

KIC 009429060

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})
009429060-01	OBS	No	0.529829	131.610994	121.8	1.500	9.1	-1.0	1.58	6709	1.77	22595.97
009429060-02	OBS	No	0.529835	131.932713	644.1	0.954	9.1	24.5	1.58	6709	4.12	22595.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009429060-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
009429060-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

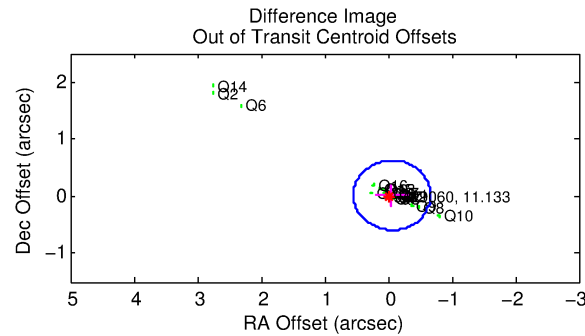
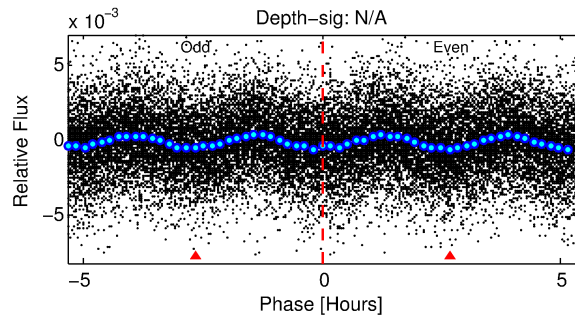
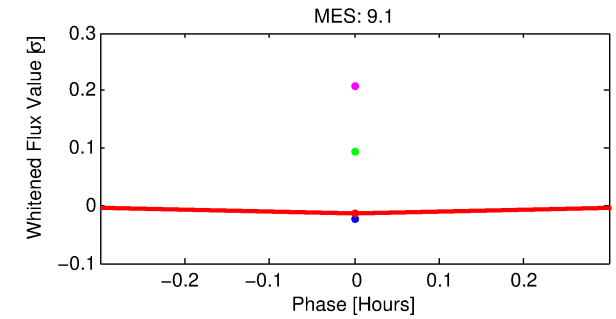
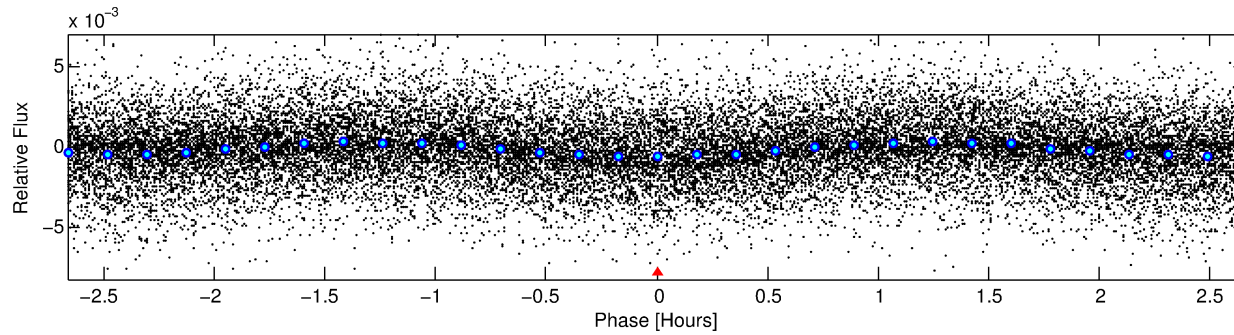
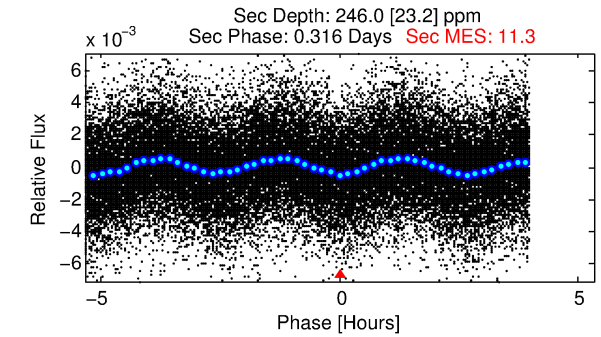
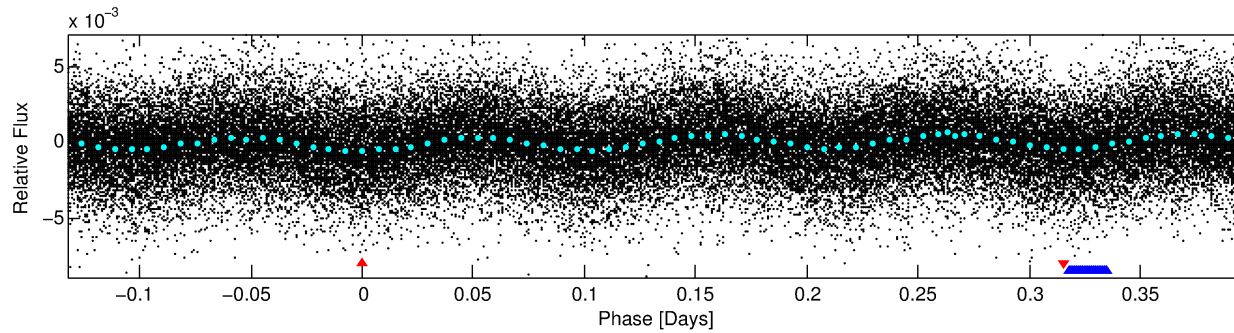
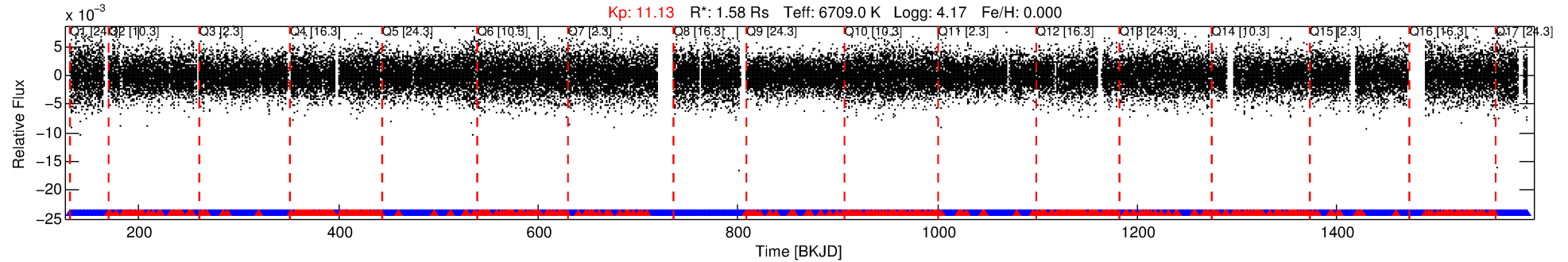
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009429060-01

No Significant Match Found

DV One-Page Summary

KIC: 9429060 Candidate: 1 of 2 Period: 0.530 d



TPS TCE Results:

Period = 0.52983 d
Epoch = 131.6110 BKJD

DV fit results are unavailable

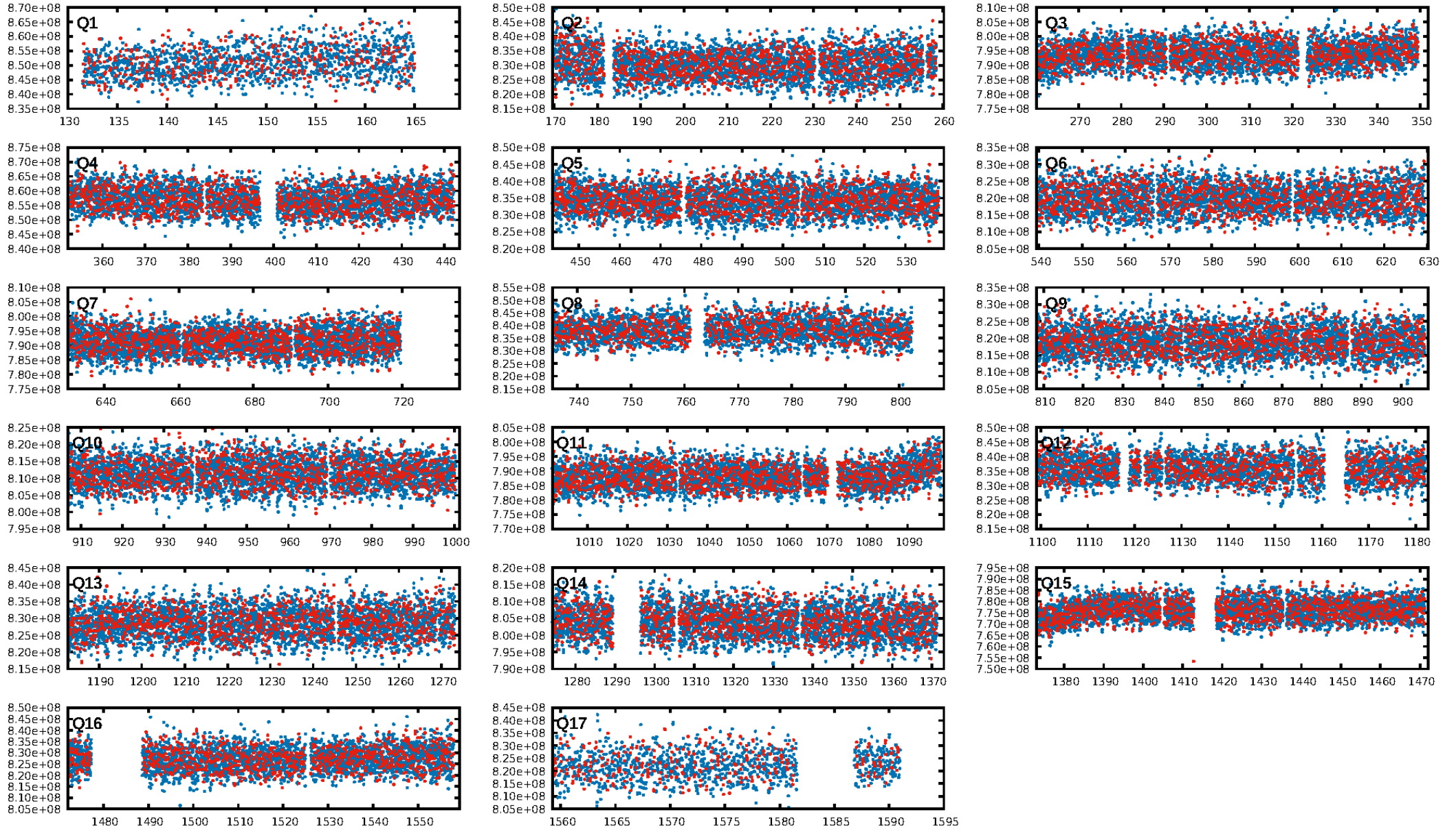
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.57e-12
RollingBand-fgt: 0.83 [2013/2414]
GhostDiagnostic-chr: 0.764
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.061 arcsec [0.30σ]
KicOffset-rm: 0.134 arcsec [0.69σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

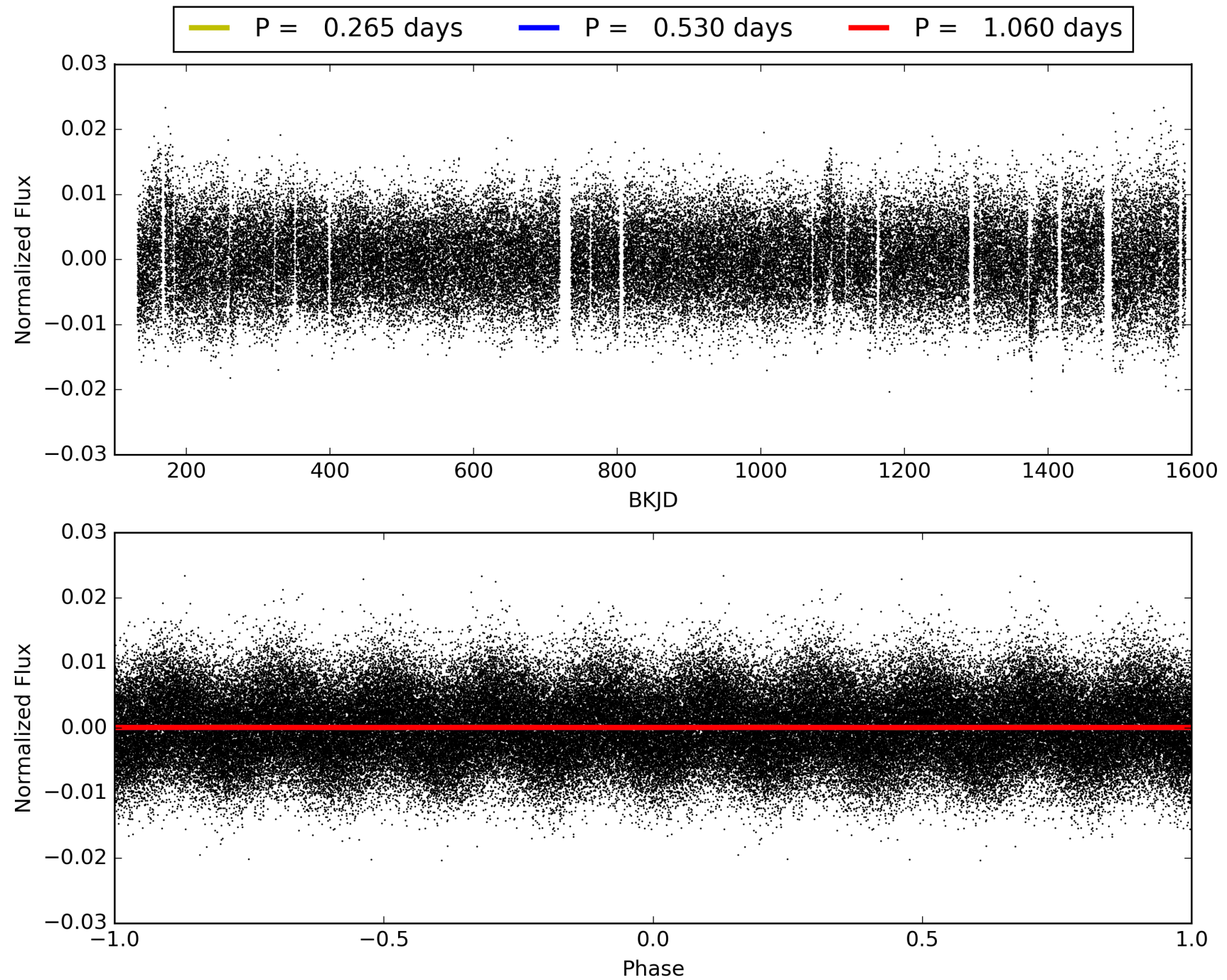
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:31:56 Z

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

TCE 009429060-01, PDC Light Curves

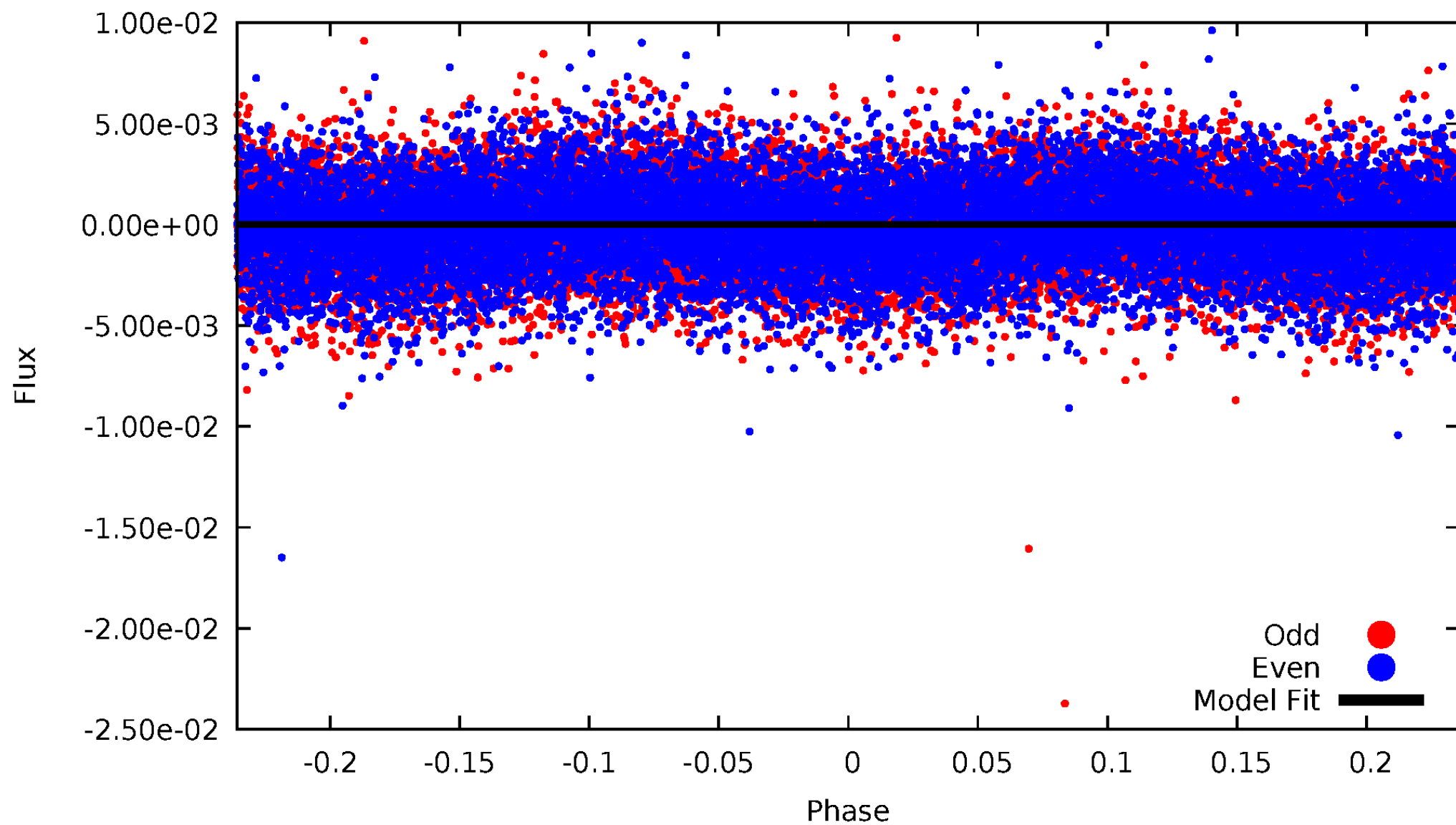


TCE 009429060-01



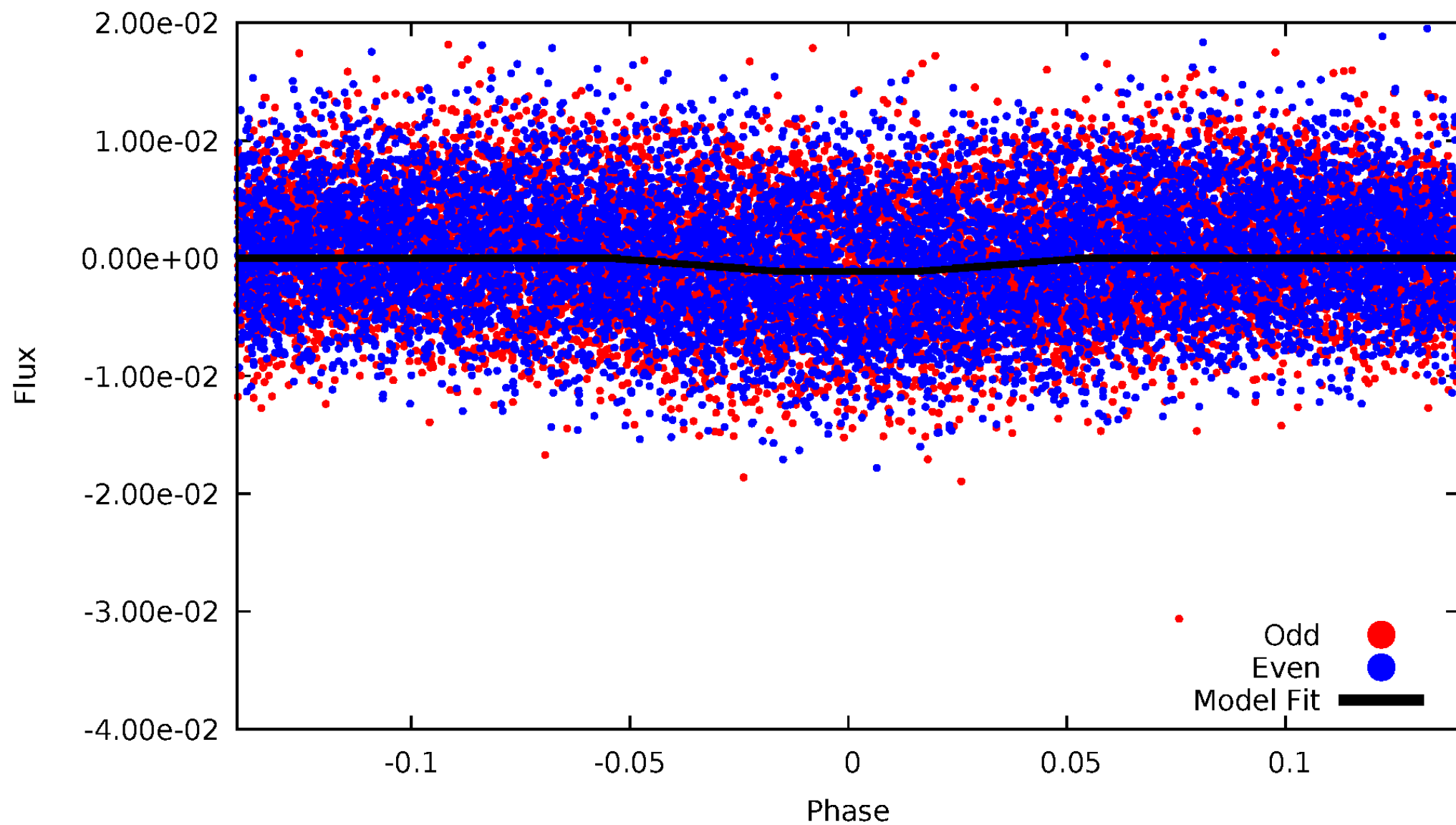
DV Odd/Even

TCE 009429060-01

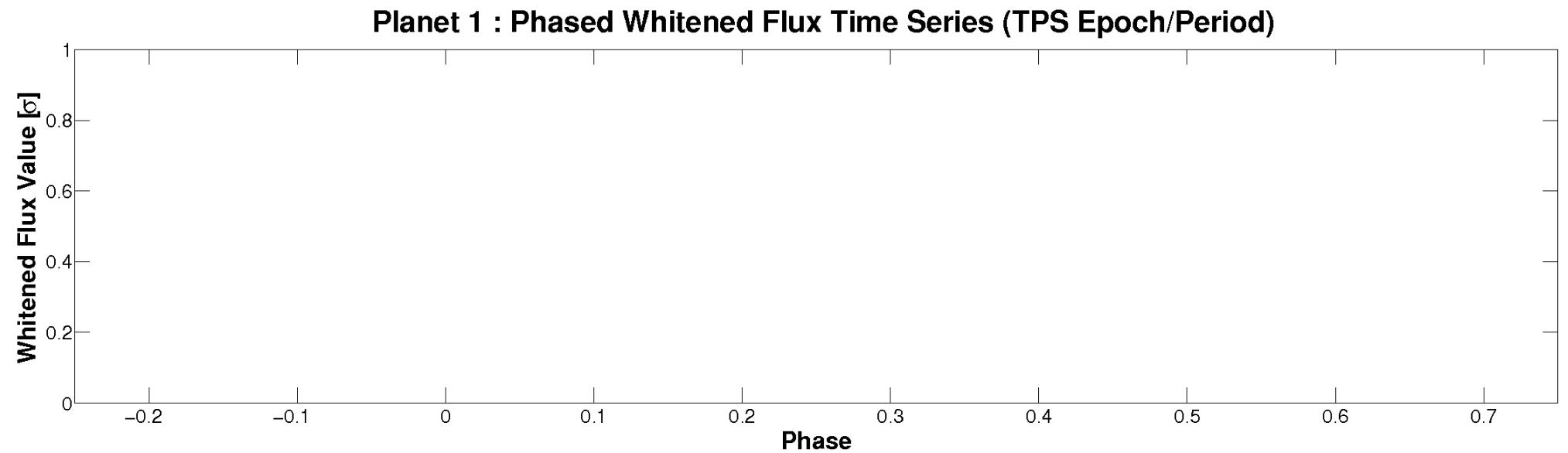
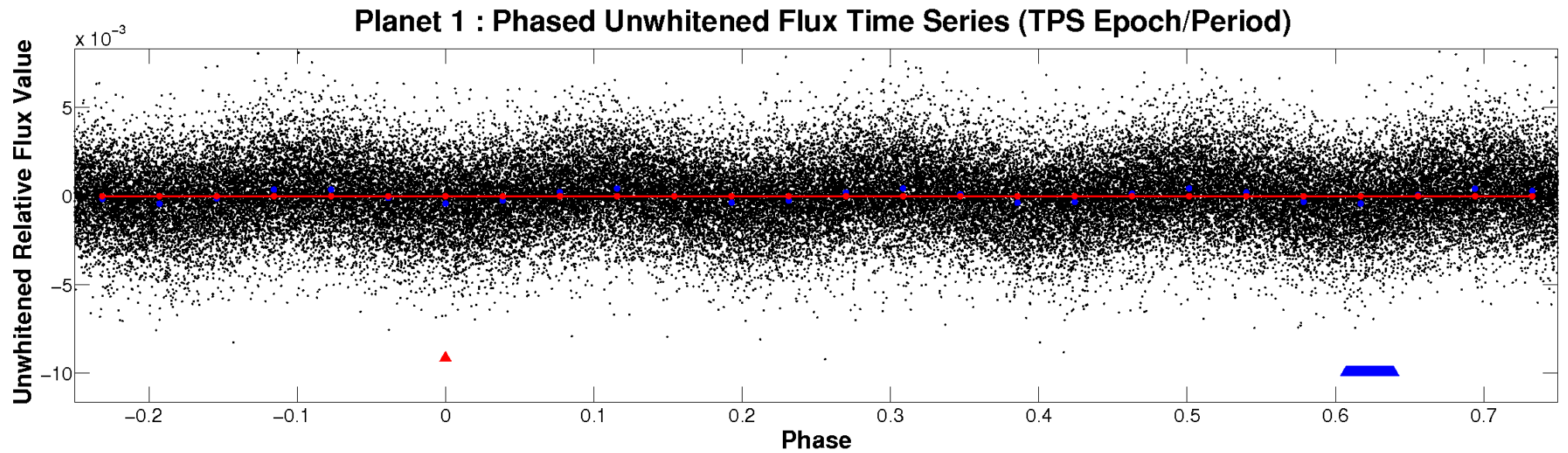


ALT Odd/Even

TCE 009429060-01

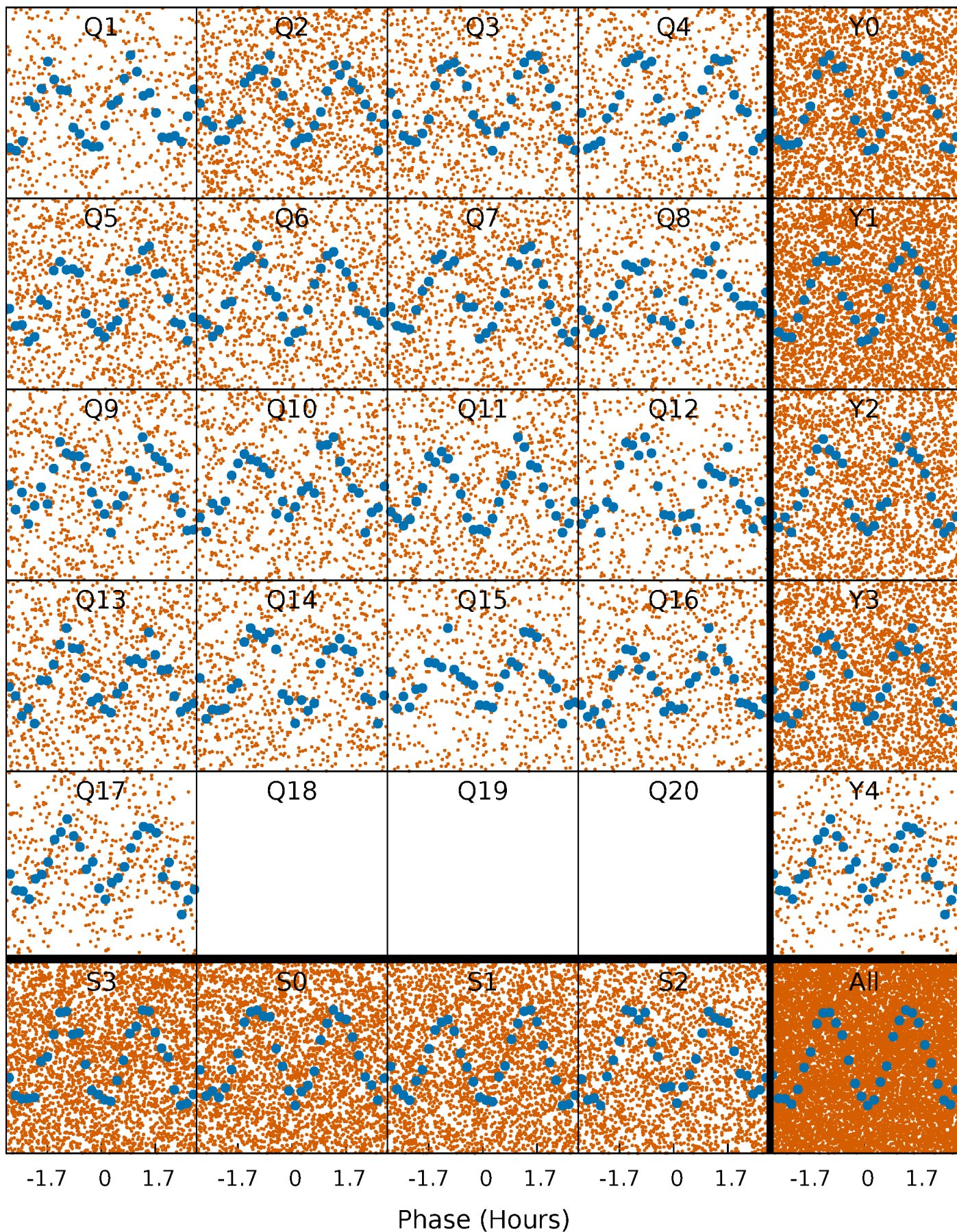


Non-Whitened Vs. Whitened Light Curve



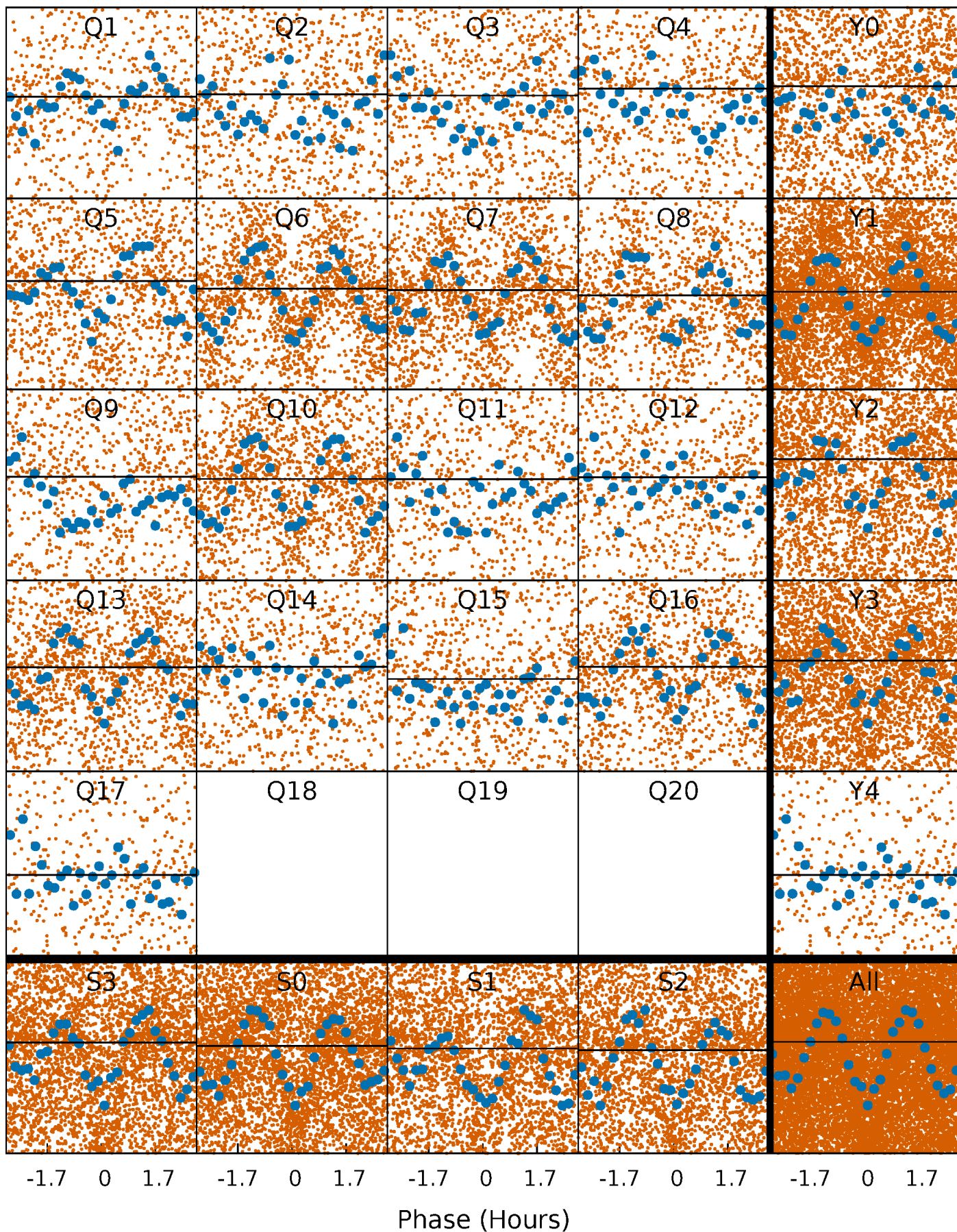
PDC Quarter-Phased Transit Curves

TCE 009429060-01 P= 0.529829 Days $T_0=131.610994$ (BKJD)



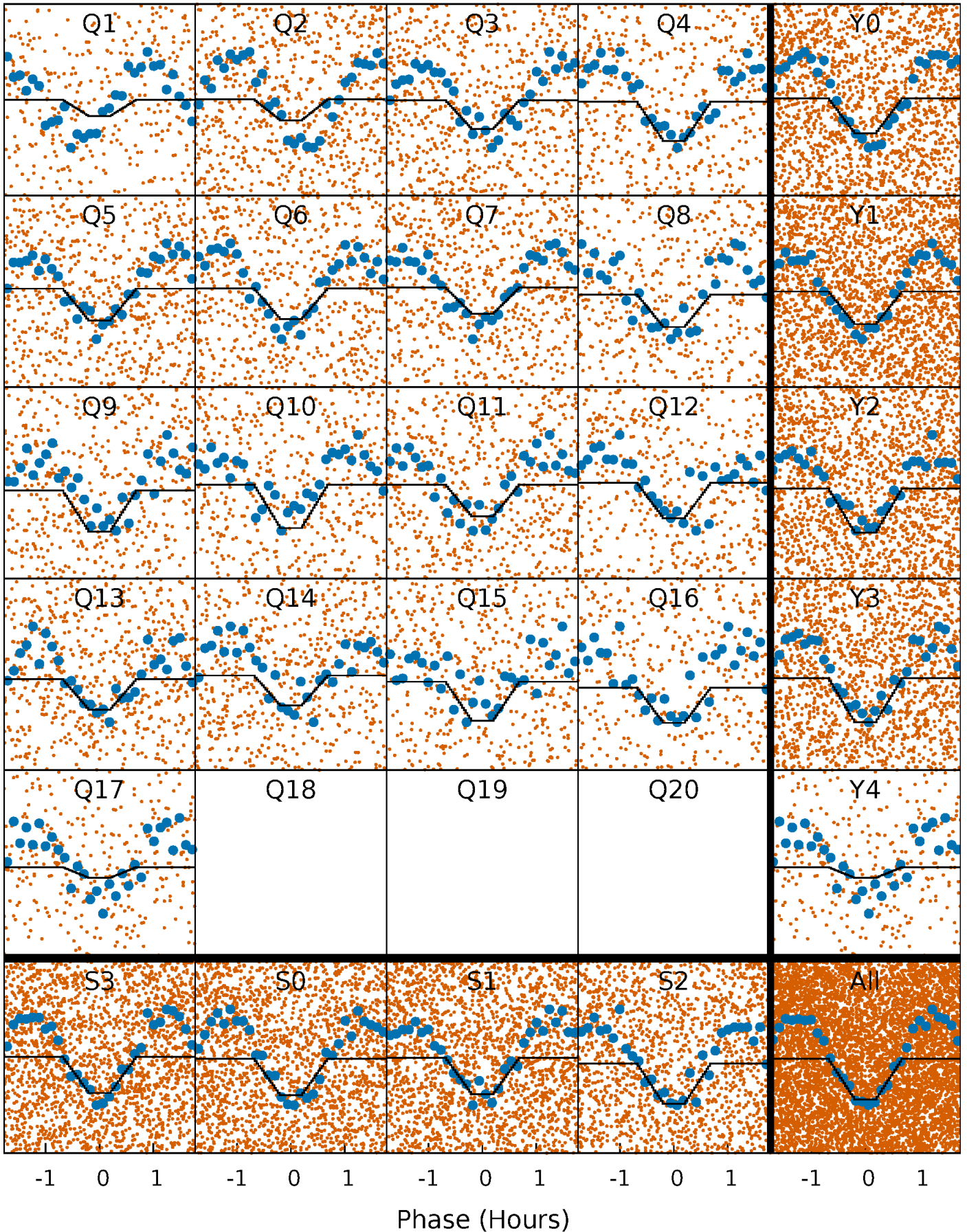
DV Quarter-Phased Transit Curves

TCE 009429060-01 P= 0.529829 Days $T_0=131.610994$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

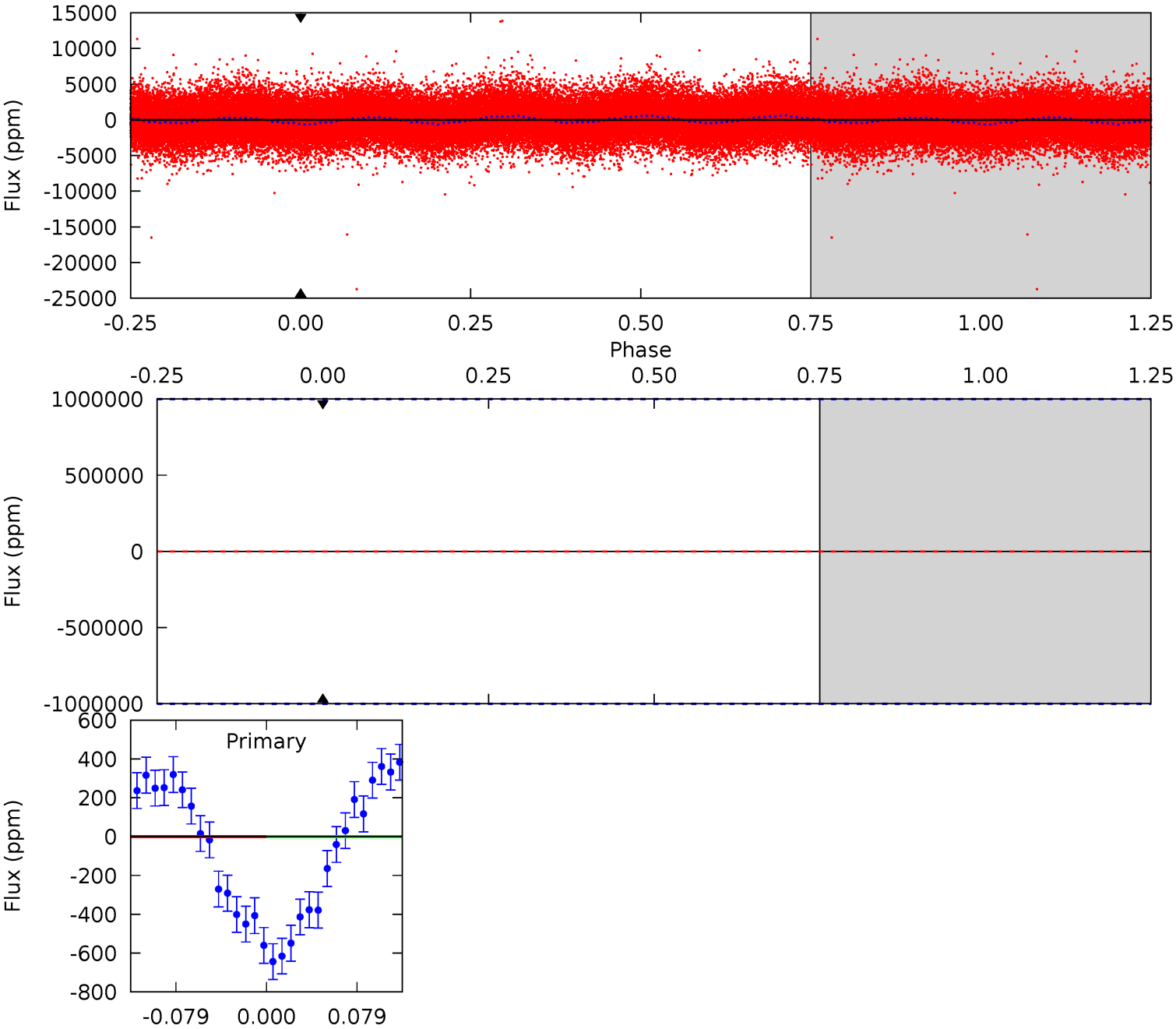
TCE 009429060-01 P= 0.529829 Days $T_0=131.615192$ (BKJD)



DV Model-Shift Uniqueness Test

009429060-01, P = 0.529829 Days, E = 131.081165 Days

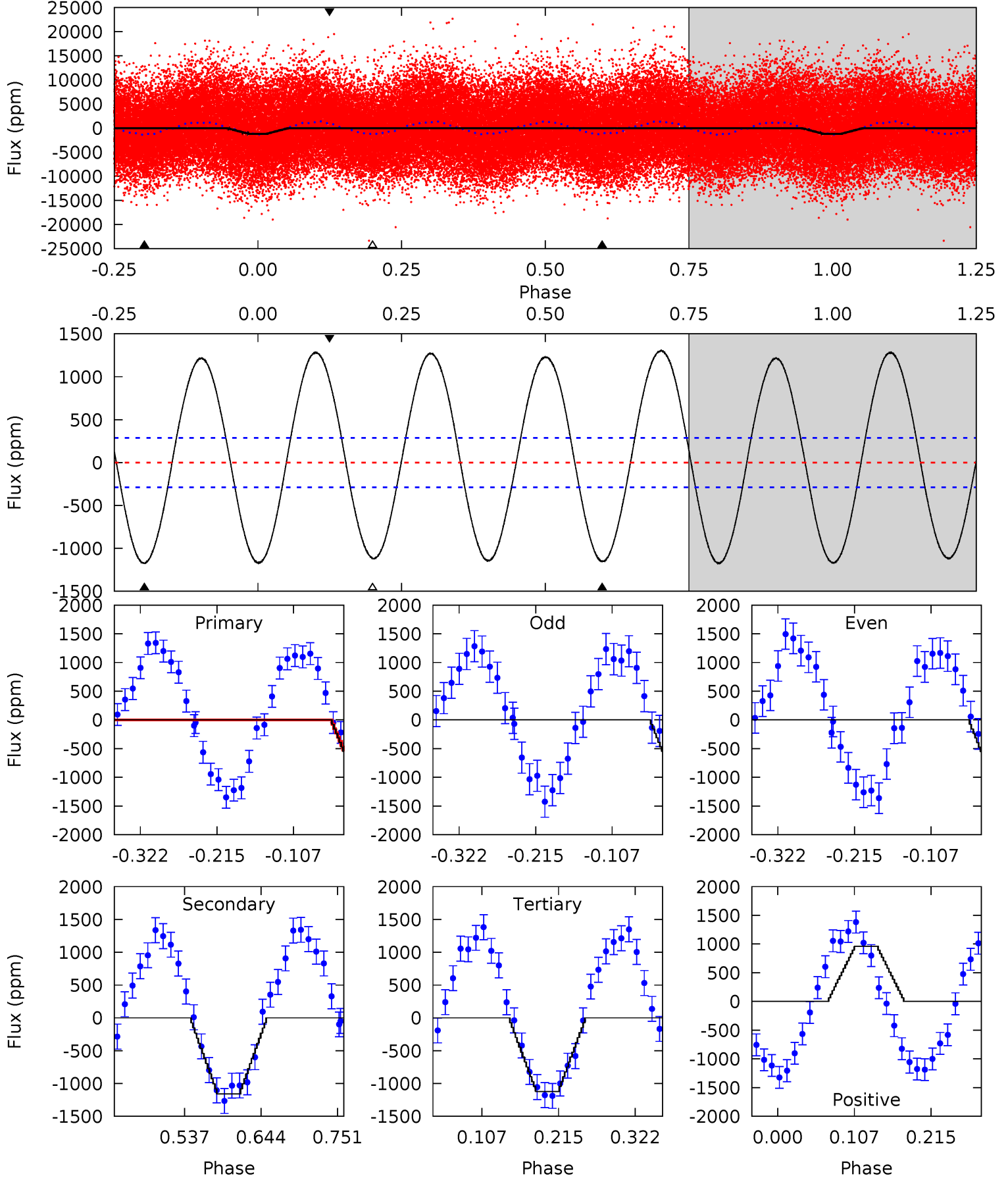
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009429060-01, P = 0.529829 Days, E = 131.085363 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	18.3	17.7	15.2	4.55	1.61	13.2	0.90	3.45	0.62	3.17	0.11	0.88	0.53	0.83



Stellar Parameters For KIC 009429060

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6709^{+150}_{-218}	$4.172^{+0.132}_{-0.198}$	$0.000^{+0.250}_{-0.350}$	$1.585^{+0.494}_{-0.329}$	$1.363^{+0.192}_{-0.214}$	$0.483^{+0.328}_{-0.249}$
	+2%/-3%	+3%/-5%	+inf%/-inf%	+31%/-21%	+14%/-16%	+68%/-52%
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 009429060-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$13.07^{+13.26}_{-9.04}$	4403^{+322}_{-280}	4940^{+26643}_{-33628}	$1.490^{+120.611}_{-102.467}$
Alt.	-1160 ± 63	$14.44^{+14.07}_{-9.81}$	4414^{+336}_{-294}	3975^{+3718}_{-7489}	$0.609^{+5.338}_{-0.453}$

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

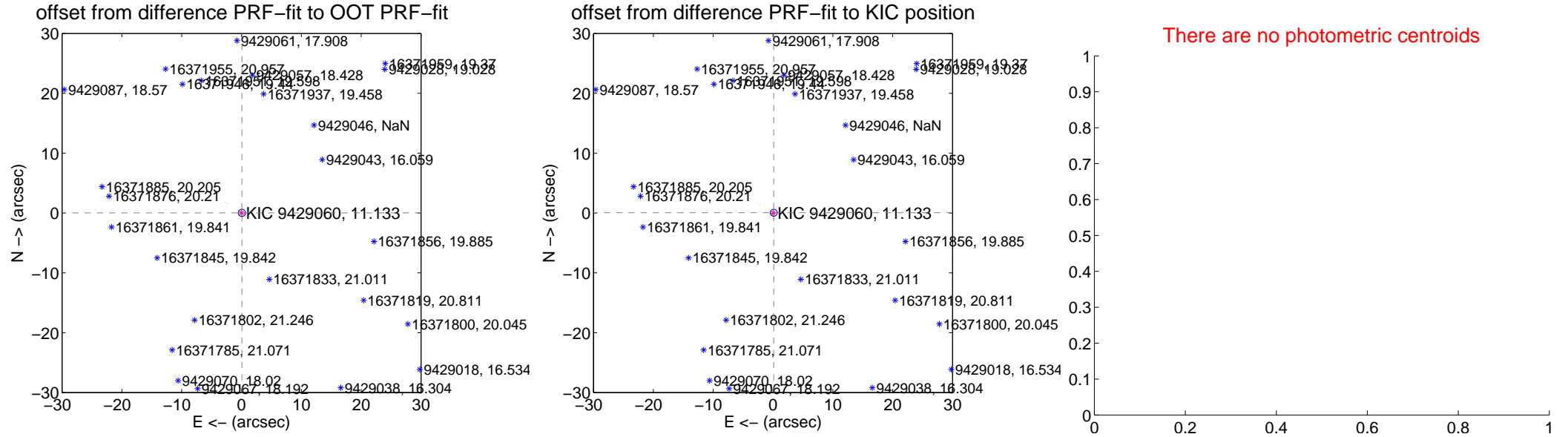
DV Centroid Data

Supplemental centroid analysis for 009429060-01. **Kepler magnitude: 11.13.** Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

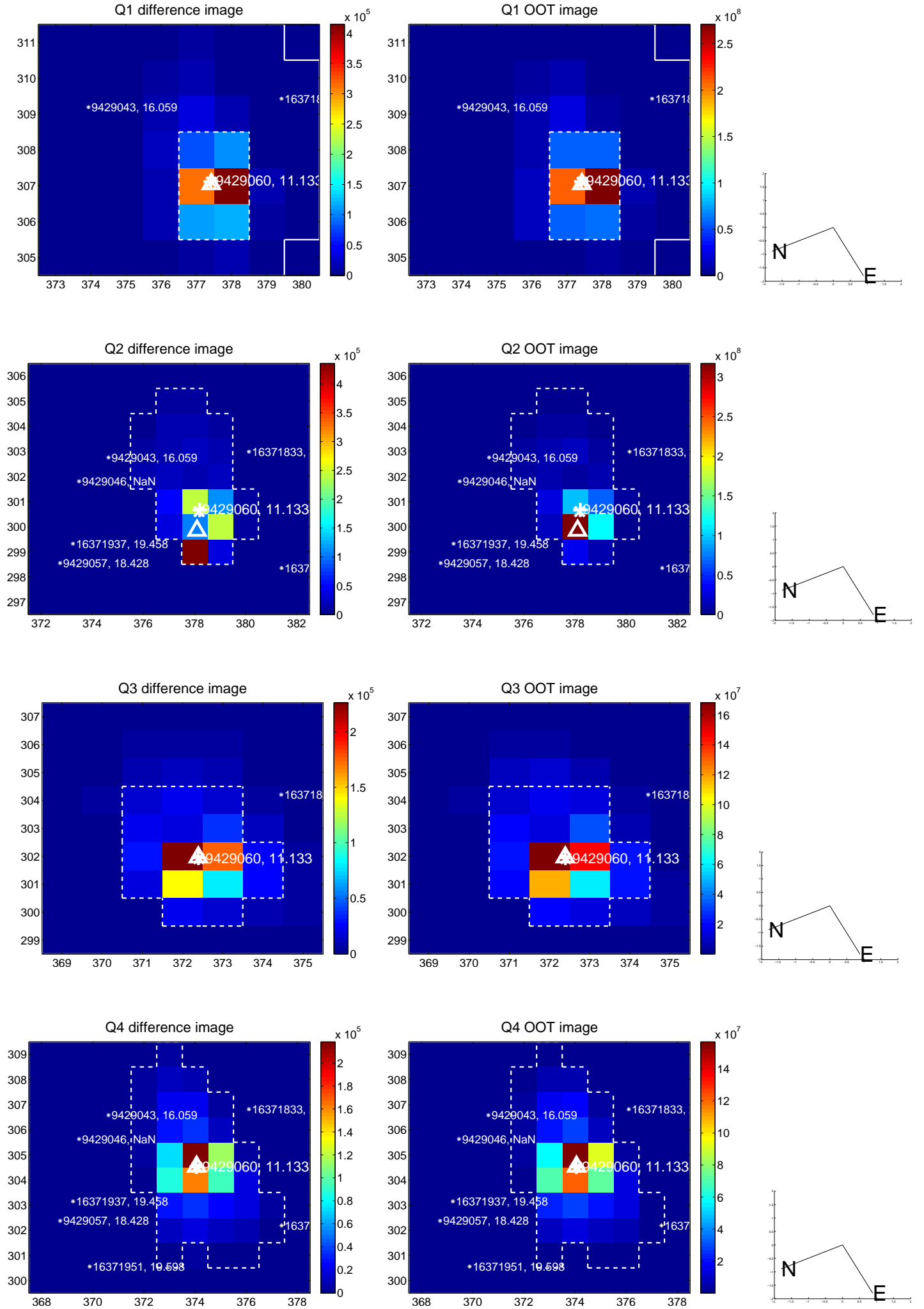
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.061 ± 0.203	0.30	-0.058 ± 0.264	0.019 ± 0.179
PRF-fit source offset from KIC position	0.134 ± 0.195	0.69	-0.127 ± 0.254	0.044 ± 0.162
photometric centroid source offset	—	—	—	—

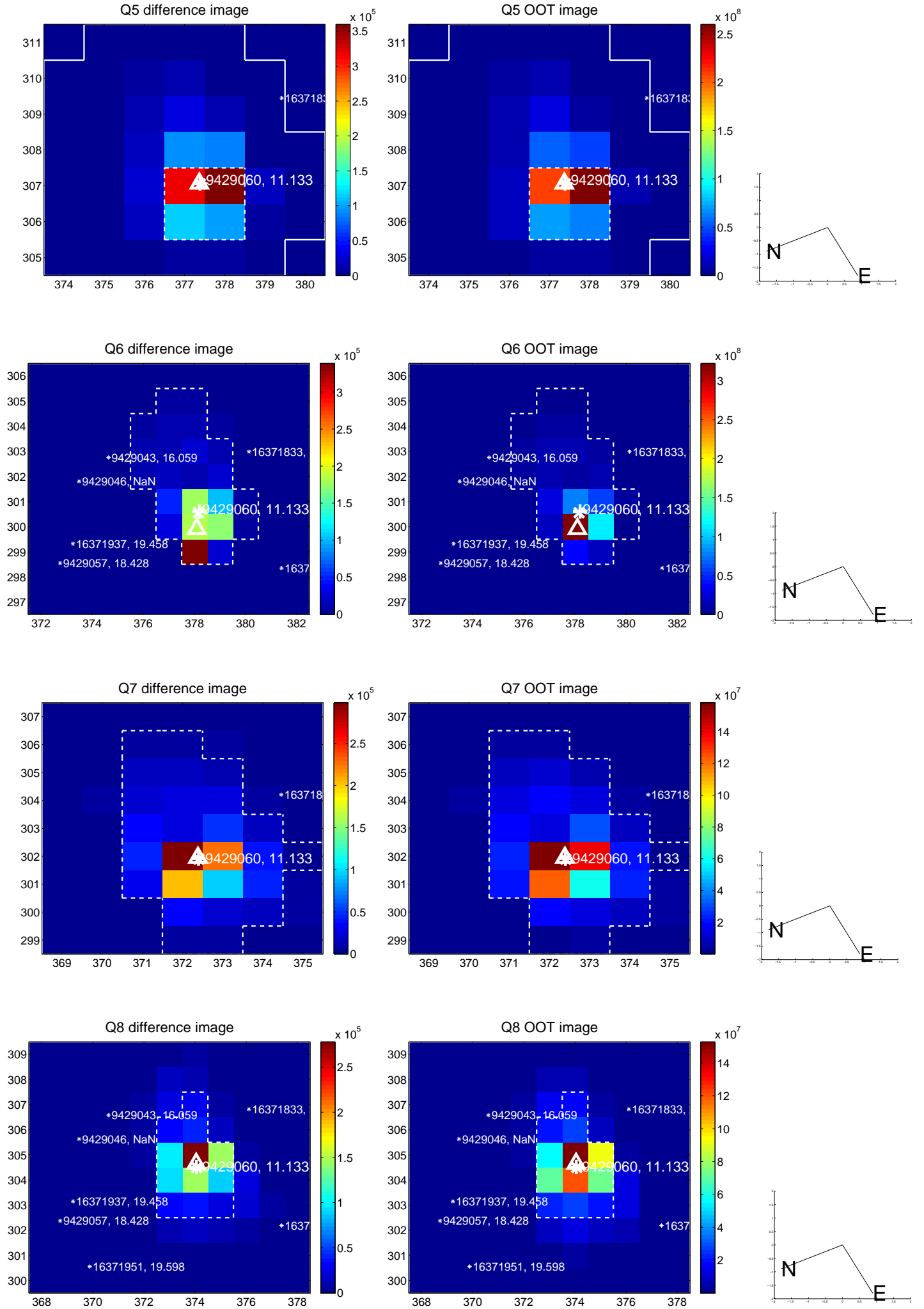


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

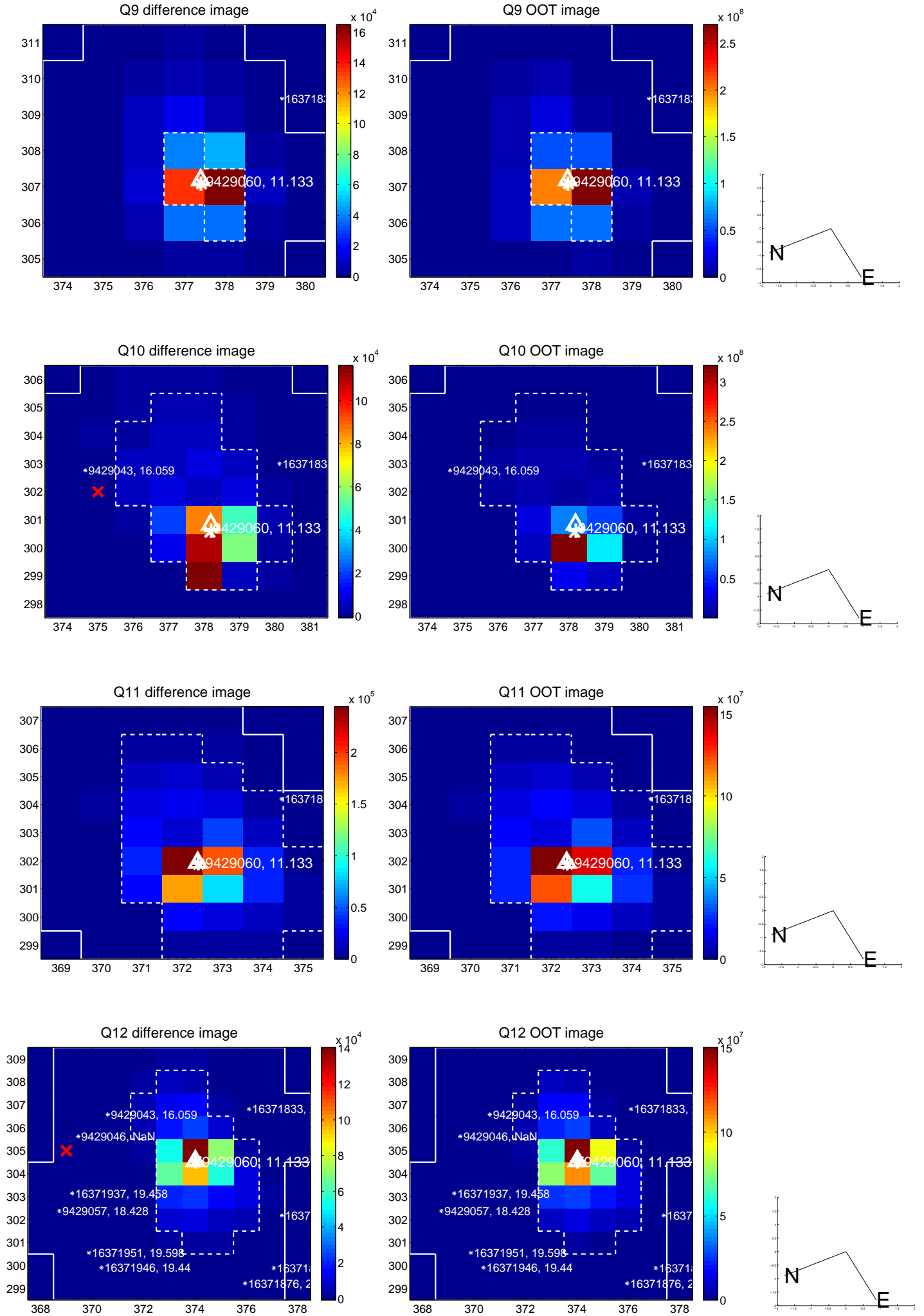
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



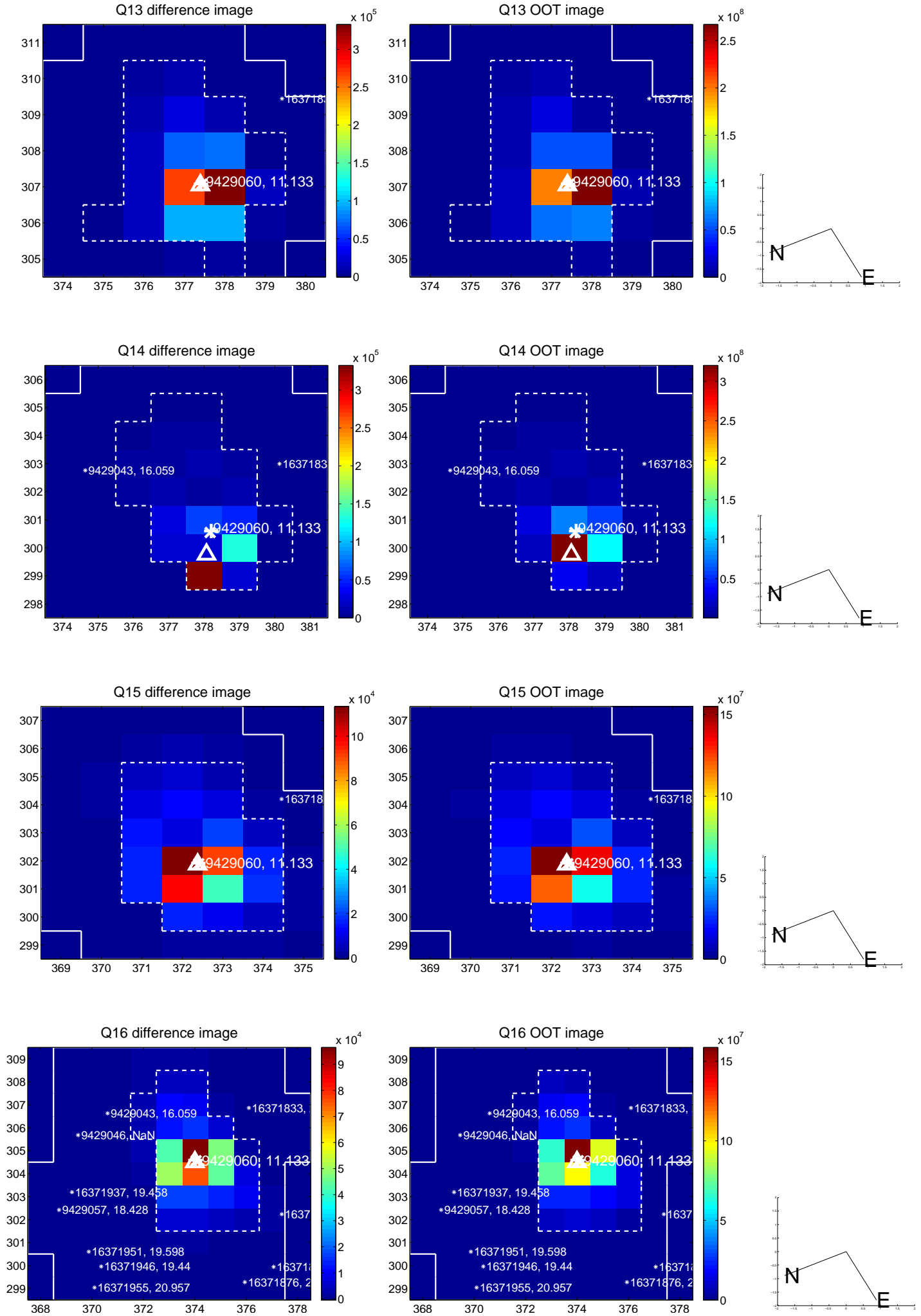
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



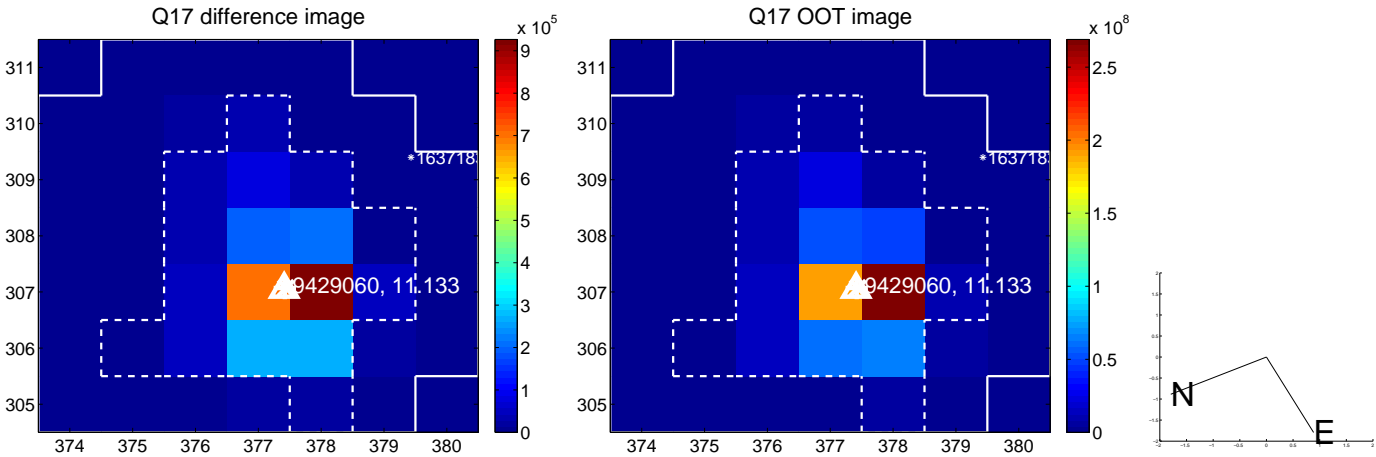
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



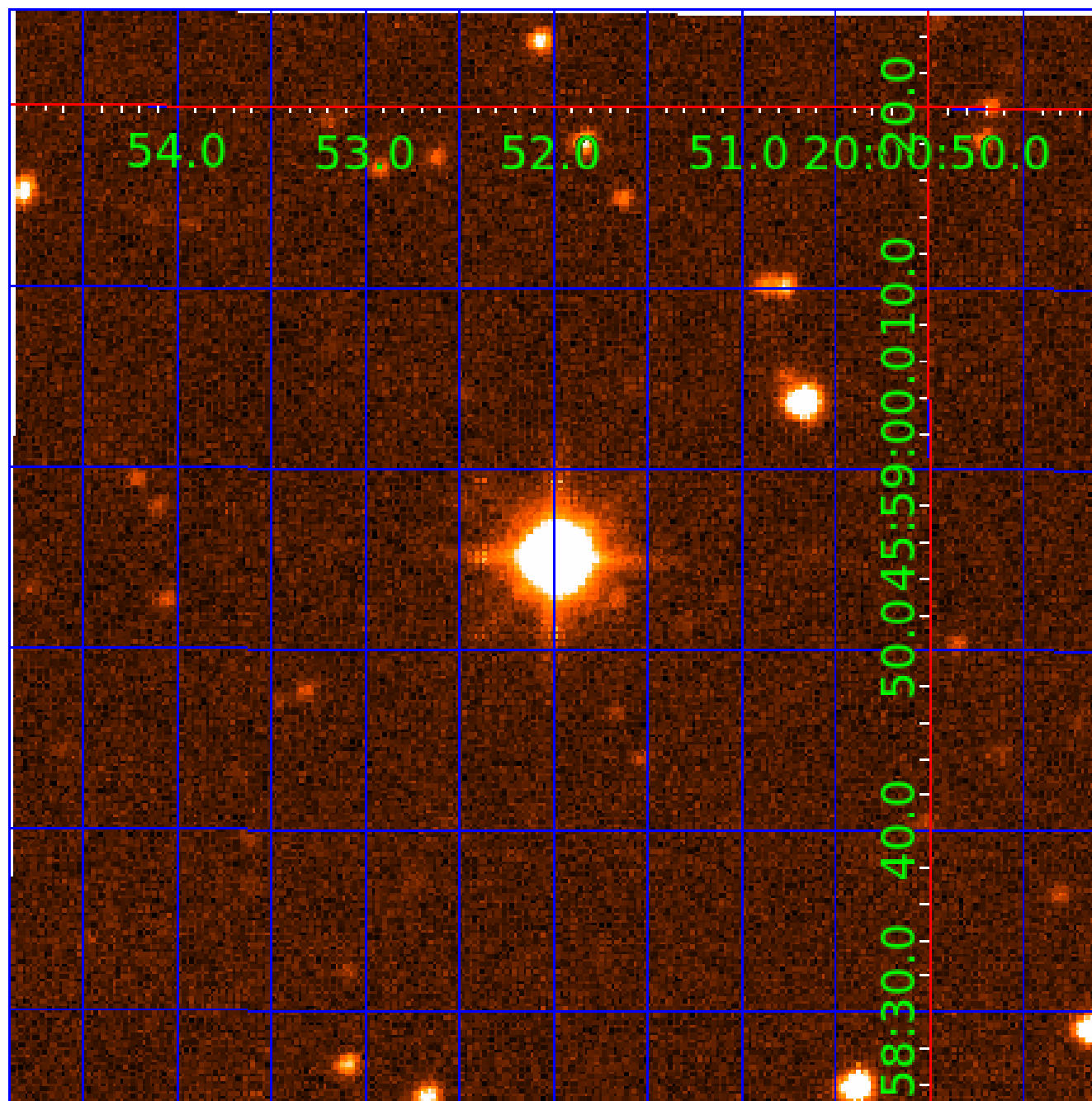
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009429060

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})
009429060-01	OBS	No	0.529829	131.610994	121.8	1.500	9.1	-1.0	1.58	6709	1.77	22595.97
009429060-02	OBS	No	0.529835	131.932713	644.1	0.954	9.1	24.5	1.58	6709	4.12	22595.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009429060-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
009429060-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

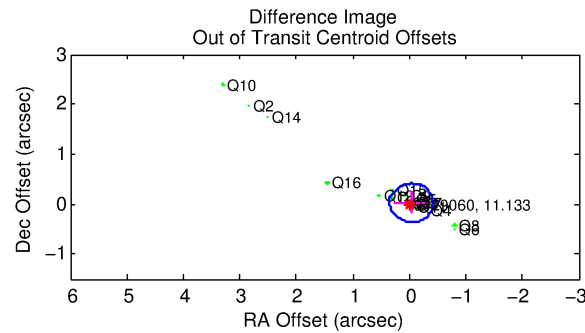
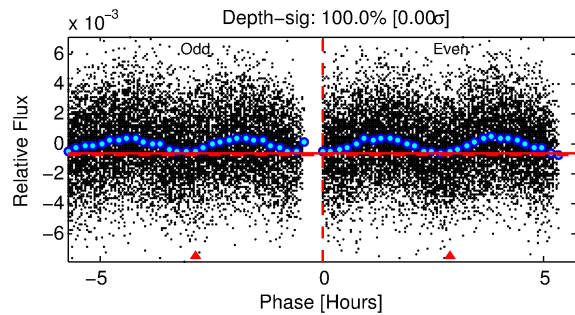
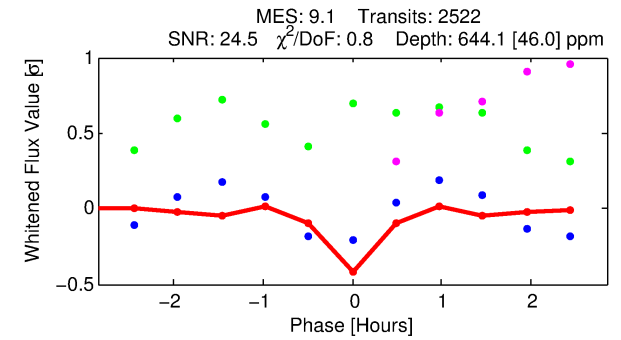
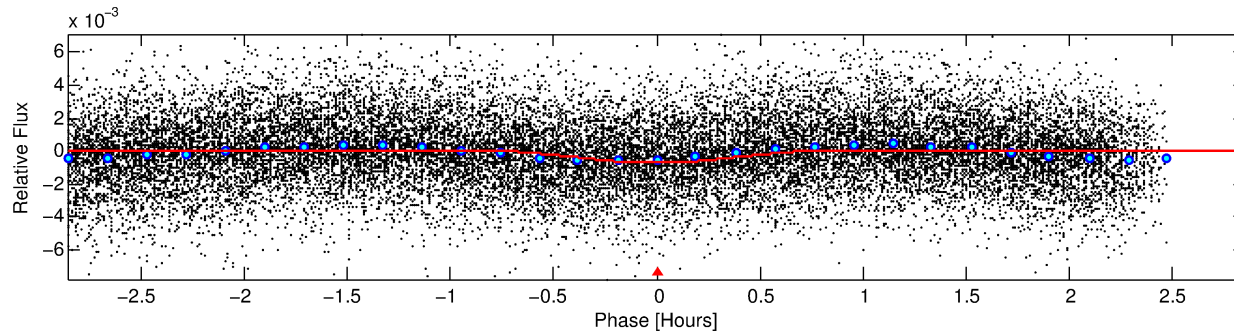
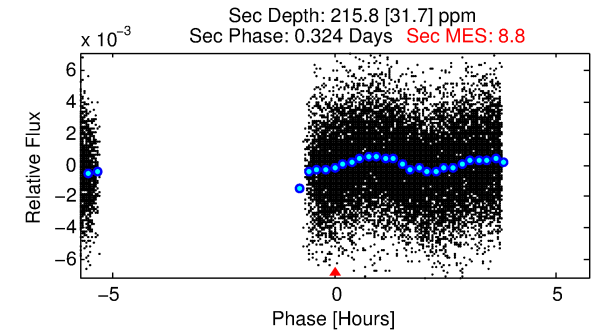
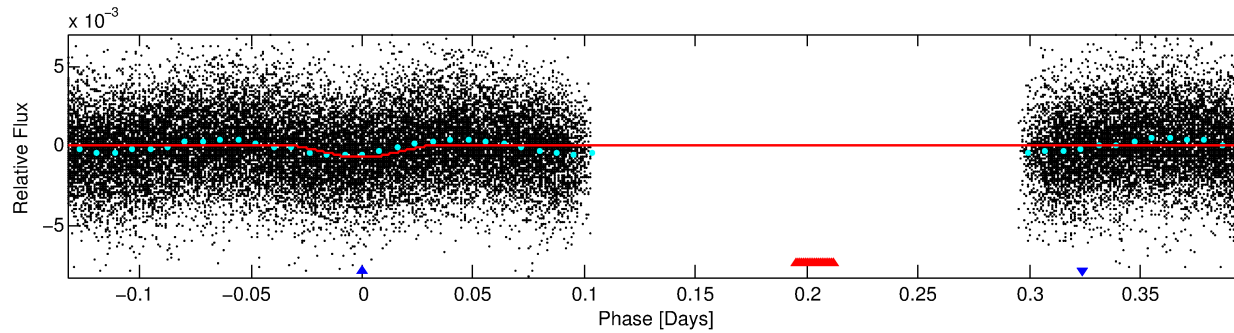
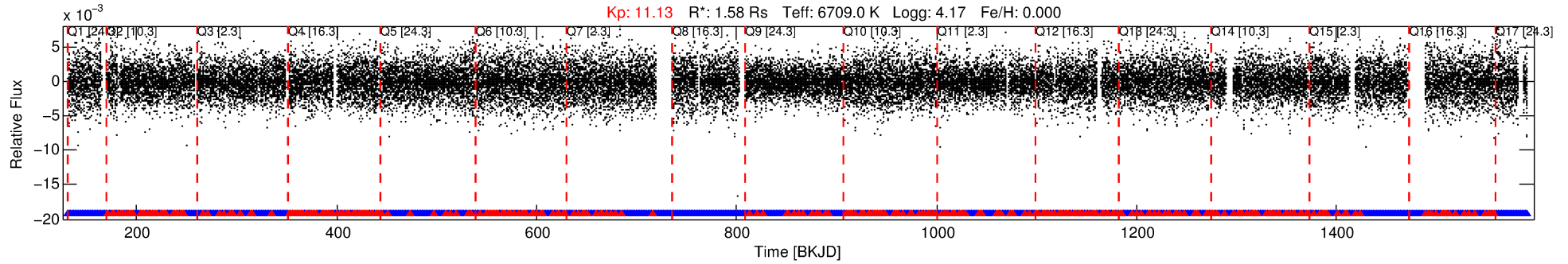
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009429060-02

No Significant Match Found

DV One-Page Summary

KIC: 9429060 Candidate: 2 of 2 Period: 0.530 d



DV Fit Results:

Period = 0.52983 [0.00001] d
Epoch = 131.9327 [0.0005] BKJD
Rp/R* = 0.0238 [0.0056]
a/R* = 4.20 [4.99]
b = 0.30 [3.84]
Seff = 22595.62 [8822.33]
Teff = 3126 [305] K
Rp = 4.12 [1.61] Re
a = 0.0142 [0.0037] AU
Ag = 1.41 [0.87] [0.47σ]
Teffp = 5267 [673] K [2.90σ]

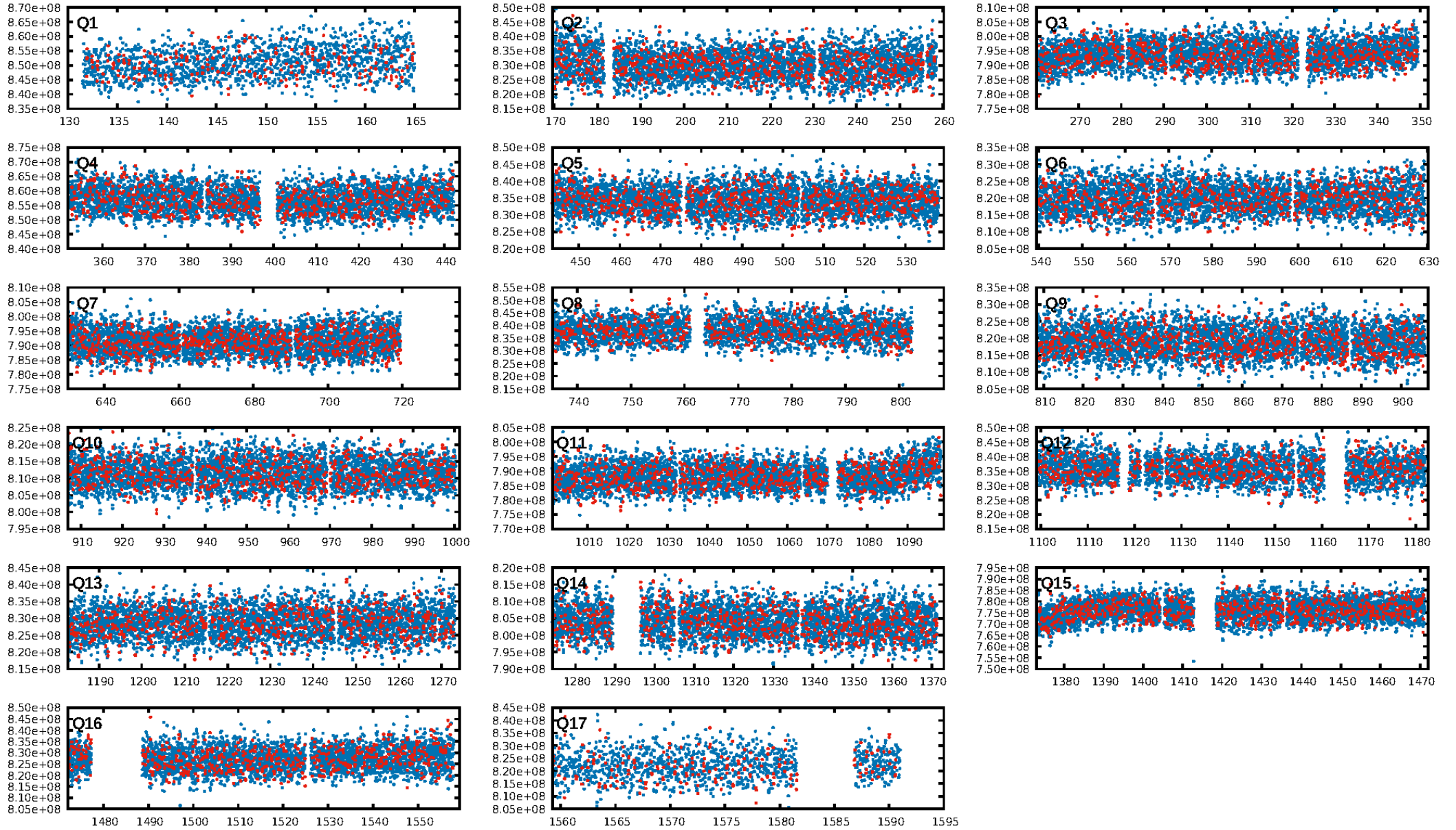
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.10e-12
RollingBand-fgt: 0.82 [1982/2409]
GhostDiagnostic-chr: 0.4089
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.042 arcsec [0.32σ]
KicOffset-rm: 0.114 arcsec [0.64σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

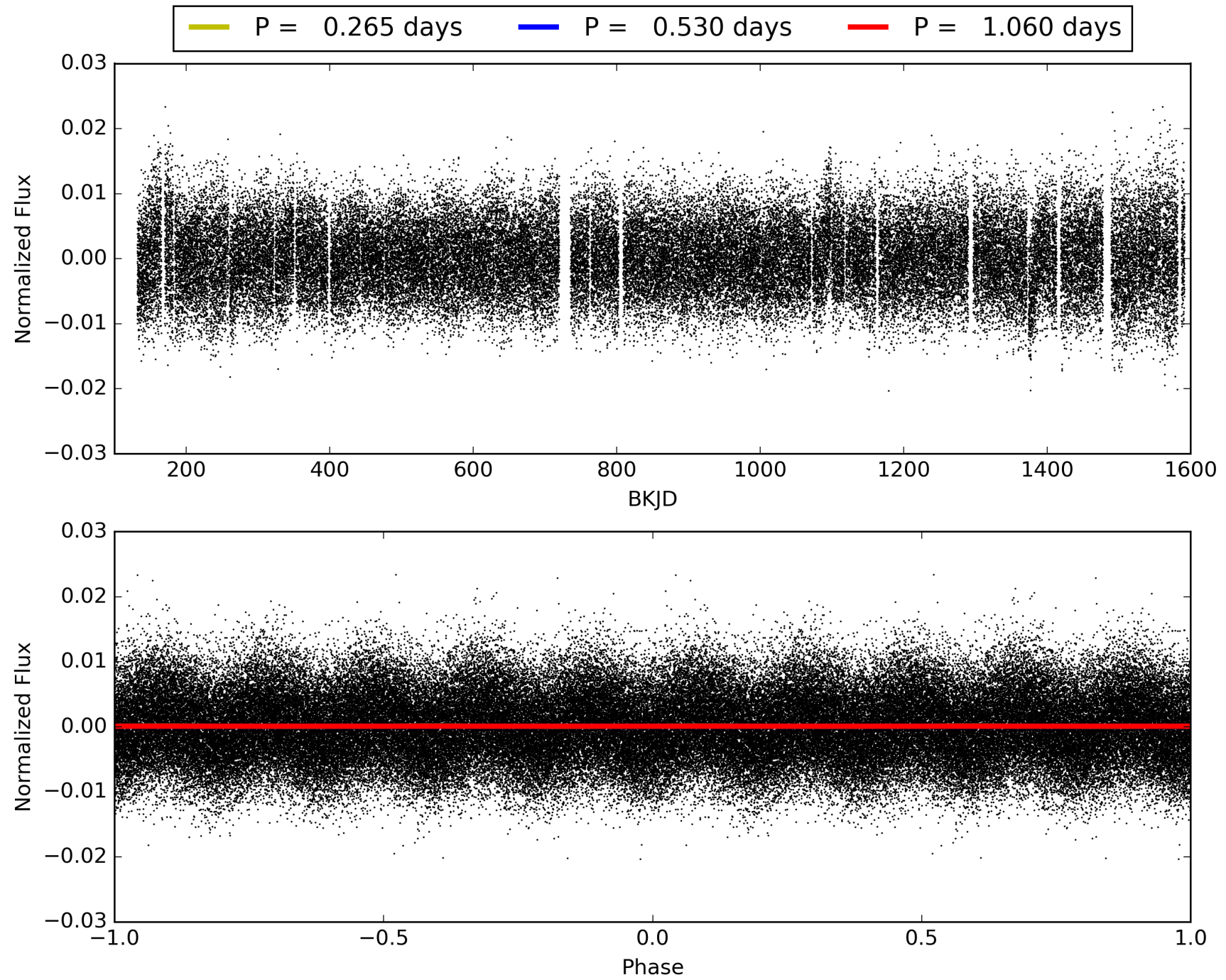
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:32:06 Z

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

TCE 009429060-02, PDC Light Curves

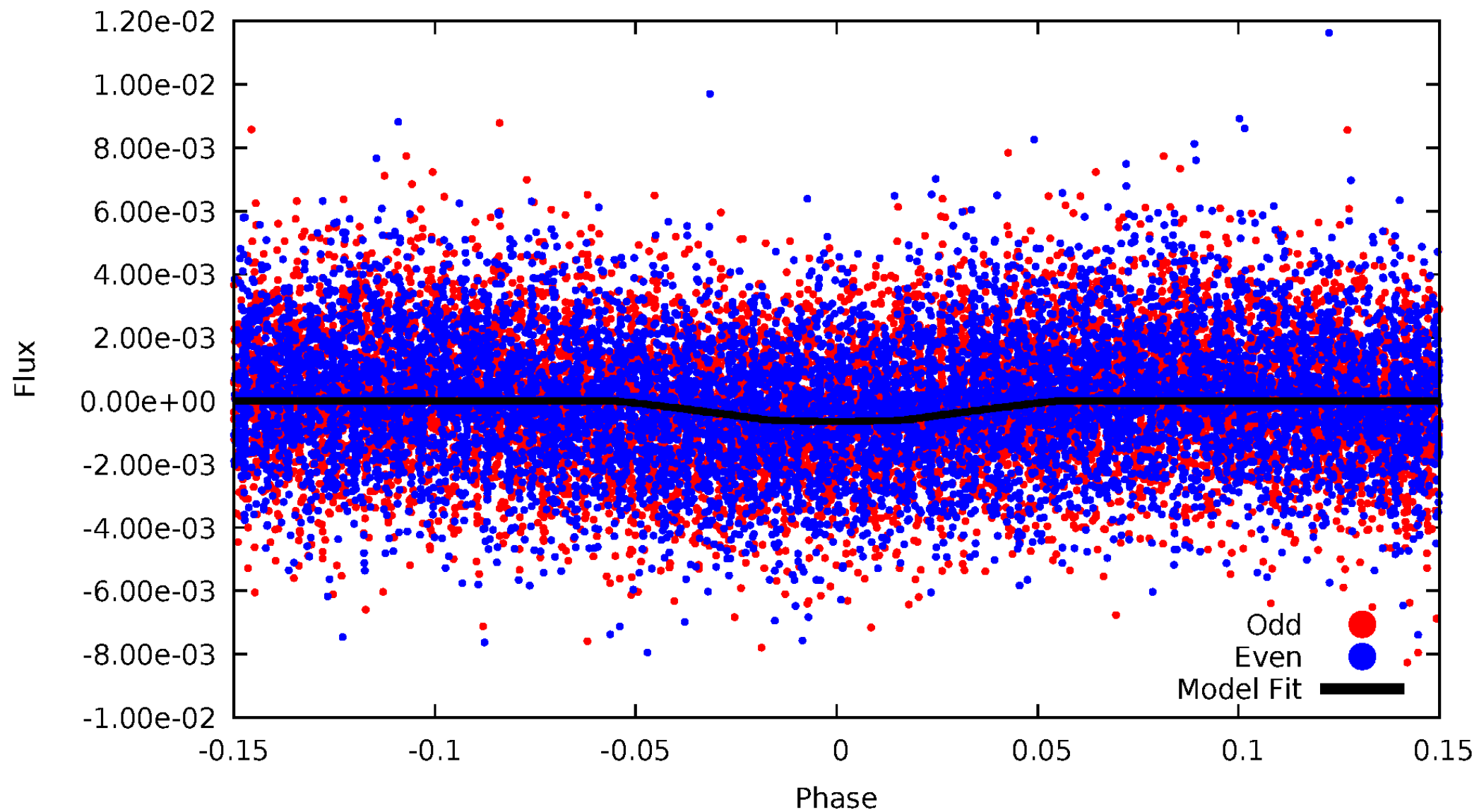


TCE 009429060-02



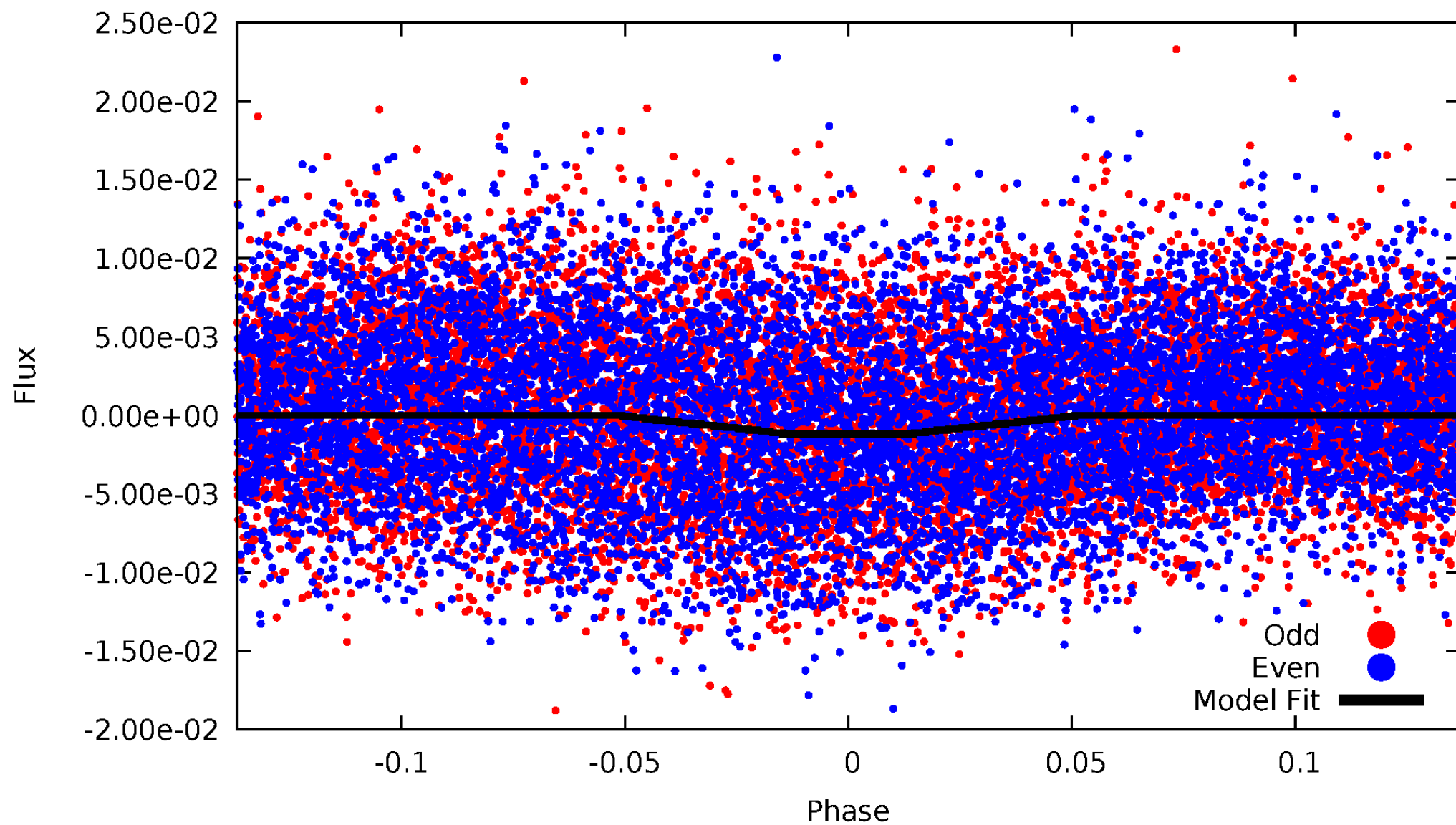
DV Odd/Even

TCE 009429060-02



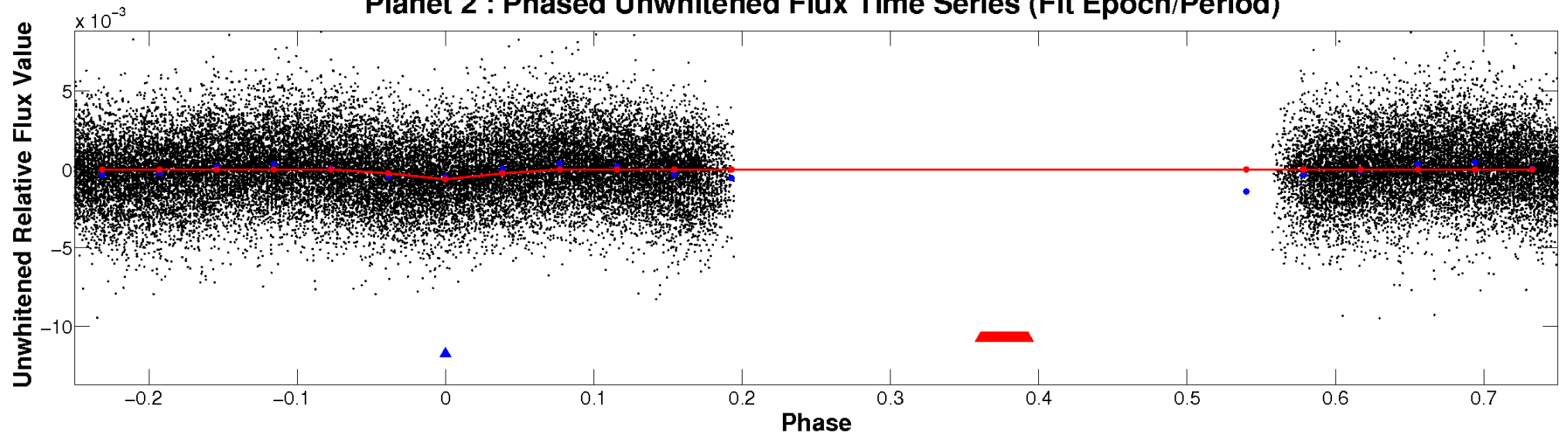
ALT Odd/Even

TCE 009429060-02

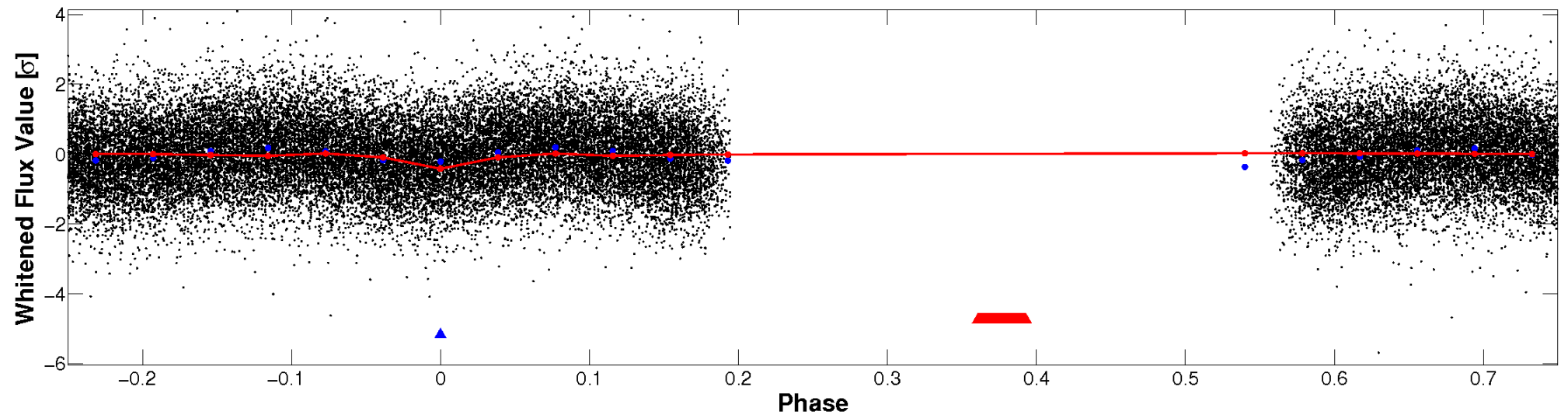


Non-Whitened Vs. Whitened Light Curve

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

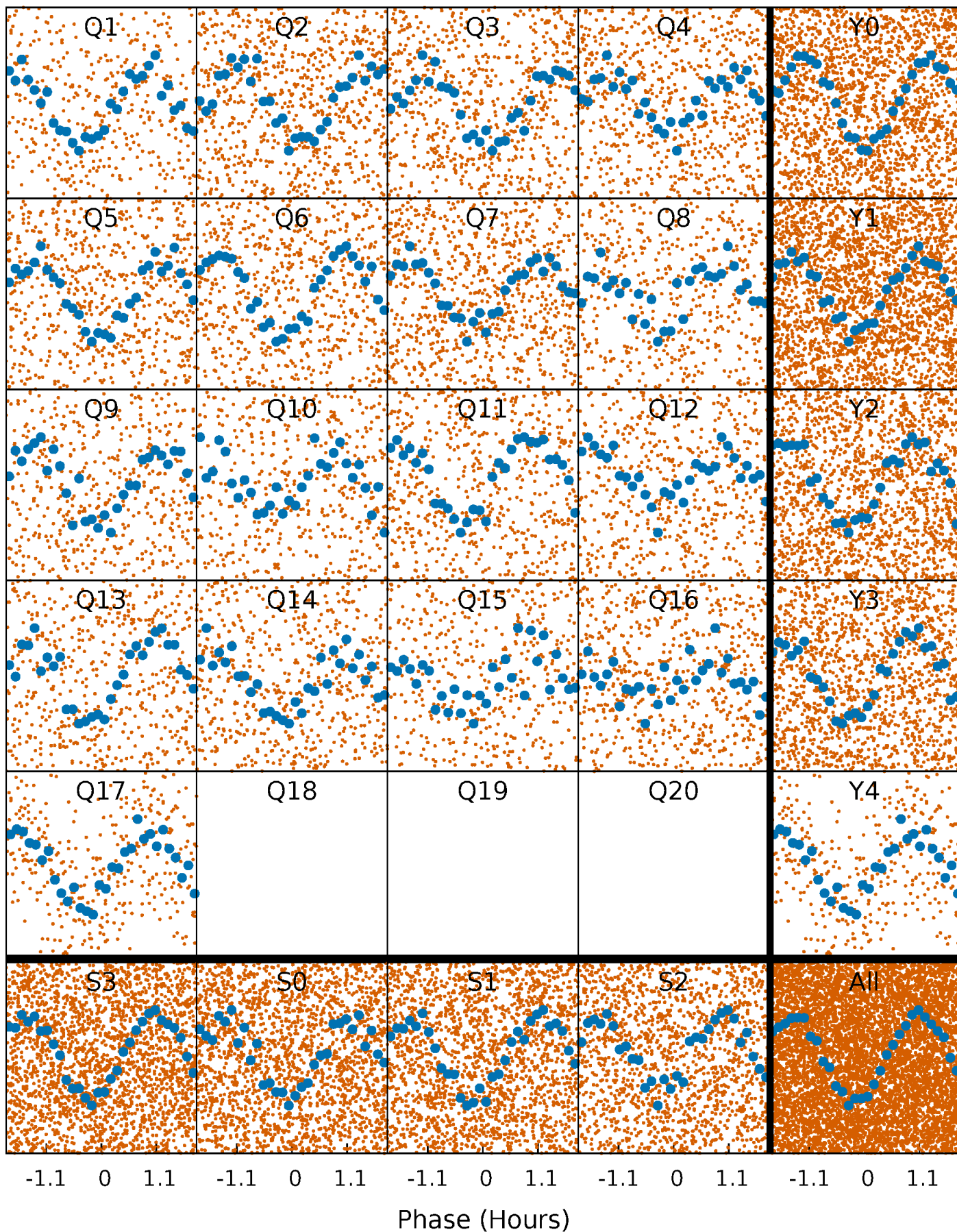


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



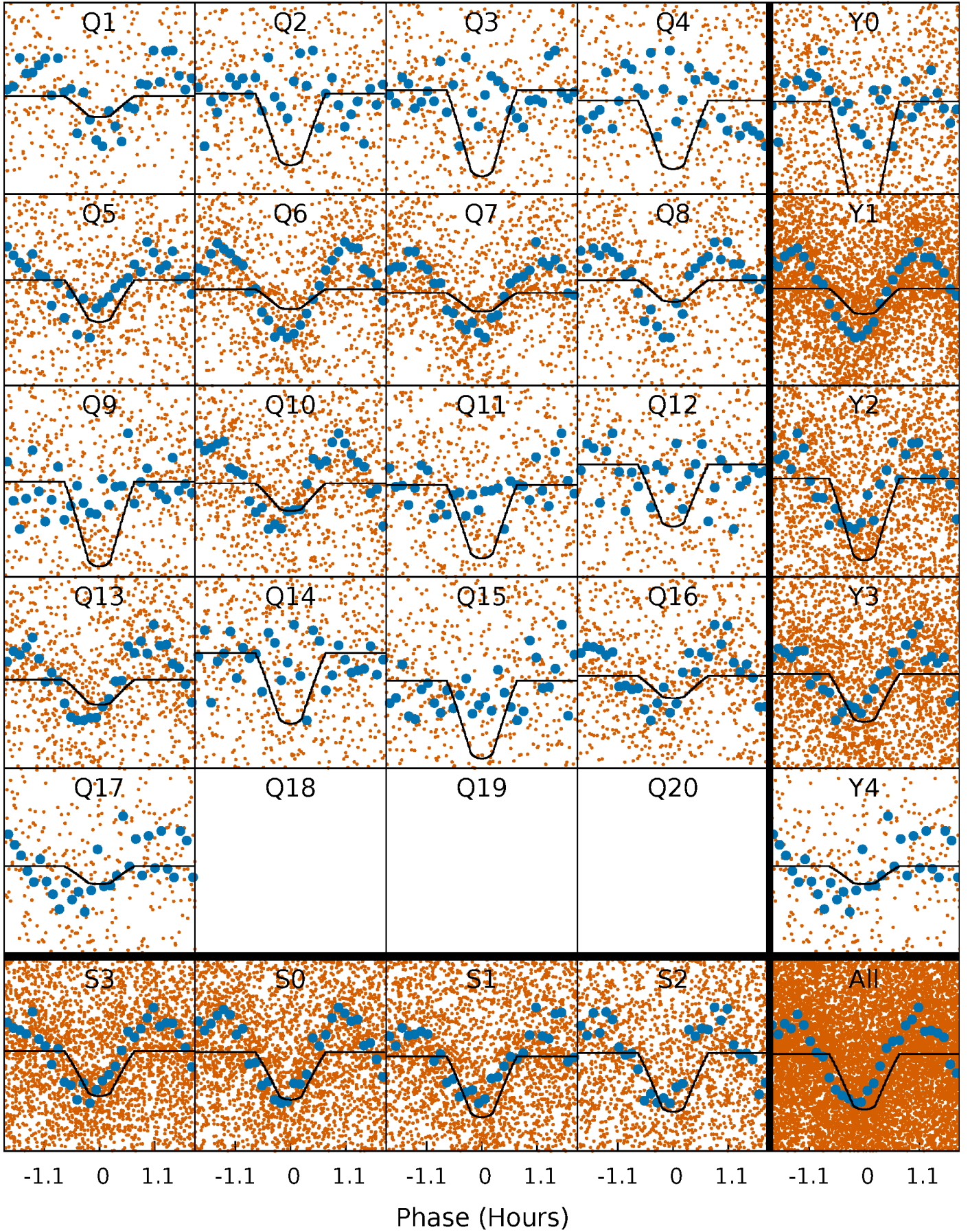
PDC Quarter-Phased Transit Curves

TCE 009429060-02 P= 0.529835 Days $T_0=131.932713$ (BKJD)



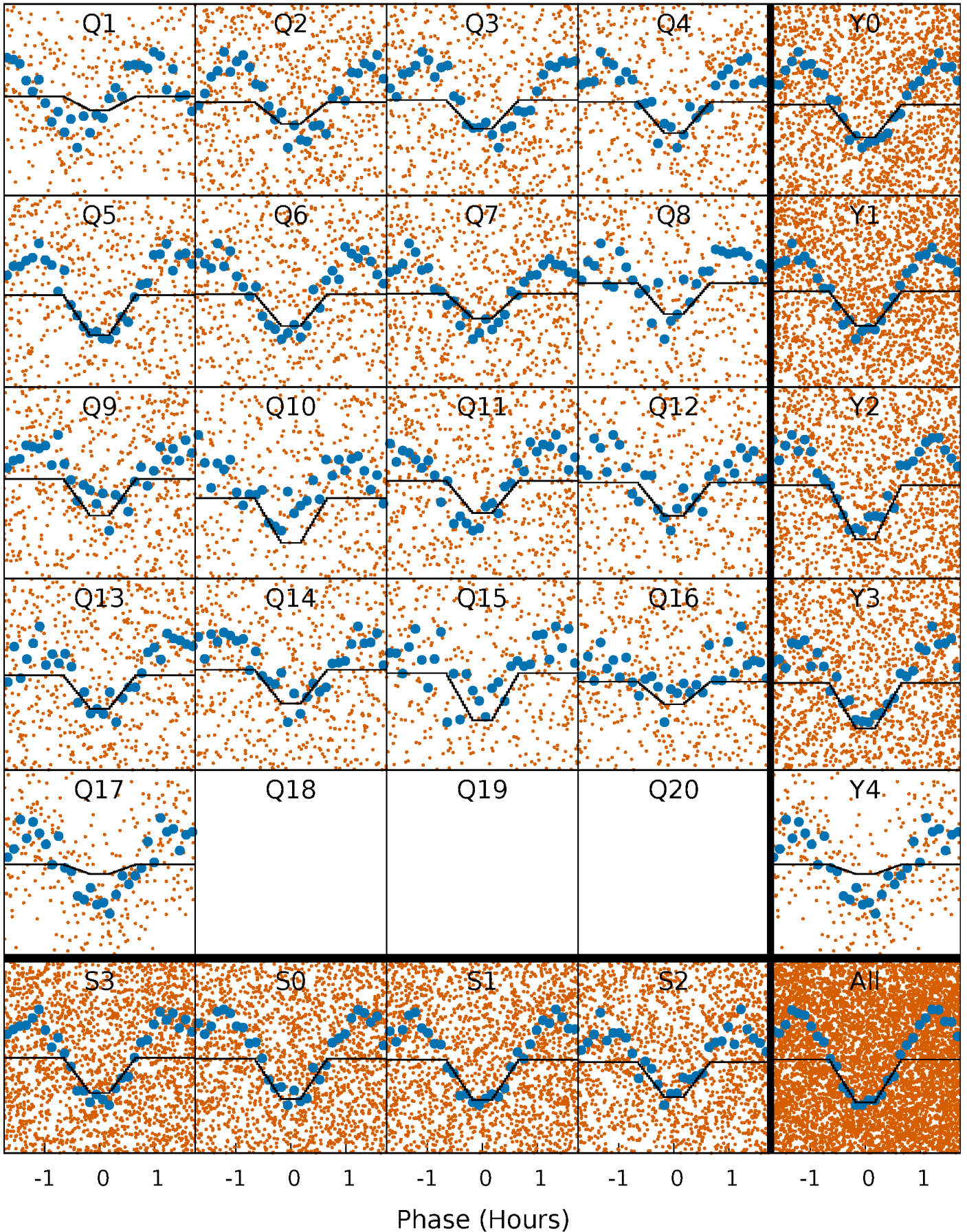
DV Quarter-Phased Transit Curves

TCE 009429060-02 $P = 0.529835$ Days $T_0 = 131.932713$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

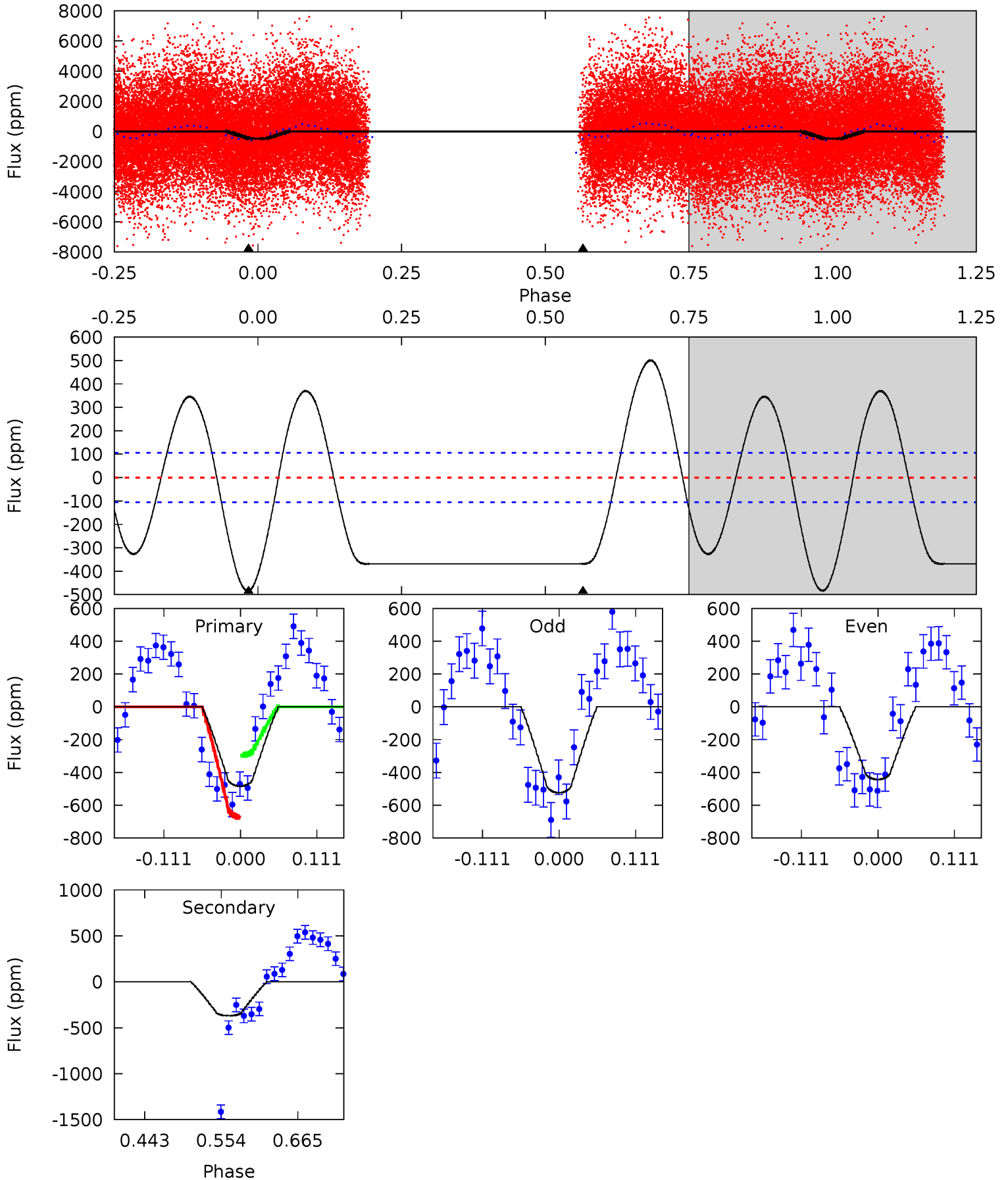
TCE 009429060-02 P= 0.529829 Days $T_0=131.933016$ (BKJD)



DV Model-Shift Uniqueness Test

009429060-02, P = 0.529835 Days, E = 131.402878 Days

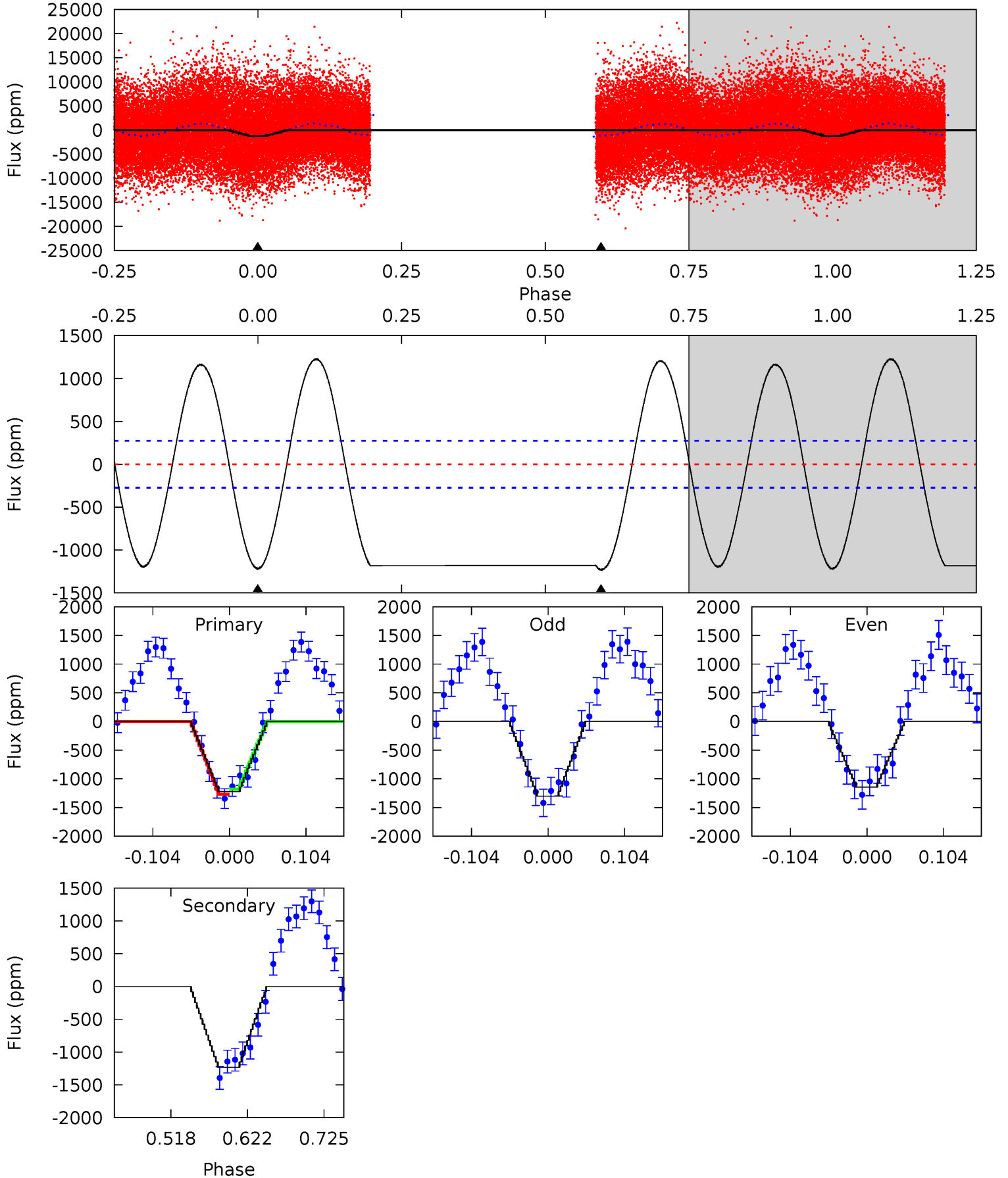
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	15.9	0	0	4.54	1.59	11.6	20.8	20.8	15.9	15.9	1.76	0.94	0.51	8.16



Alt Model-Shift Uniqueness Test

009429060-02, P = 0.529829 Days, E = 131.403187 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	20.5	0	0	4.56	1.63	13.7	20.3	20.3	20.5	20.5	1.21	0.95	0.50	0.66



Stellar Parameters For KIC 009429060

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6709^{+150}_{-218}	$4.172^{+0.132}_{-0.198}$	$0.000^{+0.250}_{-0.350}$	$1.585^{+0.494}_{-0.329}$	$1.363^{+0.192}_{-0.214}$	$0.483^{+0.328}_{-0.249}$
	+2%/-3%	+3%/-5%	+inf%/-inf%	+31%/-21%	+14%/-16%	+68%/-52%
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 009429060-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-370 ± 23	$4.13^{+1.25}_{-0.99}$	4413^{+347}_{-276}	5842^{+836}_{-699}	$2.365^{+1.658}_{-0.982}$
Alt.	-1233 ± 60	$5.99^{+1.40}_{-1.20}$	4377^{+335}_{-247}	6625^{+811}_{-602}	$3.732^{+2.173}_{-1.193}$

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

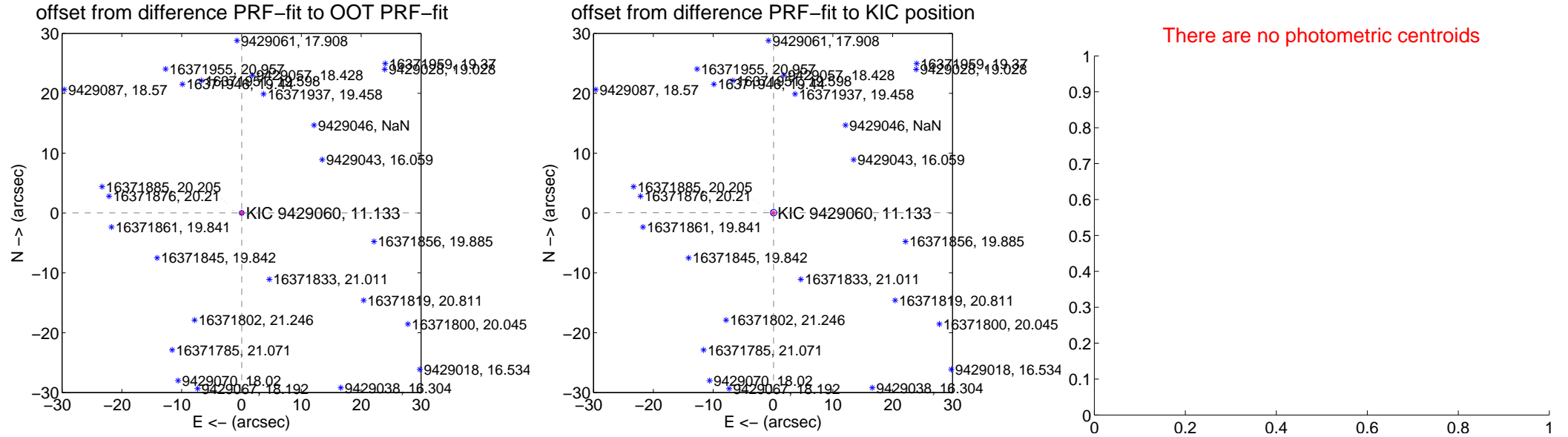
DV Centroid Data

Supplemental centroid analysis for 009429060-02. **Kepler magnitude: 11.13.** Transit SNR 24.53

There are 17 quarters with good PRF difference image offsets

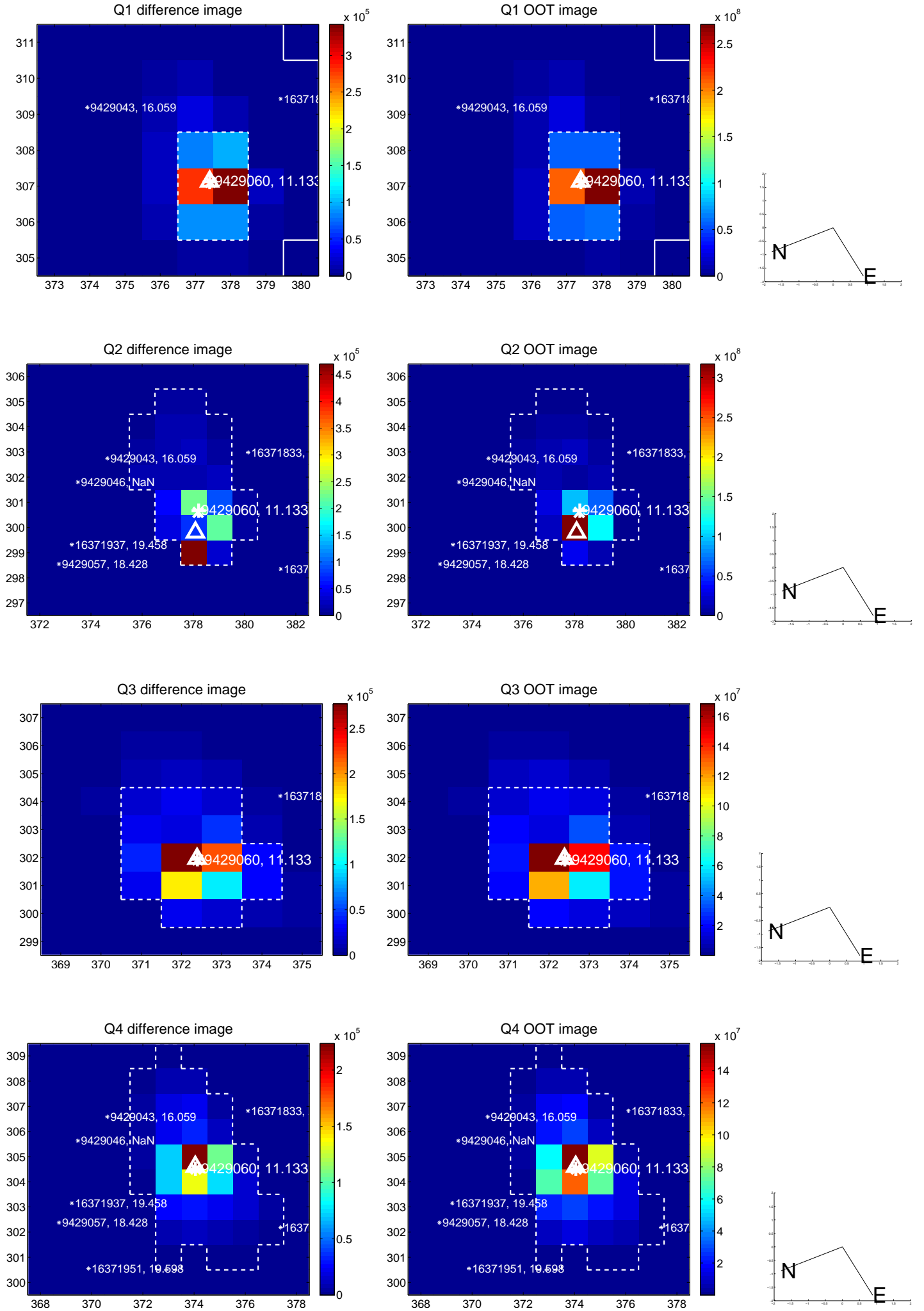
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.042 ± 0.129	0.32	-0.033 ± 0.298	0.026 ± 0.206
PRF-fit source offset from KIC position	0.114 ± 0.178	0.64	-0.099 ± 0.300	0.056 ± 0.197
photometric centroid source offset	—	—	—	—

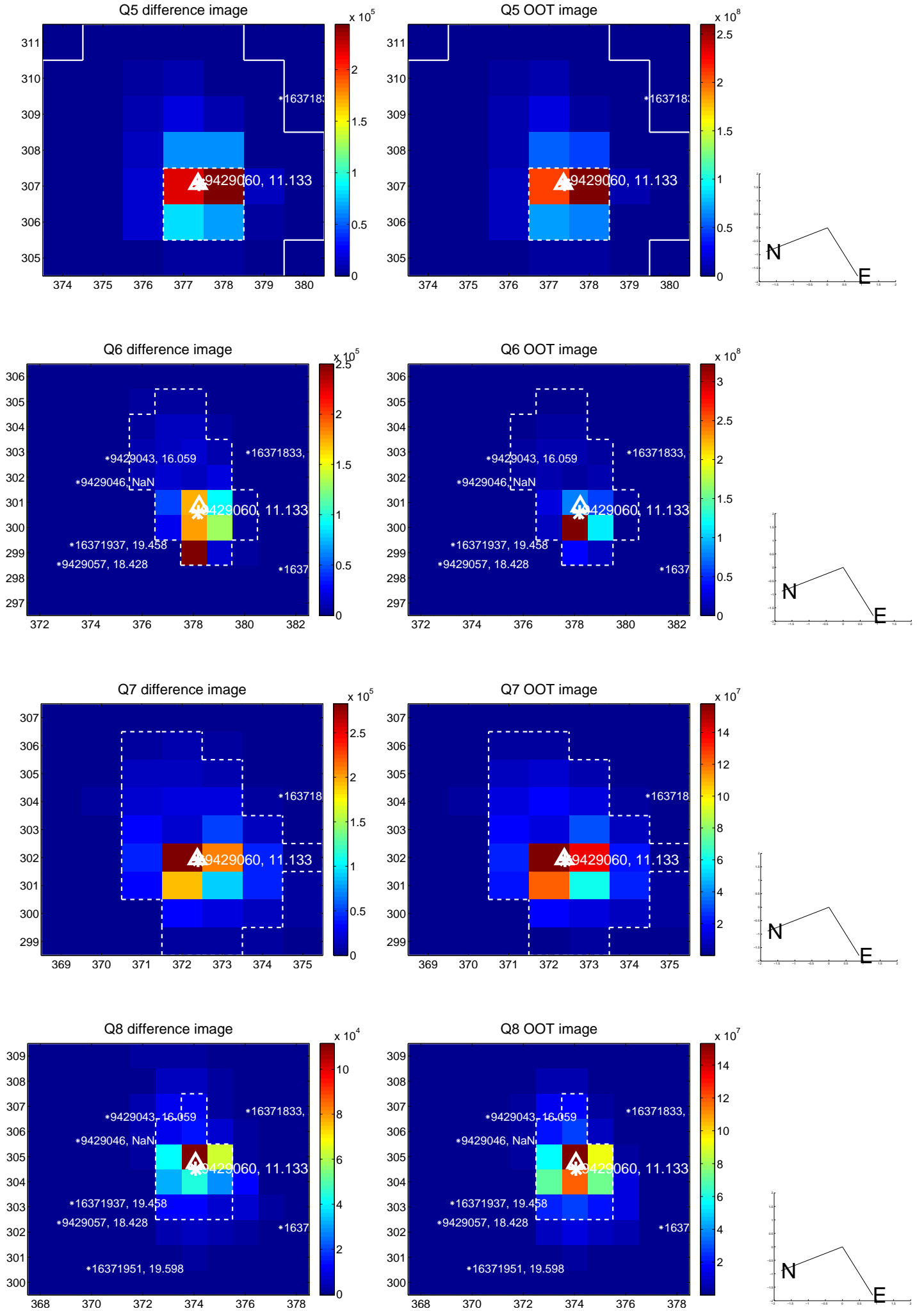


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

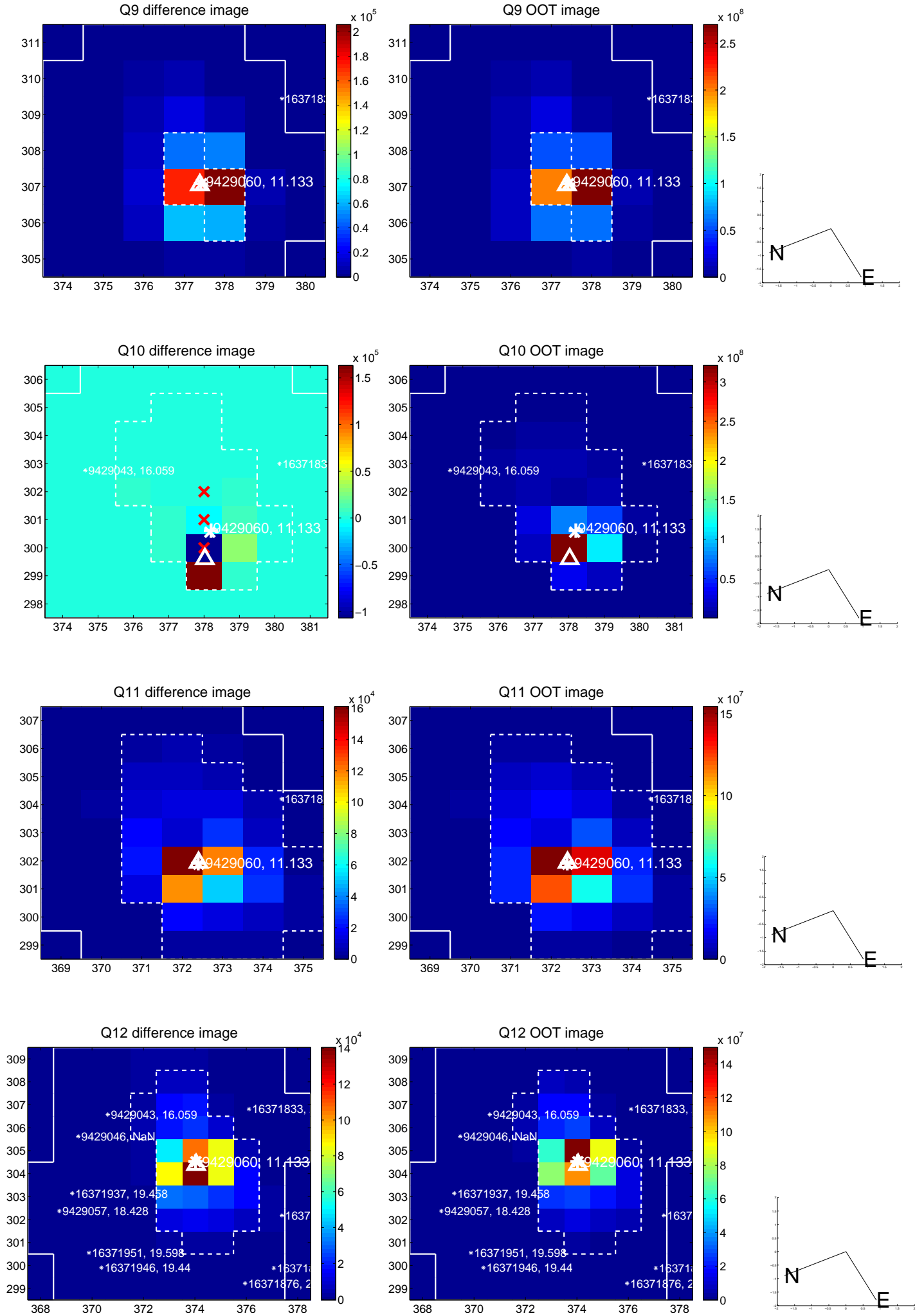
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



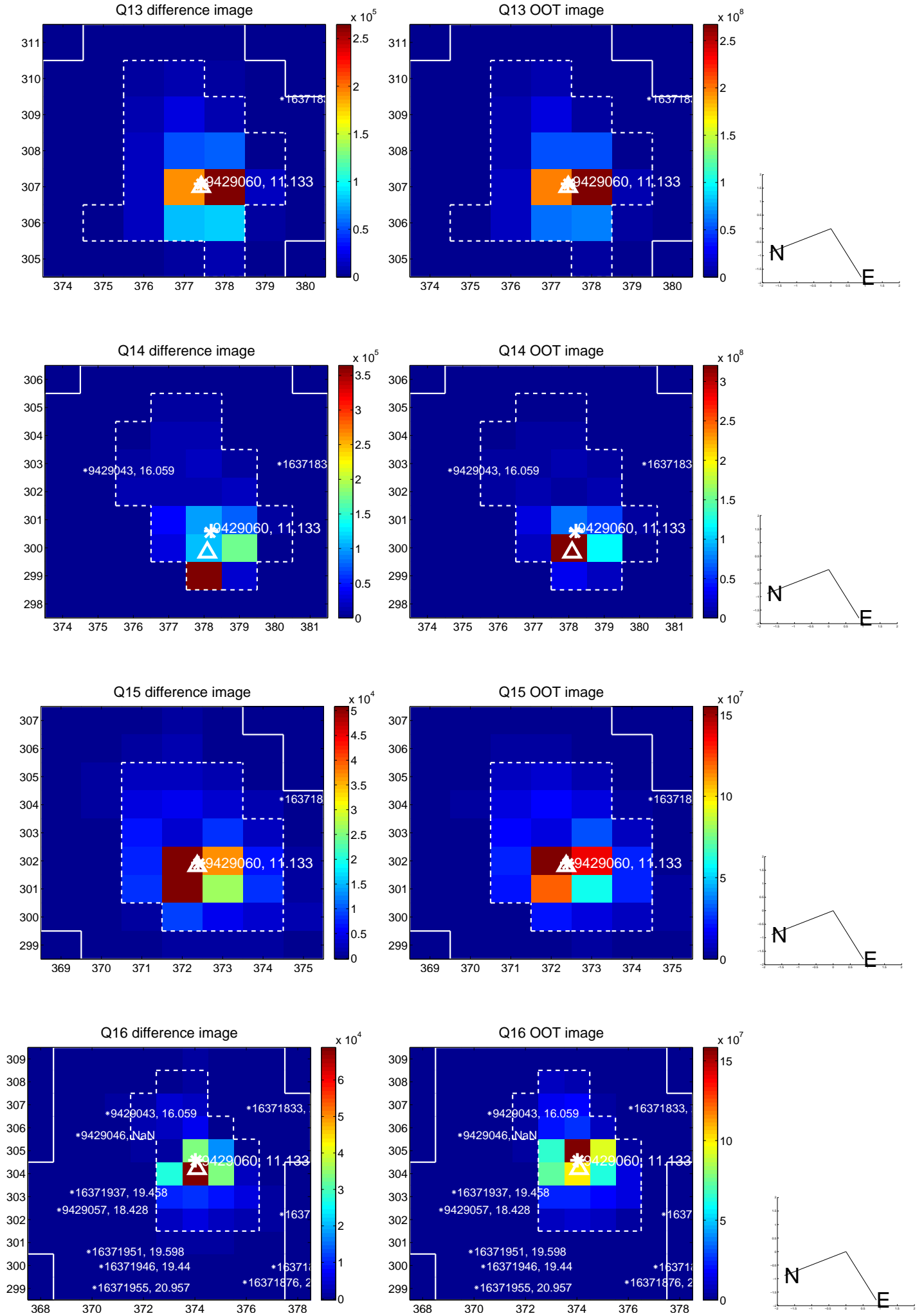
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



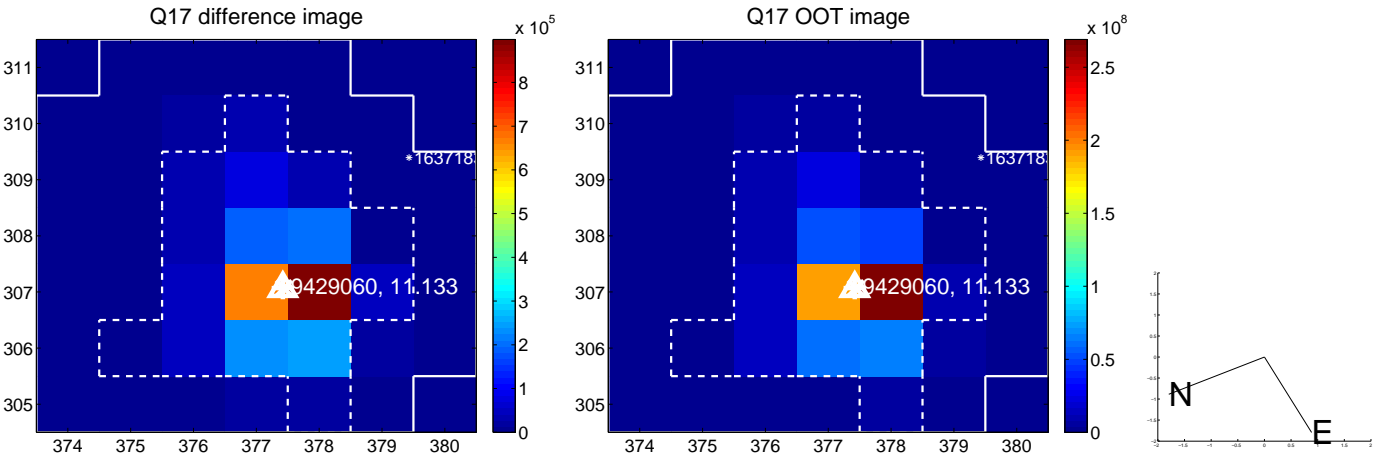
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

