

KIC 009947026

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})
009947026-01	OBS	No	0.565853	132.055546	2.8	1.060	13.8	0.2	2.37	7641	0.42	72306.65
009947026-02	OBS	No	165.142125	234.382158	541.0	20.036	11.1	3.7	2.37	7641	5.63	37.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009947026-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009947026-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

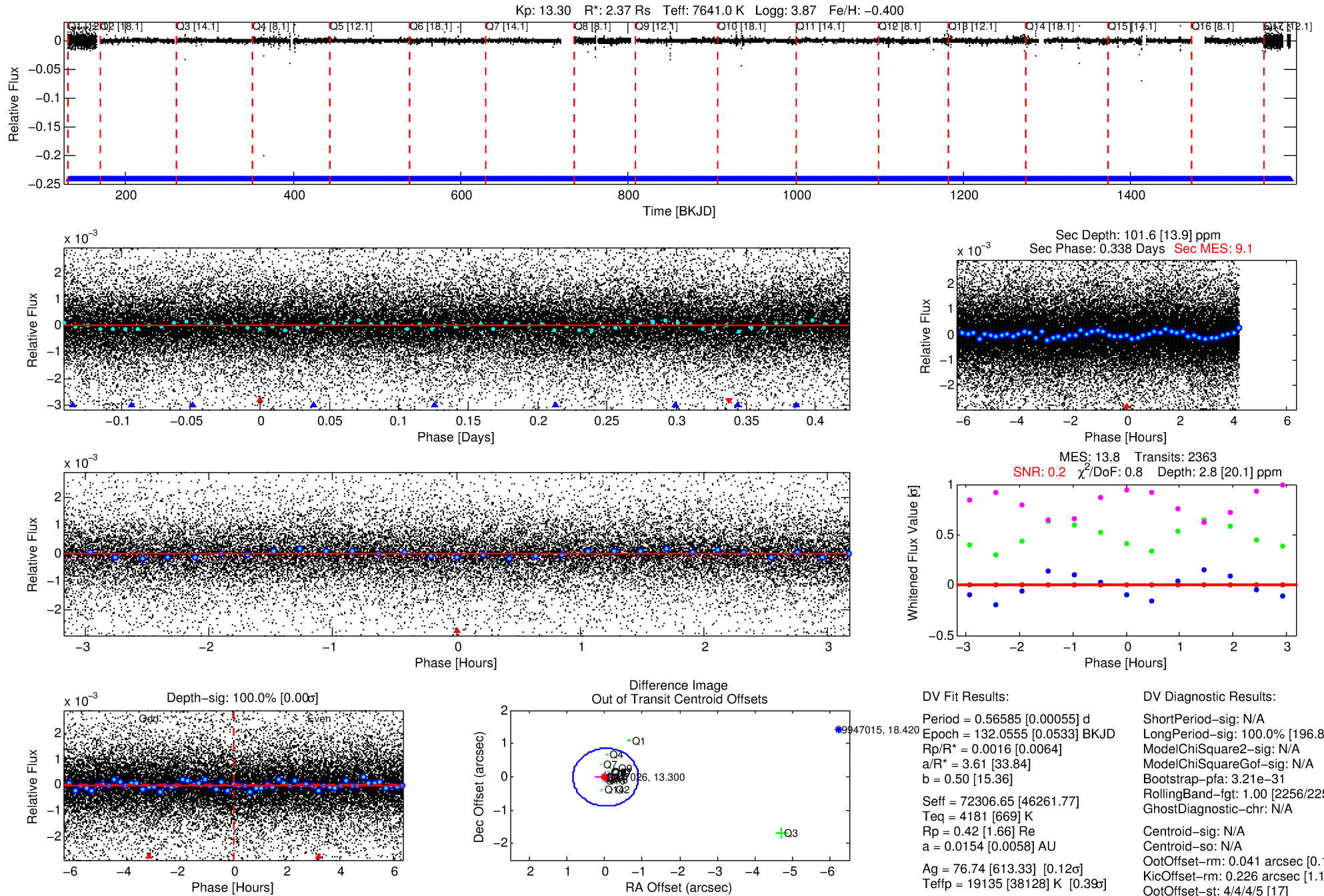
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009947026-01

No Significant Match Found

DV One-Page Summary

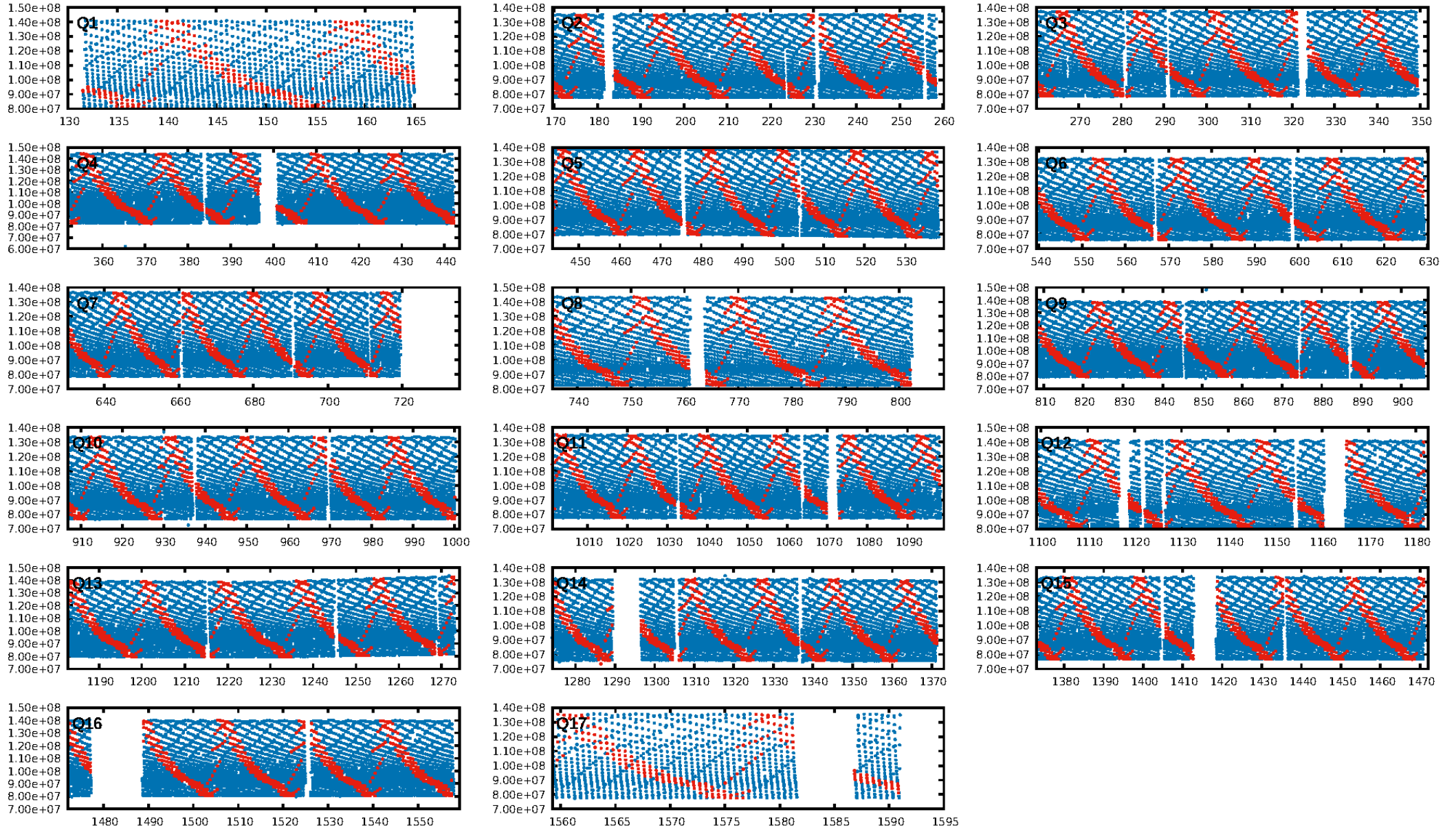
KIC: 9947026 Candidate: 1 of 2 Period: 0.566 d



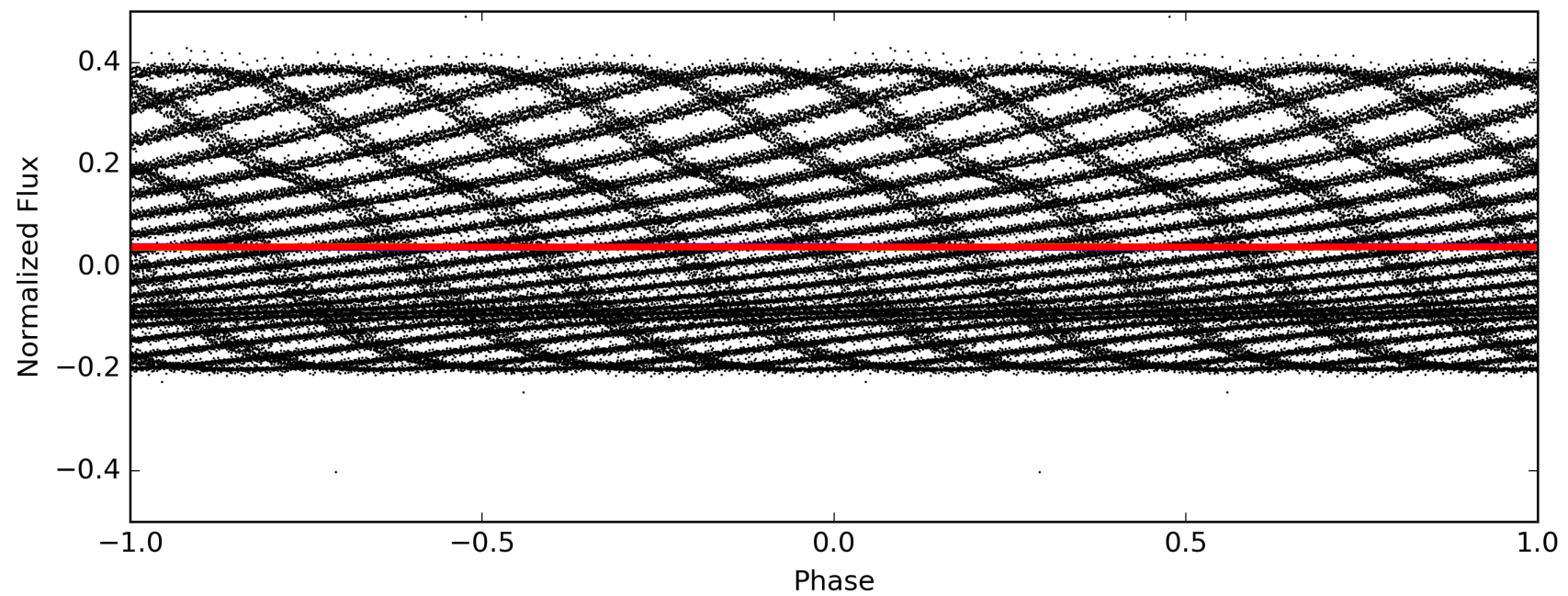
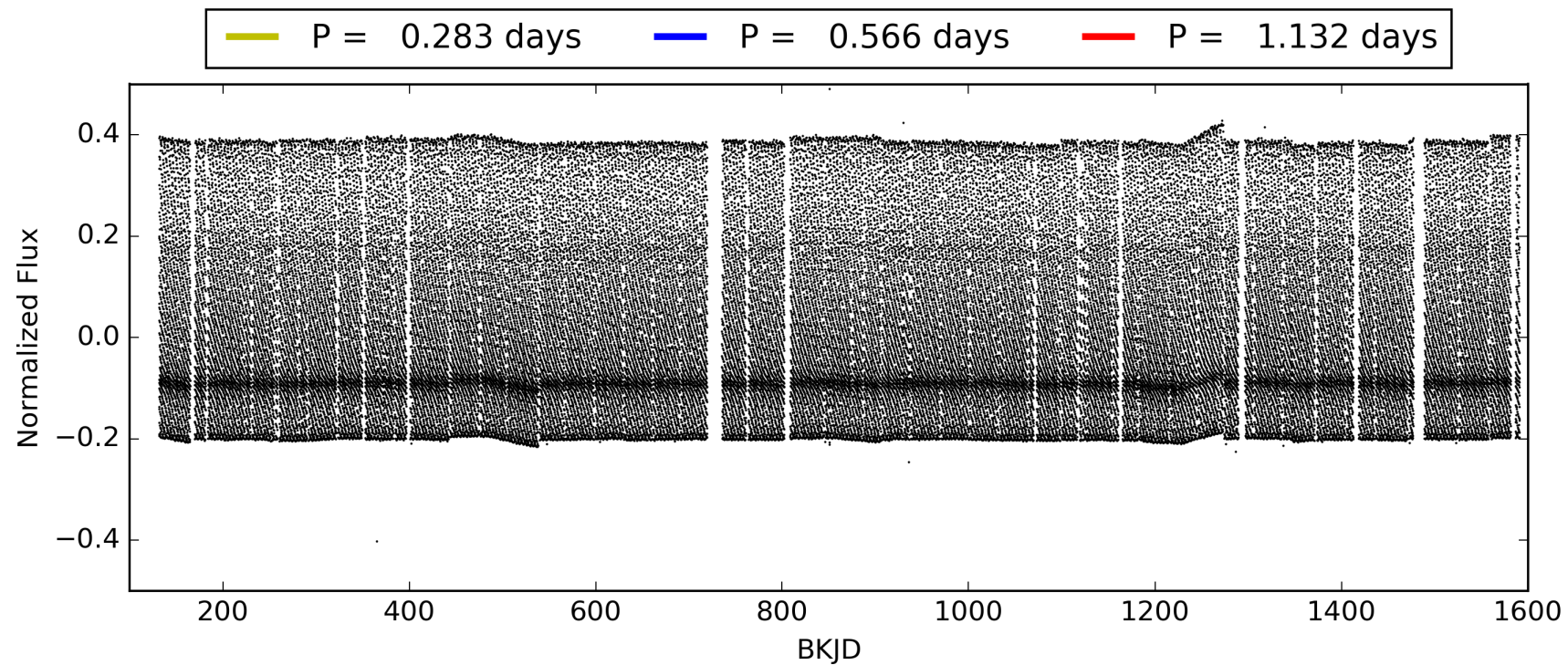
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:38:49 Z

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

TCE 009947026-01, PDC Light Curves

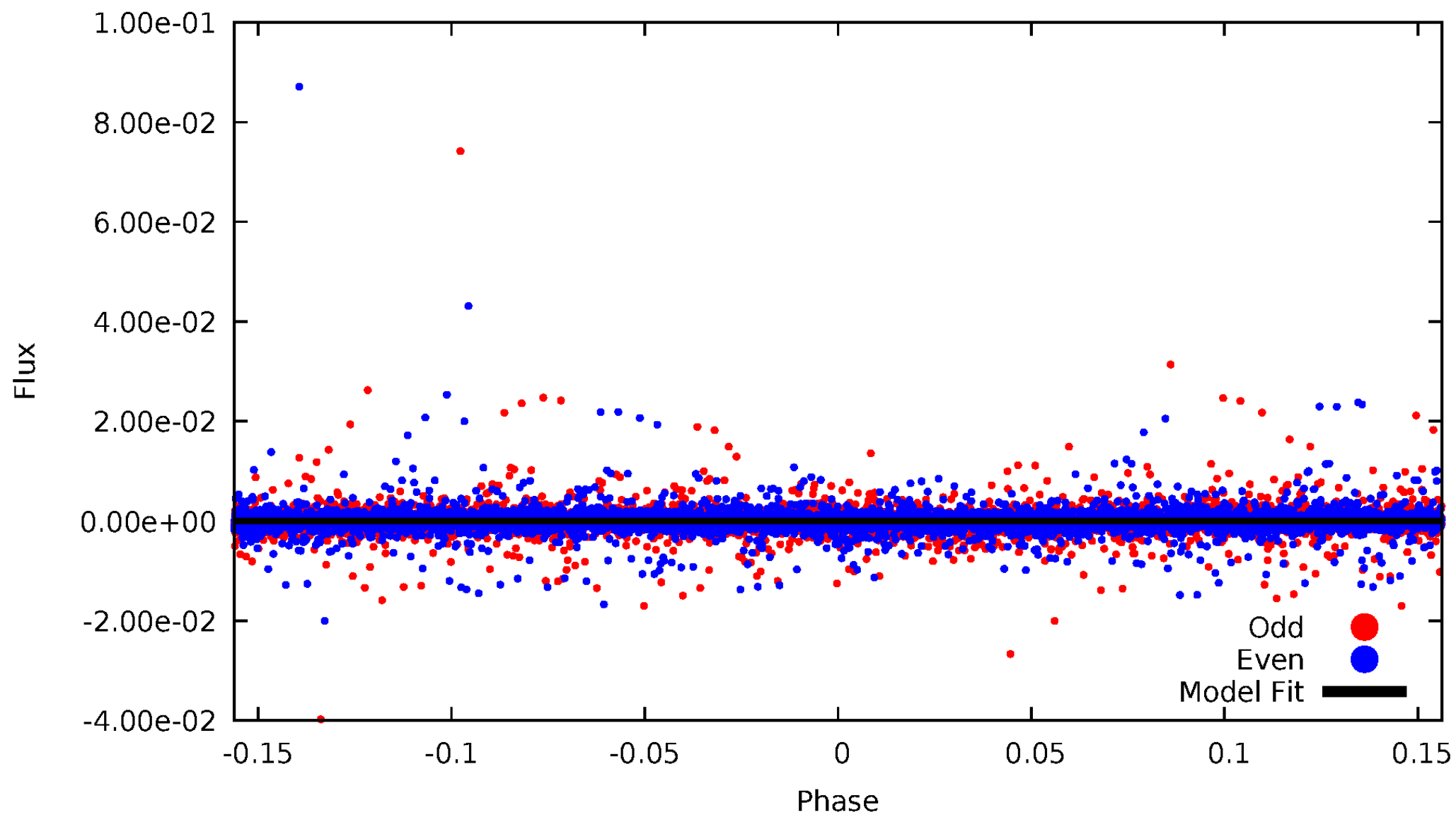


TCE 009947026-01



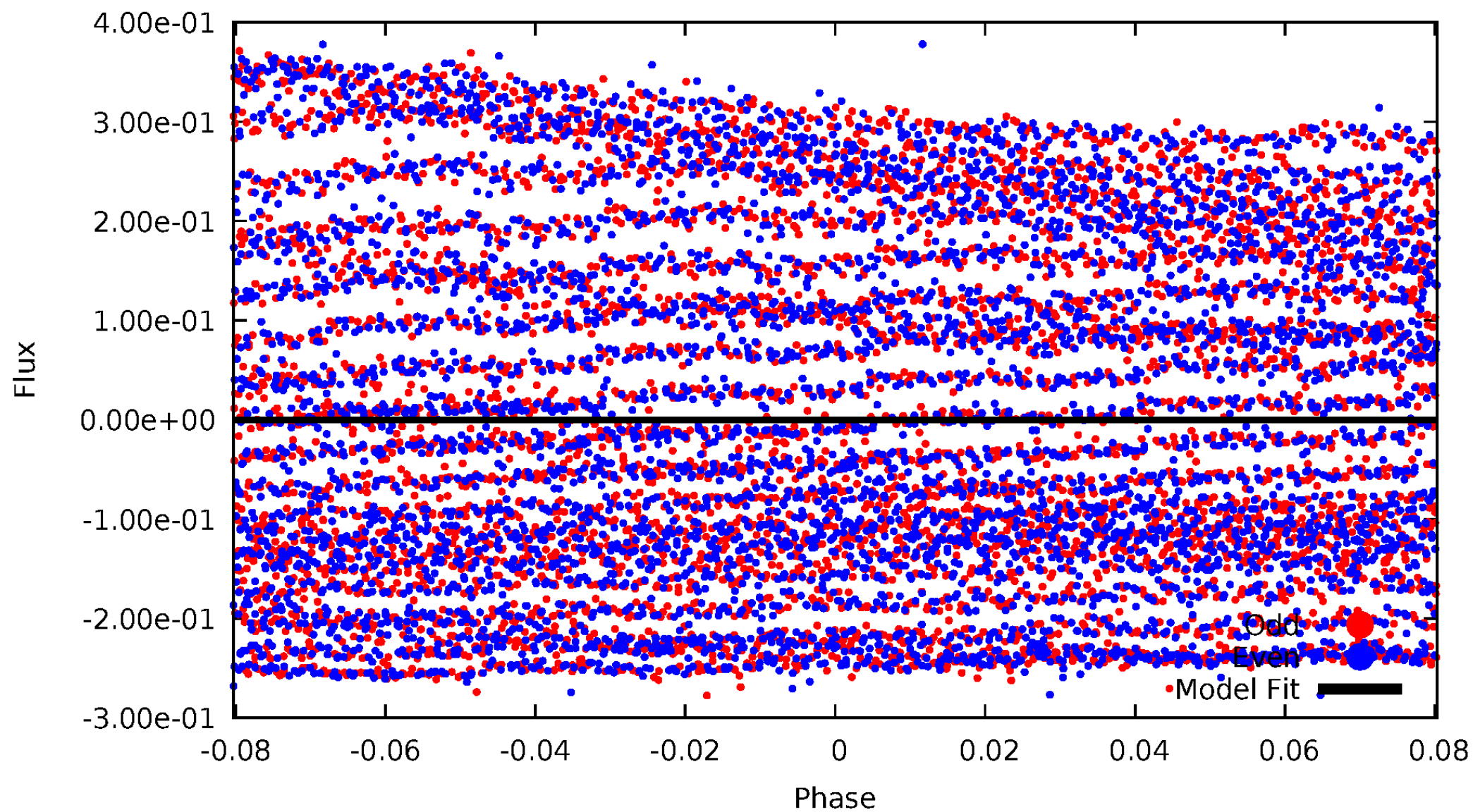
DV Odd/Even

TCE 009947026-01



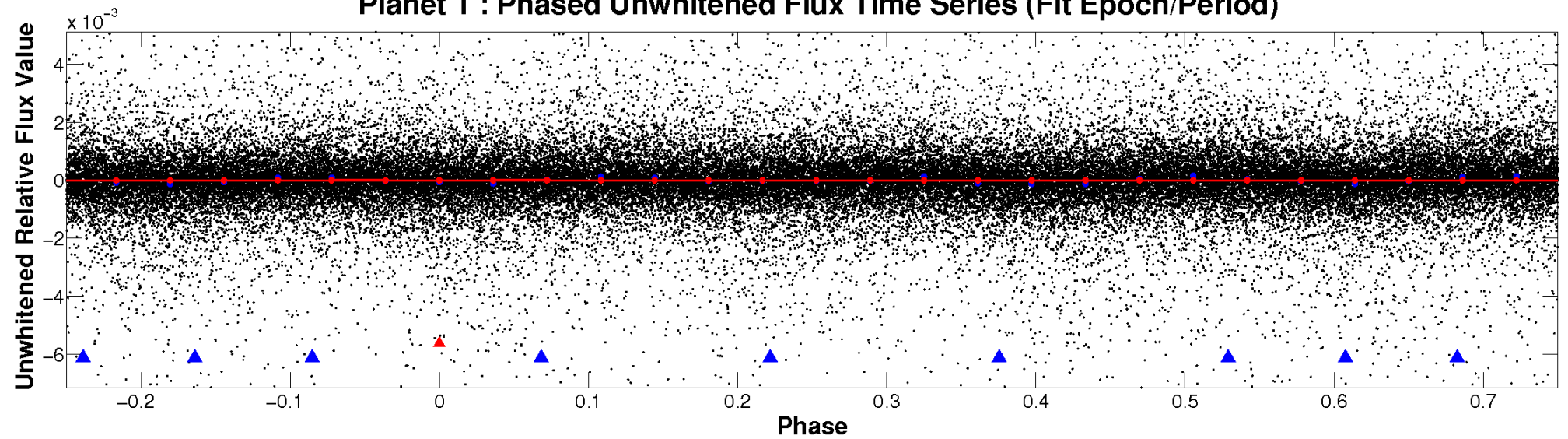
ALT Odd/Even

TCE 009947026-01

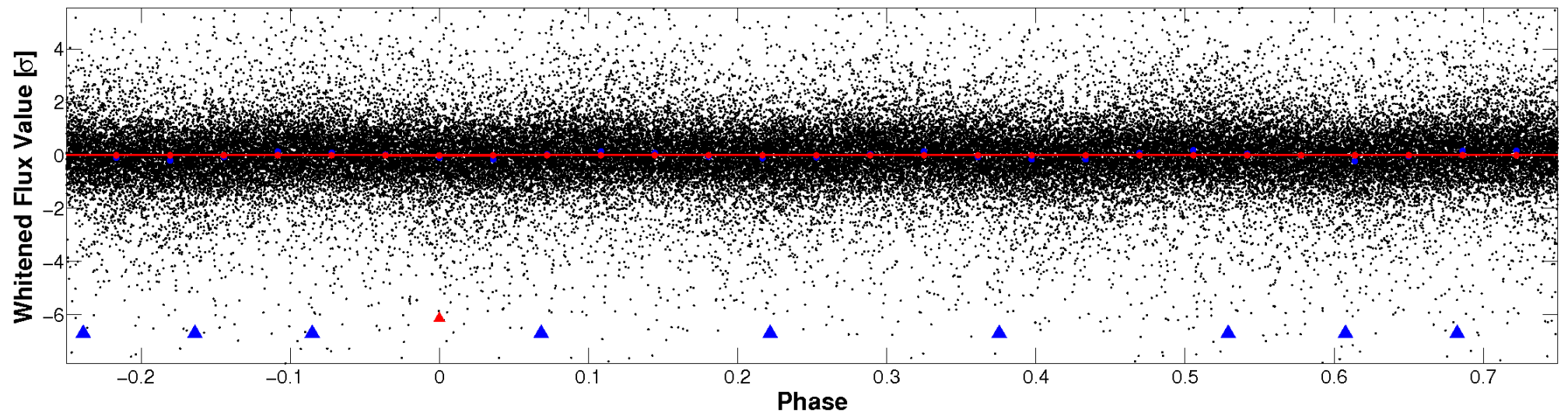


Non-Whitened Vs. Whitened Light Curve

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

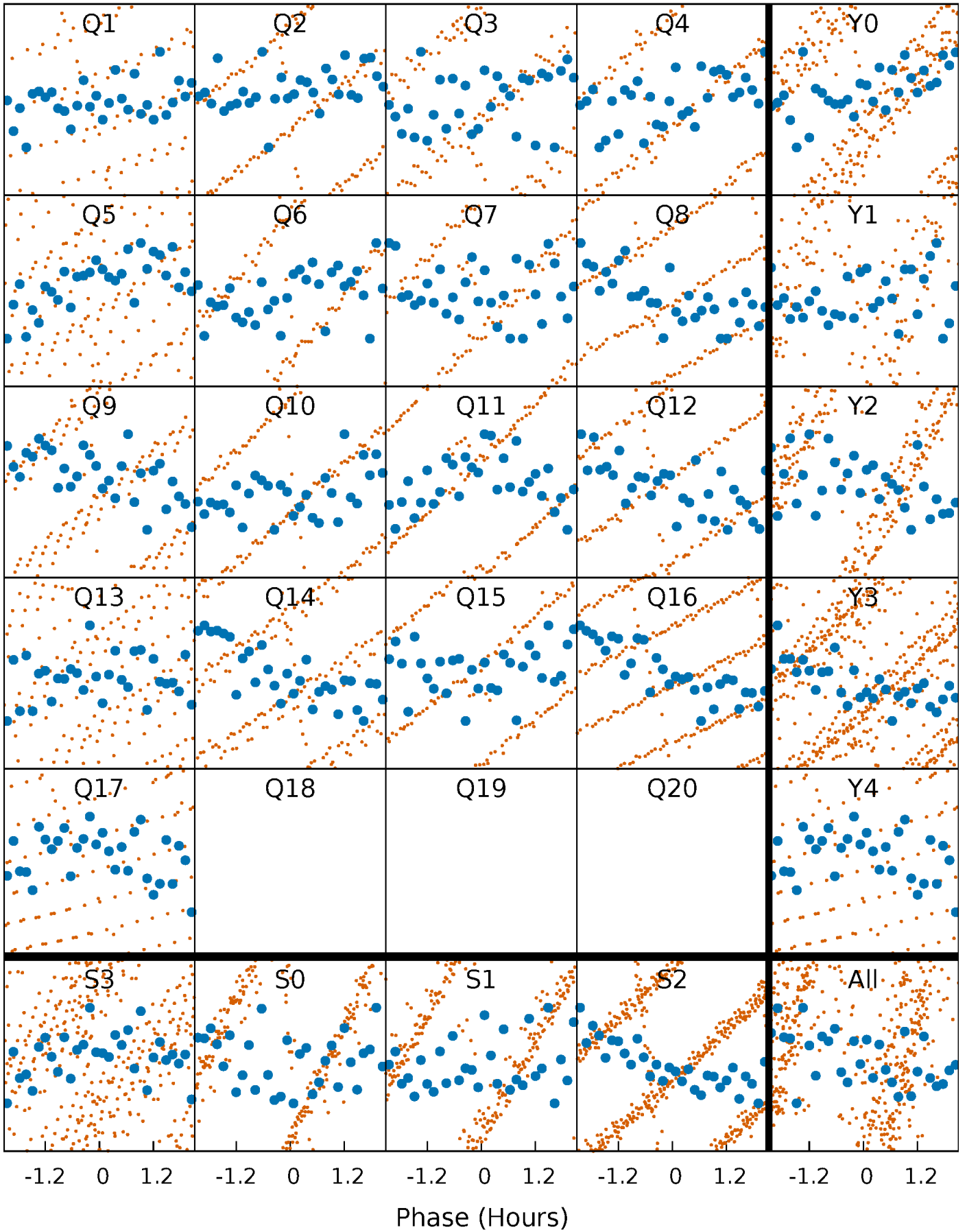


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



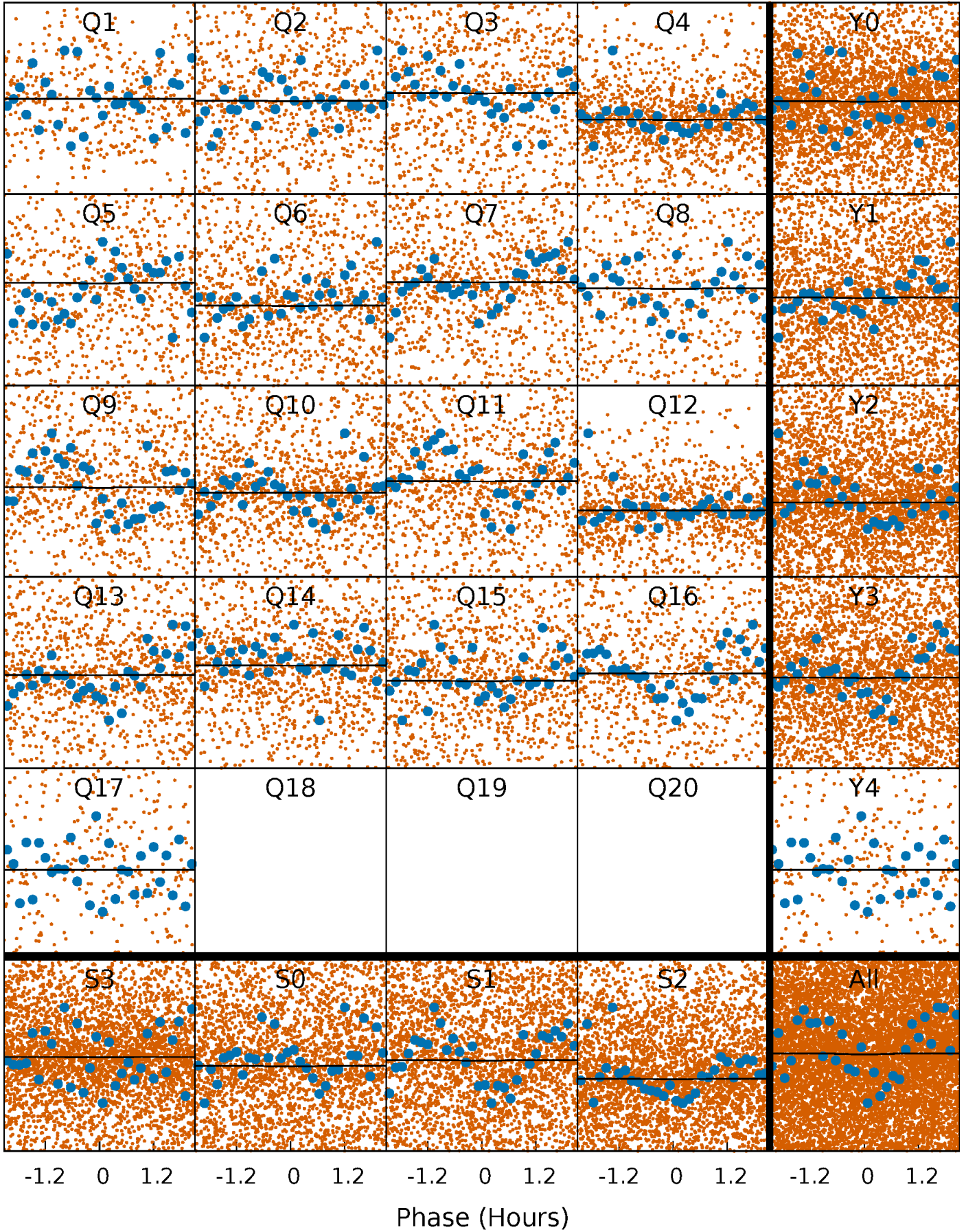
PDC Quarter-Phased Transit Curves

TCE 009947026-01 P= 0.565853 Days $T_0=132.055546$ (BKJD)



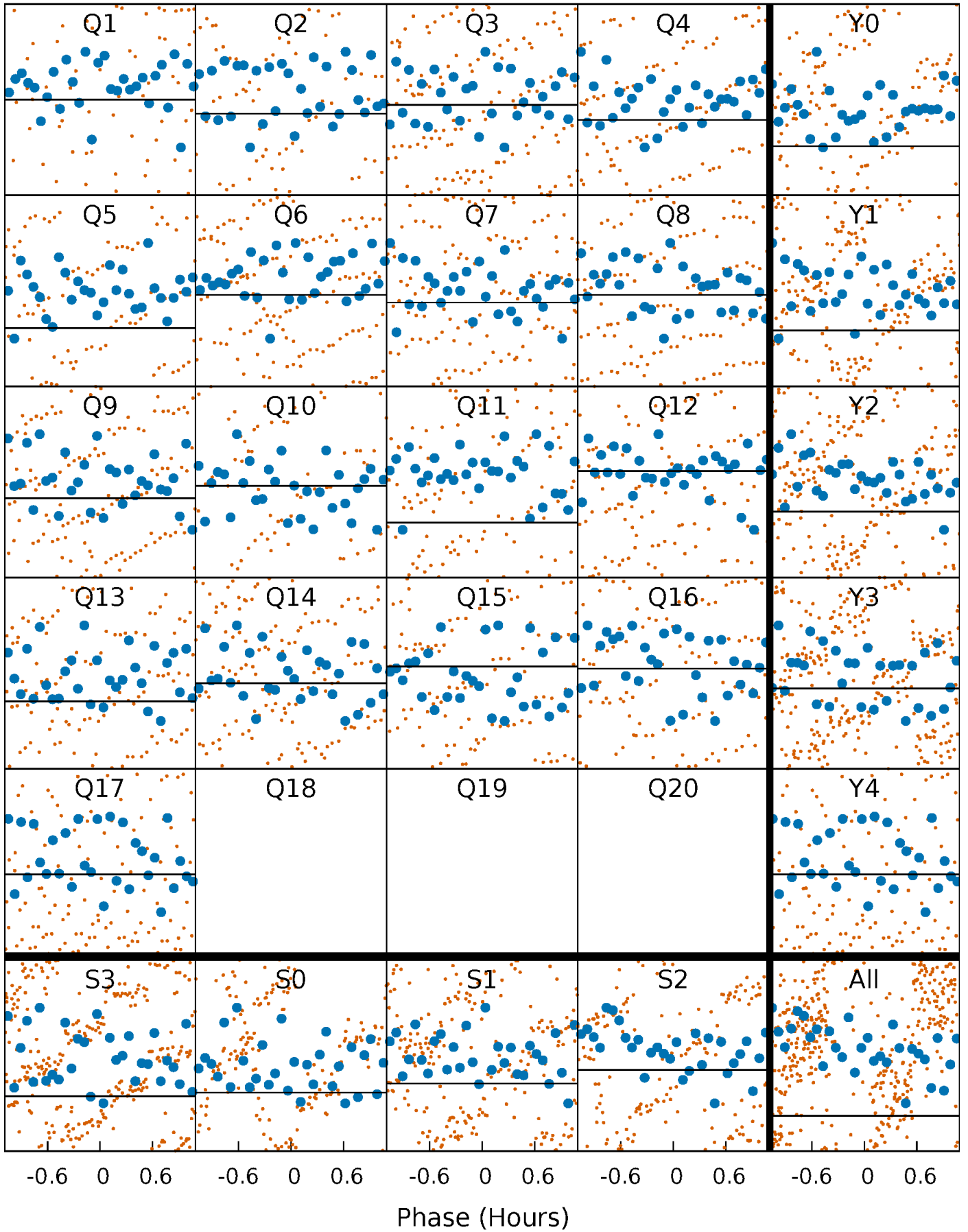
DV Quarter-Phased Transit Curves

TCE 009947026-01 P= 0.565853 Days $T_0=132.055546$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

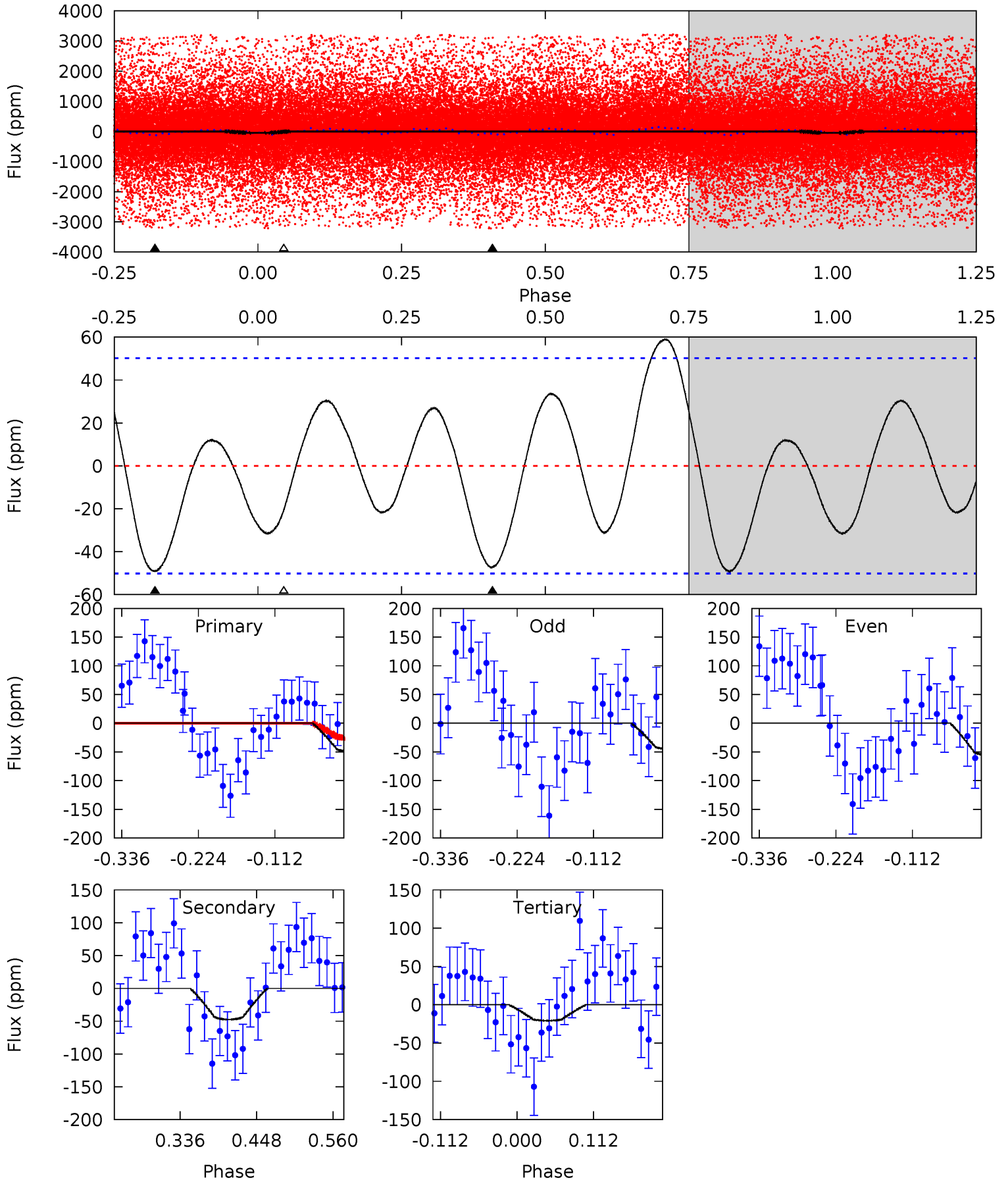
TCE 009947026-01 P= 0.565853 Days $T_0=132.055546$ (BKJD)



DV Model-Shift Uniqueness Test

009947026-01, P = 0.565853 Days, E = 131.489693 Days

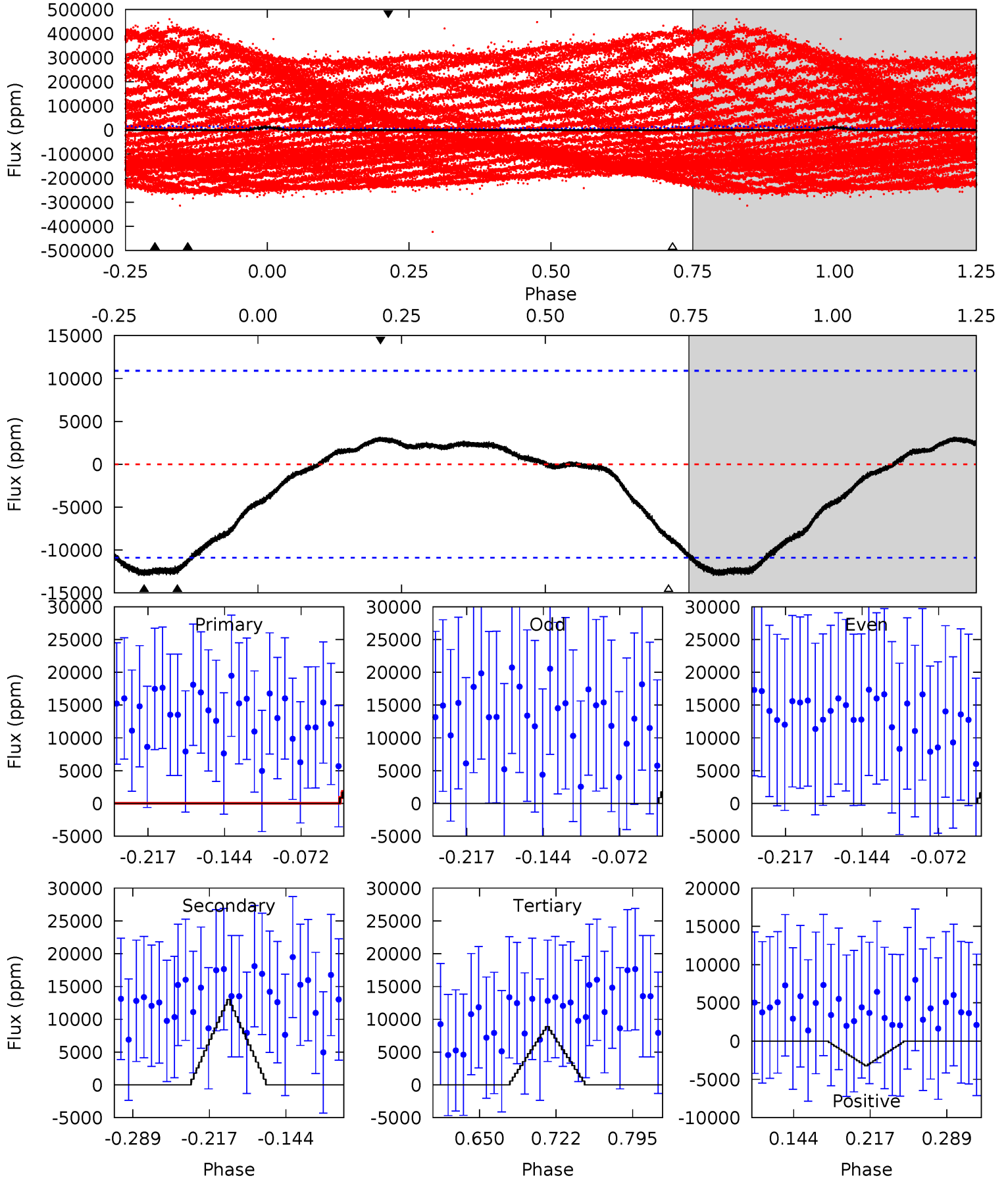
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.47	4.29	1.88	0	4.54	1.59	2.12	2.59	4.47	2.41	4.29	0.46	3.00	0.54	2.31



Alt Model-Shift Uniqueness Test

009947026-01, P = 0.565853 Days, E = 131.489693 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.45	5.53	3.78	1.37	4.63	1.80	1.53	1.66	4.08	1.75	4.17	0.20	-0.50	0.20	0.32



Stellar Parameters For KIC 009947026

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7641^{+239}_{-319}	$3.871^{+0.368}_{-0.092}$	$-0.400^{+0.250}_{-0.300}$	$2.371^{+0.478}_{-0.888}$	$1.524^{+0.217}_{-0.265}$	$0.161^{+0.418}_{-0.055}$
	+3%/-4%	+10%/-2%	+62%/-75%	+20%/-37%	+14%/-17%	+260%/-34%
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 009947026-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-47 ± 11	$1.22^{+1.29}_{-0.84}$	5665^{+411}_{-572}	9022^{+18680}_{-3402}	$4.153^{+37.243}_{-3.171}$
Alt.	-13015 ± 2352	$1.19^{+1.34}_{-0.83}$	5644^{+428}_{-505}	$494292^{+4808027}_{-364059}$	1276^{+11587}_{-1010}

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

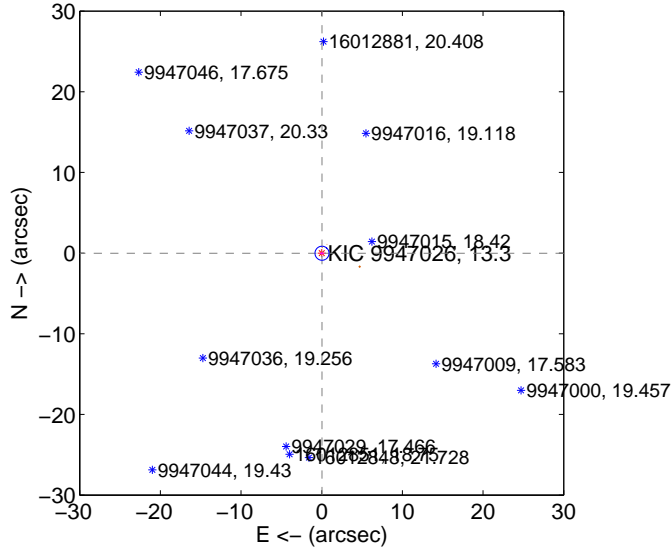
Supplemental centroid analysis for 009947026-01. Kepler magnitude: 13.30. Transit SNR 0.22

There are 9 quarters with good PRF difference image offsets

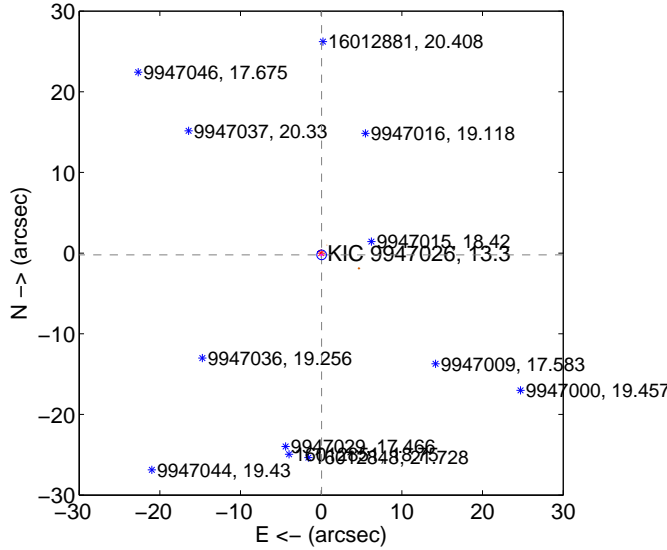
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.041 ± 0.290	0.14	-0.037 ± 0.272	-0.018 ± 0.151
PRF-fit source offset from KIC position	0.226 ± 0.198	1.14	-0.052 ± 0.275	-0.220 ± 0.157
photometric centroid source offset	—	—	—	—

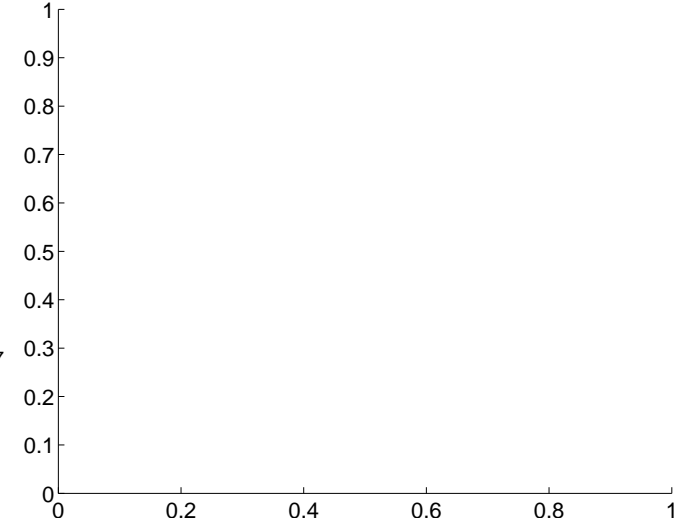
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

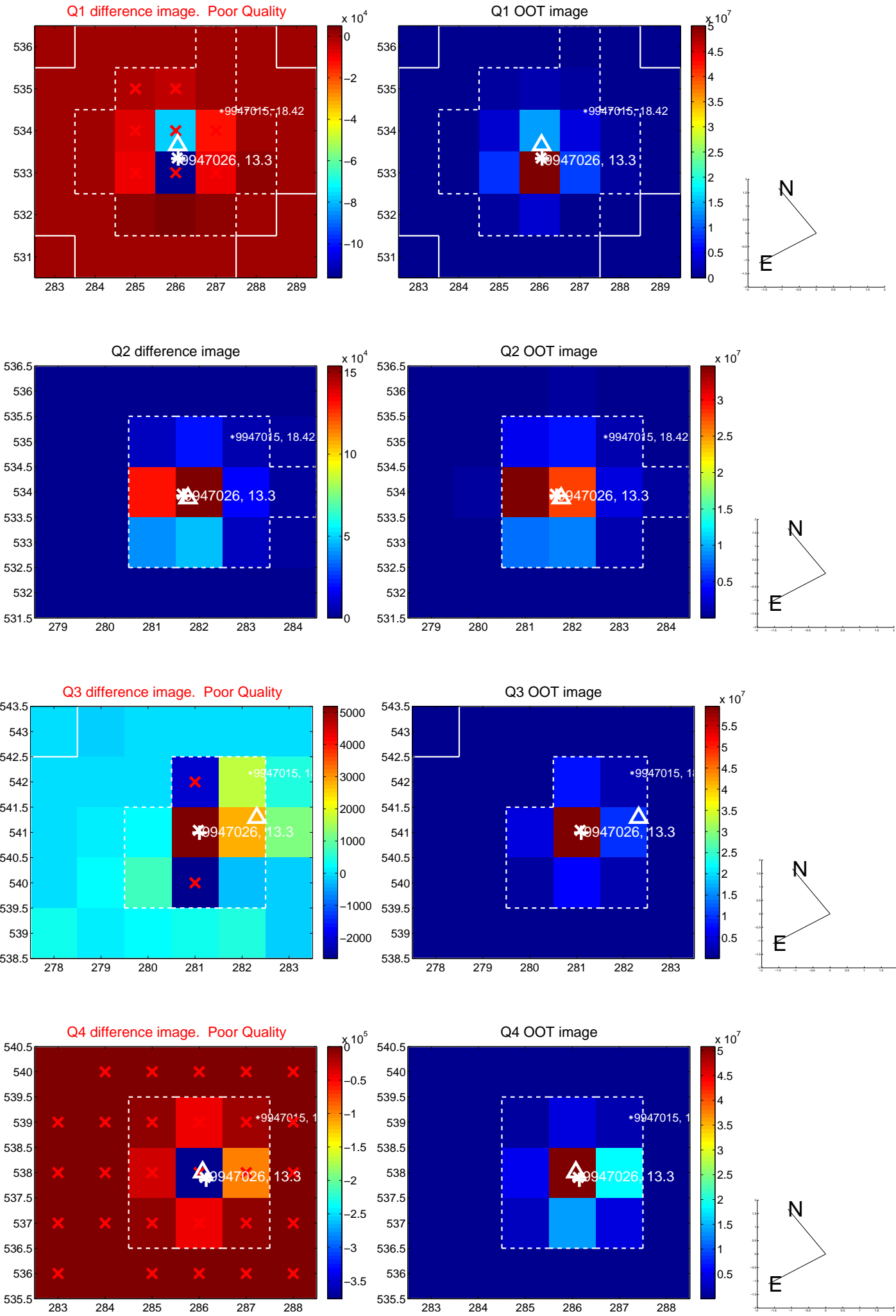


There are no photometric centroids

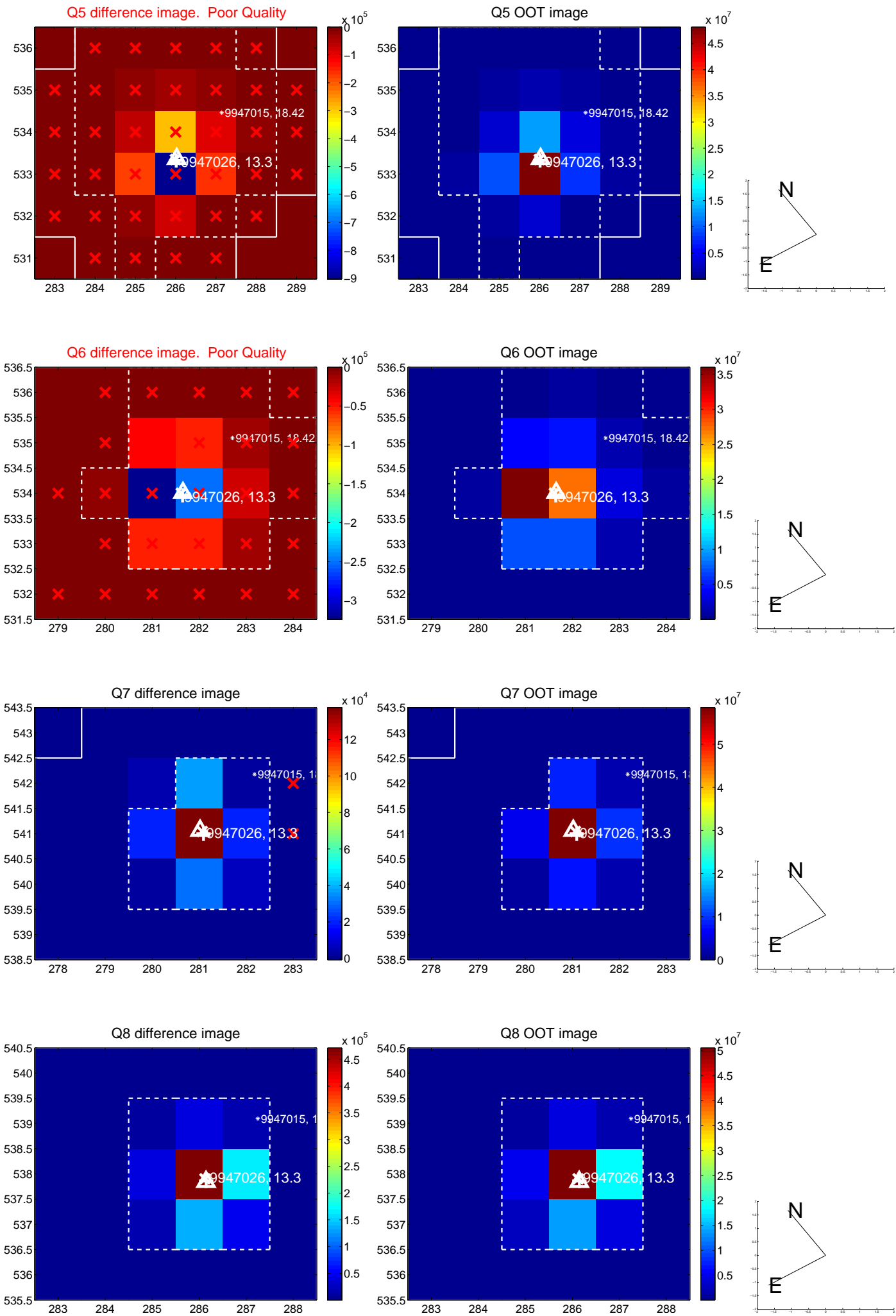


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

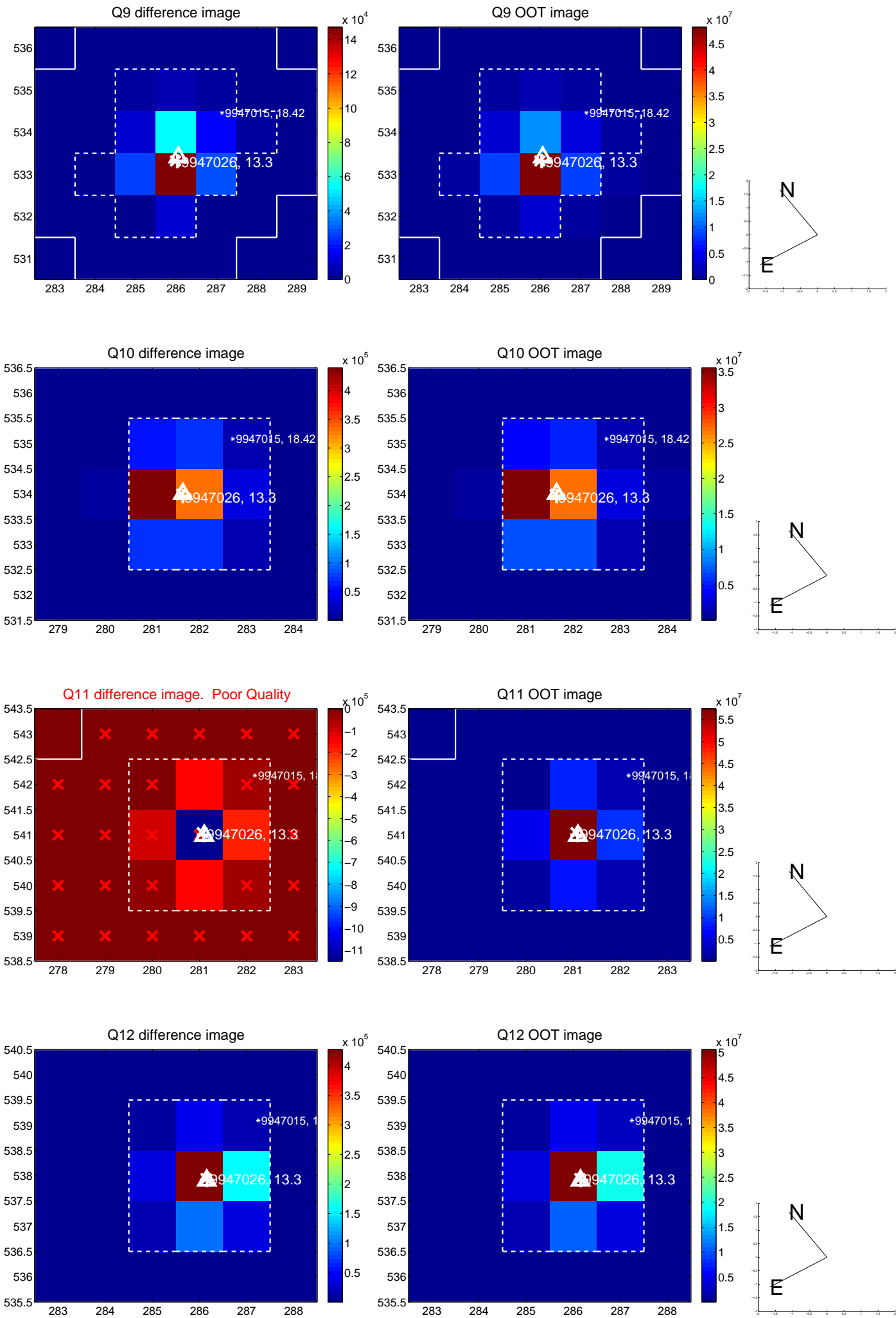
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



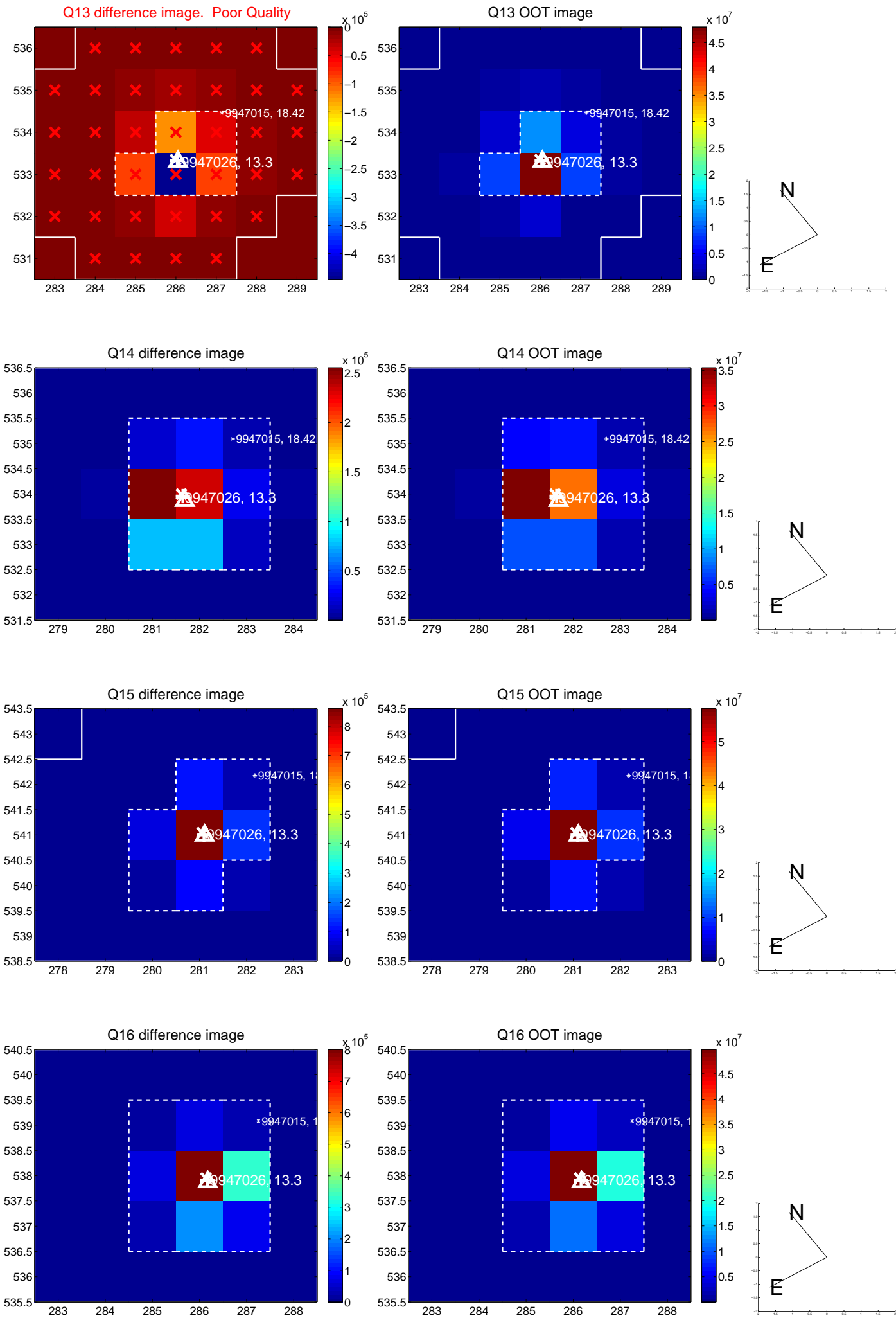
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



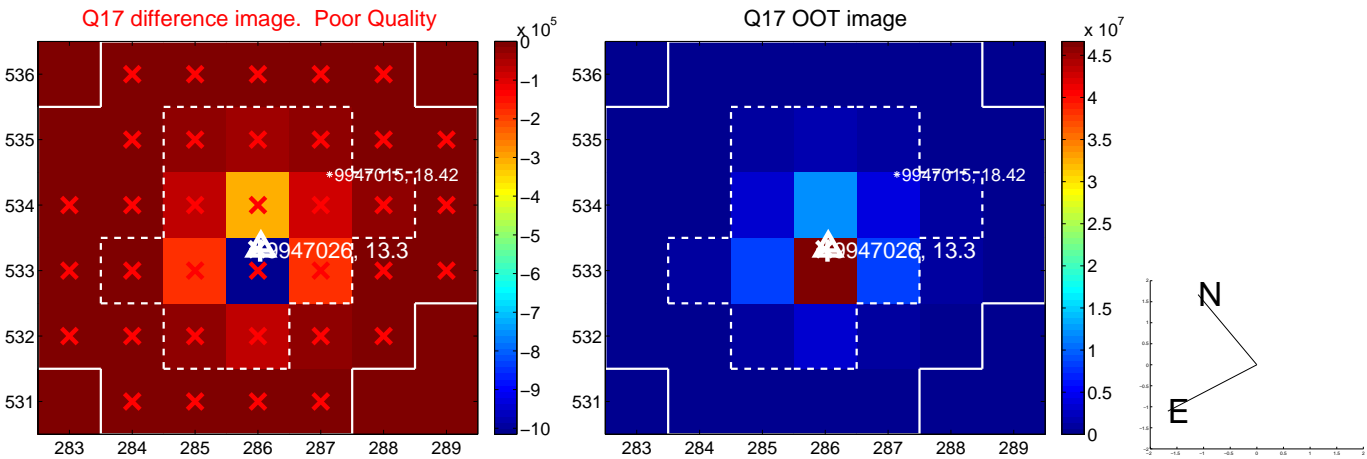
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



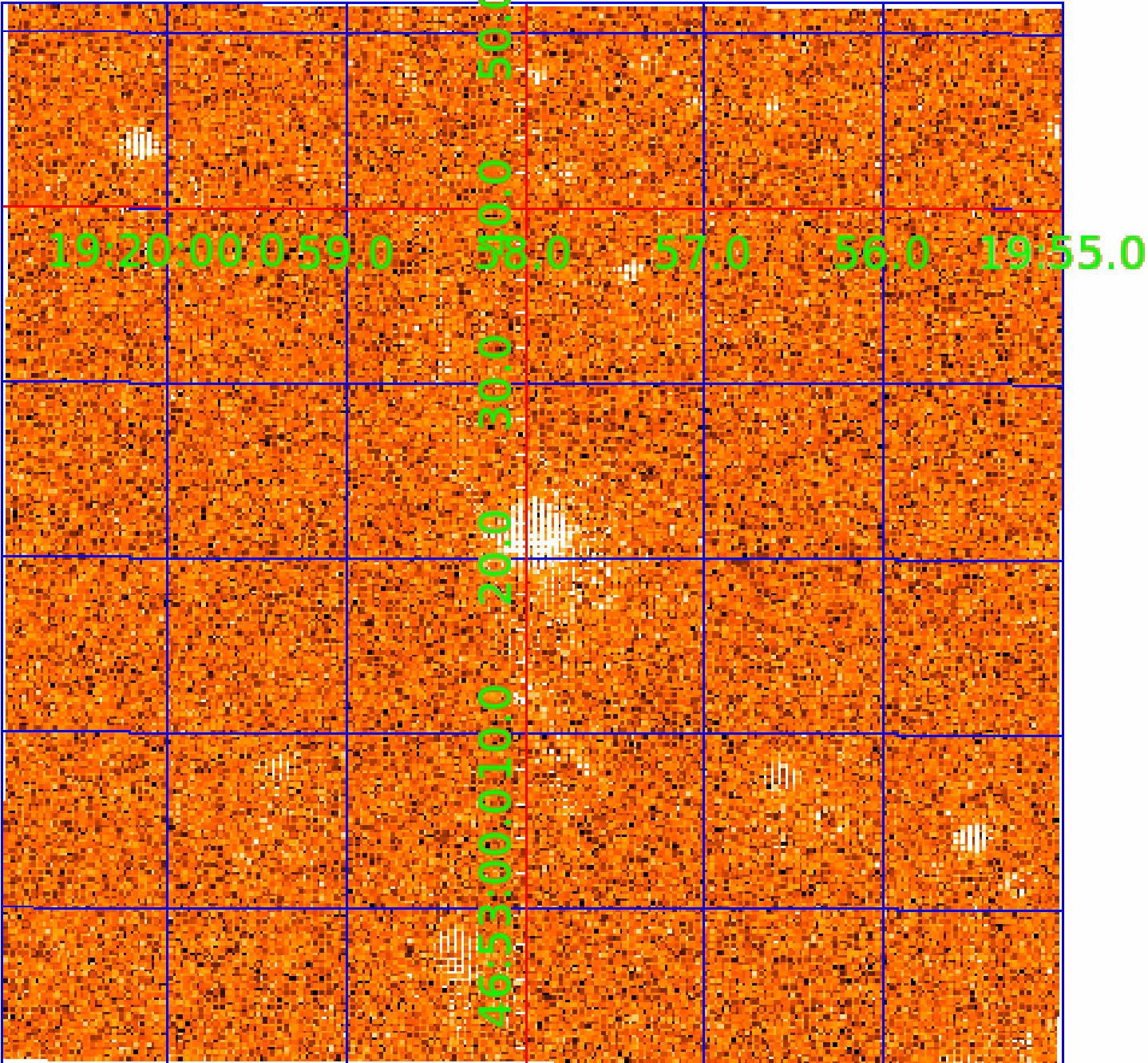
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009947026

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})
009947026-01	OBS	No	0.565853	132.055546	2.8	1.060	13.8	0.2	2.37	7641	0.42	72306.65
009947026-02	OBS	No	165.142125	234.382158	541.0	20.036	11.1	3.7	2.37	7641	5.63	37.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009947026-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009947026-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

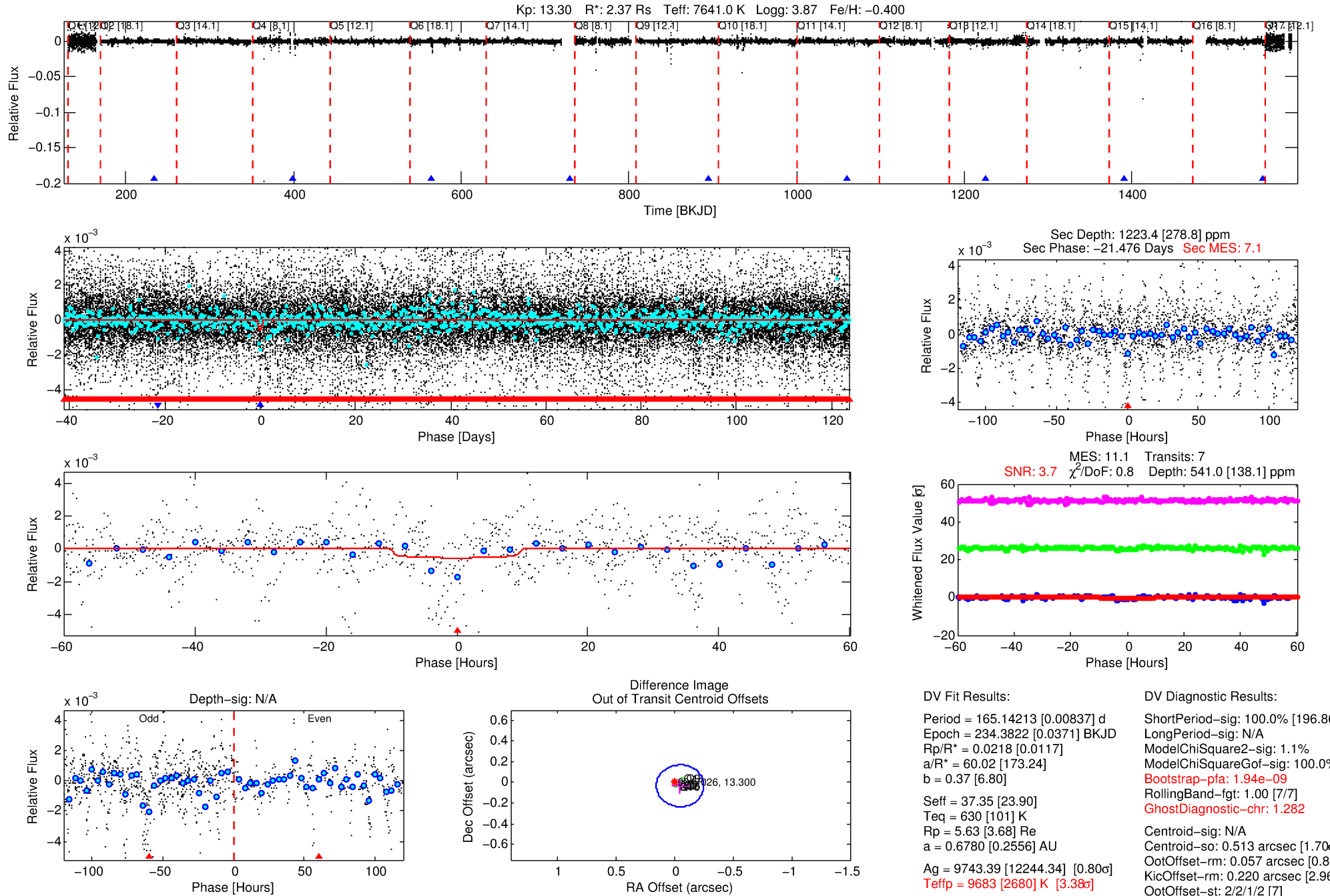
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009947026-02

No Significant Match Found

DV One-Page Summary

KIC: 9947026 Candidate: 2 of 2 Period: 165.142 d



DV Fit Results:

Period = 165.14213 [0.00837] d
Epoch = 234.3822 [0.0371] BKJD
Rp/R* = 0.0218 [0.0117]
a/R* = 60.02 [173.24]
b = 0.37 [6.80]
Seff = 37.35 [23.90]
Teff = 630 [101] K
Rp = 5.63 [3.68] Re
a = 0.6780 [0.2556] AU
Ag = 9743.39 [12244.34] [0.80σ]
Teffp = 9683 [2680] K [3.38σ]

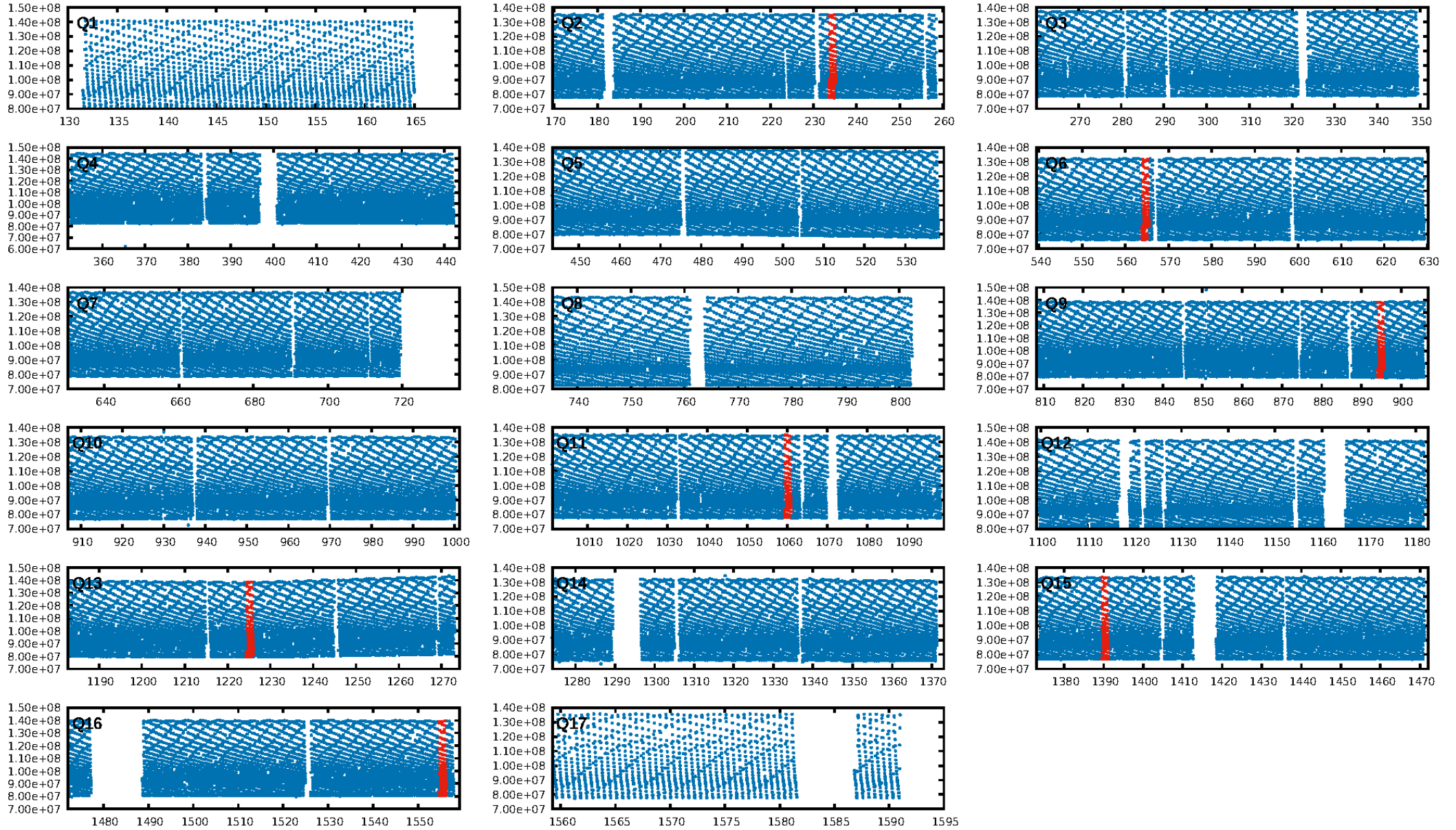
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [196.86σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.94e-09
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 1.282
Centroid-sig: N/A
Centroid-so: 0.513 arcsec [1.70σ]
OotOffset-rm: 0.057 arcsec [0.84σ]
KicOffset-rm: 0.220 arcsec [2.96σ]
OotOffset-st: 2/2/1/2 [7]
KicOffset-st: 2/2/1/2 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 0.00 [0/7]

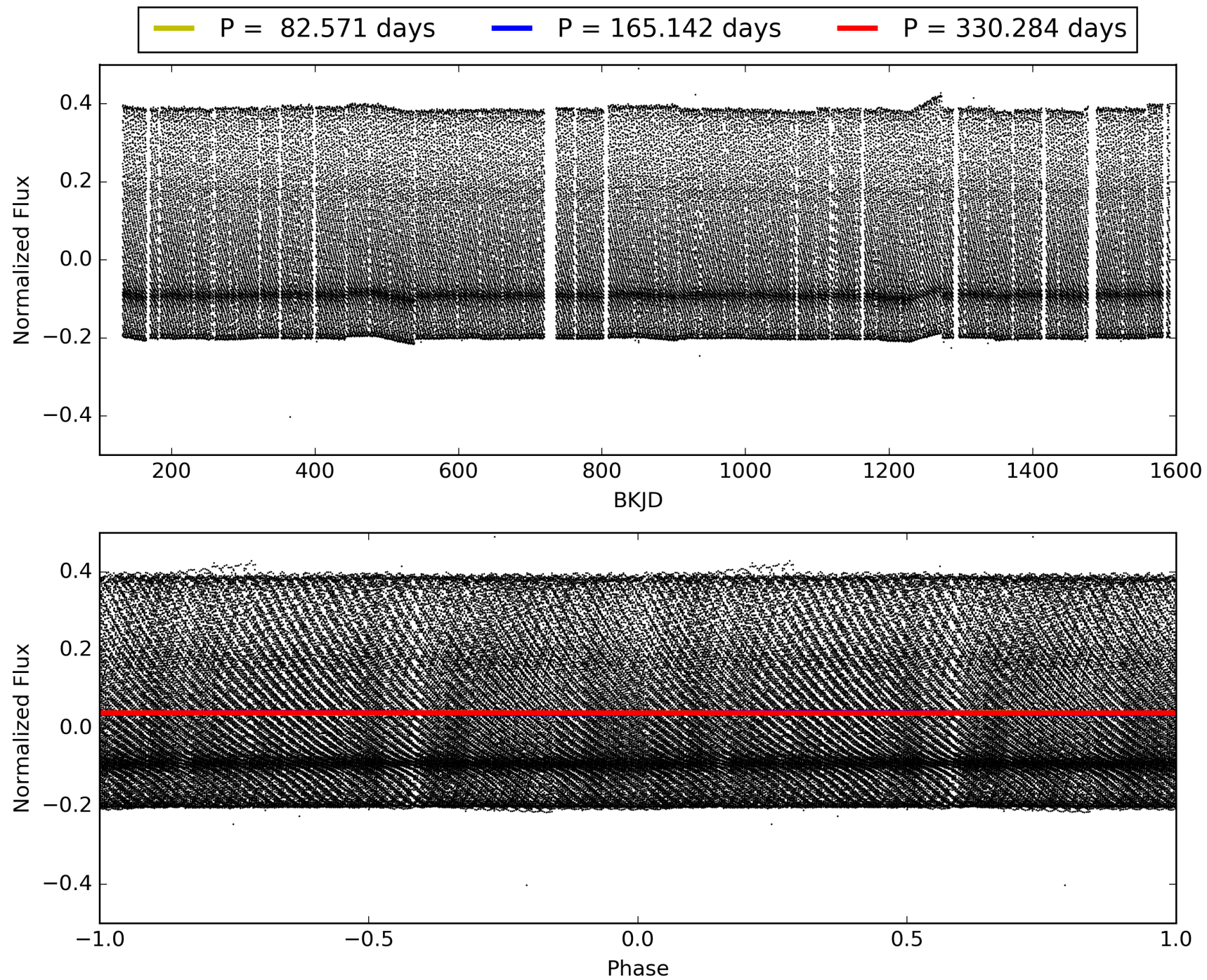
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:38:57 Z

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

TCE 009947026-02, PDC Light Curves

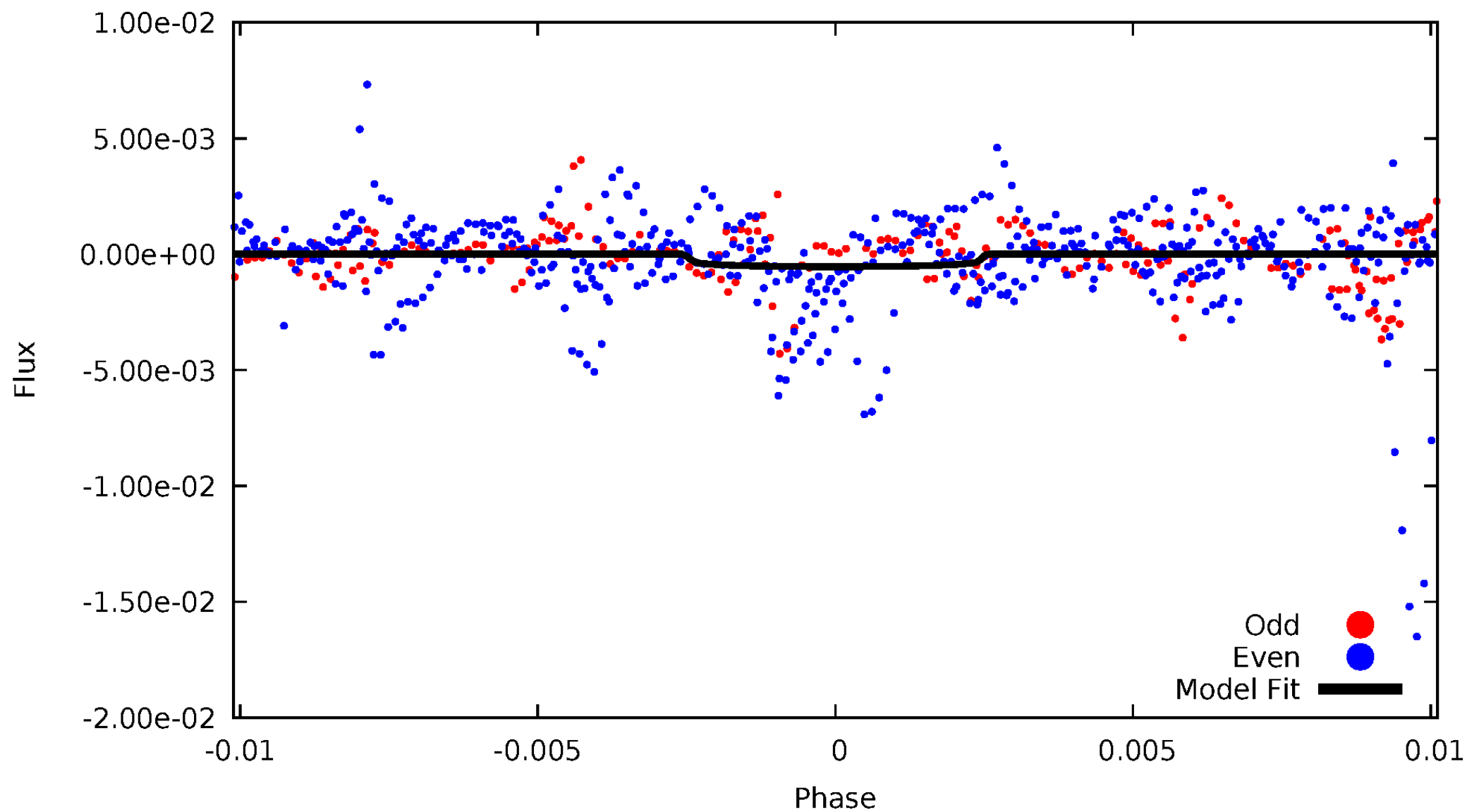


TCE 009947026-02



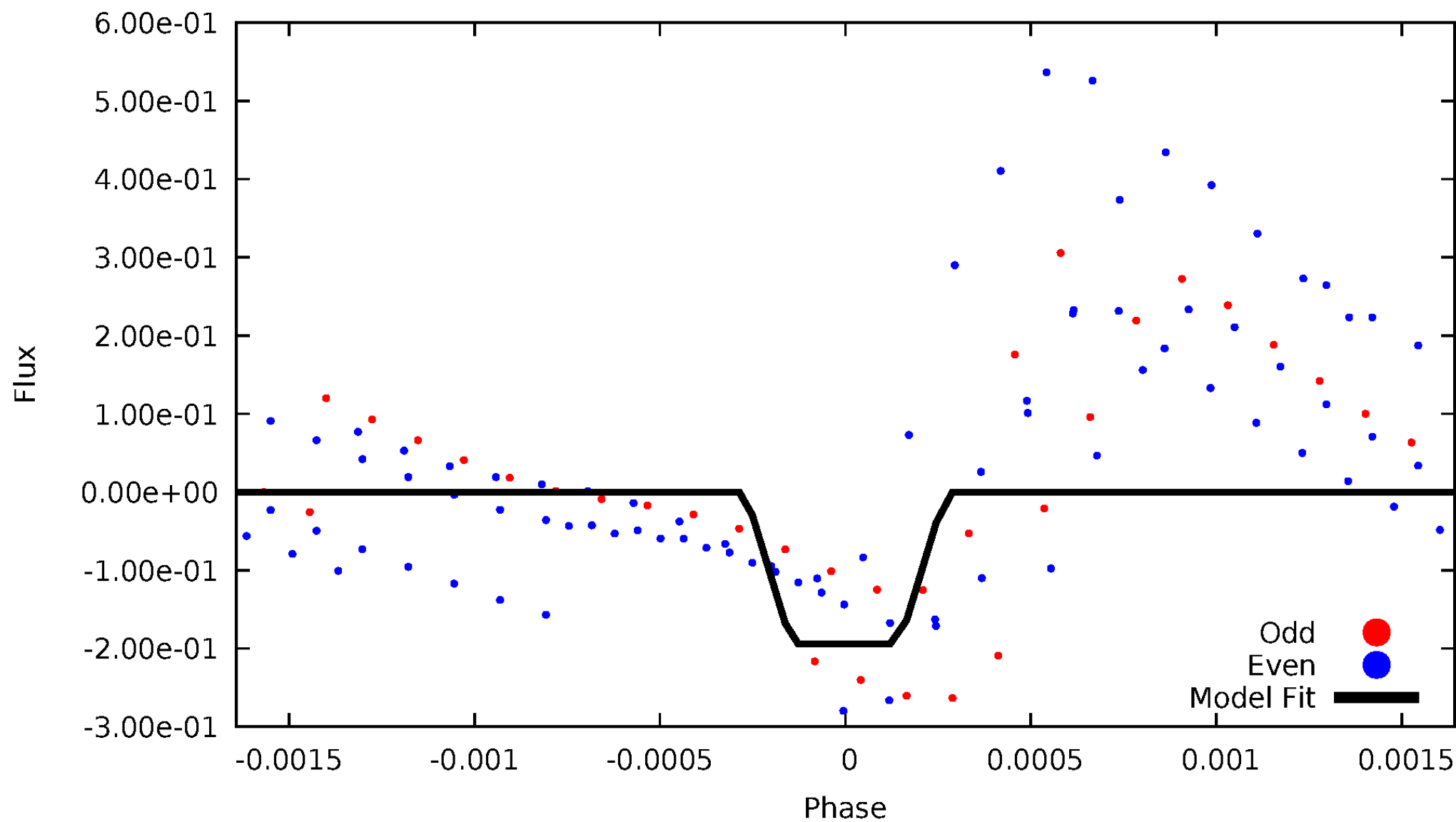
DV Odd/Even

TCE 009947026-02



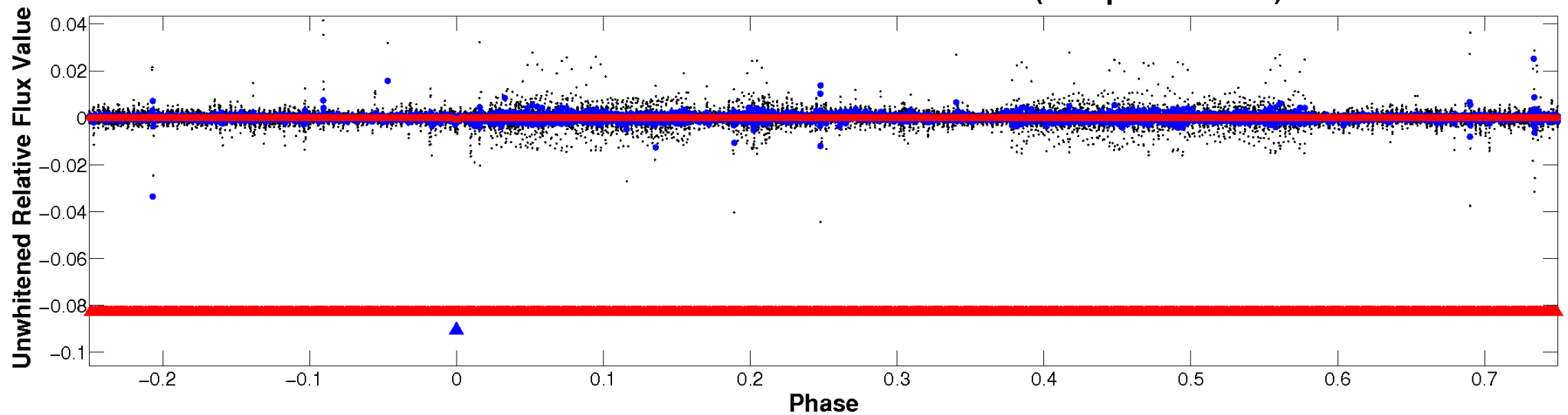
ALT Odd/Even

TCE 009947026-02

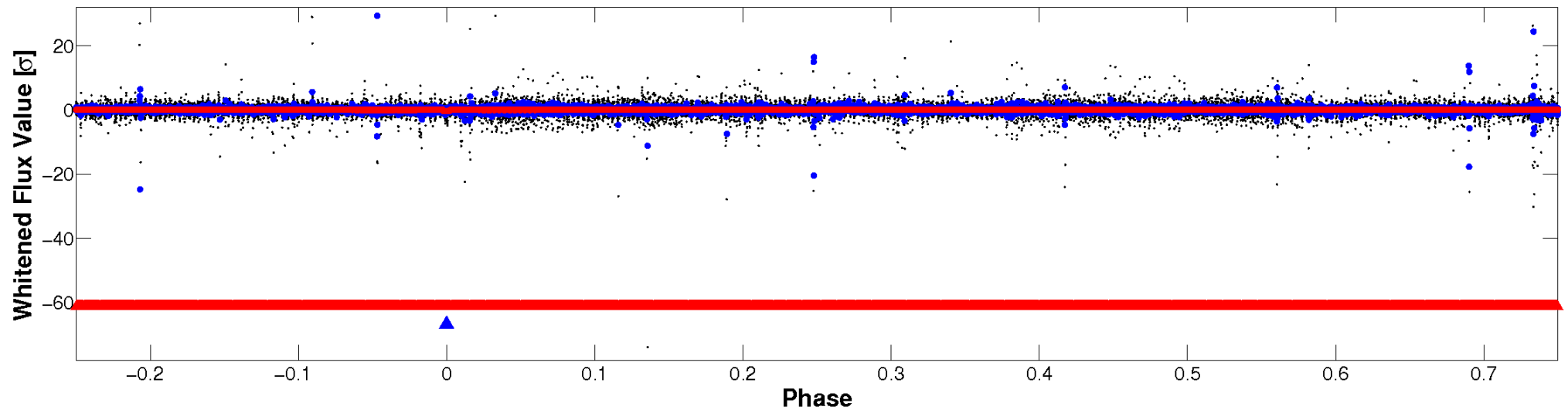


Non-Whitened Vs. Whitened Light Curve

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

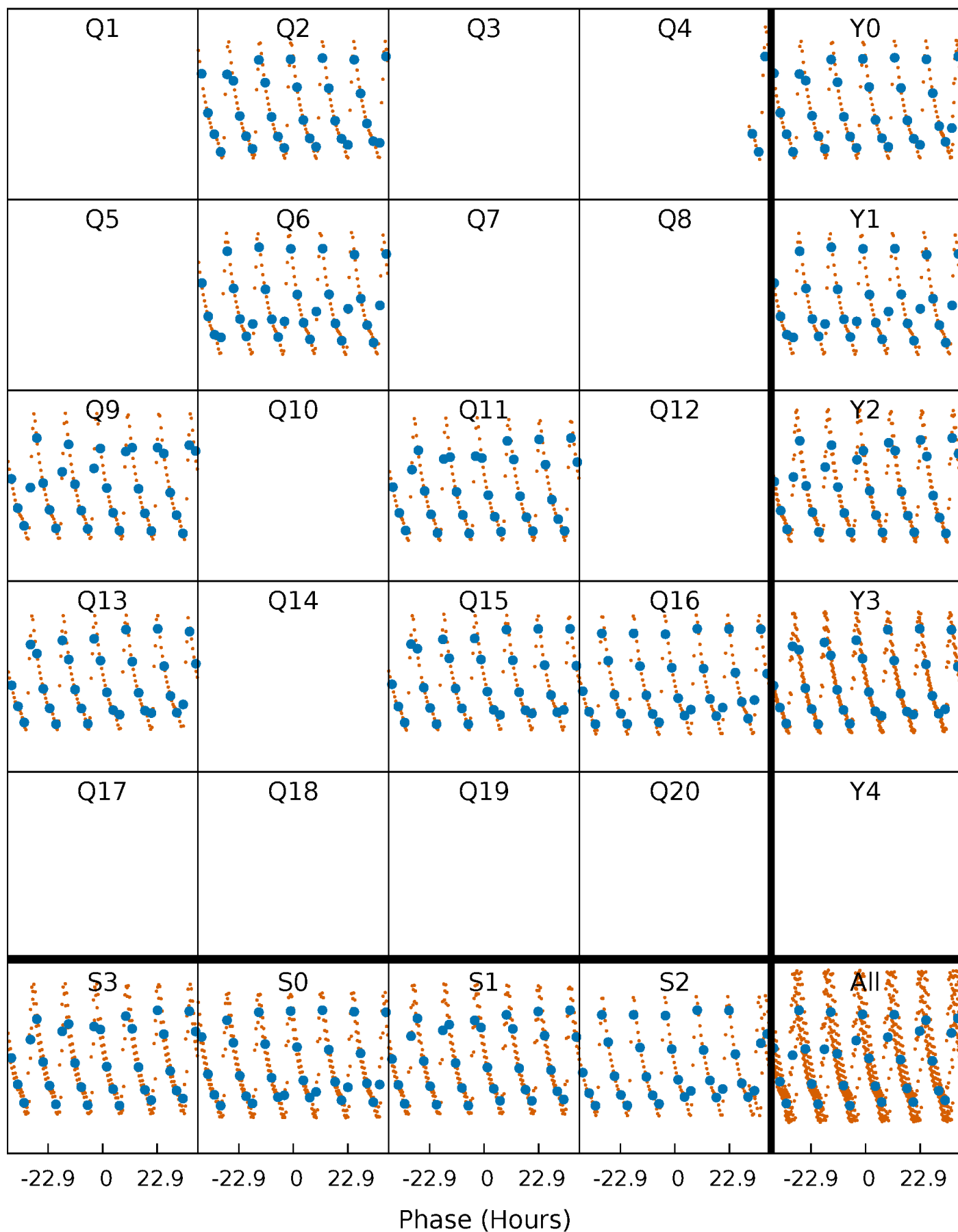


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



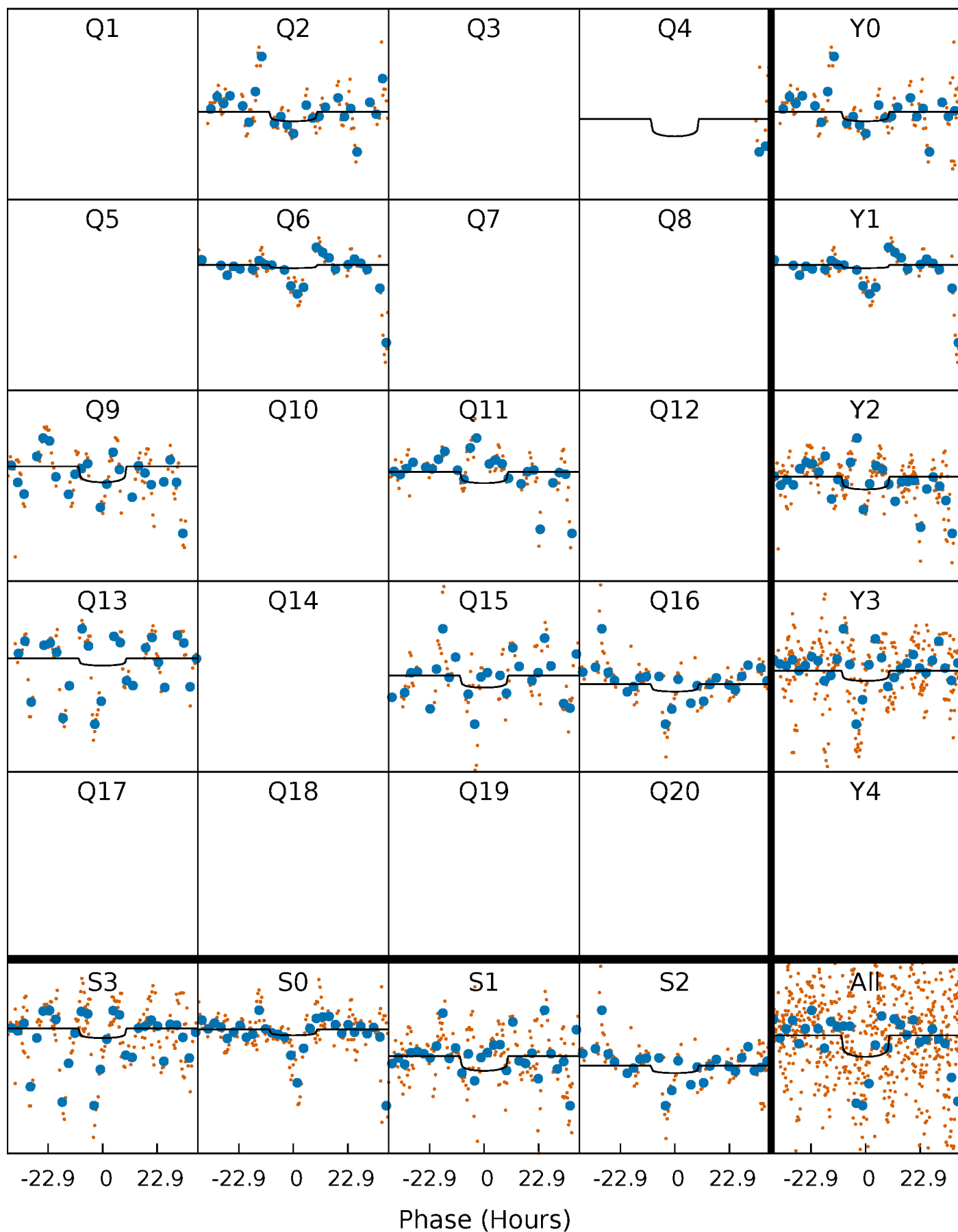
PDC Quarter-Phased Transit Curves

TCE 009947026-02 P=165.142125 Days $T_0=234.382158$ (BKJD)



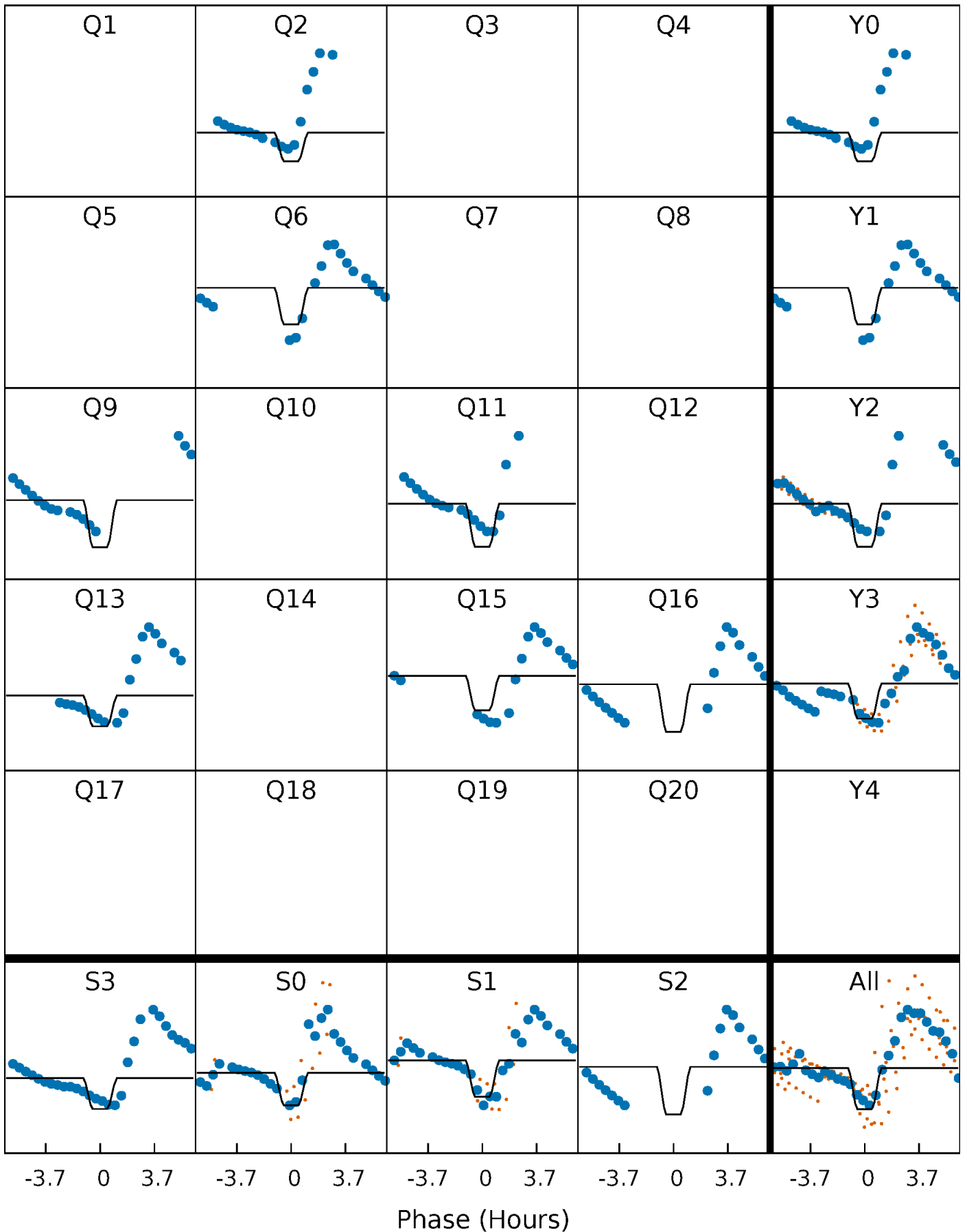
DV Quarter-Phased Transit Curves

TCE 009947026-02 P=165.142125 Days $T_0=234.382158$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

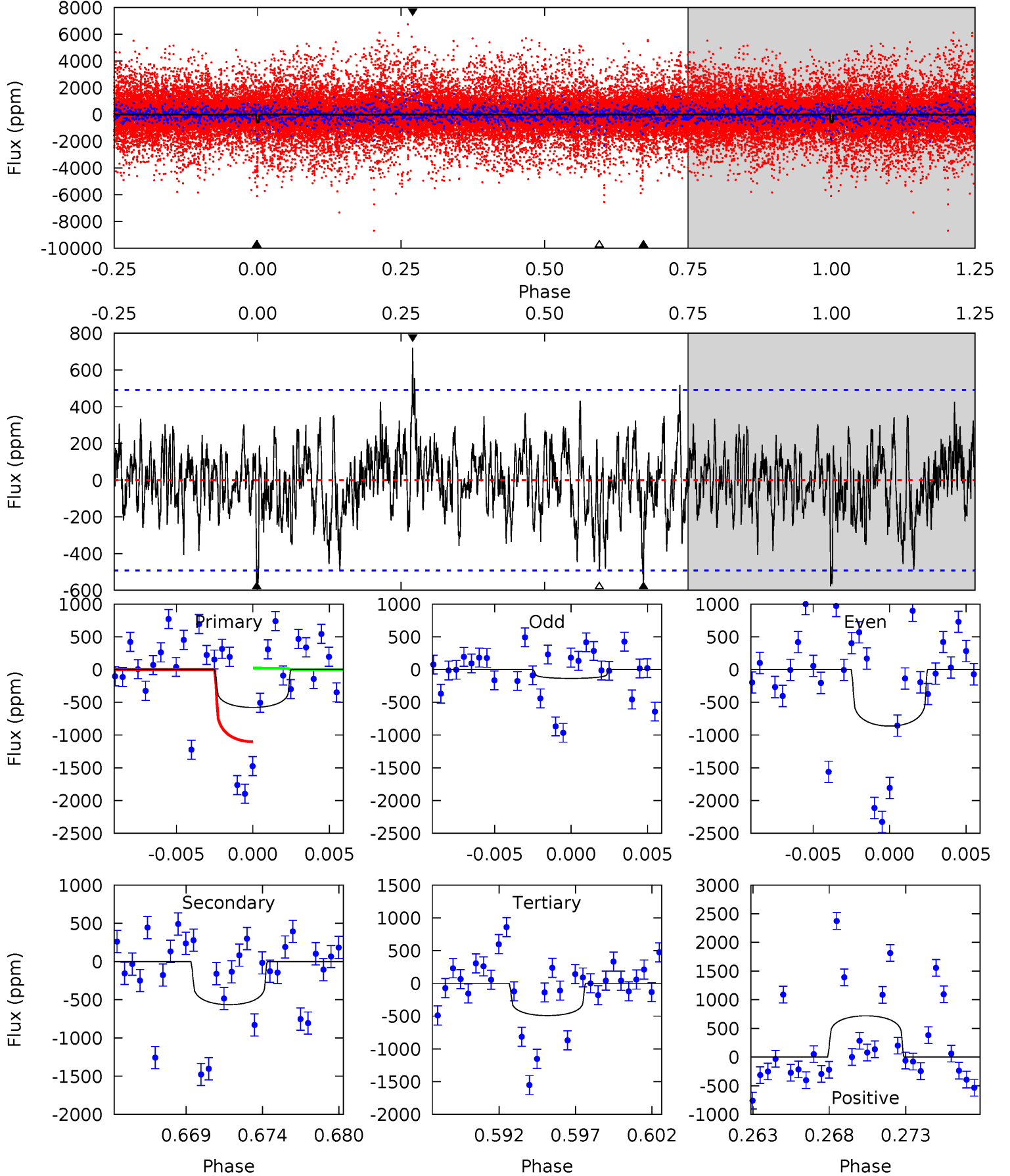
TCE 009947026-02 P=165.118091 Days $T_0=234.246187$ (BKJD)



DV Model-Shift Uniqueness Test

009947026-02, P = 165.142125 Days, E = 69.240033 Days

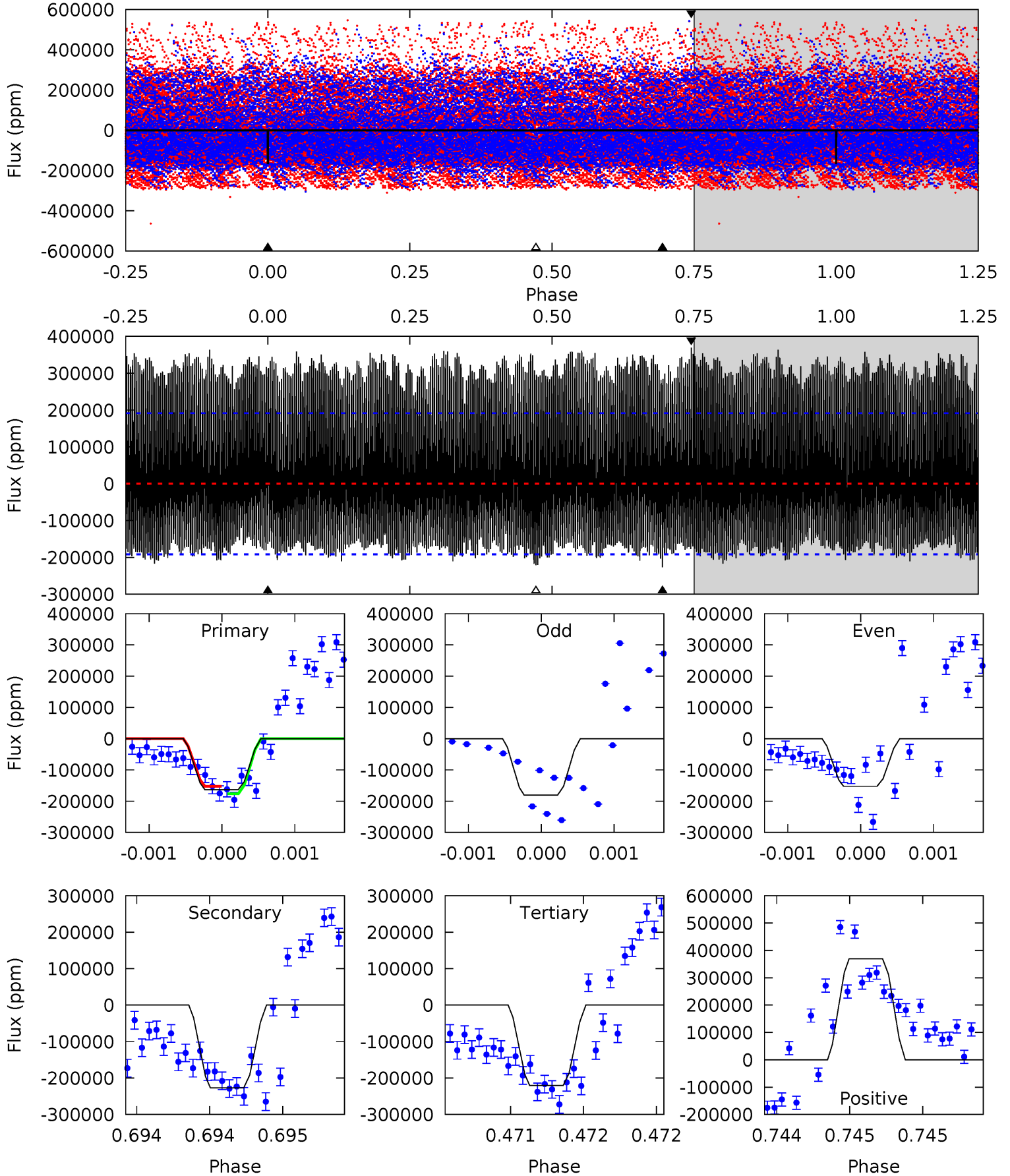
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.06	5.91	5.15	7.54	5.15	2.80	1.66	0.91	-1.48	0.76	-1.63	3.48	1.82	0.55	5.64



Alt Model-Shift Uniqueness Test

009947026-02, P = 165.118091 Days, E = 69.128096 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.73	6.58	6.40	10.7	5.56	3.46	4.23	-1.67	-5.99	0.18	-4.14	0.39	1.15	0.62	0.36



Stellar Parameters For KIC 009947026

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7641^{+239}_{-319}	$3.871^{+0.368}_{-0.092}$	$-0.400^{+0.250}_{-0.300}$	$2.371^{+0.478}_{-0.888}$	$1.524^{+0.217}_{-0.265}$	$0.161^{+0.418}_{-0.055}$
	+3%/-4%	+10%/-2%	+62%/-75%	+20%/-37%	+14%/-17%	+260%/-34%
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 009947026-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-564 ± 95	$5.33^{+3.09}_{-2.64}$	855^{+60}_{-79}	7897^{+4514}_{-1725}	5069^{+14542}_{-3126}
Alt.	-226748 ± 34460	$108.16^{+14.93}_{-22.74}$	851^{+62}_{-90}	8653^{+687}_{-666}	6521^{+3479}_{-1834}

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 $A_{obs} \gg 1.0$

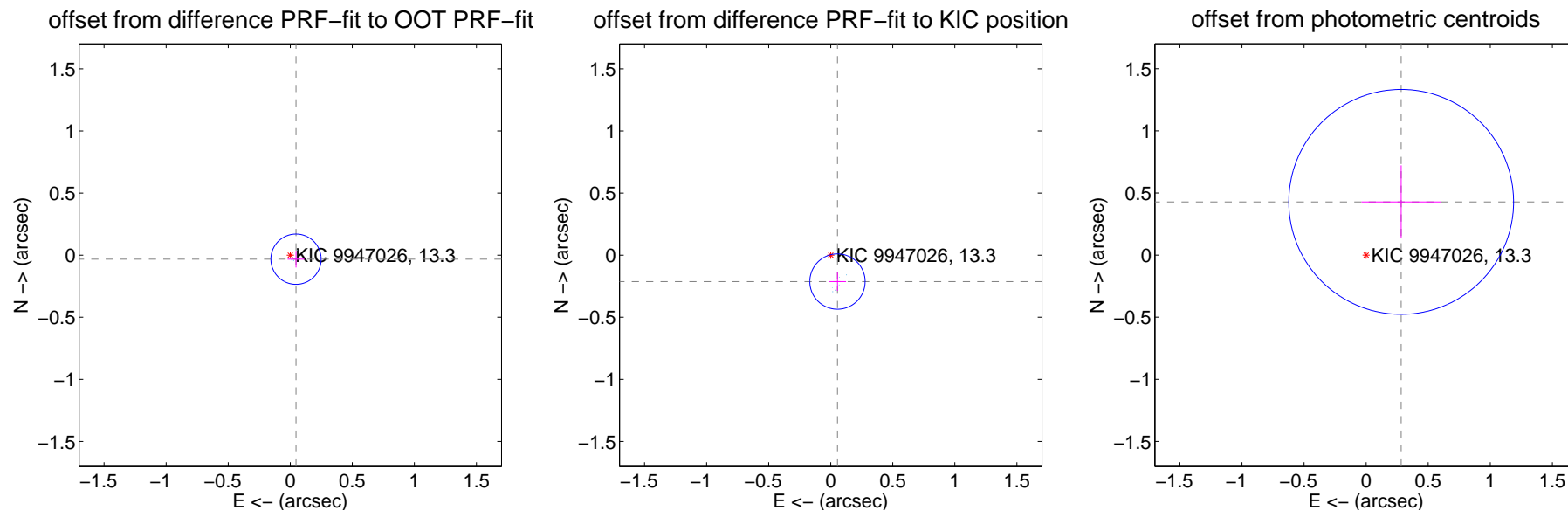
DV Centroid Data

Supplemental centroid analysis for 009947026-02. Kepler magnitude: 13.30. Transit SNR 3.67

There are 7 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

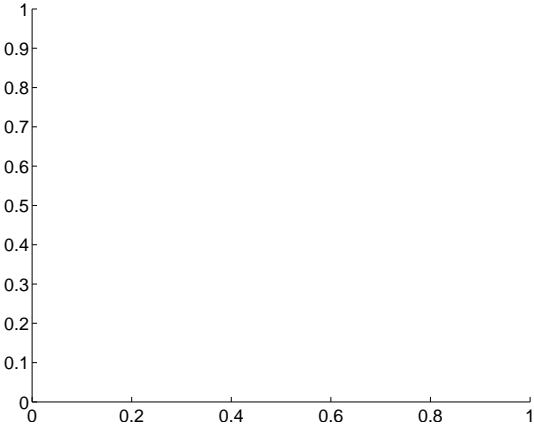
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.057 ± 0.068	0.84	-0.046 ± 0.068	-0.033 ± 0.067
PRF-fit source offset from KIC position	0.220 ± 0.074	2.96	-0.054 ± 0.070	-0.213 ± 0.075
photometric centroid source offset	0.51 ± 0.30	1.70	-0.28 ± 0.32	0.43 ± 0.29



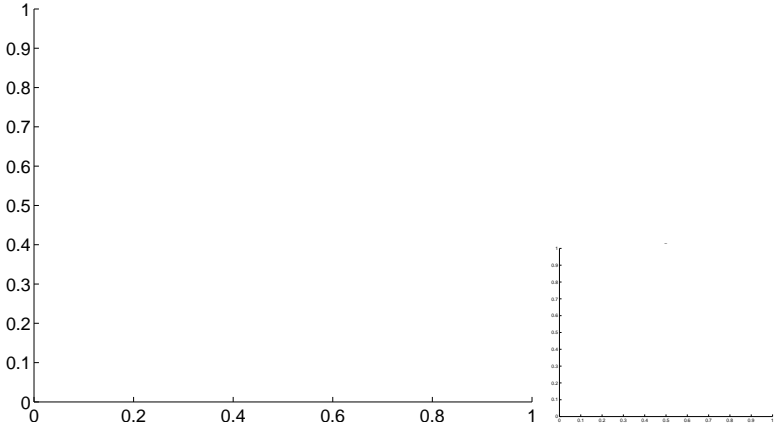
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

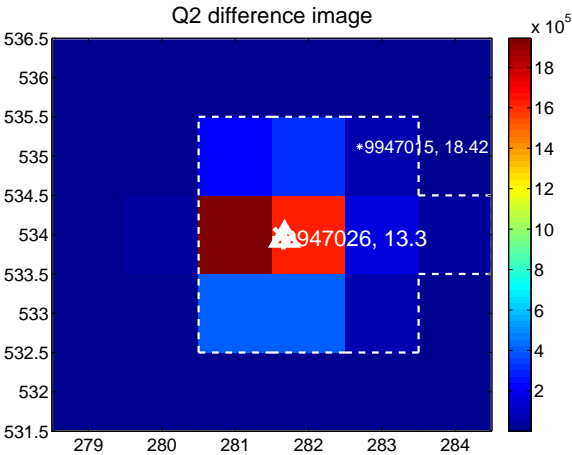
Q1 no difference image



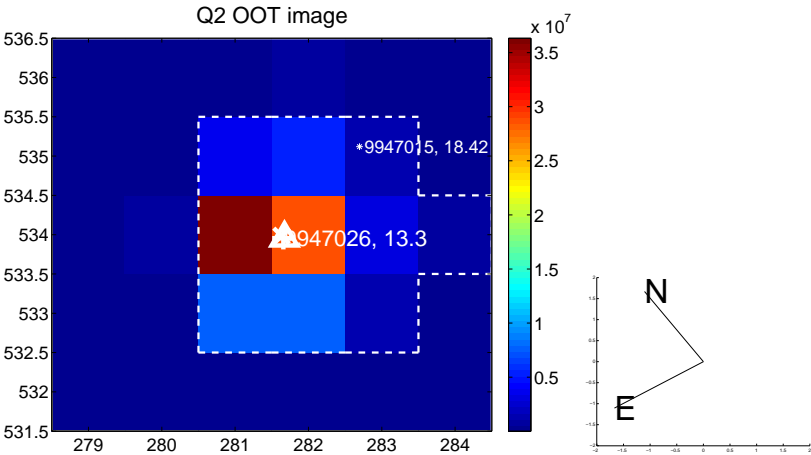
Q1 no OOT image



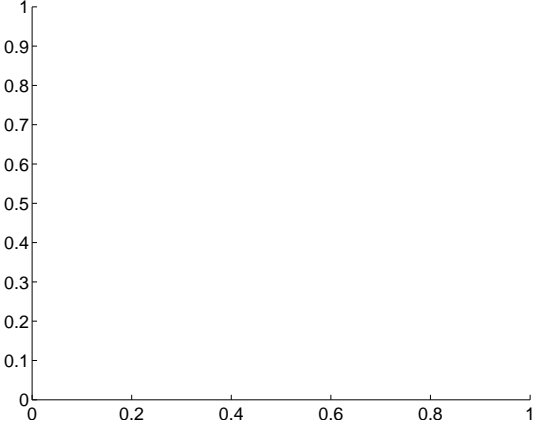
Q2 difference image



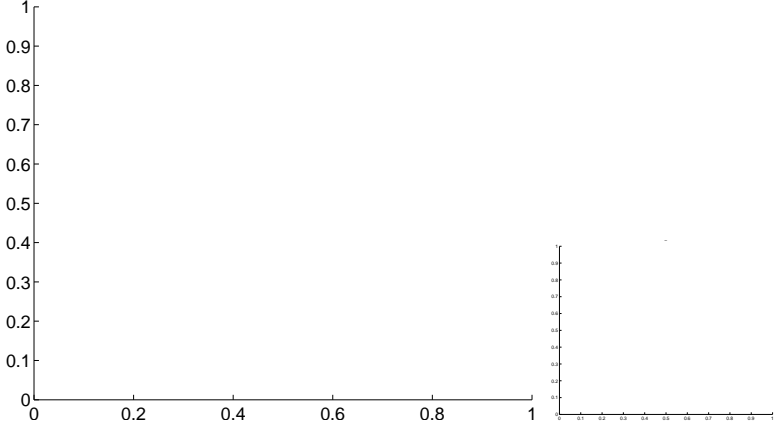
Q2 OOT image



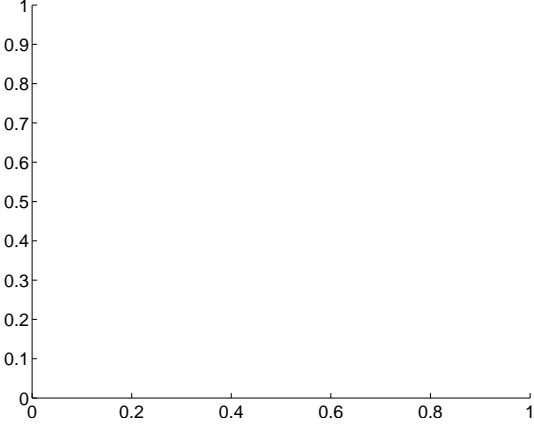
Q3 no difference image



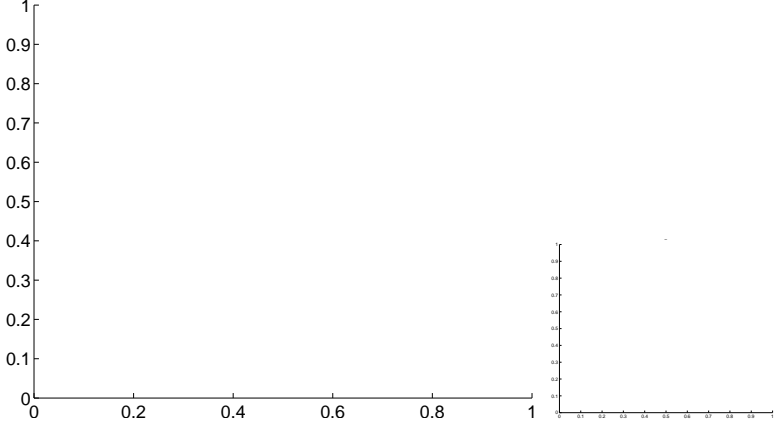
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

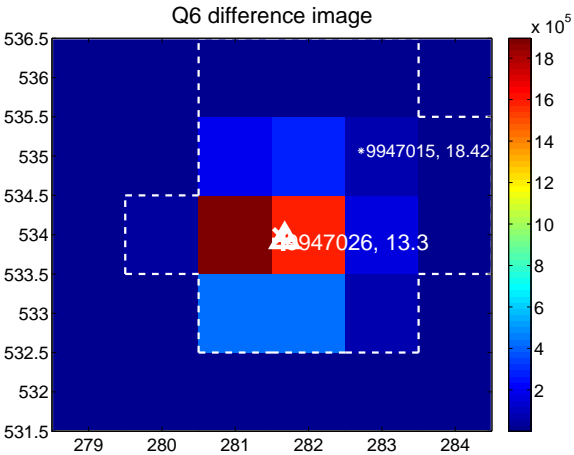
Q5 no difference image



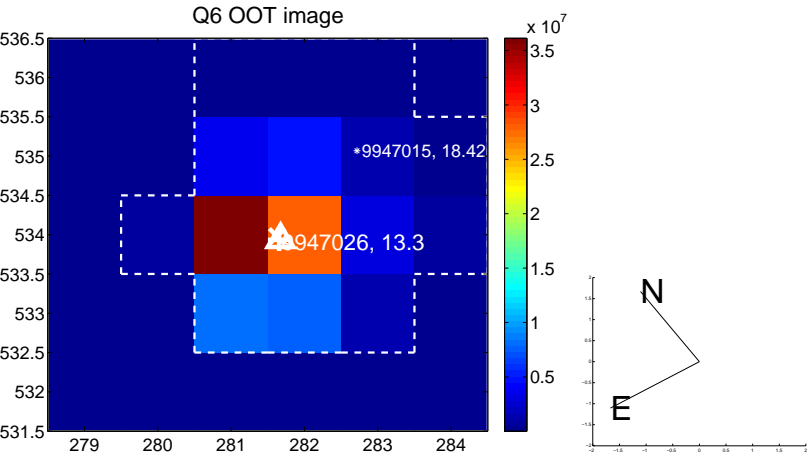
Q5 no OOT image



Q6 difference image



Q6 OOT image



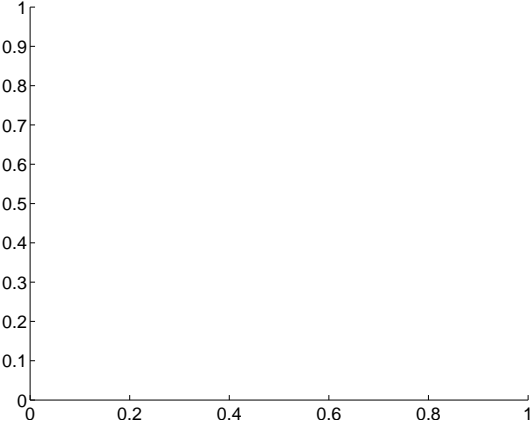
Q7 no difference image



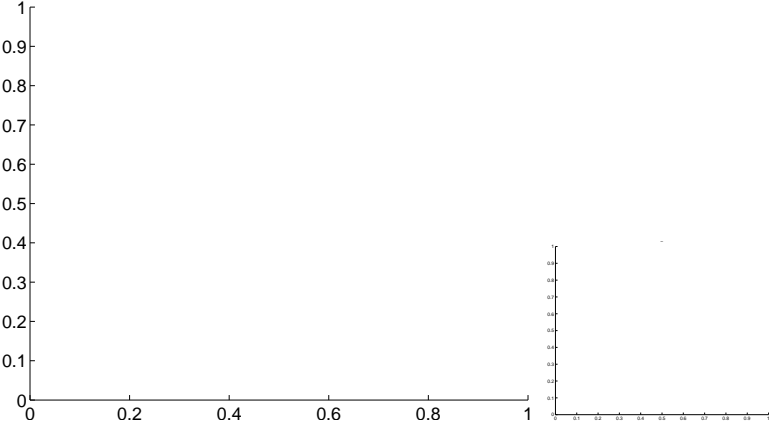
Q7 no OOT image



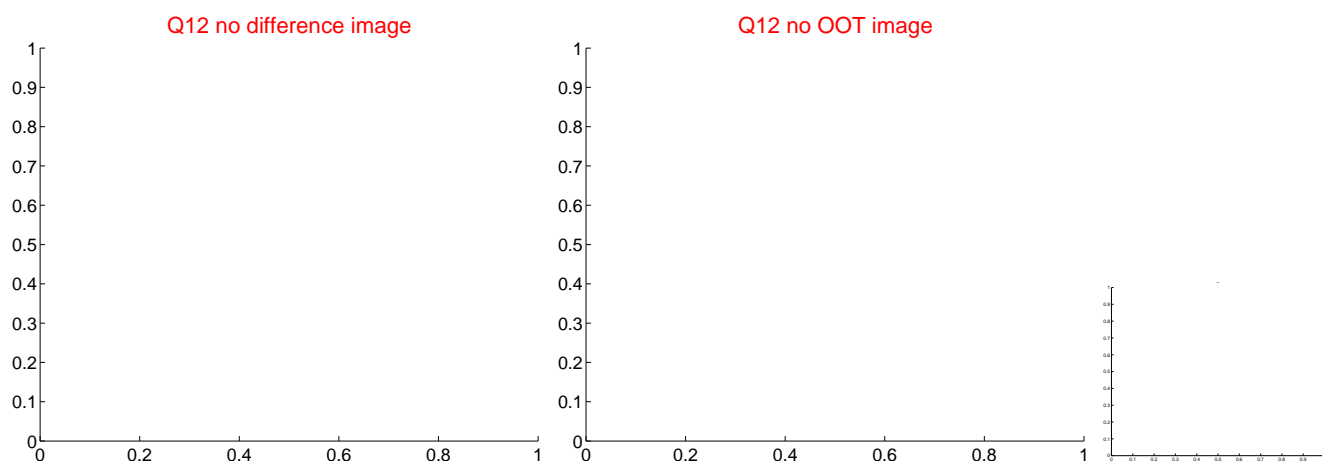
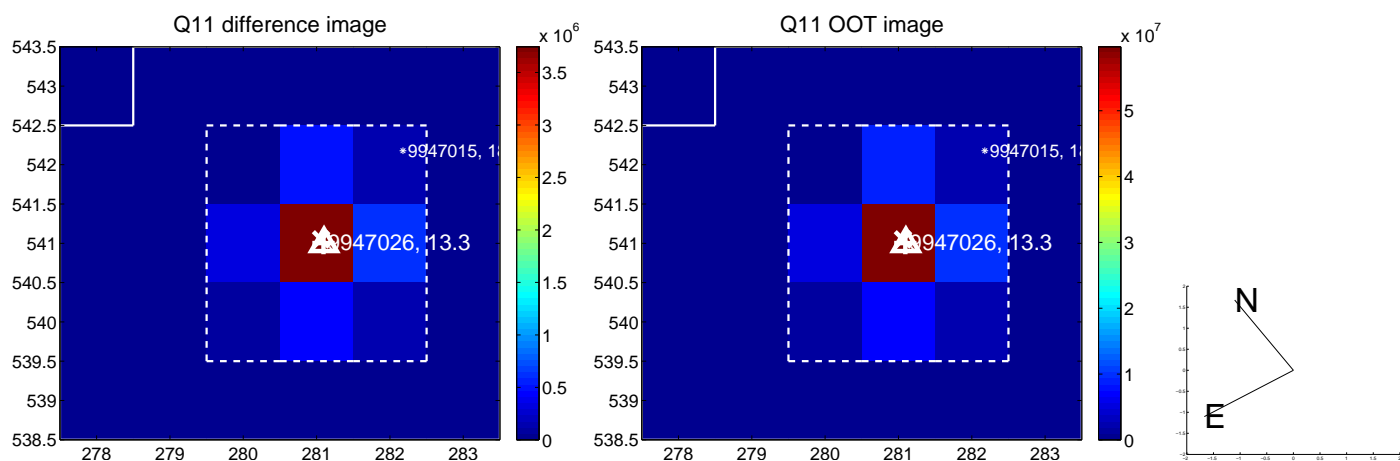
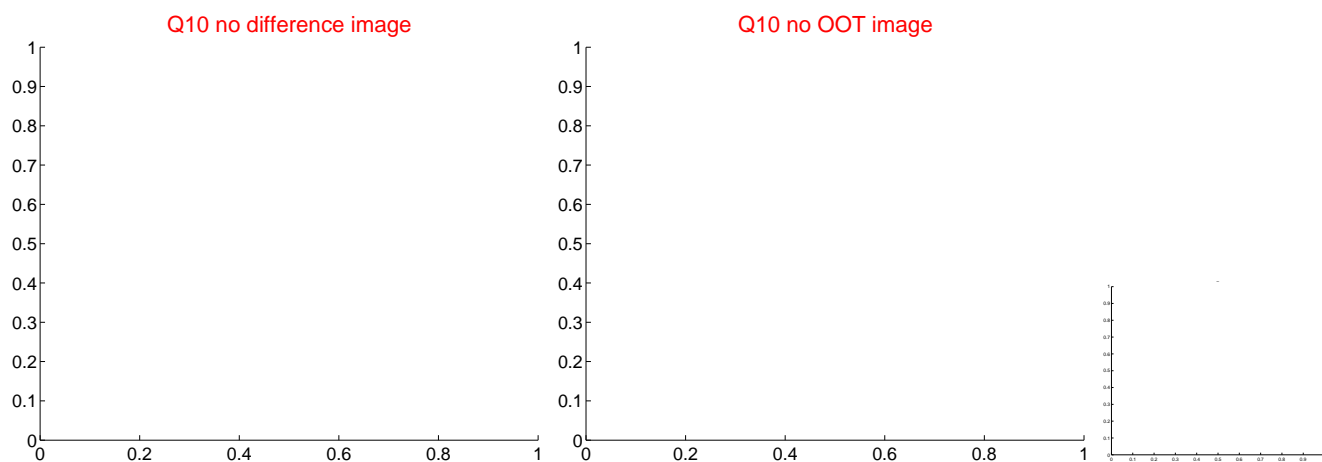
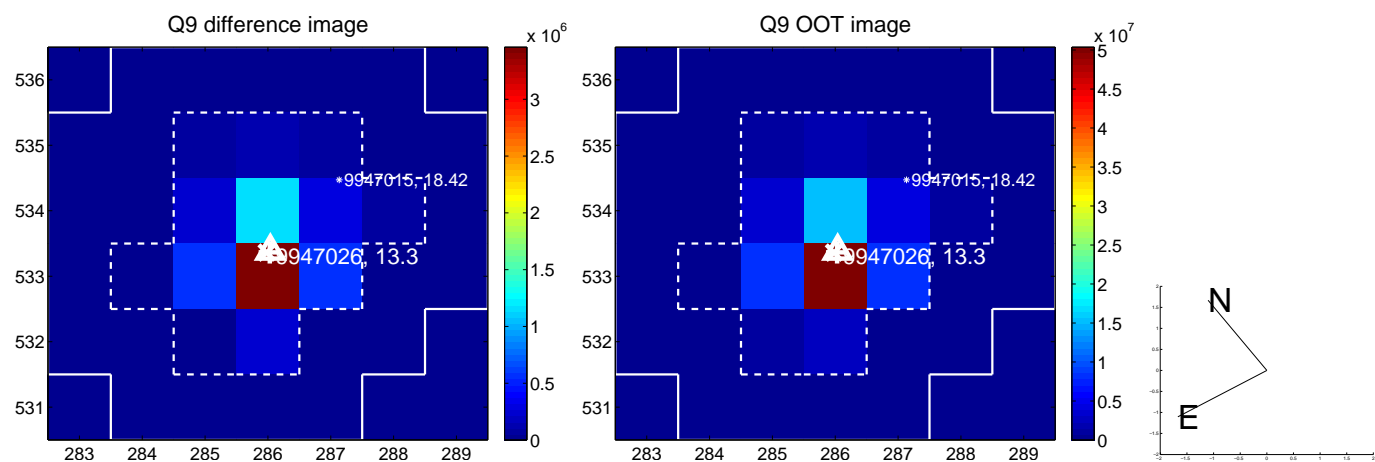
Q8 no difference image



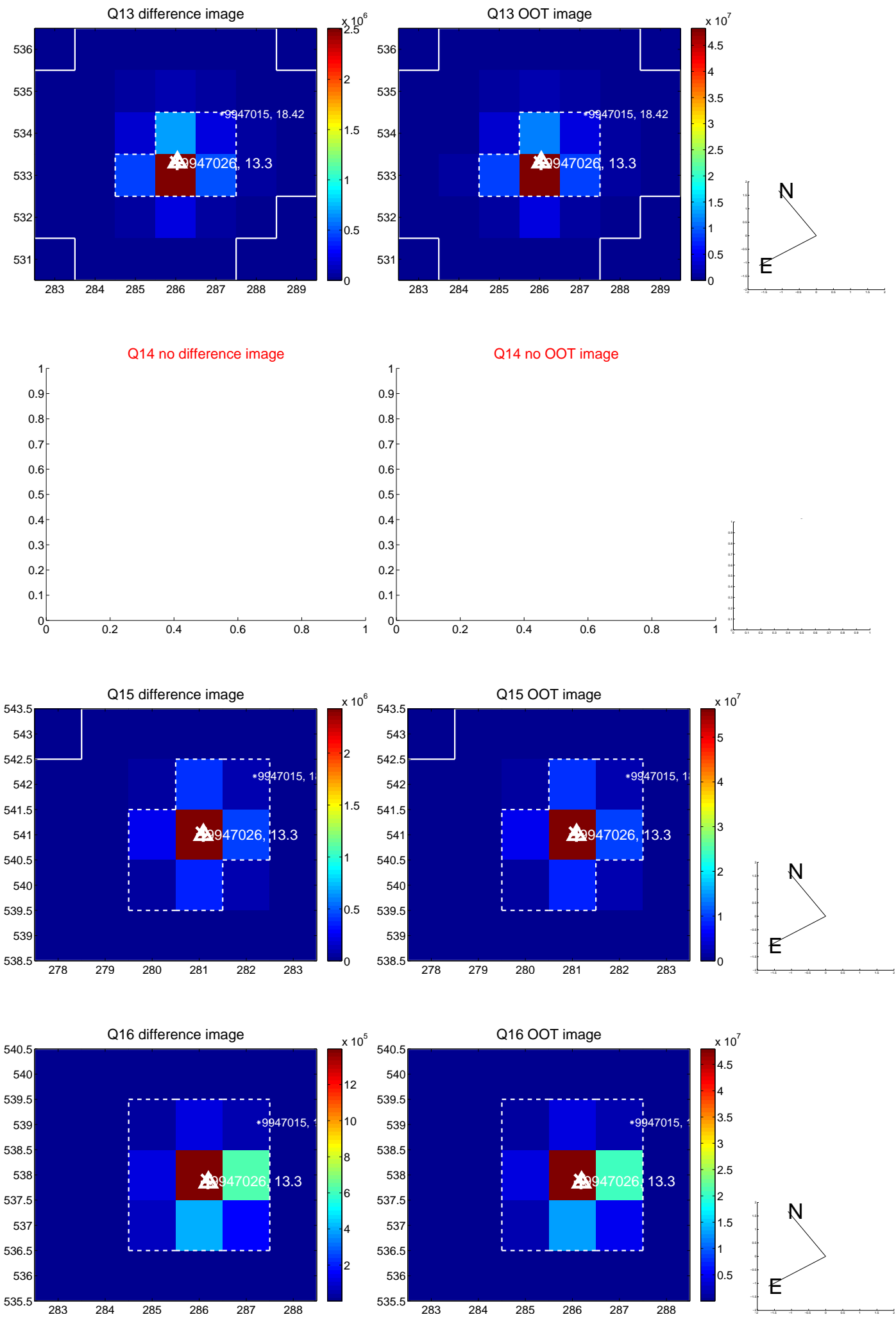
Q8 no OOT image



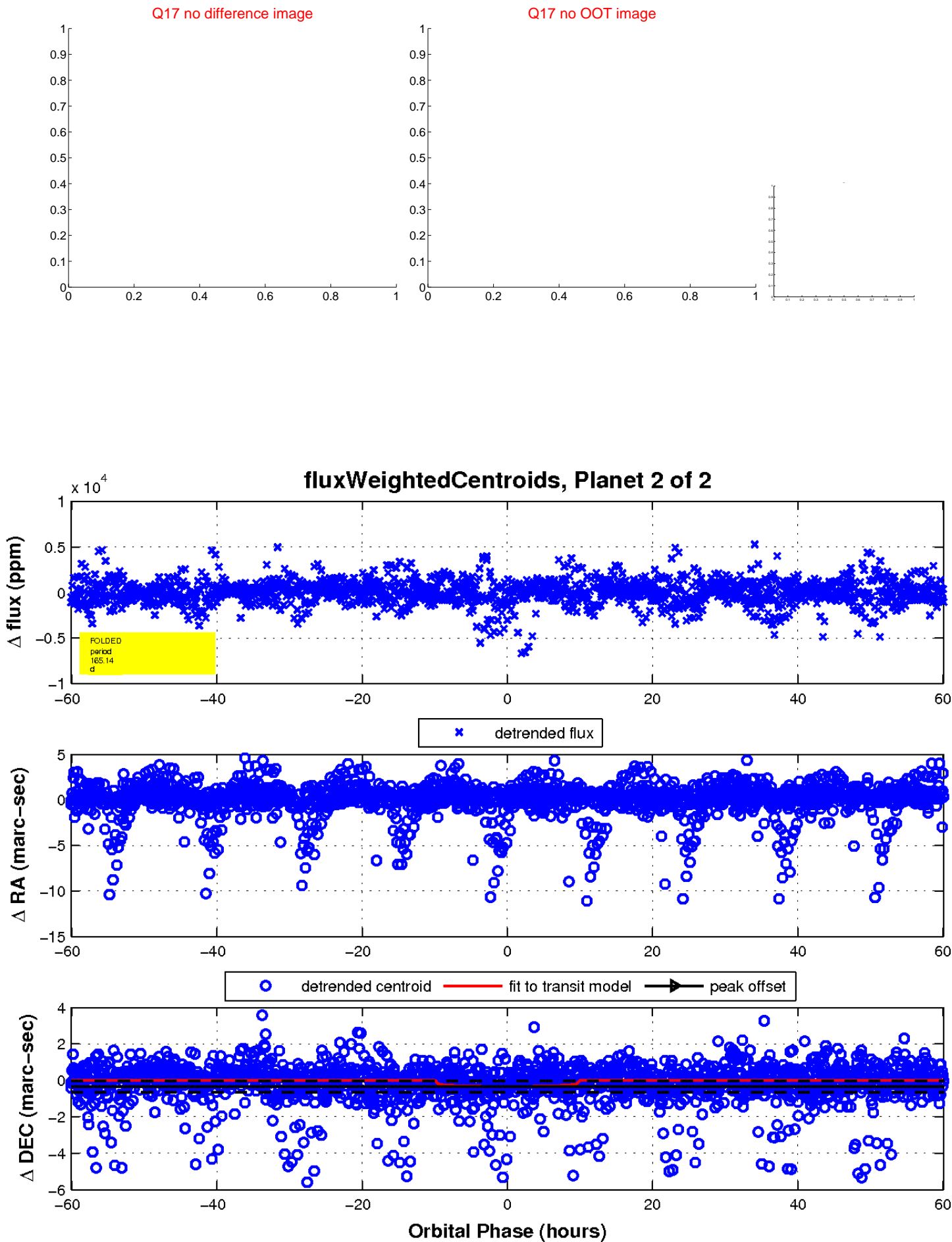
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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.



UKIRT Image

Declination

