

KIC 004856630

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})
004856630-01	OBS	No	1.421880	132.288706	99.1	6.545	12.0	13.7	2.38	7564	2.42	18620.04
004856630-02	OBS	No	1.421832	131.599979	117.1	8.150	12.8	15.8	2.38	7564	3.35	18620.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004856630-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004856630-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_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.

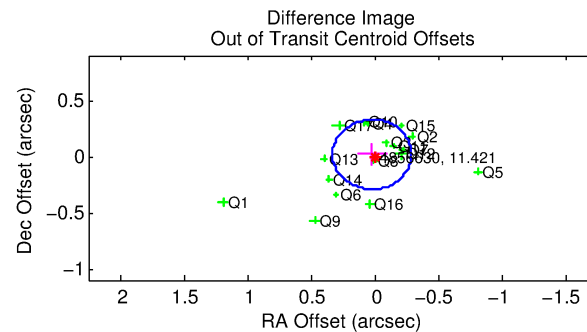
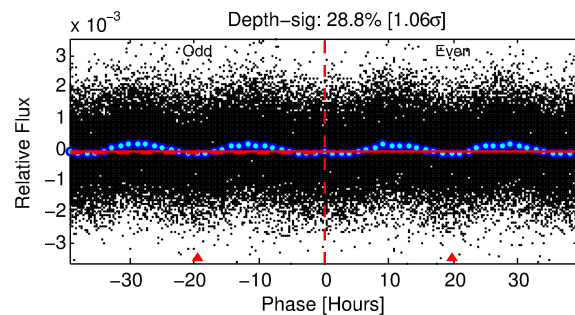
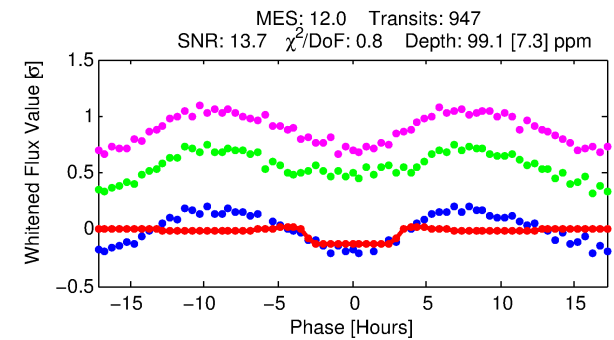
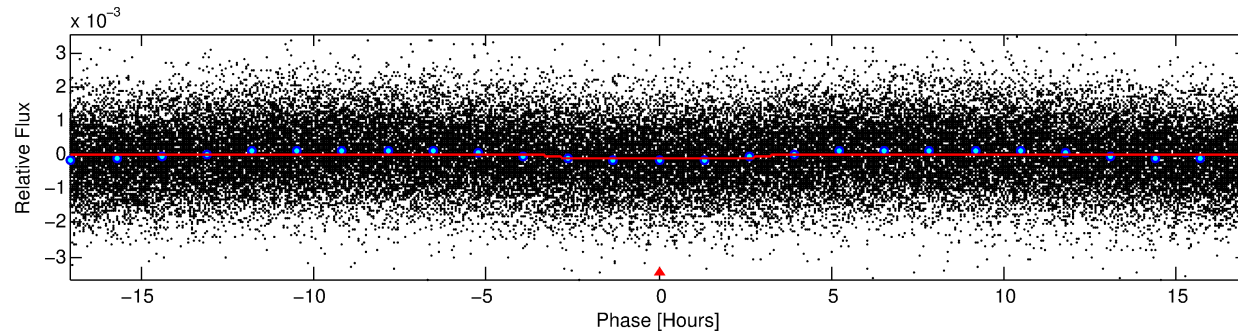
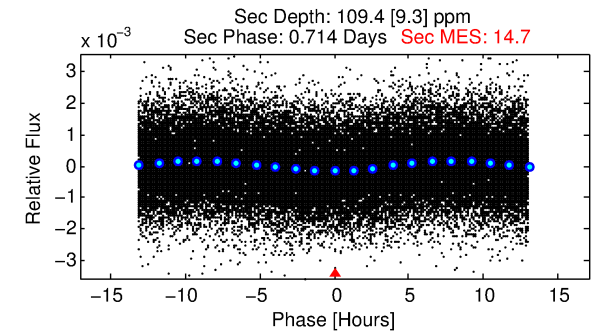
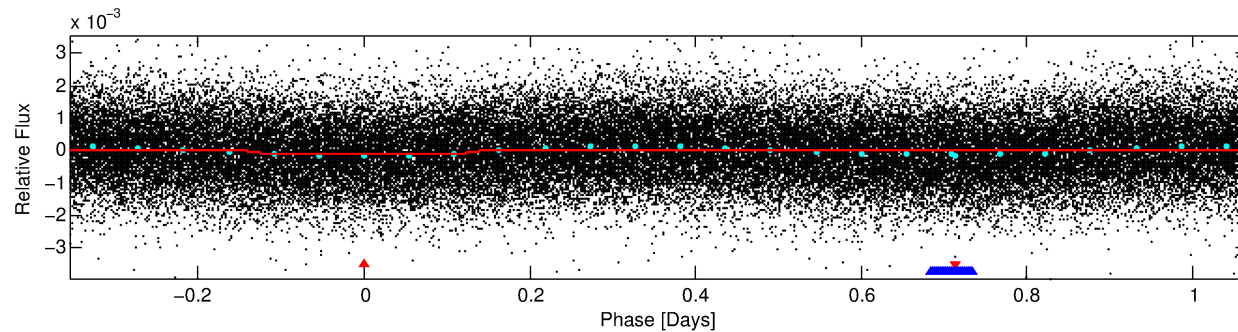
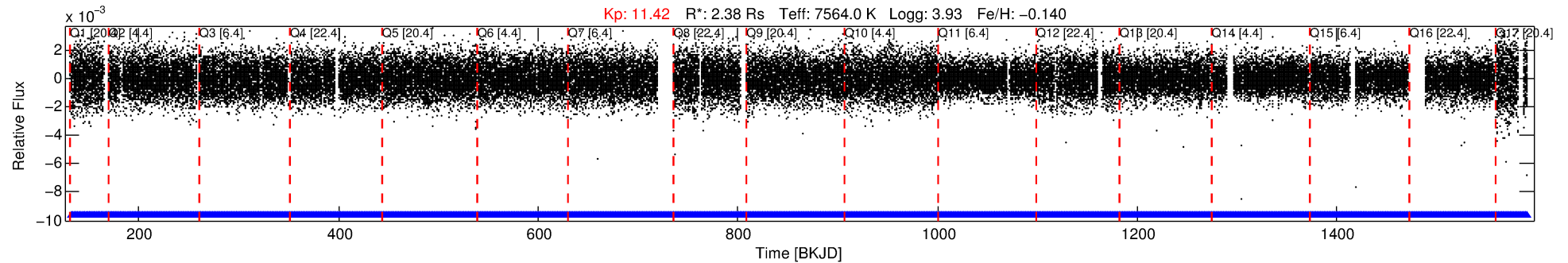
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004856630-01

No Significant Match Found

DV One-Page Summary

KIC: 4856630 Candidate: 1 of 2 Period: 1.422 d



DV Fit Results:

Period = 1.42188 [0.00001] d
Epoch = 132.2887 [0.0051] BKJD
 R_p/R^* = 0.0093 [0.0091]
 a/R^* = 1.71 [6.17]
 b = 0.35 [13.78]
 S_{eff} = 18620.04 [9154.44]
 T_{eq} = 2979 [366] K
 R_p = 2.41 [2.52] R_e
 a = 0.0298 [0.0092] AU
 A_g = 9.18 [18.54] [0.44σ]
 T_{eff} = 8016 [3955] K [1.27σ]

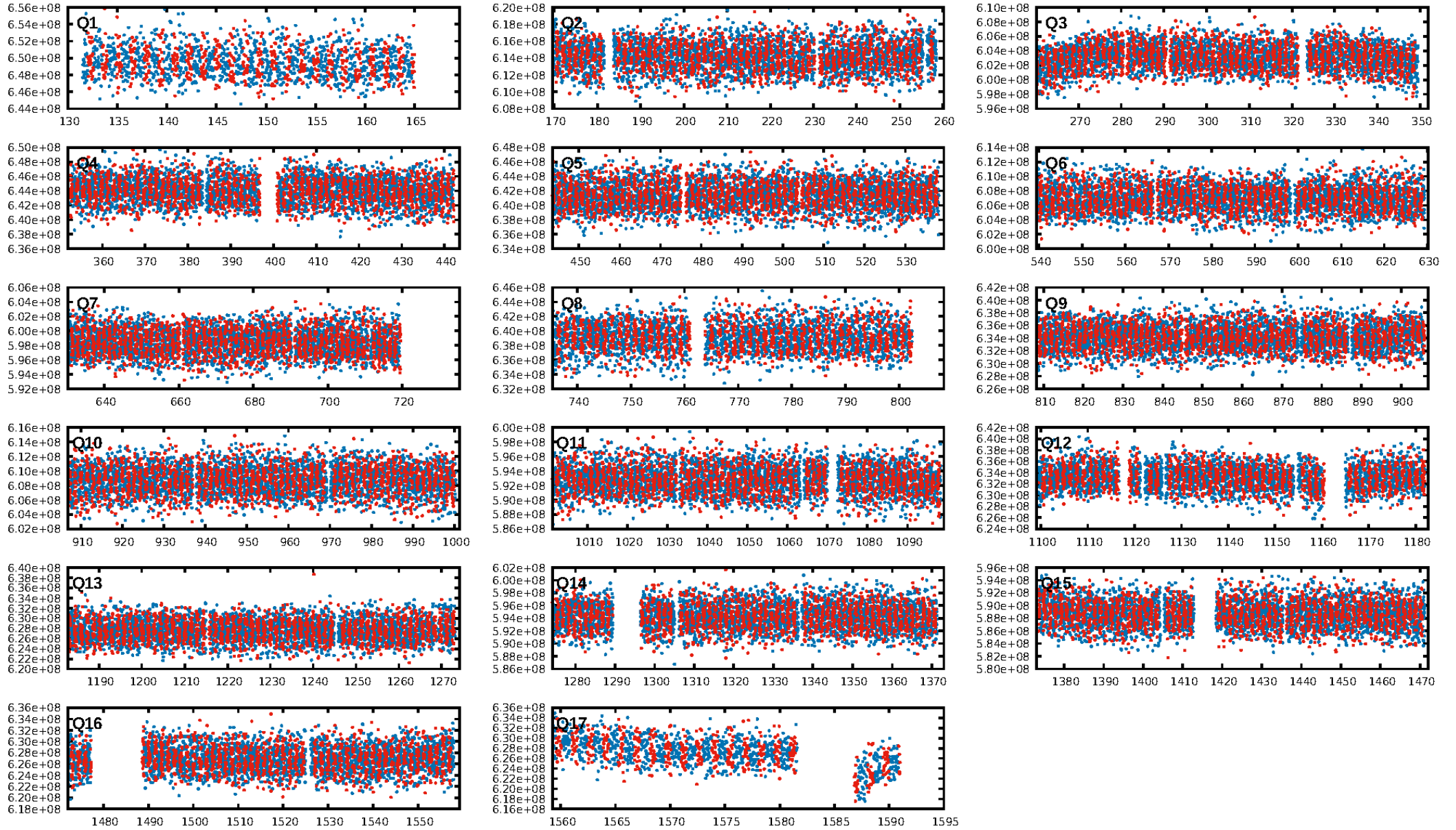
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [903/903]
GhostDiagnostic-chr: 1.618
Centroid-sig: 0.0%
Centroid-so: 0.295 arcsec [3.02σ]
OotOffset-rm: 0.027 arcsec [0.26σ]
KicOffset-rm: 0.098 arcsec [0.90σ]
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]

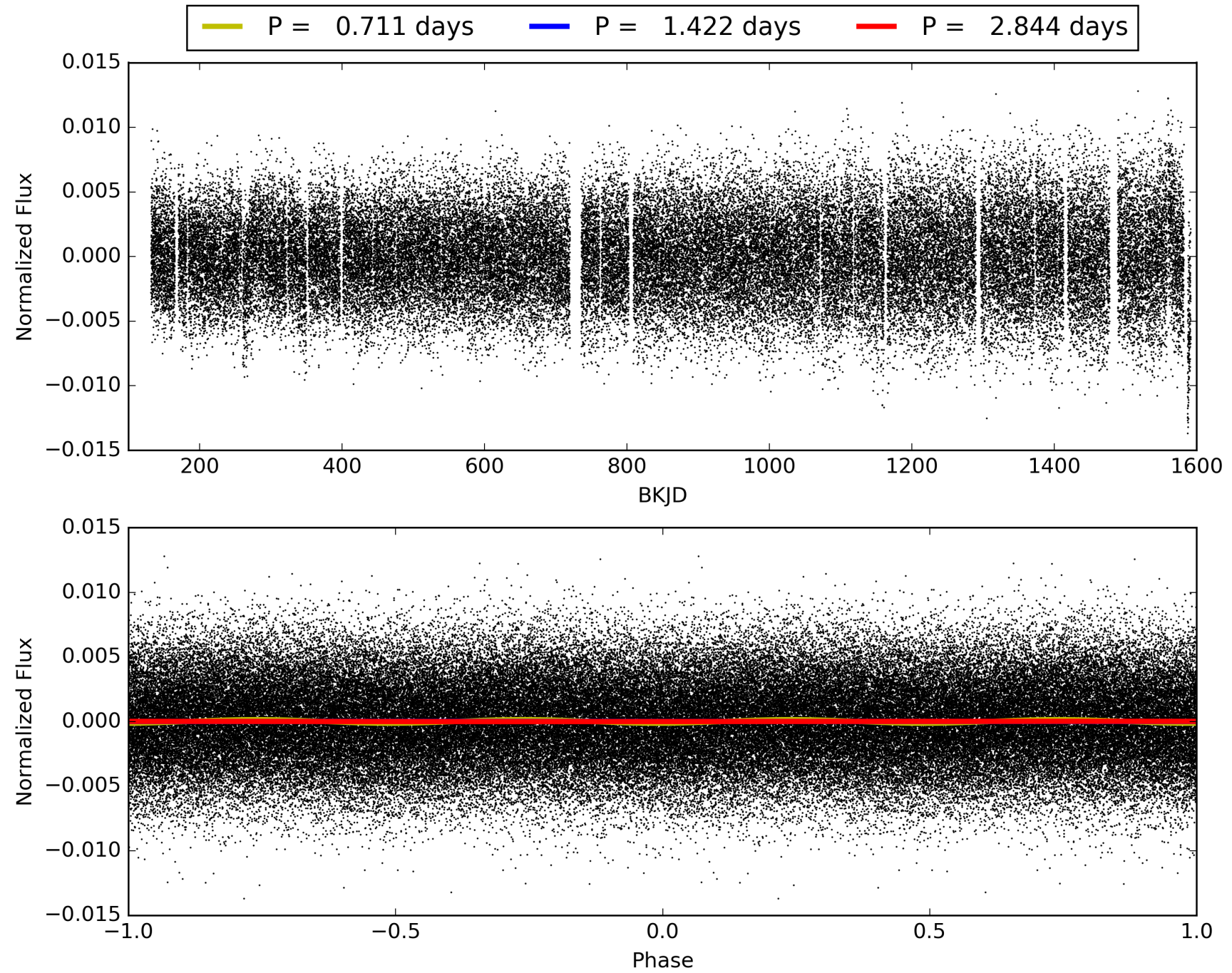
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:29:42 Z

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

TCE 004856630-01, PDC Light Curves

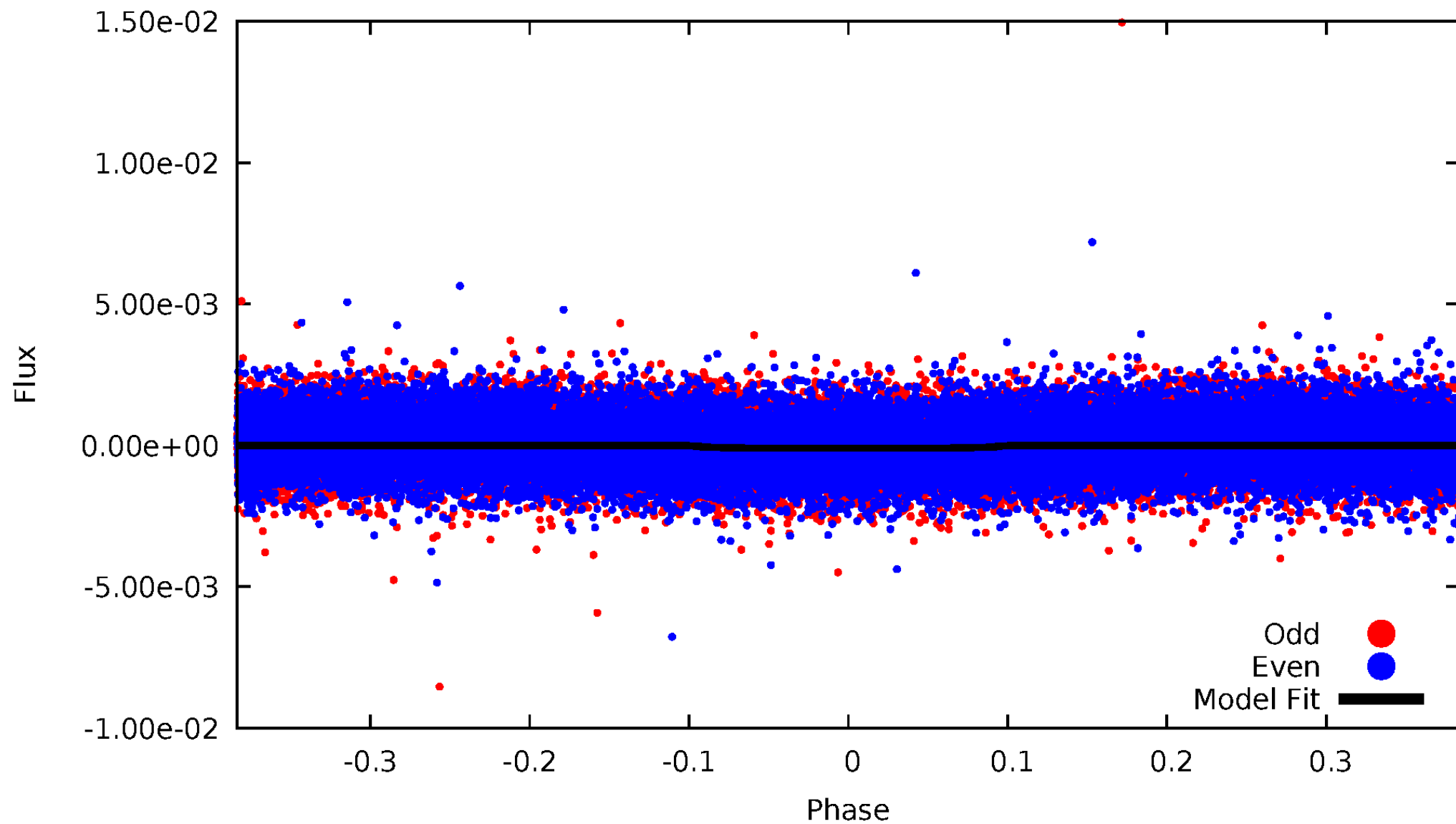


TCE 004856630-01



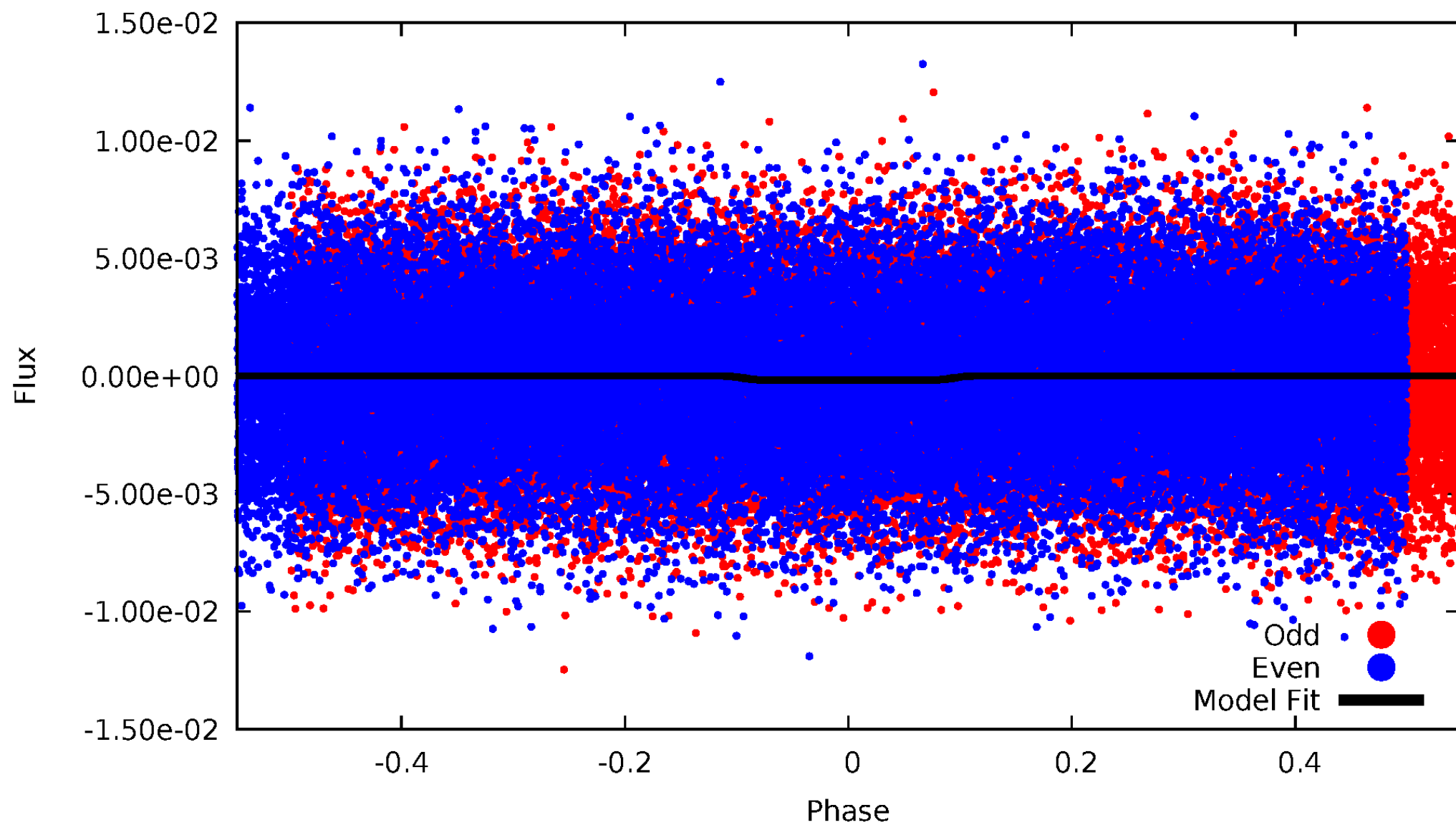
DV Odd/Even

TCE 004856630-01



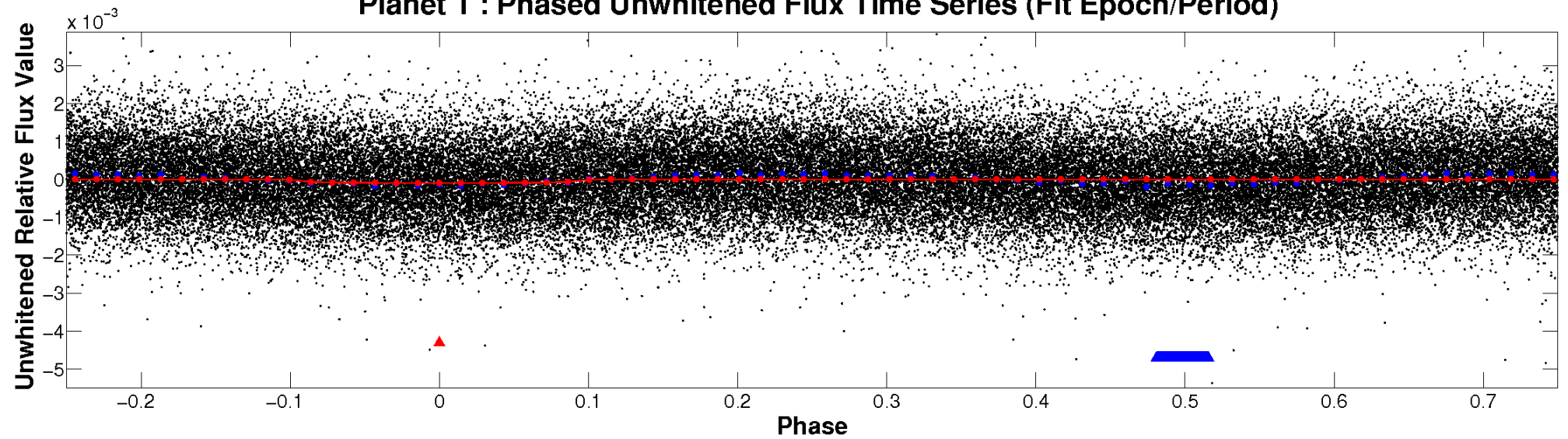
ALT Odd/Even

TCE 004856630-01

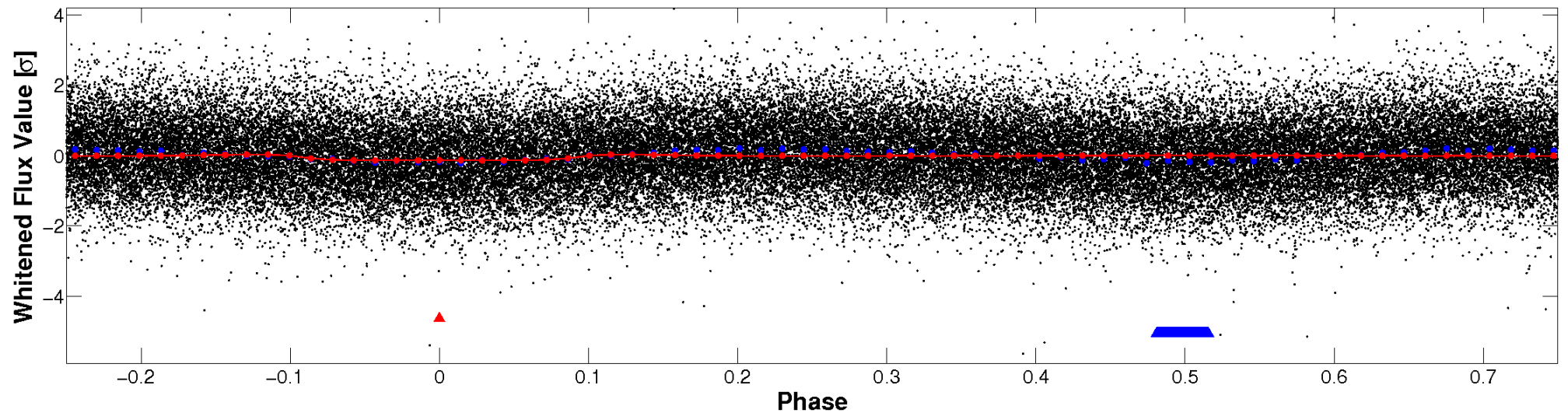


Non-Whitened Vs. Whitened Light Curve

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

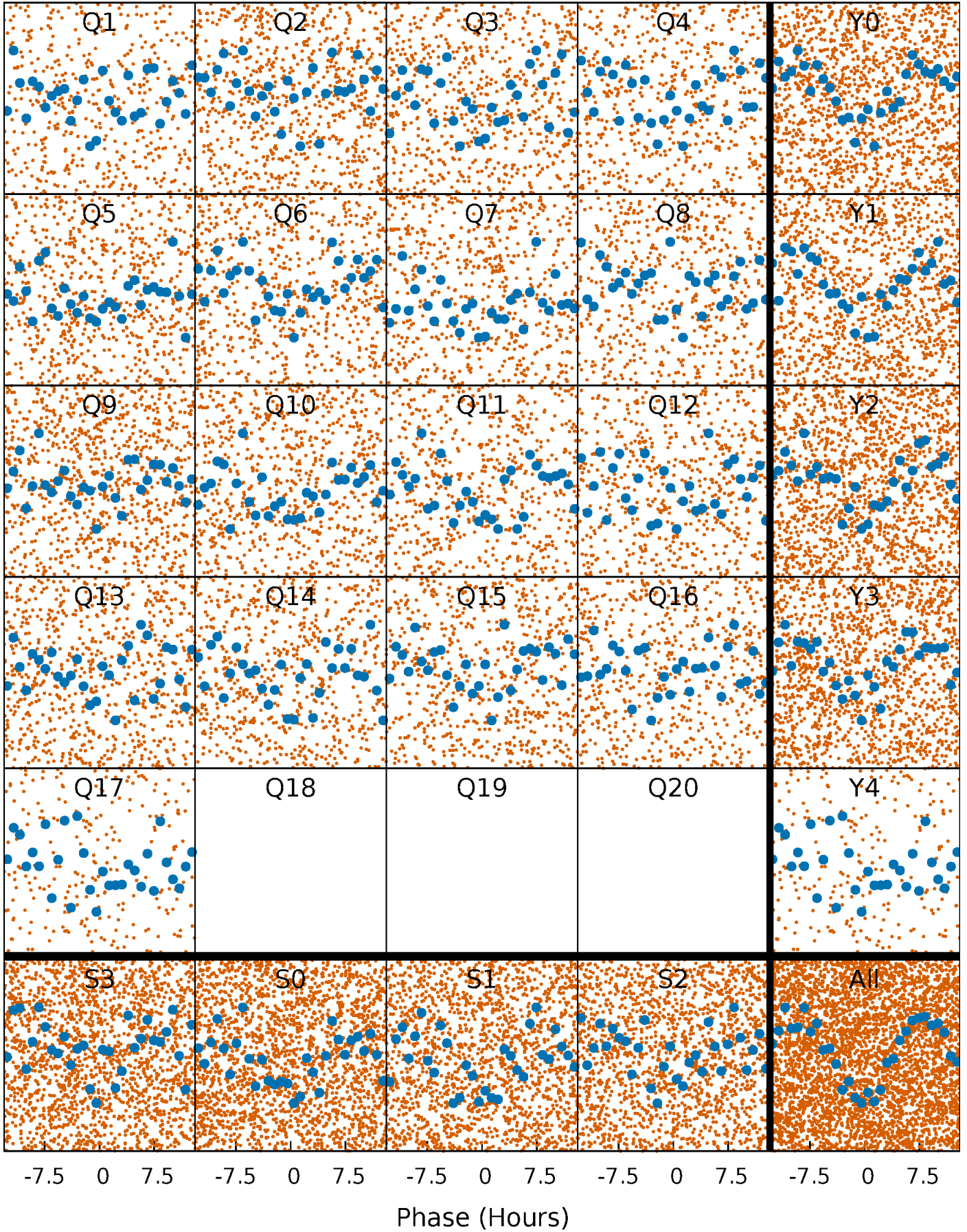


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



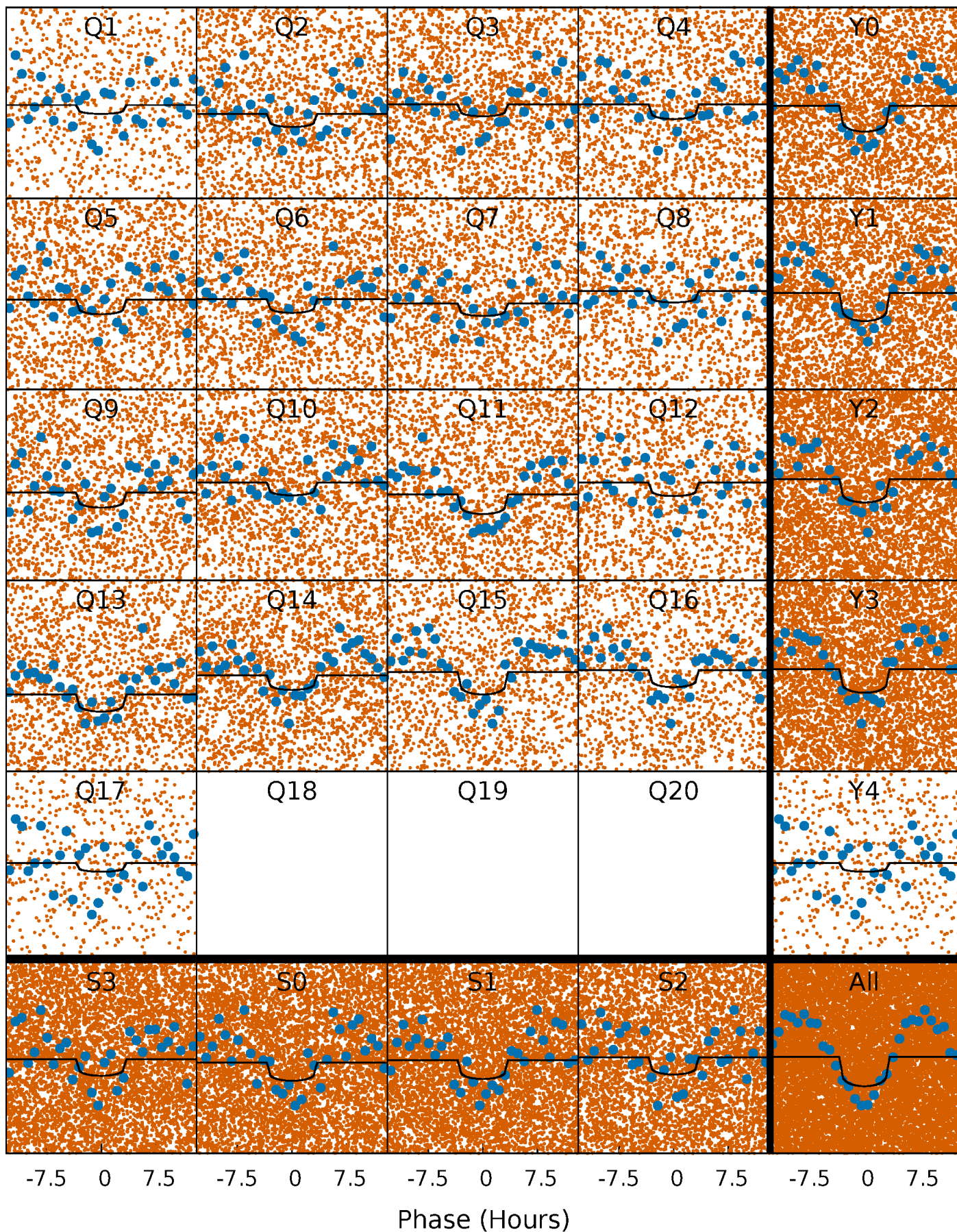
PDC Quarter-Phased Transit Curves

TCE 004856630-01 P= 1.421880 Days $T_0=132.288706$ (BKJD)



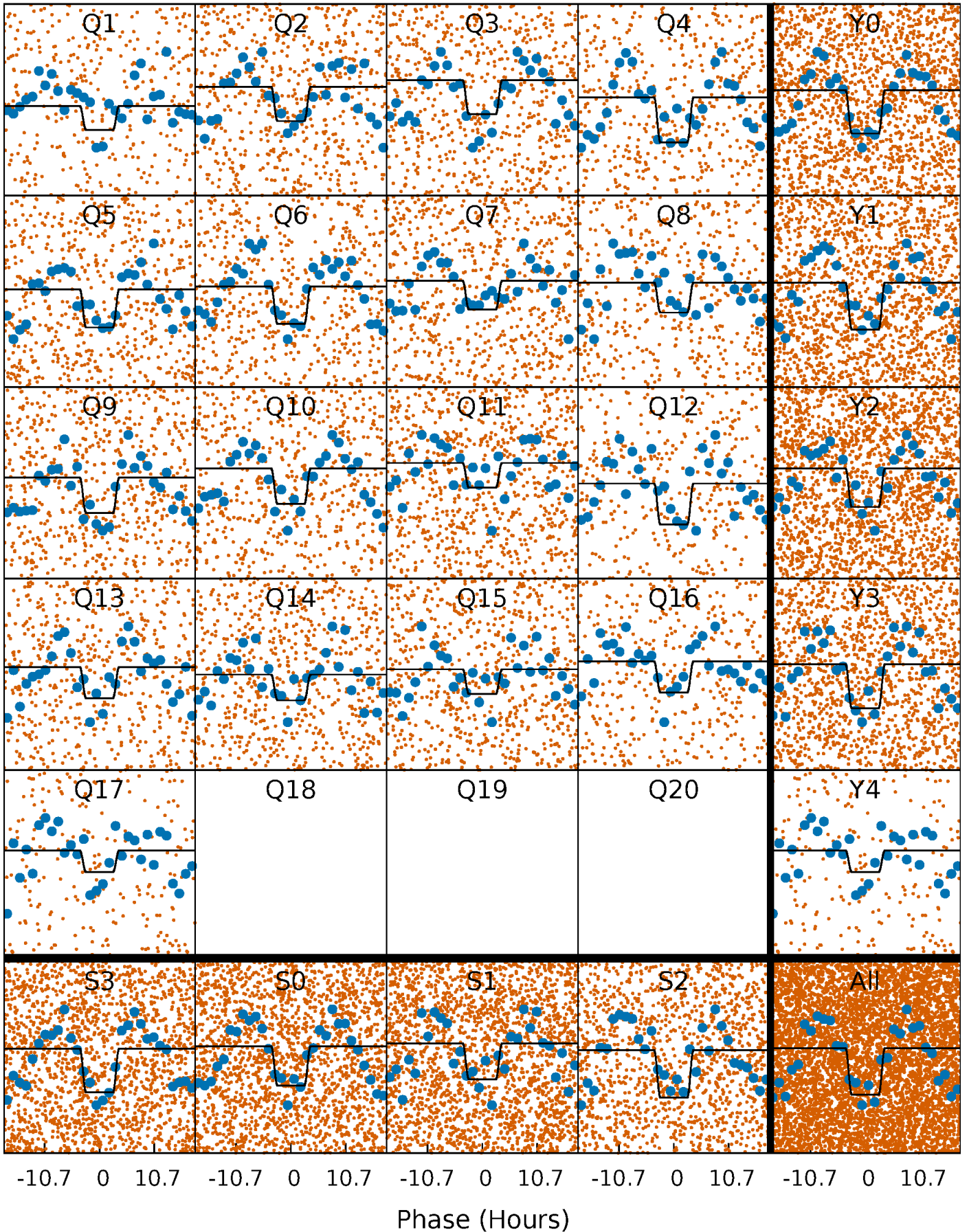
DV Quarter-Phased Transit Curves

TCE 004856630-01 P= 1.421880 Days $T_0=132.288706$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

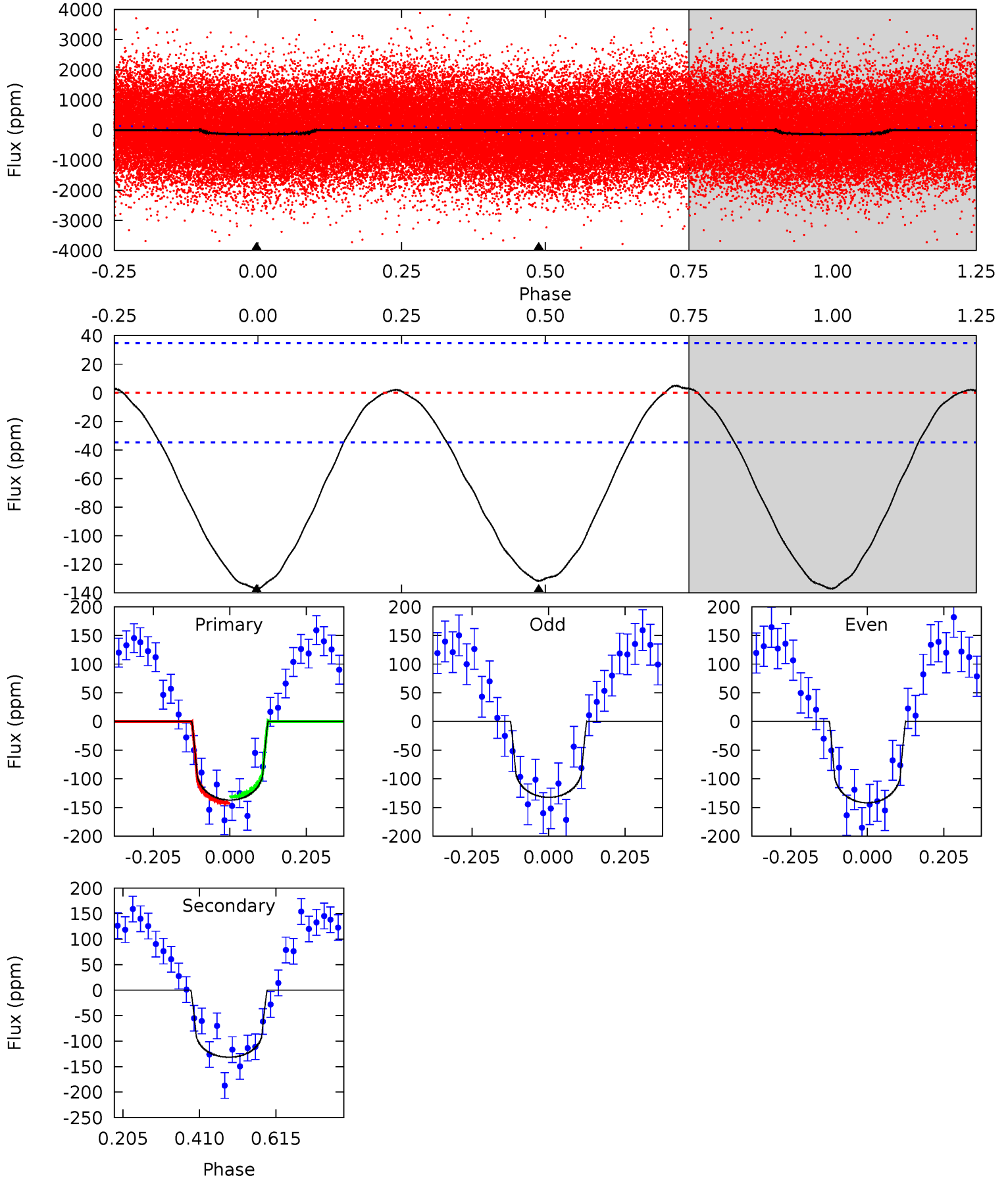
TCE 004856630-01 P= 1.421902 Days $T_0=132.267932$ (BKJD)



DV Model-Shift Uniqueness Test

004856630-01, P = 1.421880 Days, E = 130.866826 Days

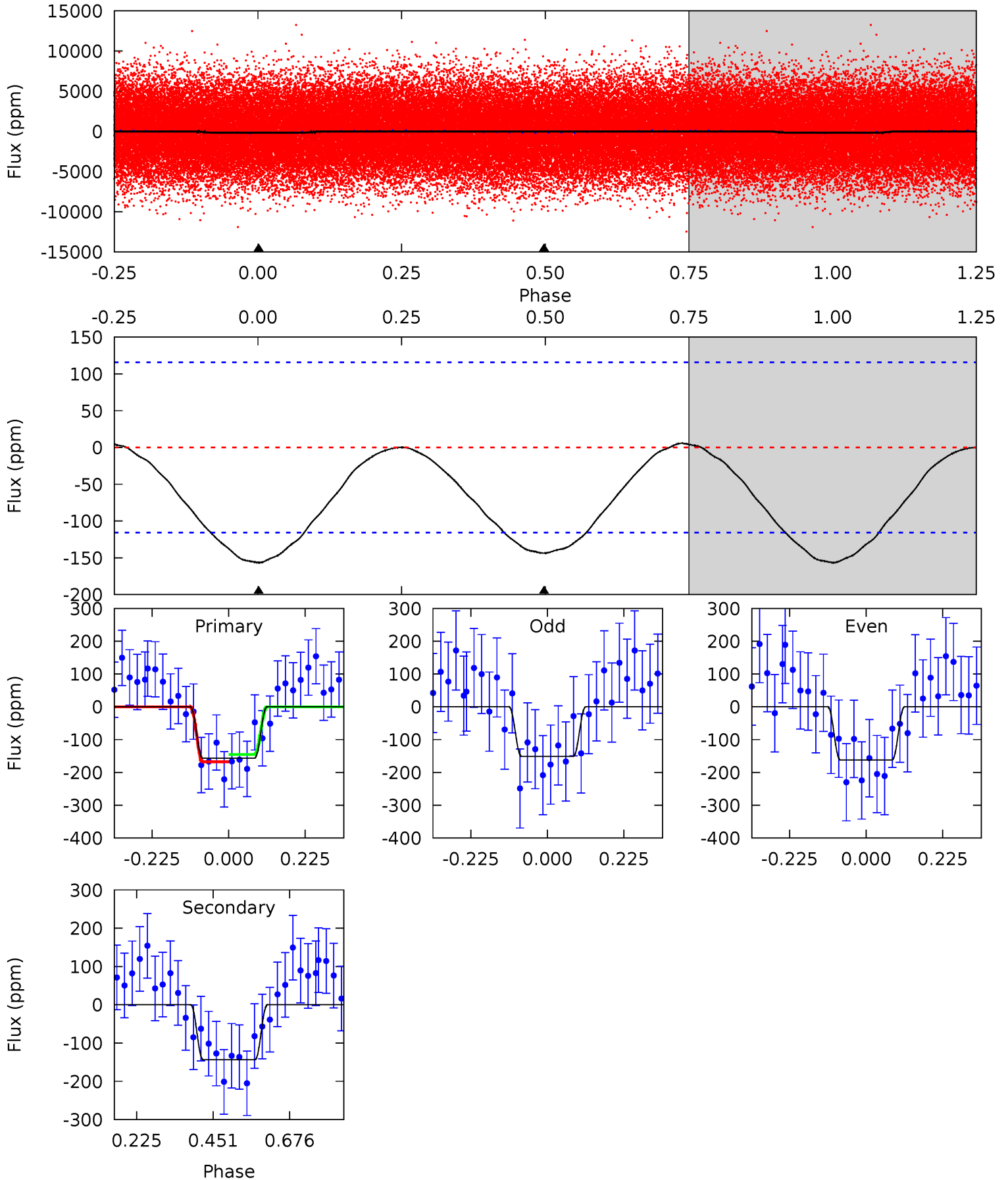
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	16.7	0	0	4.41	1.27	0.49	17.4	17.4	16.7	16.7	0.61	1.03	0.04	0.70



Alt Model-Shift Uniqueness Test

004856630-01, P = 1.421902 Days, E = 130.846030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.94	5.45	0	0	4.39	1.21	0.11	5.94	5.94	5.45	5.45	0.21	1.02	0.03	0.42



Stellar Parameters For KIC 004856630

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7564^{+211}_{-316}	$3.929^{+0.260}_{-0.140}$	$-0.140^{+0.200}_{-0.350}$	$2.376^{+0.512}_{-0.832}$	$1.747^{+0.194}_{-0.360}$	$0.183^{+0.312}_{-0.076}$
	+3%/-4%	+7%/-4%	+143%/-250%	+22%/-35%	+11%/-21%	+170%/-42%
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 004856630-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132 ± 8	$2.71^{+2.25}_{-1.56}$	4108^{+306}_{-367}	7548^{+8639}_{-2016}	$8.478^{+42.515}_{-5.893}$
Alt.	-144 ± 26	$3.40^{+2.53}_{-1.80}$	4127^{+278}_{-392}	6835^{+4706}_{-1695}	$6.057^{+20.494}_{-4.110}$

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

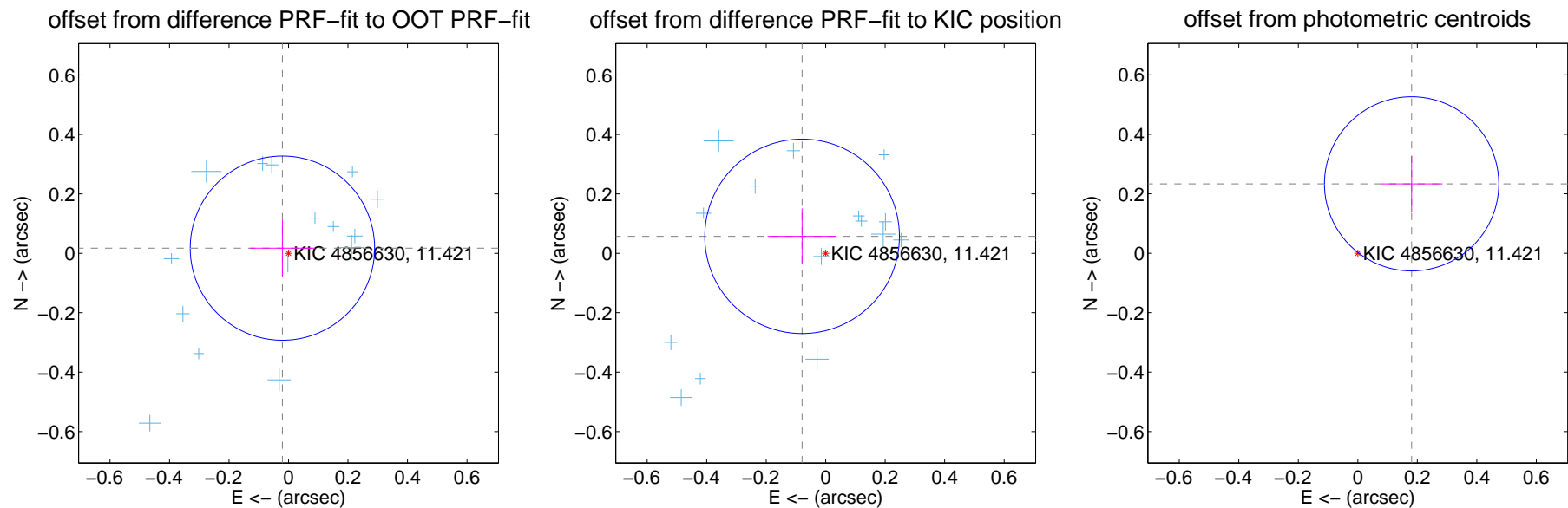
DV Centroid Data

Supplemental centroid analysis for 004856630-01. **Kepler magnitude: 11.42.** Transit SNR 13.69

There are 17 quarters with good PRF difference image offsets

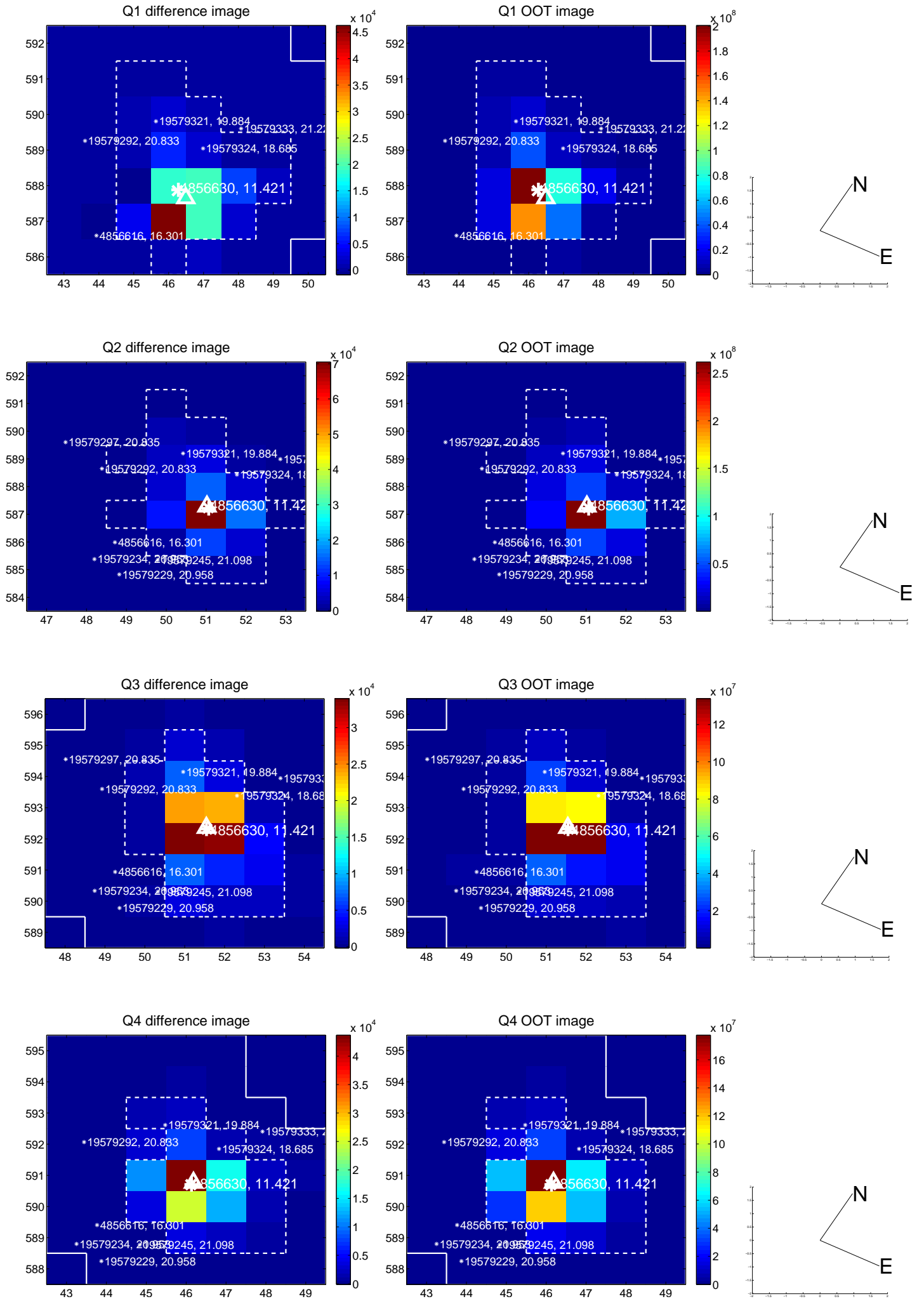
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.027 ± 0.103	0.26	0.020 ± 0.109	0.017 ± 0.095
PRF-fit source offset from KIC position	0.098 ± 0.109	0.90	0.079 ± 0.116	0.057 ± 0.094
photometric centroid source offset	0.30 ± 0.10	3.02	-0.18 ± 0.10	0.23 ± 0.09

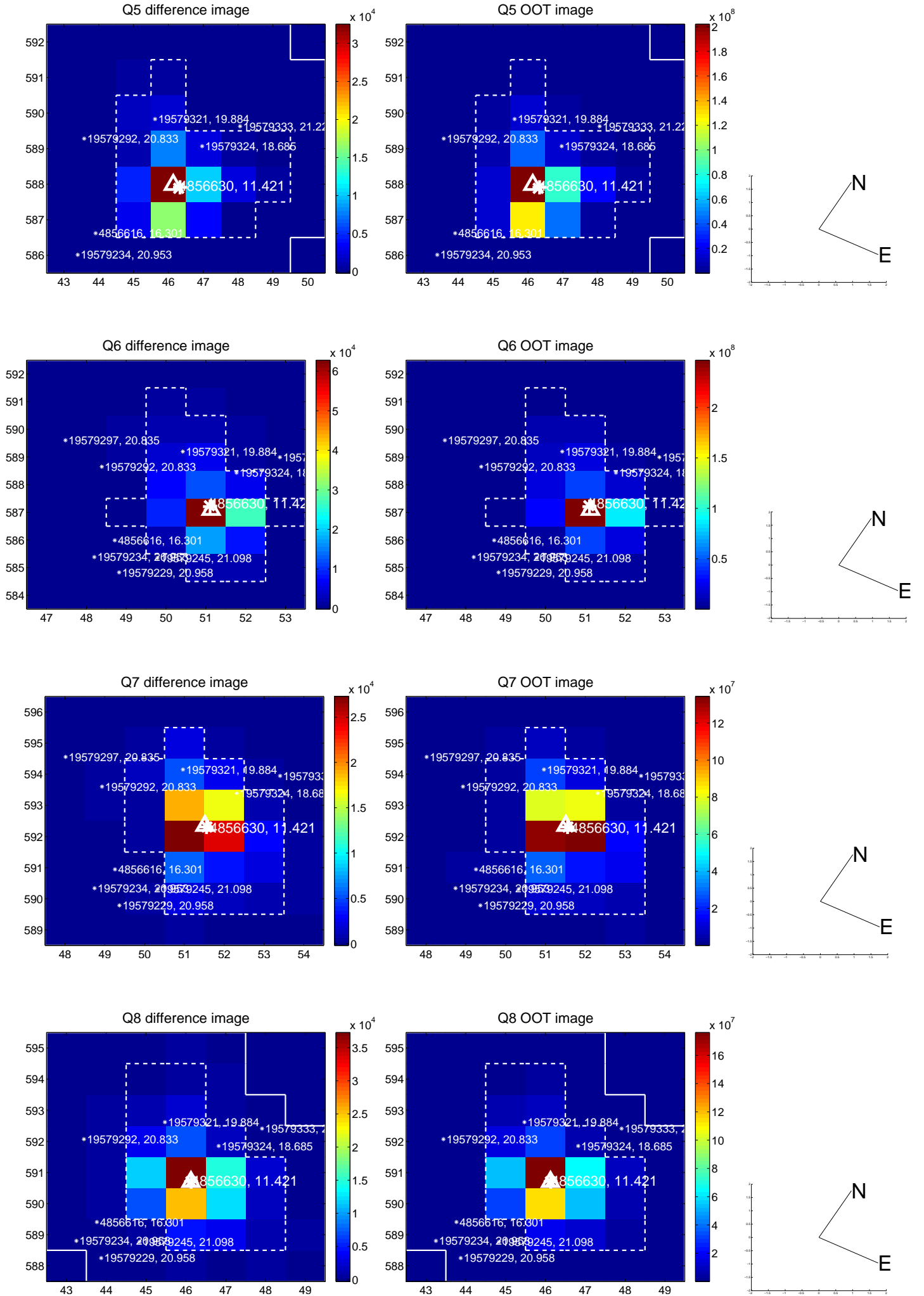


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

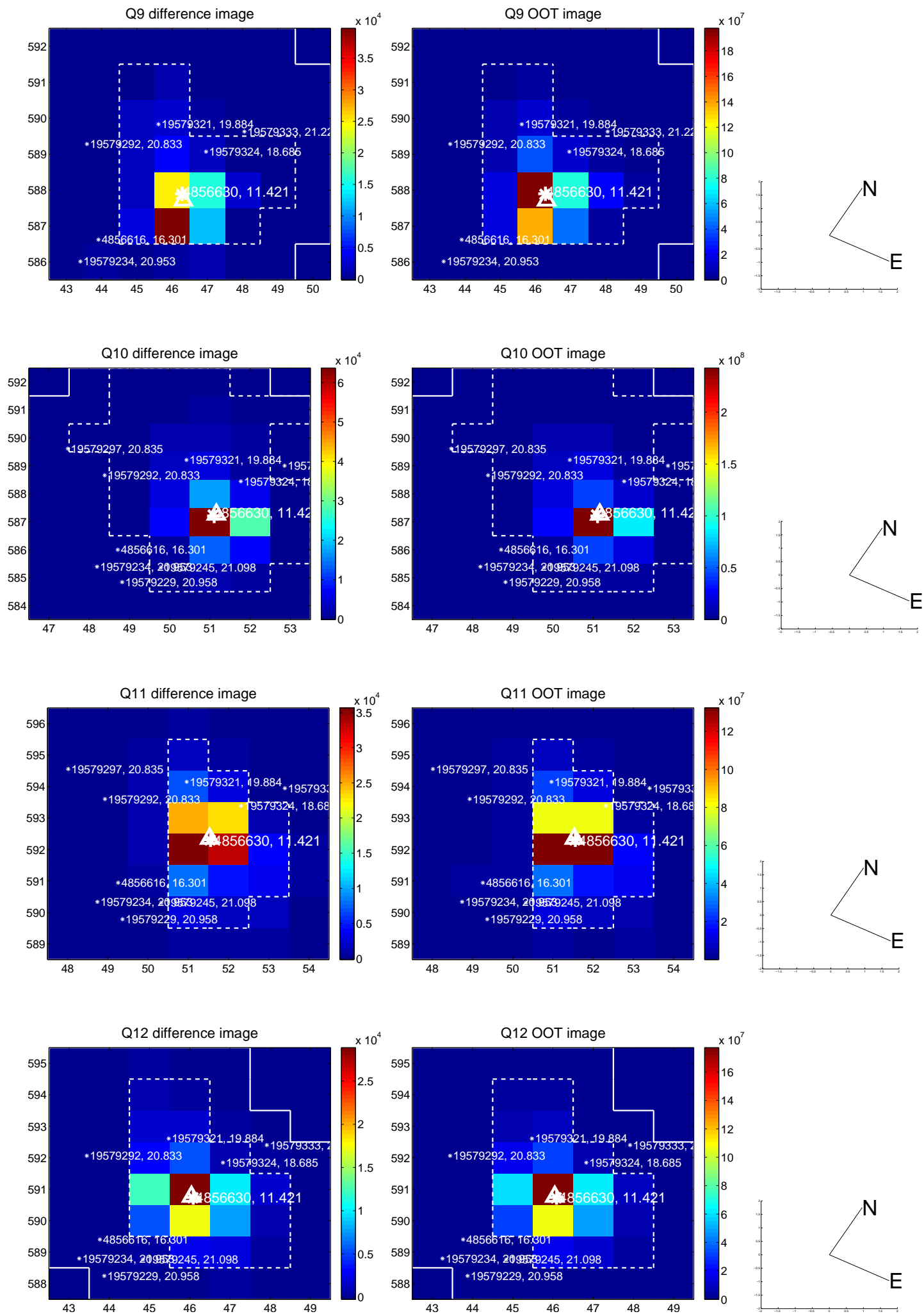
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



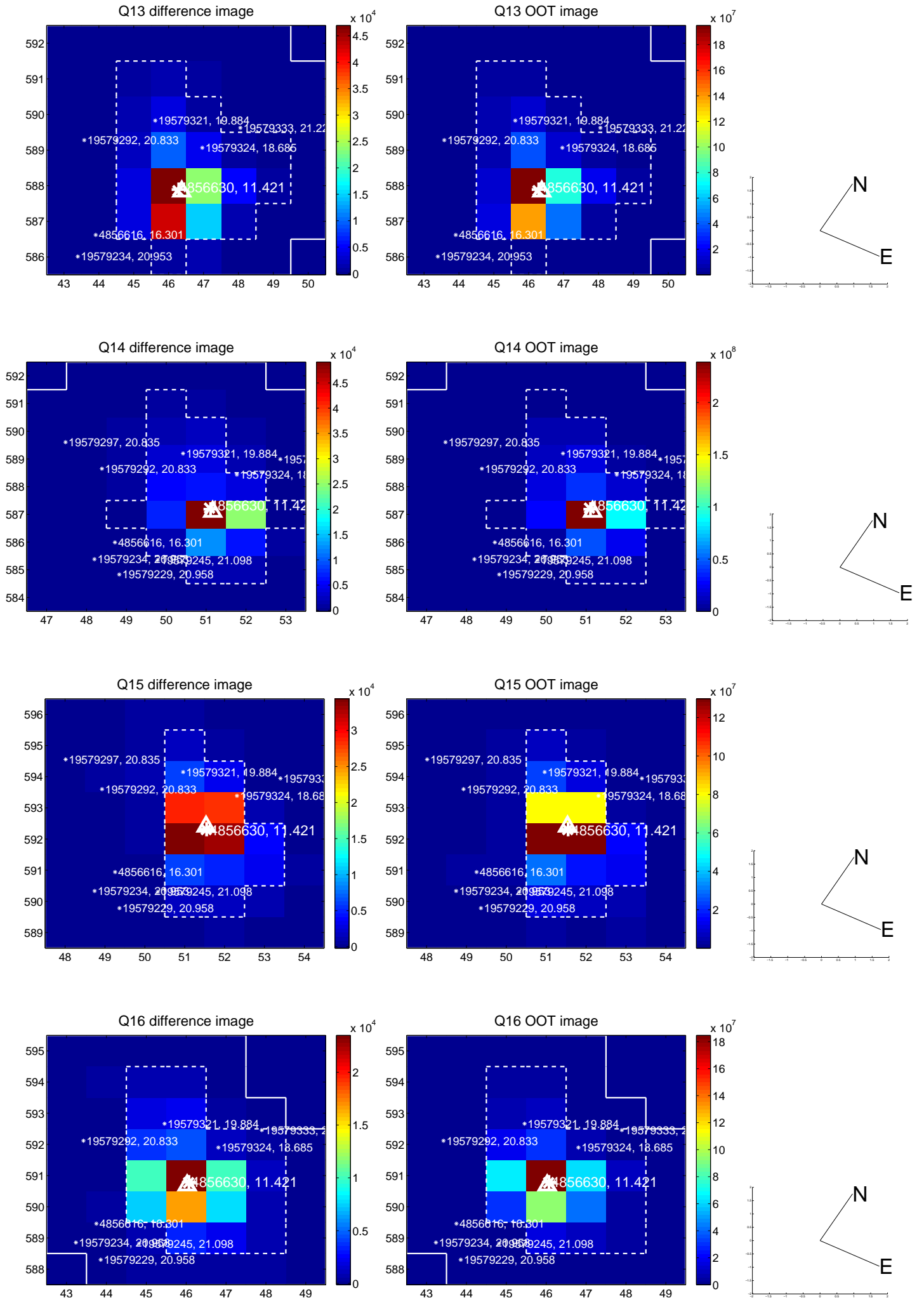
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



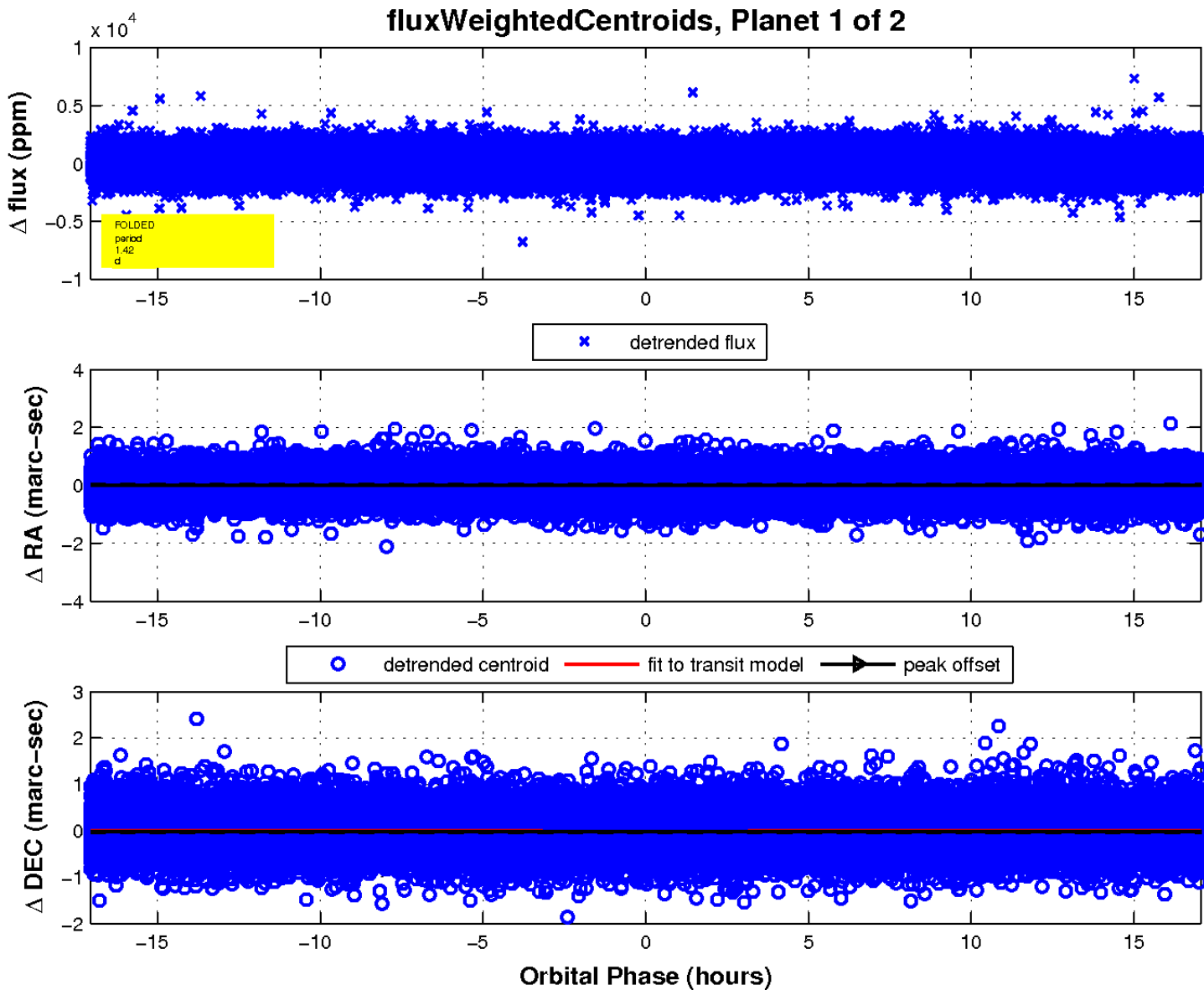
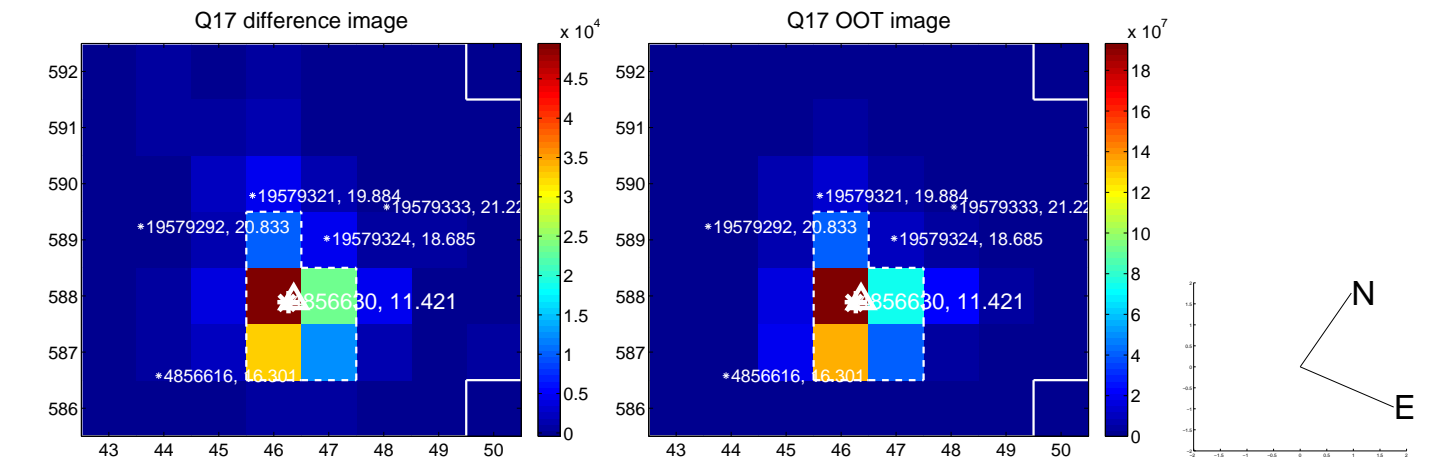
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

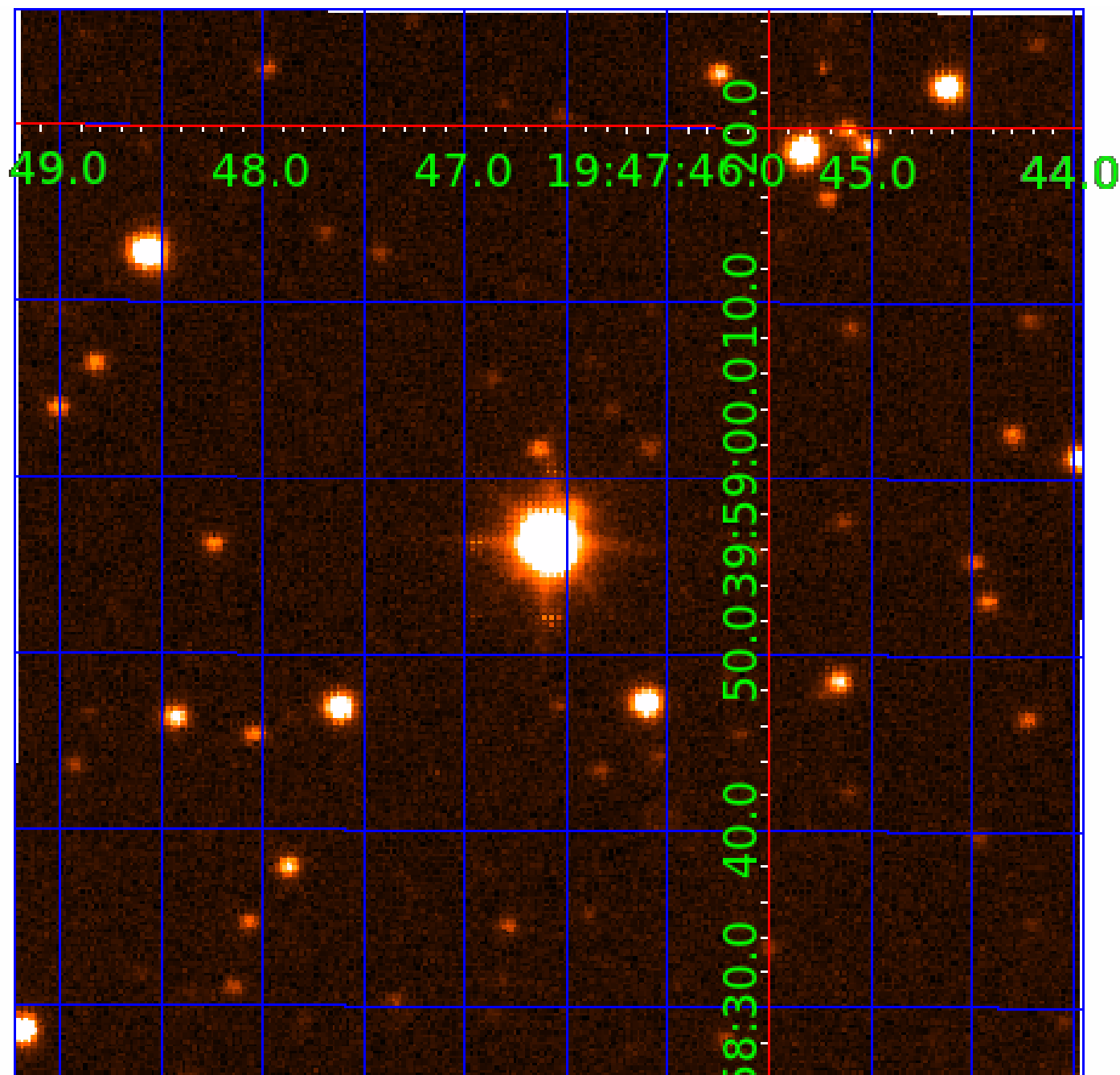


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004856630

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})
004856630-01	OBS	No	1.421880	132.288706	99.1	6.545	12.0	13.7	2.38	7564	2.42	18620.04
004856630-02	OBS	No	1.421832	131.599979	117.1	8.150	12.8	15.8	2.38	7564	3.35	18620.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004856630-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004856630-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_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.

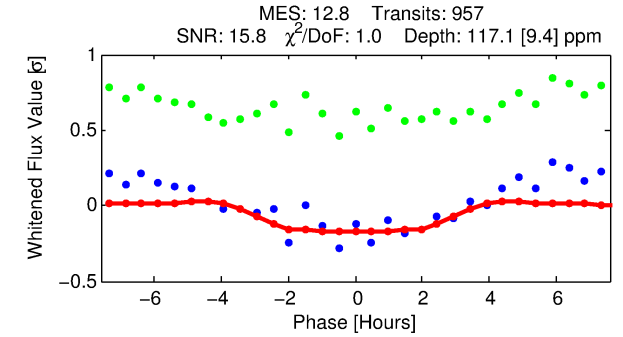
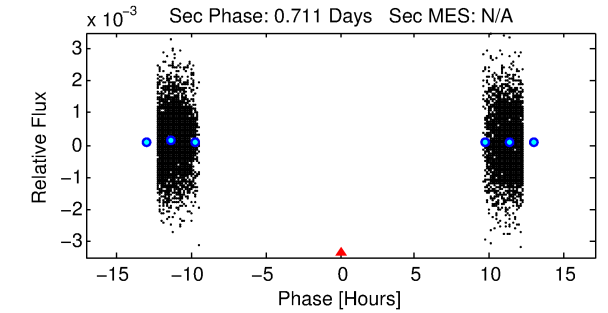
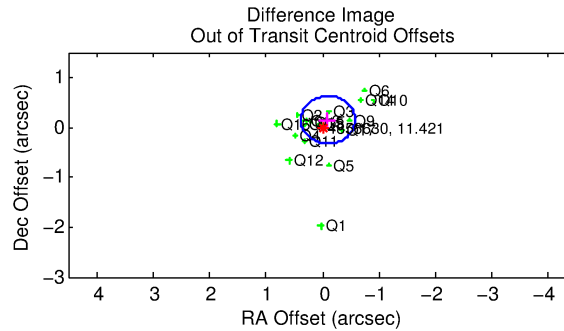
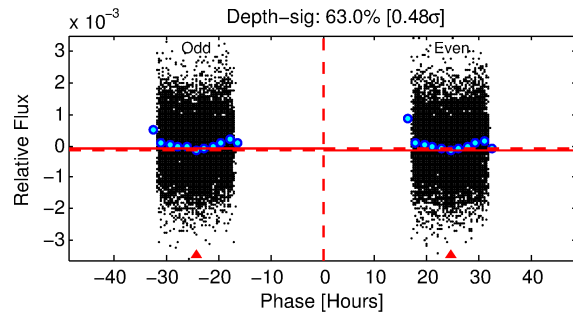
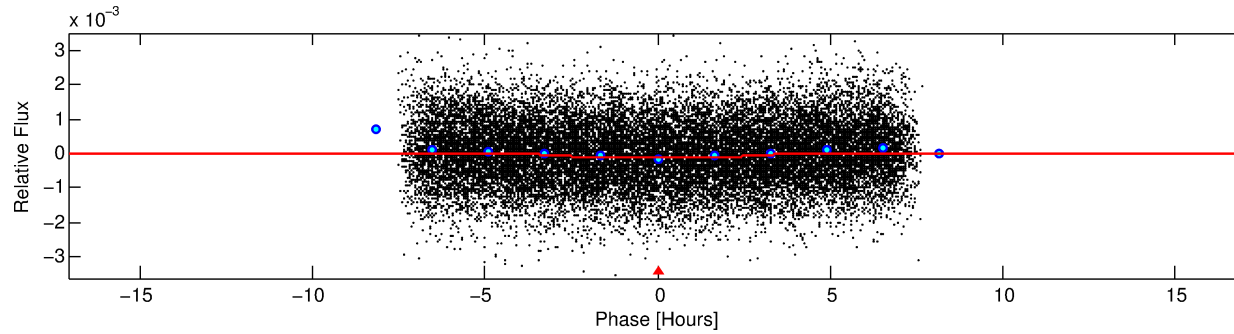
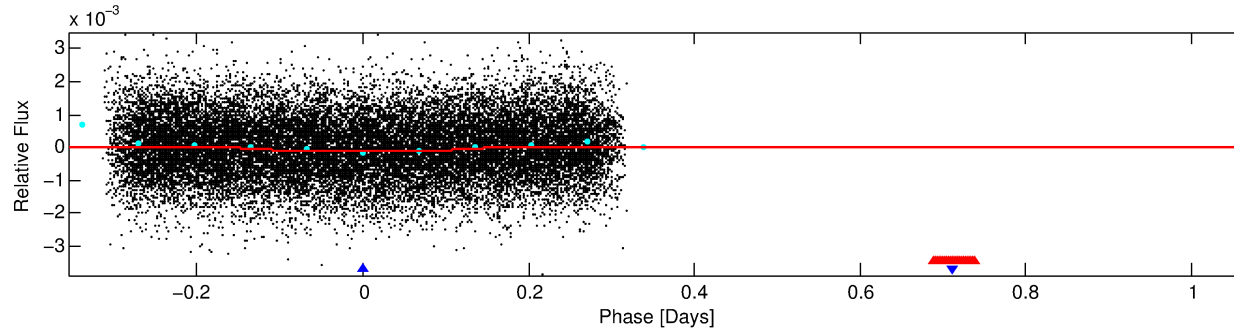
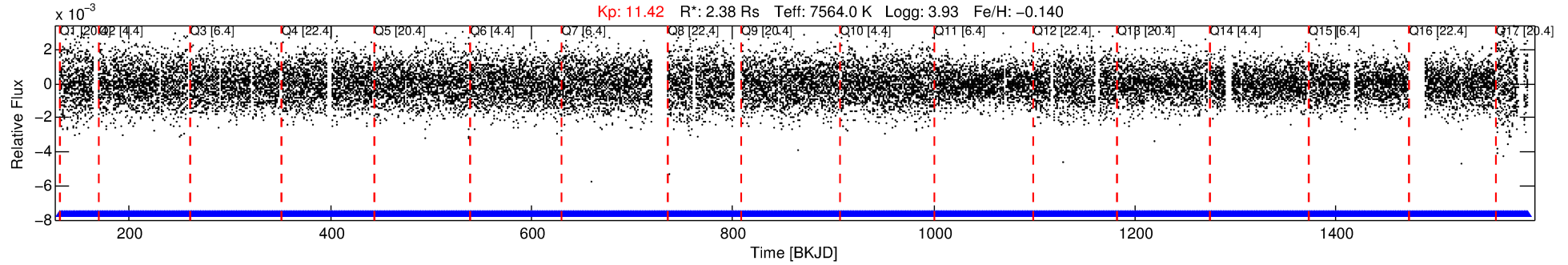
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004856630-02

No Significant Match Found

DV One-Page Summary

KIC: 4856630 Candidate: 2 of 2 Period: 1.422 d



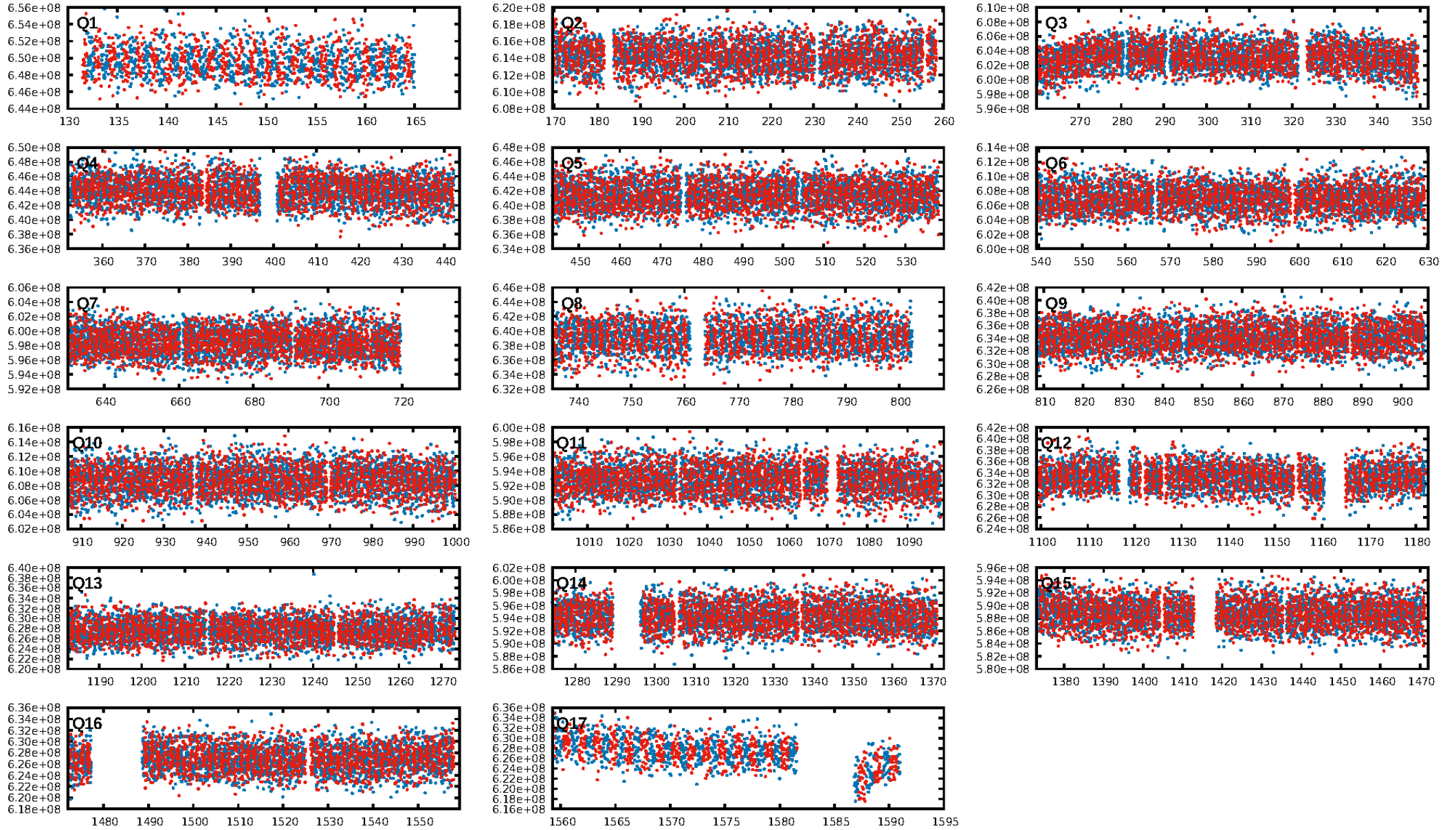
DV Fit Results:

Period = 1.42183 [0.00002] d
Epoch = 131.6000 [0.0083] BKJD
Rp/R* = 0.0129 [0.0007]
a/R* = 1.05 [0.02]
b = 0.98 [0.01]
Seff = 18620.88 [9154.85]
Teq = 2979 [366] K
Rp = 3.35 [1.19] Re
a = 0.0298 [0.0092] AU

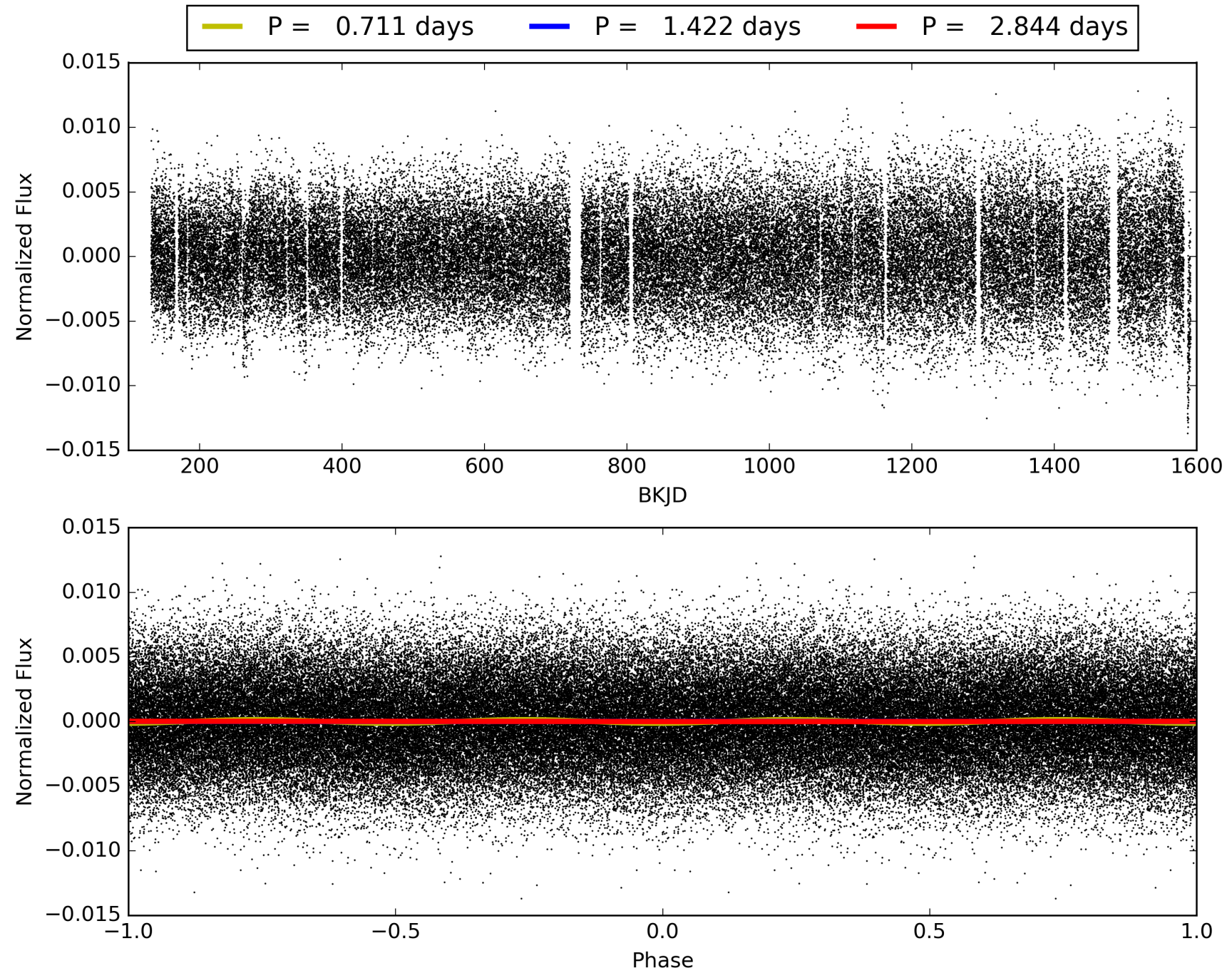
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [914/914]
GhostDiagnostic-chr: 1.864
Centroid-sig: 0.0%
Centroid-so: 0.302 arcsec [3.44 σ]
OotOffset-rm: 0.173 arcsec [1.08 σ]
KicOffset-rm: 0.194 arcsec [1.22 σ]
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]

TCE 004856630-02, PDC Light Curves

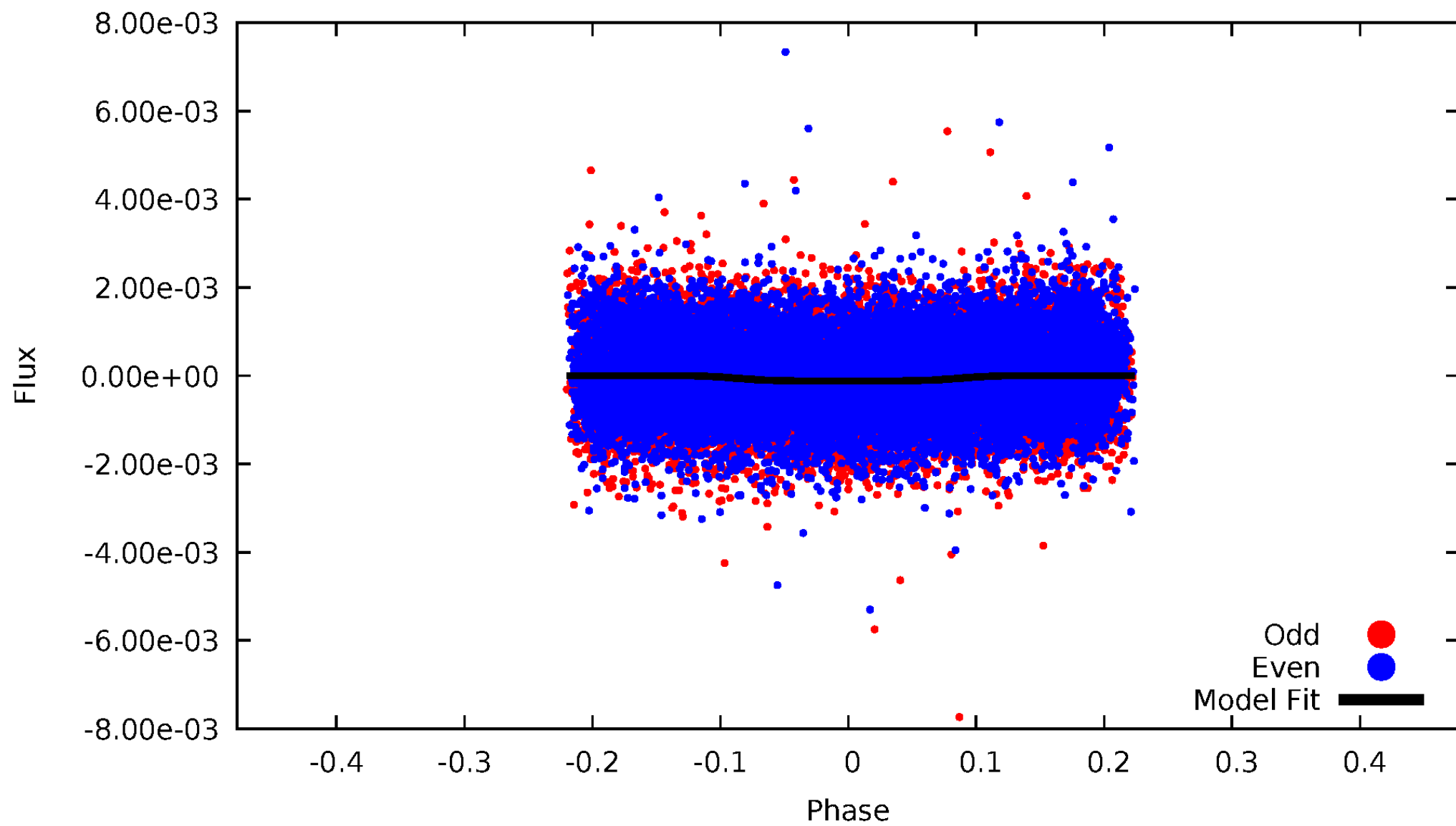


TCE 004856630-02



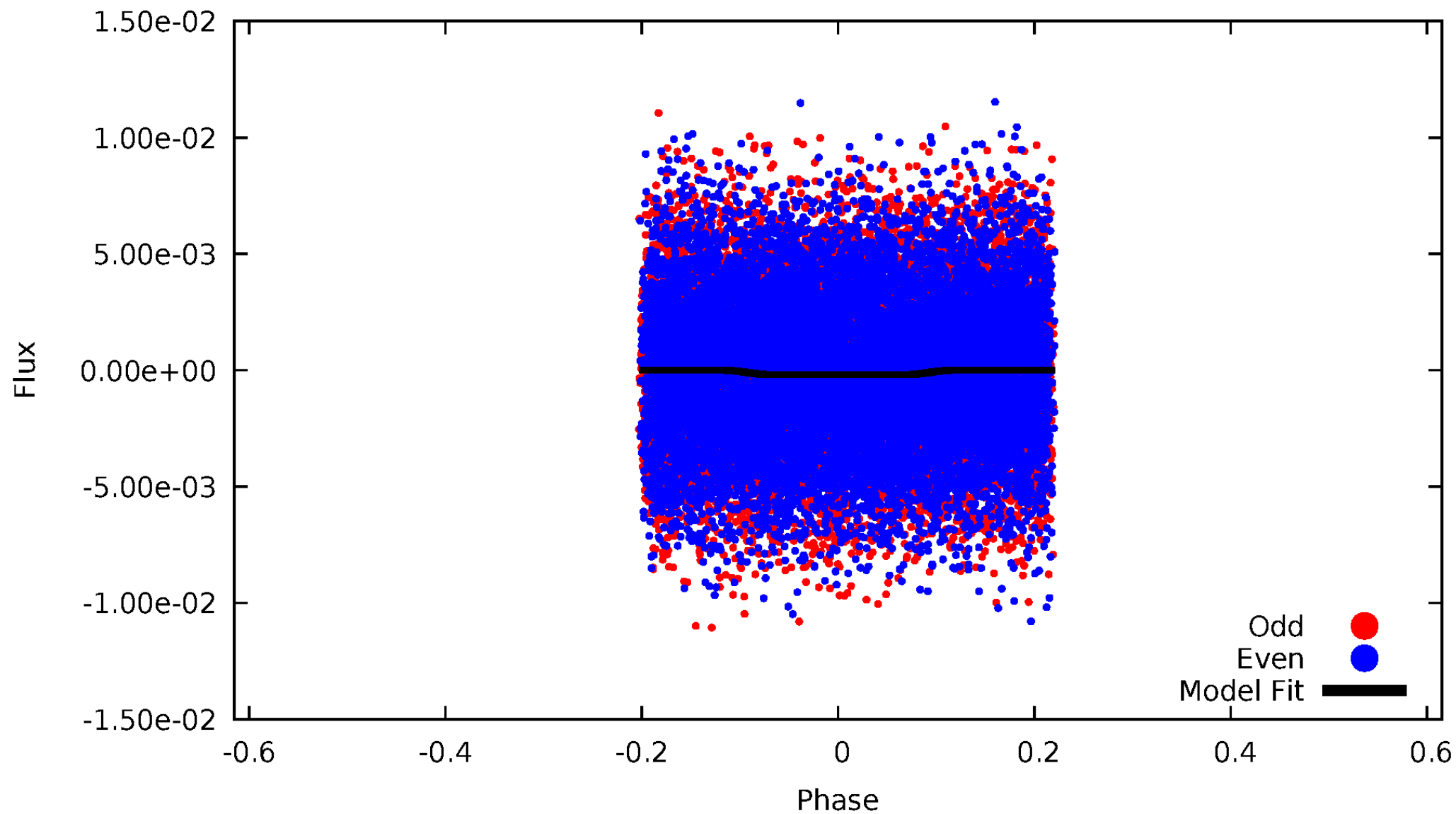
DV Odd/Even

TCE 004856630-02



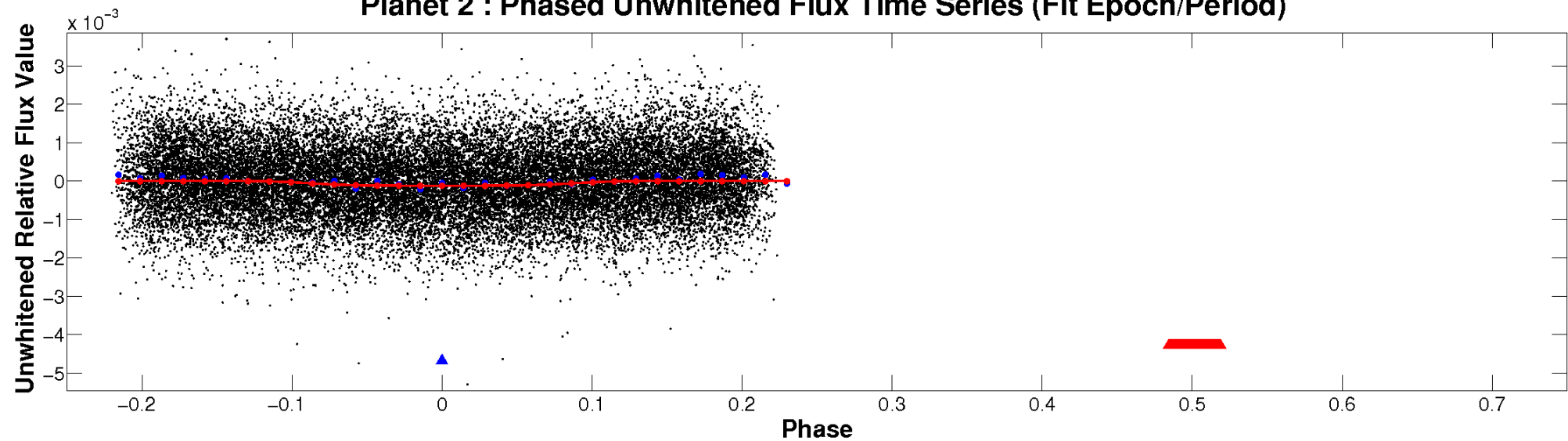
ALT Odd/Even

TCE 004856630-02

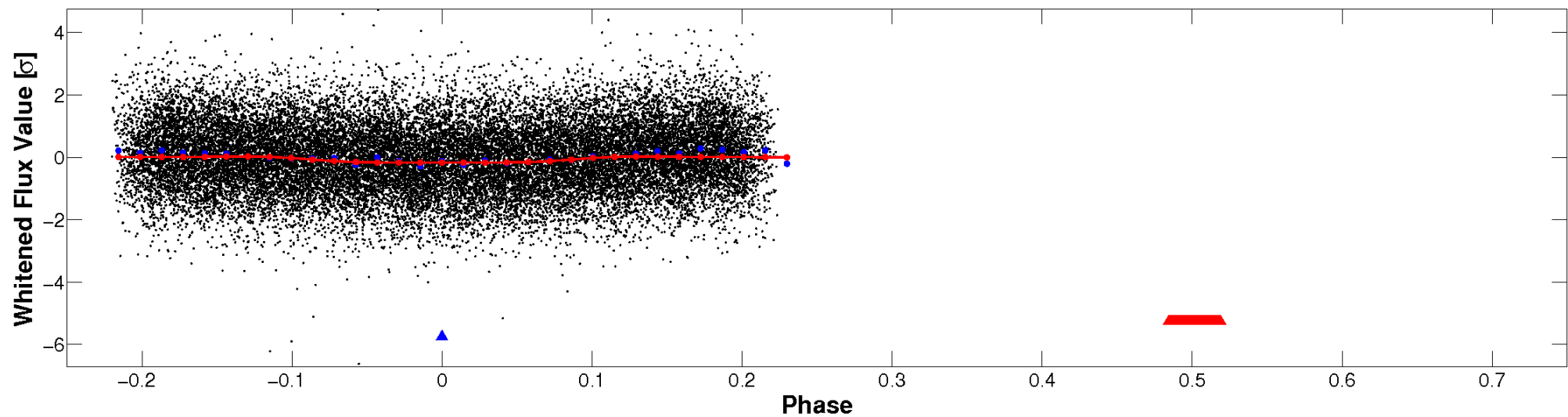


Non-Whitened Vs. Whitened Light Curve

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

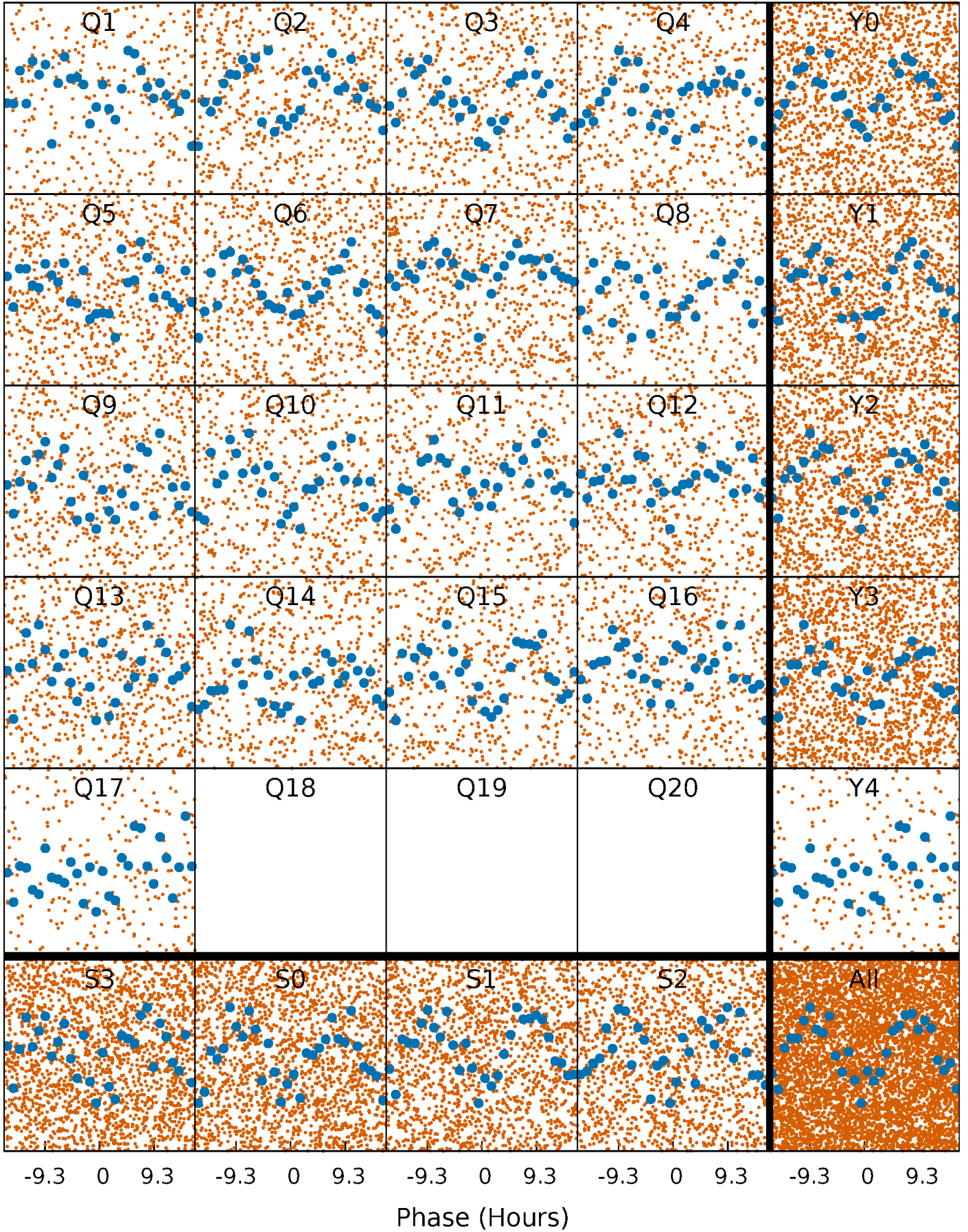


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



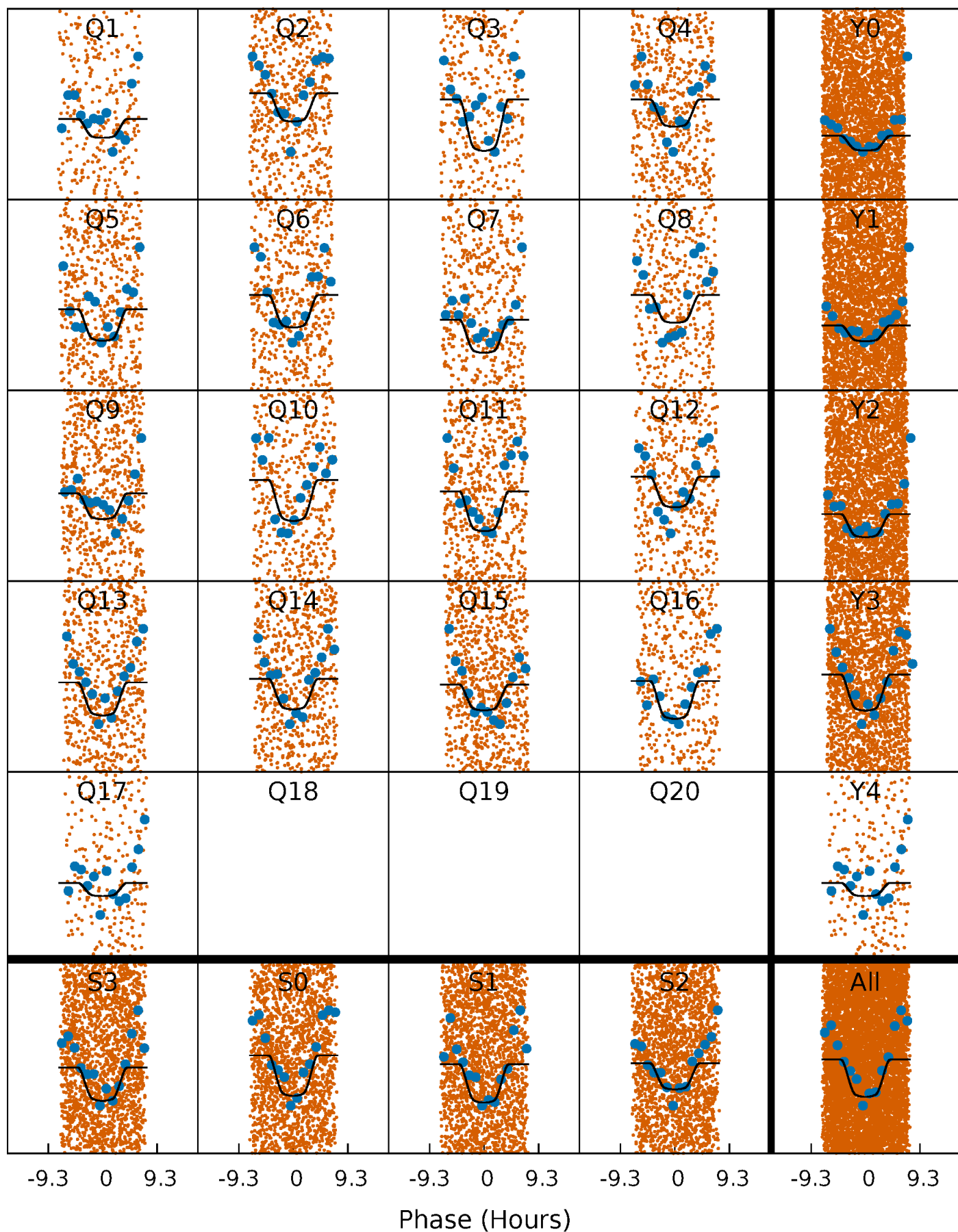
PDC Quarter-Phased Transit Curves

TCE 004856630-02 P= 1.421832 Days $T_0=131.599979$ (BKJD)



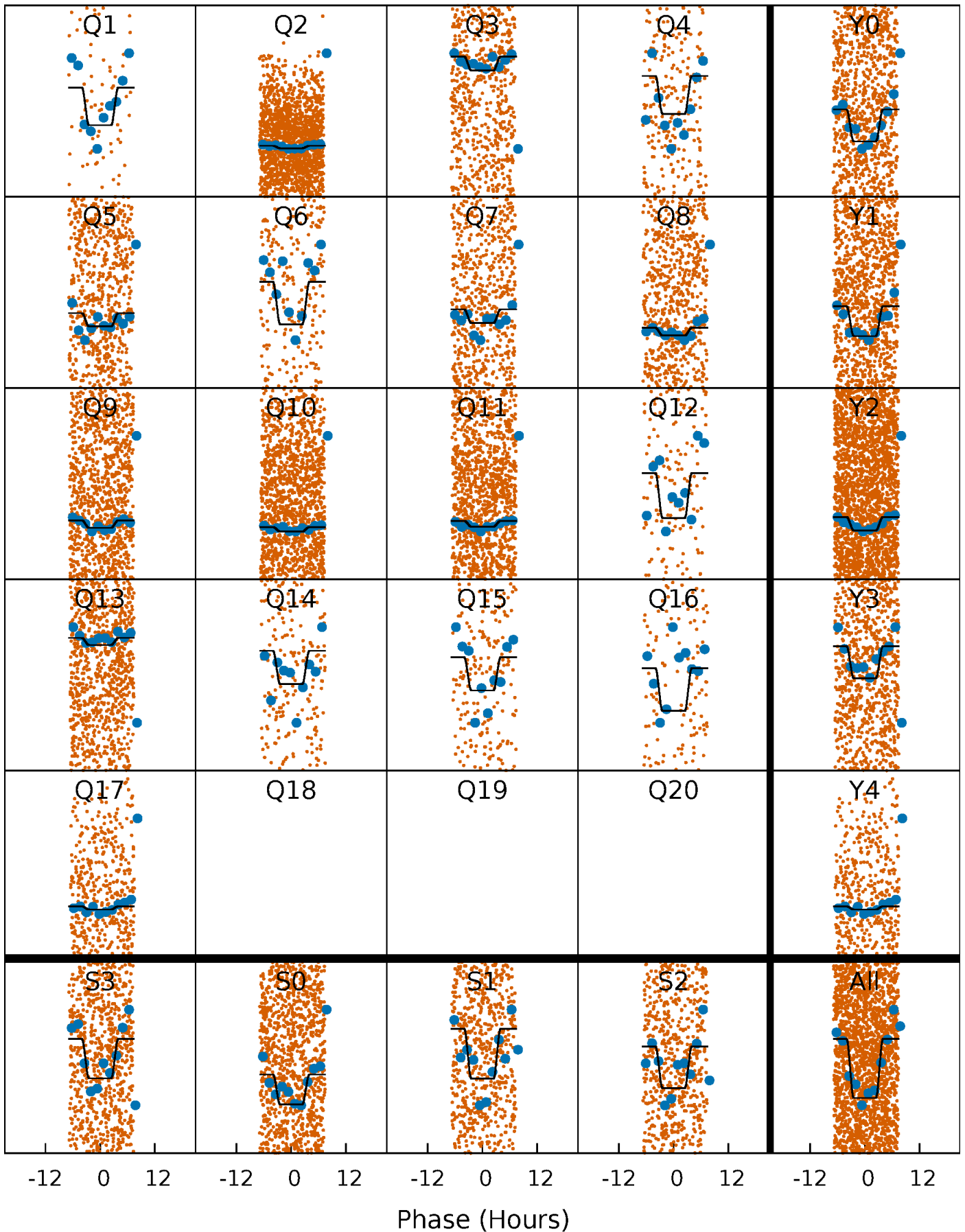
DV Quarter-Phased Transit Curves

TCE 004856630-02 P= 1.421832 Days $T_0=131.599979$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

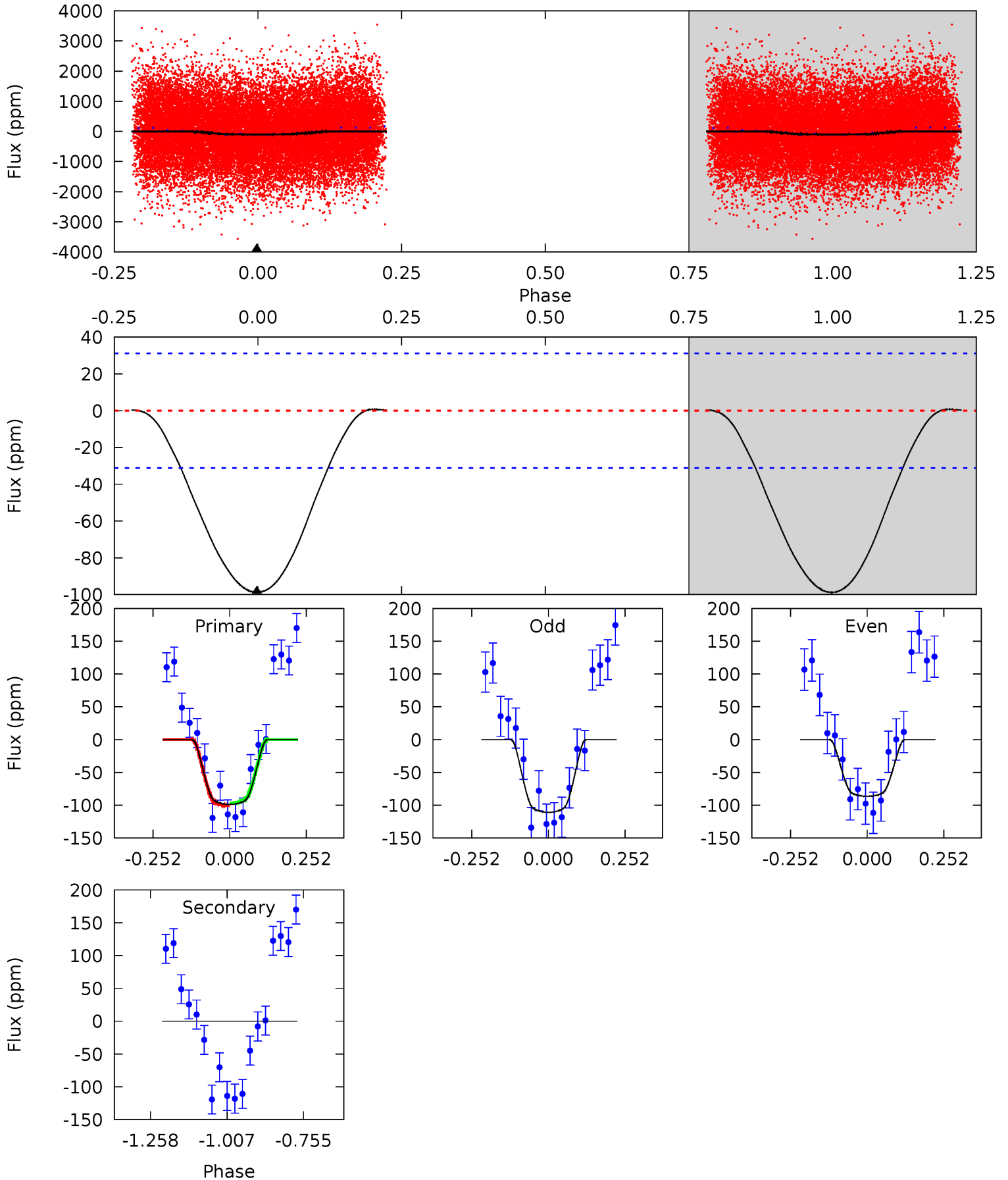
TCE 004856630-02 P= 1.421861 Days $T_0=131.574646$ (BKJD)



DV Model-Shift Uniqueness Test

004856630-02, P = 1.421832 Days, E = 130.178147 Days

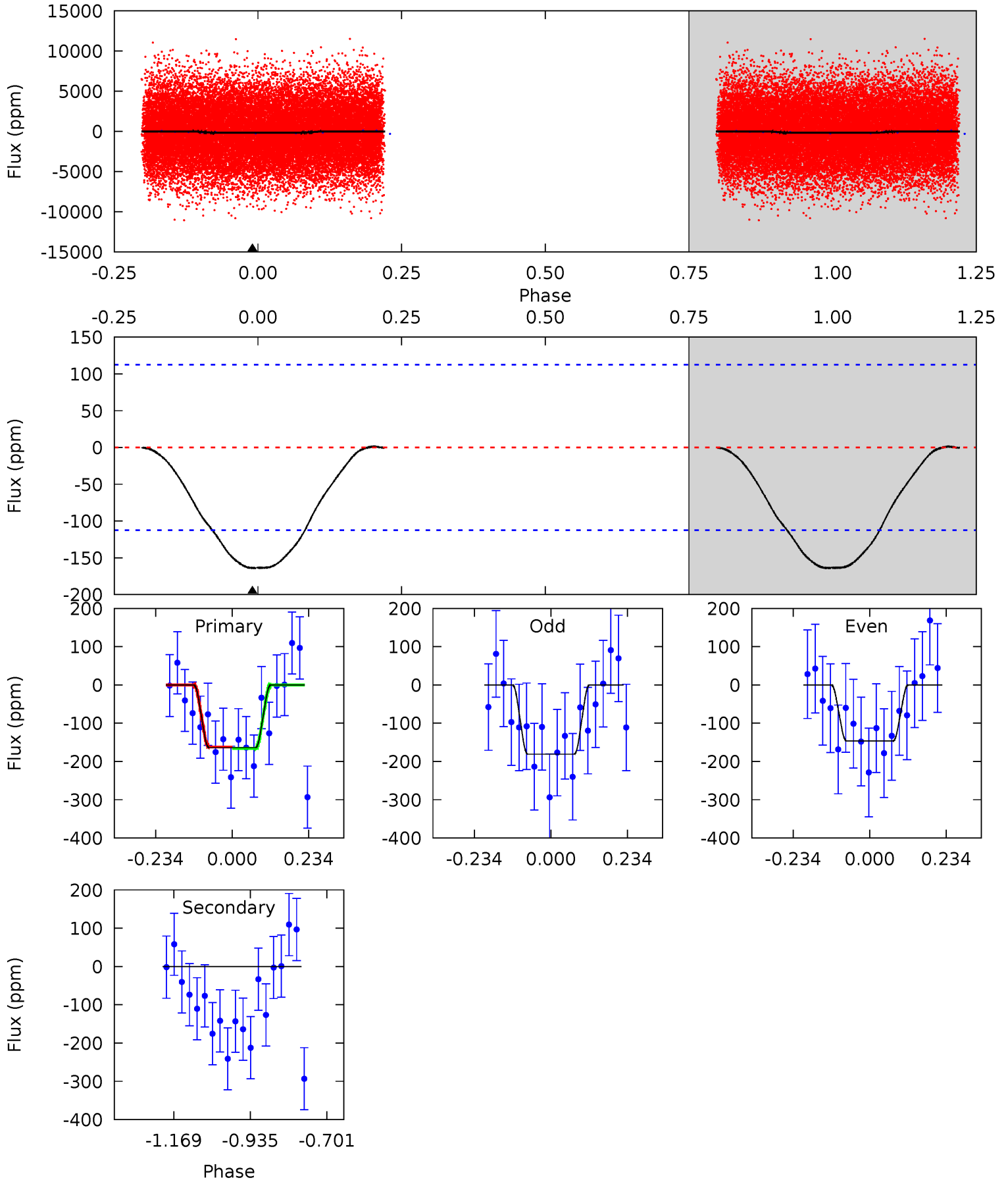
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	0	0	0	4.37	1.15	0.16	13.8	13.8	0	0	1.71	1.08	0.01	0.29



Alt Model-Shift Uniqueness Test

004856630-02, P = 1.421861 Days, E = 130.152785 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	0	0	0	4.38	1.19	0.06	6.38	6.38	0	0	0.67	1.01	0.01	0.07



Stellar Parameters For KIC 004856630

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7564^{+211}_{-316}	$3.929^{+0.260}_{-0.140}$	$-0.140^{+0.200}_{-0.350}$	$2.376^{+0.512}_{-0.832}$	$1.747^{+0.194}_{-0.360}$	$0.183^{+0.312}_{-0.076}$
	+3%/-4%	+7%/-4%	+143%/-250%	+22%/-35%	+11%/-21%	+170%/-42%
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 004856630-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 7	$3.31^{+0.46}_{-0.60}$	4098^{+275}_{-368}	-3746^{+1477}_{-533}	$-0.023^{+0.316}_{-0.334}$
Alt.	0 ± 26	$3.42^{+0.50}_{-0.59}$	4116^{+281}_{-351}	-3663^{+8006}_{-1282}	$0.047^{+0.988}_{-1.150}$

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

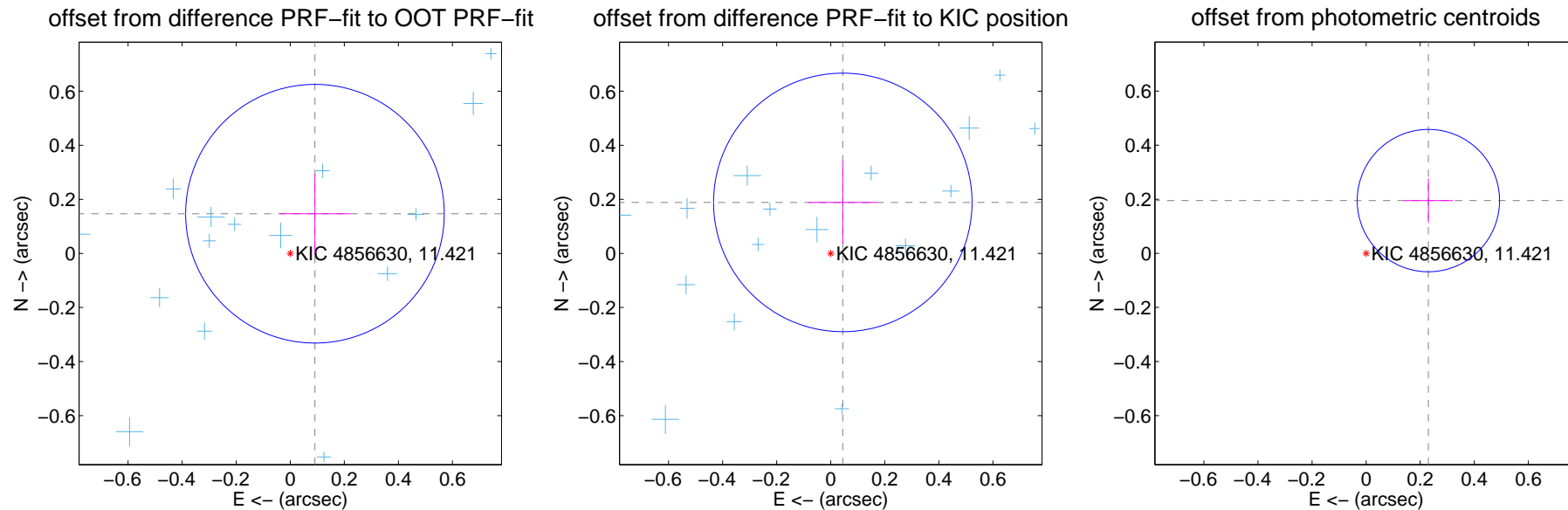
DV Centroid Data

Supplemental centroid analysis for 004856630-02. **Kepler magnitude: 11.42.** Transit SNR 15.85

There are 17 quarters with good PRF difference image offsets

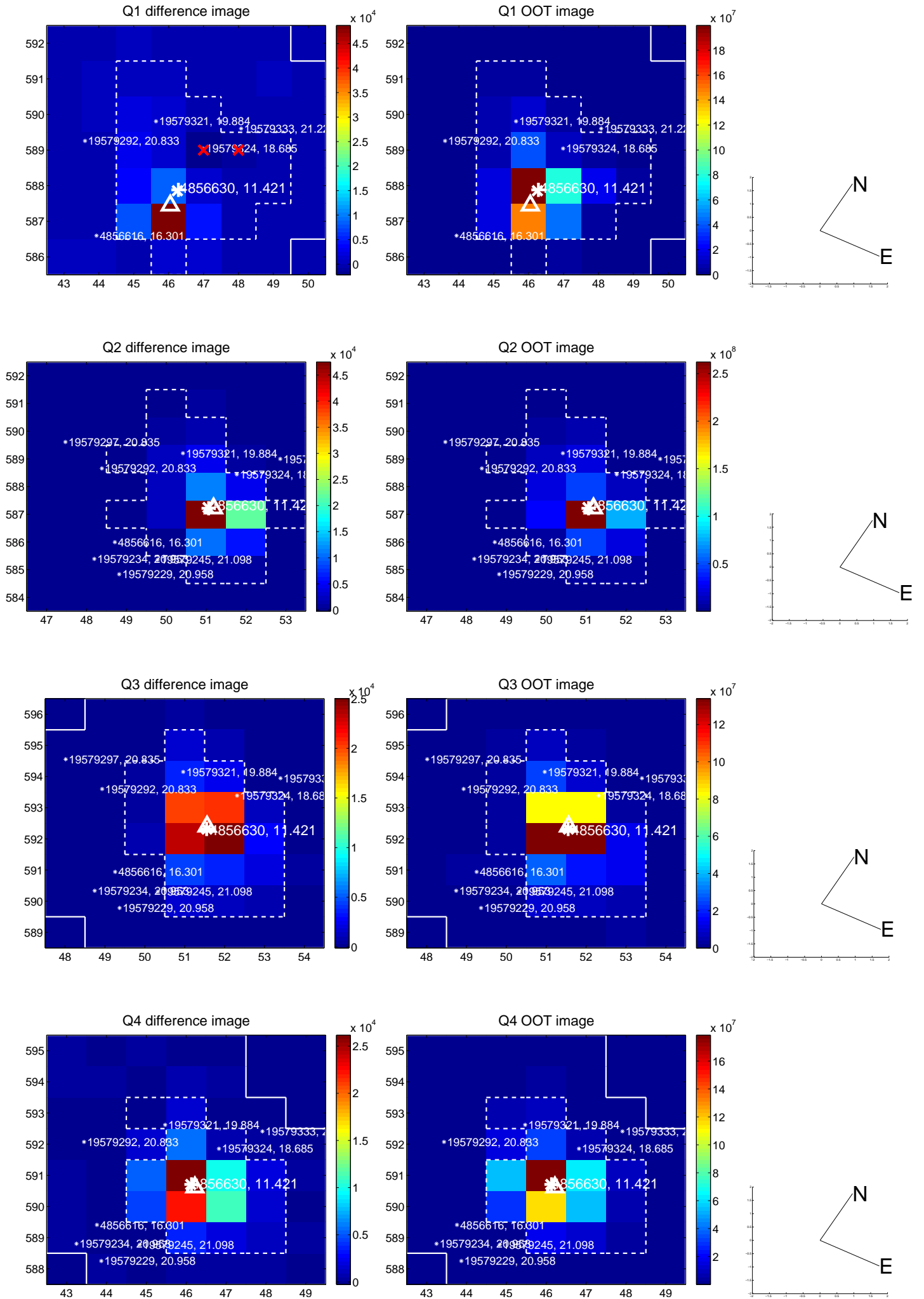
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.173 ± 0.159	1.08	-0.091 ± 0.131	0.147 ± 0.148
PRF-fit source offset from KIC position	0.194 ± 0.159	1.22	-0.045 ± 0.127	0.189 ± 0.153
photometric centroid source offset	0.30 ± 0.09	3.44	-0.23 ± 0.09	0.20 ± 0.08

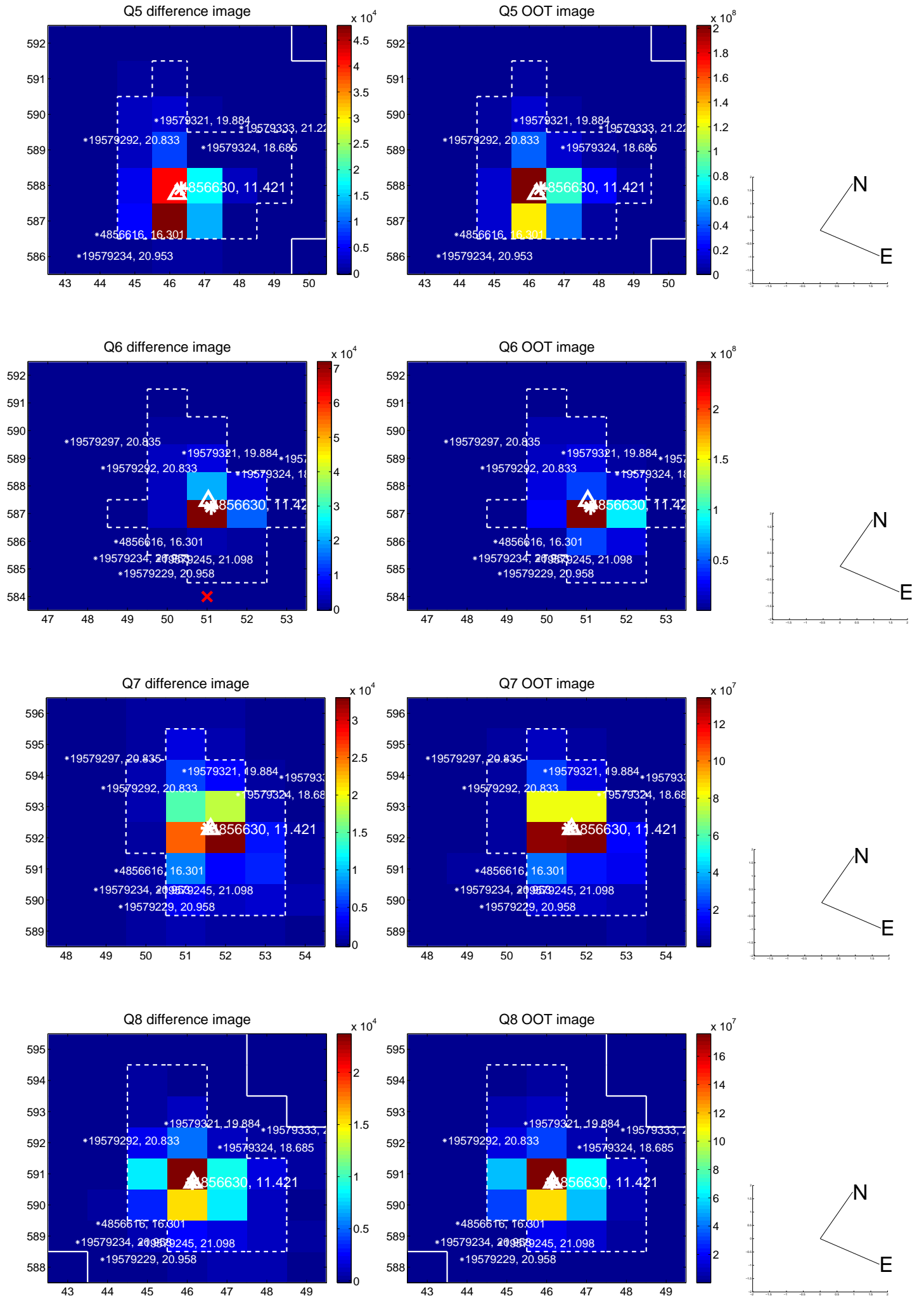


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

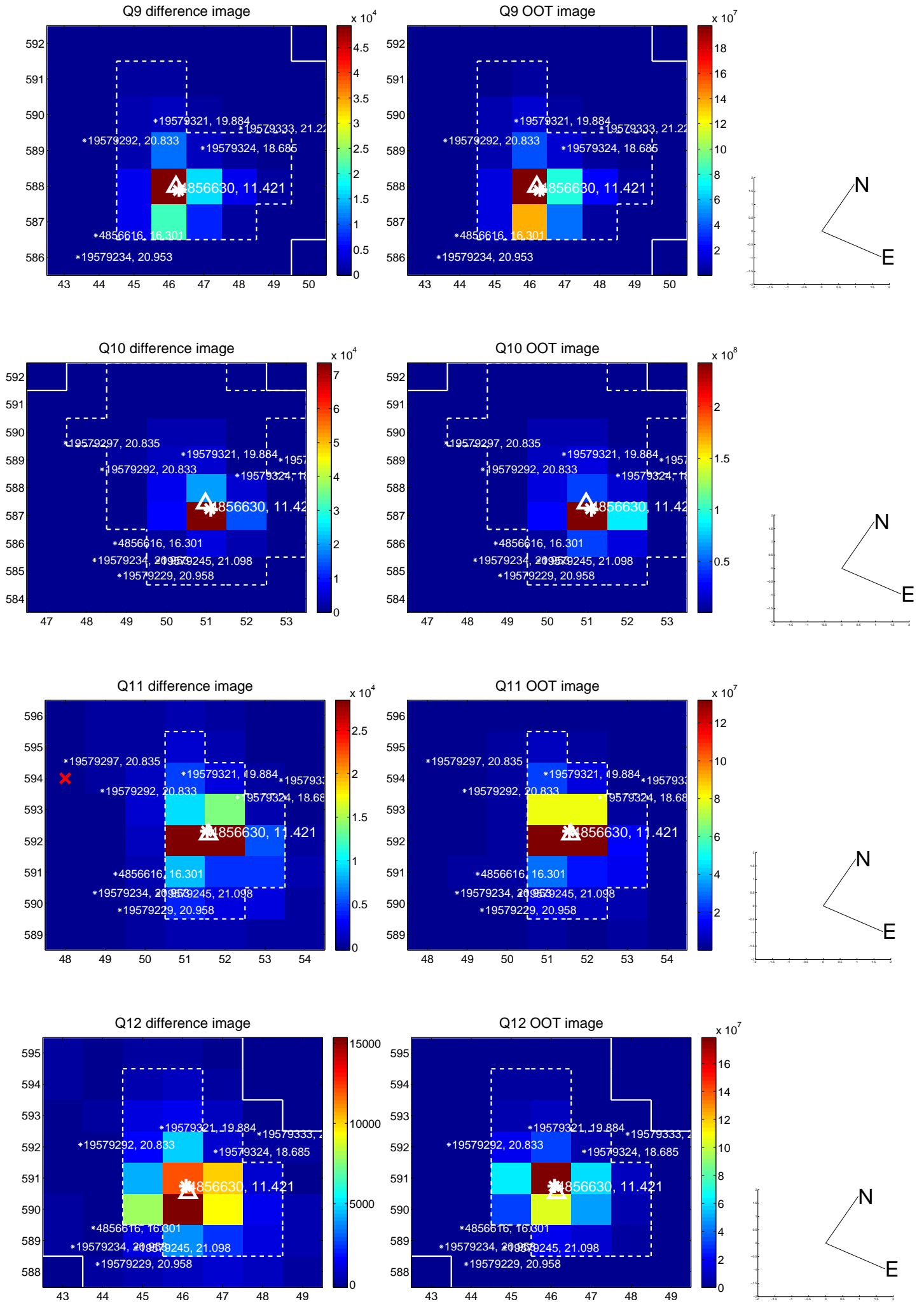
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



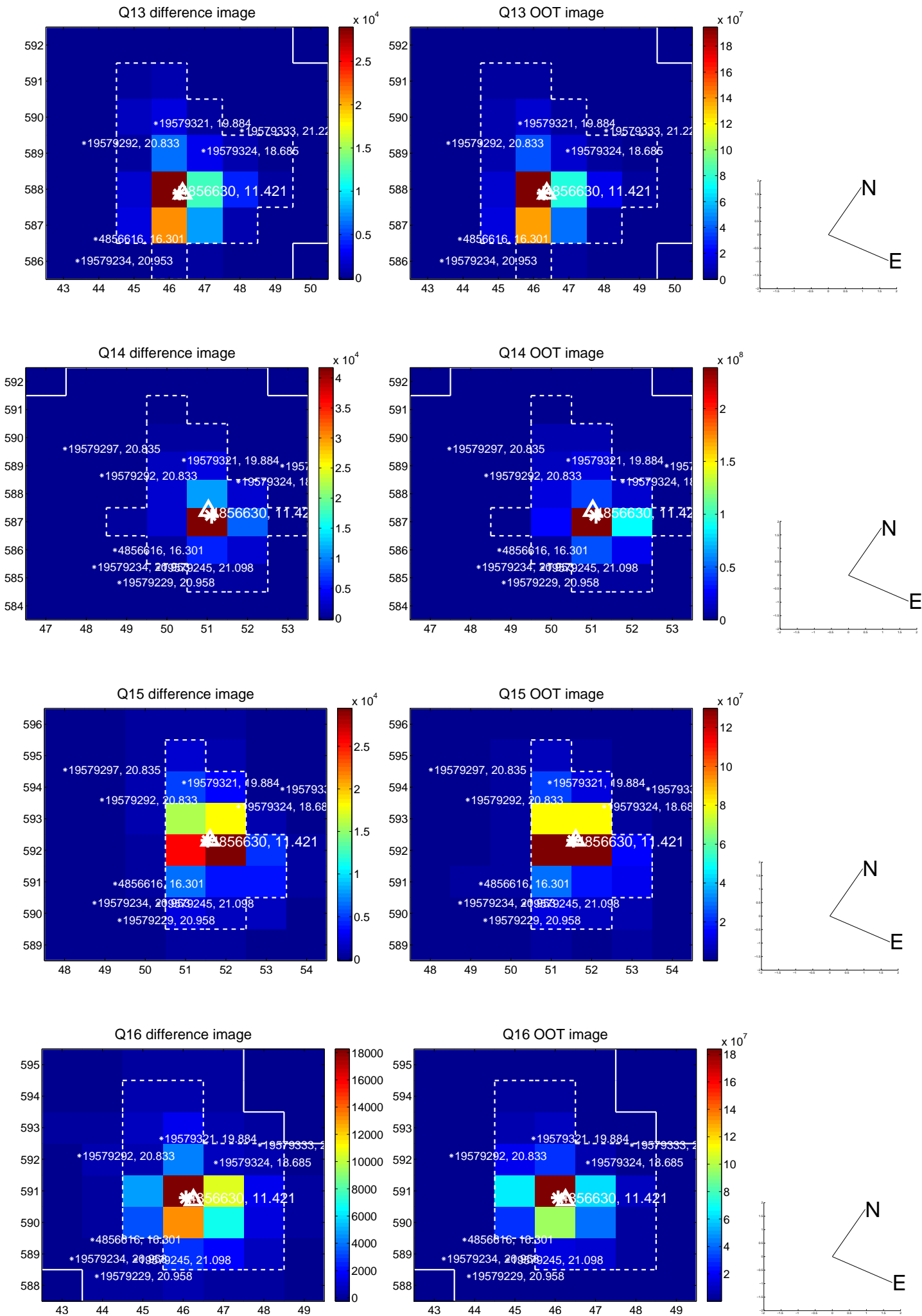
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



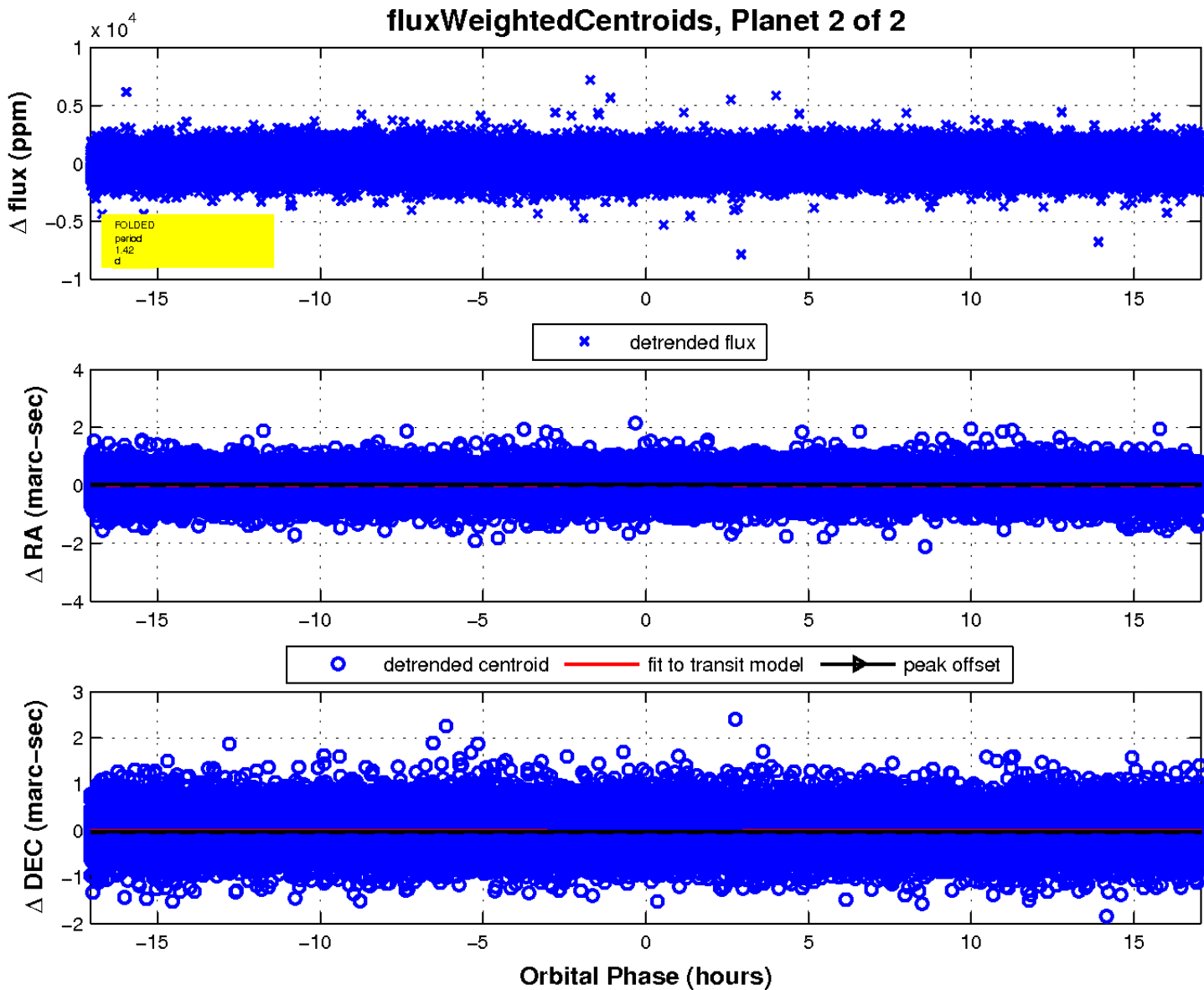
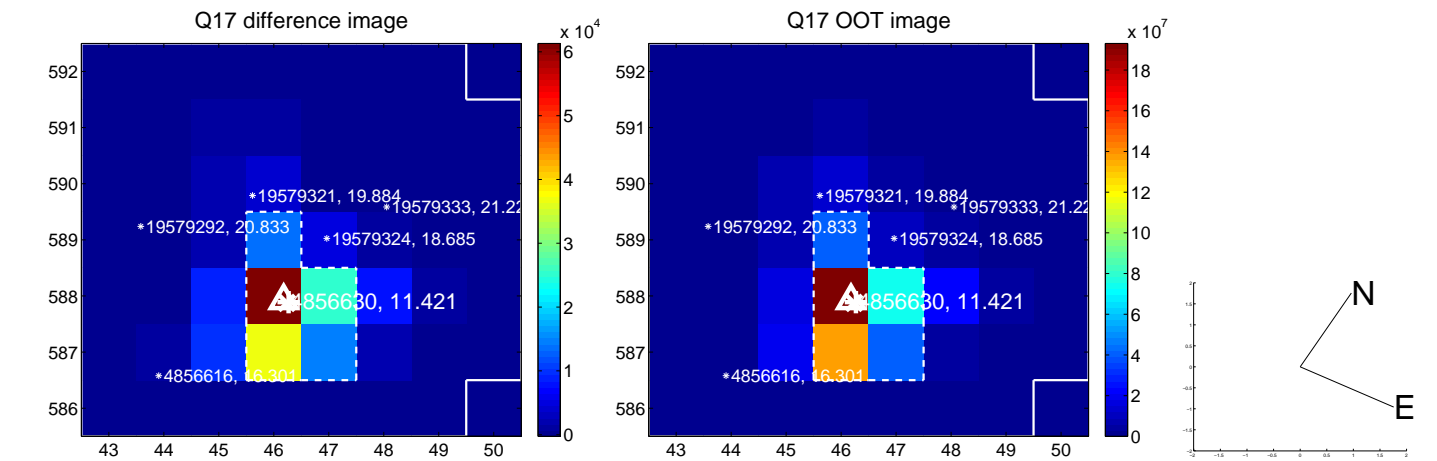
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

