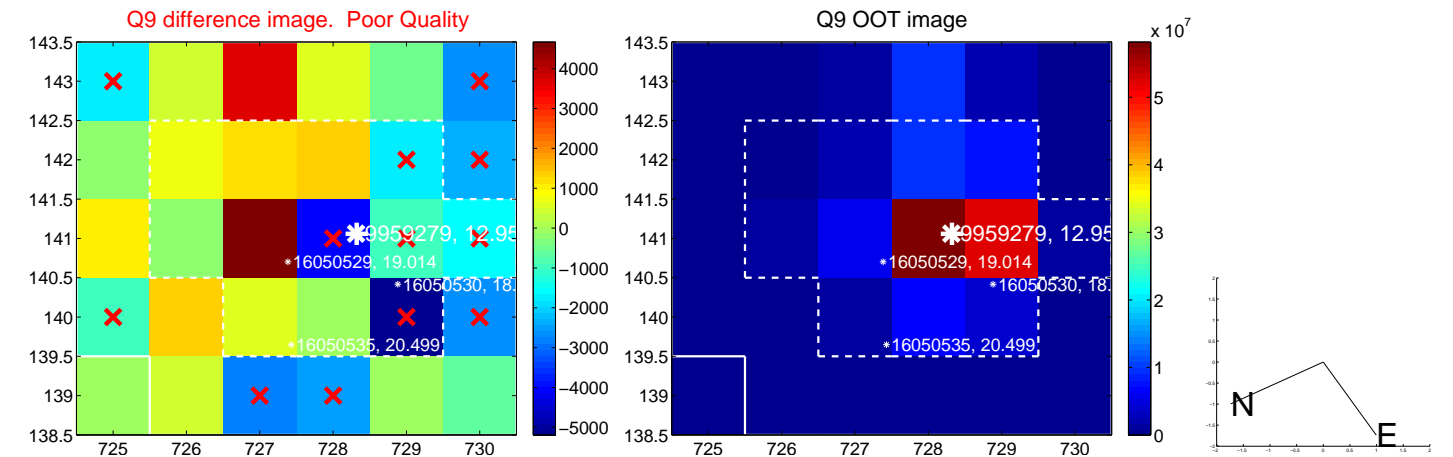
Q4 OOT image



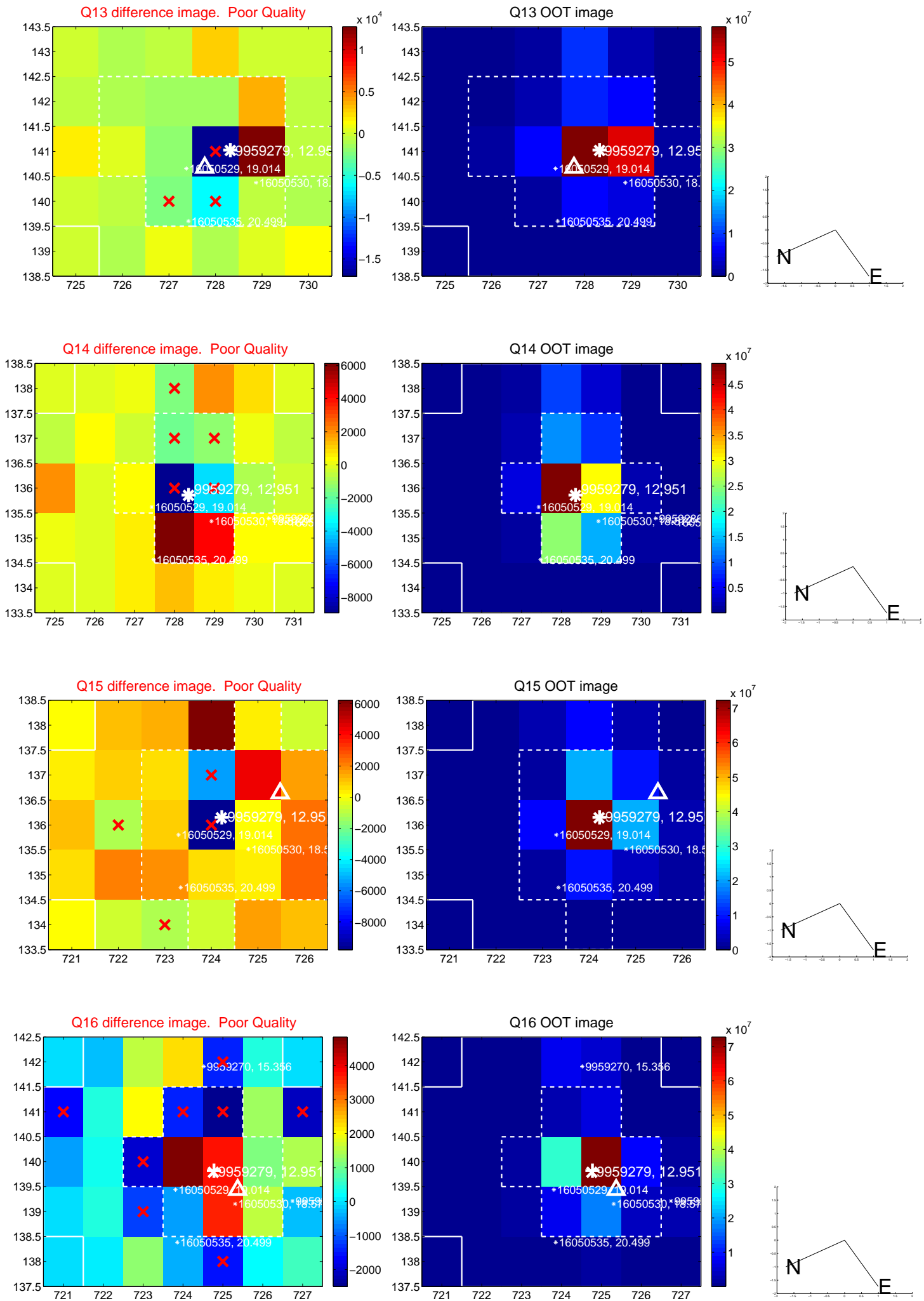
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



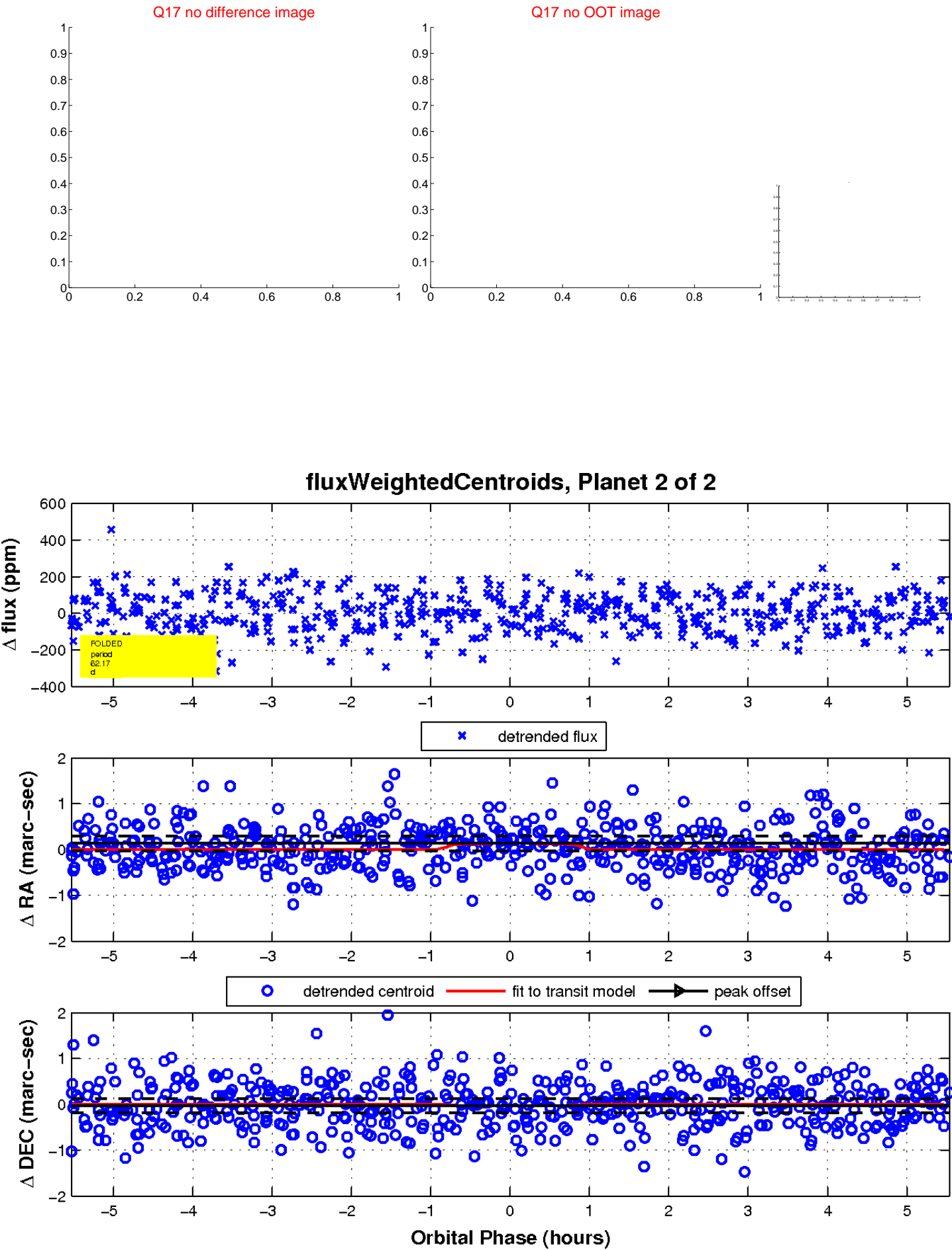
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

